# RF MEASUREMENT REPORT

| | |
|---|---|
| **FCC ID:** | HDC17600031F1 |
| **Applicant:** | Adtran Inc. |
| **Application Type:** | Certification |
| **Product:** | WiFi 5 Mesh AP |
| **Model No.:** | 831-t5 |
| **FCC Classification:** | Unlicensed National Information Infrastructure (NII) |
| **FCC Rule Part(s):** | Part 15 Subpart E (Section 15.407) |
| **Test Date:** | August 22 ~ November 19, 2021 |

**Reviewed By:** Vincent Yu

**Approved By:** Robin Wu

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

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.

## Revision History

| Report No. | Version | Description | Issue Date | Note |
|---|---|---|---|---|
| 2108RSU047-U4 | Rev. 01 | Initial Report | 11-25-2021 | Valid |
| | | | | |

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# 1. General Information

## 1.1. Applicant

Adtran Inc.

901 Explorer Blvd NW Huntsville, AL 35806, USA

## 1.2. Manufacturer

Adtran Inc.

901 Explorer Blvd NW Huntsville, AL 35806, USA

## 1.3. Testing Facility

| | | | | | |
|---|---|---|---|---|---|
| ☒ | **Test Site – MRT Suzhou Laboratory** | | | | |
| | **Laboratory Location (Suzhou - Wuzhong)**<br>D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China<br>**Laboratory Location (Suzhou - SIP)**<br>4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China | | | | |
| | **Laboratory Accreditations** | | | | |
| | A2LA: 3628.01 | | CNAS: L10551 | | |
| | FCC: CN1166 | | ISED: CN0001 | | |
| | VCCI: | ☐R-20025 | ☐G-20034 | ☐C-20020 | ☐T-20020 |
| | | ☐R-20141 | ☐G-20134 | ☐C-20103 | ☐T-20104 |
| ☒ | **Test Site – MRT Shenzhen Laboratory** | | | | |
| | **Laboratory Location (Shenzhen)**<br>1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China | | | | |
| | **Laboratory Accreditations** | | | | |
| | A2LA: 3628.02 | | CNAS: L10551 | | |
| | FCC: CN1284 | | ISED: CN0105 | | |
| ☐ | **Test Site – MRT Taiwan Laboratory** | | | | |
| | **Laboratory Location (Taiwan)**<br>No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) | | | | |
| | **Laboratory Accreditations** | | | | |
| | TAF: L3261-190725 | | | | |
| | FCC: 291082, TW3261 | | ISED: TW3261 | | |

### 1.4. Product Information

| | |
|---|---|
| Product Name | WiFi 5 Mesh AP |
| Model No. | 831-t5 |
| Serial No. | 831t5A0719000001 |
| Wi-Fi Specification | 802.11a/b/g/n/ac, VHT |
| Antenna Information | Refer to section 1.7 |
| Power Supply | AC/DC Adapter |
| Accessories | |
| Adapter | MODEL: S36B52-120A300-C4-6<br>INPUT: 100-240V~50/60Hz 1.0A<br>OUTPUT: 12.0V DC, 3A, 36.0W |
| Remark:<br>The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer. | |

### 1.5. Radio Specification

| | |
|---|---|
| Frequency Range | For 802.11a/n-HT20/ac-VHT20:<br>5260 ~ 5320MHz, 5500 ~ 5580, 5660 ~ 5700MHz<br>For 802.11n-HT40/ac-VHT40:<br>5270MHz, 5310MHz, 5510MHz, 5550MHz, 5670MHz<br>For 802.11ac-VHT80:<br>5290MHz, 5530MHz |
| Modulation | 802.11a/n/ac: OFDM |
| Data Rate | 802.11a: 6/9/12/18/24/36/48/54Mbps<br>802.11n: up to 600Mbps<br>802.11ac: up to 1733.2Mbps |

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

### 1.6. Working Frequencies

802.11a/n-HT20/ac-VHT20

| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---|---|---|---|---|---|
| 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 |
| 132 | 5660 MHz | 136 | 5680 MHz | 140 | 5700 MHz |

802.11n-HT40/ac-VHT40

| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---|---|---|---|---|---|
| 54 | 5270 MHz | 62 | 5310 MHz | 102 | 5510 MHz |
| 110 | 5550 MHz | 134 | 5670 MHz | -- | -- |

802.11ac-VHT80

| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---|---|---|---|---|---|
| 58 | 5290 MHz | 106 | 5530 MHz | -- | -- |

### 1.7. Antenna Details

| Antenna Type | Frequency Band | $T_X$ Paths | Max. Antenna Gain (dBi) | Beamforming Directional Gain (dBi) | CDD Directional Gain (dBi) | |
|---|---|---|---|---|---|---|
| | | | | | For Power | For PSD |
| PCB Antenna | 2.4GHz Band | 2 | 3.5 | 6.51 | 3.5 | 6.51 |
| | 5GHz Low Band | 2 | 4.9 | 7.91 | 4.9 | 7.91 |
| | 5GHz High Band | 4 | 5.5 | 11.52 | 5.5 | 11.52 |

Remark:

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 $N_{ANT} \leqslant 4$;
2. The EUT also supports Beam Forming mode, and the Beam Forming support 802.11n/ac and VHT, not include 802.11a/b/g. The conducted output power in the beamforming mode will be reduced below the conducted output power in the CDD mode by the amount in dB that the beamforming gain exceeds the maximum antenna gain.

# 2. Test Configuration

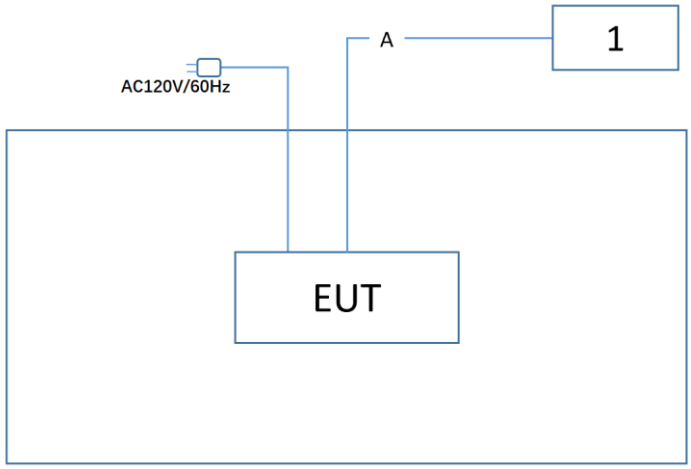
## 2.1. Test Mode

| | |
|---|---|
| Test Mode | Mode 1: Transmit by 802.11a (CDD Mode) |
| | Mode 2: Transmit by 802.11n-HT20 (CDD Mode) |
| | Mode 3: Transmit by 802.11n-HT40 (CDD Mode) |
| | Mode 4: Transmit by 802.11ac-VHT20 (CDD Mode) |
| | Mode 5: Transmit by 802.11ac-VHT40 (CDD Mode) |
| | Mode 6: Transmit by 802.11ac-VHT80 (CDD Mode) |

## 2.2. Test System Connection Diagram

The device was tested per the guidance ANSI C63.10: 2013 was used to reference the appropriate EUT setup for radiated emissions testing and AC line conducted testing.

Connection Diagram – Radiated Emission testing & AC Conducted Emissions




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

## 2.3. Test System Details

| Product | | Manufacturer | Model No. |
|---|---|---|---|
| 1 | Notebook | HP | 735G5 |

## 2.4. Test Software

The test utility software used during testing was “MT7615 QA”, and the version was v0.0.1.90.

Power parameter value refers to Operation Description.

### 2.5. Applied Standards

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

- FCC Part 15.407
- KDB 789033 D02v02r01
- KDB 662911 D01v02r01
- ANSI C63.10-2013

### 2.6. Duty Cycle

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 |
|---|---|
| Low Band (5260 ~ 5320) | |
| 802.11a | 95.45% |
| 802.11n-HT20 | 92.22% |
| 802.11n-HT40 | 85.86% |
| 802.11ac-VHT20 | 91.13% |
| 802.11ac-VHT40 | 85.63% |
| 802.11ac-VHT80 | 76.59% |
| High Band (5500 ~ 5700) | |
| 802.11a | 95.31% |
| 802.11n-HT20 | 85.61% |
| 802.11n-HT40 | 78.42% |
| 802.11ac-VHT20 | 86.38% |
| 802.11ac-VHT40 | 78.48% |
| 802.11ac-VHT80 | 68.72% |

### 2.7. Test Environment Condition

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

## 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. Measuring Instrument

| No. | Instrument | Manufacturer | Model No. | Asset No. | Cali. Interval | Cali. Due Date | Test Site |
|---|---|---|---|---|---|---|---|
| 1 | Horn Antenna | Schwarzbeck | BBHA 9170 | MRTSUE06292 | 1 year<br>1 year | 2021/10/24<br>2022/10/20 | NS-AC1 |
| 2 | Anechoic Chamber | BOOMWAVE | NS-AC1 | MRTSUE06496 | 1 year | 2022/7/24 | NS-AC1 |
| 3 | Horn Antenna | Schwarzbeck | BBHA 9120D | MRTSUE06572 | 1 year | 2022/3/14 | NS-AC1 |
| 4 | TRILOG Antenna | Schwarzbeck | VULB 9162 | MRTSUE06573 | 1 year | 2022/6/29 | NS-AC1 |
| 5 | Preamplifier | Schwarzbeck | BBV 9718 | MRTSUE06574 | 1 year | 2022/7/12 | NS-AC1 |
| 6 | EMI Test Receiver | R&S | ESR3 | MRTSUE06575 | 1 year | 2022/6/27 | NS-AC1 |
| 7 | USB Power Sensor | Keysight | U2021XA | MRTSUE06581 | 1 year | 2022/8/15 | NS-TR2 |
| 8 | Thermohygrometer | DELI | NO.8813 | MRTSUE06588 | 1 year | 2022/6/30 | NS-AC1 |
| 9 | Preamplifier | EMCI | EMC184045SE | MRTSUE06641 | 1 year | 2022/1/14 | NS-AC1 |
| 10 | Thermohygrometer | DELI | NO.8813 | MRTSUE06783 | 1 year | 2022/5/9 | NS-TR2 |
| 11 | Temperature Chamber | OUKE | OK-TH-100C | MRTSUE06899 | 1 year | 2021/11/27 | NS-TR2 |
| 12 | Signal Analyzer | Keysight | N9020A | MRTSUE10065 | 1 year | 2022/6/17 | NS-AC1/NS-TR2 |
| 13 | Signal Analyzer | Agilent | N9010A | MRTSUE06195 | 1 year | 2022/3/17 | NS-AC1/NS-TR2 |
| 14 | EMI Test Receiver | R&S | ESR7 | MRTSUE06001 | 1 year | 2022/1/4 | WZ-AC1 |
| 15 | Horn Antenna | Schwarzbeck | BBHA 9120D | MRTSUE06023 | 1 year<br>1 year | 2021/09/27<br>2022/9/16 | WZ-AC1 |
| 16 | Loop Antenna | Schwarzbeck | FMZB 1519 | MRTSUE06025 | 1 year | 2021/11/8 | WZ-AC1 |
| 17 | Preamplifier | Agilent | 83017A | MRTSUE06076 | 1 year | 2021/11/14 | WZ-AC1 |
| 18 | TRILOG Antenna | Schwarzbeck | VULB 9168 | MRTSUE06172 | 1 year | 2022/8/5 | WZ-AC1 |
| 19 | Thermohygrometer | Yuhuaze | HTC-2 | MRTSUE06184 | 1 year | 2022/8/10 | WZ-AC1 |
| 20 | Anechoic Chamber | TDK | WZ-AC1 | MRTSUE06212 | 1 year | 2022/4/29 | WZ-AC1 |
| 21 | Horn Antenna | ETS | 3117 | MRTSUE06257 | 1 year<br>1 year | 2021/9/27<br>2022/9/25 | WZ-AC1 |
| 22 | Thermohygrometer | testo | 608-H1 | MRTSUE06403 | 1 year | 2022/6/28 | WZ-AC1 |
| 23 | Horn Antenna | Schwarzbeck | BBHA 9170 | MRTSUE06597 | 1 year | 2021/12/14 | WZ-AC1 |
| 24 | Signal Analyzer | Keysight | N9010B | MRTSUE06607 | 1 year | 2022/1/6 | WZ-AC1 |
| 25 | Preamplifier | EMCI | EMC184045SE | MRTSUE06640 | 1 year | 2022/1/14 | WZ-AC1 |
| 26 | Preamplifier | EMCI | EMC051845SE | MRTSUE06987 | 1 year<br>1 year | 2021/9/10<br>2022/9/9 | WZ-AC1 |
| 27 | Attenuator | SHX | TS2-4dB-6G | MRTSUE06812 | 2022/6/30 | 2022/6/29 | NS-TR2 |
| 28 | Directional Coupler | narda | 4226-10 | MRTSUE06253 | 2021/3/16 | 2022/3/15 | NS-TR2 |

