

# Test Report

**Applicant** : Shenzhen Ruist Import and Export Trading Co., Ltd.  
**Address** : 433, Building 25, Keyuan West, Kezhi West Road, Yuehai Street, Nanshan District, Shenzhen, China  
**Product Name** : Carplay for Car  
**Brand Mark** : RUIST  
**Model** : COX10  
**Series model** : COX93, COX90, COX70  
**FCC ID** : 2BRHI-COX10  
**Report Number** : BLA-EMC-202607-A69-02  
**Date of Receipt** : Aug. 01, 2026  
**Date of Test** : Aug. 01, 2026 to Oct. 26, 2026  
**Test Standard** : 47 CFR Part 15, Subpart E 15.407  
**Test Result** : Pass

Compiled by: Mark Chen

Review by: Xavier

Approved by:

Issued Date: Oct. 26, 2026

**BlueAsia Technical Services(Shenzhen) Co.,Ltd.**

Address: No.41, South of Beihuan Road, Shangwu Community, Shiyuan Subdistrict, Bao'an District, Shenzhen, Guangdong, China



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## Revise Record

| Version No. | Date          | Description |
|-------------|---------------|-------------|
| 01          | Oct. 26, 2026 | Original    |
|             |               |             |
|             |               |             |
|             |               |             |

# 1 General information

## 1.1 General information

|              |                                                                                                  |
|--------------|--------------------------------------------------------------------------------------------------|
| Applicant    | Shenzhen Ruist Import and Export Trading Co., Ltd.                                               |
| Address      | 433, Building 25, Keyuan West, Kezhi West Road, Yuehai Street, Nanshan District, Shenzhen, China |
| Manufacturer | Shenzhen Ruist Import and Export Trading Co., Ltd.                                               |
| Address      | 433, Building 25, Keyuan West, Kezhi West Road, Yuehai Street, Nanshan District, Shenzhen, China |
| Factory      | Shenzhen Ruist Import and Export Trading Co., Ltd.                                               |
| Address      | 433, Building 25, Keyuan West, Kezhi West Road, Yuehai Street, Nanshan District, Shenzhen, China |

## 1.2 General description of EUT

|                             |                                                                                                                                                                                                                                                       |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product name                | Carplay for Car                                                                                                                                                                                                                                       |
| Model no.                   | COX10                                                                                                                                                                                                                                                 |
| Series model no.            | COX93, COX90, COX70                                                                                                                                                                                                                                   |
| Differences of Series model | Their circuit design layouts, components used, and internal wiring are identical; only the model names and dimensions differ.                                                                                                                         |
| Operation Frequency         | U-NII-1: 5150MHz-5250MHz                                                                                                                                                                                                                              |
| Channel numbers             | U-NII-1: 802.11a/802.11n(HT20)/802.11ac(HT20)/802.11ax(HE20): 4, 802.11n(HT40)/802.11ac(HT40)/802.11ax(HE40): 2,                                                                                                                                      |
| Modulation Type             | IEEE 802.11a:OFDM (BPSK, QPSK, 16QAM, 64QAM)<br>IEEE 802.11n(HT20/HT40):OFDM (BPSK, QPSK, 16QAM, 64QAM)<br>IEEE for 802.11ac :OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)<br>IEEE for 802.11ax(HE20/HE40):OFDMA(1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK) |
| Transmit Data Rate          | IEEE 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>IEEE 802.11n HT20: up to 216.7 Mbps, HT40: up to 450 Mbps<br>IEEE 802.11ac VHT20: up to 346.7 Mbps, VHT40: up to 800 Mbps<br>802.11ax(HE20/HE40): MCS 0-11                                         |
| Device type                 | Slaver device                                                                                                                                                                                                                                         |

|                                                                                                                                             |                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Resource unit(802.11ax)                                                                                                                     | Only support full RU                                                                                    |
| Antenna Type                                                                                                                                | PCB antenna                                                                                             |
| Antenna Gain                                                                                                                                | 2.75dBi                                                                                                 |
| Function                                                                                                                                    | <input checked="" type="checkbox"/> SISO <input type="checkbox"/> 2x2 MIMO <input type="checkbox"/> TPC |
| Power supply                                                                                                                                | Input: 5V/3A(Type C)                                                                                    |
| Test Voltage                                                                                                                                | DC 5V from adapter AC 120V/60Hz                                                                         |
| Hardware Version                                                                                                                            | N/A                                                                                                     |
| Software Version                                                                                                                            | N/A                                                                                                     |
| <i>Note: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.</i> |                                                                                                         |

## 2 Test summary

| No. | Test item                                           | FCC standard                     | Test Method (Clause)                                                                                        | Result                |
|-----|-----------------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------|
| 1   | Antenna Requirement                                 | §15.203                          | N/A                                                                                                         | Pass                  |
| 2   | Conducted Emissions at AC Power Line (150kHz-30MHz) | §15.207                          | ANSI C63.10-2020+Cor.1-2023 Clause 6.2                                                                      | Pass                  |
| 3   | Frequency Stability                                 | §15.407 (g)                      | ANSI C63.10-2020+Cor.1-2023 Clause 6.8                                                                      | Pass <sup>Note1</sup> |
| 4   | Maximum Conducted output power                      | §15.407 (a)                      | KDB 789033 D02 General UNII Test Procedures New Rules v02r01<br>ANSI C63.10-2020+Cor.1-2023 Clause 12.4.2.2 | Pass                  |
| 5   | Transmitter Power Control                           | §15.407 (h)(1)                   | KDB 789033 D02 General UNII Test Procedures New Rules v02r01<br>ANSI C63.10-2020+Cor.1-2023 Clause 12.2     | N/A                   |
| 6   | Peak Power spectrum density                         | §15.407 (a)                      | KDB 789033 D02 General UNII Test Procedures New Rules v02r01<br>ANSI C63.10-2020+Cor.1-2023 Clause 12.6     | Pass                  |
| 7   | Minimum 6 dB bandwidth (5.725-5.85 GHz band )       | §15.407 (e)                      | KDB 789033 D02 General UNII Test Procedures New Rules v02r01<br>ANSI C63.10-2020+Cor.1-2023 Clause 12.5.1   | N/A                   |
| 8   | 26dB Emission bandwidth                             | §15.407 (a)                      | KDB 789033 D02 General UNII Test Procedures New Rules v02r01<br>ANSI C63.10-2020+Cor.1-2023 Clause 12.5.2   | Pass                  |
| 9   | 99% Bandwidth                                       | N/A                              | KDB 789033 D02 General UNII Test Procedures New Rules v02r01<br>ANSI C63.10-2020+Cor.1-2023 Clause 6.9.3    | Pass                  |
| 10  | Duty Cycle                                          | KDB 789033 D02 General UNII Test | KDB 789033 D02 General UNII Test Procedures New Rules v02r01                                                | Pass                  |

|                                                                                                                                                        |                                                       |                                 |                                                                                                               |      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------|------|
|                                                                                                                                                        |                                                       | Procedures New Rules v02r01 B 1 | ANSI C63.10-2020+Cor.1-2023 Clause 12.2                                                                       |      |
| 11                                                                                                                                                     | Radiated Emissions which fall in the restricted bands | §15.209<br>§15.407(b)           | KDB 789033 D02 General UNII Test<br>Procedures New Rules v02r01<br>ANSI C63.10-2020+Cor.1-2023 Clause 12.7.2  | Pass |
| 12                                                                                                                                                     | Radiated Emissions                                    | §15.209<br>§15.407(b)           | KDB 789033 D02 General UNII Test<br>Procedures New Rules v02r01<br>ANSI C63.10-2020+Cor.1-2023 Clause 12.7.4  | Pass |
| 13                                                                                                                                                     | DFS: Channel Closing Transmission Time                | §15.407((h)(2)                  | KDB 789033 D02 General UNII Test<br>Procedures New Rules v02r01<br>ANSI C63.10-2020+Cor.1-2023 Clause Annex K | N/A  |
| 14                                                                                                                                                     | DFS: Non-occupancy period                             | §15.407((h)(2)                  | KDB 789033 D02 General UNII Test<br>Procedures New Rules v02r01<br>ANSI C63.10-2020+Cor.1-2023 Clause Annex K | N/A  |
| Note1: Under all normal operating conditions specified in the user manual, frequency stability can keep radiation within the operating frequency band. |                                                       |                                 |                                                                                                               |      |

N/A: Not Applicable.

### 3 Test Configuration

#### 3.1 Test mode

| Test Mode <sup>Note 1</sup> | Description                                                                      |
|-----------------------------|----------------------------------------------------------------------------------|
| TX                          | Keep the EUT in continuously transmitting mode with modulation. (Duty cycle>98%) |

*Note 1: The EUT was configured to measure its highest possible emission and/or immunity level. The test modes were adapted according to the operation manual for use; the EUT was operated in the engineering mode <sup>Note 2</sup> to fix the TX frequency that was for the purpose of the measurements.*

*Note 2: Special software is used. The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.*

| Power level setup in software |       |              |                    |
|-------------------------------|-------|--------------|--------------------|
| Test Software Name            | SSCOM | Software Set | TX level : Default |

#### 3.2 Operation frequency and test channel

##### 802.11a/n/ac/ax

| Bandwidth<br><br>Band | 20(MHz)        |                 | 40(MHz)        |                 | 80(MHz)        |                 |
|-----------------------|----------------|-----------------|----------------|-----------------|----------------|-----------------|
|                       | Channel number | frequency (MHz) | Channel number | frequency (MHz) | Channel number | frequency(M Hz) |
| U-NII-1               | 36             | 5180            | 38             | 5190            | /              | /               |
|                       | 40             | 5200            |                |                 |                |                 |
|                       | 44             | 5220            | 46             | 5230            |                |                 |
|                       | 48             | 5240            |                |                 |                |                 |

#### 3.3 Auxiliary equipment

| Device Type | Manufacturer | Model Name | Serial No. | Remark                             |
|-------------|--------------|------------|------------|------------------------------------|
| PC          | Lenovo       | E460C      | N/A        | From lab<br>(No.BLA-ZC-BS-2022005) |

##### Note:

“--” mean no any auxiliary device during testing.

### 3.4 Test environment

| Environment | Temperature                |         |
|-------------|----------------------------|---------|
|             | NT(Normal Temperature)     | 25 °C   |
|             | LT(Low Temperature)        | -20 °C  |
|             | HT(High Temperature)       | 70 °C   |
|             | Working Voltage of the EUT |         |
|             | NV(Normal Voltage)         | AC 120V |
|             | LV(Low Voltage)            | AC 100V |
|             | HV(High Voltage)           | AC 240V |
|             |                            |         |

## 4 Laboratory information

### 4.1 Laboratory and accreditations

The test facility is recognized, certified, or accredited by the following organizations:

|                             |                                                                                                                 |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------|
| Company name:               | BlueAsia Technical Services(Shenzhen) Co., Ltd.                                                                 |
| Address:                    | No.41, South of Beihuan Road, Shangwu Community, Shiyan Subdistrict,Bao'an District, Shenzhen, Guangdong, China |
| CNAS accredited No.:        | L9788                                                                                                           |
| A2LA Cert. No.:             | 5071.01                                                                                                         |
| FCC Designation No.:        | CN1252                                                                                                          |
| Test Firm Registration No.: | 923526                                                                                                          |
| ISED CAB identifier No.:    | CN0028                                                                                                          |
| Registration No.:           | 24243                                                                                                           |
| Telephone:                  | +86-755-28682673                                                                                                |
| FAX:                        | +86-755-28682673                                                                                                |

### 4.2 Measurement uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=1.96$ .

| Parameter                                      | Expanded Uncertainty            |
|------------------------------------------------|---------------------------------|
| Radiated Emission(9kHz-30MHz)                  | $\pm 4.34\text{dB}$             |
| Radiated Emission(30Mz-1000MHz)                | $\pm 4.24\text{dB}$             |
| Radiated Emission(1GHz-18GHz)                  | $\pm 4.68\text{dB}$             |
| Radiated Emission(18GHz-40GHz)                 | $\pm 4.78\text{dB}$             |
| AC Power Line Conducted Emission(150kHz-30MHz) | $\pm 3.45\text{dB}$             |
| Occupied Channel Bandwidth                     | $\pm 5\%$                       |
| RF output power, conducted                     | $\pm 1.5\text{ dB}$             |
| Power Spectral Density, conducted              | $\pm 3.0\text{ dB}$             |
| Unwanted Emissions, conducted                  | $\pm 3.0\text{ dB}$             |
| Temperature                                    | $\pm 3\text{ }^{\circ}\text{C}$ |
| Supply voltages                                | $\pm 3\%$                       |
| Time                                           | $\pm 5\%$                       |

## 5 Test equipment

### Radiated Spurious Emissions (Below 1GHz)

| Equipment      | Name              | Model            | Manufacture | S/N    | Cal. Date  | Due. Date  |
|----------------|-------------------|------------------|-------------|--------|------------|------------|
| BLA-EMC-002-01 | Anechoic chamber  | 9*6*6 chamber    | SKET        | N/A    | 2024/3/27  | 2027/3/26  |
| BLA-EMC-002-02 | Control room      | 966 control room | SKET        | N/A    | 2024/3/27  | 2027/3/26  |
| BLA-EMC-009    | EMI receiver      | ESR7             | R&S         | 101199 | 2026/07/31 | 2027/07/30 |
| BLA-EMC-043    | Loop antenna      | FMZB1519B        | Schwarzbeck | 00102  | 2026/05/31 | 2027/05/30 |
| BLA-EMC-065    | Broadband antenna | VULB9168         | Schwarzbeck | 01065P | 2026/05/31 | 2027/05/30 |
| BLA-XC-01      | Coaxial Cable     | N/A              | BlueAsia    | V01    | N/A        | N/A        |
| BLA-XC-02      | Coaxial Cable     | N/A              | BlueAsia    | V02    | N/A        | N/A        |

### Radiated Spurious Emissions (Above 1GHz)

| Equipment      | Name             | Model               | Manufacture | S/N          | Cal. Date  | Due. Date  |
|----------------|------------------|---------------------|-------------|--------------|------------|------------|
| BLA-EMC-001-01 | Anechoic chamber | 9*6*6 chamber       | SKET        | N/A          | 2023/11/16 | 2026/11/15 |
| BLA-EMC-001-02 | Control Room     | 966 control room    | SKET        | N/A          | 2025/11/12 | 2026/11/11 |
| BLA-EMC-008    | Spectrum         | FSP40               | R&S         | 100817       | 2026/07/31 | 2027/07/30 |
| BLA-EMC-013    | Horn Antenna     | BBHA9120D           | Schwarzbeck | 01892        | 2026/05/31 | 2027/05/30 |
| BLA-EMC-014    | Amplifier        | PA_000318G-45       | SKET        | PA2018043003 | 2026/07/31 | 2027/07/30 |
| BLA-EMC-046    | Filter bank      | 2.4G/5G Filter bank | SKET        | N/A          | 2026/05/25 | 2027/05/24 |
| BLA-EMC-061    | Receiver         | ESPI7               | R&S         | 101477       | 2026/05/25 | 2027/05/24 |
| BLA-EMC-066    | Amplifier        | LNPA_30M01 G-30     | SKET        | SK2021060801 | 2026/05/25 | 2027/05/24 |
| BLA-EMC-086    | Amplifier        | LNPA_18G40 G-50dB   | SKET        | SK2022071301 | 2026/05/25 | 2027/05/24 |
| BLA-EMC-087    | Horn Antenna     | BBHA 9170           | Schwarzbeck | 1106         | 2026/05/31 | 2027/05/30 |
| BLA-XC-03      | Coaxial Cable    | N/A                 | BlueAsia    | V03          | N/A        | N/A        |
| BLA-XC-04      | Coaxial Cable    | N/A                 | BlueAsia    | V04          | N/A        | N/A        |

### Conducted Emissions

| Equipment       | Name                                            | Model       | Manufacture | S/N          | Cal. Date  | Due. Date  |
|-----------------|-------------------------------------------------|-------------|-------------|--------------|------------|------------|
| BLA-EMC-003-001 | Shield room                                     | 8*3*3       | SKET        | N/A          | 2026/01/10 | 2028/01/09 |
| BLA-EMC-009     | EMI receiver                                    | ESR7        | R&S         | 101199       | 2026/07/31 | 2027/07/30 |
| BLA-EMC-011     | LISN                                            | ENV216      | R&S         | 101372       | 2026/07/31 | 2027/07/30 |
| BLA-EMC-033     | Impedance transformer                           | DC-2GHz     | DFXP        | N/A          | 2026/05/25 | 2027/05/24 |
| BLA-EMC-041     | LISN                                            | AT166-2     | ATTEN       | AKK180600003 | 2026/07/31 | 2027/07/30 |
| BLA-EMC-045     | Impedance stable network                        | ISNT8-cat 6 | TESEQ       | 53580        | 2026/07/31 | 2027/07/30 |
| BLA-EMC-095     | Single-channel vehicle artificial power network | NNBM 8124   | Schwarzbeck | 01045        | 2026/05/25 | 2027/05/24 |
| BLA-EMC-096     | Single-channel vehicle artificial power network | NNBM 8124   | Schwarzbeck | 01075        | 2026/05/25 | 2027/05/24 |
| BLA-XC-05       | Coaxial Cable                                   | N/A         | BlueAsia    | V05          | N/A        | N/A        |

### RF conducted

| Equipment       | Name                       | Model    | Manufacture | S/N           | Cal. Date  | Due. Date  |
|-----------------|----------------------------|----------|-------------|---------------|------------|------------|
| BLA-EMC-003-003 | Shield room                | 5*3*3    | SKET        | N/A           | 2025/11/12 | 2026/11/11 |
| BLA-EMC-016     | Signal Generator           | N5182A   | Agilent     | MY52420567    | 2026/05/25 | 2027/05/24 |
| BLA-EMC-038     | Spectrum                   | N9020A   | Agilent     | MY49100060    | 2026/07/31 | 2027/07/30 |
| BLA-EMC-042     | Power sensor               | RPR3006W | DARE        | 14I00889SN042 | 2026/07/31 | 2027/07/30 |
| BLA-EMC-044     | Radio communication tester | CMW500   | R&S         | 132429        | 2026/07/31 | 2027/07/30 |
| BLA-EMC-064     | Signal Generator           | N5182B   | KEYSIGHT    | MY58108892    | 2026/05/25 | 2027/05/24 |

|             |                |        |                    |                |            |            |
|-------------|----------------|--------|--------------------|----------------|------------|------------|
| BLA-EMC-079 | Spectrum       | N9020A | Agilent            | MY544201<br>61 | 2026/07/31 | 2027/07/30 |
| BLA-EMC-088 | Audio Analyzer | ATS-1  | Audio<br>Precision | ATS14109<br>4  | 2026/05/25 | 2027/05/24 |

**Test software**

| Software No. | Software Name | Manufacture | Software version | Test site      |
|--------------|---------------|-------------|------------------|----------------|
| BLA-EMC-S001 | EZ-EMC        | EZ          | EEMC-3A1+        | RE(Below 1GHz) |
| BLA-EMC-S002 | EZ-EMC        | EZ          | EEMC-3A1+        | RE(Above 1GHz) |
| BLA-EMC-S003 | EZ-EMC        | EZ          | EEMC-3A1+        | CE             |
| BLA-EMC-S010 | MTS 8310      | MW          | 2.0.0.0          | RF             |

## 6 Test result

### 6.1 Antenna requirement

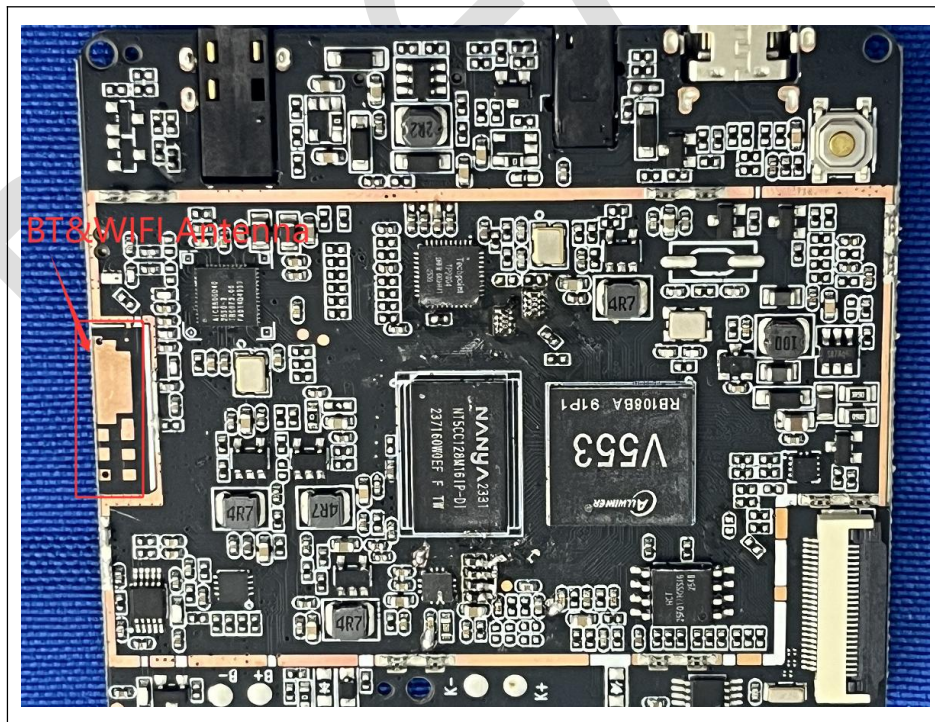
|               |                                  |
|---------------|----------------------------------|
| Test Standard | 47 CFR Part 15, Subpart C 15.203 |
| Test Method   | N/A                              |

#### 6.1.1 Requirement

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 an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of a so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT antenna:

The antenna is PCB antenna. The best case gain of the antenna is 2.75dBi.



