

FCC RADIO TEST REPORT

FCC ID: 2A8WC-S400-0101

Product: New Quadcopter UAV

Trade Mark: N/A

Model No.: S400

Family Model: N/A

Report No.: S22072603206002

Issue Date: Sep 27, 2022

Prepared for

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TEST RESULT CERTIFICATION

Applicant's name : GDU-Tech Co., Ltd.
Address : Building 2, No.5, Huanglongshan South Road, Donghu New Technology Development Zone, Wuhan 430074, China
Manufacturer's Name : GDU-Tech Co., Ltd.
Address : Building 2, No.5, Huanglongshan South Road, Donghu New Technology Development Zone, Wuhan 430074, China

Product description

Product name : New Quadcopter UAV
Model and/or type reference : S400
Family Model : N/A
Test Sample Number : S220726032005

Standards : FCC Part15.407

Test procedure ANSI C63.10-2013
KDB 789033 D02 General UNII Test Procedures New Rules v02r01
FCC KDB 662911 D01 Multiple Transmitter Output 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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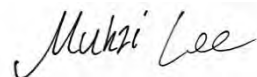
Date of Test

Date (s) of performance of tests Jul 26, 2022 ~Sep 27, 2022

Date of Issue Sep 27, 2022

Test Result **Pass**

Testing Engineer :



(Mukzi Lee)

Authorized Signatory :



(Alex Li)

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[illegible]

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

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 2.80\text{dB}$
2	RF power, conducted	$\pm 0.16\text{dB}$
3	Spurious emissions, conducted	$\pm 0.21\text{dB}$
4	All emissions, radiated(9KHz~30MHz)	$\pm 6\text{dB}$
5	All emissions, radiated(30MHz~1GHz)	$\pm 2.64\text{dB}$
6	All emissions, radiated(1GHz~6GHz)	$\pm 2.40\text{dB}$
7	All emissions, radiated(> 6GHz)	$\pm 2.52\text{dB}$
8	Temperature	$\pm 0.5^{\circ}\text{C}$
9	Humidity	$\pm 2\%$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	New Quadcopter UAV												
Trade Mark	N/A												
Model Name	S400												
Family Model	N/A												
Model Difference	N/A												
FCC ID	2A8WC-S400-0101												
Product Description	<table border="1"> <tr> <td>Modulation</td><td>5.8G WIFI:OFDM with BPSK/QPSK/16QAM/64QAM 5.8G:BPSK/QPSK/16QAM/64QAM</td></tr> <tr> <td>Operating Frequency Range</td><td>5.8G WIFI: 5745-5825 MHz for 802.11a; 5.8G(10M/20M): 5740-5820MHz 5.8G(40M): 5760-5820MHz</td></tr> <tr> <td>Function:</td><td>☐ Outdoor AP ☐ Indoor AP ☐ Fixed P2P ☒ Client</td></tr> <tr> <td>Smart system</td><td>☐ SISO for 10M/20M/40M ☒ MIMO for 10M/20M/40M</td></tr> <tr> <td>Antenna Type</td><td>PCB Antenna</td></tr> <tr> <td>Antenna Gain</td><td>5.8G WIFI: 3 dBi 5.8G: 3.61 dBi</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.	Modulation	5.8G WIFI:OFDM with BPSK/QPSK/16QAM/64QAM 5.8G:BPSK/QPSK/16QAM/64QAM	Operating Frequency Range	5.8G WIFI: 5745-5825 MHz for 802.11a; 5.8G(10M/20M): 5740-5820MHz 5.8G(40M): 5760-5820MHz	Function:	☐ Outdoor AP ☐ Indoor AP ☐ Fixed P2P ☒ Client	Smart system	☐ SISO for 10M/20M/40M ☒ MIMO for 10M/20M/40M	Antenna Type	PCB Antenna	Antenna Gain	5.8G WIFI: 3 dBi 5.8G: 3.61 dBi
Modulation	5.8G WIFI:OFDM with BPSK/QPSK/16QAM/64QAM 5.8G:BPSK/QPSK/16QAM/64QAM												
Operating Frequency Range	5.8G WIFI: 5745-5825 MHz for 802.11a; 5.8G(10M/20M): 5740-5820MHz 5.8G(40M): 5760-5820MHz												
Function:	☐ Outdoor AP ☐ Indoor AP ☐ Fixed P2P ☒ Client												
Smart system	☐ SISO for 10M/20M/40M ☒ MIMO for 10M/20M/40M												
Antenna Type	PCB Antenna												
Antenna Gain	5.8G WIFI: 3 dBi 5.8G: 3.61 dBi												
Adapter	Model: CPD-BC12 Input: 100-240V~50/60Hz 5A(max) Output: 26.4V---14A ; 12V---3A; 5V---3A												
Battery	DC 23.1V, 16400mAh, 379Wh												
Power Rating	DC 23.1V from battery or DC 26.4V from adapter												
Connecting I/O Port(s)	Please refer to the User's Manual												
Hardware Version	N/A												
Software Version	N/A												

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2. Number Of Channel List

	Channel	Frequency
10M/20M	01	5740
	02	5760
	03	5780
	04	5800
	05	5820
40M	02	5760
	03	5780
	04	5800
	05	5820

802.11a 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	-	-	-	-	-	-

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	BPSK 10M CH01/03/05
Mode 2	BPSK 20M CH01/03/05
Mode 3	BPSK 40M CH02/03/05
Mode 4	802.11a CH149/157/165

For Radiated Emission	
Final Test Mode	Description
Mode 1	BPSK 10M CH01/03/05
Mode 2	BPSK 20M CH01/03/05
Mode 3	BPSK 40M CH02/03/05
Mode 4	802.11a CH149/157/165

For Conducted Test Cases	
Final Test Mode	Description
Mode 1	BPSK 10M CH01/03/05
Mode 2	BPSK 20M CH01/03/05
Mode 3	BPSK 40M CH02/03/05
Mode 4	802.11a CH149/157/165

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:

Mode	Tx/Rx
10M/20M/40M	2TX, 2RX

For 5GHz band has MIMO mode, Antenna 1,2 are simultaneous transmissions, each with the same directional gain.

For power spectral density (PSD) measurements: Directional gain= G_{ANT} + Array Gain=3.61dBi + 3.01 = 6.62dBi. For power measurements: Directional gain= G_{ANT} + Array Gain=3.61dBi + 0 = 3.61dBi.

Note: G_{ANT} means antenna gain for the same gain in dBi.

For power spectral density (PSD) measurements: Array Gain = $10\log(N_{ANT}/N_{SS})$ dB.

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

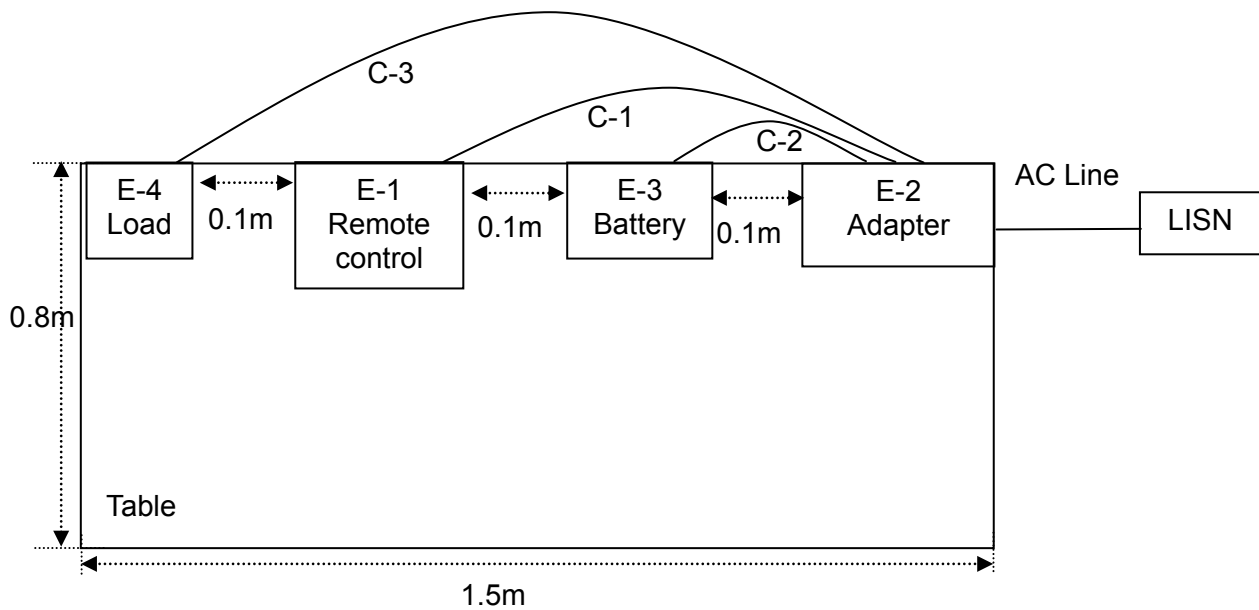
For power measurements:

N_{ANT} = number of transmit antennas and

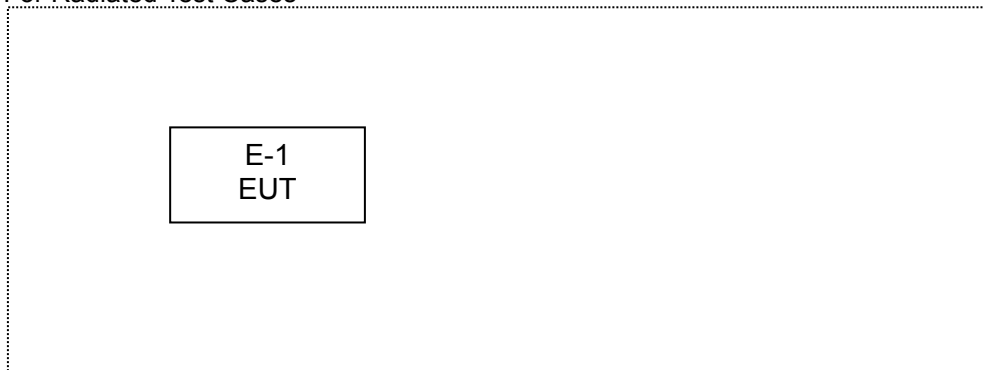
N_{SS} = number of spatial streams. (Assume $N_{SS} = 1$ unless you have specific information to the contrary.)

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

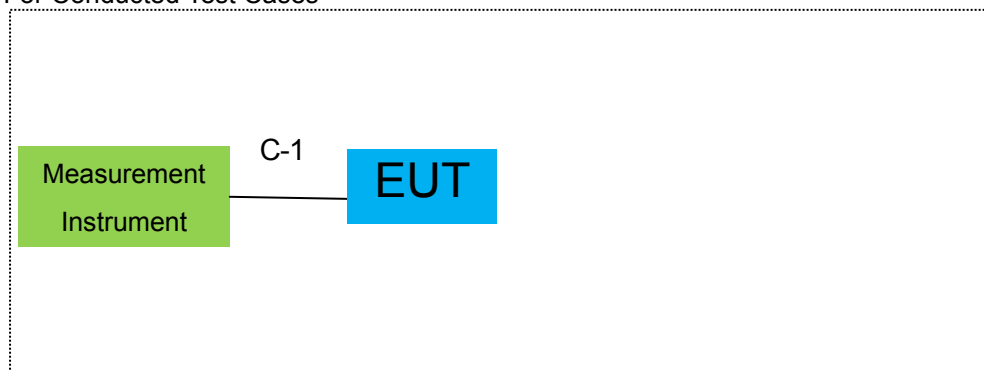
For AC Conducted Test Cases



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
E-1	Remote control	MGP01	N/A	EUT
E-2	Adapter	CPD-BC12	N/A	EUT
E-3	New Quadcopter UAV Battery	PD12-16400mAh-6S	N/A	EUT
E-4	Load	N/A	N/A	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	Power Cable	NO	NO	35cm
C-2	Power Cable	NO	NO	35cm
C-3	Power Cable	NO	NO	80cm
C-4	RF Cable	NO	NO	10cm

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	Agilent	E4407B	MY45108040	2022.04.01	2023.03.31	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2022.04.01	2023.03.31	1 year
3	Spectrum Analyzer	R&S	FSV40	101417	2022.06.16	2023.06.15	1 year
4	Test Receiver	R&S	ESPI7	101318	2022.04.06	2023.04.05	1 year
5	Bilog Antenna	TESEQ	CBL6111D	31216	2022.03.30	2023.03.29	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	2022.03.31	2023.03.30	1 year
8	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	803	2021.11.07	2022.11.06	1 year
9	Amplifier	EMC	EMC051835SE	980246	2022.06.17	2023.06.16	1 year
10	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	055	2021.11.07	2022.11.06	1 year
11	Power Meter	DARE	RPR3006W	15100041SN084	2022.06.16	2023.06.15	1 year
12	Test Cable (9KHz-30MHz)	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
14	High Test Cable(1G-40G Hz)	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
15	Filter	TRILTHIC	2400MHz	29	2021.11.07	2022.11.06	1 year
16	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	2022.04.06	2023.04.05	1 year
2	LISN	R&S	ENV216	101313	2022.04.06	2023.04.05	1 year
3	LISN	SCHWARZBECK	NNLK 8129	8129245	2022.04.06	2023.04.05	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

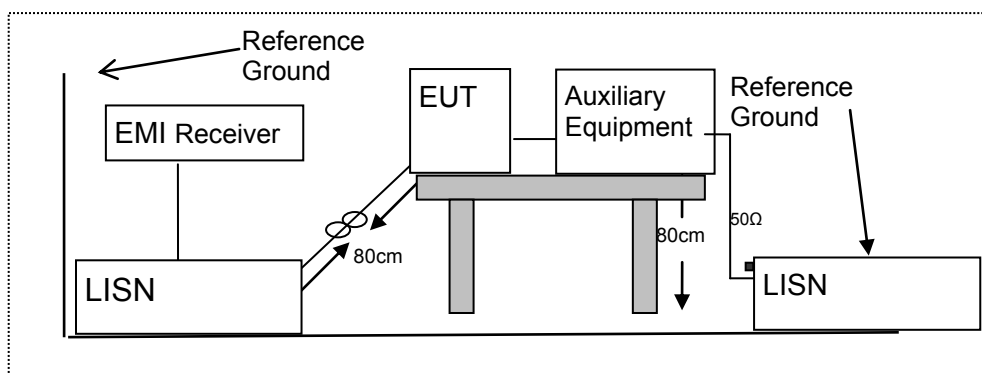
According to FCC Part 15.207(a)

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.

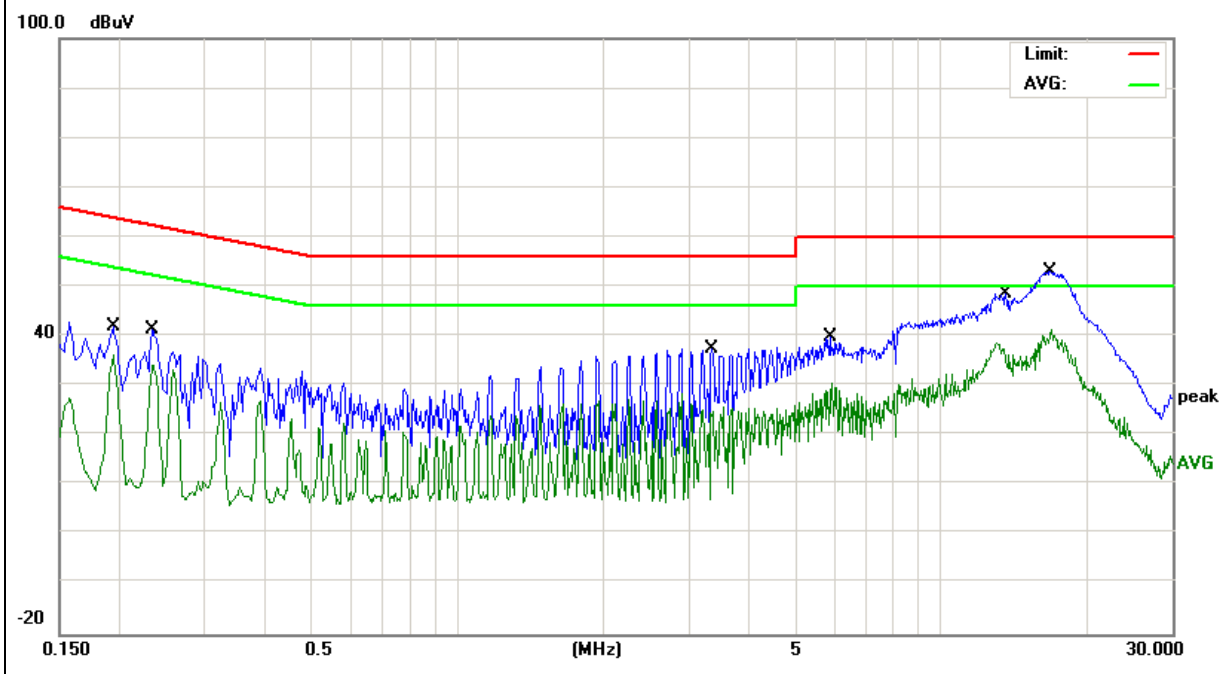
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room.
2. The EUT was placed on a table which is 0.8m above ground plane.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The 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 :	New Quadcopter UAV	Model Name :	S400
Temperature :	20.7 °C	Relative Humidity :	47%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 26.4V from Adapter AC 120V/60Hz	Test Mode :	Charging

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure -ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1943	32.48	9.61	42.09	63.85	-21.76	QP
0.1943	25.64	9.61	35.25	53.85	-18.60	AVG
0.2340	31.74	9.63	41.37	62.30	-20.93	QP
0.2340	24.59	9.63	34.22	52.30	-18.08	AVG
3.3620	27.68	9.74	37.42	56.00	-18.58	QP
3.3620	14.24	9.74	23.98	46.00	-22.02	AVG
5.8738	30.15	9.81	39.96	60.00	-20.04	QP
5.8738	14.76	9.81	24.57	50.00	-25.43	AVG
13.6179	38.57	10.04	48.61	60.00	-11.39	QP
13.6179	25.31	10.04	35.35	50.00	-14.65	AVG
16.7739	42.99	10.11	53.10	60.00	-6.90	QP
16.7739	30.11	10.11	40.22	50.00	-9.78	AVG

Remark:

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

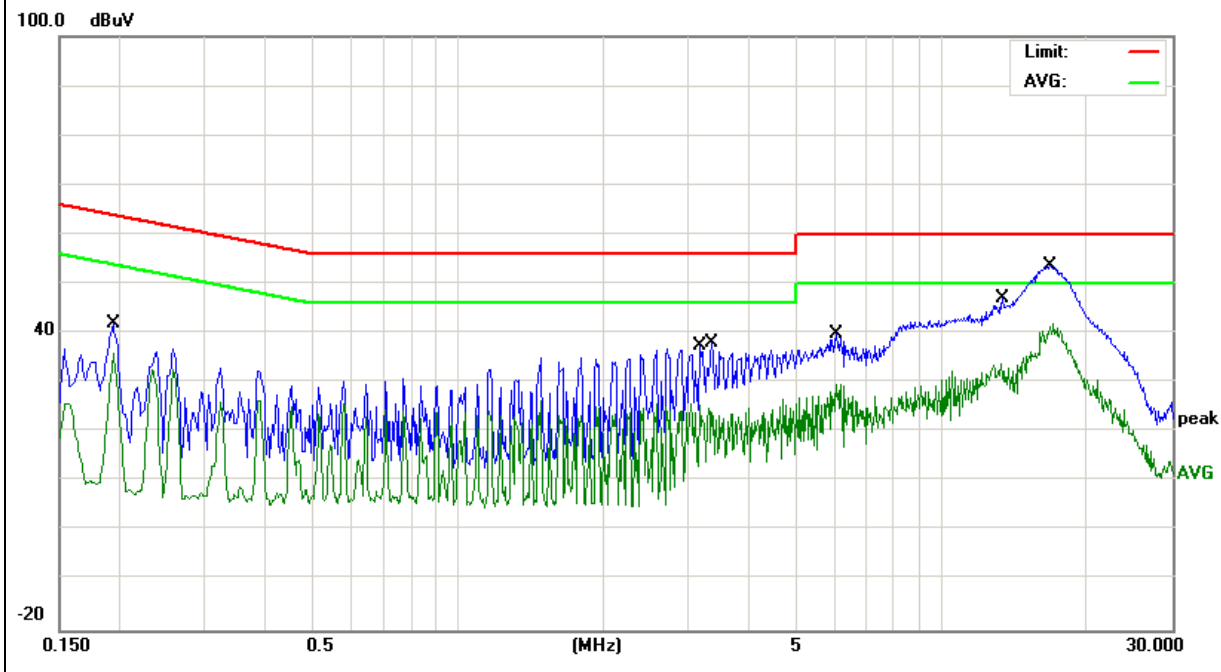


EUT :	New Quadcopter UAV	Model Name :	S400
Temperature :	20.7 °C	Relative Humidity :	47%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 26.4V from Adapter AC 120V/60Hz	Test Mode :	Charging

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1940	32.17	9.63	41.80	63.86	-22.06	QP
0.1940	25.28	9.63	34.91	53.86	-18.95	AVG
3.1619	27.80	9.69	37.49	56.00	-18.51	QP
3.1619	15.61	9.69	25.30	46.00	-20.70	AVG
3.3580	28.39	9.70	38.09	56.00	-17.91	QP
3.3580	14.39	9.70	24.09	46.00	-21.91	AVG
6.0696	30.18	9.79	39.97	60.00	-20.03	QP
6.0696	19.85	9.79	29.64	50.00	-20.36	AVG
13.3619	37.13	10.00	47.13	60.00	-12.87	QP
13.3619	21.07	10.00	31.07	50.00	-18.93	AVG
16.7896	43.64	10.08	53.72	60.00	-6.28	QP
16.7896	31.15	10.08	41.23	50.00	-8.77	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 Part 15.205, 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);

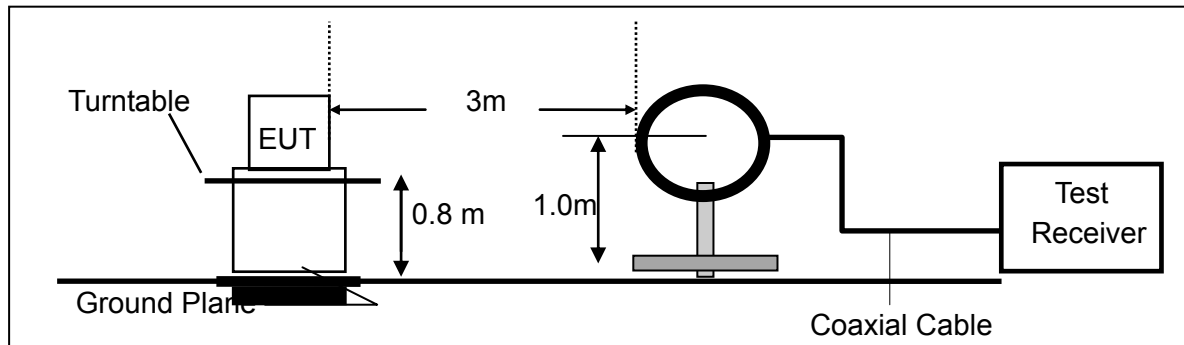
Limit line=Specific limits(dBuV) + distance extrapolation factor.

3.2.3 MEASURING INSTRUMENTS

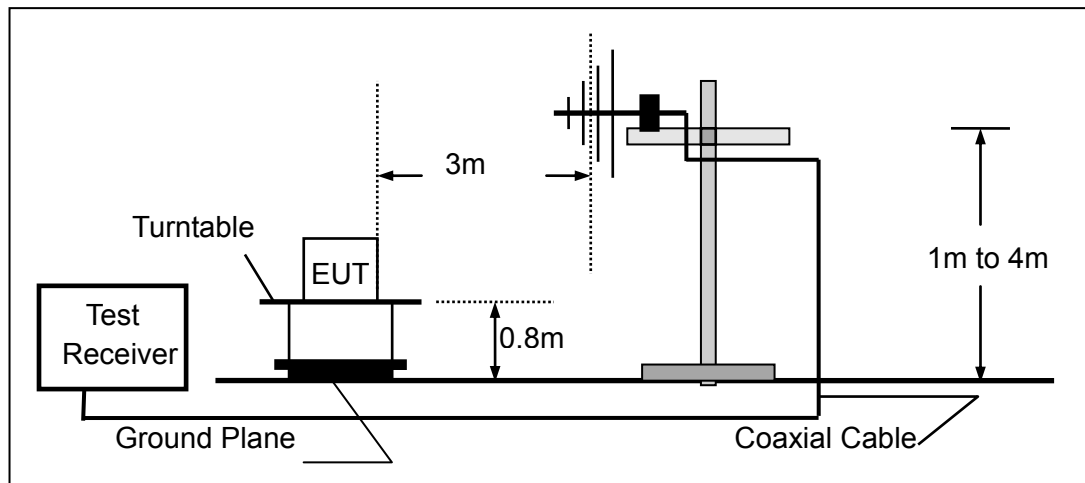
The Measuring equipment is listed in the section 6.3 of this test report.

3.2.4 TEST CONFIGURATION

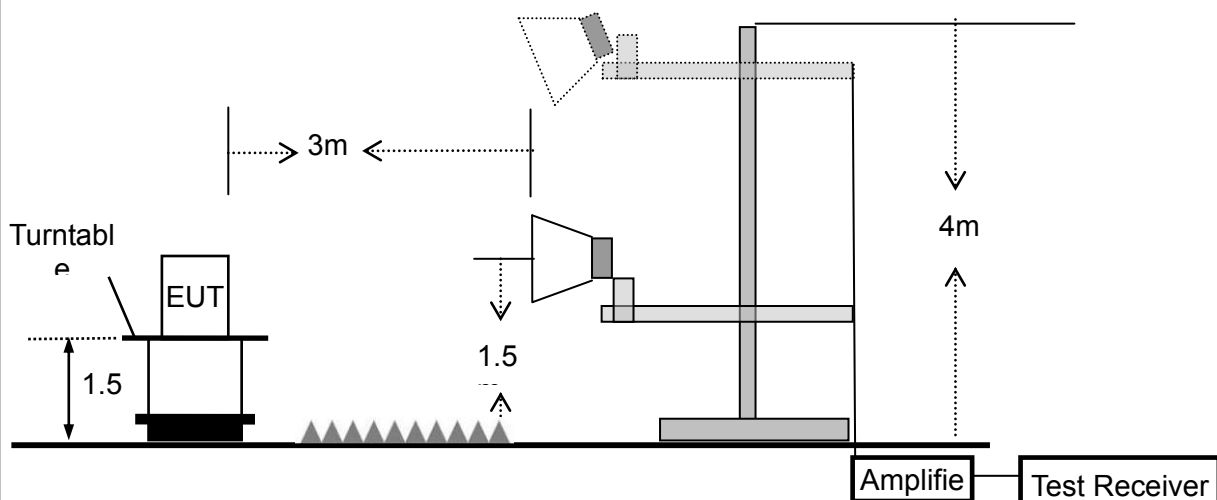
(a) For radiated emissions below 30MHz



(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

- 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.
- 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.
- 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.
- 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.
- 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.
- 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 $RBWCF [dB] = 10 \cdot \lg(100 [kHz] / \text{narrower RBW} [kHz])$. , 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 :	New Quadcopter UAV	Model Name :	S400
Temperature :	26 °C	Relative Humidity :	54%
Pressure:	1010 hPa	Test Voltage :	DC 23.1V
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.

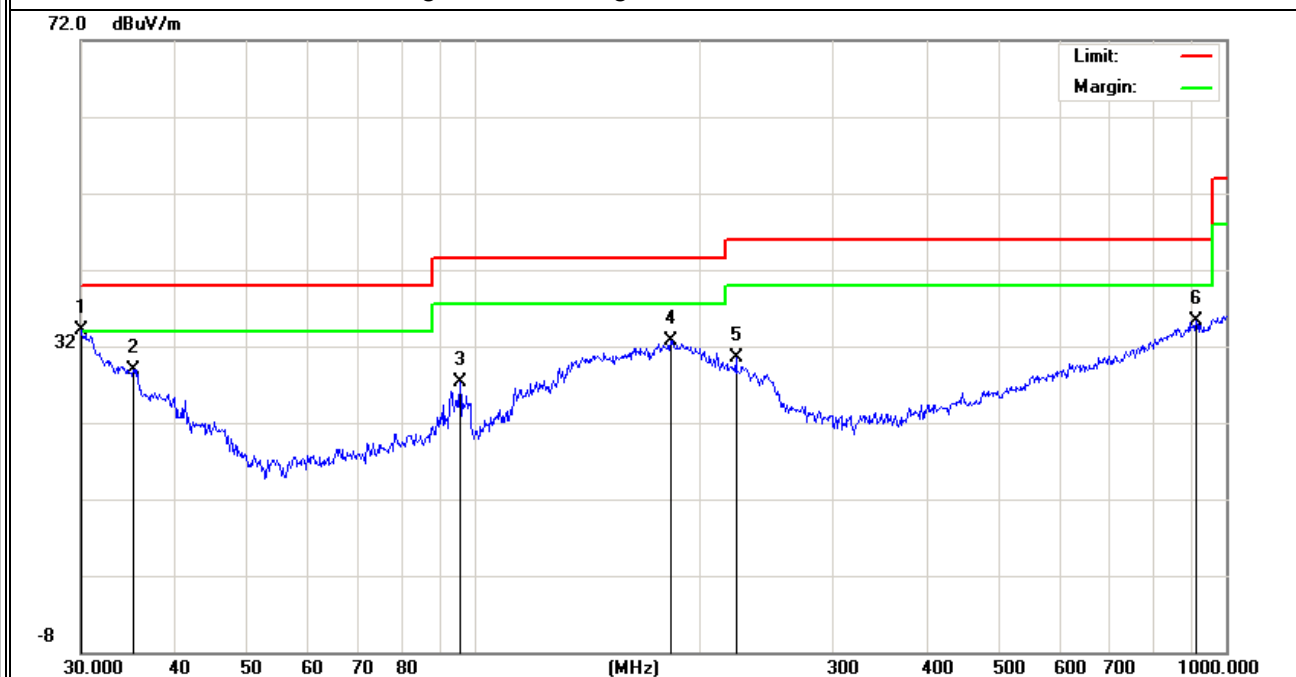
3.2.7 TEST RESULTS (30MHZ – 1GHZ)

EUT :	New Quadcopter UAV	Model Name :	S400
Temperature :	25.2	Relative Humidity :	55%
Pressure :	1010 hPa	Test Voltage :	DC 23.1V
Test Mode :	TX- Mode 1(CH1)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	30.0000	9.12	25.01	34.13	40.00	-5.87	QP
V	35.2511	7.93	20.97	28.90	40.00	-11.10	QP
V	95.7622	11.18	16.09	27.27	43.50	-16.23	QP
V	182.5592	16.83	15.93	32.76	43.50	-10.74	QP
V	222.9499	13.70	16.71	30.41	46.00	-15.59	QP
V	912.8618	3.74	31.53	35.27	46.00	-10.73	QP

Remark:

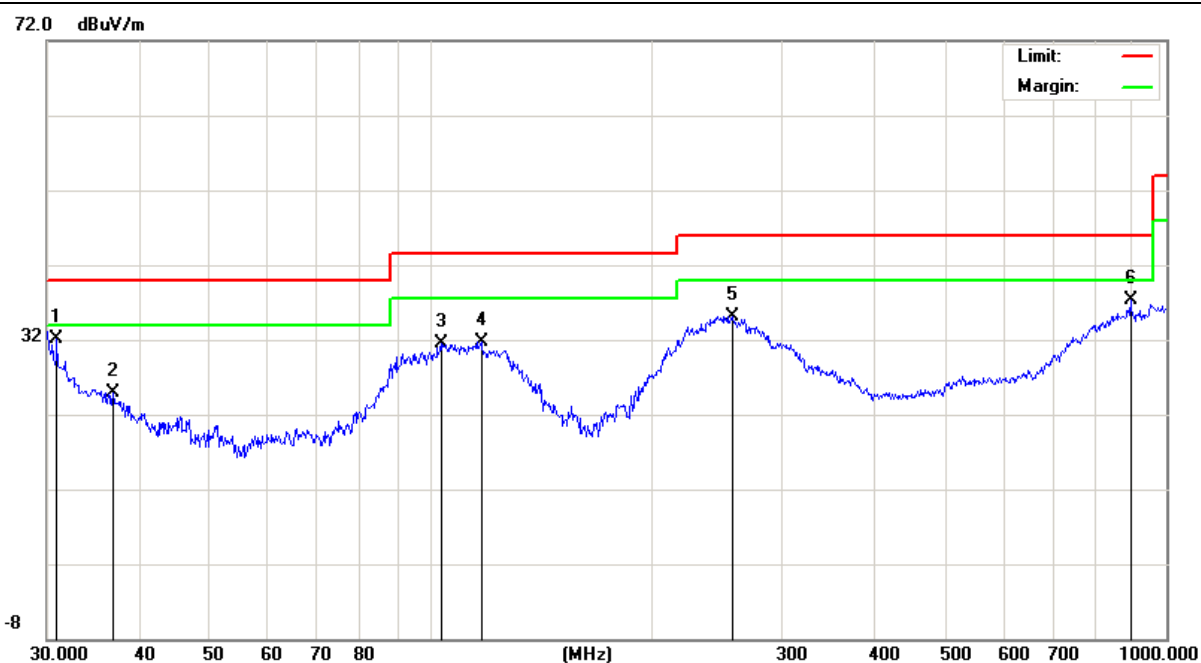
Emission Level= Meter Reading+ Factor, Margin= Emission Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	30.9618	8.17	23.97	32.14	40.00	-7.86	QP
H	36.8952	5.13	19.75	24.88	40.00	-15.12	QP
H	103.0798	14.83	16.63	31.46	43.50	-12.04	QP
H	116.9495	14.11	17.69	31.80	43.50	-11.70	QP
H	257.4221	14.75	20.41	35.16	46.00	-10.84	QP
H	893.8567	5.74	31.49	37.23	46.00	-8.77	QP

Remark:

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

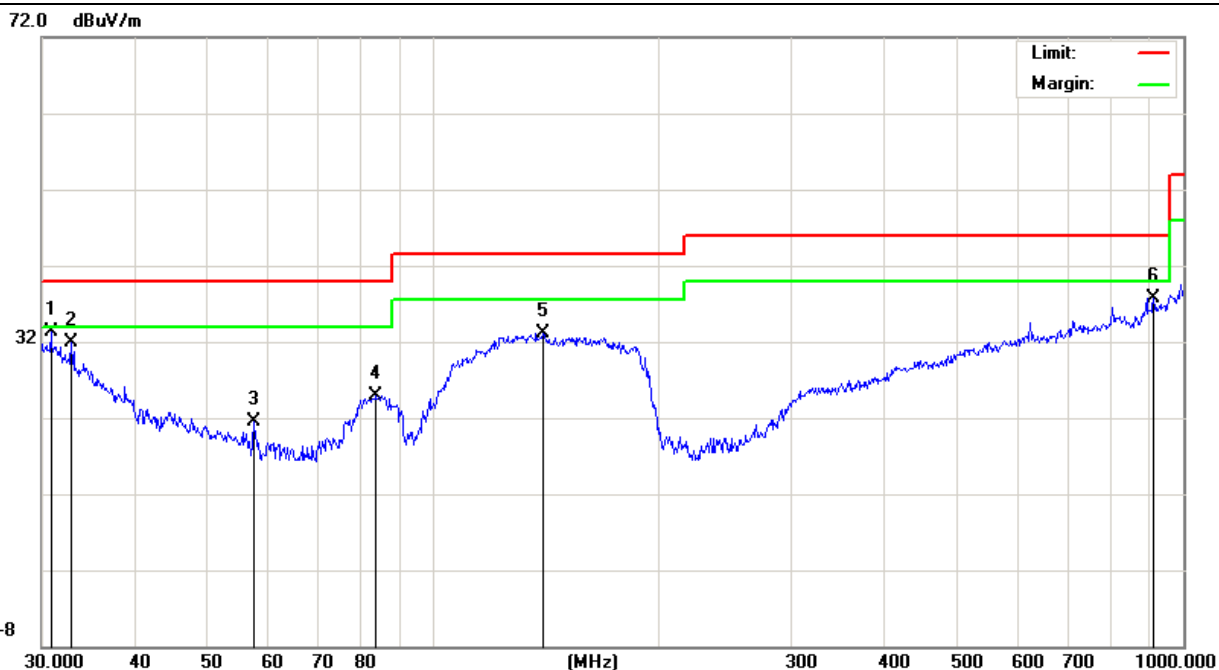


EUT :	New Quadcopter UAV	Model Name :	S400
Temperature :	25.2	Relative Humidity :	55%
Pressure :	1010 hPa	Test Voltage :	DC 23.1V
Test Mode :	TX-mode 4(CH149)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	30.8535	9.31	24.08	33.39	40.00	-6.61	QP
V	32.8637	9.45	22.37	31.82	40.00	-8.18	QP
V	57.5938	9.87	11.69	21.56	40.00	-18.44	QP
V	83.8156	10.55	14.33	24.88	40.00	-15.12	QP
V	139.8505	14.27	18.76	33.03	43.50	-10.47	QP
V	912.8618	6.24	31.53	37.77	46.00	-8.23	QP

Remark:

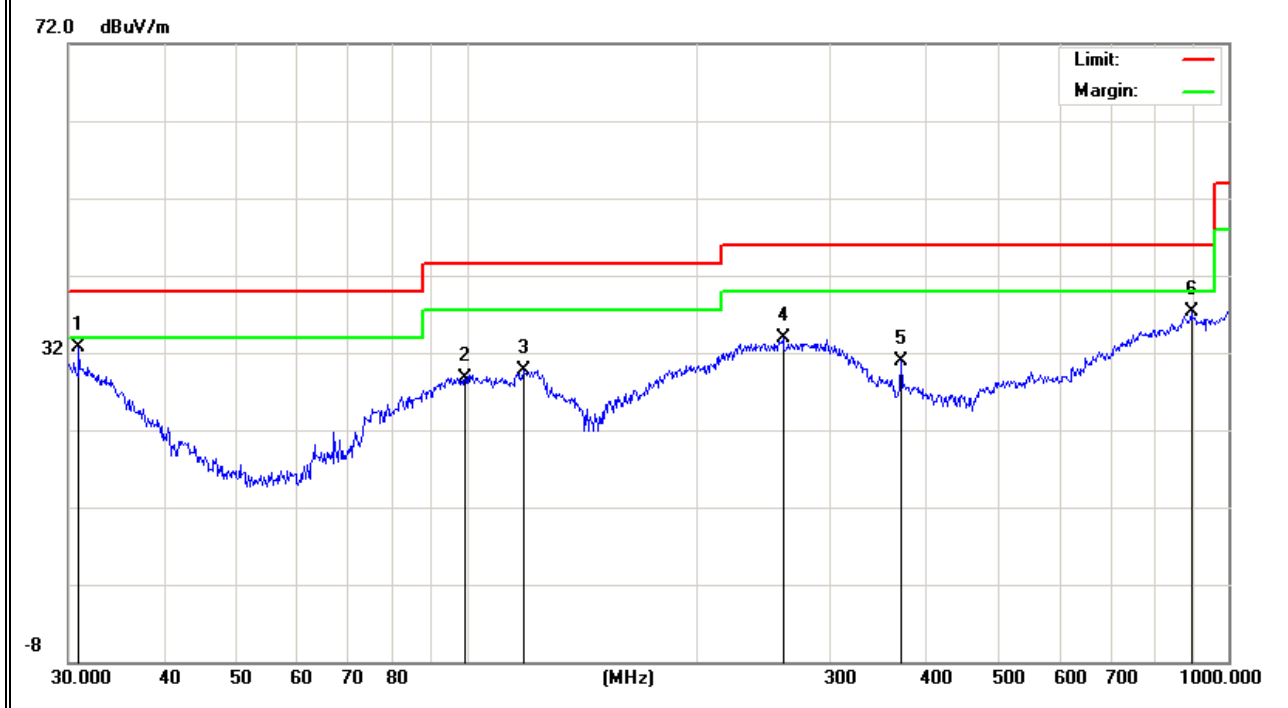
Emission Level= Meter Reading+ Factor, Margin= Emission Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	30.9618	8.67	23.97	32.64	40.00	-7.36	QP
H	99.5279	12.56	16.18	28.74	43.50	-14.76	QP
H	119.0180	11.93	17.85	29.78	43.50	-13.72	QP
H	260.1444	13.26	20.62	33.88	46.00	-12.12	QP
H	372.0045	8.35	22.52	30.87	46.00	-15.13	QP
H	893.8567	5.74	31.49	37.23	46.00	-8.77	QP

Remark:

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



3.2.8 TEST RESULTS (1GHz-18GHz)

EUT :	New Quadcopter UAV	Model Name. :	S400
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 23.1V
Test Mode :	TX- Mode 2		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5760 MHz)10M-GFSK									
Vertical	5122.84	64.22	5.94	35.40	44.00	61.56	74.00	-12.44	Pk
Vertical	5122.88	45.71	5.94	35.40	44.00	43.05	54.00	-10.95	AV
Vertical	11491.07	60.26	8.46	39.75	44.50	63.97	74.00	-10.03	Pk
Vertical	11491.01	43.70	8.46	39.75	44.50	47.41	54.00	-6.59	AV
Vertical	17236.21	52.29	10.12	38.80	44.10	57.11	68.20	-11.09	Pk
Horizontal	5167.00	59.89	5.94	35.18	44.00	57.01	68.20	-11.19	Pk
Horizontal	11490.89	59.38	8.46	38.71	44.50	62.05	74.00	-11.95	Pk
Horizontal	11490.91	42.83	8.46	38.71	44.50	45.50	54.00	-8.50	AV
Horizontal	17235.74	51.81	10.12	38.38	44.10	56.21	68.20	-11.99	Pk
middle Channel (5780 MHz)10M-GFSK									
Vertical	5122.84	64.22	5.94	35.40	44.00	61.56	74.00	-12.44	Pk
Vertical	5122.88	45.71	5.94	35.40	44.00	43.05	54.00	-10.95	AV
Vertical	11491.07	60.26	8.46	39.75	44.50	63.97	74.00	-10.03	Pk
Vertical	11491.01	43.70	8.46	39.75	44.50	47.41	54.00	-6.59	AV
Vertical	17236.21	52.29	10.12	38.80	44.10	57.11	68.20	-11.09	Pk
Horizontal	5167.00	59.89	5.94	35.18	44.00	57.01	68.20	-11.19	Pk
Horizontal	11490.89	59.38	8.46	38.71	44.50	62.05	74.00	-11.95	Pk
Horizontal	11490.91	42.83	8.46	38.71	44.50	45.50	54.00	-8.50	AV
Horizontal	17235.74	51.81	10.12	38.38	44.10	56.21	68.20	-11.99	Pk
Vertical	5122.84	64.22	5.94	35.40	44.00	61.56	74.00	-12.44	Pk
High Channel (5820 MHz)10M-GFSK									
Vertical	5243.79	62.05	7.10	37.24	43.50	62.89	68.20	-5.31	Pk
Vertical	11651.58	61.94	8.46	37.68	44.50	63.58	74.00	-10.42	Pk
Vertical	11651.80	43.09	8.46	37.68	44.50	44.73	54.00	-9.27	AV
Vertical	17473.09	60.63	10.12	38.80	44.10	65.45	68.20	-2.75	Pk
Vertical	17472.99	60.72	10.12	38.80	44.10	65.54	68.20	-2.66	Pk
Horizontal	5284.47	60.43	7.10	37.24	43.50	61.27	68.20	-6.93	Pk
Horizontal	11651.82	60.24	8.46	38.57	44.50	62.77	74.00	-11.23	Pk
Horizontal	11651.89	41.99	8.46	38.57	44.50	44.52	54.00	-9.48	AV
Horizontal	17473.93	58.10	10.12	38.38	44.10	62.50	68.20	-5.70	Pk
Horizontal	17474.07	58.18	10.12	38.38	44.10	62.58	68.20	-5.62	Pk

Note: "10M BPSK" 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 - Preamplifier Factor = Level.

