



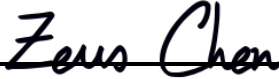
## FCC Part 15.407

### TEST REPORT

For

## Tatung Technology Inc.

10F, No. 288, Sec. 6, Civic Blvd, Xinyi Dist, Taipei City 11087, Taiwan

|                                                                                                                                                                                                                             |                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Report Type                                                                                                                                                                                                                 | Original Report                                                                                |
| FCC Identity:                                                                                                                                                                                                               | FCC ID: 2AATB-WAP-3518-01                                                                      |
| Brand Name                                                                                                                                                                                                                  |               |
| Product Name                                                                                                                                                                                                                | Dual Band Wireless Router                                                                      |
| Model Name                                                                                                                                                                                                                  | WAP-3518                                                                                       |
| Report Number                                                                                                                                                                                                               | RLK210317001-FRW02                                                                             |
| Report Date                                                                                                                                                                                                                 | 2021/05/31                                                                                     |
| Reviewed By                                                                                                                                                                                                                 | Zeus Chen  |
| <b>Prepared By:</b><br>Bay Area Compliance Laboratories Corp.(Linkou Laboratory)<br>No. 6, Wende 2Rd., Guishan Dist., Taoyuan City 33382, Taiwan (R.O.C.)<br>Tel: +886 (3)3961072; Fax: +886 (3) 3961027<br>www.bacl.com.tw |                                                                                                |

**Note:** This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Linkou Laboratory)

## Revision History

| Revision | Report Number      | Issue Date | Description     |
|----------|--------------------|------------|-----------------|
| 1.0      | RLK210317001-FRW02 | 2021/05/31 | Original Report |

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## 1 General Information

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

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application                   | <b>Tatung Technology Inc.</b><br>10F, No. 288, Sec. 6, Civic Blvd, Xinyi Dist, Taipei City 11087, Taiwan                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Manufacturer                  | <b>Tatung Technology Inc.</b><br>10F, No. 288, Sec. 6, Civic Blvd, Xinyi Dist, Taipei City 11087, Taiwan                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Brand Name                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Product (Equipment)           | Dual Band Wireless Router                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Model Name                    | WAP-3518                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Frequency Range               | UNII-1: 5150 MHz-5250 MHz<br>UNII-3: 5725 MHz-5850 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Number of Channels            | <b>UNII-1:</b><br>IEEE 802.11a/n HT20/ac VHT20: 4 Channels<br>IEEE 802.11n HT40/ac VHT40: 2 Channels<br>IEEE 802.11ac VHT80: 1 Channels<br><b>UNII-3:</b><br>IEEE 802.11a/n HT20/ac VHT20: 5 Channels<br>IEEE 802.11n HT40/ac VHT40: 2 Channels<br>IEEE 802.11ac VHT80: 1 Channels                                                                                                                                                                                                                                                                                     |
| Output Power                  | <b>UNII-1:</b><br>IEEE 802.11a: 24.35 dBm (0.2725 W)<br>IEEE 802.11n HT20: 24.18 dBm (0.2618 W)<br>IEEE 802.11n HT40: 21.87 dBm (0.1537 W)<br>IEEE 802.11ac VHT20: 24.22 dBm (0.2642 W)<br>IEEE 802.11ac VHT40: 21.94 dBm (0.1562 W)<br>IEEE 802.11ac VHT80: 14.16 dBm (0.0261 W)<br><b>UNII-3:</b><br>IEEE 802.11a: 24.67 dBm (0.2929 W)<br>IEEE 802.11n HT20: 24.34 dBm (0.2714 W)<br>IEEE 802.11n HT40: 22.80 dBm (0.1904 W)<br>IEEE 802.11ac VHT20: 24.42 dBm (0.2766 W)<br>IEEE 802.11ac VHT40: 22.92 dBm (0.1957 W)<br>IEEE 802.11ac VHT80: 17.91 dBm (0.0618 W) |
| Modulation Type               | OFDM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Related Submittal(s)/Grant(s) | <b>FCC Part 15.247 DTS with FCC ID: 2AATB-WAP-3518-01</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Received Date                 | Mar. 18, 2021                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Date of Test                  | Apr. 09, 2021 - Apr. 22, 2021                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

Note: All measurement and test data in this report was gathered from production sample serial number: 210317001. Assigned by

Bay Area Compliance Laboratories Corp. (Linkou Laboratory)

## 1.2 Operation Condition of EUT

|                                            |                                                                                                                                                                                                                                     |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Power Operation<br/>(Voltage Range)</b> | <input checked="" type="checkbox"/> AC 120V/60Hz<br><input checked="" type="checkbox"/> Adapter<br>Model: MSA-C1000IC12.0-12W-US<br>I/P: 100-240Vac, 0.5A<br>O/P: 12Vdc, 1A<br><input type="checkbox"/> By Power Cord               |
|                                            | <input type="checkbox"/> DC Type<br><input type="checkbox"/> DC Power Supply<br><input type="checkbox"/> Battery<br><input type="checkbox"/> External from USB Cable<br><input type="checkbox"/> External DC Adapter (Not For Sale) |
|                                            | <input type="checkbox"/> Host System                                                                                                                                                                                                |

## 1.3 Objective and Test Methodology

The Objective of this Test Report was to document the compliance of the Tatung Technology Inc. Appliance (Model(s): WAP-3518,) to the requirements of the following Standards:

- Part 2, Subpart J, Part 15 Subparts A and E of the Federal Communication Commission's rules.
- KDB 662911 D01 Multiple Transmitter Output v02r01
- KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
- ANSI C63.10-2013 of the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

## 1.4 Measurement Uncertainty

| Parameter                        | Expanded Measurement uncertainty |
|----------------------------------|----------------------------------|
| RF output power with Power Meter | $\pm 1.488$ dB                   |
| Occupied Channel Bandwidth       | $\pm 453.927$ Hz                 |
| RF Conducted test with Spectrum  | $\pm 2.77$ dB                    |
| AC Power Line Conducted Emission | $\pm 2.66$ dB                    |
| Radiated Below 1G                | $\pm 3.57$ dB                    |
| Radiated Above 1G                | $\pm 5.32$ dB                    |

The test results with statement of conformity, the decision rules are based on the specifications and standards. The test results will not take the measurement uncertainty into account.

**1.5 Environmental Conditions and Test Date**

| Test Site           | Test Date                        | Temperature (°C) | Relative Humidity (%) | Test Engineer |
|---------------------|----------------------------------|------------------|-----------------------|---------------|
| Conduction (Con-01) | Apr. 09, 2021                    | 22.6             | 59                    | Brian Chang   |
| Radiated (966A)     | Apr. 19, 2021 –<br>Apr. 22, 2021 | 17.5-18.7        | 60-62                 | Leo Cheng     |
| Conducted (TH-02)   | Apr. 15, 2021                    | 22.8             | 55                    | Rui Jhan      |

**1.6 Test Facility**

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

☒ No.6, Wende 2Rd., Guishan Dist., Taoyuan City 33382, Taiwan (R.O.C.).

Bay Area Compliance Laboratories Corp. (Linkou Laboratory) Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3546) by Mutual Recognition Agreement (MRA). The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database. The FCC Registration No.: 0027578244. Designation No.: TW3546. The Test Firm Registration No.: 181430.

## 2 System Test Configuration

### 2.1 Test Channels and Description of Worst Test Configuration

The system was configured for testing in testing mode which was provided by manufacturer. No special accessory, No modification was made to the EUT and No special equipment used during test.

| IEEE 802.11 a/n HT20/ac VHT20 |                 |         |                 |
|-------------------------------|-----------------|---------|-----------------|
| Channel                       | Frequency (MHz) | Channel | Frequency (MHz) |
| 36                            | 5180            | 149     | 5745            |
| 40                            | 5200            | 153     | 5765            |
| 44                            | 5220            | 157     | 5785            |
| 48                            | 5240            | 161     | 5805            |
| -                             | -               | 165     | 5825            |

For UNII-1: Channel 36, 40 and 48 were tested. For UNII-3: Channel 149, 157 and 165 were tested.

| IEEE 802.11 n HT40/ac VHT40 |                 |         |                 |
|-----------------------------|-----------------|---------|-----------------|
| Channel                     | Frequency (MHz) | Channel | Frequency (MHz) |
| 38                          | 5190            | 151     | 5755            |
| 46                          | 5230            | 159     | 5795            |

For UNII-1: Channel 38 and 46 were tested. For UNII-3: Channel 151 and 159 were tested.

| IEEE 802.11 ac VHT80 |                 |         |                 |
|----------------------|-----------------|---------|-----------------|
| Channel              | Frequency (MHz) | Channel | Frequency (MHz) |
| 42                   | 5210            | 155     | 5775            |

For UNII-1: Channel 42 was tested. For UNII-3: Channel 155 was tested.

| Modulation Used for Conformance Test |                 |           |                 |
|--------------------------------------|-----------------|-----------|-----------------|
| Configuration                        | N <sub>TX</sub> | Data Rate | Worst Data Rate |
| IEEE 802.11a                         | 2               | 6-54 Mbps | 6 Mbps          |
| IEEE 802.11n HT20                    | 2               | MCS 0-32  | MCS 0           |
| IEEE 802.11n HT40                    | 2               | MCS 0-32  | MCS 0           |
| IEEE 802.11ac VHT20                  | 2               | MCS 0-15  | MCS 0           |
| IEEE 802.11ac VHT40                  | 2               | MCS 0-15  | MCS 0           |
| IEEE 802.11ac VHT80                  | 2               | MCS 0-15  | MCS 0           |

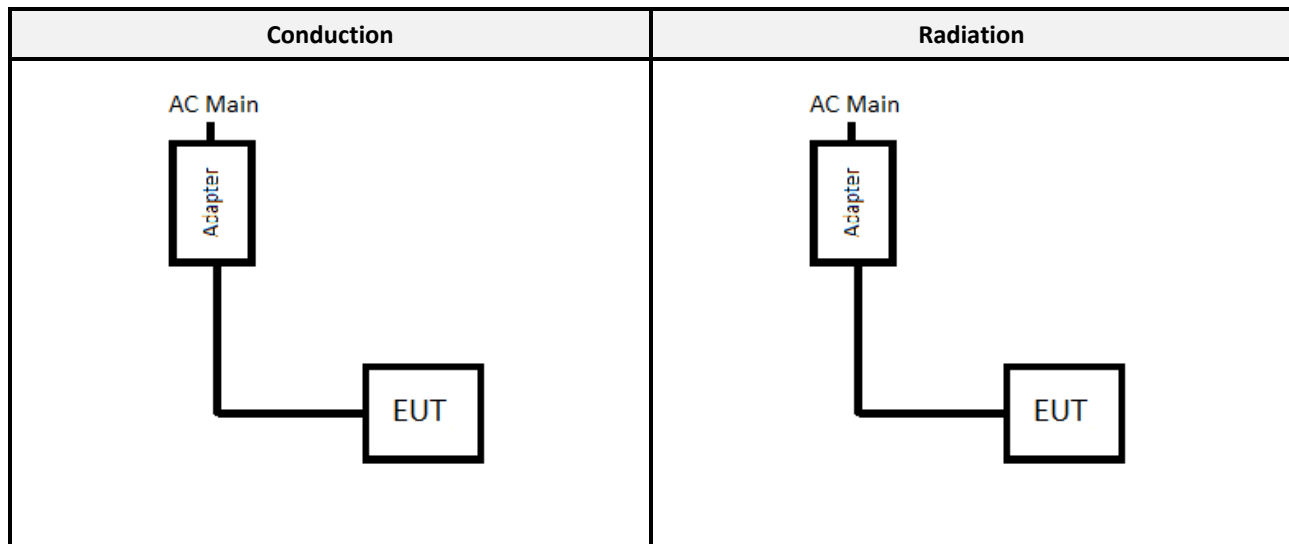
| Worst Case of Power Setting |                 |           |             |        |         |
|-----------------------------|-----------------|-----------|-------------|--------|---------|
| EUT Exercise Software       |                 |           | RTL819x 3.6 |        |         |
| Configuration               | N <sub>TX</sub> | UNII Band | Low CH      | Mid CH | High CH |
| IEEE 802.11a                | 2               | UNII-1    | 108         | 127    | 127     |
|                             |                 | UNII-3    | 127         | 127    | 127     |
| IEEE 802.11n HT20           | 2               | UNII-1    | 104         | 124    | 127     |
|                             |                 | UNII-3    | 118         | 127    | 127     |
| IEEE 802.11n HT40           | 2               | UNII-1    | 83          | -      | 114     |
|                             |                 | UNII-3    | 117         | -      | 117     |
| IEEE 802.11ac VHT20         | 2               | UNII-1    | 104         | 124    | 127     |
|                             |                 | UNII-3    | 118         | 127    | 127     |
| IEEE 802.11ac VHT40         | 2               | UNII-1    | 83          | -      | 114     |
|                             |                 | UNII-3    | 117         | -      | 117     |
| IEEE 802.11ac VHT80         | 2               | UNII-1    | -           | 80     | -       |
|                             |                 | UNII-3    | -           | 96     | -       |

- The worst-case data rates are determined to be as follows for each mode based upon investigation by measuring the power and PSD across all data rates bandwidths, and modulations. Radiated below 1G were tested worst output power mode.
- Due to 802.11n HT20/T40 mode output power are less than 802.11ac VHT20/40. Therefore, 802.11ac VHT20/VHT40 cover 802.11n HT20/40 in the test, include conducted and radiated, except duty cycle and output power test.

## 2.2 Support Equipment List and External Cable List

| No. | Description | Manufacturer | Model Number   | Serial Number |
|-----|-------------|--------------|----------------|---------------|
| A   | Notebook    | DELL         | Latitude E6410 | PP27LA001     |

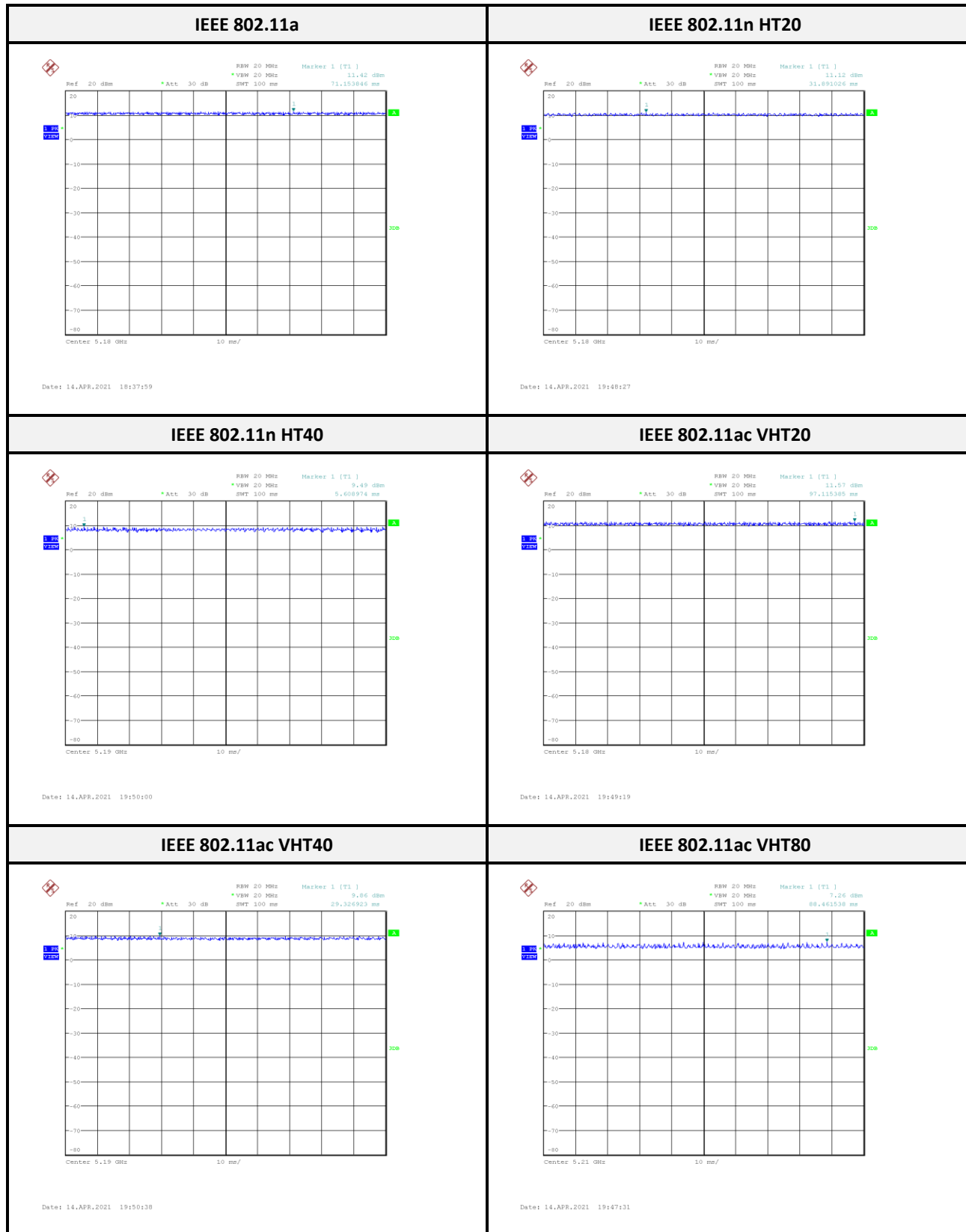
### 2.3 Block Diagram of Test Setup



### 2.4 Duty Cycle

All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x, and maximum power transmission duration, T, are required for each tested mode of operation.

| Configuration       | On Time (ms) | Period (ms) | Duty Cycle (%) | Duty Factor (dB) |
|---------------------|--------------|-------------|----------------|------------------|
| IEEE 802.11a        | 100.00       | 100.00      | 100.00         | 0.00             |
| IEEE 802.11n HT20   | 100.00       | 100.00      | 100.00         | 0.00             |
| IEEE 802.11n HT40   | 100.00       | 100.00      | 100.00         | 0.00             |
| IEEE 802.11ac VHT20 | 100.00       | 100.00      | 100.00         | 0.00             |
| IEEE 802.11ac VHT40 | 100.00       | 100.00      | 100.00         | 0.00             |
| IEEE 802.11ac VHT80 | 100.00       | 100.00      | 100.00         | 0.00             |



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

### 3 Summary of Test Results

| FCC Rules                     | Description of Test                | Result     |
|-------------------------------|------------------------------------|------------|
| §1.1310, §2.1091, §15.407 (f) | Maximum Permissible Exposure (MPE) | Compliance |
| §15.203                       | Antenna Requirement                | Compliance |
| §15.207(a), §15.407(b)(6)     | AC Line Conducted Emissions        | Compliance |
| §15.205, §15.209, §15.407(b)  | Spurious Emissions                 | Compliance |
| §15.407(a)(e)                 | Emission Bandwidth                 | Compliance |
| §15.407(a)(1)                 | Maximum Peak Output Power          | Compliance |
| §15.407(a)(1)(5)              | Power Spectral Density             | Compliance |

## 4 FCC§15.407(f), §1.1307, § 2.1091 – Maximum Permissible Exposure (MPE)

### 4.1 Applicable Standard

According to §15.407(f), U-NII devices are subject to the radio frequency radiation exposure requirements specified in § 1.1307(b), and 2.1091 of this chapter, as appropriate. All equipment shall be considered to operate in a "general population/uncontrolled" environment. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request

#### Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

| (B) 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;

According to §1.1310 and §2.1091 RF exposure is calculated.

**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);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

### 4.2 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)      |                          |                                     |                                 |
| Wi-Fi 2.4G      | 2412-2462             | 3.20         | 2.0893    | 30.00        | 1000.0000 | 20                       | 0.4159                              | 1.0                             |
| Wi-Fi 5G UNII-1 | 5150-5250             | 3.20         | 2.0893    | 25.00        | 316.2278  | 20                       | 0.1315                              | 1.0                             |
| Wi-Fi 5G UNII-3 | 5745-5850             | 3.20         | 2.0893    | 25.00        | 316.2278  | 20                       | 0.1315                              | 1.0                             |

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

**Result:** MPE evaluation of single transmission meet the requirement of standard.

## 5 FCC §15.203 - Antenna Requirements

### 5.1 Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited.

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

### 5.2 Antenna List and Details

| Brand | Model    | Antenna Type | Antenna Gain | Note         | Result     |
|-------|----------|--------------|--------------|--------------|------------|
| TTI   | WAP-3518 | PCB Antenna  | 3.20 dBi     | 2.4G Chain 0 | Compliance |
| TTI   | WAP-3518 | PCB Antenna  | 3.20 dBi     | 2.4G Chain 1 | Compliance |
| TTI   | WAP-3518 | PCB Antenna  | 3.20 dBi     | 5G Chain 0   | Compliance |
| TTI   | WAP-3518 | PCB Antenna  | 3.20 dBi     | 5G Chain 1   | Compliance |

The EUT have internal antennas arrangement and fulfill the requirement of this section.

