

TEST REPORT

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Community, Xixiang Street, Baoan District, Shenzhen, China
Report Number : SZNS220328-10908E-RF-00
FCC ID: 2A3FP-DG6TA2203

Test Standard (s)

FCC PART 15.407

Sample Description

Product Type: R/C QUADCOPTER
Model No.: DR-DG600C
Multiple Model(s) No.: DR-DG600B, DR-DG600D, DR-DG600F, DR-DG610C, DR-DG610D, DR-DG610F, DR-DG620C, DR-DG620D, DR-DG620F, DR-DG630C, DR-DG630D, DR-DG630F, DR-DG650C, DR-DG650D, DR-DG650F, DR-DG660C, DR-DG660D, DR-DG660F, DR-DG670C, DR-DG670D, DR-DG670F, DR-DG680C, DR-DG680D, DR-DG680F, DR-DG690C, DR-DG690D, DR-DG690F, DR-DG700C, DR-DG700D, DR-DG700F, DR-DG710C, DR-DG710D, DR-DG710F, DR-DG720C, DR-DG720D, DR-DG720F, DR-DG750C, DR-DG750D, DR-DG750F, DR-DG800C, DR-DG800D, DR-DG800F, DR-DG810C, DR-DG810D, DR-DG810F, DR-DG820C, DR-DG820D, DR-DG820F, DR-DG850C, DR-DG850D, DR-DG850F, DR-DG900C, DR-DG900D, DR-DG900F, DR-DG910B, DR-DG910C, DR-DG910D, DR-DG910F, DR-DG920B, DR-DG920C, DR-DG920D, DR-DG920F, DR-DG950C, DR-DG950D, DR-DG950F, DR-DF100B, DR-DF400B (Please refer to DOS for Model difference)

Trade Mark: N/A
Date Received: 2022/03/28
Report Date: 2022/07/05

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Ting Lü
EMC Engineer

Approved By:

Candy Li
EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

Shenzhen Accurate Technology Co., Ltd. is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk "★". Customer model name, addresses, names, trademarks etc. are not considered data.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Frequency Range	5G Wi-Fi: 5150-5250MHz; 5725-5850MHz
Mode	802.11a/n20
Maximum Conducted Average Output Power	5150-5250 MHz: 13.55dBm 5725-5850 MHz: 12.00dBm
Modulation Technique	OFDM
Antenna Specification*	4.03 dBi (It is provided by the applicant)
Voltage Range	DC 3.7V From Battery
Sample serial number	SZNS220328-10908E-RF-S1 for Radiated Emissions SZNS220328-10908E-RF-S2 for RF Conducted Test (Assigned by ATC)
Sample/EUT Status	Good condition

Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A and E of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices. And KDB789033 D02 General U-NII Test Procedures New Rules v02r01.

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF Frequency		0.082×10^{-7}
RF output power, conducted		0.73dB
Unwanted Emission, conducted		1.6dB
AC Power Lines Conducted Emissions		2.72dB
Emissions, Radiated	9kHz - 30MHz	2.66dB
	30MHz - 1GHz	4.28dB
	1GHz - 18GHz	4.98dB
	18GHz - 26.5GHz	5.06dB
	26.5GHz - 40GHz	4.72dB
Temperature		1°C
Humidity		6%
Supply voltages		0.4%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01.

Listed by Innovation, Science and Economic Development Canada (ISED), the Registration Number is 5077A.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in an engineering mode, which was provided by manufacturer.

The device only supports 5G Wi-Fi 802.11a/n20 modes.

For 5150-5250MHz Band, 4 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
40	5200	48	5240

For 802.11a/n20 mode: channel 36, 40, 48 were tested.

For 5725-5850MHz Band, 6 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	161	5805
153	5765	165	5825
157	5785	/	/

For 802.11a/n20 mode: channel 149, 157, 165 were tested.

EUT Exercise Software

“SecureCRT*” software was used and power level as below:

The worst case was performed under:

U-NII	Mode	Data rate	Power Level*
5150 – 5250MHz	802.11a	6Mbps	Default
	802.11n-HT20	MCS0	Default
5725 – 5850MHz	802.11a	6Mbps	Default
	802.11n-HT20	MCS0	Default

The worse-case data rates are determined to be as follows for each mode based upon investigations by measuring the output power and PSD across all data rated bandwidths, and modulations.

The software and power level was provided by applicant.

EUT have two antennas, for 802.11 a/n20 mode, EUT only support SISO transmit.

Equipment Modifications

No modification was made to the EUT tested.

Duty cycle

Mode	Frequency(MHz)	T _{on} (ms)	T _{on+off} (ms)	Duty Cycle(%)
802.11a	5200	--	--	100
	5785	--	--	100
802.11n20	5200	--	--	100
	5785	--	--	100

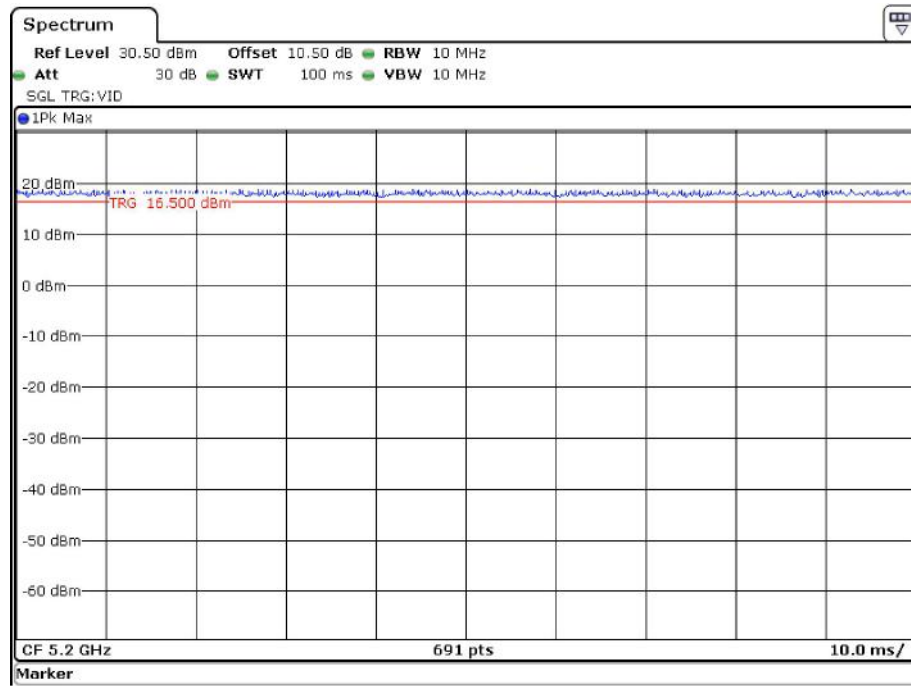
Antenna 1:

5150-5250 MHz:

802.11a mode



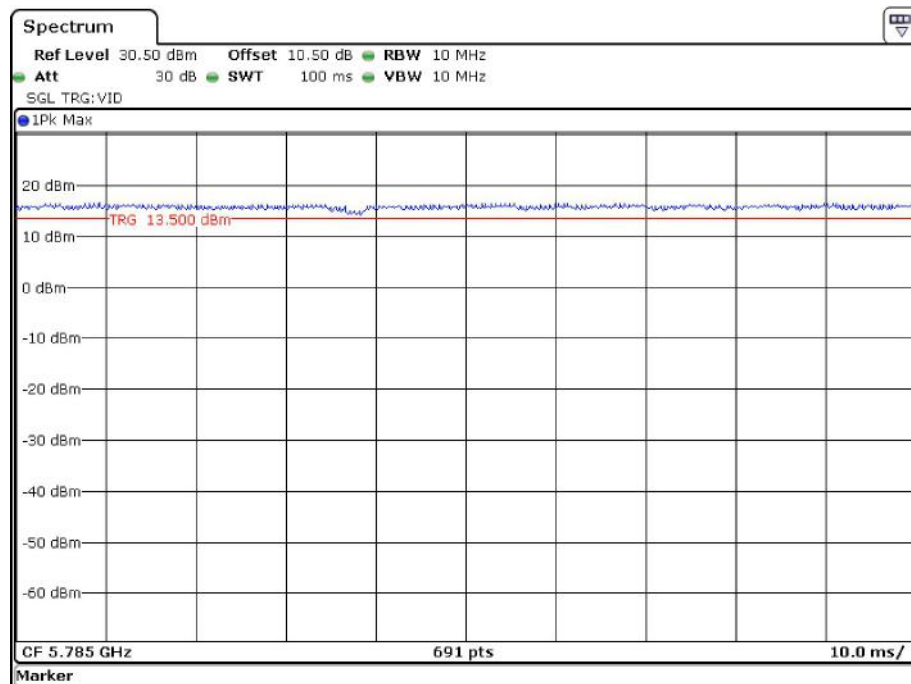
802.11n20 mode



Date: 5.JUL.2022 18:51:26

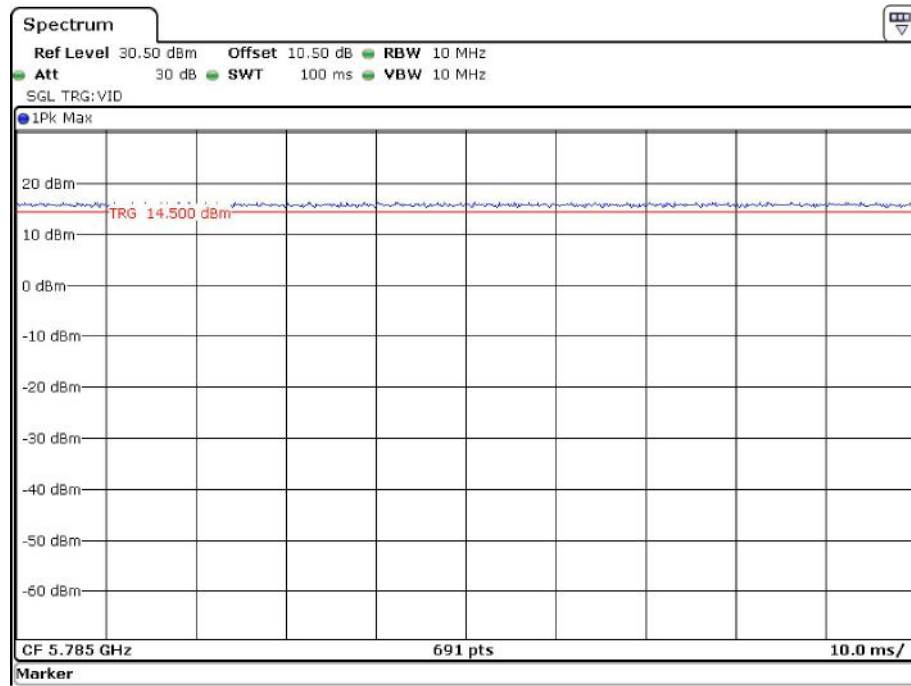
5725 – 5850MHz:

802.11a mode



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802.11n20 mode



Date: 5.JUL.2022 18:51:59

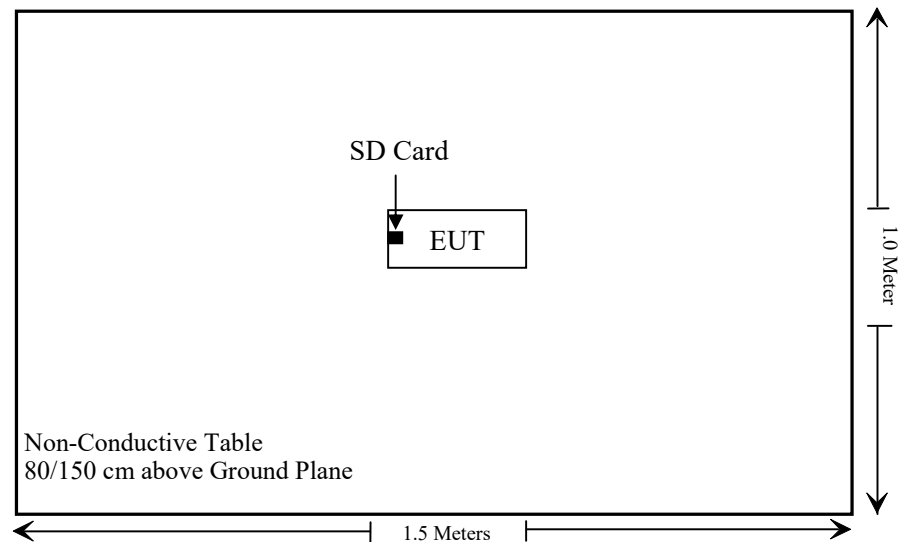
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
aigo	SD Card	U312	Unknown

External I/O Cable

Cable Description	Length (m)	From Port	To
/	/	/	/

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 15.247 (i), § 1.1307 (b) (3) & § 2.1091	MAXIMUM PERMISSIBLE EXPOSURE (MPE)	Compliant
§ 15.203	Antenna Requirement	Compliant
§ 15.407(b)(9)& § 15.207(a)	Conducted Emissions	Not Applicable
§ 15.205& § 15.209 & § 15.407(b)	Undesirable Emission& Restricted Bands	Compliant
§ 15.407(a) (e)	26 dB Emission Bandwidth & 6dB Bandwidth	Compliant
§ 15.407(a)	Conducted Transmitter Output Power	Compliant
§ 15.407 (a)	Power Spectral Density	Compliant
§ 15.407 (h)	Transmit Power Control (TPC)	Not Applicable*
§ 15.407 (h)	Dynamic Frequency Selection (DFS)	Not Applicable**

Not Applicable: EUT was powered by battery when operate.

Not Applicable*: the EUT has no TPC function which was declared by the applicant.

Not Applicable**: EUT does not operate within frequency range of 5250-5350MHz and 5470-5725MHz.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emissions Test					
Rohde& Schwarz	Test Receiver	ESR	102725	2021/12/13	2022/12/12
Rohde&Schwarz	Spectrum Analyzer	FSV40	101949	2021/12/13	2022/12/12
SONOMA INSTRUMENT	Amplifier	310 N	186131	2021/11/09	2022/11/08
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2021/11/09	2022/11/08
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2021/11/11	2022/11/10
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2020/01/05	2023/01/04
Schwarzbeck	HORN ANTENNA	BBHA9170	9170-359	2020/01/05	2023/01/04
Radiated Emission Test Software: e3 19821b (V9)					
Unknown	RF Coaxial Cable	No.10	N050	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.11	N1000	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.12	N040	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.13	N300	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.14	N800	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.15	N600	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.16	N650	2021/12/14	2022/12/13
CD	Band Reject Filter	BRM-5.15/5.35g-45	075	2021/12/14	2022/12/13
CD	Band Reject Filter	BRM-5.725/5.875G-45	065	2021/12/14	2022/12/13
RF Conducted Test					
Rohde & Schwarz	Open Switch and Control Unit	OSP120 + OSP-B157	101244 + 100866	2021/12/13	2022/12/12
Rohde & Schwarz	Spectrum Analyzer	FSV-40	101495	2021/12/13	2022/12/12
WEINSCHTEL	10dB Attenuator	5324	AU 3842	2021/12/14	2022/12/13
Unknown	RF Cable	No.31	RF-01	Each time	

* **Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.247 (i) & §1.1307 (b) (3) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.247 (i) and subpart 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 Interim General RF Exposure Guidance

MPE-Based Exemption:

General frequency and separation-distance dependent MPE-based effective radiated power(ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2f$.
1,500-100,000	$19.2R^2$.

R is the minimum separation distance in meters

f = frequency in MHz

Result

Frequency (MHz)	Antenna Gain		Tune up conducted power (dBm)	ERP		Evaluation Distance (m)	ERP Limit (W)
	(dBi)	(dBd)		(dBm)	(W)		
5150-5850	4.03	1.88	14.0	15.88	0.039	0.2	0.768

Note: To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Pass

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

According to § 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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.407 (a), if the transmitting antennas of directional gain greater than 6dBi are used, the transmit power and power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT have two internal Antenna arrangement, which was permanently attached and the antenna gain is 4.03dBi fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliant.

§15.205 & §15.209 & §15.407(B)– UNDESIRABLE EMISSION

Applicable Standard

FCC §15.407 (b); §15.209; §15.205;

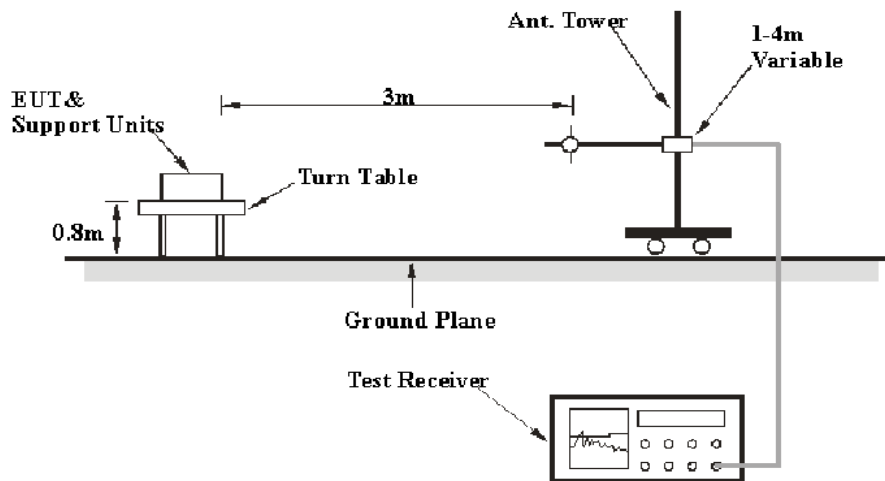
(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

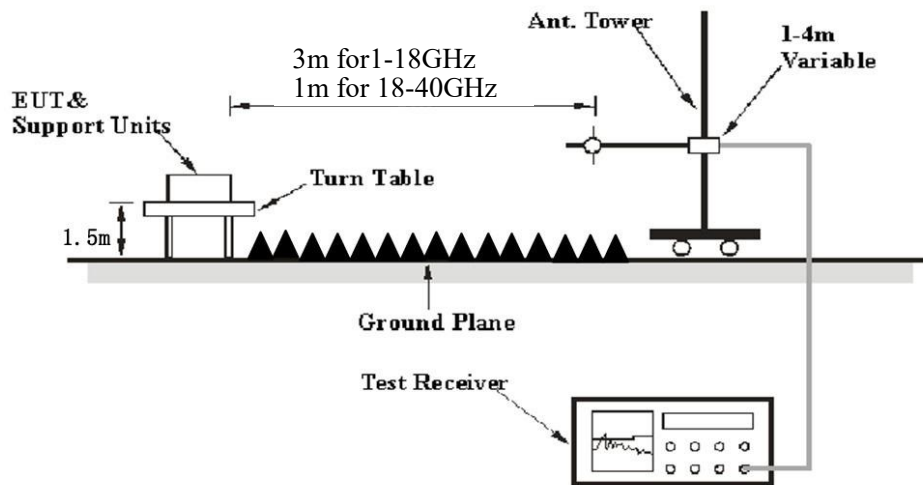
- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band:
 - (i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

EUT Setup

Below 1 GHz:



Above 1 GHz:

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC 15.209 and FCC 15.407 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1MHz	10 Hz ^{Note 1}	/	Average
	1MHz	> 1/T ^{Note 2}	/	Average

Note 1: when duty cycle is no less than 98%

Note 2: when duty cycle is less than 98%

Test Procedure**Radiated Spurious Emission**

During the radiated emission test, the adapter was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all the installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

According to ANSI C63.10-2013,9.4: For field strength measurements made at other than the distance at which the applicable limit is specified, extrapolate the measured field strength to the field strength at the distance specified by the limit using an inverse distance correction factor (20 dB/decade of distance). In some cases, a different distance correction factor may be required;

$$E_{\text{SpecLimit}} = E_{\text{Meas}} + 20 \log \left(\frac{d_{\text{Meas}}}{d_{\text{SpecLimit}}} \right)$$

where

$E_{\text{SpecLimit}}$	is the field strength of the emission at the distance specified by the limit, in dBμV/m
E_{Meas}	is the field strength of the emission at the measurement distance, in dBμV/m
d_{Meas}	is the measurement distance, in m
$d_{\text{SpecLimit}}$	is the distance specified by the limit, in m

So the extrapolation factor of 1m is $20 \cdot \log(1/3) = -9.5$ dB

Factor & Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Over Limit/Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

$$\begin{aligned} \text{Over Limit/Margin} &= \text{Level / Corrected Amplitude} - \text{Limit} \\ \text{Level / Corrected Amplitude} &= \text{Read Level} + \text{Factor} \end{aligned}$$

Test Data

Environmental Conditions

Temperature:	25~29 °C
Relative Humidity:	55~62 %
ATM Pressure:	101.0 kPa

The testing was performed by Level on 2022-05-31 for below 1GHz, Level from 2022-04-23 to 2022-06-06 for above 1GHz.

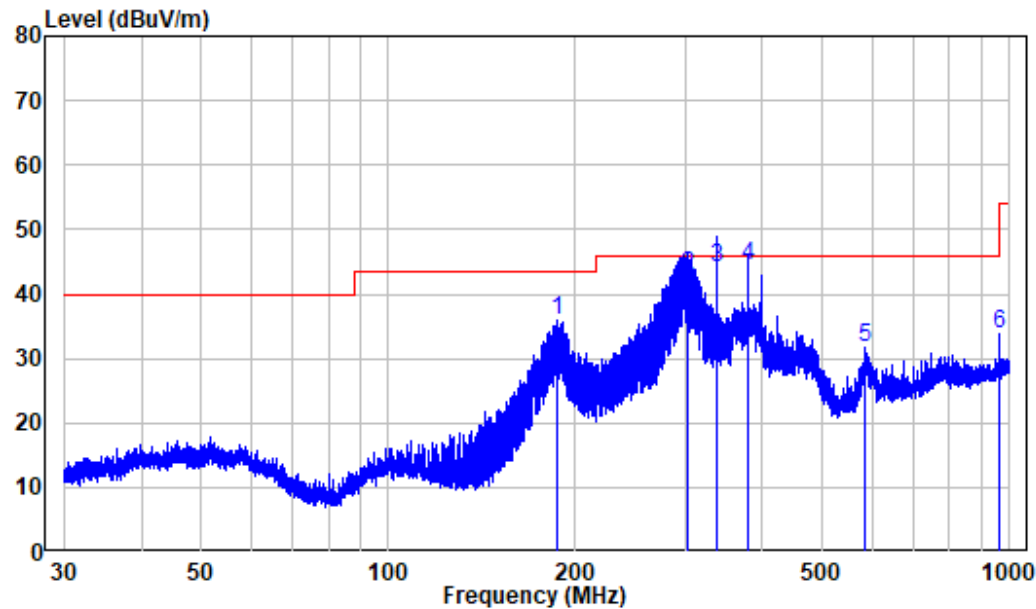
EUT operation mode: Transmitting (Pre-scan in the X,Y and Z axes of orientation, the worst case of X-axes orientation was recorded)

Note: pre-scan with all antennas, the ant1 was the worst case which was recorded

30 MHz – 1 GHz: (worst case is 802.11n20, 5240MHz, Ant1)

Note: When the test result of Peak was more than 6dB below the limit of QP, just the Peak value was recorded.