EUT :	New Quadcopter UAV	Model Name. :	S400
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 23.1V
Test Mode :	TX- Mode 4		

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)-802.11a									
Vertical	5123.02	64.21	5.94	35.40	44.00	61.55	74.00	-12.45	Pk
Vertical	5122.77	45.69	5.94	35.40	44.00	43.03	54.00	-10.97	AV
Vertical	11491.13	60.53	8.46	39.75	44.50	64.24	74.00	-9.76	Pk
Vertical	11491.04	43.80	8.46	39.75	44.50	47.51	54.00	-6.49	AV
Vertical	17236.00	52.32	10.12	38.80	44.10	57.14	68.20	-11.06	Pk
Horizontal	5167.16	59.80	5.94	35.18	44.00	56.92	68.20	-11.28	Pk
Horizontal	11490.72	59.20	8.46	38.71	44.50	61.87	74.00	-12.13	Pk
Horizontal	11490.74	42.62	8.46	38.71	44.50	45.29	54.00	-8.71	AV
Horizontal	17235.74	51.76	10.12	38.38	44.10	56.16	68.20	-12.04	Pk
middle Channel (5785 MHz)-802.11a									
Vertical	5433.97	63.12	6.48	36.35	44.05	61.90	74.00	-12.10	Pk
Vertical	5433.89	43.17	6.48	36.35	44.05	41.95	54.00	-12.05	AV
Vertical	11570.82	60.77	8.47	37.88	44.51	62.61	74.00	-11.39	Pk
Vertical	11570.95	43.36	8.47	37.88	44.51	45.20	54.00	-8.80	AV
Vertical	17356.31	56.16	10.12	38.80	44.10	60.98	68.20	-7.22	Pk
Horizontal	4866.84	60.25	6.48	36.37	44.05	59.05	74.00	-14.95	Pk
Horizontal	4866.90	43.26	6.48	36.37	44.05	42.06	54.00	-11.94	AV
Horizontal	11570.82	63.16	8.47	38.64	44.50	65.77	74.00	-8.23	Pk
Horizontal	11570.70	44.44	8.47	38.64	44.50	47.05	54.00	-6.95	AV
Horizontal	17355.73	56.99	10.12	38.38	44.10	61.39	68.20	-6.81	Pk
High Channel (5825 MHz)-802.11a									
Vertical	5243.89	62.09	7.10	37.24	43.50	62.93	68.20	-5.27	Pk
Vertical	11651.80	61.83	8.46	37.68	44.50	63.47	74.00	-10.53	Pk
Vertical	11651.80	43.09	8.46	37.68	44.50	44.73	54.00	-9.27	AV
Vertical	17472.88	60.51	10.12	38.80	44.10	65.33	68.20	-2.87	Pk
Vertical	17472.84	60.83	10.12	38.80	44.10	65.65	68.20	-2.55	Pk
Horizontal	5284.71	60.25	7.10	37.24	43.50	61.09	68.20	-7.11	Pk
Horizontal	11651.99	60.35	8.46	38.57	44.50	62.88	74.00	-11.12	Pk
Horizontal	11651.97	42.07	8.46	38.57	44.50	44.60	54.00	-9.40	AV
Horizontal	17473.84	58.43	10.12	38.38	44.10	62.83	68.20	-5.37	Pk
Horizontal	17473.76	58.32	10.12	38.38	44.10	62.72	68.20	-5.48	Pk

Note: "802.11a" 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.

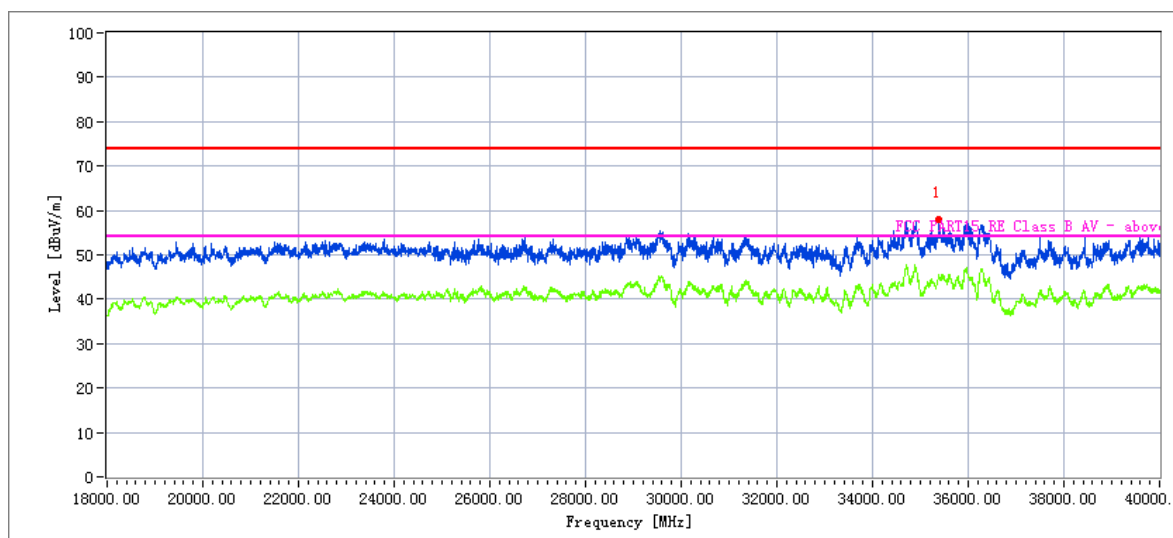
3.2.10 TEST RESULTS (18GHz-40GHz)

EUT :	New Quadcopter UAV	Model Name. :	S400
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 23.1V
Test Mode :	TX -Mode 1		

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

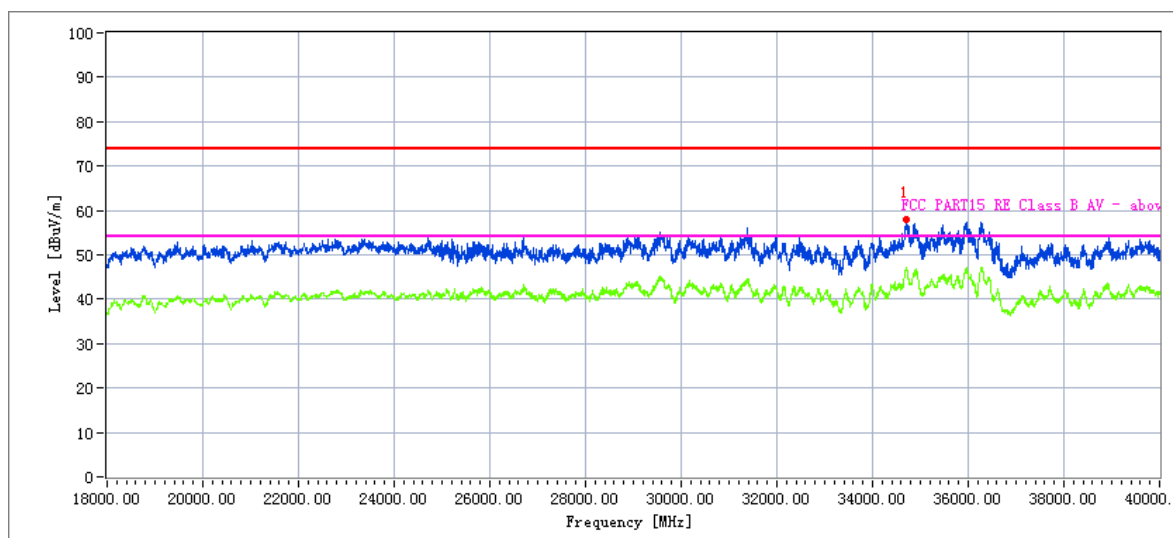
Low Channel (5740 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
39669.794	38.51	20.09	44.16	43.48	59.28	68.2	8.92	Peak
39669.914	29.51	20.09	44.16	43.48	50.28	54	3.72	AVG

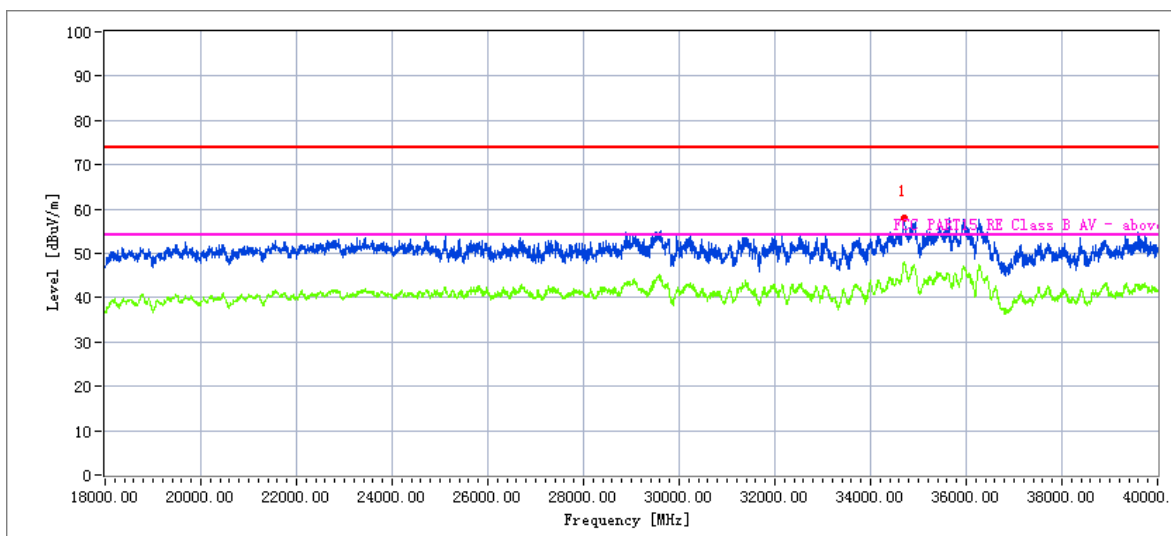
Vertical



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
39730.982	37.7	20.06	44.07	43.21	58.62	68.2	9.58	Peak
39731.052	28.41	20.06	44.07	43.21	49.33	54	4.67	AVG

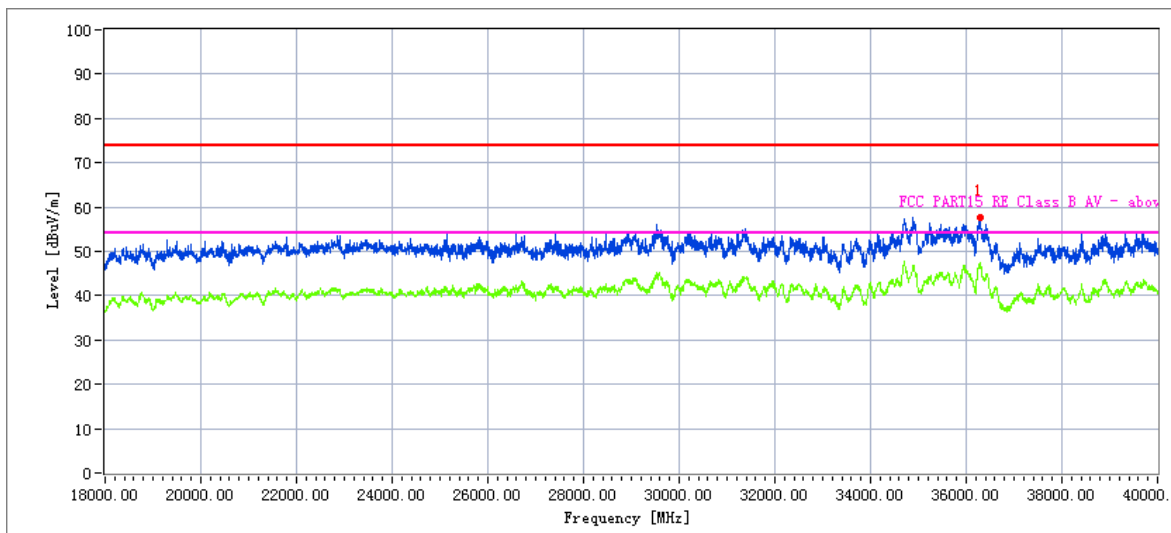
High Channel (5820 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
35627.994	39.44	19.11	42.63	43.48	57.7	68.2	10.5	Peak
35635.748	29.97	19.12	42.63	43.48	48.24	54	5.76	AVG

Vertical



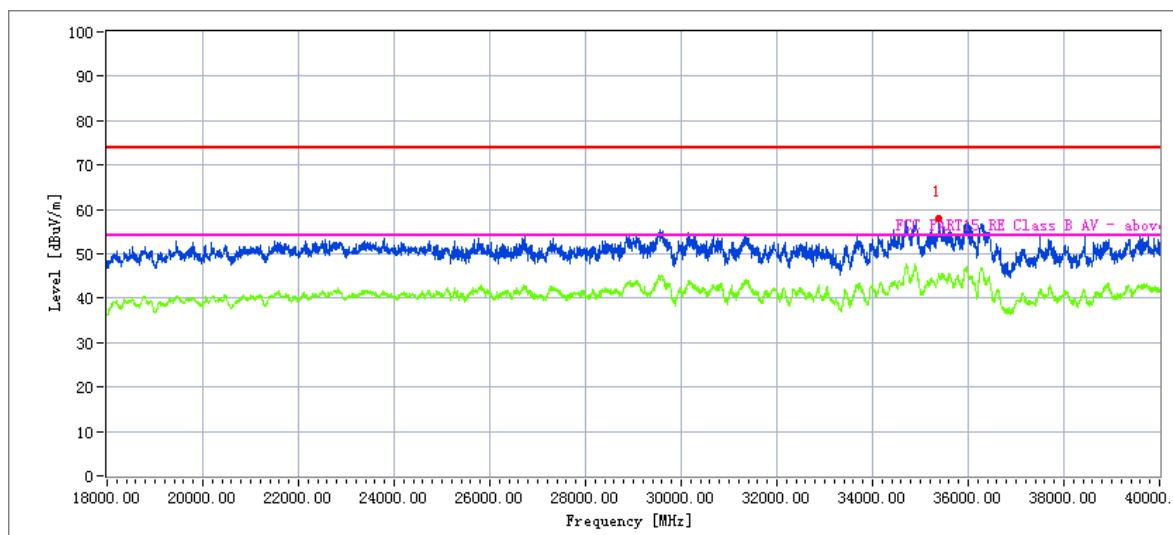
Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
39821.453	38.43	20.1	44.1	43.22	59.41	68.2	8.79	Peak
39821.633	29.42	20.1	44.1	43.22	50.4	54	3.6	AVG

EUT :	New Quadcopter UAV	Model Name. :	S400
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 23.1V
Test Mode :	TX -Mode 4		

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

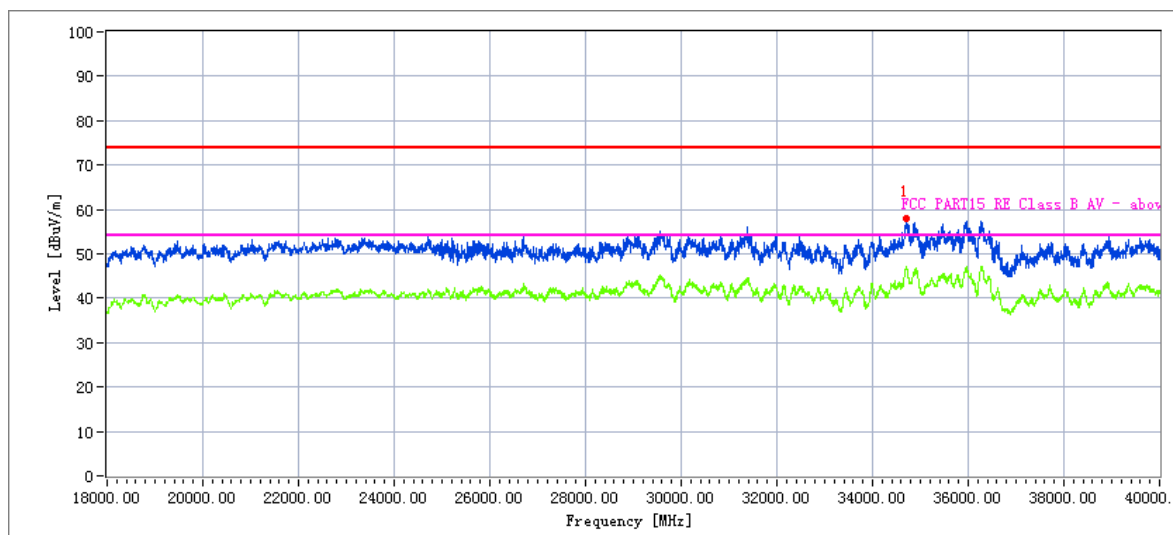
Low Channel (5745 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Remark
39669.924	38.57	20.09	44.16	43.48	59.34	68.2	8.86	Peak
39669.734	29.45	20.09	44.16	43.48	50.22	54	3.78	AVG

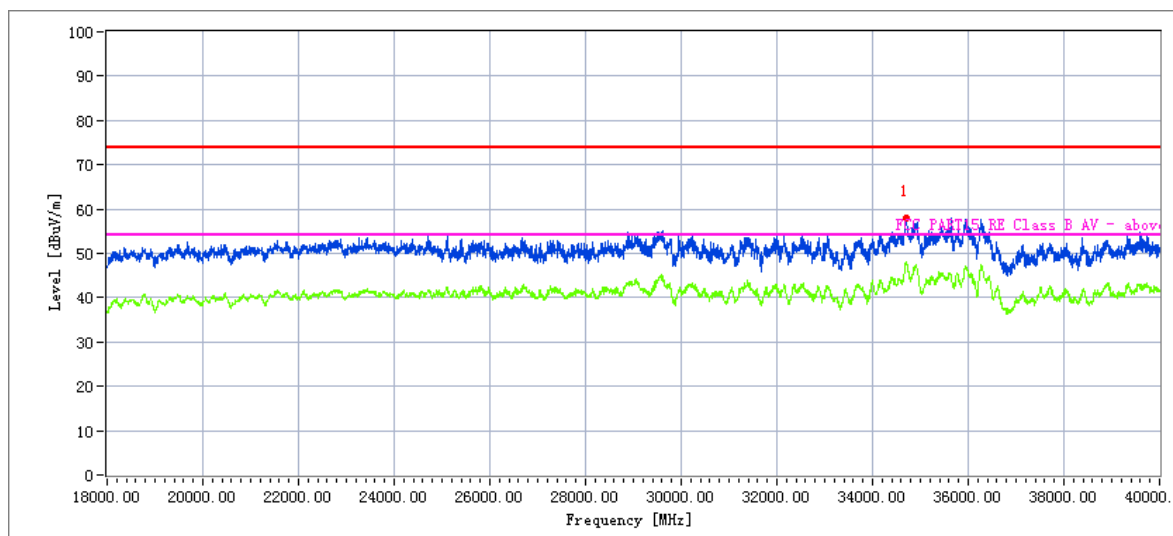
Vertical



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Remark
39731.112	37.6	20.06	44.07	43.21	58.52	68.2	9.68	Peak
39731.292	28.59	20.06	44.07	43.21	49.51	54	4.49	AVG

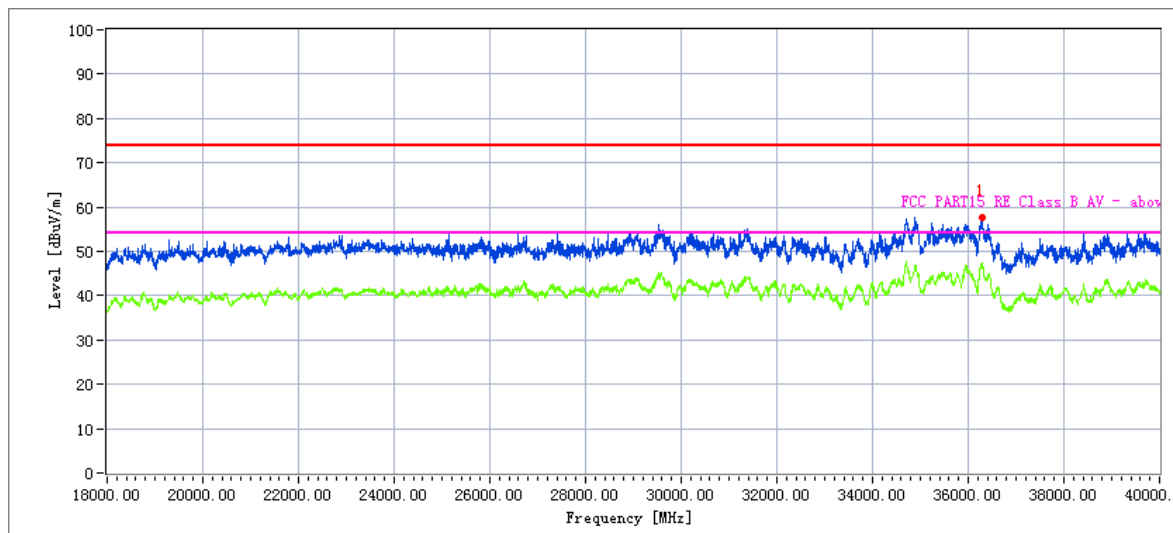
High Channel (5825 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
35628.124	39.4	19.11	42.63	43.48	57.66	68.2	10.54	Peak
35635.718	29.92	19.12	42.63	43.48	48.19	54	5.81	AVG

Vertical



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
39821.753	38.25	20.1	44.1	43.22	59.23	68.2	8.97	Peak
39821.563	29.15	20.1	44.1	43.22	50.13	54	3.87	AVG

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 $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz

(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 $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3 RBW$.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ KHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10\log(1\text{MHz}/RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

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 $RBW=100 \text{ KHz}$ 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 :	New Quadcopter UAV	Model Name :	S400
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1015 hPa	Test Voltage :	DC 23.1V
Test Mode :	Mode2/3/4		

For 5G band, Directional gain=6.62dBi
6.62dBi>6.0 dBi, so MIMO power spectral density limit=29.38dBm / 1MHz;

Test data reference attachment.

5. 26DB & 99% EMISSION BANDWIDTH

5.1 APPLIED PROCEDURES / LIMIT

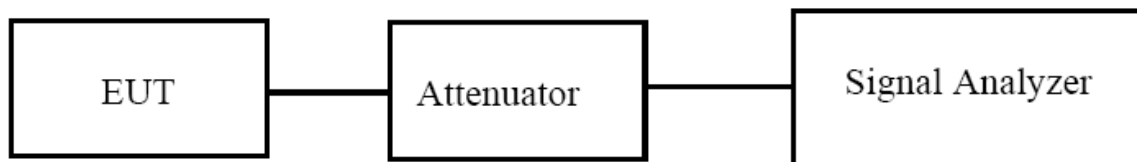
The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band 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 $\geq 3 \cdot$ 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 :	New Quadcopter UAV	Model Name :	S400
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1012 hPa	Test Voltage :	DC 23.1V
Test Mode :	Mode2/3/4		

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

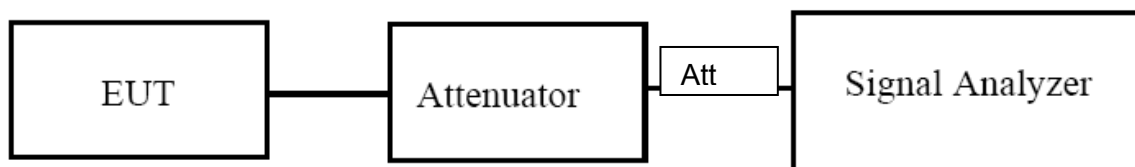
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

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

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 :	New Quadcopter UAV	Model Name :	S400
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1012 hPa	Test Voltage :	DC 23.1V
Test Mode :	Mode2/3/4		

Test data reference attachment.

7. MAXIMUM CONDUCTED OUTPUT POWER

7.1 PPLIED PROCEDURES / LIMIT

According to FCC §15.407

The maximum conducted output power should not exceed:

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

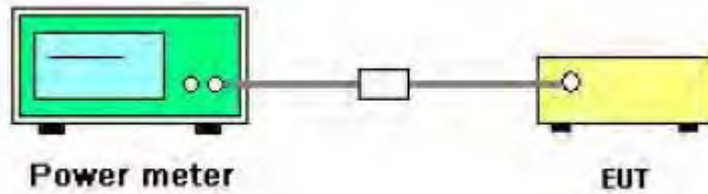
7.2 TEST PROCEDURE

- 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 :	New Quadcopter UAV	Model Name :	S400
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1012 hPa	Test Voltage :	DC 23.1V
Test Mode :	Mode2/3/4		

For 5.8G band. Directional gain=3.61dBi; 6.0dBi > 3.61dBi, 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.

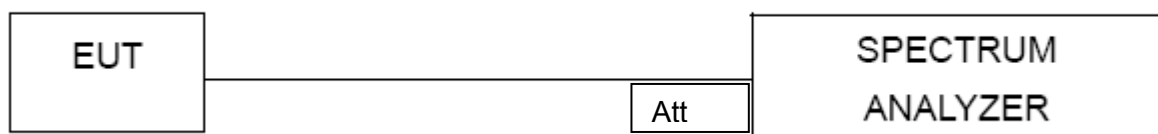
8.2 TEST PROCEDURE

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 :	New Quadcopter UAV	Model Name :	S400
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1012 hPa	Test Voltage :	DC 23.1V
Test Mode :	Mode2/3/4		

Test data reference attachment.

9. Frequency Stability Measurement

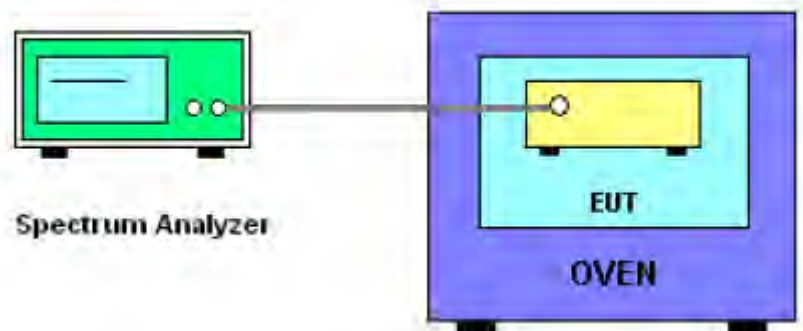
9.1 LIMIT

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. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and the limit is less than ± 20 ppm (IEEE 802.11 specification).
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 $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$.

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 :	New Quadcopter UAV	Model Name. :	S400
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 23.1V
Test Mode :	Mode1		

1(2) Represent the value of antenna 1 and 2, the worst data is Antenna 1 user40M MIMO mode, only shown Antenna 1 10M BPSK mode data.

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5760MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	23.10	5760.0248	5760	0.02480	-4.3056
		V max (V)	26.57	5760.01	5760	0.01000	-1.7361
		V min (V)	19.64	5760.0302	5760	0.03020	-5.2431
Limits				Within 5745-5850MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5760MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	23.1	T (°C)	-20	5760.0185	5760	0.01850	-3.2118
		T (°C)	-10	5760.0319	5760	0.03190	-5.5382
		T (°C)	0	5760.0309	5760	0.03090	-5.3646
		T (°C)	10	5760.0095	5760	0.00950	-1.6493
		T (°C)	20	5760.0120	5760	0.01200	-2.0833
		T (°C)	30	5760.0145	5760	0.01450	-2.5174
		T (°C)	40	5760.0205	5760	0.02050	-3.5590
		T (°C)	50	5760.0095	5760	0.00950	-1.6493
		T (°C)	60	5760.0137	5760	0.01370	-2.3785
		T (°C)	70	5760.0045	5760	0.00450	-0.7813
Limits				Within 5745-5850MHz			
Result				Complies			

Voltage vs. Frequency Stability

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TEST CONDITIONS				Reference Frequency: 5780MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	23.10	5780.0275	5780	0.02750	-4.7578
		V max (V)	26.57	5780.0028	5780	0.00280	-0.4844
		V min (V)	19.64	5780.0162	5780	0.01620	-2.8028
Limits				Within 5745-5850MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5780MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	23.1	T (°C)	-20	5780.0231	5780	0.02310	-3.9965
		T (°C)	-10	5780.0030	5780	0.00300	-0.5190
		T (°C)	0	5780.0321	5780	0.03210	-5.5536
		T (°C)	10	5780.0068	5780	0.00680	-1.1765
		T (°C)	20	5780.0273	5780	0.02730	-4.7232
		T (°C)	30	5780.0179	5780	0.01790	-3.0969
		T (°C)	40	5780.0131	5780	0.01310	-2.2664
		T (°C)	50	5780.0191	5780	0.01910	-3.3045
		T (°C)	60	5780.0088	5780	0.00880	-1.5225
		T (°C)	70	5780.0035	5780	0.00350	-0.6055
Limits				Within 5745-5850MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5820MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	23.10	5820.0101	5820	0.01010	-1.7354
		V max (V)	26.57	5820.0055	5820	0.00550	-0.9450
		V min (V)	19.64	5820.0049	5820	0.00490	-0.8419
Limits				Within 5745-5850MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5820MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	23.1	T (°C)	-20	5820.0203	5820	0.02030	-3.4880
		T (°C)	-10	5820.0130	5820	0.01300	-2.2337
		T (°C)	0	5820.0185	5820	0.01850	-3.1787
		T (°C)	10	5820.0170	5820	0.01700	-2.9210
		T (°C)	20	5820.0064	5820	0.00640	-1.0997
		T (°C)	30	5820.0239	5820	0.02390	-4.1065
		T (°C)	40	5820.0241	5820	0.02410	-4.1409
		T (°C)	50	5820.0270	5820	0.02700	-4.6392
		T (°C)	60	5820.0315	5820	0.03150	-5.4124
		T (°C)	70	5820.0205	5820	0.02050	-3.5223
Limits				Within 5745-5850MHz			
Result				Complies			

EUT :	New Quadcopter UAV	Model Name. :	S400
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 23.1V
Test Mode :	Mode4		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	23.10	5745.0160	5745	0.01600	-2.7850
		V max (V)	26.57	5745.0162	5745	0.01620	-2.8198
		V min (V)	19.64	5745.0091	5745	0.00910	-1.5840
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)	23.1	T (°C)	-20	5745.0271	5745	0.02710	-4.7171
		T (°C)	-10	5745.0125	5745	0.01250	-2.1758
		T (°C)	0	5745.0236	5745	0.02360	-4.1079
		T (°C)	10	5745.0262	5745	0.02620	-4.5605
		T (°C)	20	5745.0103	5745	0.01030	-1.7929
		T (°C)	30	5745.0130	5745	0.01300	-2.2628
		T (°C)	40	5745.0198	5745	0.01980	-3.4465
		T (°C)	50	5745.0008	5745	0.00080	-0.1393
		T (°C)	60	5745.0319	5745	0.03190	-5.5527
		T (°C)	70	5745.0082	5745	0.00820	-1.4273
Limits				Within 5745-5850MHz			
Result				Complies			

Voltage vs. Frequency Stability

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TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	23.10	5785.0107	5785	0.01070	-1.8496
		V max (V)	26.57	5785.024	5785	0.02400	-4.1487
		V min (V)	19.64	5785.0161	5785	0.01610	-2.7831
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)	23.1	T (°C)	-20	5785.0079	5785	0.00790	-1.3656
		T (°C)	-10	5785.0265	5785	0.02650	-4.5808
		T (°C)	0	5785.0110	5785	0.01100	-1.9015
		T (°C)	10	5785.0036	5785	0.00360	-0.6223
		T (°C)	20	5785.0254	5785	0.02540	-4.3907
		T (°C)	30	5785.0245	5785	0.02450	-4.2351
		T (°C)	40	5785.0089	5785	0.00890	-1.5385
		T (°C)	50	5785.0120	5785	0.01200	-2.0743
		T (°C)	60	5785.0307	5785	0.03070	-5.3068
		T (°C)	70	5785.0072	5785	0.00720	-1.2446
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)	23.10	5825.0227	5825	0.02270	-3.8970
		V max (V)	26.57	5825.0124	5825	0.01240	-2.1288
		V min (V)	19.64	5825.0298	5825	0.02980	-5.1159
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)	23.1	T (°C)	-20	5825.0047	5825	0.00470	-0.8069
		T (°C)	-10	5825.0041	5825	0.00410	-0.7039
		T (°C)	0	5825.0097	5825	0.00970	-1.6652
		T (°C)	10	5825.0084	5825	0.00840	-1.4421
		T (°C)	20	5825.0256	5825	0.02560	-4.3948
		T (°C)	30	5825.0337	5825	0.03370	-5.7854
		T (°C)	40	5825.0126	5825	0.01260	-2.1631
		T (°C)	50	5825.0160	5825	0.01600	-2.7468
		T (°C)	60	5825.0290	5825	0.02900	-4.9785
		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: PCB Antenna (Gain:3.58 dBi), It comply with the standard requirement.

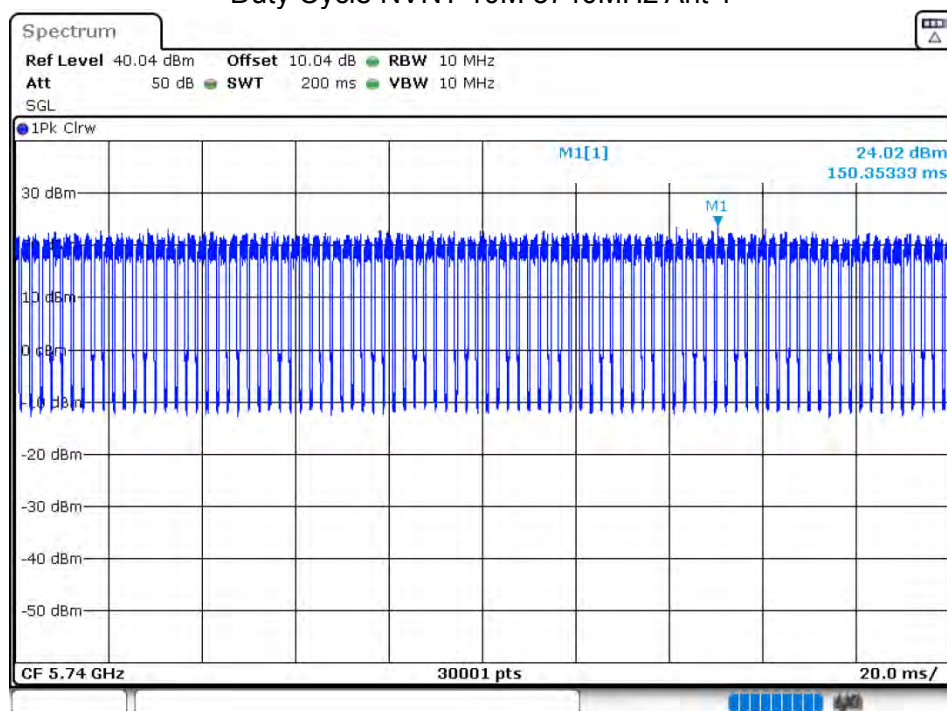
11. TEST RESULT

11.1 USER-DEFINED 5.8G

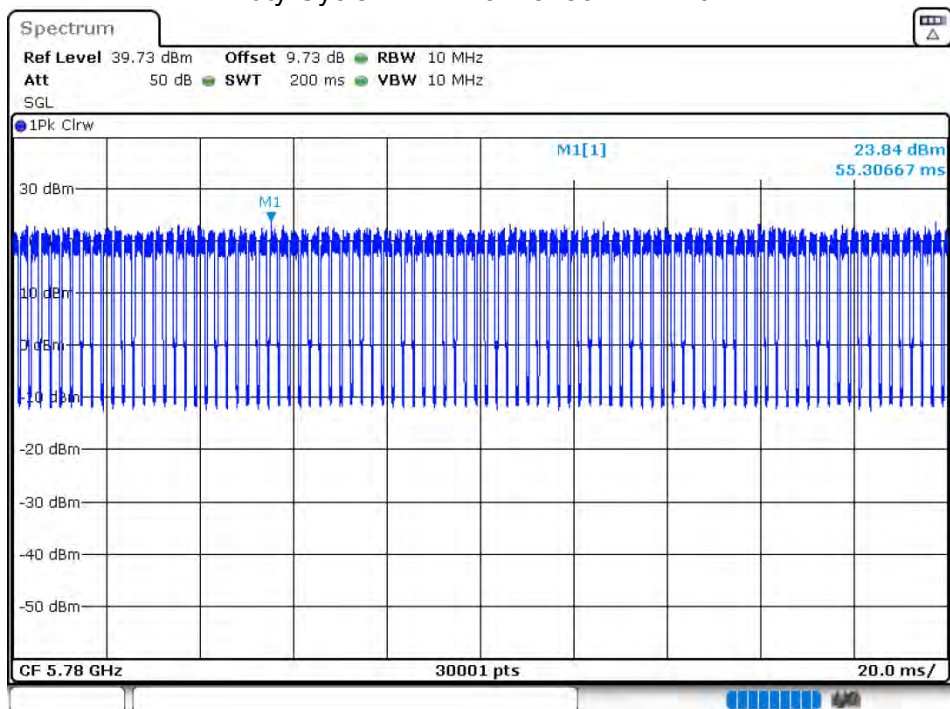
11.1.1 DUTY CYCLE

Antenna	Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)
Ant 1	NVNT	10M	5740	73.37	1.34
Ant 1	NVNT	10M	5780	79.56	0.99
Ant 1	NVNT	10M	5820	75.81	1.2
Ant 2	NVNT	10M	5740	73.39	1.34
Ant 2	NVNT	10M	5780	79.16	1.02
Ant 2	NVNT	10M	5820	74.77	1.26
Ant 1	NVNT	20M	5740	73.31	1.35
Ant 1	NVNT	20M	5780	73.33	1.35
Ant 1	NVNT	20M	5820	73.27	1.35
Ant 2	NVNT	20M	5740	73.32	1.35
Ant 2	NVNT	20M	5780	73.32	1.35
Ant 2	NVNT	20M	5820	73.31	1.35
Ant 1	NVNT	40M	5760	57.92	2.37
Ant 1	NVNT	40M	5780	58.04	2.36
Ant 1	NVNT	40M	5820	57.9	2.37
Ant 2	NVNT	40M	5760	57.93	2.37
Ant 2	NVNT	40M	5780	57.91	2.37
Ant 2	NVNT	40M	5820	57.9	2.37

