# RF TEST REPORT

**For**

## Dongguan Miaomiao Electronic Technology Co.,Ltd.

## Product Name: Smart Pet Feeder

## Test Model(s): MC-W01-V

| | | |
|---|---|---|
| **Report Reference No.** | : | **DACE250313013RL003** |
| **FCC ID** | : | **2BN4IMC-W01-V** |
| **Applicant's Name** | : | Dongguan Miaomiao Electronic Technology Co.,Ltd. |
| **Address** | : | Room 401,Building 9,No.69 Fengqing Road,Fenggang Town,Dongguan City, Gunagdong Province |
| **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** | : | March 13, 2025 |
| **Date of Test** | : | March 13, 2025 to April 11, 2025 |
| **Data of Issue** | : | April 11, 2025 |
| **Result** | : | **Pass** |

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000004028

# Apply for company information

| | | |
|---|---|---|
| **Applicant's Name** | : | Dongguan Miaomiao Electronic Technology Co.,Ltd. |
| **Address** | : | Room 401,Building 9,No.69 Fengqing Road,Fenggang Town,Dongguan City, Gunagdong Province |
| **Product Name** | : | Smart Pet Feeder |
| **Test Model(s)** | : | MC-W01-V(Q250307005-4) |
| **Series Model(s)** | : | MC-WO1-W |
| **Test Specification Standard(s)** | : | 47 CFR Part 15E |

**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.

| Compiled by: | Supervised by: | Approved by: |
|---|---|---|
| Keren Huang | Stone Yin | Tom Chen |
| Keren Huang / Test Engineer | Stone Yin / Project Engineer | Tom Chen / Manager |
| April 11, 2025 | April 11, 2025 | April 11, 2025 |

Shenzhen DACE Testing Technology Co.,Ltd. APPROVED

# Revision History Of Report

| Version | Description | REPORT No. | Issue Date |
|---|---|---|---|
| V1.0 | Original | DACE250313013RL003 | April 11, 2025 |
| | | | |
| | | | |
| | | | |
| | | | |

# CONTENTS

# 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 |
| Conducted Emission at AC power line | ANSI C63.10-2020 section 6.2 | 47 CFR Part 15.207(a) | Pass |
| Emission bandwidth and occupied bandwidth | ANSI C63.10-2020, section 6.9 & 12.5<br>KDB 789033 D02, Clause C.2 | U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use.<br>47 CFR Part 15.407(e) | Pass |
| Maximum conducted output power | ANSI C63.10-2020, section 12.4 | 47 CFR Part 15.407(a)(1)(iv)<br>47 CFR Part 15.407(a)(3)(i) | Pass |
| Power spectral density | ANSI C63.10-2020, section 12.6 | 47 CFR Part 15.407(a)(1)(iv)<br>47 CFR Part 15.407(a)(3)(i) | Pass |
| Band edge emissions (Radiated) | ANSI C63.10-2020, section 12.7.4, 12.7.6, 12.7.7 | 47 CFR Part 15.407(b)(1)<br>47 CFR Part 15.407(b)(4)<br>47 CFR Part 15.407(b)(10) | Pass |
| Undesirable emission limits (below 1GHz) | ANSI C63.10-2020, section 12.7.4, 12.7.5 | 47 CFR Part 15.407(b)(9) | Pass |
| Undesirable emission limits (above 1GHz) | ANSI C63.10-2020, section 12.7.4, 12.7.6, 12.7.7 | 47 CFR Part 15.407(b)(1)<br>47 CFR Part 15.407(b)(4)<br>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** | : | Dongguan Miaomiao Electronic Technology Co.,Ltd. |
| **Address** | : | Room 401,Building 9,No.69 Fengqing Road,Fenggang Town,Dongguan City, Gunagdong Province |
| **Manufacturer** | : | Dongguan Miaomiao Electronic Technology Co.,Ltd. |
| **Address** | : | Room 401,Building 9,No.69 Fengqing Road,Fenggang Town,Dongguan City, Gunagdong Province |

## 2.2 Description of Device (EUT)

| | |
|---|---|
| Product Name: | Smart Pet Feeder |
| Sample No.: | Q250307005-4 |
| Model/Type reference: | MC-W01-V |
| Series Model: | MC-WO1-W |
| Model Difference: | The only difference between product models is the writing of the model due to market reasons, everything else is the same. |
| Trade Mark: | N/A |
| Product Description: | Smart Pet Feeder |
| Power Supply: | DC4.5V from battery; DC5.0V-1A from adapter |
| Operation Frequency: | 802.11a/n(HT20):<br>U-NII Band 1: 5180MHz to 5240MHz;<br>U-NII Band 3: 5745MHz to 5825MHz;<br>802.11n(HT40):<br>U-NII Band 1: 5190MHz to 5230MHz;<br>U-NII Band 3: 5755MHz to 5795MHz; |
| Number of Channels: | 802.11a/n(HT20):U-NII Band 1: 4;U-NII Band 3: 5;<br>802.11n(HT40):U-NII Band 1: 2; U-NII Band 3: 2; |
| Modulation Type: | 802.11a: OFDM(BPSK, QPSK, 16QAM, 64QAM);<br>802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); |
| Antenna Type: | FPC ANTENNA |
| Antenna Gain: | 3.0dBi |
| Hardware Version: | V1.0 |
| Software Version: | SecureCRT |

**Operation Frequency each of channel**

802.11a/n(HT20)

| | U-NII Band 1 | U-NII Band 3 |
|---|---|---|
| **Channel** | **Frequency** | **Frequency** |
| 1 | 5180 MHz | 5745 MHz |
| 2 | 5200 MHz | 5765 MHz |
| 3 | 5220 MHz | 5785 MHz |
| 4 | 5240 MHz | 5805 MHz |
| 5 | / | 5825 MHz |

802.11n(HT40)

| | U-NII Band 1 | U-NII Band 3 |
|---|---|---|
| **Channel** | **Frequency** | **Frequency** |
| 1 | 5190 MHz | 5755 MHz |
| 2 | 5230 MHz | 5795 MHz |

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:

| 802.11a/n(HT20) | | |
|---|---|---|
| | U-NII Band 1 | U-NII Band 3 |
| **Test channel** | **Frequency (MHz)** | **Frequency (MHz)** |
| Lowest channel | 5180 MHz | 5745 MHz |
| Middle channel | 5200 MHz | 5785 MHz |
| Highest channel | 5240 MHz | 5825 MHz |

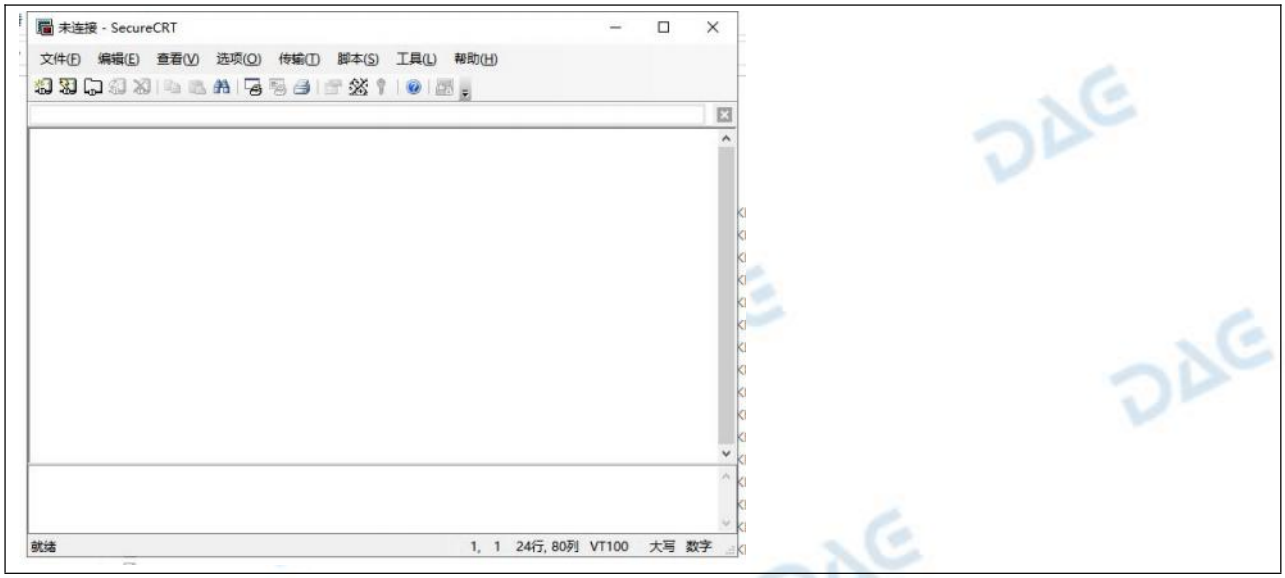
802.11n(HT40)

| | U-NII Band 1 | U-NII Band 3 |
|---|---|---|
| **Channel** | **Frequency** | **Frequency** |
| 1 | 5190 MHz | 5755 MHz |
| 2 | 5230 MHz | 5795 MHz |

## 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. |

☐ Special software is used.
☐ Through engineering command into the engineering mode.
engineering command: *#*#3646633#*#*
☒ Other method: SecureCRT+Serial port command




## 2.4 Description of Support Units

| Equipment | Manufacturer | Model No | NOTE |
|---|---|---|---|
| Adaptor | SHENZHEN TIANYIN ELECTRONICS CO..LTD. | Model:TPA-418G050100UU01<br>Input:100-240V~50160Hz 0.3A<br>Output:5.0V--1.0A 5.0W | Provide by client |

## 2.5 Equipments Used During The Test

| Conducted Emission at AC power line | | | | | |
|---|---|---|---|---|---|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Cable | SCHWARZ BECK | / | / | 2024-05-20 | 2025-05-19 |
| Pulse Limiter | SCHWARZ BECK | VTSD 9561-F Pulse limiter 10dB Attenuation | 561-G071 | 2024-12-06 | 2025-12-05 |
| 50ΩCoaxial Switch | Anritsu | MP59B | M20531 | / | / |
| Test Receiver | Rohde & Schwarz | ESPI TEST RECEIVER | ID:1164.6607K03-102109-MH | 2024-06-12 | 2025-06-11 |
| L.I.S.N | R&S | ESH3-Z5 | 831.5518.52 | 2023-12-12 | 2025-12-11 |
| L.I.S.N | SCHWARZ BECK | NSLK 8126 | 05055 | 2024-06-14 | 2025-06-13 |
| Pulse Limiter | CYBERTEK | EM5010A | / | 2024-09-27 | 2025-09-26 |
| EMI test software | EZ -EMC | EZ | V1.1.42 | / | / |

| Emission bandwidth and occupied bandwidth<br>Maximum conducted output power<br>Power spectral density<br>Duty Cycle | | | | | |
|---|---|---|---|---|---|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| RF Test Software | Tachoy Information Technology(shenzhen) Co.,Ltd. | RTS-01 | V1.0.0 | / | / |

| | | | | | |
|---|---|---|---|---|---|
| RF Sensor Unit | Tachoy Information Technology(shenzhen) Co.,Ltd. | TR1029-2 | 000001 | / | / |
| Wideband radio communication tester | R&S | CMW500 | 113410 | 2024-06-12 | 2025-06-11 |
| Vector Signal Generator | Keysight | N5181A | MY50143455 | 2024-12-06 | 2025-12-05 |
| Signal Generator | Keysight | N5182A | MY48180415 | 2024-12-06 | 2025-12-05 |
| Spectrum Analyzer | Keysight | N9020A | MY53420323 | 2024-12-06 | 2025-12-05 |

**Band edge emissions (Radiated)**
**Undesirable emission limits (below 1GHz)**
**Undesirable emission limits (above 1GHz)**

| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
|---|---|---|---|---|---|
| EMI Test software | Farad | EZ -EMC | V1.1.42 | / | / |
| Positioning Controller | MF | MF-7802 | / | / | / |
| Amplifier(18-40G) | COM-POWER | AH-1840 | 10100008-1 | 2023-05-19 | 2025-05-18 |
| Horn antenna | COM-POWER | AH-1840 (18-40G) | 10100008 | 2023-05-19 | 2025-05-18 |
| Loop antenna | ZHINAN | ZN30900C | ZN30900C | 2024-06-14 | 2026-06-13 |
| Cable(LF)#2 | Schwarzbeck | / | / | 2024-12-19 | 2025-12-18 |
| Cable(LF)#1 | Schwarzbeck | / | / | 2024-12-19 | 2025-12-18 |
| Cable(HF)#2 | Schwarzbeck | AK9515E | 96250 | 2024-05-20 | 2025-05-19 |
| Cable(HF)#1 | Schwarzbeck | SYV-50-3-1 | / | 2024-05-20 | 2025-05-19 |
| 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 |
| Wideband radio communication tester | R&S | CMW500 | 113410 | 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 | 2024-09-28 | 2026-09-27 |

## 2.6 Statement Of The Measurement Uncertainty

| Test Item | Measurement Uncertainty |
|---|---|
| Conducted Disturbance (0.15~30MHz) | ±3.41dB |
| Duty cycle | ±3.1% |
| Occupied Bandwidth | ±3.63% |
| RF conducted power | ±0.733dB |

| | |
|---|---|
| RF power density | ±0.234% |
| 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 & Technology Park, Tangtou Community, Shiyan Subdistrict, 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 & Technology Park, Tangtou Community, Shiyan Subdistrict, 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. the laboratory is not responsible for the accuracy of the information provided by the client(item 2.2). When the information provided by the customer may affect the effectiveness of the results, the responsibility lies with

# 3 Radio Spectrum Matter Test Results (RF)

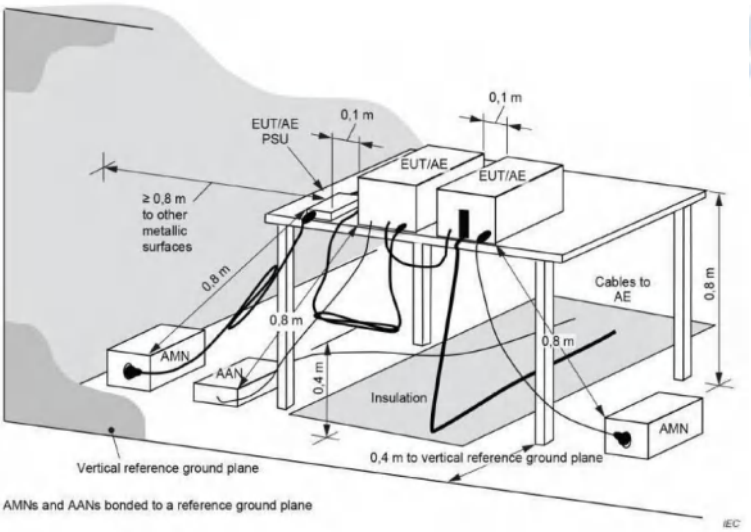
## 3.1 Conducted Emission at AC power line

| | | | |
|---|---|---|---|
| Test Requirement: | 47 CFR Part 15.207(a) | | |
| Test Limit: | Frequency of emission (MHz) | Conducted limit (dBμV) | |
| | | Quasi-peak | Average |
| | 0.15-0.5 | 66 to 56* | 56 to 46* |
| | 0.5-5 | 56 | 46 |
| | 5-30 | 60 | 50 |
| | *Decreases with the logarithm of the frequency. | | |
| Test Method: | ANSI C63.10-2020 section 6.2 | | |

### 3.1.1 E.U.T. Operation:

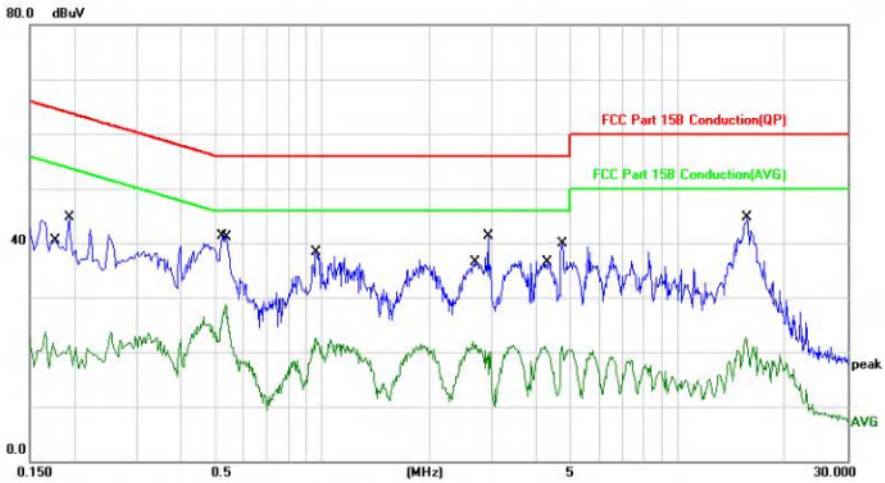
| | | | | | |
|---|---|---|---|---|---|
| Operating Environment: | | | | | |
| Temperature: | 22.7 °C | Humidity: | 51 % | Atmospheric Pressure: | 101 kPa |
| Pretest mode: | TM1 | | | | |
| Final test mode: | TM1 | | | | |

### 3.1.2 Test Setup Diagram:



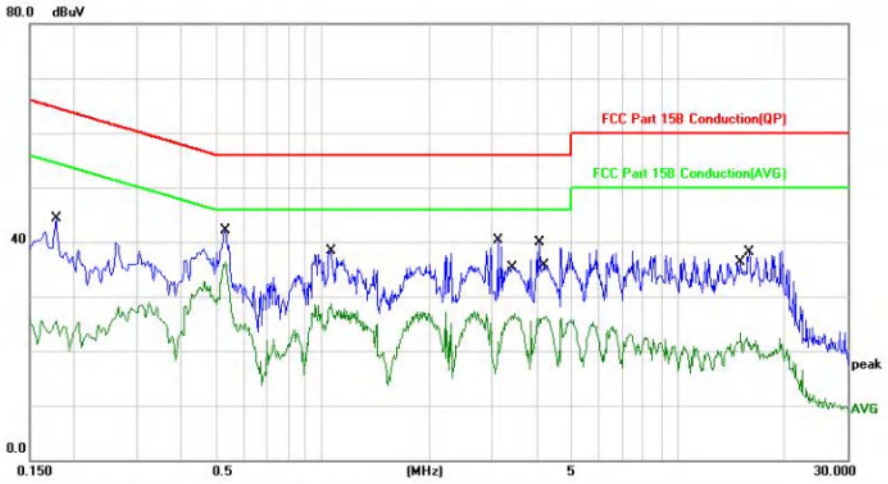
### 3.1.3 Test Data:

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




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.1740 | 11.66 | 10.10 | 21.76 | 54.76 | -33.00 | AVG | |
| 2 | | 0.1940 | 34.55 | 10.10 | 44.65 | 63.86 | -19.21 | QP | |
| 3 | | 0.5220 | 31.28 | 10.08 | 41.36 | 56.00 | -14.64 | QP | |
| 4 | | 0.5340 | 18.56 | 10.08 | 28.64 | 46.00 | -17.36 | AVG | |
| 5 | | 0.9620 | 28.24 | 10.08 | 38.32 | 56.00 | -17.68 | QP | |
| 6 | | 0.9620 | 12.40 | 10.08 | 22.48 | 46.00 | -23.52 | AVG | |
| 7 | | 2.6540 | 11.79 | 10.04 | 21.83 | 46.00 | -24.17 | AVG | |
| 8 | * | 2.9300 | 31.33 | 10.07 | 41.40 | 56.00 | -14.60 | QP | |
| 9 | | 4.2460 | 10.92 | 10.17 | 21.09 | 46.00 | -24.91 | AVG | |
| 10 | | 4.7340 | 29.62 | 10.19 | 39.81 | 56.00 | -16.19 | QP | |
| 11 | | 15.4780 | 12.19 | 10.47 | 22.66 | 50.00 | -27.34 | AVG | |
| 12 | | 15.6500 | 34.13 | 10.47 | 44.60 | 60.00 | -15.40 | QP | |

TM1 / Line: Neutral / Band: 5150-5250 MHz / BW: 20 / CH: L




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.1780 | 34.29 | 10.10 | 44.39 | 64.57 | -20.18 | QP | |
| 2 | | 0.1780 | 15.48 | 10.10 | 25.58 | 54.57 | -28.99 | AVG | |
| 3 | | 0.5340 | 31.92 | 10.08 | 42.00 | 56.00 | -14.00 | QP | |
| 4 | * | 0.5340 | 26.15 | 10.08 | 36.23 | 46.00 | -9.77 | AVG | |
| 5 | | 1.0580 | 28.25 | 10.07 | 38.32 | 56.00 | -17.68 | QP | |
| 6 | | 1.0580 | 18.58 | 10.07 | 28.65 | 46.00 | -17.35 | AVG | |
| 7 | | 3.1140 | 30.26 | 10.08 | 40.34 | 56.00 | -15.66 | QP | |
| 8 | | 3.4540 | 16.72 | 10.12 | 26.84 | 46.00 | -19.16 | AVG | |
| 9 | | 4.0739 | 29.76 | 10.17 | 39.93 | 56.00 | -16.07 | QP | |
| 10 | | 4.2300 | 16.17 | 10.17 | 26.34 | 46.00 | -19.66 | AVG | |
| 11 | | 14.9900 | 12.77 | 10.46 | 23.23 | 50.00 | -26.77 | AVG | |
| 12 | | 15.8820 | 27.66 | 10.48 | 38.14 | 60.00 | -21.86 | QP | |

## 3.2 Emission bandwidth and occupied bandwidth

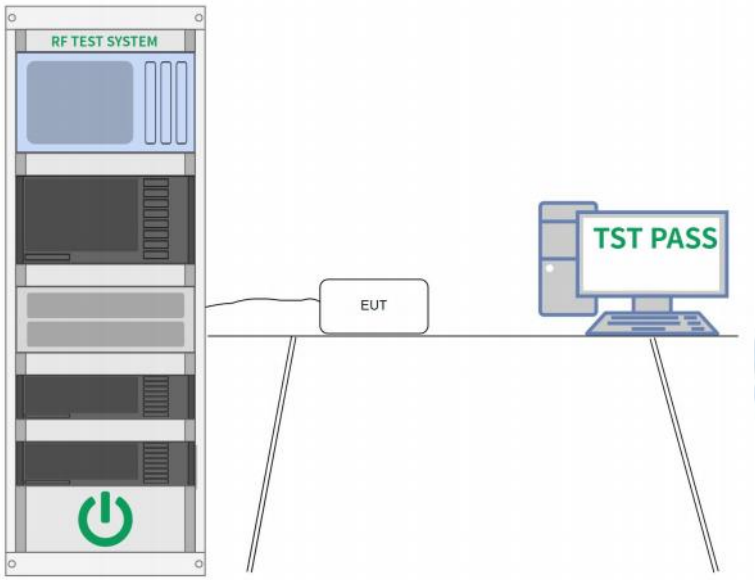
| | |
|---|---|
| Test Requirement: | U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use.<br><br>U-NII 3, U-NII 4: 47 CFR Part 15.407(e) |
| Test Limit: | U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use.<br><br>U-NII 3, U-NII 4: Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz. |
| Test Method: | ANSI C63.10-2020, section 6.9 & 12.5<br>KDB 789033 D02, Clause C.2 |
| Procedure: | Emission bandwidth:<br>a) Set RBW = approximately 1% of the emission bandwidth.<br>b) Set the VBW > RBW.<br>c) Detector = peak.<br>d) Trace mode = max hold.<br>e) Measure the maximum width of the emission that is 26 dB down from the peak of the emission.<br>Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.<br><br>Occupied bandwidth:<br>a) 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.<br>b) 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.<br>c) 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.<br>d) Step a) through step c) might require iteration to adjust within the specified range.<br>e) 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.<br>f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.<br>g) 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.<br>h) 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).<br><br>6 dB emission bandwidth:<br>a) Set RBW = 100 kHz.<br>b) Set the video bandwidth (VBW) ≥ 3 >= RBW.<br>c) Detector = Peak.<br>d) Trace mode = max hold.<br>e) Sweep = auto couple.<br>f) Allow the trace to stabilize.<br>g) Measure the maximum width of the emission that is constrained by the |

| | |
|---|---|
| | frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. |

### 3.2.1 E.U.T. Operation:

| Operating Environment: | | | | | |
|---|---|---|---|---|---|
| Temperature: | 22.7 °C | Humidity: | 51 % | Atmospheric Pressure: | 101 kPa |
| Pretest mode: | TM1, TM2 | | | | |
| Final test mode: | TM1, TM2 | | | | |

### 3.2.2 Test Setup Diagram:




### 3.2.3 Test Data:

Please Refer to Appendix for Details.

