

TEST REPORT

FCC ID..... :	2AI62-W105	
Test Report No..... :	TCT250407E054	
Date of issue..... :	May 22, 2025	
Testing laboratory	SHENZHEN TONGCE TESTING LAB	
Testing location/ address:	2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China	
Applicant's name..... :	SOTEN TECHNOLOGY (HONGKONG) CO., LIMITED	
Address..... :	FLAT/RM A10 9/F SILVERCORP INTERNATIONAL TOWER, 707-713 NATHAN ROAD MONGKOK KL, Hong Kong	
Manufacturer's name ... :	Shenzhen SOTEN Technology Co., Ltd	
Address..... :	10th Floor, 2nd Building, BaiWang Research and development building, No. 5308 Shahe west road, Xili, Nanshan district, ShenZhen, China	
Standard(s)	FCC CFR Title 47 Part 15 Subpart E Section 15.407 KDB 662911 D01 Multiple Transmitter Output v02r01 KDB 789033 D02 General U-NII Test Procedures New Rules v02r01	
Product Name..... :	RUGGED TABLET PC	
Trade Mark	HUGEROCK	
Model/Type reference..... :	W105	
Rating(s)..... :	Refer to EUT description of page 3	
Date of receipt of test item	Apr. 07, 2025	
Date (s) of performance of test..... :	Apr. 07, 2025 ~ May 22, 2025	
Tested by (+signature) ... :	Aaron MO	
Check by (+signature).... :	Beryl ZHAO	
Approved by (+signature):	Tomsin	

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TABLE OF CONTENTS

1. General Product Information	3
1.1. EUT description	3
1.2. Model(s) list.....	3
1.3. Test Frequency	4
2. Test Result Summary	5
3. General Information.....	6
3.1. Test environment and mode.....	6
3.2. Description of Support Units	7
4. Facilities and Accreditations	8
4.1. Facilities	8
4.2. Location	8
5. Measurement Uncertainty	8
6. Test Results and Measurement Data	9
6.1. Antenna requirement	9
6.2. Conducted Emission	10
6.3. Maximum Conducted Output Power	14
6.4. 6dB Emission Bandwidth.....	16
6.5. 26dB Bandwidth and 99% Occupied Bandwidth	17
6.6. Power Spectral Density.....	18
6.7. Band edge	20
6.8. Unwanted Emissions	28
6.9. Frequency Stability Measurement	37
Appendix A: Test Result of Conducted Test	
Appendix B: Photographs of Test Setup	
Appendix C: Photographs of EUT	

1. General Product Information

1.1. EUT description

Product Name.....:	RUGGED TABLET PC
Model/Type reference.....:	W105
Sample Number.....:	TCT250407E032-0101
Operation Frequency	Band 1: 5180 MHz ~ 5240 MHz
Channel Bandwidth.....:	802.11a: 20MHz 802.11n: 20MHz, 40MHz 802.11ac: 20MHz, 40MHz, 80MHz
Modulation Technology	Orthogonal Frequency Division Multiplexing(OFDM)
Modulation Type.....:	256QAM, 64QAM, 16QAM, BPSK, QPSK
Antenna Type.....:	PIFA Antenna
Antenna Gain.....:	Band 1: Antenna 1: 1.78dBi Antenna 2: 1.18dBi
Rating(s).....:	Adapter Information: Model: JHD-AP048U-BA-PD05 Input: AC 100-240V, 50/60Hz, 1.2A Output: DC 5V, 3A/ DC 9V, 3A/ DC 12V, 3A/ DC 15V, 3A/ DC 20V, 2.25A Rechargeable Li-ion Battery DC 7.6V

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

1.2. Model(s) list

None.

1.3. Test Frequency

Band 1

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

Note:

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

2. Test Result Summary

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

Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.
5. For the band 5.15-5.25GHz, EUT meet the requirements of 15.407(a)(ii).

3. General Information

3.1. Test environment and mode

Operating Environment:		
Condition	Conducted Emission	Radiated Emission
Temperature:	22.3 °C	24.3 °C
Humidity:	50 % RH	54 % RH
Atmospheric Pressure:	1010 mbar	1010 mbar
Test Software:		
Software Information:	DRTU	
Power Level:	Default	
Test Mode:		
Engineer mode:	Keep the EUT in continuous transmitting by select channel and modulations with max duty cycle.	
The sample was placed 0.8m/1.5m for blow/above 1GHz above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.		

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate
802.11a (SISO)	6 Mbps
802.11n(HT20) (MIMO)	6.5 Mbps
802.11n(HT40) (MIMO)	13.5 Mbps
802.11ac(VHT20) (MIMO)	6.5 Mbps
802.11ac(VHT40) (MIMO)	13.5 Mbps
802.11ac(VHT80) (MIMO)	29.3 Mbps

3.2. Description of Support Units

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

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

Note:

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

4. Facilities and Accreditations

4.1. Facilities

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

- FCC - Registration No.: 645098

SHENZHEN TONGCE TESTING LAB

Designation Number: CN1205

The testing lab has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- A2LA-No.: 4320.01

SHENZHEN TONGCE TESTING LAB

The testing lab has been accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories.

4.2. Location

SHENZHEN TONGCE TESTING LAB

Address: 2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China

TEL: +86-755-27673339

5. Measurement Uncertainty

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

No.	Item	MU
1	Conducted Emission	± 3.10 dB
2	RF power, conducted	± 0.12 dB
3	Spurious emissions, conducted	± 0.11 dB
4	Dwell time	± 2
5	All emissions, radiated(<1 GHz)	± 4.56 dB
6	All emissions, radiated(1 GHz - 18 GHz)	± 4.22 dB
7	All emissions, radiated(18 GHz- 40 GHz)	± 4.36 dB

6. Test Results and Measurement Data

6.1. Antenna requirement

Standard requirement:

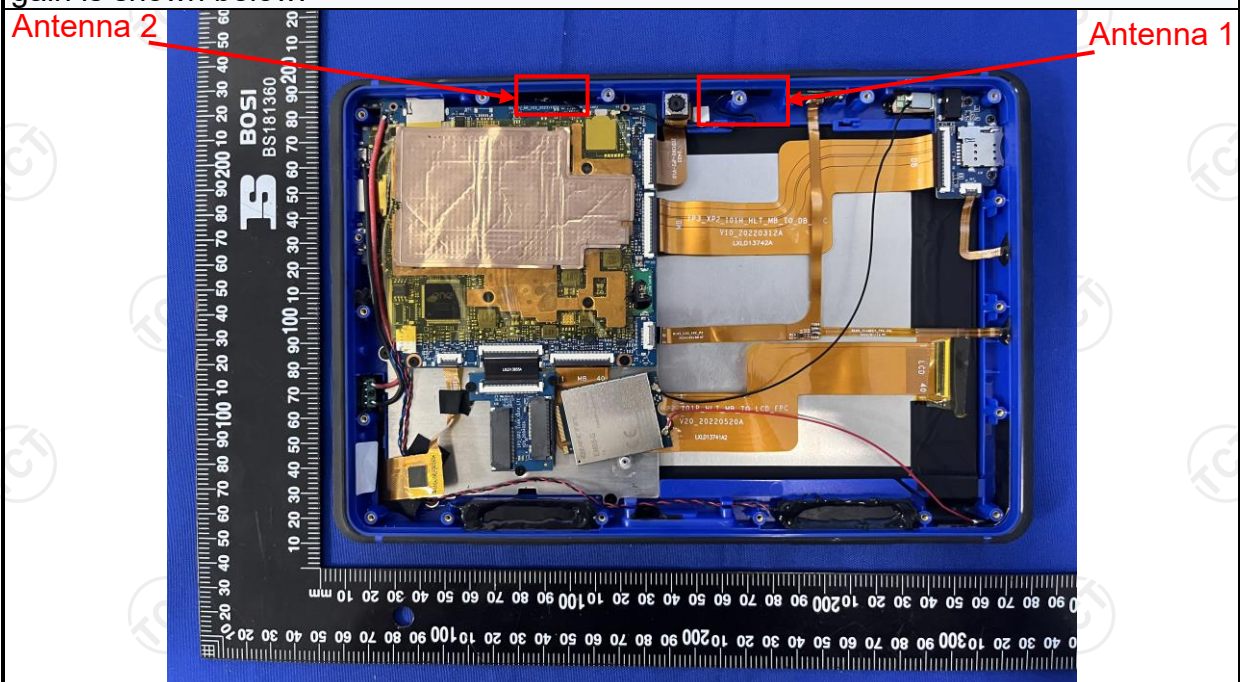
FCC Part15 C Section 15.203 /247(b)(4)

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

E.U.T Antenna:

The EUT test with two PIFA antennas for maximum gain which are detachable, and the gain is shown below.



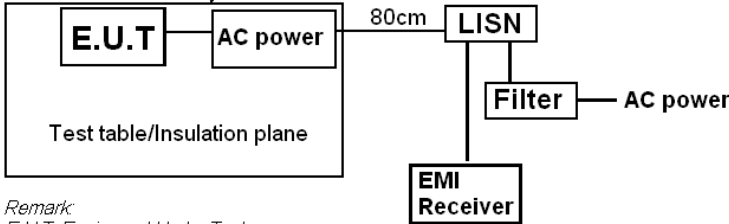
Refer to KDB 662911 D01 Multiple Transmitter Output v02r01:

Unequal antenna gains, with equal transmit powers, if transmit signals are correlated, then Directional gain of B1= $10\log[(10^{1.78/20}+10^{1.18/20})^2/2] = 4.50\text{dBi}$

Note: Above directional gain not applicable to power measurements.

6.2. Conducted Emission

6.2.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.207														
Test Method:	ANSI C63.10:2020														
Frequency Range:	150 kHz to 30 MHz														
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto														
Limits:	<table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></table>	Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													
Test Setup:	Reference Plane 40cm  Test table/Insulation plane 80cm EMI Receiver Filter AC power Remark: E.U.T.: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m														
Test Mode:	Charging + Transmitting Mode														
Test Procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2020 on conducted measurement.														
Test Result:	PASS														

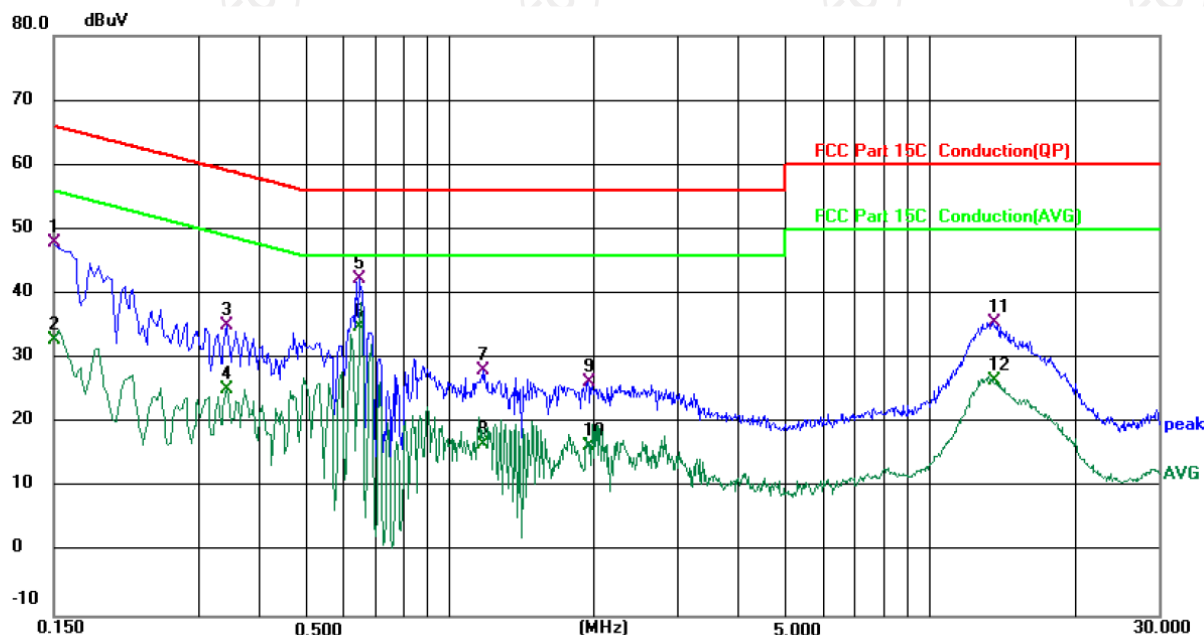
6.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)					
Equipment	Manufacturer	Model	Serial Number	Date of Cal.	Due Date
EMI Test Receiver	R&S	ESCI3	100898	Jun. 27, 2024	Jun. 26, 2025
LISN	Schwarzbeck	NSLK 8126	8126453	Jan. 21, 2025	Jan. 20, 2026
Attenuator	N/A	10dB	164080	Jun. 27, 2024	Jun. 26, 2025
Line-5	TCT	CE-05	/	Jun. 27, 2024	Jun. 26, 2025
EMI Test Software	EZ_EMCC	EMEC-3A1	1.1.4.2	/	/

6.2.3. Test data

Please refer to following diagram for individual

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



Site 844 Shielding Room

Phase: **L1**

Temperature: 22.3 (°C)

Humidity: 50 %

Limit: FCC Part 15C Conduction(QP)

Power: AC 120 V/60 Hz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1500	37.88	9.96	47.84	66.00	-18.16	QP	
2		0.1500	22.84	9.96	32.80	56.00	-23.20	AVG	
3		0.3420	25.24	9.93	35.17	59.15	-23.98	QP	
4		0.3420	15.34	9.93	25.27	49.15	-23.88	AVG	
5		0.6500	32.44	9.90	42.34	56.00	-13.66	QP	
6	*	0.6500	24.89	9.90	34.79	46.00	-11.21	AVG	
7		1.1818	18.08	9.95	28.03	56.00	-27.97	QP	
8		1.1818	6.78	9.95	16.73	46.00	-29.27	AVG	
9		1.9419	16.35	10.01	26.36	56.00	-29.64	QP	
10		1.9419	6.47	10.01	16.48	46.00	-29.52	AVG	
11		13.5779	25.10	10.38	35.48	60.00	-24.52	QP	
12		13.5779	16.13	10.38	26.51	50.00	-23.49	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level (dBμV) = Receiver reading

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

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

Limit (dBμV) = Limit stated in standard

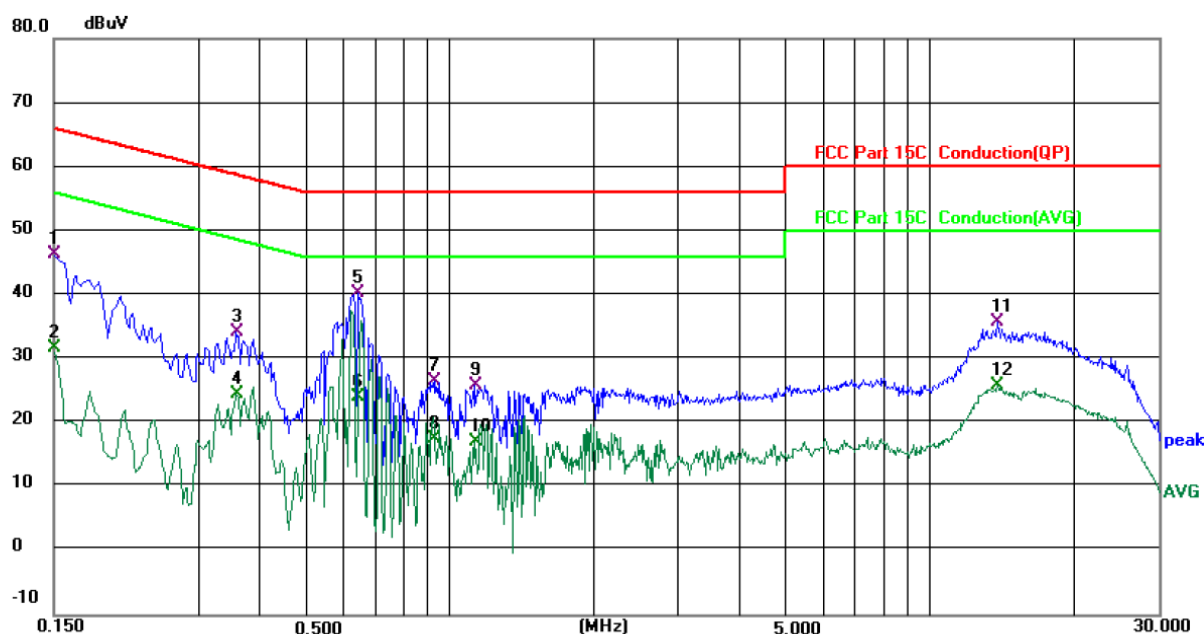
Margin (dB) = Measurement (dBμV) – Limits (dBμV)

Q.P. =Quasi-Peak

AVG =average

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

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



Site 844 Shielding Room

Phase: **N**

Temperature: 22.3 (°C)

Humidity: 50 %

Limit: FCC Part 15C Conduction(QP)

Power: AC 120 V/60 Hz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1500	36.41	9.94	46.35	66.00	-19.65	QP	
2		0.1500	21.75	9.94	31.69	56.00	-24.31	AVG	
3		0.3579	24.16	9.94	34.10	58.78	-24.68	QP	
4		0.3579	14.63	9.94	24.57	48.78	-24.21	AVG	
5	*	0.6460	30.26	9.94	40.20	56.00	-15.80	QP	
6		0.6460	14.22	9.94	24.16	46.00	-21.84	AVG	
7		0.9340	16.55	9.97	26.52	56.00	-29.48	QP	
8		0.9340	7.69	9.97	17.66	46.00	-28.34	AVG	
9		1.1339	15.93	9.98	25.91	56.00	-30.09	QP	
10		1.1339	7.12	9.98	17.10	46.00	-28.90	AVG	
11		13.8420	25.37	10.44	35.81	60.00	-24.19	QP	
12		13.8420	15.50	10.44	25.94	50.00	-24.06	AVG	

Note1:

Freq. = Emission frequency in MHz

Reading level (dBuV) = Receiver reading

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

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

Limit (dBuV) = Limit stated in standard

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

Q.P. = Quasi-Peak

AVG = average

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

Note2:

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

6.3. Maximum Conducted Output Power

6.3.1. Test Specification

Test Requirement:	FCC Part15 E Section 15.407(a)& Part 2 J Section 2.1046										
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section E										
Limit:	<table border="1"> <thead> <tr> <th>Frequency Band (MHz)</th><th>Limit</th></tr> </thead> <tbody> <tr> <td>5180 - 5240</td><td>24dBm(250mW) for client device</td></tr> <tr> <td>5260 - 5320</td><td>24dBm(250mW) or 11 dBm + 10 log B, B is the 26 dB emission bandwidth in megahertz</td></tr> <tr> <td>5470 - 5725</td><td>24dBm(250mW) or 11 dBm + 10 log B, B is the 26 dB emission bandwidth in megahertz</td></tr> <tr> <td>5745 - 5825</td><td>30dBm(1W)</td></tr> </tbody> </table>	Frequency Band (MHz)	Limit	5180 - 5240	24dBm(250mW) for client device	5260 - 5320	24dBm(250mW) or 11 dBm + 10 log B, B is the 26 dB emission bandwidth in megahertz	5470 - 5725	24dBm(250mW) or 11 dBm + 10 log B, B is the 26 dB emission bandwidth in megahertz	5745 - 5825	30dBm(1W)
Frequency Band (MHz)	Limit										
5180 - 5240	24dBm(250mW) for client device										
5260 - 5320	24dBm(250mW) or 11 dBm + 10 log B, B is the 26 dB emission bandwidth in megahertz										
5470 - 5725	24dBm(250mW) or 11 dBm + 10 log B, B is the 26 dB emission bandwidth in megahertz										
5745 - 5825	30dBm(1W)										
Test Setup:	 Spectrum Analyzer EUT										
Test Mode:	Transmitting mode with modulation										
Test Procedure:	1. The testing follows the Measurement Procedure of KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section E, 2, b 2. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement. 3. Set to the maximum power setting and enable the EUT transmit continuously. 5. Measure the conducted output power and record the results in the test report.										
Test Result:	PASS										

6.3.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Date of Cal.	Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jun. 27, 2024	Jun. 26, 2025
Power detector box	MWRFTest	MW100-RFCB	MW210531TCT	Jan. 21, 2025	Jan. 20, 2026

6.3.3. Test Data

Configuration Band 1 (5180 - 5240 MHz) / Antenna 1+Antenna 2						
Mode	Test channel	Maximum Conducted (Average) Output Power (dBm)			Limit (dBm)	Result
		Ant1	Ant2	Total		
11a	CH36	14.50	14.07	/	24	PASS
11a	CH40	14.72	14.53	/	24	PASS
11a	CH48	14.31	14.25	/	24	PASS
11n(HT20)	CH36	14.45	14.01	17.25	24	PASS
11n(HT20)	CH40	14.63	14.53	17.59	24	PASS
11n(HT20)	CH48	14.17	14.17	17.18	24	PASS
11n(HT40)	CH38	13.26	13.15	16.22	24	PASS
11n(HT40)	CH46	15.45	15.54	18.51	24	PASS
11ac(VHT20)	CH36	14.15	13.77	16.97	24	PASS
11ac(VHT20)	CH40	14.32	14.33	17.34	24	PASS
11ac(VHT20)	CH48	13.97	13.96	16.98	24	PASS
11ac(VHT40)	CH38	12.98	12.87	15.94	24	PASS
11ac(VHT40)	CH46	15.04	15.24	18.15	24	PASS
11ac(VHT80)	CH42	11.81	12.24	15.04	24	PASS

6.4. 6dB Emission Bandwidth

6.4.1. Test Specification

Test Requirement:	FCC CFR47 Part 15 Section 15.407(e)& Part 2 J Section 2.1049
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C
Limit:	>500kHz
Test Setup:	 The diagram illustrates the test setup. On the left is a green Spectrum Analyzer with a blue screen and two red dots representing ports. A black cable connects these ports to a yellow rectangular box on the right, which is labeled 'EUT' (Equipment Under Test).
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz. 4. Measure and record the results in the test report.
Test Result:	N/A

6.5. 26dB Bandwidth and 99% Occupied Bandwidth

6.5.1. Test Specification

Test Requirement:	47 CFR Part 15C Section 15.407 (a)& Part 2 J Section 2.1049
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section D
Limit:	No restriction limits
Test Setup:	 Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section D 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 1% to 5% of the OBW. Set the Video bandwidth (VBW) = 3 *RBW. In order to make an accurate measurement. 4. Measure and record the results in the test report.
Test Result:	PASS

6.5.2. Test Instruments

Equipment	Manufacturer	Model No.	Serial Number	Date of Cal.	Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jun. 27, 2024	Jun. 26, 2025
Power detector box	MWRFTest	MW100-RFCB	MW210531TCT	Jan. 21, 2025	Jan. 20, 2026

6.6. Power Spectral Density

6.6.1. Test Specification

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

6.6.2. Test Instruments

Equipment	Manufacturer	Model No.	Serial Number	Date of Cal.	Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jun. 27, 2024	Jun. 26, 2025
Power detector box	MWRFTest	MW100-RFCB	MW210531TCT	Jan. 21, 2025	Jan. 20, 2026

6.6.3. Test data

Configuration Band 1 (5180 - 5240 MHz) / Antenna 1+Antenna 2						
Mode	Test channel	Power Spectral Density(dBm/MHz)			Limit (dBm/MHz)	Result
		Ant1	Ant2	Total		
11a	CH36	4.04	3.58	/	11	PASS
11a	CH40	4.37	4.18	/	11	PASS
11a	CH48	3.93	3.72	/	11	PASS
11n(HT20)	CH36	3.75	3.25	6.52	11	PASS
11n(HT20)	CH40	3.80	3.84	6.83	11	PASS
11n(HT20)	CH48	3.44	3.50	6.48	11	PASS
11n(HT40)	CH38	-0.83	-0.88	2.16	11	PASS
11n(HT40)	CH46	1.50	1.37	4.45	11	PASS
11ac(VHT20)	CH36	3.33	2.92	6.14	11	PASS
11ac(VHT20)	CH40	3.58	3.57	6.59	11	PASS
11ac(VHT20)	CH48	3.28	3.09	6.20	11	PASS
11ac(VHT40)	CH38	-1.16	-1.34	1.76	11	PASS
11ac(VHT40)	CH46	0.86	1.14	4.01	11	PASS
11ac(VHT80)	CH42	-4.66	-4.06	-1.34	11	PASS

Refer to KDB 662911 D01 Multiple Transmitter Output v02r01:

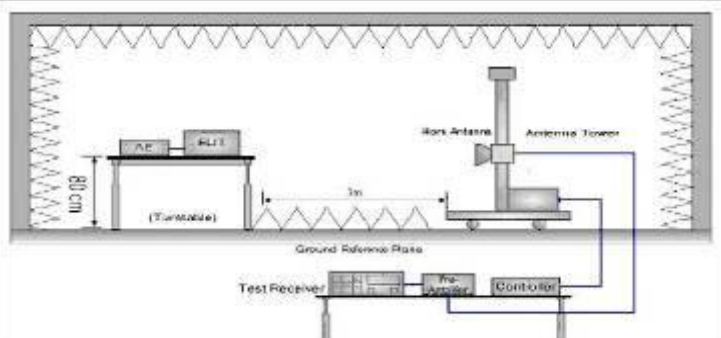
For power spectral density (PSD) measurements when antenna gains are not equal,

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}]$ dBi = 4.50 < 6,

So limit=11

6.7. Band edge

6.7.1. Test Specification

Test Requirement:	FCC CFR47 Part 15E Section 15.407																				
Test Method:	ANSI C63.10 2020																				
Limit:	In un-restricted band: For Band 1&2A&2C: -27dBm/MHz For Band 3:																				
	<table><tr><th>Frequency (MHz)</th><th>Limit (dBm/MHz)</th><th>Frequency (MHz)</th><th>Limit (dBm/MHz)</th></tr><tr><td>< 5650</td><td>-27</td><td>5850~5855</td><td>27~15.6</td></tr><tr><td>5650~5700</td><td>-27~10</td><td>5855~5875</td><td>15.6~10</td></tr><tr><td>5700~5720</td><td>10~15.6</td><td>5875~5925</td><td>10~-27</td></tr><tr><td>57 0~5725</td><td>15.6~27</td><td>> 5925</td><td>-27</td></tr></table>	Frequency (MHz)	Limit (dBm/MHz)	Frequency (MHz)	Limit (dBm/MHz)	< 5650	-27	5850~5855	27~15.6	5650~5700	-27~10	5855~5875	15.6~10	5700~5720	10~15.6	5875~5925	10~-27	57 0~5725	15.6~27	> 5925	-27
	Frequency (MHz)	Limit (dBm/MHz)	Frequency (MHz)	Limit (dBm/MHz)																	
	< 5650	-27	5850~5855	27~15.6																	
	5650~5700	-27~10	5855~5875	15.6~10																	
5700~5720	10~15.6	5875~5925	10~-27																		
57 0~5725	15.6~27	> 5925	-27																		
$E[dB\mu V/m] = EIRP[dBm] + 95.2 @3m$																					
In restricted band:																					
<table><tr><th>Detector</th><th>Limit@3m</th></tr><tr><td>Peak</td><td>74dBμV/m</td></tr><tr><td>AVG</td><td>54dBμV/m</td></tr></table>		Detector	Limit@3m	Peak	74dB μ V/m	AVG	54dB μ V/m														
Detector	Limit@3m																				
Peak	74dB μ V/m																				
AVG	54dB μ V/m																				
Test Setup:																					
Test Mode:	Transmitting mode with modulation																				
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect																				

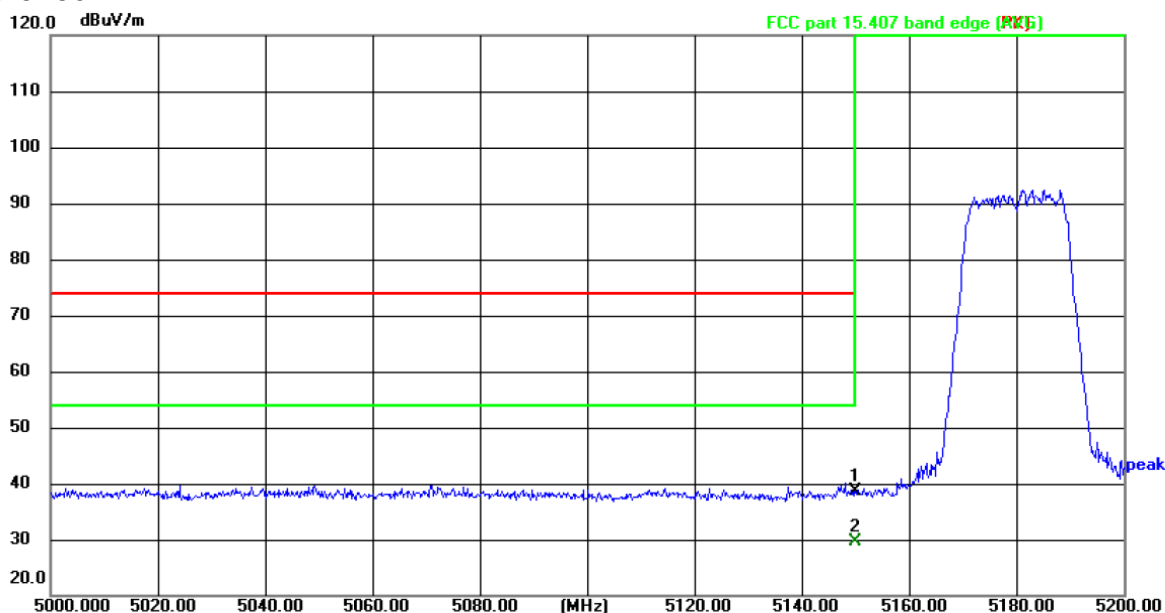
	Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data sheet.
Test Result:	PASS

6.7.2. Test Instruments

Radiated Emission Test Site (966)					
Equipment	Manufacturer	Model	Serial Number	Date of Cal.	Due Date
EMI Test Receiver	R&S	ESCI7	100529	Jan. 21, 2025	Jan. 20, 2026
Spectrum Analyzer	R&S	FSQ40	200061	Jun. 27, 2024	Jun. 26, 2025
Pre-amplifier	SKET	LNPA_0118G-45	SK2021012102	Jan. 21, 2025	Jan. 20, 2026
Pre-amplifier	SKET	LNPA_1840G-50	SK202109203500	Jan. 21, 2025	Jan. 20, 2026
Pre-amplifier	HP	8447D	2727A05017	Jun. 27, 2024	Jun. 26, 2025
Loop antenna	Schwarzbeck	FMZB1519B	00191	Jun. 27, 2024	Jun. 26, 2025
Broadband Antenna	Schwarzbeck	VULB9163	340	Jun. 29, 2024	Jun. 28, 2025
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Jun. 29, 2024	Jun. 28, 2025
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Jan. 23, 2025	Jan. 22, 2026
Coaxial cable	SKET	RE-03-D	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-03-M	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-03-L	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-04-D	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-04-M	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-04-L	/	Jun. 27, 2024	Jun. 26, 2025
Antenna Mast	Keleto	RE-AM	/	/	/
EMI Test Software	EZ_EMG	FA-03A2 RE+	1.1.4.2	/	/

6.7.3. Test Data

AC20-5180



Site: 3m Anechoic Chamber

Polarization: **Horizontal**

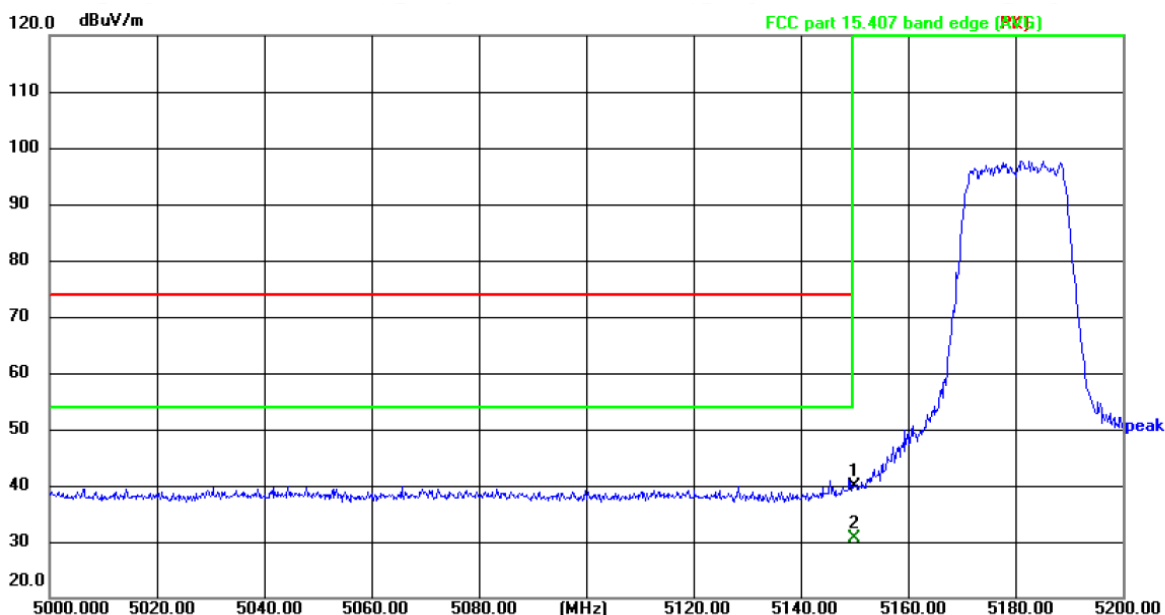
Temperature: 25.1(°C)

Humidity: 49 %

Limit: FCC part 15.407 band edge (PK)

Power:DC 7.6V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	5150.000	47.12	-8.59	38.53	74.00	-35.47	peak	P	
2 *	5150.000	38.27	-8.59	29.68	54.00	-24.32	AVG	P	



Site: 3m Anechoic Chamber

Polarization: **Vertical**

Temperature: 25.1(°C)

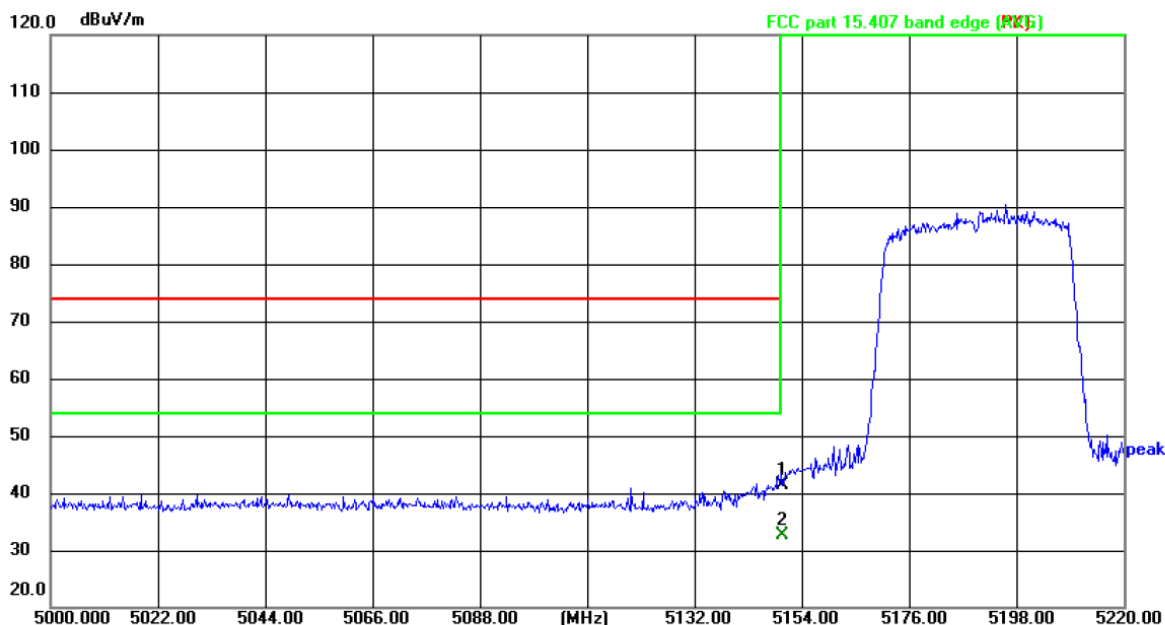
Humidity: 49 %

Limit: FCC part 15.407 band edge (PK)

