FCC RADIO TEST REPORT
FCC ID: 2AGKB-KA1

Product: Smart Speaker

Trade Mark: MECOOL

Model No.: KA1

Family Model: KA1-T, KA1-S, KA3, KA5, KA6

Report No.: S21111601205004

Issue Date: Jan 13, 2022

Prepared for

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Prepared by

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TEST RESULT CERTIFICATION

Applicant's name	:	Videostrong Technology Co.,Ltd
Address	:	604, Lushi industrial Building, 28 District, Bao'an District, Shenzhen, China
Manufacturer's Name	:	Videostrong Technology Co.,Ltd
Address	:	604, Lushi industrial Building, 28 District, Bao'an District, Shenzhen, China

Product description

Product name	:	Smart Speaker
Model and/or type reference	:	KA1
Family Model	:	KA1-T, KA1-S, KA3, KA5, KA6
Standards	:	FCC Part15.407
Test procedure		ANSI C63.10-2013 and KDB 789033 D02 General UNII Test Procedures New Rules v02r01

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test .....

Date (s) of performance of tests ..... Nov 20, 2021 ~ Jan 13, 2022

Date of Issue ..... Jan 13, 2022

Test Result ..... **Pass**

Testing Engineer : Mukzi Lee

(Mukzi Lee)

Authorized Signatory : Alex

(Alex Li)

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Revision History

Report No.	Version	Description	Issued Date
S21111601205004	Rev.01	Initial issue of report	Jan 13, 2022

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.407) , Subpart E			
Standard Section	Test Item	Judgment	Remark
15.207	AC Power Line Conducted Emissions	PASS	
15.209(a), 15.407 (b)(1) 15.407 (b)(4) 15.407 (b)(9) 15.407 (b)(10)	Spurious Radiated Emissions	PASS	
15.407 (a)(1) 15.407 (a)(3)	26 dB and 99% Emission Bandwidth	PASS	
15.407(e)	Minimum 6 dB bandwidth	PASS	
15.407 (a)(1) 15.407 (a)(3)	Maximum Conducted Output Power	PASS	
15.407(b)(1) 15.407(b)(4)	Band Edge	PASS	
15.407 (a)(1) 15.407 (a)(3)	Power Spectral Density	PASS	
15.407(b)	Spurious Emissions at Antenna Terminals	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

(2) This device operates with a duty cycle greater than 99%

1.1 FACILITIES AND ACCREDITATIONS

FACILITIES

All measurement facilities used to collect the measurement data are located at
1/F, Building E, Fenda Science Park Sanwei, Xixiang, Bao'an District
Shenzhen, Guangdong, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

LABORATORY ACCREDITATIONS AND LISTINGS

Site Description

CNAS-Lab.	:	The Certificate Registration Number is L5516.
IC-Registration		The Certificate Registration Number is 9270A.
		CAB identifier:CN0074
FCC- Accredited		Test Firm Registration Number: 463705.
		Designation Number: CN1184
A2LA-Lab.		The Certificate Registration Number is 4298.01
Name of Firm	:	Shenzhen NTEK Testing Technology Co., Ltd.
Site Location	:	1/F, Building E, Fenda Science Park Sanwei, Xixiang, Bao'an District Shenzhen, Guangdong, China

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y±U, where expended 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	Uncertainty
1	Conducted Emission Test	±2.80dB
2	RF power, conducted	±0.16dB
3	Spurious emissions, conducted	±0.21dB
4	All emissions, radiated(9KHz~30MHz)	±6dB
5	All emissions, radiated(30MHz~1GHz)	±2.64dB
6	All emissions, radiated(1GHz~6GHz)	±2.40dB
7	All emissions, radiated(＞6GHz)	±2.52dB
8	Temperature	±0.5°C
9	Humidity	±2%

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart Speaker
Trade Mark	MECOOL
Model Name	KA1
Family Model	KA1-T, KA1-S, KA3, KA5, KA6
Model Difference	All models are the same circuit and RF module, except the model names.
FCC ID	2AGKB-KA1
Product Description	<table><tr><td>Mode Supported</td><td>☒802.11a ☒802.11n(HT20) ☒802.11n(HT40) ☒802.11ac(VHT20) ☒802.11ac(VHT40) ☒802.11ac(VHT80)</td></tr><tr><td>Data Rate</td><td>802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS15; 802.11ac(VHT20): NSS1, MCS0-MCS8 802.11ac(VHT40/VHT80):NSS1, MCS0-MCS9</td></tr><tr><td>Modulation</td><td>OFDM with BPSK/QPSK/16QAM/64QAM</td></tr><tr><td>Operating Frequency Range</td><td>☒ U-NII-1: 5150 MHz ~5250MHz ☐ U-NII-2A: 5250MHz~5350MHz ☐ U-NII-2C: 5470MHz~5725MHz ☒ U-NII-3: 5725 MHz ~5850 MHz</td></tr><tr><td>Function:</td><td>☐Outdoor AP ☐Indoor AP ☐Fixed P2P ☒Client</td></tr><tr><td>Smart system</td><td>☒SISO for 802.11a/n/ac ☒MIMO for 802.11n/ac</td></tr><tr><td>Antenna Type</td><td>FPCB Antenna</td></tr><tr><td>Antenna Gain</td><td>4.2dBi</td></tr></table> Based on the application, features, or specification exhibited in User's Manual, More details of EUT technical specification, please refer to the User's Manual.
Ratings	DC 12V from adapter
Adapter	☒Adapter supply: Model: TEKA-TD120200US Input:AC 100-240V~50/60Hz 0.7A MAX Output:DC 12.0V⎓2.0A
Battery	N/A
Connecting I/O Port(s)	Please refer to the User's Manual
HW Version	V1.0
SW Version	RTT0.210709.002

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Frequency and Channel list for 802.11a/n/ac(20MHz) band I (5180-5240MHz):

802.11a/n/ac(20MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220	-	-	-	-
40	5200	48	5240	-	-	-	-

Frequency and Channel list for 802.11n/ac(40MHz) band I (5190-5230MHz):

802.11n/ac(40MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	-	-	-	-	-	-
46	5230	-	-	-	-	-	-

Frequency and Channel list for 802.11ac(80MHz) band I (5210MHz):

802.11ac(80MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	-	-	-	-	-	-

Frequency and Channel list for 802.11a/n/ac(20 MHz) band IV (5745-5825MHz):

802.11a/n/ac(20 MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

Frequency and Channel list for 802.11n/ac(40MHz) band IV (5755-5795MHz):

802.11n/ac(40MHz) Carrier Frequency Channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795	-	-

Frequency and Channel list for 802.11ac(80MHz) band IV (5775MHz):

802.11ac(80MHz) Carrier Frequency Channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
155	5775			-	-

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a/n/ac20 CH36/CH40/CH48/CH149/CH157/CH165
Mode 3	802.11n40/ac40 CH38/CH46CH151/CH159
Mode 4	802.11ac80 CH42/CH155

For Radiated Emission	
Final Test Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a/n/ac20 CH36/CH40/CH48/CH149/CH157/CH165
Mode 3	802.11n40/ac40 CH38/CH46CH151/CH159
Mode 4	802.11ac80 CH42/CH155

For AC Conducted Emission	
Final Test Mode	Description
Mode 1	Normal Link Mode

For Conducted Test Cases	
Final Test Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a/n/ac20 CH36/CH40/CH48/CH149/CH157/CH165
Mode 3	802.11n40/ac40 CH38/CH46CH151/CH159
Mode 4	802.11ac80 CH42/CH155

Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

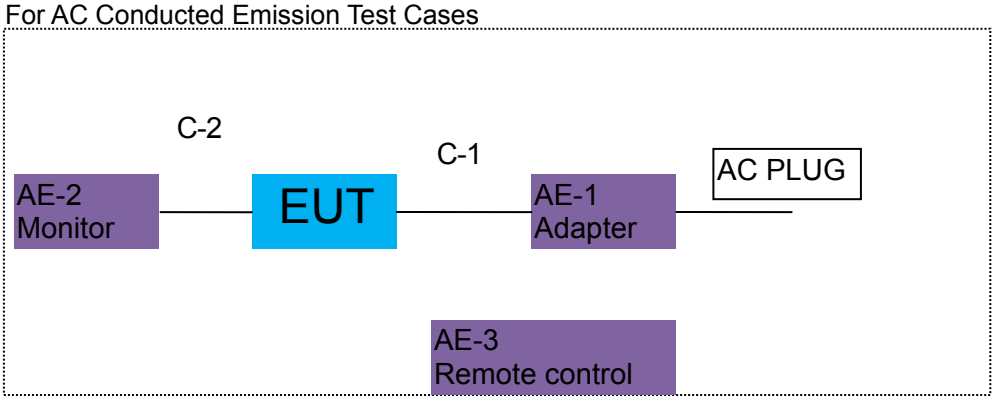
(2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

This EUT has two antennas, and different modes support different transmit mode what describe as following form:

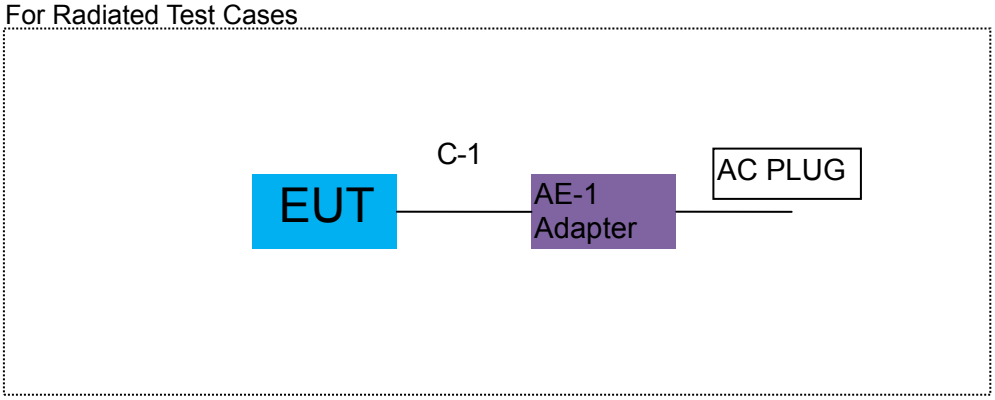
Mode	Tx / Rx
802.11a / n(20MHz,40MHz) / ac(20MHz,40MHz,80MHz)	1TX, 1RX
802.11n(20MHz,40MHz) / ac(20MHz,40MHz,80MHz)	2TX, 2RX

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

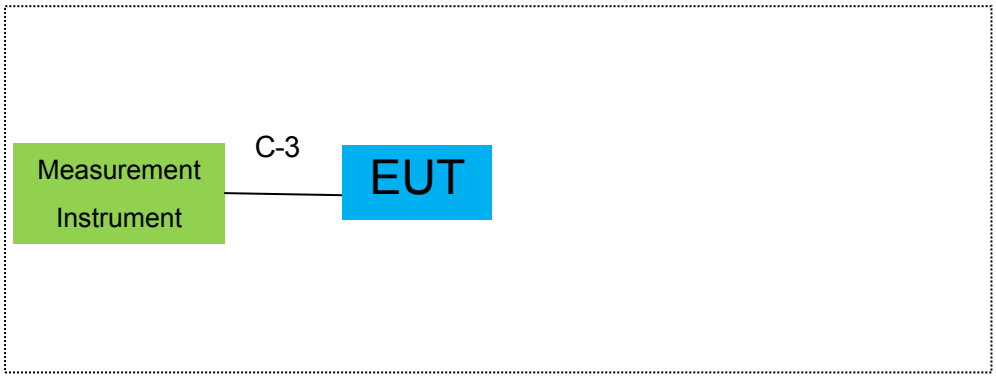
For AC Conducted Emission Test Cases



For Radiated Test Cases



For Conducted Test Cases



Note: 1. The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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.

Item	Equipment	Model/Type No.	Series No.	Note
AE-1	Adapter	TEKA-TD120200US	N/A	Peripherals
AE-2	Monitor	N/A	N/A	Peripherals
AE-3	Remote control	N/A	N/A	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	Power cable	NO	NO	1.2m
C-2	HDMI cable	NO	NO	1.0m
C-3	RF Cable	YES	NO	0.1m

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.
(3) During the battery power test, the battery is fully charged.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation& Conducted Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Aglient	E4407B	MY45108040	2021.04.27	2022.04.26	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2021.07.01	2022.06.30	1 year
3	Spectrum Analyzer	R&S	FSV40	101417	2021.07.01	2022.06.30	1 year
4	Test Receiver	R&S	ESPI7	101318	2021.04.27	2022.04.26	1 year
5	Bilog Antenna	TESEQ	CBL6111D	31216	2021.03.29	2022.03.28	1 year
6	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
7	Horn Antenna	EM	EM-AH-10180	2011071402	2021.03.29	2022.03.28	1 year
8	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	803	2021.11.07	2022.11.06	1 year
9	Amplifier	EMC	EMC051835SE	980246	2021.07.01	2022.06.30	1 year
10	Active Loop Antenna	SCHWARZBECK	FMZB 1519 B	055	2021.11.07	2022.11.06	1 year
11	Power Meter	DARE	RPR3006W	15I00041SNO84	2021.07.01	2022.06.30	1 year
12	Test Cable (9KHz-30MHz)	N/A	R-01	N/A	2019.08.06	2022.08.05	3 year
13	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2019.08.06	2022.08.05	3 year
14	High Test Cable(1G-40GHz)	N/A	R-03	N/A	2019.06.28	2022.06.27	3 year
15	High Test Cable(1G-40GHz)	N/A	R-04	N/A	2019.08.06	2022.08.05	3 year
16	Filter	TRILTHIC	2400MHz	29	2021.07.01	2022.06.30	1 year
17	temporary antenna connector (Note)	NTS	R001	N/A	N/A	N/A	N/A

Note:
We will use the temporary antenna connector (soldered on the PCB board) When conducted test
And this temporary antenna connector is listed within the instrument list

AC Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2021.04.27	2022.04.26	1 year
2	LISN	R&S	ENV216	101313	2021.04.27	2022.04.26	1 year
3	LISN	SCHWARZBECK	NNLK 8129	8129245	2021.04.27	2022.04.26	1 year
4	50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200983704	2020.05.11	2023.05.10	3 year
5	Test Cable (9KHz-30MHz)	N/A	C01	N/A	2020.05.11	2023.05.10	3 year
6	Test Cable (9KHz-30MHz)	N/A	C02	N/A	2020.05.11	2023.05.10	3 year
7	Test Cable (9KHz-30MHz)	N/A	C03	N/A	2020.05.11	2023.05.10	3 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& Aux Equipment which is scheduled for calibration every 3 years.

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 APPLICABLE STANDARD

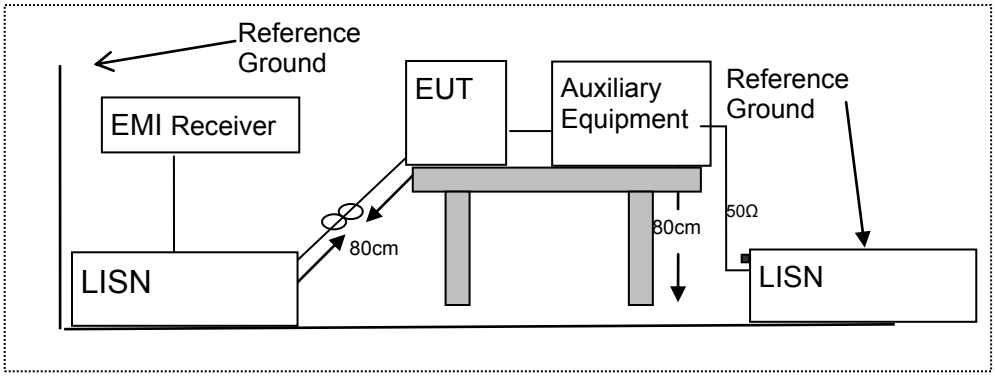
According to FCC Part 15.207(a)

3.1.2 CONFORMANCE LIMIT

Frequency(MHz)	Conducted Emission Limit	
	Quasi-peak	Average
0.15-0.5	66-56*	56-46*
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. *Decreases with the logarithm of the frequency
2. The lower limit shall apply at the transition frequencies
3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3.1.3 TEST CONFIGURATION



3.1.4 TEST PROCEDURE

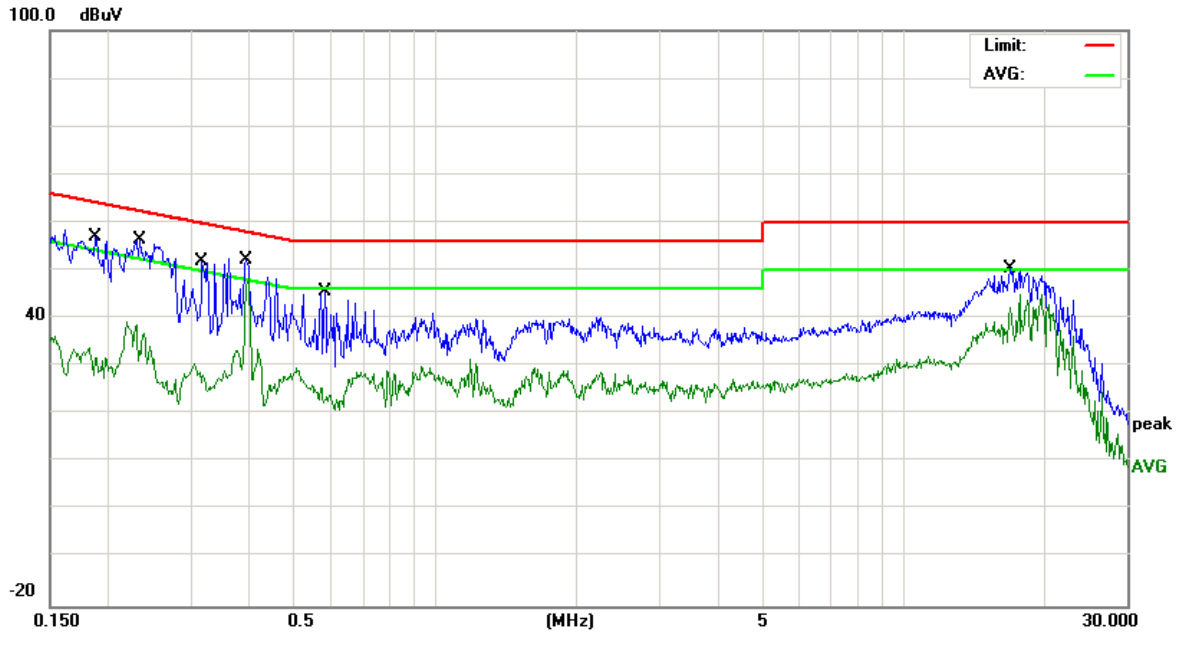
According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room.
2. The EUT was placed on a table which is 0.8m above ground plane.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40cm long.
5. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
6. LISN at least 80 cm from nearest part of EUT chassis.
7. The frequency range from 150KHz to 30MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth(IF bandwidth=9KHz) with Maximum Hold Mode
9. For the actual test configuration, please refer to the related Item –EUT Test Photos.

EUT：	Smart Speaker	Model Name. ：	KA1
Temperature：	23.5 ℃	Relative Humidity：	45%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	DC 12V frm Adapter AC 120V/60Hz	Test Mode：	Mode 1(5.2G)

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1872	47.27	9.66	56.93	64.16	-7.23	QP
0.1872	22.24	9.66	31.90	54.16	-22.26	AVG
0.2340	26.31	9.63	35.94	52.30	-16.36	AVG
0.2340	46.83	9.63	56.46	62.30	-5.84	QP
0.3140	19.12	9.63	28.75	49.86	-21.11	AVG
0.3140	42.15	9.63	51.78	59.86	-8.08	QP
0.3940	42.52	9.64	52.16	57.98	-5.82	QP
0.3940	37.74	9.64	47.38	47.98	-0.60	AVG
0.5816	35.96	9.68	45.64	56.00	-10.36	QP
0.5816	13.96	9.68	23.64	46.00	-22.36	AVG
16.9019	40.49	9.84	50.33	60.00	-9.67	QP
16.9019	32.36	9.84	42.20	50.00	-7.80	AVG

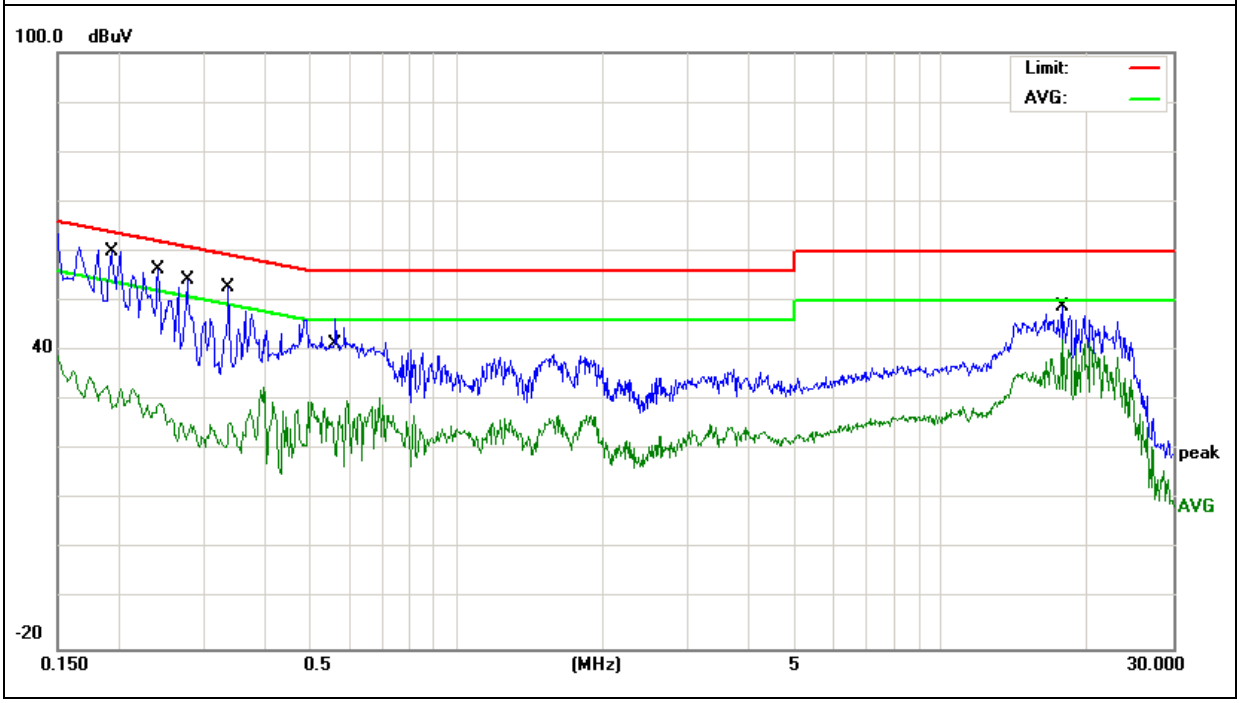
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



EUT：	Smart Speaker	Model Name. ：	KA1
Temperature：	23.5 ℃	Relative Humidity：	45%
Pressure：	1010hPa	Phase：	N
Test Voltage ：	DC 12V from Adapter AC 120V/60Hz	Test Mode：	Mode 1(5.2G)

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1940	22.32	9.63	31.95	53.86	-21.91	AVG
0.1940	50.27	9.63	59.90	63.86	-3.96	QP
0.2419	46.62	9.64	56.26	62.03	-5.77	QP
0.2419	19.64	9.64	29.28	52.03	-22.75	AVG
0.2779	44.52	9.66	54.18	60.88	-6.70	QP
0.2779	15.55	9.66	25.21	50.88	-25.67	AVG
0.3379	43.13	9.68	52.81	59.25	-6.44	QP
0.3379	15.85	9.68	25.53	49.25	-23.72	AVG
0.5540	15.96	9.71	25.67	46.00	-20.33	AVG
0.5540	36.69	9.71	46.40	56.00	-9.60	QP
17.6935	38.99	9.74	48.73	60.00	-11.27	QP
17.6935	32.55	9.74	42.29	50.00	-7.71	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

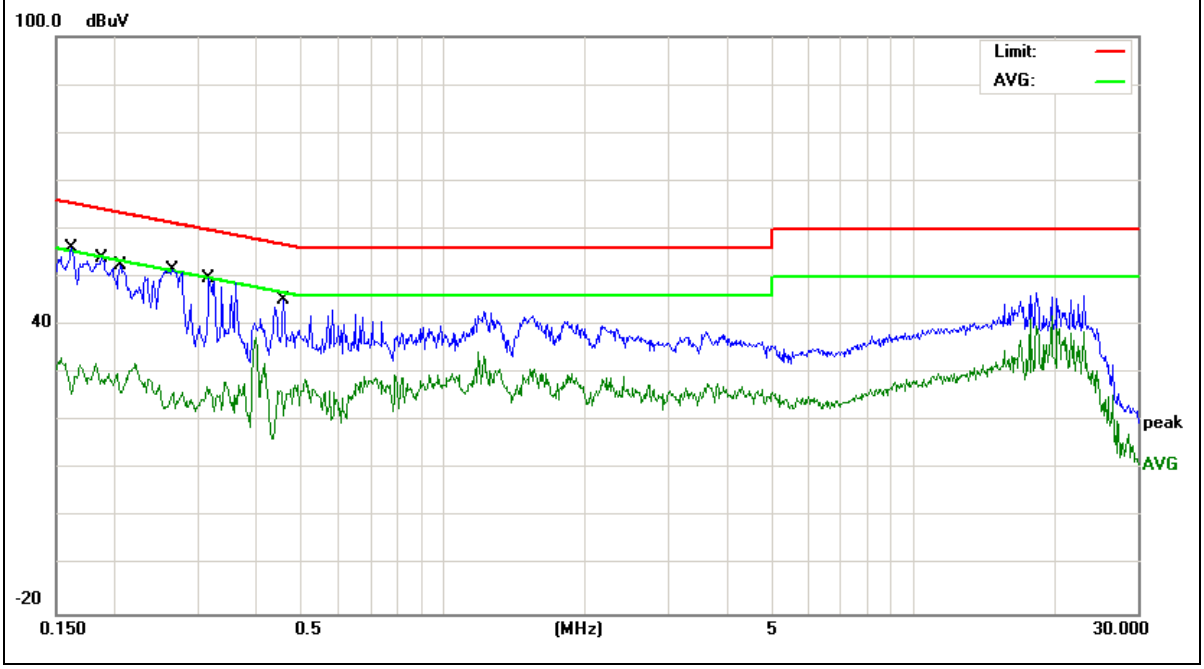


EUT：	Smart Speaker	Model Name. ：	KA1
Temperature：	23.5 ℃	Relative Humidity：	45%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	DC 12V from Adapter AC 120V/60Hz	Test Mode：	Mode 1(5.8G)

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1620	46.23	9.71	55.94	65.36	-9.42	QP
0.1620	16.11	9.71	25.82	55.36	-29.54	AVG
0.1872	44.27	9.66	53.93	64.16	-10.23	QP
0.1872	19.24	9.66	28.90	54.16	-25.26	AVG
0.2058	42.93	9.63	52.56	63.37	-10.81	QP
0.2058	16.33	9.63	25.96	53.37	-27.41	AVG
0.2644	41.79	9.63	51.42	61.29	-9.87	QP
0.2644	16.16	9.63	25.79	51.29	-25.50	AVG
0.3180	40.15	9.63	49.78	59.76	-9.98	QP
0.3180	16.24	9.63	25.87	49.76	-23.89	AVG
0.4580	35.64	9.64	45.28	56.73	-11.45	QP
0.4580	11.75	9.64	21.39	46.73	-25.34	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

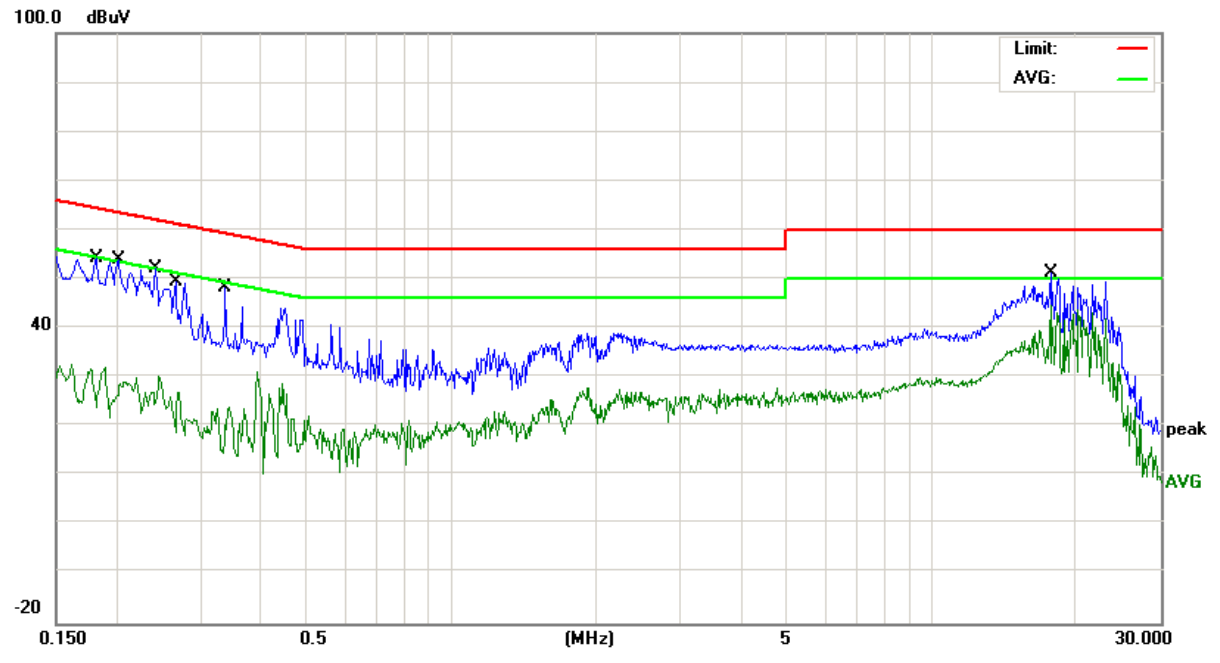


EUT：	Smart Speaker	Model Name. ：	KA1
Temperature：	23.5 ℃	Relative Humidity：	45%
Pressure：	1010hPa	Phase：	N
Test Voltage ：	DC 12V from Adapter AC 120V/60Hz	Test Mode：	Mode 1(5.8G)

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1819	44.55	9.63	54.18	64.39	-10.21	QP
0.1819	16.46	9.63	26.09	54.39	-28.30	AVG
0.2028	43.38	9.63	53.01	63.49	-10.48	QP
0.2028	18.47	9.63	28.10	53.49	-25.39	AVG
0.2419	42.62	9.64	52.26	62.03	-9.77	QP
0.2419	15.28	9.64	24.92	52.03	-27.11	AVG
0.2660	39.75	9.65	49.40	61.24	-11.84	QP
0.2660	13.62	9.65	23.27	51.24	-27.97	AVG
0.3379	38.63	9.68	48.31	59.25	-10.94	QP
0.3379	9.85	9.68	19.53	49.25	-29.72	AVG
17.5732	41.49	9.74	51.23	60.00	-8.77	QP
17.5732	28.79	9.74	38.53	50.00	-11.47	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 APPLICABLE STANDARD

According to FCC Part 15.407(b)(9) and 15.209

3.2.2 CONFORMANCE LIMIT

According to FCC Part 15.407(b) (9): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
According to FCC Part15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log (uV/m)	300
0.490~1.705	24000/F(KHz)	20 log (uV/m)	30
1.705~30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Limits of Radiated Emission Measurement(Above 1000MHz)

Frequency(MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

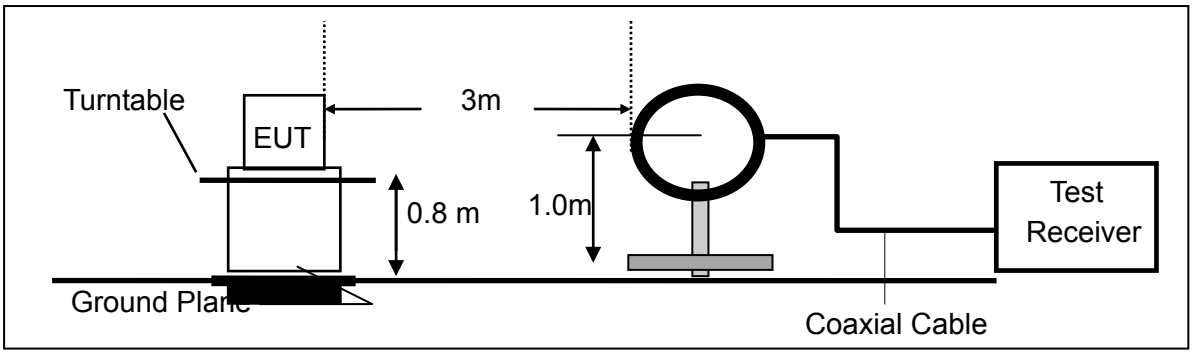
Remark :1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. For Frequency 9kHz~30MHz:
Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.
For Frequency above 30MHz:
Distance extrapolation factor =20log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.

3.2.3 MEASURING INSTRUMENTS

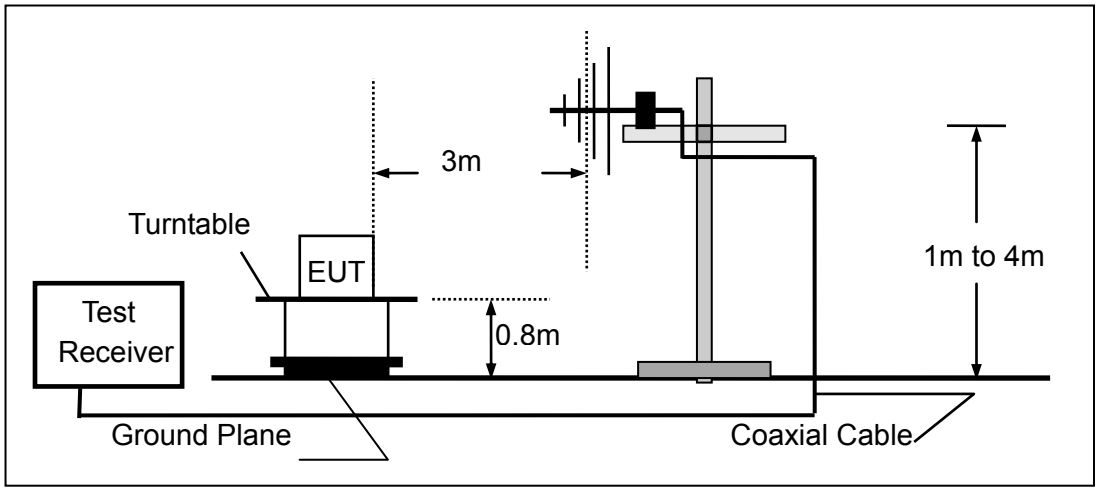
The Measuring equipment is listed in the section 6.3 of this test report.

3.2.4 TEST CONFIGURATION

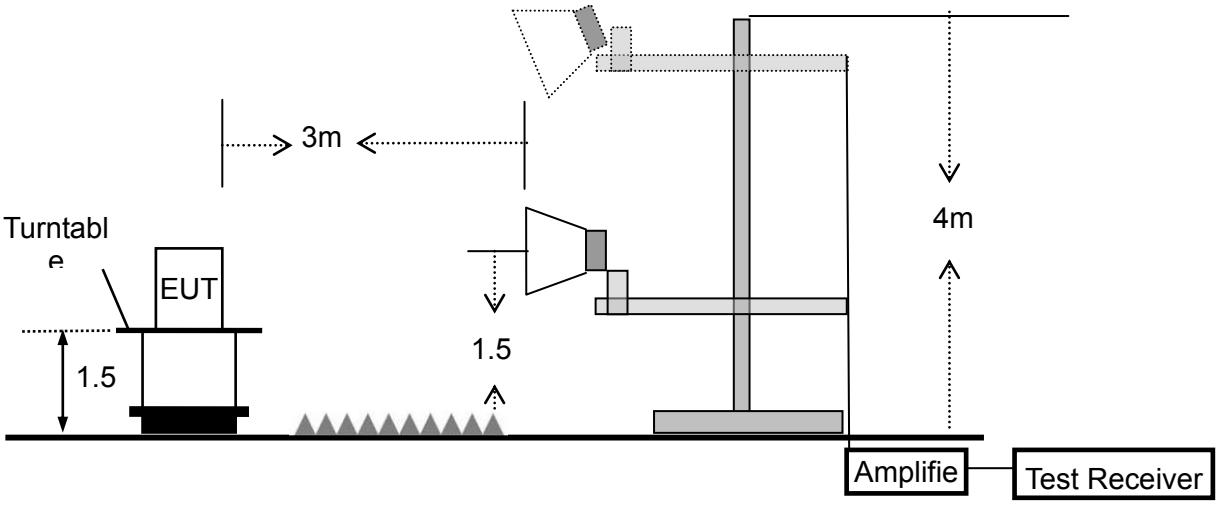
(a)For radiated emissions below 30MHz



(b)For radiated emissions from 30MHz to 1000MHz



(c) For radiated emissions above 1000MHz



3.2.5 TEST PROCEDURE

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.
This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT.
Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] =10*lg(100 [kHz]/narrower RBW [kHz]). , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

3.2.6 TEST RESULTS (9KHZ – 30 MHZ)

EUT：	Smart Speaker	Model Name ：	KA1
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	N/A
--	--	--	--	N/A

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

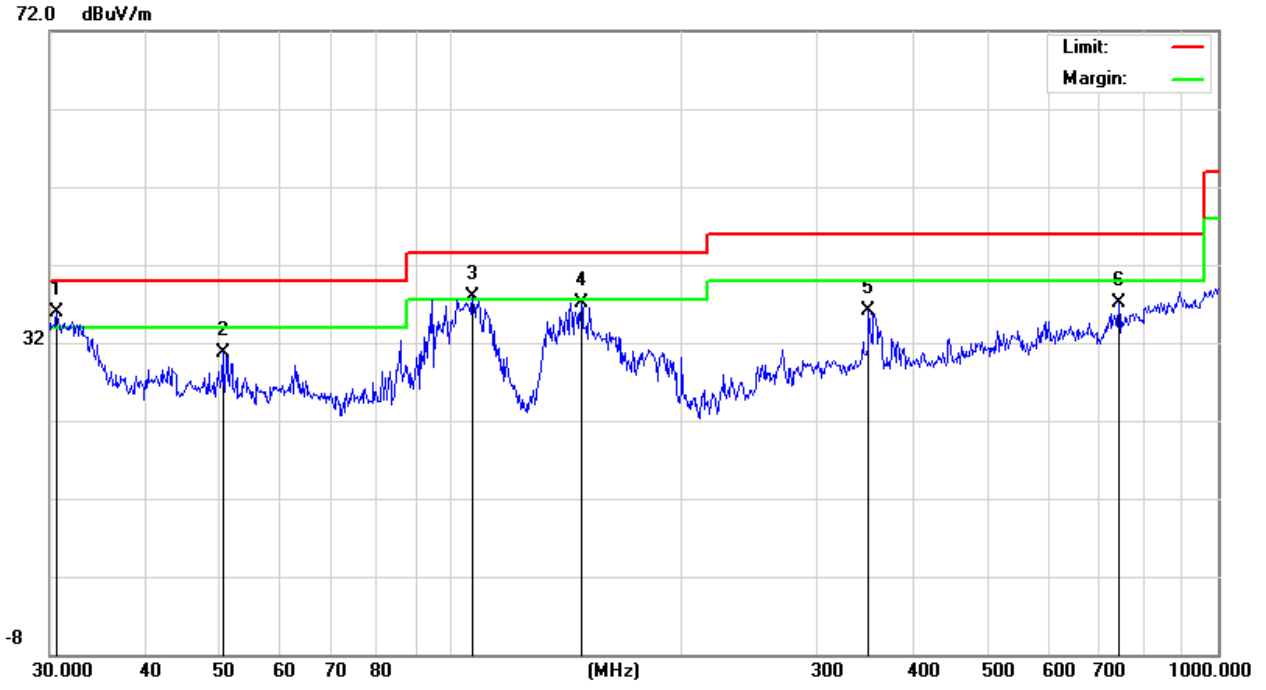
3.2.7 TEST RESULTS (30MHZ – 1GHZ)

EUT：	Smart Speaker	Model Name ：	KA1
Temperature：	25.2	Relative Humidity：	55
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX(5.2G)- 802.11n20 MIMO(Low CH)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	30.6371	11.34	24.62	35.96	40.00	-4.04	QP
V	50.4089	16.31	14.49	30.80	40.00	-9.20	QP
V	106.7587	21.05	16.80	37.85	43.50	-5.65	QP
V	147.9214	19.24	17.95	37.19	43.50	-6.31	QP
V	350.4768	14.13	21.95	36.08	46.00	-9.92	QP
V	742.2586	8.88	28.29	37.17	46.00	-8.83	QP

Remark:

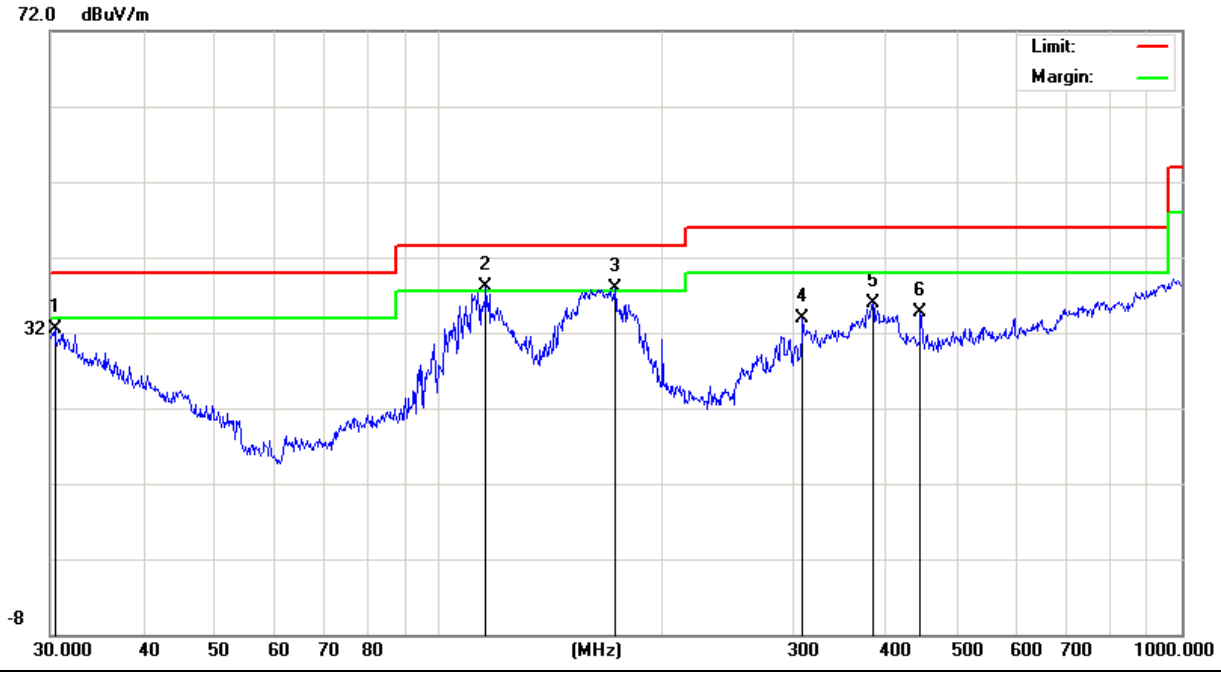
Emission Level= Meter Reading+ Factor, Margin= Emission Level - Limit



Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	30.4237	7.58	24.84	32.42	40.00	-7.58	QP
H	115.7256	20.55	17.51	38.06	43.50	-5.44	QP
H	172.5988	21.70	16.17	37.87	43.50	-5.63	QP
H	308.9125	13.82	20.09	33.91	46.00	-12.09	QP
H	383.9318	13.47	22.51	35.98	46.00	-10.02	QP
H	444.8514	10.86	23.89	34.75	46.00	-11.25	QP

Remark:

Emission Level= Meter Reading+ Factor, Margin= Emission Level - Limit

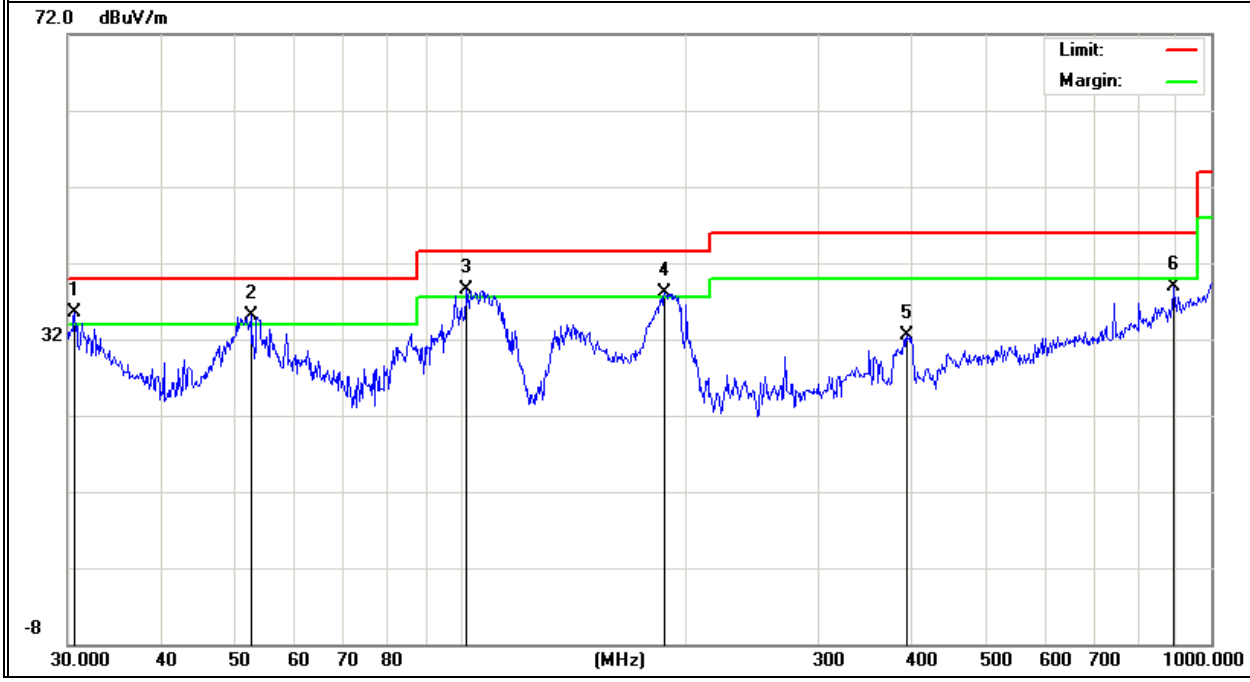


EUT：	Smart Speaker	Model Name ：	KA1
Temperature：	25.2	Relative Humidity：	55
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX(5.8G) - 802.11n20 MIMO(Low CH)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	30.6371	10.84	24.62	35.46	40.00	-4.54	QP
V	52.5752	21.35	13.69	35.04	40.00	-4.96	QP
V	102.0014	22.08	16.41	38.49	43.50	-5.01	QP
V	187.0954	22.63	15.51	38.14	43.50	-5.36	QP
V	393.4723	9.90	22.65	32.55	46.00	-13.45	QP
V	890.7278	8.58	30.33	38.91	46.00	-7.09	QP

Remark:

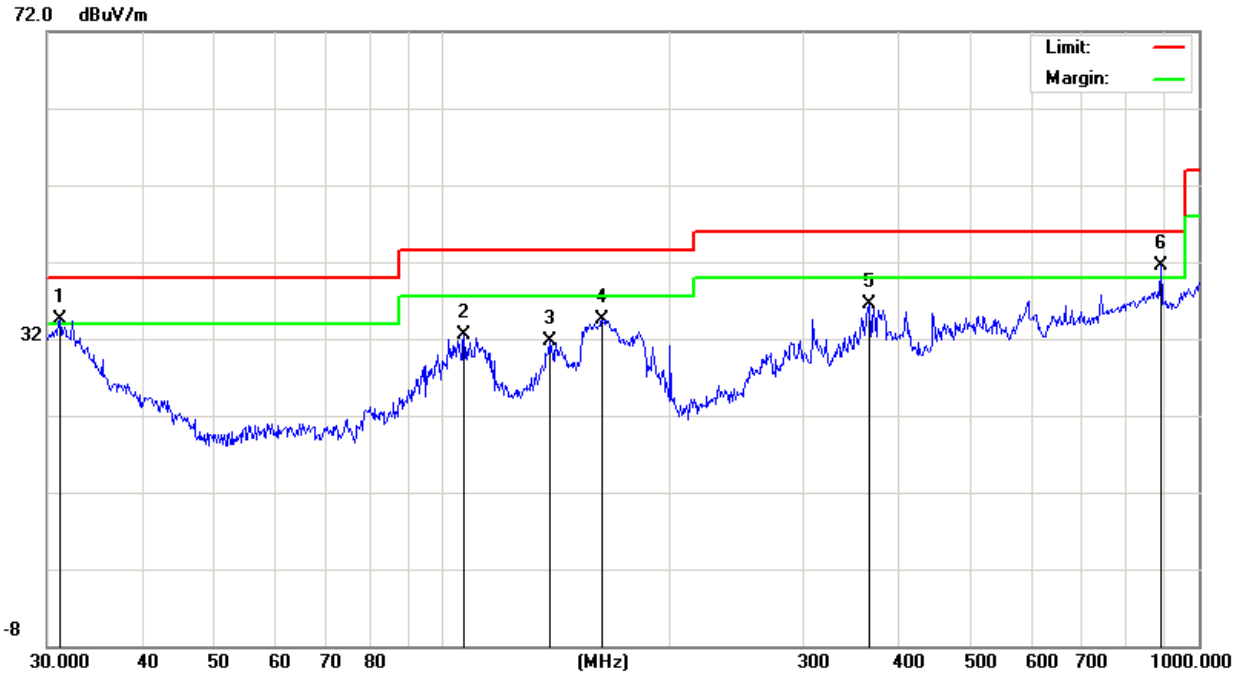
Emission Level= Meter Reading+ Factor, Margin= Emission Level - Limit



Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	31.1798	10.39	24.02	34.41	40.00	-5.59	QP
H	106.7587	15.64	16.80	32.44	43.50	-11.06	QP
H	138.3873	13.19	18.45	31.64	43.50	-11.86	QP
H	162.6106	17.12	17.34	34.46	43.50	-9.04	QP
H	366.8231	14.58	21.92	36.50	46.00	-9.50	QP
H	890.7278	11.12	30.33	41.45	46.00	-4.55	QP

Remark:

Emission Level= Meter Reading+ Factor, Margin= Emission Level - Limit



Note: All modes have been tested, just the the worst mode has been recorded in the report.

3.2.8 TEST RESULTS (1GHz-18GHz)

EUT：	Smart Speaker	Model Name. ：	KA1
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX(5.2G) - 802.11n20 MIMO mode_5180~5240MHz		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5180 MHz)-Above 1G									
Vertical	3694.45	61.93	5.94	35.40	44.00	59.27	74.00	-14.73	Pk
Vertical	3694.60	42.68	5.94	35.40	44.00	40.02	54.00	-13.98	AV
Vertical	10360.49	58.64	8.46	39.75	44.50	62.35	68.20	-5.85	Pk
Vertical	15540.66	61.36	10.12	38.80	44.10	66.18	74.00	-7.82	Pk
Vertical	15540.67	39.88	10.12	38.80	42.70	46.10	54.00	-7.90	AV
Horizontal	3713.49	63.70	5.94	35.18	44.00	60.82	74.00	-13.18	Pk
Horizontal	3713.25	44.22	5.94	35.18	44.00	41.34	54.00	-12.66	AV
Horizontal	10360.89	59.22	8.46	38.71	44.50	61.89	68.20	-6.31	Pk
Horizontal	15540.69	57.86	10.12	38.38	44.10	62.26	74.00	-11.74	Pk
Horizontal	15540.89	41.28	10.12	38.38	44.10	45.68	54.00	-8.32	AV
Middle Channel (5200 MHz)-Above 1G									
Vertical	3624.49	59.06	6.48	36.35	44.05	57.84	74.00	-16.16	Pk
Vertical	3624.48	43.48	6.48	36.35	44.05	42.26	54.00	-11.74	AV
Vertical	10400.67	60.10	8.47	37.88	44.51	61.94	68.20	-6.26	Pk
Vertical	15600.66	60.40	10.12	38.80	44.10	65.22	74.00	-8.78	Pk
Vertical	15600.70	39.77	10.12	38.80	42.70	45.99	54.00	-8.01	AV
Horizontal	4202.62	58.43	6.48	36.37	44.05	57.23	74.00	-16.77	Pk
Horizontal	4202.63	45.16	6.48	36.37	44.05	43.96	54.00	-10.04	AV
Horizontal	10400.40	61.66	8.47	38.64	44.50	64.27	68.20	-3.93	Pk
Horizontal	15600.84	60.37	10.12	38.38	44.10	64.77	74.00	-9.23	Pk
Horizontal	15600.98	41.56	10.12	38.38	44.10	45.96	54.00	-8.04	AV
High Channel (5240 MHz)-Above 1G									
Vertical	4598.22	64.20	7.10	37.24	43.50	65.04	74.00	-8.96	Pk
Vertical	4598.04	43.51	7.10	37.24	43.50	44.35	54.00	-9.65	AV
Vertical	10480.78	60.56	8.46	37.68	44.50	62.20	68.20	-6.00	Pk
Vertical	15720.54	61.77	10.12	38.80	44.10	66.59	74.00	-7.41	Pk
Vertical	15720.69	40.64	10.12	38.80	42.70	46.86	54.00	-7.14	AV
Horizontal	4589.81	61.45	7.10	37.24	43.50	62.29	74.00	-11.71	Pk
Horizontal	4589.81	41.77	7.10	37.24	43.50	42.61	54.00	-11.39	AV
Horizontal	10480.87	62.59	8.46	38.57	44.50	65.12	68.20	-3.08	Pk
Horizontal	15720.55	59.93	10.12	38.38	44.10	64.33	74.00	-9.67	Pk
Horizontal	15720.46	43.42	10.12	38.38	44.10	47.82	54.00	-6.18	AV

Note: ”802.11n20 MIMO” mode is the worst mode. PK value is lower than the Average value limit, So average didn't record.

