






# TEST REPORT

 <b>KCTL Eurofins KCTL Co.Ltd.</b> 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-5008-1021 FAX: 82-505-299-8311 <a href="http://www.kctl.co.kr">www.kctl.co.kr</a>	Report No.: KR24-SRF0136-A Page (1) of (144)		
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**1. Client**

- Name : Samsung Electronics Co., Ltd.
- Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
- Date of Receipt : 2024-07-01

**2. Use of Report** : Certification

**3. Name of Product / Model** : Wi-Fi/BLE combo module / ACAU710R

**4. Manufacturer / Country of Origin** : Samsung Electronics Co., Ltd. / Korea

**5. FCC ID** : A3LACAU710R

**6. IC Certificate No.** : 649E-ACAU710R

**7. Date of Test** : 2024-07-12 to 2024-10-02

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

**9. Test method used** : FCC Part 15 Subpart E, 15.407  
 RSS-247 Issue 3 August 2023  
 RSS-Gen Issue 5 February 2021

**10. Test Result** : Refer to the test result in the test report  
 This laboratory is not accredited for the test results marked. \*

Affirmation	Tested by	Technical Manager
	Name : Sehwan Parkn (Signature)	Name : Heesu Ahn (Signature)

The above testing certificate is the accredited test result by Korea Laboratory Accreditation Scheme, which signed the ILAC-MRA.

2024-10-16

Accredited by KOLAS, Republic of KOREA **Eurofins KCTL Co.,Ltd.**

As a test result of the sample which was submitted from the client, this report does not guarantee the whole product quality. This test report should not be used and copied without a written agreement by Eurofins KCTL Co.,Ltd.

## REPORT REVISION HISTORY

Date	Revision	Page No
2024-10-11	Originally issued	-
2024-10-16	Updated	1, 61 ~ 69, 144

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Note. The report No. KR24-SRF0136 is superseded by the report No. KR24-SRF0136-A.

## 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	: Samsung Electronics Co., Ltd.
Address	: 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Manufacturer	: Samsung Electronics Co., Ltd.
Address	: 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Factory	: Chengdu Xuguang Technology Co.,Ltd
Address	: No.86 2nd Section, Park Road, Longquanyi District, Chengdu City, Sichuan Province, P.R. China
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	: Wi-Fi/BLE combo module
Model	: ACAU710R
Modulation technique	: Bluetooth(BDR/EDR) : GFSK, $\pi/4$ DQPSK, 8DPSK Bluetooth(BLE) : GFSK WIFI(802.11a/b/g/n/ac/ax) : DSSS, OFDM, OFDMA
Number of channels	: Bluetooth : 79 ch BLE : 40 ch 2.4 GHz WLAN : 11 ch (20 MHz) UNII 1 : 4 ch (20 MHz) UNII 2A : 4 ch (20 MHz) UNII 2C : 12 ch (20 MHz) UNII 3 : 5 ch (20 MHz)
Power source	: DC 5 V, 12 V
Antenna specification	: Chip antenna
Antenna gain	: BT/BLE/2.4 GHz WLAN : -0.10 dBi UNII 1 : 0.90 dBi UNII 2A : 0.20 dBi UNII 2C : -0.40 dBi UNII 3 : -0.70 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/ax_HT20/HE20) UNII-1 : 5 180 MHz ~ 5 240 MHz (802.11a/n/ac/ax_HT20/VHT20/HE20) UNII-2A : 5 260 MHz ~ 5 320 MHz (802.11a/n/ac/ax_HT20/VHT20/HE20) UNII-2C : 5 500 MHz ~ 5 720 MHz (802.11a/n/ac/ax_HT20/VHT20/HE20) UNII-3 : 5 745 MHz ~ 5 825 MHz (802.11a/n/ac/ax_HT20/VHT20/HE20)
Software version	: v1.0
Hardware version	: v1.0
Test device serial No.	: Conducted : 9C443D587C84 Radiated : C8A6ER364B08
Operation temperature	: -20 °C ~ 85 °C

## 2.1. Frequency/channel operations

This device contains the following capabilities:

WLAN (11a/b/g/n/ac/ax), Bluetooth (BDR/EDR/BLE)

UNII-1		UNII-2A		UNII-2C		UNII-3	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
36	5 180	52	5 260	100	5 500	149	5 745
40	5 200	56	5 280	120	5 600	157	5 785
48	5 240	64	5 320	140	5 700	165	5 825
				144	5 720		

Table 2.1.1. 802.11a/n/ac HT20/VHT20 mode

## 2.2. RF power setting in TEST SW

Mode	RU Type		Frequency (MHz)	Power Setting
	RU Tone	RU offset		
802.11a	N/A	N/A	5 180	16.00
			5 200	16.00
			5 240	15.00
			5 260	16.00
			5 280	16.00
			5 320	16.00
			5 500	16.00
			5 600	16.00
			5 660	16.00
			5 700	16.00
			5 720	16.00
			5 745	10.50
			5 785	10.50
			5 825	10.50
802.11n HT20	N/A	N/A	5 180	15.00
			5 200	15.00
			5 240	15.00
			5 260	15.00
			5 280	15.00
			5 320	15.00
			5 500	15.00
			5 600	15.00
			5 660	15.00
			5 700	15.00
			5 720	15.00
			5 745	10.50
			5 785	10.50
			5 825	10.50



Mode	RU Type		Frequency (MHz)	Power Setting
	RU Tone	RU offset		
802.11ac VHT20	N/A	N/A	5 180	15.00
			5 200	15.00
			5 240	15.00
			5 260	15.00
			5 280	15.00
			5 320	15.00
			5 500	15.00
			5 600	15.00
			5 660	15.00
			5 700	15.00
			5 720	15.00
			5 745	10.50
			5 785	10.50
			5 825	10.50
802.11ax HE20	26	0		13.25
		4	5 180	13.25
		8		13.25
		0		13.25
		4	5 200	13.25
		8		13.25
		0		6.00
		4	5 240	6.00
		8		6.00
		0		12.25
		4	5 260	12.25
		8		12.25
		0		12.25
		4	5 280	12.25
		8		12.25
		0		12.25
		4	5 320	12.25
		8		12.25
		0		12.50
		4	5 500	12.50
		8		12.50
		0		12.50
		4	5 600	12.50
		8		12.50
0		12.50		
4	5 660	12.50		
8		12.50		



Mode	RU Type		Frequency (MHz)	Power Setting
	RU Tone	RU offset		
802.11ax HE20	26	0	5 700	12.50
		4		12.50
		8		12.50
		0	5 720	12.50
		4		12.50
		8		12.50
		0	5 745	10.50
		4		10.50
		8		10.50
		0	5 785	10.50
		4		10.50
		8		10.50
	0	5 825	10.50	
	4		10.50	
	8		10.50	
	52	37	5 180	15.25
		38		15.25
		40		15.25
		37	5 200	15.25
		38		15.25
		40		15.25
		37	5 240	8.00
		38		8.00
		40		8.00
		37	5 260	14.50
		38		14.50
		40		14.50
		37	5 280	14.50
		38		14.50
		40		14.50
		37	5 320	14.50
		38		14.50
		40		14.50
		37	5 500	15.00
		38		15.00
		40		15.00
		37	5 600	14.75
		38		14.75
		40		14.75
	37	5 660	15.00	
	38		15.00	
	40		15.00	



Mode	RU Type		Frequency (MHz)	Power Setting	
	RU Tone	RU offset			
802.11ax HE20	52	37	5 700	14.50	
		38		14.50	
		40		14.50	
		37	5 720	14.50	
		38		14.50	
		40		14.50	
		37	5 745	10.50	
		38		10.50	
		40		10.50	
		37	5 785	10.50	
		38		10.50	
		40		10.50	
	37	5 825	10.50		
	38		10.50		
	40		10.50		
	106	53	53	5 180	15.25
			54		15.25
		53	53	5 200	15.25
			54		15.25
		53	53	5 240	11.50
			54		11.50
		53	53	5 260	14.75
			54		14.75
		53	53	5 280	14.75
			54		14.75
		53	53	5 320	15.25
			54		15.25
		53	53	5 500	15.25
			54		15.25
		53	53	5 600	14.75
			54		14.75
		53	53	5 660	15.25
			54		15.25
		53	53	5 700	14.50
			54		14.50
		53	53	5 720	14.50
			54		14.50
		53	53	5 745	10.50
			54		10.50
		53	53	5 785	10.50
			54		10.50
		53	53	5 825	10.50
			54		10.50





Mode	RU Type		Frequency (MHz)	Power Setting
	RU Tone	RU offset		
802.11ax HE20	242	61	5 180	15.25
			5 200	15.25
			5 240	14.75
			5 260	14.75
			5 280	14.75
			5 320	15.25
			5 500	15.25
			5 600	14.75
			5 660	15.25
			5 700	14.50
			5 720	14.50
			5 745	10.50
			5 785	10.50
			5 825	10.50
	SU	-	5 180	15.25
			5 200	15.25
			5 240	14.75
			5 260	14.75
			5 280	14.75
			5 320	15.25
			5 500	15.25
			5 600	14.75
			5 660	15.25
			5 700	14.50
			5 720	14.50
			5 745	10.50
			5 785	10.50
			5 825	10.50

### 2.3. Duty Cycle Factor

Test mode	Period (ms)	T <sub>on</sub> time (ms)	Duty cycle		Duty cycle factor (dB)
			(Linear)	(%)	
802.11a	2.128	2.024	0.951 4	95.14	0.22
802.11n_HT20	1.806	1.702	0.942 4	94.24	0.26
802.11ac_VHT20	1.810	1.707	0.943 0	94.30	0.25

#### Notes.

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



### 3. Antenna requirement

#### **Requirement of FCC part section 15.203**

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

#### **Requirement of RSS-Gen Section 6.8:**

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.