## 6.2 Conducted emissions at AC power line (150 kHz-30 MHz)

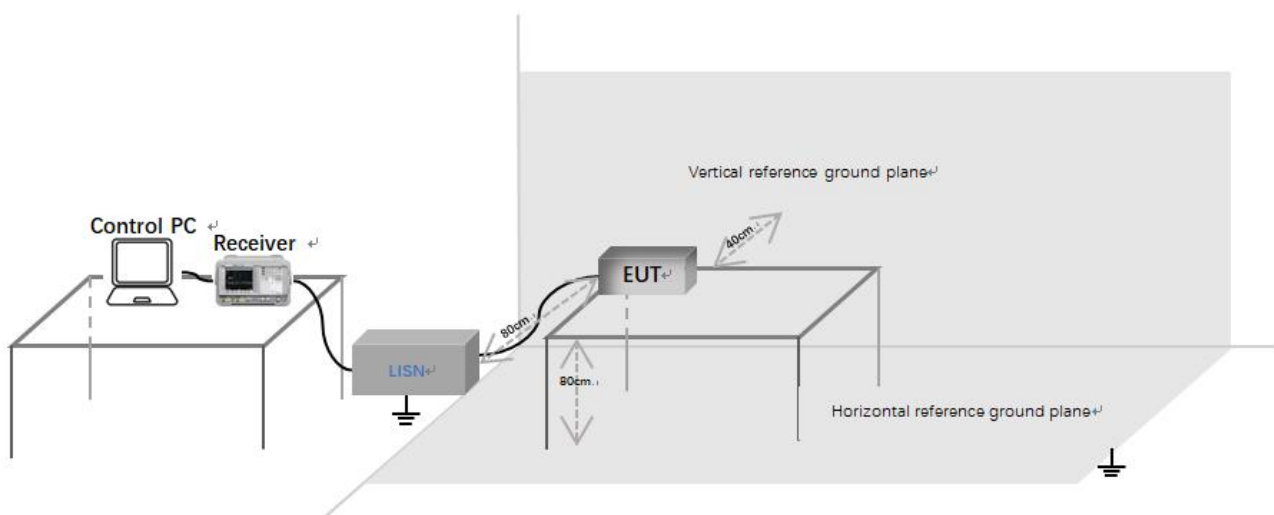
|                               |                                       |
|-------------------------------|---------------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart C 15.207      |
| <b>Test Method</b>            | ANSI C63.10-2020+Cor.1-2023 Cluase6.2 |
| <b>Test Mode (Pre-Scan)</b>   | TX                                    |
| <b>Test Mode (Final Test)</b> | TX                                    |

### 6.2.1 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.

### 6.2.2 Test setup



Description of test setup connection:

- Connect the control PC to the receiver through a USB to GPIB cable;
- The receiver is connected to the LISN through a coaxial line;
- Connect the power port of LISN to the EUT.

### 6.2.3 Procedure

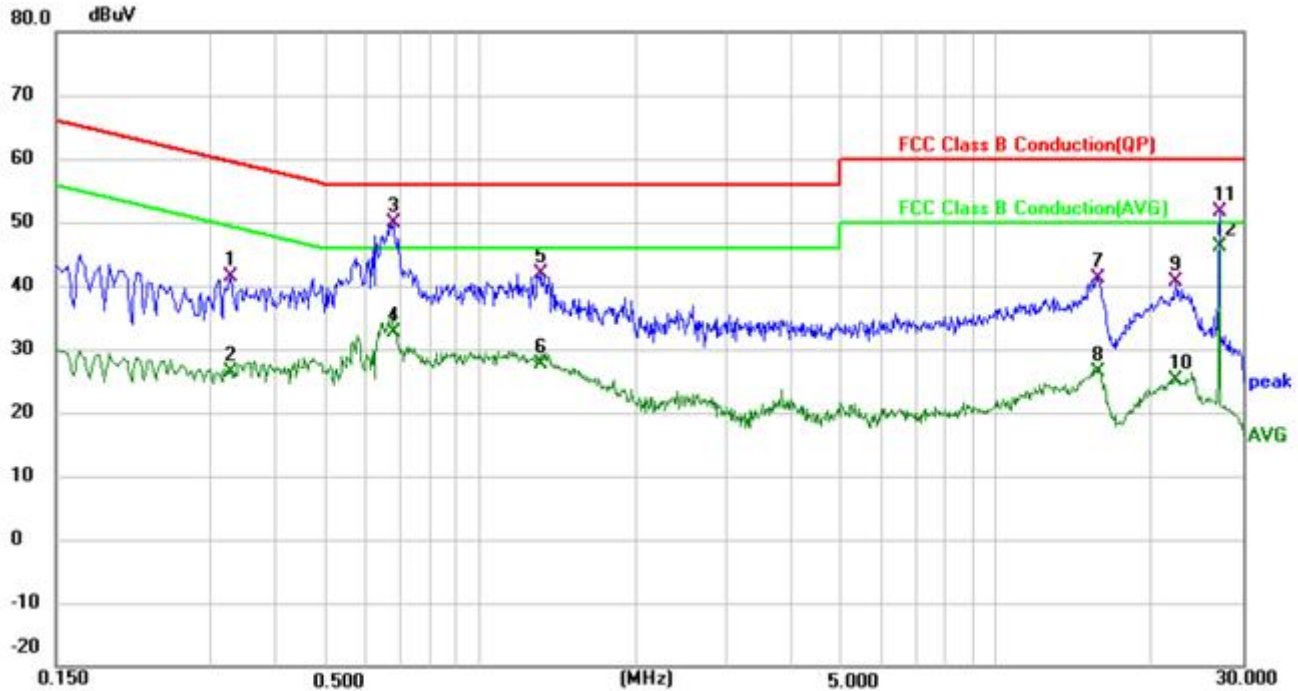
- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

LISN=Read Level+ Cable Loss+ LISN Factor

## 6.2.4 Test data

Worst case:

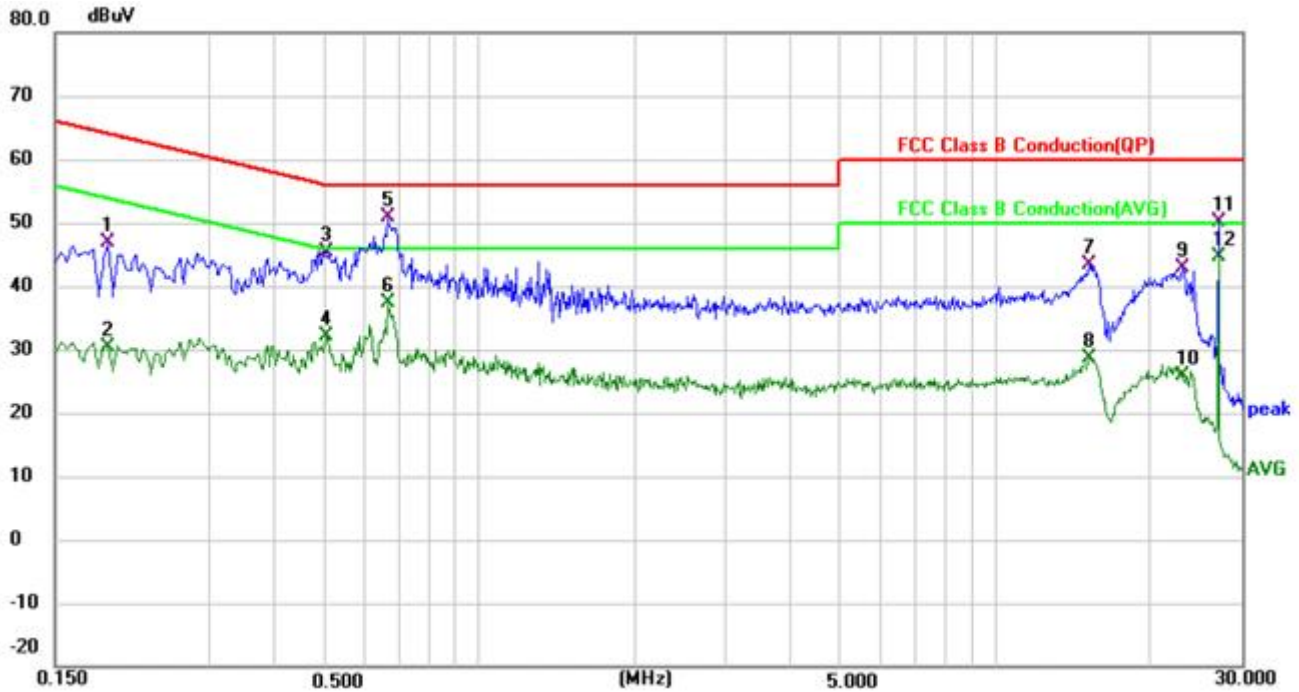
[Test Mode: 802.11n20 TX-5240MHz]; [Line: Line];[Voltage:AC120V/60Hz]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|
| 1   |     | 0.3260       | 31.77                    | 9.68                    | 41.45                    | 59.55         | -18.10     | QP       |
| 2   |     | 0.3260       | 16.70                    | 9.68                    | 26.38                    | 49.55         | -23.17     | AVG      |
| 3   |     | 0.6780       | 40.21                    | 9.74                    | 49.95                    | 56.00         | -6.05      | QP       |
| 4   |     | 0.6780       | 22.88                    | 9.74                    | 32.62                    | 46.00         | -13.38     | AVG      |
| 5   |     | 1.3060       | 32.09                    | 9.81                    | 41.90                    | 56.00         | -14.10     | QP       |
| 6   |     | 1.3060       | 17.90                    | 9.81                    | 27.71                    | 46.00         | -18.29     | AVG      |
| 7   |     | 15.7260      | 29.38                    | 11.76                   | 41.14                    | 60.00         | -18.86     | QP       |
| 8   |     | 15.7260      | 14.58                    | 11.76                   | 26.34                    | 50.00         | -23.66     | AVG      |
| 9   |     | 22.2700      | 27.36                    | 13.15                   | 40.51                    | 60.00         | -19.49     | QP       |
| 10  |     | 22.2700      | 11.89                    | 13.15                   | 25.04                    | 50.00         | -24.96     | AVG      |
| 11  |     | 27.0020      | 37.37                    | 14.32                   | 51.69                    | 60.00         | -8.31      | QP       |
| 12  | *   | 27.0020      | 31.91                    | 14.32                   | 46.23                    | 50.00         | -3.77      | AVG      |

**Test Result: Pass**

[Test Mode: 802.11n20 TX-5240MHz]; [Line: Neutral] ;[Voltage:AC120V/60Hz]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|
| 1   |     | 0.1900       | 36.99                    | 10.01                   | 47.00                    | 64.04         | -17.04     | QP       |
| 2   |     | 0.1900       | 20.45                    | 10.01                   | 30.46                    | 54.04         | -23.58     | AVG      |
| 3   |     | 0.5020       | 35.66                    | 9.71                    | 45.37                    | 56.00         | -10.63     | QP       |
| 4   |     | 0.5020       | 22.47                    | 9.71                    | 32.18                    | 46.00         | -13.82     | AVG      |
| 5   | *   | 0.6620       | 41.14                    | 9.73                    | 50.87                    | 56.00         | -5.13      | QP       |
| 6   |     | 0.6620       | 27.55                    | 9.73                    | 37.28                    | 46.00         | -8.72      | AVG      |
| 7   |     | 15.1540      | 31.79                    | 11.64                   | 43.43                    | 60.00         | -16.57     | QP       |
| 8   |     | 15.1540      | 16.89                    | 11.64                   | 28.53                    | 50.00         | -21.47     | AVG      |
| 9   |     | 23.0540      | 29.74                    | 13.16                   | 42.90                    | 60.00         | -17.10     | QP       |
| 10  |     | 23.0540      | 12.69                    | 13.16                   | 25.85                    | 50.00         | -24.15     | AVG      |
| 11  |     | 27.0020      | 36.08                    | 14.01                   | 50.09                    | 60.00         | -9.91      | QP       |
| 12  |     | 27.0020      | 30.58                    | 14.01                   | 44.59                    | 50.00         | -5.41      | AVG      |

Test Result: Pass

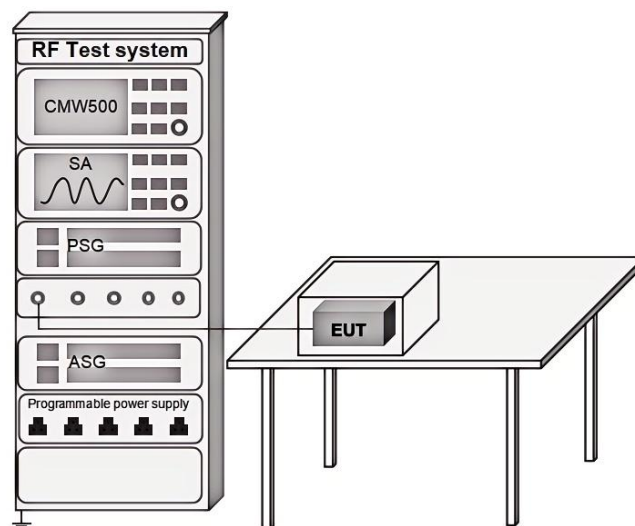
## 6.3 Frequency Stability

|                        |                                        |
|------------------------|----------------------------------------|
| Test Standard          | 47 CFR Part 15, Subpart E 15.407(g)    |
| Test Method            | ANSI C63.10-2020+Cor.1-2023 Cluase 6.8 |
| Test Mode (Pre-Scan)   | TX                                     |
| Test Mode (Final Test) | TX                                     |

### 6.3.1 Limit

The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

### 6.3.2 Test setup



### 6.3.3 Procedure

- a. The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage.
- b. Turn the EUT on and couple its output to a spectrum analyzer.
- c. Turn the EUT off and set the chamber to the highest temperature specified.
- d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize.
- e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

### 6.3.4 Test data

Pass: Under all normal operating conditions specified in the user manual, frequency stability can keep radiation within the operating frequency band.

## 6.4 Maximum conducted output Power

|                               |                                                                |
|-------------------------------|----------------------------------------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart E 15.407 (a)                           |
| <b>Test Method</b>            | KDB 789033 D02 General UNII Test Procedures New Rules v02r01 E |
| <b>Test Mode (Pre-Scan)</b>   | TX                                                             |
| <b>Test Mode (Final Test)</b> | TX                                                             |

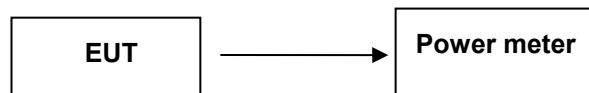
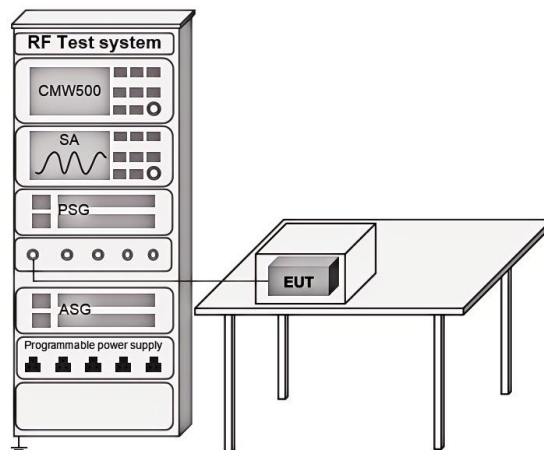
### 6.4.1 Limit

| Frequency band(MHz) | Limit                                                                            |
|---------------------|----------------------------------------------------------------------------------|
| 5150-5250           | $\leq 1\text{W}(30\text{dBm})$ for master device                                 |
|                     | $\leq 250\text{mW}(24\text{dBm})$ for client device                              |
| 5250-5350           | $\leq 250\text{mW}(24\text{dBm})$ for client device or $11\text{dBm}+10\log B^*$ |
| 5470-5725           | $\leq 250\text{mW}(24\text{dBm})$ for client device or $11\text{dBm}+10\log B^*$ |
| 5725-5850           | $\leq 1\text{W}(30\text{dBm})$                                                   |

Remark:\* Where B is the 26dB emission bandwidth in MHz.

The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

### 6.4.2 Test setup



#### 6.4.3 Procedure

The transmitter output (antenna port) was connected to the power meter.

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section 3 (a) Method PM (Measurement using an RF average power meter):

(i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.

The EUT is configured to transmit continuously or to transmit with a constant duty cycle.

At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.

The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

(ii) If the transmitter does not transmit continuously, measure the duty cycle,  $x$ , of the transmitter output signal as described in section II.B.

(iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.

(iv) Adjust the measurement in dBm by adding  $10 \log (1/x)$  where  $x$  is the duty cycle (e.g.,  $10 \log (1/0.25)$  if the duty cycle is 25%).

#### 6.4.4 Test data

Pass: Please refer to appendix A for details.

## 6.5 Peak power spectrum density

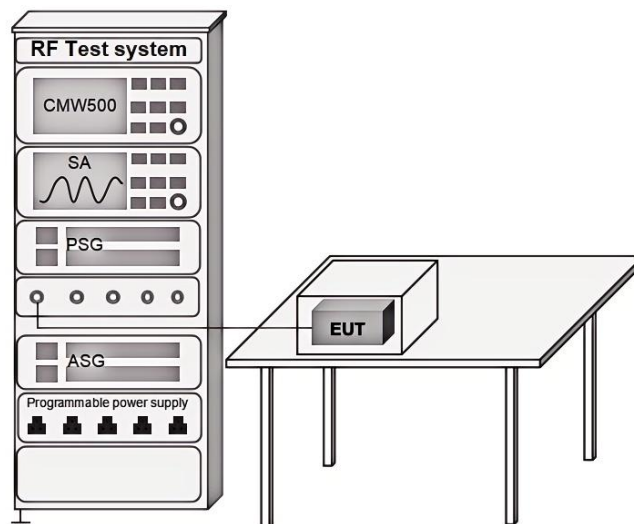
|                        |                                                                |
|------------------------|----------------------------------------------------------------|
| Test Standard          | 47 CFR Part 15, Subpart E 15.407 (a)                           |
| Test Method            | KDB 789033 D02 General UNII Test Procedures New Rules v02r01 F |
| Test Mode (Pre-Scan)   | TX                                                             |
| Test Mode (Final Test) | TX                                                             |

### 6.5.1 Limit

| Frequency band(MHz) | Limit                            |
|---------------------|----------------------------------|
| 5150-5250           | ≤17dBm in 1MHz for master device |
|                     | ≤11dBm in 1MHz for client device |
| 5250-5350           | ≤11dBm in 1MHz for client device |
| 5470-5725           | ≤11dBm in 1MHz for client device |
| 5725-5850           | ≤30dBm in 500 kHz                |

*Remark: The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test.*

### 6.5.2 Test setup



### 6.5.3 Procedure

Set the spectrum analyzer or EMI receiver span to view the entire emission bandwidth.

1. Set RBW = 1MHz, VBW  $\geq 3 \times$  RBW, Sweep time = Auto couple, Detector = power averaging (RMS).
2. Allow the sweeps to continue until the trace stabilizes.
3. Use the peak marker function to determine the maximum amplitude level.

### 6.5.4 Test data

Pass: Please refer to appendix A for details.

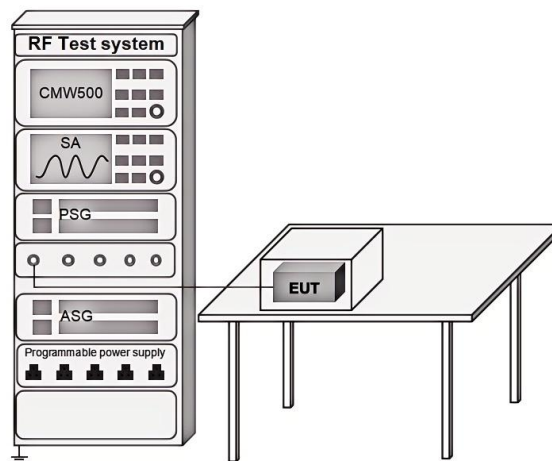
## 6.6 Minimum 6dB bandwidth (5.725-5.85 GHz band)

|                        |                                                                  |
|------------------------|------------------------------------------------------------------|
| Test Standard          | 47 CFR Part 15, Subpart E 15.407 (e)                             |
| Test Method            | KDB 789033 D02 General UNII Test Procedures New Rules v02r01 C 2 |
| Test Mode (Pre-Scan)   | TX                                                               |
| Test Mode (Final Test) | TX                                                               |

### 6.6.1 Limit

≥500 kHz

### 6.6.2 Test setup



### 6.6.3 Procedure

1. Set RBW = 100 kHz, VBW = 300 kHz.
2. Detector = Peak. Trace mode = Max hold.
3. Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 6.6.4 Test data

N/A: Not Applicable.

