# MEASUREMENT REPORT

## FCC PART 15.407 WLAN 802.11a/n/ac/ax

| | |
|---|---|
| **FCC ID:** | TE7RE605X |
| **Applicant:** | TP-Link Technologies Co., Ltd. |
| **Application Type:** | CLASS II PERMISSIVE CHANGE |
| **Product:** | AX1800 Wi-Fi 6 Range Extender<br>AX1750 Wi-Fi 6 Range Extender |
| **Model No.:** | RE605X, RE603X |
| **Brand Name:** | tp-link |
| **FCC Classification:** | Unlicensed National Information Infrastructure (UNII) |
| **FCC Rule Part(s):** | Part15 Subpart E (Section 15.407) |
| **Test Date:** | June 22 ~ August 08, 2020 |

Reviewed By: Paddy Chen
( Paddy Chen )

Approved By: Chenz Ker
(Chenz Ker)

Testing Laboratory
3261

The test results relate only to the samples tested.
This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 789033 D02v02r01. Test results reported herein relate only to the item(s) tested.
The test report shall not be reproduced except in full without the written approval of MRT Technology (Taiwan) Co., Ltd.

# Revision History

| Report No. | Version | Description | Issue Date | Note |
|---|---|---|---|---|
| 2007TW0006-U4 | Rev. 01 | Initial report | 11-04-2020 | Valid |
| | | | | |

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## General Information

| | |
|---|---|
| **Applicant:** | TP-Link Technologies Co., Ltd. |
| **Applicant Address:** | Building 24 (floors 1,3,4,5) and 28 (floors1-4), Central Science and Technology Park, Nanshan Shenzhen, 518057 China |
| **Manufacturer:** | TP-Link Technologies Co., Ltd. |
| **Manufacturer Address:** | Building 24 (floors 1,3,4,5) and 28 (floors1-4), Central Science and Technology Park, Nanshan Shenzhen, 518057 China |
| **Test Site:** | MRT Technology (Taiwan) Co., Ltd |
| **Test Site Address:** | No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C) |

**Test Facility / Accreditations**

**Measurements were performed at MRT Laboratory located in Fuxing Rd., Taoyuan, Taiwan ( R.O.C )**

- **MRT facility is a FCC registered (Reg. No. 154292) test facility with the site description report on file and is designated by the FCC as an Accredited Test Film.**
- **MRT facility is an IC registered (MRT Reg. No. 21723) test laboratory with the site description on file at Industry Canada.**
- **MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC (Designation Number: TW3261), Industry Taiwan, EU and TELEC Rules.**

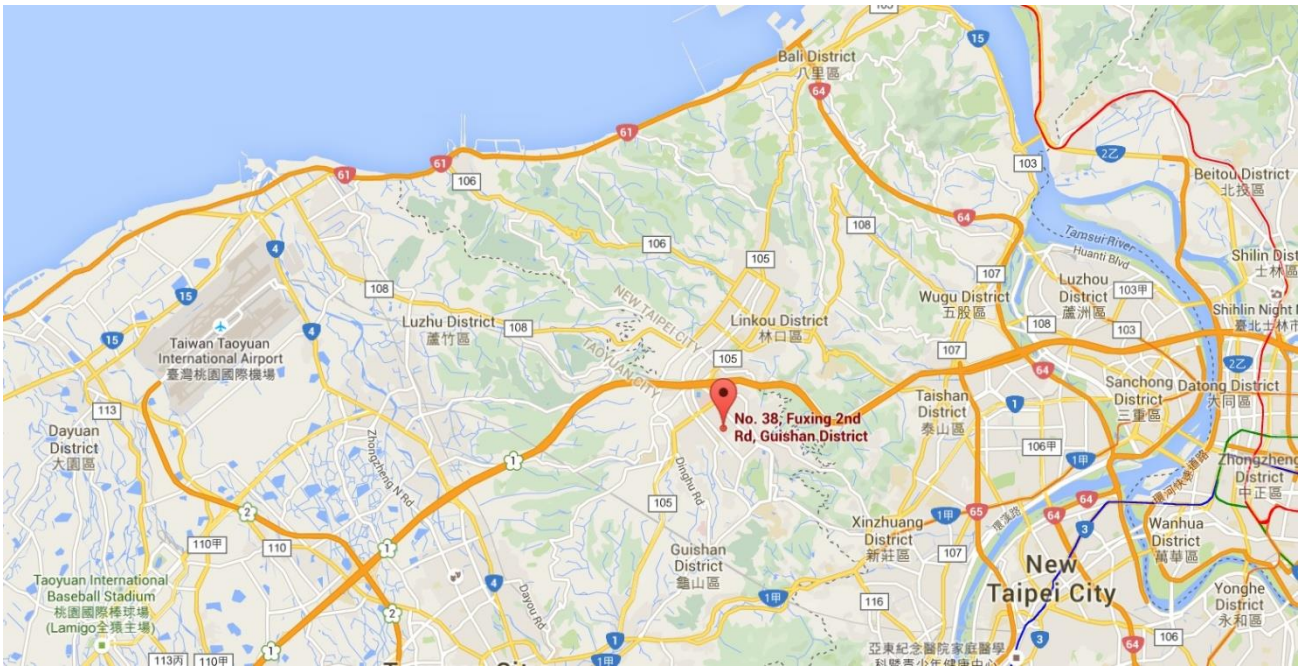
# 1. INTRODUCTION

## 1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

## 1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taoyuan City. These measurement tests were conducted at the MRT Technology (Taiwan) Co., Ltd. Facility located at No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).



# 2. PRODUCT INFORMATION

## 2.1. Equipment Description

| | |
|---|---|
| Product Name: | AX1800 Wi-Fi 6 Range Extender<br>AX1750 Wi-Fi 6 Range Extender |
| Model No.: | RE605X, RE603X |
| Brand Name: | tp-link |
| Wi-Fi Specification: | 802.11a/b/g/n/ac/ax |
| EUT Identification No.: | 20200622Sample#08 (Conducted)<br>20200622Sample#07 (Radiated & AC conducted emission) |

Note: There is the same hardware design, PCB layout between the models, different models and product names for different marketing requirements. Only RE605X (Product name: AX1800 Wi-Fi 6 Range Extender) was selected for final tests.

## 2.2. Product Specification Subjective to this Report

| | |
|---|---|
| Frequency Range: | For 802.11a/n-HT20/ac-VHT20/ax-HE20:<br>5180~5240MHz, 5260~5320MHz, 5500~5720MHz, 5745~5825MHz<br>For 802.11n-HT40/ac-VHT40/ax-HE40:<br>5190~5230MHz, 5270~5310MHz, 5510~5710MHz, 5755~5795MHz<br>For 802.11ac-VHT80/ax-HE80:<br>5210MHz, 5290MHz, 5530MHz, 5610 MHz, 5690MHz, 5775MHz |
| Type of Modulation: | 802.11a/n/ac: OFDM<br>802.11ax: OFDMA |
| Data Rate: | 802.11a: 6/9/12/18/24/36/48/54Mbps<br>802.11n: up to 300Mbps<br>802.11ac: up to 866.6Mbps<br>802.11ax: up to 1201Mbps |

Note: For other features of this EUT, test report will be issued separately.

## 2.3. Working Frequencies for this report

802.11a/n-HT20/ac-VHT20/ax-HE20

| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---|---|---|---|---|---|
| 36 | 5180 MHz | 40 | 5200 MHz | 44 | 5220 MHz |
| 48 | 5240 MHz | 52 | 5260 MHz | 56 | 5280 MHz |
| 60 | 5300 MHz | 64 | 5320 MHz | 100 | 5500 MHz |
| 104 | 5520 MHz | 108 | 5540 MHz | 112 | 5560 MHz |
| 116 | 5580 MHz | 120 | 5600 MHz | 124 | 5620 MHz |
| 128 | 5640 MHz | 132 | 5660 MHz | 136 | 5680 MHz |
| 140 | 5700 MHz | 144 | 5720 MHz | 149 | 5745 MHz |
| 153 | 5765 MHz | 157 | 5785 MHz | 161 | 5805 MHz |
| 165 | 5825 MHz | -- | -- | -- | -- |

802.11n-HT40/ac-VHT40/ax-HE40

| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---|---|---|---|---|---|
| 38 | 5190 MHz | 46 | 5230 MHz | 54 | 5270 MHz |
| 62 | 5310 MHz | 102 | 5510 MHz | 110 | 5550 MHz |
| 118 | 5590 MHz | 126 | 5630 MHz | 134 | 5670 MHz |
| 142 | 5710 MHz | 151 | 5755 MHz | 159 | 5795 MHz |

802.11ac-VHT80/ax-HE80

| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---|---|---|---|---|---|
| 42 | 5210 MHz | 58 | 5290 MHz | 106 | 5530 MHz |
| 122 | 5610 MHz | 138 | 5690 MHz | 155 | 5775 MHz |

## 2.4. Description of Available Antennas

| Antenna Type | Frequency Band (MHz) | $T_X$ Paths | Number of spatial streams | Max Antenna Gain (dBi) | Beamforming Directional Gain (dBi) | CDD Directional Gain (dBi) | |
|---|---|---|---|---|---|---|---|
| | | | | | | For Power | For PSD |
| Dipole Antenna | 2412 ~ 2462 | 2 | 1 | 1.99 | 5.00 | 1.99 | 5.00 |
| | 5150 ~ 5250 | 2 | 1 | 1.98 | 4.99 | 1.98 | 4.99 |
| | 5250 ~ 5350 | 2 | 1 | 2.99 | 6.00 | 2.99 | 6.00 |
| | 5470 ~ 5725 | 2 | 1 | 2.46 | 5.47 | 2.46 | 5.47 |
| | 5725 ~ 5850 | 2 | 1 | 2.13 | 5.14 | 2.13 | 5.14 |

Note

1. The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

If all antennas have the same gain, $G_{ANT}$, Directional gain = $G_{ANT}$ + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,

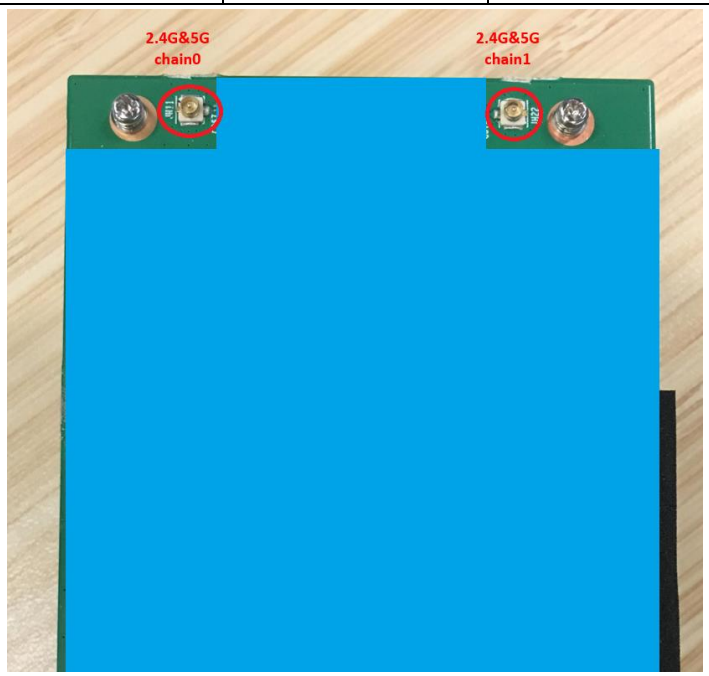
  Array Gain = 10 log ($N_{ANT}$/ $N_{SS}$) dB;

- For power measurements on IEEE 802.11 devices,

  Array Gain = 0 dB for $N_{ANT} \leq 4$;

2. The EUT also supports Beam Forming mode, and the Beam Forming support 802.11ac/ax, not include 802.11a/b/g/n. BF Directional gain = GANT + 10 log (NANT).
3. All messages as above were declared by manufacturer.

## 2.5. Description of Antenna RF Port

| Antenna RF Port | | | | |
|---|---|---|---|---|
| Software Control Port | 2.4GHz RF Port | | 5GHz RF Port | |
| | Ant 0 | Ant 1 | Ant 0 | Ant 1 |
|  | | | | |

## 2.6. Test Mode

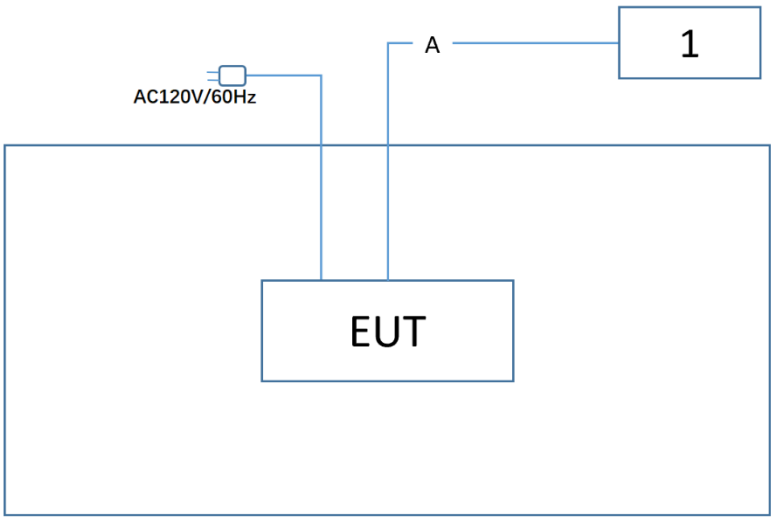
| Test Mode | |
|---|---|
| | Mode 1: Transmit by 802.11a (6Mbps) (CDD mode) |
| | Mode 2: Transmit by 802.11ac-VHT20 (MCS0) (CDD mode) |
| | Mode 3: Transmit by 802.11ac-VHT40 (MCS0) (CDD mode) |
| | Mode 4: Transmit by 802.11ac-VHT80 (MCS0) (CDD mode) |
| | Mode 5: Transmit by 802.11ax-HE20 (MCS0) (CDD mode) |
| | Mode 6: Transmit by 802.11ax-HE40 (MCS0) (CDD mode) |
| | Mode 7: Transmit by 802.11ax-HE80 (MCS0) (CDD mode) |
| | Mode 8: Transmit by 802.11ac-VHT20 (MCS0) (Beam-Forming mode) |
| | Mode 9: Transmit by 802.11ac-VHT40 (MCS0) (Beam-Forming mode) |
| | Mode 10: Transmit by 802.11ac-VHT80 (MCS0) (Beam-Forming mode) |
| | Mode 11: Transmit by 802.11ax-HE20 (MCS0) (Beam-Forming mode) |
| | Mode 12: Transmit by 802.11ax-HE40 (MCS0) (Beam-Forming mode) |
| | Mode 13: Transmit by 802.11ax-HE80 (MCS0) (Beam-Forming mode) |

Note: Due to the same modulation between 802.11n and 802.11ac, so 802.11n-HT20 and HT40 are covered by 802.11ac-VHT20 and VHT40 in this report, meanwhile, power setting for 802.11n-HT20 and HT40 will not be greater than 802.11ac-VHT20 and VHT40.