Power:DC 7.6V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	5150.000	48.44	-8.59	39.85	74.00	-34.15	peak	P	
2 *	5150.000	39.15	-8.59	30.56	54.00	-23.44	AVG	P	

AC40-5190



Site: 3m Anechoic Chamber

Polarization: **Horizontal**

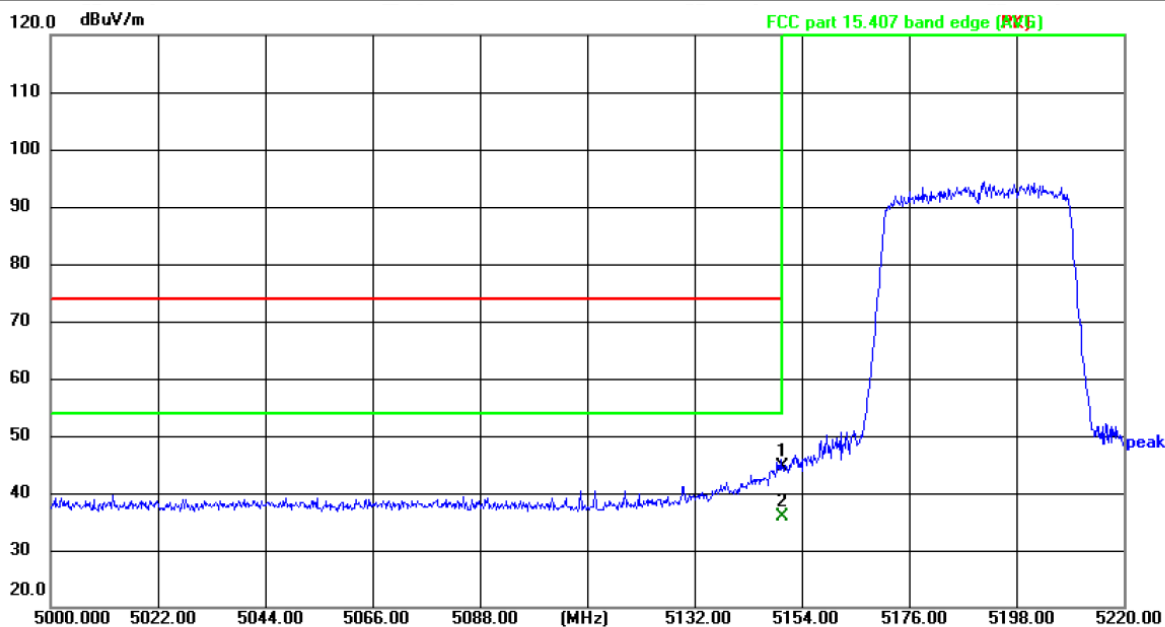
Temperature: 25.1(°C)

Humidity: 49 %

Limit: FCC part 15.407 band edge (PK)

Power: DC 7.6V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	5150.000	49.91	-8.59	41.32	74.00	-32.68	peak	P	
2 *	5150.000	41.19	-8.59	32.60	54.00	-21.40	AVG	P	



Site: 3m Anechoic Chamber

Polarization: **Vertical**

Temperature: 25.1(°C)

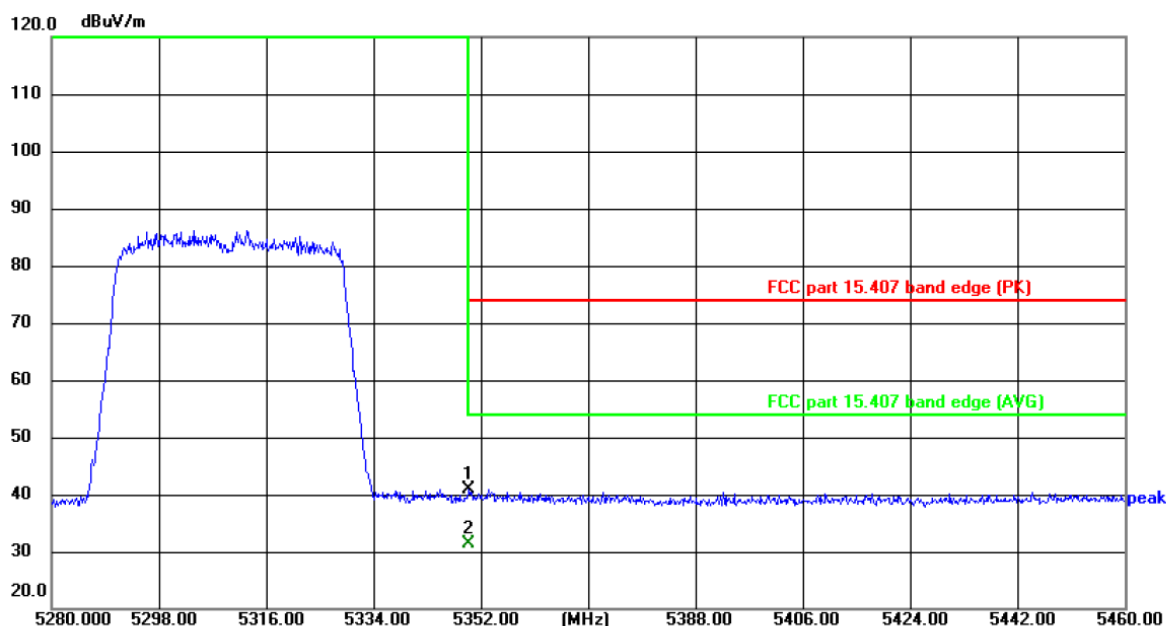
Humidity: 49 %

Limit: FCC part 15.407 band edge (PK)

Power: DC 7.6V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	5150.000	53.11	-8.59	44.52	74.00	-29.48	peak	P	
2 *	5150.000	44.50	-8.59	35.91	54.00	-18.09	AVG	P	

AC20-5240

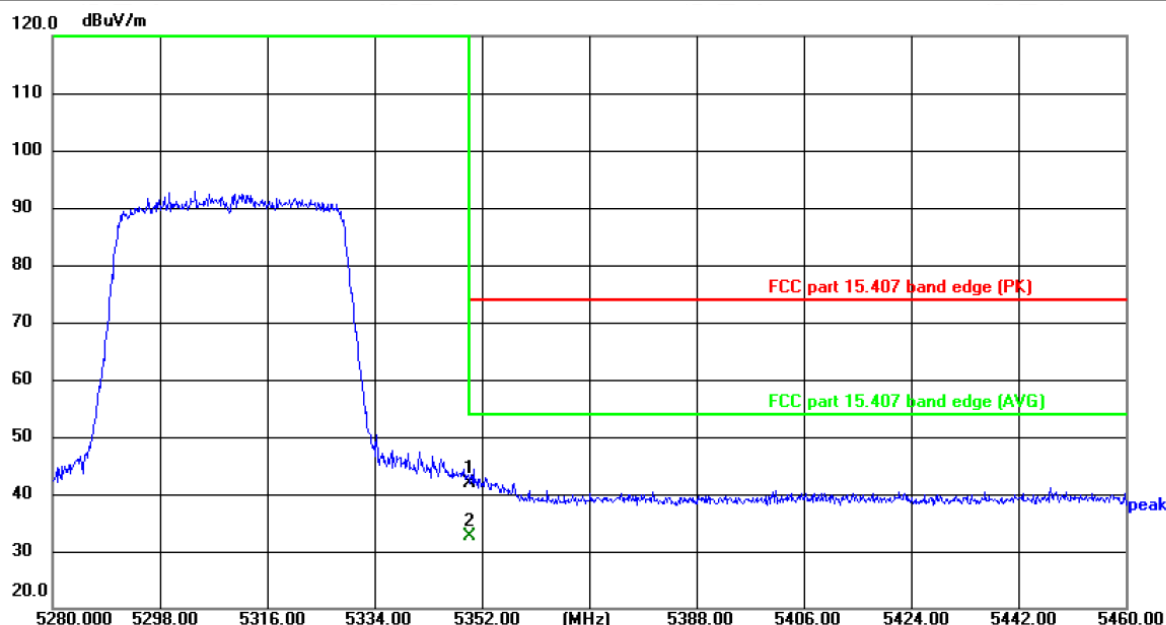


Site: 3m Anechoic Chamber Polarization: **Horizontal** Temperature: 24.8(°C) Humidity: 51 %

Limit: FCC part 15.407 band edge (PK)

Power: DC 7.6V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	5350.000	48.81	-7.95	40.86	74.00	-33.14	peak	P	
2 *	5350.000	39.23	-7.95	31.28	54.00	-22.72	AVG	P	



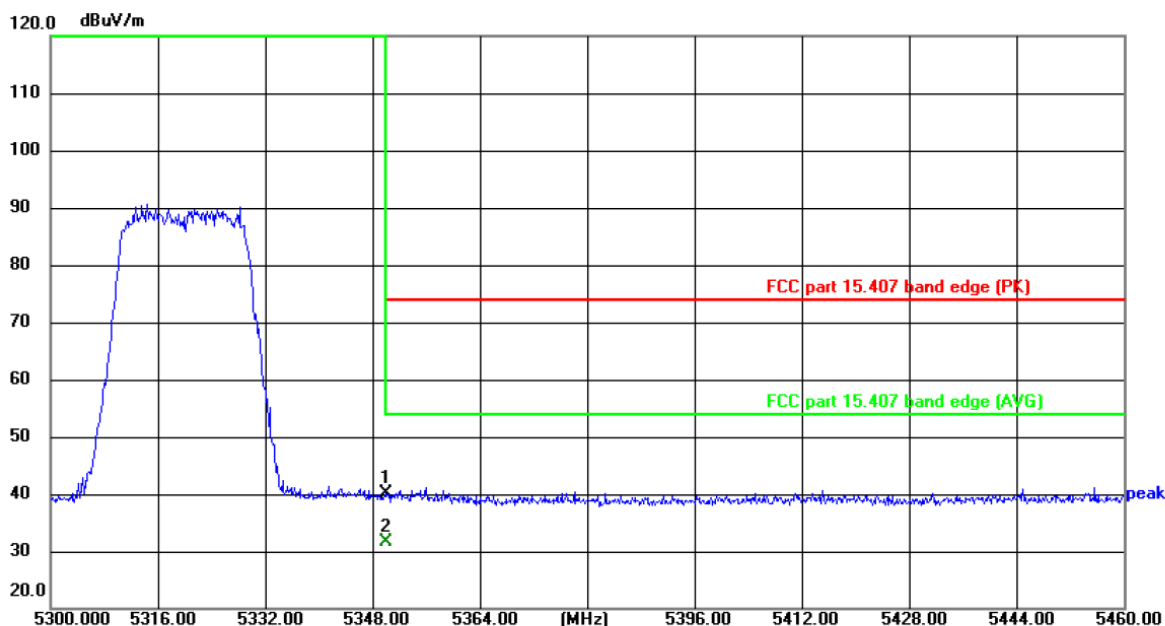
Site: 3m Anechoic Chamber Polarization: **Vertical** Temperature: 24.8(°C) Humidity: 51 %

Limit: FCC part 15.407 band edge (PK)

Power: DC 7.6V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	5350.000	49.72	-7.95	41.77	74.00	-32.23	peak	P	
2 *	5350.000	40.56	-7.95	32.61	54.00	-21.39	AVG	P	

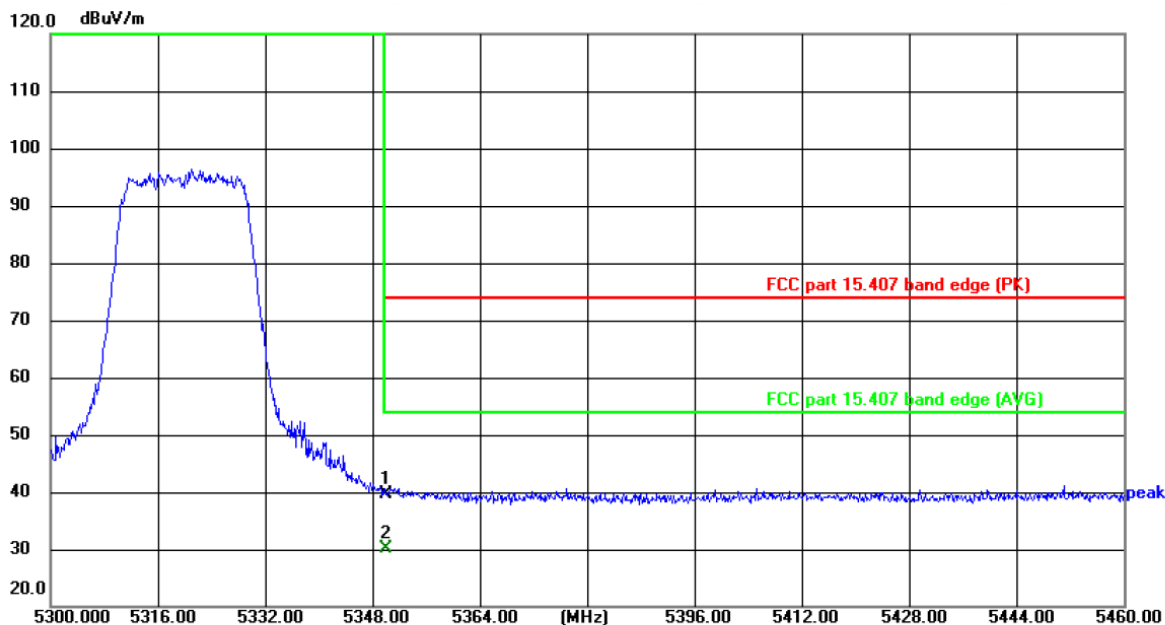
AC40-5230



Site: 3m Anechoic Chamber Polarization: **Horizontal** Temperature: 24.8(°C) Humidity: 51 %

Limit: FCC part 15.407 band edge (PK) Power: DC 7.6V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	5350.000	47.99	-7.95	40.04	74.00	-33.96	peak	P	
2 *	5350.000	39.70	-7.95	31.75	54.00	-22.25	AVG	P	

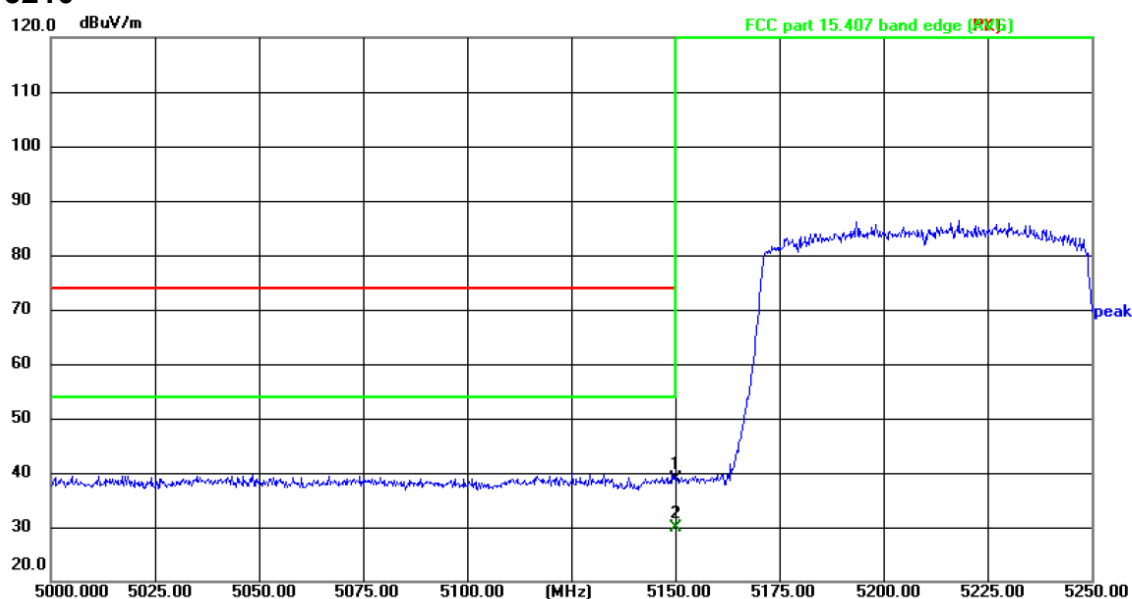


Site: 3m Anechoic Chamber Polarization: **Vertical** Temperature: 24.8(°C) Humidity: 51 %

Limit: FCC part 15.407 band edge (PK) Power: DC 7.6V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	5350.000	47.50	-7.95	39.55	74.00	-34.45	peak	P	
2 *	5350.000	38.13	-7.95	30.18	54.00	-23.82	AVG	P	

AC80-5210



Site: 3m Anechoic Chamber

Polarization: **Horizontal**

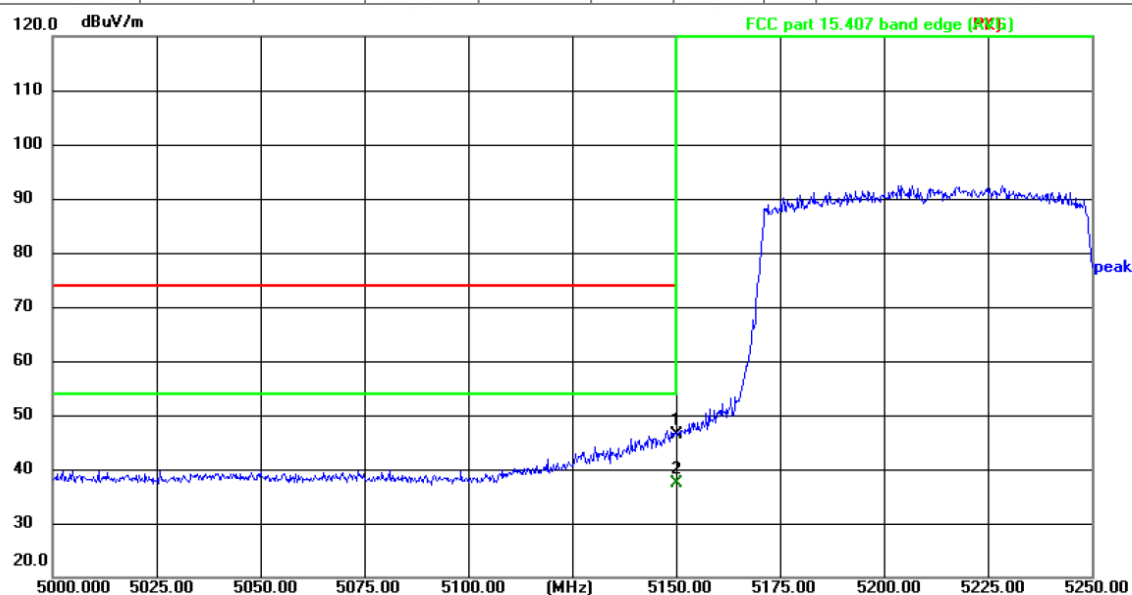
Temperature: 25.1(°C)

Humidity: 49 %

Limit: FCC part 15.407 band edge (PK)

Power:DC 7.6V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	5150.000	47.43	-8.59	38.84	74.00	-35.16	peak	P	
2 *	5150.000	38.36	-8.59	29.77	54.00	-24.23	AVG	P	



Site: 3m Anechoic Chamber

Polarization: **Vertical**

Temperature: 25.1(°C)

Humidity: 49 %

Limit: FCC part 15.407 band edge (PK)

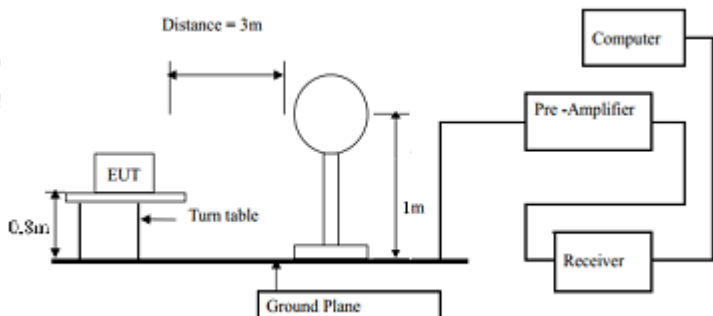
Power:DC 7.6V

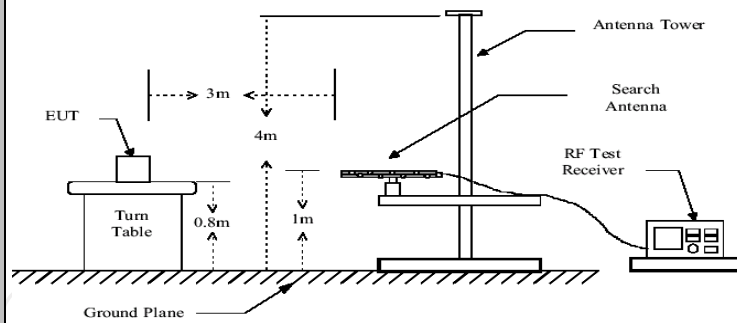
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	5150.000	55.00	-8.59	46.41	74.00	-27.59	peak	P	
2 *	5150.000	46.04	-8.59	37.45	54.00	-16.55	AVG	P	

Note: Measurements were taken for all channels and modulations in SISO and MIMO, and only the worst-case scenario in 802.11ac MIMO was reported

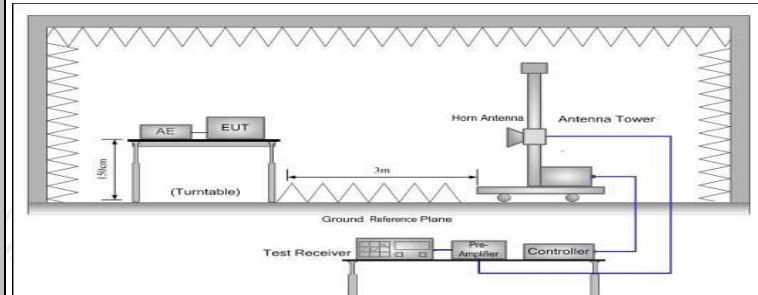
6.8. Unwanted Emissions

6.8.1. Test Specification

Test Requirement:	FCC CFR47 Part 15 Section 15.407 & 15.209 & 15.205				
Test Method:	KDB 789033 D02 v02r01				
Frequency Range:	9kHz to 40GHz				
Measurement Distance:	3 m				
Antenna Polarization:	Horizontal & Vertical				
Operation mode:	Transmitting mode with modulation				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		Peak	1MHz	10Hz	Average Value
Limit:	Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table, In restricted bands:				
	Frequency		Detector		Limit@3m
	Above 1G		Peak		74dB μ V/m
			AVG		54dB μ V/m
	Frequency		Field Strength (microvolts/meter)	Measurement Distance (meters)	
	0.009-0.490		2400/F(KHz)	300	
	0.49 -1.705		24000/F(KHz)	3	
	1.705-30		30	30	
	30-88		100	3	
	88-216		150	3	
216-960		200	3		
Above 960		500	3		
Test setup:	In un-restricted bands: 68.2dB μ V/m				
	For radiated emissions below 30MHz				
					
	30MHz to 1GHz				



Above 1GHz



Test Procedure:

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

Test results:

PASS

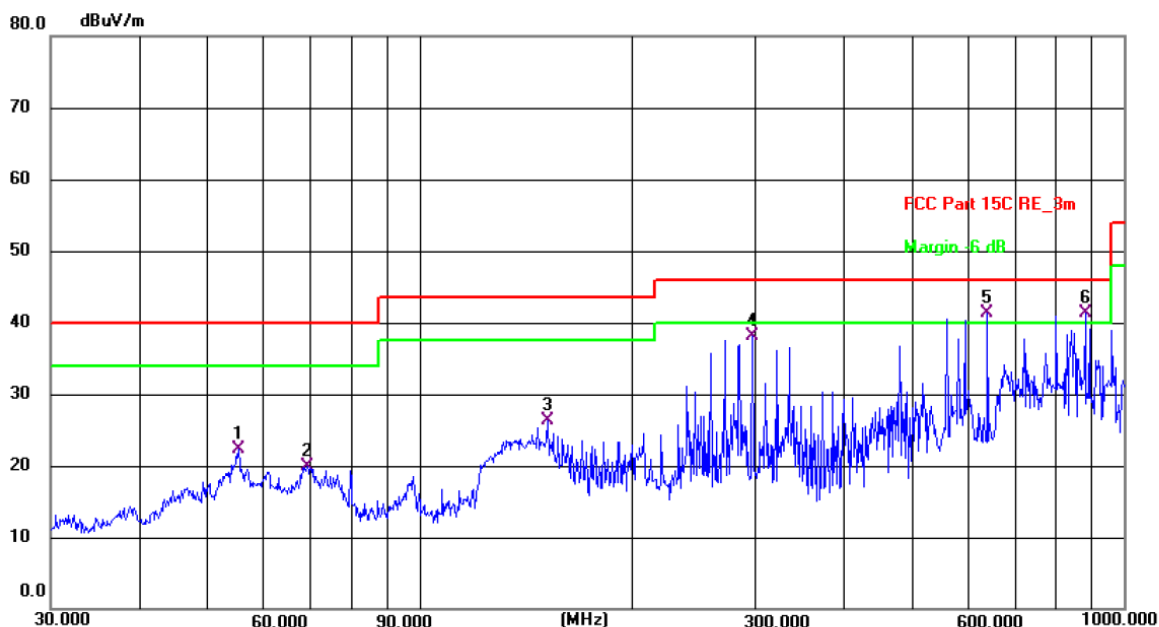
6.8.2. Test Instruments

Radiated Emission Test Site (966)					
Equipment	Manufacturer	Model	Serial Number	Date of Cal.	Due Date
EMI Test Receiver	R&S	ESCI7	100529	Jan. 21, 2025	Jan. 20, 2026
Spectrum Analyzer	R&S	FSQ40	200061	Jun. 27, 2024	Jun. 26, 2025
Pre-amplifier	SKET	LNPA_0118G-45	SK2021012102	Jan. 21, 2025	Jan. 20, 2026
Pre-amplifier	SKET	LNPA_1840G-50	SK202109203500	Jan. 21, 2025	Jan. 20, 2026
Pre-amplifier	HP	8447D	2727A05017	Jun. 27, 2024	Jun. 26, 2025
Loop antenna	Schwarzbeck	FMZB1519B	00191	Jun. 27, 2024	Jun. 26, 2025
Broadband Antenna	Schwarzbeck	VULB9163	340	Jun. 29, 2024	Jun. 28, 2025
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Jun. 29, 2024	Jun. 28, 2025
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Jan. 23, 2025	Jan. 22, 2026
Coaxial cable	SKET	RE-03-D	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-03-M	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-03-L	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-04-D	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-04-M	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-04-L	/	Jun. 27, 2024	Jun. 26, 2025
Antenna Mast	Keleto	RE-AM	/	/	/
EMI Test Software	EZ_EMG	FA-03A2 RE+	1.1.4.2	/	/

6.8.3. Test Data

Please refer to following diagram for individual
Below 1GHz

Horizontal:



Site 3m Anechoic Chamber2

Polarization: **Horizontal**

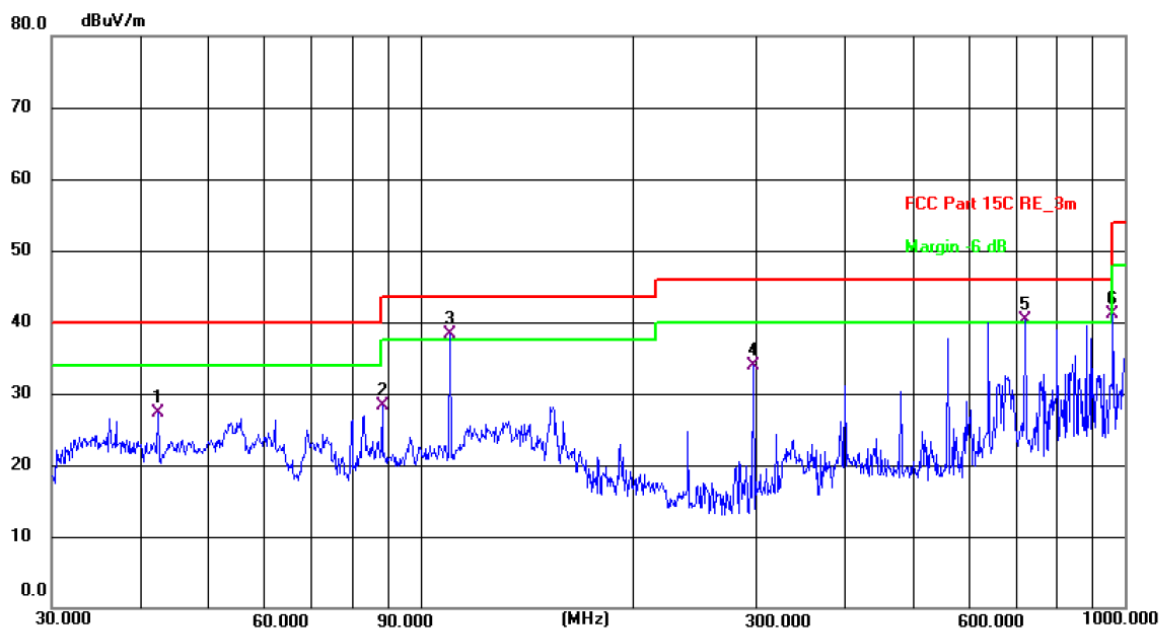
Temperature: 24.3(C) Humidity: 54 %

Limit: FCC Part 15C RE_3m

Power: DC 7.6 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	55.4147	41.25	-18.92	22.33	40.00	-17.67	QP	P	
2	69.3568	40.21	-20.30	19.91	40.00	-20.09	QP	P	
3	152.1297	43.37	-17.10	26.27	43.50	-17.23	QP	P	
4	297.2238	55.76	-17.70	38.06	46.00	-7.94	QP	P	
5 *	640.6109	50.39	-9.04	41.35	46.00	-4.65	QP	P	
6 !	881.4067	47.66	-6.42	41.24	46.00	-4.76	QP	P	

Vertical:



Site 3m Anechoic Chamber2

Polarization: **Vertical**

Temperature: 24.3(C) Humidity: 54 %

Limit: FCC Part 15C RE_3m

Power: DC 7.6 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	42.4508	45.85	-18.58	27.27	40.00	-12.73	QP	P	
2	88.3421	50.65	-22.27	28.38	43.50	-15.12	QP	P	
3 *	110.1816	58.59	-20.33	38.26	43.50	-5.24	QP	P	
4	297.2238	51.70	-17.70	34.00	46.00	-12.00	QP	P	
5 !	721.7258	48.67	-8.36	40.31	46.00	-5.69	QP	P	
6	962.1621	45.83	-4.76	41.07	54.00	-12.93	QP	P	

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

2. Measurements were taken on all three channels and all modulations in SISO and MIMO, with the worst-case mode being MIMO.

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

4. Measurement (dBuV) = Reading level + Correction Factor, correction Factor= Antenna Factor + Cable loss – Pre-amplifier.

Modulation Type: Band 1									
11a CH36: 5180MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10360	H	38.46	---	1.78	40.24	---	68.2	---	-27.96
15540	H	39.13	---	5.21	44.34	---	74	54	-9.66
---	H	---	---	---	---	---	---	---	---
10360	V	38.34	---	1.78	40.12	---	68.2	---	-28.08
15540	V	40.85	---	5.21	46.06	---	74	54	-7.94
---	V	---	---	---	---	---	---	---	---
11a CH40: 5200MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10400	H	39.21	---	1.83	41.04	---	68.2	---	-27.16
15600	H	40.83	---	5.23	46.06	---	74	54	-7.94
---	H	---	---	---	---	---	---	---	---
10400	V	40.69	---	1.83	42.52	---	68.2	---	-25.68
15600	V	41.27	---	5.23	46.5	---	74	54	-7.5
---	V	---	---	---	---	---	---	---	---
11a CH48: 5240MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10480	H	38.16	---	1.85	40.01	---	68.2	---	-28.19
15720	H	39.4	---	5.25	44.65	---	74	54	-9.35
---	H	---	---	---	---	---	---	---	---
10480	V	38.18	---	1.85	40.03	---	68.2	---	-28.17
15720	V	40.05	---	5.25	45.3	---	74	54	-8.7
---	V	---	---	---	---	---	---	---	---
11n(HT20) CH36: 5180MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10360	H	41.73	---	1.78	43.51	---	68.2	---	-24.69
15540	H	40.68	---	5.21	45.89	---	74	54	-8.11
---	H	---	---	---	---	---	---	---	---
10360	V	42.19	---	1.78	43.97	---	68.2	---	-24.23
15540	V	41.2	---	5.21	46.41	---	74	54	-7.59
---	V	---	---	---	---	---	---	---	---

11n(HT20) CH40: 5200MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10400	H	40.58	---	1.83	42.41	---	68.2	---	-25.79
15600	H	41.03	---	5.23	46.26	---	74	54	-7.74
---	H	---	---	---	---	---	---	---	---
10400	V	40.48	---	1.83	42.31	---	68.2	---	-25.89
15600	V	39.71	---	5.23	44.94	---	74	54	-9.06
---	V	---	---	---	---	---	---	---	---
11n(HT20) CH48: 5240MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10480	H	41.32	---	1.85	43.17	---	68.2	---	-25.03
15720	H	41.18	---	5.25	46.43	---	74	54	-7.57
---	H	---	---	---	---	---	---	---	---
10480	V	40.25	---	1.85	42.1	---	68.2	---	-26.1
15720	V	40.92	---	5.25	46.17	---	74	54	-7.83
---	V	---	---	---	---	---	---	---	---
11n(HT40) CH38: 5190MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10380	H	42.84	---	1.80	44.64	---	68.2	---	-23.56
15570	H	41.63	---	5.22	46.85	---	74	54	-7.15
---	H	---	---	---	---	---	---	---	---
10380	V	40.59	---	1.80	42.39	---	68.2	---	-25.81
15570	V	39.32	---	5.22	44.54	---	74	54	-9.46
---	V	---	---	---	---	---	---	---	---
11n(HT40) CH46: 5230MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10460	H	41.26	---	1.85	43.11	---	68.2	---	-25.09
15690	H	39.49	---	5.08	44.57	---	74	54	-9.43
---	H	---	---	---	---	---	---	---	---
10460	V	41.83	---	1.85	43.68	---	68.2	---	-24.52
15690	V	40.11	---	5.08	45.19	---	74	54	-8.81
---	V	---	---	---	---	---	---	---	---

11ac(VHT20) CH36: 5180MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10360	H	40.35	---	1.78	42.13	---	68.2	---	-26.07
15540	H	39.87	---	5.21	45.08	---	74	54	-8.92
---	H	---	---	---	---	---	---	---	---
10360	V	38.51	---	1.78	40.29	---	68.2	---	-27.91
15540	V	39.64	---	5.21	44.85	---	74	54	-9.15
---	V	---	---	---	---	---	---	---	---
11ac(VHT20) CH40: 5200MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10400	H	39.57	---	1.83	41.4	---	68.2	---	-26.8
15600	H	40.08	---	5.23	45.31	---	74	54	-8.69
---	H	---	---	---	---	---	---	---	---
10400	V	39.72	---	1.83	41.55	---	68.2	---	-26.65
15600	V	39.03	---	5.23	44.26	---	74	54	-9.74
---	V	---	---	---	---	---	---	---	---
11ac(VHT20) CH48:5240									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10480	H	37.45	---	1.85	39.3	---	68.2	---	-28.9
15720	H	38.91	---	5.25	44.16	---	74	54	-9.84
---	H	---	---	---	---	---	---	---	---
10480	V	38.16	---	1.85	40.01	---	68.2	---	-28.19
15720	V	39.37	---	5.25	44.62	---	74	54	-9.38
---	V	---	---	---	---	---	---	---	---
11ac(VHT40) CH38:5190									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10380	H	40.68	---	1.80	42.48	---	68.2	---	-25.72
15570	H	39.23	---	5.22	44.45	---	74	54	-9.55
---	H	---	---	---	---	---	---	---	---
10380	V	38.16	---	1.80	39.96	---	68.2	---	-28.24
15570	V	39.51	---	5.22	44.73	---	74	54	-9.27
---	V	---	---	---	---	---	---	---	---

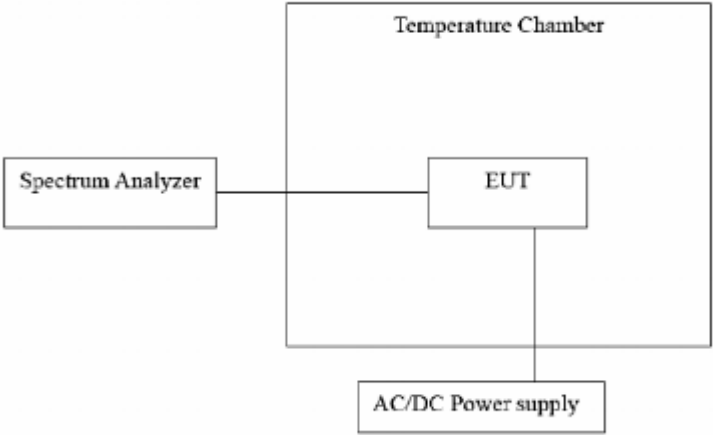
11ac(VHT40) CH46:5230									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10460	H	38.48	---	1.85	40.33	---	68.2	---	-27.87
15690	H	39.71	---	5.08	44.79	---	74	54	-9.21
---	H	---	---	---	---	---	---	---	---
10460	V	39.25	---	1.85	41.1	---	68.2	---	-27.1
15690	V	40.99	---	5.08	46.07	---	74	54	-7.93
---	V	---	---	---	---	---	---	---	---
11ac(VHT80) CH42:5210									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
10420	H	41.36	---	1.84	43.2	---	68.2	---	-25
15630	H	39.72	---	5.17	44.89	---	74	54	-9.11
---	H	---	---	---	---	---	---	---	---
10420	V	41.25	---	1.84	43.09	---	68.2	---	-25.11
15630	V	39.83	---	5.17	45	---	74	54	-9
---	V	---	---	---	---	---	---	---	---

Note:

- Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
- Margin (dB) = Emission Level (Peak) (dBμV/m)-Average limit (dBμV/m)
- The emission levels of other frequencies are very lower than the limit and not show in test report.
- Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency. The highest test frequency is 40GHz.
- Data of measurement shown “---“in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.
- Measurements were taken on all channels and modulations in SISO and MIMO, reporting only the worst-case scenarios for antenna 1 in SISO mode 802.11a and MIMO modes 802.11n (HT20), 802.11n (HT40), 802.11ac (VHT20), 802.11ac (VHT40), and 802.11ac (VHT80).