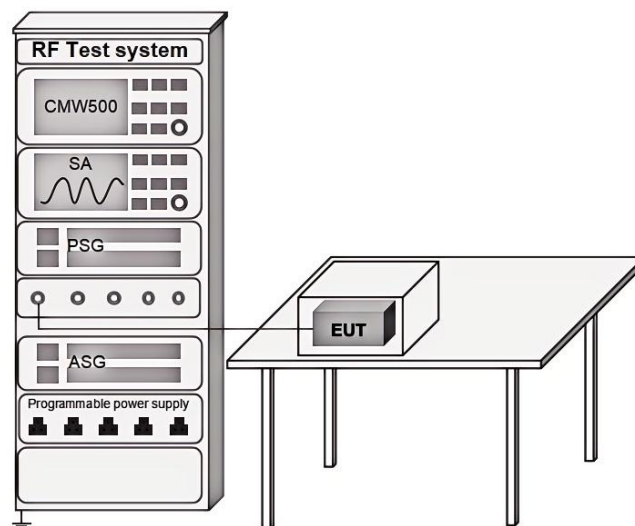
## 6.7 26dB Emission bandwidth

|                        |                                                                  |
|------------------------|------------------------------------------------------------------|
| Test Standard          | 47 CFR Part 15, Subpart E 15.407 (a)                             |
| Test Method            | KDB 789033 D02 General UNII Test Procedures New Rules v02r01 C 1 |
| Test Mode (Pre-Scan)   | TX                                                               |
| Test Mode (Final Test) | TX                                                               |

### 6.7.1 Limit

N/A

### 6.7.2 Test setup



### 6.7.3 Procedure

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set VBW  $\geq 3 \times$  RBW,
3. Detector = Peak.
4. Trace mode = Max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

#### 6.7.4 Test data

Pass: Please refer to appendix A for details

BlueAsia

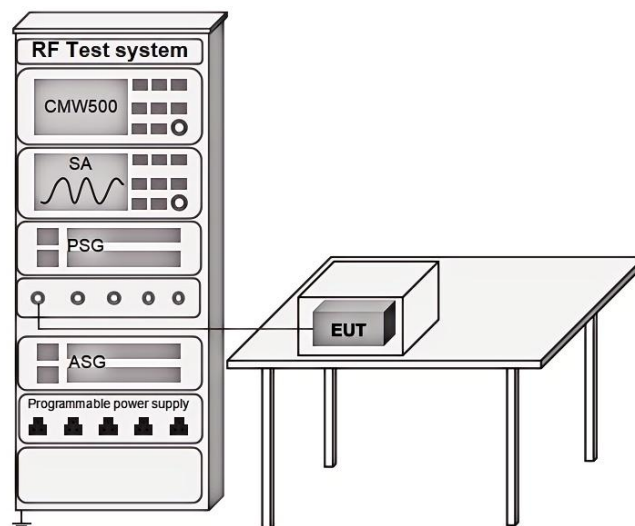
## 6.8 99% Bandwidth

|                        |                                                                |
|------------------------|----------------------------------------------------------------|
| Test Standard          | N/A                                                            |
| Test Method            | KDB 789033 D02 General UNII Test Procedures New Rules v02r01 D |
| Test Mode (Pre-Scan)   | TX                                                             |
| Test Mode (Final Test) | TX                                                             |

### 6.8.1 Limit

N/A

### 6.8.2 Test setup



### 6.8.3 Procedure

1. Set Span = 1.5 times to 5.0 times the OBW
2. Set RBW = 1% to 5% of the OBW.
3. Set VBW  $\geq 3 \times$  RBW, Detector = Peak.
4. Trace mode = Max hold.
5. Use the 99% power bandwidth function of the instrument.

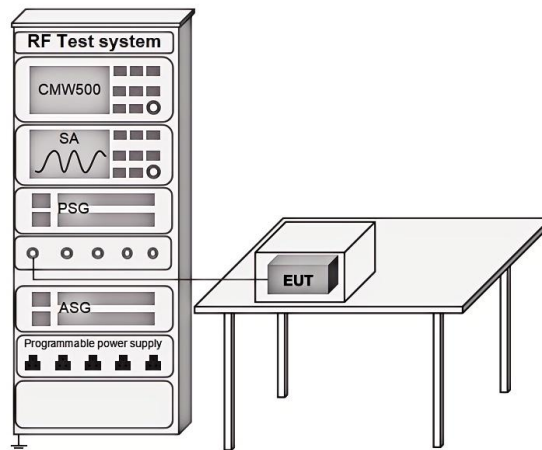
#### 6.8.4 Test data

Pass: Please refer to appendix A for details

### 6.9 Duty Cycle

|                               |                                                                  |
|-------------------------------|------------------------------------------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart E 15.407                                 |
| <b>Test Method</b>            | KDB 789033 D02 General UNII Test Procedures New Rules v02r01 B 1 |
| <b>Test Mode (Pre-Scan)</b>   | TX                                                               |
| <b>Test Mode (Final Test)</b> | TX                                                               |

#### 6.9.1 Test setup



#### 6.9.2 Procedure

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal.

Set the center frequency of the instrument to the center frequency of the transmission.

Set RBW  $\geq$  OBW if possible; otherwise, set RBW to the largest available value.

Set VBW  $\geq$  RBW. Set detector = peak or average.

The zero-span measurement method shall not be used unless both RBW and VBW are  $> 50/T$  and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if  $T \leq 16.7$

microseconds.)

### 6.9.3 Test data

Pass: Please refer to appendix A for details

## 6.10 Radiated emissions

|                        |                                                                |
|------------------------|----------------------------------------------------------------|
| Test Standard          | 47 CFR Part 15, Subpart E 15.407                               |
| Test Method            | KDB 789033 D02 General UNII Test Procedures New Rules v02r01 G |
| Test Mode (Pre-Scan)   | TX                                                             |
| Test Mode (Final Test) | TX                                                             |

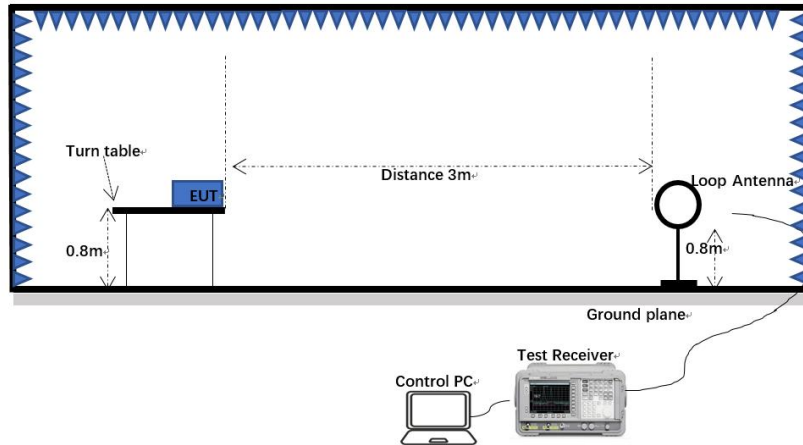
### 6.10.1 Limit

| 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                            |

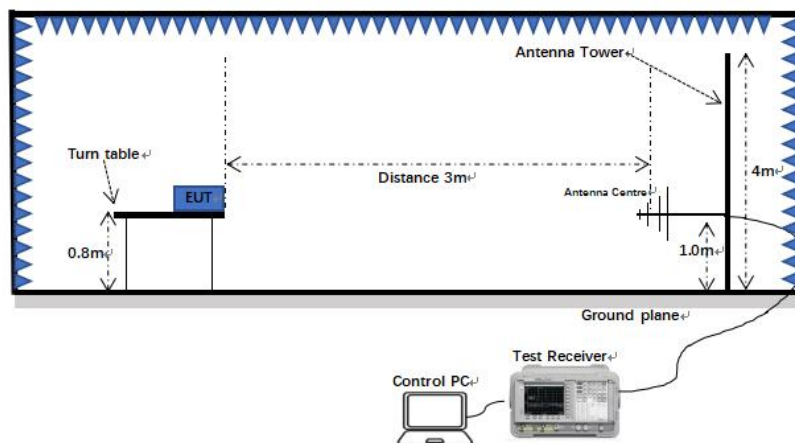
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

## 6.10.2 Test setup

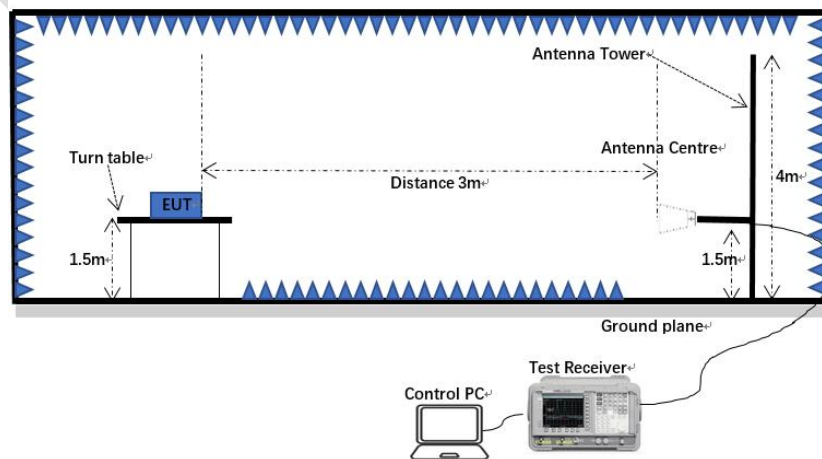
Below 1GHz:



30MHz-1GHz:



Above 1GHz:



### 6.10.3 Procedure

- a) For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b) 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.
- c) 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.
- d) 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.
- e) 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.
- f) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g) 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, quasi-peak or average method as specified and then reported in a data sheet.
- h) Test the EUT in the lowest channel, the middle channel, the highest channel.
- i) 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.
- j) Repeat above procedures until all frequencies measured was complete.

*Note 1: Scan from 9 kHz to 40GHz, the disturbance above 18GHz and below 30MHz 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. Fundamental frequency is blocked by filter, and only spurious emission is shown.*

*Note 2: 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.*

*Note 3: The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:*

$$\text{Level (dBuV)} = \text{Reading (dBuV)} + \text{Factor (dB/m)}$$

#### 6.10.4 Test data

Remark: During the test, pre-scan the 802.11a/n/ac mode, and found the 802.11n20 mode which it is worse case, only the worse case high channel for 802.11n20 was recorded in the report.

Below 1GHz

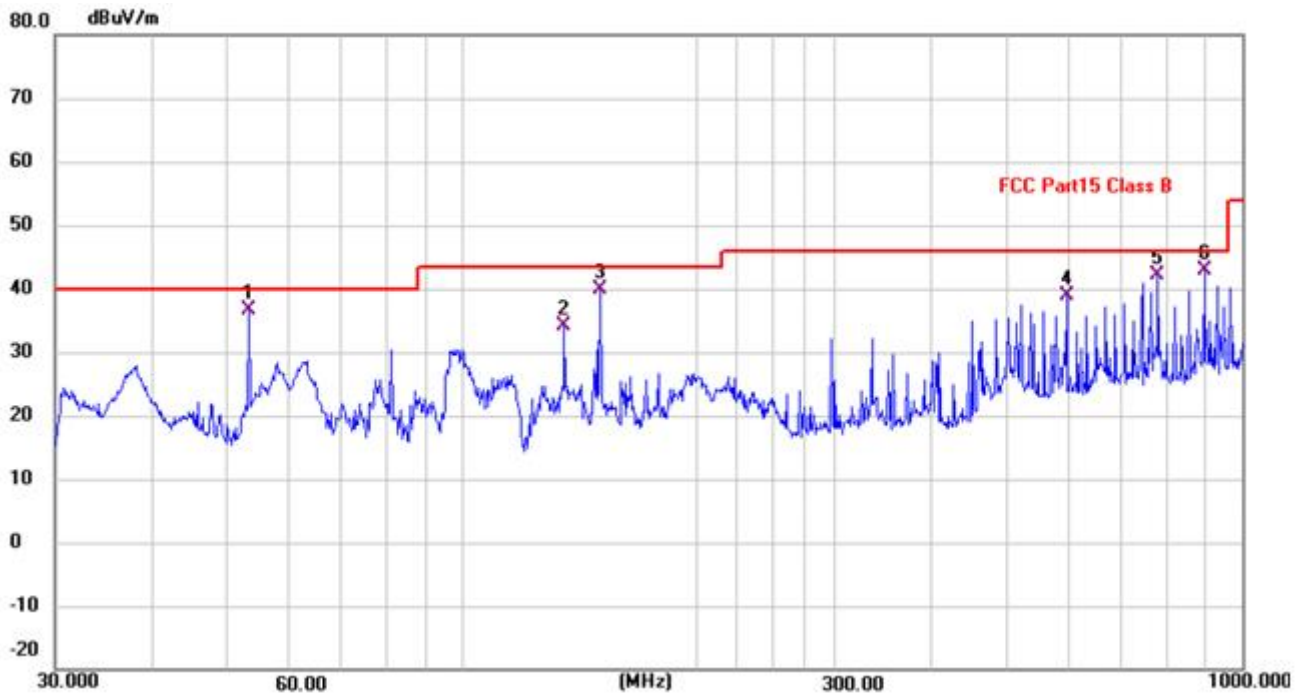
[Test mode: 802.11n20 TX-5240MHz]; [Polarity: Horizontal]



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 150.0108        | 21.11          | 14.67         | 35.78          | 43.50          | -7.72       | QP       |
| 2   | 207.1225        | 21.43          | 11.37         | 32.80          | 43.50          | -10.70      | QP       |
| 3   | 334.8588        | 23.26          | 15.52         | 38.78          | 46.00          | -7.22       | QP       |
| 4   | 483.9094        | 23.27          | 18.88         | 42.15          | 46.00          | -3.85       | QP       |
| 5   | 706.6998        | 16.54          | 23.54         | 40.08          | 46.00          | -5.92       | QP       |
| 6 * | 893.8566        | 17.45          | 25.24         | 42.69          | 46.00          | -3.31       | QP       |

**Test Result: Pass**

[Test mode: 802.11n20 TX-5240MHz]; [Polarity: Vertical]



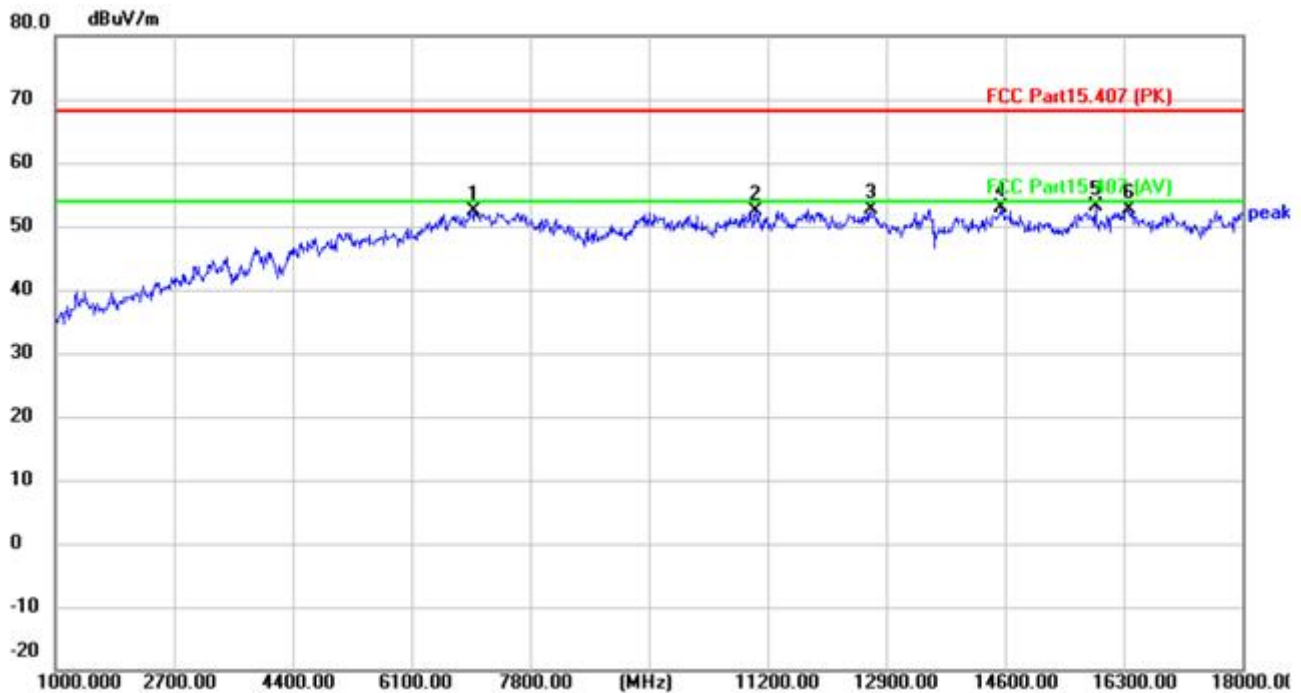
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 53.1313         | 22.48          | 14.09         | 36.57          | 40.00          | -3.43       | QP       |
| 2   | 135.0318        | 20.50          | 13.53         | 34.03          | 43.50          | -9.47       | QP       |
| 3   | 150.0108        | 25.09          | 14.67         | 39.76          | 43.50          | -3.74       | QP       |
| 4   | 595.1327        | 16.89          | 21.95         | 38.84          | 46.00          | -7.16       | QP       |
| 5   | 779.6067        | 17.50          | 24.59         | 42.09          | 46.00          | -3.91       | QP       |
| 6 * | 893.8566        | 17.60          | 25.24         | 42.84          | 46.00          | -3.16       | QP       |

Test Result: Pass

Remark: During the test, pre-scan the 802.11a/n/ac mode, and found the 802.11n20 mode which it is worse case, only the worse case for 802.11n20 was recorded in the report.