Note: The test site with “WZ” code is in the MRT Suzhou laboratory, the test site with “NS” code is in the MRT Shenzhen Laboratory.

| Software | Version | Function |
|---|---|---|
| EMI Software | V3 | 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 |
| Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>9kHz~150kHz: 3.74dB<br>150kHz~30MHz: 3.44dB |
| Radiated Emission Measurement |
| Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>Horizontal:<br>30MHz~300MHz: 5.04dB<br>300MHz~1GHz: 4.95dB<br>1GHz~40GHz: 6.40dB<br>Vertical:<br>30MHz~300MHz: 5.24dB<br>300MHz~1GHz: 6.03dB<br>1GHz~40GHz: 6.40dB |
| Spurious Emissions, Conducted |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>0.78dB |
| Output Power |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>1.13dB |
| Power Spectrum Density |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>1.15dB |
| Occupied Bandwidth |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>0.28% |

# 6. Test Result

## 6.1. Summary

| FCC Section(s) | Test Description | Test Condition | Verdict |
|---|---|---|---|
| 15.407(a) | 26dB Bandwidth | Conducted | Pass |
| 15.407(e) | 6dB Bandwidth | | N/A |
| 15.407(a)(2) | Maximum Conducted Output Power | | Pass |
| 15.407(h)(1) | Transmit Power Control | | Pass |
| 15.407(a)(2), (12) | Power Spectral Density | | Pass |
| 15.407(b)(2), (3) | Undesirable Emissions | | Pass |
| 15.205, 15.209<br>15.407(b)(9), (10), (11) | General Field Strength Limits (Restricted Bands and Radiated Emission Limits) | Radiated | Pass |
| 15.207 | AC Conducted Emissions<br>150kHz - 30MHz | Line Conducted | Pass |

**Remark:**

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. "N/A" means that the test item is not applicable, and the detailed information refers to relevant section.

## 6.2. 26dB Bandwidth

### 6.2.1. Test Limit

N/A

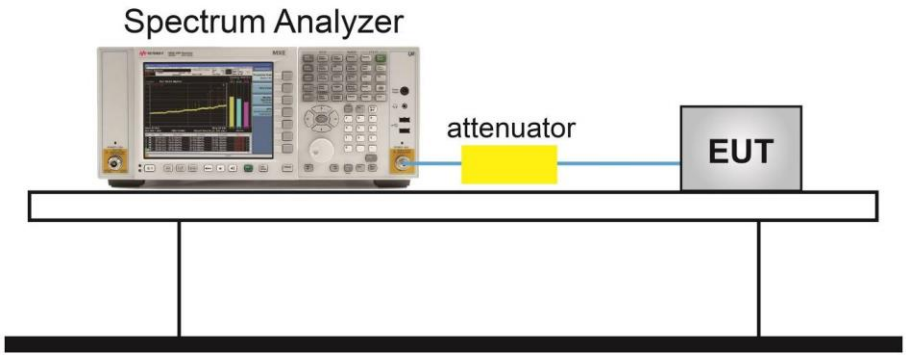
### 6.2.2. Test Procedure used

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

Refer to Appendix A.1.

## 6.3. 6dB Bandwidth

### 6.3.1. Test Limit

The minimum 6dBbandwidth shall be at least 500 kHz.

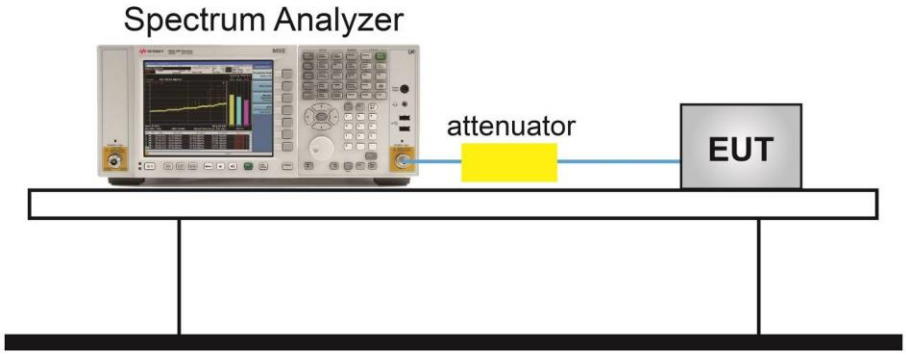
### 6.3.2. Test Procedure used

KDB 789033 D02v02r01- Section C.2

### 6.3.3. Test Setting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW 3 × RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 6.3.4. Test Setup




### 6.3.5. Test Result

Refer to Appendix A.2.

## 6.4. Output Power

### 6.4.1. 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.

### 6.4.2. Test Procedure Used

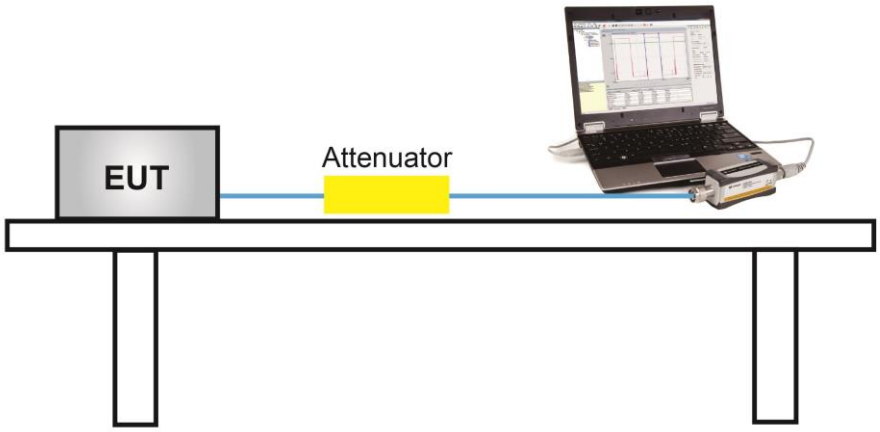
KDB 789033D02v02r01- Section E)3)b) Method PM-G

### 6.4.3. Test Setting

**Average Power Measurement**

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

Refer to Appendix A.3.

## 6.5. Transmit Power Control

### 6.5.1. 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.

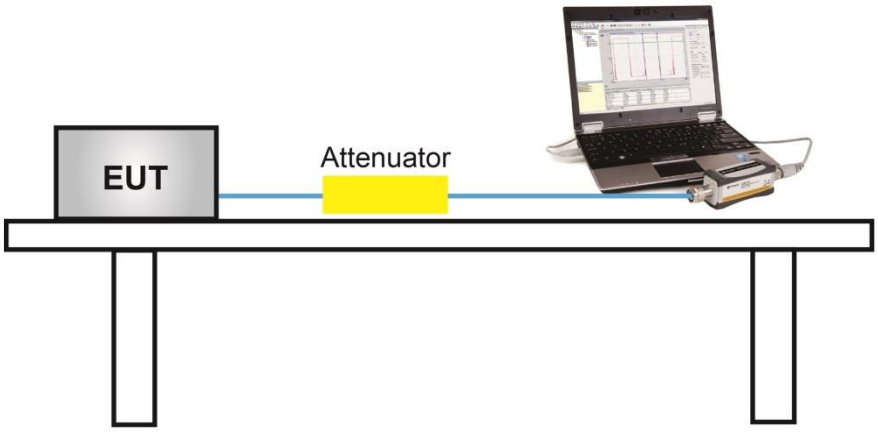
### 6.5.2. Test Procedure Used

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

### 6.5.3. 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. The trace was averaged over 100 traces to obtain the final measured average power.

### 6.5.4. Test Setup




### 6.5.5. Test Result

Refer to Appendix A.4.

## 6.6. Power Spectral Density

### 6.6.1. 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.

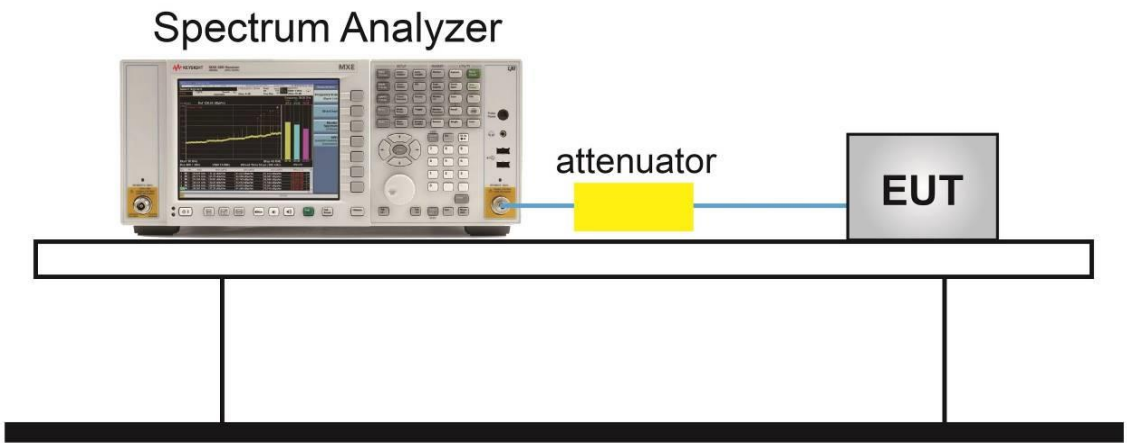
### 6.6.2. Test Procedure Used

KDB 789033 D02v02r01-SectionF

### 6.6.3. 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
4. VBW = 3MHz
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.

### 6.6.4. Test Setup




### 6.6.5. Test Result

Refer to Appendix A.5.

## 6.7. Radiated Spurious Emission

### 6.7.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

| FCC Part 15 Subpart C Paragraph 15.209 | | |
|---|---|---|
| Frequency [MHz] | Field Strength [uV/m] | Measured Distance [Meters] |
| 0.009 - 0.490 | 2400/F (kHz) | 300 |
| 0.490 - 1.705 | 24000/F (kHz) | 30 |
| 1.705 - 30 | 30 | 30 |
| 30 - 88 | 100 | 3 |
| 88 - 216 | 150 | 3 |
| 216 - 960 | 200 | 3 |
| Above 960 | 500 | 3 |

### 6.7.2. Test Procedure Used

KDB 789033 D02v02r01- Section G

### 6.7.3. Test Setting

**Table 1 - RBW as a function of frequency**

| Frequency | RBW |
|---|---|
| 9 ~ 150 kHz | 200 ~ 300 Hz |
| 0.15 ~ 30 MHz | 9 ~ 10 kHz |
| 30 ~ 1000 MHz | 100 ~ 120 kHz |
| > 1000MHz | 1MHz |

**Quasi-Peak Measurements below 1GHz**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

2. Span was set greater than 1MHz

3. RBW = as specified in Table 1

4. Detector = CISPR quasi-peak

5. Sweep time = auto couple

6. Trace was allowed to stabilize

**Peak Measurements above 1GHz**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

2. RBW = 1MHz

3. VBW = 3MHz

4. Detector = peak

5. Sweep time = auto couple

6. Trace mode = max hold

7. Trace was allowed to stabilize

**Average Measurements above 1GHz (Method VB)**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

2. RBW = 1MHz

3. VBW; If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10 Hz.

If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.

