TEST REPORT

Applicant Name :	Shenzhen Junge Yunchuang Technology Co., Ltd.
Address :	1204, Unit 3, Building C, Fu Gui Yuan, Fu Gui Road, Fu Hua Community, Xixiang Street, Baoan District, Shenzhen, China
Report Number :	SZNS220214-04312E-RF-08
IC:	27915-PC006

Test Standard (s)

RSS-GEN ISSUE 5, FEBRUARY 2021 AMENDMENT 2; RSS-247, ISSUE 2, FEBRUARY 2017

Sample Description

Product Type:	Tablet
Model No.:	TB-JS100A
Multiple Model(s) No.:	S7,S8,S10,S31,TB-JS101A,JS10, JS31 (please attach the DOS showing the specific differences)
Trade Mark:	N/A
Date Received:	2022/02/14
Report Date:	2022/05/25

Test Result:	Pass*

* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Black Ding

EMC Engineer

Approved By:

Robert 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.

This report cannot be reproduced except in full, without prior written approval of the Company. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

HVIN	PC006
FVIN	TB-JS100A _V1.0
Frequency Range	5G Wi-Fi: 5150-5250MHz, 5725-5850MHz
Mode	802.11a/n20/n40/ac20/ac40
Maximum Conducted Average Output Power	5150-5250 MHz: 14.97dBm 5725-5850MHz : 10.83dBm
Modulation Technique	OFDM
Antenna Specification*	2.0dBi (provided by the applicant)
Voltage Range	DC 3.8V from battery or DC 5.0V from adapter
Sample serial number	SZNS220214-04312E-RF-S1 (Assigned by ATC)
Sample/EUT Status	Good condition
Adapter Information	Model:FX2U-050200U Input: AC 100-240V 50/60Hz 0.4A Output: DC 5V 2A

Objective

This report is in accordance with RSS-GEN Issue 5, February 2021 Amendment 2 and RSS-247, Issue 2, February 2017 of the Innovation, Science and Economic Development Canada rules.

Test Methodology

All tests and measurements indicated in this document were performed in accordance ANSI C63.10-2013, RSS-GEN Issue 5, February 2021 Amendment 2 and RSS-247, Issue 2, February 2017.

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℃
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 429 7.01.

Listed by Innovation, Science and Economic Development Canada (ISEDC), 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 support 5G Wi-Fi 802.11a/n20/n40/ac20/ac40 modes.

For 5150-5250MHz Band, 6 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
38	5190	46	5230
40	5200	48	5240

For 802.11a/n20/ac20 mode: channel 36, 40, 48 were tested;
For 802.11n40/ac40 mode: channel 38, 46 were tested;

For 5725-5850MHz Band, 7 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785
151	5755	159	5795
153	5765	161	5805
/	/	165	5825

For 802.11a/n20/ac20 mode: channel 149, 157, 165 were tested;
For 802.11n40/ac40 mode: channel 151, 159 were tested;

EUT Exercise Software

EUT was test in engineering mode. The software and power level was provided by the applicant.

The worst case was performed under:

U-NII	Mode	Data rate	Power Level		
			Low Channel	Middle Channel	High Channel
5150 – 5250MHz	802.11a	6Mbps	D8	D8	D8
	802.11n-HT20	MCS0	D8	D8	D8
	802.11n-HT40	MCS0	D8	/	D8
	802.11ac20	MCS0	D8	D8	D8
	802.11ac40	MCS0	D8	/	D8
5725 – 5850MHz	802.11a	6Mbps	D8	D8	D8
	802.11n-HT20	MCS0	D8	D8	D8
	802.11n-HT40	MCS0	D8	/	D8
	802.11ac20	MCS0	D8	D8	D8
	802.11ac40	MCS0	D8	/	D8

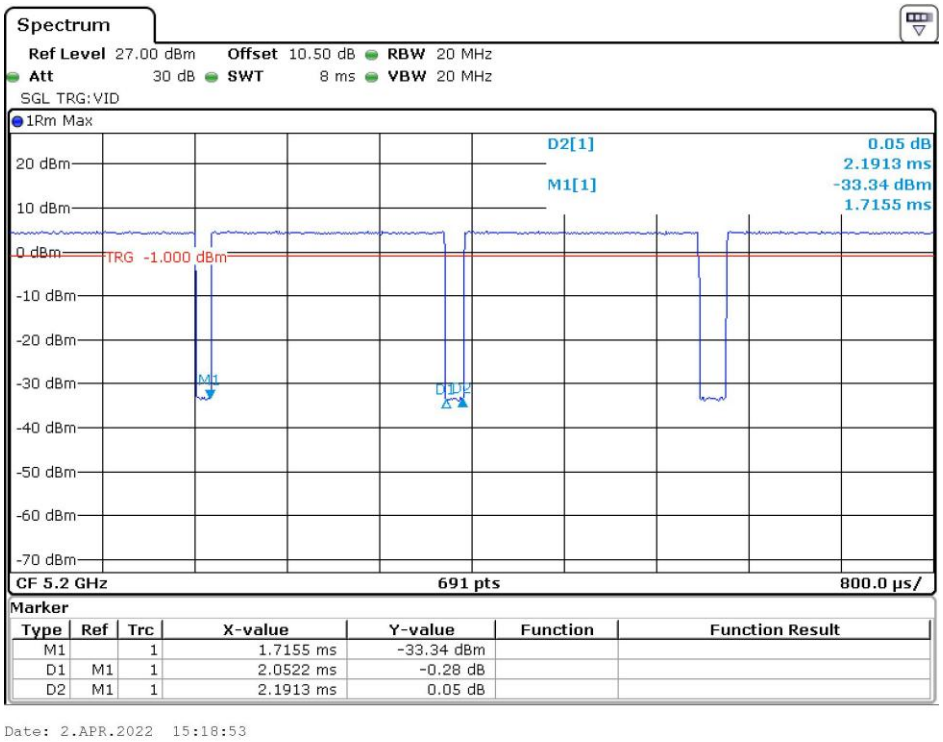
The worse-case data rates are determined to be as follows for each mode based upon investigations by measuring the output power and PSD across all data rated bandwidths, and modulations.

Duty cycle

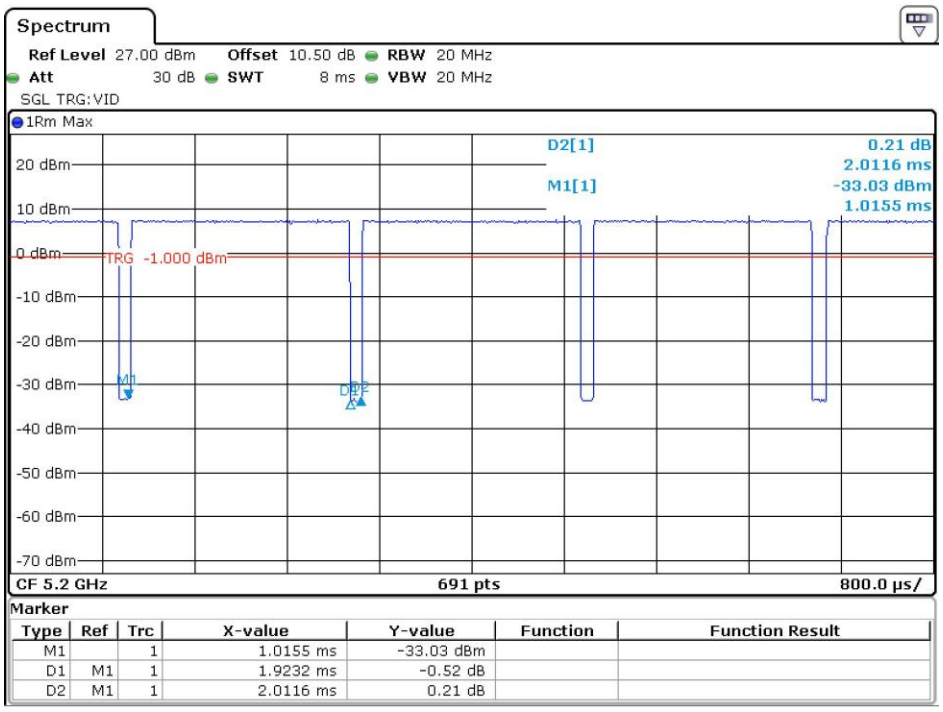
Mode	Ton(ms)	Ton+Toff (ms)	Duty Cycle (%)	1/T(kHz)
802.11a	2.052	2.191	93.66	0.487
802.11n-HT20	1.923	2.012	95.58	0.520
802.11n-HT40	0.949	1.014	93.59	1.054
802.11ac20	1.923	2.058	93.44	0.520
802.11ac40	0.949	1.058	89.70	1.054

Note: T is minimum transmission duration.

802.11a mode



802.11n20 mode



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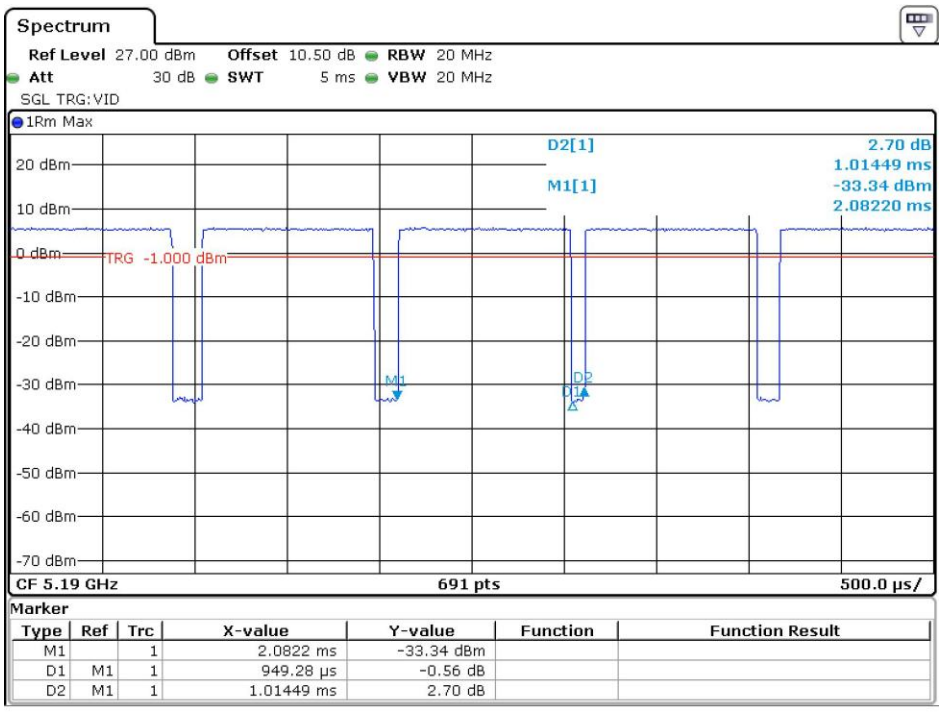
802.11n40 mode



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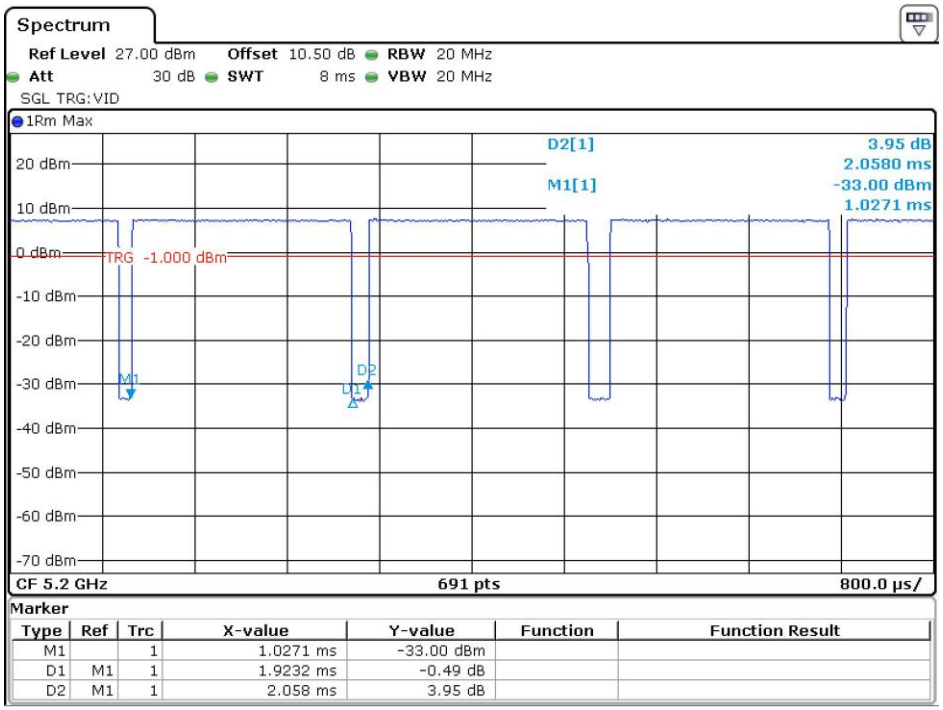
802.11ac20 mode



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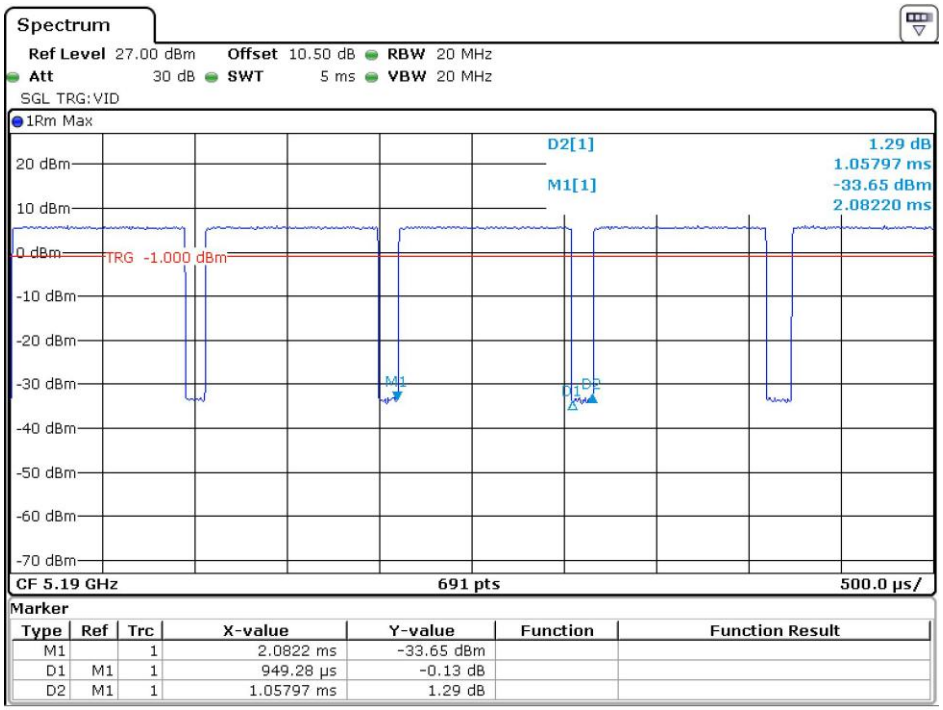
802.11ac40 mode



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Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

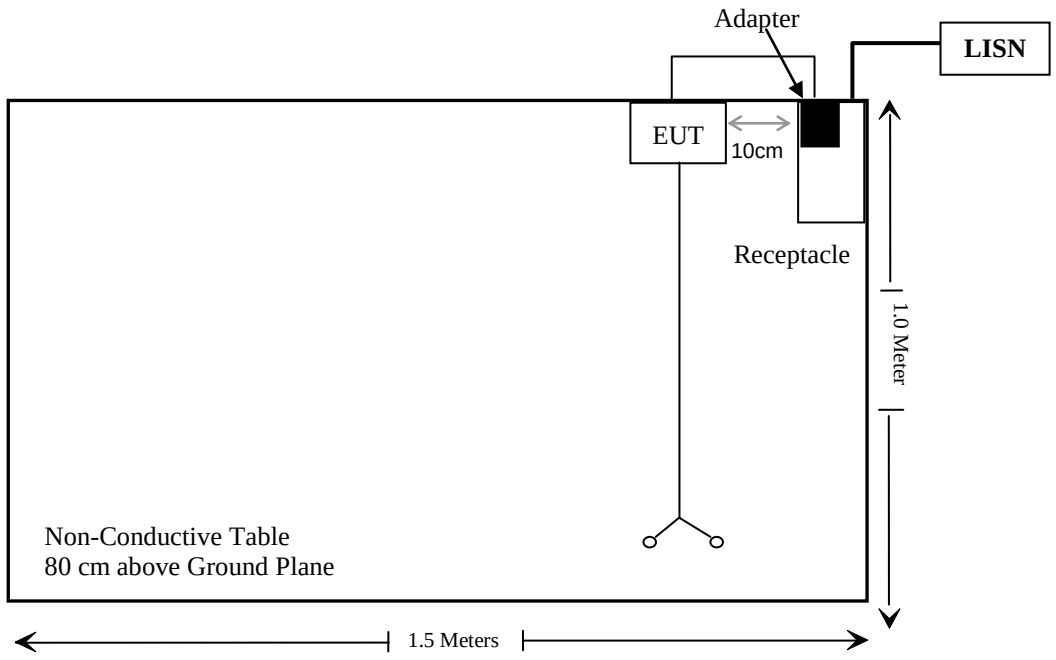
Manufacturer	Description	Model	Serial Number
/	/	/	/

External I/O Cable

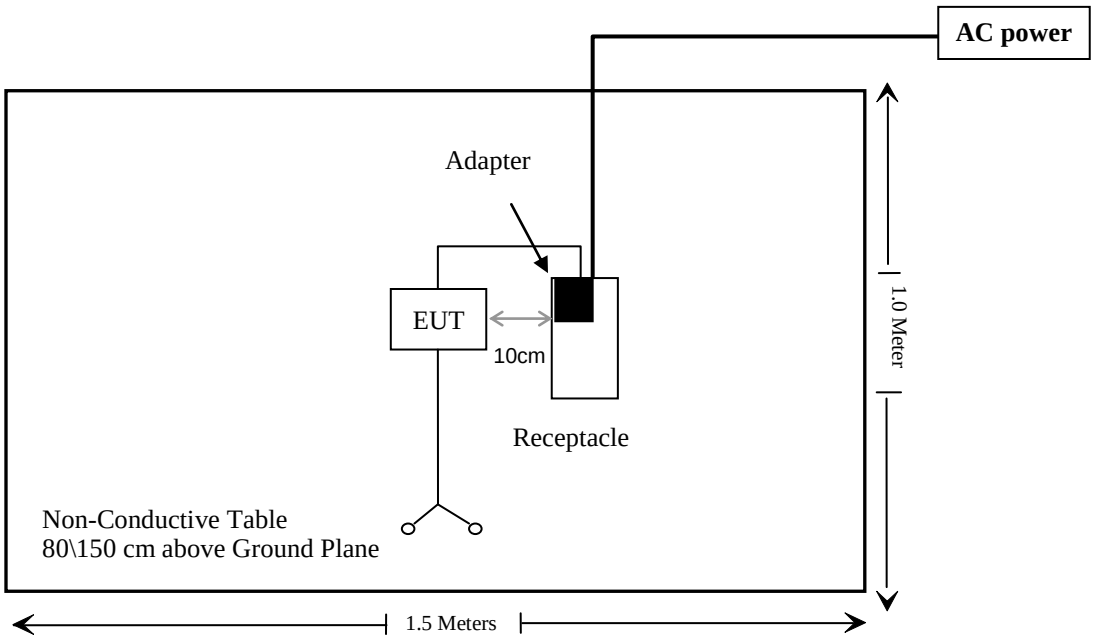
Cable Description	Length (m)	From Port	To
Un-shield Detachable USB Cable	1.0	Adapter	EUT

Block Diagram of Test Setup

For Conducted Emission



For Radiated Emissions:



SUMMARY OF TEST RESULTS

RSS-247 & RSS-Gen & RSS-102 Rules	Description of Test	Result
RSS-Gen §6.8	Antenna Requirement	Compliant
RSS-102	RF Exposure	Compliant
RSS-Gen §8.8	AC Power Lines Conducted Emission	Compliant
RSS-Gen §8.10&RSS-247 §6.2	Unwanted Emissions Limits	Compliant
RSS-247 §6.2	Transmitter Output Power	Compliant
RSS- Gen §6.7, RSS-247 § 6.2	Emission Bandwidth & 99% Bandwidth	Compliant
RSS-247 §6.2	Power Spectral Density	Compliant
RSS-247 §6.3	Dynamic frequency selection	Not Applicable

Not Applicable: the EUT not operating within frequency range of 5250-5350MHz&5470-5600MHz&5650MHz-5725MHz.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emissions Test					
Rohde& Schwarz	EMI Test Receiver	ESCI	100784	2021/12/13	2022/12/12
Rohde & Schwarz	L.I.S.N.	ENV216	101314	2021/12/13	2022/12/12
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2021/12/13	2022/12/12
Unknown	RF Coaxial Cable	No.17	N0350	2021/12/14	2022/12/13
Conducted Emission Test Software: e3 19821b (V9)					
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

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde&Schwarz	Spectrum Analyzer	FSV-40	101948	2021/12/13	2022/12/12
Rohde & Schwarz	Open Switch and Control Unit	OSP120 + OSP-B157	101244 + 100866	2021/12/13	2022/12/12
WEINSCHEL	10dB Attenuator	5324	AU 3842	2021/12/14	2022/12/13
Unknown	RF Cable	Unknown	Unknown	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).

RSS-GEN §6.8- TRANSMITTER ANTENNA

Applicable Standard

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.

For licence-exempt equipment with detachable antennas, the user manual shall also contain the following notice in a conspicuous location:

This radio transmitter [enter the device's ISED certification number] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.
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.

Antenna Connector Construction

The EUT has one internal antenna arrangement for 5G Wi-Fi which were permanently attached. Please refer to the EUT photos.

Type	Antenna Gain	Impedance	Frequency Range
FPC	2.0dBi	50Ω	5150-5250MHz

Result: Compliance

RSS-102 – RF EXPOSURE

Applicable Standard

According to RSS-102, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

Result: Compliance.

Please refer to SAR Report Number: SZNS220214-04312E-20

RSS-GEN §8.8 - AC POWER LINE CONDUCTED EMISSIONS

Applicable Standard

Unless stated otherwise in the applicable RSS, for radio apparatus that are designed to be connected to the public utility AC power network, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the range 150 kHz to 30 MHz shall not exceed the limits in table 4, as measured using a 50 μH / 50 Ω line impedance stabilization network. This requirement applies for the radio frequency voltage measured between each power line and the ground terminal of each AC power-line mains cable of the EUT.

For an EUT that connects to the AC power lines indirectly, through another device, the requirement for compliance with the limits in table 4 shall apply at the terminals of the AC power-line mains cable of a representative support device, while it provides power to the EUT. The lower limit applies at the boundary between the frequency ranges. The device used to power the EUT shall be representative of typical applications.

Table 4 - AC Power Lines Conducted Emission Limits

Frequency range (MHz)	Conducted limit (dBμV)	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56[1]	56 to 46[1]
0.5 – 5	56	46
5 – 30	60	50

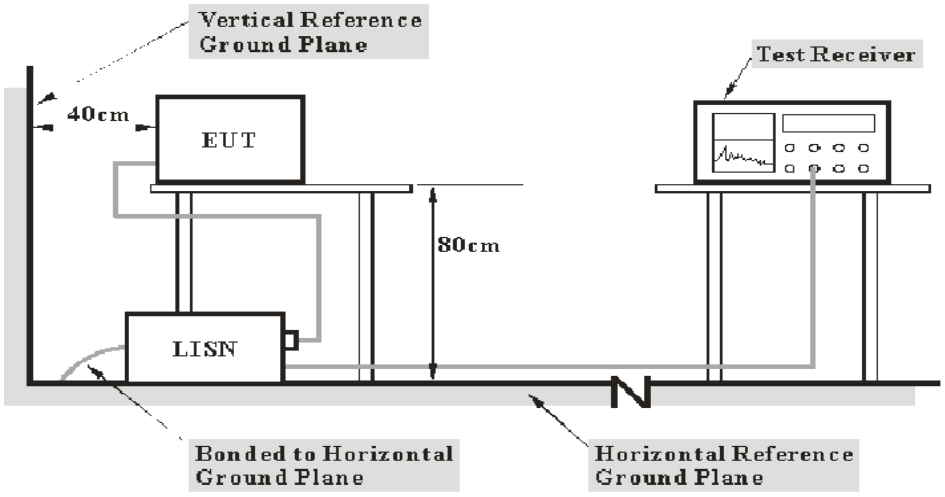
Note 1: The level decreases linearly with the logarithm of the frequency.

For an EUT with a permanent or detachable antenna operating between 150 kHz and 30 MHz, the AC power-line conducted emissions must be measured using the following configurations:

(a) Perform the AC power-line conducted emissions test with the antenna connected to determine compliance with the limits of table 4 outside the transmitter's fundamental emission band.

(b) Retest with a dummy load instead of the antenna to determine compliance with the limits of table 4 within the transmitter's fundamental emission band. For a detachable antenna, remove the antenna and connect a suitable dummy load to the antenna connector. For a permanent antenna, remove the antenna and terminate the RF output with a dummy load or network that simulates the antenna in the fundamental frequency band.