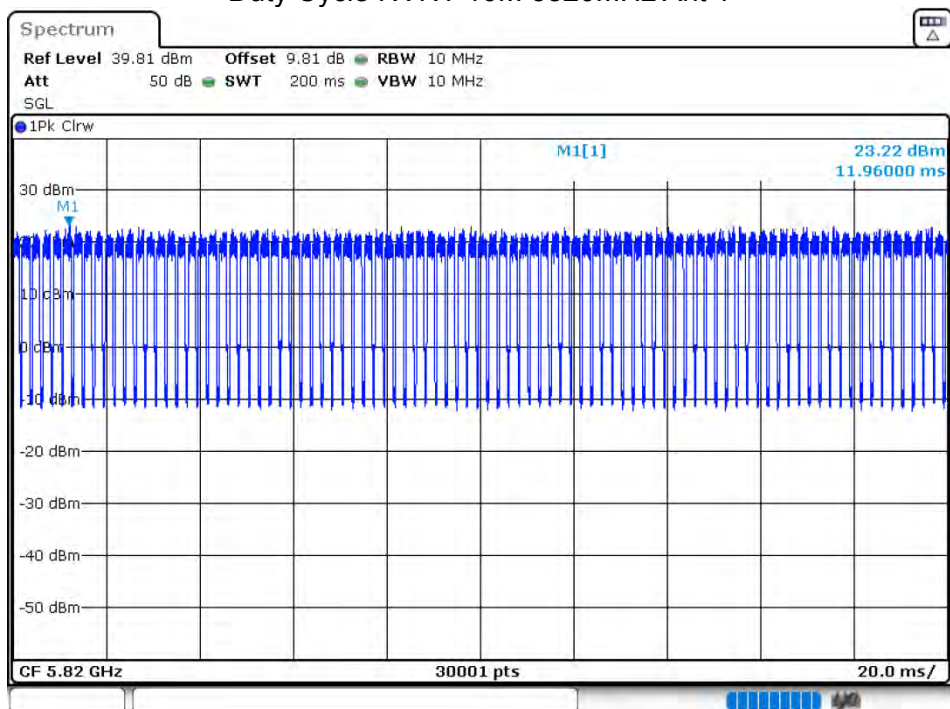
Duty Cycle NVNT 10M 5740MHz Ant 1



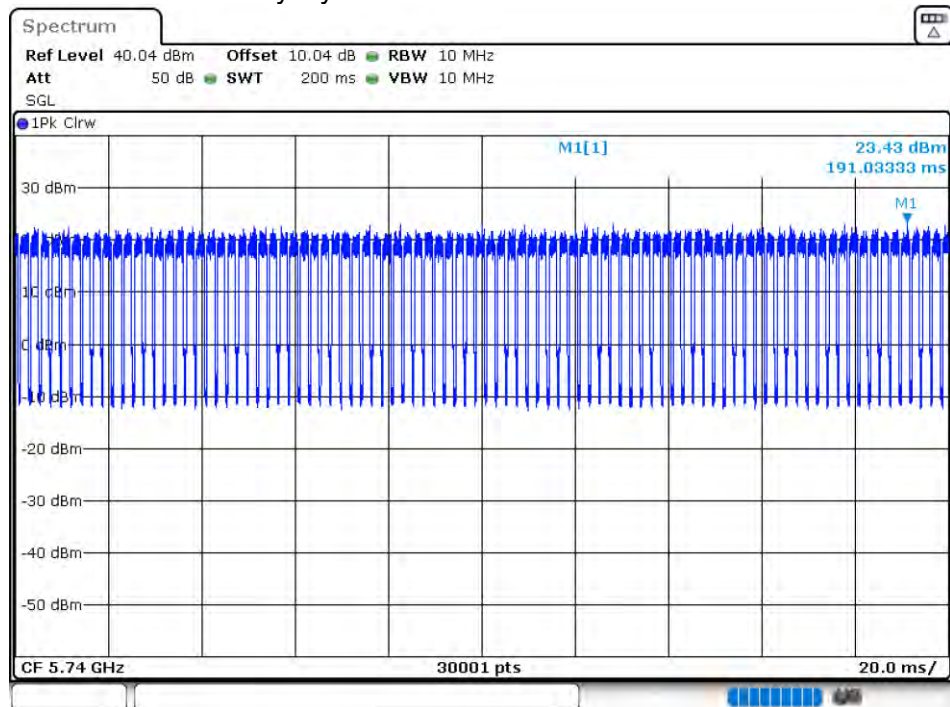
Duty Cycle NVNT 10M 5780MHz Ant 1



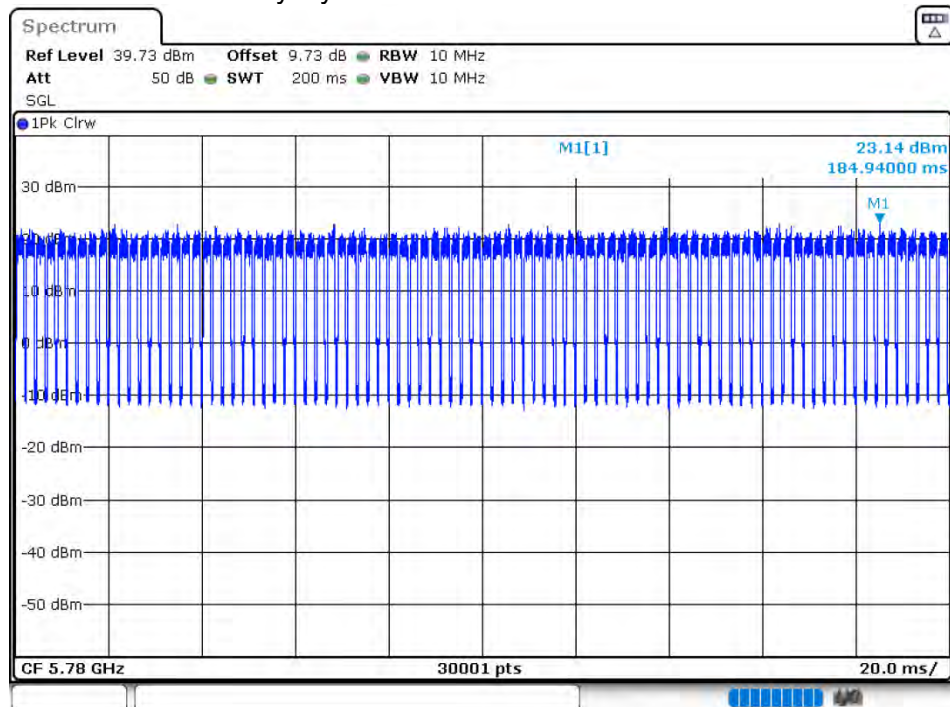
Duty Cycle NVNT 10M 5820MHz Ant 1



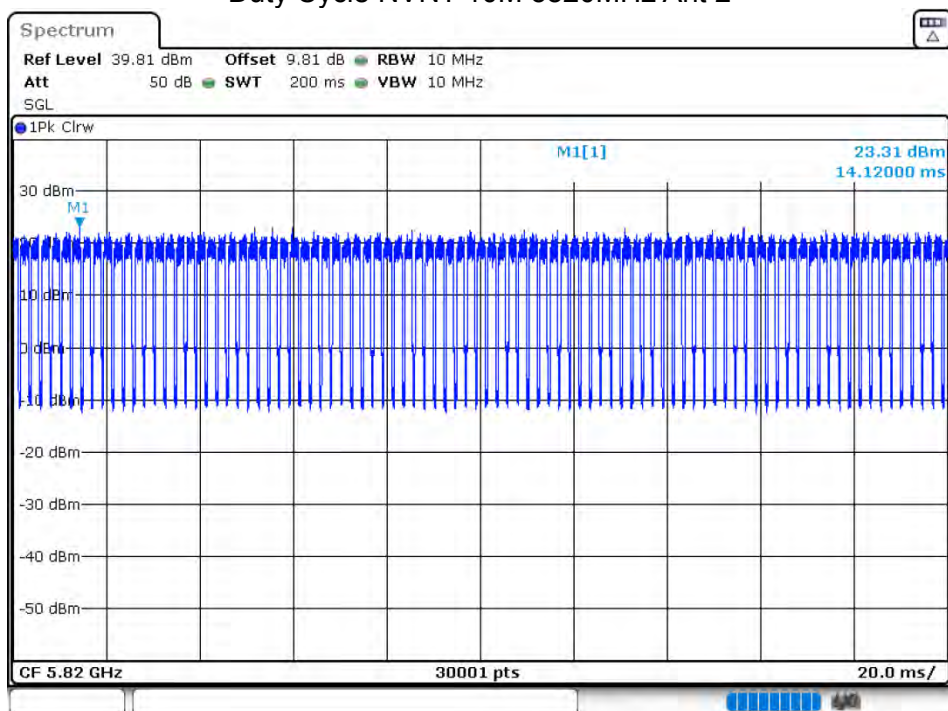
Duty Cycle NVNT 10M 5740MHz Ant 2



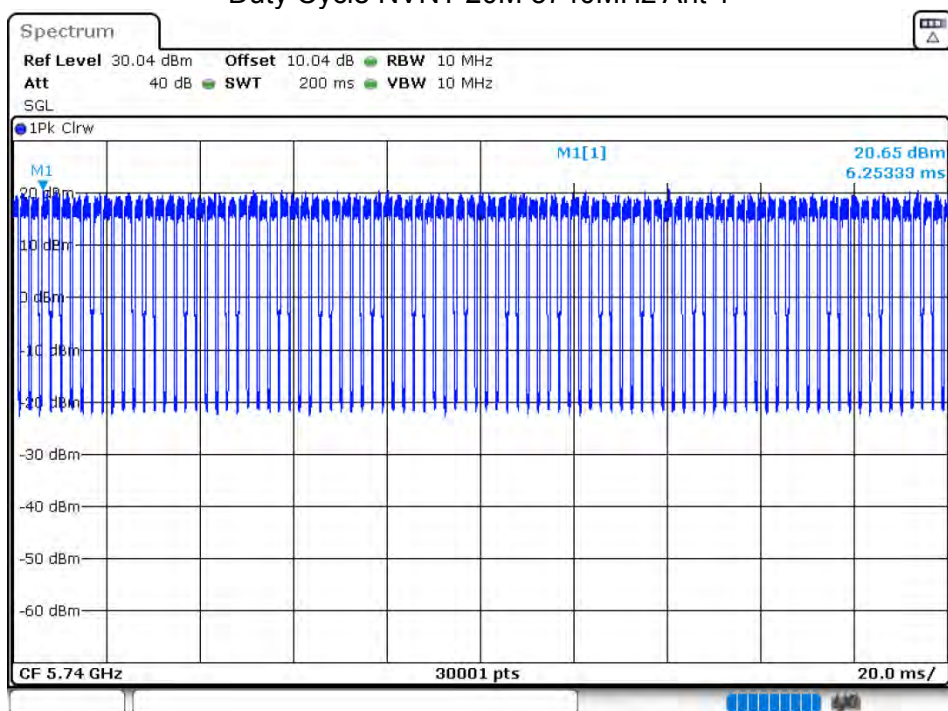
Duty Cycle NVNT 10M 5780MHz Ant 2



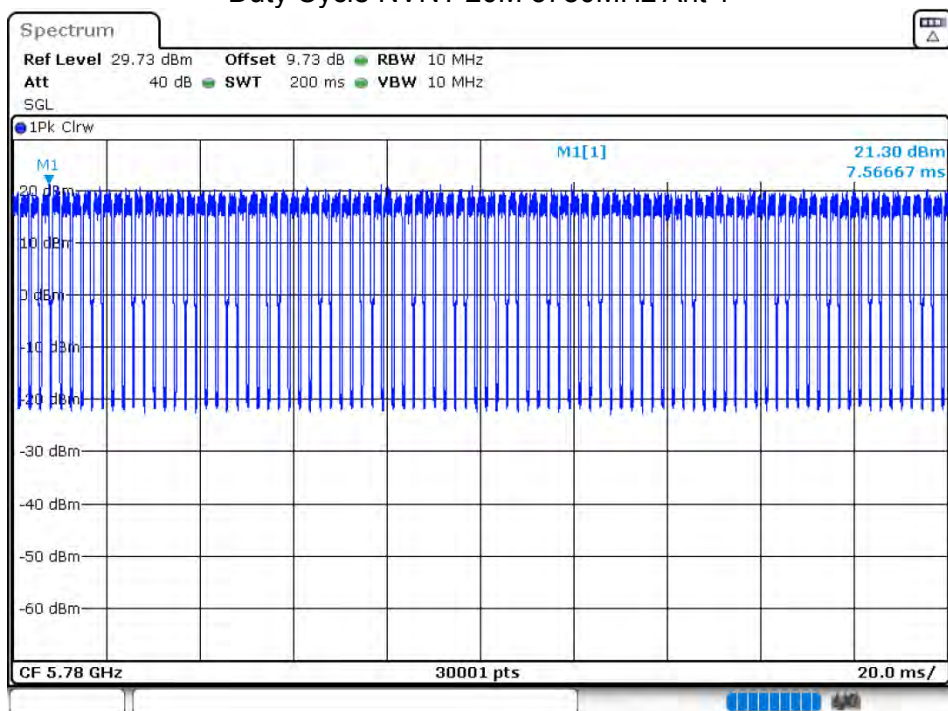
Duty Cycle NVNT 10M 5820MHz Ant 2



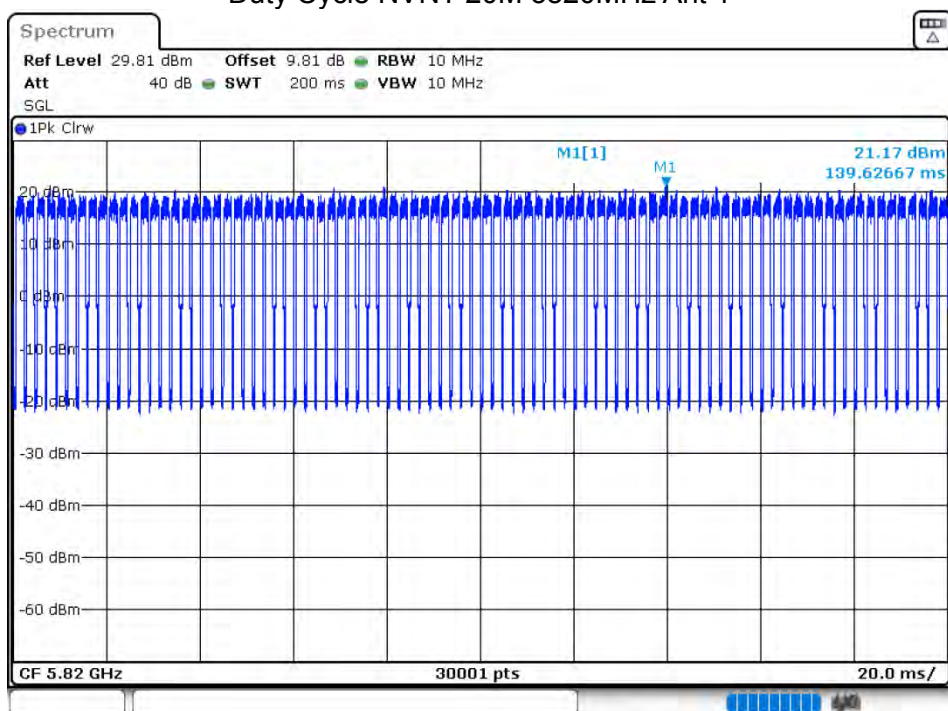
Duty Cycle NVNT 20M 5740MHz Ant 1



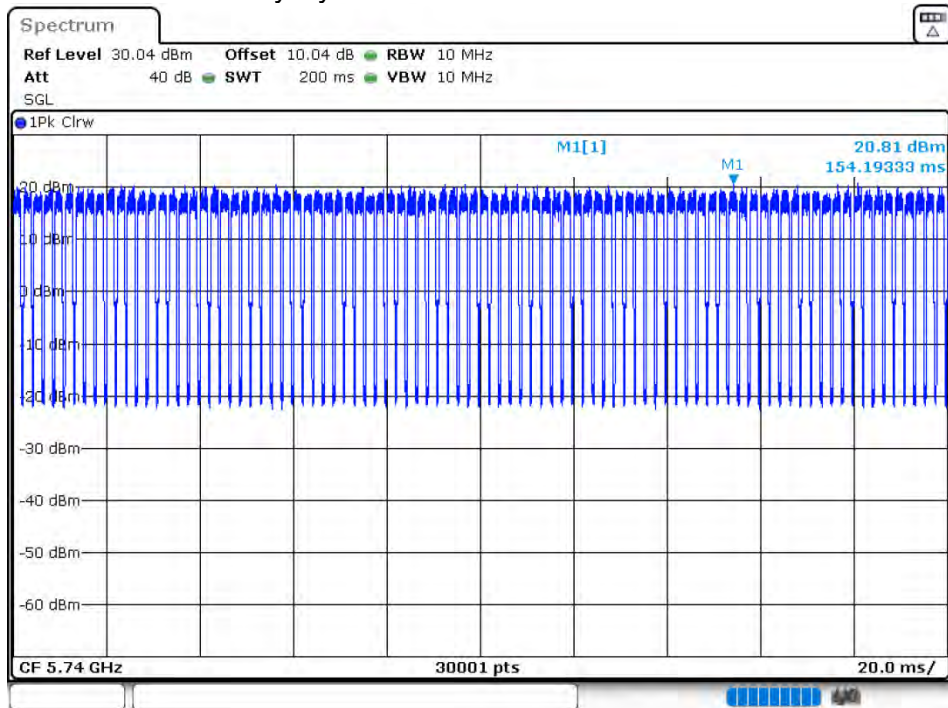
Duty Cycle NVNT 20M 5780MHz Ant 1



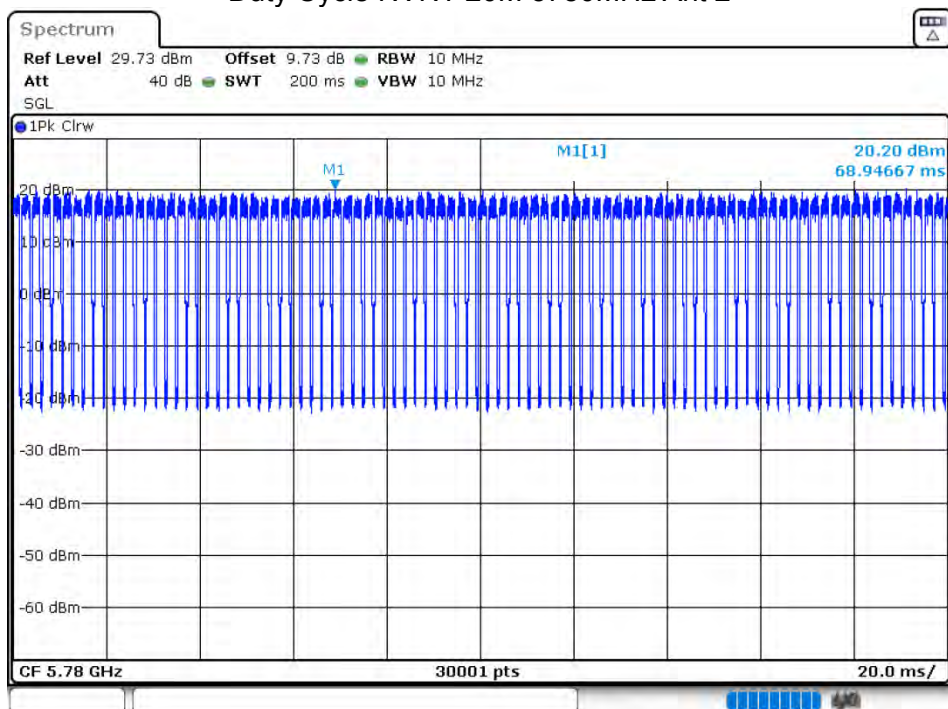
Duty Cycle NVNT 20M 5820MHz Ant 1



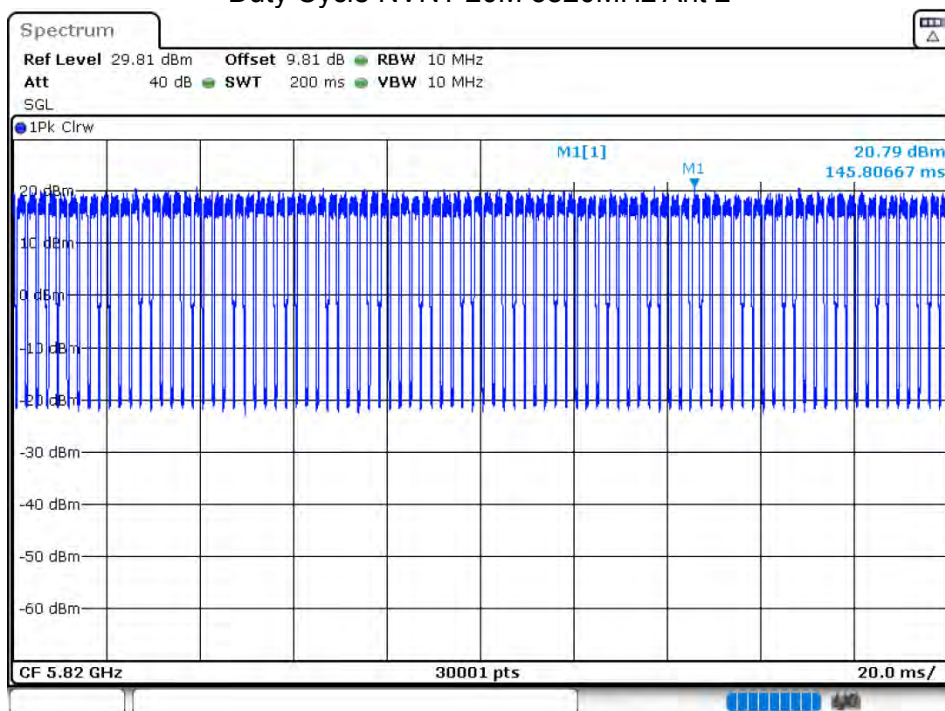
Duty Cycle NVNT 20M 5740MHz Ant 2



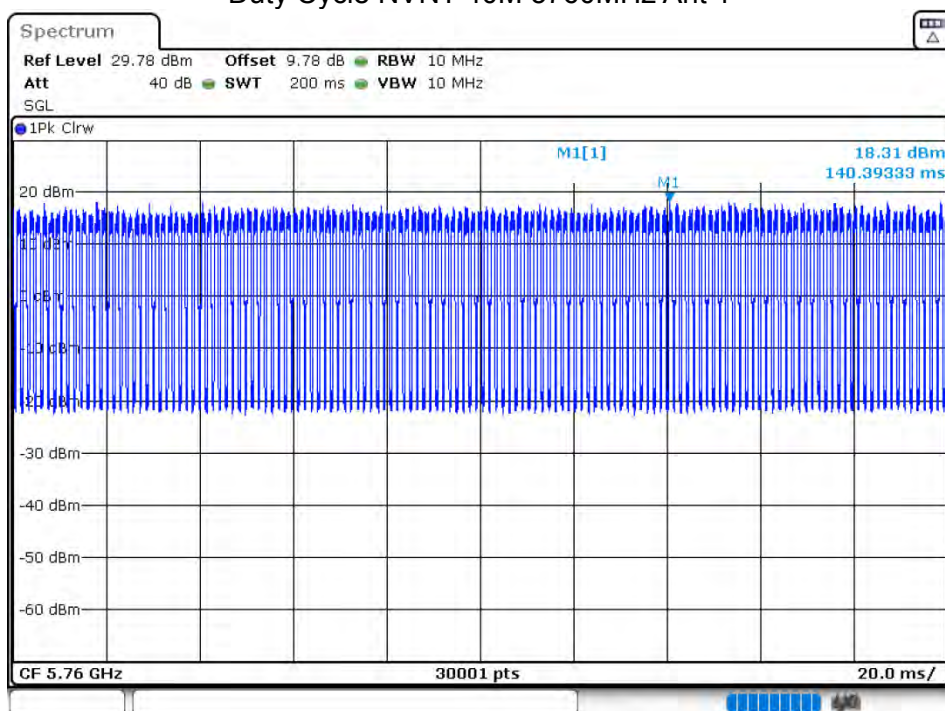
Duty Cycle NVNT 20M 5780MHz Ant 2



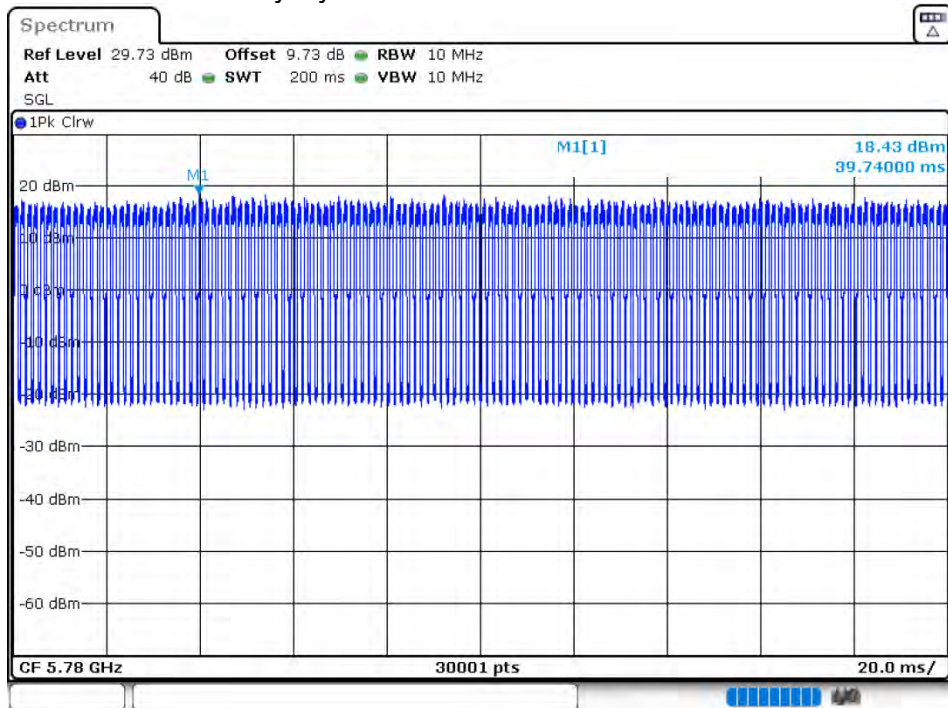
Duty Cycle NVNT 20M 5820MHz Ant 2



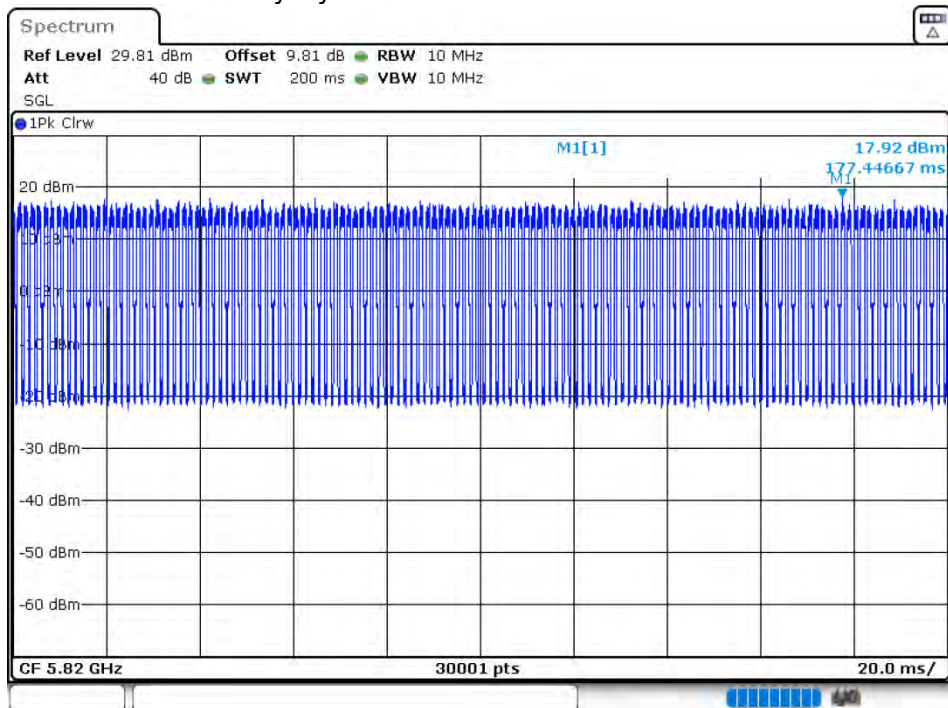
Duty Cycle NVNT 40M 5760MHz Ant 1



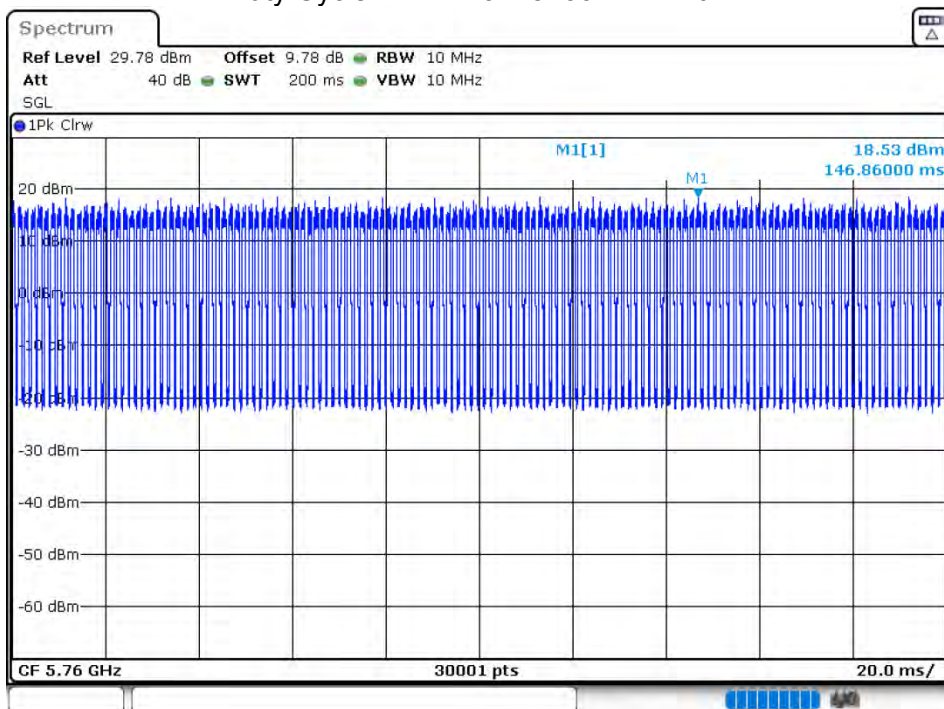
Duty Cycle NVNT 40M 5780MHz Ant 1



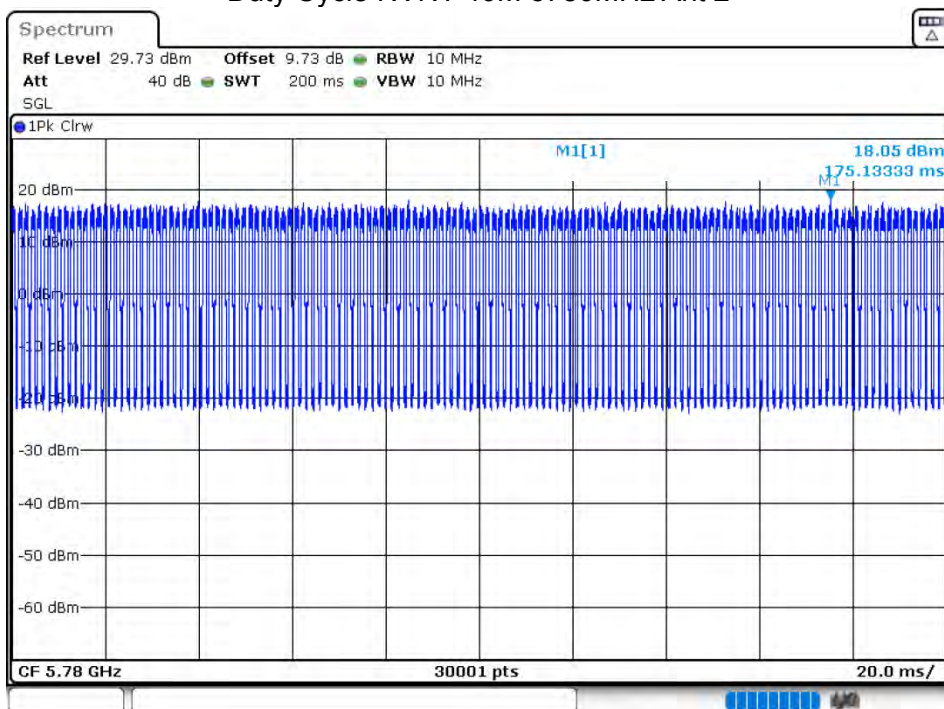
Duty Cycle NVNT 40M 5820MHz Ant 1



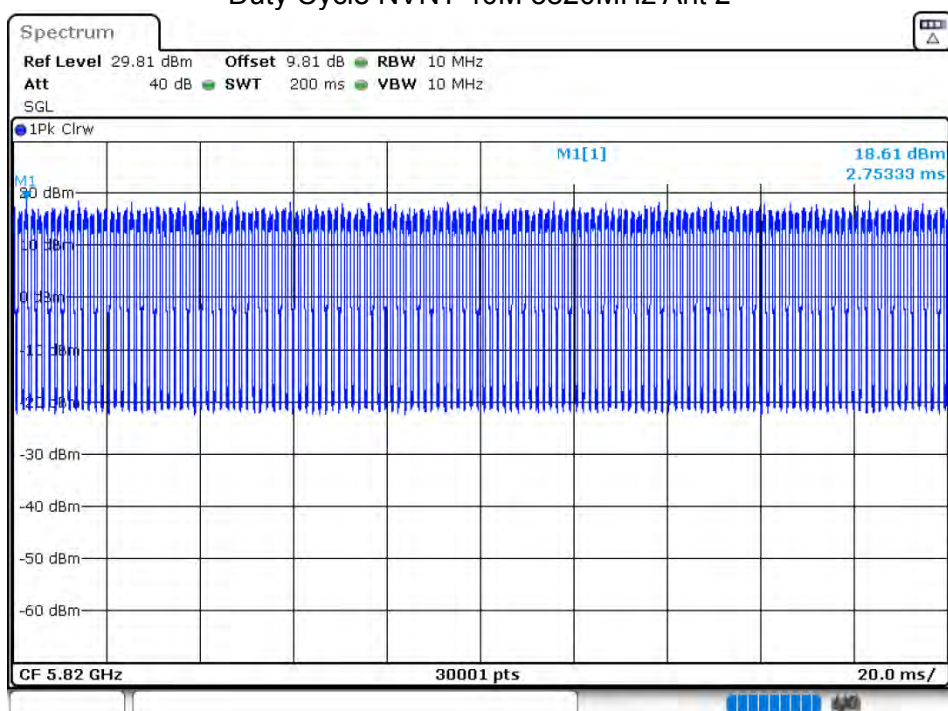
Duty Cycle NVNT 40M 5760MHz Ant 2



Duty Cycle NVNT 40M 5780MHz Ant 2



Duty Cycle NVNT 40M 5820MHz Ant 2



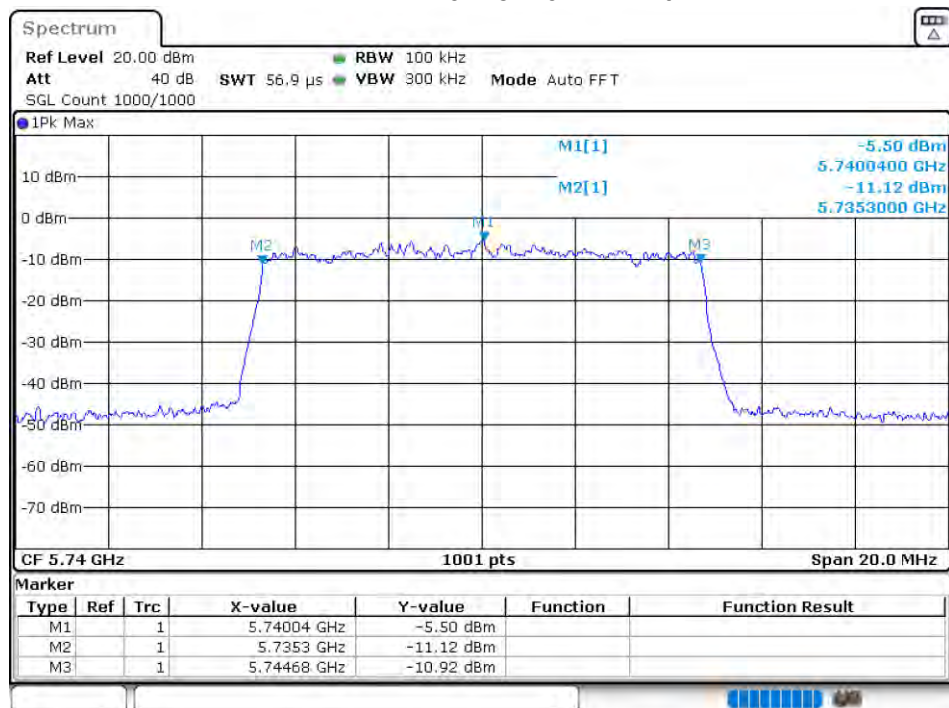
11.1.2 MAXIMUM CONDUCTED OUTPUT POWER

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	MIMO Power (dBm)	Limit (dBm)	Verdict
NVNT	10M	5740	Ant 1	11.2	1.34	12.54	15.57	30	Pass
NVNT	10M	5740	Ant 2	11.24	1.34	12.58		30	Pass
NVNT	10M	5780	Ant 1	11.49	0.99	12.48	15.23	30	Pass
NVNT	10M	5780	Ant 2	10.92	1.02	11.94		30	Pass
NVNT	10M	5820	Ant 1	11.53	1.2	12.73	15.63	30	Pass
NVNT	10M	5820	Ant 2	11.25	1.26	12.51		30	Pass
NVNT	20M	5740	Ant 1	10.63	1.35	11.98	14.91	30	Pass
NVNT	20M	5740	Ant 2	10.46	1.35	11.81		30	Pass
NVNT	20M	5780	Ant 1	10.85	1.35	12.2	15.01	30	Pass
NVNT	20M	5780	Ant 2	10.44	1.35	11.79		30	Pass
NVNT	20M	5820	Ant 1	10.68	1.35	12.03	15.04	30	Pass
NVNT	20M	5820	Ant 2	10.67	1.35	12.02		30	Pass
NVNT	40M	5760	Ant 1	9.93	2.37	12.3	15.36	30	Pass
NVNT	40M	5760	Ant 2	10.02	2.37	12.39		30	Pass
NVNT	40M	5780	Ant 1	9.77	2.36	12.13	15.33	30	Pass
NVNT	40M	5780	Ant 2	10.13	2.37	12.5		30	Pass
NVNT	40M	5820	Ant 1	9.7	2.37	12.07	15.50	30	Pass
NVNT	40M	5820	Ant 2	10.5	2.37	12.87		30	Pass

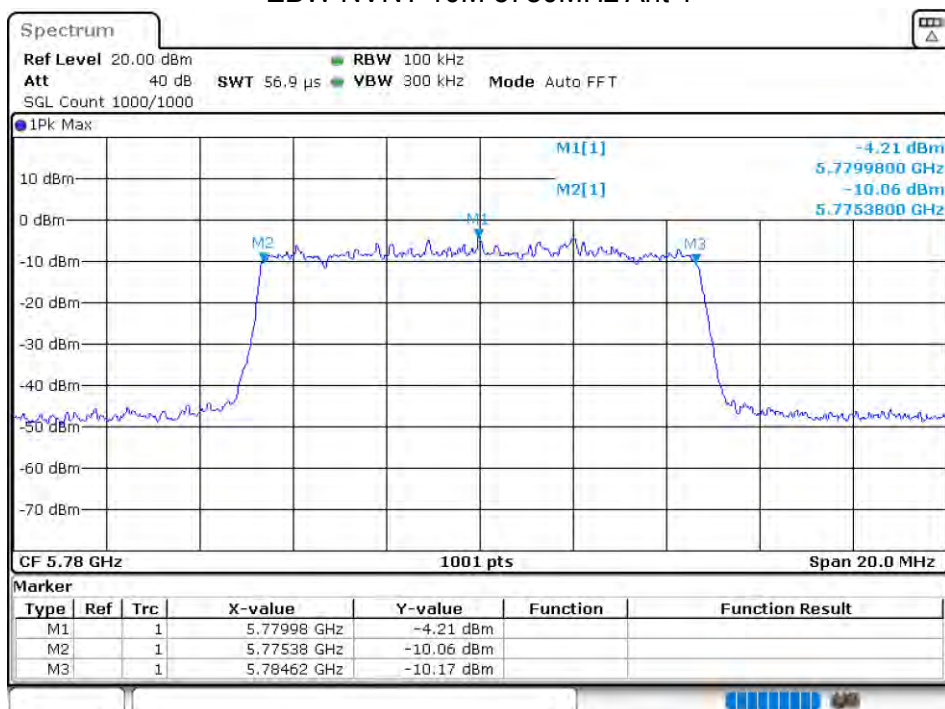
11.1.3 -6dB Emission Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	10M	5740	Ant 1	9.38	0.5	Pass
NVNT	10M	5780	Ant 1	9.24	0.5	Pass
NVNT	10M	5820	Ant 1	9.22	0.5	Pass
NVNT	10M	5740	Ant 2	9.12	0.5	Pass
NVNT	10M	5780	Ant 2	9.12	0.5	Pass
NVNT	10M	5820	Ant 2	9.38	0.5	Pass
NVNT	20M	5740	Ant 1	17.72	0.5	Pass
NVNT	20M	5780	Ant 1	17.52	0.5	Pass
NVNT	20M	5820	Ant 1	18.04	0.5	Pass
NVNT	20M	5740	Ant 2	17.64	0.5	Pass
NVNT	20M	5780	Ant 2	17.56	0.5	Pass
NVNT	20M	5820	Ant 2	17.6	0.5	Pass
NVNT	40M	5760	Ant 1	28.08	0.5	Pass
NVNT	40M	5780	Ant 1	26.08	0.5	Pass
NVNT	40M	5820	Ant 1	31.44	0.5	Pass
NVNT	40M	5760	Ant 2	30	0.5	Pass
NVNT	40M	5780	Ant 2	32.16	0.5	Pass
NVNT	40M	5820	Ant 2	32.8	0.5	Pass