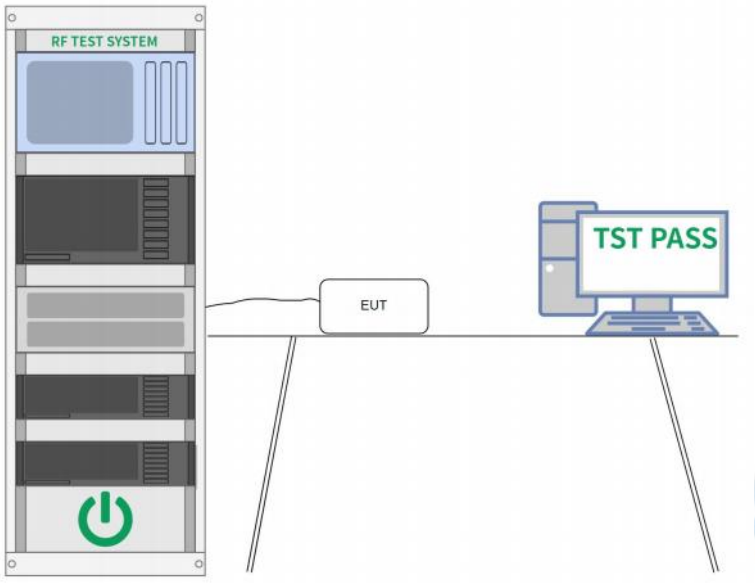
## 3.3 Maximum conducted output power

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15.407(a)(1)(iv)<br>47 CFR Part 15.407(a)(3)(i) |
| 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.<br>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.<br><br>For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.<br>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.<br>However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.<br>The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations. |
| Test Method: | ANSI C63.10-2020, section 12.4 |
| Procedure: | Refer to ANSI C63.10-2020 section 12.4 |

### 3.3.1 E.U.T. Operation:

| Operating Environment: | | | | | |
|---|---|---|---|---|---|
| Temperature: | 22.7 °C | Humidity: | 51 % | Atmospheric Pressure: | 101 kPa |
| Pretest mode: | TM1, TM2 | | | | |
| Final test mode: | TM1, TM2 | | | | |

### 3.3.2 Test Setup Diagram:




### 3.3.3 Test Data:

Please Refer to Appendix for Details.

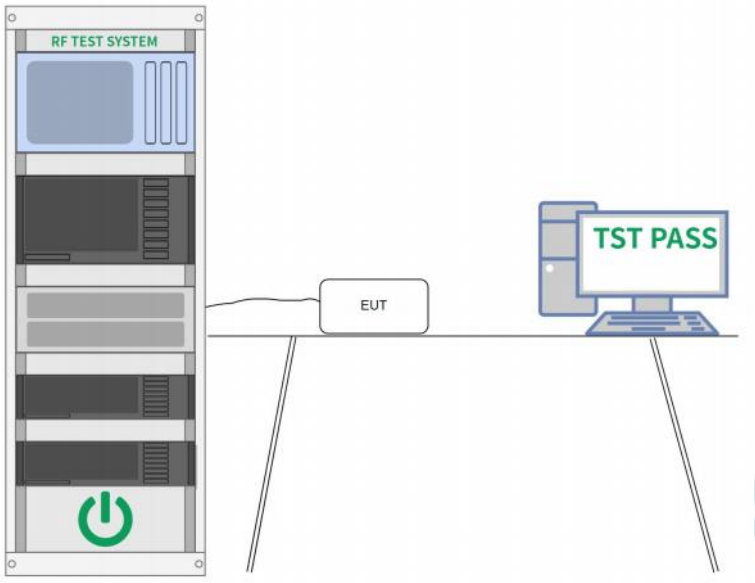
## 3.4 Power spectral density

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15.407(a)(1)(iv)<br>47 CFR Part 15.407(a)(3)(i) |
| 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.<br>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.<br><br>For the band 5.725-5.850 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.<br>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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.<br>Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations. |
| Test Method: | ANSI C63.10-2020, section 12.6 |
| Procedure: | Refer to ANSI C63.10-2020, section 12.6 |

### 3.4.1 E.U.T. Operation:

| Operating Environment: | | | | | |
|---|---|---|---|---|---|
| Temperature: | 22.7 °C | Humidity: | 51 % | Atmospheric Pressure: | 101 kPa |
| Pretest mode: | TM1, TM2 | | | | |
| Final test mode: | TM1, TM2 | | | | |

### 3.4.2 Test Setup Diagram:




### 3.4.3 Test Data:

Please Refer to Appendix for Details.

## 3.5 Band edge emissions (Radiated)

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15.407(b)(1)<br>47 CFR Part 15.407(b)(4)<br>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.<br><br>For transmitters operating solely in the 5.725-5.850 GHz band:<br>All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. |

| MHz | MHz | MHz | 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 | | | |

[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 § 15.209shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35apply 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:

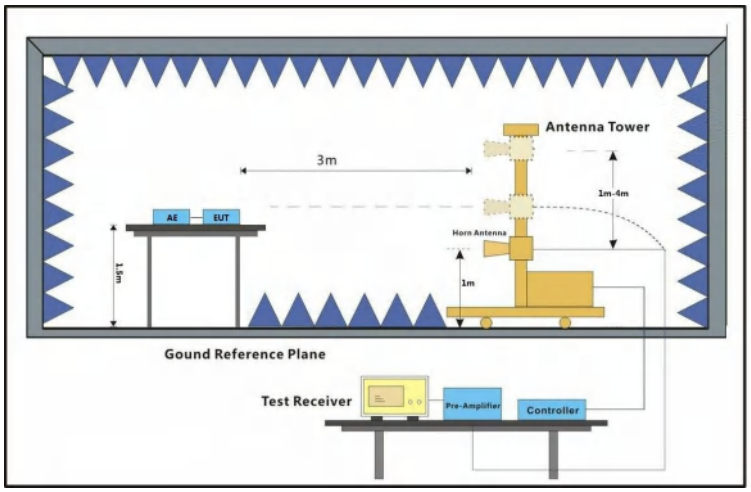
| | |
|---|---|
| | <table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</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><br>** 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.<br>In the emission table above, the tighter limit applies at the band edges.<br>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. |
| Test Method: | ANSI C63.10-2020, section 12.7.4, 12.7.6, 12.7.7 |
| Procedure: | Above 1GHz:<br>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.<br>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.<br>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.<br>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.<br>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>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.<br>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.<br>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.<br>i. Repeat above procedures until all frequencies measured was complete.<br>Remark:<br>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor<br>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.<br>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.<br>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. |

### 3.5.1 E.U.T. Operation:

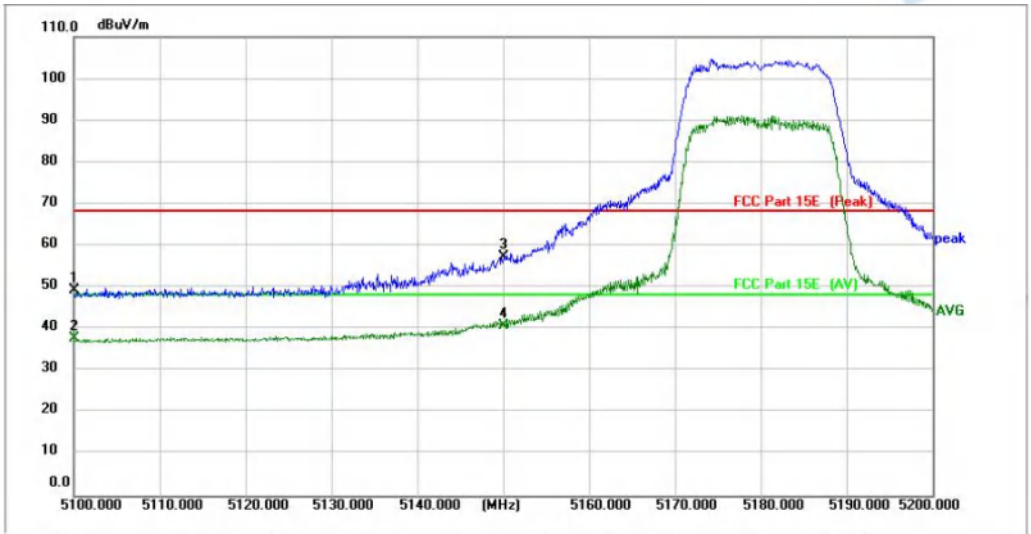
| Operating Environment: | | | | | |
|---|---|---|---|---|---|
| Temperature: | 22.7 °C | Humidity: | 51 % | Atmospheric Pressure: | 101 kPa |
| Pretest mode: | TM1, TM2 | | | | |
| Final test mode: | TM1, TM2 | | | | |

### 3.5.2 Test Setup Diagram:



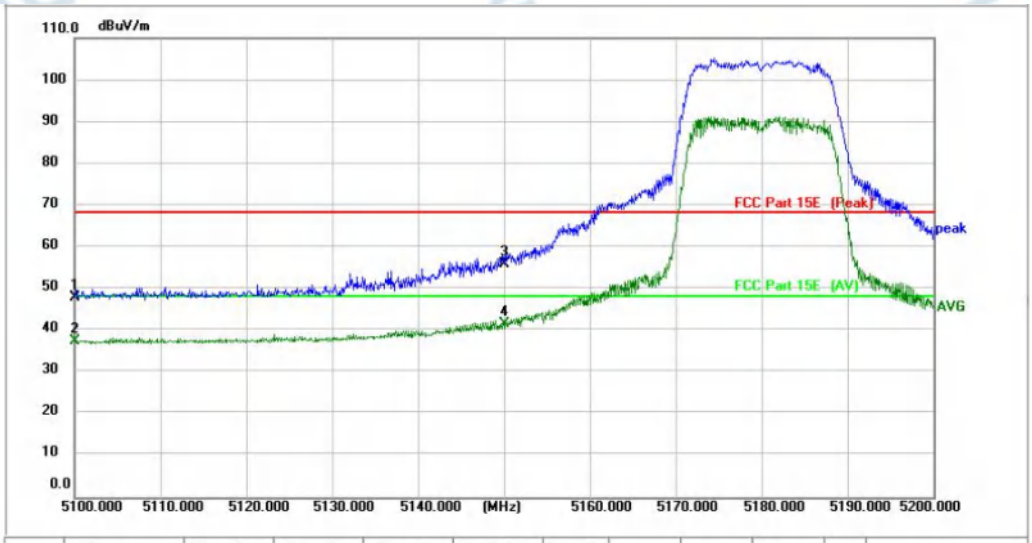

### 3.5.3 Test Data:

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



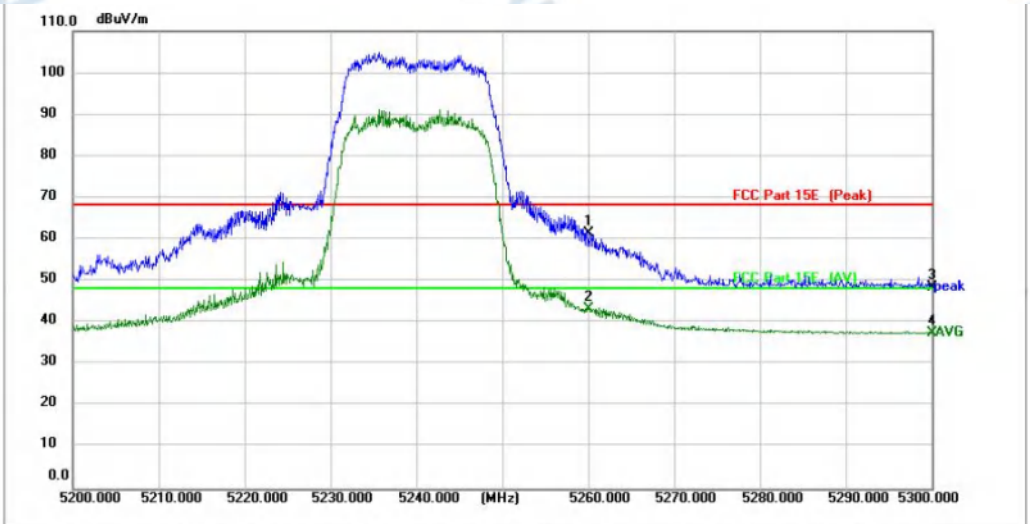

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5100.000 | 45.02 | 4.26 | 49.28 | 68.20 | -18.92 | peak | | | P | |
| 2 | 5100.000 | 33.63 | 4.26 | 37.89 | 48.20 | -10.31 | AVG | | | P | |
| 3 | 5150.000 | 52.82 | 4.40 | 57.22 | 68.20 | -10.98 | peak | | | P | |
| 4 * | 5150.000 | 36.48 | 4.40 | 40.88 | 48.20 | -7.32 | AVG | | | P | |

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



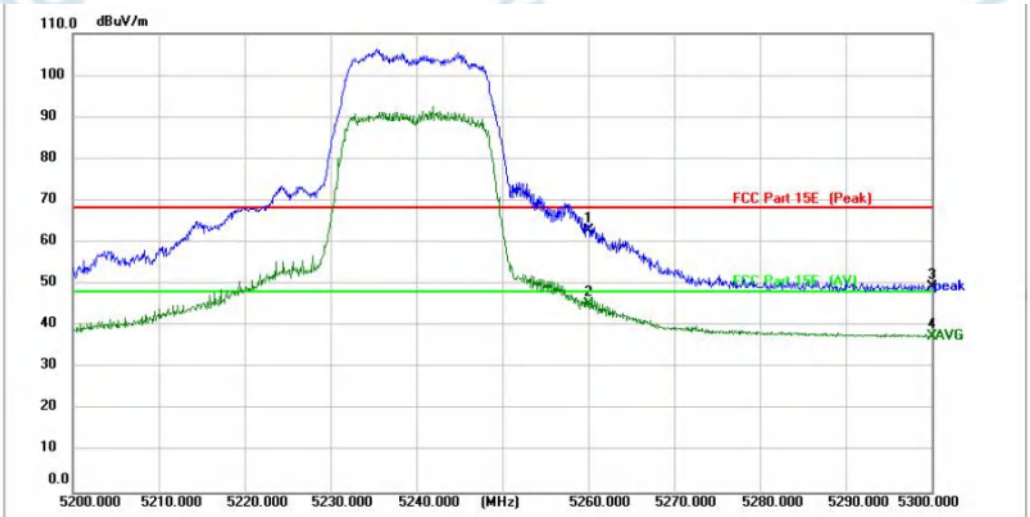

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5100.000 | 43.72 | 4.26 | 47.98 | 68.20 | -20.22 | peak | 150 | | P | |
| 2 | 5100.000 | 33.18 | 4.26 | 37.44 | 48.20 | -10.76 | AVG | 150 | | P | |
| 3 | 5150.000 | 51.58 | 4.40 | 55.98 | 68.20 | -12.22 | peak | 150 | | P | |
| 4 * | 5150.000 | 37.39 | 4.40 | 41.79 | 48.20 | -6.41 | AVG | 150 | | P | |

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



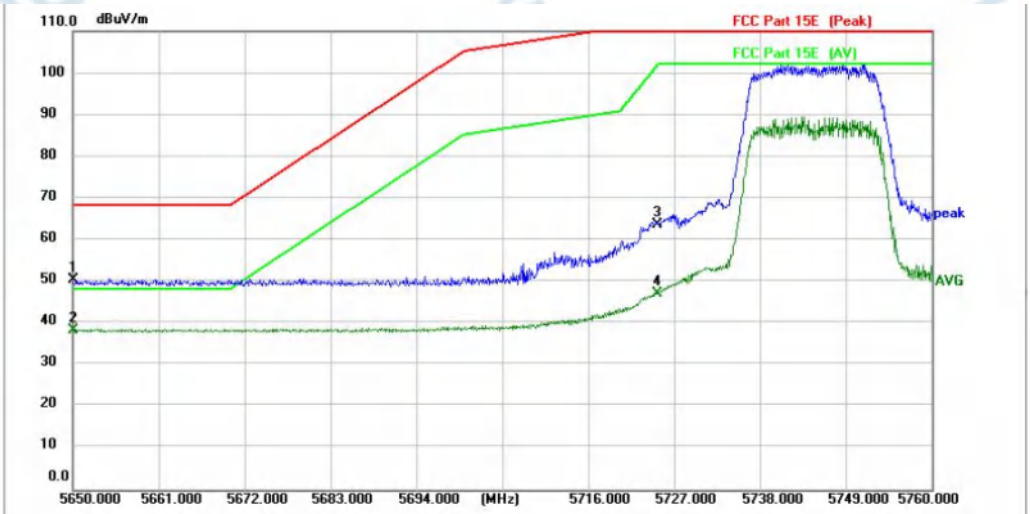

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5260.000 | 56.62 | 4.73 | 61.35 | 68.20 | -6.85 | peak | 150 | | P | |
| 2 * | 5260.000 | 38.46 | 4.73 | 43.19 | 48.20 | -5.01 | AVG | 150 | | P | |
| 3 | 5300.000 | 43.82 | 4.85 | 48.67 | 68.20 | -19.53 | peak | 150 | | P | |
| 4 | 5300.000 | 32.74 | 4.85 | 37.59 | 48.20 | -10.61 | AVG | 150 | | P | |

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



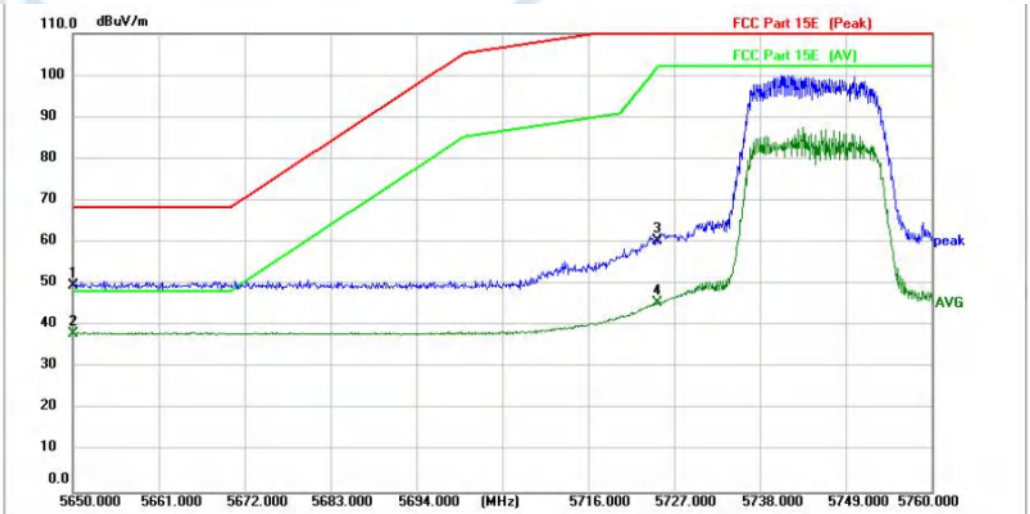

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5260.000 | 58.14 | 4.73 | 62.87 | 68.20 | -5.33 | peak | | | P | |
| 2 * | 5260.000 | 40.60 | 4.73 | 45.33 | 48.20 | -2.87 | AVG | | | P | |
| 3 | 5300.000 | 44.63 | 4.85 | 49.48 | 68.20 | -18.72 | peak | | | P | |
| 4 | 5300.000 | 32.74 | 4.85 | 37.59 | 48.20 | -10.61 | AVG | | | P | |

TM1 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20 / CH: L



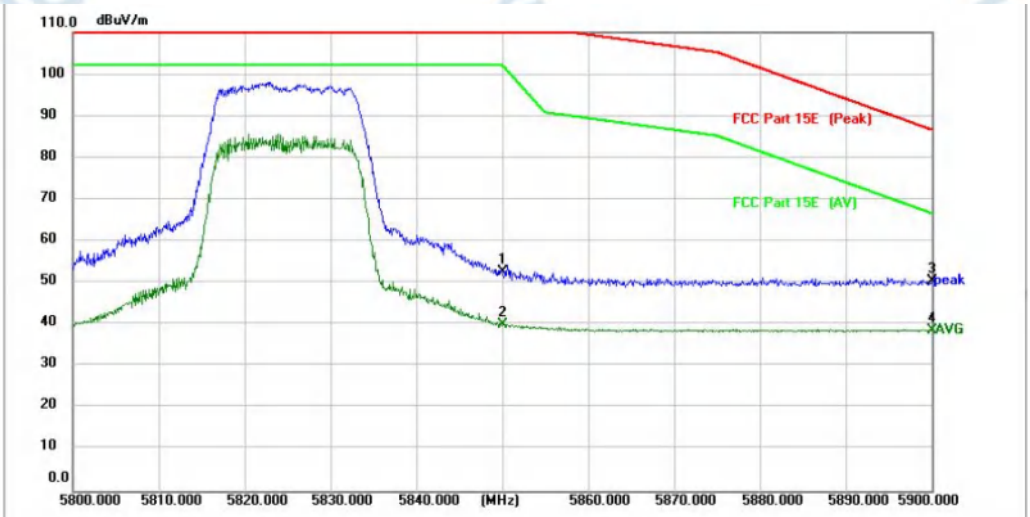

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5650.000 | 44.84 | 5.74 | 50.58 | 68.20 | -17.62 | peak | 149 | | P | |
| 2 * | 5650.000 | 32.64 | 5.74 | 38.38 | 48.20 | -9.82 | AVG | 149 | | P | |
| 3 | 5725.000 | 57.84 | 5.90 | 63.74 | 122.20 | -58.46 | peak | 149 | | P | |
| 4 | 5725.000 | 41.40 | 5.90 | 47.30 | 102.20 | -54.90 | AVG | 149 | | P | |

TM1 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20 / CH: L



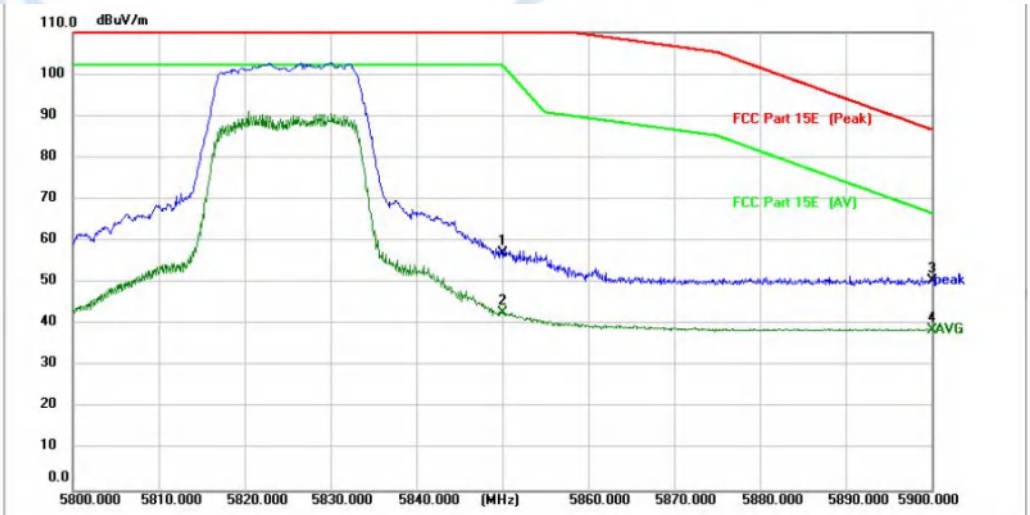

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5650.000 | 43.99 | 5.74 | 49.73 | 68.20 | -18.47 | peak | 149 | | P | |
| 2 * | 5650.000 | 32.37 | 5.74 | 38.11 | 48.20 | -10.09 | AVG | 149 | | P | |
| 3 | 5725.000 | 54.46 | 5.90 | 60.36 | 122.20 | -61.84 | peak | 149 | | P | |
| 4 | 5725.000 | 39.51 | 5.90 | 45.41 | 102.20 | -56.79 | AVG | 149 | | P | |