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

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 Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN; the other related equipments were connected to the other LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Corrected Factor & Margin Calculation

The Transd factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

Factor = LISN VDF + Cable Loss

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

Over Limit = Level – Limit
Level = Read Level + Factor

Test Data

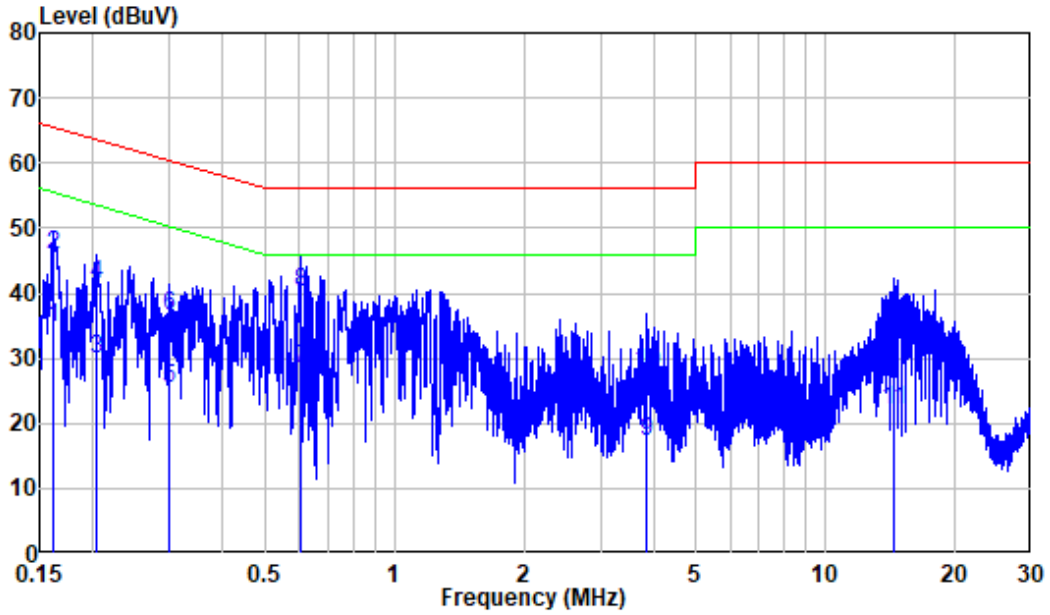
Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	49 %
ATM Pressure:	101.0 kPa

The testing was performed by Caro Hu on 2022-04-18

EUT operation mode: Transmitting(worst case is 802.11ax, 5200MHz)

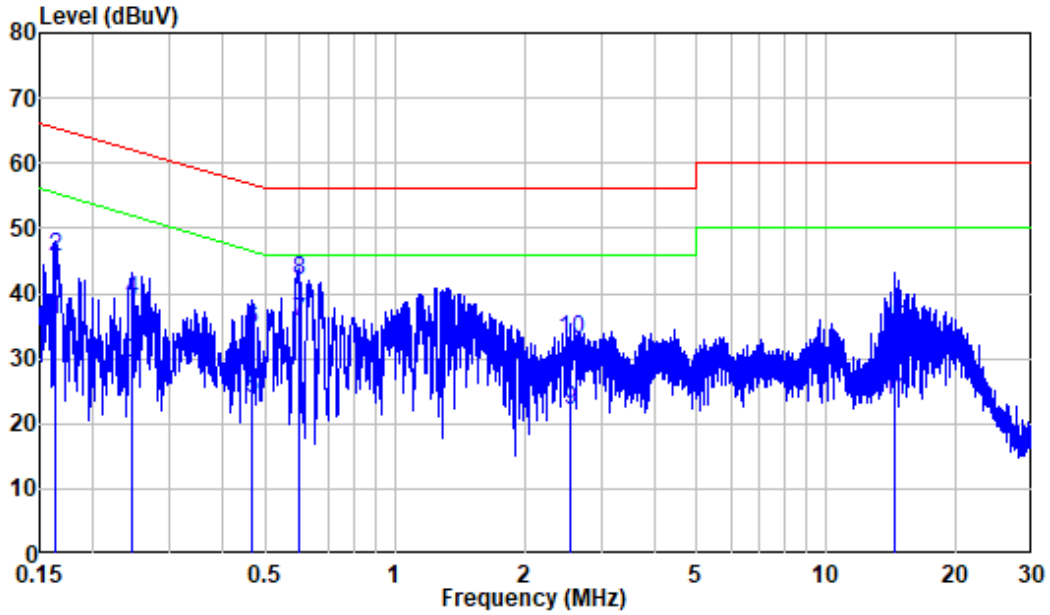
AC 120V/60 Hz, Line:



Site : Shielding Room
Condition: Line
Mode : 5G WiFi
Model : TB-JS100A
Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.161	9.80	25.04	34.84	55.39	-20.55	Average
2	0.161	9.80	35.97	45.77	65.39	-19.62	QP
3	0.203	9.80	20.17	29.97	53.48	-23.51	Average
4	0.203	9.80	31.58	41.38	63.48	-22.10	QP
5	0.300	9.80	15.56	25.36	50.24	-24.88	Average
6	0.300	9.80	26.71	36.51	60.24	-23.73	QP
7	0.604	9.81	18.69	28.50	46.00	-17.50	Average
8	0.604	9.81	30.44	40.25	56.00	-15.75	QP
9	3.822	9.84	7.35	17.19	46.00	-28.81	Average
10	3.822	9.84	17.84	27.68	56.00	-28.32	QP
11	14.364	9.94	12.24	22.18	50.00	-27.82	Average
12	14.364	9.94	24.94	34.88	60.00	-25.12	QP

AC 120V/60 Hz, Neutral:



Site : Shielding Room
Condition: Neutral
Mode : 5G WiFi
Model : TB-JS100A
Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.163	9.80	26.00	35.80	55.33	-19.53	Average
2	0.163	9.80	35.78	45.58	65.33	-19.75	QP
3	0.245	9.80	19.44	29.24	51.93	-22.69	Average
4	0.245	9.80	29.01	38.81	61.93	-23.12	QP
5	0.467	9.80	14.05	23.85	46.56	-22.71	Average
6	0.467	9.80	24.52	34.32	56.56	-22.24	QP
7	0.598	9.81	25.89	35.70	46.00	-10.30	Average
8	0.598	9.81	32.10	41.91	56.00	-14.09	QP
9	2.543	9.83	12.29	22.12	46.00	-23.88	Average
10	2.543	9.83	22.98	32.81	56.00	-23.19	QP
11	14.364	10.04	13.39	23.43	50.00	-26.57	Average
12	14.364	10.04	24.46	34.50	60.00	-25.50	QP

RSS-GEN §8.10 & RSS-247 §6.2 – UNWANTED EMISSION FREQUENCIES AND RESTRICTED BANDS

According to RSS-247 §6.2

Frequency band 5150-5250 MHz

6.2.1.2 Unwanted emission limits

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHzshall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz. The 26 dB bandwidth may fall into the 5250-5350 MHz band; however, if the occupied bandwidth also falls within the 5250-5350 MHz band, the transmission is considered as intentional and the devices shall comply with all requirements in the band 5250-5350 MHz including implementing dynamic frequency selection (DFS) and TPC, on the portion of the emission that resides in the 5250-5350 MHz band.

Frequency band 5725-5850 MHz

6.2.4.2 Unwanted emission limits

Devices operating in the band 5725-5850 MHz with antenna gain greater than 10 dBi can have unwanted emissions that comply with either the limits in this section or in section 5.5 until six (6) months after the publication date of this standard for certification. Certified devices that do not comply with emission limits in this section shall not be manufactured, imported, distributed, leased, offered for sale or sold after April 1, 2018.

Devices operating in the band 5725-5850 MHz with antenna gain of 10 dBi or less can have unwanted emissions that comply with either the limits in this section or in section 5.5 until April 1, 2018 for certification. Certified devices that do not comply with emission limits in this section shall not be manufactured, imported, distributed, leased, offered for sale or sold after April 1, 2020.

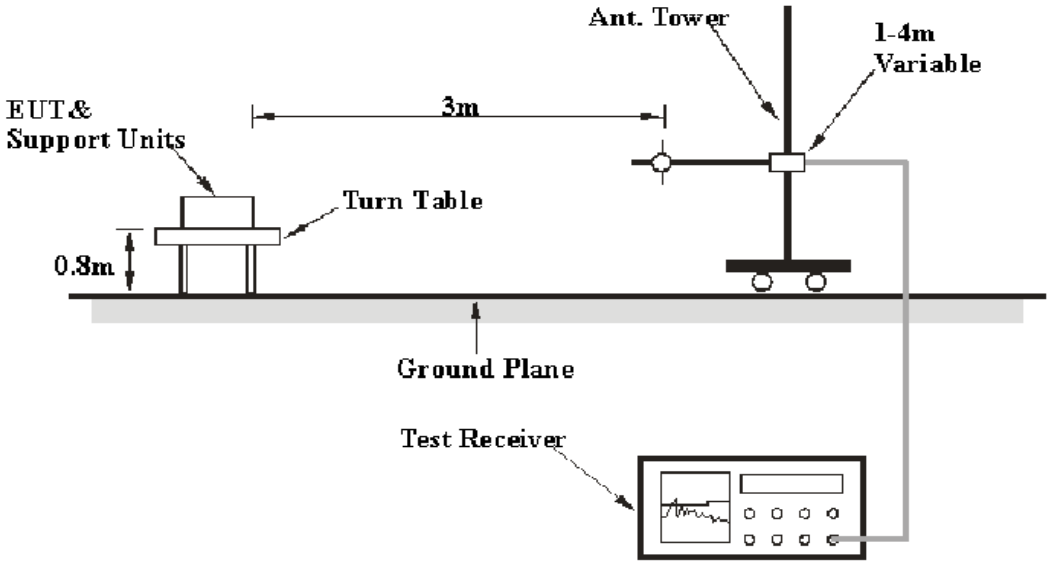
Devices operating in the band 5725-5850 MHz shall have e.i.r.p. of unwanted emissions comply with the following:

a. 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 Bm/MHz at 5 MHz above or below the band edges;

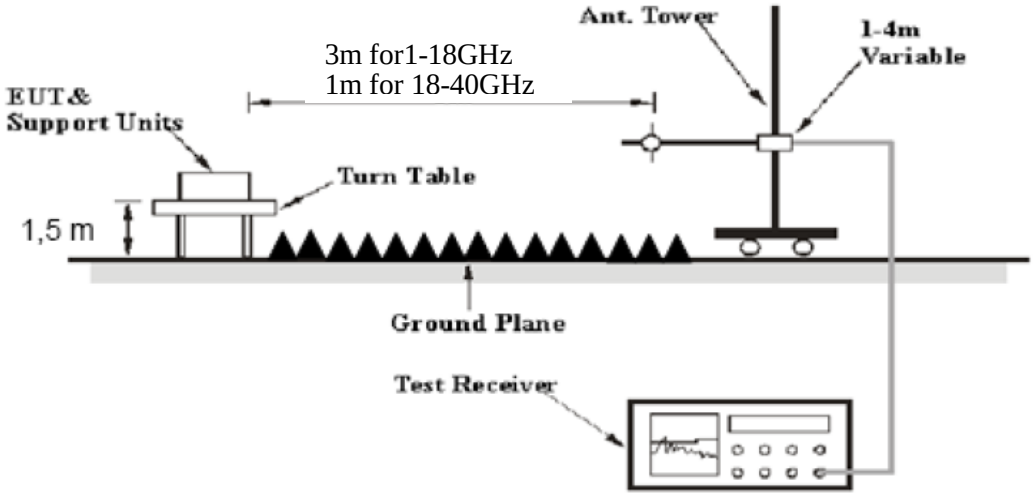
b. 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;
c. 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and
d. -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the RSS-Gen. The specification used was the RSS-Gen&RSS-247 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	Measurements
30MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	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

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

Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.

Repeat above procedures until all measured frequencies were complete.

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;

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

where

$E_{\mathrm{SpecLimit}}$ 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
$d_{\mathrm{SpecLimit}}$ is the distance specified by the limit, in m

So the extrapolation factor of 1m is 20*log(1/3)= -9.5 dB, for 18-40GHz range, the limit of 1m distance was added by 9.5dB from limit of 3m to compared with the result measurement at 1m distance.

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:

Factor = Antenna Factor + Cable Loss - 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:

Over Limit/Margin = Level / Corrected Amplitude – Limit
Level / Corrected Amplitude = Read Level + Factor

Test Data

Environmental Conditions

Temperature:	25~27℃
Relative Humidity:	50~55 %
ATM Pressure:	101.0 ~101.5kPa

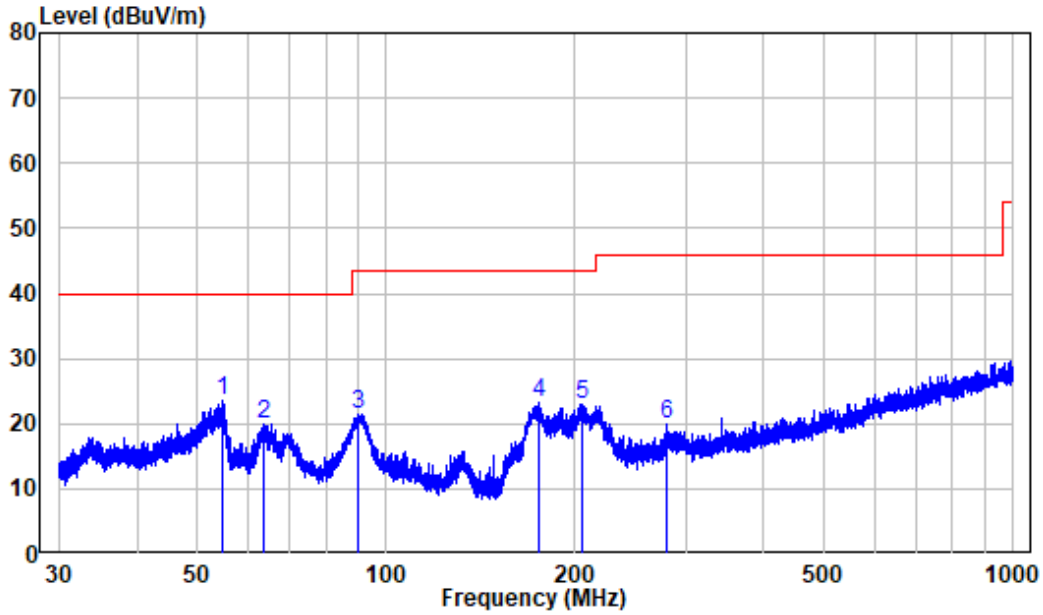
The testing was performed by Nick Fang on 2022-04-16 for below 1GHz and Amy Cao on 2022-03-13 for above 1GHz, by Key Pei on 2022-05-10 for conducted emission.

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

30 MHz – 1 GHz: *(worst case is 802.11ax20, 5200MHz)*

Note: When the result of Peak less than the limit of QP by more than 6dB, just the peak value was recorded.

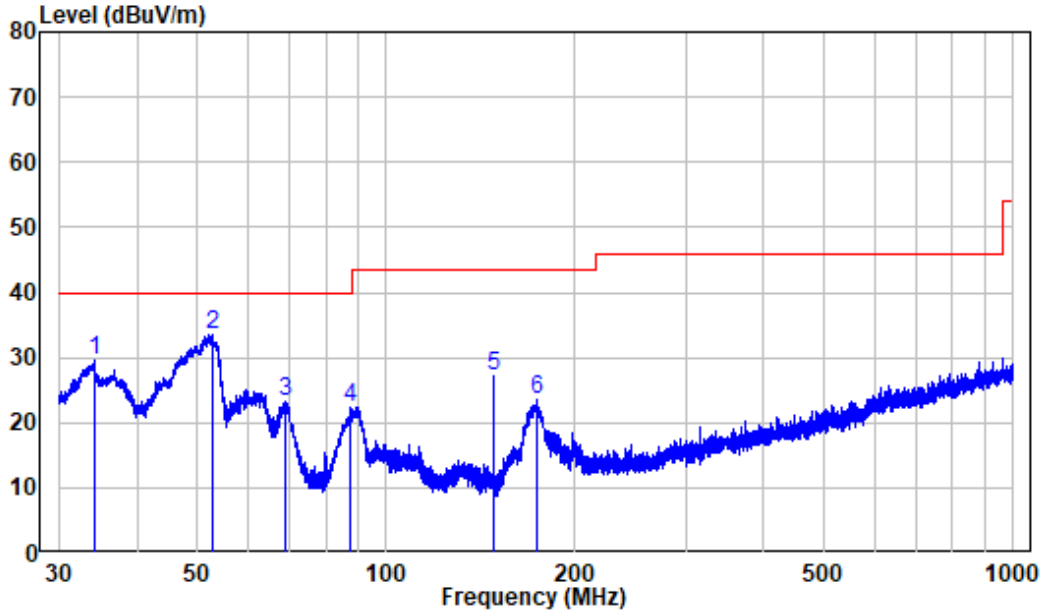
Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No. : SZNS220214-04312E-RF
Test Mode: 5G WIFI

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	54.739	-10.29	33.74	23.45	40.00	-16.55	Peak
2	63.815	-12.09	32.04	19.95	40.00	-20.05	Peak
3	90.141	-13.97	35.47	21.50	43.50	-22.00	Peak
4	174.730	-13.13	36.25	23.12	43.50	-20.38	Peak
5	205.946	-11.84	34.91	23.07	43.50	-20.43	Peak
6	279.656	-9.60	29.65	20.05	46.00	-25.95	Peak

Vertical



Site : chamber
Condition: 3m VERTICAL
Job No. : SZNS220214-04312E-RF
Test Mode: 5G WIFI

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	34.216	-11.79	41.27	29.48	40.00	-10.52	Peak
2	52.714	-10.11	43.72	33.61	40.00	-6.39	Peak
3	69.144	-14.36	37.57	23.21	40.00	-16.79	Peak
4	87.763	-14.64	36.90	22.26	40.00	-17.74	Peak
5	148.376	-15.36	42.54	27.18	43.50	-16.32	Peak
6	173.509	-13.23	36.64	23.41	43.50	-20.09	Peak

Above 1GHz:

5150-5250 MHz:

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)
802.11a									
5180 MHz									
4500	62.66	PK	344	2.2	H	-4.72	57.94	74	-16.06
4500	49.95	AV	344	2.2	H	-4.72	45.23	54	-8.77
4500	62.7	PK	5	2.1	V	-4.72	57.98	74	-16.02
4500	49.99	AV	5	2.1	V	-4.72	45.27	54	-8.73
5150	63.22	PK	216	1.4	H	-2.73	60.49	74	-13.51
5150	50.36	AV	216	1.4	H	-2.73	47.63	54	-6.37
5150	63.48	PK	264	1.1	V	-2.73	60.75	74	-13.25
5150	50.2	AV	264	1.1	V	-2.73	47.47	54	-6.53
10360	43.04	PK	198	1.1	H	8.1	51.14	68.2	-17.06
10360	42.91	PK	2	1.8	V	8.1	51.01	68.2	-17.19
802.11a, 5200MHz									
10400	42.8	PK	180	1.4	H	8.24	51.04	68.2	-17.16
10400	42.79	PK	77	1.7	V	8.24	51.03	68.2	-17.17
5240 MHz									
5350	63.05	PK	62	1.3	H	-2.33	60.72	74	-13.28
5350	50.43	AV	62	1.3	H	-2.33	48.1	54	-5.9
5350	62.98	PK	182	1.1	V	-2.33	60.65	74	-13.35
5350	50.79	AV	182	1.1	V	-2.33	48.46	54	-5.54
5460	64.49	PK	129	1.1	H	-2.3	62.19	74	-11.81
5460	50.8	AV	129	1.1	H	-2.3	48.5	54	-5.5
5460	64.02	PK	257	1.4	V	-2.3	61.72	74	-12.28
5460	51.04	AV	257	1.4	V	-2.3	48.74	54	-5.26
10480	42.44	PK	230	1.7	H	8.6	51.04	68.2	-17.16
10480	42.64	PK	6	1.2	V	8.6	51.24	68.2	-16.96

Frequency (MHz)	Receiver		Turn-Table	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	RSS-247	
	Reading (dBμV)	PK/QP/AV	Angle Degree	Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11n20									
5180MHz									
4500	62.87	PK	15	2	H	-4.72	58.15	74	-15.85
4500	50.19	AV	15	2	H	-4.72	45.47	54	-8.53
4500	63.06	PK	38	1.7	V	-4.72	58.34	74	-15.66
4500	50.12	AV	38	1.7	V	-4.72	45.4	54	-8.6
5150	63.57	PK	349	1.3	H	-2.73	60.84	74	-13.16
5150	50.27	AV	349	1.3	H	-2.73	47.54	54	-6.46
5150	63.15	PK	36	2.1	V	-2.73	60.42	74	-13.58
5150	50.3	AV	36	2.1	V	-2.73	47.57	54	-6.43
10360	43.23	PK	67	2.4	H	8.1	51.33	68.2	-16.87
10360	43.15	PK	41	1.4	V	8.1	51.25	68.2	-16.95
5200MHz									
10400	43.28	PK	184	1.8	H	8.24	51.52	68.2	-16.68
10400	43.23	PK	210	1.8	V	8.24	51.47	68.2	-16.73
5240MHz									
5350	63.03	PK	332	1.2	H	-2.33	60.7	74	-13.3
5350	50.53	AV	332	1.2	H	-2.33	48.2	54	-5.8
5350	62.99	PK	138	1.5	V	-2.33	60.66	74	-13.34
5350	50.84	AV	138	1.5	V	-2.33	48.51	54	-5.49
5460	64.32	PK	20	2	H	-2.3	62.02	74	-11.98
5460	51.13	AV	20	2	H	-2.3	48.83	54	-5.17
5460	63.96	PK	215	1.3	V	-2.3	61.66	74	-12.34
5460	50.71	AV	215	1.3	V	-2.3	48.41	54	-5.59
10480	42.29	PK	324	1.3	H	8.6	50.89	68.2	-17.31
10480	42.51	PK	204	1.2	V	8.6	51.11	68.2	-17.09

Frequency (MHz)	Receiver		Turn-Table	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	RSS-247	
	Reading (dBμV)	PK/QP/AV	Angle Degree	Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11n40									
5190MHz									
4500	62.91	PK	204	1.7	H	-4.72	58.19	74	-15.81
4500	51.25	AV	204	1.7	H	-4.72	46.53	54	-7.47
4500	63.47	PK	352	1.9	V	-4.72	58.75	74	-15.25
4500	51.19	AV	352	1.9	V	-4.72	46.47	54	-7.53
5150	63.42	PK	351	2.4	H	-2.73	60.69	74	-13.31
5150	50.89	AV	351	2.4	H	-2.73	48.16	54	-5.84
5150	63.47	PK	95	2.3	V	-2.73	60.74	74	-13.26
5150	51.23	AV	95	2.3	V	-2.73	48.5	54	-5.5
10380	41.99	PK	102	1.6	H	8.2	50.19	68.2	-18.01
10380	42	PK	201	1.6	V	8.2	50.2	68.2	-18
5230MHz									
5350	64.04	PK	55	1.1	H	-2.33	61.71	74	-12.29
5350	50.34	AV	55	1.1	H	-2.33	48.01	54	-5.99
5350	64.04	PK	38	1.7	V	-2.33	61.71	74	-12.29
5350	50.26	AV	38	1.7	V	-2.33	47.93	54	-6.07
5460	64.16	PK	174	2.3	H	-2.3	61.86	74	-12.14
5460	51.44	AV	174	2.3	H	-2.3	49.14	54	-4.86
5460	63.97	PK	229	2.3	V	-2.3	61.67	74	-12.33
5460	51.56	AV	229	2.3	V	-2.3	49.26	54	-4.74
10460	41.3	PK	255	2.3	H	8.6	49.9	68.2	-18.3
10460	41.5	PK	312	1.9	V	8.6	50.1	68.2	-18.1

Frequency (MHz)	Receiver		Turn-Table	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	RSS-247	
	Reading (dBμV)	PK/QP/AV	Angle Degree	Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11ac20									
5180 MHz									
4500	63	PK	300	2.5	H	-4.72	58.28	74	-15.72
4500	50.16	AV	300	2.5	H	-4.72	45.44	54	-8.56
4500	63.32	PK	348	1.4	V	-4.72	58.6	74	-15.4
4500	50.04	AV	348	1.4	V	-4.72	45.32	54	-8.68
5150	63.43	PK	174	1.9	H	-2.73	60.7	74	-13.3
5150	50.43	AV	174	1.9	H	-2.73	47.7	54	-6.3
5150	63.56	PK	37	1.6	V	-2.73	60.83	74	-13.17
5150	50.33	AV	37	1.6	V	-2.73	47.6	54	-6.4
10360	43.05	PK	338	1.9	H	8.1	51.15	68.2	-17.05
10360	42.99	PK	98	2.2	V	8.1	51.09	68.2	-17.11
5200MHz									
10400	43.2	PK	118	1.9	H	8.24	51.44	68.2	-16.76
10400	42.96	PK	212	1.9	V	8.24	51.2	68.2	-17
5240MHz									
5350	63.05	PK	332	2.4	H	-2.33	60.72	74	-13.28
5350	50.48	AV	332	2.4	H	-2.33	48.15	54	-5.85
5350	63.03	PK	306	2.1	V	-2.33	60.7	74	-13.3
5350	50.5	AV	306	2.1	V	-2.33	48.17	54	-5.83
5460	64.26	PK	186	1.3	H	-2.3	61.96	74	-12.04
5460	50.93	AV	186	1.3	H	-2.3	48.63	54	-5.37
5460	64.04	PK	157	1.7	V	-2.3	61.74	74	-12.26
5460	50.99	AV	157	1.7	V	-2.3	48.69	54	-5.31
10480	42.45	PK	212	2.4	H	8.6	51.05	68.2	-17.15
10480	42.52	PK	308	1.3	V	8.6	51.12	68.2	-17.08

Frequency (MHz)	Receiver		Turn-Table	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	RSS-247	
	Reading (dBμV)	Detector (PK/QP/AV)	Angle Degree	Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11ac40									
5190 MHz									
4500	63.35	PK	267	1.2	H	-4.72	58.63	74	-15.37
4500	51.18	AV	267	1.2	H	-4.72	46.46	54	-7.54
4500	63.19	PK	304	2.3	V	-4.72	58.47	74	-15.53
4500	51.36	AV	304	2.3	V	-4.72	46.64	54	-7.36
5150	63.28	PK	65	1.5	H	-2.73	60.55	74	-13.45
5150	50.84	AV	65	1.5	H	-2.73	48.11	54	-5.89
5150	63.48	PK	160	1.5	V	-2.73	60.75	74	-13.25
5150	51.18	AV	160	1.5	V	-2.73	48.45	54	-5.55
10380	41.95	PK	34	2.2	H	8.2	50.15	68.2	-18.05
10380	41.92	PK	172	1	V	8.2	50.12	68.2	-18.08
5230MHz									
5350	62.97	PK	69	1	H	-2.33	60.64	74	-13.36
5350	50.78	AV	69	1	H	-2.33	48.45	54	-5.55
5350	63.19	PK	285	2	V	-2.33	60.86	74	-13.14
5350	50.62	AV	285	2	V	-2.33	48.29	54	-5.71
5460	64.33	PK	359	2.4	H	-2.3	62.03	74	-11.97
5460	51.57	AV	359	2.4	H	-2.3	49.27	54	-4.73
5460	63.98	PK	187	2.3	V	-2.3	61.68	74	-12.32
5460	51.57	AV	187	2.3	V	-2.3	49.27	54	-4.73
10460	41.2	PK	311	2.4	H	8.6	49.8	68.2	-18.4
10460	41.29	PK	1	2.1	V	8.6	49.89	68.2	-18.31

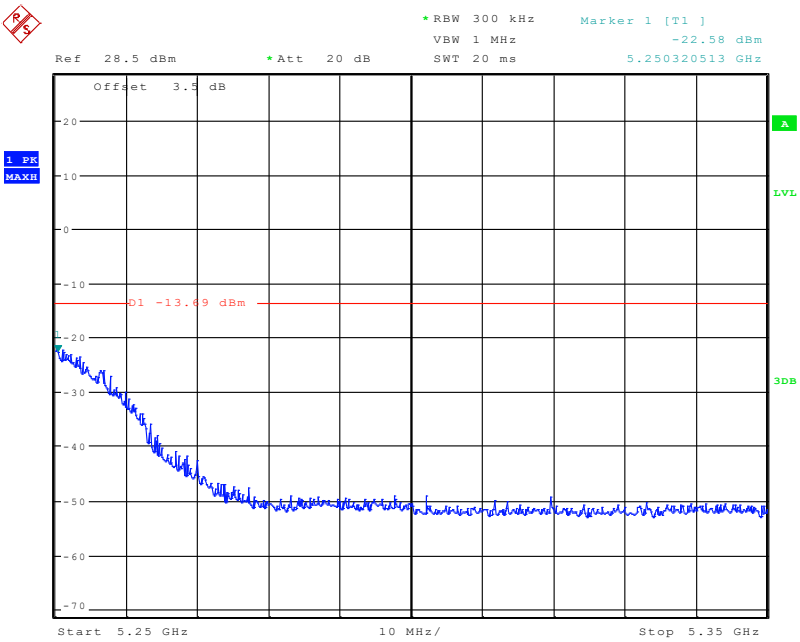
Note:
Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Amplitude = Corrected Factor + Reading
Margin = Corrected. Amplitude - Limit
The other spurious emission which is in the noise floor level was not recorded.