- The transmitter has permanently attached Chip Antenna (Internal antenna) on board.
- The E.U.T Complies with the requirement of §15.203, §15.247, §15.407.

#### 4. Summary of tests

FCC Part section(s)	IC Rule Reference	Parameter	Test Condition	Test results
15.407(a)	RSS-247 Issue 2, 6.2	Maximum conducted output power	Conducted	Pass
15.407(a)	RSS-247 Issue 2, 6.2	Maximum power spectral density		Pass
15.407(a)	RSS-Gen Issue 5, 6.7	26 dB Channel Bandwidth		Pass
15.407(e)	RSS-247 Issue 2, 6.2.4	6 dB Channel Bandwidth		Pass
-	RSS-Gen Issue 5, 6.7	Occupied Bandwidth		Pass
15.207(a)	RSS-Gen Issue 5, 8.8	AC Conducted Emissions		Pass
15.407(b), 15.205(a), 15.209(a)	RSS-Gen Issue 5, 8.9, 8.10 RSS-247 Issue 2, 6.2	Spurious emission	Radiated	Pass
		Band-edge, restricted band		Pass

#### Notes:

- All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 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.
- EUT was investigated in three orthogonal orientations X, Y and Z. it was determined that X orientation was worst-case orientation. Therefore, all final radiated testing was performed with the EUT in X orientation.
- All configurations have been performed (Stand-alone, Stand-alone with TA, With accessories).  
Worst case: Stand-alone with TA
- The test procedure(s) in this report were performed in accordance as following.
  - ANSI C63.10-2013
  - KDB 662911 D01 v02r01
  - KDB 789033 D02 v02r01
- Based on the baseline scan, the worst-case data rates were:
  - 802.11a mode: 6Mbps
  - 802.11n HT20 mode: MCS0
  - 802.11ac VHT20 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 indicate 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 ( $\pm$ )	
Maximum Peak Output Power	0.9 dB	
Peak Power Spectral Density	1.0 dB	
6 dB Channel Bandwidth	0.1 %	
Occupied Bandwidth	0.1 %	
Conducted spurious emission	1.9 dB	
Conducted Emissions	150 kHz to 30 MHz	2.8 dB
	Below 30 MHz	2.3 dB
Radiated spurious Emissions (Bandedge, restricted band)	30 MHz to 1 000 MHz	2.5 dB
	1 000 MHz to 18 000 MHz	4.7 dB
	Above 18 000 MHz	4.8 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	10.07	9 000	12.65
50	10.12	10 000	12.79
100	10.19	11 000	13.10
200	10.32	12 000	13.11
300	10.41	13 000	13.78
400	10.49	14 000	13.83
500	10.57	15 000	14.10
600	10.60	16 000	14.57
700	10.69	17 000	14.72
800	10.75	18 000	14.80
900	10.78	19 000	14.83
1 000	10.84	20 000	15.21
2 000	11.28	21 000	15.24
3 000	11.87	22 000	15.25
4 000	11.96	23 000	15.28
5 000	12.05	24 000	15.34
6 000	12.18	25 000	15.40
7 000	12.40	26 000	16.06
8 000	12.52	26 500	16.60

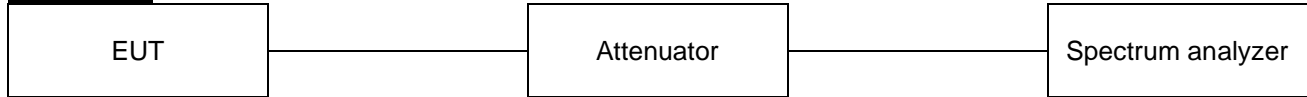
### Notes:

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), RSS-247(6.2)

#### FCC

Band	EUT category	Conducted output power 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)

#### IC

Band	Maximum e.i.r.p. limit
UNII-1	200 mW or 10 + 10 logB <sup>2)</sup> , dBm
UNII-2A	1 W or 17 dBm + 10logB <sup>2)</sup>
UNII-2C	1 W or 17 dBm + 10logB <sup>2)</sup>
UNII-3	1 W (30 dBm)

#### Note:

- 1) Conducted output power limit B is the 26 dB emission bandwidth.
- 2) Maximum e.i.r.p. limit B is the 99% emission bandwidth.

#### Test procedure

ANSI C63.10-2013-Section 12.3.2.4 or 12.3.3.1, 14.2  
 KDB 789033 D02 v02r01 - Section E.2.d) or E.3.a)  
 KDB 662911 D01 v02r01 – Section E).1) and Section F)

**Test settings****Used test method is Section E.2.d)**◆ **KDB 789033 D02 v02r01****Section E.2.d)****Method SA-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction):**

- (i) Measure the duty cycle,  $x$ , of the transmitter output signal as described in II.B..
- (ii) Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (iii) Set RBW = 1 MHz
- (iv) Set RBW  $\geq$  3 MHz
- (v) Number of points in sweep  $\geq 2 \times \text{span} / \text{RBW}$ . (This ensures that bin-to-bin spacing is  $\leq \text{RBW} / 2$ , so that narrowband signals are not lost between frequency bins.)
- (vi) Sweep time = auto.
- (vii) Detector = power averaging (rms), if available. Otherwise use sample detector mode.
- (viii) Do not use sweep triggering. Allow the sweep to “free run.”
- (ix) Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.
- (x) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (xi) Add  $10 \log(1/x)$ , where  $x$  is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add  $10 \log(1/0,25) = 6$  dB if the duty cycle is 25%.



**Test results**
**Conducted Output Power**
**[DC 5 V]**

Test mode	Band	Frequency (MHz)	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
			Reading (dBm)	DCF (dB)	Result (dBm)		
802.11a	UNII 1	5 180	15.61	0.22	15.83	23.98	22.16
		5 200	15.58		15.80		
		5 240	14.78		15.00		
	UNII 2A	5 260	16.26		16.48	23.71	23.16
		5 280	16.12		16.34		
		5 320	15.43		15.65		
	UNII 2C	5 500	15.96		16.18	23.71	23.16
		5 600	16.43		16.65		
		5 700	16.41		16.63		
	UNII 3	5 745	11.09		11.31	30.00	30.00
		5 785	10.79		11.01		
		5 825	10.44		10.66		
802.11n HT20	UNII 1	5 180	14.61	0.26	14.87	23.98	22.44
		5 200	14.56		14.82		
		5 240	14.72		14.98		
	UNII 2A	5 260	15.35		15.61	23.94	23.44
		5 280	15.08		15.34		
		5 320	14.50		14.76		
	UNII 2C	5 500	14.91		15.17	23.94	23.44
		5 600	15.49		15.75		
		5 700	15.35		15.61		
	UNII 3	5 745	11.11		11.37	30.00	30.00
		5 785	10.81		11.07		
		5 825	10.39		10.65		

Test mode	Band	Frequency (MHz)	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
			Reading (dBm)	DCF (dB)	Result (dBm)		
802.11ac VHT20	UNII 1	5 180	14.52	0.25	14.77	23.98	22.44
		5 200	14.39		14.64		
		5 240	14.67		14.92		
	UNII 2A	5 260	15.21		15.46	23.97	23.44
		5 280	15.12		15.37		
		5 320	14.46		14.71		
	UNII 2C	5 500	15.06		15.31	23.95	23.44
		5 600	15.44		15.69		
		5 700	15.37		15.62		
	UNII 3	5 745	11.19		11.44	30.00	30.00
		5 785	10.83		11.08		
		5 825	10.32		10.57		

**Note:**

1. Conducted Output power(dB m) = Average Reading (dB m) + DCF(dB)

**E.I.R.P.**

Test mode	Band	Frequency (MHz)	Measured output power			MAX e.i.r.p Limit (dBm)
			Conducted output power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	
802.11a	UNII 1	5 180	15.83	0.90	16.73	22.16
		5 200	15.80		16.70	
		5 240	15.00		15.90	
	UNII 2A	5 260	16.48	0.20	16.68	29.16
		5 280	16.34		16.54	
		5 320	15.65		15.85	
	UNII 2C	5 500	16.18	-0.40	15.78	29.16
		5 600	16.65		16.25	
		5 700	16.63		16.23	
	UNII 3	5 745	11.31	-0.70	10.61	30.00
		5 785	11.01		10.31	
		5 825	10.66		9.96	
802.11n HT20	UNII 1	5 180	14.87	0.90	15.77	22.44
		5 200	14.82		15.72	
		5 240	14.98		15.88	
	UNII 2A	5 260	15.61	0.20	15.81	29.44
		5 280	15.34		15.54	
		5 320	14.76		14.96	
	UNII 2C	5 500	15.17	-0.40	14.77	29.44
		5 600	15.75		15.35	
		5 700	15.61		15.21	
	UNII 3	5 745	11.37	-0.70	10.67	30.00
		5 785	11.07		10.37	
		5 825	10.65		9.95	

Test mode	Band	Frequency (MHz)	Measured output power			MAX e.i.r.p Limit (dBm)
			Conducted output power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	
802.11ac VHT20	UNII 1	5 180	14.77	0.90	15.67	22.44
		5 200	14.64		15.54	
		5 240	14.92		15.82	
	UNII 2A	5 260	15.46	0.20	15.66	29.44
		5 280	15.37		15.57	
		5 320	14.71		14.91	
	UNII 2C	5 500	15.31	-0.40	14.91	29.44
		5 600	15.69		15.29	
		5 700	15.62		15.22	
	UNII 3	5 745	11.44	-0.70	10.74	30.00
		5 785	11.08		10.38	
		5 825	10.57		9.87	