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

EUT：	Smart Speaker	Model Name. ：	KA1
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX (5.8G) -- 802.11n20 MIMO_5745~5825MHz		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)-Above 1G									
Vertical	5122.99	64.01	5.94	35.40	44.00	61.35	74.00	-12.65	Pk
Vertical	5122.91	45.91	5.94	35.40	44.00	43.25	54.00	-10.75	AV
Vertical	11491.18	60.51	8.46	39.75	44.50	64.22	74.00	-9.78	Pk
Vertical	11490.85	43.62	8.46	39.75	44.50	47.33	54.00	-6.67	AV
Vertical	17236.07	52.50	10.12	38.80	44.10	57.32	68.20	-10.88	Pk
Horizontal	5166.89	60.03	5.94	35.18	44.00	57.15	68.20	-11.05	Pk
Horizontal	11490.88	59.34	8.46	38.71	44.50	62.01	74.00	-11.99	Pk
Horizontal	11491.02	42.84	8.46	38.71	44.50	45.51	54.00	-8.49	AV
Horizontal	17235.85	51.72	10.12	38.38	44.10	56.12	68.20	-12.08	Pk
middle Channel (5785 MHz)-Above 1G									
Vertical	5433.78	62.84	6.48	36.35	44.05	61.62	74.00	-12.38	Pk
Vertical	5433.82	43.22	6.48	36.35	44.05	42.00	54.00	-12.00	AV
Vertical	11570.88	60.73	8.47	37.88	44.51	62.57	74.00	-11.43	Pk
Vertical	11570.66	43.34	8.47	37.88	44.51	45.18	54.00	-8.82	AV
Vertical	17356.24	56.05	10.12	38.80	44.10	60.87	68.20	-7.33	Pk
Horizontal	4866.87	60.44	6.48	36.37	44.05	59.24	74.00	-14.76	Pk
Horizontal	4867.01	43.30	6.48	36.37	44.05	42.10	54.00	-11.90	AV
Horizontal	11570.73	63.06	8.47	38.64	44.50	65.67	74.00	-8.33	Pk
Horizontal	11570.58	44.24	8.47	38.64	44.50	46.85	54.00	-7.15	AV
Horizontal	17355.83	56.80	10.12	38.38	44.10	61.20	68.20	-7.00	Pk
High Channel (5825 MHz)-Above 1G									
Vertical	5243.90	62.05	7.10	37.24	43.50	62.89	68.20	-5.31	Pk
Vertical	11651.81	61.95	8.46	37.68	44.50	63.59	74.00	-10.41	Pk
Vertical	11651.57	43.27	8.46	37.68	44.50	44.91	54.00	-9.09	AV
Vertical	17473.07	60.82	10.12	38.80	44.10	65.64	68.20	-2.56	Pk
Vertical	17472.82	60.61	10.12	38.80	44.10	65.43	68.20	-2.77	Pk
Horizontal	5284.49	60.37	7.10	37.24	43.50	61.21	68.20	-6.99	Pk
Horizontal	11651.91	60.36	8.46	38.57	44.50	62.89	74.00	-11.11	Pk
Horizontal	11651.80	42.01	8.46	38.57	44.50	44.54	54.00	-9.46	AV
Horizontal	17473.91	58.32	10.12	38.38	44.10	62.72	68.20	-5.48	Pk
Horizontal	17474.02	58.17	10.12	38.38	44.10	62.57	68.20	-5.63	Pk
Horizontal	10640.47	44.51	8.03	38.57	44.50	46.61	54.00	-7.39	AV
Horizontal	15961.16	61.60	9.81	38.38	44.10	65.70	74.00	-8.30	Pk
Horizontal	15961.32	44.31	9.96	38.38	44.10	48.55	54.00	-5.45	AV

Note:"802.11n20 MIMO" mode is the worst mode. PK value is lower than the Average value limit, So average didn't record.

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value

has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

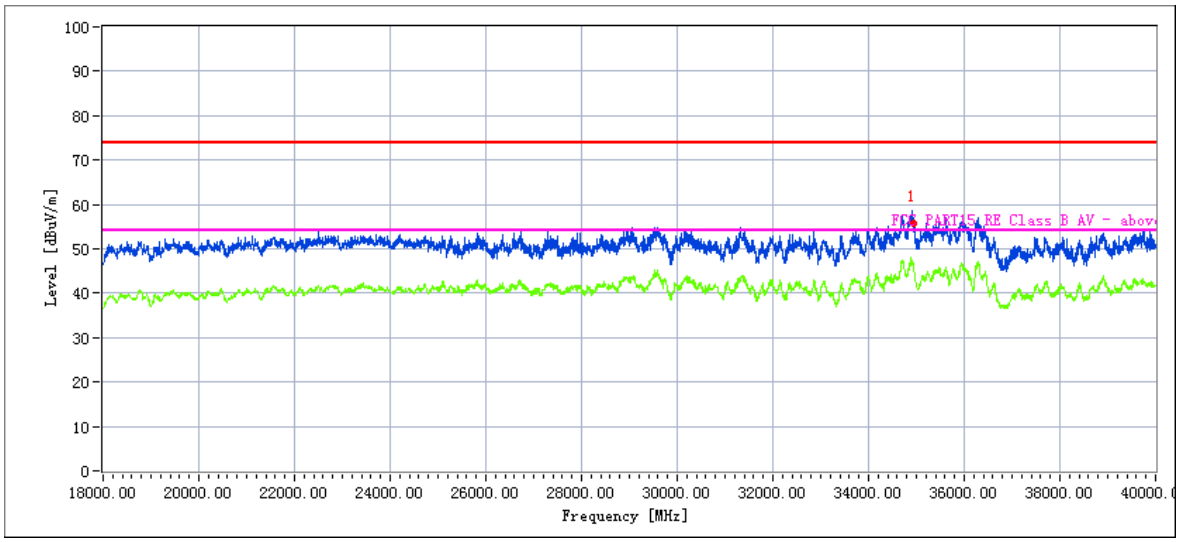
3.2.10 TEST ESULTS (18GHz-40GHz)

EUT：	Smart Speaker	Model Name. ：	KA1
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX (5.2G)-802.11n20 MIMO 5180MHz~5240MHz; TX (5.8G)-802.11n20 MIMO 5745MHz~5825MHz		

All the modulation modes have been tested, and the worst result was report as below:

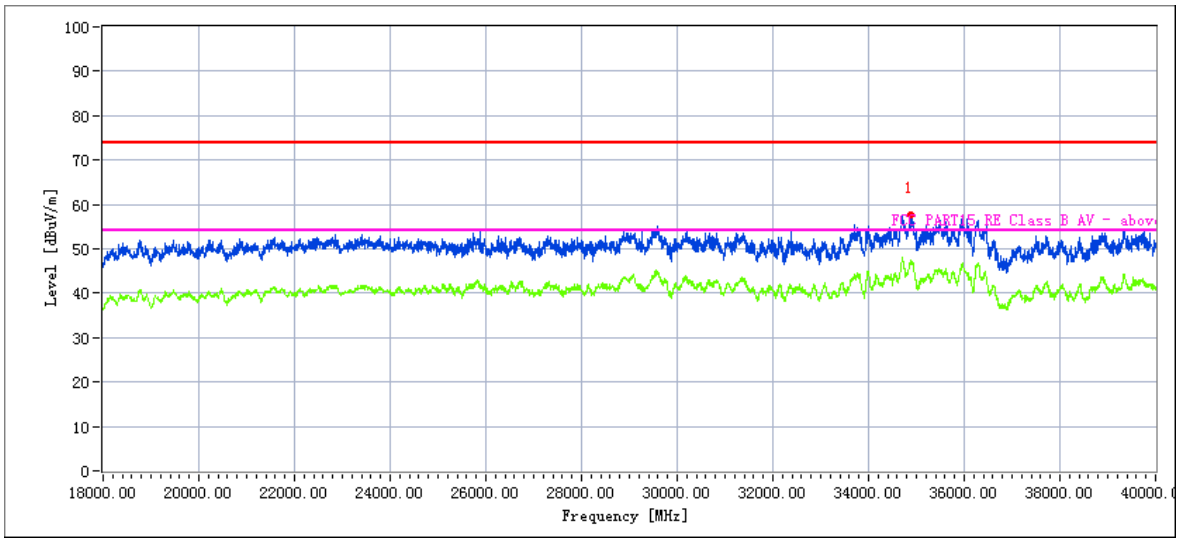
Low Channel (5180 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
39768.98	39.01	20.09	44.07	43.48	59.69	68.2	8.51	Peak
39766.85	27.47	20.09	44.04	43.48	48.12	54	5.88	AVG

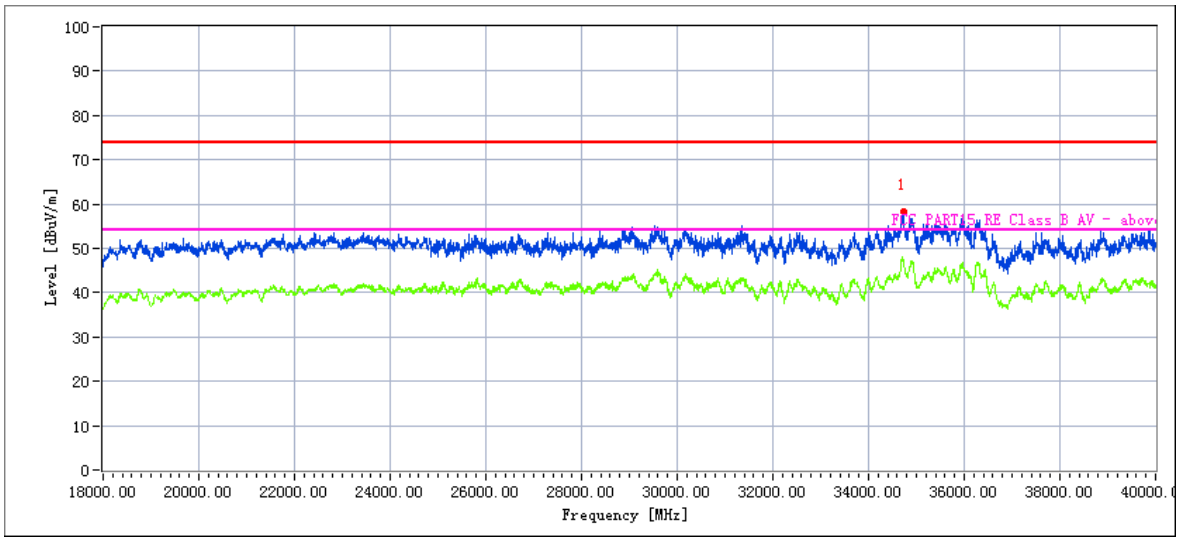
Vertical



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
39769.306	36.16	20.09	44.07	43.48	56.84	68.2	11.36	Peak
39769.135	27.49	20.09	44.04	43.48	48.14	54	5.86	AVG

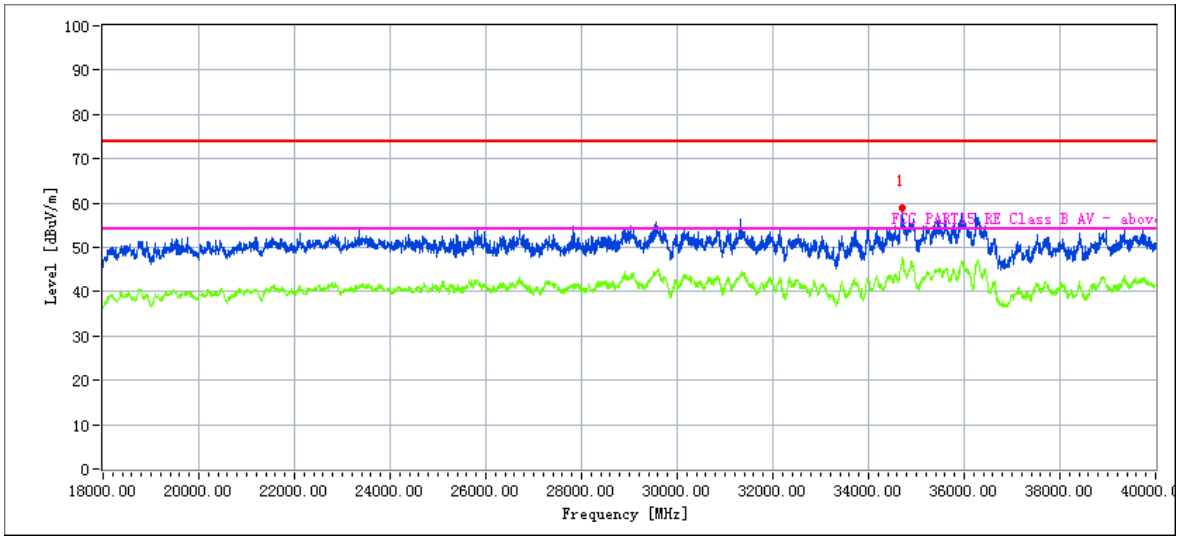
High Channel (5240 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
35628	40.96	19.11	42.73	44.61	58.19	68.2	10.01	Peak
35596.546	31.36	19.11	42.73	44.61	48.59	54	5.41	AVG

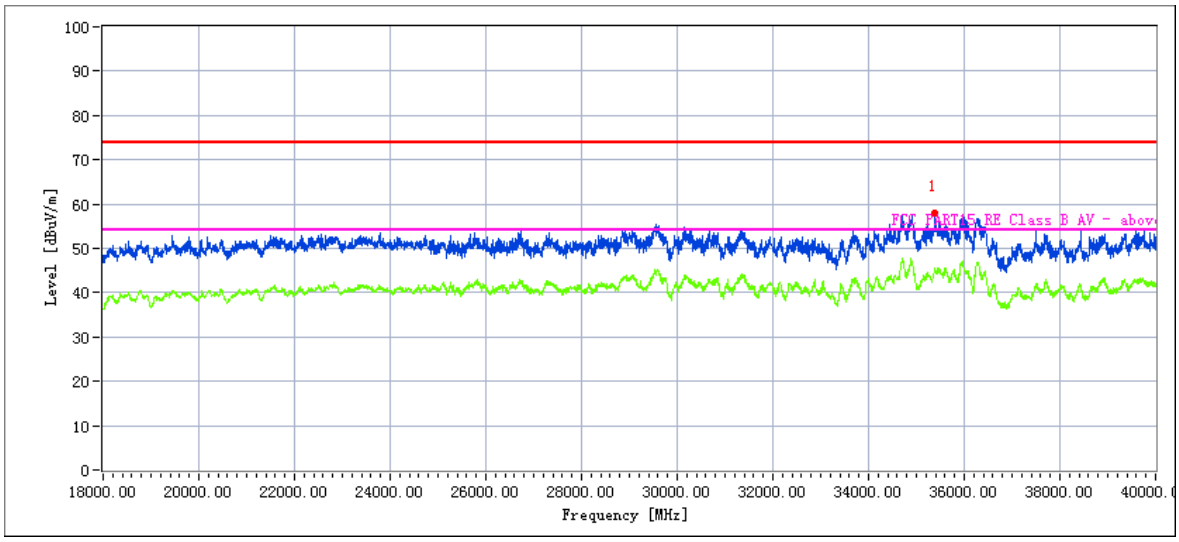
Vertical



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
39769.136	37.25	20.09	44.07	43.48	57.93	68.2	10.27	Peak
39769.186	25.5	20.09	44.04	43.48	46.15	54	7.85	AVG

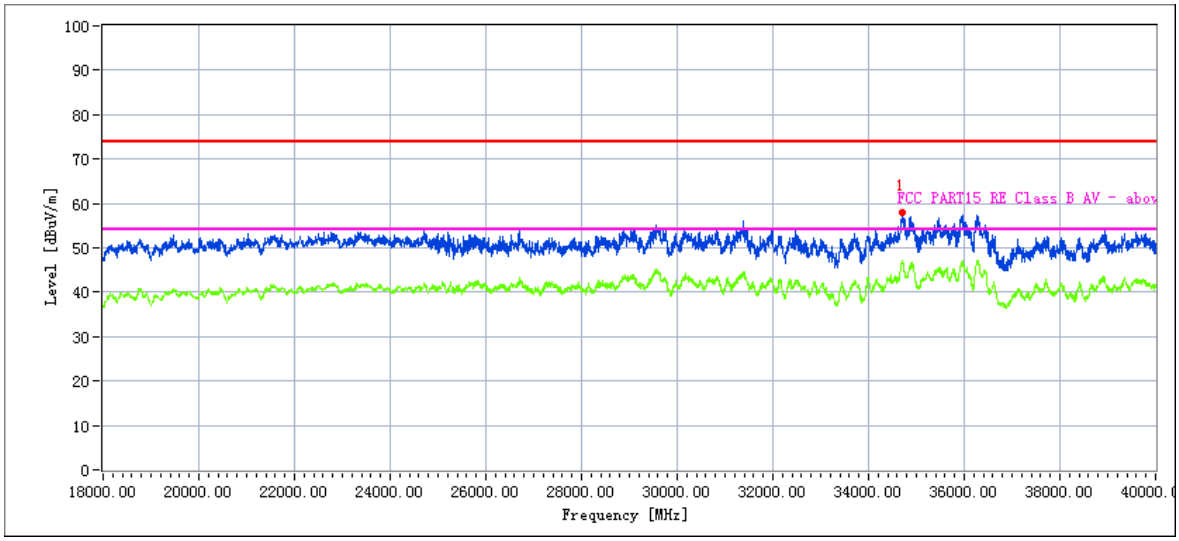
Low Channel (5745 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
39669.944	38.61	20.09	44.16	43.48	59.38	68.2	8.82	Peak
39669.654	29.56	20.09	44.16	43.48	50.33	54	3.67	AVG

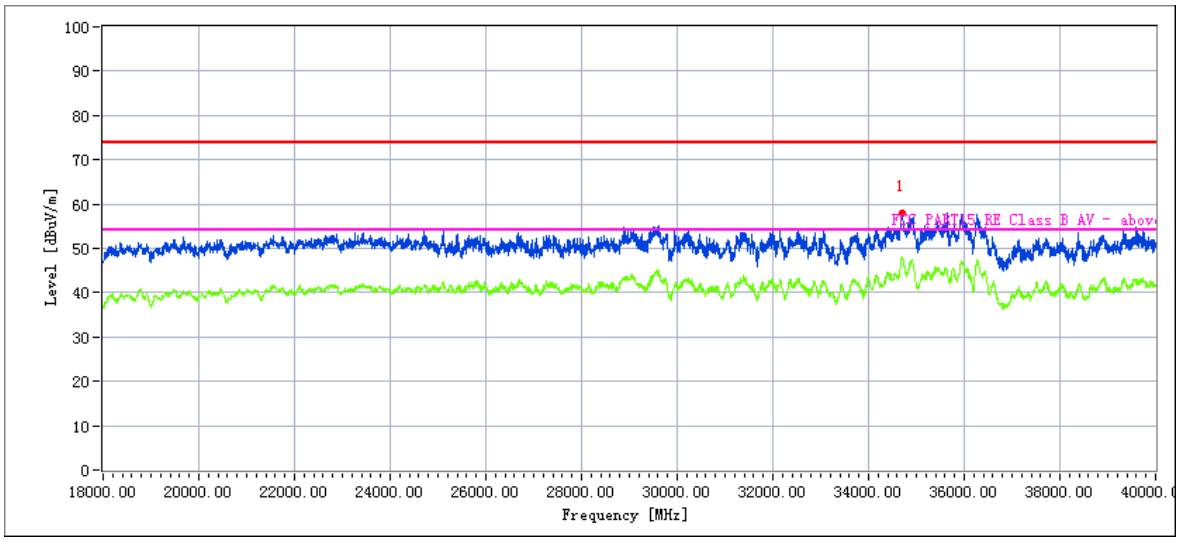
Vertical



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
39731.182	37.61	20.06	44.07	43.21	58.53	68.2	9.67	Peak
39731.302	28.47	20.06	44.07	43.21	49.39	54	4.61	AVG

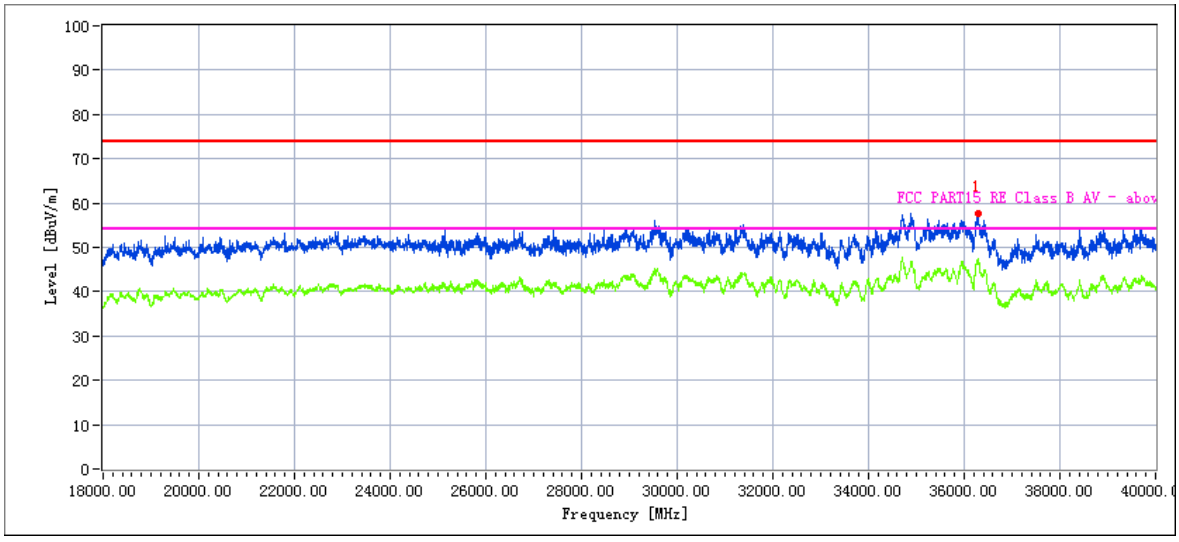
High Channel (5825 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
35628.084	39.42	19.11	42.63	43.48	57.68	68.2	10.52	Peak
35635.578	30.15	19.12	42.63	43.48	48.42	54	5.58	AVG

Vertical



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
39821.583	38.53	20.1	44.1	43.22	59.51	68.2	8.69	Peak
39821.463	29.22	20.1	44.1	43.22	50.2	54	3.8	AVG

3.2.11 Spurious Emission in Restricted Band 4.5GHz~5.150 GHz& 5.350GHz~5460GHz

EUT：	Smart Speaker	Model Name. ：	KA1
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX (5.2G)-802.11n20 MIMO 5150MHz~5250MHz,		

All the modulation modes have been tested, The report just record the worst data mode.

Frequency	Meter Reading	Cable Loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector	Comment
(MHz)	(dBμV)	(dB)	dB/m	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type	
5.2G WIFI-802.11n20 MIMO Mode									
4500	56.26	5.2	35.6	44.2	52.86	74	-21.14	Pk	Horizontal
4500	47.48	5.2	35.6	44.2	44.08	54	-9.92	AV	Horizontal
4500	59.38	5.2	35.6	44.2	55.98	74	-18.02	Pk	Vertical
4500	46.17	5.2	35.6	44.2	42.77	54	-11.23	AV	Vertical
5150	70.38	5.36	35.66	44.22	67.18	74	-6.82	Pk	Horizontal
5150	80.00	5.36	35.66	44.22	76.8	54	22.8	AV	Horizontal
5150	57.03	5.36	35.66	44.22	53.83	74	-20.17	Pk	Vertical
5150	79.75	5.36	35.66	44.22	76.55	54	22.55	AV	Vertical
5350	65.53	5.68	35.68	44.22	62.67	74	-11.33	Pk	Vertical
5350	47.44	5.68	35.68	44.22	44.58	54	-9.42	AV	Vertical
5350	60.97	5.68	35.68	44.22	58.11	74	-15.89	Pk	Horizontal
5350	45.70	5.68	35.68	44.22	42.84	54	-11.16	AV	Horizontal

Note: (1) Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor

(2) “802.11n20 MIMO” mode is the worst mode. When PK value is lower than the Average value limit, average don't record.

4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(a)

For the band 5.15-5.25 GHz,

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

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

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

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

For the band 5.725-5.85 GHz

(3)For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

,

4.2 TEST PROCEDURE

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/T, where T is defined in section II.B.I.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10log(1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

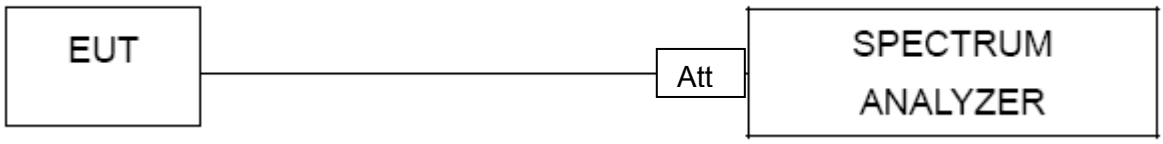
e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHZ is available on nearly all spectrum analyzers.

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP



4.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

4.6 TEST RESULTS

EUT：	Smart Speaker	Model Name ：	KA1
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1015 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX Frequency Band 1 (5150-5250MHz), Band 4 (5745-5825MHz)		

Refer to section 2.2 of this report:

For 5.2G band, 802.11n/ac has MIMO mode. Directional gain=7.21 dBi
7.21dBi>6.0 dBi, so MIMO power spectral density limit=9.79dBm / 1MHz;
For 5.8G band, 802.11n/ac has MIMO mode. Directional gain=7.21 dBi
7.21dBi>6.0 dB i, so MIMO power spectral density limit=28.79dBm / 500kHz;

Test data reference attachment.

5. 26DB & 99% EMISSION BANDWIDTH

5.1 APPLIED PROCEDURES / LIMIT

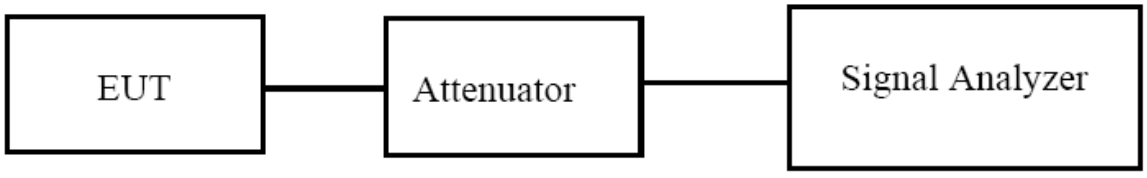
The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band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

5.2 TEST PROCEDURE

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

The following procedure shall be used for measuring (99 %) power bandwidth:

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



5.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.4 TEST RESULTS

EUT：	Smart Speaker	Model Name ：	KA1
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1012 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX Frequency Band 1 (5150-5250MHz), Band 4 (5745-5825MHz)		

Test data reference attachment.

6. MINIMUM 6 DB BANDWIDTH

6.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(e)

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

6.2 TEST PROCEDURE

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

a) Set RBW = 100 kHz.

b) Set the video bandwidth (VBW) ≥ 3 × RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) Sweep = auto couple.

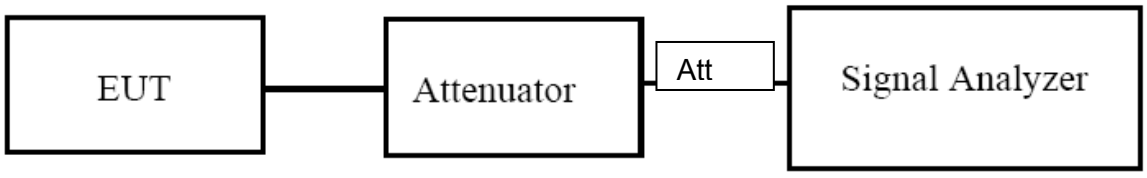
f) Allow the trace to stabilize.

g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULTS

EUT：	Smart Speaker	Model Name ：	KA1
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1012 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX (5G) Mode Frequency Band 4 (5725-5850MHz)		

Test data reference attachment.

7. MAXIMUM CONDUCTED OUTPUT POWER

7.1 PPLIED PROCEDURES / LIMIT

According to FCC §15.407

The maximum conduced output power should not exceed:

Frequency Band(MHz)	Limit
5150~5250	0.25W
5725~5850	1W

7.2 TEST PROCEDURE

· Method PM is Measurement using an RF average power meter. The procedure for this method is as follows:

a) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:

1) The EUT is configured to transmit continuously, or to transmit with a constant duty cycle.

2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.

3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

b) If the transmitter does not transmit continuously, measure the duty cycle D of the transmitter output signal as described in 12.2.

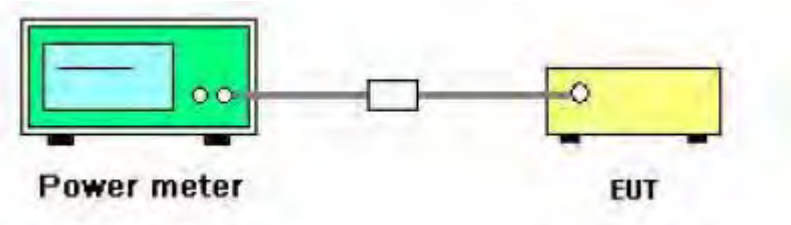
c) Measure the average power of the transmitter. This measurement is an average over both the ON and OFF periods of the transmitter.

d) Adjust the measurement in dBm by adding [10 log (1 / D)], where D is the duty cycle {e.g., [10 log (1 / 0.25)], if the duty cycle is 25%}.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.5 TEST RESULTS

EUT：	Smart Speaker	Model Name ：	KA1
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1012 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX Frequency Band 1 (5150-5250MHz), Band 4 (5745-5825MHz)		

Refer to section 2.2 of this report:
For 5.2G band. Directional gain=4.2dBi; 6.0dBi＞4.2dBi, so conducted power limit= 24dBm.
For 5.8G band. Directional gain=4.2dBi; 6.0dBi＞4.2dBi, so conducted power limit= 30.00dBm.

Test data reference attachment.

8. OUT OF BAND EMISSIONS

8.1 APPLICABLE STANDARD

According to FCC §15.407(b)

Undesirable emission limits. Except as shown in paragraph (b)(9) (10) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.725-5.85 GHz band: For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

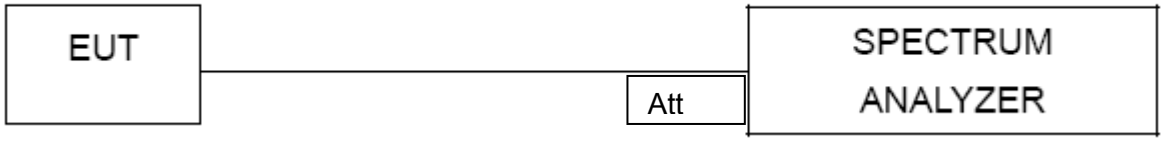
8.2 TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. 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.
5. Repeat above procedures until all measured frequencies were complete.

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

8.6 TEST RESULTS

EUT：	Smart Speaker	Model Name ：	KA1
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1012 hPa	Test Voltage ：	DC 12V

Test data reference attachment.

9. Frequency Stability Measurement

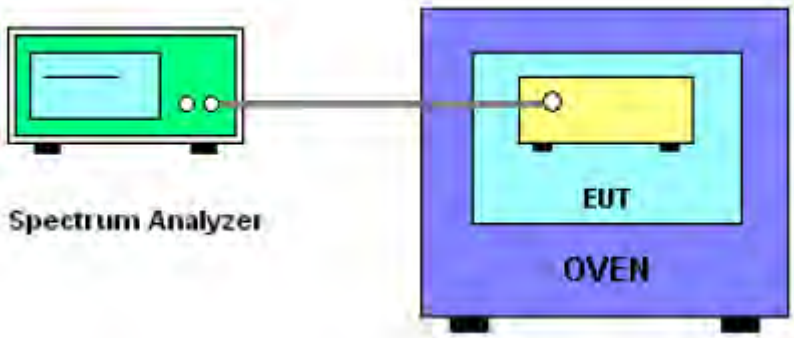
9.1 LIMIT

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

9.2 TEST PROCEDURES

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10_6 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is -20°C~70°C.

9.3 TEST SETUP LAYOUT



9.4 EUT OPERATION DURING TEST

1. The EUT was programmed to be in continuously un-modulation transmitting mode.
2. The has two antennas, and the worst data is Antenna 1, only shown Antenna 1 Plot.

9.5 TEST RESULTS

EUT：	Smart Speaker	Model Name. ：	KA1
Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1012 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX Frequency Band I (5150-5250MHz)		

1(2) Represent the value of antenna 1 and 2, the worst data is Antenna 1 802.11a mode, only shown Antenna 1 802.11a mode data.

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	12.00	5180.0156	5180	0.0156	-3.0116
		V max (V)	13.20	5180.0118	5180	0.0118	-2.2780
		V min (V)	10.80	5180.0286	5180	0.0286	-5.5212
Limits				Within 5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	-20	5180.0044	5180	0.0044	-0.8494
		T (°C)	-10	5180.0085	5180	0.0085	-1.6409
		T (°C)	0	5180.0205	5180	0.0205	-3.9575
		T (°C)	10	5180.0005	5180	0.0005	-0.0965
		T (°C)	20	5180.0166	5180	0.0166	-3.2046
		T (°C)	30	5180.0251	5180	0.0251	-4.8456
		T (°C)	40	5180.0226	5180	0.0226	-4.3629
		T (°C)	50	5180.0050	5180	0.0050	-0.9653
		T (°C)	60	5180.0150	5180	0.0150	-2.8958
		T (°C)	70	5180.0199	5180	0.0199	-3.8417
Limits				Within 5150-5250MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	12.00	5200.0036	5200	0.0036	-0.6923
		V max (V)	13.20	5200.0067	5200	0.0067	-1.2885
		V min (V)	10.80	5200.0252	5200	0.0252	-4.8462
Limits				Within 5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	-20	5200.0254	5200	0.0254	-4.8846
		T (°C)	-10	5200.0081	5200	0.0081	-1.5577
		T (°C)	0	5200.0302	5200	0.0302	-5.8077
		T (°C)	10	5200.0055	5200	0.0055	-1.0577
		T (°C)	20	5200.0288	5200	0.0288	-5.5385
		T (°C)	30	5200.0077	5200	0.0077	-1.4808
		T (°C)	40	5200.0081	5200	0.0081	-1.5577
		T (°C)	50	5200.0264	5200	0.0264	-5.0769
		T (°C)	60	5200.0251	5200	0.0251	-4.8269
		T (°C)	70	5200.0277	5200	0.0277	-5.3269
Limits				Within 5150-5250MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	12.00	5240.0067	5240	0.0067	-1.2786
		V max (V)	13.20	5240.0223	5240	0.0223	-4.2557
		V min (V)	10.80	5240.0032	5240	0.0032	-0.6107
Limits				Within 5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	-20	5240.0139	5240	0.0139	-2.6527
		T (°C)	-10	5240.0258	5240	0.0258	-4.9237
		T (°C)	0	5240.0034	5240	0.0034	-0.6489
		T (°C)	10	5240.0041	5240	0.0041	-0.7824
		T (°C)	20	5240.0027	5240	0.0027	-0.5153
		T (°C)	30	5240.0171	5240	0.0171	-3.2634
		T (°C)	40	5240.0019	5240	0.0019	-0.3626
		T (°C)	50	5240.0154	5240	0.0154	-2.9389
		T (°C)	60	5240.0068	5240	0.0068	-1.2977
		T (°C)	70	5240.0255	5240	0.0255	-4.8664
Limits				Within 5150-5250MHz			
Result				Complies			

EUT：	Smart Speaker	Model Name. ：	KA1
Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1012 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX Frequency(5745-5850MHz)		

1(2) Represent the value of antenna 1 and 2, the worst data is Antenna 1 802.11a mode, only shown Antenna 1 802.11a mode data.

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	12.00	5745.0110	5745	0.01100	-1.9147
		V max (V)	13.20	5745.0399	5745	0.03990	-6.9452
		V min (V)	10.80	5745.014	5745	0.01400	-2.4369
Limits				Within 5745-5850MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	-20	5745.0227	5745	0.02270	-3.9513
		T (°C)	-10	5745.0212	5745	0.02120	-3.6902
		T (°C)	0	5745.0069	5745	0.00690	-1.2010
		T (°C)	10	5745.0025	5745	0.00250	-0.4352
		T (°C)	20	5745.0068	5745	0.00680	-1.1836
		T (°C)	30	5745.0226	5745	0.02260	-3.9339
		T (°C)	40	5745.0052	5745	0.00520	-0.9051
		T (°C)	50	5745.0191	5745	0.01910	-3.3246
		T (°C)	60	5745.0282	5745	0.02820	-4.9086
		T (°C)	70	5745.0125	5745	0.01250	-2.1758
Limits				Within 5745-5850MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	12.00	5785.0269	5785	0.02690	-4.6500
		V max (V)	13.20	5785.0285	5785	0.02850	-4.9265
		V min (V)	10.80	5785.0159	5785	0.01590	-2.7485
Limits				Within 5745-5850MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	-20	5785.0019	5785	0.00190	-0.3284
		T (°C)	-10	5785.0235	5785	0.02350	-4.0622
		T (°C)	0	5785.0032	5785	0.00320	-0.5532
		T (°C)	10	5785.0148	5785	0.01480	-2.5583
		T (°C)	20	5785.0218	5785	0.02180	-3.7684
		T (°C)	30	5785.0211	5785	0.02110	-3.6474
		T (°C)	40	5785.0331	5785	0.03310	-5.7217
		T (°C)	50	5785.0053	5785	0.00530	-0.9162
		T (°C)	60	5785.0298	5785	0.02980	-5.1513
		T (°C)	70	5785.0092	5785	0.00920	-1.5903
Limits				Within 5745-5850MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	12.00	5825.0193	5825	0.01930	-3.3133
		V max (V)	13.20	5825.0111	5825	0.01110	-1.9056
		V min (V)	10.80	5825.0305	5825	0.03050	-5.2361
Limits				Within 5745-5850MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	-20	5825.0248	5825	0.02480	-4.2575
		T (°C)	-10	5825.0310	5825	0.03100	-5.3219
		T (°C)	0	5825.0053	5825	0.00530	-0.9099
		T (°C)	10	5825.0266	5825	0.02660	-4.5665
		T (°C)	20	5825.0316	5825	0.03160	-5.4249
		T (°C)	30	5825.0269	5825	0.02690	-4.6180
		T (°C)	40	5825.0187	5825	0.01870	-3.2103
		T (°C)	50	5825.0051	5825	0.00510	-0.8755
		T (°C)	60	5825.0072	5825	0.00720	-1.2361
		T (°C)	70	5825.0116	5825	0.01160	-1.9914
Limits				Within 5745-5850MHz			
Result				Complies			

10. ANTENNA REQUIREMENT

10.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

10.2 EUT ANTENNA

The EUT antenna is permanent attached Antenna: FPCB Antenna (Gain:4.2dBi),
It comply with the standard requirement.

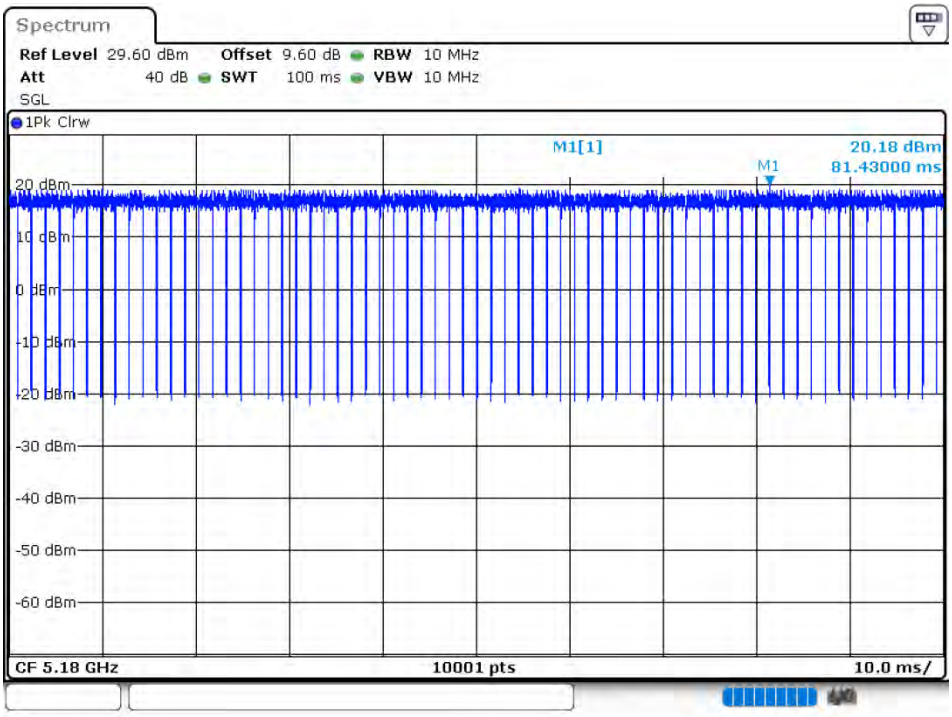
11. TEST RESULT

5.2G WIFI

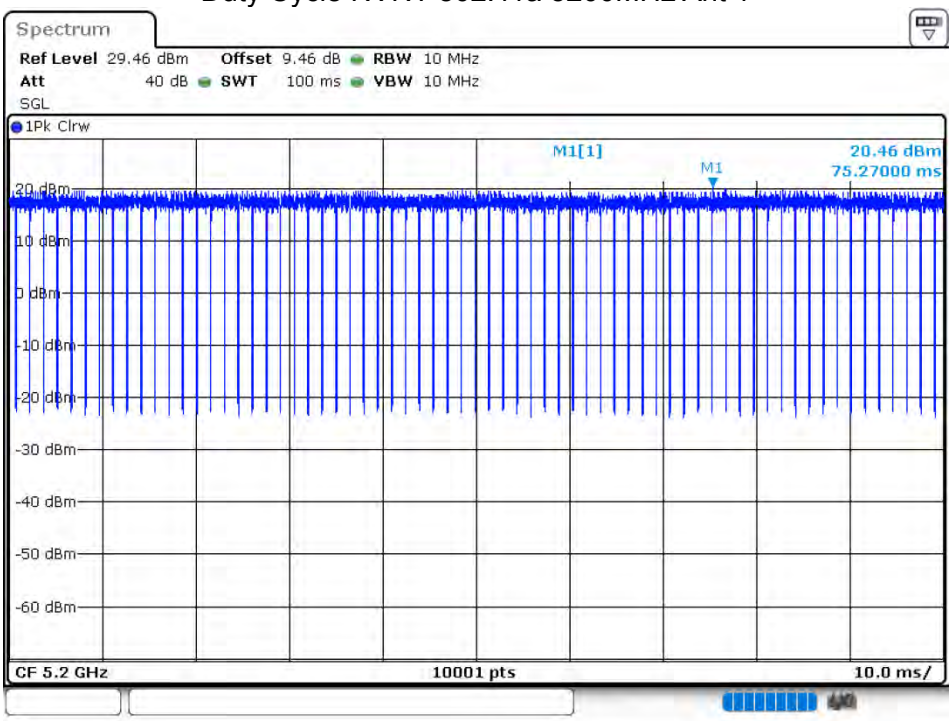
11.1 DUTY CYCLE

Antenna	Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)
Ant 1	NVNT	802.11a	5180	94.05	0.27
Ant 1	NVNT	802.11a	5200	94.06	0.27
Ant 1	NVNT	802.11a	5240	94.06	0.27
Ant 2	NVNT	802.11a	5180	94	0.27
Ant 2	NVNT	802.11a	5200	94.09	0.26
Ant 2	NVNT	802.11a	5240	94.09	0.26
Ant 1	NVNT	802.11ac20	5180	93.75	0.28
Ant 1	NVNT	802.11ac20	5200	93.73	0.28
Ant 1	NVNT	802.11ac20	5240	93.76	0.28
Ant 2	NVNT	802.11ac20	5180	93.69	0.28
Ant 2	NVNT	802.11ac20	5200	93.73	0.28
Ant 2	NVNT	802.11ac20	5240	93.77	0.28
Ant 1	NVNT	802.11ac40	5190	88.56	0.53
Ant 1	NVNT	802.11ac40	5230	88.48	0.53
Ant 2	NVNT	802.11ac40	5190	71.71	1.44
Ant 2	NVNT	802.11ac40	5230	71.61	1.45
Ant 1	NVNT	802.11ac80	5210	69.45	1.58
Ant 2	NVNT	802.11ac80	5210	69.79	1.56
Ant 1	NVNT	802.11n(HT20)	5180	93.71	0.28
Ant 1	NVNT	802.11n(HT20)	5200	93.63	0.29
Ant 1	NVNT	802.11n(HT20)	5240	93.64	0.29
Ant 2	NVNT	802.11n(HT20)	5180	93.64	0.29
Ant 2	NVNT	802.11n(HT20)	5200	93.72	0.28
Ant 2	NVNT	802.11n(HT20)	5240	93.73	0.28
Ant 1	NVNT	802.11n(HT40)	5190	88.2	0.55
Ant 1	NVNT	802.11n(HT40)	5230	88.18	0.55
Ant 2	NVNT	802.11n(HT40)	5190	70.85	1.5
Ant 2	NVNT	802.11n(HT40)	5230	70.98	1.49

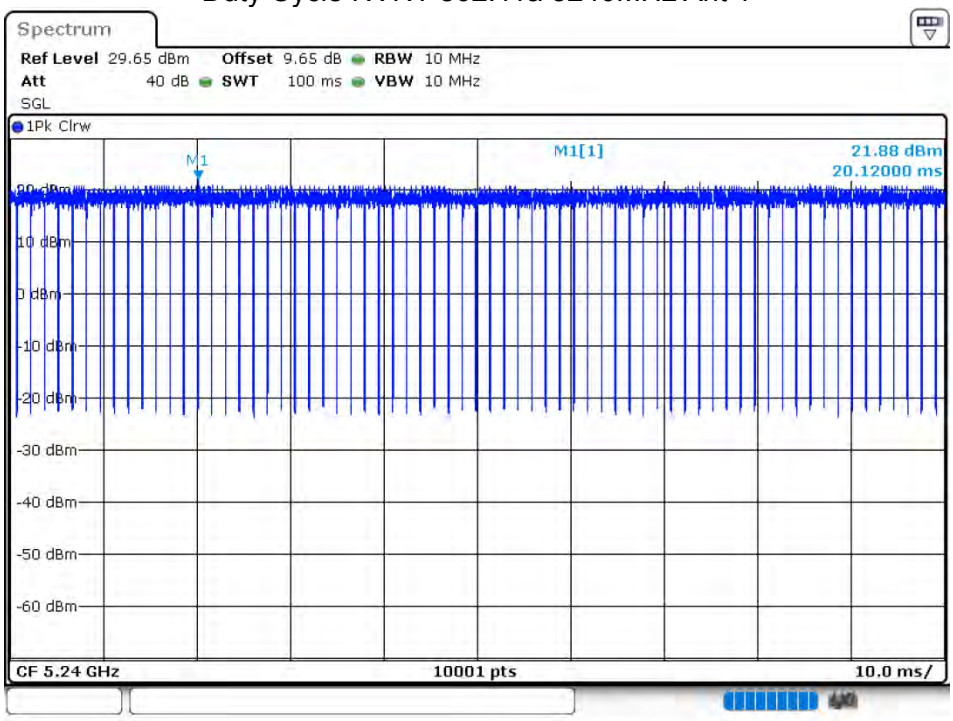
Duty Cycle NVNT 802.11a 5180MHz Ant 1



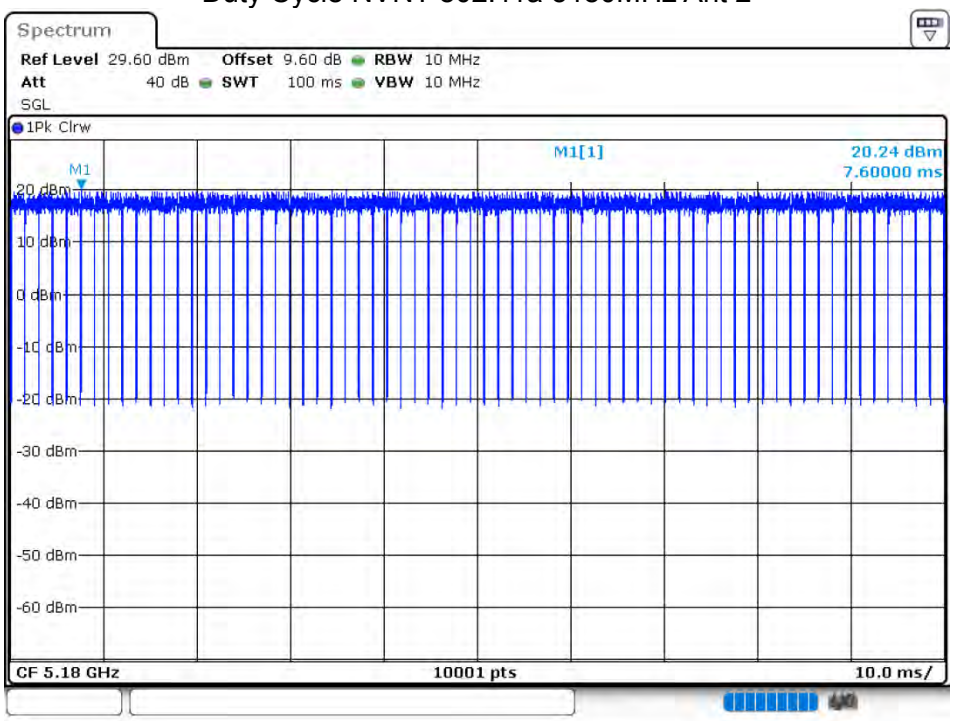
Duty Cycle NVNT 802.11a 5200MHz Ant 1



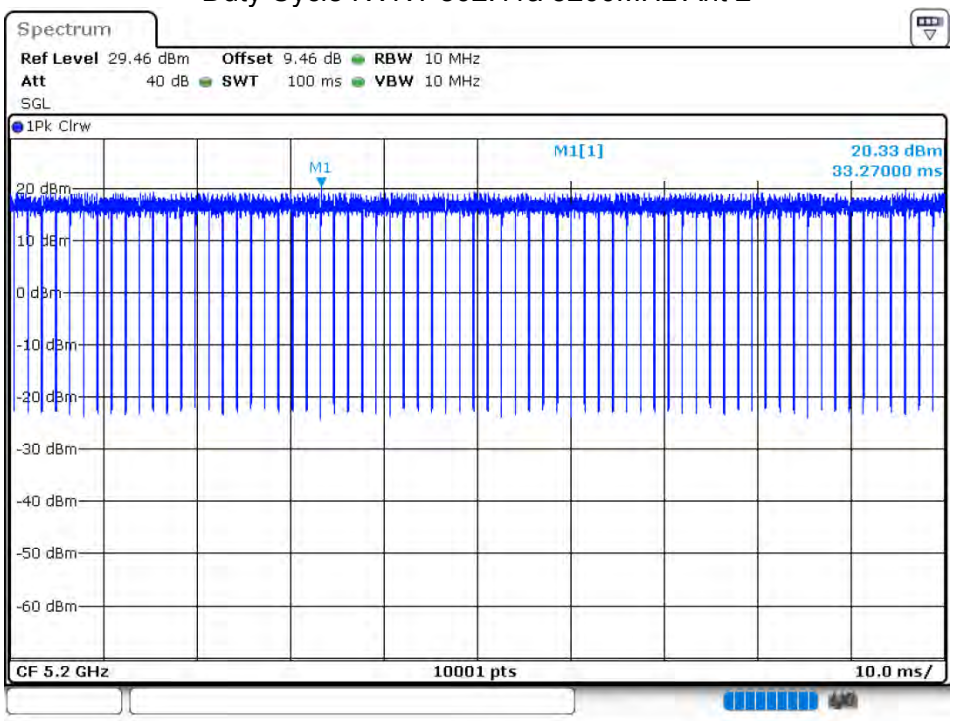
Duty Cycle NVNT 802.11a 5240MHz Ant 1



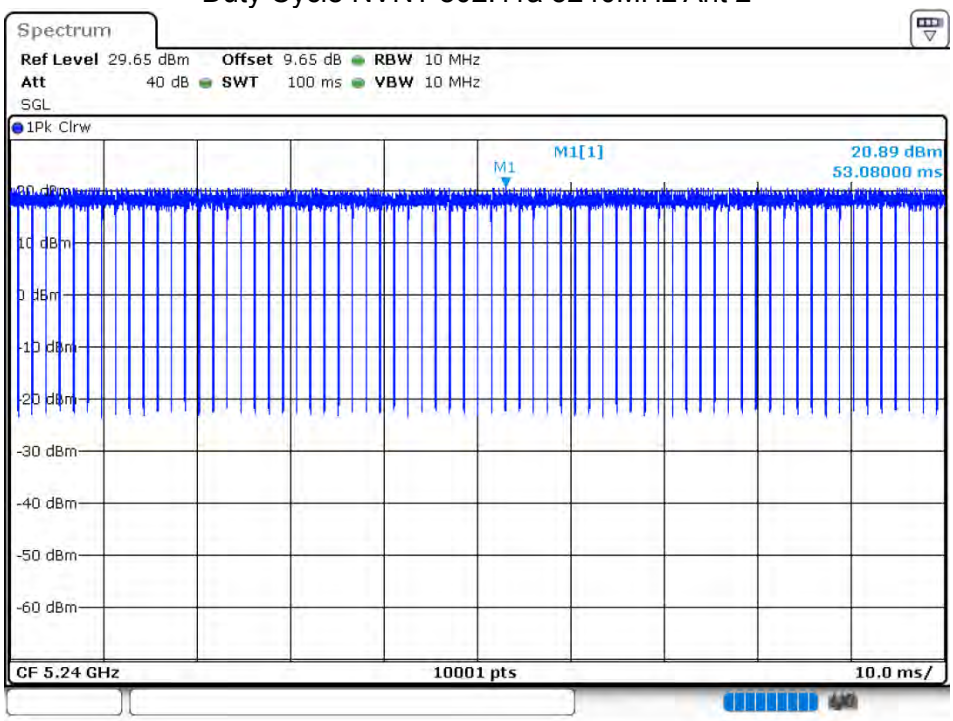
Duty Cycle NVNT 802.11a 5180MHz Ant 2



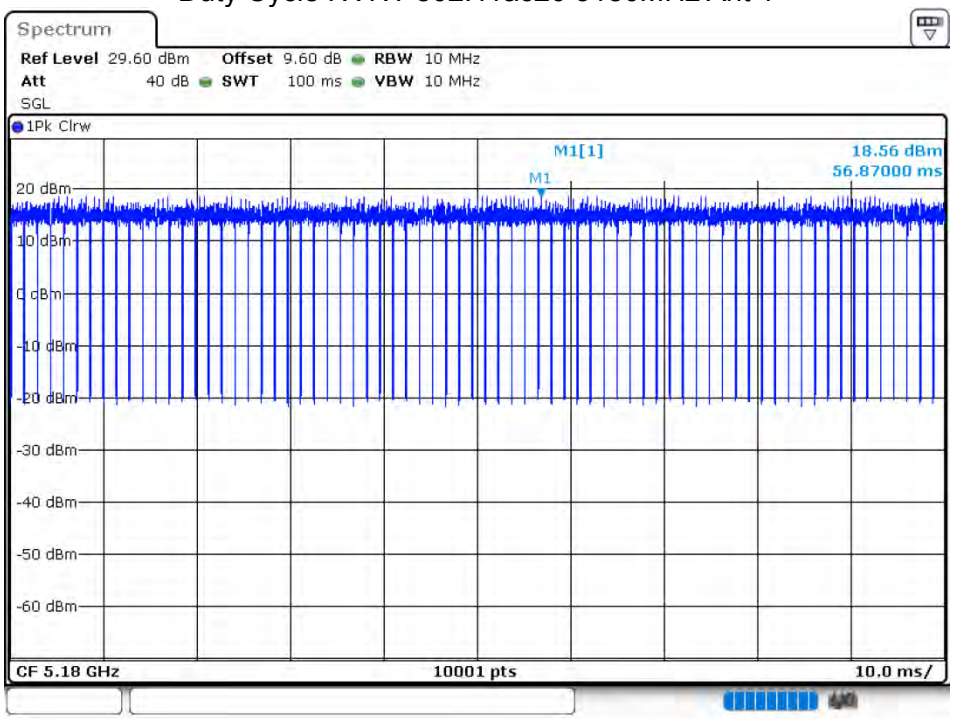
Duty Cycle NVNT 802.11a 5200MHz Ant 2



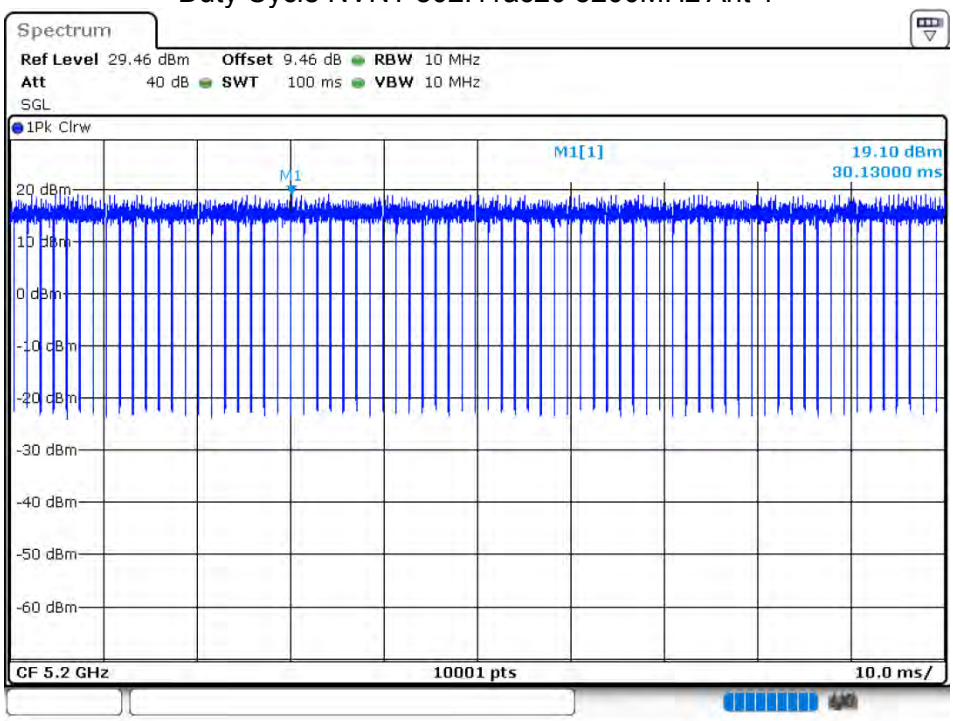
Duty Cycle NVNT 802.11a 5240MHz Ant 2



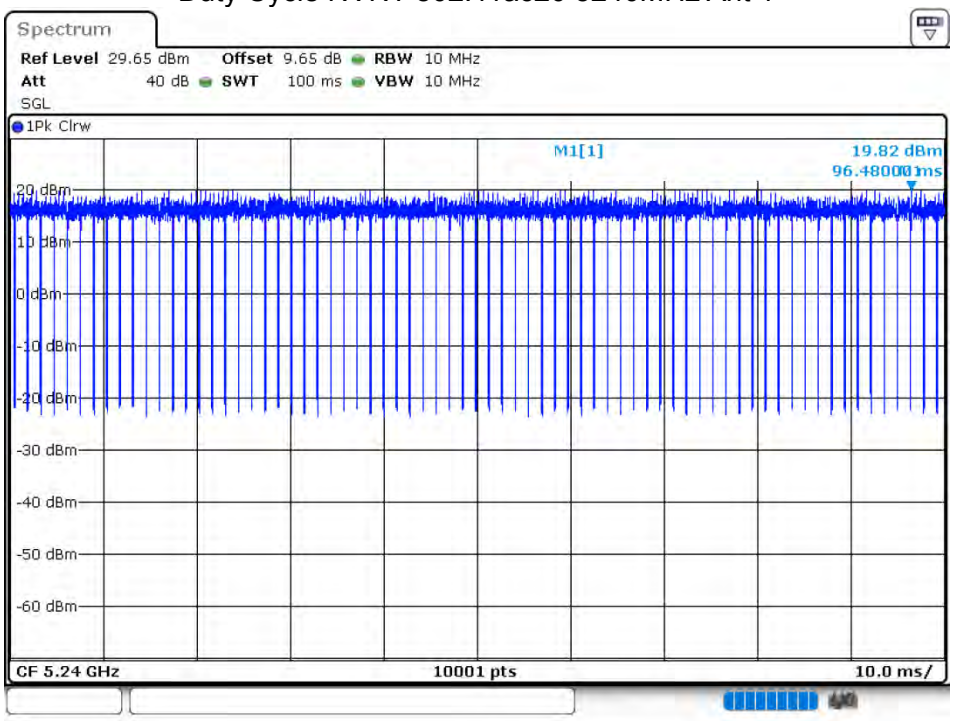
Duty Cycle NVNT 802.11ac20 5180MHz Ant 1