## 6 FCC §15.207 - AC Line Conducted Emissions

### 6.1 Applicable Standard

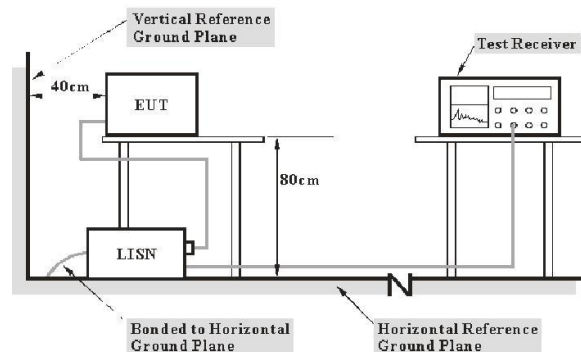
According to FCC §15.207,

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

| Frequency (MHz) | Conducted Limit (dBuV)     |                            |
|-----------------|----------------------------|----------------------------|
|                 | Quasi-Peak                 | Average                    |
| 0.15-0.5        | 66 to 56 <sup>Note 1</sup> | 56 to 46 <sup>Note 2</sup> |
| 0.5-5           | 56                         | 46                         |
| 5-30            | 60                         | 50                         |

Note 1: Decreases with the logarithm of the frequency. Note 2: A linear average detector is required

### 6.2 EUT Setup and Test Procedure



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

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits. The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

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

| Frequency Range  | Receiver RBW |
|------------------|--------------|
| 150 kHz - 30 MHz | 9 kHz        |

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.

### 6.3 Test Equipment List and Details

| Description                      | Manufacture     | Model                | Serial No. | Cal. Date. | Cal. Due.  |
|----------------------------------|-----------------|----------------------|------------|------------|------------|
| AC Line Conduction Room (Con-01) |                 |                      |            |            |            |
| Two-Line V-Network               | Rohde & Schwarz | ENV216               | 100010     | 2020/09/14 | 2021/09/13 |
| Pulse Limiter                    | SCHWARZBECK     | VSTD 9561-F          | 00432      | 2020/09/11 | 2021/09/10 |
| ESR EMI Test Receiver            | Rohde & Schwarz | ESR3                 | 102430     | 2021/05/05 | 2022/05/04 |
| RF Cable                         | EMCI            | EMCCFD300-BM-BM-8000 | 180526     | 2020/08/18 | 2021/08/17 |
| Software                         | Audix           | e3 v9                | E3LK-03    | N.C.R      | N.C.R      |

**\*Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).

### 6.4 Test Result

Line

Neutral

Date: 2021-04-09 Time: 10:09:59

FCC/NC/CJ Part15B CLASS-B GP  
FCC/NC/CJ Part15B CLASS-B AV

|    | Read Freq | Level | Factor | Limit Line | Over Limit | Remark         |
|----|-----------|-------|--------|------------|------------|----------------|
|    | MHz       | dBuV  | dB     | dBuV       | dB         |                |
| 1  | 0.151     | 27.93 | 47.79  | 19.86      | 65.93      | -18.14 QP      |
| 2  | 0.151     | 12.40 | 32.26  | 19.86      | 55.93      | -23.67 Average |
| 3  | 0.159     | 30.33 | 50.19  | 19.86      | 65.54      | -15.35 QP      |
| 4  | 0.159     | 17.79 | 37.65  | 19.86      | 55.54      | -17.89 Average |
| 5  | 0.203     | 21.56 | 41.43  | 19.87      | 63.49      | -22.06 QP      |
| 6  | 0.203     | 7.26  | 27.13  | 19.87      | 53.49      | -26.36 Average |
| 7  | 0.443     | 21.56 | 41.44  | 19.88      | 57.00      | -15.56 QP      |
| 8  | 0.443     | 13.92 | 33.80  | 19.88      | 47.00      | -13.20 Average |
| 9  | 0.738     | 4.92  | 24.83  | 19.91      | 56.00      | -31.17 QP      |
| 10 | 0.738     | -3.82 | 16.09  | 19.91      | 46.00      | -29.91 Average |
| 11 | 17.175    | 10.15 | 30.46  | 20.31      | 60.00      | -29.54 QP      |
| 12 | 17.175    | 2.36  | 22.67  | 20.31      | 50.00      | -27.33 Average |

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FCC/NC/CJ Part15B CLASS-B GP  
FCC/NC/CJ Part15B CLASS-B AV

|    | Read Freq | Level | Factor | Limit Line | Over Limit | Remark         |
|----|-----------|-------|--------|------------|------------|----------------|
|    | MHz       | dBuV  | dB     | dBuV       | dB         |                |
| 1  | 0.154     | 29.04 | 48.91  | 19.87      | 65.80      | -16.89 QP      |
| 2  | 0.154     | 12.07 | 31.94  | 19.87      | 55.80      | -23.86 Average |
| 3  | 0.169     | 25.12 | 44.99  | 19.87      | 65.01      | -20.02 QP      |
| 4  | 0.169     | 7.94  | 27.81  | 19.87      | 55.01      | -27.20 Average |
| 5  | 0.218     | 20.16 | 40.04  | 19.88      | 62.89      | -22.85 QP      |
| 6  | 0.218     | 4.02  | 23.90  | 19.88      | 52.89      | -28.99 Average |
| 7  | 0.443     | 16.54 | 36.43  | 19.89      | 57.00      | -20.57 QP      |
| 8  | 0.443     | 7.36  | 27.25  | 19.89      | 47.00      | -19.75 Average |
| 9  | 4.839     | 5.70  | 25.80  | 20.10      | 56.00      | -30.20 QP      |
| 10 | 4.839     | -1.75 | 18.35  | 20.10      | 46.00      | -27.65 Average |
| 11 | 14.763    | 8.03  | 28.38  | 20.35      | 60.00      | -31.62 QP      |
| 12 | 14.763    | -0.53 | 19.82  | 20.35      | 50.00      | -30.18 Average |

Note:

Level = Read Level + Factor.

Over Limit (Margin) = Level – Limit Line.

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

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

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### 7.1 Applicable Standard

According to FCC §15.407(b),

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

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

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

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

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

(5) 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.

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

Further.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

As per FCC §15.35(d): Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function.

Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1MHz.

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:

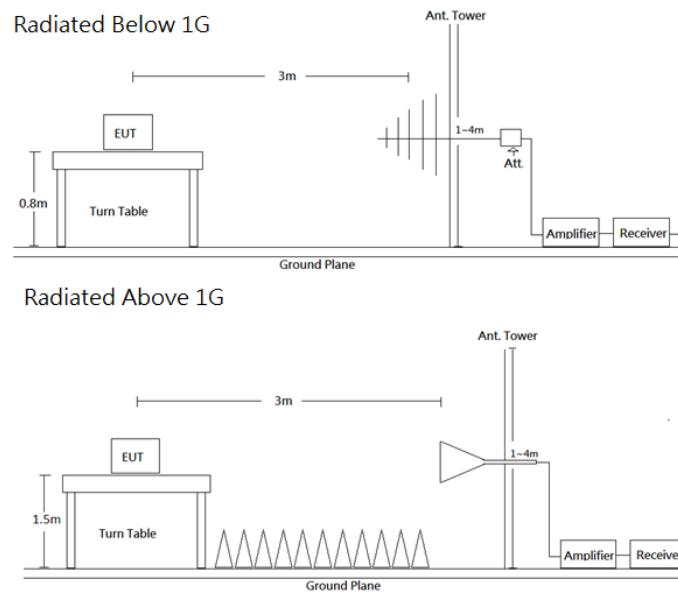
| MHz               | MHz                 | MHz           | GHz         |
|-------------------|---------------------|---------------|-------------|
| 0.090-0.110       | 13.36-13.41         | 399.9-410     | 4.5-5.15    |
| 0.495-0.505       | 16.42-16.423        | 608-614       | 5.35-5.46   |
| 2.1735-2.1905     | 16.69475-16.69525   | 960-1240      | 7.25-7.75   |
| 4.125-4.128       | 25.5-25.67          | 1300-1427     | 8.025-8.5   |
| 4.17725-4.17775   | 37.5-38.25          | 1435-1626.5   | 9.0-9.2     |
| 4.20725-4.20775   | 73-74.6             | 1645.5-1646.5 | 9.3-9.5     |
| 6.215-6.218       | 74.8-75.2           | 1660-1710     | 10.6-12.7   |
| 6.26775-6.26825   | 108-121.94          | 1718.8-1722.2 | 13.25-13.4  |
| 6.31175-6.31225   | 123-138             | 2200-2300     | 14.47-14.5  |
| 8.291-8.294       | 149.9-150.05        | 2310-2390     | 15.35-16.2  |
| 8.362-8.366       | 156.52475-156.52525 | 2483.5-2500   | 17.7-21.4   |
| 8.37625-8.38675   | 156.7-156.9         | 2690-2900     | 22.01-23.12 |
| 8.41425-8.41475   | 162.0125-167.17     | 3260-3267     | 23.6-24.0   |
| 12.29-12.293      | 167.72-173.2        | 3332-3339     | 31.2-31.8   |
| 12.51975-12.52025 | 240-285             | 3345.8-3358   | 36.43-36.5  |
| 12.57675-12.57725 | 322-335.4           | 3600-4400     | Above 38.6  |

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                             |

\*\* 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.

## 7.2 EUT Setup and Test Procedure



Radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC Part 15.209 and FCC 15.247 Limits.

The system was investigated from 30 MHz to 26.5 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 Detector method |
|-----------------|---------|-------|------------|-----------------------------|
| 30-1000 MHz     | 120 kHz | /     | -          | QP                          |
| Above 1 GHz     | 1 MHz   | 3 MHz | -          | PK                          |
|                 | 1 MHz   | 10 Hz | >98%       | PK                          |
|                 | 1 MHz   | 1/T   | <98%       | PK                          |

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.

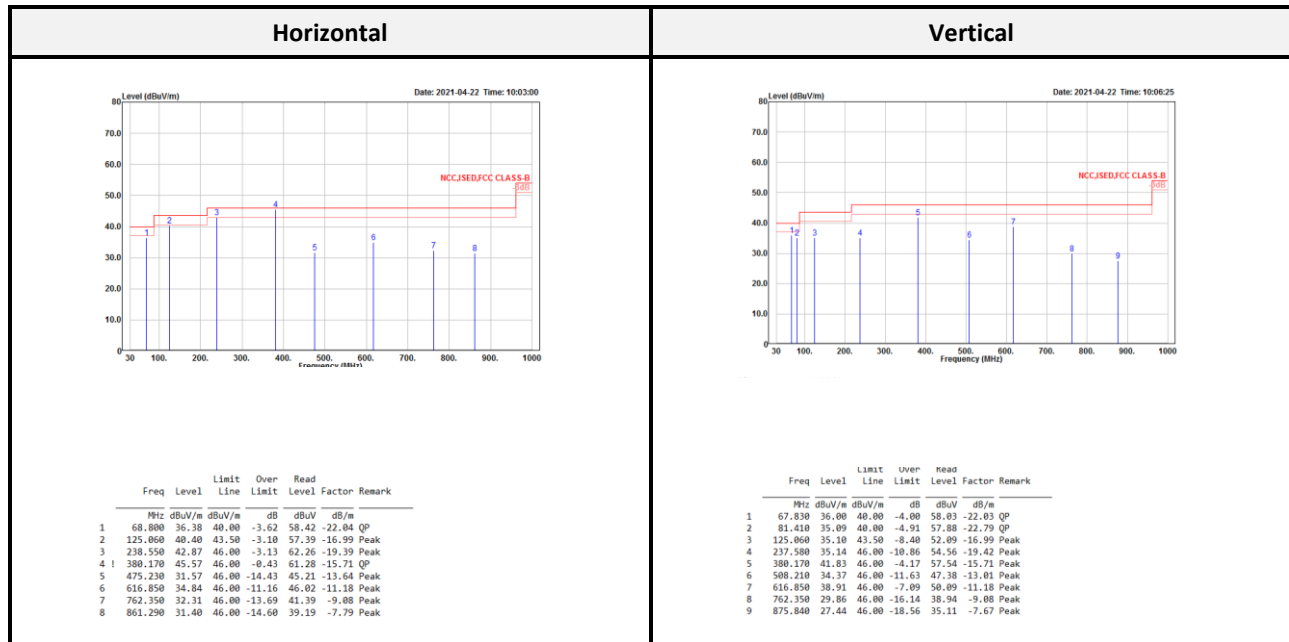
### 7.3 Test Equipment List and Details

| Description                     | Manufacture           | Model                 | Serial No.           | Cal. Date. | Cal. Due.  |
|---------------------------------|-----------------------|-----------------------|----------------------|------------|------------|
| <b>Radiation 3M Room (966A)</b> |                       |                       |                      |            |            |
| Active Loop                     | EMCO                  | 6502                  | 0001-3322            | 2021/03/16 | 2022/03/15 |
| Bilog Antenna & 6 dB Attenuator | SUNOL SCIENCES & EMCI | JB3 & N-6-06          | A111513 & AT-N0668   | 2021/03/30 | 2022/03/29 |
| Signal and Spectrum Analyzer    | Rohde & Schwarz       | FSV40                 | 101434               | 2020/05/07 | 2021/05/06 |
| Horn Antenna                    | ETS-Lindgren          | 3115                  | 00109141             | 2020/07/15 | 2021/07/14 |
| Horn Antenna                    | ETS-Lindgren          | 3160-09               | 00123852             | 2020/07/07 | 2021/07/06 |
| Preamplifier                    | A.H. Systems          | PAM-1840VH            | 174                  | 2021/03/22 | 2022/03/21 |
| Preamplifier                    | A.H. Systems          | PAM-0118P             | 478                  | 2020/05/05 | 2021/05/04 |
| Microflex Cable (1m)            | EMCI                  | EMC102-KM-KM-1000     | 180524               | 2020/08/06 | 2021/08/05 |
| Microflex Cable (2m)            | EMCI                  | EMC106-SM-SM-2000     | 180516               | 2020/08/06 | 2021/08/05 |
| Microflex Cable (8m)            | UTIFLEX               | UFA210A-1-3149-300300 | MFR 64639 232490-002 | 2020/08/06 | 2021/08/05 |
| Turn Table                      | Chaintek              | T-200-S-1             | 003501               | N.C.R      | N.C.R      |
| Antenna Tower                   | Chaintek              | MBD-400-1             | 003504               | N.C.R      | N.C.R      |
| Controller                      | Chaintek              | 3000-1                | 003507               | N.C.R      | N.C.R      |
| Software                        | Audix                 | e3 v9                 | E3LK-01              | N.C.R      | N.C.R      |
| <b>Conducted Room (TH-02)</b>   |                       |                       |                      |            |            |
| Signal and Spectrum Analyzer    | Rohde & Schwarz       | FSU 26                | 100406               | 2021/03/10 | 2022/03/09 |
| Cable                           | MTJ                   | MT40S                 | 620620-MT40S-100     | Each Use   | -          |

**\*Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).

## 7.4 Test Result

**Below 1G (30 MHz-1 GHz) test the worst power mode.** (Pre-scan with three orthogonal axis, and worse case as X axis)



Note:

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.

Non-Restricted bands signal was less than fundamental 20 dB or more, that don't need get average result.

# Above 1G (1 GHz-40 GHz)

## UNII-1:

| IEEE 802.11a Low CH Horizontal |        |               |               |               |        |         | IEEE 802.11a Low CH Vertical |        |               |               |               |        |         |
|--------------------------------|--------|---------------|---------------|---------------|--------|---------|------------------------------|--------|---------------|---------------|---------------|--------|---------|
| Freq                           | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  | Freq                         | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  |
| MHz                            | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         | MHz                          | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         |
| 5148.850                       | 53.54  | 54.00         | -0.46         | 51.54         | 2.00   | Average | 5148.700                     | 49.48  | 54.00         | -4.52         | 47.48         | 2.00   | Average |
| 5148.850                       | 71.13  | 74.00         | -2.87         | 69.13         | 2.00   | Peak    | 5148.700                     | 65.80  | 74.00         | -8.20         | 63.80         | 2.00   | Peak    |
| 5185.750                       | 106.27 |               |               | 104.32        | 1.95   | Average | 5178.100                     | 98.27  |               |               | 96.31         | 1.96   | Average |
| 5185.750                       | 116.57 |               |               | 114.62        | 1.95   | Peak    | 5178.100                     | 107.96 |               |               | 106.00        | 1.96   | Peak    |
| 10360.000                      | 53.32  | 68.20         | -14.88        | 42.87         | 10.45  | Peak    | 10360.000                    | 53.19  | 68.20         | -15.01        | 42.74         | 10.45  | Peak    |
| 15540.000                      | 40.13  | 54.00         | -13.87        | 27.35         | 12.78  | Average | 15540.000                    | 41.08  | 54.00         | -12.92        | 28.30         | 12.78  | Average |
| 15540.000                      | 56.04  | 74.00         | -17.96        | 43.26         | 12.78  | Peak    | 15540.000                    | 55.56  | 74.00         | -18.44        | 42.78         | 12.78  | Peak    |

| IEEE 802.11a Middle CH Horizontal |        |               |               |               |        |         | IEEE 802.11a Middle CH Vertical |        |               |               |               |        |         |
|-----------------------------------|--------|---------------|---------------|---------------|--------|---------|---------------------------------|--------|---------------|---------------|---------------|--------|---------|
| Freq                              | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  | Freq                            | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  |
| MHz                               | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         | MHz                             | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         |
| 5148.800                          | 52.20  | 54.00         | -1.80         | 50.20         | 2.00   | Average | 5145.600                        | 49.64  | 54.00         | -4.36         | 47.63         | 2.01   | Average |
| 5148.800                          | 68.39  | 74.00         | -5.61         | 66.39         | 2.00   | Peak    | 5145.600                        | 63.83  | 74.00         | -10.17        | 61.82         | 2.01   | Peak    |
| 5202.800                          | 109.28 |               |               | 107.35        | 1.93   | Average | 5205.600                        | 101.82 |               |               | 99.88         | 1.94   | Average |
| 5202.800                          | 118.69 |               |               | 116.76        | 1.93   | Peak    | 5205.600                        | 111.39 |               |               | 109.45        | 1.94   | Peak    |
| 5447.200                          | 49.07  | 54.00         | -4.93         | 46.68         | 2.39   | Average | 5354.400                        | 48.39  | 54.00         | -5.61         | 46.21         | 2.18   | Average |
| 5447.200                          | 62.75  | 74.00         | -11.25        | 60.36         | 2.39   | Peak    | 5354.400                        | 62.27  | 74.00         | -11.73        | 60.09         | 2.18   | Peak    |
| 10400.000                         | 55.77  | 68.20         | -12.43        | 45.10         | 10.67  | Peak    | 10400.000                       | 55.43  | 68.20         | -12.77        | 44.76         | 10.67  | Peak    |
| 15600.000                         | 43.43  | 54.00         | -10.57        | 30.48         | 12.95  | Average | 15600.000                       | 42.88  | 54.00         | -11.12        | 29.93         | 12.95  | Average |
| 15600.000                         | 56.39  | 74.00         | -17.61        | 43.44         | 12.95  | Peak    | 15600.000                       | 57.70  | 74.00         | -16.30        | 44.75         | 12.95  | Peak    |

| IEEE 802.11a High CH Horizontal |        |               |               |               |        |         | IEEE 802.11a High CH Vertical |        |               |               |               |        |         |
|---------------------------------|--------|---------------|---------------|---------------|--------|---------|-------------------------------|--------|---------------|---------------|---------------|--------|---------|
| Freq                            | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  | Freq                          | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  |
| MHz                             | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         | MHz                           | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         |
| 5142.400                        | 48.54  | 54.00         | -5.46         | 46.53         | 2.01   | Average | 5117.600                      | 48.09  | 54.00         | -5.91         | 46.09         | 2.00   | Average |
| 5142.400                        | 62.26  | 74.00         | -11.74        | 60.25         | 2.01   | Peak    | 5117.600                      | 62.18  | 74.00         | -11.82        | 60.18         | 2.00   | Peak    |
| 5238.400                        | 109.01 |               |               | 107.03        | 1.98   | Average | 5238.000                      | 100.47 |               |               | 98.49         | 1.98   | Average |
| 5238.400                        | 118.51 |               |               | 116.53        | 1.98   | Peak    | 5238.000                      | 110.28 |               |               | 108.30        | 1.98   | Peak    |
| 5447.600                        | 48.69  | 54.00         | -5.31         | 46.30         | 2.39   | Average | 5446.800                      | 48.83  | 54.00         | -5.17         | 46.44         | 2.39   | Average |
| 5447.600                        | 63.52  | 74.00         | -10.48        | 61.13         | 2.39   | Peak    | 5446.800                      | 63.02  | 74.00         | -10.98        | 60.63         | 2.39   | Peak    |
| 10480.000                       | 56.13  | 68.20         | -12.07        | 45.33         | 10.80  | Peak    | 10480.000                     | 54.80  | 68.20         | -13.40        | 44.00         | 10.80  | Peak    |
| 15720.000                       | 45.29  | 54.00         | -8.71         | 32.43         | 12.86  | Average | 15720.000                     | 44.27  | 54.00         | -9.73         | 31.41         | 12.86  | Average |
| 15720.000                       | 56.29  | 74.00         | -17.71        | 43.43         | 12.86  | Peak    | 15720.000                     | 58.96  | 74.00         | -15.04        | 46.10         | 12.86  | Peak    |

Note:

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.