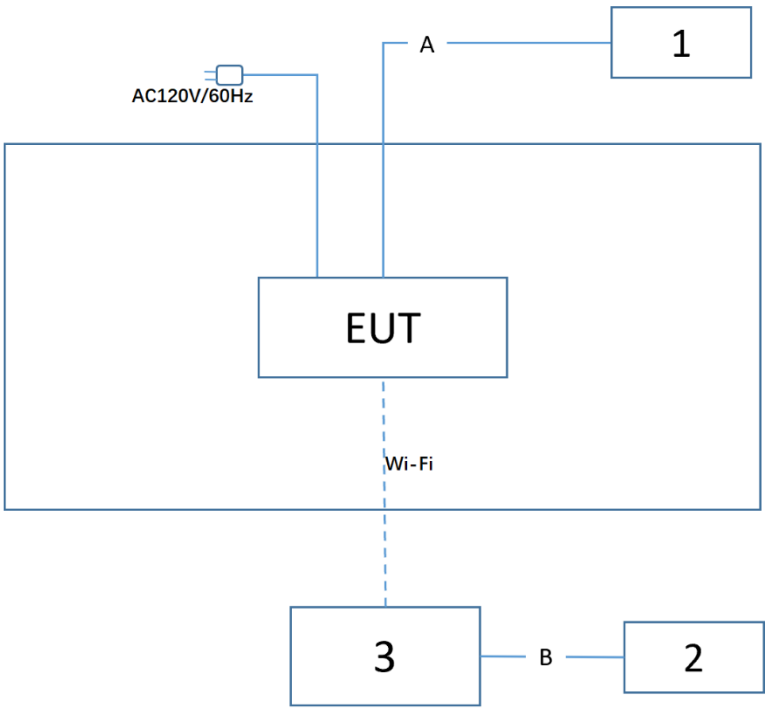
## 2.7. Configuration of Test System

The measurement procedures and appropriate EUT setup described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) and KDB 789033 were used in the measurement.

Connection Diagram – Radiated Emission testing (CDD mode) & AC Conducted Emissions




Connection Diagram – Radiated Emission testing (Beam-Forming mode)




| Signal Cable Type | | Signal Cable Description |
|---|---|---|
| A | LAN Cable | Non shielded, > 10m |
| B | LAN Cable | Non shielded, 3.0m |

## 2.8. Test System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

| Product | | Manufacturer | Model No. | Serial No. | Power Cord |
|---|---|---|---|---|---|
| 1 | Notebook | Lenovo | E431 | PF-10ZRN 13/12 | Non-Shielded, 1.8m |
| 2 | Notebook | Lenovo | X230i | N/A | Non-Shielded, 1.8m |
| 3 | Station Device | tp-link | RE605X | N/A | N/A |

## 2.9. Description of Test Software

For CDD mode:

The test utility software used during testing was “accessMTool.exe”, the version is ver3.0.0.6.

For Beamforming mode:

Conducted measurement

The test utility software used during testing was “accessMTool.exe”, the version is ver3.0.0.6.

Radiated measurement

1) Configure EUT and station device to under the normal operation.
2) Set and fix EUT’s mode, channel, and power by telnet.
3) Connect EUT with station device, run “*Iperf. exe*” to transmit and receive packet continuously by station device.

Note: Final power setting please refer to operational description.

## 2.10. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part15 Subpart E (Section 15.407)
- ANSI C63.10-2013
- KDB 789033 D02v02r01
- KDB 662911 D01v02r01

## 2.11. Test Environment Condition

| | |
|---|---|
| Ambient Temperature | 15°C~35°C |
| Relative Humidity | 20%RH ~75%RH |

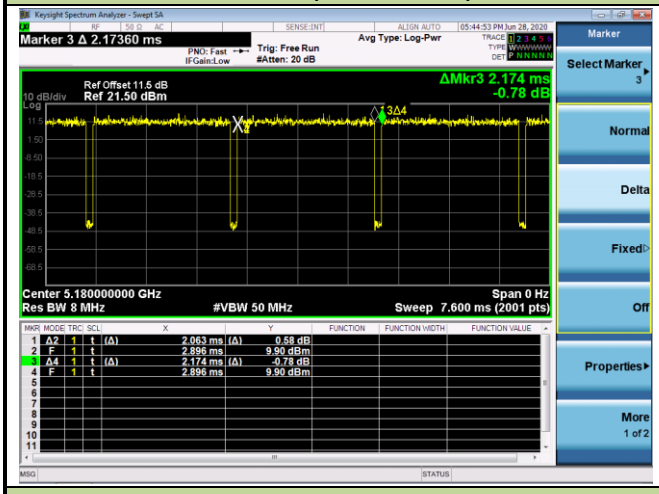
## 2.12. Duty Cycle

5GHz (NII) operation is possible in 20MHz, 40MHz and 80MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

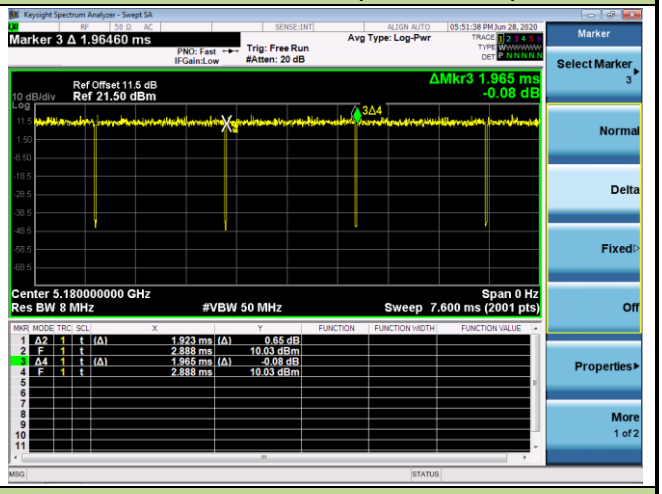
| Test Mode | Duty Cycle |
|---|---|
| 802.11a | 94.89% |
| 802.11ac-VHT20 | 97.86% |
| 802.11ac-VHT40 | 95.59% |
| 802.11ac-VHT80 | 93.87% |
| 802.11ax-HE20 | 98.02% |
| 802.11ax-HE40 | 96.00% |
| 802.11ax-HE80 | 92.58% |

Duty Cycle (T = Transmission Duration)

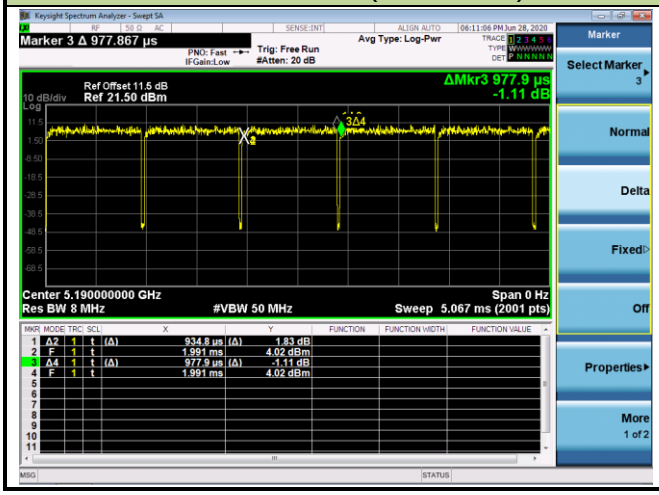
802.11a (T=2.063ms)



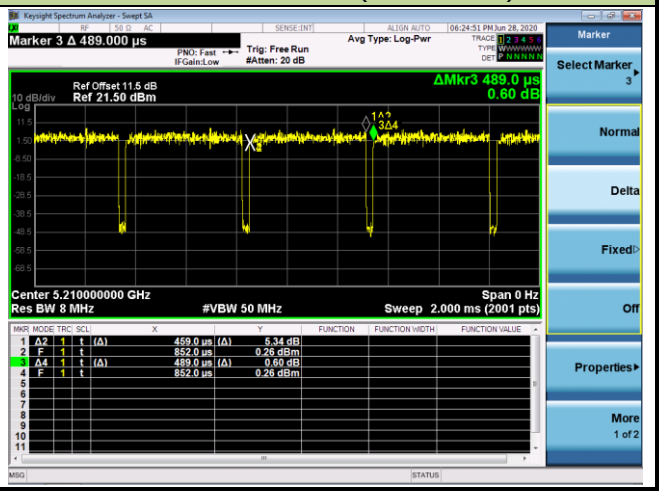

802.11ac-VHT20(T=1.923ms)

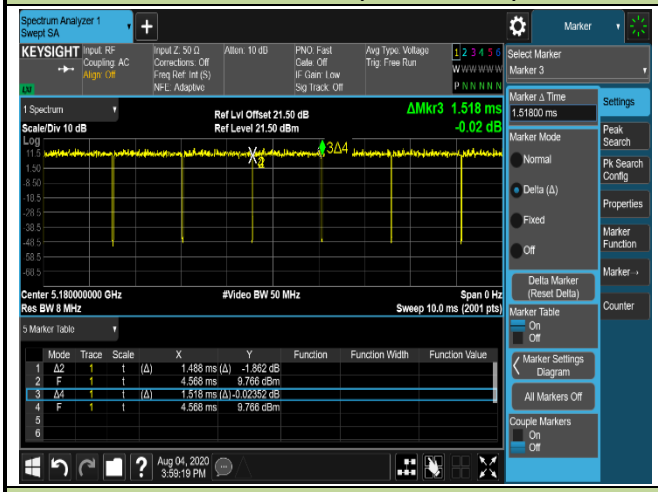
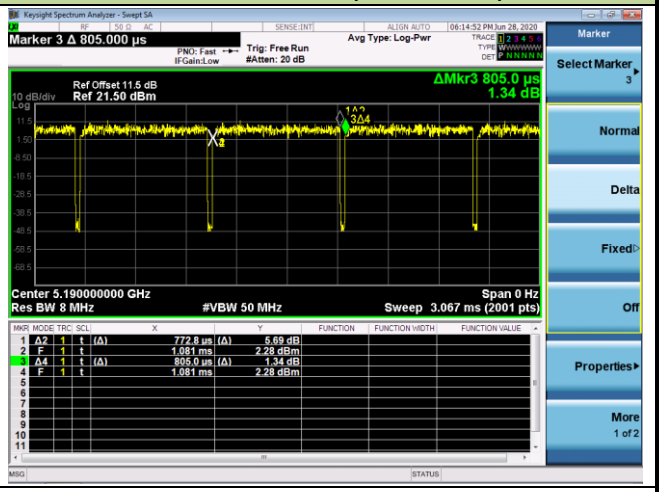
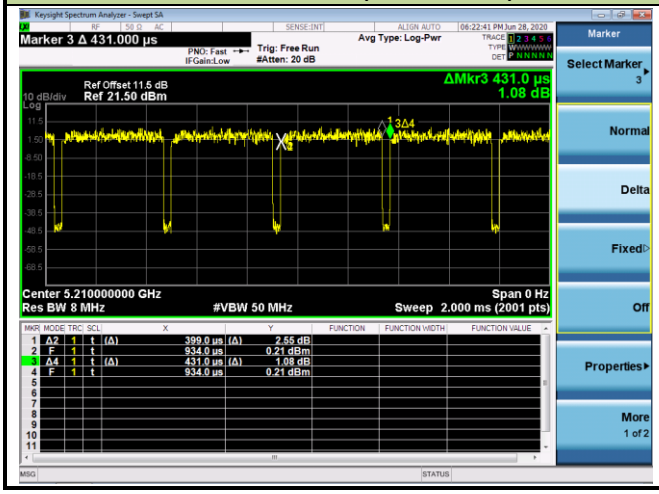



802.11ac-VHT40(T=934.8us)




802.11ac-VHT80(T=459.0us)



| Duty Cycle (T = Transmission Duration) | |
|---|---|
| 802.11ax-HE20(T=1.488ms) | 802.11ax-HE40(T=772.8us) |
|  |  |
| 802.11ax-HE80(T=399.0us) | -- |
|  | -- |

## 2.13. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

## 2.14. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

# 3. ANTENNA REQUIREMENTS

**Excerpt from §15.203 of the FCC Rules/Regulations:**

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 antenna of the device is **permanently attached.**
- There are no provisions for connection to an external antenna.

**Conclusion:**

The unit complies with the requirement of §15.203.

# 4. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions

| Instrument | Manufacturer | Type No. | Asset No. | Cali. Interval | Cali. Due Date |
|---|---|---|---|---|---|
| Two-Line V-Network | R&S | ENV216 | MRTTWA00019 | 1 year | 2021/03/26 |
| Two-Line V-Network | R&S | ENV216 | MRTTWA00020 | 1 year | 2021/04/24 |
| EMI Test Receiver | R&S | ESR3 | MRTTWA00045 | 1 year | 2021/05/26 |
| Temperature/Humidity Meter | TFA | 35.1078.10.IT | MRTTWA00033 | 1 year | 2021/05/28 |

Radiated Emissions

| Instrument | Manufacturer | Type No. | Asset No. | Cali. Interval | Cali. Due Date |
|---|---|---|---|---|---|
| Broadband TRILOG Antenna | SCHWARZBECK | VULB 9162 | MRTTWA00001 | 1 year | 2021/10/05 |
| Acitve Loop Antenna | SCHWARZBECK | FMZB 1519B | MRTTWA00002 | 1 year | 2021/04/27 |
| Broadband Hornantenna | SCHWARZBECK | BBHA 9120D | MRTTWA00003 | 1 year | 2021/04/24 |
| Breitband Hornantenna | SCHWARZBECK | BBHA 9170 | MRTTWA00004 | 1 year | 2021/04/24 |
| Broadband Preamplifier | SCHWARZBECK | BBV 9718 | MRTTWA00005 | 1 year | 2021/04/24 |
| Broadband Amplifier | SCHWARZBECK | BBV 9721 | MRTTWA00006 | 1 year | 2021/04/24 |
| Signal Analyzer | R&S | FSV40 | MRTTWA00007 | 1 year | 2021/03/24 |
| EMI Test Receiver | R&S | ESR3 | MRTTWA00009 | 1 year | 2021/03/25 |
| EXA Signal Analyzer | KEYSIGHT | N9010A | MRTTWA00012 | 1 year | 2020/11/02 |
| Antenna Cable | HUBERSUHNER | SF106 | MRTTWE00010 | 1 year | 2021/06/16 |
| Temperature/Humidity Meter | TFA | 35.1078.10.IT | MRTTWA00032 | 1 year | 2021/05/28 |

