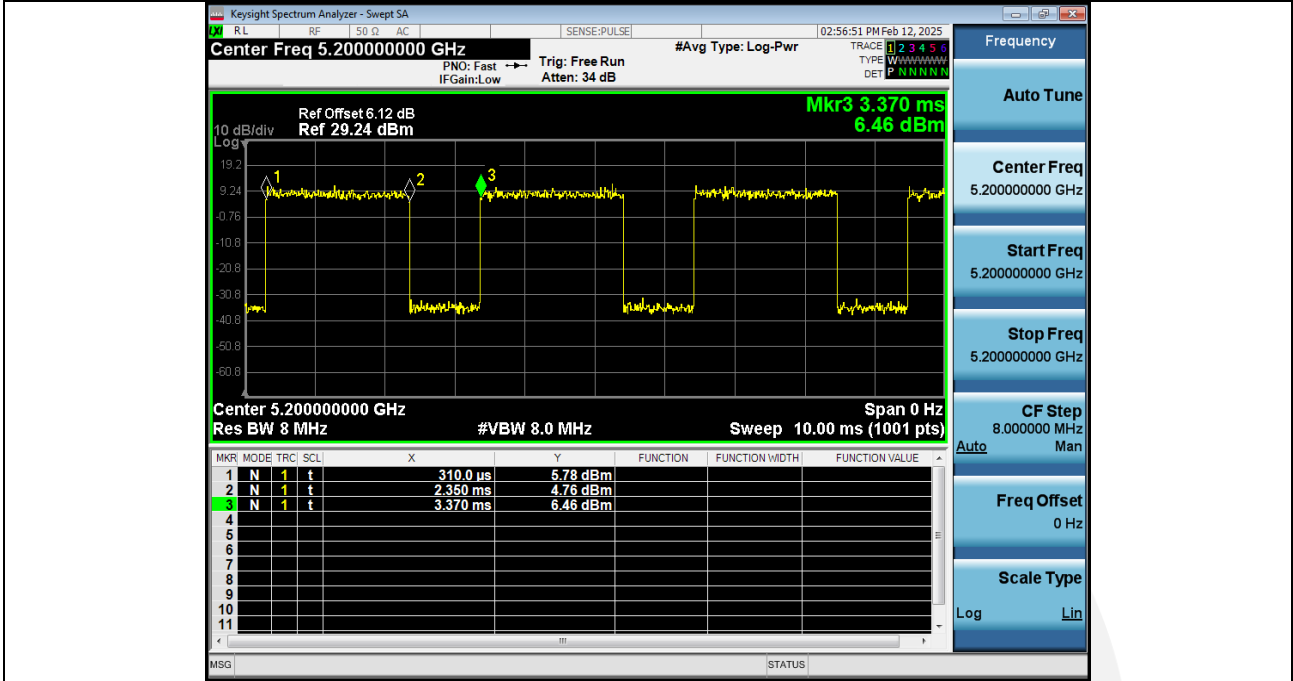
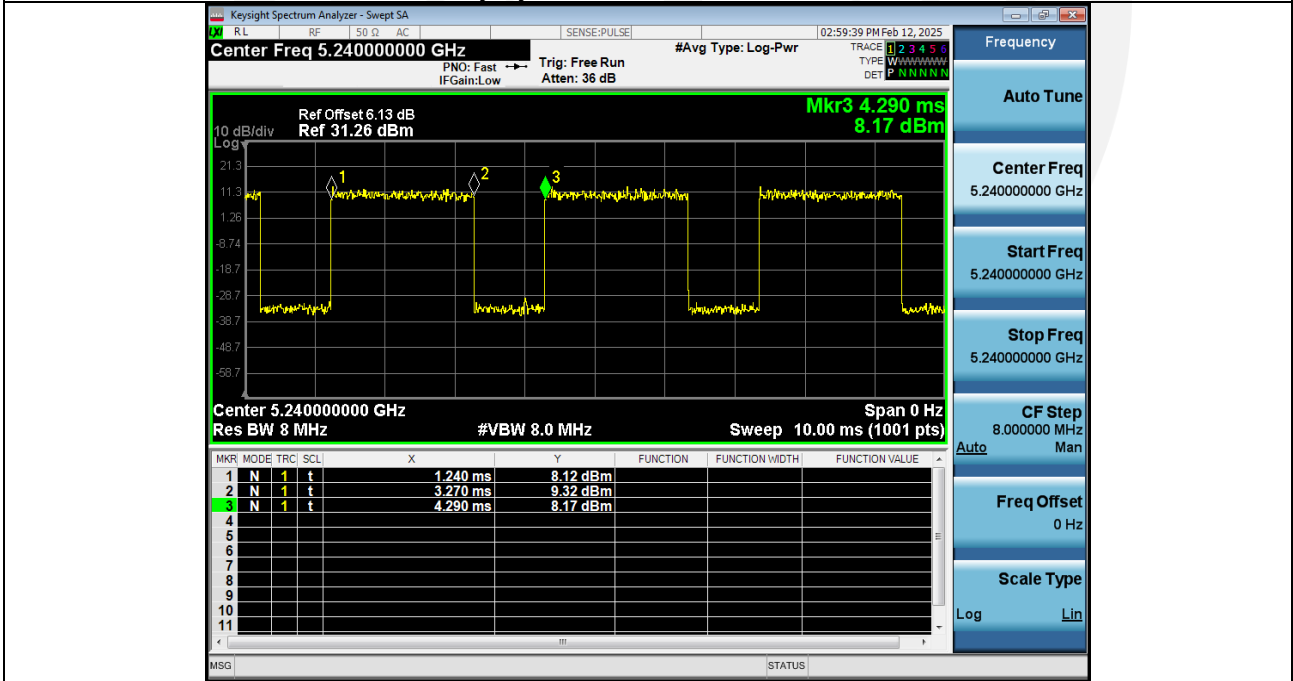


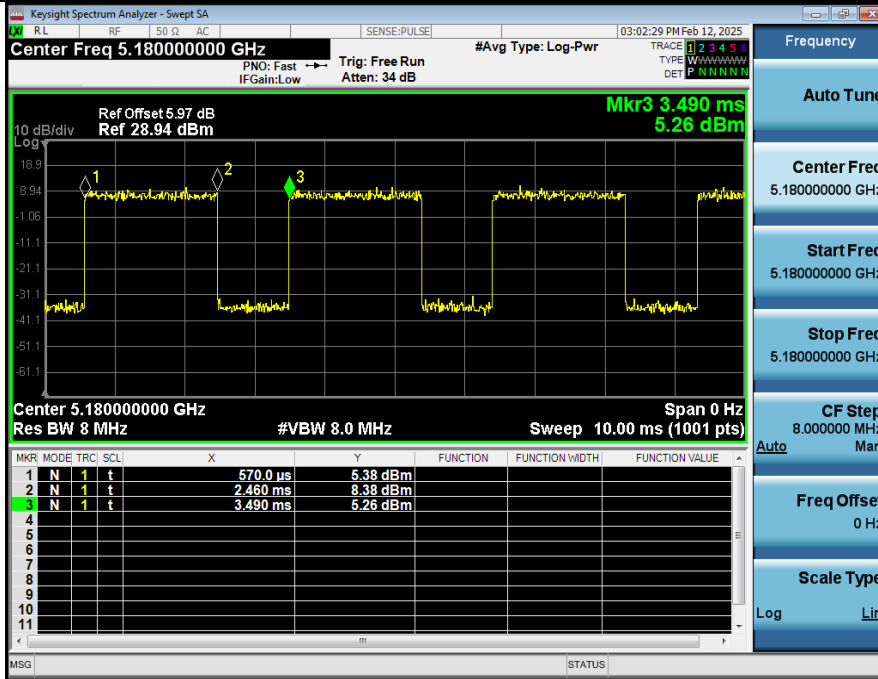
Duty Cycle NVNT\_ANT1\_802\_11a\_5200



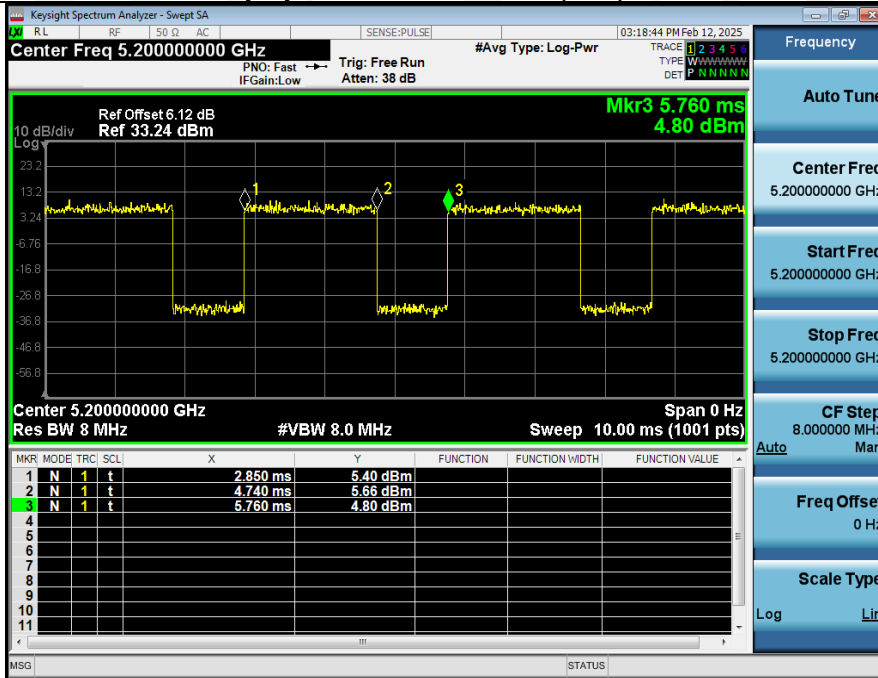
Duty Cycle NVNT\_ANT1\_802\_11a\_5240



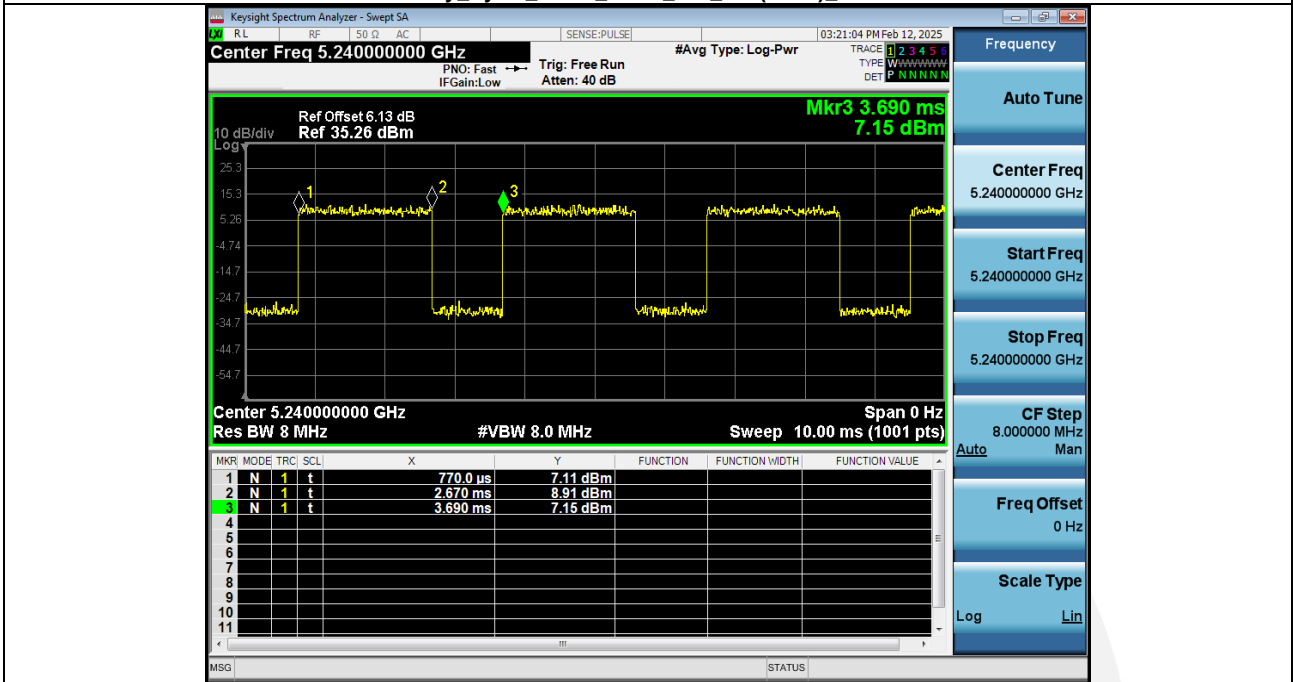
Duty Cycle NVNT\_ANT1\_802\_11n(HT20)\_5180



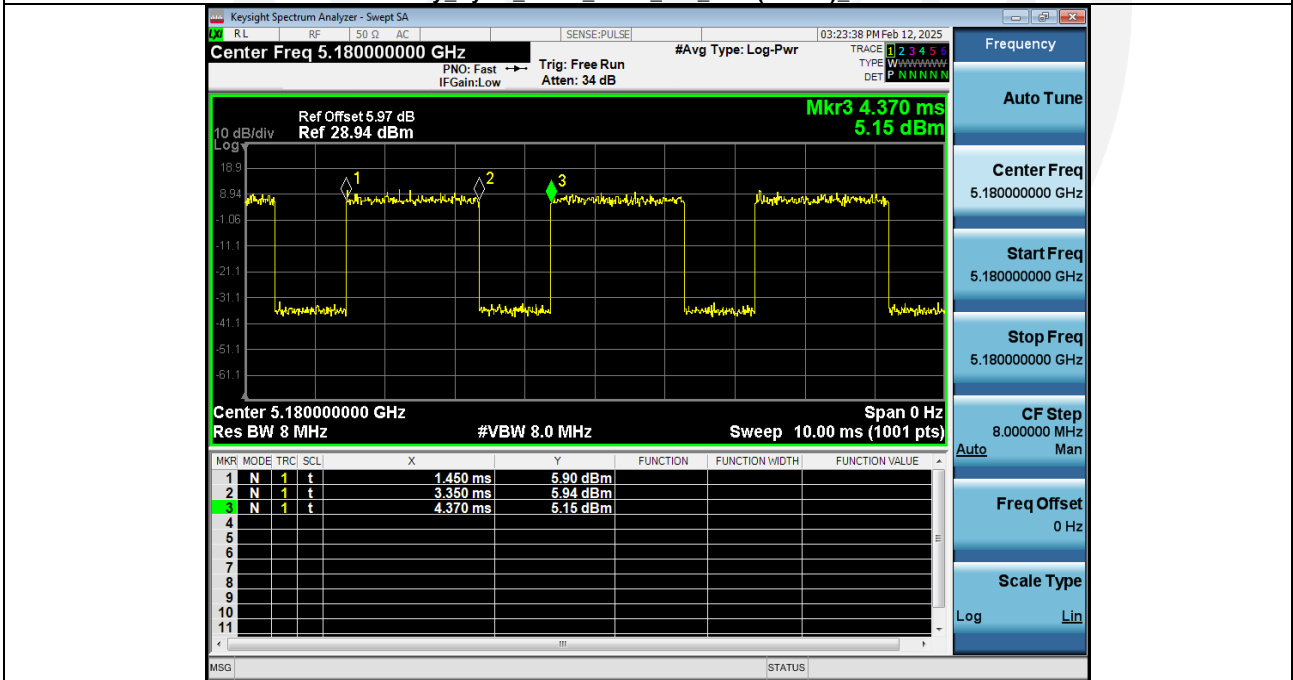
Duty Cycle NVNT\_ANT1\_802\_11n(HT20)\_5200



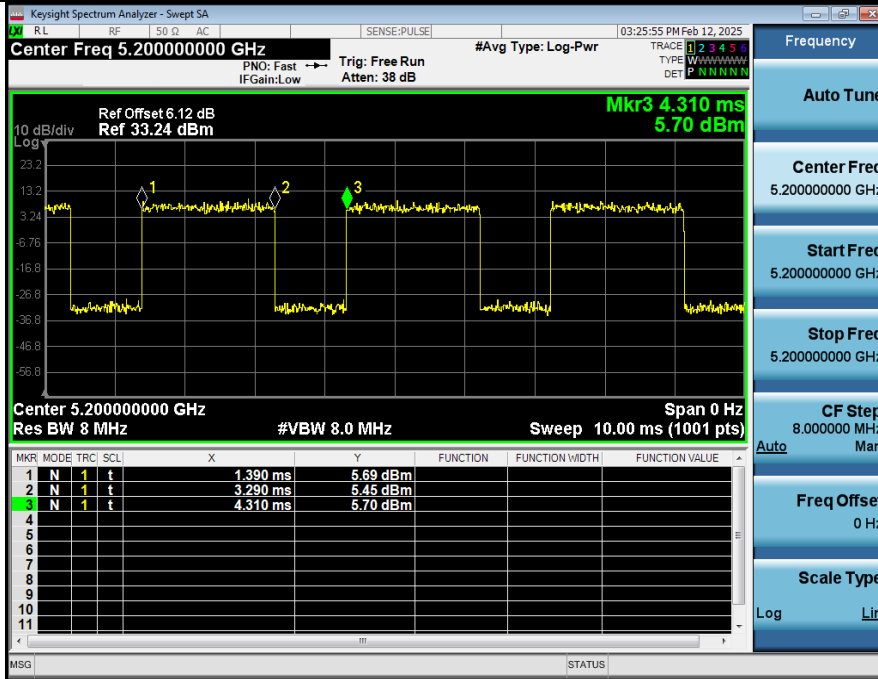
Duty Cycle NVNT\_ANT1\_802\_11n(HT20)\_5240



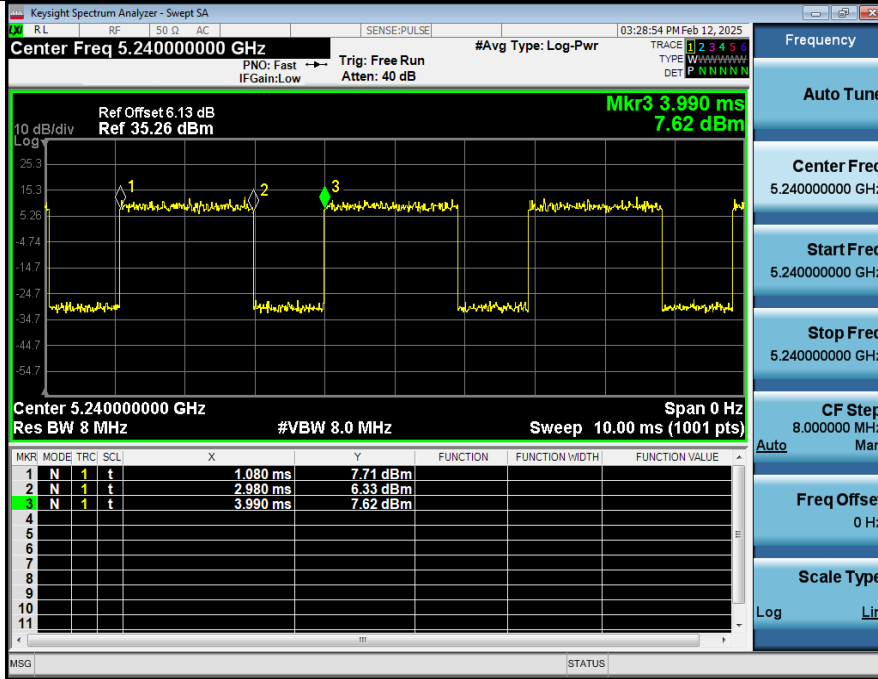
Duty Cycle NVNT\_ANT1\_802\_11ac(VHT20)\_5180



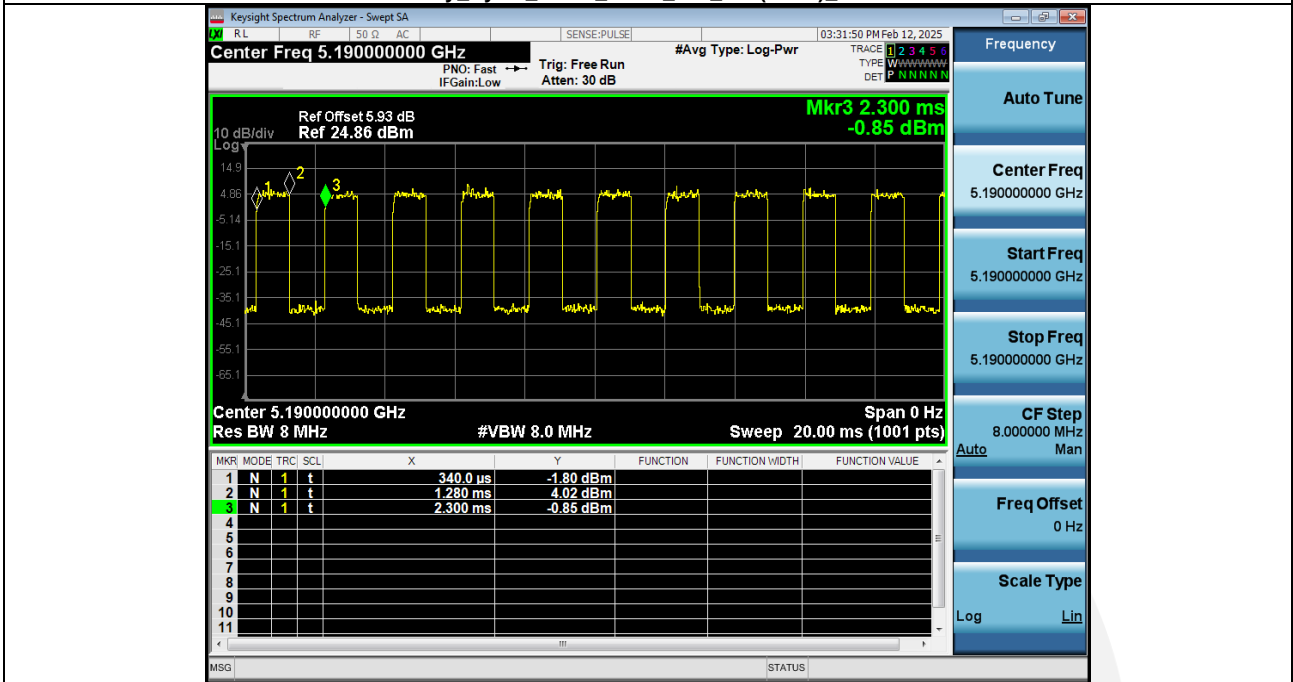
Duty Cycle NVNT\_ANT1\_802\_11ac(VHT20)\_5200