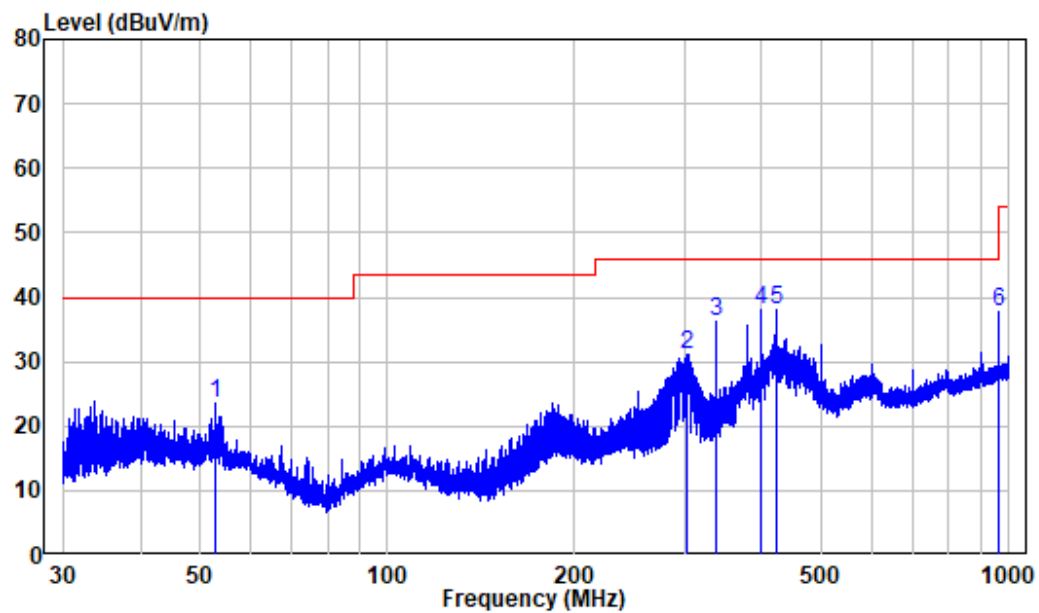
Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No. : SZNS220328-10908E-RF
Test Mode: Transmitting

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	186.359	-12.01	47.87	35.86	43.50	-7.64	Peak
2	302.216	-9.16	52.01	42.85	46.00	-3.15	QP
3	337.807	-7.51	51.70	44.19	46.00	-1.81	QP
4	379.914	-7.14	51.60	44.46	46.00	-1.54	QP
5	583.254	-3.13	34.88	31.75	46.00	-14.25	Peak
6	960.056	2.36	31.51	33.87	54.00	-20.13	Peak

Vertical



Site : chamber
 Condition: 3m VERTICAL
 Job No. : SZNS220328-10908E-RF
 Test Mode: Transmitting

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	52.992	-10.17	33.79	23.62	40.00	-16.38	Peak
2	303.145	-9.12	40.36	31.24	46.00	-14.76	Peak
3	337.807	-7.51	43.64	36.13	46.00	-9.87	Peak
4	400.081	-6.73	44.64	37.91	46.00	-8.09	Peak
5	422.428	-6.00	43.96	37.96	46.00	-8.04	Peak
6	960.056	2.36	35.49	37.85	54.00	-16.15	Peak

1GHz-40GHz: worst case at ant1**5150-5250 MHz:**

Frequency (MHz)	Receiver		Turn- Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11a									
5180 MHz									
4500	63.34	PK	323	1	H	-4.72	58.62	74	-15.38
4500	49.75	AV	323	1	H	-4.72	45.03	54	-8.97
4500	63.10	PK	104	2.1	V	-4.72	58.38	74	-15.62
4500	49.70	AV	104	2.1	V	-4.72	44.98	54	-9.02
5150	70.41	PK	252	1.3	H	-2.73	67.68	74	-6.32
5150	52.96	AV	252	1.3	H	-2.73	50.23	54	-3.77
5150	66.99	PK	152	1.3	V	-2.73	64.26	74	-9.74
5150	51.64	AV	152	1.3	V	-2.73	48.91	54	-5.09
10360	48.19	PK	59	1.4	H	8.12	56.31	68.2	-11.89
10360	48.18	PK	167	1.4	V	8.12	56.30	68.2	-11.90
5200 MHz									
10400	47.19	PK	287	1.7	H	8.24	55.43	68.2	-12.77
10400	47.14	PK	291	1.7	V	8.24	55.38	68.2	-12.82
5240 MHz									
5350	62.99	PK	85	2	H	-2.33	60.66	74	-13.34
5350	50.73	AV	85	2	H	-2.33	48.40	54	-5.60
5350	63.20	PK	83	1.2	V	-2.33	60.87	74	-13.13
5350	50.79	AV	83	1.2	V	-2.33	48.46	54	-5.54
5460	63.71	PK	109	2.3	H	-2.26	61.45	74	-12.55
5460	51.06	AV	109	2.3	H	-2.26	48.80	54	-5.20
5460	63.86	PK	301	2.3	V	-2.26	61.60	74	-12.40
5460	51.08	AV	301	2.3	V	-2.26	48.82	54	-5.18
10480	46.27	PK	283	1.7	H	8.56	54.83	68.2	-13.37
10480	46.32	PK	185	1.7	V	8.56	54.88	68.2	-13.32

Frequency (MHz)	Receiver		Turn- Table	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV	Angle Degree	Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11n20									
5180 MHz									
4500	62.79	PK	168	1	H	-4.72	58.07	74	-15.93
4500	49.72	AV	168	1	H	-4.72	45.00	54	-9.00
4500	62.75	PK	248	2.4	V	-4.72	58.03	74	-15.97
4500	49.80	AV	248	2.4	V	-4.72	45.08	54	-8.92
5150	69.42	PK	344	1.4	H	-2.73	66.69	74	-7.31
5150	52.51	AV	344	1.4	H	-2.73	49.78	54	-4.22
5150	66.65	PK	154	1.4	V	-2.73	63.92	74	-10.08
5150	52.00	AV	154	1.4	V	-2.73	49.27	54	-4.73
10360	49.81	PK	231	1.7	H	8.12	57.93	68.2	-10.27
10360	49.42	PK	16	1.7	V	8.12	57.54	68.2	-10.66
5200 MHz									
10400	49.56	PK	332	2	H	8.24	57.8	68.2	-10.40
10400	49.25	PK	8	2	V	8.24	57.49	68.2	-10.71
5240 MHz									
5350	63.22	PK	123	1.2	H	-2.33	60.89	74	-13.11
5350	50.74	AV	123	1.2	H	-2.33	48.41	54	-5.59
5350	63.30	PK	78	1.7	V	-2.33	60.97	74	-13.03
5350	50.80	AV	78	1.7	V	-2.33	48.47	54	-5.53
5460	63.83	PK	171	2.2	H	-2.26	61.57	74	-12.43
5460	50.95	AV	171	2.2	H	-2.26	48.69	54	-5.31
5460	63.95	PK	107	1.9	V	-2.26	61.69	74	-12.31
5460	51.02	AV	107	1.9	V	-2.26	48.76	54	-5.24
10480	48.81	PK	231	1.7	H	8.56	57.37	68.2	-10.83
10480	48.63	PK	33	1.7	V	8.56	57.19	68.2	-11.01

5725-5850 MHz:

Frequency (MHz)	Receiver		Turn- Table	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	Detector (PK/QP/AV)	Angle Degree	Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11a									
5745 MHz									
5650	65.35	PK	260	2	H	-1.95	63.40	68.2	-4.80
5650	64.94	PK	342	2.2	V	-1.95	62.99	68.2	-5.21
5700	66.43	PK	296	1.5	H	-2.02	64.41	105.2	-40.79
5700	66.22	PK	161	1.1	V	-2.02	64.20	105.2	-41.00
5720	72.45	PK	189	1.6	H	-1.97	70.48	110.8	-40.32
5720	70.39	PK	153	1.4	V	-1.97	68.42	110.8	-42.38
5725	81.73	PK	353	1.2	H	-1.96	79.77	122.2	-42.43
5725	79.31	PK	342	1.4	V	-1.96	77.35	122.2	-44.85
11490	56.35	PK	186	2.5	H	6.63	62.98	74	-11.02
11490	45.46	AV	186	2.5	H	6.63	52.09	54	-1.91
11490	52.38	PK	240	1	V	6.63	59.01	74	-14.99
11490	40.72	AV	240	1	V	6.63	47.35	54	-6.65
5785 MHz									
11570	56.81	PK	152	1.2	H	6.59	63.40	74	-10.60
11570	43.79	AV	152	1.2	H	6.59	50.38	54	-3.62
11570	52.67	PK	219	1.4	V	6.59	59.26	74	-14.74
11570	39.65	AV	219	1.4	V	6.59	46.24	54	-7.76
5825 MHz									
5850	70.23	PK	325	1.1	H	-1.81	68.42	122.2	-53.78
5850	69.60	PK	265	2.1	V	-1.81	67.79	122.2	-54.41
5855	66.42	PK	110	2.1	H	-1.81	64.61	110.8	-46.19
5855	66.59	PK	9	1.1	V	-1.81	64.78	110.8	-46.02
5875	65.50	PK	108	1.1	H	-1.84	63.66	105.2	-41.54
5875	65.92	PK	315	2	V	-1.84	64.08	105.2	-41.12
5925	65.36	PK	10	2.2	H	-1.82	63.54	68.2	-4.66
5925	65.67	PK	14	1.9	V	-1.82	63.85	68.2	-4.35
11650	55.03	PK	326	1.6	H	6.77	61.80	74	-12.20
11650	42.27	AV	326	1.6	H	6.77	49.04	54	-4.96
11650	51.12	PK	180	2.5	V	6.77	57.89	74	-16.11
11650	38.16	AV	180	2.5	V	6.77	44.93	54	-9.07

Frequency (MHz)	Receiver		Turn- Table	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	Detector (PK/QP/AV)	Angle Degree	Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11n20									
5745 MHz									
5650	65.28	PK	83	1.6	H	-1.95	63.33	68.2	-4.87
5650	65.43	PK	12	1.3	V	-1.95	63.48	68.2	-4.72
5700	66.29	PK	162	1.6	H	-2.02	64.27	105.2	-40.93
5700	66.03	PK	266	1.3	V	-2.02	64.01	105.2	-41.19
5720	75.23	PK	217	1.4	H	-1.97	73.26	110.8	-37.54
5720	70.05	PK	103	2.3	V	-1.97	68.08	110.8	-42.72
5725	82.12	PK	167	1.6	H	-1.96	80.16	122.2	-42.04
5725	79.23	PK	309	2.3	V	-1.96	77.27	122.2	-44.93
11490	58.79	PK	197	1.5	H	6.63	65.42	74	-8.58
11490	43.14	AV	197	1.5	H	6.63	49.77	54	-4.23
11490	52.51	PK	222	2.3	V	6.63	59.14	74	-14.86
11490	40.65	AV	222	2.3	V	6.63	47.28	54	-6.72
5785 MHz									
11570	58.16	PK	271	1.3	H	6.59	64.75	74	-9.25
11570	42.47	AV	271	1.3	H	6.59	49.06	54	-4.94
11570	52.10	PK	224	2.2	V	6.59	58.69	74	-15.31
11570	40.32	AV	224	2.2	V	6.59	46.91	54	-7.09
5825 MHz									
5850	70.59	PK	257	1.5	H	-1.81	68.78	122.2	-53.42
5850	68.21	PK	265	1.7	V	-1.81	66.40	122.2	-55.80
5855	66.47	PK	65	1.7	H	-1.81	64.66	110.8	-46.14
5855	66.65	PK	273	2.1	V	-1.81	64.84	110.8	-45.96
5875	66.20	PK	149	1.6	H	-1.84	64.36	105.2	-40.84
5875	65.29	PK	338	2.2	V	-1.84	63.45	105.2	-41.75
5925	65.82	PK	170	1.8	H	-1.82	64.00	68.2	-4.20
5925	66.15	PK	220	1.5	V	-1.82	64.33	68.2	-3.87
11650	57.15	PK	231	2.2	H	6.77	63.92	74	-10.08
11650	40.17	AV	231	2.2	H	6.77	46.94	54	-7.06
11650	51.26	PK	71	2.1	V	6.77	58.03	74	-15.97
11650	37.17	AV	71	2.1	V	6.77	43.94	54	-10.06

Note:

Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

Corrected Amplitude = Corrected Factor + Reading

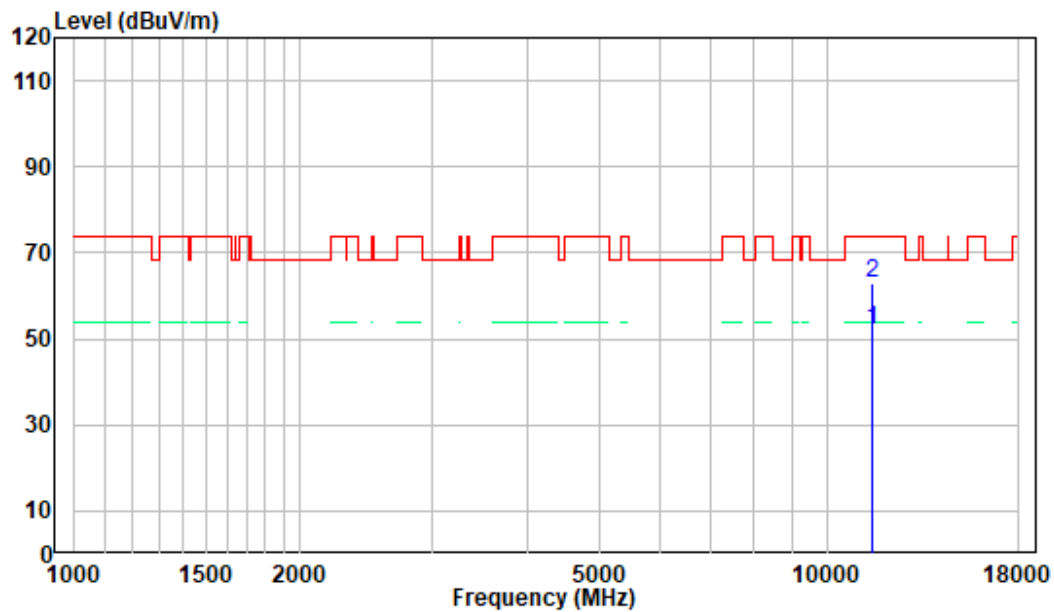
Margin = Corrected. Amplitude - Limit

The other spurious emission which is in the noise floor level was not recorded.

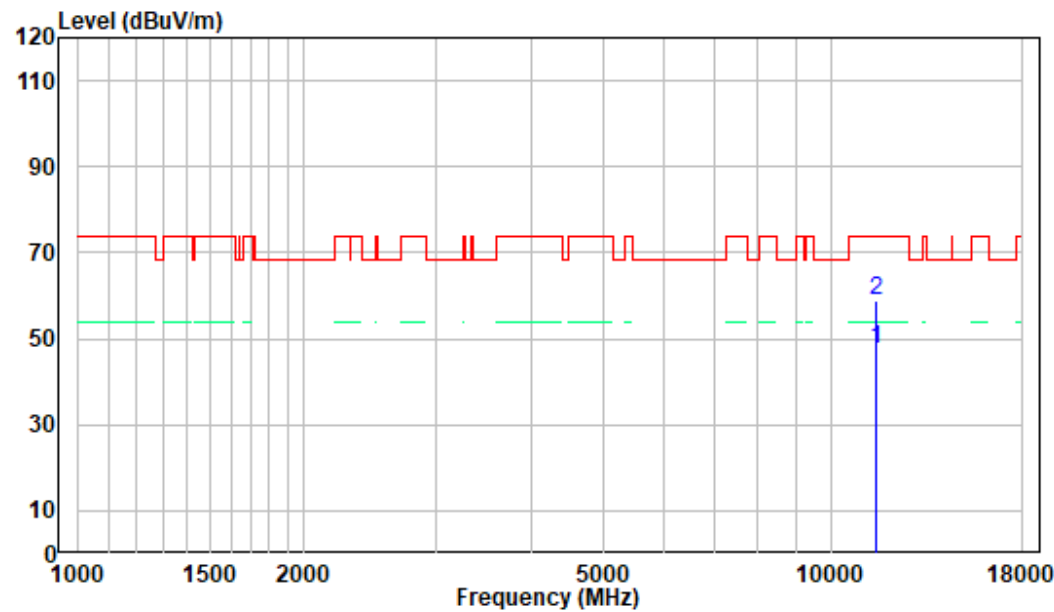
1 GHz - 18 GHz: (Pre-Scan plots)

802.11a, 5745MHz

Horizontal



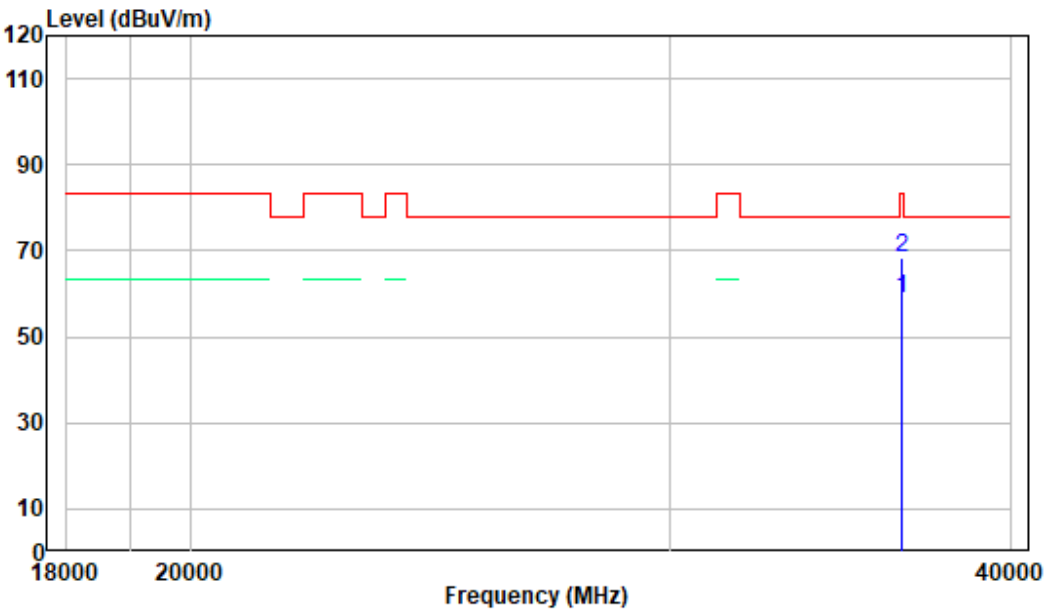
Vertical



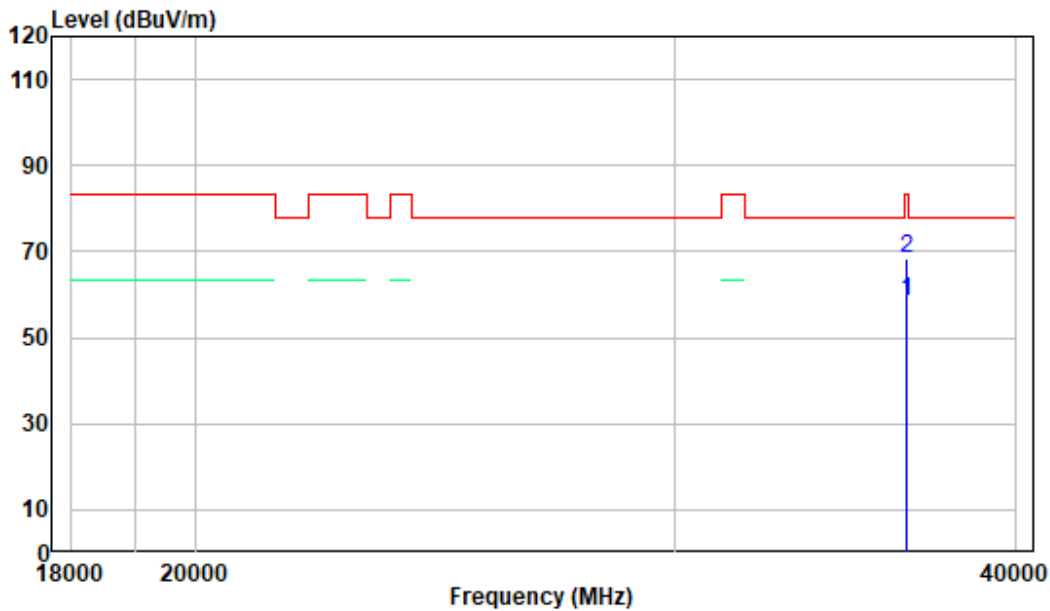
18-40GHz: (Pre-Scan plots)

802.11a, 5745MHz

Horizontal



Vertical



FCC §15.407(a),(e) – 26 dB & 6dB EMISSION BANDWIDTH

Applicable Standard

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Procedure

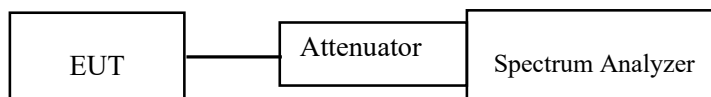
1. Emission Bandwidth (EBW)

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) 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. 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. The following procedure shall be used for measuring this bandwidth:

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



Test Data**Environmental Conditions**

Temperature:	26.5~28 °C
Relative Humidity:	53~57 %
ATM Pressure:	101.0 kPa

The testing was performed by Cat Kang from 2022-06-24 to 2022-07-05.

EUT operation mode: Transmitting

Test Result: Pass; please refer to the following tables and plots.

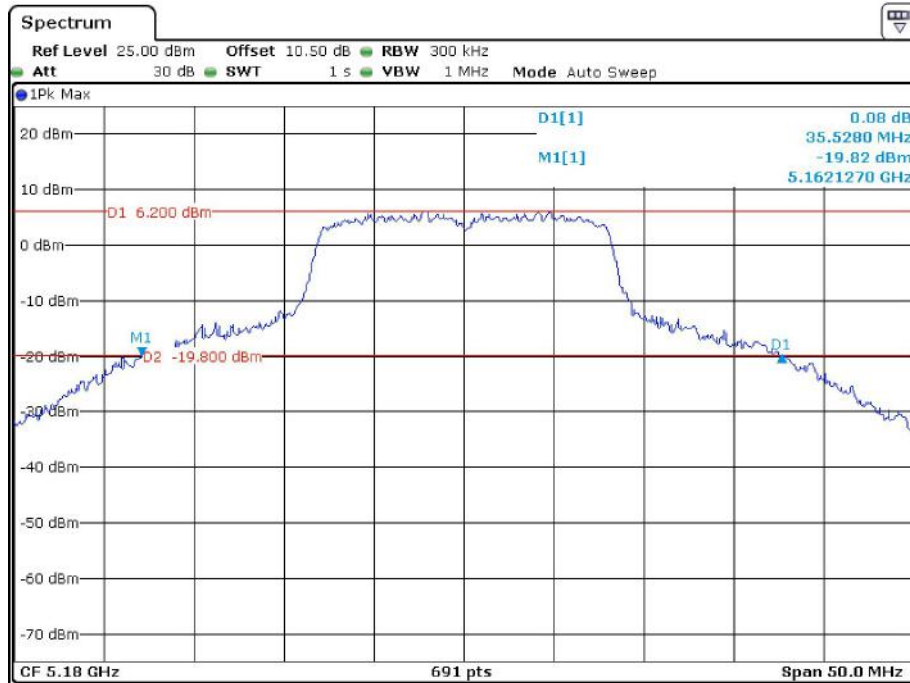
5150 MHz - 5250 MHz:

Frequency (MHz)	Antenna Port	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Remark
802.11a				No transmitted signal in the 99% bandwidth extends into the U-NII-2A band
5180	Ant1	35.53	17.62	
5200	Ant1	35.43	17.44	
5240	Ant1	32.84	17.17	
802.11n20				
5180	Ant1	39.51	18.22	
5200	Ant1	39.55	18.58	
5240	Ant1	33.99	18.34	

Frequency (MHz)	Antenna Port	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Remark
802.11a				No transmitted signal in the 99% bandwidth extends into the U-NII-2A band
5180	Ant2	32.20	17.05	
5200	Ant2	33.14	17.08	
5240	Ant2	29.83	16.96	
802.11n20				
5180	Ant2	33.00	18.19	
5200	Ant2	32.46	18.19	
5240	Ant2	32.33	18.07	

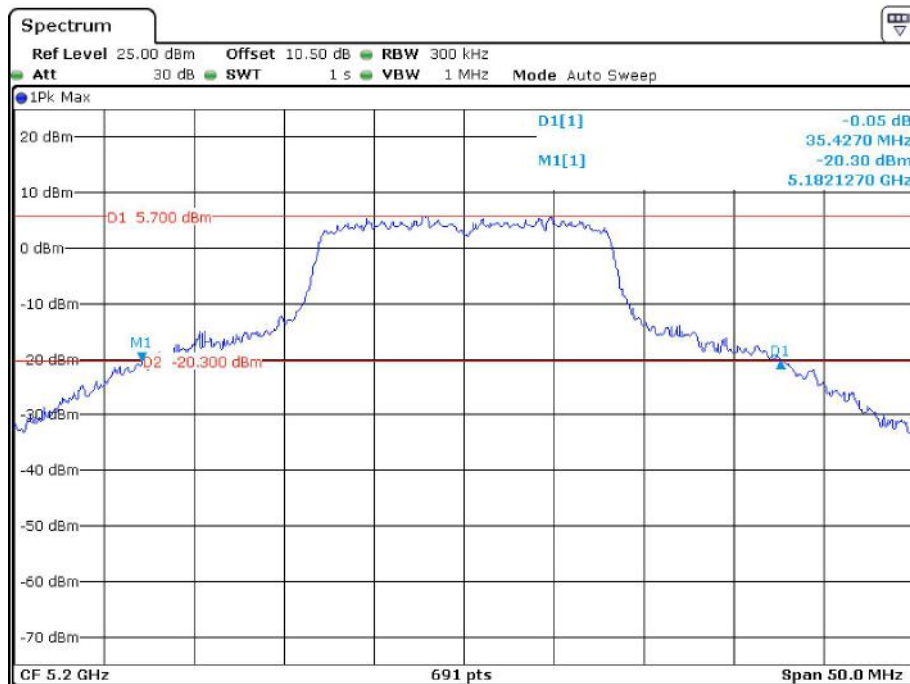
Antenna 1:

802.11a mode, 26 dB Emissions, 5180 MHz



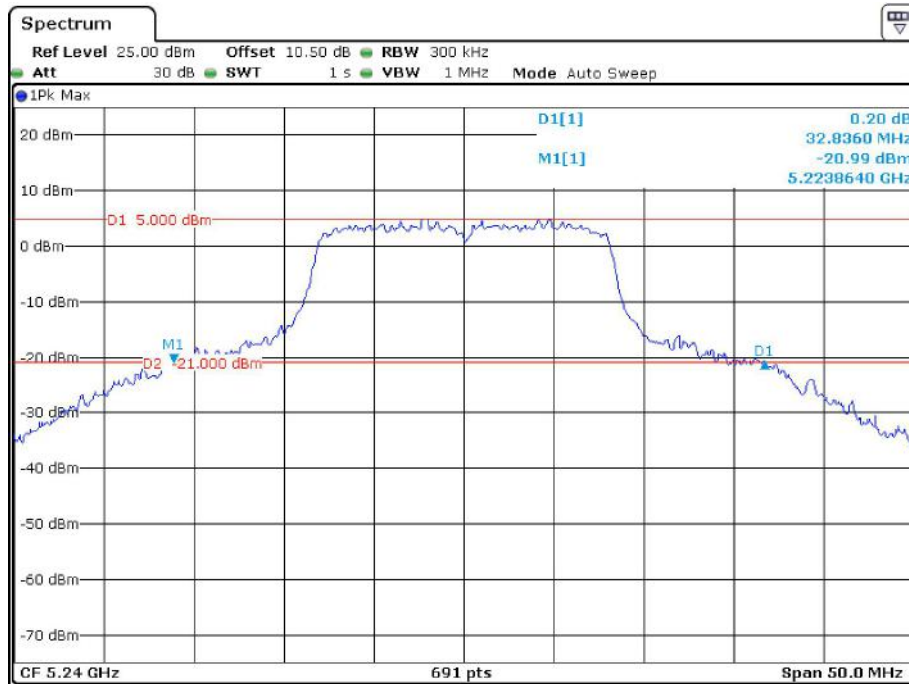
Date: 5.JUL.2022 14:56:01

802.11a mode, 26 dB Emissions, 5200 MHz



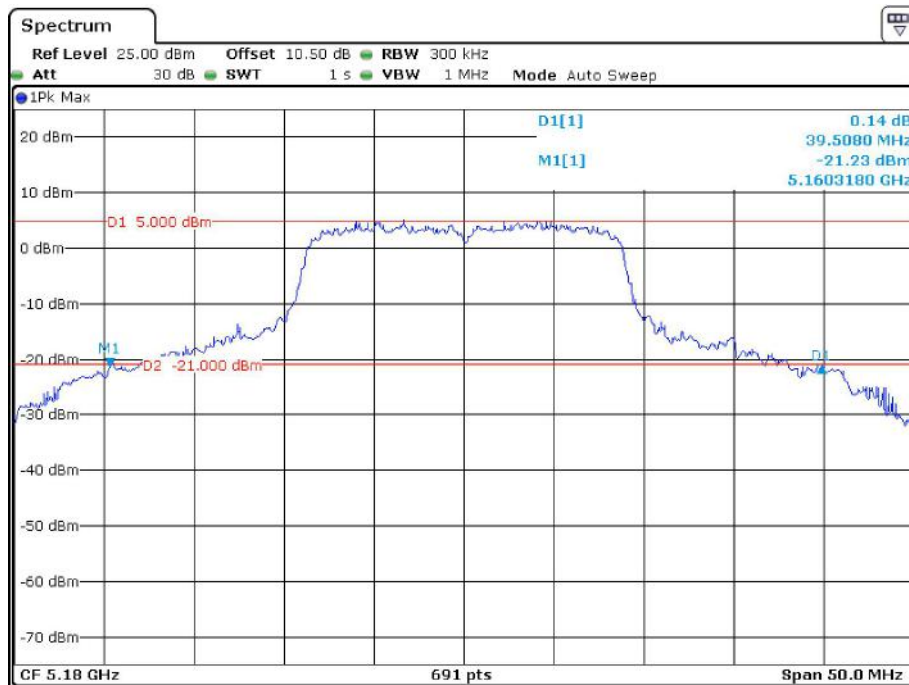
Date: 5.JUL.2022 14:57:47

802.11a mode, 26 dB Emissions, 5240 MHz



Date: 5.JUL.2022 15:00:03

802.11n20 mode, 26 dB Emissions , 5180 MHz



Date: 5.JUL.2022 15:02:23

Spectrum

Ref Level 25.00 dBm Offset 10.50 dB RBW 300 kHz
Att 30 dB SWT 1 s VBW 1 MHz Mode Auto Sweep

1Pk Max

The plot shows a signal with a peak at 39.5510 MHz. The peak is labeled D1[1] with a value of -0.39 dB. The signal is also labeled M1[1] with a value of -20.75 dBm. The signal is centered at 5.1803180 GHz. The plot includes a grid and various measurement markers.

20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm

D1[1] -0.39 dB
M1[1] -20.75 dBm
5.1803180 GHz

D1 5.100 dBm
D2 -20.900 dBm

CF 5.2 GHz 691 pts Span 50.0 MHz

Spectrum
 Ref Level 25.00 dBm Offset 10.50 dB RBW 300 kHz
 Att 30 dB SWT 1 s VBW 1 MHz Mode Auto Sweep

1Pk Max

M1[1] -21.15 dBm
 D1[1] 5.2231400 GHz
 0.04 dB
 33.9940 MHz

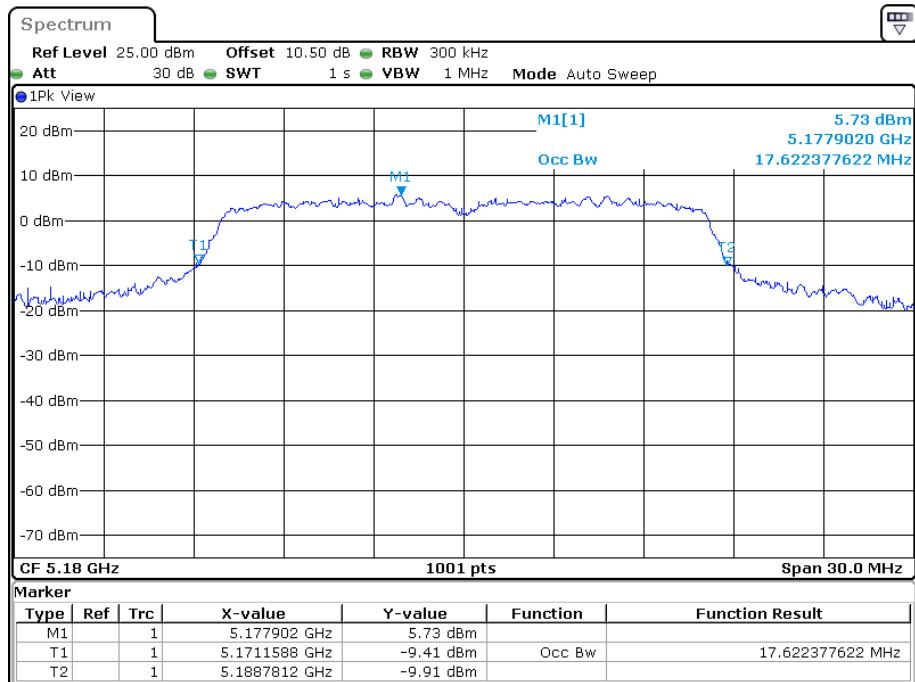
D1 4.800 dBm

M1 -21.200 dBm

CF 5.24 GHz 691 pts Span 50.0 MHz

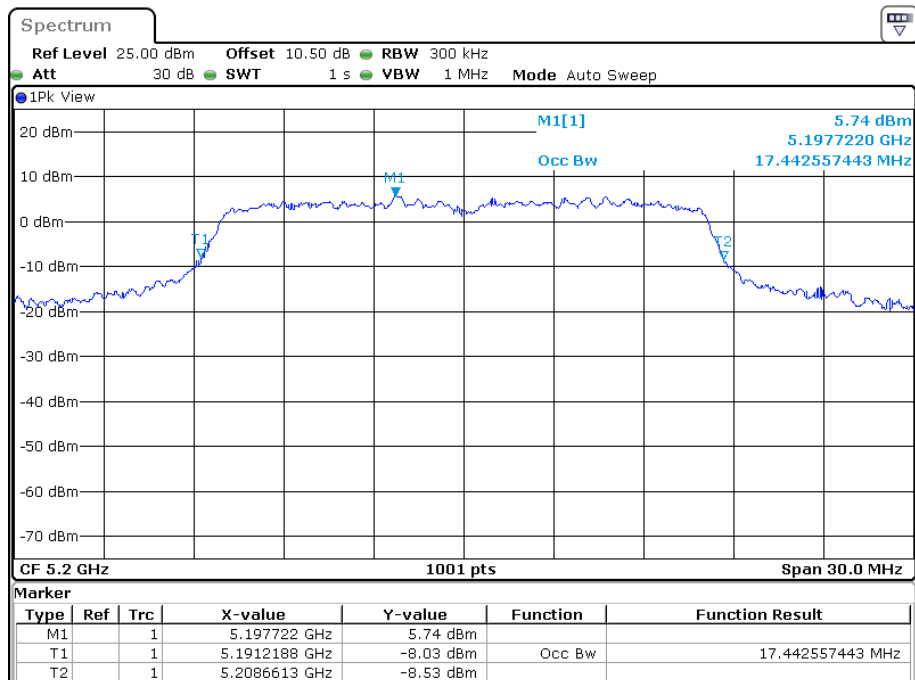
FCC-5G Wi-Fi

802.11a mode, 99% Occupied Bandwidth, 5180 MHz



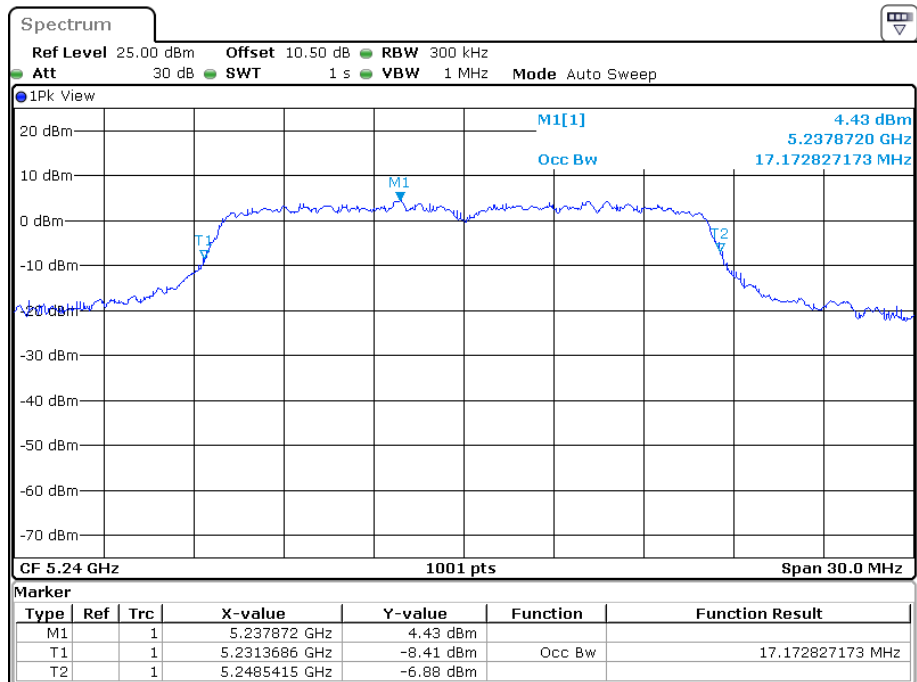
Date: 24.JUN.2022 09:01:16

802.11a mode, 99% Occupied Bandwidth, 5200 MHz



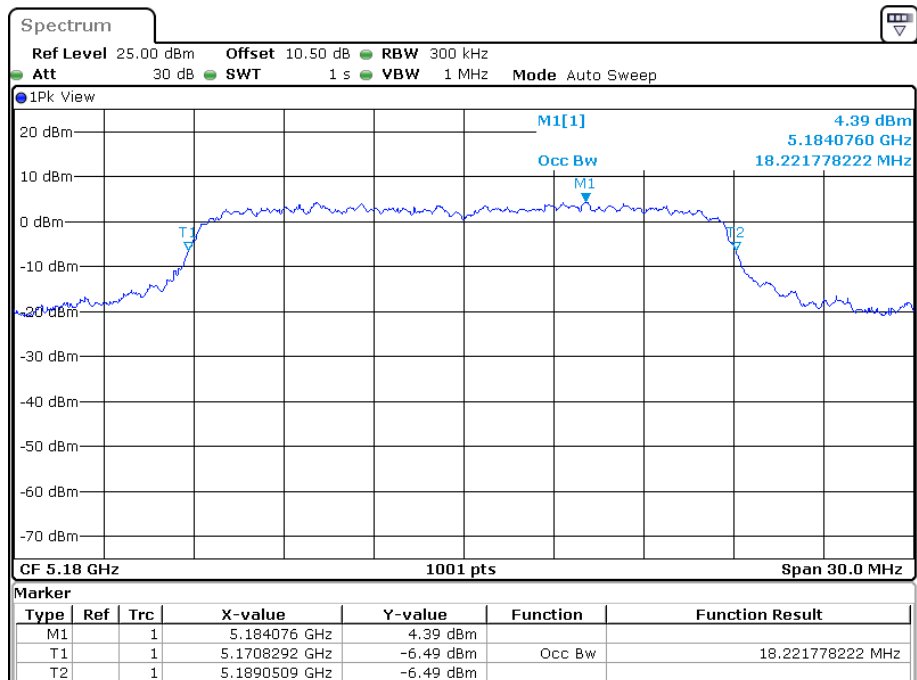
Date: 24.JUN.2022 09:16:18

802.11a mode, 99% Occupied Bandwidth, 5240 MHz



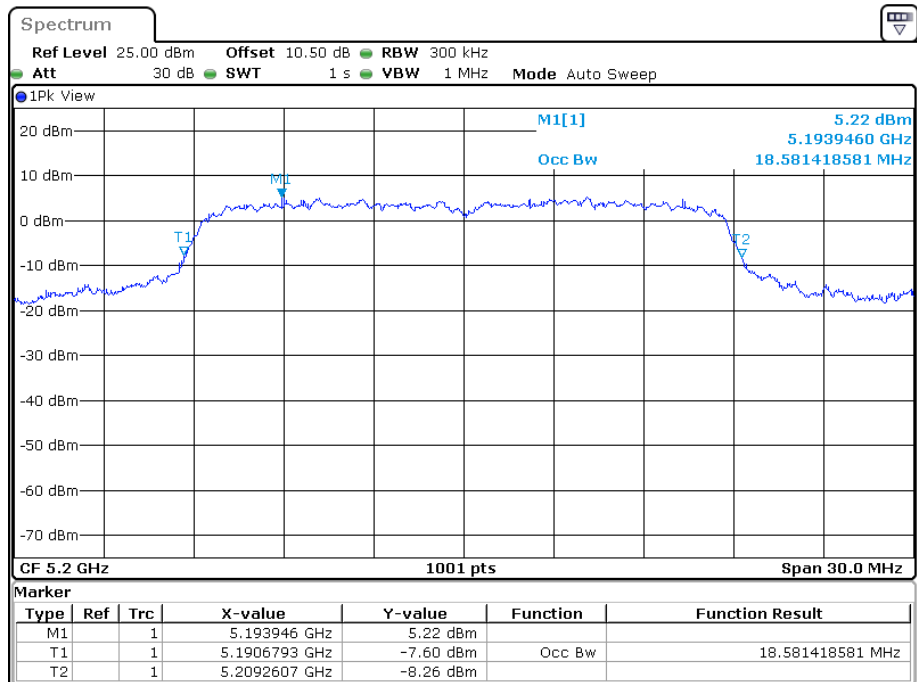
Date: 24.JUN.2022 09:50:22

802.11n20 mode, 99% Occupied Bandwidth, 5180 MHz



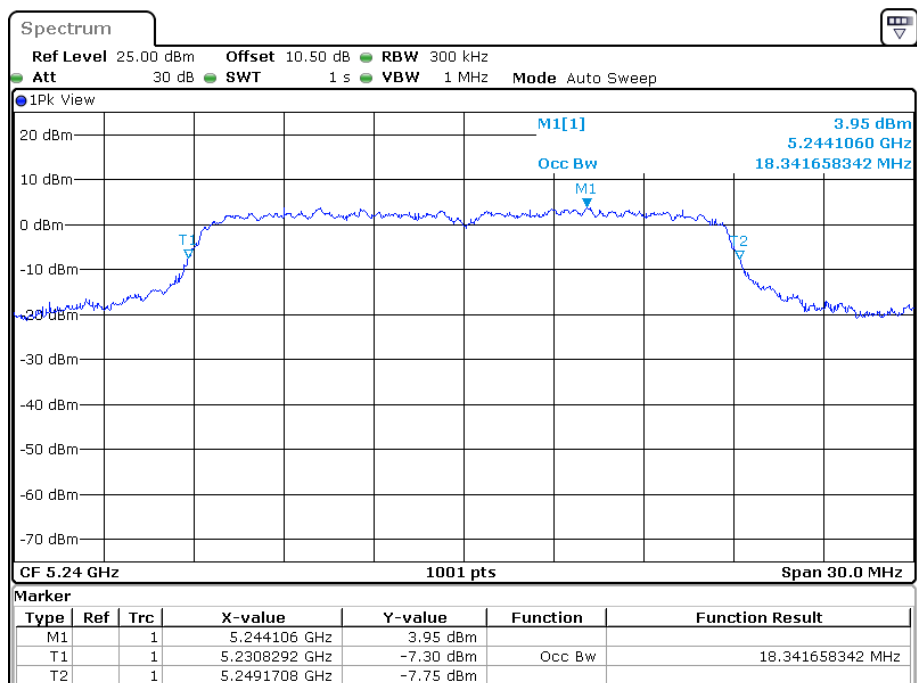
Date: 24.JUN.2022 10:03:51

802.11n20 mode, 99% Occupied Bandwidth, 5200 MHz



Date: 24.JUN.2022 10:09:14

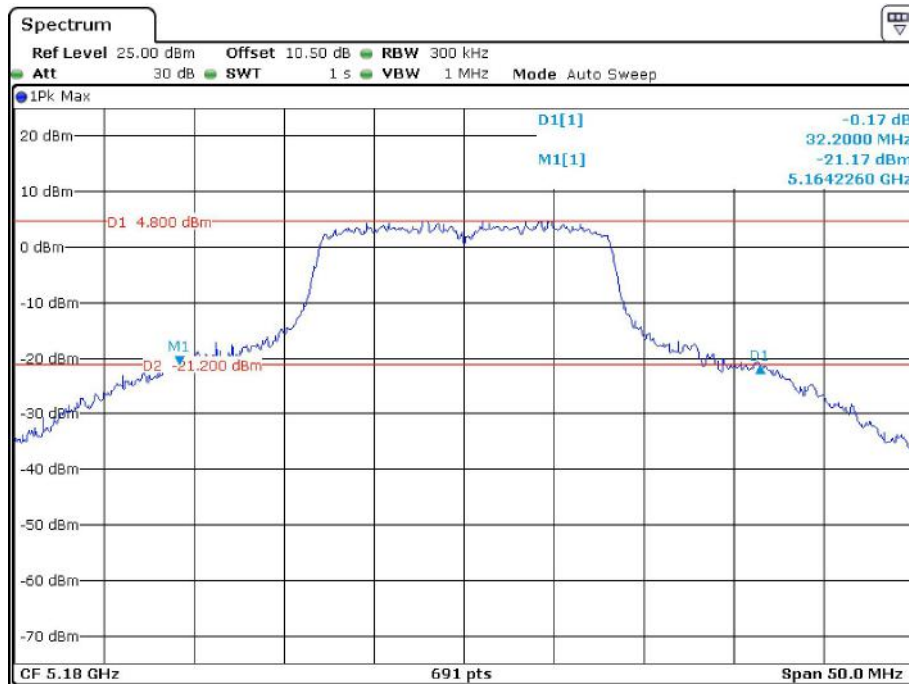
802.11n20 mode, 99% Occupied Bandwidth, 5240 MHz



Date: 24.JUN.2022 10:11:34

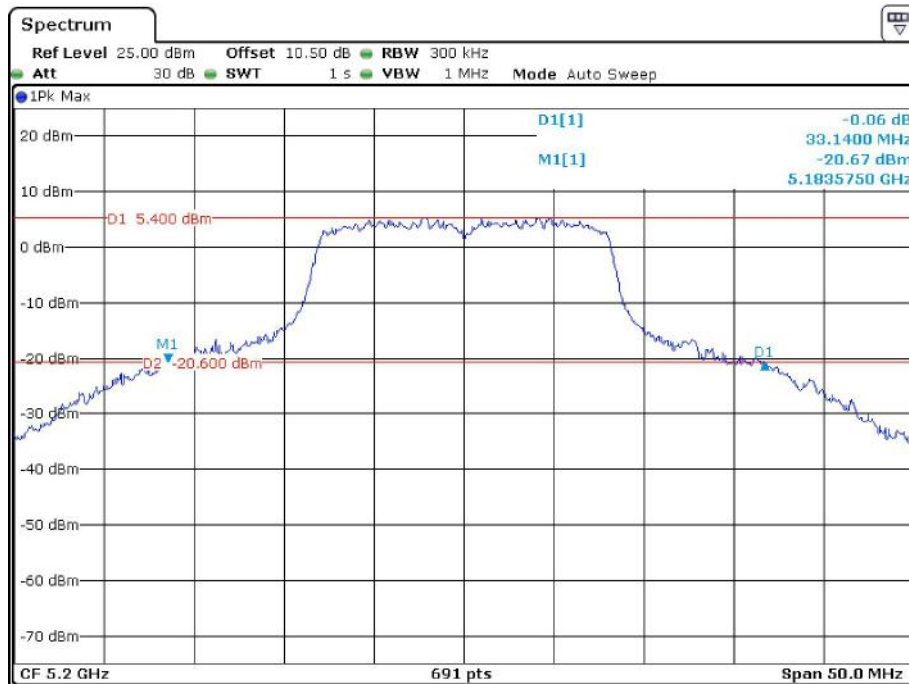
Antenna 2:

