



# TEST REPORT

|                                                                                                                                                                                                         |                                                        |                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>Eurofins KCTL Co.,Ltd.</b><br>65, Sinwon-ro, Yeongtong-gu,<br>Suwon-si, Gyeonggi-do, 16677, Korea<br>TEL: 82-70-5008-1021 FAX: 82-505-299-8311<br><a href="http://www.kctl.co.kr">www.kctl.co.kr</a> | <b>Report No.:</b><br>KR24-SRF0093<br>Page (1) of (76) |    <b>KCTL</b> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------------------------------------------------|

**1. Client**

◦ Name : DREAMUS COMPANY

◦ Address : 311, Gangnam-daero, Seocho-gu, Seoul, Republic of Korea

◦ Date of Receipt : 2024-01-24

**2. Use of Report** : Certification

**3. Name of Product / Model** : P1 / APP21

**4. Manufacturer / Country of Origin** : DREAMUS COMPANY / Korea

**5. FCC ID** : QDMAPP21

**5. Date of Test** : 2024-04-02 to 2024-05-09

**6. Location of Test** : ☒ Permanent Testing Lab ☐ On Site Testing  
(Address:65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea)

**7. Test method used** : FCC Part 15 Subpart E, 15.407

**8. Test Result** : Refer to the test result in the test report

|             |                                                                                                       |                                                                                                        |
|-------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Affirmation | Tested by                                                                                             | Technical Manager                                                                                      |
|             | Name : Hosung Lee  | Name : Harim Lee  |

2024-05-21

**Eurofins KCTL Co.,Ltd.**

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|                                                                                                                                                                                                         |                                                 |                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Eurofins KCTL Co.,Ltd.</b><br>65, Sinwon-ro, Yeongtong-gu,<br>Suwon-si, Gyeonggi-do, 16677, Korea<br>TEL: 82-70-5008-1021 FAX: 82-505-299-8311<br><a href="http://www.kctl.co.kr">www.kctl.co.kr</a> | Report No.:<br>KR24-SRF0093<br>Page (2) of (76) |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------|

## REPORT REVISION HISTORY

| Date       | Revision          | Page No |
|------------|-------------------|---------|
| 2024-05-21 | Originally issued | -       |
|            |                   |         |
|            |                   |         |
|            |                   |         |
|            |                   |         |

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## General remarks for test reports

### Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

☐ Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:

### Procedure number, issue date and title:

Calculations leading to the reported values are on file with the testing laboratory that conducted the testing.

☒ Statement not required by the standard or client used for type testing

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## 1. General information

Client : DREAMUS COMPANY  
 Address : 311, Gangnam-daero, Seocho-gu, Seoul, Republic of Korea  
 Manufacturer : DREAMUS COMPANY  
 Address : 311, Gangnam-daero, Seocho-gu, Seoul, Republic of Korea  
 Factory : smartelectronics  
 Address : (Ochang-eup), 256, Yeocheon 3-gil, Cheongwon-gu, Cheongju-si, Chungcheongbuk-do, Korea  
 Laboratory : Eurofins KCTL Co.,Ltd.  
 Address : 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea  
 Accreditations : FCC Site Designation No: KR0040, FCC Site Registration No: 687132  
 VCCI Registration No. : R-20080, G-20078, C-20059, T-20056  
 CAB Identifier: KR0040  
 ISED Number: 8035A  
 KOLAS No.: KT231

## 2. Device information

Equipment under test : P1  
 Model : APP21  
 Modulation technique : Bluetooth(BDR/EDR) : GFSK,  $\pi$ /4DQPSK, 8DPSK  
 Bluetooth(BLE) : GFSK  
 WIFI(802.11a/b/g/n/ac) : DSSS, OFDM  
 Number of channels : Bluetooth : 79 ch  
 BLE : 40 ch  
 2.4 GHz WALN : 11 ch (20 MHz), 7 ch (40 MHz)  
 UNII-1 : 4 ch (20 MHz), 2 ch (40 MHz), 1 ch (80 MHz)  
 UNII-3 : 5 ch (20 MHz), 2 ch (40 MHz), 1 ch (80 MHz)  
 Power source : DC 3.8 V  
 Antenna specification : FPCB Antenna  
 Antenna gain : BT/BLE/2.4 GHz WALN : 0.78 dBi  
 UNII-1 : 2.21 dBi  
 UNII-3 : -0.08 dBi  
 Frequency range : Bluetooth : 2 402 MHz ~ 2 480 MHz (BDR/EDR/BLE)  
 2.4 GHz WALN : 2 412 MHz ~ 2 462 MHz (802.11b/g/n\_HT20)  
 2 422 MHz ~ 2 452 MHz (802.11n\_HT40)  
 UNII-1 : 5 180 MHz ~ 5 240 MHz (802.11a/n\_HT20)  
 5 190 MHz ~ 5 230 MHz (802.11n\_HT40)  
 5 210 MHz (802.11ac\_VHT80)  
 UNII-3 : 5 745 MHz ~ 5 825 MHz (802.11a/n\_HT20)  
 5 755 MHz ~ 5 795 MHz (802.11n\_HT40)  
 5 775 MHz (802.11ac\_VHT80)  
 Software version : 1.0  
 Hardware version : 1.0  
 Test device serial No. : TP-106, TP-107(Conducted)  
 TP-102(Radiated)  
 Operation temperature : -10 °C ~ 50 °C

## 2.1. Accessory information

| Equipment                           | Manufacturer                            | Model         | Serial No. | Power source       |
|-------------------------------------|-----------------------------------------|---------------|------------|--------------------|
| Li-ion Polymer Rechargeable Battery | Shenzhen Honcell Energy Company Limited | HCP494967PNFC | N/A        | DC 3.8 V, 2700 mAh |

## 2.2. Frequency/channel operations

This device contains the following capabilities:

Bluetooth(BDR/EDR/BLE), WLAN 2.4 GHz(802.11b/g/n\_HT20/HT40)

WLAN 5 GHz(802.11a/n\_HT20/40/ac\_VHT80)