4. Detector = Peak

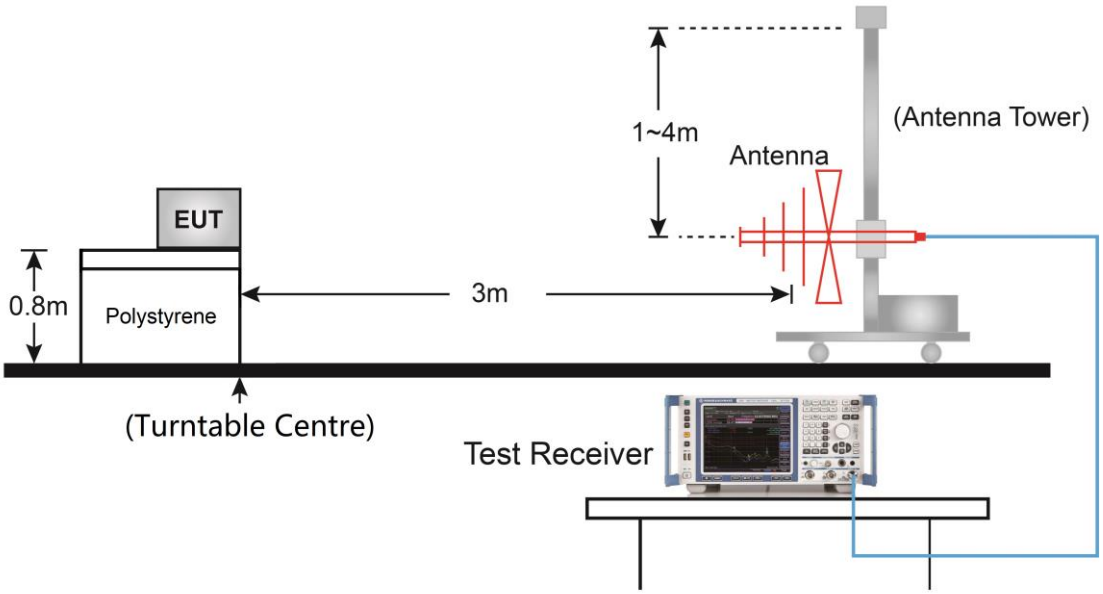
5. Sweep time = auto

6. Trace mode = max hold

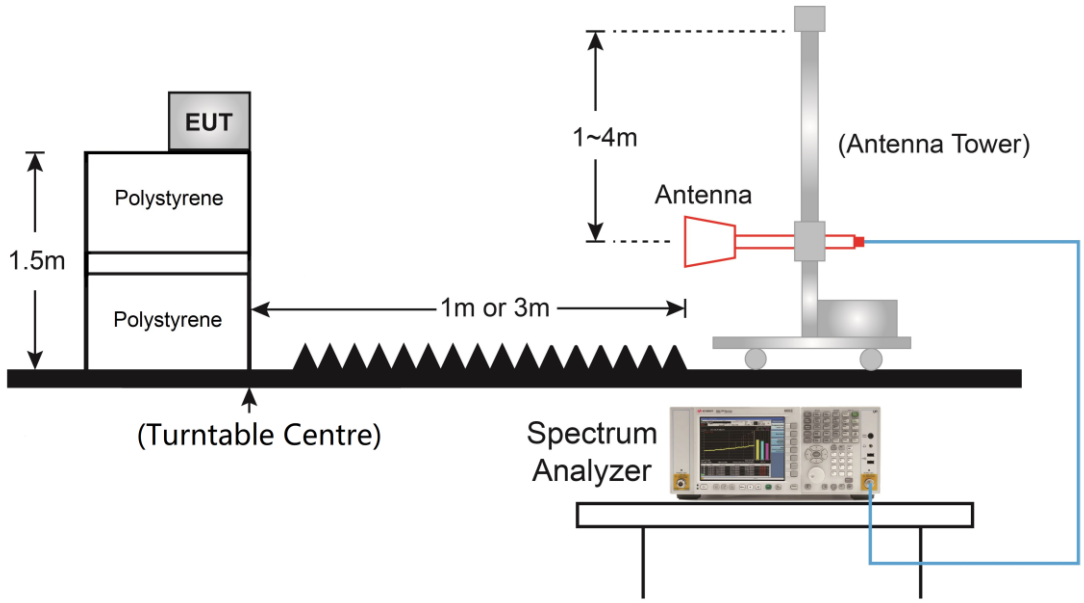
7. Trace was allowed to stabilize

### 6.7.4. Test Setup

Below 1GHz Test Setup:




Above 1GHz Test Setup:




### 6.7.5. Test Result

Refer to Appendix A.7.

### 6.8. Radiated Restricted Band Edge

#### 6.8.1. Test Limit

**For 15.205 requirement:**

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

| Frequency (MHz) | Frequency (MHz) | Frequency (MHz) | Frequency (GHz) |
|---|---|---|---|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| [1] 0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614 | 5.35 - 5.46 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 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 | ([2]) |
| 13.36 - 13.41 | -- | -- | -- |

For 15.407(b) requirement:

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.

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.

Refer to KDB 789033 D02v02r01 G)2)c), as specified in § 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a maximum emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in § 15.407(b)(4)). However, an out-of-band emission that complies with both the peak and average limits of § 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz maximum emission limit.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR

must not exceed the limits shown in Table per Section 15.209.

| FCC Part 15 Subpart C Paragraph 15.209 | | |
|---|---|---|
| Frequency [MHz] | Field Strength [uV/m] | Measured Distance [Meters] |
| 0.009 - 0.490 | 2400/F (kHz) | 300 |
| 0.490 - 1.705 | 24000/F (kHz) | 30 |
| 1.705 - 30 | 30 | 30 |
| 30 - 88 | 100 | 3 |
| 88 - 216 | 150 | 3 |
| 216 - 960 | 200 | 3 |
| Above 960 | 500 | 3 |

### 6.8.2. Test Procedure Used

KDB 789033 D02v02r01- Section G

### 6.8.3. Test Setting

**Peak Measurements above 1GHz**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Trace was allowed to stabilize

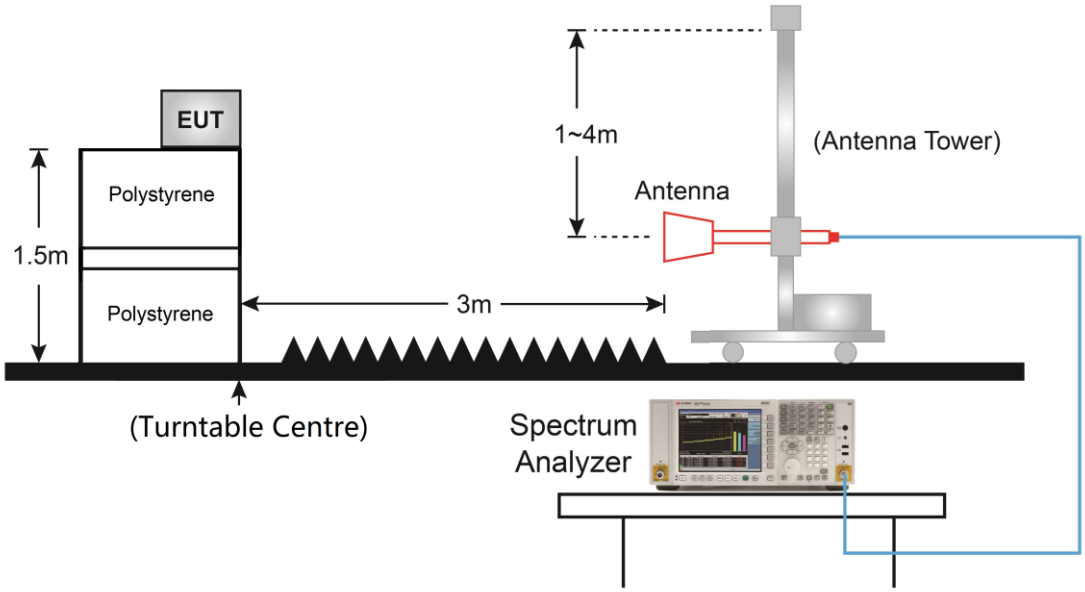
**Average Measurements above 1GHz (Method VB)**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; if the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10Hz
4. If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration
5. Detector = Peak
6. Sweep time = Auto

7. Trace mode = Max hold

8. Trace was allowed to stabilize

### 6.8.4. Test Setup




### 6.8.5. Test Result

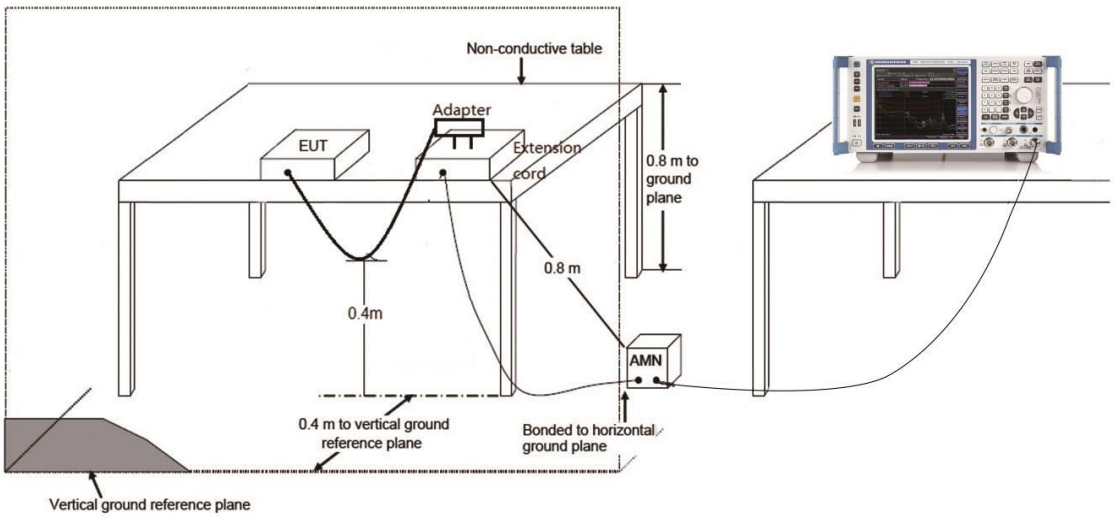
Refer to Appendix A.8.

## 6.9. AC Conducted Emissions

### 6.9.1. Test Limit

| FCC Part 15.207 Limits | | |
|---|---|---|
| Frequency (MHz) | QP (dBuV) | AV (dBuV) |
| 0.15 - 0.50 | 66 - 56 | 56 - 46 |
| 0.50 - 5.0 | 56 | 46 |
| 5.0 - 30 | 60 | 50 |
| Note 1: The lower limit shall apply at the transition frequencies.<br>Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz. | | |

### 6.9.2. Test Setup




### 6.9.3. Test Result

Refer to Appendix A.9.

## 7. Conclusion

The data collected relate only the item(s) tested and show that the device is in compliance with Part 15E of the FCC rules.

