

RF TEST REPORT

For

Shenzhen Huibai Trading Co., Ltd

Product Name: Dash cam

Test Model(s): K2 PRO

Report Reference No. : DACE241011001RF003

FCC ID : 2BLQ8-HUIBAI

Applicant's Name : Shenzhen Huibai Trading Co., Ltd

Address : 29 Nanxin Road, Nanwan Street, Longgang District, Shenzhen,
Guangdong Province, China

Testing Laboratory : Shenzhen DACE Testing Technology Co., Ltd.

Address : 102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park,
Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen,
Guangdong, China

Test Specification Standard : 47 CFR Part 15E

Date of Receipt : October 11, 2024

Date of Test : October 11, 2024 to October 23, 2024

Data of Issue : October 23, 2024

Result : Pass

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Revision History Of Report

| Version | Description | REPORT No. | Issue Date |
|---------|-------------|--------------------|------------------|
| V1.0 | Original | DACE241011001RF003 | October 23, 2024 |
| | | | |
| | | | |
| | | | |
| | | | |

NOTE1:

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

47 CFR Part 15E: Unlicensed National Information Infrastructure Devices

1.2 Summary of Test Result

| Item | Method | Requirement | Result |
|---|--|---|--------|
| Antenna requirement | / | 47 CFR 15.203 | Pass |
| Emission bandwidth and occupied bandwidth | ANSI C63.10-2013, section 6.9 & 12.4 | U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. | Pass |
| Maximum conducted output power | ANSI C63.10-2013, section 12.3 | 47 CFR Part 15.407(a)(1)(iv) | Pass |
| Power spectral density | ANSI C63.10-2013, section 12.5 | 47 CFR Part 15.407(a)(1)(iv) | Pass |
| Band edge emissions (Conducted) | ANSI C63.10-2013, section 12.7.4, 12.7.6, 12.7.7 | 47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(10) | Pass |
| Band edge emissions (Radiated) | ANSI C63.10-2013, section 12.7.4, 12.7.6, 12.7.7 | 47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(10) | Pass |
| Undesirable emission limits (below 1GHz) | ANSI C63.10-2013, section 12.7.4, 12.7.5 | 47 CFR Part 15.407(b)(9) | Pass |
| Undesirable emission limits (above 1GHz) | ANSI C63.10-2013, section 12.7.4, 12.7.6, 12.7.7 | 47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(10) | Pass |

Note: 1.N/A -this device(EUT) is not applicable to this testing item
2. RF-conducted test results including cable loss.

2 GENERAL INFORMATION

2.1 Client Information

Applicant's Name : Shenzhen Huibai Trading Co., Ltd
Address : 29 Nanxin Road, Nanwan Street, Longgang District, Shenzhen, Guangdong Province, China

Manufacturer : Shenzhen Huibai Trading Co., Ltd
Address : 29 Nanxin Road, Nanwan Street, Longgang District, Shenzhen, Guangdong Province, China

2.2 Description of Device (EUT)*

| | |
|-----------------------|--|
| Product Name: | Dash cam |
| Model/Type reference: | K2 PRO |
| Series Model: | A8, K1, K2, K4, K7, K8, K9, T20, T20 PRO, T30, T30 PRO, K40, K50, K60, K70, K80, K90, H330, D80, D90, H6, H8 |
| Model Difference: | There are many models of the product, and the differences between the models are the appearance, screen size, and built-in Android software. The PCB and BOM of the product are the same, so the test model is K2 PRO. |
| Trade Mark: | N/A |
| Product Description: | Dash cam |
| Power Supply: | DC12.0V from car-battery |
| Operation Frequency: | 802.11a/n(HT20)/ac(HT20): U-NII Band 1: 5180MHz to 5240MHz; 802.11n(HT40)/ac(HT40): U-NII Band 1: 5190MHz to 5230MHz; |
| Number of Channels: | 802.11a/n(HT20)/ac(HT20): U-NII Band 1: 4; 802.11n(HT40)/ac(HT40): U-NII Band 1: 2; |
| Modulation Type: | 802.11a: OFDM(BPSK, QPSK, 16QAM, 64QAM); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM); |
| Antenna Type: | FPC ANTENNA |
| Antenna Gain: | 2.1dBi |
| Hardware Version: | V1.2 |
| Software Version: | SecureCRT |

Operation Frequency each of channel

| Band 1 | | | | | |
|-------------------|-----------|----------------------|-----------|----|----|
| 802.11a/802.11n20 | | 802.11n40/802.11ac40 | | -- | |
| Channel | Frequency | Channel | Frequency | -- | |
| 36 | 5180MHz | 39 | 5190MHz | -- | |
| 40 | 5200MHz | 45 | 5230MHz | -- | |
| 44 | 5220MHz | -- | -- | -- | -- |
| 48 | 5240MHz | -- | -- | -- | -- |

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

| Band 1 | | | | | |
|---------------------|-----------|---------------------|-----------|----------|-----------|
| 20MHz-BW | | 40MHz-BW | | 80MHz-BW | |
| Channel | Frequency | Channel | Frequency | Channel | Frequency |
| The lowest channel | 5180MHz | The lowest channel | 5190MHz | -- | -- |
| The middle channel | 5200MHz | - | -- | -- | -- |
| The highest channel | 5240MHz | The highest channel | 5230MHz | -- | -- |

2.3 Description of Test Modes

| No | Title | Description |
|-----|---------------|---|
| TM1 | 802.11a mode | Keep the EUT in continuously transmitting mode with 802.11a modulation type at lowest, middle and highest channel. All data rates has been tested and found the data rate @ 6Mbps is the worst case. Only the data of worst case is recorded in the report. |
| TM2 | 802.11n mode | Keep the EUT in continuously transmitting mode with 802.11n modulation type at lowest, middle and highest channel. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report. |
| TM3 | 802.11ac mode | Keep the EUT in continuously transmitting mode with 802.11ac modulation type at lowest, middle and highest channel. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report. |

☒ Special software is used.

☐ Through engineering command into the engineering mode.

engineering command: ***#3646633#**

☐ Other method:

Special software:



2.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Title | Manufacturer | Model No. | Serial No. |
|-------------|--------------|-----------|------------|
| 12V Battery | CAMEL | | / |
| | | | |

2.5 Equipments Used During The Test

Power spectral density

Band edge emissions (Conducted)

Duty Cycle

Emission bandwidth and occupied bandwidth

Maximum conducted output power

| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
|-------------------|--------------------|----------|--------------|------------|--------------|
| RF Test Software | Tachoy Information | RTS-01 | V1.0.0 | / | / |
| RF Sensor Unit | Tachoy Information | TR1029-2 | 000001 | / | / |
| Signal Generator | Keysight | N5181A | MY48180415 | 2023-11-09 | 2024-11-08 |
| Signal Generator | Keysight | N5182A | MY50143455 | 2023-11-09 | 2024-11-08 |
| Spectrum Analyzer | Keysight | N9020A | MY53420323 | 2023-12-12 | 2024-12-11 |

Undesirable emission limits (above 1GHz)

Band edge emissions (Radiated)

Undesirable emission limits (below 1GHz)

| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
|------------------------|----------------|------------------|------------------------|------------|--------------|
| EMI Test software | Farad | EZ -EMC | V1.1.42 | / | / |
| Positioning Controller | / | MF-7802 | / | / | / |
| Amplifier(18-40G) | COM-POWER | AH-1840 | 10100008-1 | 2022-04-05 | 2025-04-04 |
| Horn antenna | COM-POWER | AH-1840 (18-40G) | 10100008 | 2023-04-05 | 2025-04-04 |
| Loop antenna | ZHINAN | ZN30900C | ZN30900C | 2024-06-14 | 2026-06-13 |
| Cable(LF)#2 | Schwarzbeck | / | / | 2024-02-19 | 2025-02-18 |
| Cable(LF)#1 | Schwarzbeck | / | / | 2024-02-19 | 2025-02-18 |
| Cable(HF)#2 | Schwarzbeck | AK9515E | 96250 | 2024-03-20 | 2025-03-19 |
| Cable(HF)#1 | Schwarzbeck | SYV-50-3-1 | / | 2024-03-20 | 2025-03-19 |
| Power amplifier(LF) | Schwarzbeck | BBV9743 | 9743-151 | 2024-06-12 | 2025-06-11 |
| Power amplifier(HF) | Schwarzbeck | BBV9718 | 9718-282 | 2024-06-12 | 2025-06-11 |
| Spectrum Analyzer | R&S | FSP30 | 1321.3008K40-101729-jR | 2024-06-12 | 2025-06-11 |
| Test Receiver | R&S | ESCI 3 | 1166.5950K03-101431-Jq | 2024-06-13 | 2025-06-12 |
| Horn Antenna | Sunol Sciences | DRH-118 | A091114 | 2023-05-13 | 2025-05-12 |
| Broadband Antenna | Sunol Sciences | JB6 Antenna | A090414 | 2023-05-21 | 2025-05-20 |

2.6 Statement Of The Measurement Uncertainty

| Test Item | Measurement Uncertainty |
|---|-------------------------|
| Duty cycle | ±3.1% |
| Occupied Bandwidth | ±3.63% |
| RF conducted power | ±0.733dB |
| RF power density | ±0.234% |
| Conducted Spurious emissions | ±1.98dB |
| Radiated Emission (Above 1GHz) | ±5.46dB |
| Radiated Emission (Below 1GHz) | ±5.79dB |
| Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. | |

2.7 Authorizations

| | |
|---------------|--|
| Company Name: | Shenzhen DACE Testing Technology Co., Ltd. |
| Address: | 102, Building H1 & 1/F, Building H, Hongfa Science and Technology Park, Tangtou, Shiyao, Bao'An District, Shenzhen, Guangdong, China |
| Phone Number: | +86-13267178997 |
| Fax Number: | 86-755-29113252 |

Identification of the Responsible Testing Location

| | |
|-----------------------------|--|
| Company Name: | Shenzhen DACE Testing Technology Co., Ltd. |
| Address: | 102, Building H1 & 1/F, Building H, Hongfa Science and Technology Park, Tangtou, Shiyao, Bao'An District, Shenzhen, Guangdong, China |
| Phone Number: | +86-13267178997 |
| Fax Number: | 86-755-29113252 |
| FCC Registration Number: | 0032847402 |
| Designation Number: | CN1342 |
| Test Firm Registration No.: | 778666 |
| A2LA Certificate Number: | 6270.01 |

2.8 Announcement

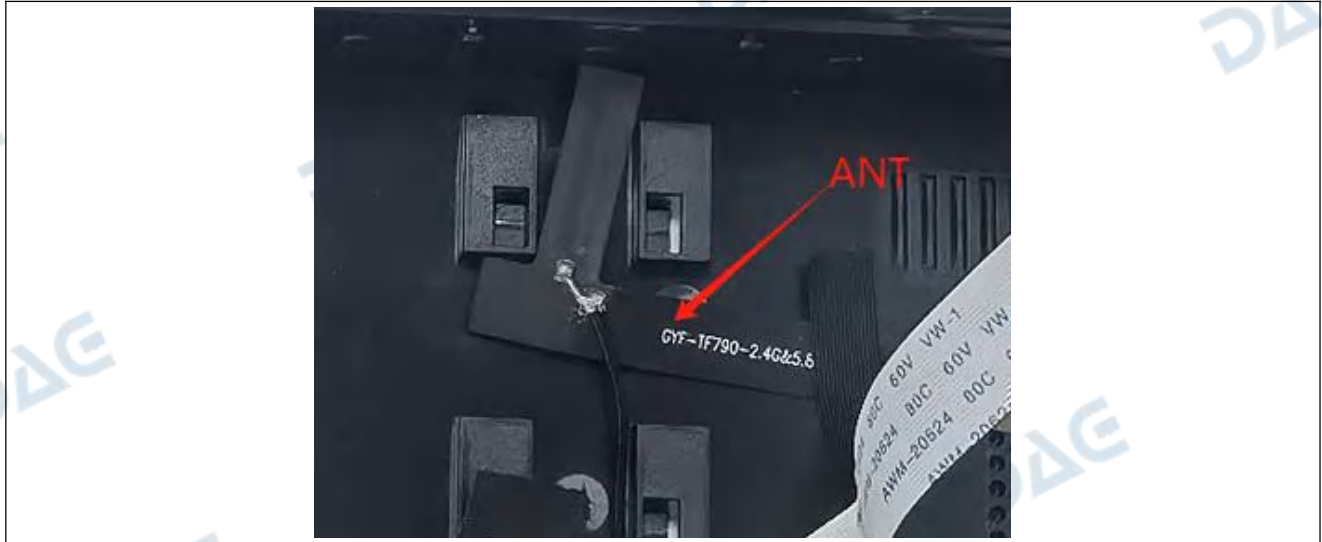
- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by DACE and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) We hereby declare that the laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant(information with "*" provided by applicant). the laboratory is not responsible for the accuracy of the information provided by the client. When the information provided by the customer may affect the effectiveness of the results, the responsibility lies with the customer, and the laboratory does not assume any responsibility.

3 Evaluation Results (Evaluation)

3.1 Antenna requirement

| | |
|-------------------|---|
| Test Requirement: | Refer to 47 CFR Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. |
|-------------------|---|

3.1.1 Conclusion:



4 Radio Spectrum Matter Test Results (RF)

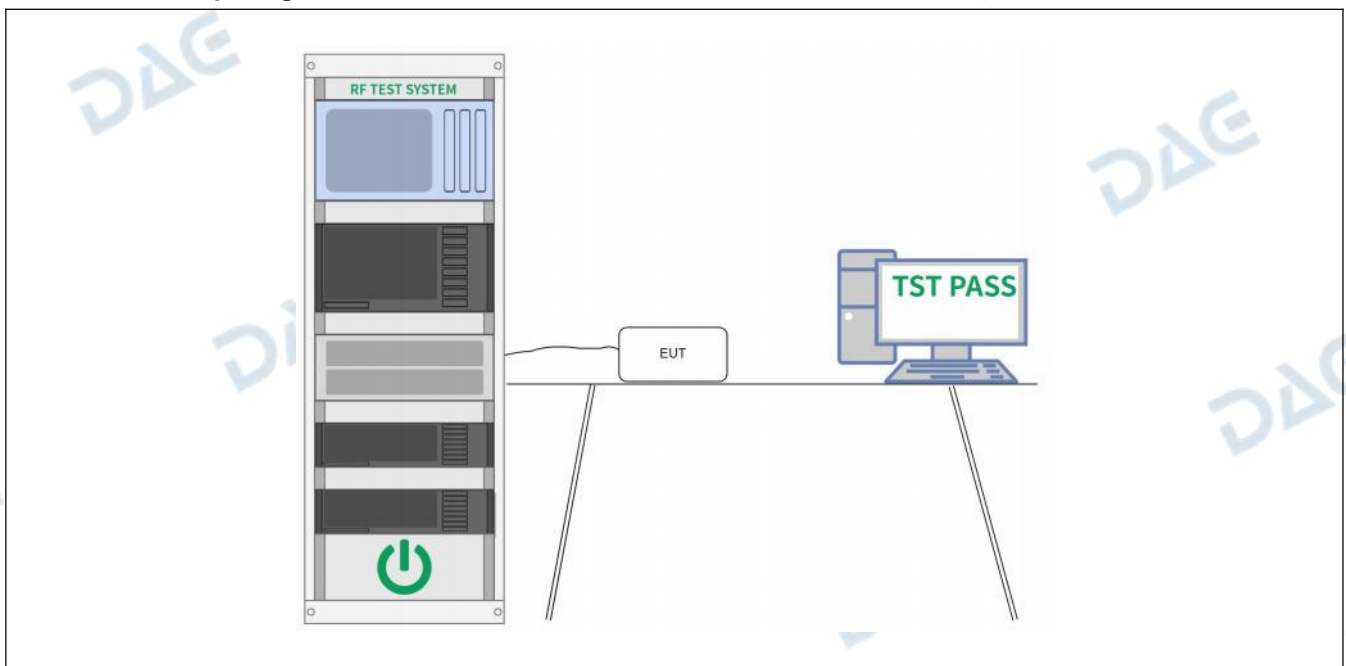
4.1 Duty Cycle

| | |
|-------------------|--|
| Test Requirement: | All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x, and maximum-power transmission duration, T, are required for each tested mode of operation. |
| Test Limit: | No limits, only for report use. |
| Test Method: | ANSI C63.10-2013 section 12.2 (b) |
| Procedure: | i) Set the center frequency of the instrument to the center frequency of the transmission. ii) Set RBW \geq EBW if possible; otherwise, set RBW to the largest available value. iii) Set VBW \geq RBW. iv) Set detector = peak. v) The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$, where T is defined in item a1) of 12.2, and the number of sweep points across duration T exceeds 100. |

4.1.1 E.U.T. Operation:

| | | | | | |
|------------------------|---------------|-----------|------|-----------------------|---------|
| Operating Environment: | | | | | |
| Temperature: | 22.8 °C | Humidity: | 46 % | Atmospheric Pressure: | 101 kPa |
| Pretest mode: | TM1, TM2, TM3 | | | | |
| Final test mode: | TM1, TM2, TM3 | | | | |

4.1.2 Test Setup Diagram:



4.1.3 Test Data:

Please Refer to Appendix for Details.

4.2 Emission bandwidth and occupied bandwidth

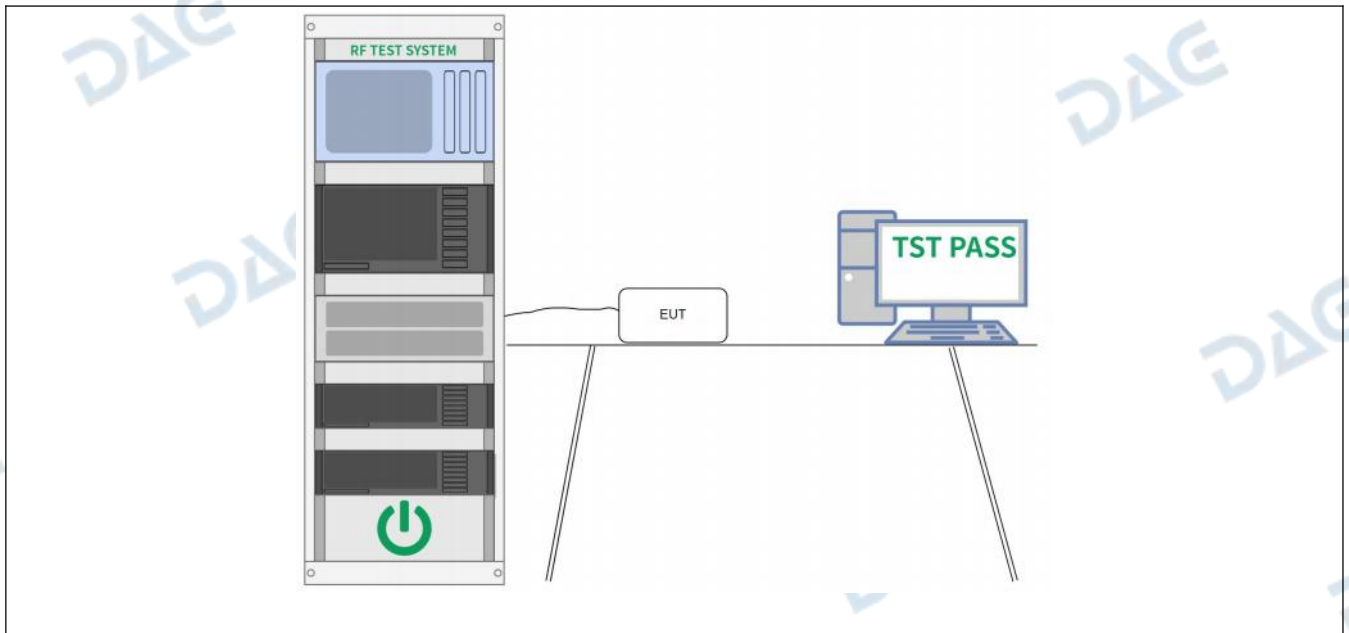
| | |
|-------------------|---|
| Test Requirement: | U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. |
| Test Limit: | U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. |
| Test Method: | ANSI C63.10-2013, section 6.9 & 12.4 |
| Procedure: | <p>Emission bandwidth:</p> <ol style="list-style-type: none"> Set RBW = approximately 1% of the emission bandwidth. Set the VBW > RBW. Detector = peak. Trace mode = max hold. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. <p>Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.</p> <p>Occupied bandwidth:</p> <ol style="list-style-type: none"> The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW. The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement. Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.5.2. Step a) through step c) might require iteration to adjust within the specified range. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used. Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth. If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies. The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s). |

4.2.1 E.U.T. Operation:

| | | | | | |
|------------------------|---------------|-----------|------|-----------------------|---------|
| Operating Environment: | | | | | |
| Temperature: | 22.8 °C | Humidity: | 46 % | Atmospheric Pressure: | 101 kPa |
| Pretest mode: | TM1, TM2, TM3 | | | | |
| Final test mode: | TM1, TM2, TM3 | | | | |

4.2.2 Test Setup Diagram:

| |
|--|
| |
|--|



4.2.3 Test Data:

Please Refer to Appendix for Details.

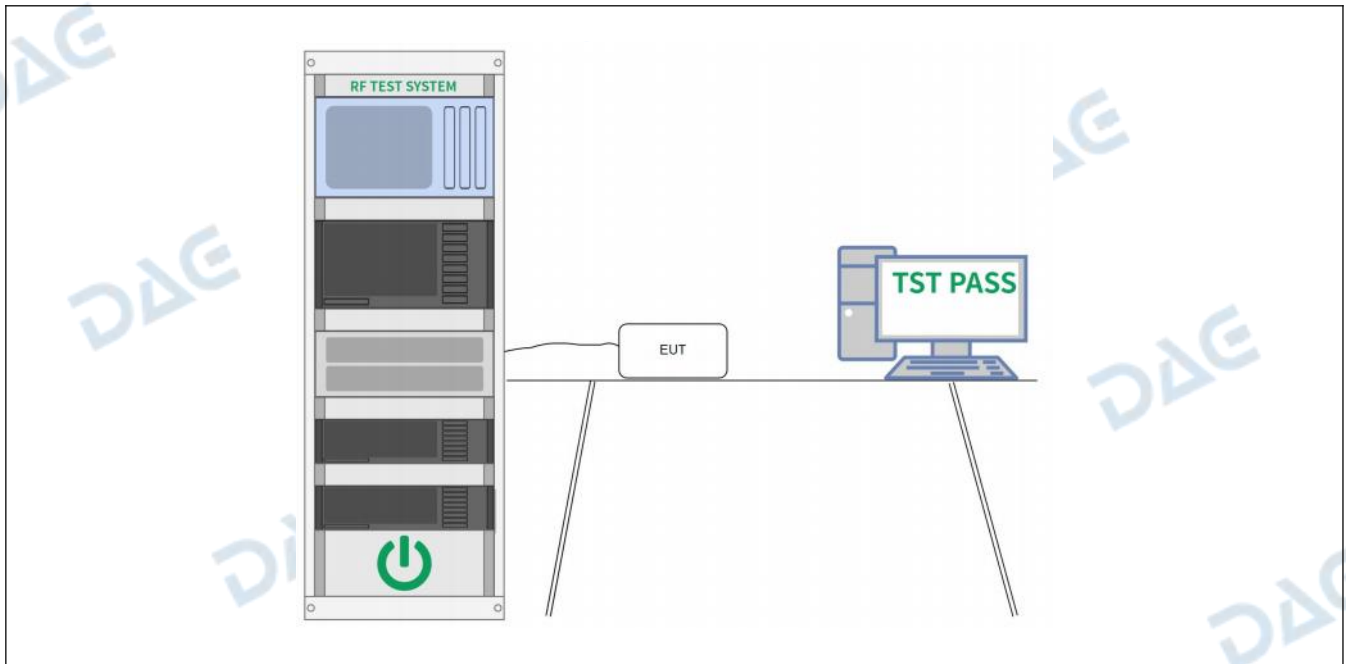
4.3 Maximum conducted output power

| | |
|-------------------|---|
| Test Requirement: | 47 CFR Part 15.407(a)(1)(iv) |
| Test Limit: | For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. |
| Test Method: | ANSI C63.10-2013, section 12.3 |
| Procedure: | Refer to ANSI C63.10-2013 section 12.3 |

4.3.1 E.U.T. Operation:

| | | | | | |
|------------------------|---------------|-----------|------|-----------------------|---------|
| Operating Environment: | | | | | |
| Temperature: | 22.8 °C | Humidity: | 46 % | Atmospheric Pressure: | 101 kPa |
| Pretest mode: | TM1, TM2, TM3 | | | | |
| Final test mode: | TM1, TM2, TM3 | | | | |

4.3.2 Test Setup Diagram:



4.3.3 Test Data:

Please Refer to Appendix for Details.

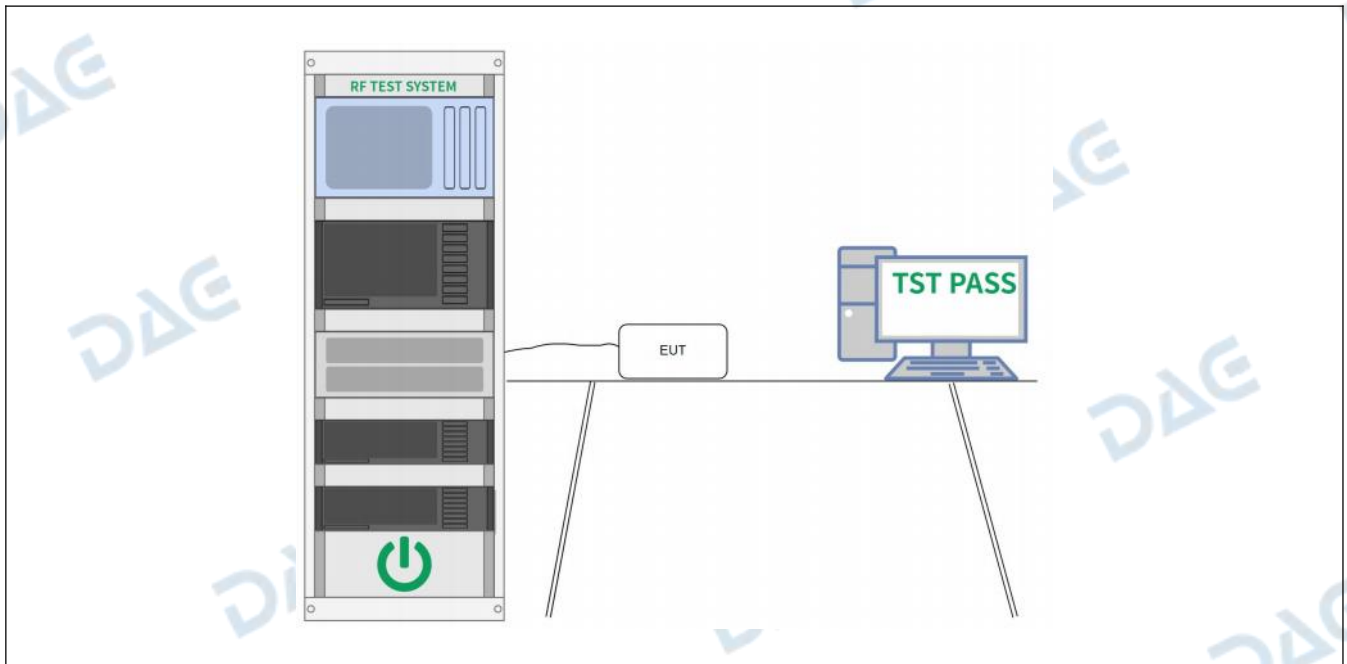
4.4 Power spectral density

| | |
|-------------------|--|
| Test Requirement: | 47 CFR Part 15.407(a)(1)(iv) |
| Test Limit: | For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. |
| Test Method: | ANSI C63.10-2013, section 12.5 |
| Procedure: | Refer to ANSI C63.10-2013, section 12.5 |

4.4.1 E.U.T. Operation:

| | | | | | |
|------------------------|---------------|-----------|------|-----------------------|---------|
| Operating Environment: | | | | | |
| Temperature: | 22.8 °C | Humidity: | 46 % | Atmospheric Pressure: | 101 kPa |
| Pretest mode: | TM1, TM2, TM3 | | | | |
| Final test mode: | TM1, TM2, TM3 | | | | |

4.4.2 Test Setup Diagram:



4.4.3 Test Data:

Please Refer to Appendix for Details.