Unwanted emissions fall into band 5250-5350 MHz: (Worst case)

Test Mode	Antenna	Channel	Test Result [dBm]	Channel Power[dBm]	Limit [dBm]	Verdict
11A	Ant1	5240	-22.58	12.31	-13.69	PASS
11N20MIMO	Ant1	5240	-16.02	13.20	-12.8	PASS
11N40MIMO	Ant1	5230	-20.98	13.56	-12.44	PASS
11AC20MIMO	Ant1	5240	-16.66	13.89	-12.11	PASS
11AC40MIMO	Ant1	5230	-18.78	13.23	-12.77	PASS
11AX20MIMO	Ant1	5240	-14.32	16.23	-9.77	PASS
11AX40MIMO	Ant1	5230	-17.95	14.20	-11.8	PASS

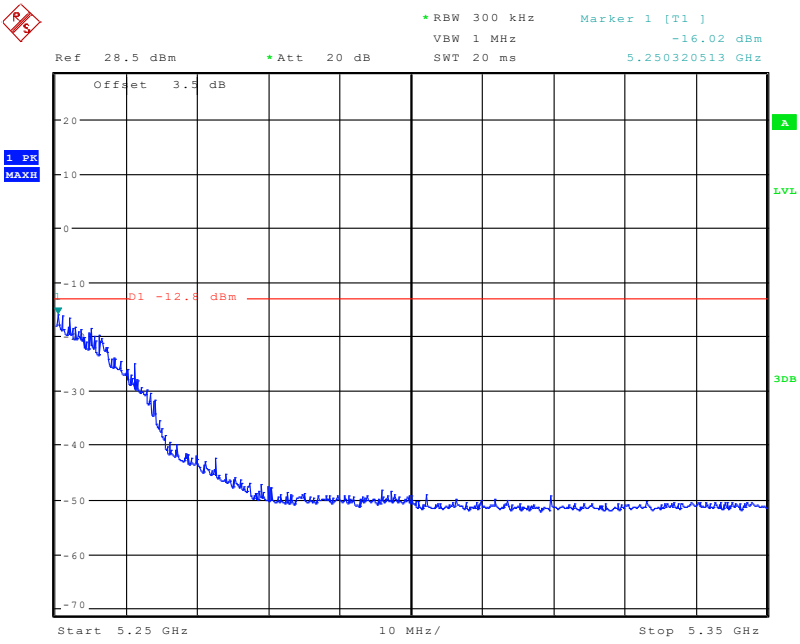
Note: The limit was calculated by attenuated below the channel power by at least 26 dB per RSS-247 §6.2.1.2

802.11a mode, 5240 MHz



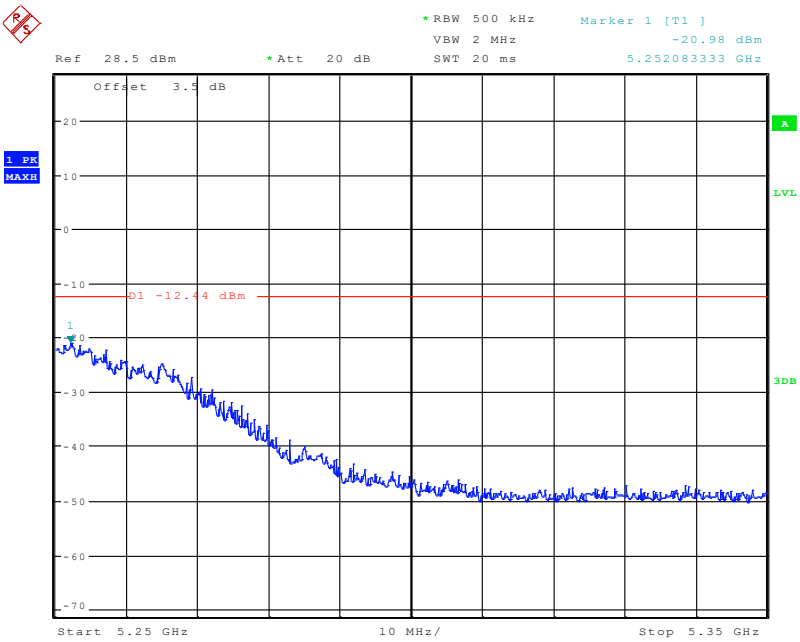
Date: 10.MAY.2022 15:51:15

802.11n20 mode, 5240 MHz



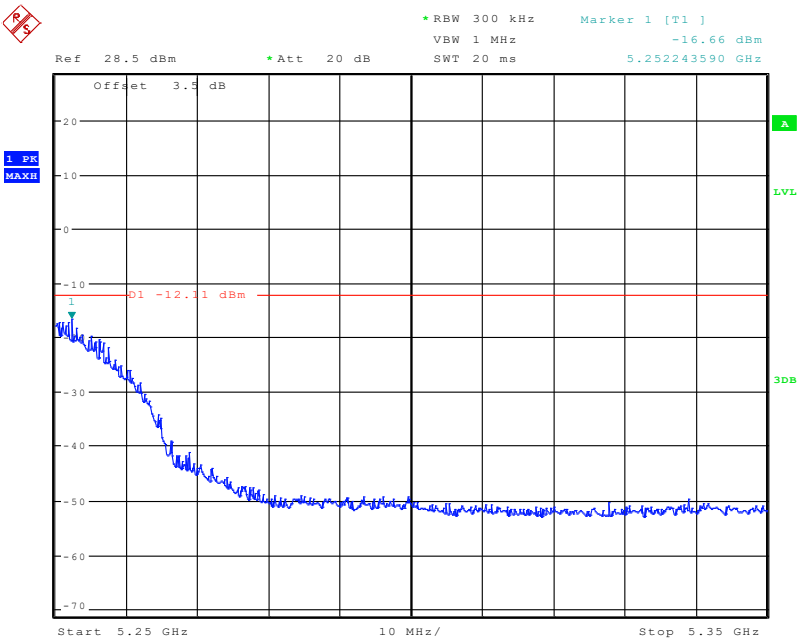
Date: 10.MAY.2022 15:52:43

802.11n40 mode, 5230 MHz



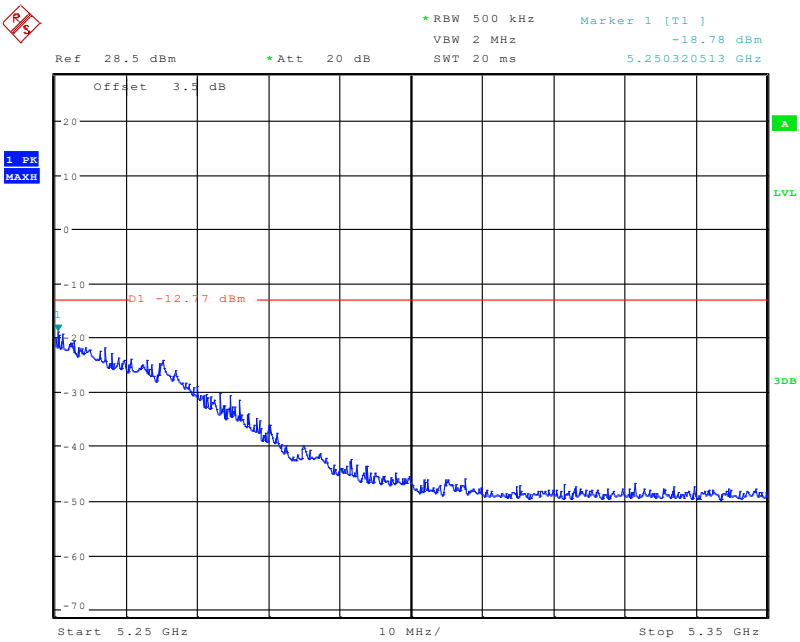
Date: 10.MAY.2022 15:59:53

802.11ac20 mode, 5240 MHz



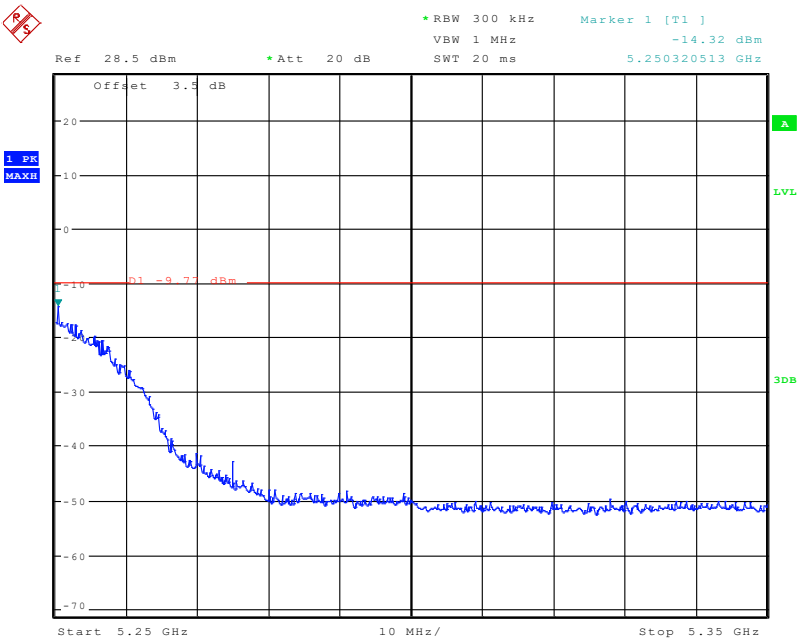
Date: 10.MAY.2022 15:53:22

802.11ac40 mode, 5230 MHz



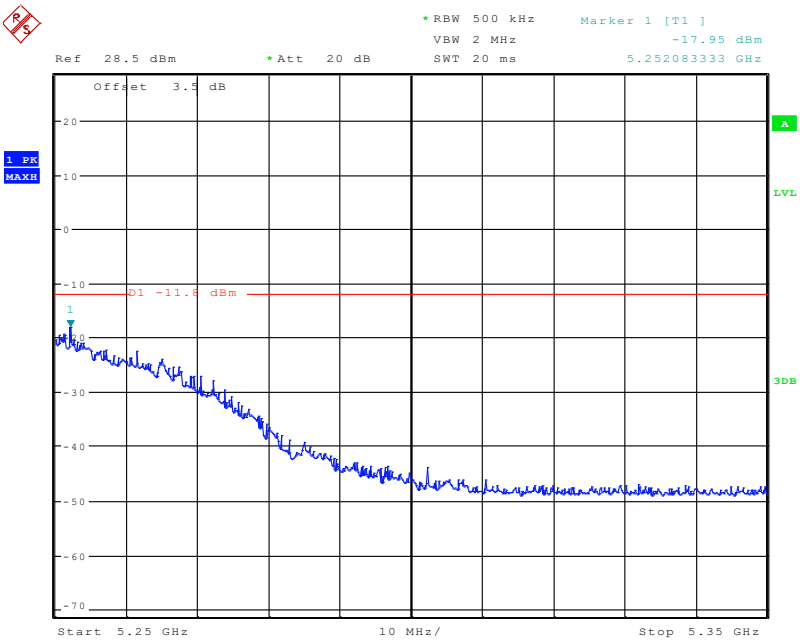
Date: 10.MAY.2022 15:59:09

802.11ax20 mode, 5240 MHz



Date: 10.MAY.2022 15:54:30

802.11ax40 mode, 5230 MHz



Date: 10.MAY.2022 16:00:18

5725-5850 MHz:

Frequency (MHz)	Receiver		Turn-Table	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	RSS-247	
	Reading (dBμV)	PK/QP/AV	Angle Degree	Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11a									
5745 MHz									
5650	64.8	PK	145	1.1	H	-1.95	62.85	68.2	-5.35
5650	63.53	PK	22	2.4	V	-1.95	61.58	68.2	-6.62
5700	65.1	PK	323	1.3	H	-2.02	63.08	105.2	-42.12
5700	64.57	PK	290	1.5	V	-2.02	62.55	105.2	-42.65
5720	65.33	PK	137	1.1	H	-1.97	63.36	110.8	-47.44
5720	64.11	PK	175	1.1	V	-1.97	62.14	110.8	-48.66
5725	65.46	PK	327	1.5	H	-1.96	63.5	122.2	-58.7
5725	65.07	PK	274	2	V	-1.96	63.11	122.2	-59.09
11490	43.99	PK	277	1.6	H	6.63	50.62	74	-23.38
11490	43.72	PK	200	2.1	V	6.63	50.35	74	-23.65
5785MHz									
11570	43.74	PK	174	2.5	H	6.59	50.33	74	-23.67
11570	43.31	PK	55	2.4	V	6.59	49.9	74	-24.1
5825MHz									
5850	66.94	PK	231	1.6	H	-1.81	65.13	122.2	-57.07
5850	66.43	PK	13	2.5	V	-1.81	64.62	122.2	-57.58
5855	66.14	PK	316	2.2	H	-1.82	64.32	110.8	-46.48
5855	65.83	PK	80	1	V	-1.82	64.01	110.8	-46.79
5875	66.65	PK	13	2.4	H	-1.84	64.81	105.2	-40.39
5875	66.22	PK	359	2.2	V	-1.84	64.38	105.2	-40.82
5925	66.3	PK	201	1.8	H	-1.82	64.48	68.2	-3.72
5925	66.07	PK	249	2.3	V	-1.82	64.25	68.2	-3.95
11650	42.87	PK	298	2.1	H	6.7	49.57	74	-24.43
11650	42.76	PK	345	2	V	6.7	49.46	74	-24.54

Frequency (MHz)	Receiver		Turn-Table	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	RSS-247	
	Reading (dBμV)	PK/QP/AV	Angle Degree	Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11n20									
5745 MHz									
5650	64.68	PK	278	2.1	H	-1.95	62.73	68.2	-5.47
5650	64.15	PK	340	1.8	V	-1.95	62.2	68.2	-6
5700	65.23	PK	225	2	H	-2.02	63.21	105.2	-41.99
5700	65.03	PK	318	1.3	V	-2.02	63.01	105.2	-42.19
5720	64.74	PK	300	1.1	H	-1.97	62.77	110.8	-48.03
5720	64.52	PK	290	1.9	V	-1.97	62.55	110.8	-48.25
5725	65.48	PK	212	1.1	H	-1.96	63.52	122.2	-58.68
5725	65.6	PK	193	1.9	V	-1.96	63.64	122.2	-58.56
11490	43.54	PK	283	2.3	H	6.63	50.17	74	-23.83
11490	43.45	PK	291	1.2	V	6.63	50.08	74	-23.92
5785MHz									
11570	44.46	PK	209	1.5	H	6.59	51.05	74	-22.95
11570	44.54	PK	123	1.2	V	6.59	51.13	74	-22.87
5825MHz									
5850	66.25	PK	310	1.6	H	-1.81	64.44	122.2	-57.76
5850	66.66	PK	167	1.5	V	-1.81	64.85	122.2	-57.35
5855	66.19	PK	121	1.3	H	-1.82	64.37	110.8	-46.43
5855	66.04	PK	293	2.3	V	-1.82	64.22	110.8	-46.58
5875	65.8	PK	168	1.7	H	-1.84	63.96	105.2	-41.24
5875	66	PK	352	1.4	V	-1.84	64.16	105.2	-41.04
5925	65.9	PK	251	2.1	H	-1.82	64.08	68.2	-4.12
5925	65.71	PK	117	1	V	-1.82	63.89	68.2	-4.31
11650	42.29	PK	183	1.5	H	6.7	48.99	74	-25.01
11650	42.49	PK	238	1.4	V	6.7	49.19	74	-24.81

Frequency (MHz)	Receiver		Turn-Table	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	RSS-247	
	Reading (dBμV)	Detector (PK/QP/AV)	Angle Degree	Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11n40									
5755 MHz									
5650	64.68	PK	243	1.6	H	-1.95	62.73	68.2	-5.47
5650	64.96	PK	349	1.5	V	-1.95	63.01	68.2	-5.19
5700	65.56	PK	199	1.9	H	-2.02	63.54	105.2	-41.66
5700	65.16	PK	36	1.5	V	-2.02	63.14	105.2	-42.06
5720	65.37	PK	7	2.1	H	-1.97	63.4	110.8	-47.4
5720	64.95	PK	9	1.1	V	-1.97	62.98	110.8	-47.82
5725	65.87	PK	132	1.9	H	-1.96	63.91	122.2	-58.29
5725	65.63	PK	189	1.4	V	-1.96	63.67	122.2	-58.53
11510	43.89	PK	172	2.2	H	6.59	50.48	74	-23.52
11510	46.28	PK	173	1.2	V	6.59	52.87	74	-21.13
5795MHz									
5850	65.97	PK	158	1.6	H	-1.81	64.16	122.2	-58.04
5850	65.84	PK	272	1.1	V	-1.81	64.03	122.2	-58.17
5855	66.77	PK	344	1.2	H	-1.82	64.95	110.8	-45.85
5855	66.31	PK	239	2.4	V	-1.82	64.49	110.8	-46.31
5875	66.13	PK	52	2.3	H	-1.84	64.29	105.2	-40.91
5875	66.14	PK	126	2.4	V	-1.84	64.3	105.2	-40.9
5925	65.78	PK	279	1.6	H	-1.82	63.96	68.2	-4.24
5925	65.85	PK	145	1.2	V	-1.82	64.03	68.2	-4.17
11590	42.89	PK	286	1.1	H	6.57	49.46	74	-24.54
11590	44.2	PK	60	2	V	6.57	50.77	74	-23.23

Frequency (MHz)	Receiver		Turn-Table	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	RSS-247	
	Reading (dBμV)	PK/QP/AV	Angle Degree	Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11ac20									
5745 MHz									
5650	64.52	PK	224	1.9	H	-1.95	62.57	68.2	-5.63
5650	64.36	PK	65	1.8	V	-1.95	62.41	68.2	-5.79
5700	65.03	PK	77	1.8	H	-2.02	63.01	105.2	-42.19
5700	66	PK	75	1.9	V	-2.02	63.98	105.2	-41.22
5720	65.06	PK	64	1.8	H	-1.97	63.09	110.8	-47.71
5720	65.34	PK	8	2.5	V	-1.97	63.37	110.8	-47.43
5725	65.47	PK	163	1	H	-1.96	63.51	122.2	-58.69
5725	65.17	PK	30	1.2	V	-1.96	63.21	122.2	-58.99
11490	43.67	PK	4	2	H	6.63	50.3	74	-23.7
11490	43.43	PK	109	1	V	6.63	50.06	74	-23.94
5785MHz									
11570	44.02	PK	88	2	H	6.59	50.61	74	-23.39
11570	46.94	PK	115	2.2	V	6.59	53.53	74	-20.47
5825MHz									
5850	66.76	PK	285	1.1	H	-1.81	64.95	122.2	-57.25
5850	66.6	PK	72	1.9	V	-1.81	64.79	122.2	-57.41
5855	66.75	PK	149	1.6	H	-1.82	64.93	110.8	-45.87
5855	66.44	PK	69	1.7	V	-1.82	64.62	110.8	-46.18
5875	65.59	PK	37	1.3	H	-1.84	63.75	105.2	-41.45
5875	65.83	PK	63	2.3	V	-1.84	63.99	105.2	-41.21
5925	65.57	PK	251	2.3	H	-1.82	63.75	68.2	-4.45
5925	65.25	PK	40	1.7	V	-1.82	63.43	68.2	-4.77
11650	41.81	PK	155	1.6	H	6.7	48.51	74	-25.49
11650	46.26	PK	333	1.7	V	6.7	52.96	74	-21.04

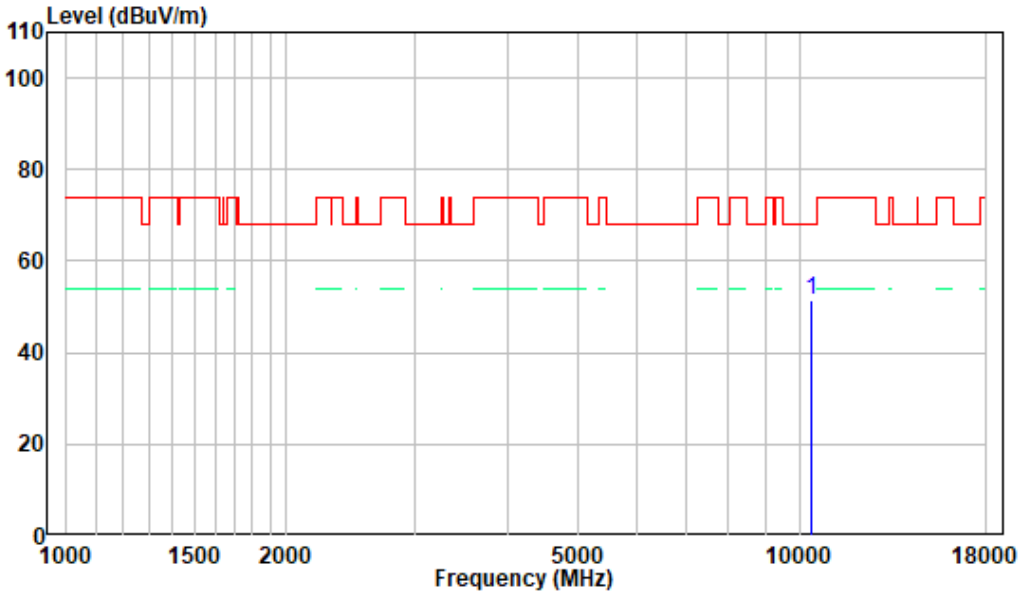
Frequency (MHz)	Receiver		Turn-Table	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	RSS-247	
	Reading (dBμV)	Detector (PK/QP/AV)	Angle Degree	Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11ac40									
5755 MHz									
5650	64.5	PK	305	1.7	H	-1.95	62.55	68.2	-5.65
5650	64.19	PK	305	1.7	V	-1.95	62.24	68.2	-5.96
5700	64.71	PK	275	1	H	-2.02	62.69	105.2	-42.51
5700	64.45	PK	275	1	V	-2.02	62.43	105.2	-42.77
5720	64.76	PK	98	2	H	-1.97	62.79	110.8	-48.01
5720	64.98	PK	98	2	V	-1.97	63.01	110.8	-47.79
5725	64.28	PK	3	2.3	H	-1.96	62.32	122.2	-59.88
5725	64.34	PK	3	2.3	V	-1.96	62.38	122.2	-59.82
11510	43.41	PK	126	2.4	H	6.59	50	74	-24
11510	45.15	PK	126	2.4	V	6.59	51.74	74	-22.26
5795MHz									
5850	66.1	PK	40	1.4	H	-1.81	64.29	122.2	-57.91
5850	65.8	PK	12	2.3	V	-1.81	63.99	122.2	-58.21
5855	65.97	PK	199	1.5	H	-1.82	64.15	110.8	-46.65
5855	65.54	PK	310	1.6	V	-1.82	63.72	110.8	-47.08
5875	65.91	PK	201	2.4	H	-1.84	64.07	105.2	-41.13
5875	65.79	PK	301	1.4	V	-1.84	63.95	105.2	-41.25
5925	66.61	PK	325	1.3	H	-1.82	64.79	68.2	-3.41
5925	66.01	PK	305	2.4	V	-1.82	64.19	68.2	-4.01
11590	42.89	PK	299	1.6	H	6.57	49.46	74	-24.54
11590	44.2	PK	93	1.9	V	6.57	50.77	74	-23.23

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.
The test result of peak was less than the limit of average, so just peak value were recorded.

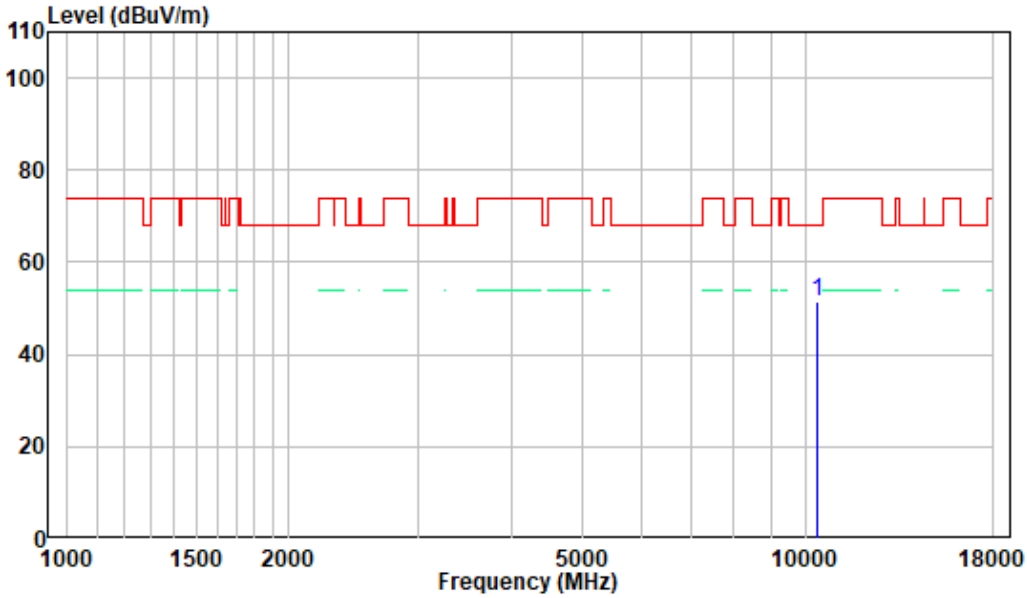
1 GHz - 18 GHz: (Pre-Scan plots)

802.11 n20, 5200MHz

Horizontal



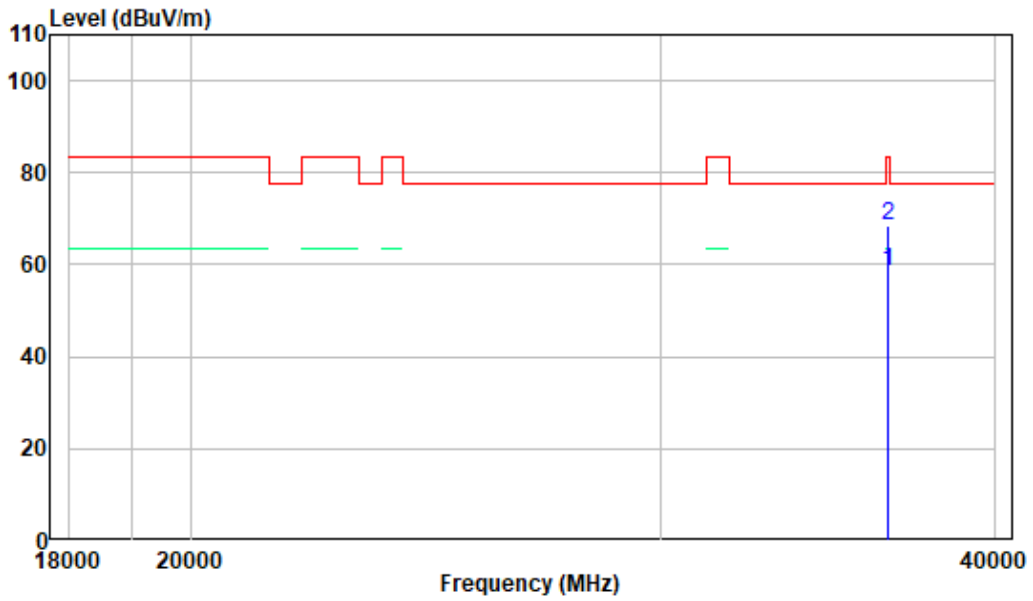
Vertical



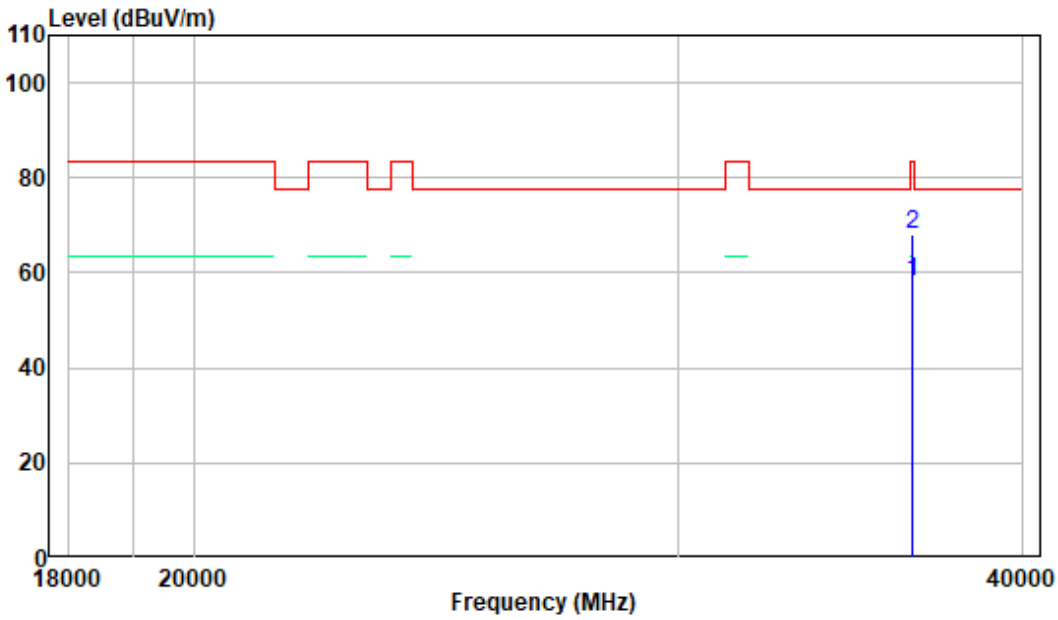
18-40GHz: (Pre-Scan plots)

802.11 n20, 5200MHz

Horizontal



Vertical



RSS-GEN §6.7 & RSS-247 §6.2– 99% OCCUPIED BANDWIDTH & EMISSON BANDWIDTH

Standard Applicable

According to RSS-GEN §6.7 & RSS-247 §6.2.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	43 %
ATM Pressure:	101.3 kPa

The testing was performed by Key Pei on 2022-04-02 and 2022-05-20.