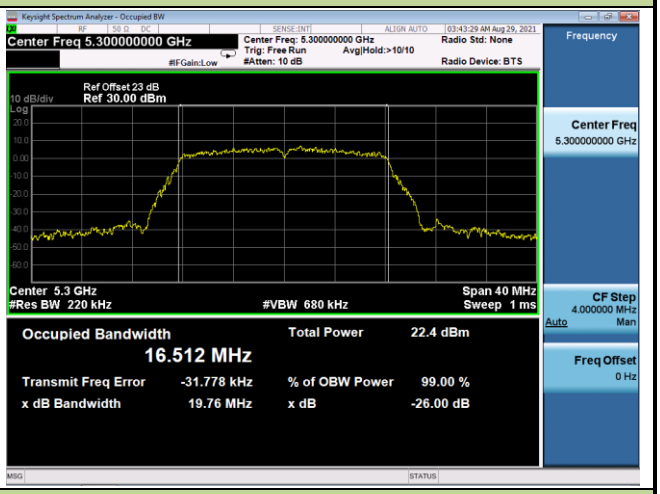
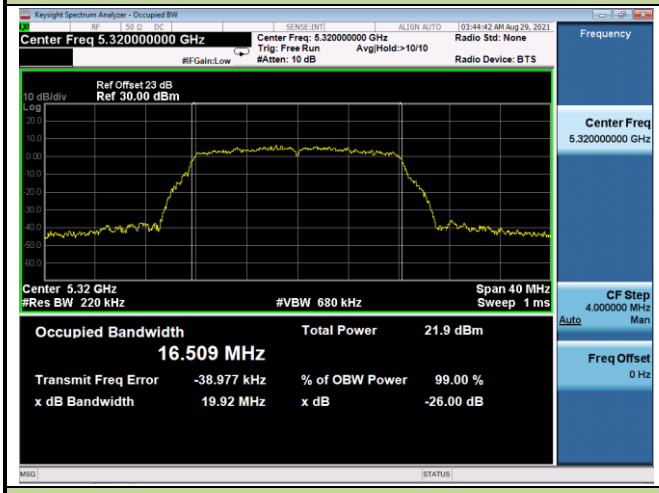
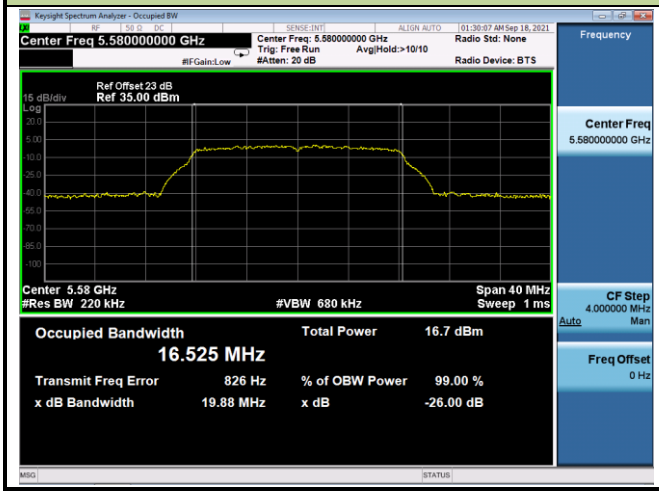
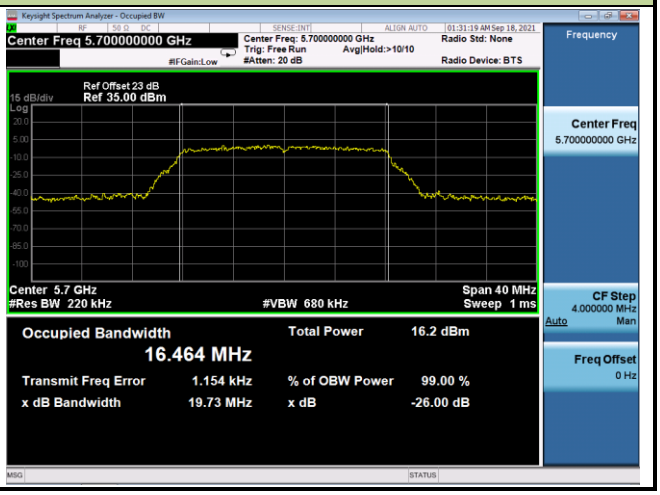
# Appendix A - Test Result

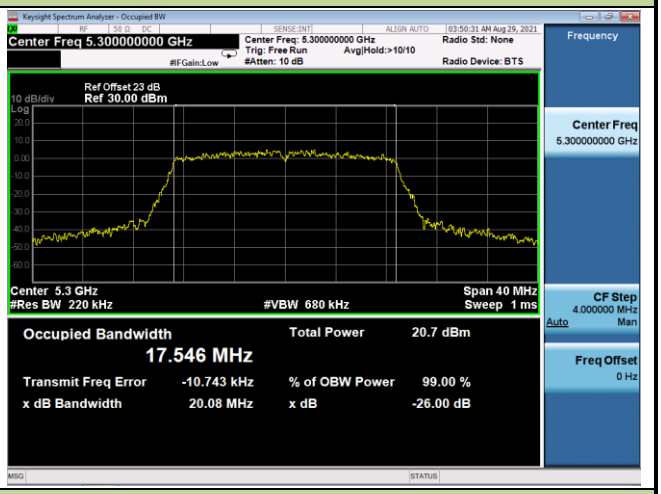
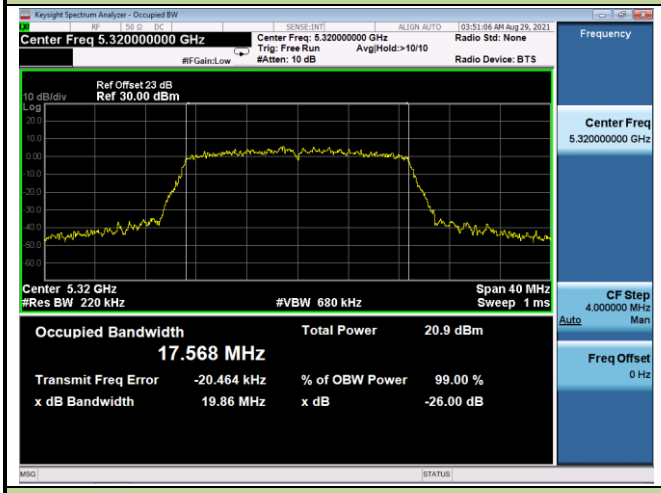
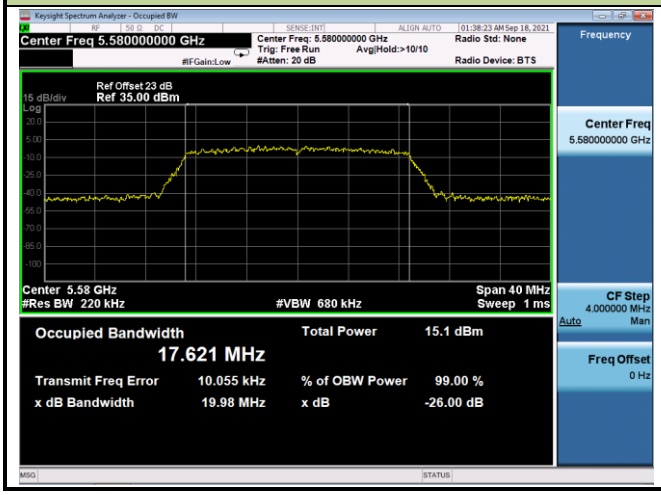
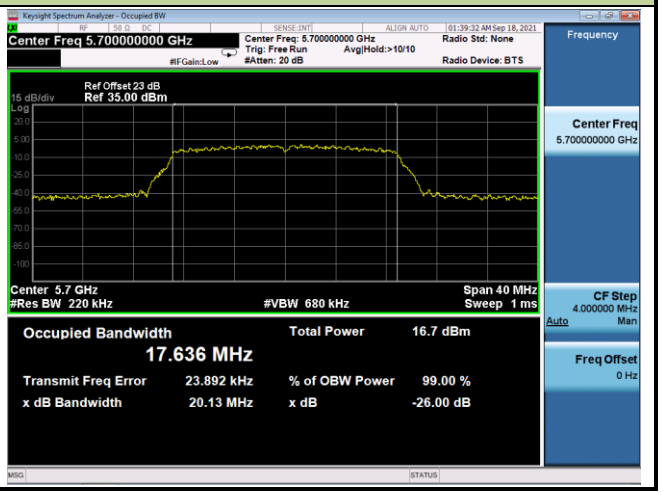
## A.1 26dB & 99% Bandwidth Test Result

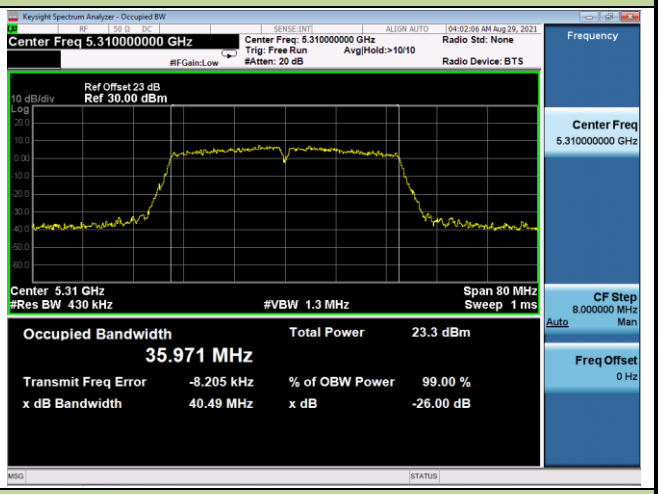
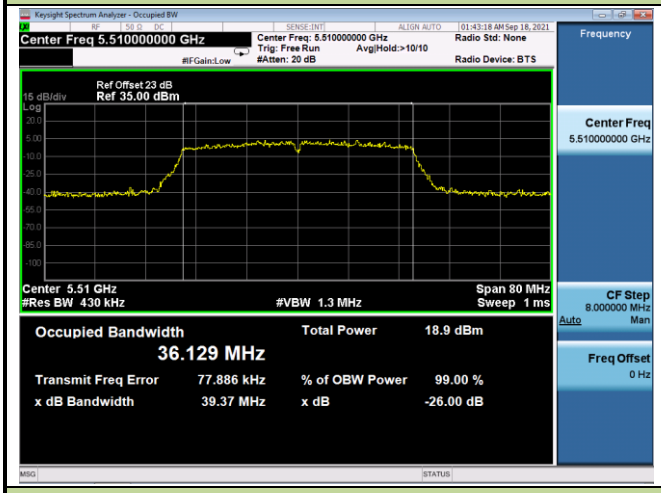
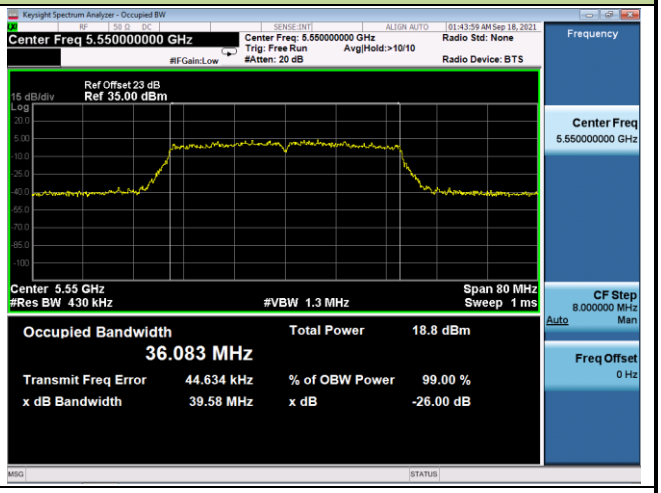
| Test Site | NS-SR2 | Test Engineer | Flay Yang |
|---|---|---|---|
| Test Date | 2021/08/29 ~ 2021/11/19 | | |