**UNII-1**

| Ch. | Frequency (MHz) |
|-----|-----------------|
| 36  | 5 180           |
| 40  | 5 200           |
| 48  | 5 240           |

**UNII-3**

| Ch. | Frequency (MHz) |
|-----|-----------------|
| 149 | 5 745           |
| 157 | 5 785           |
| 165 | 5 825           |

Table 2.2.1. 802.11a/n\_HT20 mode

**UNII-1**

| Ch. | Frequency (MHz) |
|-----|-----------------|
| 38  | 5 190           |
| 46  | 5 230           |

**UNII-3**

| Ch. | Frequency (MHz) |
|-----|-----------------|
| 151 | 5 755           |
| 159 | 5 795           |

Table 2.2.2. 802.11n\_HT40 mode

**UNII-1**

| Ch. | Frequency (MHz) |
|-----|-----------------|
| 42  | 5 210           |

**UNII-3**

| Ch. | Frequency (MHz) |
|-----|-----------------|
| 155 | 5 775           |

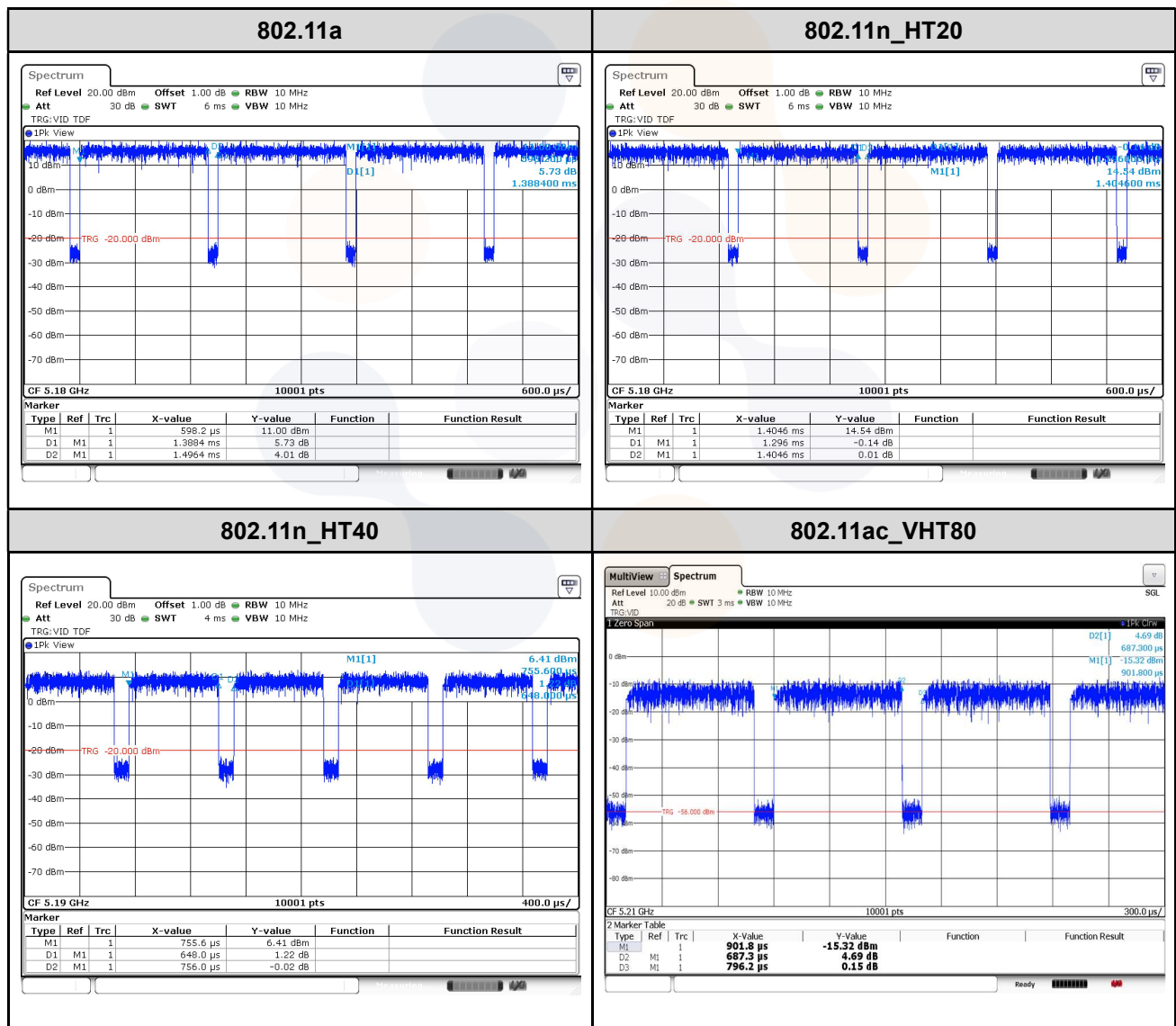
Table 2.2.3 802.11ac\_VHT80 mode

## 2.3. Duty Cycle Factor

| Test mode      | Period (ms) | T <sub>on</sub> time (ms) | Duty cycle |       | Duty cycle factor (dB) |
|----------------|-------------|---------------------------|------------|-------|------------------------|
|                |             |                           | (Linear)   | (%)   |                        |
| 802.11a        | 1.496 4     | 1.388 4                   | 0.927 8    | 92.78 | 0.33                   |
| 802.11n_HT20   | 1.404 6     | 1.296 0                   | 0.922 7    | 92.27 | 0.35                   |
| 802.11n_HT40   | 0.756 0     | 0.648 0                   | 0.857 1    | 85.71 | 0.67                   |
| 802.11ac_VHT80 | 0.796 2     | 0.687 3                   | 0.863 2    | 86.32 | 0.64                   |

### Notes.

1. Duty cycle (Linear) = T<sub>on</sub> time / Period
2. DCF(Duty cycle factor) = 10log(1/duty cycle)
3. DCF is not compensated to average result if the duty cycle is more than 98%