TM1 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20 / CH: H



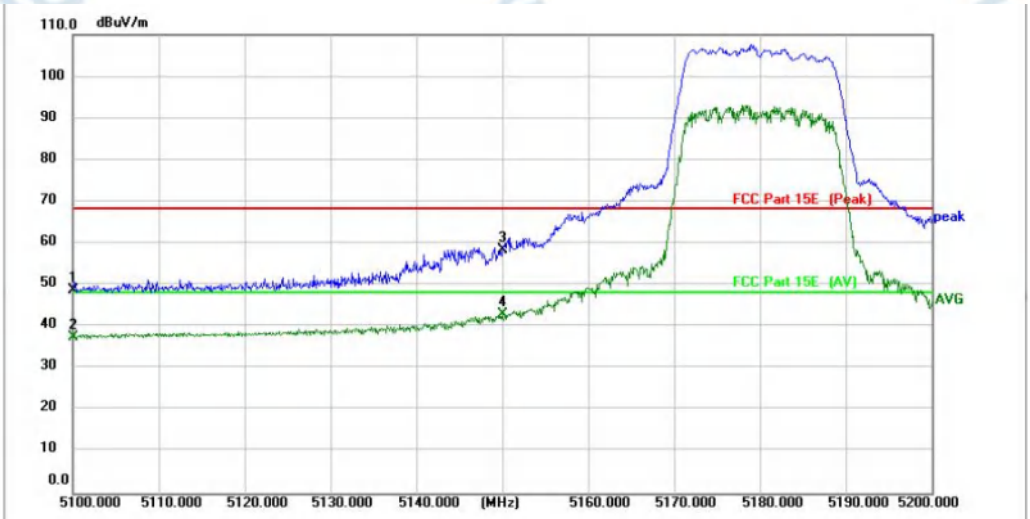

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5850.000 | 46.60 | 6.18 | 52.78 | 122.20 | -69.42 | peak | 149 | | P | |
| 2 | 5850.000 | 33.97 | 6.18 | 40.15 | 102.20 | -62.05 | AVG | 149 | | P | |
| 3 | 5900.000 | 44.13 | 6.28 | 50.41 | 86.66 | -36.25 | peak | 149 | | P | |
| 4 * | 5900.000 | 32.23 | 6.28 | 38.51 | 66.66 | -28.15 | AVG | 149 | | P | |

TM1 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20 / CH: H



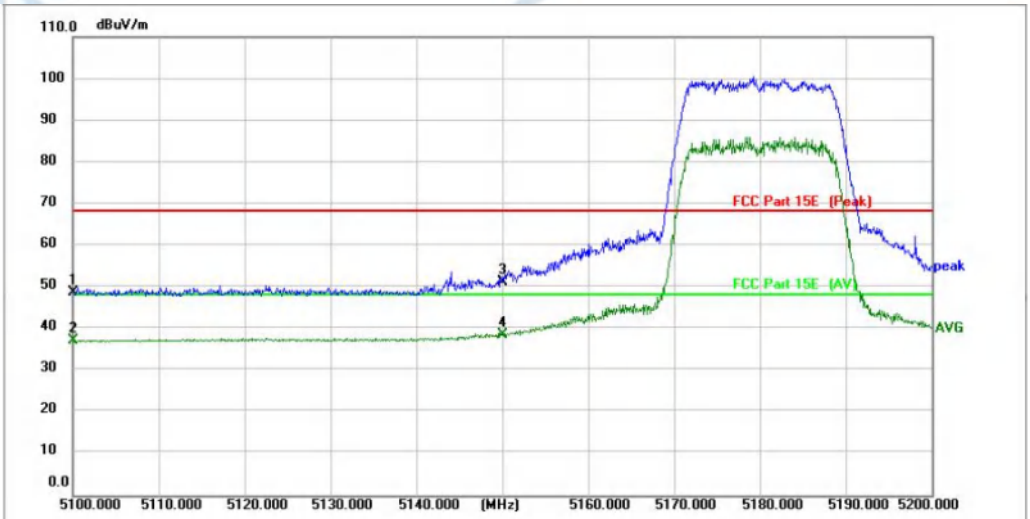

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5850.000 | 50.76 | 6.18 | 56.94 | 122.20 | -65.26 | peak | 149 | | P | |
| 2 | 5850.000 | 36.53 | 6.18 | 42.71 | 102.20 | -59.49 | AVG | 149 | | P | |
| 3 | 5900.000 | 44.12 | 6.28 | 50.40 | 86.66 | -36.26 | peak | 149 | | P | |
| 4 * | 5900.000 | 32.34 | 6.28 | 38.62 | 66.66 | -28.04 | AVG | 149 | | P | |

TM2 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20 / CH: L



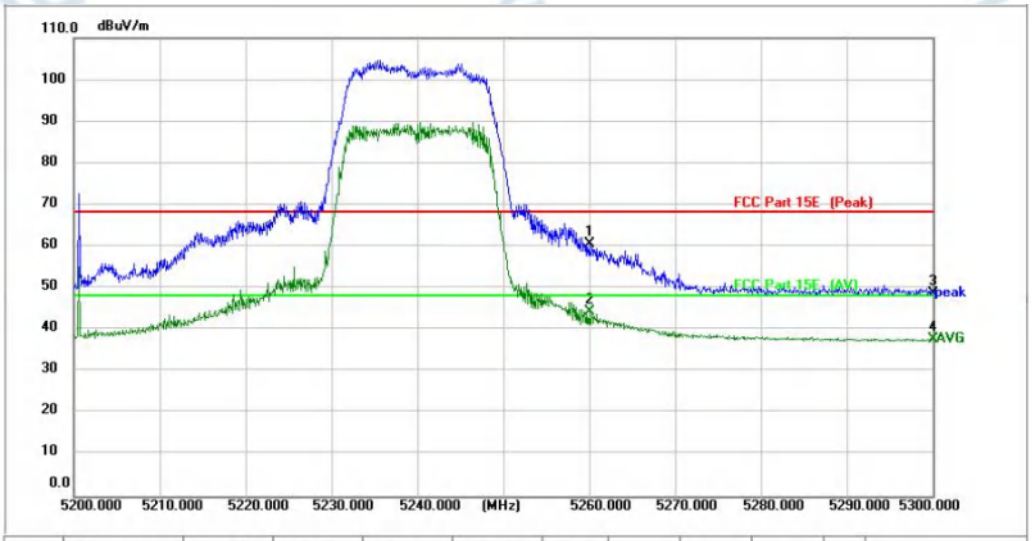

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5100.000 | 44.43 | 4.26 | 48.69 | 68.20 | -19.51 | peak | 149 | | P | |
| 2 | 5100.000 | 33.25 | 4.26 | 37.51 | 48.20 | -10.69 | AVG | 149 | | P | |
| 3 | 5150.000 | 54.06 | 4.40 | 58.46 | 68.20 | -9.74 | peak | 149 | | P | |
| 4 * | 5150.000 | 38.65 | 4.40 | 43.05 | 48.20 | -5.15 | AVG | 149 | | P | |

TM2 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20 / CH: L



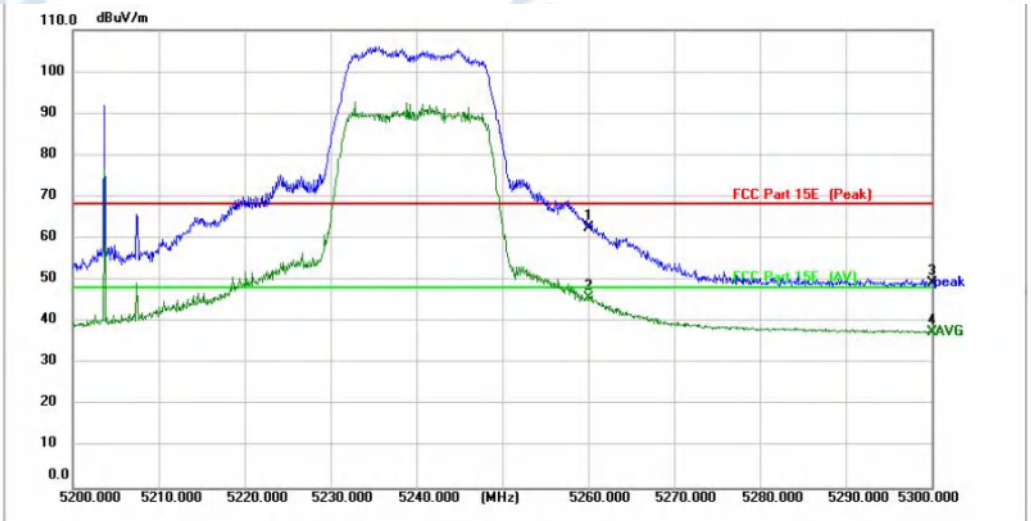

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5100.000 | 44.44 | 4.26 | 48.70 | 68.20 | -19.50 | peak | 149 | | P | |
| 2 | 5100.000 | 32.97 | 4.26 | 37.23 | 48.20 | -10.97 | AVG | 149 | | P | |
| 3 | 5150.000 | 46.86 | 4.40 | 51.26 | 68.20 | -16.94 | peak | 149 | | P | |
| 4 * | 5150.000 | 34.23 | 4.40 | 38.63 | 48.20 | -9.57 | AVG | 149 | | P | |

TM2 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20 / CH: H



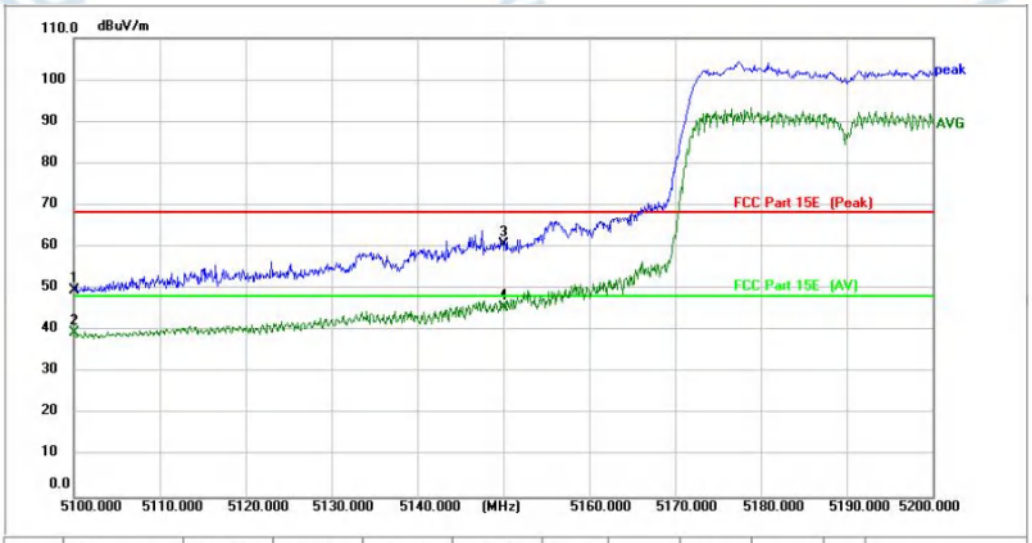

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5260.000 | 55.99 | 4.73 | 60.72 | 68.20 | -7.48 | peak | 150 | | P | |
| 2 * | 5260.000 | 39.69 | 4.73 | 44.42 | 48.20 | -3.78 | AVG | 150 | | P | |
| 3 | 5300.000 | 44.05 | 4.85 | 48.90 | 68.20 | -19.30 | peak | 150 | | P | |
| 4 | 5300.000 | 32.86 | 4.85 | 37.71 | 48.20 | -10.49 | AVG | 150 | | P | |

TM2 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20 / CH: H



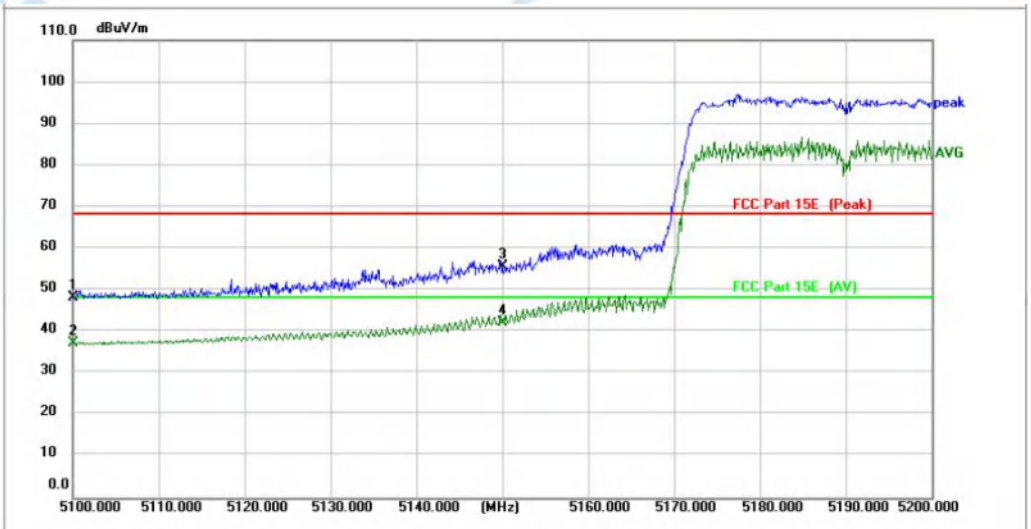

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5260.000 | 57.84 | 4.73 | 62.57 | 68.20 | -5.63 | peak | 150 | | P | |
| 2 * | 5260.000 | 41.07 | 4.73 | 45.80 | 48.20 | -2.40 | AVG | 150 | | P | |
| 3 | 5300.000 | 44.60 | 4.85 | 49.45 | 68.20 | -18.75 | peak | 150 | | P | |
| 4 | 5300.000 | 32.75 | 4.85 | 37.60 | 48.20 | -10.60 | AVG | 150 | | P | |

TM2 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 40 / CH: L



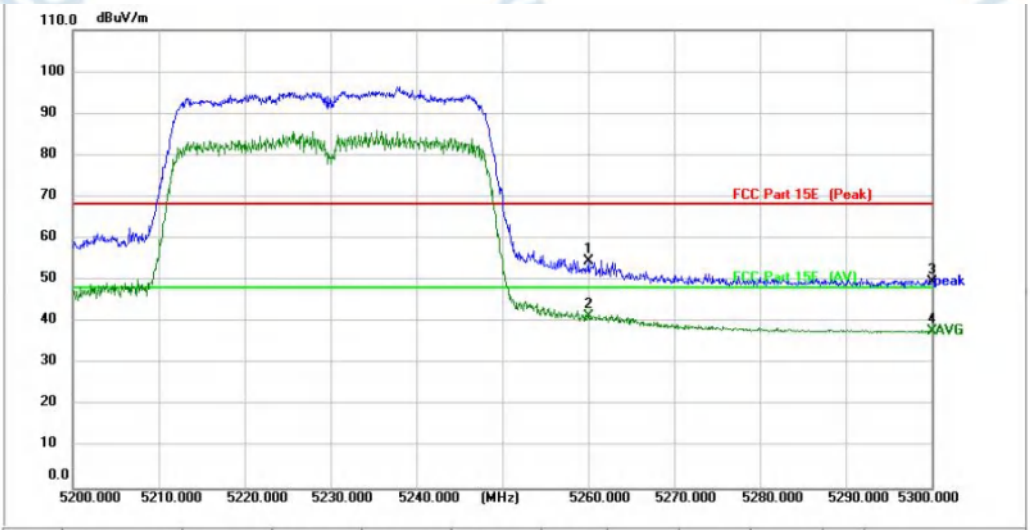

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5100.000 | 45.28 | 4.26 | 49.54 | 68.20 | -18.66 | peak | 149 | | P | |
| 2 | 5100.000 | 35.34 | 4.26 | 39.60 | 48.20 | -8.60 | AVG | 149 | | P | |
| 3 | 5150.000 | 56.17 | 4.40 | 60.57 | 68.20 | -7.63 | peak | 149 | | P | |
| 4 * | 5150.000 | 41.05 | 4.40 | 45.45 | 48.20 | -2.75 | AVG | 149 | | P | |

TM2 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 40 / CH: L



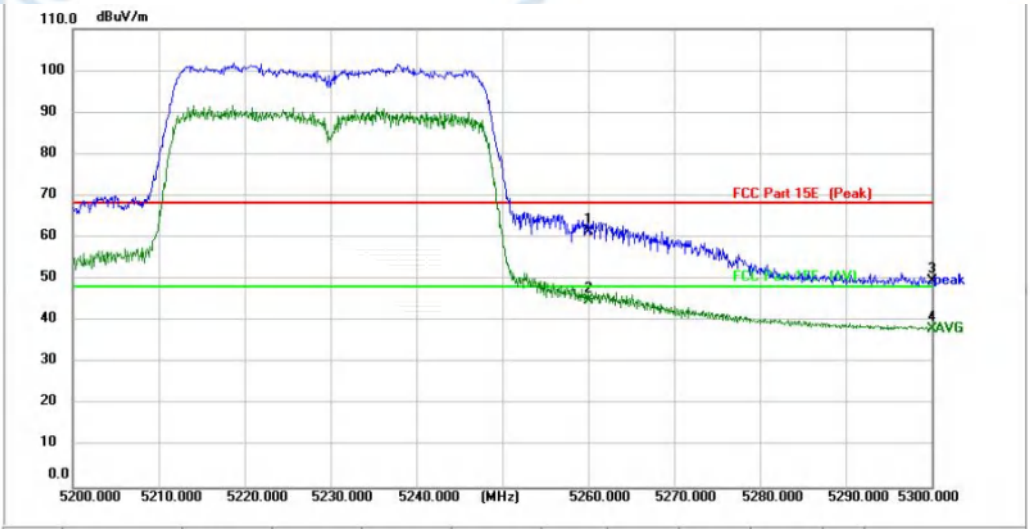

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5100.000 | 44.05 | 4.26 | 48.31 | 68.20 | -19.89 | peak | 149 | | P | |
| 2 | 5100.000 | 33.07 | 4.26 | 37.33 | 48.20 | -10.87 | AVG | 149 | | P | |
| 3 | 5150.000 | 51.25 | 4.40 | 55.65 | 68.20 | -12.55 | peak | 149 | | P | |
| 4 * | 5150.000 | 37.93 | 4.40 | 42.33 | 48.20 | -5.87 | AVG | 149 | | P | |

TM2 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 40 / CH: H



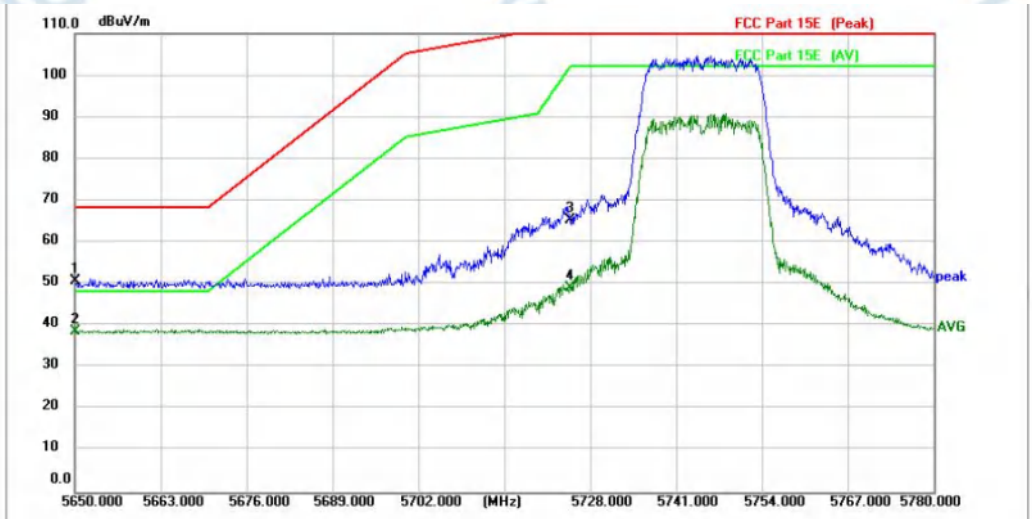

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5260.000 | 49.83 | 4.73 | 54.56 | 68.20 | -13.64 | peak | 149 | | P | |
| 2 * | 5260.000 | 36.64 | 4.73 | 41.37 | 48.20 | -6.83 | AVG | 149 | | P | |
| 3 | 5300.000 | 44.71 | 4.85 | 49.56 | 68.20 | -18.64 | peak | 149 | | P | |
| 4 | 5300.000 | 32.91 | 4.85 | 37.76 | 48.20 | -10.44 | AVG | 149 | | P | |

TM2 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 40 / CH: H



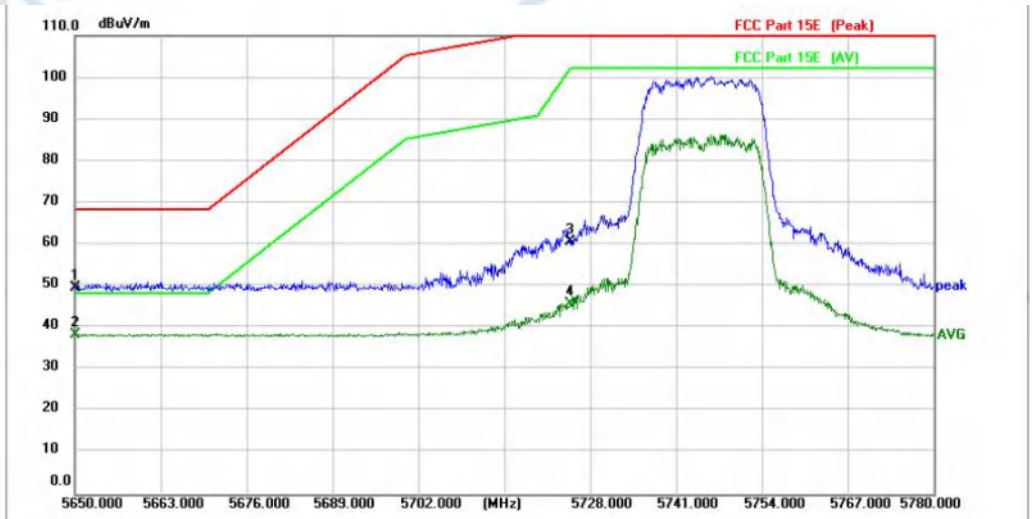

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5260.000 | 56.61 | 4.73 | 61.34 | 68.20 | -6.86 | peak | 149 | | P | |
| 2 * | 5260.000 | 40.22 | 4.73 | 44.95 | 48.20 | -3.25 | AVG | 149 | | P | |
| 3 | 5300.000 | 44.83 | 4.85 | 49.68 | 68.20 | -18.52 | peak | 149 | | P | |
| 4 | 5300.000 | 33.24 | 4.85 | 38.09 | 48.20 | -10.11 | AVG | 149 | | P | |