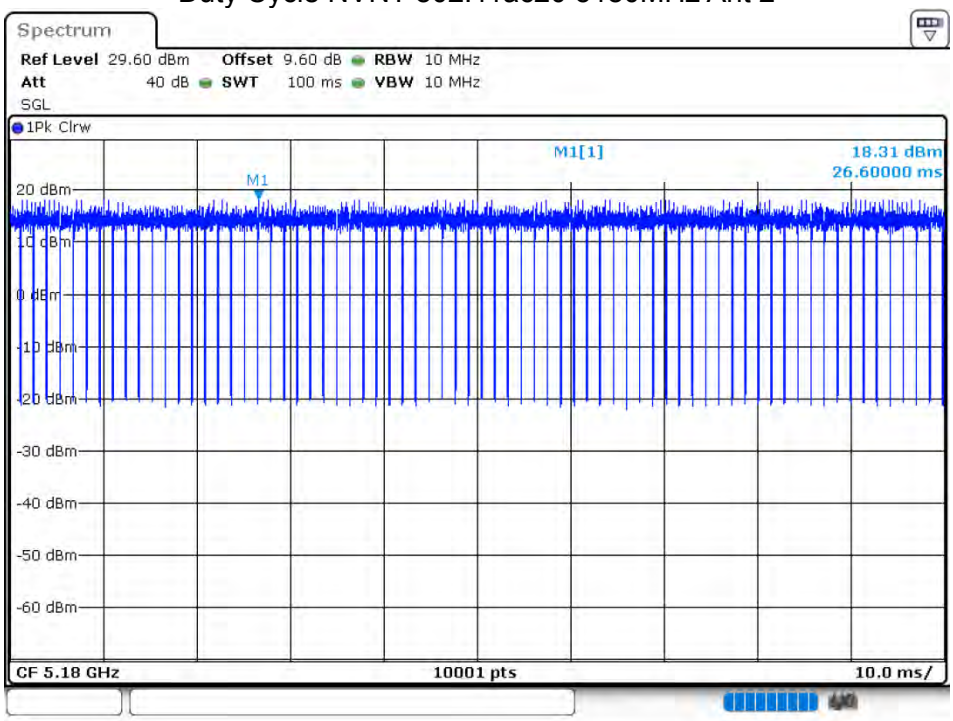
Duty Cycle NVNT 802.11ac20 5200MHz Ant 1



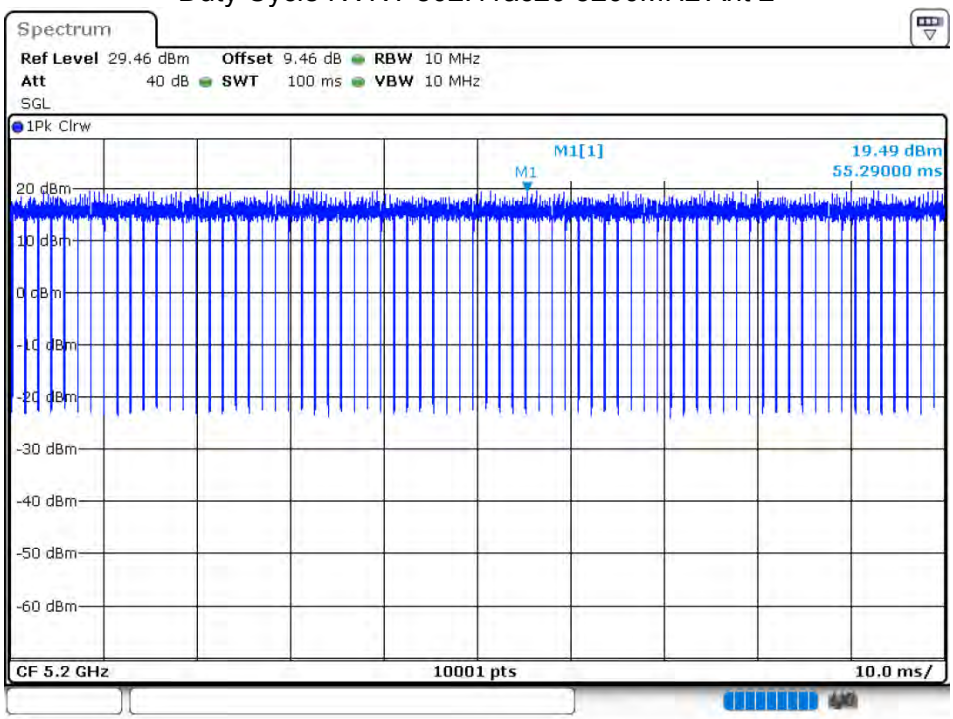
Duty Cycle NVNT 802.11ac20 5240MHz Ant 1



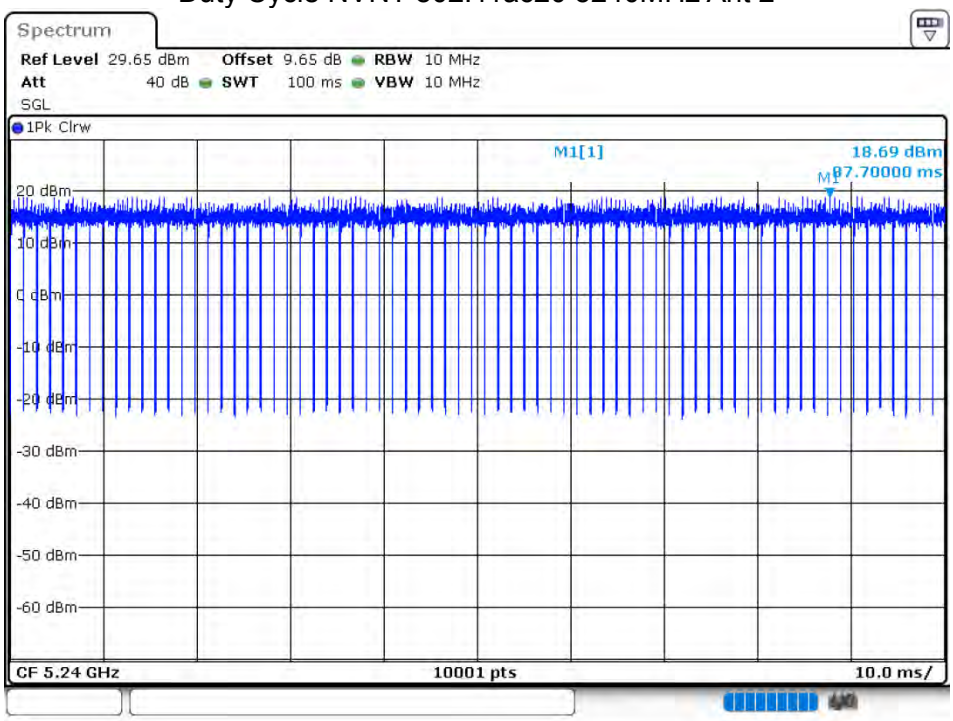
Duty Cycle NVNT 802.11ac20 5180MHz Ant 2



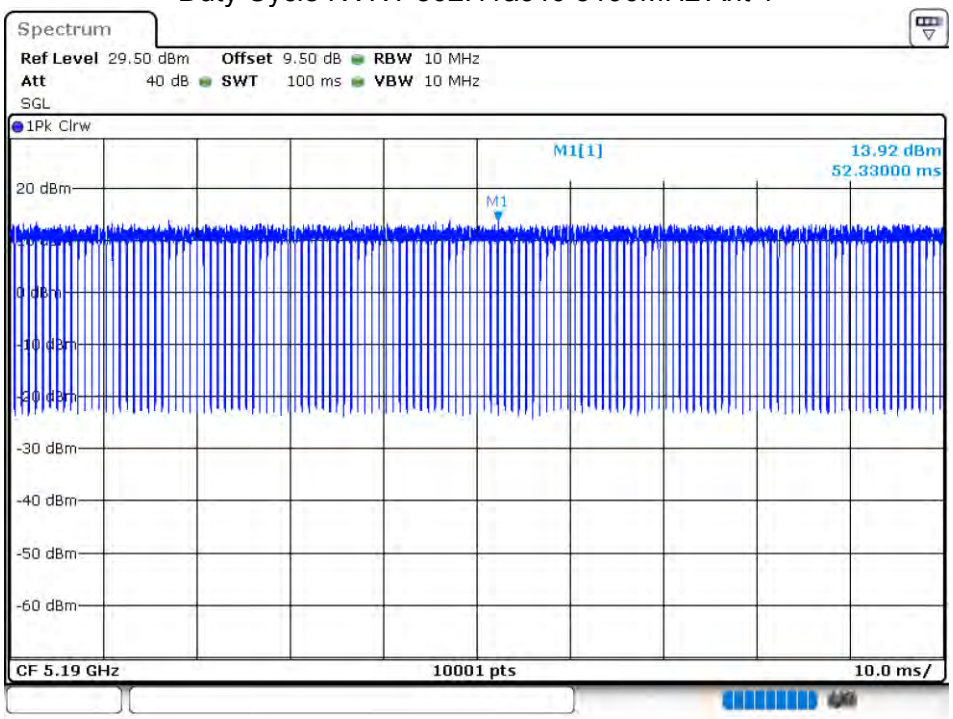
Duty Cycle NVNT 802.11ac20 5200MHz Ant 2



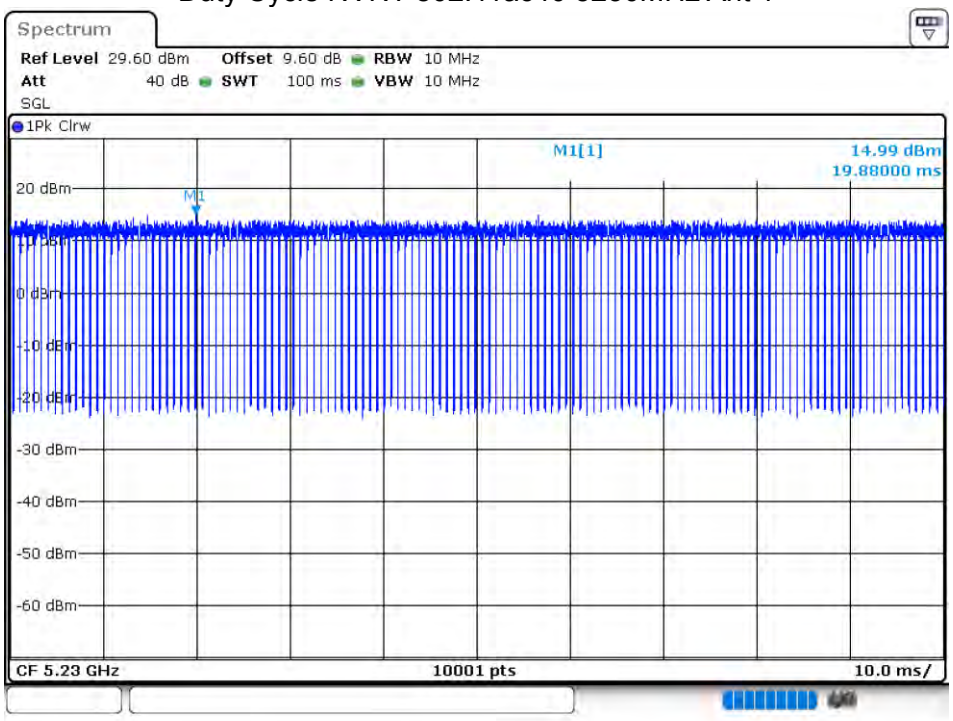
Duty Cycle NVNT 802.11ac20 5240MHz Ant 2



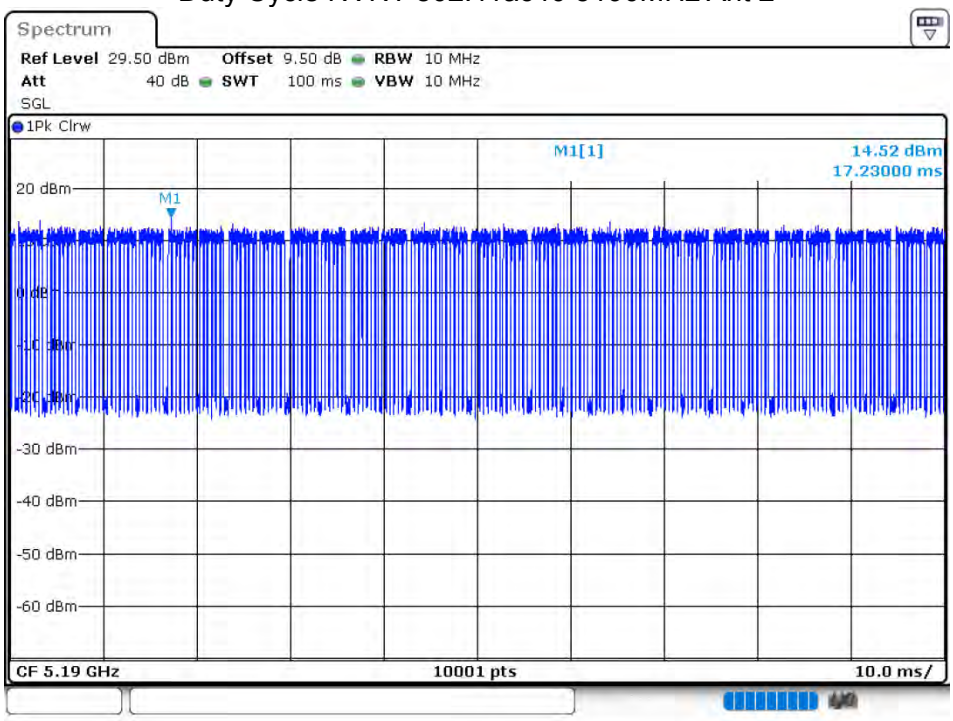
Duty Cycle NVNT 802.11ac40 5190MHz Ant 1



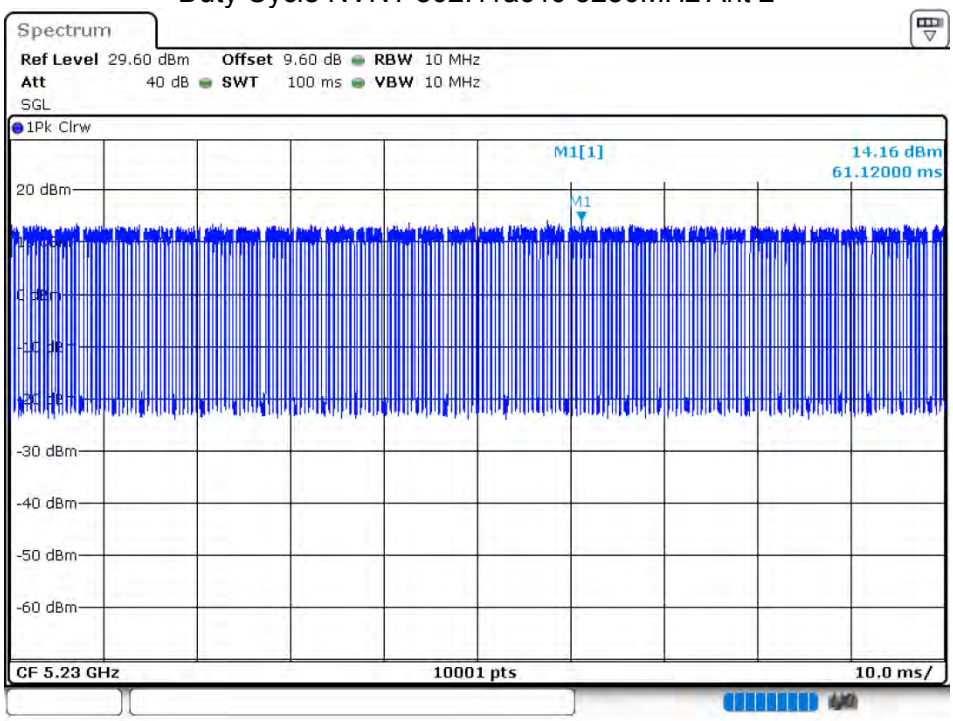
Duty Cycle NVNT 802.11ac40 5230MHz Ant 1



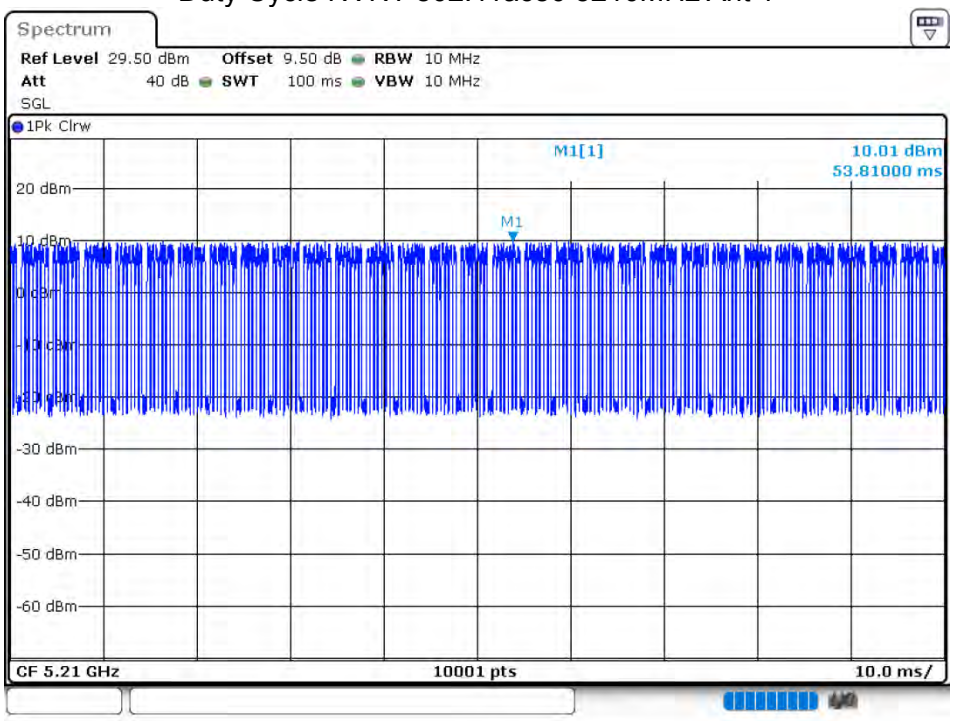
Duty Cycle NVNT 802.11ac40 5190MHz Ant 2



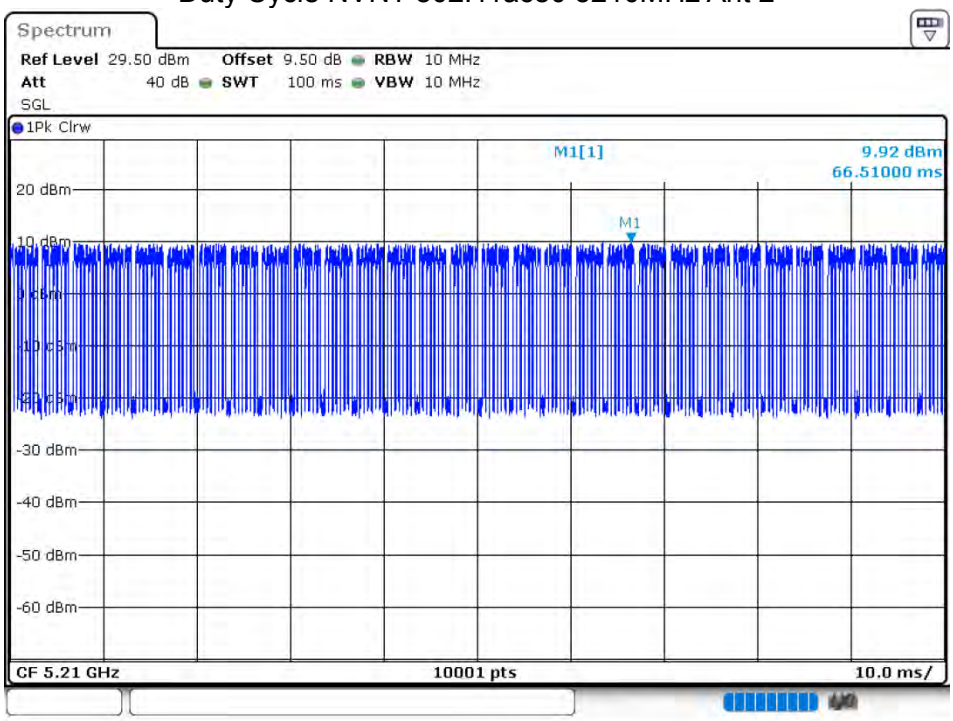
Duty Cycle NVNT 802.11ac40 5230MHz Ant 2



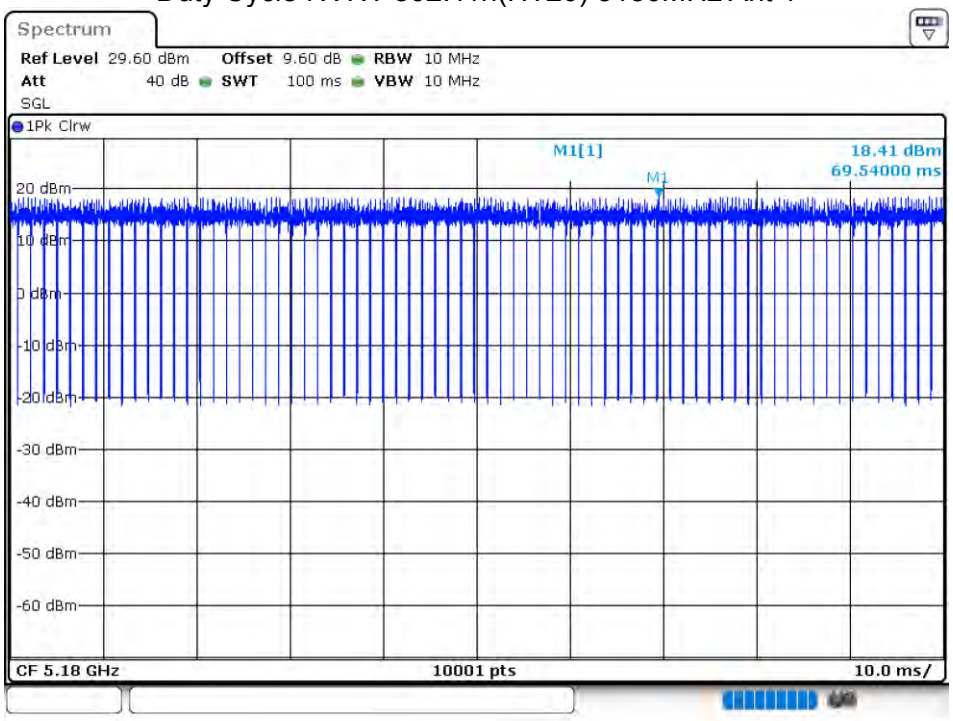
Duty Cycle NVNT 802.11ac80 5210MHz Ant 1



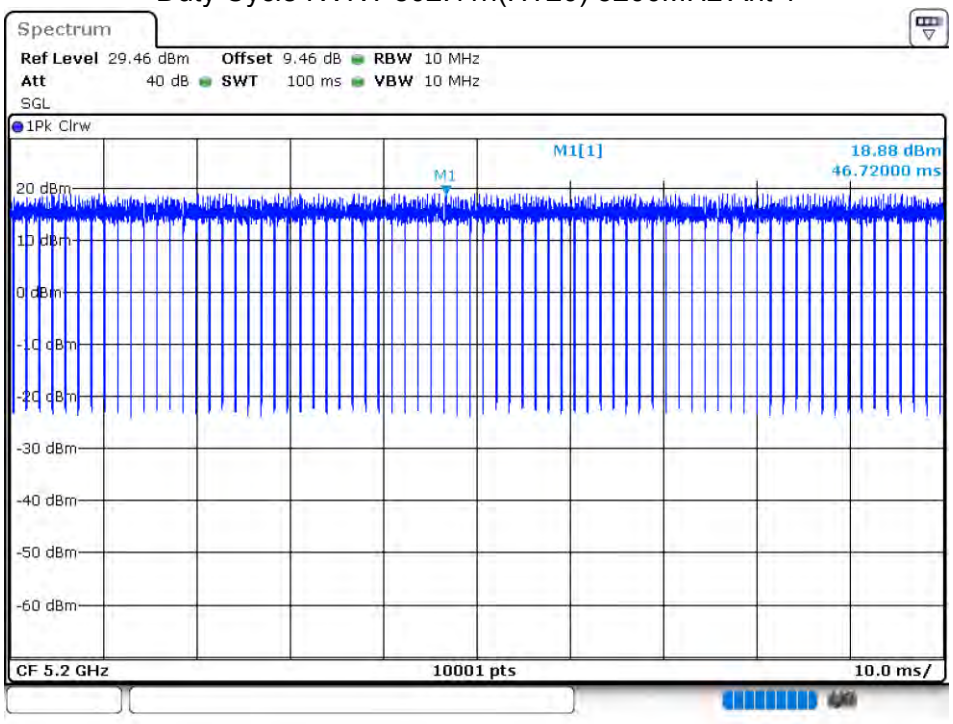
Duty Cycle NVNT 802.11ac80 5210MHz Ant 2



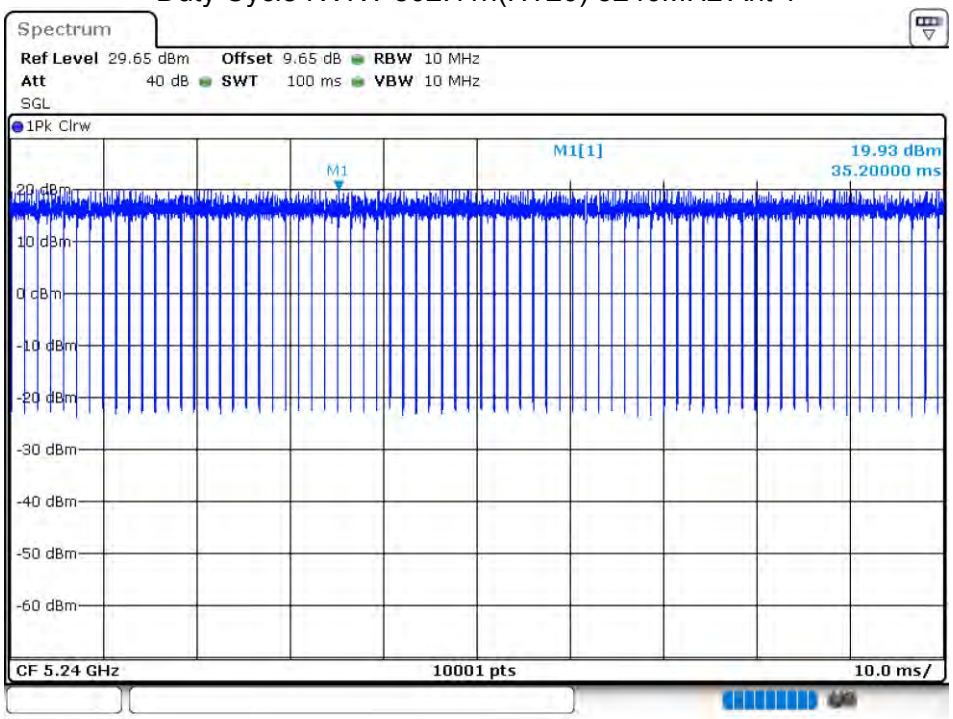
Duty Cycle NVNT 802.11n(HT20) 5180MHz Ant 1



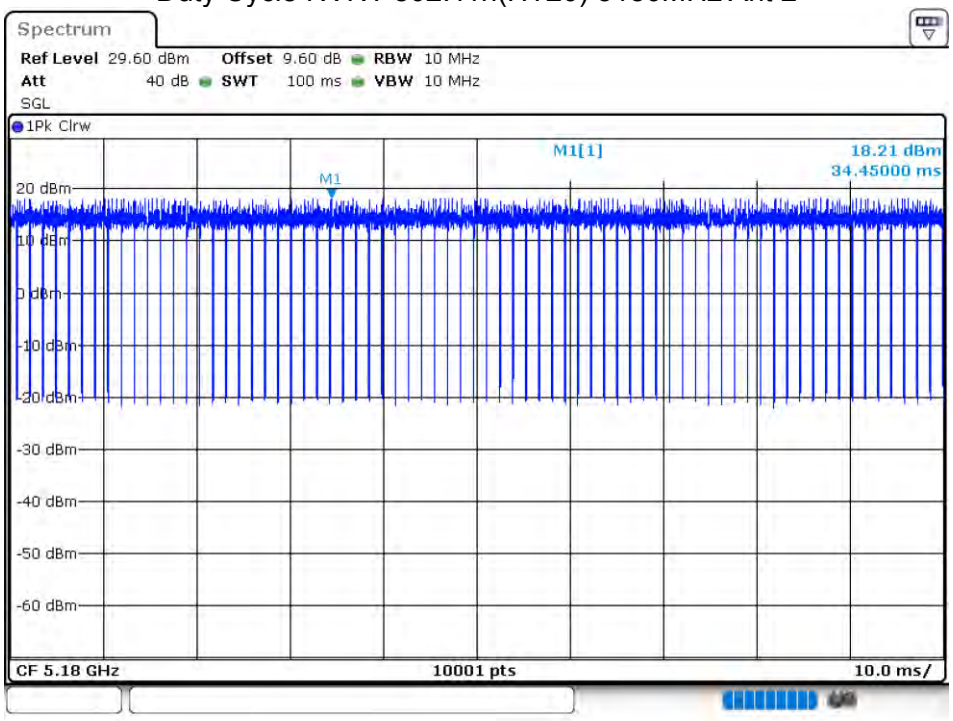
Duty Cycle NVNT 802.11n(HT20) 5200MHz Ant 1



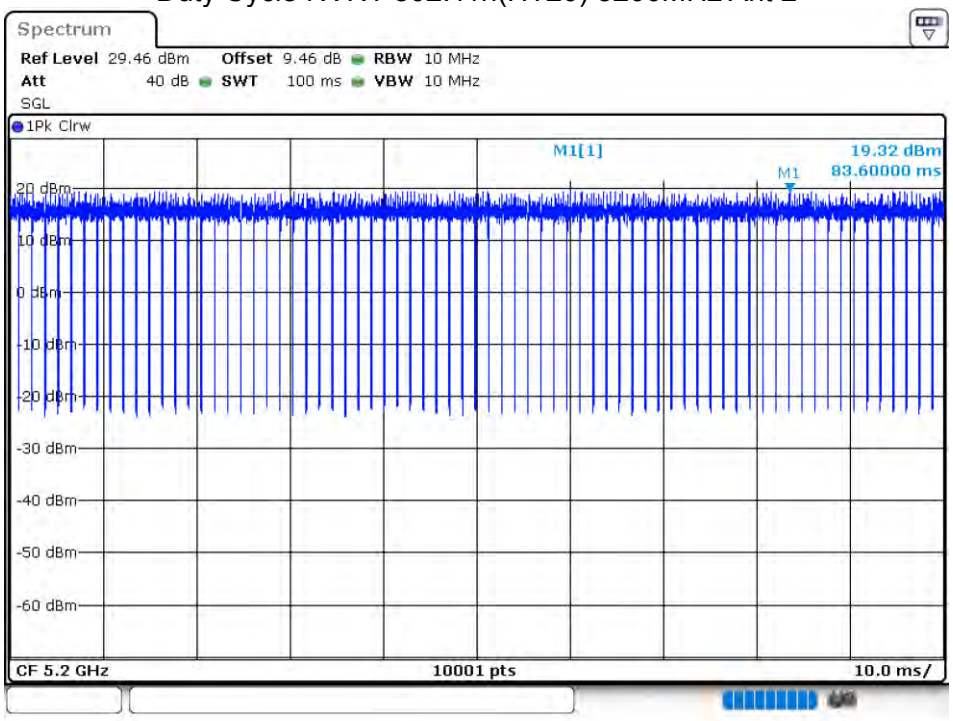
Duty Cycle NVNT 802.11n(HT20) 5240MHz Ant 1



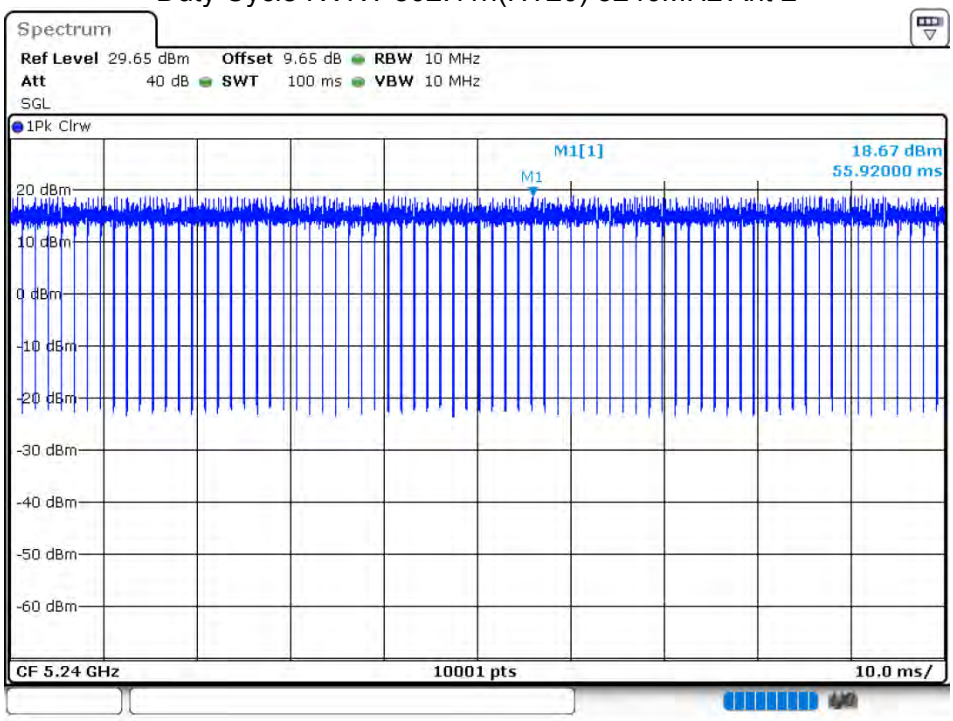
Duty Cycle NVNT 802.11n(HT20) 5180MHz Ant 2



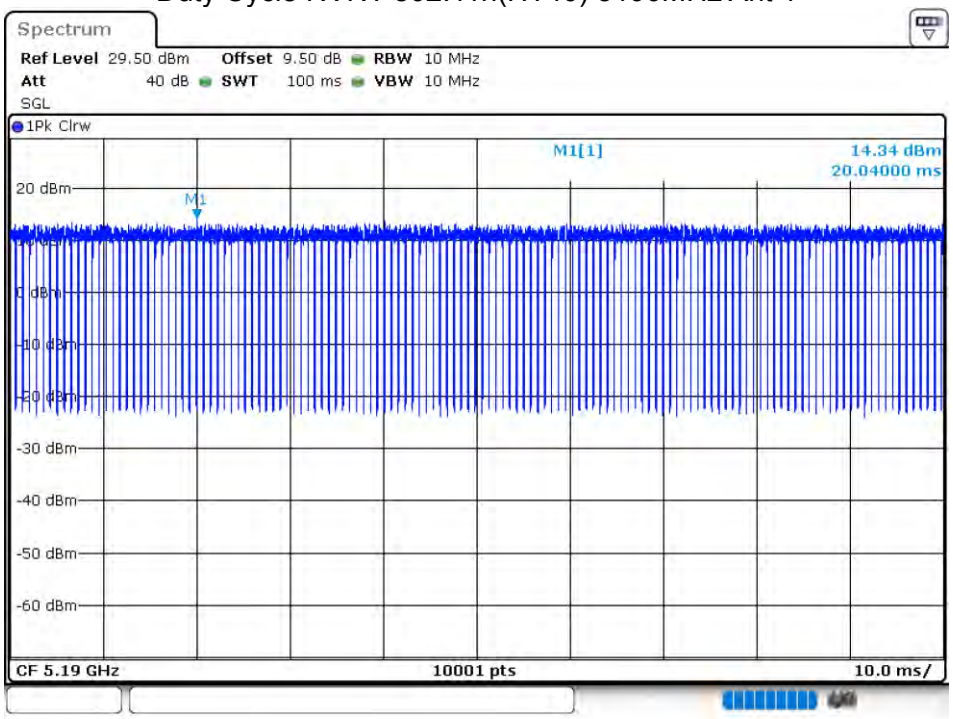
Duty Cycle NVNT 802.11n(HT20) 5200MHz Ant 2



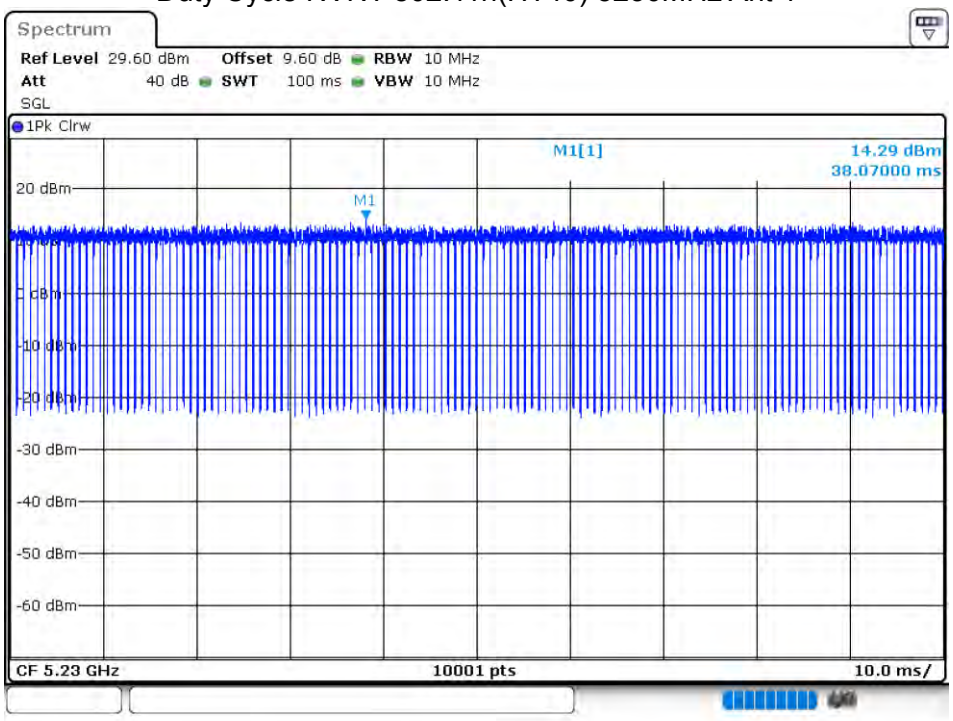
Duty Cycle NVNT 802.11n(HT20) 5240MHz Ant 2



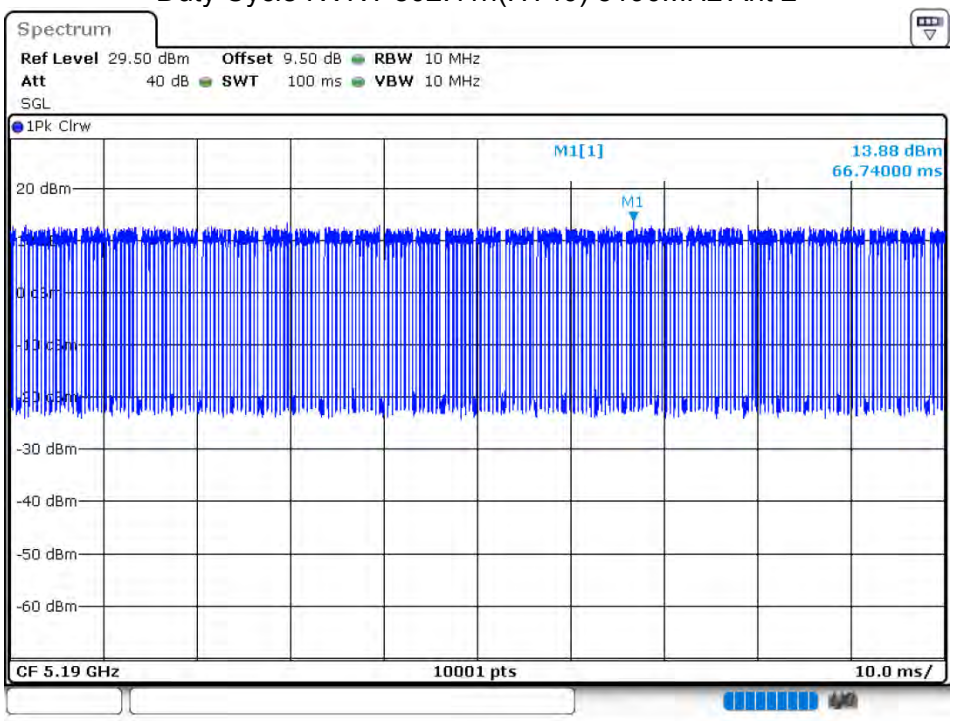
Duty Cycle NVNT 802.11n(HT40) 5190MHz Ant 1



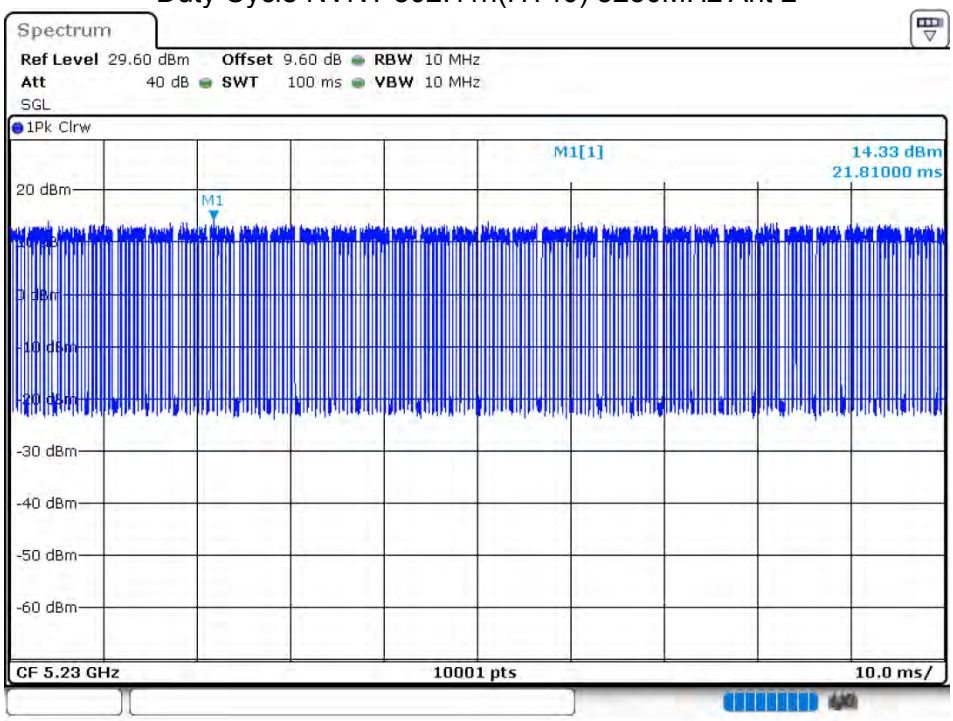
Duty Cycle NVNT 802.11n(HT40) 5230MHz Ant 1



Duty Cycle NVNT 802.11n(HT40) 5190MHz Ant 2



Duty Cycle NVNT 802.11n(HT40) 5230MHz Ant 2



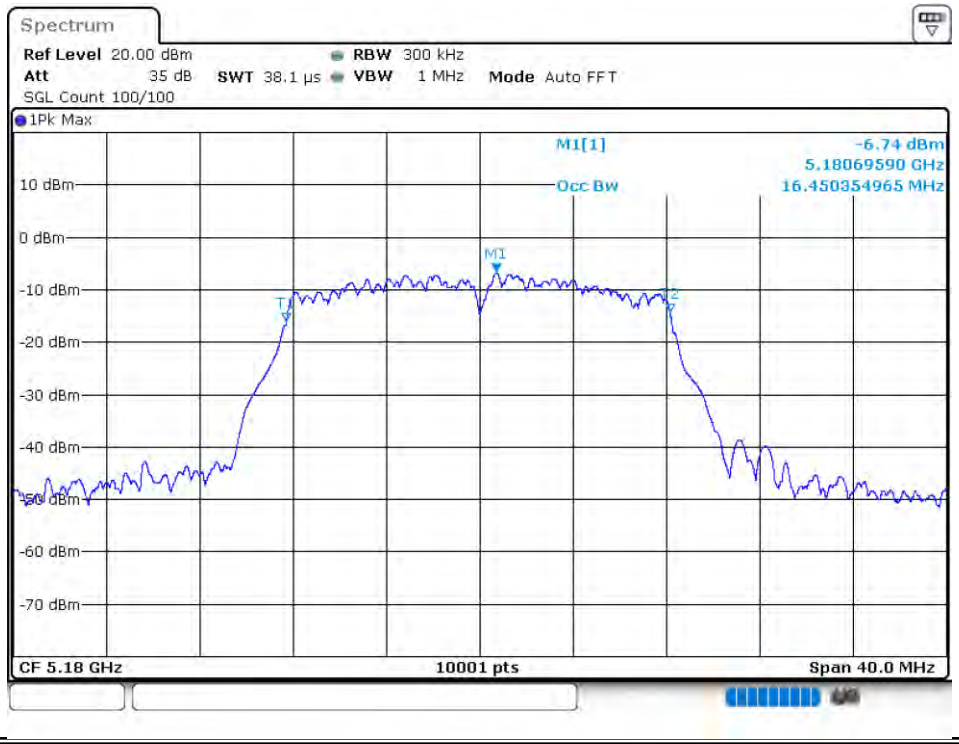
11.2 MAXIMUM CONDUCTED OUTPUT POWER

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	802.11a	5180	Ant 1	10.26	0.27	10.53	24	Pass
NVNT	802.11a	5200	Ant 1	10.68	0.27	10.95	24	Pass
NVNT	802.11a	5240	Ant 1	11.4	0.27	11.67	24	Pass
NVNT	802.11a	5180	Ant 2	10.53	0.27	10.8	24	Pass
NVNT	802.11a	5200	Ant 2	9.92	0.26	10.18	24	Pass
NVNT	802.11a	5240	Ant 2	11.19	0.26	11.45	24	Pass
NVNT	802.11ac20	5180	Ant 1	8.22	0.28	8.5	24	Pass
NVNT	802.11ac20	5200	Ant 1	8.5	0.28	8.78	24	Pass
NVNT	802.11ac20	5240	Ant 1	9.29	0.28	9.57	24	Pass
NVNT	802.11ac20	5180	Ant 2	7.4	0.28	7.68	24	Pass
NVNT	802.11ac20	5200	Ant 2	8.81	0.28	9.09	24	Pass
NVNT	802.11ac20	5240	Ant 2	8.05	0.28	8.33	24	Pass
NVNT	802.11ac40	5190	Ant 1	7.05	0.53	7.58	24	Pass
NVNT	802.11ac40	5230	Ant 1	7.68	0.53	8.21	24	Pass
NVNT	802.11ac40	5190	Ant 2	6.66	1.44	8.1	24	Pass
NVNT	802.11ac40	5230	Ant 2	7.09	1.45	8.54	24	Pass
NVNT	802.11ac80	5210	Ant 1	6.35	1.58	7.93	24	Pass
NVNT	802.11ac80	5210	Ant 2	5.85	1.56	7.41	24	Pass
NVNT	802.11n(HT20)	5180	Ant 1	8.37	0.28	8.65	24	Pass
NVNT	802.11n(HT20)	5200	Ant 1	8.71	0.29	9	24	Pass
NVNT	802.11n(HT20)	5240	Ant 1	9.23	0.29	9.52	24	Pass
NVNT	802.11n(HT20)	5180	Ant 2	7.42	0.29	7.71	24	Pass
NVNT	802.11n(HT20)	5200	Ant 2	8.92	0.28	9.2	24	Pass
NVNT	802.11n(HT20)	5240	Ant 2	7.93	0.28	8.21	24	Pass
NVNT	802.11n(HT40)	5190	Ant 1	7.06	0.55	7.61	24	Pass
NVNT	802.11n(HT40)	5230	Ant 1	6.61	0.55	7.16	24	Pass
NVNT	802.11n(HT40)	5190	Ant 2	6.58	1.5	8.08	24	Pass
NVNT	802.11n(HT40)	5230	Ant 2	7.14	1.49	8.63	24	Pass