Non-Restricted bands signal was less than fundamental 20 dB or more, that don't need get average result.

| IEEE 802.11ac VHT20 Low CH Horizontal |        |               |               |               |        |         | IEEE 802.11ac VHT20 Low CH Vertical |        |               |               |               |        |         |
|---------------------------------------|--------|---------------|---------------|---------------|--------|---------|-------------------------------------|--------|---------------|---------------|---------------|--------|---------|
| Freq                                  | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  | Freq                                | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  |
| MHz                                   | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         | MHz                                 | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         |
| 5146.450                              | 53.46  | 54.00         | -0.54         | 51.46         | 2.00   | Average | 5145.850                            | 49.92  | 54.00         | -4.08         | 47.92         | 2.00   | Average |
| 5146.450                              | 69.20  | 74.00         | -4.80         | 67.20         | 2.00   | Peak    | 5145.850                            | 64.80  | 74.00         | -9.20         | 62.80         | 2.00   | Peak    |
| 5175.250                              | 105.45 |               |               | 103.49        | 1.96   | Average | 5175.100                            | 96.85  |               |               | 94.89         | 1.96   | Average |
| 5175.250                              | 115.07 |               |               | 113.11        | 1.96   | Peak    | 5175.100                            | 106.59 |               |               | 104.63        | 1.96   | Peak    |
| 10360.000                             | 52.35  | 68.20         | -15.85        | 41.90         | 10.45  | Peak    | 10360.000                           | 52.36  | 68.20         | -15.84        | 41.91         | 10.45  | Peak    |
| 15540.000                             | 40.13  | 54.00         | -13.87        | 27.35         | 12.78  | Average | 15540.000                           | 40.43  | 54.00         | -13.57        | 27.65         | 12.78  | Average |
| 15540.000                             | 55.60  | 74.00         | -18.40        | 42.82         | 12.78  | Peak    | 15540.000                           | 56.29  | 74.00         | -17.71        | 43.51         | 12.78  | Peak    |

| IEEE 802.11ac VHT20 Middle CH Horizontal |        |               |               |               |        |         | IEEE 802.11ac VHT20 Middle CH Vertical |        |               |               |               |        |         |
|------------------------------------------|--------|---------------|---------------|---------------|--------|---------|----------------------------------------|--------|---------------|---------------|---------------|--------|---------|
| Freq                                     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  | Freq                                   | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  |
| MHz                                      | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         | MHz                                    | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         |
| 5148.800                                 | 53.44  | 54.00         | -0.56         | 51.44         | 2.00   | Average | 5148.400                               | 50.50  | 54.00         | -3.50         | 48.50         | 2.00   | Average |
| 5148.800                                 | 69.97  | 74.00         | -4.03         | 67.97         | 2.00   | Peak    | 5148.400                               | 67.46  | 74.00         | -6.54         | 65.46         | 2.00   | Peak    |
| 5195.600                                 | 108.23 |               |               | 106.29        | 1.94   | Average | 5198.800                               | 100.92 |               |               | 98.98         | 1.94   | Average |
| 5195.600                                 | 117.68 |               |               | 115.74        | 1.94   | Peak    | 5198.800                               | 110.27 |               |               | 108.33        | 1.94   | Peak    |
| 5392.000                                 | 49.24  | 54.00         | -4.76         | 46.95         | 2.29   | Average | 5432.800                               | 49.32  | 54.00         | -4.68         | 46.95         | 2.37   | Average |
| 5392.000                                 | 62.91  | 74.00         | -11.09        | 60.62         | 2.29   | Peak    | 5432.800                               | 63.01  | 74.00         | -10.99        | 60.64         | 2.37   | Peak    |
| 10400.000                                | 53.89  | 68.20         | -14.31        | 43.22         | 10.67  | Peak    | 10400.000                              | 57.31  | 68.20         | -10.89        | 46.64         | 10.67  | Peak    |
| 15600.000                                | 43.32  | 54.00         | -10.68        | 30.37         | 12.95  | Average | 15600.000                              | 42.93  | 54.00         | -11.07        | 29.98         | 12.95  | Average |
| 15600.000                                | 58.17  | 74.00         | -15.83        | 45.22         | 12.95  | Peak    | 15600.000                              | 58.73  | 74.00         | -15.27        | 45.78         | 12.95  | Peak    |

| IEEE 802.11ac VHT20 High CH Horizontal |        |               |               |               |        |         | IEEE 802.11ac VHT20 High CH Vertical |        |               |               |               |        |         |
|----------------------------------------|--------|---------------|---------------|---------------|--------|---------|--------------------------------------|--------|---------------|---------------|---------------|--------|---------|
| Freq                                   | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  | Freq                                 | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  |
| MHz                                    | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         | MHz                                  | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         |
| 5138.000                               | 48.85  | 54.00         | -5.15         | 46.85         | 2.00   | Average | 5126.400                             | 48.64  | 54.00         | -5.36         | 46.64         | 2.00   | Average |
| 5138.000                               | 62.32  | 74.00         | -11.68        | 60.32         | 2.00   | Peak    | 5126.400                             | 61.62  | 74.00         | -12.38        | 59.62         | 2.00   | Peak    |
| 5235.200                               | 108.18 |               |               | 106.22        | 1.96   | Average | 5235.200                             | 100.57 |               |               | 98.61         | 1.96   | Average |
| 5235.200                               | 117.67 |               |               | 115.71        | 1.96   | Peak    | 5235.200                             | 109.88 |               |               | 107.92        | 1.96   | Peak    |
| 5373.200                               | 49.33  | 54.00         | -4.67         | 47.09         | 2.24   | Average | 5422.400                             | 49.20  | 54.00         | -4.80         | 46.85         | 2.35   | Average |
| 5373.200                               | 63.29  | 74.00         | -10.71        | 61.05         | 2.24   | Peak    | 5422.400                             | 62.96  | 74.00         | -11.04        | 60.61         | 2.35   | Peak    |
| 10480.000                              | 54.25  | 68.20         | -13.95        | 43.45         | 10.80  | Peak    | 10480.000                            | 53.89  | 68.20         | -14.31        | 43.09         | 10.80  | Peak    |
| 15720.000                              | 44.61  | 54.00         | -9.39         | 31.75         | 12.86  | Average | 15720.000                            | 44.54  | 54.00         | -9.46         | 31.68         | 12.86  | Average |
| 15720.000                              | 59.09  | 74.00         | -14.91        | 46.23         | 12.86  | Peak    | 15720.000                            | 59.99  | 74.00         | -14.01        | 47.13         | 12.86  | Peak    |

Note:

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.

Non-Restricted bands signal was less than fundamental 20 dB or more, that don't need get average result.

| IEEE 802.11ac VHT40 Low CH Horizontal |        |               |               |               |        |         | IEEE 802.11ac VHT40 Low CH Vertical |        |               |               |               |        |         |
|---------------------------------------|--------|---------------|---------------|---------------|--------|---------|-------------------------------------|--------|---------------|---------------|---------------|--------|---------|
| Freq                                  | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  | Freq                                | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  |
| MHz                                   | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         | MHz                                 | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         |
| 5149.840                              | 53.44  | 54.00         | -0.56         | 51.44         | 2.00   | Average | 5134.320                            | 48.96  | 54.00         | -5.04         | 46.97         | 1.99   | Average |
| 5149.840                              | 69.18  | 74.00         | -4.82         | 67.18         | 2.00   | Peak    | 5134.320                            | 62.81  | 74.00         | -11.19        | 60.82         | 1.99   | Peak    |
| 5182.320                              | 99.16  |               |               | 97.20         | 1.96   | Average | 5182.320                            | 90.76  |               |               | 88.80         | 1.96   | Average |
| 5182.320                              | 108.76 |               |               | 106.80        | 1.96   | Peak    | 5182.320                            | 100.20 |               |               | 98.24         | 1.96   | Peak    |
| 10399.000                             | 51.51  | 68.20         | -16.69        | 40.84         | 10.67  | Peak    | 10380.000                           | 51.31  | 68.20         | -16.89        | 40.75         | 10.56  | Peak    |
| 15570.000                             | 43.28  | 54.00         | -10.72        | 30.44         | 12.84  | Average | 15570.000                           | 43.08  | 54.00         | -10.92        | 30.24         | 12.84  | Average |
| 15570.000                             | 57.22  | 74.00         | -16.78        | 44.38         | 12.84  | Peak    | 15570.000                           | 56.84  | 74.00         | -17.16        | 44.00         | 12.84  | Peak    |

| IEEE 802.11ac VHT40 High CH Horizontal |        |               |               |               |        |         | IEEE 802.11ac VHT40 High CH Vertical |        |               |               |               |        |         |
|----------------------------------------|--------|---------------|---------------|---------------|--------|---------|--------------------------------------|--------|---------------|---------------|---------------|--------|---------|
| Freq                                   | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  | Freq                                 | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  |
| MHz                                    | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         | MHz                                  | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         |
| 5148.000                               | 53.64  | 54.00         | -0.36         | 51.64         | 2.00   | Average | 5086.400                             | 49.33  | 54.00         | -4.67         | 47.37         | 1.96   | Average |
| 5148.000                               | 69.99  | 74.00         | -4.01         | 67.99         | 2.00   | Peak    | 5086.400                             | 62.53  | 74.00         | -11.47        | 60.57         | 1.96   | Peak    |
| 5222.400                               | 105.17 |               |               | 103.21        | 1.96   | Average | 5222.400                             | 96.40  |               |               | 94.44         | 1.96   | Average |
| 5222.400                               | 115.04 |               |               | 113.08        | 1.96   | Peak    | 5222.400                             | 106.12 |               |               | 104.16        | 1.96   | Peak    |
| 5366.000                               | 49.20  | 54.00         | -4.80         | 46.98         | 2.22   | Average | 5401.200                             | 48.96  | 54.00         | -5.04         | 46.65         | 2.31   | Average |
| 5366.000                               | 63.15  | 74.00         | -10.85        | 60.93         | 2.22   | Peak    | 5401.200                             | 62.81  | 74.00         | -11.19        | 60.50         | 2.31   | Peak    |
| 10477.000                              | 52.19  | 68.20         | -16.01        | 41.37         | 10.82  | Peak    | 10480.000                            | 52.76  | 68.20         | -15.44        | 41.96         | 10.80  | Peak    |
| 15690.000                              | 44.39  | 54.00         | -9.61         | 31.70         | 12.69  | Average | 15690.000                            | 44.32  | 54.00         | -9.68         | 31.63         | 12.69  | Average |
| 15690.000                              | 58.96  | 74.00         | -15.04        | 46.27         | 12.69  | Peak    | 15690.000                            | 59.19  | 74.00         | -14.81        | 46.50         | 12.69  | Peak    |

| IEEE 802.11ac VHT80 Horizontal |        |               |               |               |        |         | IEEE 802.11ac VHT80 Vertical |        |               |               |               |        |         |
|--------------------------------|--------|---------------|---------------|---------------|--------|---------|------------------------------|--------|---------------|---------------|---------------|--------|---------|
| Freq                           | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  | Freq                         | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  |
| MHz                            | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         | MHz                          | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         |
| 5149.400                       | 53.53  | 54.00         | -0.47         | 51.53         | 2.00   | Average | 5144.200                     | 48.92  | 54.00         | -5.08         | 46.91         | 2.01   | Average |
| 5149.400                       | 66.90  | 74.00         | -7.10         | 64.90         | 2.00   | Peak    | 5144.200                     | 61.96  | 74.00         | -12.04        | 59.95         | 2.01   | Peak    |
| 5189.800                       | 94.77  |               |               | 92.82         | 1.95   | Average | 5189.800                     | 86.10  |               |               | 84.15         | 1.95   | Average |
| 5189.800                       | 105.31 |               |               | 103.36        | 1.95   | Peak    | 5189.800                     | 96.67  |               |               | 94.72         | 1.95   | Peak    |
| 10438.000                      | 51.58  | 68.20         | -16.62        | 40.73         | 10.85  | Peak    | 10420.000                    | 52.29  | 68.20         | -15.91        | 41.53         | 10.76  | Peak    |
| 15630.000                      | 43.78  | 54.00         | -10.22        | 30.85         | 12.93  | Average | 15630.000                    | 44.39  | 54.00         | -9.61         | 31.46         | 12.93  | Average |
| 15630.000                      | 57.94  | 74.00         | -16.06        | 45.01         | 12.93  | Peak    | 15630.000                    | 58.55  | 74.00         | -15.45        | 45.62         | 12.93  | Peak    |

Note:

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.

Non-Restricted bands signal was less than fundamental 20 dB or more, that don't need get average result.

## UNII-3:

| IEEE 802.11a Low CH Horizontal |        |            |            |            |        |         | IEEE 802.11a Low CH Vertical |        |            |            |            |        |         |
|--------------------------------|--------|------------|------------|------------|--------|---------|------------------------------|--------|------------|------------|------------|--------|---------|
| Freq                           | Level  | Limit Line | Over Limit | Read Level | Factor | Remark  | Freq                         | Level  | Limit Line | Over Limit | Read Level | Factor | Remark  |
| MHz                            | dBuV/m | dBuV/m     | dB         | dBuV       | dB/m   |         | MHz                          | dBuV/m | dBuV/m     | dB         | dBuV       | dB/m   |         |
| 5641.680                       | 64.87  | 68.20      | -3.33      | 62.01      | 2.86   | Peak    | 5626.920                     | 63.43  | 68.20      | -4.77      | 60.62      | 2.81   | Peak    |
| 5697.480                       | 75.68  | 103.34     | -27.66     | 72.62      | 3.06   | Peak    | 5696.400                     | 70.55  | 102.55     | -32.00     | 67.50      | 3.05   | Peak    |
| 5718.720                       | 86.61  | 110.44     | -23.83     | 83.52      | 3.09   | Peak    | 5716.560                     | 79.51  | 109.84     | -30.33     | 76.42      | 3.09   | Peak    |
| 5747.880                       | 117.08 |            |            | 113.95     | 3.13   | Peak    | 5747.160                     | 110.61 |            |            | 107.48     | 3.13   | Peak    |
| 5874.960                       | 65.41  | 105.21     | -39.80     | 61.93      | 3.48   | Peak    | 5868.480                     | 65.13  | 107.02     | -41.89     | 61.67      | 3.46   | Peak    |
| 5918.520                       | 65.53  | 72.98      | -7.45      | 61.94      | 3.59   | Peak    | 5885.760                     | 65.26  | 97.21      | -31.95     | 61.76      | 3.50   | Peak    |
| 5935.800                       | 64.82  | 68.20      | -3.38      | 61.21      | 3.61   | Peak    | 5959.920                     | 65.32  | 68.20      | -2.88      | 61.66      | 3.66   | Peak    |
| 11490.000                      | 43.63  | 54.00      | -10.37     | 31.10      | 12.53  | Average | 11490.000                    | 46.28  | 54.00      | -7.72      | 33.75      | 12.53  | Average |
| 11490.000                      | 56.13  | 74.00      | -17.87     | 43.60      | 12.53  | Peak    | 11490.000                    | 59.01  | 74.00      | -14.99     | 46.48      | 12.53  | Peak    |
| 17235.000                      | 65.32  | 68.20      | -2.88      | 48.82      | 16.50  | Peak    | 17235.000                    | 67.75  | 68.20      | -0.45      | 51.25      | 16.50  | Peak    |

| IEEE 802.11a Middle CH Horizontal |        |            |            |            |        |         | IEEE 802.11a Middle CH Vertical |        |            |            |            |        |         |
|-----------------------------------|--------|------------|------------|------------|--------|---------|---------------------------------|--------|------------|------------|------------|--------|---------|
| Freq                              | Level  | Limit Line | Over Limit | Read Level | Factor | Remark  | Freq                            | Level  | Limit Line | Over Limit | Read Level | Factor | Remark  |
| MHz                               | dBuV/m | dBuV/m     | dB         | dBuV       | dB/m   |         | MHz                             | dBuV/m | dBuV/m     | dB         | dBuV       | dB/m   |         |
| 5639.880                          | 63.91  | 68.20      | -4.29      | 61.06      | 2.85   | Peak    | 5648.520                        | 62.88  | 68.20      | -5.32      | 60.00      | 2.88   | Peak    |
| 5698.920                          | 65.79  | 104.40     | -38.61     | 62.72      | 3.07   | Peak    | 5694.600                        | 63.81  | 101.22     | -37.41     | 60.77      | 3.04   | Peak    |
| 5719.800                          | 70.05  | 110.74     | -40.69     | 66.95      | 3.10   | Peak    | 5718.000                        | 65.62  | 110.24     | -44.62     | 62.53      | 3.09   | Peak    |
| 5779.920                          | 115.52 |            |            | 112.25     | 3.27   | Peak    | 5789.280                        | 111.07 |            |            | 107.76     | 3.31   | Peak    |
| 5861.640                          | 66.30  | 108.94     | -42.64     | 62.86      | 3.44   | Peak    | 5875.320                        | 65.03  | 104.96     | -39.93     | 61.55      | 3.48   | Peak    |
| 5894.040                          | 64.94  | 91.07      | -26.13     | 61.40      | 3.54   | Peak    | 5910.240                        | 64.71  | 79.09      | -14.38     | 61.15      | 3.56   | Peak    |
| 5945.520                          | 64.82  | 68.20      | -3.38      | 61.19      | 3.63   | Peak    | 5927.520                        | 64.65  | 68.20      | -3.55      | 61.05      | 3.60   | Peak    |
| 11570.000                         | 43.10  | 54.00      | -10.90     | 30.40      | 12.70  | Average | 11570.000                       | 46.54  | 54.00      | -7.46      | 33.84      | 12.70  | Average |
| 11570.000                         | 57.51  | 74.00      | -16.49     | 44.81      | 12.70  | Peak    | 11570.000                       | 59.85  | 74.00      | -14.15     | 47.15      | 12.70  | Peak    |
| 17355.000                         | 66.79  | 68.20      | -1.41      | 50.53      | 16.26  | Peak    | 17355.000                       | 67.94  | 68.20      | -0.26      | 51.68      | 16.26  | Peak    |

| IEEE 802.11a High CH Horizontal |        |            |            |            |        |         | IEEE 802.11a High CH Vertical |        |            |            |            |        |         |
|---------------------------------|--------|------------|------------|------------|--------|---------|-------------------------------|--------|------------|------------|------------|--------|---------|
| Freq                            | Level  | Limit Line | Over Limit | Read Level | Factor | Remark  | Freq                          | Level  | Limit Line | Over Limit | Read Level | Factor | Remark  |
| MHz                             | dBuV/m | dBuV/m     | dB         | dBuV       | dB/m   |         | MHz                           | dBuV/m | dBuV/m     | dB         | dBuV       | dB/m   |         |
| 5642.040                        | 62.94  | 68.20      | -5.26      | 60.08      | 2.86   | Peak    | 5642.400                      | 62.94  | 68.20      | -5.26      | 60.08      | 2.86   | Peak    |
| 5657.520                        | 63.54  | 73.79      | -10.25     | 60.63      | 2.91   | Peak    | 5684.880                      | 62.83  | 94.05      | -31.22     | 59.81      | 3.02   | Peak    |
| 5719.440                        | 63.69  | 110.64     | -46.95     | 60.60      | 3.09   | Peak    | 5710.080                      | 63.72  | 108.02     | -44.30     | 60.64      | 3.08   | Peak    |
| 5819.880                        | 116.08 |            |            | 112.71     | 3.37   | Peak    | 5828.880                      | 110.60 |            |            | 107.22     | 3.38   | Peak    |
| 5855.160                        | 85.06  | 110.76     | -25.70     | 81.64      | 3.42   | Peak    | 5854.800                      | 80.62  | 111.26     | -30.64     | 77.20      | 3.42   | Peak    |
| 5879.640                        | 71.43  | 101.75     | -30.32     | 67.94      | 3.49   | Peak    | 5879.640                      | 69.10  | 101.75     | -32.65     | 65.61      | 3.49   | Peak    |
| 5962.080                        | 65.11  | 68.20      | -3.09      | 61.44      | 3.67   | Peak    | 5962.440                      | 65.89  | 68.20      | -2.31      | 62.22      | 3.67   | Peak    |
| 11650.000                       | 43.05  | 54.00      | -10.95     | 29.81      | 13.24  | Average | 11650.000                     | 45.35  | 54.00      | -8.65      | 32.11      | 13.24  | Average |
| 11650.000                       | 56.94  | 74.00      | -17.06     | 43.70      | 13.24  | Peak    | 11650.000                     | 57.45  | 74.00      | -16.55     | 44.21      | 13.24  | Peak    |
| 17475.000                       | 66.17  | 68.20      | -2.03      | 49.76      | 16.41  | Peak    | 17475.000                     | 67.96  | 68.20      | -0.24      | 51.55      | 16.41  | Peak    |

Note:

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.