TM2 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20 / CH: L



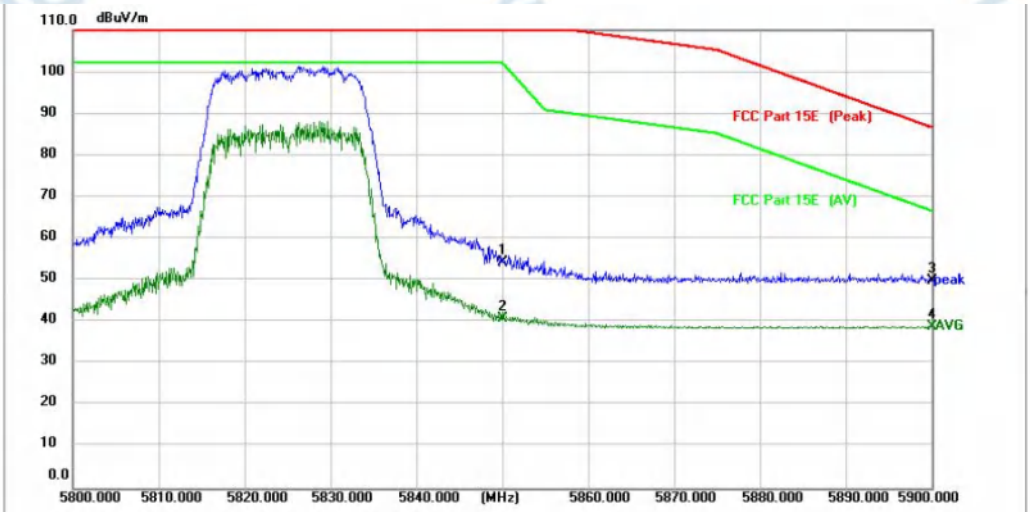

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5650.000 | 44.88 | 5.74 | 50.62 | 68.20 | -17.58 | peak | | | P | |
| 2 * | 5650.000 | 32.82 | 5.74 | 38.56 | 48.20 | -9.64 | AVG | | | P | |
| 3 | 5725.000 | 59.30 | 5.90 | 65.20 | 122.20 | -57.00 | peak | | | P | |
| 4 | 5725.000 | 43.26 | 5.90 | 49.16 | 102.20 | -53.04 | AVG | | | P | |

TM2 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20 / CH: L



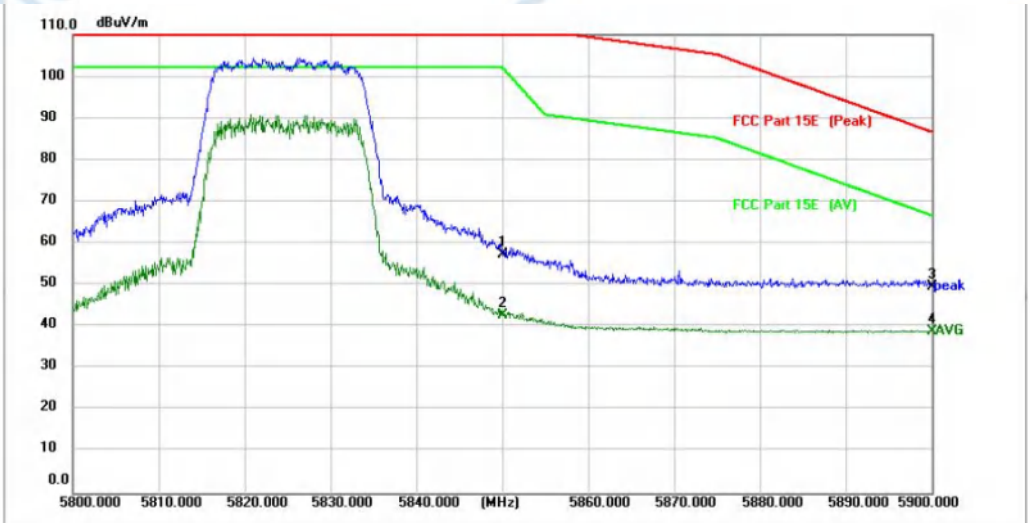

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5650.000 | 43.97 | 5.74 | 49.71 | 68.20 | -18.49 | peak | 150 | | P | |
| 2 * | 5650.000 | 32.64 | 5.74 | 38.38 | 48.20 | -9.82 | AVG | 150 | | P | |
| 3 | 5725.000 | 54.85 | 5.90 | 60.75 | 122.20 | -61.45 | peak | 150 | | P | |
| 4 | 5725.000 | 40.00 | 5.90 | 45.90 | 102.20 | -56.30 | AVG | 150 | | P | |

TM2 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20 / CH: H



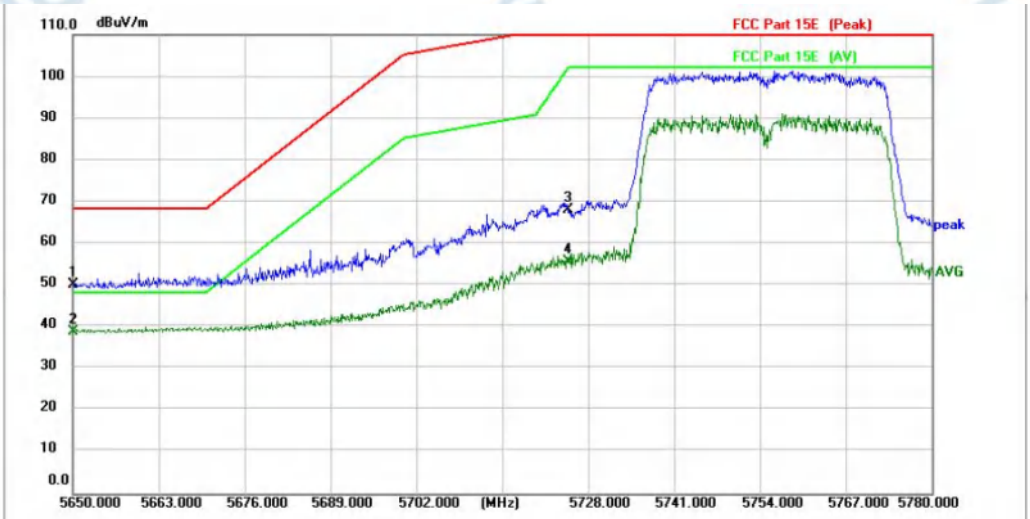

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5850.000 | 48.21 | 6.18 | 54.39 | 122.20 | -67.81 | peak | 100 | | P | |
| 2 | 5850.000 | 34.66 | 6.18 | 40.84 | 102.20 | -61.36 | AVG | 100 | | P | |
| 3 | 5900.000 | 43.60 | 6.28 | 49.88 | 86.66 | -36.78 | peak | 100 | | P | |
| 4 * | 5900.000 | 32.56 | 6.28 | 38.84 | 66.66 | -27.82 | AVG | 100 | | P | |

TM2 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20 / CH: H



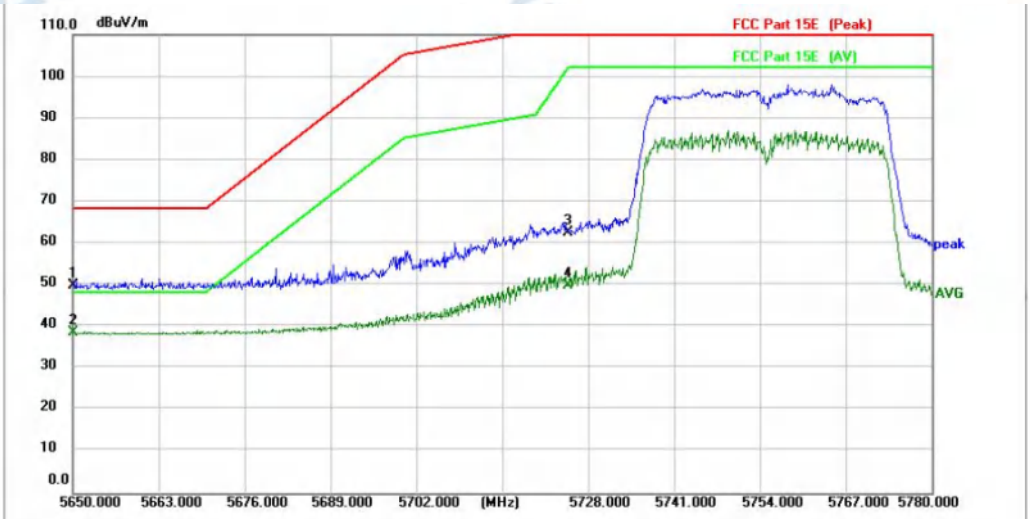

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5850.000 | 51.18 | 6.18 | 57.36 | 122.20 | -64.84 | peak | 100 | | P | |
| 2 | 5850.000 | 36.67 | 6.18 | 42.85 | 102.20 | -59.35 | AVG | 100 | | P | |
| 3 | 5900.000 | 43.48 | 6.28 | 49.76 | 86.66 | -36.90 | peak | 100 | | P | |
| 4 * | 5900.000 | 32.51 | 6.28 | 38.79 | 66.66 | -27.87 | AVG | 100 | | P | |

TM2 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 40 / CH: L



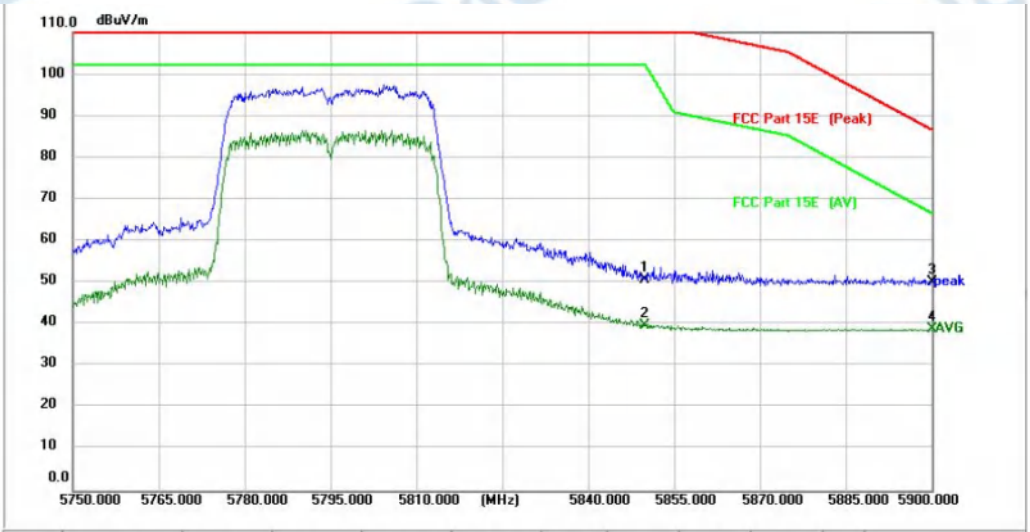

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5650.000 | 44.47 | 5.74 | 50.21 | 68.20 | -17.99 | peak | 150 | | P | |
| 2 * | 5650.000 | 33.06 | 5.74 | 38.80 | 48.20 | -9.40 | AVG | 150 | | P | |
| 3 | 5725.000 | 62.19 | 5.90 | 68.09 | 122.20 | -54.11 | peak | 150 | | P | |
| 4 | 5725.000 | 49.89 | 5.90 | 55.79 | 102.20 | -46.41 | AVG | 150 | | P | |

TM2 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 40 / CH: L



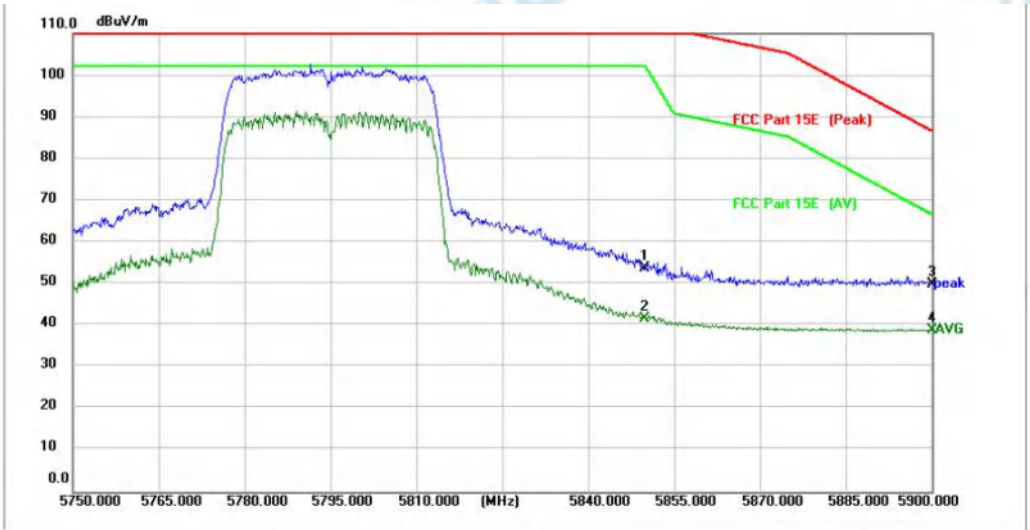

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5650.000 | 44.09 | 5.74 | 49.83 | 68.20 | -18.37 | peak | 150 | | P | |
| 2 * | 5650.000 | 32.81 | 5.74 | 38.55 | 48.20 | -9.65 | AVG | 150 | | P | |
| 3 | 5725.000 | 56.62 | 5.90 | 62.52 | 122.20 | -59.68 | peak | 150 | | P | |
| 4 | 5725.000 | 44.04 | 5.90 | 49.94 | 102.20 | -52.26 | AVG | 150 | | P | |

TM2 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 40 / CH: H




| 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 | 5850.000 | 44.46 | 6.18 | 50.64 | 122.20 | -71.56 | peak | 150 | | P | |
| 2 | 5850.000 | 33.62 | 6.18 | 39.80 | 102.20 | -62.40 | AVG | 150 | | P | |
| 3 | 5900.000 | 43.90 | 6.28 | 50.18 | 86.66 | -36.48 | peak | 150 | | P | |
| 4 * | 5900.000 | 32.50 | 6.28 | 38.78 | 66.66 | -27.88 | AVG | 150 | | P | |

TM2 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 40 / CH: H




| 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 | 5850.000 | 47.62 | 6.18 | 53.80 | 122.20 | -68.40 | peak | 150 | | P | |
| 2 | 5850.000 | 35.43 | 6.18 | 41.61 | 102.20 | -60.59 | AVG | 150 | | P | |
| 3 | 5900.000 | 43.74 | 6.28 | 50.02 | 86.66 | -36.64 | peak | 150 | | P | |
| 4 * | 5900.000 | 32.65 | 6.28 | 38.93 | 66.66 | -27.73 | AVG | 150 | | P | |

## 3.6 Undesirable emission limits (below 1GHz)

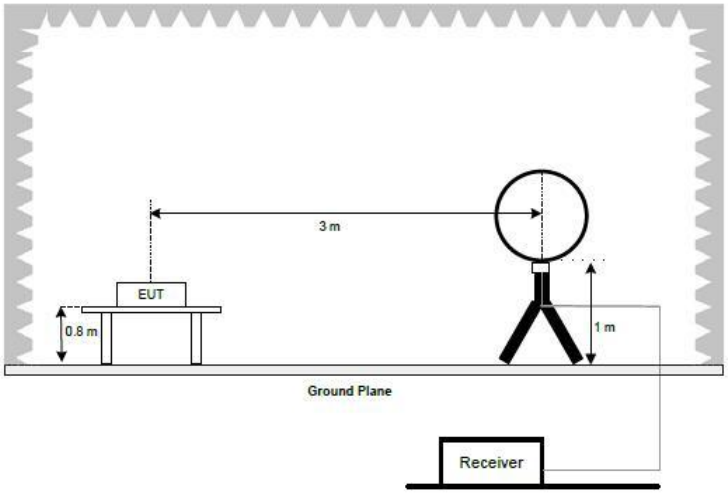
<table>
<tr><td>Test Requirement:</td><td>47 CFR Part 15.407(b)(9)</td></tr>
<tr><td>Test Limit:</td><td>Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.<br>Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:
<table>
<tr><td>Frequency (MHz)</td><td>Field strength (microvolts/meter)</td><td>Measurement distance (meters)</td></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>
** 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.<br>In the emission table above, the tighter limit applies at the band edges.<br>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.</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10-2020, section 12.7.4, 12.7.5</td></tr>
<tr><td>Procedure:</td><td>Below 1GHz:<br>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.<br>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.<br>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.<br>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.<br>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>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.<br>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.<br>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.<br>i. Repeat above procedures until all frequencies measured was complete.<br>Remark:<br>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor<br>2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when</td></tr>
</table>

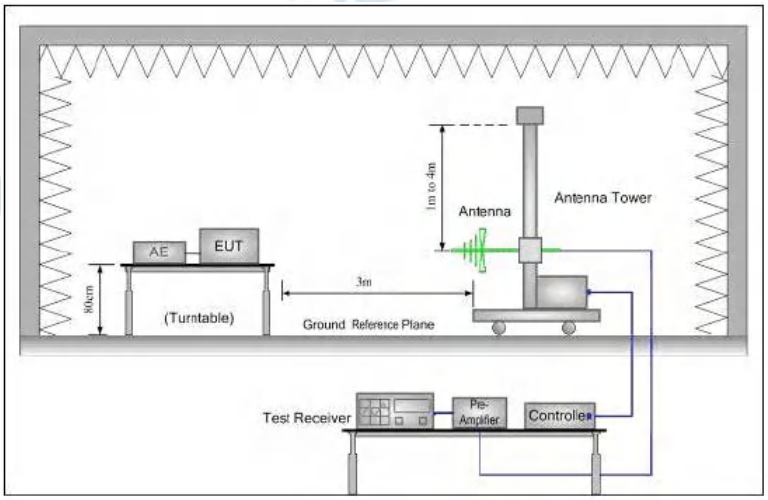
| | |
|---|---|
| | testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.<br>3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. |

### 3.6.1 E.U.T. Operation:

| Operating Environment: | | | | | |
|---|---|---|---|---|---|
| Temperature: | 22.7 °C | Humidity: | 51 % | Atmospheric Pressure: | 101 kPa |
| Pretest mode: | TM1, TM2 | | | | |
| Final test mode: | TM1, TM2 | | | | |

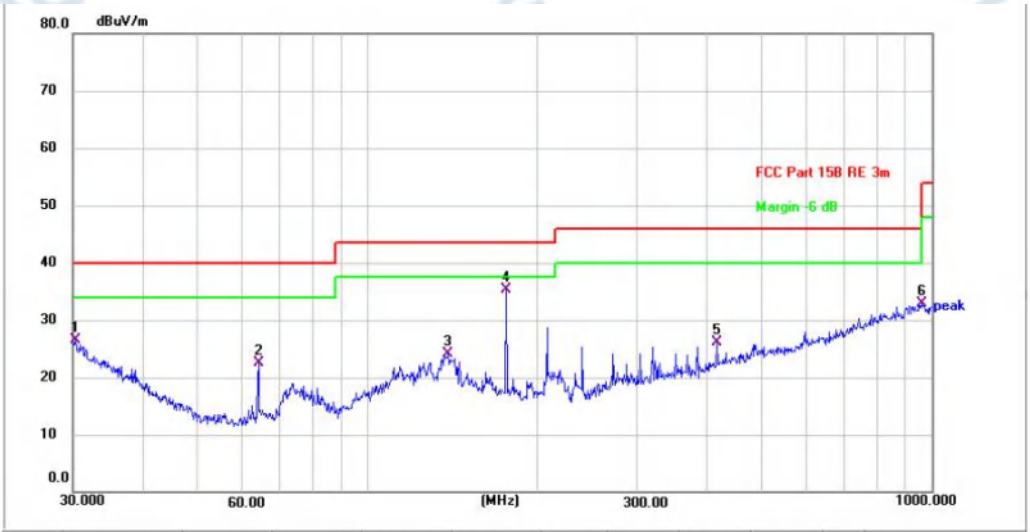
### 3.6.2 Test Setup Diagram:




### 3.6.3 Test Data:

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 | 30.3173 | 26.14 | 0.31 | 26.45 | 40.00 | -13.55 | QP | 100 | | P | |
| 2 | 63.9828 | 35.44 | -12.92 | 22.52 | 40.00 | -17.48 | QP | 100 | | P | |
| 3 | 138.8735 | 30.42 | -6.27 | 24.15 | 43.50 | -19.35 | QP | 100 | | P | |
| 4 * | 175.6516 | 43.39 | -8.17 | 35.22 | 43.50 | -8.28 | QP | 100 | | P | |
| 5 | 416.1791 | 29.14 | -3.12 | 26.02 | 46.00 | -19.98 | QP | 100 | | P | |
| 6 | 958.7943 | 26.41 | 6.51 | 32.92 | 46.00 | -13.08 | QP | 100 | | 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 | 39.5757 | 39.92 | -6.28 | 33.64 | 40.00 | -6.36 | QP | 100 | | P | |
| 2 * | 63.9828 | 47.26 | -12.74 | 34.52 | 40.00 | -5.48 | QP | 100 | | P | |
| 3 | 117.7725 | 38.11 | -5.73 | 32.38 | 43.50 | -11.12 | QP | 100 | | P | |
| 4 | 176.2686 | 40.53 | -8.32 | 32.21 | 43.50 | -11.29 | QP | 100 | | P | |
| 5 | 495.9344 | 27.58 | -1.33 | 26.25 | 46.00 | -19.75 | QP | 100 | | P | |
| 6 | 916.0687 | 27.35 | 6.19 | 33.54 | 46.00 | -12.46 | QP | 100 | | P | |

## 3.7 Undesirable emission limits (above 1GHz)

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15.407(b)(1)<br>47 CFR Part 15.407(b)(4)<br>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.<br><br>For transmitters operating solely in the 5.725-5.850 GHz band:<br>All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. |

| MHz | MHz | MHz | 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 | | | |

[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 § 15.209shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35apply 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:

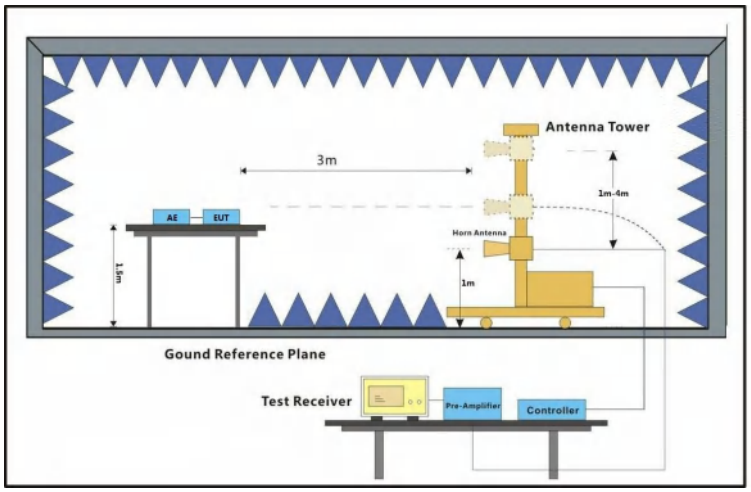
| | |
|---|---|
| | <table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</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><br>** 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.<br>In the emission table above, the tighter limit applies at the band edges.<br>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. |
| Test Method: | ANSI C63.10-2020, section 12.7.4, 12.7.6, 12.7.7 |
| Procedure: | Above 1GHz:<br>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.<br>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.<br>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.<br>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.<br>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>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.<br>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.<br>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.<br>i. Repeat above procedures until all frequencies measured was complete.<br>Remark:<br>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor<br>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.<br>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.<br>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. |