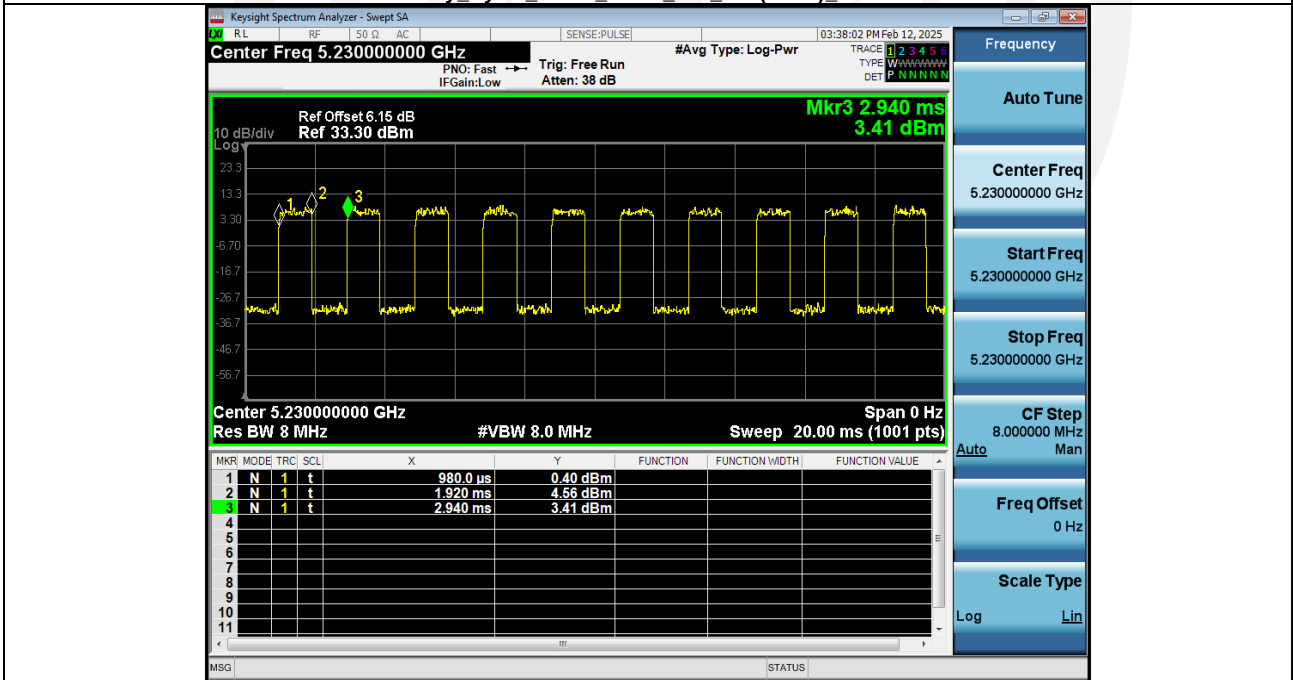
Duty Cycle NVNT\_ANT1\_802\_11ac(VHT20)\_5240



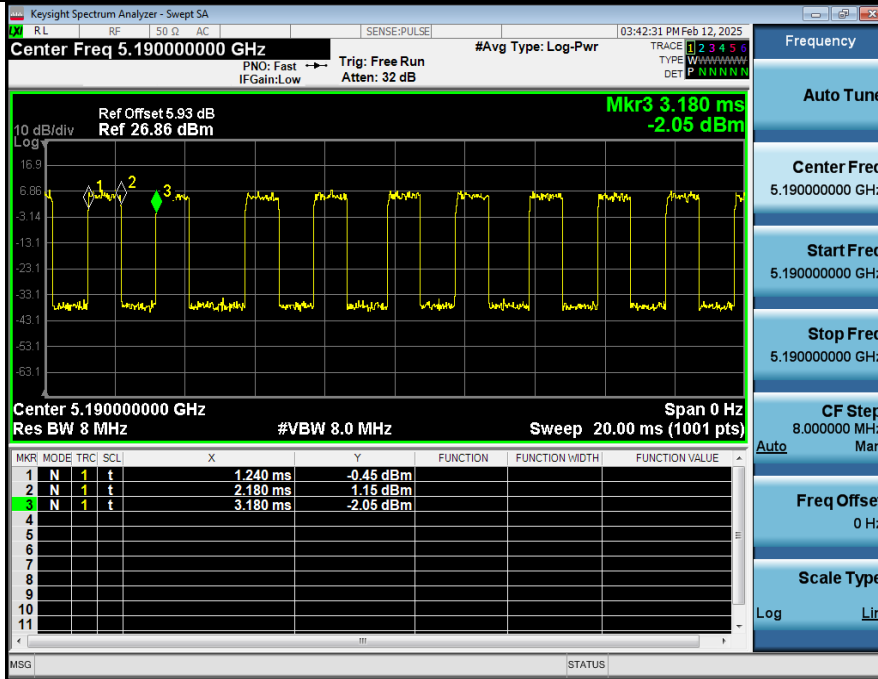
Duty Cycle NVNT\_ANT1\_802\_11n(HT40)\_5190



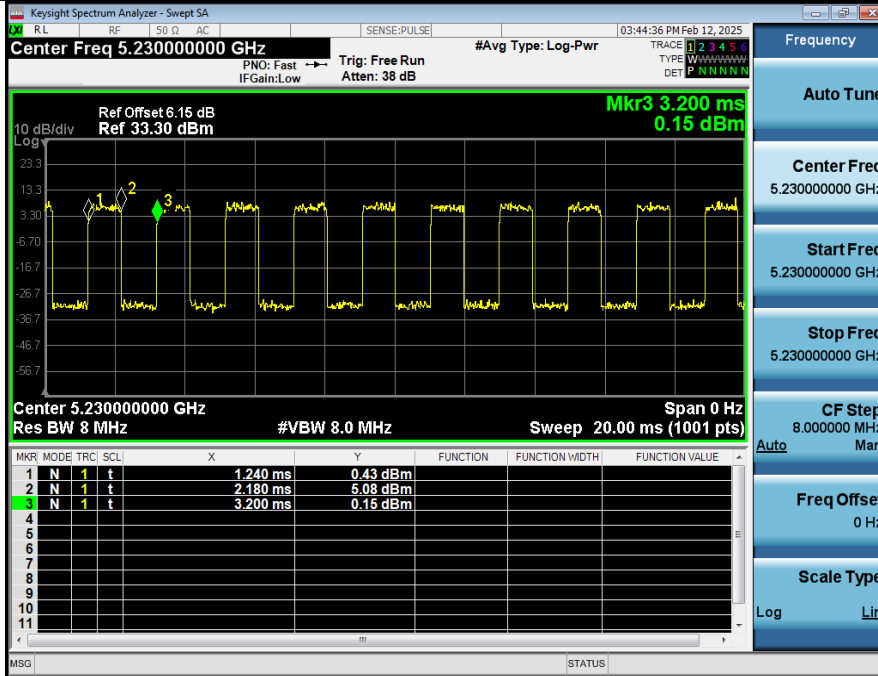
Duty Cycle NVNT\_ANT1\_802\_11n(HT40)\_5230



Duty Cycle NVNT\_ANT1\_802\_11ac(VHT40)\_5190



Duty Cycle NVNT\_ANT1\_802\_11ac(VHT40)\_5230

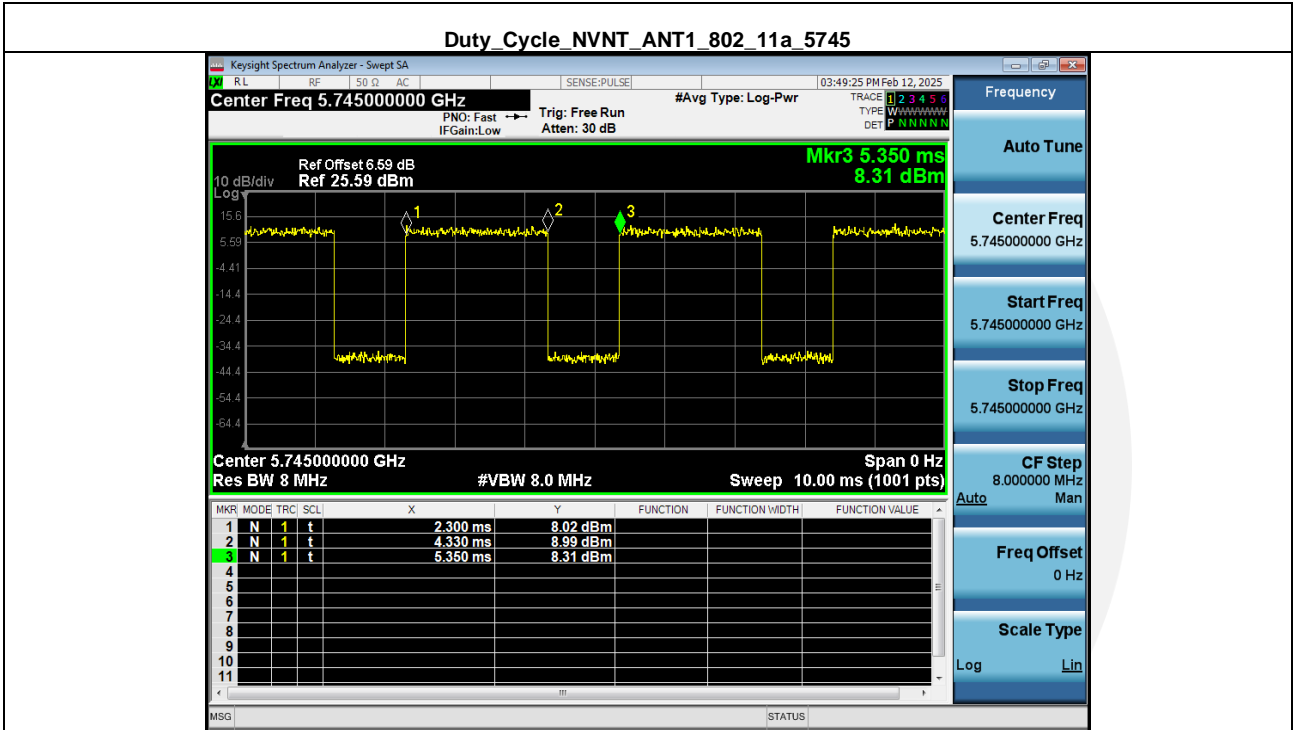


**Band 4 (5725 – 5850 MHz)**

Condition	Antenna	Modulation	Frequency (MHz)	Conducted Power(dBm)	Duty factor(dB)	Total Power(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11a	5745.00	4.22	1.77	5.99	30	Pass
NVNT	ANT1	802.11a	5785.00	3.57	1.77	5.34	30	Pass
NVNT	ANT1	802.11a	5825.00	4.86	1.75	<b>6.61</b>	30	Pass
NVNT	ANT1	802.11n(HT20)	5745.00	3.60	1.87	5.47	30	Pass
NVNT	ANT1	802.11n(HT20)	5785.00	3.52	1.87	5.39	30	Pass
NVNT	ANT1	802.11n(HT20)	5825.00	4.71	1.87	6.58	30	Pass
NVNT	ANT1	802.11ac(VHT20)	5745.00	3.65	1.87	5.52	30	Pass
NVNT	ANT1	802.11ac(VHT20)	5785.00	3.46	1.87	5.33	30	Pass
NVNT	ANT1	802.11ac(VHT20)	5825.00	4.63	1.87	6.50	30	Pass
NVNT	ANT1	802.11n(HT40)	5755.00	2.69	3.19	5.88	30	Pass
NVNT	ANT1	802.11n(HT40)	5795.00	3.25	3.24	6.49	30	Pass
NVNT	ANT1	802.11ac(VHT40)	5755.00	3.14	3.19	6.33	30	Pass
NVNT	ANT1	802.11ac(VHT40)	5795.00	3.15	3.19	6.34	30	Pass

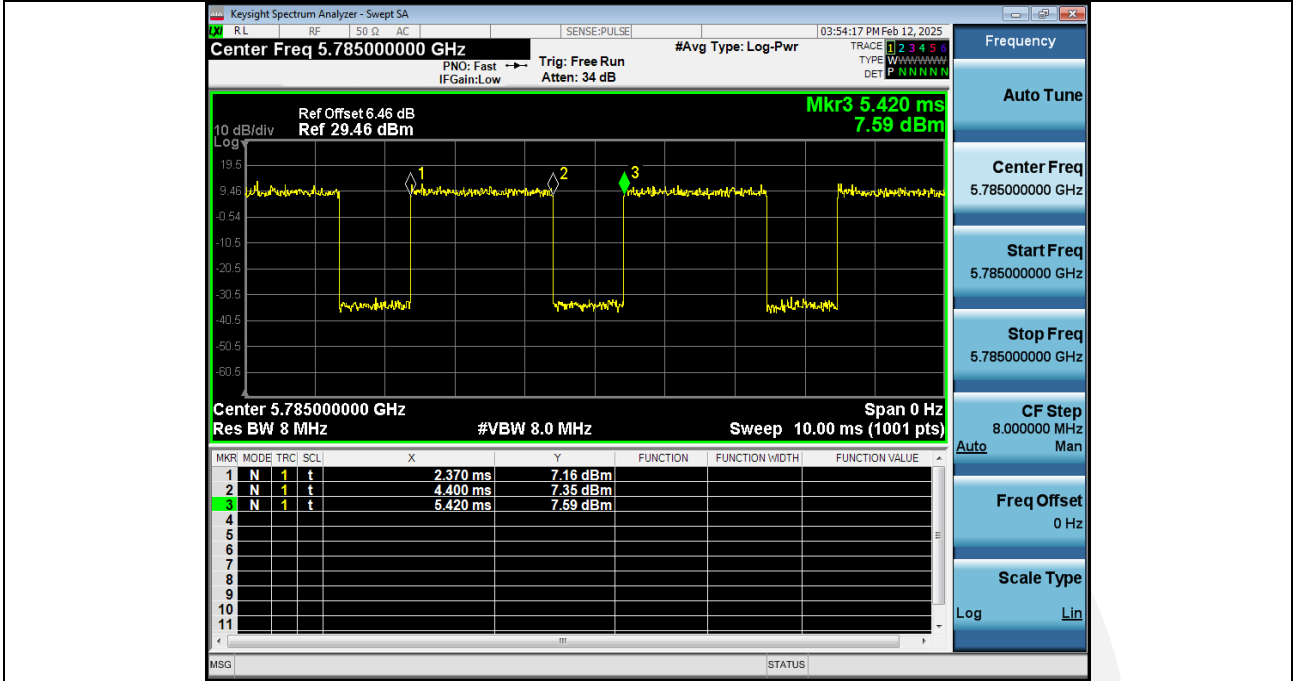
Condition	Antenna	Modulation	Frequency (MHz)	Duty cycle(%)	Duty_factor
NVNT	ANT1	802.11a	5745.00	66.56	1.77
NVNT	ANT1	802.11a	5785.00	66.56	1.77
NVNT	ANT1	802.11a	5825.00	66.89	1.75
NVNT	ANT1	802.11n(HT20)	5745.00	64.95	1.87
NVNT	ANT1	802.11n(HT20)	5785.00	64.95	1.87
NVNT	ANT1	802.11n(HT20)	5825.00	64.95	1.87
NVNT	ANT1	802.11ac(VHT20)	5745.00	65.07	1.87
NVNT	ANT1	802.11ac(VHT20)	5785.00	65.07	1.87
NVNT	ANT1	802.11ac(VHT20)	5825.00	65.07	1.87
NVNT	ANT1	802.11n(HT40)	5755.00	47.96	3.19
NVNT	ANT1	802.11n(HT40)	5795.00	47.42	3.24
NVNT	ANT1	802.11ac(VHT40)	5755.00	47.96	3.19
NVNT	ANT1	802.11ac(VHT40)	5795.00	47.96	3.19

Condition	Antenna	Modulation	Frequency (MHz)	Duty cycle(%)	Duty_factor
NVNT	ANT1	802.11a	5745.00	66.56	1.77
NVNT	ANT1	802.11a	5785.00	66.56	1.77
NVNT	ANT1	802.11a	5825.00	66.89	1.75
NVNT	ANT1	802.11n(HT20)	5745.00	64.95	1.87
NVNT	ANT1	802.11n(HT20)	5785.00	64.95	1.87
NVNT	ANT1	802.11n(HT20)	5825.00	64.95	1.87
NVNT	ANT1	802.11ac(VHT20)	5745.00	65.07	1.87
NVNT	ANT1	802.11ac(VHT20)	5785.00	65.07	1.87
NVNT	ANT1	802.11ac(VHT20)	5825.00	65.07	1.87
NVNT	ANT1	802.11n(HT40)	5755.00	47.96	3.19
NVNT	ANT1	802.11n(HT40)	5795.00	47.42	3.24
NVNT	ANT1	802.11ac(VHT40)	5755.00	47.96	3.19
NVNT	ANT1	802.11ac(VHT40)	5795.00	47.96	3.19