Non-Restricted bands signal was less than fundamental 20 dB or more, that don't need get average result.

| IEEE 802.11ac VHT20 Low CH Horizontal |        |               |               |               |        |         | IEEE 802.11ac VHT20 Low CH Vertical |        |               |               |               |        |         |
|---------------------------------------|--------|---------------|---------------|---------------|--------|---------|-------------------------------------|--------|---------------|---------------|---------------|--------|---------|
| Freq                                  | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  | Freq                                | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  |
| MHz                                   | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         | MHz                                 | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         |
| 5648.880                              | 65.65  | 68.20         | -2.55         | 62.77         | 2.88   | Peak    | 5626.560                            | 62.98  | 68.20         | -5.22         | 60.18         | 2.80   | Peak    |
| 5697.480                              | 79.45  | 103.34        | -23.89        | 76.39         | 3.06   | Peak    | 5697.840                            | 73.65  | 103.61        | -29.96        | 70.59         | 3.06   | Peak    |
| 5718.720                              | 89.56  | 110.44        | -20.88        | 86.47         | 3.09   | Peak    | 5718.360                            | 80.61  | 110.34        | -29.73        | 77.52         | 3.09   | Peak    |
| 5743.920                              | 116.20 |               |               | 113.08        | 3.12   | Peak    | 5740.320                            | 109.52 |               |               | 106.39        | 3.13   | Peak    |
| 5863.800                              | 65.23  | 108.33        | -43.10        | 61.78         | 3.45   | Peak    | 5869.560                            | 64.71  | 106.72        | -42.01        | 61.25         | 3.46   | Peak    |
| 5892.960                              | 64.85  | 91.87         | -27.02        | 61.31         | 3.54   | Peak    | 5921.760                            | 65.04  | 70.59         | -5.55         | 61.45         | 3.59   | Peak    |
| 5968.560                              | 65.50  | 68.20         | -2.70         | 61.83         | 3.67   | Peak    | 5948.760                            | 64.46  | 68.20         | -3.74         | 60.82         | 3.64   | Peak    |
| 11490.000                             | 41.87  | 54.00         | -12.13        | 29.34         | 12.53  | Average | 11490.000                           | 43.94  | 54.00         | -10.06        | 31.41         | 12.53  | Average |
| 11490.000                             | 55.43  | 74.00         | -18.57        | 42.90         | 12.53  | Peak    | 11490.000                           | 57.98  | 74.00         | -16.02        | 45.45         | 12.53  | Peak    |
| 17235.000                             | 64.48  | 68.20         | -3.72         | 47.98         | 16.50  | Peak    | 17235.000                           | 67.94  | 68.20         | -0.26         | 51.44         | 16.50  | Peak    |

| IEEE 802.11ac VHT20 Middle CH Horizontal |        |               |               |               |        |         | IEEE 802.11ac VHT20 Middle CH Vertical |        |               |               |               |        |         |
|------------------------------------------|--------|---------------|---------------|---------------|--------|---------|----------------------------------------|--------|---------------|---------------|---------------|--------|---------|
| Freq                                     | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  | Freq                                   | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  |
| MHz                                      | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         | MHz                                    | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         |
| 5643.120                                 | 64.70  | 68.20         | -3.50         | 61.84         | 2.86   | Peak    | 5631.240                               | 63.12  | 68.20         | -5.08         | 60.30         | 2.82   | Peak    |
| 5697.480                                 | 73.20  | 103.34        | -30.14        | 70.14         | 3.06   | Peak    | 5697.480                               | 67.38  | 103.34        | -35.96        | 64.32         | 3.06   | Peak    |
| 5713.320                                 | 77.65  | 108.93        | -31.28        | 74.56         | 3.09   | Peak    | 5719.440                               | 70.06  | 110.64        | -40.58        | 66.97         | 3.09   | Peak    |
| 5786.400                                 | 116.83 |               |               | 113.53        | 3.30   | Peak    | 5783.520                               | 110.50 |               |               | 107.21        | 3.29   | Peak    |
| 5855.520                                 | 75.36  | 110.65        | -35.29        | 71.94         | 3.42   | Peak    | 5855.880                               | 71.35  | 110.55        | -39.20        | 67.93         | 3.42   | Peak    |
| 5882.880                                 | 68.63  | 99.35         | -30.72        | 65.13         | 3.50   | Peak    | 5903.760                               | 65.16  | 83.88         | -18.72        | 61.60         | 3.56   | Peak    |
| 5950.920                                 | 65.34  | 68.20         | -2.86         | 61.70         | 3.64   | Peak    | 5964.600                               | 65.30  | 68.20         | -2.90         | 61.63         | 3.67   | Peak    |
| 11570.000                                | 43.21  | 54.00         | -10.79        | 30.51         | 12.70  | Average | 11570.000                              | 45.90  | 54.00         | -8.10         | 33.20         | 12.70  | Average |
| 11570.000                                | 56.81  | 74.00         | -17.19        | 44.11         | 12.70  | Peak    | 11570.000                              | 59.69  | 74.00         | -14.31        | 46.99         | 12.70  | Peak    |
| 17355.000                                | 65.58  | 68.20         | -2.62         | 49.32         | 16.26  | Peak    | 17355.000                              | 68.11  | 68.20         | -0.09         | 51.85         | 16.26  | Peak    |

| IEEE 802.11ac VHT20 High CH Horizontal |        |               |               |               |        |         | IEEE 802.11ac VHT20 High CH Vertical |        |               |               |               |        |         |
|----------------------------------------|--------|---------------|---------------|---------------|--------|---------|--------------------------------------|--------|---------------|---------------|---------------|--------|---------|
| Freq                                   | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  | Freq                                 | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | Factor | Remark  |
| MHz                                    | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         | MHz                                  | dBuV/m | dBuV/m        | dB            | dBuV          | dB/m   |         |
| 5640.600                               | 63.29  | 68.20         | -4.91         | 60.44         | 2.85   | Peak    | 5622.240                             | 63.48  | 68.20         | -4.72         | 60.70         | 2.78   | Peak    |
| 5697.120                               | 65.97  | 103.08        | -37.11        | 62.91         | 3.06   | Peak    | 5656.800                             | 64.41  | 73.25         | -8.84         | 61.50         | 2.91   | Peak    |
| 5718.000                               | 67.49  | 110.24        | -42.75        | 64.40         | 3.09   | Peak    | 5713.680                             | 64.50  | 109.03        | -44.53        | 61.41         | 3.09   | Peak    |
| 5823.840                               | 116.08 |               |               | 112.69        | 3.39   | Peak    | 5826.720                             | 110.10 |               |               | 106.72        | 3.38   | Peak    |
| 5858.760                               | 91.28  | 109.75        | -18.47        | 87.85         | 3.43   | Peak    | 5855.520                             | 85.01  | 110.65        | -25.64        | 81.59         | 3.42   | Peak    |
| 5878.560                               | 79.72  | 102.56        | -22.84        | 76.23         | 3.49   | Peak    | 5879.640                             | 73.52  | 101.75        | -28.23        | 70.03         | 3.49   | Peak    |
| 5926.080                               | 65.92  | 68.20         | -2.28         | 62.33         | 3.59   | Peak    | 5960.640                             | 64.97  | 68.20         | -3.23         | 61.31         | 3.66   | Peak    |
| 11650.000                              | 43.45  | 54.00         | -10.55        | 30.21         | 13.24  | Average | 11650.000                            | 45.01  | 54.00         | -8.99         | 31.77         | 13.24  | Average |
| 11650.000                              | 57.21  | 74.00         | -16.79        | 43.97         | 13.24  | Peak    | 11650.000                            | 57.39  | 74.00         | -16.61        | 44.15         | 13.24  | Peak    |
| 17475.000                              | 65.06  | 68.20         | -3.14         | 48.65         | 16.41  | Peak    | 17475.000                            | 68.18  | 68.20         | -0.02         | 51.77         | 16.41  | Peak    |

Note:

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.

Non-Restricted bands signal was less than fundamental 20 dB or more, that don't need get average result.

| IEEE 802.11ac VHT40 Low CH Horizontal |        |            |            |            |        |         | IEEE 802.11ac VHT40 Low CH Vertical |        |            |            |            |        |         |
|---------------------------------------|--------|------------|------------|------------|--------|---------|-------------------------------------|--------|------------|------------|------------|--------|---------|
| Freq                                  | Level  | Limit Line | Over Limit | Read Level | Factor | Remark  | Freq                                | Level  | Limit Line | Over Limit | Read Level | Factor | Remark  |
| MHz                                   | dBuV/m | dBuV/m     | dB         | dBuV       | dB/m   |         | MHz                                 | dBuV/m | dBuV/m     | dB         | dBuV       | dB/m   |         |
| 5646.000                              | 67.32  | 68.20      | -0.88      | 64.46      | 2.86   | Peak    | 5636.640                            | 65.12  | 68.20      | -3.08      | 62.29      | 2.83   | Peak    |
| 5698.200                              | 79.89  | 103.87     | -23.98     | 76.83      | 3.06   | Peak    | 5698.560                            | 71.56  | 104.14     | -32.58     | 68.49      | 3.07   | Peak    |
| 5716.560                              | 89.30  | 109.84     | -20.54     | 86.21      | 3.09   | Peak    | 5719.080                            | 82.40  | 110.54     | -28.14     | 79.31      | 3.09   | Peak    |
| 5747.520                              | 107.82 |            |            | 104.69     | 3.13   | Peak    | 5759.400                            | 102.94 |            |            | 99.76      | 3.18   | Peak    |
| 5860.920                              | 68.41  | 109.14     | -40.73     | 64.98      | 3.43   | Peak    | 5860.560                            | 65.95  | 109.24     | -43.29     | 62.52      | 3.43   | Peak    |
| 5881.080                              | 66.71  | 100.68     | -33.97     | 63.21      | 3.50   | Peak    | 5886.480                            | 65.32  | 96.68      | -31.36     | 61.81      | 3.51   | Peak    |
| 5933.640                              | 64.82  | 68.20      | -3.38      | 61.21      | 3.61   | Peak    | 5938.320                            | 65.15  | 68.20      | -3.05      | 61.54      | 3.61   | Peak    |
| 11510.000                             | 41.56  | 54.00      | -12.44     | 28.98      | 12.58  | Average | 11510.000                           | 43.98  | 54.00      | -10.02     | 31.40      | 12.58  | Average |
| 11510.000                             | 54.28  | 74.00      | -19.72     | 41.70      | 12.58  | Peak    | 11510.000                           | 54.84  | 74.00      | -19.16     | 42.26      | 12.58  | Peak    |
| 17265.000                             | 60.76  | 68.20      | -7.44      | 43.98      | 16.78  | Peak    | 17265.000                           | 61.34  | 68.20      | -6.86      | 44.56      | 16.78  | Peak    |

| IEEE 802.11ac VHT40 High CH Horizontal |        |            |            |            |        |         | IEEE 802.11ac VHT40 High CH Vertical |        |            |            |            |        |         |
|----------------------------------------|--------|------------|------------|------------|--------|---------|--------------------------------------|--------|------------|------------|------------|--------|---------|
| Freq                                   | Level  | Limit Line | Over Limit | Read Level | Factor | Remark  | Freq                                 | Level  | Limit Line | Over Limit | Read Level | Factor | Remark  |
| MHz                                    | dBuV/m | dBuV/m     | dB         | dBuV       | dB/m   |         | MHz                                  | dBuV/m | dBuV/m     | dB         | dBuV       | dB/m   |         |
| 5639.880                               | 67.03  | 68.20      | -1.17      | 64.18      | 2.85   | Peak    | 5618.640                             | 63.63  | 68.20      | -4.57      | 60.86      | 2.77   | Peak    |
| 5695.320                               | 75.73  | 101.75     | -26.02     | 72.68      | 3.05   | Peak    | 5694.600                             | 67.72  | 101.22     | -33.50     | 64.68      | 3.04   | Peak    |
| 5719.440                               | 81.36  | 110.64     | -29.28     | 78.27      | 3.09   | Peak    | 5713.680                             | 71.88  | 109.03     | -37.15     | 68.79      | 3.09   | Peak    |
| 5787.480                               | 113.54 |            |            | 110.24     | 3.30   | Peak    | 5801.880                             | 107.12 |            |            | 103.76     | 3.36   | Peak    |
| 5858.760                               | 83.28  | 109.75     | -26.47     | 79.85      | 3.43   | Peak    | 5859.120                             | 75.88  | 109.64     | -33.76     | 72.45      | 3.43   | Peak    |
| 5880.000                               | 76.60  | 101.49     | -24.89     | 73.10      | 3.50   | Peak    | 5878.920                             | 70.18  | 102.29     | -32.11     | 66.69      | 3.49   | Peak    |
| 5928.600                               | 67.26  | 68.20      | -0.94      | 63.66      | 3.60   | Peak    | 5940.120                             | 65.33  | 68.20      | -2.87      | 61.71      | 3.62   | Peak    |
| 11590.000                              | 42.19  | 54.00      | -11.81     | 29.45      | 12.74  | Average | 11590.000                            | 43.59  | 54.00      | -10.41     | 30.85      | 12.74  | Average |
| 11590.000                              | 52.74  | 74.00      | -21.26     | 40.00      | 12.74  | Peak    | 11590.000                            | 54.14  | 74.00      | -19.86     | 41.40      | 12.74  | Peak    |
| 17385.000                              | 58.97  | 68.20      | -9.23      | 42.71      | 16.26  | Peak    | 17385.000                            | 59.94  | 68.20      | -8.26      | 43.68      | 16.26  | Peak    |

| IEEE 802.11ac VHT80 Horizontal |        |            |            |            |        |         | IEEE 802.11ac VHT80 Vertical |        |            |            |            |        |         |
|--------------------------------|--------|------------|------------|------------|--------|---------|------------------------------|--------|------------|------------|------------|--------|---------|
| Freq                           | Level  | Limit Line | Over Limit | Read Level | Factor | Remark  | Freq                         | Level  | Limit Line | Over Limit | Read Level | Factor | Remark  |
| MHz                            | dBuV/m | dBuV/m     | dB         | dBuV       | dB/m   |         | MHz                          | dBuV/m | dBuV/m     | dB         | dBuV       | dB/m   |         |
| 5648.880                       | 66.52  | 68.20      | -1.68      | 63.64      | 2.88   | Peak    | 5630.880                     | 62.94  | 68.20      | -5.26      | 60.12      | 2.82   | Peak    |
| 5695.320                       | 80.14  | 101.75     | -21.61     | 77.09      | 3.05   | Peak    | 5695.680                     | 69.26  | 102.02     | -32.76     | 66.21      | 3.05   | Peak    |
| 5706.840                       | 83.12  | 107.12     | -24.00     | 80.04      | 3.08   | Peak    | 5718.360                     | 74.09  | 110.34     | -36.25     | 71.00      | 3.09   | Peak    |
| 5754.720                       | 107.60 |            |            | 104.43     | 3.17   | Peak    | 5797.920                     | 100.89 |            |            | 97.54      | 3.35   | Peak    |
| 5856.600                       | 78.38  | 110.35     | -31.97     | 74.96      | 3.42   | Peak    | 5856.600                     | 74.43  | 110.35     | -35.92     | 71.01      | 3.42   | Peak    |
| 5878.920                       | 69.17  | 102.29     | -33.12     | 65.68      | 3.49   | Peak    | 5886.120                     | 66.08  | 96.94      | -30.86     | 62.57      | 3.51   | Peak    |
| 5930.400                       | 64.88  | 68.20      | -3.32      | 61.27      | 3.61   | Peak    | 5938.320                     | 65.03  | 68.20      | -3.17      | 61.42      | 3.61   | Peak    |
| 11550.000                      | 39.97  | 54.00      | -14.03     | 27.31      | 12.66  | Average | 11550.000                    | 43.18  | 54.00      | -10.82     | 30.52      | 12.66  | Average |
| 11550.000                      | 52.22  | 74.00      | -21.78     | 39.56      | 12.66  | Peak    | 11550.000                    | 53.66  | 74.00      | -20.34     | 41.00      | 12.66  | Peak    |
| 17355.000                      | 57.24  | 68.20      | -10.96     | 40.98      | 16.26  | Peak    | 17325.000                    | 57.57  | 68.20      | -10.63     | 40.84      | 16.73  | Peak    |

Note:

Result = Reading + Correct Factor.

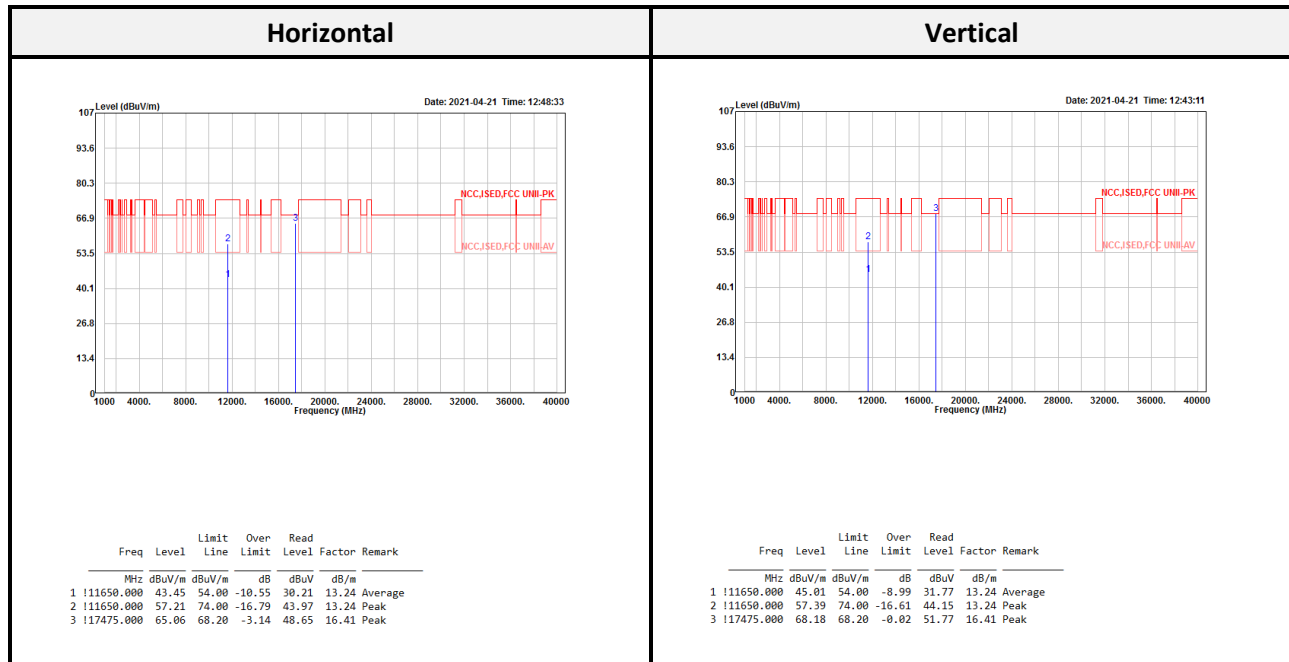
Margin = Result – Limit.

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain.

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

Non-Restricted bands signal was less than fundamental 20 dB or more, that don't need get average result.

Above 1G (1 GHz-40 GHz): The worst mode is 802.11ac VHT20 High CH.



Note:

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.

Non-Restricted bands signal was less than fundamental 20 dB or more, that don't need get average result.

## 8 FCC §15.407(a) and §15.407(e) –Emission Bandwidth

### 8.1 Applicable Standard

According to 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.

According to 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.