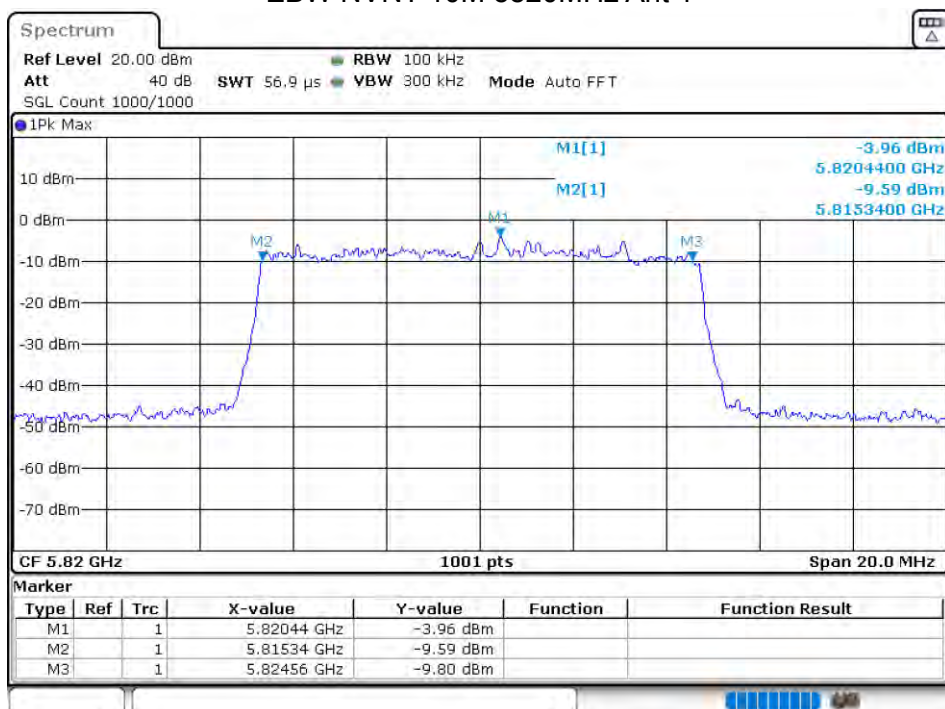
EBW NVNT 10M 5740MHz Ant 1



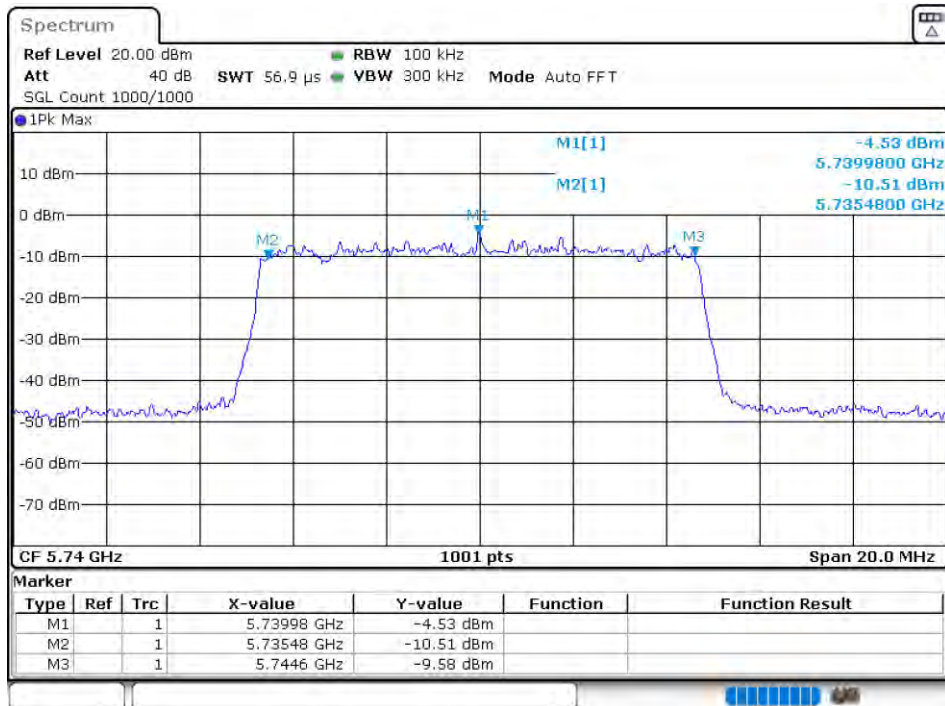
EBW NVNT 10M 5780MHz Ant 1



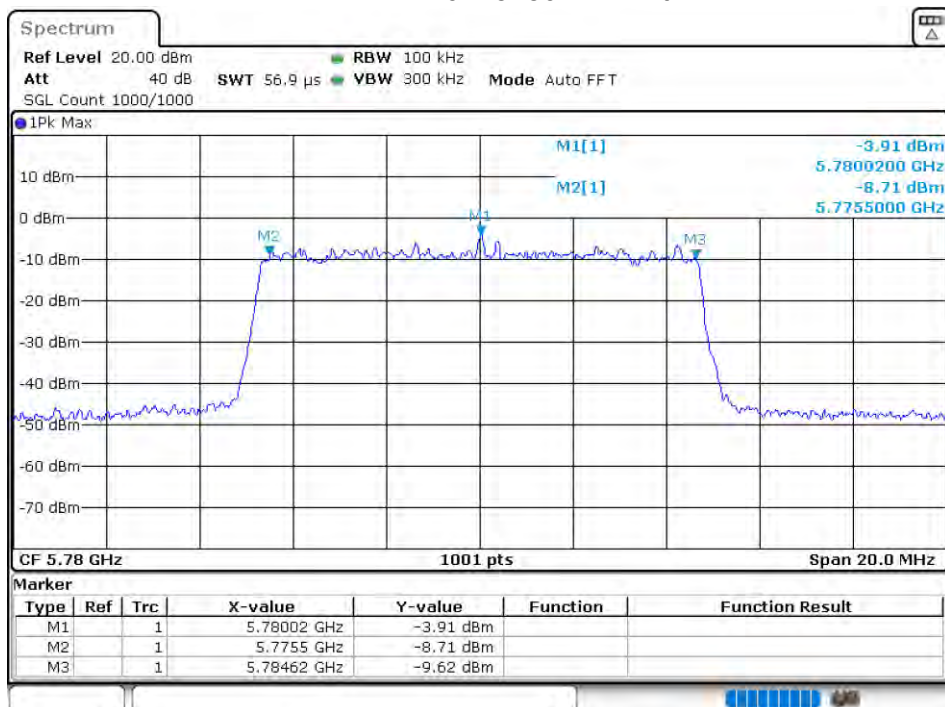
EBW NVNT 10M 5820MHz Ant 1



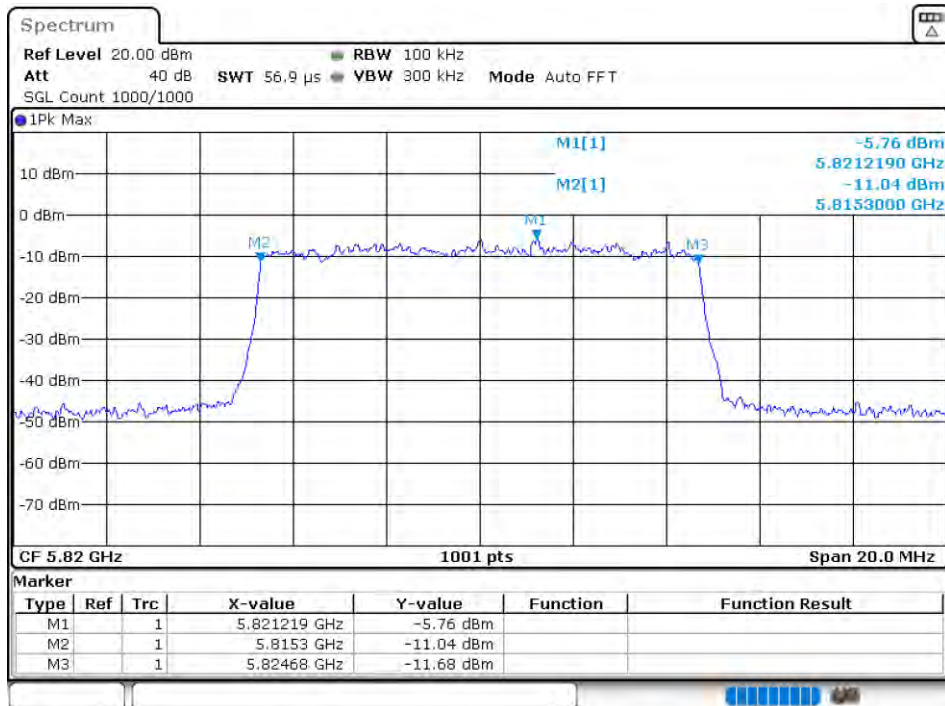
EBW NVNT 10M 5740MHz Ant 2



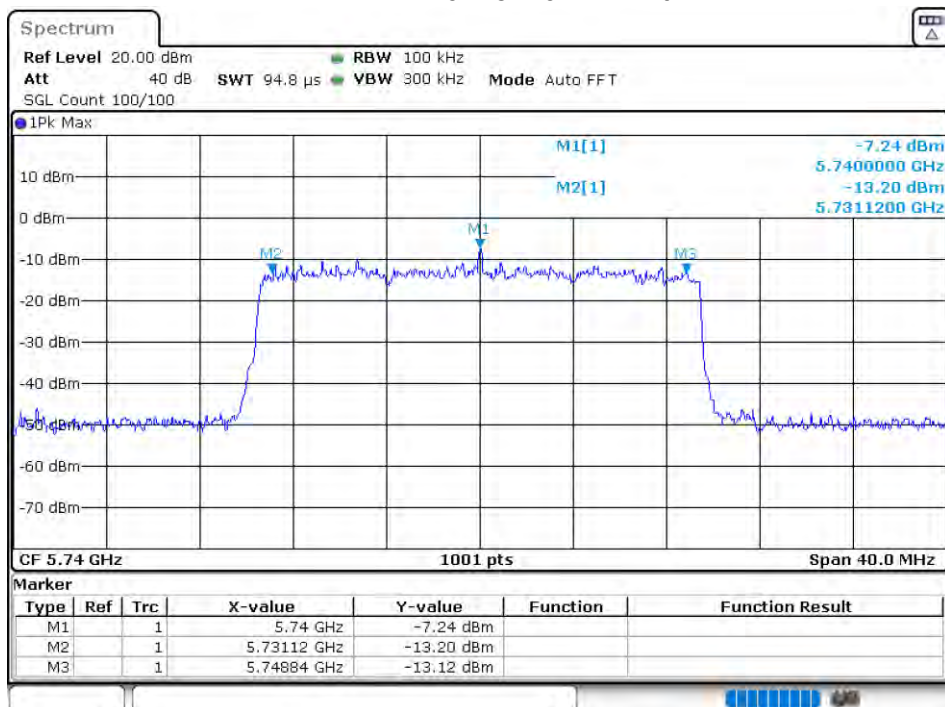
EBW NVNT 10M 5780MHz Ant 2



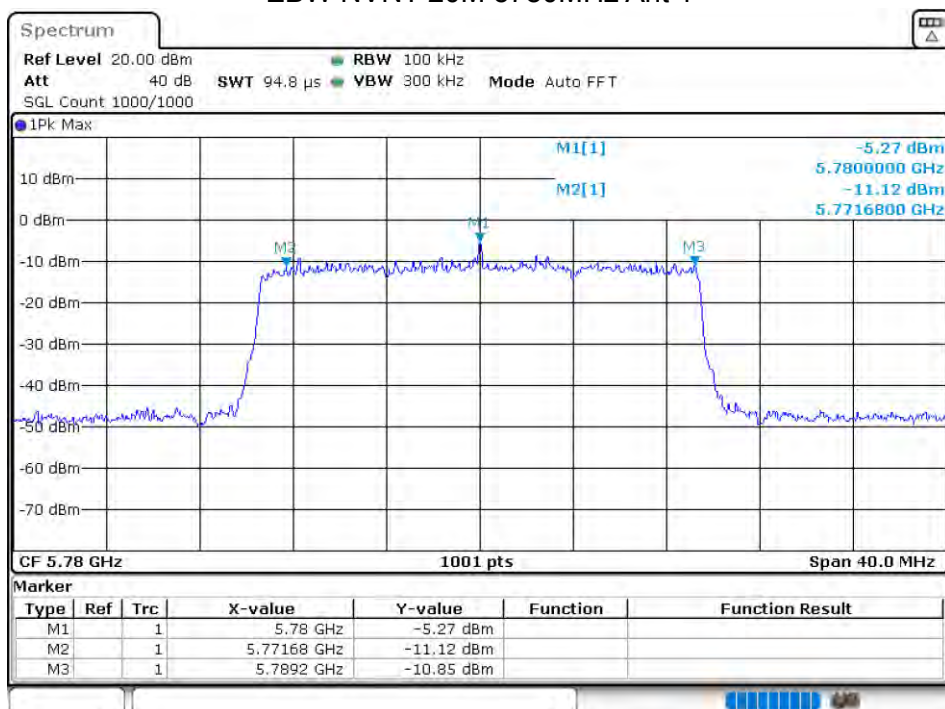
EBW NVNT 10M 5820MHz Ant 2



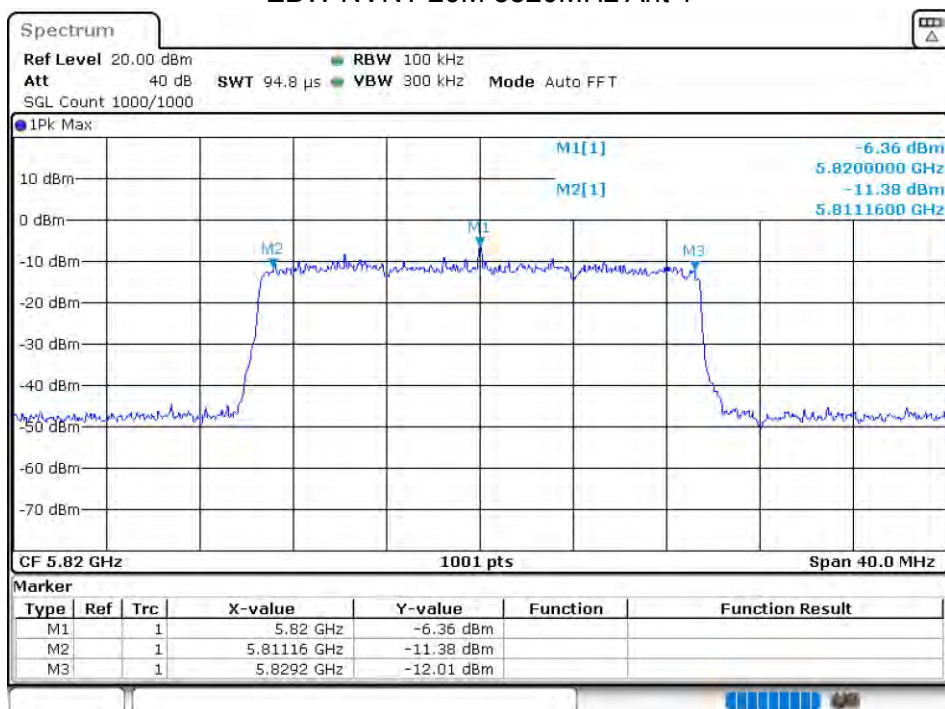
EBW NVNT 20M 5740MHz Ant 1



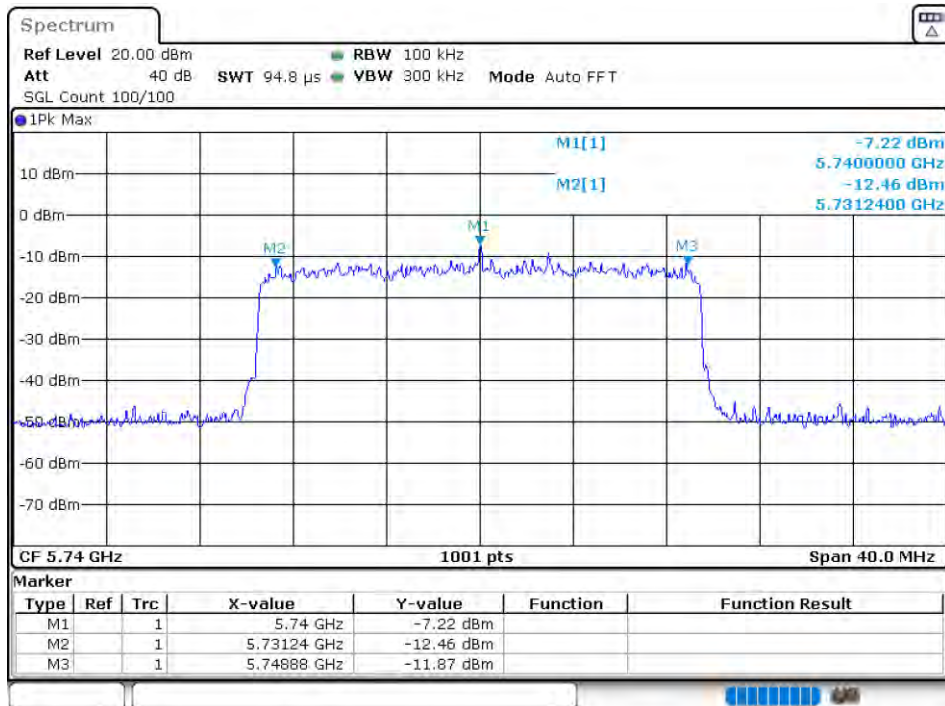
EBW NVNT 20M 5780MHz Ant 1



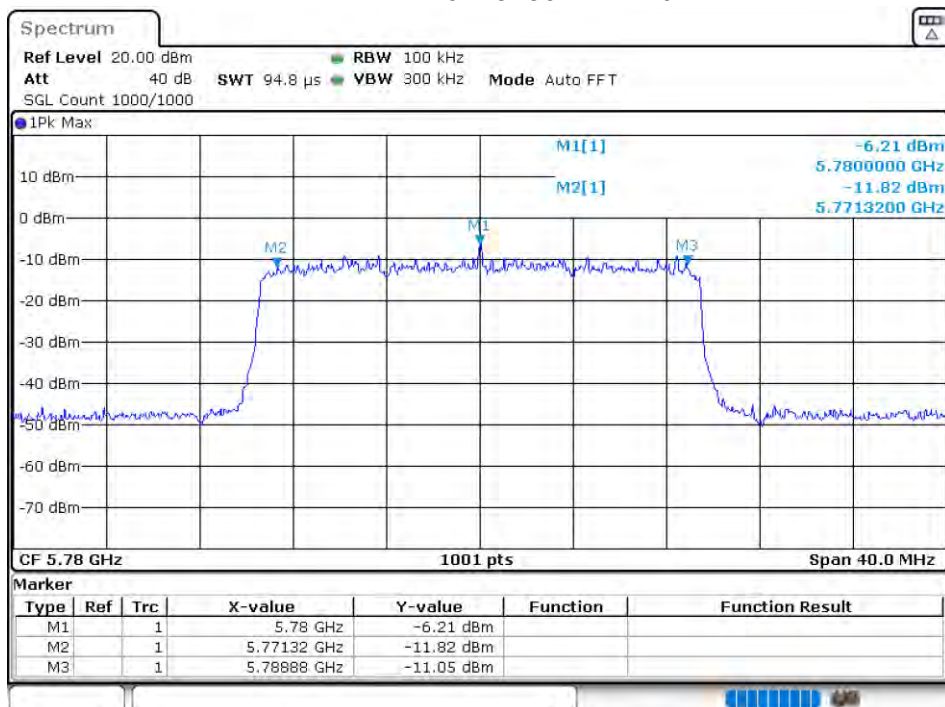
EBW NVNT 20M 5820MHz Ant 1



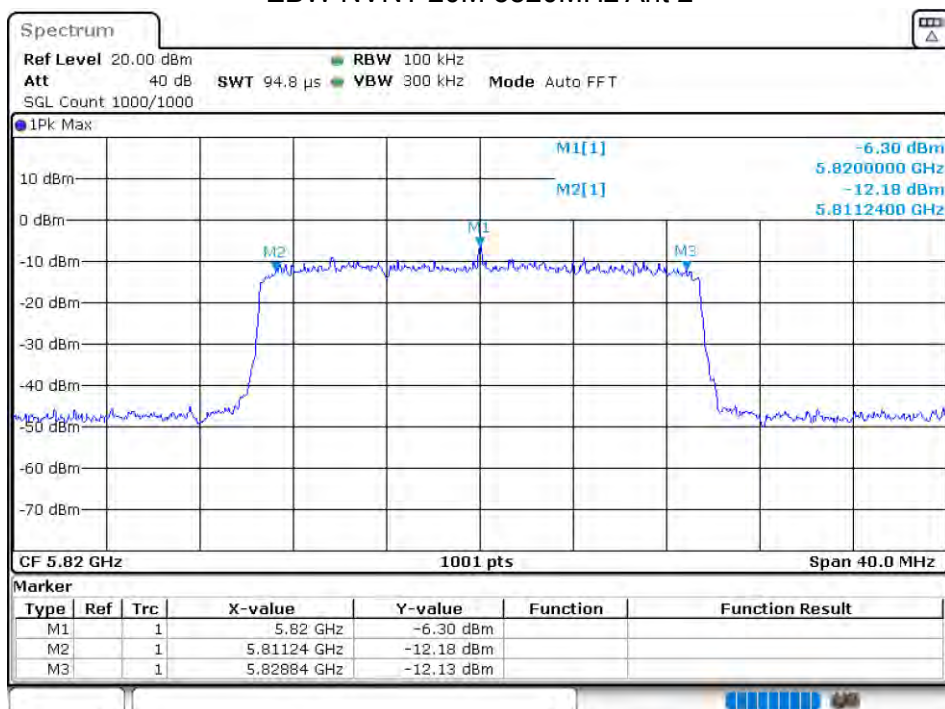
EBW NVNT 20M 5740MHz Ant 2



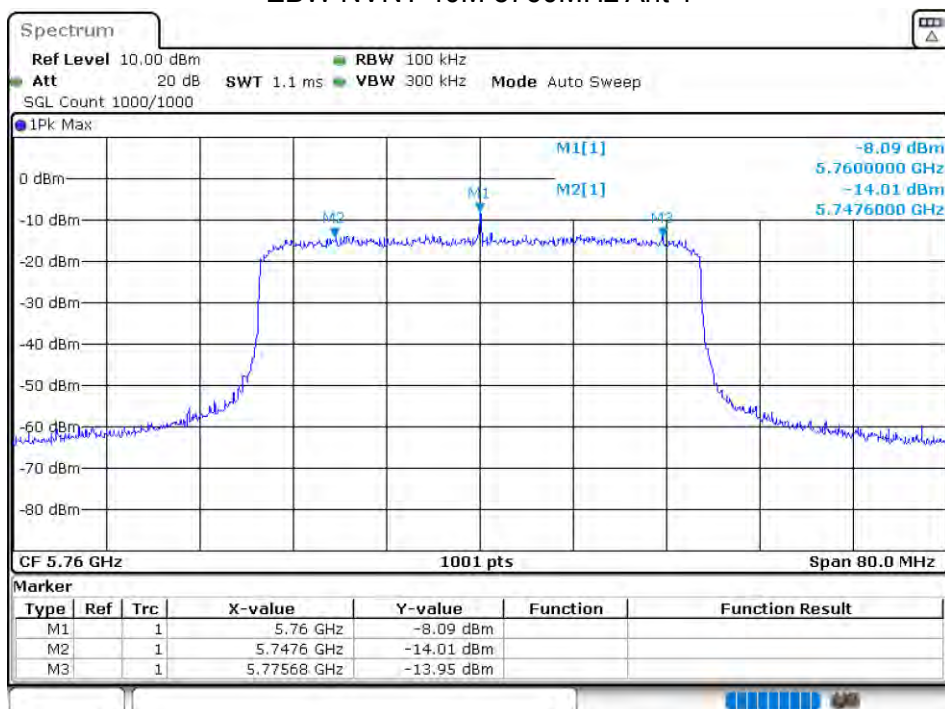
EBW NVNT 20M 5780MHz Ant 2



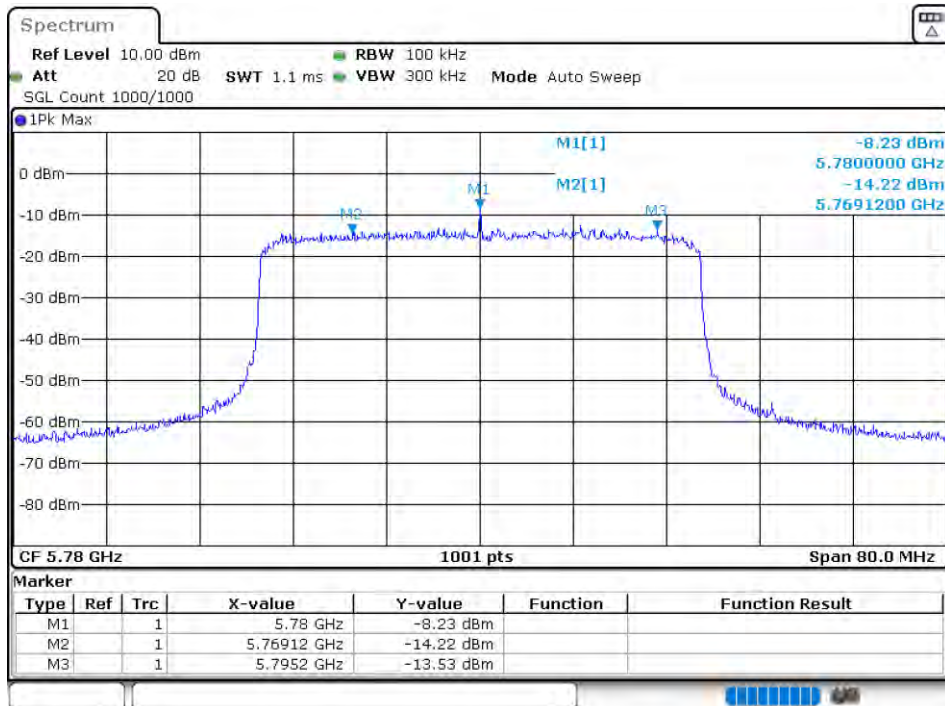
EBW NVNT 20M 5820MHz Ant 2



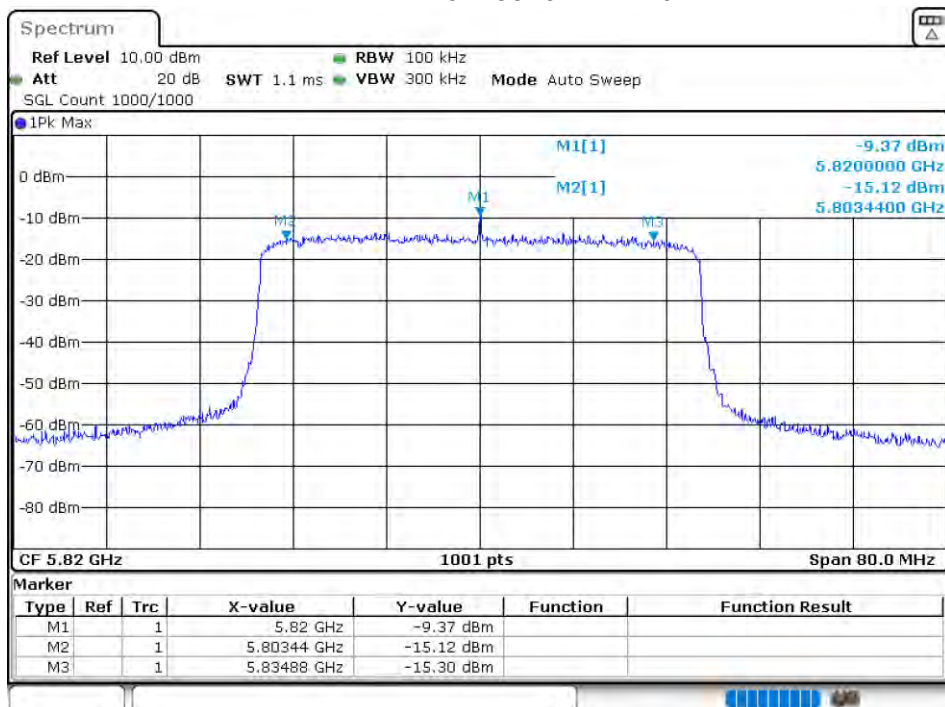
EBW NVNT 40M 5760MHz Ant 1



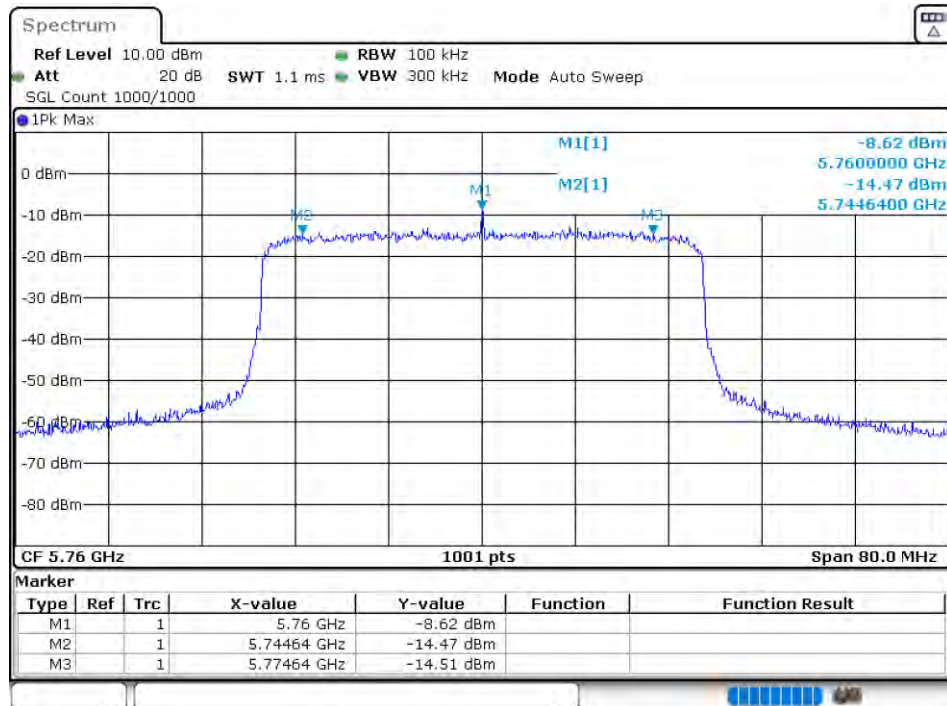
EBW NVNT 40M 5780MHz Ant 1



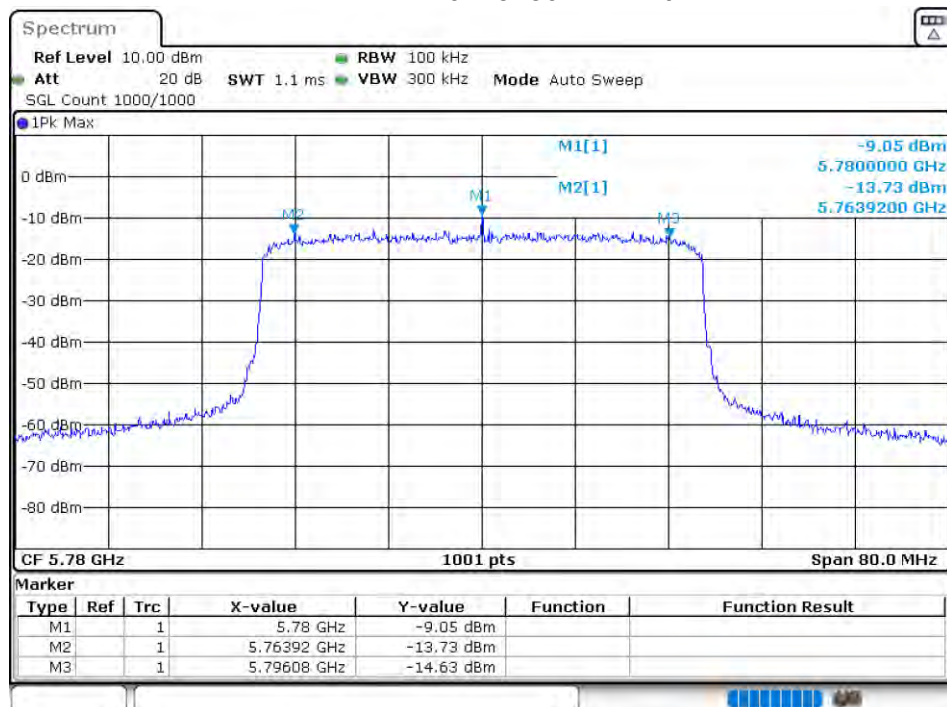
EBW NVNT 40M 5820MHz Ant 1



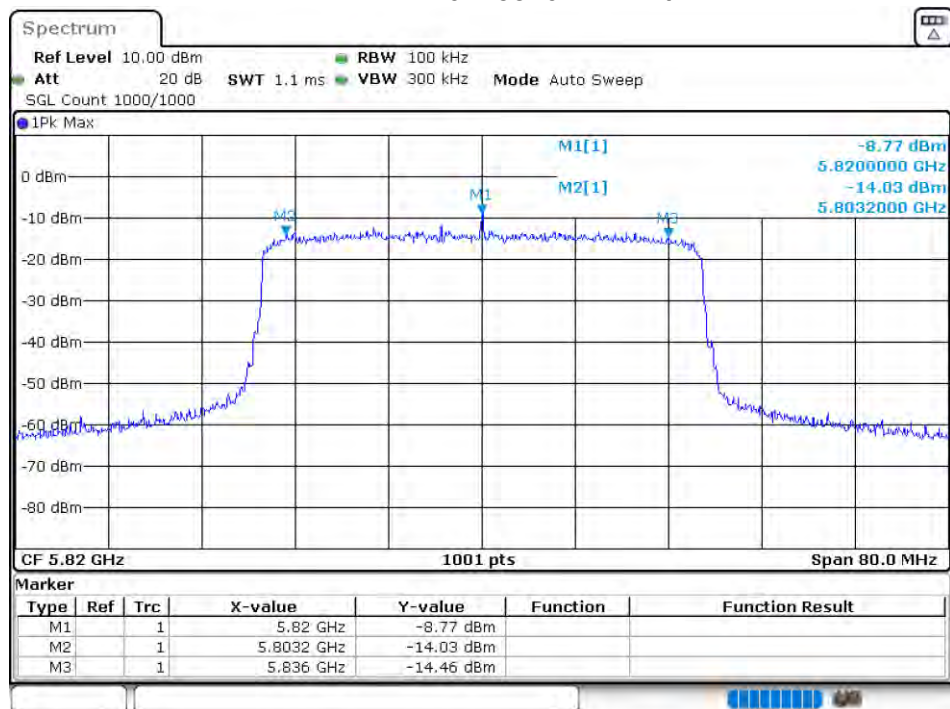
EBW NVNT 40M 5760MHz Ant 2



EBW NVNT 40M 5780MHz Ant 2



EBW NVNT 40M 5820MHz Ant 2



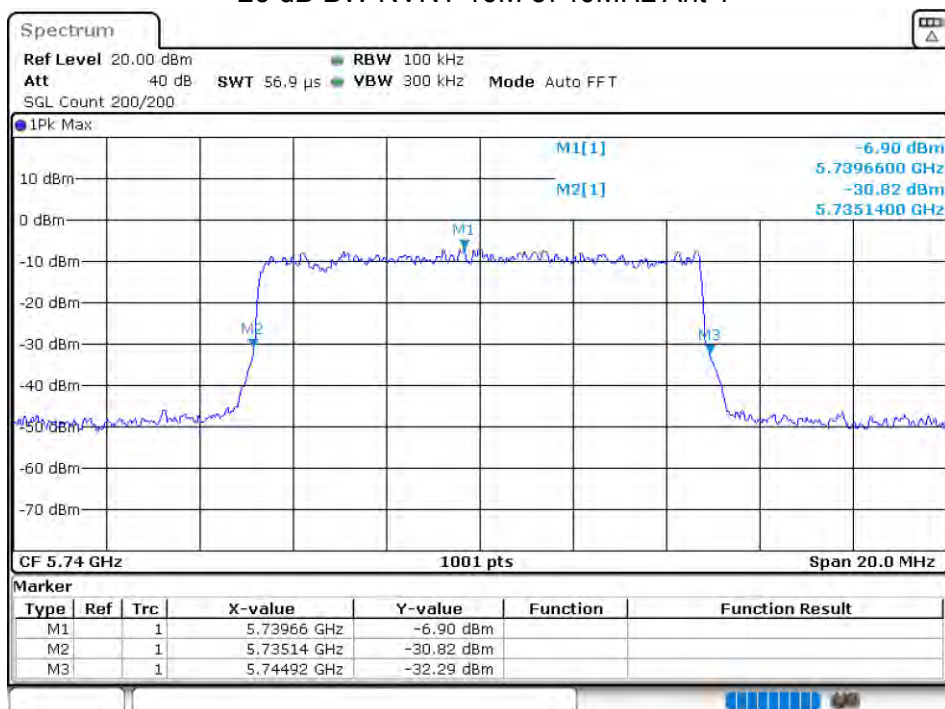
11.1.3 OCCUPIED CHANNEL BANDWIDTH

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	-26 dB Bandwidth (MHz)	Verdict
NVNT	10M	5740	Ant 1	9.3506	9.78	Pass
NVNT	10M	5780	Ant 1	9.4306	9.76	Pass
NVNT	10M	5820	Ant 1	9.3906	9.84	Pass
NVNT	10M	5740	Ant 2	9.3906	9.92	Pass
NVNT	10M	5780	Ant 2	9.4306	9.84	Pass
NVNT	10M	5820	Ant 2	9.4505	9.84	Pass
NVNT	20M	5740	Ant 1	18.7413	19.48	Pass
NVNT	20M	5780	Ant 1	18.7013	19.72	Pass
NVNT	20M	5820	Ant 1	18.7013	19.76	Pass
NVNT	20M	5740	Ant 2	18.6613	19.28	Pass
NVNT	20M	5780	Ant 2	18.6214	19.44	Pass
NVNT	20M	5820	Ant 2	18.6613	19.36	Pass
NVNT	40M	5760	Ant 1	37.003	39.36	Pass
NVNT	40M	5780	Ant 1	37.003	39.28	Pass
NVNT	40M	5820	Ant 1	37.0829	38.96	Pass
NVNT	40M	5760	Ant 2	37.0829	38.88	Pass
NVNT	40M	5780	Ant 2	37.0829	38.88	Pass
NVNT	40M	5820	Ant 2	36.9231	39.52	Pass

OBW NVNT 10M 5740MHz Ant 1



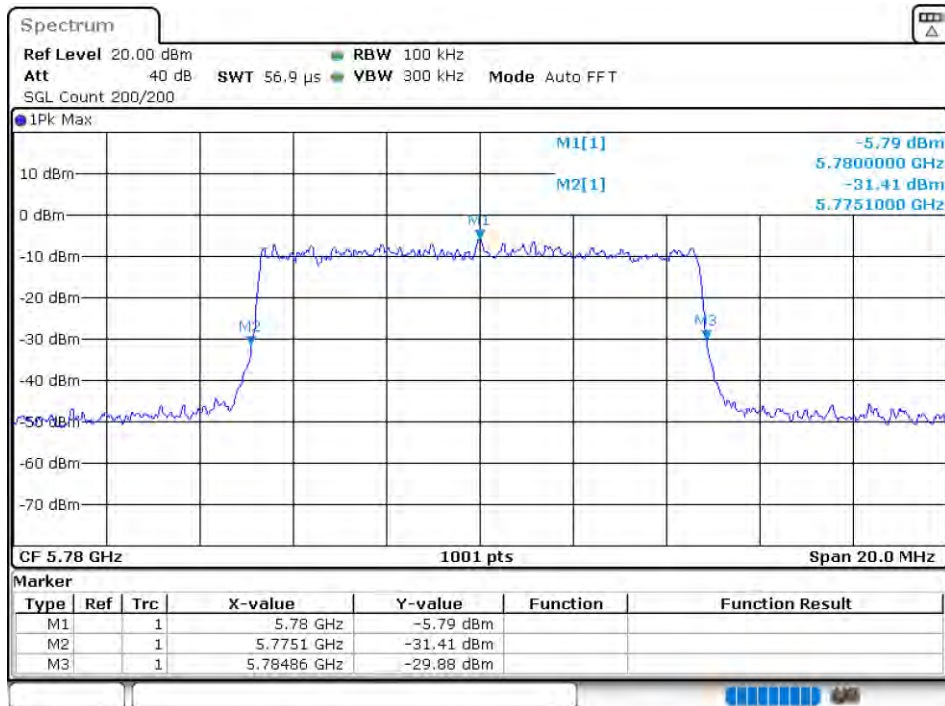
-26 dB BW NVNT 10M 5740MHz Ant 1



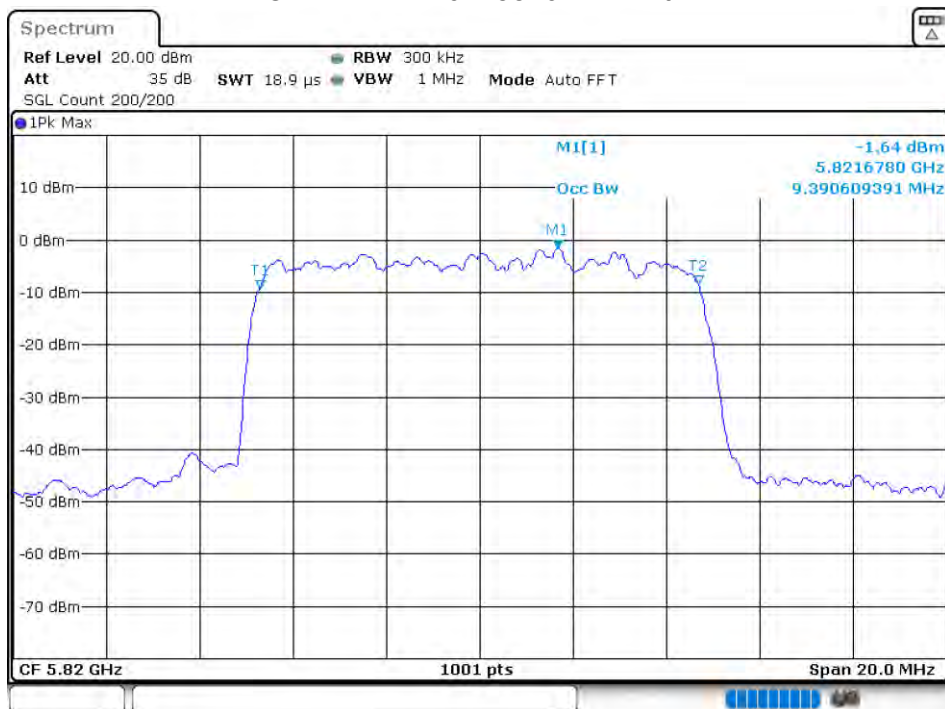
OBW NVNT 10M 5780MHz Ant 1



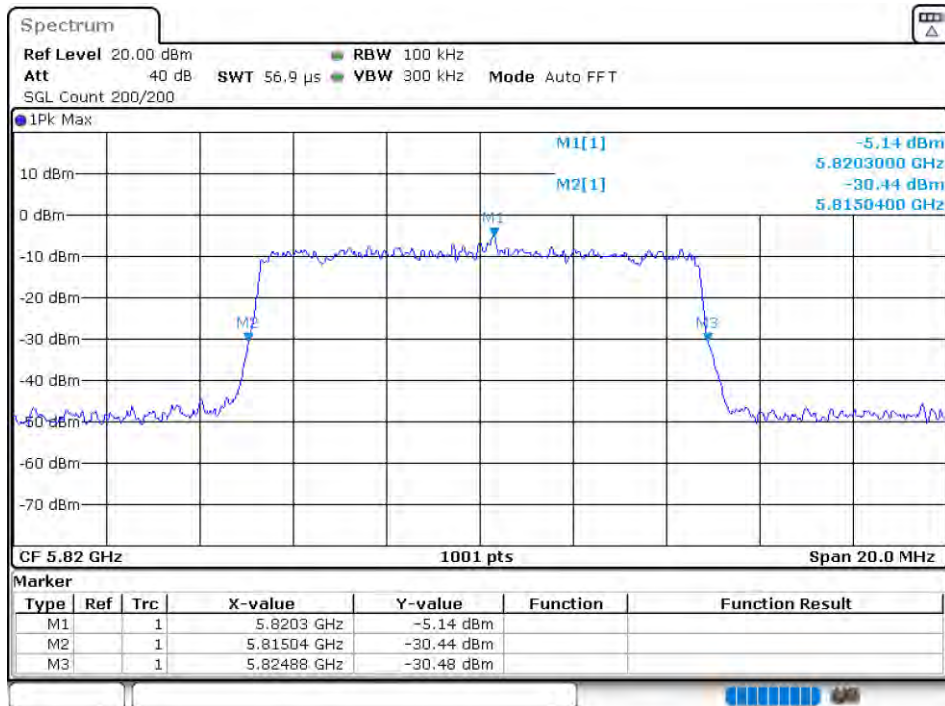
-26 dB BW NVNT 10M 5780MHz Ant 1



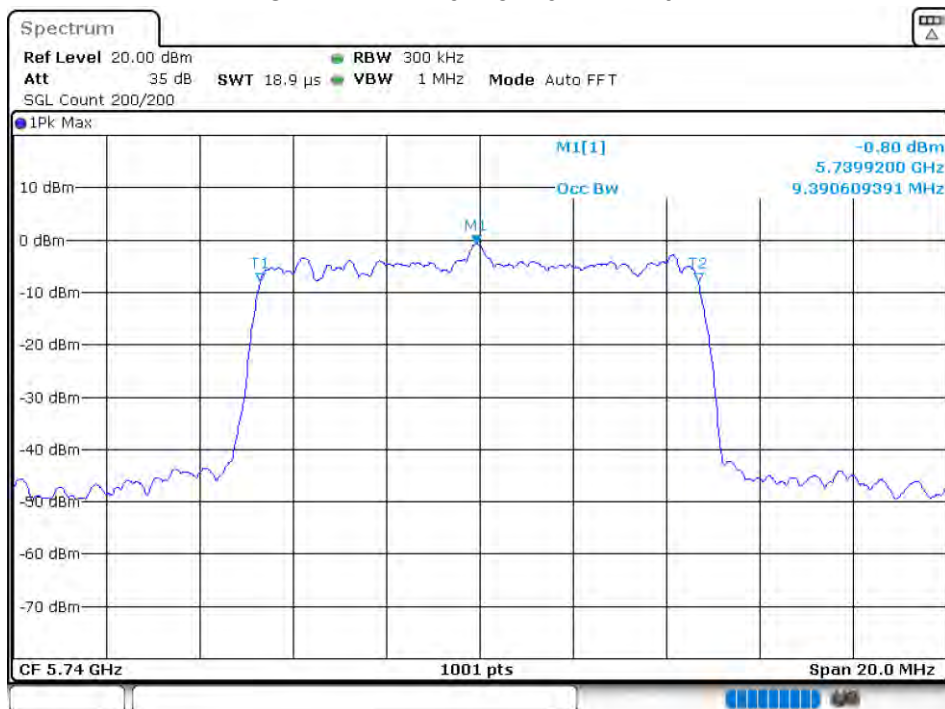
OBW NVNT 10M 5820MHz Ant 1



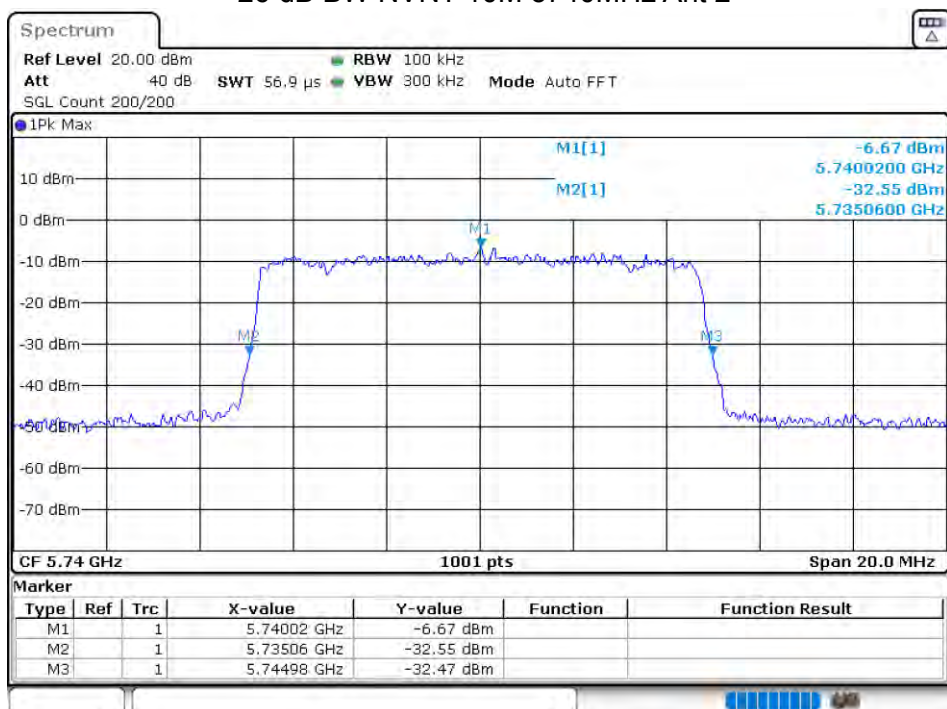
-26 dB BW NVNT 10M 5820MHz Ant 1



OBW NVNT 10M 5740MHz Ant 2



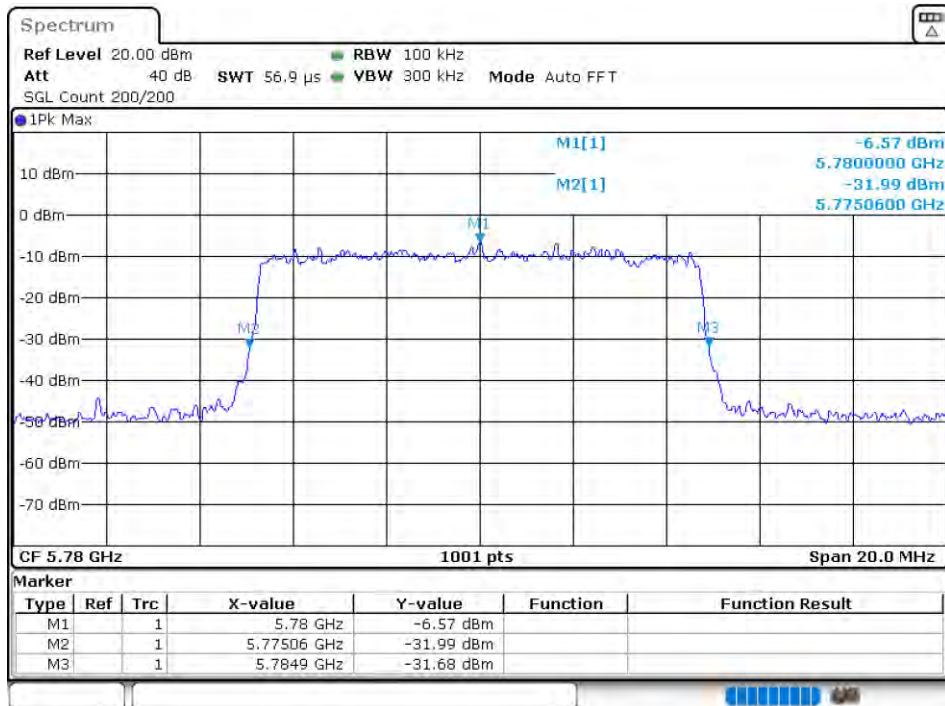
-26 dB BW NVNT 10M 5740MHz Ant 2



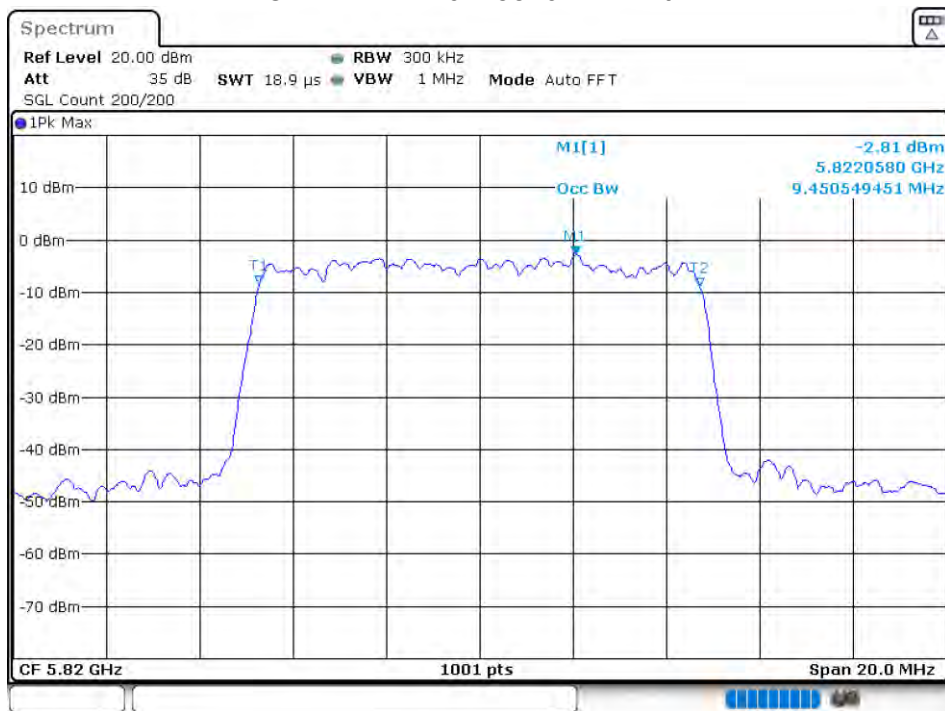
OBW NVNT 10M 5780MHz Ant 2



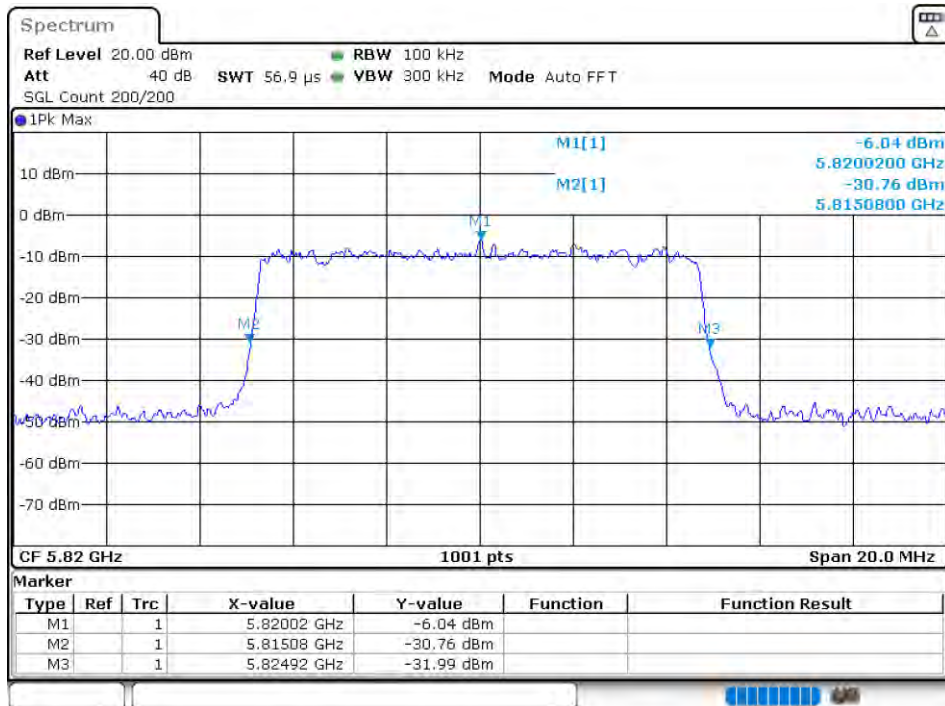
-26 dB BW NVNT 10M 5780MHz Ant 2



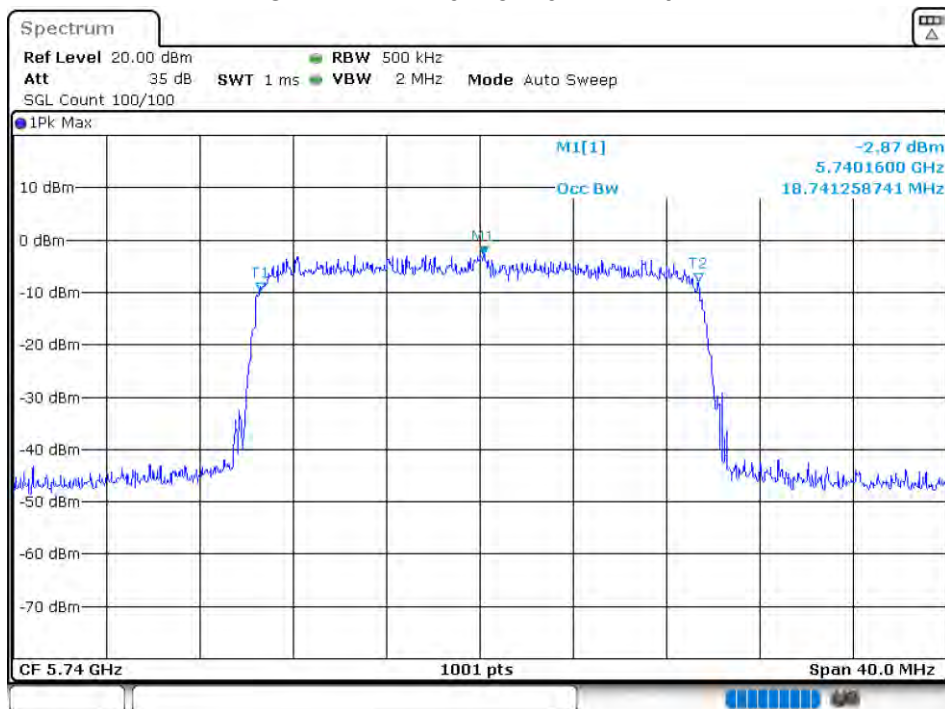
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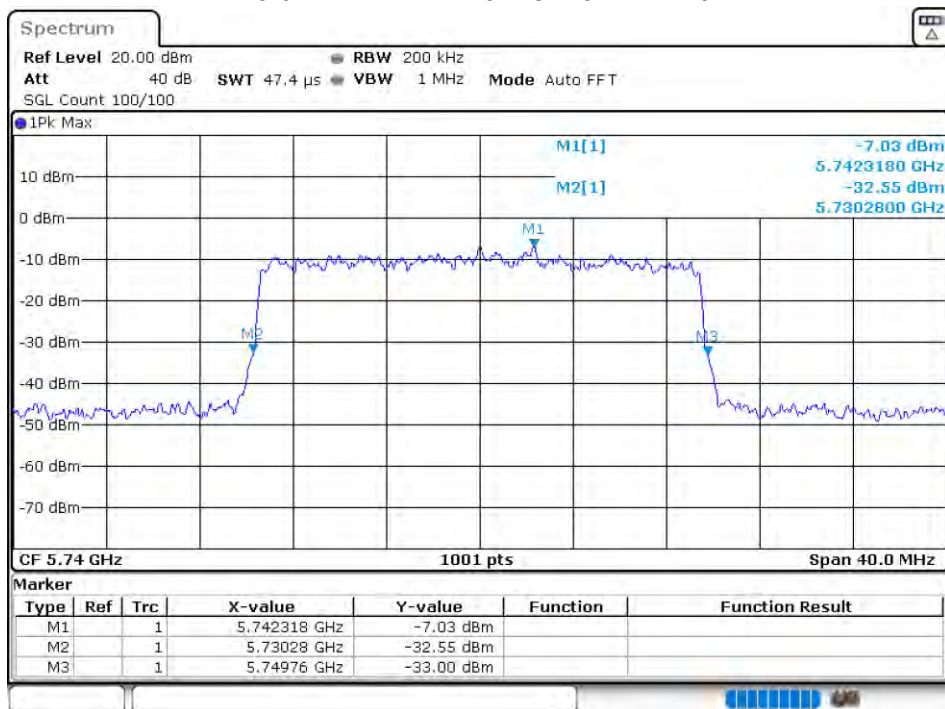
-26 dB BW NVNT 10M 5820MHz Ant 2