6.9. Frequency Stability Measurement

6.9.1. Test Specification

Test Requirement:	FCC Part15 Section 15.407(g) &Part2 J Section 2.1055
Test Method:	ANSI C63.10: 2020
Limit:	The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 45 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.
Test Setup:	 <pre> graph LR SA[Spectrum Analyzer] --- EUT[EUT] subgraph TC [Temperature Chamber] EUT end EUT --- P[AC/DC Power supply] </pre>
Test Procedure:	The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage. b. Turn the EUT on and couple its output to a spectrum analyzer. c. Turn the EUT off and set the chamber to the highest temperature specified. d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature. f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.
Test Result:	PASS
Remark:	Pre-scan was performed at all models(11a,11n,11ac), Antenna 1 and Antenna 2, the worst case (11n, Antenna 2) was found and test data was shown in this report.

6.9.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Date of Cal.	Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jun. 27, 2024	Jun. 26, 2025
DC power supply	Kingrang	KR3005K	/	Jun. 27, 2024	Jun. 26, 2025
Programable tempratuce and humidity chamber	JQ	JQ-2000	510101234	Jun. 27, 2024	Jun. 26, 2025

Test plots as follows:

Test mode:		802.11ac(VHT20)	Frequency(MHz):	5180
Temperature (°C)	Voltage(V _{DC})	Measurement Frequency(MHz)	Delta Frequency(Hz)	Result
45	7.6V	5179.94	-60000	PASS
35		5179.96	-40000	PASS
25		5179.96	-40000	PASS
15		5179.94	-60000	PASS
5		5179.96	-40000	PASS
0		5179.96	-40000	PASS
25	6.0V	5179.94	-60000	PASS
	7.6V	5179.96	-40000	PASS
	8.7V	5179.94	-60000	PASS

Test mode:		802.11ac(VHT20)	Frequency(MHz):	5200
Temperature (°C)	Voltage(V _{DC})	Measurement Frequency(MHz)	Delta Frequency(Hz)	Result
45	7.6V	5199.96	-40000	PASS
35		5199.98	-20000	PASS
25		5199.98	-20000	PASS
15		5199.96	-40000	PASS
5		5199.96	-40000	PASS
0		5199.96	-40000	PASS
25	6.0V	5199.96	-40000	PASS
	7.6V	5199.94	-60000	PASS
	8.7V	5199.96	-40000	PASS

Test mode:		802.11ac(VHT20)	Frequency(MHz):	5240
Temperature (°C)	Voltage(V _{DC})	Measurement Frequency(MHz)	Delta Frequency(Hz)	Result
45	7.6V	5239.96	-40000	PASS
35		5239.96	-40000	PASS
25		5239.96	-40000	PASS
15		5239.96	-40000	PASS
5		5239.96	-40000	PASS
0		5239.96	-40000	PASS
25	6.0V	5239.94	-60000	PASS
	7.6V	5239.94	-60000	PASS
	8.7V	5239.96	-40000	PASS

Test mode:		802.11ac(VHT40)	Frequency(MHz):	5190
Temperature (°C)	Voltage(V _{DC})	Measurement Frequency(MHz)	Delta Frequency(Hz)	Result
45	7.6V	5189.92	-80000	PASS
35		5189.96	-40000	PASS
25		5189.96	-40000	PASS
15		5189.96	-40000	PASS
5		5189.96	-40000	PASS
0		5189.96	-40000	PASS
25	6.0V	5189.96	-40000	PASS
	7.6V	5189.96	-40000	PASS
	8.7V	5189.96	-40000	PASS

Test mode:		802.11ac(VHT40)	Frequency(MHz):	5230
Temperature (°C)	Voltage(V _{DC})	Measurement Frequency(MHz)	Delta Frequency(Hz)	Result
45	7.6V	5229.96	-40000	PASS
35		5229.96	-40000	PASS
25		5229.96	-40000	PASS
15		5229.96	-40000	PASS
5		5229.96	-40000	PASS
0		5229.96	-40000	PASS
25	6.0V	5229.96	-40000	PASS
	7.6V	5229.96	-40000	PASS
	8.7V	5229.96	-40000	PASS

Test mode:		802.11ac(VHT80)	Frequency(MHz):	5210
Temperature (°C)	Voltage(V _{DC})	Measurement Frequency(MHz)	Delta Frequency(Hz)	Result
45	7.6V	5209.92	-80000	PASS
35		5210	0	PASS
25		5209.92	-80000	PASS
15		5210	0	PASS
5		5209.92	-80000	PASS
0		5210	0	PASS
20	6.0V	5210	0	PASS
	7.6V	5210	0	PASS
	8.7V	5209.92	-80000	PASS

Appendix A: Test Result of Conducted Test

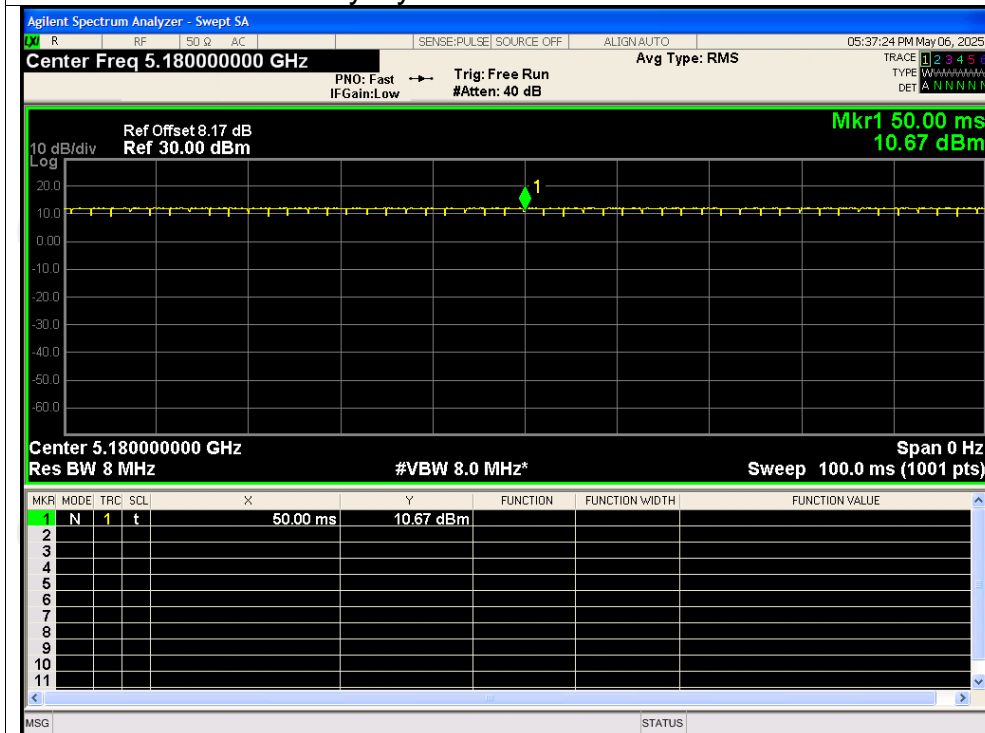
Antenna 1

Duty Cycle

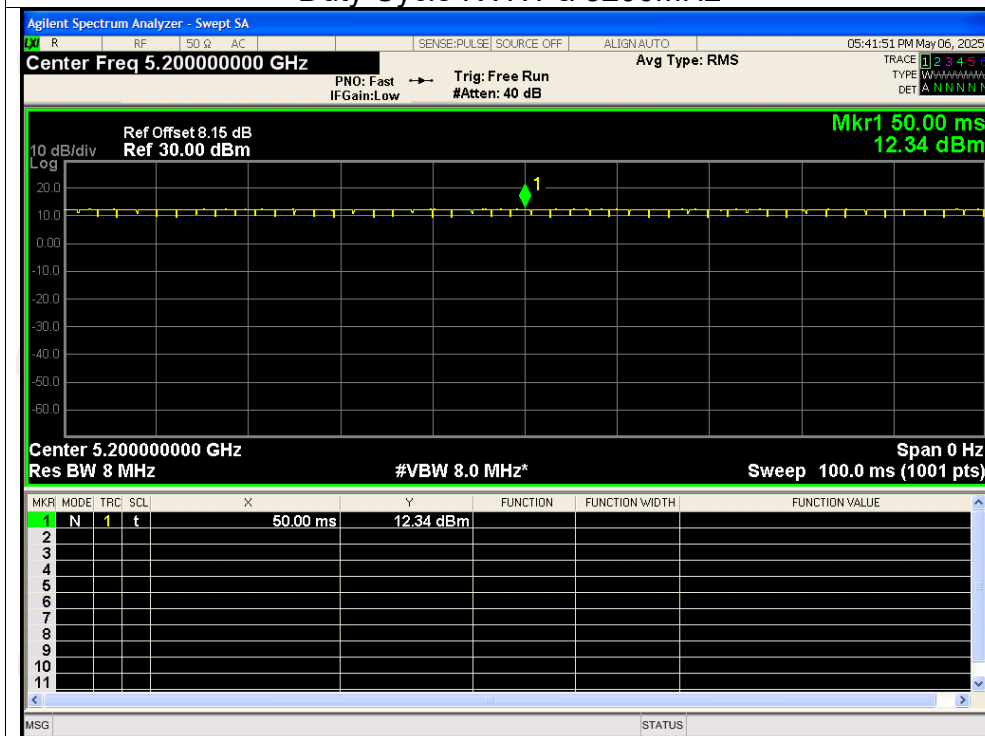
Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)
NVNT	a	5180	100	0
NVNT	a	5200	100	0
NVNT	a	5240	100	0
NVNT	n20	5180	100	0
NVNT	n20	5200	100	0
NVNT	n20	5240	100	0
NVNT	n40	5190	100	0
NVNT	n40	5230	100	0
NVNT	ac20	5180	100	0
NVNT	ac20	5200	100	0
NVNT	ac20	5240	100	0
NVNT	ac40	5190	100	0
NVNT	ac40	5230	100	0
NVNT	ac80	5210	100	0

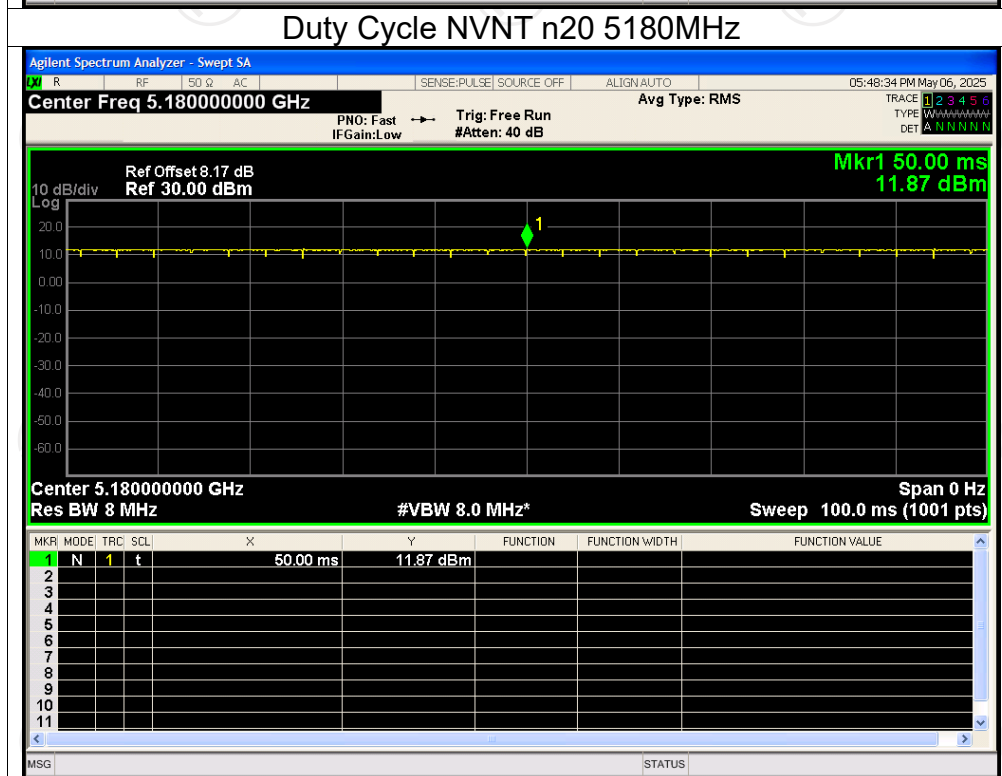
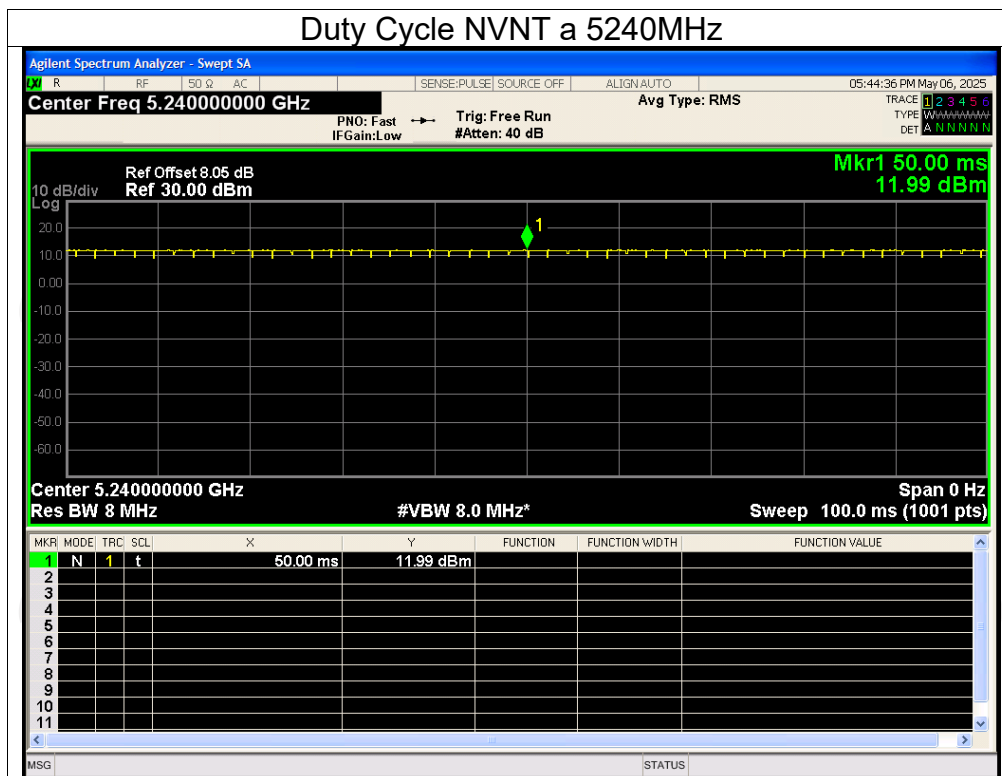
Test Graphs