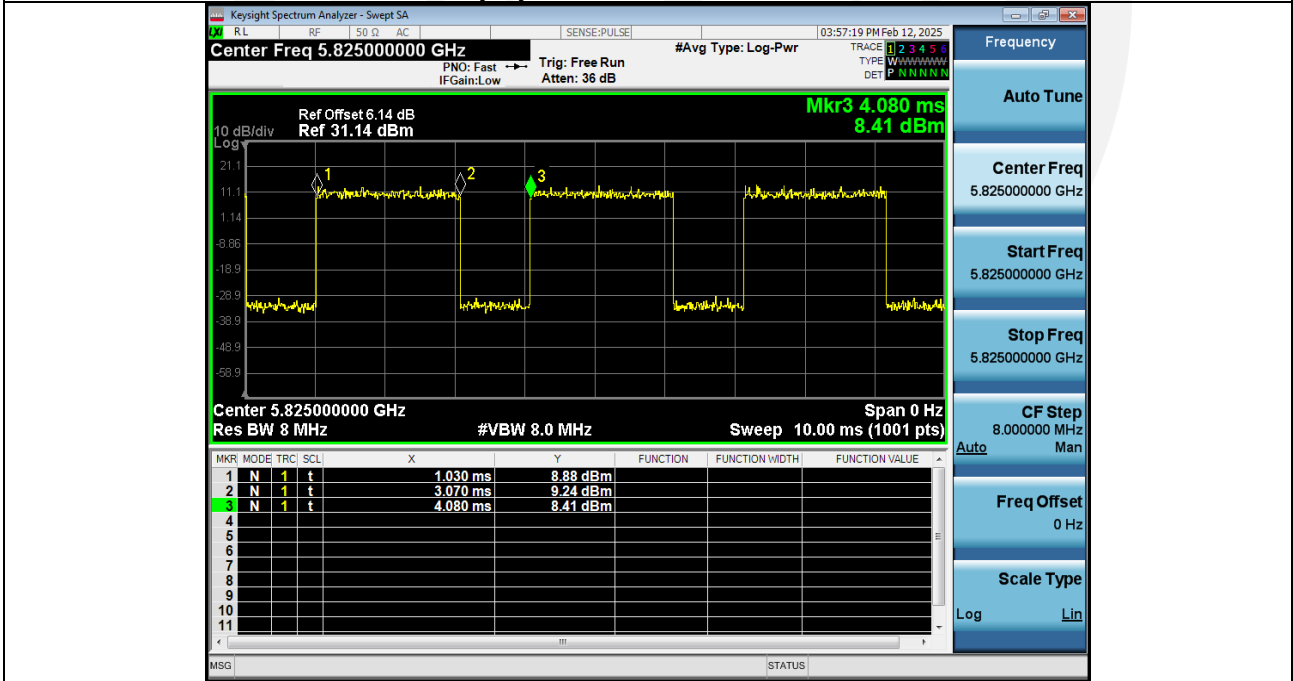




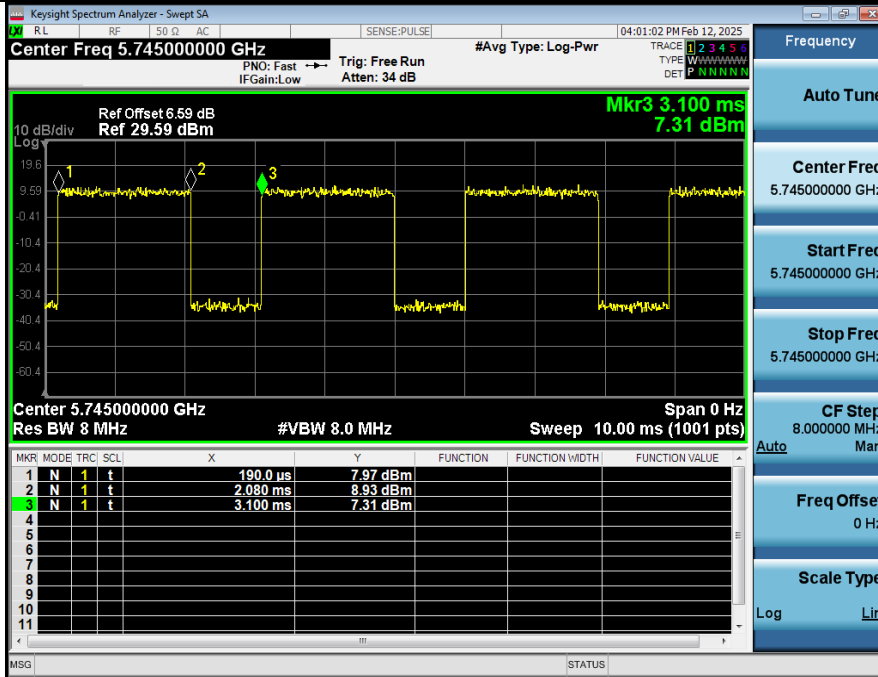
Duty Cycle NVNT\_ANT1\_802\_11a\_5785



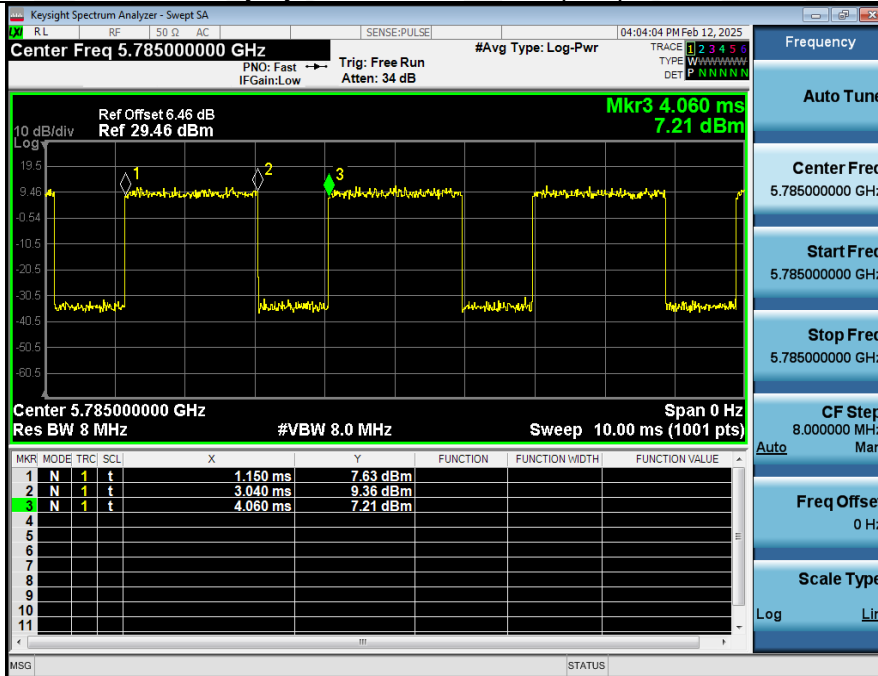
Duty Cycle NVNT\_ANT1\_802\_11a\_5825



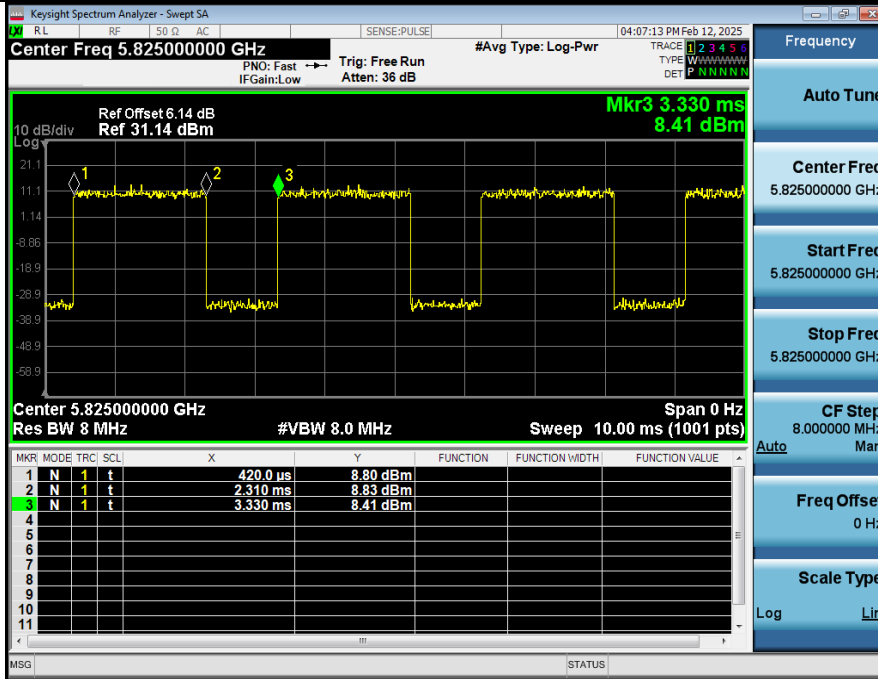
Duty Cycle NVNT\_ANT1\_802\_11n(HT20)\_5745



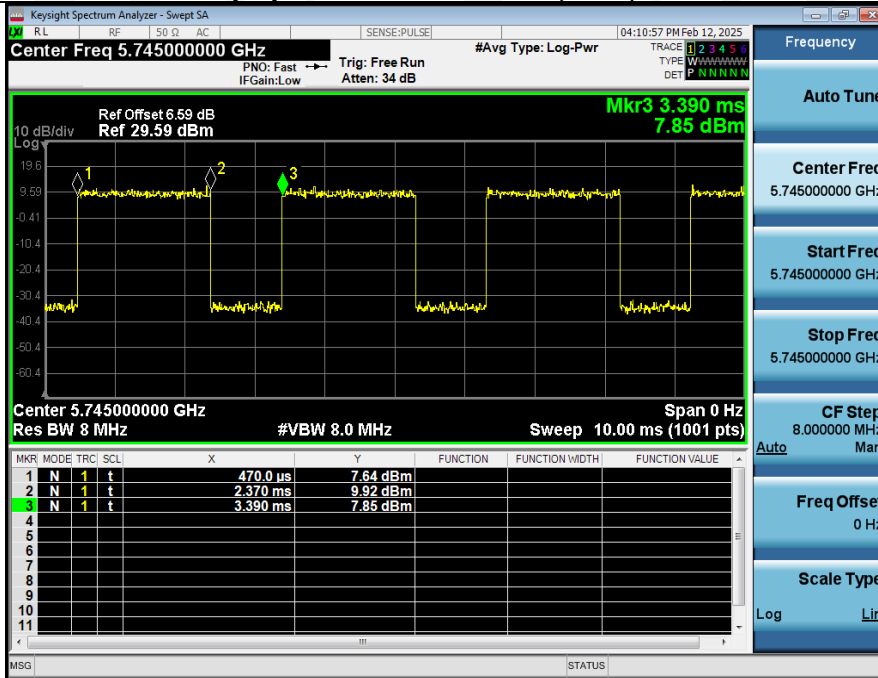
Duty Cycle NVNT\_ANT1\_802\_11n(HT20)\_5785



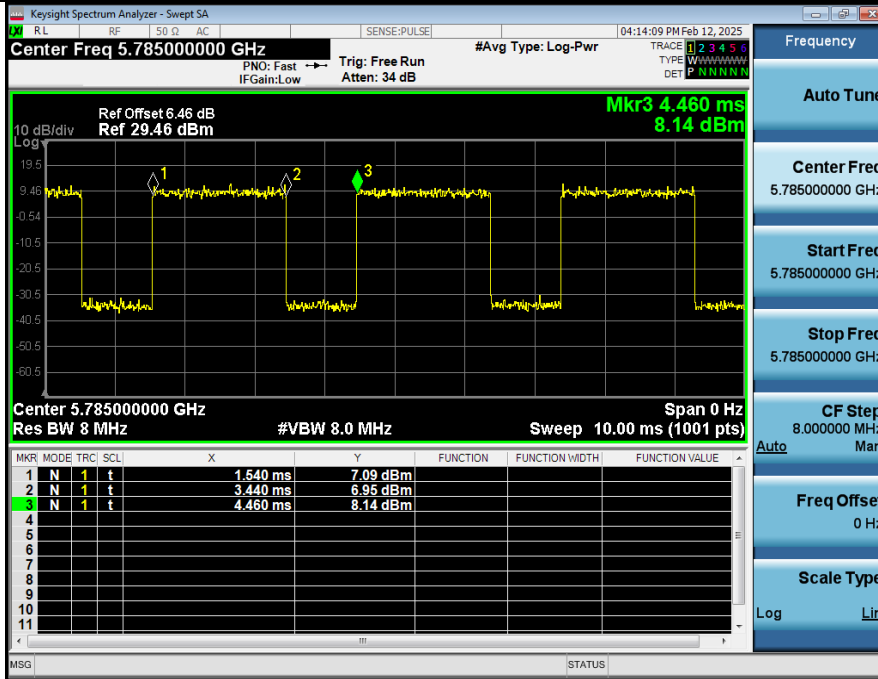
Duty Cycle NVNT\_ANT1\_802\_11n(HT20)\_5825



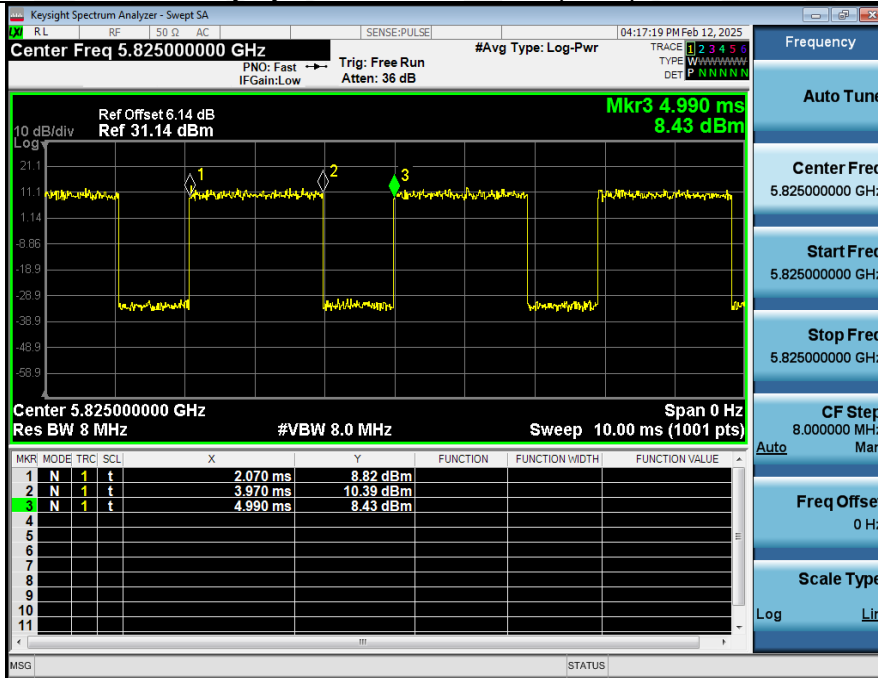
Duty Cycle NVNT\_ANT1\_802\_11ac(VHT20)\_5745



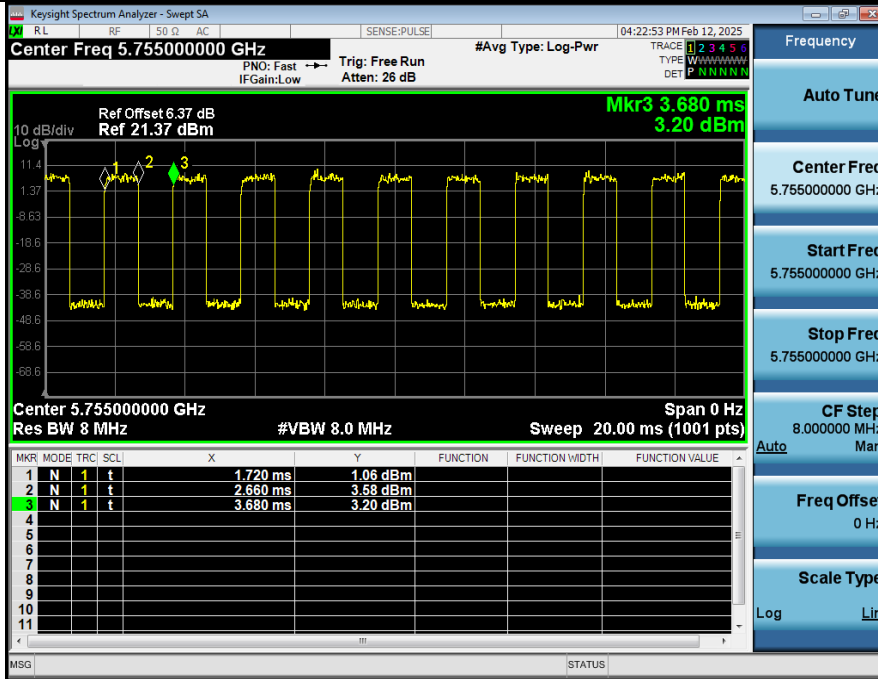
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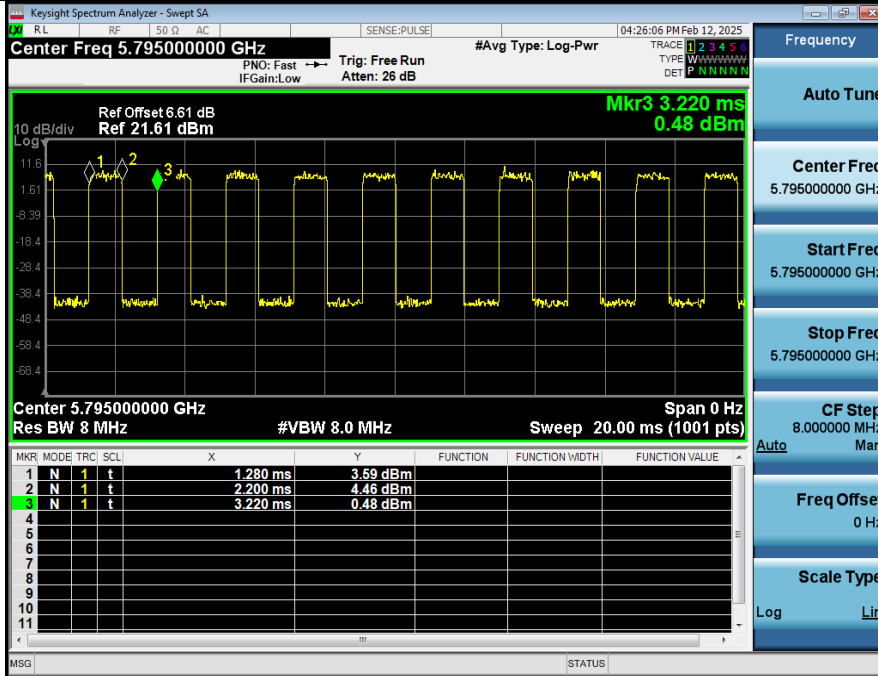
Duty Cycle NVNT\_ANT1\_802\_11ac(VHT20)\_5825



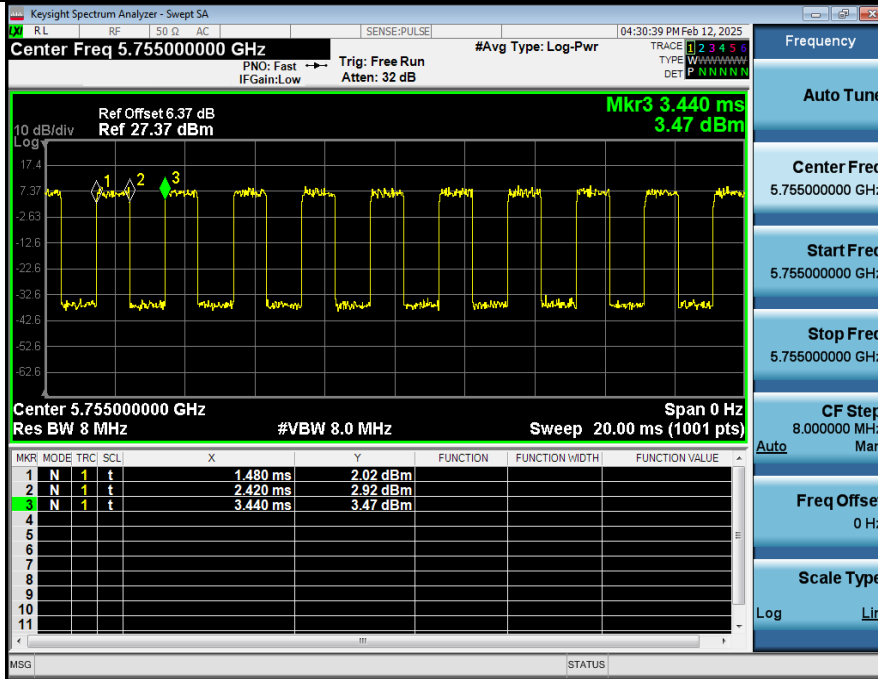
Duty Cycle NVNT\_ANT1\_802\_11n(HT40)\_5755



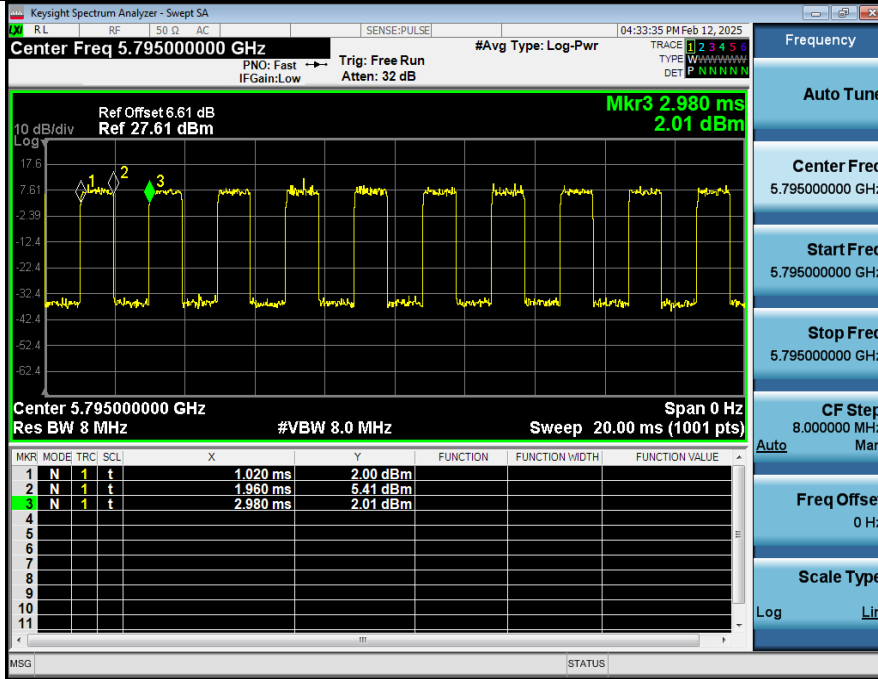
Duty Cycle NVNT\_ANT1\_802\_11n(HT40)\_5795



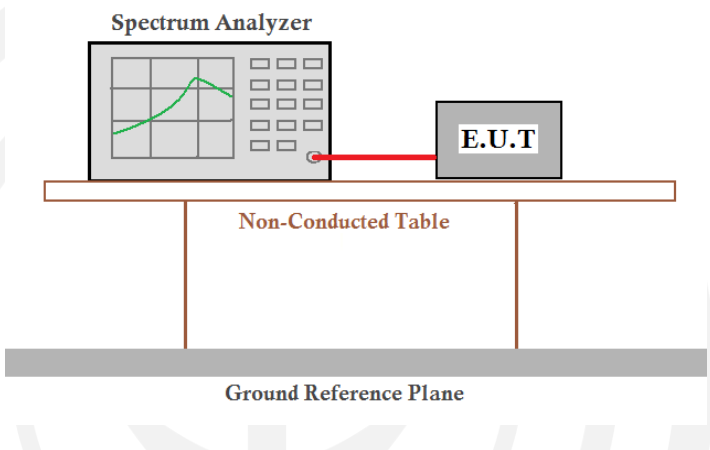
Duty Cycle NVNT\_ANT1\_802\_11ac(VHT40)\_5755