Above 1GHz:

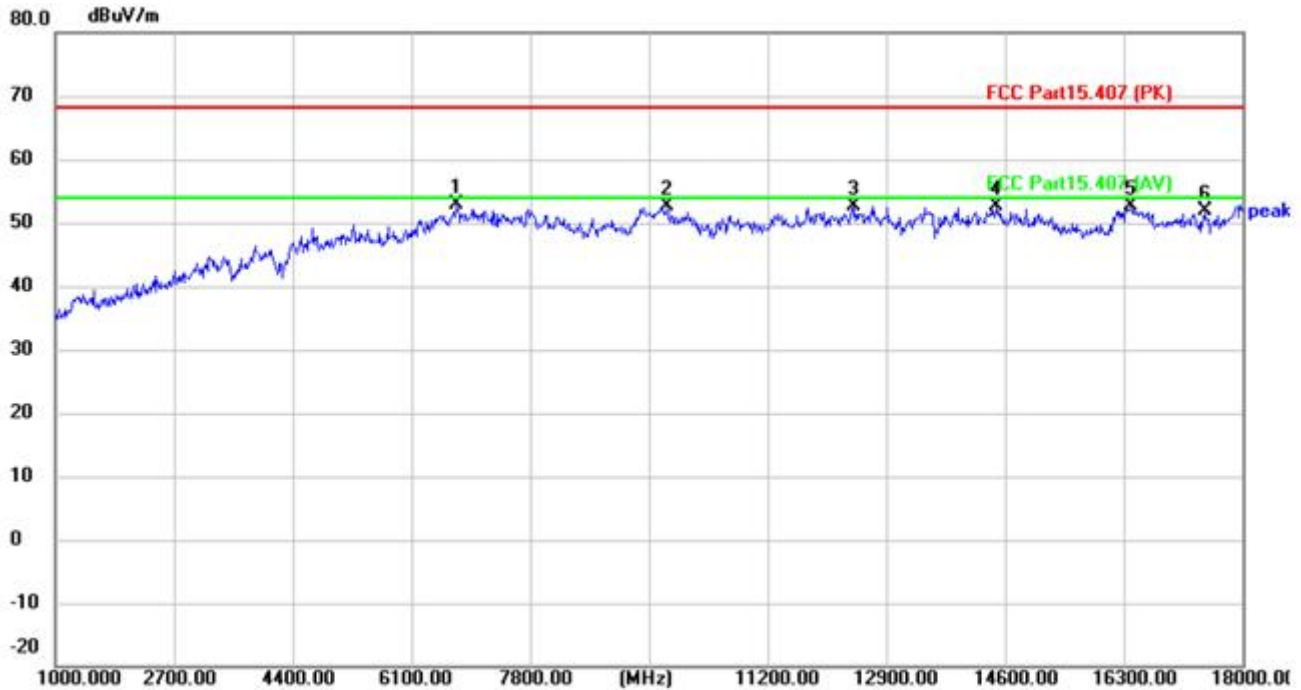
[Test mode: TX low channel 5180MHz]; [Polarity: Horizontal]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 7001.000     | 45.43                    | 6.99                    | 52.42                      | 68.20           | -15.78     | peak     |
| 2   |     | 11030.00     | 41.03                    | 11.45                   | 52.48                      | 68.20           | -15.72     | peak     |
| 3   |     | 12679.00     | 39.03                    | 13.51                   | 52.54                      | 68.20           | -15.66     | peak     |
| 4   |     | 14532.00     | 41.69                    | 11.27                   | 52.96                      | 68.20           | -15.24     | peak     |
| 5   | *   | 15892.00     | 39.03                    | 14.03                   | 53.06                      | 68.20           | -15.14     | peak     |
| 6   |     | 16368.00     | 37.78                    | 14.88                   | 52.66                      | 68.20           | -15.54     | peak     |

**Test Result: Pass**

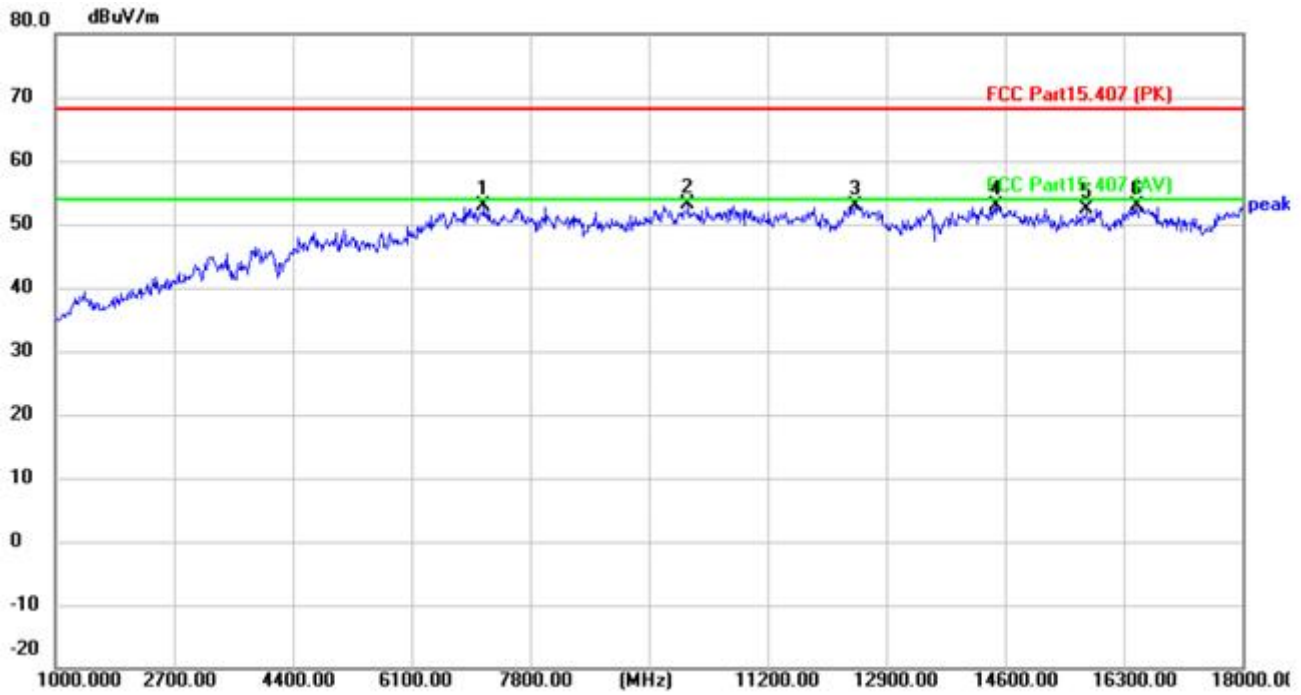
[Test mode: TX low channel 5180MHz]; [Polarity: Vertical]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   | *   | 6746.000     | 46.36                    | 6.47                    | 52.83                      | 68.20           | -15.37     | peak     |
| 2   |     | 9755.000     | 42.55                    | 9.97                    | 52.52                      | 68.20           | -15.68     | peak     |
| 3   |     | 12441.00     | 39.86                    | 12.88                   | 52.74                      | 68.20           | -15.46     | peak     |
| 4   |     | 14481.00     | 41.54                    | 11.19                   | 52.73                      | 68.20           | -15.47     | peak     |
| 5   |     | 16402.00     | 37.88                    | 14.86                   | 52.74                      | 68.20           | -15.46     | peak     |
| 6   |     | 17456.00     | 36.46                    | 15.35                   | 51.81                      | 68.20           | -16.39     | peak     |

Test Result: Pass

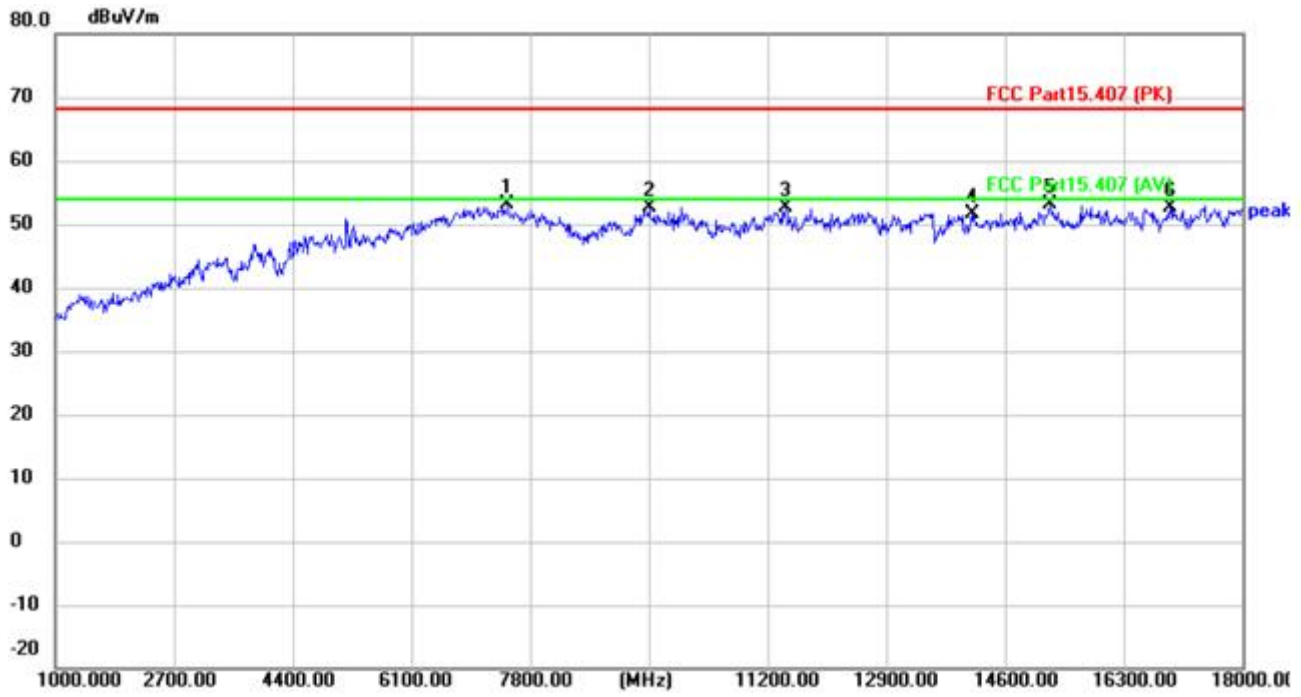
[Test mode: TX middle channel 5200MHz]; [Polarity: Horizontal]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 7137.000     | 46.01                    | 6.84                    | 52.85                      | 68.20           | -15.35     | peak     |
| 2   | *   | 10061.00     | 42.40                    | 10.67                   | 53.07                      | 68.20           | -15.13     | peak     |
| 3   |     | 12458.00     | 39.93                    | 12.91                   | 52.84                      | 68.20           | -15.36     | peak     |
| 4   |     | 14481.00     | 41.58                    | 11.19                   | 52.77                      | 68.20           | -15.43     | peak     |
| 5   |     | 15773.00     | 38.85                    | 13.65                   | 52.50                      | 68.20           | -15.70     | peak     |
| 6   |     | 16487.00     | 37.86                    | 15.00                   | 52.86                      | 68.20           | -15.34     | peak     |

Test Result: Pass

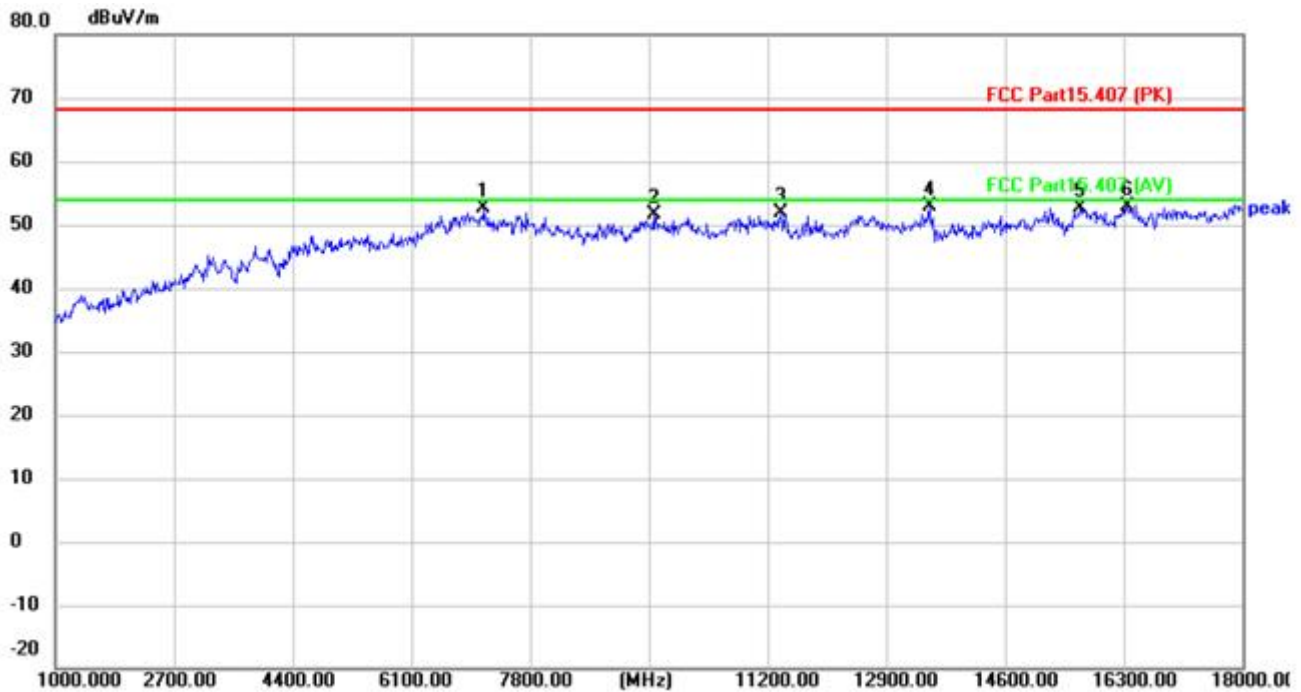
[Test mode: TX middle channel 5200MHz]; [Polarity: Vertical]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 7477.000     | 46.54                    | 6.47                    | 53.01                      | 68.20           | -15.19     | peak     |
| 2   |     | 9500.000     | 43.41                    | 9.22                    | 52.63                      | 68.20           | -15.57     | peak     |
| 3   |     | 11455.00     | 41.21                    | 11.39                   | 52.60                      | 68.20           | -15.60     | peak     |
| 4   |     | 14124.00     | 41.05                    | 10.66                   | 51.71                      | 68.20           | -16.49     | peak     |
| 5   | *   | 15246.00     | 41.28                    | 11.74                   | 53.02                      | 68.20           | -15.18     | peak     |
| 6   |     | 16963.00     | 37.81                    | 14.86                   | 52.67                      | 68.20           | -15.53     | peak     |

**Test Result: Pass**

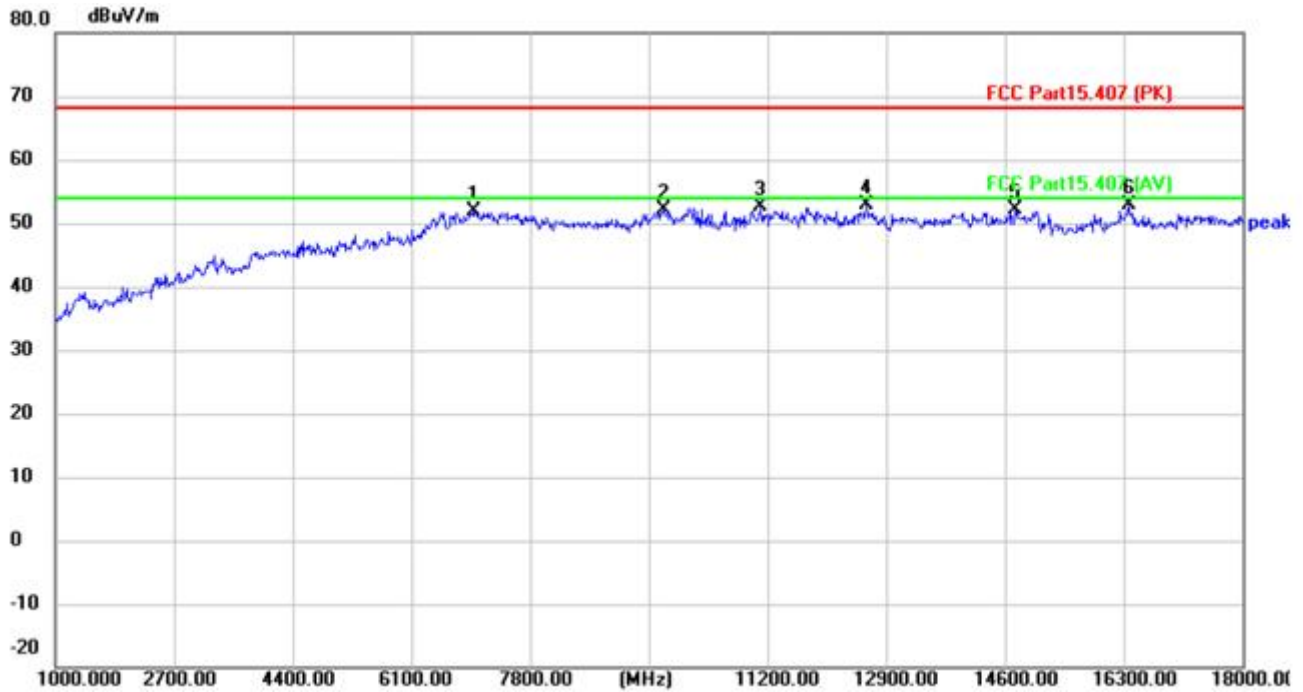
[Test mode: TX High channel 5240MHz]; [Polarity: Horizontal]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 7137.000     | 45.87                    | 6.84                    | 52.71                      | 68.20           | -15.49     | peak     |
| 2   |     | 9568.000     | 42.38                    | 9.21                    | 51.59                      | 68.20           | -16.61     | peak     |
| 3   |     | 11387.00     | 40.42                    | 11.40                   | 51.82                      | 68.20           | -16.38     | peak     |
| 4   | *   | 13512.00     | 37.34                    | 15.56                   | 52.90                      | 68.20           | -15.30     | peak     |
| 5   |     | 15671.00     | 39.40                    | 13.31                   | 52.71                      | 68.20           | -15.49     | peak     |
| 6   |     | 16351.00     | 37.94                    | 14.89                   | 52.83                      | 68.20           | -15.37     | peak     |

Test Result: Pass

[Test mode: TX High channel 5240MHz]; [Polarity: Vertical]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 6984.000     | 45.04                    | 6.96                    | 52.00                      | 68.20           | -16.20     | peak     |
| 2   |     | 9721.000     | 42.28                    | 9.88                    | 52.16                      | 68.20           | -16.04     | peak     |
| 3   |     | 11098.00     | 41.24                    | 11.43                   | 52.67                      | 68.20           | -15.53     | peak     |
| 4   |     | 12611.00     | 39.48                    | 13.30                   | 52.78                      | 68.20           | -15.42     | peak     |
| 5   |     | 14753.00     | 40.35                    | 11.80                   | 52.15                      | 68.20           | -16.05     | peak     |
| 6   | *   | 16368.00     | 38.02                    | 14.88                   | 52.90                      | 68.20           | -15.30     | peak     |

**Test Result: Pass**

## 6.11 Radiated emissions which fall in the restricted bands

|                               |                                  |
|-------------------------------|----------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart E 15.407 |
| <b>Test Method</b>            | KDB 789033 D02 II G              |
| <b>Test Mode (Pre-Scan)</b>   | TX                               |
| <b>Test Mode (Final Test)</b> | TX                               |

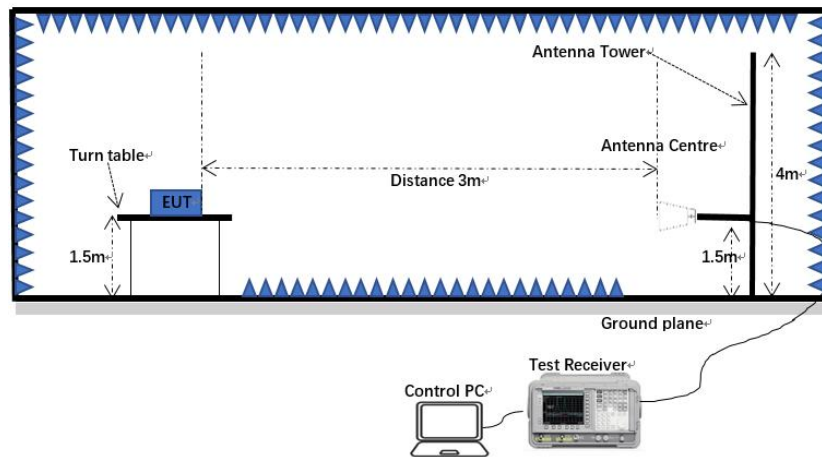
### 6.11.1 Limit

| <b>Frequency(MHz)</b> | <b>Field strength(microvolts/meter)</b> | <b>Measurement distance(meters)</b> |
|-----------------------|-----------------------------------------|-------------------------------------|
| 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                                   |

*Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, 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.*

### 6.11.2 Test setup

Above 1GHz:



### 6.11.3 Procedure

- 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 or 10 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, quasi-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.

*Note 1: Level (dBuV) = Reading (dBuV) + Factor (dB/m)*

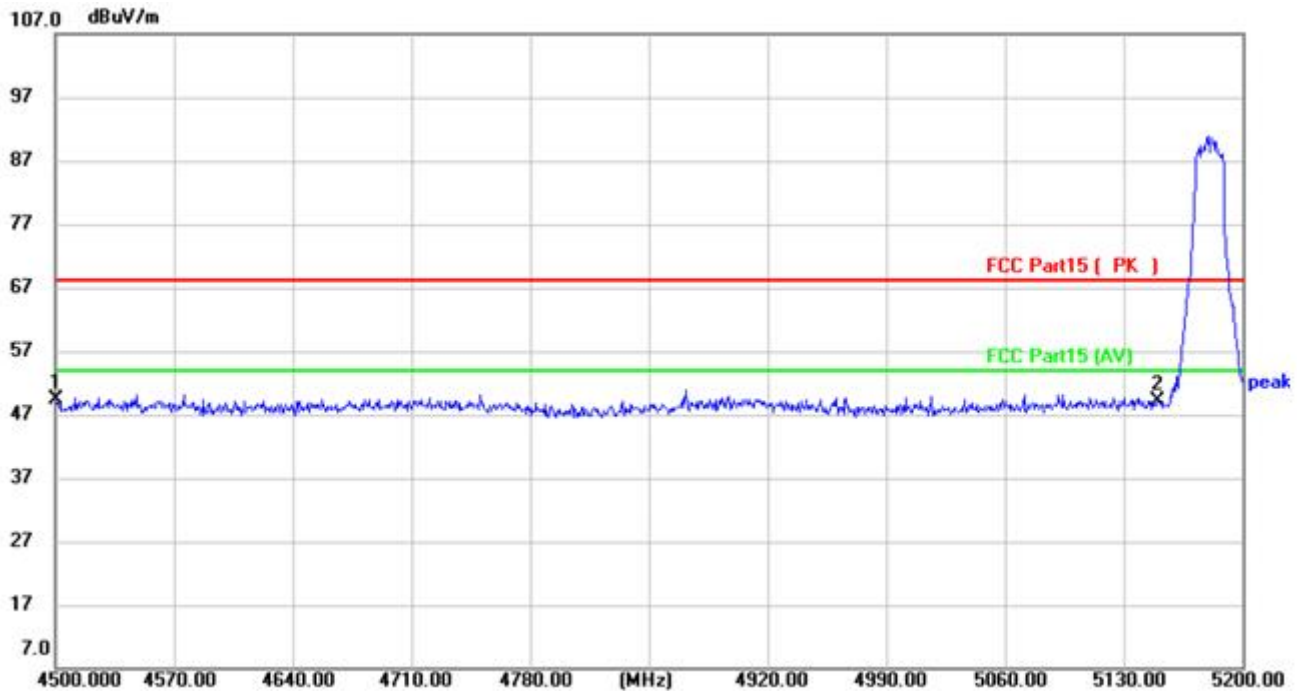
*Note 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.*

BlueAsia

#### 6.11.4 Test data

Remark: During the test, pre-scan the 802.11a/n/ac mode, and found 20MHz for the 802.11a mode which it is worse case, and found 40MHz for the 802.11n40 mode, only the worse case was recorded in the report.