802.11a mode, 26 dB Emissions, 5180 MHz



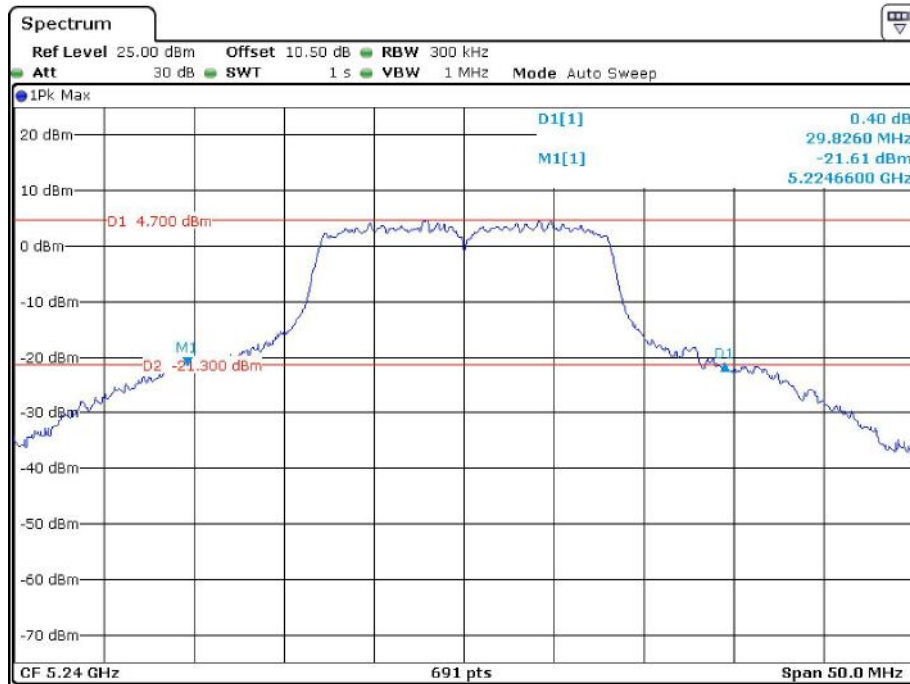
Date: 5.JUL.2022 15:10:16

802.11a mode, 26 dB Emissions, 5200 MHz



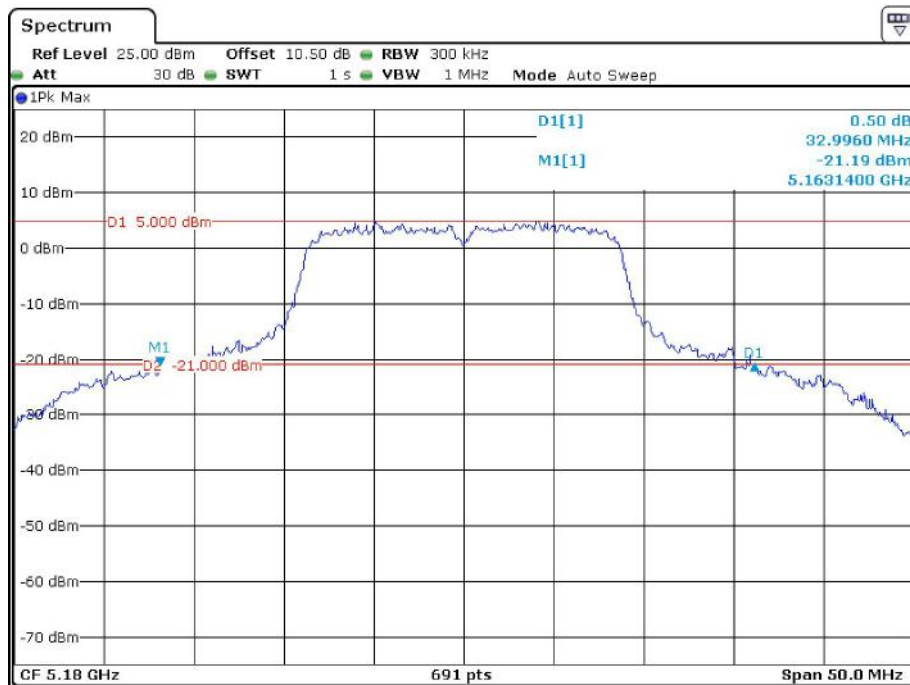
Date: 5.JUL.2022 15:12:45

802.11a mode, 26 dB Emissions, 5240 MHz



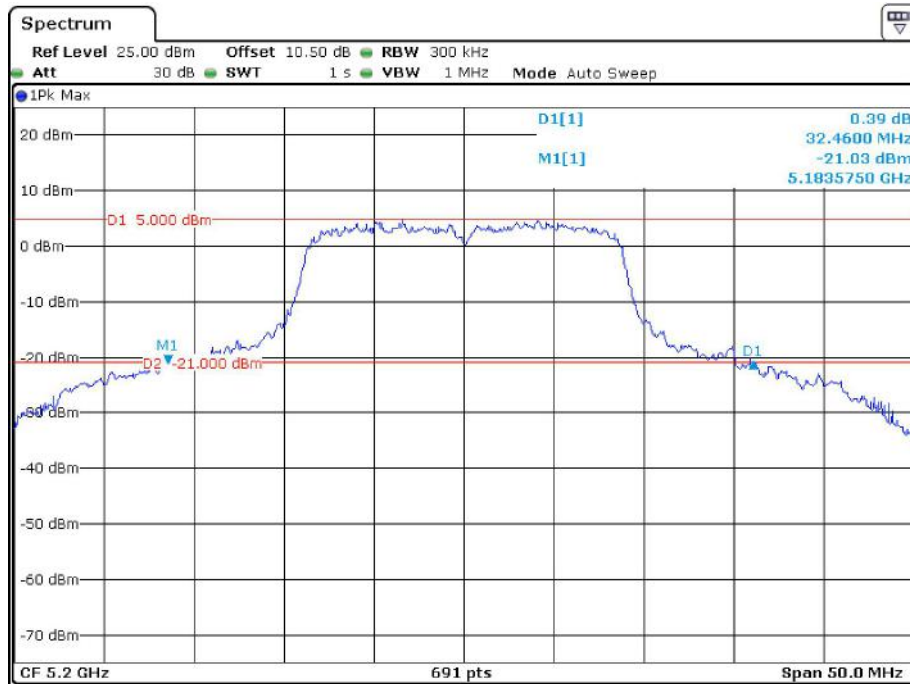
Date: 5.JUL.2022 15:17:07

802.11n20 mode, 26 dB Emissions , 5180 MHz



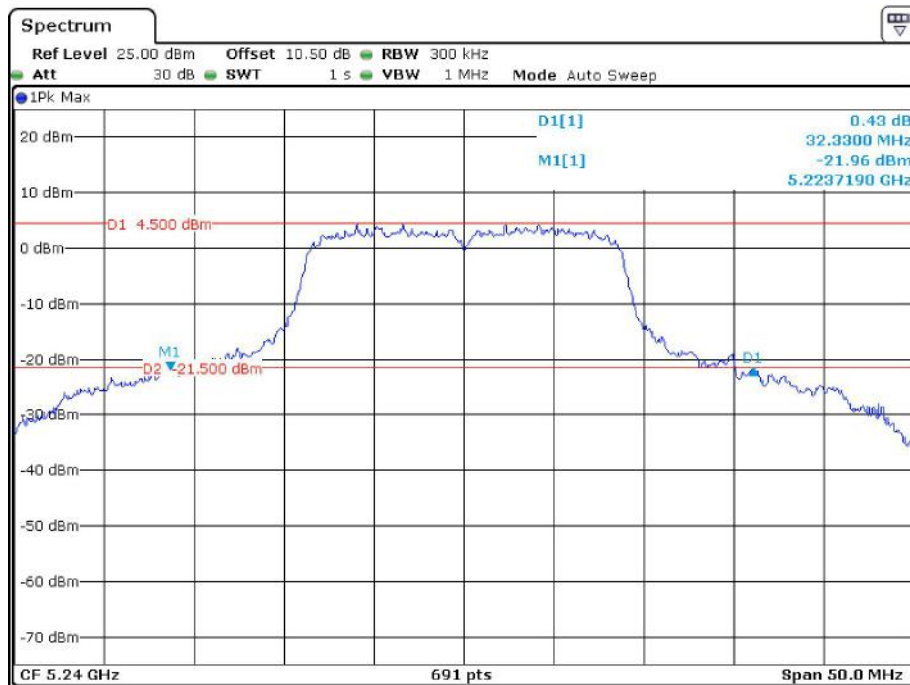
Date: 5.JUL.2022 15:19:05

802.11n20 mode, 26 dB Emissions, 5200 MHz



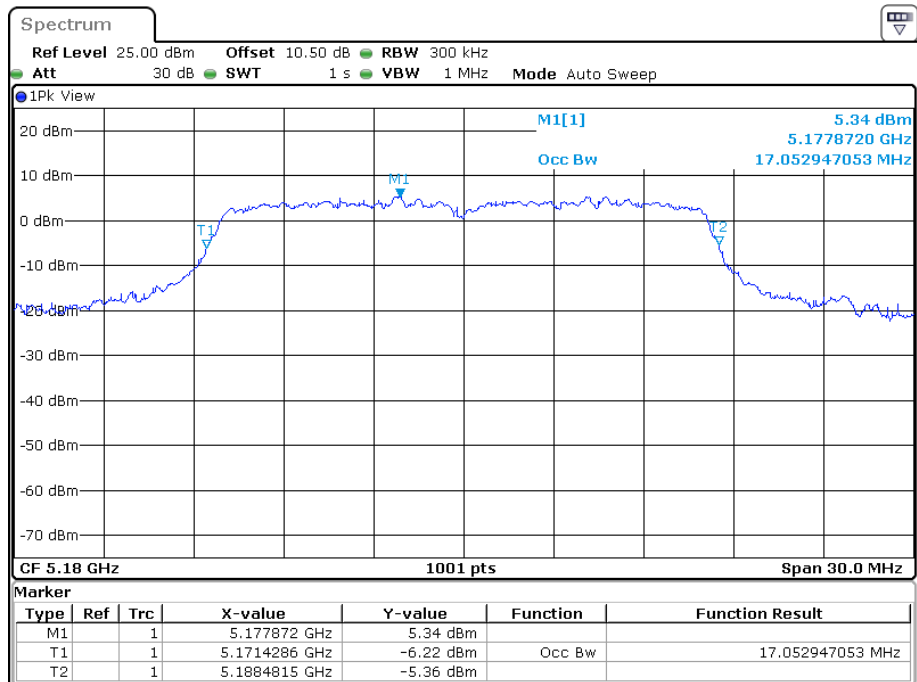
Date: 5.JUL.2022 15:20:39

802.11n20 mode, 26 dB Emissions, 5240 MHz



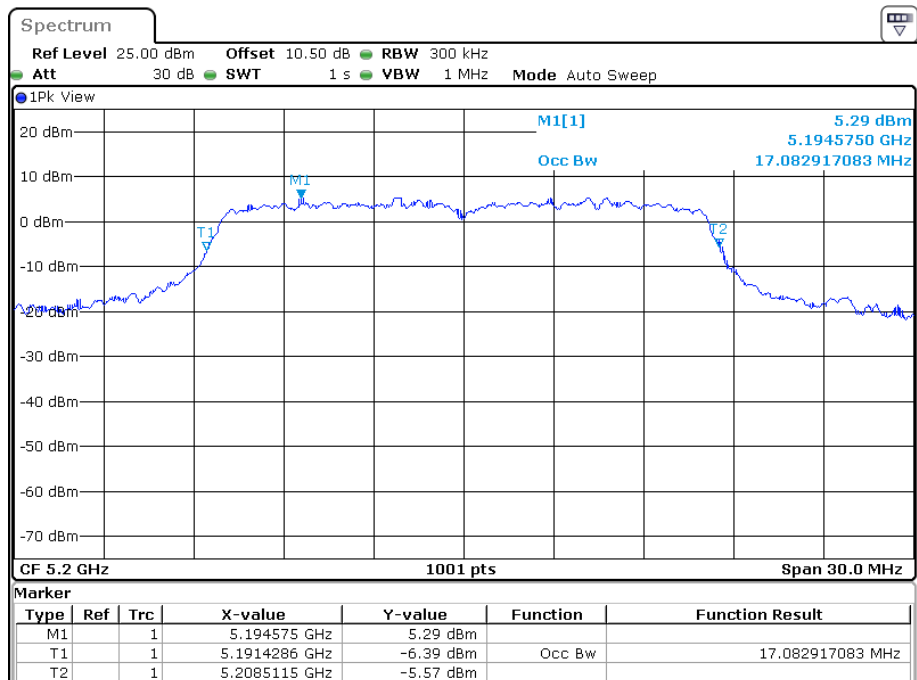
Date: 5.JUL.2022 15:23:21

802.11a mode, 99% Occupied Bandwidth, 5180 MHz



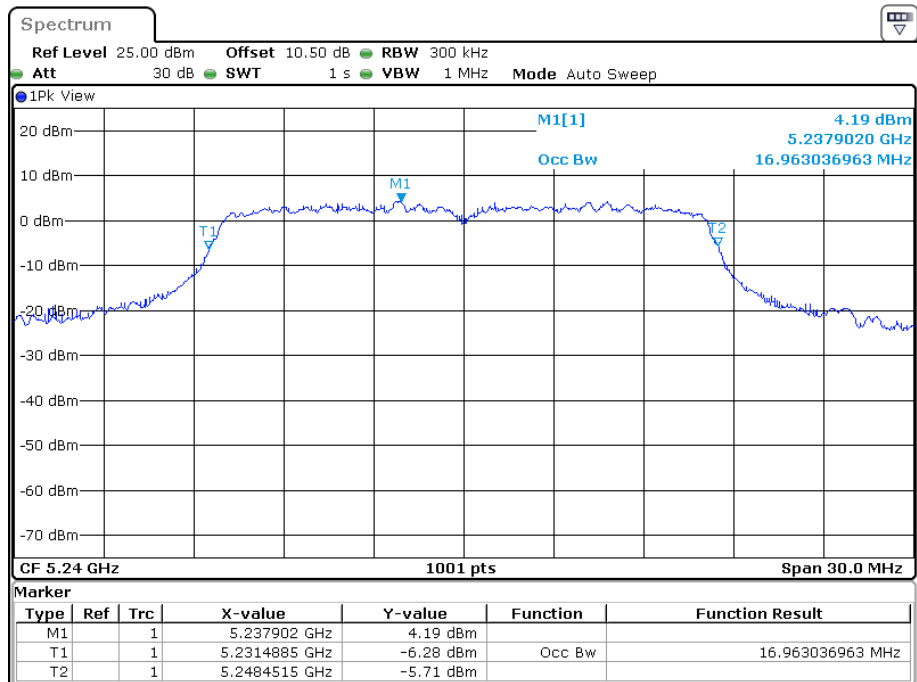
Date: 24.JUN.2022 13:12:12

802.11a mode, 99% Occupied Bandwidth, 5200 MHz



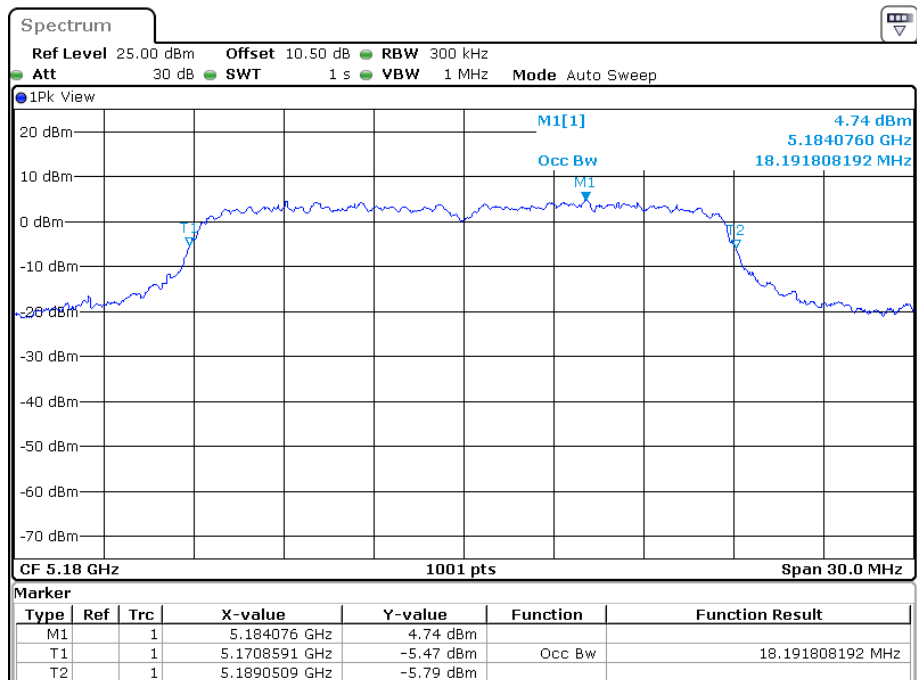
Date: 24.JUN.2022 13:16:00

802.11a mode, 99% Occupied Bandwidth, 5240 MHz



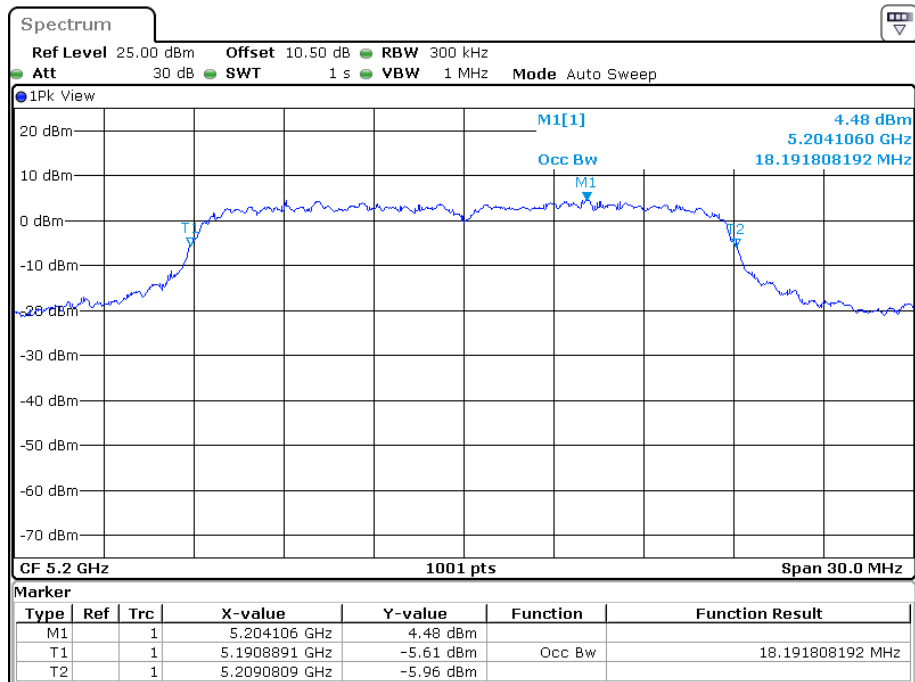
Date: 24.JUN.2022 13:18:30

802.11n20 mode, 99% Occupied Bandwidth, 5180 MHz



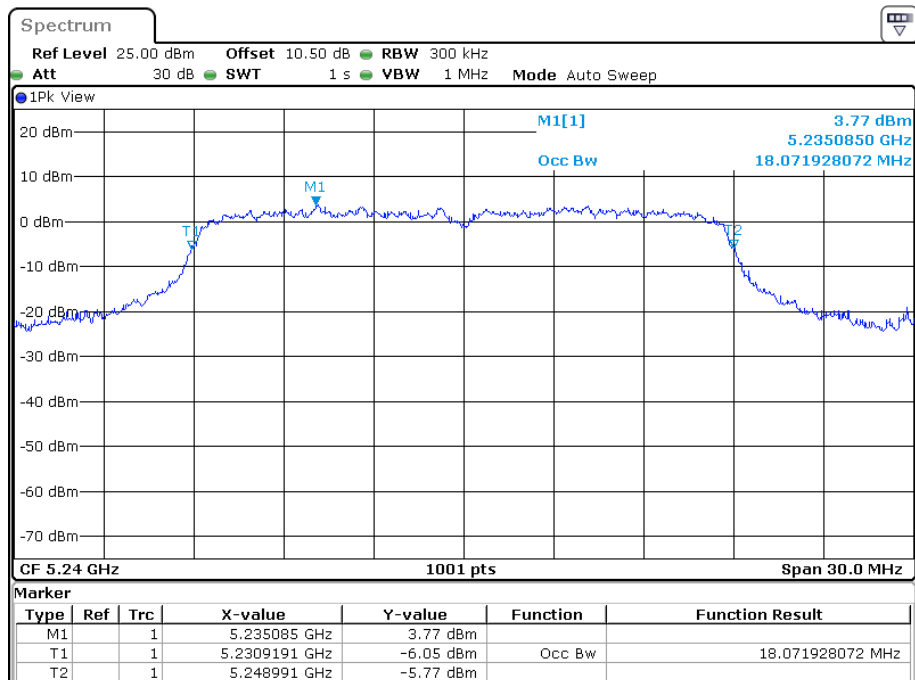
Date: 24.JUN.2022 13:22:35

802.11n20 mode, 99% Occupied Bandwidth, 5200 MHz



Date: 24.JUN.2022 13:24:55

802.11n20 mode, 99% Occupied Bandwidth, 5240 MHz



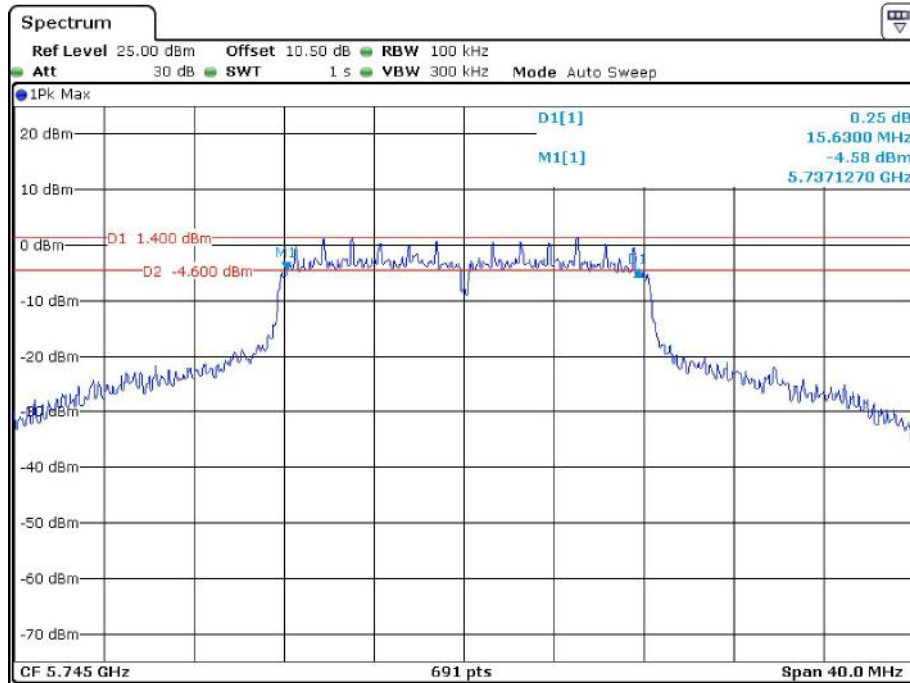
Date: 24.JUN.2022 13:28:33

5725 MHz – 5850 MHz:

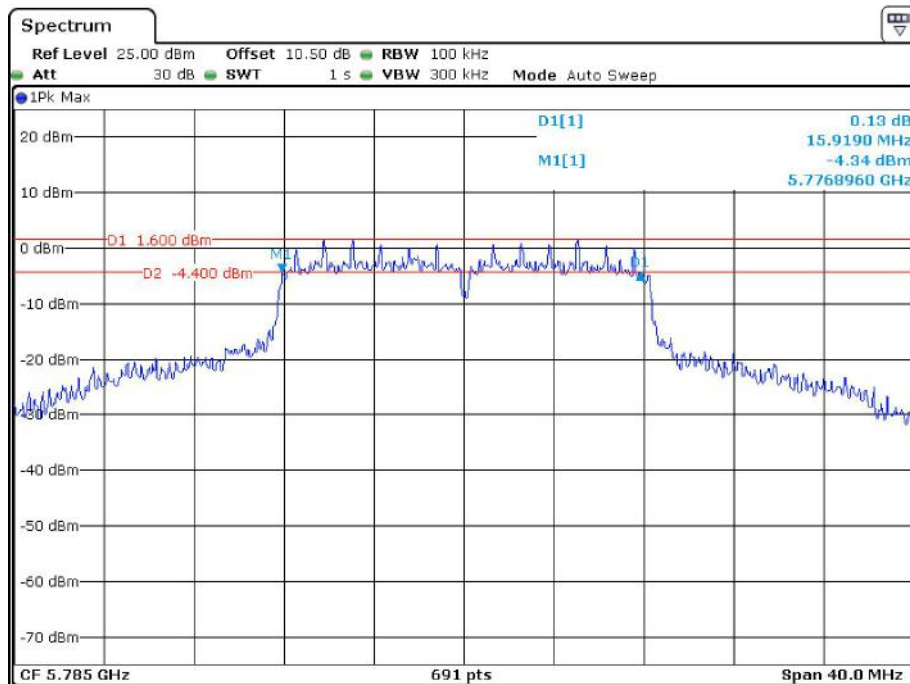
Frequency (MHz)	Antenna Port	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Remark
802.11a					No transmitted signal in the 99% bandwidth extends into the U-NII-2A band
5745	Ant1	15.63	17.23	0.5	
5785	Ant1	15.92	17.80	0.5	
5825	Ant1	16.09	17.41	0.5	
802.11n20					
5745	Ant1	16.85	19.78	0.5	
5785	Ant1	16.56	19.06	0.5	
5825	Ant1	16.61	18.88	0.5	