### 3.7.1 E.U.T. Operation:

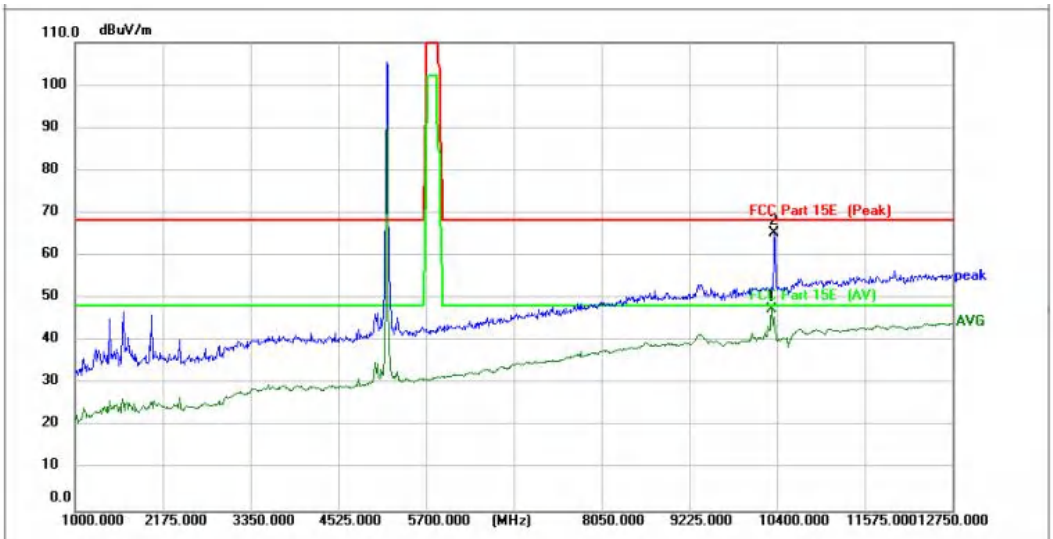
| Operating Environment: | | | | | |
|---|---|---|---|---|---|
| Temperature: | 22.7 °C | Humidity: | 51 % | Atmospheric Pressure: | 101 kPa |
| Pretest mode: | TM1, TM2 | | | | |
| Final test mode: | TM1, TM2 | | | | |

### 3.7.2 Test Setup Diagram:



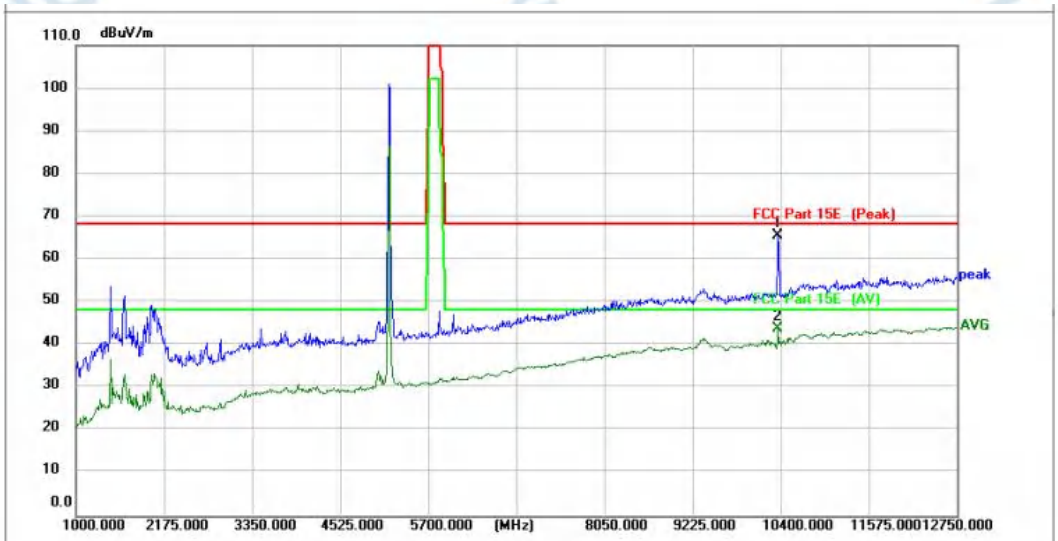

### 3.7.3 Test Data:

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



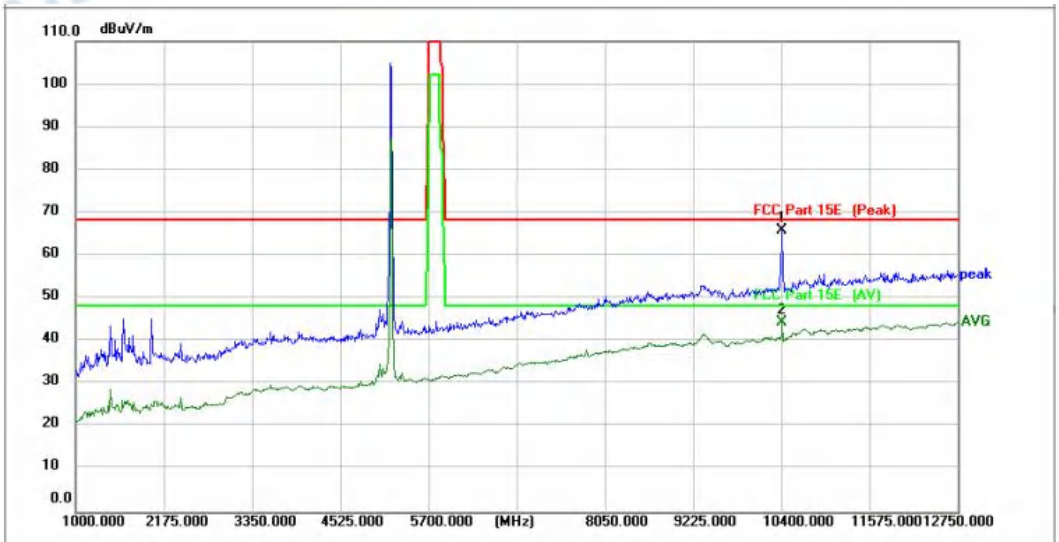

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 * | 10329.500 | 31.29 | 16.02 | 47.31 | 48.20 | -0.89 | AVG | 150 | | P | |
| 2 | 10364.750 | 49.10 | 16.13 | 65.23 | 68.20 | -2.97 | peak | 150 | | P | |

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



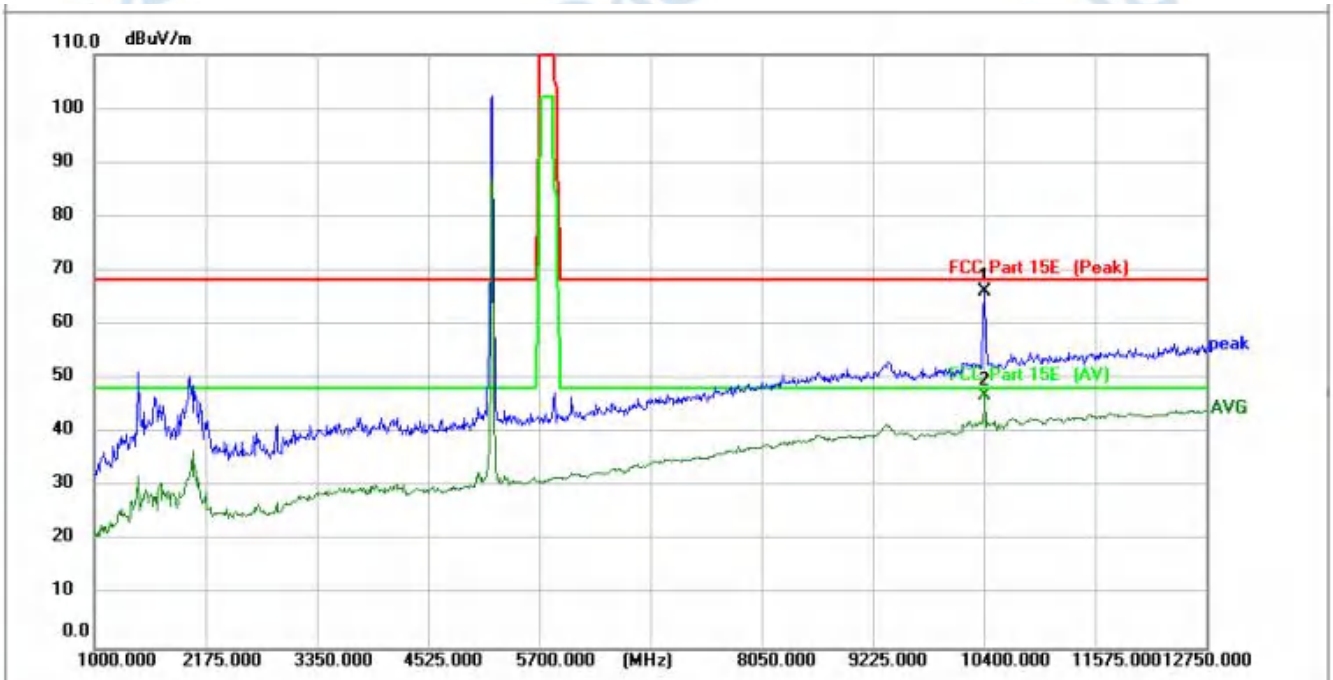

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 * | 10364.750 | 49.42 | 16.13 | 65.55 | 68.20 | -2.65 | peak | 150 | | P | |
| 2 | 10364.750 | 27.73 | 16.13 | 43.86 | 48.20 | -4.34 | AVG | 150 | | P | |

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



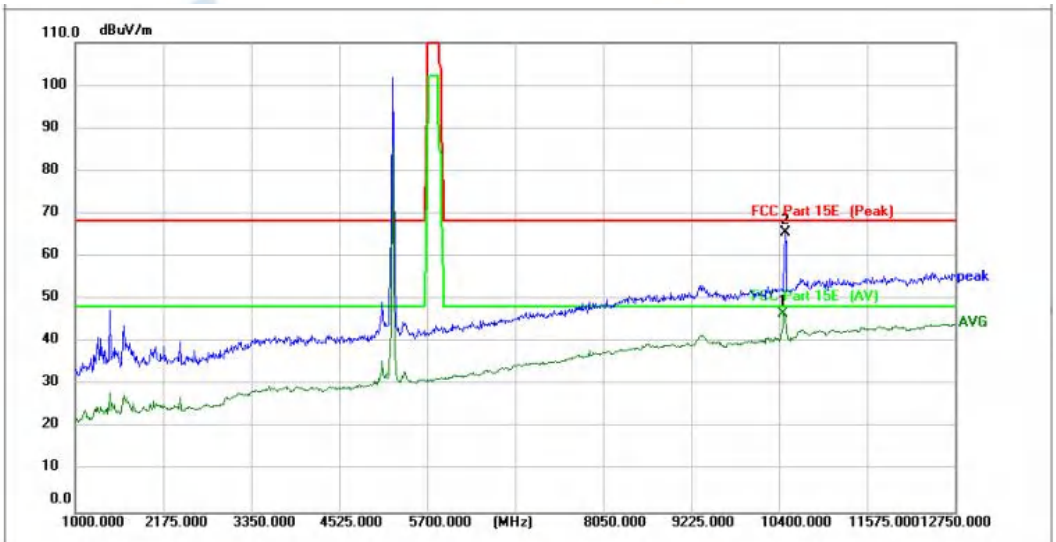

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 * | 10411.750 | 49.50 | 16.25 | 65.75 | 68.20 | -2.45 | peak | 150 | | P | |
| 2 | 10411.750 | 28.28 | 16.25 | 44.53 | 48.20 | -3.67 | AVG | 150 | | P | |

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



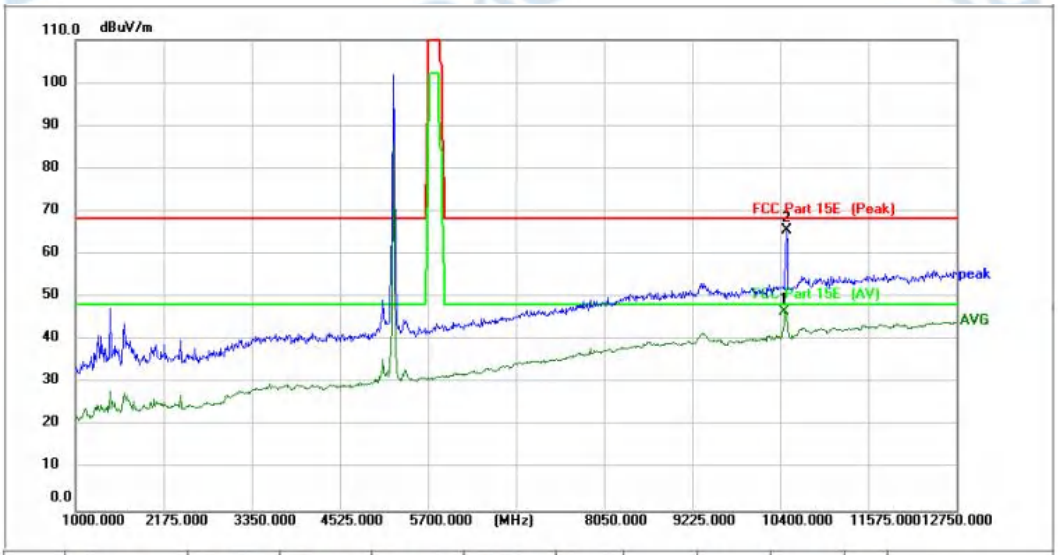

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10400.000 | 49.97 | 16.22 | 66.19 | 68.20 | -2.01 | peak | 150 | | P | |
| 2 * | 10411.750 | 30.67 | 16.25 | 46.92 | 48.20 | -1.28 | AVG | 150 | | P | |

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



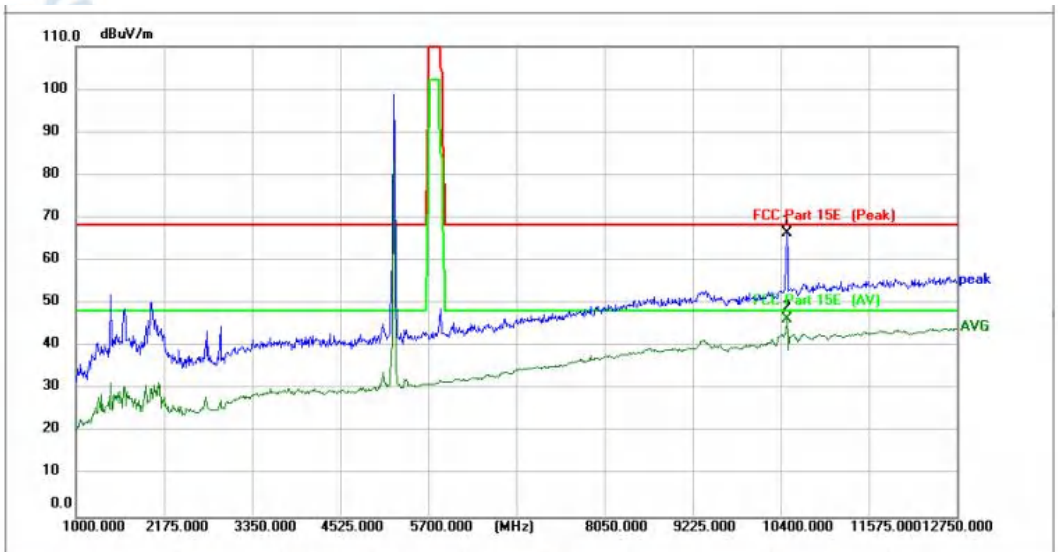

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 * | 10458.750 | 30.34 | 16.38 | 46.72 | 48.20 | -1.48 | AVG | 150 | | P | |
| 2 | 10482.250 | 49.09 | 16.46 | 65.55 | 68.20 | -2.65 | peak | 150 | | P | |

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



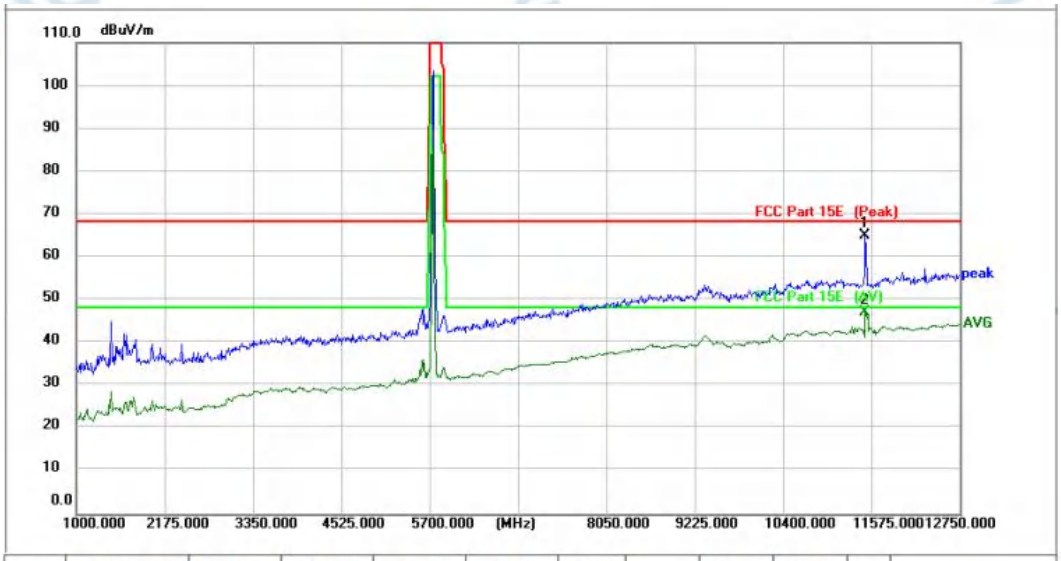

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 * | 10458.750 | 30.34 | 16.38 | 46.72 | 48.20 | -1.48 | AVG | 150 | | P | |
| 2 | 10482.250 | 49.09 | 16.46 | 65.55 | 68.20 | -2.65 | peak | 150 | | P | |

TM1 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20 / CH: L



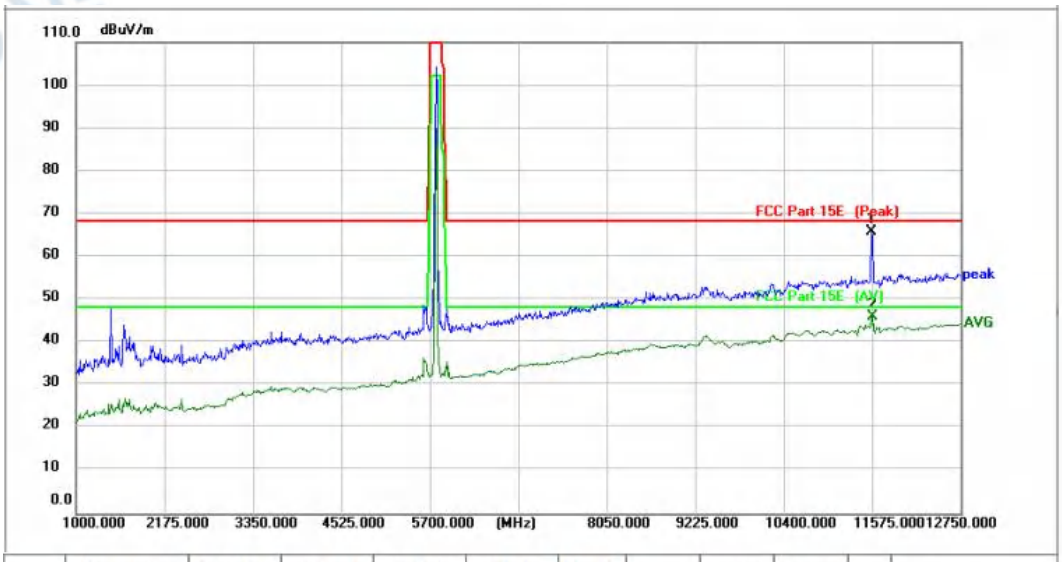

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 * | 10482.250 | 50.07 | 16.46 | 66.53 | 68.20 | -1.67 | peak | 150 | | P | |
| 2 | 10482.250 | 29.77 | 16.46 | 46.23 | 48.20 | -1.97 | AVG | 150 | | P | |

TM1 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20 / CH: L



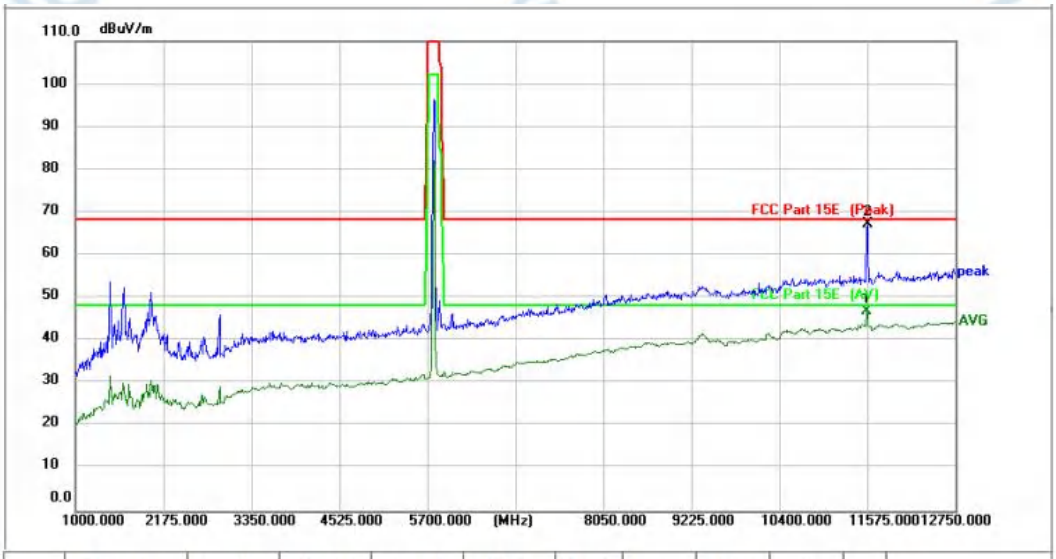

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11492.750 | 47.46 | 17.66 | 65.12 | 68.20 | -3.08 | peak | 149 | | P | |
| 2 * | 11492.750 | 29.62 | 17.66 | 47.28 | 48.20 | -0.92 | AVG | 149 | | P | |

TM1 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20 / CH: M



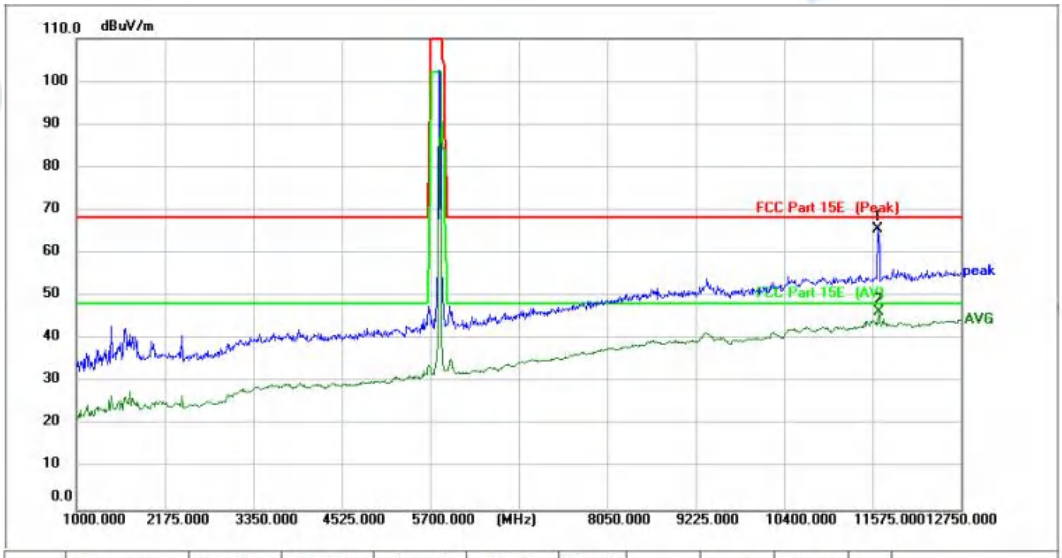

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11563.250 | 48.05 | 17.71 | 65.76 | 68.20 | -2.44 | peak | 149 | | P | |
| 2 * | 11586.750 | 28.47 | 17.72 | 46.19 | 48.20 | -2.01 | AVG | 149 | | P | |