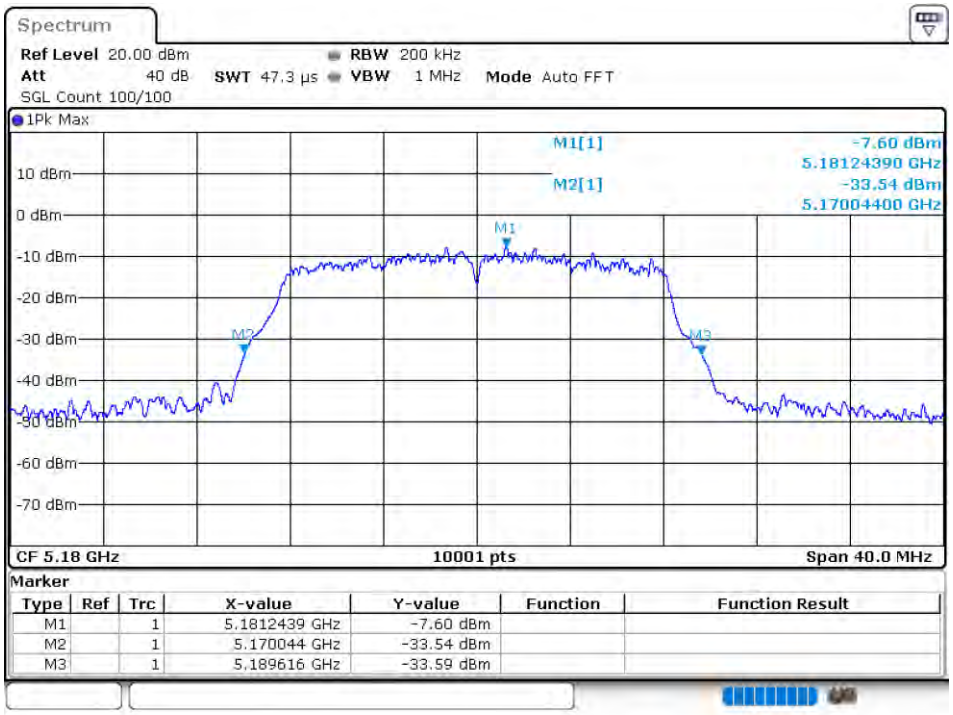
11.3 OCCUPIED CHANNEL BANDWIDTH

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	-26 dB Bandwidth (MHz)	Verdict
NVNT	802.11a	5180	Ant 1	16.4504	19.572	Pass
NVNT	802.11a	5200	Ant 1	16.6063	20.072	Pass
NVNT	802.11a	5240	Ant 1	16.7063	19.796	Pass
NVNT	802.11a	5180	Ant 2	16.4584	19.58	Pass
NVNT	802.11a	5200	Ant 2	16.5503	20.072	Pass
NVNT	802.11a	5240	Ant 2	16.6703	19.364	Pass
NVNT	802.11ac20	5180	Ant 1	17.6822	20.292	Pass
NVNT	802.11ac20	5200	Ant 1	17.5942	20.332	Pass
NVNT	802.11ac20	5240	Ant 1	17.8902	20.24	Pass
NVNT	802.11ac20	5180	Ant 2	17.6102	20.248	Pass
NVNT	802.11ac20	5200	Ant 2	17.7382	20.476	Pass
NVNT	802.11ac20	5240	Ant 2	17.9062	20.296	Pass
NVNT	802.11ac40	5190	Ant 1	36.2284	40.872	Pass
NVNT	802.11ac40	5230	Ant 1	36.1164	40.416	Pass
NVNT	802.11ac40	5190	Ant 2	36.2444	41.064	Pass
NVNT	802.11ac40	5230	Ant 2	36.1564	40.832	Pass
NVNT	802.11ac80	5210	Ant 1	76.0404	82.576	Pass
NVNT	802.11ac80	5210	Ant 2	75.8964	96.032	Pass
NVNT	802.11n(HT20)	5180	Ant 1	17.5942	20.368	Pass
NVNT	802.11n(HT20)	5200	Ant 1	17.7902	20.316	Pass
NVNT	802.11n(HT20)	5240	Ant 1	17.6342	20.332	Pass
NVNT	802.11n(HT20)	5180	Ant 2	17.6422	20.316	Pass
NVNT	802.11n(HT20)	5200	Ant 2	17.6342	20.092	Pass
NVNT	802.11n(HT20)	5240	Ant 2	17.6622	20.332	Pass
NVNT	802.11n(HT40)	5190	Ant 1	36.3244	41.12	Pass
NVNT	802.11n(HT40)	5230	Ant 1	36.1884	40.824	Pass
NVNT	802.11n(HT40)	5190	Ant 2	36.3004	41.152	Pass
NVNT	802.11n(HT40)	5230	Ant 2	36.2044	40.952	Pass

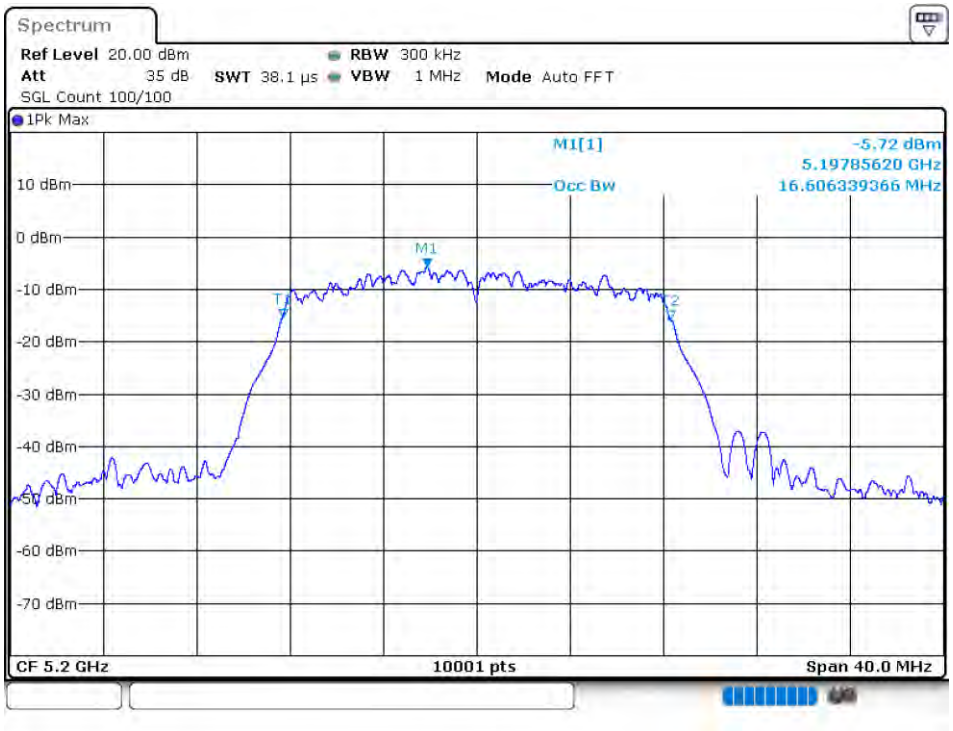
OBW NVNT 802.11a 5180MHz Ant 1



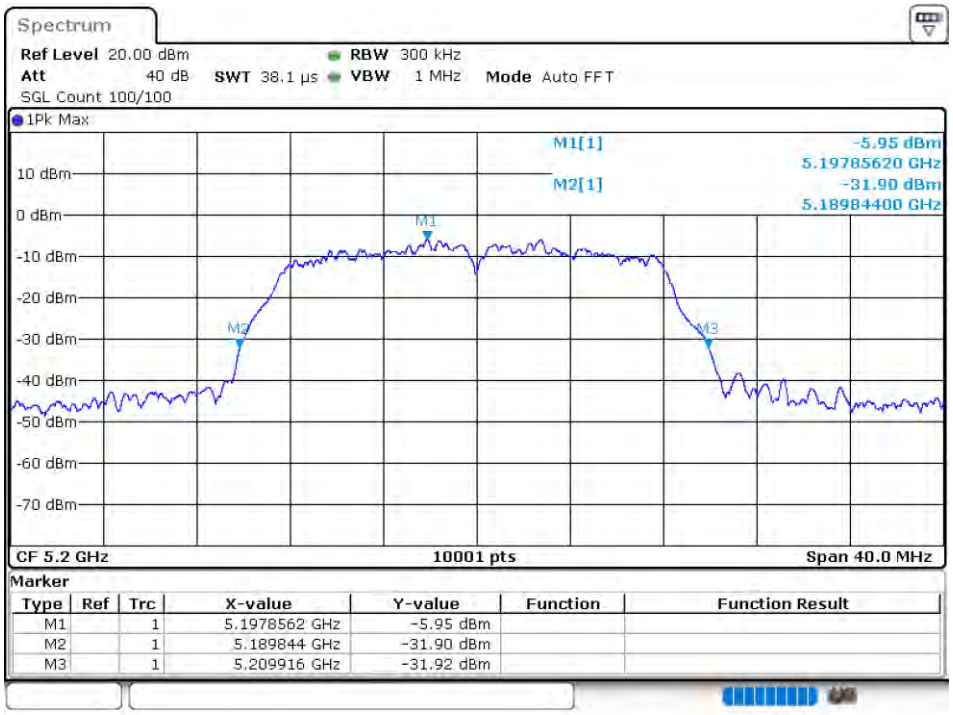
-26 dB BW NVNT 802.11a 5180MHz Ant 1



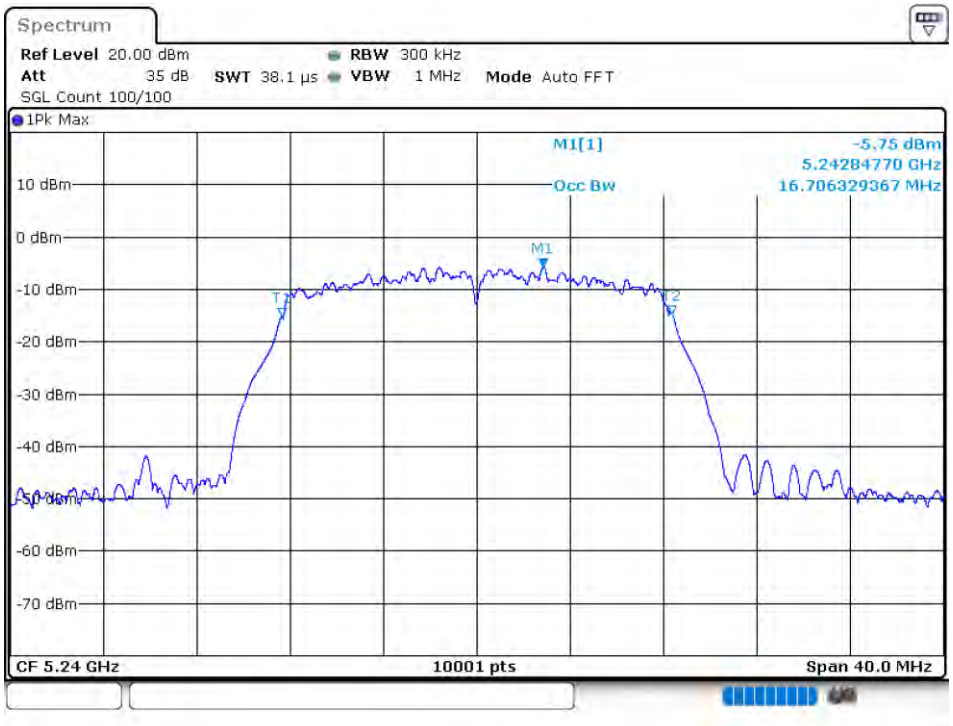
OBW NVNT 802.11a 5200MHz Ant 1



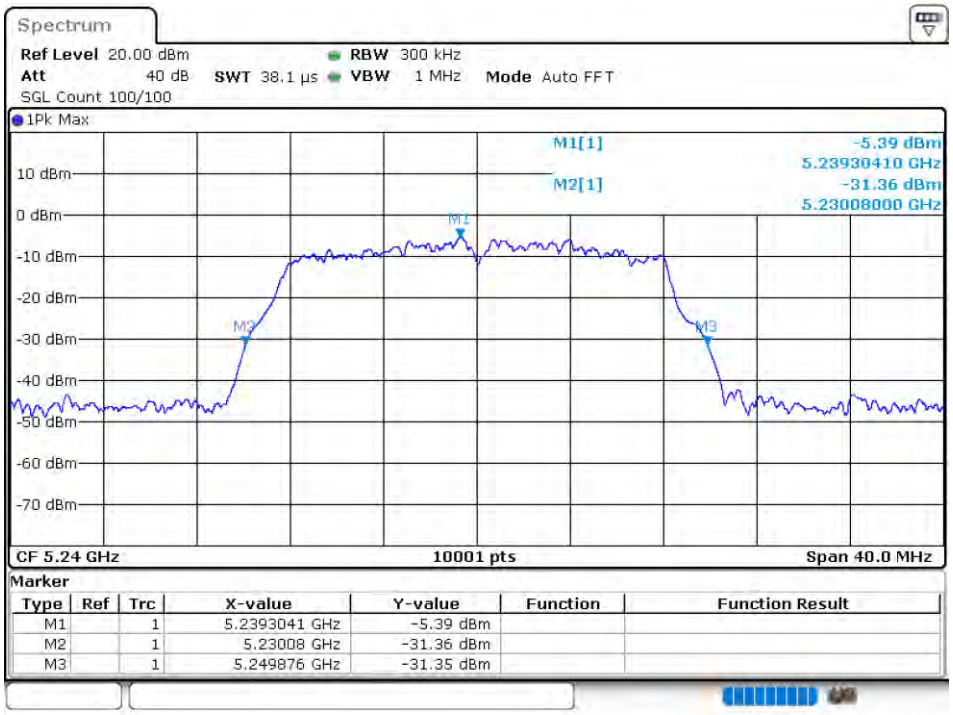
-26 dB BW NVNT 802.11a 5200MHz Ant 1



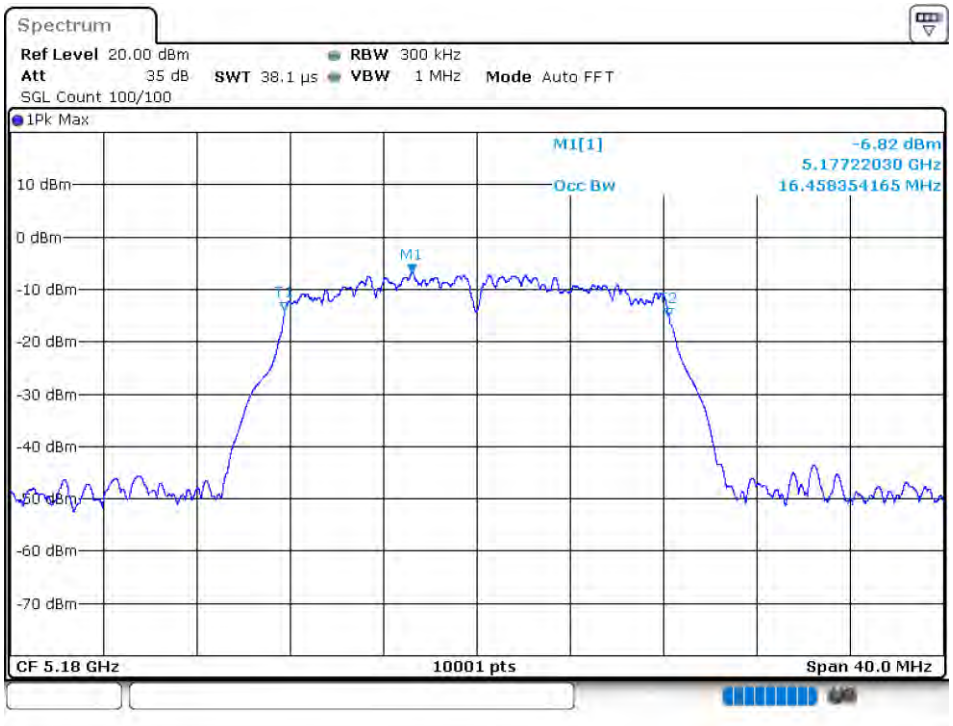
OBW NVNT 802.11a 5240MHz Ant 1



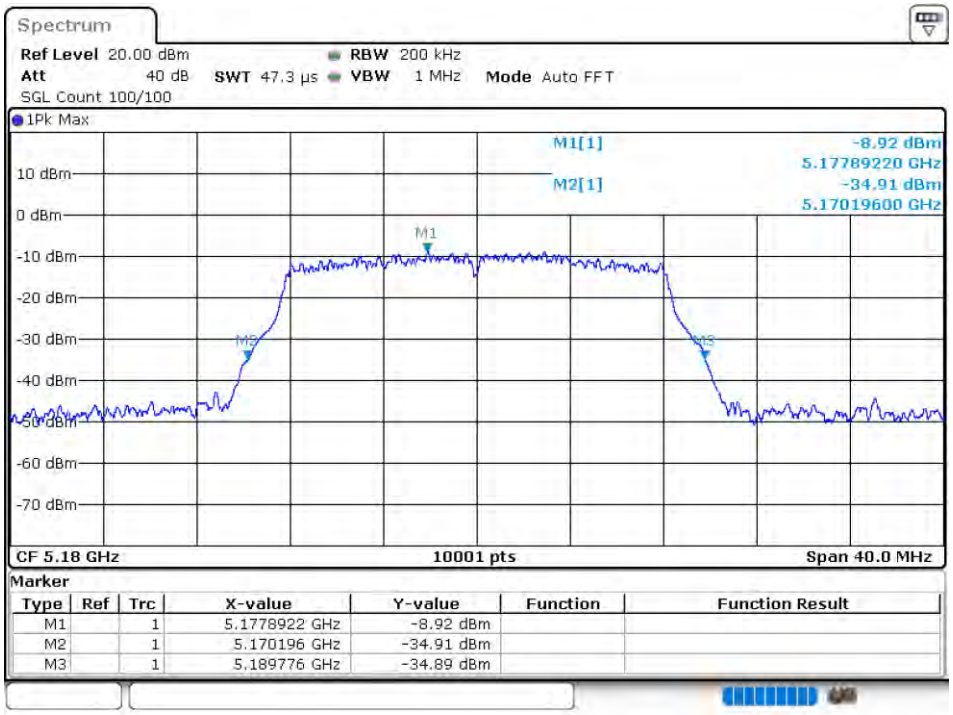
-26 dB BW NVNT 802.11a 5240MHz Ant 1



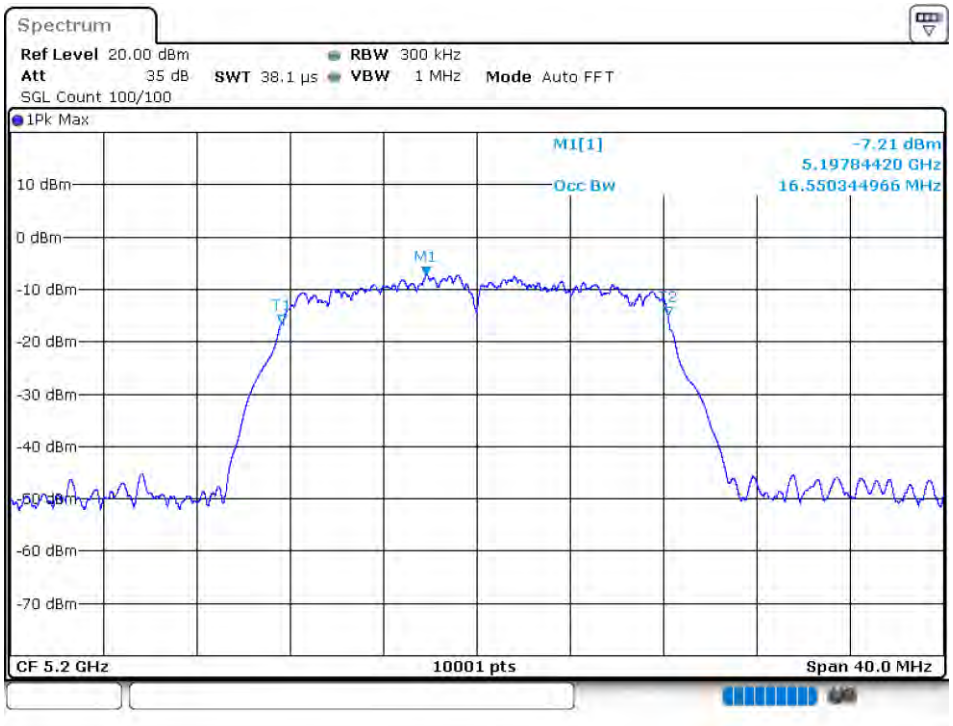
OBW NVNT 802.11a 5180MHz Ant 2



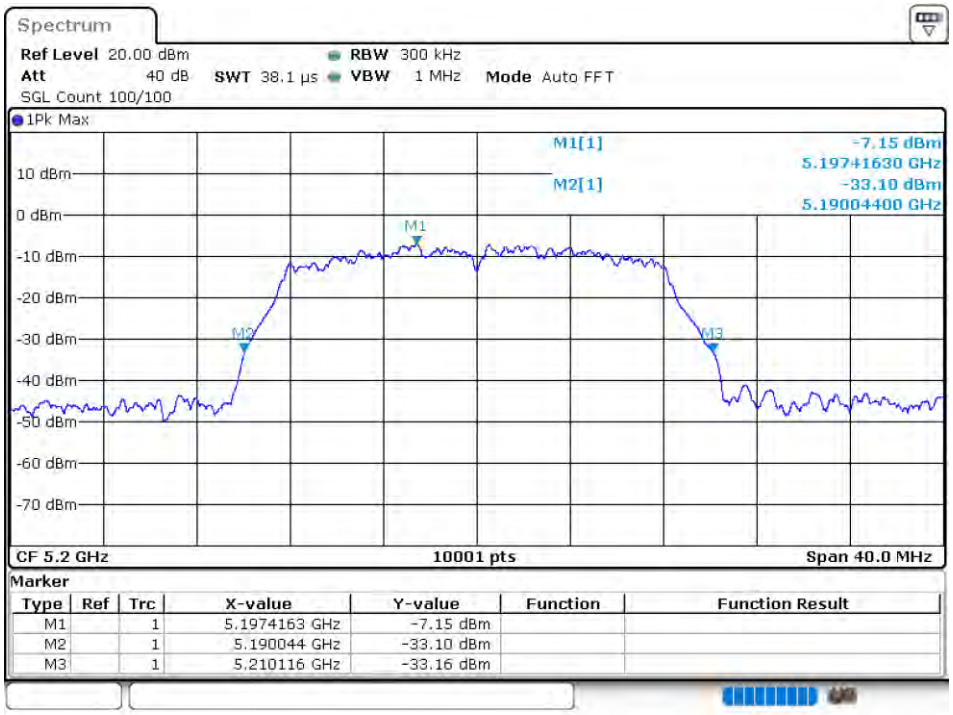
-26 dB BW NVNT 802.11a 5180MHz Ant 2



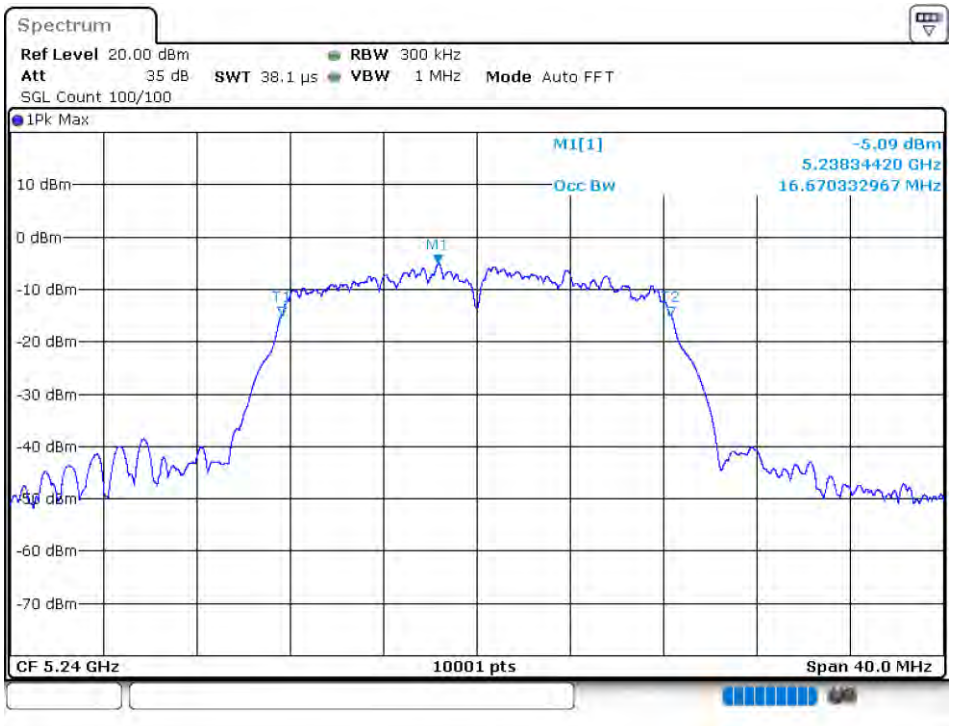
OBW NVNT 802.11a 5200MHz Ant 2



-26 dB BW NVNT 802.11a 5200MHz Ant 2



OBW NVNT 802.11a 5240MHz Ant 2



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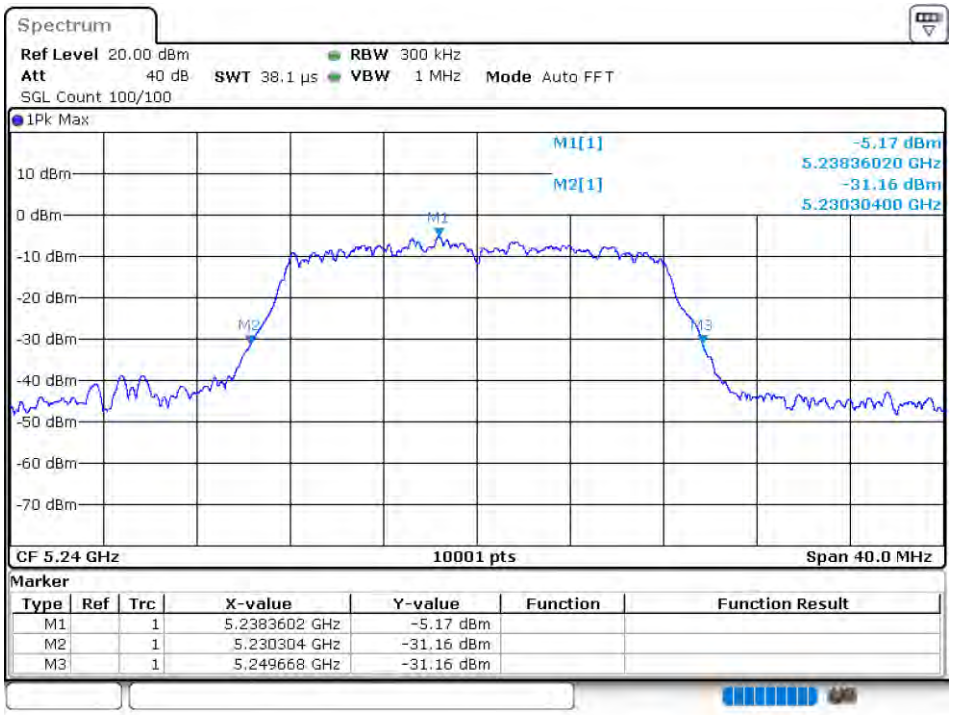
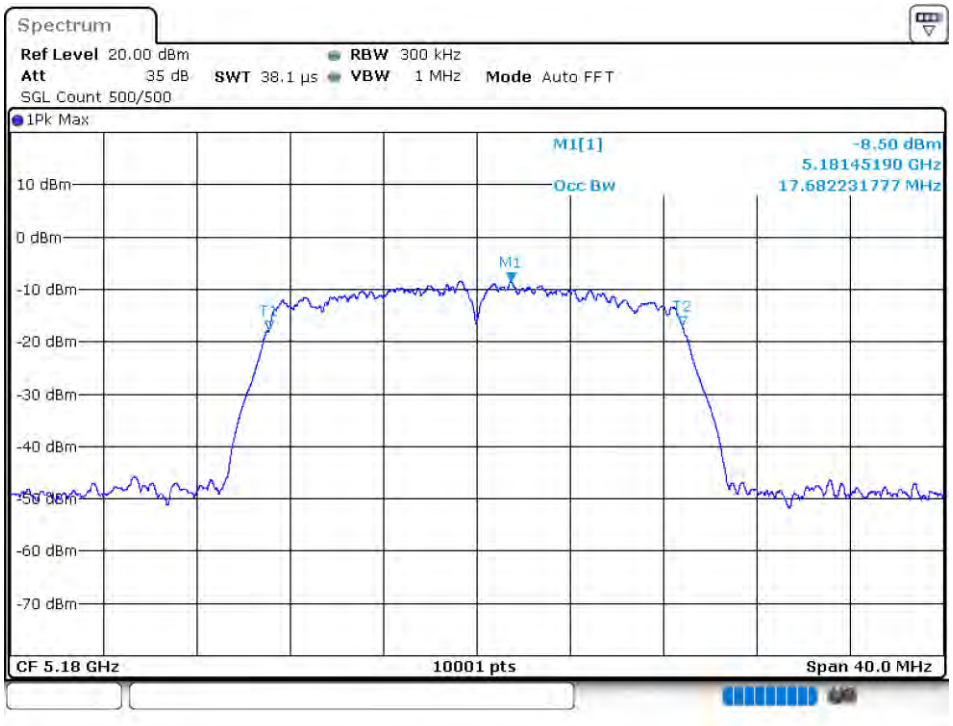


OBW NVNT 802.11ac20 5180MHz Ant 1



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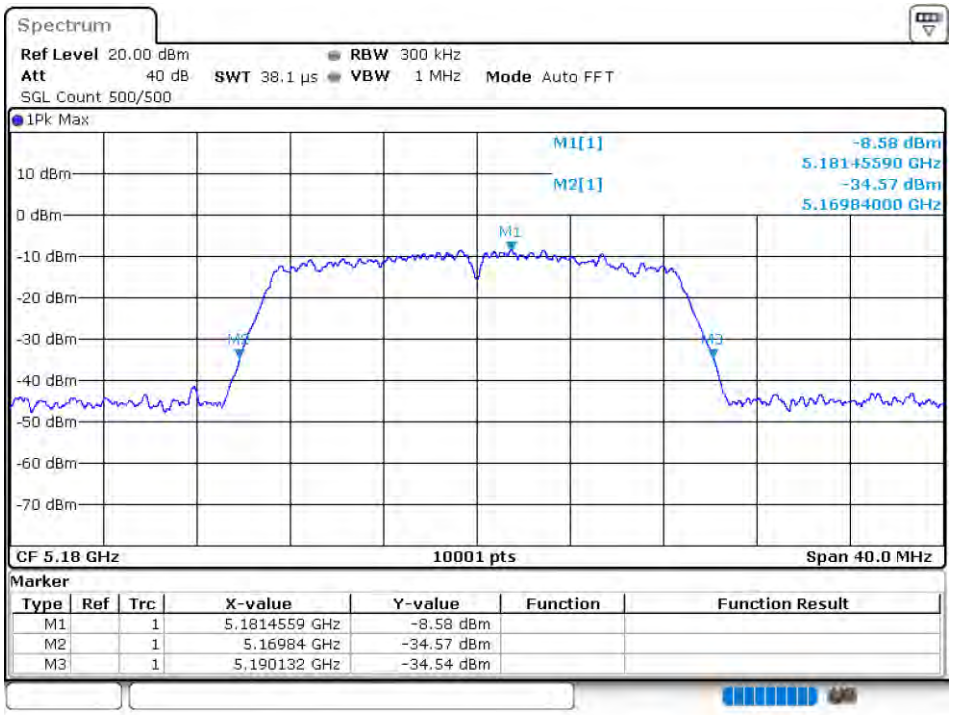

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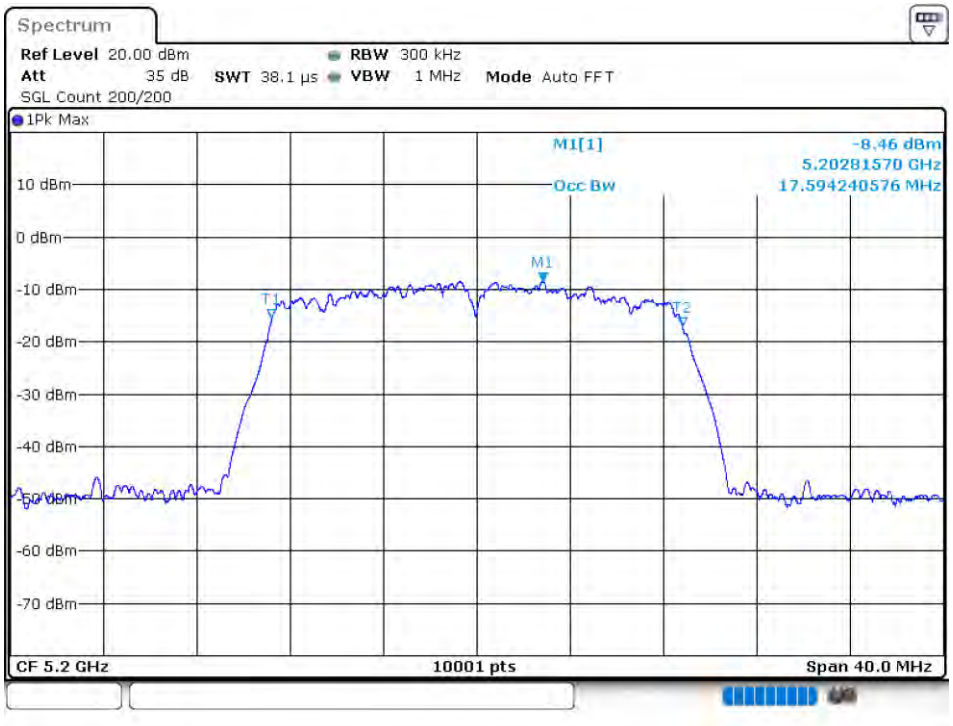

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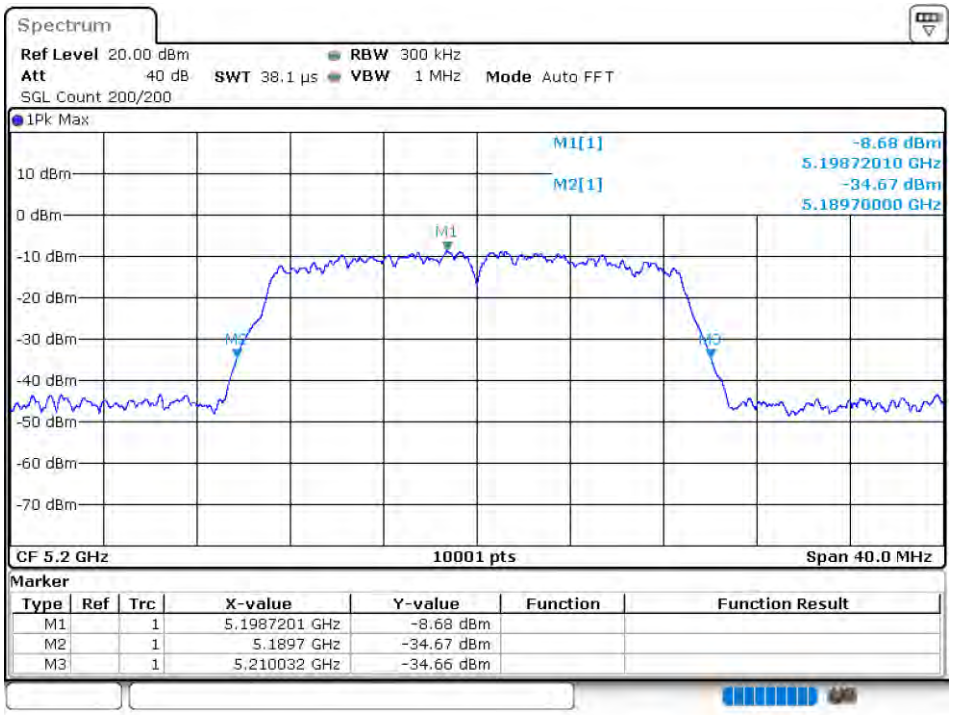

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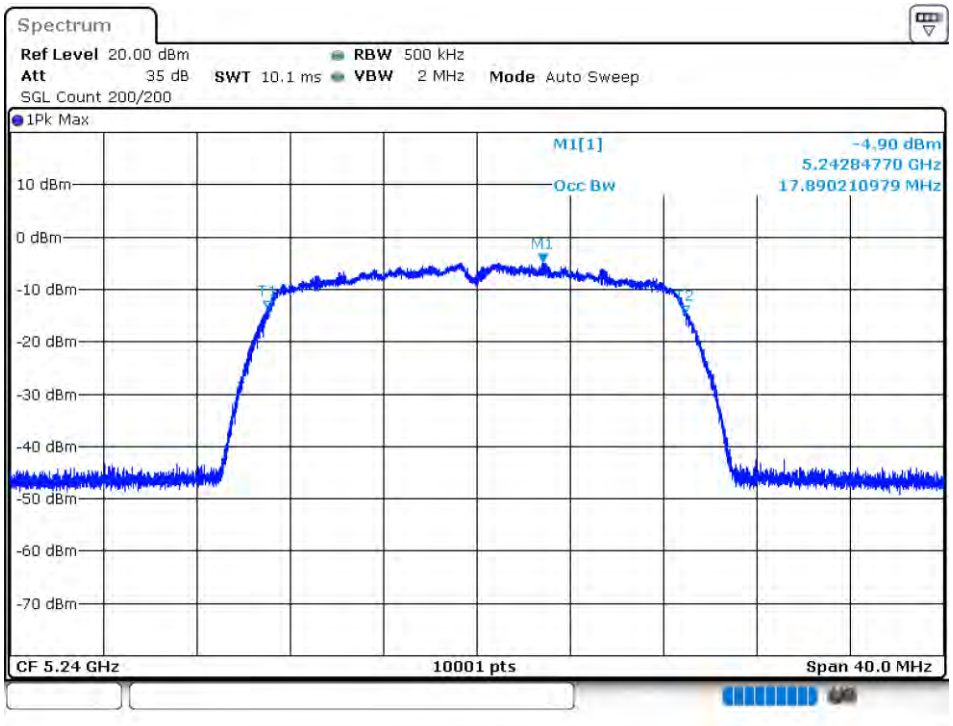

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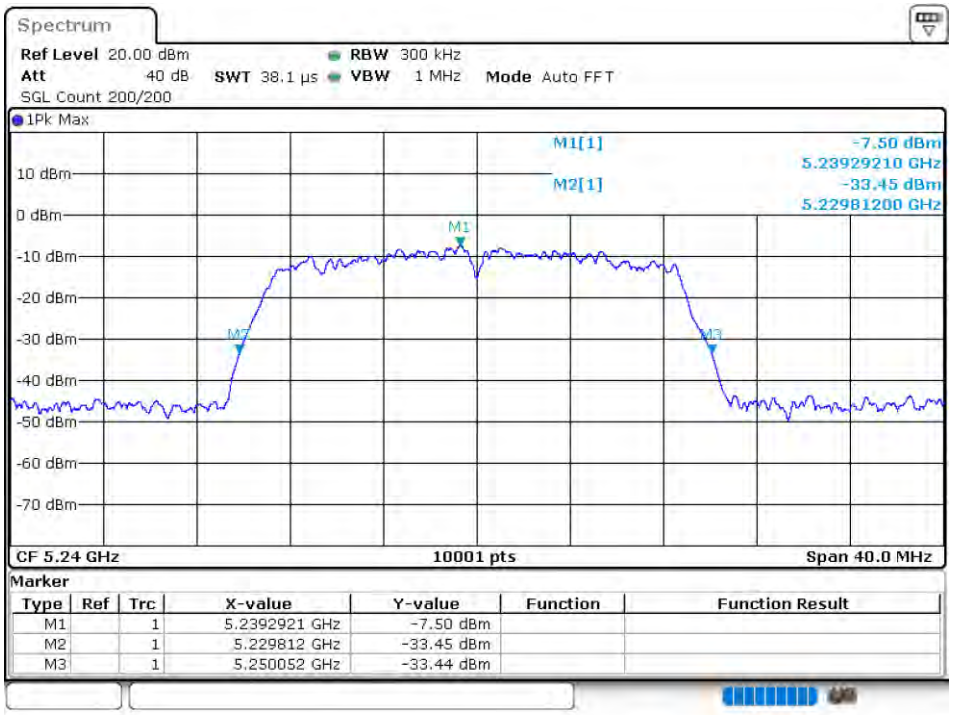

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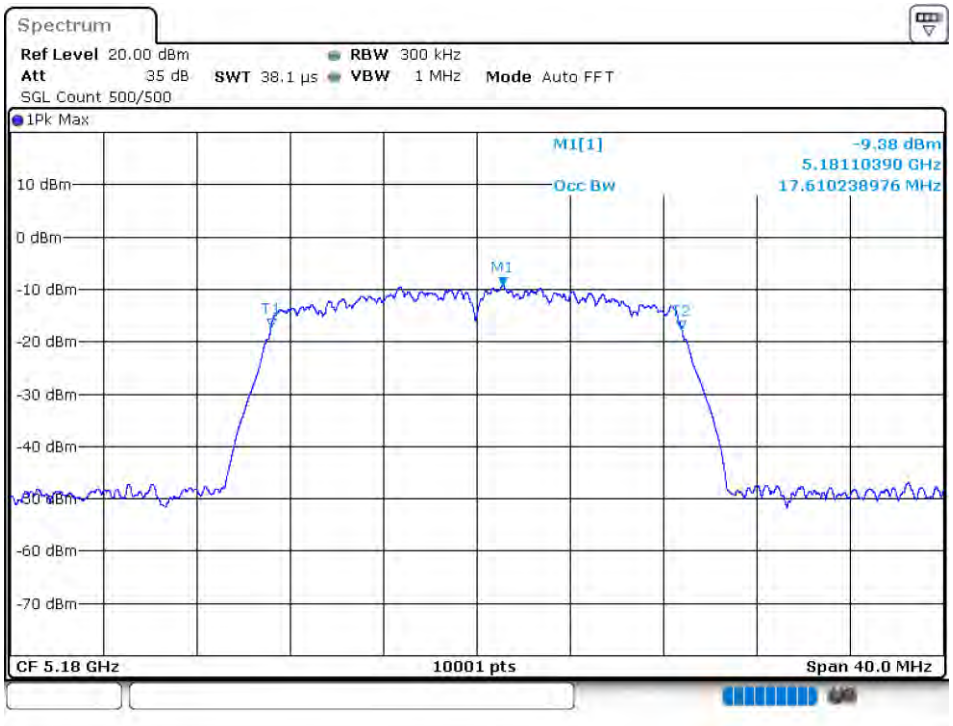
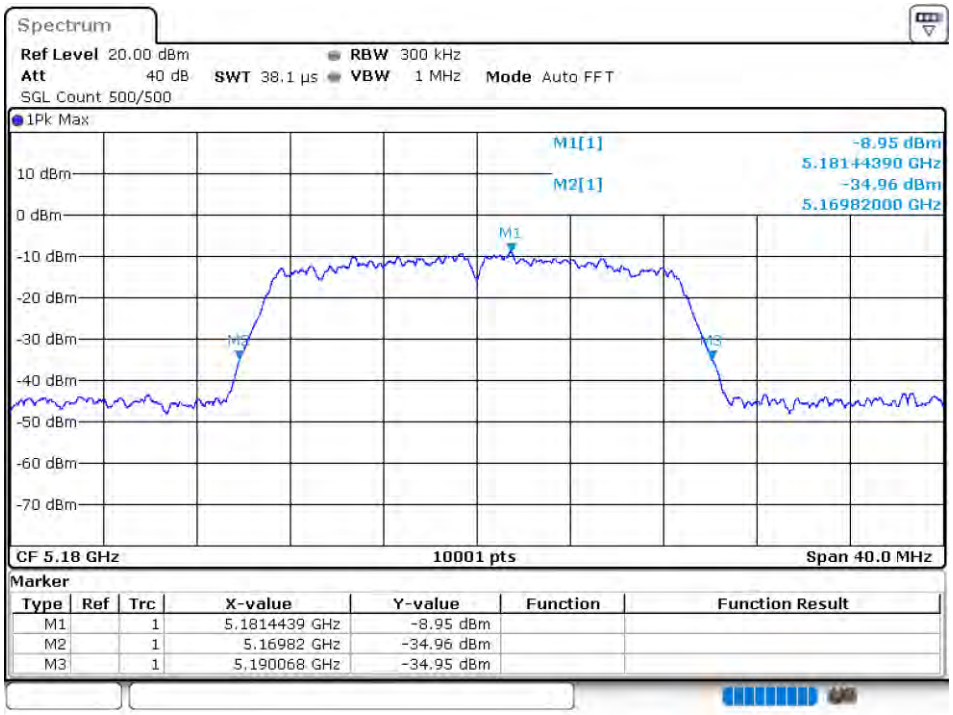
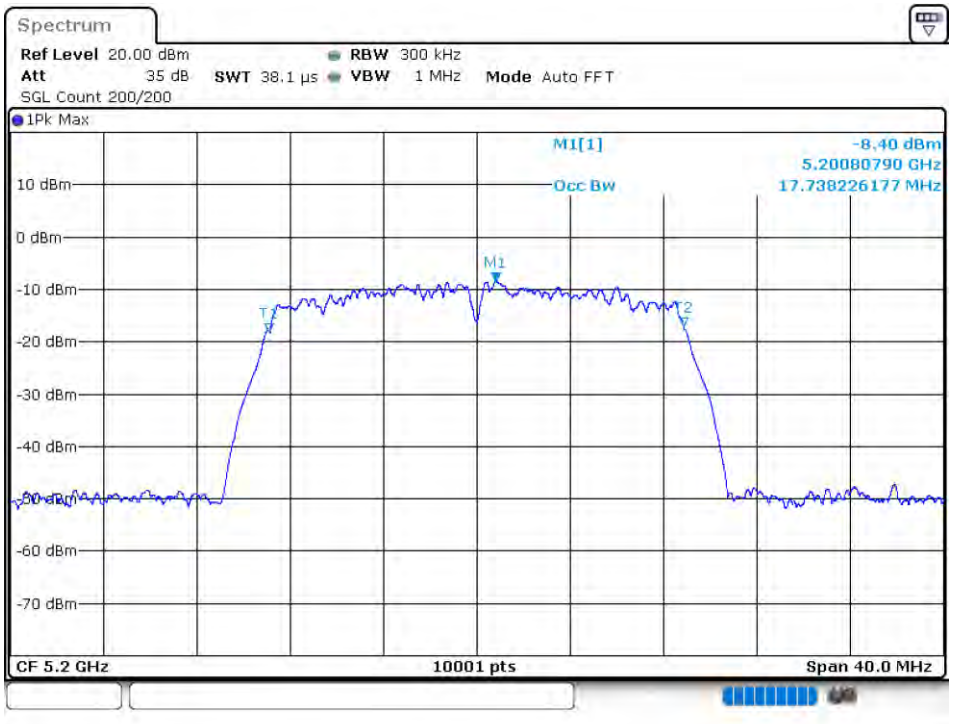