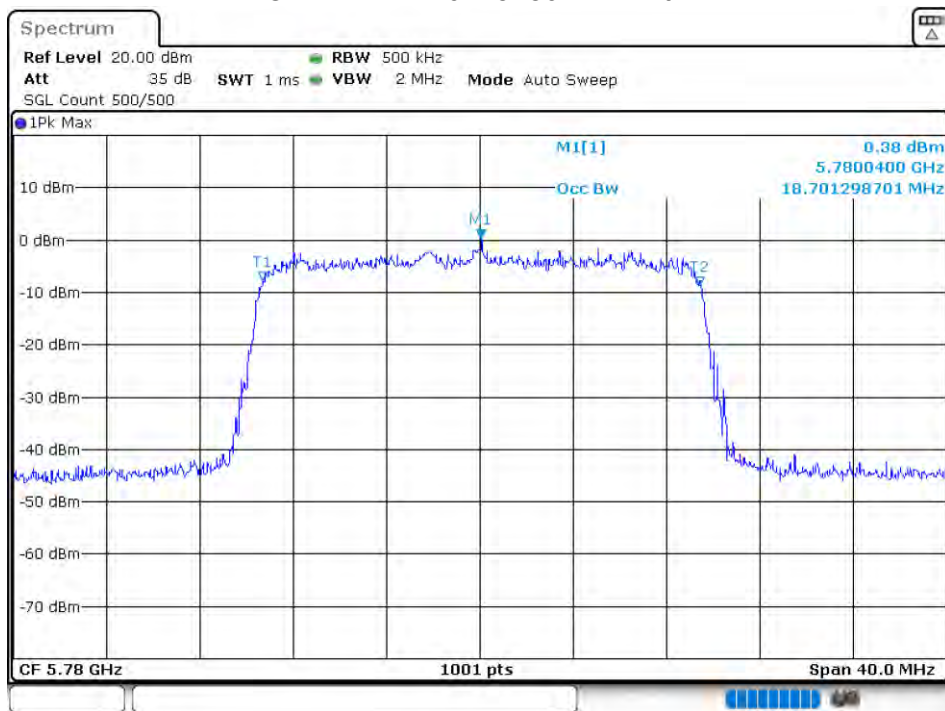
OBW NVNT 20M 5740MHz Ant 1



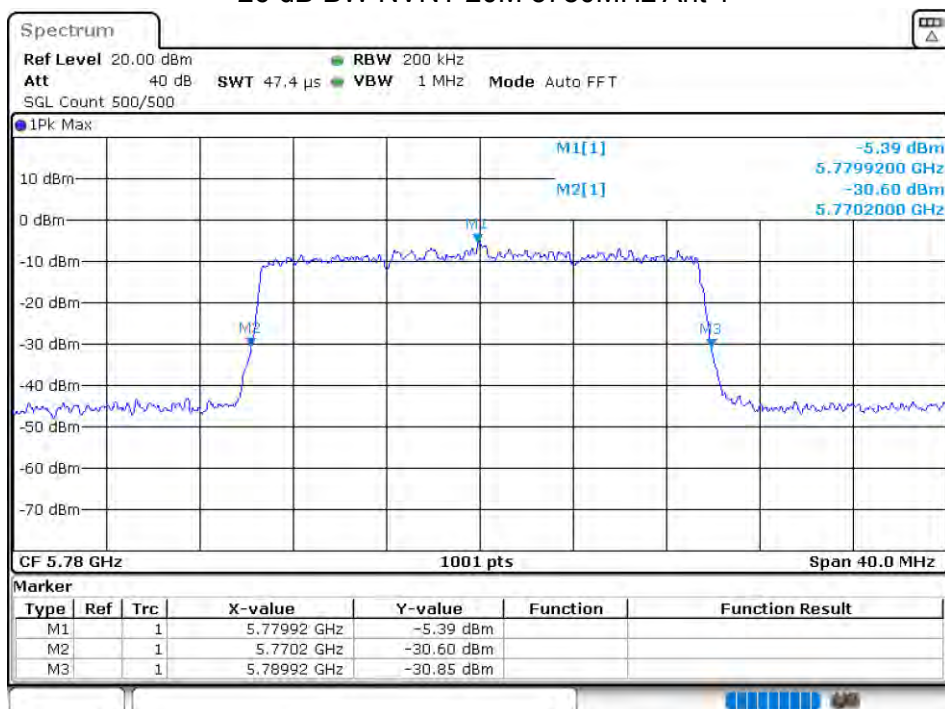
-26 dB BW NVNT 20M 5740MHz Ant 1



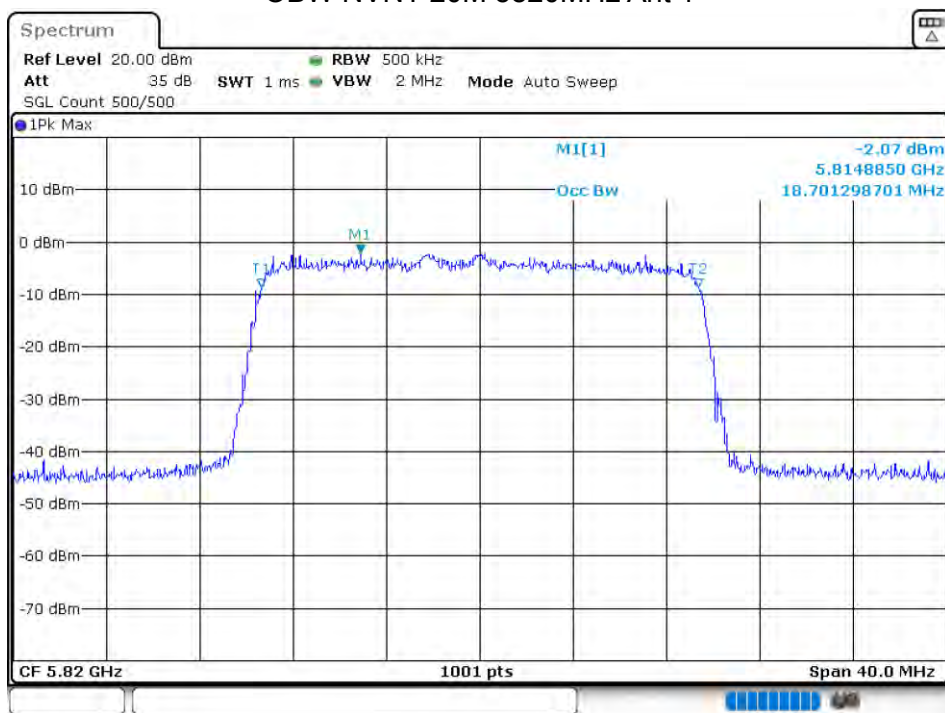
OBW NVNT 20M 5780MHz Ant 1



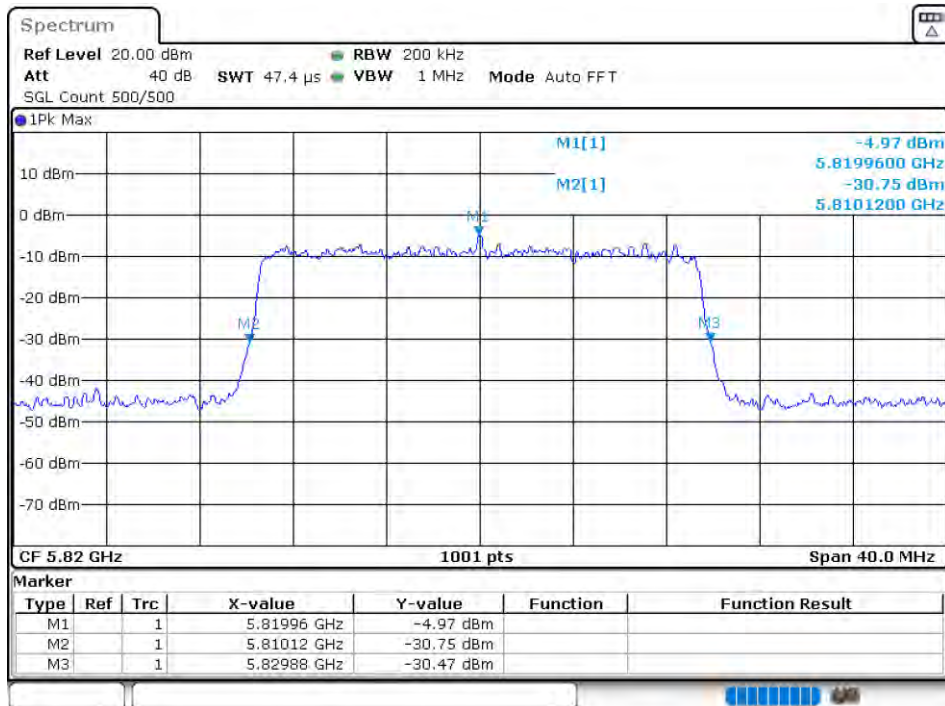
-26 dB BW NVNT 20M 5780MHz Ant 1



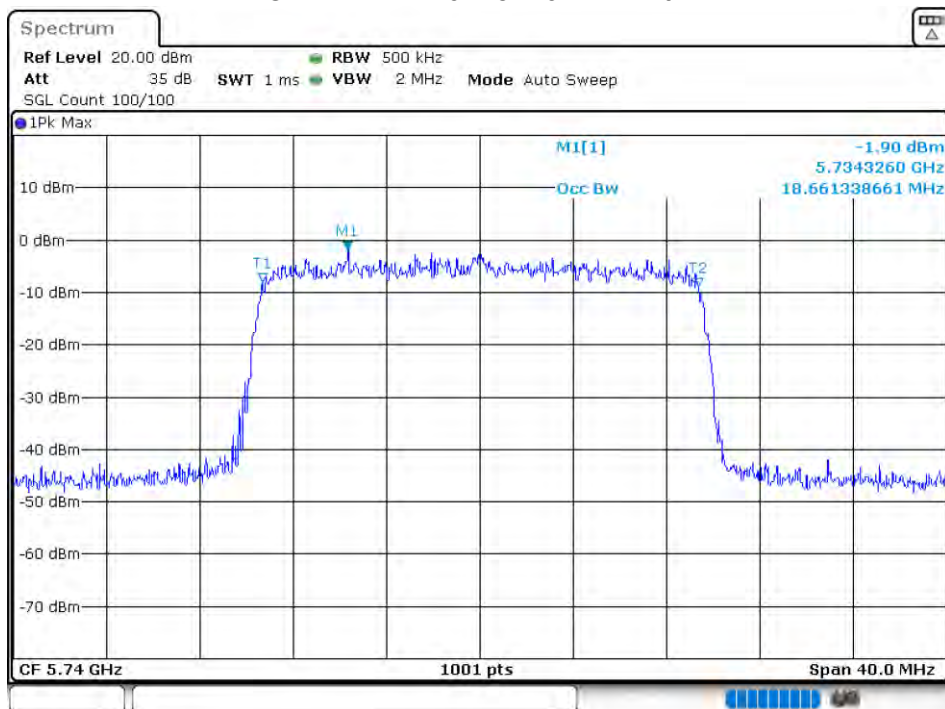
OBW NVNT 20M 5820MHz Ant 1



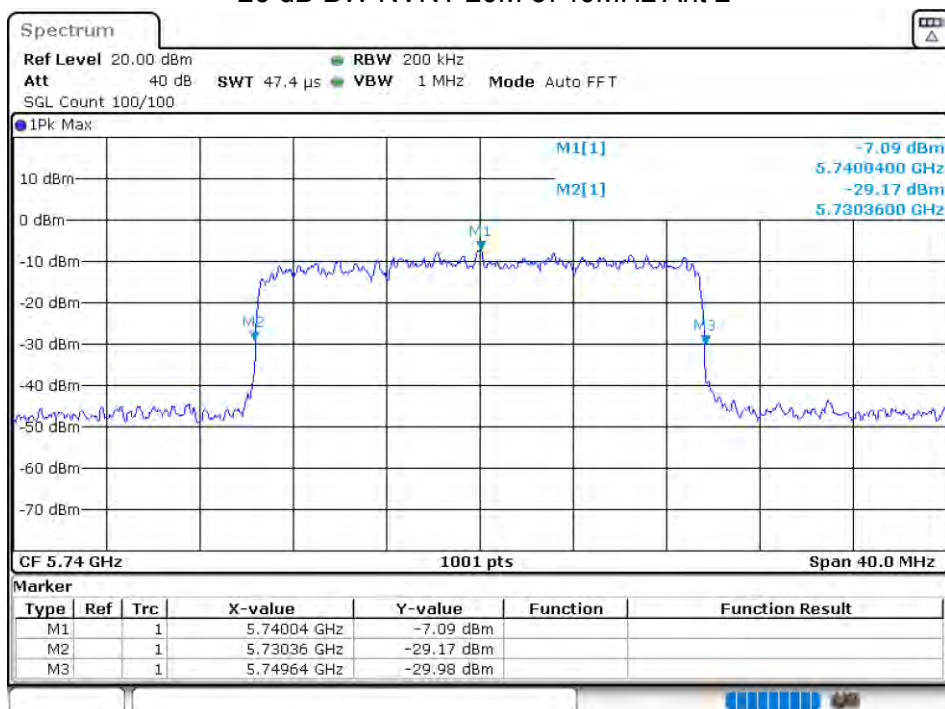
-26 dB BW NVNT 20M 5820MHz Ant 1



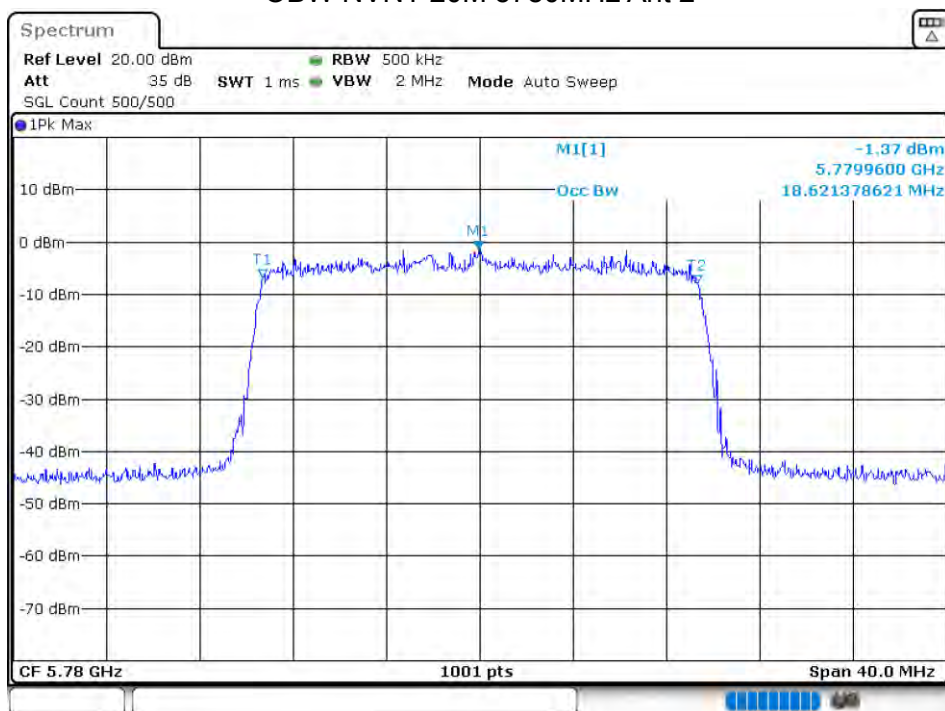
OBW NVNT 20M 5740MHz Ant 2



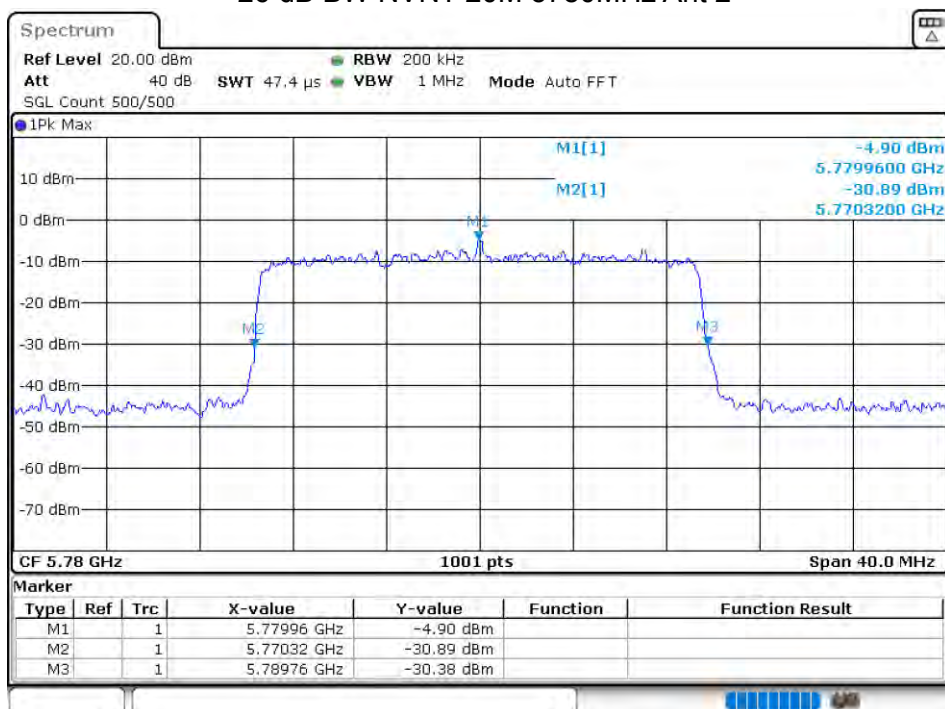
-26 dB BW NVNT 20M 5740MHz Ant 2



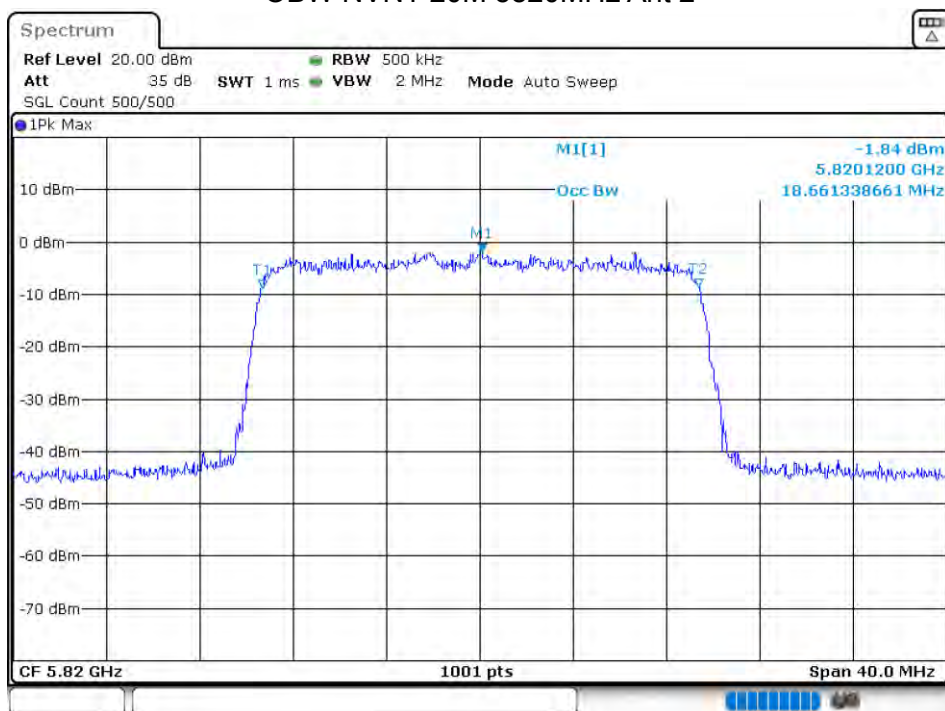
OBW NVNT 20M 5780MHz Ant 2



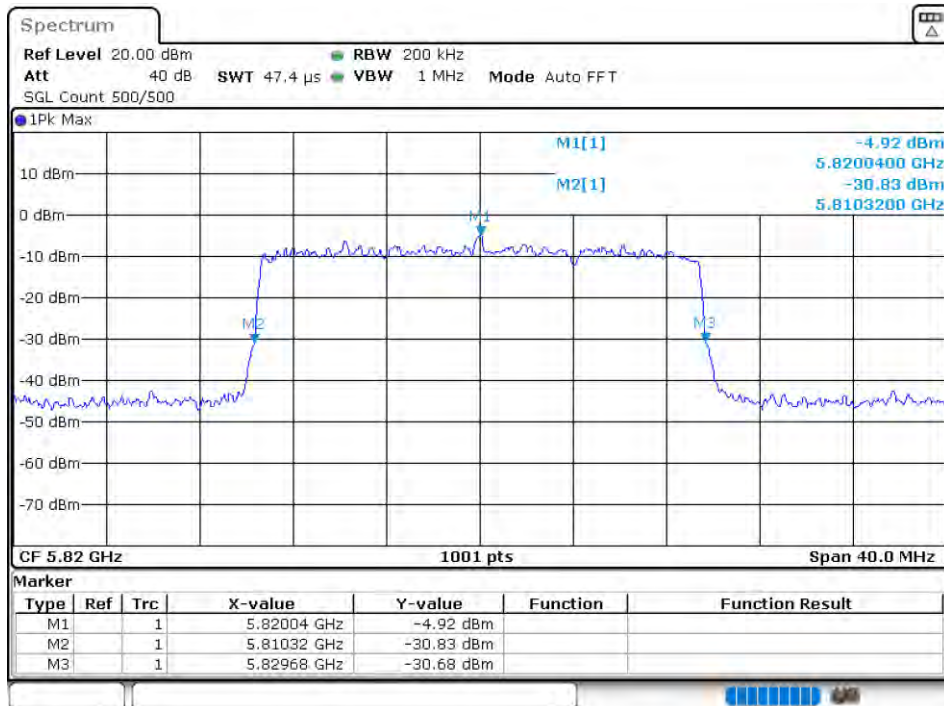
-26 dB BW NVNT 20M 5780MHz Ant 2



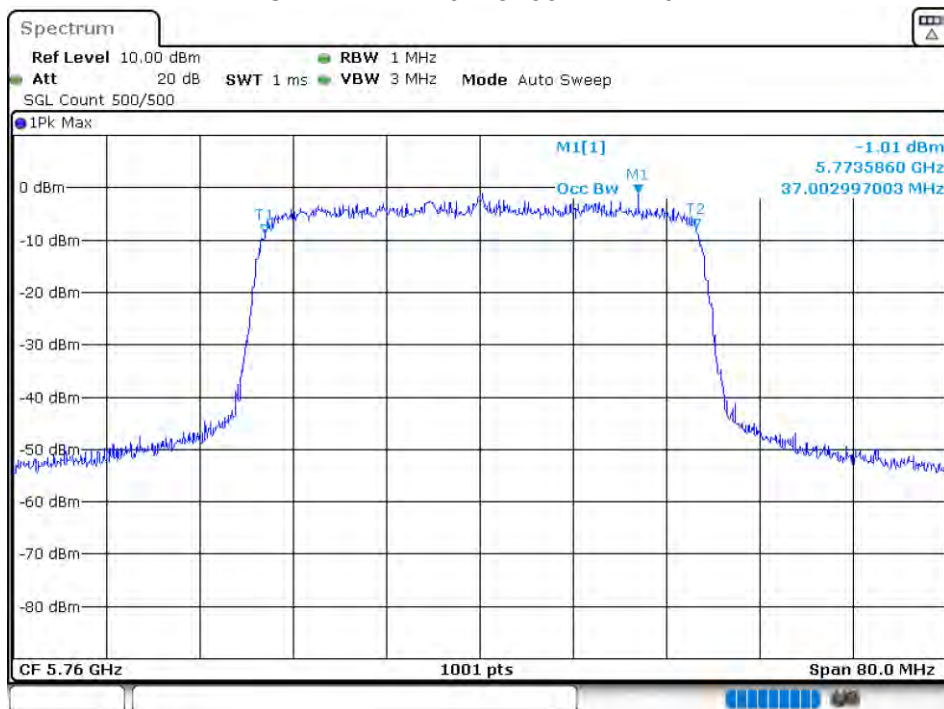
OBW NVNT 20M 5820MHz Ant 2



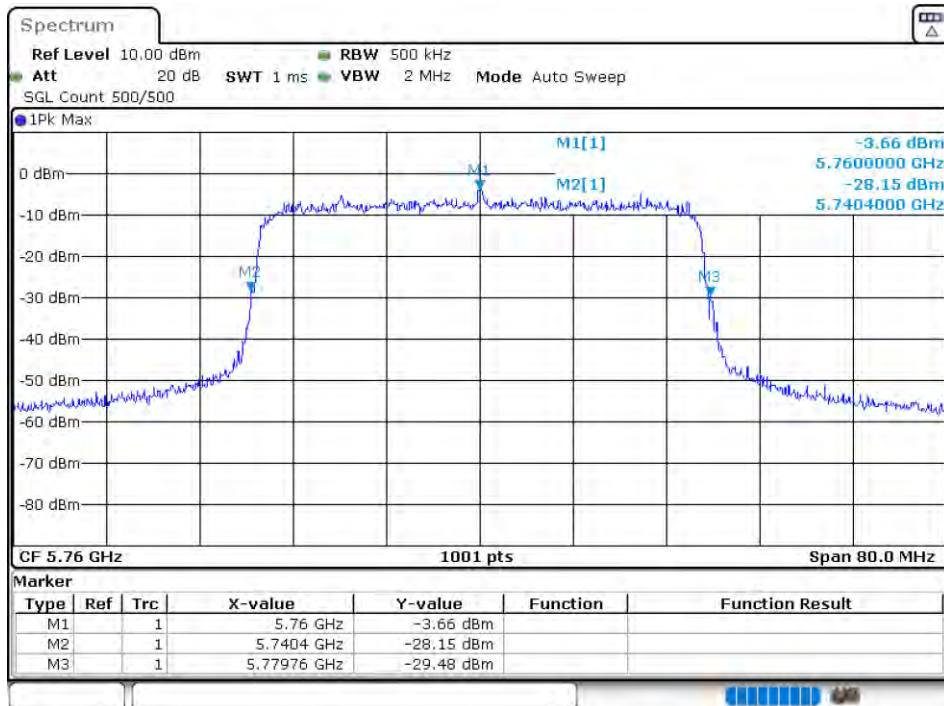
-26 dB BW NVNT 20M 5820MHz Ant 2



OBW NVNT 40M 5760MHz Ant 1



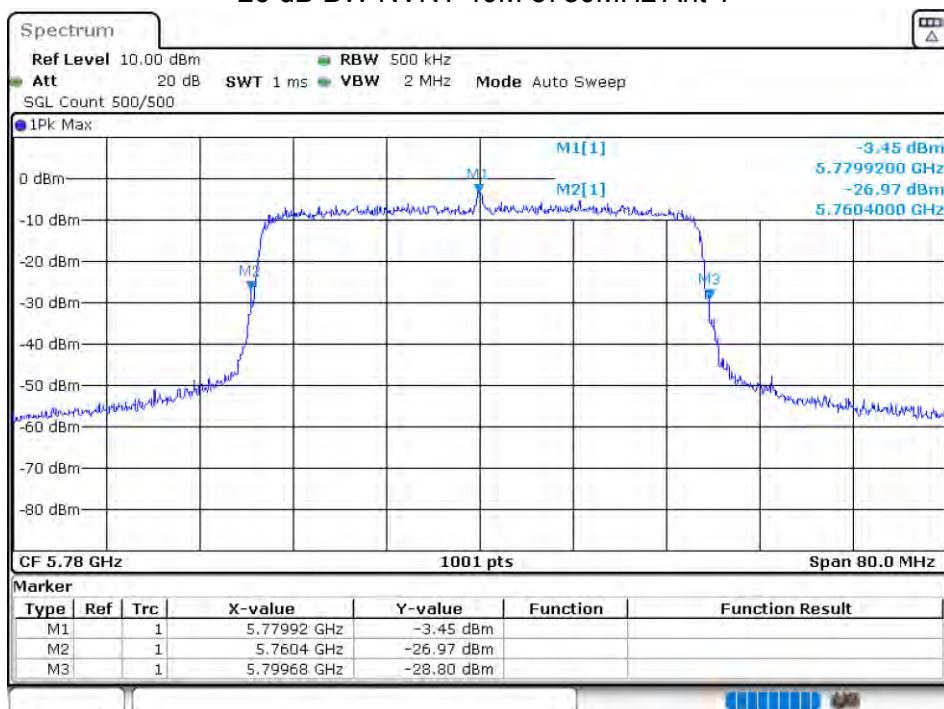
-26 dB BW NVNT 40M 5760MHz Ant 1



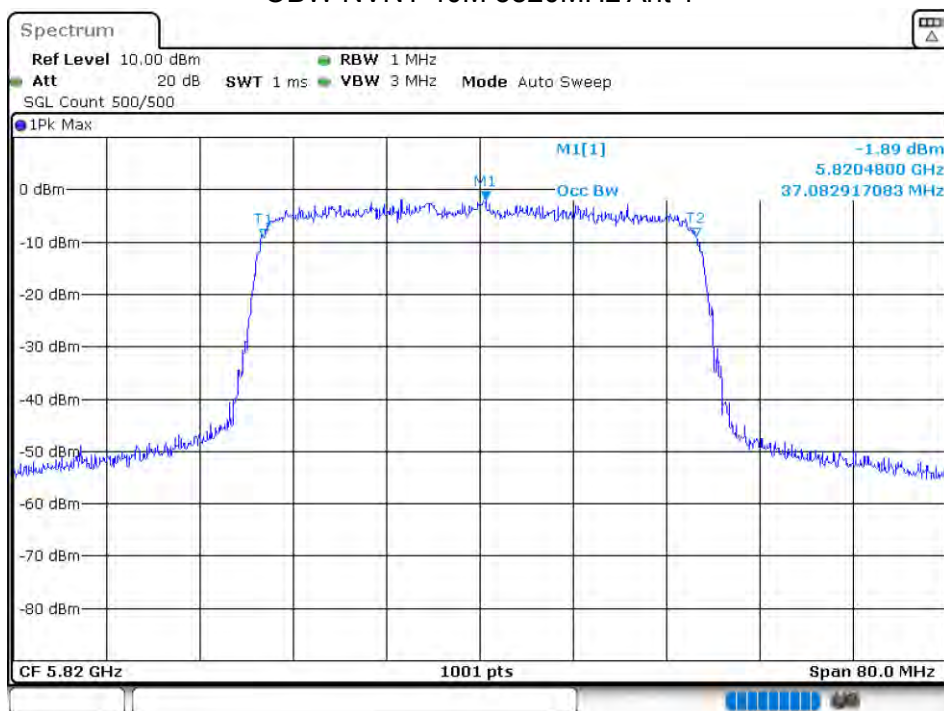
OBW NVNT 40M 5780MHz Ant 1



-26 dB BW NVNT 40M 5780MHz Ant 1



OBW NVNT 40M 5820MHz Ant 1



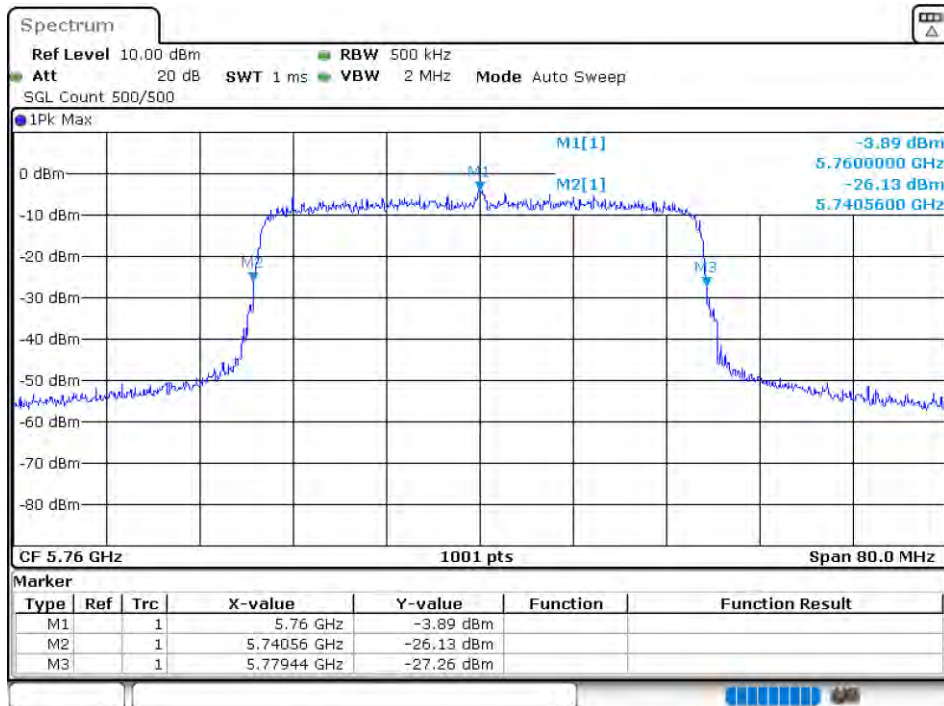
-26 dB BW NVNT 40M 5820MHz Ant 1



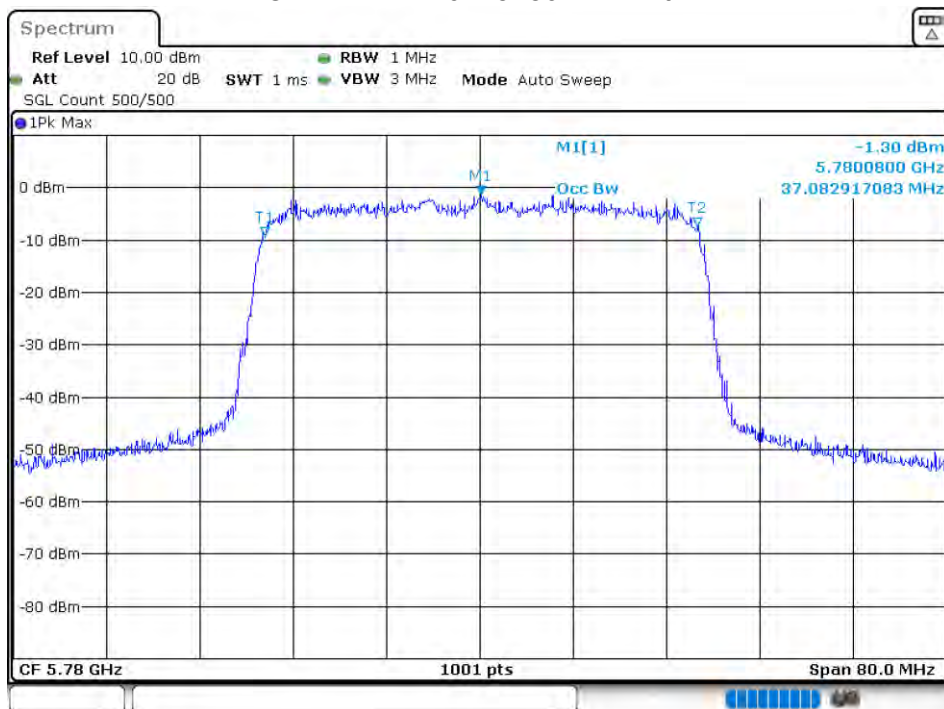
OBW NVNT 40M 5760MHz Ant 2



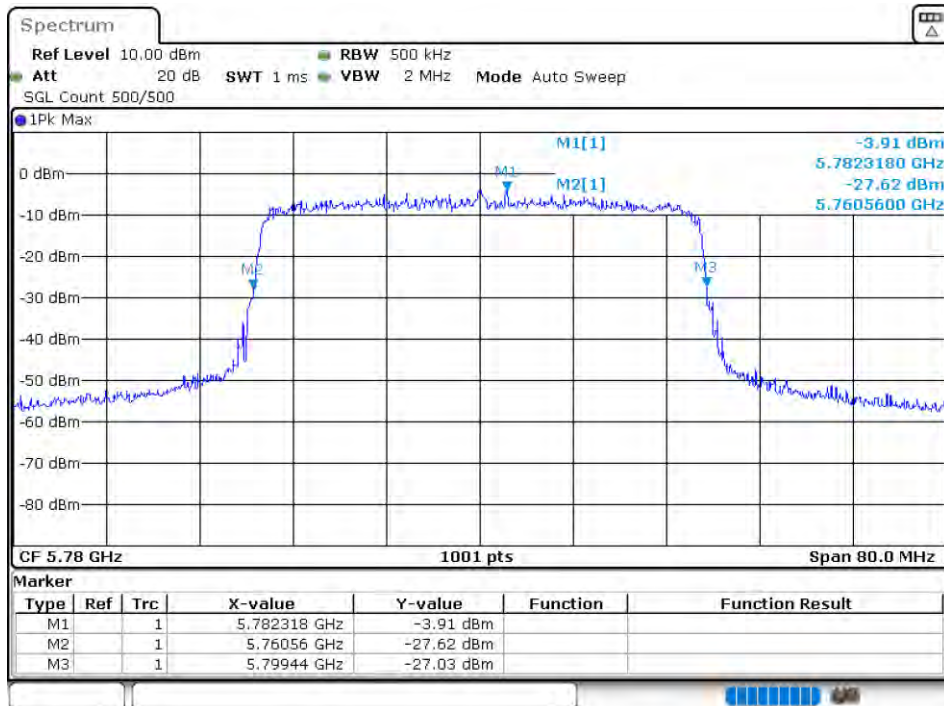
-26 dB BW NVNT 40M 5760MHz Ant 2



OBW NVNT 40M 5780MHz Ant 2



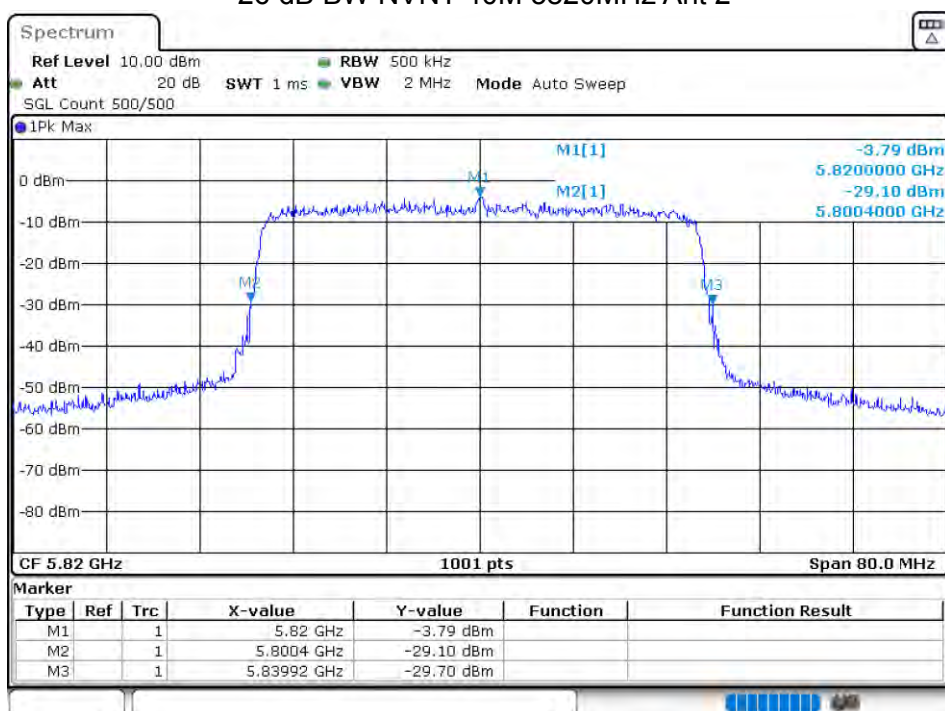
-26 dB BW NVNT 40M 5780MHz Ant 2



OBW NVNT 40M 5820MHz Ant 2



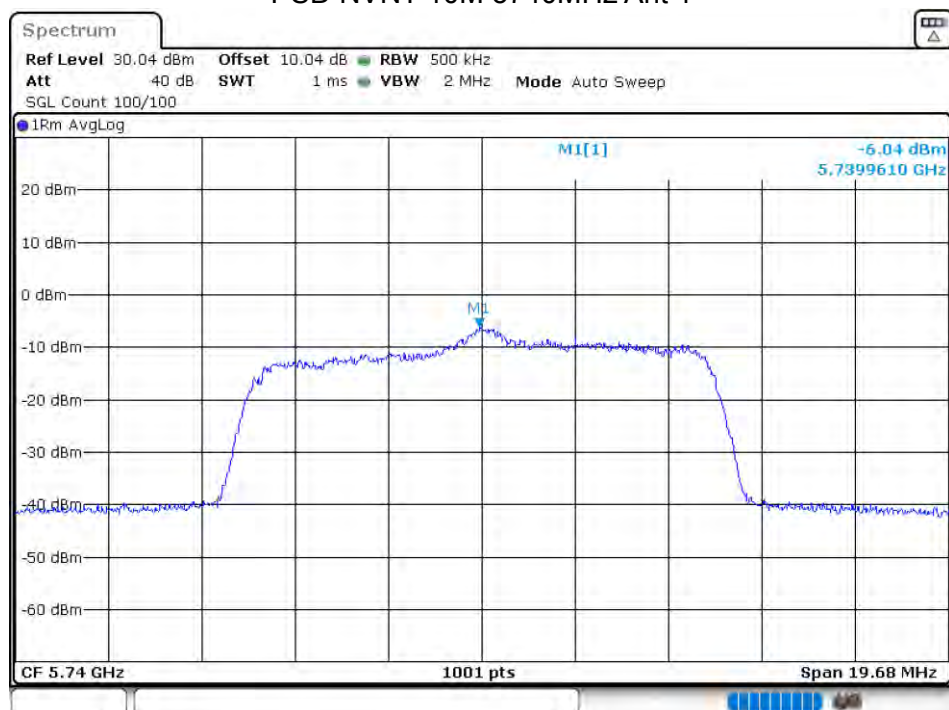
-26 dB BW NVNT 40M 5820MHz Ant 2



11.1.4 MAXIMUM POWER SPECTRAL DENSITY LEVEL

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	MIMO PSD (dBm)	Limit (dBm)	Verdict
NVNT	10M	5740	Ant 1	-6.041	1.34	-4.701	-2.25	29.38	Pass
NVNT	10M	5740	Ant 2	-6.931	1.02	-5.911			
NVNT	10M	5780	Ant 1	-5.761	1.34	-4.421	-1.33	29.38	Pass
NVNT	10M	5780	Ant 2	-5.47	1.2	-4.27			
NVNT	10M	5820	Ant 1	-5.934	0.99	-4.944	-2.79	29.38	Pass
NVNT	10M	5820	Ant 2	-8.135	1.26	-6.875			
NVNT	20M	5740	Ant 1	-9.084	1.35	-7.734	-5.17	29.38	Pass
NVNT	20M	5740	Ant 2	-10.026	1.35	-8.676			
NVNT	20M	5780	Ant 1	-9.314	1.35	-7.964	-4.42	29.38	Pass
NVNT	20M	5780	Ant 2	-8.308	1.35	-6.958			
NVNT	20M	5820	Ant 1	-8.527	1.35	-7.177	-4.14	29.38	Pass
NVNT	20M	5820	Ant 2	-8.476	1.35	-7.126			
NVNT	40M	5760	Ant 1	-17.085	2.37	-14.715	-12.75	29.38	Pass
NVNT	40M	5760	Ant 2	-19.518	2.37	-17.148			
NVNT	40M	5780	Ant 1	-19.087	2.37	-16.717	-13.85	29.38	Pass
NVNT	40M	5780	Ant 2	-19.38	2.37	-17.01			
NVNT	40M	5820	Ant 1	-20.088	2.36	-17.728	-14.11	29.38	Pass
NVNT	40M	5820	Ant 2	-18.949	2.37	-16.579			