### 8.2 Test Procedure

- 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 n 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%;

### 8.3 Test Equipment List and Details

| Description                  | Manufacture     | Model  | Serial No.       | Cal. Date. | Cal. Due.  |
|------------------------------|-----------------|--------|------------------|------------|------------|
| Conducted Room(TH-02)        |                 |        |                  |            |            |
| Signal and Spectrum Analyzer | Rohde & Schwarz | FSU 26 | 100406           | 2021/03/10 | 2022/03/09 |
| Cable                        | MTJ             | MT40S  | 620620-MT40S-100 | Each Use   | -          |

**\*Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).

## 8.4 Test Results

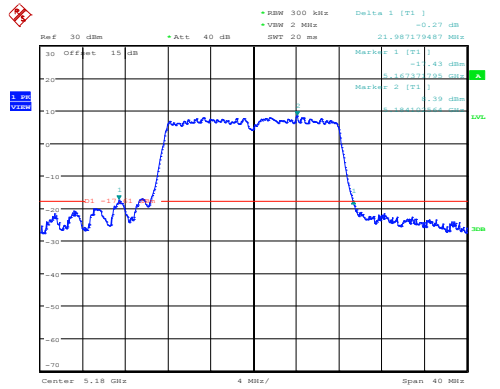
| Band   | Configuration  | Channel | Frequency (MHz) | 99% Occupied BW (MHz) |        | 26dB Emission Bandwidth (MHz) |        |
|--------|----------------|---------|-----------------|-----------------------|--------|-------------------------------|--------|
|        |                |         |                 | Chain0                | Chain1 | Chain0                        | Chain1 |
| UNII-1 | 802.11a        | 36      | 5180            | 16.47                 | 16.47  | 21.99                         | 19.94  |
|        |                | 40      | 5200            | 16.86                 | 17.56  | 34.55                         | 35.71  |
|        |                | 48      | 5240            | 16.79                 | 17.76  | 34.74                         | 35.06  |
|        | 802.11ac VHT20 | 36      | 5180            | 17.63                 | 17.63  | 19.94                         | 19.87  |
|        |                | 40      | 5200            | 17.69                 | 17.88  | 37.50                         | 35.32  |
|        |                | 48      | 5240            | 17.69                 | 18.46  | 37.76                         | 36.47  |
|        | 802.11ac VHT40 | 38      | 5190            | 36.28                 | 36.28  | 42.31                         | 42.18  |
|        |                | 46      | 5230            | 36.41                 | 36.41  | 50.38                         | 70.64  |
|        | 802.11ac VHT80 | 42      | 5210            | 75.38                 | 75.64  | 82.56                         | 82.82  |

| Band   | Configuration  | Channel | Frequency (MHz) | 99% Occupied BW (MHz) |        | 6dB Emission Bandwidth (MHz) |        |
|--------|----------------|---------|-----------------|-----------------------|--------|------------------------------|--------|
|        |                |         |                 | Chain0                | Chain1 | Chain0                       | Chain1 |
| UNII-1 | 802.11a        | 149     | 5745            | 17.18                 | 18.33  | 16.41                        | 16.41  |
|        |                | 157     | 5785            | 17.24                 | 18.46  | 16.47                        | 16.47  |
|        |                | 165     | 5825            | 17.37                 | 18.72  | 16.47                        | 16.47  |
|        | 802.11ac VHT20 | 149     | 5745            | 17.69                 | 17.82  | 17.69                        | 17.69  |
|        |                | 157     | 5785            | 18.14                 | 20.71  | 17.76                        | 17.76  |
|        |                | 165     | 5825            | 18.21                 | 21.41  | 17.76                        | 17.76  |
|        | 802.11ac VHT40 | 151     | 5755            | 36.67                 | 37.05  | 36.41                        | 36.41  |
|        |                | 159     | 5795            | 36.54                 | 37.05  | 36.41                        | 36.41  |
|        | 802.11ac VHT80 | 155     | 5775            | 75.13                 | 75.38  | 76.41                        | 76.41  |

Note: Limit is 500 kHz or more.

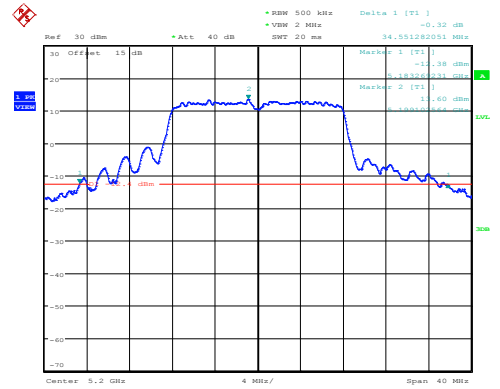
# 26 dB Bandwidth (UNII-1):

IEEE 802.11a Low CH Chain0



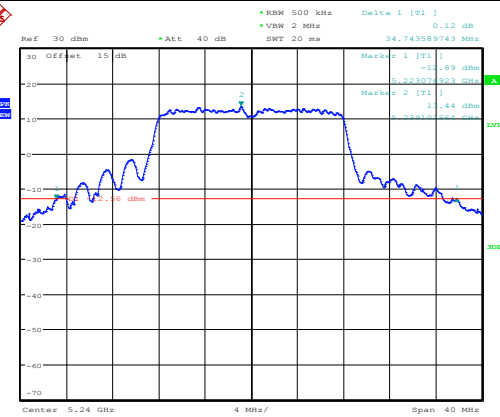
Date: 14.APR.2021 12:36:50

IEEE 802.11a Middle CH Chain0



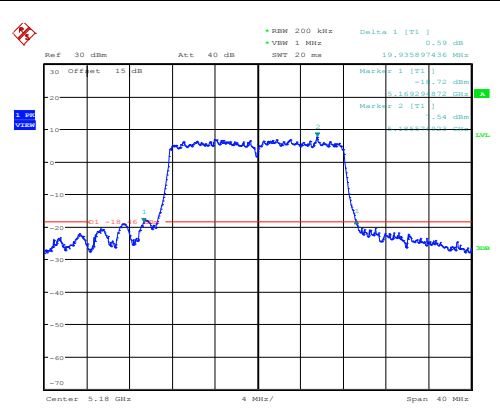
Date: 14.APR.2021 13:35:49

IEEE 802.11a High CH Chain0



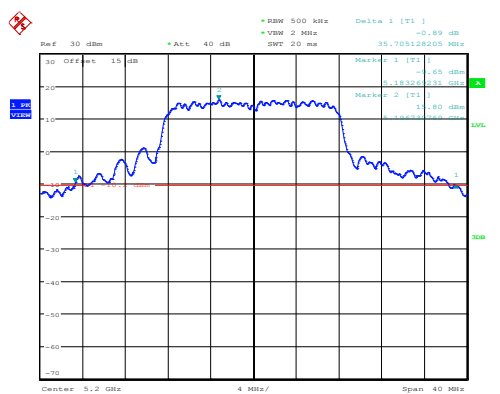
Date: 14.APR.2021 14:29:10

IEEE 802.11a Low CH Chain1



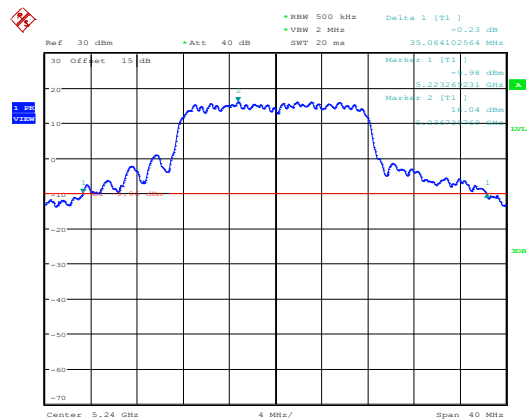
Date: 14.APR.2021 14:41:09

IEEE 802.11a Middle CH Chain1



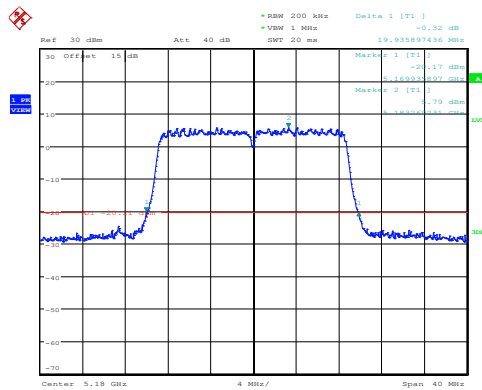
Date: 14.APR.2021 14:35:03

IEEE 802.11a High CH Chain1



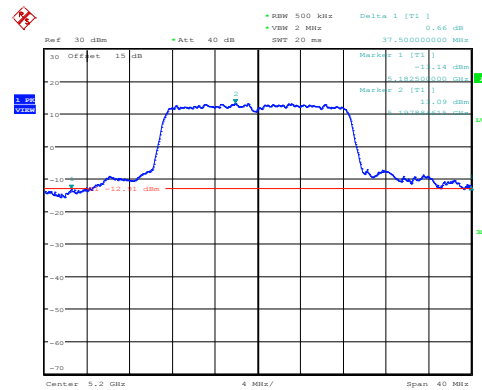
Date: 14.APR.2021 14:32:29

### IEEE 802.11ac VHT20 Low CH Chain0



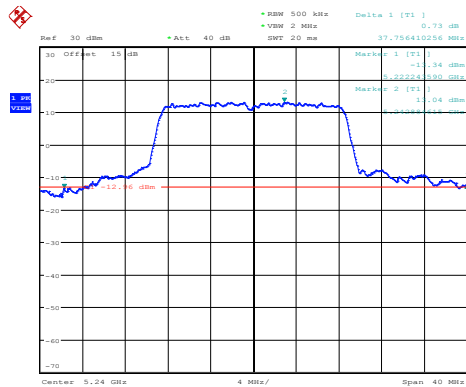
Date: 14.APR.2021 14:52:01

### IEEE 802.11ac VHT20 Middle CH Chain0



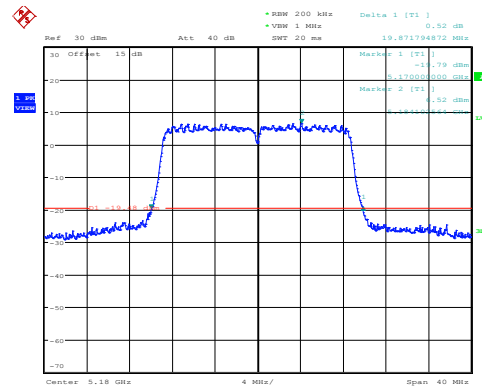
Date: 14.APR.2021 14:54:54

### IEEE 802.11ac VHT20 High CH Chain0



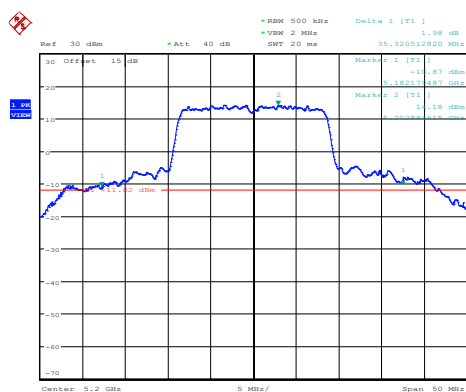
Date: 14.APR.2021 15:02:40

### IEEE 802.11ac VHT20 Low CH Chain1



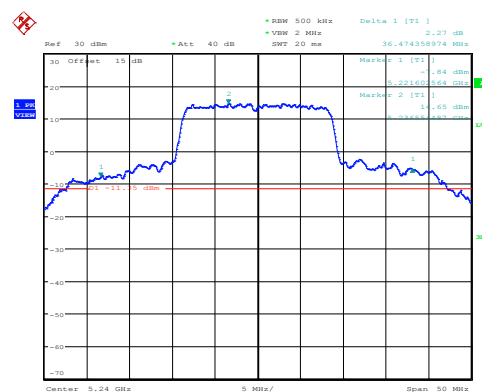
Date: 14.APR.2021 15:12:40

### IEEE 802.11ac VHT20 Middle CH Chain1



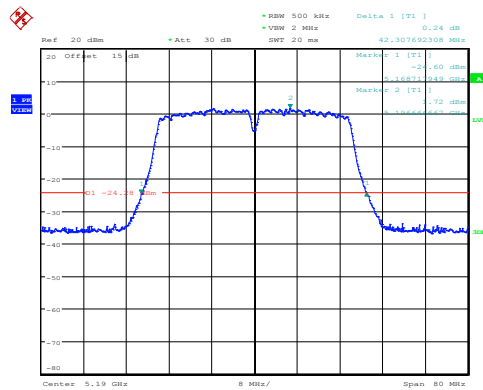
Date: 14.APR.2021 15:14:51

### IEEE 802.11ac VHT20 High CH Chain1



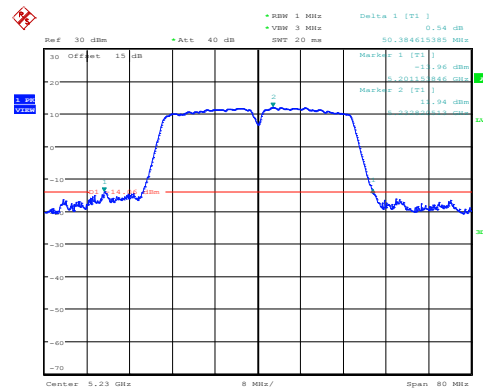
Date: 14.APR.2021 15:17:19

### IEEE 802.11ac VHT40 Low CH Chain0



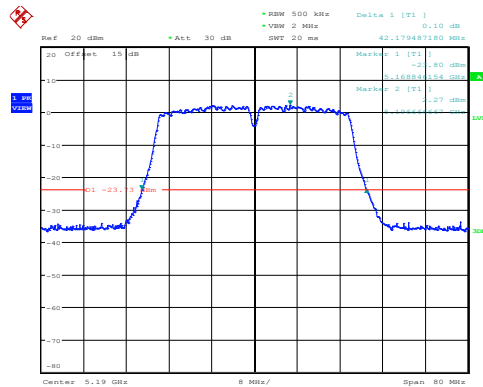
Date: 14.APR.2021 15:23:12

### IEEE 802.11ac VHT40 High CH Chain0



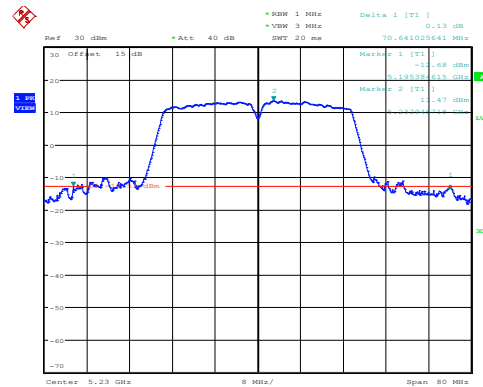
Date: 14.APR.2021 15:33:10

### IEEE 802.11ac VHT40 Low CH Chain1



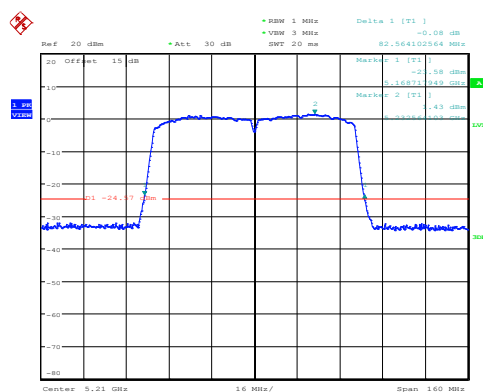
Date: 14.APR.2021 15:35:11

### IEEE 802.11ac VHT40 High CH Chain1



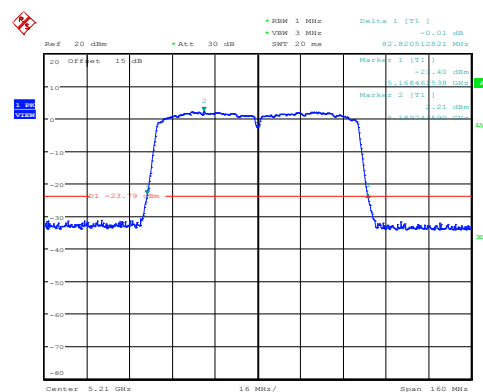
Date: 14.APR.2021 15:38:02

### IEEE 802.11ac VHT80 Chain0



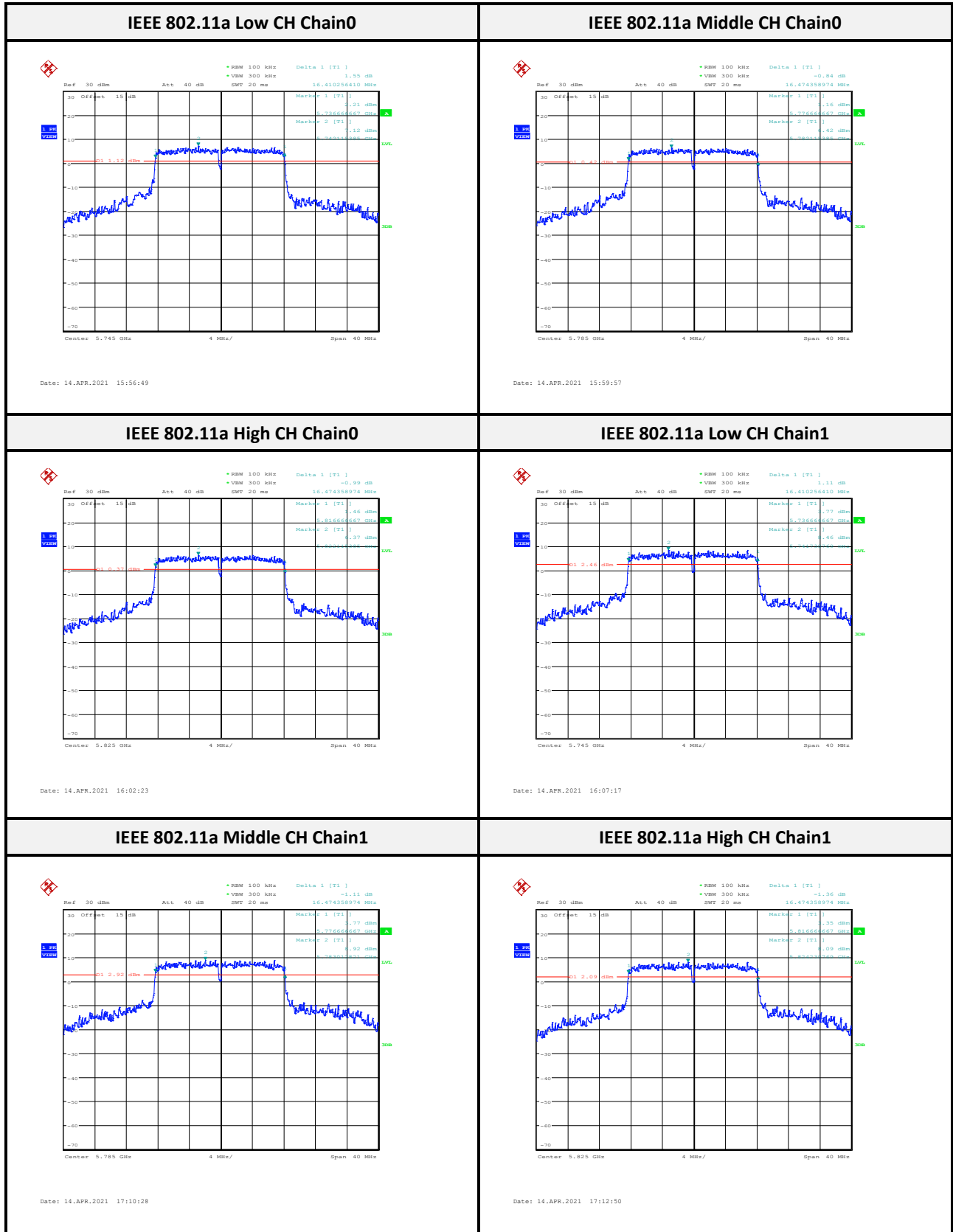
Date: 14.APR.2021 15:42:03

### IEEE 802.11ac VHT80 Chain1

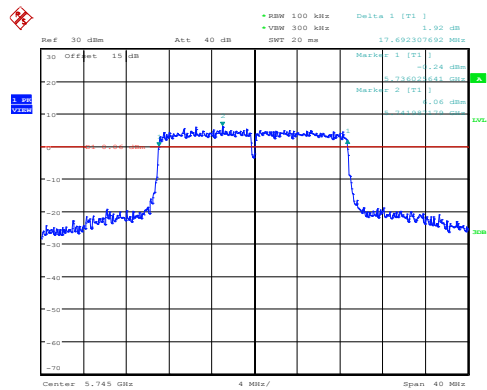


Date: 14.APR.2021 15:45:38

6 dB Bandwidth (UNII-3):