### 3. Antenna requirement

#### Requirement of FCC part section 15.203:

An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

- The transmitter has attached FPCB Antenna (internal antenna) on the board.
- The E.U.T Complies with the requirement of §15.203, §15.407

### 4. Summary of tests

| FCC Part section(s)                   | Parameter                      | Test Condition | Test results |
|---------------------------------------|--------------------------------|----------------|--------------|
| 15.407(a)                             | Maximum conducted output power | Conducted      | Pass         |
| 15.407(a)                             | Maximum power spectral density |                | Pass         |
| 15.407(a)                             | 26 dB Channel Bandwidth        |                | Pass         |
| 15.407(e)                             | 6 dB Channel Bandwidth         |                | Pass         |
| 15.207(a)                             | AC Conducted Emissions         |                | Pass         |
| 15.407(b),<br>15.205(a),<br>15.209(a) | Spurious emission              | Radiated       | Pass         |
|                                       | Band-edge, restricted band     |                | Pass         |

#### Notes:

1. All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
2. According to exploratory test no any obvious emission were detected from 9 kHz to 30 MHz. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.
3. The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z. It was determined that **Y** orientation was worst-case orientation. Therefore, all final radiated testing was performed with the EUT in **Y** orientation.
4. The test procedure(s) in this report were performed in accordance as following.
  - ANSI C63.10-2013
  - KDB 789033 D02 v02r01
5. The worst-case data rates were:
  - 802.11a mode: 6Mbps
  - 802.11n HT20 mode: MCS0
  - 802.11n HT40 mode: MCS0
  - 802.11ac VHT80 mode: MCS0

## 5. Measurement uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.

All measurement uncertainty values are shown with a coverage factor of  $k=2$  to indicated a 95 % level of confidence. The measurement data shown herein meets or exceeds the  $U_{\text{CISPR}}$  measurement uncertainty values specified in CISPR 16-4-2 and thus, can be compared directly to specified limits to determine compliance.

| Parameter                    | Expanded uncertainty ( $\pm$ ) |        |
|------------------------------|--------------------------------|--------|
| Conducted RF power           | 0.9 dB                         |        |
| Conducted spurious emissions | 1.3 dB                         |        |
| Radiated spurious emissions  | Below 30 MHz                   | 2.3 dB |
|                              | 30 MHz ~ 1 000 MHz             | 2.5 dB |
|                              | 1 000 MHz ~ 18 000 MHz         | 4.7 dB |
|                              | Above 18 000 GHz               | 4.8 dB |
| Conducted emissions          | 150 kHz ~ 30 MHz               | 2.7 dB |



## 6. Measurement results explanation example

The offset level is set in the spectrum analyzer to compensate the RF cable loss factor between EUT conducted output port and spectrum analyzer.

With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

| Frequency (MHz) | Factor(dB) | Frequency (MHz) | Factor(dB) |
|-----------------|------------|-----------------|------------|
| 30              | 9.94       | 9 000           | 11.70      |
| 50              | 9.97       | 10 000          | 11.68      |
| 100             | 10.10      | 11 000          | 11.89      |
| 200             | 10.09      | 12 000          | 12.22      |
| 300             | 10.13      | 13 000          | 12.65      |
| 400             | 10.18      | 14 000          | 12.40      |
| 500             | 10.20      | 15 000          | 12.69      |
| 600             | 10.22      | 16 000          | 12..63     |
| 700             | 10.26      | 17 000          | 12.80      |
| 800             | 10.31      | 18 000          | 12.62      |
| 900             | 10.31      | 19 000          | 12.67      |
| 1 000           | 10.30      | 20 000          | 12.87      |
| 2 000           | 9.88       | 21 000          | 1.80       |
| 3 000           | 10.06      | 22 000          | 12.55      |
| 4 000           | 10.33      | 23 000          | 12.90      |
| 5 000           | 10.69      | 24 000          | 12.80      |
| 6 000           | 10.89      | 25 000          | 12.83      |
| 7 000           | 11.15      | 26 000          | 13.41      |
| 8 000           | 11.39      | 26 500          | 12.93      |

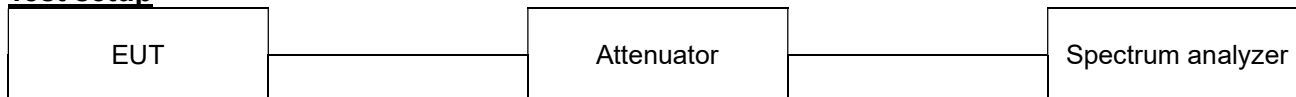
**Note.**

Offset(dB) = RF cable loss(dB) + Attenuator(dB)

## 7. Test results

### 7.1. Maximum conducted output power

#### Test setup



#### Limit

According to §15.407(a)

| Band    | EUT category |                                   | Limit                                   |
|---------|--------------|-----------------------------------|-----------------------------------------|
| UNII-1  |              | Outdoor access point              | 1 W (30 dBm)                            |
|         |              | Indoor access point               |                                         |
|         |              | Fixed point-to-point access point |                                         |
|         | √            | Client device                     | 250 mW (23.98 dBm)                      |
| UNII-2A |              |                                   | 250 mW or 11 dBm + 10logB <sup>1)</sup> |
| UNII-2C |              |                                   | 250 mW or 11 dBm + 10logB <sup>1)</sup> |
| UNII-3  |              | √                                 | 1 W (30 dBm)                            |

#### Note:

1) Conducted output power limit B is the 26 dB emission bandwidth.

#### Test procedure

ANSI C63.10-2013-Section 12.3.2.4

KDB 789033 D02 v02r01 - Section E.2.d)

|                                                                                                                                                                                                                        |                                                             |                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <p><b>Eurofins KCTL Co.,Ltd.</b><br/> 65, Sinwon-ro, Yeongtong-gu,<br/> Suwon-si, Gyeonggi-do, 16677, Korea<br/> TEL: 82-70-5008-1021 FAX: 82-505-299-8311<br/> <a href="http://www.kctl.co.kr">www.kctl.co.kr</a></p> | <p>Report No.:<br/> KR24-SRF0093<br/> Page (11) of (76)</p> |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------|

## **Test settings**

**Used test method is Section E.3.a)**

### **◆ KDB 789033 D02 v02r01**

#### **Section E.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 following conditions 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 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%).