Test Mode: Transmitting

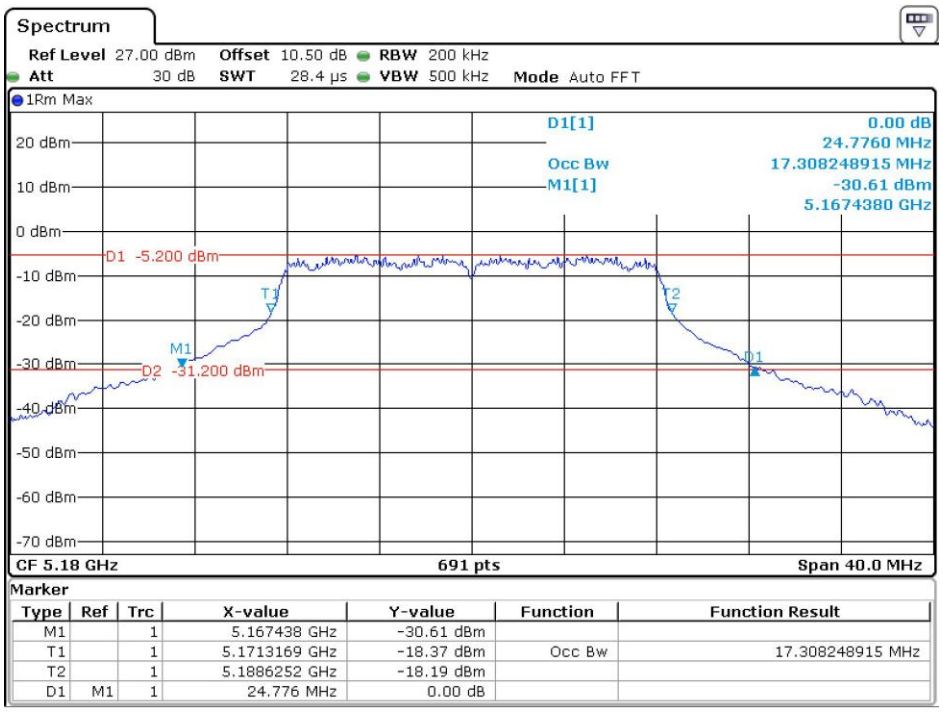
Test Result: Pass.

Please refer to the following tables and plots.

5150 MHz - 5250 MHz:

Frequency (MHz)	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	24.776	17.308	
5200	24.718	17.135	
5240	24.544	17.192	
802.11n20			
5180	25.702	18.292	
5200	25.586	18.177	
5240	25.470	18.234	
802.11n40			
5190	45.040	36.237	
5230	45.500	36.353	
802.11ac20			
5180	25.702	18.234	
5200	25.412	18.292	
5240	25.239	18.119	
802.11ac40			
5190	44.690	36.237	
5230	44.340	36.237	

802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5180 MHz

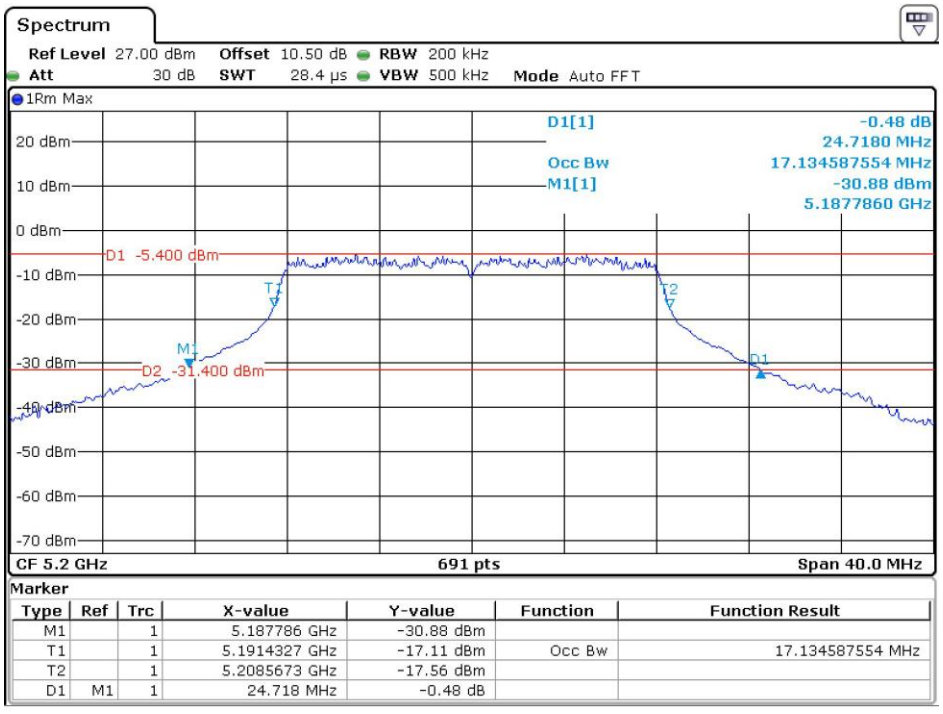


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.167438 GHz	-30.61 dBm		
T1		1	5.1713169 GHz	-18.37 dBm	Occ Bw	17.308248915 MHz
T2		1	5.1886252 GHz	-18.19 dBm		
D1	M1	1	24.776 MHz	0.00 dB		

Date: 2.APR.2022 15:07:02

802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5200 MHz

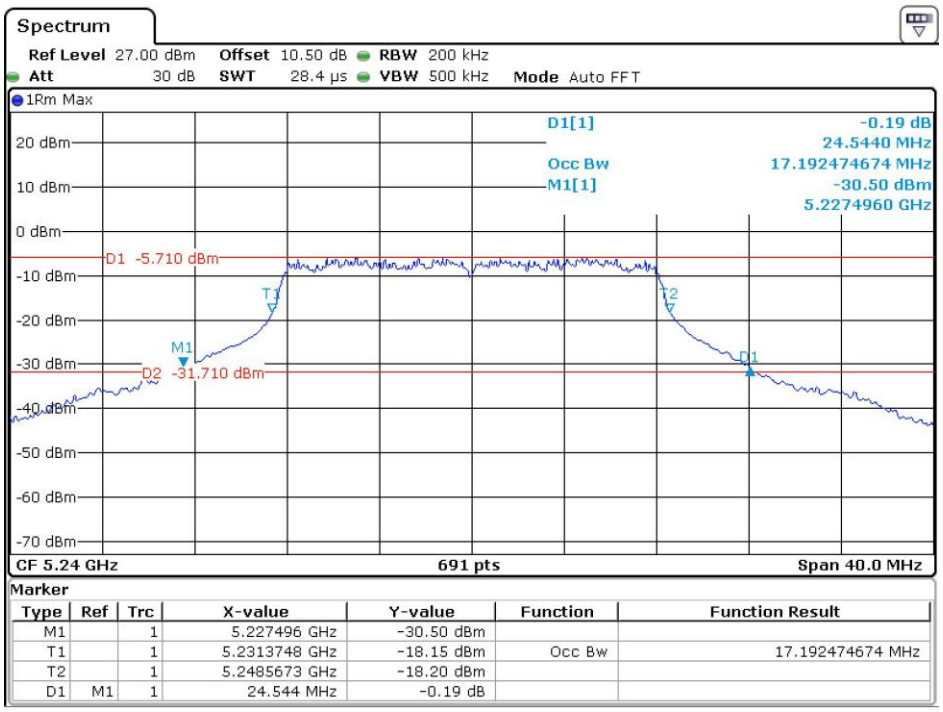


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.187786 GHz	-30.88 dBm		
T1		1	5.1914327 GHz	-17.11 dBm	Occ Bw	17.134587554 MHz
T2		1	5.2085673 GHz	-17.56 dBm		
D1	M1	1	24.718 MHz	-0.48 dB		

Date: 2.APR.2022 15:06:18

802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5240 MHz

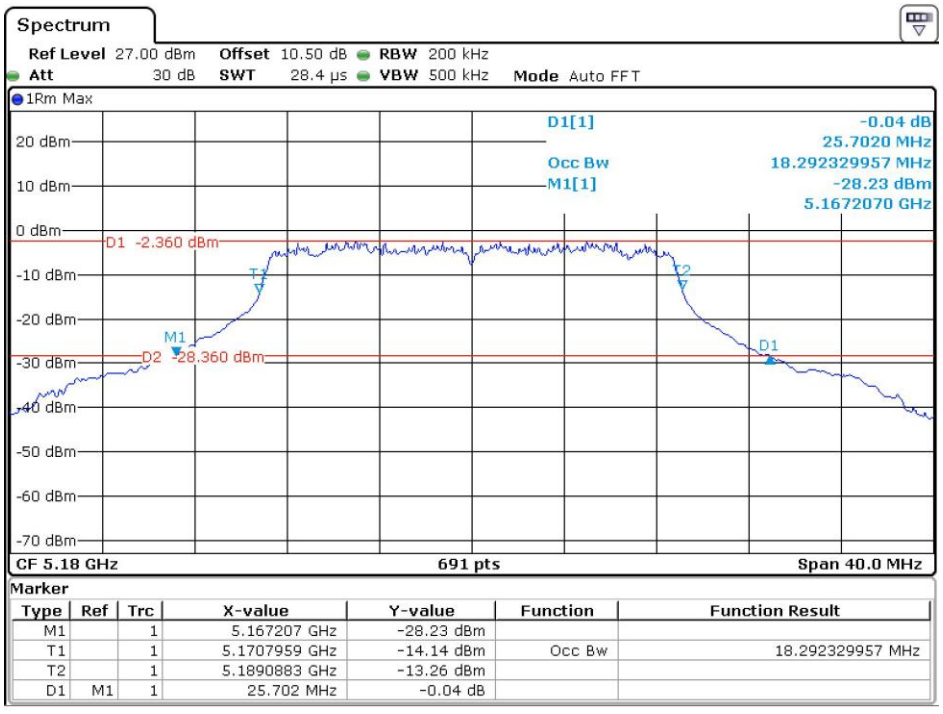


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.227496 GHz	-30.50 dBm		
T1		1	5.2313748 GHz	-18.15 dBm	Occ Bw	17.192474674 MHz
T2		1	5.2485673 GHz	-18.20 dBm		
D1	M1	1	24.544 MHz	-0.19 dB		

Date: 2.APR.2022 15:05:41

802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5180 MHz

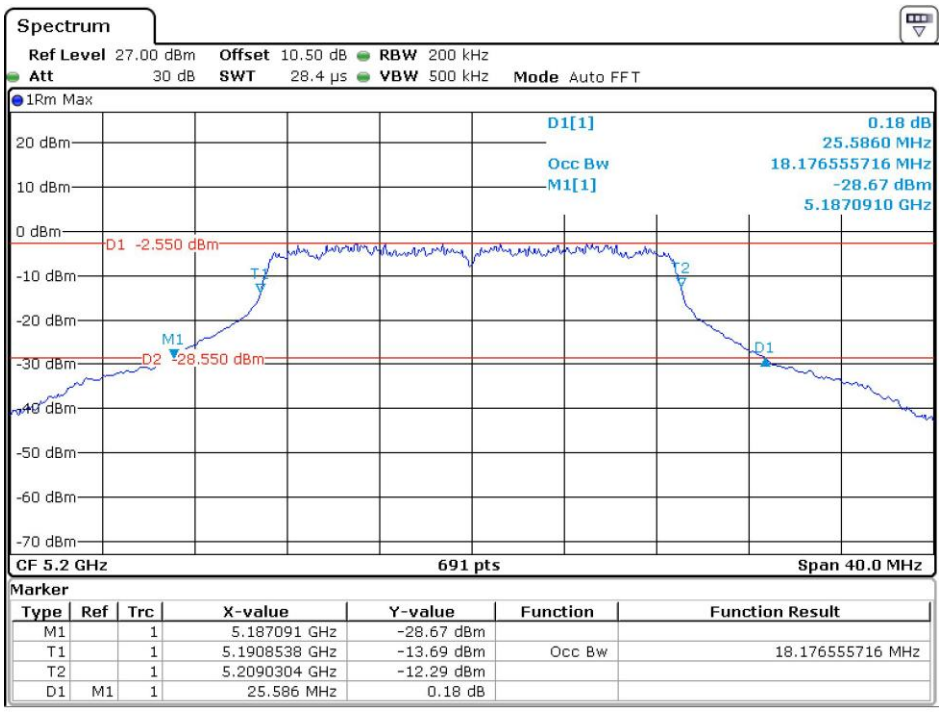


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.167207 GHz	-28.23 dBm		
T1		1	5.1707959 GHz	-14.14 dBm	Occ Bw	18.292329957 MHz
T2		1	5.1890883 GHz	-13.26 dBm		
D1	M1	1	25.702 MHz	-0.04 dB		

Date: 2.APR.2022 15:02:32

802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5200 MHz

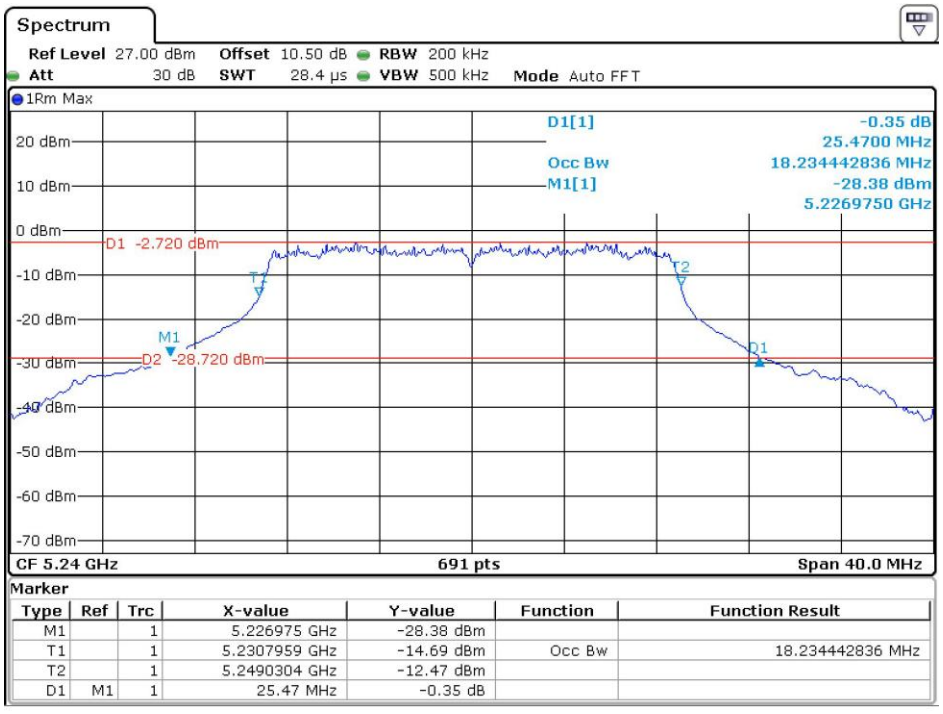


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.187091 GHz	-28.67 dBm		
T1		1	5.1908538 GHz	-13.69 dBm	Occ Bw	18.176555716 MHz
T2		1	5.2090304 GHz	-12.29 dBm		
D1	M1	1	25.586 MHz	0.18 dB		

Date: 2.APR.2022 15:03:51

802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5240 MHz

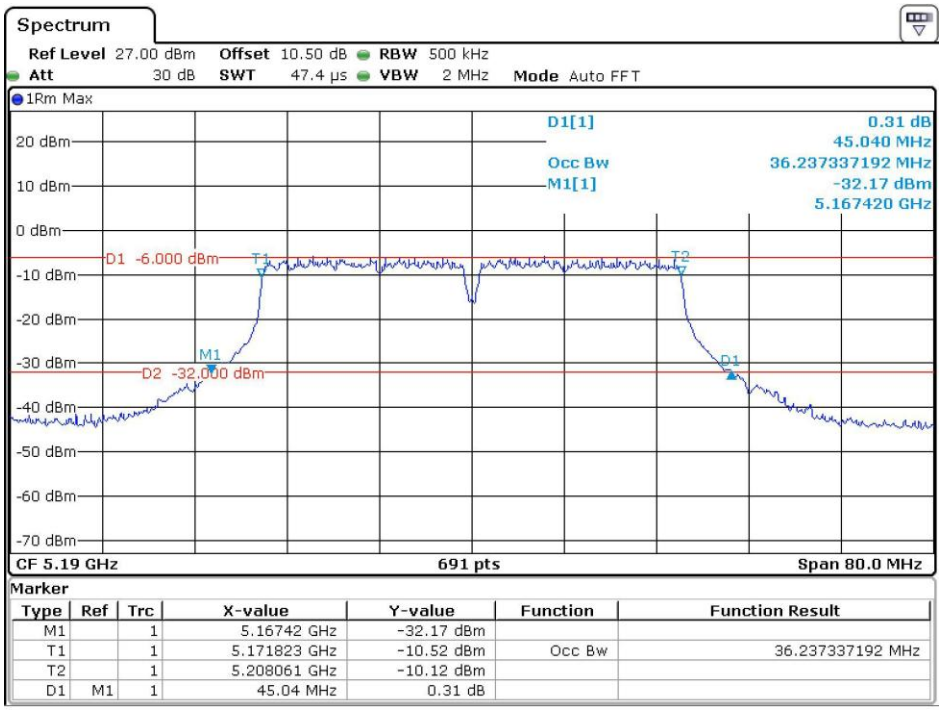


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.226975 GHz	-28.38 dBm		
T1		1	5.2307959 GHz	-14.69 dBm	Occ Bw	18.234442836 MHz
T2		1	5.2490304 GHz	-12.47 dBm		
D1	M1	1	25.47 MHz	-0.35 dB		

Date: 2.APR.2022 15:04:39

802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5180 MHz

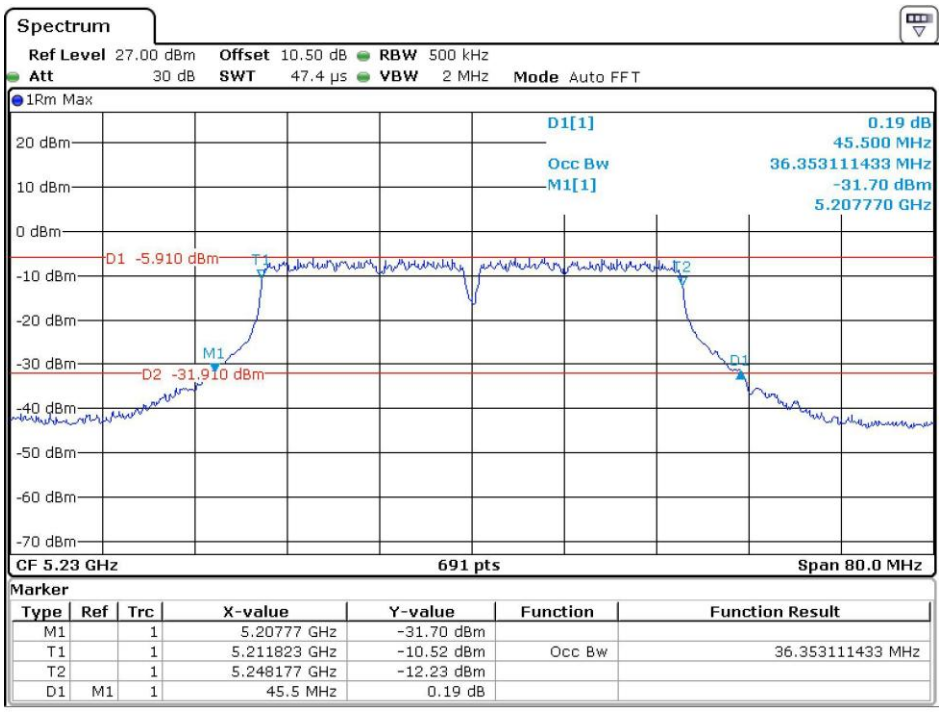


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.16742 GHz	-32.17 dBm		
T1		1	5.171823 GHz	-10.52 dBm	Occ Bw	36.237337192 MHz
T2		1	5.208061 GHz	-10.12 dBm		
D1	M1	1	45.04 MHz	0.31 dB		

Date: 2.APR.2022 15:10:57

802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5240 MHz

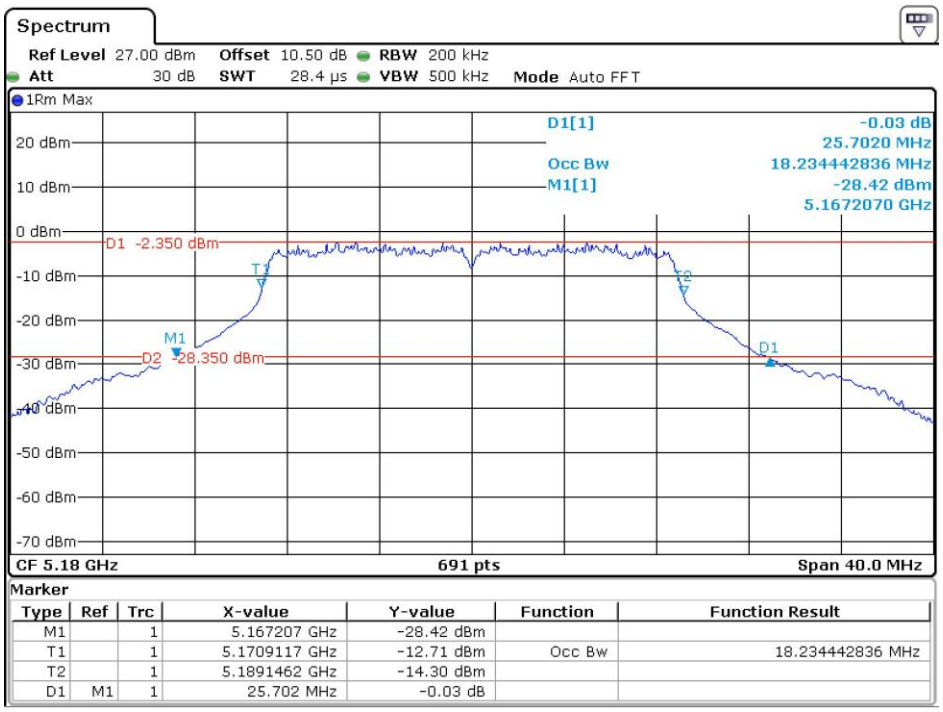


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.20777 GHz	-31.70 dBm		
T1		1	5.211823 GHz	-10.52 dBm	Occ Bw	36.353111433 MHz
T2		1	5.248177 GHz	-12.23 dBm		
D1	M1	1	45.5 MHz	0.19 dB		

Date: 2.APR.2022 15:10:18

802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5180 MHz

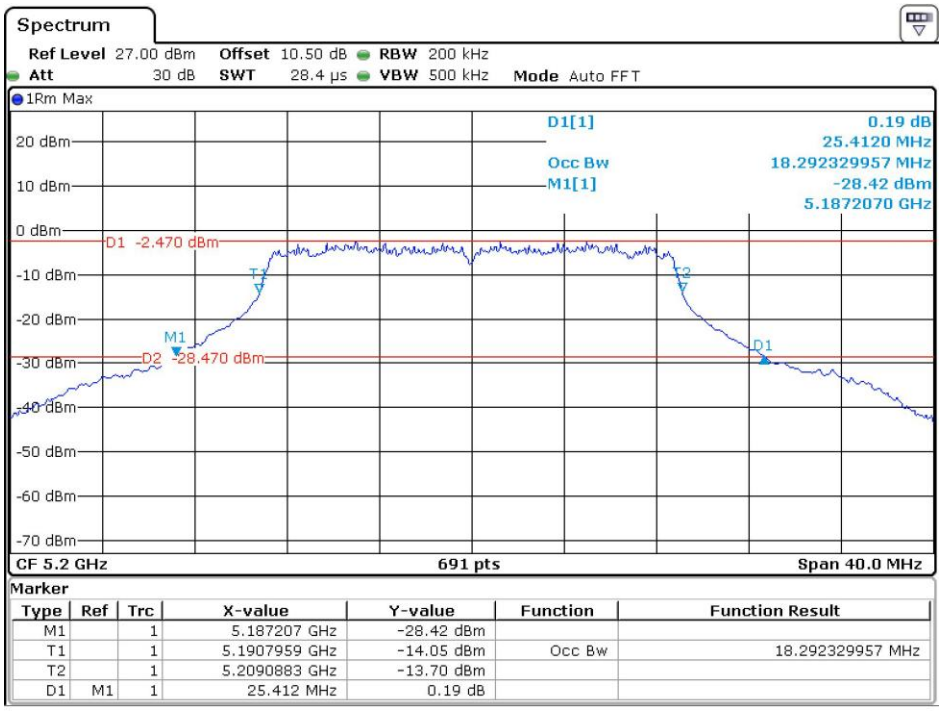


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.167207 GHz	-28.42 dBm		
T1		1	5.1709117 GHz	-12.71 dBm	Occ Bw	18.234442836 MHz
T2		1	5.1891462 GHz	-14.30 dBm		
D1	M1	1	25.702 MHz	-0.03 dB		