4.5 Band edge emissions (Conducted)

| | | | |
|---|--|-------------------------------|------------------|
| Test Requirement: | 47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(10) | | |
| Test Limit: | For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. | | |
| | MHz | MHz | MHz |
| | 0.090-0.110 | 16.42-16.423 | 399.9-410 |
| | ¹ 0.495-0.505 | 16.69475-16.69525 | 608-614 |
| | 2.1735-2.1905 | 16.80425-16.80475 | 960-1240 |
| | 4.125-4.128 | 25.5-25.67 | 1300-1427 |
| | 4.17725-4.17775 | 37.5-38.25 | 1435-1626.5 |
| | 4.20725-4.20775 | 73-74.6 | 1645.5-1646.5 |
| | 6.215-6.218 | 74.8-75.2 | 1660-1710 |
| | 6.26775-6.26825 | 108-121.94 | 1718.8-1722.2 |
| | 6.31175-6.31225 | 123-138 | 2200-2300 |
| | 8.291-8.294 | 149.9-150.05 | 2310-2390 |
| | 8.362-8.366 | 156.52475-156.52525 | 2483.5-2500 |
| | 8.37625-8.38675 | 156.7-156.9 | 2690-2900 |
| | 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 |
| | 12.29-12.293 | 167.72-173.2 | 3332-3339 |
| | 12.51975-12.52025 | 240-285 | 3345.8-3358 |
| | 12.57675-12.57725 | 322-335.4 | 3600-4400 |
| | 13.36-13.41 | | (²) |
| ¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. | | | |
| ² Above 38.6 | | | |
| The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements. | | | |
| Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table: | | | |
| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) | |
| 0.009-0.490 | 2400/F(kHz) | 300 | |
| 0.490-1.705 | 24000/F(kHz) | 30 | |
| 1.705-30.0 | 30 | 30 | |
| 30-88 | 100 ** | 3 | |

| | | | |
|---|--|--------|---|
| | 88-216 | 150 ** | 3 |
| | 216-960 | 200 ** | 3 |
| | Above 960 | 500 | 3 |
| <p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>In the emission table above, the tighter limit applies at the band edges.</p> <p>The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p> | | | |
| Test Method: | ANSI C63.10-2013, section 12.7.4, 12.7.6, 12.7.7 | | |
| Procedure: | <p>Above 1GHz:</p> <p>a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.</p> <p>3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.</p> <p>4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.</p> | | |

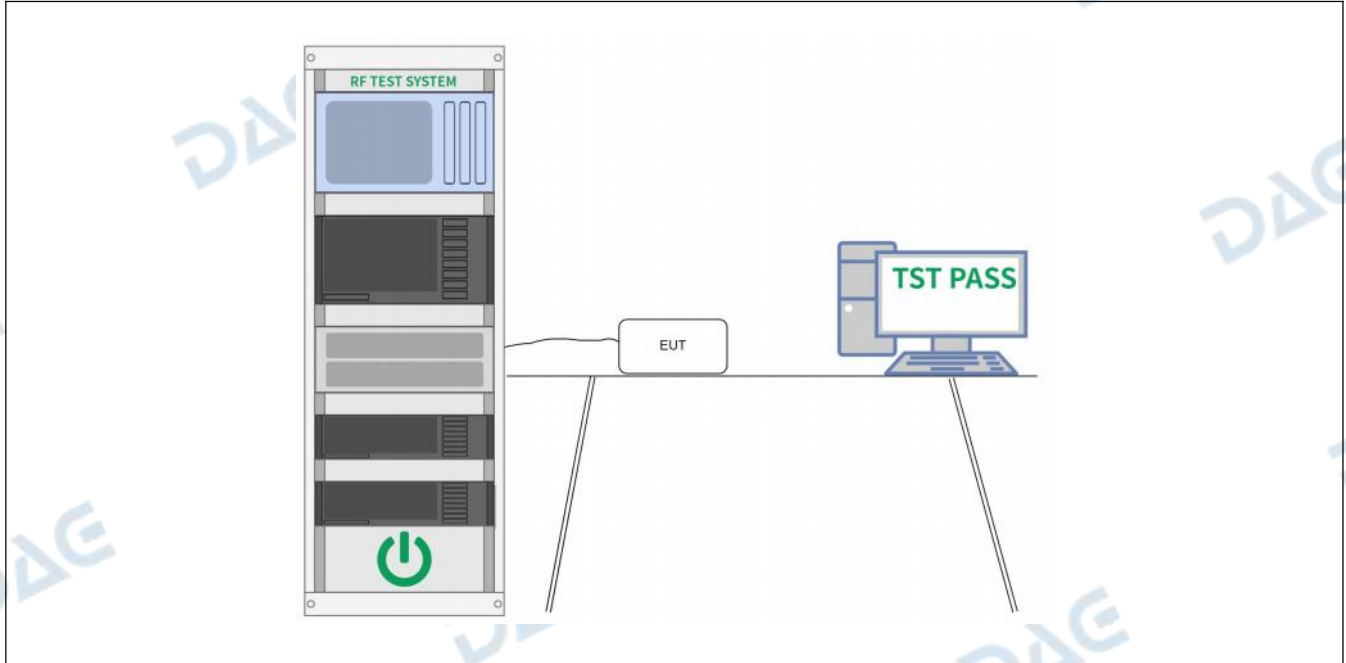
4.5.1 E.U.T. Operation:

Operating Environment:

| | | | | | |
|--------------|---------|-----------|------|-----------------------|---------|
| Temperature: | 22.8 °C | Humidity: | 46 % | Atmospheric Pressure: | 101 kPa |
|--------------|---------|-----------|------|-----------------------|---------|

| | |
|------------------|---------------|
| Pretest mode: | TM1, TM2, TM3 |
| Final test mode: | TM1, TM2, TM3 |

4.5.2 Test Setup Diagram:



4.5.3 Test Data:

Please Refer to Appendix for Details.

4.6 Band edge emissions (Radiated)

| | | | |
|---|--|-------------------------------|------------------|
| Test Requirement: | 47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(10) | | |
| Test Limit: | For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. | | |
| | MHz | MHz | MHz |
| | 0.090-0.110 | 16.42-16.423 | 399.9-410 |
| | ¹ 0.495-0.505 | 16.69475-16.69525 | 608-614 |
| | 2.1735-2.1905 | 16.80425-16.80475 | 960-1240 |
| | 4.125-4.128 | 25.5-25.67 | 1300-1427 |
| | 4.17725-4.17775 | 37.5-38.25 | 1435-1626.5 |
| | 4.20725-4.20775 | 73-74.6 | 1645.5-1646.5 |
| | 6.215-6.218 | 74.8-75.2 | 1660-1710 |
| | 6.26775-6.26825 | 108-121.94 | 1718.8-1722.2 |
| | 6.31175-6.31225 | 123-138 | 2200-2300 |
| | 8.291-8.294 | 149.9-150.05 | 2310-2390 |
| | 8.362-8.366 | 156.52475-156.52525 | 2483.5-2500 |
| | 8.37625-8.38675 | 156.7-156.9 | 2690-2900 |
| | 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 |
| | 12.29-12.293 | 167.72-173.2 | 3332-3339 |
| | 12.51975-12.52025 | 240-285 | 3345.8-3358 |
| | 12.57675-12.57725 | 322-335.4 | 3600-4400 |
| | 13.36-13.41 | | (²) |
| ¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. | | | |
| ² Above 38.6 | | | |
| The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements. | | | |
| Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table: | | | |
| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) | |
| 0.009-0.490 | 2400/F(kHz) | 300 | |
| 0.490-1.705 | 24000/F(kHz) | 30 | |
| 1.705-30.0 | 30 | 30 | |
| 30-88 | 100 ** | 3 | |
| 88-216 | 150 ** | 3 | |

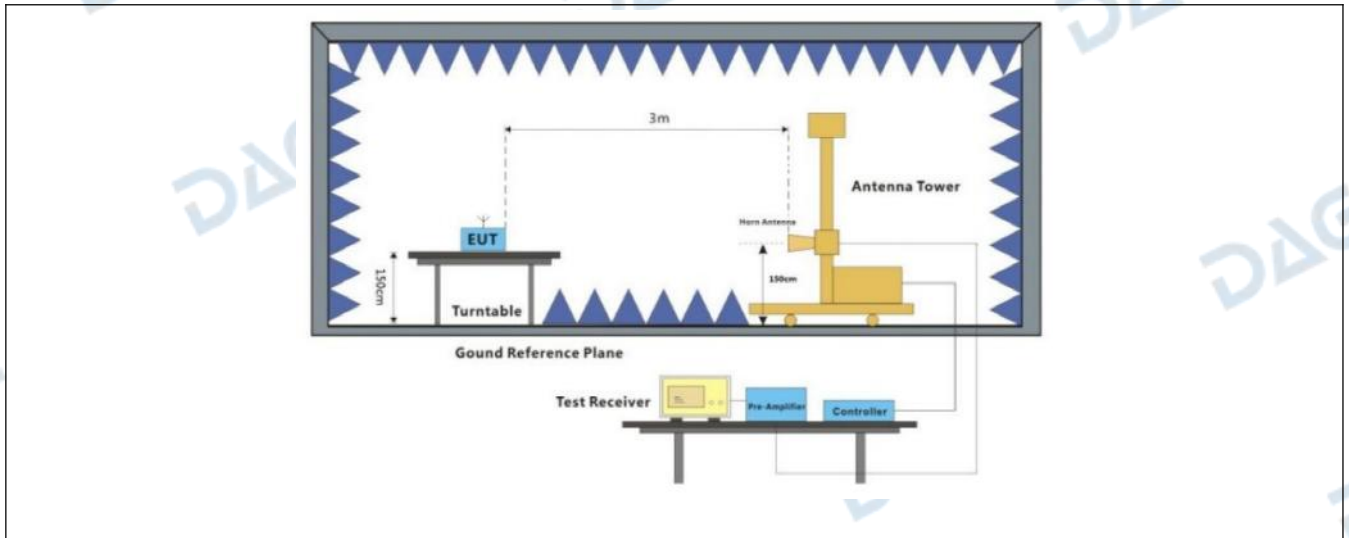
| | | | |
|---|---|--------|---|
| | 216-960 | 200 ** | 3 |
| | Above 960 | 500 | 3 |
| <p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>In the emission table above, the tighter limit applies at the band edges.</p> <p>The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p> | | | |
| Test Method: | ANSI C63.10-2013, section 12.7.4, 12.7.6, 12.7.7 | | |
| Procedure: | <p>Above 1GHz:</p> <ol style="list-style-type: none"> For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet. Test the EUT in the lowest channel, the middle channel, the Highest channel. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. Repeat above procedures until all frequencies measured was complete. <p>Remark:</p> <ol style="list-style-type: none"> Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. | | |

4.6.1 E.U.T. Operation:

| | | | | | |
|------------------------|---------------|-----------|------|-----------------------|---------|
| Operating Environment: | | | | | |
| Temperature: | 22.8 °C | Humidity: | 46 % | Atmospheric Pressure: | 101 kPa |
| Pretest mode: | TM1, TM2, TM3 | | | | |

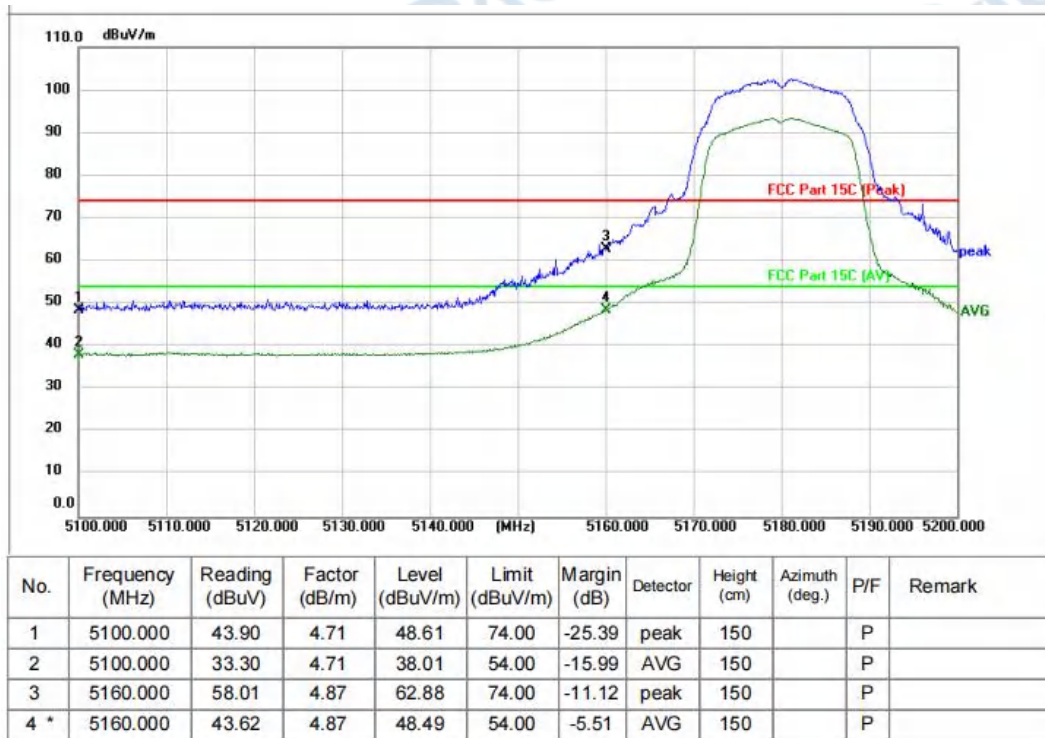
| | |
|------------------|----------|
| Final test mode: | TM1, TM3 |
|------------------|----------|

4.6.2 Test Setup Diagram:

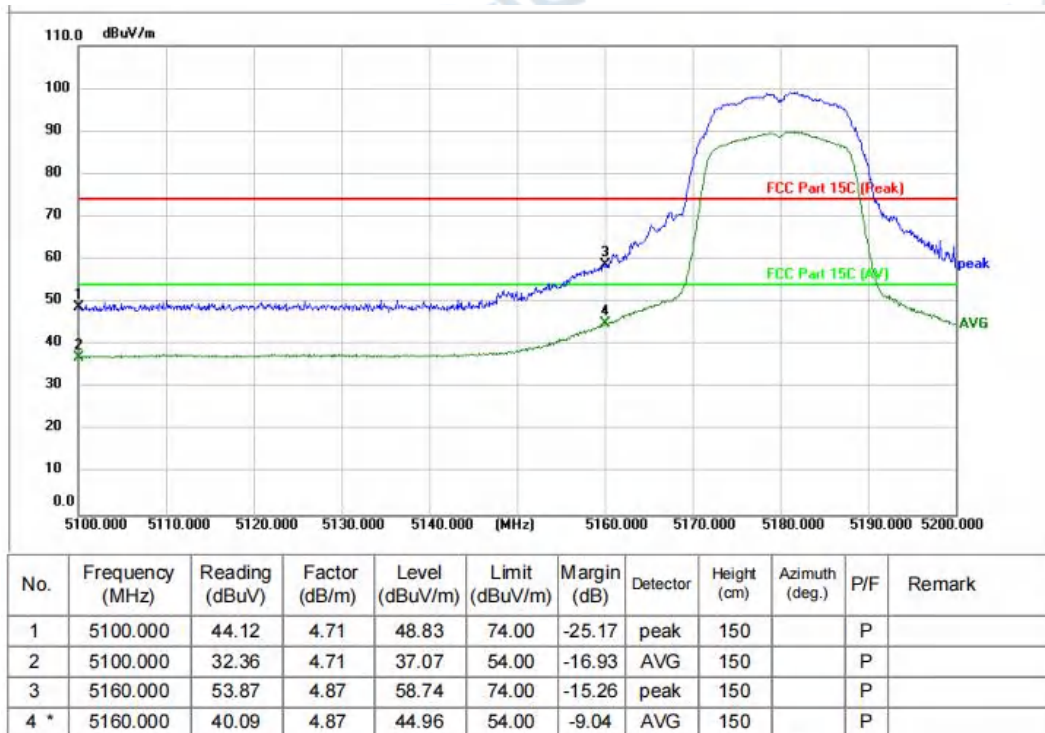


4.6.3 Test Data:

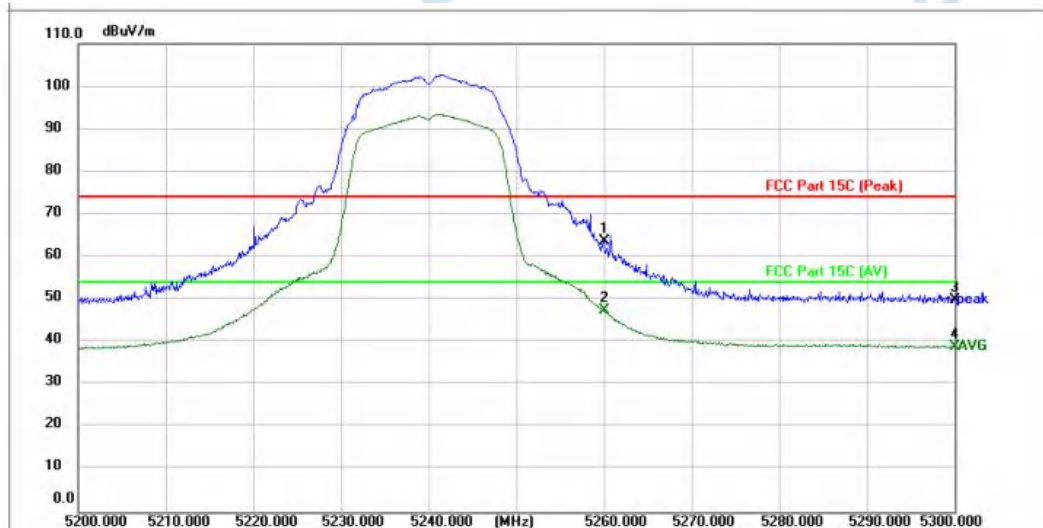
TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20 / CH: H



TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20 / CH: L

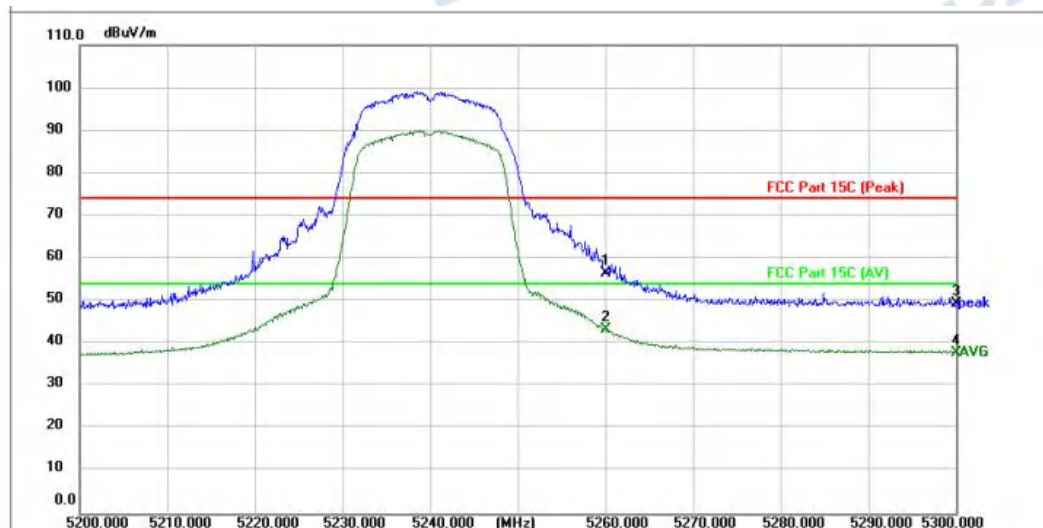


TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20 / CH: L



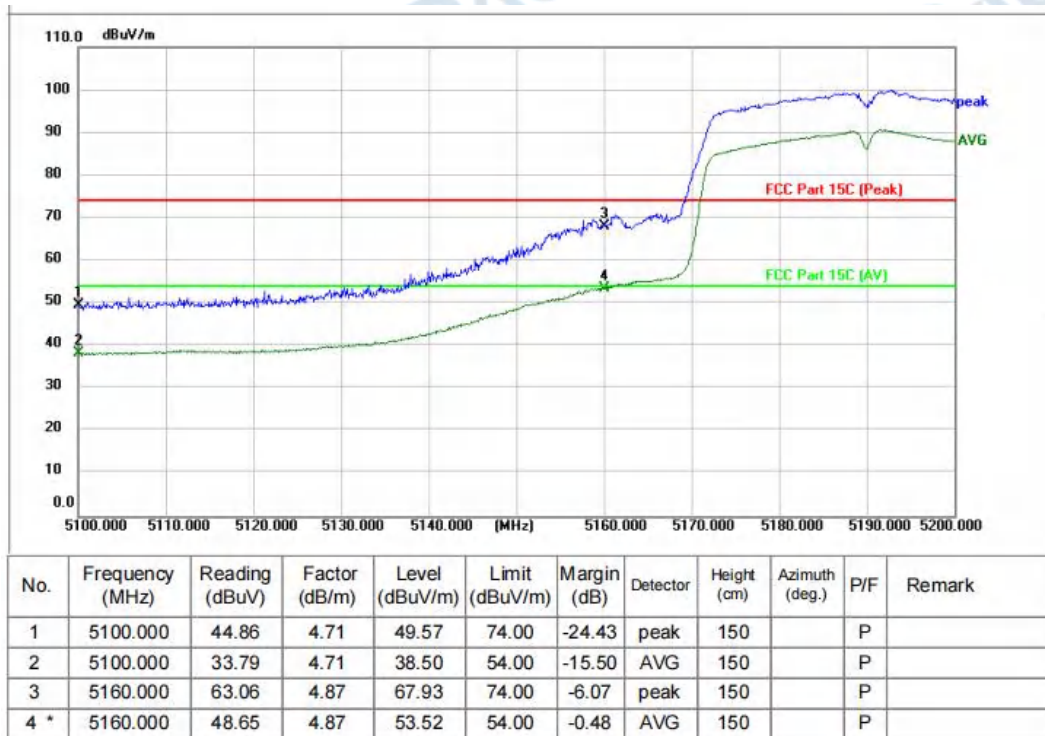
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1 | 5260.000 | 58.48 | 5.15 | 63.63 | 74.00 | -10.37 | peak | 150 | | P | |
| 2 * | 5260.000 | 42.32 | 5.15 | 47.47 | 54.00 | -6.53 | AVG | 150 | | P | |
| 3 | 5300.000 | 44.63 | 5.26 | 49.89 | 74.00 | -24.11 | peak | 150 | | P | |
| 4 | 5300.000 | 33.65 | 5.26 | 38.91 | 54.00 | -15.09 | AVG | 150 | | P | |

TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20 / CH: L

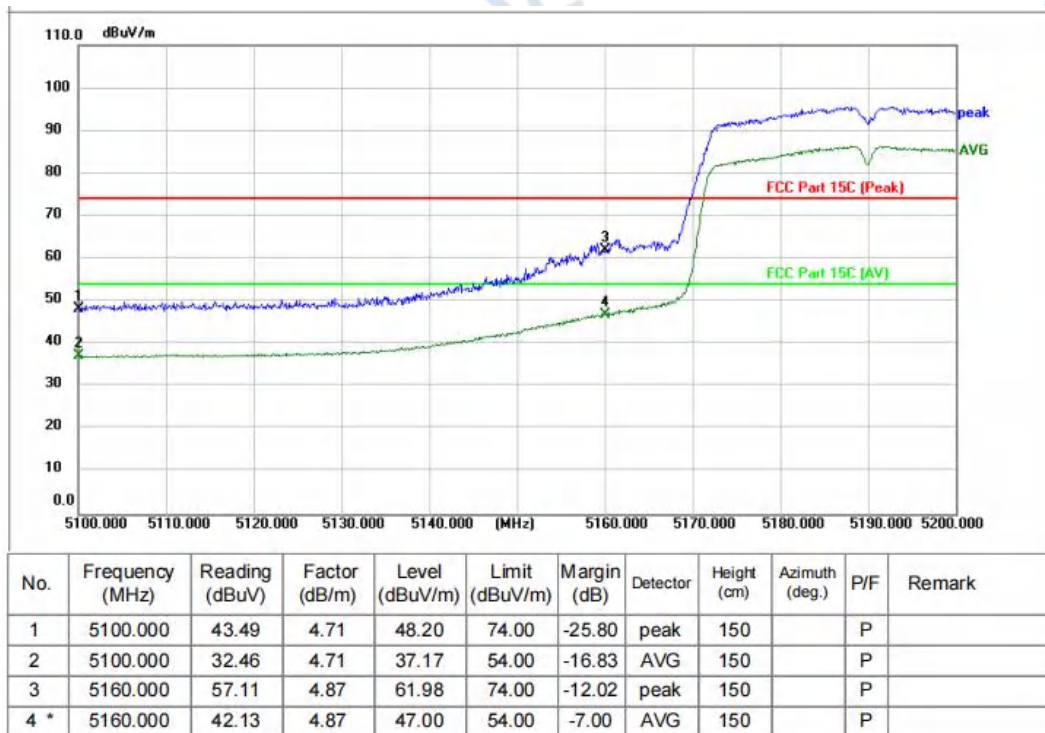


| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1 | 5260.000 | 51.33 | 5.15 | 56.48 | 74.00 | -17.52 | peak | 150 | | P | |
| 2 * | 5260.000 | 38.27 | 5.15 | 43.42 | 54.00 | -10.58 | AVG | 150 | | P | |
| 3 | 5300.000 | 44.06 | 5.26 | 49.32 | 74.00 | -24.68 | peak | 150 | | P | |
| 4 | 5300.000 | 32.63 | 5.26 | 37.89 | 54.00 | -16.11 | AVG | 150 | | P | |