### Test results

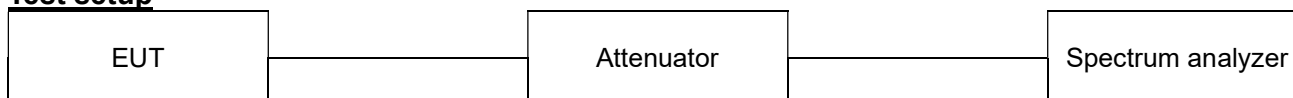
| Test mode      | Band   | Frequency (MHz) | Measured power (dBm) | DCF (dB) | Conducted output power (dBm) | Conducted Power Limit (dBm) |
|----------------|--------|-----------------|----------------------|----------|------------------------------|-----------------------------|
|                |        |                 |                      |          | Average                      |                             |
| 802.11a        | UNII-1 | 5 180           | 5.54                 | 0.33     | 5.87                         | 23.98                       |
|                |        | 5 200           | 5.62                 |          | 5.95                         |                             |
|                |        | 5 240           | 5.33                 |          | 5.66                         |                             |
|                | UNII-3 | 5 745           | 6.37                 |          | 6.70                         | 30.00                       |
|                |        | 5 785           | 6.46                 |          | 6.79                         |                             |
|                |        | 5 825           | 6.43                 |          | 6.76                         |                             |
| 802.11n HT20   | UNII-1 | 5 180           | 4.92                 | 0.35     | 5.27                         | 23.98                       |
|                |        | 5 200           | 5.01                 |          | 5.36                         |                             |
|                |        | 5 240           | 5.18                 |          | 5.53                         |                             |
|                | UNII-3 | 5 745           | 7.15                 |          | 7.50                         | 30.00                       |
|                |        | 5 785           | 7.25                 |          | 7.60                         |                             |
|                |        | 5 825           | 7.23                 |          | 7.58                         |                             |
| 802.11n HT40   | UNII-1 | 5 190           | 6.51                 | 0.67     | 7.18                         | 23.01                       |
|                |        | 5 230           | 6.73                 |          | 7.40                         |                             |
|                | UNII-3 | 5 755           | 8.64                 |          | 9.31                         | 30.00                       |
|                |        | 5 795           | 8.79                 |          | 9.46                         |                             |
| 802.11ac VHT80 | UNII-1 | 5 210           | 2.96                 | 0.64     | 3.60                         | 23.01                       |
|                | UNII-3 | 5 775           | 10.47                |          | 11.11                        | 30.00                       |

### Note.

1. Result(dBm) = Reading Power + D.C.F

## 7.2. Maximum Power Spectral Density

### Test setup



### Limit

According to §15.407(a)

| Band    | EUT category |                                   | Limit          |
|---------|--------------|-----------------------------------|----------------|
| UNII-1  |              | Outdoor access point              | 17 dBm/MHz     |
|         |              | Indoor access point               |                |
|         |              | Fixed point-to-point access point |                |
|         | √            | Client device                     | 11 dBm/MHz     |
| UNII-2A |              |                                   | 11 dBm/MHz     |
| UNII-2C |              |                                   | 11 dBm/MHz     |
| UNII-3  |              | √                                 | 30 dBm/500 kHz |

### Notes:

If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain if the antenna exceed 6 dBi

### Test procedure

KDB 789033 D02 v02r01 - Section F  
ANSI C63.10-2013

### Test settings

#### Section F

The rules requires “maximum power spectral density” measurements where the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission. Refer to III.A for additional guidance for devices that use channel aggregation.

- Create an average power spectrum for the EUT operating mode being tested by following the instructions in II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power...” (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)
- Search function on the instrument to find the peak of the spectrum and record its value.
- Adjustments to the peak value of the spectrum, if applicable:
  - If Method SA-2 or SA-2 Alternative was used, add  $10 \log (1/x)$ , where  $x$  is the duty cycle, to the peak of the spectrum.
  - If Method SA-3 Alternative was used and the linear mode was used in II.E.2.g) (viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
- The result is the Maximum PSD over 1 MHz reference bandwidth
- For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the preceding procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz,

the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

- a) Set  $RBW \geq 1/T$ , where T is defined in II.B.I.a).
- b) Set  $VBW \geq 3 RBW$ .
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add  $10 \log (500 \text{ kHz} / RBW)$  to the measured result, whereas  $RBW (< 500 \text{ kHz})$  is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add  $10 \log (1 \text{ MHz} / RBW)$  to the measured result, whereas  $RBW (< 1 \text{ MHz})$  is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

**Notes:**

1. As a practical matter, it is recommended to use reduced RBW of 100 kHz for the II.F.5.c) and II.F.5.d), since  $RBW = 100 \text{ kHz}$  is available on nearly all spectrum analyzers.



### Test results

| Test mode      | Band   | Frequency (MHz) | Measured PSD (dB m/MHz) | DCF (dB) | Maximum PSD (dB m/MHz) | Limit (dB m/MHz) |
|----------------|--------|-----------------|-------------------------|----------|------------------------|------------------|
| 802.11a        | UNII-1 | 5 180           | -4.42                   | 0.33     | -4.09                  | 11               |
|                |        | 5 200           | -5.27                   |          | -4.94                  |                  |
|                |        | 5 240           | -4.71                   |          | -4.38                  |                  |
| 802.11n HT20   |        | 5 180           | -5.28                   | 0.35     | -4.93                  |                  |
|                |        | 5 200           | -5.67                   |          | -5.32                  |                  |
|                |        | 5 240           | -4.87                   |          | -4.52                  |                  |
| 802.11n HT40   |        | 5 190           | -6.60                   | 0.67     | -5.93                  |                  |
|                |        | 5 230           | -6.35                   |          | -5.68                  |                  |
| 802.11ac VHT80 |        | 5 210           | -14.85                  | 0.64     | -14.21                 |                  |