Conducted Test Equipment

| Instrument | Manufacturer | Type No. | Asset No. | Cali. Interval | Cali. Due Date |
|---|---|---|---|---|---|
| X-Series USB Peak and Average Power Sensor | KEYSIGHT | U2021XA | MRTTWA00014 | 1 year | 2021/04/24 |
| EXA Signal Analyzer | KEYSIGHT | N9010A | MRTTWA00012 | 1 year | 2020/11/02 |
| EXA Signal Analyzer | KEYSIGHT | N9010B | MRTTWA00074 | 1 year | 2021/07/11 |
| Attenuator | WTI | 218FS-20 | MRTTWE00026 | 1 year | 2021/05/30 |
| Attenuator | WTI | 218FS-10 | MRTTWE00027 | 1 year | 2021/05/30 |
| Attenuator | WTI | 218FS-06 | MRTTWE00028 | 1 year | 2021/05/30 |
| Temperature & Humidity Chamber | TEN BILLION | TTH-B3UP | MRTTWA00036 | 1 year | 2021/06/10 |
| Temperature/Humidity Meter | TFA | 35.1078.10.IT | MRTTWA00033 | 1 year | 2021/05/28 |

| **Software** | **Version** | **Function** |
|---|---|---|
| e3 | 9.160520a | EMI Test Software |

# 5. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

| |
|---|
| AC Conducted Emission Measurement |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>150kHz~30MHz: 2.53dB |
| Radiated Emission Measurement |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>9kHz ~ 1GHz: 4.25dB<br>1GHz ~ 40GHz: 4.45dB |
| Conducted Power |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): ± 0.84dB |
| Conducted Spurious Emission |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): ± 2.65 dB |
| Occupied Bandwidth |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 3.3% |
| Temp. / Humidity |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): ±0.82°C/ ±3% |
| Frequency Error |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): ±78.4Hz |

# 6. TEST RESULT

## 6.1. Summary

| FCC Section(s) | Test Description | Test Limit | Test Condition | Test Result | Reference |
|---|---|---|---|---|---|
| 15.407(a) | 26dB Bandwidth | N/A | Conducted | Pass | Section 6.2 |
| 15.407(a)(2) | Maximum Conducted Output Power | Refer to Section 6.4 | | Pass | Section 6.3 |
| 15.407(h)(1) | Transmit Power Control | ≤ 24 dBm | | Pass | Section 6.4 |
| 15.407(a)(2) | Peak Power Spectral Density | Refer to Section 6.5 | | Pass | Section 6.5 |
| 15.407(g) | Frequency Stability | ± 20 ppm | | Pass | Section 6.6 |
| 15.407(b)(2), (3) | Undesirable Emissions | Refer to Section 6.7 | Radiated | Pass | Section 6.7 & 6.8 |
| 15.205, 15.209 15.407(b)(7), (8), (9) | General Field Strength Limits (Restricted Bands and Radiated Emission Limits) | Emissions in restricted bands must meet the radiated limits detailed in 15.209 | | Pass | |
| 15.207 | AC Conducted Emissions 150kHz - 30MHz | < FCC 15.207 limits | Line Conducted | Pass | Section 6.9 |

Notes:

1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
2) Output power test was verified over all data rates of each mode (data refers to operational description), and then choose the maximum power output (low data rate) for final test of each channel.
3) For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.
4) Test Items “26dB Bandwidth” & “6dB Bandwidth” showed the worst test data in this report.
5) EUT supports one configuration only in 802.11ax full RU mode, i.e. 242 tone in 11ax-HE20, 484 tone in 11ax-HE40 and 996 tone in 11ax-HE80.

## 6.2. 26dB Bandwidth Measurement

### 6.2.1.Test Limit

N/A

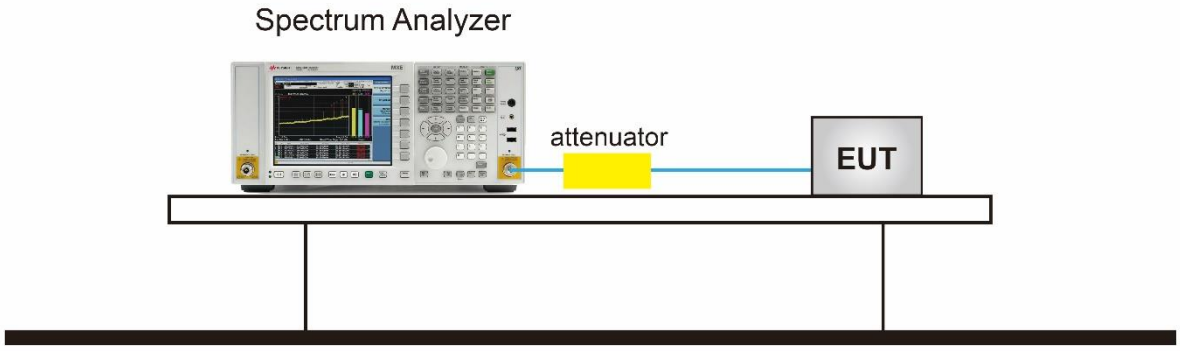
### 6.2.2.Test Procedure used

KDB 789033 D02v02r01- Section C.1

### 6.2.3.Test Setting

1. The analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 26. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediated power nulls in the fundamental emission.
2. RBW = approximately 1% of the emission bandwidth.
3. VBW ≥ 3×RBW.
4. Detector = Peak.
5. Trace mode = max hold.

### 6.2.4.Test Setup



### 6.2.5.Test Result

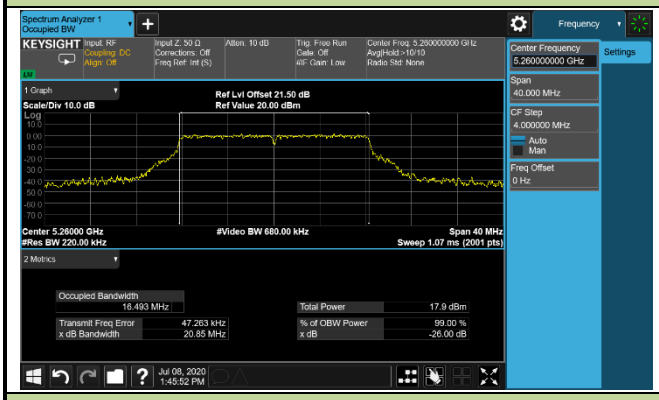
| Product | AX1800 Wi-Fi 6 Range Extender | Test Engineer | Eric Lin |
|---|---|---|---|
| Test Site | SR1 | Test Date | 2020/07/08 |

| Test Mode | Data Rate/ MCS | Channel No. | Frequency (MHz) | 26dB Bandwidth (MHz) | 99% Bandwidth (MHz) |
|---|---|---|---|---|---|
| Ant 0 / Ant 0 + 1 | | | | | |
| 802.11a | 6Mbps | 52 | 5260 | 20.85 | 16.49 |
| 802.11a | 6Mbps | 60 | 5300 | 20.89 | 16.53 |
| 802.11a | 6Mbps | 64 | 5320 | 20.24 | 16.51 |
| 802.11a | 6Mbps | 100 | 5500 | 20.37 | 16.51 |
| 802.11a | 6Mbps | 116 | 5580 | 20.63 | 16.50 |
| 802.11a | 6Mbps | 140 | 5700 | 20.62 | 16.52 |
| 802.11a | 6Mbps | 144 | 5720 | 20.74 | 16.49 |
| 802.11ac-VHT20 | MCS0 | 52 | 5260 | 21.05 | 17.72 |
| 802.11ac-VHT20 | MCS0 | 60 | 5300 | 20.80 | 17.72 |
| 802.11ac-VHT20 | MCS0 | 64 | 5320 | 21.25 | 17.72 |
| 802.11ac-VHT20 | MCS0 | 100 | 5500 | 21.07 | 17.71 |
| 802.11ac-VHT20 | MCS0 | 116 | 5580 | 20.96 | 17.72 |
| 802.11ac-VHT20 | MCS0 | 140 | 5700 | 20.86 | 17.71 |
| 802.11ac-VHT20 | MCS0 | 144 | 5720 | 20.83 | 17.74 |
| 802.11ac-VHT40 | MCS0 | 54 | 5270 | 44.93 | 36.34 |
| 802.11ac-VHT40 | MCS0 | 62 | 5310 | 38.61 | 36.22 |
| 802.11ac-VHT40 | MCS0 | 102 | 5510 | 38.87 | 36.23 |
| 802.11ac-VHT40 | MCS0 | 110 | 5550 | 39.41 | 36.26 |
| 802.11ac-VHT40 | MCS0 | 134 | 5670 | 38.66 | 36.23 |
| 802.11ac-VHT40 | MCS0 | 142 | 5710 | 42.92 | 36.26 |
| 802.11ac-VHT80 | MCS0 | 58 | 5290 | 79.63 | 75.72 |
| 802.11ac-VHT80 | MCS0 | 106 | 5530 | 81.19 | 75.61 |
| 802.11ac-VHT80 | MCS0 | 122 | 5610 | 117.3 | 76.21 |
| 802.11ac-VHT80 | MCS0 | 138 | 5690 | 148.7 | 77.45 |

| Test Mode | Data Rate/ MCS | Channel No. | Frequency (MHz) | 26dB Bandwidth (MHz) | 99% Bandwidth (MHz) |
|---|---|---|---|---|---|
| Ant 0 / Ant 0 + 1 | | | | | |
| 802.11ax-HE20 | MCS0 | 52 | 5260 | 21.76 | 19.03 |
| 802.11ax-HE20 | MCS0 | 60 | 5300 | 21.43 | 19.04 |
| 802.11ax-HE20 | MCS0 | 64 | 5320 | 21.47 | 19.03 |
| 802.11ax-HE20 | MCS0 | 100 | 5500 | 20.93 | 19.00 |
| 802.11ax-HE20 | MCS0 | 116 | 5580 | 20.96 | 19.04 |
| 802.11ax-HE20 | MCS0 | 140 | 5700 | 21.35 | 18.97 |
| 802.11ax-HE20 | MCS0 | 144 | 5720 | 21.43 | 19.07 |
| 802.11ax-HE40 | MCS0 | 54 | 5270 | 47.40 | 37.76 |
| 802.11ax-HE40 | MCS0 | 62 | 5310 | 39.68 | 37.61 |
| 802.11ax-HE40 | MCS0 | 102 | 5510 | 39.35 | 37.62 |
| 802.11ax-HE40 | MCS0 | 110 | 5550 | 47.57 | 37.72 |
| 802.11ax-HE40 | MCS0 | 134 | 5670 | 39.47 | 37.59 |
| 802.11ax-HE40 | MCS0 | 142 | 5710 | 54.73 | 37.80 |
| 802.11ax-HE80 | MCS0 | 58 | 5290 | 81.42 | 77.05 |
| 802.11ax-HE80 | MCS0 | 106 | 5530 | 61.35 | 76.85 |
| 802.11ax-HE80 | MCS0 | 122 | 5610 | 81.12 | 77.32 |
| 802.11ax-HE80 | MCS0 | 138 | 5690 | 153.2 | 79.17 |

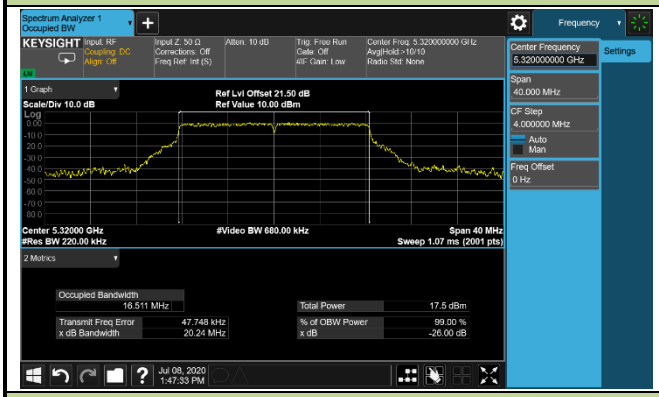
## 802.11a 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1