Date: 2.APR.2022 15:01:43

802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5200 MHz

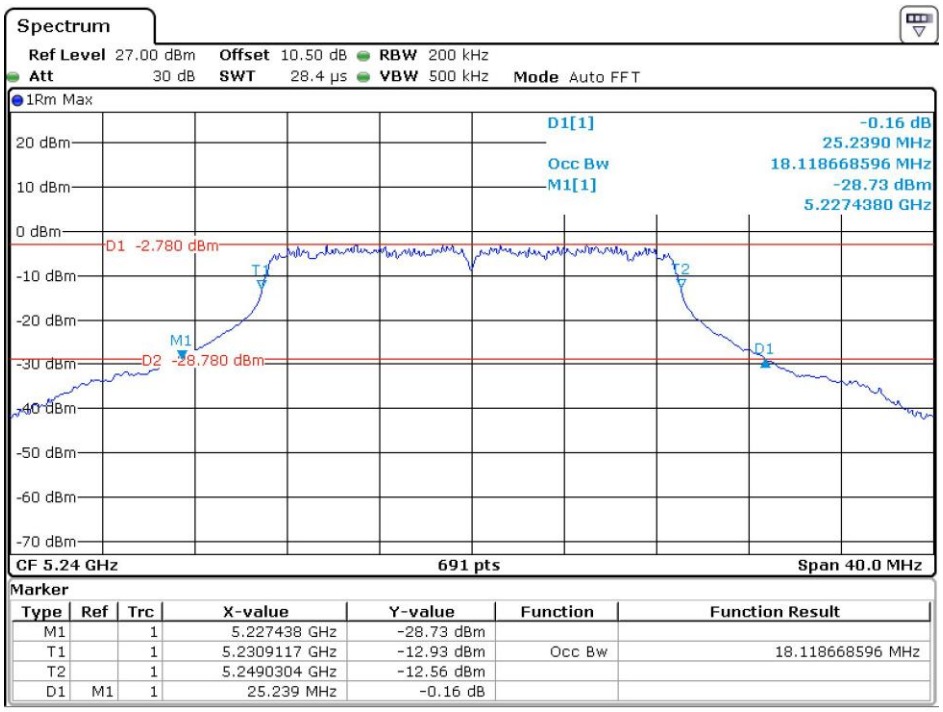


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.187207 GHz	-28.42 dBm		
T1		1	5.1907959 GHz	-14.05 dBm	Occ Bw	18.292329957 MHz
T2		1	5.2090883 GHz	-13.70 dBm		
D1	M1	1	25.412 MHz	0.19 dB		

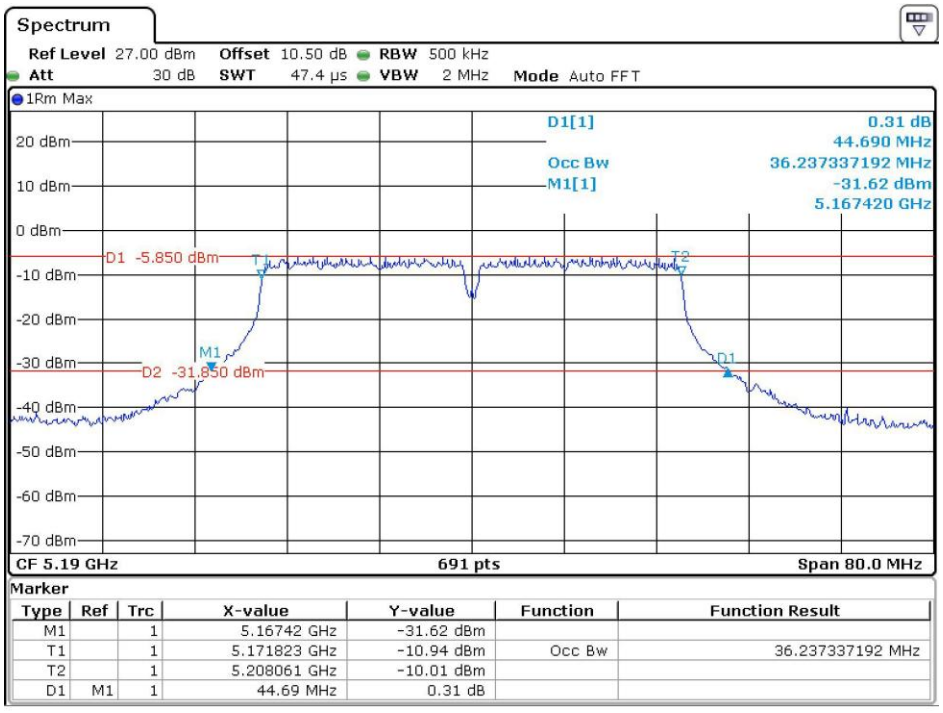
Date: 2.APR.2022 15:00:59

802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5240 MHz



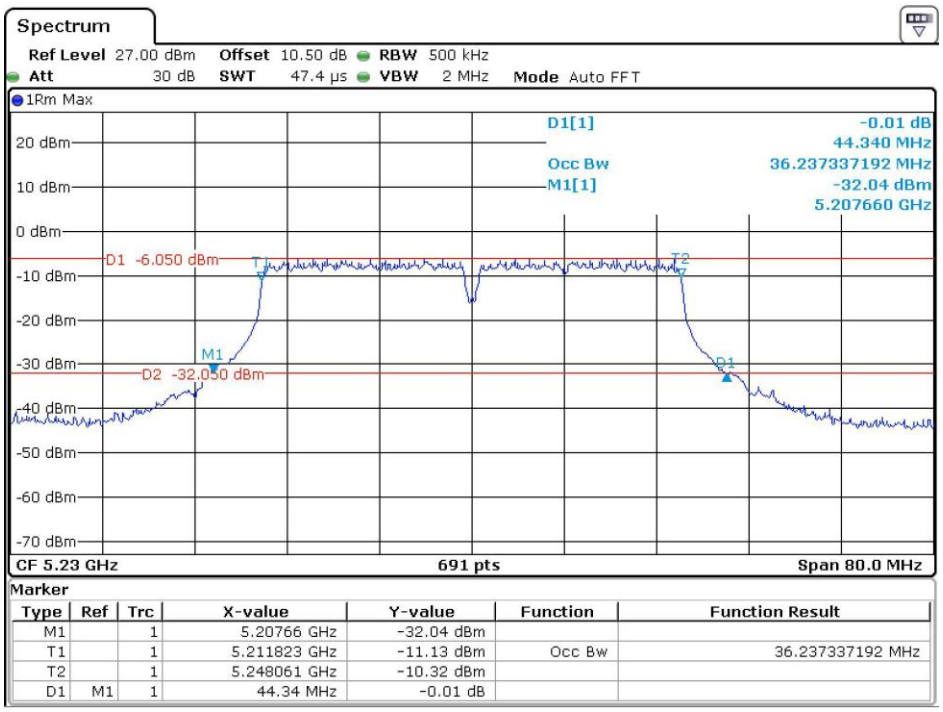
Date: 2.APR.2022 15:00:10

802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5180 MHz



Date: 2.APR.2022 15:08:11

802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5240 MHz



Marker

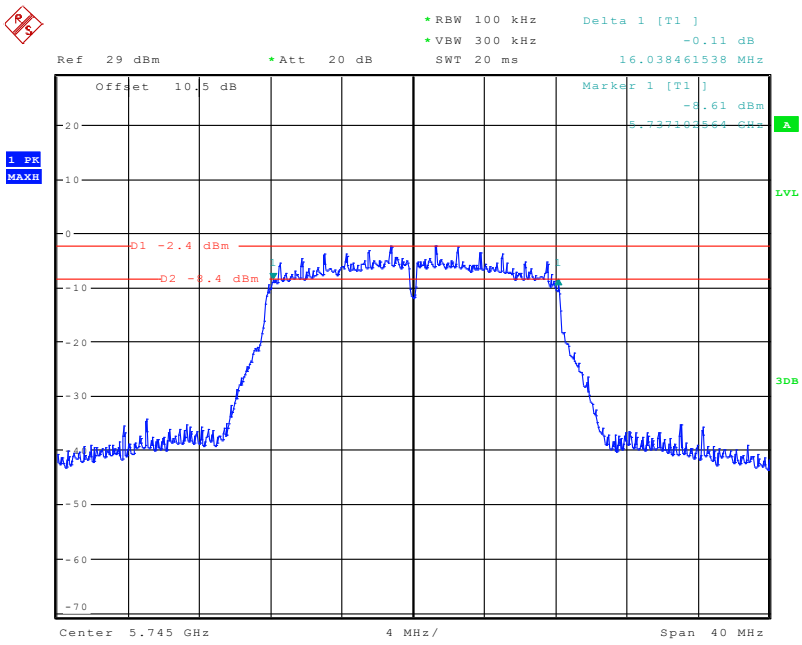
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.20766 GHz	-32.04 dBm		
T1		1	5.211823 GHz	-11.13 dBm	Occ Bw	36.237337192 MHz
T2		1	5.248061 GHz	-10.32 dBm		
D1	M1	1	44.34 MHz	-0.01 dB		

Date: 2.APR.2022 15:09:02

5725 MHz - 5850 MHz:

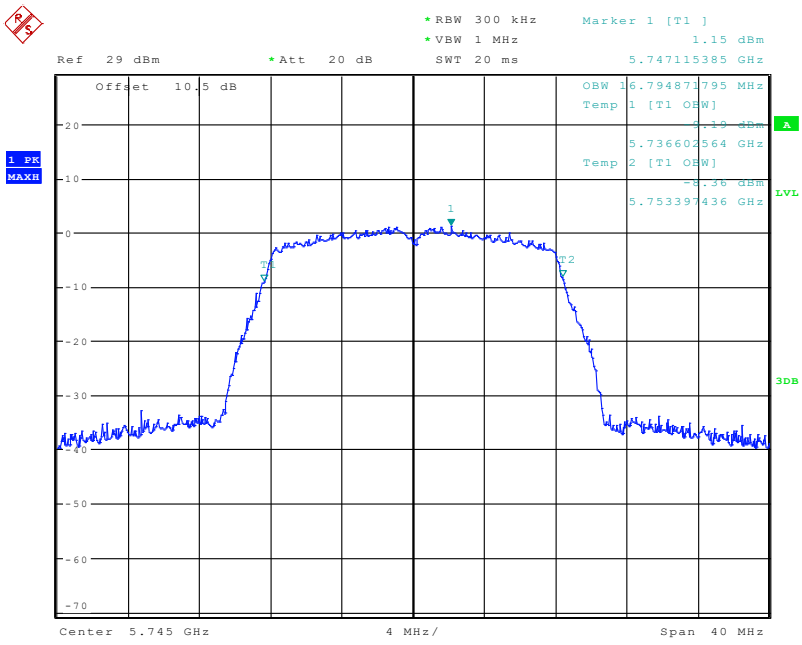
Frequency (MHz)	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Remark
802.11a			No transmitted signal in the 99% bandwidth extends into the U-NII-2C band
5745	16.038	16.795	
5785	15.346	16.795	
5825	15.526	16.795	
802.11n20			
5745	15.449	17.821	
5785	15.449	17.756	
5825	15.526	17.756	
802.11n40			
5755	35.256	36.026	
5795	35.256	36.026	
802.11ac20			
5745	15.615	17.821	
5785	15.321	17.821	
5825	15.205	17.756	
802.11ac40			
5755	35.205	36.026	
5795	35.128	36.026	