Duty Cycle NVNT a 5180MHz

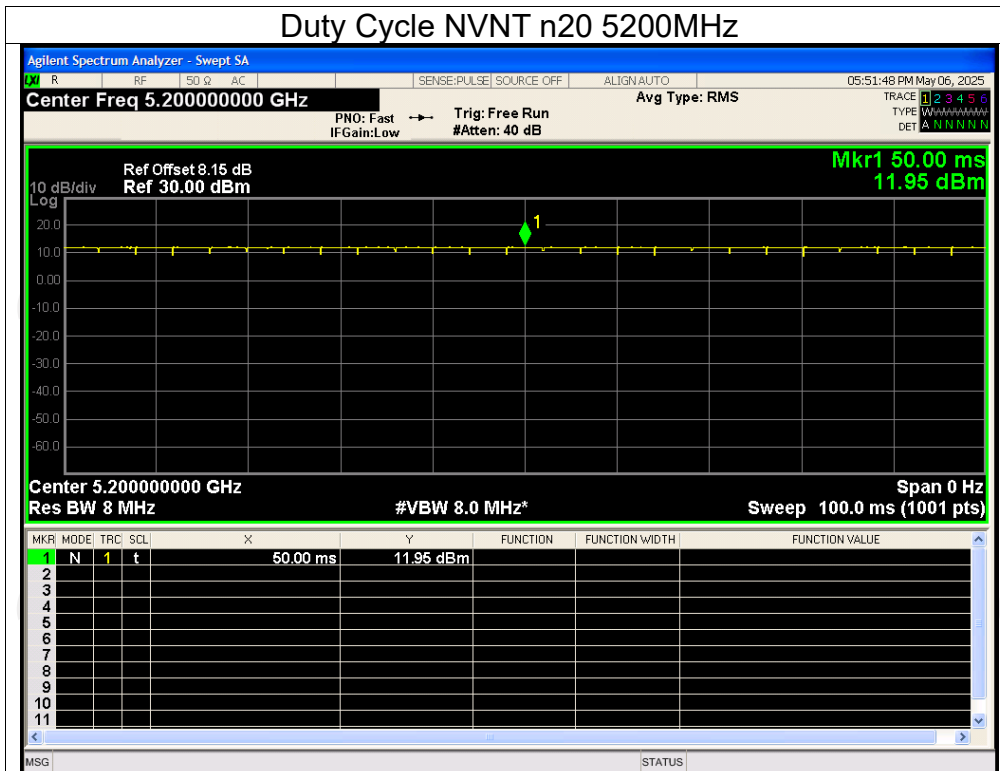


Duty Cycle NVNT a 5200MHz

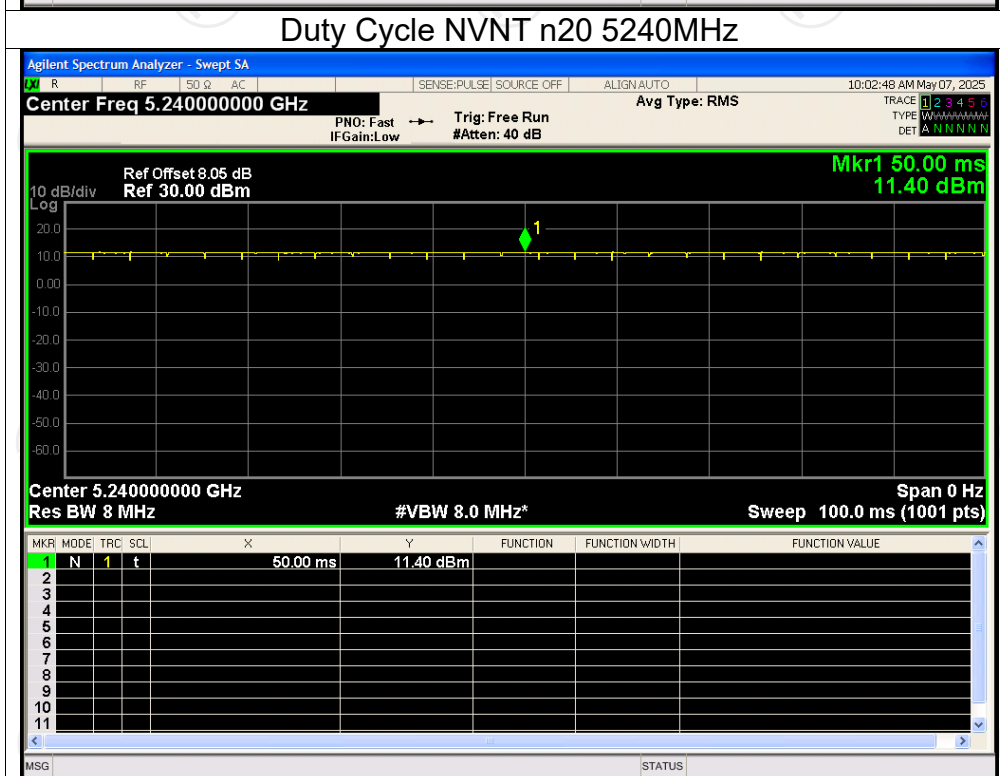




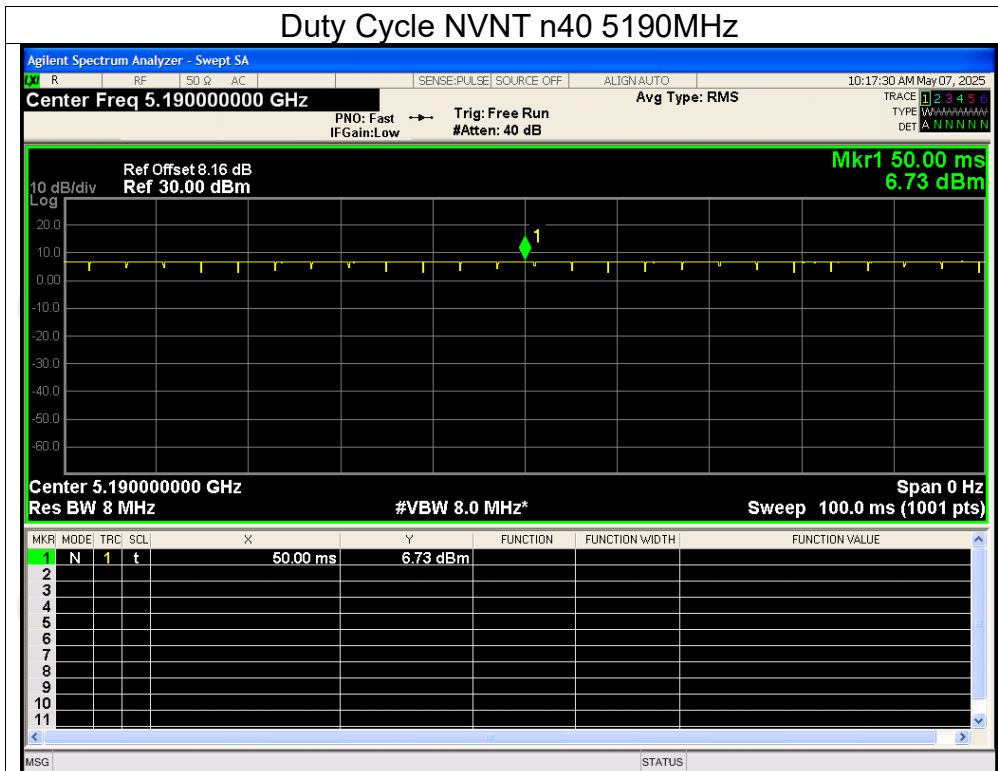
Duty Cycle NVNT n20 5200MHz



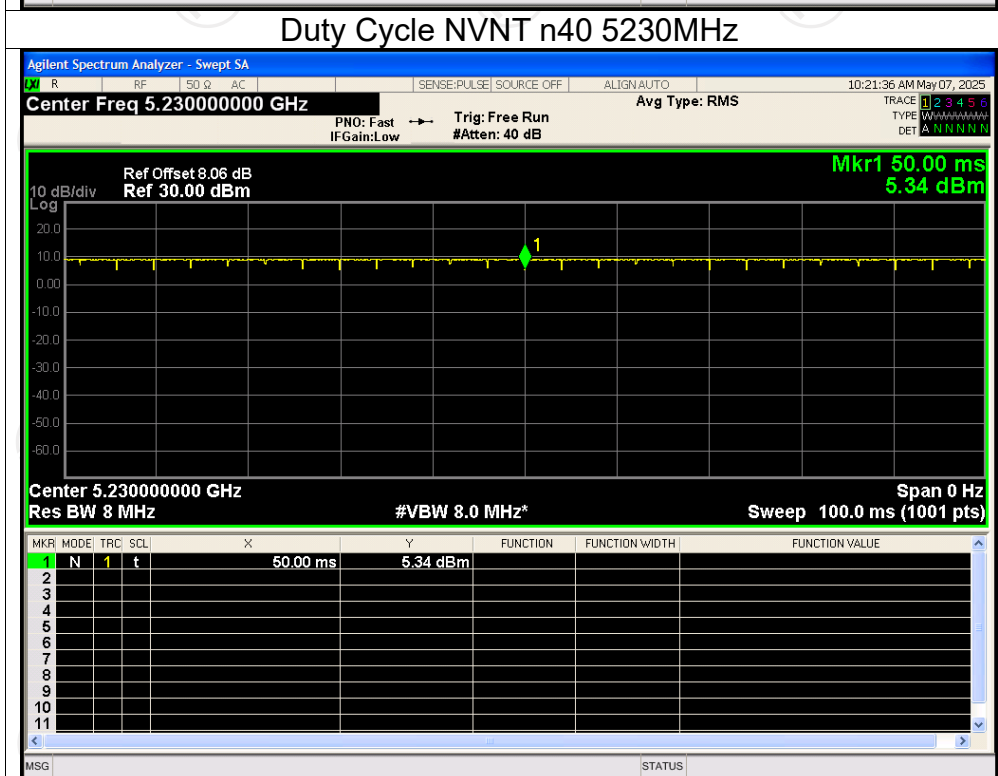
Duty Cycle NVNT n20 5240MHz



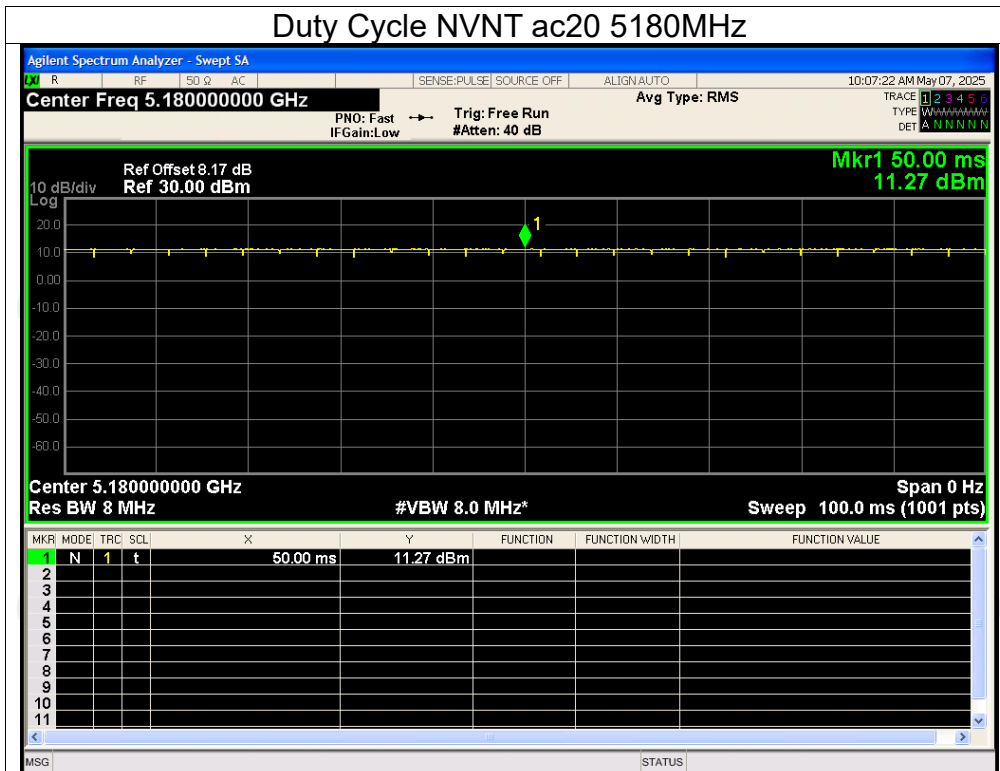
Duty Cycle NVNT n40 5190MHz



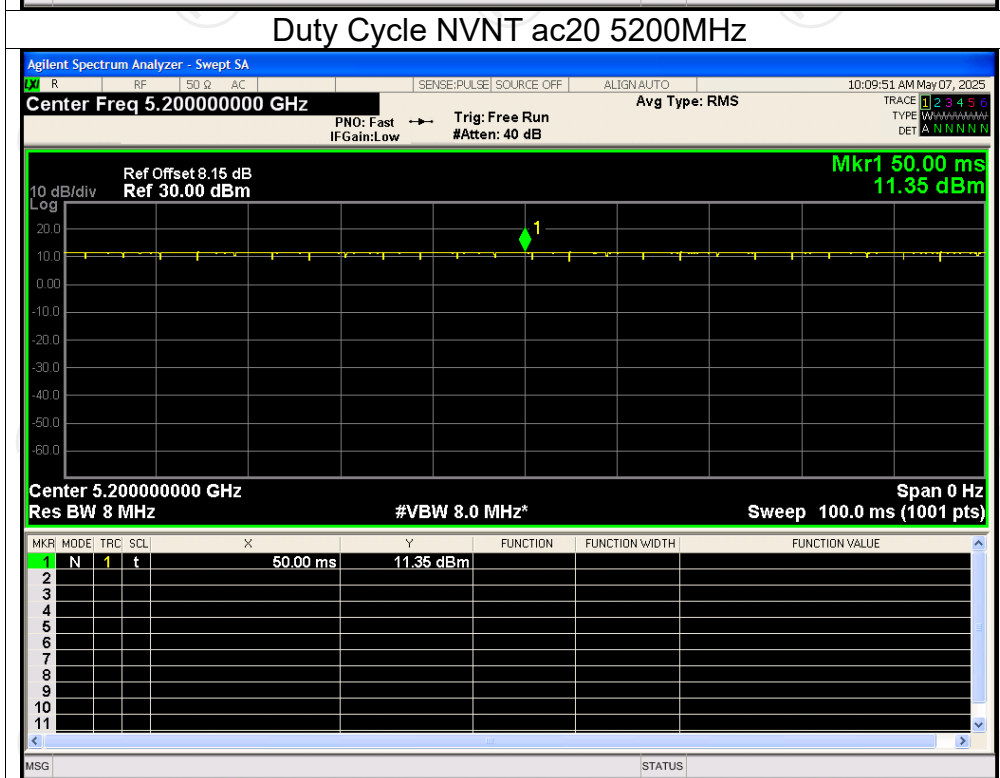
Duty Cycle NVNT n40 5230MHz



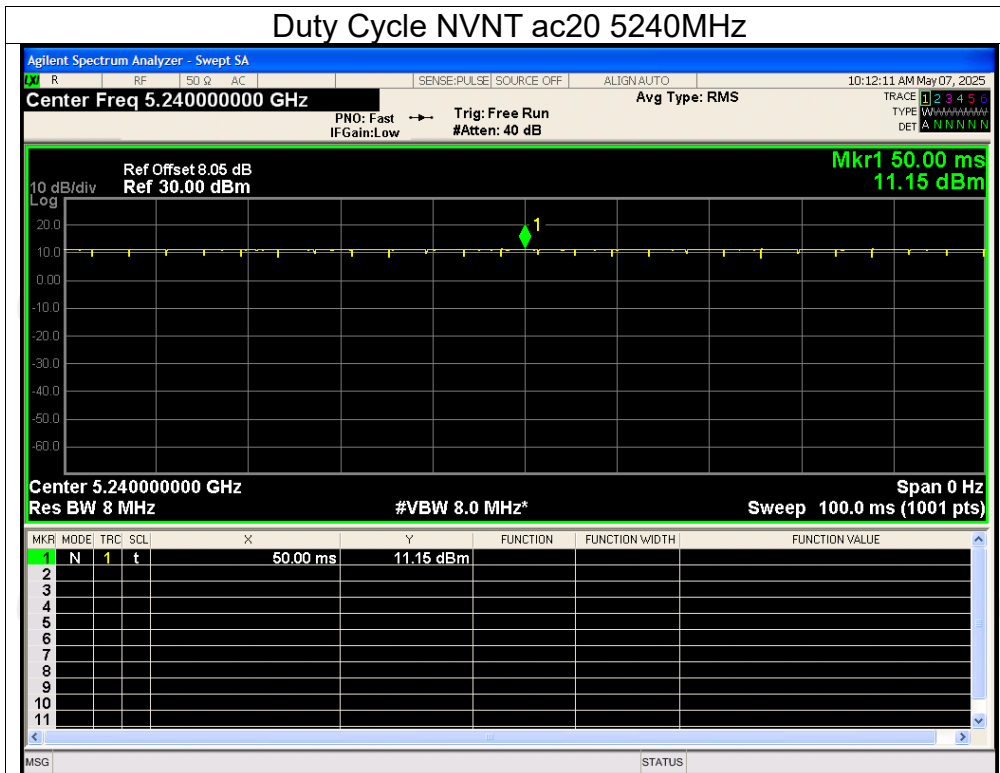
Duty Cycle NVNT ac20 5180MHz



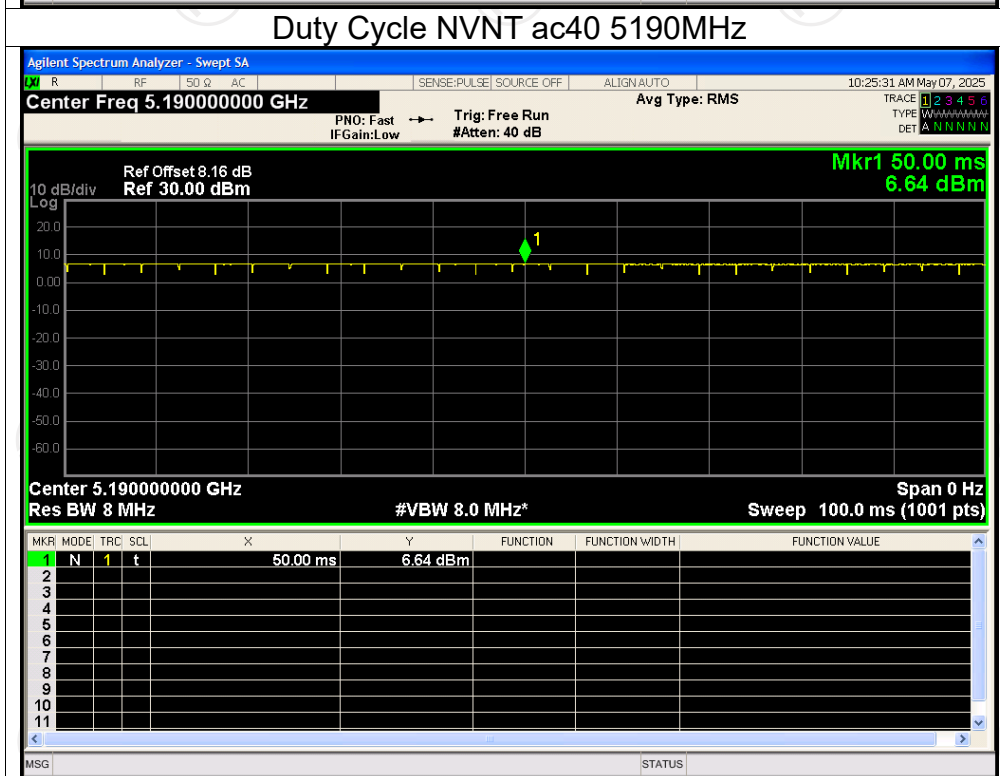
Duty Cycle NVNT ac20 5200MHz



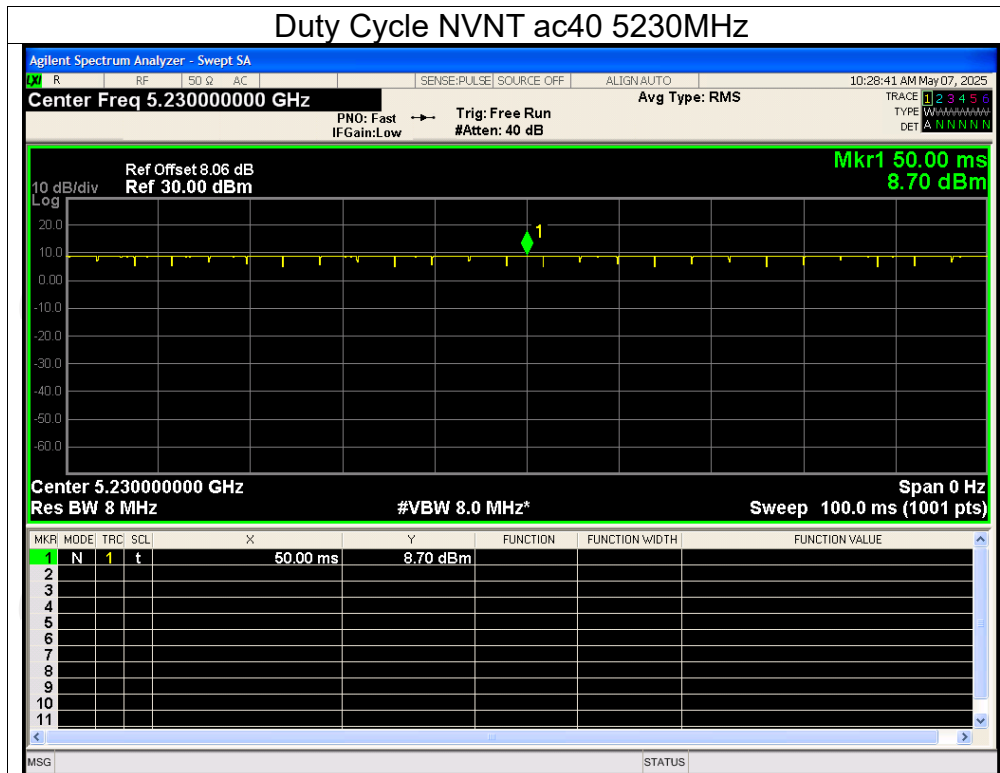
Duty Cycle NVNT ac20 5240MHz



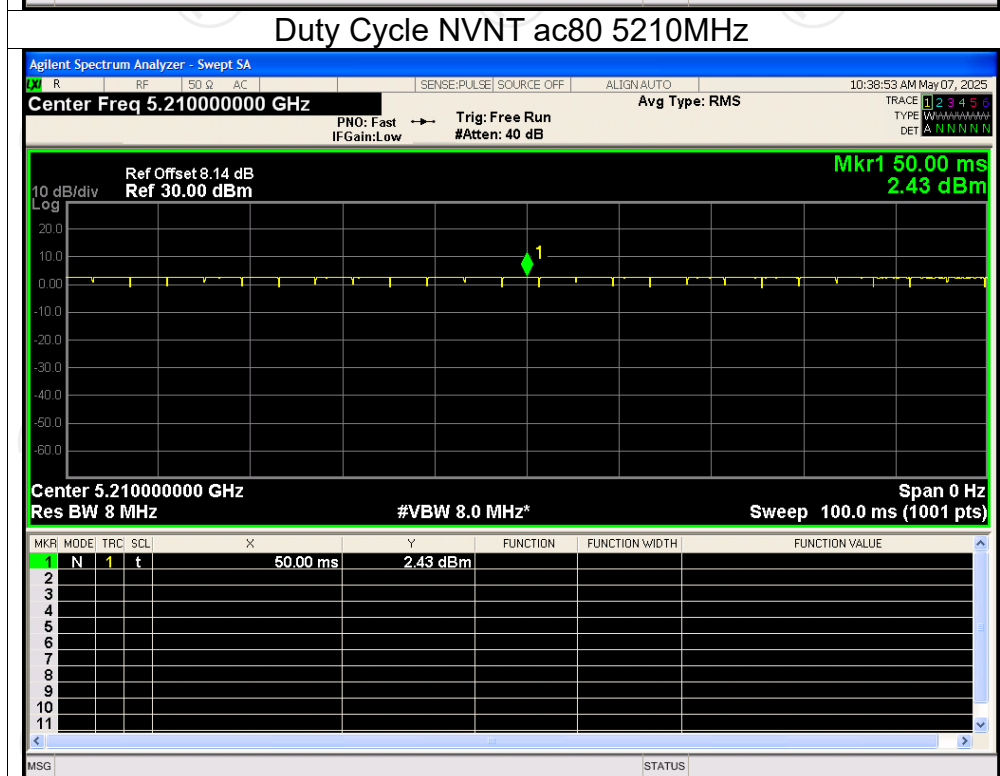
Duty Cycle NVNT ac40 5190MHz



Duty Cycle NVNT ac40 5230MHz



Duty Cycle NVNT ac80 5210MHz

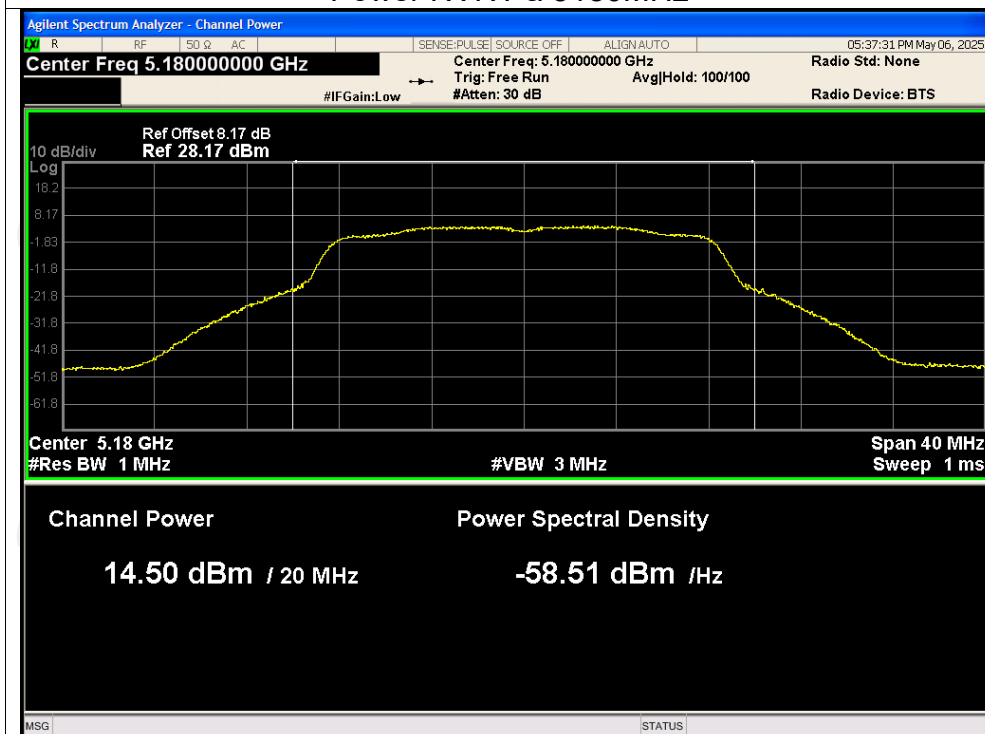


Maximum Conducted Output Power

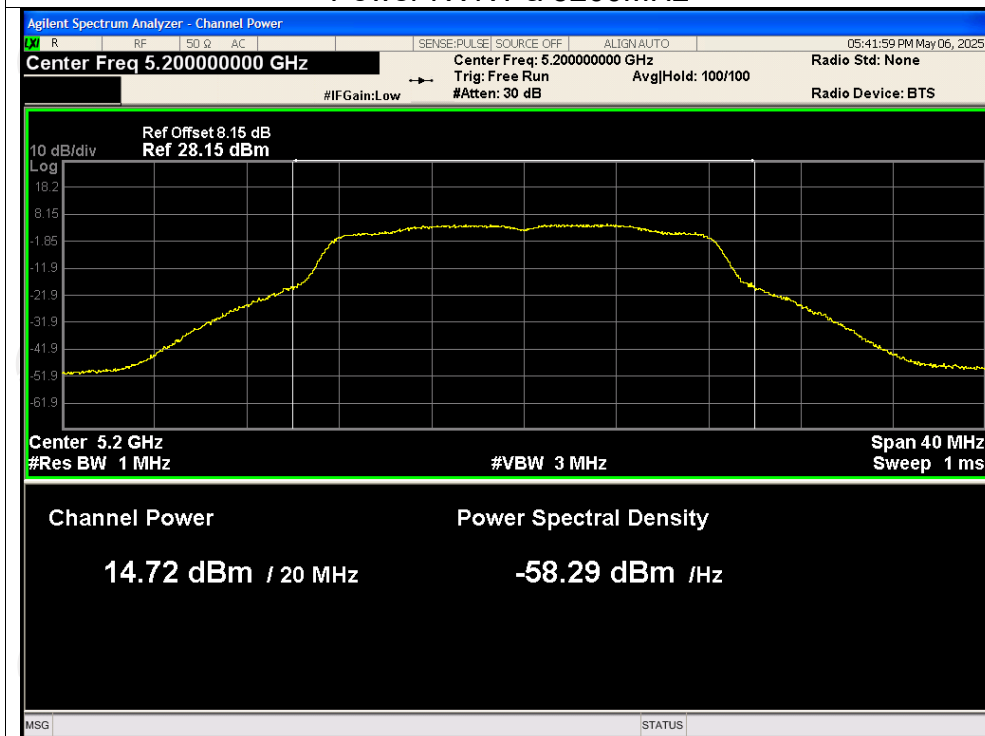
Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	14.50	24	Pass
NVNT	a	5200	14.72	24	Pass
NVNT	a	5240	14.31	24	Pass
NVNT	n20	5180	14.45	24	Pass
NVNT	n20	5200	14.63	24	Pass
NVNT	n20	5240	14.17	24	Pass
NVNT	n40	5190	13.26	24	Pass
NVNT	n40	5230	15.45	24	Pass
NVNT	ac20	5180	14.15	24	Pass
NVNT	ac20	5200	14.32	24	Pass
NVNT	ac20	5240	13.97	24	Pass
NVNT	ac40	5190	12.98	24	Pass
NVNT	ac40	5230	15.04	24	Pass
NVNT	ac80	5210	11.81	24	Pass