| Test mode         | Band   | Frequency<br>(MHz) | Measured PSD<br>(dBm/ 500 kHz) | DCF<br>(dB) | Maximum PSD<br>(dBm/ 500 kHz) | Limit<br>(dBm/ 500 kHz) |
|-------------------|--------|--------------------|--------------------------------|-------------|-------------------------------|-------------------------|
| 802.11a           | UNII-3 | 5 745              | -6.62                          | 0.33        | -6.29                         | 30                      |
|                   |        | 5 785              | -6.77                          |             | -6.44                         |                         |
|                   |        | 5 825              | -6.44                          |             | -6.11                         |                         |
| 802.11n<br>HT20   |        | 5 745              | -5.59                          | 0.35        | -5.24                         |                         |
|                   |        | 5 785              | -6.17                          |             | -5.82                         |                         |
|                   |        | 5 825              | -6.20                          |             | -5.85                         |                         |
| 802.11n<br>HT40   |        | 5 755              | -7.45                          | 0.67        | -6.78                         |                         |
|                   |        | 5 795              | -6.76                          |             | -6.09                         |                         |
| 802.11ac<br>VHT80 |        | 5 775              | -9.55                          | 0.64        | -8.91                         |                         |

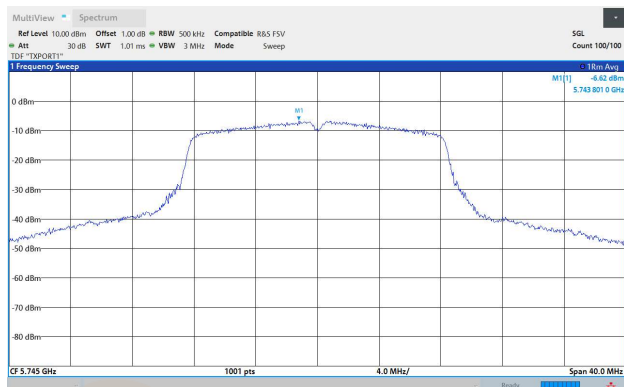
### Notes:

- Maximum PSD calculation
- Maximum PSD = Measured PSD + DCF

### UNII-1 / 802.11a / 5 180 MHz



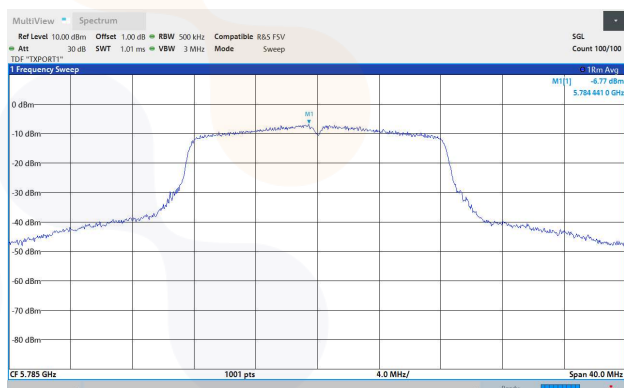
### UNII-3 / 802.11a / 5 745 MHz



### UNII-1 / 802.11a / 5 200 MHz



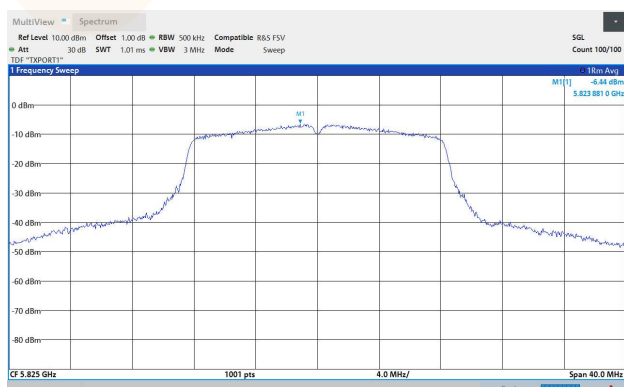
### UNII-3 / 802.11a / 5 785 MHz



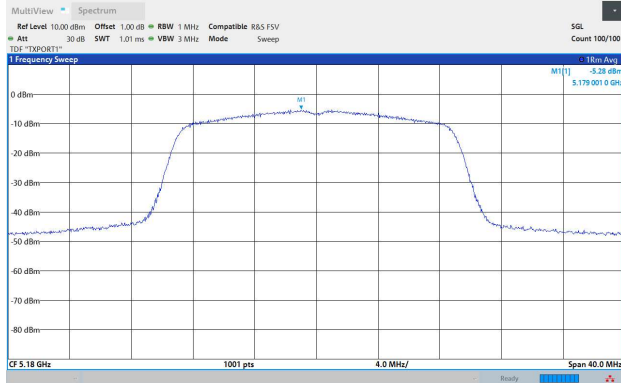
### UNII-1 / 802.11a / 5 240 MHz



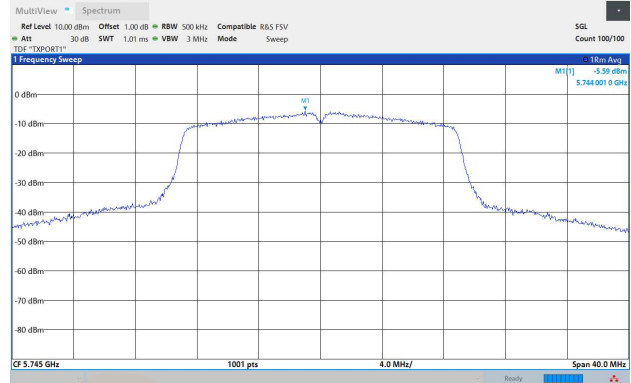
### UNII-3 / 802.11a / 5 825 MHz



**UNII-1 / 802.11n HT20 / 5 180 MHz**



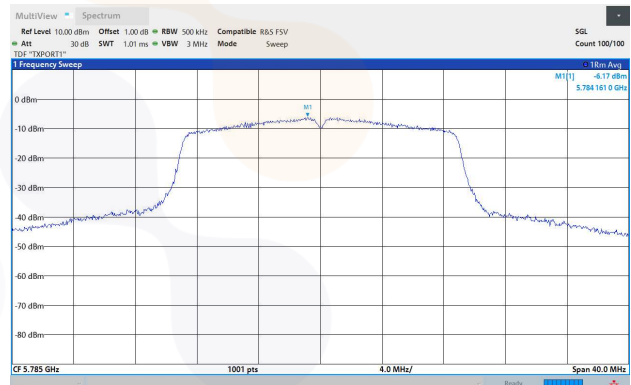
**UNII-3 / 802.11n HT20 / 5 745 MHz**



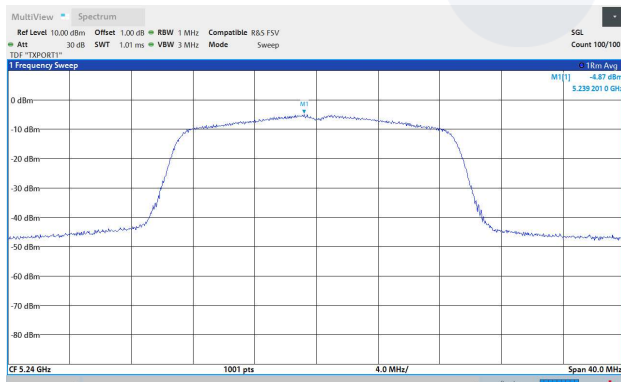
**UNII-1 / 802.11n HT20 / 5 200 MHz**



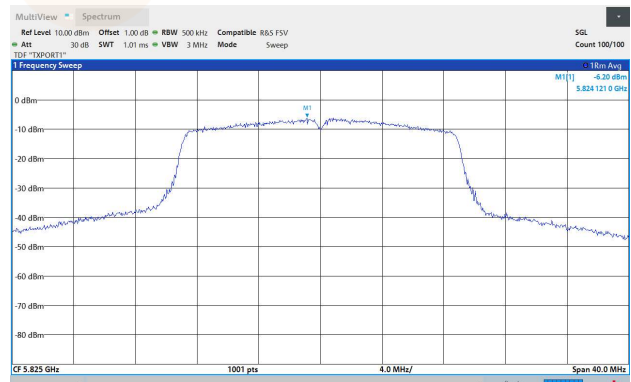
**UNII-3 / 802.11n HT20 / 5 785 MHz**



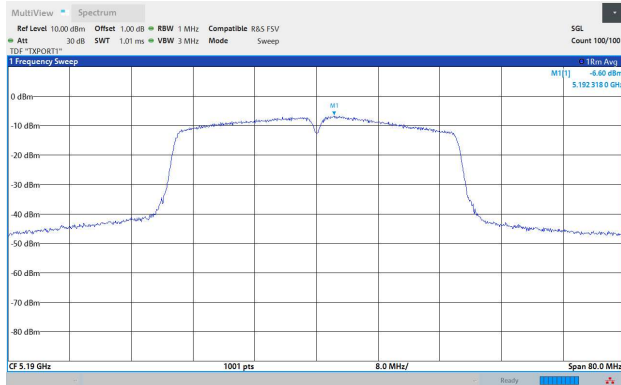
**UNII-1 / 802.11n HT20 / 5 240 MHz**



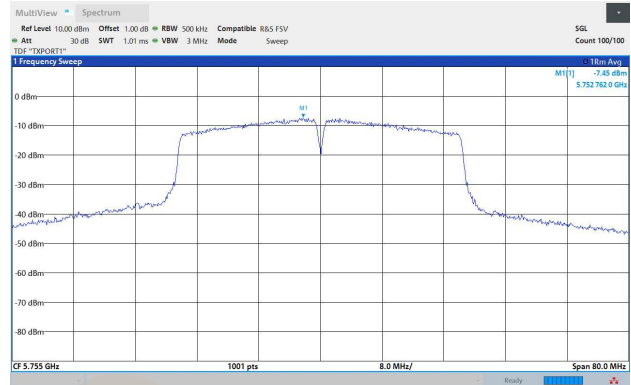
**UNII-3 / 802.11n HT20 / 5 825 MHz**



**UNII-1 / 802.11n HT40 / 5 190 MHz**



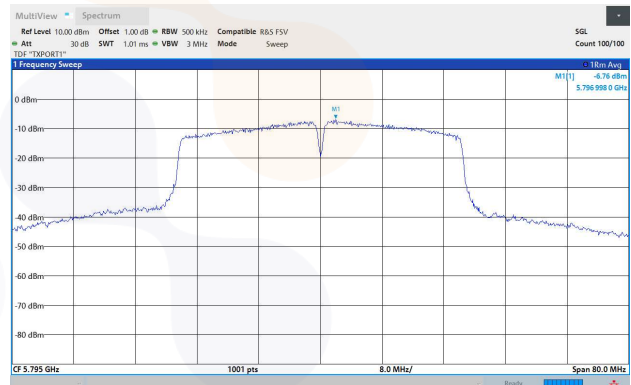
**UNII-3 / 802.11n HT40 / 5 755 MHz**



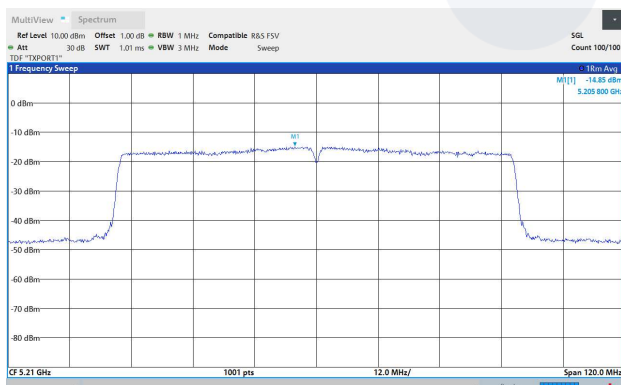
**UNII-1 / 802.11n HT40 / 5 230 MHz**



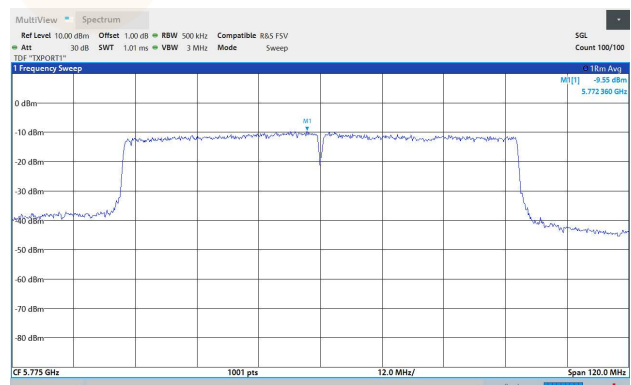
**UNII-3 / 802.11n HT40 / 5 795 MHz**



**UNII-1 / 802.11ac VHT80 / 5 210 MHz**

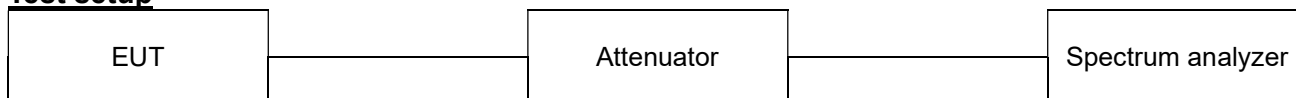


**UNII-3 / 802.11ac VHT80 / 5 775 MHz**



### 7.3. 26 dB Bandwidth

#### Test setup



#### Limit

N/A

#### Test procedure

ANSI C63.10-2013 Section 12.4