Duty Cycle NVNT\_ANT1\_802\_11ac(VHT40)\_5795

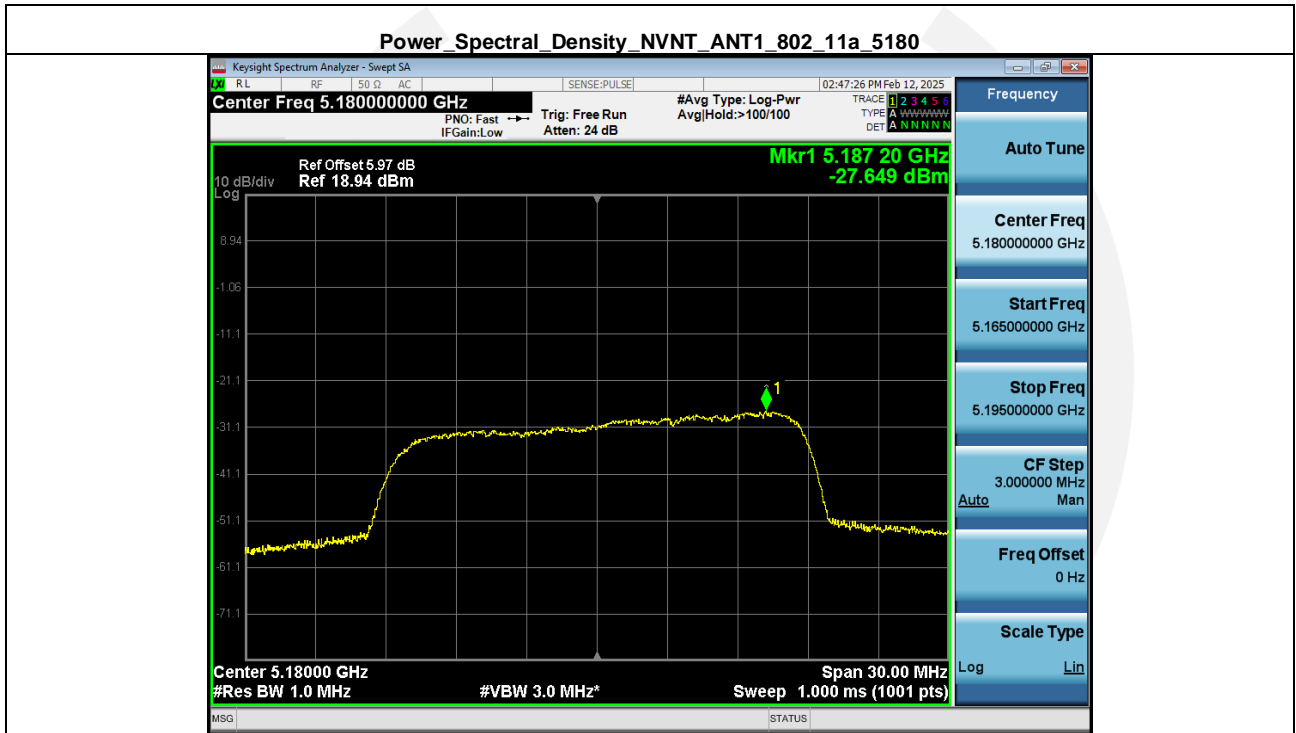


## 4.5 Power Spectral Density

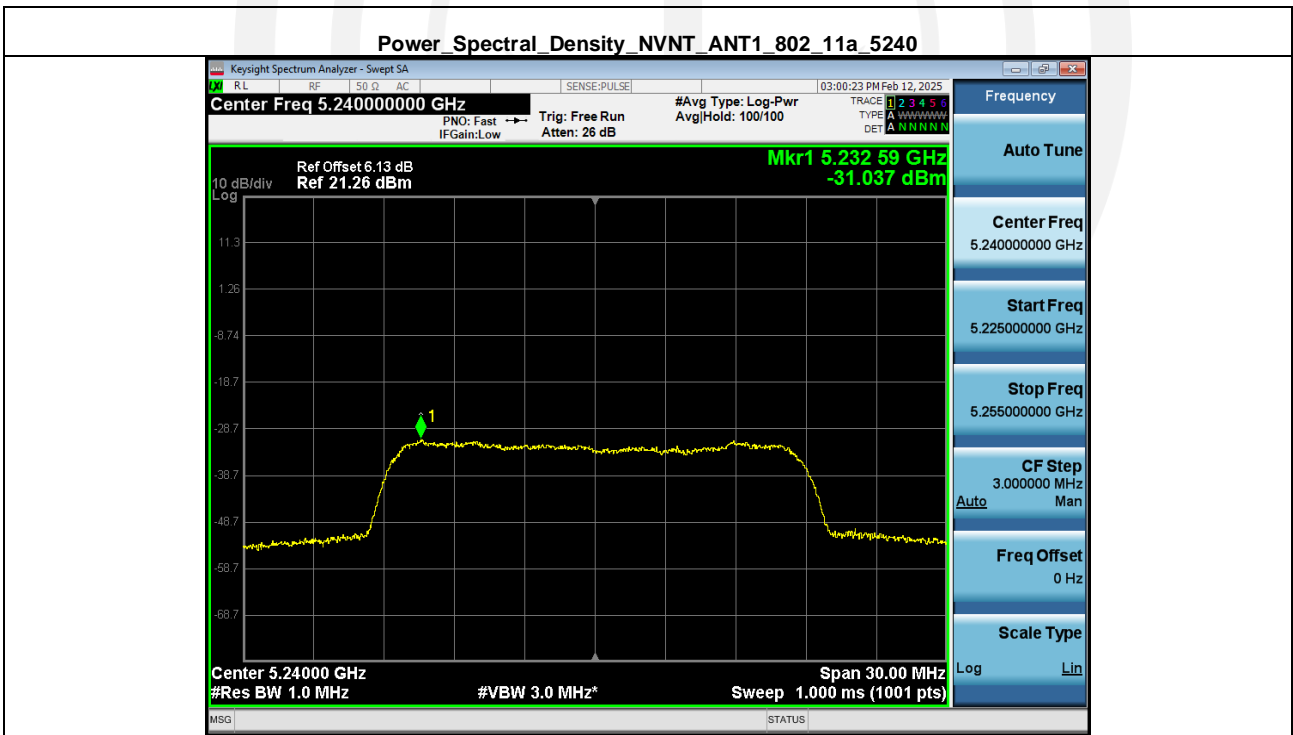
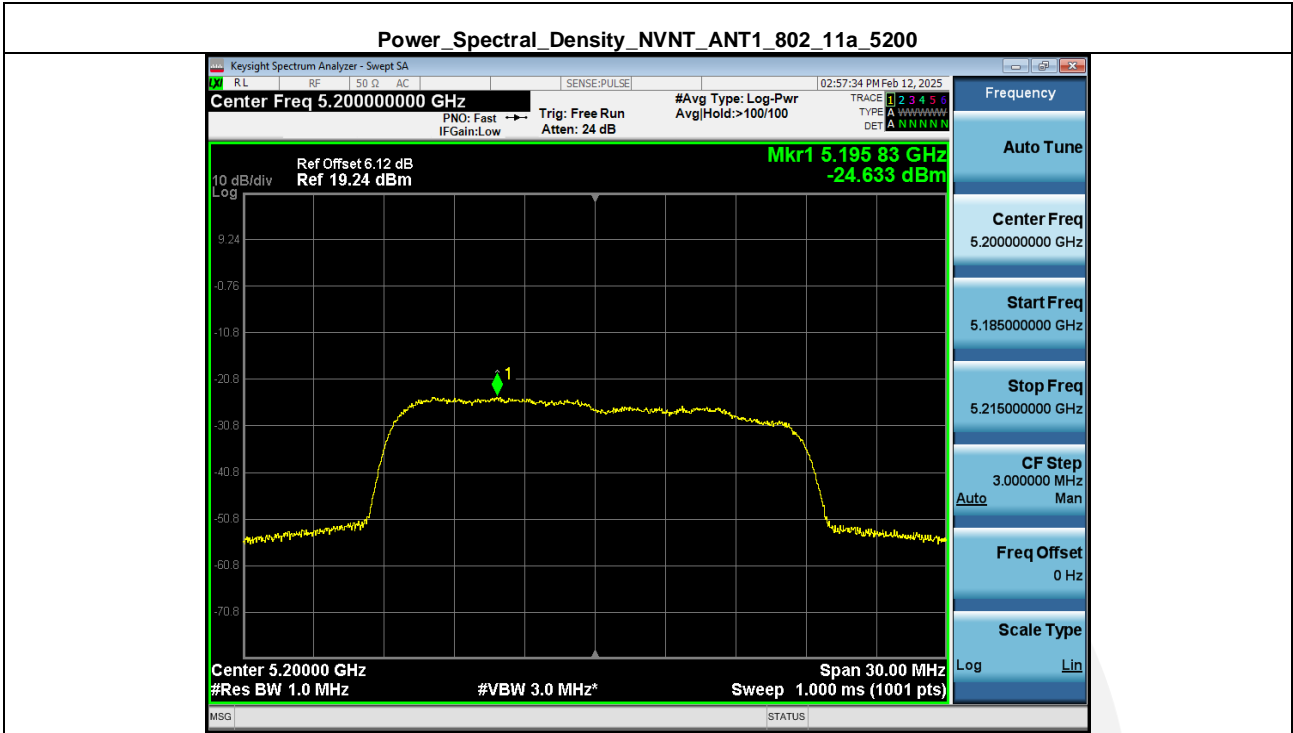
Test Requirement:	FCC Part15 E Section 15.407, RSS-247 §6.2
Test Method:	KDB 789033 D02 General UNII Test Procedures New Rules v02r01
Limit:	<p>FCC: 1. <math>\leq 11.00 \text{ dBm/MHz}</math> for 5150MHz-5250MHz, 5250-5350MHz and 5470-5725 MHz</p> <p>2. <math>\leq 30.00 \text{ dBm/500KHz}</math> for 5725MHz-5850MHz</p> <p>IC: 1. For the 5.15-5.25 GHz, The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.</p> <p>2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.</p>
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test procedure:	<ol style="list-style-type: none"> <li>1) Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, "Compute power...".</li> <li>2) Use the peak search function on the instrument to find the peak of the spectrum.</li> <li>3) Make the following adjustments to the peak value of the spectrum, if applicable: <ol style="list-style-type: none"> <li>a) If Method SA-2 or SA-2 Alternative was used, add <math>10 \log(1/x)</math>, where <math>x</math> is the duty cycle, to the peak of the spectrum.</li> <li>b) If Method SA-3 Alternative was used and the linear mode was used in step E)2)g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.</li> </ol> </li> <li>4) The result is the PSD.</li> </ol>
Test Instruments:	Refer to section 3.0 for details
Test mode:	Refer to section 2.2 for details
Test results:	Pass

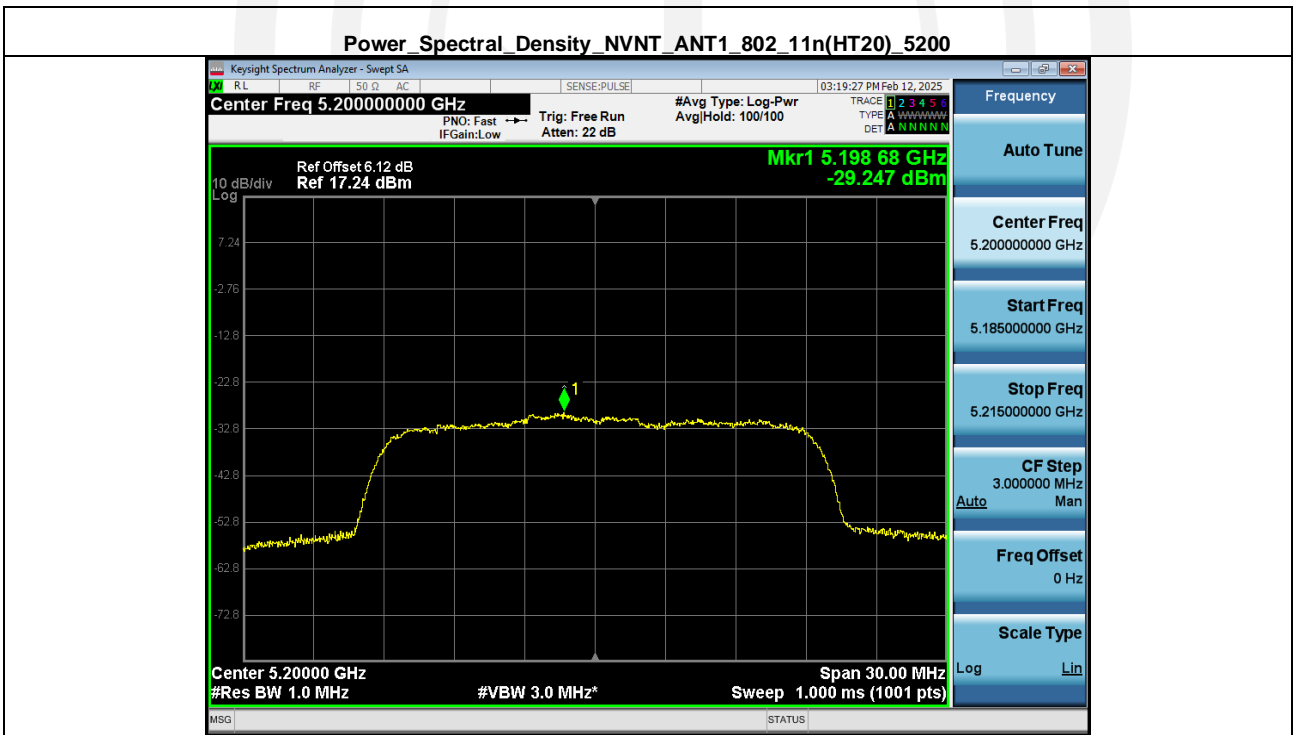
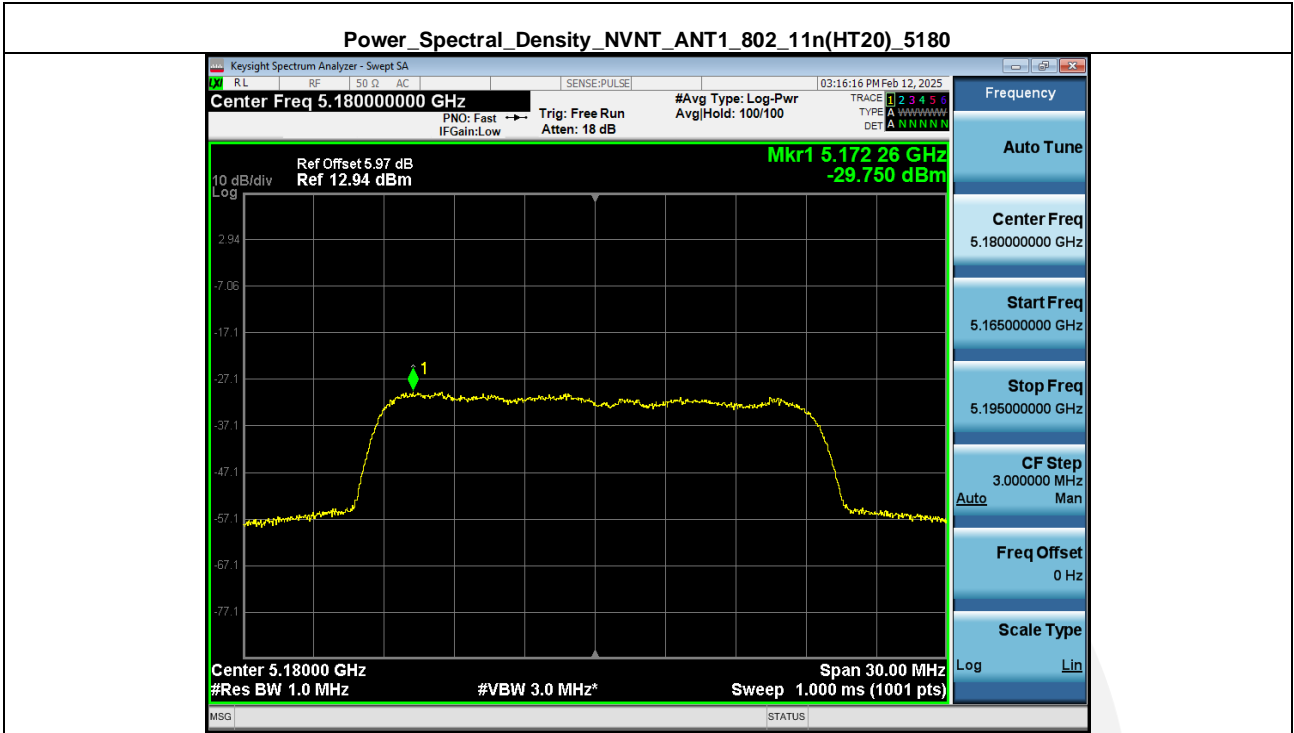
**Measurement Data**  
**Band 1 (5150-5250 MHz)**

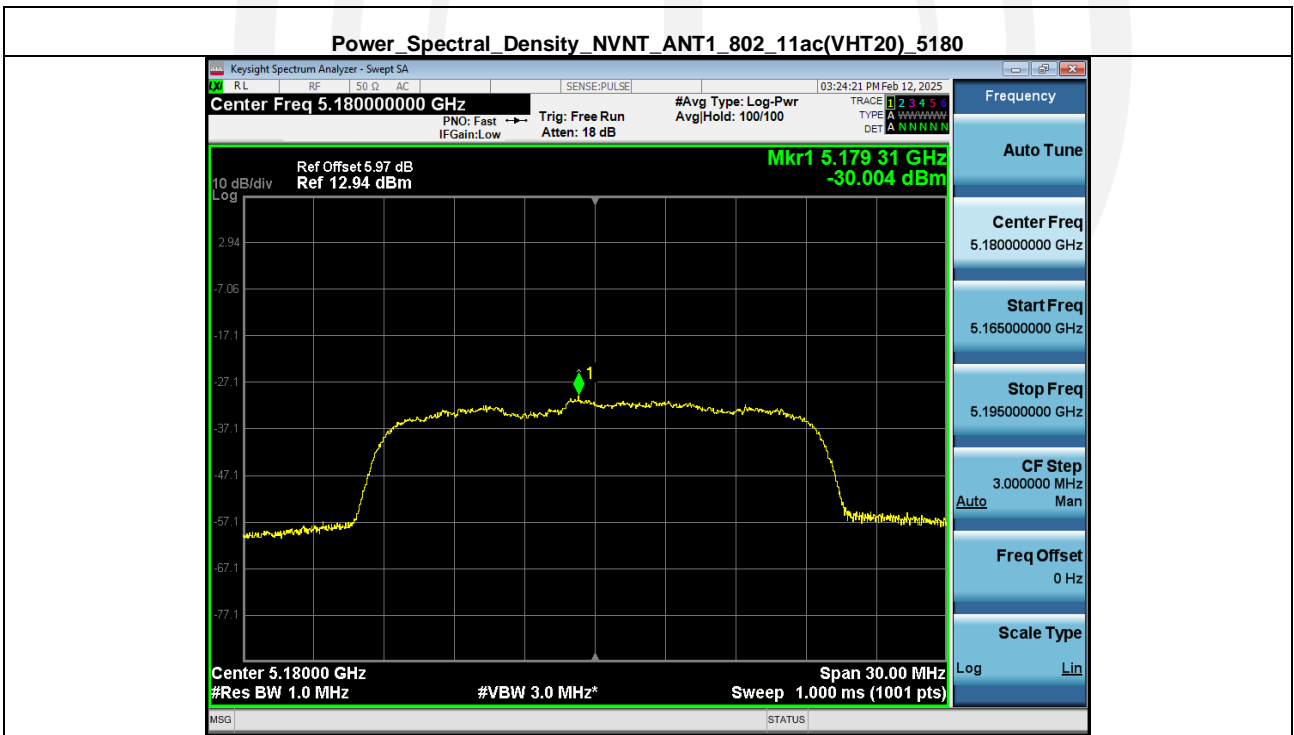
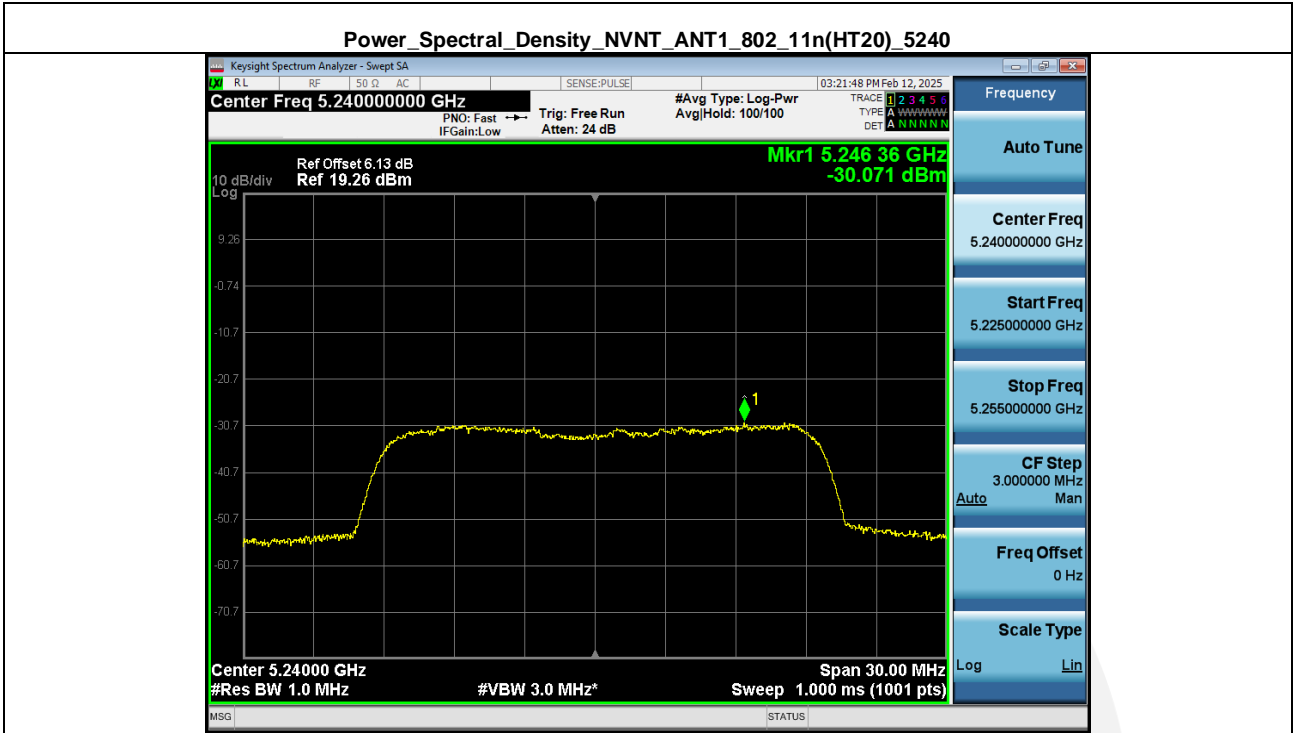
Condition	Antenna	Modulation	Frequency (MHz)	PSD(dBm/MHz)	Duty factor(dB)	Total PSD(dBm/MHz)	limit(dBm)	Result
NVNT	ANT1	802.11a	5180.00	-27.65	2.33	-25.32	11	Pass
NVNT	ANT1	802.11a	5200.00	-24.63	1.76	-22.87	11	Pass
NVNT	ANT1	802.11a	5240.00	-31.04	1.77	-29.27	11	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	-29.75	1.89	-27.86	11	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	-29.25	1.87	-27.38	11	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	-30.07	1.87	-28.20	11	Pass
NVNT	ANT1	802.11ac(VHT20)	5180.00	-30.00	1.87	-28.13	11	Pass
NVNT	ANT1	802.11ac(VHT20)	5200.00	-27.92	1.87	-26.05	11	Pass
NVNT	ANT1	802.11ac(VHT20)	5240.00	-26.85	1.85	-25.00	11	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	-39.38	3.19	-36.19	11	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	-38.66	3.19	-35.47	11	Pass
NVNT	ANT1	802.11ac(VHT40)	5190.00	-43.13	3.15	-39.98	11	Pass
NVNT	ANT1	802.11ac(VHT40)	5230.00	-37.94	3.19	-34.75	11	Pass