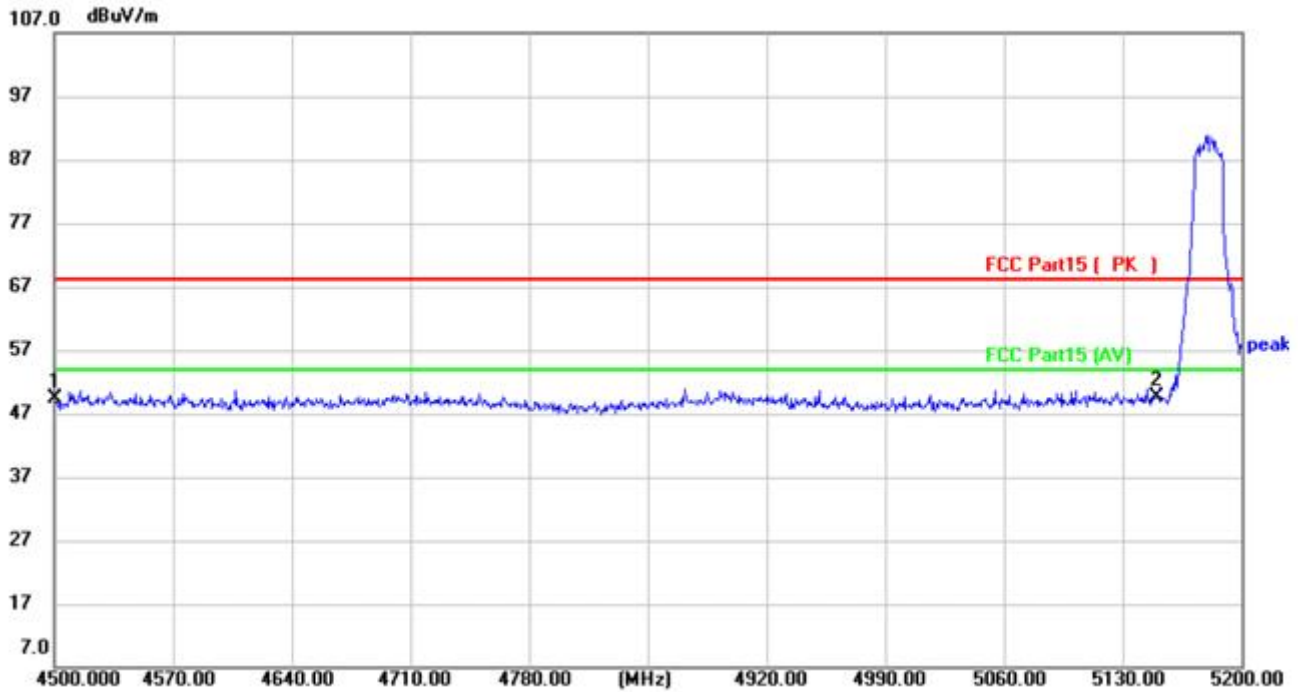
[Test mode: TX low channel 802.11a 5180MHz ]; [Polarity: Horizontal]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   | *   | 4500.000     | 50.16                    | -0.76                   | 49.40                      | 68.20           | -18.80     | peak     |
| 2   |     | 5150.000     | 47.94                    | 1.17                    | 49.11                      | 68.20           | -19.09     | peak     |

Test Result: Pass

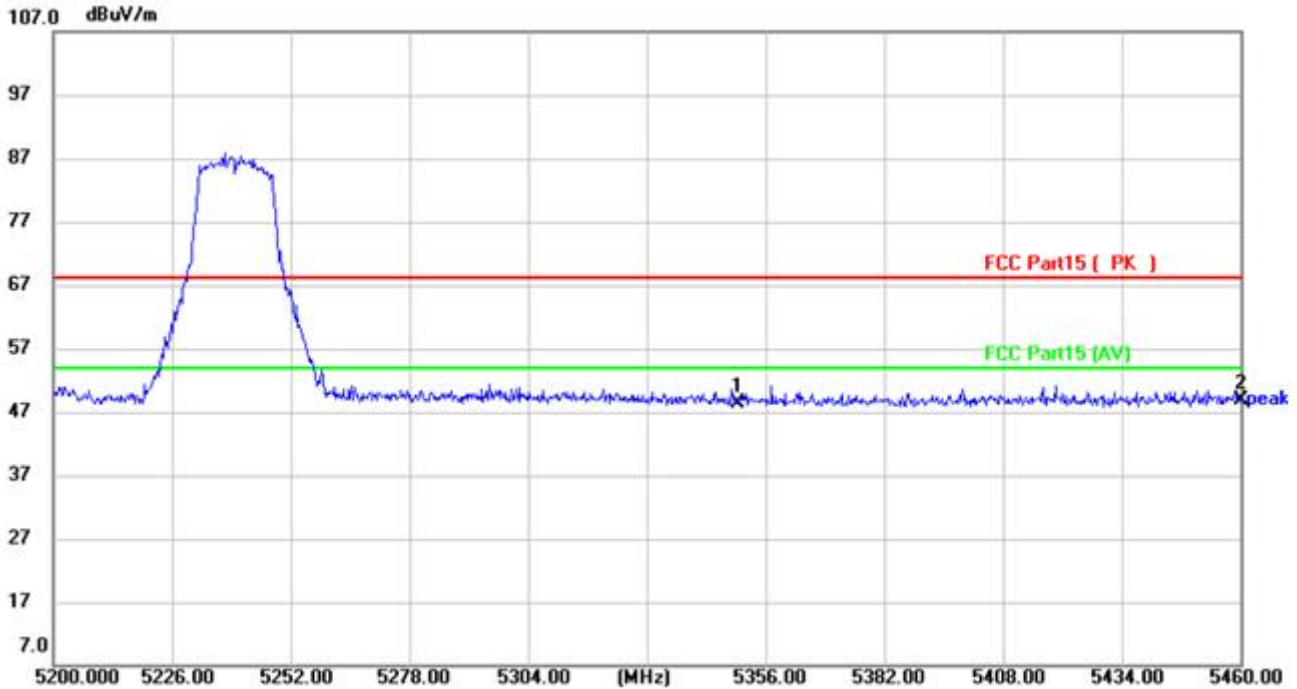
[Test mode:TX low channel 802.11a 5180MHz ]; [Polarity: Vertical]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 4500.000     | 50.16                    | -0.76                   | 49.40                      | 68.20           | -18.80     | peak     |
| 2   | *   | 5150.000     | 48.35                    | 1.17                    | 49.52                      | 68.20           | -18.68     | peak     |

Test Result: Pass

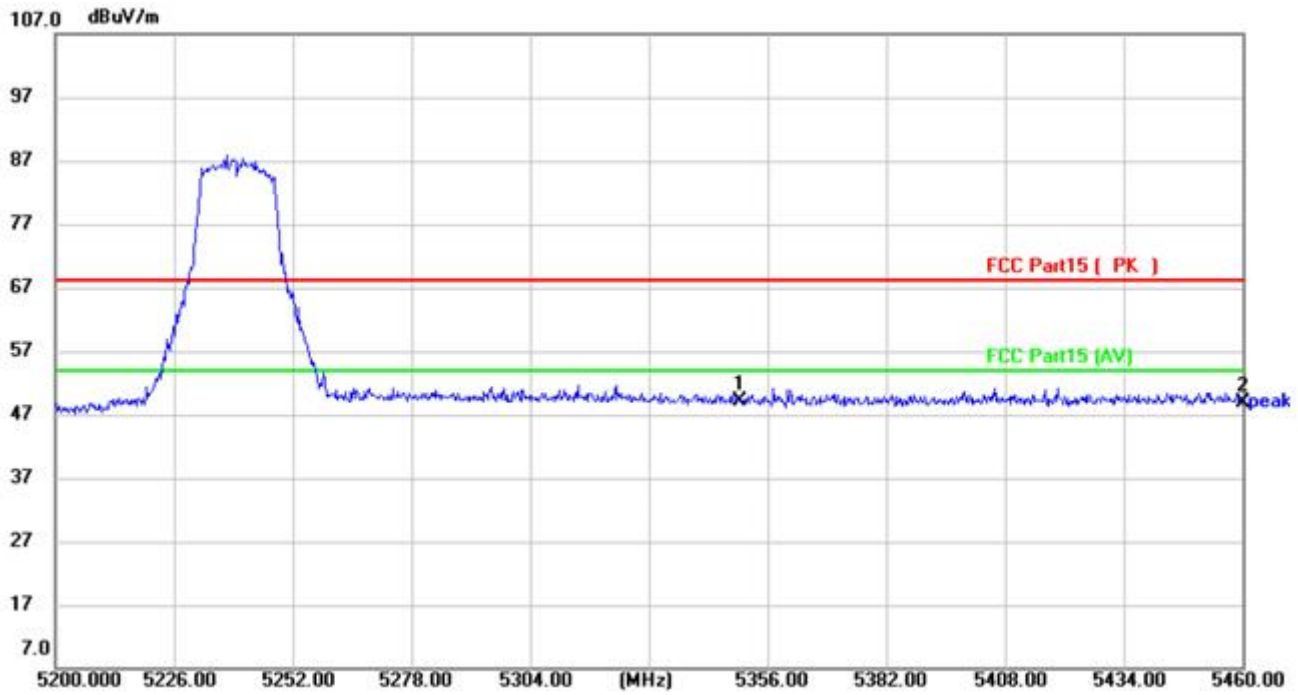
[Test mode: TX high channel 802.11a 5240MHz]; [Polarity: Horizontal]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 5350.000     | 46.76                    | 1.58                    | 48.34                      | 68.20           | -19.86     | peak     |
| 2   | *   | 5460.000     | 47.19                    | 1.65                    | 48.84                      | 68.20           | -19.36     | peak     |

Test Result: Pass

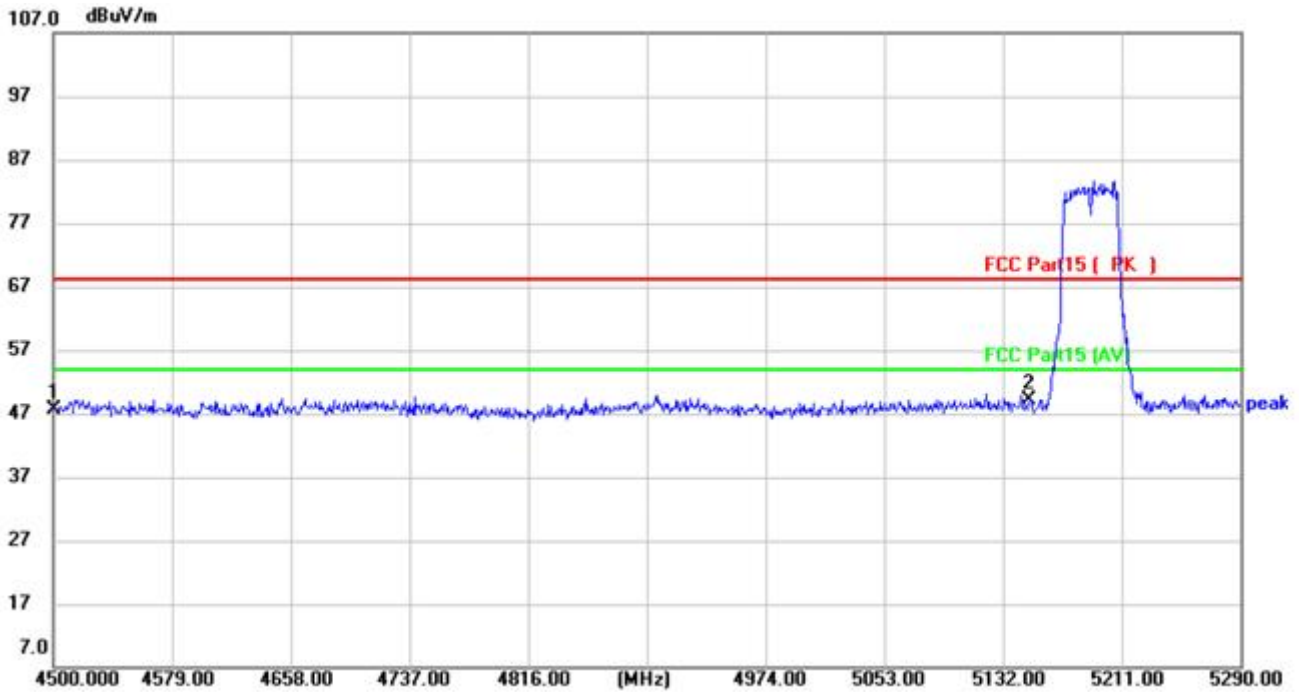
[Test mode:TX high channel 802.11a 5240MHz]; [Polarity: Vertical]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   | *   | 5350.000     | 47.48                    | 1.58                    | 49.06                      | 68.20           | -19.14     | peak     |
| 2   |     | 5460.000     | 47.25                    | 1.65                    | 48.90                      | 68.20           | -19.30     | peak     |

Test Result: Pass

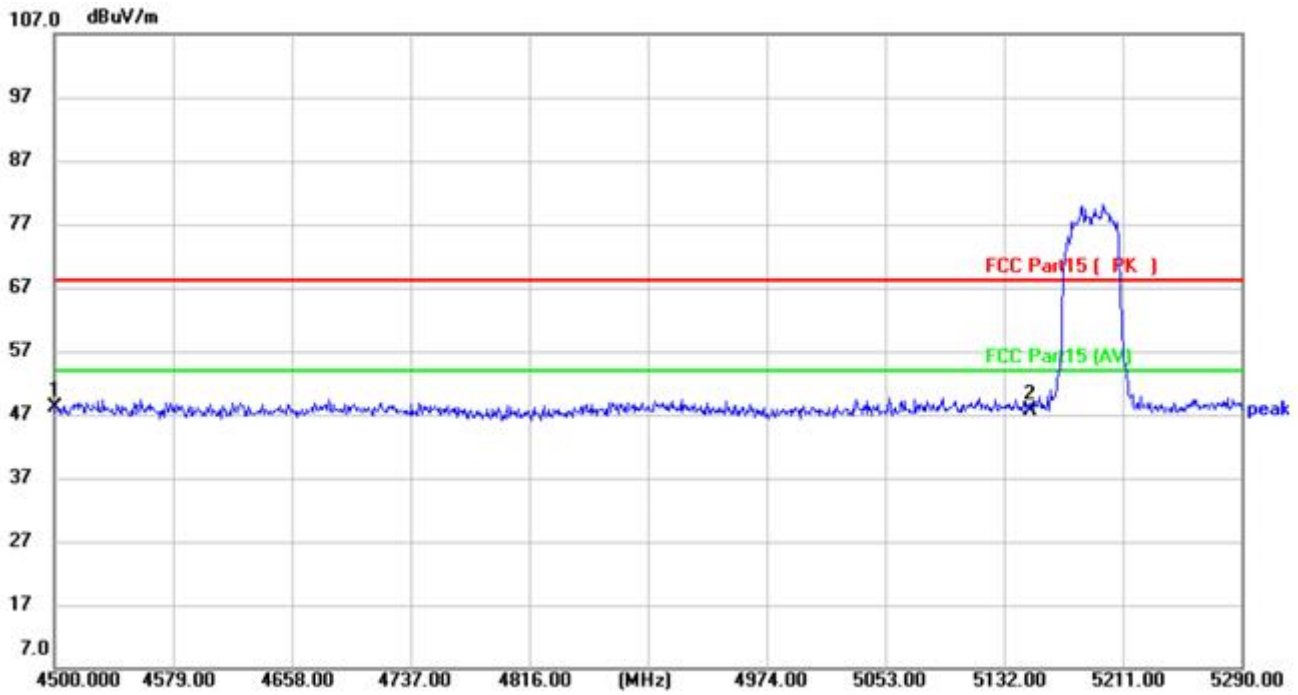
[Test mode: TX low channel 802.11n40 5190MHz]; [Polarity: Horizontal]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 4500.000     | 48.45                    | -0.76                   | 47.69                      | 68.20           | -20.51     | peak     |
| 2   | *   | 5150.000     | 47.90                    | 1.17                    | 49.07                      | 68.20           | -19.13     | peak     |

Test Result: Pass

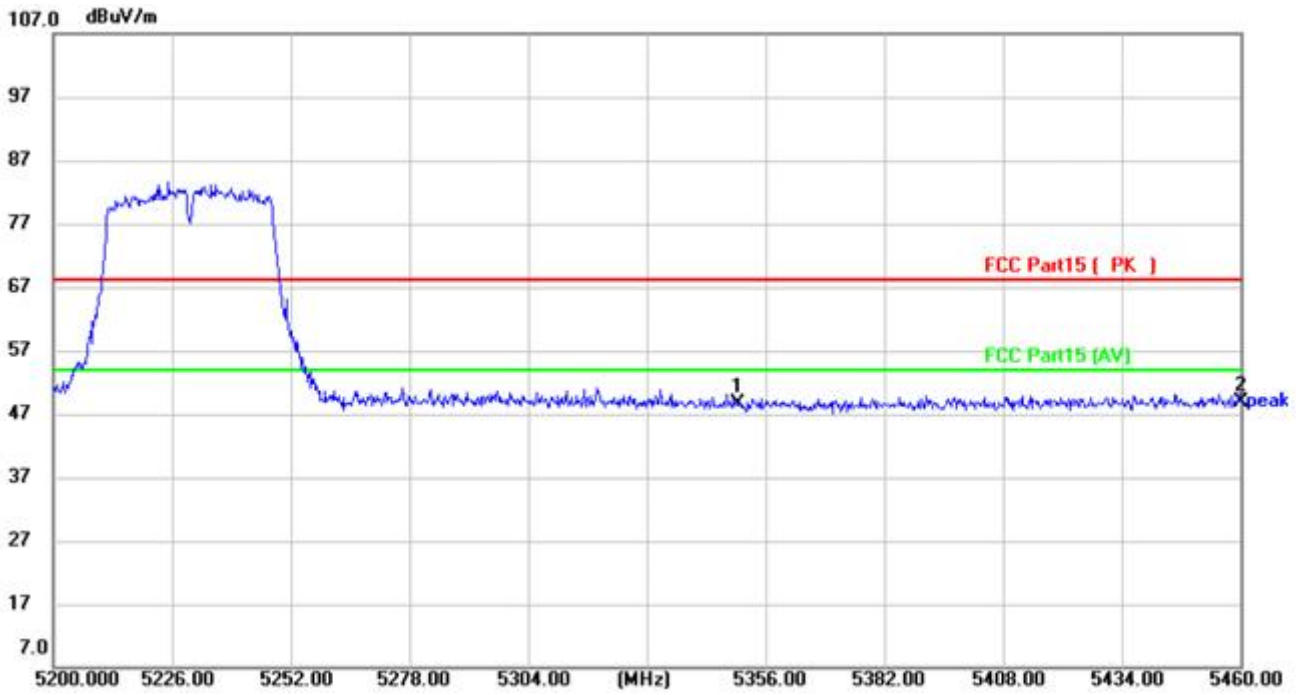
[Test mode: TX low channel 802.11n40 5190MHz]; [Polarity: Vertical]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   | *   | 4500.000     | 48.77                    | -0.76                   | 48.01                      | 68.20           | -20.19     | peak     |
| 2   |     | 5150.000     | 46.38                    | 1.17                    | 47.55                      | 68.20           | -20.65     | peak     |

Test Result: Pass

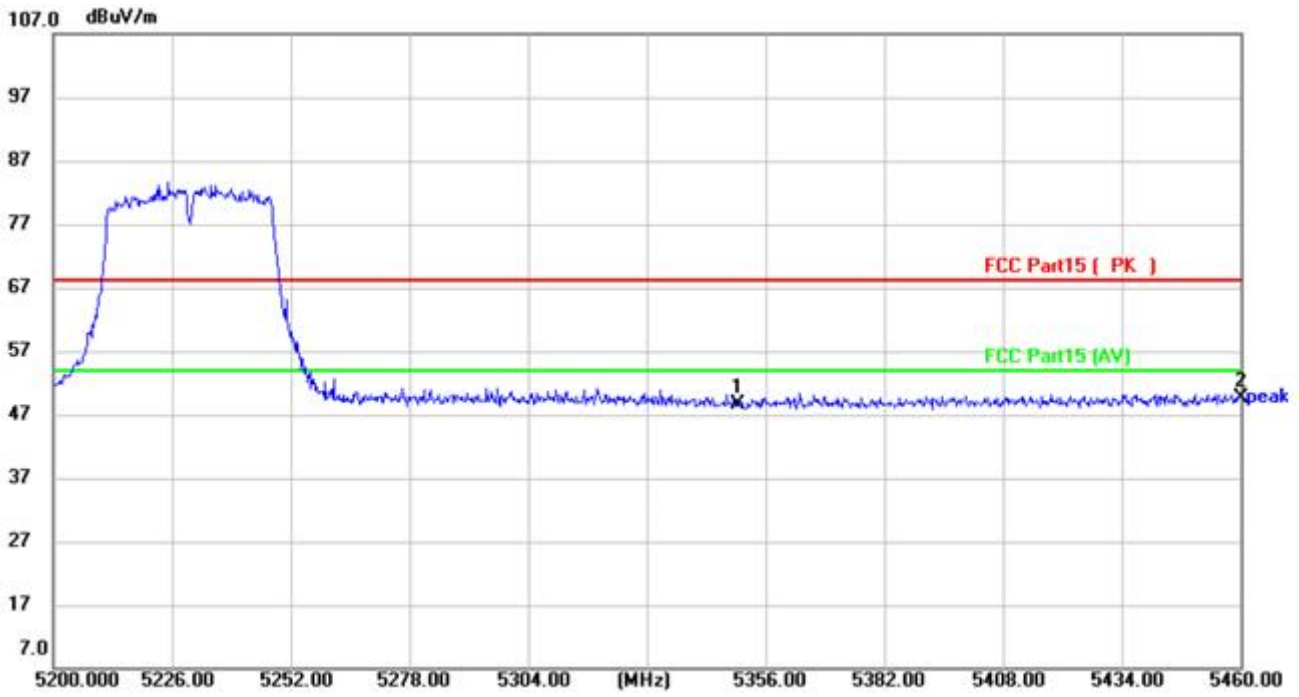
[Test mode: TX high channel 802.11n40 5230MHz]; [Polarity: Horizontal]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 5350.000     | 46.95                    | 1.58                    | 48.53                      | 68.20           | -19.67     | peak     |
| 2   | *   | 5460.000     | 47.26                    | 1.65                    | 48.91                      | 68.20           | -19.29     | peak     |