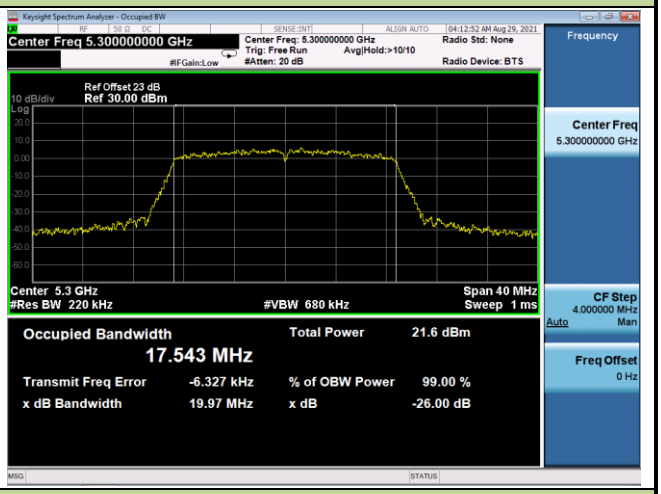
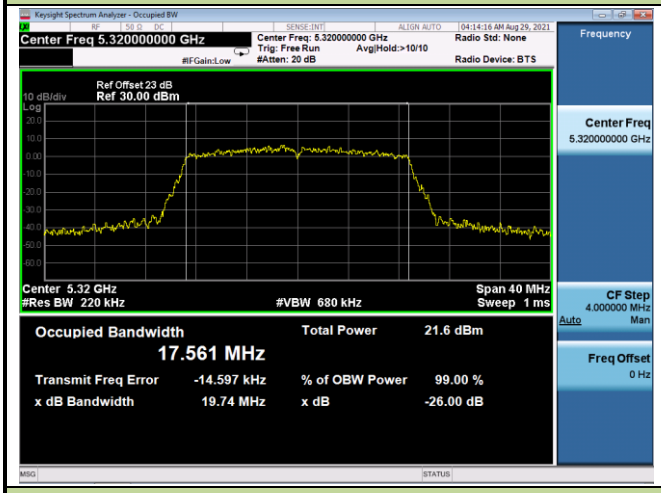
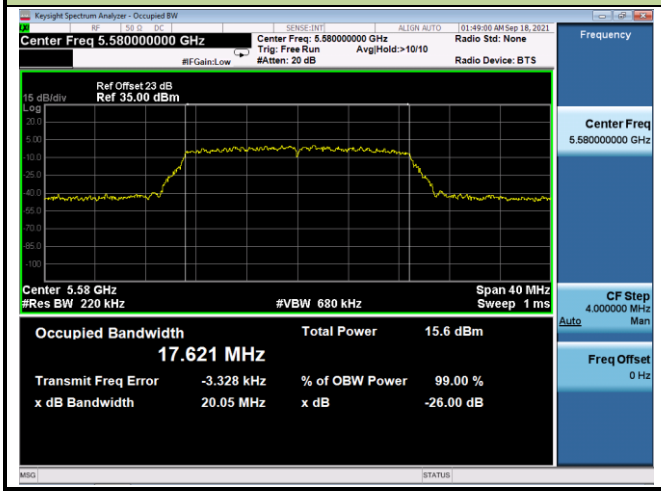
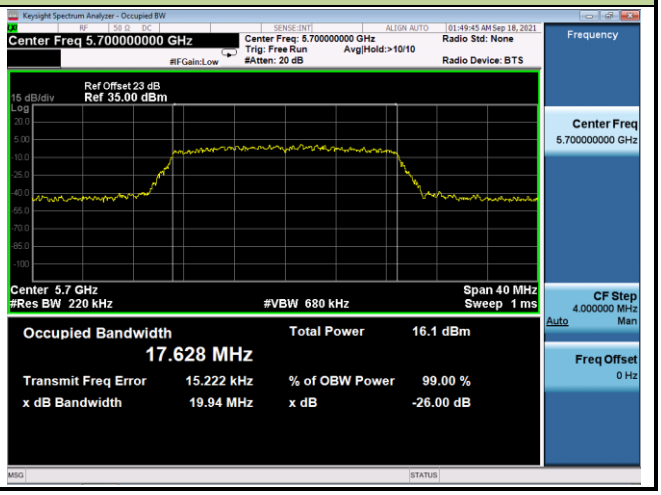
| Test Mode | Data Rate/ MCS | Channel No. | Frequency (MHz) | 99% Bandwidth (MHz) | 26dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| Low Band (5260MHz ~ 5320MHz), Ant 1 | | | | | |
| 11a | 6Mbps | 52 | 5260 | 16.50 | 19.55 |
| 11a | 6Mbps | 60 | 5300 | 16.51 | 19.76 |
| 11a | 6Mbps | 64 | 5320 | 16.51 | 19.92 |
| 11n-HT20 | MCS0 | 52 | 5260 | 17.55 | 20.04 |
| 11n-HT20 | MCS0 | 60 | 5300 | 17.55 | 20.08 |
| 11n-HT20 | MCS0 | 64 | 5320 | 17.57 | 19.86 |
| 11n-HT40 | MCS0 | 54 | 5270 | 36.00 | 40.51 |
| 11n-HT40 | MCS0 | 62 | 5310 | 35.97 | 40.49 |
| 11ac-VHT20 | MCS0 | 52 | 5260 | 17.55 | 20.02 |
| 11ac-VHT20 | MCS0 | 60 | 5300 | 17.54 | 19.97 |
| 11ac-VHT20 | MCS0 | 64 | 5320 | 17.56 | 19.74 |
| 11ac-VHT40 | MCS0 | 54 | 5270 | 35.94 | 40.73 |
| 11ac-VHT40 | MCS0 | 62 | 5310 | 35.97 | 40.59 |
| 11ac-VHT80 | MCS0 | 58 | 5290 | 75.00 | 80.01 |

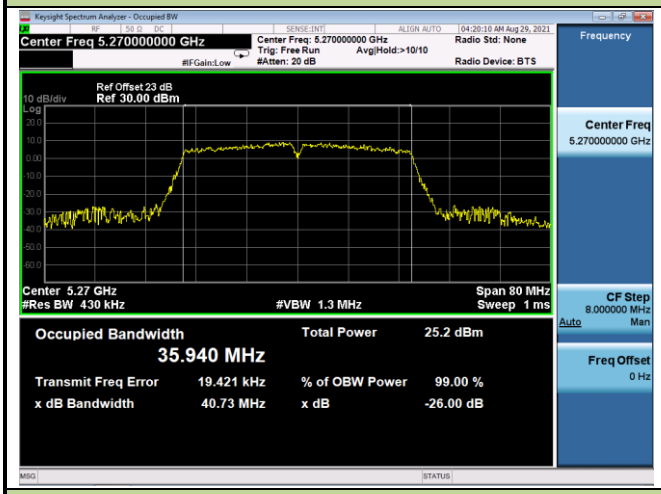
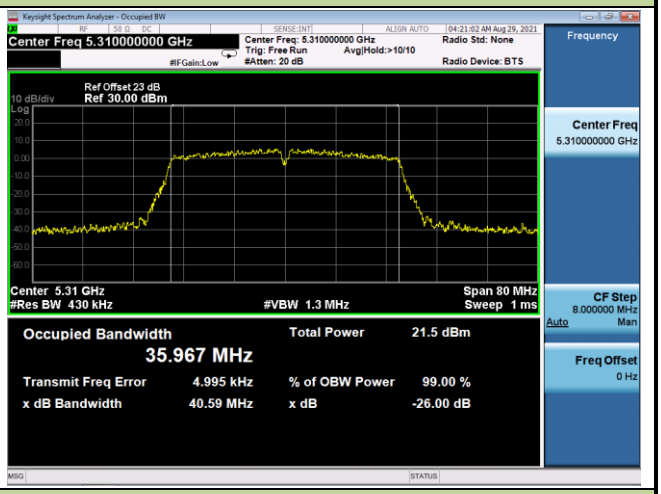
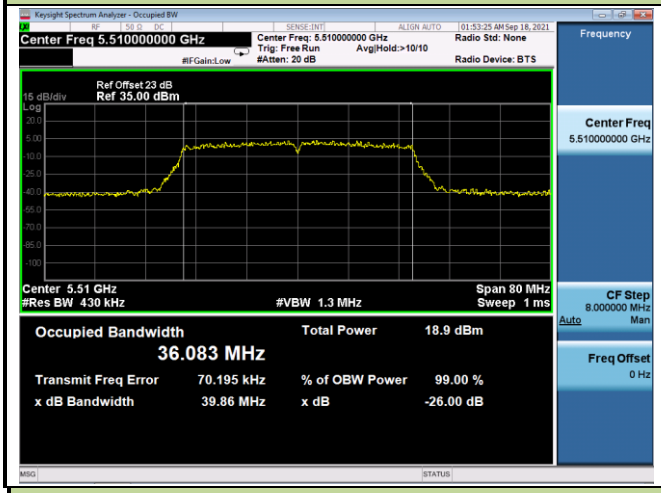
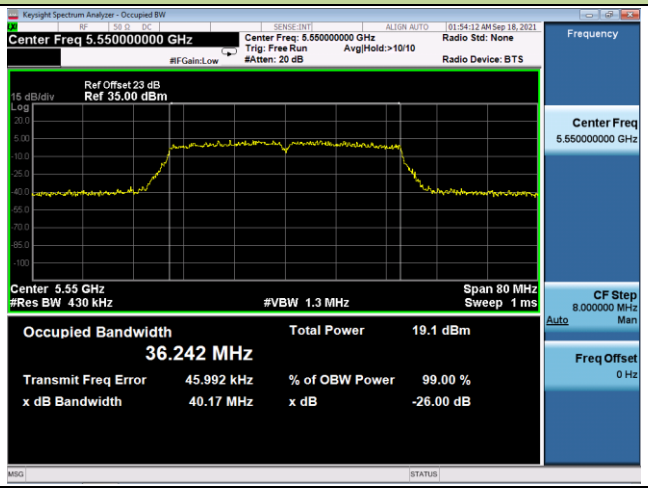
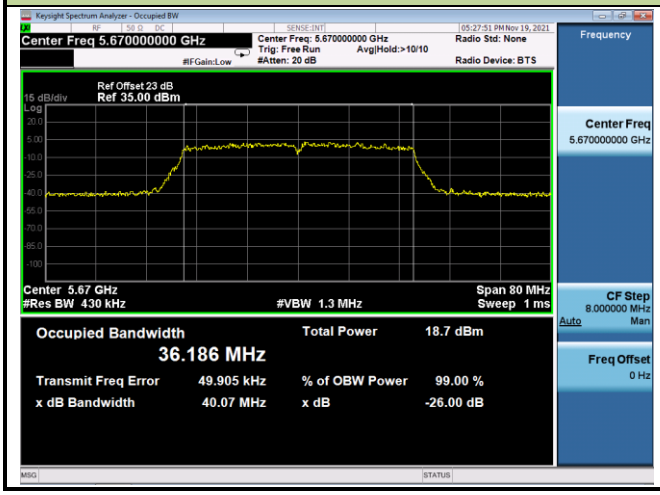
| Test Mode | Data Rate/ MCS | Channel No. | Frequency (MHz) | 99% Bandwidth (MHz) | 26dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| High Band (5500MHz ~ 5700MHz), Ant 2 | | | | | |
| 11a | 6Mbps | 100 | 5500 | 16.46 | 19.79 |
| 11a | 6Mbps | 116 | 5580 | 16.53 | 19.88 |
| 11a | 6Mbps | 140 | 5700 | 16.46 | 19.73 |
| 11n-HT20 | MCS24 | 100 | 5500 | 17.61 | 20.30 |
| 11n-HT20 | MCS24 | 116 | 5580 | 17.62 | 19.98 |
| 11n-HT20 | MCS24 | 140 | 5700 | 17.64 | 20.13 |
| 11n-HT40 | MCS24 | 102 | 5510 | 36.13 | 39.37 |
| 11n-HT40 | MCS24 | 110 | 5550 | 36.08 | 39.58 |
| 11n-HT40 | MCS24 | 134 | 5670 | 36.03 | 39.87 |
| 11ac-VHT20 | MCS0 | 100 | 5500 | 17.61 | 19.96 |
| 11ac-VHT20 | MCS0 | 116 | 5580 | 17.62 | 20.05 |
| 11ac-VHT20 | MCS0 | 140 | 5700 | 17.63 | 19.94 |
| 11ac-VHT40 | MCS0 | 102 | 5510 | 36.08 | 39.86 |
| 11ac-VHT40 | MCS0 | 110 | 5550 | 36.24 | 40.17 |
| 11ac-VHT40 | MCS0 | 134 | 5670 | 36.19 | 40.07 |
| 11ac-VHT80 | MCS0 | 106 | 5530 | 75.40 | 79.51 |

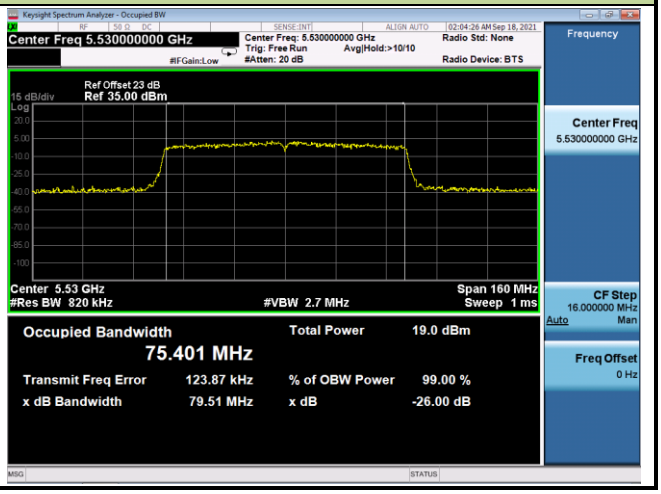
| 11a 26dB & 99% Bandwidth | |
|---|---|
| Channel 52 (5260MHz) | Channel 60 (5300MHz) |
|  |  |
| Channel 64 (5320MHz) | Channel 100 (5500MHz) |
|  |  |
| Channel 116 (5580MHz) | Channel 140 (5700MHz) |
|  |  |

| 11n-HT20 26dB & 99% Bandwidth | |
|---|---|
| Channel 52 (5260MHz) | Channel 60 (5300MHz) |
|  |  |
| Channel 64 (5320MHz) | Channel 100 (5500MHz) |
|  |  |
| Channel 116 (5580MHz) | Channel 140 (5700MHz) |
|  |  |

| 11n-HT40 26dB & 99% Bandwidth | |
|---|---|
| Channel 54 (5270MHz) | Channel 62 (5310MHz) |
|  |  |
| Channel 102 (5510MHz) | Channel 110 (5550MHz) |
|  |  |
| Channel 134 (5670MHz) | |
|  | |

| 11ac-VHT20 26dB & 99% Bandwidth | |
|---|---|
| Channel 52 (5260MHz) | Channel 60 (5300MHz) |
|  |  |
| Channel 64 (5320MHz) | Channel 100 (5500MHz) |
|  |  |
| Channel 116 (5580MHz) | Channel 140 (5700MHz) |
|  |  |

| 11ac-VHT40 26dB & 99% Bandwidth | |
|---|---|
| Channel 54 (5270MHz) | Channel 62 (5310MHz) |
|  |  |
| Channel 102 (5510MHz) | Channel 110 (5550MHz) |
|  |  |
| Channel 134 (5670MHz) | |
|  | |

| 11ac-VHT80 26dB & 99% Bandwidth | |
|---|---|
| Channel 58 (5290MHz) | Channel 106 (5530MHz) |
|  |  |

## A.2 6dB Bandwidth Test Result

This requirement only applies to the 5725 ~ 5850MHz band.

