

TEST REPORT

FCC ID: YVR-DC-W80

Product: 4K Document Camera

Model No.: DC-W80

Additional Model No.: N/A

Trade Mark: Lumens

Report No.: TCT200907E061

Issued Date: Sep. 27, 2020

Issued for:

Lumens Digital Optics Inc.

5F.-1, No.20, Taiyuan St., Zhubei City, Hsinchu County 302, Taiwan

Issued By:

Shenzhen Tongce Testing Lab.

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Appendix A: Test Result of Conducted Test

Appendix B: Photographs of Test Setup

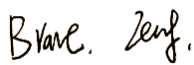
Appendix C: Photographs of EUT

1. Test Certification

Product:	4K Document Camera
Model No.:	DC-W80
Additional Model No.:	N/A
Trade Mark:	Lumens
Applicant:	Lumens Digital Optics Inc.
Address:	5F.-1, No.20, Taiyuan St., Zhubei City, Hsinchu County 302, Taiwan
Manufacturer:	Beijing Mysher Technology Co., Ltd.
Address:	Unit B306, Building #1, Info. Center, ZhongGuanCun Software Z-Park, HaiDian District, Beijing, China (100193)
Date of Test:	Sep. 08, 2020 – Sep. 25, 2020
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart E Section 15.407: 2016 KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General U-NII Test Procedures New Rules v02r01 ANSI C63.10:2013

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:



Brave Zeng

Date:

Sep. 25, 2020

Reviewed By:



Beryl Zhao

Date:

Sep. 27, 2020

Approved By:



Tomsin

Date:

Sep. 27, 2020

2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	PASS
Maximum Conducted Output Power	§15.407(a)	PASS
6dB Emission Bandwidth	§15.407(a)	N/A
26dB Emission Bandwidth& 99% Occupied Bandwidth	§15.407(a)	PASS
Power Spectral Density	§15.407(a)	PASS
Restricted Bands around fundamental frequency	§15.407(a)	PASS
Radiated Emission	§15.407(a)	PASS
Frequency Stability	§15.407(g)	PASS

Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

3. EUT Description

Product:	4K Document Camera
Model No.:	DC-W80
Additional Model No.:	N/A
Trade Mark:	Lumens
Operation Frequency:	Band 1: 5180 MHz -5240 MHz
Channel Bandwidth:	802.11a: 20MHz 802.11n: 20MHz, 40MHz 802.11ac: 20MHz, 40MHz, 80MHz
Modulation Technology:	Orthogonal Frequency Division Multiplexing(OFDM)
Modulation Type	256QAM, 64QAM, 16QAM, BPSK, QPSK
Antenna Type:	METAL PIFA Antenna
Antenna Gain:	2dBi
Power Supply:	Rechargeable Li-ion Battery DC 3.7V
AC adapter:	Adapter Information: MODEL: JF005WR-0500100UU INPUT: AC 100-240V, 50/60Hz, 0.18A OUTPUT: DC 5.0V, 1.0A, 5.0W

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

Test Frequency each of channel

Band 1

20MHz		40MHz		80MHz	
Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180	38	5190	42	5210
40	5200	46	5230		
48	5240				

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below.

4. General Information

4.1. Test environment and mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations(The value of duty cycle is 100%)
The sample was placed 0.8m/1.5m for blow/above 1GHz above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:	
Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.	
Mode	Data rate
802.11a	6 Mbps
802.11n(HT20)	6.5 Mbps
802.11n(HT40)	13.5 Mbps
802.11ac(VHT20)	6.5 Mbps
802.11ac(VHT40)	13.5 Mbps
802.11ac(VHT80)	29.3 Mbps
Final Test Mode:	
Operation mode:	Keep the EUT in continuous transmitting with modulation

4.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
3. For conducted measurements (Output Power, Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

5. Facilities and Accreditations

5.1. Facilities

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

- FCC - Registration No.: 645098

Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

5.2. Location

Shenzhen Tongce Testing Lab

Address: 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

TEL: +86-755-27673339

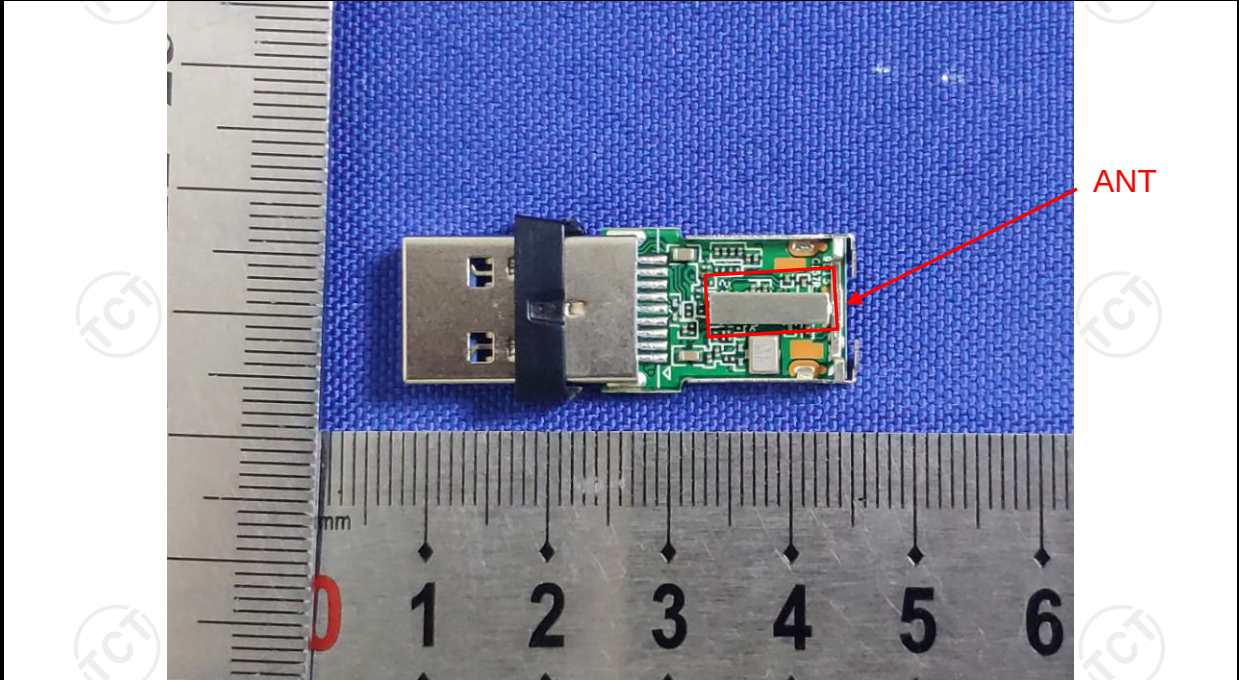
5.3. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	$\pm 2.56\text{dB}$
2	RF power, conducted	$\pm 0.12\text{dB}$
3	Spurious emissions, conducted	$\pm 0.11\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.92\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.28\text{dB}$
6	Temperature	$\pm 0.1^{\circ}\text{C}$
7	Humidity	$\pm 1.0\%$

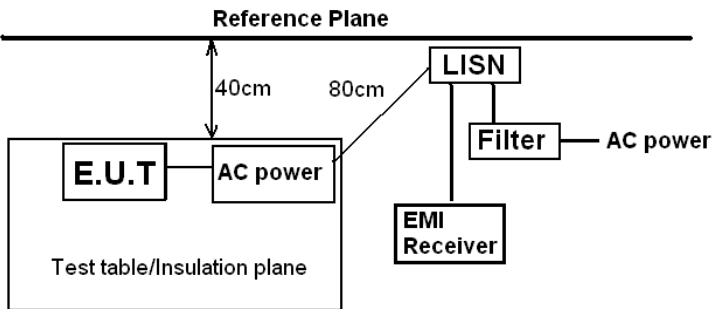
6. Test Results and Measurement Data

6.1. Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
E.U.T Antenna:	
The WIFI antenna is METAL PIFA antenna which permanently attached, and the best case gain of the antenna is 2.99dBi.	
	

6.2. Conducted Emission

6.2.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.207														
Test Method:	ANSI C63.10:2013														
Frequency Range:	150 kHz to 30 MHz														
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto														
Limits:	<table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></table>	Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													
Test Setup:	Reference Plane  Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m														
Test Mode:	Tx Mode														
Test Procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.														
Test Result:	PASS														

6.2.2. Test Instruments

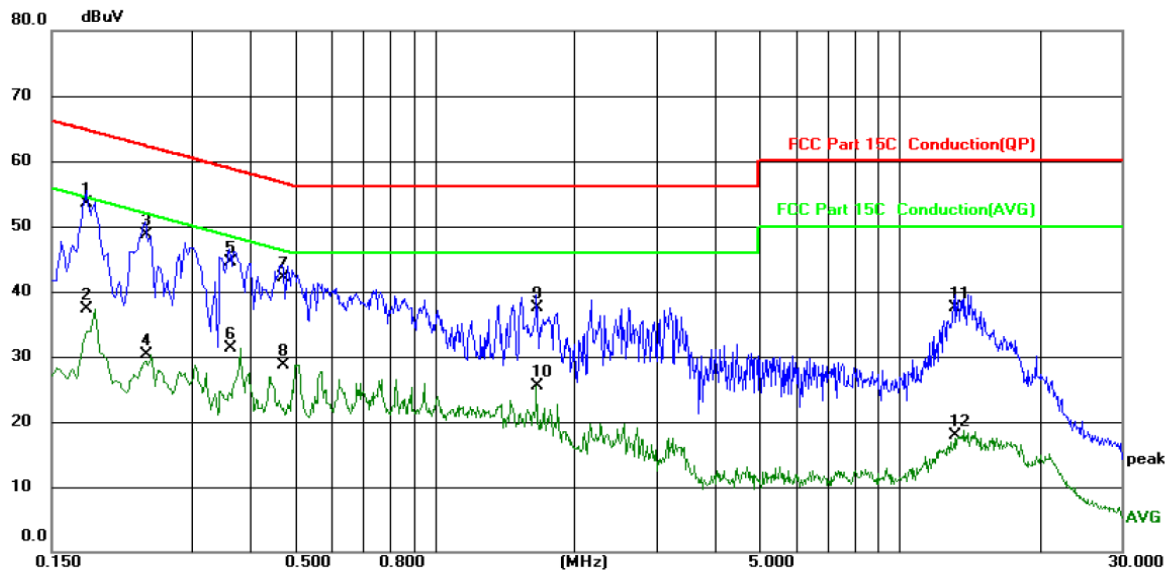
Conducted Emission Shielding Room Test Site (843)				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Test Receiver	R&S	ESPI	101402	Jul. 27, 2021
LISN	Schwarzbeck	NSLK 8126	8126453	Sep. 11, 2021
Line-05	TCT	CE-05	N/A	Sep. 02, 2021
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.2.3. Test data

Please refer to following diagram for individual

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



Site: Phase: **L1** Temperature: 25 (C)
 Limit: FCC Part 15C Conduction(QP) Power: AC 120V/60Hz Humidity: 55 %RH

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1780	43.29	10.12	53.41	64.58	-11.17	QP	
2		0.1780	27.25	10.12	37.37	54.58	-17.21	AVG	
3		0.2380	38.56	10.13	48.69	62.17	-13.48	QP	
4		0.2380	20.22	10.13	30.35	52.17	-21.82	AVG	
5		0.3620	34.29	10.13	44.42	58.68	-14.26	QP	
6		0.3620	21.17	10.13	31.30	48.68	-17.38	AVG	
7	*	0.4700	31.93	10.13	42.06	46.51	-4.45	AVG	
8		0.4700	18.60	10.13	28.73	46.51	-17.78	AVG	
9		1.6580	27.35	10.12	37.47	56.00	-18.53	QP	
10		1.6580	15.29	10.12	25.41	46.00	-20.59	AVG	
11		13.1700	27.28	10.17	37.45	60.00	-22.55	QP	
12		13.1700	7.81	10.17	17.98	50.00	-32.02	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level (dBuV) = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

Measurement (dBuV) = Reading level (dBuV) + Corr. Factor (dB)

Limit (dBuV) = Limit stated in standard

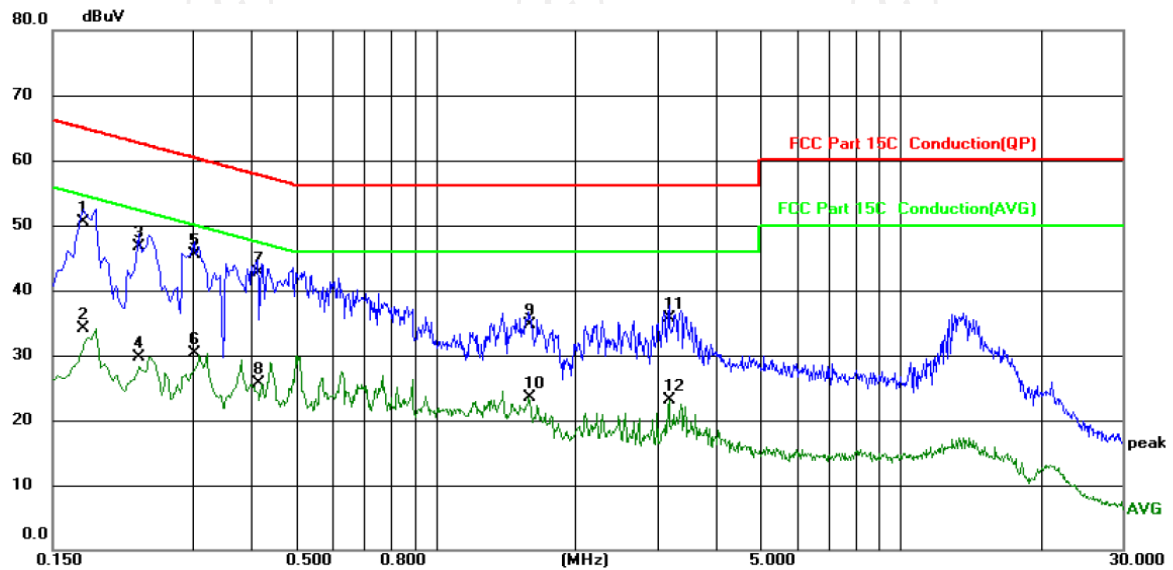
Margin (dB) = Measurement (dBuV) – Limits (dBuV)

Q.P. =Quasi-Peak

AVG =average

* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



Site: Phase: **N** Temperature: 25 (C)
 Limit: FCC Part 15C Conduction(QP) Power: AC 120V/60Hz Humidity: 55 %RH

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1740	40.48	10.12	50.60	64.77	-14.17	QP	
2		0.1740	23.98	10.12	34.10	54.77	-20.67	AVG	
3		0.2300	36.50	10.13	46.63	62.45	-15.82	QP	
4		0.2300	19.62	10.13	29.75	52.45	-22.70	AVG	
5		0.3020	35.39	10.13	45.52	60.19	-14.67	QP	
6		0.3020	20.12	10.13	30.25	50.19	-19.94	AVG	
7		0.4140	32.48	10.13	42.61	57.57	-14.96	QP	
8		0.4140	15.50	10.13	25.63	47.57	-21.94	AVG	
9		1.5859	24.56	10.12	34.68	56.00	-21.32	QP	
10		1.5859	13.35	10.12	23.47	46.00	-22.53	AVG	
11		3.1820	25.64	10.13	35.77	56.00	-20.23	QP	
12		3.1820	12.94	10.13	23.07	46.00	-22.93	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level (dBμV) = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

Measurement (dBμV) = Reading level (dBμV) + Corr. Factor (dB)

Limit (dBμV) = Limit stated in standard

Margin (dB) = Measurement (dBμV) – Limits (dBμV)

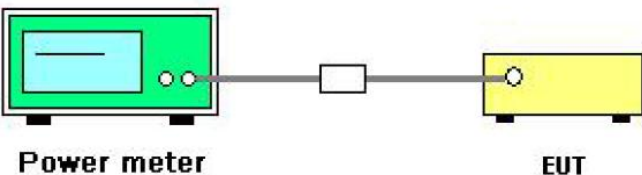
Q.P. =Quasi-Peak

AVG =average

* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

6.3. Maximum Conducted Output Power

6.3.1. Test Specification

Test Requirement:	FCC Part15 E Section 15.407(a)& Part 2 J Section 2.1046										
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section E										
Limit:	<table border="1"> <thead> <tr> <th>Frequency Band (MHz)</th><th>Limit</th></tr> </thead> <tbody> <tr> <td>5180 - 5240</td><td>24dBm(250mW) for client device</td></tr> <tr> <td>5260 - 5320</td><td>24dBm(250mW) or 11 dBm + 10 log B, B is the 26 dB emission bandwidth in megahertz</td></tr> <tr> <td>5470 - 5725</td><td>24dBm(250mW) or 11 dBm + 10 log B, B is the 26 dB emission bandwidth in megahertz</td></tr> <tr> <td>5745 - 5825</td><td>30dBm(1W)</td></tr> </tbody> </table>	Frequency Band (MHz)	Limit	5180 - 5240	24dBm(250mW) for client device	5260 - 5320	24dBm(250mW) or 11 dBm + 10 log B, B is the 26 dB emission bandwidth in megahertz	5470 - 5725	24dBm(250mW) or 11 dBm + 10 log B, B is the 26 dB emission bandwidth in megahertz	5745 - 5825	30dBm(1W)
Frequency Band (MHz)	Limit										
5180 - 5240	24dBm(250mW) for client device										
5260 - 5320	24dBm(250mW) or 11 dBm + 10 log B, B is the 26 dB emission bandwidth in megahertz										
5470 - 5725	24dBm(250mW) or 11 dBm + 10 log B, B is the 26 dB emission bandwidth in megahertz										
5745 - 5825	30dBm(1W)										
Test Setup:	 The diagram illustrates the test setup. On the left is a green box labeled 'Power meter'. A cable connects it to a small white box labeled 'Attenuator'. Another cable connects the attenuator to a yellow box labeled 'EUT' (Equipment Under Test).										
Test Mode:	Transmitting mode with modulation										
Test Procedure:	1. The testing follows the Measurement Procedure of KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section E, 3, a 2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement. 3. Set to the maximum power setting and enable the EUT transmit continuously. 5. Measure the conducted output power and record the results in the test report.										
Test Result:	PASS										
Remark:	Conducted output power= measurement power +10log(1/x) X is duty cycle=1, so 10log(1/1)=0 Conducted output power= measurement power										

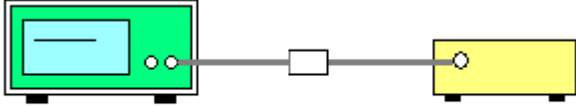
6.3.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 11, 2021
Power Meter	Agilent	E4418B	GB43312526	Sep. 02, 2021
Power Sensor	Agilent	E9301A	MY41497725	Sep. 02, 2021
4 Ch. Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	N/A	Sep. 02, 2021
Combiner Box	Ascentest	AT890-RFB	N/A	Sep. 02, 2021

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.4. 6dB Emission Bandwidth

6.4.1. Test Specification

Test Requirement:	FCC CFR47 Part 15 Section 15.407(e)& Part 2 J Section 2.1049
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C
Limit:	>500kHz
Test Setup:	 Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz. 4. Measure and record the results in the test report.
Test Result:	N/A

6.5. 26dB Bandwidth and 99% Occupied Bandwidth

6.5.1. Test Specification

Test Requirement:	47 CFR Part 15C Section 15.407 (a)& Part 2 J Section 2.1049
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section D
Limit:	No restriction limits
Test Setup:	 Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section D 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. 4. Measure and record the results in the test report.
Test Result:	PASS

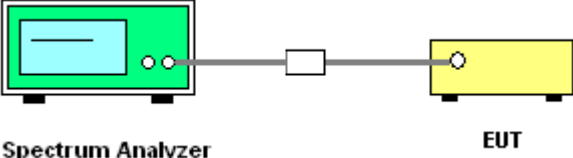
6.5.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 11, 2020
4 Ch. Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	N/A	Sep. 02, 2021
Combiner Box	Ascentest	AT890-RFB	N/A	Sep. 02, 2021

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.6. Power Spectral Density

6.6.1. Test Specification

Test Requirement:	FCC Part15 E Section 15.407 (a)
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section F
Limit:	$\leq 11.00\text{dBm/MHz}$ for Band 1 5150MHz-5250MHz(client device) $\leq 11.00\text{dBm/MHz}$ for Band 2A&2C 5250-5350&5470-5725 $\leq 30.00\text{dBm/500KHz}$ for Band 3 5725MHz-5850MHz The e.i.r.p spectral density for Band 1 5150MHz – 5250 MHz should not exceed 10dBm/MHz
Test Setup:	 Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. Set the spectrum analyzer or EMI receiver span to view the entire emission bandwidth. 1. Set RBW = 510 kHz/1 MHz, VBW $\geq 3 \times$ RBW, Sweep time = Auto, Detector = RMS. 2. Allow the sweeps to continue until the trace stabilizes. 3. Use the peak marker function to determine the maximum amplitude level. 4. The E.I.R.P spectral density used radiated test method. At a test site that has been validated using the procedures of ANSI C63.4 or the latest CISPR 16-1-4 for measurements above 1 GHz, so as to simulate a near free-space environment.
Test Result:	PASS

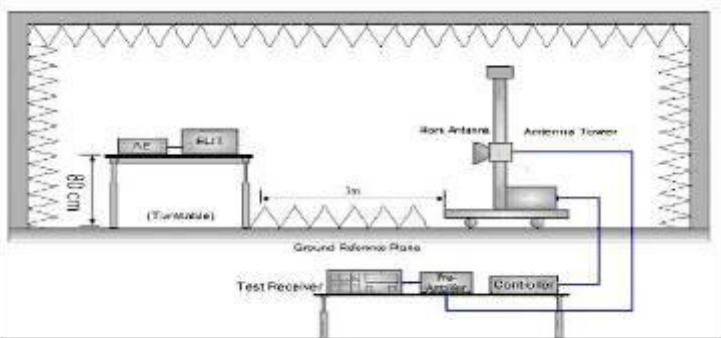
6.6.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 11, 2020
4 Ch. Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	N/A	Sep. 02, 2021
Combiner Box	Ascentest	AT890-RFB	N/A	Sep. 02, 2021

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.7. Band edge

6.7.1. Test Specification

Test Requirement:	FCC CFR47 Part 15E Section 15.407
Test Method:	ANSI C63.10 2013
Limit:	For Band 1&2A&2C: $E[dB\mu V/m] = EIRP[dBm] + 95.2 = 68.2$ dBμV/m, for EIRP(dBm)= -27dBm For Band 3(5715-5725MHz&5850-5860MHz): $E[dB\mu V/m] = EIRP[dBm] + 95.2 = 78.2$ dBμV/m, for EIRP(dBm)= -17dBm; For Band 3(other un-restricted band): $E[dB\mu V/m] = EIRP[dBm] + 95.2 = 68.2$ dBμV/m, for EIRP(dBm)= -27dBm
Test Setup:	
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak,

	quasipeak or average method as specified and then reported in a data sheet.
Test Result:	PASS

6.7.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Test Receiver	ROHDE&SCHWARZ	ESIB7	100197	Jul. 27, 2021
Spectrum Analyzer	ROHDE&SCHWARZ	FSQ40	200061	Sep. 11, 2021
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 11, 2021
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 02, 2021
Pre-amplifier	HP	8447D	2727A05017	Sep. 02, 2021
Loop antenna	ZHINAN	ZN30900A	12024	Oct. 27, 2020
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 04, 2022
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 04, 2022
Horn Antenna	A-INFO	LB-180400-KF	J211020657	Sep. 02, 2021
Line-4	TCT	RE-high-04	N/A	Sep. 02, 2021
Line-8	TCT	RE-01	N/A	Jul. 27, 2021
Antenna Mast	Keleto	CC-A-4M	N/A	N/A
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.7.3. Test Data

802.11 a	CH	Freq. (MHz)	Read_level (dBuV/m)	Factor (dB)	Peak (dBuV/m)	Limit (dBuV/m) (Peak)	Limit (dBuV/m) (Avg)	Over	Ant. Pol. H/V
Band 1	Lowest	5150	44.88	5.82	50.70	68.2	54	-3.30	H
		5150	39.53	5.82	45.35	68.2	54	-8.65	V
	Highest	5350	41.90	6.52	48.42	68.2	54	-5.58	H
		5350	40.29	6.52	46.81	68.2	54	-7.19	V

802.11 n HT20	CH	Freq. (MHz)	Read_level (dBuV/m)	Factor (dB)	Peak (dBuV/m)	Limit (dBuV/m) (Peak)	Limit (dBuV/m) (Avg)	Over	Ant. Pol. H/V
Band 1	Lowest	5150	45.57	6.96	52.53	68.2	54	-1.47	H
		5150	41.92	6.96	48.88	68.2	54	-5.12	V
	Highest	5350	43.33	8.21	51.54	68.2	54	-2.46	H
		5350	39.45	8.21	47.66	68.2	54	-6.34	V

802.11 n HT40	CH	Freq. (MHz)	Read_level (dBuV/m)	Factor (dB)	Peak (dBuV/m)	Limit (dBuV/m) (Peak)	Limit (dBuV/m) (Avg)	Over	Ant. Pol. H/V
Band 1	Lowest	5150	43.61	5.82	49.43	68.2	54	-4.57	H
		5150	38.75	5.82	44.57	68.2	54	-9.43	V
	Highest	5350	42.37	6.52	48.89	68.2	54	-5.11	H
		5350	39.72	6.52	46.24	68.2	54	-7.76	V

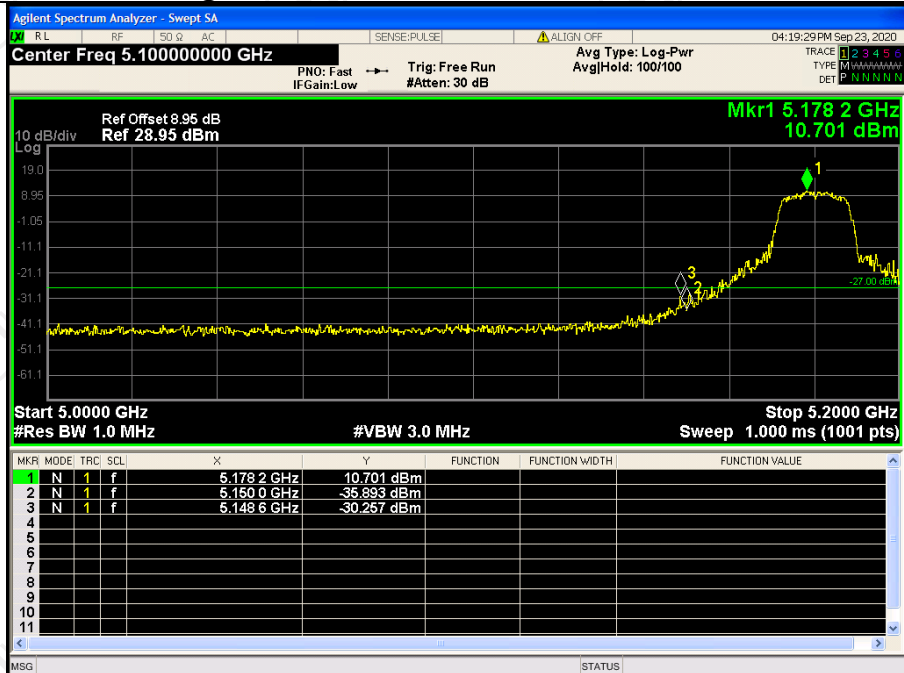
802.11 ac HT20	CH	Freq. (MHz)	Read_level (dBuV/m)	Factor (dB)	Peak (dBuV/m)	Limit (dBuV/m) (Peak)	Limit (dBuV/m) (Avg)	Over	Ant. Pol. H/V
Band 1	Lowest	5150	45.53	6.96	52.49	68.2	54	-1.51	H
		5150	41.62	6.96	48.58	68.2	54	-5.42	V
	Highest	5350	43.49	8.21	51.70	68.2	54	-2.30	H
		5350	39.31	8.21	47.52	68.2	54	-6.48	V

802.11 ac HT40	CH	Freq. (MHz)	Read_level (dBuV/m)	Factor (dB)	Peak (dBuV/m)	Limit (dBuV/m) (Peak)	Limit (dBuV/m) (Avg)	Over	Ant. Pol. H/V
Band 1	Lowest	5150	40.58	5.82	46.40	68.2	54	-7.60	H
		5150	39.81	5.82	45.63	68.2	54	-8.37	V
	Highest	5350	40.93	6.52	47.45	68.2	54	-6.55	H
		5350	39.29	6.52	45.81	68.2	54	-8.19	V

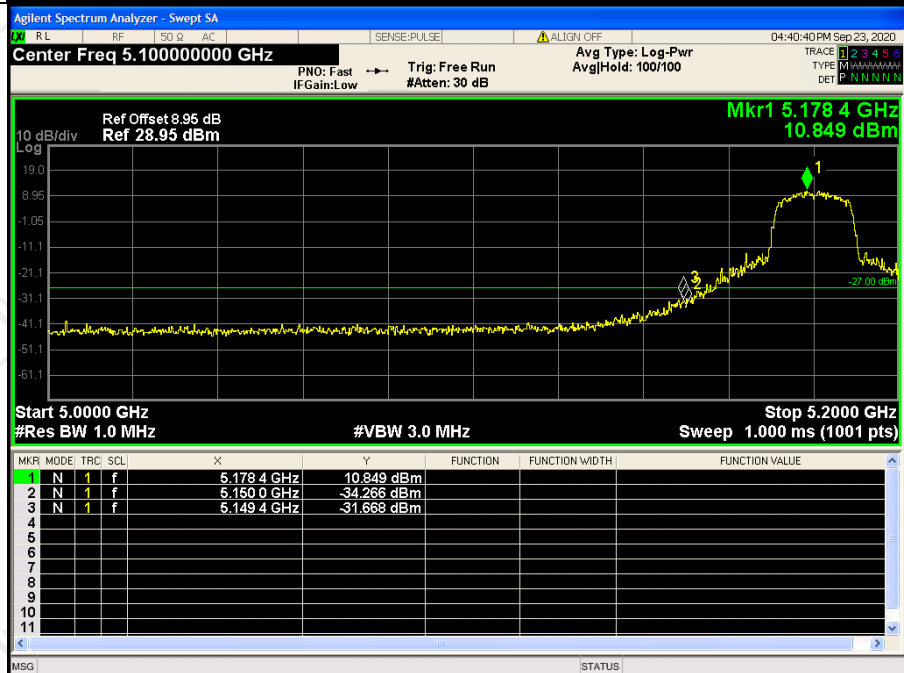
802.11 ac HT80	CH	Freq. (MHz)	Read_level (dBuV/m)	Factor (dB)	Peak (dBuV/m)	Limit (dBuV/m) (Peak)	Limit (dBuV/m) (Avg)	Over	Ant. Pol. H/V
Band 1	Lowest	5150	44.17	5.82	49.99	68.2	54	-4.01	H
		5150	40.58	5.82	46.40	68.2	54	-7.60	V
	Highest	5350	42.85	6.52	49.37	68.2	54	-4.63	H
		5350	38.66	6.52	45.18	68.2	54	-8.82	V

Band 1 Band-edge for RF Conducted Emissions

802.11a
/LCH

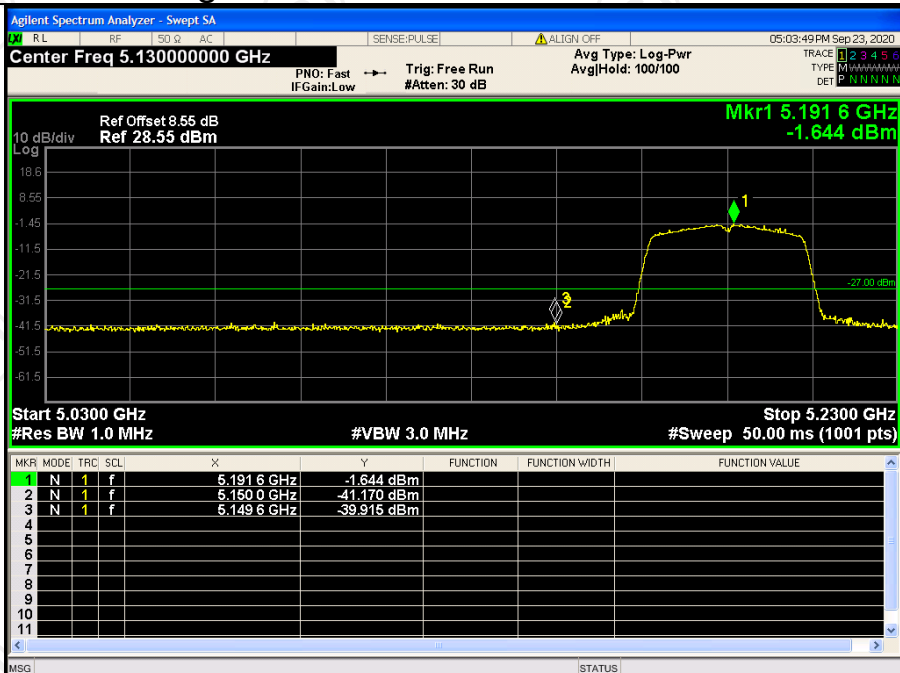


802.11n
HT20/LCH

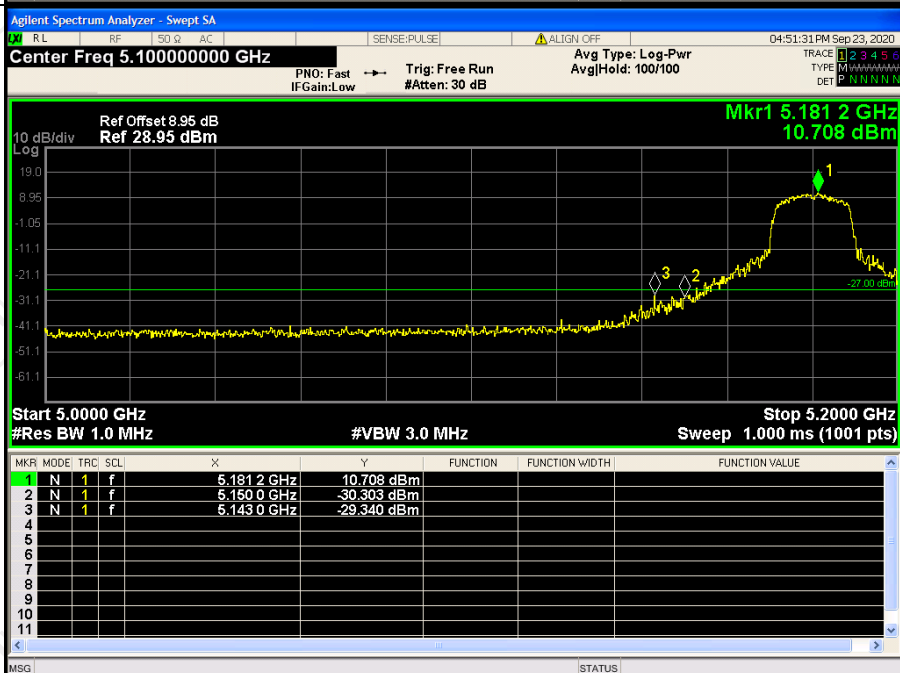


Band 1 Band-edge for RF Conducted Emissions

802.11n
HT40/LCH

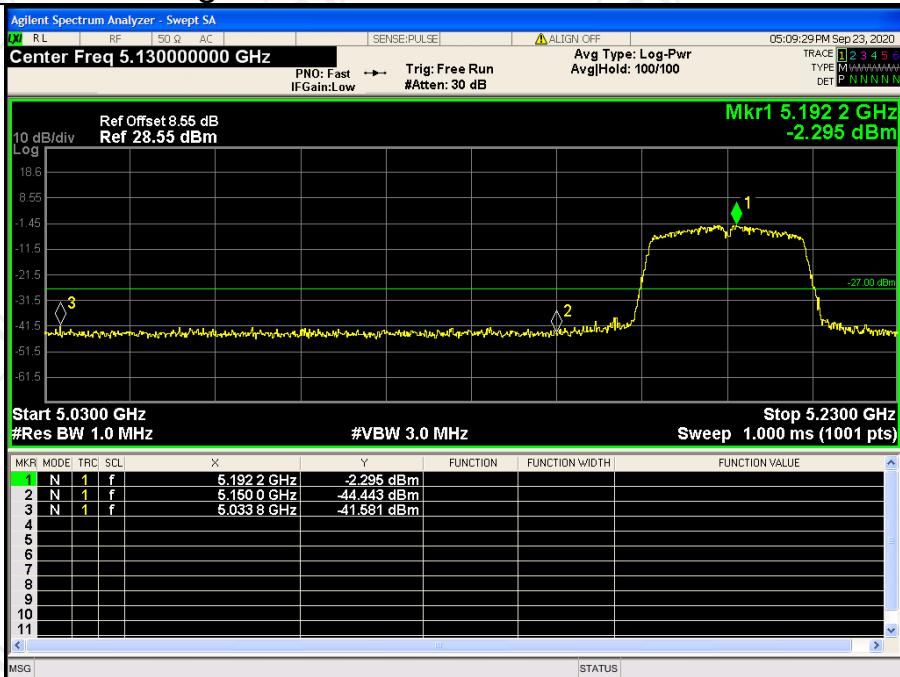


802.11ac
HT20/LCH



Band 1 Band-edge for RF Conducted Emissions

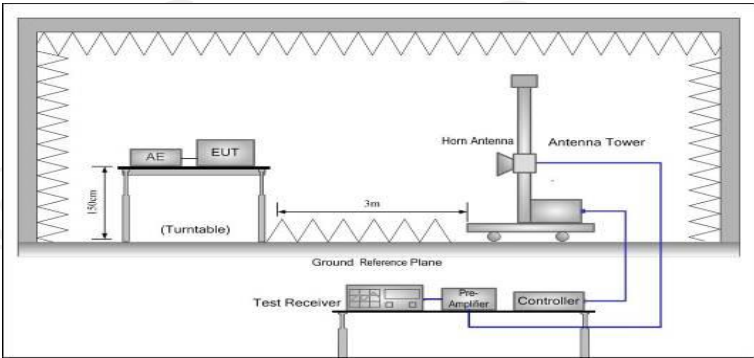
802.11ac
HT40/LCH



6.8. Spurious Emission

6.8.1. Restrict Bands Measurement

6.8.1.1. Test Specification

Test Requirement:	FCC CFR47 Part 15 Section 15.407 & 15.209 & 15.205																		
Test Method:	KDB 789033 D02 v02r01																		
Frequency Range:	Band 1 & 2A: 4.5 GHz to 5.15 GHz and 5.35GHz to 5.46GHz Band 2C &3: 5.35 GHz to 5.46 GHz																		
Measurement Distance:	3 m																		
Antenna Polarization:	Horizontal & Vertical																		
Operation mode:	Transmitting mode with modulation																		
Receiver Setup:	<table><tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr><tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr><tr><td>RMS</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr></table>					Frequency	Detector	RBW	VBW	Remark	Above 1GHz	Peak	1MHz	3MHz	Peak Value	RMS	1MHz	3MHz	Average Value
Frequency	Detector	RBW	VBW	Remark															
Above 1GHz	Peak	1MHz	3MHz	Peak Value															
	RMS	1MHz	3MHz	Average Value															
Limit:	<table><tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr><tr><td rowspan="2">Above 1GHz</td><td>74</td><td>Peak Value</td></tr><tr><td>54</td><td>Average Value</td></tr></table>					Frequency	Limit (dBuV/m @3m)	Remark	Above 1GHz	74	Peak Value	54	Average Value						
Frequency	Limit (dBuV/m @3m)	Remark																	
Above 1GHz	74	Peak Value																	
	54	Average Value																	
Test setup:	Above 1GHz 																		
Test Procedure:	1. The testing follows FCC KDB Publication No. 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement. 2. For the radiated emission test below 1GHz: The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable																		