TM1 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20 / CH: M



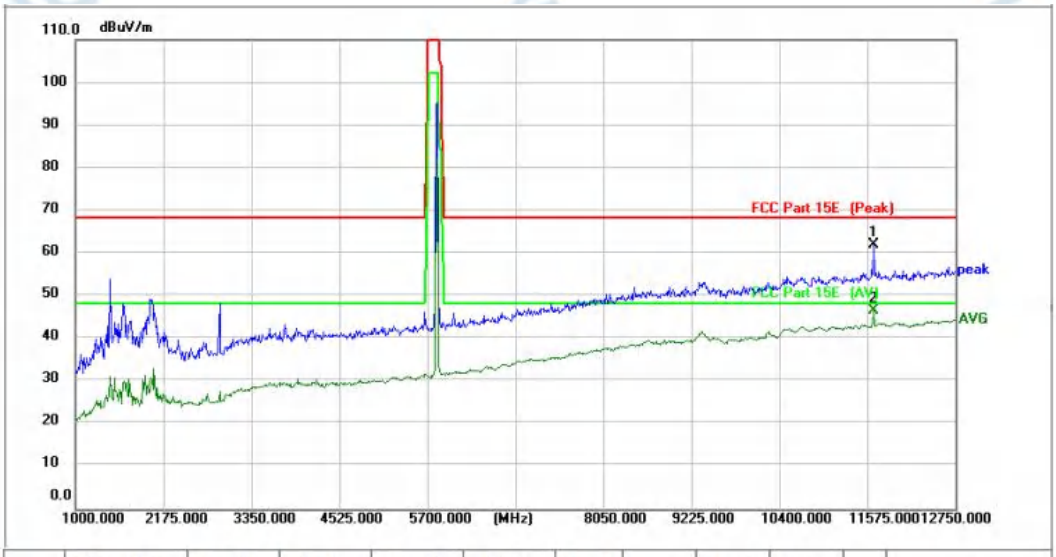

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11563.250 | 29.26 | 17.71 | 46.97 | 48.20 | -1.23 | AVG | 149 | | P | |
| 2 * | 11575.000 | 49.63 | 17.72 | 67.35 | 68.20 | -0.85 | peak | 149 | | P | |

TM1 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20 / CH: H




| 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 | 11645.500 | 47.78 | 17.77 | 65.55 | 68.20 | -2.65 | peak | 149 | | P | |
| 2 * | 11657.250 | 28.65 | 17.77 | 46.42 | 48.20 | -1.78 | AVG | 149 | | P | |

TM1 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20 / CH: H




| 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 | 11657.250 | 44.35 | 17.77 | 62.12 | 68.20 | -6.08 | peak | 149 | | P | |
| 2 * | 11657.250 | 28.78 | 17.77 | 46.55 | 48.20 | -1.65 | AVG | 149 | | P | |

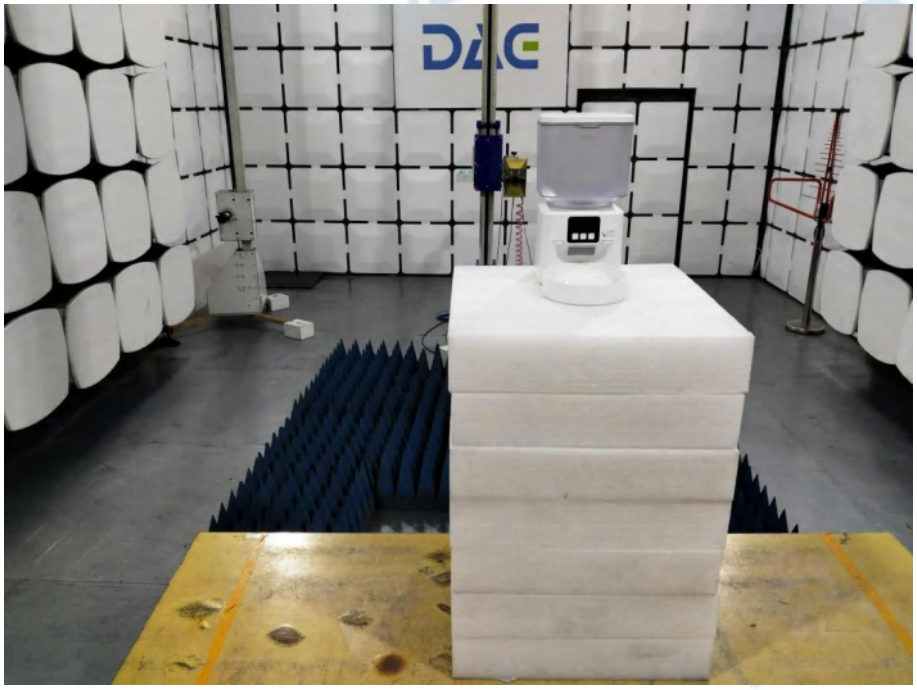
Remark: 1.Margin= Level – Limit; Level=Test receiver reading + correction factor

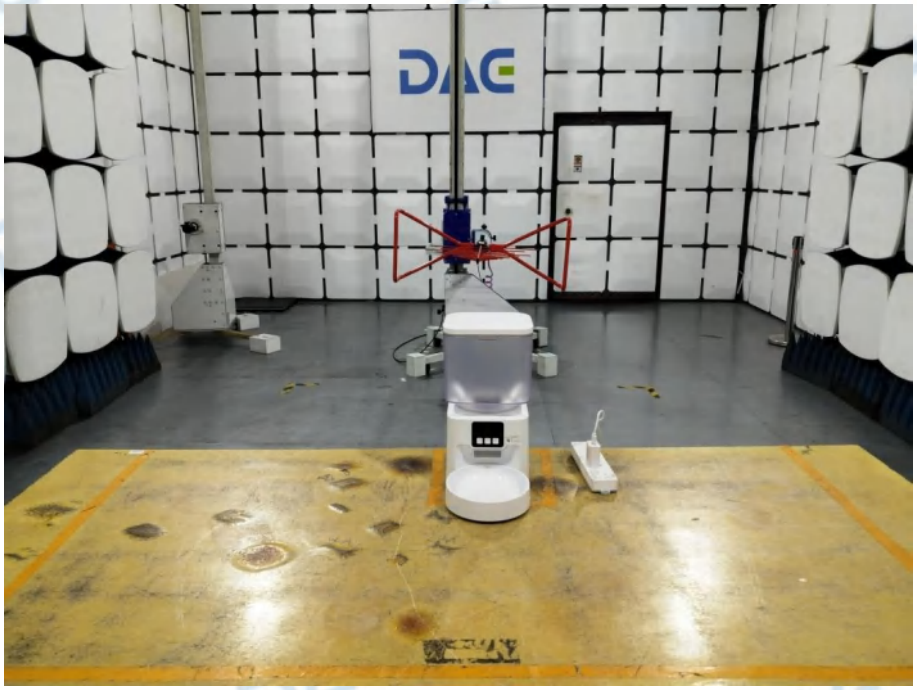
2.The test software will only record the worst test angle and height, and only the worst case will be recorded in the test report.

# 4 TEST SETUP PHOTOS

**Conducted Emission at AC power line**

**Band edge emissions (Radiated)**
**Undesirable emission limits (above 1GHz)**



| Undesirable emission limits (below 1GHz) |
| --- |
|  |

# 5 PHOTOS OF THE EUT

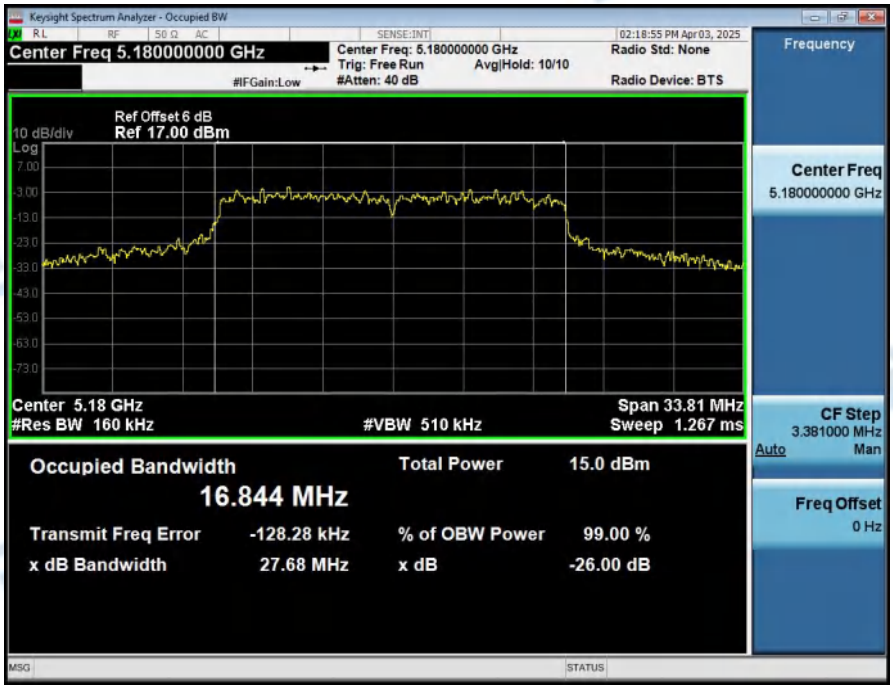
Please Refer to report DACE250313013RL001 for Details.

# Appendix-5.2G

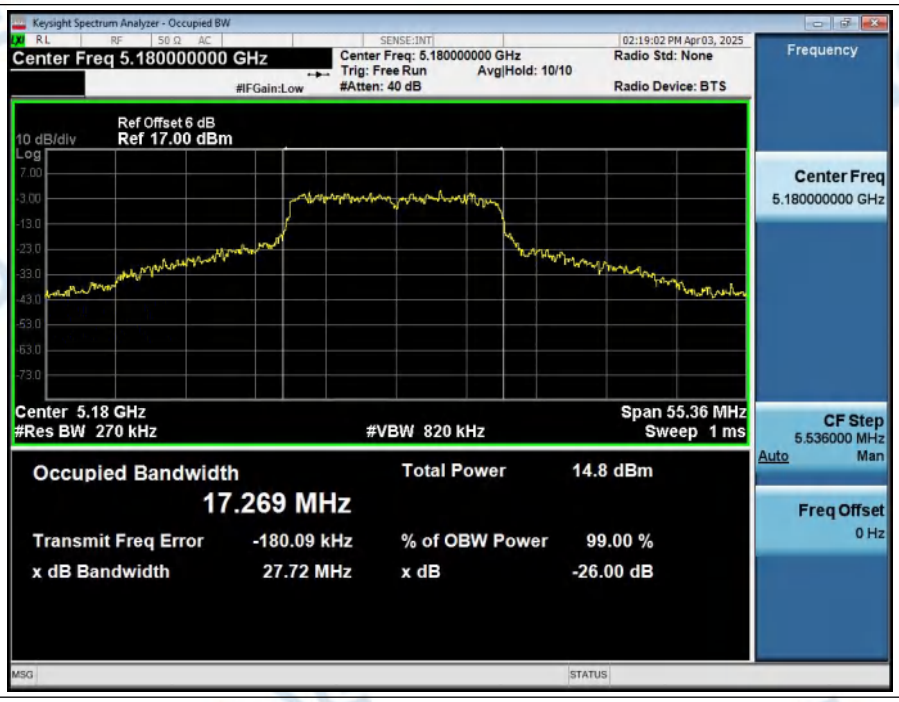
## 1. -26dB and 99% Emission Bandwidth

| Condition | Antenna | Modulation | Frequency(MHz) | -26dB_Emission_ Bandwidth(MHz) | Occupied Bandwidth(MHz) |
|---|---|---|---|---|---|
| NVNT | ANT1 | 802.11a | 5180.00 | 27.72 | 16.84 |
| NVNT | ANT1 | 802.11a | 5200.00 | 25.56 | 17.64 |
| NVNT | ANT1 | 802.11a | 5240.00 | 20.02 | 16.44 |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 26.32 | 17.57 |
| NVNT | ANT1 | 802.11n(HT20) | 5200.00 | 27.83 | 17.54 |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 19.84 | 17.49 |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | 54.62 | 36.11 |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | 45.36 | 35.98 |