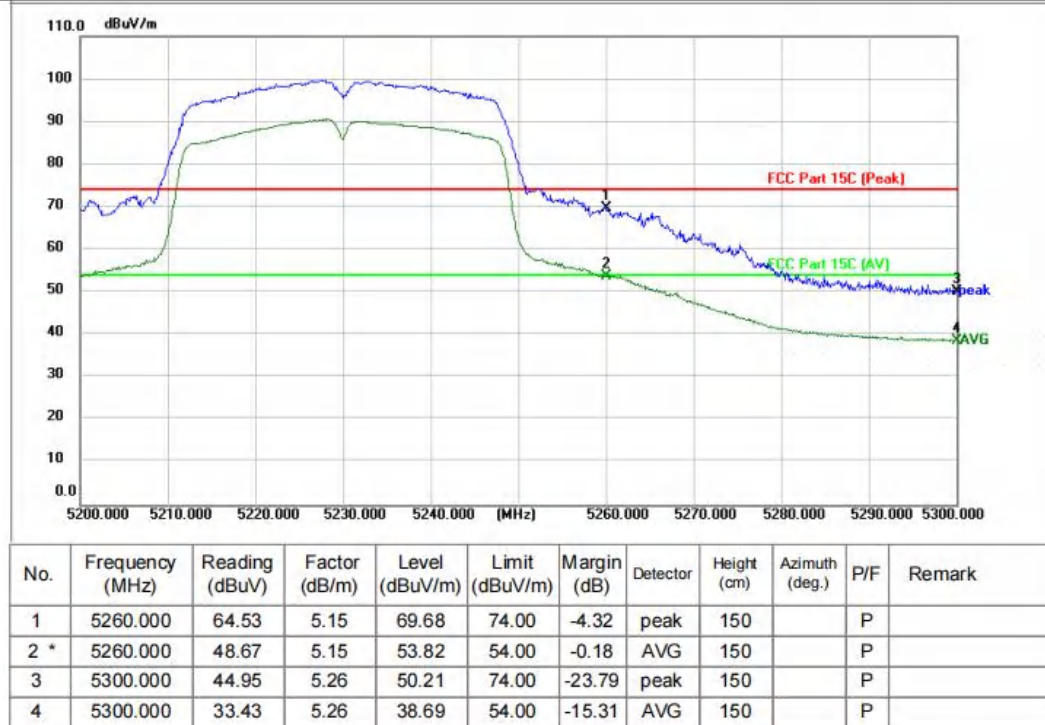
TM3 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 40 / CH: L



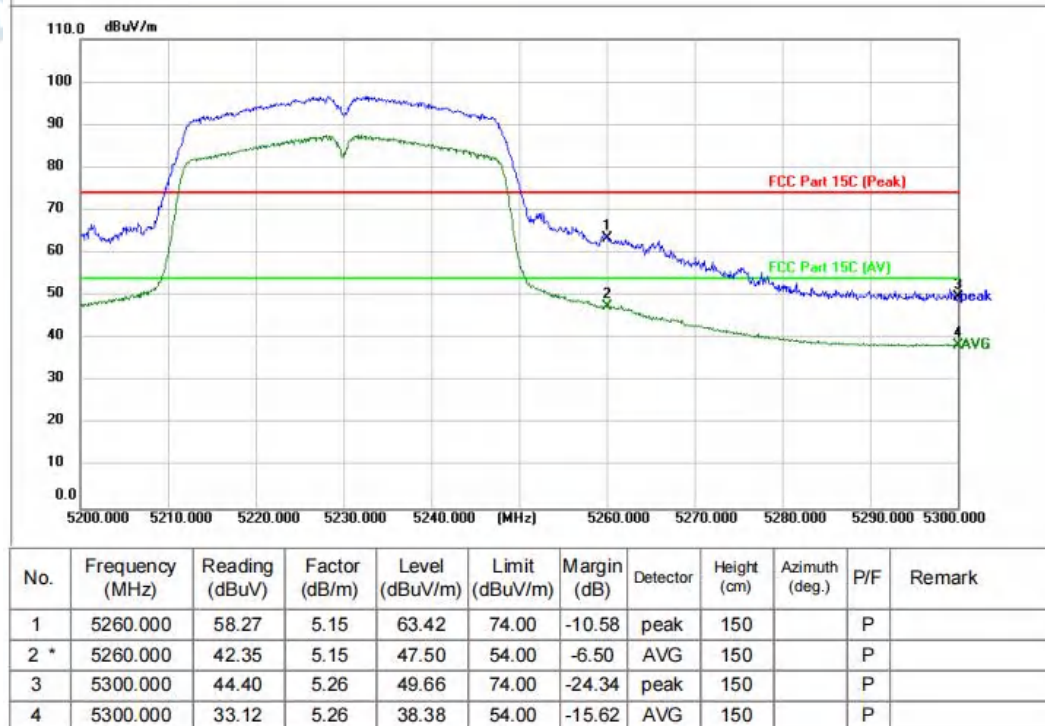
TM3 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 40 / CH: L



TM3 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 40 / CH: H



TM3 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 40 / CH: H



NOTE:1.The test software will only record the worst test angle and height, and only the worst case will be recorded in the test report.

2. Margin = Measurement Level - Limit ;Measurement Level=Test receiver reading + correction factor

4.7 Undesirable emission limits (below 1GHz)

| Test Requirement: | 47 CFR Part 15.407(b)(9) | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|--|-------------------------------|-----------------------------------|-------------------------------|-------------|-------------|-----|-------------|--------------|----|------------|----|----|-------|--------|---|--------|--------|---|---------|--------|---|-----------|-----|---|
| Test Limit: | <p>Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.</p> <p>Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:</p> <table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100 **</td><td>3</td></tr><tr><td>88-216</td><td>150 **</td><td>3</td></tr><tr><td>216-960</td><td>200 **</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></table> <p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>In the emission table above, the tighter limit applies at the band edges.</p> <p>The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p> | Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) | 0.009-0.490 | 2400/F(kHz) | 300 | 0.490-1.705 | 24000/F(kHz) | 30 | 1.705-30.0 | 30 | 30 | 30-88 | 100 ** | 3 | 88-216 | 150 ** | 3 | 216-960 | 200 ** | 3 | Above 960 | 500 | 3 |
| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) | | | | | | | | | | | | | | | | | | | | | | | |
| 0.009-0.490 | 2400/F(kHz) | 300 | | | | | | | | | | | | | | | | | | | | | | | |
| 0.490-1.705 | 24000/F(kHz) | 30 | | | | | | | | | | | | | | | | | | | | | | | |
| 1.705-30.0 | 30 | 30 | | | | | | | | | | | | | | | | | | | | | | | |
| 30-88 | 100 ** | 3 | | | | | | | | | | | | | | | | | | | | | | | |
| 88-216 | 150 ** | 3 | | | | | | | | | | | | | | | | | | | | | | | |
| 216-960 | 200 ** | 3 | | | | | | | | | | | | | | | | | | | | | | | |
| Above 960 | 500 | 3 | | | | | | | | | | | | | | | | | | | | | | | |
| Test Method: | ANSI C63.10-2013, section 12.7.4, 12.7.5 | | | | | | | | | | | | | | | | | | | | | | | | |
| Procedure: | <p>Below 1GHz:</p> <p>a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>2. Scan from 9kHz to 30MHz. the disturbance below 30MHz was very low. The</p> | | | | | | | | | | | | | | | | | | | | | | | | |

points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

Above 1GHz:

- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

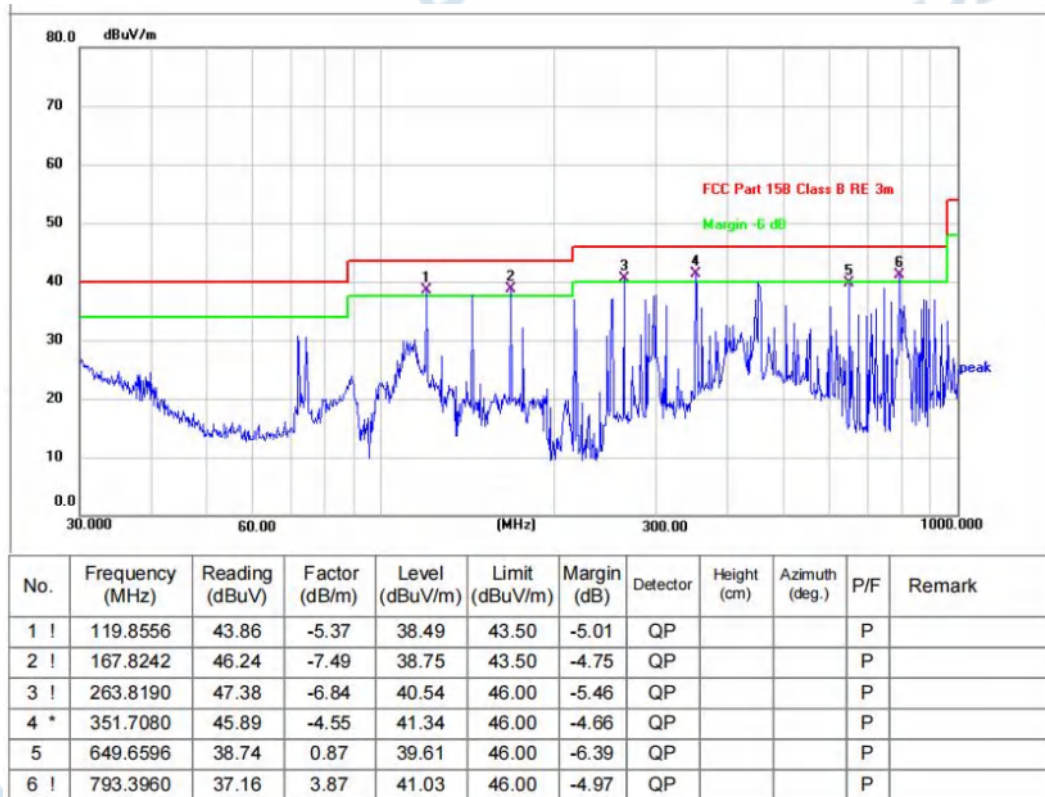
1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.
4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

4.7.1 E.U.T. Operation:

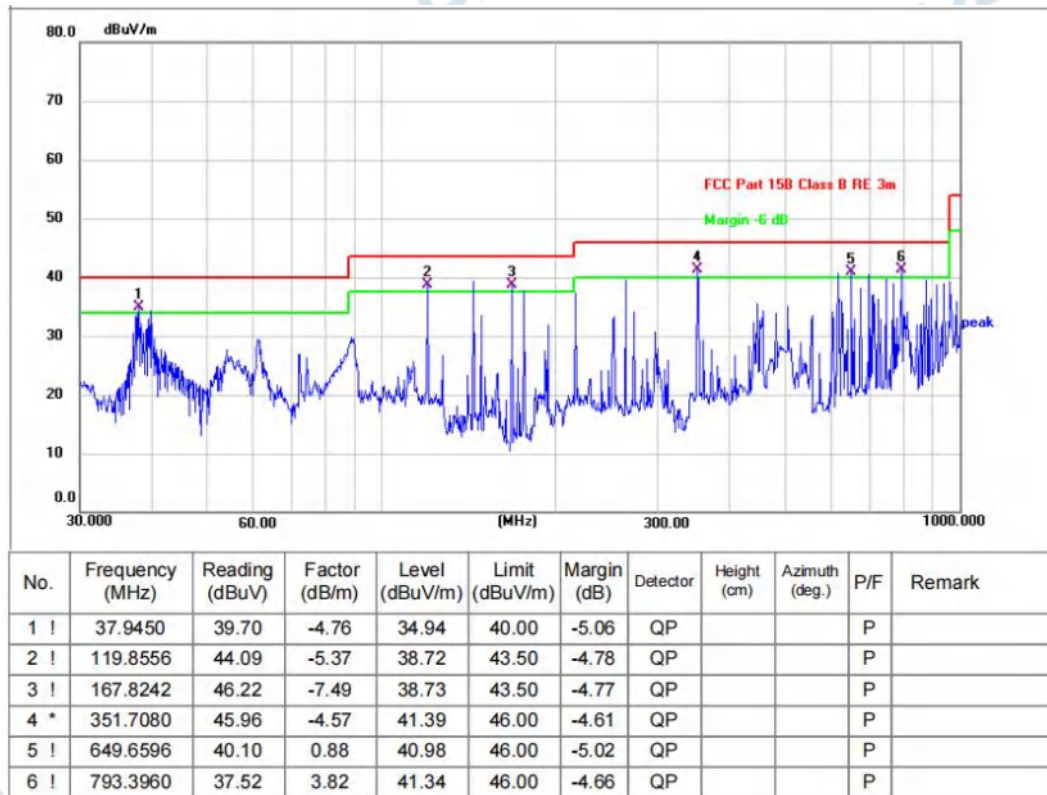
| | | | | | |
|------------------------|---------------|-----------|------|-----------------------|---------|
| Operating Environment: | | | | | |
| Temperature: | 22.8 °C | Humidity: | 46 % | Atmospheric Pressure: | 101 kPa |
| Pretest mode: | TM1, TM2, TM3 | | | | |
| Final test mode: | TM1 | | | | |

4.7.2 Test Data:

TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20 / CH: M



TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20 / CH: M



NOTE:1. The test software will only record the worst test angle and height, and only the worst case will be recorded in the test report.

2. Margin = Measurement Level - Limit ; Measurement Level = Test receiver reading + correction factor

4.8 Undesirable emission limits (above 1GHz)

| | | | |
|--|--|-------------------------------|------------------|
| Test Requirement: | 47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(10) | | |
| Test Limit: | For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. | | |
| | MHz | MHz | MHz |
| | 0.090-0.110 | 16.42-16.423 | 399.9-410 |
| | ¹ 0.495-0.505 | 16.69475-16.69525 | 608-614 |
| | 2.1735-2.1905 | 16.80425-16.80475 | 960-1240 |
| | 4.125-4.128 | 25.5-25.67 | 1300-1427 |
| | 4.17725-4.17775 | 37.5-38.25 | 1435-1626.5 |
| | 4.20725-4.20775 | 73-74.6 | 1645.5-1646.5 |
| | 6.215-6.218 | 74.8-75.2 | 1660-1710 |
| | 6.26775-6.26825 | 108-121.94 | 1718.8-1722.2 |
| | 6.31175-6.31225 | 123-138 | 2200-2300 |
| | 8.291-8.294 | 149.9-150.05 | 2310-2390 |
| | 8.362-8.366 | 156.52475-156.52525 | 2483.5-2500 |
| | 8.37625-8.38675 | 156.7-156.9 | 2690-2900 |
| | 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 |
| | 12.29-12.293 | 167.72-173.2 | 3332-3339 |
| | 12.51975-12.52025 | 240-285 | 3345.8-3358 |
| | 12.57675-12.57725 | 322-335.4 | 3600-4400 |
| | 13.36-13.41 | | (²) |
| ¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. ² Above 38.6 The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements. Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table: | | | |
| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) | |
| 0.009-0.490 | 2400/F(kHz) | 300 | |
| 0.490-1.705 | 24000/F(kHz) | 30 | |
| 1.705-30.0 | 30 | 30 | |
| 30-88 | 100 ** | 3 | |

| | | | |
|---|--|--------|---|
| | 88-216 | 150 ** | 3 |
| | 216-960 | 200 ** | 3 |
| | Above 960 | 500 | 3 |
| <p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>In the emission table above, the tighter limit applies at the band edges.</p> <p>The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p> | | | |
| Test Method: | ANSI C63.10-2013, section 12.7.4, 12.7.6, 12.7.7 | | |
| Procedure: | <p>Above 1GHz:</p> <p>a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.</p> <p>3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.</p> <p>4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.</p> | | |

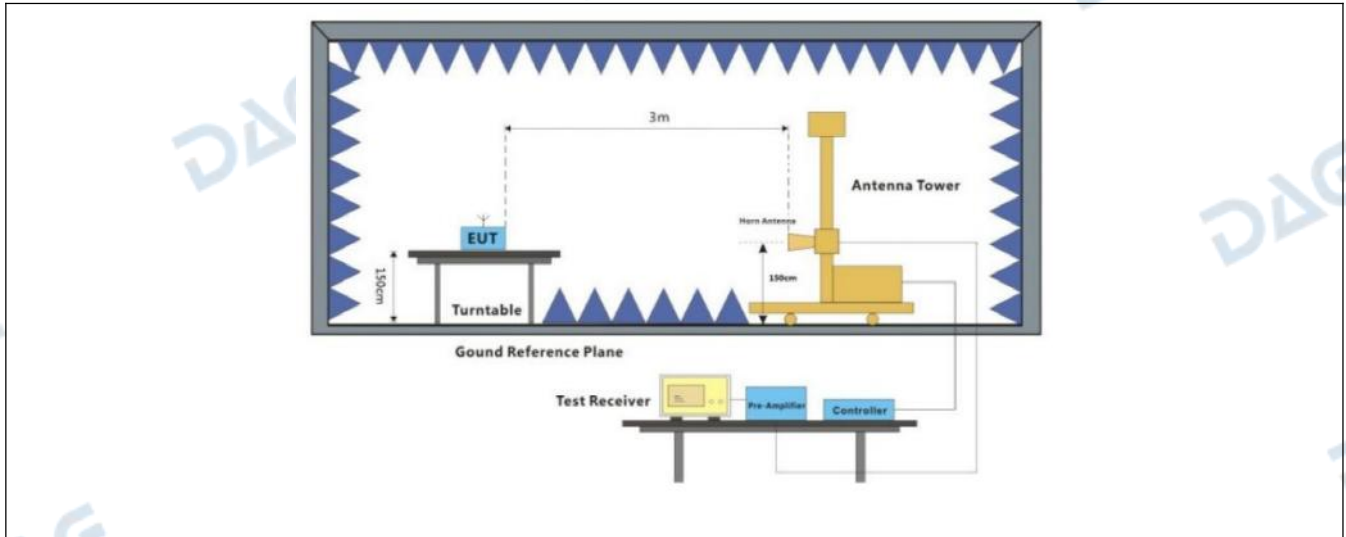
4.8.1 E.U.T. Operation:

Operating Environment:

| | | | | | |
|--------------|---------|-----------|------|-----------------------|---------|
| Temperature: | 22.8 °C | Humidity: | 46 % | Atmospheric Pressure: | 101 kPa |
|--------------|---------|-----------|------|-----------------------|---------|

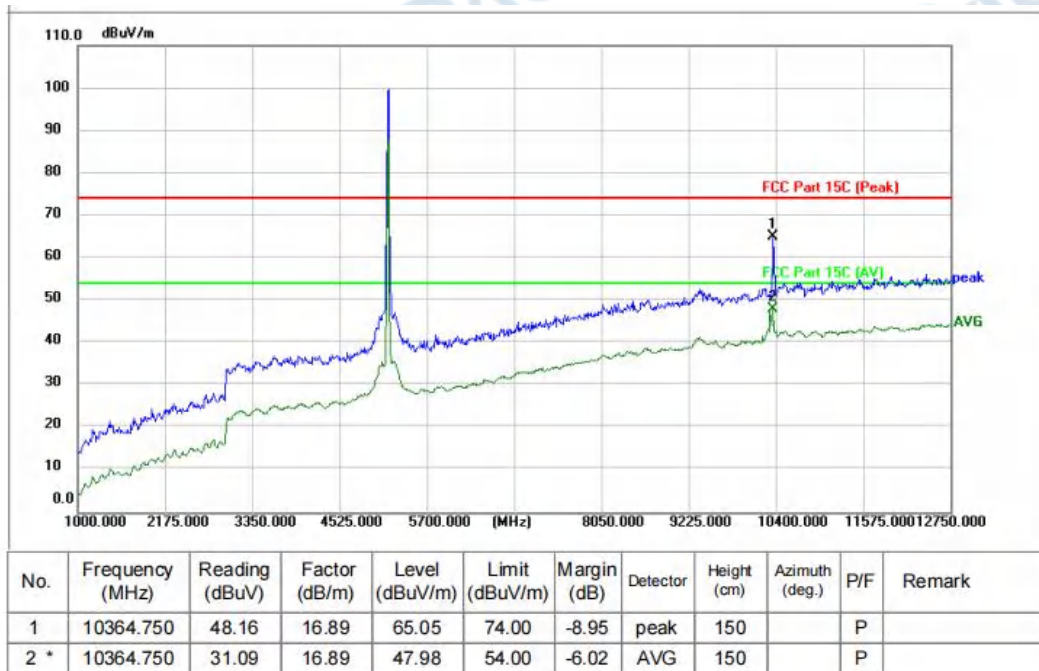
| | |
|------------------|---------------|
| Pretest mode: | TM1, TM2, TM3 |
| Final test mode: | TM1 |

4.8.2 Test Setup Diagram:

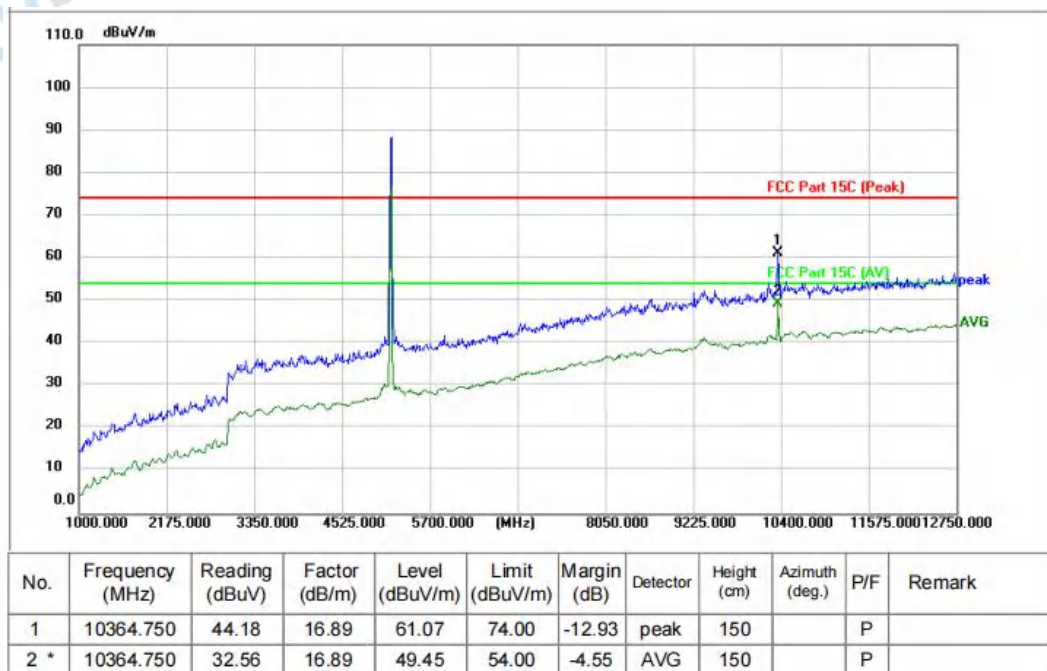


4.8.3 Test Data:

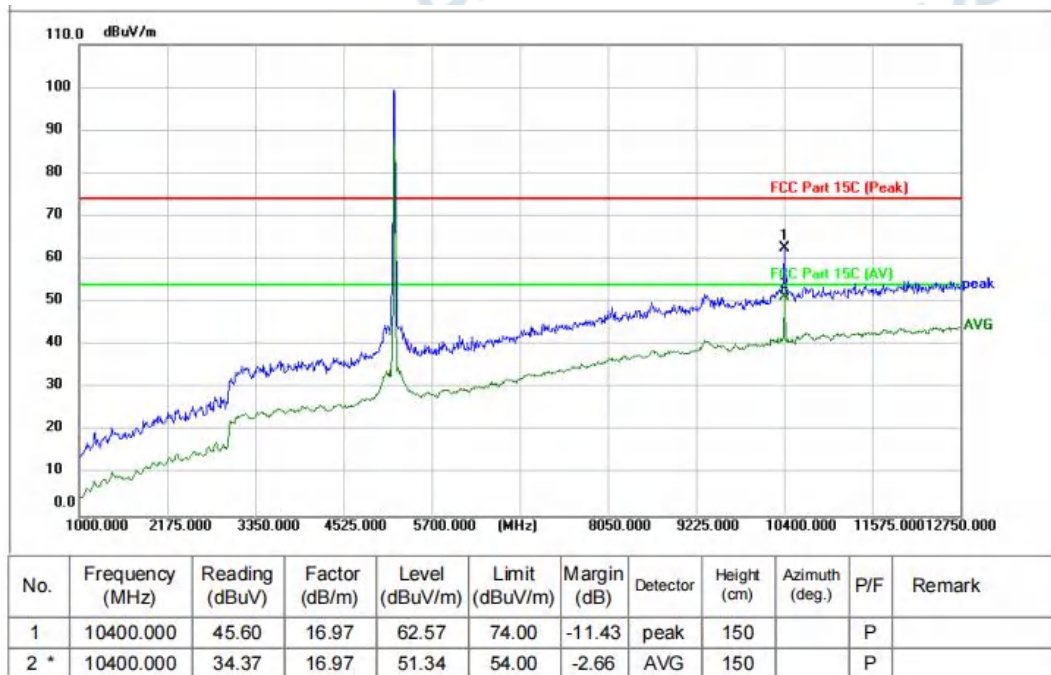
TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20 / CH: L



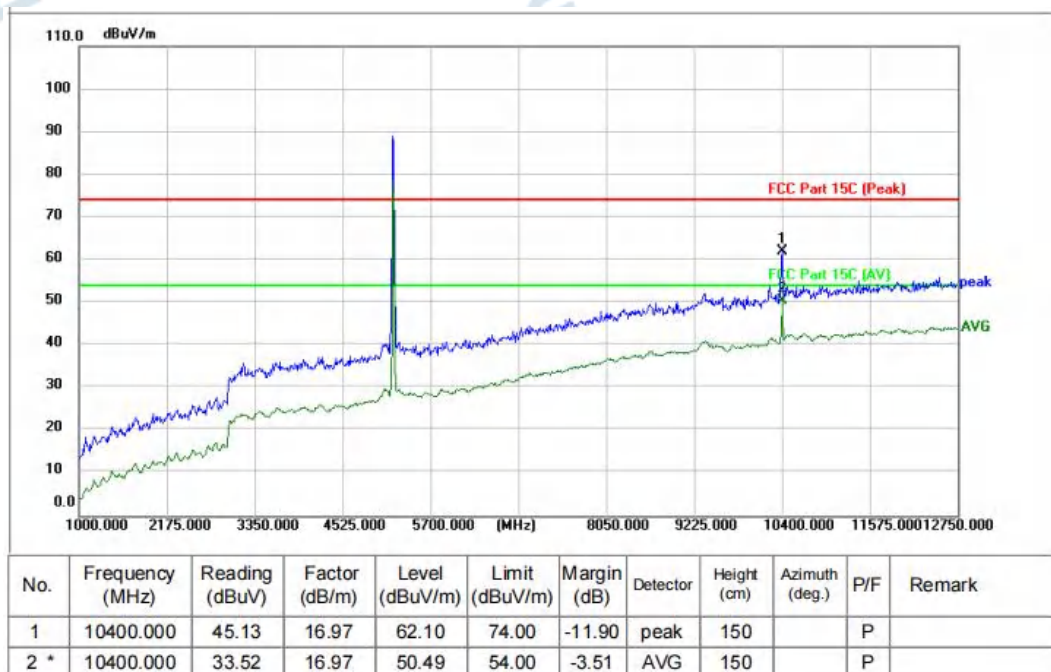
TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20 / CH: L