**Notes:**

1. E.I.R.P. Calculation: E.I.R.P. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

**[DC 12 V]**

Test mode	Band	Frequency (MHz)	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
			Reading (dBm)	DCF (dB)	Result (dBm)		
802.11a	UNII 1	5 180	15.63	0.22	15.85	23.98	22.16
		5 200	15.58		15.80		
		5 240	14.59		14.81		
	UNII 2A	5 260	16.19		16.41	23.71	23.16
		5 280	16.11		16.33		
		5 320	15.46		15.68		
	UNII 2C	5 500	15.99		16.21	23.71	23.16
		5 600	16.41		16.63		
		5 700	16.37		16.59		
	UNII 3	5 745	11.12		11.34	30.00	30.00
		5 785	10.78		11.00		
		5 825	10.35		10.57		
802.11n HT20	UNII 1	5 180	14.60	0.26	14.86	23.98	22.44
		5 200	14.49		14.75		
		5 240	14.71		14.97		
	UNII 2A	5 260	15.38		15.64	23.96	23.44
		5 280	15.13		15.39		
		5 320	14.46		14.72		
	UNII 2C	5 500	15.12		15.38	23.93	23.45
		5 600	15.38		15.64		
		5 700	15.38		15.64		
	UNII 3	5 745	11.18		11.44	30.00	30.00
		5 785	10.79		11.05		
		5 825	10.26		10.52		

Test mode	Band	Frequency (MHz)	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
			Reading (dBm)	DCF (dB)	Result (dBm)		
802.11ac VHT20	UNII 1	5 180	14.45	0.25	14.70	23.98	22.44
		5 200	14.37		14.62		
		5 240	14.60		14.85		
	UNII 2A	5 260	15.23		15.48	23.94	23.44
		5 280	15.12		15.37		
		5 320	14.40		14.65		
	UNII 2C	5 500	14.92		15.17	23.95	23.44
		5 600	15.42		15.67		
		5 700	15.39		15.64		
	UNII 3	5 745	11.23		11.48	30.00	30.00
		5 785	10.80		11.05		
		5 825	10.24		10.49		

**Note:**

1. Conducted Output power(dB m) = Average Reading (dB m) + DCF(dB)

**E.I.R.P.**

Test mode	Band	Frequency (MHz)	Measured output power			MAX e.i.r.p Limit (dBm)
			Conducted output power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	
802.11a	UNII 1	5 180	15.85	0.90	16.75	22.16
		5 200	15.80		16.70	
		5 240	14.81		15.71	
	UNII 2A	5 260	16.41	0.20	16.61	29.16
		5 280	16.33		16.53	
		5 320	15.68		15.88	
	UNII 2C	5 500	16.21	-0.40	15.81	29.16
		5 600	16.63		16.23	
		5 700	16.59		16.19	
	UNII 3	5 745	11.34	-0.70	10.64	30.00
		5 785	11.00		10.30	
		5 825	10.57		9.87	
802.11n HT20	UNII 1	5 180	14.86	0.90	15.76	22.44
		5 200	14.75		15.65	
		5 240	14.97		15.87	
	UNII 2A	5 260	15.64	0.20	15.84	29.44
		5 280	15.39		15.59	
		5 320	14.72		14.92	
	UNII 2C	5 500	15.38	-0.40	14.98	29.45
		5 600	15.64		15.24	
		5 700	15.64		15.24	
	UNII 3	5 745	11.44	-0.70	10.74	30.00
		5 785	11.05		10.35	
		5 825	10.52		9.82	

Test mode	Band	Frequency (MHz)	Measured output power			MAX e.i.r.p Limit (dBm)
			Conducted output power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	
802.11ac VHT20	UNII 1	5 180	14.70	0.90	15.60	22.44
		5 200	14.62		15.52	
		5 240	14.85		15.75	
	UNII 2A	5 260	15.48	0.20	15.68	29.44
		5 280	15.37		15.57	
		5 320	14.65		14.85	
	UNII 2C	5 500	15.17	-0.40	14.77	29.44
		5 600	15.67		15.27	
		5 700	15.64		15.24	
	UNII 3	5 745	11.48	-0.70	10.78	30.00
		5 785	11.05		10.35	
		5 825	10.49		9.79	

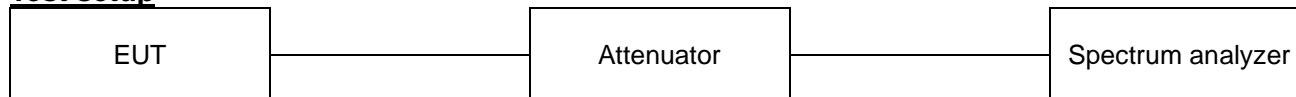
**Notes:**

1. E.I.R.P. Calculation: E.I.R.P. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)



## 7.2. Maximum Power Spectral Density

### Test setup



### Limit

According to §15.407(a), RSS-247(6.2)

Band	EUT category		Limit
UNII-1		Outdoor access point	17dBm/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

### Test procedure

ANSI C63.10-2013 Section 12.3.2.2, 14.3.2.2  
 KDB 789033 D02 v02r01 – Section E and F  
 KDB 662911 D01 v02r01 - Section E). 2) and Section F)

### 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.

1. 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.)
2. Search function on the instrument to find the peak of the spectrum and record its value.
3. Adjustments to the peak value of the spectrum, if applicable:
  - a) 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.
  - b) 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.
4. The result is the Maximum PSD over 1MHz reference bandwidth
5. 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 1MHz, 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.1.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 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 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.

**Note:**

- 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.
- Method SA-2 is used.

**Test results**
**[DC 5 V]**

Test mode	Band	Frequency (MHz)	Measured PSD (dBm/MHz)	DCF (dB)	Maximum PSD (dB m/MHz)	Limit (dBm/MHz)
802.11a	UNII 1	5 180	3.91	0.00	3.91	11
		5 200	4.22		4.22	
		5 240	3.63		3.63	
	UNII 2A	5 260	5.01		5.01	11
		5 280	4.54		4.54	
		5 320	4.27		4.27	
	UNII 2C	5 500	4.70		4.70	11
		5 600	4.97		4.97	
		5 700	5.73		5.73	
802.11n HT20	UNII 1	5 180	2.87	0.26	3.13	11
		5 200	3.20		3.46	
		5 240	3.67		3.93	
	UNII 2A	5 260	3.90		4.16	11
		5 280	3.48		3.74	
		5 320	2.96		3.22	
	UNII 2C	5 500	3.65		3.91	11
		5 600	3.60		3.86	
		5 700	4.40		4.66	
802.11ac VHT20	UNII 1	5 180	2.79	0.25	3.04	11
		5 200	3.17		3.42	
		5 240	3.65		3.90	
	UNII 2A	5 260	4.08		4.33	11
		5 280	3.34		3.59	
		5 320	3.06		3.31	
	UNII 2C	5 500	3.41		3.66	11
		5 600	3.64		3.89	
		5 700	4.61		4.86	

Test mode	Band	Frequency (MHz)	Measured PSD (dBm/500 kHz)	DCF (dB)	Maximum PSD (dBm /500 kHz)	Limit (dBm /500 kHz)
802.11a	UNII 3	5 745	-2.64	0.00	-2.64	30
		5 785	-3.14		-3.14	
		5 825	-3.03		-3.03	
802.11n HT20		5 745	-2.68	0.26	-2.42	
		5 785	-3.30		-3.04	
		5 825	-3.40		-3.14	
802.11ac VHT20		5 745	-2.54	0.25	-2.29	
		5 785	-3.14		-2.89	
		5 825	-3.27		-3.02	

**Note:**

- Maximum PSD(dB m/MHz) = Reading (dB m/MHz) + DCF(dB)
- The Unit of UNII-2C is (dB m / MHz) and Unit of UNII-3 is (dB m / 500kHz)

**[DC 12 V]**

Test mode	Band	Frequency (MHz)	Measured PSD (dBm/MHz)	DCF (dB)	Maximum PSD (dB m/MHz)	Limit (dBm/MHz)
802.11a	UNII 1	5 180	3.91	0.00	3.91	11
		5 200	4.37		4.37	
		5 240	3.61		3.61	
	UNII 2A	5 260	5.22		5.22	11
		5 280	4.59		4.59	
		5 320	4.25		4.25	
	UNII 2C	5 500	4.66		4.66	11
		5 600	4.93		4.93	
		5 700	5.74		5.74	
802.11n HT20	UNII 1	5 180	2.73	0.26	2.99	11
		5 200	3.13		3.39	
		5 240	3.70		3.96	
	UNII 2A	5 260	3.87		4.13	11
		5 280	3.49		3.75	
		5 320	3.32		3.58	
	UNII 2C	5 500	3.60		3.86	11
		5 600	3.58		3.84	
		5 700	4.32		4.58	
802.11ac VHT20	UNII 1	5 180	2.69	0.25	2.94	11
		5 200	3.28		3.53	
		5 240	3.46		3.71	
	UNII 2A	5 260	4.32		4.57	11
		5 280	3.15		3.40	
		5 320	3.13		3.38	
	UNII 2C	5 500	3.31		3.56	11
		5 600	3.58		3.83	
		5 700	4.22		4.47	

Test mode	Band	Frequency (MHz)	Measured PSD (dBm/500 kHz)	DCF (dB)	Maximum PSD (dBm /500 kHz)	Limit (dBm /500 kHz)
802.11a	UNII 3	5 745	-2.54	0.00	-2.54	30
		5 785	-3.30		-3.30	
		5 825	-3.29		-3.29	
802.11n HT20		5 745	-2.96	0.26	-2.70	
		5 785	-3.58		-3.32	
		5 825	-3.49		-3.23	
802.11ac VHT20		5 745	-2.90	0.25	-2.65	
		5 785	-2.56		-2.31	
		5 825	-3.43		-3.18	