	(from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high PASS filter are used for the test in order to get better signal level. For the radiated emission test above 1GHz: Place the measurement antenna on a turntable with 1.5 meter above ground, which is away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. 3. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level 4. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported. 5. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 1 MHz, VBW= 3MHz for $f > 1$ GHz for peak measurement. For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation. (4) A 5.8GHz high -PASS filter is used during radiated emissions above 1GHz measurement.
Test results:	PASS

6.8.1.1 Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Test Receiver	ROHDE&SCHW ARZ	ESIB7	100197	Jul. 27, 2021
Spectrum Analyzer	ROHDE&SCHW ARZ	FSQ40	200061	Sep. 11, 2021
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 11, 2021
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 02, 2021
Pre-amplifier	HP	8447D	2727A05017	Sep. 02, 2021
Loop antenna	ZHINAN	ZN30900A	12024	Oct. 27, 2020
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 04, 2022
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 04, 2022
Horn Antenna	A-INFO	LB-180400-KF	J211020657	Sep. 02, 2021
Line-4	TCT	RE-high-04	N/A	Sep. 02, 2021
Line-8	TCT	RE-01	N/A	Jul. 27, 2021
Antenna Mast	Keleto	CC-A-4M	N/A	N/A
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.8.1.2 Test Data

Restrict band around fundamental

11a CH36: 5180MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
5142.20	H	42.58	---	5.79	48.37	---	74	54	-5.63
5150.00	H	39.36	---	5.82	45.18	---	74	54	-8.82
5142.20	V	40.54	---	5.79	46.33	---	74	54	-7.67
5150.00	V	41.67	---	5.82	47.49	---	74	54	-6.51

11n (HT20) CH36: 5180MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (DbμV)	AV reading (dBuV)	Correction Factor (Db/m)	Emission Level		Peak limit (DbμV/m)	AV limit (DbμV/m)	Margin (Db)
					Peak (DbμV/m)	AV (DbμV/m)			
5142.20	H	43.38	---	5.79	49.17	---	74	54	-4.83
5150.00	H	41.59	---	5.82	47.41	---	74	54	-6.59
5142.20	V	40.92	---	5.79	46.71	---	74	54	-7.29
5150.00	V	42.37	---	5.82	48.19	---	74	54	-5.81

11n(HT40) CH38: 5190MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
5135.98	H	45.17	---	5.80	50.97	---	74	54	-3.03
5150.00	H	43.72	---	5.82	49.54	---	74	54	-4.46
5135.98	V	42.53	---	5.80	48.33	---	74	54	-5.67
5150.00	V	40.58	---	5.82	46.40	---	74	54	-7.60

11ac(VHT20) CH36: 5180MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
5142.20	H	42.62	---	5.79	48.41	---	74	54	-5.59
5150.00	H	38.53	---	5.82	44.35	---	74	54	-9.65
5142.20	V	43.21	---	5.79	49.00	---	74	54	-5.00
5150.00	V	41.44	---	5.82	47.26	---	74	54	-6.74

11ac(VHT40) CH38: 5190MHz

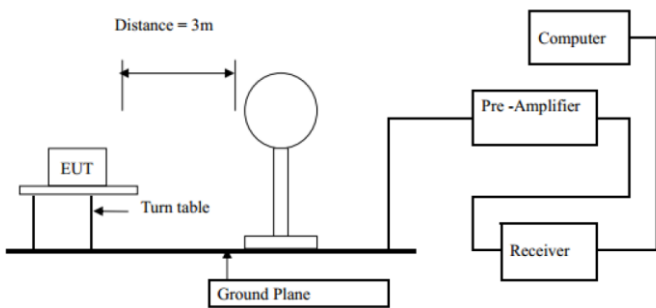
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
5142.20	H	42.54	---	5.80	48.34	---	74	54	-5.66
5150.00	H	39.73	---	5.82	45.55	---	74	54	-8.45
5142.20	V	43.69	---	5.80	49.49	---	74	54	-4.51
5150.00	V	41.91	---	5.82	47.73	---	74	54	-6.27

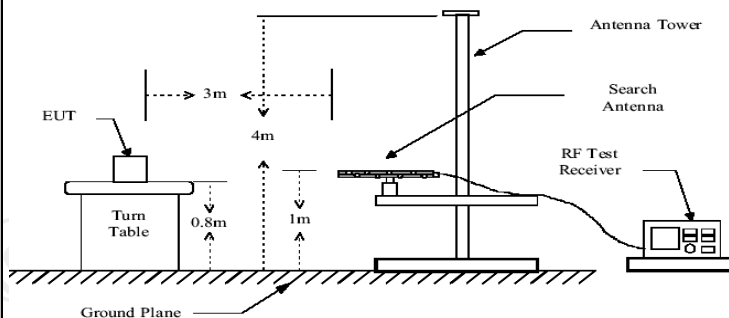
11ac(VHT80) CH42: 5210MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
5142.20	H	41.80	---	5.80	47.60	---	74	54	-6.40
5150.00	H	39.42	---	5.82	45.24	---	74	54	-8.76
5142.20	V	40.36	---	5.80	46.16	---	74	54	-7.84
5150.00	V	38.79	---	5.82	44.61	---	74	54	-9.39

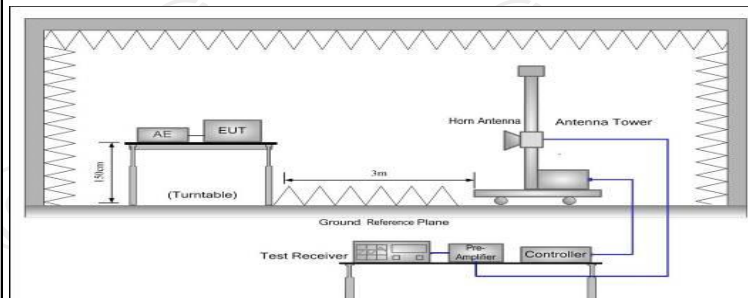
6.8.2. Unwanted Emissions out of the Restricted Bands

6.8.2.1. Test Specification

Test Requirement:	FCC CFR47 Part 15 Section 15.407 & 15.209 & 15.205				
Test Method:	KDB 789033 D02 v02r01				
Frequency Range:	9kHz to 40GHz				
Measurement Distance:	3 m				
Antenna Polarization:	Horizontal & Vertical				
Operation mode:	Transmitting mode with modulation				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Peak		1MHz	10Hz	Average Value	
Limit:	Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,				
	Frequency		Field Strength (microvolts/meter)	Measurement Distance (meters)	
	0.009-0.490		2400/F(KHz)	300	
	0.490-1.705		24000/F(KHz)	30	
	1.705-30		30	30	
	30-88		100	3	
	88-216		150	3	
	216-960		200	3	
	Above 960		500	3	
	Frequency		Limit (dBuV/m @3m)	Detector	
Above 1G		74.0	Peak		
		54.0	Average		
Test setup:	For radiated emissions below 30MHz				
					
	30MHz to 1GHz				



Above 1GHz



Test Procedure:

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotating table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

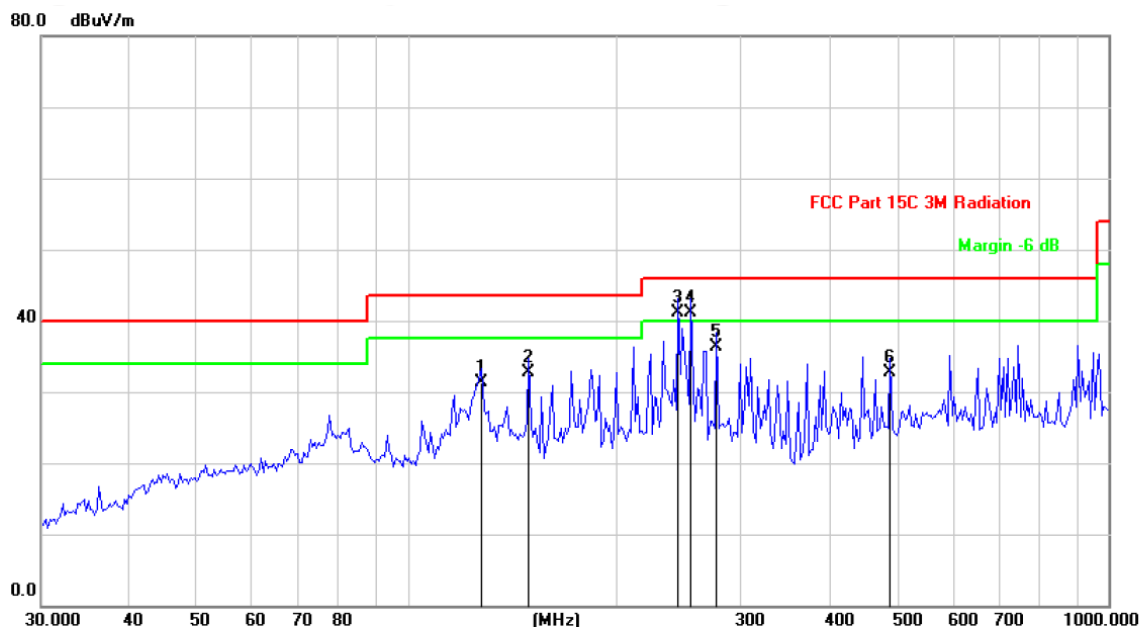
Test results:

PASS

6.8.3. Test Data

Please refer to following diagram for individual
Below 1GHz

Horizontal:



Site

Polarization: **Horizontal**

Temperature: 25

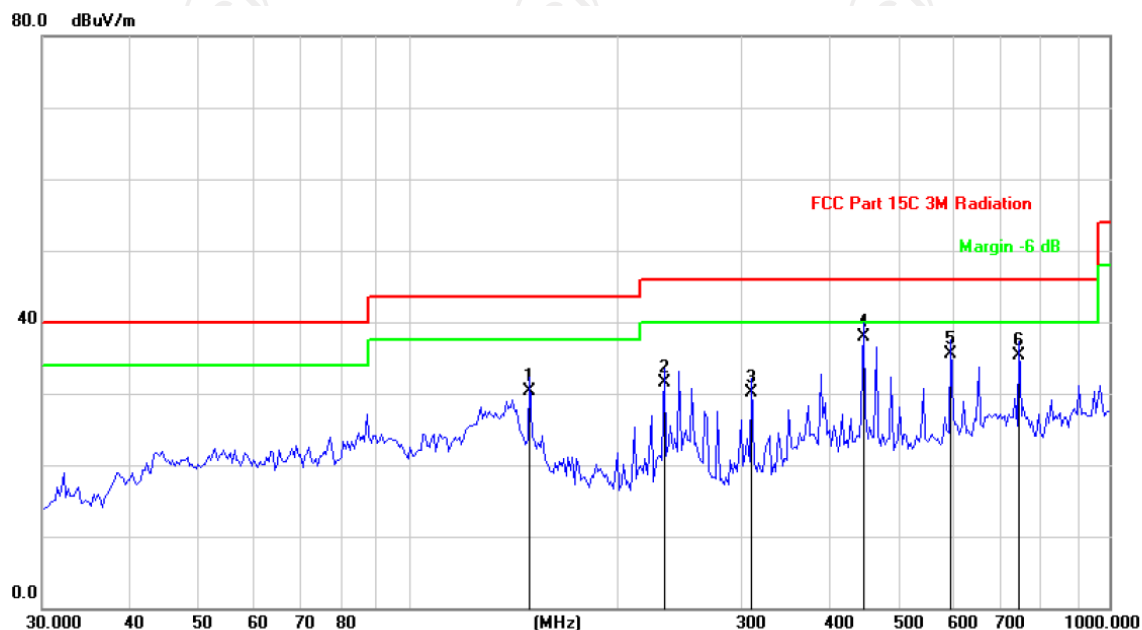
Limit: FCC Part 15C 3M Radiation

Power: AC 120V/60Hz

Humidity: 55 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		127.5865	45.84	-14.48	31.36	43.50	-12.14	QP
2		148.9173	48.98	-16.24	32.74	43.50	-10.76	QP
3	*	243.5431	53.90	-12.75	41.15	46.00	-4.85	QP
4	!	254.0312	53.49	-12.43	41.06	46.00	-4.94	QP
5		276.3817	48.00	-11.69	36.31	46.00	-9.69	QP
6		488.3263	40.25	-7.62	32.63	46.00	-13.37	QP

Vertical:



Site: Polarization: **Vertical** Temperature: 25
Limit: FCC Part 15C 3M Radiation Power: AC 120V/60Hz Humidity: 55 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		148.9173	46.50	-16.24	30.26	43.50	-13.24	QP
2		231.8531	44.59	-13.09	31.50	46.00	-14.50	QP
3		309.2710	40.83	-10.70	30.13	46.00	-15.87	QP
4	*	445.6931	46.27	-8.38	37.89	46.00	-8.11	QP
5		594.5143	41.34	-5.92	35.42	46.00	-10.58	QP
6		744.4265	39.87	-4.58	35.29	46.00	-10.71	QP

Note: 1. The low frequency, which started from 9KHz~30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported

2. Measurements were conducted in all three channels (high, middle, low) and all modulation (802.11a, 802.11n(HT20), 802.11n(HT40), 802.11ac(VHT20), 802.11ac(VHT40) 802.11ac(VHT80)), and the worst case Mode (802.11ac(VHT80)) was submitted only.

Modulation Type: Band 1									
11a CH36: 5180MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10360	H	40.15	---	8.02	48.17	---	74	54	-5.83
15540	H	38.23	---	9.87	48.10	---	74	54	-5.90
---	H	---	---	---	---	---	---	---	---
10360	V	39.46	---	8.02	47.48	---	74	54	-6.52
15540	V	35.95	---	9.87	45.82	---	74	54	-8.18
---	V	---	---	---	---	---	---	---	---
11a CH40: 5200MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10400	H	41.23	---	7.97	49.2	---	74	54	-4.80
15600	H	40.51	---	9.83	50.34	---	74	54	-3.66
---	H	---	---	---	---	---	---	---	---
10400	V	42.27	---	7.97	50.24	---	74	54	-3.76
15600	V	40.45	---	9.83	50.28	---	74	54	-3.72
---	V	---	---	---	---	---	---	---	---
11a CH48: 5240MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10480	H	40.75	---	7.97	48.72	---	74	54	-5.28
15720	H	41.92	---	9.83	51.75	---	74	54	-2.25
---	H	---	---	---	---	---	---	---	---
10480	V	41.46	---	7.97	49.43	---	74	54	-4.57
15720	V	39.23	---	9.83	49.06	---	74	54	-4.94
---	V	---	---	---	---	---	---	---	---
11n(HT20) CH36: 5180MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10360	H	41.47	---	8.02	49.49	---	74	54	-4.51
15540	H	38.21	---	9.87	48.08	---	74	54	-5.92
---	H	---	---	---	---	---	---	---	---
10360	V	41.02	---	8.02	49.04	---	74	54	-4.96
15540	V	37.68	---	9.87	47.55	---	74	54	-6.45
---	V	---	---	---	---	---	---	---	---
11n(HT20) CH40: 5200MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10400	H	40.56	---	7.97	48.53	---	74	54	-5.47
15600	H	38.14	---	9.83	47.97	---	74	54	-6.03
---	H	---	---	---	---	---	---	---	---
10400	V	43.01	---	7.97	50.98	---	74	54	-3.02
15600	V	40.58	---	9.83	50.41	---	74	54	-3.59
---	V	---	---	---	---	---	---	---	---

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10480	H	40.67	---	7.97	48.64	---	74	54	-5.36
15720	H	39.49	---	9.83	49.32	---	74	54	-4.68
---	H	---	---	---	---	---	---	---	---
10480	V	41.25	---	7.97	49.22	---	74	54	-4.78
15720	V	39.18	---	9.83	49.01	---	74	54	-4.99
---	V	---	---	---	---	---	---	---	---

11n(HT40)CH38: 5190MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10380	H	42.47	---	7.75	50.22	---	74	54	-3.78
15570	H	40.62	---	9.87	50.49	---	74	54	-3.51
---	H	---	---	---	---	---	---	---	---

10380	V	41.41	---	7.75	49.16	---	74	54	-4.84
15570	V	40.59	---	9.87	50.46	---	74	54	-3.54
---	V	---	---	---	---	---	---	---	---

11n(HT40)CH46: 5230MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10460	H	42.69	---	7.97	50.66	---	74	54	-3.34
15690	H	39.47	---	9.83	49.30	---	74	54	-4.70
---	H	---	---	---	---	---	---	---	---

10460	V	42.74	---	7.97	50.71	---	74	54	-3.29
15690	V	40.12	---	9.83	49.95	---	74	54	-4.05
---	V	---	---	---	---	---	---	---	---

11ac(VHT20) CH36: 5180MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10360	H	43.49	---	8.02	51.51	---	74	54	-2.49
15540	H	40.57	---	9.87	50.44	---	74	54	-3.56
---	H	---	---	---	---	---	---	---	---

10360	V	40.74	---	8.02	48.76	---	74	54	-5.24
15540	V	39.59	---	9.87	49.46	---	74	54	-4.54
---	V	---	---	---	---	---	---	---	---

11ac(VHT20) CH40: 5200MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10400	H	42.48	---	7.97	50.45	---	74	54	-3.55
15600	H	39.21	---	9.83	49.04	---	74	54	-4.96
---	H	---	---	---	---	---	---	---	---

10400	V	41.72	---	7.97	49.69	---	74	54	-4.31
15600	V	38.36	---	9.83	48.19	---	74	54	-5.81
---	V	---	---	---	---	---	---	---	---

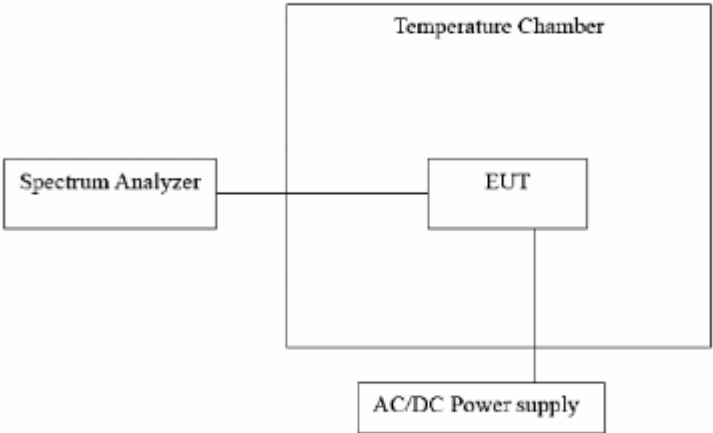
11ac(VHT20) CH48: 5240MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10480	H	39.27	---	7.97	47.24	---	74	54	-6.76
15720	H	41.75	---	9.83	51.58	---	74	54	-2.42
---	H	---	---	---	---	---	---	---	---
10480	V	41.34	---	7.97	49.31	---	74	54	-4.69
15720	V	39.52	---	9.83	49.35	---	74	54	-4.65
---	V	---	---	---	---	---	---	---	---
11ac(VHT40) CH38: 5190MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10380	H	43.01	---	7.75	50.76	---	74	54	-3.24
15570	H	40.54	---	9.87	50.41	---	74	54	-3.59
---	H	---	---	---	---	---	---	---	---
10380	V	40.76	---	7.75	48.51	---	74	54	-5.49
15570	V	39.68	---	9.87	49.55	---	74	54	-4.45
---	V	---	---	---	---	---	---	---	---
11ac(VHT40) CH46: 5230MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10460	H	41.67	---	7.97	49.64	---	74	54	-4.36
15690	H	40.73	---	9.83	50.56	---	74	54	-3.44
---	H	---	---	---	---	---	---	---	---
10460	V	42.56	---	7.97	50.53	---	74	54	-3.47
15690	V	39.74	---	9.83	49.57	---	74	54	-4.43
---	V	---	---	---	---	---	---	---	---
11ac(VHT80) CH42: 5210MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10420	H	42.31	---	7.96	50.27	---	74	54	-3.73
15630	H	38.69	---	9.84	48.53	---	74	54	-5.47
---	H	---	---	---	---	---	---	---	---
10420	V	42.89	---	7.96	50.85	---	74	54	-3.15
15630	V	41.62	---	9.84	51.46	---	74	54	-2.54
---	V	---	---	---	---	---	---	---	---

Note:

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
2. Margin (dB) = Emission Level (Peak) (dBμV/m)-Average limit (dBμV/m)
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency. The highest test frequency is 40GHz.
5. Data of measurement shown "---" in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

6.9. Frequency Stability Measurement

6.9.1. Test Specification

Test Requirement:	FCC Part15 Section 15.407(g) &Part2 J Section 2.1055
Test Method:	ANSI C63.10: 2013
Limit:	The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 45 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.
Test Setup:	 <pre> graph LR SA[Spectrum Analyzer] --- EUT[EUT] EUT --- P[AC/DC Power supply] subgraph TC [Temperature Chamber] EUT P end </pre>
Test Procedure:	The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage. b. Turn the EUT on and couple its output to a spectrum analyzer. c. Turn the EUT off and set the chamber to the highest temperature specified. d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature. f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.
Test Result:	PASS
Remark:	Pre-scan was performed at all models(11a,11n,11ac), the worst case (11ac) was found and test data was shown in this report.

Test plots as follows:

Test mode:		802.11ac(VHT20)	Frequency(MHz):	5180
Temperature (°C)	Voltage(VDC)	Measurement Frequency(MHz)	Delta Frequency(Hz)	Result
45	3.7V	5180.0070	7000	PASS
35		5180.0062	6200	PASS
25		5179.9988	-1200	PASS
15		5179.9983	-1700	PASS
5		5180.0020	2000	PASS
0		5180.0042	4200	PASS
20	4.3	5179.9931	-6900	PASS
	3.8	5180.0033	3300	PASS
	3.6	5179.9921	-7900	PASS

Test mode:		802.11ac(VHT20)	Frequency(MHz):	5200
Temperature (°C)	Voltage(VDC)	Measurement Frequency(MHz)	Delta Frequency(Hz)	Result
45	3.7V	5200.0060	6000	PASS
35		5200.0031	3100	PASS
25		5200.0052	5200	PASS
15		5200.0046	4600	PASS
5		5199.9980	-2000	PASS
0		5199.9979	-2100	PASS
20	4.3	5199.9951	-4900	PASS
	3.8	5200.0034	3400	PASS
	3.6	5200.0057	5700	PASS

Test mode:		802.11ac(VHT20)	Frequency(MHz):	5240
Temperature (°C)	Voltage(VDC)	Measurement Frequency(MHz)	Delta Frequency(Hz)	Result
45	3.7V	5240.0034	3400	PASS
35		5240.0027	2700	PASS
25		5240.0019	1900	PASS
15		5239.9991	-900	PASS
5		5239.9973	-2700	PASS
0		5239.9965	-3500	PASS
20	4.3	5240.0031	3100	PASS
	3.8	5240.0014	1400	PASS
	3.6	5239.9985	-1500	PASS

Test mode:		802.11ac(VHT40)	Frequency(MHz):	5190
Temperature (°C)	Voltage(VDC)	Measurement Frequency(MHz)	Delta Frequency(Hz)	Result
45	3.7V	5189.9870	-13000	PASS
35		5190.0107	10700	PASS
25		5190.0109	10900	PASS
15		5190.0021	2100	PASS
5		5190.0078	7800	PASS
0		5190.0029	2900	PASS
20	4.3	5189.9910	-9000	PASS
	3.8	5189.9978	-2200	PASS
	3.6	5190.0039	3900	PASS

Test mode:		802.11ac(VHT40)	Frequency(MHz):	5230
Temperature (°C)	Voltage(VDC)	Measurement Frequency(MHz)	Delta Frequency(Hz)	Result
45	3.7V	5229.9880	-12000	PASS
35		5230.0128	12800	PASS
25		5230.0095	9500	PASS
15		5229.9988	-1200	PASS
5		5229.9981	-1900	PASS
0		5230.0059	5900	PASS
20	4.3	5230.0044	4400	PASS
	3.8	5230.0023	2300	PASS
	3.6	5229.9978	-2200	PASS

Test mode:		802.11ac(VHT80)	Frequency(MHz):	5210
Temperature (°C)	Voltage(VDC)	Measurement Frequency(MHz)	Delta Frequency(Hz)	Result
45	3.7V	5209.9890	-11000	PASS
35		5210.0061	6100	PASS
25		5210.0045	4500	PASS
15		5210.0058	5800	PASS
5		5210.0083	8300	PASS
0		5210.0096	9600	PASS
20	4.3	5210.0083	8300	PASS
	3.8	5210.0065	6500	PASS
	3.6	5210.0072	7200	PASS

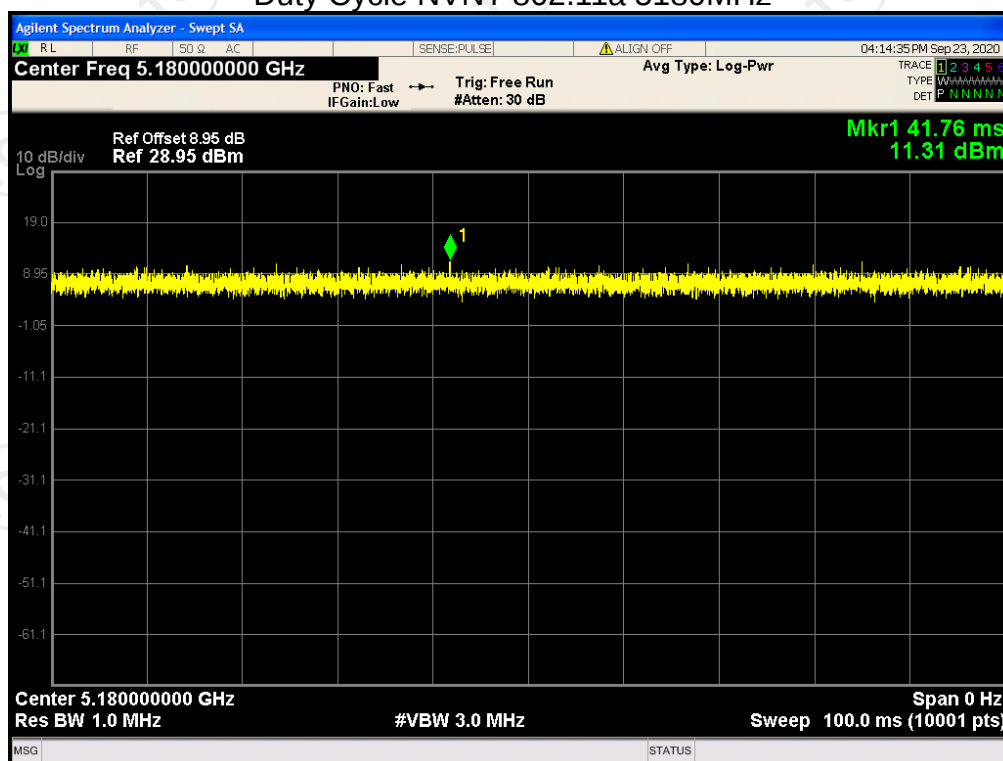
Appendix A: Test Result of Conducted Test

Band 1

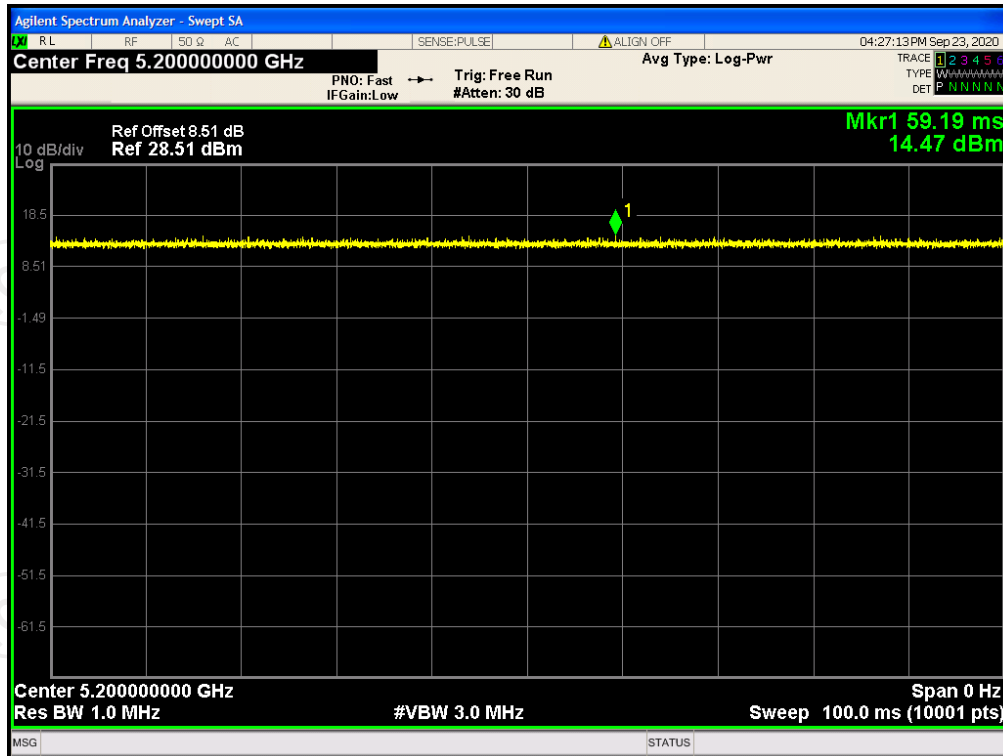
Duty Cycle

Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)
NVNT	802.11a	5180	100	0
NVNT	802.11a	5200	100	0
NVNT	802.11a	5240	100	0
NVNT	802.11ac20	5180	100	0
NVNT	802.11ac20	5200	100	0
NVNT	802.11ac20	5240	100	0
NVNT	802.11ac40	5190	100	0
NVNT	802.11ac40	5230	100	0
NVNT	802.11ac80	5210	100	0
NVNT	802.11n(HT20)	5180	100	0
NVNT	802.11n(HT20)	5200	100	0
NVNT	802.11n(HT20)	5240	100	0
NVNT	802.11n(HT40)	5190	100	0
NVNT	802.11n(HT40)	5230	100	0