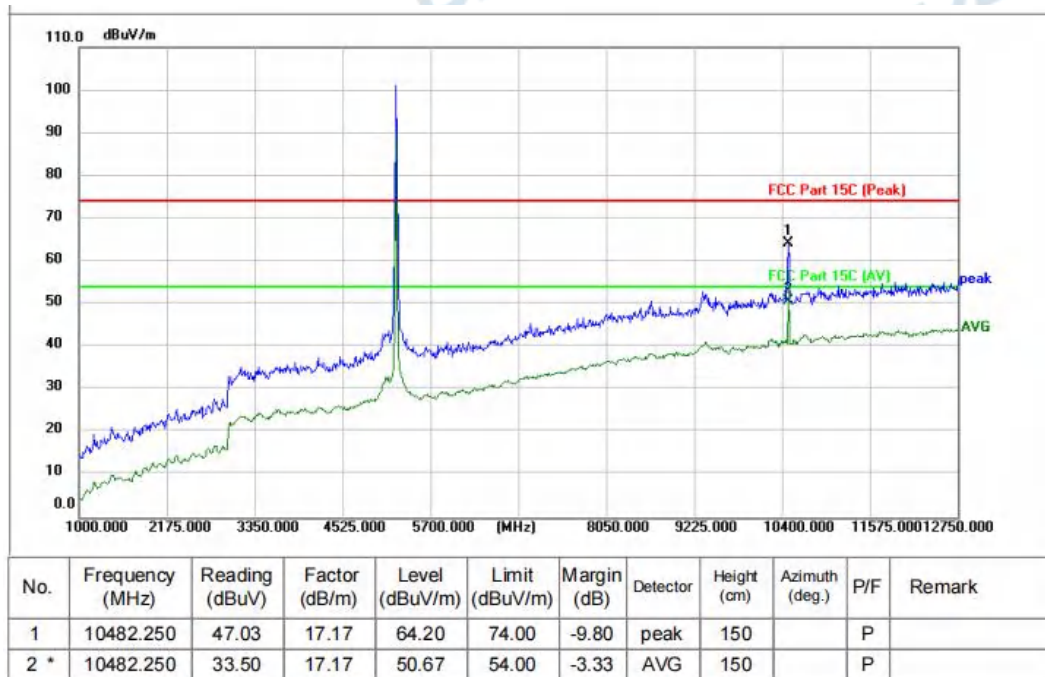
TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20 / CH: M



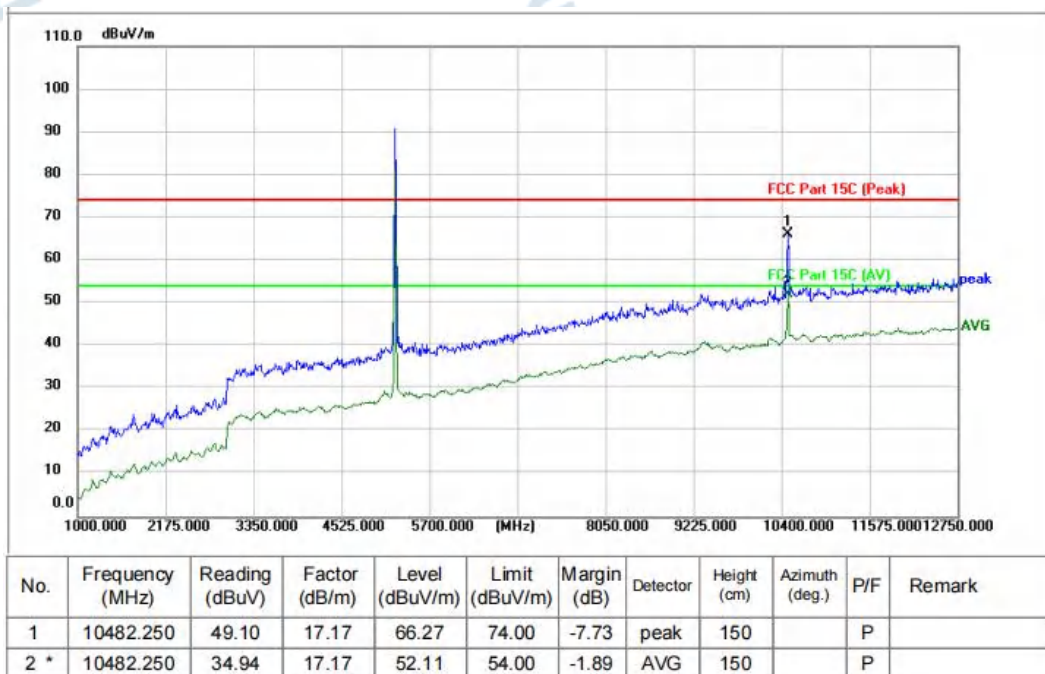
TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20 / CH: M



TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20 / CH: H



TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20 / CH: H

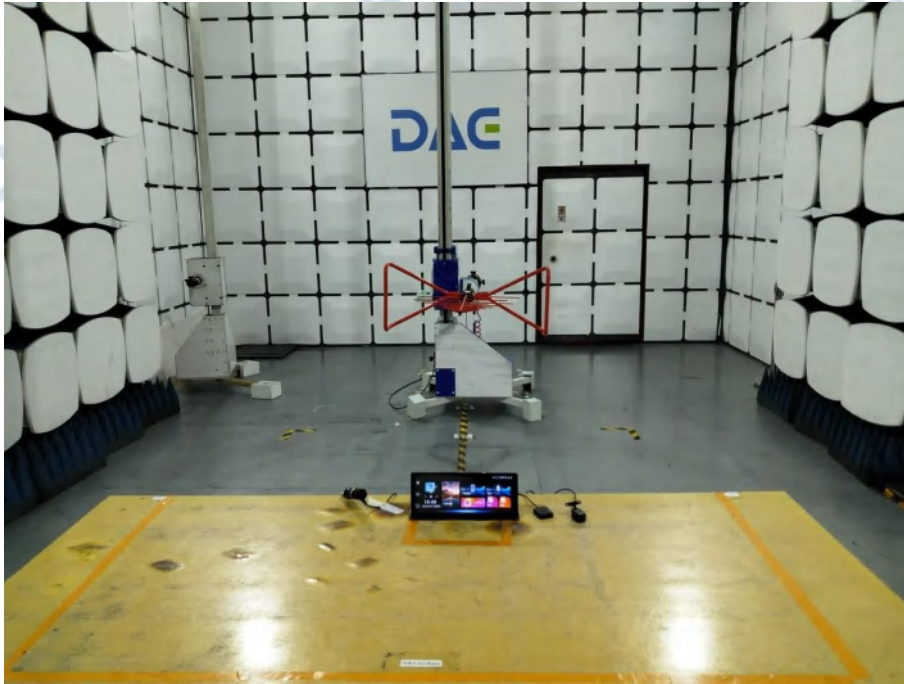


NOTE:1.The test software will only record the worst test angle and height, and only the worst case will be recorded in the test report.

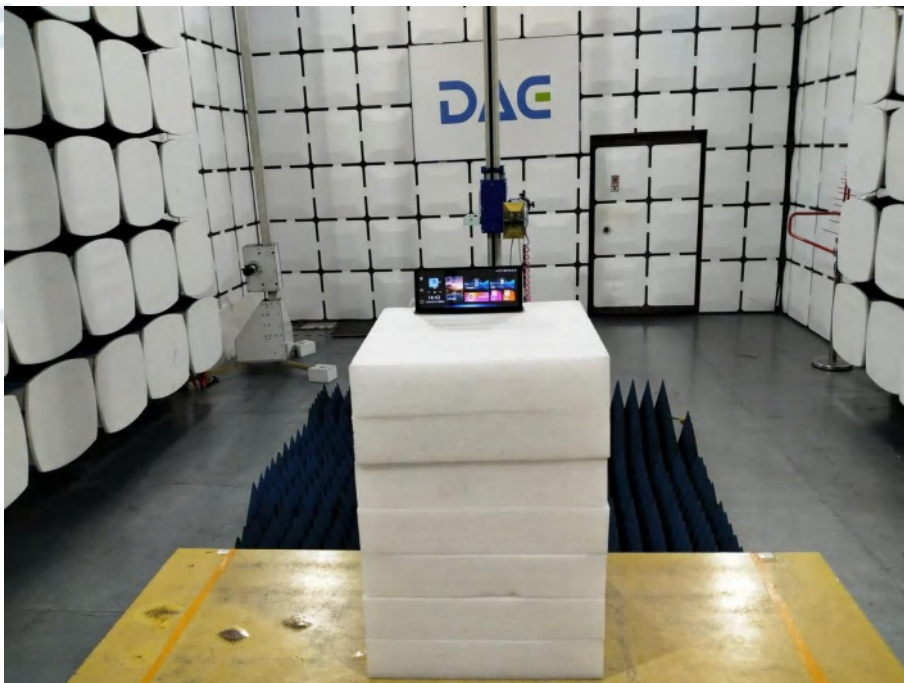
2. Margin = Measurement Level - Limit ;Measurement Level=Test receiver reading + correction factor

5 TEST SETUP PHOTOS

Emissions in frequency bands (below 1GHz)



Emissions in frequency bands (above 1GHz)



6 PHOTOS OF THE EUT

Please Refer to DACE241011001RF001 for Details.

Appendix

1. -26dB and 99% Emission Bandwidth

| Condition | Antenna | Modulation | Frequency(MHz) | -26dB_Emission_Bandwidth (MHz) | Occupied Bandwidth(MHz) |
|-----------|---------|-----------------|----------------|--------------------------------|-------------------------|
| NVNT | ANT1 | 802.11a | 5180.00 | 19.26 | 16.24 |
| NVNT | ANT1 | 802.11a | 5200.00 | 19.29 | 16.25 |
| NVNT | ANT1 | 802.11a | 5240.00 | 19.32 | 16.24 |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 20.03 | 17.36 |
| NVNT | ANT1 | 802.11n(HT20) | 5200.00 | 20.10 | 17.37 |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 20.11 | 17.34 |
| NVNT | ANT1 | 802.11ac(VHT20) | 5180.00 | 20.08 | 17.36 |
| NVNT | ANT1 | 802.11ac(VHT20) | 5200.00 | 19.96 | 17.38 |
| NVNT | ANT1 | 802.11ac(VHT20) | 5240.00 | 19.93 | 17.38 |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | 37.98 | 35.26 |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | 38.01 | 35.30 |
| NVNT | ANT1 | 802.11ac(VHT40) | 5190.00 | 37.88 | 35.31 |
| NVNT | ANT1 | 802.11ac(VHT40) | 5230.00 | 37.99 | 35.29 |