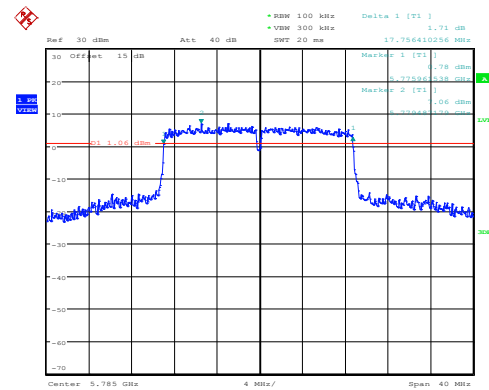


### IEEE 802.11ac VHT20 Low CH Chain0



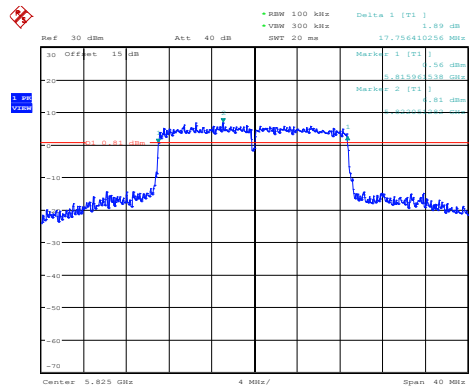
Date: 14.APR.2021 17:21:16

### IEEE 802.11ac VHT20 Middle CH Chain0



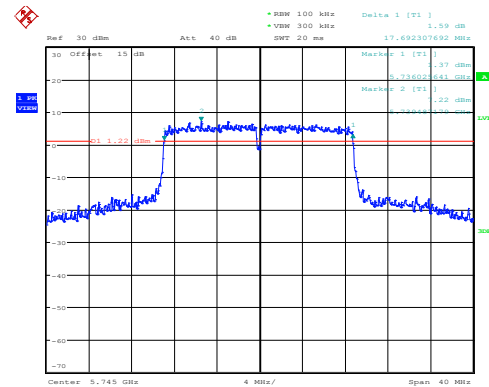
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### IEEE 802.11ac VHT20 High CH Chain0



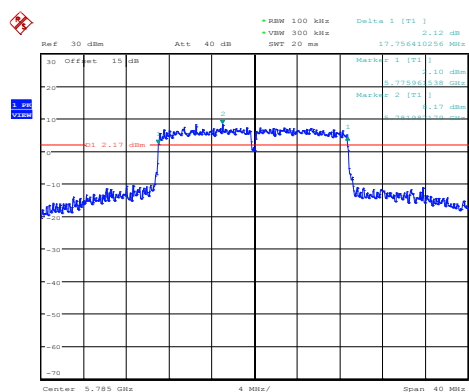
Date: 14.APR.2021 17:25:57

### IEEE 802.11ac VHT20 Low CH Chain1



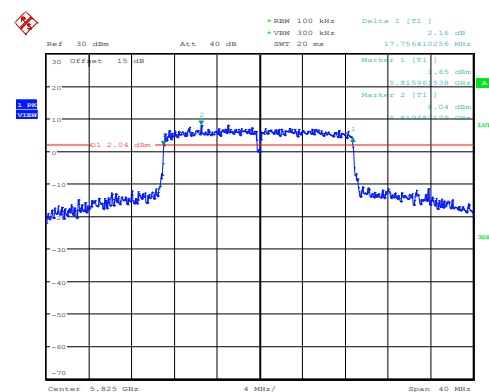
Date: 14.APR.2021 17:28:59

### IEEE 802.11ac VHT20 Middle CH Chain1



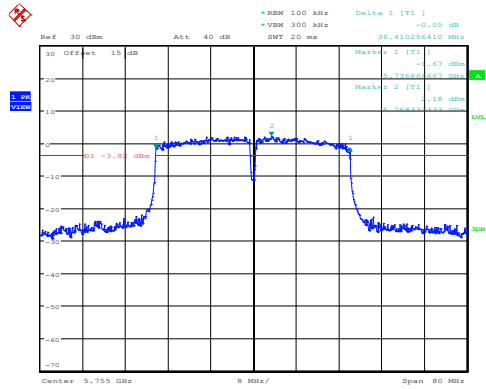
Date: 14.APR.2021 17:31:18

### IEEE 802.11ac VHT20 High CH Chain1



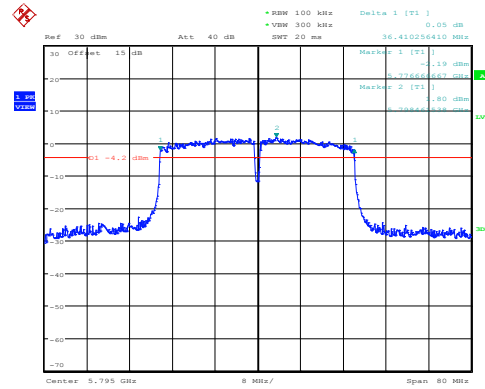
Date: 14.APR.2021 17:33:39

### IEEE 802.11ac VHT40 Low CH Chain0



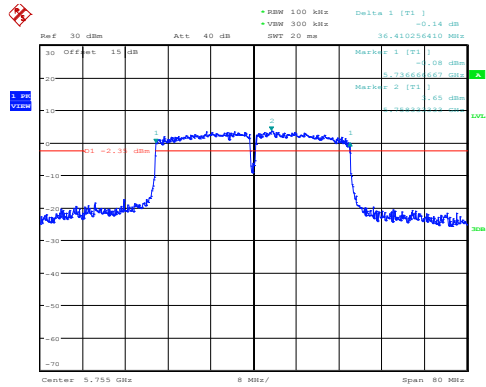
Date: 14.APR.2021 17:38:51

### IEEE 802.11ac VHT40 High CH Chain0



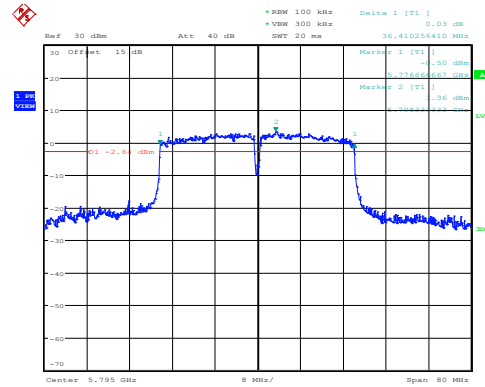
Date: 14.APR.2021 17:42:59

### IEEE 802.11ac VHT40 Low CH Chain1



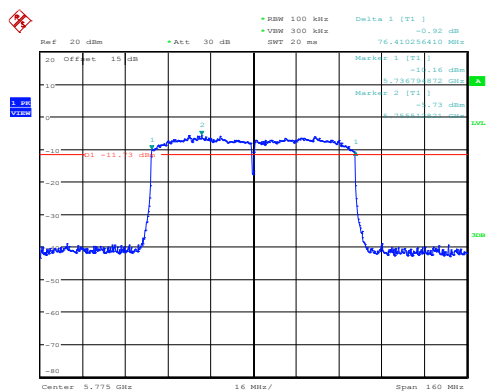
Date: 14.APR.2021 17:46:45

### IEEE 802.11ac VHT40 High CH Chain1



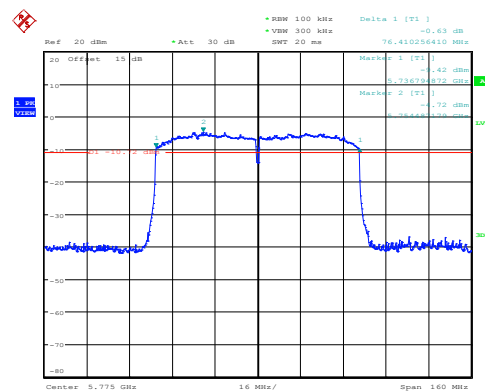
Date: 14.APR.2021 17:48:55

### IEEE 802.11ac VHT80 Chain0



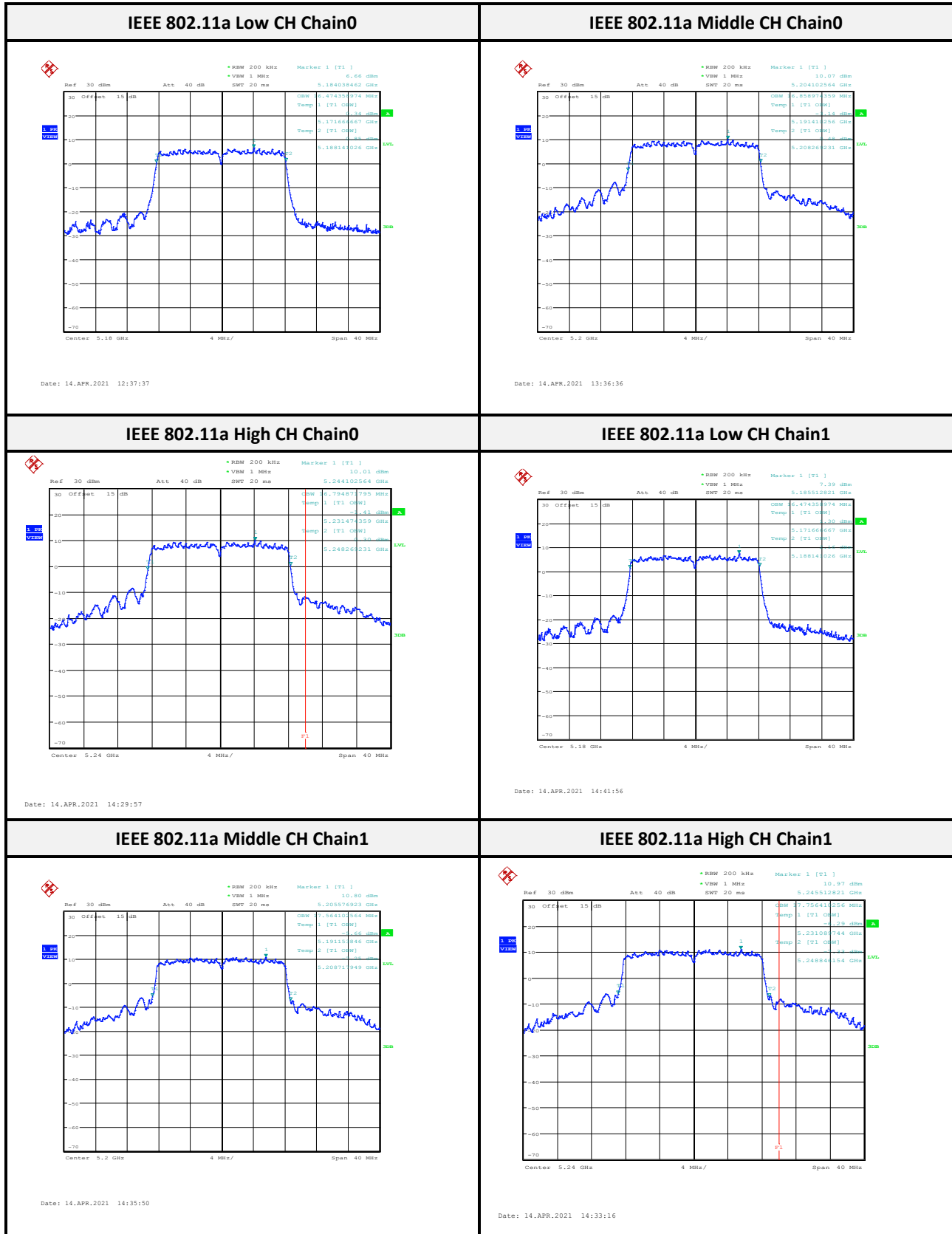
Date: 14.APR.2021 17:55:31

### IEEE 802.11ac VHT80 Chain1

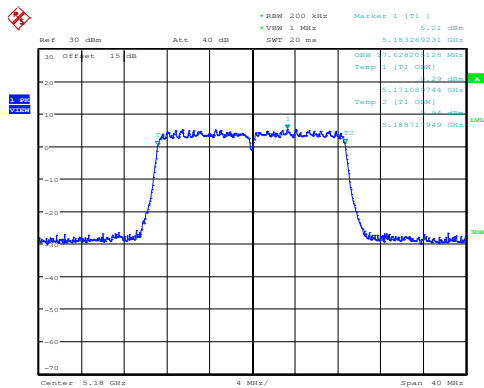


Date: 14.APR.2021 17:52:19

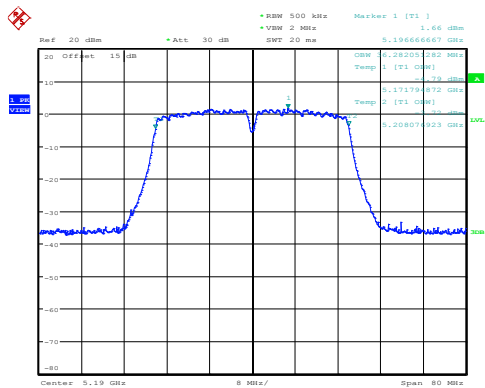
99% Occupied Bandwidth (UNII-1):



### IEEE 802.11ac VHT20 Low CH Chain0

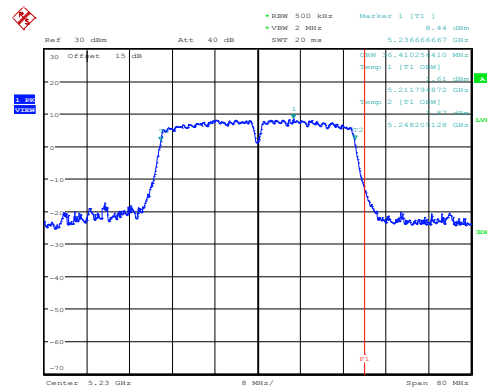


### IEEE 802.11ac VHT40 Low CH Chain0



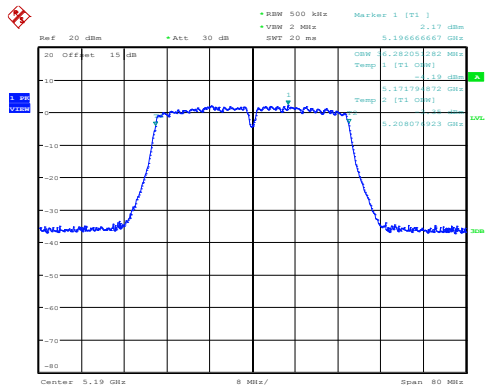
Date: 14.APR.2021 15:23:59

### IEEE 802.11ac VHT40 High CH Chain0



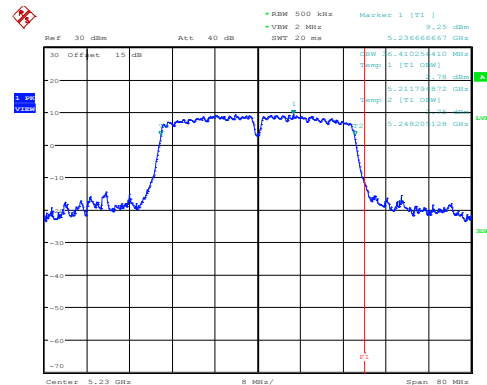
Date: 14.APR.2021 15:31:46

### IEEE 802.11ac VHT40 Low CH Chain1



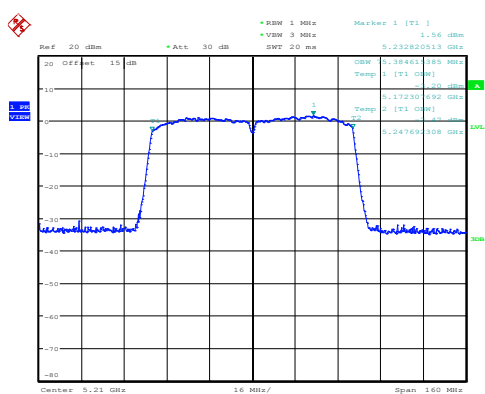
Date: 14.APR.2021 15:35:58

### IEEE 802.11ac VHT40 High CH Chain1



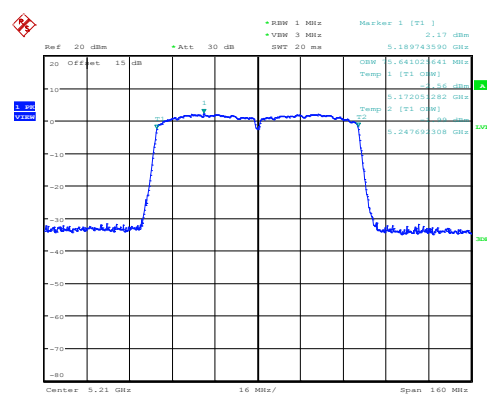
Date: 14.APR.2021 15:38:49

### IEEE 802.11ac VHT80 Chain0



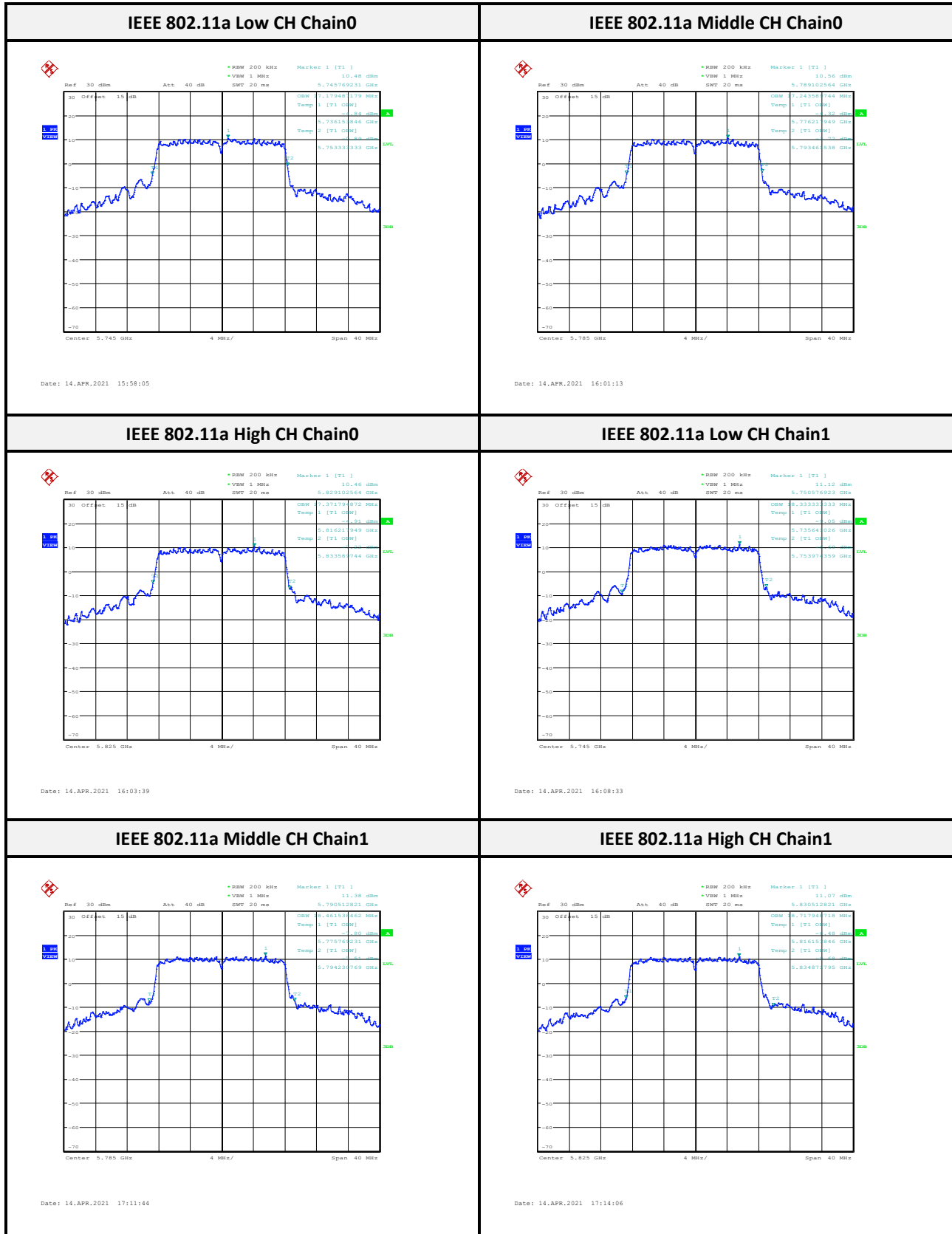
Date: 14.APR.2021 15:42:54

### IEEE 802.11ac VHT80 Chain1

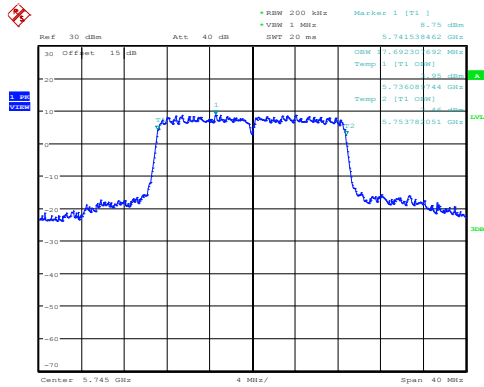


Date: 14.APR.2021 15:46:28

99% Occupied Bandwidth (UNII-3):