KDB 789033 D02 v02r01 - Section C.1 (26dB bandwidth)

#### Test settings

##### 1. 26 dB Bandwidth

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

### Test results

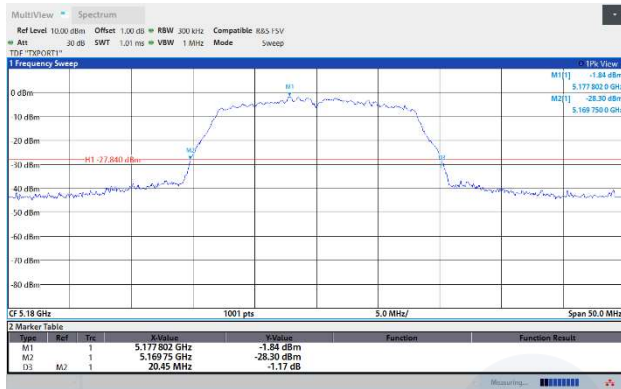
| Test mode       | Band   | Frequency(MHz) | 26 dB bandwidth (MHz) | 99 % bandwidth (MHz) |
|-----------------|--------|----------------|-----------------------|----------------------|
| 802.11a         | UNII-1 | 5 180          | 20.45                 | 16.77                |
|                 |        | 5 200          | 20.45                 | 16.81                |
|                 |        | 5 240          | 20.40                 | 16.79                |
| 802.11n<br>HT20 |        | 5 180          | 20.35                 | 17.59                |
|                 |        | 5 200          | 20.45                 | 17.61                |
|                 |        | 5 240          | 20.35                 | 17.59                |
| 802.11n<br>HT40 |        | 5 190          | 41.10                 | 36.06                |
|                 |        | 5 230          | 41.00                 | 36.07                |
| 11ac<br>VHT80   |        | 5 210          | 82.80                 | 75.78                |

### Note.

If 26dB Bandwidth across Band 2A or Band 1 but 99% test results are within the band no addition DFS test is needed on band 1.