99%_OCB_NVNT_ANT1_802_11a_5180



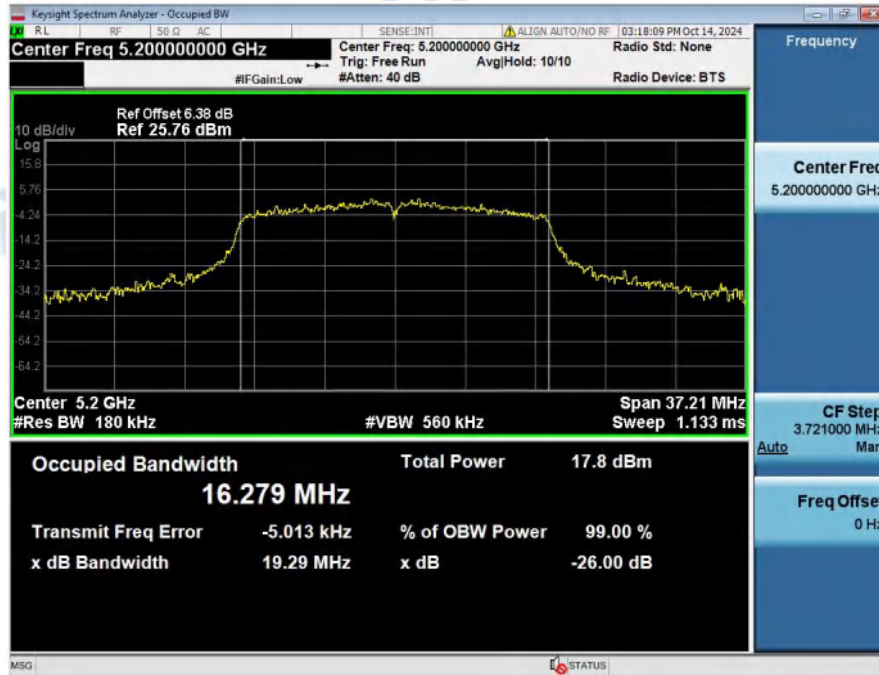
-26BW_NVNT_ANT1_802_11a_5180



99%_OCB_NVNT_ANT1_802_11a_5200



-26BW_NVNT_ANT1_802_11a_5200



99%_OCB_NVNT_ANT1_802_11a_5240



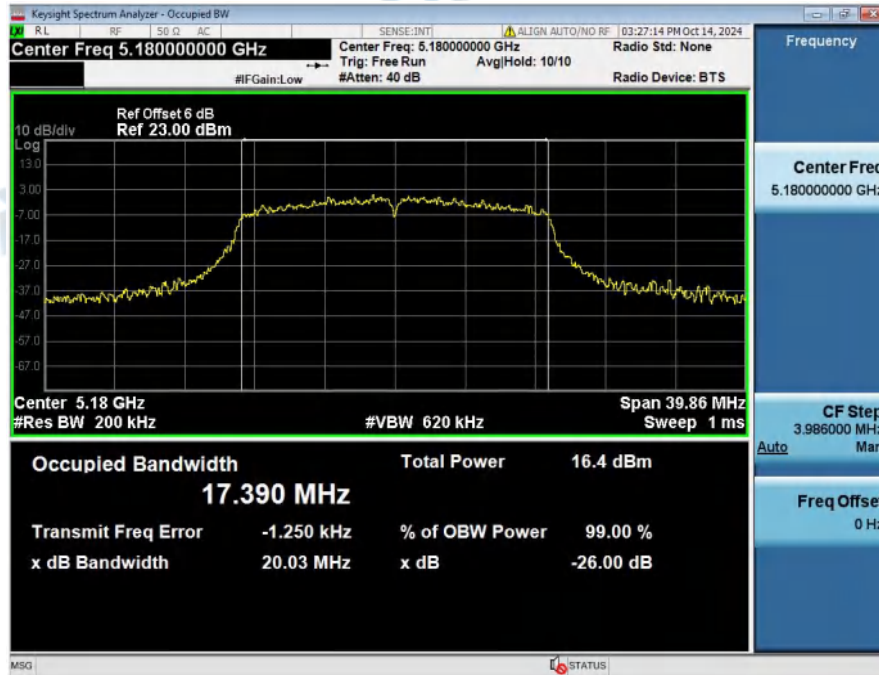
-26BW_NVNT_ANT1_802_11a_5240



99%_OCB_NVNT_ANT1_802_11n(HT20)_5180



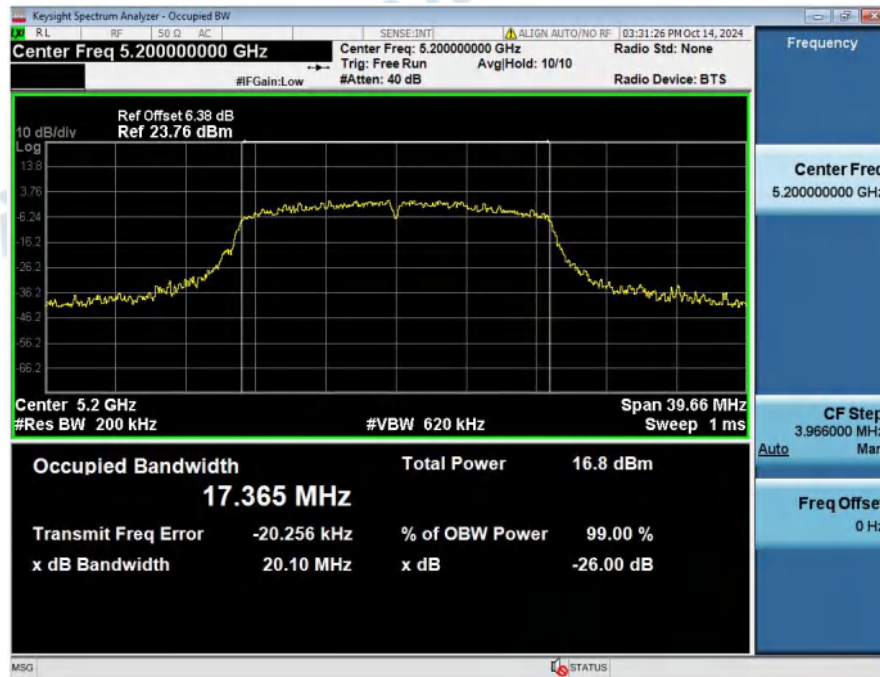
-26BW_NVNT_ANT1_802_11n(HT20)_5180



99%_OCB_NVNT_ANT1_802_11n(HT20)_5200



-26BW_NVNT_ANT1_802_11n(HT20)_5200



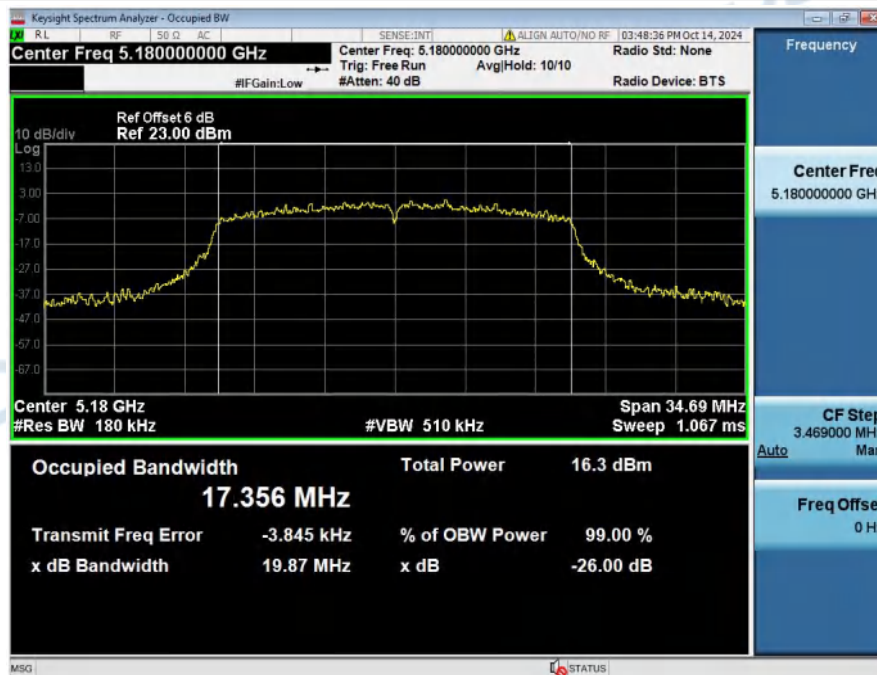
99%_OCB_NVNT_ANT1_802_11n(HT20)_5240



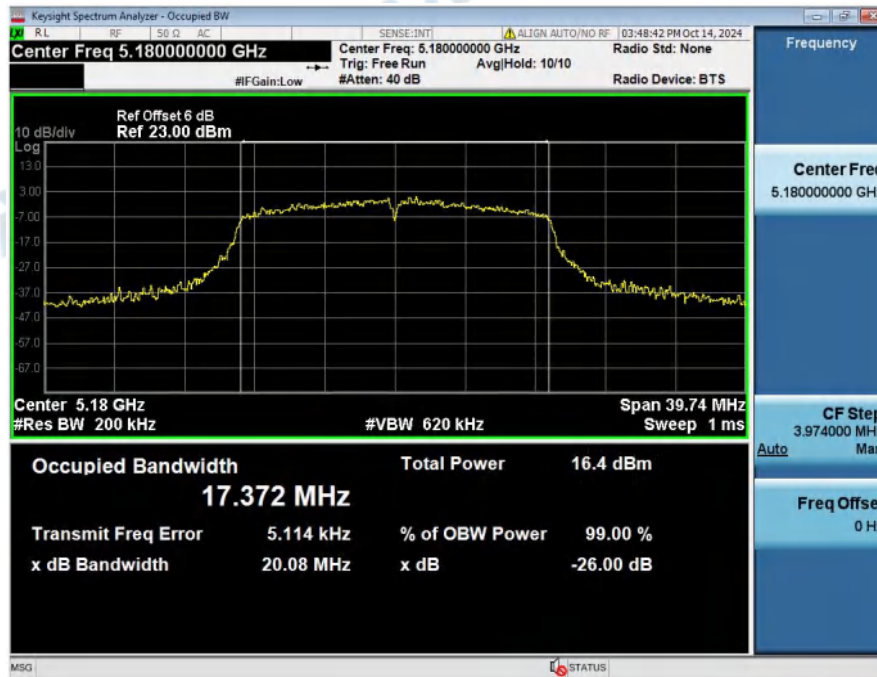
-26BW_NVNT_ANT1_802_11n(HT20)_5240



99%_OCB_NVNT_ANT1_802_11ac(VHT20)_5180



-26BW_NVNT_ANT1_802_11ac(VHT20)_5180



99%_OCB_NVNT_ANT1_802_11ac(VHT20)_5200



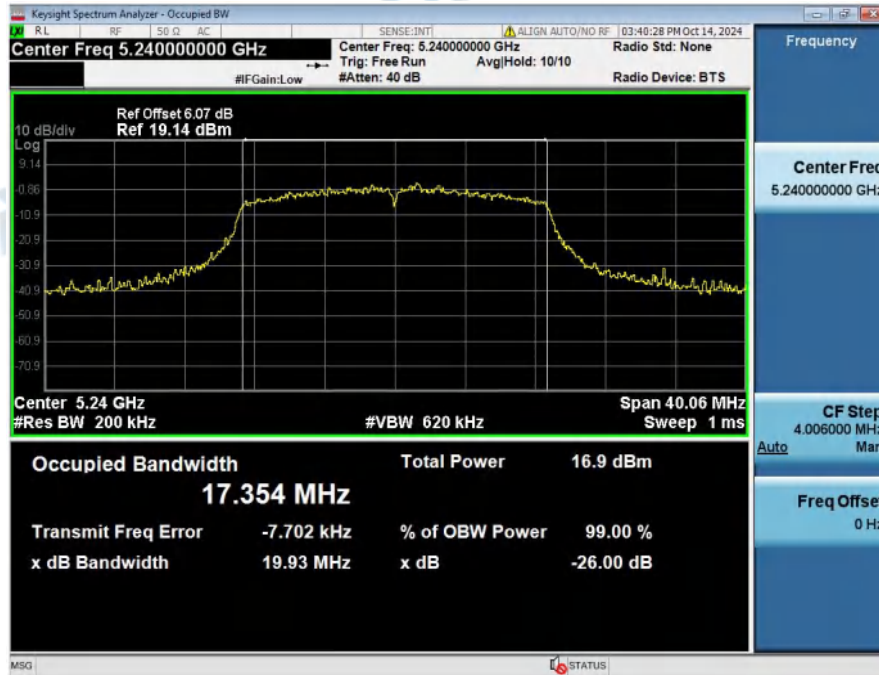
-26BW_NVNT_ANT1_802_11ac(VHT20)_5200



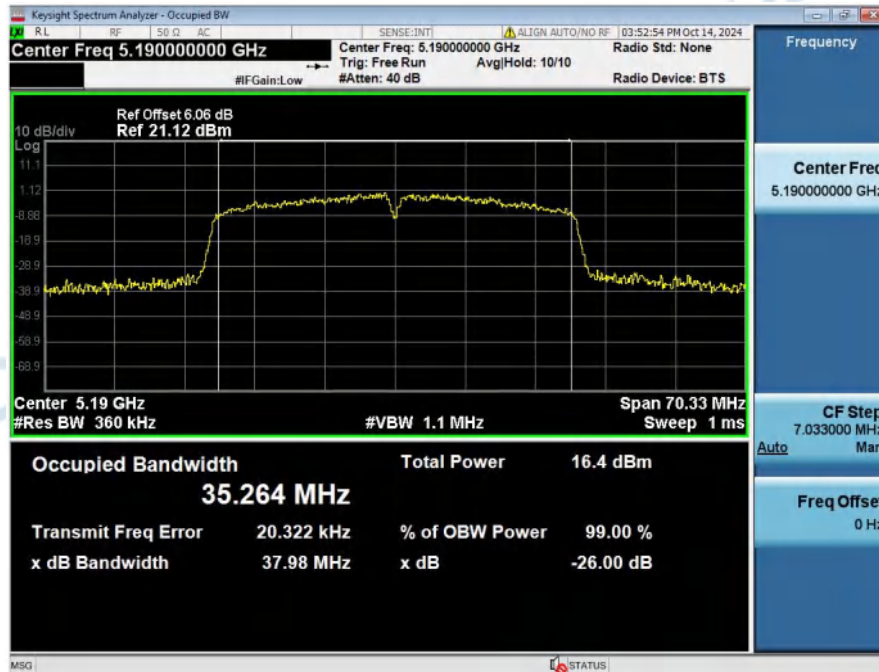
99%_OCB_NVNT_ANT1_802_11ac(VHT20)_5240



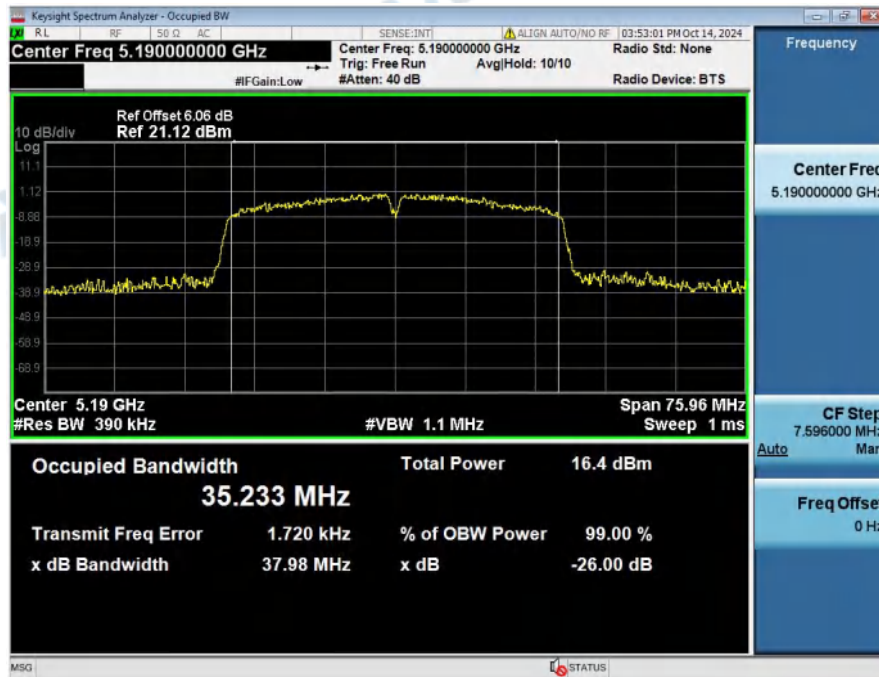
-26BW_NVNT_ANT1_802_11ac(VHT20)_5240



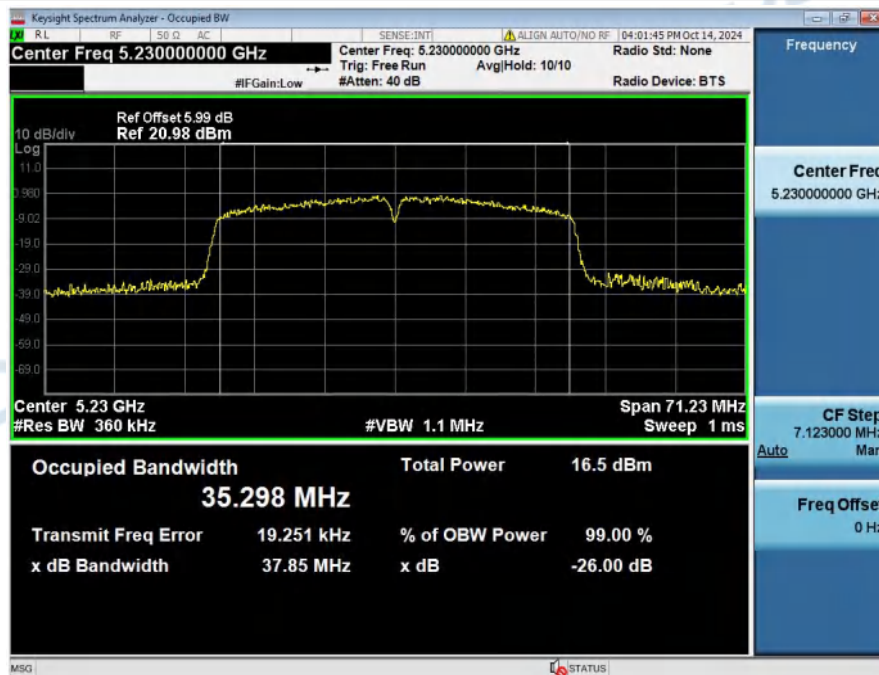
99%_OCB_NVNT_ANT1_802_11n(HT40)_5190



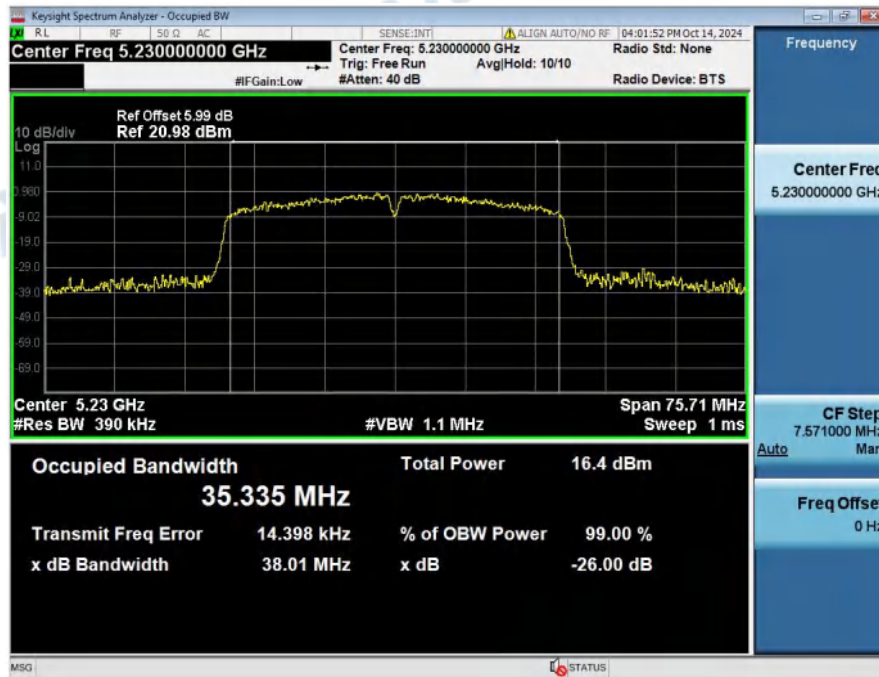
-26BW_NVNT_ANT1_802_11n(HT40)_5190



99%_OCB_NVNT_ANT1_802_11n(HT40)_5230



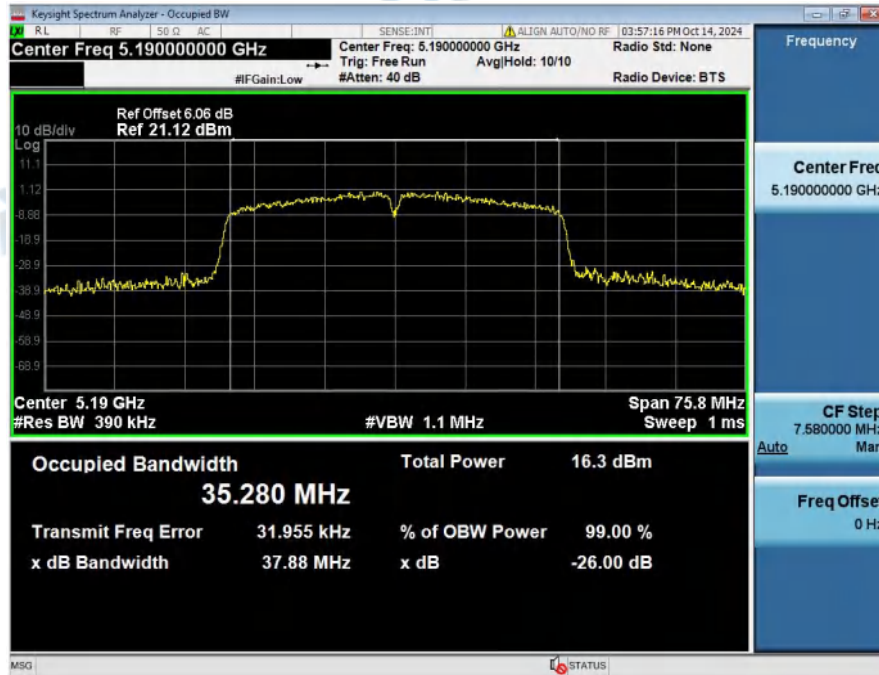
-26BW_NVNT_ANT1_802_11n(HT40)_5230



99%_OCB_NVNT_ANT1_802_11ac(VHT40)_5190



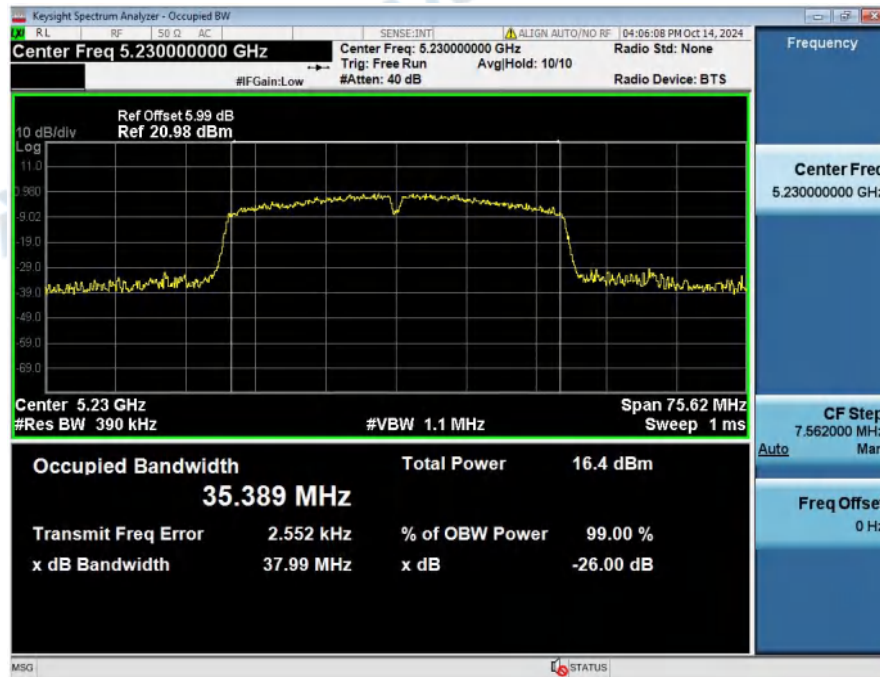
-26BW_NVNT_ANT1_802_11ac(VHT40)_5190



99%_OCB_NVNT_ANT1_802_11ac(VHT40)_5230



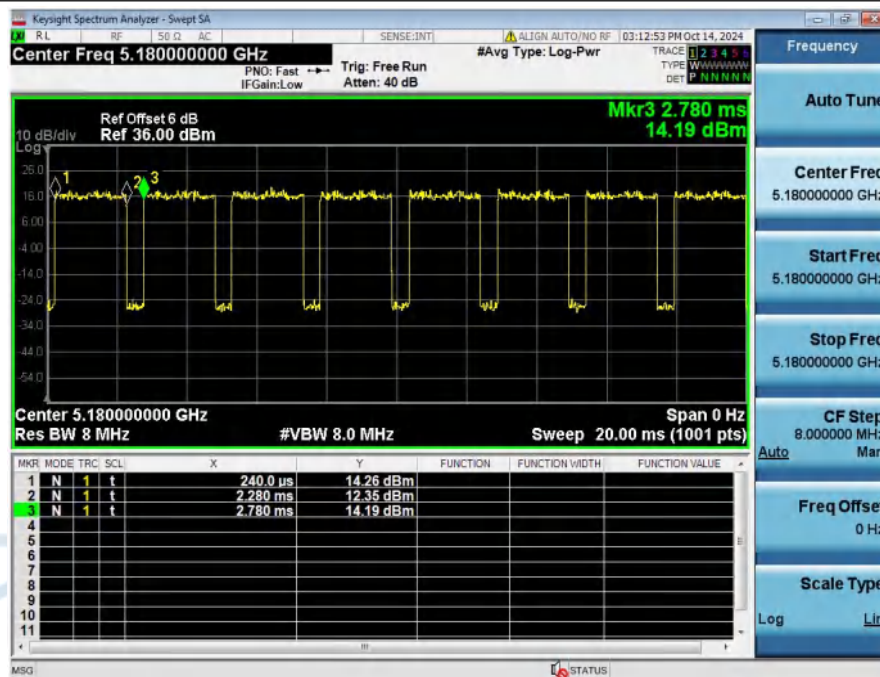
-26BW_NVNT_ANT1_802_11ac(VHT40)_5230



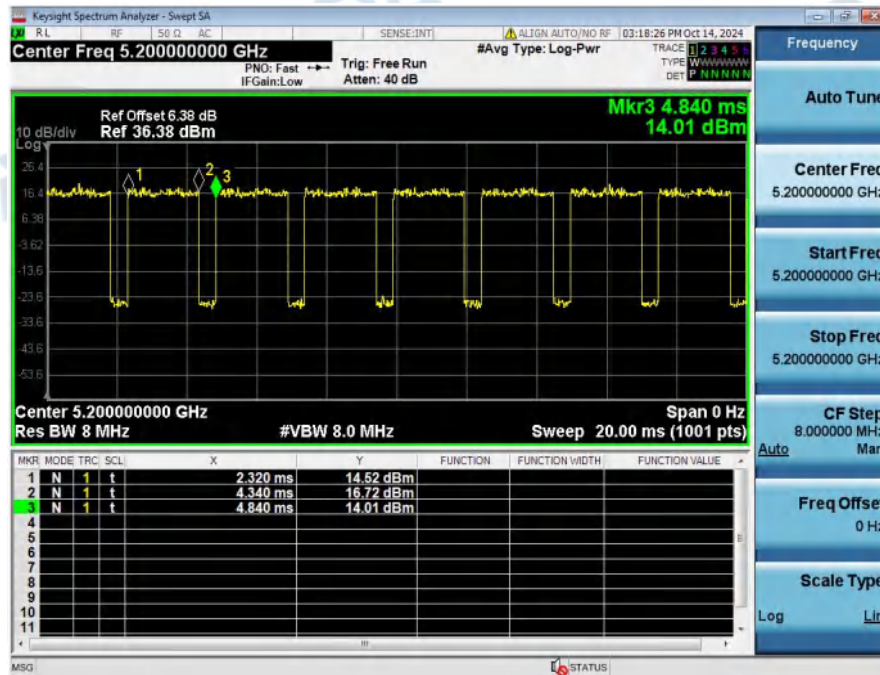
2. Duty Cycle

| Condition | Antenna | Modulation | Frequency (MHz) | Duty cycle(%) | Duty_factor |
|-----------|---------|-----------------|-----------------|---------------|-------------|
| NVNT | ANT1 | 802.11a | 5180.00 | 80.31 | 0.95 |
| NVNT | ANT1 | 802.11a | 5200.00 | 80.16 | 0.96 |
| NVNT | ANT1 | 802.11a | 5240.00 | 79.53 | 0.99 |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 78.99 | 1.02 |
| NVNT | ANT1 | 802.11n(HT20) | 5200.00 | 79.17 | 1.01 |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 79.17 | 1.01 |
| NVNT | ANT1 | 802.11ac(VHT20) | 5180.00 | 78.99 | 1.02 |
| NVNT | ANT1 | 802.11ac(VHT20) | 5200.00 | 78.33 | 1.06 |
| NVNT | ANT1 | 802.11ac(VHT20) | 5240.00 | 78.99 | 1.02 |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | 65.28 | 1.85 |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | 64.79 | 1.89 |
| NVNT | ANT1 | 802.11ac(VHT40) | 5190.00 | 65.28 | 1.85 |
| NVNT | ANT1 | 802.11ac(VHT40) | 5230.00 | 64.79 | 1.89 |

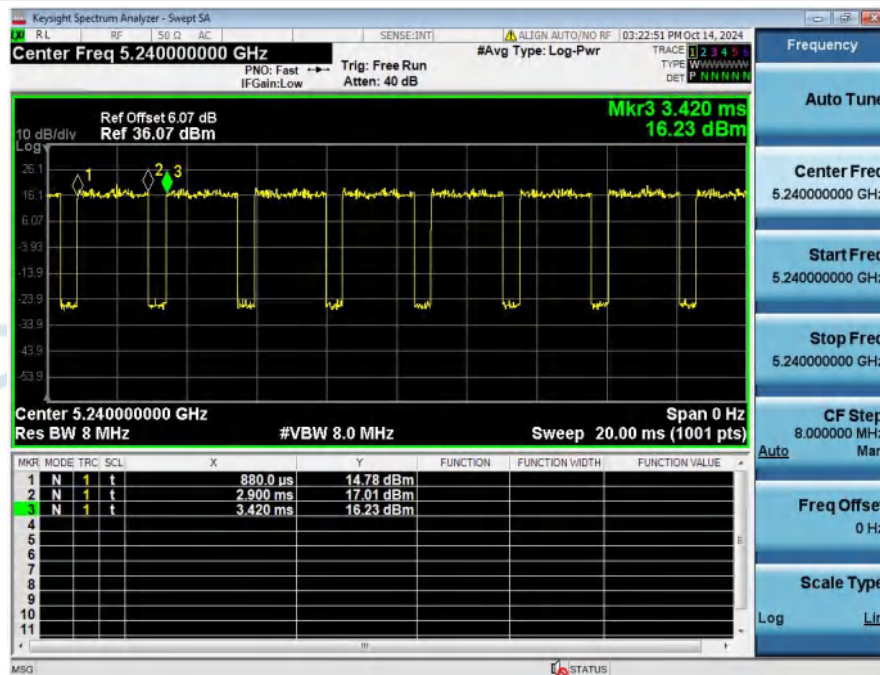
Duty_Cycle_NVNT_ANT1_802_11a_5180



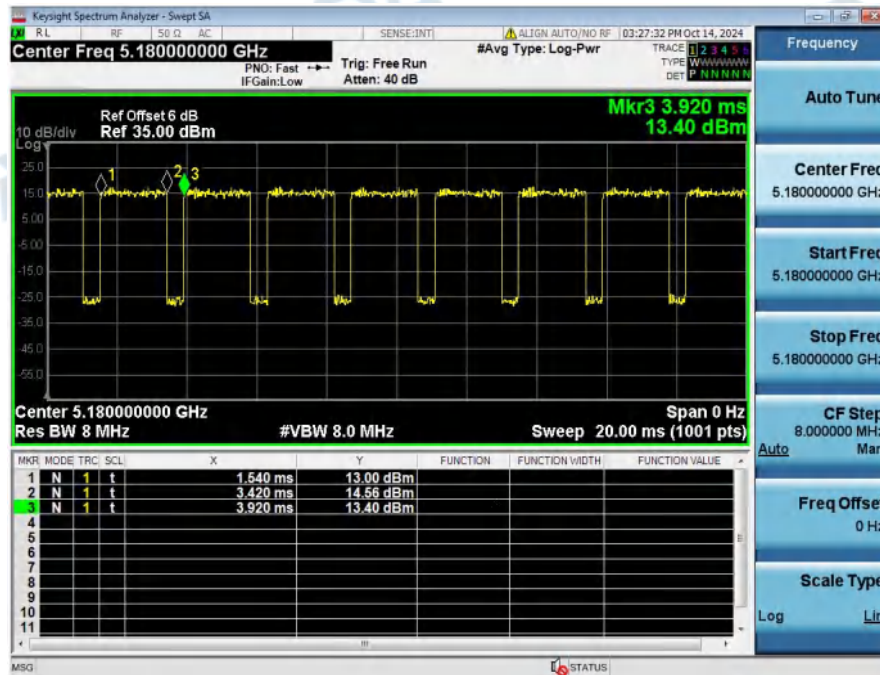
Duty_Cycle_NVNT_ANT1_802_11a_5200



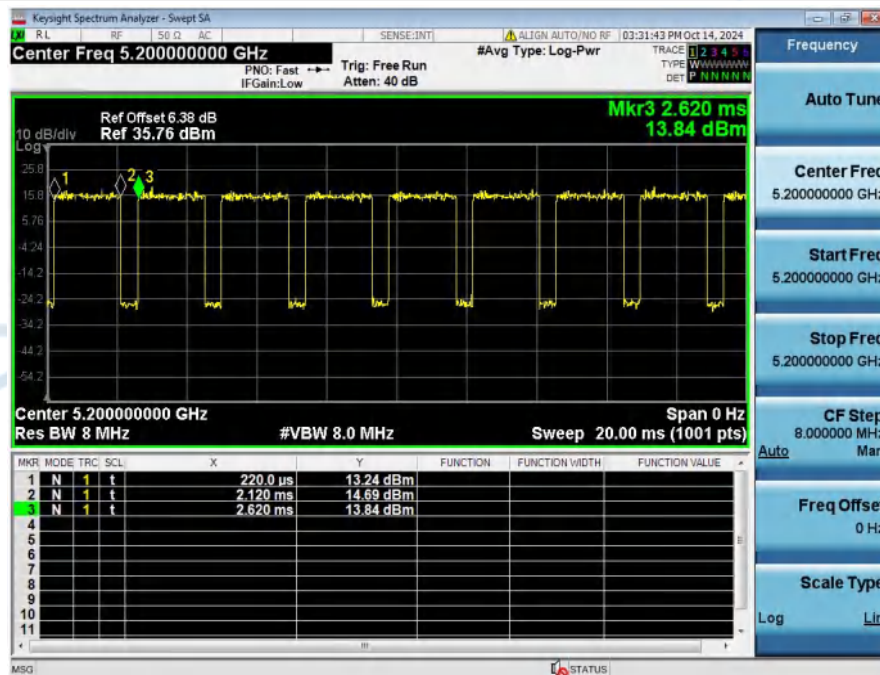
Duty_Cycle_NVNT_ANT1_802_11a_5240



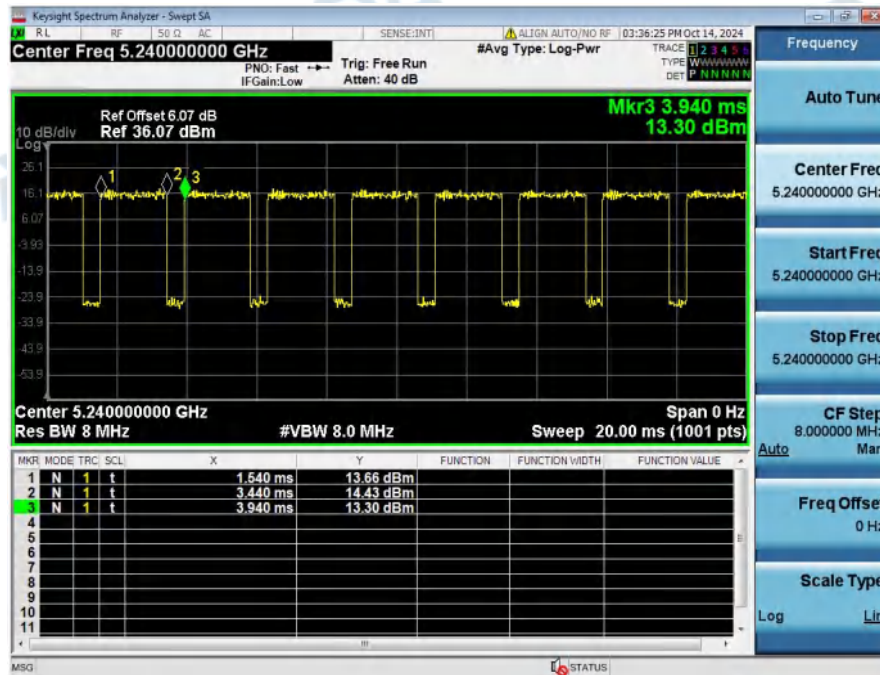
Duty_Cycle_NVNT_ANT1_802_11n(HT20)_5180



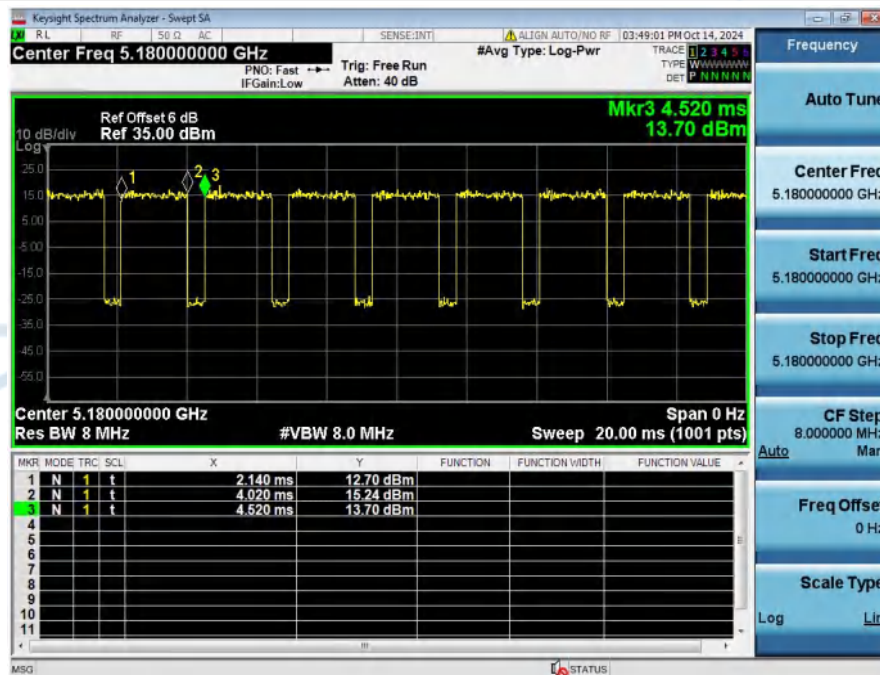
Duty_Cycle_NVNT_ANT1_802_11n(HT20)_5200



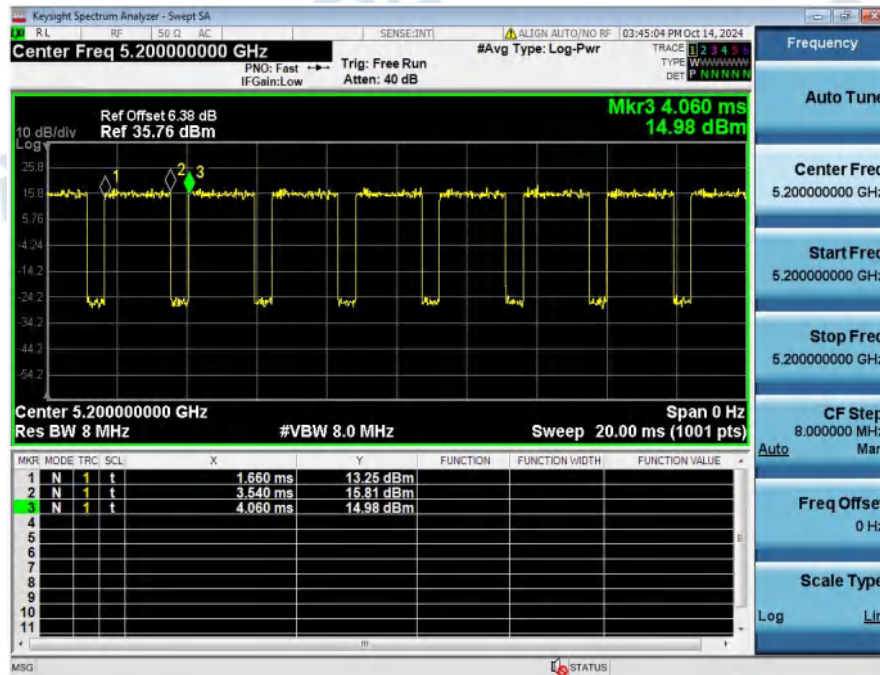
Duty_Cycle_NVNT_ANT1_802_11n(HT20)_5240



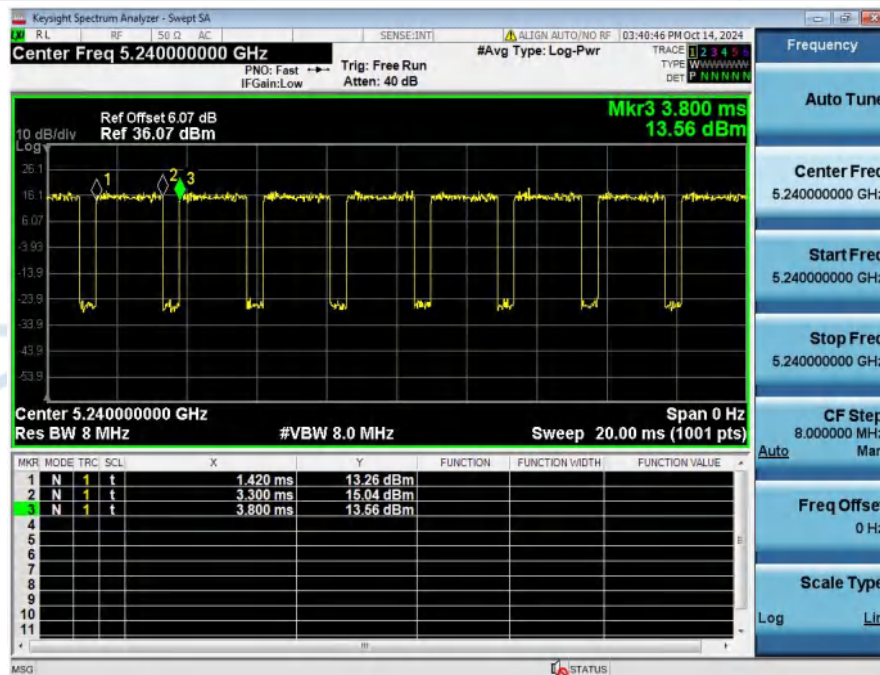
Duty_Cycle_NVNT_ANT1_802_11ac(VHT20)_5180