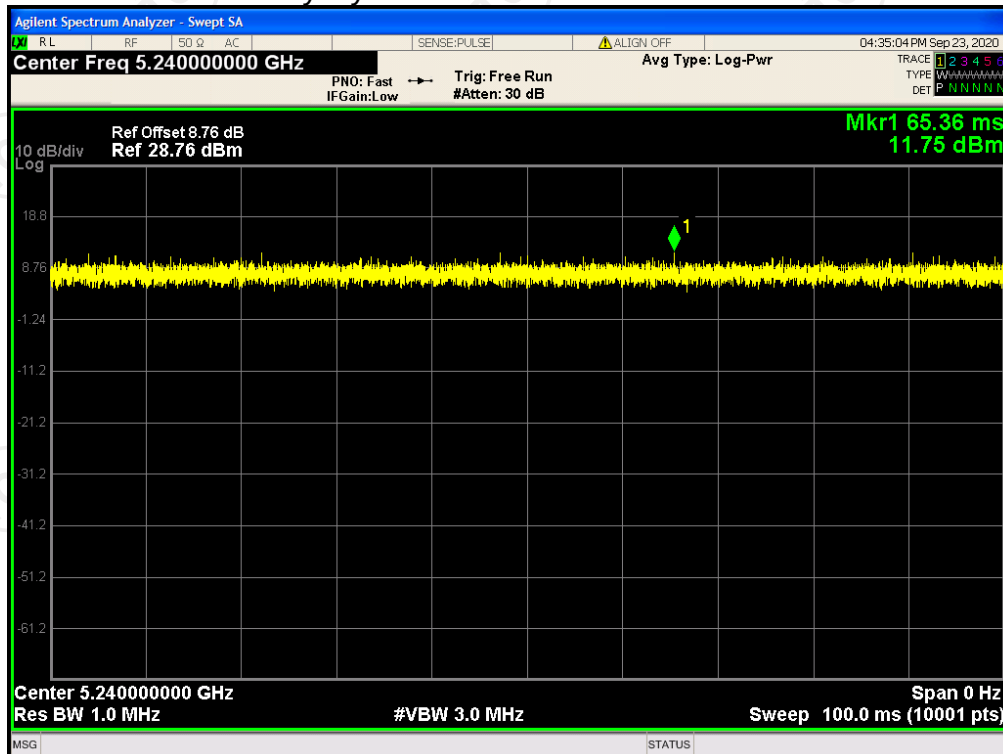
Duty Cycle NVNT 802.11a 5180MHz



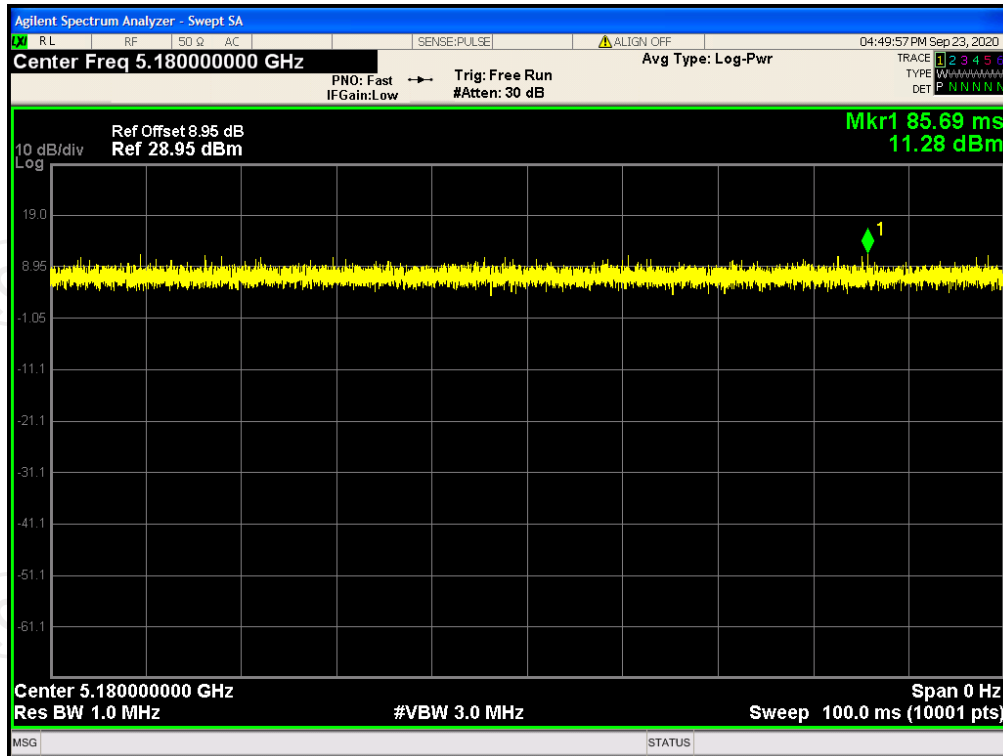
Duty Cycle NVNT 802.11a 5200MHz



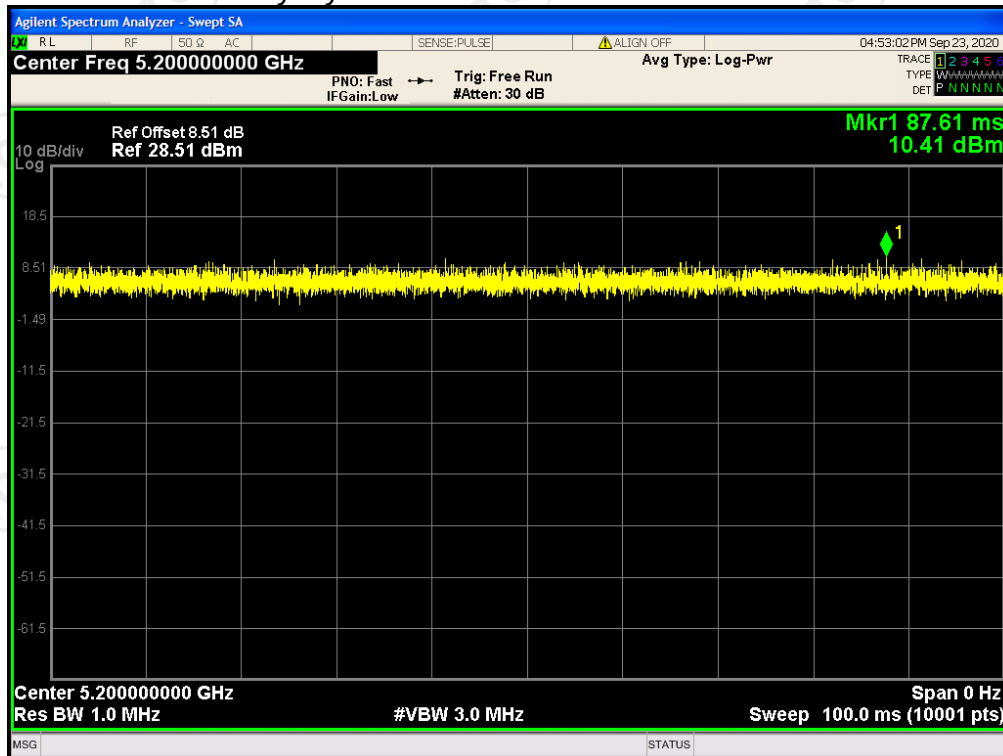
Duty Cycle NVNT 802.11a 5240MHz



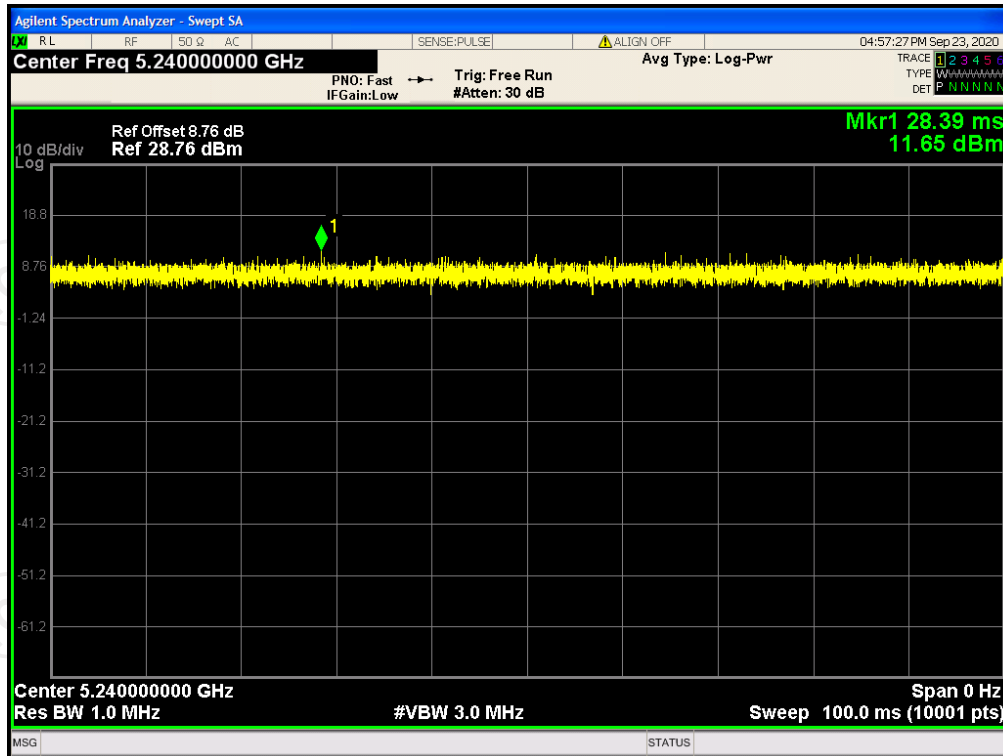
Duty Cycle NVNT 802.11ac20 5180MHz



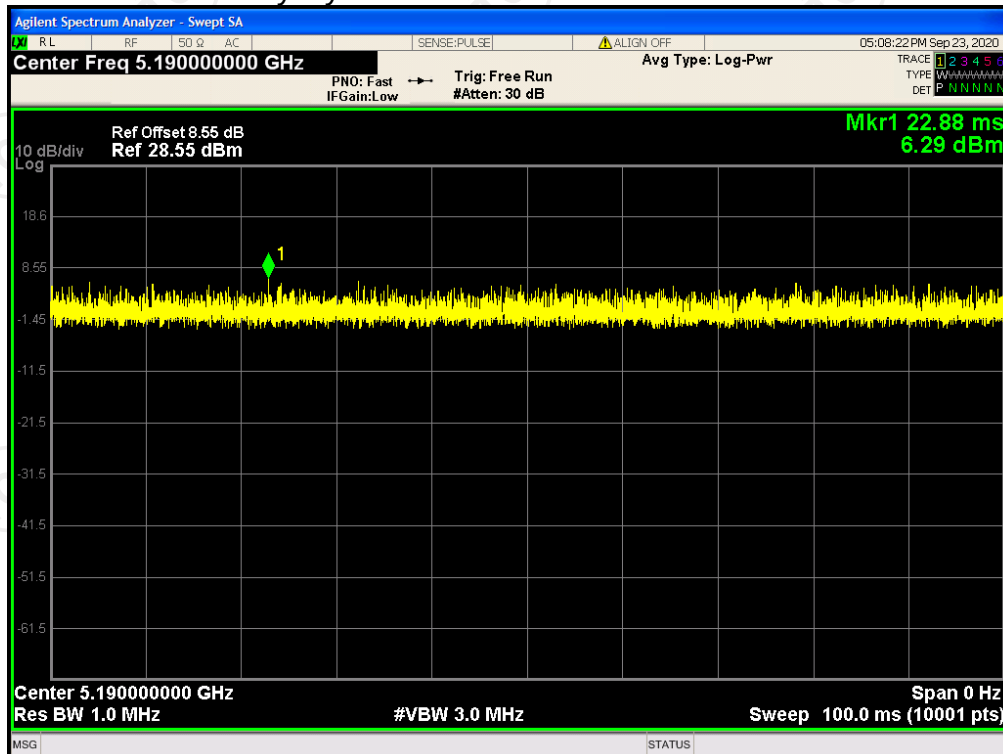
Duty Cycle NVNT 802.11ac20 5200MHz



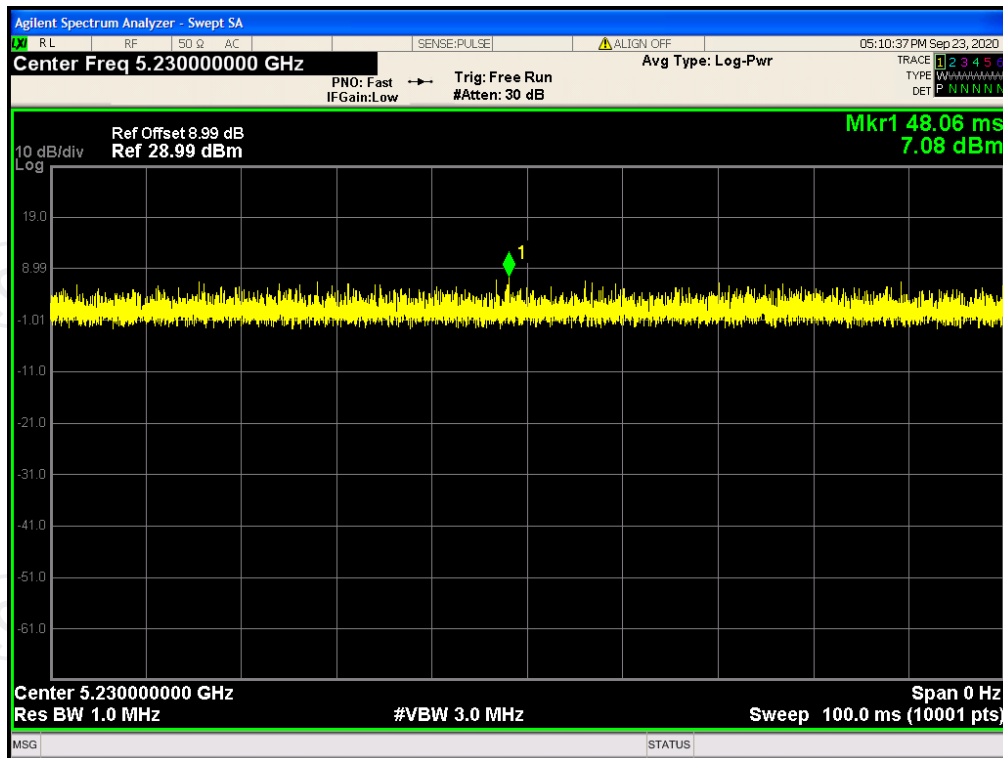
Duty Cycle NVNT 802.11ac20 5240MHz



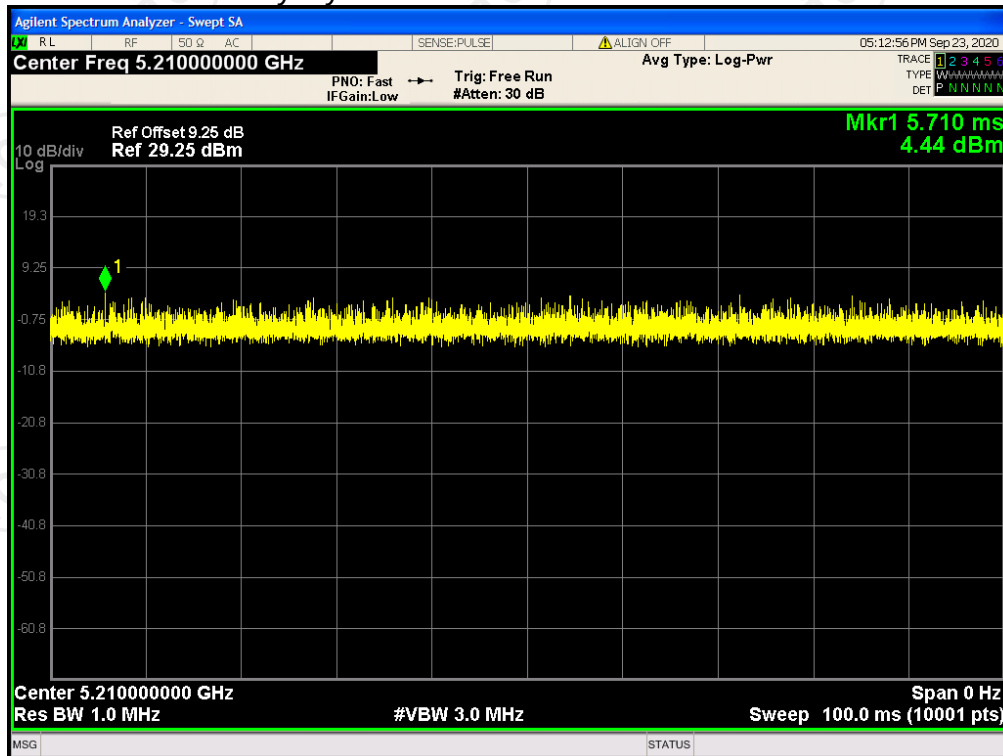
Duty Cycle NVNT 802.11ac40 5190MHz



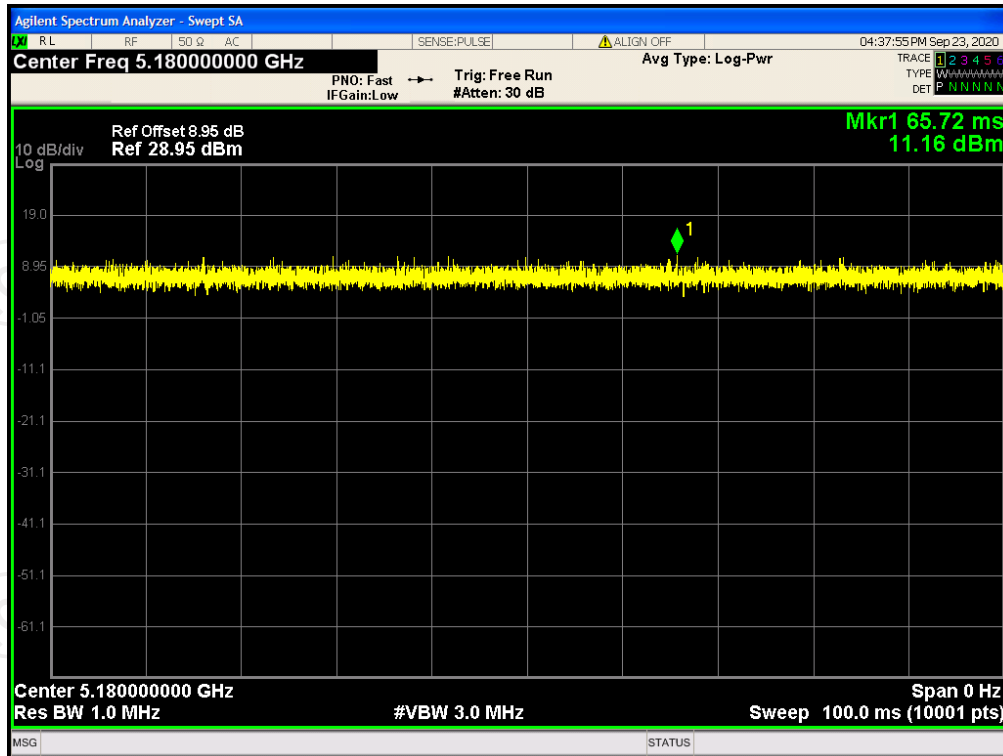
Duty Cycle NVNT 802.11ac40 5230MHz



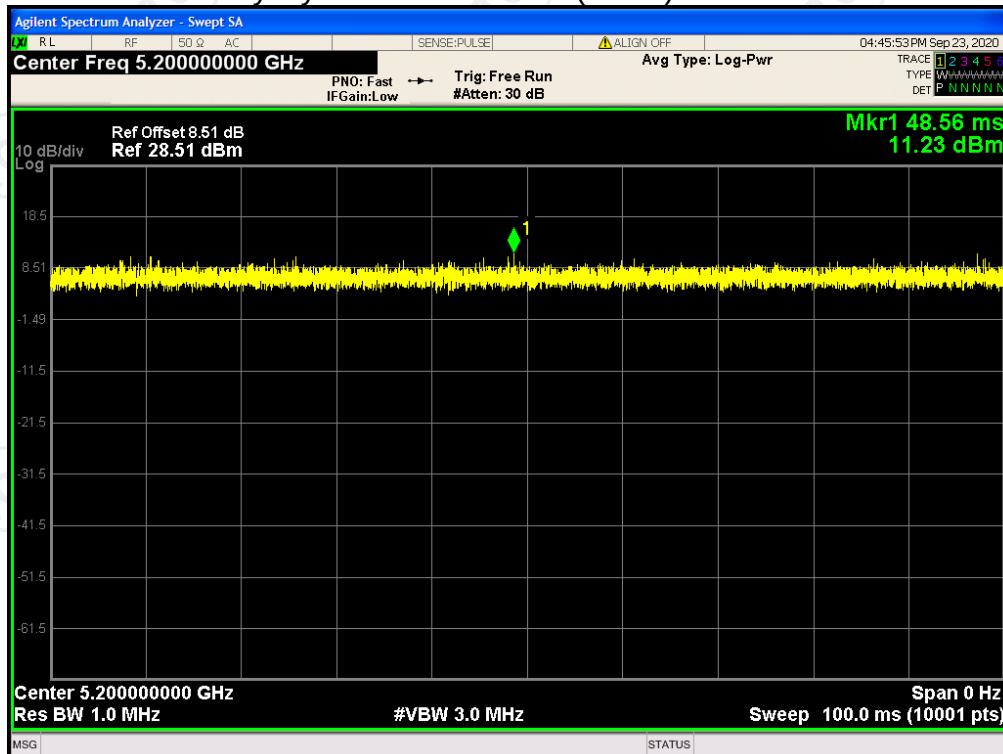
Duty Cycle NVNT 802.11ac80 5210MHz



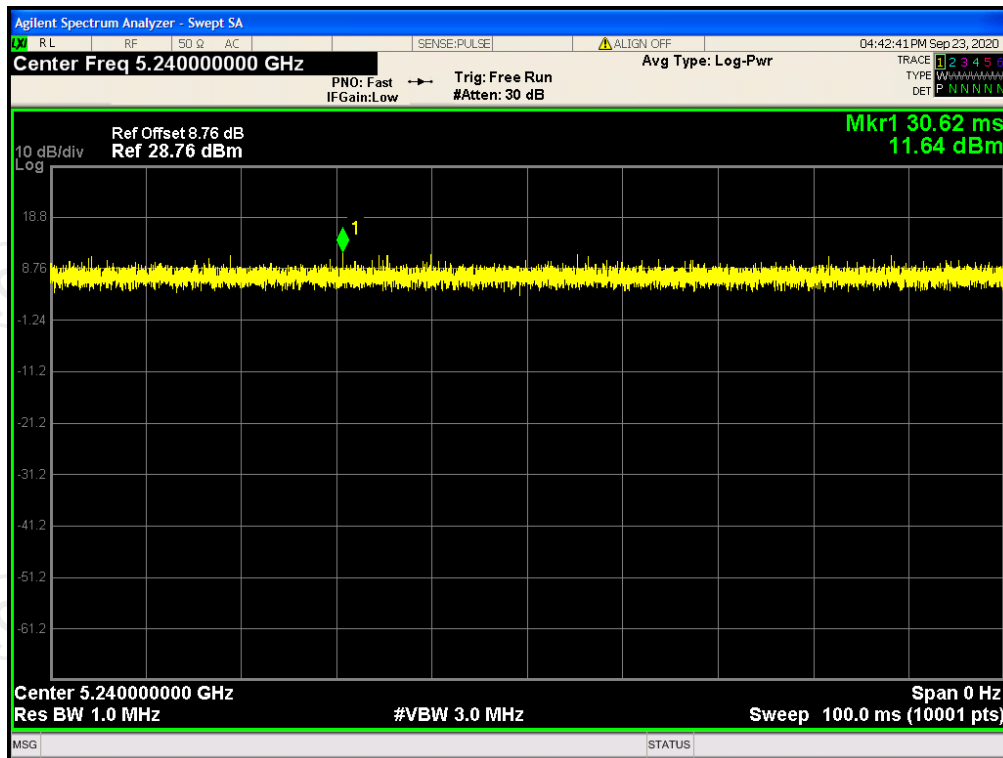
Duty Cycle NVNT 802.11n(HT20) 5180MHz



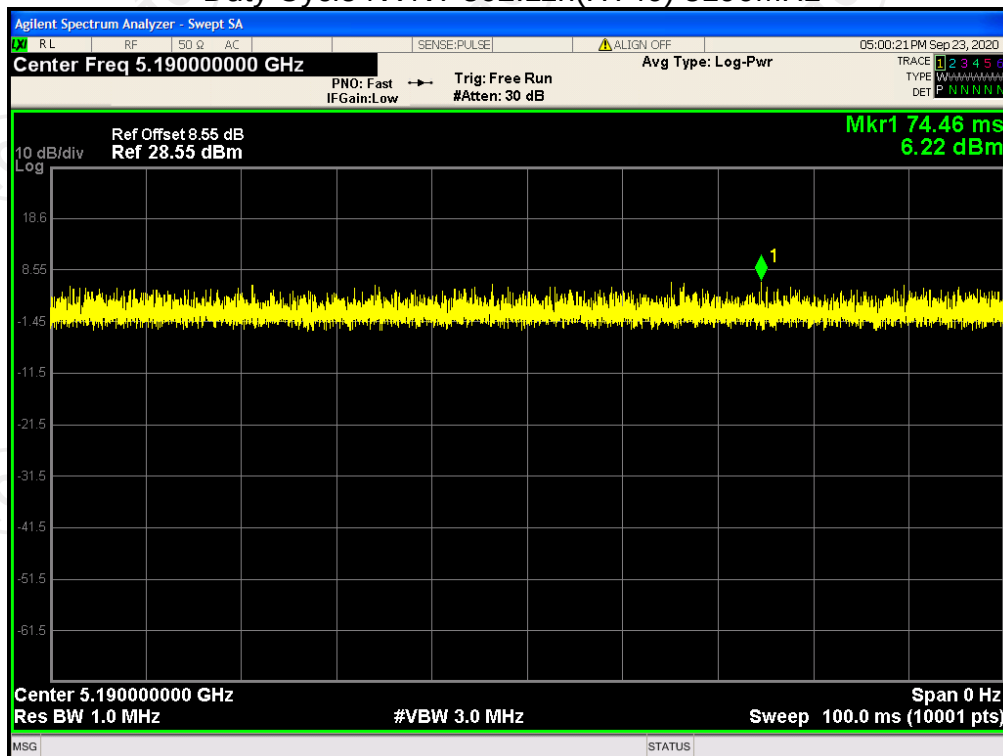
Duty Cycle NVNT 802.11n(HT20) 5200MHz



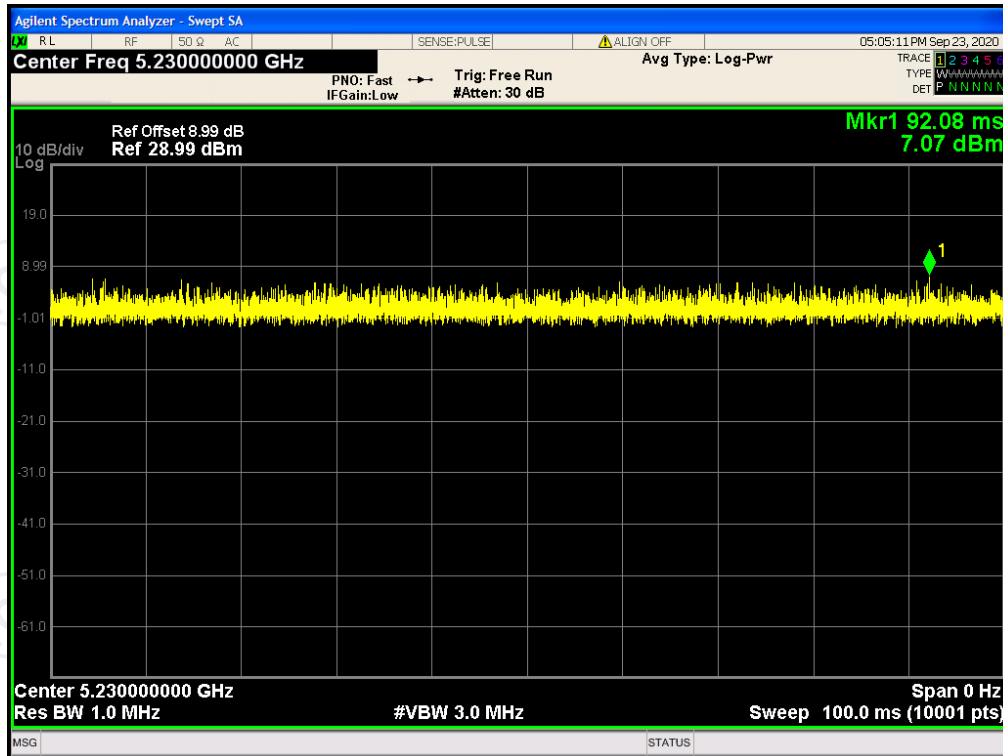
Duty Cycle NVNT 802.11n(HT20) 5240MHz



Duty Cycle NVNT 802.11n(HT40) 5190MHz



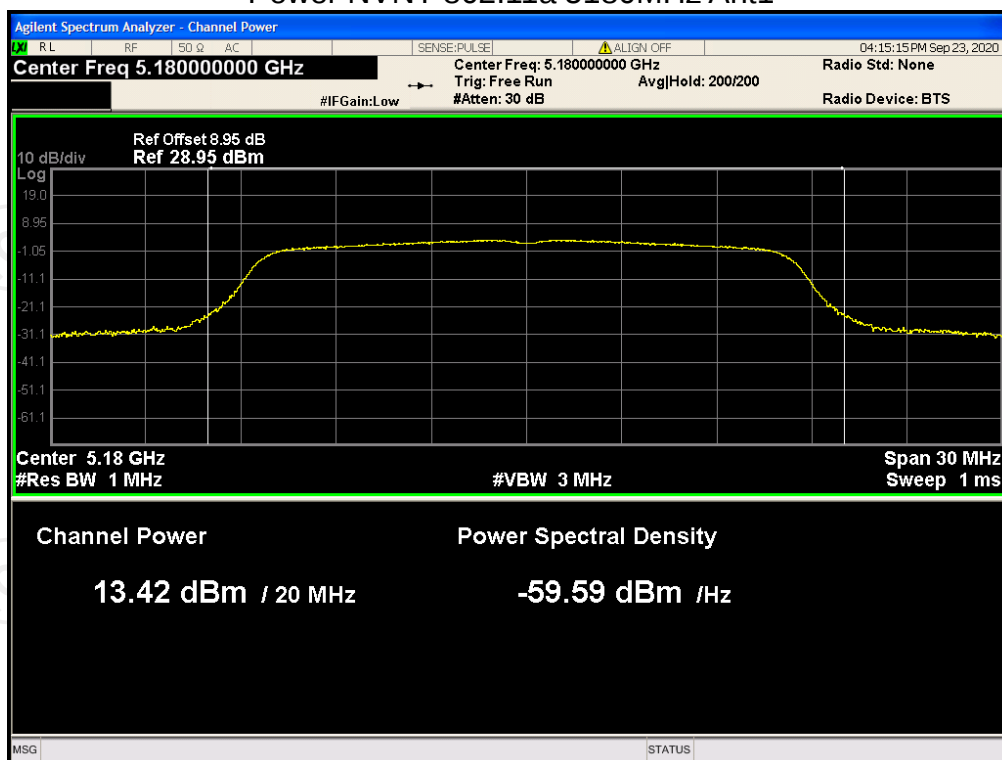
Duty Cycle NVNT 802.11n(HT40) 5230MHz



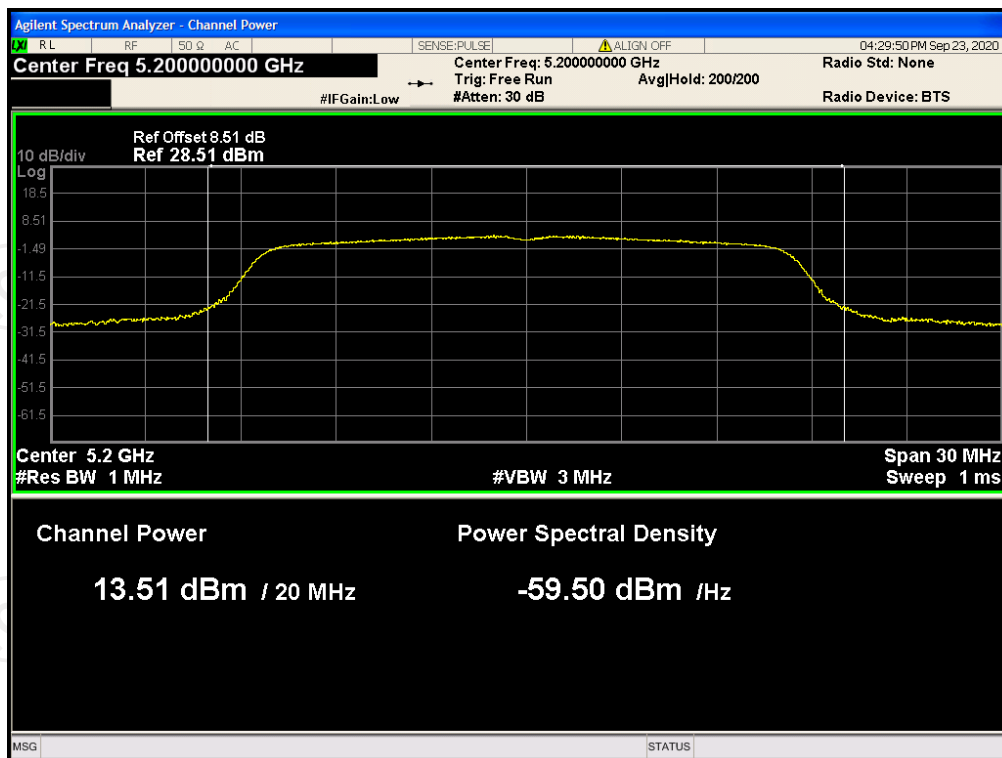
Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	802.11a	5180	Ant 1	13.416	0	13.416	24	Pass
NVNT	802.11a	5200	Ant 1	13.509	0	13.509	24	Pass
NVNT	802.11a	5240	Ant 1	13.647	0	13.647	24	Pass
NVNT	802.11ac20	5180	Ant 1	13.521	0	13.521	24	Pass
NVNT	802.11ac20	5200	Ant 1	13.383	0	13.383	24	Pass
NVNT	802.11ac20	5240	Ant 1	13.739	0	13.739	24	Pass
NVNT	802.11ac40	5190	Ant 1	12.974	0	12.974	24	Pass
NVNT	802.11ac40	5230	Ant 1	13.782	0	13.782	24	Pass
NVNT	802.11ac80	5210	Ant 1	13.875	0	13.875	24	Pass
NVNT	802.11n(HT20)	5180	Ant 1	13.425	0	13.425	24	Pass
NVNT	802.11n(HT20)	5200	Ant 1	13.199	0	13.199	24	Pass
NVNT	802.11n(HT20)	5240	Ant 1	13.595	0	13.595	24	Pass
NVNT	802.11n(HT40)	5190	Ant 1	13.059	0	13.059	24	Pass
NVNT	802.11n(HT40)	5230	Ant 1	13.695	0	13.695	24	Pass