**Note:**

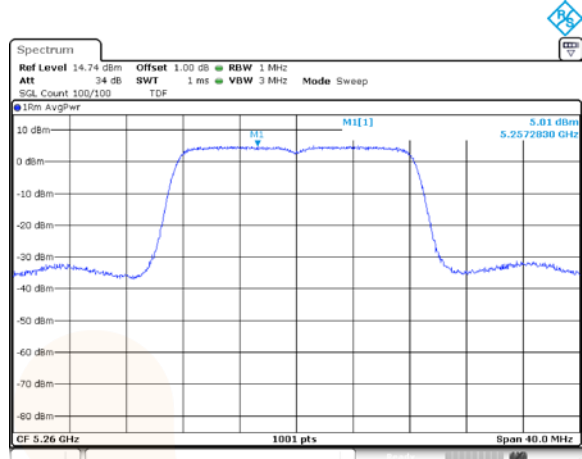
- Maximum PSD(dB m/MHz) = Reading (dB m/MHz) + DCF(dB)
- The Unit of UNII-2C is (dB m / MHz) and Unit of UNII-3 is (dB m / 500kHz)

**In order to simplify the report, attached plots were the worst case per bandwidth [DC 5 V]**

**UNII-1 / 802.11a / Mid ch.**



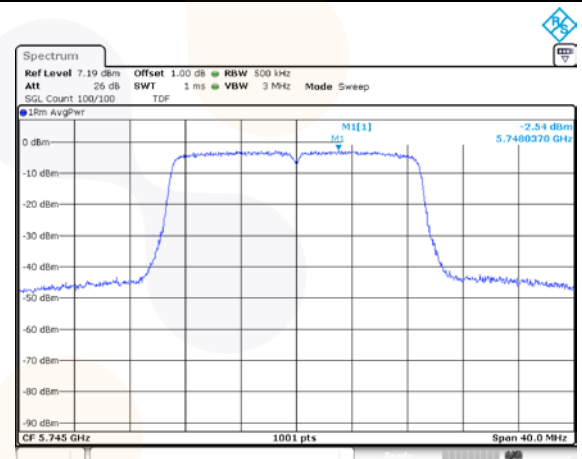
**UNII-2A / 802.11a / Low ch.**



**UNII-2C / 802.11a / High ch.**

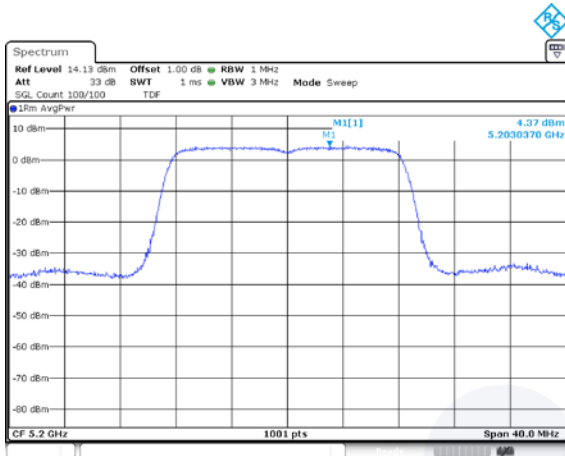


**UNII-3 / 802.11ac VHT20 / Low ch.**

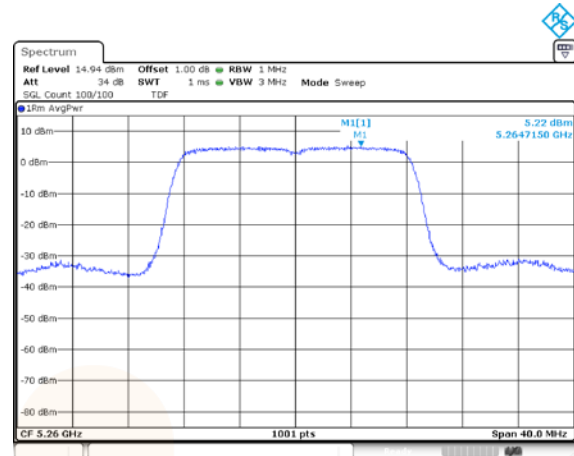


**[DC 12 V]**

**UNII-1 / 802.11a / Mid ch.**



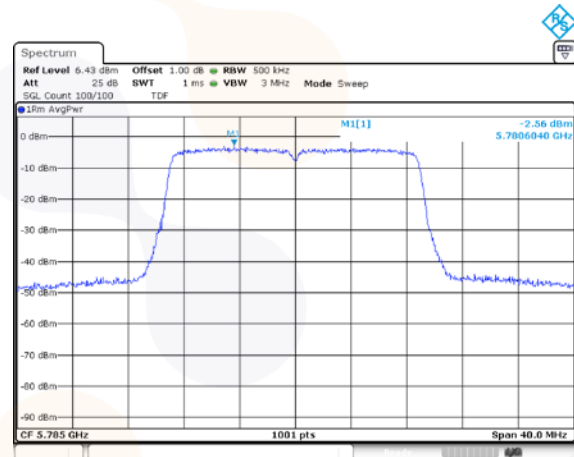
**UNII-2A / 802.11a / Low ch.**



**UNII-2C / 802.11a / High ch.**



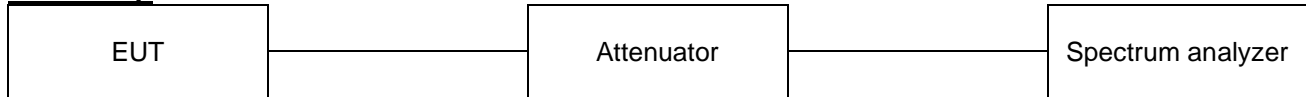
**UNII-3 / 802.11ac VHT20 / Mid ch.**





### 7.3. 26 dB Bandwidth & 99% Bandwidth

#### Test setup



#### Limit

N/A

#### Test procedure

ANSI C63.10-2013 Section 12.4

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

KDB 789033 D02 v02r01 - Section D (99% bandwidth)

#### Test settings

##### 1. 26 dB Bandwidth

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the 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%.

##### 2. 99% Occupied Bandwidth

- Set center frequency to the nominal EUT channel center frequency.
- Set span = 1.5 times to 5.0 times the OBW.
- Set RBW = 1% to 5% of the OBW
- Set VBW  $\geq 3 \times$  RBW
- Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- Use the 99% power bandwidth function of the instrument (if available).
- If the instrument does not have a 99% power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

**Test results**
**[DC 5 V]**

Test mode	Band	Frequency(MHz)	26 dB bandwidth (MHz)	99% bandwidth (MHz)
802.11a	UNII-1	5 180	18.63	16.43
		5 200	18.93	16.43
		5 240	18.78	16.43
	UNII-2A	5 260	18.78	16.43
		5 280	18.68	16.43
		5 320	18.78	16.43
	UNII-2C	5 500	18.68	16.43
		5 600	18.73	16.43
		5 700	18.68	16.48
802.11n HT20	UNII-1	5 180	19.63	17.53
		5 200	19.68	17.58
		5 240	19.63	17.58
	UNII-2A	5 260	19.83	17.53
		5 280	19.73	17.58
		5 320	19.68	17.58
	UNII-2C	5 500	19.83	17.53
		5 600	19.78	17.58
		5 700	19.68	17.53
802.11ac VHT20	UNII-1	5 180	19.88	17.58
		5 200	19.53	17.58
		5 240	19.83	17.53
	UNII-2A	5 260	19.88	17.53
		5 280	19.83	17.58
		5 320	19.88	17.58
	UNII-2C	5 500	19.78	17.58
		5 600	19.78	17.58
		5 700	19.73	17.53

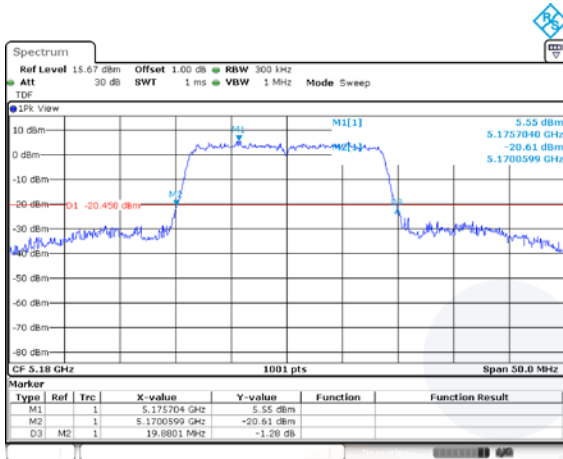
**[DC 12 V]**

Test mode	Band	Frequency(MHz)	26 dB bandwidth (MHz)	99% bandwidth (MHz)
802.11a	UNII-1	5 180	18.73	16.43
		5 200	18.83	16.43
		5 240	18.73	16.43
	UNII-2A	5 260	18.78	16.43
		5 280	18.73	16.43
		5 320	18.68	16.43
	UNII-2C	5 500	18.73	16.43
		5 600	18.68	16.43
		5 700	18.68	16.43
802.11n HT20	UNII-1	5 180	19.58	17.58
		5 200	19.73	17.53
		5 240	19.73	17.53
	UNII-2A	5 260	19.78	17.53
		5 280	19.83	17.53
		5 320	19.78	17.53
	UNII-2C	5 500	19.78	17.58
		5 600	19.63	17.58
		5 700	19.73	17.58
802.11ac VHT20	UNII-1	5 180	19.73	17.53
		5 200	19.78	17.53
		5 240	19.78	17.58
	UNII-2A	5 260	19.78	17.53
		5 280	19.88	17.53
		5 320	19.68	17.53
	UNII-2C	5 500	19.93	17.53
		5 600	19.93	17.58
		5 700	19.73	17.53

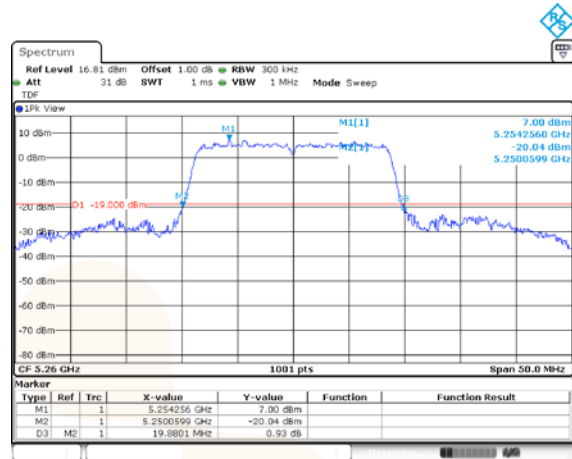
In order to simplify the report, only ac mode test plots are attached.