### Channel 52 (5260MHz)

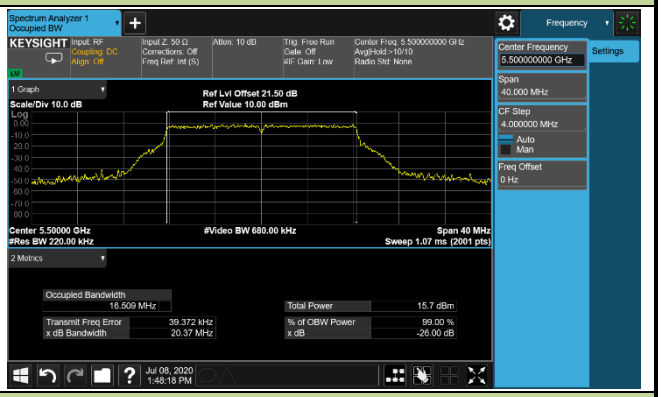



### Channel 60 (5300MHz)

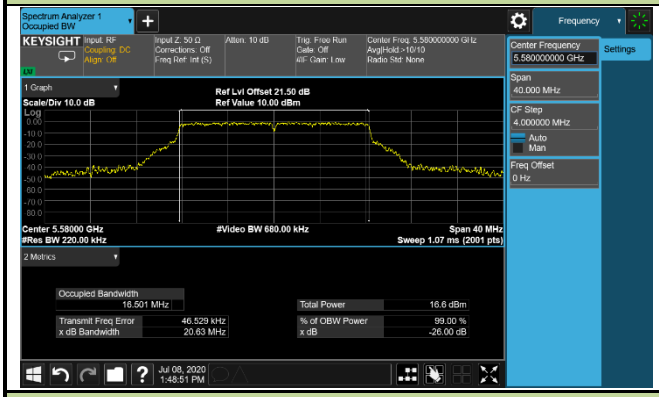

### Channel 64 (5320MHz)



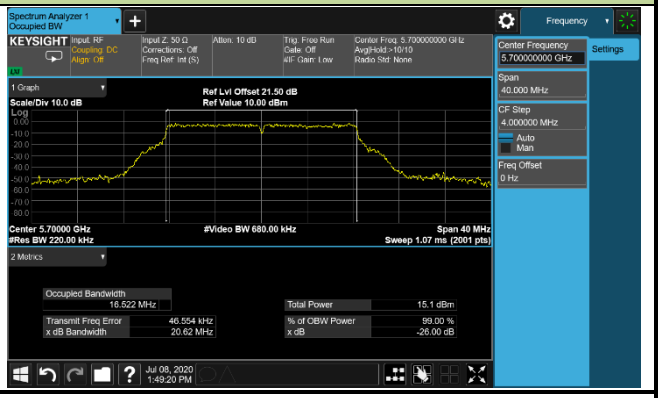

### Channel 100 (5500MHz)



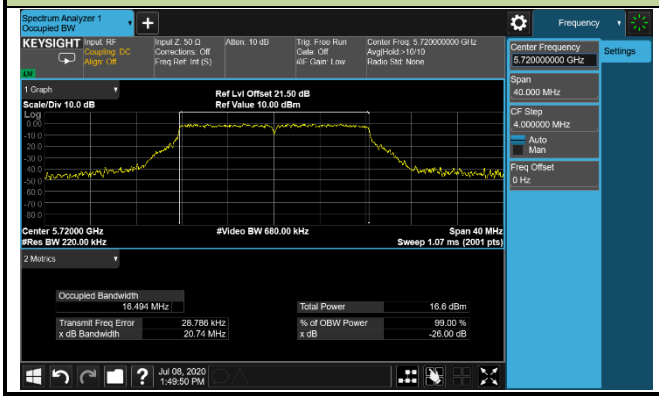

### Channel 116 (5580MHz)




### Channel 140 (5700MHz)

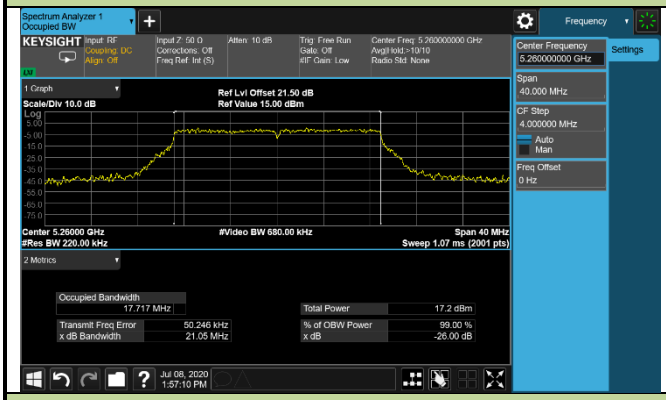



### Channel 144 (5720MHz)

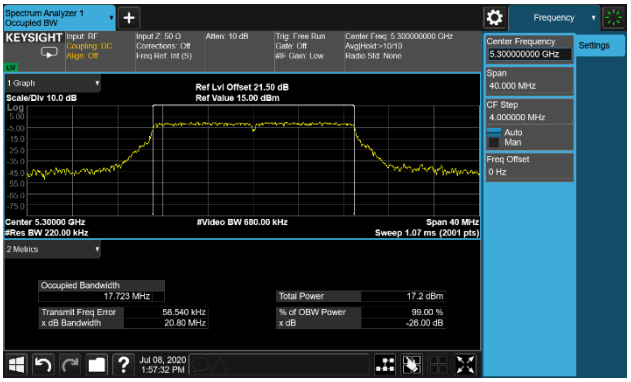


## 802.11ac-VHT20 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1

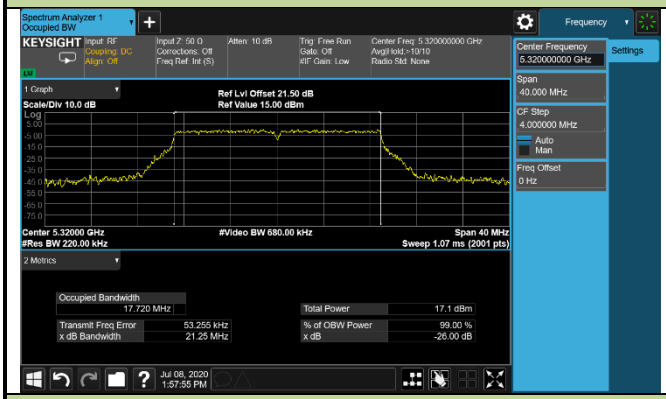
### Channel 52 (5260MHz)



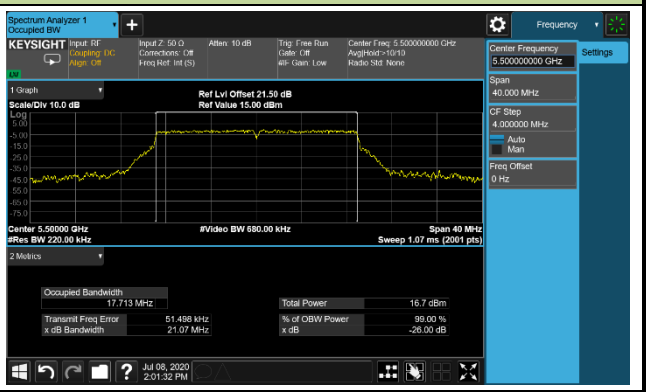

### Channel 60 (5300MHz)



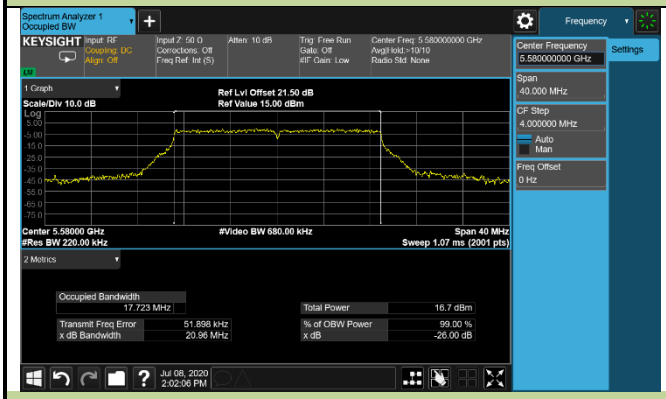

### Channel 64 (5320MHz)



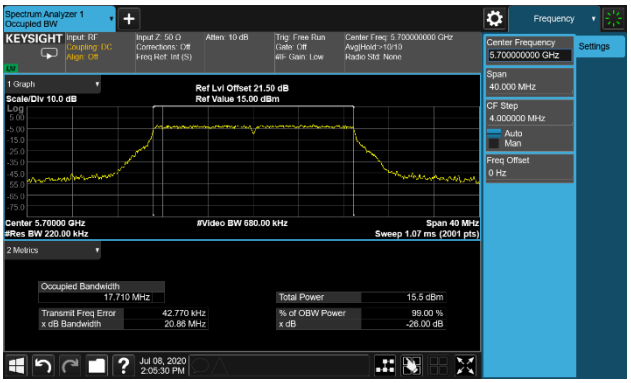

### Channel 100 (5500MHz)



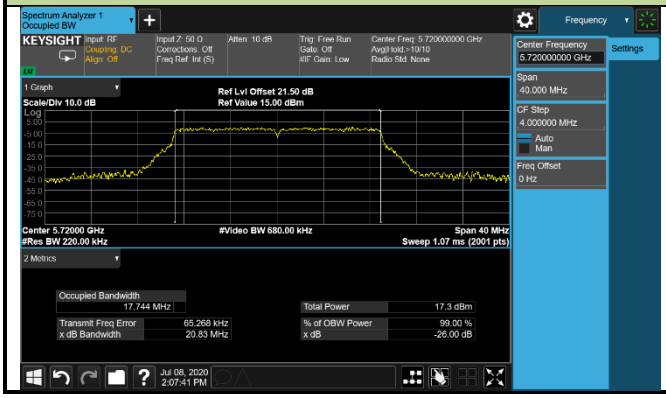

### Channel 116 (5580MHz)

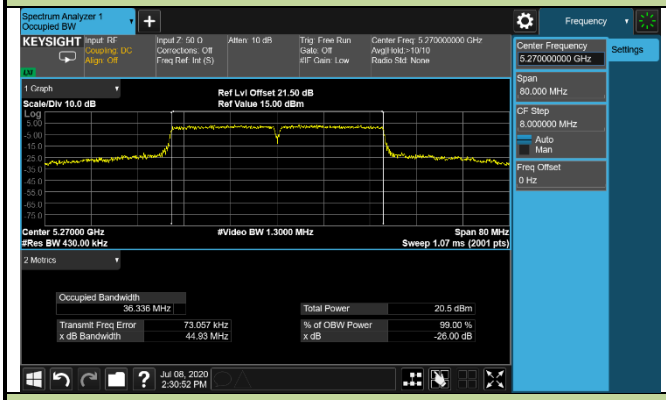
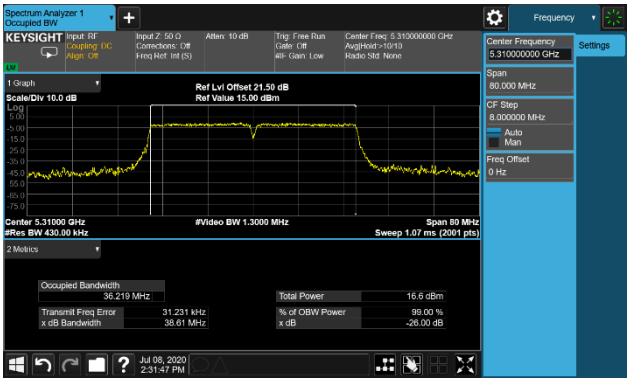
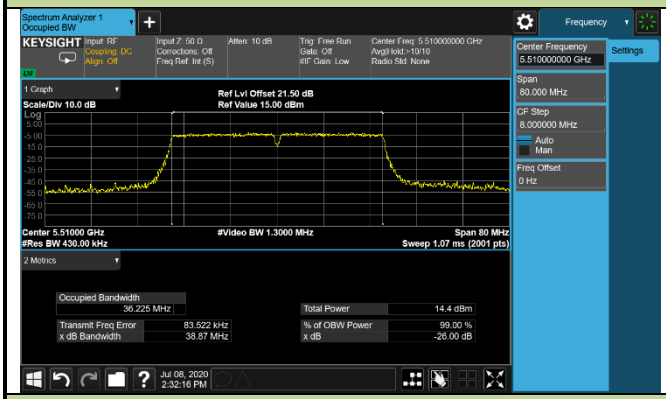
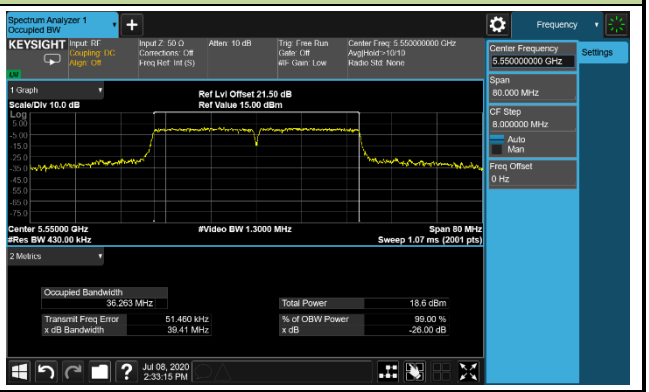
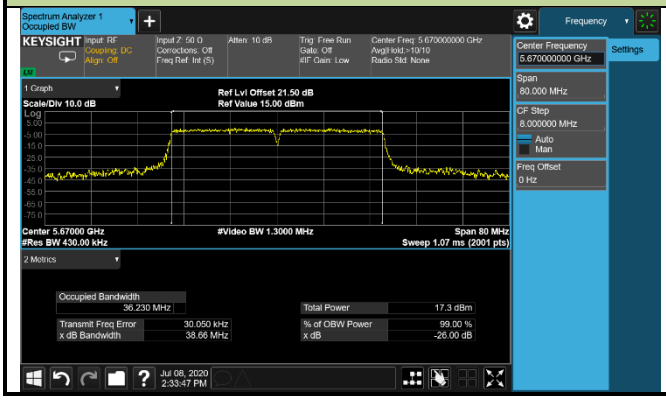
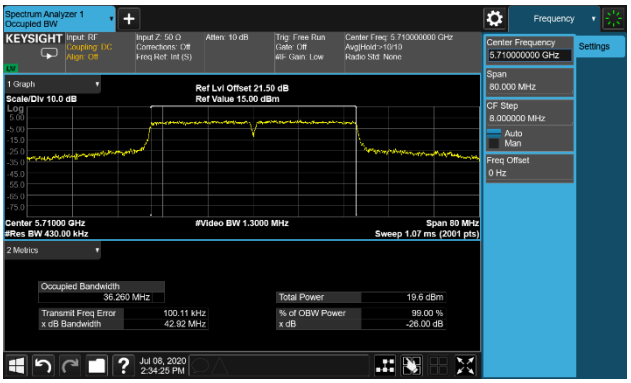


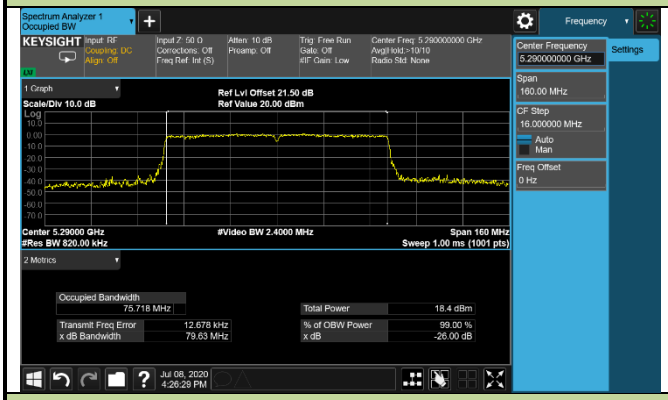
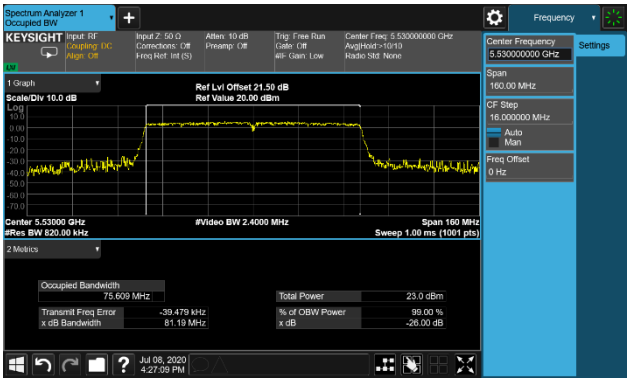
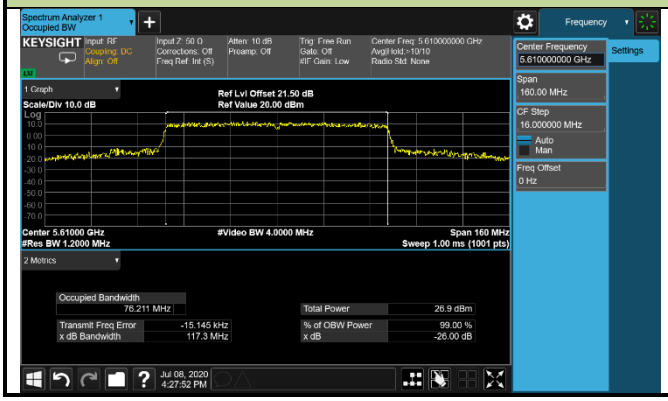
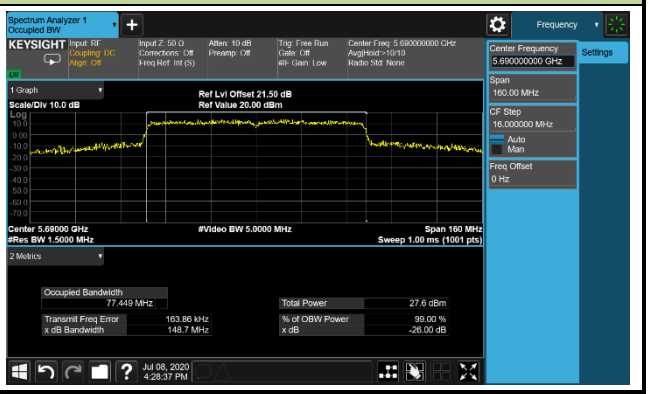