Test Result: Pass

[Test mode: TX high channel 802.11n40 5230MHz]; [Polarity: Vertical]



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 5350.000     | 47.01                    | 1.58                    | 48.59                      | 68.20           | -19.61     | peak     |
| 2   | *   | 5460.000     | 48.01                    | 1.65                    | 49.66                      | 68.20           | -18.54     | peak     |

Test Result: Pass

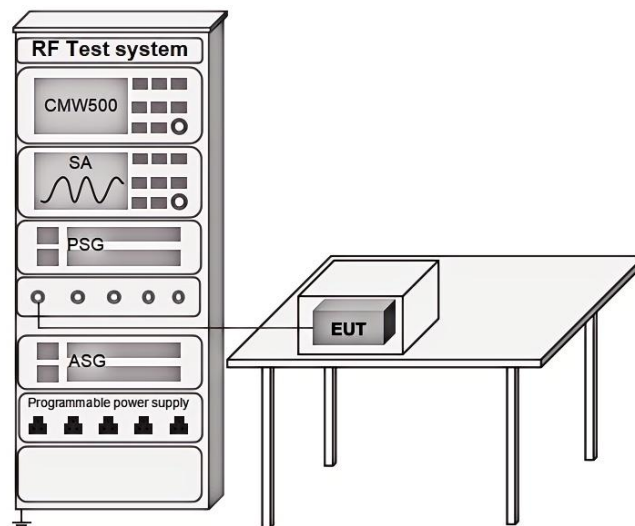
## 6.12 DFS: Channel Closing Transmission Time

|                               |                                        |
|-------------------------------|----------------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart E 15.407(h)(2) |
| <b>Test Method</b>            | KDB 905462 D02 Section 7.8.3           |
| <b>Test Mode (Pre-Scan)</b>   | TX                                     |
| <b>Test Mode (Final Test)</b> | TX                                     |

### 6.12.1 Limit

200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period (should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. It is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required facilitating a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions)

### 6.12.2 Test setup



### 6.12.3 Procedure

- 1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- 2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.

- 3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4) EUT will associate with the master at channel. The file `iperf.exe` specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
- 5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
- 6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by:  $Dwell (0.3ms) = S (12000ms) / B (4000)$ ; where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by:  $C (ms) = N \times Dwell (0.3ms)$ ; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

#### 6.12.4 Test data

N/A: Not Applicable.

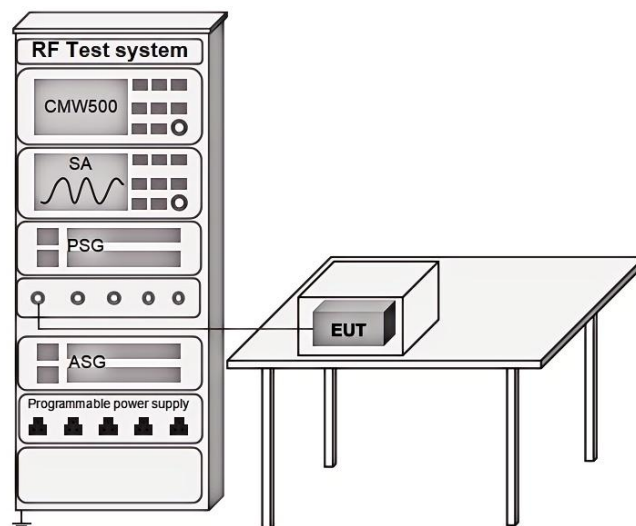
### 6.13 DFS: Non-occupancy period

|                               |                                        |
|-------------------------------|----------------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart E 15.407(h)(2) |
| <b>Test Method</b>            | KDB 905462 D02 Section 7.8.3           |
| <b>Test Mode (Pre-Scan)</b>   | TX                                     |
| <b>Test Mode (Final Test)</b> | TX                                     |

#### 6.13.1 Limit

Minimum 30 minutes

#### 6.13.2 Test setup



#### 6.13.3 Procedure

- 1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- 2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
- 3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4) EUT will associate with the master at channel. The file `iperf.exe` specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.

- 5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
- 6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by:  $Dwell (0.3ms) = S (12000ms) / B (4000)$ ; where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by:  $C (ms) = N \times Dwell (0.3ms)$ ; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

#### 6.13.4 Test data

N/A: Not Applicable.

## 7 Appendix A

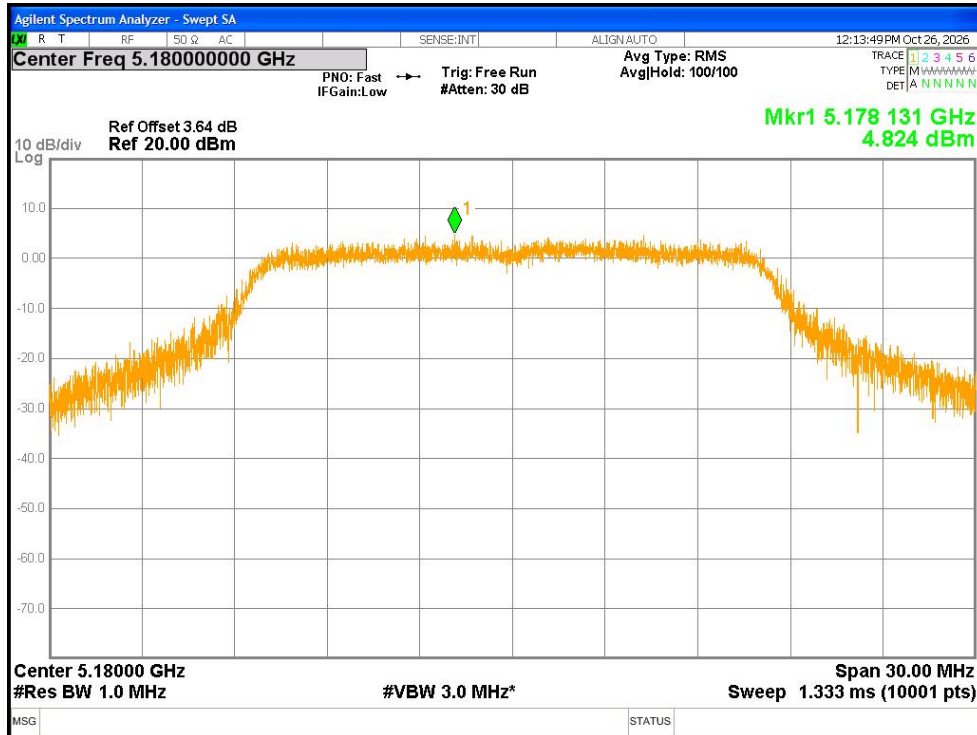
### 7.1 Maximum Conducted Output Power

| Condition | Mode | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|-----------|------|-----------------|---------|-----------------------|-------------|---------|
| NVNT      | a    | 5180            | Ant1    | 11.618                | 24          | Pass    |
| NVNT      | a    | 5200            | Ant1    | 11.647                | 24          | Pass    |
| NVNT      | a    | 5240            | Ant1    | 12.144                | 24          | Pass    |
| NVNT      | n20  | 5180            | Ant1    | 11.683                | 24          | Pass    |
| NVNT      | n20  | 5200            | Ant1    | 11.946                | 24          | Pass    |
| NVNT      | n20  | 5240            | Ant1    | <b>12.203</b>         | 24          | Pass    |
| NVNT      | n40  | 5190            | Ant1    | 11.707                | 24          | Pass    |
| NVNT      | n40  | 5230            | Ant1    | 11.493                | 24          | Pass    |
| NVNT      | ac20 | 5180            | Ant1    | 11.258                | 24          | Pass    |
| NVNT      | ac20 | 5200            | Ant1    | 11.398                | 24          | Pass    |
| NVNT      | ac20 | 5240            | Ant1    | 11.043                | 24          | Pass    |
| NVNT      | ac40 | 5190            | Ant1    | 11.954                | 24          | Pass    |
| NVNT      | ac40 | 5230            | Ant1    | 11.636                | 24          | Pass    |
| NVNT      | ax20 | 5180            | Ant1    | 11.564                | 24          | Pass    |
| NVNT      | ax20 | 5200            | Ant1    | 11.524                | 24          | Pass    |
| NVNT      | ax20 | 5240            | Ant1    | 12.093                | 24          | Pass    |
| NVNT      | ax40 | 5190            | Ant1    | 11.366                | 24          | Pass    |
| NVNT      | ax40 | 5230            | Ant1    | 12.064                | 24          | Pass    |

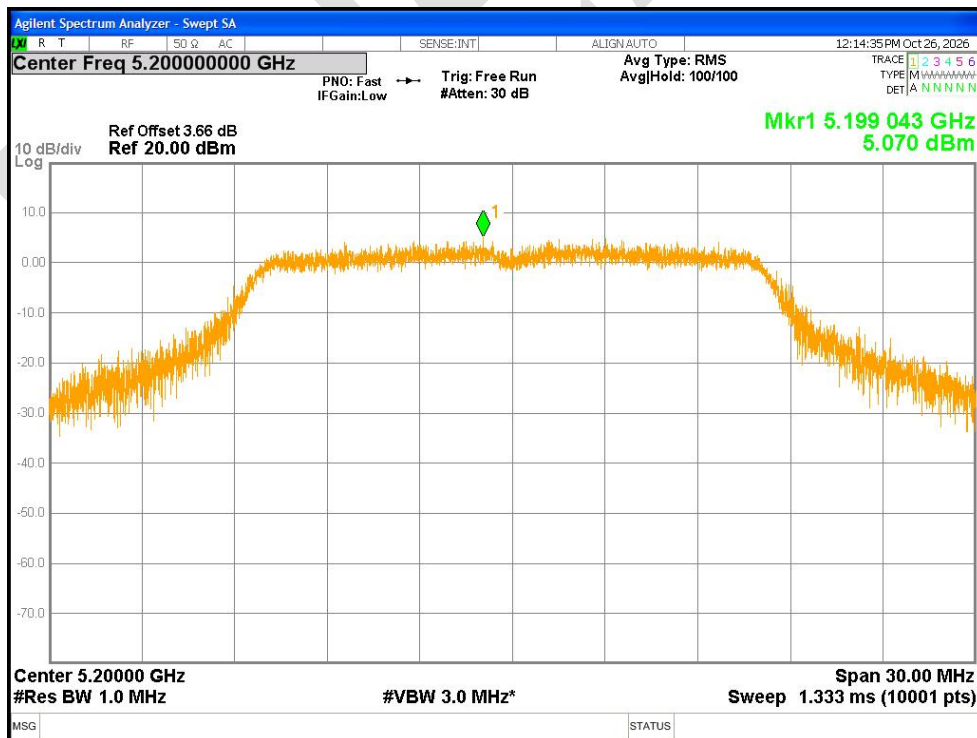
## 7.2 Maximum Power Spectral Density Level

| Condition | Mode | Frequency (MHz) | Antenna | Max PSD (dBm/MHz) | Limit (dBm/MHz) | Verdict |
|-----------|------|-----------------|---------|-------------------|-----------------|---------|
| NVNT      | a    | 5180            | Ant1    | 4.824             | 11              | Pass    |
| NVNT      | a    | 5200            | Ant1    | 5.070             | 11              | Pass    |
| NVNT      | a    | 5240            | Ant1    | 5.135             | 11              | Pass    |
| NVNT      | n20  | 5180            | Ant1    | 5.227             | 11              | Pass    |
| NVNT      | n20  | 5200            | Ant1    | 4.705             | 11              | Pass    |
| NVNT      | n20  | 5240            | Ant1    | 4.859             | 11              | Pass    |
| NVNT      | n40  | 5190            | Ant1    | 3.037             | 11              | Pass    |
| NVNT      | n40  | 5230            | Ant1    | 2.417             | 11              | Pass    |
| NVNT      | ac20 | 5180            | Ant1    | 4.918             | 11              | Pass    |
| NVNT      | ac20 | 5200            | Ant1    | 4.902             | 11              | Pass    |
| NVNT      | ac20 | 5240            | Ant1    | 5.863             | 11              | Pass    |
| NVNT      | ac40 | 5190            | Ant1    | 2.829             | 11              | Pass    |
| NVNT      | ac40 | 5230            | Ant1    | 4.463             | 11              | Pass    |
| NVNT      | ax20 | 5180            | Ant1    | 5.519             | 11              | Pass    |
| NVNT      | ax20 | 5200            | Ant1    | 5.977             | 11              | Pass    |
| NVNT      | ax20 | 5240            | Ant1    | 5.810             | 11              | Pass    |
| NVNT      | ax40 | 5190            | Ant1    | 2.378             | 11              | Pass    |
| NVNT      | ax40 | 5230            | Ant1    | 3.143             | 11              | Pass    |

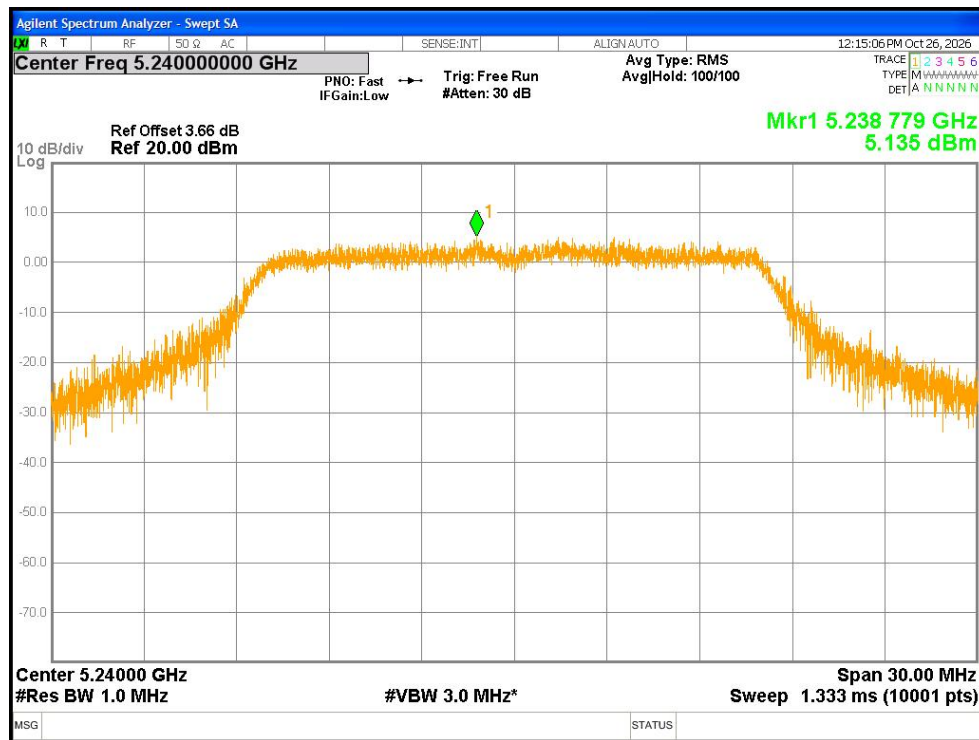
PSD NVNT a 5180MHz Ant1



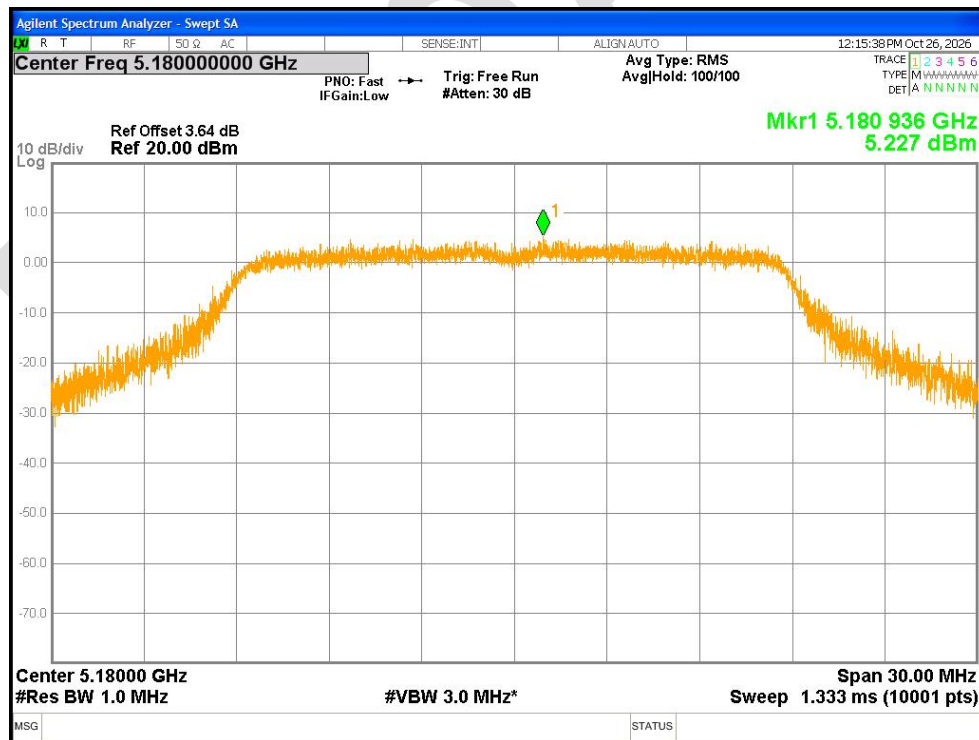
PSD NVNT a 5200MHz Ant1



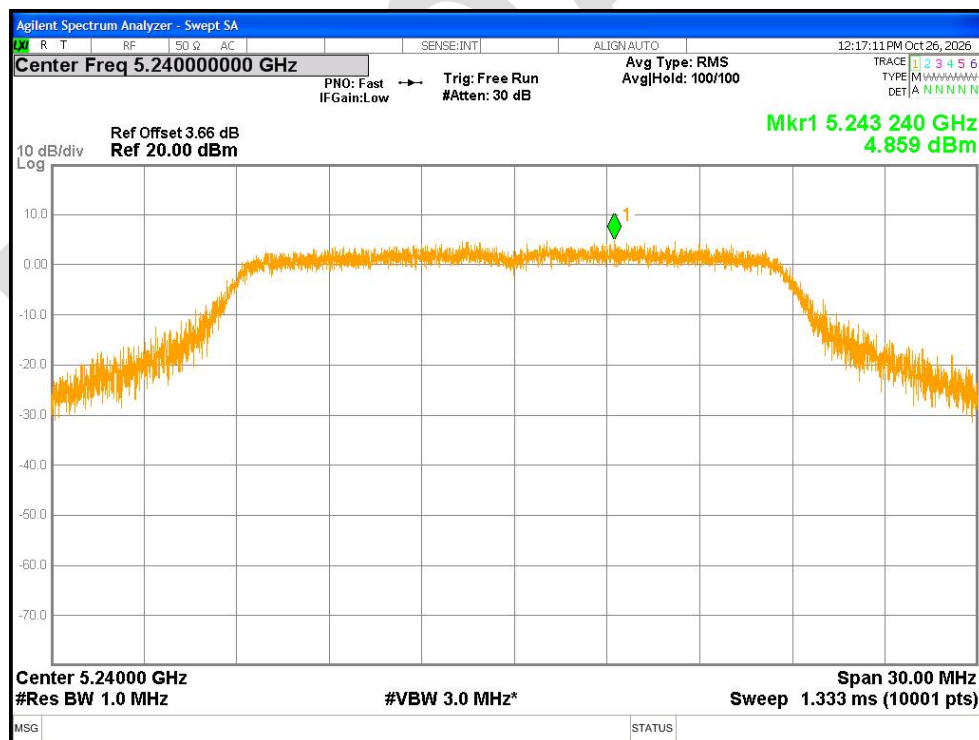
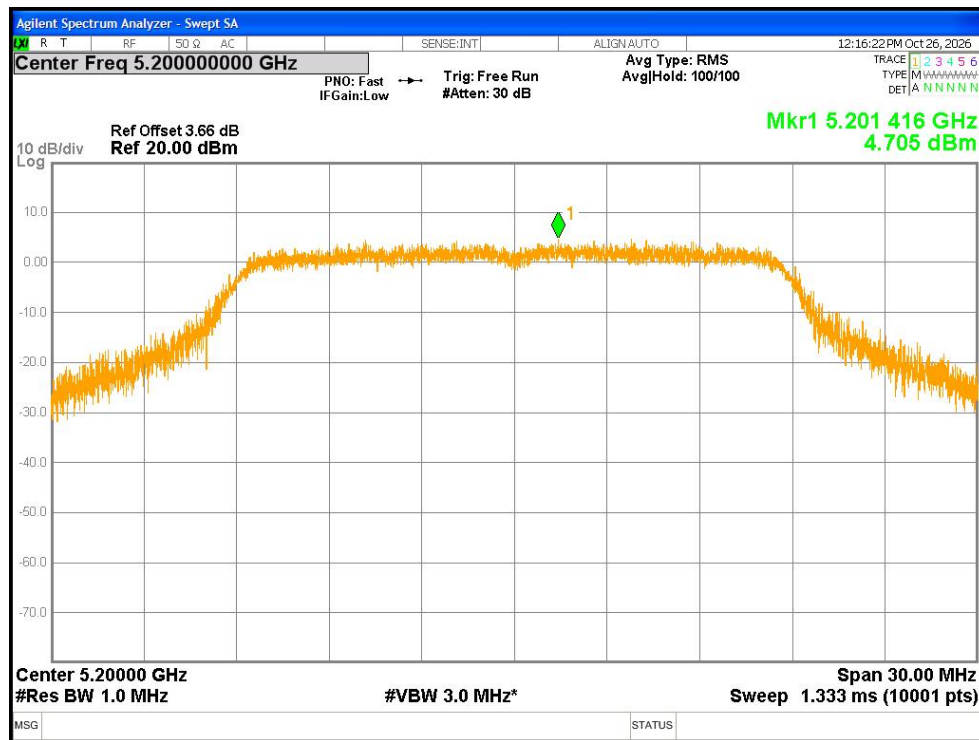
PSD NVNT a 5240MHz Ant1