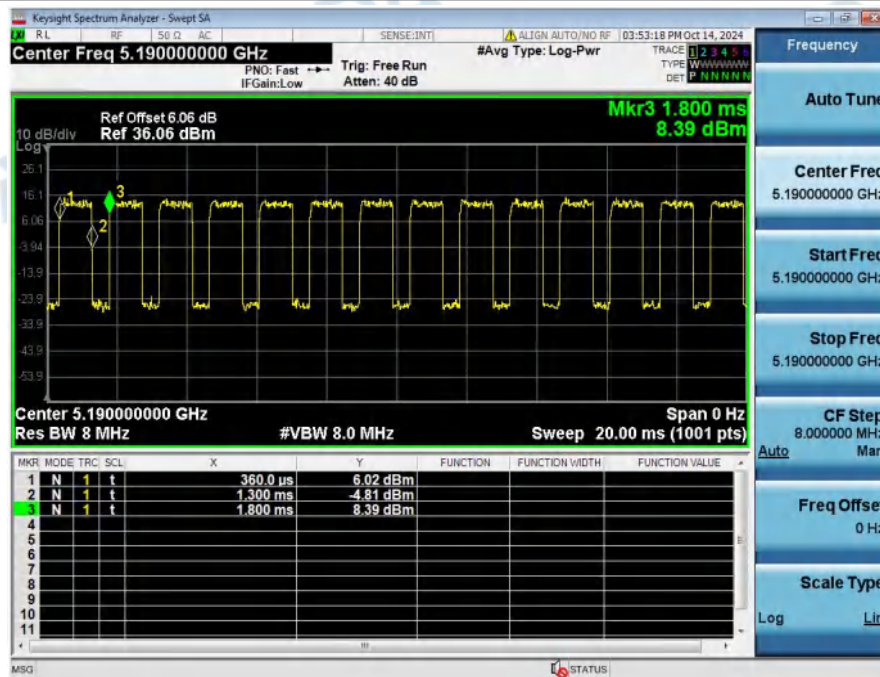
Duty_Cycle_NVNT_ANT1_802_11ac(VHT20)_5200



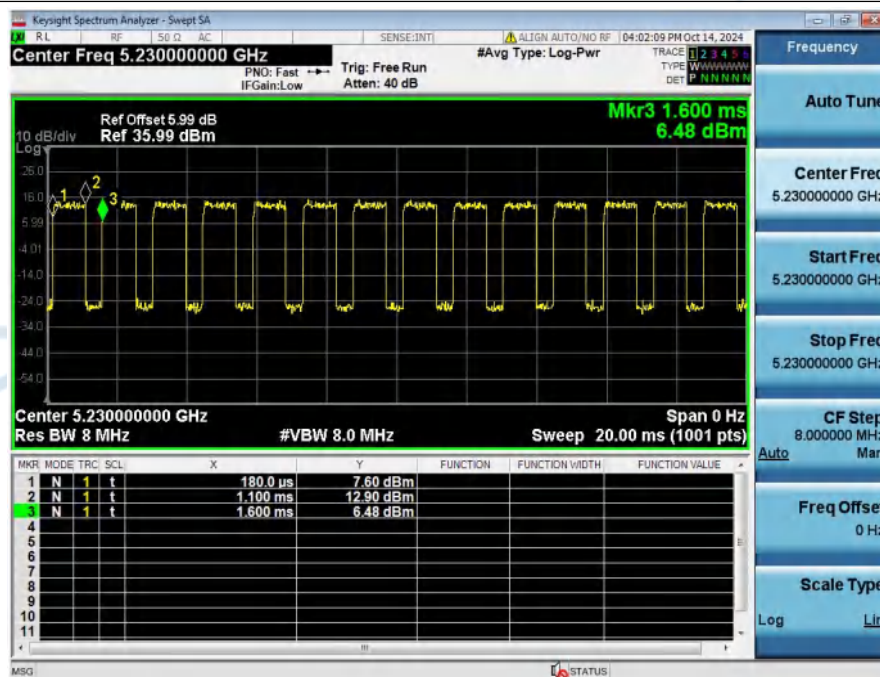
Duty_Cycle_NVNT_ANT1_802_11ac(VHT20)_5240



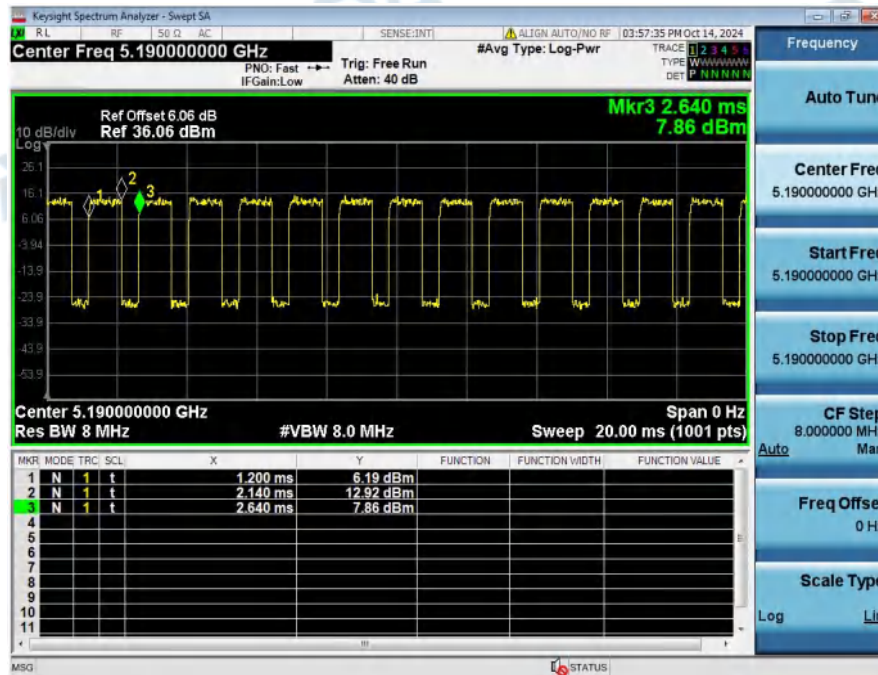
Duty_Cycle_NVNT_ANT1_802_11n(HT40)_5190



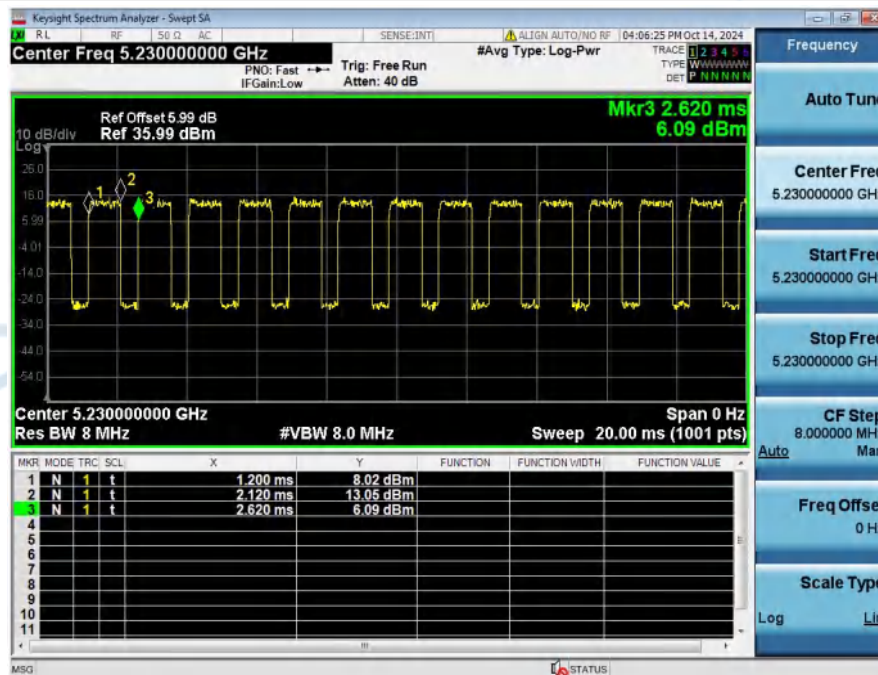
Duty_Cycle_NVNT_ANT1_802_11n(HT40)_5230



Duty_Cycle_NVNT_ANT1_802_11ac(VHT40)_5190



Duty_Cycle_NVNT_ANT1_802_11ac(VHT40)_5230



3. Maximum Conducted Output Power

| Condition | Antenna | Modulation | Frequency (MHz) | Conducted Power(dBm) | Duty factor(dB) | Total Power(dBm) | limit(dBm) | Result |
|-----------|---------|-----------------|-----------------|----------------------|-----------------|------------------|------------|--------|
| NVNT | ANT1 | 802.11a | 5180.00 | 10.28 | 0.95 | 11.23 | 24 | Pass |
| NVNT | ANT1 | 802.11a | 5200.00 | 10.65 | 0.96 | 11.61 | 24 | Pass |
| NVNT | ANT1 | 802.11a | 5240.00 | 10.46 | 0.99 | 11.45 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 9.20 | 1.02 | 10.22 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5200.00 | 9.32 | 1.01 | 10.33 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 9.36 | 1.01 | 10.37 | 24 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5180.00 | 8.99 | 1.02 | 10.01 | 24 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5200.00 | 9.48 | 1.06 | 10.54 | 24 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5240.00 | 9.31 | 1.02 | 10.33 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | 8.12 | 1.85 | 9.97 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | 8.27 | 1.89 | 10.16 | 24 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5190.00 | 8.24 | 1.85 | 10.09 | 24 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5230.00 | 8.34 | 1.89 | 10.23 | 24 | Pass |

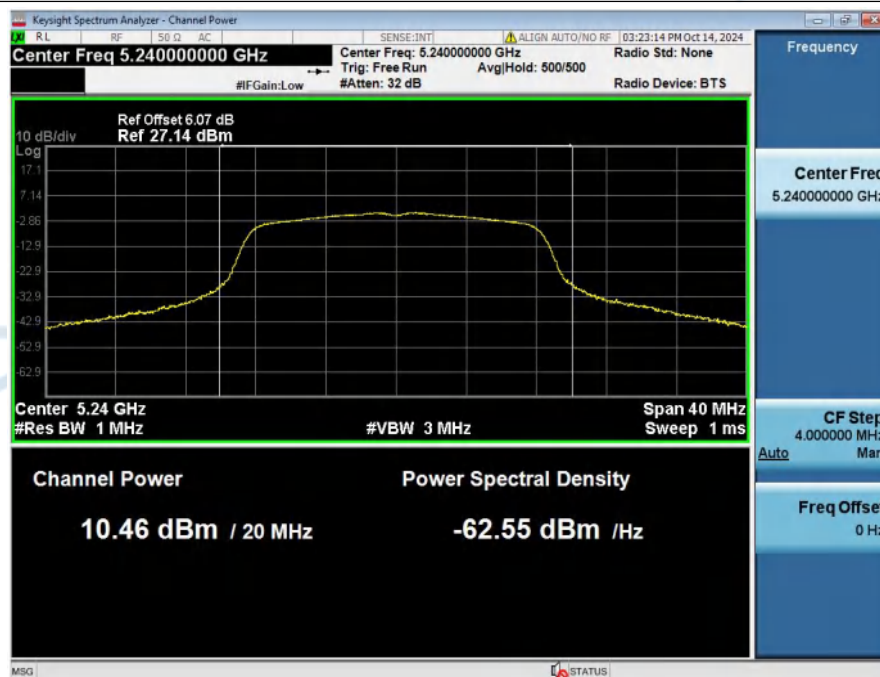
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11a_5180_20M



Maximum_Conducted_Output_Power_NVNT_ANT1_802_11a_5200_20M



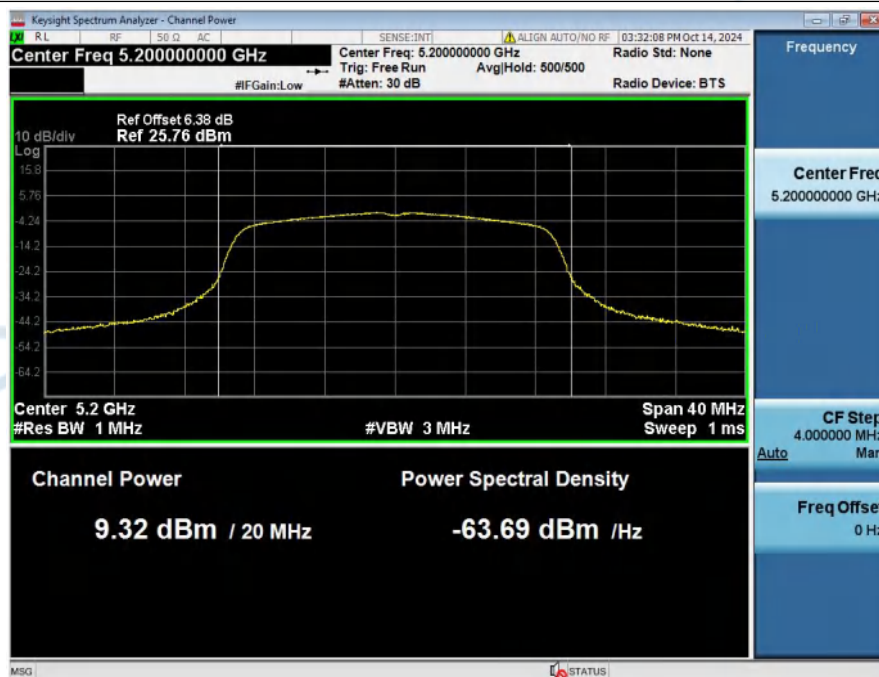
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11a_5240_20M



Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT20)_5180_20M



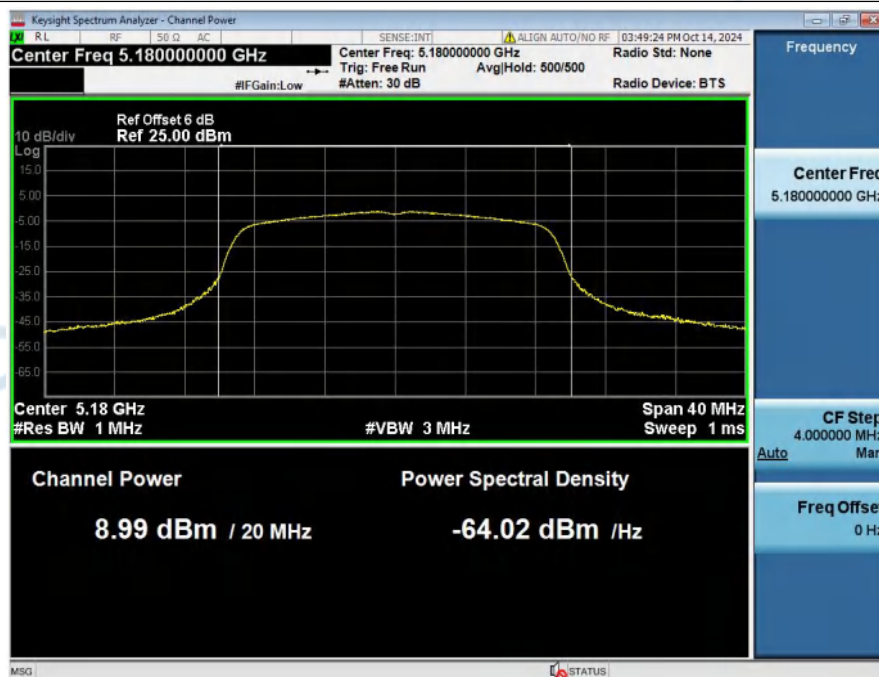
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT20)_5200_20M



Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT20)_5240_20M



Maximum_Conducted_Output_Power_NVNT_ANT1_802_11ac(VHT20)_5180_20M



Maximum_Conducted_Output_Power_NVNT_ANT1_802_11ac(VHT20)_5200_20M



Maximum_Conducted_Output_Power_NVNT_ANT1_802_11ac(VHT20)_5240_20M



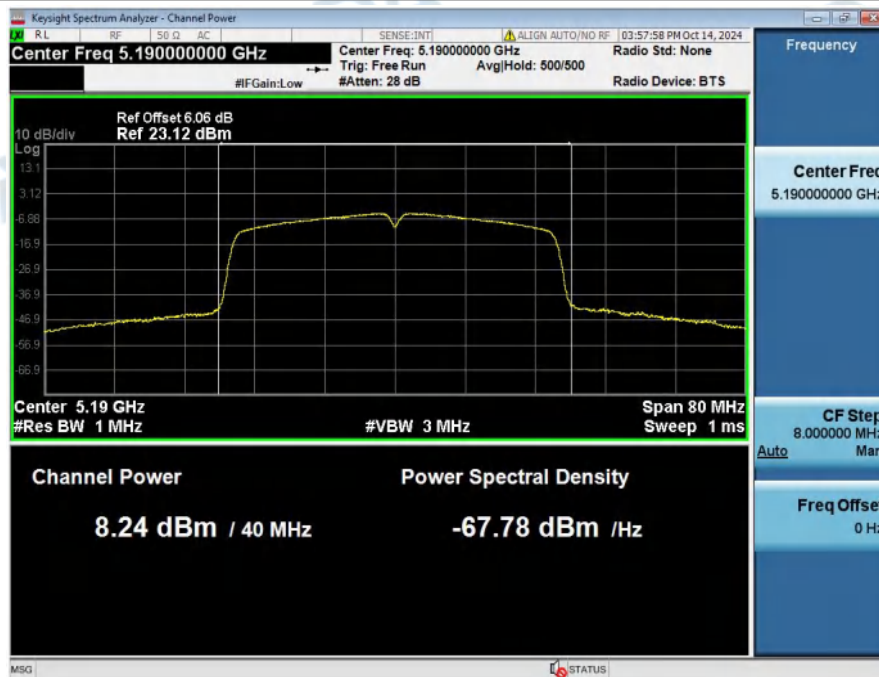
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT40)_5190_40M



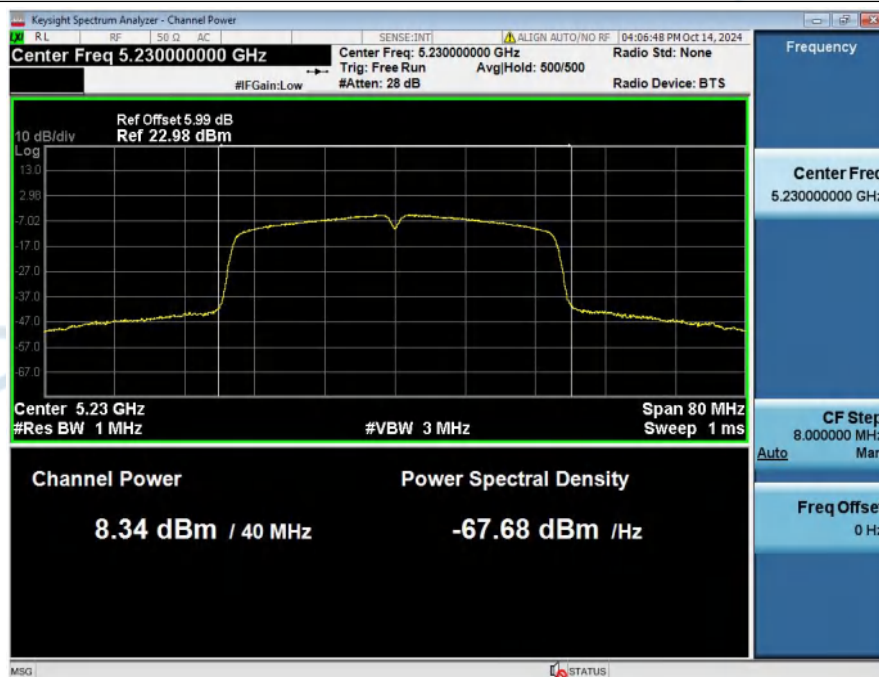
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT40)_5230_40M



Maximum_Conducted_Output_Power_NVNT_ANT1_802_11ac(VHT40)_5190_40M



Maximum_Conducted_Output_Power_NVNT_ANT1_802_11ac(VHT40)_5230_40M

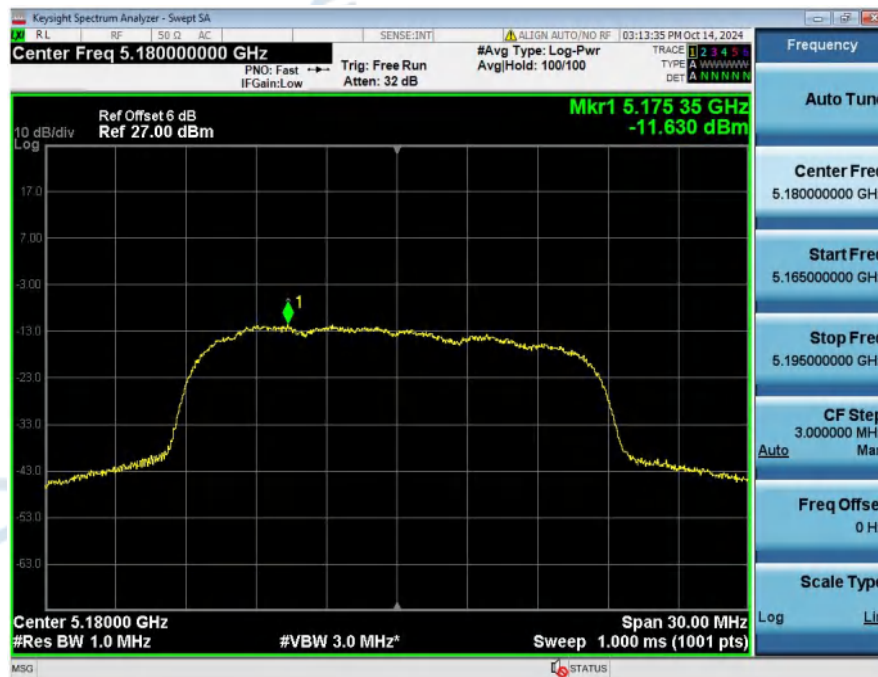


4. Power Spectral Density

| Condition | Antenna | Modulation | Frequency (MHz) | PSD(dBm/MHz) | Duty factor(dB) | Total PSD(dBm/MHz) | limit(dBm) | Result |
|-----------|---------|-----------------|-----------------|--------------|-----------------|--------------------|------------|--------|
| NVNT | ANT1 | 802.11a | 5180.00 | -11.63 | 0.95 | -10.68 | 11.00 | Pass |
| NVNT | ANT1 | 802.11a | 5200.00 | -11.05 | 0.96 | -10.09 | 11.00 | Pass |
| NVNT | ANT1 | 802.11a | 5240.00 | -9.97 | 0.99 | -8.98 | 11.00 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | -12.53 | 1.02 | -11.51 | 11.00 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5200.00 | -12.09 | 1.01 | -11.08 | 11.00 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | -11.24 | 1.01 | -10.23 | 11.00 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5180.00 | -13.11 | 1.02 | -12.09 | 11.00 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5200.00 | -12.33 | 1.06 | -11.27 | 11.00 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5240.00 | -10.51 | 1.02 | -9.49 | 11.00 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | -20.34 | 1.85 | -18.49 | 11.00 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | -20.38 | 1.89 | -18.49 | 11.00 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5190.00 | -22.64 | 1.85 | -20.79 | 11.00 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5230.00 | -23.72 | 1.89 | -21.83 | 11.00 | Pass |

Total PSD(dBm/MHz)=PSD(dBm/MHz)+Duty factor(dB)

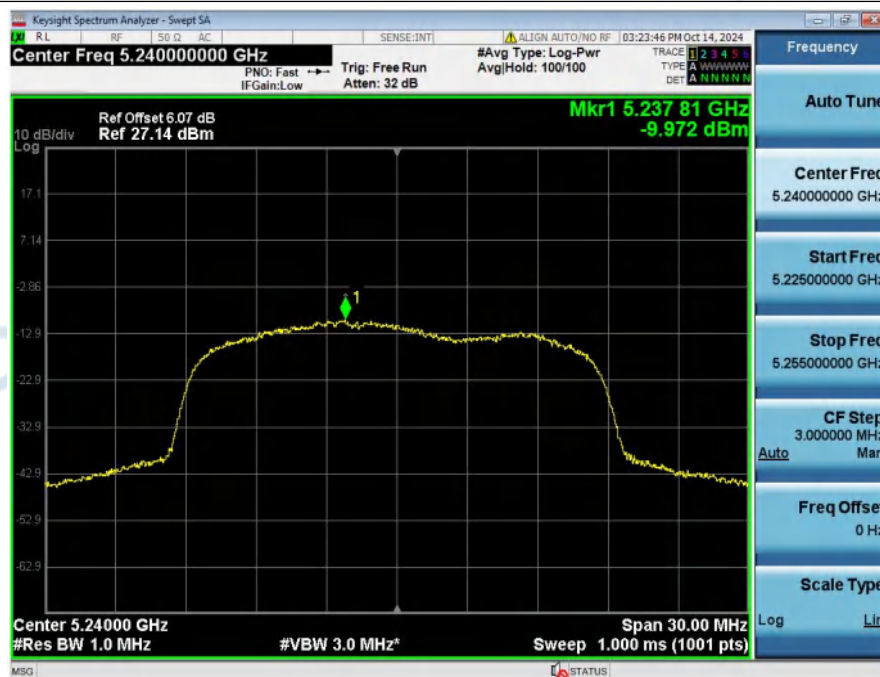
Power_Spectral_Density_NVNT_ANT1_802_11a_5180



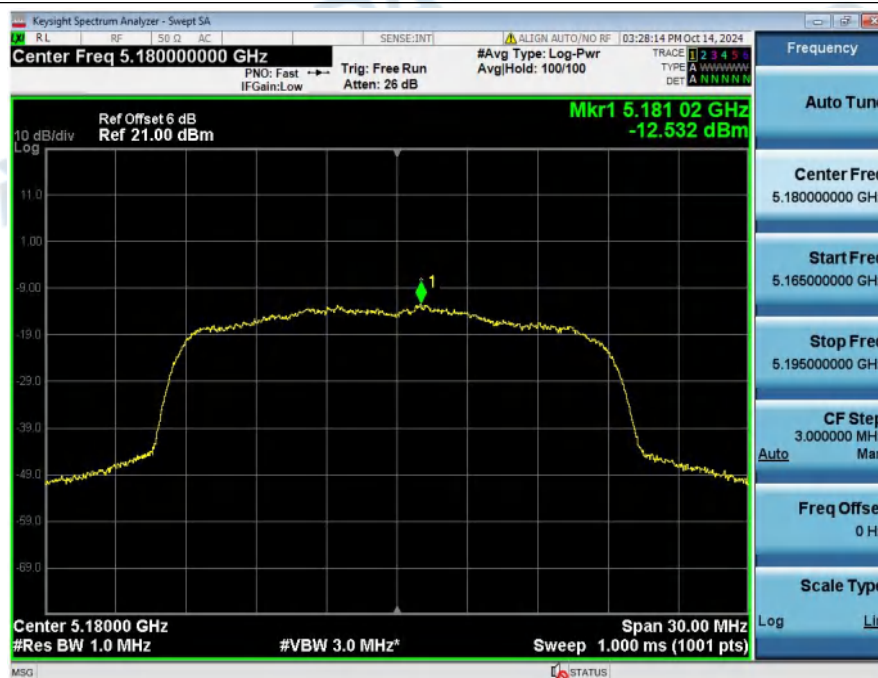
Power_Spectral_Density_NVNT_ANT1_802_11a_5200