### Channel 140 (5700MHz)




### Channel 144 (5720MHz)

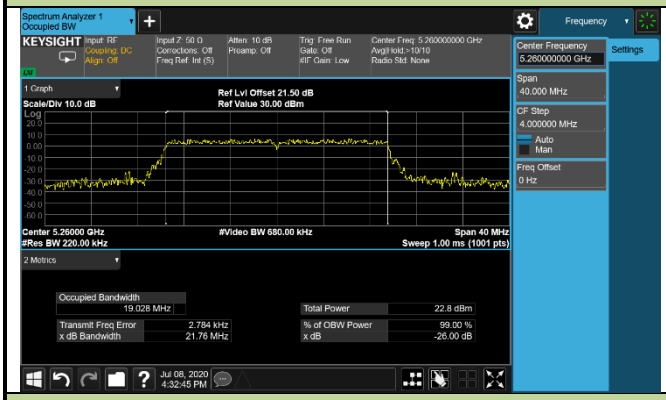


| 802.11ac-VHT40 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1 | |
|---|---|
| Channel 54 (5270MHz) | Channel 62 (5310MHz) |
|  |  |
| Channel 102 (5510MHz) | Channel 110 (5550MHz) |
|  |  |
| Channel 134 (5670MHz) | Channel 142 (5710MHz) |
|  |  |

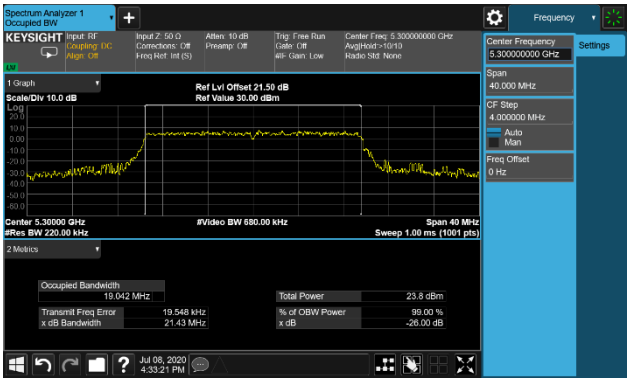
| 802.11ac-VHT80 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1 | |
|---|---|
| Channel 58 (5290MHz) | Channel 106 (5530MHz) |
|  |  |
| Channel 122 (5610MHz) | Channel 138 (5690MHz) |
|  |  |

## 802.11ax-HE20 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1

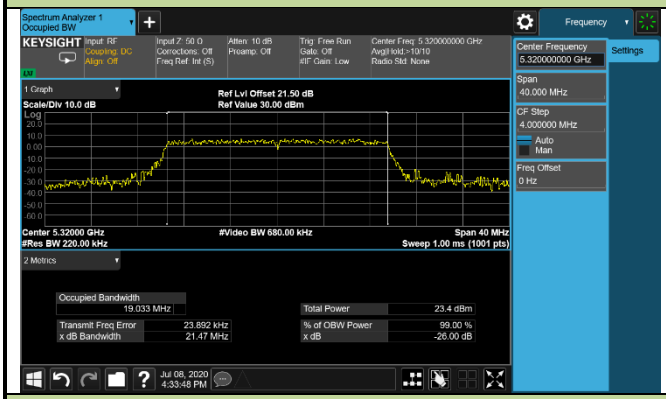
### Channel 52 (5260MHz)



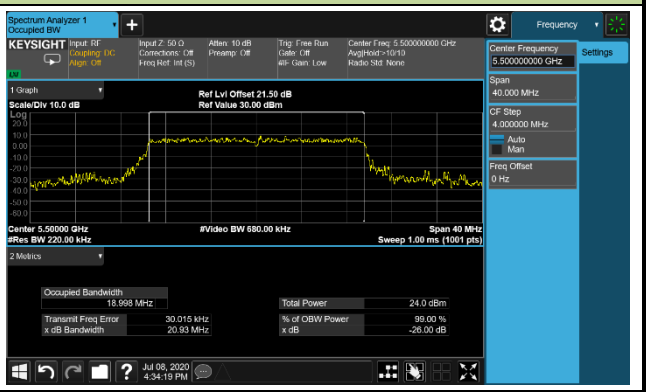

### Channel 60 (5300MHz)



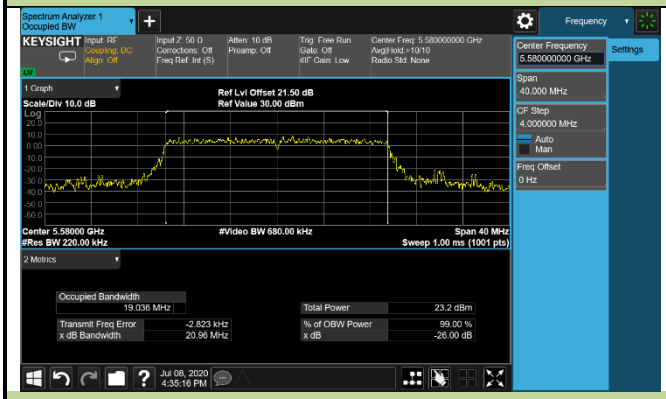

### Channel 64 (5320MHz)



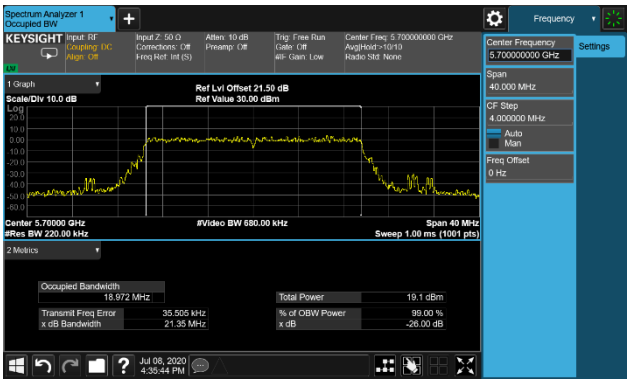

### Channel 100 (5500MHz)



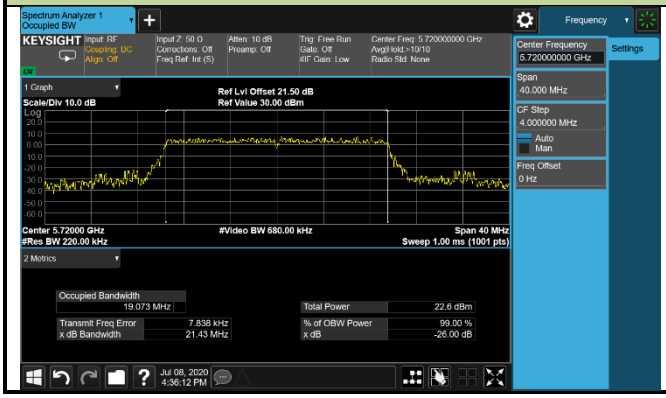

### Channel 116 (5580MHz)




### Channel 140 (5700MHz)

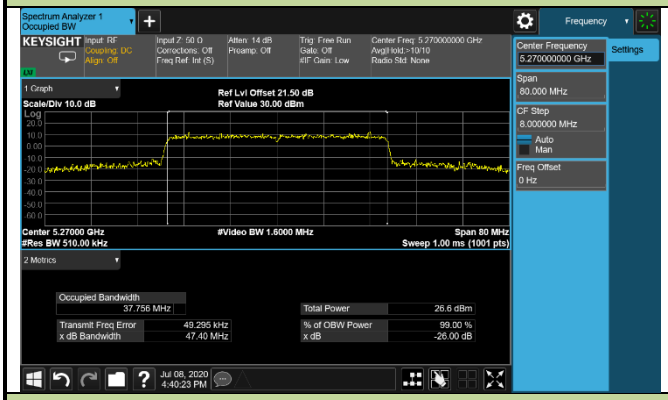



### Channel 144 (5720MHz)

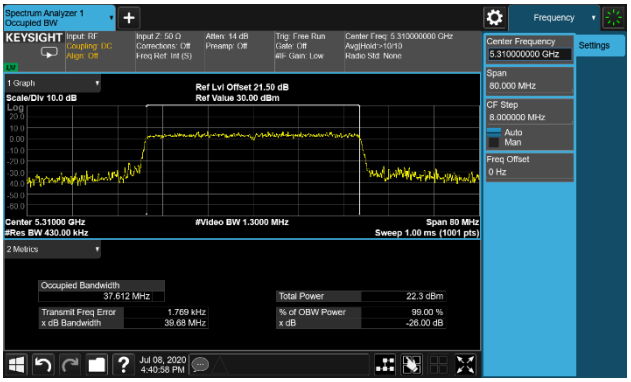


## 802.11ax-HE40 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1

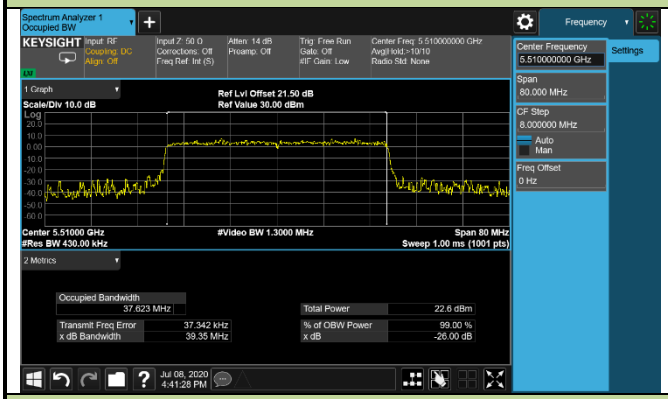
### Channel 54 (5270MHz)



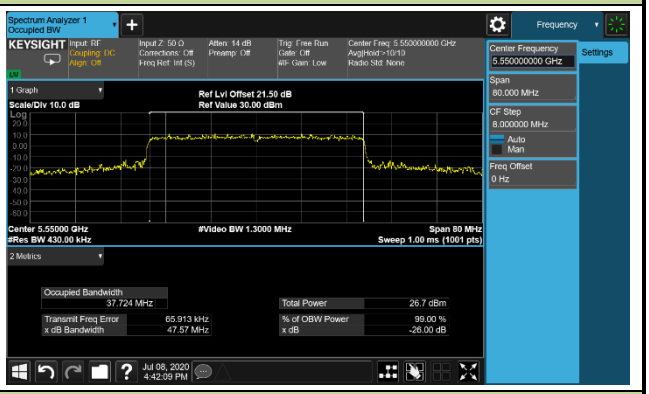

### Channel 62 (5310MHz)



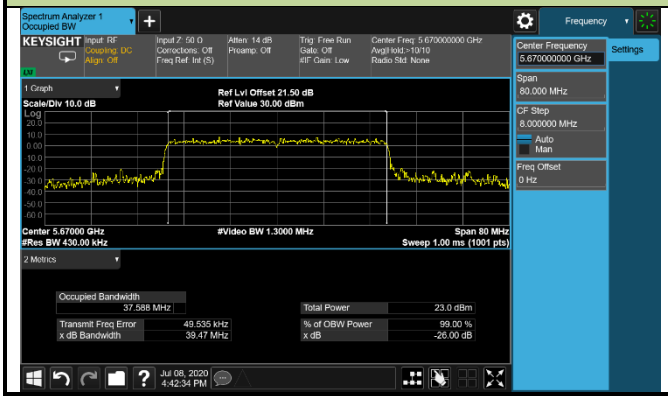

### Channel 102 (5510MHz)



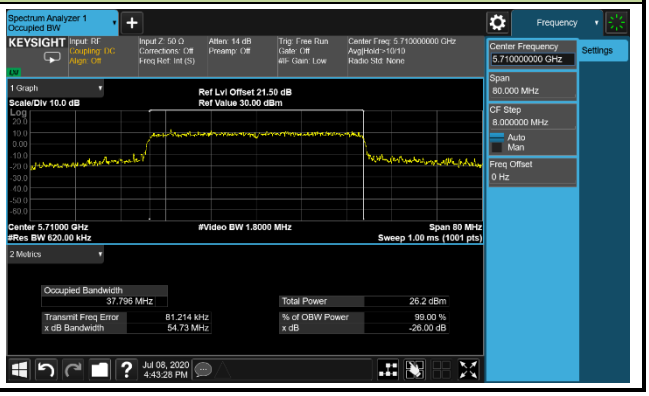

### Channel 110 (5550MHz)

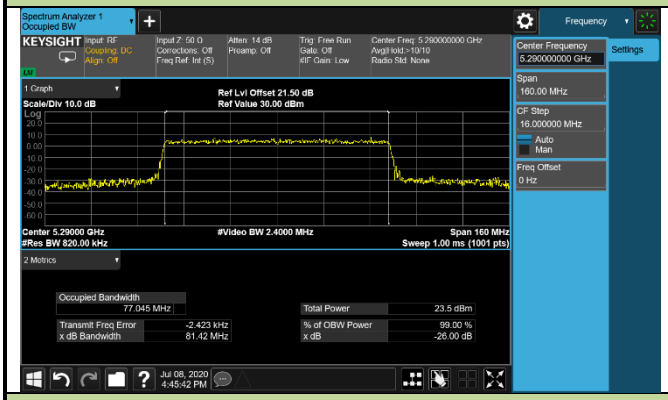
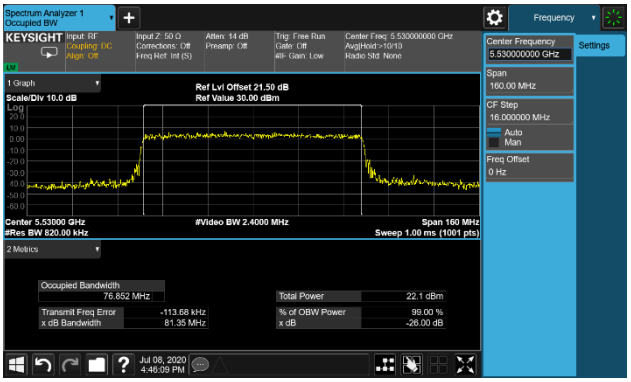
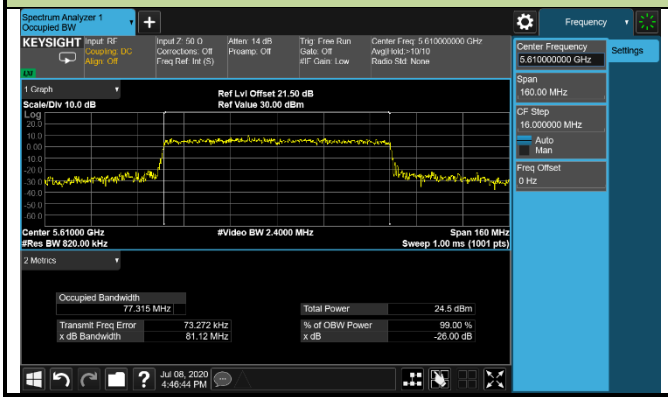
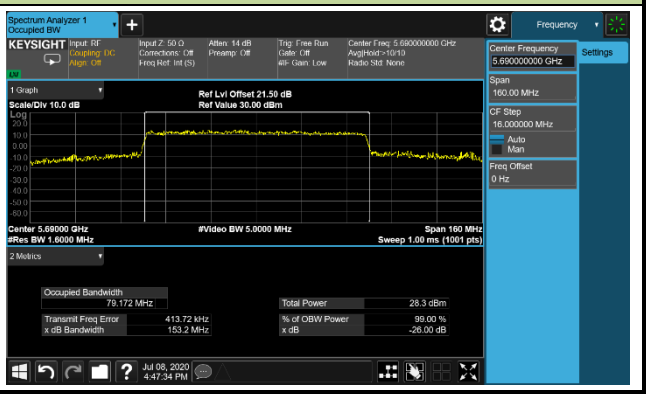