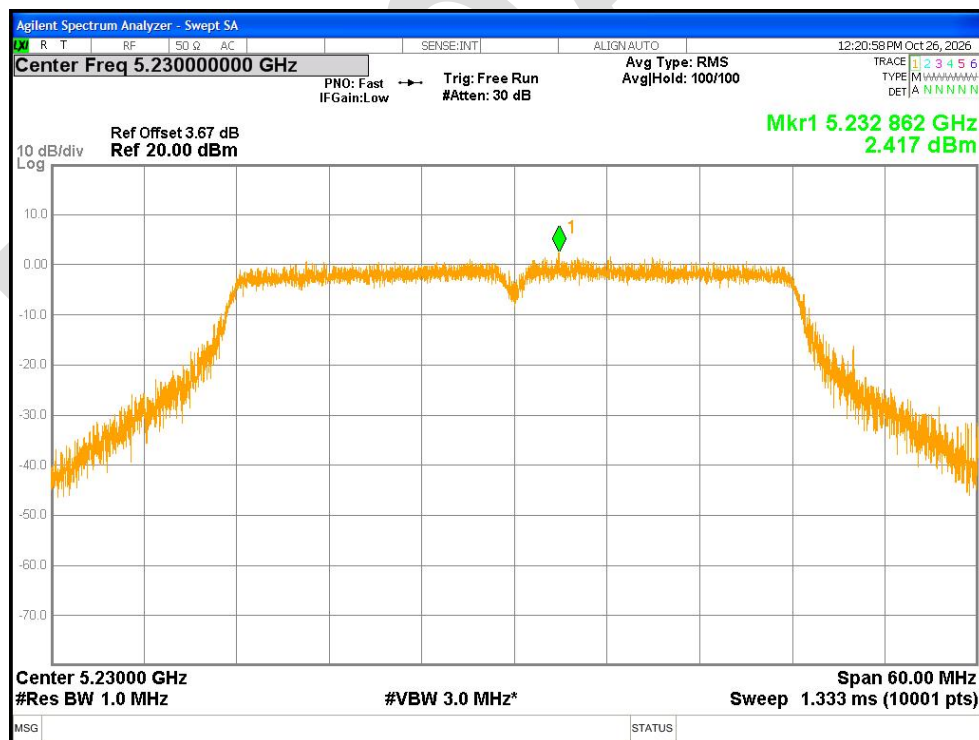
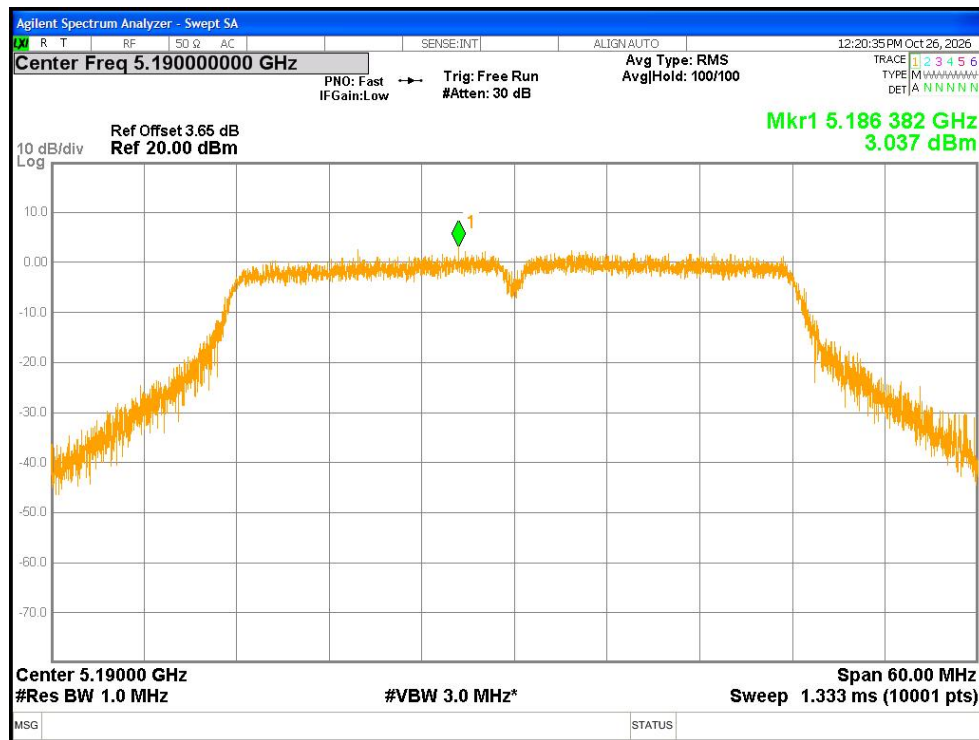