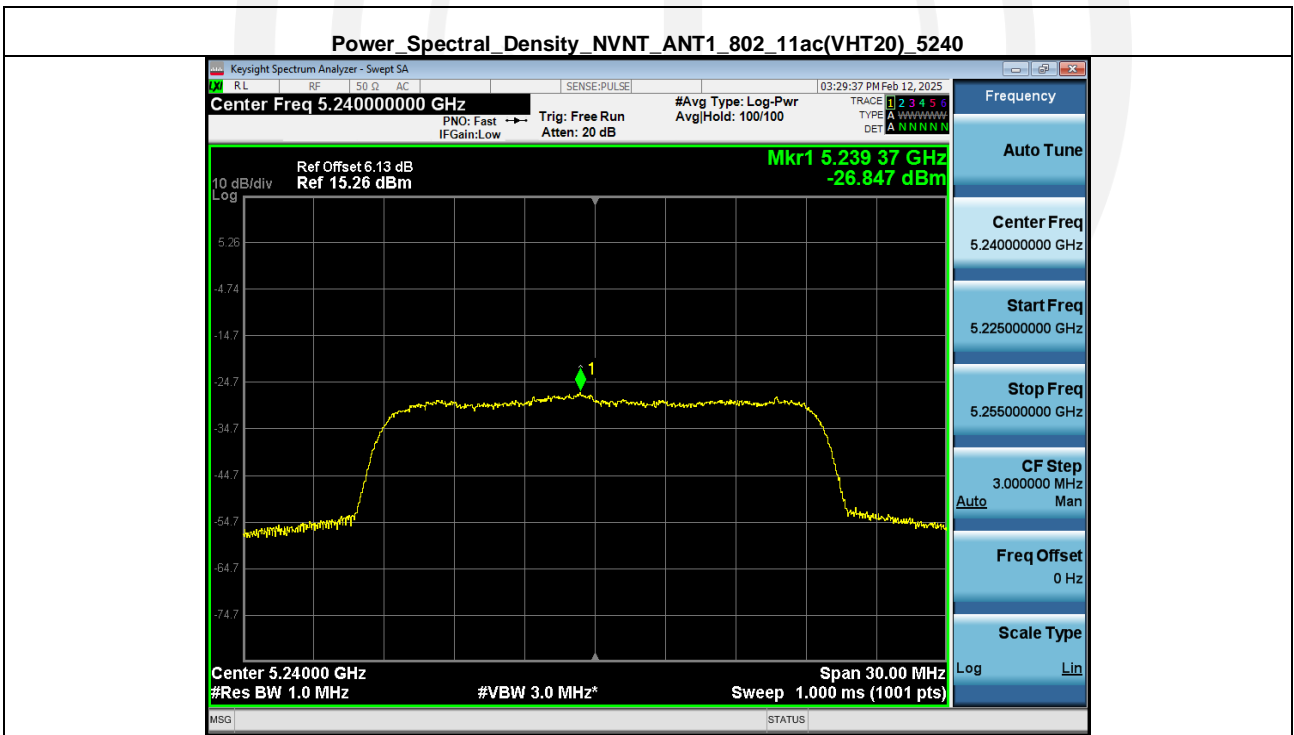
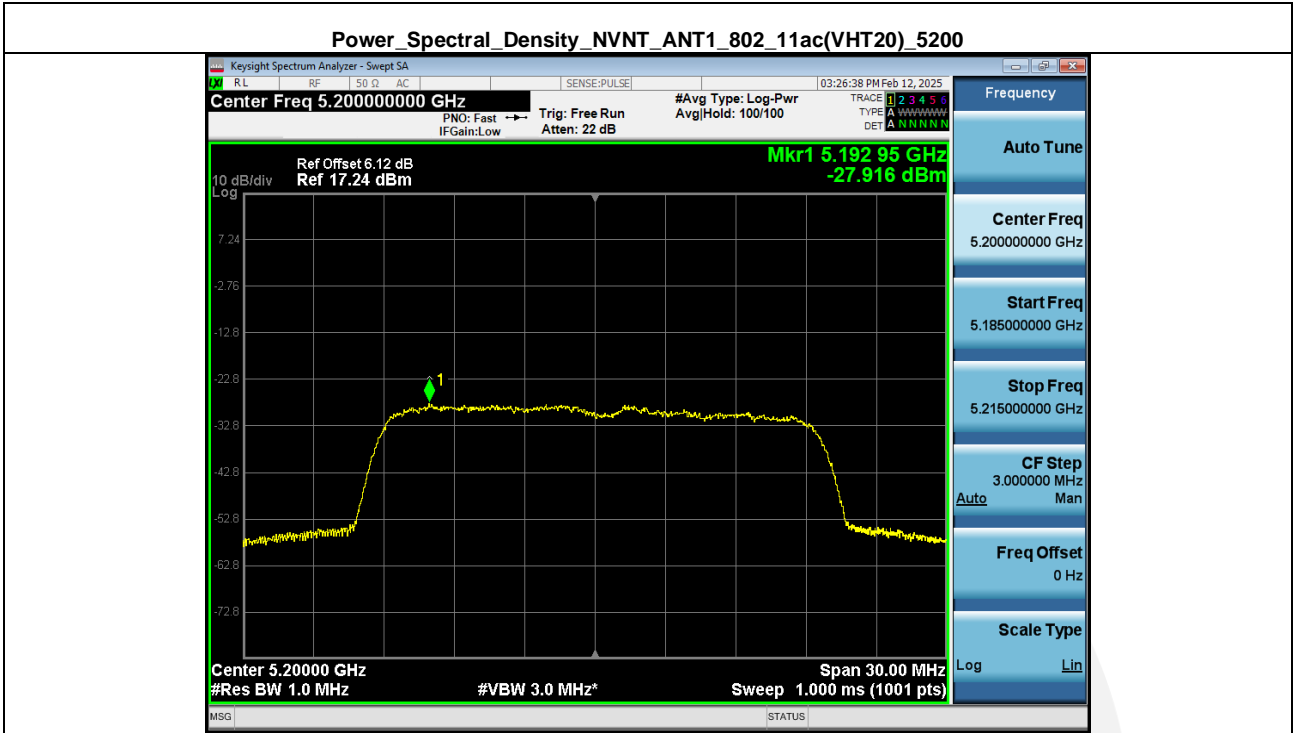


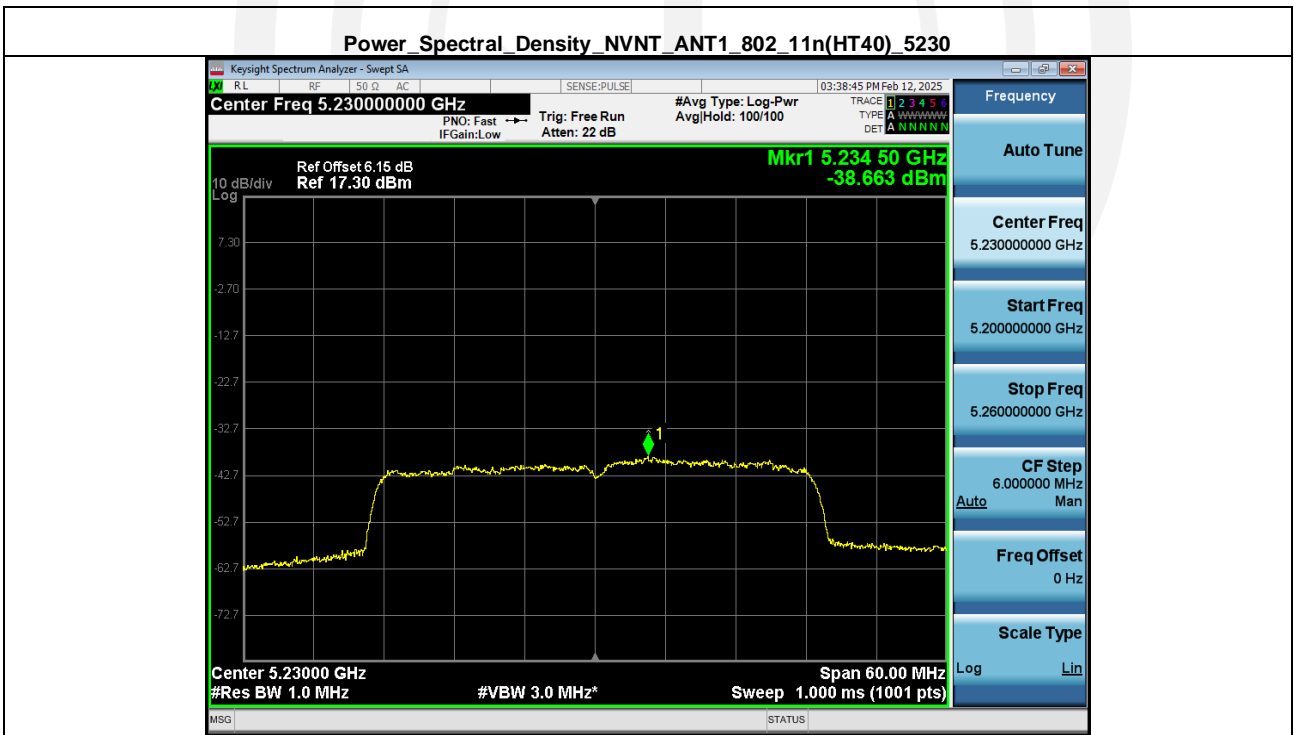
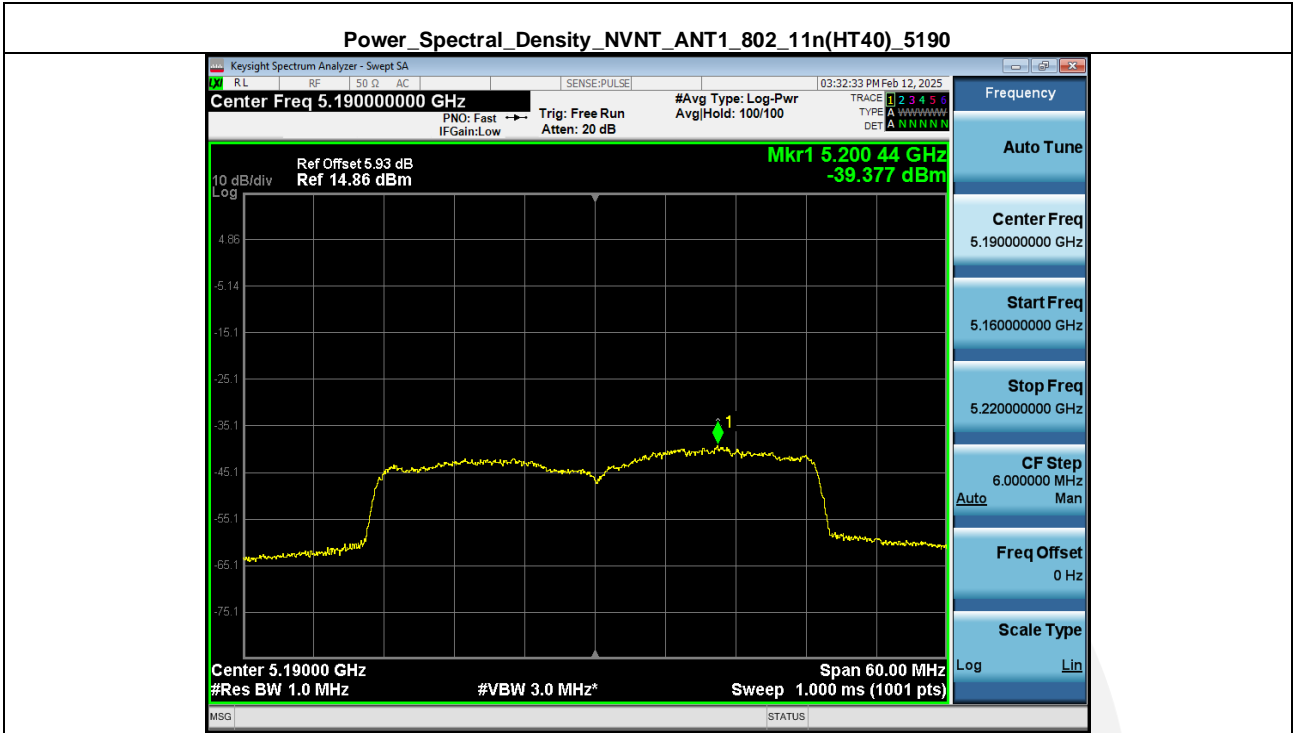


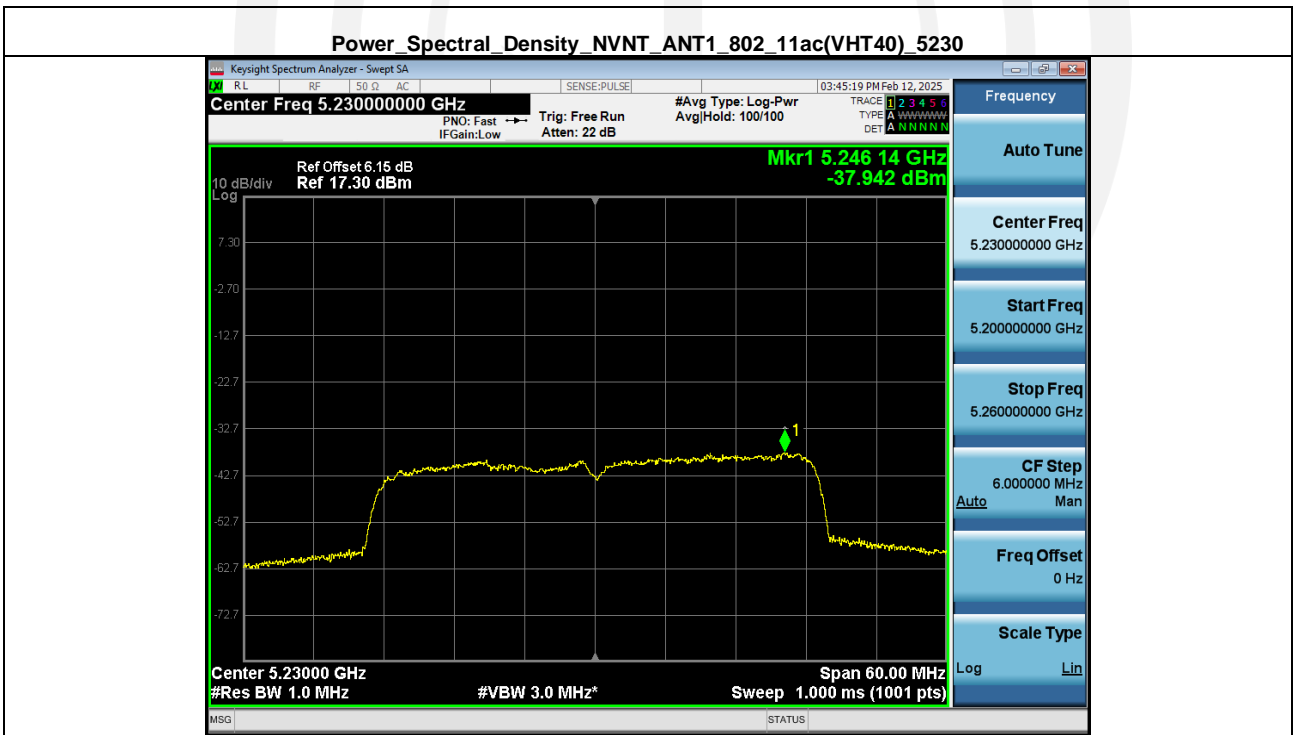
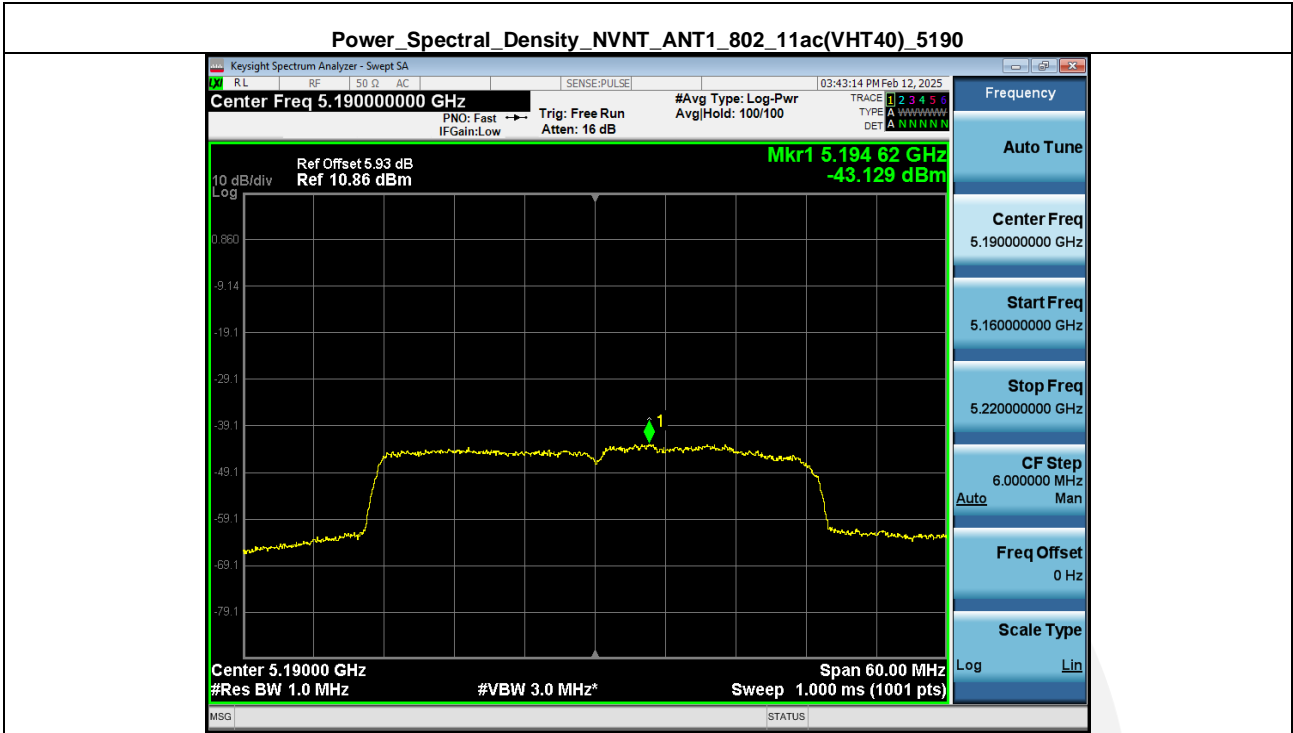