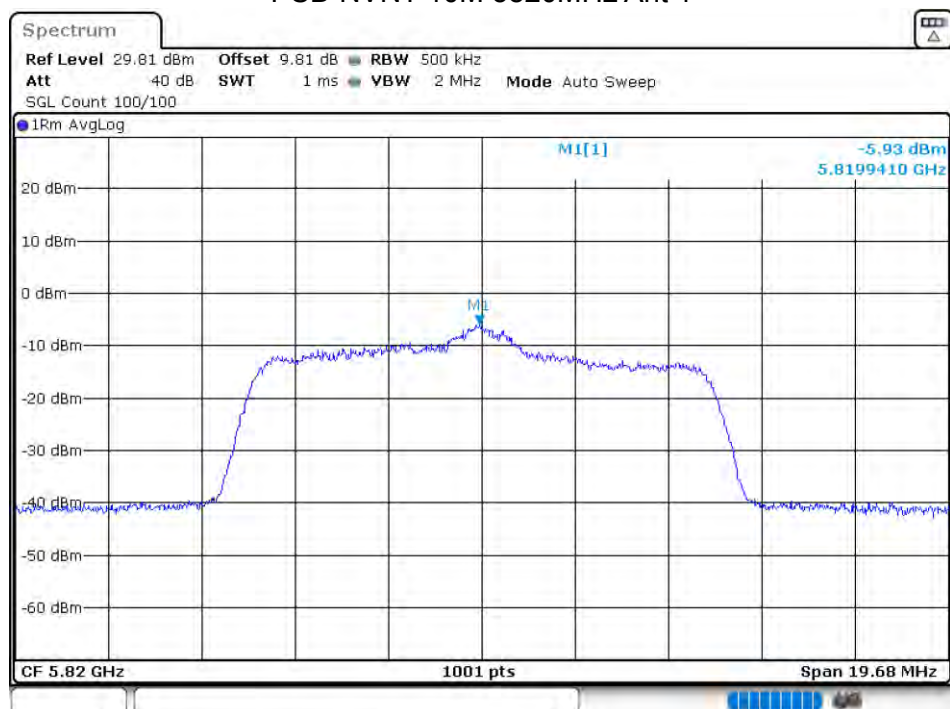
PSD NVNT 10M 5740MHz Ant 1



PSD NVNT 10M 5780MHz Ant 1



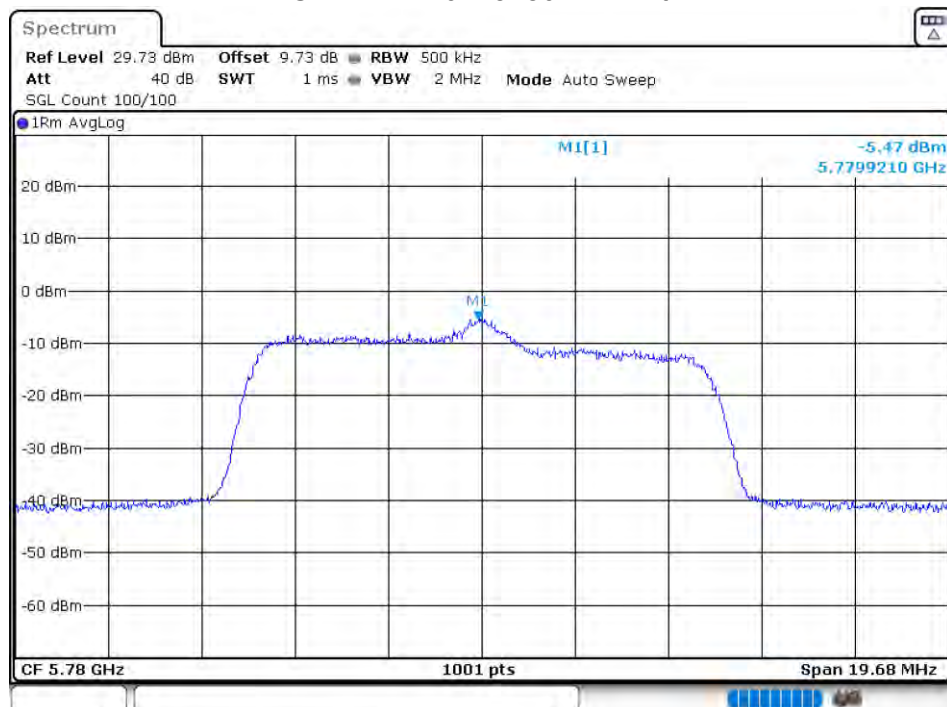
PSD NVNT 10M 5820MHz Ant 1



PSD NVNT 10M 5740MHz Ant 2



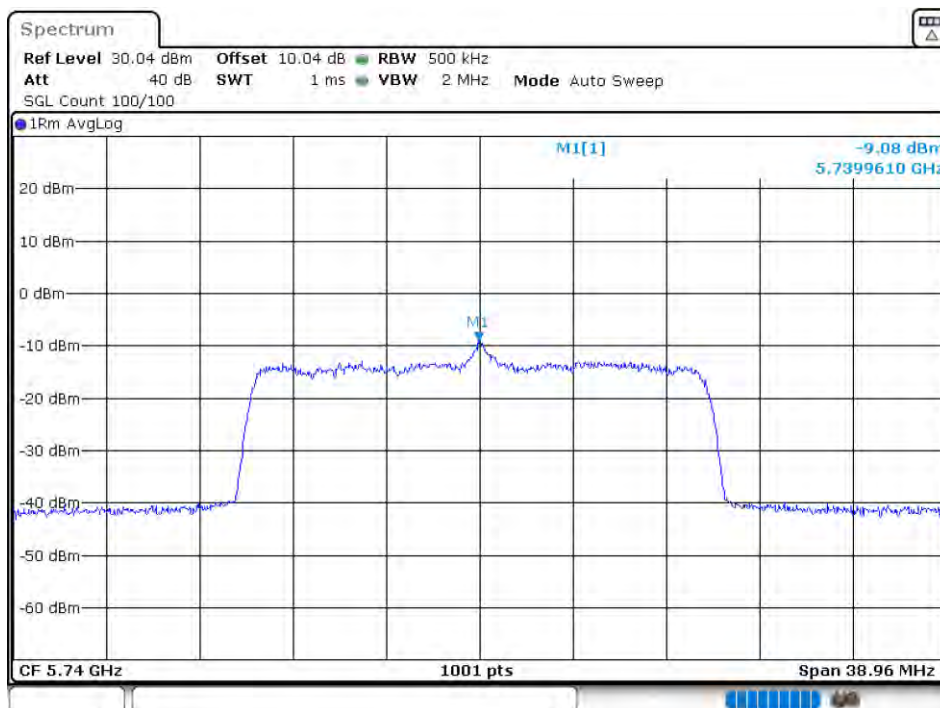
PSD NVNT 10M 5780MHz Ant 2



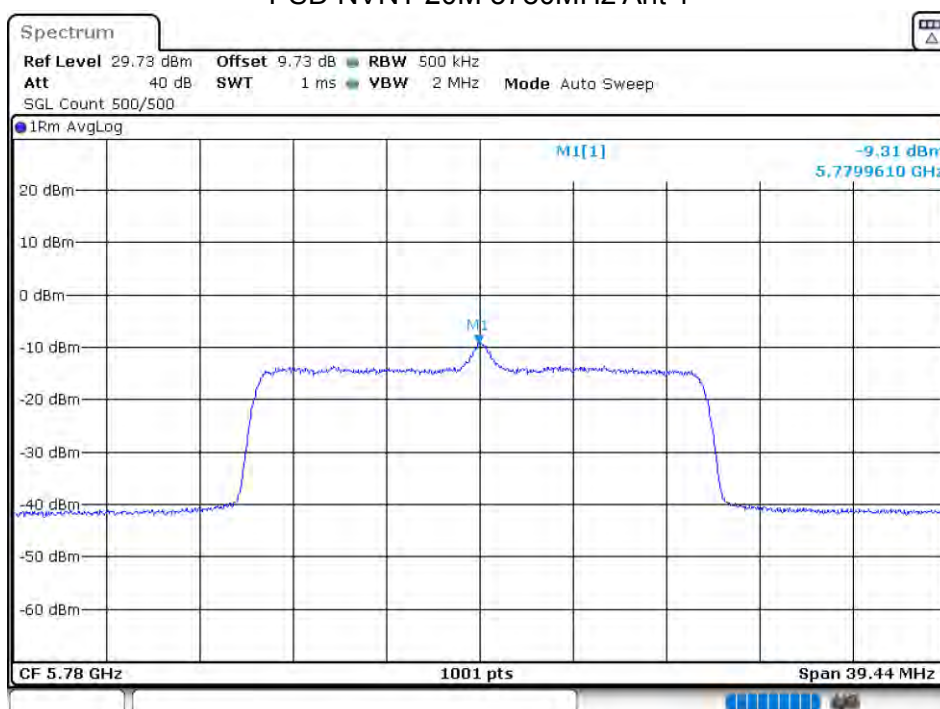
PSD NVNT 10M 5820MHz Ant 2



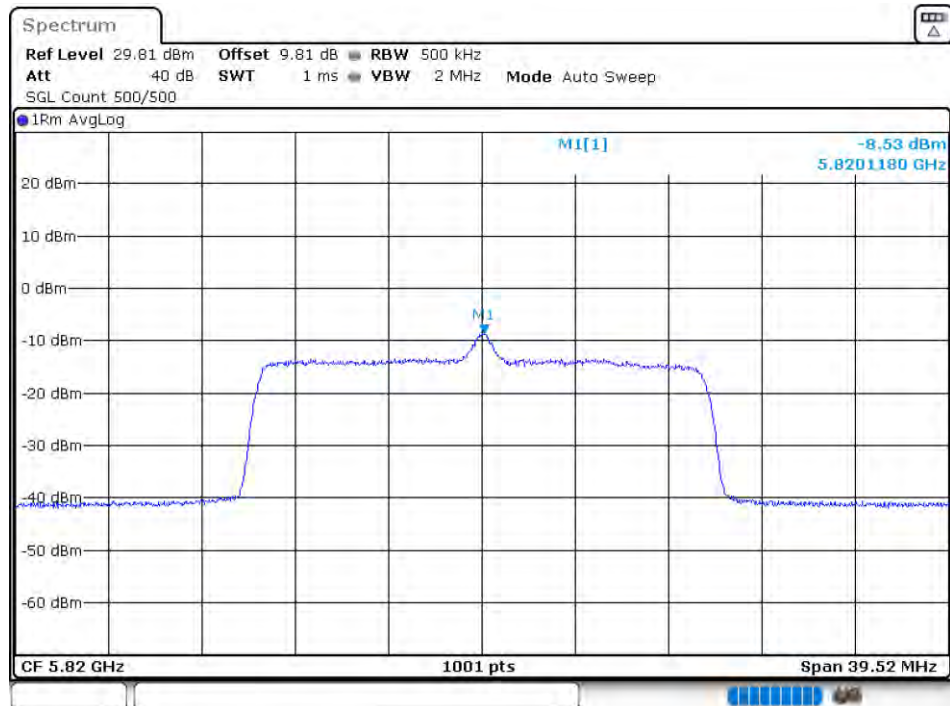
PSD NVNT 20M 5740MHz Ant 1



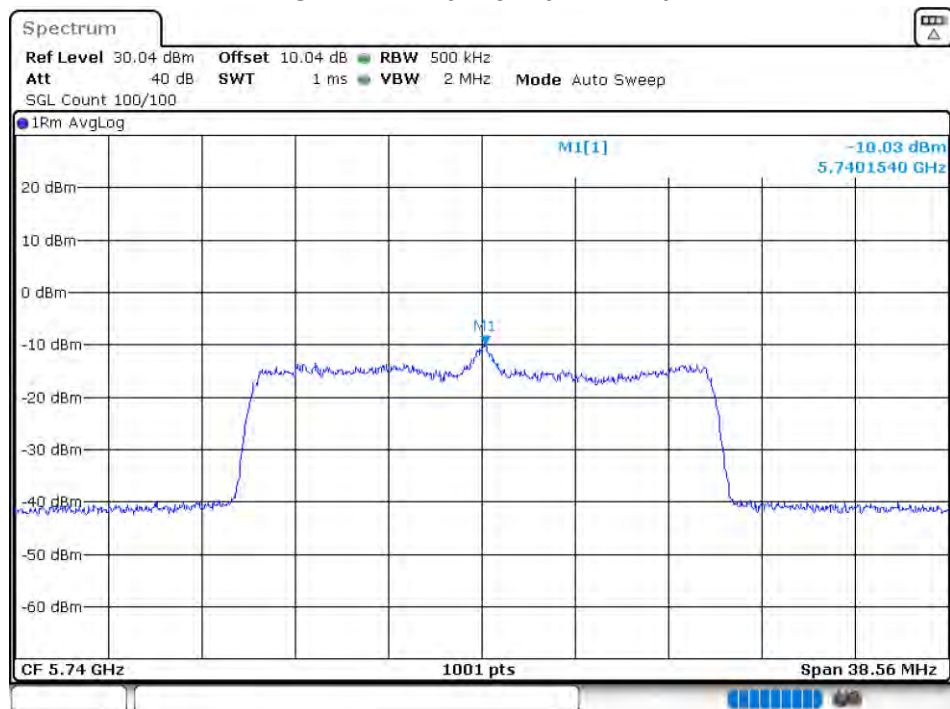
PSD NVNT 20M 5780MHz Ant 1



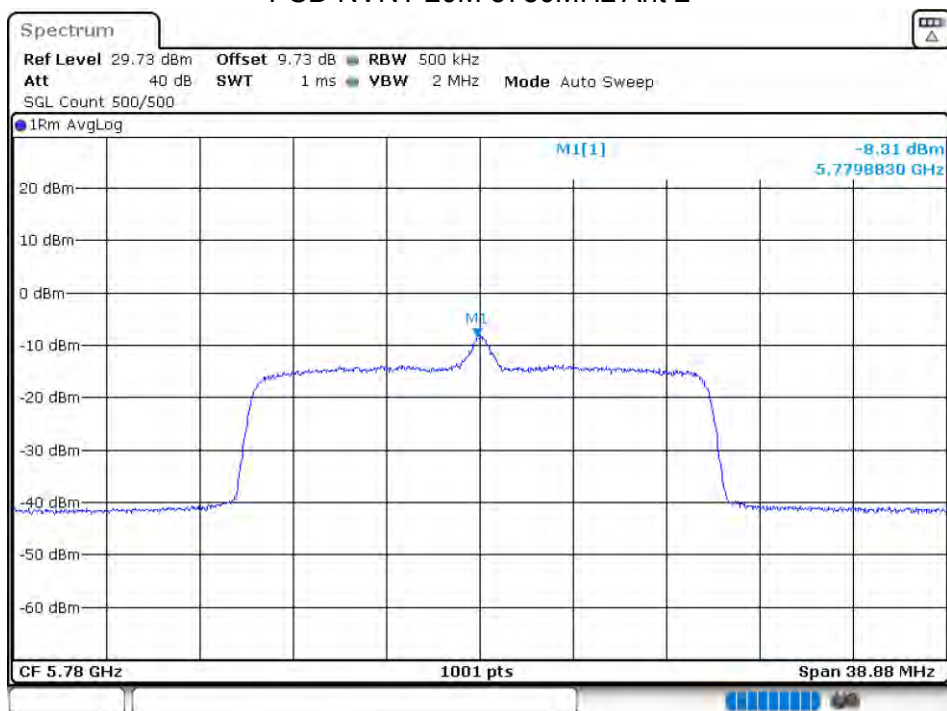
PSD NVNT 20M 5820MHz Ant 1



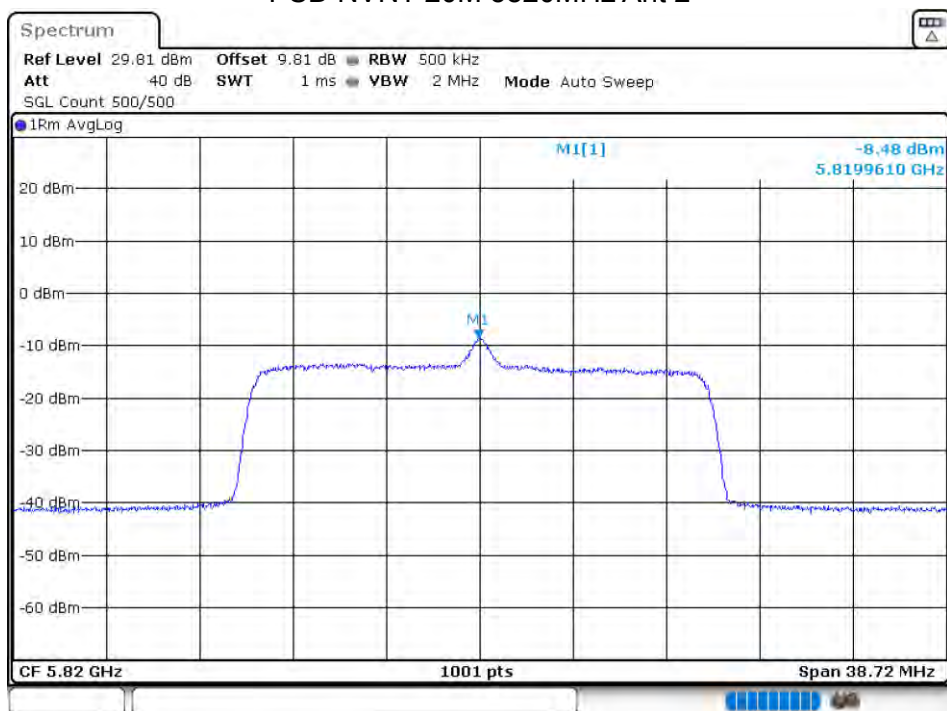
PSD NVNT 20M 5740MHz Ant 2



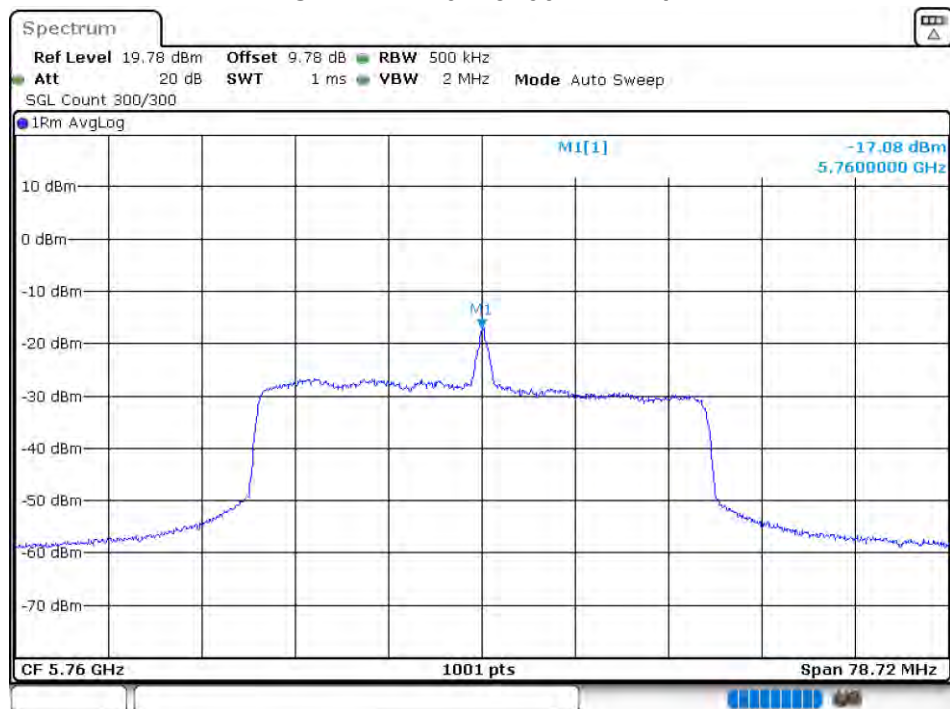
PSD NVNT 20M 5780MHz Ant 2



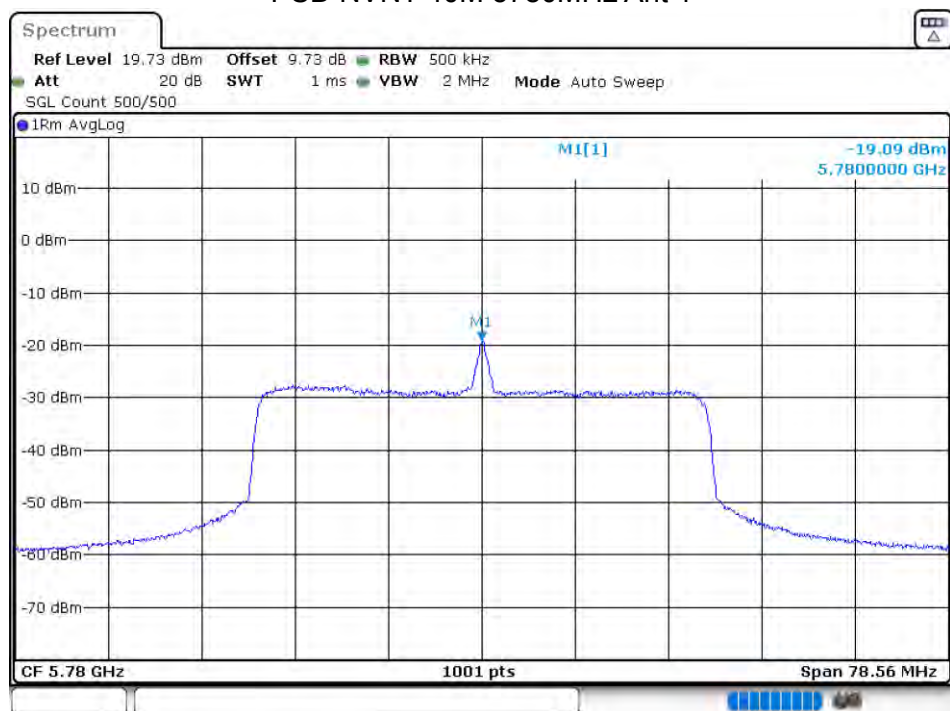
PSD NVNT 20M 5820MHz Ant 2



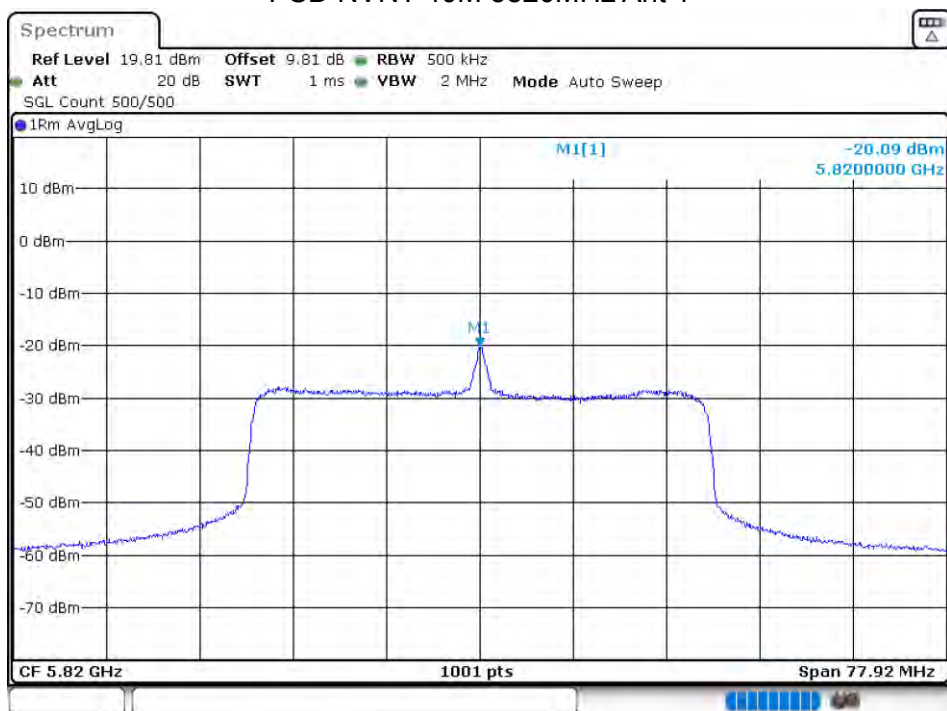
PSD NVNT 40M 5760MHz Ant 1



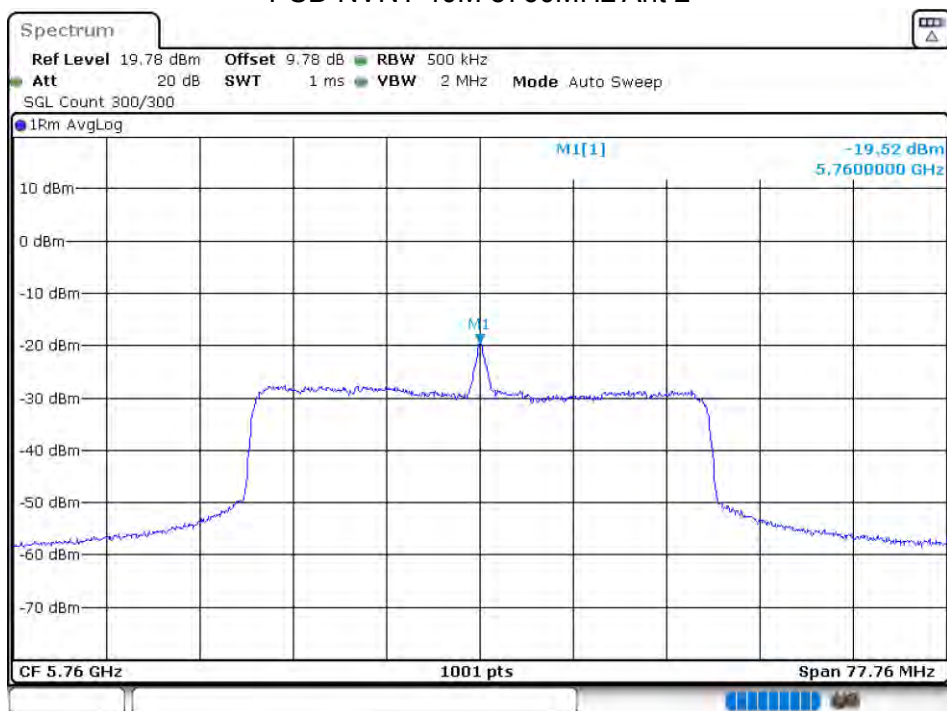
PSD NVNT 40M 5780MHz Ant 1



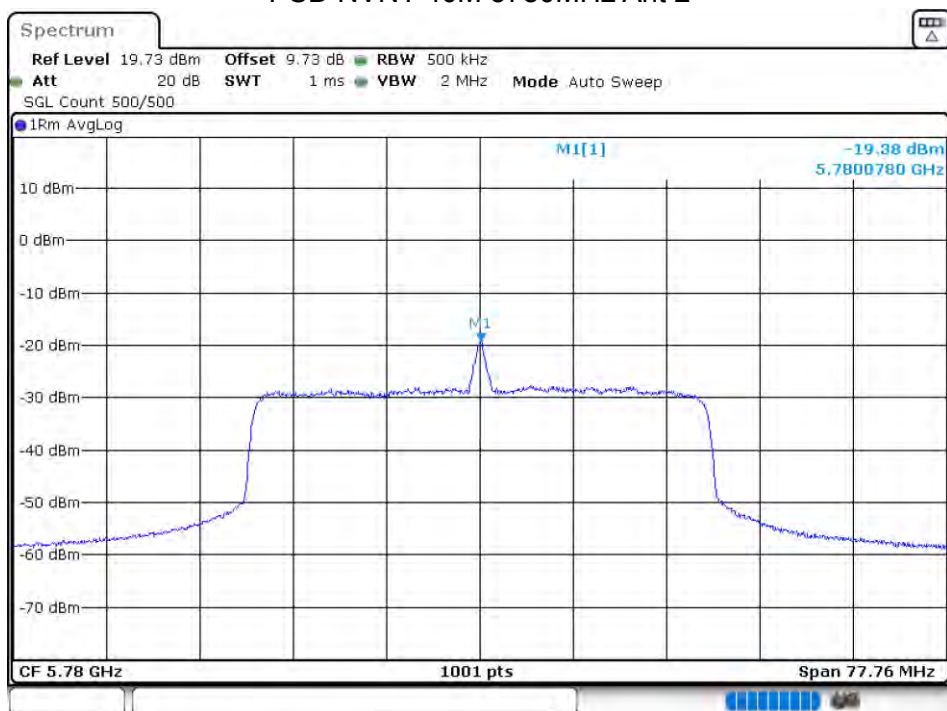
PSD NVNT 40M 5820MHz Ant 1



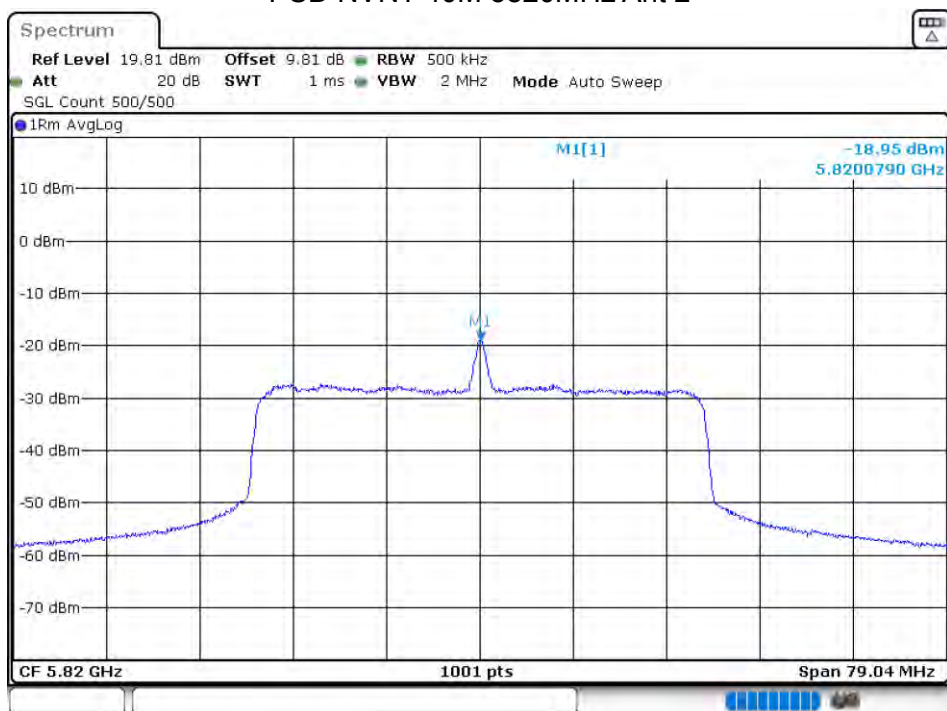
PSD NVNT 40M 5760MHz Ant 2



PSD NVNT 40M 5780MHz Ant 2



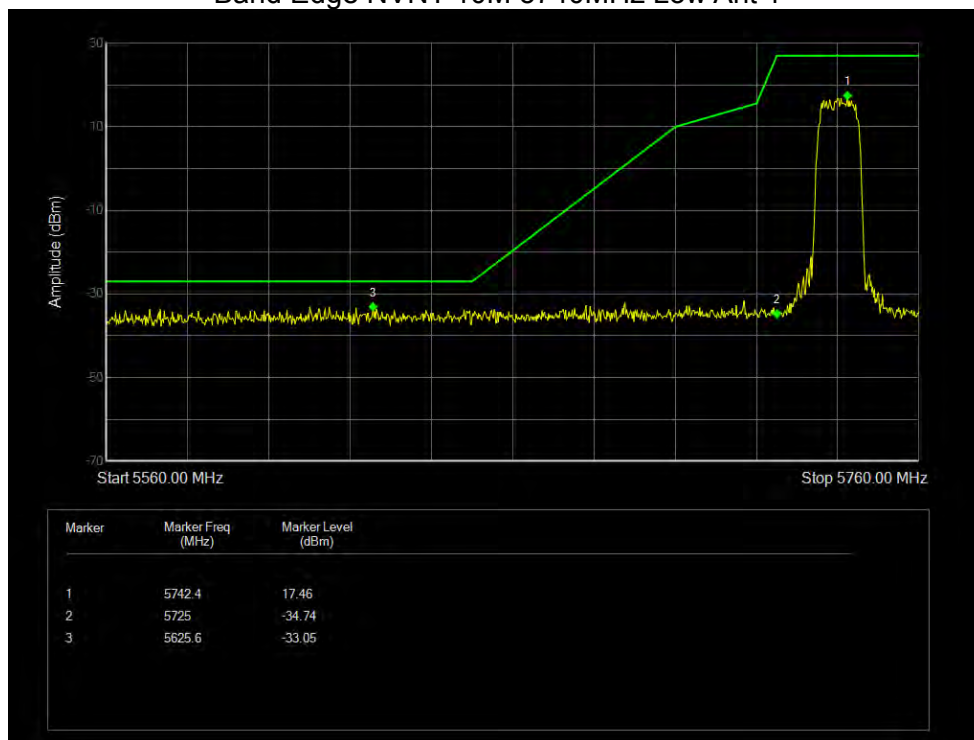
PSD NVNT 40M 5820MHz Ant 2



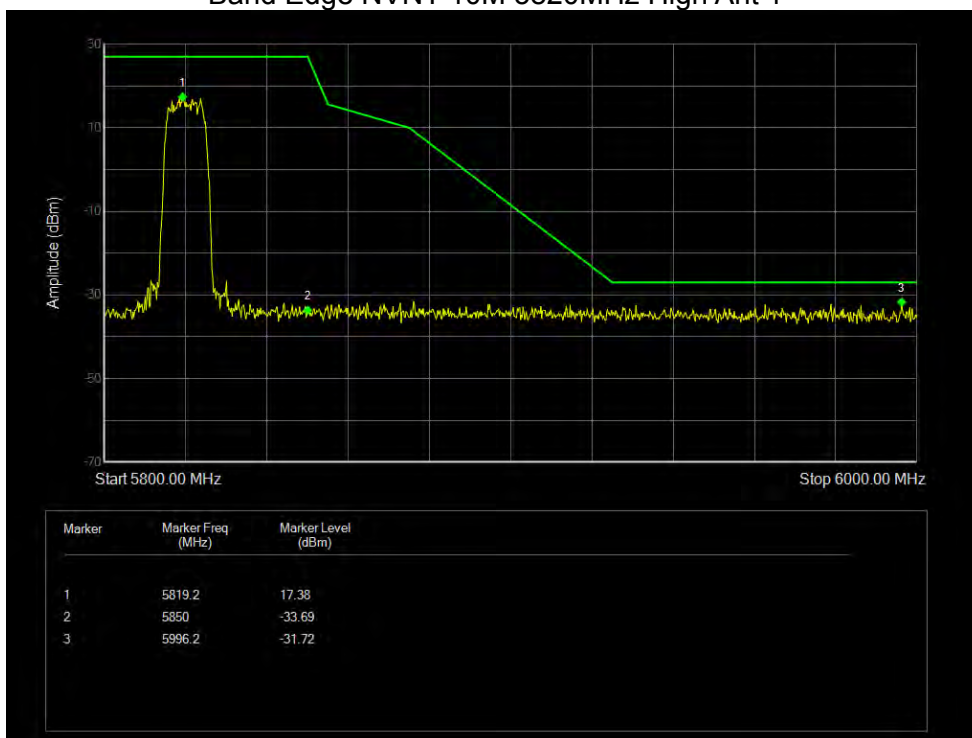
11.1.5 BAND EDGE

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBm)	Limit (dBm)	Verdict
NVNT	10M	5740	Ant 1	-33.05	-27	Pass
NVNT	10M	5820	Ant 1	-31.72	-27	Pass
NVNT	10M	5740	Ant 2	-31.88	-27	Pass
NVNT	10M	5820	Ant 2	-32.09	-27	Pass
NVNT	20M	5740	Ant 1	-31.92	-26.85	Pass
NVNT	20M	5820	Ant 1	-32.03	-27	Pass
NVNT	20M	5740	Ant 2	-33.25	-27	Pass
NVNT	20M	5820	Ant 2	-31.84	-27	Pass
NVNT	40M	5760	Ant 1	-33.75	-27	Pass
NVNT	40M	5820	Ant 1	-32.3	-27	Pass
NVNT	40M	5760	Ant 2	-33.57	-27	Pass
NVNT	40M	5820	Ant 2	-32.57	-27	Pass