Test Graphs

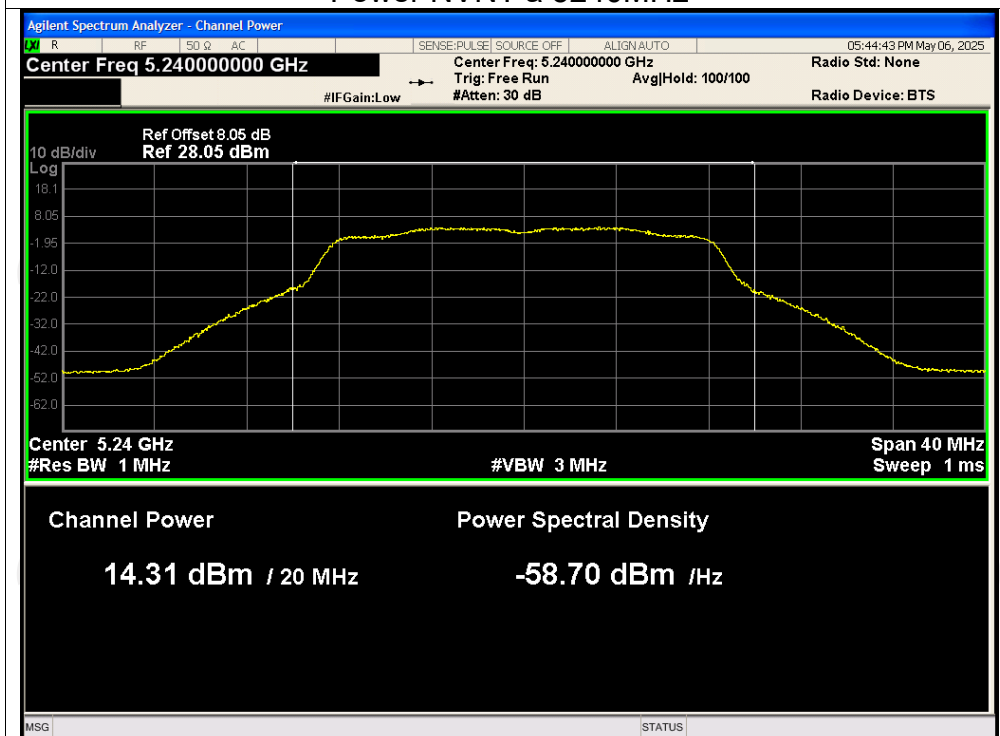
Power NVNT a 5180MHz



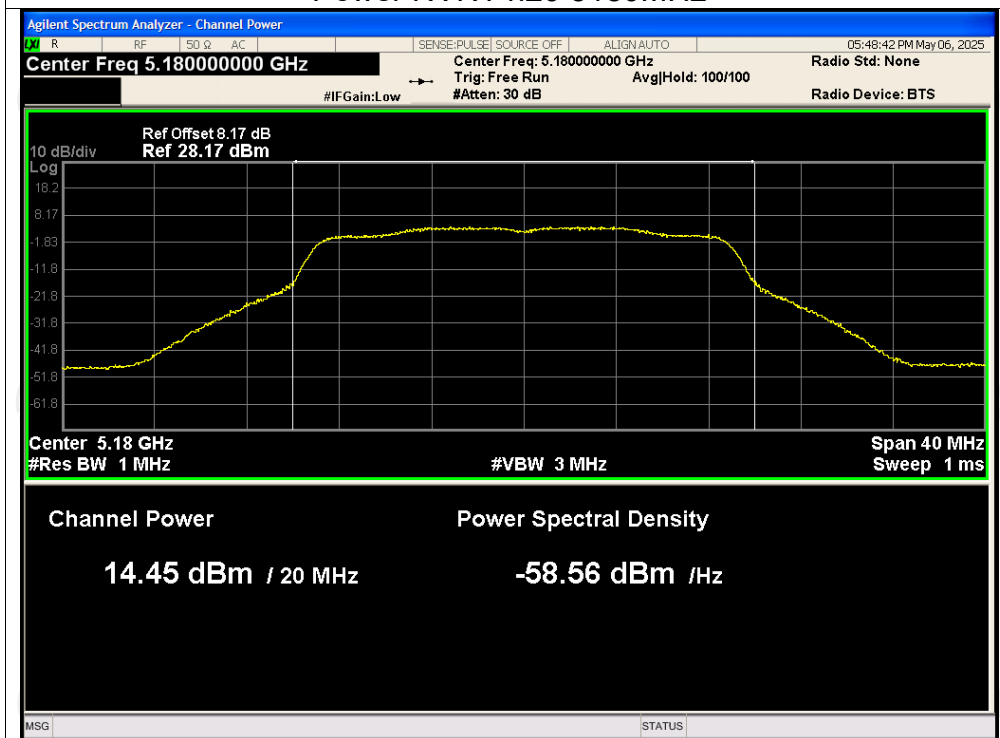
Power NVNT a 5200MHz



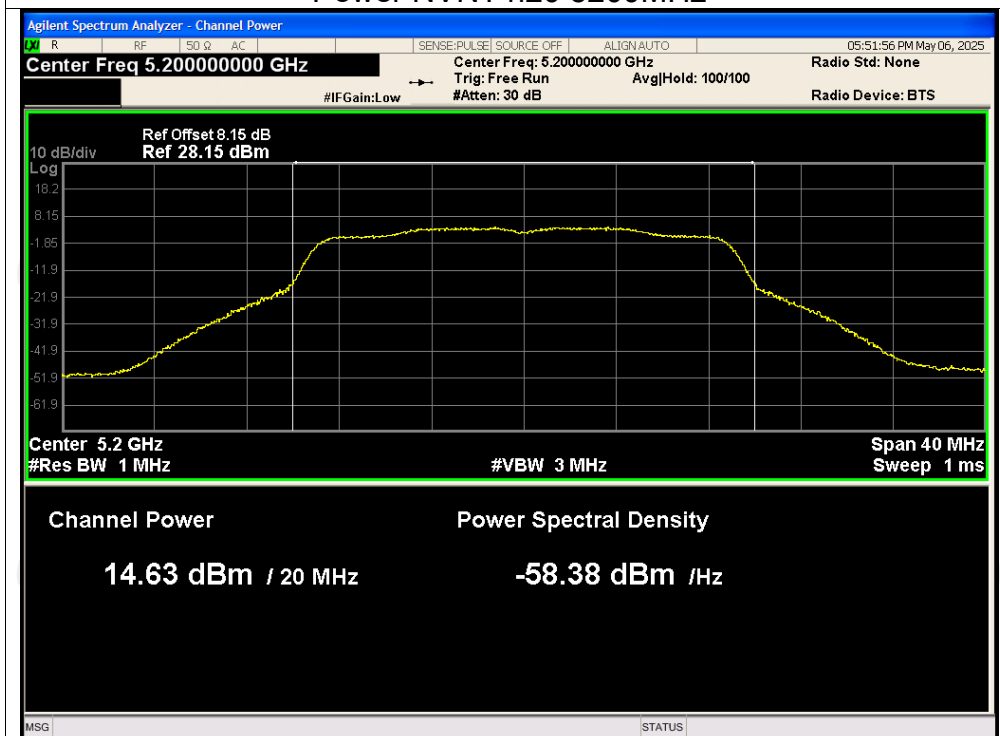
Power NVNT a 5240MHz



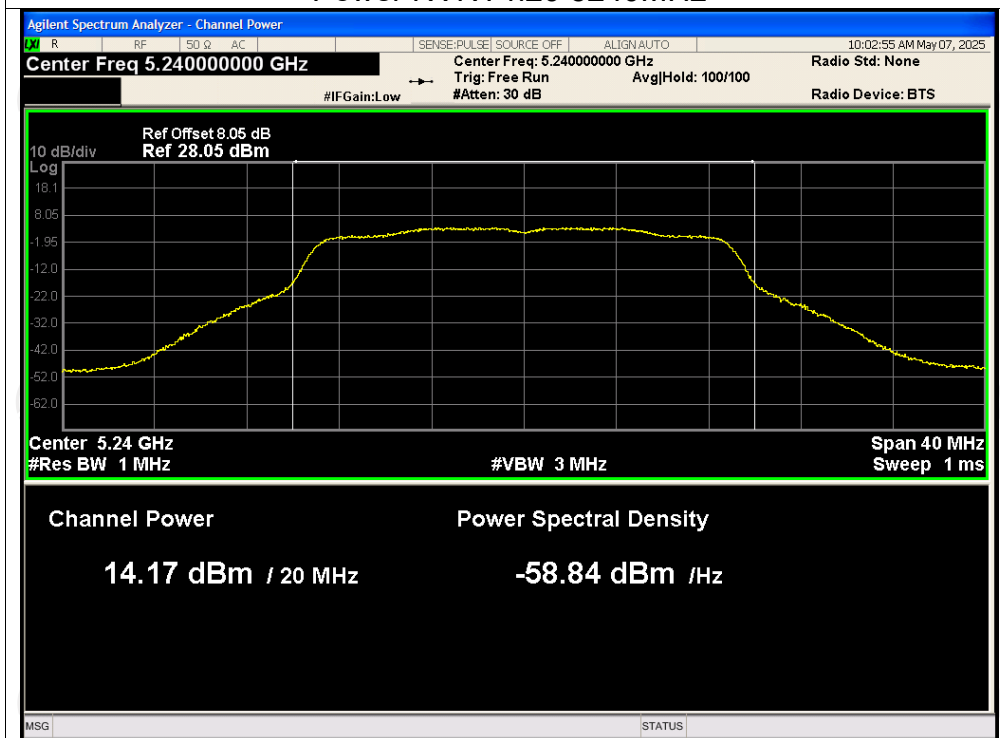
Power NVNT n20 5180MHz



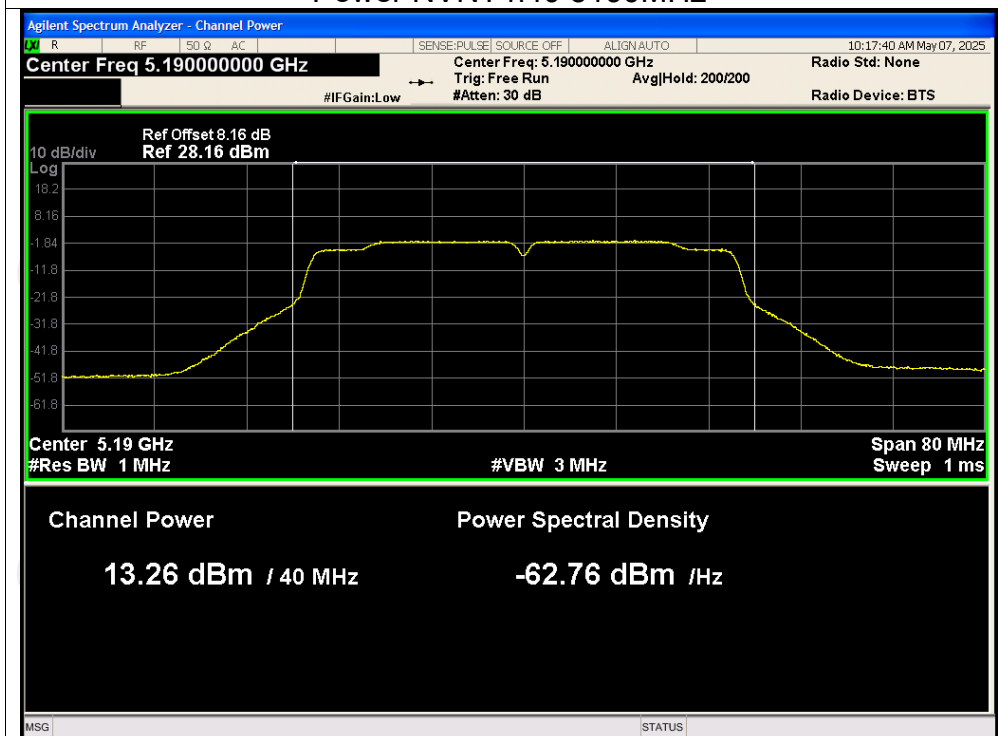
Power NVNT n20 5200MHz



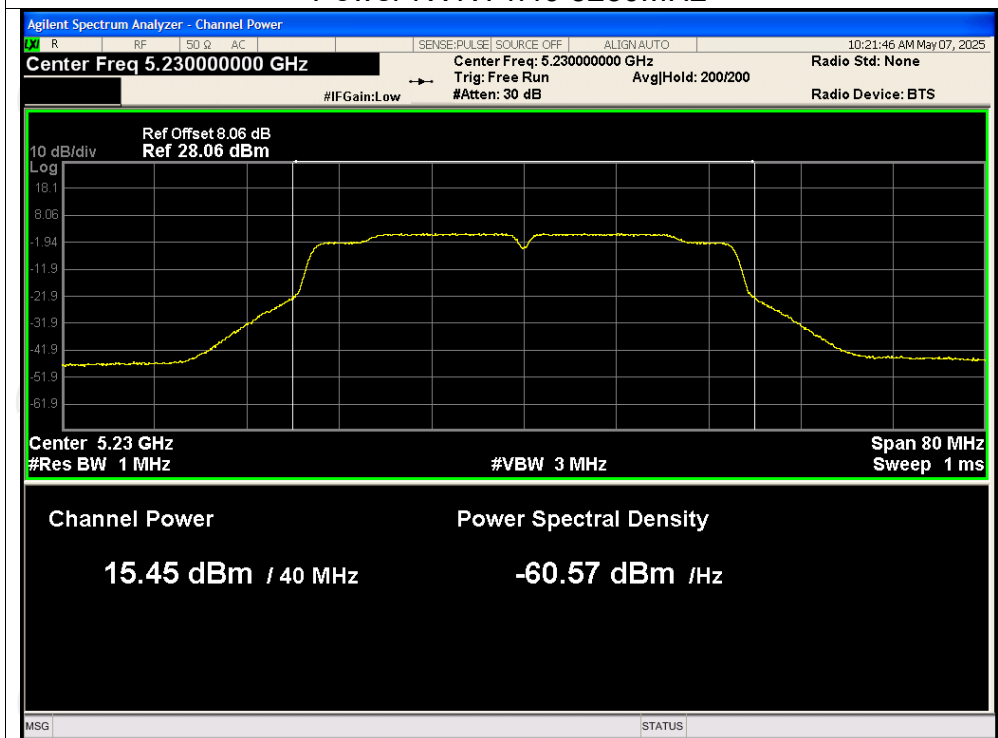
Power NVNT n20 5240MHz



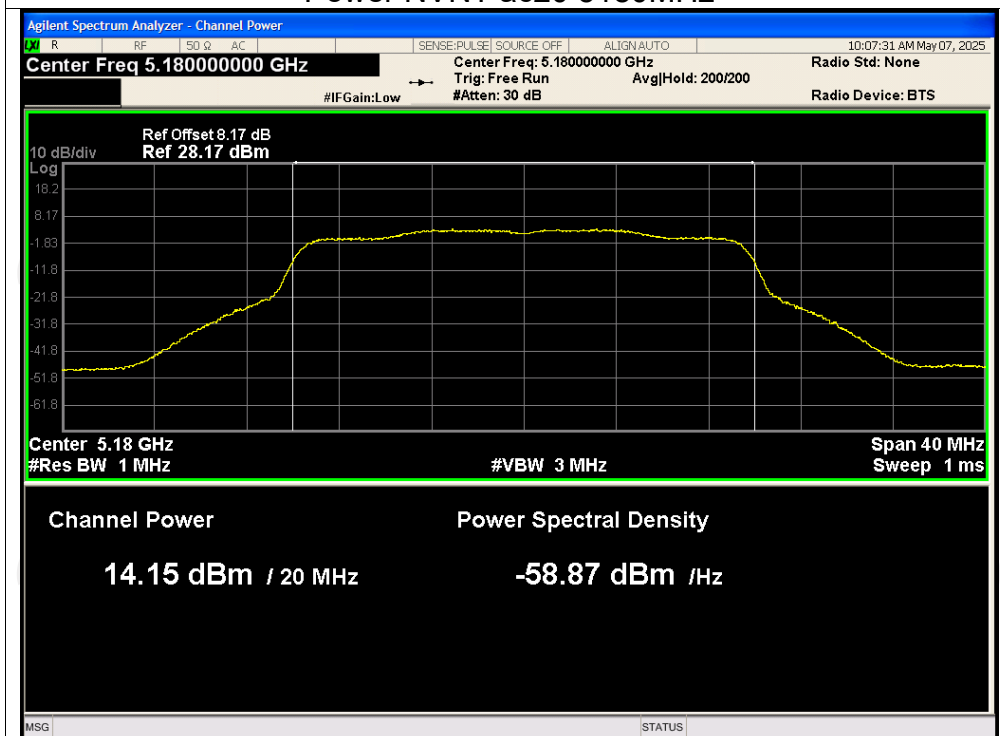
Power NVNT n40 5190MHz



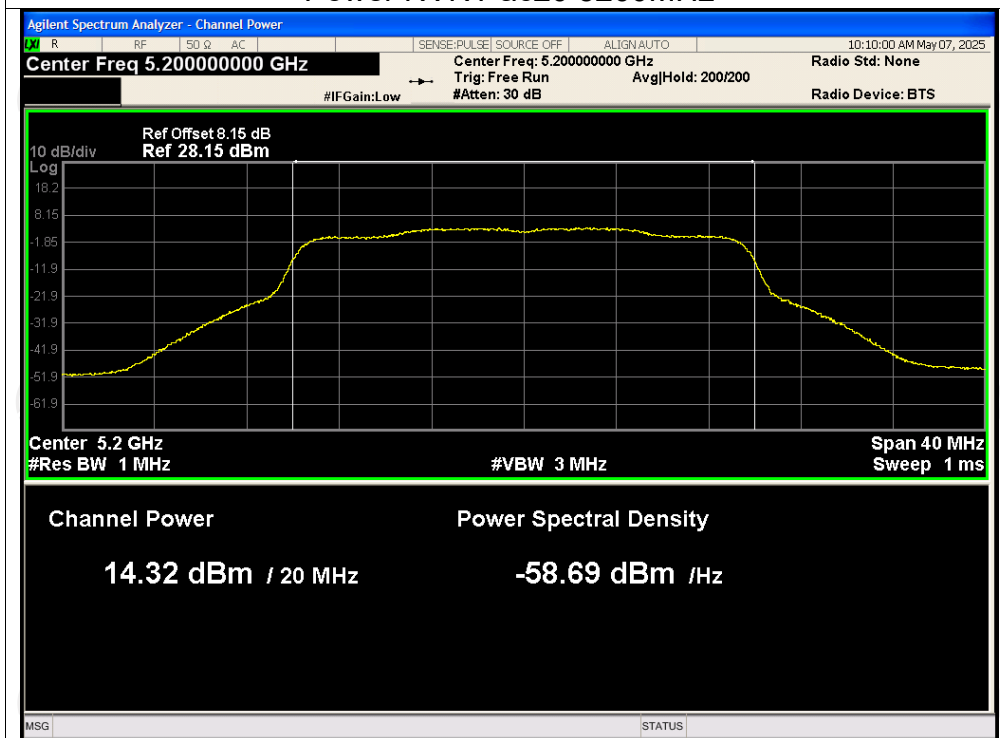
Power NVNT n40 5230MHz



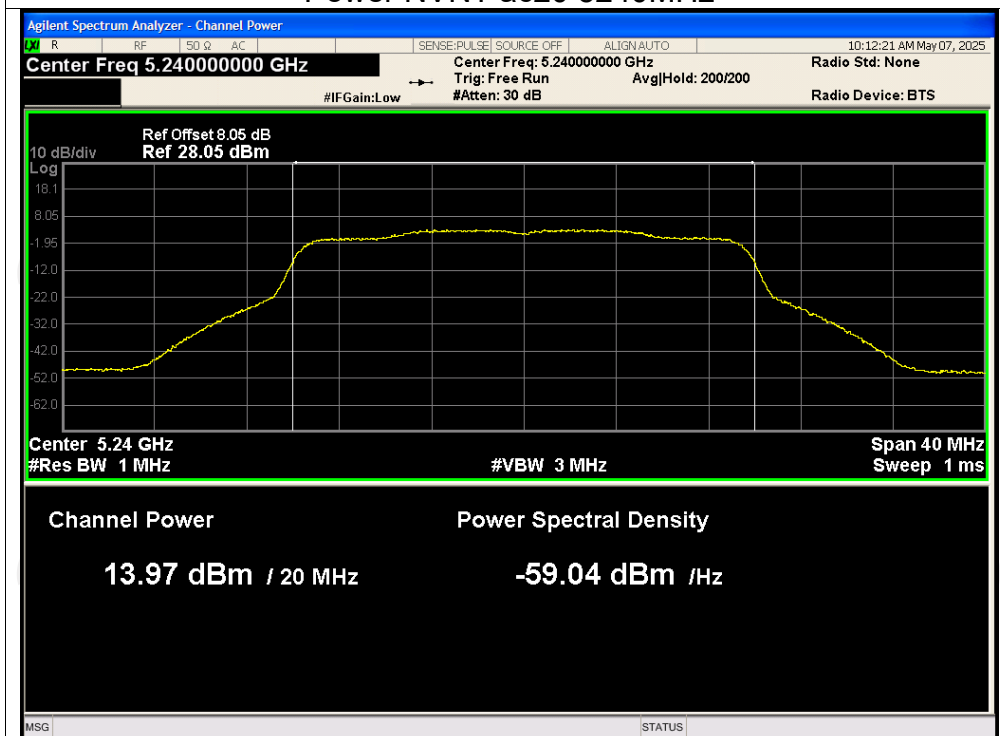
Power NVNT ac20 5180MHz



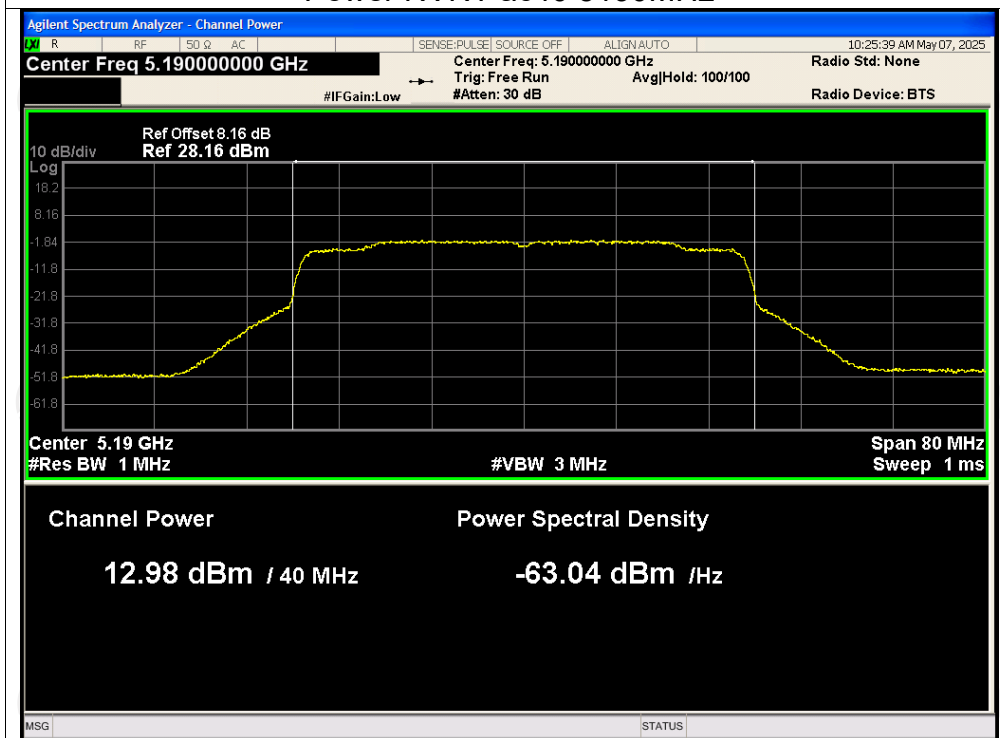
Power NVNT ac20 5200MHz



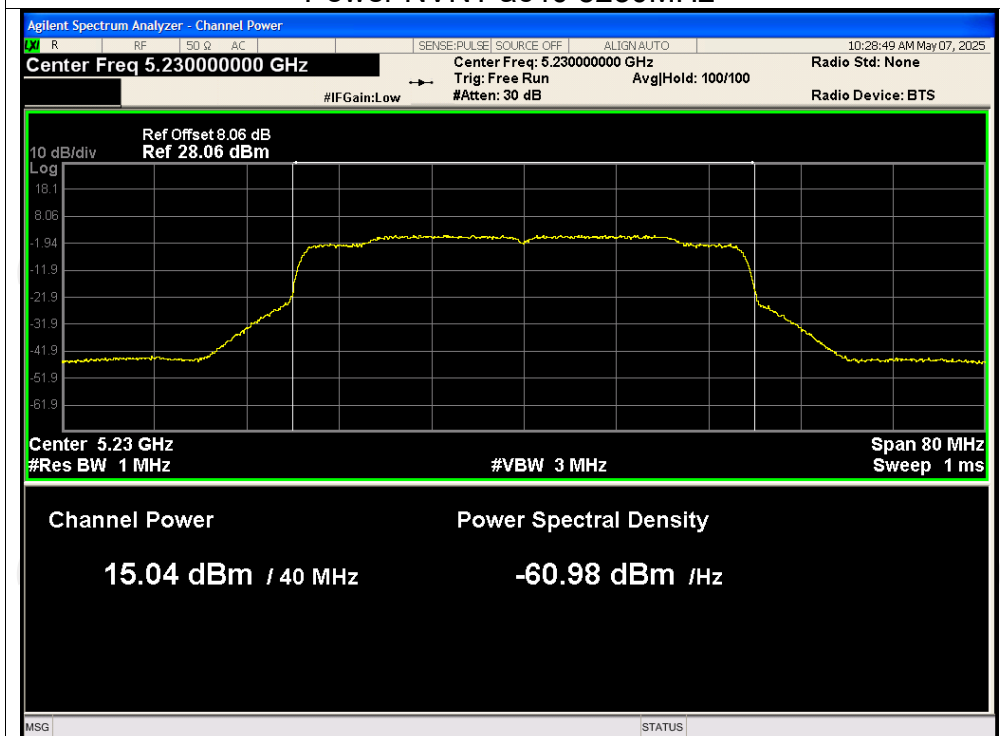
Power NVNT ac20 5240MHz



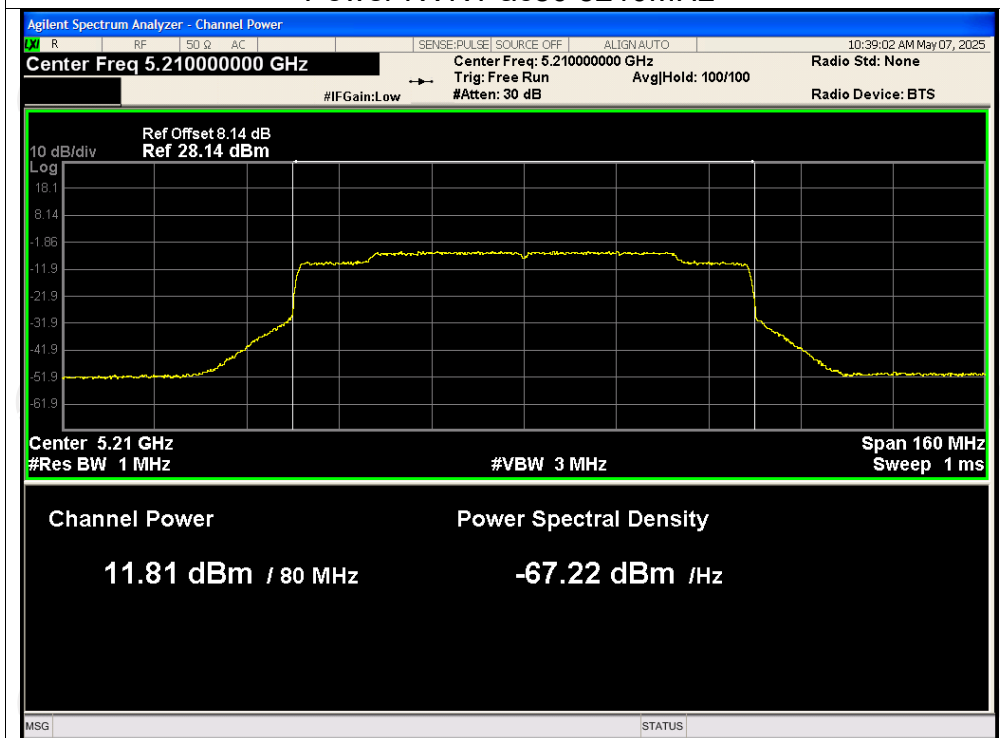
Power NVNT ac40 5190MHz



Power NVNT ac40 5230MHz



Power NVNT ac80 5210MHz

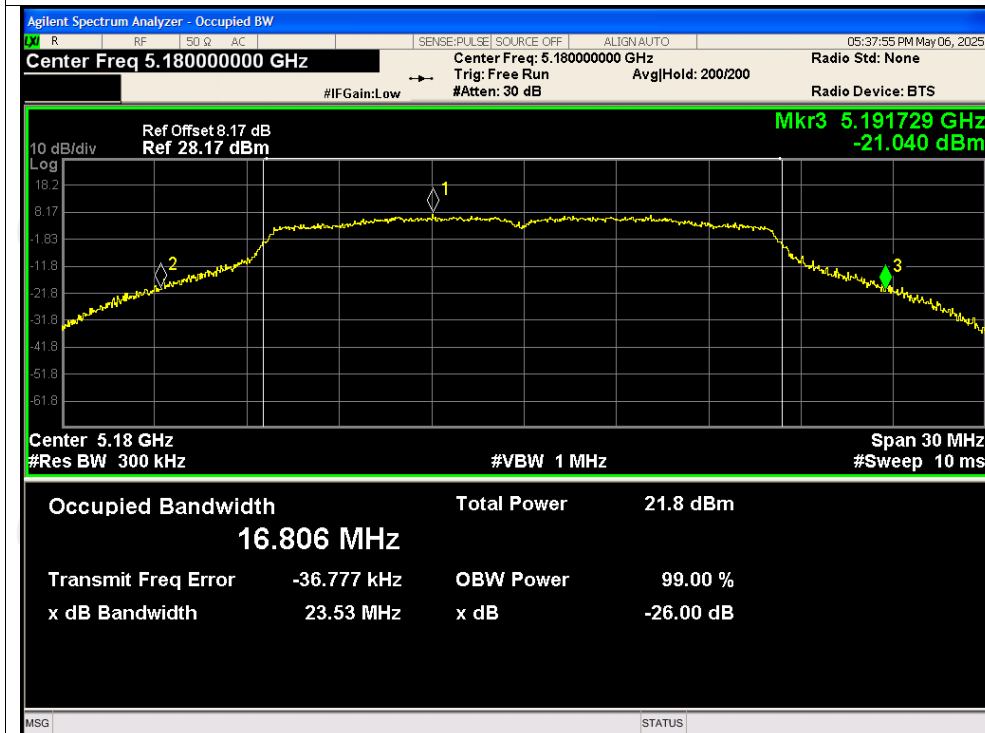


-26dB Bandwidth

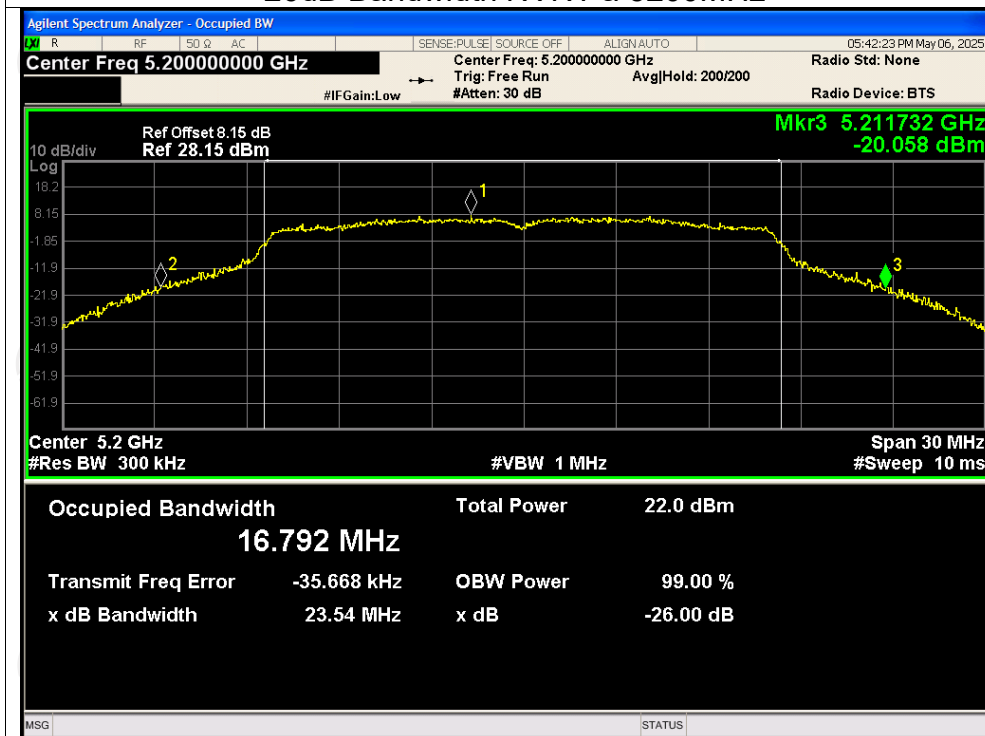
Condition	Mode	Frequency (MHz)	-26 dB Bandwidth (MHz)	Verdict
NVNT	a	5180	23.531	Pass
NVNT	a	5200	23.536	Pass
NVNT	a	5240	23.647	Pass
NVNT	n20	5180	24.458	Pass
NVNT	n20	5200	24.068	Pass
NVNT	n20	5240	24.015	Pass
NVNT	n40	5190	42.915	Pass
NVNT	n40	5230	43.614	Pass
NVNT	ac20	5180	23.614	Pass
NVNT	ac20	5200	23.949	Pass
NVNT	ac20	5240	24.030	Pass
NVNT	ac40	5190	42.510	Pass
NVNT	ac40	5230	42.559	Pass
NVNT	ac80	5210	81.679	Pass