802.11a mode, 6 dB Emission Bandwidth, 5745 MHz



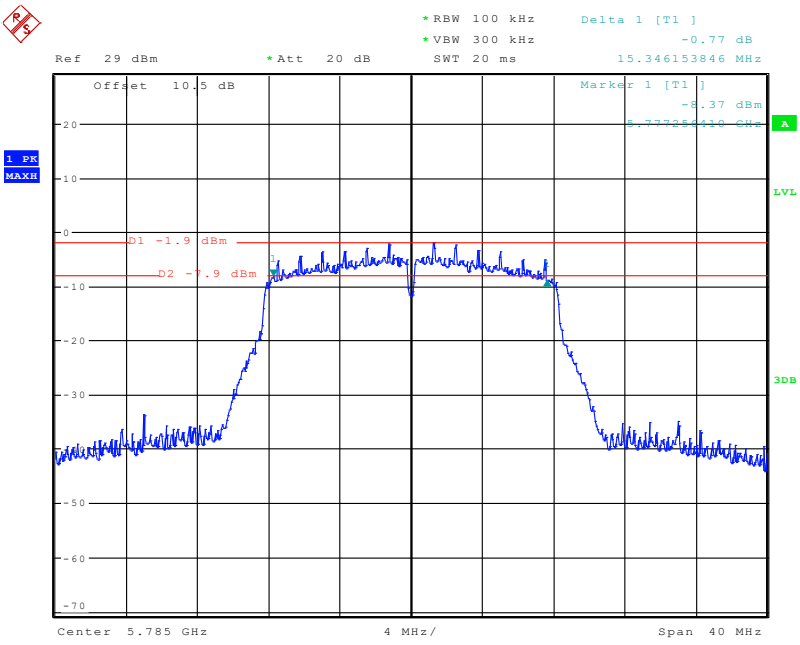
Date: 20.MAY.2022 21:13:44

802.11a mode, 99% Occupied Bandwidth, 5745 MHz



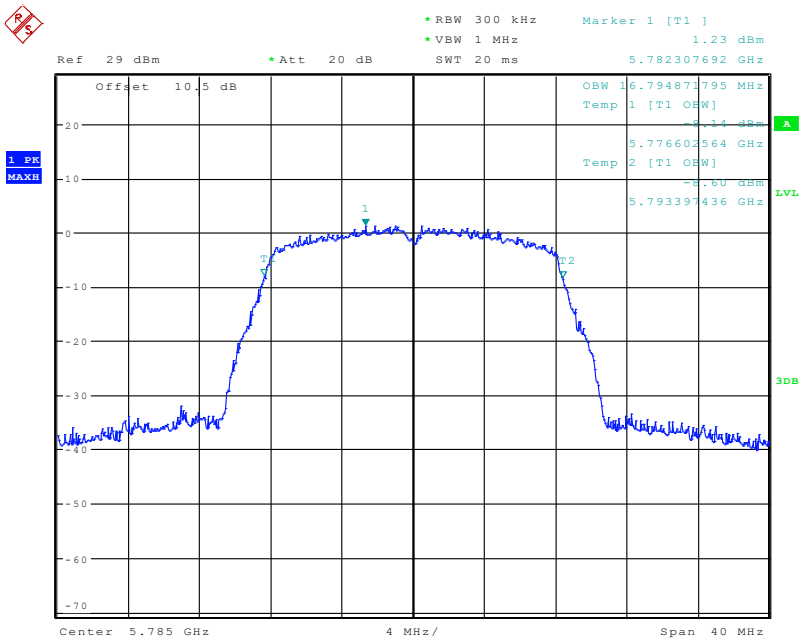
Date: 20.MAY.2022 21:54:56

802.11a mode, 6 dB Emission Bandwidth, 5785 MHz



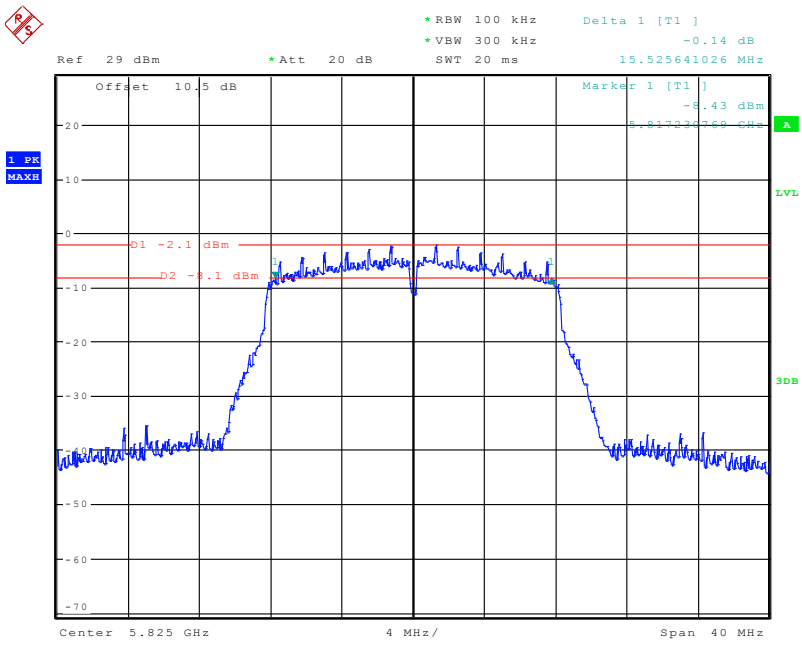
Date: 20.MAY.2022 21:15:22

802.11a mode, 99% Occupied Bandwidth, 5785 MHz



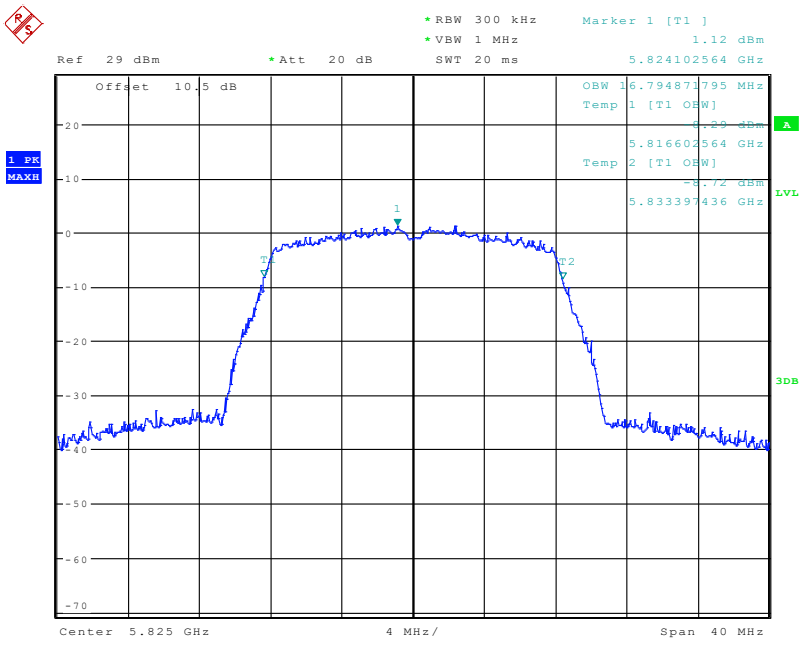
Date: 20.MAY.2022 21:55:20

802.11a mode, 6 dB Emission Bandwidth, 5825 MHz



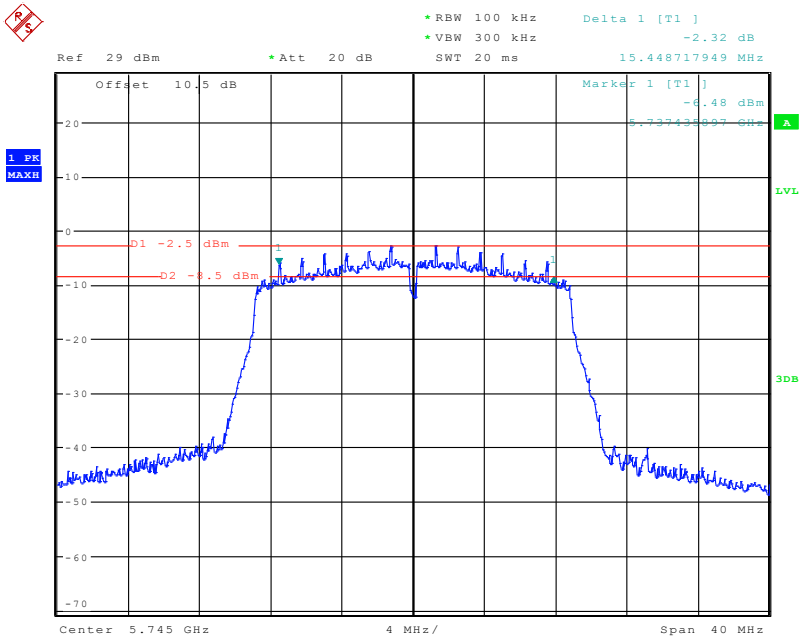
Date: 20.MAY.2022 21:17:09

802.11a mode, 99% Occupied Bandwidth, 5825 MHz



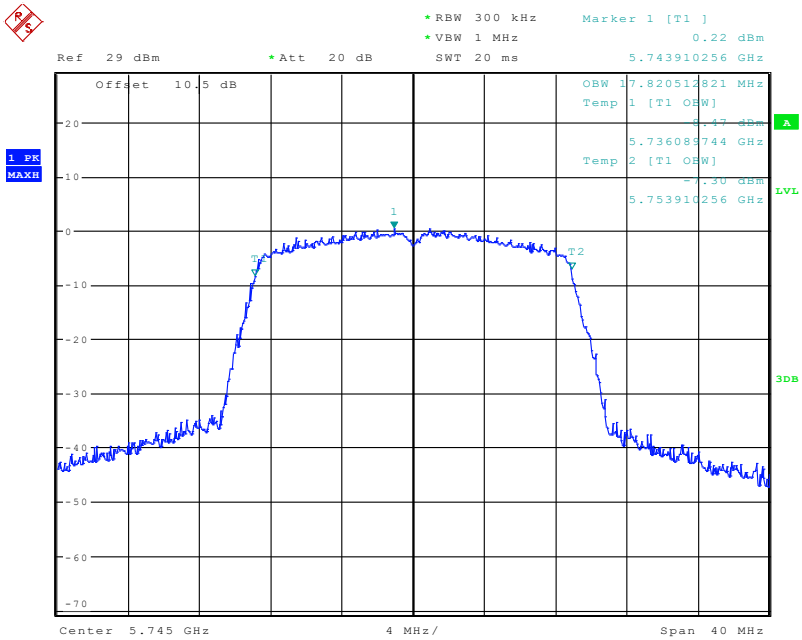
Date: 20.MAY.2022 21:55:41

802.11n20 mode, 6 dB Emission Bandwidth, 5745 MHz



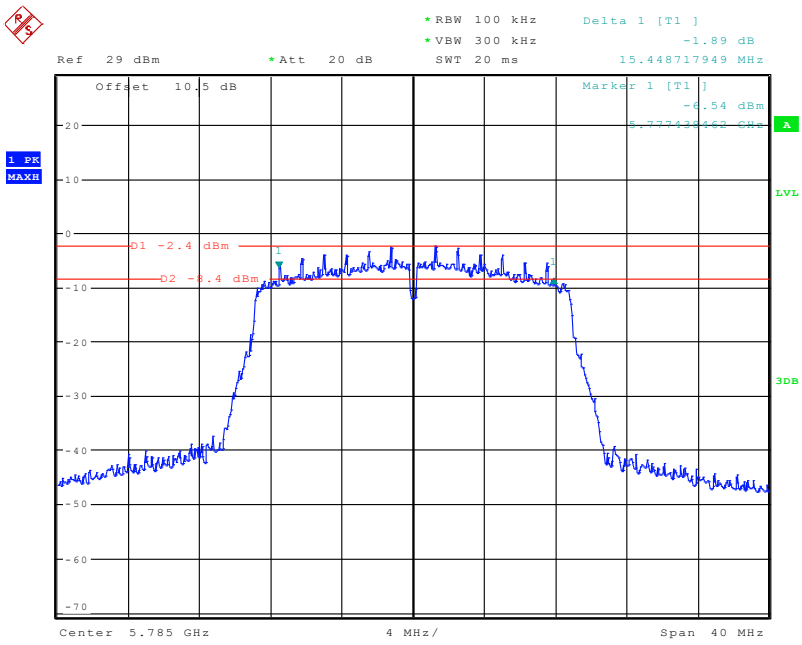
Date: 20.MAY.2022 21:19:39

802.11n20 mode, 99% Occupied Bandwidth, 5745 MHz



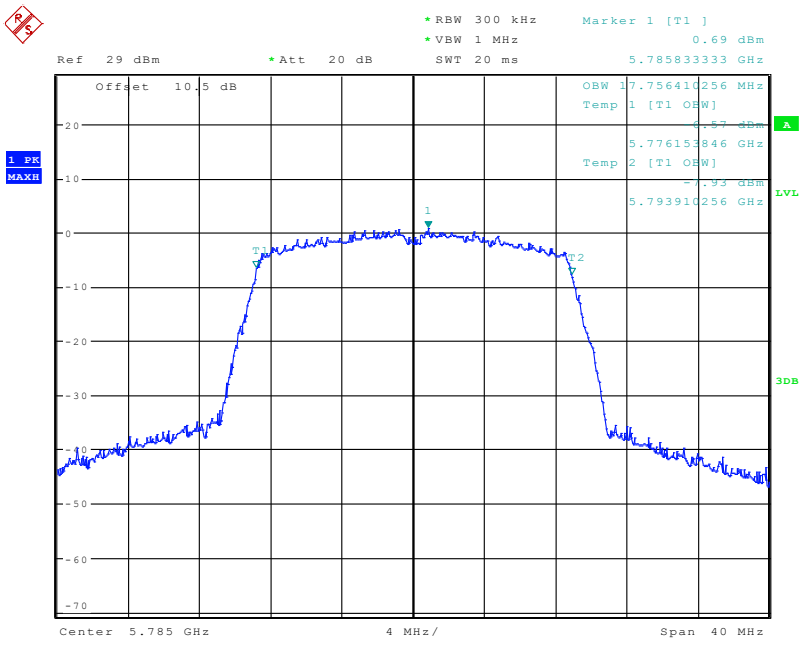
Date: 20.MAY.2022 21:56:47

802.11n20 mode, 6 dB Emissions Bandwidth, 5785 MHz



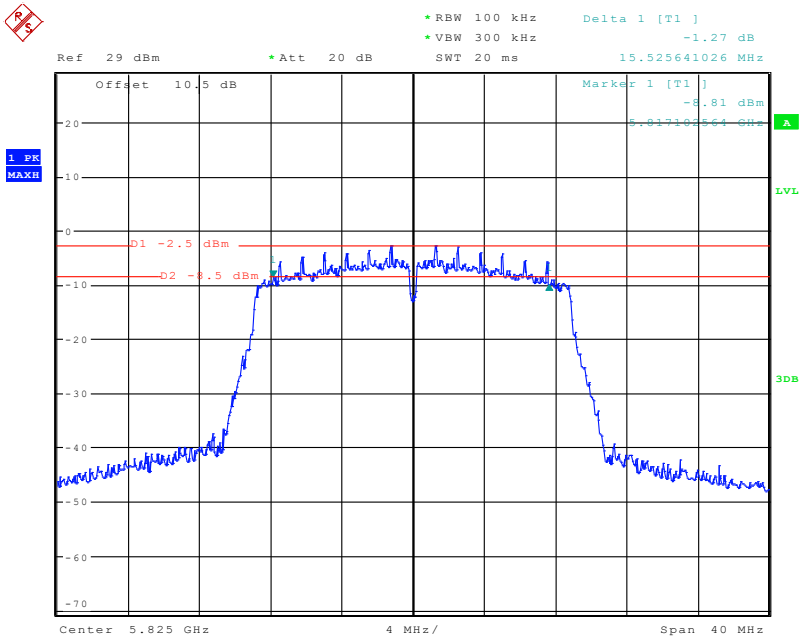
Date: 20.MAY.2022 21:21:11

802.11n20 mode, 99% Occupied Bandwidth, 5785 MHz



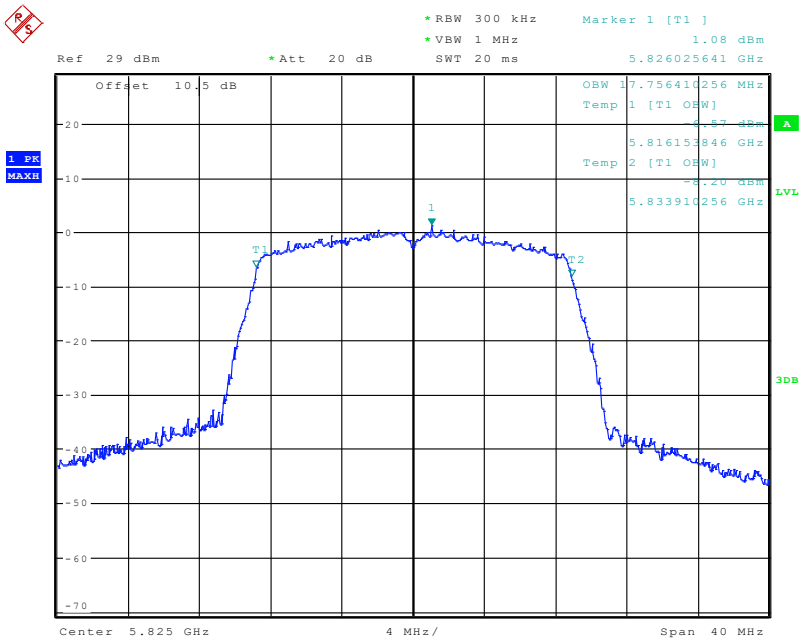
Date: 20.MAY.2022 21:56:26

802.11n20 mode, 6 dB Emission Bandwidth, 5825 MHz



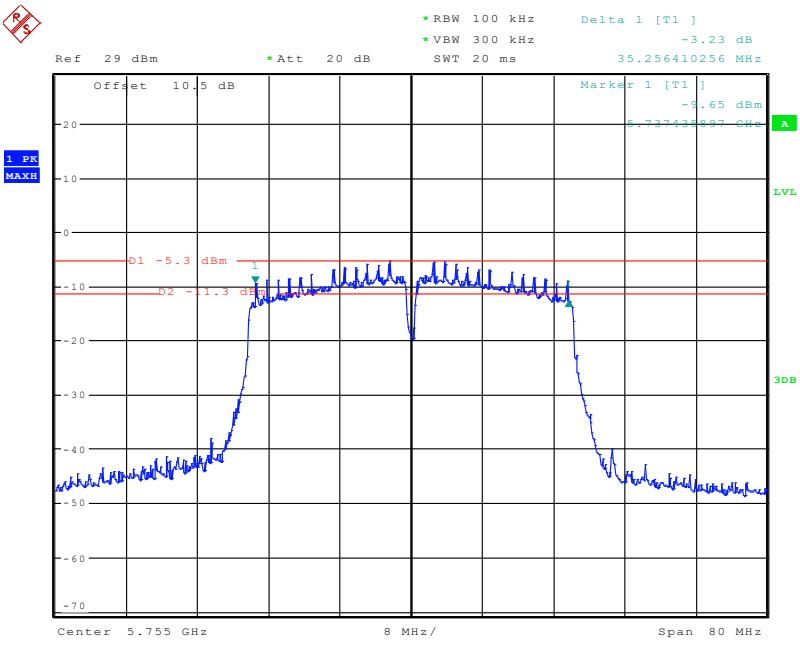
Date: 20.MAY.2022 21:17:56

802.11n20 mode, 99% Occupied Bandwidth, 5825 MHz



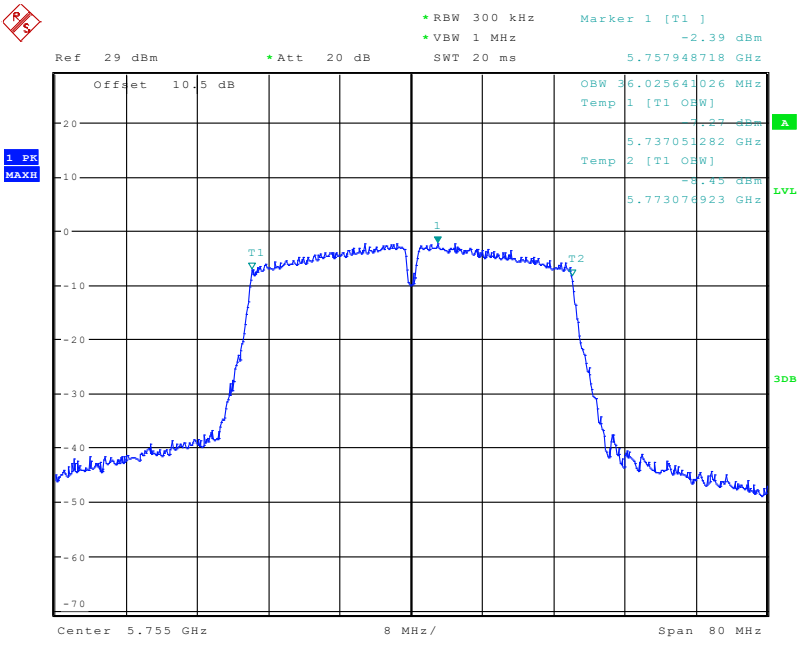
Date: 20.MAY.2022 21:56:02

802.11n40 mode, 6 dB Emission Bandwidth, 5755 MHz



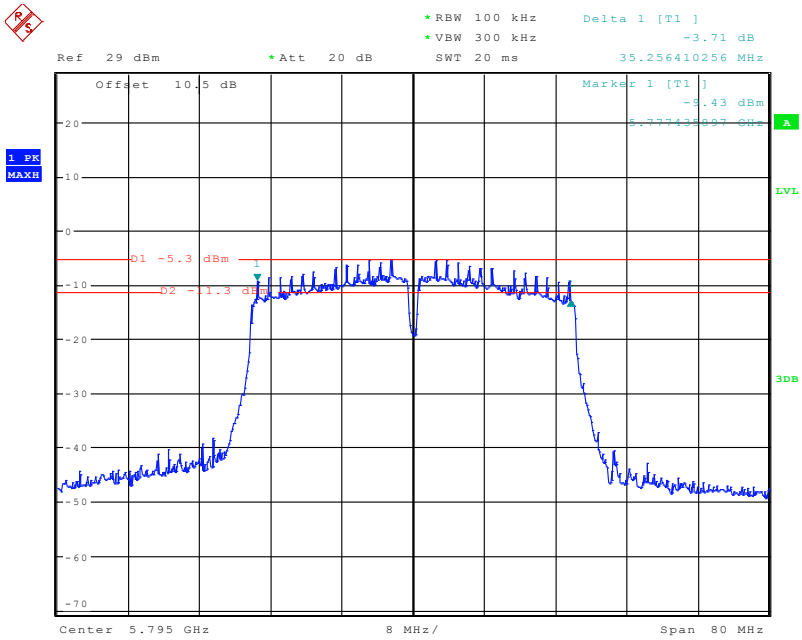
Date: 20.MAY.2022 21:28:16

802.11n40 mode, 99% Occupied Bandwidth, 5755 MHz



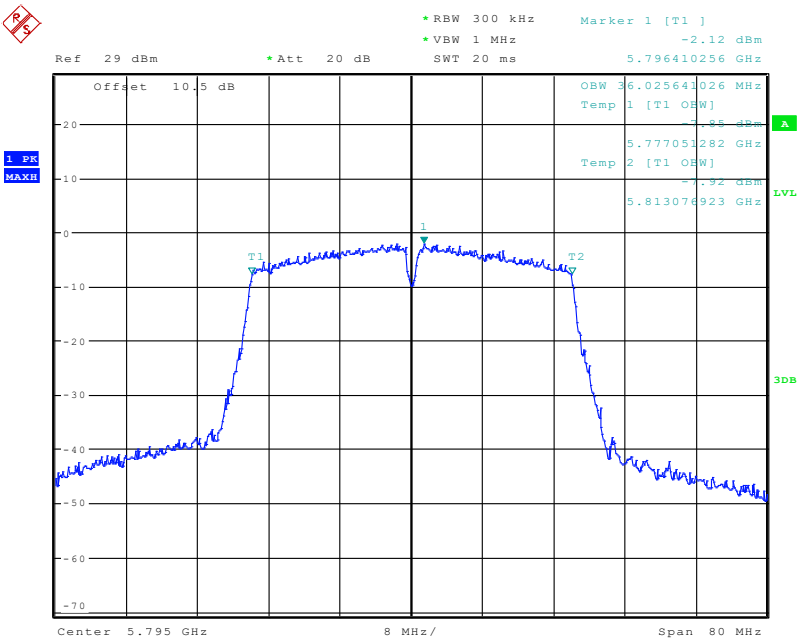
Date: 20.MAY.2022 22:00:16

802.11n40 mode, 6 dB Emission Bandwidth, 5795 MHz



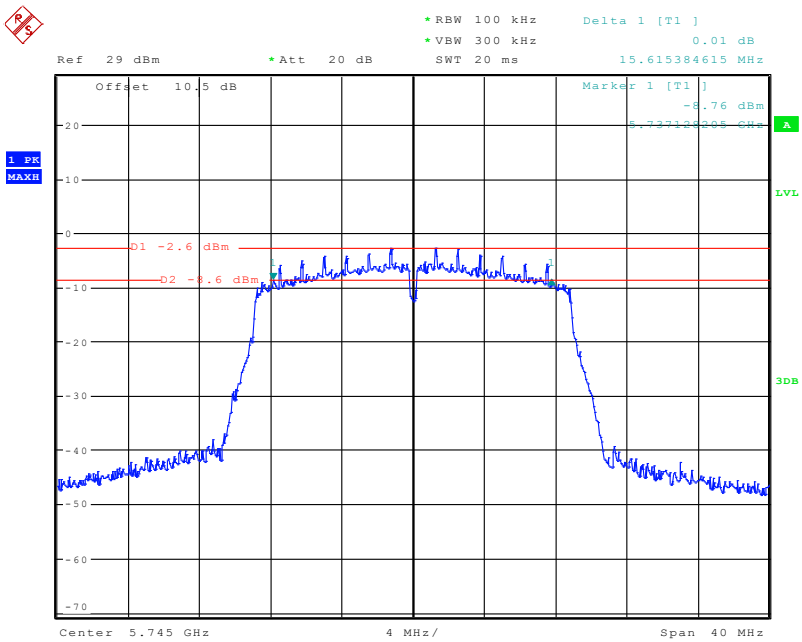
Date: 20.MAY.2022 21:27:07

802.11n40 mode, 99% Occupied Bandwidth, 5795 MHz



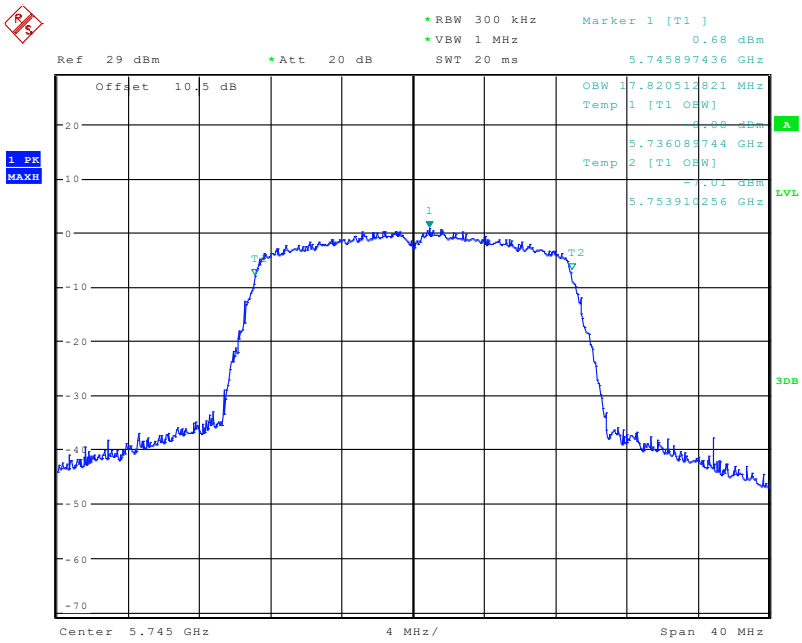
Date: 20.MAY.2022 21:59:47

802.11ac20 mode, 6 dB Emission Bandwidth, 5745 MHz



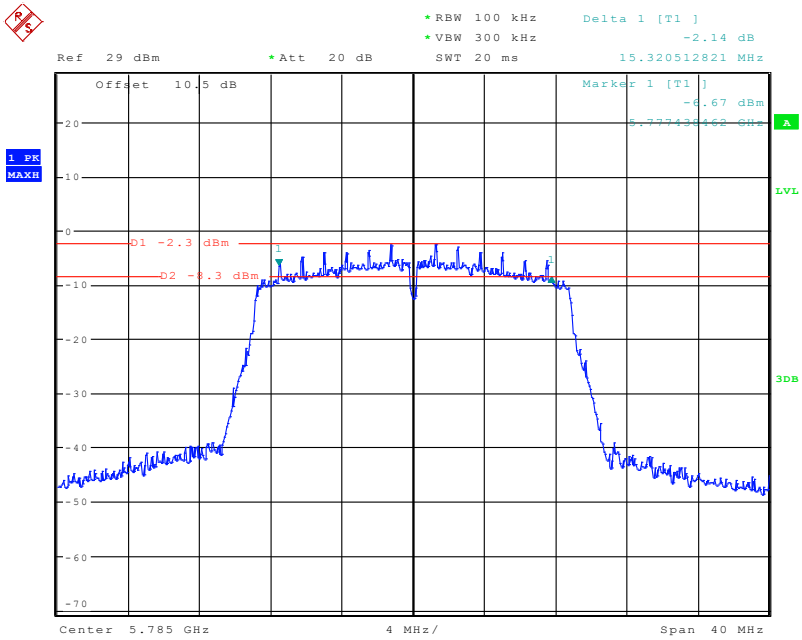
Date: 20.MAY.2022 21:22:51

802.11ac20 mode, 99% Occupied Bandwidth, 5745 MHz



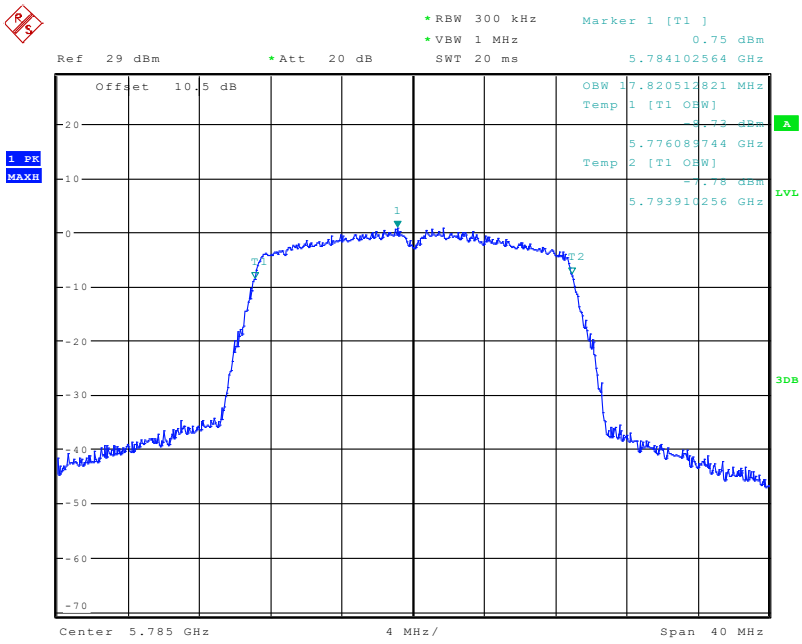
Date: 20.MAY.2022 21:57:07

802.11ac20 mode, 6 dB Emission Bandwidth, 5785 MHz



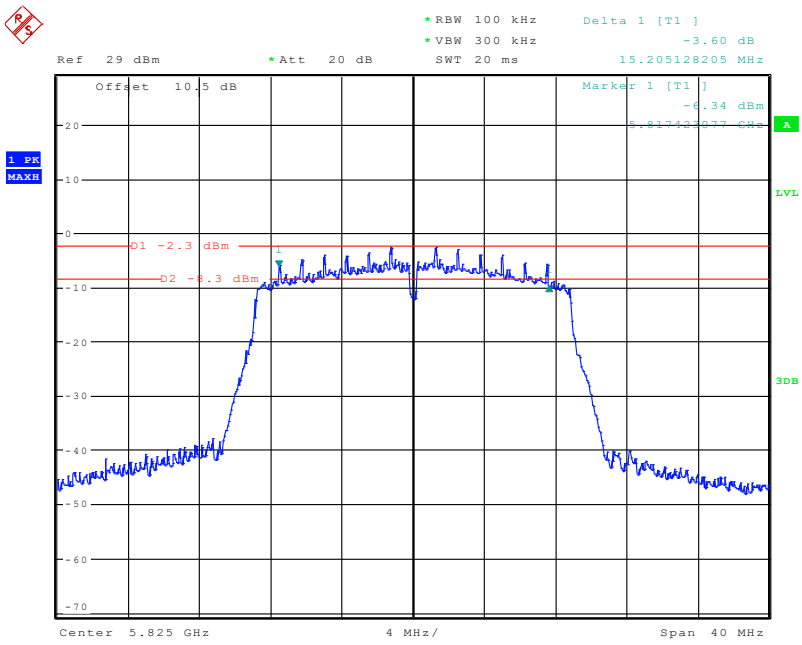
Date: 20.MAY.2022 21:21:58

802.11ac20 mode, 99% Occupied Bandwidth, 5785 MHz



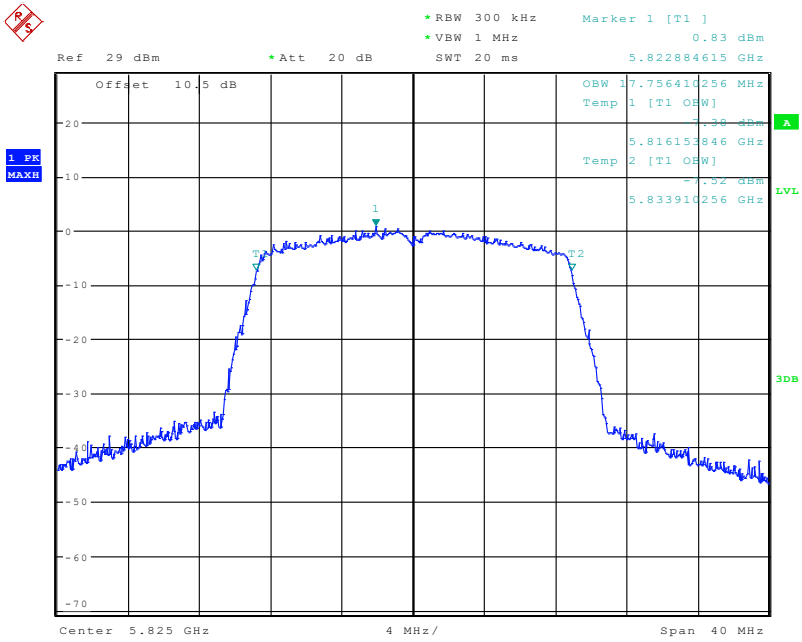
Date: 20.MAY.2022 21:57:32

802.11ac20 mode, 6 dB Emission Bandwidth, 5825 MHz



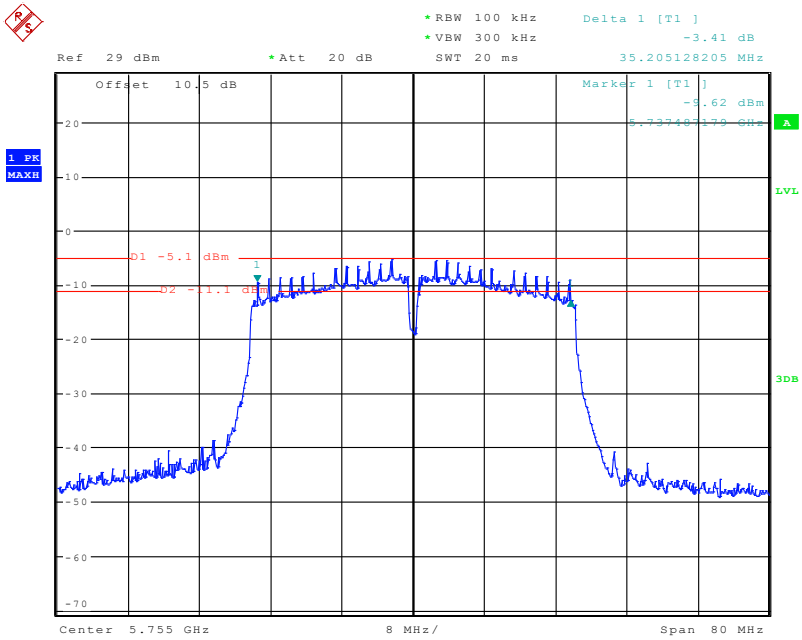
Date: 20.MAY.2022 21:24:32

802.11ac20 mode, 99% Occupied Bandwidth, 5825 MHz



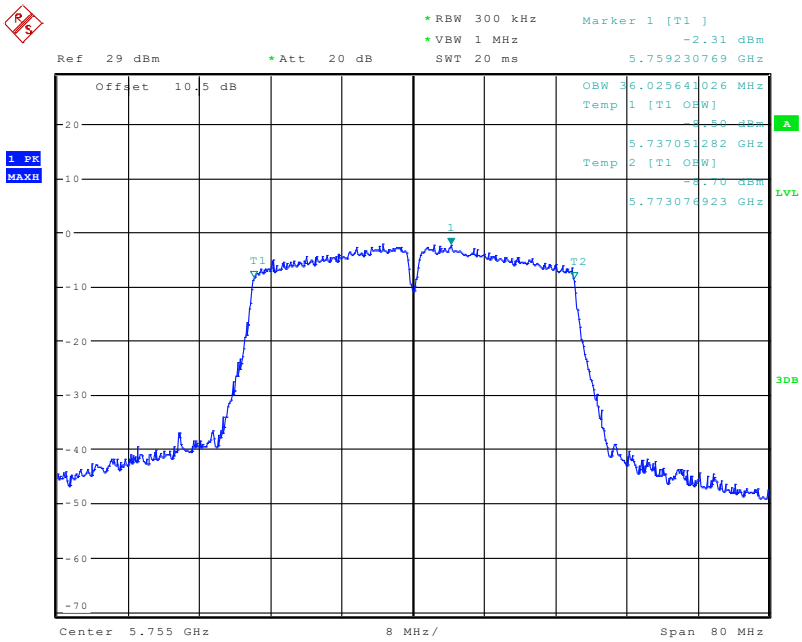
Date: 20.MAY.2022 21:57:53

802.11ac40 mode, 6 dB Emission Bandwidth, 5755 MHz



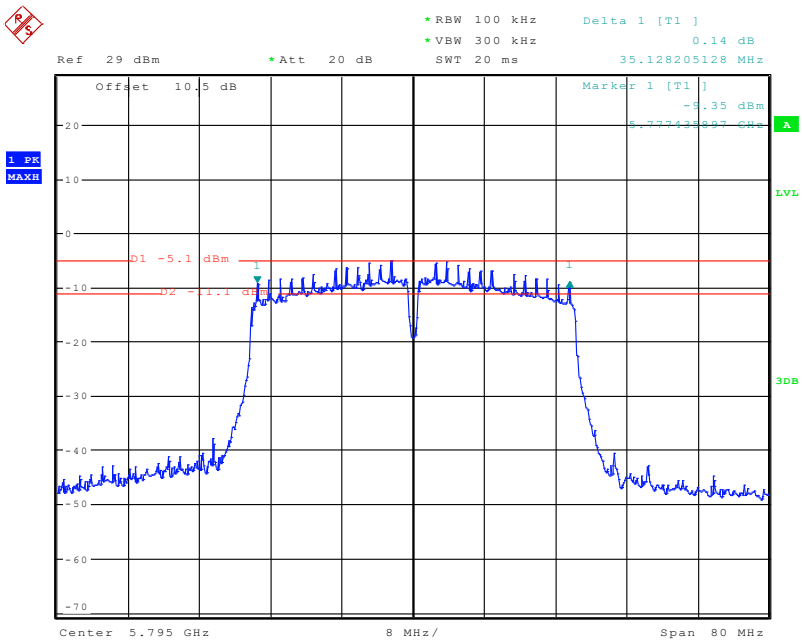
Date: 20.MAY.2022 21:25:27

802.11ac40 mode, 99% Occupied Bandwidth, 5755 MHz



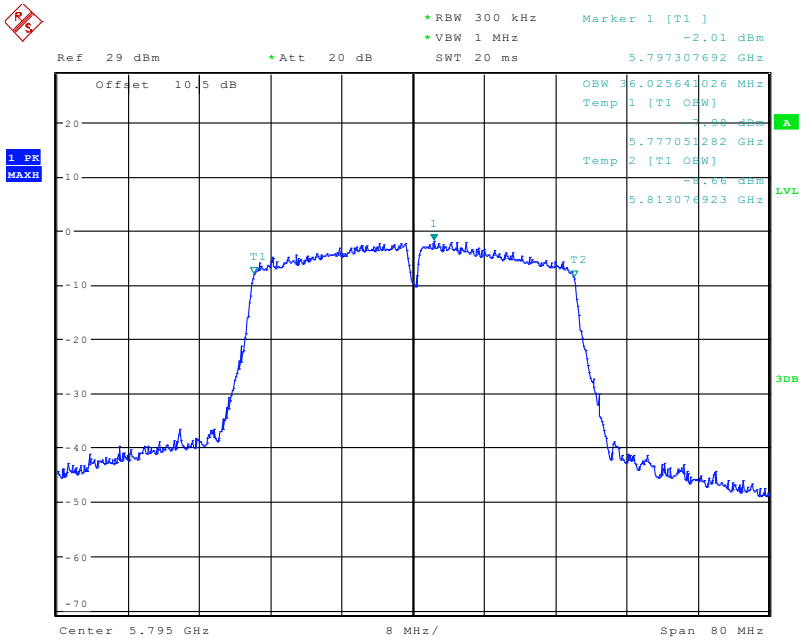
Date: 20.MAY.2022 21:58:20

802.11ac40 mode, 6 dB Emission Bandwidth, 5795 MHz



Date: 20.MAY.2022 21:26:16

802.11ac40 mode, 99% Occupied Bandwidth, 5795 MHz



Date: 20.MAY.2022 21:58:52

RSS-247 §6.2 – POWER SPECTRAL DENSITY

Applicable Standard

According to RSS-247 §6.2:

Frequency band 5250-5350 MHz

6.2.2.1(a) The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;

Frequency band 5470-5600 MHz and 5650-5725MHz

6.2.3.1 The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

Frequency band 5725-5850 MHz

6.2.4.1 For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

The maximum conducted output power shall not exceed 1 W. The output 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 output 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 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-multipointFootnote3 systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	43 %
ATM Pressure:	101.3 kPa

The testing was performed by Key Pei from 2022-04-02 to 2022-05-20.