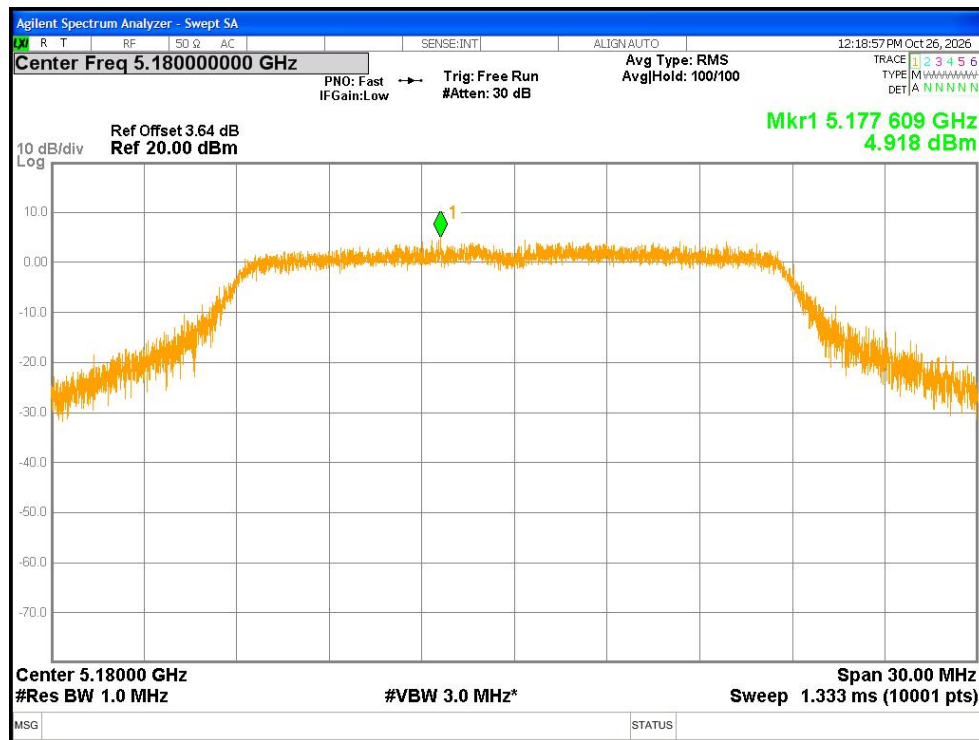
PSD NVNT n20 5180MHz Ant1



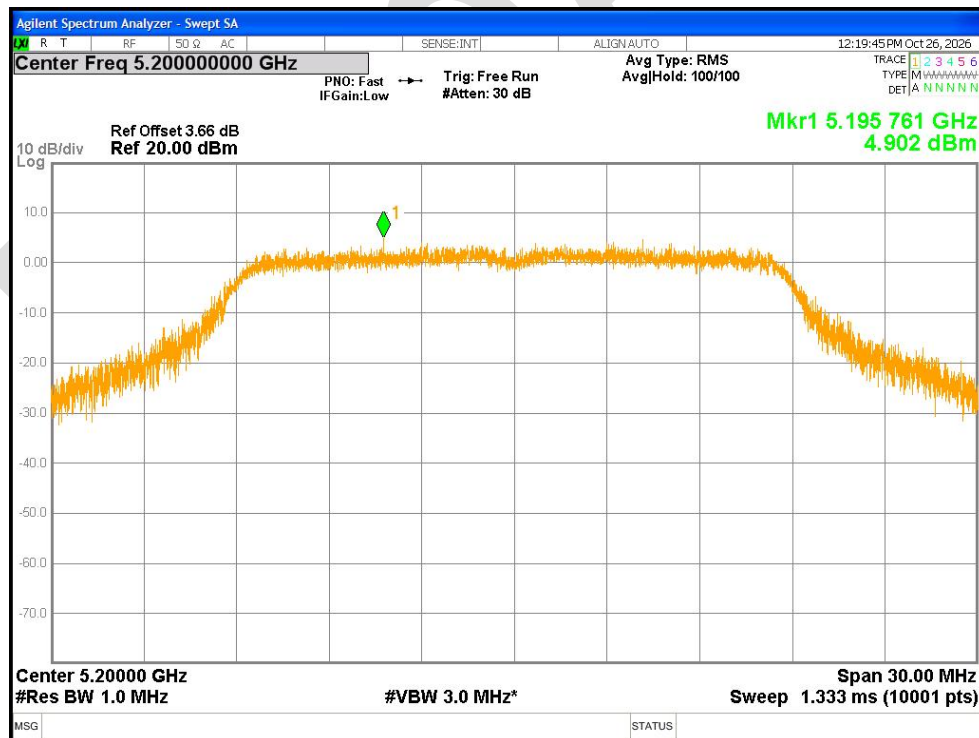
PSD NVNT n20 5200MHz Ant1



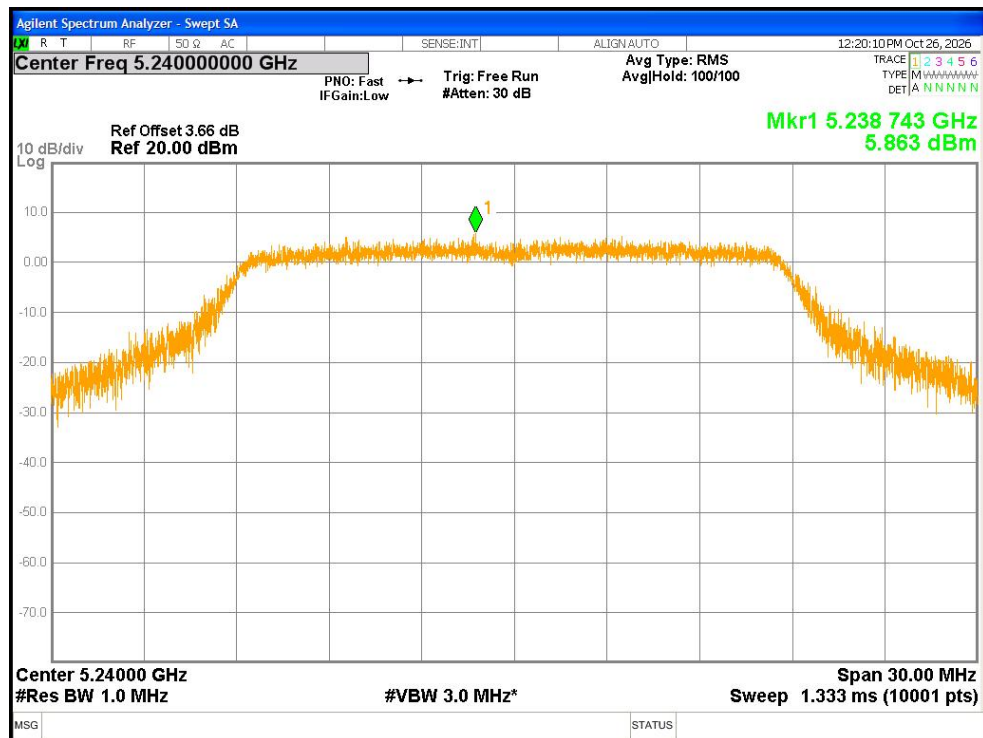




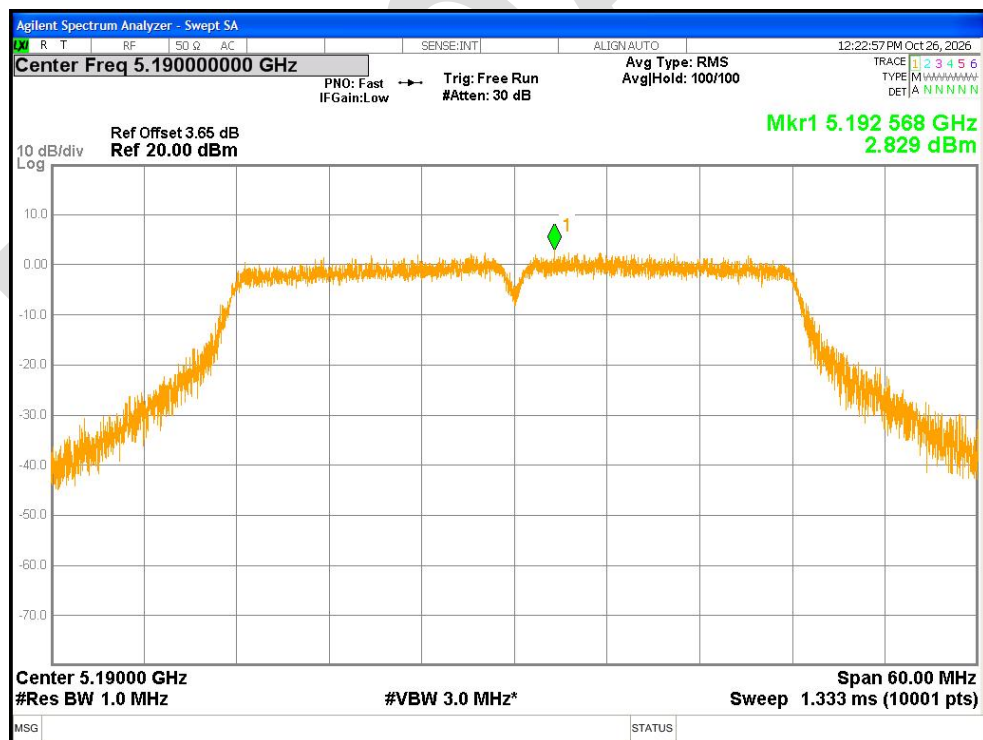
PSD NVNT ac20 5200MHz Ant1



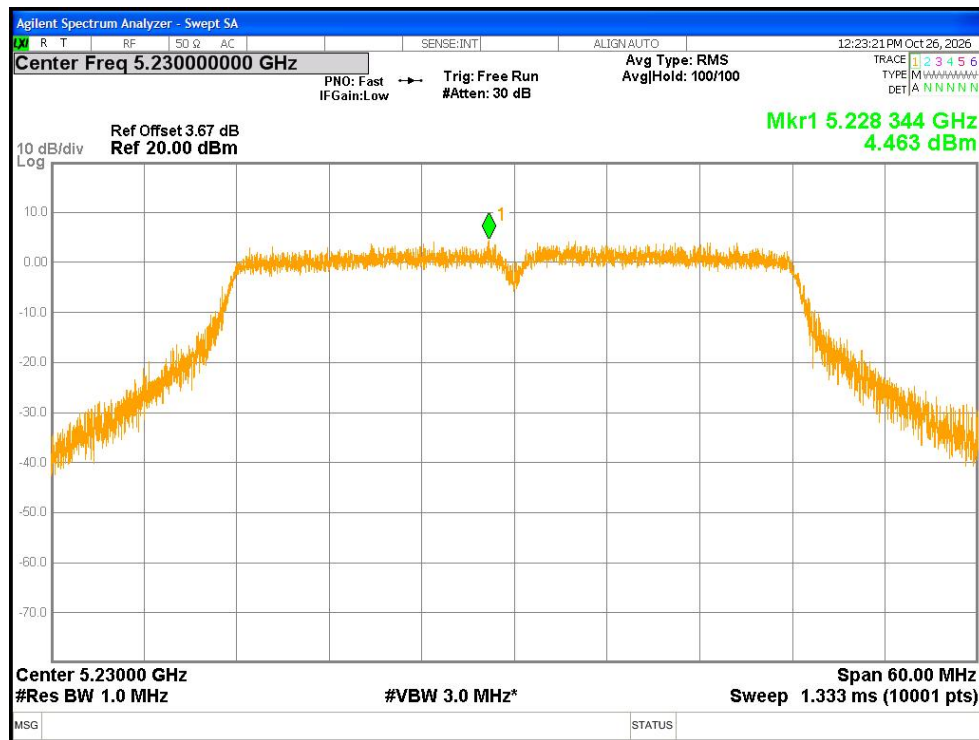
PSD NVNT ac20 5240MHz Ant1



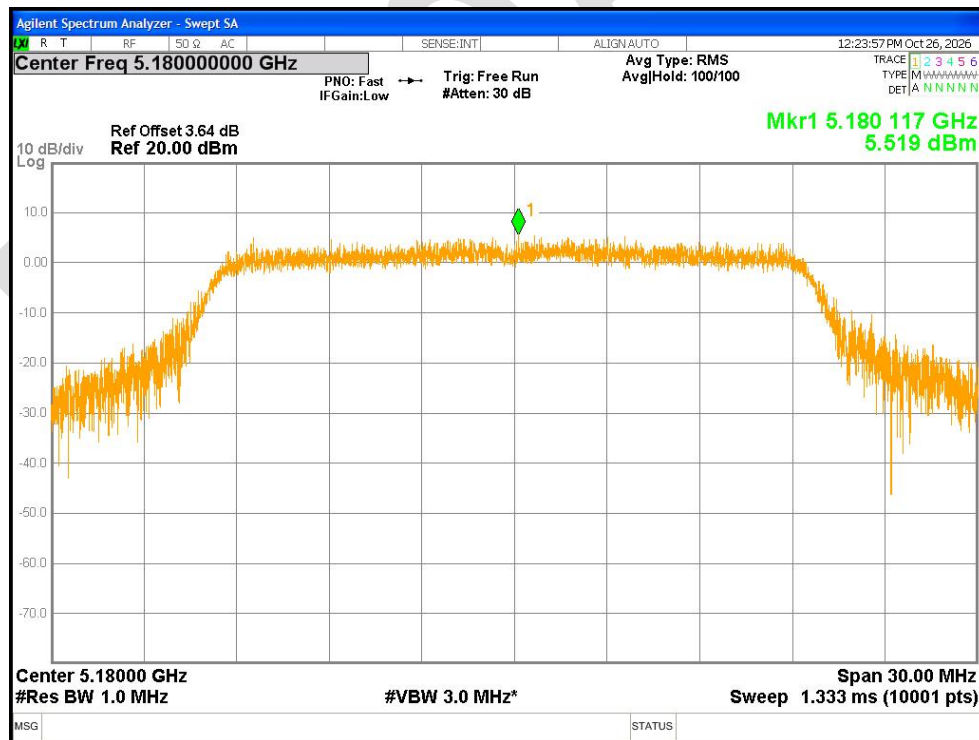
PSD NVNT ac40 5190MHz Ant1



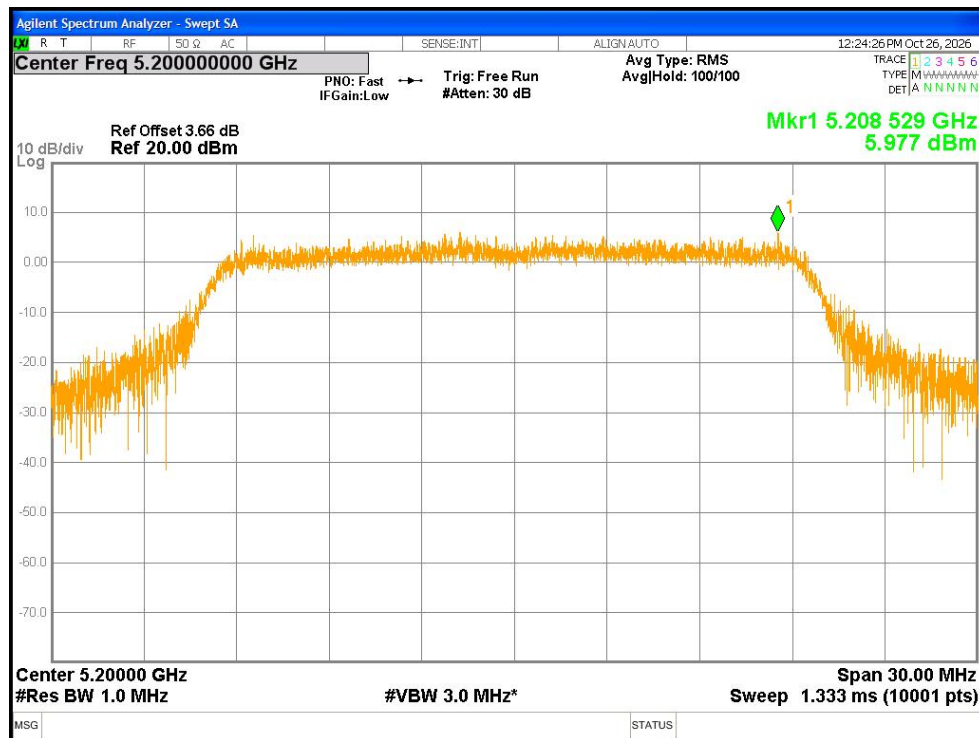
PSD NVNT ac40 5230MHz Ant1



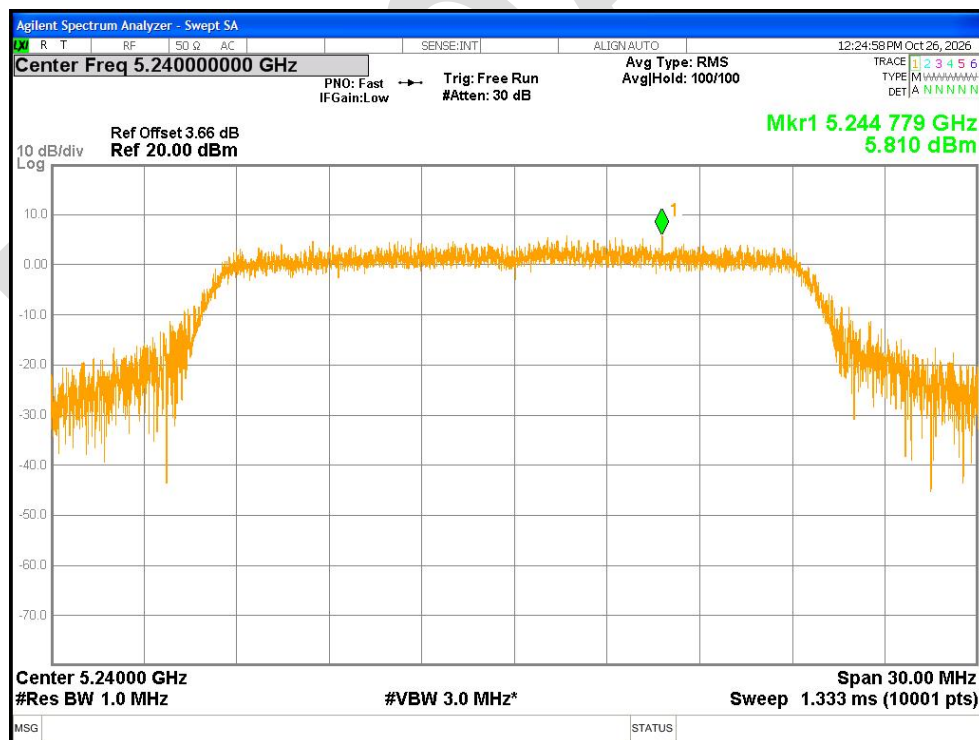
PSD NVNT ax20 5180MHz Ant1



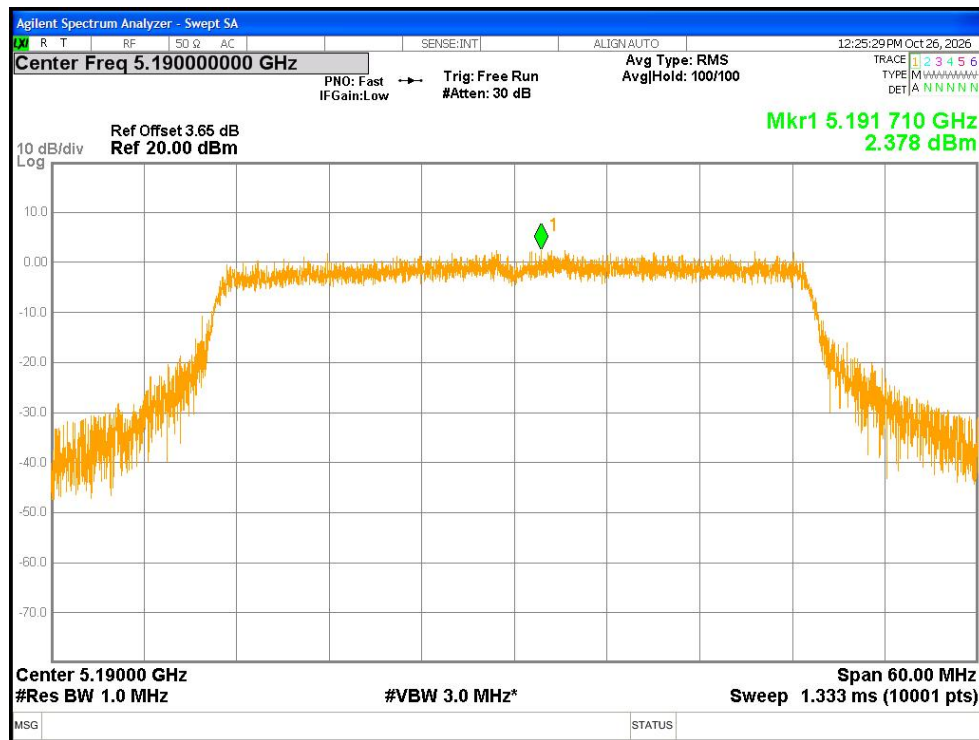
PSD NVNT ax20 5200MHz Ant1



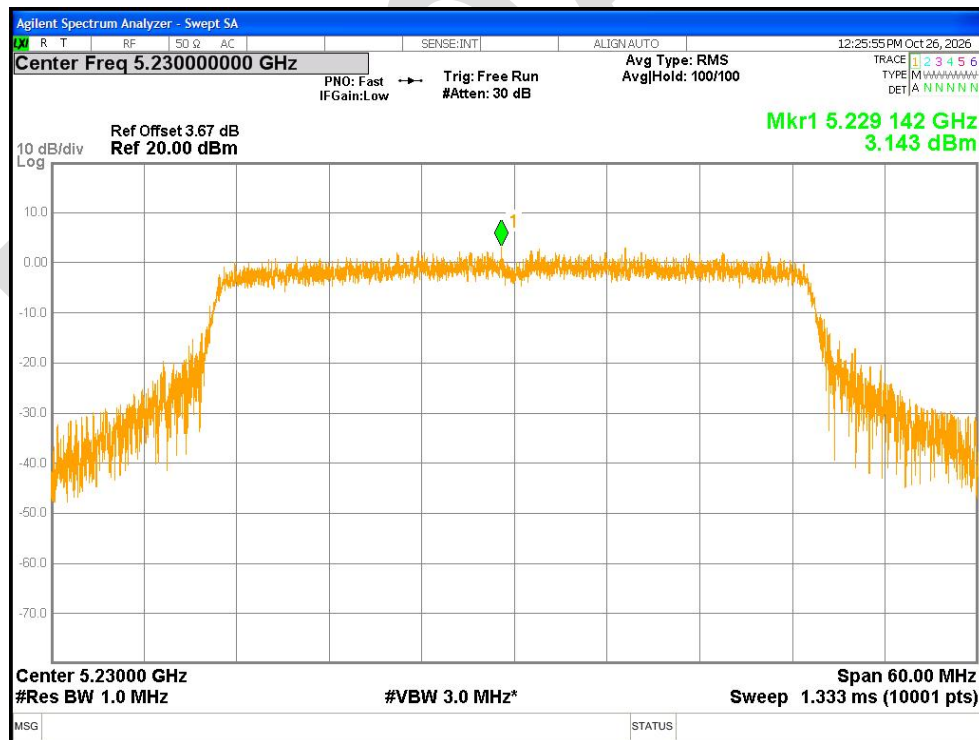
PSD NVNT ax20 5240MHz Ant1



PSD NVNT ax40 5190MHz Ant1



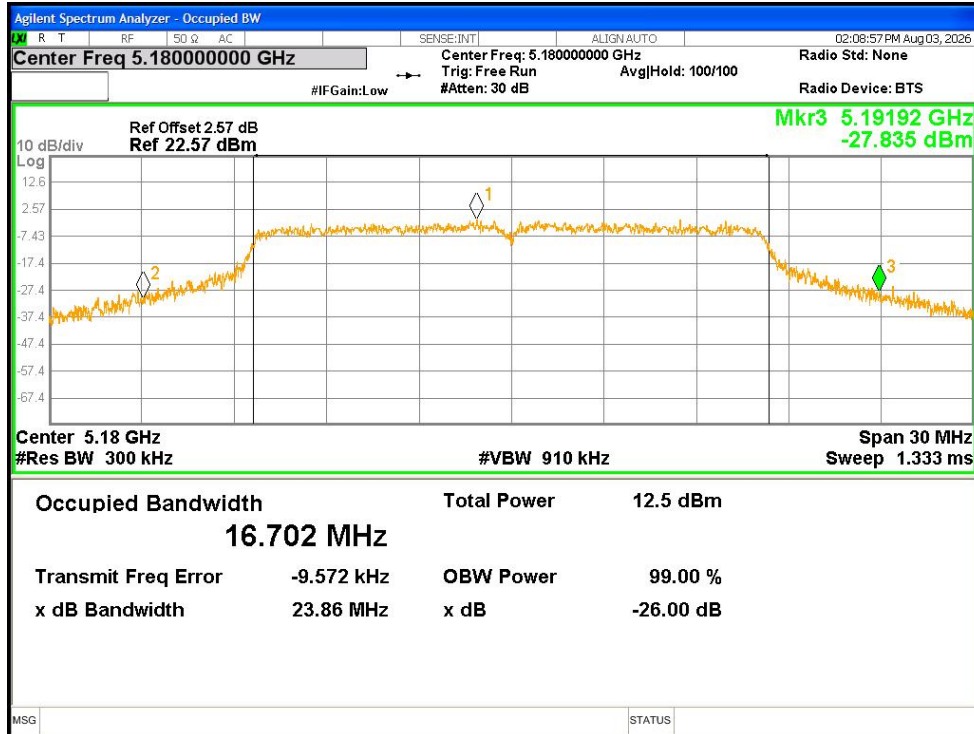
PSD NVNT ax40 5230MHz Ant1



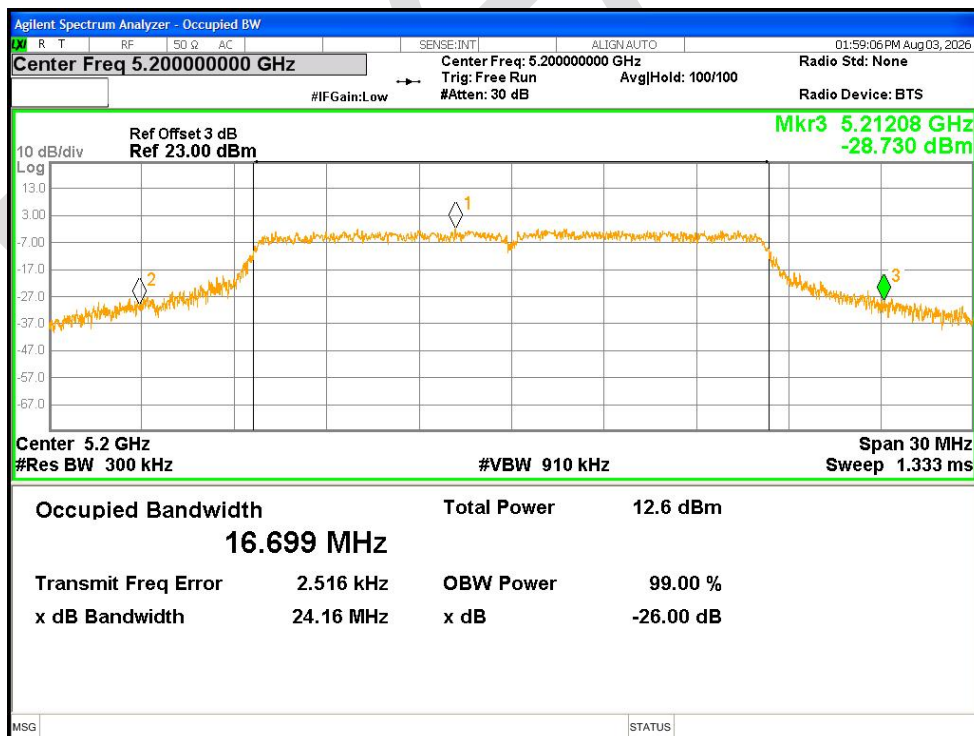
### 7.3-26dB Bandwidth

| Condition | Mode | Frequency (MHz) | Antenna | -26 dB Bandwidth (MHz) | Limit -26 dB Bandwidth (MHz) | Verdict |
|-----------|------|-----------------|---------|------------------------|------------------------------|---------|
| NVNT      | a    | 5180            | Ant1    | 23.859                 | N/A                          | Pass    |
| NVNT      | a    | 5200            | Ant1    | 24.156                 | N/A                          | Pass    |
| NVNT      | a    | 5240            | Ant1    | 24.104                 | N/A                          | Pass    |
| NVNT      | n20  | 5180            | Ant1    | 24.641                 | N/A                          | Pass    |
| NVNT      | n20  | 5200            | Ant1    | 25.626                 | N/A                          | Pass    |
| NVNT      | n20  | 5240            | Ant1    | 25.074                 | N/A                          | Pass    |
| NVNT      | n40  | 5190            | Ant1    | 46.147                 | N/A                          | Pass    |
| NVNT      | n40  | 5230            | Ant1    | 43.835                 | N/A                          | Pass    |
| NVNT      | ac20 | 5180            | Ant1    | 24.462                 | N/A                          | Pass    |
| NVNT      | ac20 | 5200            | Ant1    | 25.319                 | N/A                          | Pass    |
| NVNT      | ac20 | 5240            | Ant1    | 24.189                 | N/A                          | Pass    |
| NVNT      | ac40 | 5190            | Ant1    | 45.283                 | N/A                          | Pass    |
| NVNT      | ac40 | 5230            | Ant1    | 45.34                  | N/A                          | Pass    |
| NVNT      | ax20 | 5180            | Ant1    | 23.791                 | N/A                          | Pass    |
| NVNT      | ax20 | 5200            | Ant1    | 24.88                  | N/A                          | Pass    |
| NVNT      | ax20 | 5240            | Ant1    | 25.049                 | N/A                          | Pass    |
| NVNT      | ax40 | 5190            | Ant1    | 45.606                 | N/A                          | Pass    |
| NVNT      | ax40 | 5230            | Ant1    | 45.663                 | N/A                          | Pass    |

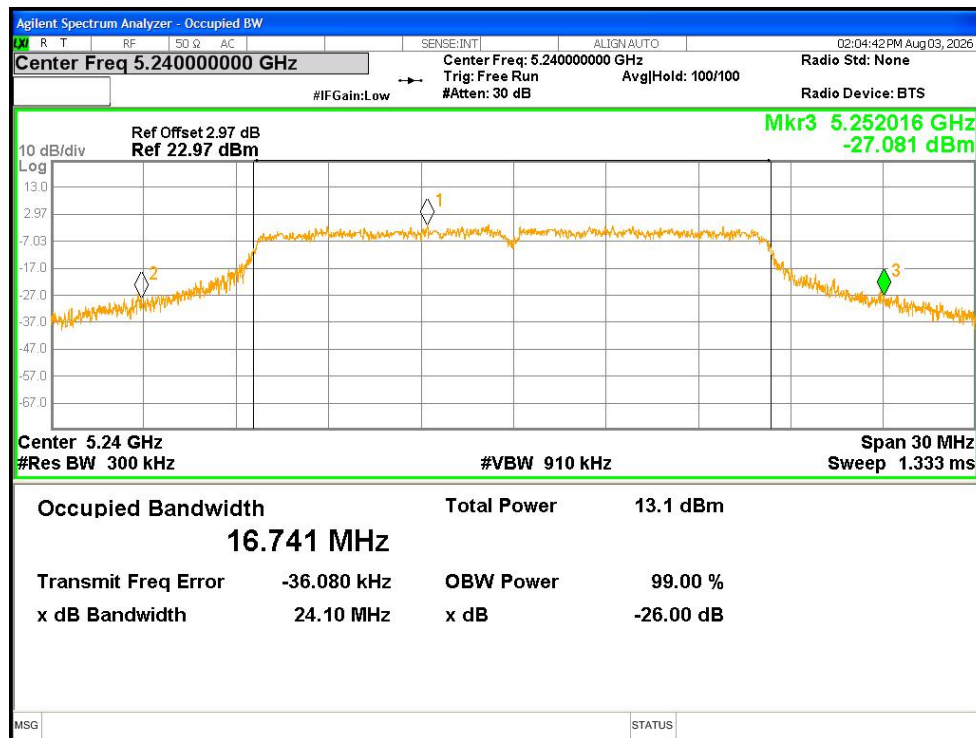
-26dB Bandwidth NVNT a 5180MHz Ant1



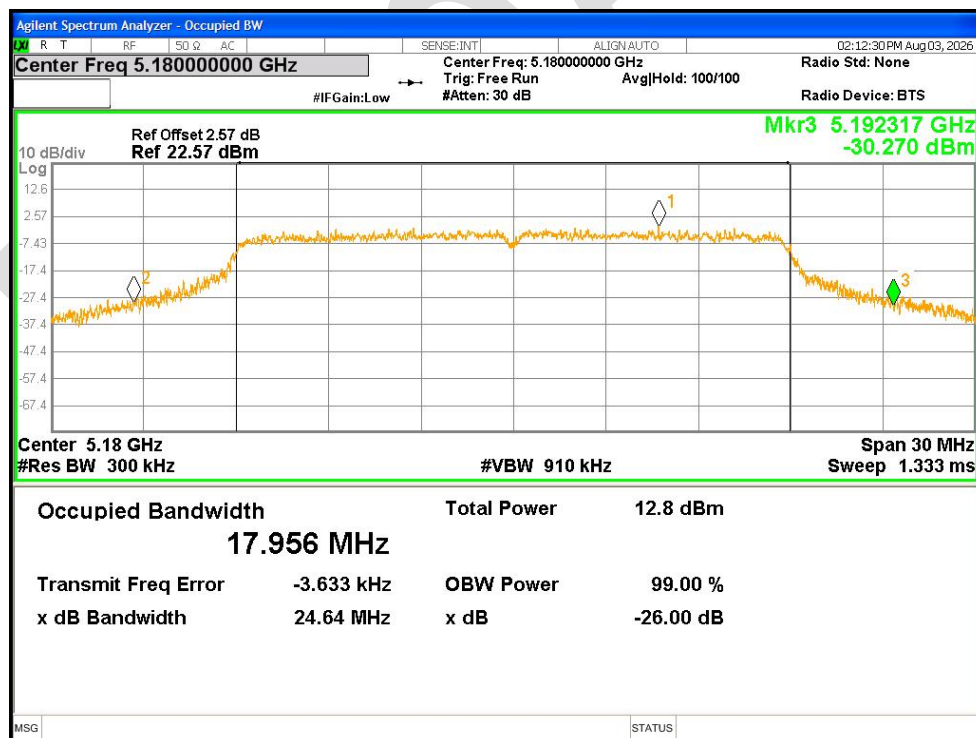
-26dB Bandwidth NVNT a 5200MHz Ant1



-26dB Bandwidth NVNT a 5240MHz Ant1



-26dB Bandwidth NVNT n20 5180MHz Ant1



-26dB Bandwidth NVNT n20 5200MHz Ant1