Test Graphs

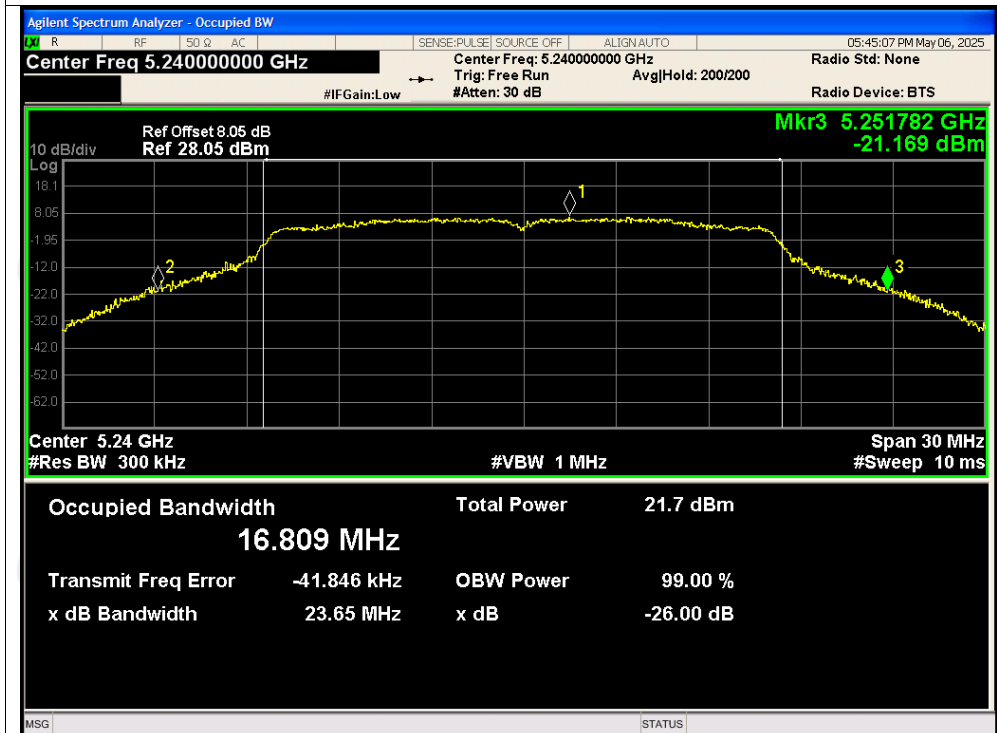
-26dB Bandwidth NVNT a 5180MHz



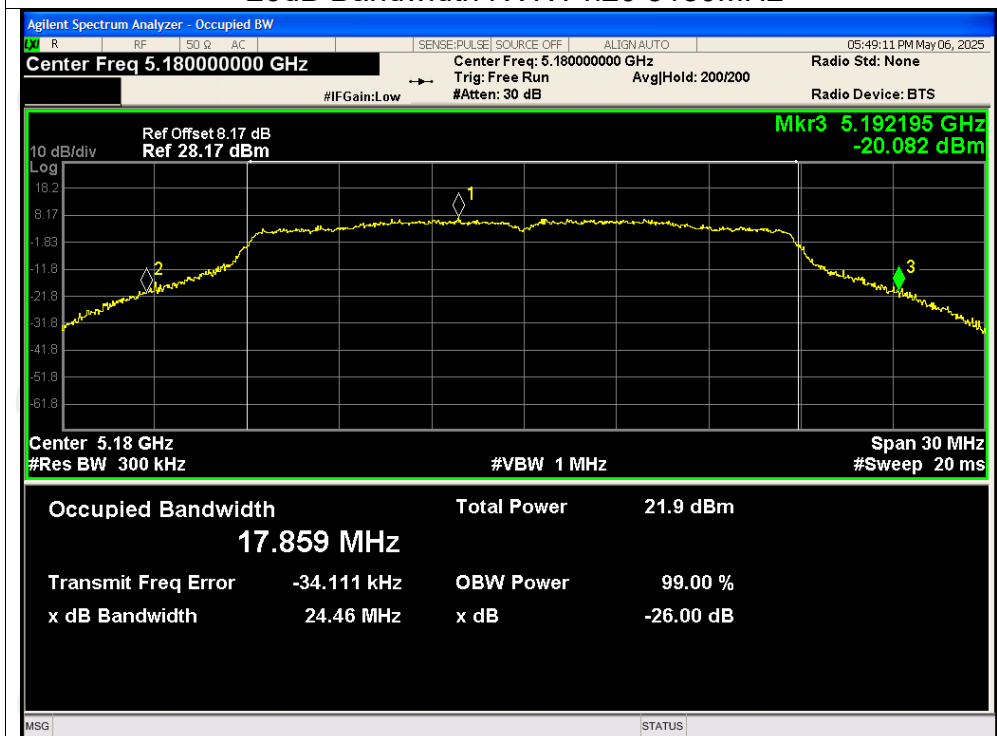
-26dB Bandwidth NVNT a 5200MHz



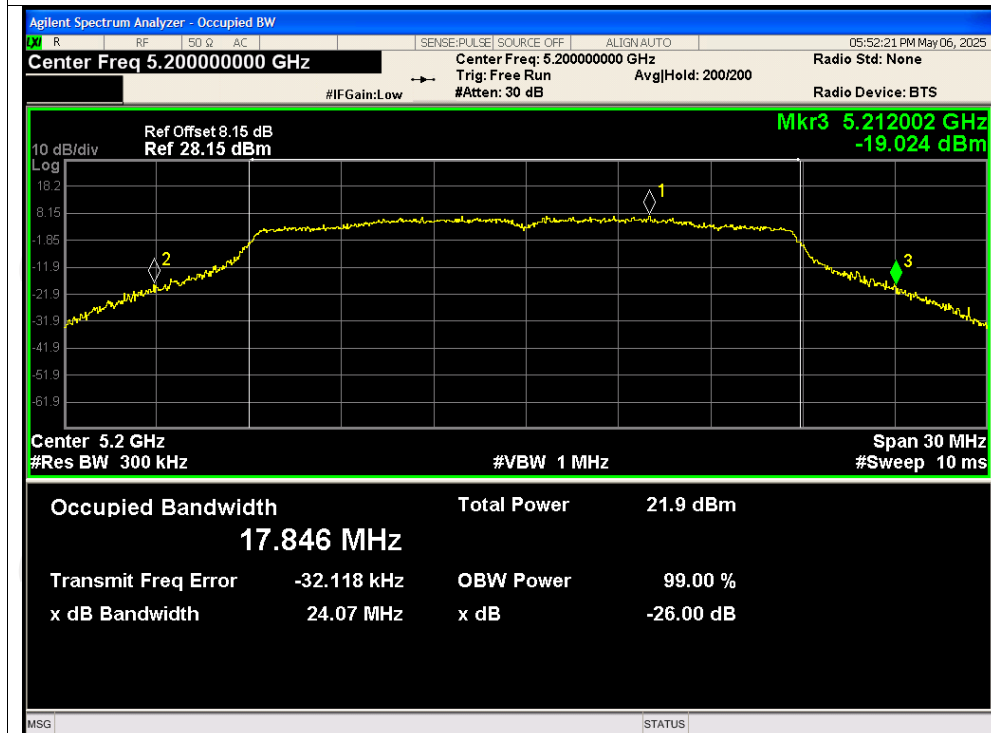
-26dB Bandwidth NVNT a 5240MHz



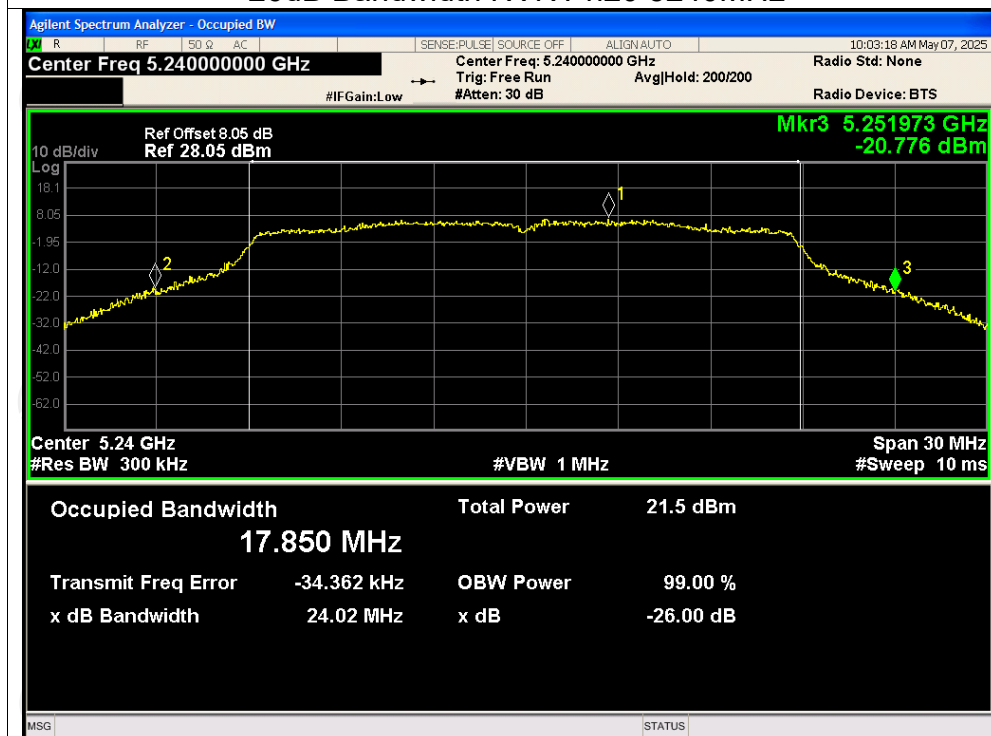
-26dB Bandwidth NVNT n20 5180MHz



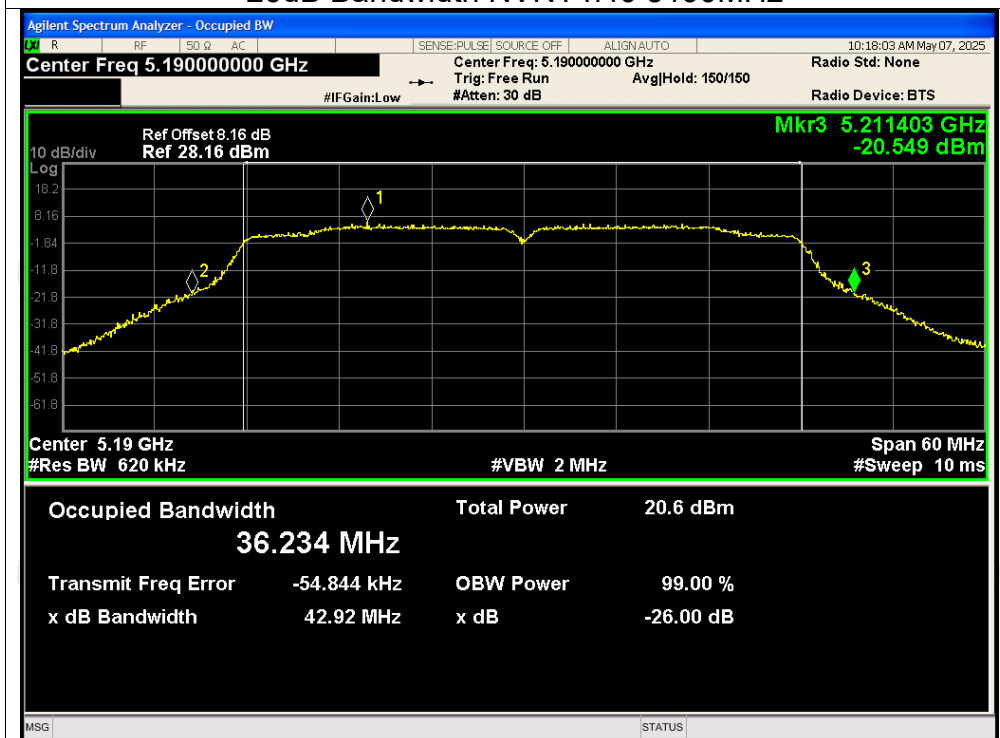
-26dB Bandwidth NVNT n20 5200MHz



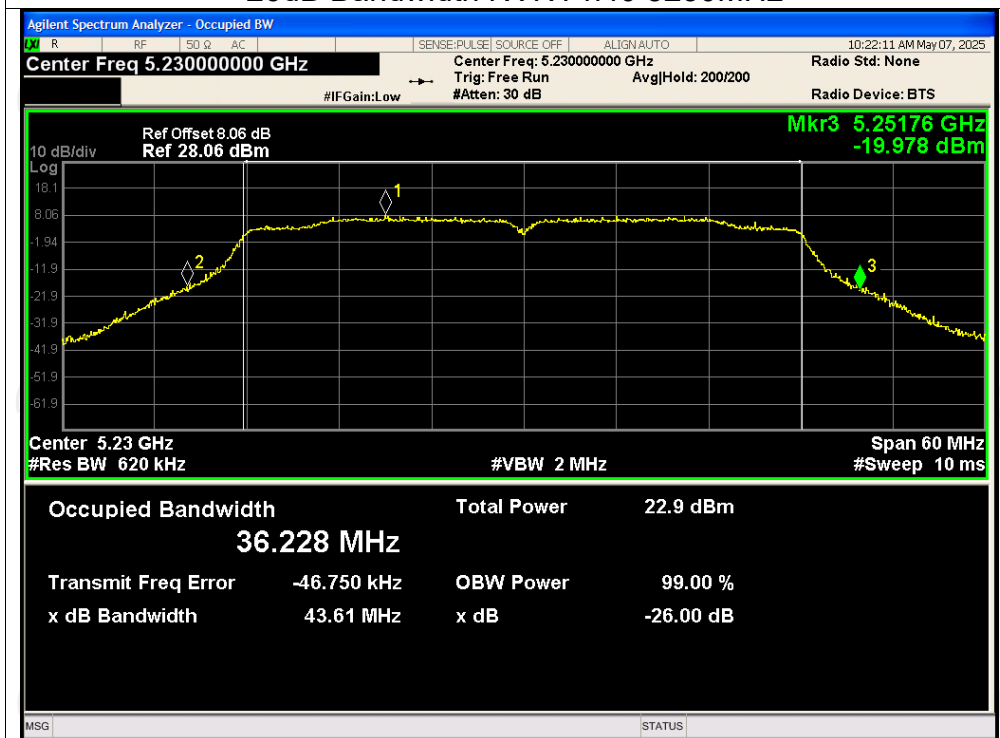
-26dB Bandwidth NVNT n20 5240MHz



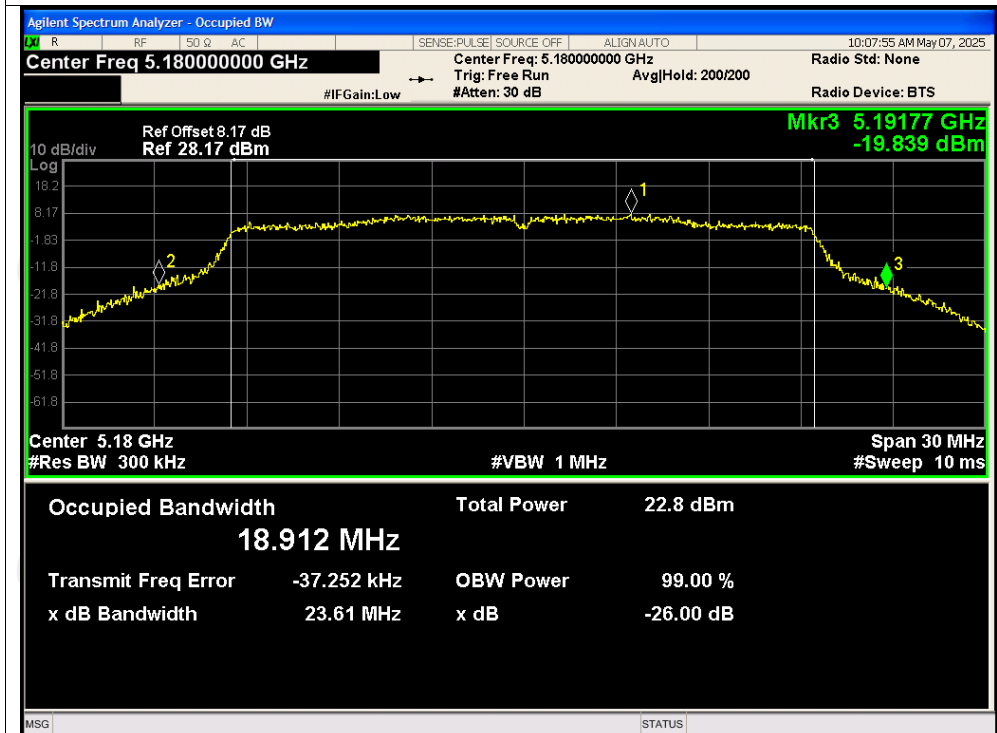
-26dB Bandwidth NVNT n40 5190MHz



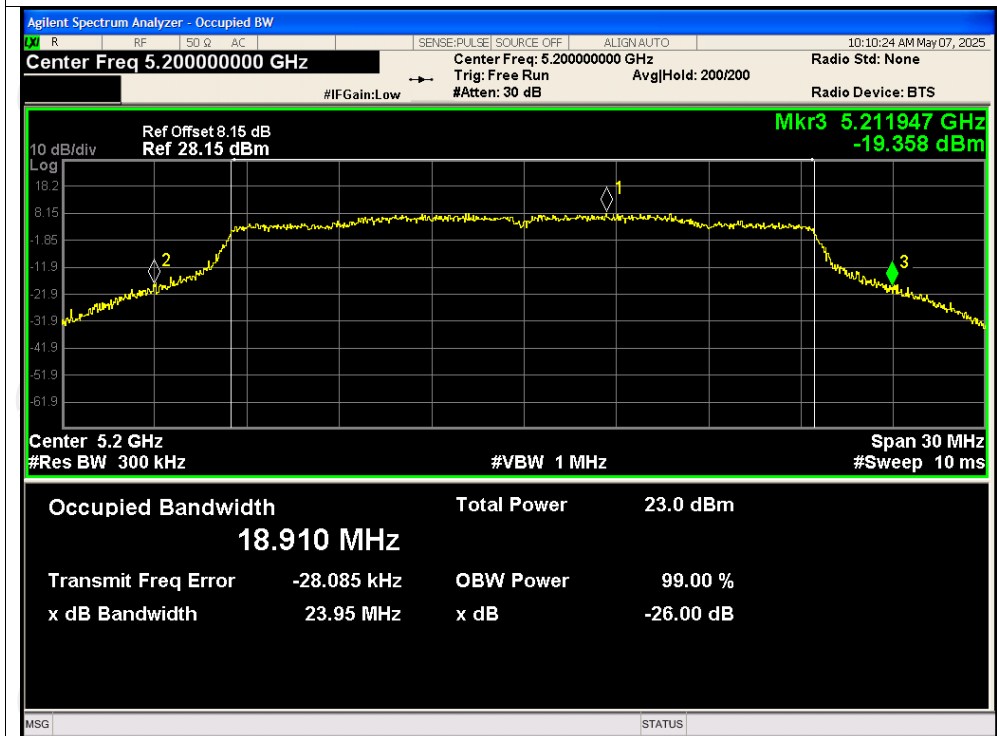
-26dB Bandwidth NVNT n40 5230MHz



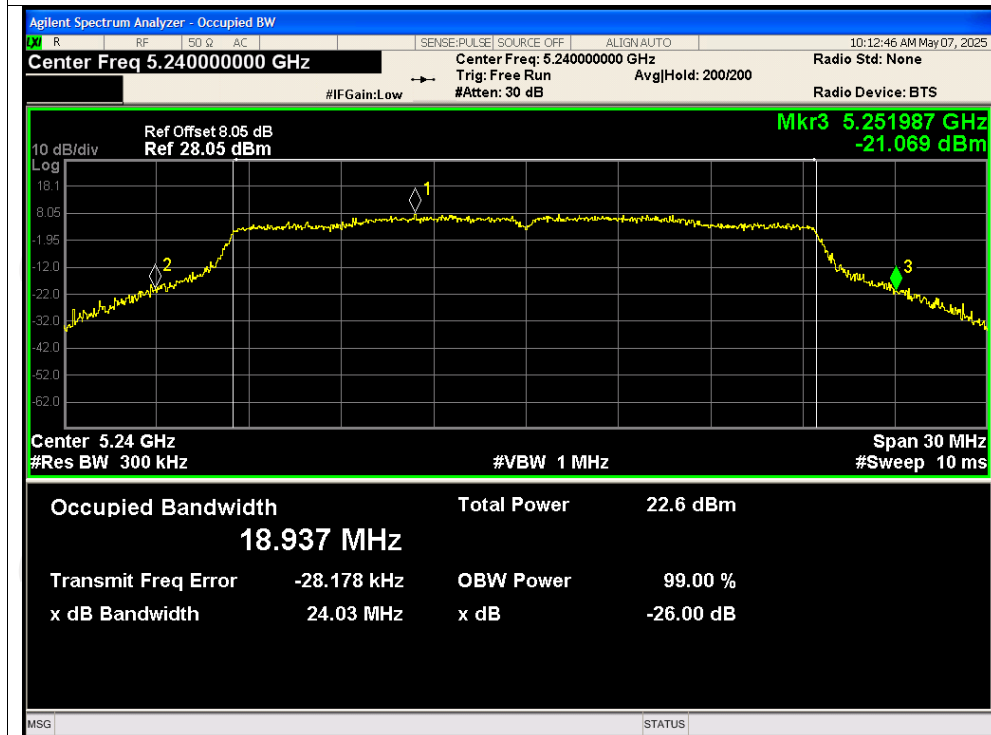
-26dB Bandwidth NVNT ac20 5180MHz



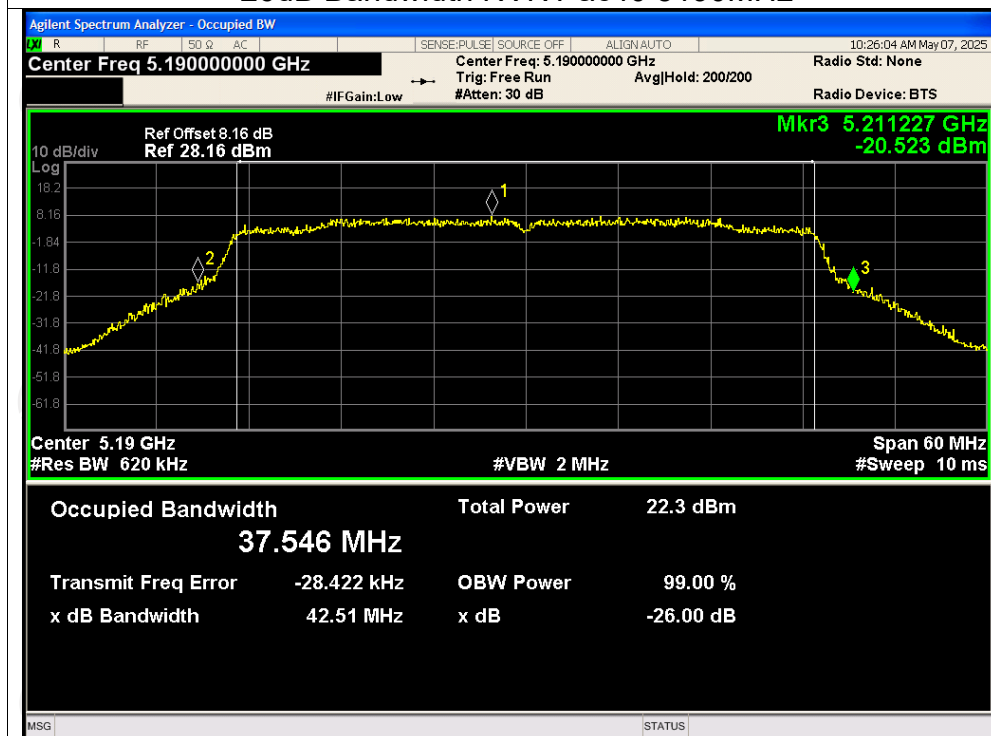
-26dB Bandwidth NVNT ac20 5200MHz



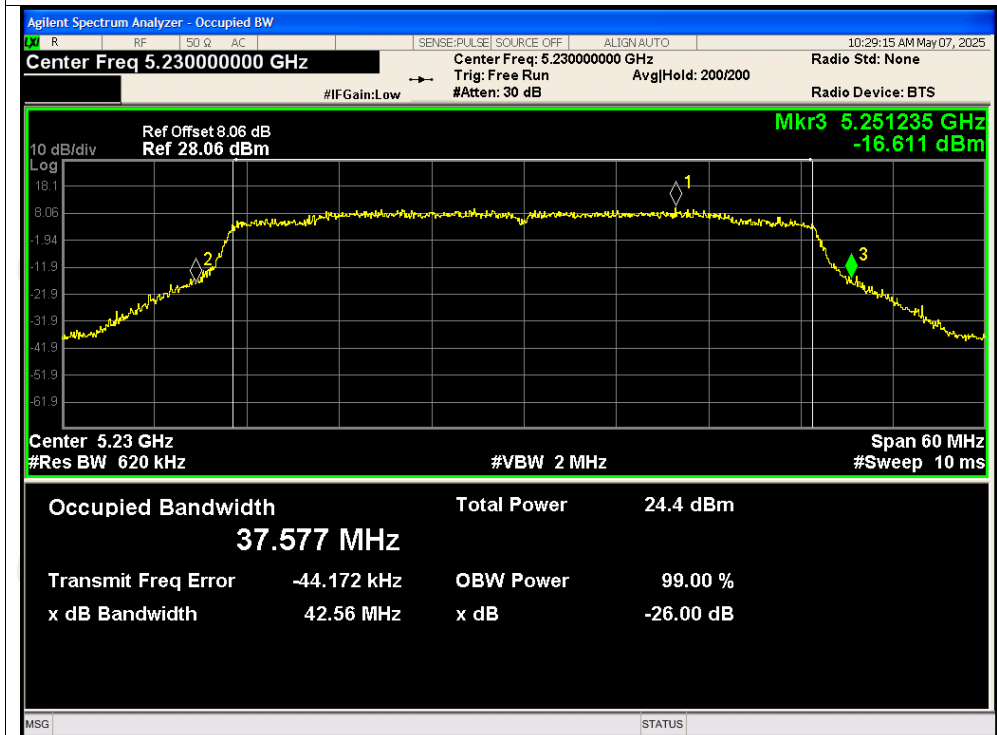
-26dB Bandwidth NVNT ac20 5240MHz



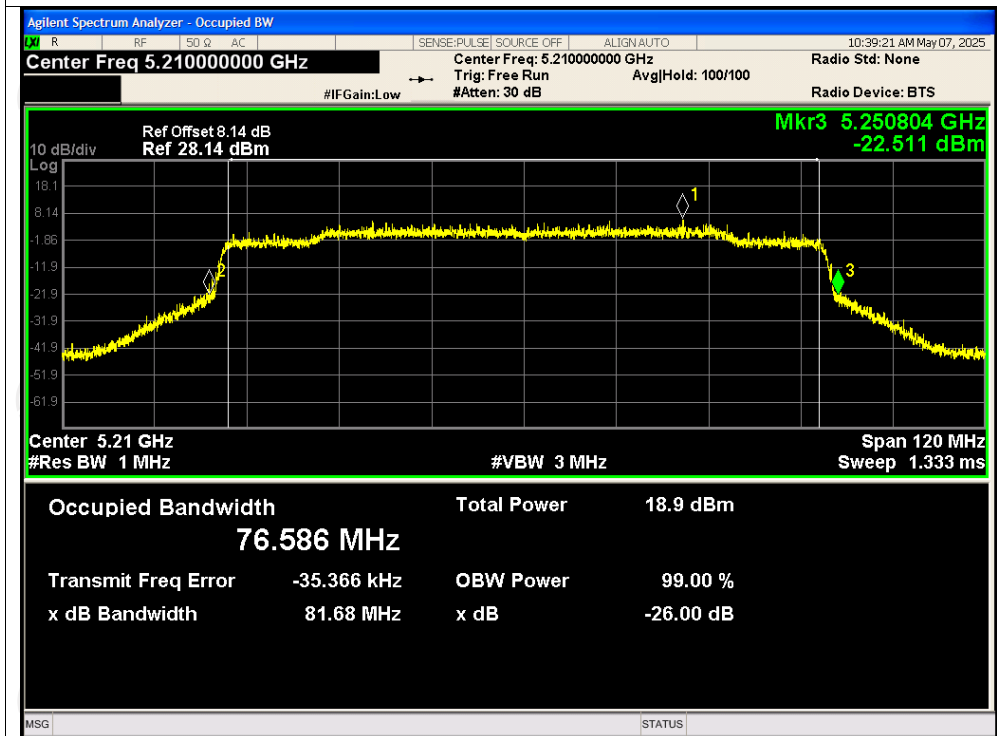
-26dB Bandwidth NVNT ac40 5190MHz



-26dB Bandwidth NVNT ac40 5230MHz



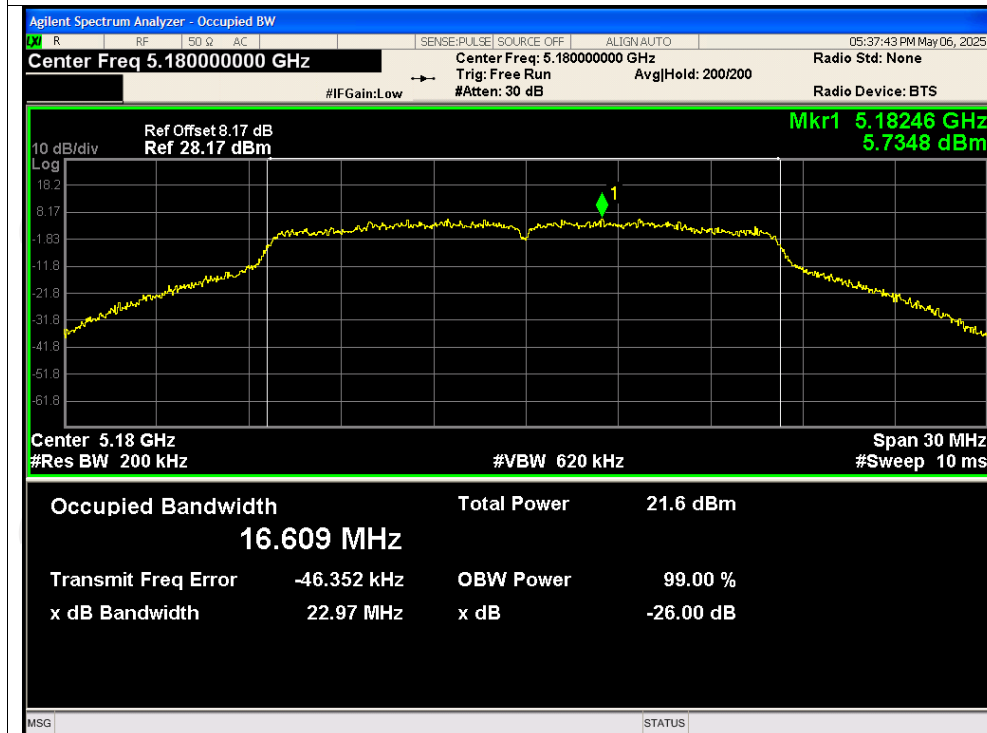
-26dB Bandwidth NVNT ac80 5210MHz



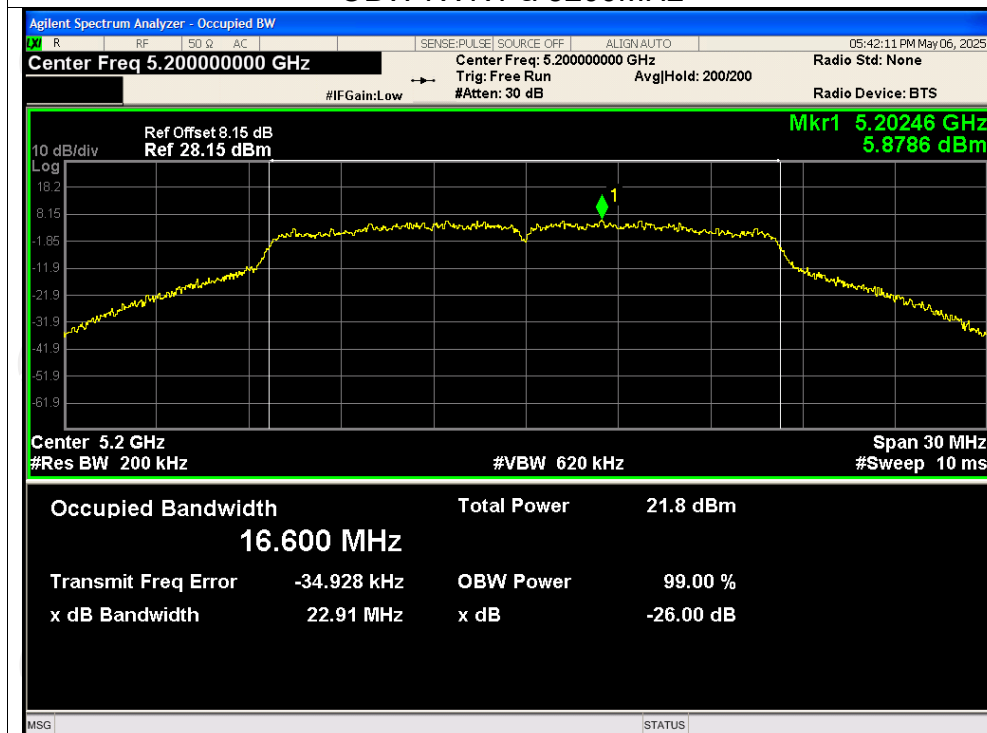
Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	99% OBW (MHz)
NVNT	a	5180	16.609
NVNT	a	5200	16.600
NVNT	a	5240	16.624
NVNT	n20	5180	17.699
NVNT	n20	5200	17.719
NVNT	n20	5240	17.720
NVNT	n40	5190	36.070
NVNT	n40	5230	36.044
NVNT	ac20	5180	18.909
NVNT	ac20	5200	18.899
NVNT	ac20	5240	18.883
NVNT	ac40	5190	37.538
NVNT	ac40	5230	37.465
NVNT	ac80	5210	76.644