**26 dB bandwidth**  
**[DC 5 V]**

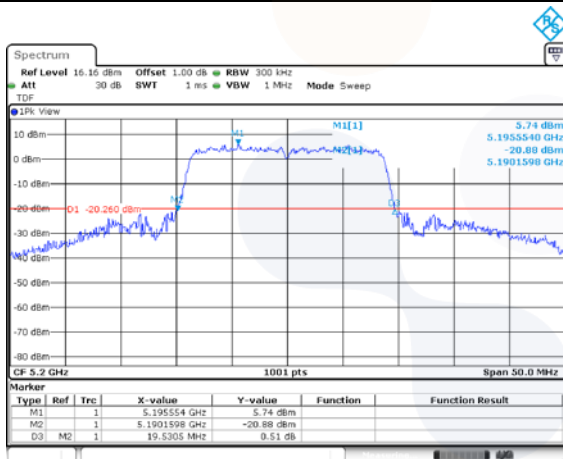
**UNII-1 / 802.11ac VHT20 / Low ch.**



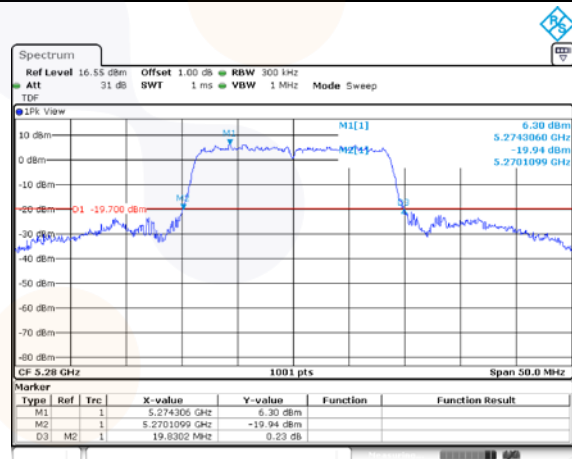
**UNII-2A / 802.11ac VHT20 / Low ch.**



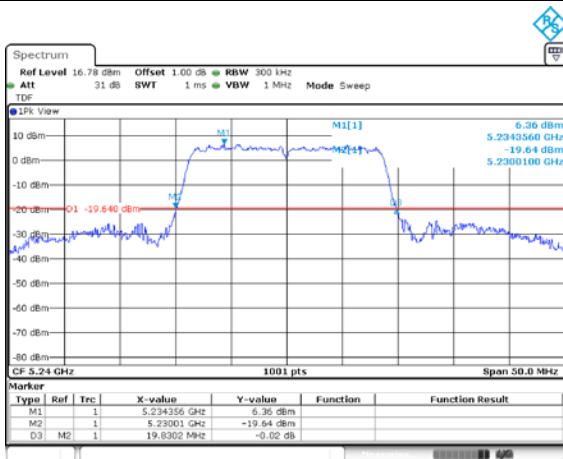
**UNII-1 / 802.11ac VHT20 / Mid ch.**



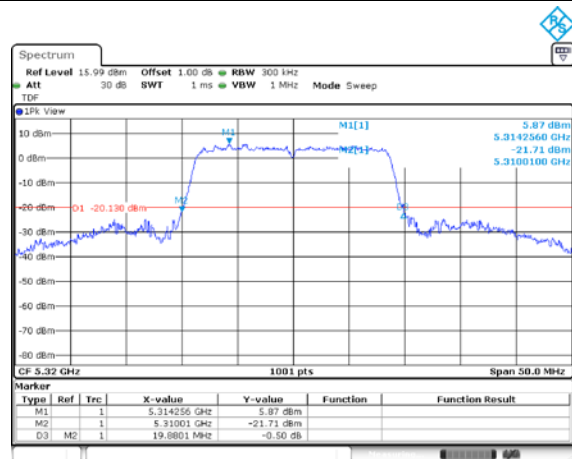
**UNII-2A / 802.11ac VHT20 / Mid ch.**



**UNII-1 / 802.11ac VHT20 / High ch.**

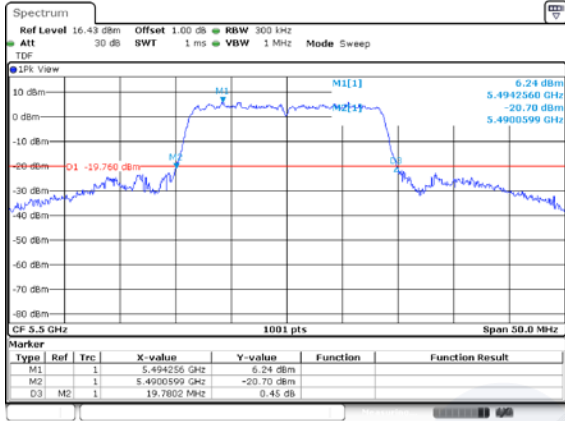


**UNII-2A / 802.11ac VHT20 / High ch.**





UNII-2C / 802.11ac VHT20 / Low ch.



UNII-2C / 802.11ac VHT20 / Mid ch.



UNII-2C / 802.11ac VHT20 / High ch.

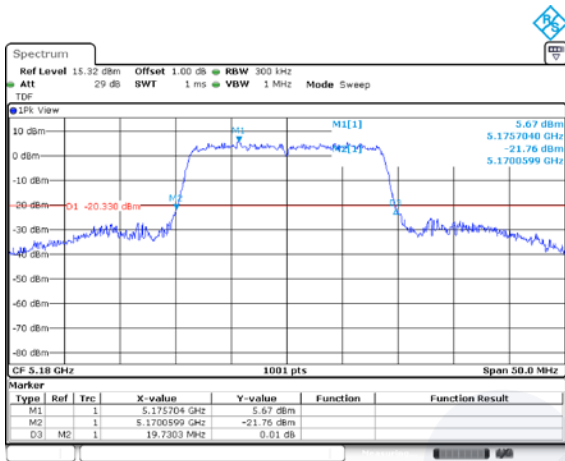


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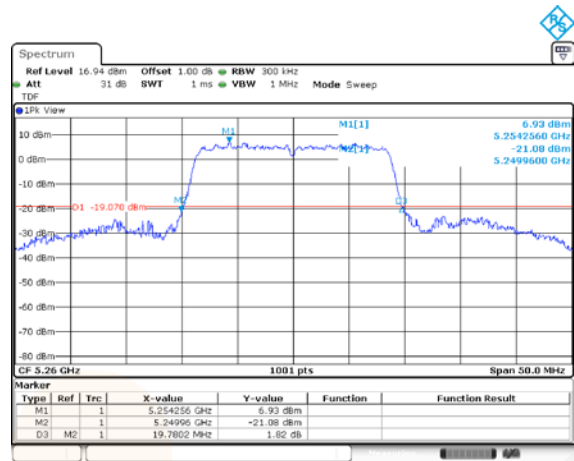


[DC 12 V]

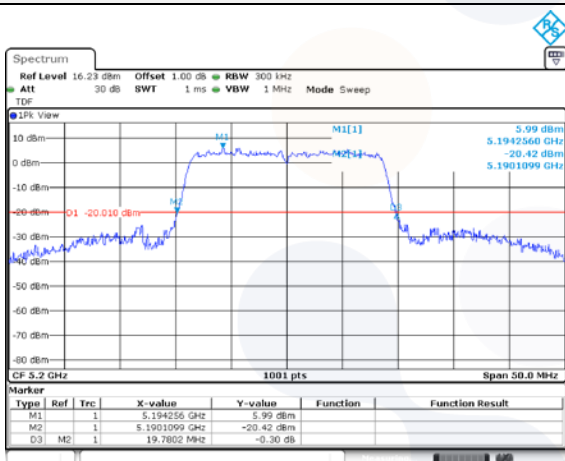
UNII-1 / 802.11ac VHT20 / Low ch.



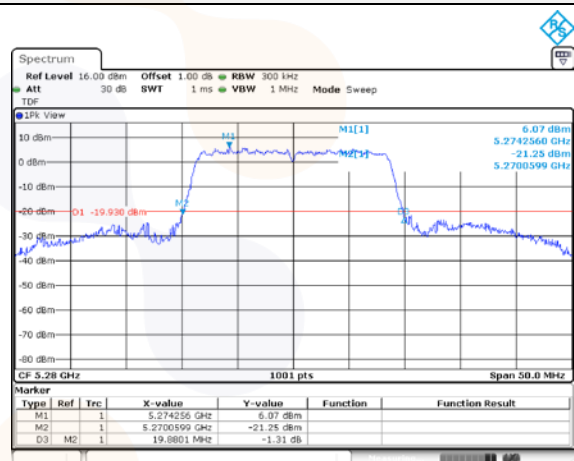
UNII-2A / 802.11ac VHT20 / Low ch.