### A.3 Output Power Test Result

| Test Site | NS-SR2 | Test Engineer | Flay Yang |
|---|---|---|---|
| Test Date | 2021/08/22 ~ 2021/09/20 | | |

| Test Mode | Data Rate/ MCS | Channel No. | Freq. (MHz) | Average Power (dBm) | | Total Power (dBm) | Limit (dBm) | Result |
|---|---|---|---|---|---|---|---|---|
| | | | | Ant 1 | Ant 2 | | | |
| Low Band | | | | | | | | |
| 11a | 6Mbps | 52 | 5260 | 17.15 | 16.45 | 19.82 | ≤ 23.91 | Pass |
| 11a | 6Mbps | 60 | 5300 | 17.12 | 17.11 | 20.13 | ≤ 23.96 | Pass |
| 11a | 6Mbps | 64 | 5320 | 17.20 | 17.28 | 20.25 | ≤ 23.98 | Pass |
| 11n-HT20 | MCS0 | 52 | 5260 | 16.17 | 15.43 | 18.83 | ≤ 23.98 | Pass |
| 11n-HT20 | MCS0 | 60 | 5300 | 16.20 | 16.14 | 19.18 | ≤ 23.98 | Pass |
| 11n-HT20 | MCS0 | 64 | 5320 | 16.30 | 16.24 | 19.28 | ≤ 23.98 | Pass |
| 11n-HT40 | MCS0 | 54 | 5270 | 18.74 | 18.32 | 21.55 | ≤ 23.98 | Pass |
| 11n-HT40 | MCS0 | 62 | 5310 | 15.88 | 15.74 | 18.82 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 52 | 5260 | 17.01 | 16.27 | 19.67 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 60 | 5300 | 16.67 | 16.60 | 19.65 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 64 | 5320 | 17.56 | 17.85 | 20.72 | ≤ 23.95 | Pass |
| 11ac-VHT40 | MCS0 | 54 | 5270 | 17.81 | 17.04 | 20.45 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 62 | 5310 | 16.03 | 15.85 | 18.95 | ≤ 23.98 | Pass |
| 11ac-VHT80 | MCS0 | 58 | 5290 | 11.48 | 11.43 | 14.47 | ≤ 23.98 | Pass |

Note: Total Power (dBm) = $10*\log\{10^{(\text{Ant 1 Average Power }/10)}+10^{(\text{Ant 2 Average Power }/10)}\}$ (dBm).

| Test Mode | Data Rate/ MCS | Channel No. | Freq. (MHz) | Average Power (dBm) | | | | Total Power (dBm) | Limit (dBm) | Result |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ant 1 | Ant 2 | Ant 3 | Ant 4 | | | |
| High Band | | | | | | | | | | |
| 11a | 6Mbps | 100 | 5500 | 8.83 | 9.64 | 9.42 | 9.25 | 15.32 | ≤ 23.96 | Pass |
| 11a | 6Mbps | 116 | 5580 | 9.18 | 9.05 | 8.28 | 7.95 | 14.67 | ≤ 23.98 | Pass |
| 11a | 6Mbps | 140 | 5700 | 7.18 | 9.54 | 9.49 | 8.54 | 14.81 | ≤ 23.95 | Pass |
| 11n-HT20 | MCS24 | 100 | 5500 | 8.44 | 9.53 | 9.05 | 8.08 | 14.83 | ≤ 23.98 | Pass |
| 11n-HT20 | MCS24 | 116 | 5580 | 8.56 | 8.89 | 7.95 | 7.58 | 14.30 | ≤ 23.98 | Pass |
| 11n-HT20 | MCS24 | 140 | 5700 | 7.04 | 9.75 | 9.26 | 8.22 | 14.71 | ≤ 23.98 | Pass |
| 11n-HT40 | MCS24 | 102 | 5510 | 11.08 | 11.86 | 11.53 | 11.32 | 17.48 | ≤ 23.98 | Pass |
| 11n-HT40 | MCS24 | 110 | 5550 | 11.11 | 11.64 | 10.62 | 10.94 | 17.11 | ≤ 23.98 | Pass |
| 11n-HT40 | MCS24 | 134 | 5670 | 11.05 | 11.63 | 12.01 | 11.69 | 17.63 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 100 | 5500 | 8.47 | 9.49 | 9.18 | 8.86 | 15.04 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 116 | 5580 | 9.36 | 9.16 | 8.64 | 7.97 | 14.84 | ≤ 23.98 | Pass |
| 11ac-VHT20 | MCS0 | 140 | 5700 | 7.56 | 10.03 | 9.94 | 8.74 | 15.20 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 102 | 5510 | 12.05 | 12.76 | 12.31 | 12.21 | 18.36 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 110 | 5550 | 11.93 | 12.75 | 11.14 | 11.42 | 17.87 | ≤ 23.98 | Pass |
| 11ac-VHT40 | MCS0 | 134 | 5670 | 11.35 | 12.17 | 12.63 | 11.92 | 18.06 | ≤ 23.98 | Pass |
| 11ac-VHT80 | MCS0 | 106 | 5530 | 9.62 | 10.12 | 9.42 | 9.25 | 15.64 | ≤ 23.98 | Pass |

Note: Total Average Power (dBm) = $10*\log\{10^{(\text{Ant 1 Average Power }/10)}+10^{(\text{Ant 2 Average Power }/10)}+10^{(\text{Ant 3 Average Power }/10)}+10^{(\text{Ant 4 Average Power }/10)}\}$ (dBm).

### A.4 Transmit Power Control

A TPC mechanism is not required for systems with an e.i.r.p of less than 500mW.

### A.5 Power Spectral Density Test Result

| Test Site | NS-SR2 | Test Engineer | Flay Yang |
|---|---|---|---|
| Test Date | 2021/08/23 ~ 2021/11/19 | | |

| Test Mode | Data Rate/ MCS | Channel No. | Freq. (MHz) | PSD (dBm/ MHz) | | Duty Cycle (%) | Final PSD (dBm/MHz) | PSD Limit (dBm/MHz) | Result |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Ant 1 | Ant 2 | | | | |
| Low Band | | | | | | | | | |
| 11a | 6Mbps | 52 | 5260 | 6.05 | 4.69 | 95.45 | 8.64 | ≤ 9.09 | Pass |
| 11a | 6Mbps | 60 | 5300 | 5.61 | 6.00 | 95.45 | 9.02 | ≤ 9.09 | Pass |
| 11a | 6Mbps | 64 | 5320 | 5.48 | 5.84 | 95.45 | 8.88 | ≤ 9.09 | Pass |
| 11n-HT20 | MCS0 | 52 | 5260 | 5.76 | 4.58 | 92.22 | 8.57 | ≤ 9.09 | Pass |
| 11n-HT20 | MCS0 | 60 | 5300 | 5.57 | 5.37 | 92.22 | 8.83 | ≤ 9.09 | Pass |
| 11n-HT20 | MCS0 | 64 | 5320 | 5.35 | 5.59 | 92.22 | 8.83 | ≤ 9.09 | Pass |
| 11n-HT40 | MCS0 | 54 | 5270 | 5.56 | 5.20 | 85.86 | 9.06 | ≤ 9.09 | Pass |
| 11n-HT40 | MCS0 | 62 | 5310 | 2.59 | 2.68 | 85.86 | 6.31 | ≤ 9.09 | Pass |
| 11ac-VHT20 | MCS0 | 52 | 5260 | 5.73 | 5.21 | 91.13 | 8.89 | ≤ 9.09 | Pass |
| 11ac-VHT20 | MCS0 | 60 | 5300 | 5.51 | 5.46 | 91.13 | 8.90 | ≤ 9.09 | Pass |
| 11ac-VHT20 | MCS0 | 64 | 5320 | 5.71 | 5.30 | 91.13 | 8.92 | ≤ 9.09 | Pass |
| 11ac-VHT40 | MCS0 | 54 | 5270 | 5.37 | 4.80 | 85.63 | 8.78 | ≤ 9.09 | Pass |
| 11ac-VHT40 | MCS0 | 62 | 5310 | 1.97 | 1.44 | 85.63 | 5.40 | ≤ 9.09 | Pass |
| 11ac-VHT80 | MCS0 | 58 | 5290 | -4.46 | -4.73 | 76.59 | -0.42 | ≤ 9.09 | Pass |

Note 1: When EUT duty cycle < 98%,

For 5250 ~ 5350MHz: Final PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 1 AVGPSD}/10)}$ +$10^{(\text{Ant 2 AVGPSD}/10)}$} +10*log (1/Duty cycle).

Note 2: PSD Limit Calculation as below:

For 5250 ~ 5350MHz: PSD Limit = 11 - (7.91 - 6) = 9.09 dBm/MHz.