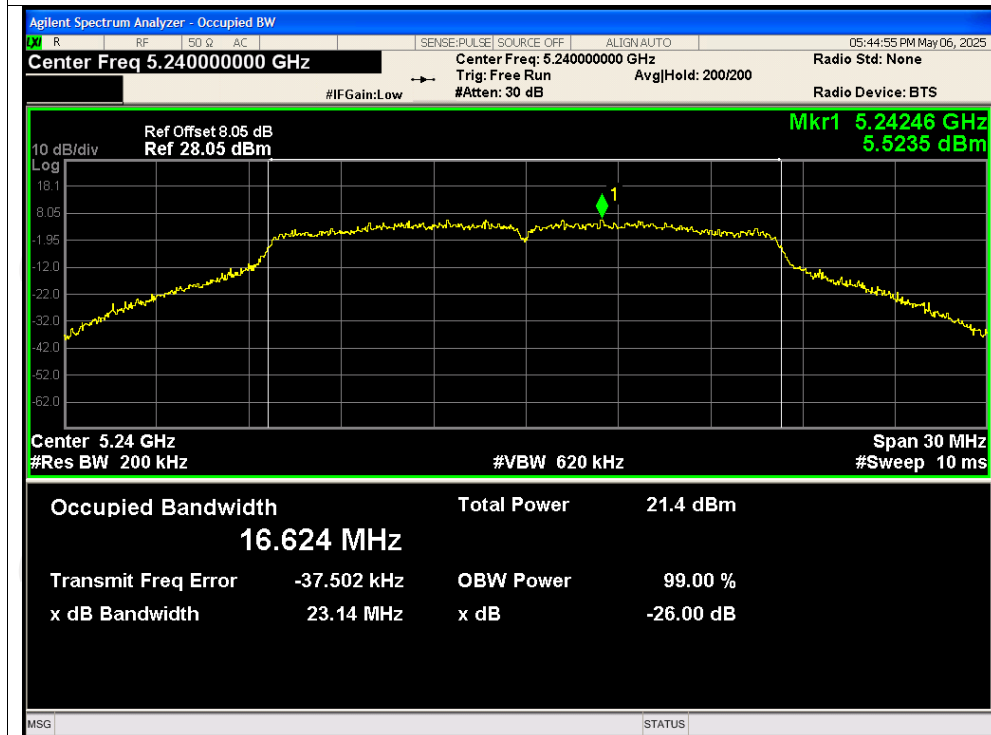
Test Graphs OBW NVNT a 5180MHz



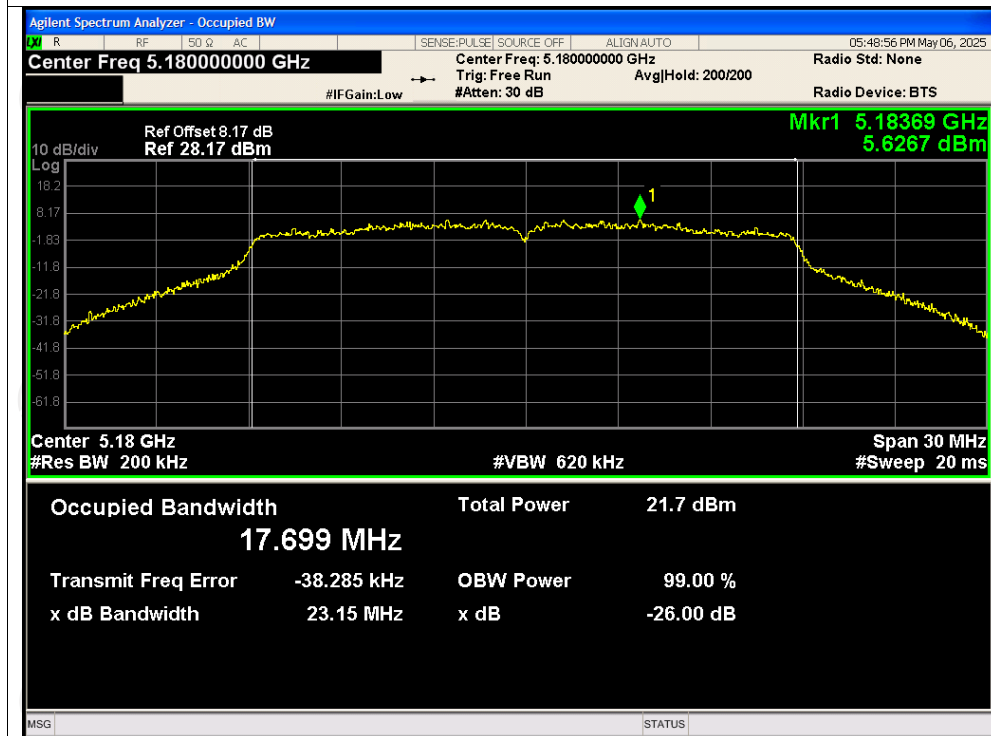
OBW NVNT a 5200MHz



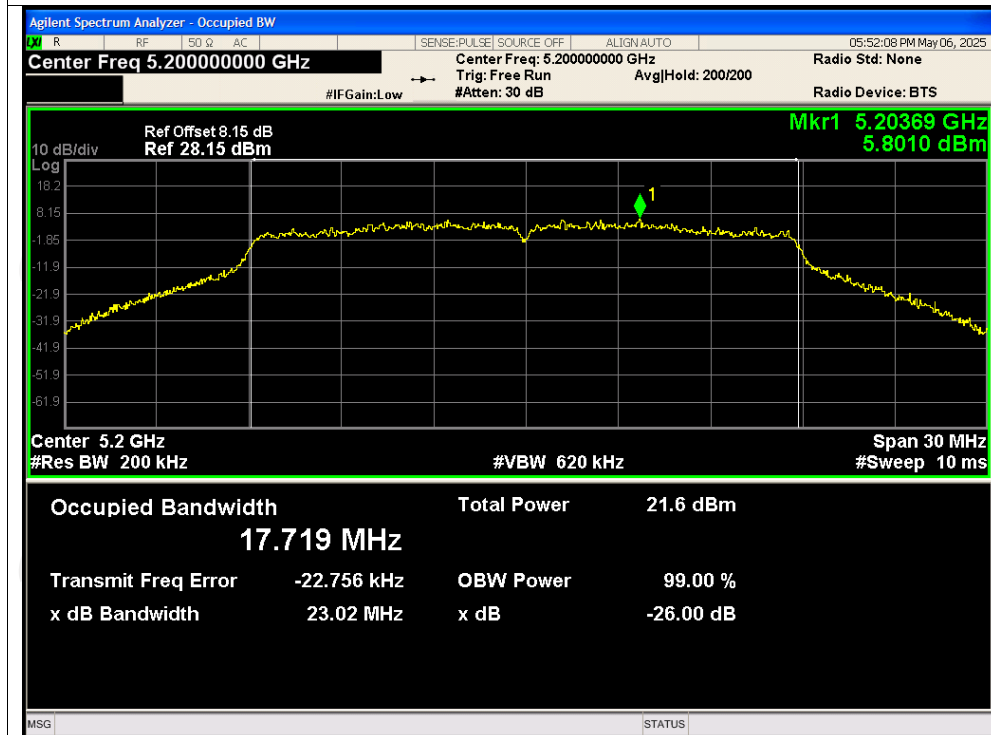
OBW NVNT a 5240MHz



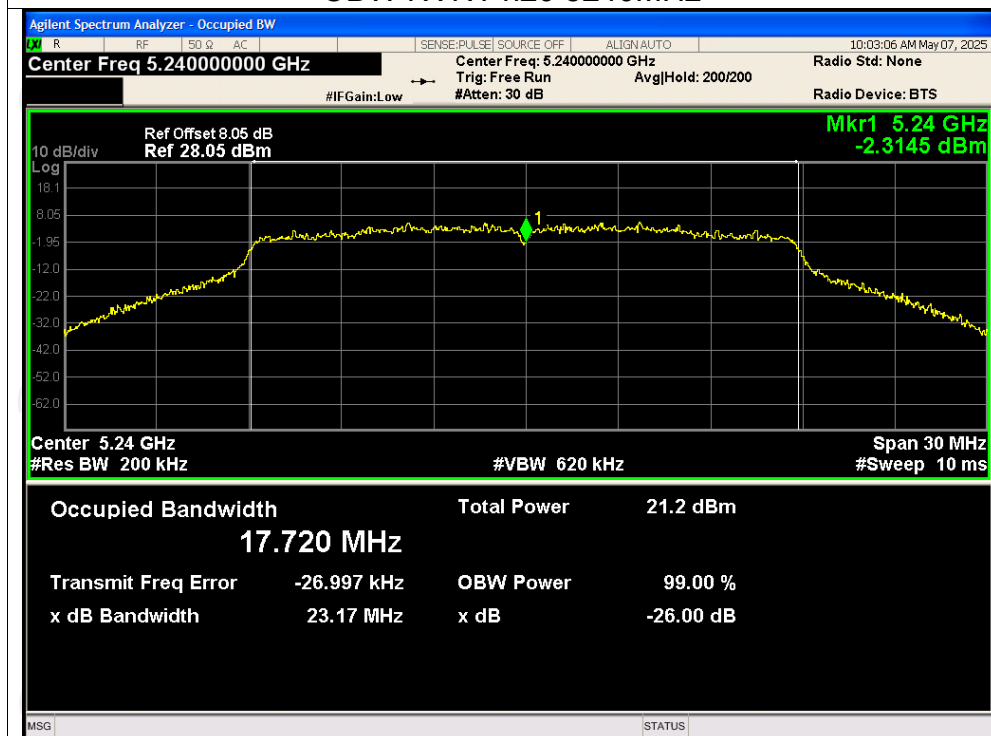
OBW NVNT n20 5180MHz



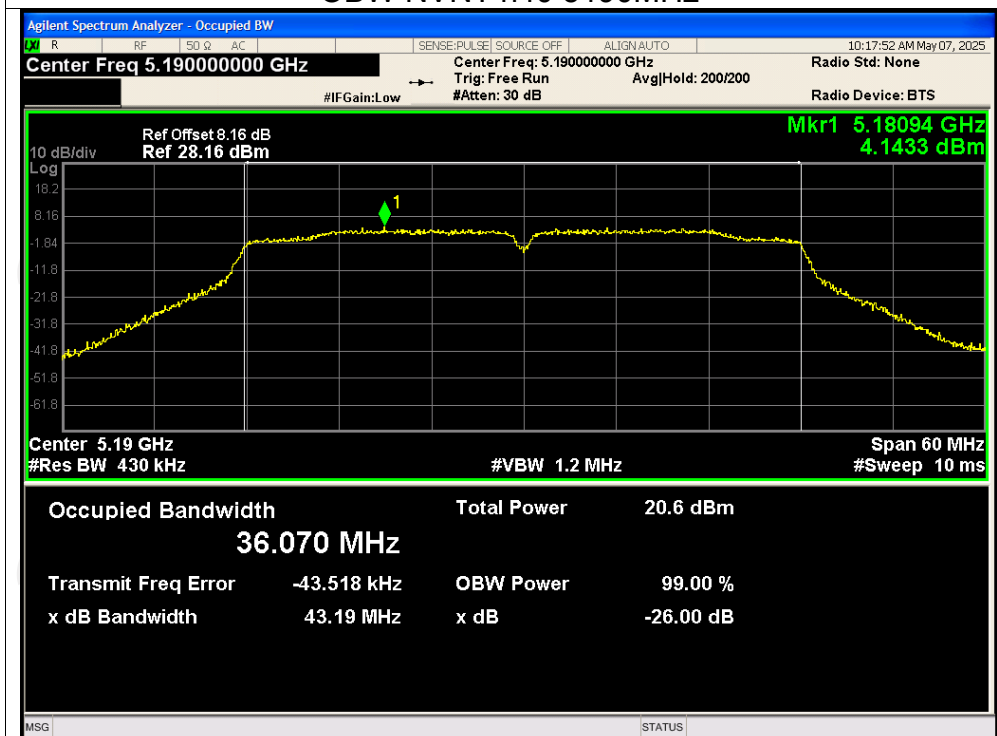
OBW NVNT n20 5200MHz



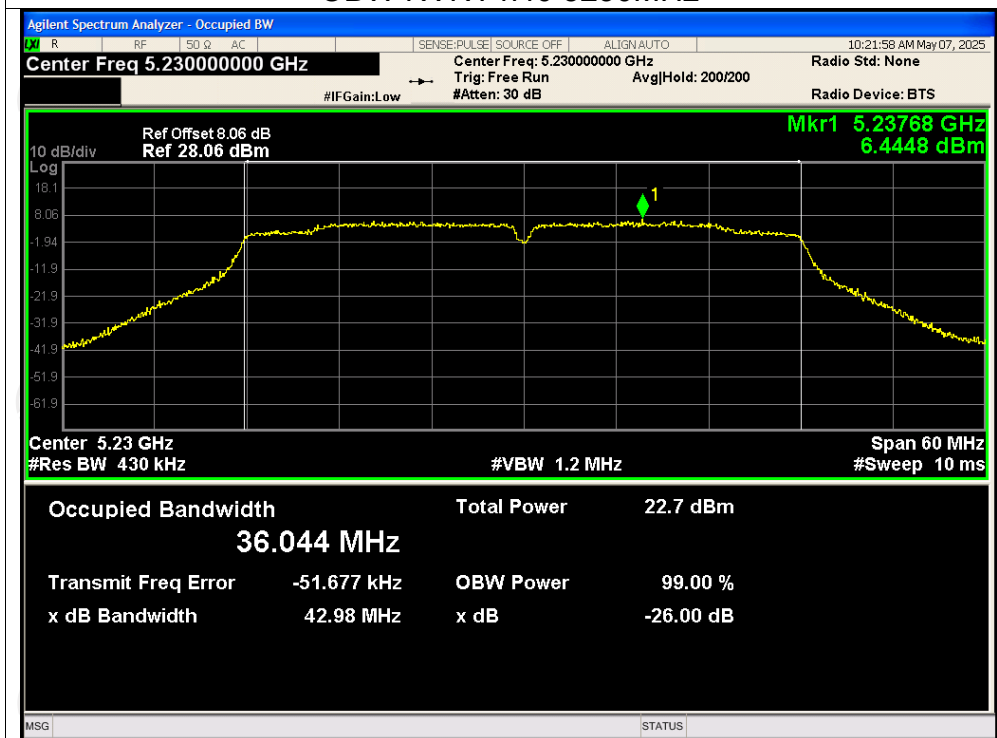
OBW NVNT n20 5240MHz



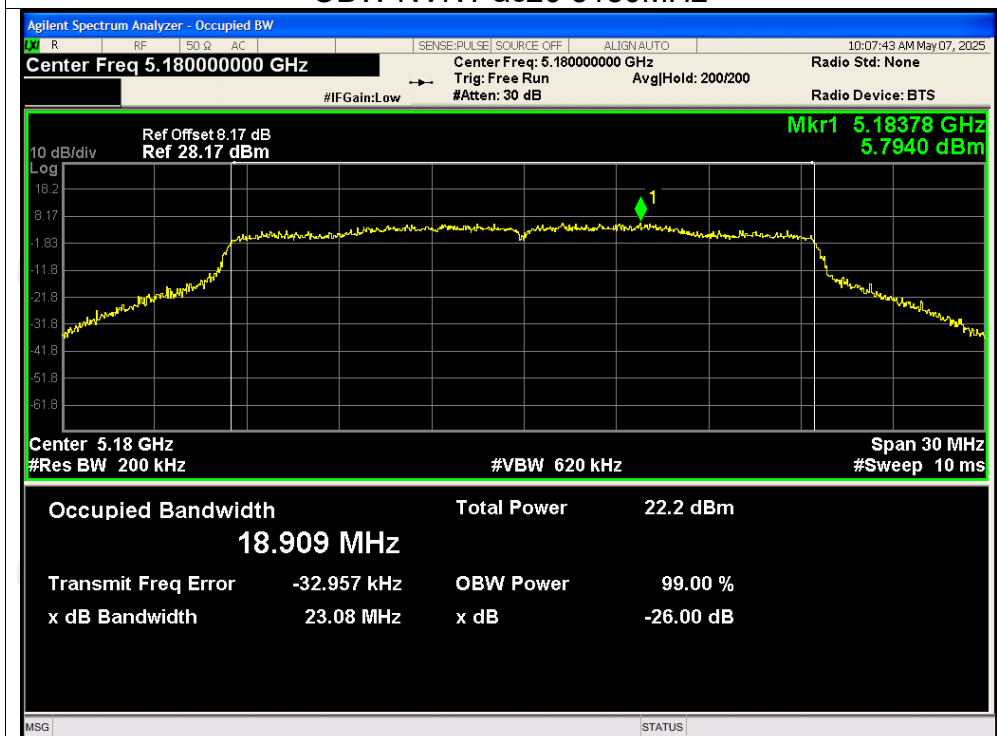
OBW NVNT n40 5190MHz



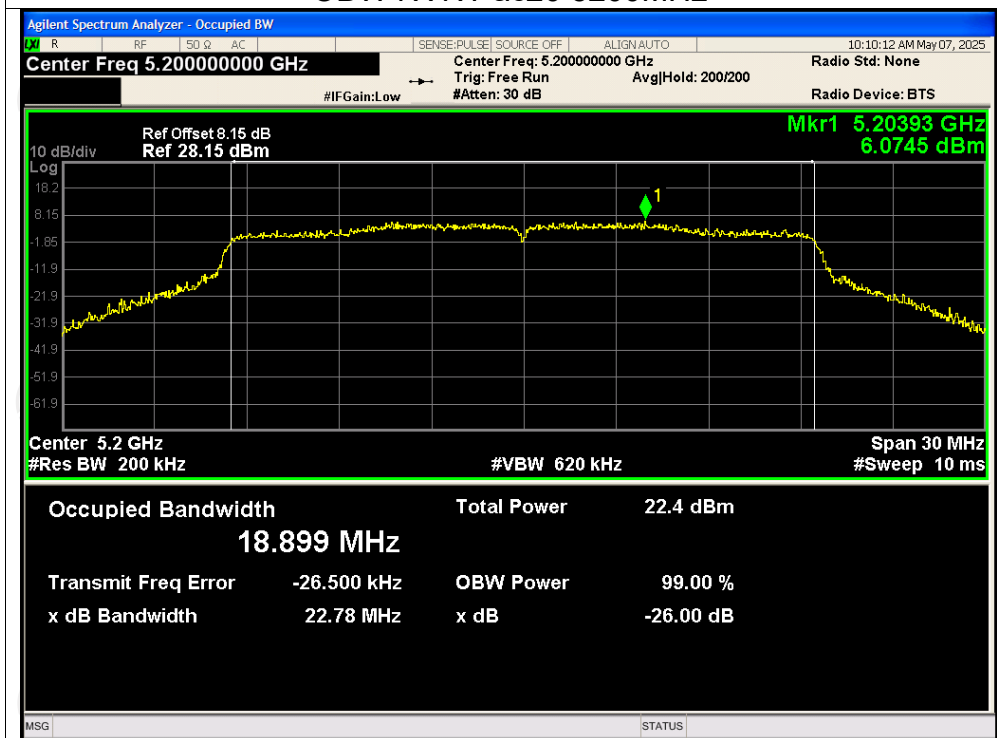
OBW NVNT n40 5230MHz



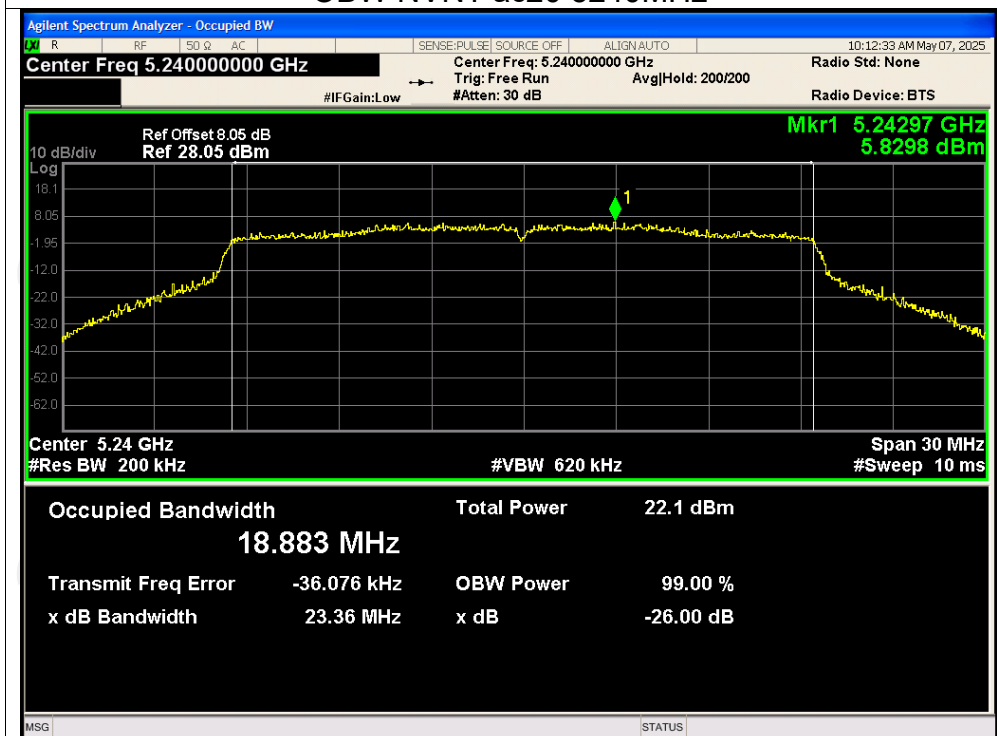
OBW NVNT ac20 5180MHz



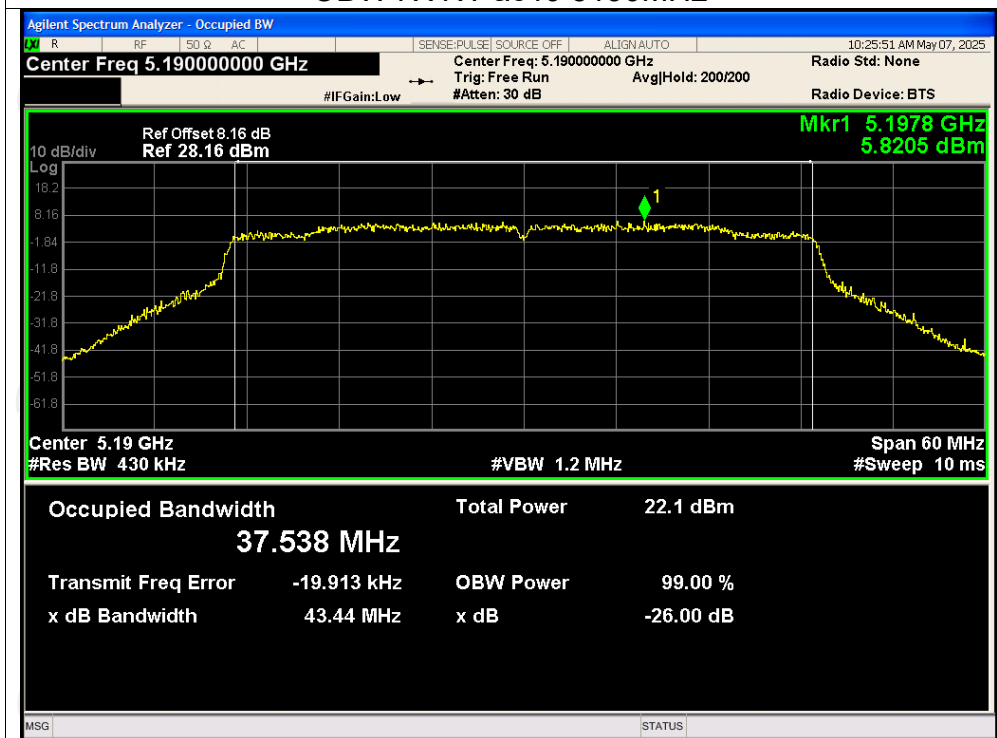
OBW NVNT ac20 5200MHz



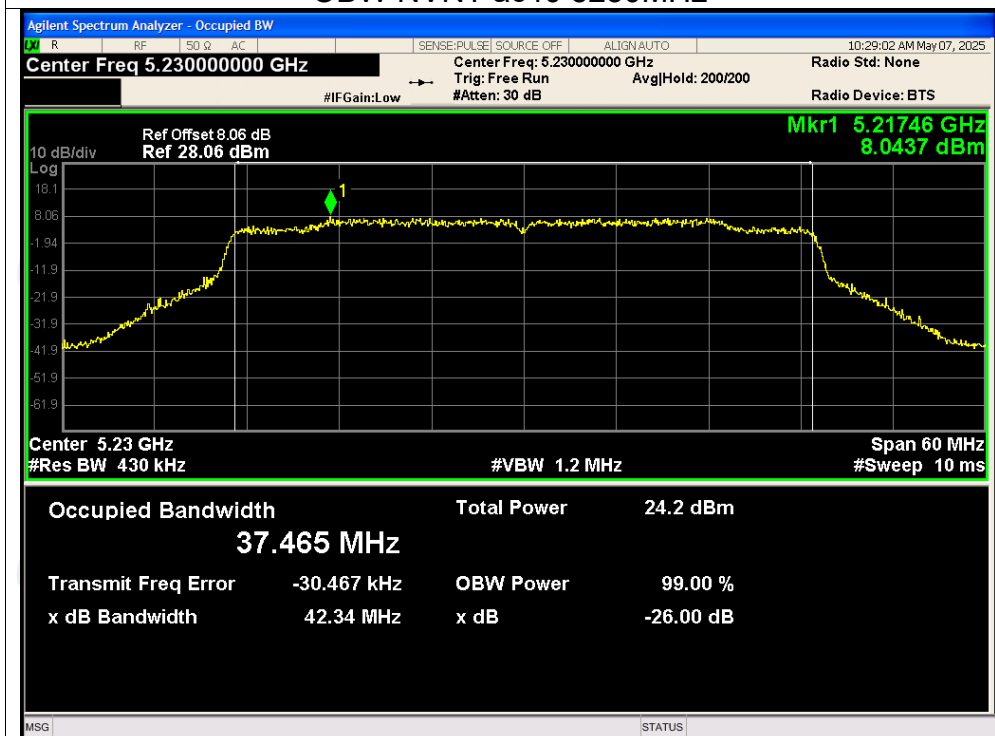
OBW NVNT ac20 5240MHz



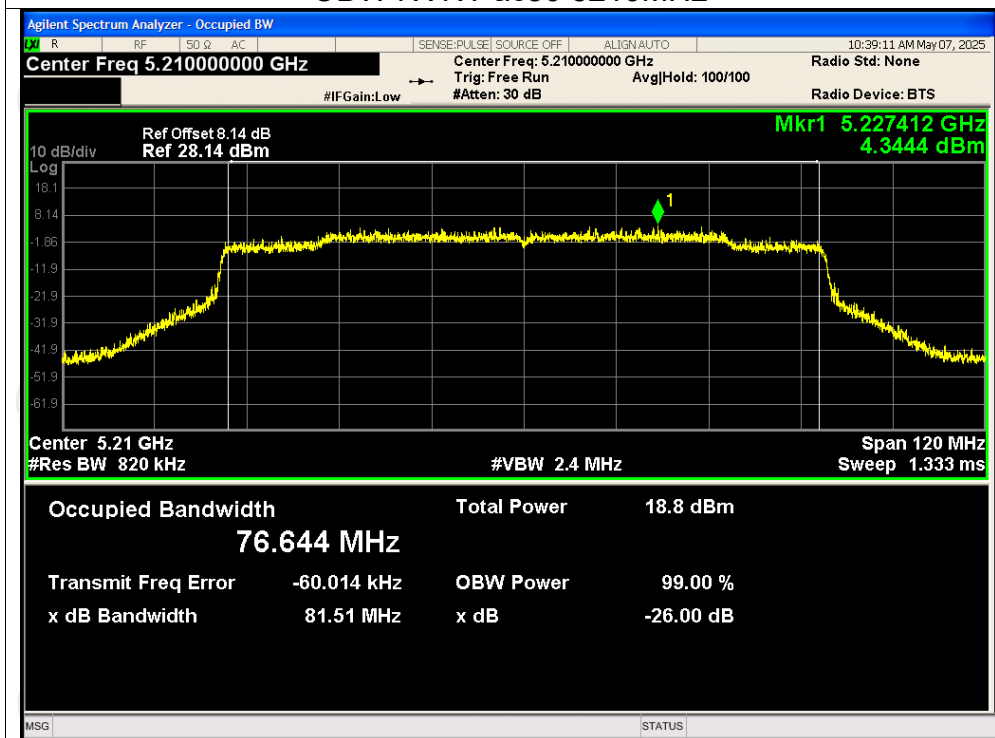
OBW NVNT ac40 5190MHz



OBW NVNT ac40 5230MHz



OBW NVNT ac80 5210MHz

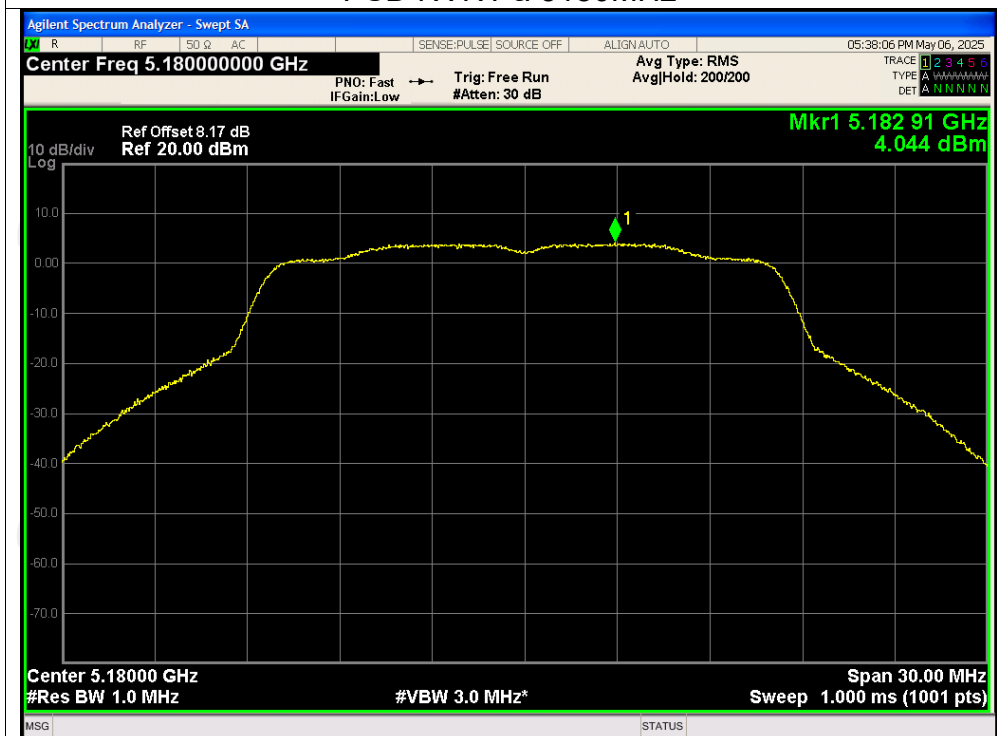


Maximum Power Spectral Density Level

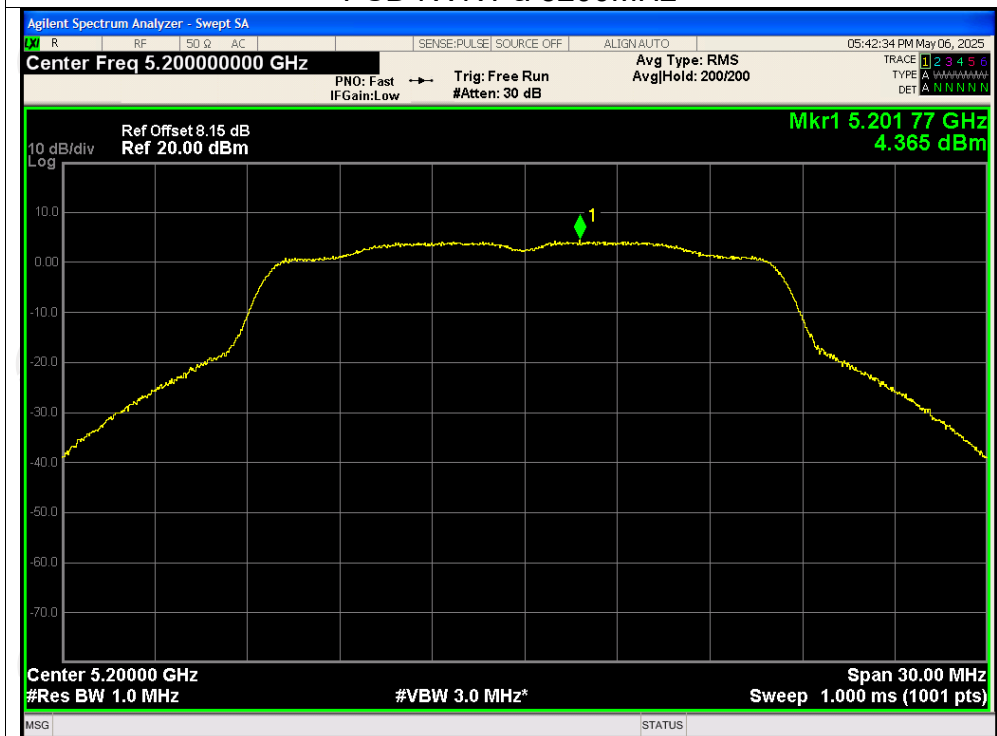
Condition	Mode	Frequency (MHz)	Conducted PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	4.04	11	Pass
NVNT	a	5200	4.37	11	Pass
NVNT	a	5240	3.93	11	Pass
NVNT	n20	5180	3.75	11	Pass
NVNT	n20	5200	3.80	11	Pass
NVNT	n20	5240	3.44	11	Pass
NVNT	n40	5190	-0.83	11	Pass
NVNT	n40	5230	1.50	11	Pass
NVNT	ac20	5180	3.33	11	Pass
NVNT	ac20	5200	3.58	11	Pass
NVNT	ac20	5240	3.28	11	Pass
NVNT	ac40	5190	-1.16	11	Pass
NVNT	ac40	5230	0.86	11	Pass
NVNT	ac80	5210	-4.66	11	Pass

Test Graphs

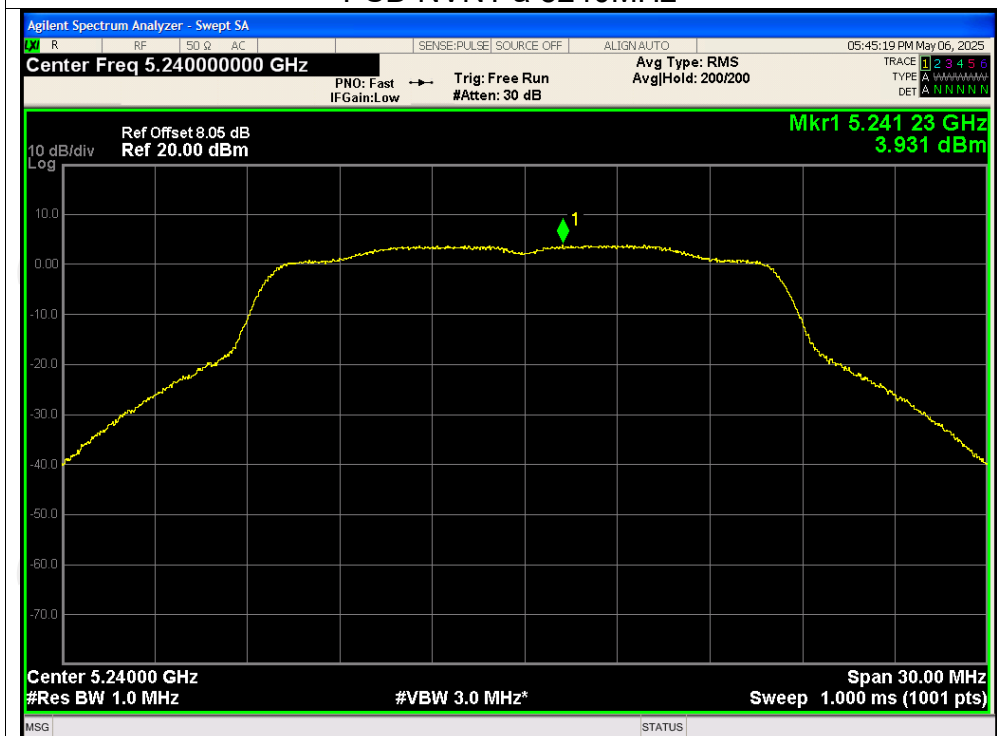
PSD NVNT a 5180MHz



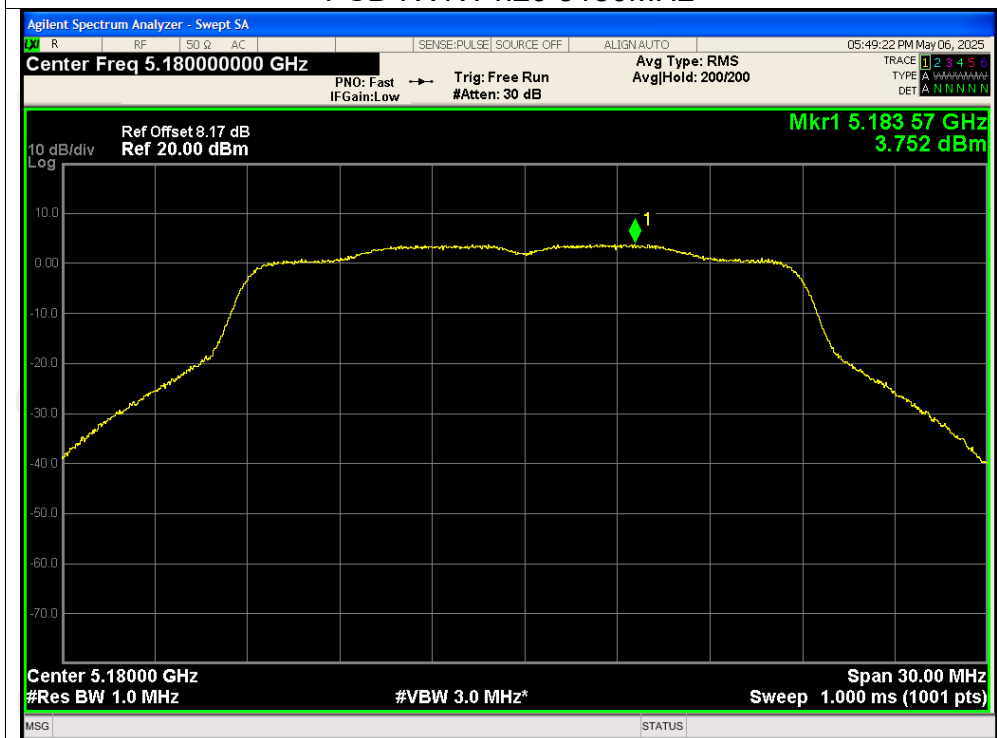
PSD NVNT a 5200MHz



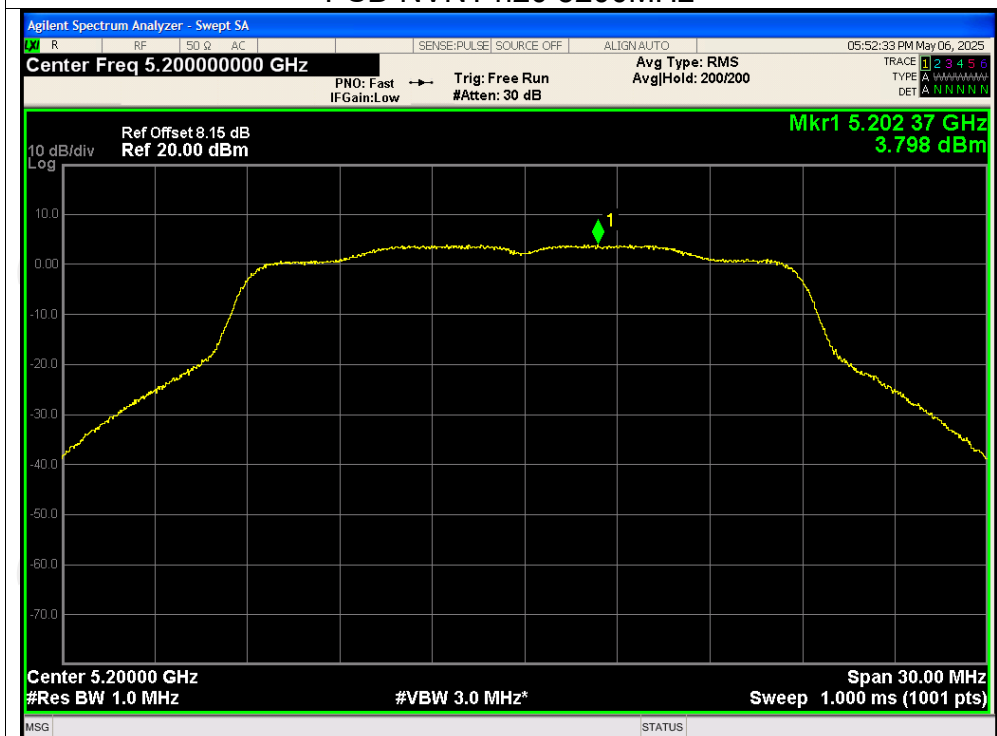
PSD NVNT a 5240MHz



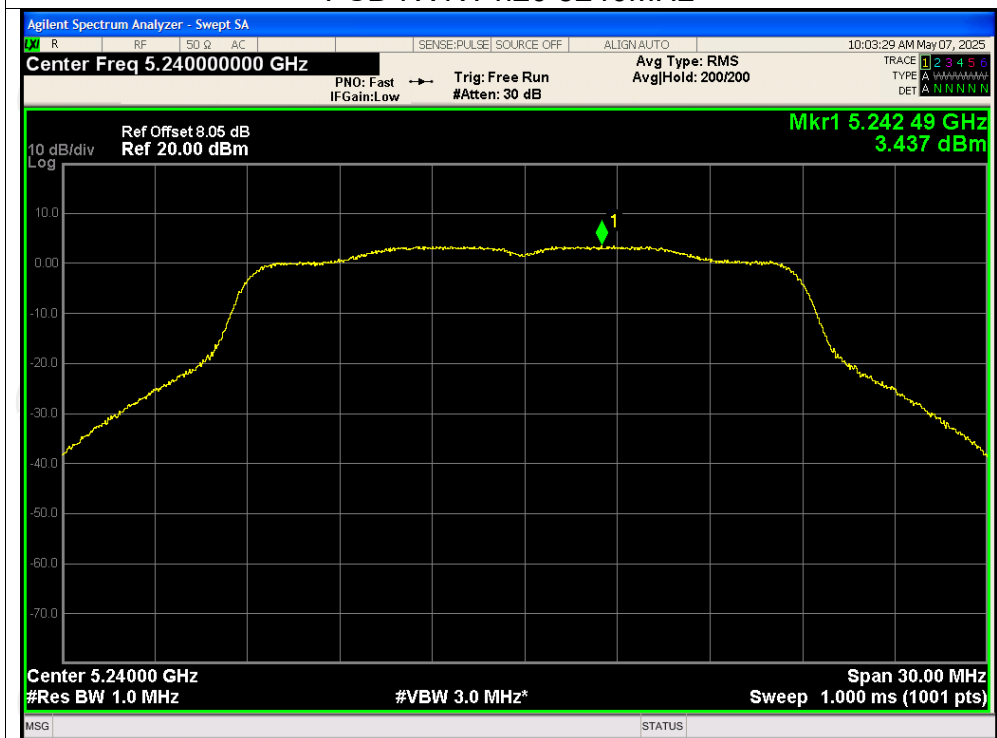
PSD NVNT n20 5180MHz



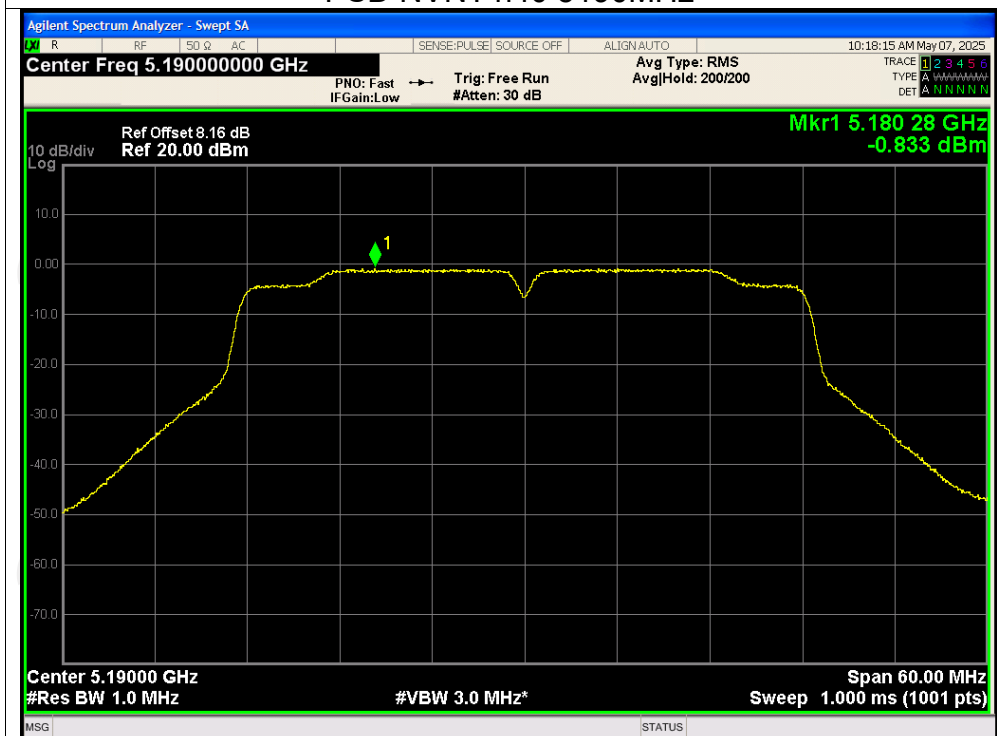
PSD NVNT n20 5200MHz



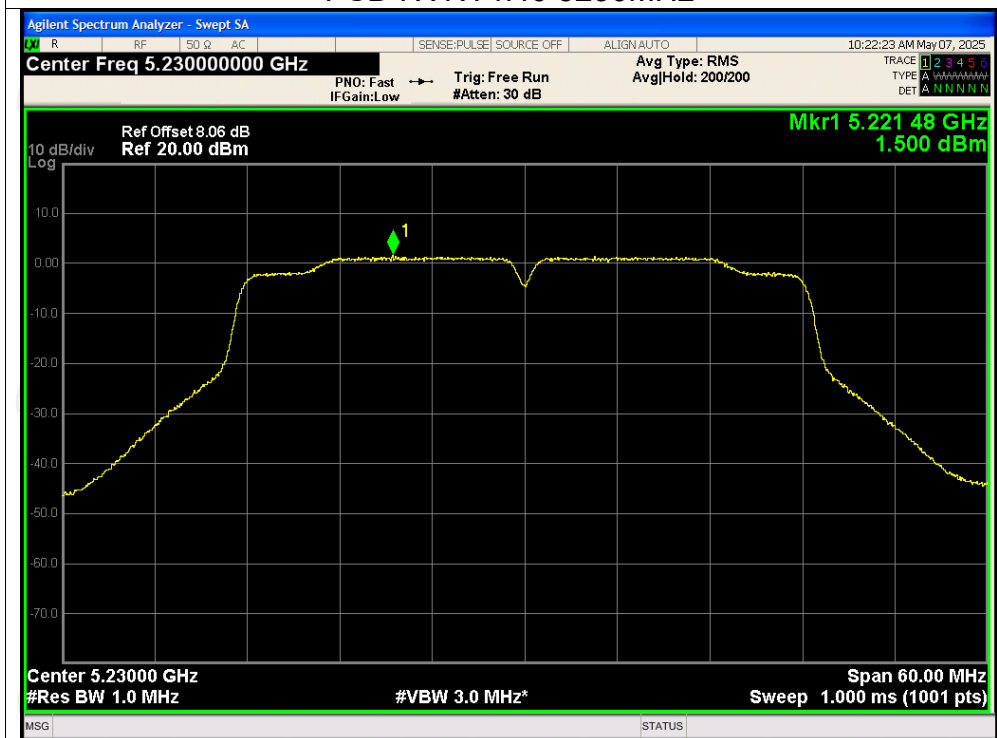
PSD NVNT n20 5240MHz



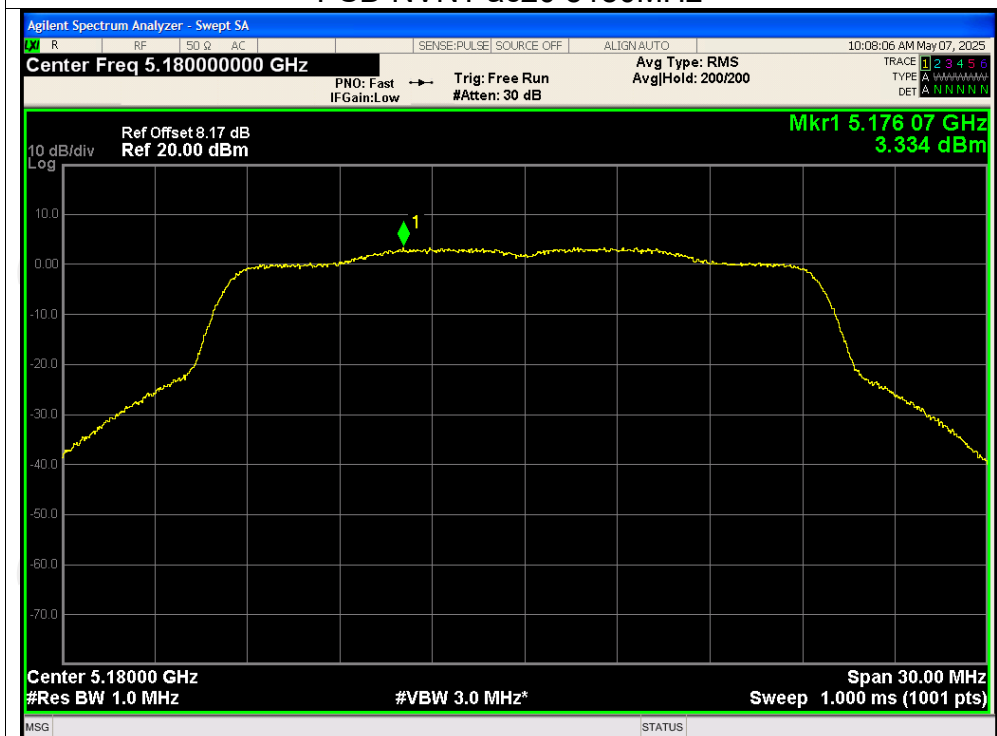
PSD NVNT n40 5190MHz



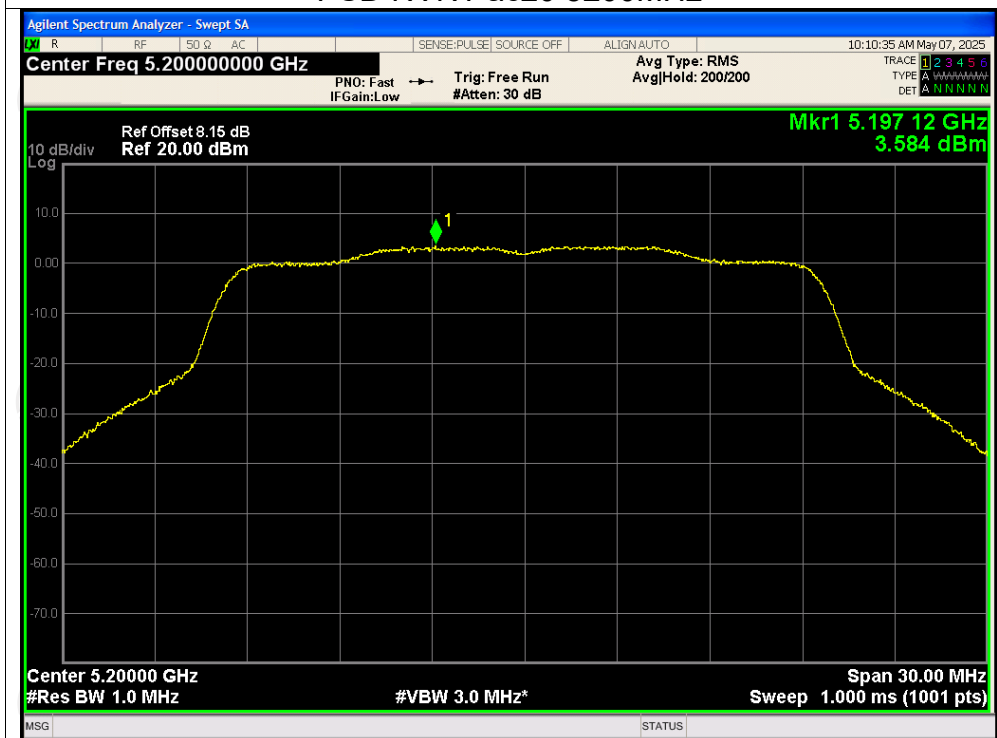
PSD NVNT n40 5230MHz



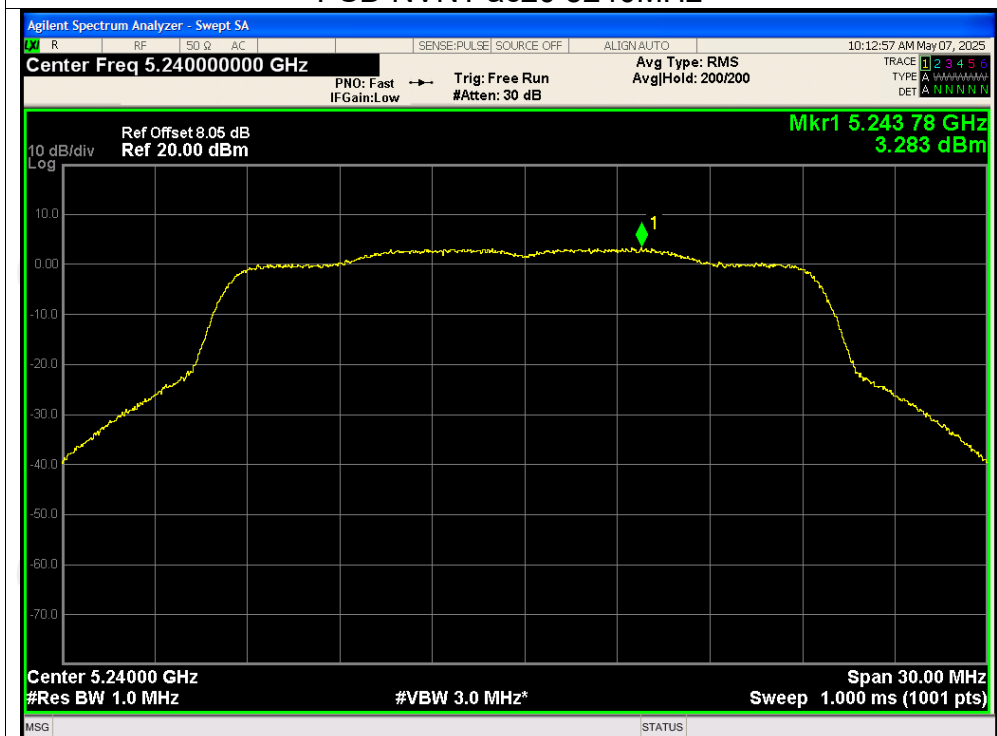
PSD NVNT ac20 5180MHz



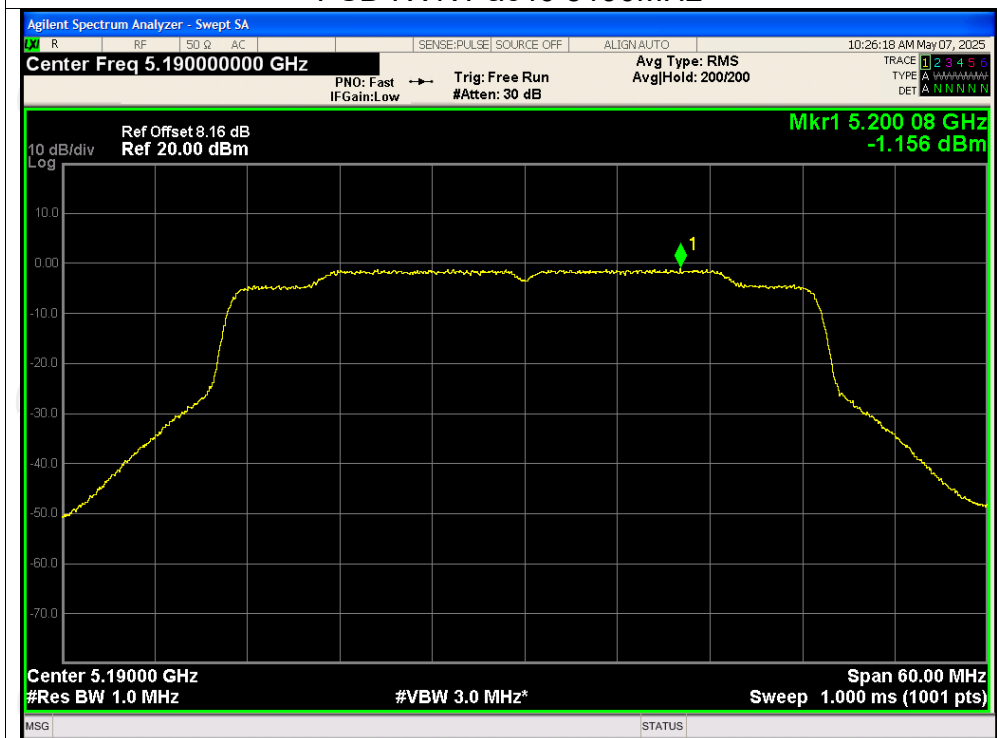
PSD NVNT ac20 5200MHz



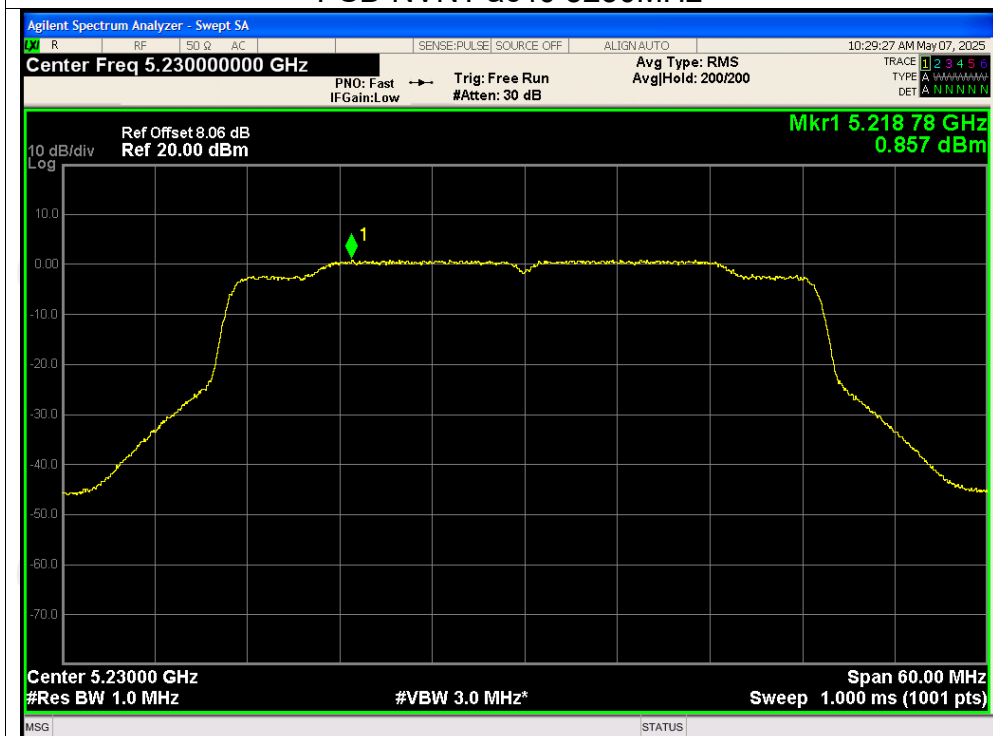
PSD NVNT ac20 5240MHz



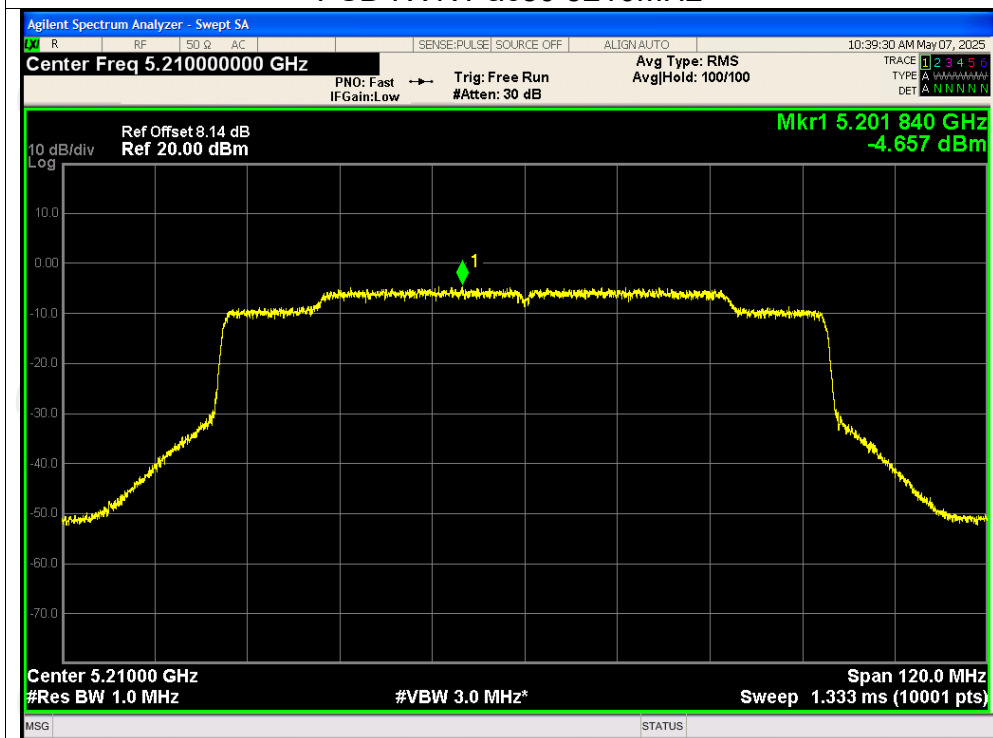
PSD NVNT ac40 5190MHz



PSD NVNT ac40 5230MHz



PSD NVNT ac80 5210MHz



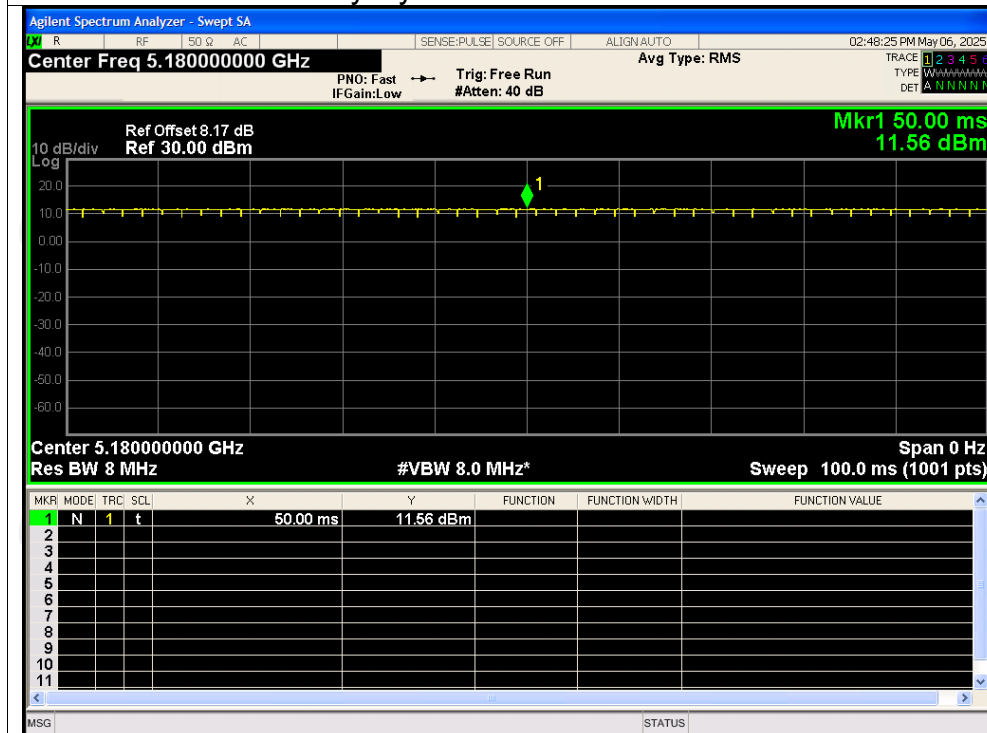
Antenna 2

Duty Cycle

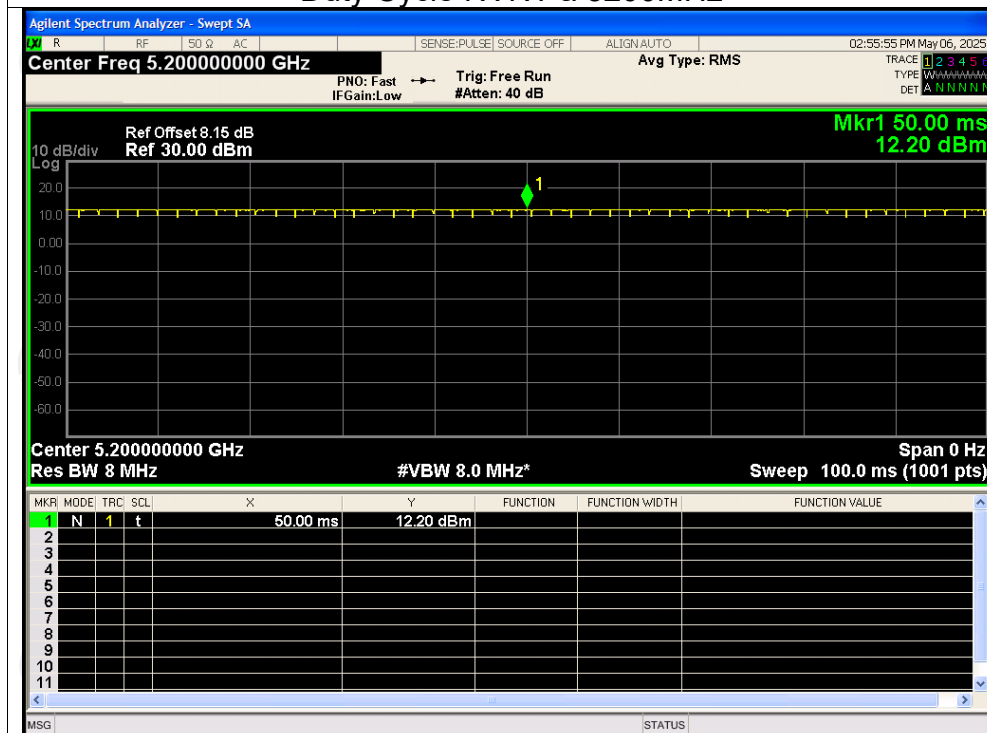
Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)
NVNT	a	5180	100	0
NVNT	a	5200	100	0
NVNT	a	5240	100	0
NVNT	n20	5180	100	0
NVNT	n20	5200	100	0
NVNT	n20	5240	100	0
NVNT	n40	5190	100	0
NVNT	n40	5230	100	0
NVNT	ac20	5180	100	0
NVNT	ac20	5200	100	0
NVNT	ac20	5240	100	0
NVNT	ac40	5190	100	0
NVNT	ac40	5230	100	0
NVNT	ac80	5210	100	0