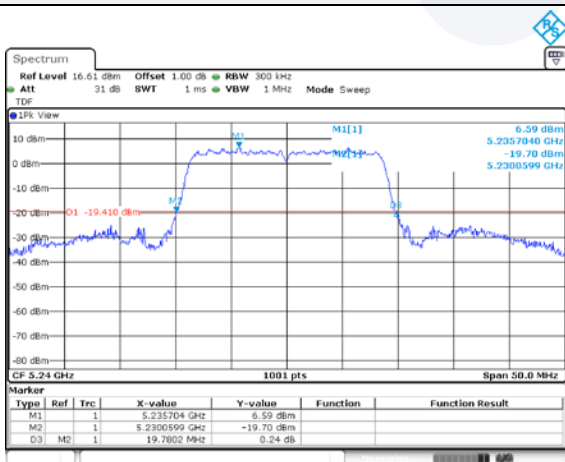
UNII-1 / 802.11ac VHT20 / Mid ch.



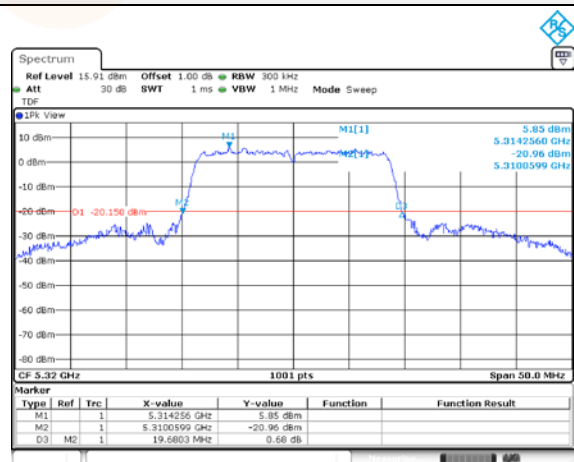
UNII-2A / 802.11ac VHT20 / Mid ch.



UNII-1 / 802.11ac VHT20 / High ch.

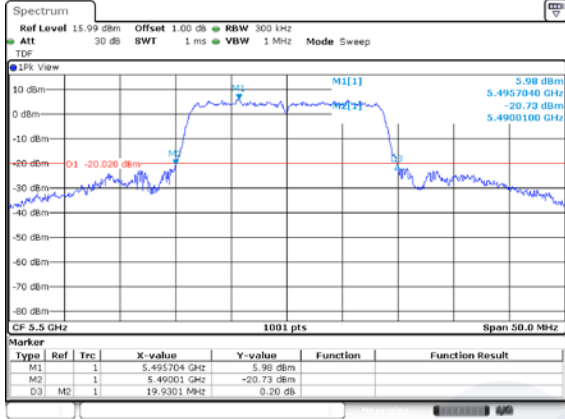


UNII-2A / 802.11ac VHT20 / High ch.

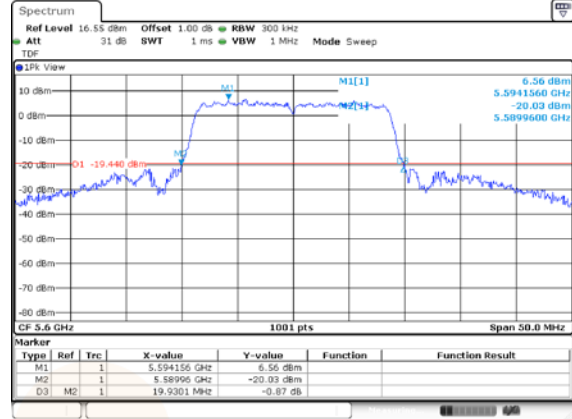




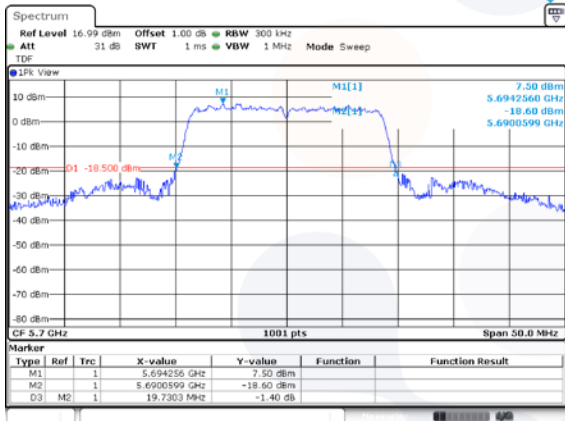
UNII-2C / 802.11ac VHT20 / Low ch.



UNII-2C / 802.11ac VHT20 / Mid ch.



UNII-2C / 802.11ac VHT20 / High ch.



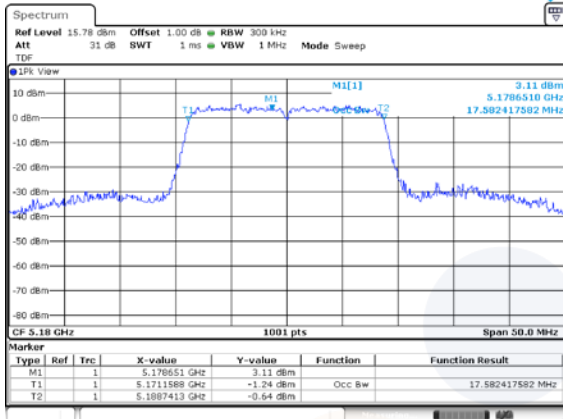
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In order to simplify the report, only ac mode test plots are attached.

**99% bandwidth**

[DC 5 V]