## 26 dB bandwidth

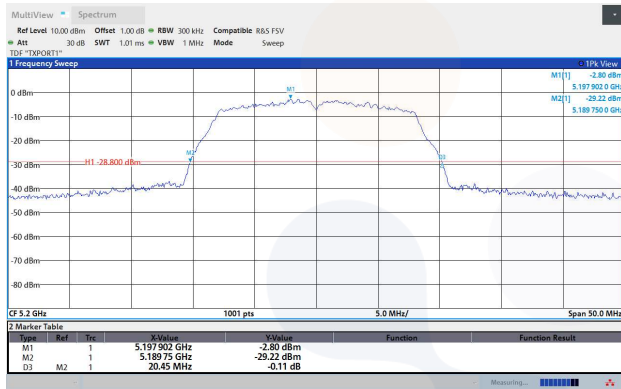
### UNII-1 / 802.11a / 5 180 MHz



### UNII-1 / 802.11n HT20 / 5 180 MHz



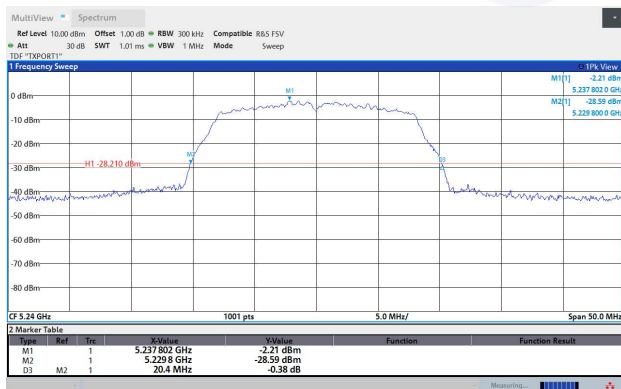
### UNII-1 / 802.11a / 5 200 MHz



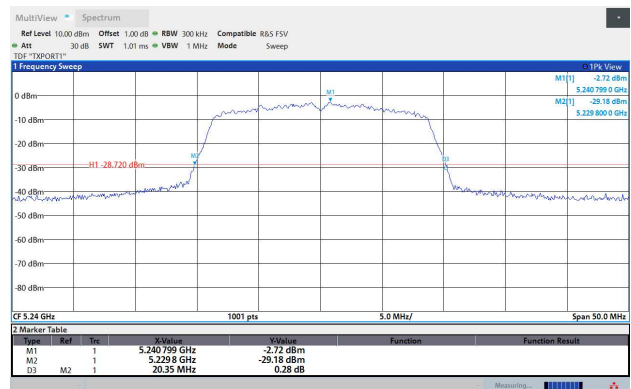
### UNII-1 / 802.11n HT20 / 5 200 MHz



### UNII-1 / 802.11a / 5 240 MHz

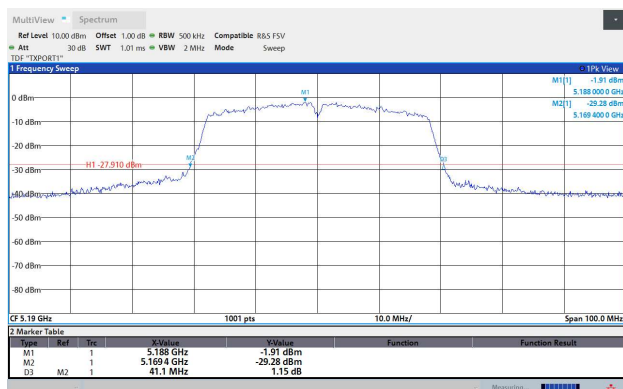


### UNII-1 / 802.11n HT20 / 5 240 MHz





### UNII-1 / 802.11n HT40 / 5 190 MHz



### UNII-1 / 802.11ac VHT80 / 5 210 MHz



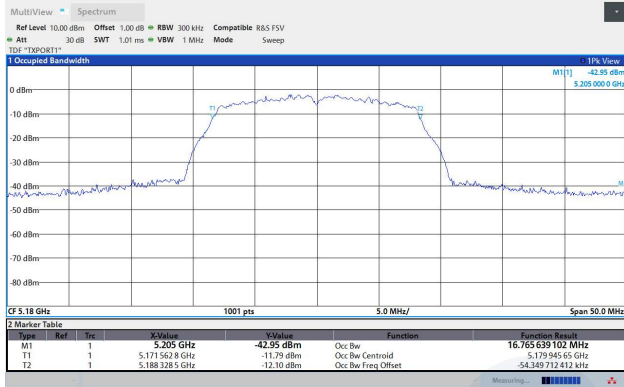
### UNII-1 / 802.11n HT40 / 5 230 MHz



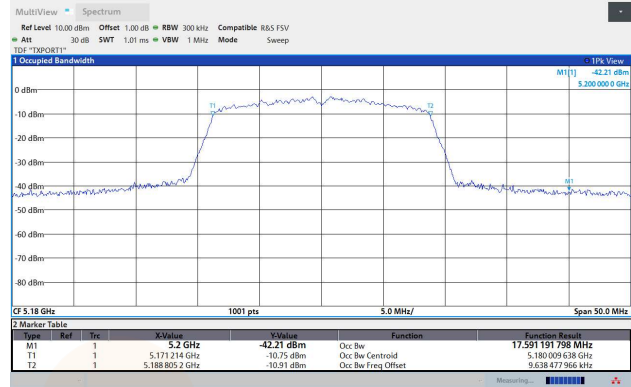
Blank

## 99% bandwidth

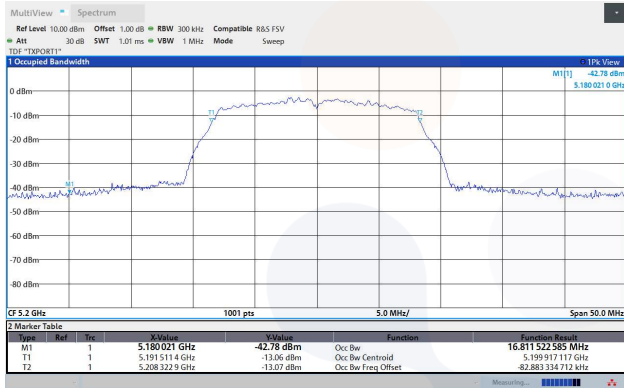
### UNII-1 / 802.11a / 5 180 MHz



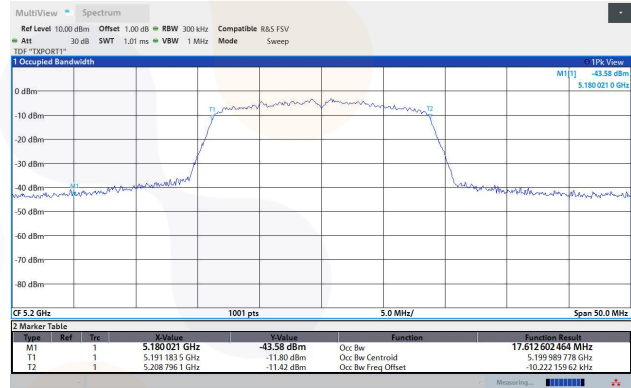
### UNII-1 / 802.11n HT20 / 5 180 MHz



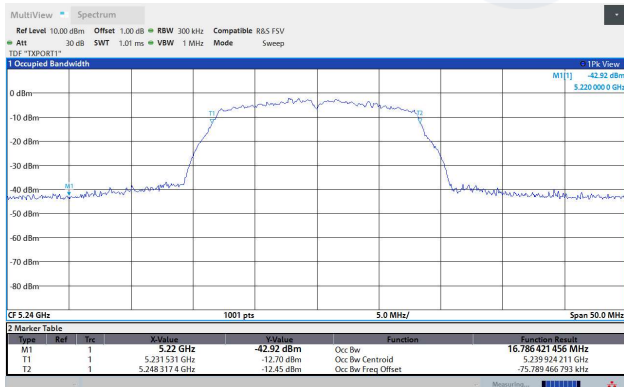
### UNII-1 / 802.11a / 5 200 MHz



### UNII-1 / 802.11n HT20 / 5 200 MHz



### UNII-1 / 802.11a / 5 240 MHz



### UNII-1 / 802.11n HT20 / 5 240 MHz