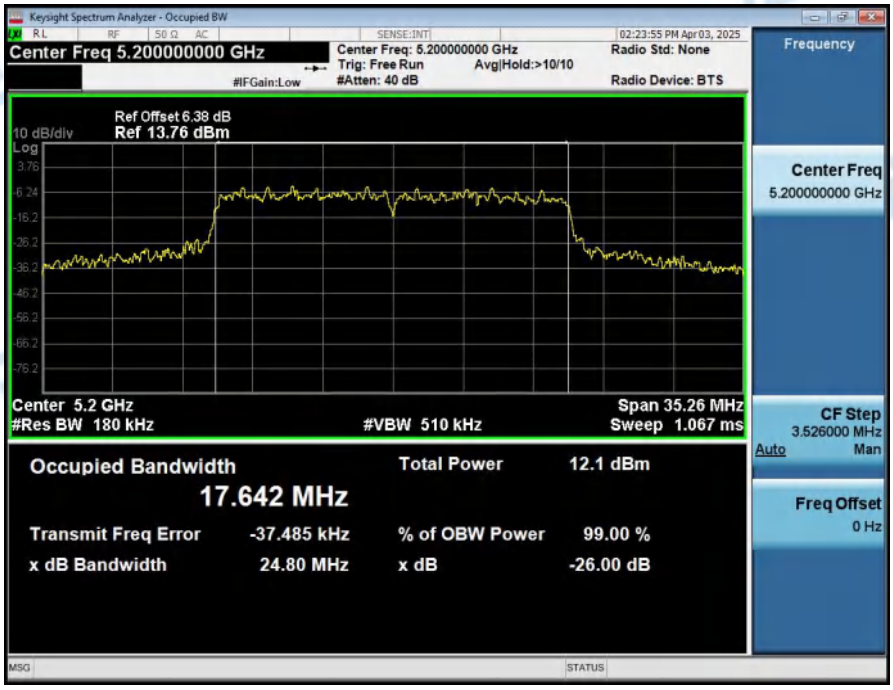
**99%_OCB_NVNT_ANT1_802_11a_5180**



**-26BW_NVNT_ANT1_802_11a_5180**

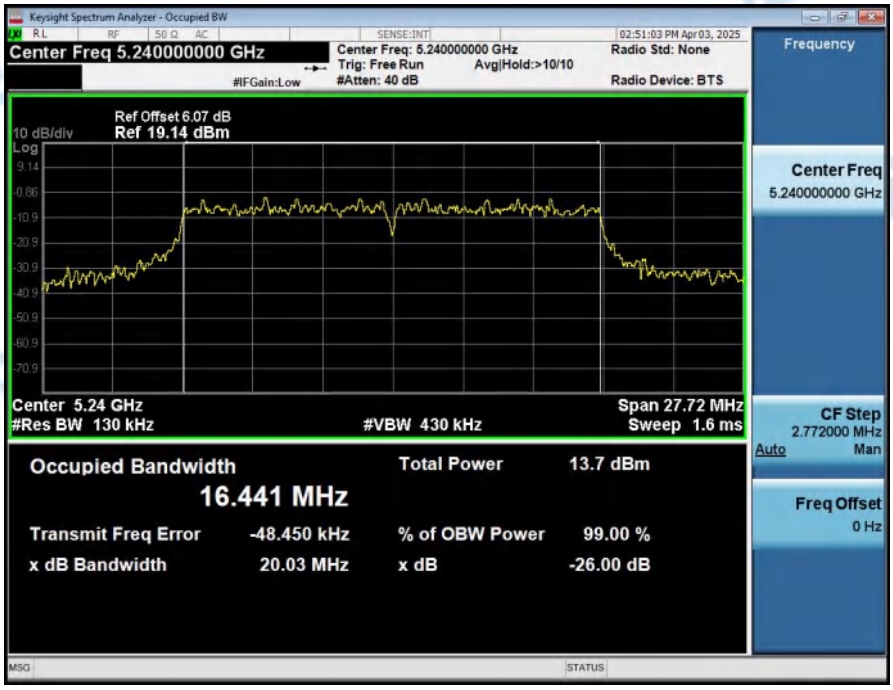



**99%_OCB_NVNT_ANT1_802_11a_5200**



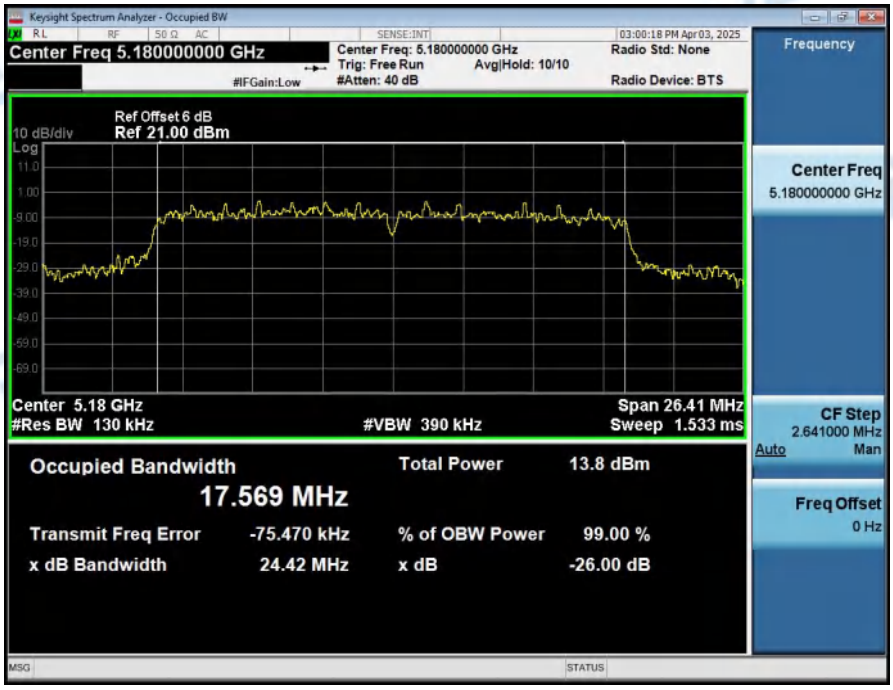
**-26BW_NVNT_ANT1_802_11a_5200**


**99%_OCB_NVNT_ANT1_802_11a_5240**

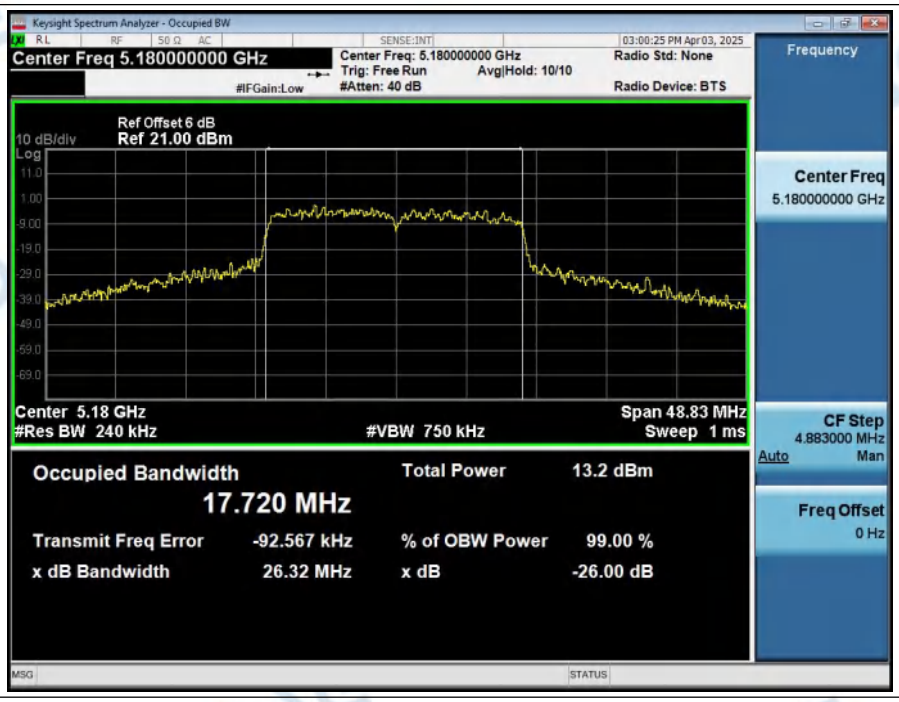


**-26BW_NVNT_ANT1_802_11a_5240**

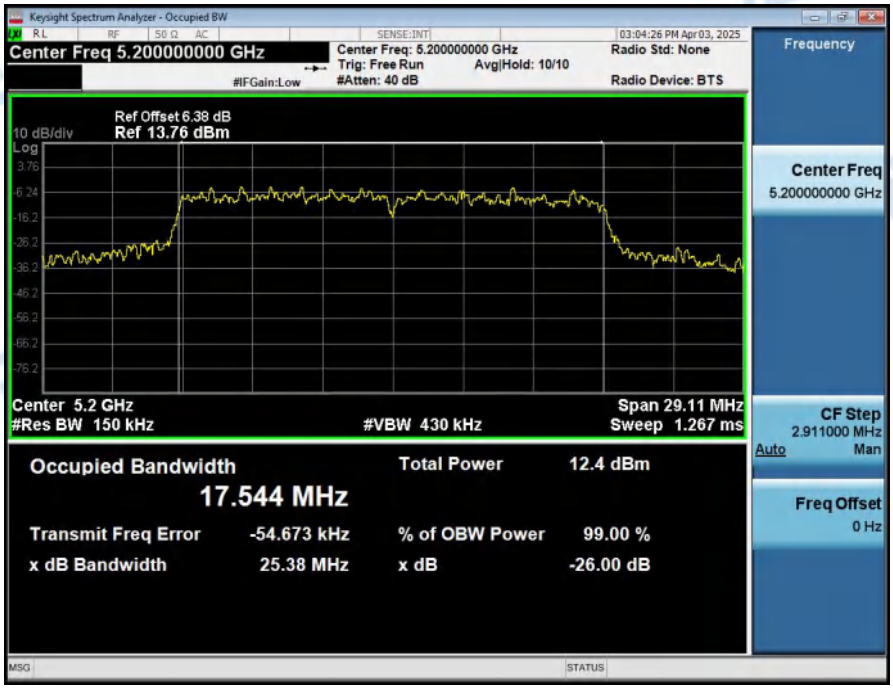

**99%_OCB_NVNT_ANT1_802_11n(HT20)_5180**



**-26BW_NVNT_ANT1_802_11n(HT20)_5180**

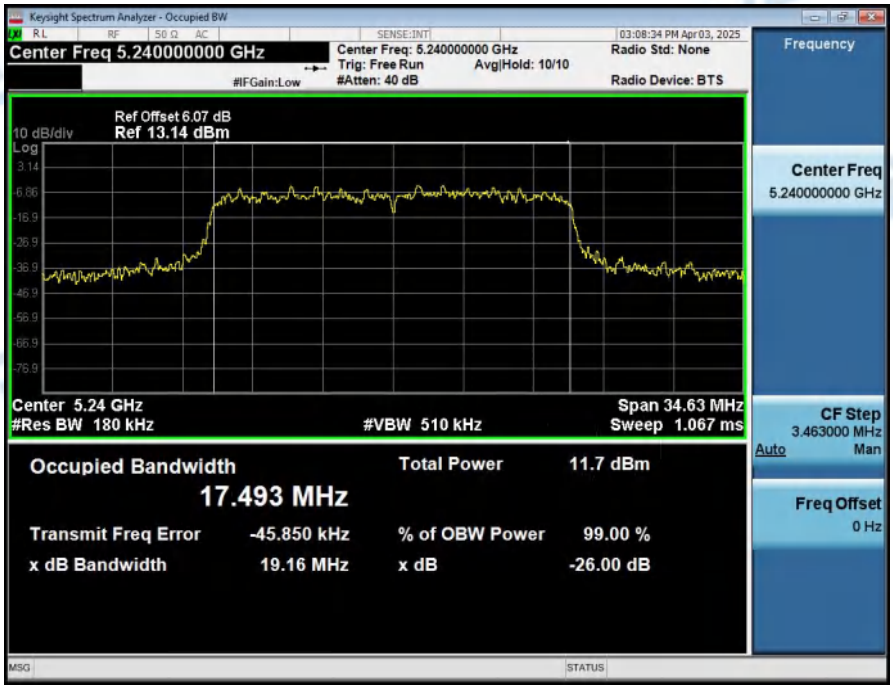



**99%_OCB_NVNT_ANT1_802_11n(HT20)_5200**



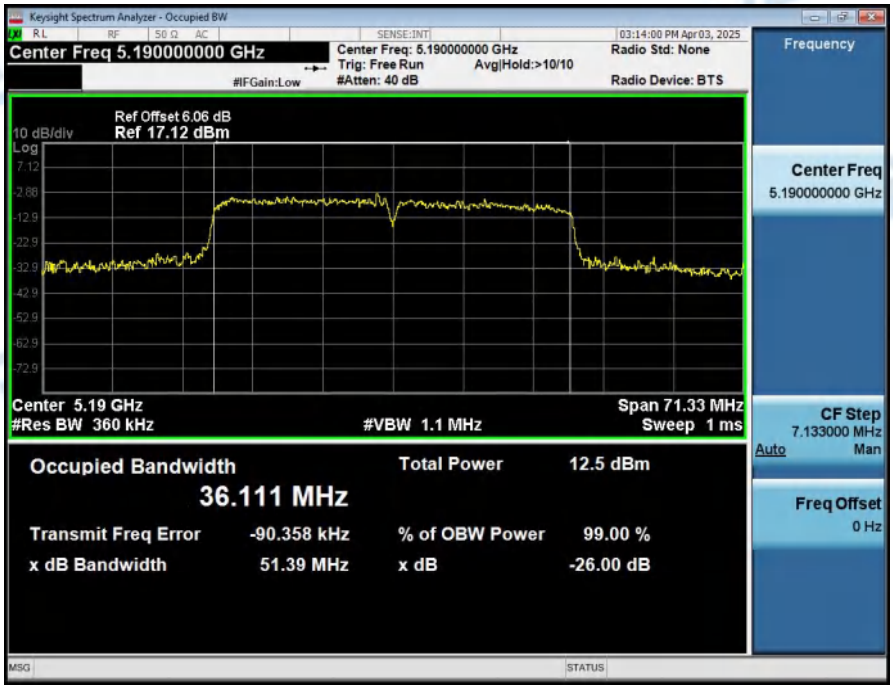
**-26BW_NVNT_ANT1_802_11n(HT20)_5200**


**99%_OCB_NVNT_ANT1_802_11n(HT20)_5240**



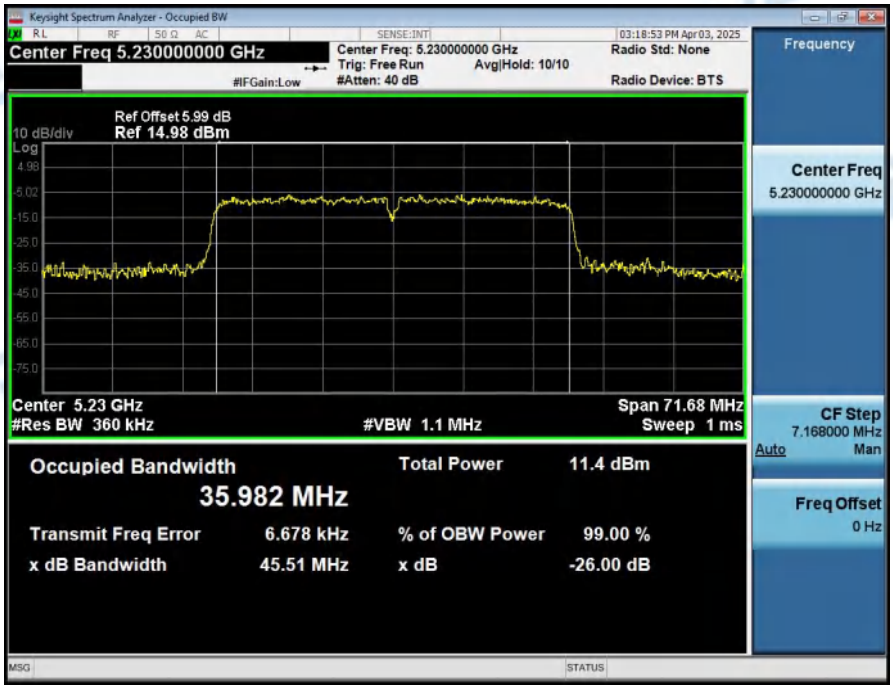
**-26BW_NVNT_ANT1_802_11n(HT20)_5240**


**99%_OCB_NVNT_ANT1_802_11n(HT40)_5190**

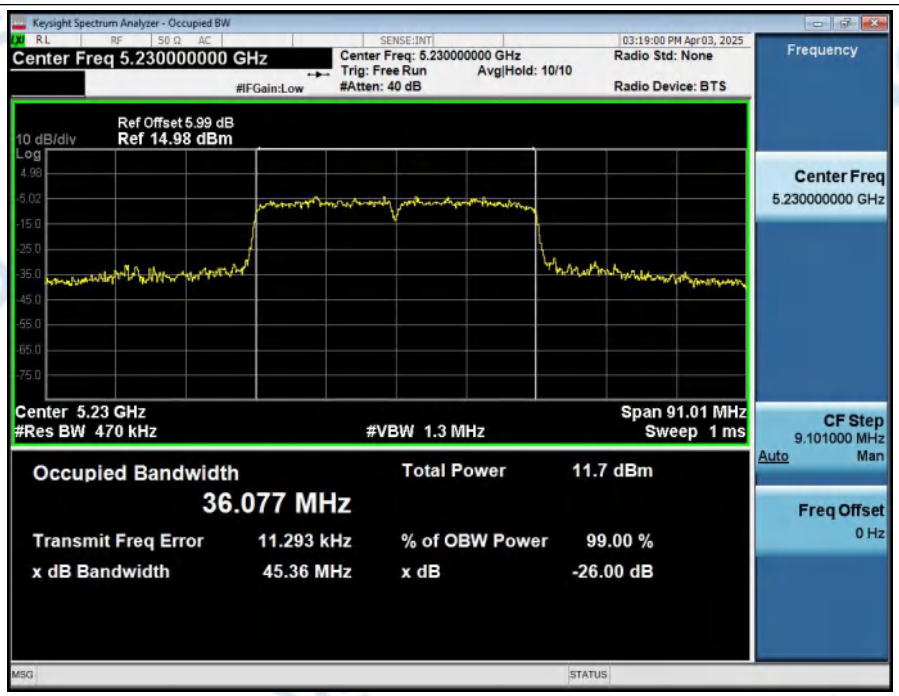


**-26BW_NVNT_ANT1_802_11n(HT40)_5190**


**99%_OCB_NVNT_ANT1_802_11n(HT40)_5230**



**-26BW_NVNT_ANT1_802_11n(HT40)_5230**

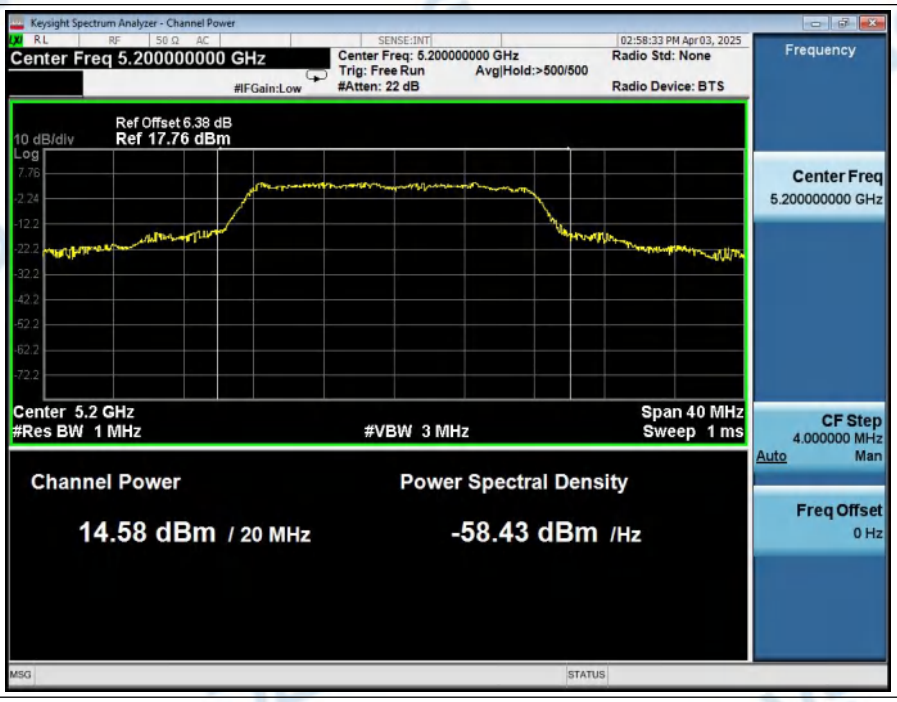


## 2. Maximum Conducted Output Power

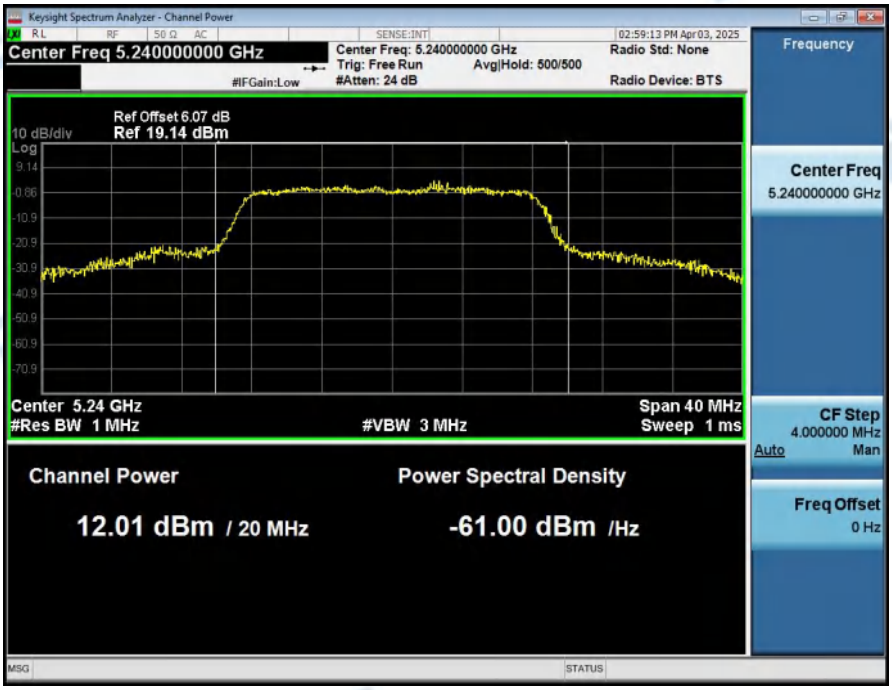
| Condition | Antenna | Modulation | Frequency (MHz) | Conducted Power(dBm) | limit(dBm) | Result |
|---|---|---|---|---|---|---|
| NVNT | ANT1 | 802.11a | 5180.00 | 15.59 | 24 | Pass |
| NVNT | ANT1 | 802.11a | 5200.00 | 14.50 | 24 | Pass |
| NVNT | ANT1 | 802.11a | 5240.00 | 12.01 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 12.04 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5200.00 | 11.03 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 13.05 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | 11.23 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | 10.26 | 24 | Pass |

**Maximum_Conducted_Output_Power_NVNT_ANT1_802_11a_5180_20M**

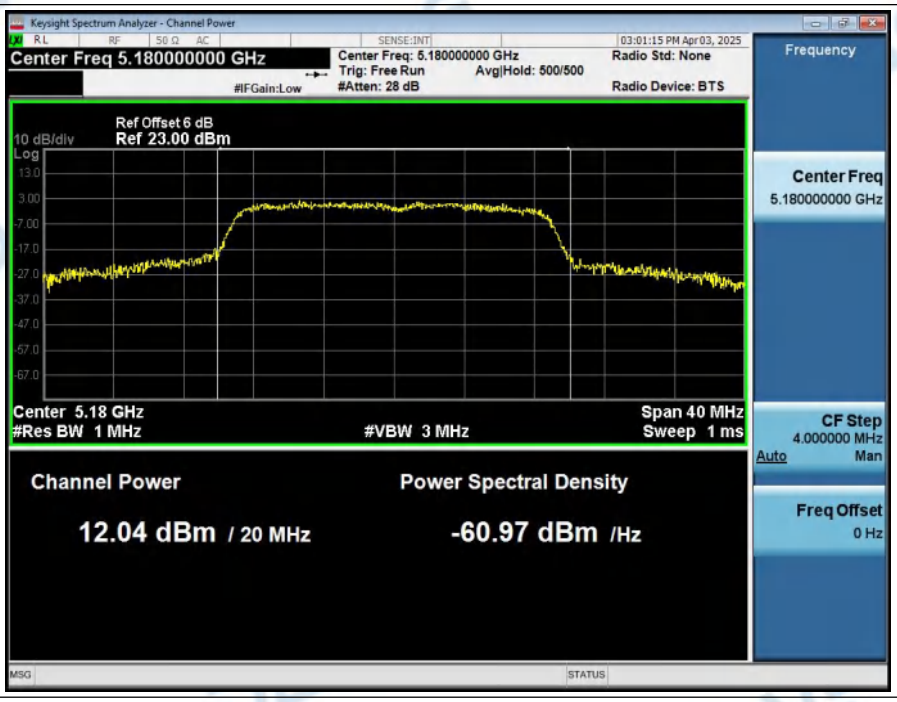
**Maximum_Conducted_Output_Power_NVNT_ANT1_802_11a_5200_20M**



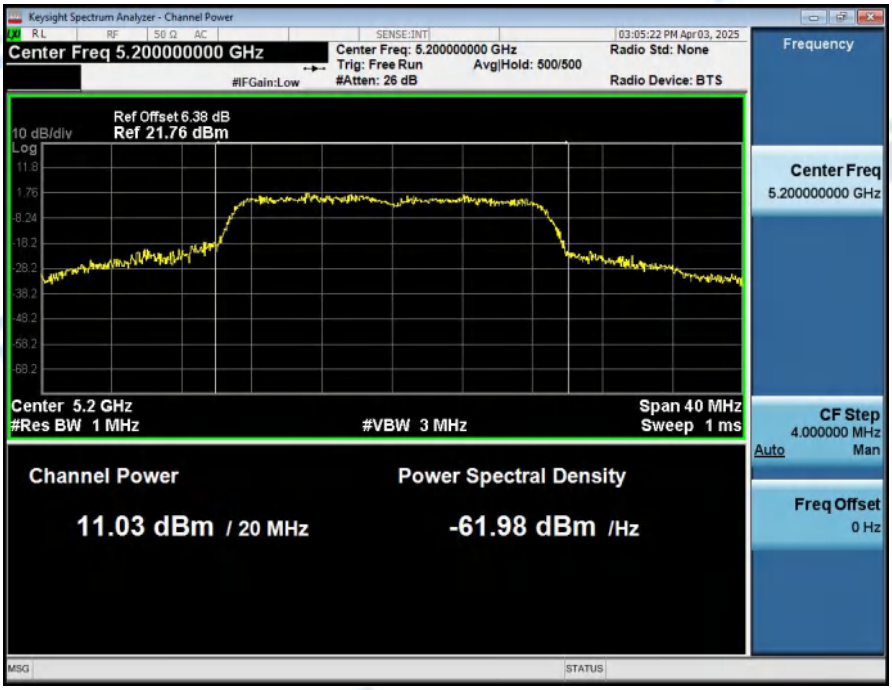

**Maximum_Conducted_Output_Power_NVNT_ANT1_802_11a_5240_20M**



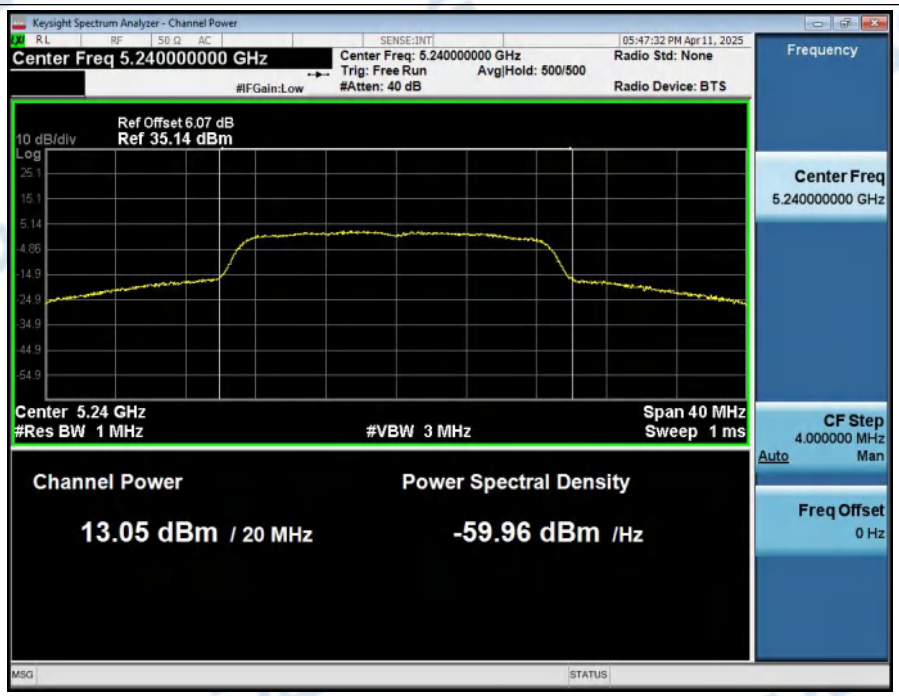
**Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT20)_5180_20M**



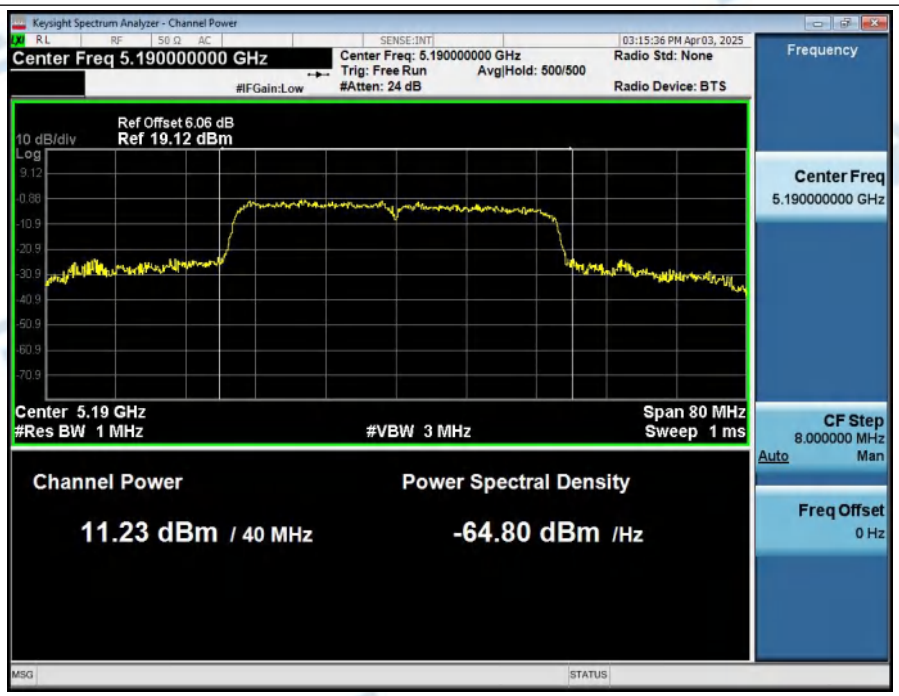

**Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT20)_5200_20M**



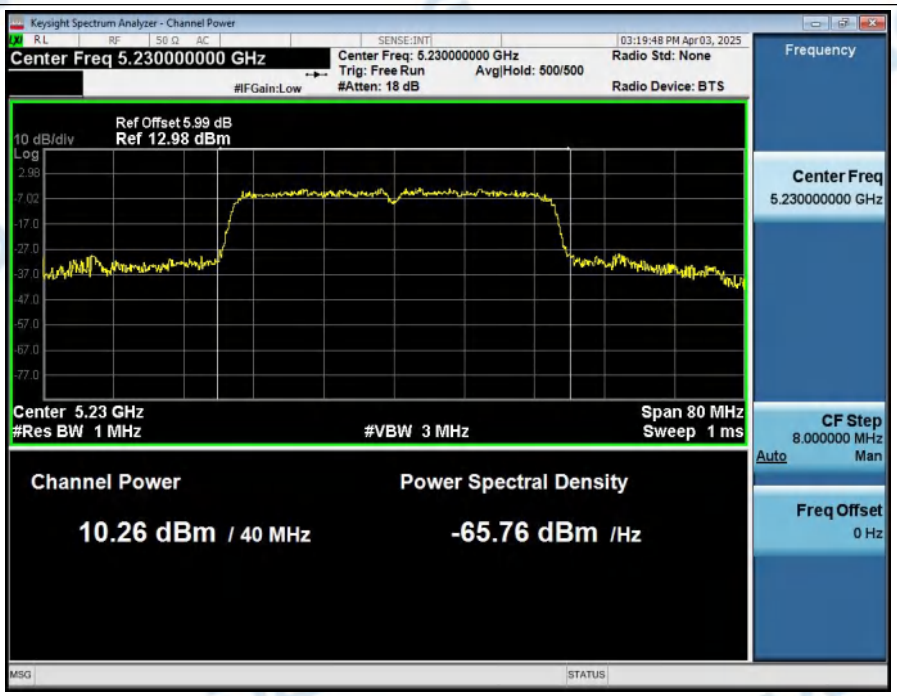
**Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT20)_5240_20M**




**Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT40)_5190_40M**



**Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT40)_5230_40M**



## 3. Power Spectral Density

| Condition | Antenna | Modulation | Frequency (MHz) | PSD(dBm/MHz) | limit(dBm) | Result |
|---|---|---|---|---|---|---|
| NVNT | ANT1 | 802.11a | 5180.00 | 2.32 | 11.00 | Pass |
| NVNT | ANT1 | 802.11a | 5200.00 | 1.23 | 11.00 | Pass |
| NVNT | ANT1 | 802.11a | 5240.00 | 2.25 | 11.00 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 1.80 | 11.00 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5200.00 | 0.14 | 11.00 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 0.56 | 11.00 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | -2.54 | 11.00 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | -3.56 | 11.00 | Pass |