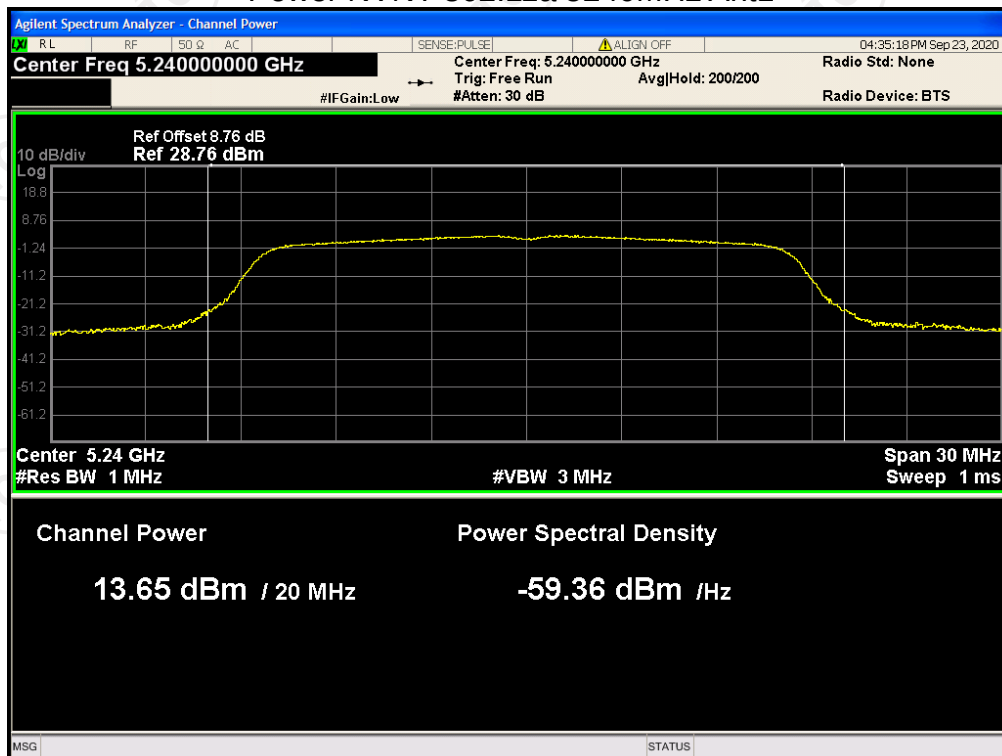
Power NVNT 802.11a 5180MHz Ant1



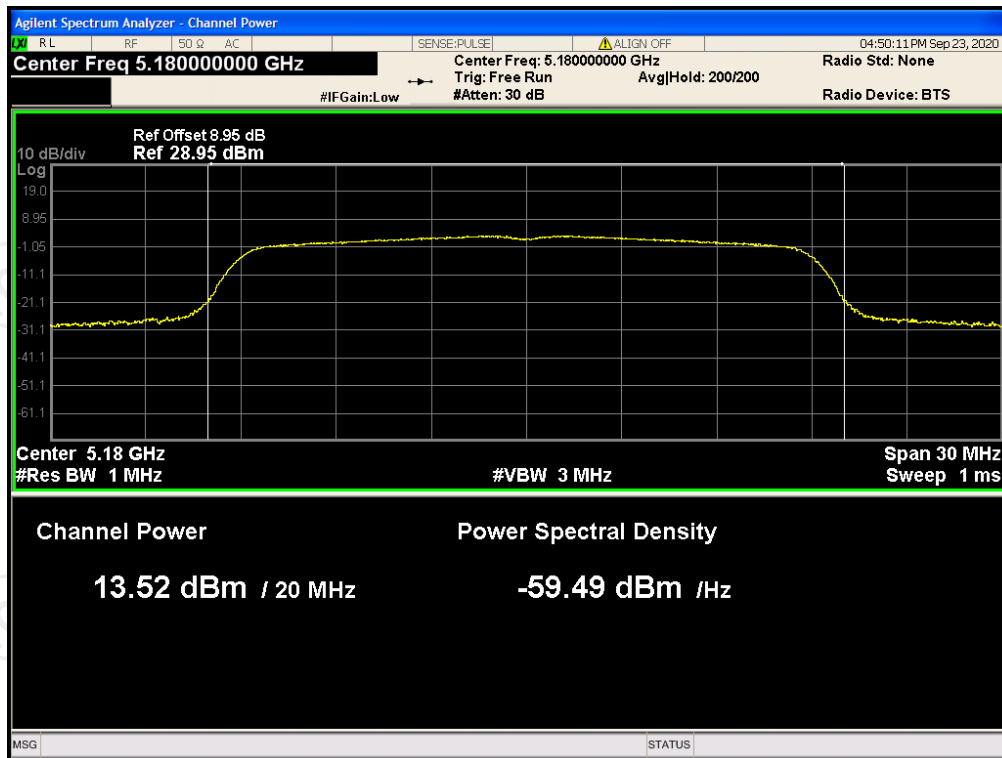
Power NVNT 802.11a 5200MHz Ant1



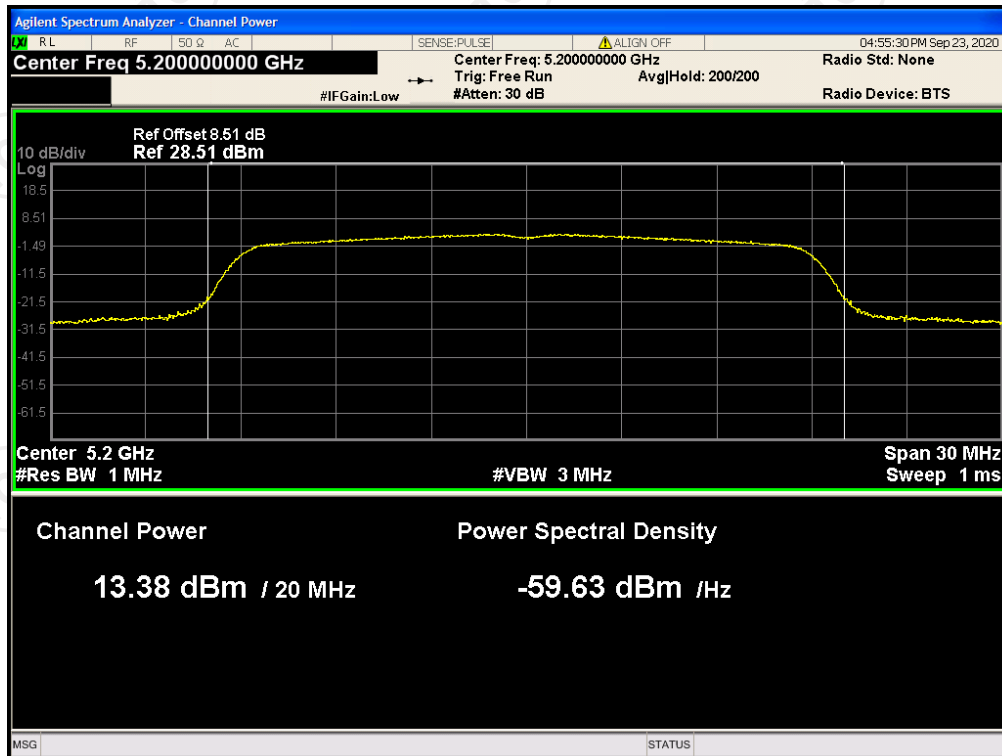
Power NVNT 802.11a 5240MHz Ant1



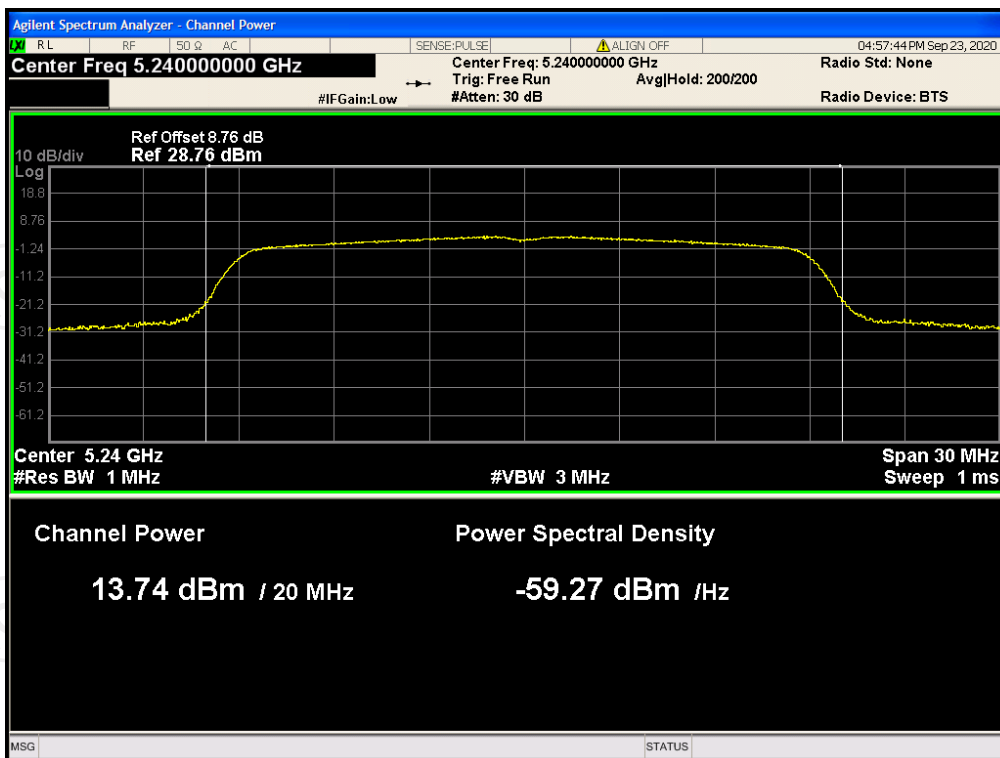
Power NVNT 802.11ac20 5180MHz Ant1



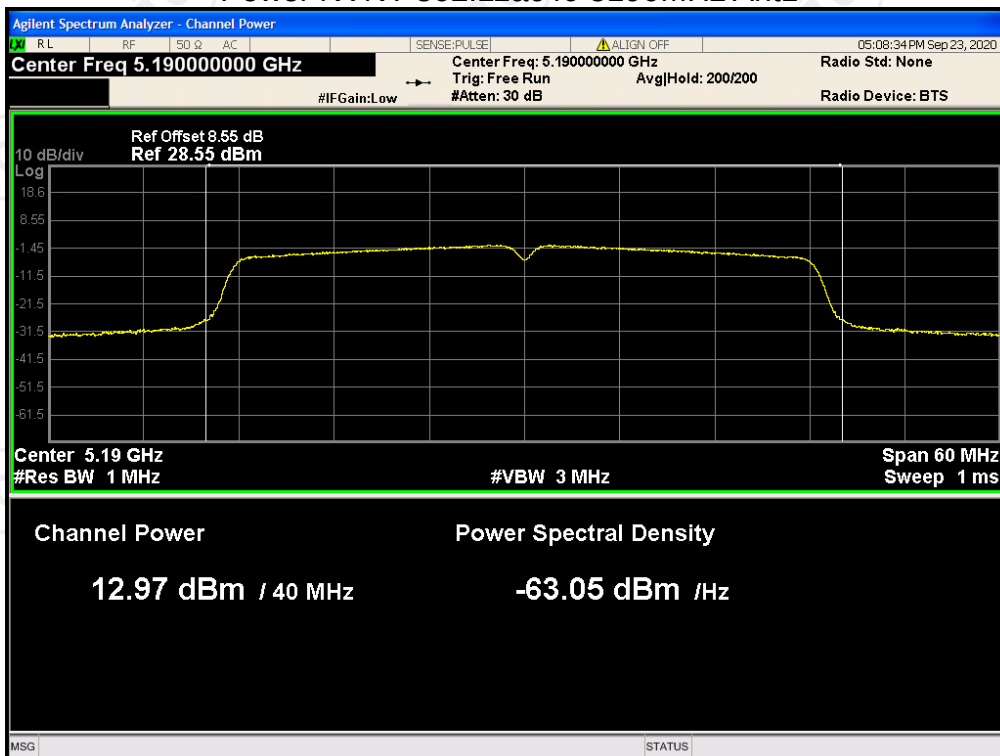
Power NVNT 802.11ac20 5200MHz Ant1



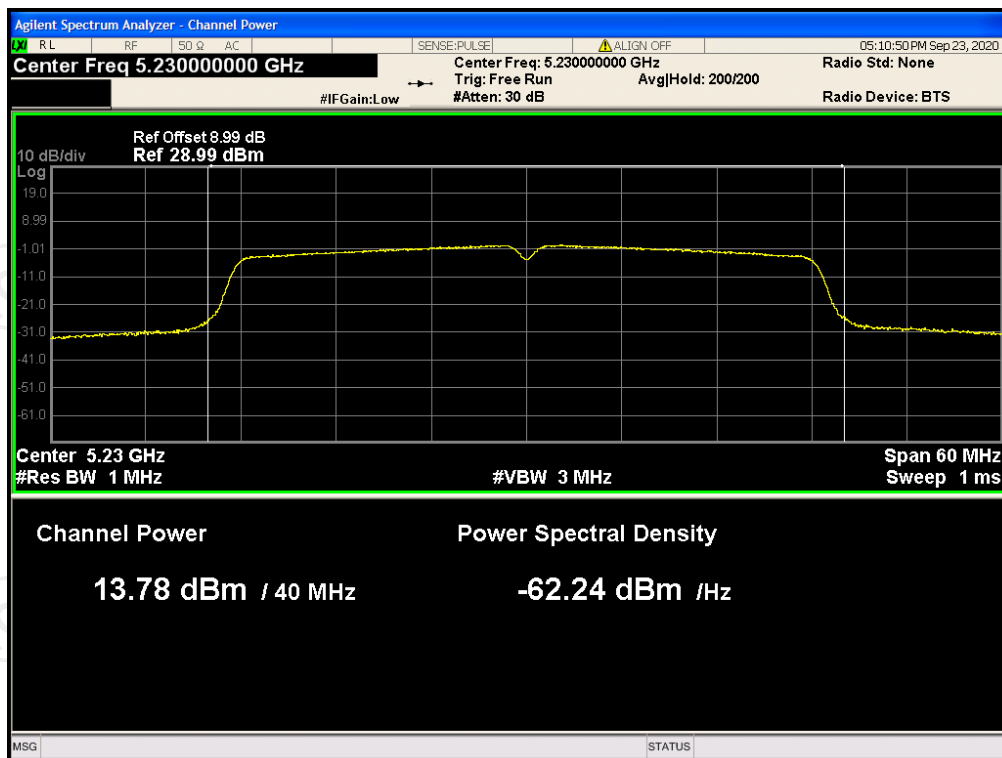
Power NVNT 802.11ac20 5240MHz Ant1



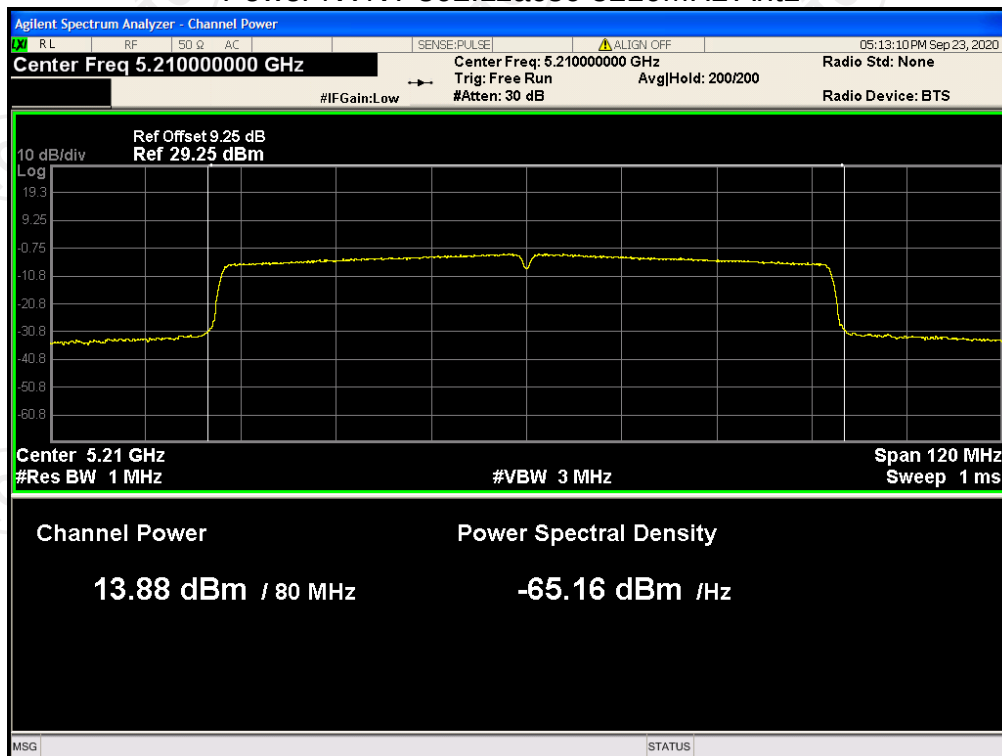
Power NVNT 802.11ac40 5190MHz Ant1



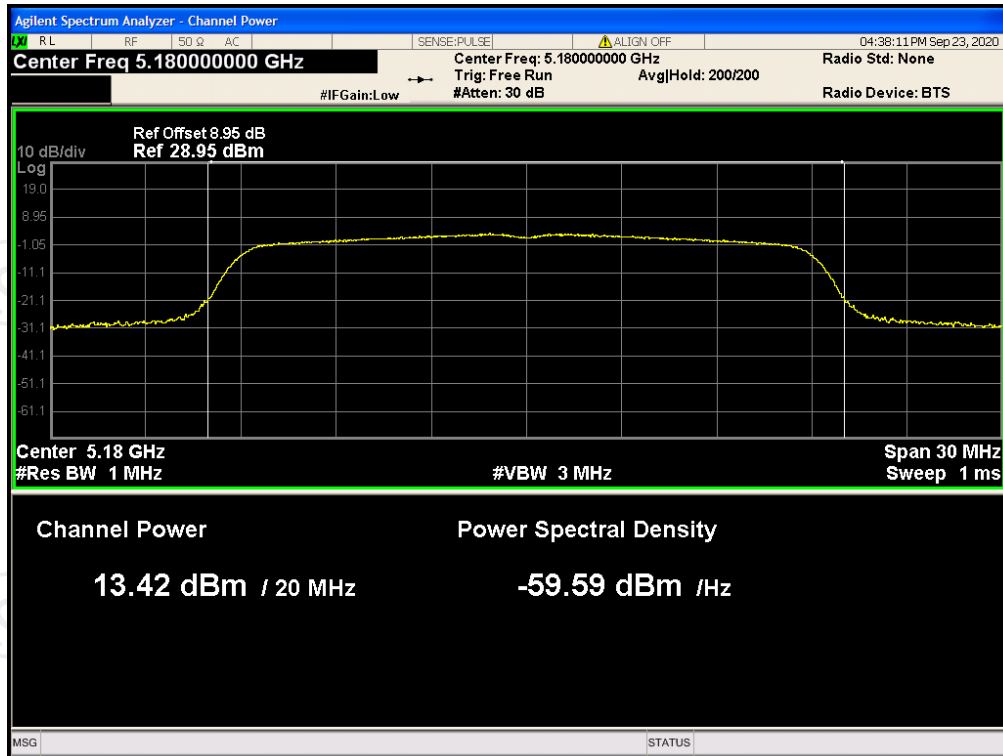
Power NVNT 802.11ac40 5230MHz Ant1



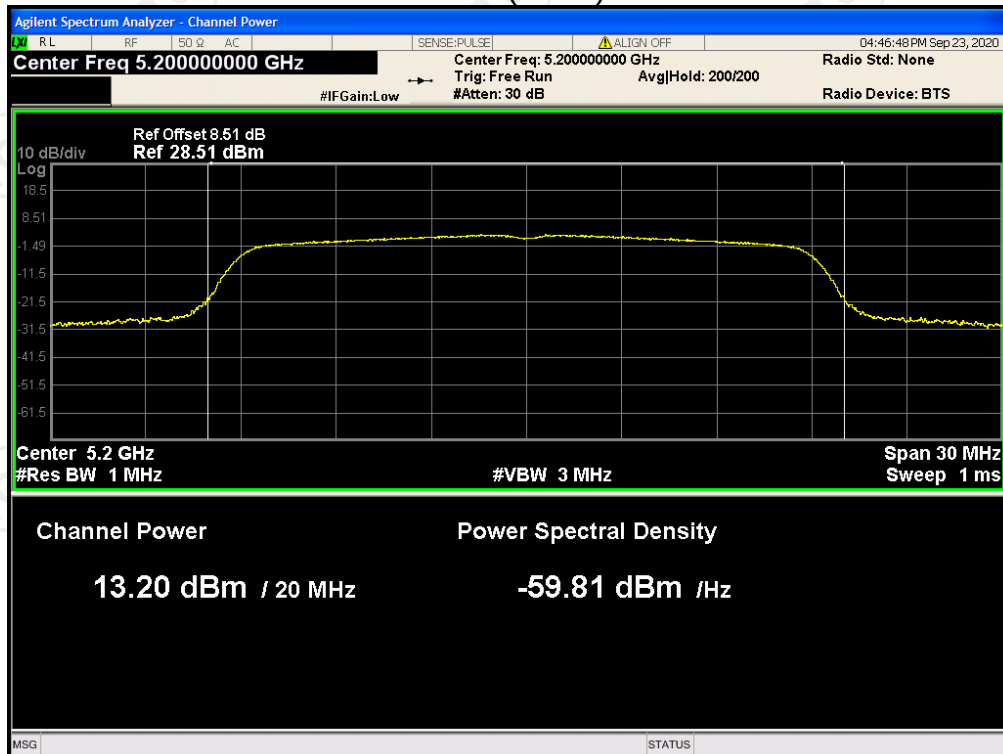
Power NVNT 802.11ac80 5210MHz Ant1



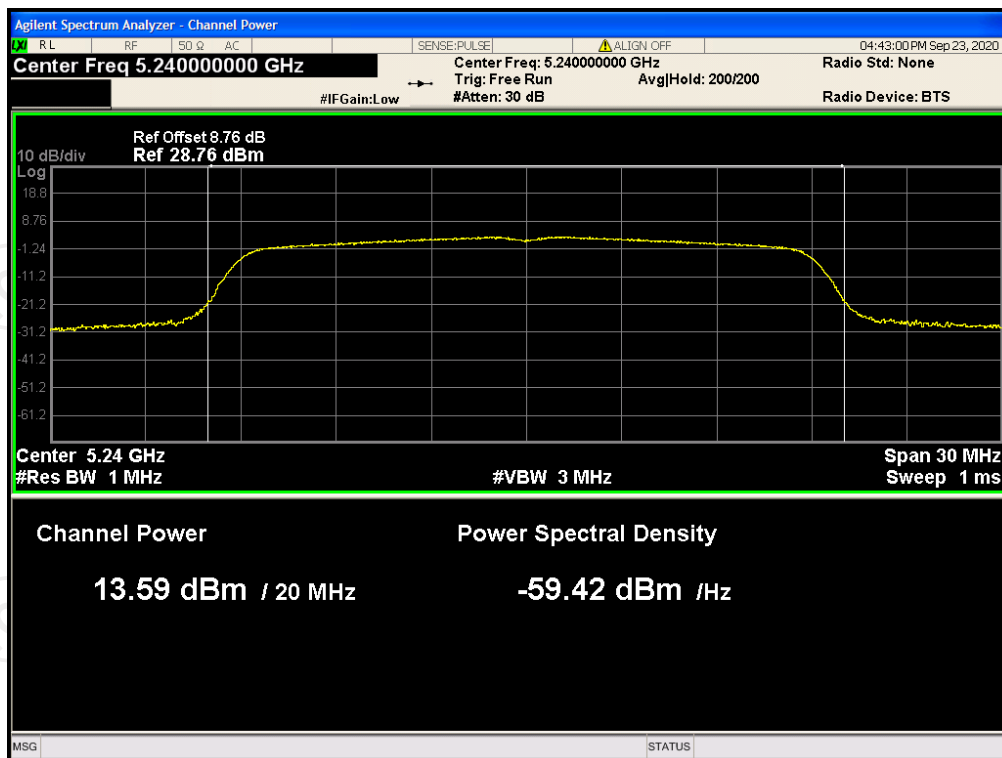
Power NVNT 802.11n(HT20) 5180MHz Ant1



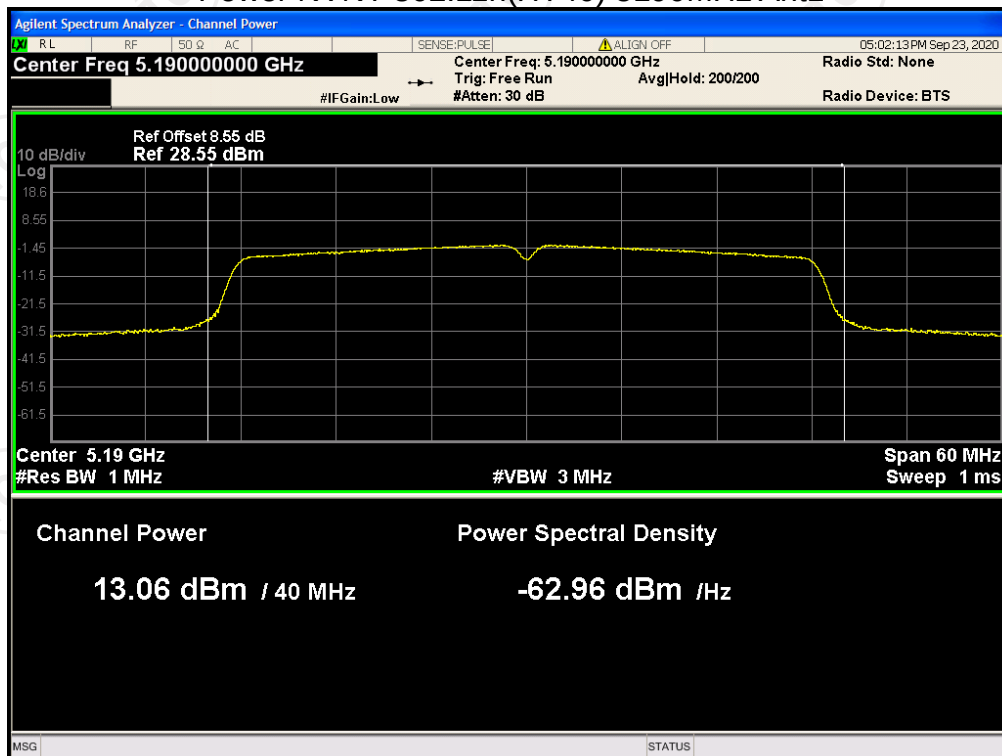
Power NVNT 802.11n(HT20) 5200MHz Ant1



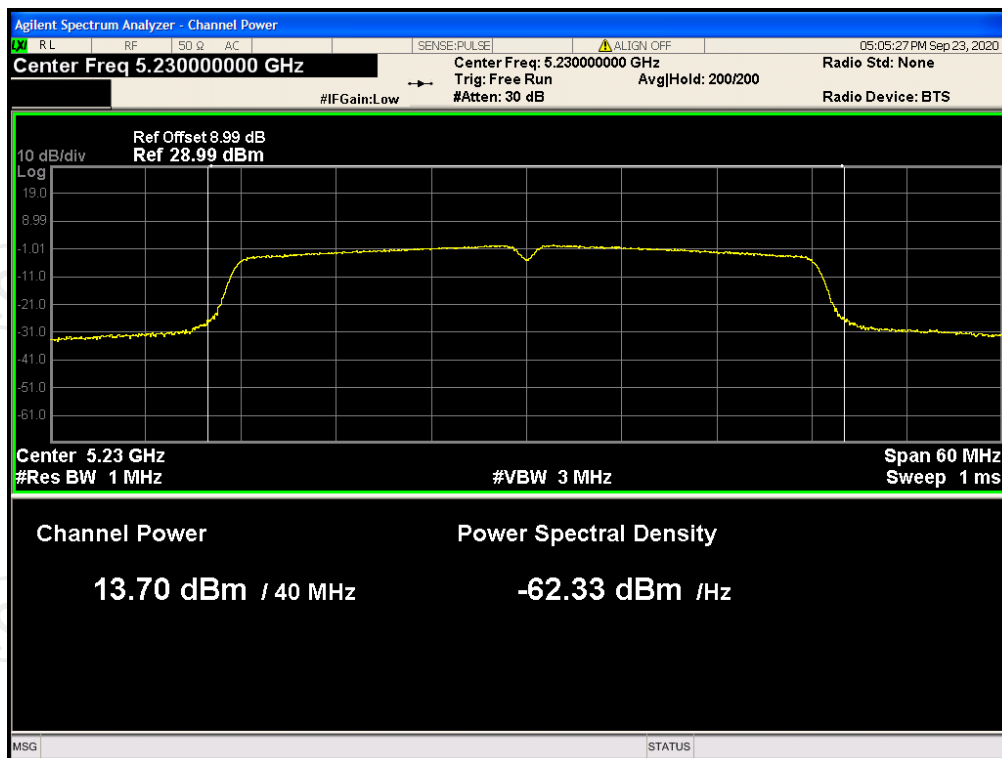
Power NVNT 802.11n(HT20) 5240MHz Ant1



Power NVNT 802.11n(HT40) 5190MHz Ant1



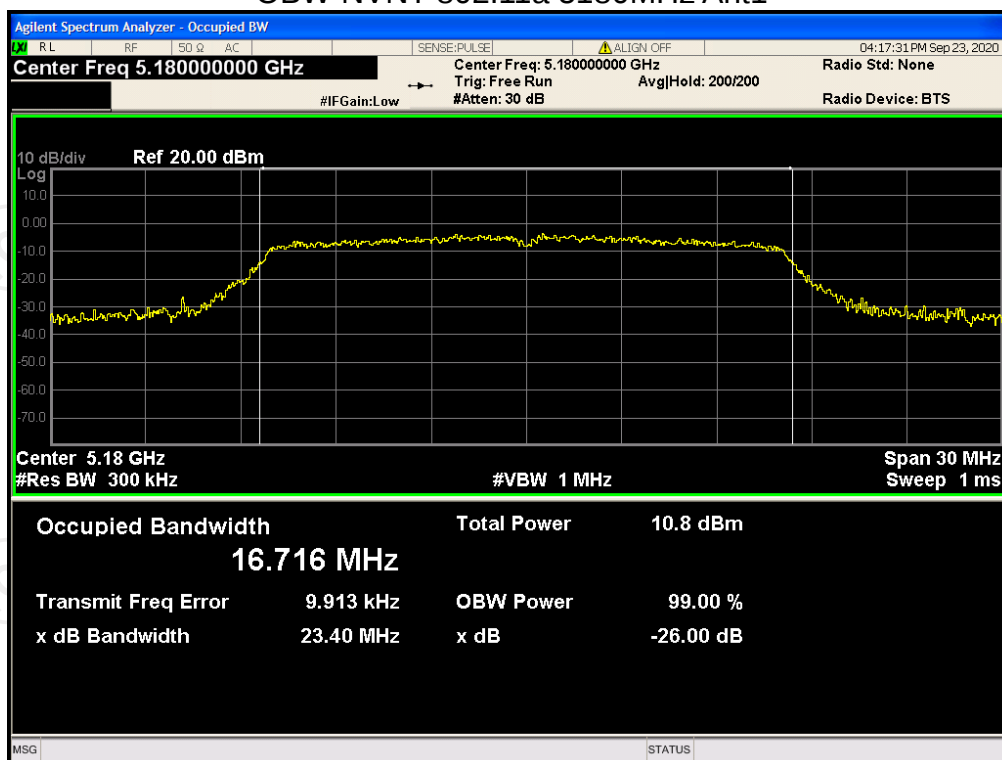
Power NVNT 802.11n(HT40) 5230MHz Ant1



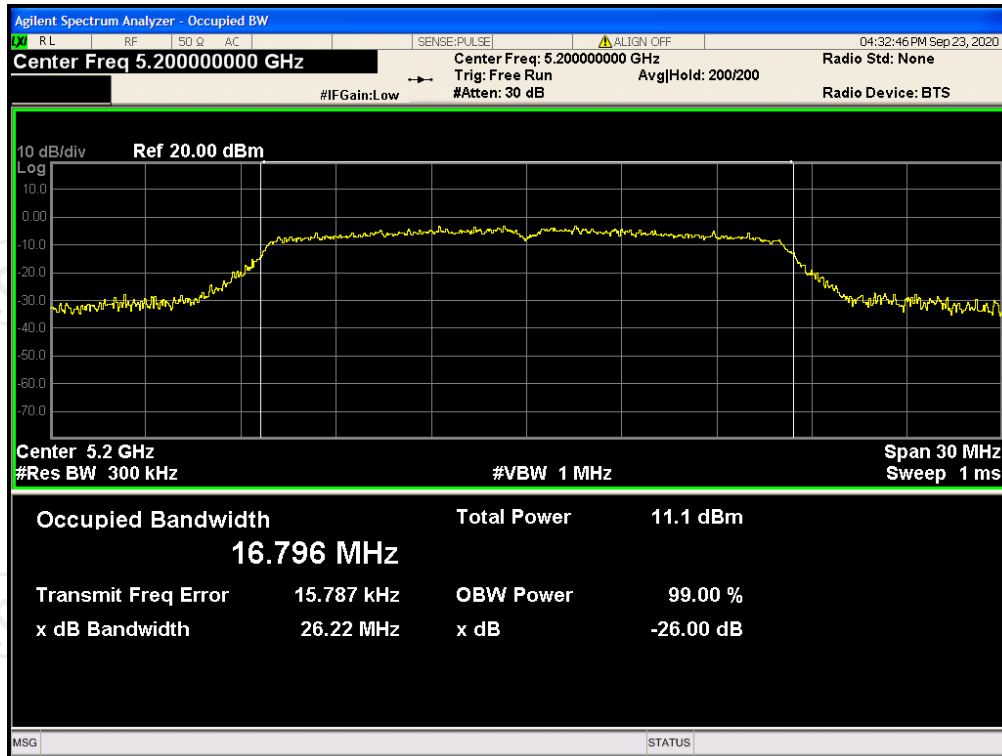
Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	-26 dB Bandwidth (MHz)	Limit -26 dB Bandwidth (MHz)	Verdict
NVNT	802.11a	5180	Ant 1	16.7156	23.4015	0	Pass
NVNT	802.11a	5200	Ant 1	16.7961	26.2230	0	Pass
NVNT	802.11a	5240	Ant 1	17.8442	25.3134	0	Pass
NVNT	802.11ac20	5180	Ant 1	17.7763	24.7262	0	Pass
NVNT	802.11ac20	5200	Ant 1	17.8283	27.5814	0	Pass
NVNT	802.11ac20	5240	Ant 1	17.757	26.9571	0	Pass
NVNT	802.11ac40	5190	Ant 1	36.0556	40.9204	0	Pass
NVNT	802.11ac40	5230	Ant 1	36.132	42.0444	0	Pass
NVNT	802.11ac80	5210	Ant 1	75.4539	95.2030	0	Pass
NVNT	802.11n(HT20)	5180	Ant 1	17.7978	27.4088	0	Pass
NVNT	802.11n(HT20)	5200	Ant 1	17.7327	25.4762	0	Pass
NVNT	802.11n(HT20)	5240	Ant 1	17.7795	25.5269	0	Pass
NVNT	802.11n(HT40)	5190	Ant 1	36.0484	44.8586	0	Pass
NVNT	802.11n(HT40)	5230	Ant 1	36.1195	52.9026	0	Pass