### Channel 134 (5670MHz)




### Channel 142 (5710MHz)



| 802.11ax-HE80 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1 | |
|---|---|
| Channel 58 (5290MHz) | Channel 106 (5530MHz) |
|  |  |
| Channel 122 (5610MHz) | Channel 138 (5690MHz) |
|  |  |

## 6.3. Output Power Measurement

### 6.3.1.Test Limit

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

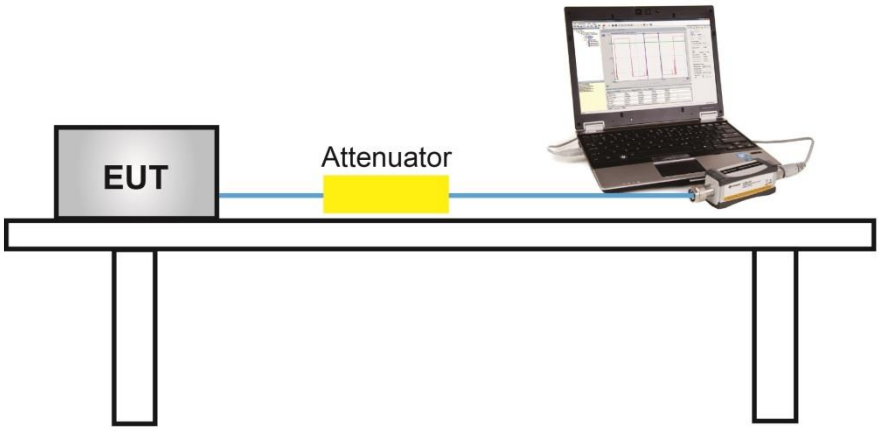
### 6.3.2.Test Procedure Used

KDB 789033D02v02r01- Section E)3)b) Method PM-G

### 6.3.3.Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

### 6.3.4.Test Setup



### 6.3.5.Test Result

| Product | AX1800 Wi-Fi 6 Range Extender | Test Engineer | Eric Lin |
|---|---|---|---|
| Test Site | SR1 | Test Date | 2020/06/28 ~ 2020/08/04 |
| Test Mode | CDD Mode | | |

| Test Mode | Data Rate/ MCS | Channel No. | Freq. (MHz) | Ant 0 Average Power (dBm) | Ant 1 Average Power (dBm) | Total Average Power (dBm) | Average Power Limit (dBm) | Result |
|---|---|---|---|---|---|---|---|---|
| 11a | 6Mbps | 52 | 5260 | 18.58 | 18.27 | 21.44 | ≤ 23.98 | Pass |
| 11a | 6Mbps | 60 | 5300 | 18.63 | 18.05 | 21.36 | ≤ 23.98 | Pass |
| 11a | 6Mbps | 64 | 5320 | 18.98 | 18.14 | 21.59 | ≤ 23.98 | Pass |
| 11a | 6Mbps | 100 | 5500 | 17.67 | 17.72 | 20.71 | ≤ 23.98 | Pass |
| 11a | 6Mbps | 116 | 5580 | 19.03 | 18.54 | 21.80 | ≤ 23.98 | Pass |
| 11a | 6Mbps | 140 | 5700 | 14.93 | 14.83 | 17.89 | ≤ 23.98 | Pass |
| 11a | 6Mbps | 144 | 5720 | 18.63 | 18.54 | 21.60 | ≤ 22.87 | Pass |
| 11ac-VHT20 | MCS0 | 52 | 5260 | 19.07 | 18.88 | 21.99 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 60 | 5300 | 19.10 | 18.79 | 21.96 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 64 | 5320 | 18.88 | 18.72 | 21.81 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 100 | 5500 | 19.33 | 18.52 | 21.95 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 116 | 5580 | 18.59 | 18.79 | 21.70 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 140 | 5700 | 15.64 | 15.74 | 18.70 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 144 | 5720 | 18.73 | 18.54 | 21.65 | ≤ 22.88 | Pass |
| 11ac-VHT40 | MCS0 | 54 | 5270 | 21.00 | 20.38 | 23.71 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 62 | 5310 | 16.38 | 16.00 | 19.20 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 102 | 5510 | 15.17 | 15.38 | 18.29 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 110 | 5550 | 19.60 | 19.82 | 22.72 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 134 | 5670 | 17.71 | 17.10 | 20.43 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 142 | 5710 | 19.61 | 18.79 | 22.23 | ≤ 23.98 | Pass |
| 11ac-VHT80 | MCS0 | 58 | 5290 | 16.21 | 16.17 | 19.20 | ≤ 23.98 | Pass |
| 11ac-VHT80 | MCS0 | 106 | 5530 | 15.88 | 16.32 | 19.12 | ≤ 23.98 | Pass |
| 11ac-VHT80 | MCS0 | 122 | 5610 | 20.02 | 20.06 | 23.05 | ≤ 23.98 | Pass |
| 11ac-VHT80 | MCS0 | 138 | 5690 | 20.98 | 20.56 | 23.79 | ≤ 23.98 | Pass |

| Test Mode | Data Rate/ MCS | Channel No. | Freq. (MHz) | Ant 0 Average Power (dBm) | Ant 1 Average Power (dBm) | Total Average Power (dBm) | Average Power Limit (dBm) | Result |
|---|---|---|---|---|---|---|---|---|
| 11ax-HE20 | MCS0 | 52 | 5260 | 19.79 | 19.48 | 22.65 | ≤ 23.98 | Pass |
| 11ax-HE20 | MCS0 | 60 | 5300 | 19.65 | 19.28 | 22.48 | ≤ 23.98 | Pass |
| 11ax-HE20 | MCS0 | 64 | 5320 | 19.27 | 19.03 | 22.16 | ≤ 23.98 | Pass |
| 11ax-HE20 | MCS0 | 100 | 5500 | 19.67 | 18.71 | 22.23 | ≤ 23.98 | Pass |
| 11ax-HE20 | MCS0 | 116 | 5580 | 19.67 | 19.21 | 22.46 | ≤ 23.98 | Pass |
| 11ax-HE20 | MCS0 | 140 | 5700 | 13.58 | 13.42 | 16.51 | ≤ 23.98 | Pass |
| 11ax-HE20 | MCS0 | 144 | 5720 | 19.37 | 19.24 | 22.32 | ≤ 22.96 | Pass |
| 11ax-HE40 | MCS0 | 54 | 5270 | 21.09 | 20.54 | 23.83 | ≤ 23.98 | Pass |
| 11ax-HE40 | MCS0 | 62 | 5310 | 16.60 | 16.21 | 19.42 | ≤ 23.98 | Pass |
| 11ax-HE40 | MCS0 | 102 | 5510 | 15.80 | 15.57 | 18.70 | ≤ 23.98 | Pass |
| 11ax-HE40 | MCS0 | 110 | 5550 | 19.64 | 19.77 | 22.72 | ≤ 23.98 | Pass |
| 11ax-HE40 | MCS0 | 134 | 5670 | 17.53 | 16.95 | 20.26 | ≤ 23.98 | Pass |
| 11ax-HE40 | MCS0 | 142 | 5710 | 20.07 | 19.51 | 22.81 | ≤ 23.98 | Pass |
| 11ax-HE80 | MCS0 | 58 | 5290 | 16.46 | 16.06 | 19.27 | ≤ 23.98 | Pass |
| 11ax-HE80 | MCS0 | 106 | 5530 | 14.88 | 15.15 | 18.03 | ≤ 23.98 | Pass |
| 11ax-HE80 | MCS0 | 122 | 5610 | 17.85 | 17.37 | 20.63 | ≤ 23.98 | Pass |
| 11ax-HE80 | MCS0 | 138 | 5690 | 20.93 | 20.31 | 23.64 | ≤ 23.98 | Pass |

Note 1: Total Average Power (dBm) = $10*\log\{10^{(\text{Ant 0 Average Power }/10)} + 10^{(\text{Ant 1 Average Power }/10)}\}$.

Note 2: Average Power Limit Calculation as below:

802.11a/ac-VHT20/ac-VHT40/ac-VHT80/ax-HE20/ax-HE40/ax-HE80: Limit = 23.98dBm.

For Channel 144 (5720MHz), $11+10*\log(5\text{MHz} + BW_{26dBc}/2) < 23.98\text{dBm}$

| Product | AX1800 Wi-Fi 6 Range Extender | Test Engineer | Eric Lin |
|---|---|---|---|
| Test Site | SR1 | Test Date | 2020/06/28 ~ 2020/08/04 |
| Test Mode | Beamforming Mode | | |

| Test Mode | Data Rate/ MCS | Channel No. | Freq. (MHz) | Ant 0 Average Power (dBm) | Ant 1 Average Power (dBm) | Total Average Power (dBm) | Average Power Limit (dBm) | Result |
|---|---|---|---|---|---|---|---|---|
| 11ac-VHT20 | MCS0 | 52 | 5260 | 19.07 | 18.88 | 21.99 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 60 | 5300 | 19.10 | 18.79 | 21.96 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 64 | 5320 | 18.88 | 18.72 | 21.81 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 100 | 5500 | 19.33 | 18.52 | 21.95 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 116 | 5580 | 18.59 | 18.79 | 21.70 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 140 | 5700 | 12.49 | 12.01 | 15.27 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 144 | 5720 | 18.73 | 18.54 | 21.65 | ≤ 22.88 | Pass |
| 11ac-VHT40 | MCS0 | 54 | 5270 | 21.00 | 20.38 | 23.71 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 62 | 5310 | 13.15 | 13.09 | 16.13 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 102 | 5510 | 12.16 | 12.47 | 15.33 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 110 | 5550 | 19.60 | 19.82 | 22.72 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 134 | 5670 | 12.27 | 12.16 | 15.23 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 142 | 5710 | 19.61 | 18.79 | 22.23 | ≤ 23.98 | Pass |
| 11ac-VHT80 | MCS0 | 58 | 5290 | 11.53 | 11.01 | 14.29 | ≤ 23.98 | Pass |
| 11ac-VHT80 | MCS0 | 106 | 5530 | 11.42 | 11.03 | 14.24 | ≤ 23.98 | Pass |
| 11ac-VHT80 | MCS0 | 122 | 5610 | 13.27 | 13.23 | 16.26 | ≤ 23.98 | Pass |
| 11ac-VHT80 | MCS0 | 138 | 5690 | 20.98 | 20.56 | 23.79 | ≤ 23.98 | Pass |
| 11ax-HE20 | MCS0 | 52 | 5260 | 19.79 | 19.48 | 22.65 | ≤ 23.98 | Pass |
| 11ax-HE20 | MCS0 | 60 | 5300 | 19.65 | 19.28 | 22.48 | ≤ 23.98 | Pass |
| 11ax-HE20 | MCS0 | 64 | 5320 | 19.27 | 19.03 | 22.16 | ≤ 23.98 | Pass |
| 11ax-HE20 | MCS0 | 100 | 5500 | 19.67 | 18.71 | 22.23 | ≤ 23.98 | Pass |
| 11ax-HE20 | MCS0 | 116 | 5580 | 19.67 | 19.21 | 22.46 | ≤ 23.98 | Pass |
| 11ax-HE20 | MCS0 | 140 | 5700 | 13.58 | 13.42 | 16.51 | ≤ 23.98 | Pass |
| 11ax-HE20 | MCS0 | 144 | 5720 | 19.37 | 19.24 | 22.32 | ≤ 22.96 | Pass |

| Test Mode | Data Rate/ MCS | Channel No. | Freq. (MHz) | Ant 0 Average Power (dBm) | Ant 1 Average Power (dBm) | Total Average Power (dBm) | Average Power Limit (dBm) | Result |
|---|---|---|---|---|---|---|---|---|
| 11ax-HE40 | MCS0 | 54 | 5270 | 21.09 | 20.54 | 23.83 | ≤ 23.98 | Pass |
| 11ax-HE40 | MCS0 | 62 | 5310 | 12.05 | 11.22 | 14.67 | ≤ 23.98 | Pass |
| 11ax-HE40 | MCS0 | 102 | 5510 | 11.17 | 11.03 | 14.11 | ≤ 23.98 | Pass |
| 11ax-HE40 | MCS0 | 110 | 5550 | 19.64 | 19.77 | 22.72 | ≤ 23.98 | Pass |
| 11ax-HE40 | MCS0 | 134 | 5670 | 12.02 | 11.95 | 15.00 | ≤ 23.98 | Pass |
| 11ax-HE40 | MCS0 | 142 | 5710 | 20.07 | 19.51 | 22.81 | ≤ 23.98 | Pass |
| 11ax-HE80 | MCS0 | 58 | 5290 | 10.53 | 10.27 | 13.41 | ≤ 23.98 | Pass |
| 11ax-HE80 | MCS0 | 106 | 5530 | 10.86 | 10.53 | 13.71 | ≤ 23.98 | Pass |
| 11ax-HE80 | MCS0 | 122 | 5610 | 13.54 | 13.17 | 16.37 | ≤ 23.98 | Pass |
| 11ax-HE80 | MCS0 | 138 | 5690 | 20.93 | 20.31 | 23.64 | ≤ 23.98 | Pass |

Note 1: Total Average Power (dBm) = $10*\log\{10^{(\text{Ant 0 Average Power }/10)} + 10^{(\text{Ant 1 Average Power }/10)}\}$.

Note 2: Average Power Limit Calculation as below:

802.11ac-VHT20/ac-VHT40/ac-VHT80/ax-HE20/ax-HE40/ax-HE80: Limit = 23.98dBm.