**UNII-1 / 802.11ac VHT20 / Low ch.**



**UNII-2A / 802.11ac VHT20 / Low ch.**



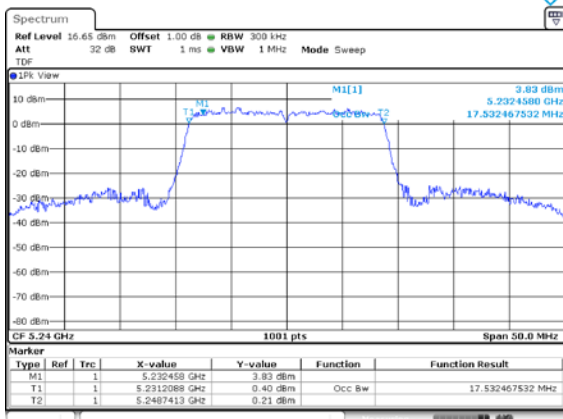
**UNII-1 / 802.11ac VHT20 / Mid ch.**



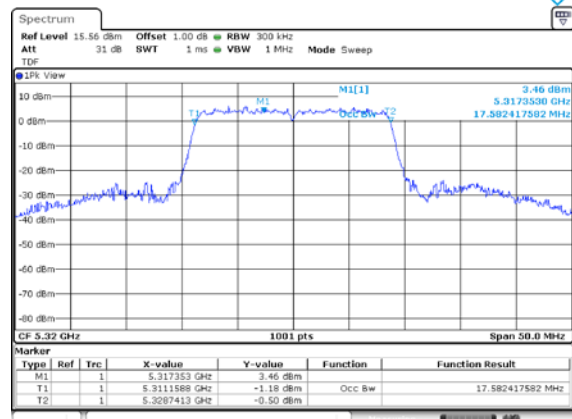
**UNII-2A / 802.11ac VHT20 / Mid ch.**



**UNII-1 / 802.11ac VHT20 / High ch.**



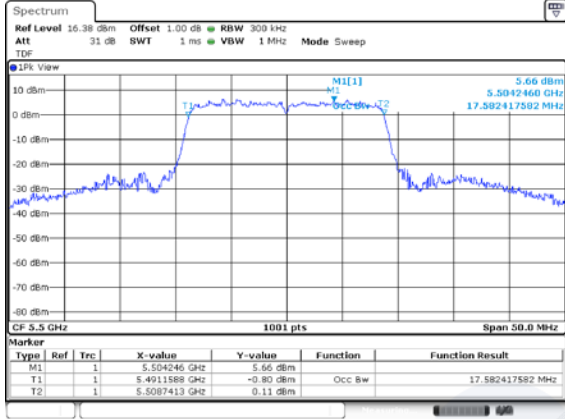
**UNII-2A / 802.11ac VHT20 / High ch.**







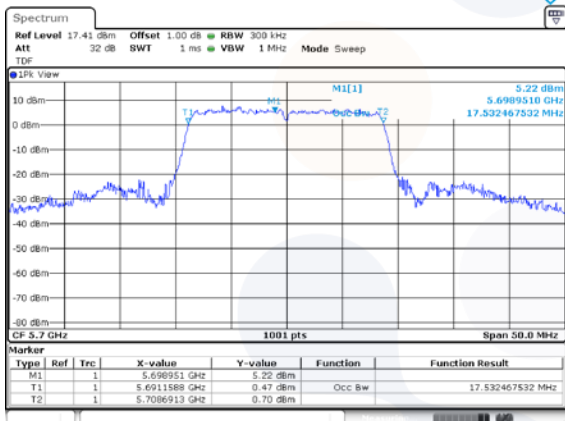
**UNII-2C / 802.11ac VHT20 / Low ch.**



**UNII-2C / 802.11ac VHT20 / Mid ch.**



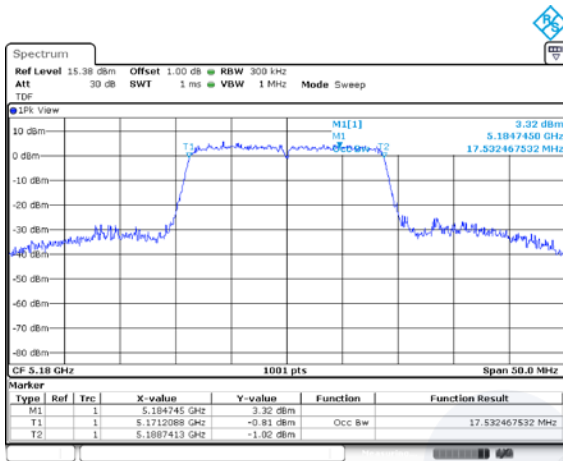
**UNII-2C / 802.11ac VHT20 / High ch.**



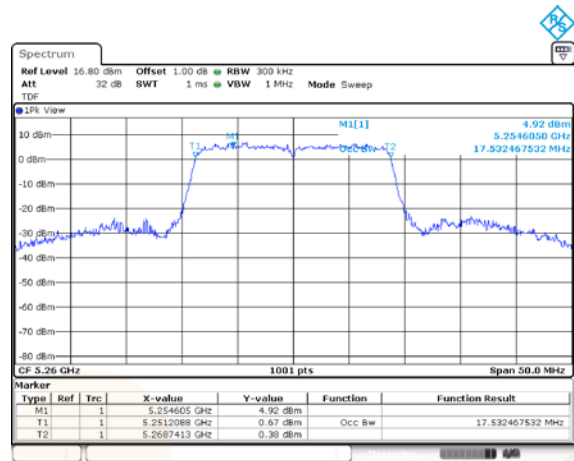
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[DC 12 V]

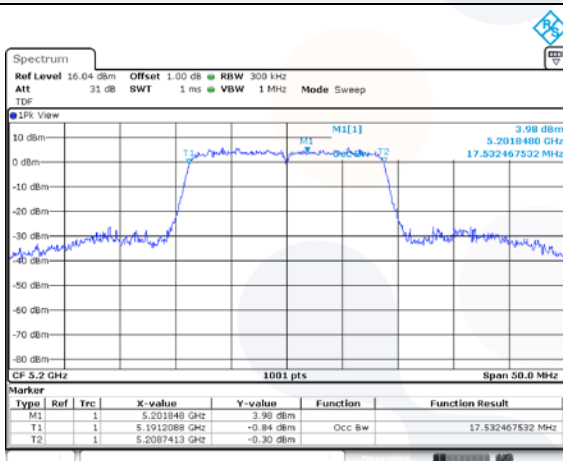
UNII-1 / 802.11ac VHT20 / Low ch.



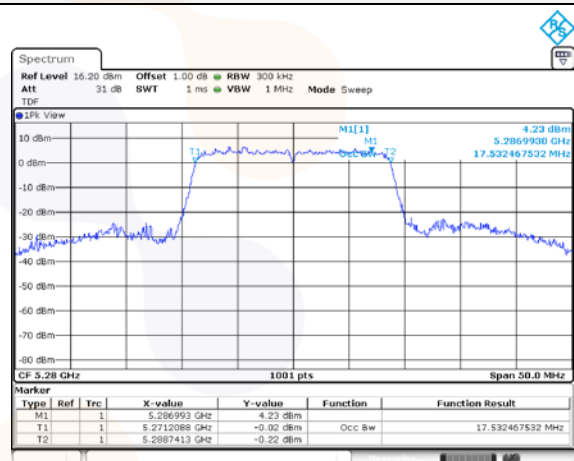
UNII-2A / 802.11ac VHT20 / Low ch.



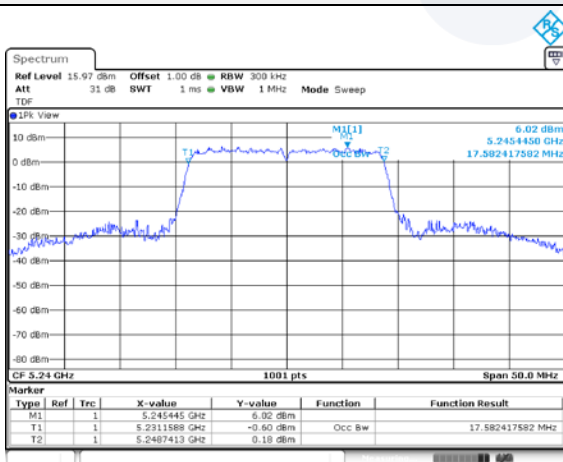
UNII-1 / 802.11ac VHT20 / Mid ch.



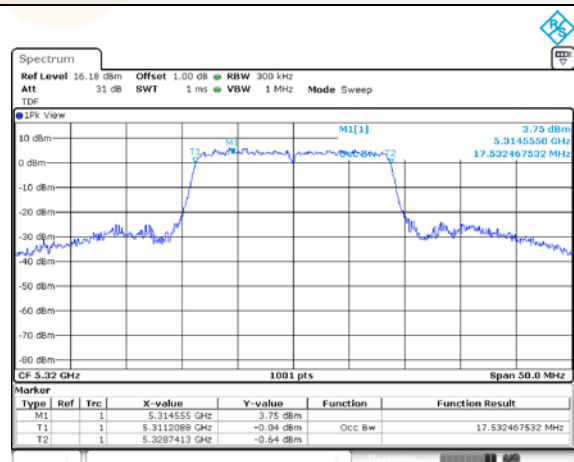
UNII-2A / 802.11ac VHT20 / Mid ch.



UNII-1 / 802.11ac VHT20 / High ch.

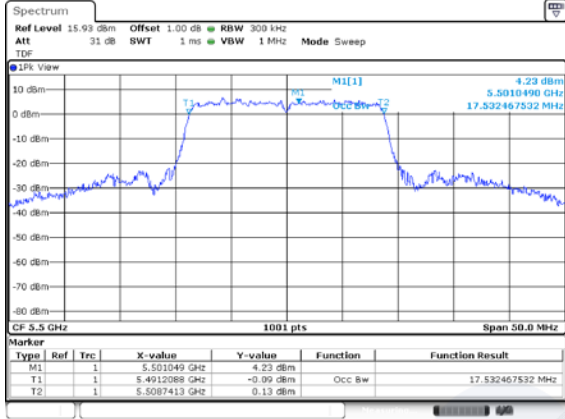


UNII-2A / 802.11ac VHT20 / High ch.





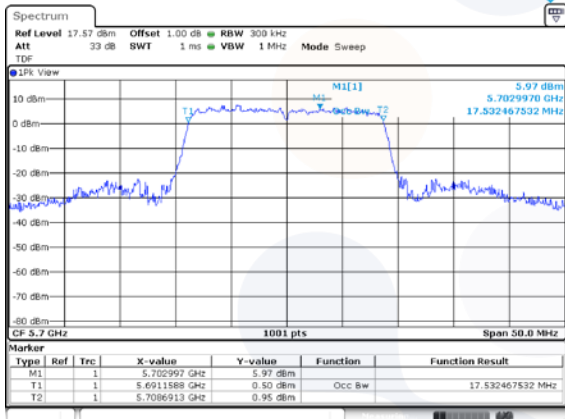
**UNII-2C / 802.11ac VHT20 / Low ch.**



**UNII-2C / 802.11ac VHT20 / Mid ch.**



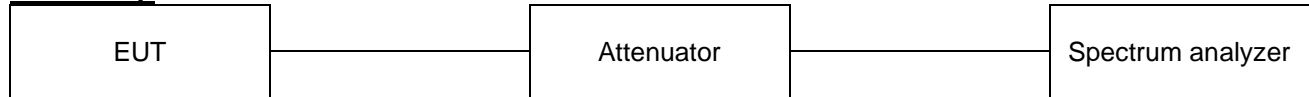
**UNII-2C / 802.11ac VHT20 / High ch.**



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## 7.4. 6 dB Bandwidth & 99% Bandwidth

### Test setup



### Limit

According to §15.407(e), Within the 5.725-5.850 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500kHz.

### Test procedure

ANSI C63.10-2013 Section 6.9.2  
KDB 789033 D02 v02r01 - Section C.2

### Test settings

Minimum Emission Bandwidth for the band 5.725–5.85 GHz.

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 kHz for the band 5.725–5.85 GHz band. The following procedure shall be used for measuring this Bandwidth:

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW)  $\geq 3$  RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. 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.

**Test results**
**[DC 5 V]**

Test mode	Band	Frequency (MHz)	6dB bandwidth (MHz)	Limit (MHz)	99% bandwidth (MHz)
802.11a	UNII-3	5 745	16.38	0.50	16.43
		5 785	16.38	0.50	16.43
		5 825	16.38	0.50	16.38
802.11n HT20	UNII-3	5 745	17.63	0.50	17.53
		5 785	17.68	0.50	17.58
		5 825	17.38	0.50	17.53
802.11ac VHT20	UNII-3	5 745	17.48	0.50	17.53
		5 785	17.68	0.50	17.58
		5 825	16.93	0.50	17.53

**[DC 12 V]**

Test mode	Band	Frequency (MHz)	6dB bandwidth (MHz)	Limit (MHz)	99% bandwidth (MHz)
802.11a	UNII-3	5 745	16.38	0.50	16.43
		5 785	16.38	0.50	16.48
		5 825	16.13	0.50	16.38
802.11n HT20	UNII-3	5 745	16.98	0.50	17.53
		5 785	17.48	0.50	17.53
		5 825	17.48	0.50	17.53
802.11ac VHT20	UNII-3	5 745	17.48	0.50	17.53
		5 785	17.68	0.50	17.58
		5 825	17.48	0.50	17.53

In order to simplify the report, only ac mode test plots are attached.