Power_Spectral_Density_NVNT_ANT1_802_11a_5240



Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_5180



Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_5200



Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_5240



Power_Spectral_Density_NVNT_ANT1_802_11ac(VHT20)_5180



Power_Spectral_Density_NVNT_ANT1_802_11ac(VHT20)_5200



Power_Spectral_Density_NVNT_ANT1_802_11ac(VHT20)_5240



Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_5190



Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_5230



Power_Spectral_Density_NVNT_ANT1_802_11ac(VHT40)_5190



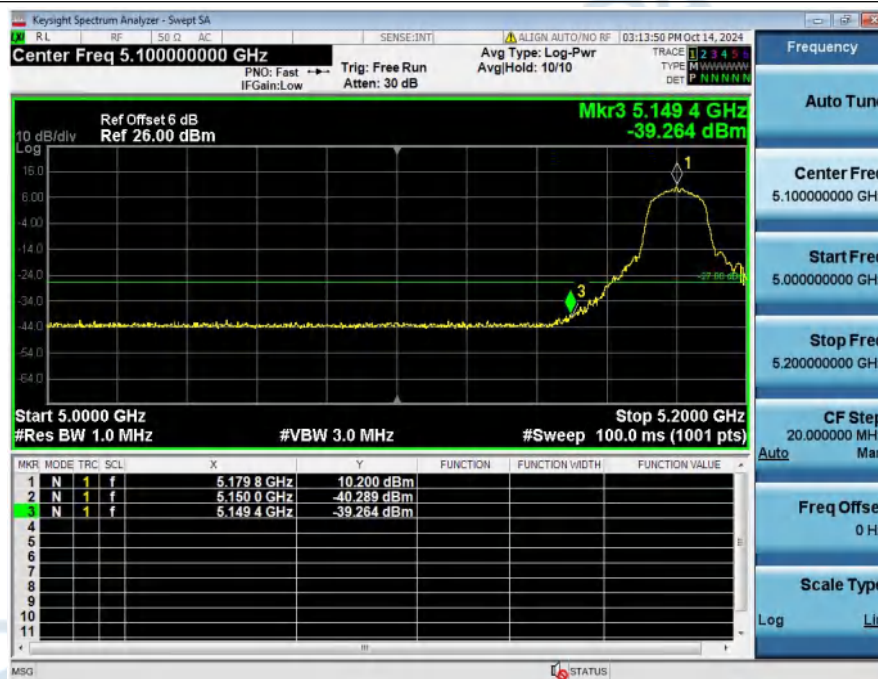
Power_Spectral_Density_NVNT_ANT1_802_11ac(VHT40)_5230



5. Bandedge

| Condition | Antenna | Modulation | TX_Frequency (MHz) | Max. Mark Frequency(MHz) | Spurious level(dBm) | limit(dBm) | Result |
|-----------|---------|-----------------|--------------------|--------------------------|---------------------|------------|--------|
| NVNT | ANT1 | 802.11a | 5180.00 | 5149.40 | -39.26 | -27 | Pass |
| NVNT | ANT1 | 802.11a | 5240.00 | 5351.40 | -40.80 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 5030.00 | -41.19 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 5391.40 | -39.98 | -27 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5180.00 | 5148.40 | -40.91 | -27 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5240.00 | 5358.80 | -40.88 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | 5149.94 | -36.59 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | 5358.68 | -40.42 | -27 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5190.00 | 5148.89 | -36.59 | -27 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5230.00 | 5406.98 | -40.49 | -27 | Pass |

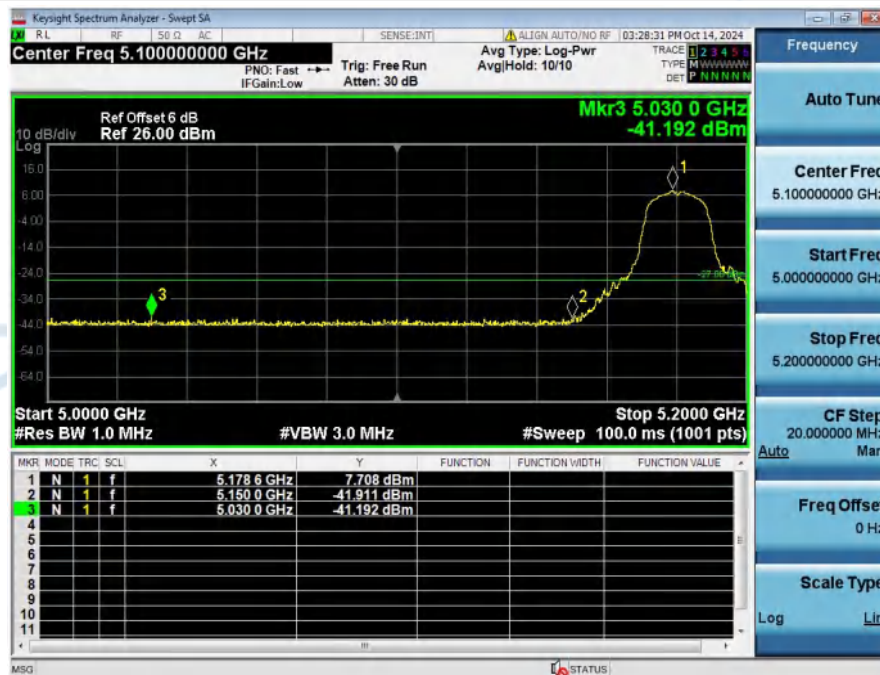
Bandedge_NVNT_ANT1_802_11a_5180



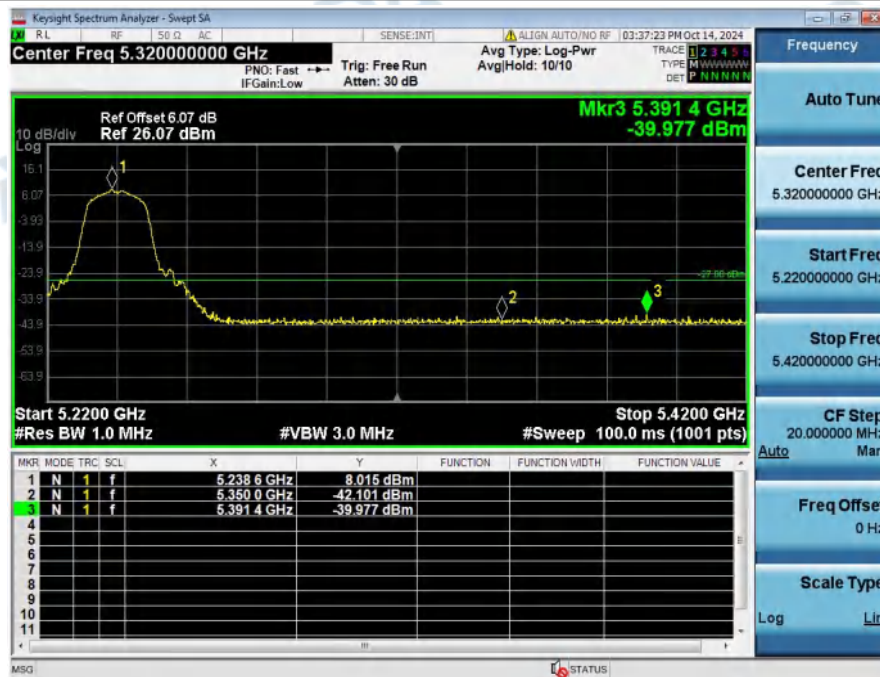
Bandedge_NVNT_ANT1_802_11a_5240



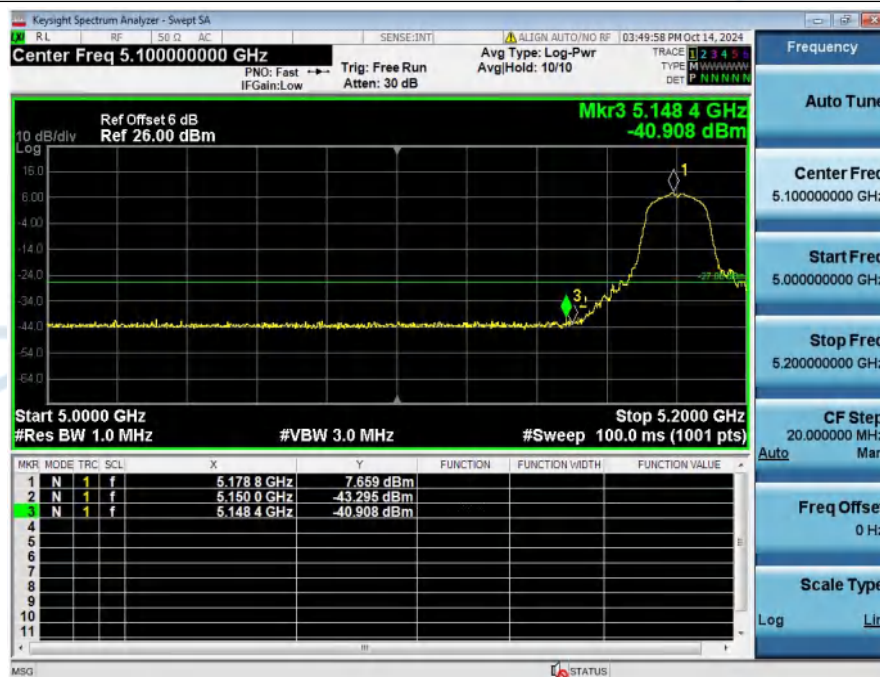
Bandedge_NVNT_ANT1_802_11n(HT20)_5180



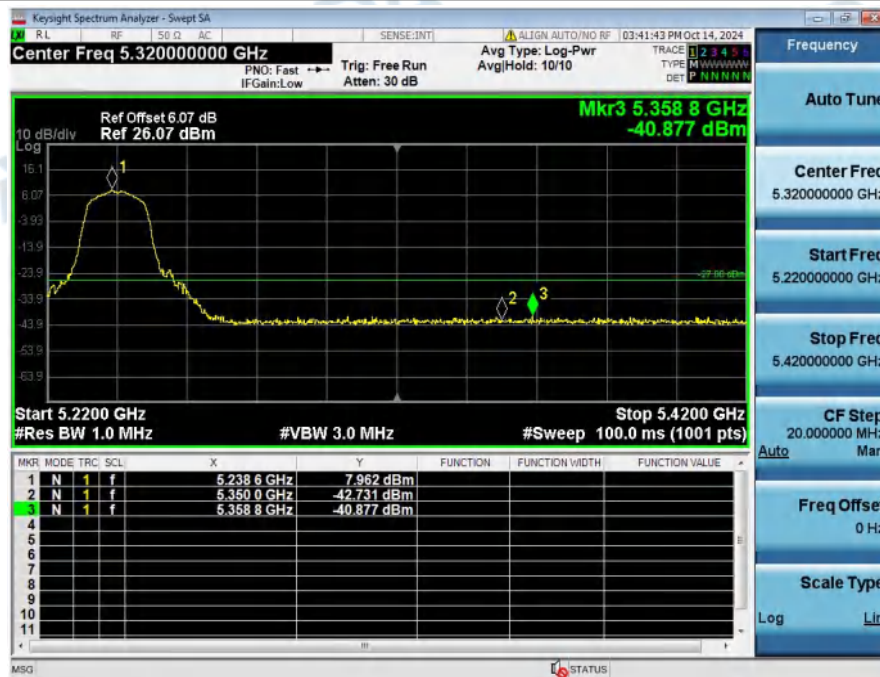
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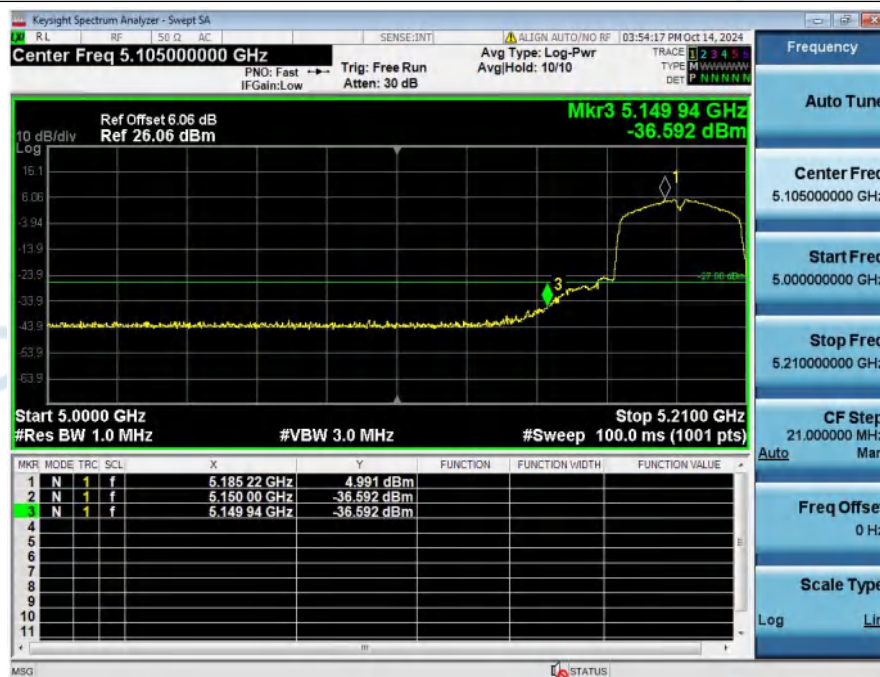
Bandedge_NVNT_ANT1_802_11ac(VHT20)_5180



Bandedge_NVNT_ANT1_802_11ac(VHT20)_5240



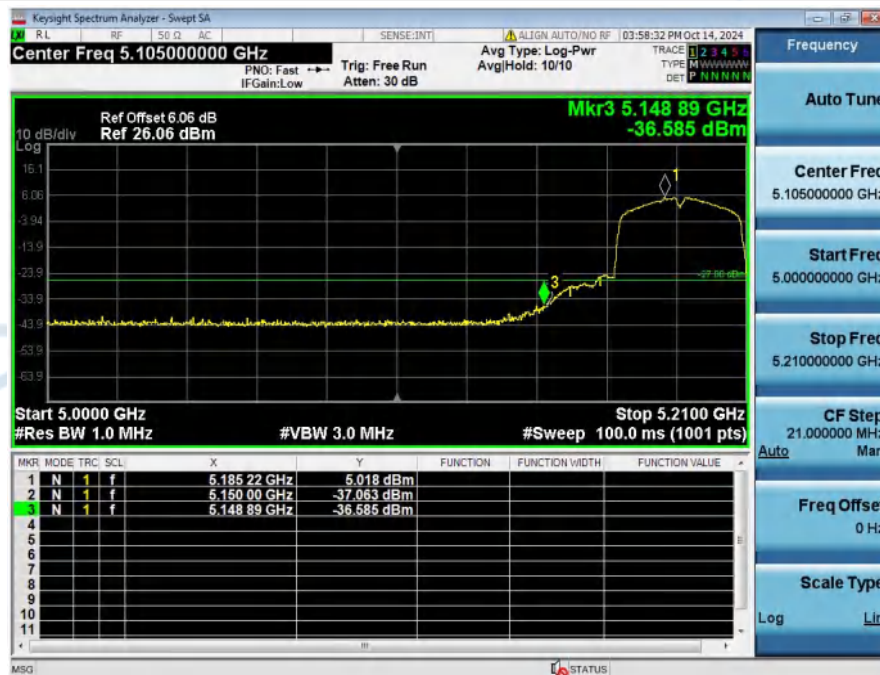
Bandedge_NVNT_ANT1_802_11n(HT40)_5190



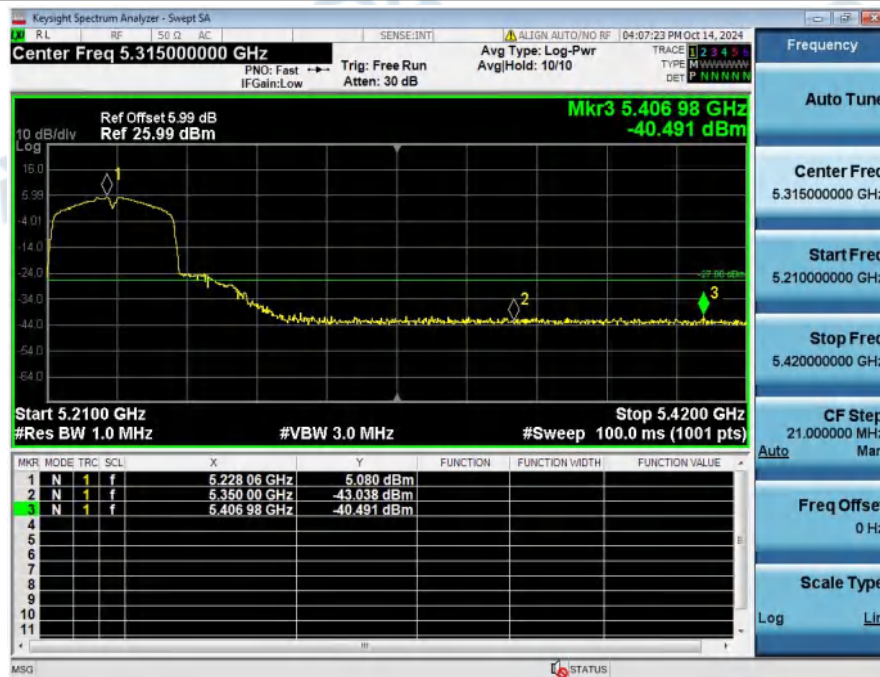
Bandedge_NVNT_ANT1_802_11n(HT40)_5230



Bandedge_NVNT_ANT1_802_11ac(VHT40)_5190



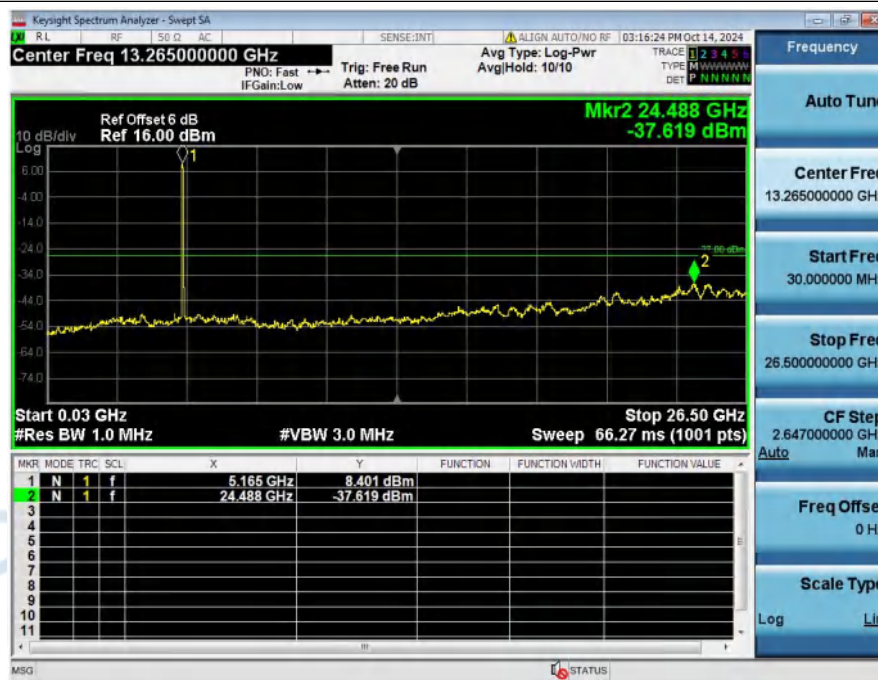
Bandedge_NVNT_ANT1_802_11ac(VHT40)_5230



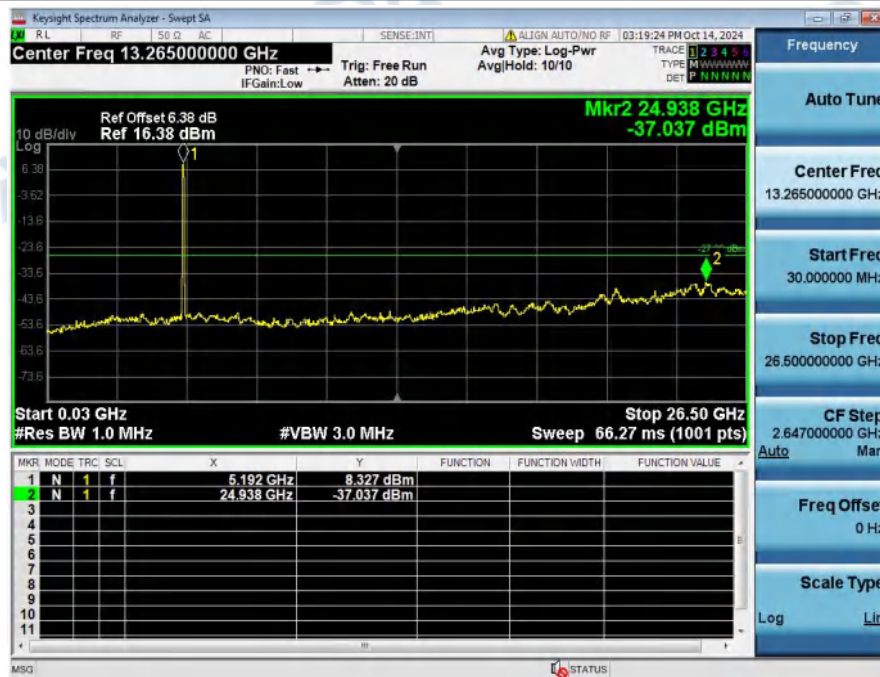
6. Spurious Emission

| Condition | Antenna | Modulation | TX_Frequency (MHz) | Max. Mark Frequency(MHz) | Spurious level(dBm) | limit(dBm) | Result |
|-----------|---------|-----------------|--------------------|--------------------------|---------------------|------------|--------|
| NVNT | ANT1 | 802.11a | 5180.00 | 24488.28 | -37.62 | -27 | Pass |
| NVNT | ANT1 | 802.11a | 5200.00 | 24938.27 | -37.04 | -27 | Pass |
| NVNT | ANT1 | 802.11a | 5240.00 | 25017.68 | -37.63 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 25070.62 | -38.20 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5200.00 | 24991.21 | -36.78 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 25017.68 | -37.39 | -27 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5180.00 | 25070.62 | -37.01 | -27 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5200.00 | 24461.81 | -36.81 | -27 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5240.00 | 25017.68 | -37.28 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | 24964.74 | -36.86 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | 24991.21 | -36.57 | -27 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5190.00 | 24488.28 | -36.77 | -27 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5230.00 | 24991.21 | -36.87 | -27 | Pass |

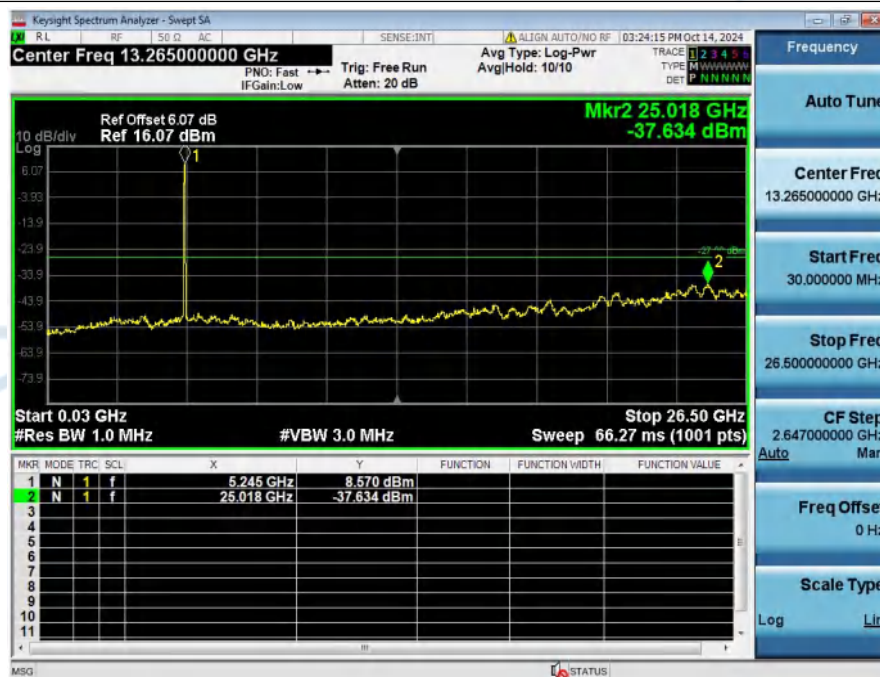
Spurious_Emission_NVNT_ANT1_802_11a_5180_20M



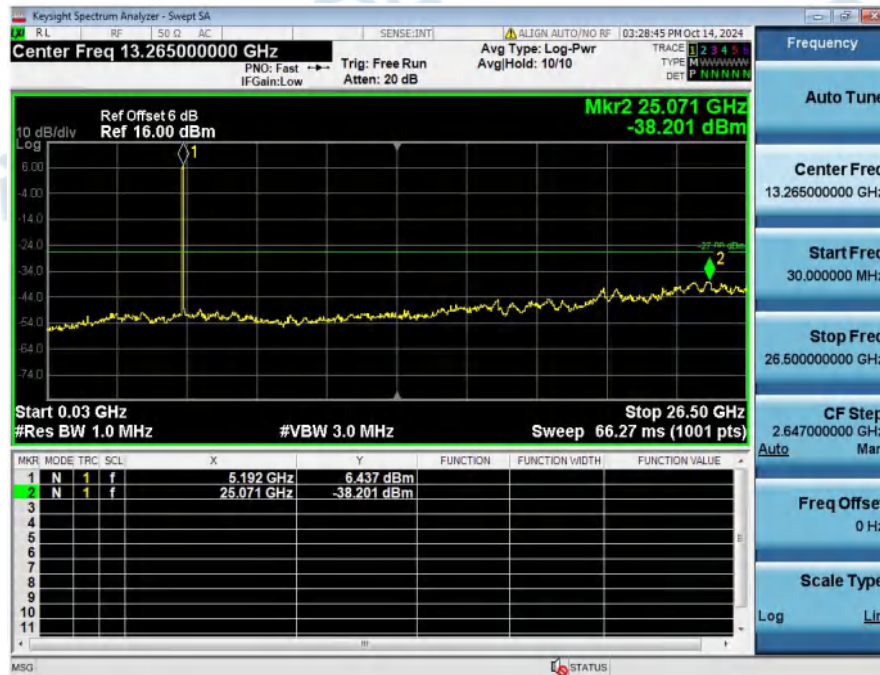
Spurious_Emission_NVNT_ANT1_802_11a_5200_20M



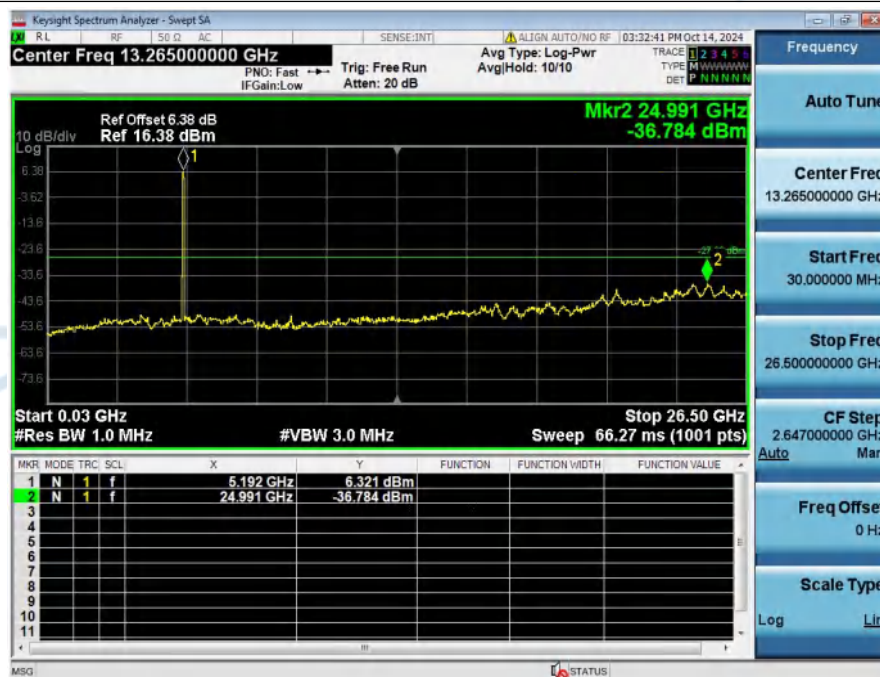
Spurious_Emission_NVNT_ANT1_802_11a_5240_20M