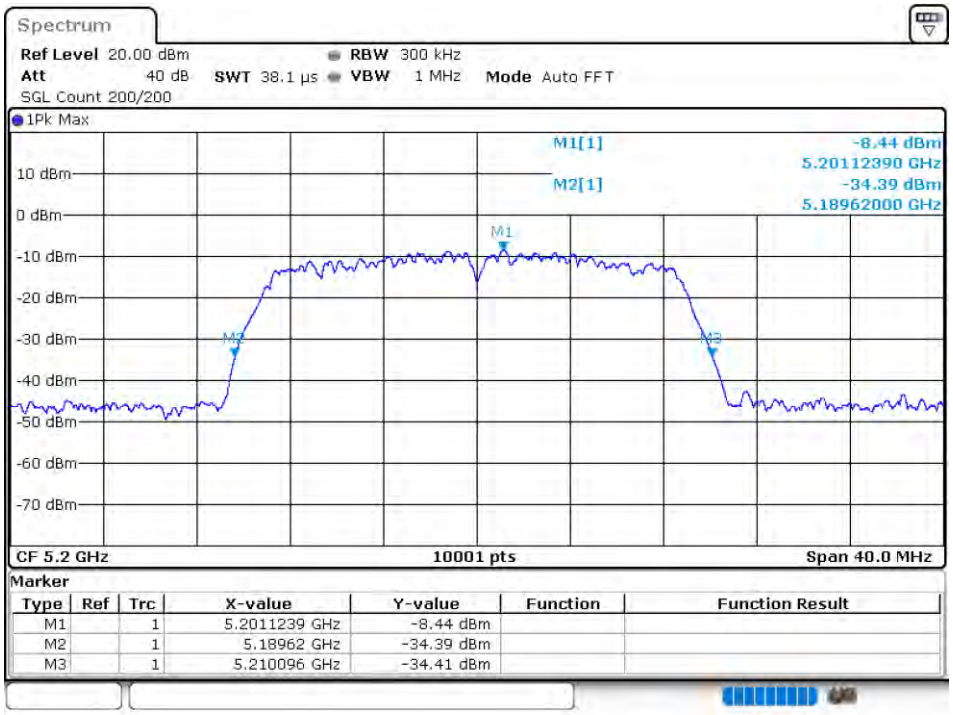
-26 dB BW NVNT 802.11ac20 5180MHz Ant 2



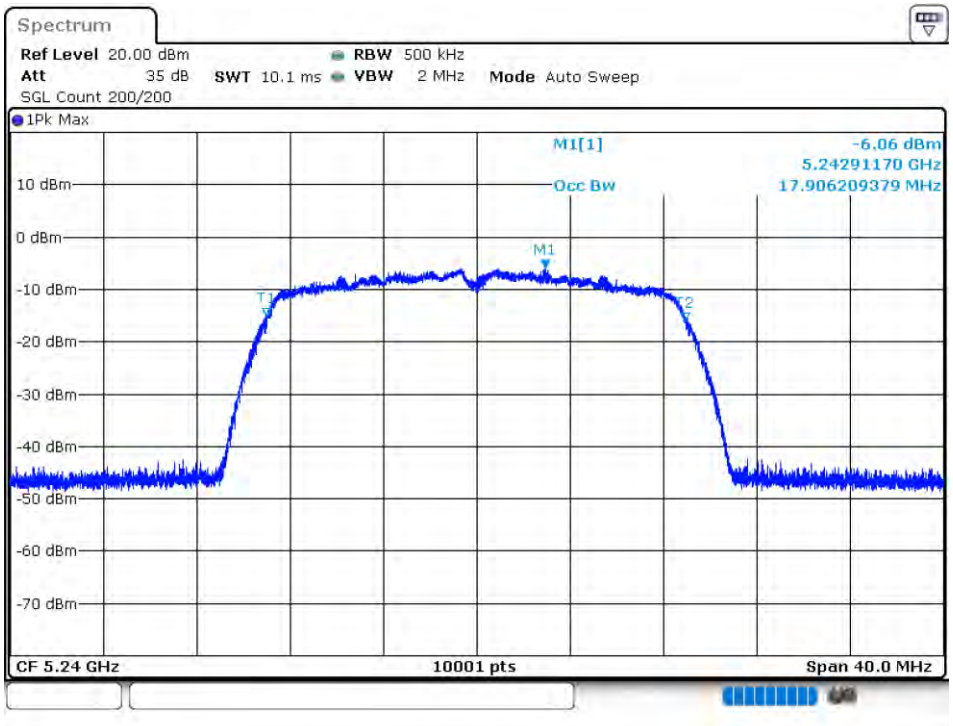
OBW NVNT 802.11ac20 5200MHz Ant 2



-26 dB BW NVNT 802.11ac20 5200MHz Ant 2



OBW NVNT 802.11ac20 5240MHz Ant 2



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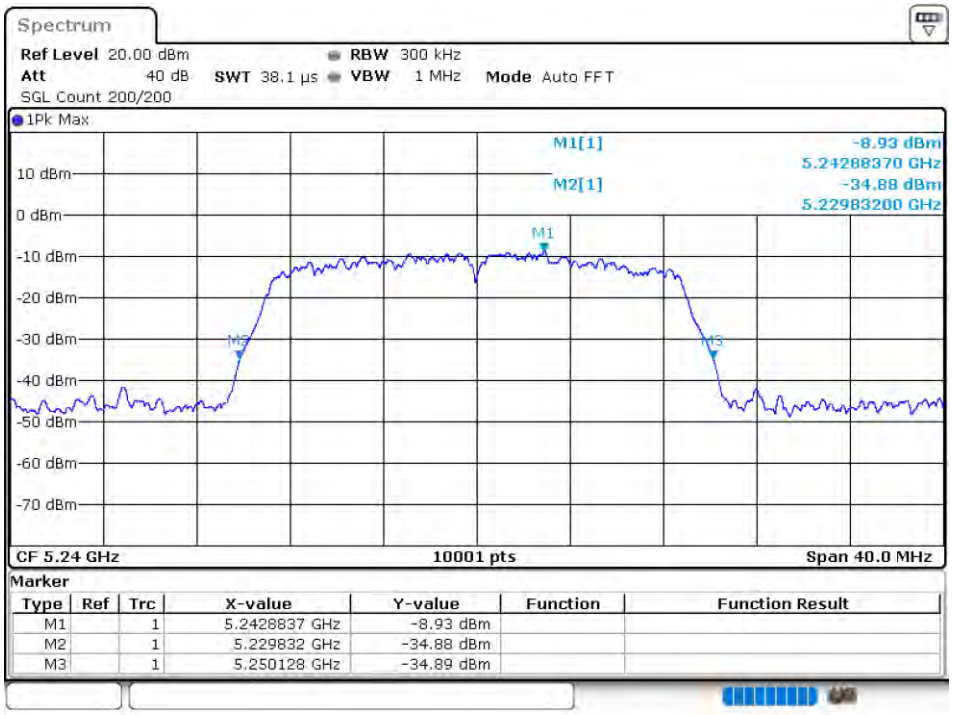
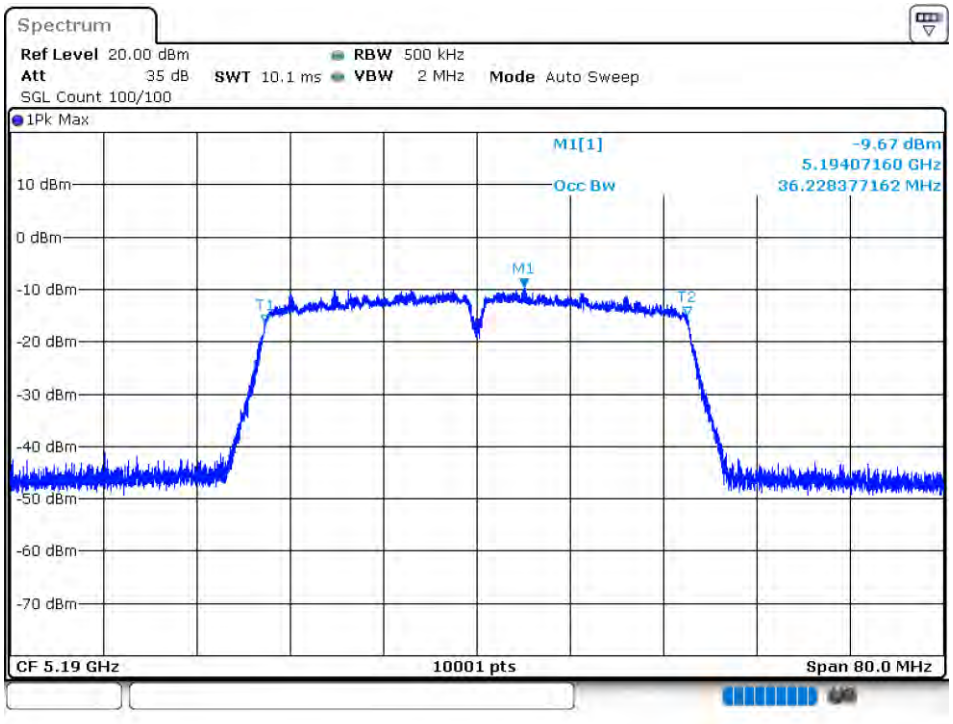
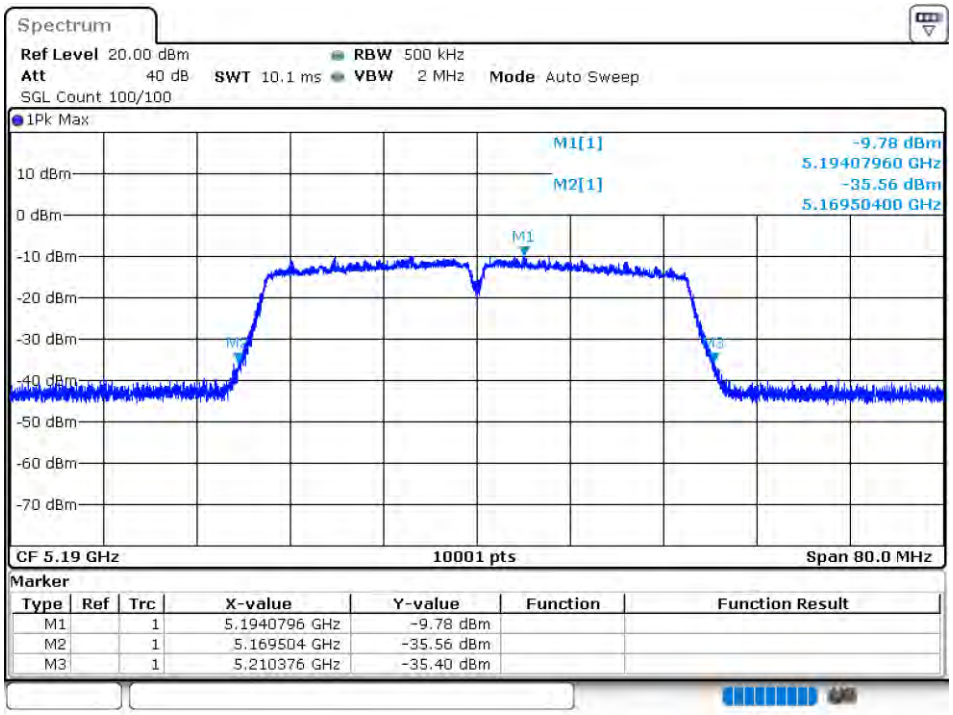


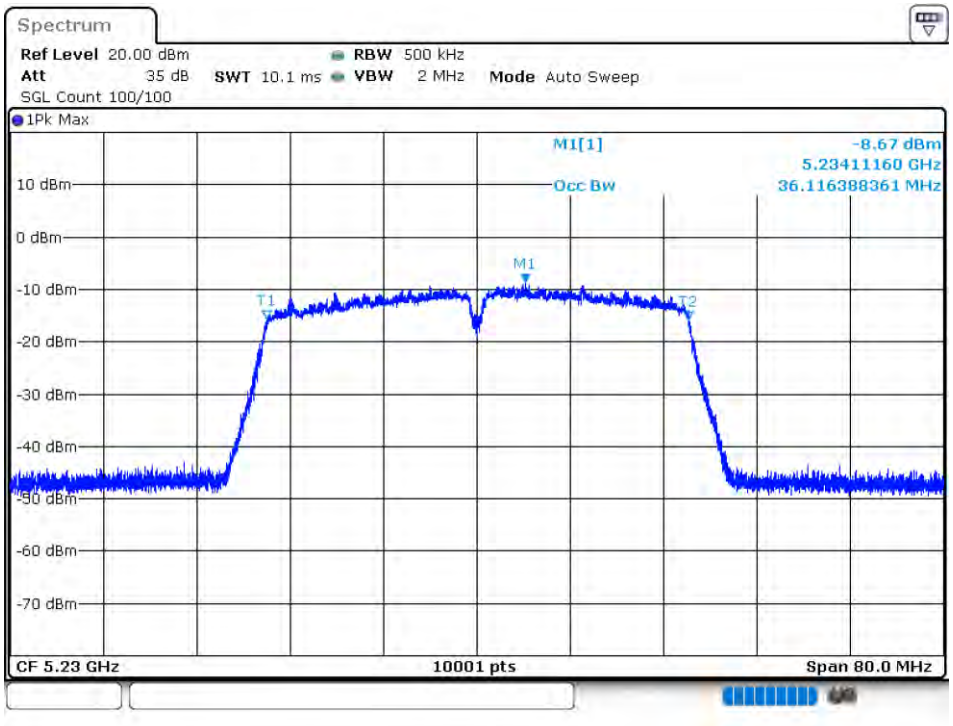
OBW NVNT 802.11ac40 5190MHz Ant 1



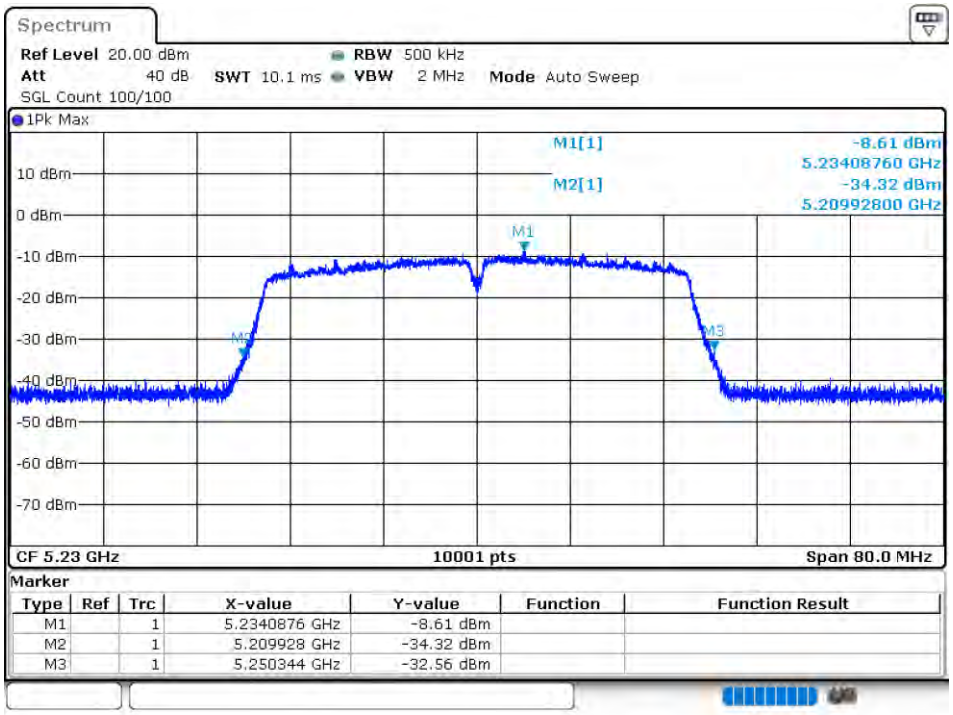
-26 dB BW NVNT 802.11ac40 5190MHz Ant 1



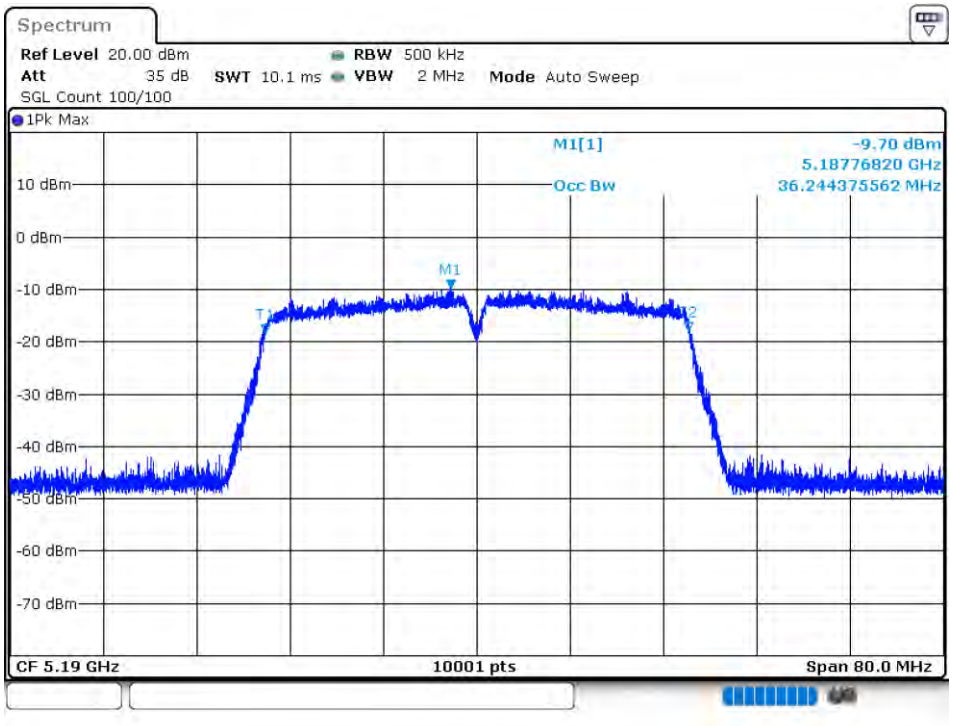
OBW NVNT 802.11ac40 5230MHz Ant 1



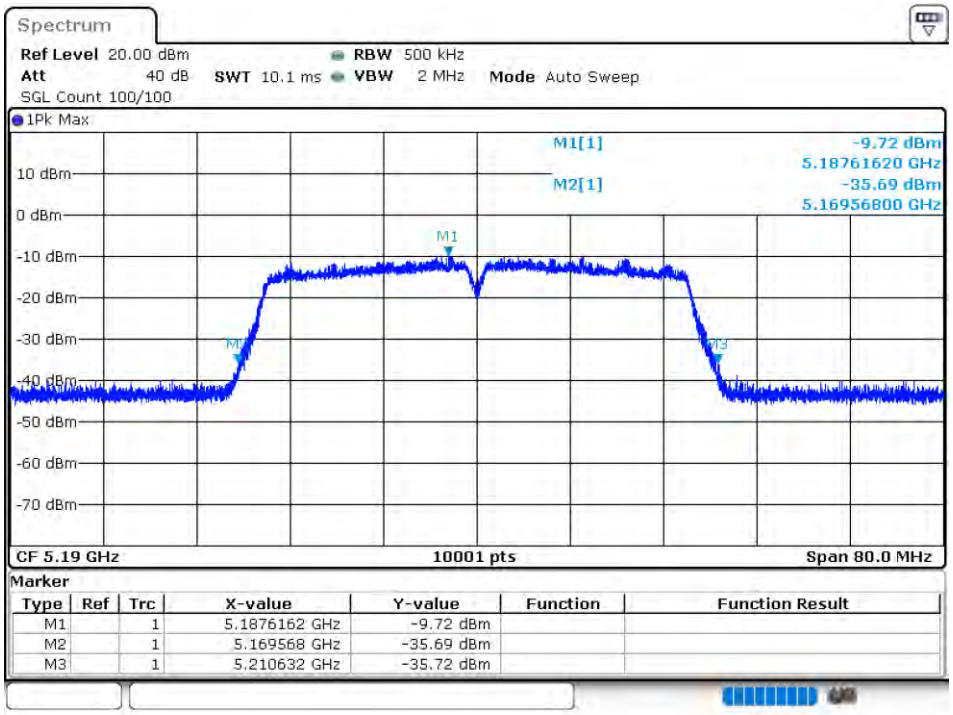
-26 dB BW NVNT 802.11ac40 5230MHz Ant 1



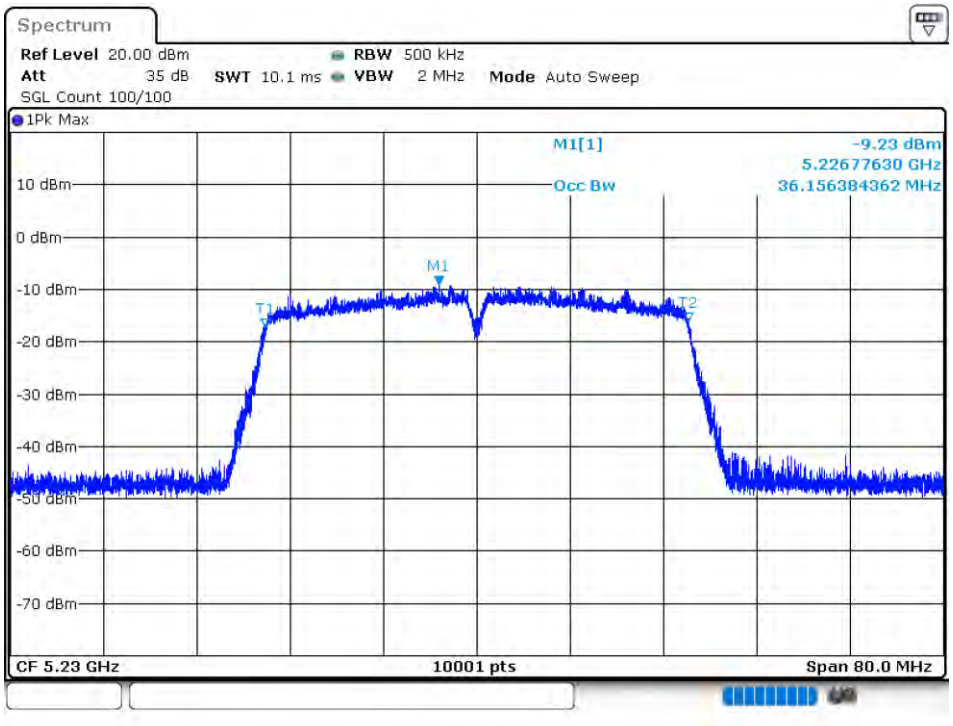
OBW NVNT 802.11ac40 5190MHz Ant 2



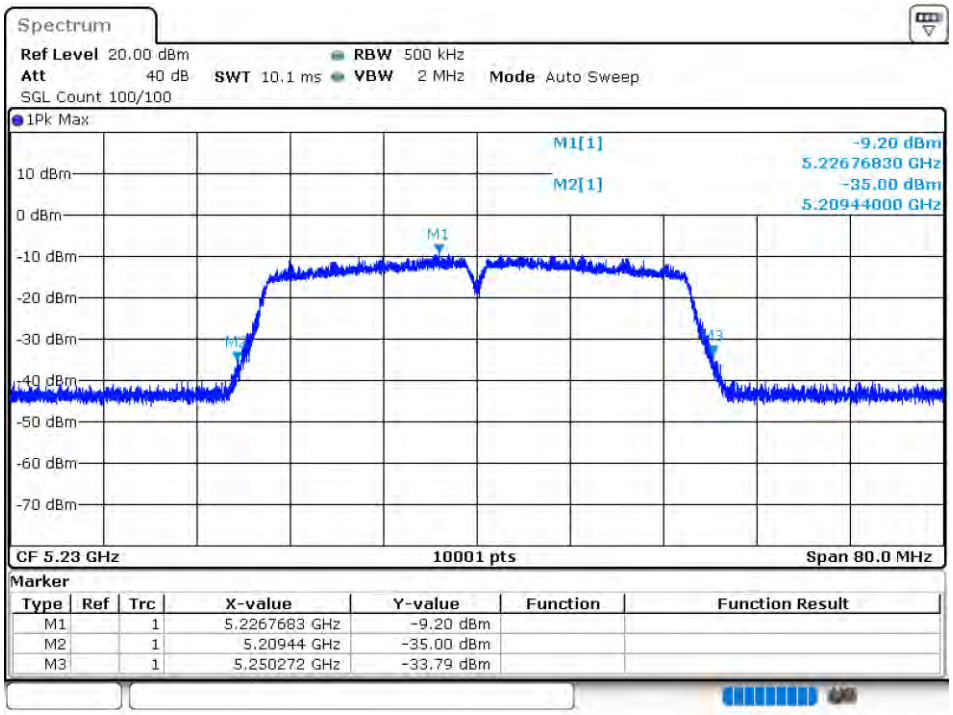
-26 dB BW NVNT 802.11ac40 5190MHz Ant 2



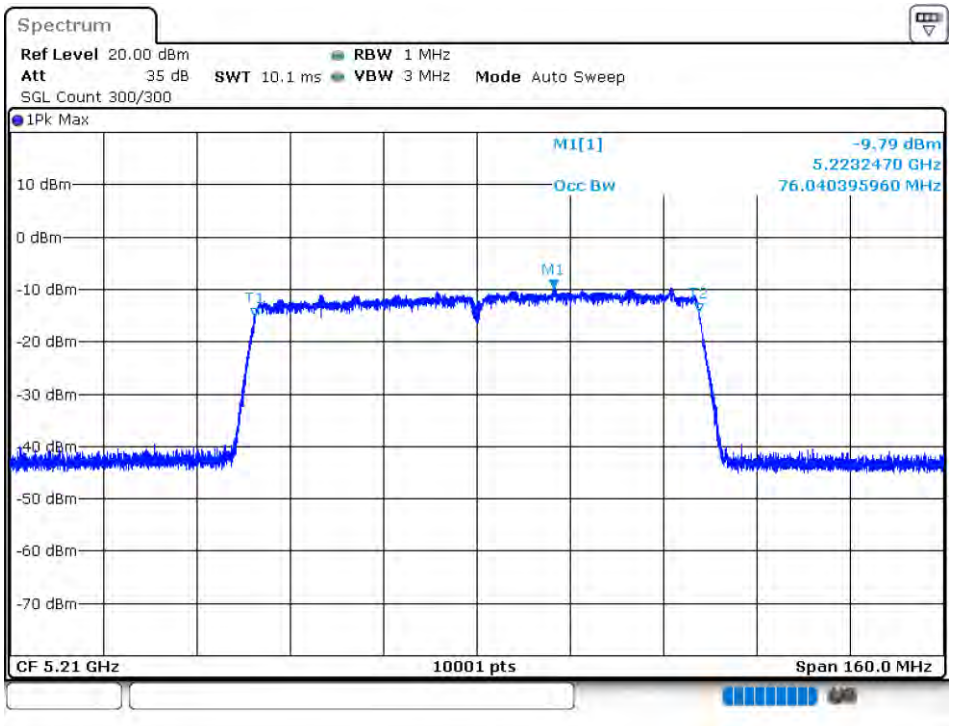
OBW NVNT 802.11ac40 5230MHz Ant 2



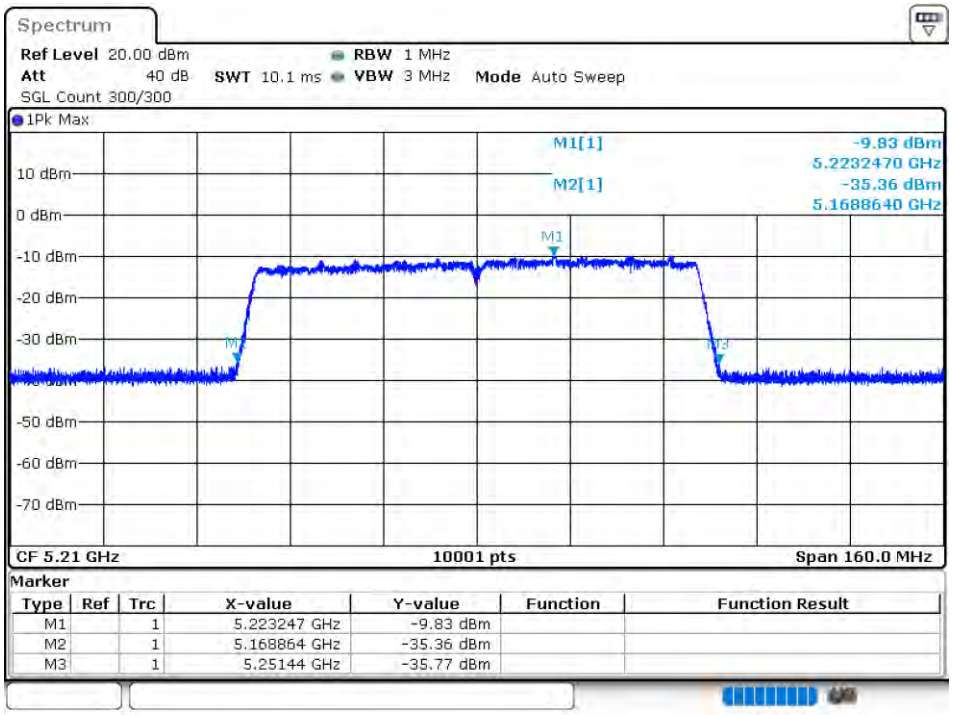
-26 dB BW NVNT 802.11ac40 5230MHz Ant 2



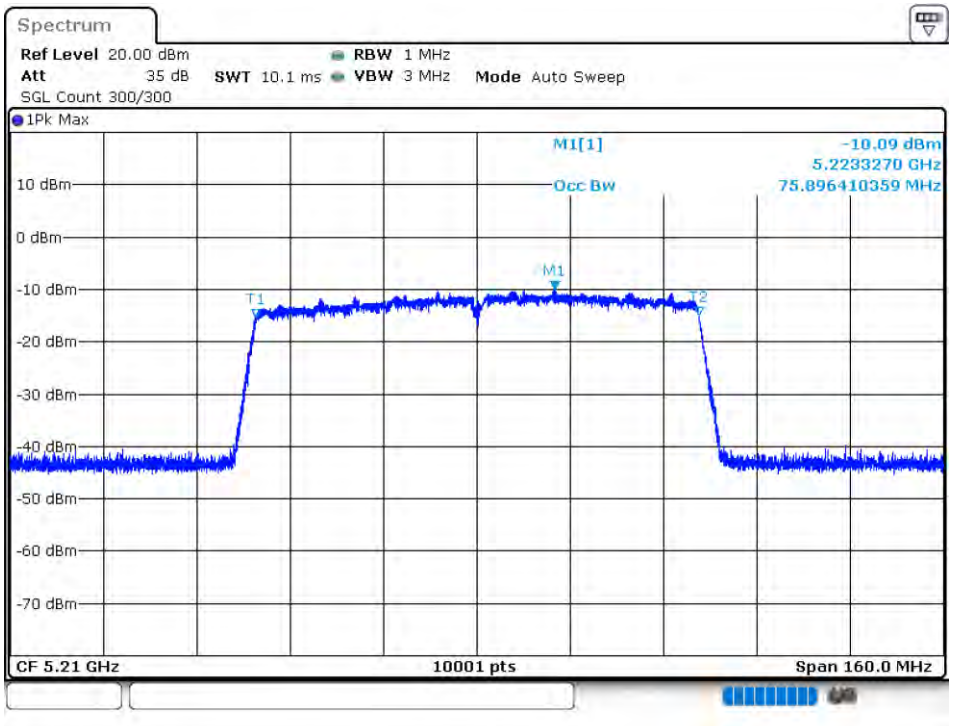
OBW NVNT 802.11ac80 5210MHz Ant 1



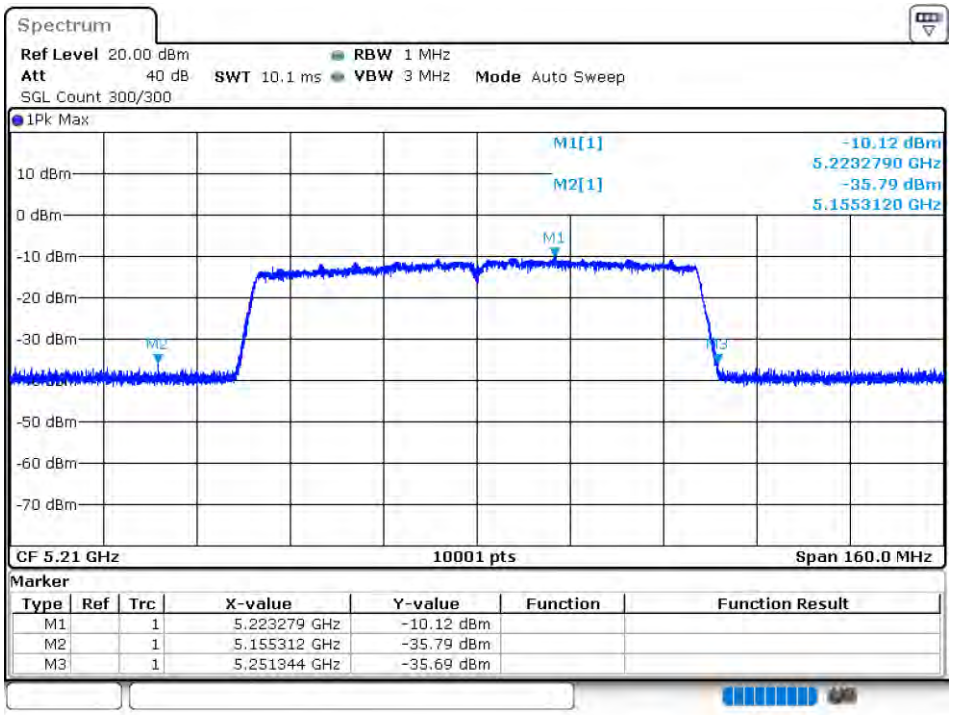
-26 dB BW NVNT 802.11ac80 5210MHz Ant 1



OBW NVNT 802.11ac80 5210MHz Ant 2

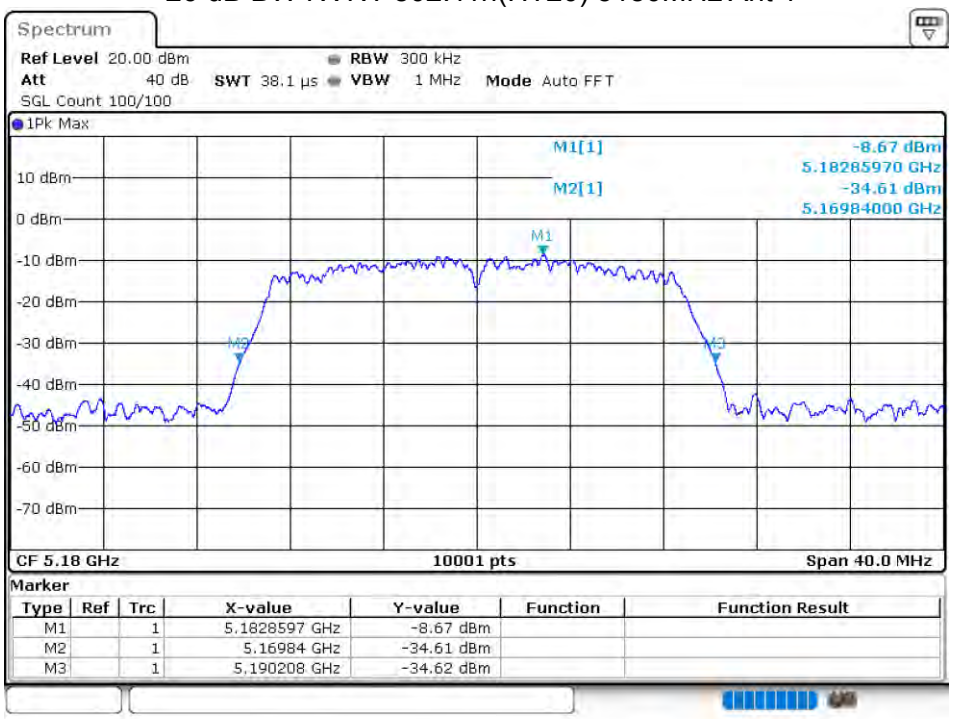


-26 dB BW NVNT 802.11ac80 5210MHz Ant 2

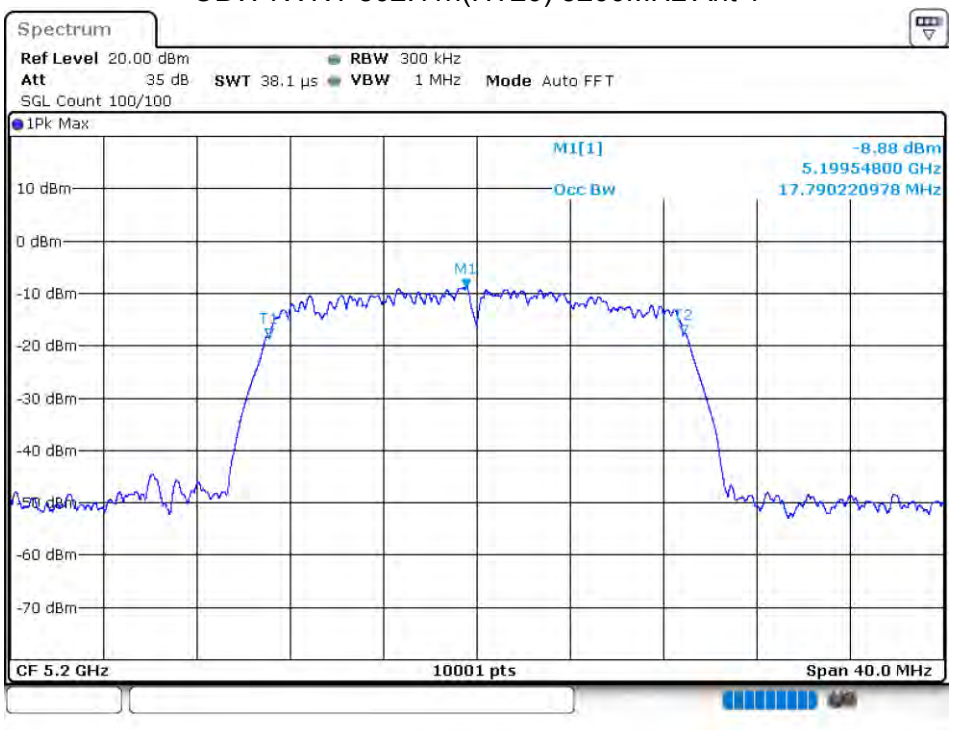


OBW NVNT 802.11n(HT20) 5180MHz Ant 1

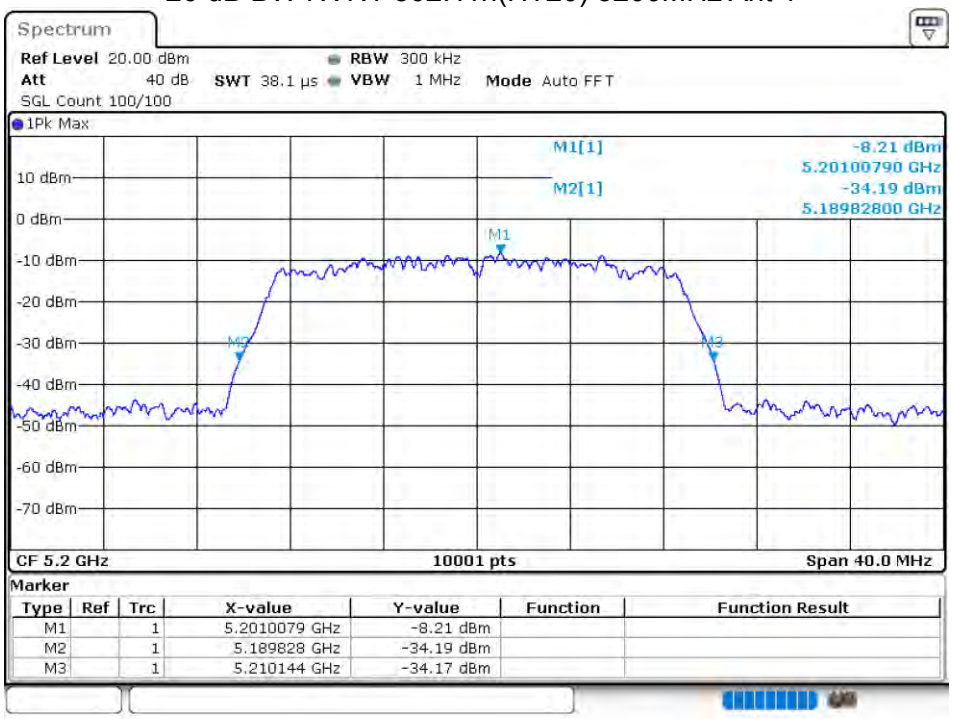
-26 dB BW NVNT 802.11n(HT20) 5180MHz Ant 1



OBW NVNT 802.11n(HT20) 5200MHz Ant 1

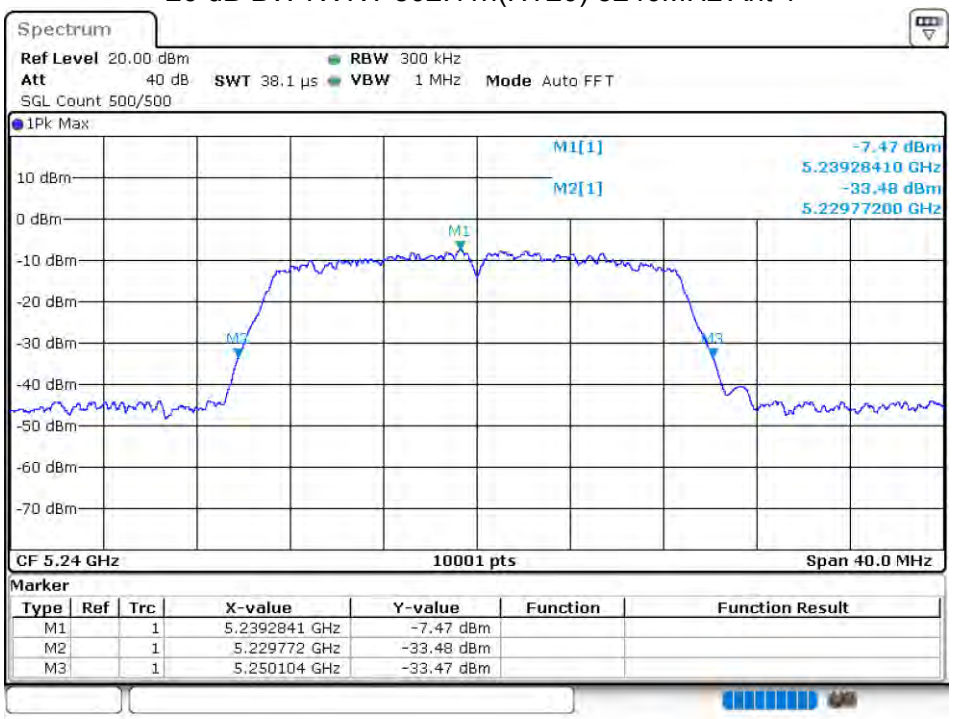


-26 dB BW NVNT 802.11n(HT20) 5200MHz Ant 1



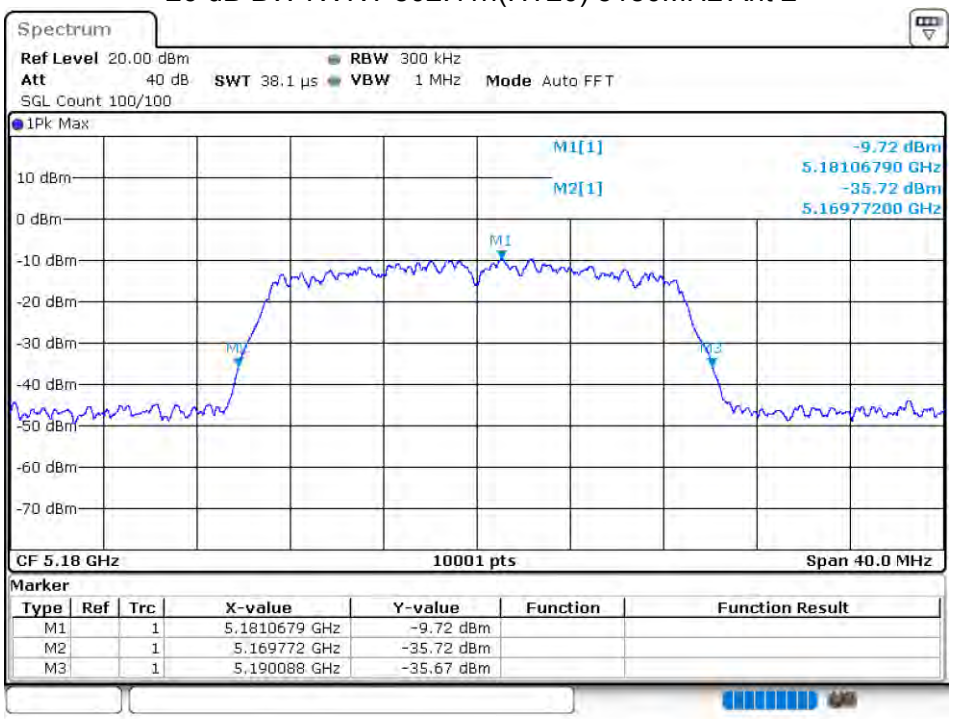
OBW NVNT 802.11n(HT20) 5240MHz Ant 1

-26 dB BW NVNT 802.11n(HT20) 5240MHz Ant 1

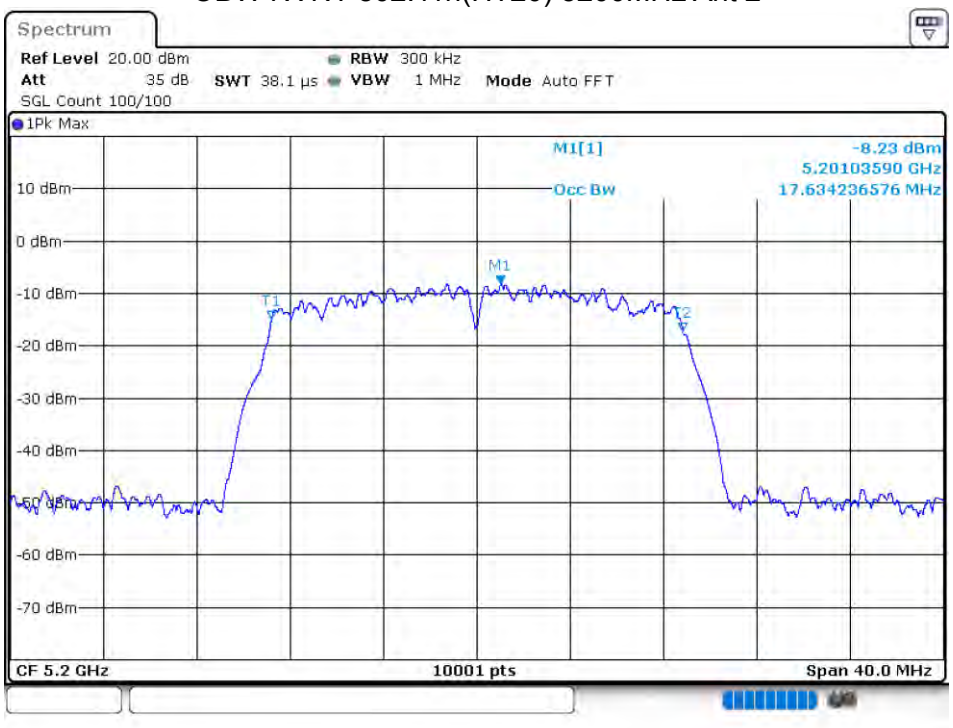


OBW NVNT 802.11n(HT20) 5180MHz Ant 2

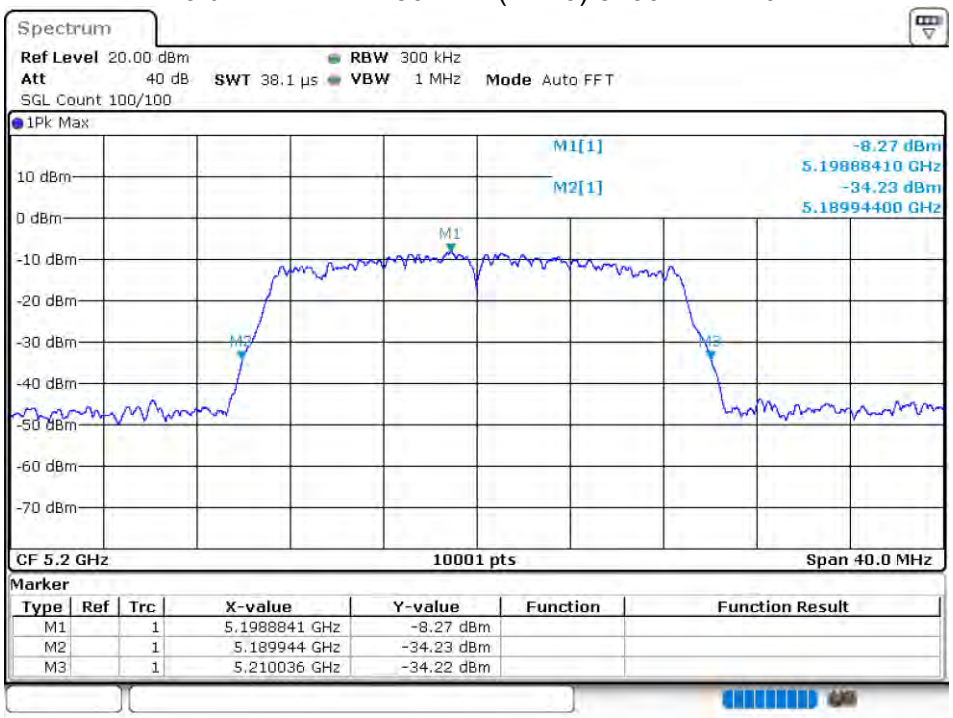
-26 dB BW NVNT 802.11n(HT20) 5180MHz Ant 2



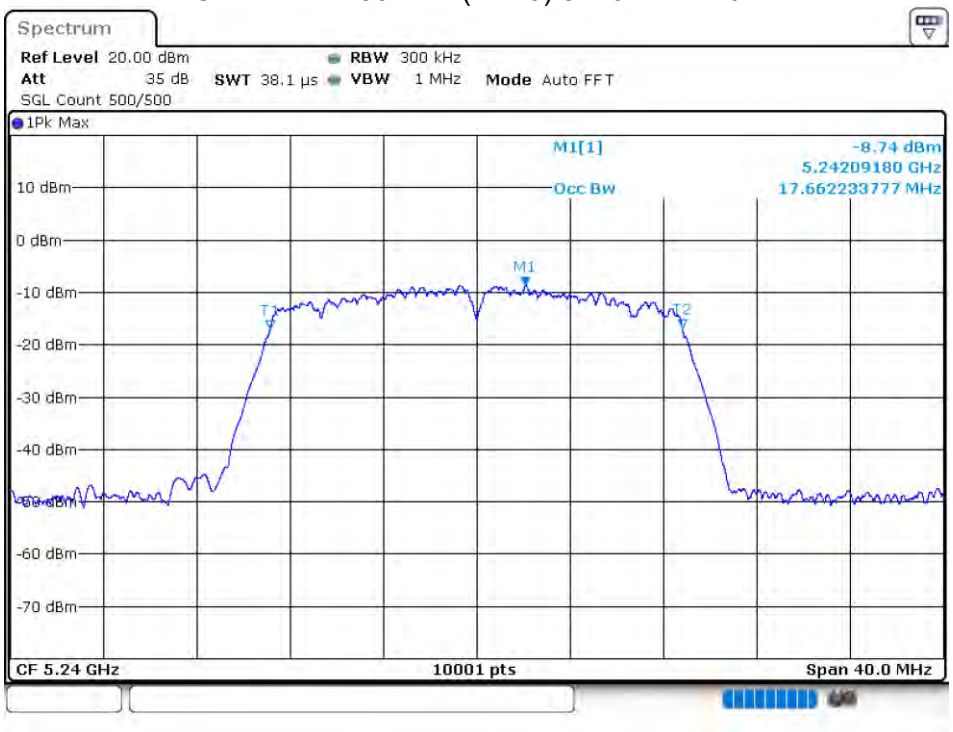
OBW NVNT 802.11n(HT20) 5200MHz Ant 2



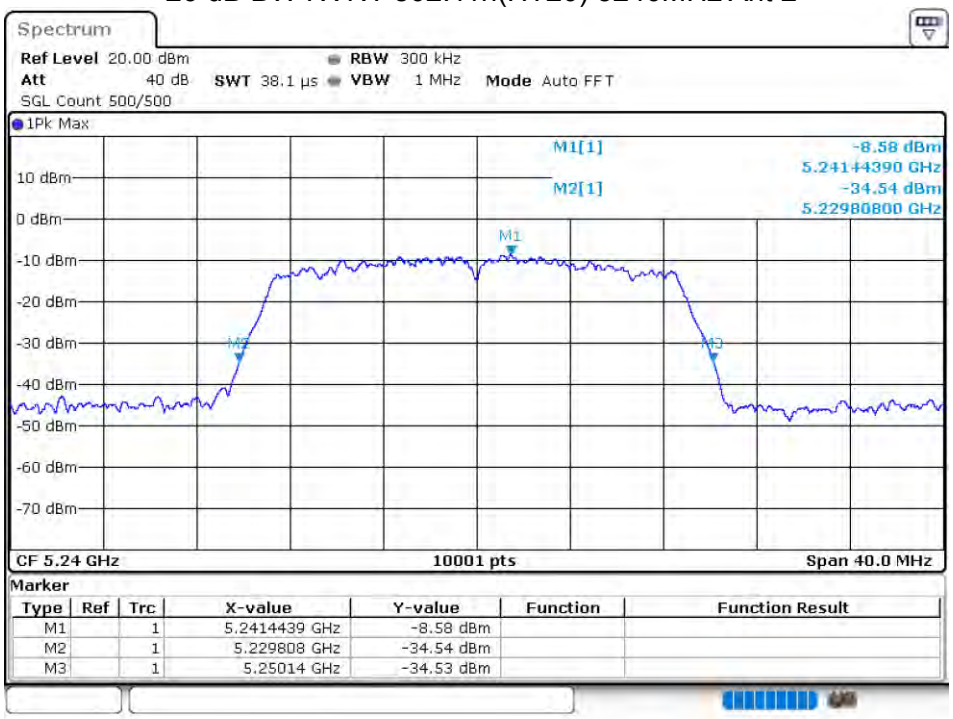
-26 dB BW NVNT 802.11n(HT20) 5200MHz Ant 2



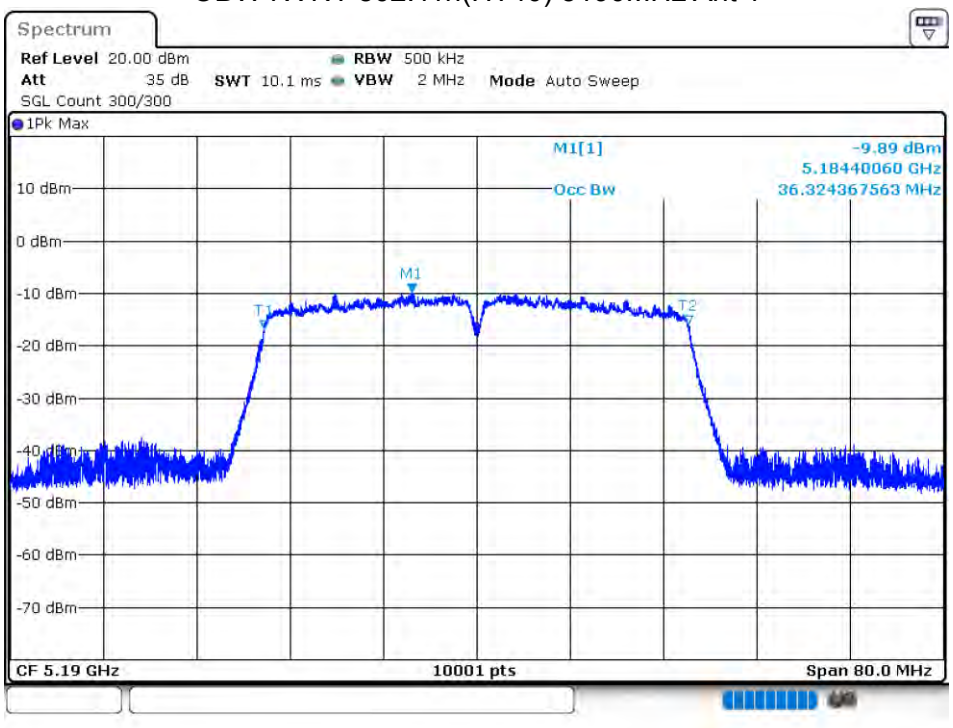
OBW NVNT 802.11n(HT20) 5240MHz Ant 2



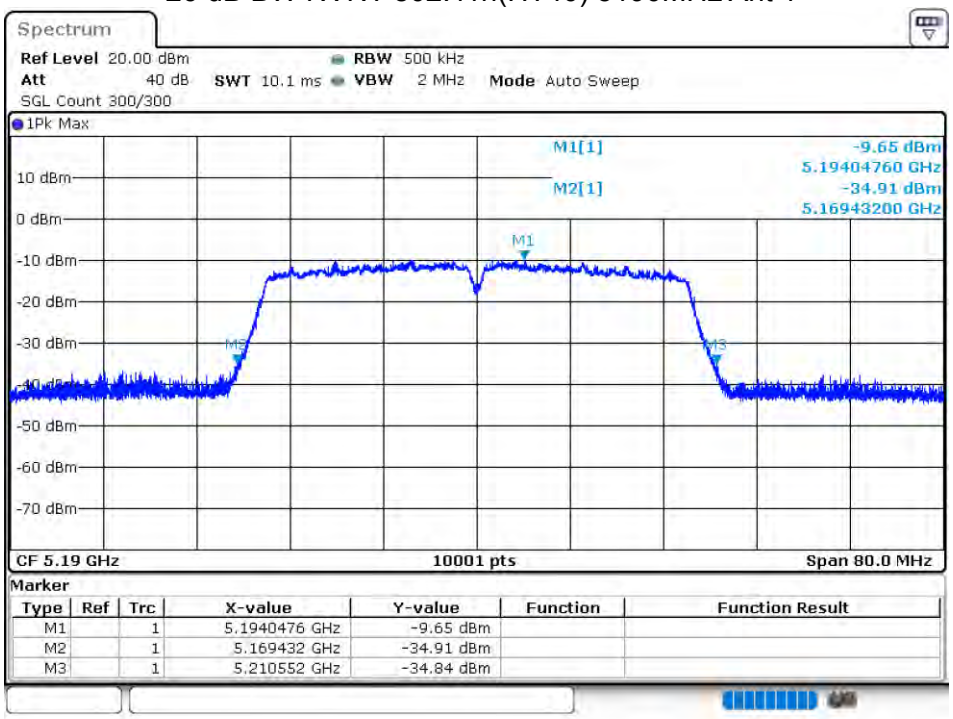
-26 dB BW NVNT 802.11n(HT20) 5240MHz Ant 2