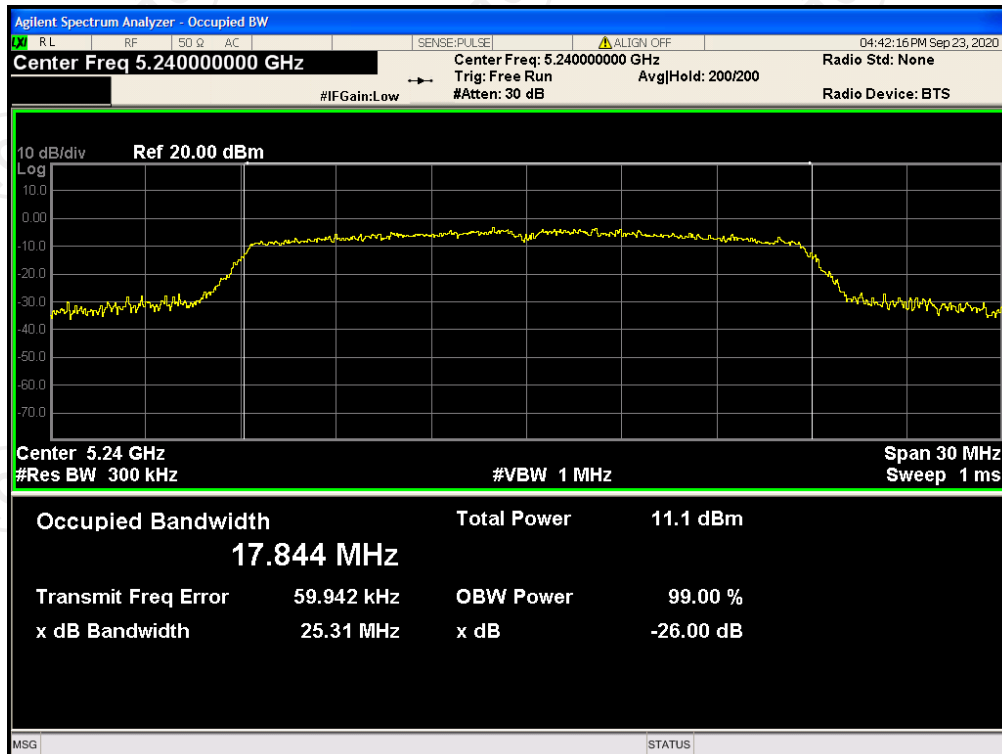
OBW NVNT 802.11a 5180MHz Ant1



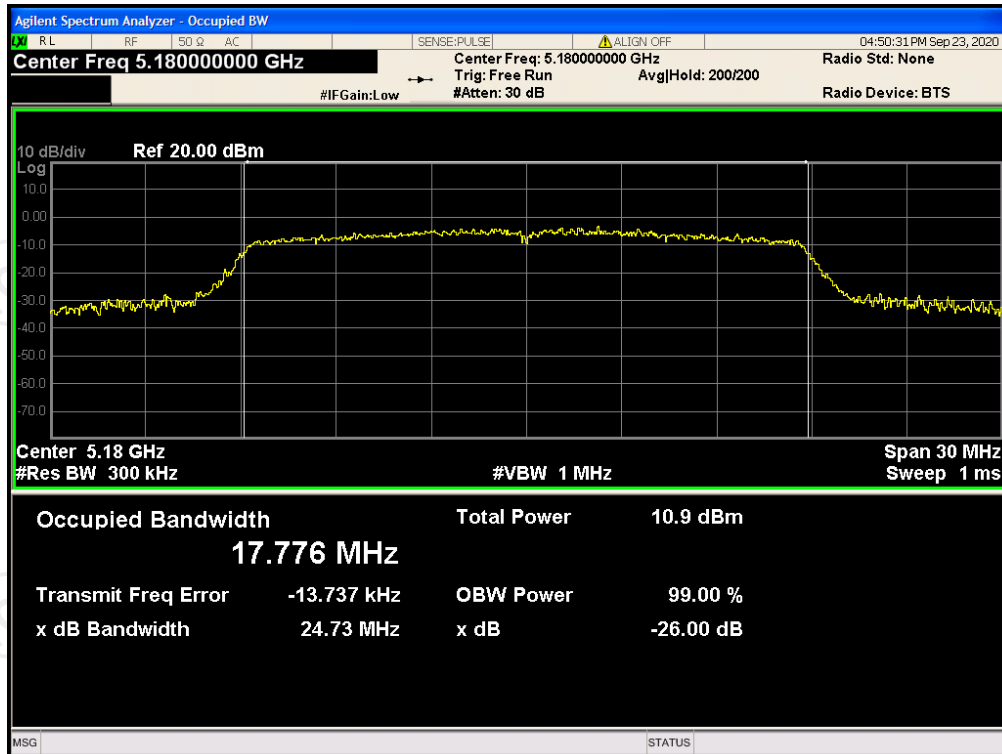
OBW NVNT 802.11a 5200MHz Ant1



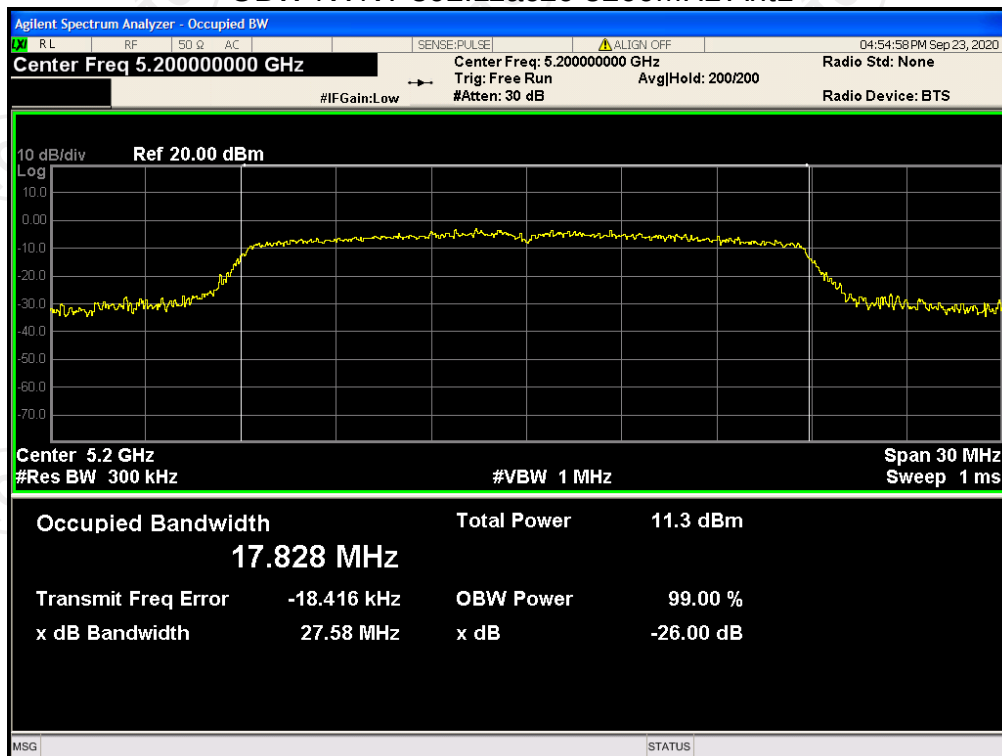
OBW NVNT 802.11a 5240MHz Ant1



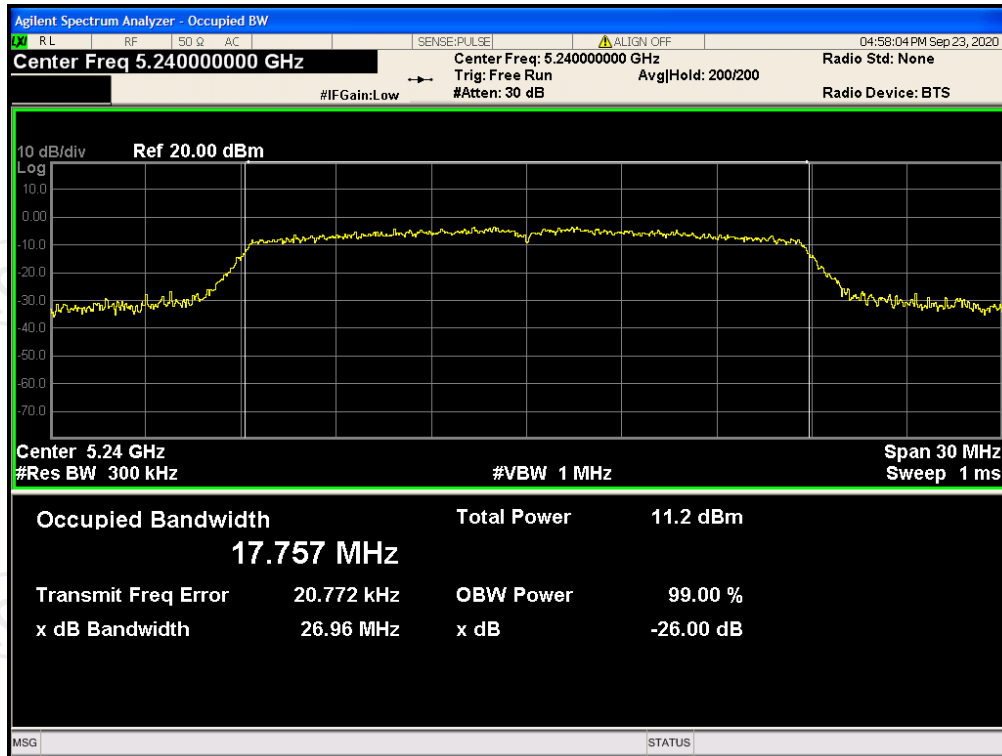
OBW NVNT 802.11ac20 5180MHz Ant1



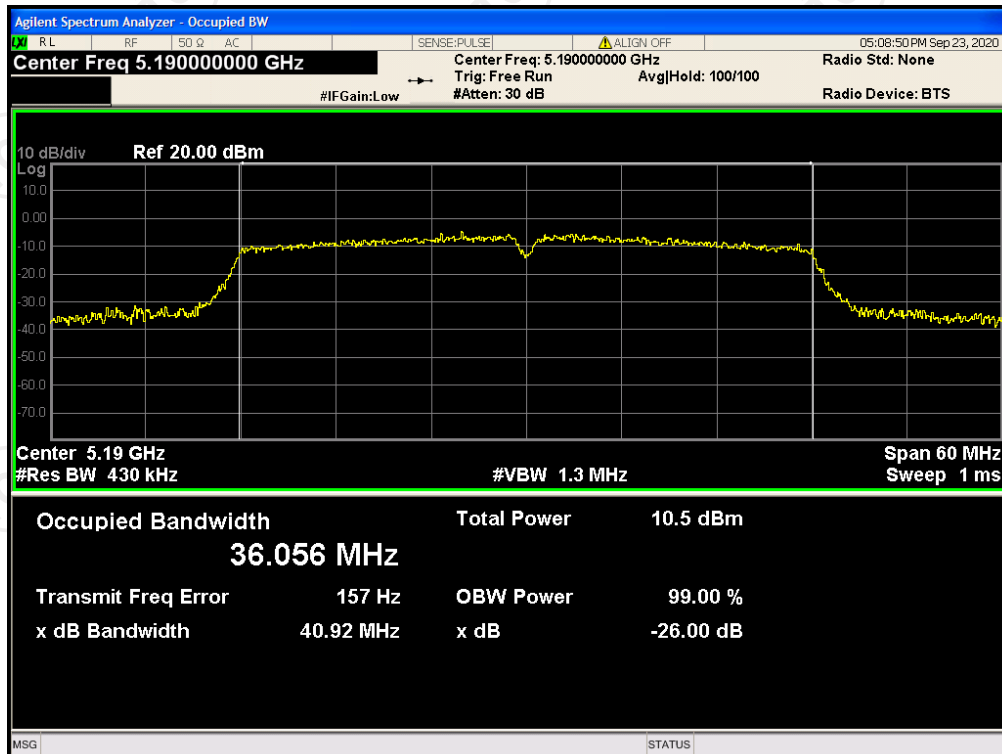
OBW NVNT 802.11ac20 5200MHz Ant1



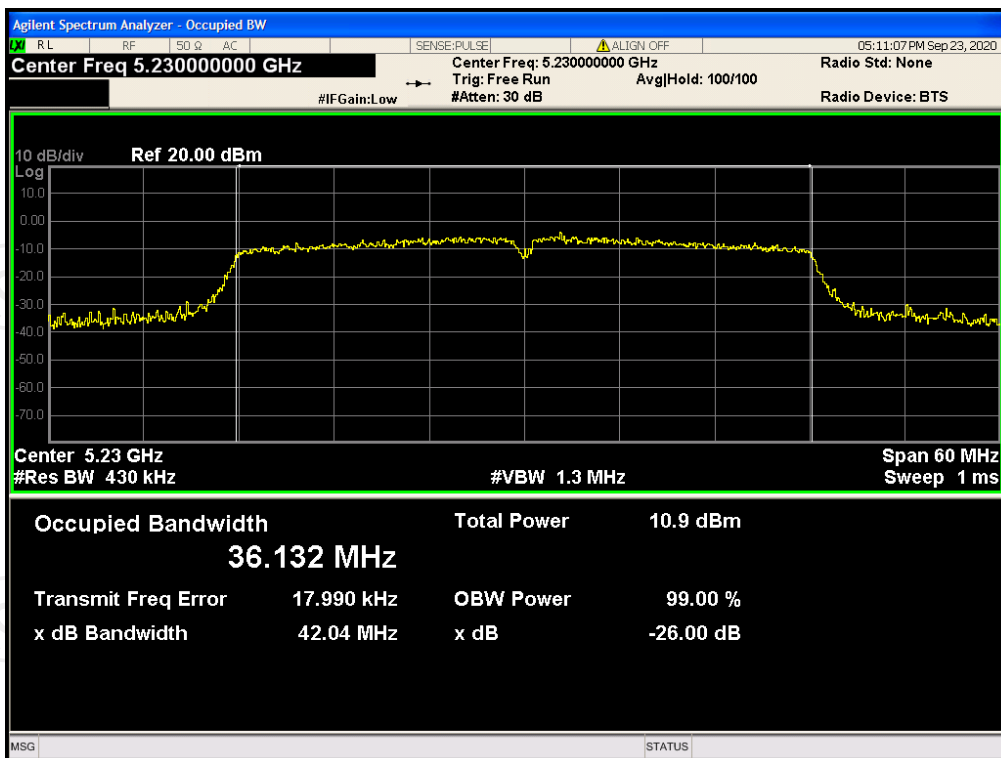
OBW NVNT 802.11ac20 5240MHz Ant1



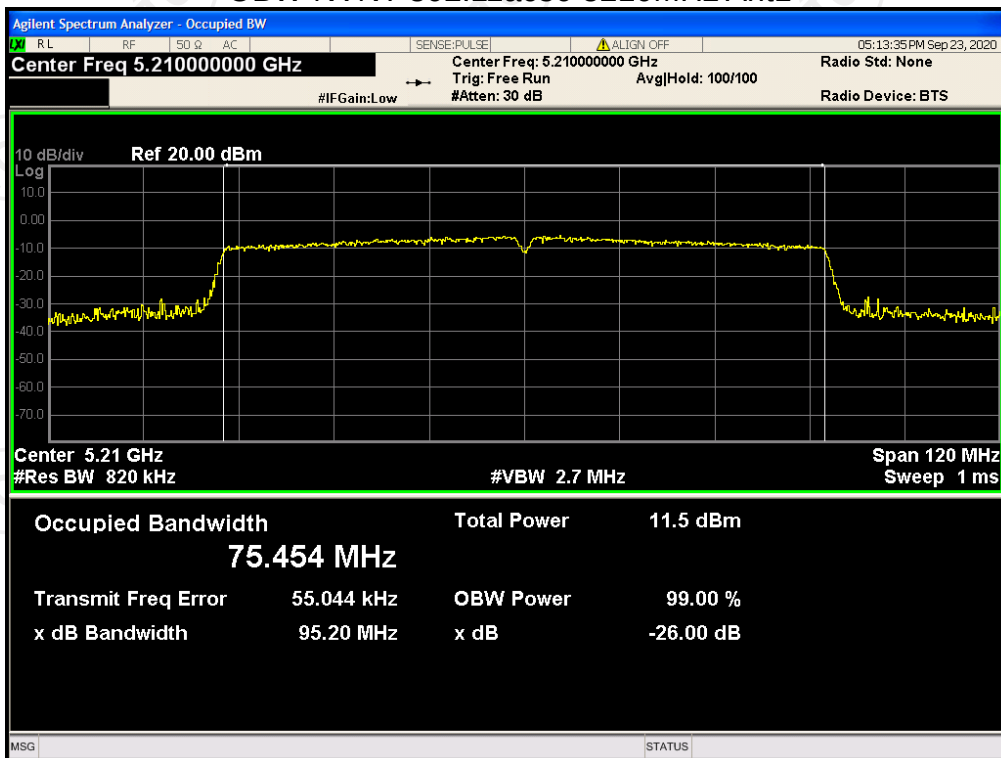
OBW NVNT 802.11ac40 5190MHz Ant1



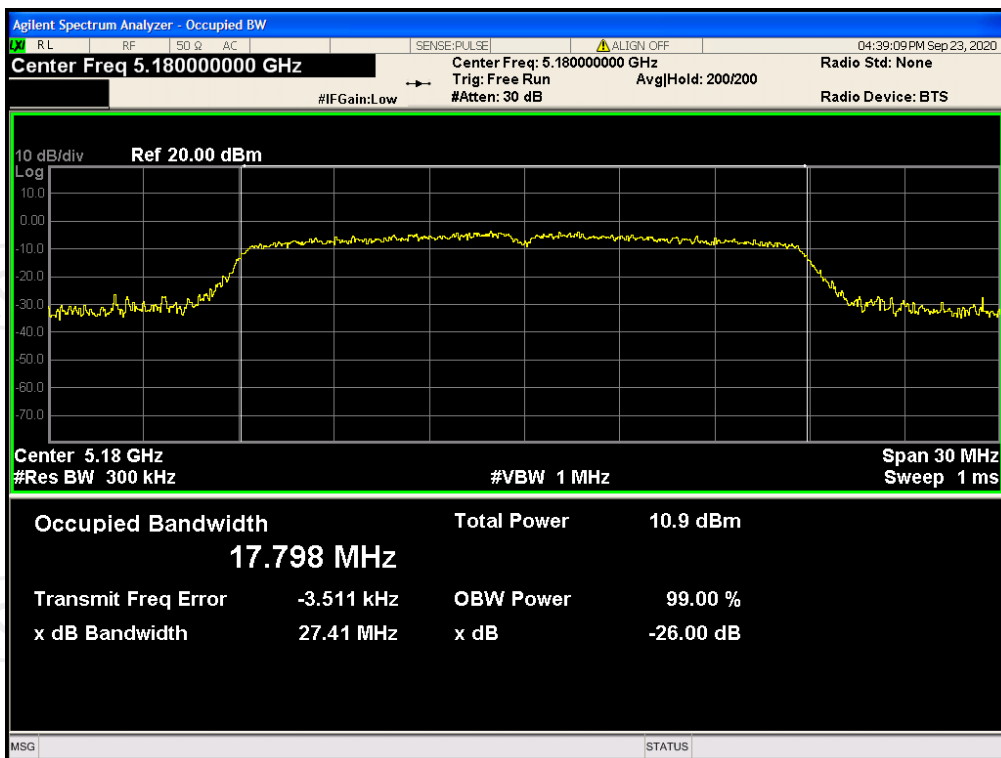
OBW NVNT 802.11ac40 5230MHz Ant1



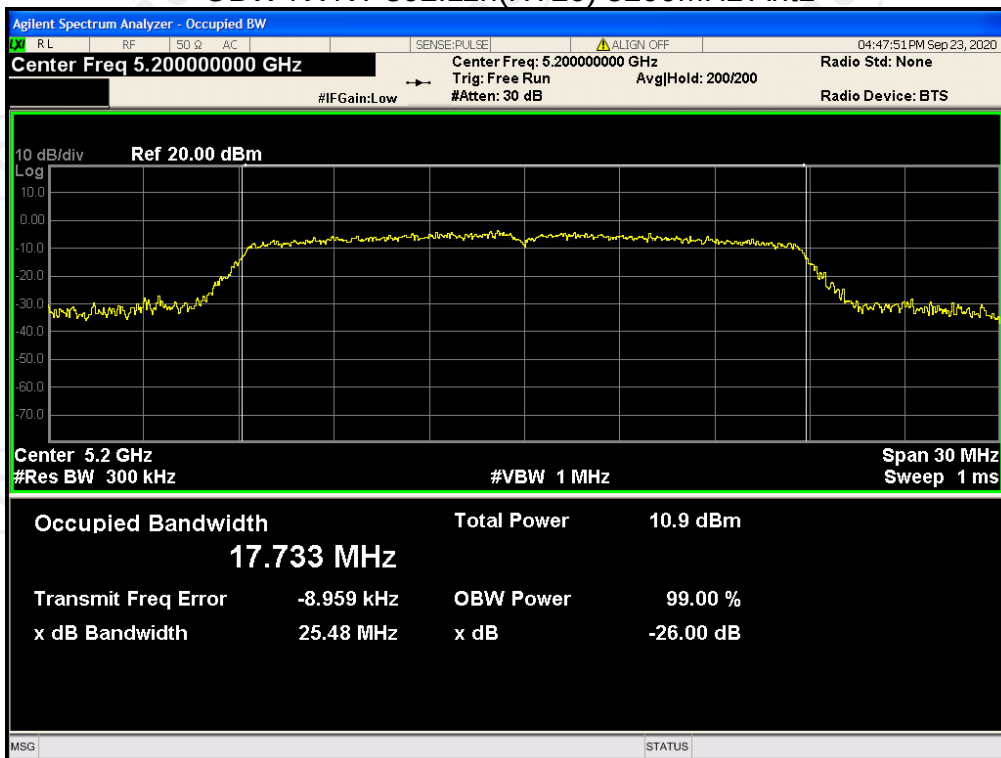
OBW NVNT 802.11ac80 5210MHz Ant1



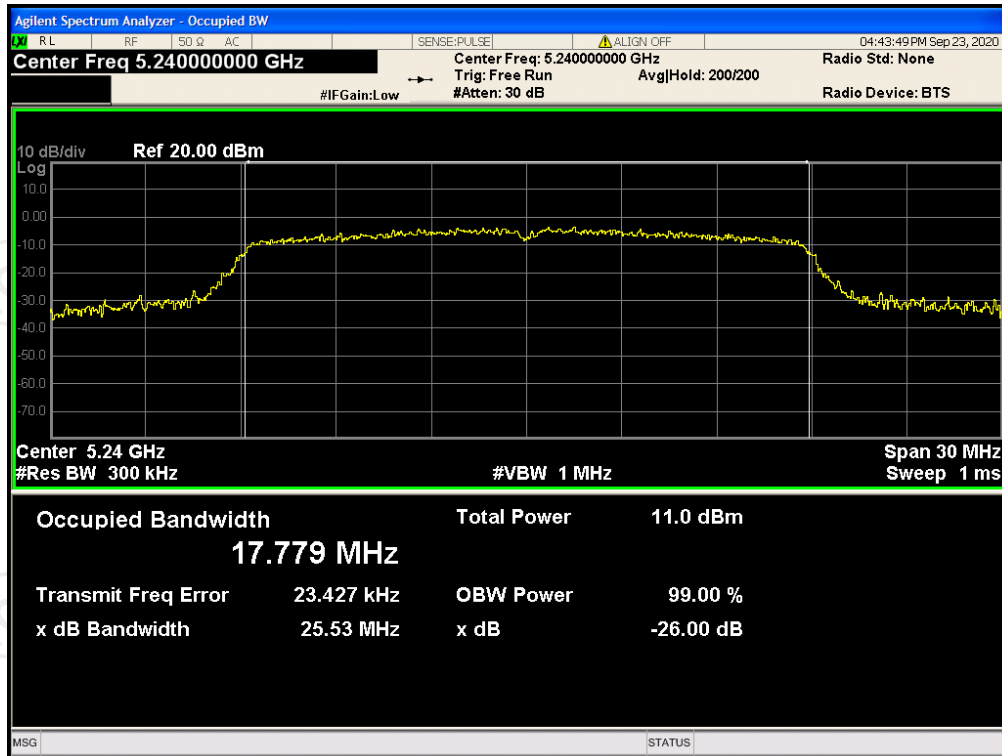
OBW NVNT 802.11n(HT20) 5180MHz Ant1



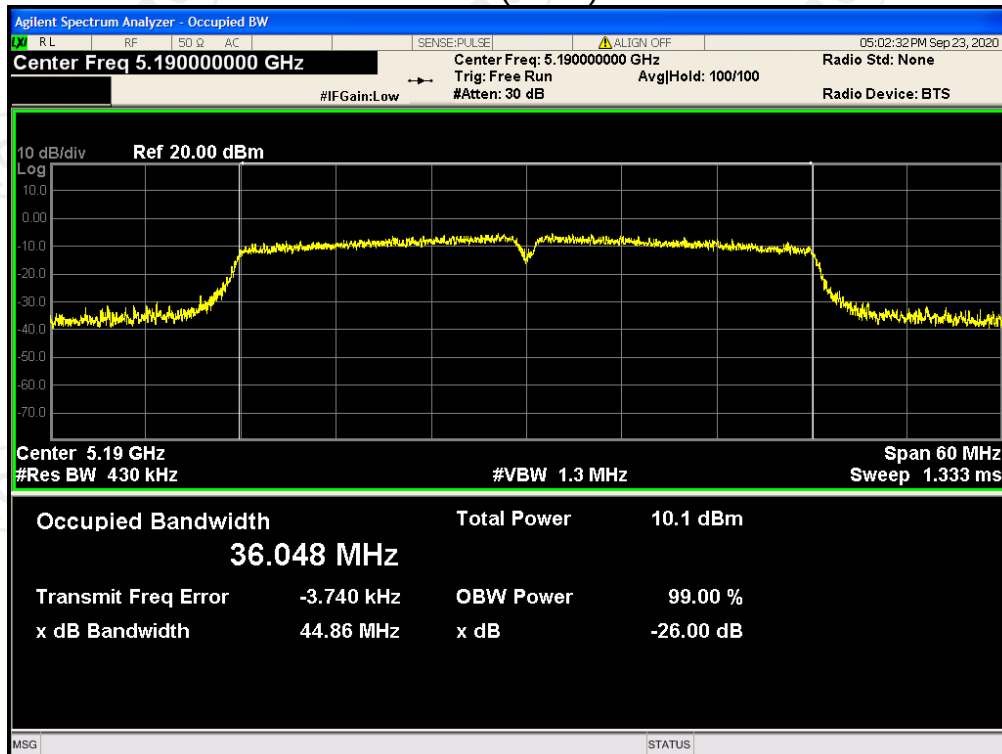
OBW NVNT 802.11n(HT20) 5200MHz Ant1



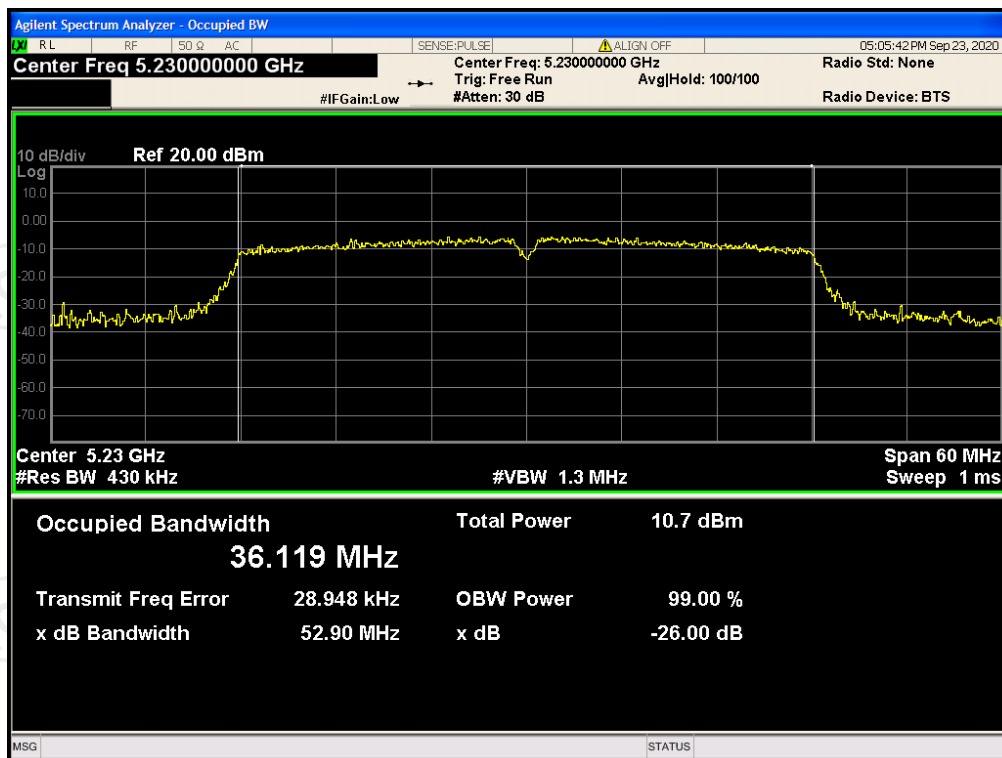
OBW NVNT 802.11n(HT20) 5240MHz Ant1



OBW NVNT 802.11n(HT40) 5190MHz Ant1



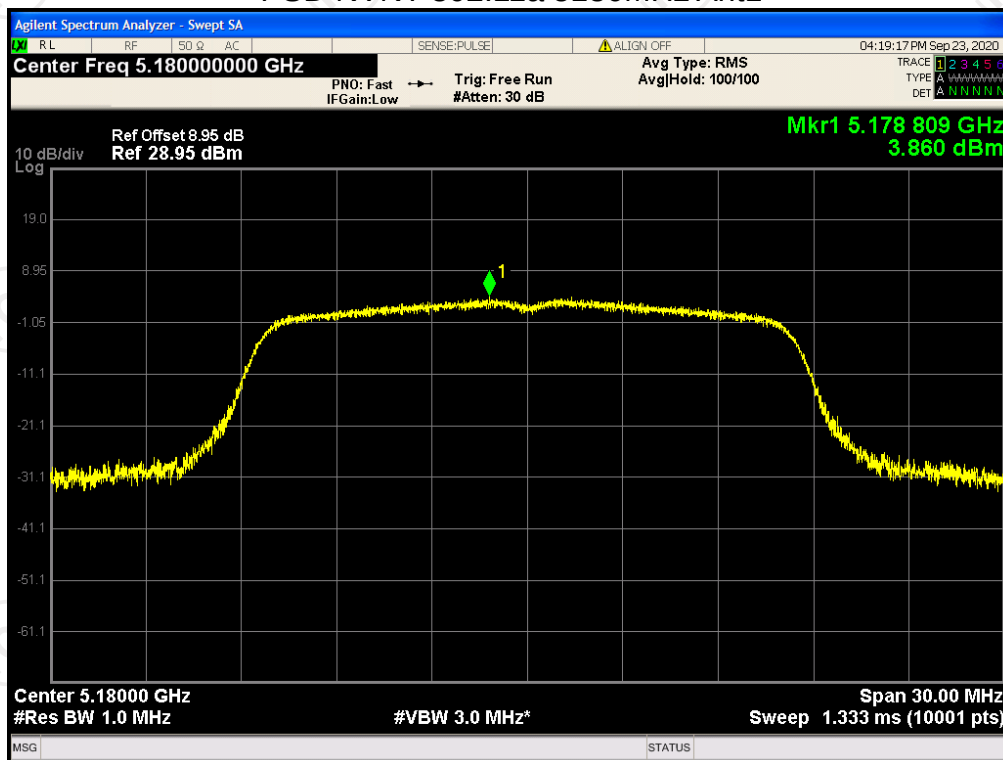
OBW NVNT 802.11n(HT40) 5230MHz Ant1



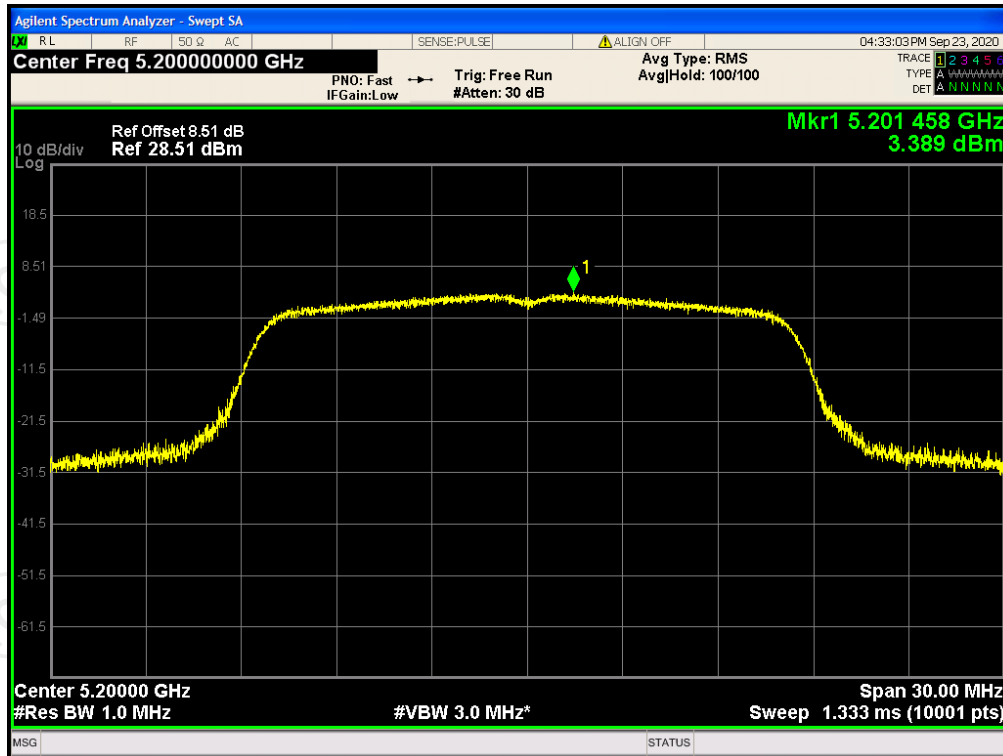
Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	802.11a	5180	Ant 1	3.86	11	Pass
NVNT	802.11a	5200	Ant 1	3.389	11	Pass
NVNT	802.11a	5240	Ant 1	4.241	11	Pass
NVNT	802.11ac20	5180	Ant 1	3.474	11	Pass
NVNT	802.11ac20	5200	Ant 1	3.571	11	Pass
NVNT	802.11ac20	5240	Ant 1	3.898	11	Pass
NVNT	802.11ac40	5190	Ant 1	0.245	11	Pass
NVNT	802.11ac40	5230	Ant 1	0.809	11	Pass
NVNT	802.11ac80	5210	Ant 1	-2.208	11	Pass
NVNT	802.11n(HT20)	5180	Ant 1	3.059	11	Pass
NVNT	802.11n(HT20)	5200	Ant 1	2.553	11	Pass
NVNT	802.11n(HT20)	5240	Ant 1	3.004	11	Pass
NVNT	802.11n(HT40)	5190	Ant 1	-0.329	11	Pass
NVNT	802.11n(HT40)	5230	Ant 1	0.215	11	Pass