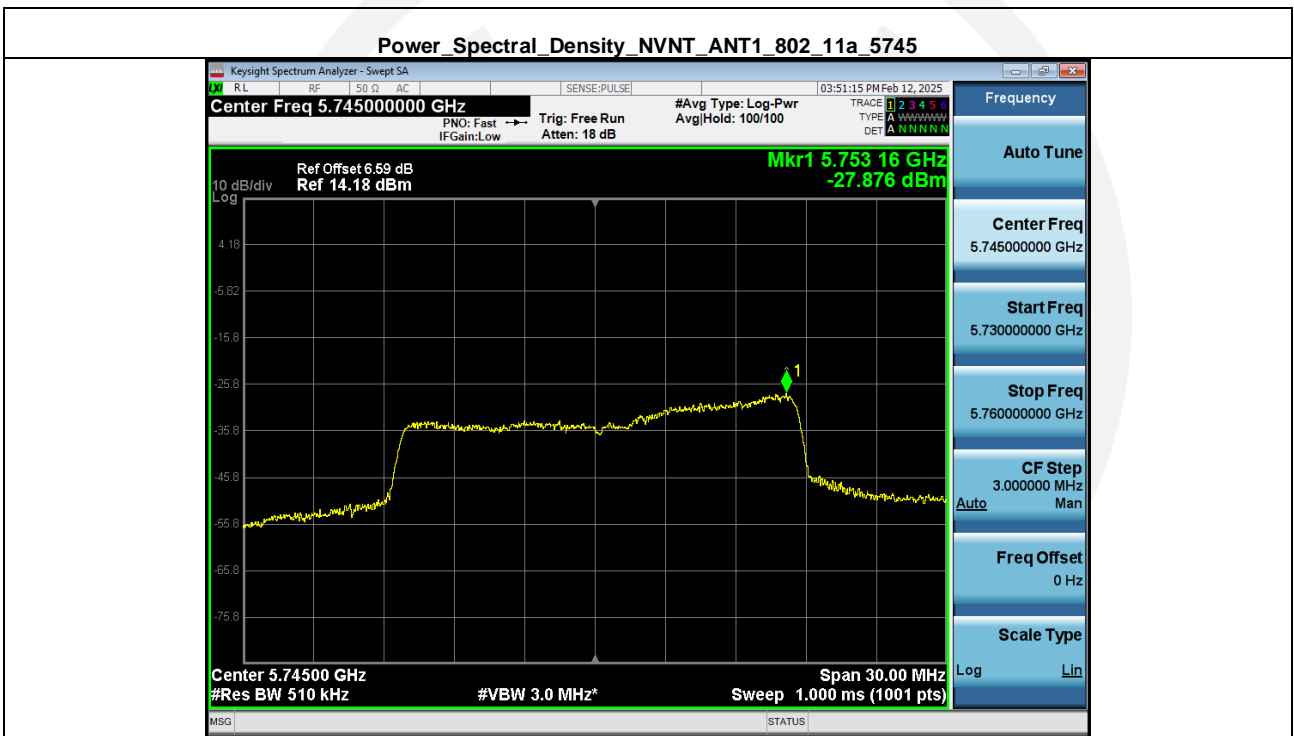


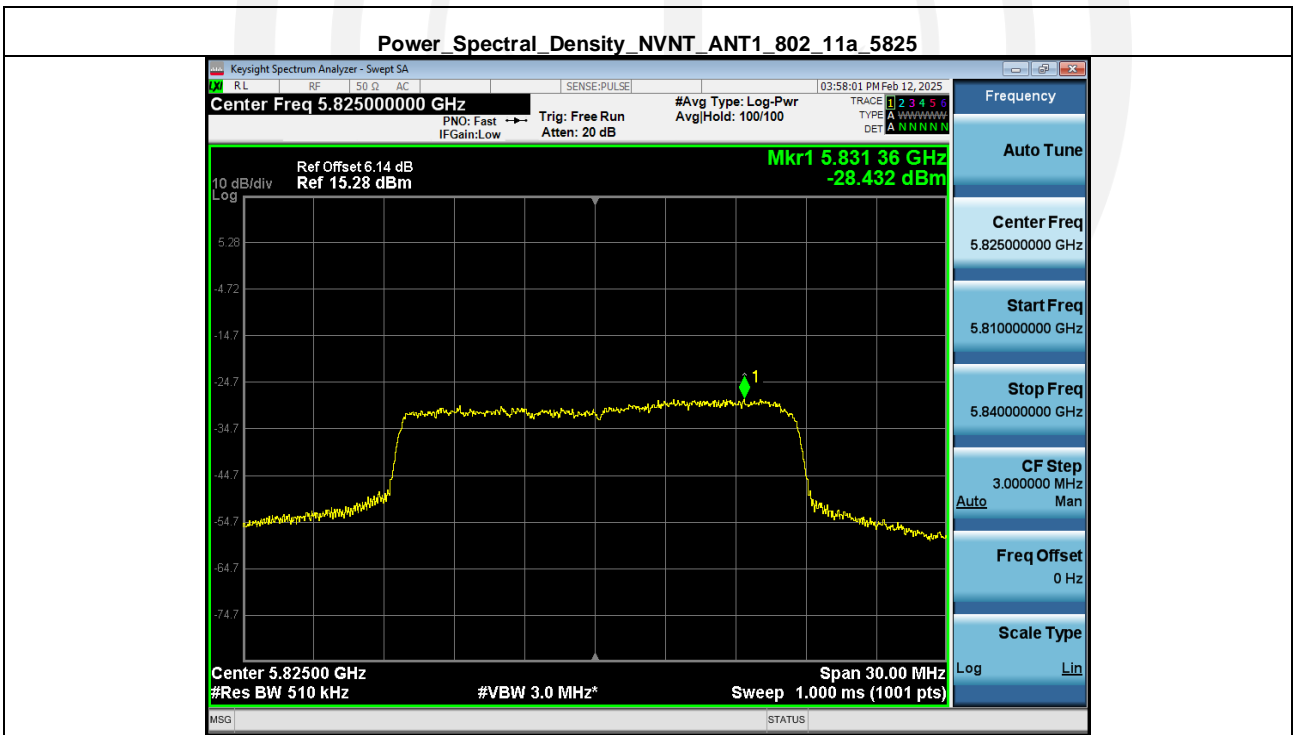
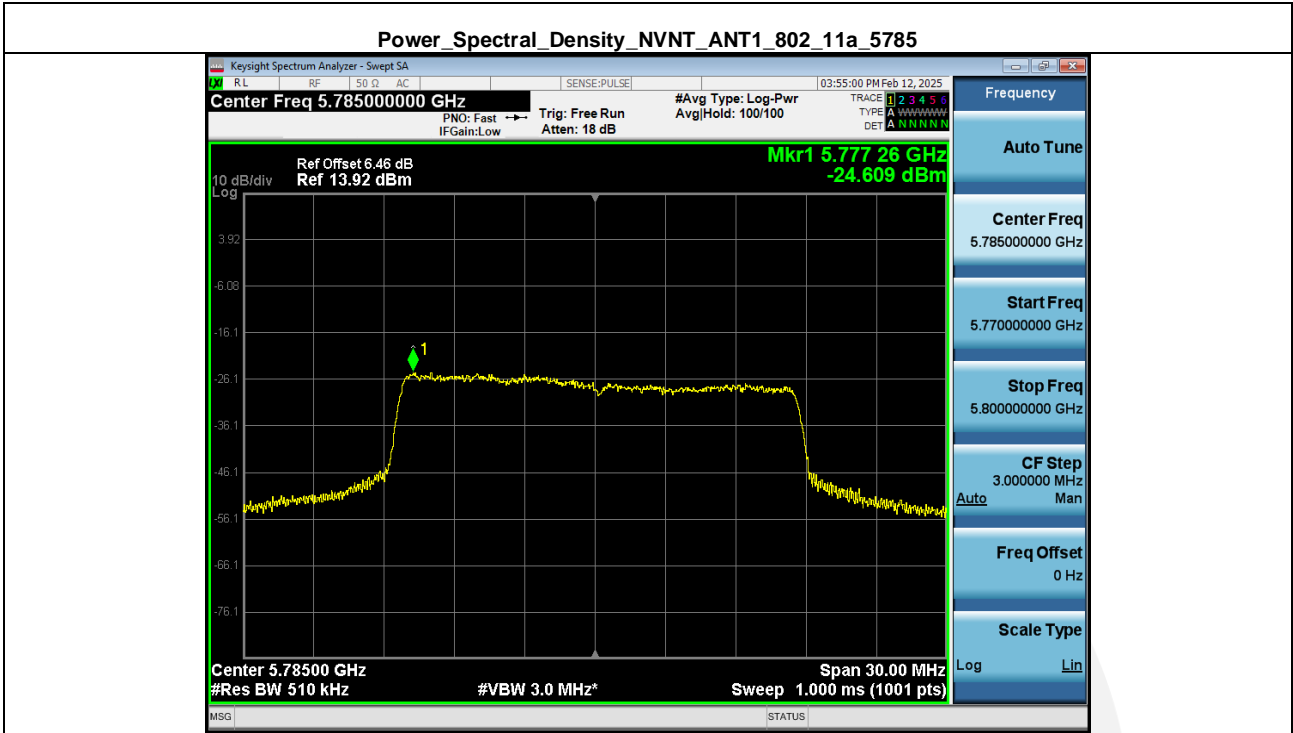
**Band 4 (5725 – 5850 MHz)**

Condition	Antenna	Modulation	Frequency (MHz)	PSD_SA (dBm/RBW)	Duty factor (dB)	RB factor(dB)	PSD(dBm /500kHz)	Limit (dBm/500kHz)	Result
NVNT	ANT1	802.11a	5745.00	-27.88	1.77	-0.086	-26.19	30	Pass
NVNT	ANT1	802.11a	5785.00	-24.61	1.77	-0.086	-22.93	30	Pass
NVNT	ANT1	802.11a	5825.00	-28.43	1.75	-0.086	-26.77	30	Pass
NVNT	ANT1	802.11n(HT20)	5745.00	-31.00	1.87	-0.086	-29.21	30	Pass
NVNT	ANT1	802.11n(HT20)	5785.00	-30.11	1.87	-0.086	-28.33	30	Pass
NVNT	ANT1	802.11n(HT20)	5825.00	-27.20	1.87	-0.086	-25.42	30	Pass
NVNT	ANT1	802.11ac(VHT20)	5745.00	-32.68	1.87	-0.086	-30.89	30	Pass
NVNT	ANT1	802.11ac(VHT20)	5785.00	-27.09	1.87	-0.086	-25.31	30	Pass
NVNT	ANT1	802.11ac(VHT20)	5825.00	-28.31	1.87	-0.086	-26.52	30	Pass
NVNT	ANT1	802.11n(HT40)	5755.00	-41.55	3.19	-0.086	-38.44	30	Pass
NVNT	ANT1	802.11n(HT40)	5795.00	-38.38	3.24	-0.086	-35.23	30	Pass
NVNT	ANT1	802.11ac(VHT40)	5755.00	-44.65	3.19	-0.086	-41.55	30	Pass
NVNT	ANT1	802.11ac(VHT40)	5795.00	-41.26	3.19	-0.086	-38.16	30	Pass

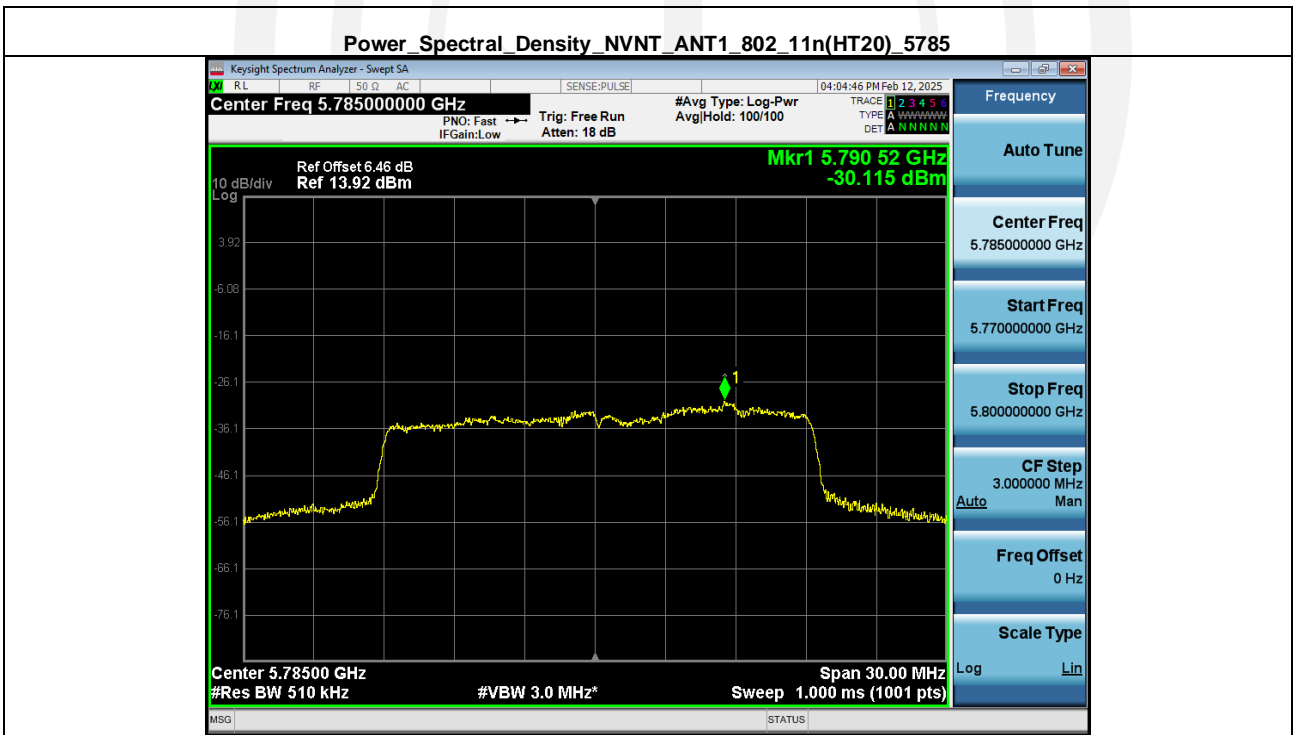
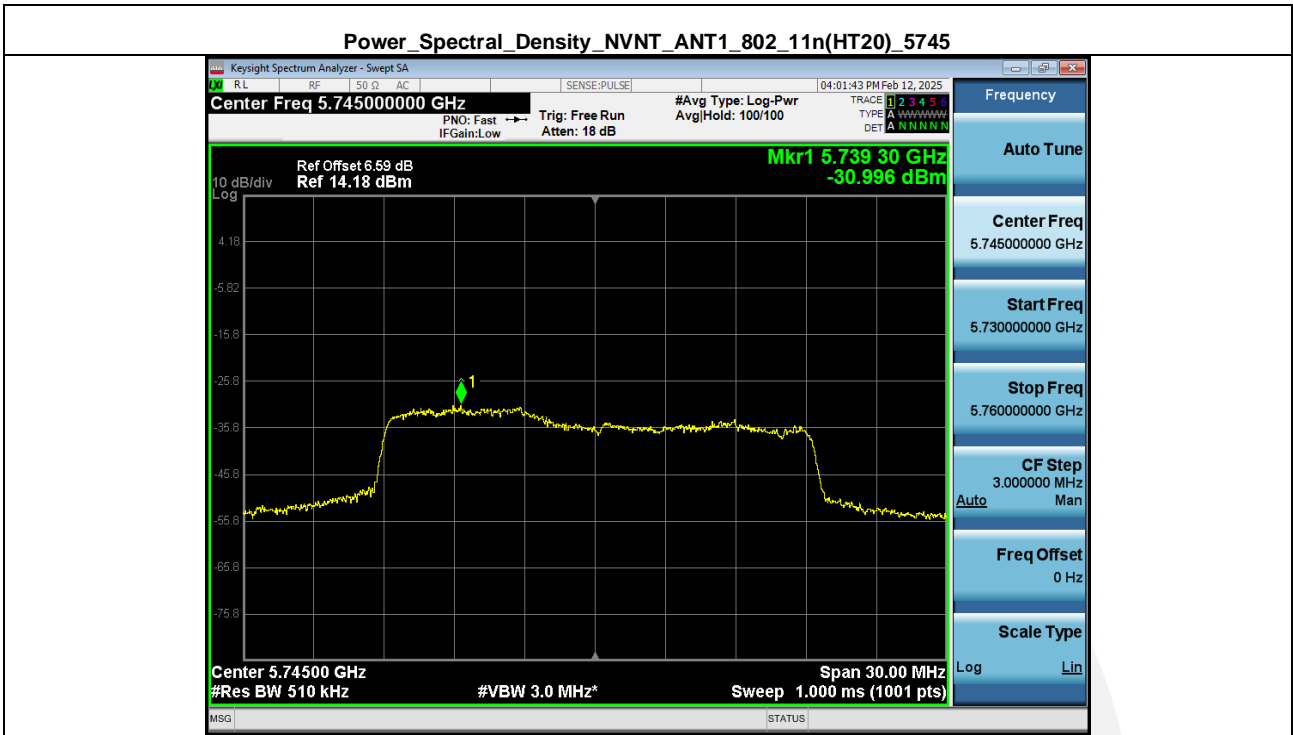
RB factor(dB) = 10\*log(500kHz / meas. RB); meas. RB = RBW set;

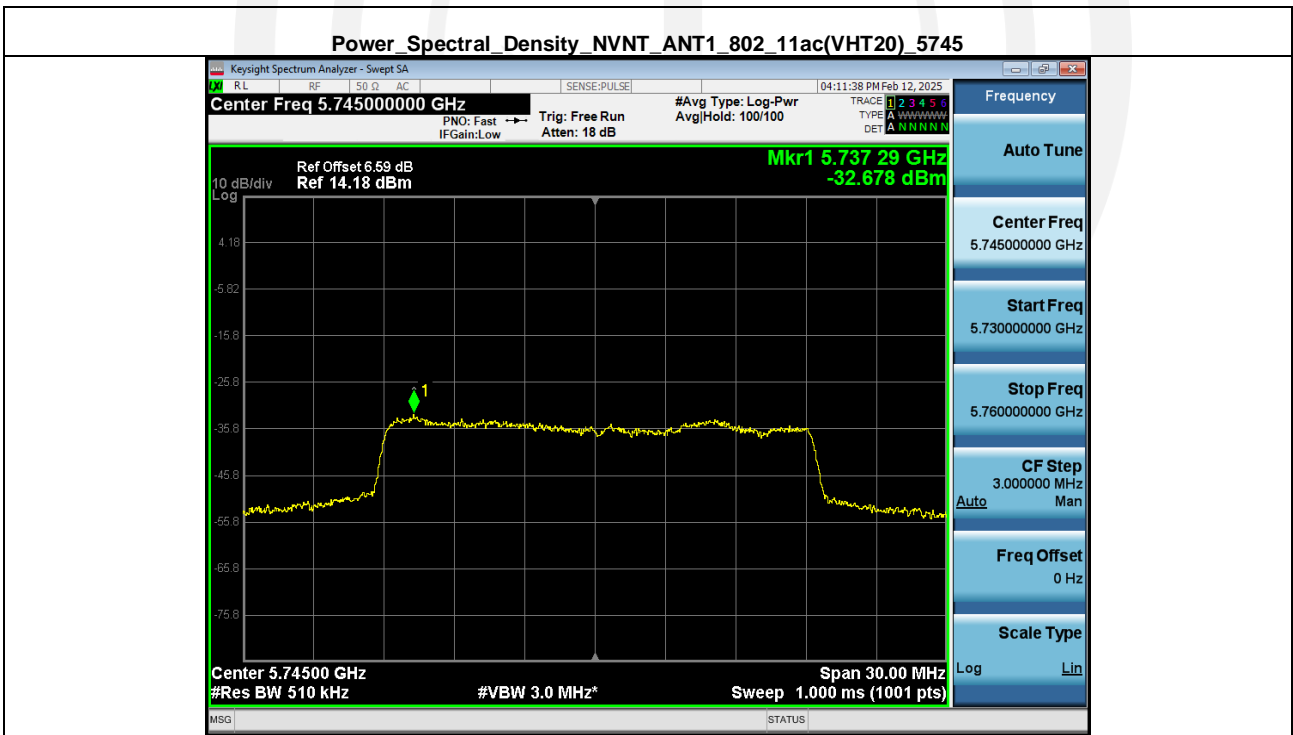
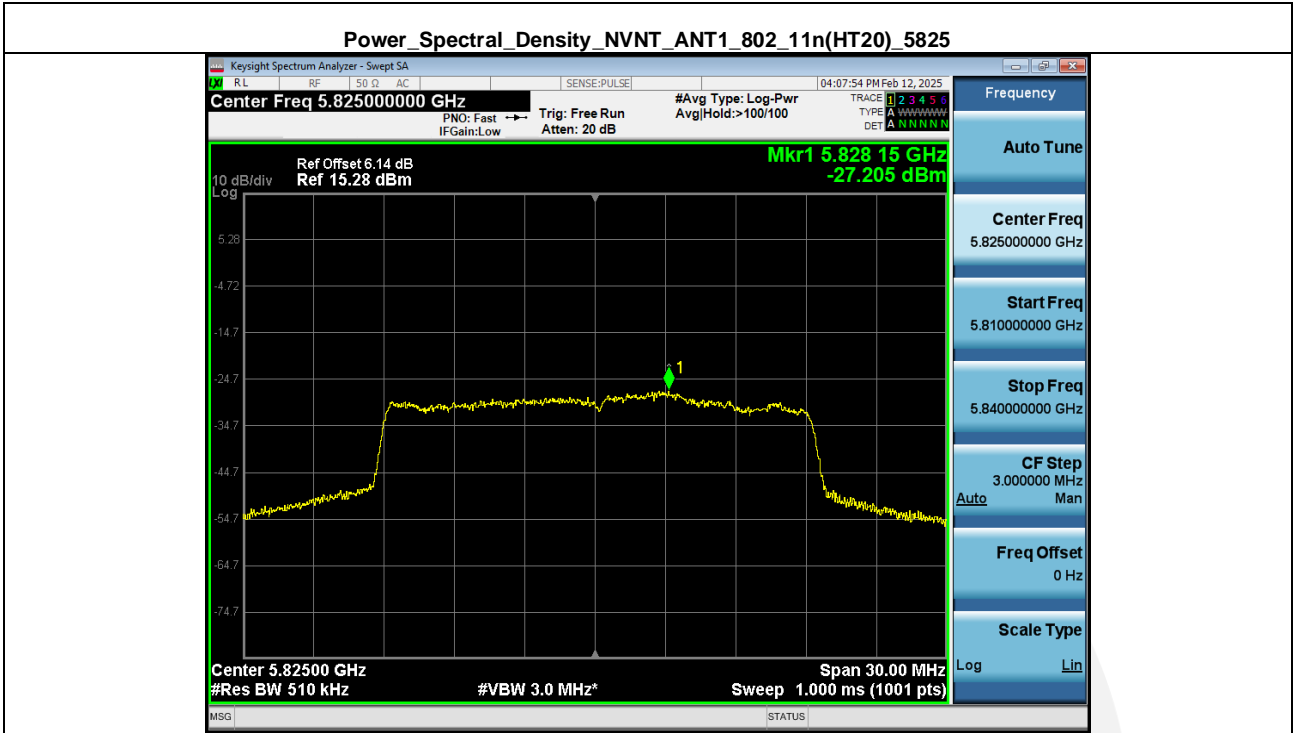
PSD(dBm/RBW) = PSD\_SA(dBm/RBW) + RB factor(dB)