Frequency (MHz)	Antenna Port	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Remark
802.11a					No transmitted signal in the 99% bandwidth extends into the U-NII-2A band
5745	Ant2	16.32	17.68	0.5	
5785	Ant2	15.57	17.62	0.5	
5825	Ant2	16.27	17.26	0.5	
802.11n20					
5745	Ant2	16.90	18.73	0.5	
5785	Ant2	16.79	19.21	0.5	
5825	Ant2	16.85	18.28	0.5	

Antenna 1:

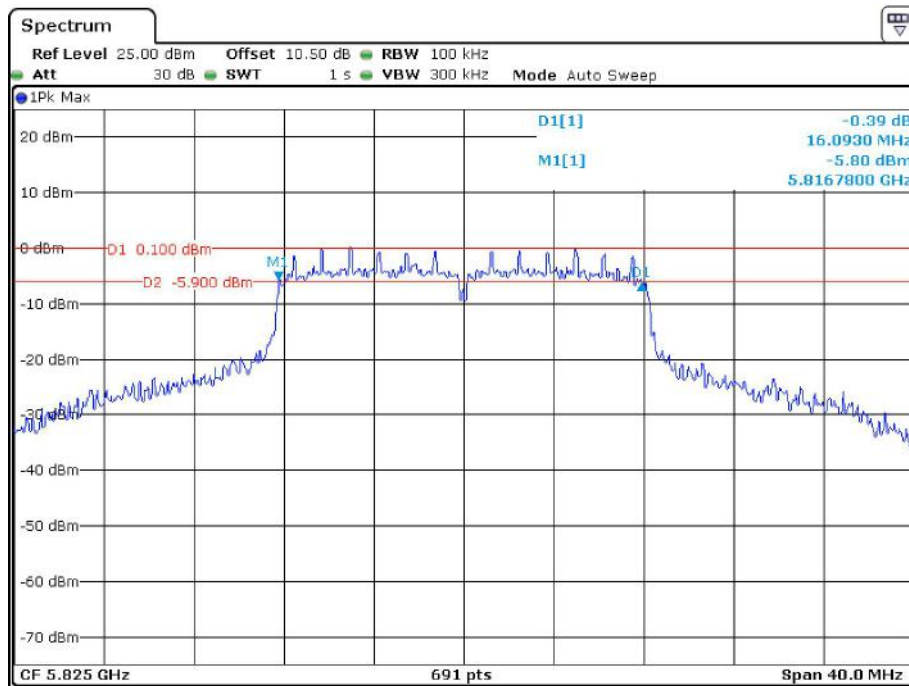
802.11a mode, 6dB Emission Bandwidth, 5745 MHz

Date: 5.JUL.2022 15:44:55

802.11a mode, 6dB Emission Bandwidth, 5785 MHz

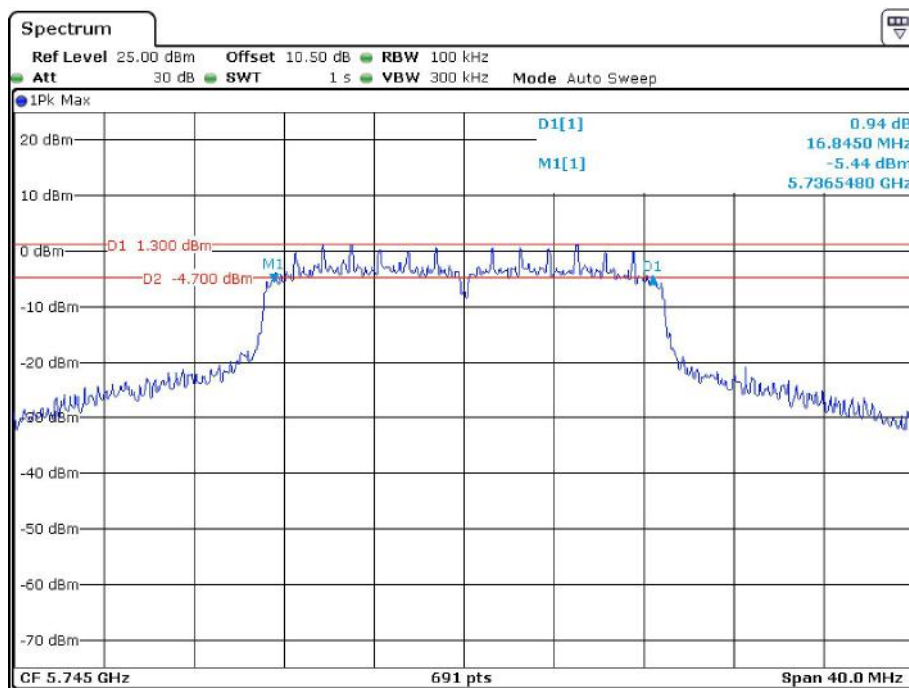
Date: 5.JUL.2022 15:47:12

802.11a mode, 6dB Emission Bandwidth, 5825 MHz

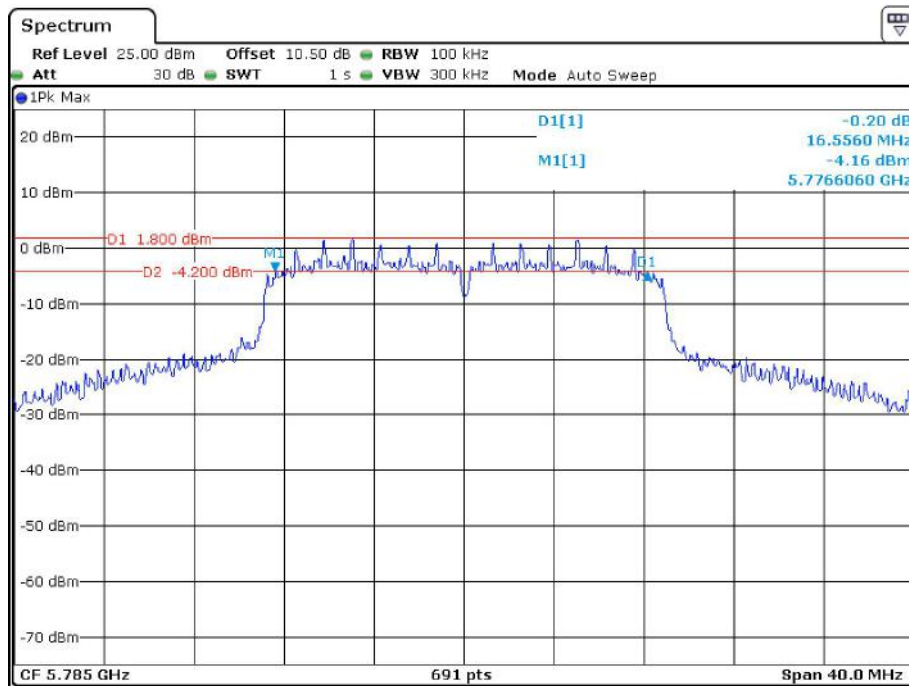


Date: 5.JUL.2022 15:48:35

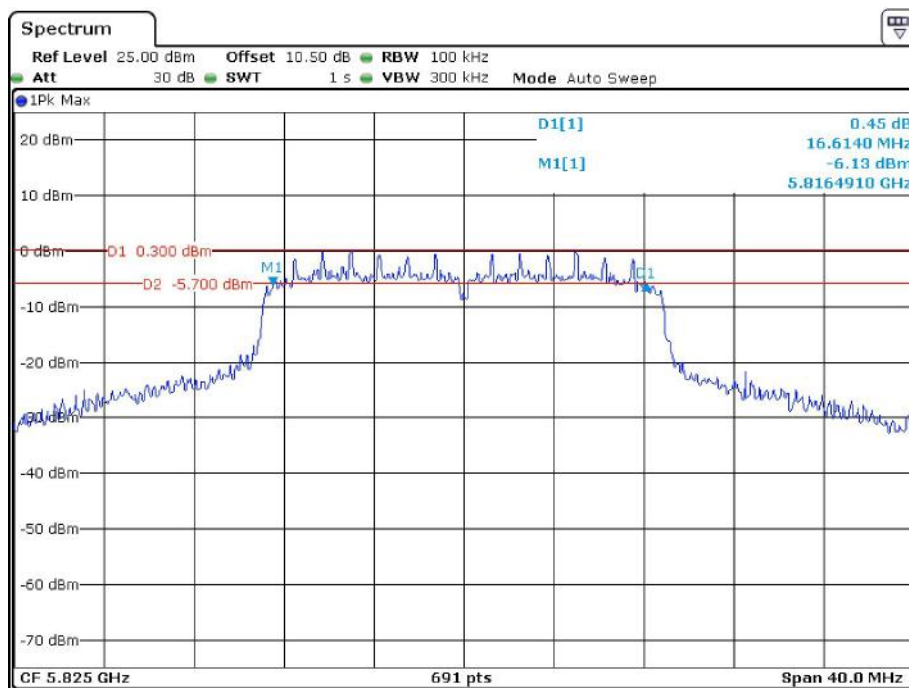
802.11n20 mode, 6dB Emission Bandwidth, 5745 MHz



Date: 5.JUL.2022 15:50:37

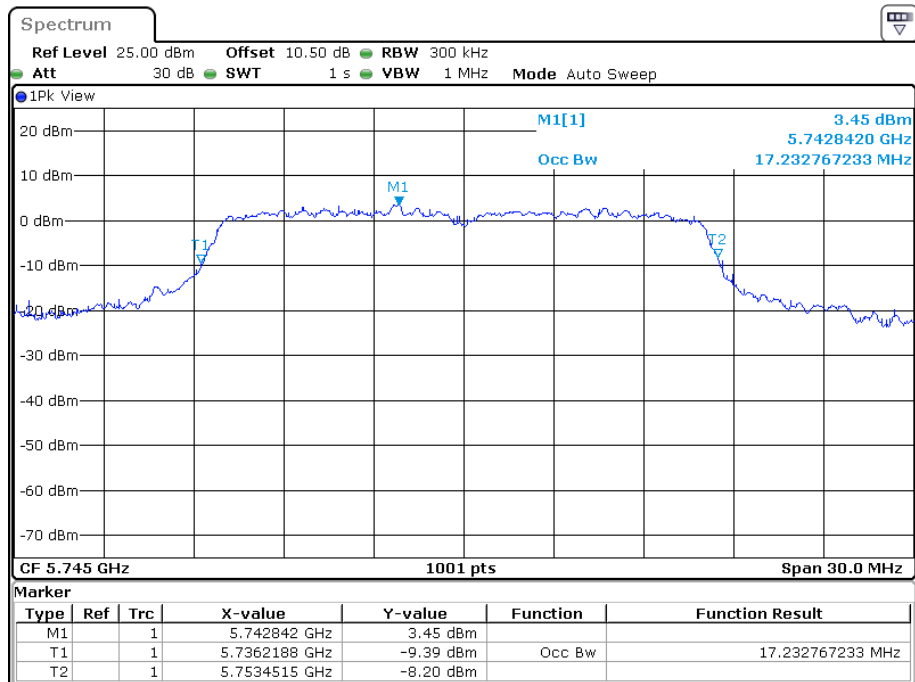
802.11n20 mode, 6dB Emission Bandwidth, 5785 MHz

Date: 5.JUL.2022 15:52:31

802.11n20 mode, 6dB Emission Bandwidth, 5825 MHz

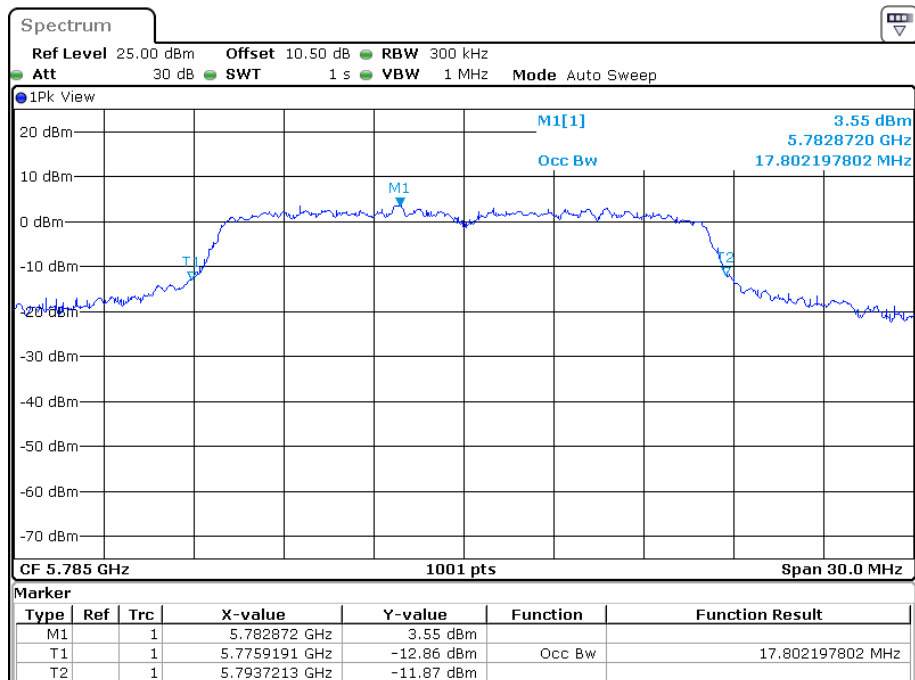
Date: 5.JUL.2022 15:56:57

802.11a mode, 99% Occupied Bandwidth, 5745 MHz



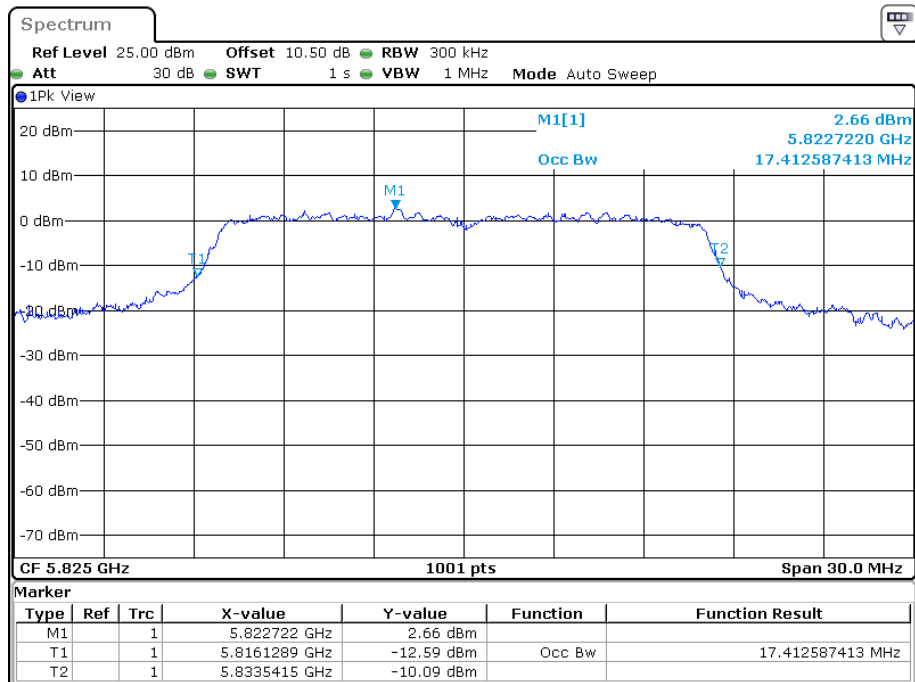
Date: 24.JUN.2022 10:24:34

802.11a mode, 99% Occupied Bandwidth, 5785 MHz



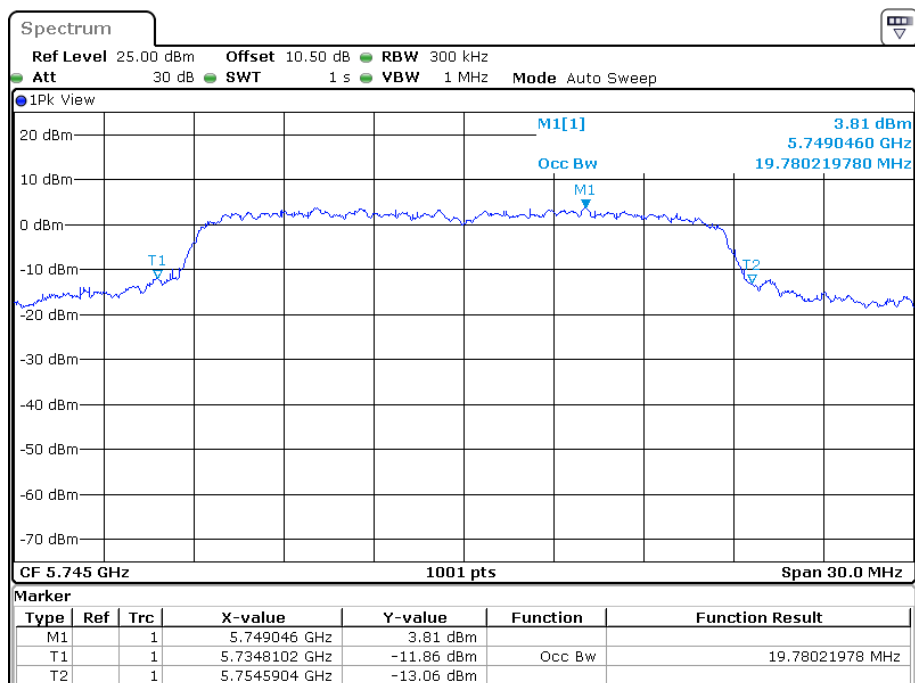
Date: 24.JUN.2022 10:29:51

802.11a mode, 99% Occupied Bandwidth, 5825 MHz



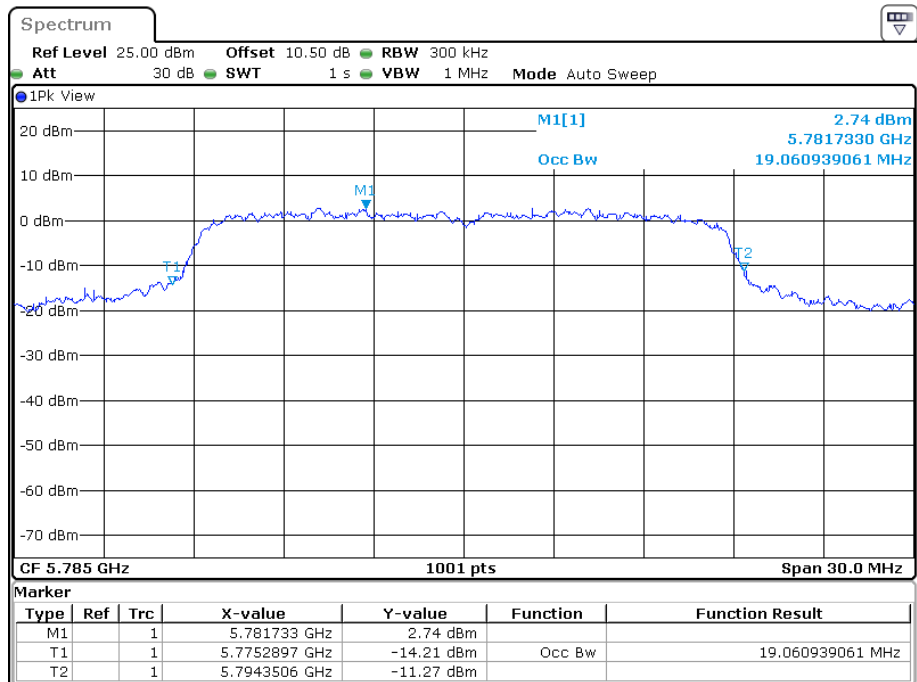
Date: 24.JUN.2022 10:36:17

802.11n20 mode, 99% Occupied Bandwidth, 5745 MHz



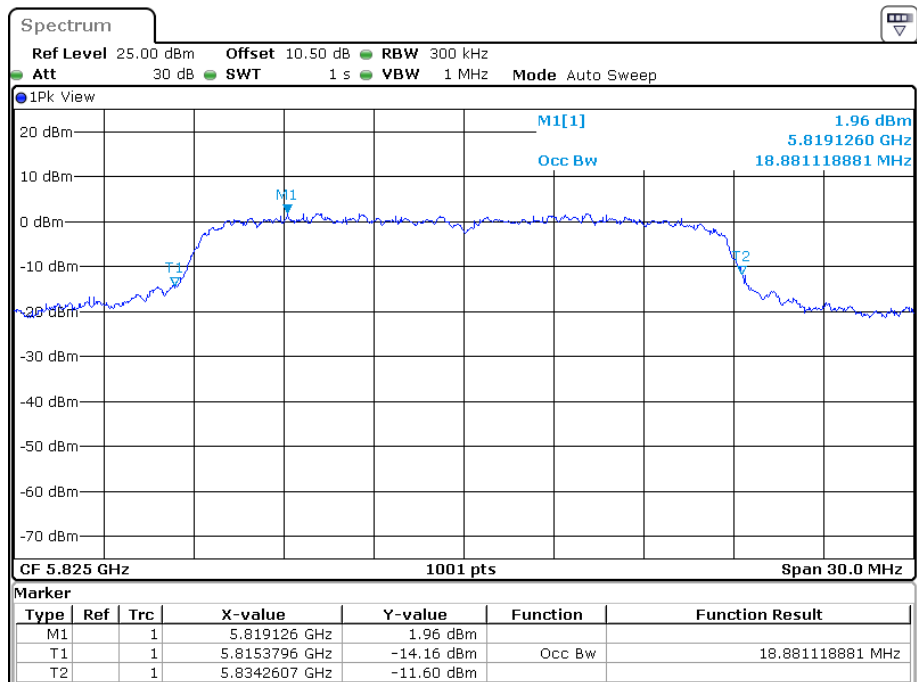
Date: 24.JUN.2022 10:56:52

802.11n20 mode, 99% Occupied Bandwidth, 5785 MHz



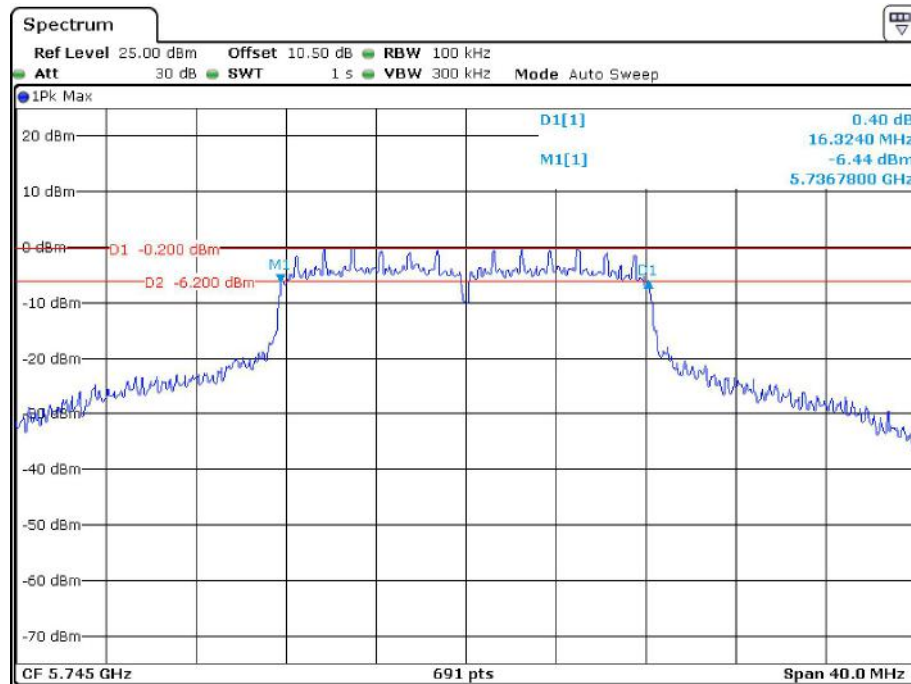
Date: 24.JUN.2022 11:05:51

802.11n20 mode, 99% Occupied Bandwidth, 5825 MHz

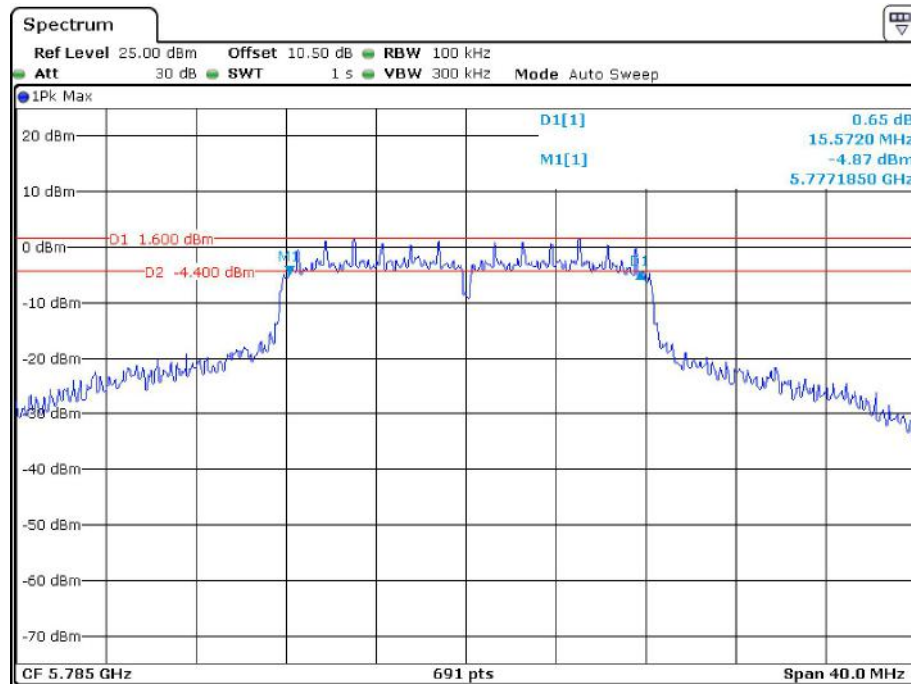


Date: 24.JUN.2022 11:01:21

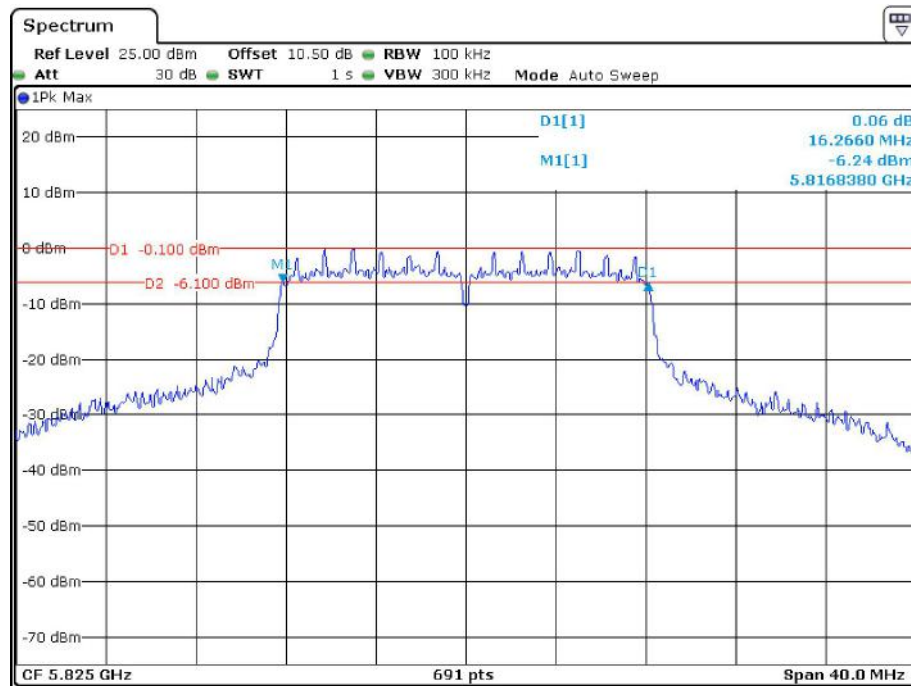
Antenna 2:

802.11a mode, 6dB Emission Bandwidth, 5745 MHz

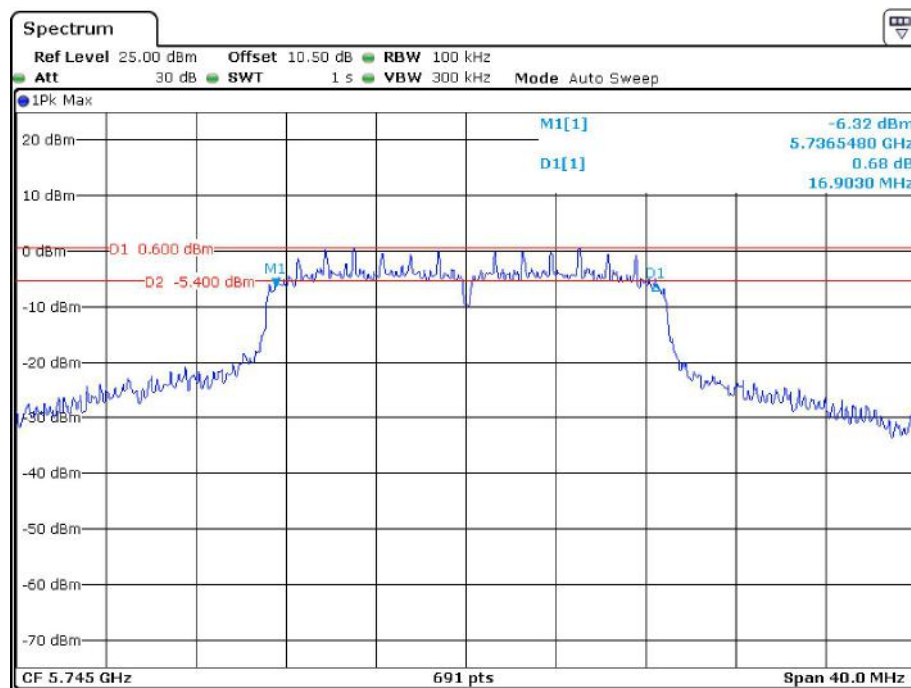
Date: 5.JUL.2022 15:31:12

802.11a mode, 6dB Emission Bandwidth, 5785 MHz

Date: 5.JUL.2022 15:33:30

802.11a mode, 6dB Emission Bandwidth, 5825 MHz

Date: 5.JUL.2022 15:37:20

802.11n20 mode, 6dB Emission Bandwidth, 5745 MHz

Date: 5.JUL.2022 15:39:06

Spectrum

Ref Level 25.00 dBm Offset 10.50 dB RBW 100 kHz
 Att 30 dB SWT 1 s VBW 300 kHz Mode Auto Sweep

1Pk Max

20 dBm
 10 dBm
 0 dBm
 -10 dBm
 -20 dBm
 -30 dBm
 -40 dBm
 -50 dBm
 -60 dBm
 -70 dBm

D1[1] 0.58 dBm
 M1[1] 16.7870 MHz -5.15 dBm
 D1 5.776060 GHz

D1 1.400 dBm
 D2 -4.600 dBm

CF 5.785 GHz 691 pts Span 40.0 MHz

Spectrum

Ref Level 25.00 dBm Offset 10.50 dB RBW 100 kHz
 Att 30 dB SWT 1 s VBW 300 kHz Mode Auto Sweep

1Pk Max

20 dBm
 10 dBm
 0 dBm
 -10 dBm
 -20 dBm
 -30 dBm
 -40 dBm
 -50 dBm
 -60 dBm
 -70 dBm

D1[1] 0.28 dBm
 M1[1] 16.8450 MHz
 -5.93 dBm
 5.8165480 GHz

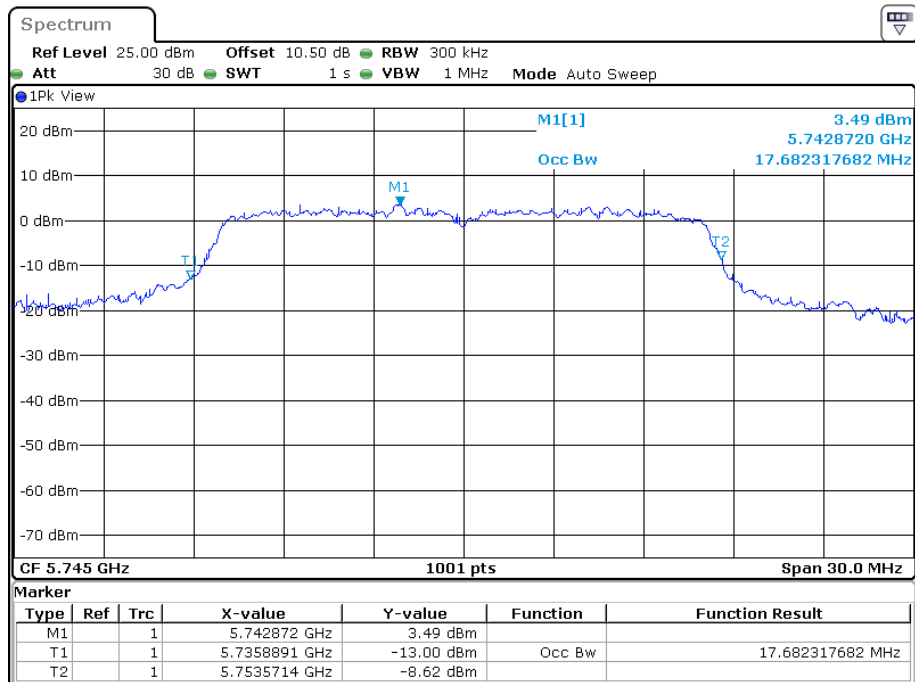
D1 0.000 dBm
 D2 -6.000 dBm

M1

CF 5.825 GHz 691 pts Span 40.0 MHz

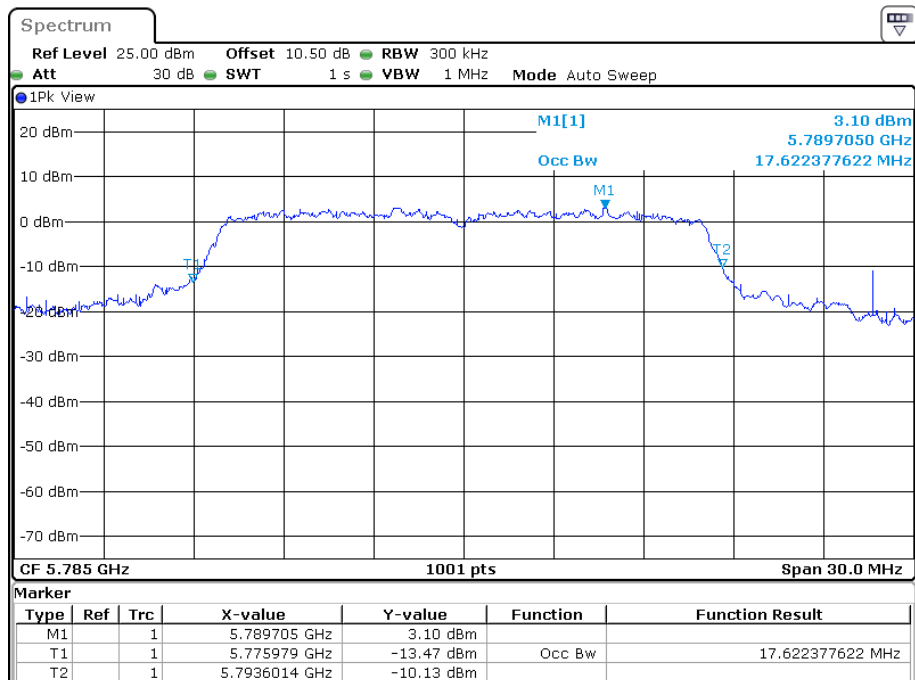
FCC-5G Wi-Fi

802.11a mode, 99% Occupied Bandwidth, 5745 MHz

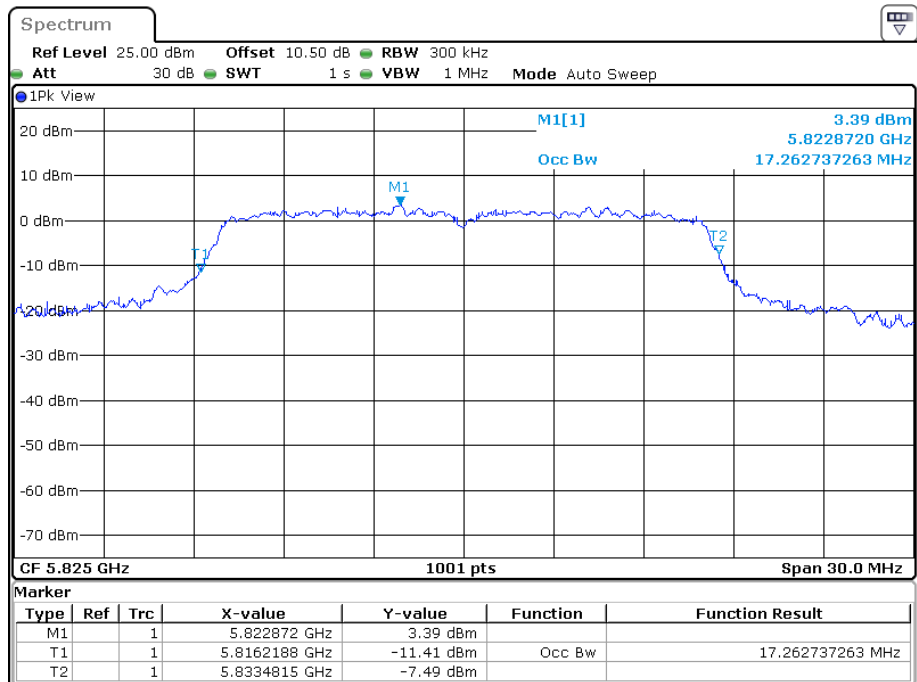


Date: 24.JUN.2022 13:30:57

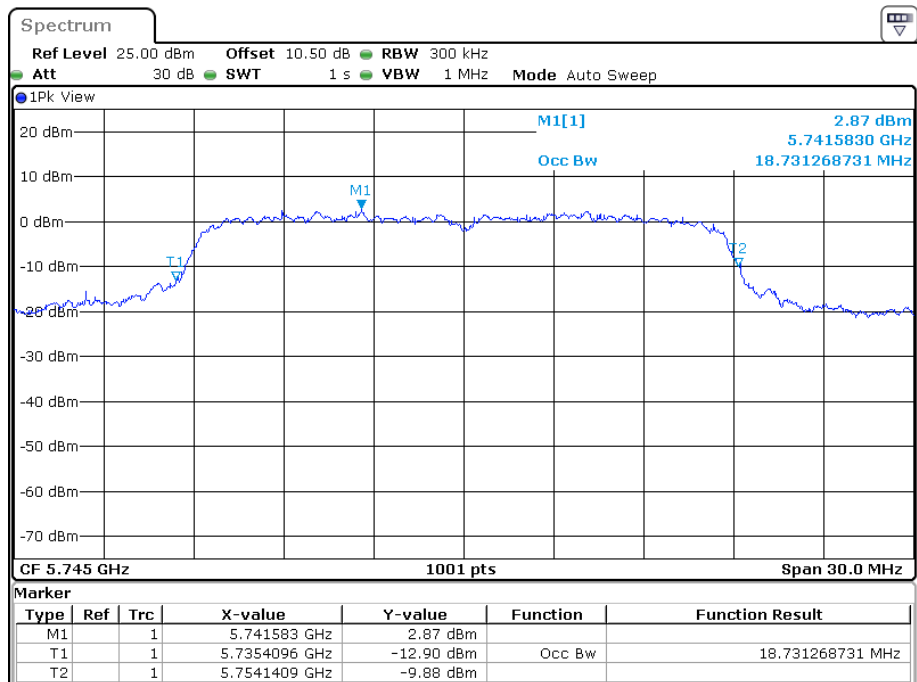
802.11a mode, 99% Occupied Bandwidth, 5785 MHz



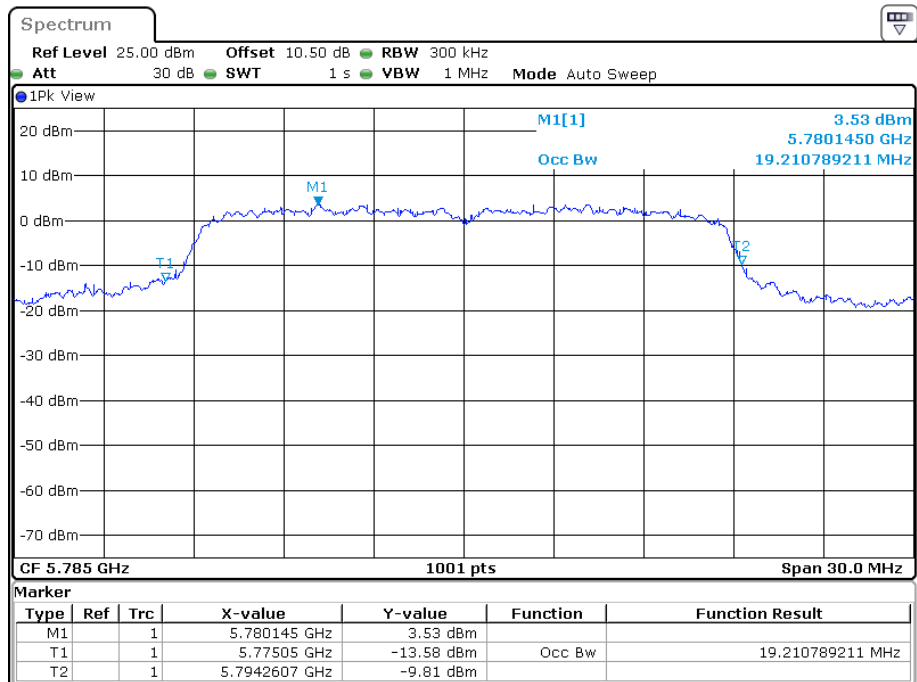
Date: 24.JUN.2022 13:34:36

802.11a mode, 99% Occupied Bandwidth, 5825 MHz

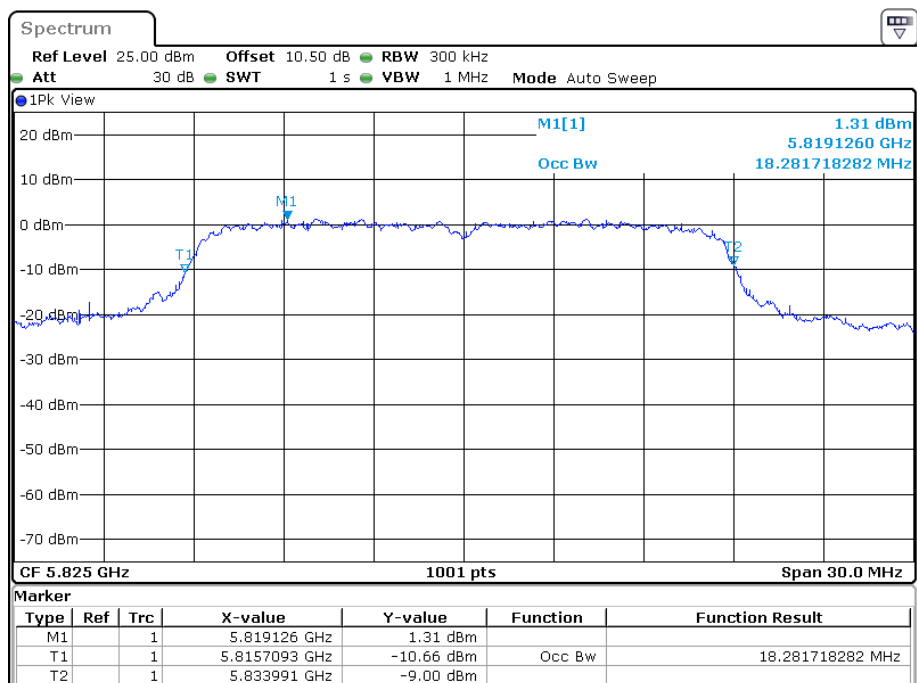
Date: 24.JUN.2022 13:36:58

802.11n20 mode, 99% Occupied Bandwidth, 5745 MHz

Date: 24.JUN.2022 13:40:27

802.11n20 mode, 99% Occupied Bandwidth, 5785 MHz

Date: 24.JUN.2022 13:42:51

802.11n20 mode, 99% Occupied Bandwidth, 5825 MHz

Date: 24.JUN.2022 13:47:04

FCC §15.407(a) – CONDUCTED TRANSMITTER OUTPUT POWER

Applicable Standard

For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

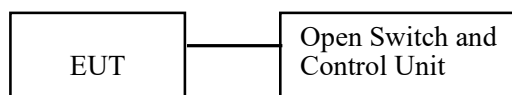
For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Procedure

- c. Place the EUT on a bench and set it in transmitting mode.
- d. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
- e. Add a correction factor to the display.



Note: the Open Switch and Control Unit has a built-in power sensor.

Test Data**Environmental Conditions**

Temperature:	26.5 °C
Relative Humidity:	57 %
ATM Pressure:	101.0 kPa

The testing was performed by Cat Kang on 2022-06-24.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

5150 MHz – 5250 MHz

Test Mode	Antenna	Channel	Result [dBm]	Limit [dBm]	Elevation angle above 30° Max Gain[dBi]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11A	Ant1	5180	13.55	≤30.0	4.03	17.58	≤21	PASS
	Ant2	5180	13.03	≤30.0	4.03	17.06	≤21	PASS
	Ant1	5200	13.45	≤30.0	4.03	17.48	≤21	PASS
	Ant2	5200	13.29	≤30.0	4.03	17.32	≤21	PASS
	Ant1	5240	12.28	≤30.0	4.03	16.31	≤21	PASS
	Ant2	5240	12.32	≤30.0	4.03	16.35	≤21	PASS
11N20	Ant1	5180	13.03	≤30.0	4.03	17.06	≤21	PASS
	Ant2	5180	13.14	≤30.0	4.03	17.17	≤21	PASS
	Ant1	5200	13.29	≤30.0	4.03	17.32	≤21	PASS
	Ant2	5200	12.77	≤30.0	4.03	16.80	≤21	PASS
	Ant1	5240	12.32	≤30.0	4.03	16.35	≤21	PASS
	Ant2	5240	12.00	≤30.0	4.03	16.03	≤21	PASS

Note: EUT belongs to outdoor access point.

5725 MHz – 5850 MHz:

Test Mode	Antenna	Channel	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5745	11.01	≤30.0	PASS
	Ant2	5745	11.16	≤30.0	PASS
	Ant1	5785	11.27	≤30.0	PASS
	Ant2	5785	11.56	≤30.0	PASS
	Ant1	5825	10.16	≤30.0	PASS
	Ant2	5825	11.04	≤30.0	PASS
11N20	Ant1	5745	12.00	≤30.0	PASS
	Ant2	5745	10.05	≤30.0	PASS
	Ant1	5785	11.02	≤30.0	PASS
	Ant2	5785	11.95	≤30.0	PASS
	Ant1	5825	10.05	≤30.0	PASS
	Ant2	5825	10.11	≤30.0	PASS

FCC §15.407(a) - POWER SPECTRAL DENSITY

For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

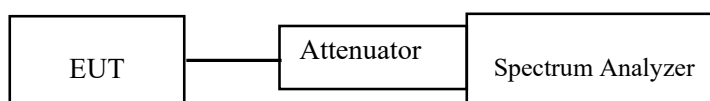
For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Procedure

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 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 a 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 section 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 $RBW (< 500 \text{ kHz})$ 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.



Test Data**Environmental Conditions**

Temperature:	26.5 °C
Relative Humidity:	57 %
ATM Pressure:	101.0 kPa

The testing was performed by Cat Kang on 2022-06-24.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables and plots.