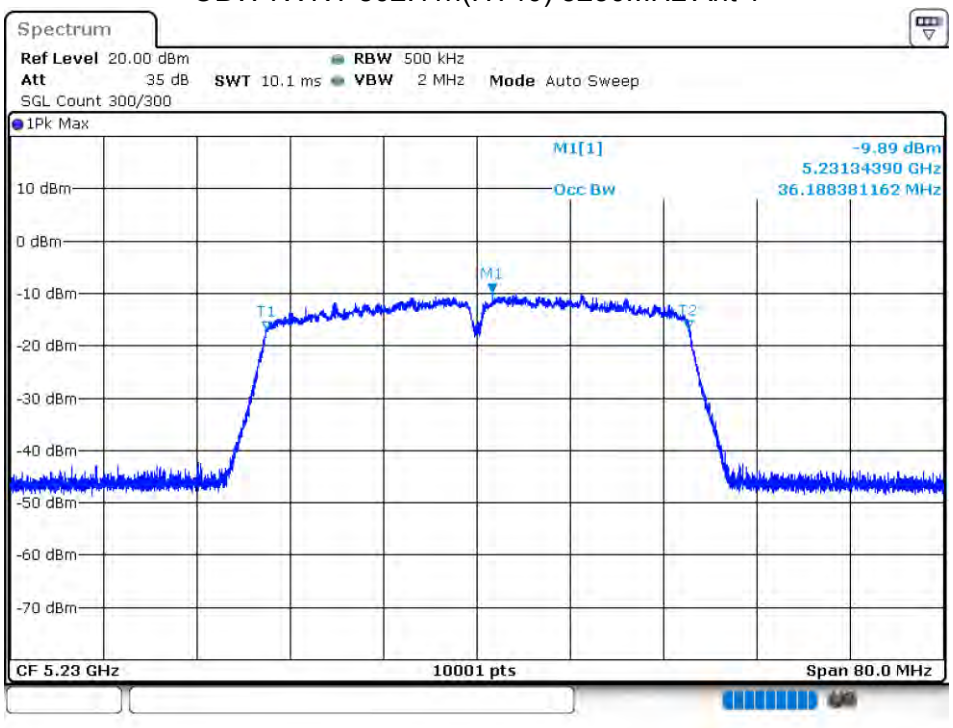
OBW NVNT 802.11n(HT40) 5190MHz Ant 1



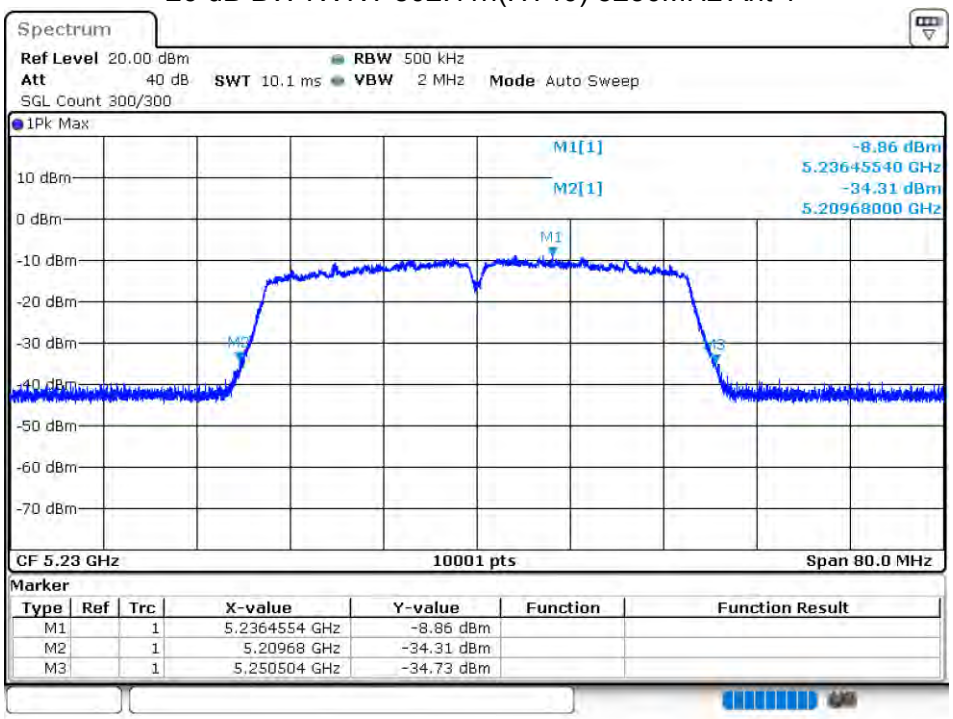
-26 dB BW NVNT 802.11n(HT40) 5190MHz Ant 1



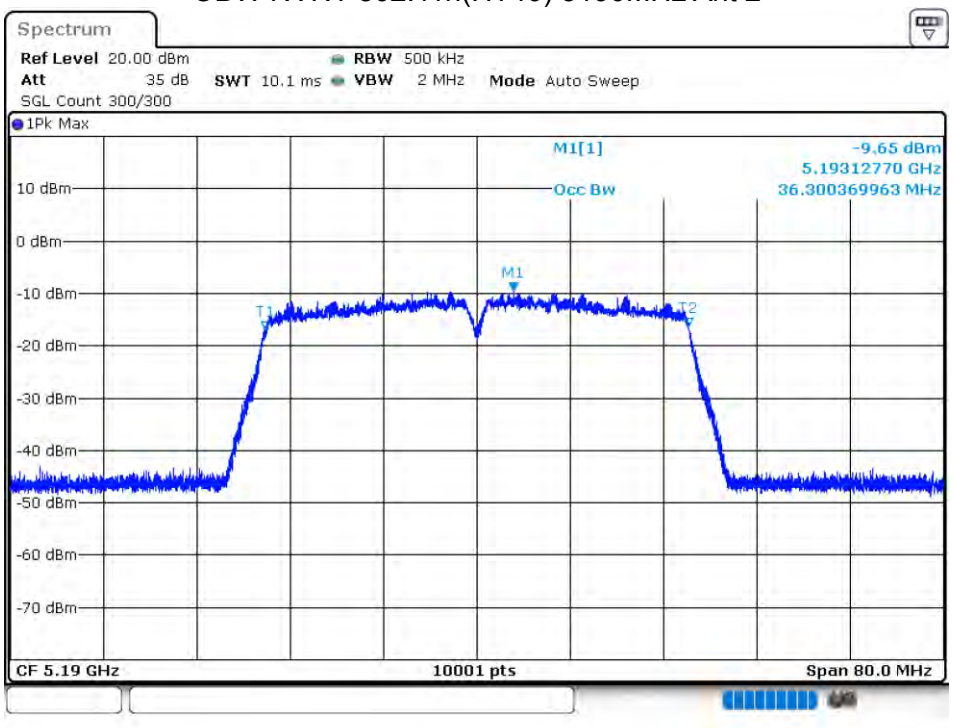
OBW NVNT 802.11n(HT40) 5230MHz Ant 1



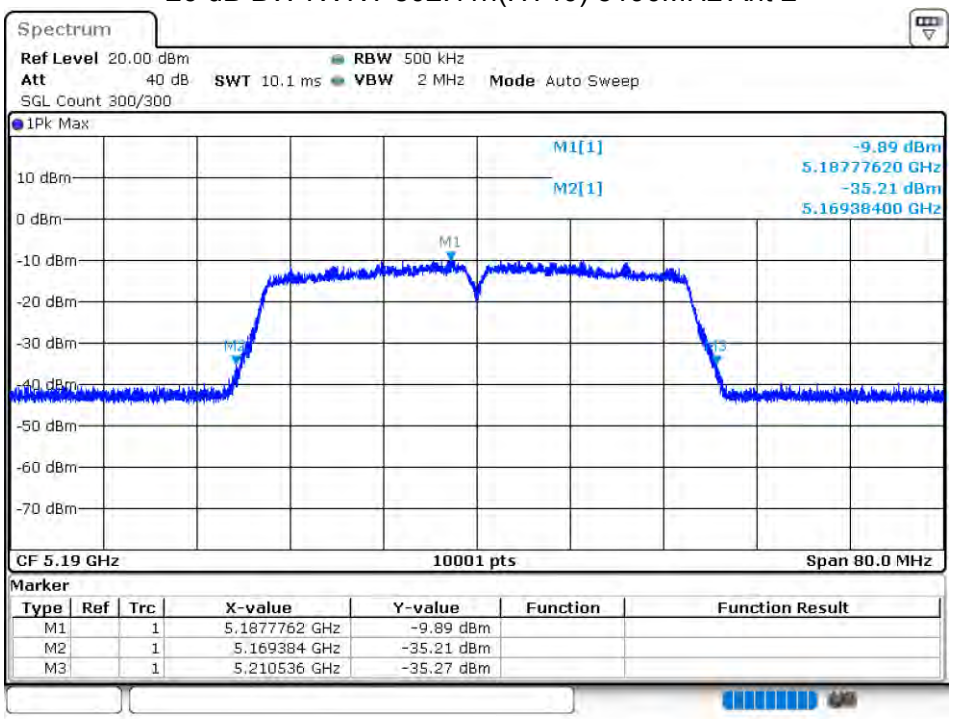
-26 dB BW NVNT 802.11n(HT40) 5230MHz Ant 1



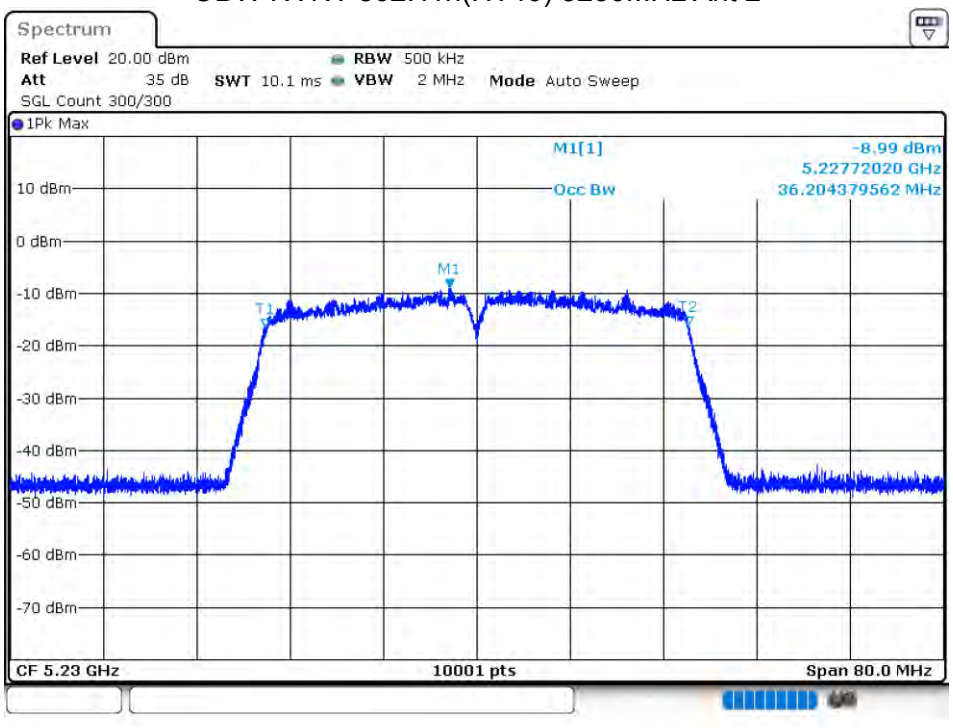
OBW NVNT 802.11n(HT40) 5190MHz Ant 2



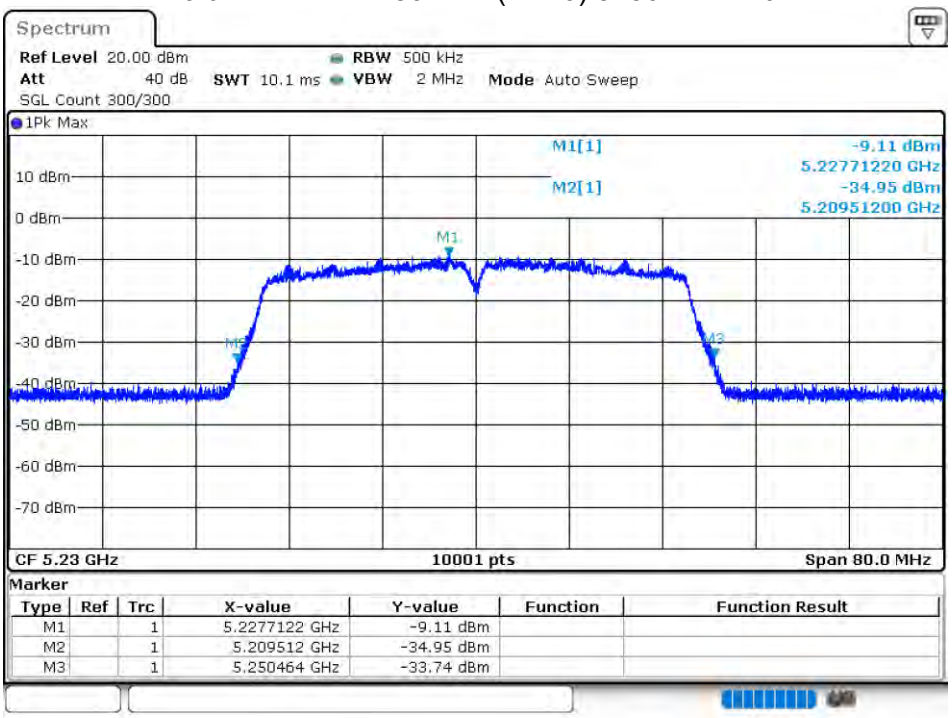
-26 dB BW NVNT 802.11n(HT40) 5190MHz Ant 2



OBW NVNT 802.11n(HT40) 5230MHz Ant 2



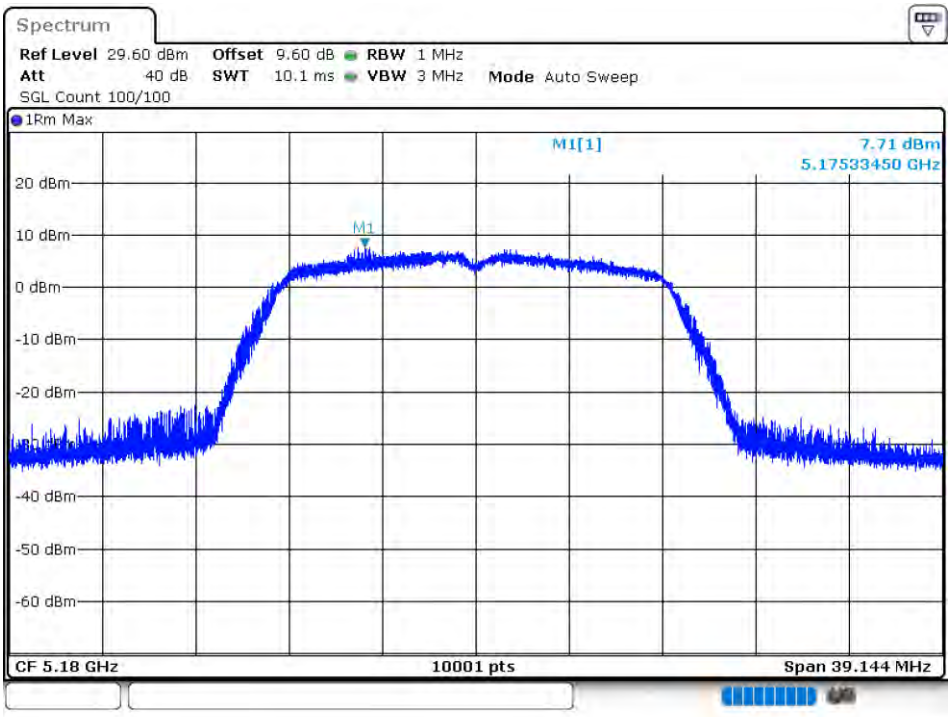
-26 dB BW NVNT 802.11n(HT40) 5230MHz Ant 2



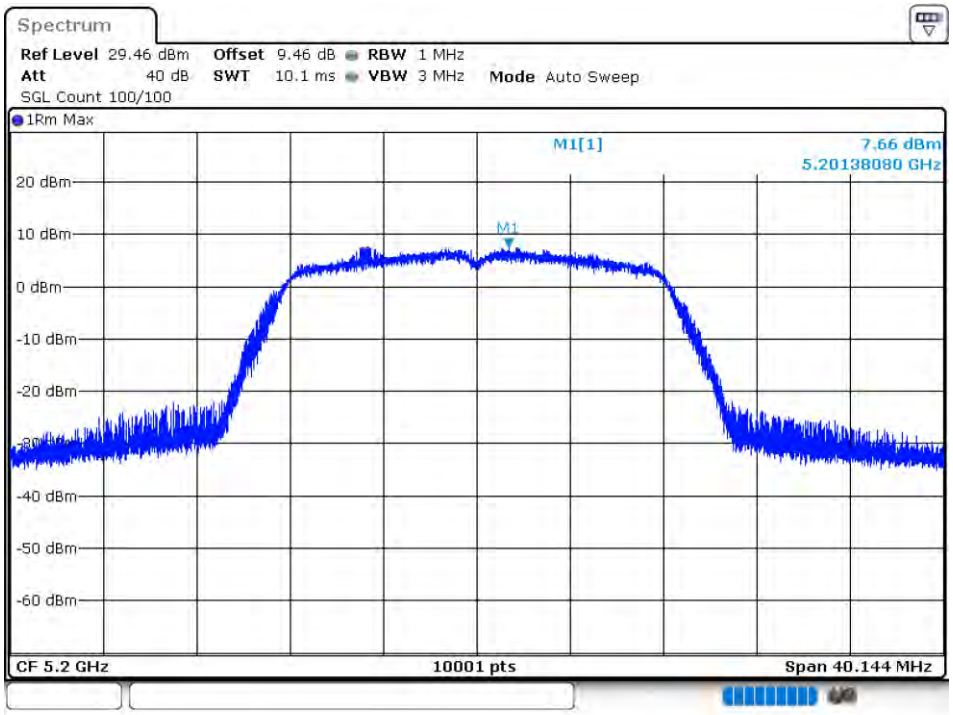
11.4 MAXIMUM POWER SPECTRAL DENSITY LEVEL

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
NVNT	802.11a	5180	Ant 1	7.715	0.27	7.985	11	Pass
NVNT	802.11a	5200	Ant 1	7.658	0.27	7.928	11	Pass
NVNT	802.11a	5240	Ant 1	8.608	0.27	8.878	11	Pass
NVNT	802.11a	5180	Ant 2	7.894	0.27	8.164	11	Pass
NVNT	802.11a	5200	Ant 2	7.107	0.26	7.367	11	Pass
NVNT	802.11a	5240	Ant 2	8.638	0.26	8.898	11	Pass
NVNT	802.11ac20	5180	Ant 1	5.029	0.28	5.309	11	Pass
NVNT	802.11ac20	5200	Ant 1	5.055	0.28	5.335	11	Pass
NVNT	802.11ac20	5240	Ant 1	5.779	0.28	6.059	11	Pass
NVNT	802.11ac20	5180	Ant 2	4.044	0.28	4.324	11	Pass
NVNT	802.11ac20	5200	Ant 2	4.997	0.28	5.277	11	Pass
NVNT	802.11ac20	5240	Ant 2	4.328	0.28	4.608	11	Pass
NVNT	802.11ac40	5190	Ant 1	0.813	0.53	1.343	11	Pass
NVNT	802.11ac40	5230	Ant 1	1.644	0.53	2.174	11	Pass
NVNT	802.11ac40	5190	Ant 2	0.688	1.44	2.128	11	Pass
NVNT	802.11ac40	5230	Ant 2	1.253	1.45	2.703	11	Pass
NVNT	802.11ac80	5210	Ant 1	-2.573	1.58	-0.993	11	Pass
NVNT	802.11ac80	5210	Ant 2	-2.663	1.56	-1.103	11	Pass
NVNT	802.11n(HT20)	5180	Ant 1	4.661	0.28	4.941	11	Pass
NVNT	802.11n(HT20)	5200	Ant 1	4.986	0.29	5.276	11	Pass
NVNT	802.11n(HT20)	5240	Ant 1	6.172	0.29	6.462	11	Pass
NVNT	802.11n(HT20)	5180	Ant 2	3.998	0.29	4.288	11	Pass
NVNT	802.11n(HT20)	5200	Ant 2	5.641	0.28	5.921	11	Pass
NVNT	802.11n(HT20)	5240	Ant 2	4.92	0.28	5.2	11	Pass
NVNT	802.11n(HT40)	5190	Ant 1	0.31	0.55	0.86	11	Pass
NVNT	802.11n(HT40)	5230	Ant 1	1.553	0.55	2.103	11	Pass
NVNT	802.11n(HT40)	5190	Ant 2	0.87	1.5	2.37	11	Pass
NVNT	802.11n(HT40)	5230	Ant 2	1.982	1.49	3.472	11	Pass

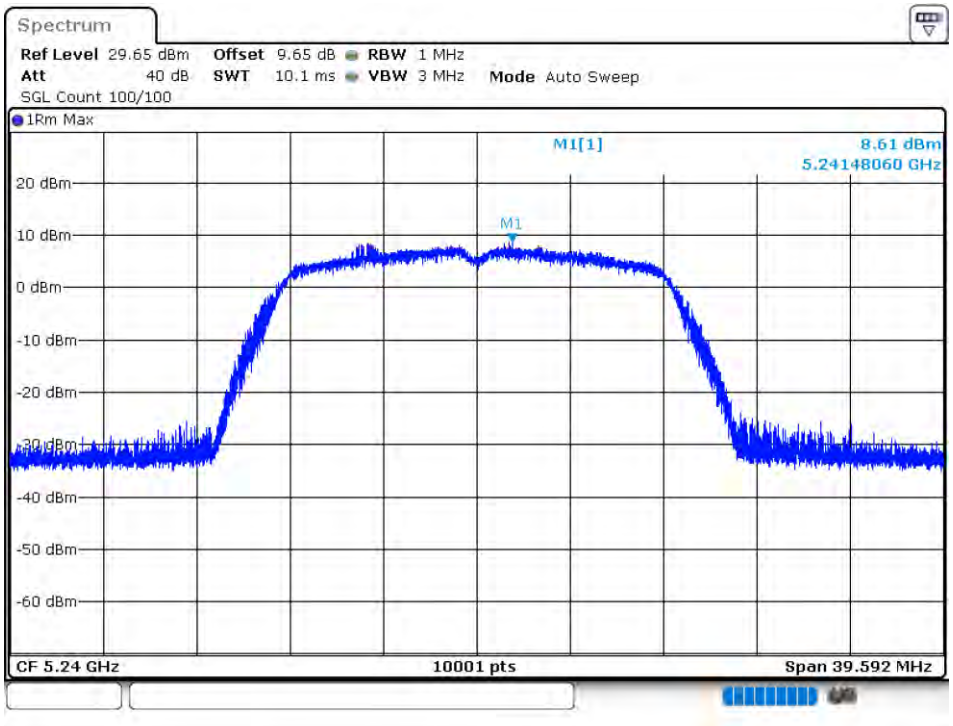
PSD NVNT 802.11a 5180MHz Ant 1


Spectrum
Ref Level 29.60 dBm Offset 9.60 dB RBW 1 MHz
Att 40 dB SWT 10.1 ms VBW 3 MHz Mode Auto Sweep
SGL Count 100/100
1Rm Max
M1[1]
7.71 dBm
5.17533450 GHz
M1
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-40 dBm
-50 dBm
-60 dBm
CF 5.18 GHz
10001 pts
Span 39.144 MHz

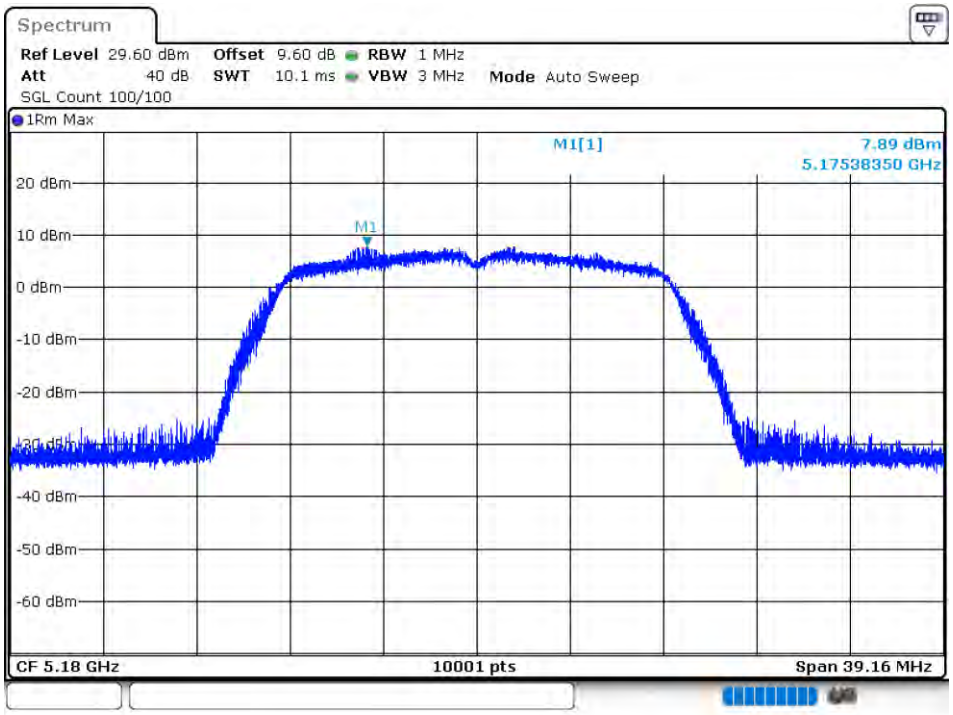
PSD NVNT 802.11a 5200MHz Ant 1



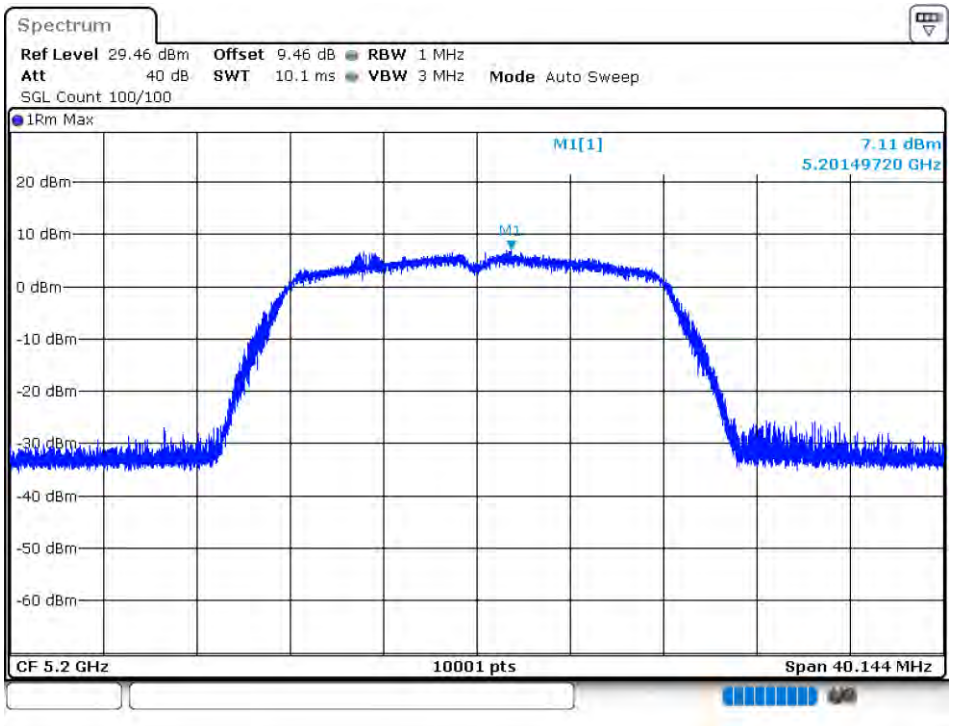
PSD NVNT 802.11a 5240MHz Ant 1



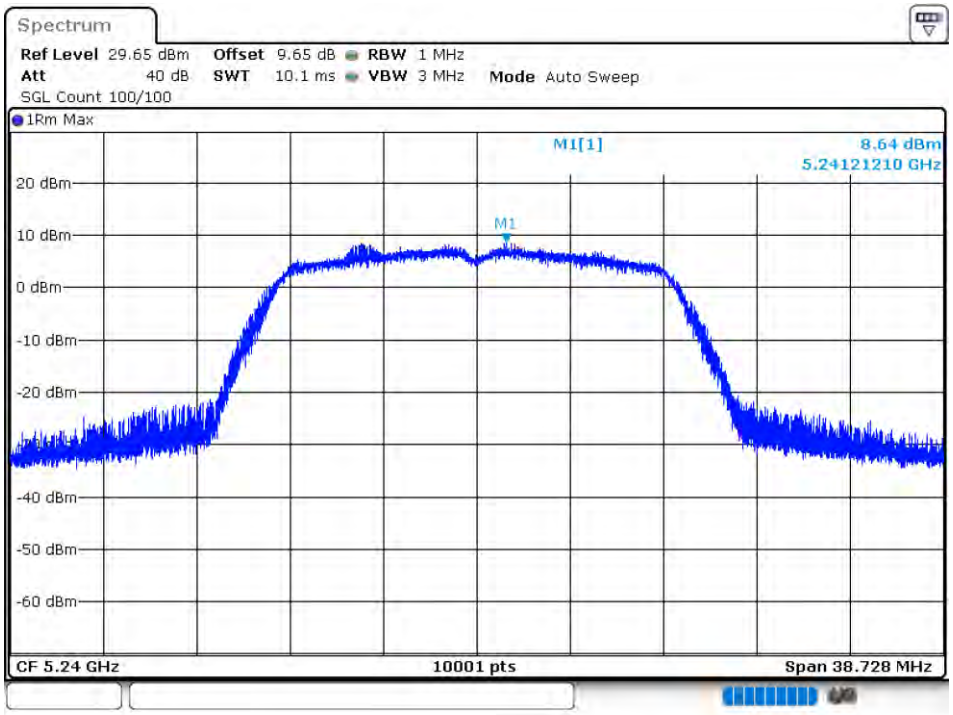
PSD NVNT 802.11a 5180MHz Ant 2



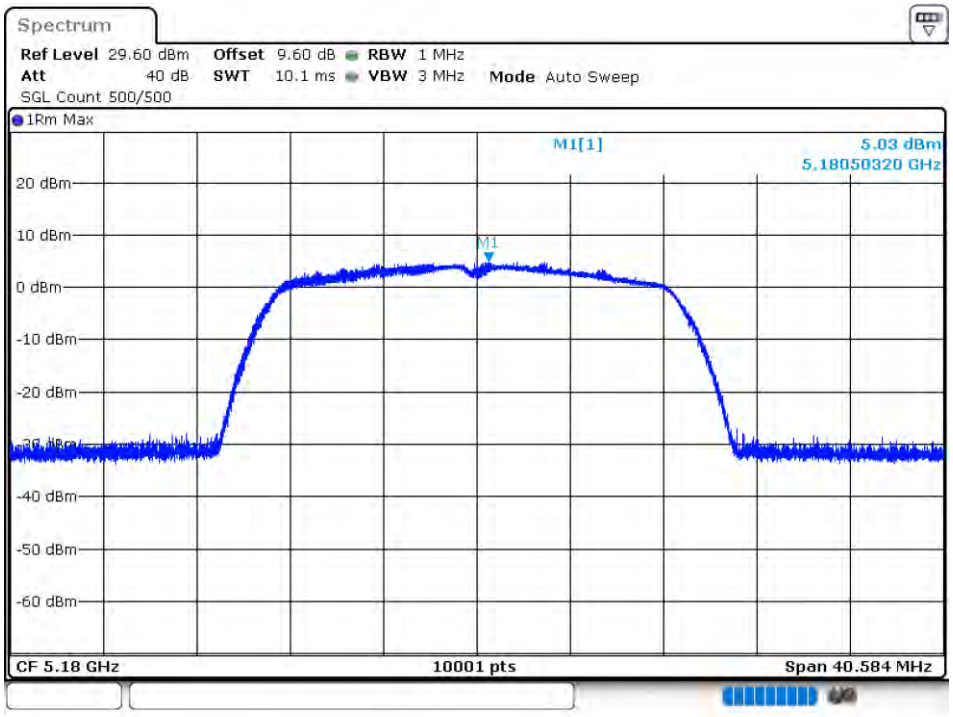
PSD NVNT 802.11a 5200MHz Ant 2



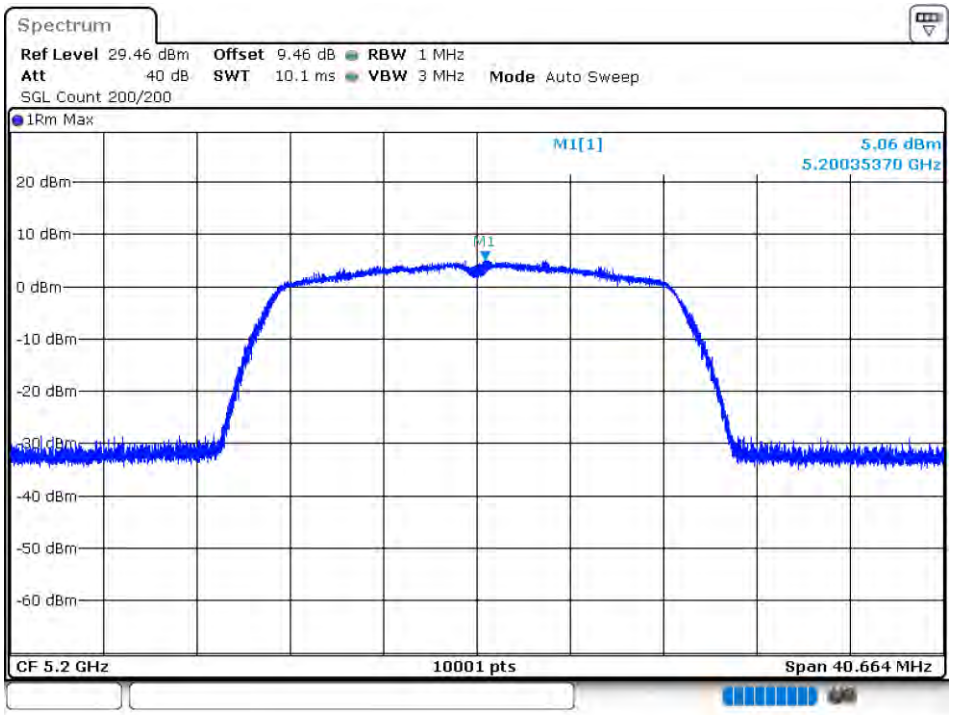
PSD NVNT 802.11a 5240MHz Ant 2



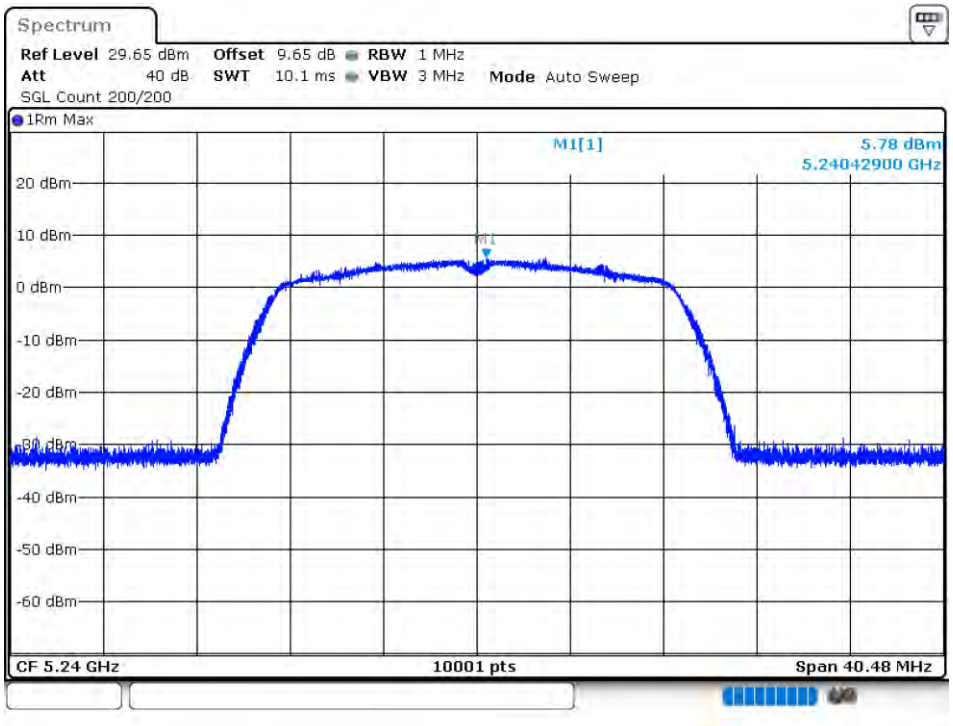
PSD NVNT 802.11ac20 5180MHz Ant 1



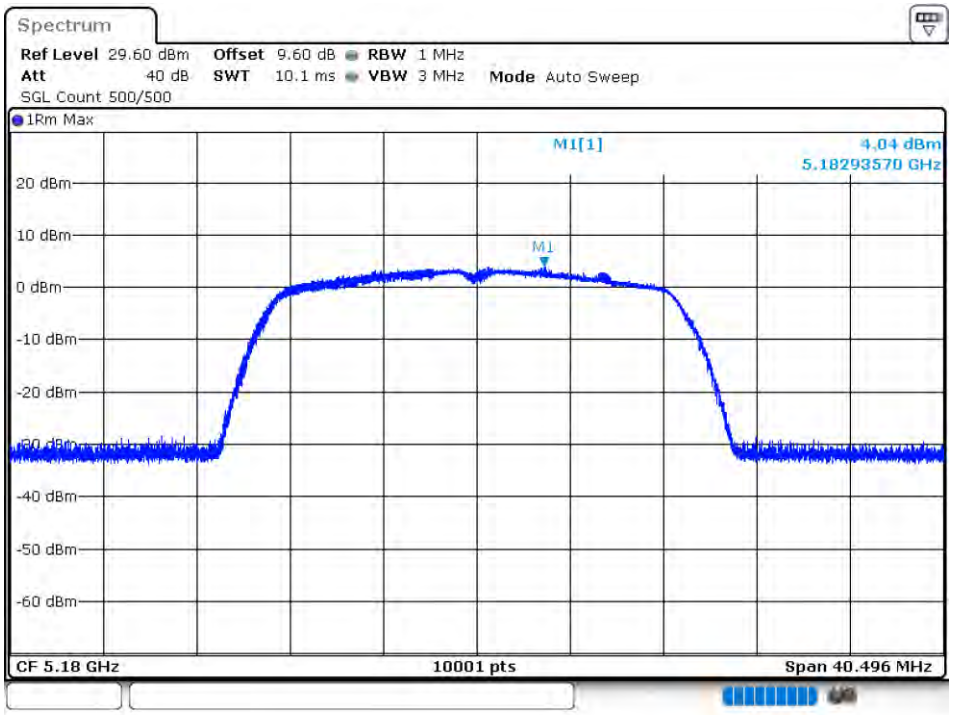
PSD NVNT 802.11ac20 5200MHz Ant 1



PSD NVNT 802.11ac20 5240MHz Ant 1



PSD NVNT 802.11ac20 5180MHz Ant 2



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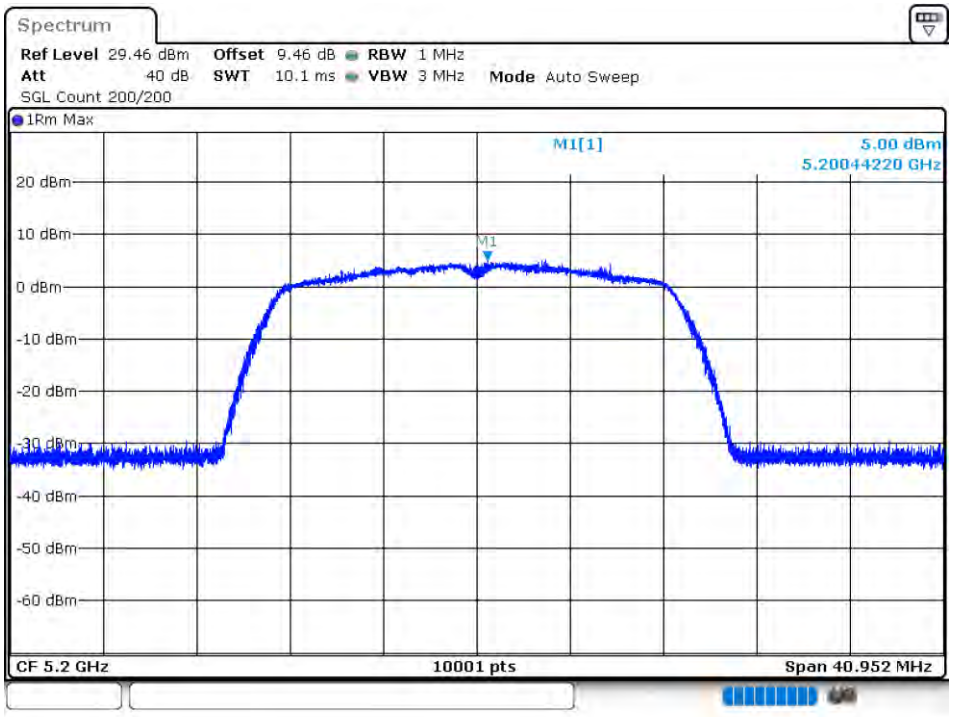
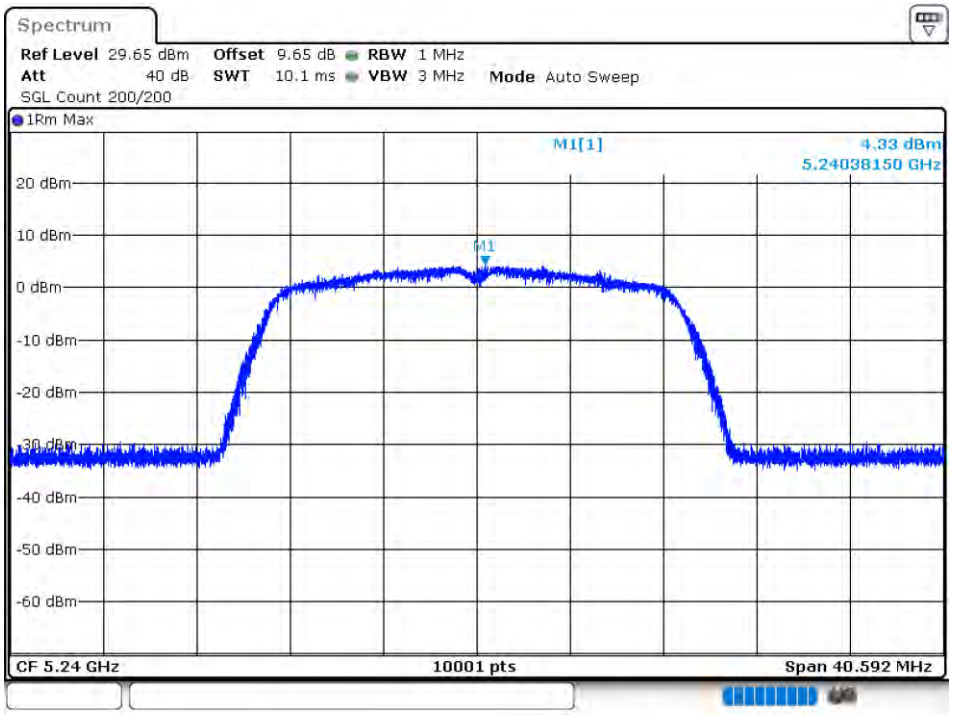
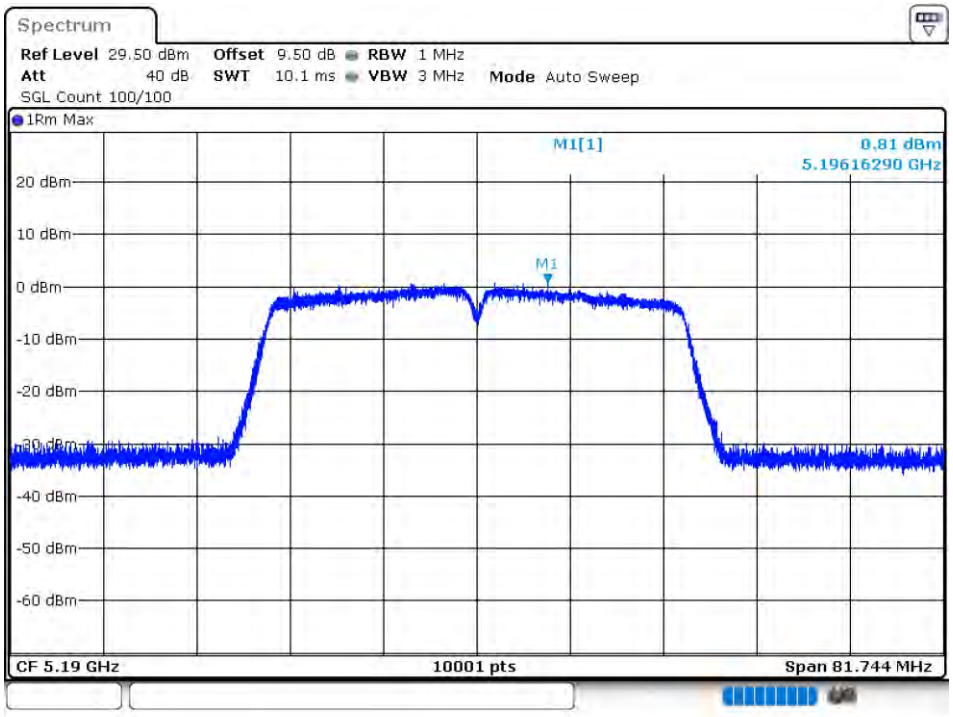