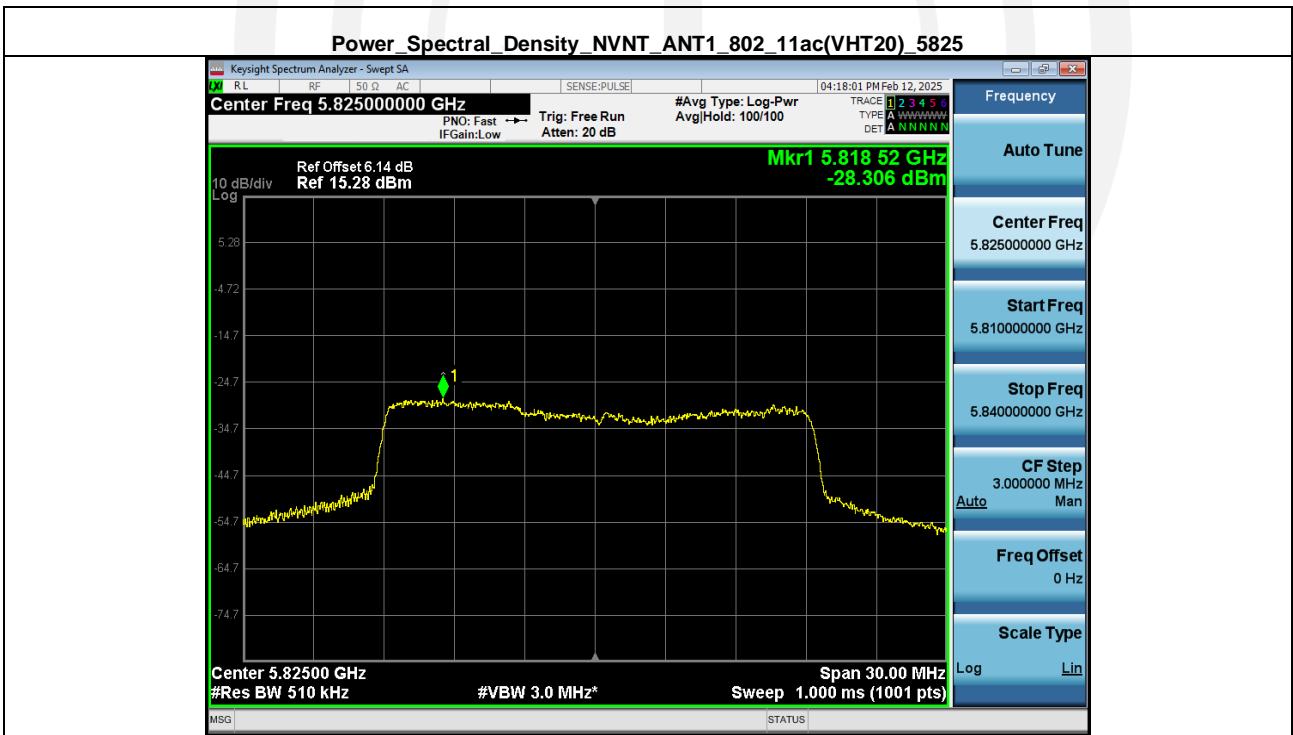
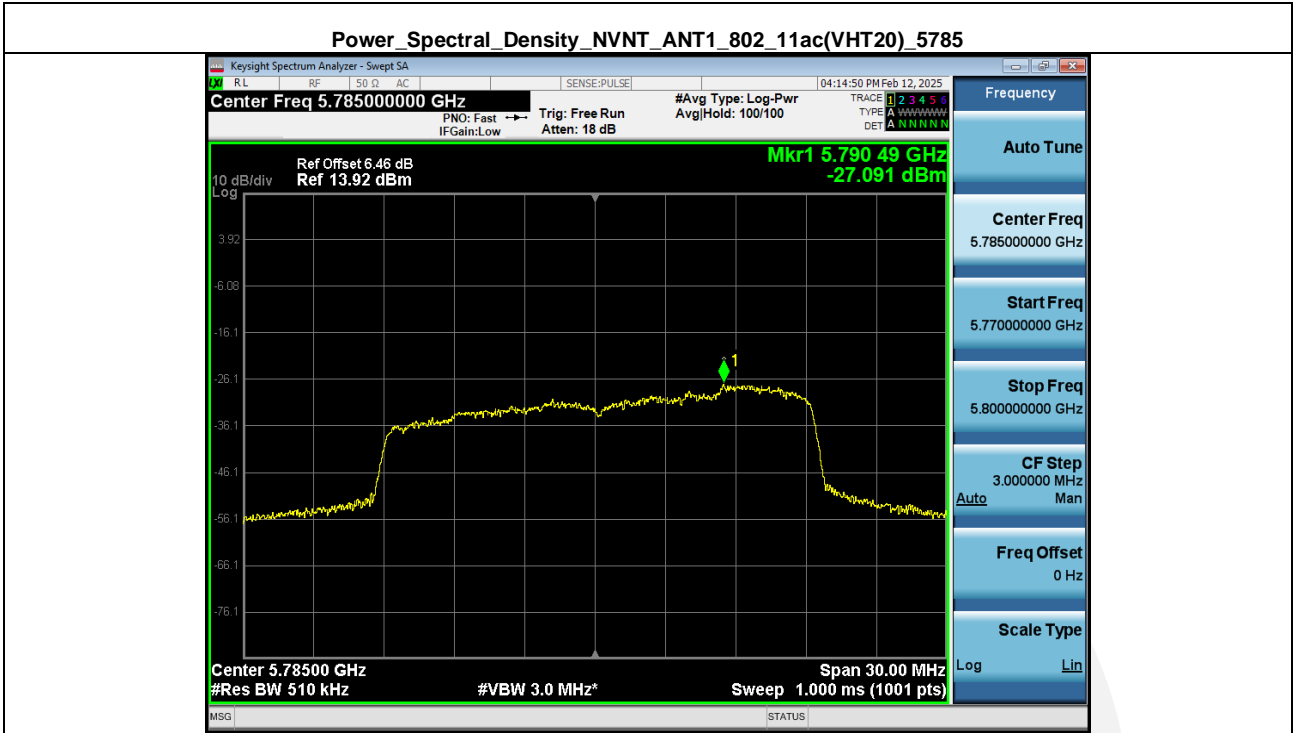


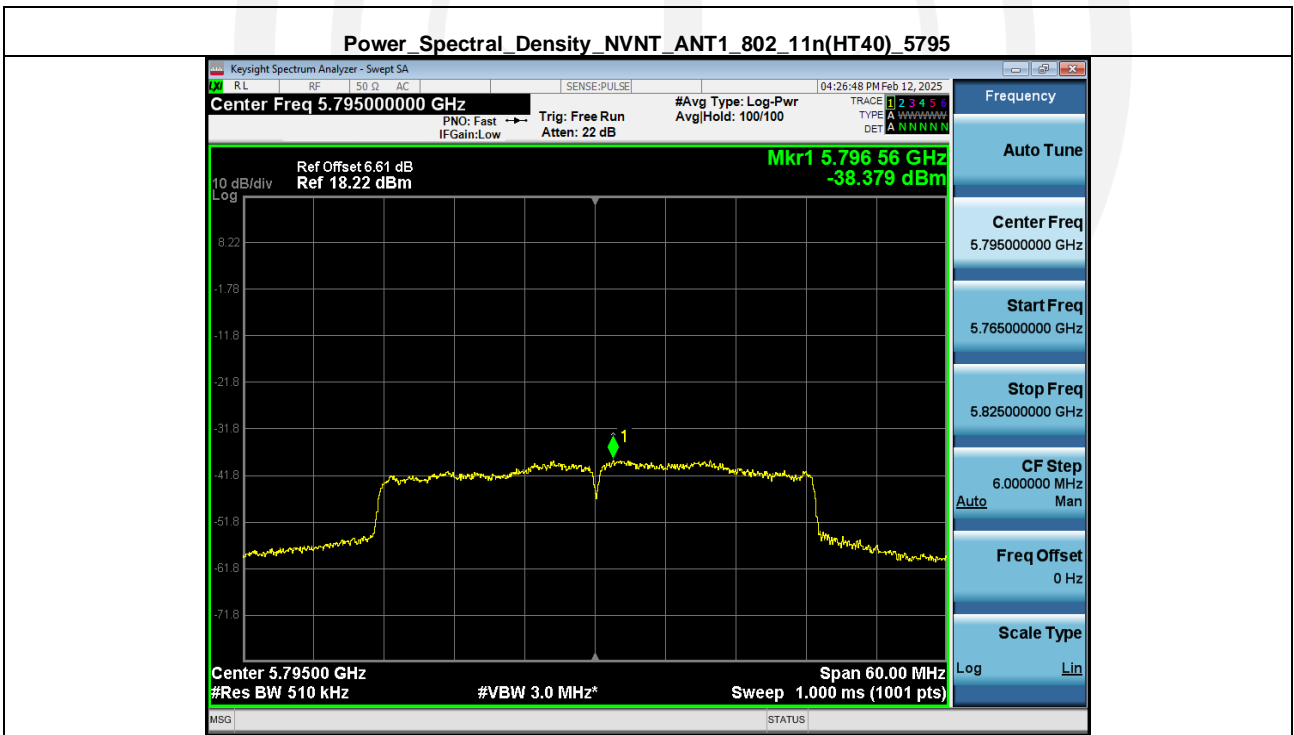
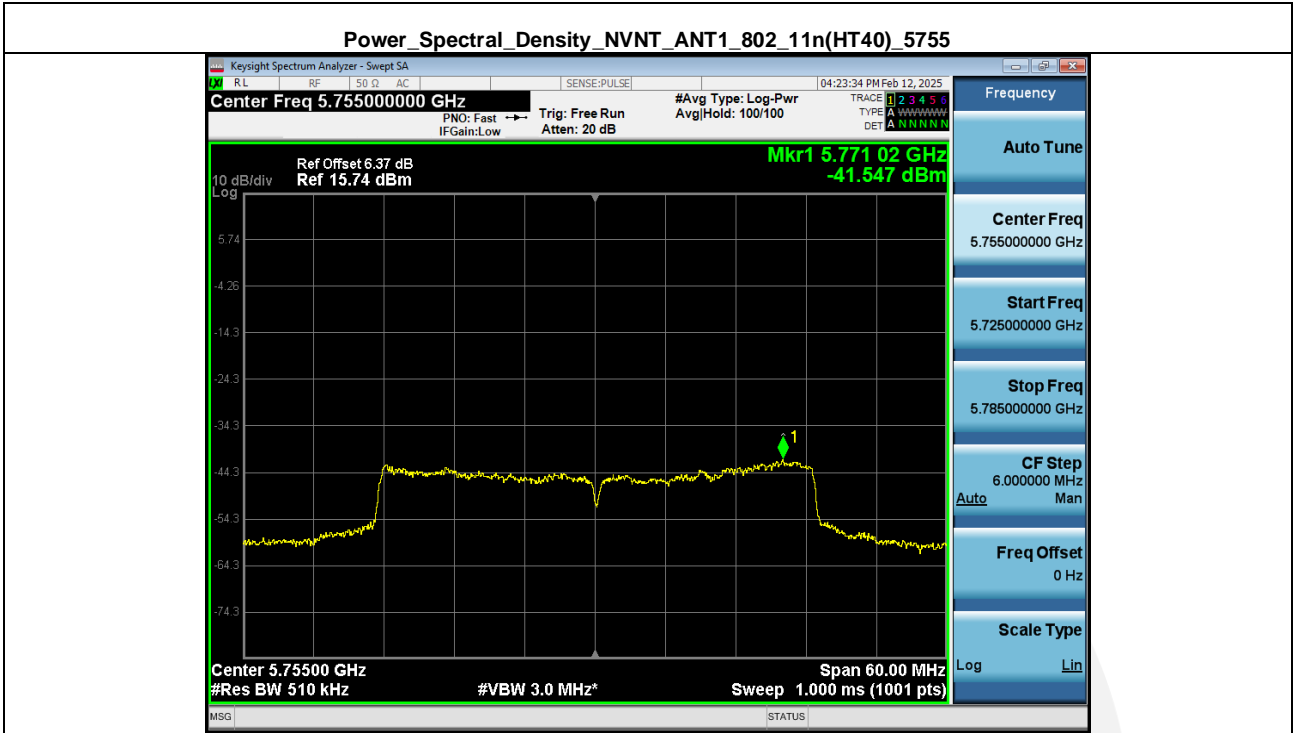


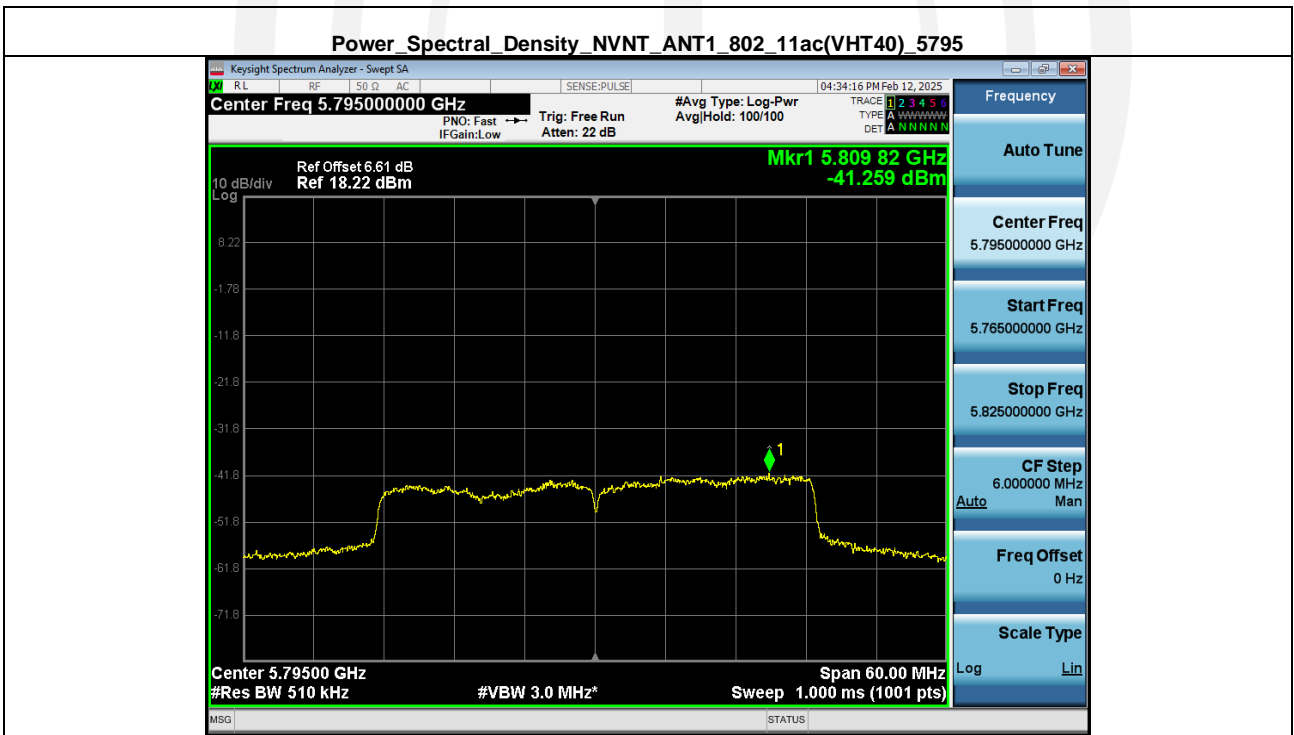
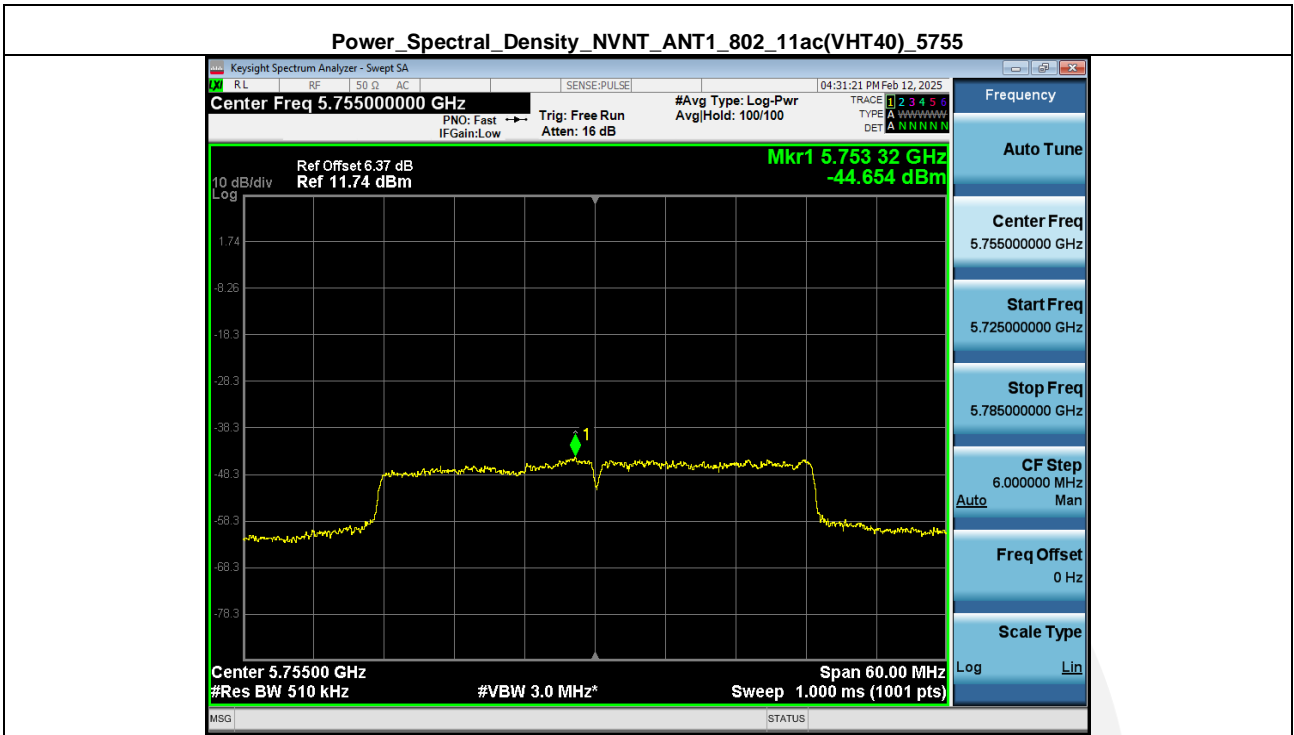