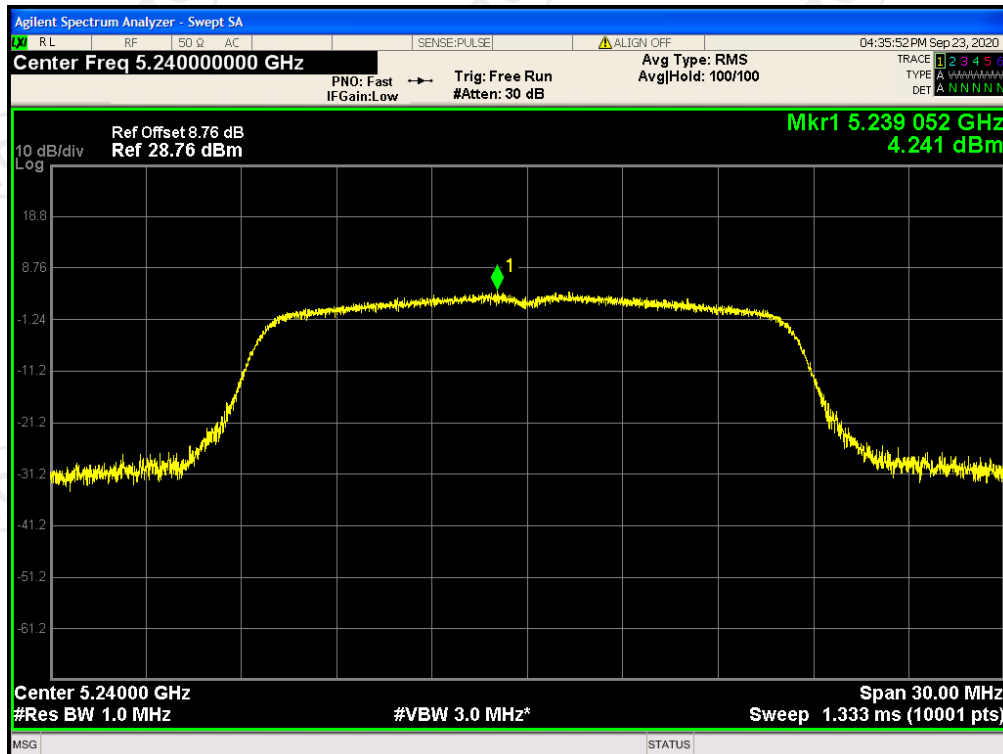
PSD NVNT 802.11a 5180MHz Ant1



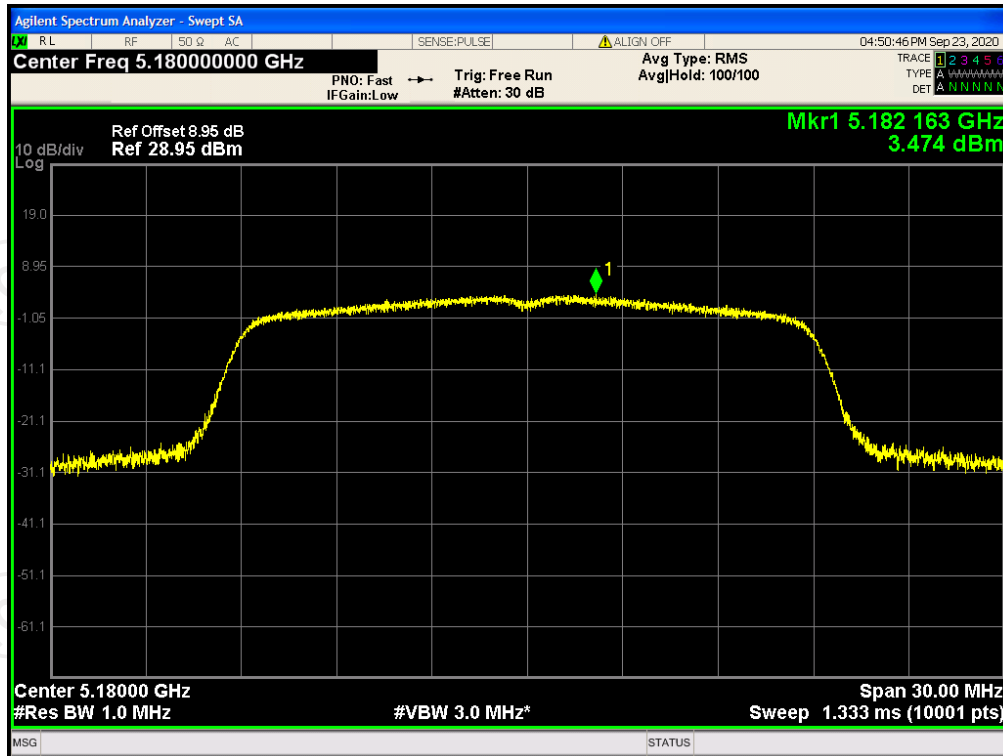
PSD NVNT 802.11a 5200MHz Ant1



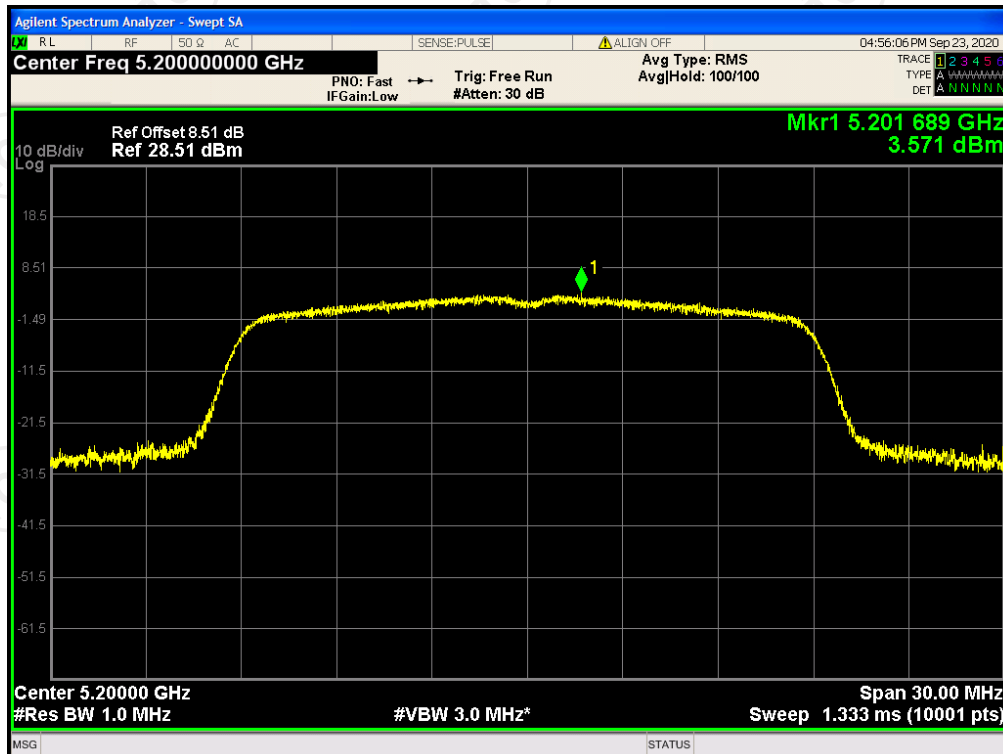
PSD NVNT 802.11a 5240MHz Ant1



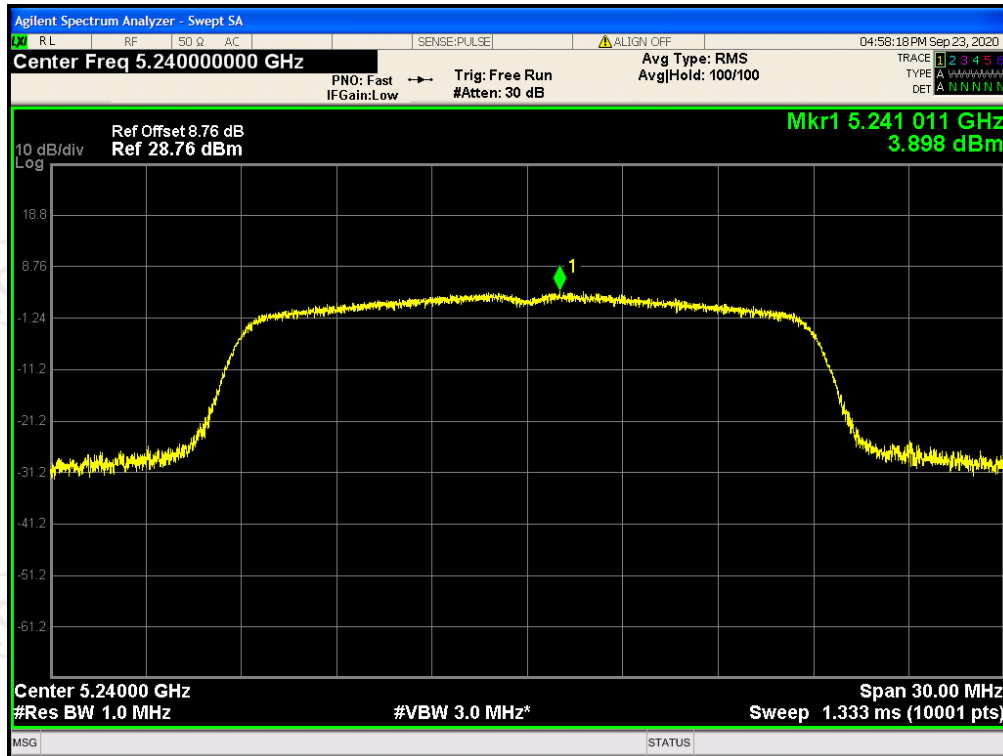
PSD NVNT 802.11ac20 5180MHz Ant1



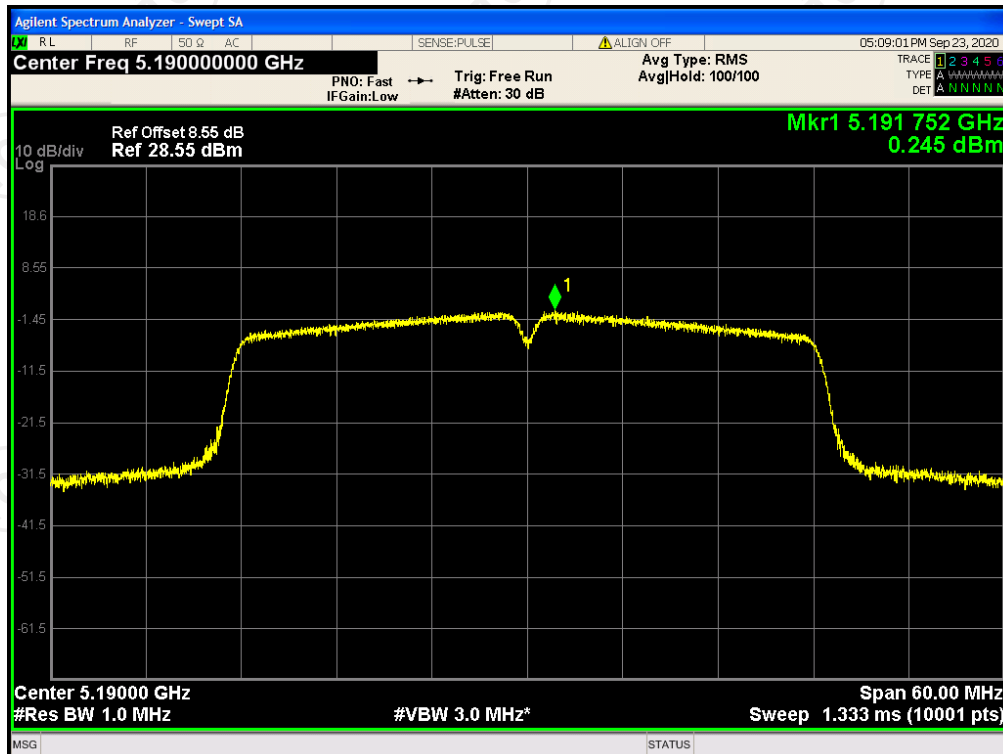
PSD NVNT 802.11ac20 5200MHz Ant1



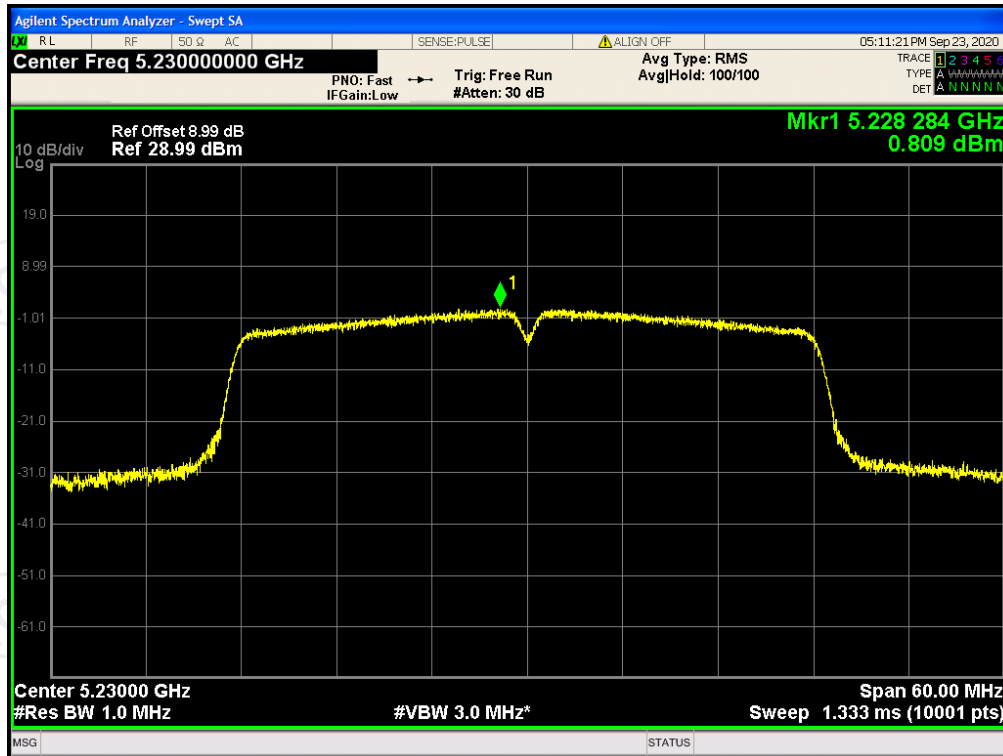
PSD NVNT 802.11ac20 5240MHz Ant1



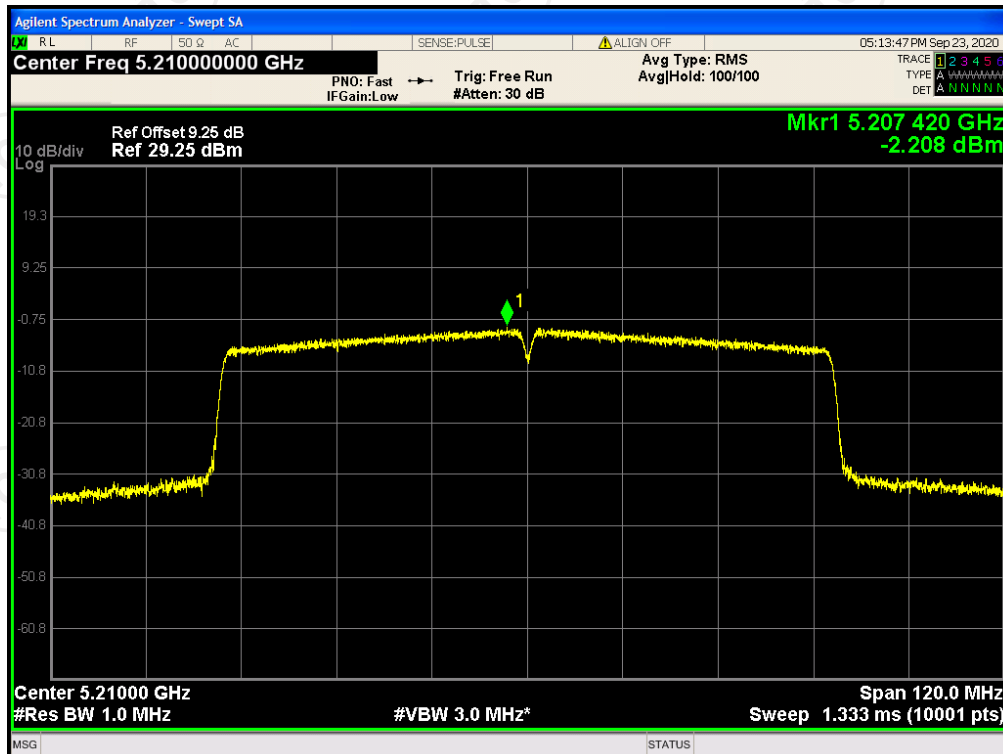
PSD NVNT 802.11ac40 5190MHz Ant1



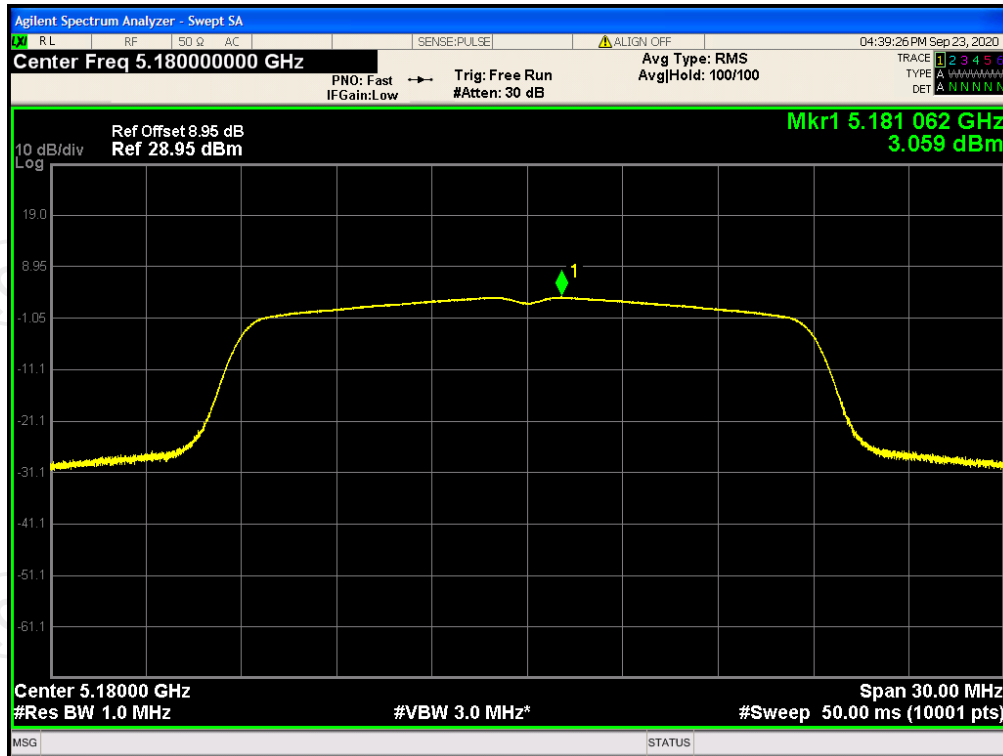
PSD NVNT 802.11ac40 5230MHz Ant1



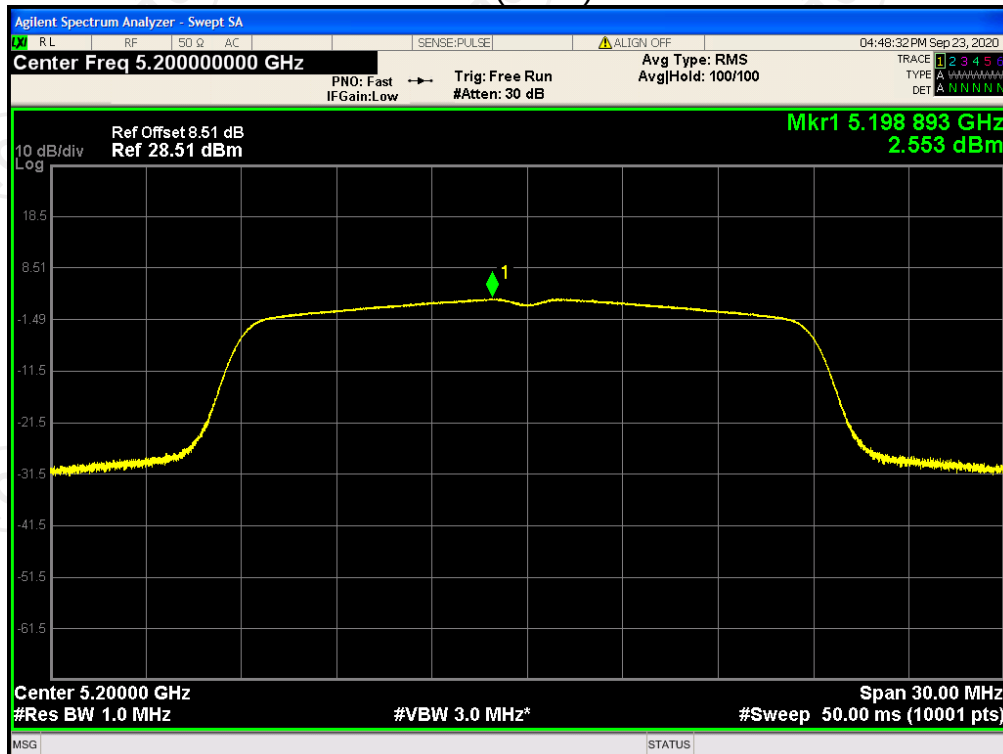
PSD NVNT 802.11ac80 5210MHz Ant1



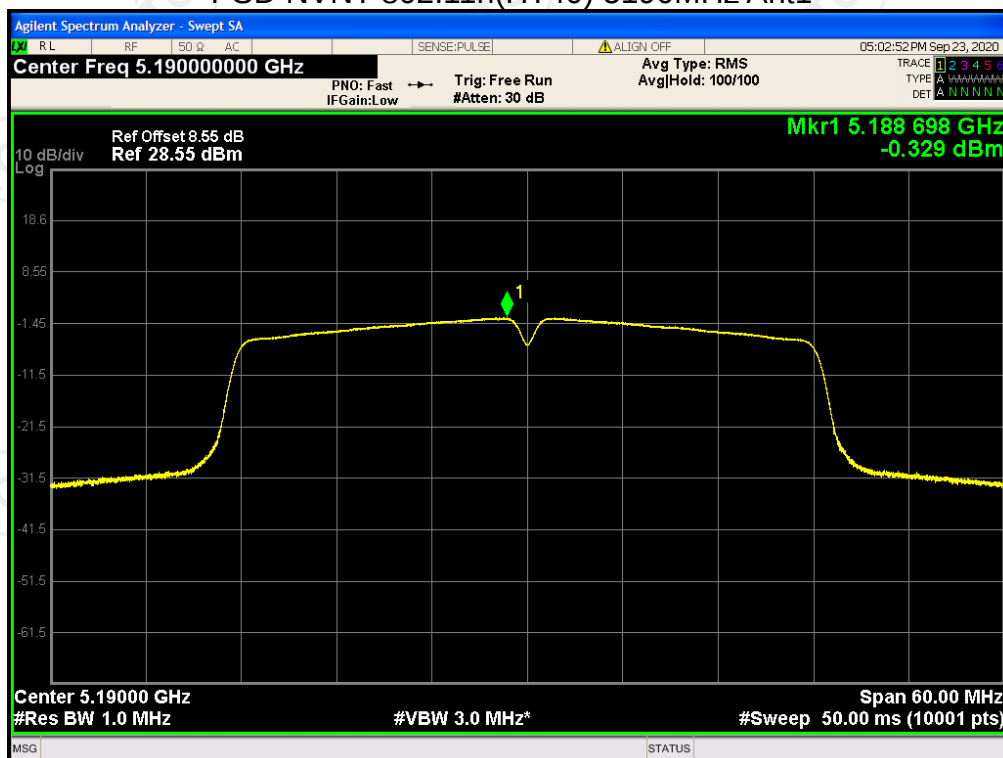
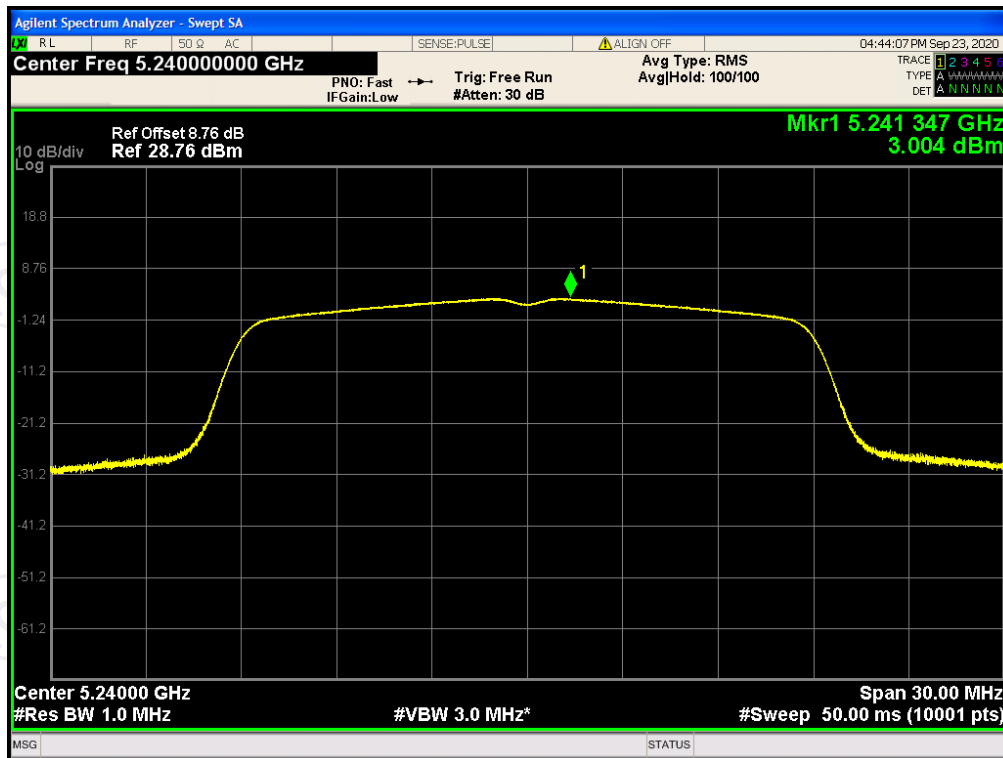
PSD NVNT 802.11n(HT20) 5180MHz Ant1

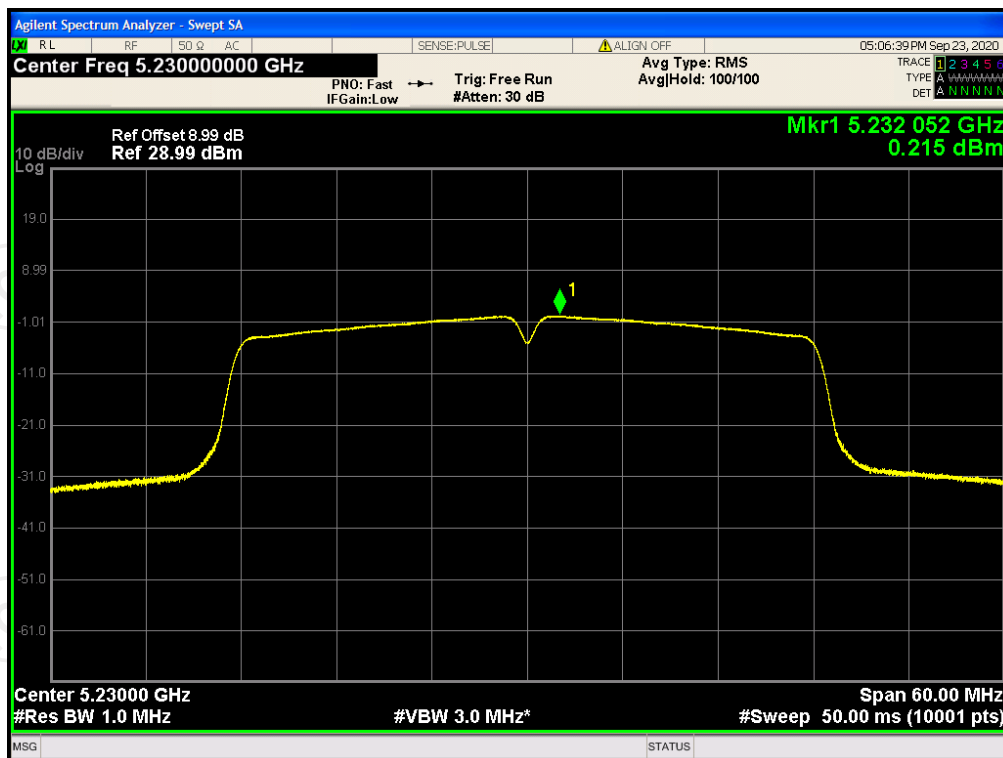


PSD NVNT 802.11n(HT20) 5200MHz Ant1



PSD NVNT 802.11n(HT20) 5240MHz Ant1

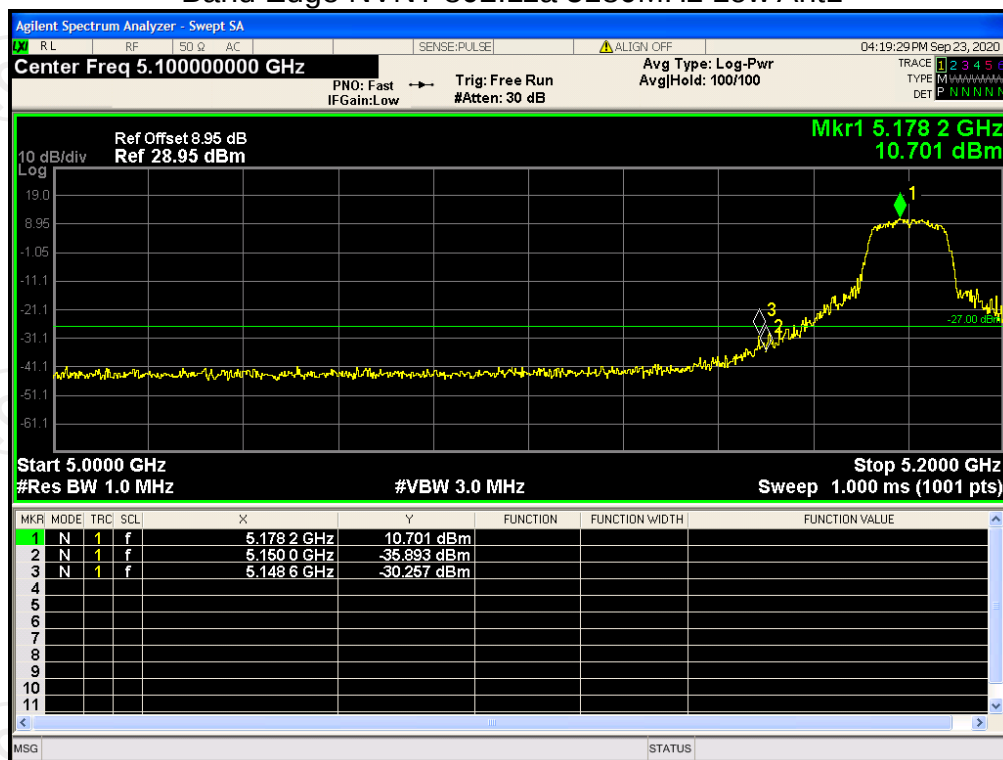




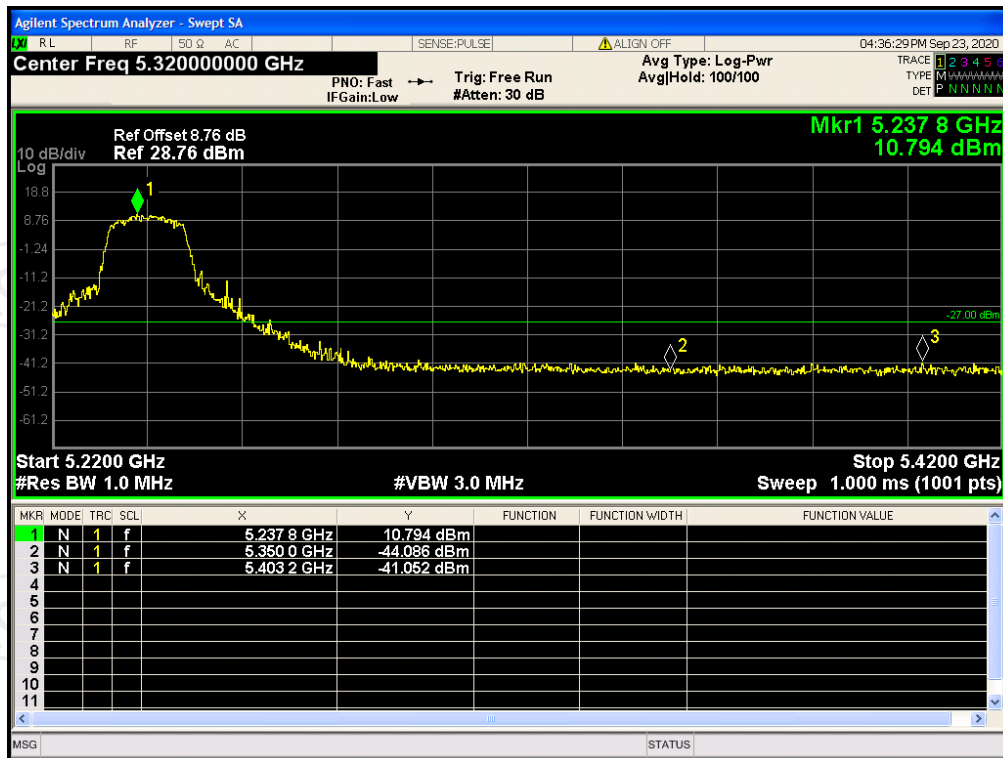
Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBm)	Limit (dBm)	Verdict
NVNT	802.11a	5180	Ant 1	-30.25	-27	Pass
NVNT	802.11a	5240	Ant 1	-41.05	-27	Pass
NVNT	802.11ac20	5180	Ant 1	-29.33	-27	Pass
NVNT	802.11ac20	5240	Ant 1	-40.8	-27	Pass
NVNT	802.11ac40	5190	Ant 1	-41.58	-27	Pass
NVNT	802.11ac40	5230	Ant 1	-40.69	-27	Pass
NVNT	802.11ac80	5210	Ant 1	0	-27	Fail
NVNT	802.11n(HT20)	5180	Ant 1	-31.66	-27	Pass
NVNT	802.11n(HT20)	5240	Ant 1	-41.53	-27	Pass
NVNT	802.11n(HT40)	5190	Ant 1	-39.91	-27	Pass
NVNT	802.11n(HT40)	5230	Ant 1	-41.00	-27	Pass

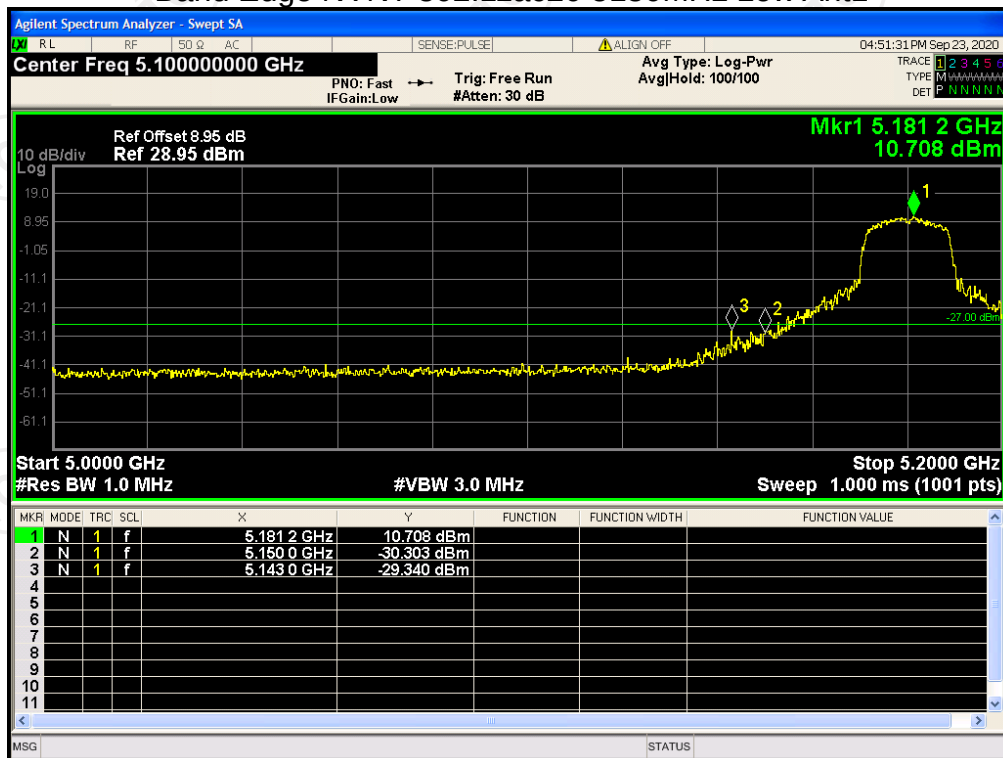
Band Edge NVNT 802.11a 5180MHz Low Ant1



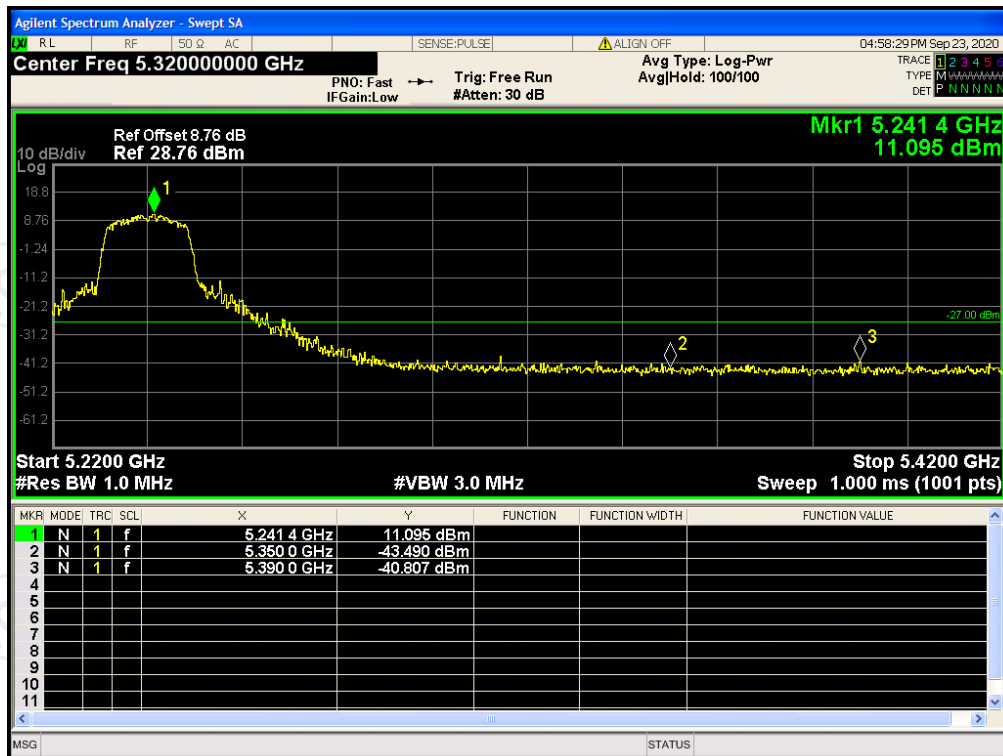
Band Edge NVNT 802.11a 5240MHz High Ant1



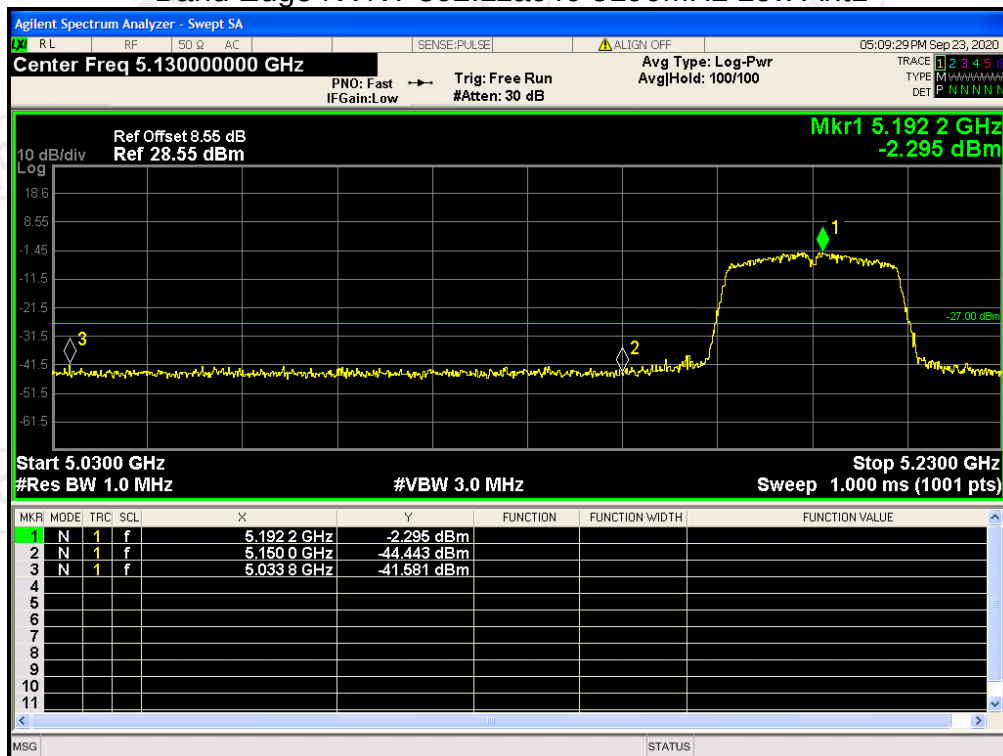
Band Edge NVNT 802.11ac20 5180MHz Low Ant1



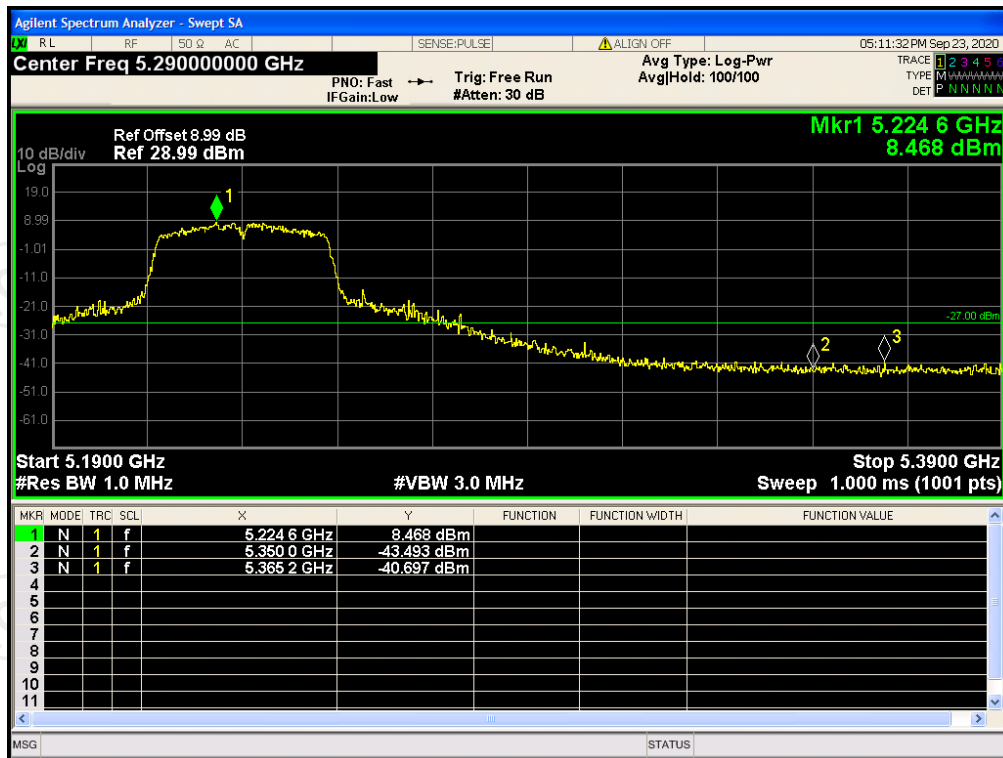
Band Edge NVNT 802.11ac20 5240MHz High Ant1



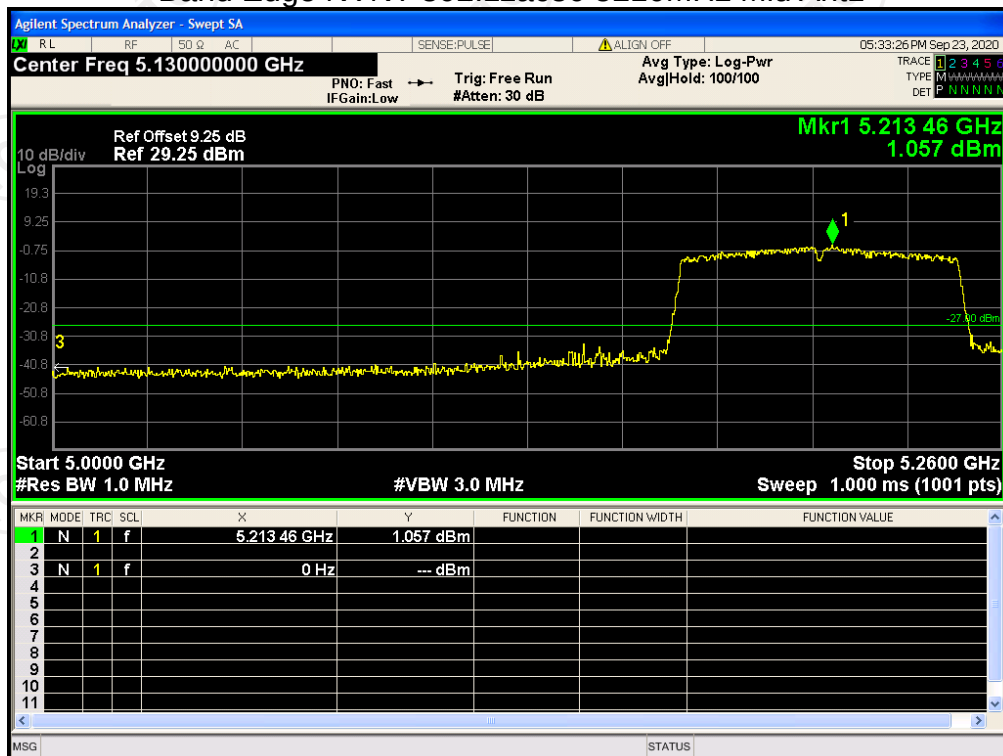
Band Edge NVNT 802.11ac40 5190MHz Low Ant1



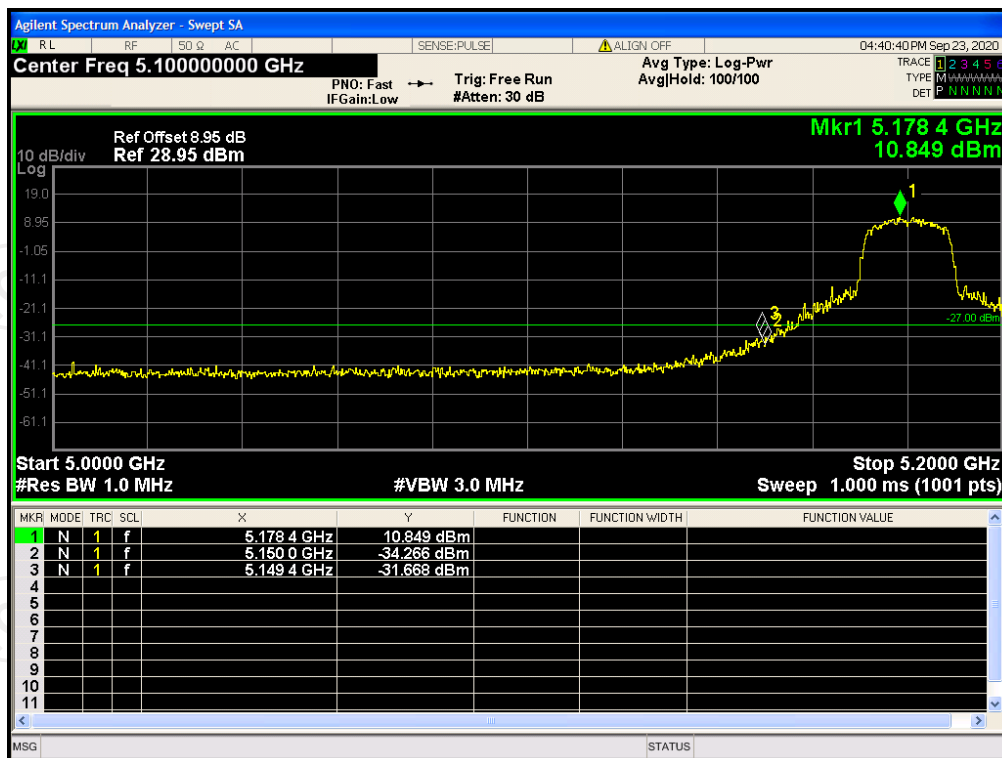
Band Edge NVNT 802.11ac40 5230MHz High Ant1



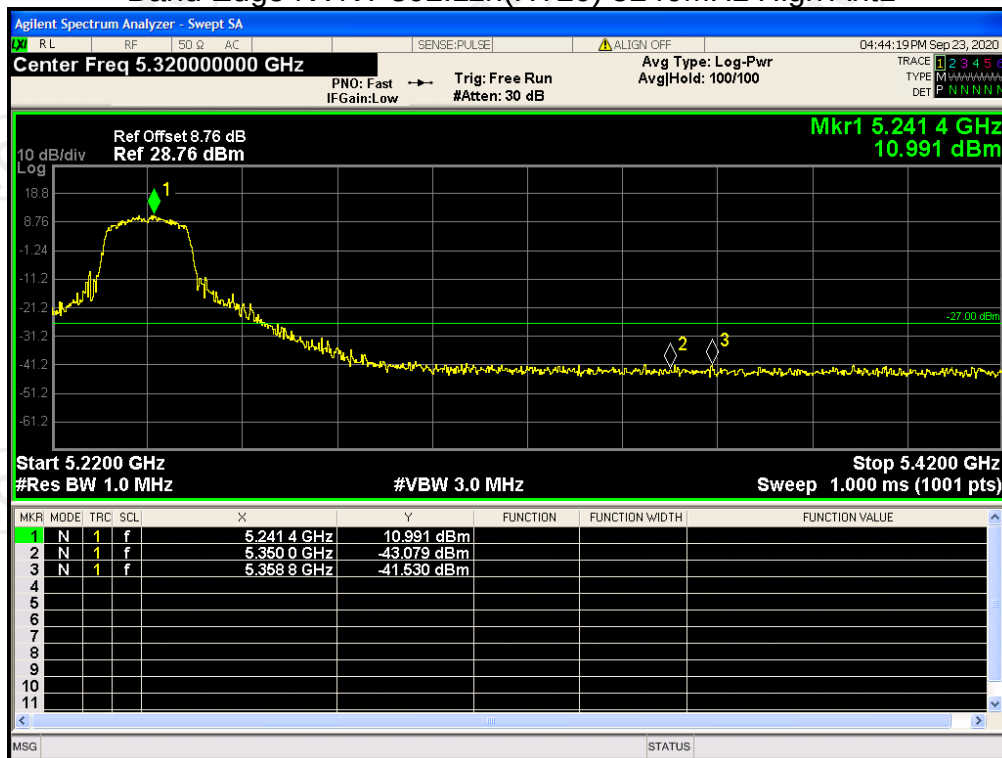
Band Edge NVNT 802.11ac80 5210MHz Mid Ant1