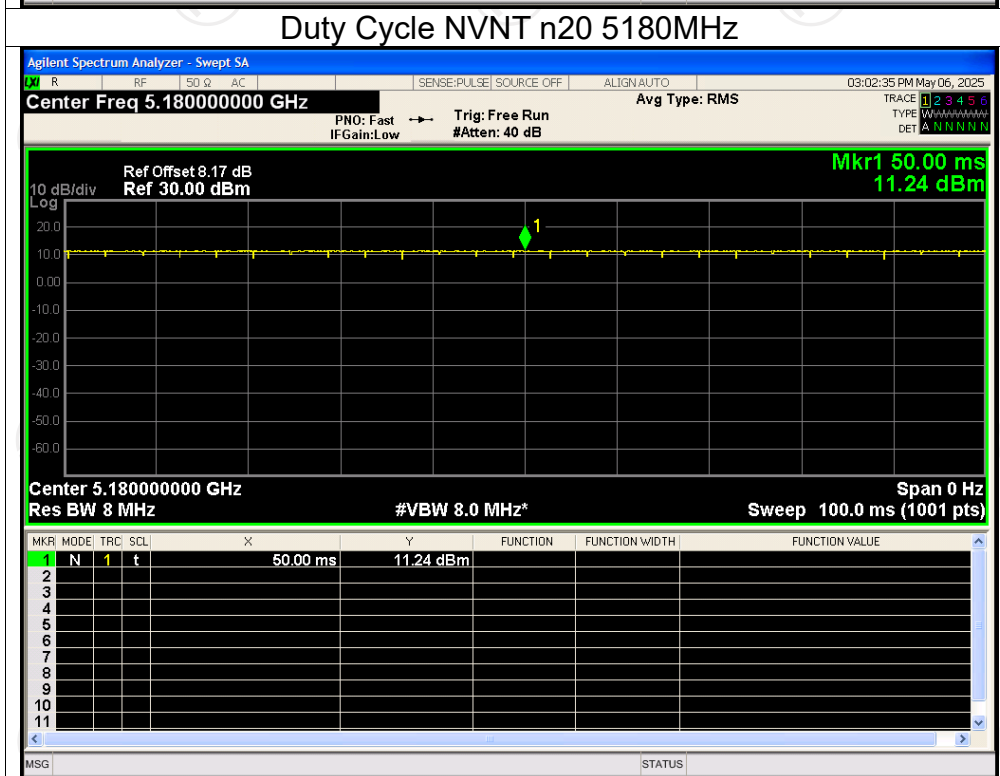
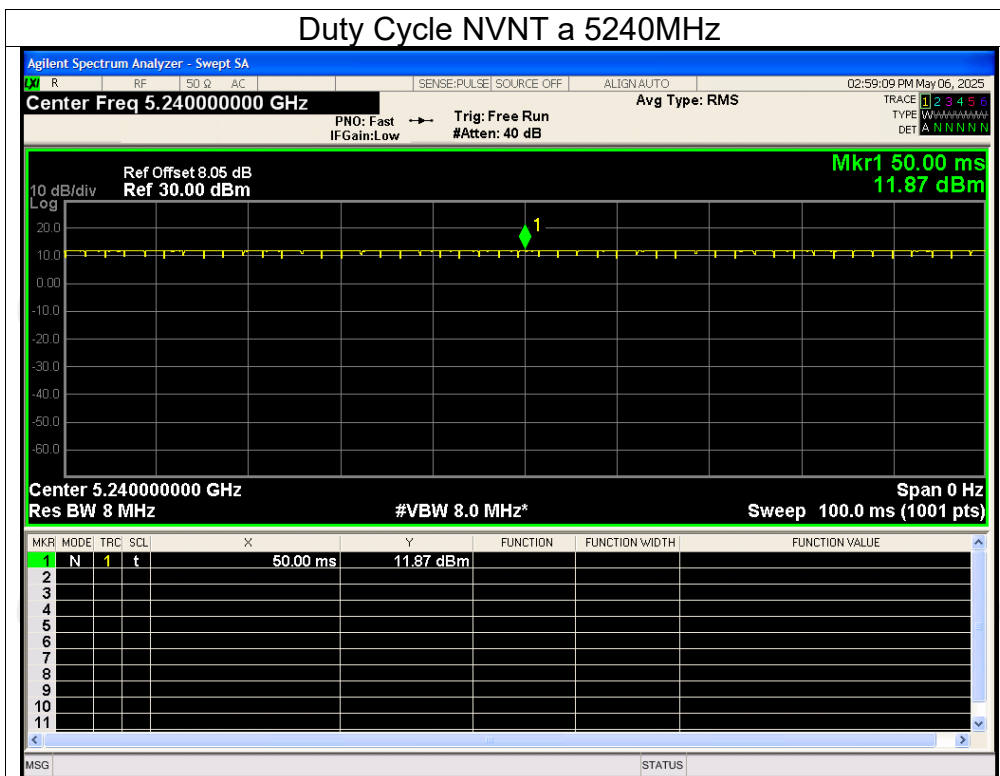
Test Graphs

Duty Cycle NVNT a 5180MHz

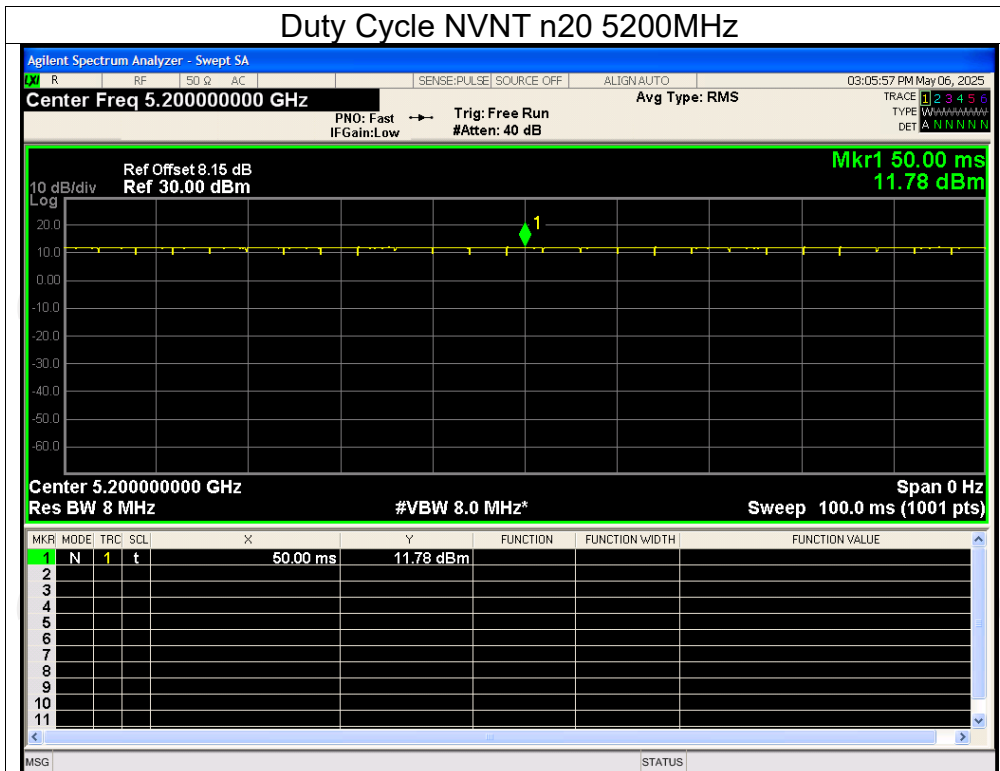


Duty Cycle NVNT a 5200MHz

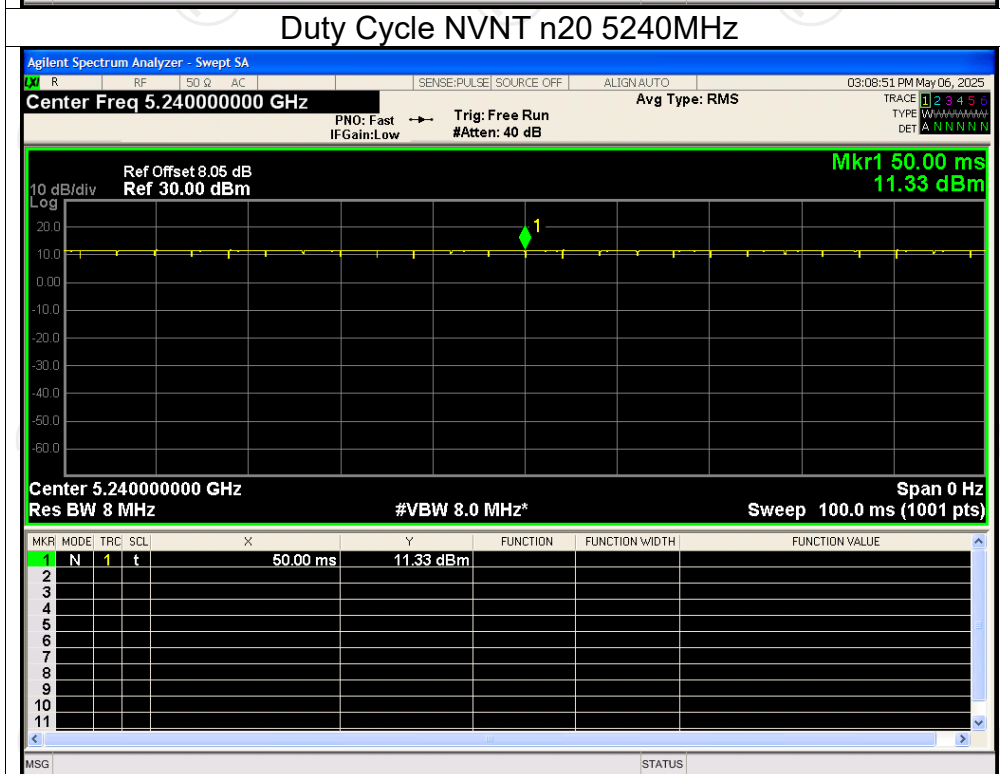




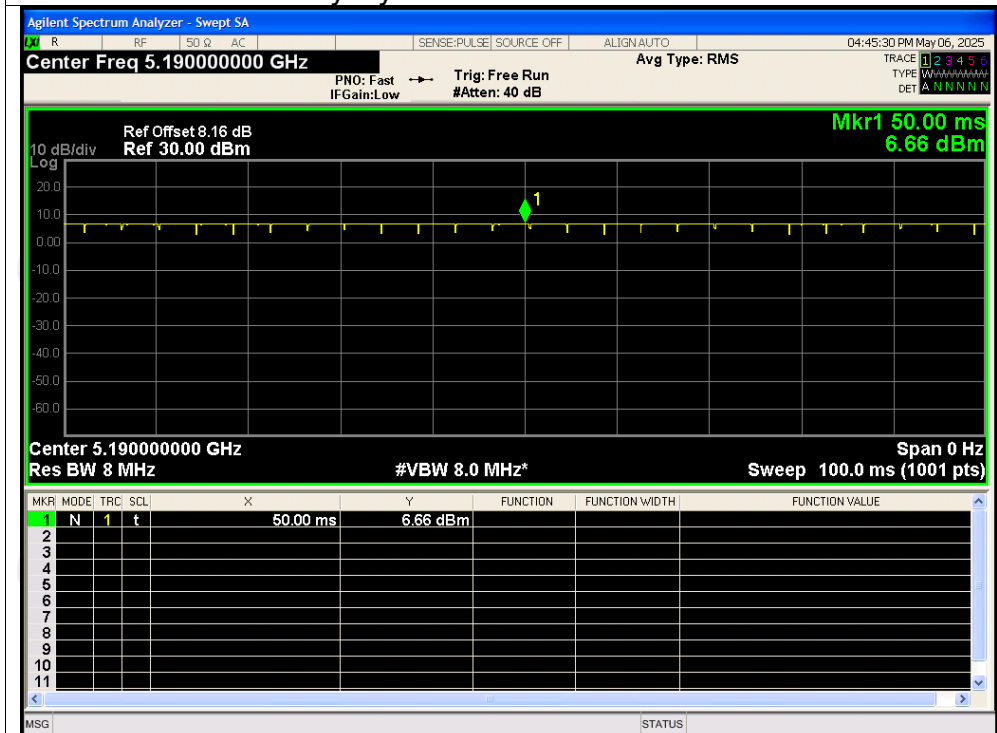
Duty Cycle NVNT n20 5200MHz



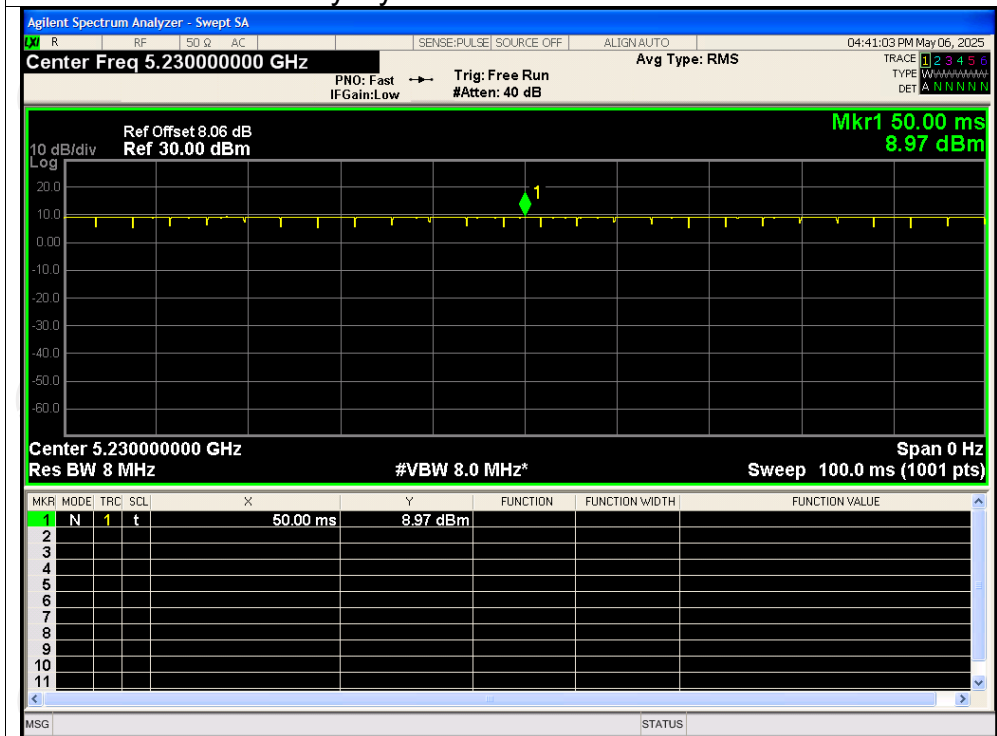
Duty Cycle NVNT n20 5240MHz



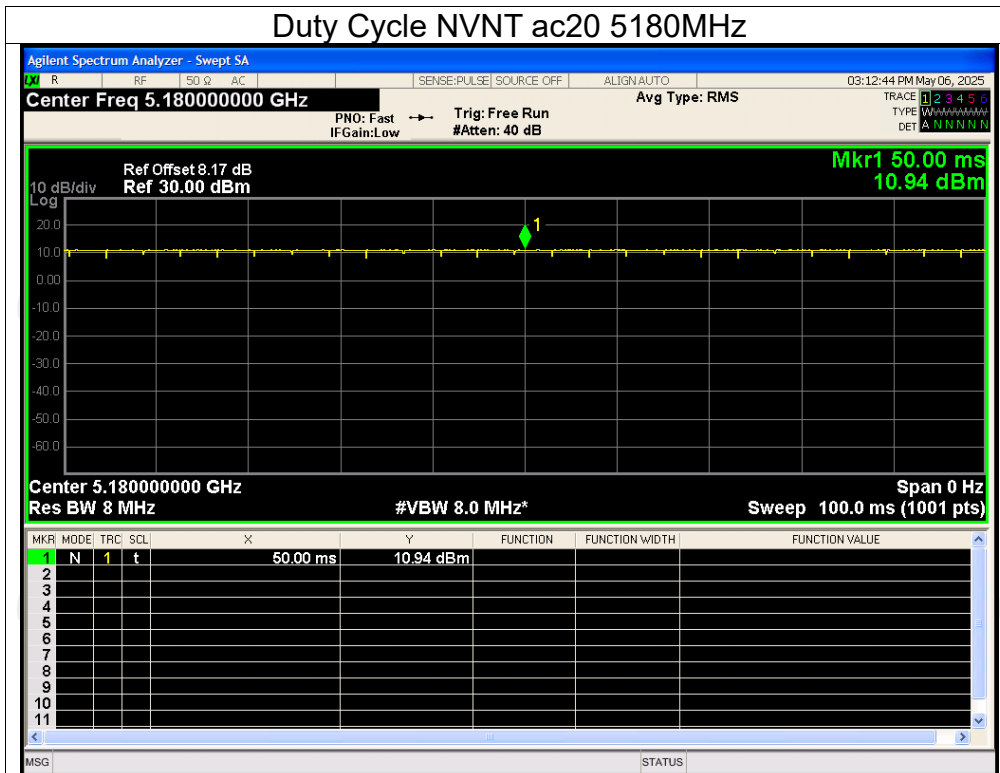
Duty Cycle NVNT n40 5190MHz



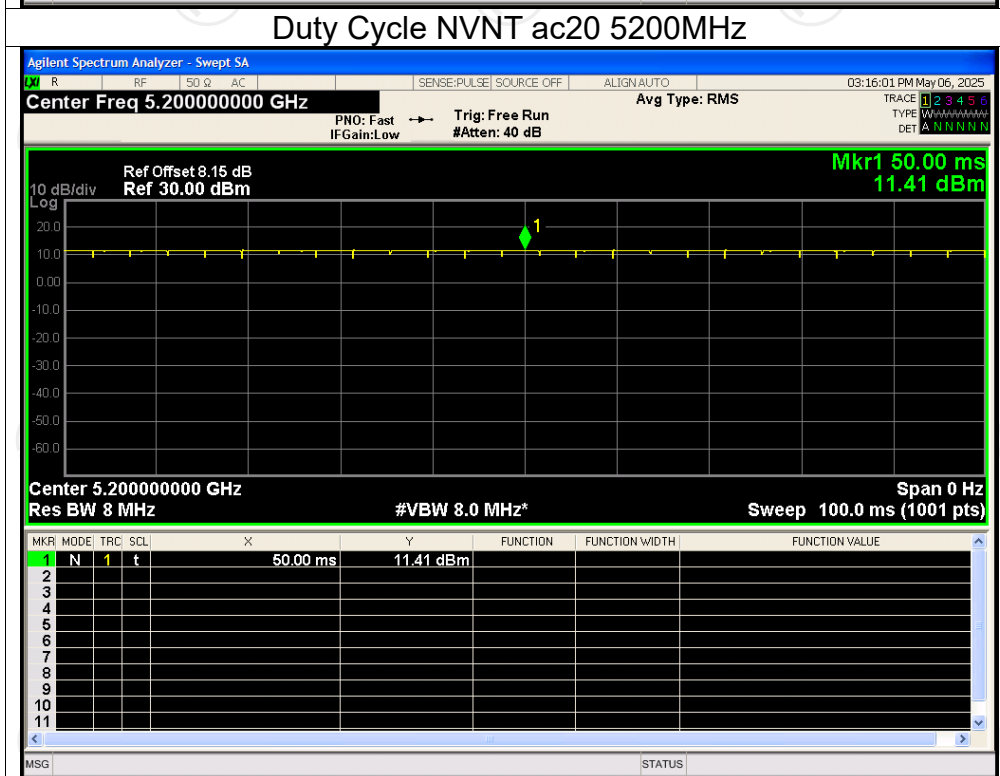
Duty Cycle NVNT n40 5230MHz



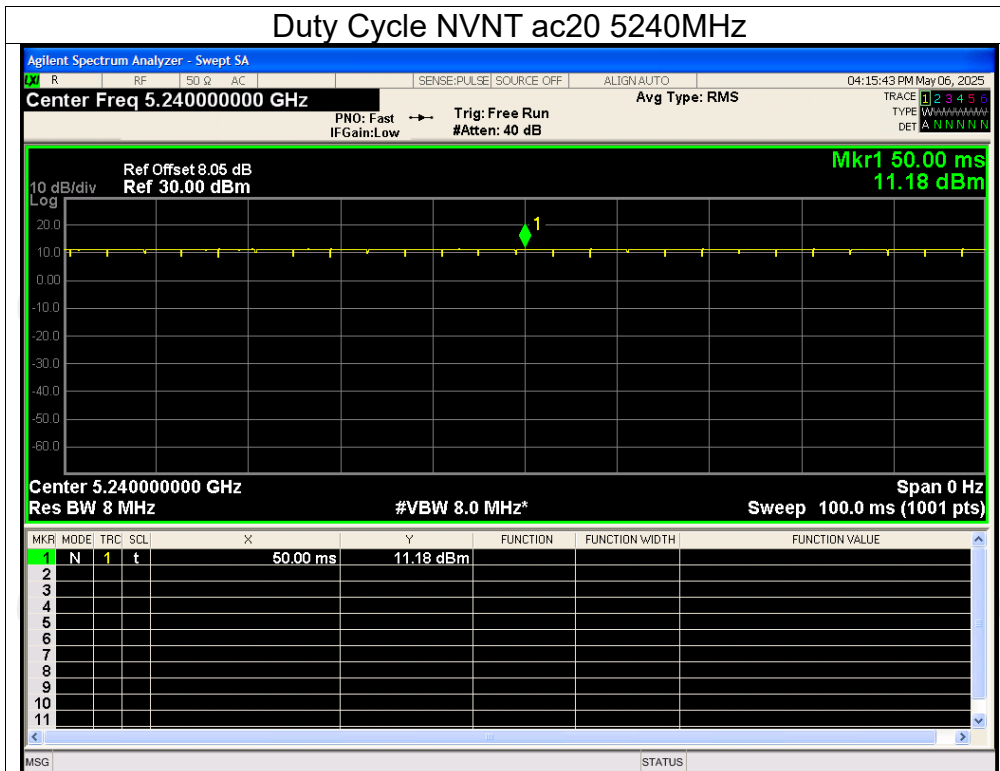
Duty Cycle NVNT ac20 5180MHz



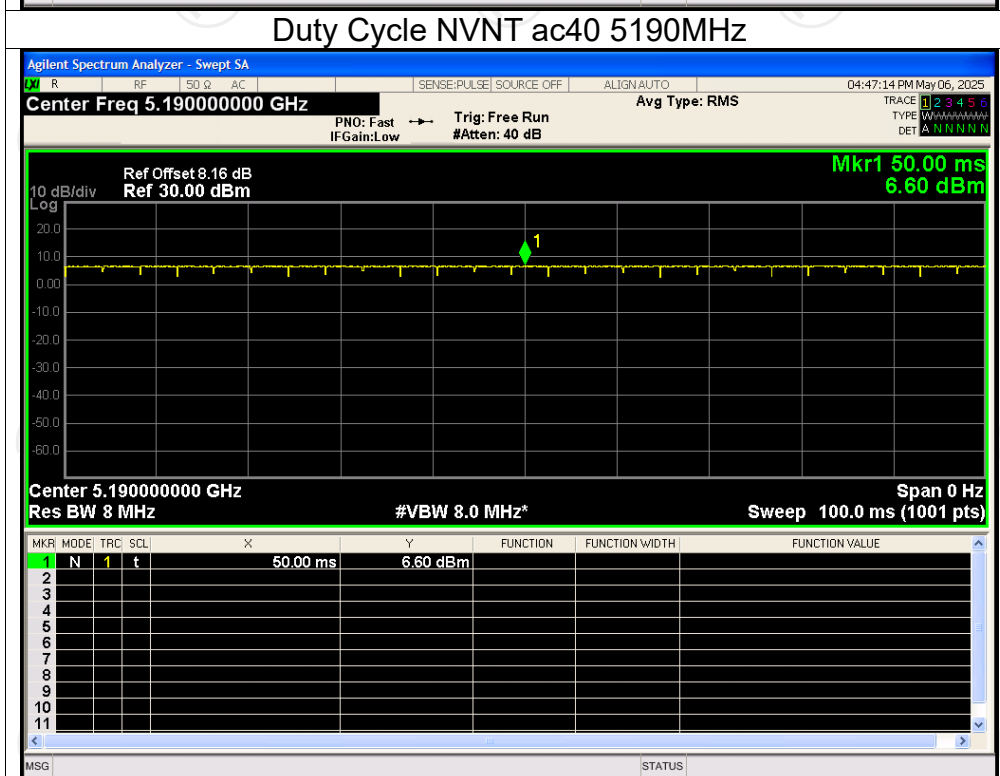
Duty Cycle NVNT ac20 5200MHz



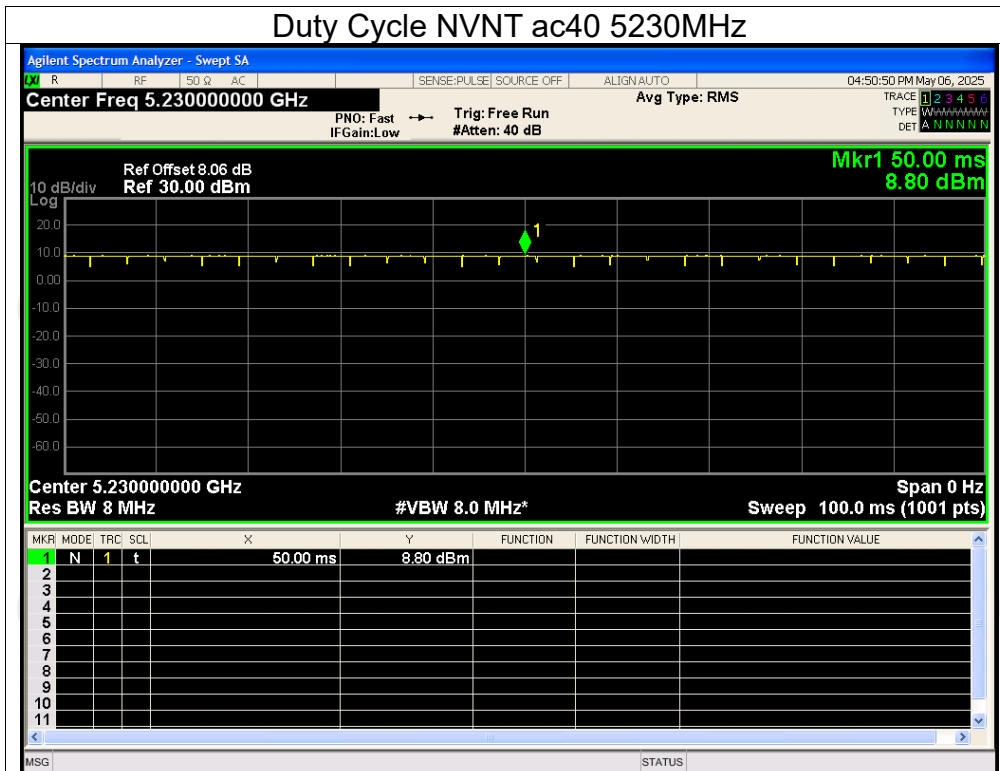
Duty Cycle NVNT ac20 5240MHz



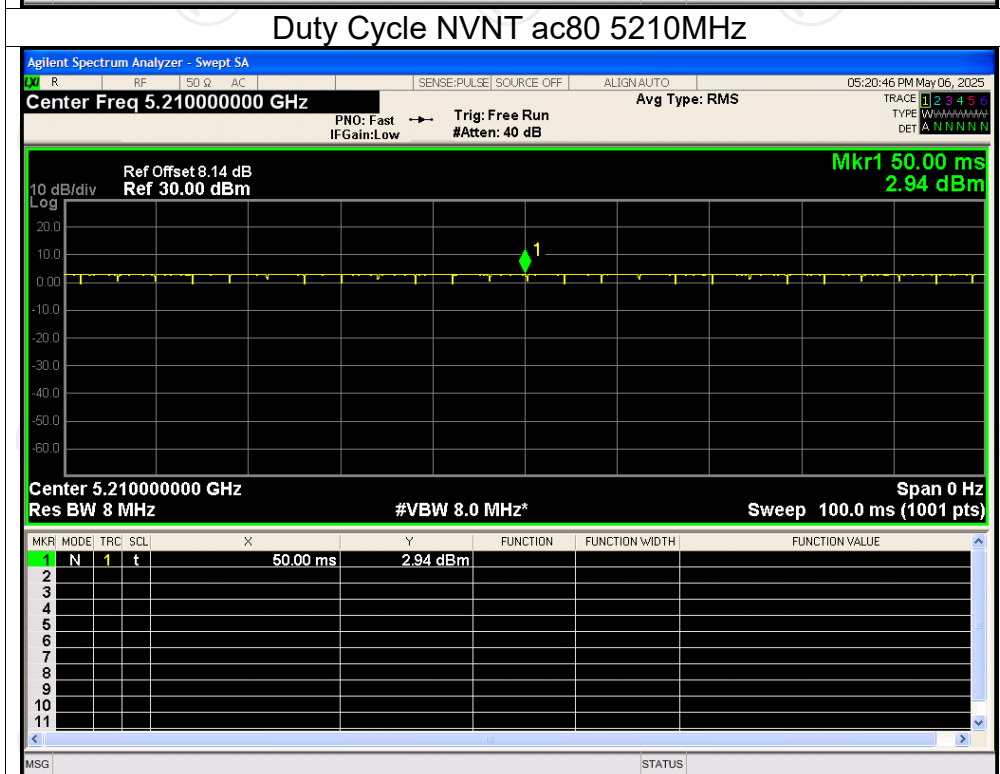
Duty Cycle NVNT ac40 5190MHz



Duty Cycle NVNT ac40 5230MHz



Duty Cycle NVNT ac80 5210MHz

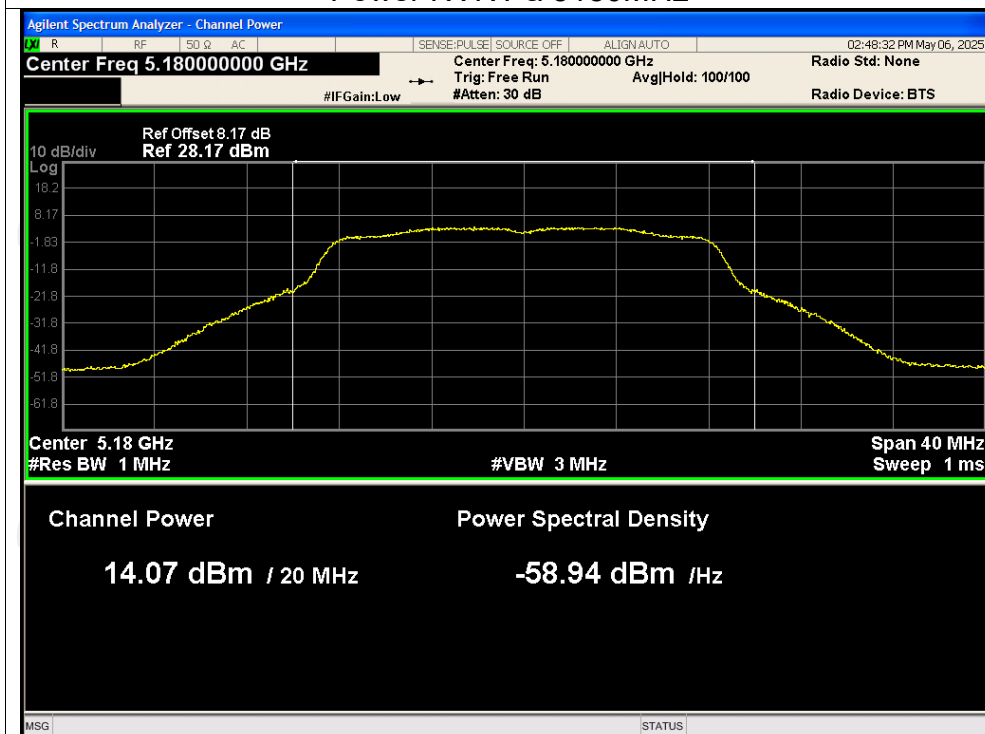


Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	14.07	24	Pass
NVNT	a	5200	14.53	24	Pass
NVNT	a	5240	14.25	24	Pass
NVNT	n20	5180	14.01	24	Pass
NVNT	n20	5200	14.53	24	Pass
NVNT	n20	5240	14.17	24	Pass
NVNT	n40	5190	13.15	24	Pass
NVNT	n40	5230	15.54	24	Pass
NVNT	ac20	5180	13.77	24	Pass
NVNT	ac20	5200	14.33	24	Pass
NVNT	ac20	5240	13.96	24	Pass
NVNT	ac40	5190	12.87	24	Pass
NVNT	ac40	5230	15.24	24	Pass
NVNT	ac80	5210	12.24	24	Pass

Test Graphs

Power NVNT a 5180MHz



Power NVNT a 5200MHz