For Channel 144 (5720MHz), $11+10*\log(5\text{MHz} + BW_{26dBc}/2) < 23.98\text{dBm}$

## 6.4. Transmit Power Control

### 6.4.1. Test Limit

The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm.

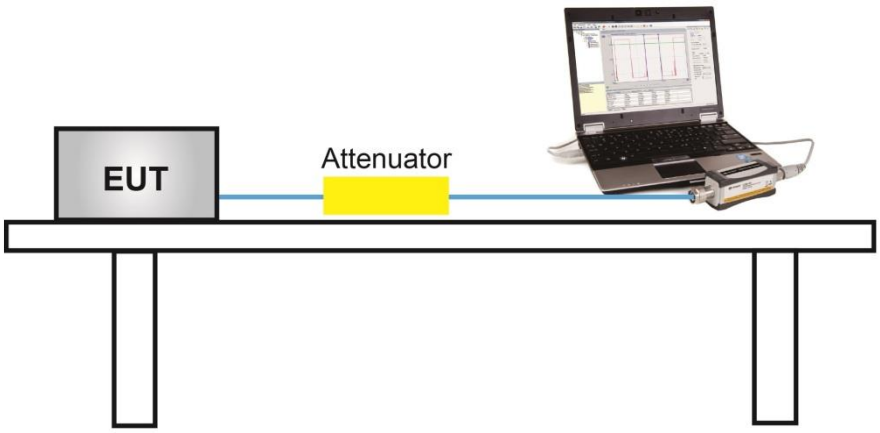
### 6.4.2. Test Procedure Used

KDB 789033 D02v01 - Section E) 3) b) Method PM-G

### 6.4.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

### 6.4.4. Test Setup




### 6.4.5. Test Result

Device supports TPC mechanism, details refer to the operational description.

## 6.5. Power Spectral Density Measurement

### 6.5.1.Test Limit

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

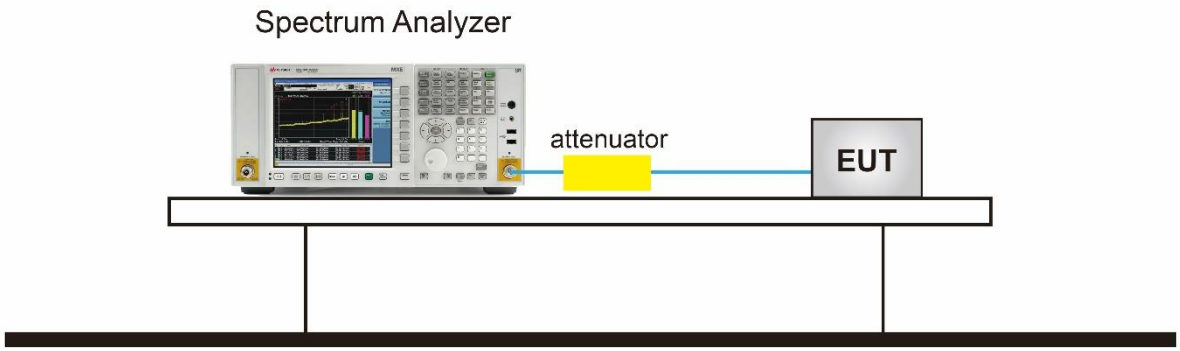
### 6.5.2.Test Procedure Used

KDB 789033 D02v02r01-Section F

### 6.5.3.Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz, if measurement bandwidth of Maximum PSD is specified in 500 kHz, RBW = 510KHz
4. VBW ≥ 3RBW
5. Number of sweep points ≥ 2 × (span / RBW)
6. Detector = power averaging (Average)
7. Sweep time = auto
8. Trigger = free run
9. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
10. Add 10*log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add 10*log (1/0.25) = 6 dB if the duty cycle is 25 percent.

### 6.5.4.Test Setup



### 6.5.5.Test Result

| Product | AX1800 Wi-Fi 6 Range Extender | Test Engineer | Eric Lin |
|---|---|---|---|
| Test Site | SR1 | Test Date | 2020/06/28 ~ 2020/08/06 |
| Test Item | Power Spectral Density (UNII-2a & UNII-2c Bands) – CDD mode | | |

| Test Mode | Data Rate /MCS | Ch. No. | Freq. (MHz) | Ant 0 PSD (dBm/MHz) | Ant 1 PSD (dBm/MHz) | Duty Cycle (%) | Total PSD (dBm/ MHz) | PSD Limit (dBm/MHz) | Result |
|---|---|---|---|---|---|---|---|---|---|
| 11a | 6Mbps | 52 | 5260 | 7.76 | 7.26 | 94.89 | 10.75 | ≤ 11.00 | Pass |
| 11a | 6Mbps | 60 | 5300 | 7.61 | 7.46 | 94.89 | 10.77 | ≤ 11.00 | Pass |
| 11a | 6Mbps | 64 | 5320 | 7.76 | 7.48 | 94.89 | 10.86 | ≤ 11.00 | Pass |
| 11a | 6Mbps | 100 | 5500 | 5.94 | 5.07 | 94.89 | 8.76 | ≤ 11.00 | Pass |
| 11a | 6Mbps | 116 | 5580 | 7.60 | 7.34 | 94.89 | 10.71 | ≤ 11.00 | Pass |
| 11a | 6Mbps | 140 | 5700 | 3.53 | 3.42 | 94.89 | 6.71 | ≤ 11.00 | Pass |
| 11a | 6Mbps | 144 | 5720 | 7.67 | 7.55 | 94.89 | 10.85 | ≤ 11.00 | Pass |
| 11ac-VHT20 | MCS0 | 52 | 5260 | 7.72 | 7.48 | 97.86 | 10.71 | ≤ 11.00 | Pass |
| 11ac-VHT20 | MCS0 | 60 | 5300 | 7.83 | 7.43 | 97.86 | 10.74 | ≤ 11.00 | Pass |
| 11ac-VHT20 | MCS0 | 64 | 5320 | 7.82 | 7.42 | 97.86 | 10.73 | ≤ 11.00 | Pass |
| 11ac-VHT20 | MCS0 | 100 | 5500 | 7.78 | 7.49 | 97.86 | 10.74 | ≤ 11.00 | Pass |
| 11ac-VHT20 | MCS0 | 116 | 5580 | 7.51 | 7.61 | 97.86 | 10.67 | ≤ 11.00 | Pass |
| 11ac-VHT20 | MCS0 | 140 | 5700 | 4.70 | 4.57 | 97.86 | 7.74 | ≤ 11.00 | Pass |
| 11ac-VHT20 | MCS0 | 144 | 5720 | 7.47 | 7.68 | 97.86 | 10.68 | ≤ 11.00 | Pass |
| 11ac-VHT40 | MCS0 | 54 | 5270 | 5.55 | 5.32 | 95.59 | 8.64 | ≤ 11.00 | Pass |
| 11ac-VHT40 | MCS0 | 62 | 5310 | 2.08 | 1.63 | 95.59 | 5.07 | ≤ 11.00 | Pass |
| 11ac-VHT40 | MCS0 | 102 | 5510 | 0.93 | 1.02 | 95.59 | 4.18 | ≤ 11.00 | Pass |
| 11ac-VHT40 | MCS0 | 110 | 5550 | 5.40 | 5.50 | 95.59 | 8.66 | ≤ 11.00 | Pass |
| 11ac-VHT40 | MCS0 | 134 | 5670 | 3.35 | 2.66 | 95.59 | 6.22 | ≤ 11.00 | Pass |
| 11ac-VHT40 | MCS0 | 142 | 5710 | 5.69 | 5.29 | 95.59 | 8.70 | ≤ 11.00 | Pass |
| 11ac-VHT80 | MCS0 | 58 | 5290 | -1.10 | -1.23 | 93.87 | 2.12 | ≤ 11.00 | Pass |
| 11ac-VHT80 | MCS0 | 106 | 5530 | -1.37 | -1.26 | 93.87 | 1.97 | ≤ 11.00 | Pass |
| 11ac-VHT80 | MCS0 | 122 | 5610 | 2.86 | 2.92 | 93.87 | 6.18 | ≤ 11.00 | Pass |
| 11ac-VHT80 | MCS0 | 138 | 5690 | 3.55 | 3.18 | 93.87 | 6.66 | ≤ 11.00 | Pass |

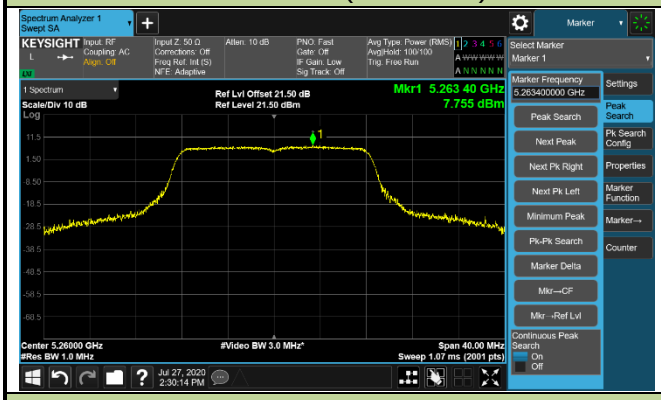
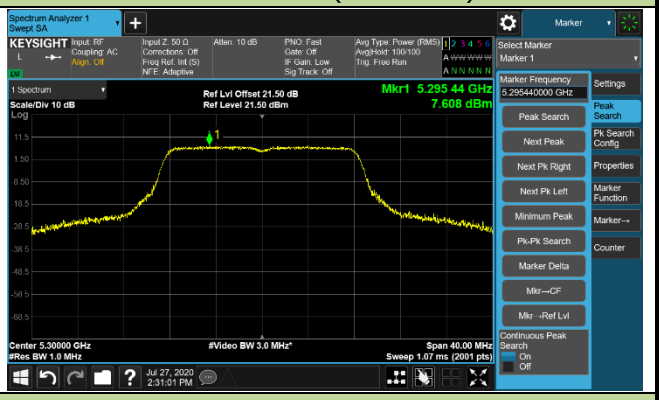
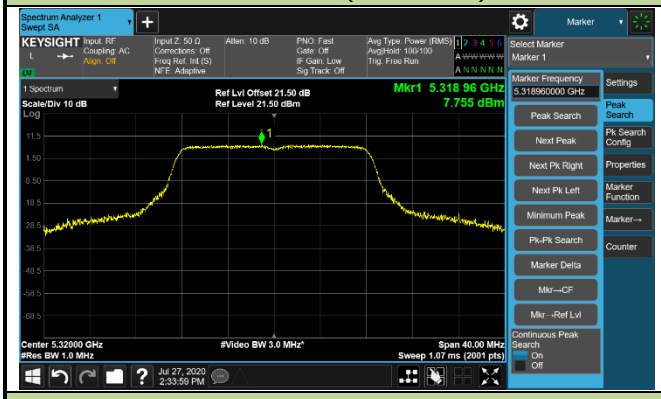
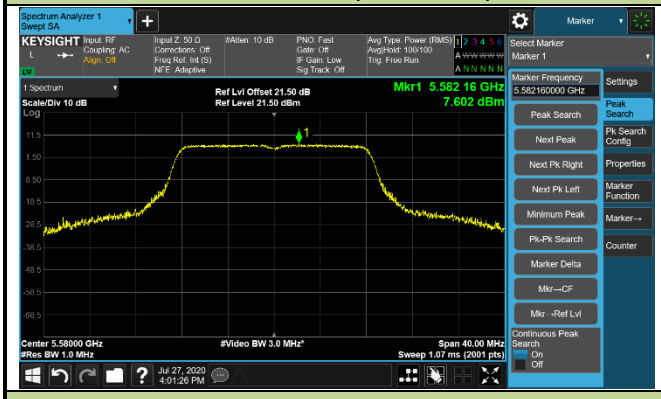
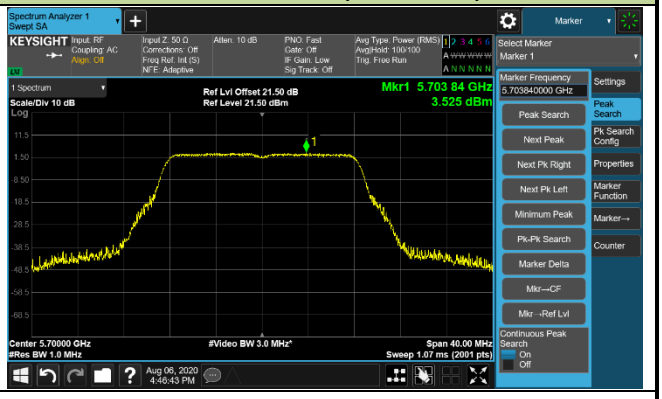
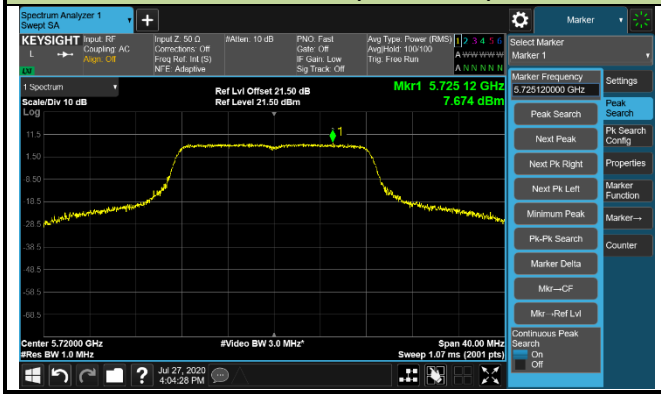
| Test Mode | Data Rate /MCS | Ch. No. | Freq. (MHz) | Ant 0 PSD (dBm/MHz) | Ant 1 PSD (dBm/MHz) | Duty Cycle (%) | Total PSD (dBm/ MHz) | PSD Limit (dBm/MHz) | Result |
|---|---|---|---|---|---|---|---|---|---|
| 11ax-HE20 | MCS0 | 52 | 5260 | 7.79 | 7.74 | 98.05 | 10.78 | ≤ 11.00 | Pass |
| 11ax-HE20 | MCS0 | 60 | 5300 | 7.99 | 7.56 | 98.05 | 10.79 | ≤ 11.00 | Pass |
| 11ax-HE20 | MCS0 | 64 | 5320 | 7.94 | 7.49 | 98.05 | 10.73 | ≤ 11.00 | Pass |
| 11ax-HE20 | MCS0 | 100 | 5500 | 8.26 | 7.52 | 98.05 | 10.91 | ≤ 11.00 | Pass |
| 11ax-HE20 | MCS0 | 116 | 5580 | 8.06 | 7.44 | 98.05 | 10.77 | ≤ 11.00 | Pass |
| 11ax-HE20 | MCS0 | 140 | 5700 | 2.38 | 2.26 | 98.05 | 5.33 | ≤ 11.00 | Pass |
| 11ax-HE20 | MCS0 | 144 | 5720 | 7.84 | 7.75 | 98.05 | 10.80 | ≤ 11.00 | Pass |
| 11ax-HE40 | MCS0 | 54 | 5270 | 5.74 | 5.24 | 95.98 | 8.68 | ≤ 11.00 | Pass |
| 11ax-HE40 | MCS0 | 62 | 5310 | 2.41 | 1.76 | 95.98 | 5.29 | ≤ 11.00 | Pass |
| 11ax-HE40 | MCS0 | 102 | 5510 | 1.70 | 1.31 | 95.98 | 4.69 | ≤ 11.00 | Pass |
| 11ax-HE40 | MCS0 | 110 | 5550 | 5.39 | 5.25 | 95.98 | 8.51 | ≤ 11.00 | Pass |
| 11ax-HE40 | MCS0 | 134 | 5670 | 3.37 | 2.74 | 95.98 | 6.25 | ≤ 11.00 | Pass |
| 11ax-HE40 | MCS0 | 142 | 5710 | 6.02 | 5.34 | 95.98 | 8.88 | ≤ 11.00 | Pass |
| 11ax-HE80 | MCS0 | 58 | 5290 | -0.67 | -1.16 | 92.58 | 2.44 | ≤ 11.00 | Pass |
| 11ax-HE80 | MCS0 | 106 | 5530 | -2.11 | -2.17 | 92.58 | 1.21 | ≤ 11.00 | Pass |
| 11ax-HE80 | MCS0 | 122 | 5610 | 0.83 | 0.74 | 92.58 | 4.13 | ≤ 11.00 | Pass |
| 11ax-HE80 | MCS0 | 138 | 5690 | 3.73 | 3.54 | 92.58 | 6.98 | ≤ 11.00 | Pass |