**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 |
|---|
|  |



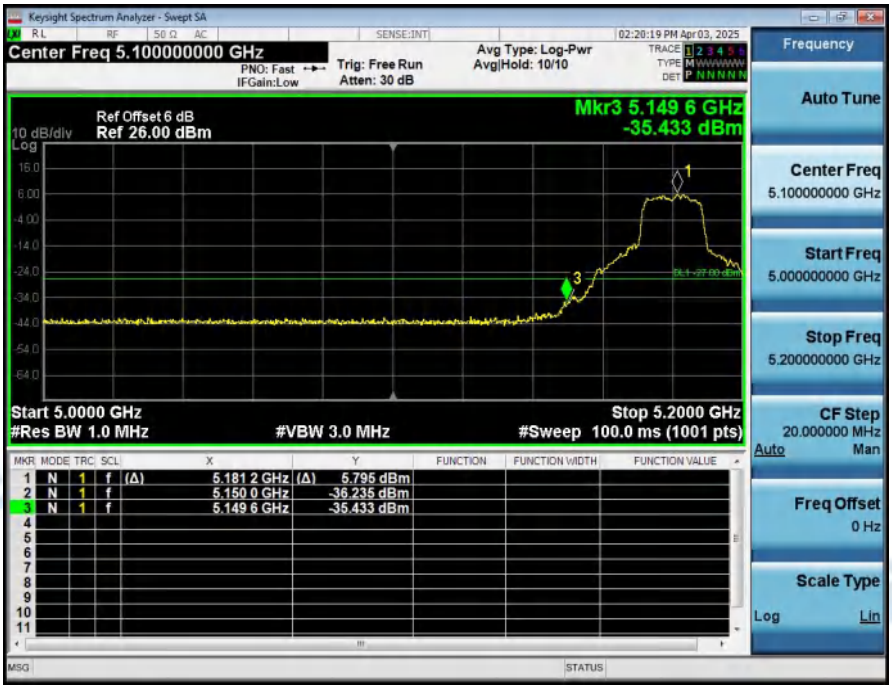
| Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_5190 |
|---|
|  |

**Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_5230**

## 4. Bandedge

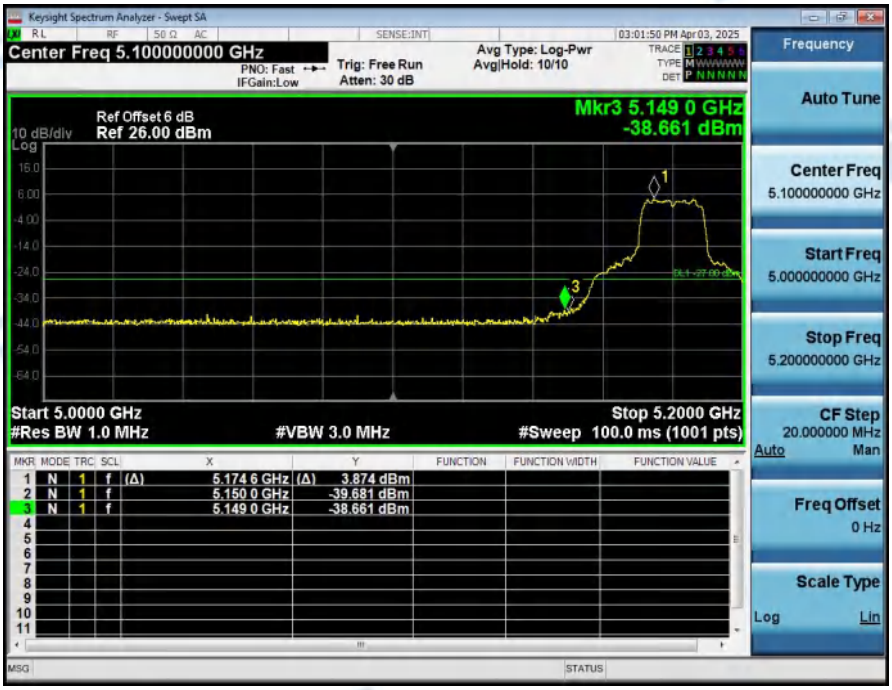
| Condition | Antenna | Modulation | TX_Frequency (MHz) | Max. Mark Frequency(MHz) | Spurious level(dBm) | limit(dBm) | Result |
|---|---|---|---|---|---|---|---|
| NVNT | ANT1 | 802.11a | 5180.00 | 5149.60 | -35.43 | -27 | Pass |
| NVNT | ANT1 | 802.11a | 5240.00 | 5400.60 | -40.45 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 5149.00 | -38.66 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 5375.20 | -41.49 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | 5149.94 | -26.31 | -27 | Fail |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | 5361.62 | -40.96 | -27 | Pass |

**Bandedge_NVNT_ANT1_802_11a_5180**



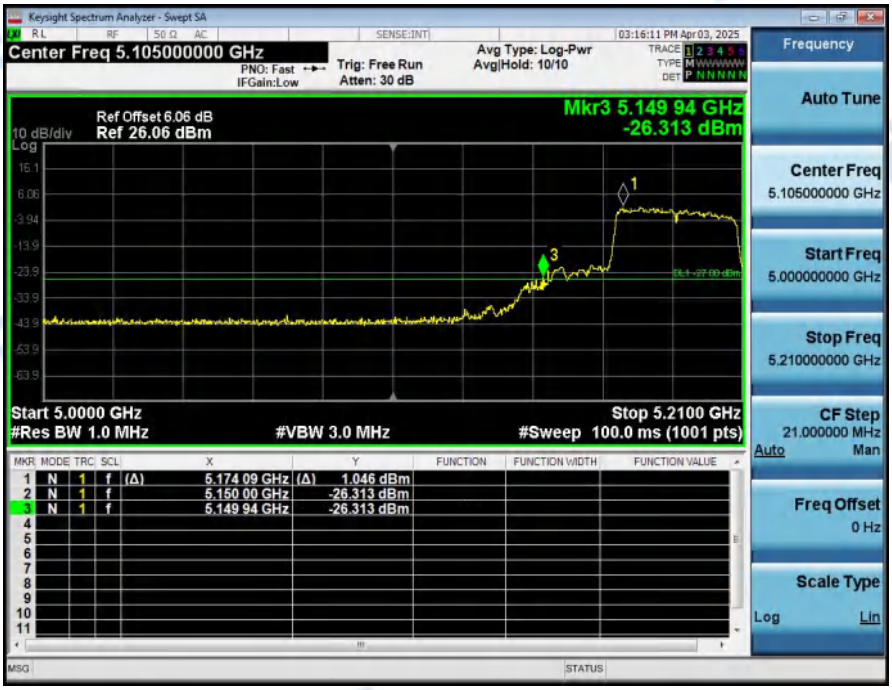
**Bandedge_NVNT_ANT1_802_11a_5240**


**Bandedge_NVNT_ANT1_802_11n(HT20)_5180**



**Bandedge_NVNT_ANT1_802_11n(HT20)_5240**


**Bandedge_NVNT_ANT1_802_11n(HT40)_5190**

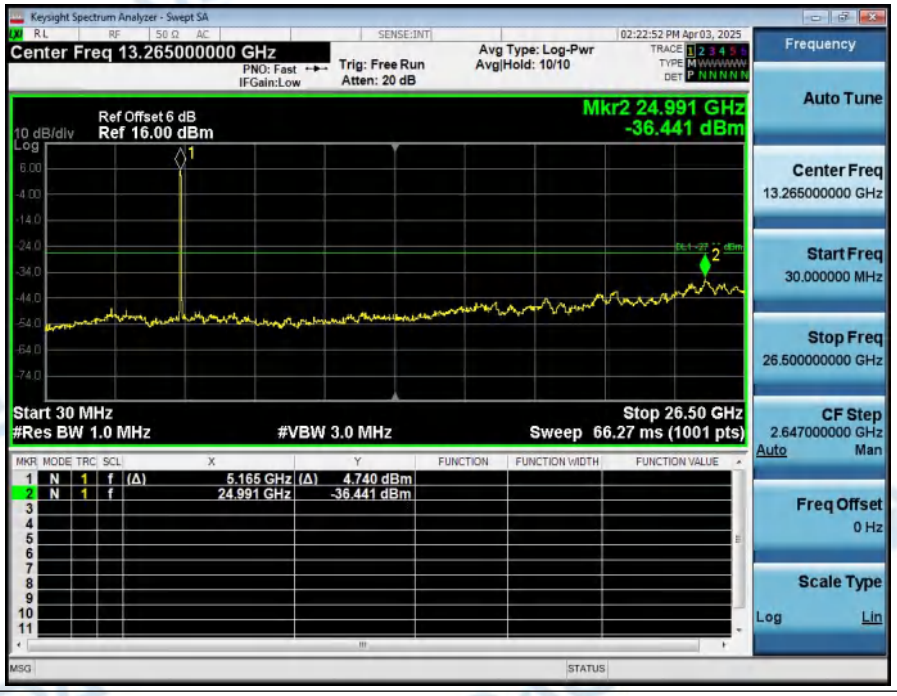


**Bandedge_NVNT_ANT1_802_11n(HT40)_5230**

## 5. Spurious Emission

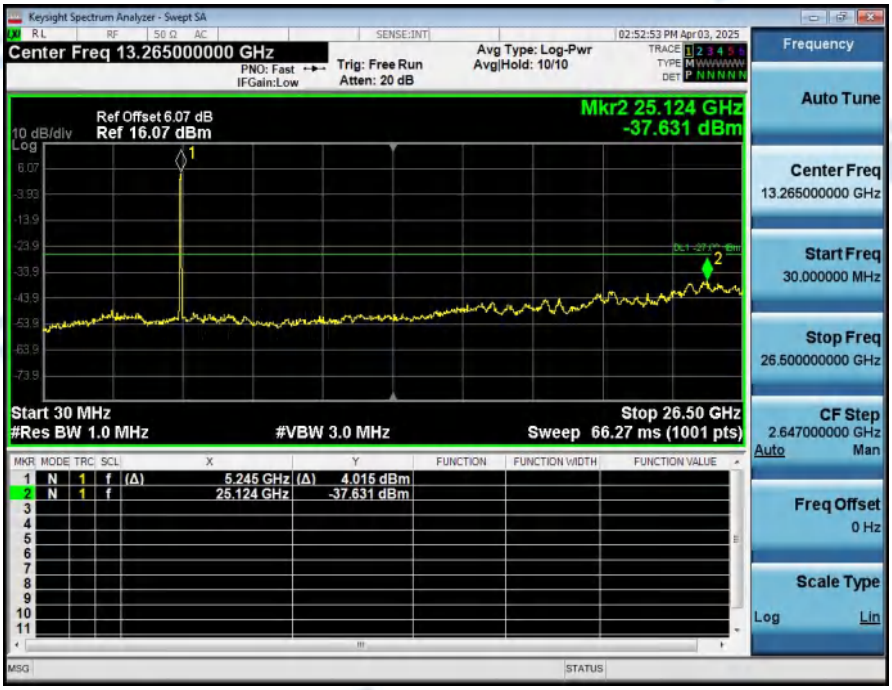
| Condition | Antenna | Modulation | TX_Frequency (MHz) | Max. Mark Frequency(MHz) | Spurious level(dBm) | limit(dBm) | Result |
|---|---|---|---|---|---|---|---|
| NVNT | ANT1 | 802.11a | 5180.00 | 24991.21 | -36.44 | -27 | Pass |
| NVNT | ANT1 | 802.11a | 5200.00 | 24991.21 | -35.87 | -27 | Pass |
| NVNT | ANT1 | 802.11a | 5240.00 | 25123.56 | -37.63 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 25017.68 | -37.84 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5200.00 | 25044.15 | -36.81 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 25044.15 | -36.87 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | 25070.62 | -37.51 | -27 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | 25017.68 | -37.43 | -27 | Pass |

**Spurious_Emission_NVNT_ANT1_802_11a_5180_20M**



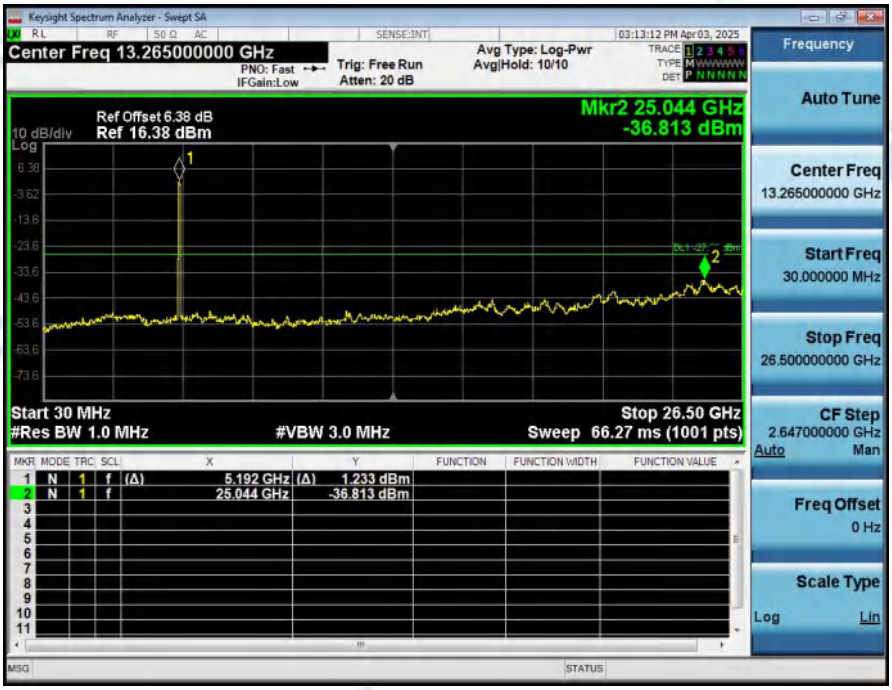
**Spurious_Emission_NVNT_ANT1_802_11a_5200_20M**


**Spurious_Emission_NVNT_ANT1_802_11a_5240_20M**



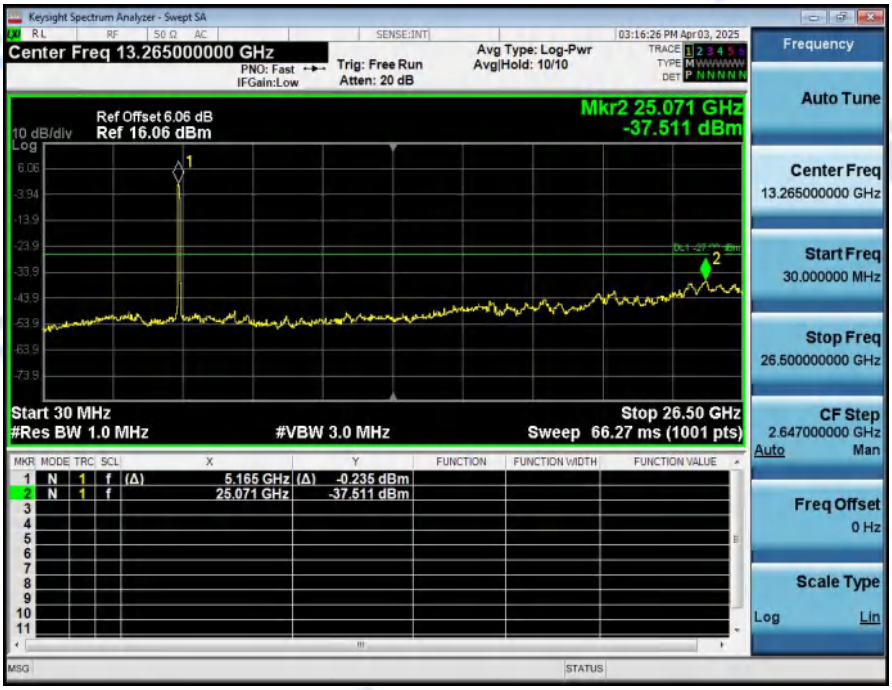
**Spurious_Emission_NVNT_ANT1_802_11n(HT20)_5180_20M**


**Spurious_Emission_NVNT_ANT1_802_11n(HT20)_5200_20M**

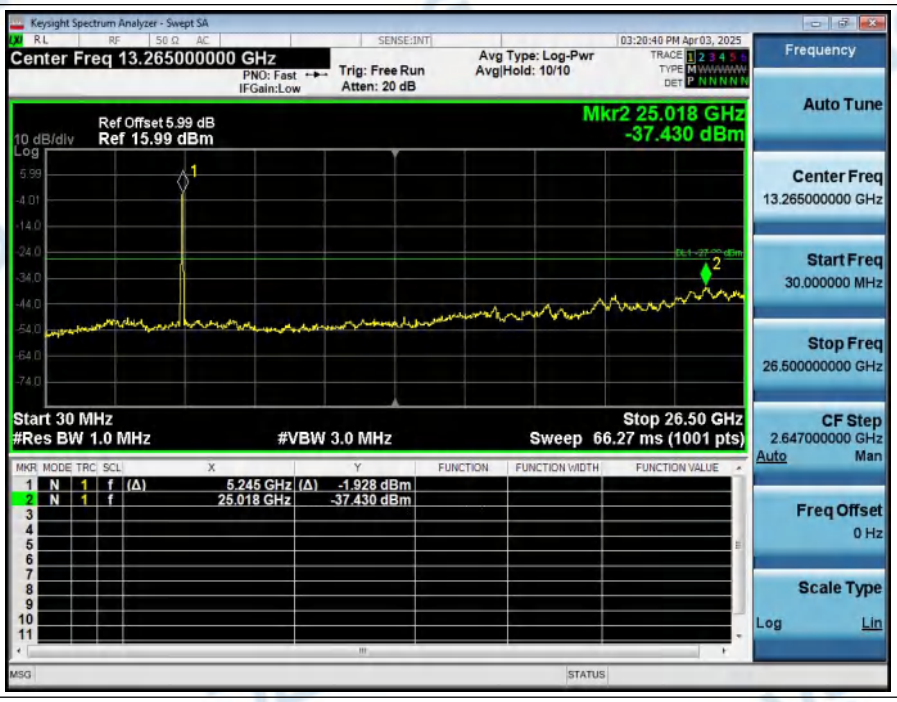


**Spurious_Emission_NVNT_ANT1_802_11n(HT20)_5240_20M**


**Spurious_Emission_NVNT_ANT1_802_11n(HT40)_5190_40M**



**Spurious_Emission_NVNT_ANT1_802_11n(HT40)_5230_40M**



## 6. Frequency Stability

| Condition | Antenna | Modulation | Frequency (MHz) | Fc(MHz) | Fl(MHz) | Fh(MHz) | Limit(MHz) | Result |
|---|---|---|---|---|---|---|---|---|
| NVHT | ANT1 | 802.11a | 5180.00 | 5179.562 | 5169.440 | 5189.684 | 5150~5250 | Pass |
| NVNT | ANT1 | 802.11a | 5180.00 | 5179.860 | 5171.328 | 5188.392 | 5150~5250 | Pass |
| NVLT | ANT1 | 802.11a | 5180.00 | 5179.932 | 5171.616 | 5188.248 | 5150~5250 | Pass |
| HVNT | ANT1 | 802.11a | 5180.00 | 5179.942 | 5171.732 | 5188.152 | 5150~5250 | Pass |
| LVNT | ANT1 | 802.11a | 5180.00 | 5179.922 | 5171.788 | 5188.056 | 5150~5250 | Pass |
| NVHT | ANT1 | 802.11a | 5200.00 | 5199.964 | 5190.936 | 5208.992 | 5150~5250 | Pass |
| NVNT | ANT1 | 802.11a | 5200.00 | 5199.942 | 5191.140 | 5208.744 | 5150~5250 | Pass |
| NVLT | ANT1 | 802.11a | 5200.00 | 5199.962 | 5191.236 | 5208.688 | 5150~5250 | Pass |
| HVNT | ANT1 | 802.11a | 5200.00 | 5199.926 | 5191.284 | 5208.568 | 5150~5250 | Pass |
| LVNT | ANT1 | 802.11a | 5200.00 | 5199.942 | 5191.336 | 5208.548 | 5150~5250 | Pass |
| NVHT | ANT1 | 802.11a | 5240.00 | 5239.970 | 5231.440 | 5248.500 | 5150~5250 | Pass |
| NVNT | ANT1 | 802.11a | 5240.00 | 5239.956 | 5231.660 | 5248.252 | 5150~5250 | Pass |
| NVLT | ANT1 | 802.11a | 5240.00 | 5239.962 | 5231.756 | 5248.168 | 5150~5250 | Pass |
| HVNT | ANT1 | 802.11a | 5240.00 | 5239.970 | 5231.824 | 5248.116 | 5150~5250 | Pass |
| LVNT | ANT1 | 802.11a | 5240.00 | 5239.972 | 5231.884 | 5248.060 | 5150~5250 | Pass |
| NVHT | ANT1 | 802.11n(HT20) | 5180.00 | 5179.914 | 5170.872 | 5188.956 | 5150~5250 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 5179.922 | 5171.096 | 5188.748 | 5150~5250 | Pass |
| NVLT | ANT1 | 802.11n(HT20) | 5180.00 | 5179.952 | 5171.228 | 5188.676 | 5150~5250 | Pass |
| HVNT | ANT1 | 802.11n(HT20) | 5180.00 | 5179.924 | 5171.300 | 5188.548 | 5150~5250 | Pass |
| LVNT | ANT1 | 802.11n(HT20) | 5180.00 | 5179.924 | 5171.396 | 5188.452 | 5150~5250 | Pass |
| NVHT | ANT1 | 802.11n(HT20) | 5200.00 | 5199.950 | 5190.872 | 5209.028 | 5150~5250 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5200.00 | 5199.930 | 5191.096 | 5208.764 | 5150~5250 | Pass |
| NVLT | ANT1 | 802.11n(HT20) | 5200.00 | 5199.934 | 5191.200 | 5208.668 | 5150~5250 | Pass |
| HVNT | ANT1 | 802.11n(HT20) | 5200.00 | 5199.910 | 5191.272 | 5208.548 | 5150~5250 | Pass |
| LVNT | ANT1 | 802.11n(HT20) | 5200.00 | 5199.892 | 5191.356 | 5208.428 | 5150~5250 | Pass |
| NVHT | ANT1 | 802.11n(HT20) | 5240.00 | 5239.972 | 5231.068 | 5248.876 | 5150~5250 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 5239.970 | 5231.220 | 5248.720 | 5150~5250 | Pass |
| NVLT | ANT1 | 802.11n(HT20) | 5240.00 | 5239.962 | 5231.320 | 5248.604 | 5150~5250 | Pass |
| HVNT | ANT1 | 802.11n(HT20) | 5240.00 | 5239.958 | 5231.392 | 5248.524 | 5150~5250 | Pass |
| LVNT | ANT1 | 802.11n(HT20) | 5240.00 | 5239.968 | 5231.468 | 5248.468 | 5150~5250 | Pass |
| NVHT | ANT1 | 802.11n(HT40) | 5190.00 | 5189.976 | 5171.656 | 5208.296 | 5150~5250 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | 5189.848 | 5171.824 | 5207.872 | 5150~5250 | Pass |
| NVLT | ANT1 | 802.11n(HT40) | 5190.00 | 5189.884 | 5172.008 | 5207.760 | 5150~5250 | Pass |
| HVNT | ANT1 | 802.11n(HT40) | 5190.00 | 5189.820 | 5172.112 | 5207.528 | 5150~5250 | Pass |
| LVNT | ANT1 | 802.11n(HT40) | 5190.00 | 5189.788 | 5172.232 | 5207.344 | 5150~5250 | Pass |
| NVHT | ANT1 | 802.11n(HT40) | 5230.00 | 5229.976 | 5211.824 | 5248.128 | 5150~5250 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | 5229.952 | 5212.040 | 5247.864 | 5150~5250 | Pass |
| NVLT | ANT1 | 802.11n(HT40) | 5230.00 | 5230.000 | 5212.240 | 5247.760 | 5150~5250 | Pass |
| HVNT | ANT1 | 802.11n(HT40) | 5230.00 | 5229.996 | 5212.416 | 5247.576 | 5150~5250 | Pass |
| LVNT | ANT1 | 802.11n(HT40) | 5230.00 | 5230.008 | 5212.544 | 5247.472 | 5150~5250 | Pass |