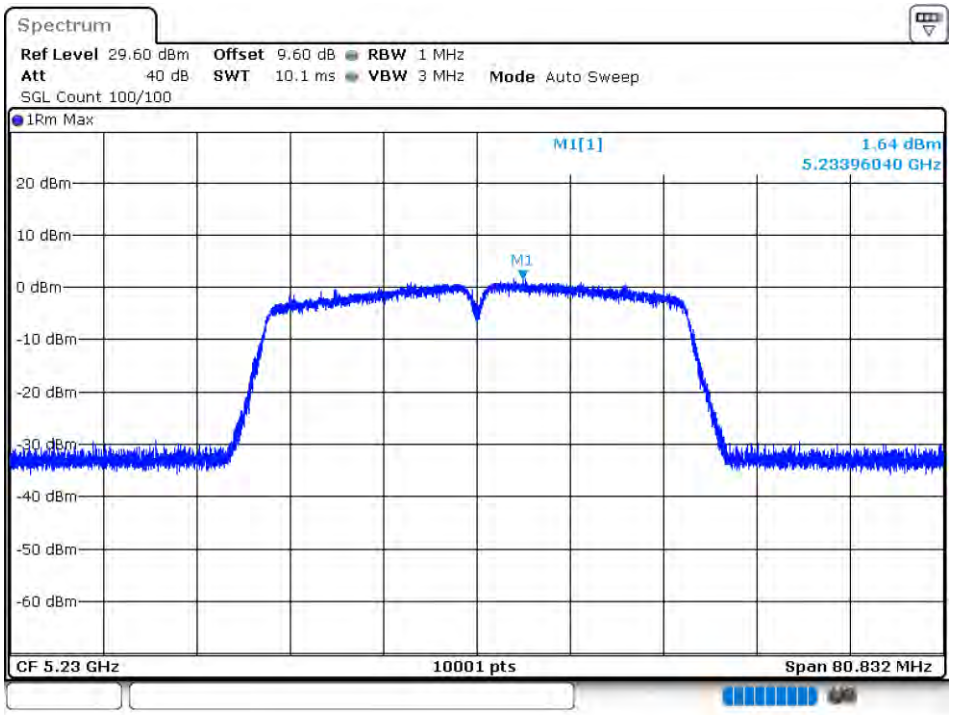
PSD NVNT 802.11ac20 5240MHz Ant 2



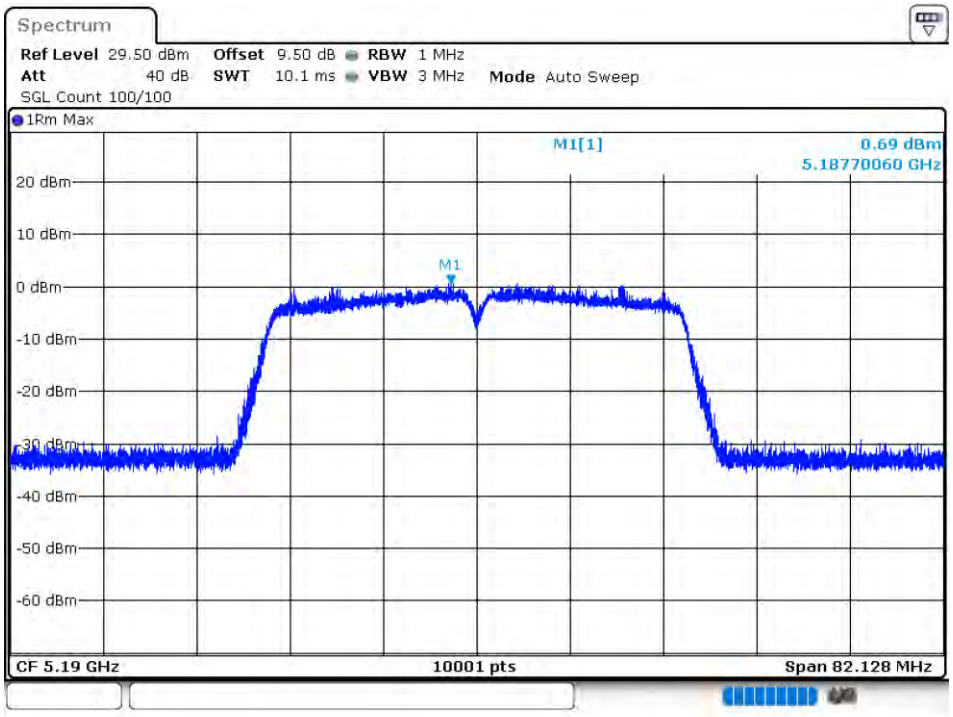
PSD NVNT 802.11ac40 5190MHz Ant 1



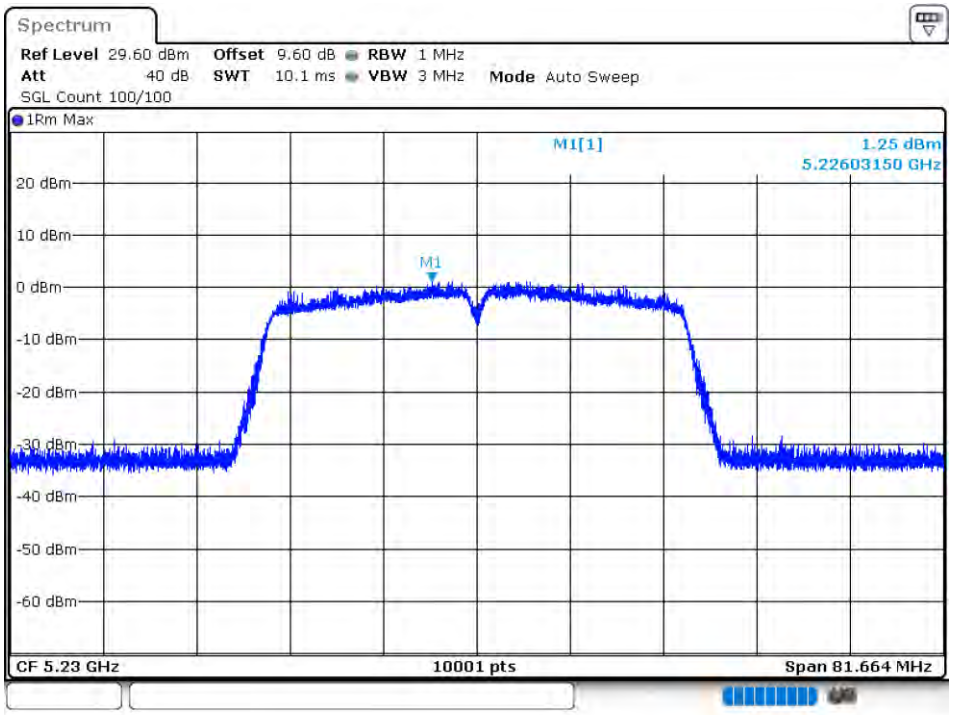
PSD NVNT 802.11ac40 5230MHz Ant 1



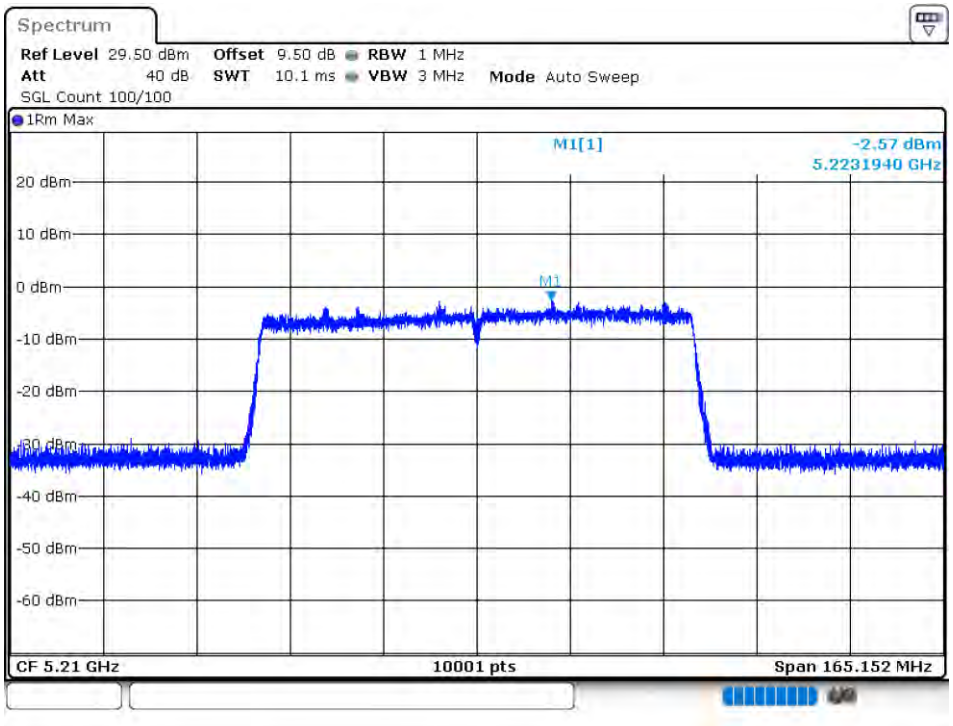
PSD NVNT 802.11ac40 5190MHz Ant 2



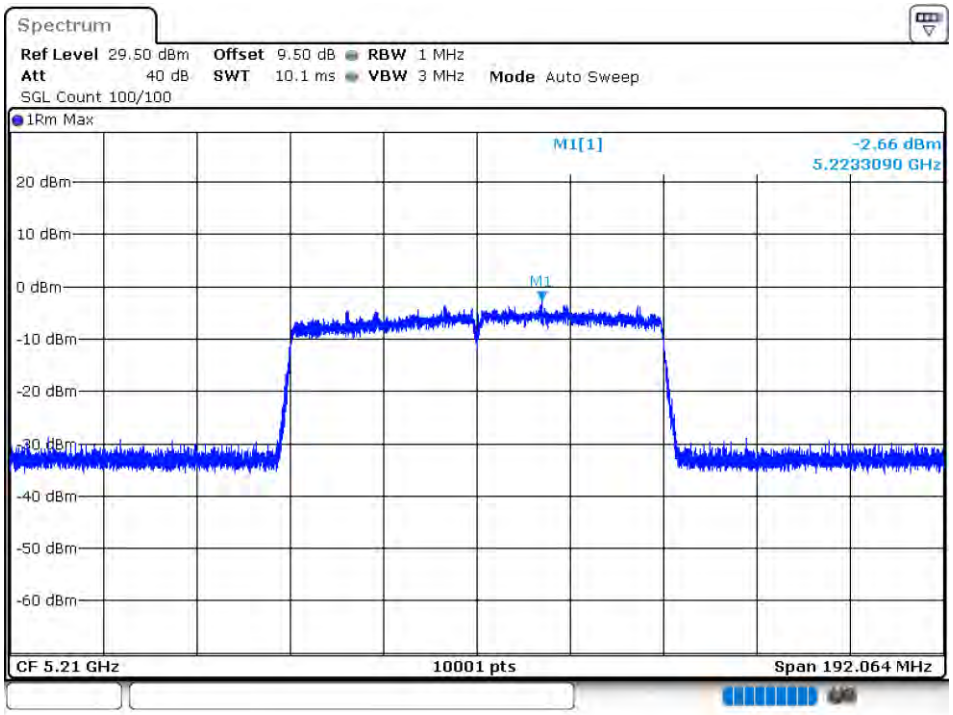
PSD NVNT 802.11ac40 5230MHz Ant 2



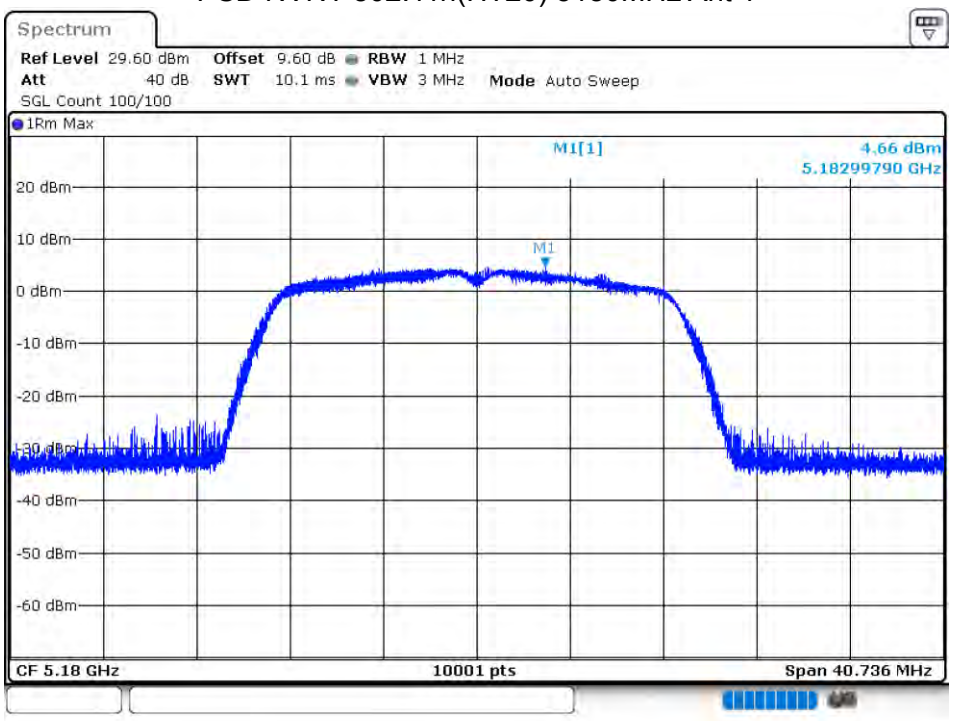
PSD NVNT 802.11ac80 5210MHz Ant 1



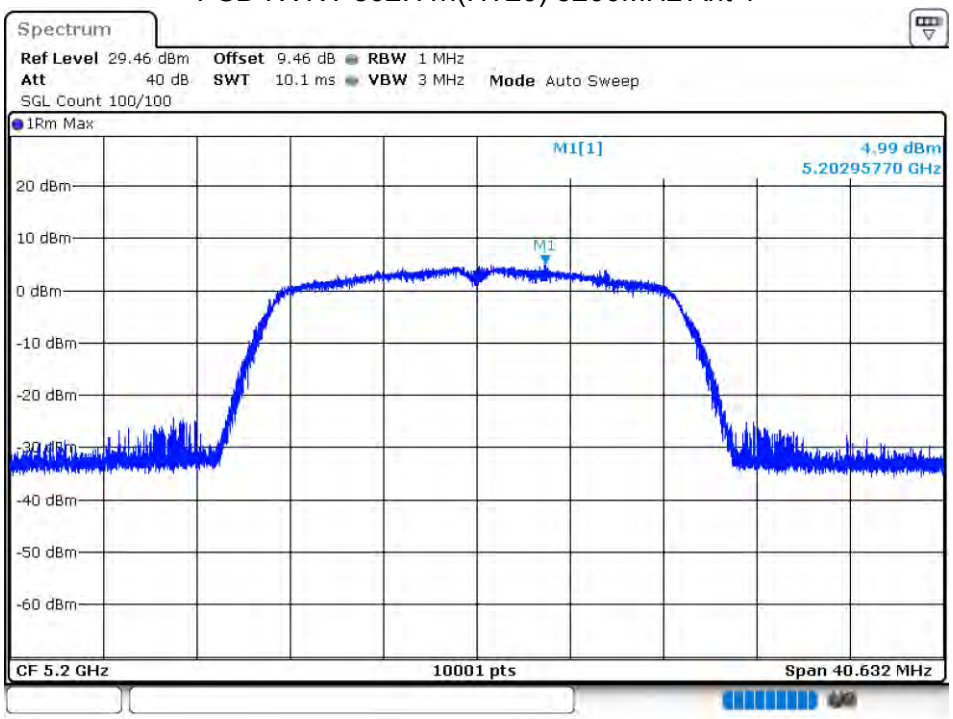
PSD NVNT 802.11ac80 5210MHz Ant 2



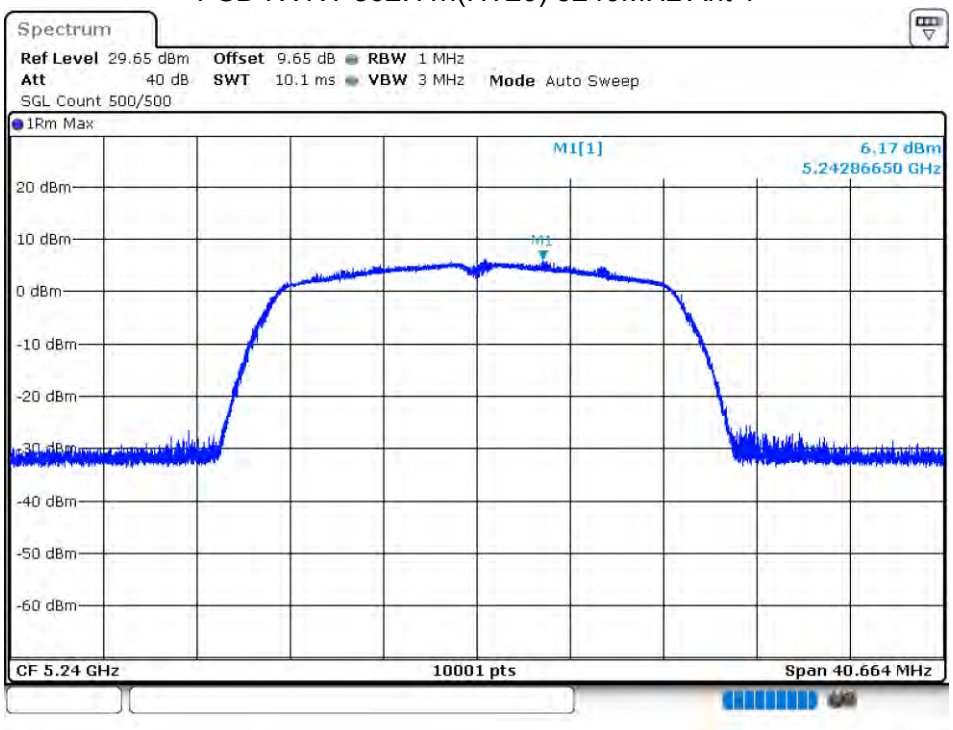
PSD NVNT 802.11n(HT20) 5180MHz Ant 1



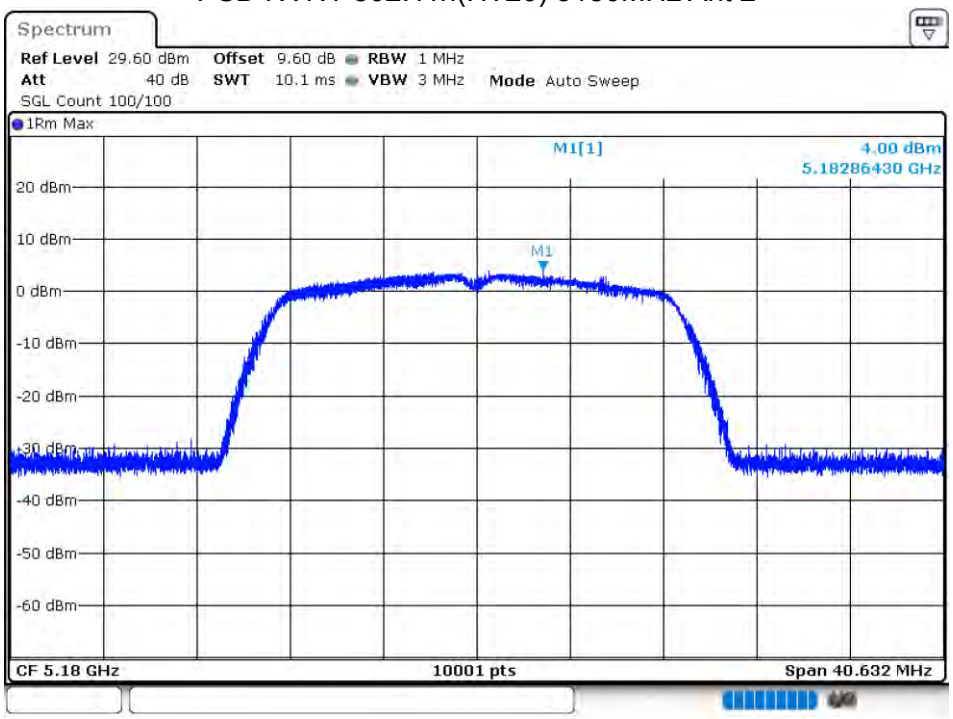
PSD NVNT 802.11n(HT20) 5200MHz Ant 1



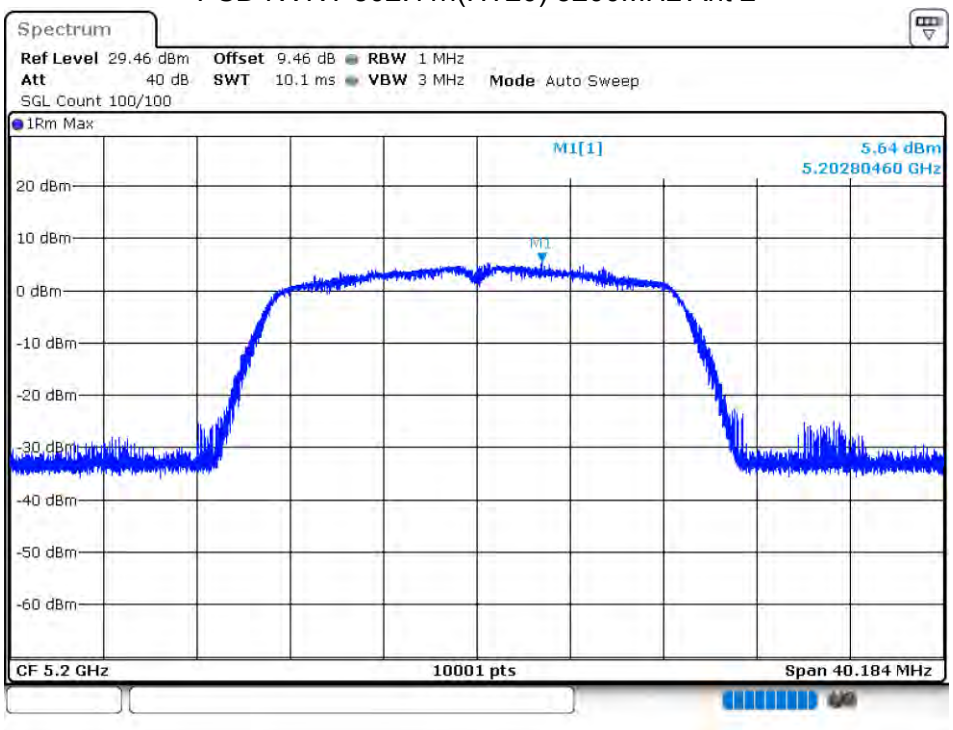
PSD NVNT 802.11n(HT20) 5240MHz Ant 1



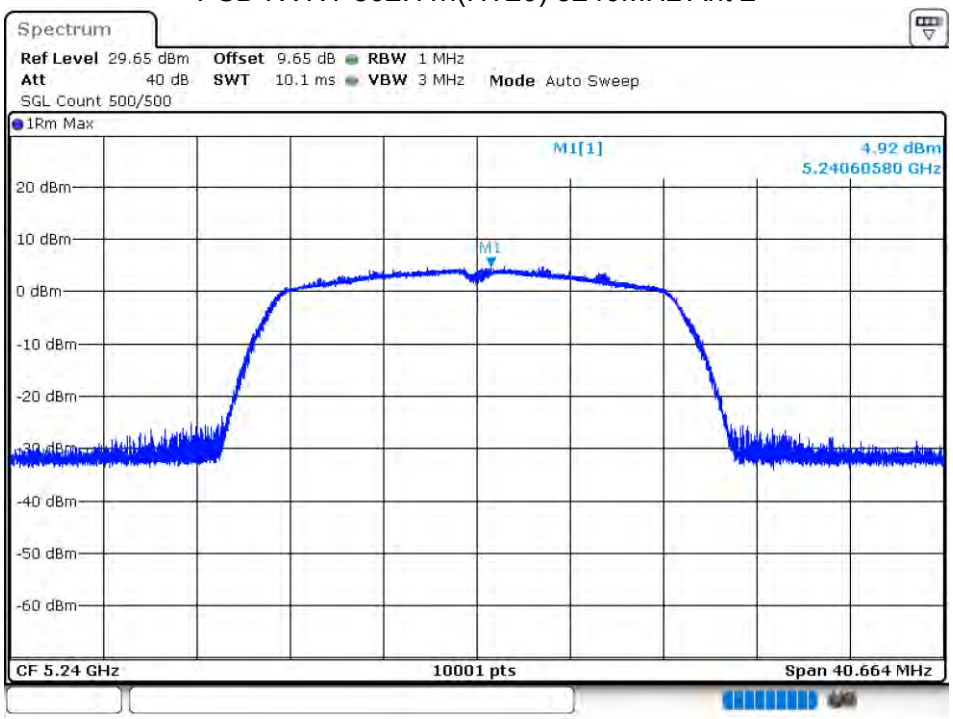
PSD NVNT 802.11n(HT20) 5180MHz Ant 2



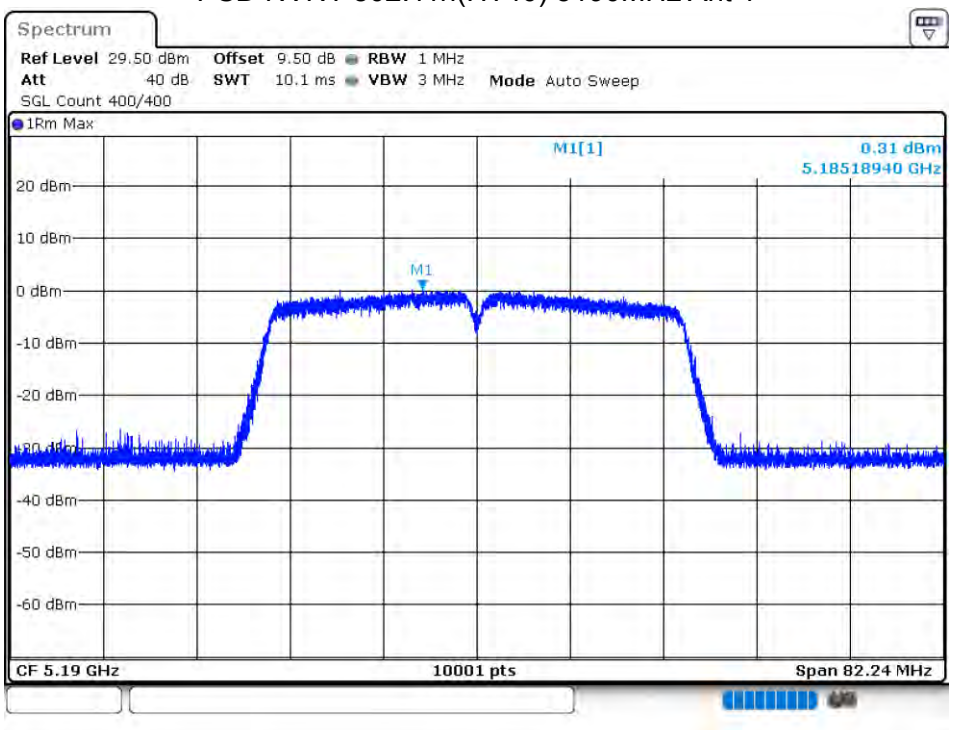
PSD NVNT 802.11n(HT20) 5200MHz Ant 2



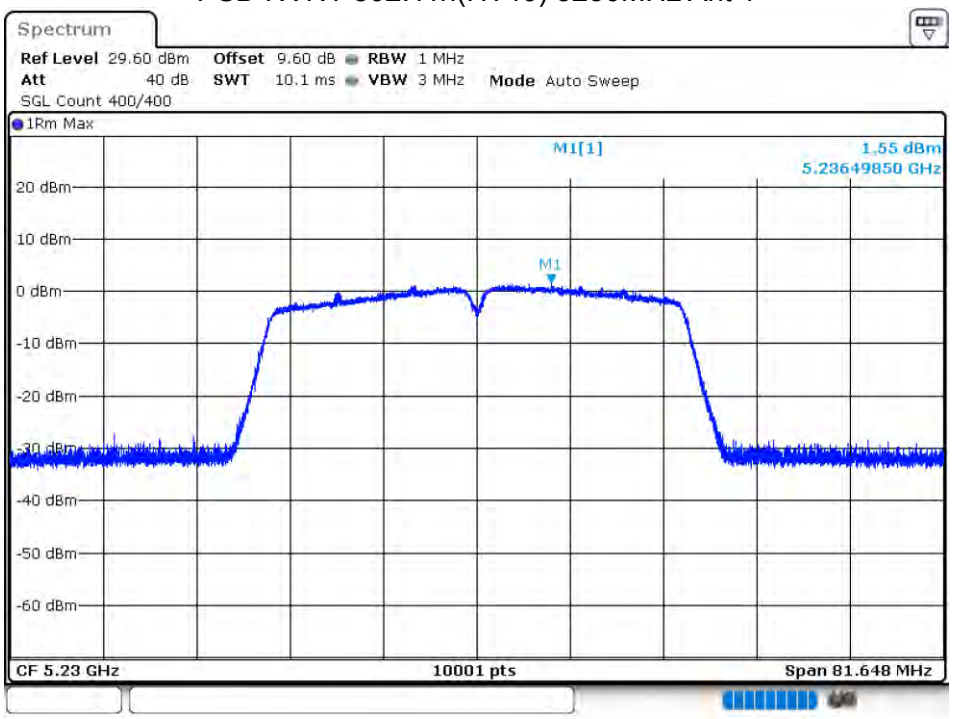
PSD NVNT 802.11n(HT20) 5240MHz Ant 2



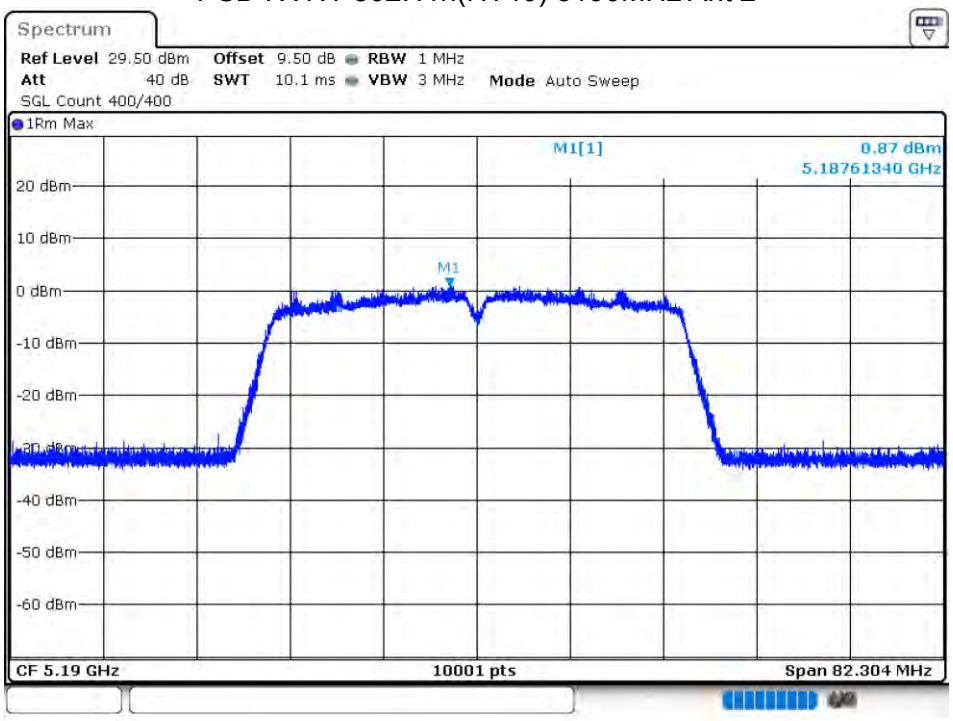
PSD NVNT 802.11n(HT40) 5190MHz Ant 1



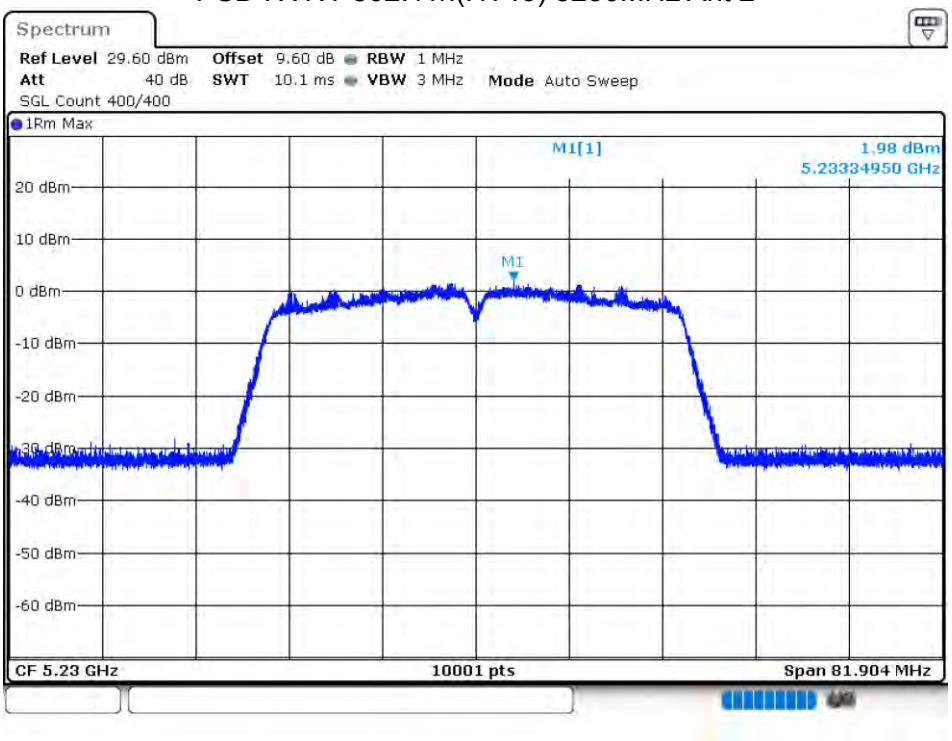
PSD NVNT 802.11n(HT40) 5230MHz Ant 1



PSD NVNT 802.11n(HT40) 5190MHz Ant 2



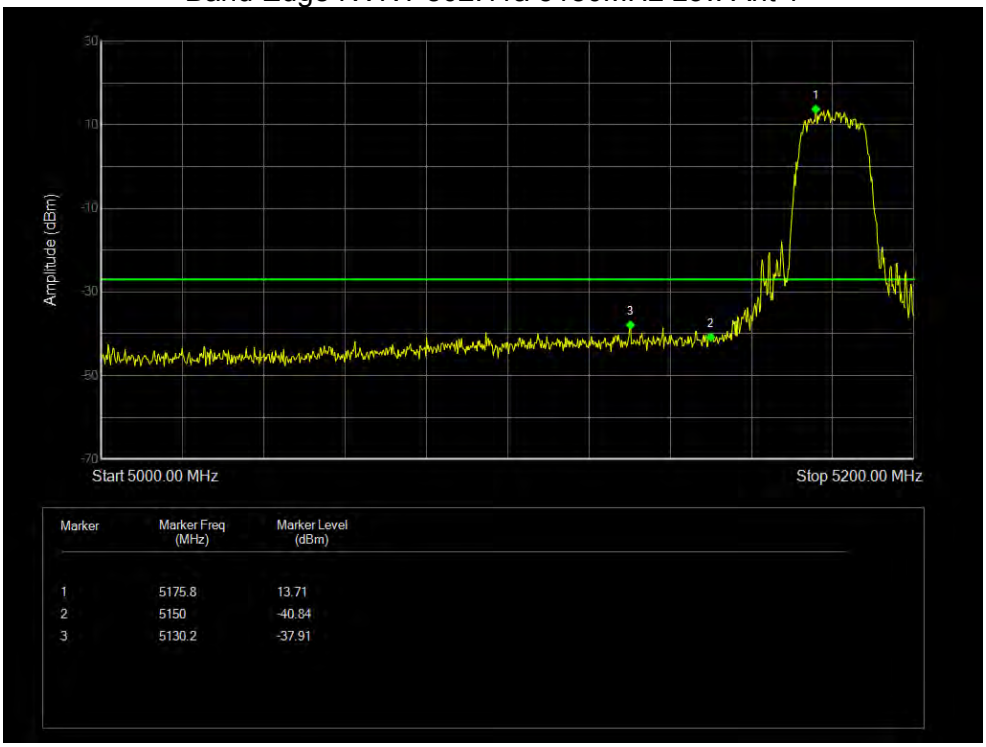
PSD NVNT 802.11n(HT40) 5230MHz Ant 2



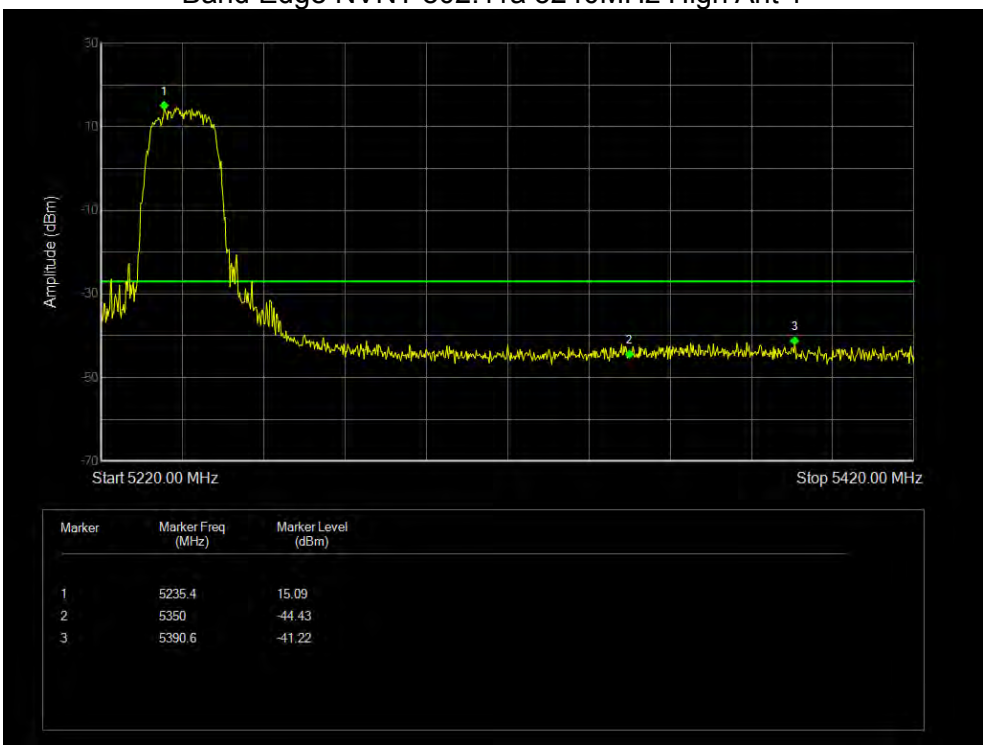
11.5 BAND EDGE

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBm)	Limit (dBm)	Verdict
NVNT	802.11a	5180	Ant 1	-37.91	-27	Pass
NVNT	802.11a	5240	Ant 1	-41.22	-27	Pass
NVNT	802.11a	5180	Ant 2	-38.58	-27	Pass
NVNT	802.11a	5240	Ant 2	-42.16	-27	Pass
NVNT	802.11ac20	5180	Ant 1	-39.98	-27	Pass
NVNT	802.11ac20	5240	Ant 1	-41.5	-27	Pass
NVNT	802.11ac20	5180	Ant 2	-39.96	-27	Pass
NVNT	802.11ac20	5240	Ant 2	-41.58	-27	Pass
NVNT	802.11ac40	5190	Ant 1	-35.25	-27	Pass
NVNT	802.11ac40	5230	Ant 1	-41.71	-27	Pass
NVNT	802.11ac40	5190	Ant 2	-32.72	-27	Pass
NVNT	802.11ac40	5230	Ant 2	-42.77	-27	Pass
NVNT	802.11ac80	5210	Ant 1	-41.76	-27	Pass
NVNT	802.11ac80	5210	Ant 1	-33.9	-27	Pass
NVNT	802.11ac80	5210	Ant 2	-43.49	-27	Pass
NVNT	802.11ac80	5210	Ant 2	-42.36	-27	Pass
NVNT	802.11n(HT20)	5180	Ant 1	-40.22	-27	Pass
NVNT	802.11n(HT20)	5240	Ant 1	-41.6	-27	Pass
NVNT	802.11n(HT20)	5180	Ant 2	-40.01	-27	Pass
NVNT	802.11n(HT20)	5240	Ant 2	-42.04	-27	Pass
NVNT	802.11n(HT40)	5190	Ant 1	-33.39	-27	Pass
NVNT	802.11n(HT40)	5230	Ant 1	-41.77	-27	Pass
NVNT	802.11n(HT40)	5190	Ant 2	-38.14	-27	Pass
NVNT	802.11n(HT40)	5230	Ant 2	-42.83	-27	Pass

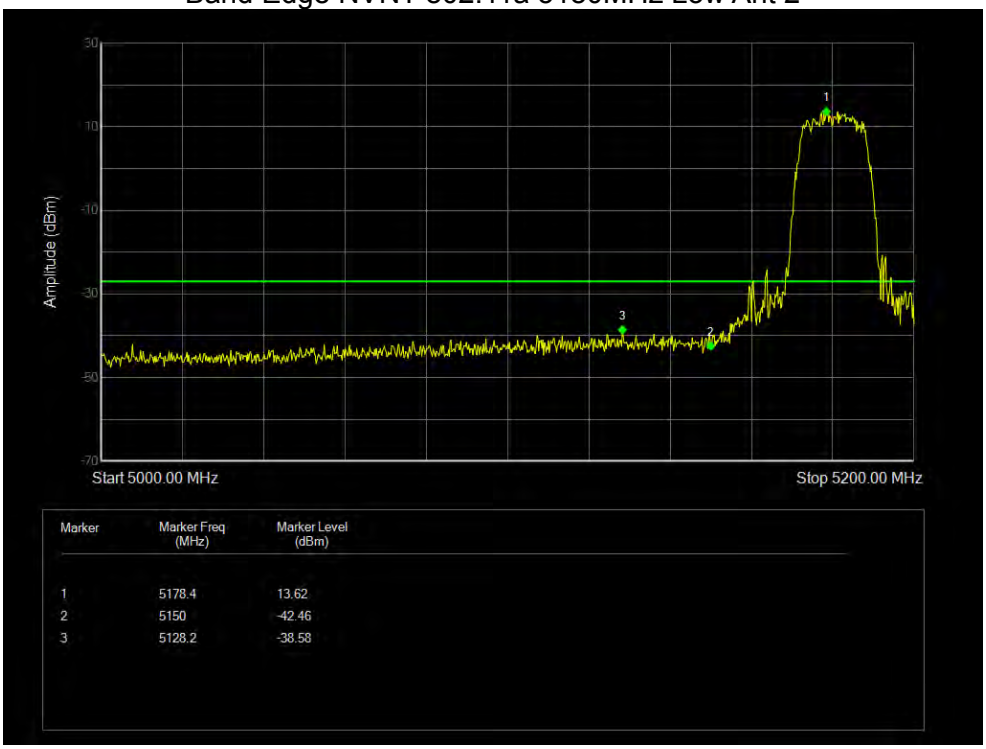
Band Edge NVNT 802.11a 5180MHz Low Ant 1



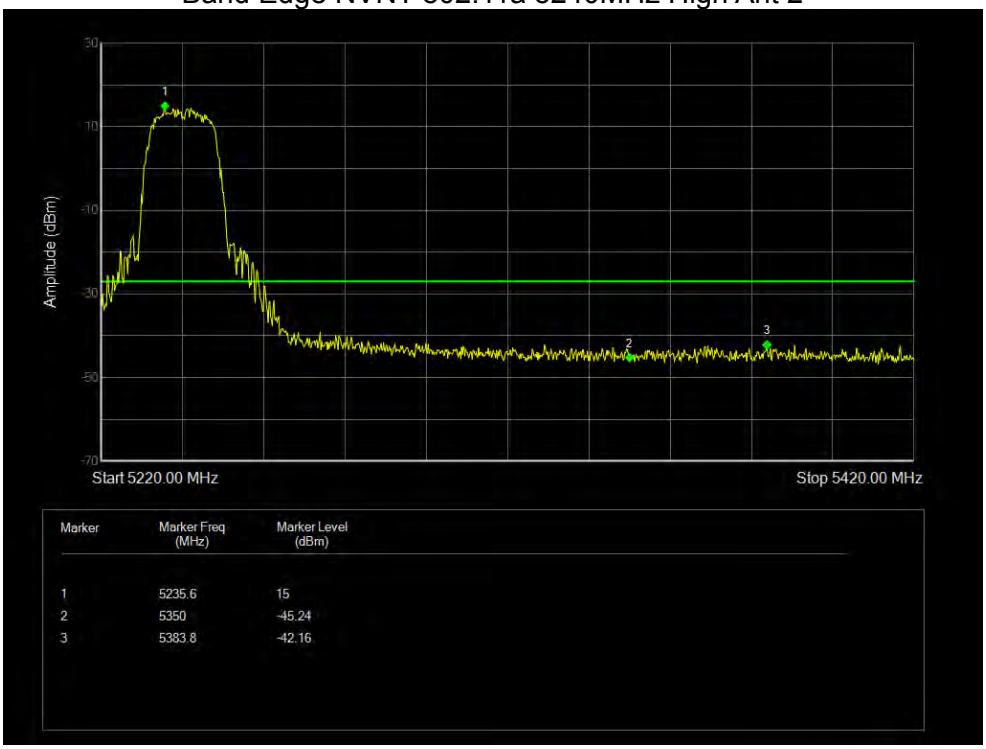
Band Edge NVNT 802.11a 5240MHz High Ant 1



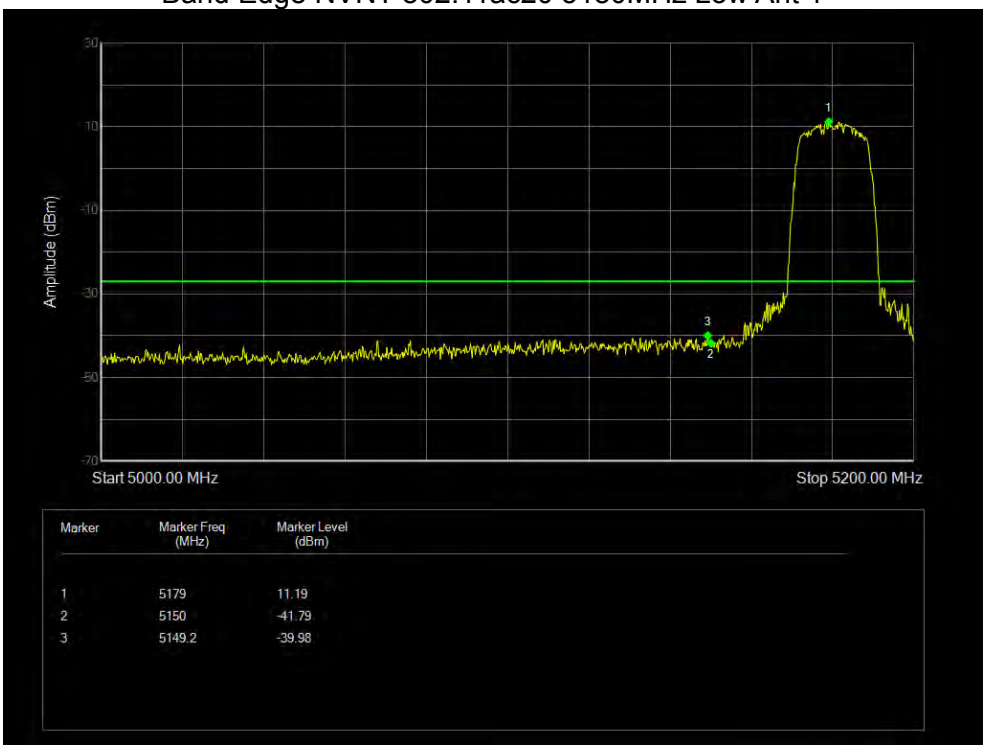
Band Edge NVNT 802.11a 5180MHz Low Ant 2



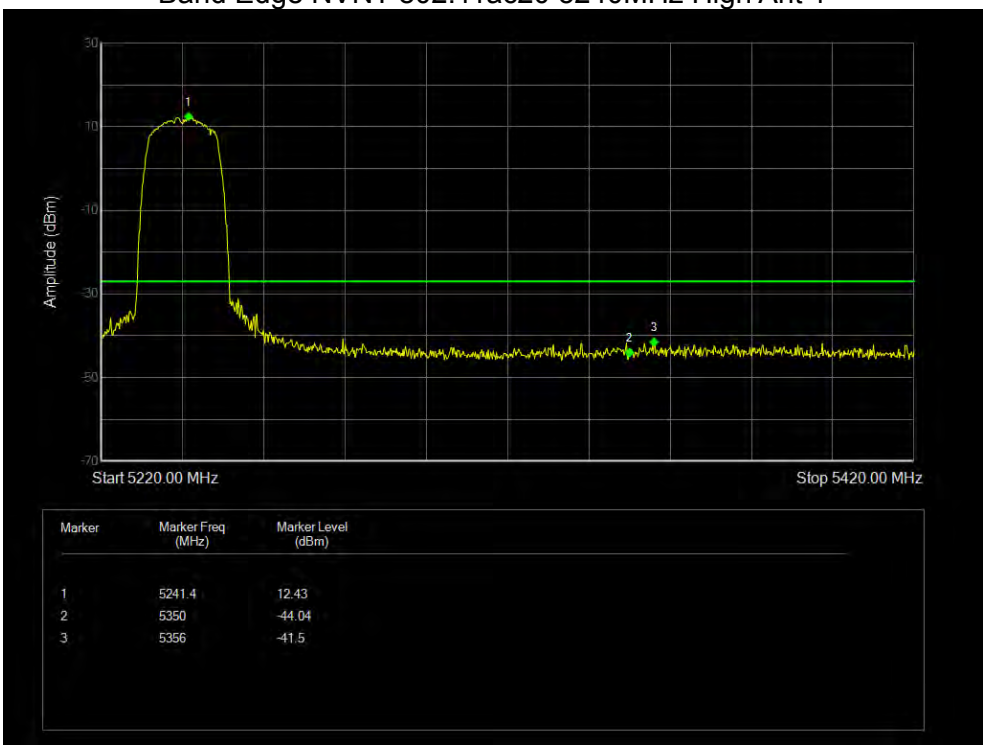
Band Edge NVNT 802.11a 5240MHz High Ant 2



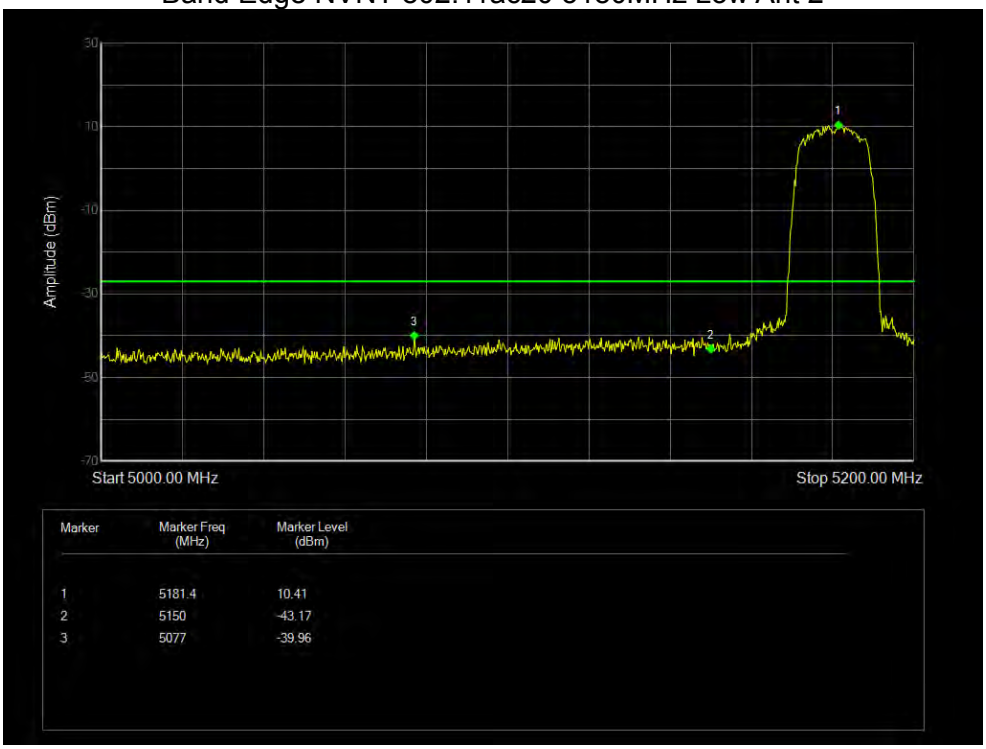
Band Edge NVNT 802.11ac20 5180MHz Low Ant 1



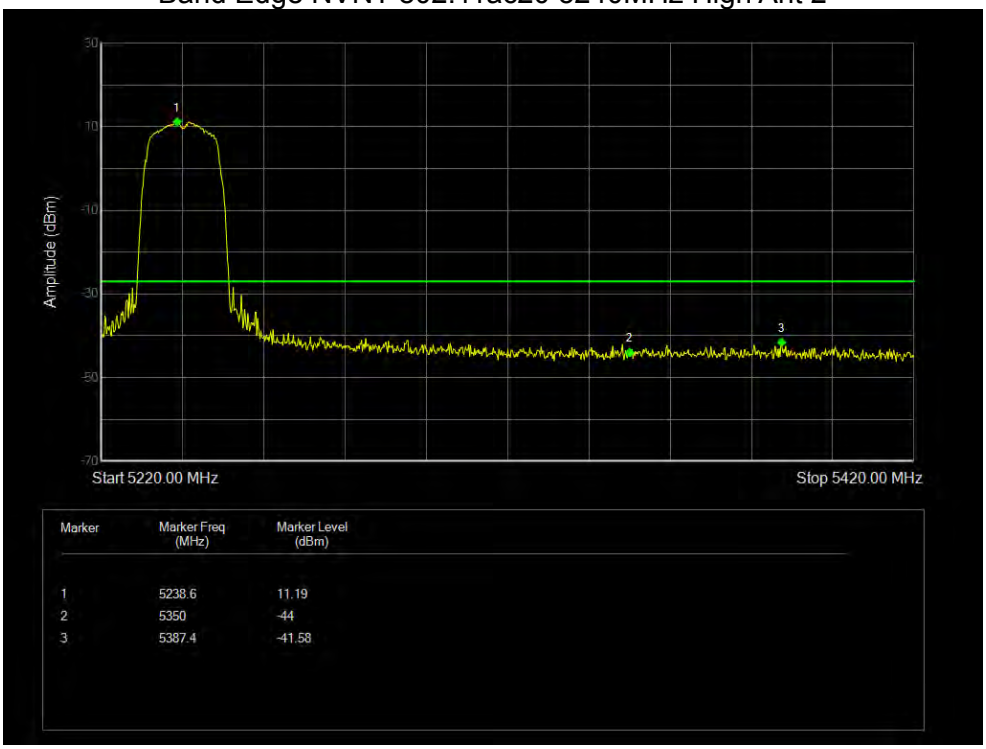
Band Edge NVNT 802.11ac20 5240MHz High Ant 1



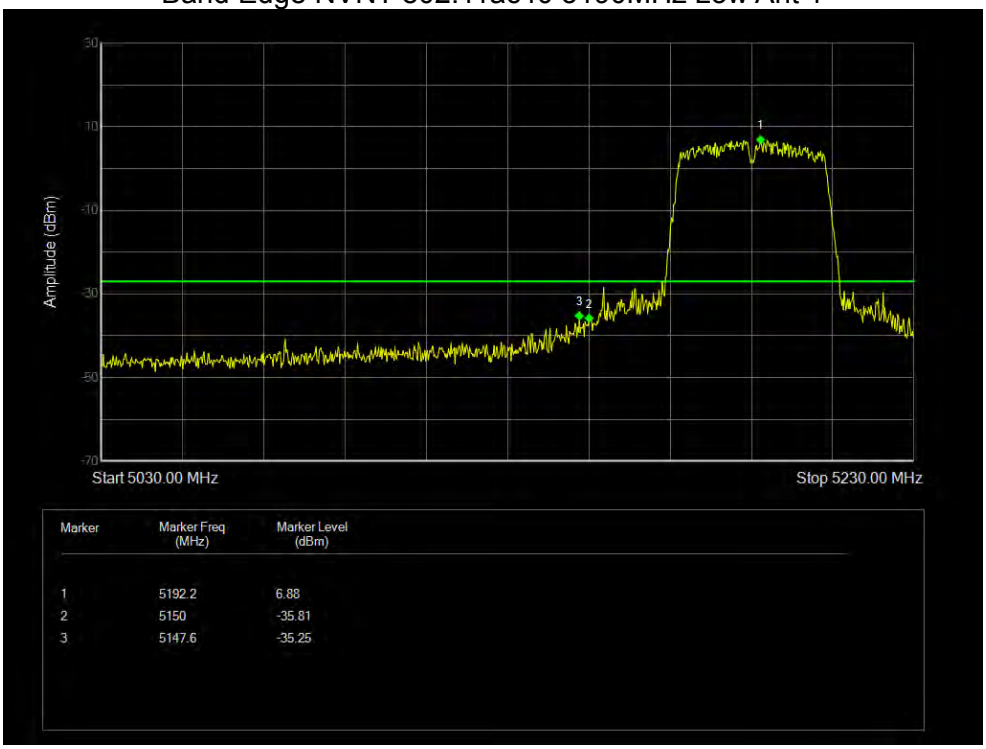
Band Edge NVNT 802.11ac20 5180MHz Low Ant 2



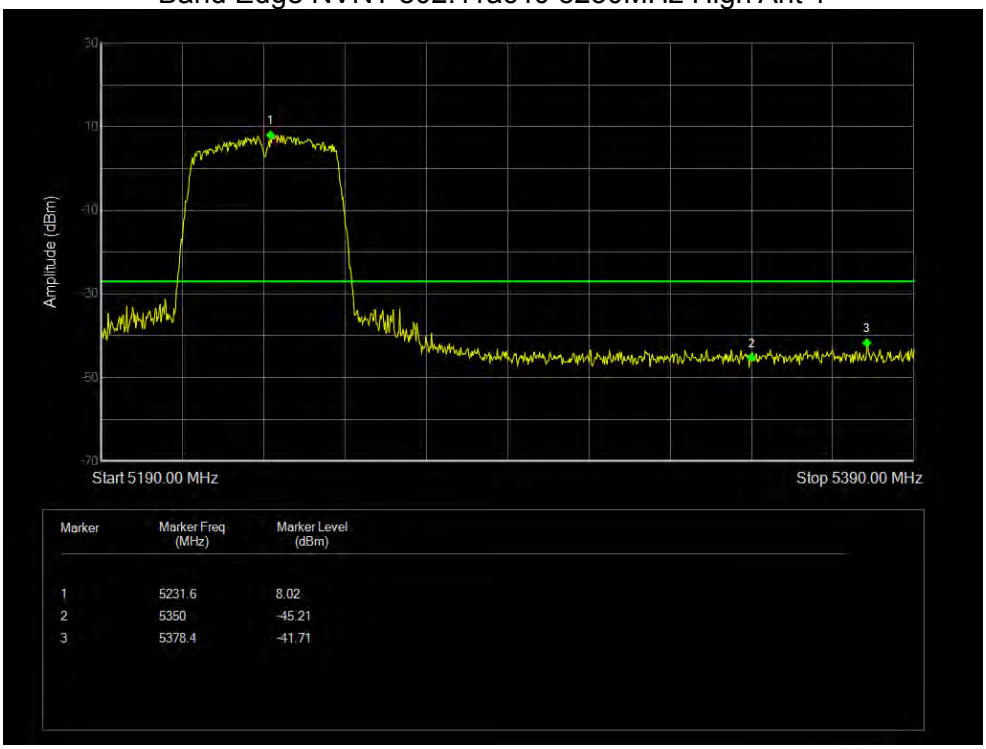
Band Edge NVNT 802.11ac20 5240MHz High Ant 2