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Test Mode: Transmitting

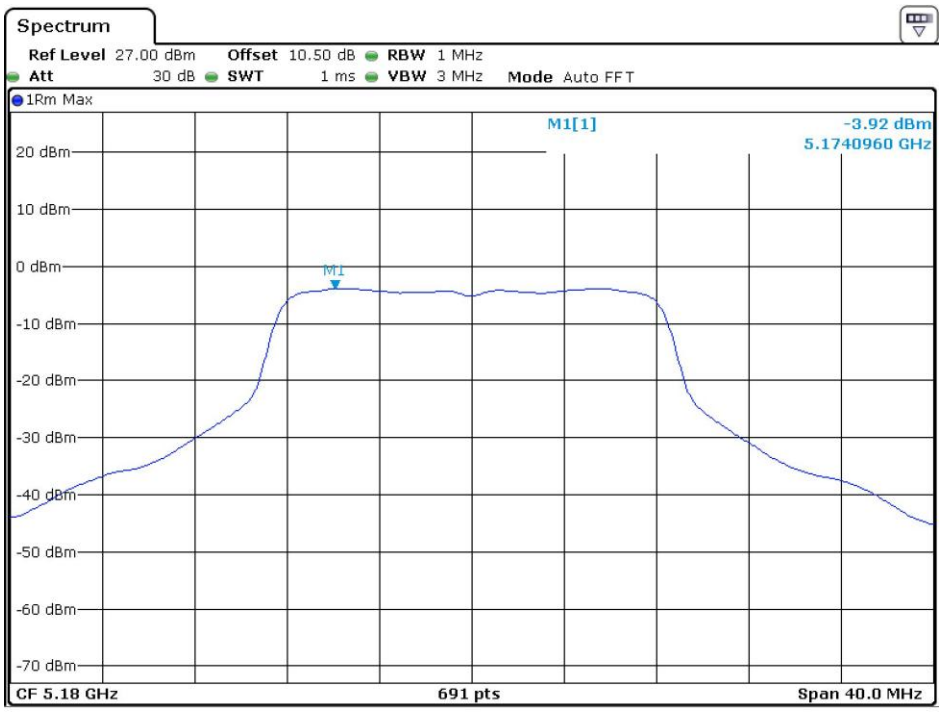
Test Result: Pass

Please refer to the following table and plots:

5150 MHz – 5250 MHz:

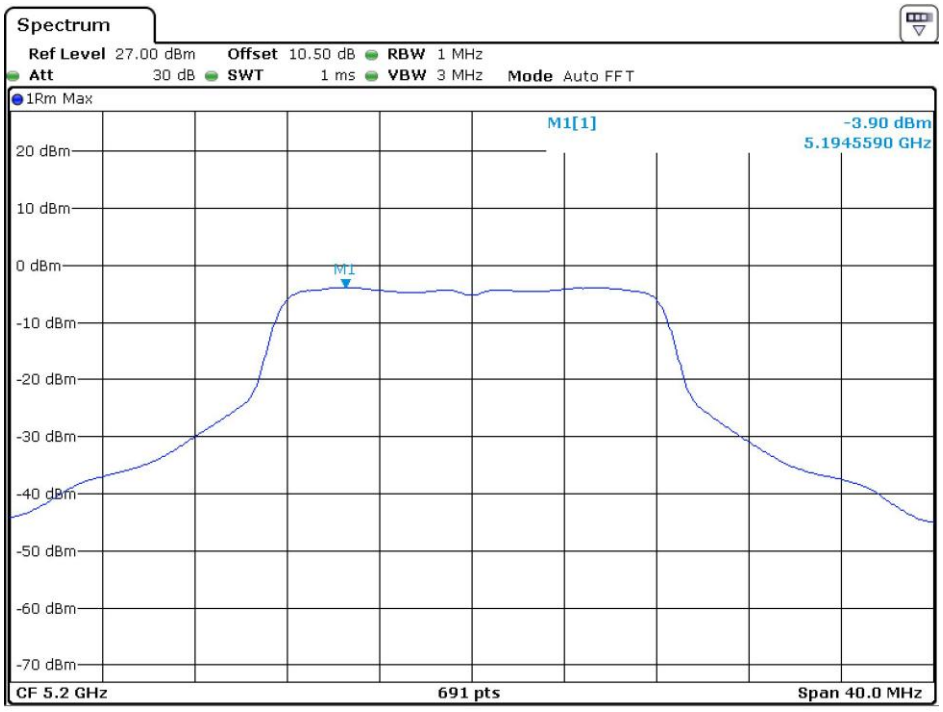
Frequency (MHz)	Reading (dBm/MHz)	Antenna Gain(dBi)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)
802.11a				
5180	-3.92	2	-1.92	10
5200	-3.90	2	-1.9	10
5240	-3.92	2	-1.92	10
802.11n20				
5180	-3.11	2	-1.11	10
5200	-3.22	2	-1.22	10
5240	-3.01	2	-1.01	10
802.11n40				
5190	-4.58	2	-2.58	10
5230	-4.54	2	-2.54	10
802.11ac20				
5180	-3.26	2	-1.26	10
5200	-3.22	2	-1.22	10
5240	-3.42	2	-1.42	10
802.11ac40				
5190	-4.94	2	-2.94	10
5230	-4.60	2	-2.60	10

802.11a mode, Power Spectral Density, 5180 MHz



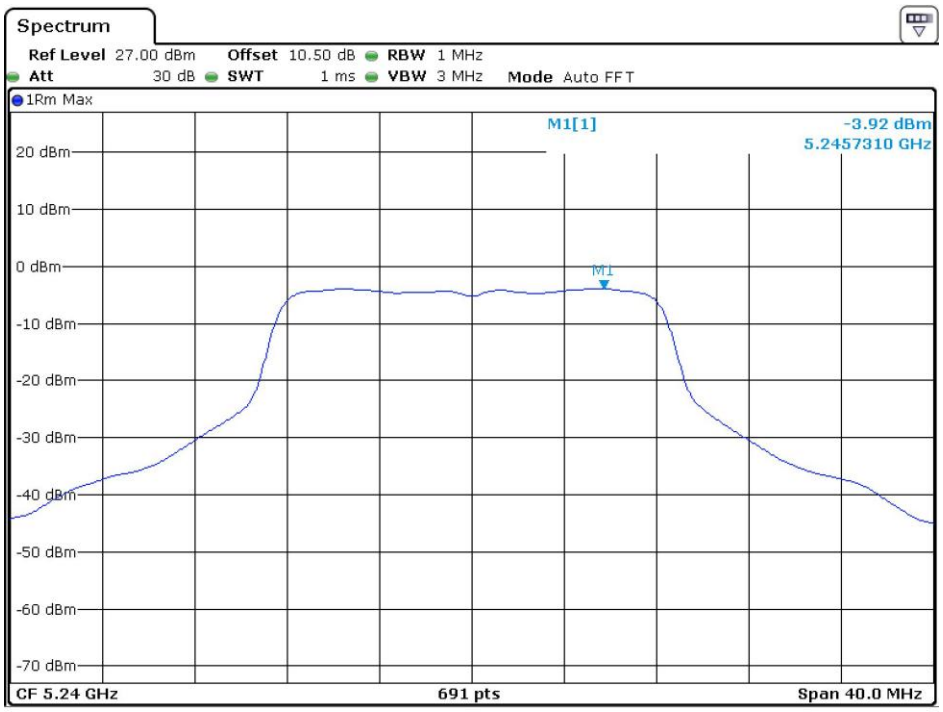
Date: 19.APR.2022 15:30:36

802.11a mode, Power Spectral Density, 5200 MHz



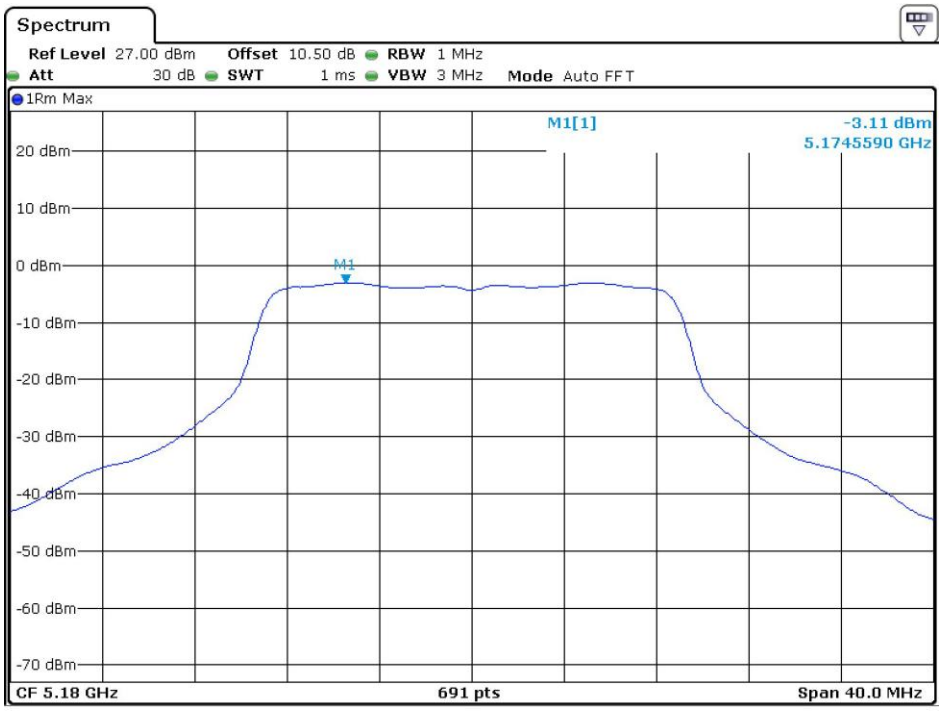
Date: 19.APR.2022 15:30:47

802.11a mode, Power Spectral Density, 5240 MHz



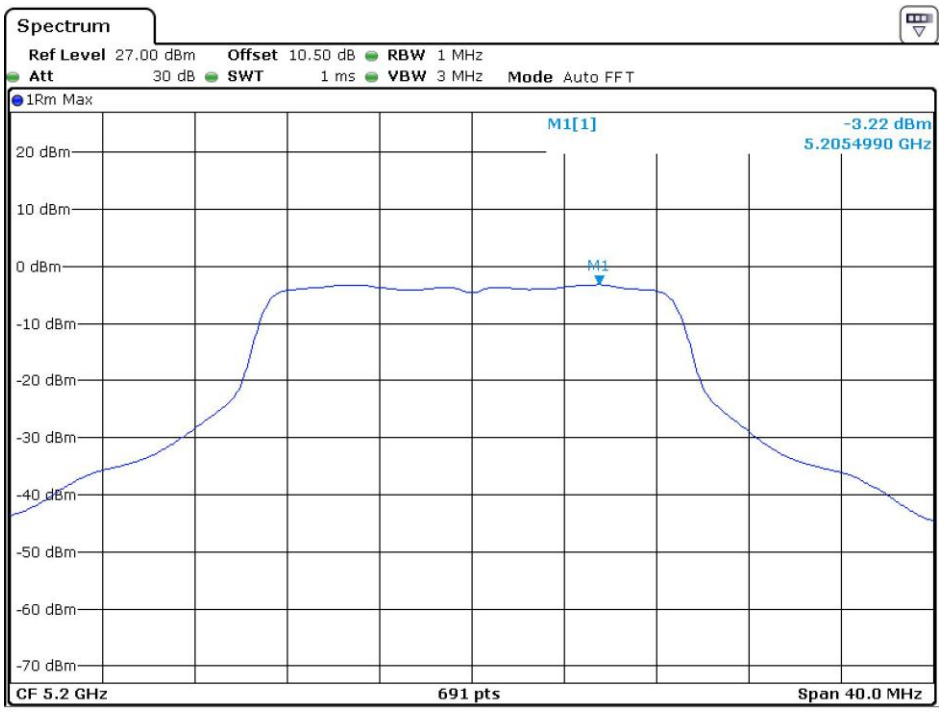
Date: 19.APR.2022 15:30:59

802.11n20 mode, Power Spectral Density, 5180 MHz



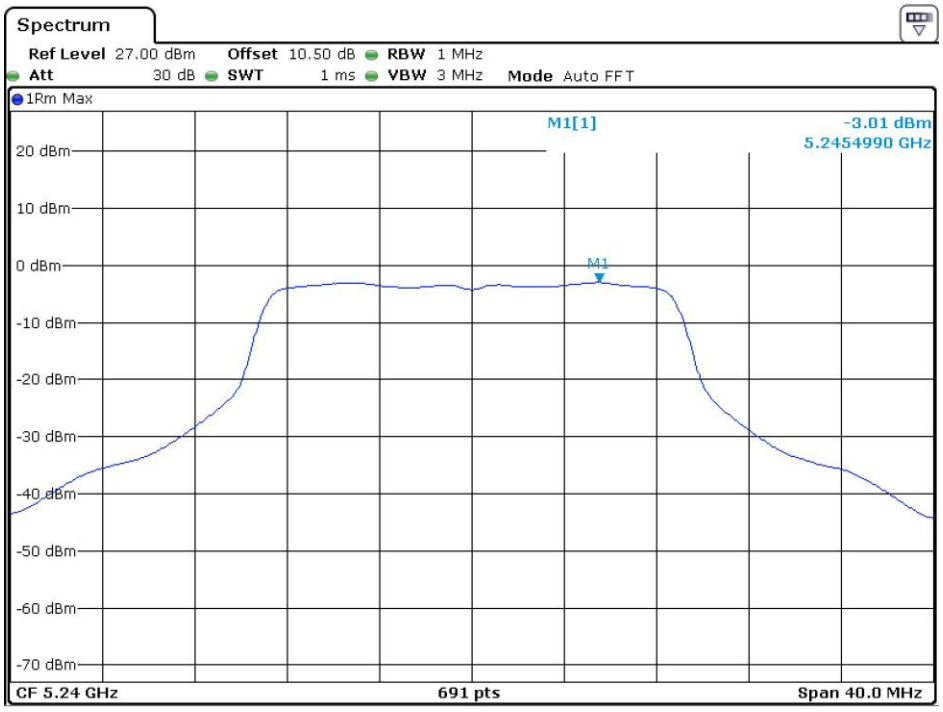
Date: 2.APR.2022 14:49:04

802.11n20 mode, Power Spectral Density, 5200 MHz



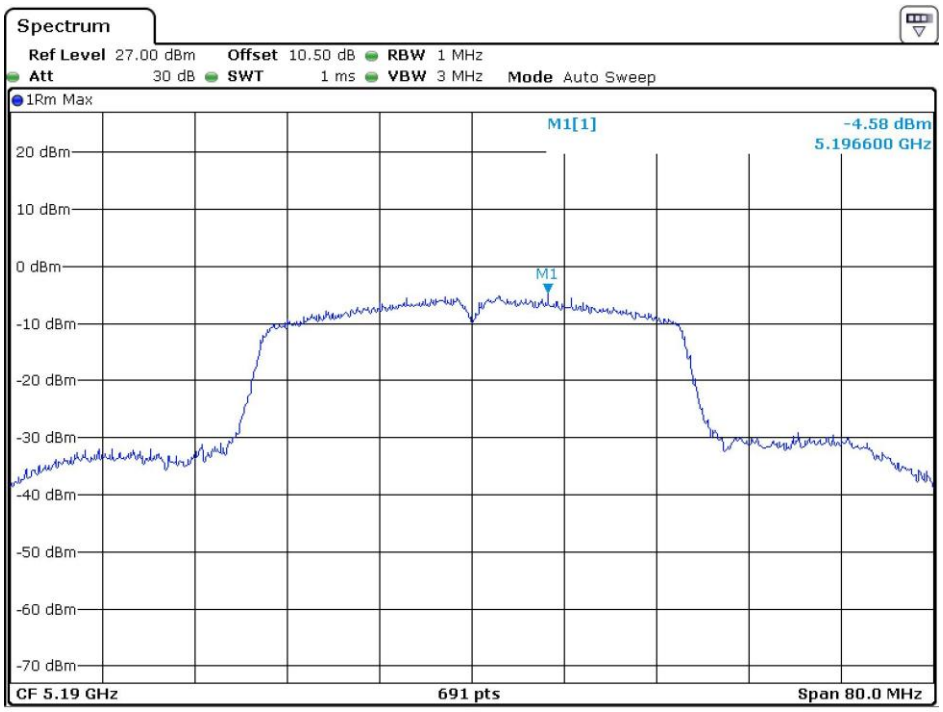
Date: 2.APR.2022 14:48:39

802.11n20 mode, Power Spectral Density, 5240 MHz



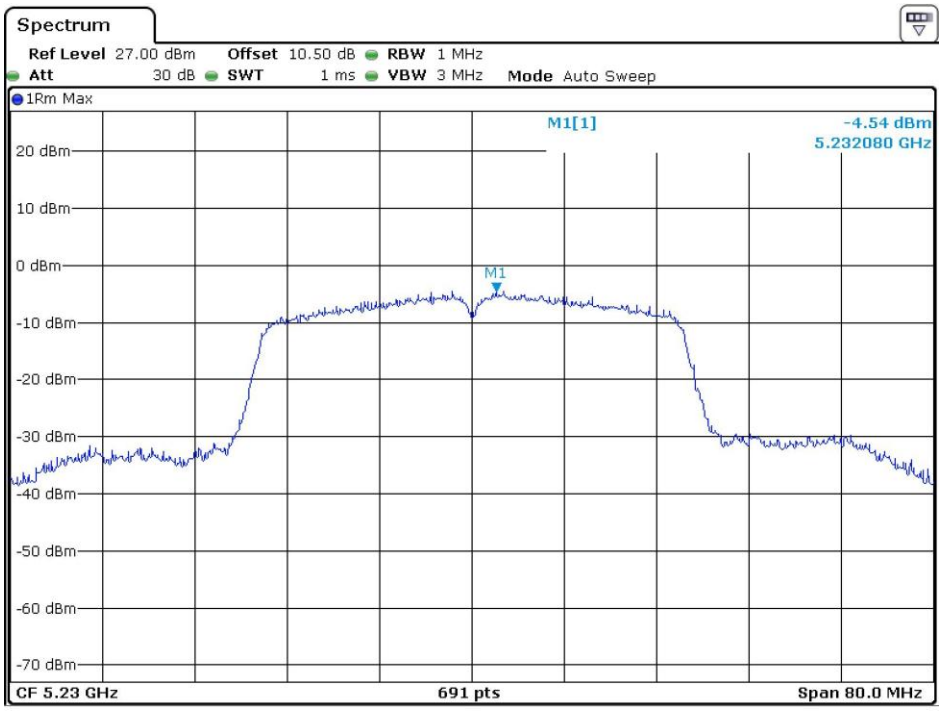
Date: 2.APR.2022 14:48:21

802.11n40 mode, Power Spectral Density, 5190 MHz



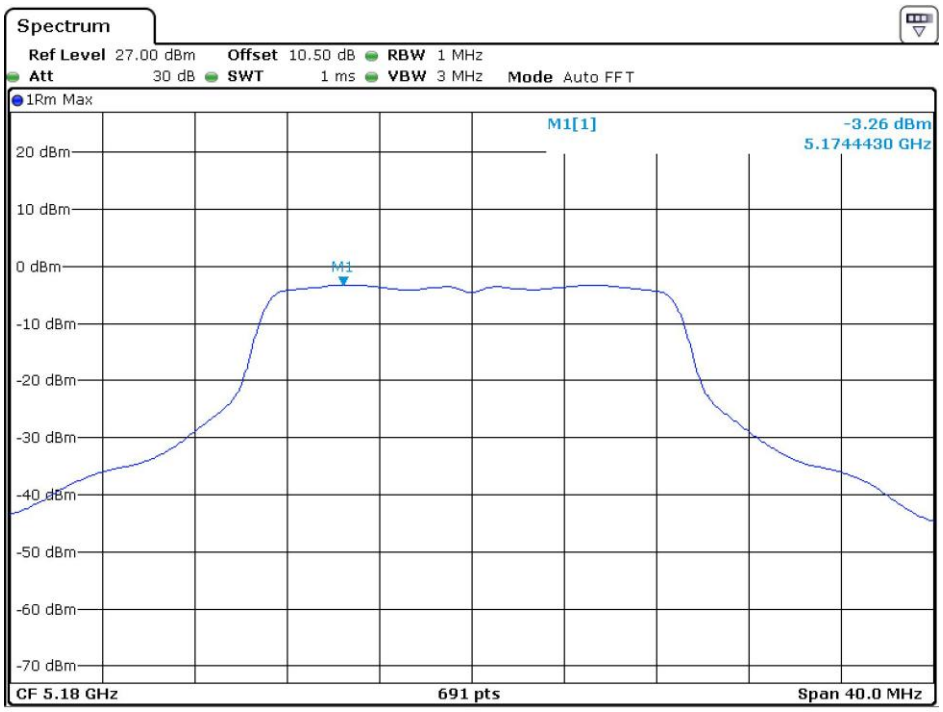
Date: 19.APR.2022 17:21:50

802.11n40 mode, Power Spectral Density, 5230 MHz



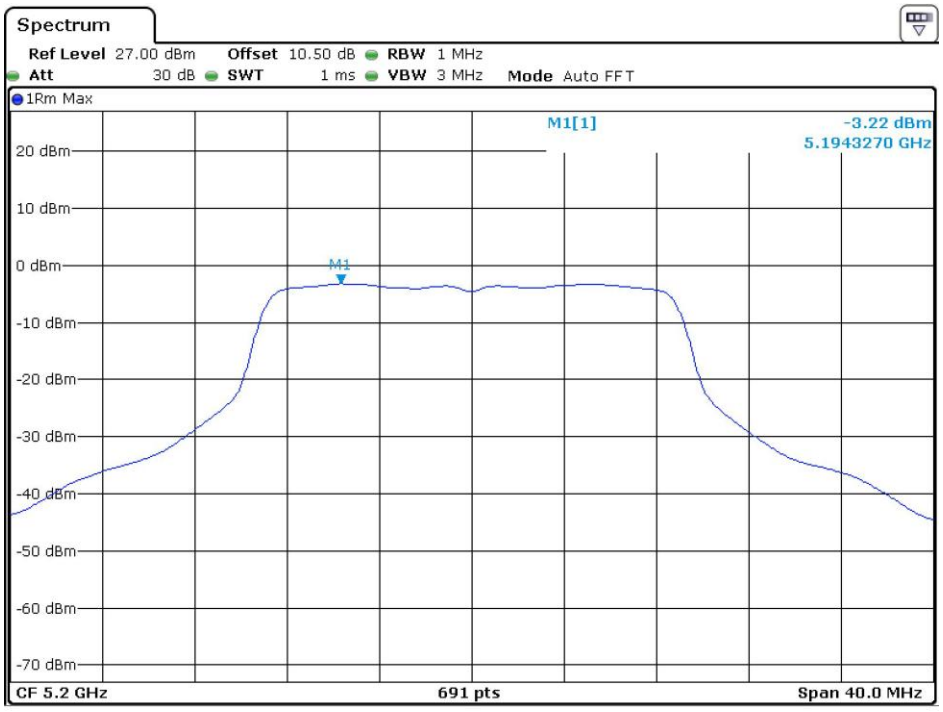
Date: 19.APR.2022 17:21:20

802.11ac20 mode, Power Spectral Density, 5180 MHz



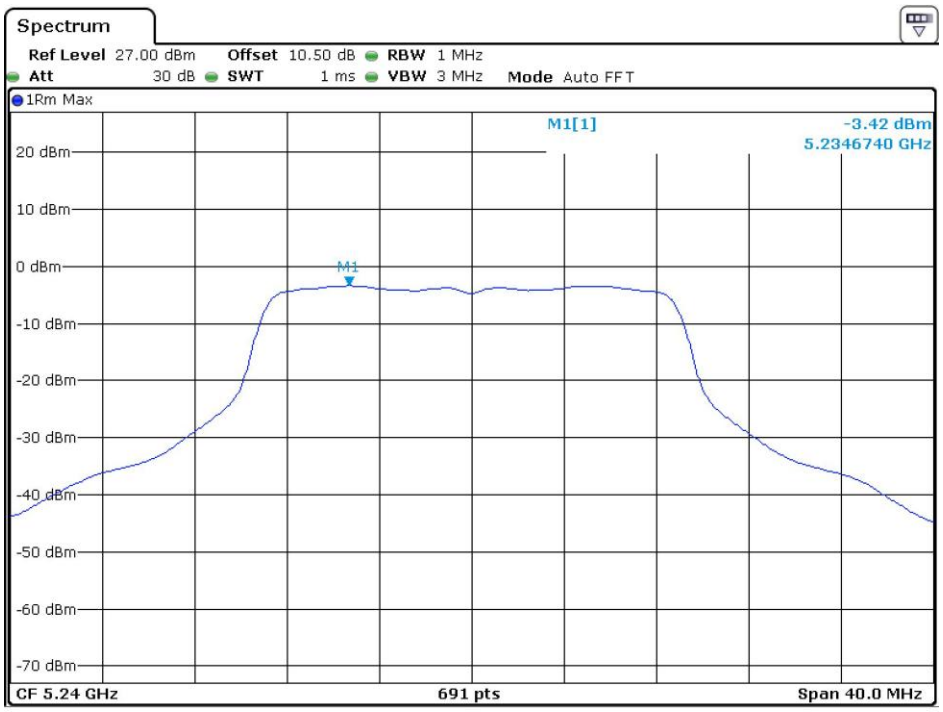
Date: 2.APR.2022 14:52:21

802. 11ac20 mode, Power Spectral Density, 5200 MHz



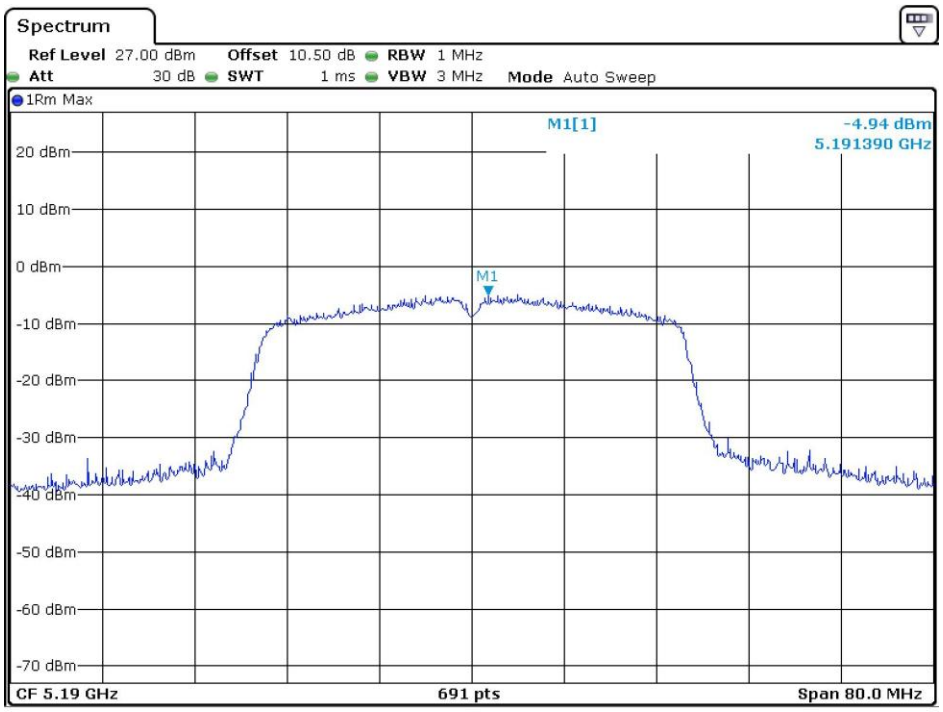
Date: 2.APR.2022 14:52:47

802. 11ac20 mode, Power Spectral Density, 5240 MHz



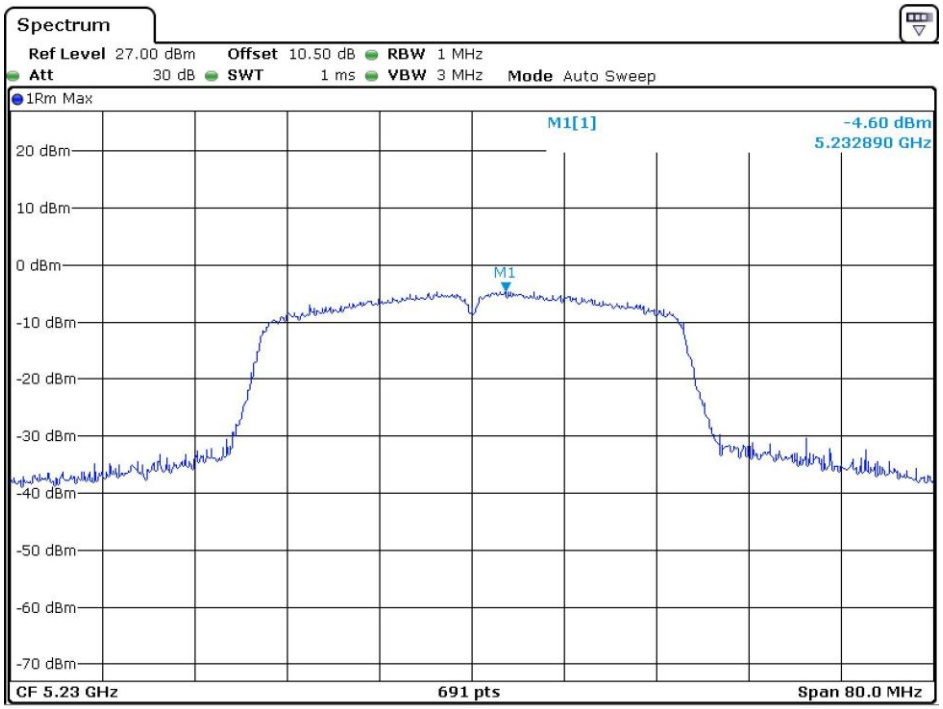
Date: 2.APR.2022 14:53:08

802. 11ac40 mode, Power Spectral Density, 5190 MHz



Date: 2.APR.2022 14:44:08

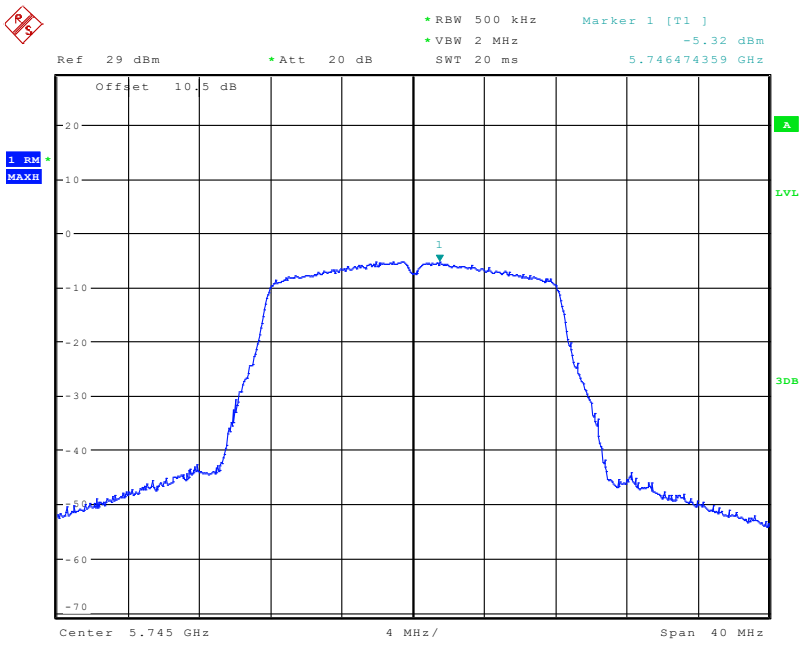
802. 11ac40 mode, Power Spectral Density, 5230 MHz