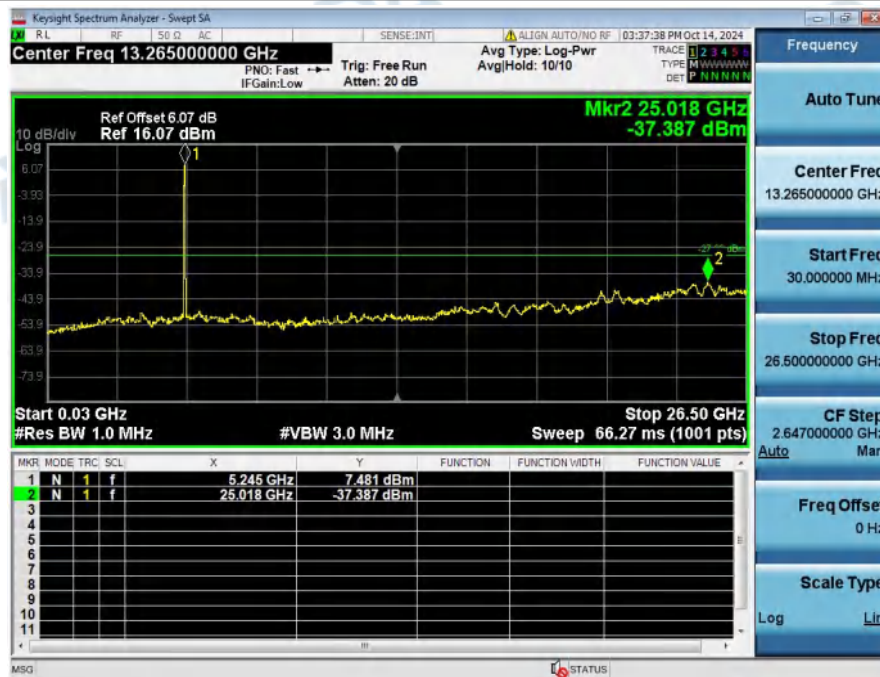
Spurious_Emission_NVNT_ANT1_802_11n(HT20)_5180_20M



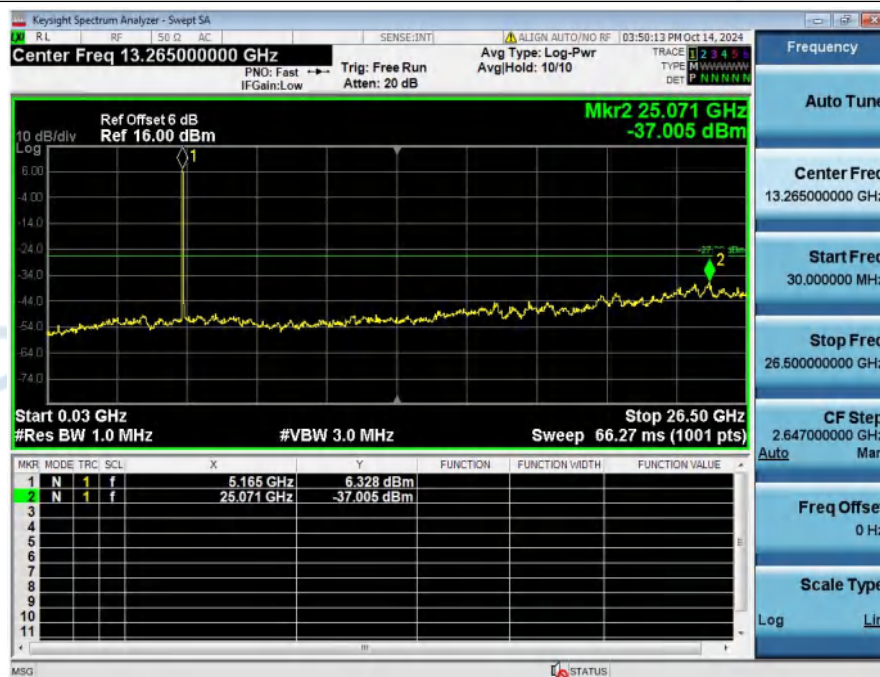
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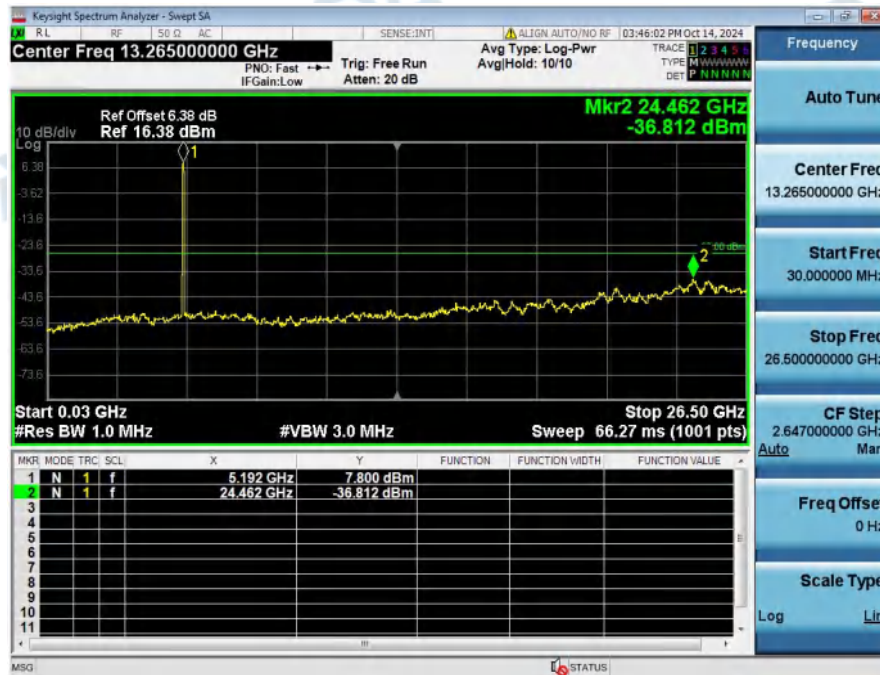
Spurious_Emission_NVNT_ANT1_802_11n(HT20)_5240_20M



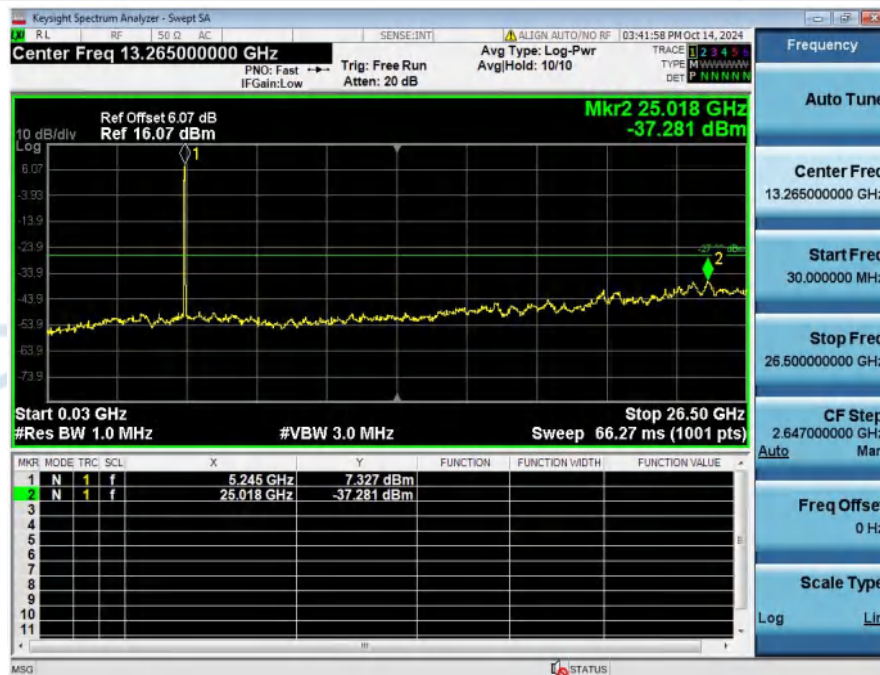
Spurious_Emission_NVNT_ANT1_802_11ac(VHT20)_5180_20M



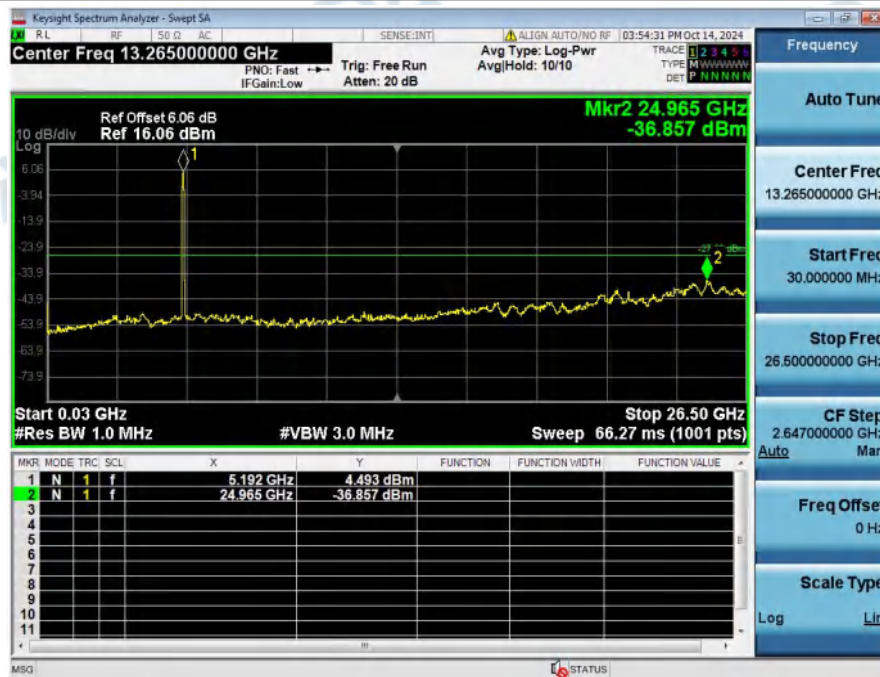
Spurious_Emission_NVNT_ANT1_802_11ac(VHT20)_5200_20M



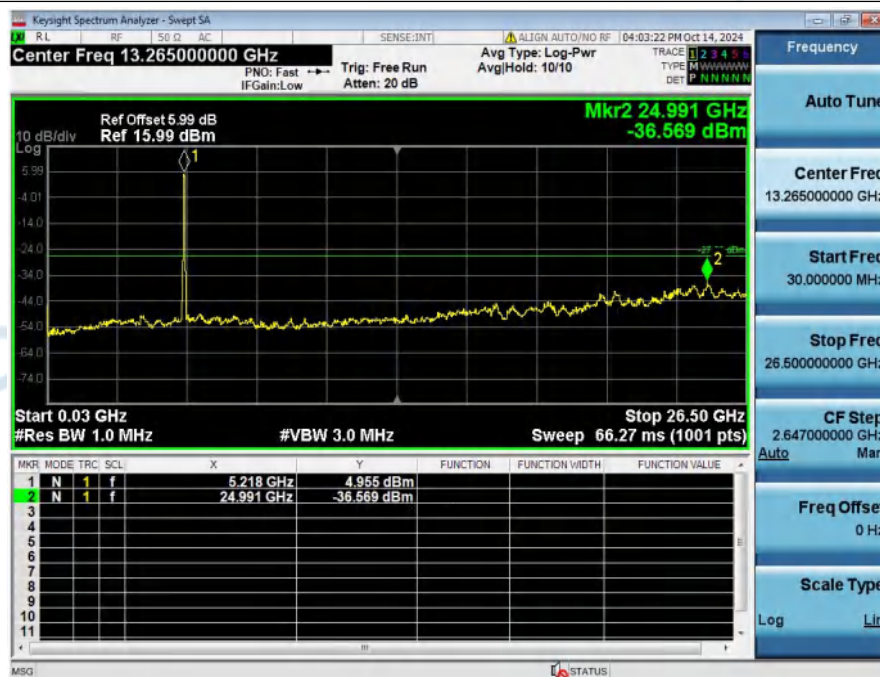
Spurious_Emission_NVNT_ANT1_802_11ac(VHT20)_5240_20M



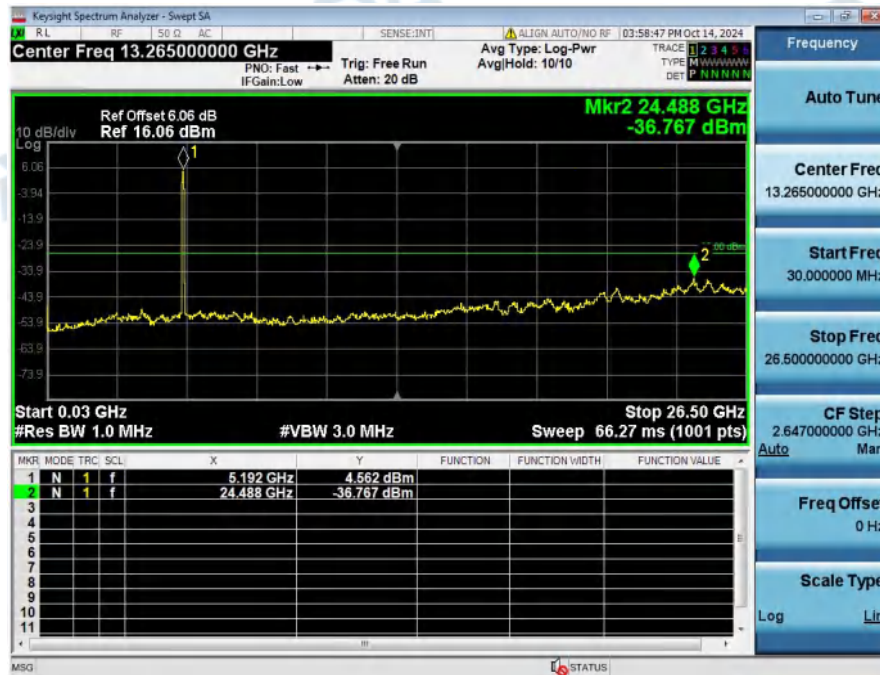
Spurious_Emission_NVNT_ANT1_802_11n(HT40)_5190_40M



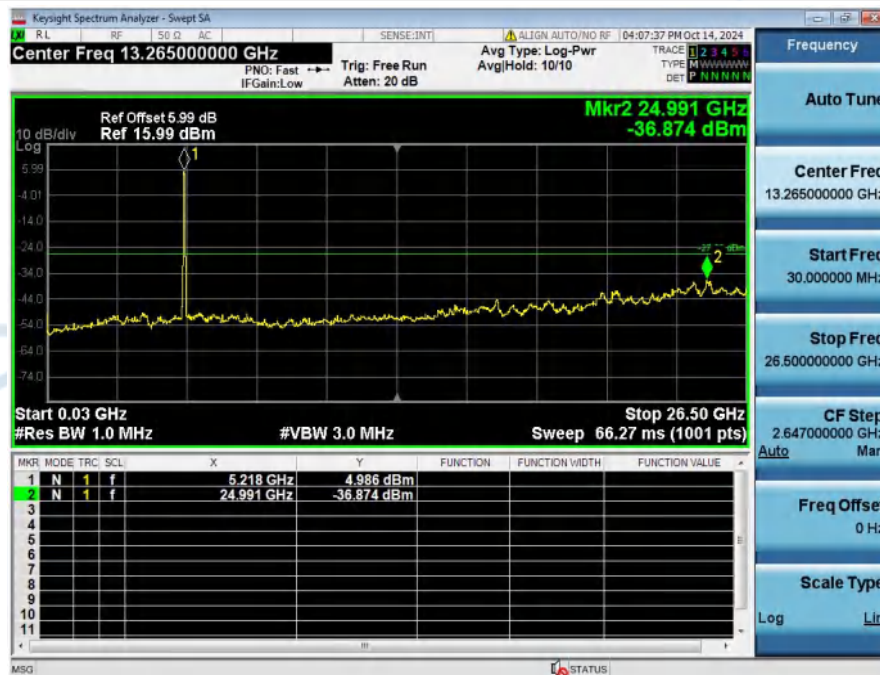
Spurious_Emission_NVNT_ANT1_802_11n(HT40)_5230_40M



Spurious_Emission_NVNT_ANT1_802_11ac(VHT40)_5190_40M



Spurious_Emission_NVNT_ANT1_802_11ac(VHT40)_5230_40M



7. Frequency Stability

| Condition | Antenna | Modulation | Frequency (MHz) | Fc(MHz) | Fi(MHz) | Fh(MHz) | Limit(MHz) | Result |
|-----------|---------|-----------------|-----------------|----------|----------|----------|------------|--------|
| HTNV | ANT1 | 802.11a | 5180.00 | 5180.020 | 5171.596 | 5188.444 | 5150~5250 | Pass |
| NTNV | ANT1 | 802.11a | 5180.00 | 5180.000 | 5172.060 | 5187.940 | 5150~5250 | Pass |
| LTNV | ANT1 | 802.11a | 5180.00 | 5180.002 | 5172.380 | 5187.624 | 5150~5250 | Pass |
| NTHV | ANT1 | 802.11a | 5180.00 | 5179.994 | 5172.456 | 5187.532 | 5150~5250 | Pass |
| NTLV | ANT1 | 802.11a | 5180.00 | 5179.996 | 5172.592 | 5187.400 | 5150~5250 | Pass |
| HTNV | ANT1 | 802.11a | 5200.00 | 5200.018 | 5191.584 | 5208.452 | 5150~5250 | Pass |
| NTNV | ANT1 | 802.11a | 5200.00 | 5200.000 | 5191.824 | 5208.176 | 5150~5250 | Pass |
| LTNV | ANT1 | 802.11a | 5200.00 | 5199.990 | 5191.948 | 5208.032 | 5150~5250 | Pass |
| NTHV | ANT1 | 802.11a | 5200.00 | 5199.990 | 5192.040 | 5207.940 | 5150~5250 | Pass |
| NTLV | ANT1 | 802.11a | 5200.00 | 5199.972 | 5192.132 | 5207.812 | 5150~5250 | Pass |
| HTNV | ANT1 | 802.11a | 5240.00 | 5240.024 | 5231.600 | 5248.448 | 5150~5250 | Pass |
| NTNV | ANT1 | 802.11a | 5240.00 | 5239.996 | 5231.828 | 5248.164 | 5150~5250 | Pass |
| LTNV | ANT1 | 802.11a | 5240.00 | 5239.998 | 5231.948 | 5248.048 | 5150~5250 | Pass |
| NTHV | ANT1 | 802.11a | 5240.00 | 5239.996 | 5232.044 | 5247.948 | 5150~5250 | Pass |
| NTLV | ANT1 | 802.11a | 5240.00 | 5239.976 | 5232.128 | 5247.824 | 5150~5250 | Pass |
| HTNV | ANT1 | 802.11n(HT20) | 5180.00 | 5179.980 | 5171.040 | 5188.920 | 5150~5250 | Pass |
| NTNV | ANT1 | 802.11n(HT20) | 5180.00 | 5179.976 | 5171.264 | 5188.688 | 5150~5250 | Pass |
| LTNV | ANT1 | 802.11n(HT20) | 5180.00 | 5179.992 | 5171.396 | 5188.588 | 5150~5250 | Pass |
| NTHV | ANT1 | 802.11n(HT20) | 5180.00 | 5179.986 | 5171.500 | 5188.472 | 5150~5250 | Pass |
| NTLV | ANT1 | 802.11n(HT20) | 5180.00 | 5179.998 | 5171.604 | 5188.392 | 5150~5250 | Pass |
| HTNV | ANT1 | 802.11n(HT20) | 5200.00 | 5199.964 | 5191.028 | 5208.900 | 5150~5250 | Pass |
| NTNV | ANT1 | 802.11n(HT20) | 5200.00 | 5199.986 | 5191.252 | 5208.720 | 5150~5250 | Pass |
| LTNV | ANT1 | 802.11n(HT20) | 5200.00 | 5199.976 | 5191.384 | 5208.568 | 5150~5250 | Pass |
| NTHV | ANT1 | 802.11n(HT20) | 5200.00 | 5199.988 | 5191.504 | 5208.472 | 5150~5250 | Pass |
| NTLV | ANT1 | 802.11n(HT20) | 5200.00 | 5200.000 | 5191.612 | 5208.388 | 5150~5250 | Pass |
| HTNV | ANT1 | 802.11n(HT20) | 5240.00 | 5239.992 | 5231.060 | 5248.924 | 5150~5250 | Pass |
| NTNV | ANT1 | 802.11n(HT20) | 5240.00 | 5239.986 | 5231.280 | 5248.692 | 5150~5250 | Pass |
| LTNV | ANT1 | 802.11n(HT20) | 5240.00 | 5239.984 | 5231.404 | 5248.564 | 5150~5250 | Pass |
| NTHV | ANT1 | 802.11n(HT20) | 5240.00 | 5239.980 | 5231.512 | 5248.448 | 5150~5250 | Pass |
| NTLV | ANT1 | 802.11n(HT20) | 5240.00 | 5239.990 | 5231.616 | 5248.364 | 5150~5250 | Pass |
| HTNV | ANT1 | 802.11ac(VHT20) | 5180.00 | 5180.000 | 5171.060 | 5188.940 | 5150~5250 | Pass |
| NTNV | ANT1 | 802.11ac(VHT20) | 5180.00 | 5180.000 | 5171.292 | 5188.708 | 5150~5250 | Pass |
| LTNV | ANT1 | 802.11ac(VHT20) | 5180.00 | 5179.996 | 5171.424 | 5188.568 | 5150~5250 | Pass |
| NTHV | ANT1 | 802.11ac(VHT20) | 5180.00 | 5180.010 | 5171.540 | 5188.480 | 5150~5250 | Pass |
| NTLV | ANT1 | 802.11ac(VHT20) | 5180.00 | 5180.026 | 5171.660 | 5188.392 | 5150~5250 | Pass |
| HTNV | ANT1 | 802.11ac(VHT20) | 5200.00 | 5199.992 | 5191.052 | 5208.932 | 5150~5250 | Pass |
| NTNV | ANT1 | 802.11ac(VHT20) | 5200.00 | 5199.988 | 5191.280 | 5208.696 | 5150~5250 | Pass |
| LTNV | ANT1 | 802.11ac(VHT20) | 5200.00 | 5199.998 | 5191.408 | 5208.588 | 5150~5250 | Pass |
| NTHV | ANT1 | 802.11ac(VHT20) | 5200.00 | 5199.990 | 5191.528 | 5208.452 | 5150~5250 | Pass |
| NTLV | ANT1 | 802.11ac(VHT20) | 5200.00 | 5200.004 | 5191.636 | 5208.372 | 5150~5250 | Pass |
| HTNV | ANT1 | 802.11ac(VHT20) | 5240.00 | 5239.986 | 5231.032 | 5248.940 | 5150~5250 | Pass |
| NTNV | ANT1 | 802.11ac(VHT20) | 5240.00 | 5239.980 | 5231.260 | 5248.700 | 5150~5250 | Pass |
| LTNV | ANT1 | 802.11ac(VHT20) | 5240.00 | 5239.990 | 5231.408 | 5248.572 | 5150~5250 | Pass |
| NTHV | ANT1 | 802.11ac(VHT20) | 5240.00 | 5239.980 | 5231.508 | 5248.452 | 5150~5250 | Pass |
| NTLV | ANT1 | 802.11ac(VHT20) | 5240.00 | 5240.000 | 5231.628 | 5248.372 | 5150~5250 | Pass |
| HTNV | ANT1 | 802.11n(HT40) | 5190.00 | 5189.988 | 5172.032 | 5207.944 | 5150~5250 | Pass |
| NTNV | ANT1 | 802.11n(HT40) | 5190.00 | 5190.020 | 5172.392 | 5207.648 | 5150~5250 | Pass |

| | | | | | | | | |
|------|------|-----------------|---------|----------|----------|----------|-----------|------|
| LTVN | ANT1 | 802.11n(HT40) | 5190.00 | 5190.024 | 5172.680 | 5207.368 | 5150~5250 | Pass |
| NTHV | ANT1 | 802.11n(HT40) | 5190.00 | 5190.040 | 5172.944 | 5207.136 | 5150~5250 | Pass |
| NTLV | ANT1 | 802.11n(HT40) | 5190.00 | 5190.052 | 5173.192 | 5206.912 | 5150~5250 | Pass |
| HTNV | ANT1 | 802.11n(HT40) | 5230.00 | 5229.992 | 5212.048 | 5247.936 | 5150~5250 | Pass |
| NTNV | ANT1 | 802.11n(HT40) | 5230.00 | 5230.012 | 5212.376 | 5247.648 | 5150~5250 | Pass |
| LTVN | ANT1 | 802.11n(HT40) | 5230.00 | 5230.004 | 5212.600 | 5247.408 | 5150~5250 | Pass |
| NTHV | ANT1 | 802.11n(HT40) | 5230.00 | 5229.992 | 5212.848 | 5247.136 | 5150~5250 | Pass |
| NTLV | ANT1 | 802.11n(HT40) | 5230.00 | 5230.012 | 5213.080 | 5246.944 | 5150~5250 | Pass |
| HTNV | ANT1 | 802.11ac(VHT40) | 5190.00 | 5189.984 | 5172.024 | 5207.944 | 5150~5250 | Pass |
| NTNV | ANT1 | 802.11ac(VHT40) | 5190.00 | 5189.972 | 5172.328 | 5207.616 | 5150~5250 | Pass |
| LTVN | ANT1 | 802.11ac(VHT40) | 5190.00 | 5189.976 | 5172.568 | 5207.384 | 5150~5250 | Pass |
| NTHV | ANT1 | 802.11ac(VHT40) | 5190.00 | 5189.988 | 5172.840 | 5207.136 | 5150~5250 | Pass |
| NTLV | ANT1 | 802.11ac(VHT40) | 5190.00 | 5189.960 | 5173.096 | 5206.824 | 5150~5250 | Pass |
| HTNV | ANT1 | 802.11ac(VHT40) | 5230.00 | 5229.996 | 5212.048 | 5247.944 | 5150~5250 | Pass |
| NTNV | ANT1 | 802.11ac(VHT40) | 5230.00 | 5230.016 | 5212.384 | 5247.648 | 5150~5250 | Pass |
| LTVN | ANT1 | 802.11ac(VHT40) | 5230.00 | 5229.992 | 5212.616 | 5247.368 | 5150~5250 | Pass |
| NTHV | ANT1 | 802.11ac(VHT40) | 5230.00 | 5230.024 | 5212.864 | 5247.184 | 5150~5250 | Pass |
| NTLV | ANT1 | 802.11ac(VHT40) | 5230.00 | 5230.012 | 5213.120 | 5246.904 | 5150~5250 | Pass |

***** End of Report *****