5150 MHz – 5250 MHz

Frequency (MHz)	Antenna Port	PSD (dBm/MHz)	Limit (dBm/MHz)
802.11a			
5180	Ant1	1.99	17
5200	Ant1	2.16	
5240	Ant1	0.77	
802.11n20			
5180	Ant1	1.81	17
5200	Ant1	1.77	
5240	Ant1	-0.20	

Frequency (MHz)	Antenna Port	PSD (dBm/MHz)	Limit (dBm/MHz)
802.11a			
5180	Ant2	2.08	17
5200	Ant2	1.81	
5240	Ant2	0.87	
802.11n20			
5180	Ant2	1.67	17
5200	Ant2	1.13	
5240	Ant2	0.81	

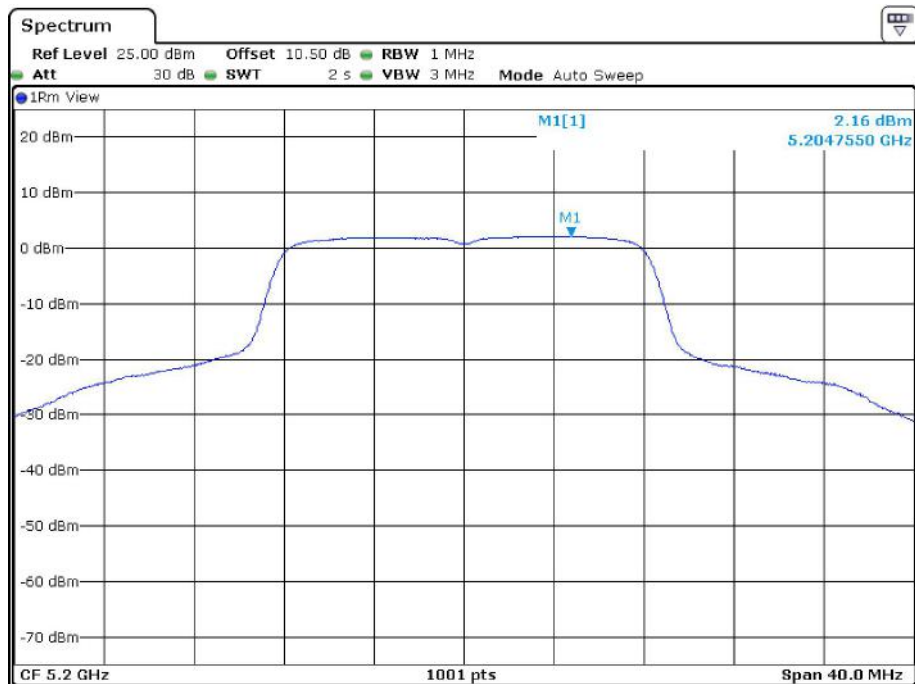
Antenna 1:

802.11a mode, Power Spectral Density, 5180 MHz



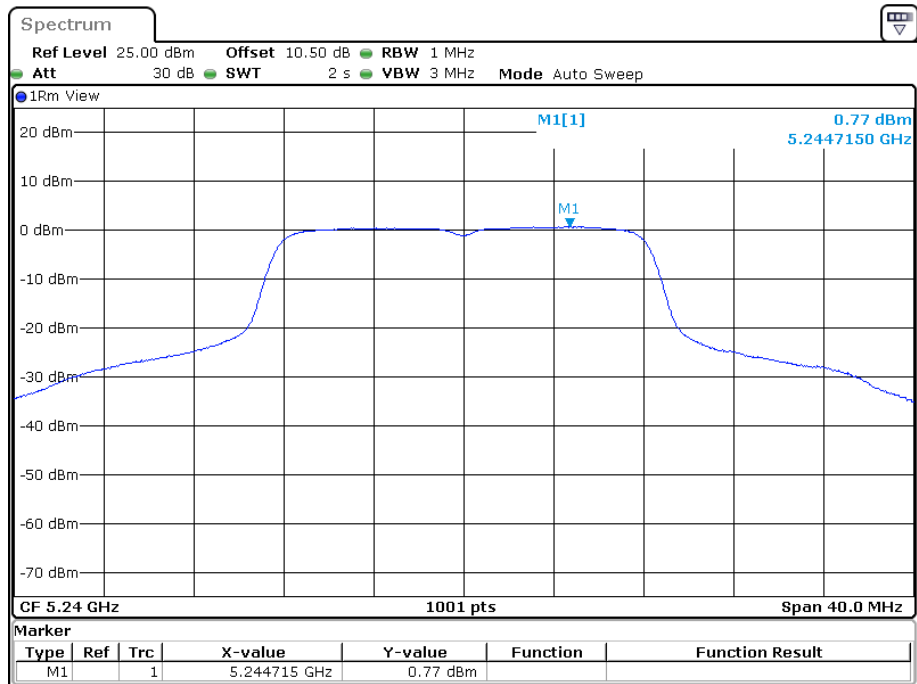
Date: 24.JUN.2022 09:36:23

802.11a mode, Power Spectral Density, 5200 MHz



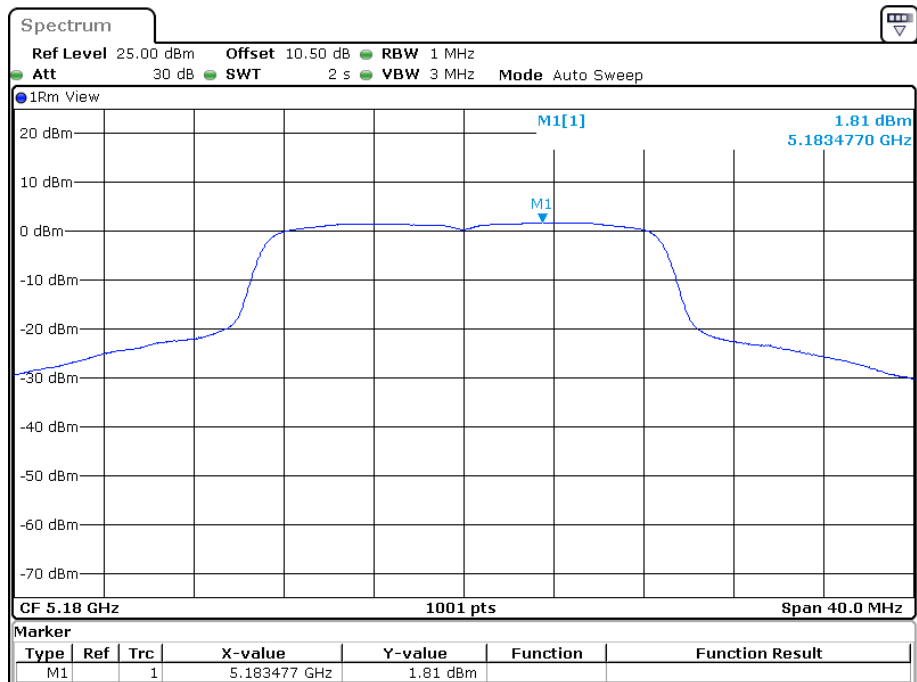
Date: 24.JUN.2022 09:21:02

802.11a mode, Power Spectral Density, 5240 MHz



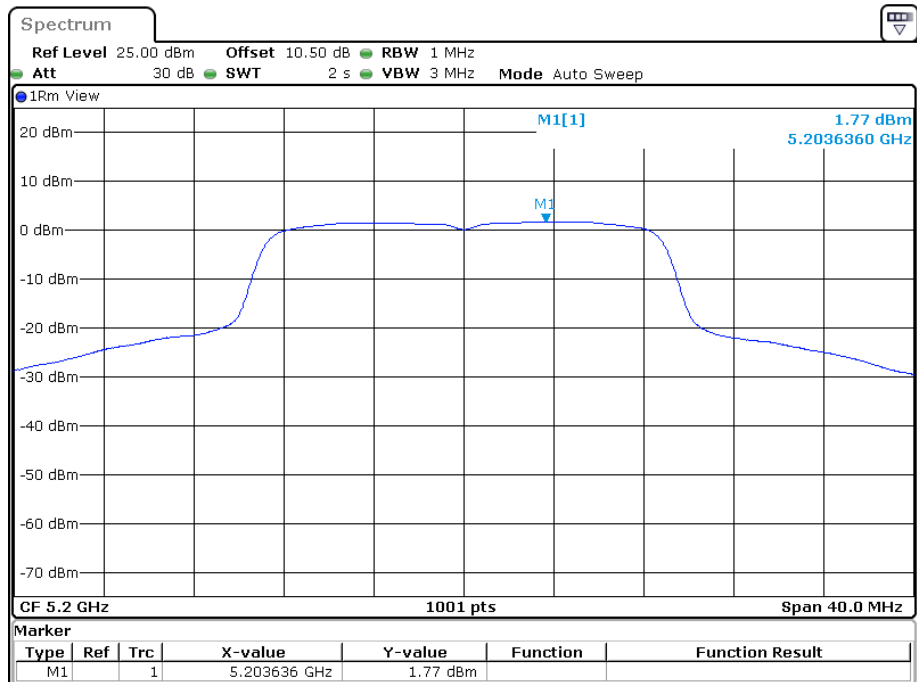
Date: 24.JUN.2022 09:56:05

802.11n20 mode, Power Spectral Density, 5180 MHz



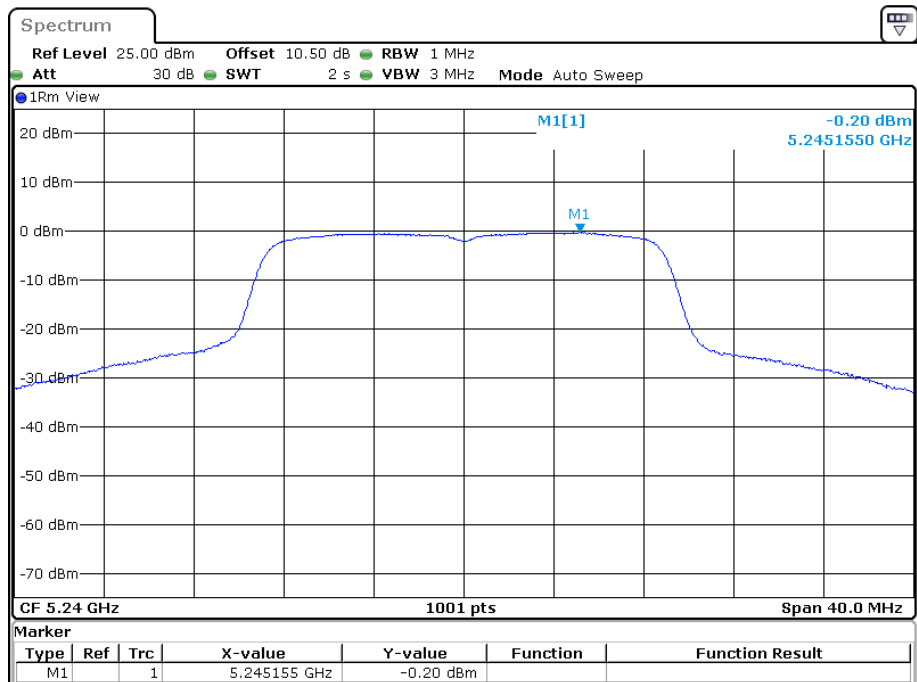
Date: 24.JUN.2022 10:04:57

802.11n20 mode, Power Spectral Density, 5200 MHz



Date: 24.JUN.2022 10:10:20

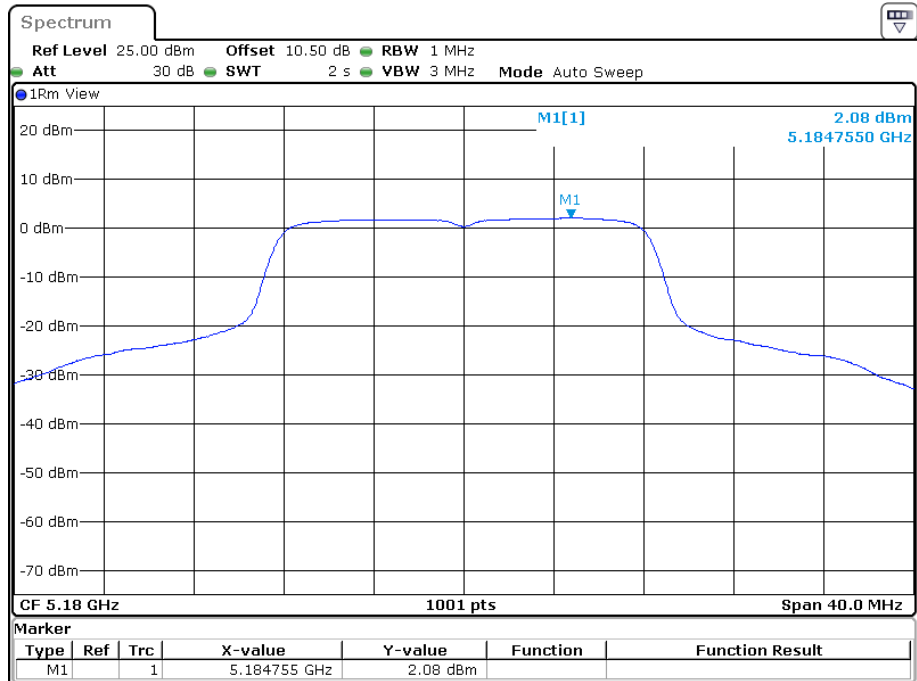
802.11n20 mode, Power Spectral Density, 5240 MHz



Date: 24.JUN.2022 10:12:40

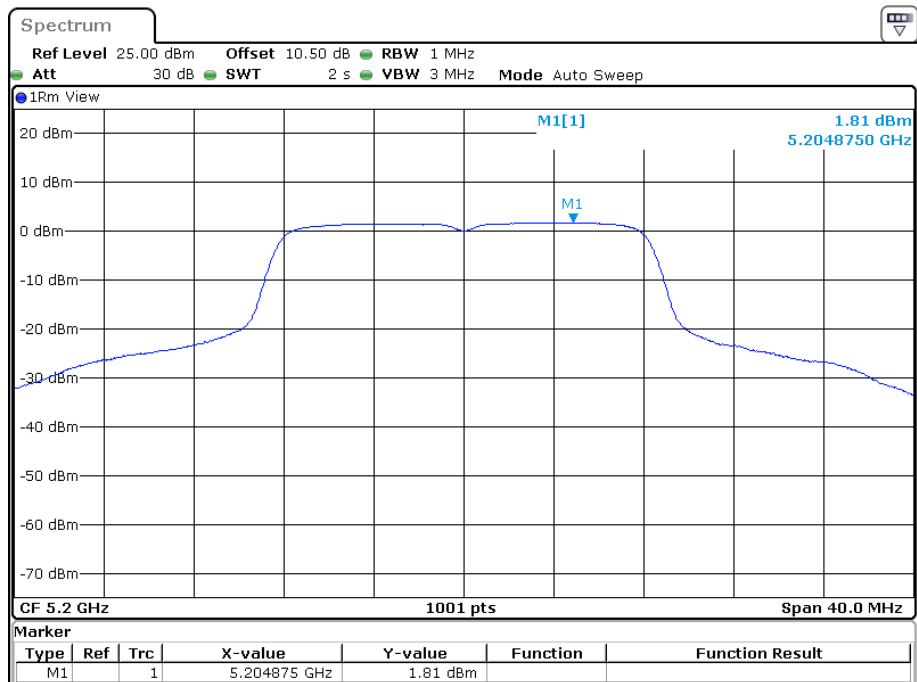
Antenna 2:

802.11a mode, Power Spectral Density, 5180 MHz



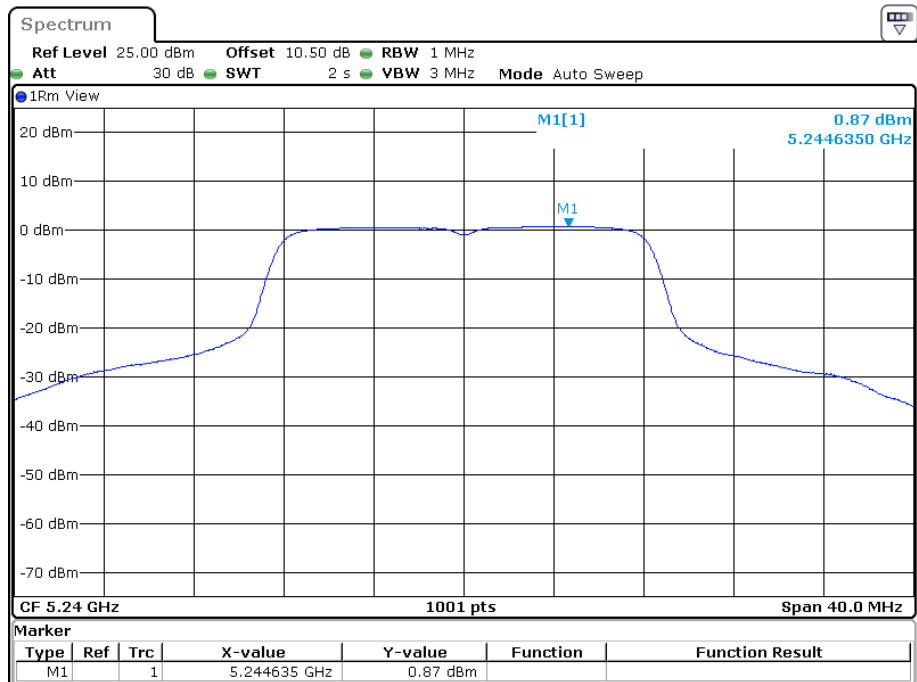
Date: 24.JUN.2022 13:13:18

802.11a mode, Power Spectral Density, 5200 MHz



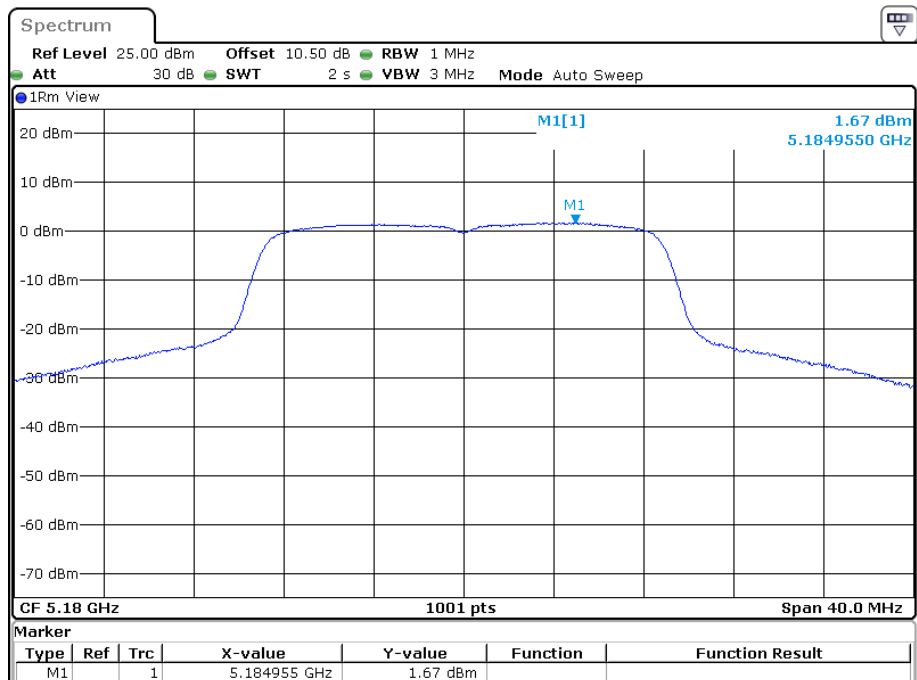
Date: 24.JUN.2022 13:17:06

802.11a mode, Power Spectral Density, 5240 MHz



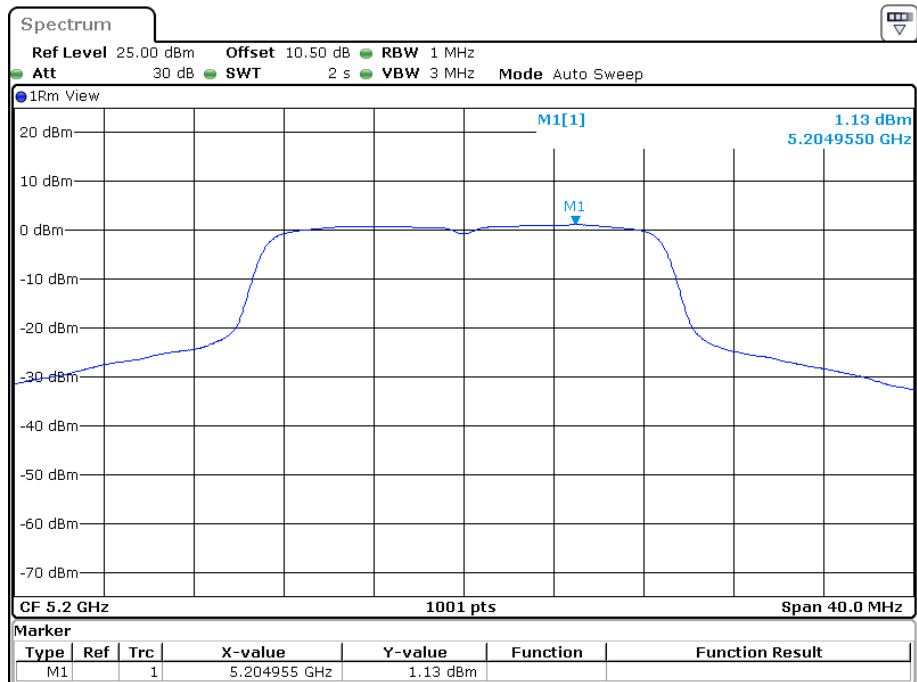
Date: 24.JUN.2022 13:19:36

802.11n20 mode, Power Spectral Density, 5180 MHz



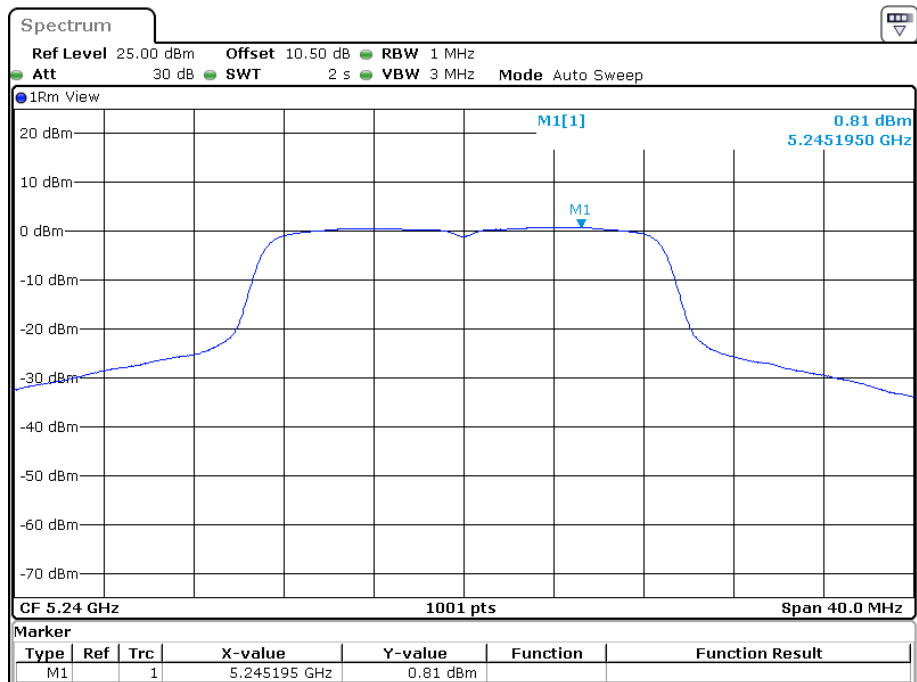
Date: 24.JUN.2022 13:23:41

802.11n20 mode, Power Spectral Density, 5200 MHz



Date: 24.JUN.2022 13:26:02

802.11n20 mode, Power Spectral Density, 5240 MHz



Date: 24.JUN.2022 13:29:39

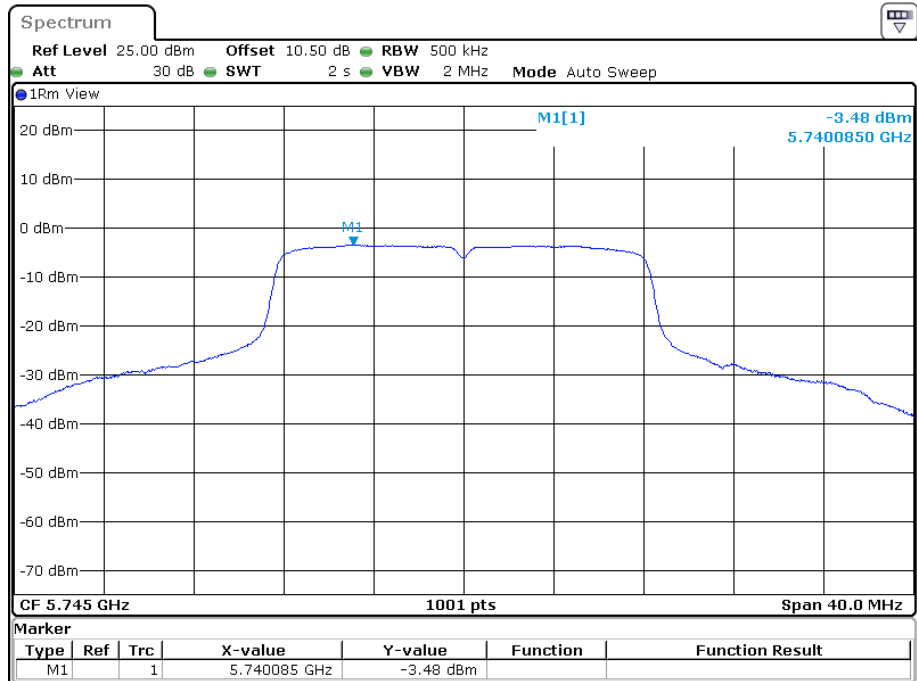
5725 MHz – 5825 MHz:

Frequency (MHz)	Antenna Port	PSD (dBm/500kHz)	Limit (dBm/500kHz)
802.11a			
5745	Ant1	-3.48	30
5785	Ant1	-3.07	
5825	Ant1	-4.11	
802.11n20			
5745	Ant1	-2.14	30
5785	Ant1	-3.54	
5825	Ant1	-4.59	

Frequency (MHz)	Antenna Port	PSD (dBm/500kHz)	Limit (dBm/500kHz)
802.11a			
5745	Ant2	-3.24	30
5785	Ant2	-2.88	
5825	Ant2	-3.35	
802.11n20			
5745	Ant2	-4.04	30
5785	Ant2	-2.78	
5825	Ant2	-4.12	

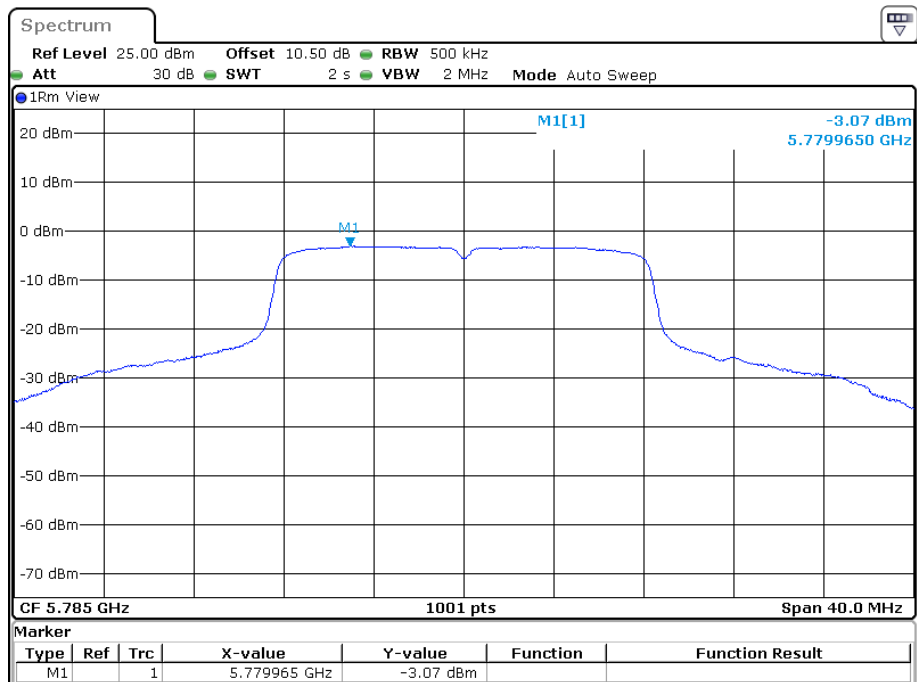
Antenna 1:

802.11a mode, Power Spectral Density, 5745 MHz



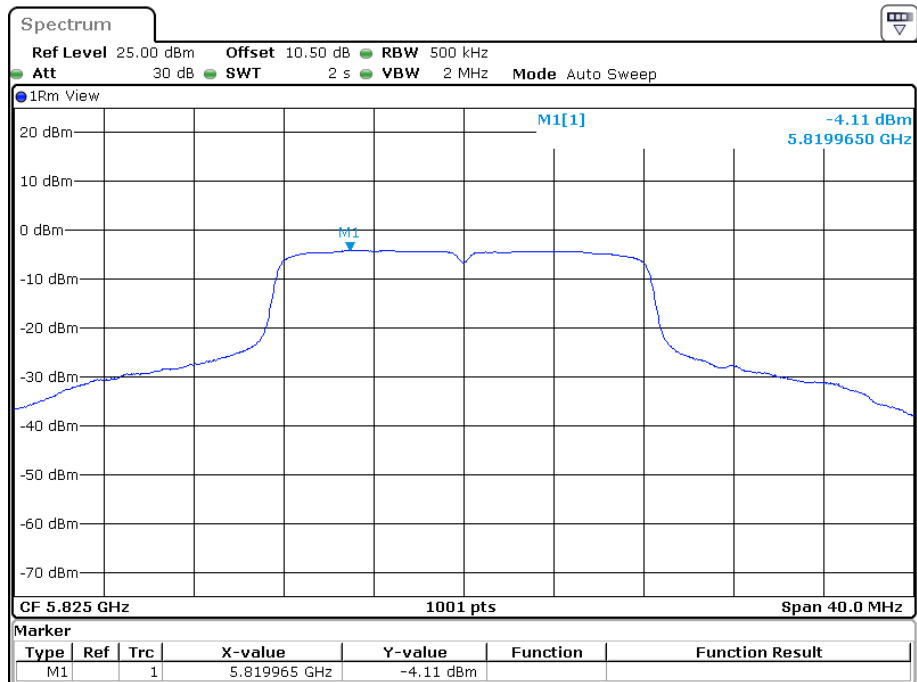
Date: 24.JUN.2022 10:25:41

802.11a mode, Power Spectral Density, 5785 MHz



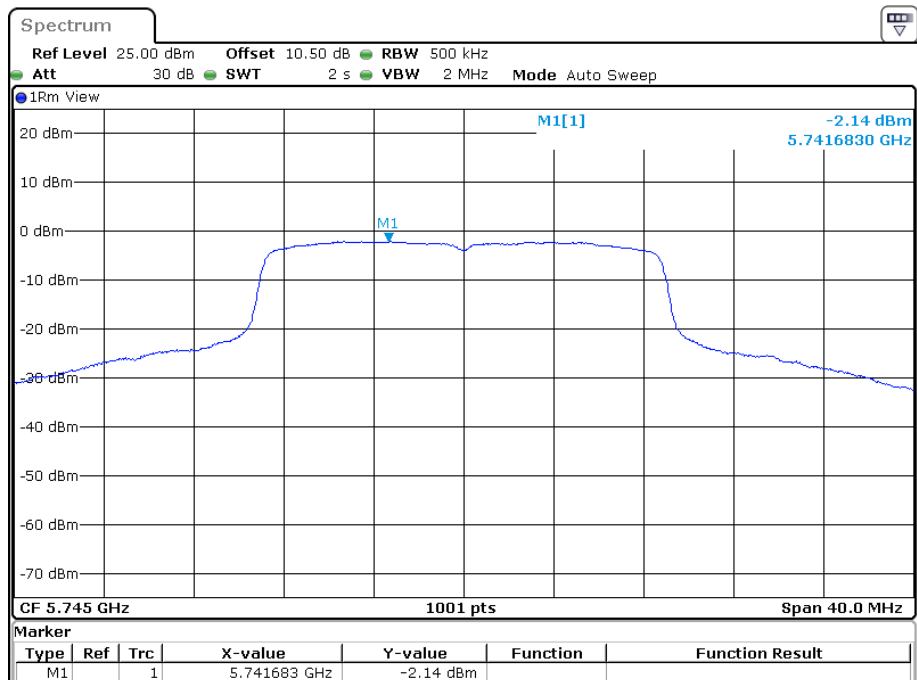
Date: 24.JUN.2022 10:30:57

802.11a mode, Power Spectral Density, 5825 MHz



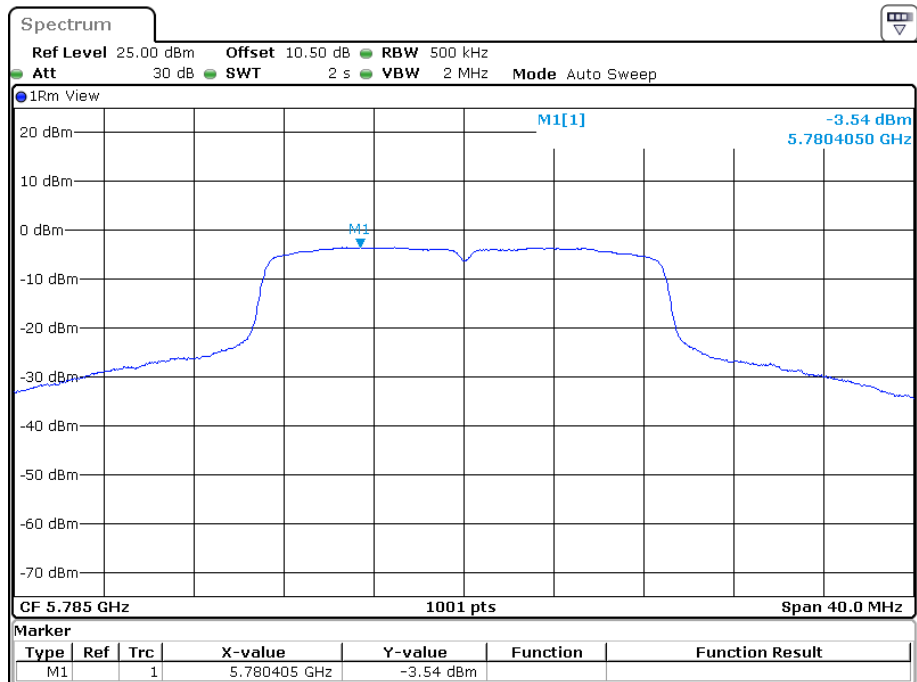
Date: 24.JUN.2022 10:37:23

802.11n20 mode, Power Spectral Density, 5745 MHz



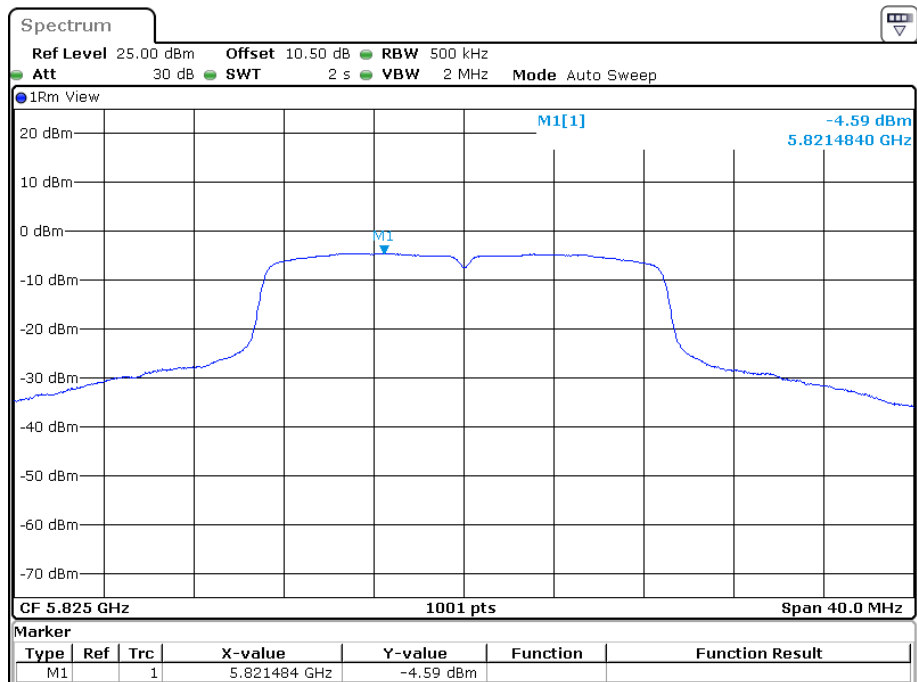
Date: 24.JUN.2022 10:57:59

802.11n20 mode, Power Spectral Density, 5785 MHz



Date: 24.JUN.2022 11:06:57

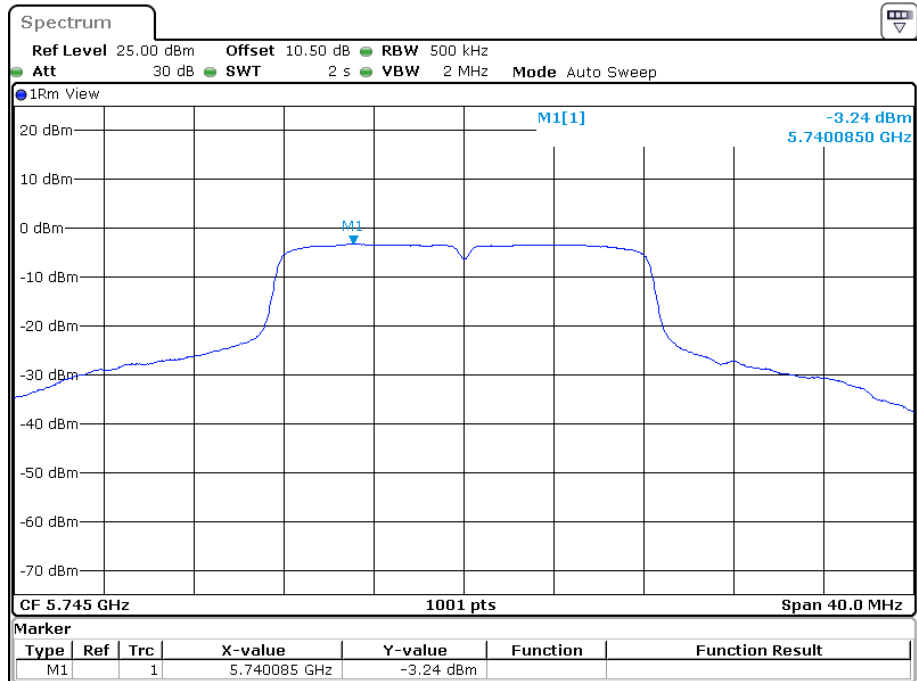
802.11n20 mode, Power Spectral Density, 5825 MHz



Date: 24.JUN.2022 11:02:27

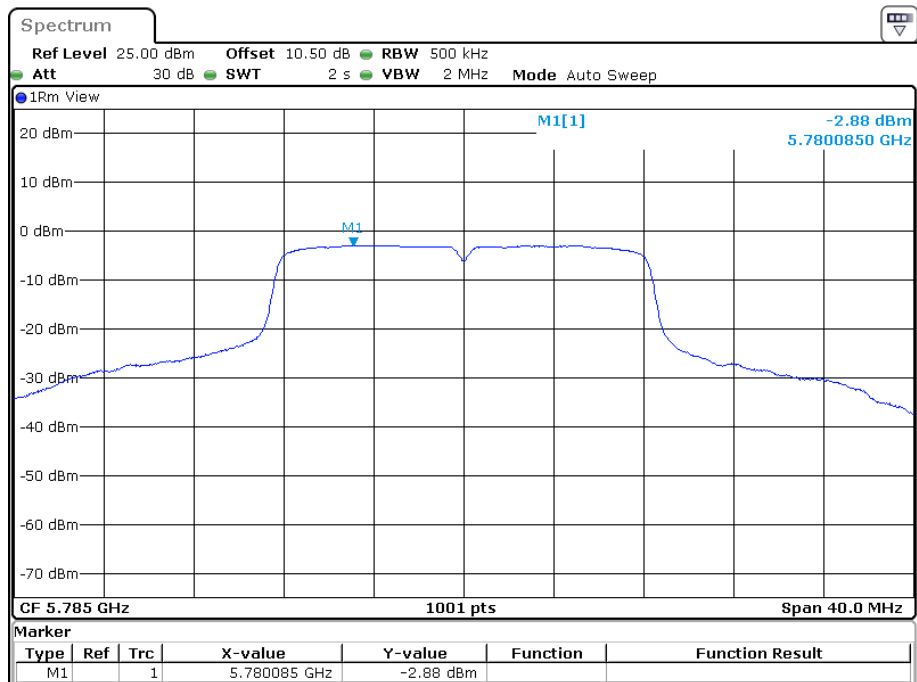
Antenna 2:

802.11a mode, Power Spectral Density, 5745 MHz



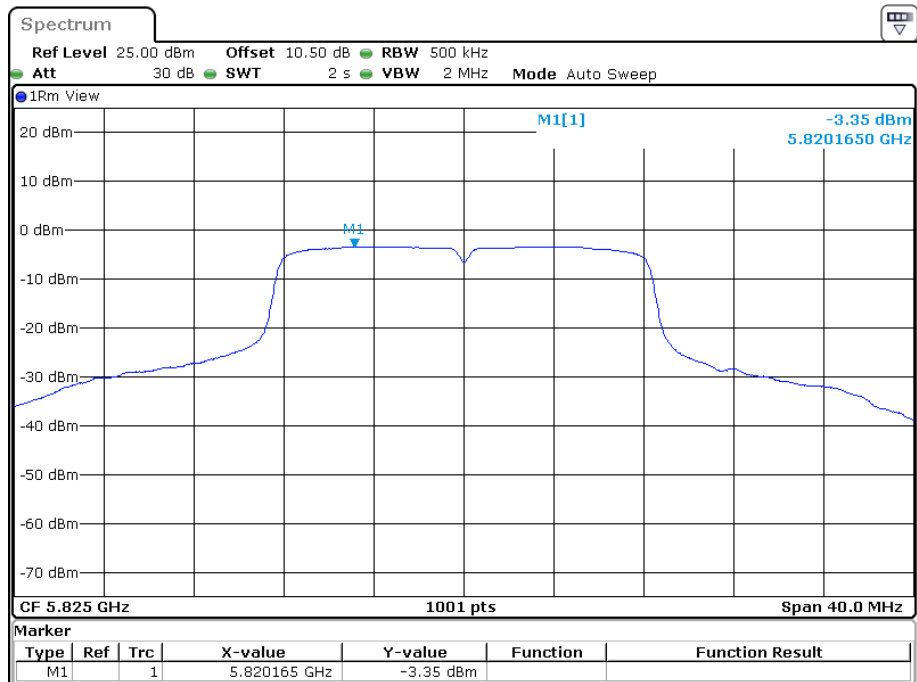
Date: 24.JUN.2022 13:32:04

802.11a mode, Power Spectral Density, 5785 MHz



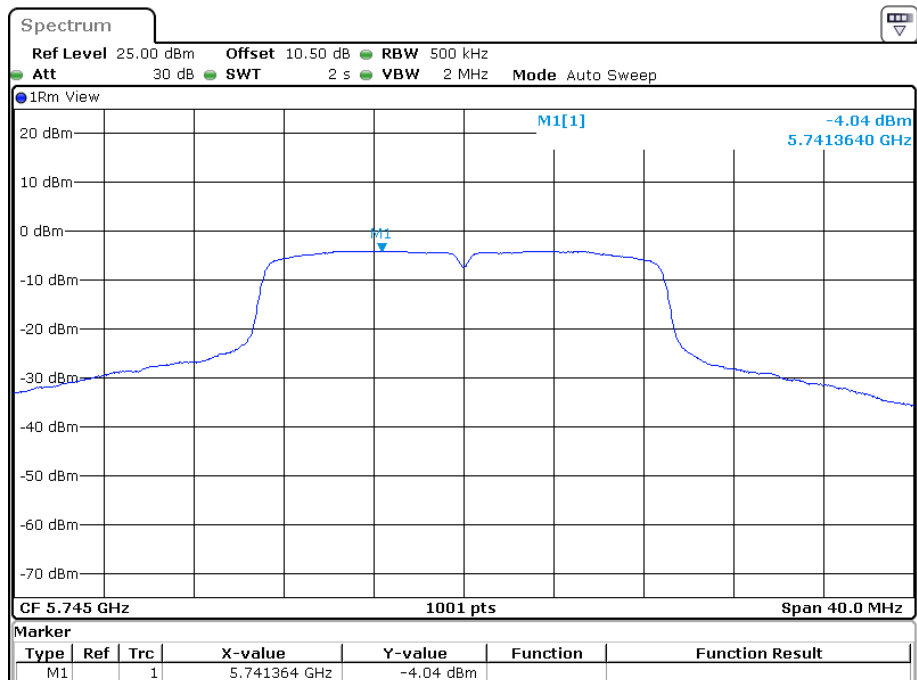
Date: 24.JUN.2022 13:35:42

802.11a mode, Power Spectral Density, 5825 MHz



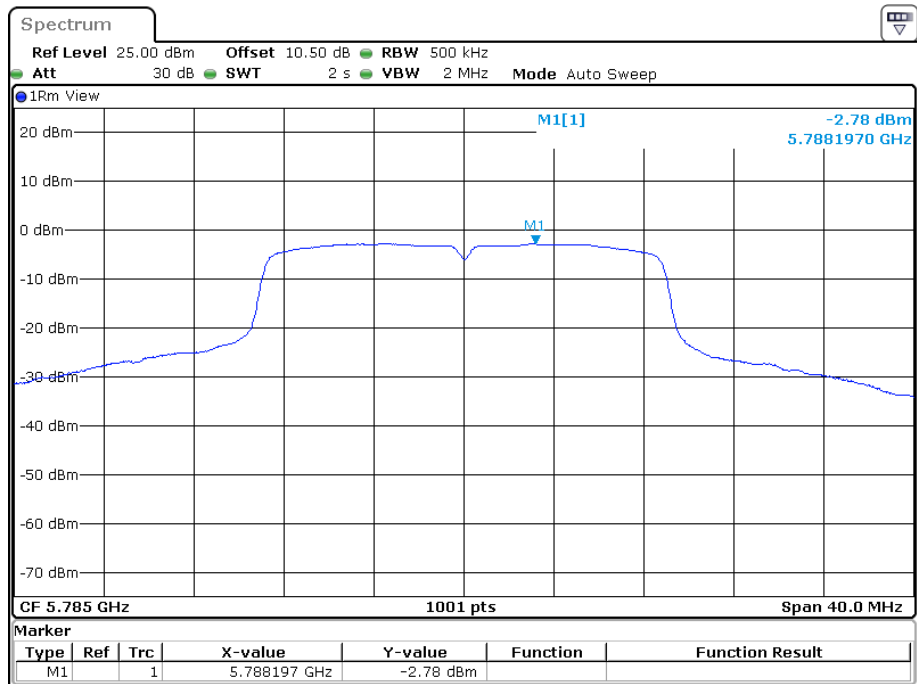
Date: 24.JUN.2022 13:38:04

802.11n20 mode, Power Spectral Density, 5745 MHz



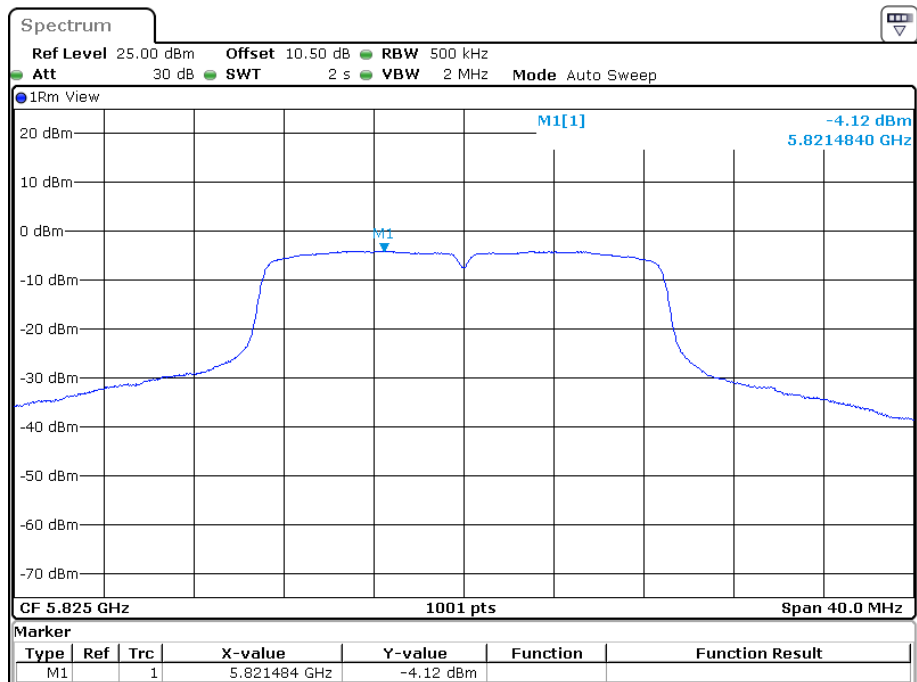
Date: 24.JUN.2022 13:41:33

802.11n20 mode, Power Spectral Density, 5785 MHz



Date: 24.JUN.2022 13:43:57

802.11n20 mode, Power Spectral Density, 5825 MHz



Date: 24.JUN.2022 13:48:10

***** END OF REPORT *****