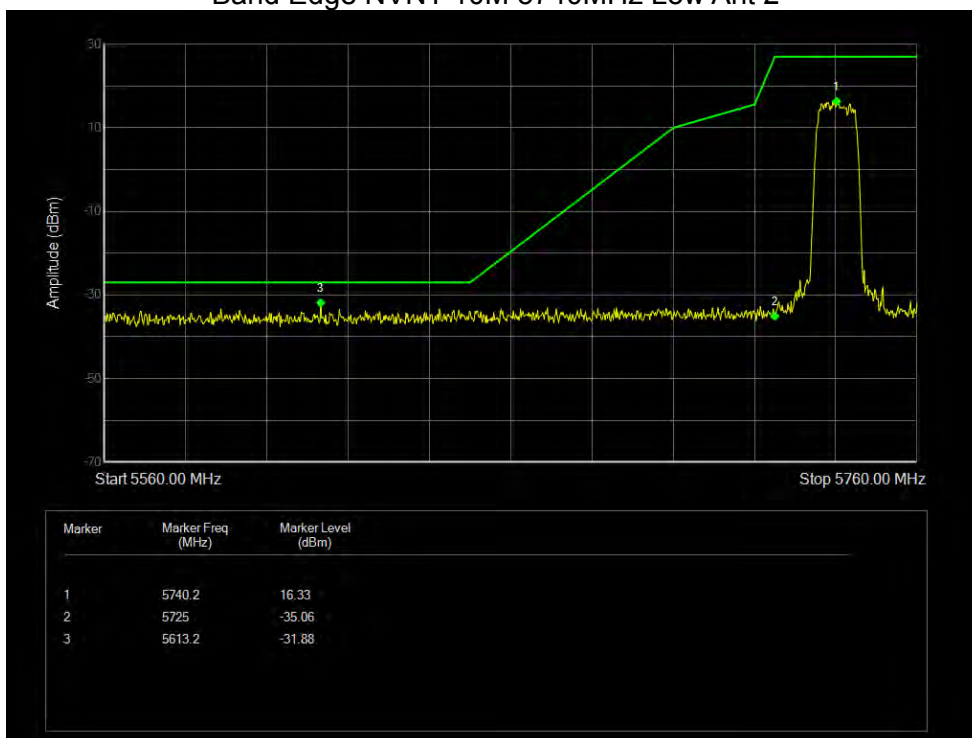
Band Edge NVNT 10M 5740MHz Low Ant 1



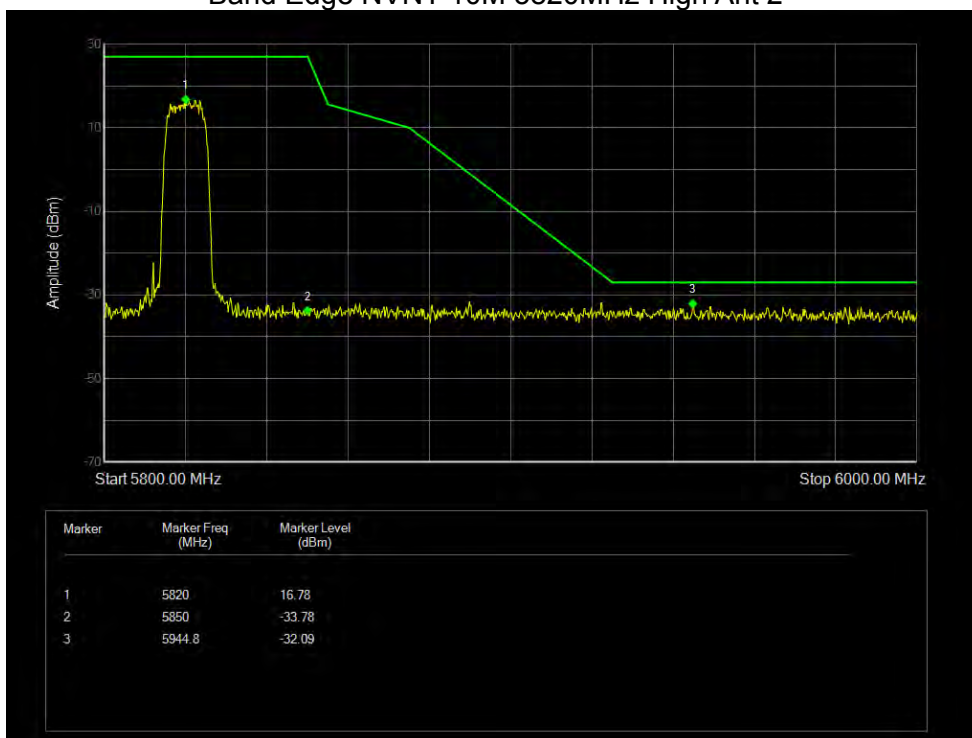
Band Edge NVNT 10M 5820MHz High Ant 1



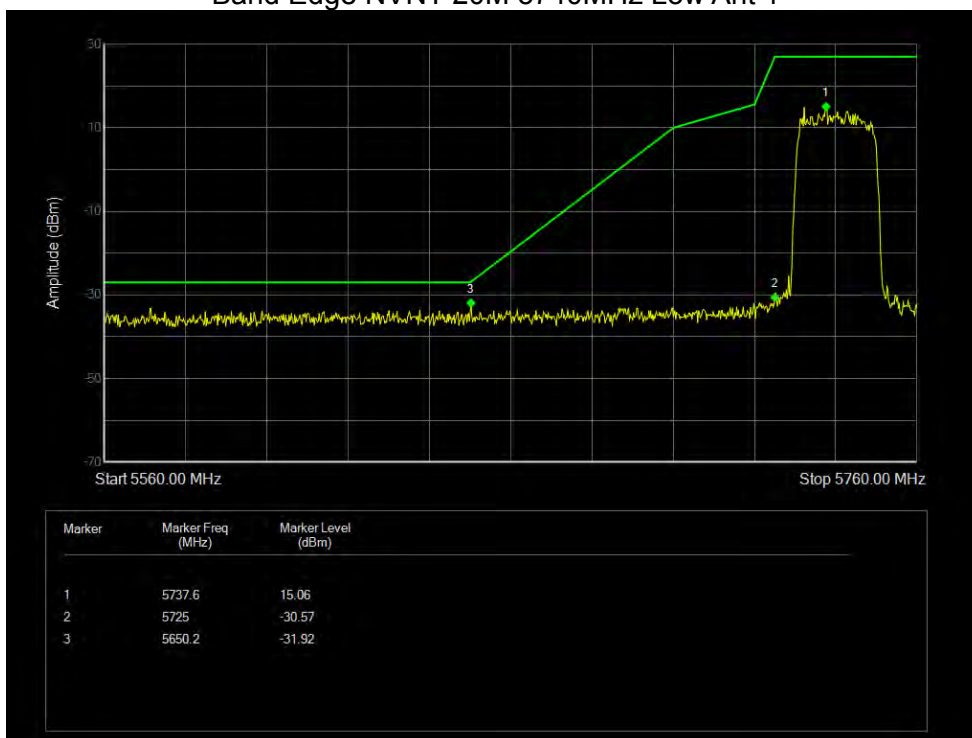
Band Edge NVNT 10M 5740MHz Low Ant 2



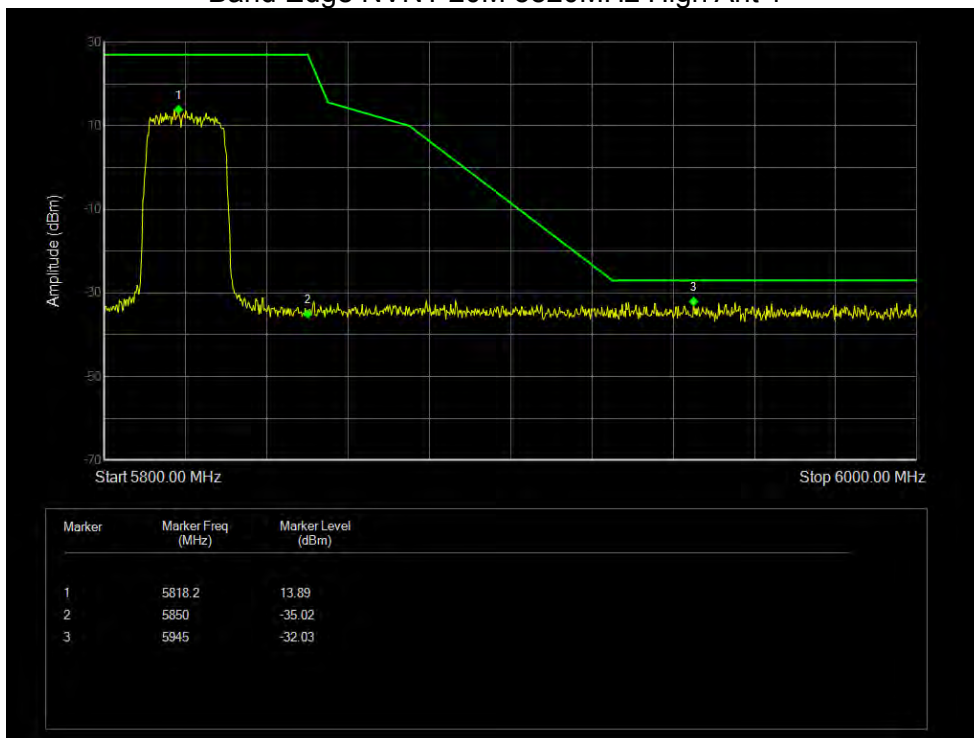
Band Edge NVNT 10M 5820MHz High Ant 2



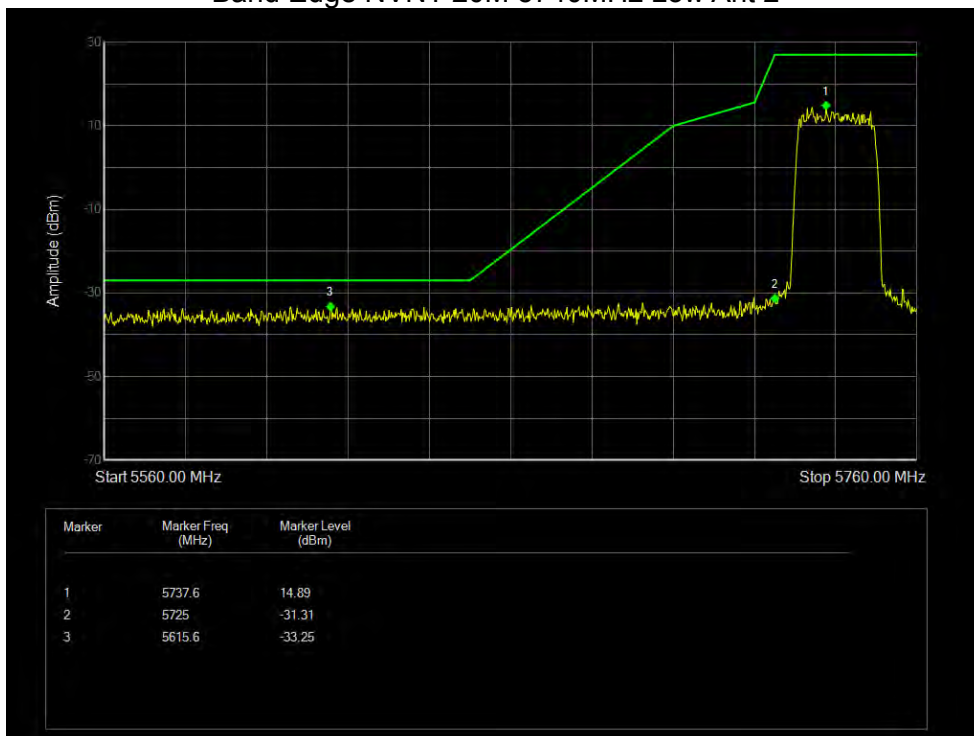
Band Edge NVNT 20M 5740MHz Low Ant 1



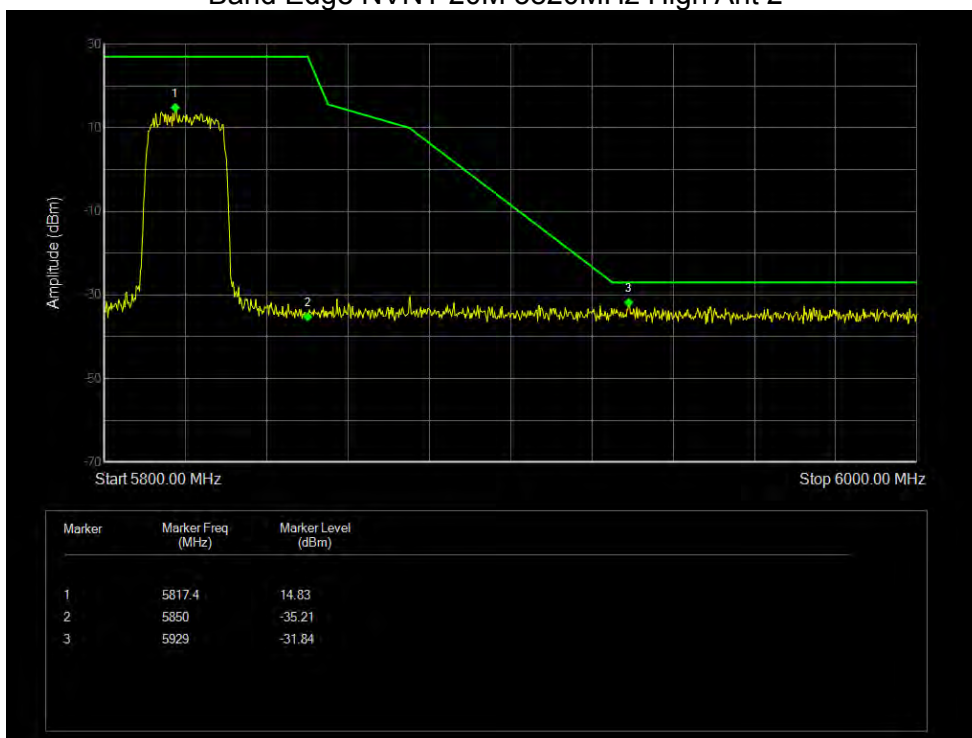
Band Edge NVNT 20M 5820MHz High Ant 1



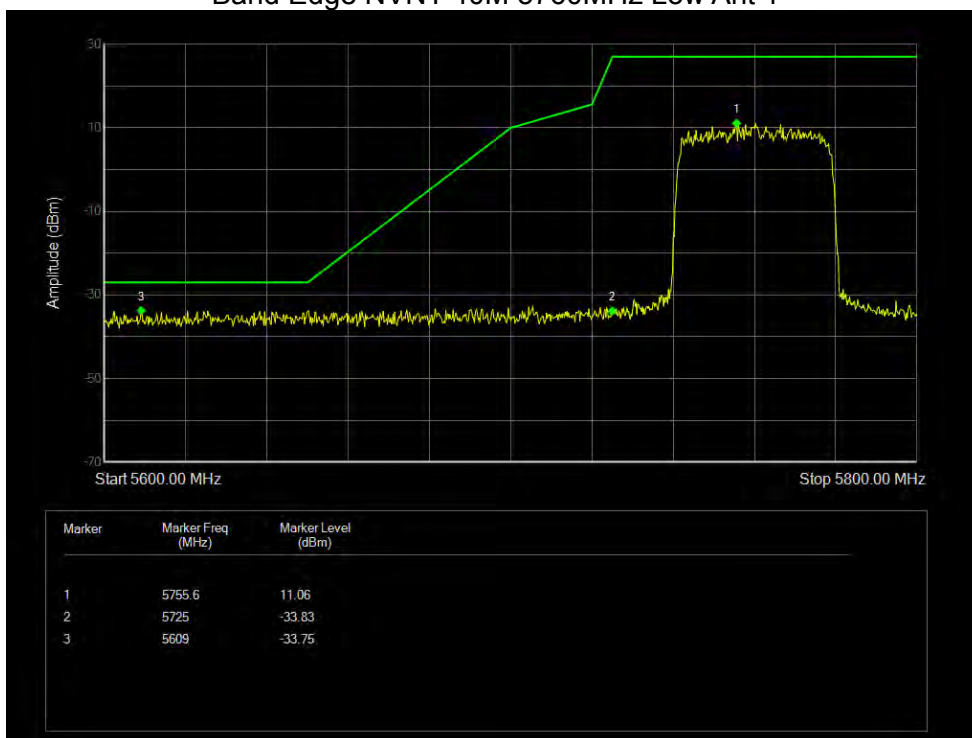
Band Edge NVNT 20M 5740MHz Low Ant 2



Band Edge NVNT 20M 5820MHz High Ant 2



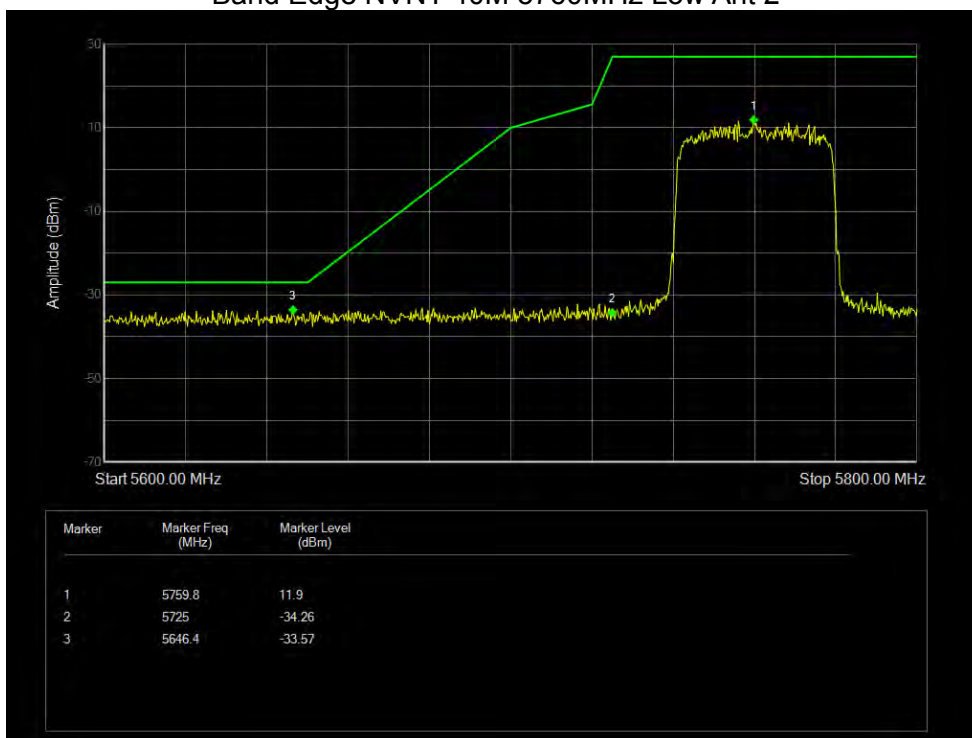
Band Edge NVNT 40M 5760MHz Low Ant 1



Band Edge NVNT 40M 5820MHz High Ant 1



Band Edge NVNT 40M 5760MHz Low Ant 2



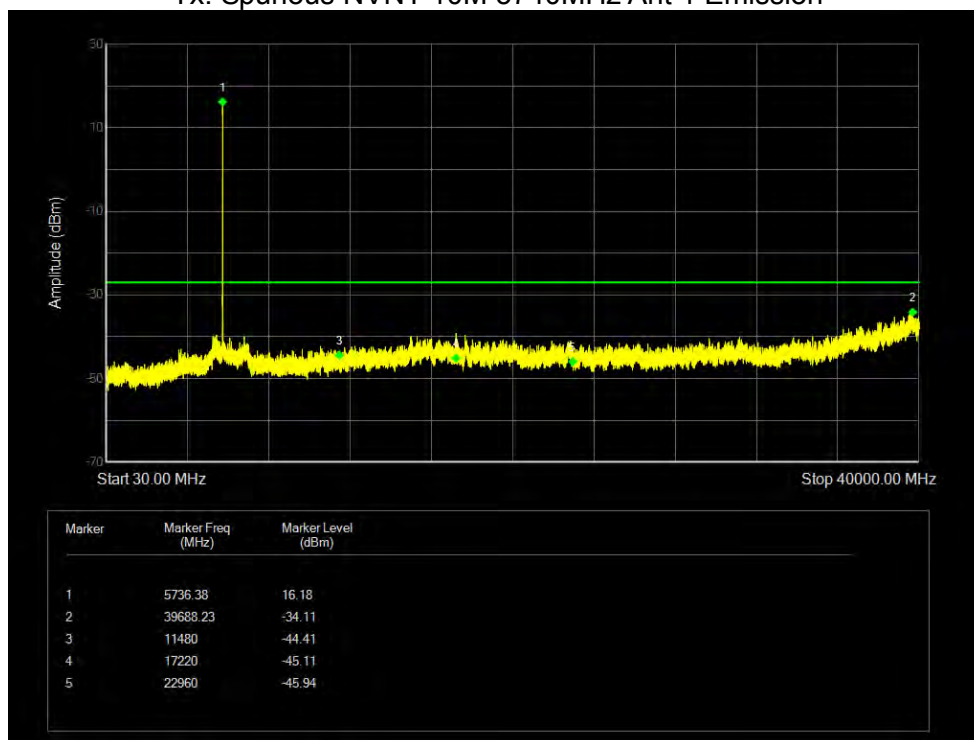
Band Edge NVNT 40M 5820MHz High Ant 2



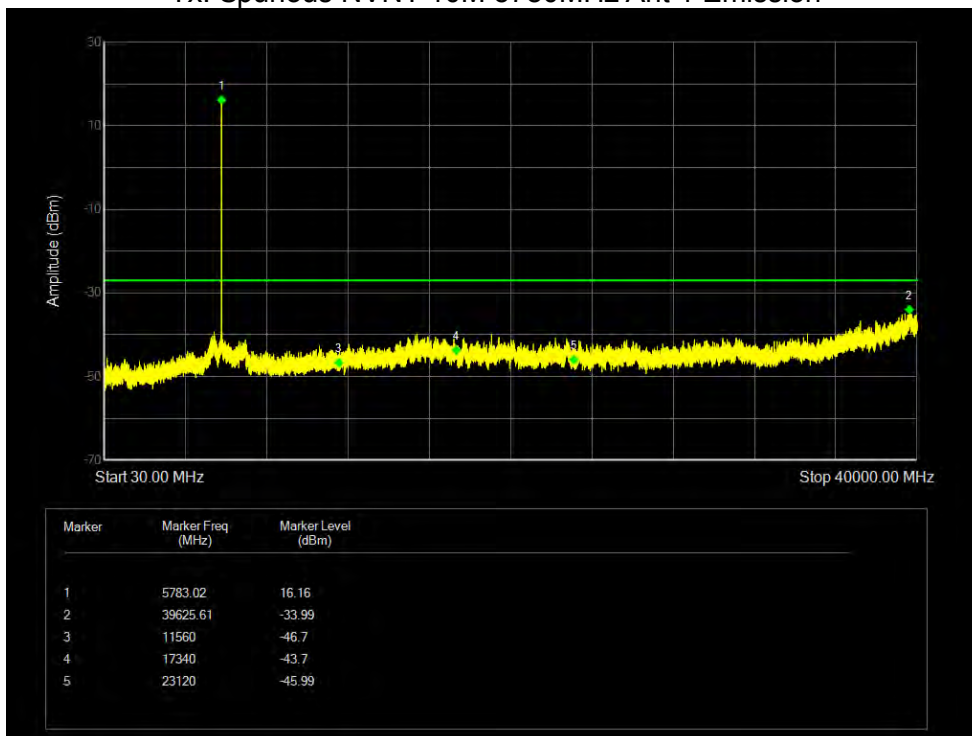
11.1.6 CONDUCTED RF SPURIOUS EMISSION

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	10M	5740	Ant 1	-34.11	-27	Pass
NVNT	10M	5780	Ant 1	-33.99	-27	Pass
NVNT	10M	5820	Ant 1	-34.02	-27	Pass
NVNT	10M	5740	Ant 2	-34.27	-27	Pass
NVNT	10M	5780	Ant 2	-33.77	-27	Pass
NVNT	10M	5820	Ant 2	-34	-27	Pass
NVNT	20M	5740	Ant 1	-33.57	-27	Pass
NVNT	20M	5780	Ant 1	-33.51	-27	Pass
NVNT	20M	5820	Ant 1	-33.27	-27	Pass
NVNT	20M	5740	Ant 2	-34.11	-27	Pass
NVNT	20M	5780	Ant 2	-33.98	-27	Pass
NVNT	20M	5820	Ant 2	-34.5	-27	Pass
NVNT	40M	5760	Ant 1	-33.76	-27	Pass
NVNT	40M	5780	Ant 1	-33.83	-27	Pass
NVNT	40M	5820	Ant 1	-33.22	-27	Pass
NVNT	40M	5760	Ant 2	-34.41	-27	Pass
NVNT	40M	5780	Ant 2	-33.75	-27	Pass
NVNT	40M	5820	Ant 2	-34.19	-27	Pass

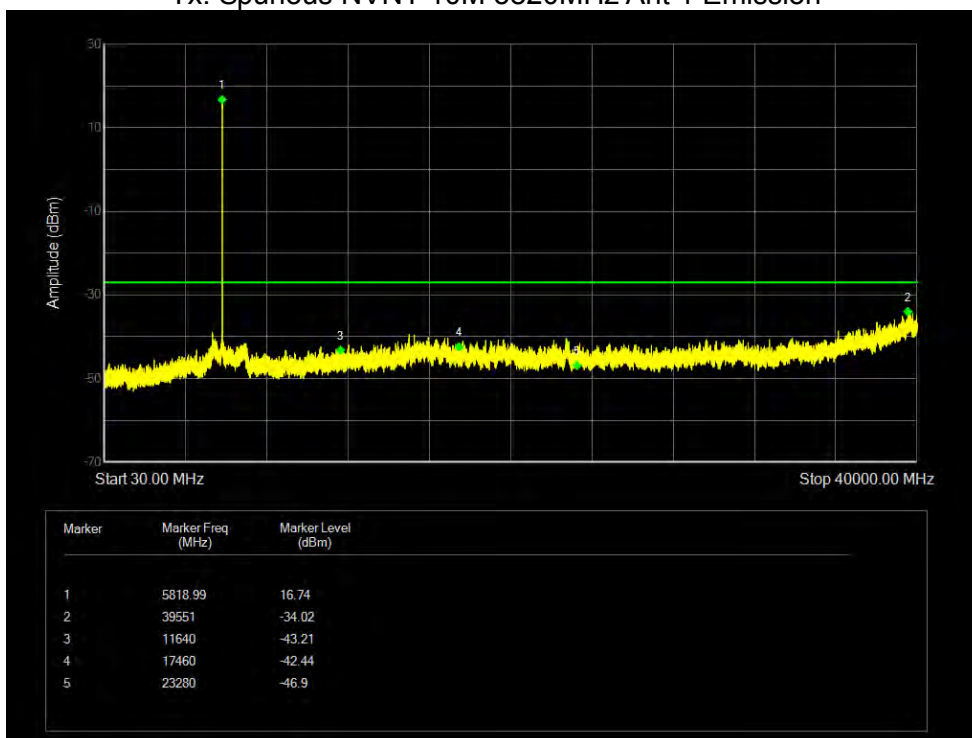
Tx. Spurious NVNT 10M 5740MHz Ant 1 Emission



Tx. Spurious NVNT 10M 5780MHz Ant 1 Emission



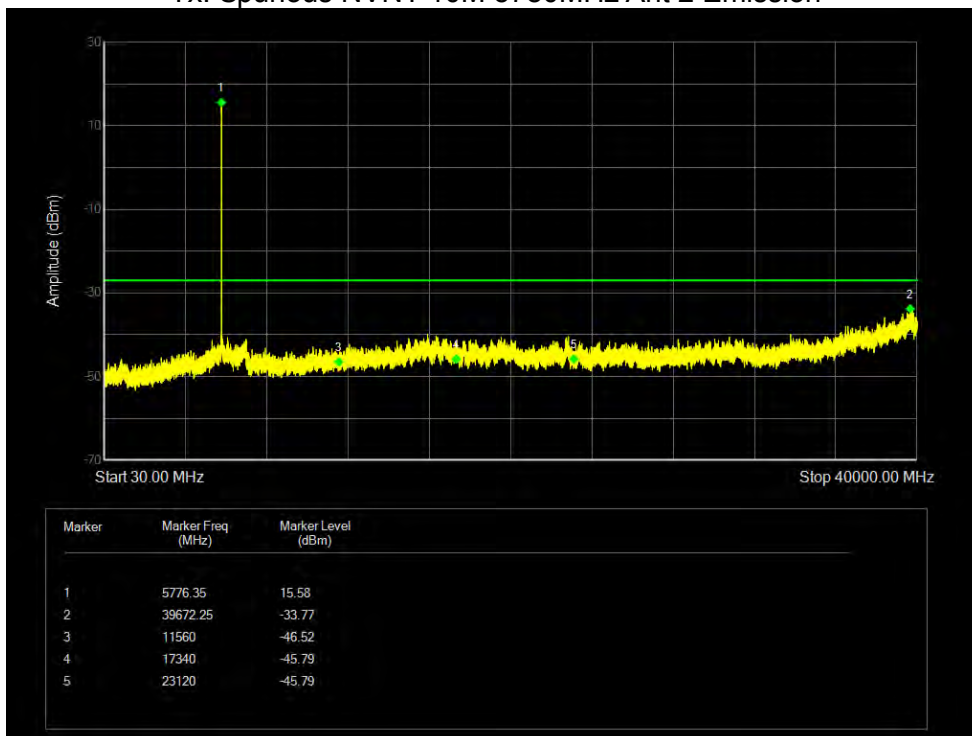
Tx. Spurious NVNT 10M 5820MHz Ant 1 Emission



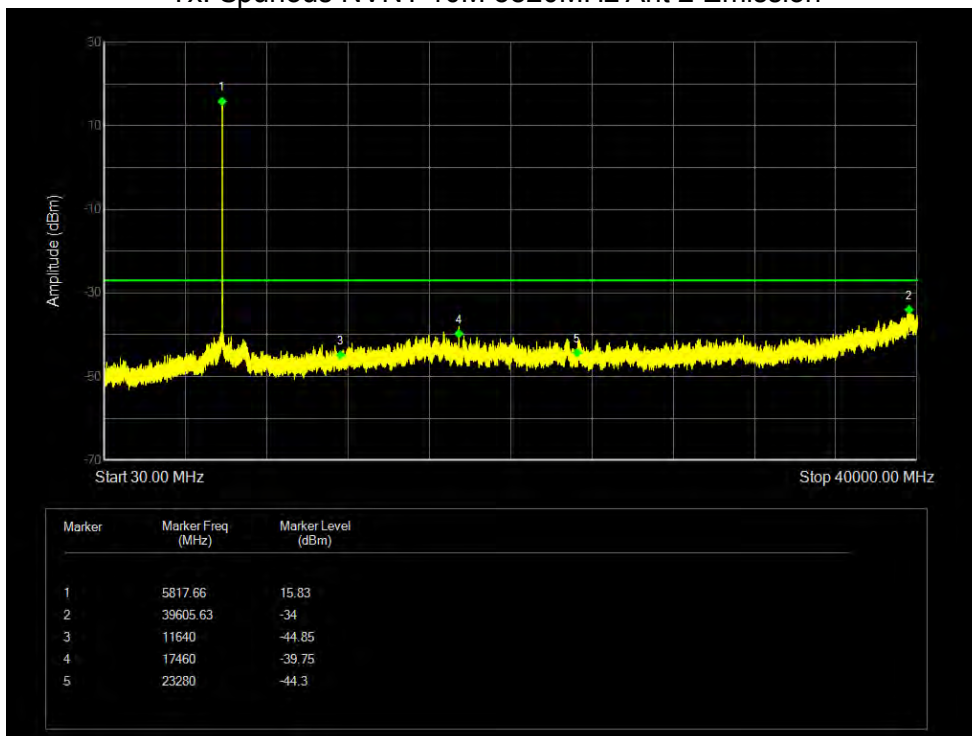
Tx. Spurious NVNT 10M 5740MHz Ant 2 Emission



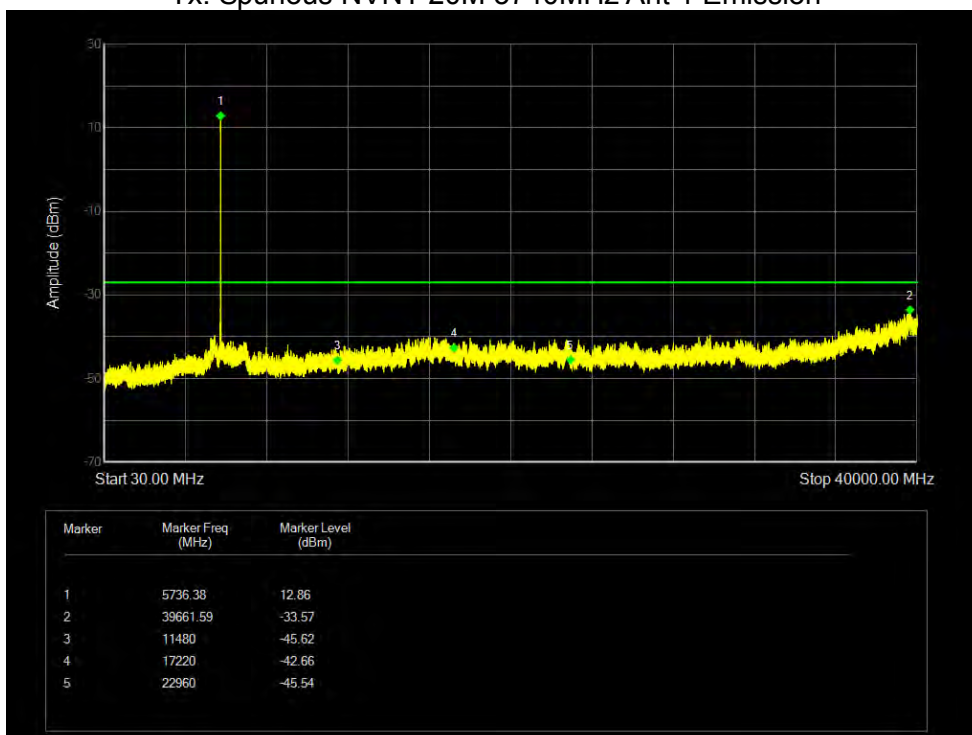
Tx. Spurious NVNT 10M 5780MHz Ant 2 Emission



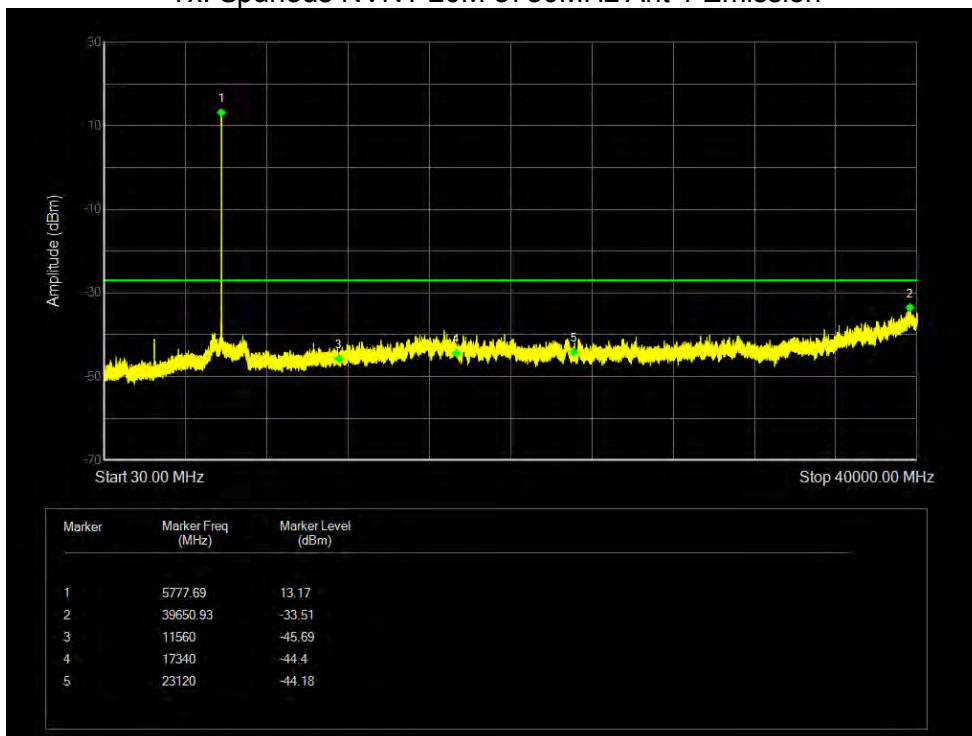
Tx. Spurious NVNT 10M 5820MHz Ant 2 Emission



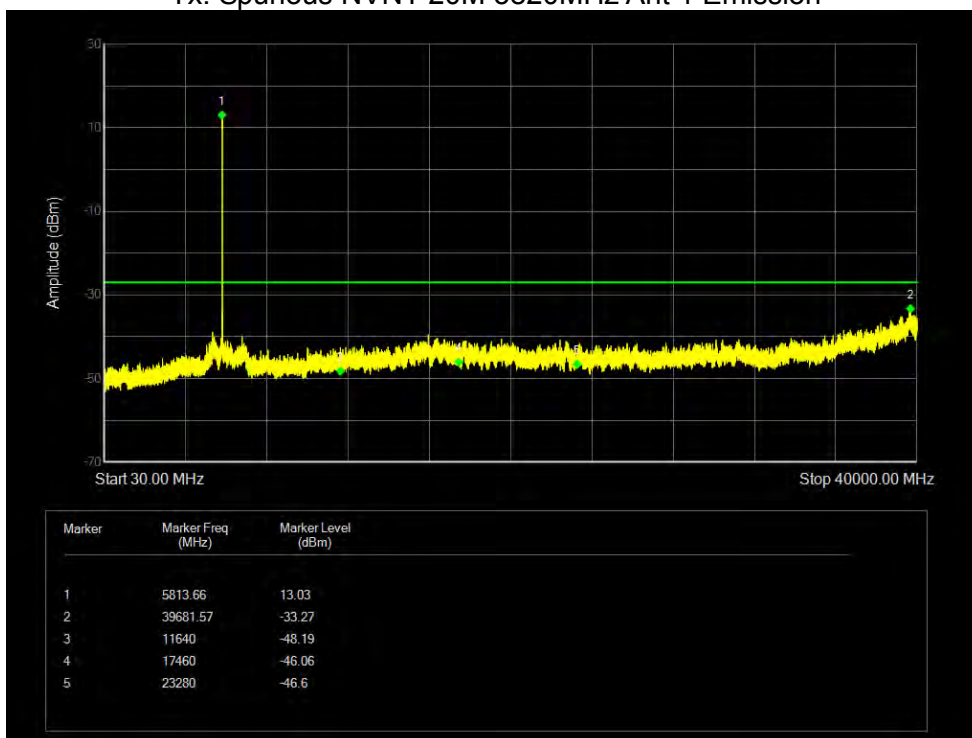
Tx. Spurious NVNT 20M 5740MHz Ant 1 Emission



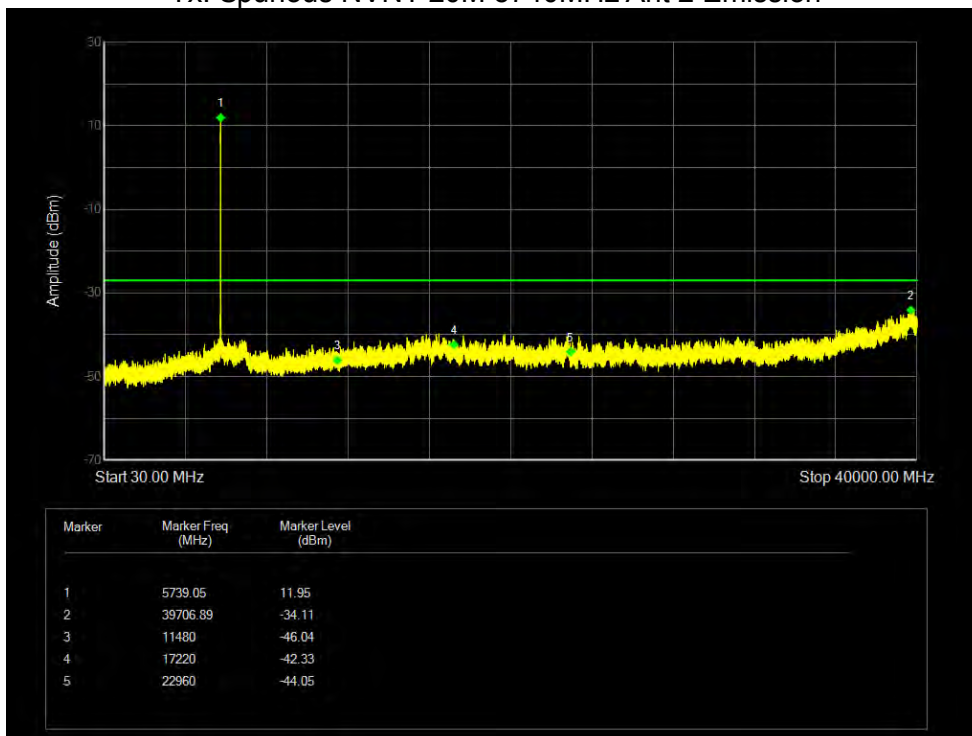
Tx. Spurious NVNT 20M 5780MHz Ant 1 Emission



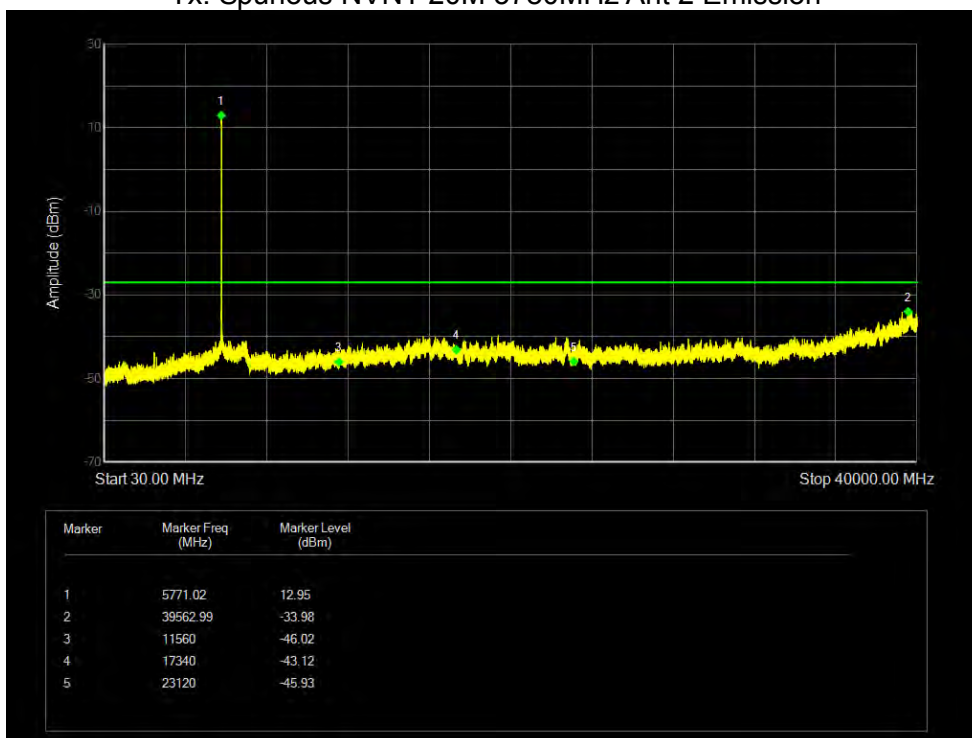
Tx. Spurious NVNT 20M 5820MHz Ant 1 Emission



Tx. Spurious NVNT 20M 5740MHz Ant 2 Emission



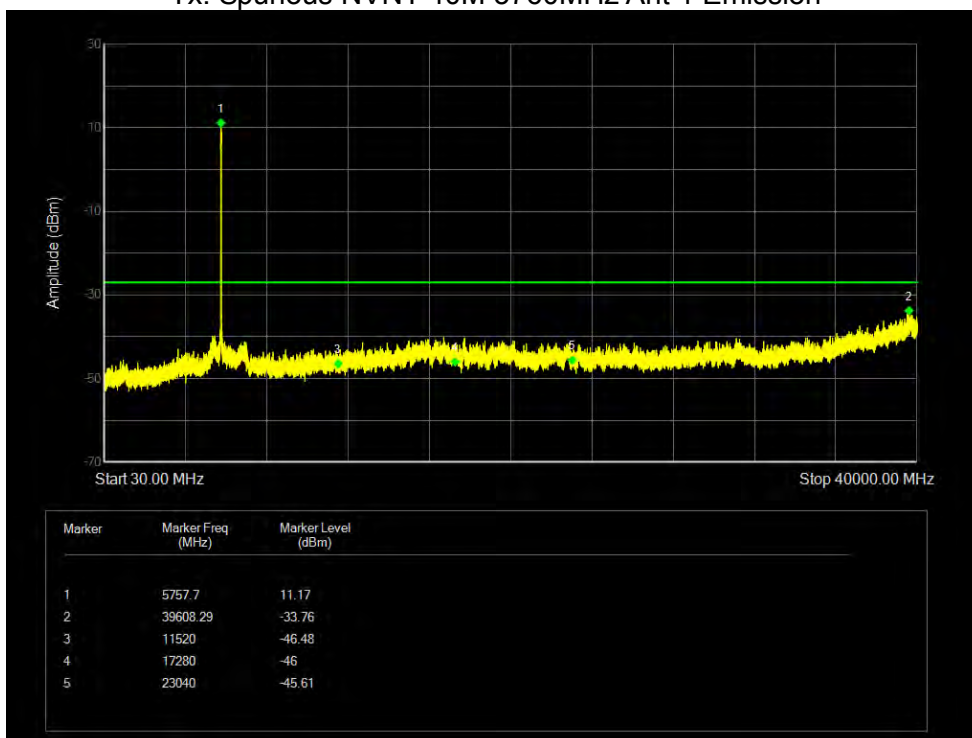
Tx. Spurious NVNT 20M 5780MHz Ant 2 Emission



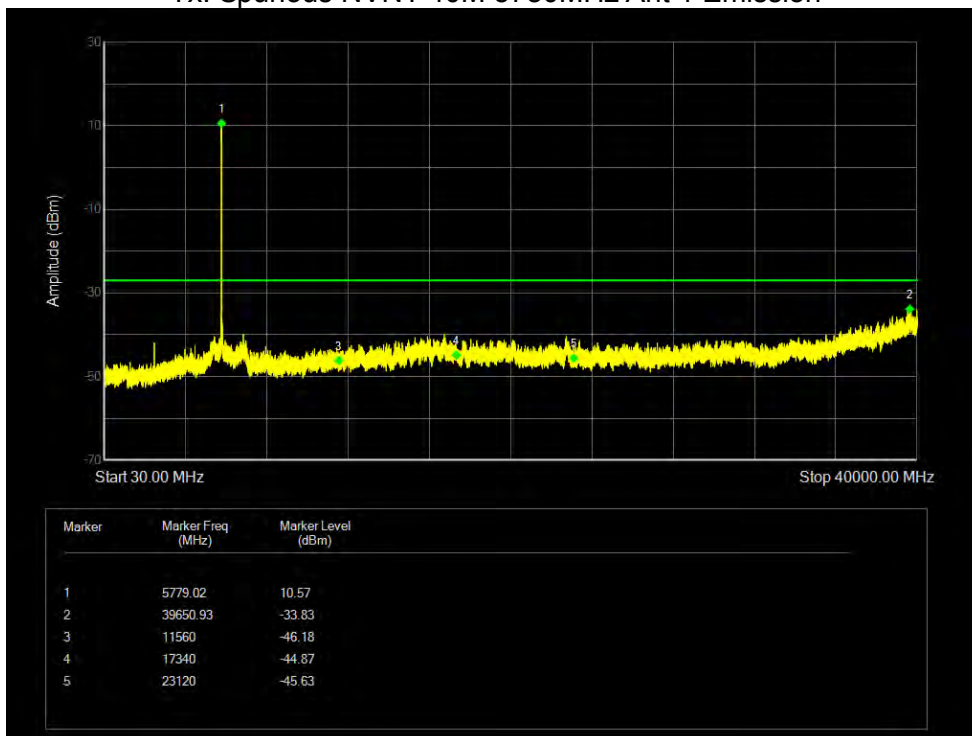
Tx. Spurious NVNT 20M 5820MHz Ant 2 Emission



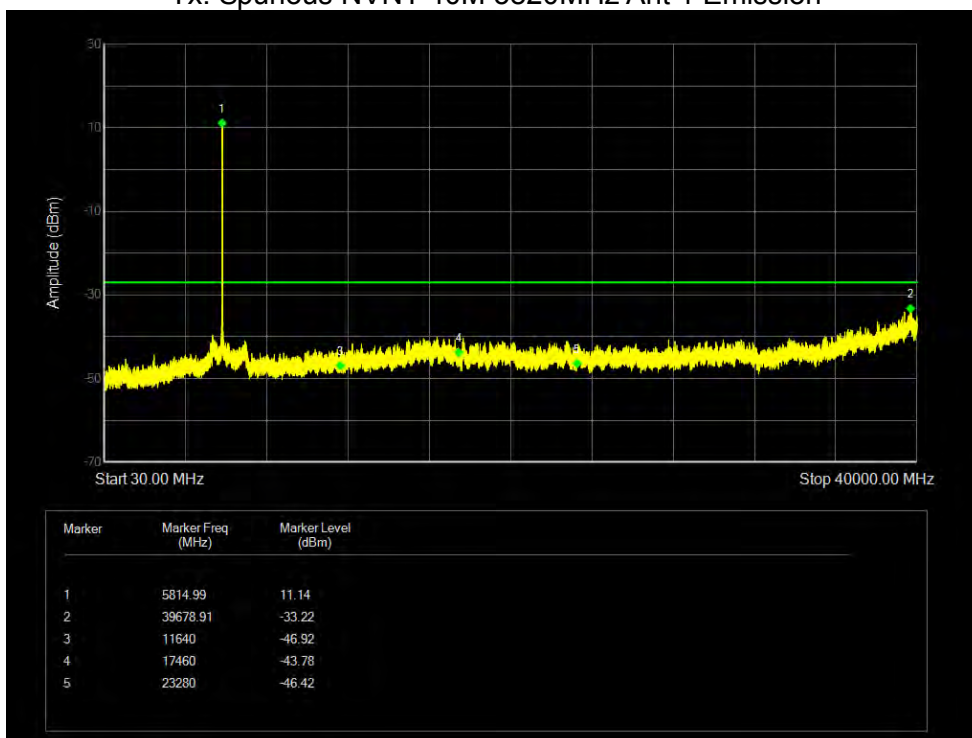
Tx. Spurious NVNT 40M 5760MHz Ant 1 Emission