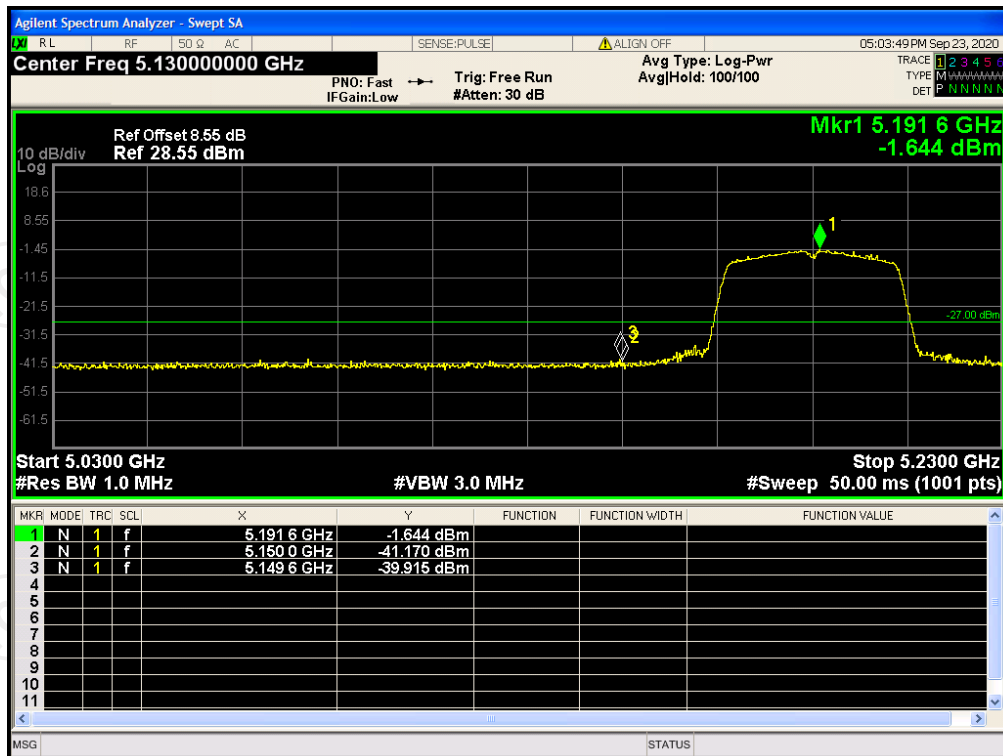
Band Edge NVNT 802.11n(HT20) 5180MHz Low Ant1



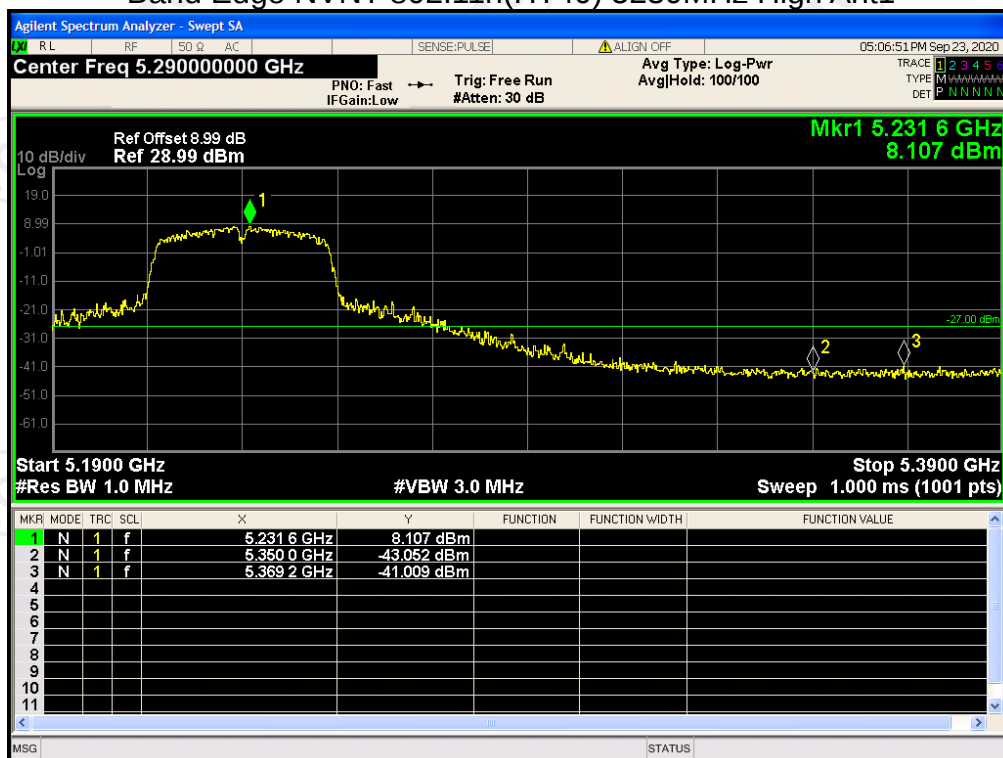
Band Edge NVNT 802.11n(HT20) 5240MHz High Ant1



Band Edge NVNT 802.11n(HT40) 5190MHz Low Ant1



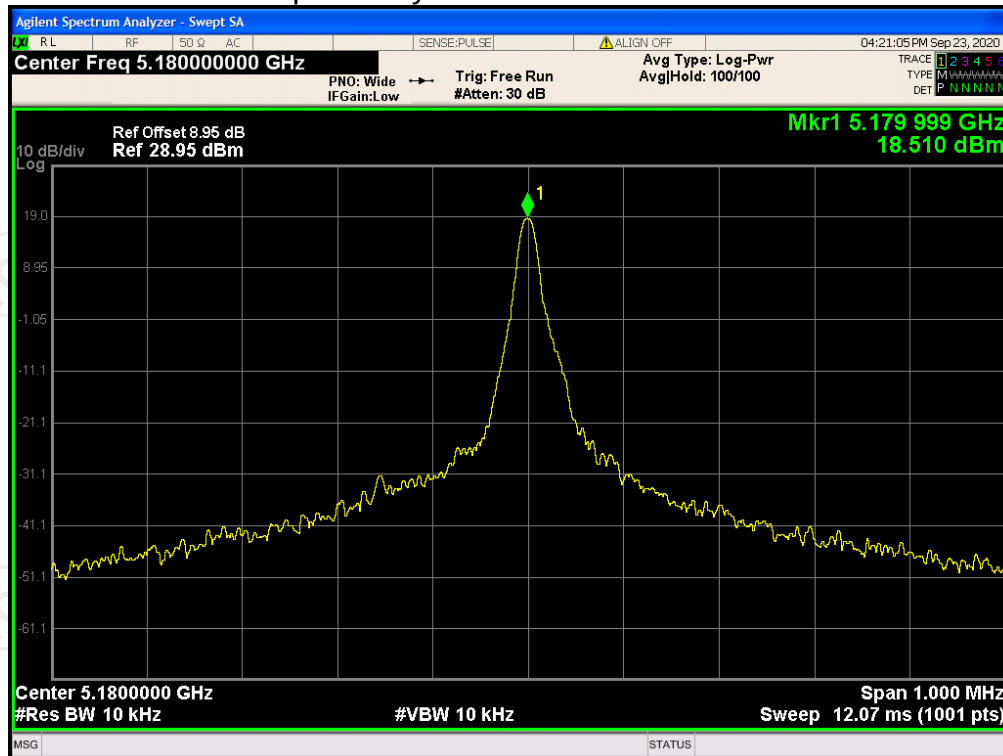
Band Edge NVNT 802.11n(HT40) 5230MHz High Ant1



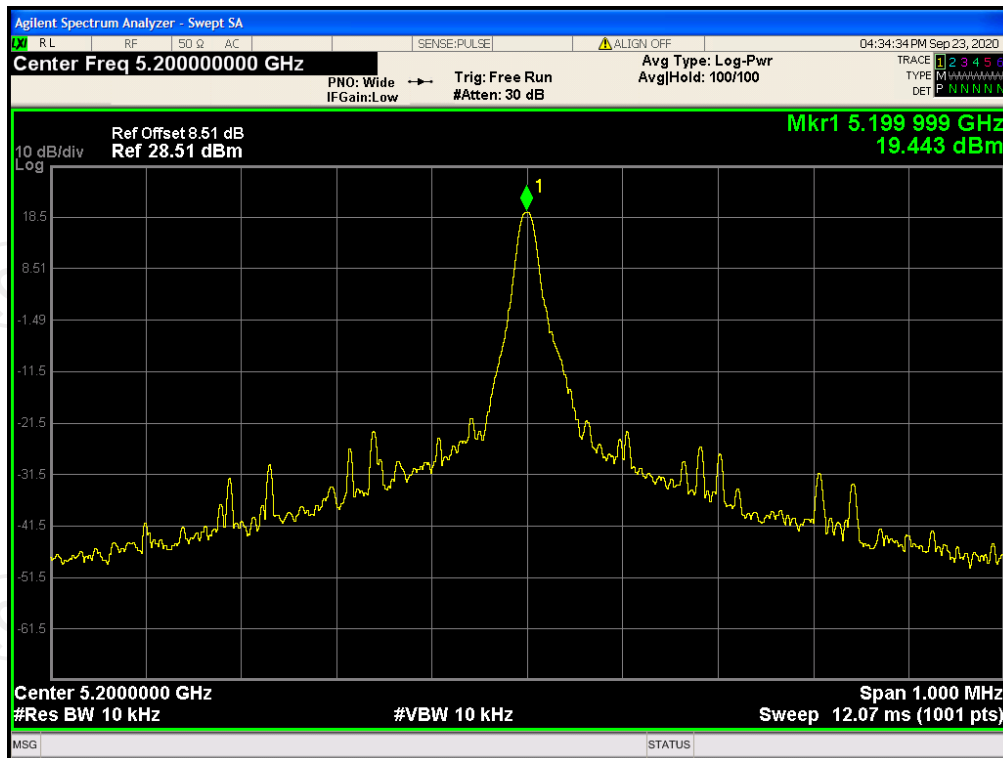
Frequency Stability

Condition	Mode	Frequency (MHz)	Measured Frequency (MHz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	802.11a	5180	5179.999	-0.19	25	Pass
NVNT	802.11a	5200	5199.999	-0.19	25	Pass
NVNT	802.11a	5240	5240	0	25	Pass
NVNT	802.11ac20	5180	5180.02	3.86	25	Pass
NVNT	802.11ac20	5200	5200.02	3.85	25	Pass
NVNT	802.11ac20	5240	5240.02	3.82	25	Pass
NVNT	802.11ac40	5190	5189.999	-0.19	25	Pass
NVNT	802.11ac40	5230	5230	0	25	Pass
NVNT	802.11ac80	5210	5210	0	25	Pass
NVNT	802.11n(HT20)	5180	5180	0	25	Pass
NVNT	802.11n(HT20)	5200	5200.02	3.85	25	Pass
NVNT	802.11n(HT20)	5240	5240.02	3.82	25	Pass
NVNT	802.11n(HT40)	5190	5190	0	25	Pass
NVNT	802.11n(HT40)	5230	5230	0	25	Pass

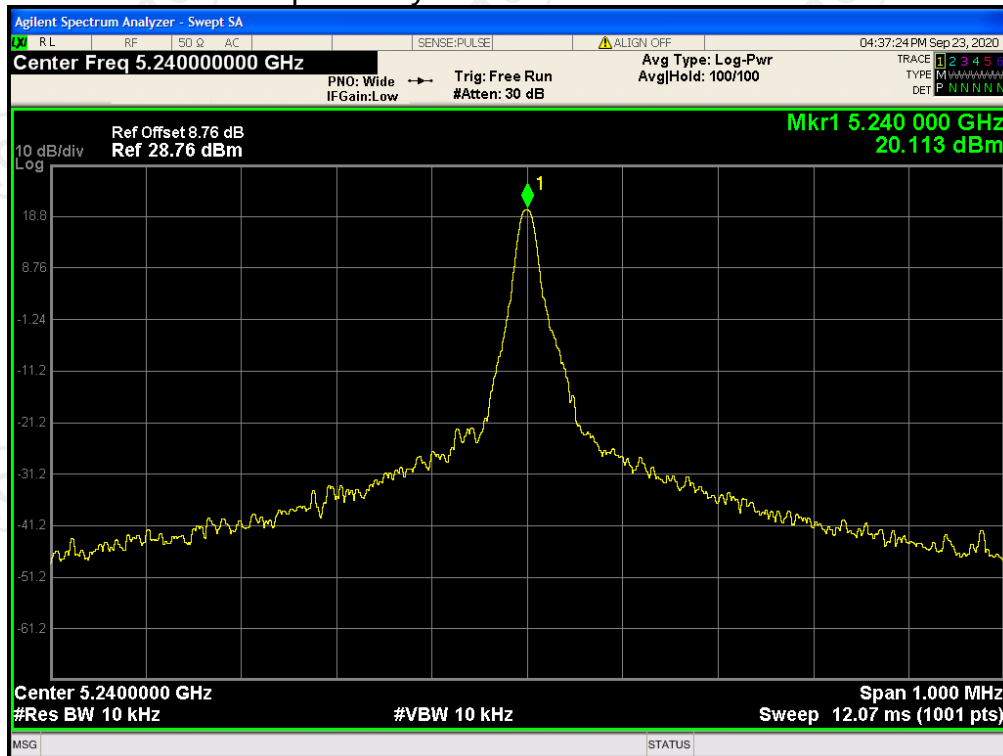
Freq. Stability NVNT 802.11a 5180MHz



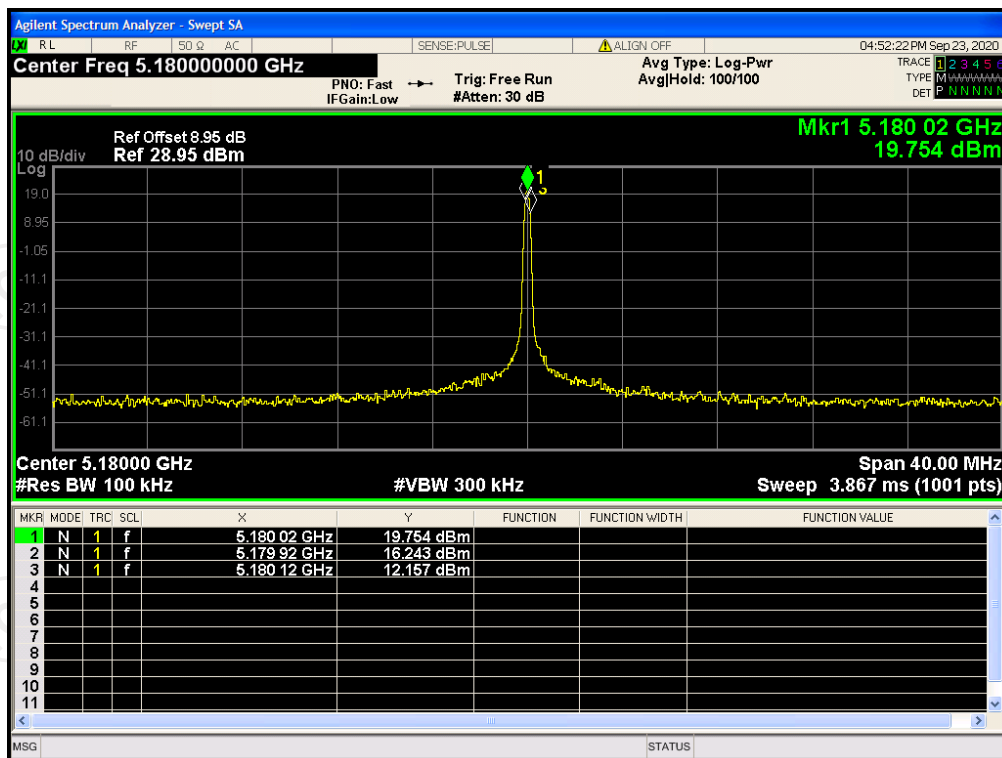
Freq. Stability NVNT 802.11a 5200MHz



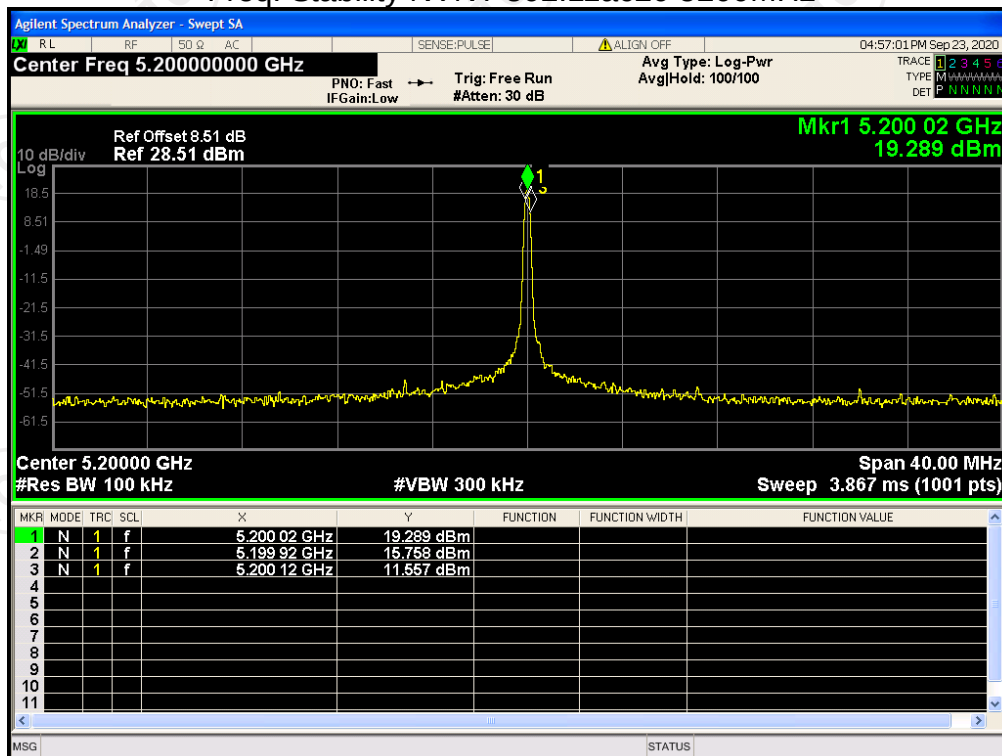
Freq. Stability NVNT 802.11a 5240MHz



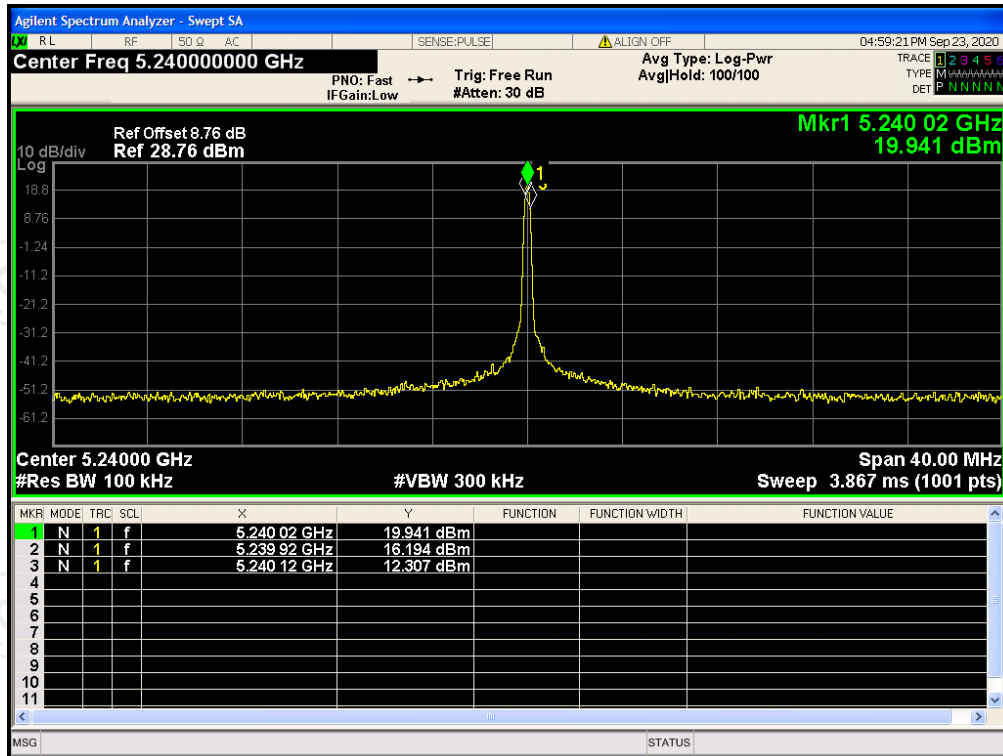
Freq. Stability NVNT 802.11ac20 5180MHz



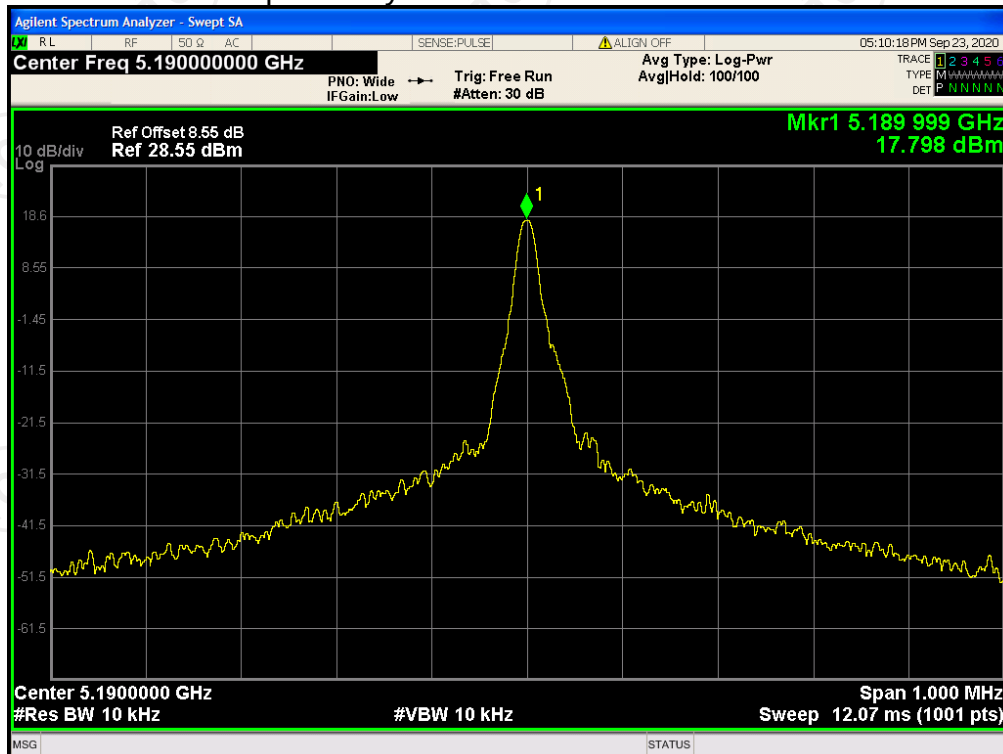
Freq. Stability NVNT 802.11ac20 5200MHz



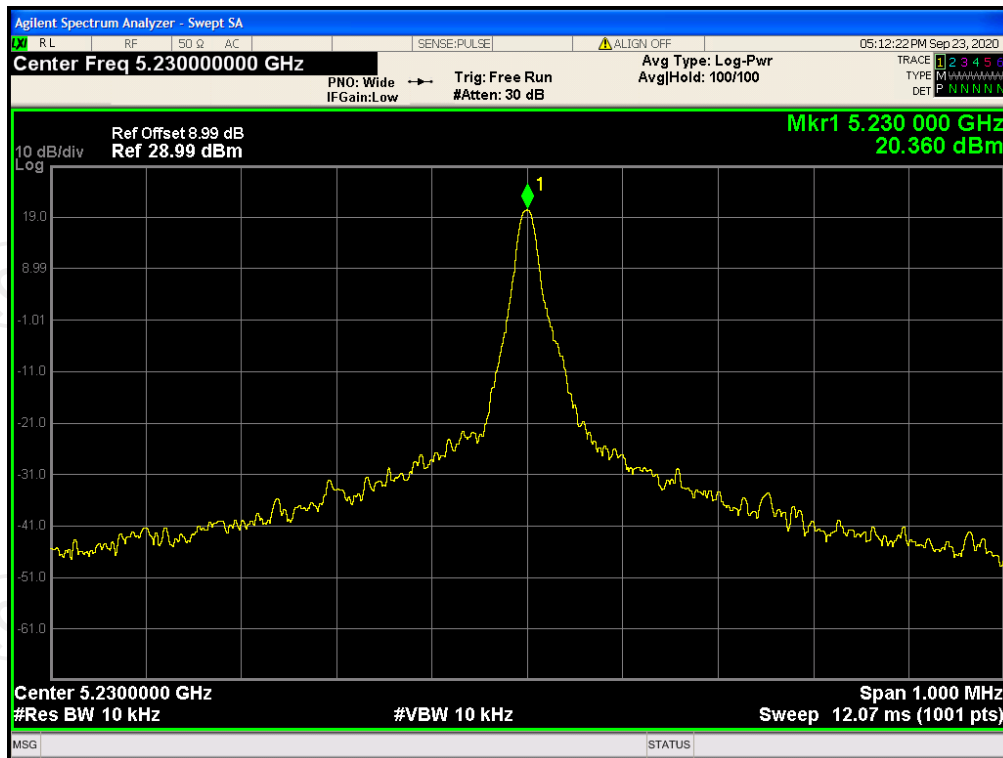
Freq. Stability NVNT 802.11ac20 5240MHz



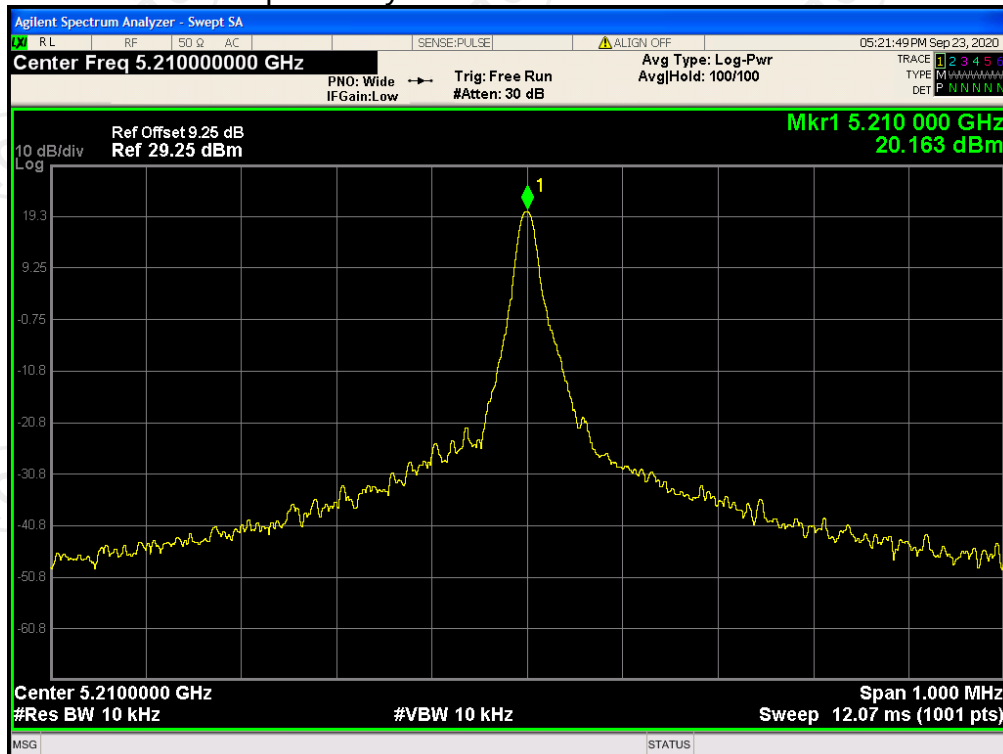
Freq. Stability NVNT 802.11ac40 5190MHz



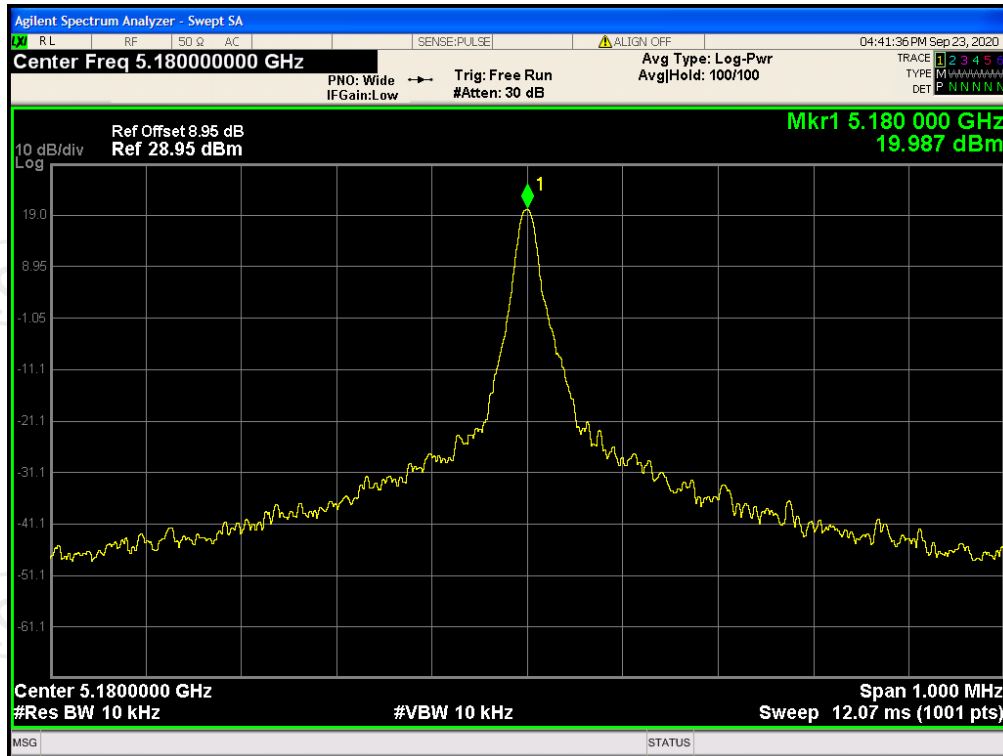
Freq. Stability NVNT 802.11ac40 5230MHz



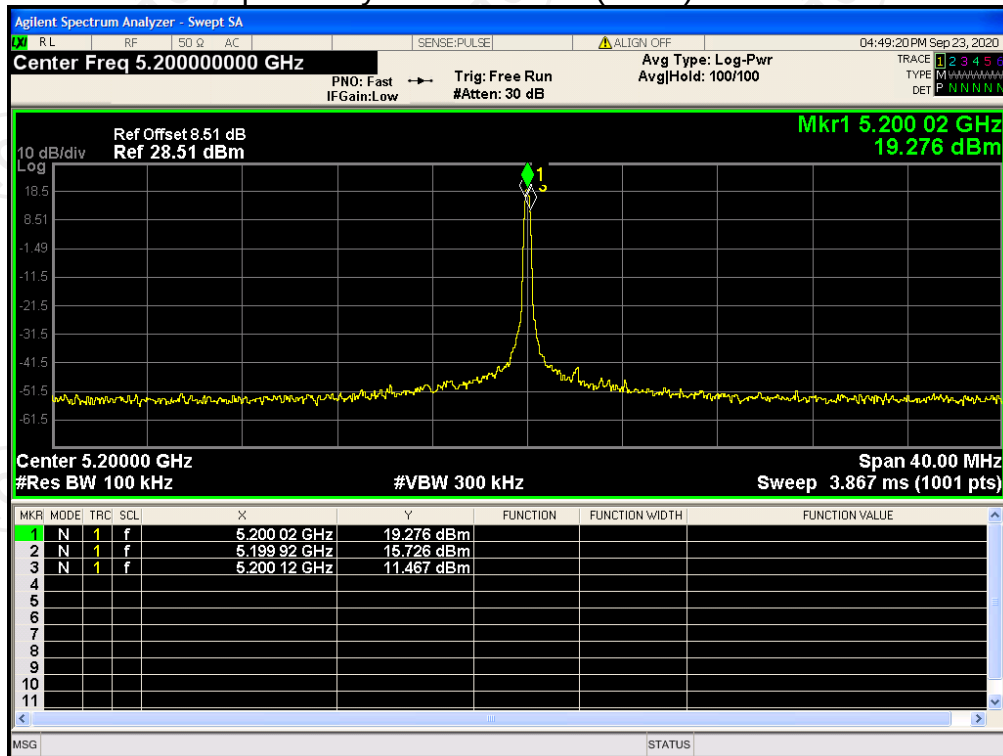
Freq. Stability NVNT 802.11ac80 5210MHz



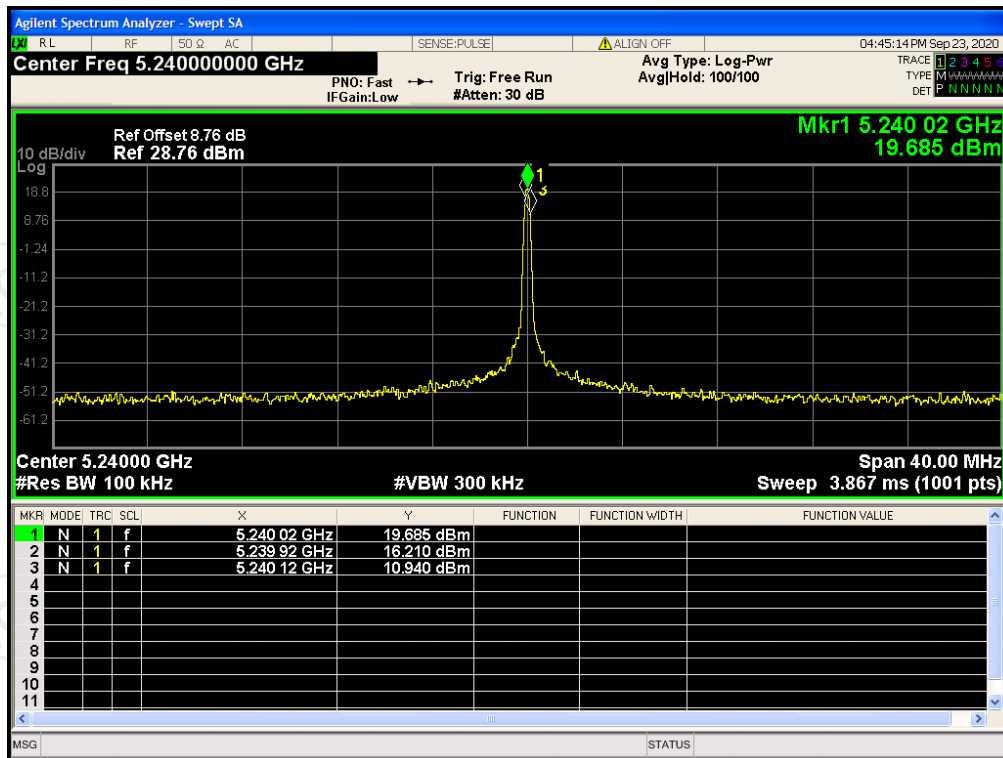
Freq. Stability NVNT 802.11n(HT20) 5180MHz



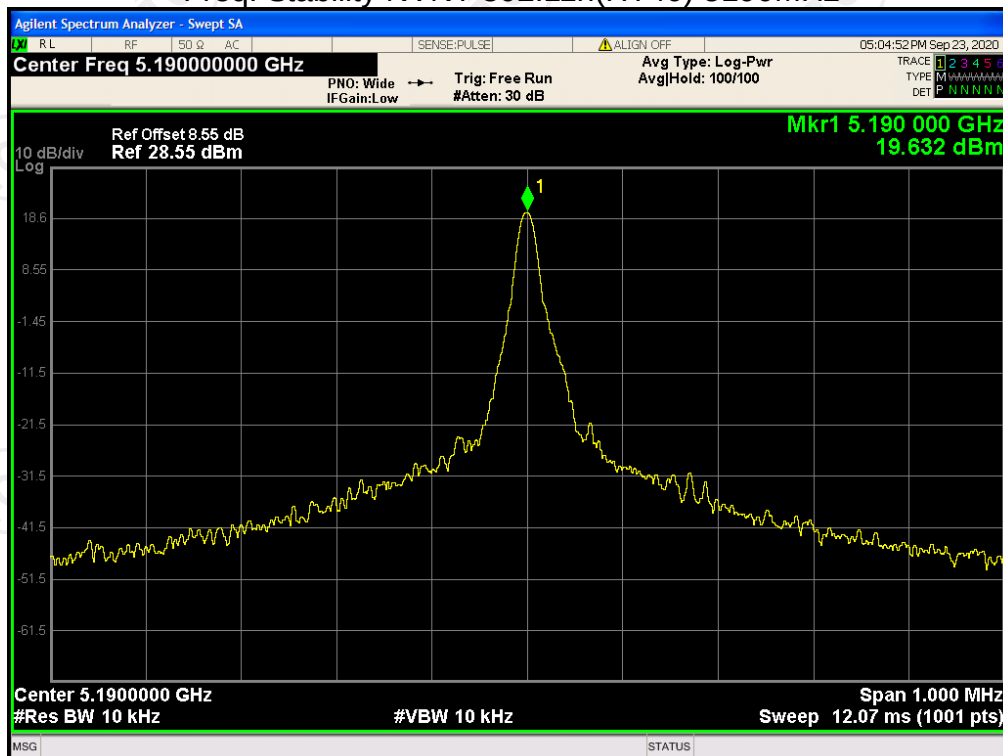
Freq. Stability NVNT 802.11n(HT20) 5200MHz