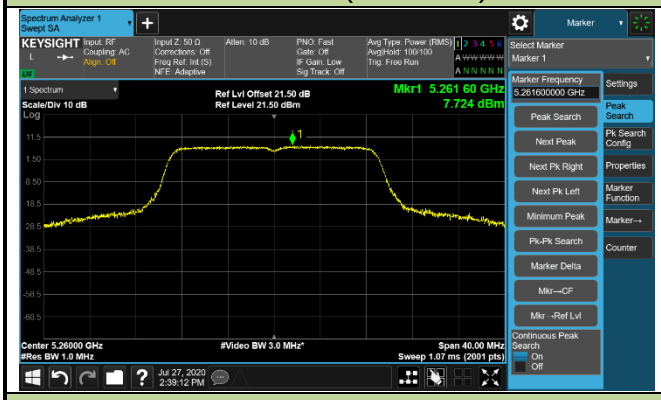
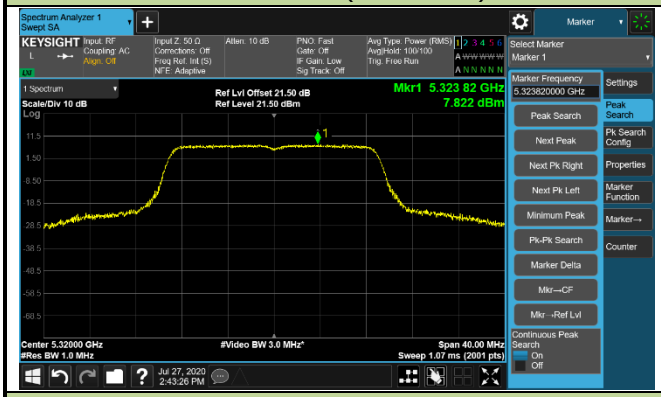
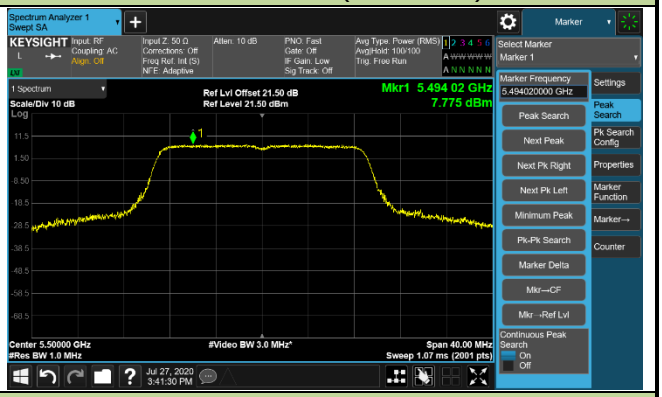
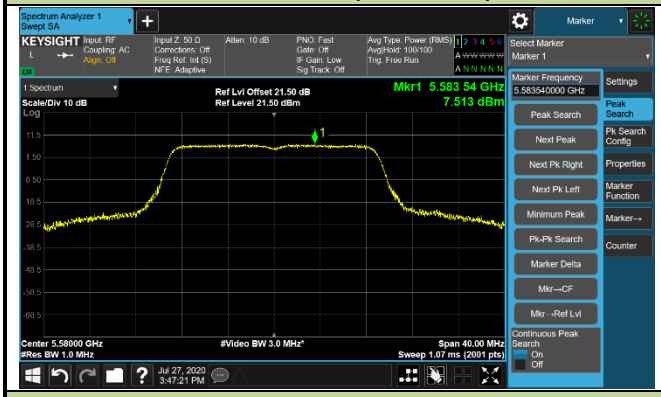
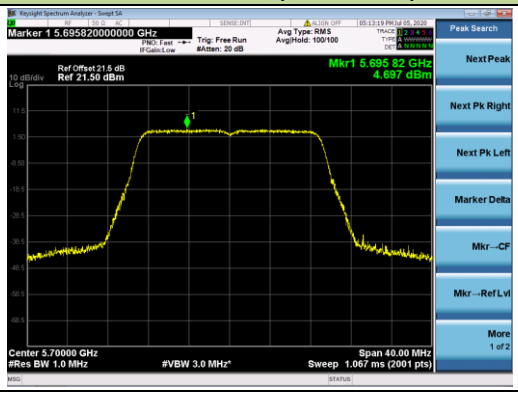
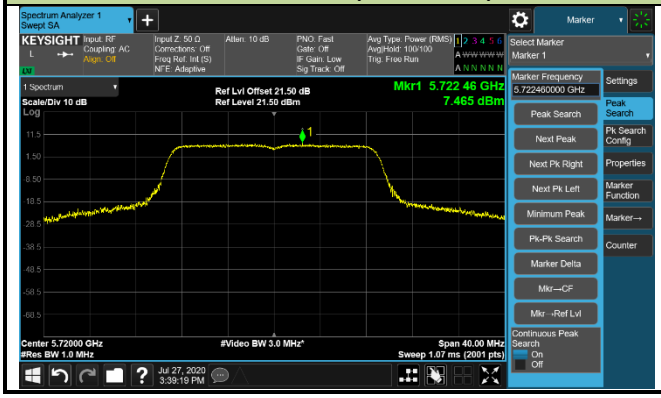
Note 1:

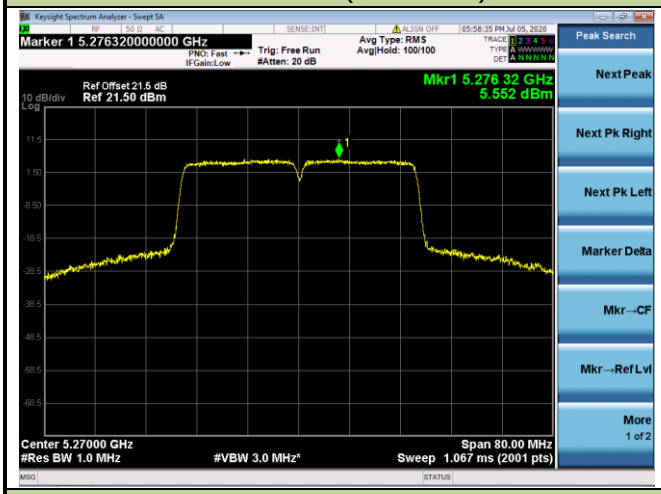
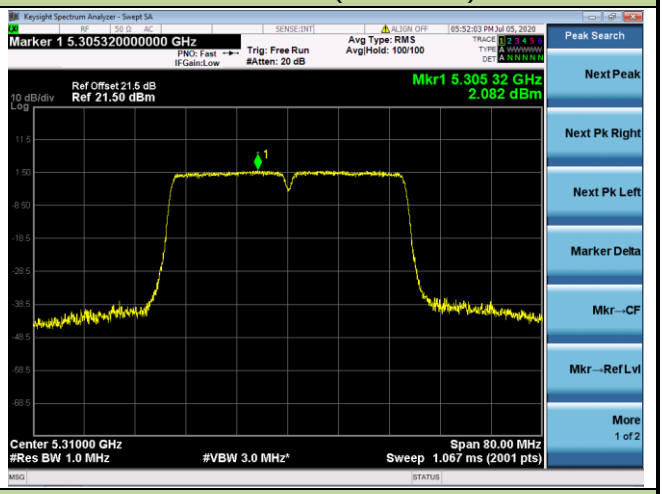
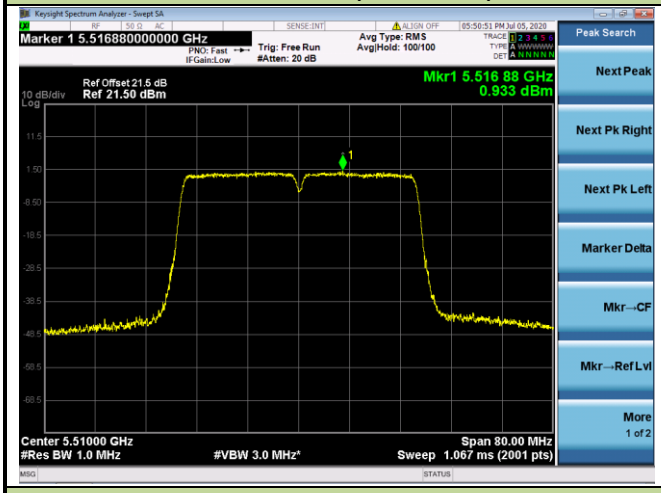
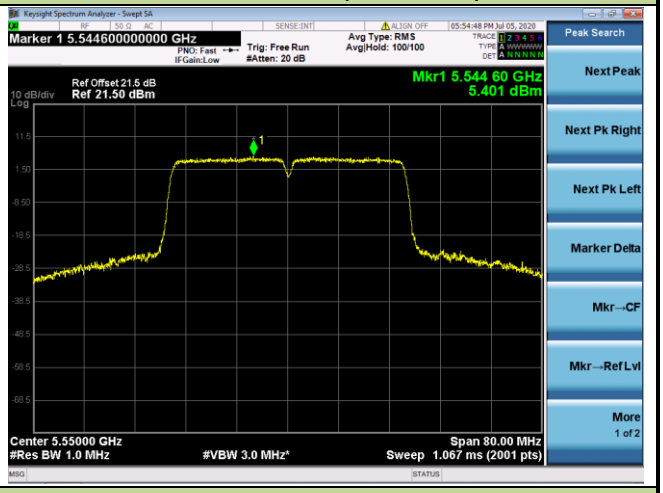
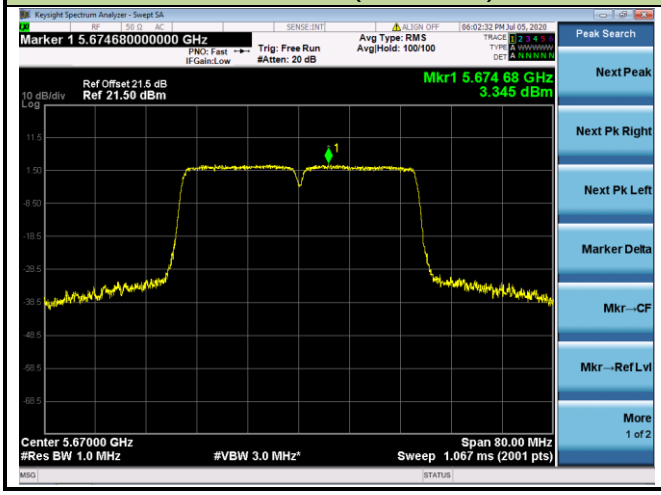
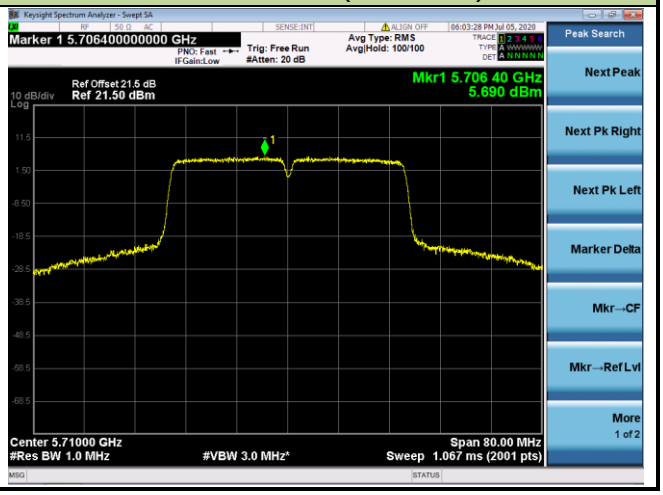
When EUT duty cycle > 98%, the total PSD (dBm/MHz) = $10*\log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$ (dBm/MHz).

When EUT duty cycle < 98%, the total PSD (dBm/MHz) = $10*\log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$ (dBm/MHz) + 10*log (1/Duty Cycle).

Note 2: Due to the power setting of beamforming mode is not great than CDD mode, so beamforming mode result is not reported.

| 802.11a Power Spectral Density - Ant 0 / Ant 0 + 1 (CDD Mode) | |
|---|---|
| Channel 52 (5260MHz) | Channel 60 (5300MHz) |
|  |  |
| Channel 64 (5320MHz) | Channel 100 (5500MHz) |
|  |  |
| Channel 116 (5580MHz) | Channel 140 (5700MHz) |
|  |  |
| Channel 144 (5720MHz) | |
|  | |

| 802.11ac-VHT20 Power Spectral Density - Ant 0 / Ant 0 + 1 (CDD Mode) | |
|---|---|
| Channel 52 (5260MHz) | Channel 60 (5300MHz) |
|  |  |
| Channel 64 (5320MHz) | Channel 100 (5500MHz) |
|  |  |
| Channel 116 (5580MHz) | Channel 140 (5700MHz) |
|  |  |
| Channel 144 (5720MHz) | |
|  | |

| 802.11ac-VHT40 Power Spectral Density - Ant 0 / Ant 0 + 1 (CDD Mode) | |
|---|---|
| Channel 54 (5270MHz) | Channel 62 (5310MHz) |
|  |  |
| Channel 102 (5510MHz) | Channel 110 (5550MHz) |
|  |  |
| Channel 134 (5670MHz) | Channel 142 (5710MHz) |
|  |  |