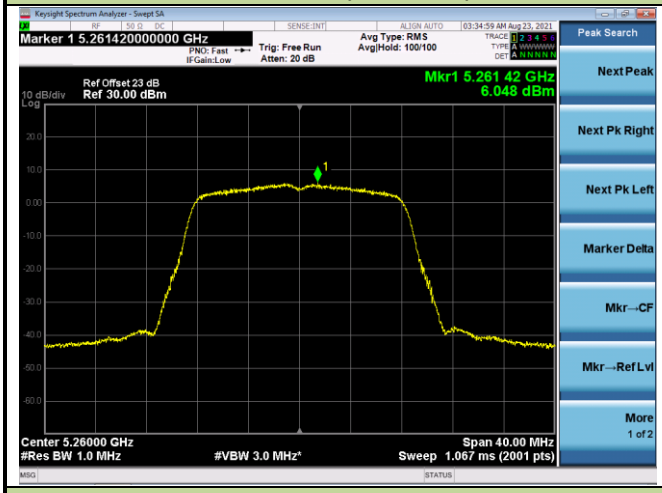
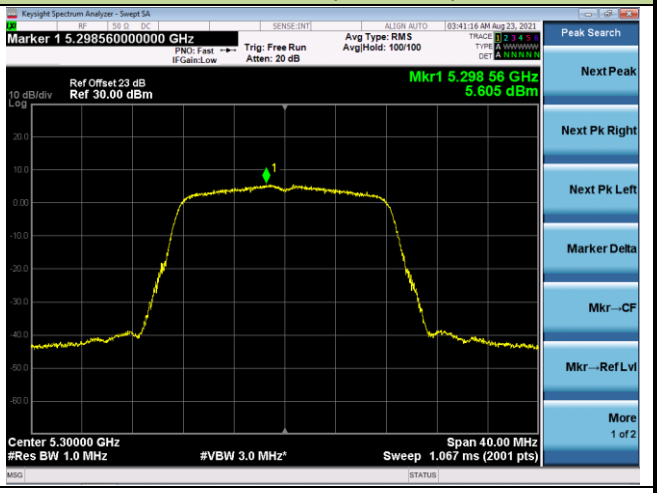
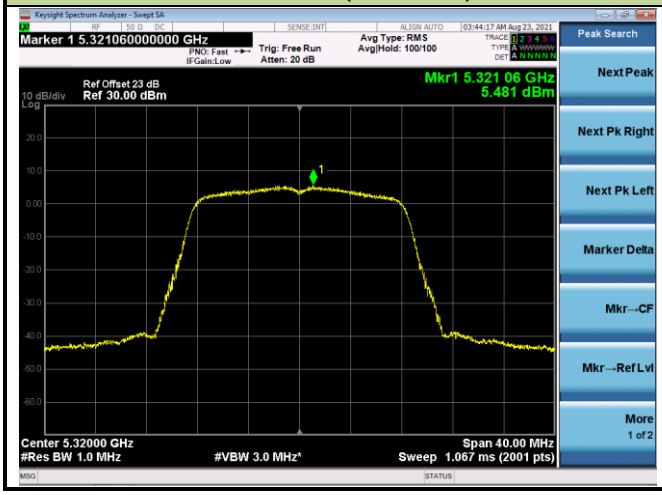
| Test Mode | Data Rate/ MCS | Channel No. | Freq. (MHz) | PSD (dBm/ MHz) | | | | Duty Cycle (%) | Final PSD (dBm/ MHz) | PSD Limit (dBm/ MHz) | Result |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ant 1 | Ant 2 | Ant 3 | Ant 4 | | | | |
| High Band | | | | | | | | | | | |
| 11a | 6Mbps | 100 | 5500 | -1.50 | -0.51 | -0.96 | -1.36 | 95.31 | 5.16 | ≤ 5.48 | Pass |
| 11a | 6Mbps | 116 | 5580 | -0.45 | -0.74 | -1.30 | -1.36 | 95.31 | 5.28 | ≤ 5.48 | Pass |
| 11a | 6Mbps | 140 | 5700 | -2.65 | -0.43 | -0.58 | -1.44 | 95.31 | 5.04 | ≤ 5.48 | Pass |
| 11n-HT20 | MCS24 | 100 | 5500 | -2.40 | -1.44 | -1.63 | -1.86 | 85.61 | 4.88 | ≤ 5.48 | Pass |
| 11n-HT20 | MCS24 | 116 | 5580 | -1.50 | -1.31 | -1.81 | -2.11 | 85.61 | 5.02 | ≤ 5.48 | Pass |
| 11n-HT20 | MCS24 | 140 | 5700 | -3.33 | -0.84 | -0.87 | -1.94 | 85.61 | 5.06 | ≤ 5.48 | Pass |
| 11n-HT40 | MCS24 | 102 | 5510 | -2.69 | -1.40 | -1.66 | -1.93 | 78.42 | 5.18 | ≤ 5.48 | Pass |
| 11n-HT40 | MCS24 | 110 | 5550 | -2.02 | -1.31 | -2.35 | -2.21 | 78.42 | 5.12 | ≤ 5.48 | Pass |
| 11n-HT40 | MCS24 | 134 | 5670 | -3.34 | -1.32 | -1.30 | -2.05 | 78.42 | 5.15 | ≤ 5.48 | Pass |
| 11ac-VHT20 | MCS0 | 100 | 5500 | -2.09 | -1.15 | -1.24 | -2.07 | 86.38 | 5.04 | ≤ 5.48 | Pass |
| 11ac-VHT20 | MCS0 | 116 | 5580 | -1.38 | -0.85 | -1.56 | -2.10 | 86.38 | 5.21 | ≤ 5.48 | Pass |
| 11ac-VHT20 | MCS0 | 140 | 5700 | -2.58 | -0.59 | -0.62 | -1.94 | 86.38 | 5.31 | ≤ 5.48 | Pass |
| 11ac-VHT40 | MCS0 | 102 | 5510 | -2.04 | -1.56 | -1.97 | -1.80 | 78.48 | 5.23 | ≤ 5.48 | Pass |
| 11ac-VHT40 | MCS0 | 110 | 5550 | -2.07 | -1.56 | -2.01 | -2.04 | 78.48 | 5.16 | ≤ 5.48 | Pass |
| 11ac-VHT40 | MCS0 | 134 | 5670 | -3.04 | -1.27 | -1.11 | -2.13 | 78.48 | 5.25 | ≤ 5.48 | Pass |
| 11ac-VHT80 | MCS0 | 106 | 5530 | -5.83 | -4.98 | -5.37 | -6.08 | 68.72 | 2.11 | ≤ 5.48 | Pass |

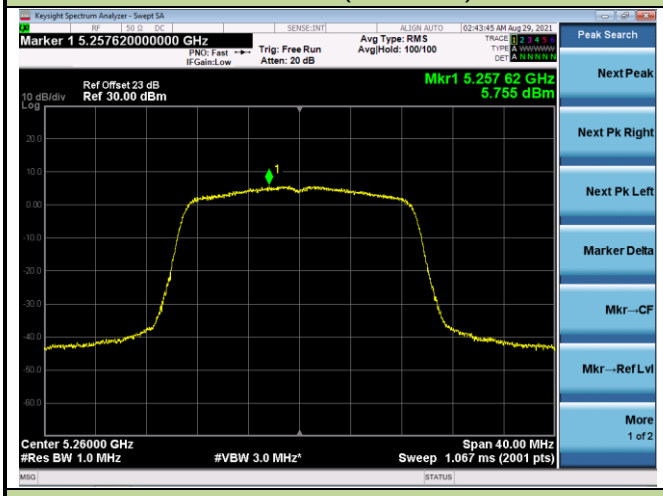
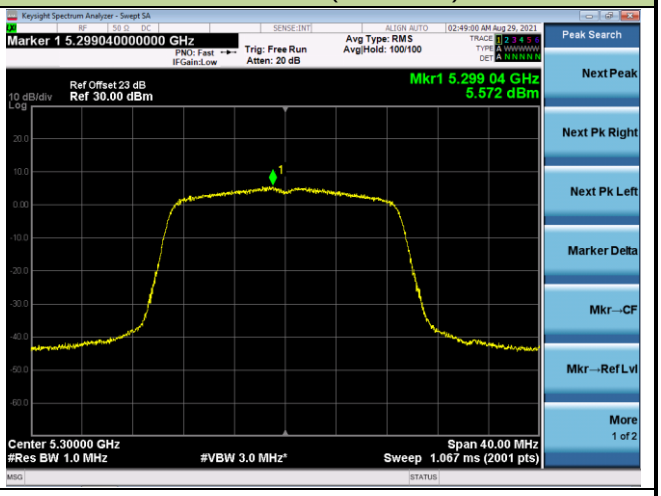
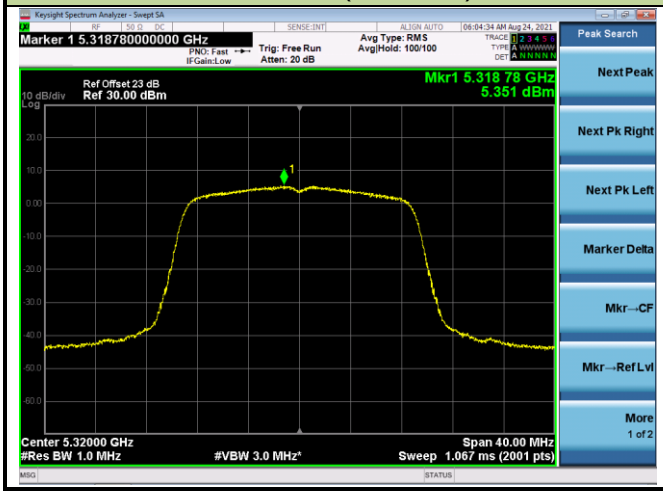
Note 1: When EUT duty cycle < 98%,

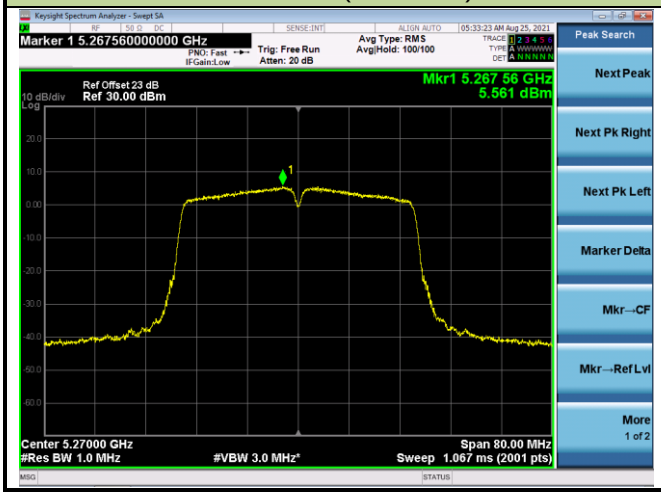
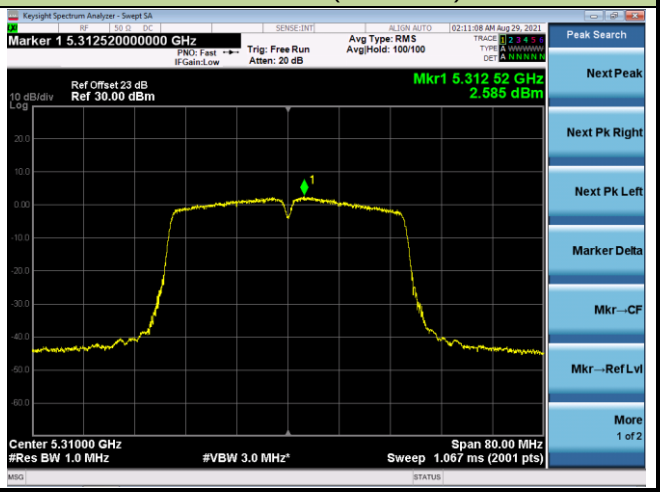
For 5470 ~ 5725MHz: Final PSD (dBm/MHz) =10*log {$10^{(\text{Ant 1 AVGPSD}/10)}$ +$10^{(\text{Ant 2 AVGPSD}/10)}$ +$10^{(\text{Ant 3 AVGPSD}/10)}$ +$10^{(\text{Ant 4 AVGPSD}/10)}$} +10*log (1/Duty cycle).

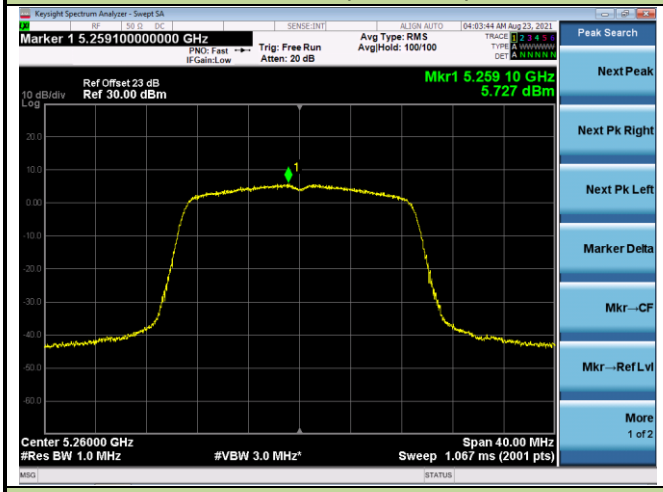
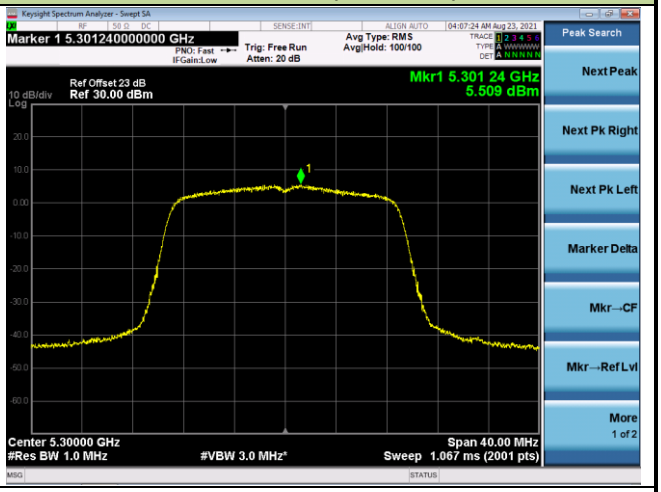
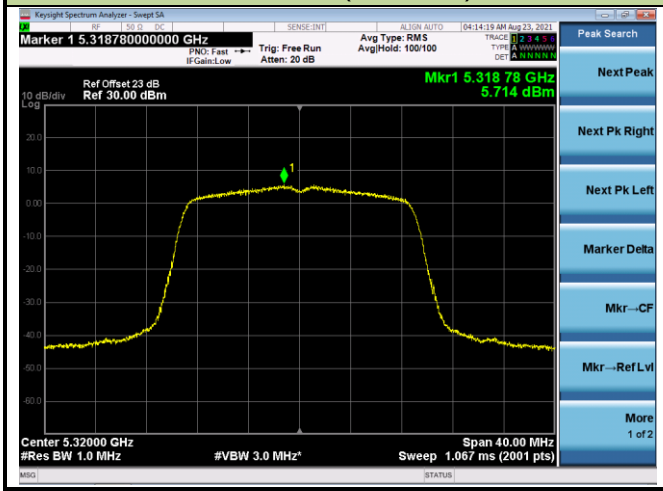
Note 2: PSD Limit Calculation as below:

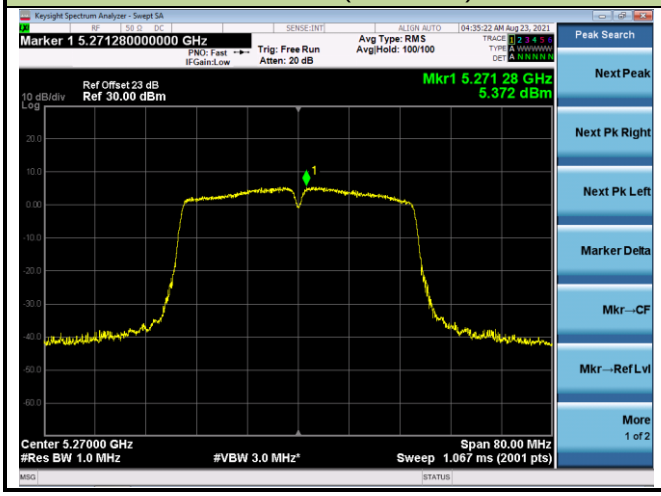
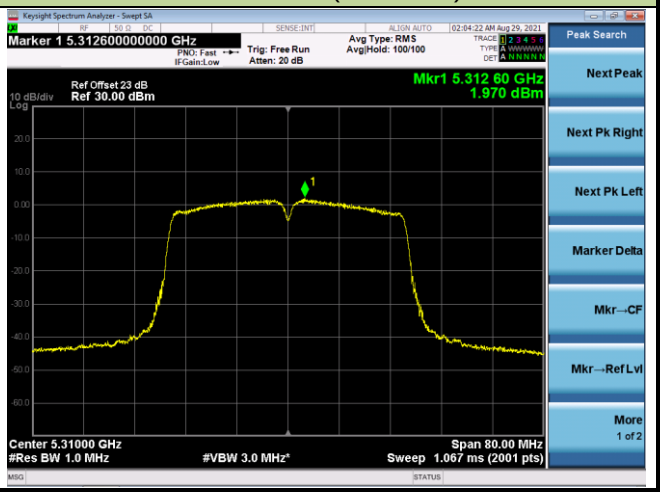
For 5470 ~ 5725MHz: PSD Limit = 11 - (11.52 - 6) = 5.48 dBm/MHz

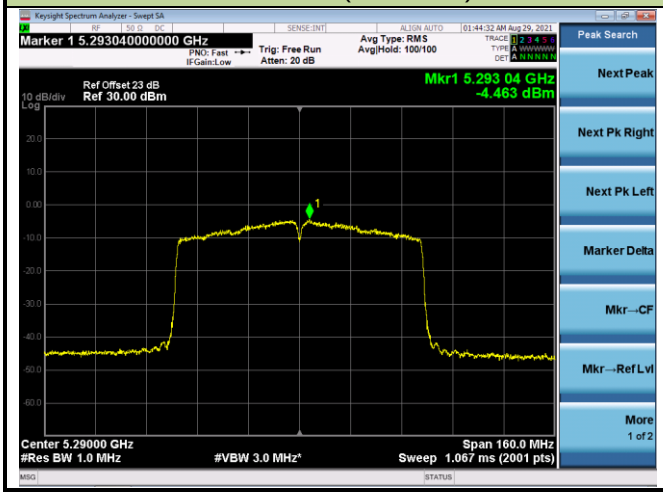
| Low Band | |
|---|---|
| 11a Power Spectral Density - Ant 1 | |
| Channel 52 (5260MHz) | Channel 60 (5300MHz) |
|  |  |
| Channel 64 (5320MHz) | |
|  | |

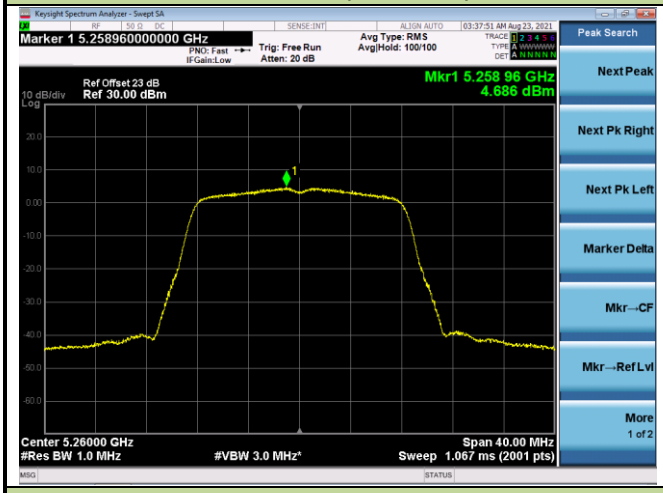
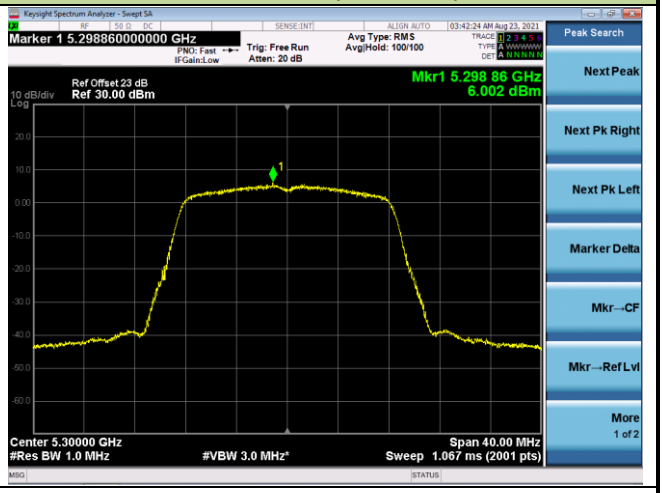
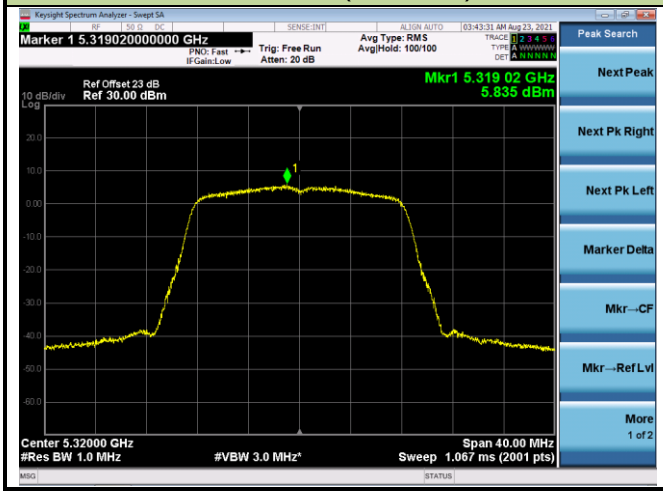
| 11n-HT20 Power Spectral Density - Ant 1 | |
|---|---|
| Channel 52 (5260MHz) | Channel 60 (5300MHz) |
|  |  |
| Channel 64 (5320MHz) | |
|  | |

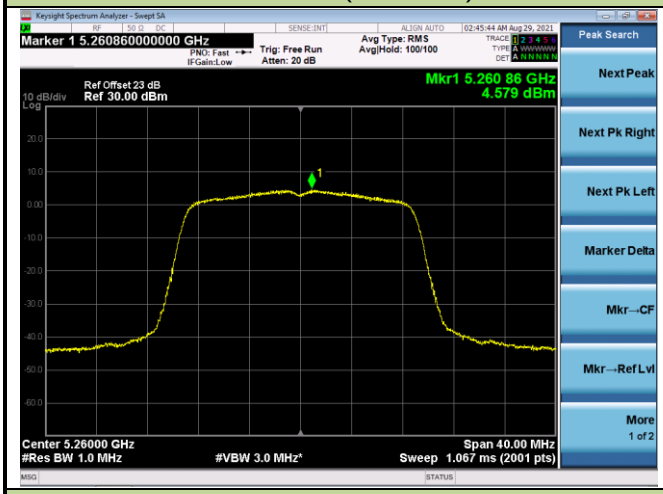
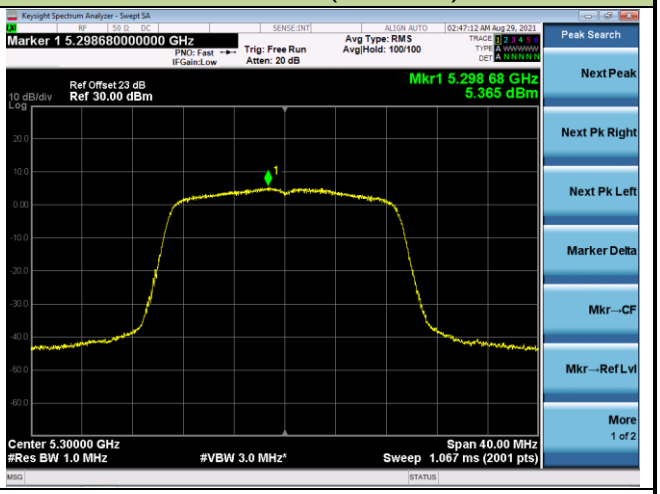
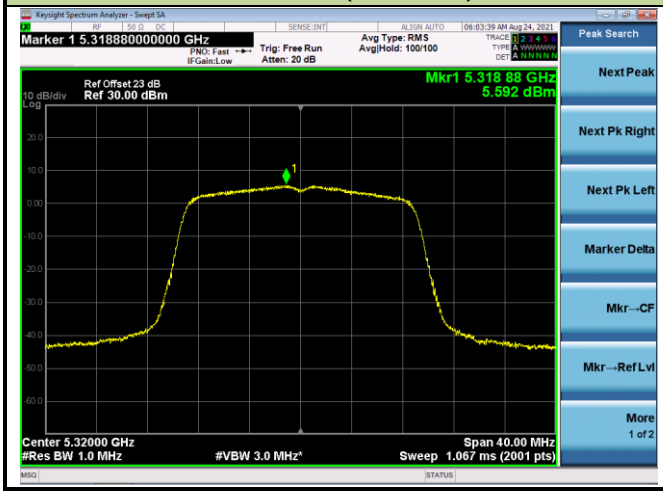
| 11n-HT40 Power Spectral Density - Ant 1 | |
|---|---|
| Channel 54 (5270MHz) | Channel 62 (5310MHz) |
|  |  |

| 11ac-VHT20 Power Spectral Density - Ant 1 | |
|---|---|
| Channel 52 (5260MHz) | Channel 60 (5300MHz) |
|  |  |
| Channel 64 (5320MHz) | |
|  | |

| 11ac-VHT40 Power Spectral Density - Ant 1 | |
|---|---|
| Channel 54 (5270MHz) | Channel 62 (5310MHz) |
|  |  |

| 11ac-VHT80 Power Spectral Density - Ant 1 | |
|---|---|
| Channel 58 (5290MHz) | |
|  | |

| Low Band | |
|---|---|
| 11a Power Spectral Density - Ant 2 | |
| Channel 52 (5260MHz) | Channel 60 (5300MHz) |
|  |  |
| Channel 64 (5320MHz) | |
|  | |

| 11n-HT20 Power Spectral Density - Ant 2 | |
|---|---|
| Channel 52 (5260MHz) | Channel 60 (5300MHz) |
|  |  |
| Channel 64 (5320MHz) | |
|  | |