57250 MHz – 5850 MHz:

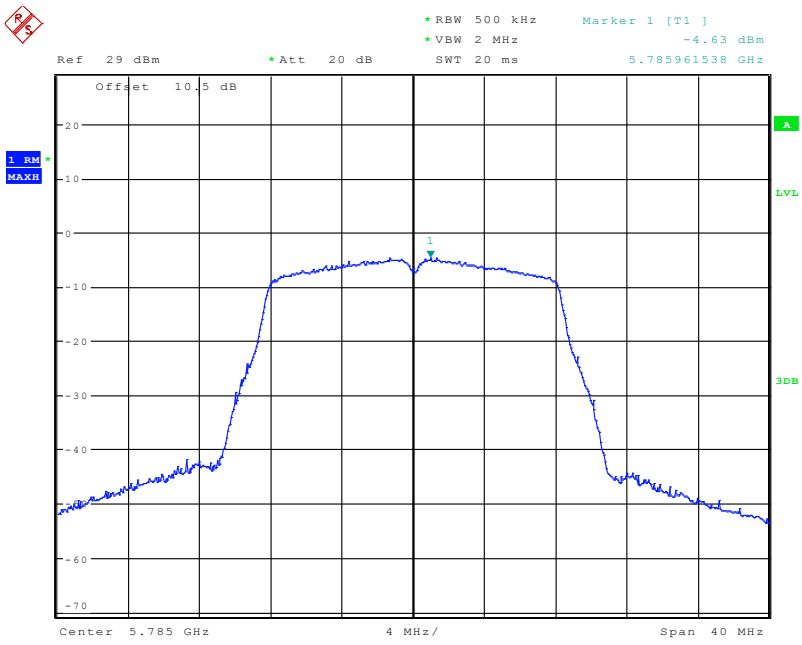
Frequency (MHz)	Power Spectral Density (dBm/500kHz)	Limit (dBm/500kHz)
802.11a		
5745	-5.32	30
5785	-4.63	30
5825	-5.03	30
802.11n20		
5745	-5.75	30
5785	-5.96	30
5825	-5.96	30
802.11n40		
5755	-8.53	30
5795	-8.41	30
802.11ac20		
5745	-5.82	30
5785	-5.85	30
5825	-6.13	30
802.11ac40		
5755	-8.74	30
5795	-8.66	30

802.11a mode, Power Spectral Density, 5745 MHz



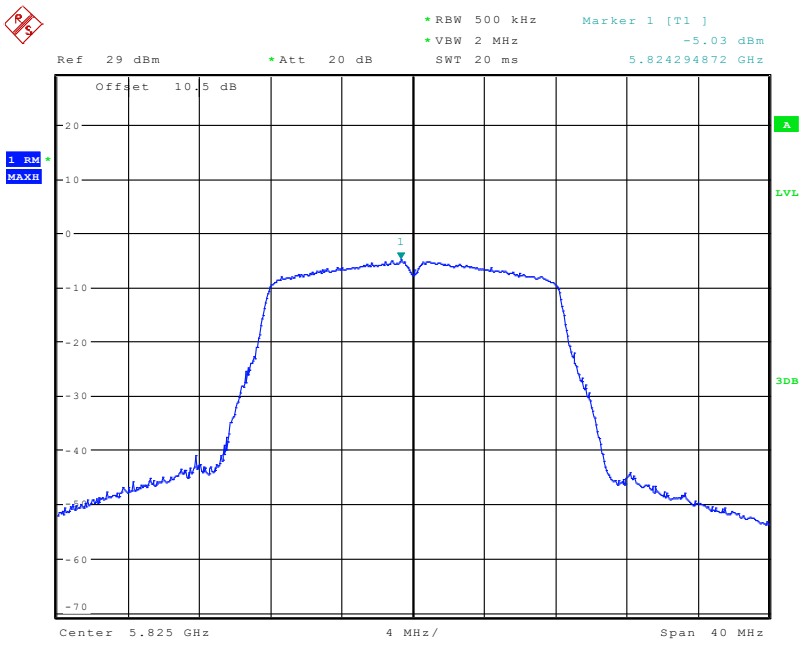
Date: 20.MAY.2022 21:02:14

802.11a mode, Power Spectral Density, 5785 MHz



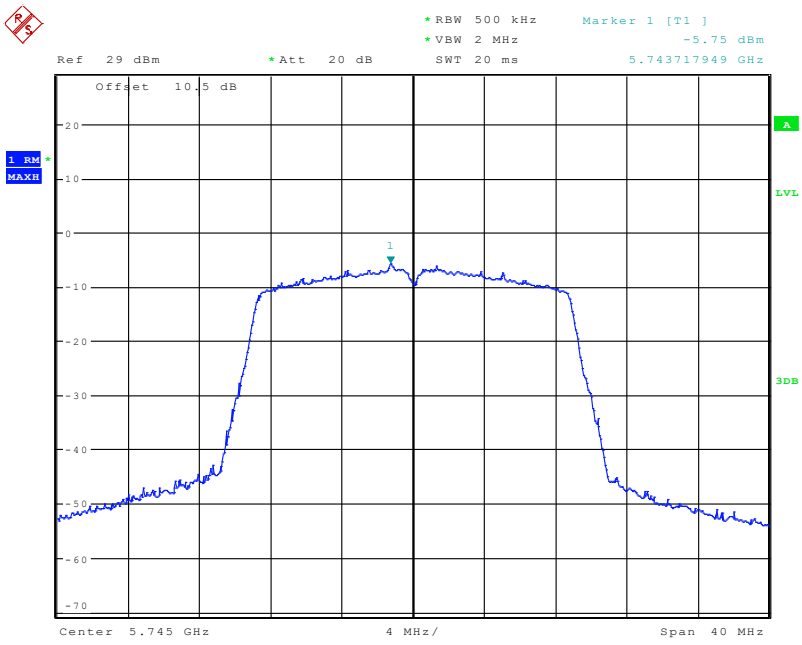
Date: 20.MAY.2022 21:01:48

802.11a mode, Power Spectral Density, 5825 MHz



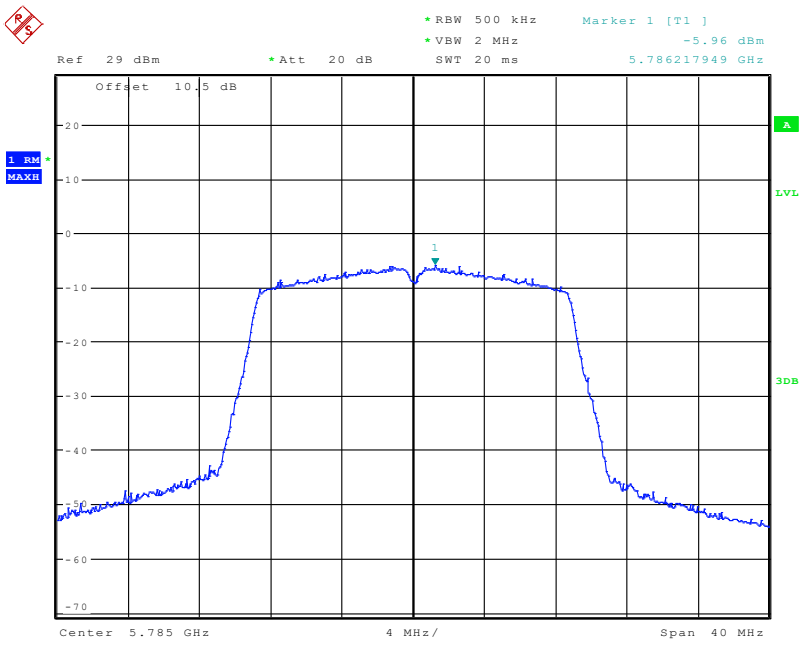
Date: 20.MAY.2022 21:03:14

802.11n20 mode, Power Spectral Density, 5745 MHz



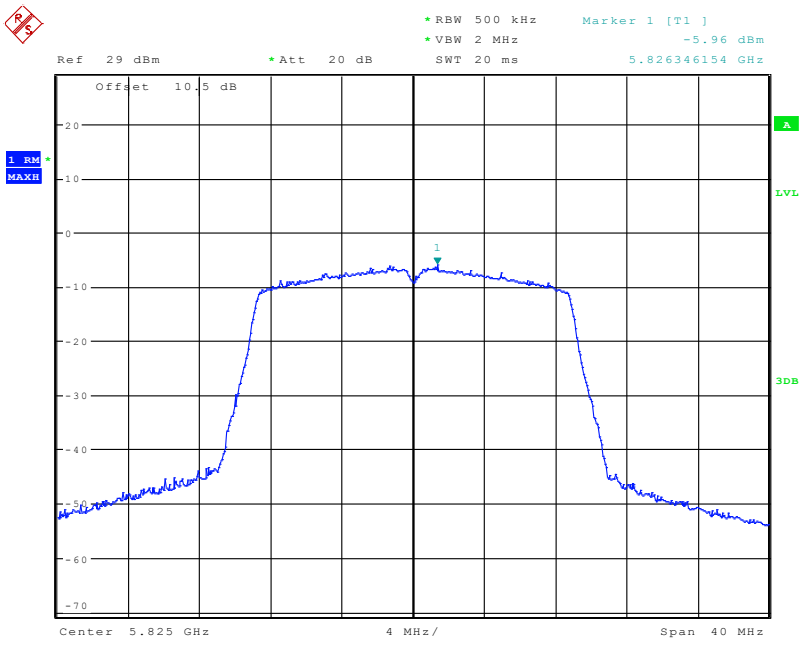
Date: 20.MAY.2022 21:04:45

802.11n20 mode, Power Spectral Density, 5785 MHz



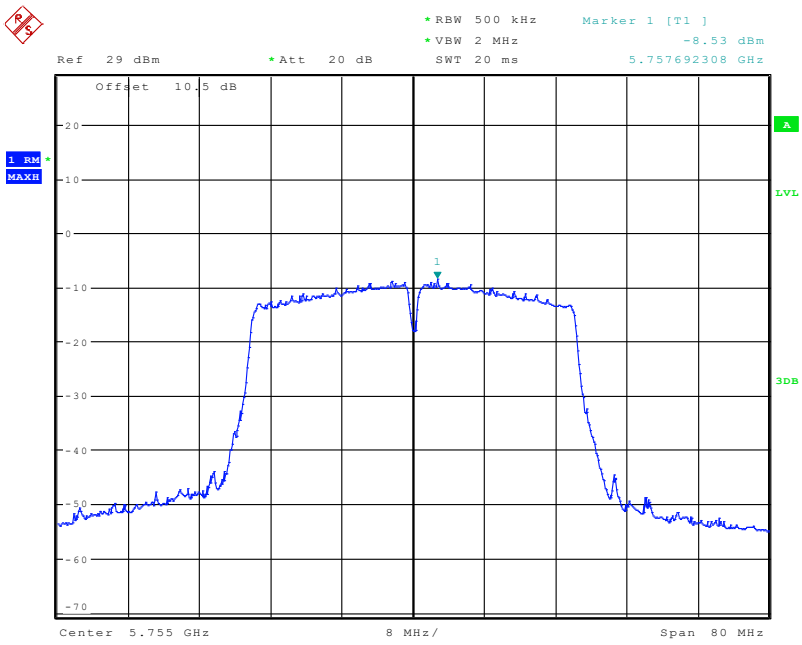
Date: 20.MAY.2022 21:04:18

802.11n20 mode, Power Spectral Density, 5825 MHz



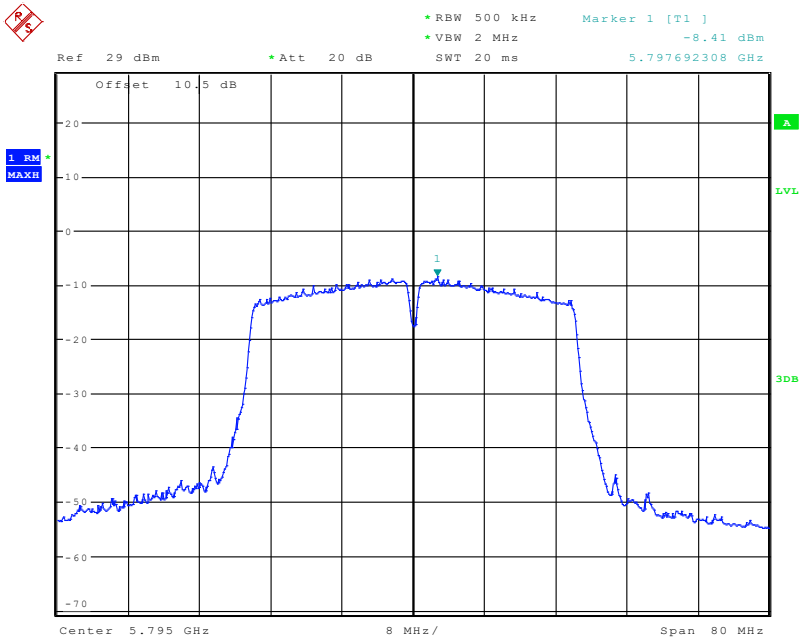
Date: 20.MAY.2022 21:03:54

802.11n40 mode, Power Spectral Density, 5755 MHz



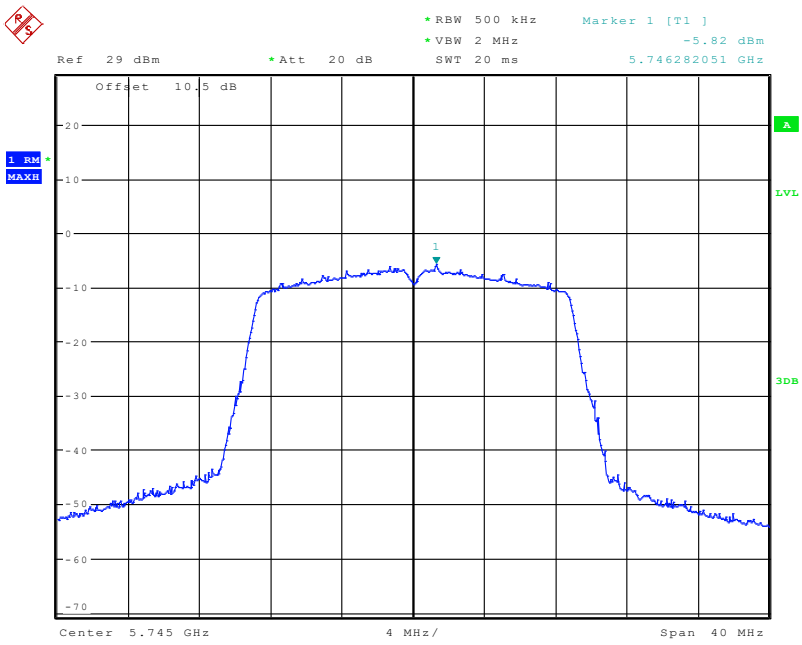
Date: 20.MAY.2022 21:10:39

802.11n40 mode, Power Spectral Density, 5795 MHz



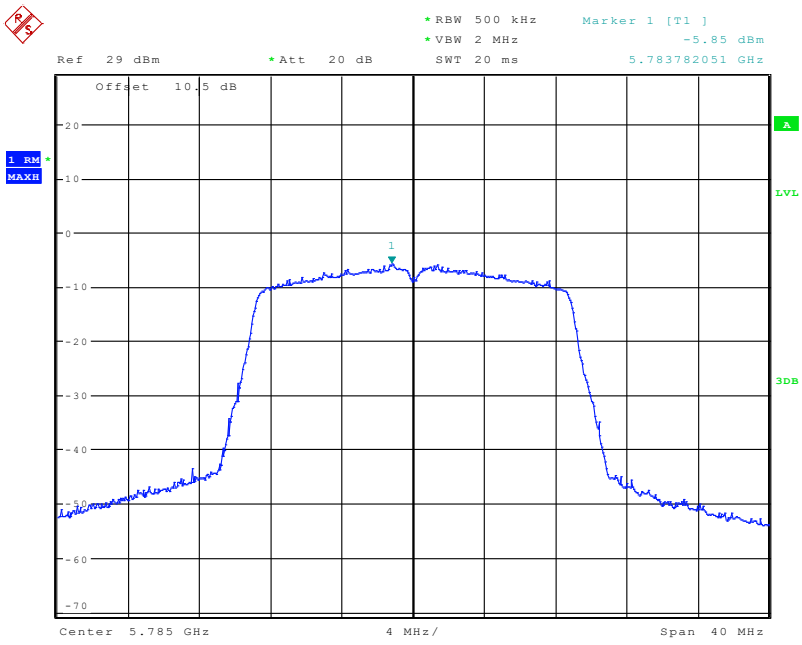
Date: 20.MAY.2022 21:09:53

802.11ac20 mode, Power Spectral Density, 5745 MHz



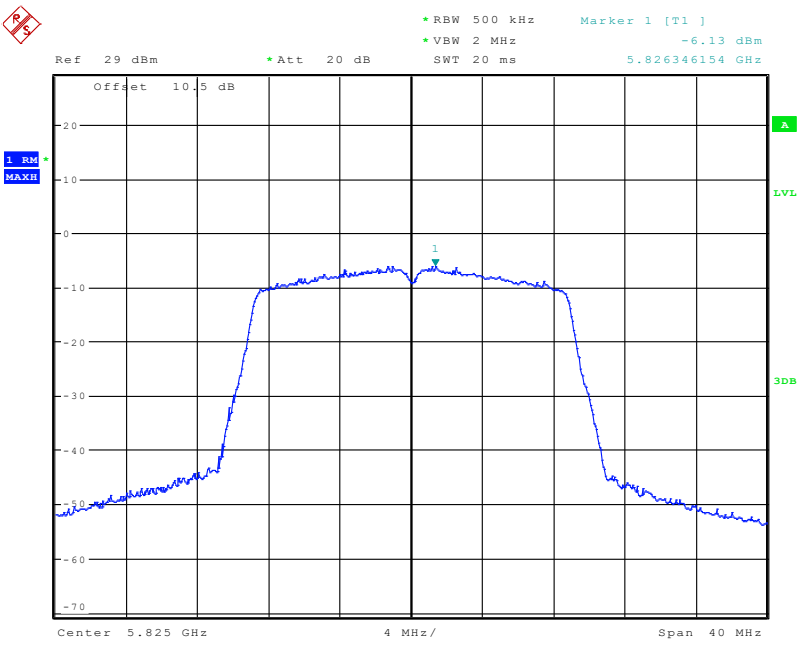
Date: 20.MAY.2022 21:05:10

802. 11ac20 mode, Power Spectral Density, 5785 MHz



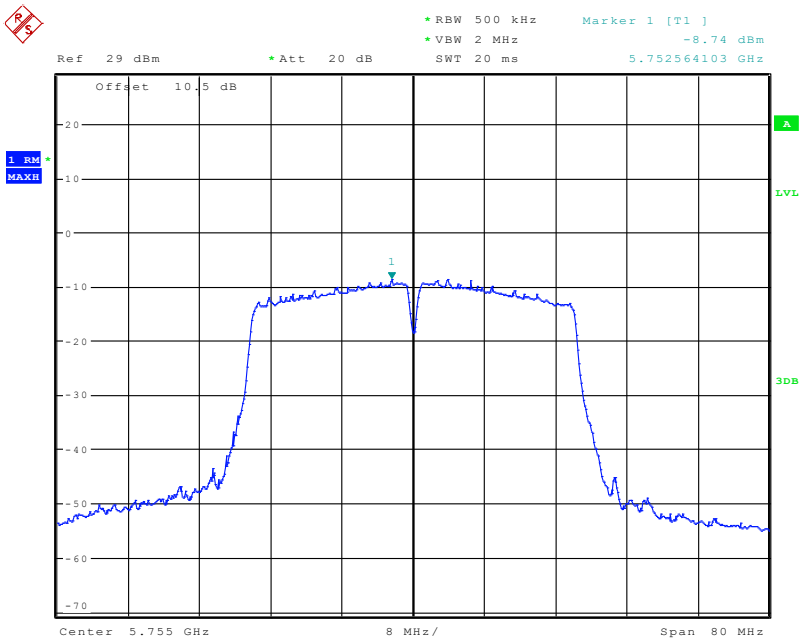
Date: 20.MAY.2022 21:05:38

802. 11ac20 mode, Power Spectral Density, 5825 MHz



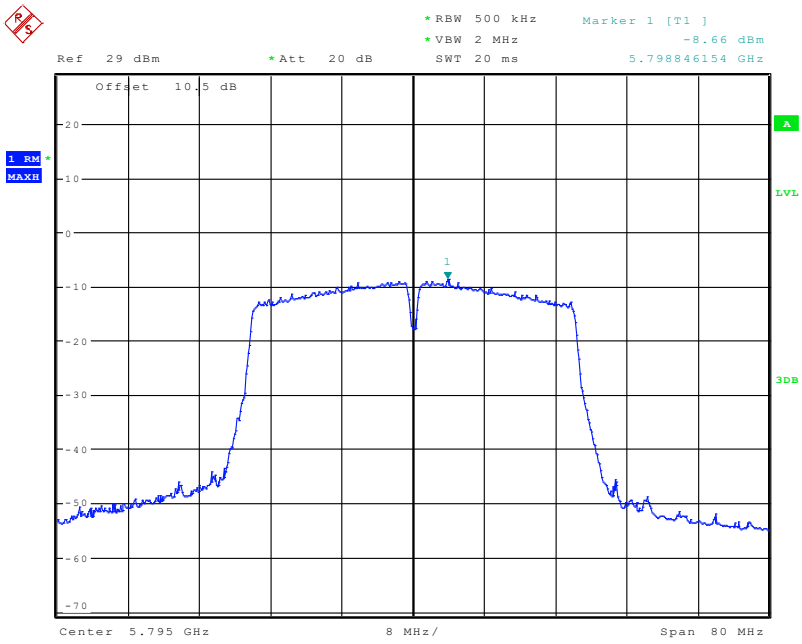
Date: 20.MAY.2022 21:06:05

802. 11ac40 mode, Power Spectral Density, 5755 MHz



Date: 20.MAY.2022 21:08:39

802. 11ac40 mode, Power Spectral Density, 5795 MHz



Date: 20.MAY.2022 21:09:05

RSS-247 §6.2 - OUTPUT POWER MEASUREMENT

Applicable Standard

According to RSS-247 §6.2:

Frequency band 5250-5350 MHz

6.2.2.1(a) The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;

Frequency band 5470-5600 MHz and 5650-5725MHz

6.2.3.1 The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

Frequency band 5725-5850 MHz

6.2.4.1 For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

The maximum conducted output power shall not exceed 1 W. The output 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 output 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 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-multipointFootnote3 systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	43 %
ATM Pressure:	101.3 kPa

The testing was performed by Key Pei on 2022-04-02 and 2022-05-20.

5150 MHz – 5250 MHz

Frequency (MHz)	Conducted Average Output Power (dBm)	Antenna Gain(dBi)	EIRP (dBm)	Limit (dBm)
802.11a				
5180	12.37	2	14.37	22.38
5200	12.28	2	14.28	22.34
5240	12.31	2	14.31	22.35
802.11n20				
5180	14.97	2	16.97	22.62
5200	13.17	2	15.17	22.60
5240	13.20	2	15.20	22.61
802.11n40				
5190	13.56	2	15.56	23
5230	13.56	2	15.56	23
802.11ac20				
5180	14.64	2	16.64	22.61
5200	14.26	2	16.26	22.62
5240	13.89	2	15.89	22.58
802.11ac40				
5190	13.39	2	15.39	23
5230	13.23	2	15.23	23

Note: the duty cycle factor has added into result.

5725-5850MHz:

Frequency (MHz)	Conducted Average Output Power (dBm)	Limit (dBm)
802.11a		
5745	10.51	30
5785	10.77	30
5825	10.83	30
802.11n20		
5745	9.32	30
5785	9.55	30
5825	9.54	30
802.11n40		
5755	9.91	30
5795	9.82	30
802.11ac20		
5745	9.47	30
5785	9.67	30
5825	9.55	30
802.11ac40		
5755	9.73	30
5795	9.91	30

Note: the duty cycle factor has added into result.

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