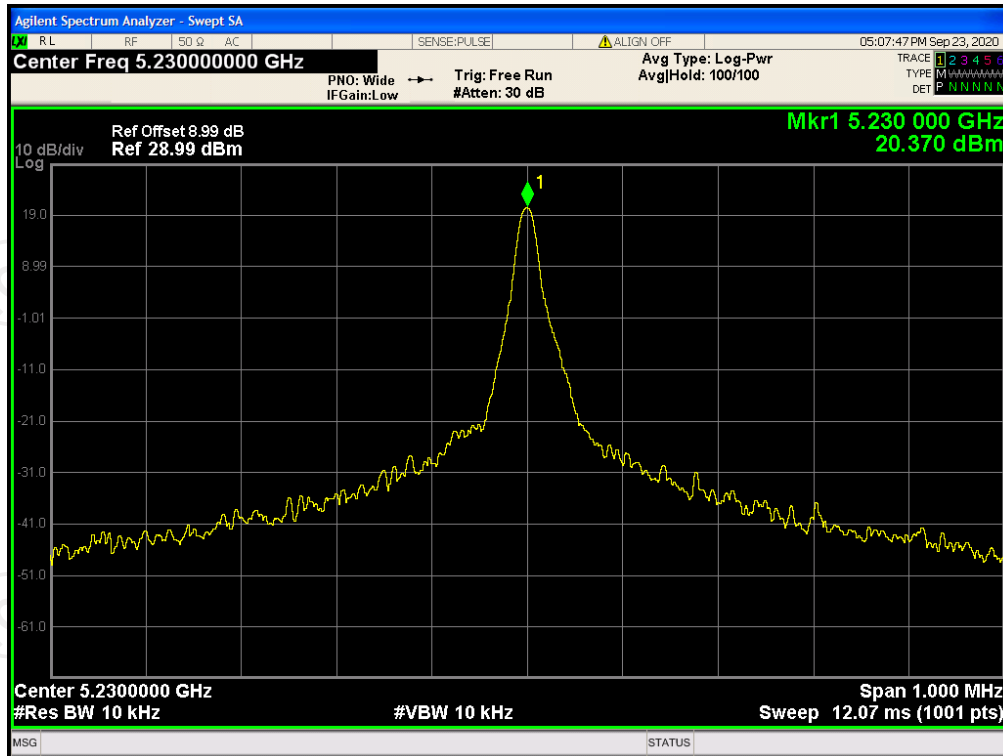
Freq. Stability NVNT 802.11n(HT20) 5240MHz



Freq. Stability NVNT 802.11n(HT40) 5190MHz



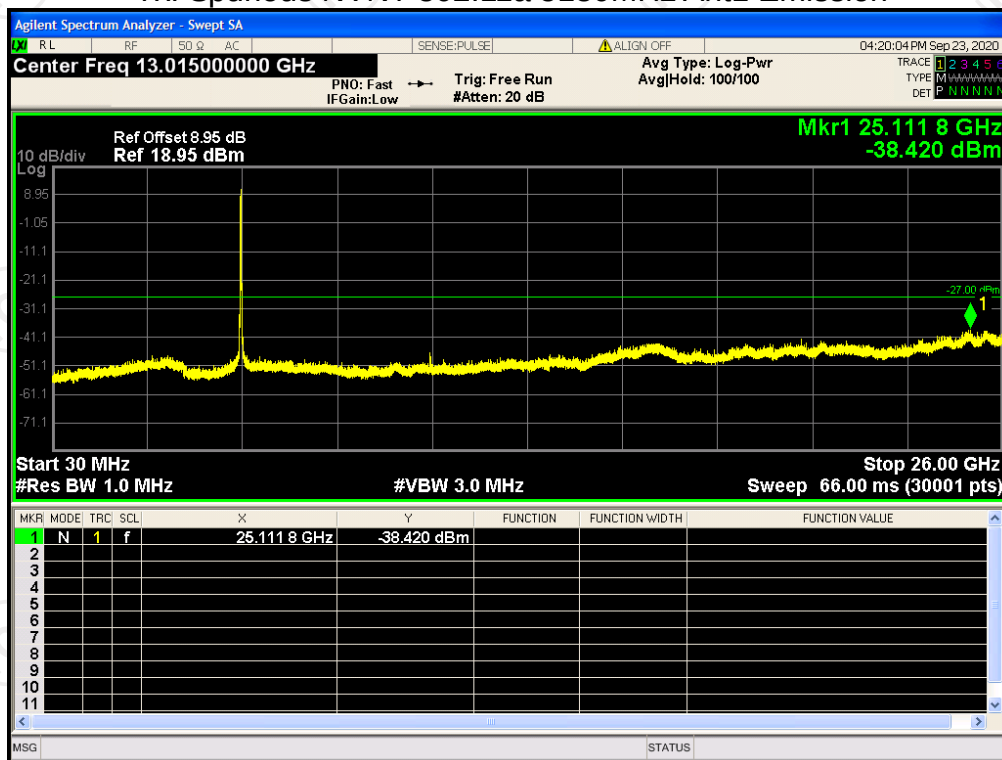
Freq. Stability NVNT 802.11n(HT40) 5230MHz



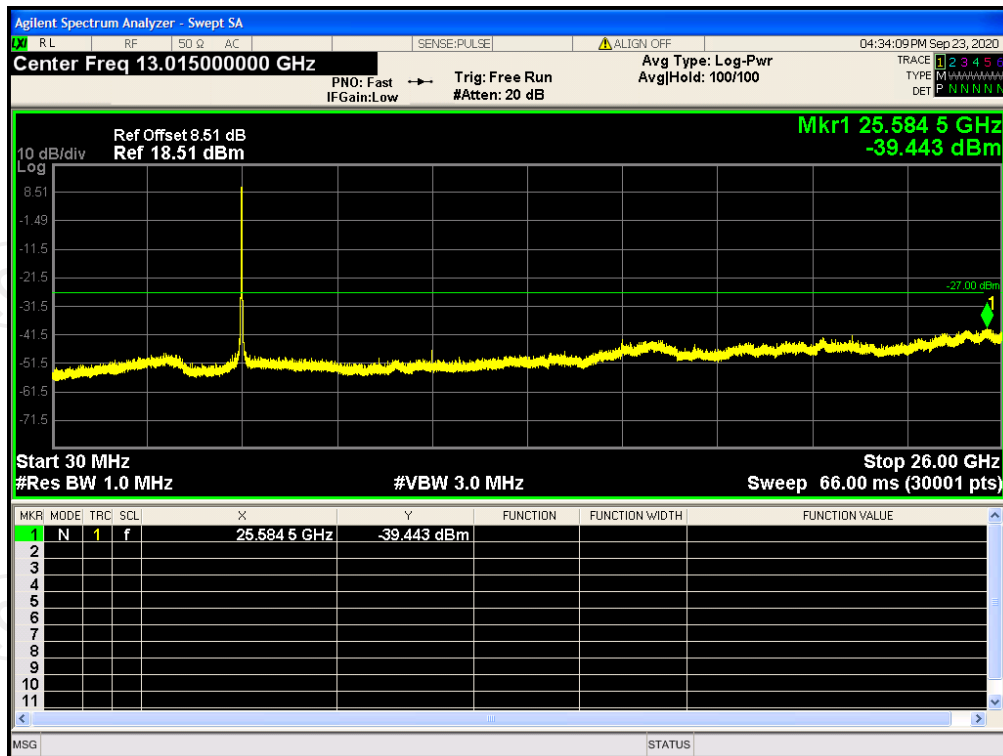
Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11a	5180	Ant 1	-38.41	-27	Pass
NVNT	802.11a	5200	Ant 1	-39.44	-27	Pass
NVNT	802.11a	5240	Ant 1	-37.79	-27	Pass
NVNT	802.11ac20	5180	Ant 1	-38.34	-27	Pass
NVNT	802.11ac20	5200	Ant 1	-39.04	-27	Pass
NVNT	802.11ac20	5240	Ant 1	-38.20	-27	Pass
NVNT	802.11ac40	5190	Ant 1	-38.75	-27	Pass
NVNT	802.11ac40	5230	Ant 1	-37.82	-27	Pass
NVNT	802.11ac80	5210	Ant 1	-38.35	-27	Pass
NVNT	802.11n(HT20)	5180	Ant 1	-38.32	-27	Pass
NVNT	802.11n(HT20)	5200	Ant 1	-38.41	-27	Pass
NVNT	802.11n(HT20)	5240	Ant 1	-38.86	-27	Pass
NVNT	802.11n(HT40)	5190	Ant 1	-38.88	-27	Pass
NVNT	802.11n(HT40)	5230	Ant 1	-38.56	-27	Pass

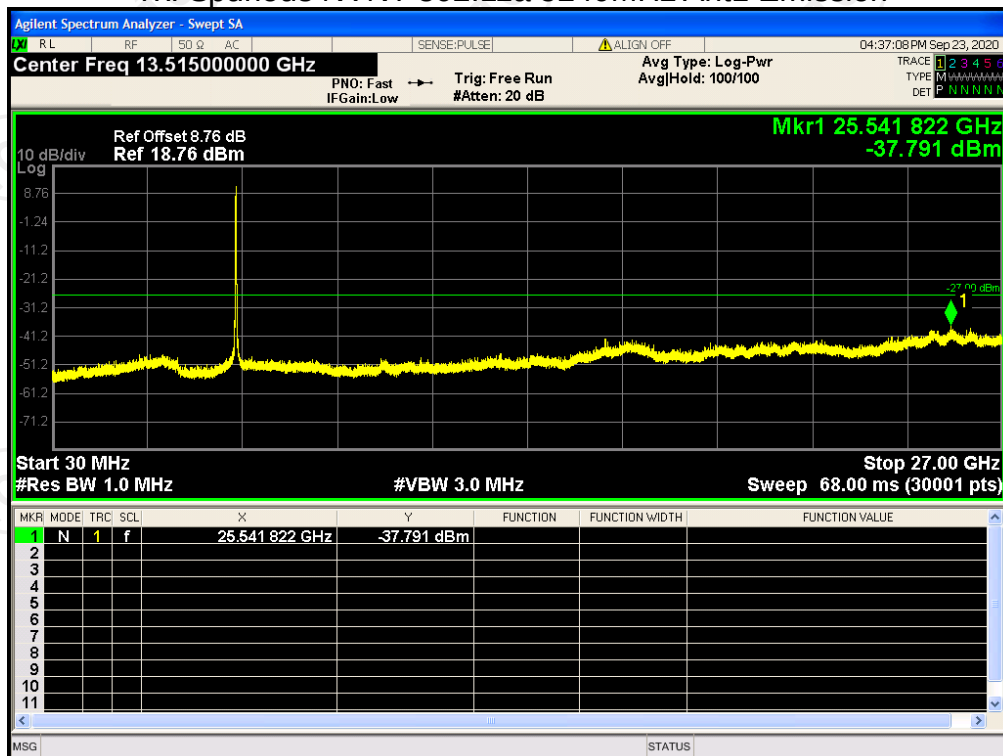
Tx. Spurious NVNT 802.11a 5180MHz Ant1 Emission



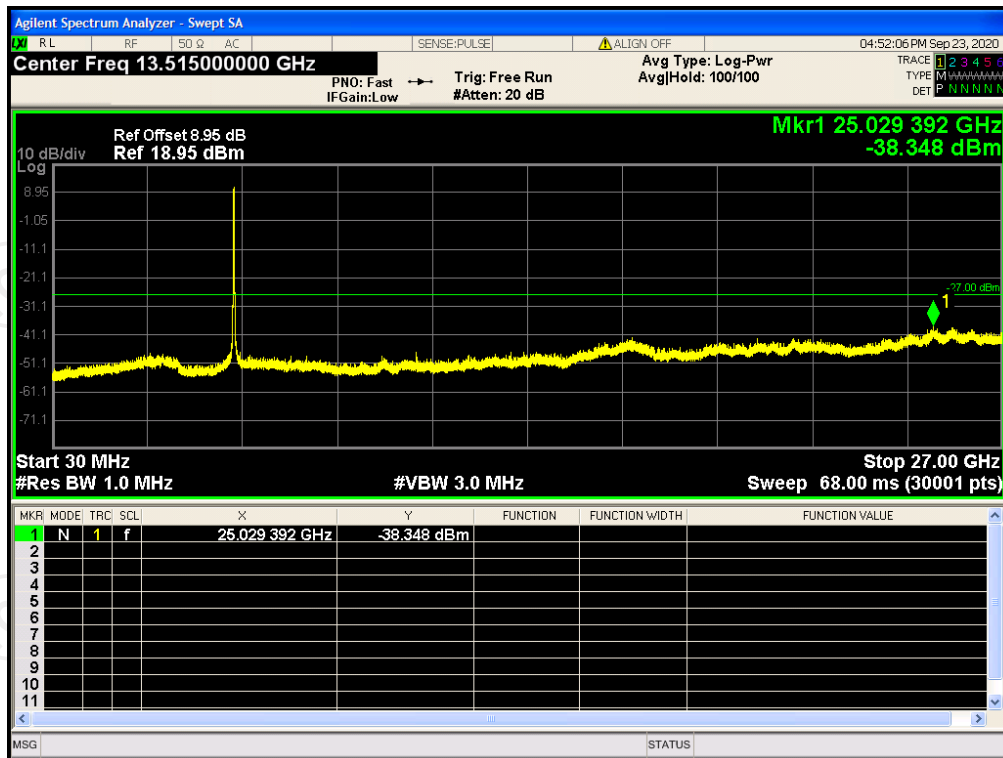
Tx. Spurious NVNT 802.11a 5200MHz Ant1 Emission



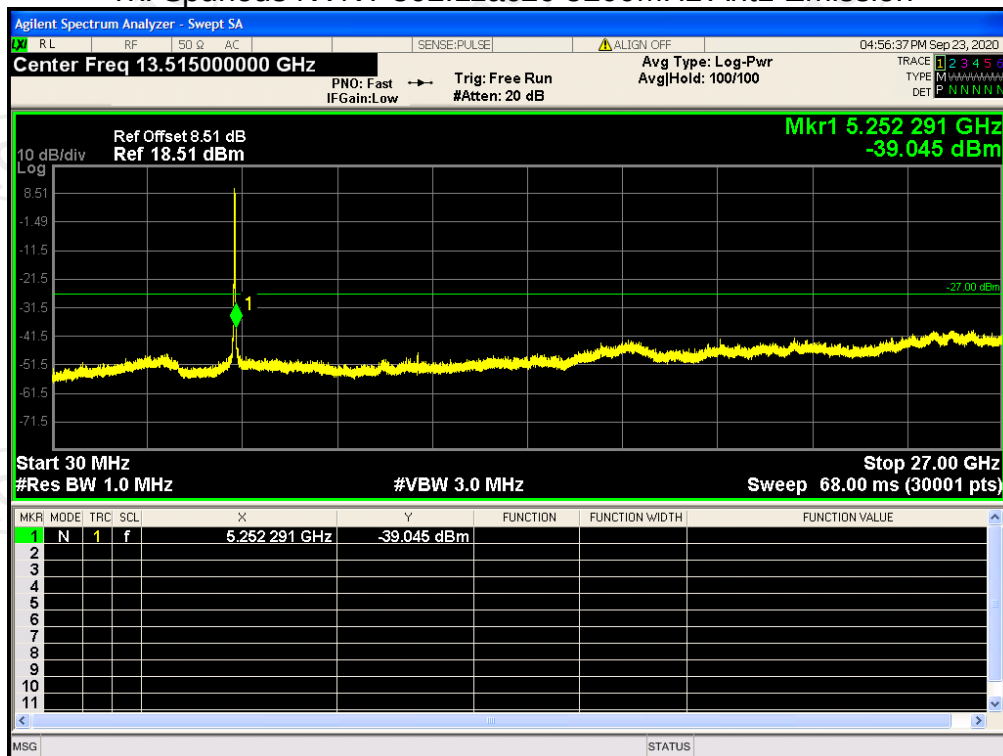
Tx. Spurious NVNT 802.11a 5240MHz Ant1 Emission



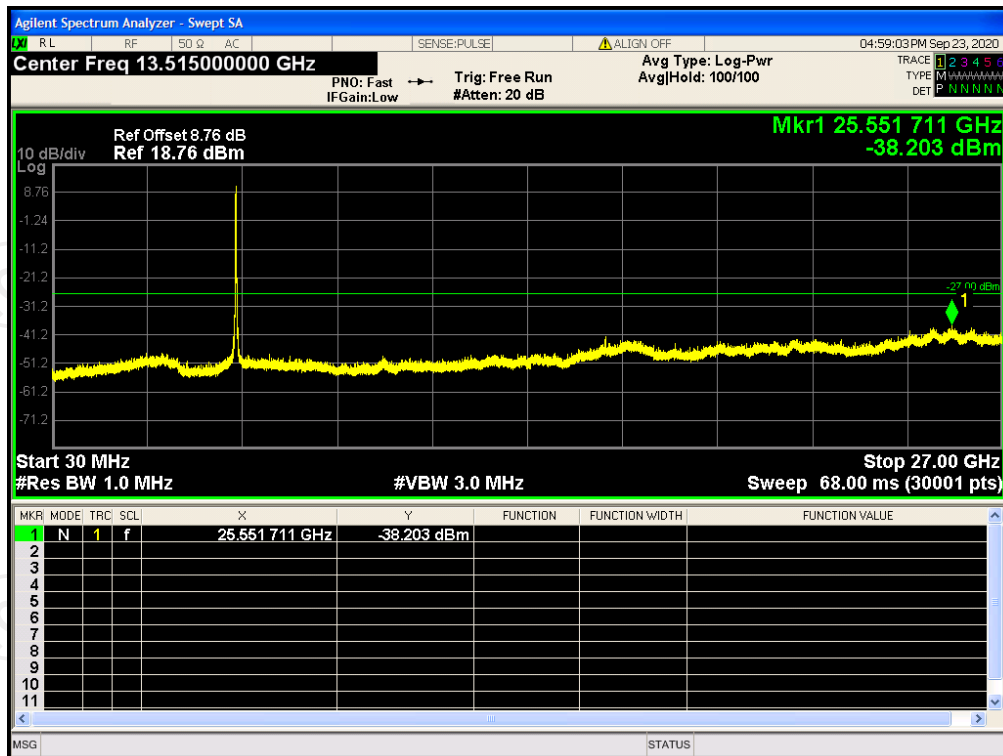
Tx. Spurious NVNT 802.11ac20 5180MHz Ant1 Emission



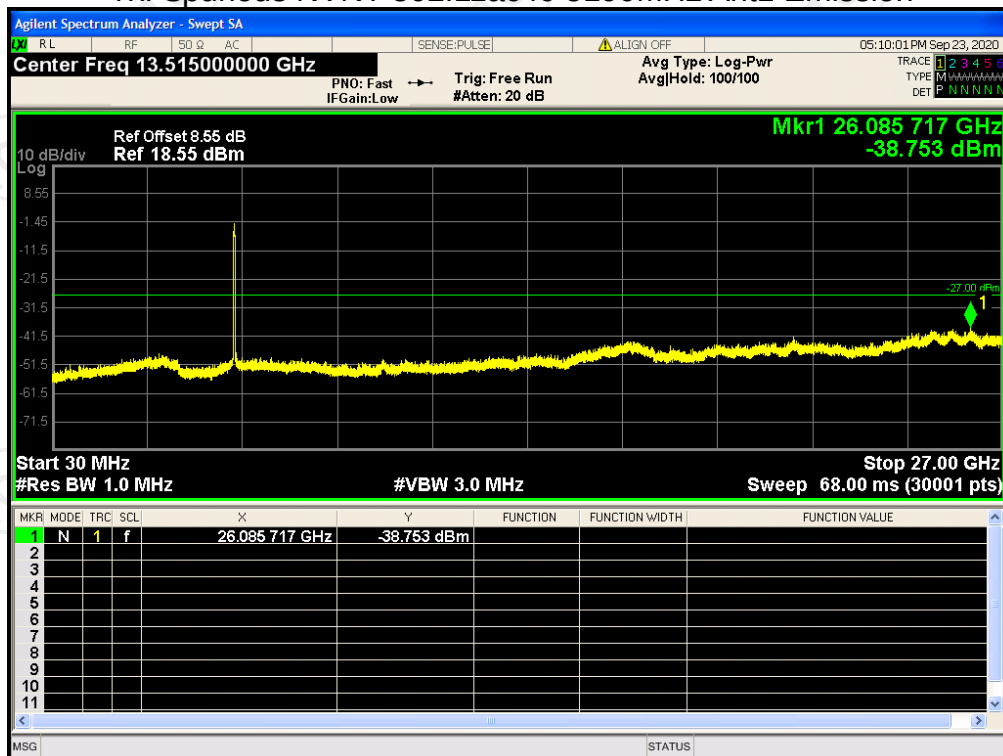
Tx. Spurious NVNT 802.11ac20 5200MHz Ant1 Emission



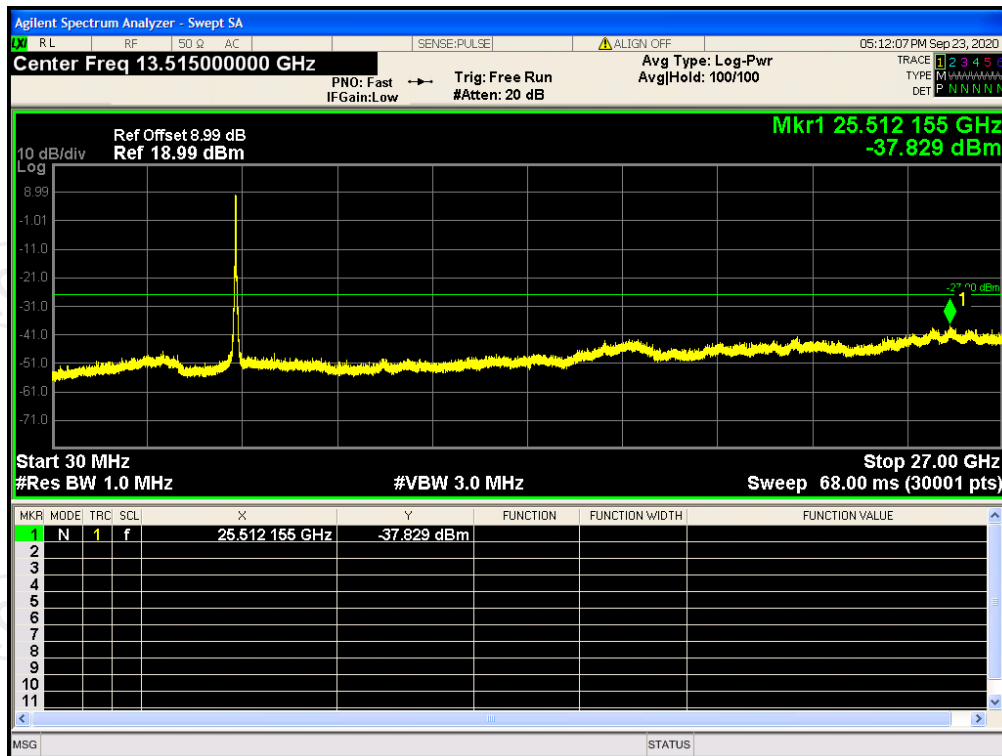
Tx. Spurious NVNT 802.11ac20 5240MHz Ant1 Emission



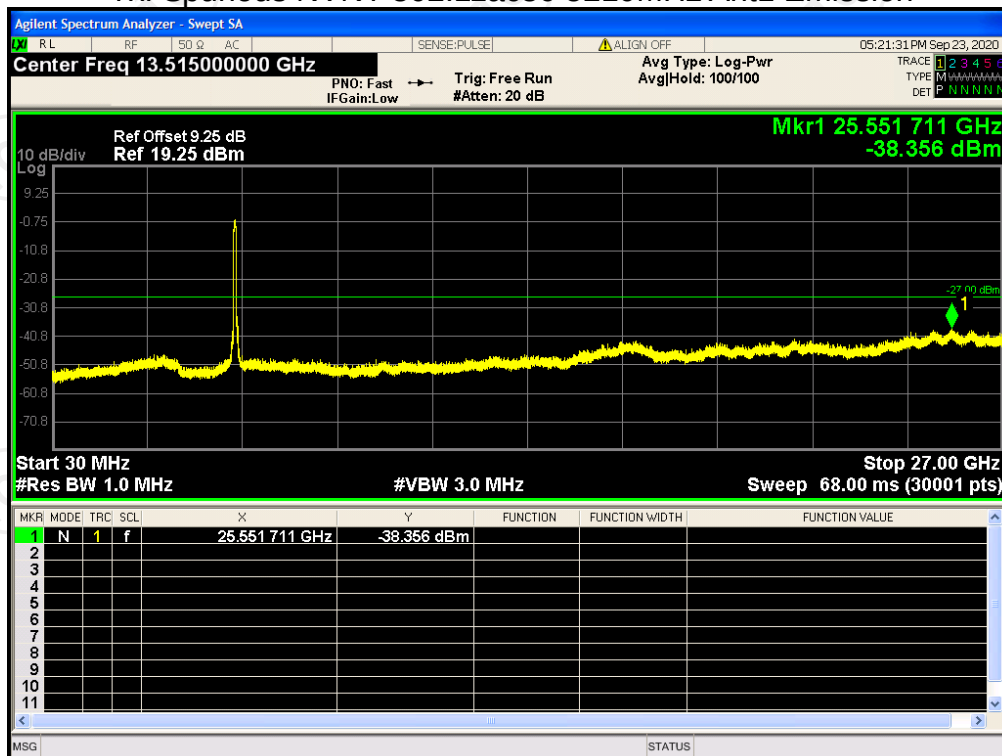
Tx. Spurious NVNT 802.11ac40 5190MHz Ant1 Emission



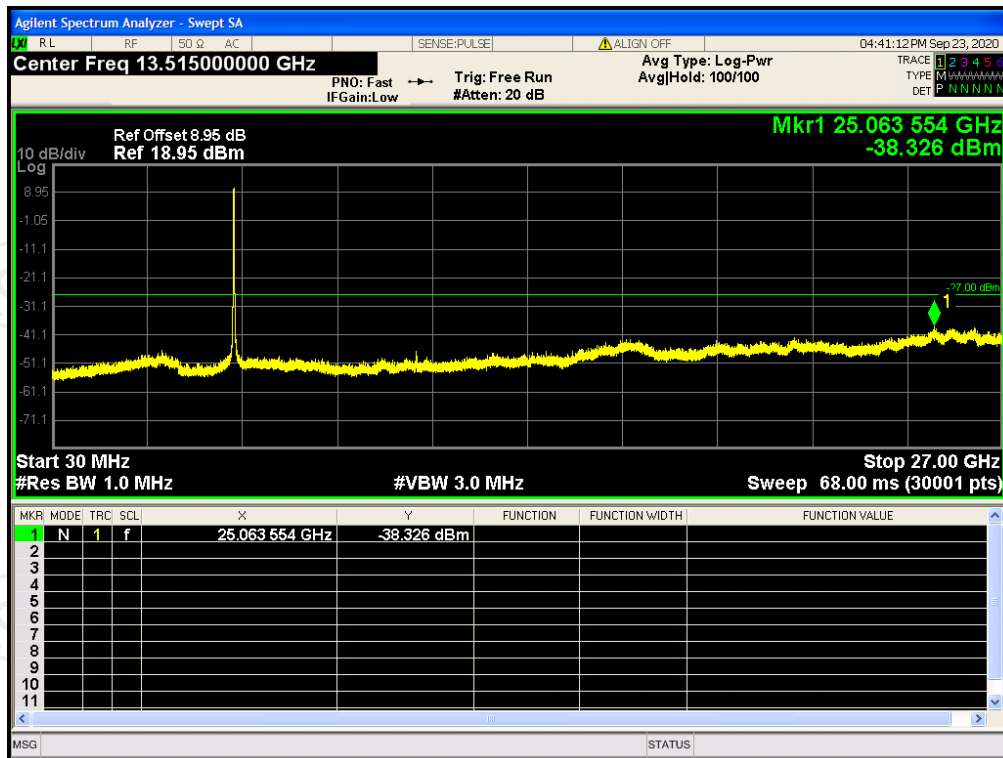
Tx. Spurious NVNT 802.11ac40 5230MHz Ant1 Emission



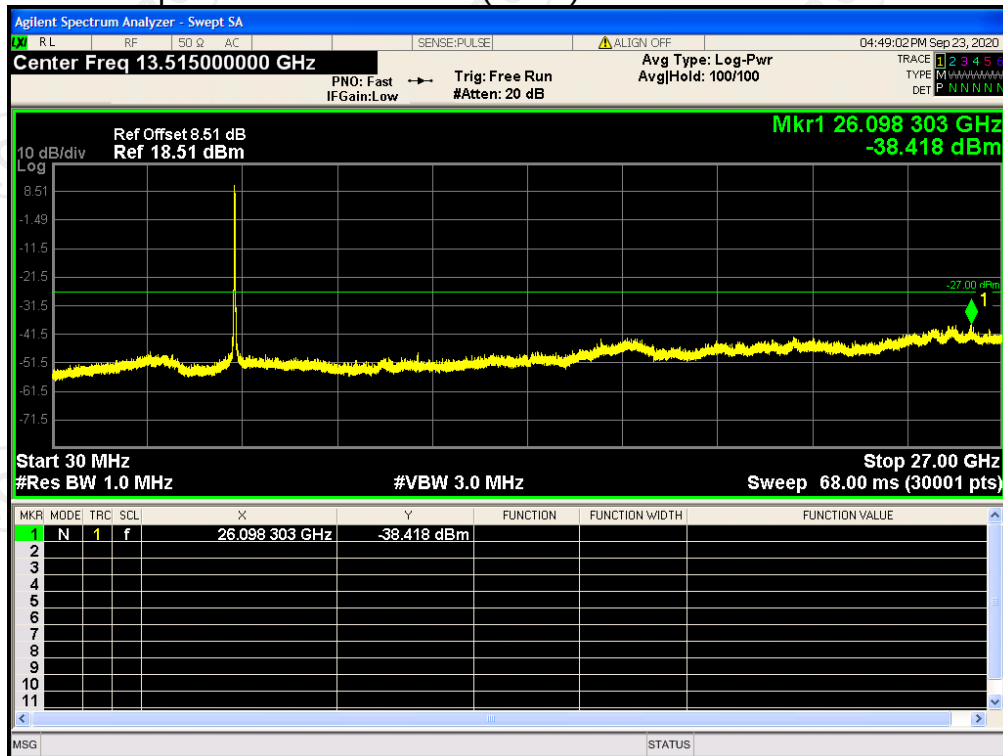
Tx. Spurious NVNT 802.11ac80 5210MHz Ant1 Emission



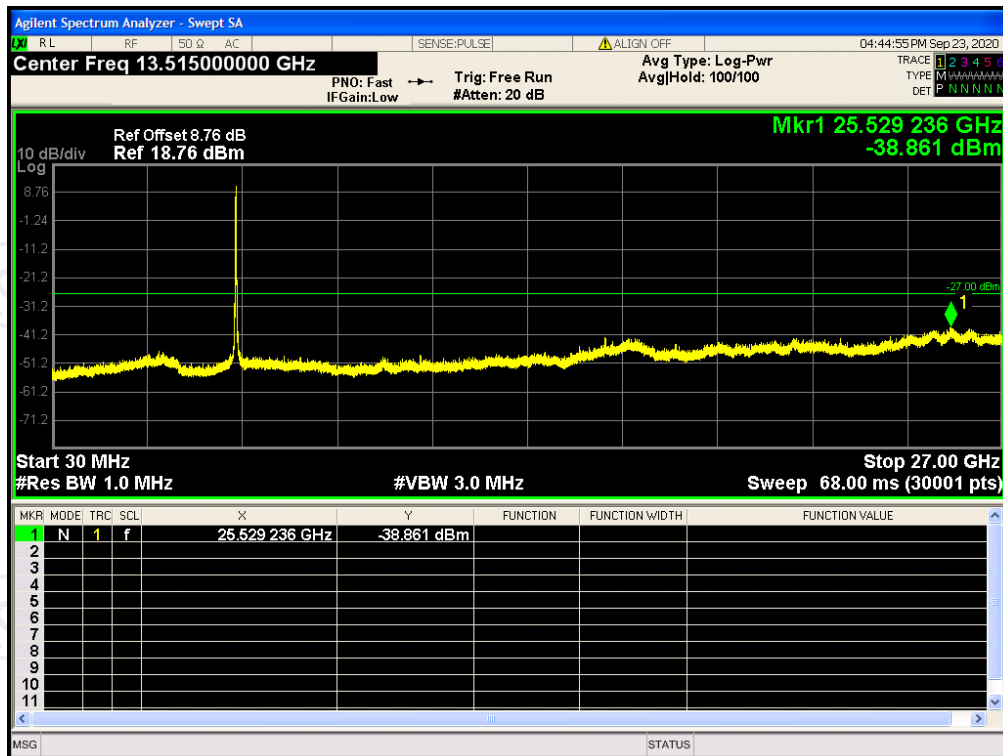
Tx. Spurious NVNT 802.11n(HT20) 5180MHz Ant1 Emission



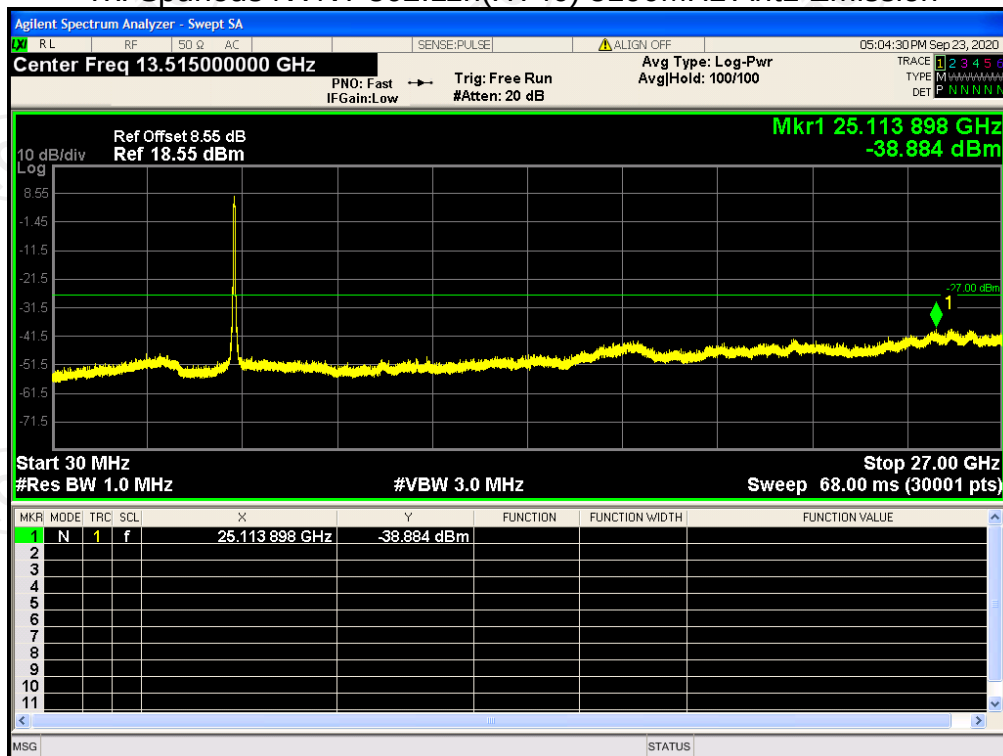
Tx. Spurious NVNT 802.11n(HT20) 5200MHz Ant1 Emission



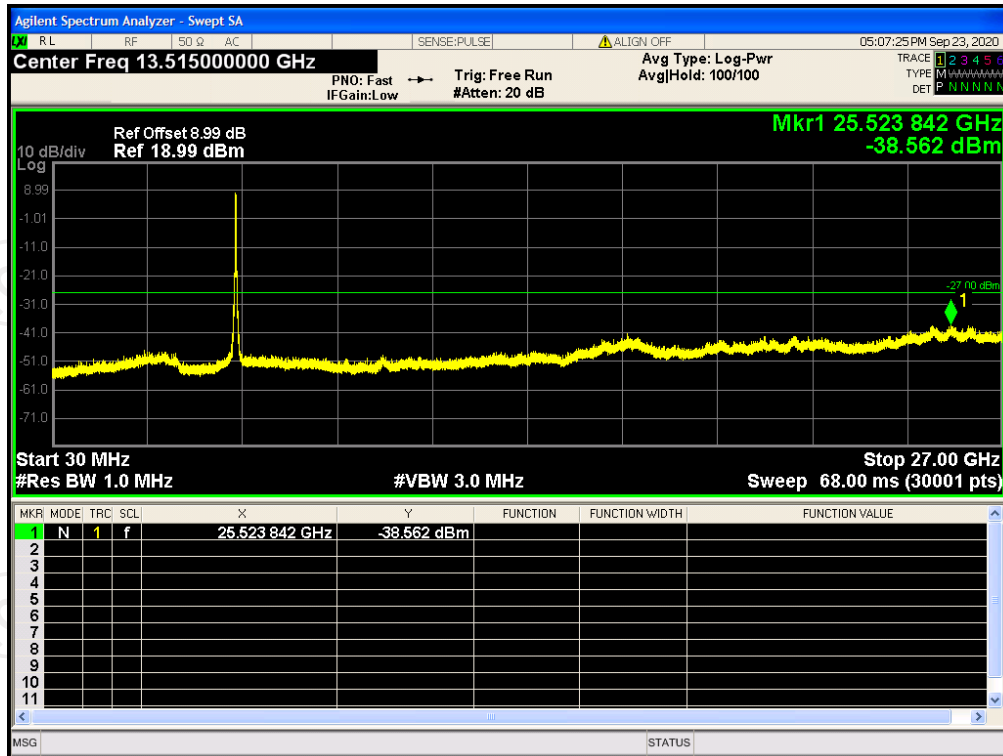
Tx. Spurious NVNT 802.11n(HT20) 5240MHz Ant1 Emission



Tx. Spurious NVNT 802.11n(HT40) 5190MHz Ant1 Emission



Tx. Spurious NVNT 802.11n(HT40) 5230MHz Ant1 Emission



Appendix B: Photographs of Test Setup

Refer to the test report No. TCT200907E021

Appendix C: Photographs of EUT

Refer to the test report No. TCT200907E021

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