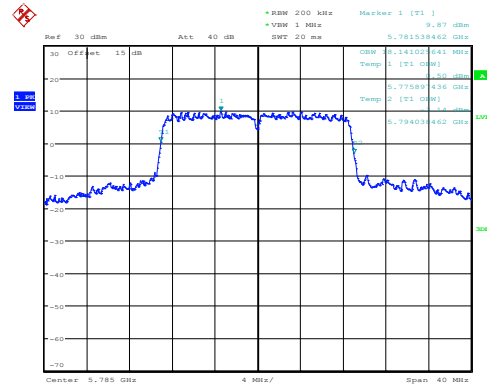


### IEEE 802.11ac VHT20 Low CH Chain0



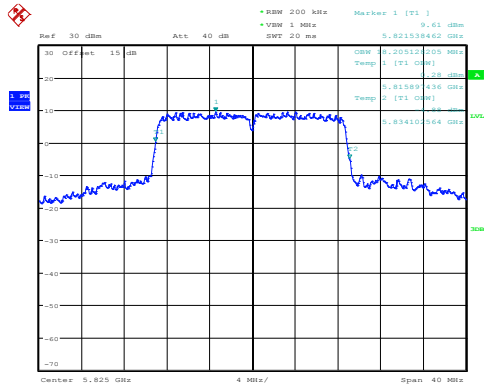
Date: 14.APR.2021 17:22:33

### IEEE 802.11ac VHT20 Middle CH Chain0



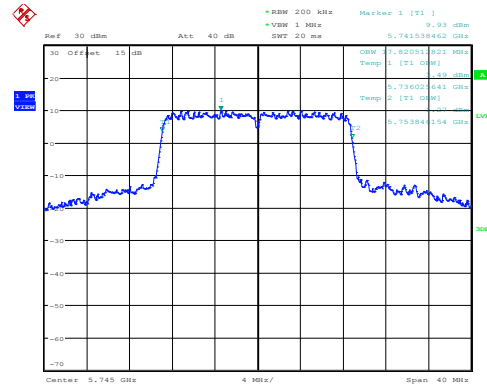
Date: 14.APR.2021 17:24:53

### IEEE 802.11ac VHT20 High CH Chain0



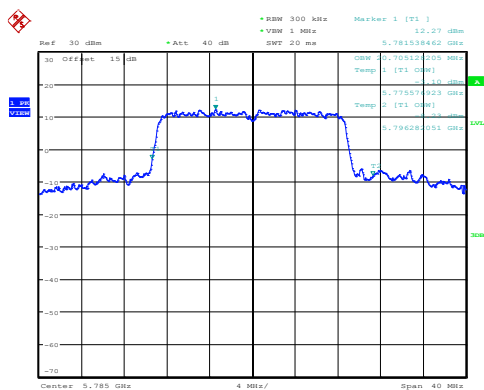
Date: 14.APR.2021 17:27:13

### IEEE 802.11ac VHT20 Low CH Chain1



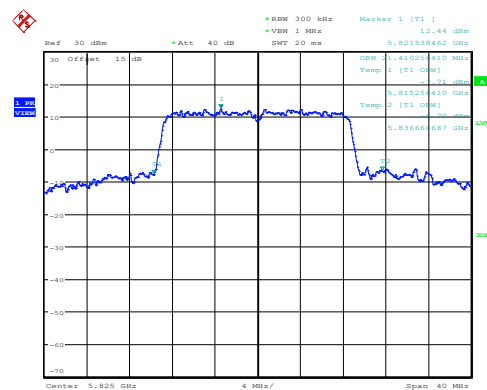
Date: 14.APR.2021 17:30:15

### IEEE 802.11ac VHT20 Middle CH Chain1



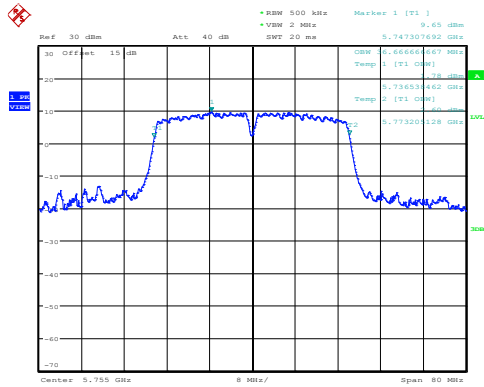
Date: 14.APR.2021 19:32:23

### IEEE 802.11ac VHT20 High CH Chain1



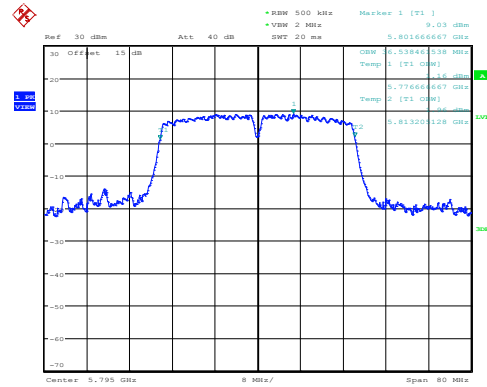
Date: 14.APR.2021 19:33:33

### IEEE 802.11ac VHT40 Low CH Chain0



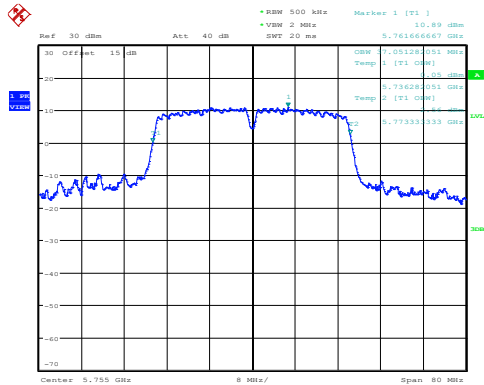
Date: 14.APR.2021 17:40:07

### IEEE 802.11ac VHT40 High CH Chain0



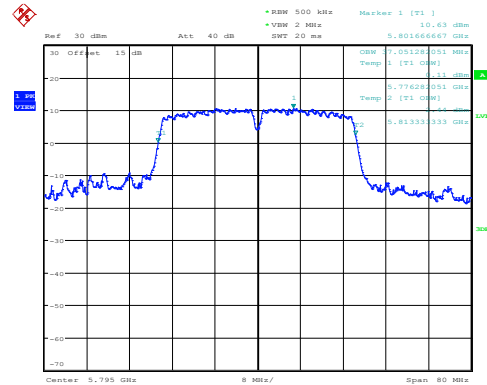
Date: 14.APR.2021 17:44:16

### IEEE 802.11ac VHT40 Low CH Chain1



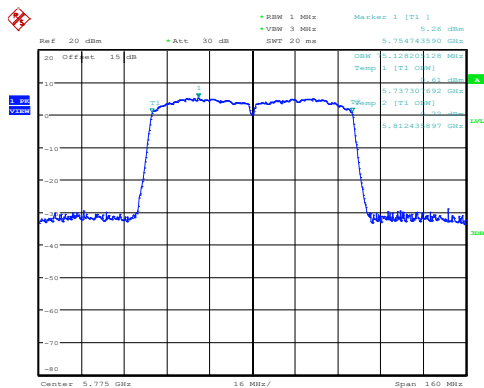
Date: 14.APR.2021 17:48:02

### IEEE 802.11ac VHT40 High CH Chain1



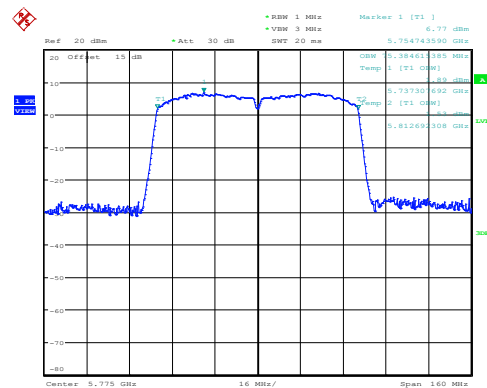
Date: 14.APR.2021 17:50:11

### IEEE 802.11ac VHT80 Chain0



Date: 14.APR.2021 17:56:50

### IEEE 802.11ac VHT80 Chain1



Date: 14.APR.2021 17:53:38

## 9 FCC §15.407(a)(1) – Maximum Output Power

### 9.1 Applicable Standard

According to FCC §15.407(a),

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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.

### 9.2 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01,

- 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.

### 9.3 Test Equipment List and Details

| Description               | Manufacture | Model   | Serial No.       | Cal. Date. | Cal. Due.  |
|---------------------------|-------------|---------|------------------|------------|------------|
| Conducted Room(TH-02)     |             |         |                  |            |            |
| USB Wideband Power Sensor | Agilent     | U2021XA | MY56120026       | 2020/09/14 | 2021/09/13 |
| Cable                     | MTJ         | MT40S   | 620620-MT40S-100 | Each Use   | -          |

**\*Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).

**9.4 Test Results**

| Configuration       | Channel | Frequency (MHz) | Maximum Peak Output Power (dBm) |        |       |        | Limit (dBm) |
|---------------------|---------|-----------------|---------------------------------|--------|-------|--------|-------------|
|                     |         |                 | Chain0                          | Chain1 | SUM   | W      |             |
| IEEE 802.11a        | 36      | 5180            | 17.14                           | 18.18  | 20.70 | 0.1175 | 30.00       |
|                     | 40      | 5200            | 20.65                           | 21.94  | 24.35 | 0.2723 | 30.00       |
|                     | 48      | 5240            | 20.41                           | 22.02  | 24.30 | 0.2692 | 30.00       |
|                     | 149     | 5745            | 21.05                           | 22.19  | 24.67 | 0.2931 | 30.00       |
|                     | 157     | 5785            | 20.87                           | 22.24  | 24.62 | 0.2897 | 30.00       |
|                     | 165     | 5825            | 20.78                           | 22.10  | 24.50 | 0.2818 | 30.00       |
| IEEE 802.11n HT20   | 36      | 5180            | 16.52                           | 17.30  | 19.94 | 0.0986 | 30.00       |
|                     | 40      | 5200            | 20.16                           | 21.29  | 23.77 | 0.2382 | 30.00       |
|                     | 48      | 5240            | 20.32                           | 21.88  | 24.18 | 0.2618 | 30.00       |
|                     | 149     | 5745            | 19.52                           | 20.82  | 23.23 | 0.2104 | 30.00       |
|                     | 157     | 5785            | 20.83                           | 21.77  | 24.34 | 0.2716 | 30.00       |
|                     | 165     | 5825            | 20.44                           | 21.82  | 24.19 | 0.2624 | 30.00       |
| IEEE 802.11n HT40   | 38      | 5190            | 11.77                           | 12.22  | 15.01 | 0.0317 | 30.00       |
|                     | 46      | 5230            | 18.31                           | 19.34  | 21.87 | 0.1538 | 30.00       |
|                     | 151     | 5755            | 19.23                           | 20.28  | 22.80 | 0.1905 | 30.00       |
|                     | 159     | 5795            | 18.90                           | 20.21  | 22.61 | 0.1824 | 30.00       |
| IEEE 802.11ac VHT20 | 36      | 5180            | 16.78                           | 17.37  | 20.10 | 0.1023 | 30.00       |
|                     | 40      | 5200            | 20.38                           | 21.36  | 23.91 | 0.2460 | 30.00       |
|                     | 48      | 5240            | 20.36                           | 21.92  | 24.22 | 0.2642 | 30.00       |
|                     | 149     | 5745            | 19.55                           | 20.89  | 23.28 | 0.2128 | 30.00       |
|                     | 157     | 5785            | 20.89                           | 21.87  | 24.42 | 0.2767 | 30.00       |
|                     | 165     | 5825            | 20.56                           | 21.89  | 24.29 | 0.2685 | 30.00       |
| IEEE 802.11ac VHT40 | 38      | 5190            | 11.86                           | 12.43  | 15.16 | 0.0328 | 30.00       |
|                     | 46      | 5230            | 18.37                           | 19.42  | 21.94 | 0.1563 | 30.00       |
|                     | 151     | 5755            | 19.32                           | 20.42  | 22.92 | 0.1959 | 30.00       |
|                     | 159     | 5795            | 18.93                           | 20.38  | 22.73 | 0.1875 | 30.00       |
| IEEE 802.11ac VHT80 | 42      | 5210            | 10.61                           | 11.63  | 14.16 | 0.0261 | 30.00       |
|                     | 155     | 5775            | 14.16                           | 15.53  | 17.91 | 0.0618 | 30.00       |

## 10 FCC §15.407(a) – Power Spectral Density

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### 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

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 and ANSI 63.10: 2013 Sec 10.3.7.

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

- a) Set the RBW to 1 MHz.
- b) Set the VBW to be at least 1 MHz (a VBW of 3 MHz is desirable).
- c) Set the frequency span to examine the spectrum across a convenient frequency segment (e.g., 600 MHz).
- d) Select the power averaging (rms) detector.
- e) Set the sweep time so that there is no more than a 1 ms integration period over each measurement bin.
- f) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

### 10.3 Test Equipment List and Details

| Description                  | Manufacture     | Model  | Serial No.       | Cal. Date. | Cal. Due.  |
|------------------------------|-----------------|--------|------------------|------------|------------|
| Conducted Room(TH-02)        |                 |        |                  |            |            |
| Signal and Spectrum Analyzer | Rohde & Schwarz | FSU 26 | 100406           | 2021/03/10 | 2022/03/09 |
| Cable                        | MTJ             | MT40S  | 620620-MT40S-100 | Each Use   | -          |

**\*Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).

### 10.4 Test Results

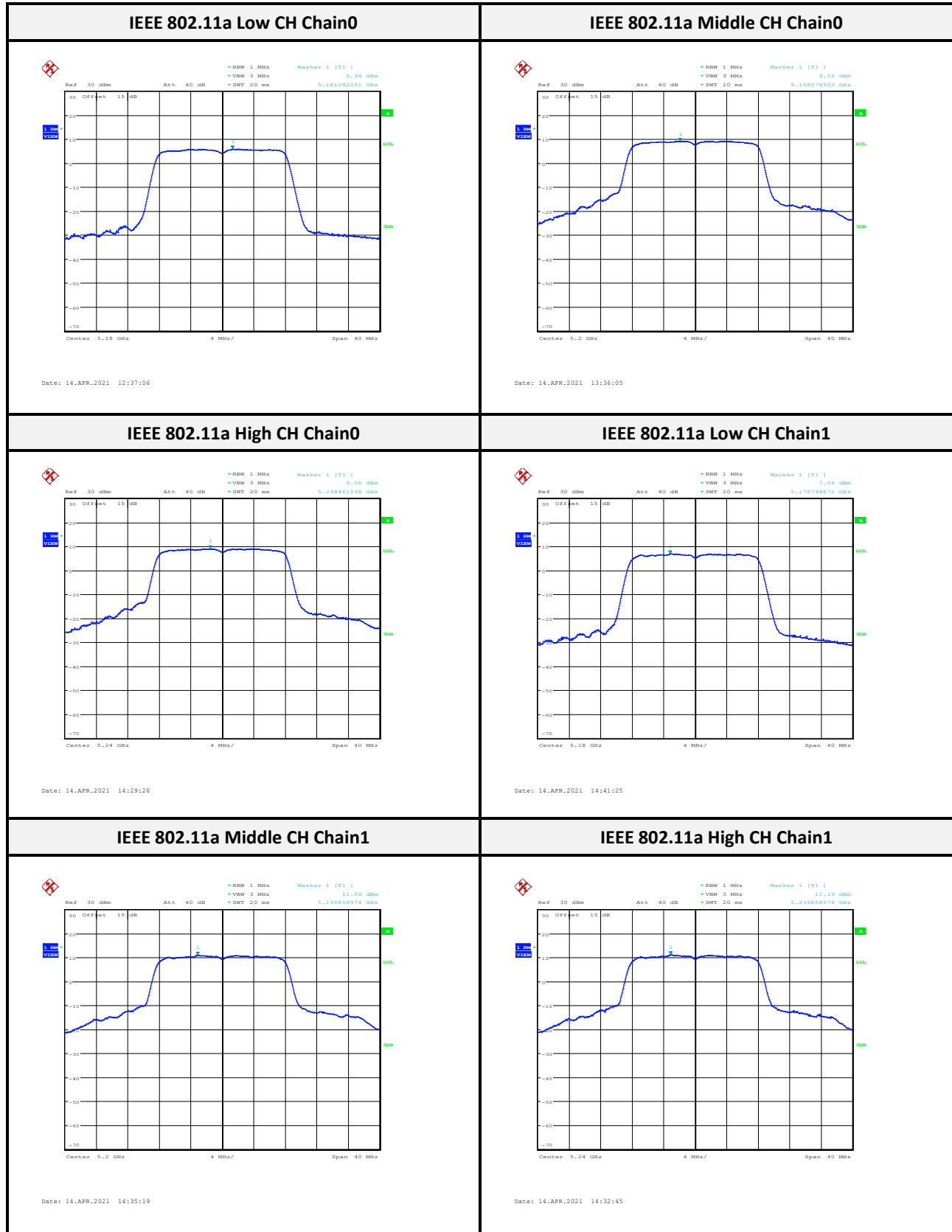
| Band   | Configuration  | Channel | Frequency (MHz) | PSD (dBm/MHz) |        |       | Limit (dBm/MHz) | Result     |
|--------|----------------|---------|-----------------|---------------|--------|-------|-----------------|------------|
|        |                |         |                 | Chain0        | Chain1 | SUM   |                 |            |
| UNII-1 | 802.11a        | 36      | 5180            | 5.94          | 7.04   | 9.54  | 16.79           | Compliance |
|        |                | 40      | 5200            | 9.16          | 11.09  | 13.24 | 16.79           | Compliance |
|        |                | 48      | 5240            | 9.06          | 11.19  | 13.26 | 16.79           | Compliance |
|        | 802.11ac VHT20 | 36      | 5180            | 5.25          | 5.99   | 8.65  | 16.79           | Compliance |
|        |                | 40      | 5200            | 8.99          | 10.06  | 12.57 | 16.79           | Compliance |
|        |                | 48      | 5240            | 8.92          | 10.71  | 12.92 | 16.79           | Compliance |
|        | 802.11ac VHT40 | 38      | 5190            | -2.60         | -2.03  | 0.70  | 16.79           | Compliance |
|        |                | 46      | 5230            | 4.43          | 5.22   | 7.85  | 16.79           | Compliance |
|        | 802.11ac VHT80 | 42      | 5210            | -6.42         | -5.78  | -3.08 | 16.79           | Compliance |

Note: Limit = 17 - (Direction Gain-6) = 17 - 0.21 = 16.79 dBm/MHz

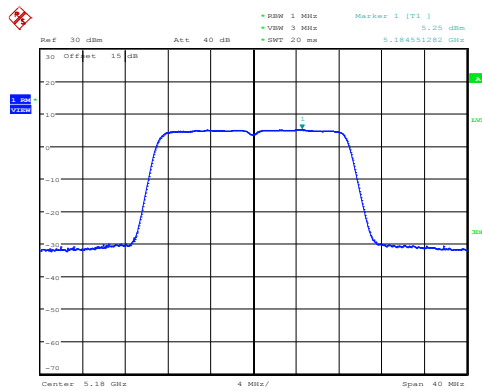
| Band   | Configuration  | Channel | Frequency (MHz) | PSD (dBm/500 kHz) |        |       | Limit (dBm/500 kHz) | Result     |
|--------|----------------|---------|-----------------|-------------------|--------|-------|---------------------|------------|
|        |                |         |                 | Chain0            | Chain1 | SUM   |                     |            |
| UNII-1 | 802.11a        | 149     | 5745            | 7.70              | 8.93   | 11.37 | 29.79               | Compliance |
|        |                | 157     | 5785            | 7.27              | 8.97   | 11.21 | 29.79               | Compliance |
|        |                | 165     | 5825            | 7.38              | 8.67   | 11.08 | 16.79               | Compliance |
|        | 802.11ac VHT20 | 149     | 5745            | 6.08              | 7.36   | 9.78  | 16.79               | Compliance |
|        |                | 157     | 5785            | 7.17              | 8.20   | 10.73 | 16.79               | Compliance |
|        |                | 165     | 5825            | 6.98              | 8.45   | 10.79 | 16.79               | Compliance |
|        | 802.11ac VHT40 | 151     | 5755            | 3.13              | 4.16   | 6.69  | 16.79               | Compliance |
|        |                | 159     | 5795            | 2.36              | 4.01   | 6.27  | 16.79               | Compliance |
|        | 802.11ac VHT80 | 155     | 5775            | -5.24             | -3.78  | -1.44 | 16.79               | Compliance |