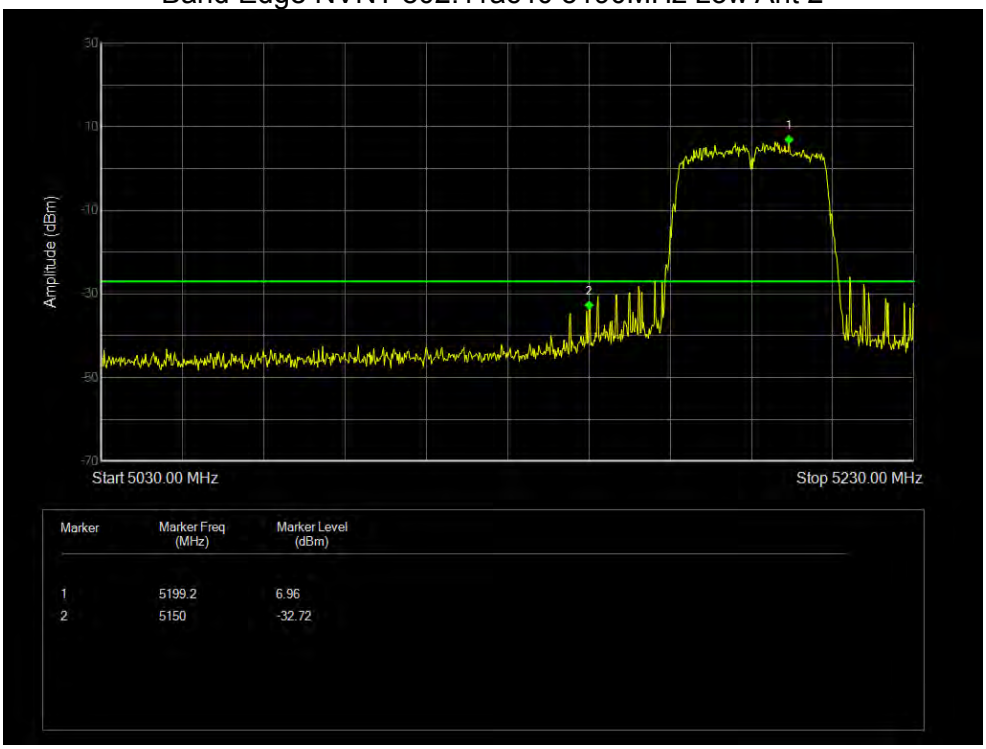
Band Edge NVNT 802.11ac40 5190MHz Low Ant 1



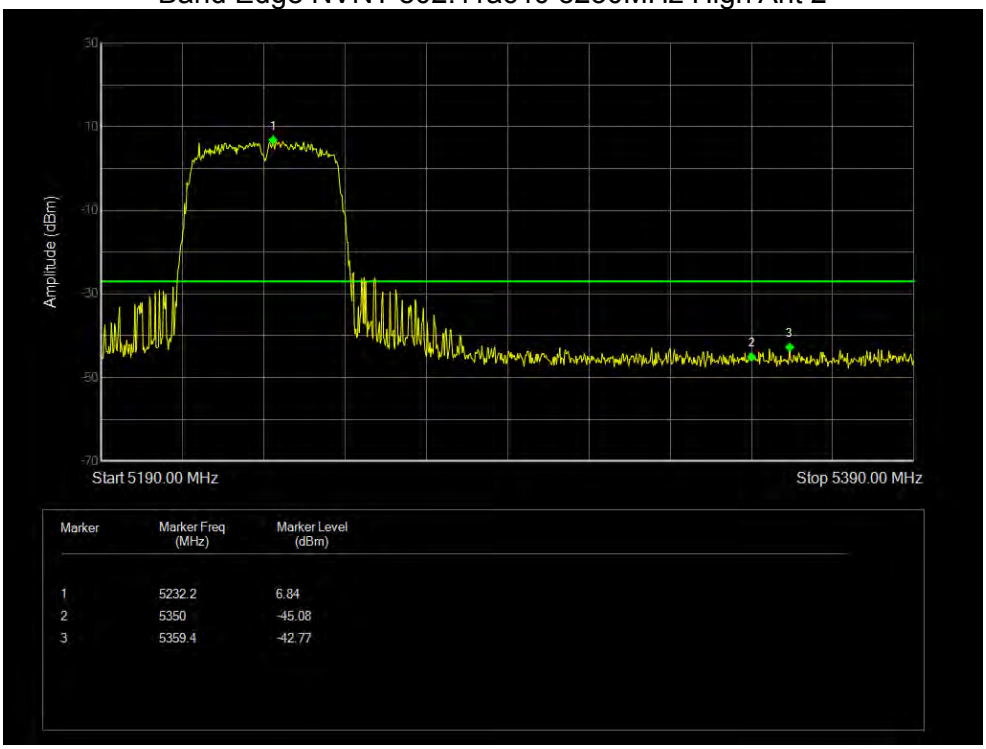
Band Edge NVNT 802.11ac40 5230MHz High Ant 1



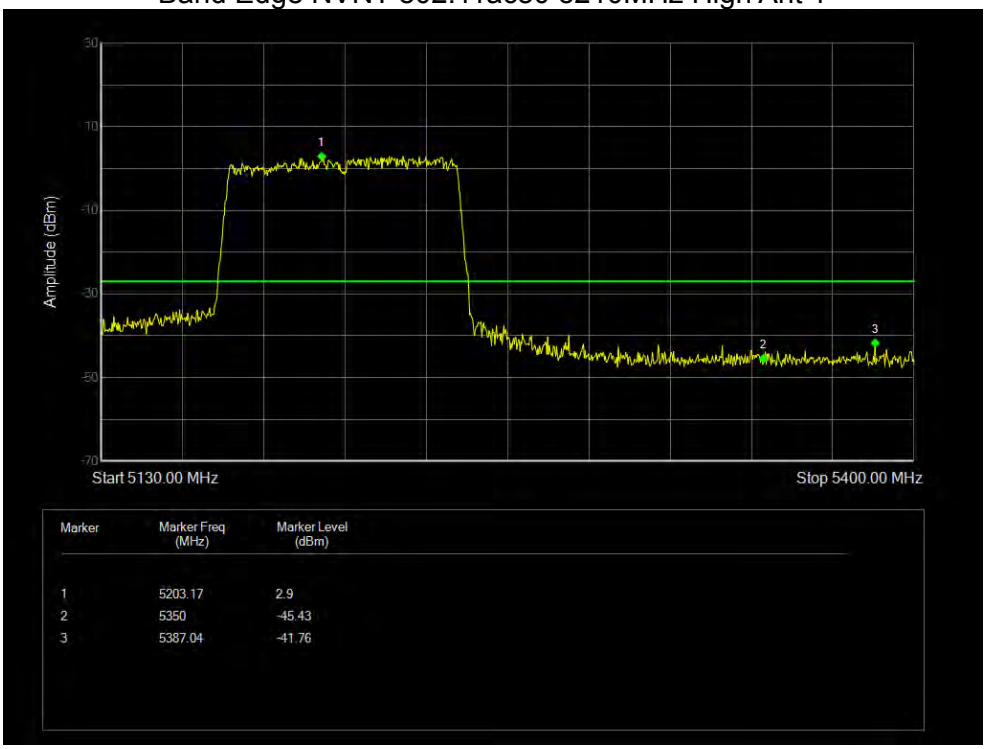
Band Edge NVNT 802.11ac40 5190MHz Low Ant 2



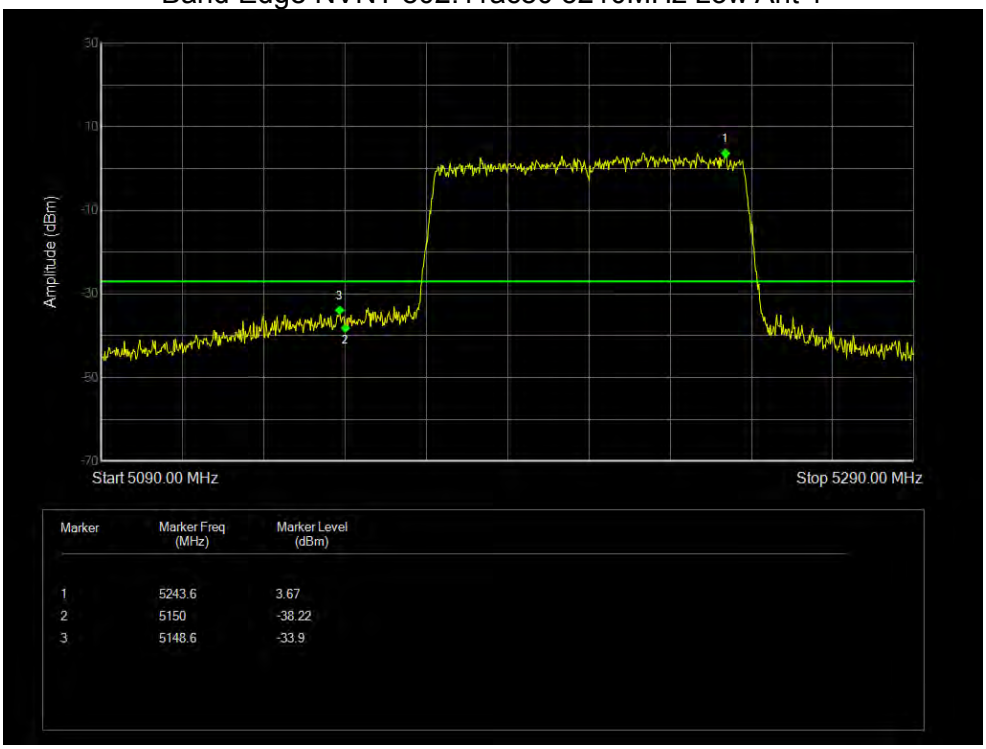
Band Edge NVNT 802.11ac40 5230MHz High Ant 2



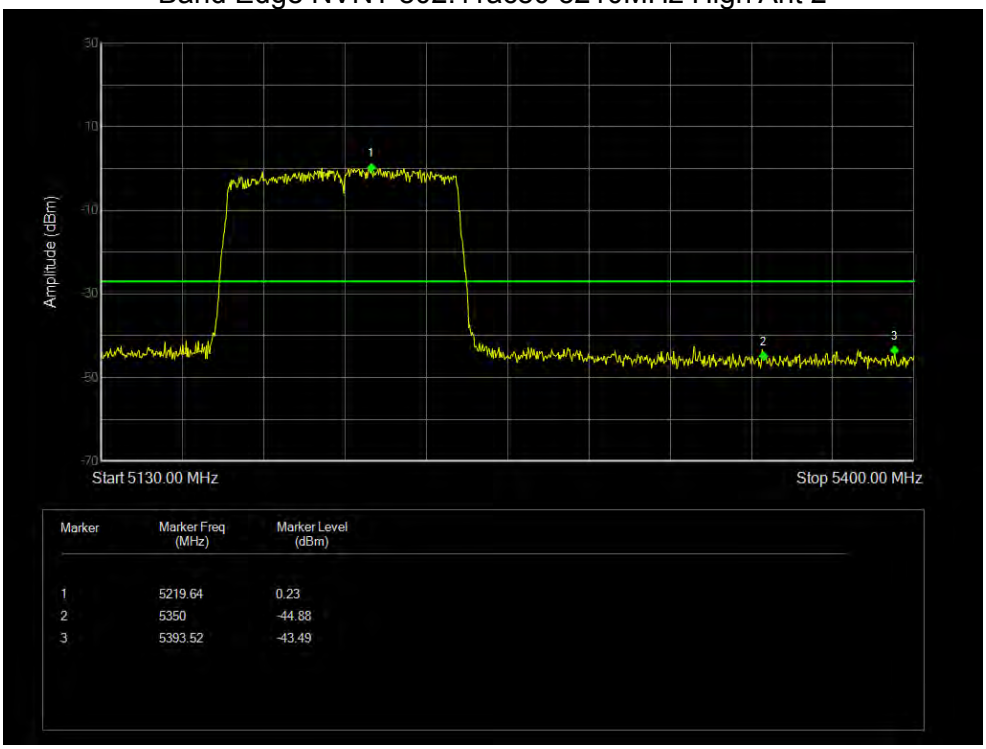
Band Edge NVNT 802.11ac80 5210MHz High Ant 1



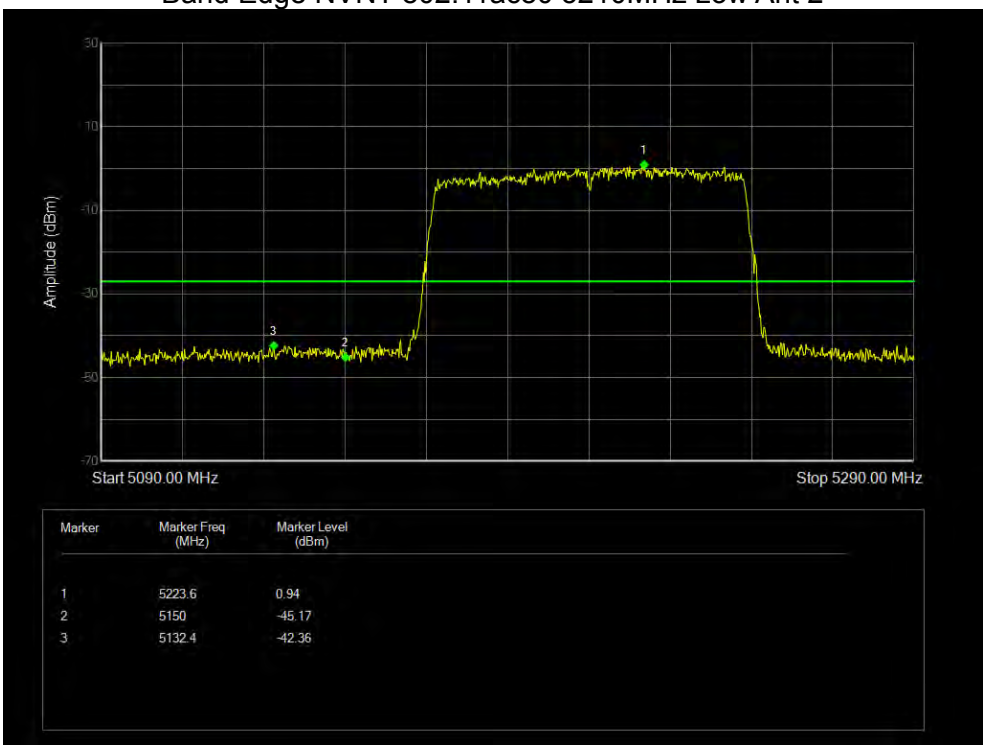
Band Edge NVNT 802.11ac80 5210MHz Low Ant 1



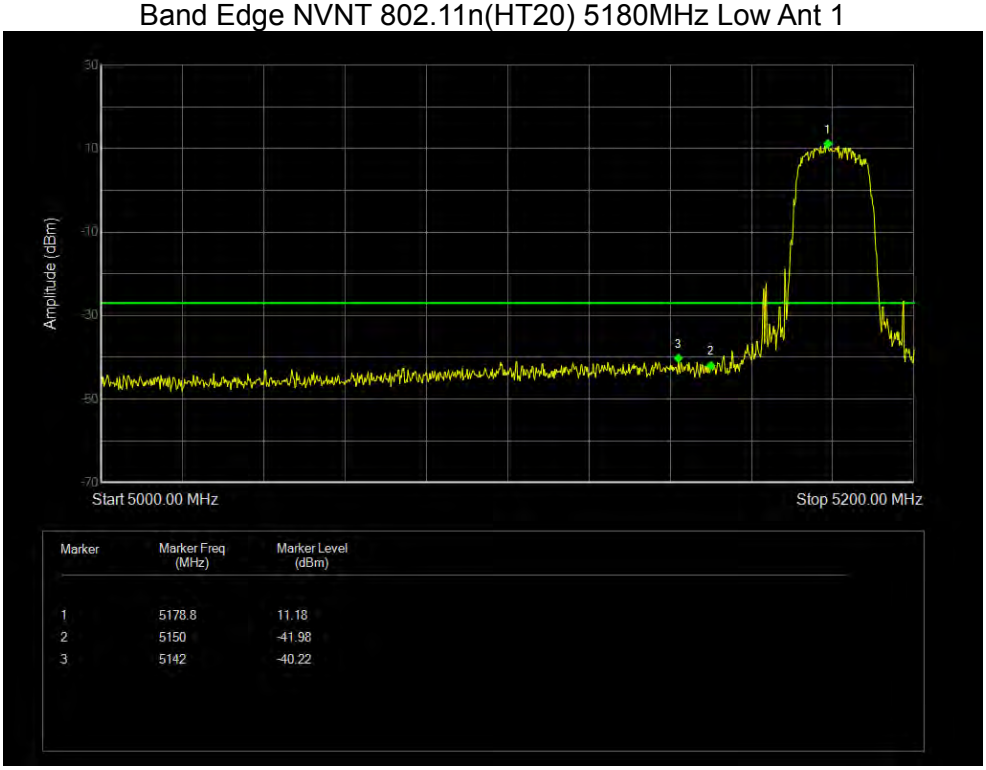
Band Edge NVNT 802.11ac80 5210MHz High Ant 2



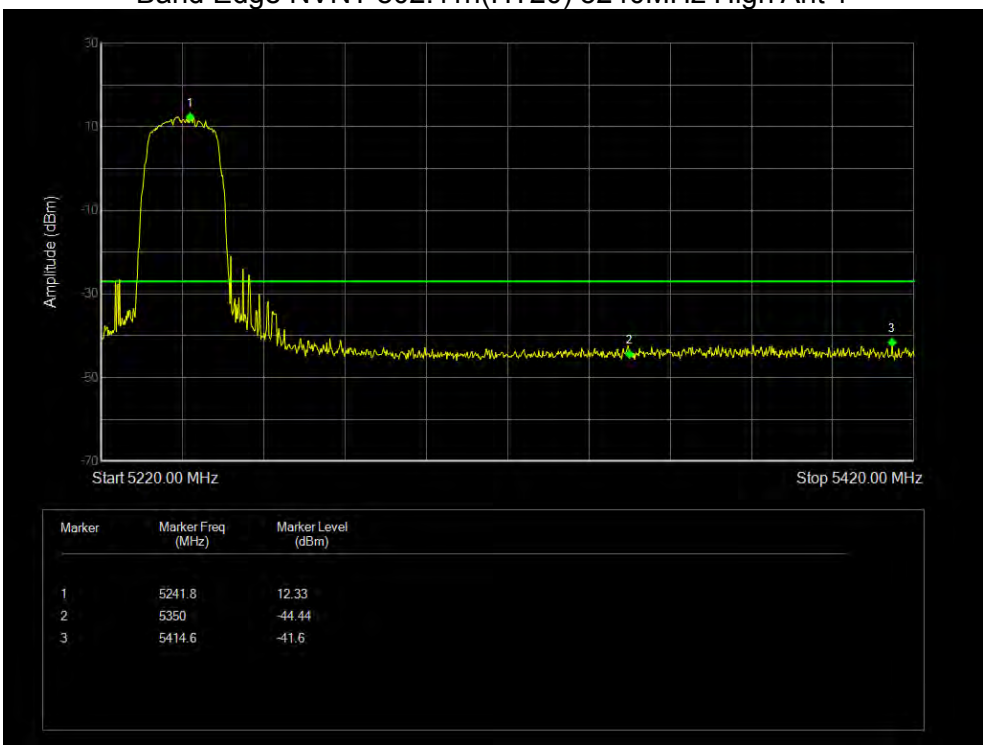
Band Edge NVNT 802.11ac80 5210MHz Low Ant 2



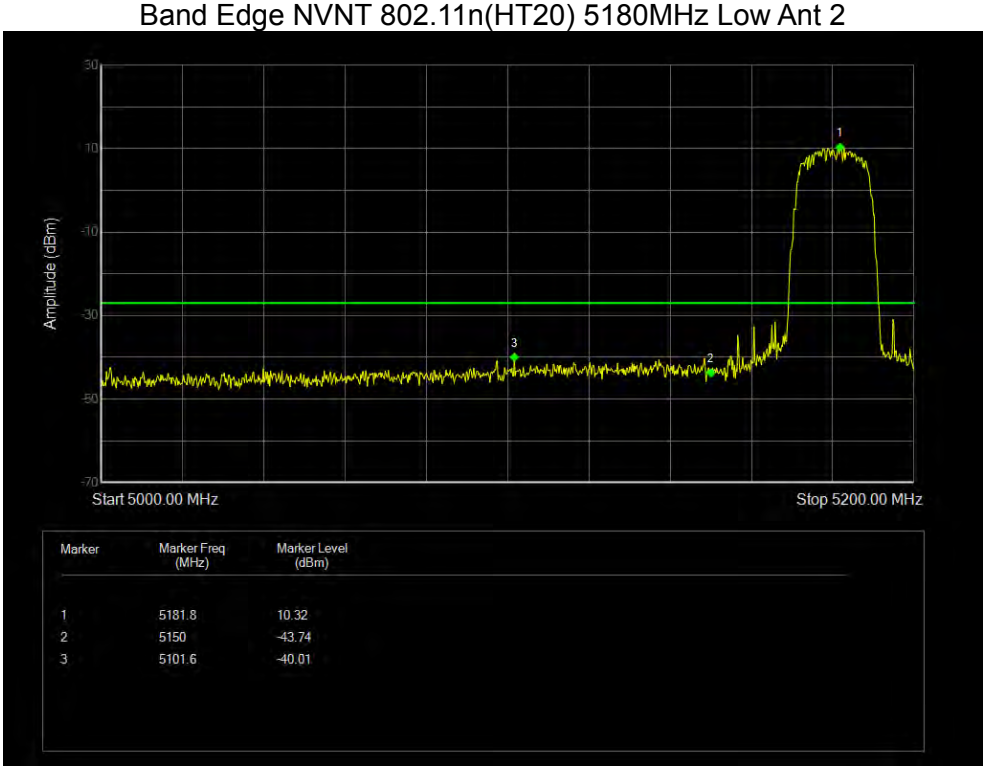
Band Edge NVNT 802.11n(HT20) 5180MHz Low Ant 1



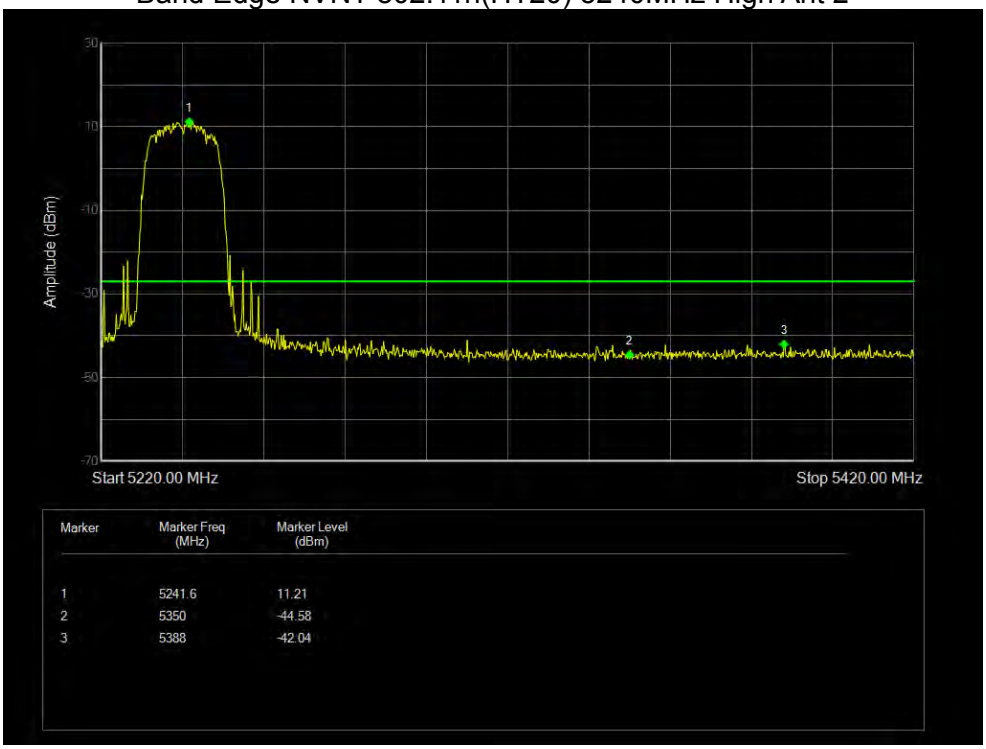
Band Edge NVNT 802.11n(HT20) 5240MHz High Ant 1



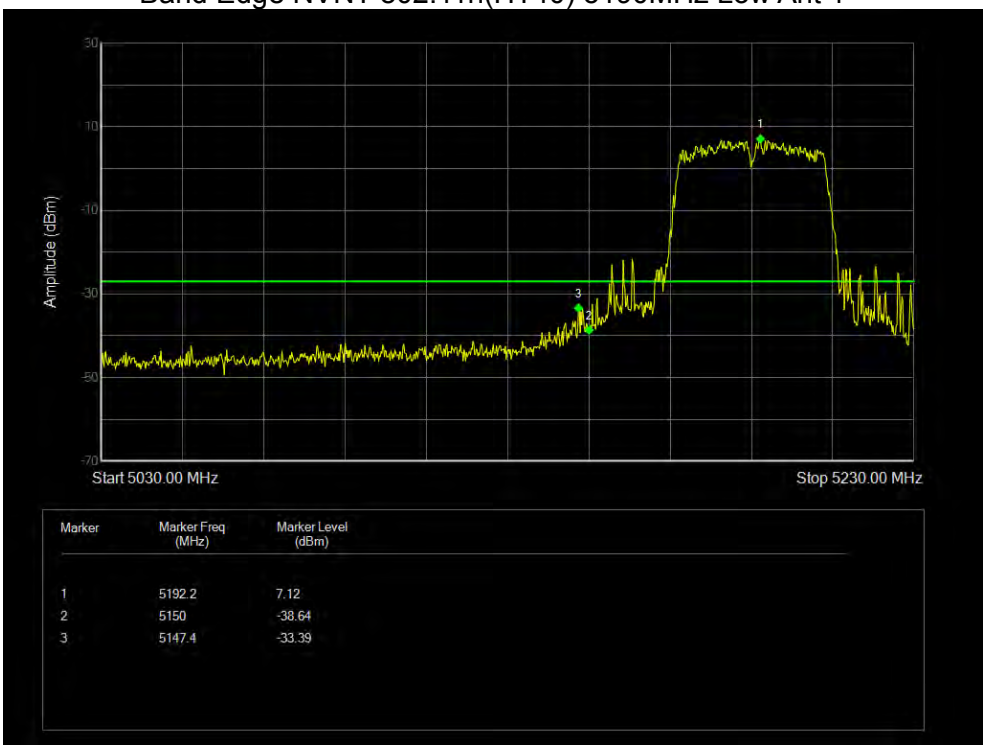
Band Edge NVNT 802.11n(HT20) 5180MHz Low Ant 2



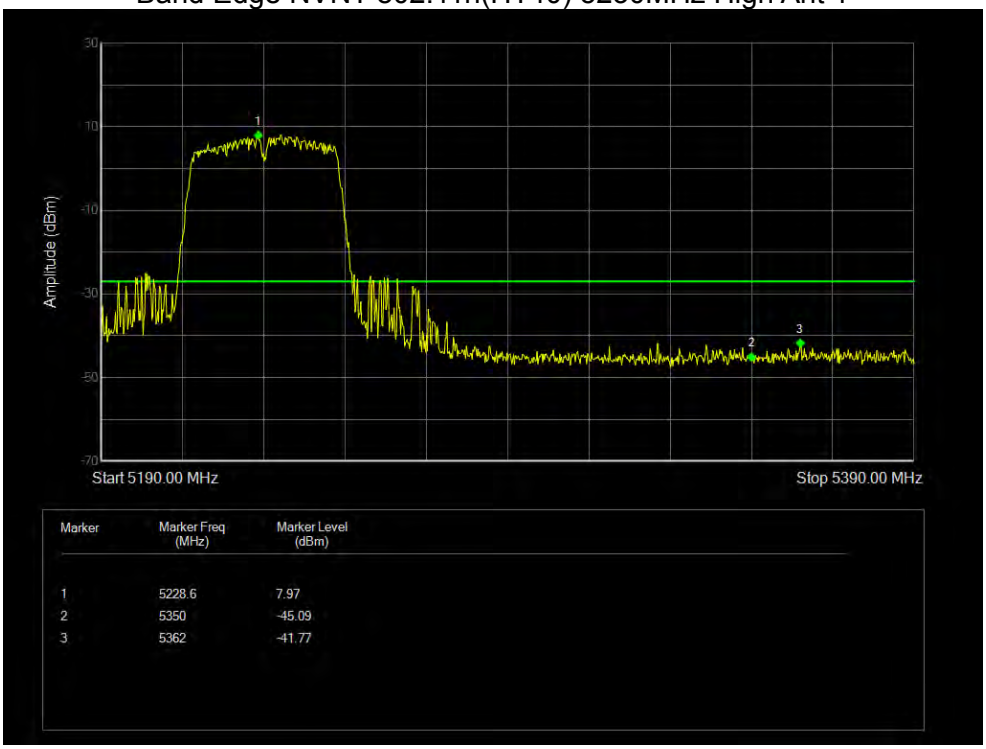
Band Edge NVNT 802.11n(HT20) 5240MHz High Ant 2



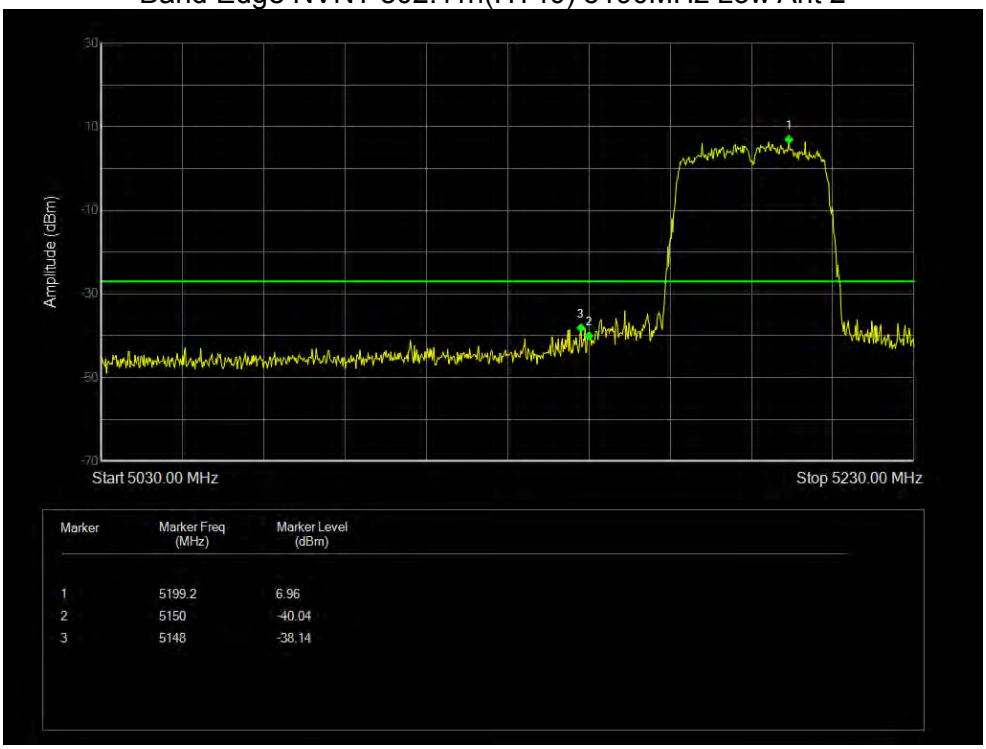
Band Edge NVNT 802.11n(HT40) 5190MHz Low Ant 1



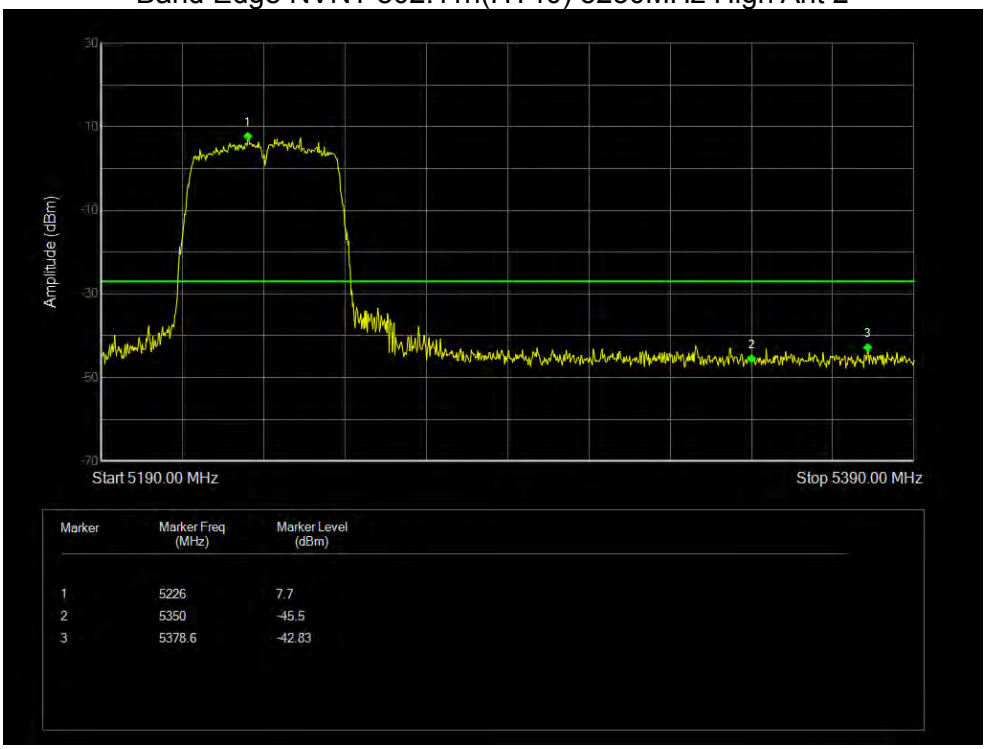
Band Edge NVNT 802.11n(HT40) 5230MHz High Ant 1



Band Edge NVNT 802.11n(HT40) 5190MHz Low Ant 2



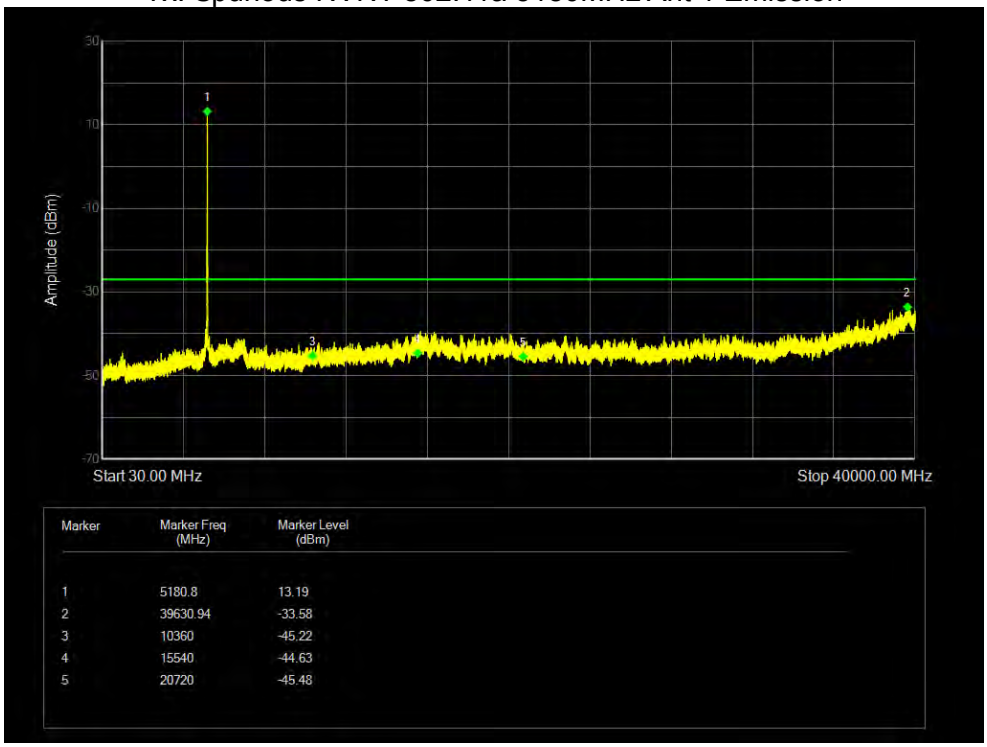
Band Edge NVNT 802.11n(HT40) 5230MHz High Ant 2



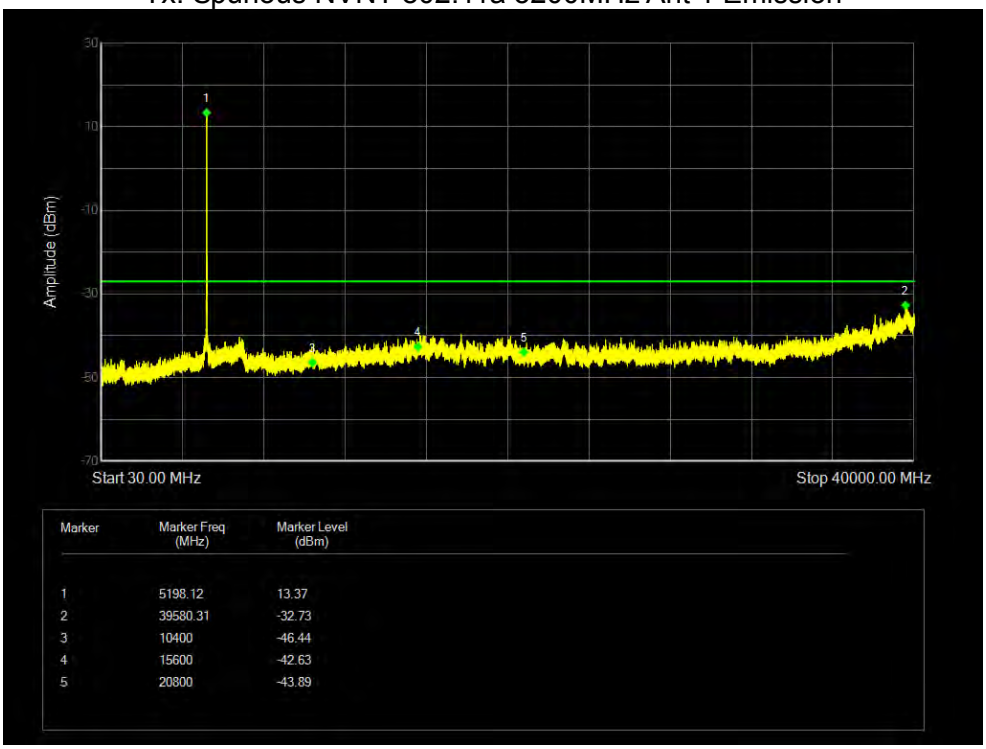
11.6 CONDUCTED RF SPURIOUS EMISSION

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11a	5180	Ant 1	-33.58	-27	Pass
NVNT	802.11a	5200	Ant 1	-32.73	-27	Pass
NVNT	802.11a	5240	Ant 1	-33.05	-27	Pass
NVNT	802.11a	5180	Ant 2	-32.86	-27	Pass
NVNT	802.11a	5200	Ant 2	-33.9	-27	Pass
NVNT	802.11a	5240	Ant 2	-33.65	-27	Pass
NVNT	802.11ac20	5180	Ant 1	-32.95	-27	Pass
NVNT	802.11ac20	5200	Ant 1	-32.84	-27	Pass
NVNT	802.11ac20	5240	Ant 1	-33.48	-27	Pass
NVNT	802.11ac20	5180	Ant 2	-33.53	-27	Pass
NVNT	802.11ac20	5200	Ant 2	-35.96	-27	Pass
NVNT	802.11ac20	5240	Ant 2	-32.57	-27	Pass
NVNT	802.11ac40	5190	Ant 1	-33.13	-27	Pass
NVNT	802.11ac40	5230	Ant 1	-33.03	-27	Pass
NVNT	802.11ac40	5190	Ant 2	-34	-27	Pass
NVNT	802.11ac40	5230	Ant 2	-33.62	-27	Pass
NVNT	802.11ac80	5210	Ant 1	-33.15	-27	Pass
NVNT	802.11ac80	5210	Ant 2	-31.54	-27	Pass
NVNT	802.11n(HT20)	5180	Ant 1	-34.12	-27	Pass
NVNT	802.11n(HT20)	5200	Ant 1	-33.57	-27	Pass
NVNT	802.11n(HT20)	5240	Ant 1	-32.91	-27	Pass
NVNT	802.11n(HT20)	5180	Ant 2	-32.88	-27	Pass
NVNT	802.11n(HT20)	5200	Ant 2	-33.45	-27	Pass
NVNT	802.11n(HT20)	5240	Ant 2	-33.41	-27	Pass
NVNT	802.11n(HT40)	5190	Ant 1	-33.09	-27	Pass
NVNT	802.11n(HT40)	5230	Ant 1	-33.23	-27	Pass
NVNT	802.11n(HT40)	5190	Ant 2	-33.48	-27	Pass
NVNT	802.11n(HT40)	5230	Ant 2	-33.33	-27	Pass

Tx. Spurious NVNT 802.11a 5180MHz Ant 1 Emission

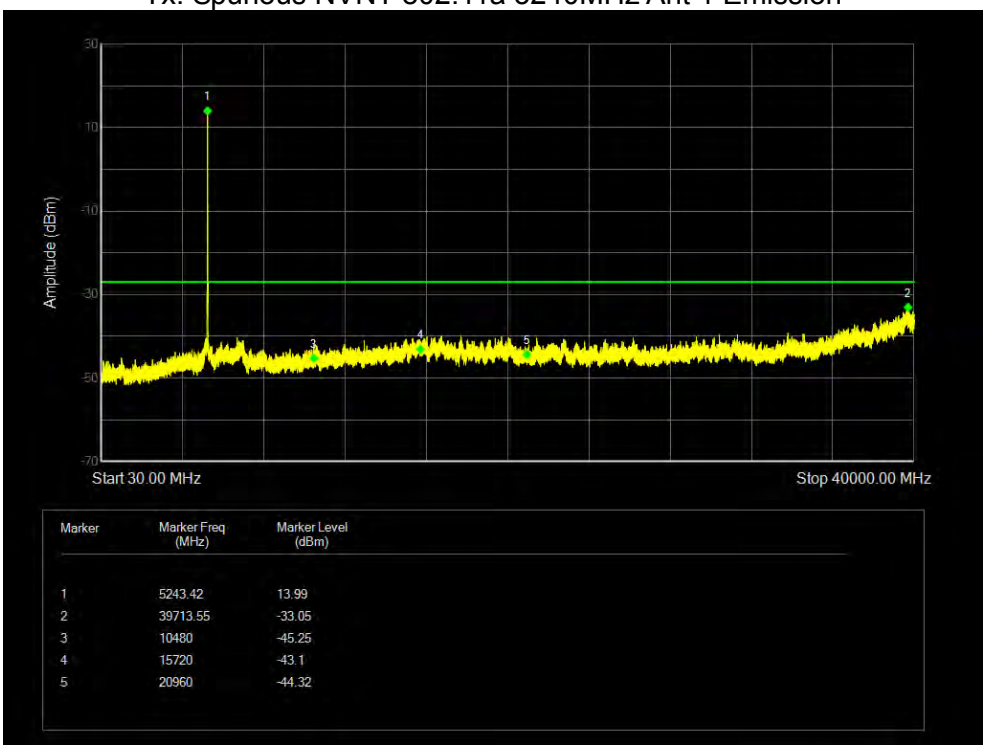


Tx. Spurious NVNT 802.11a 5200MHz Ant 1 Emission



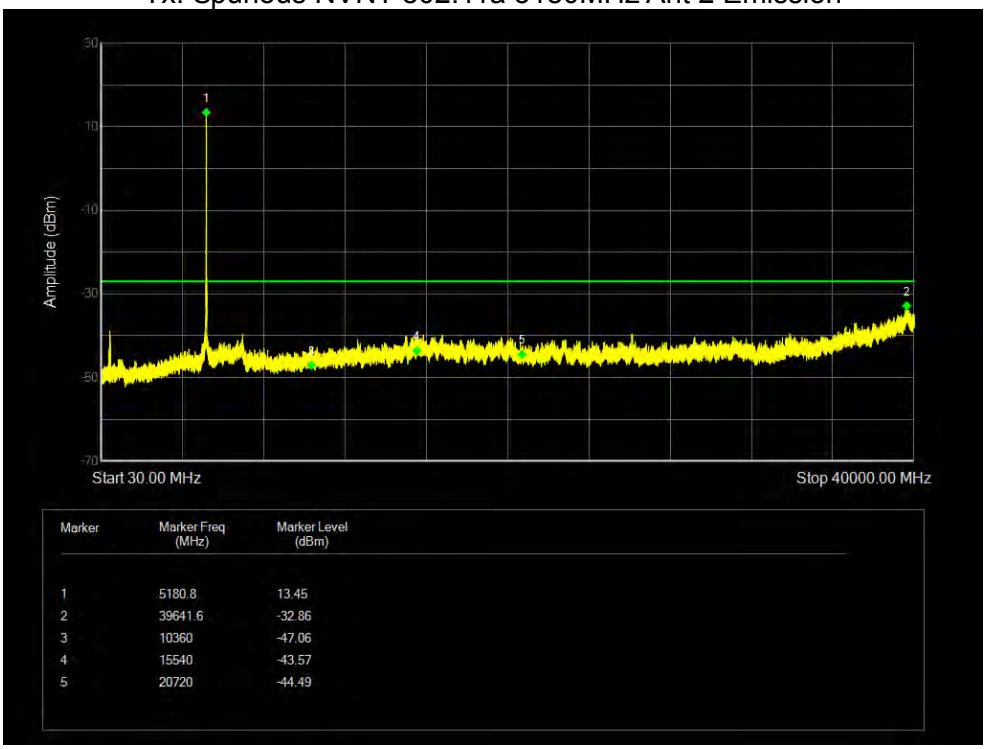
Marker	Marker Freq (MHz)	Marker Level (dBm)
1	5198.12	13.37
2	39580.31	-32.73
3	10400	-46.44
4	15600	-42.63
5	20800	-43.89

Tx. Spurious NVNT 802.11a 5240MHz Ant 1 Emission



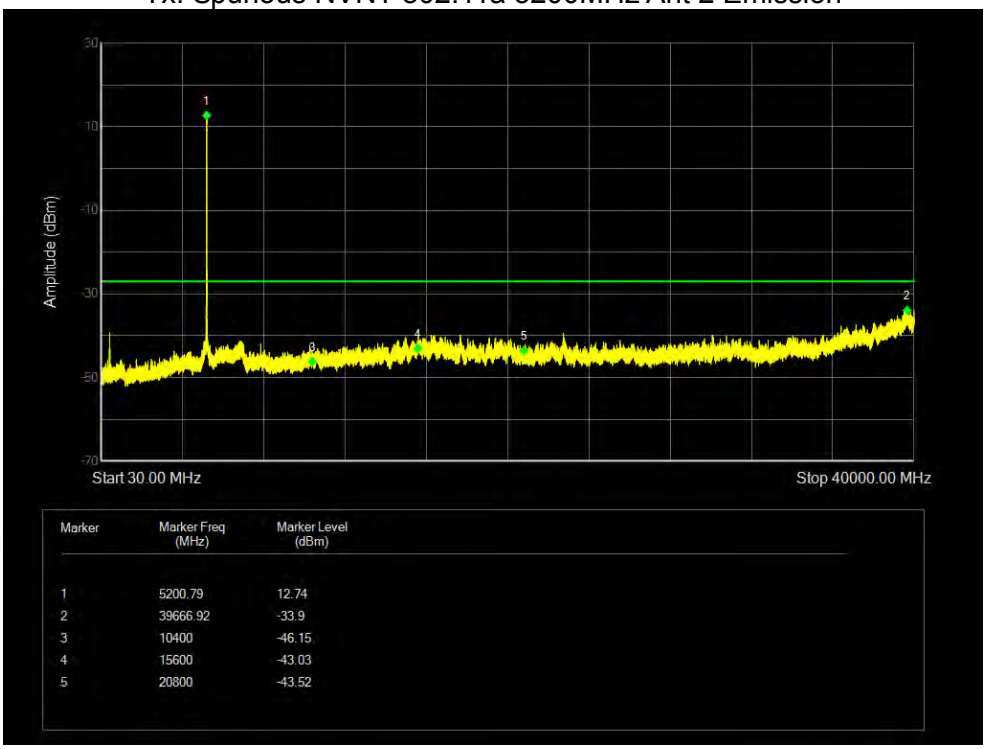
Marker	Marker Freq (MHz)	Marker Level (dBm)
1	5243.42	13.99
2	39713.55	-33.05
3	10480	-45.25
4	15720	-43.1
5	20960	-44.32

Tx. Spurious NVNT 802.11a 5180MHz Ant 2 Emission



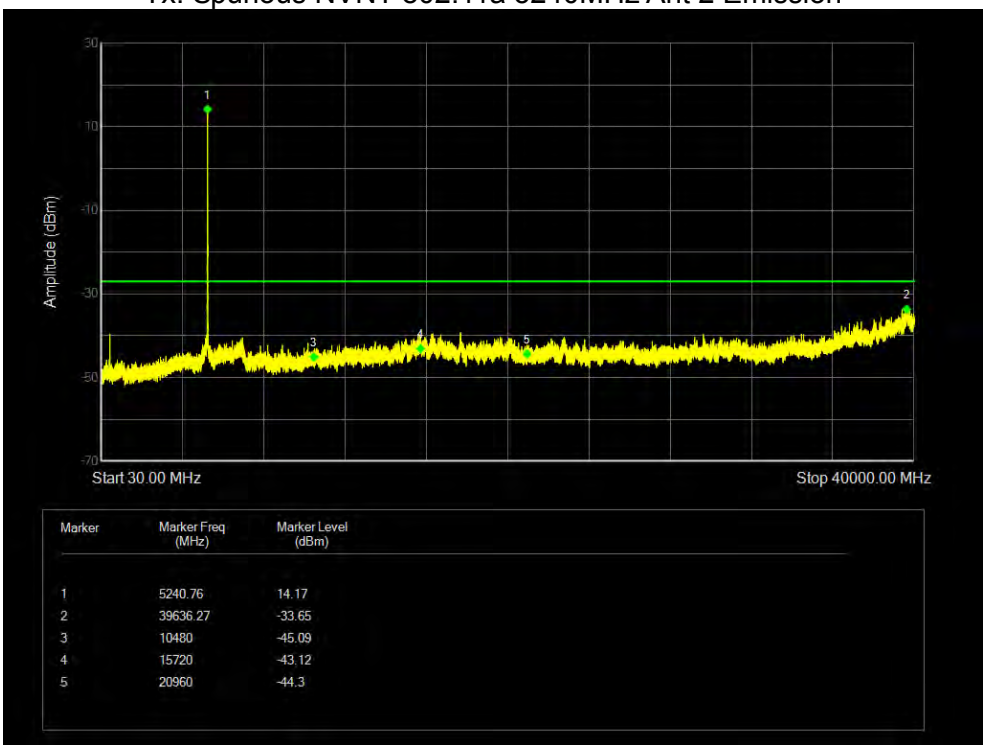
Marker	Marker Freq (MHz)	Marker Level (dBm)
1	5180.8	13.45
2	39641.6	-32.86
3	10360	-47.06
4	15540	-43.57
5	20720	-44.49

Tx. Spurious NVNT 802.11a 5200MHz Ant 2 Emission



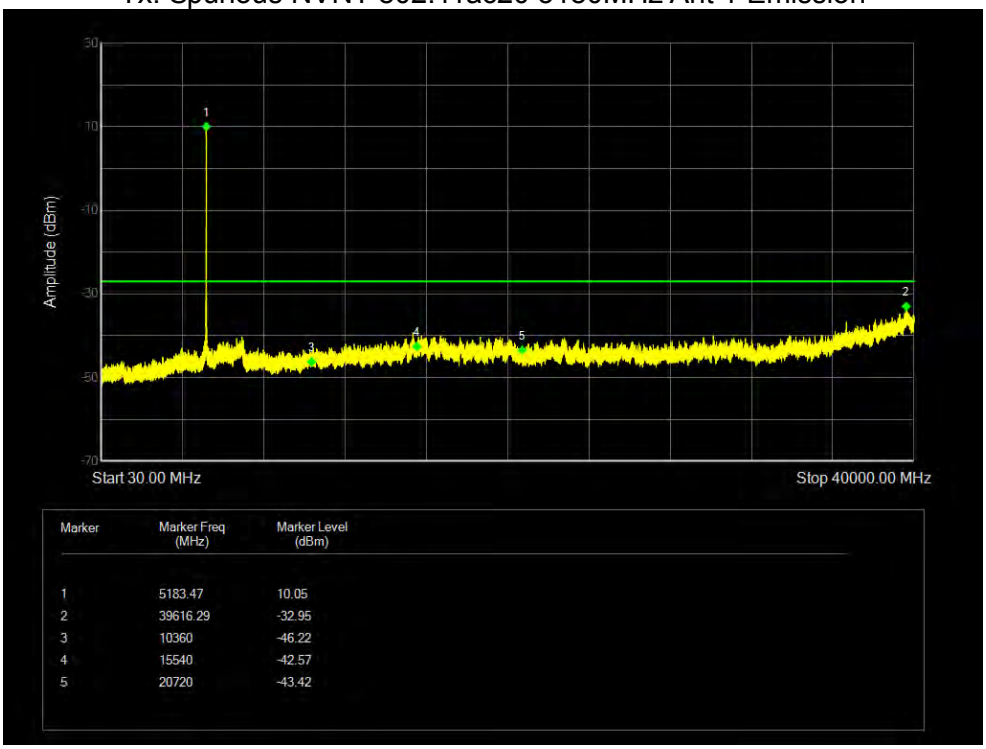
Marker	Marker Freq (MHz)	Marker Level (dBm)
1	5200.79	12.74
2	39666.92	-33.9
3	10400	-46.15
4	15600	-43.03
5	20800	-43.52

Tx. Spurious NVNT 802.11a 5240MHz Ant 2 Emission



Marker	Marker Freq (MHz)	Marker Level (dBm)
1	5240.76	14.17
2	39636.27	-33.65
3	10480	-45.09
4	15720	-43.12
5	20960	-44.3

Tx. Spurious NVNT 802.11ac20 5180MHz Ant 1 Emission



Marker	Marker Freq (MHz)	Marker Level (dBm)
1	5183.47	10.05
2	39616.29	-32.95
3	10360	-46.22
4	15540	-42.57
5	20720	-43.42