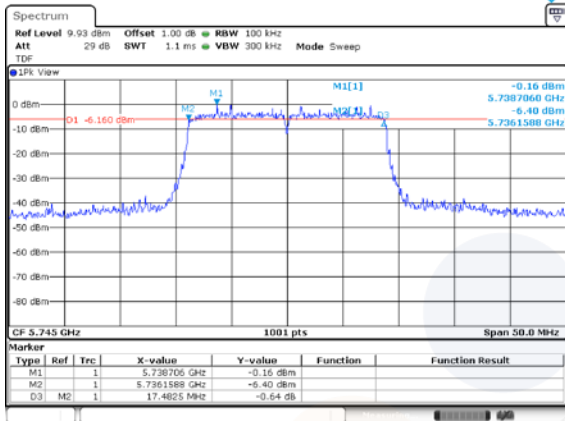
[DC 5 V]

**6 dB bandwidth**

**99% bandwidth**

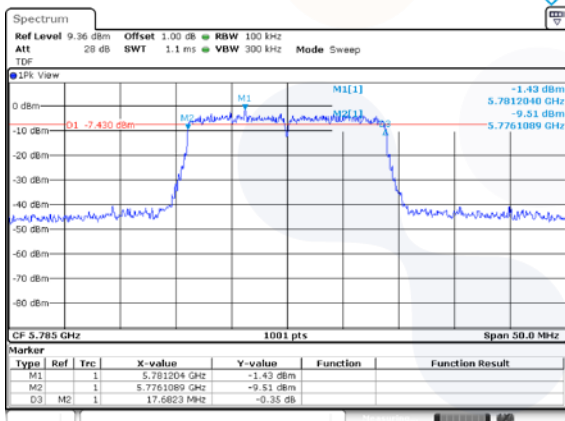
**UNII-3 / 802.11ac VHT 20 / Low ch.**

**UNII-3 / 802.11ac VHT 20 / Low ch.**



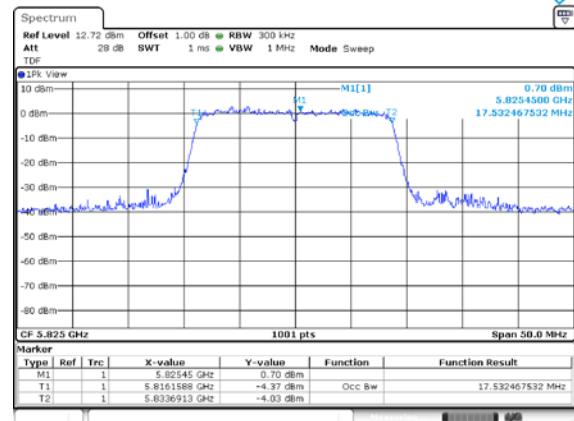
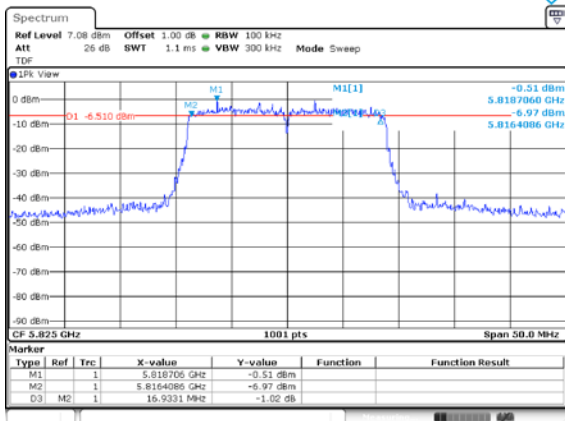
**UNII-3 / 802.11ac VHT 20 / Mid ch.**

**UNII-3 / 802.11ac VHT 20 / Mid ch.**



**UNII-3 / 802.11ac VHT 20 / High ch.**

**UNII-3 / 802.11ac VHT 20 / High ch.**



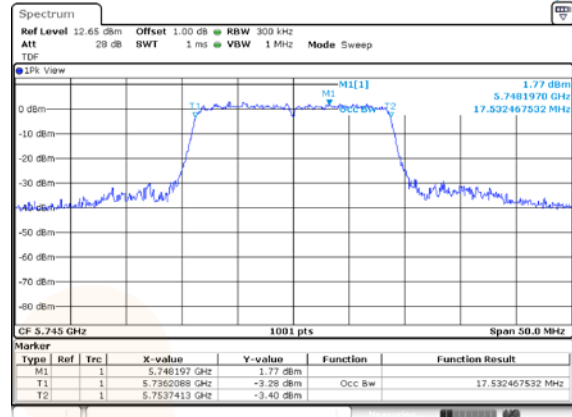
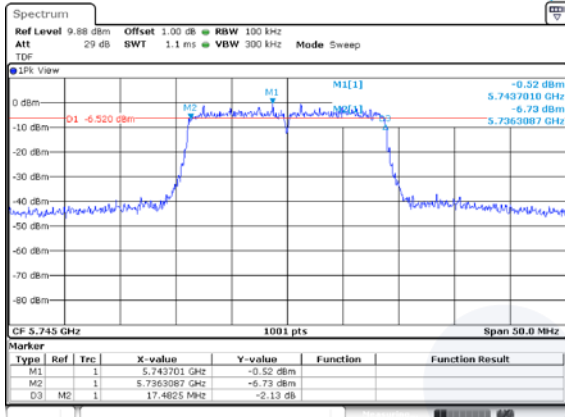
**[DC 12 V]**

**6 dB bandwidth**

**99% bandwidth**

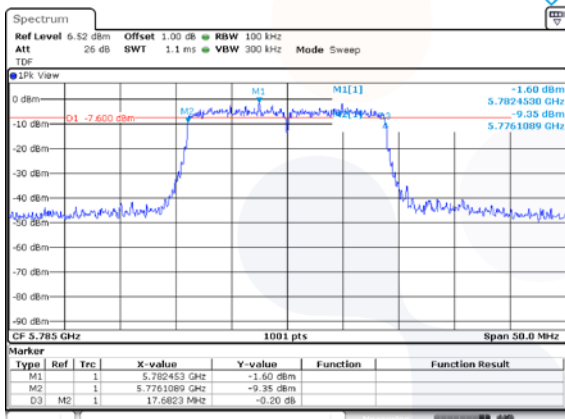
**UNII-3 / 802.11ac VHT 20 / Low ch.**

**UNII-3 / 802.11ac VHT 20 / Low ch.**



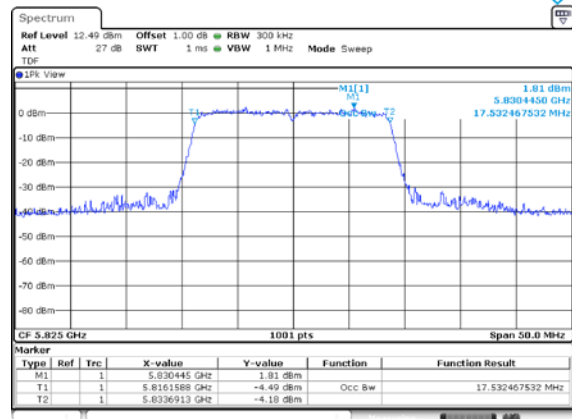
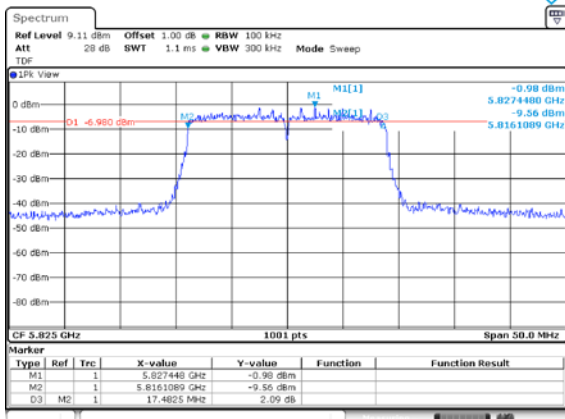
**UNII-3 / 802.11ac VHT 20 / Mid ch.**

**UNII-3 / 802.11ac VHT 20 / Mid ch.**



**UNII-3 / 802.11ac VHT 20 / High ch.**

**UNII-3 / 802.11ac VHT 20 / High ch.**



## 7.5. Straddle channel

### 26dB bandwidth & 99% Bandwidth

#### [DC 5 V]

Test mode	Band	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	UNII-2C	5 720	14.39	16.43
802.11n HT20			14.94	17.58
802.11ac VHT20			14.99	17.58
802.11a	UNII-3	5 720	4.39	-
802.11n HT20			4.74	-
802.11ac VHT20			4.84	-

#### Notes:

- For 99% Bandwidth, measured 99% occupied bandwidth is separated as below.
  - For UNII band 2C = 5 725 MHz – T1 (Measured frequency on the marker table)
  - For UNII band 3 = T2 (Measured frequency on the marker table) – 5 725 MHz

#### [DC 12 V]

Test mode	Band	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	UNII-2C	5 720	14.49	17.53
802.11n HT20			14.99	17.53
802.11ac VHT20			14.94	17.58
802.11a	UNII-3	5 720	4.34	-
802.11n HT20			4.79	-
802.11ac VHT20			4.79	-

#### Notes:

- For 99% Bandwidth, measured 99% occupied bandwidth is separated as below.
  - For UNII band 2C = 5 725 MHz – T1 (Measured frequency on the marker table)
  - For UNII band 3 = T2 (Measured frequency on the marker table) – 5 725 MHz