Note: Limit = 30 - (Direction Gain-6) = 30 - 0.21 = 29.79 dBm/MHz

UNII-1:

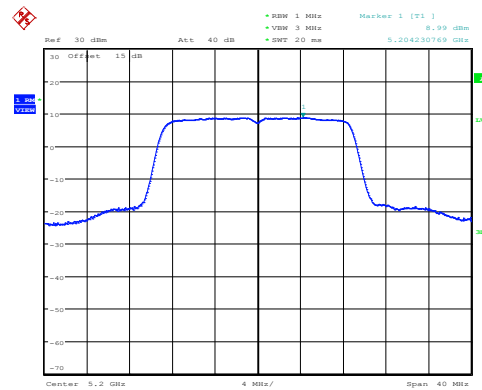


### IEEE 802.11ac VHT20 Low CH Chain0



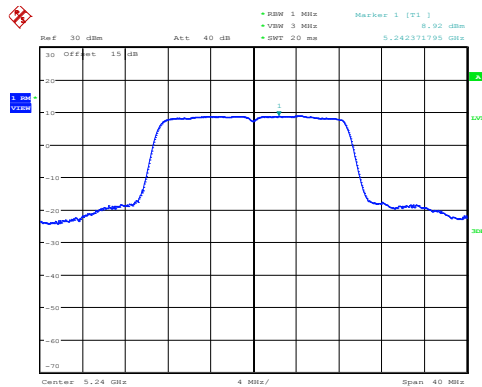
Date: 14.APR.2021 14:52:17

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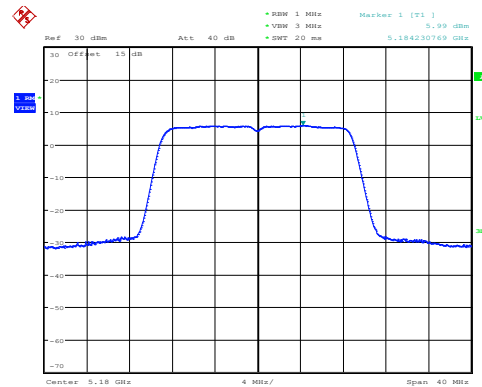
Date: 14.APR.2021 14:55:10

### IEEE 802.11ac VHT20 High CH Chain0



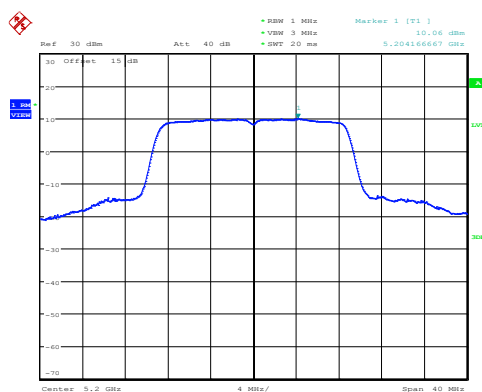
Date: 14.APR.2021 14:59:12

### IEEE 802.11ac VHT20 Low CH Chain1



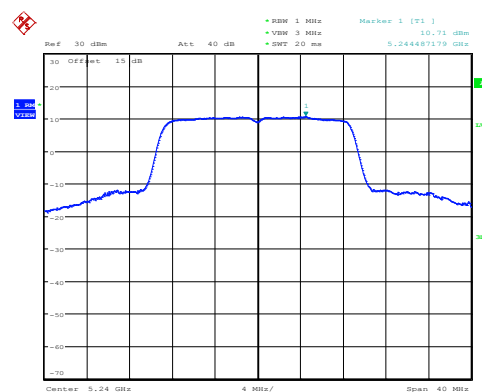
Date: 14.APR.2021 15:12:56

### IEEE 802.11ac VHT20 Middle CH Chain1



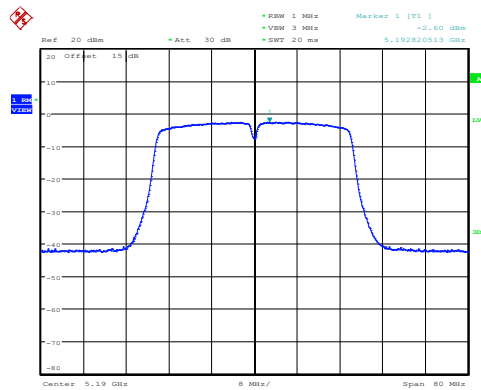
Date: 14.APR.2021 15:15:07

### IEEE 802.11ac VHT20 High CH Chain1



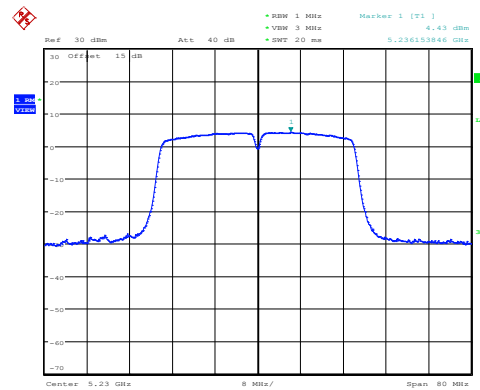
Date: 14.APR.2021 15:17:35

### IEEE 802.11ac VHT40 Low CH Chain0



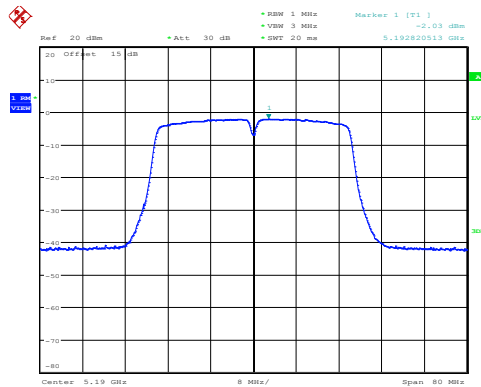
Date: 14.APR.2021 15:23:28

### IEEE 802.11ac VHT40 High CH Chain0



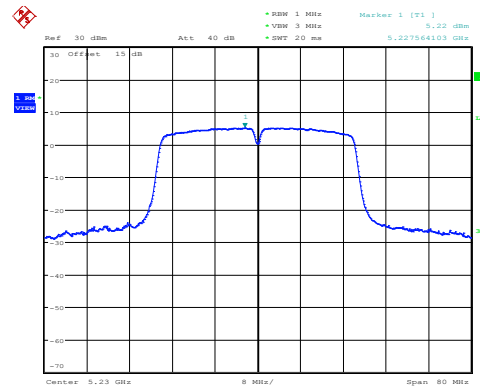
Date: 14.APR.2021 15:31:15

### IEEE 802.11ac VHT40 Low CH Chain1



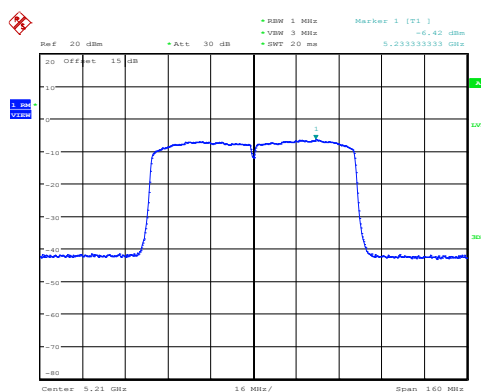
Date: 14.APR.2021 15:35:27

### IEEE 802.11ac VHT40 High CH Chain1



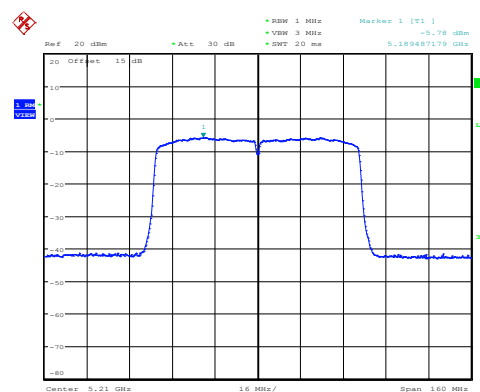
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### IEEE 802.11ac VHT80 Chain0



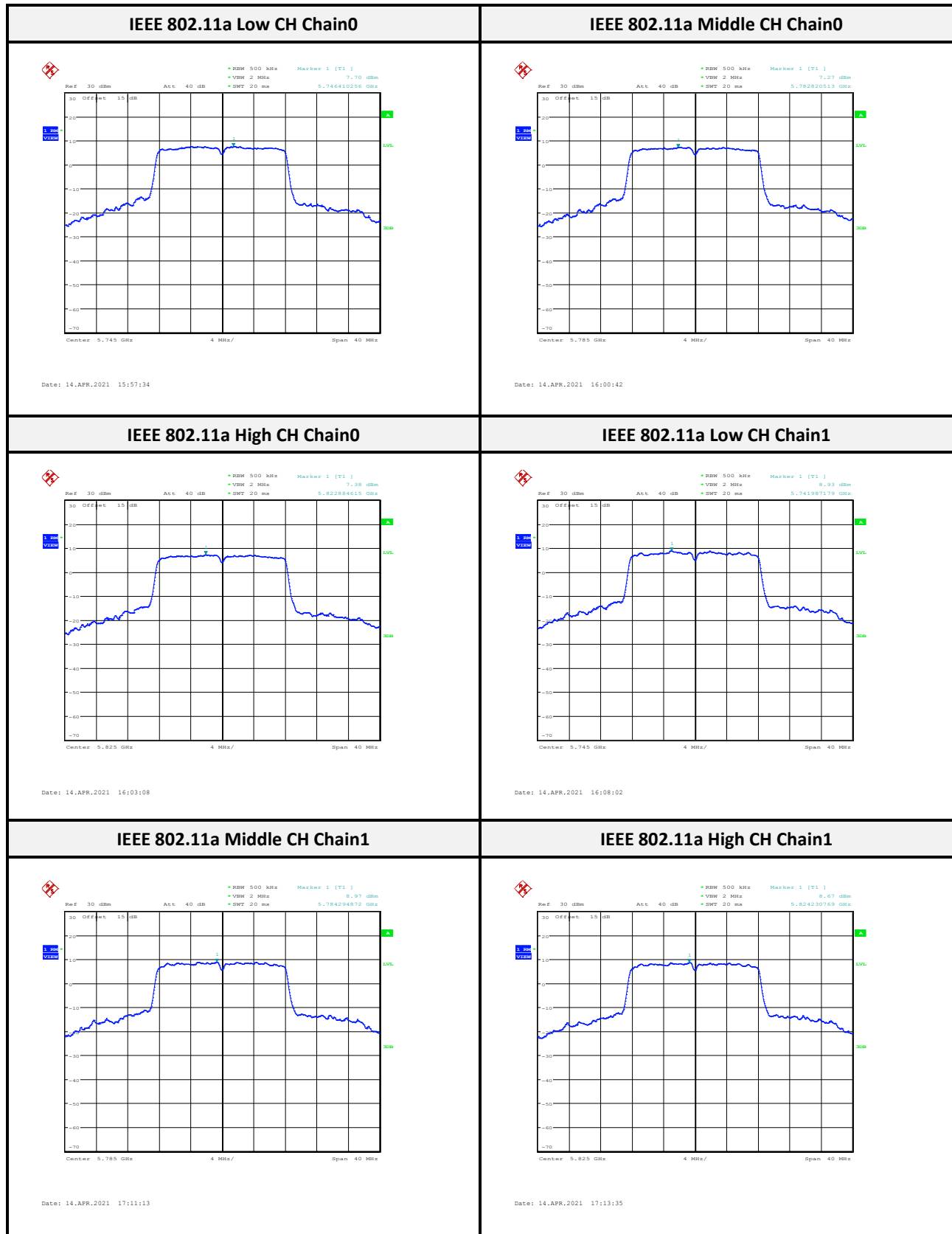
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### IEEE 802.11ac VHT80 Chain1

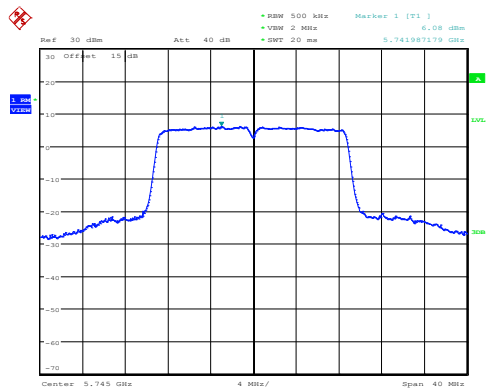


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UNII-3:

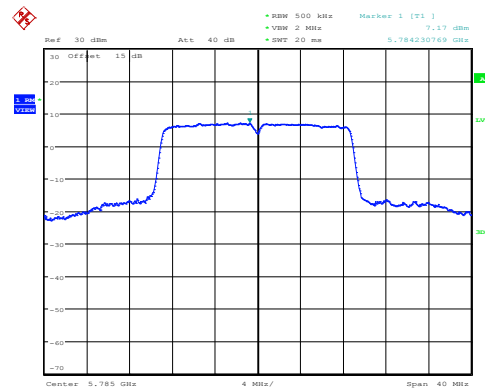


### IEEE 802.11ac VHT20 Low CH Chain0



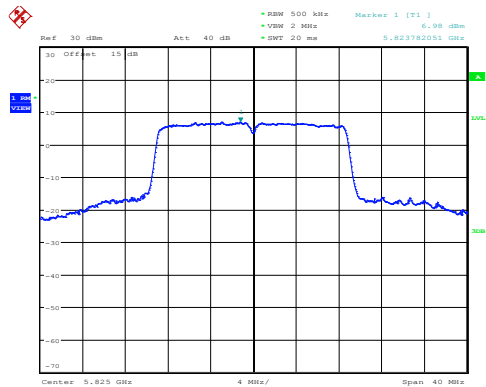
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### IEEE 802.11ac VHT20 Middle CH Chain0



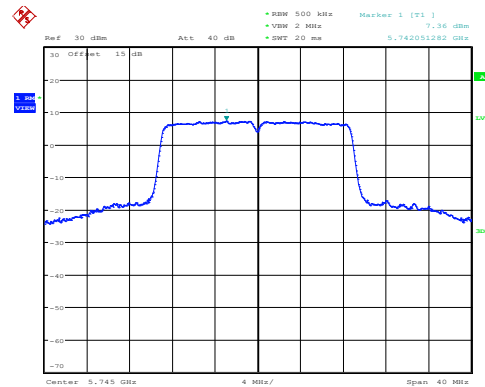
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### IEEE 802.11ac VHT20 High CH Chain0



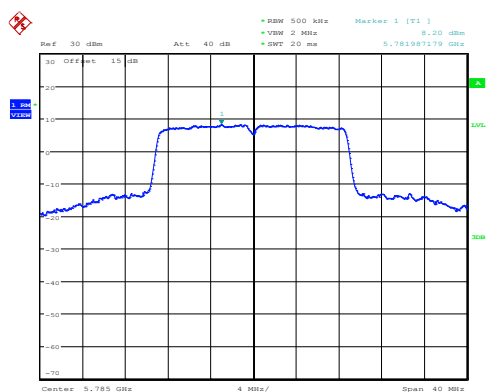
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### IEEE 802.11ac VHT20 Low CH Chain1



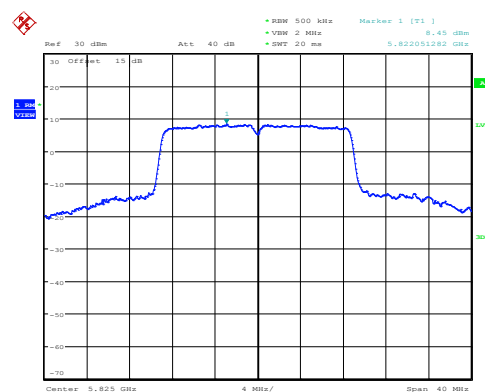
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### IEEE 802.11ac VHT20 Middle CH Chain1



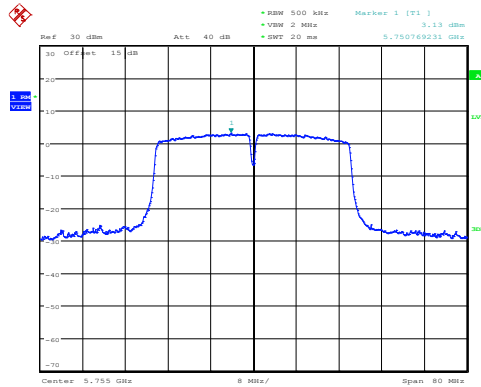
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### IEEE 802.11ac VHT20 High CH Chain1



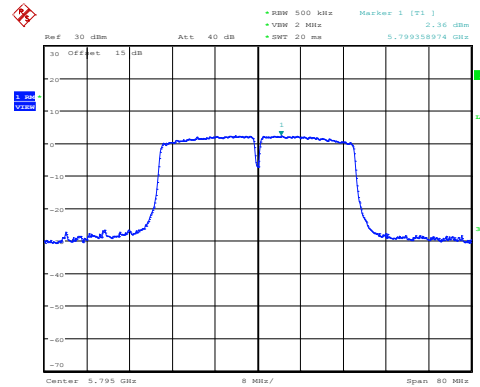
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### IEEE 802.11ac VHT40 Low CH Chain0



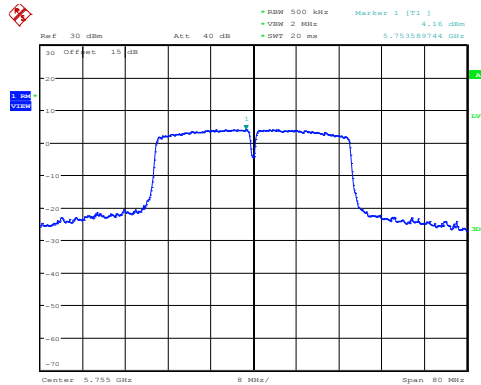
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### IEEE 802.11ac VHT40 High CH Chain0



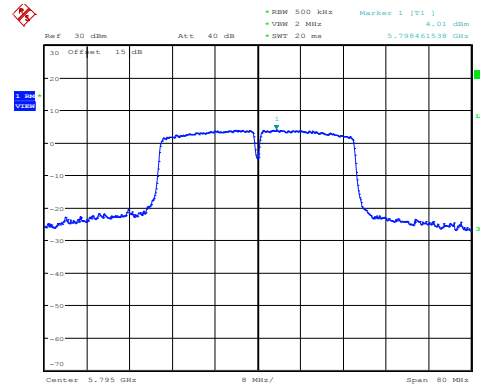
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### IEEE 802.11ac VHT40 Low CH Chain1



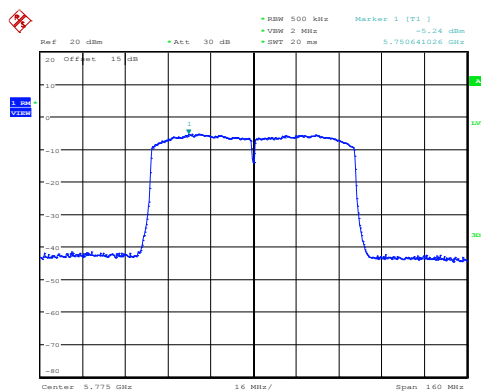
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### IEEE 802.11ac VHT40 High CH Chain1



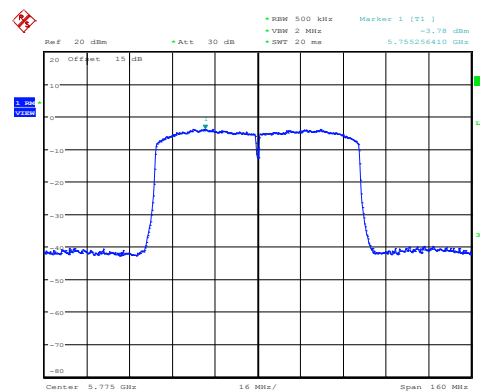
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### IEEE 802.11ac VHT80 Chain0



Date: 14.APR.2021 17:56:17

### IEEE 802.11ac VHT80 Chain1



Date: 14.APR.2021 17:53:05

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