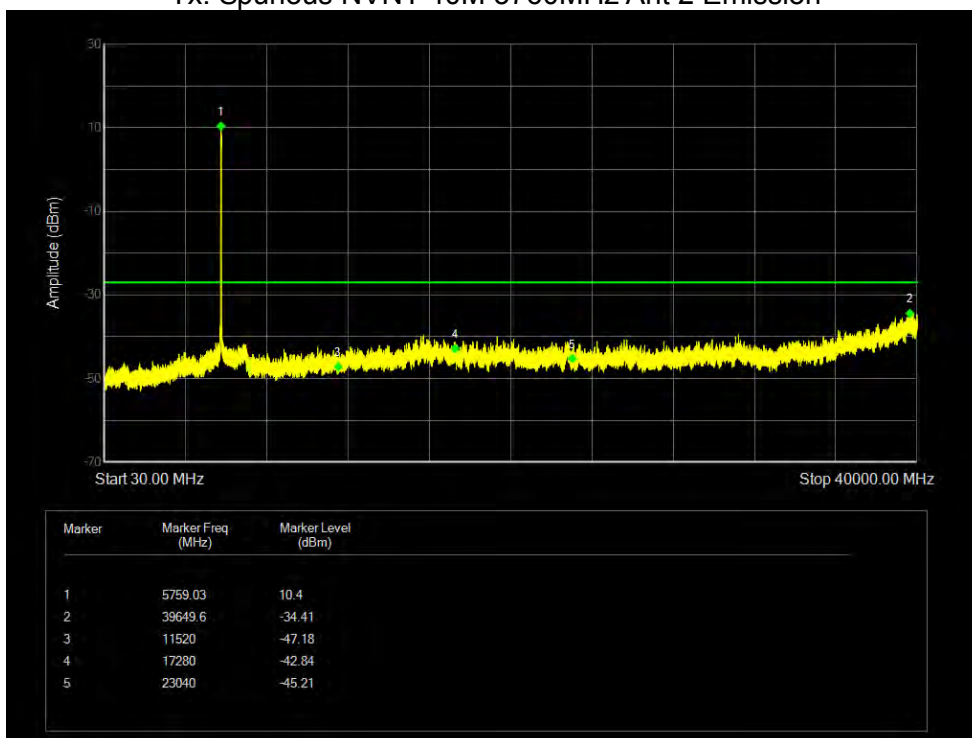
Tx. Spurious NVNT 40M 5780MHz Ant 1 Emission



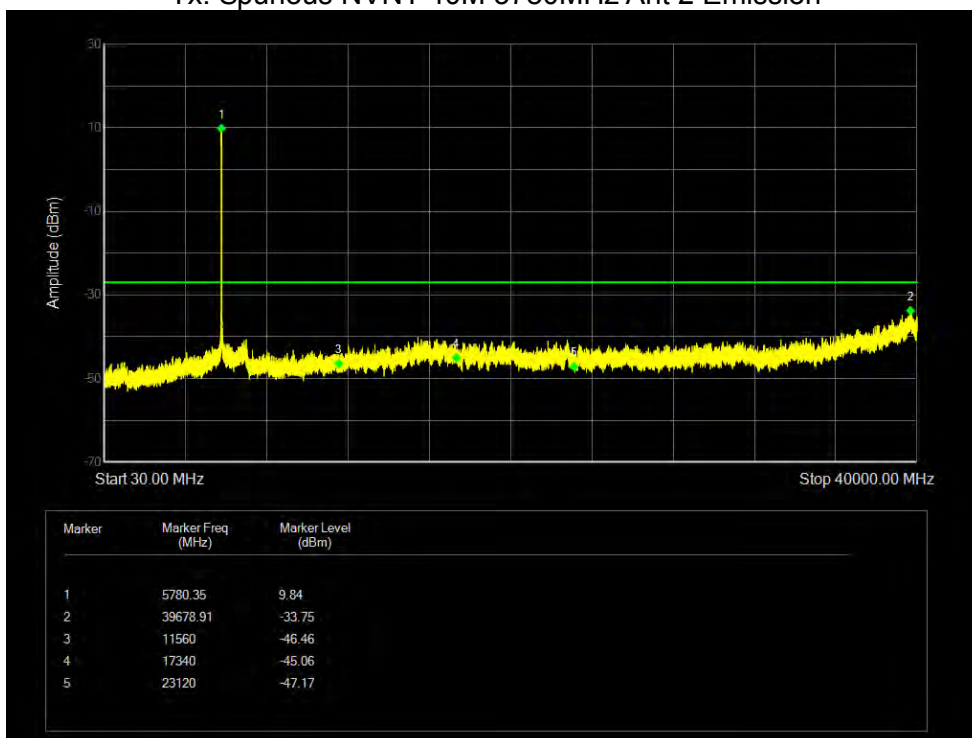
Tx. Spurious NVNT 40M 5820MHz Ant 1 Emission



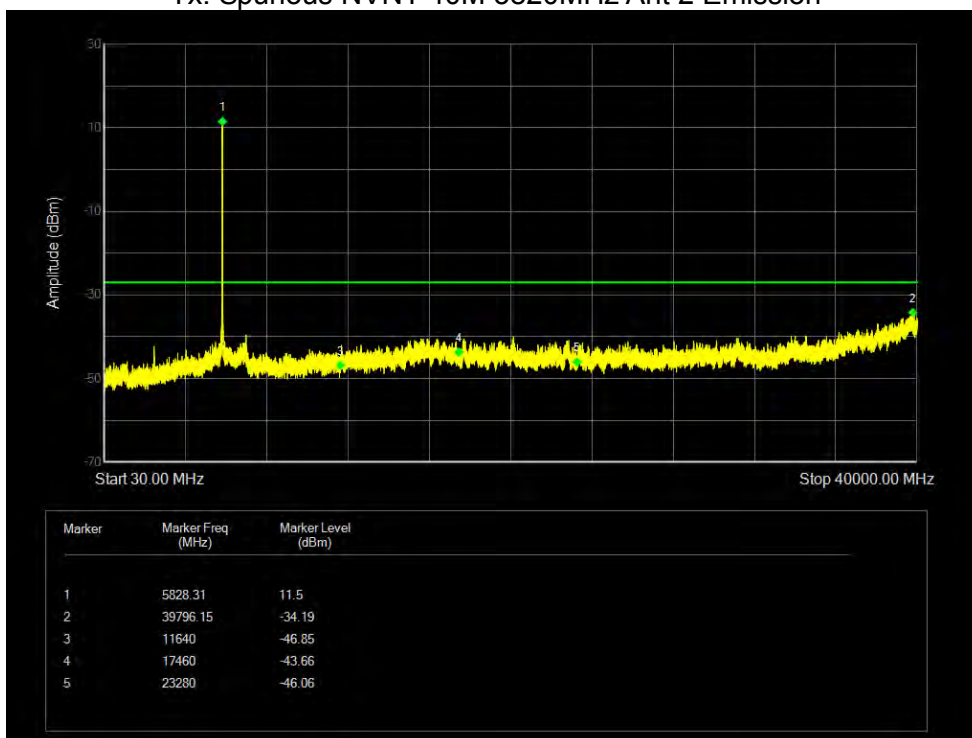
Tx. Spurious NVNT 40M 5760MHz Ant 2 Emission



Tx. Spurious NVNT 40M 5780MHz Ant 2 Emission



Tx. Spurious NVNT 40M 5820MHz Ant 2 Emission

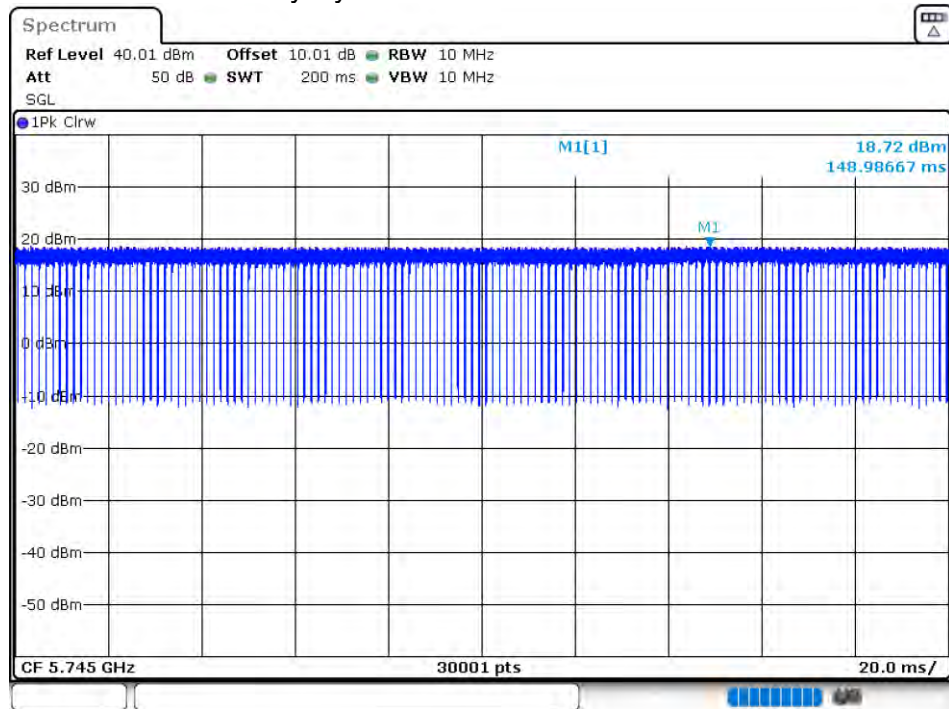


11.2 5.8G WIFI

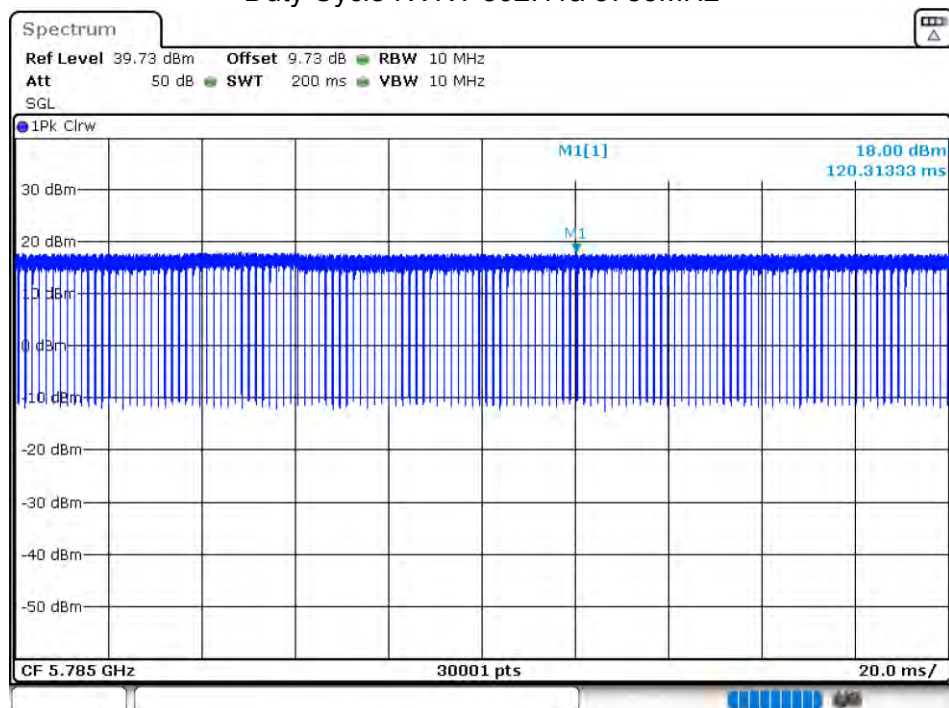
11.2.1 DUTY CYCLE

Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)
NVNT	802.11a	5745	93.62	0.29
NVNT	802.11a	5785	93.62	0.29
NVNT	802.11a	5825	93.67	0.28

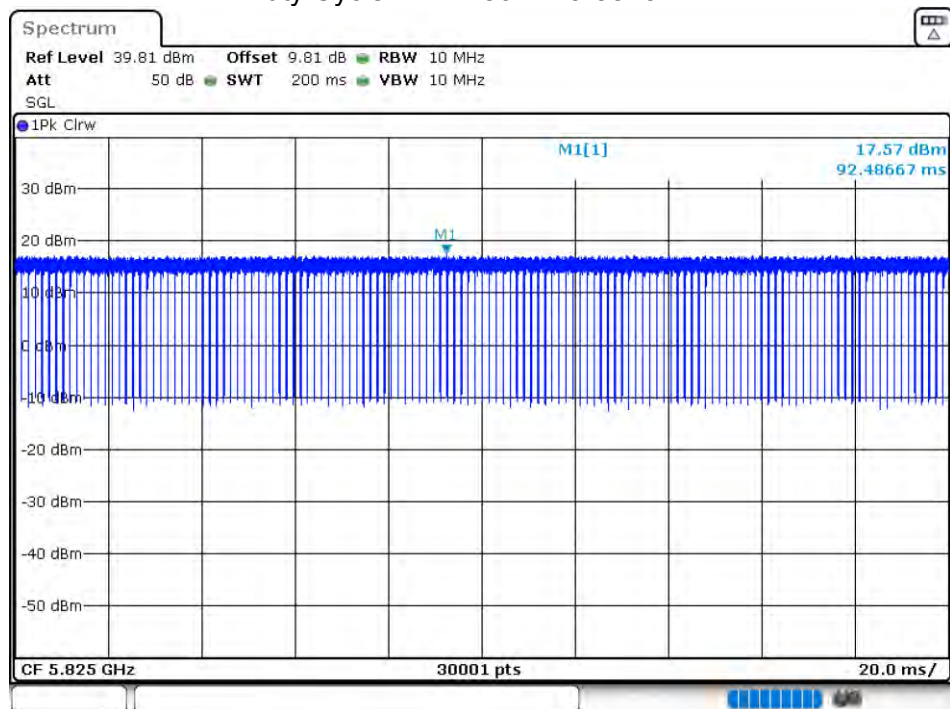
Duty Cycle NVNT 802.11a 5745MHz



Duty Cycle NVNT 802.11a 5785MHz



Duty Cycle NVNT 802.11a 5825MHz



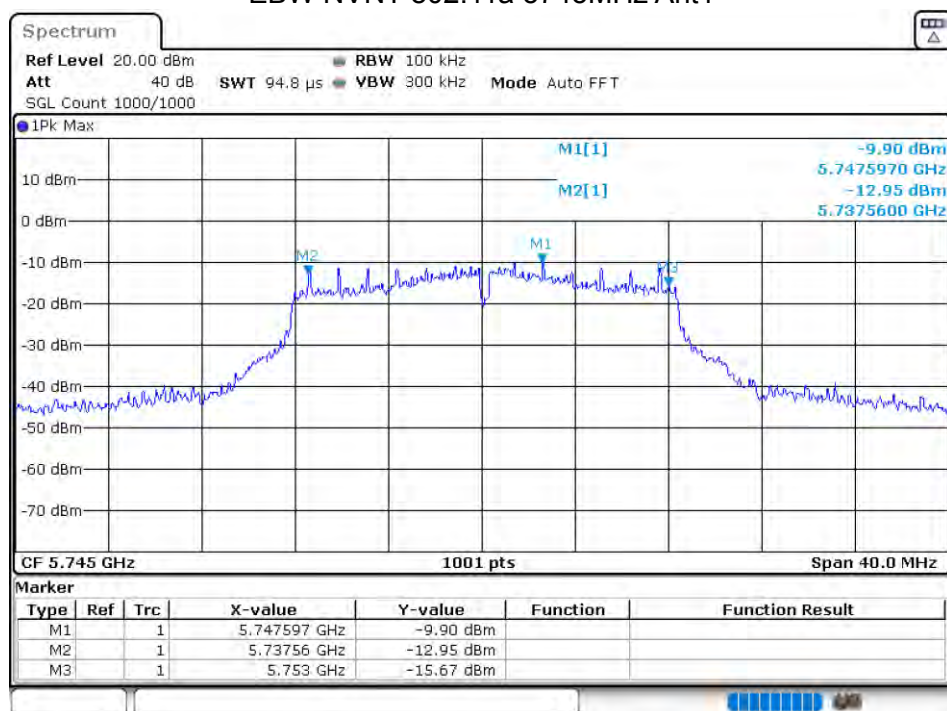
11.2.2 MAXIMUM CONDUCTED OUTPUT POWER

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	802.11a	5745	Ant 1	9.47	0.29	9.76	30	Pass
NVNT	802.11a	5785	Ant 1	8.67	0.29	8.96	30	Pass
NVNT	802.11a	5825	Ant 1	8.65	0.28	8.93	30	Pass

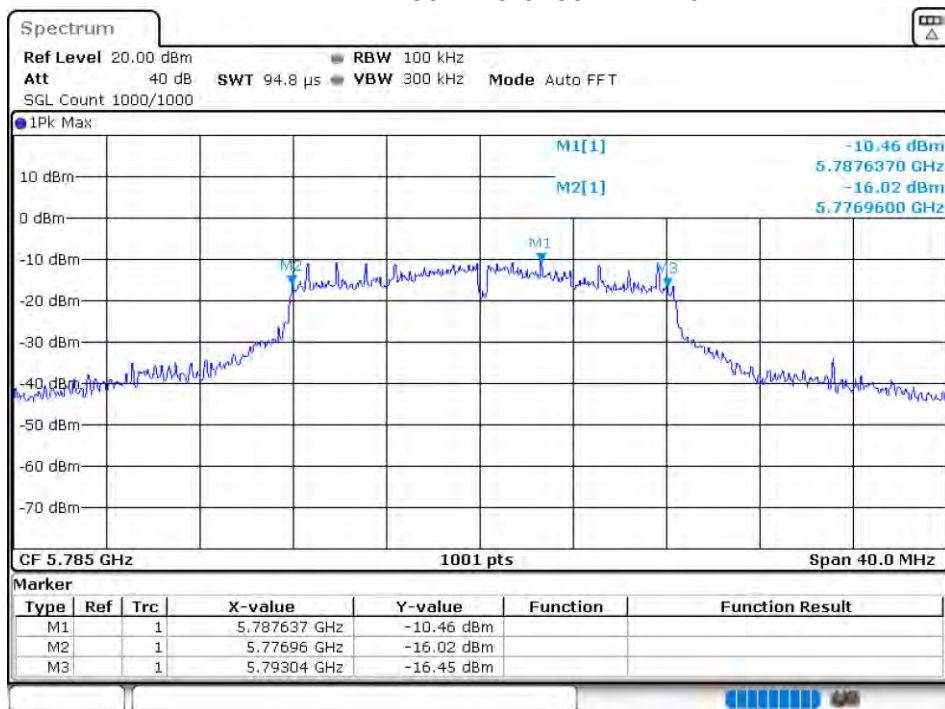
11.2.3 -6dB Emission Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	802.11a	5745	Ant 1	15.44	0.5	Pass
NVNT	802.11a	5785	Ant 1	16.08	0.5	Pass
NVNT	802.11a	5825	Ant 1	16.08	0.5	Pass

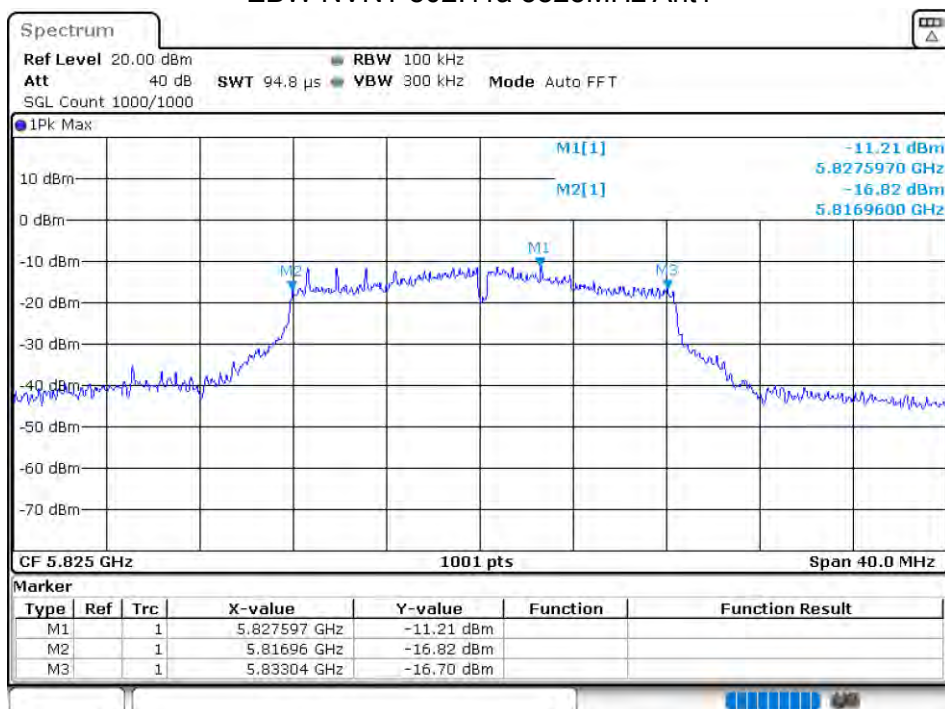
EBW NVNT 802.11a 5745MHz Ant1



EBW NVNT 802.11a 5785MHz Ant1



EBW NVNT 802.11a 5825MHz Ant1



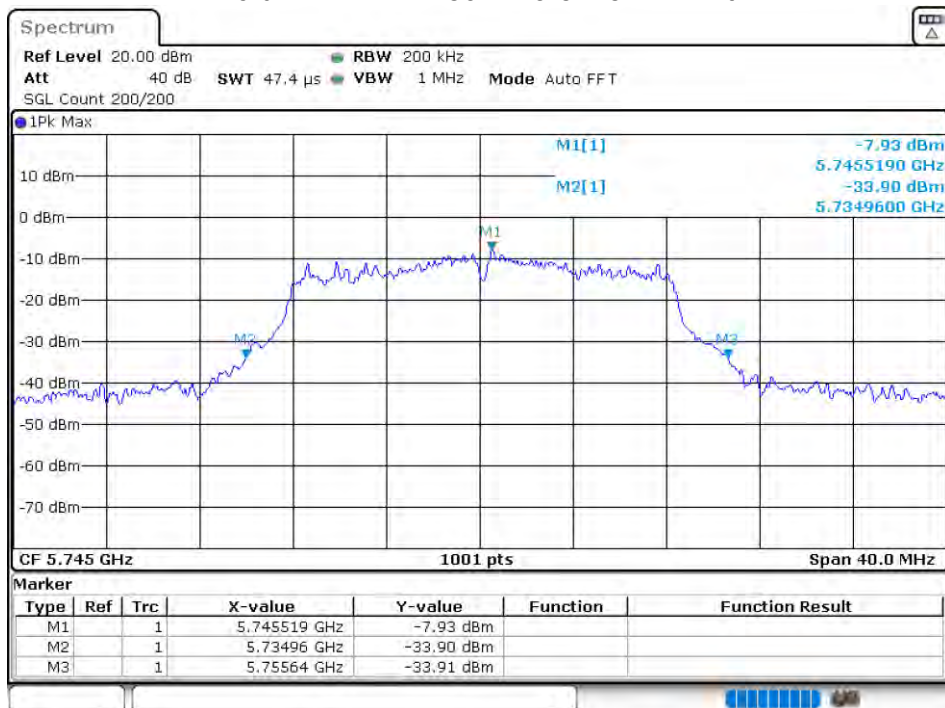
11.2.3 OCCUPIED CHANNEL BANDWIDTH

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	-26 dB Bandwidth (MHz)	Verdict
NVNT	802.11a	5745	Ant 1	16.6633	20.68	Pass
NVNT	802.11a	5785	Ant 1	16.6633	21.04	Pass
NVNT	802.11a	5825	Ant 1	16.7433	20.8	Pass

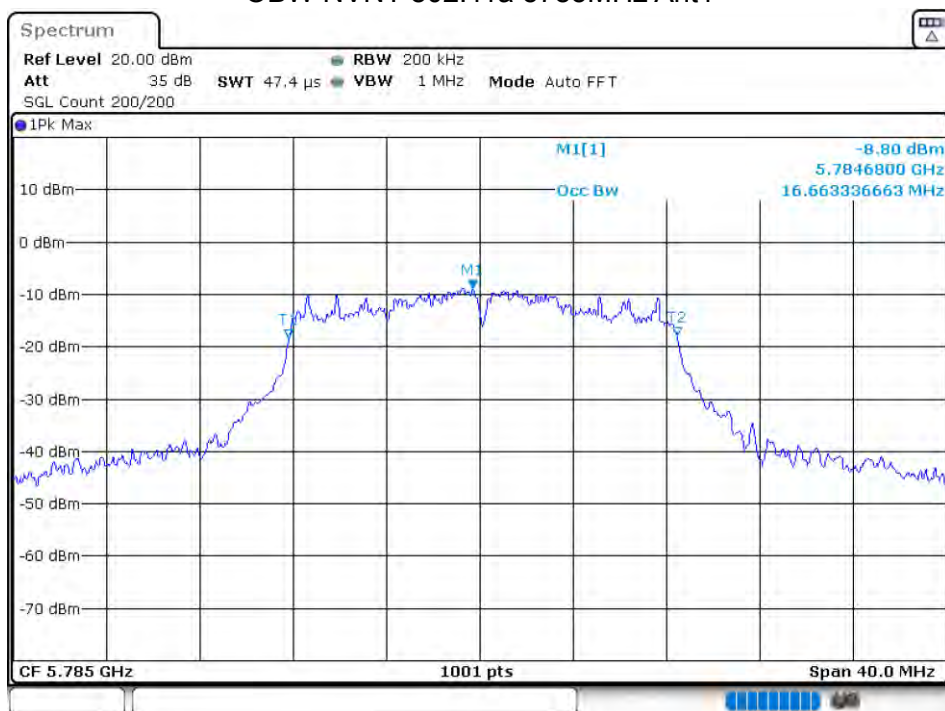
OBW NVNT 802.11a 5745MHz Ant1



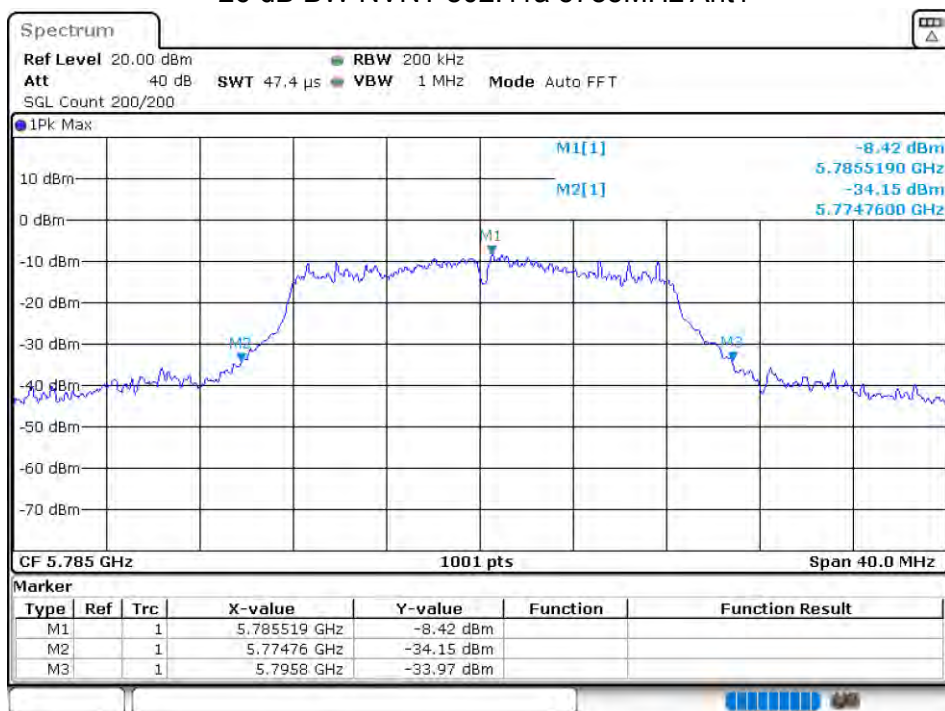
-26 dB BW NVNT 802.11a 5745MHz Ant1



OBW NVNT 802.11a 5785MHz Ant1



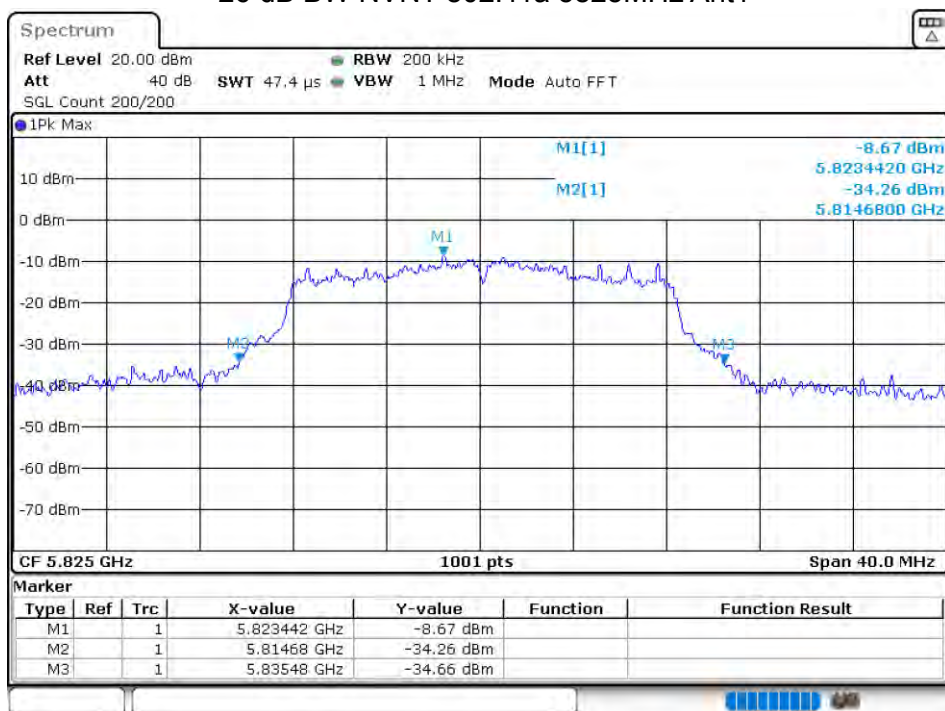
-26 dB BW NVNT 802.11a 5785MHz Ant1



OBW NVNT 802.11a 5825MHz Ant1



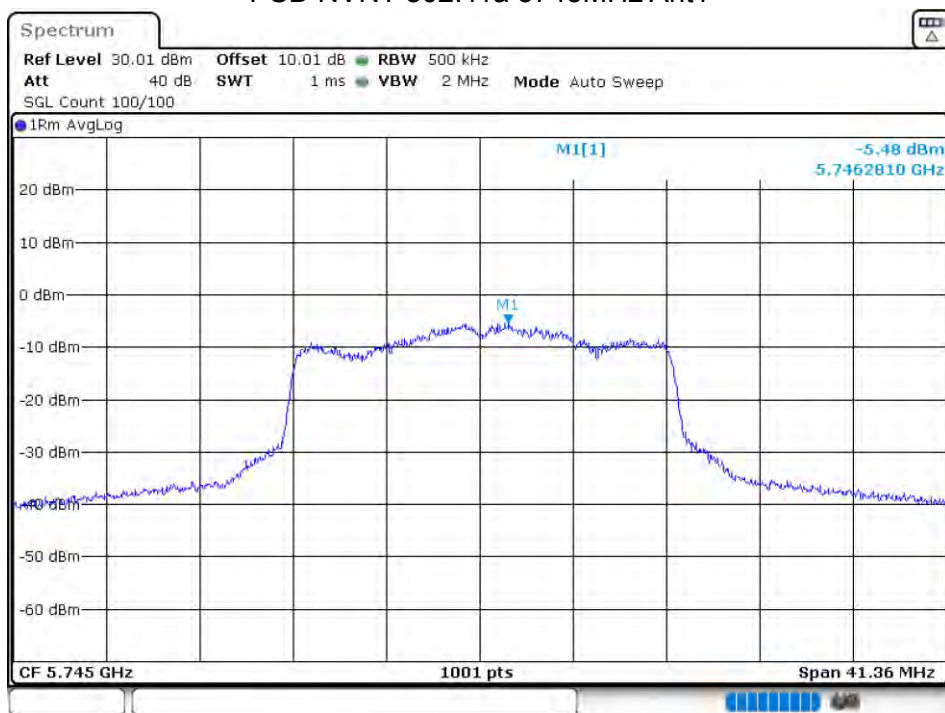
-26 dB BW NVNT 802.11a 5825MHz Ant1



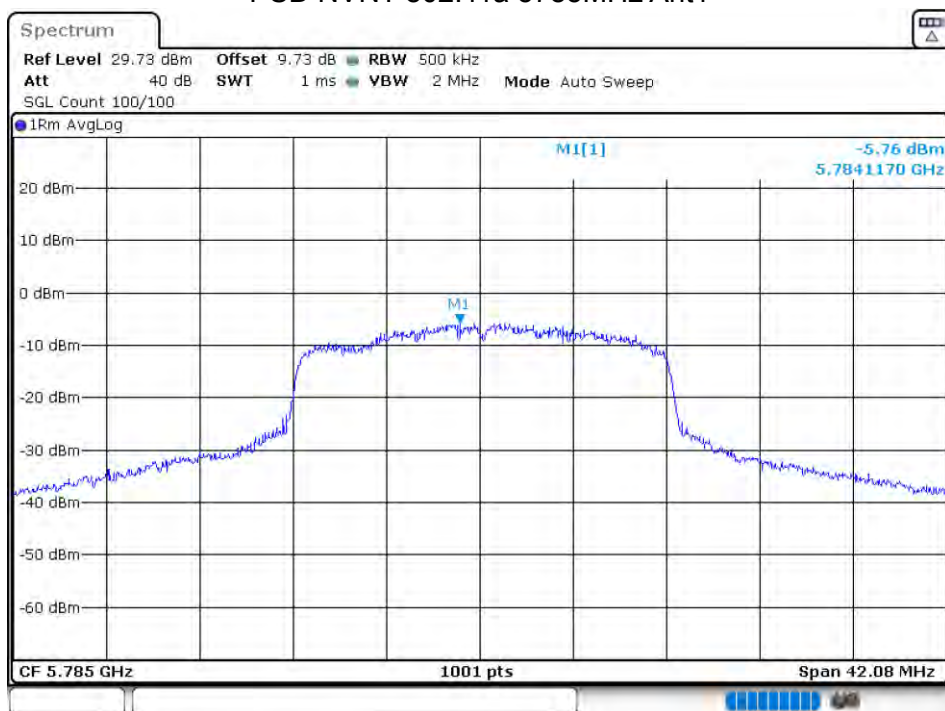
11.2.4 MAXIMUM POWER SPECTRAL DENSITY LEVEL

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
NVNT	802.11a	5745	Ant 1	-5.485	0.29	-5.195	30	Pass
NVNT	802.11a	5785	Ant 1	-5.76	0.29	-5.47	30	Pass
NVNT	802.11a	5825	Ant 1	-4.565	0.28	-4.285	30	Pass

PSD NVNT 802.11a 5745MHz Ant1



PSD NVNT 802.11a 5785MHz Ant1



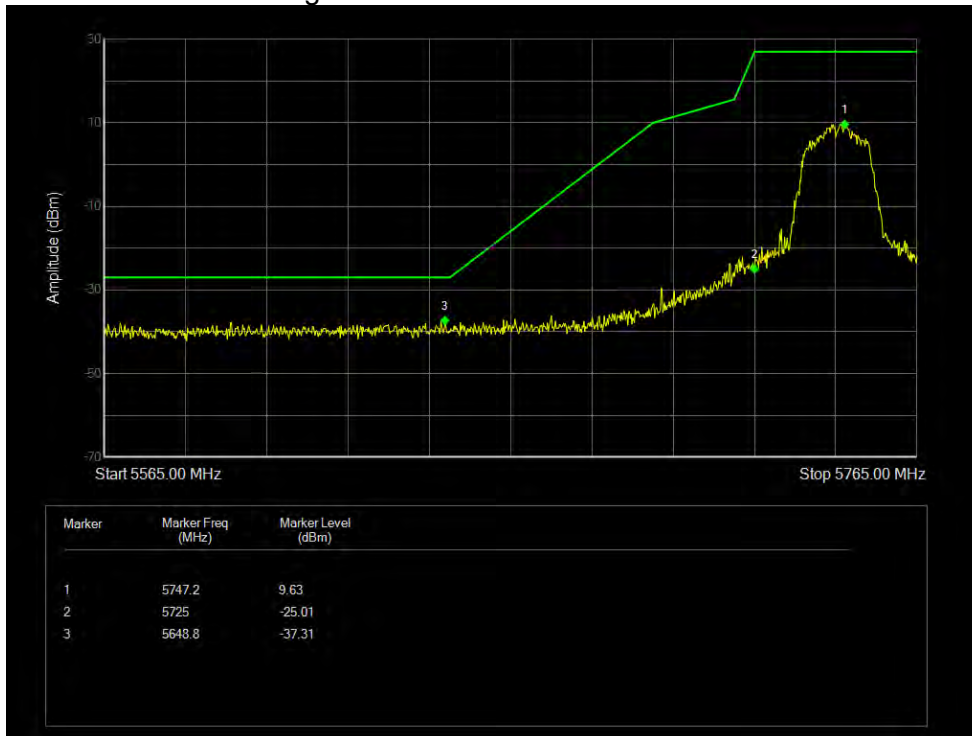
PSD NVNT 802.11a 5825MHz Ant1



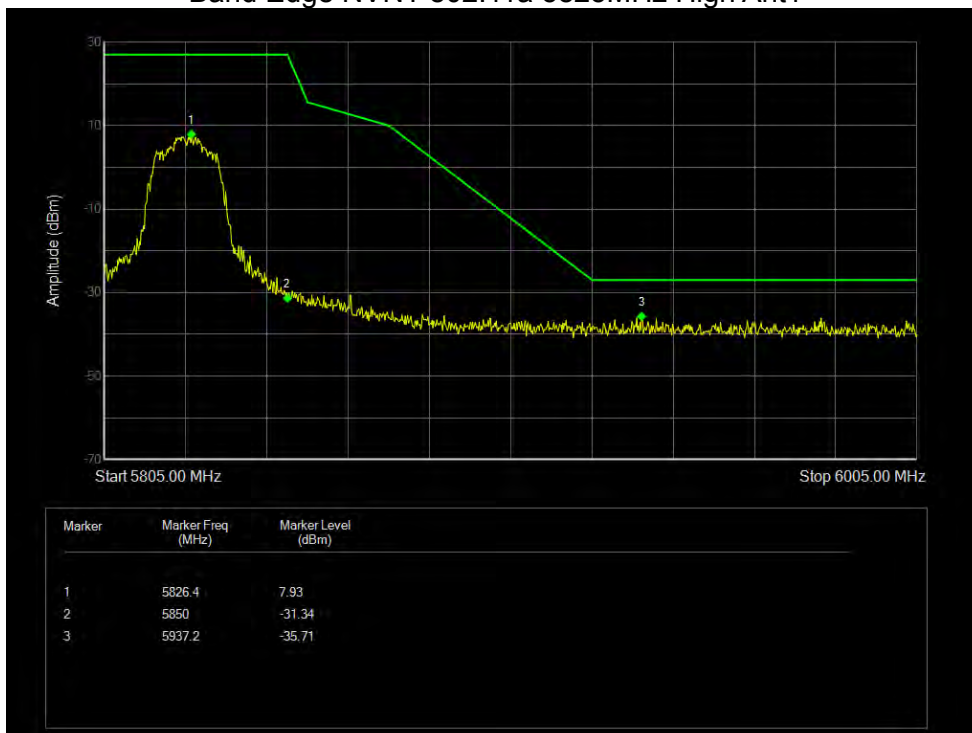
11.2.5 BAND EDGE

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBm)	Limit (dBm)	Verdict
NVNT	802.11a	5745	Ant 1	-37.31	-27	Pass
NVNT	802.11a	5825	Ant 1	-35.71	-27	Pass

Band Edge NVNT 802.11a 5745MHz Low Ant1



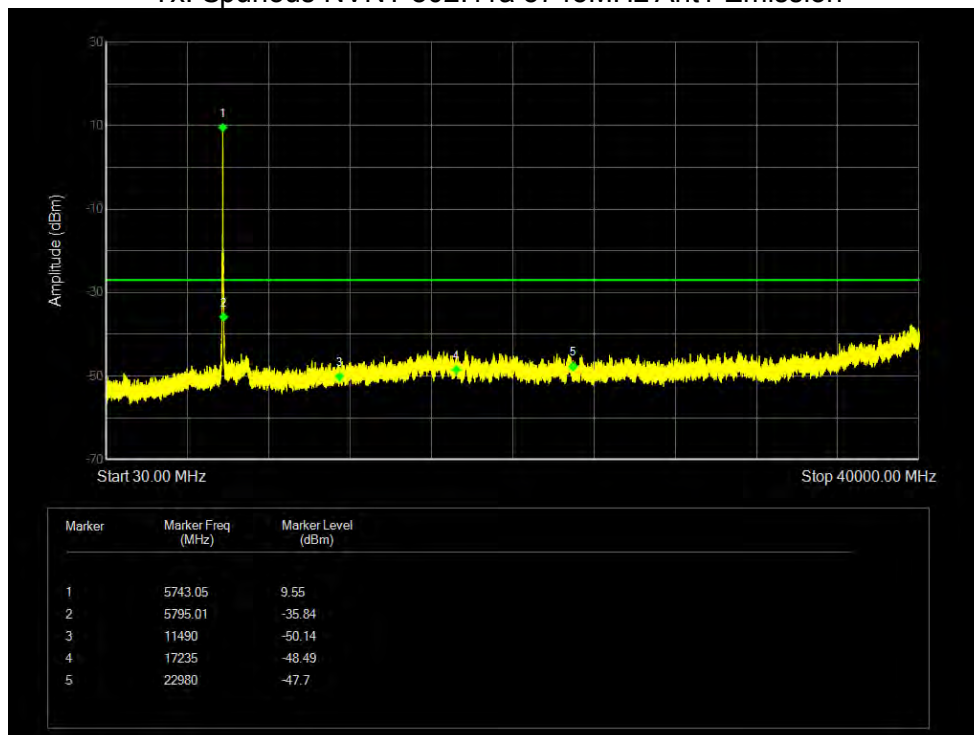
Band Edge NVNT 802.11a 5825MHz High Ant1



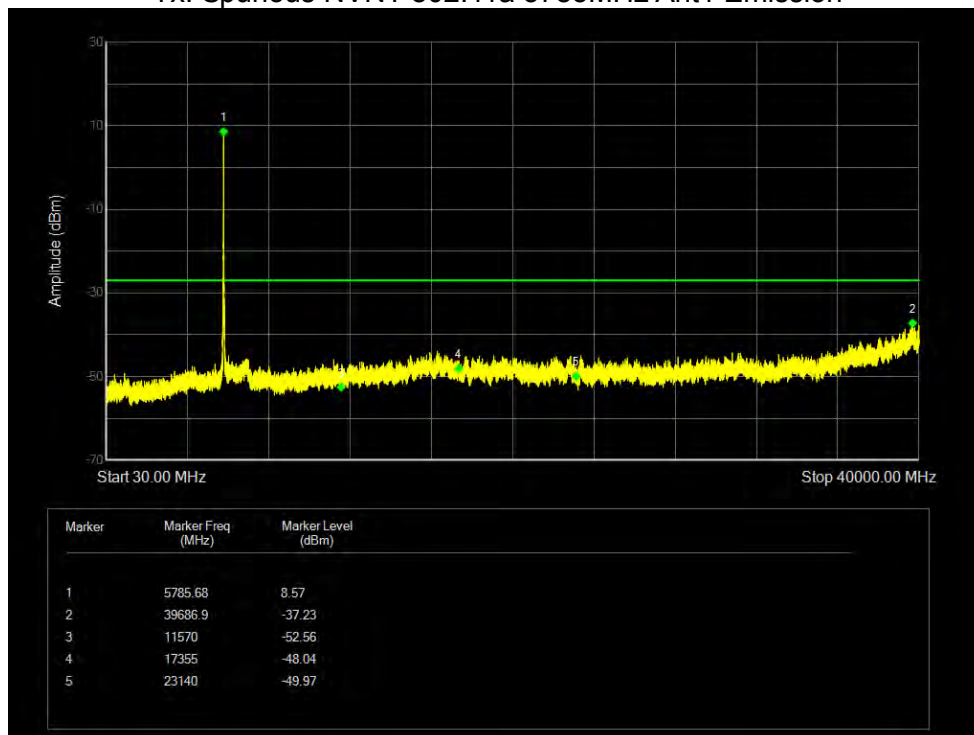
11.2.6 CONDUCTED RF SPURIOUS EMISSION

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11a	5745	Ant 1	-35.84	-27	Pass
NVNT	802.11a	5785	Ant 1	-37.23	-27	Pass
NVNT	802.11a	5825	Ant 1	-38.01	-27	Pass

Tx. Spurious NVNT 802.11a 5745MHz Ant1 Emission



Tx. Spurious NVNT 802.11a 5785MHz Ant1 Emission



Tx. Spurious NVNT 802.11a 5825MHz Ant1 Emission



END OF REPORT