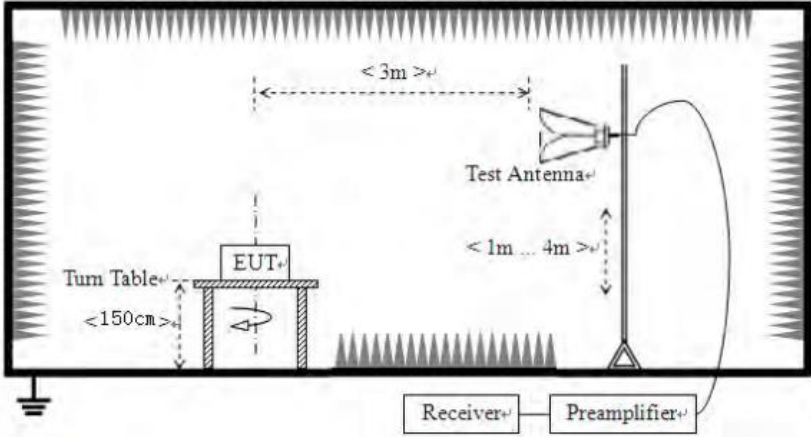






## 4.6 Band Edge

Test Requirement:	FCC Part15 E Section 15.407 and 15.205, RSS-Gen §8.9			
Test Method:	ANSI C63.10:2013			
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)			
Receiver setup:	Frequency	Detector	RBW	VBW
	30MHz-1GHz	Quasi-peak	100KHz	300KHz
	Above 1GHz	Peak	1MHz	3MHz
		AV	1MHz	3MHz
Limit:	Frequency	Limit (dBuV/m @3m)		Remark
	30MHz-88MHz	40.0		Quasi-peak Value
	88MHz-216MHz	43.5		Quasi-peak Value
	216MHz-960MHz	46.0		Quasi-peak Value
	960MHz-1GHz	54.0		Quasi-peak Value
	Above 1GHz	54.0		Average Value
		68.2		Peak Value
<p>Undesirable emission limits:</p> <p>(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 EIRP of -27 dBm/MHz.</p> <p>(2) For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.</p> <p>(3) For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.</p> <p>(4) 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.</p>				
Test Procedure:	<p>a. The EUT was placed on the top of a rotating table 1.5 m above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. 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.</p> <p>d. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. 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</p>			

	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 setup:	<p>Above 1GHz</p> 
Test Instruments:	Refer to section 3.0 for details
Test mode:	Refer to section 2.2 for details
Test results:	Pass

## Remark:

According to KDB 789033 D02 v02r01 section G) 1) (d), for For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows:

$$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2,$$

For example, if EIRP = -27dBm

$$E[\text{dBuV/m}] = -27 + 95.2 = 68.2\text{dBuV/m}.$$

**Measurement Data:****Band1**

Mode:		802.11a		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	54.56	-13.16	41.40	68.20	-26.80	PK
V	5150.00	56.02	-13.16	42.86	68.20	-25.34	PK
Mode:		802.11a		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	47.93	-13.16	34.77	54.00	-19.23	AV
V	5150.00	47.23	-13.16	34.07	54.00	-19.93	AV
Mode:		802.11a		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	56.84	-12.62	44.22	68.20	-23.98	PK
V	5350.00	57.72	-12.62	45.10	68.20	-23.10	PK
Mode:		802.11a		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	44.86	-12.62	32.24	54.00	-21.76	AV
V	5350.00	46.92	-12.62	34.30	54.00	-19.70	AV



Mode:		802.11n(HT20)		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	56.21	-13.16	43.05	68.20	-25.15	PK
V	5150.00	56.62	-13.16	43.46	68.20	-24.74	PK
Mode:		802.11n(HT20)		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	44.62	-13.16	31.46	54.00	-22.54	AV
V	5150.00	47.37	-13.16	34.21	54.00	-19.79	AV
Mode:		802.11n(HT20)		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	54.25	-12.62	41.63	68.20	-26.57	PK
V	5350.00	58.22	-12.62	45.60	68.20	-22.60	PK
Mode:		802.11n(HT20)		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	44.82	-12.62	32.20	54.00	-21.80	AV
V	5350.00	47.57	-12.62	34.95	54.00	-19.05	AV

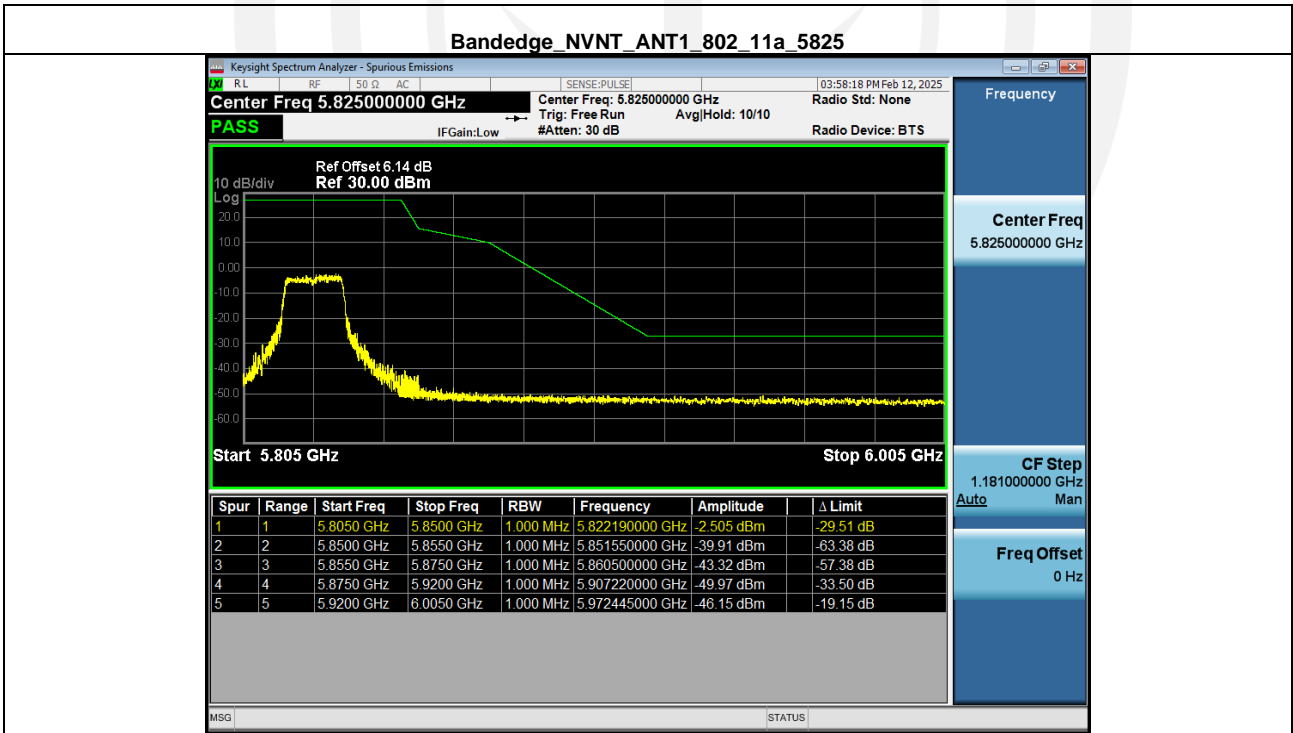
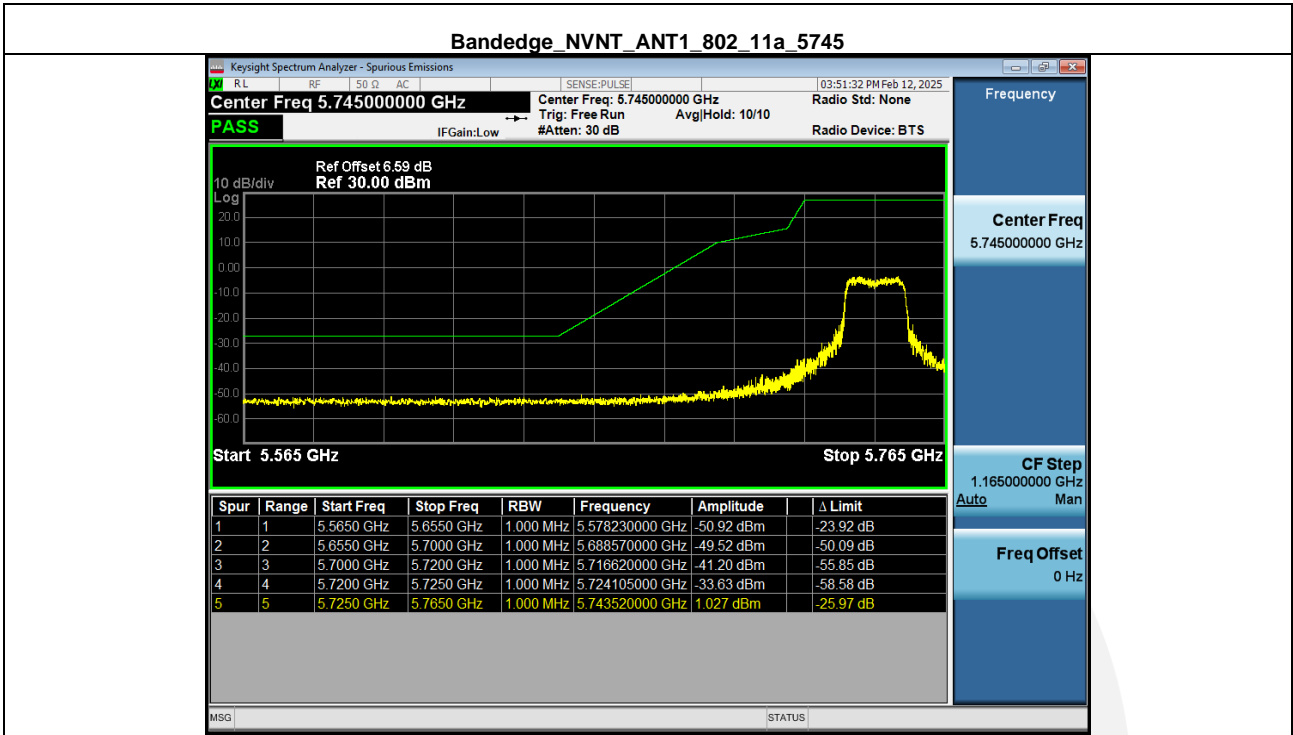
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Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	55.38	-13.16	42.22	68.20	-25.98	PK
V	5150.00	55.79	-13.16	42.63	68.20	-25.57	PK
Mode:		802.11ac(HT20)		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	47.61	-13.16	34.45	54.00	-19.55	AV
V	5150.00	45.81	-13.16	32.65	54.00	-21.35	AV
Mode:		802.11ac(HT20)		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	53.89	-12.62	41.27	68.20	-26.93	PK
V	5350.00	55.30	-12.62	42.68	68.20	-25.52	PK
Mode:		802.11ac(HT20)		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	44.61	-12.62	31.99	54.00	-22.01	AV
V	5350.00	48.50	-12.62	35.88	54.00	-18.12	AV

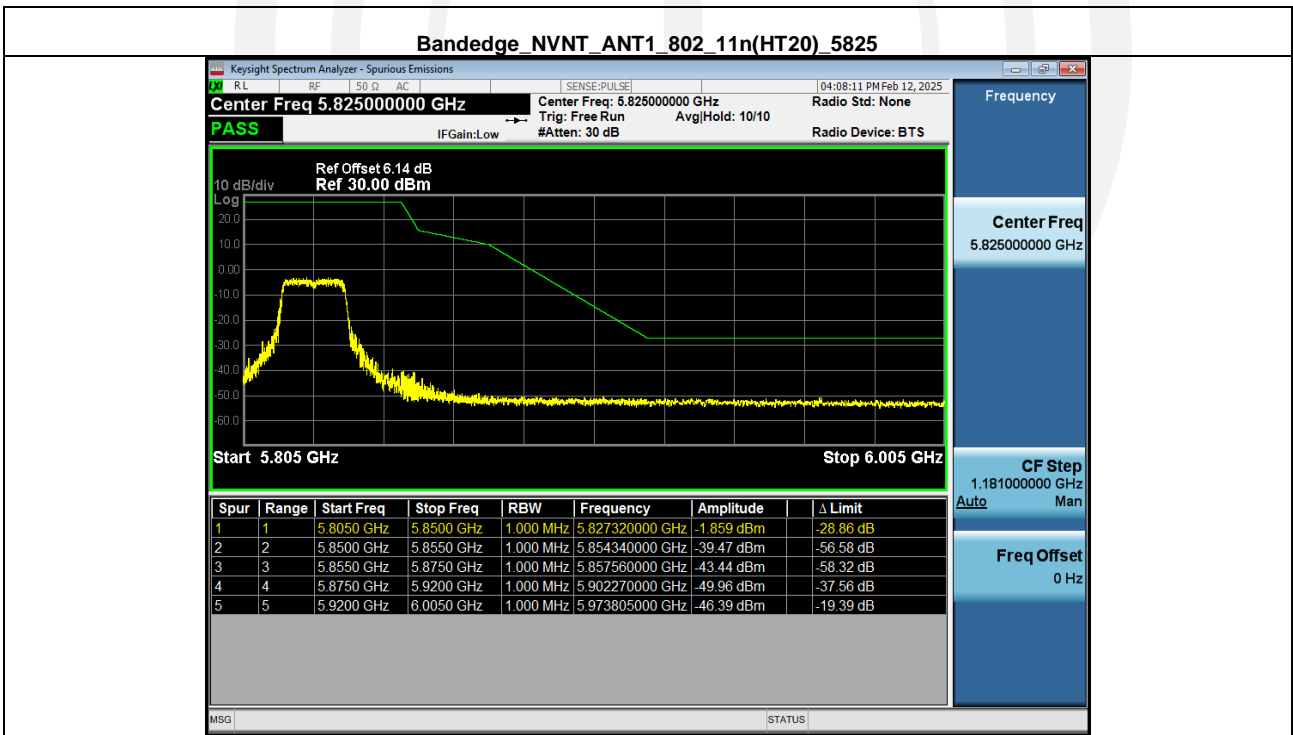
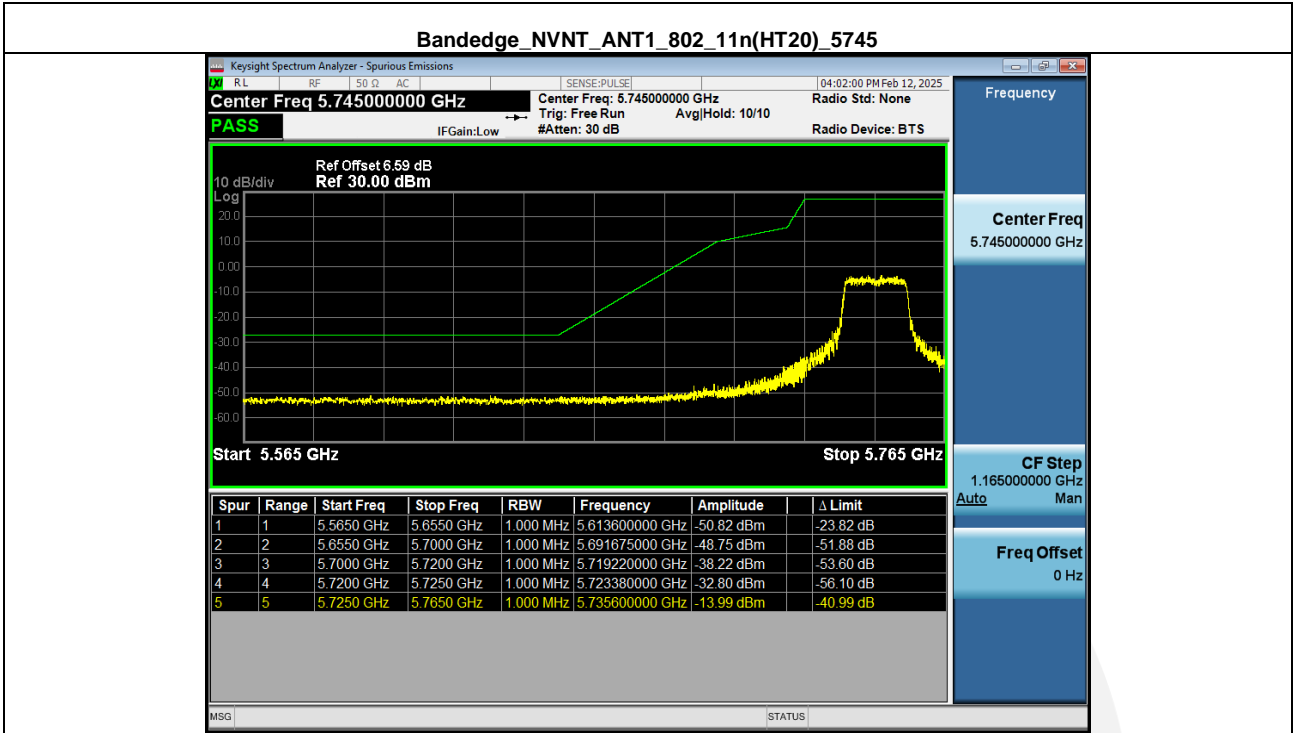
Mode:		802.11n(HT40)		Frequency:		5190MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	55.91	-13.16	42.75	68.20	-25.45	PK
V	5150.00	55.81	-13.16	42.65	68.20	-25.55	PK
Mode:		802.11n(HT40)		Frequency:		5190MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	45.16	-13.16	32.00	54.00	-22.00	AV
V	5150.00	45.73	-13.16	32.57	54.00	-21.43	AV
Mode:		802.11n(HT40)		Frequency:		5230MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	54.37	-12.62	41.75	68.20	-26.45	PK
V	5350.00	58.54	-12.62	45.92	68.20	-22.28	PK
Mode:		802.11n(HT40)		Frequency:		5230MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	48.20	-12.62	35.58	54.00	-18.42	AV
V	5350.00	48.45	-12.62	35.83	54.00	-18.17	AV

Mode:		802.11ac(HT40)		Frequency:		5190MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	54.24	-13.16	41.08	68.20	-27.12	PK
V	5150.00	55.63	-13.16	42.47	68.20	-25.73	PK
Mode:		802.11ac(HT40)		Frequency:		5190MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	46.41	-13.16	33.25	54.00	-20.75	AV
V	5150.00	48.50	-13.16	35.34	54.00	-18.66	AV
Mode:		802.11ac(HT40)		Frequency:		5230MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	55.24	-12.62	42.62	68.20	-25.58	PK
V	5350.00	58.14	-12.62	45.52	68.20	-22.68	PK
Mode:		802.11ac(HT40)		Frequency:		5230MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	45.84	-12.62	33.22	54.00	-20.78	AV
V	5350.00	45.43	-12.62	32.81	54.00	-21.19	AV

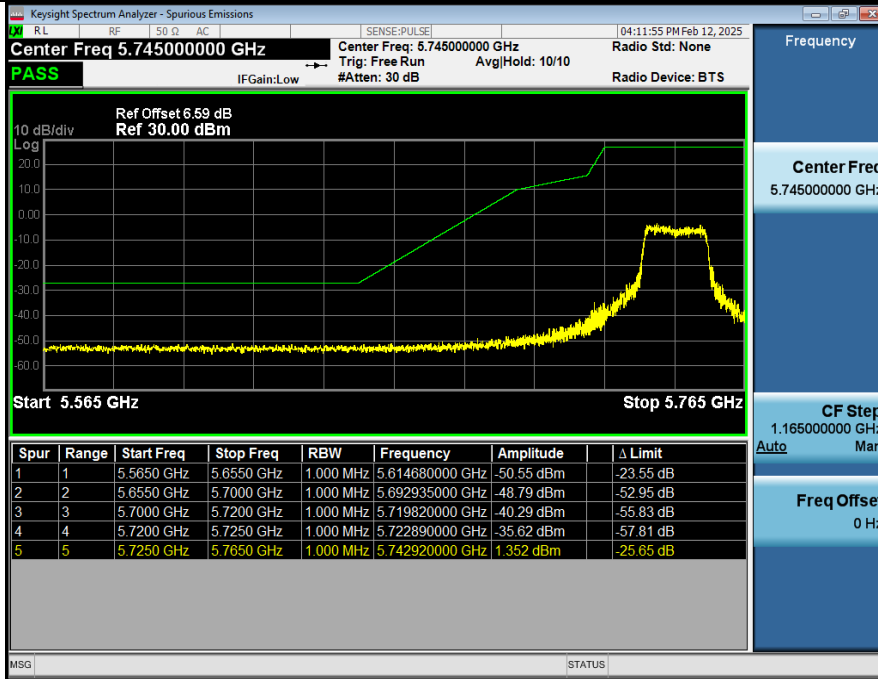
Note: 1. Level = Read Level + Antenna Factor+ Cable loss- Preamp Factor.

Band4

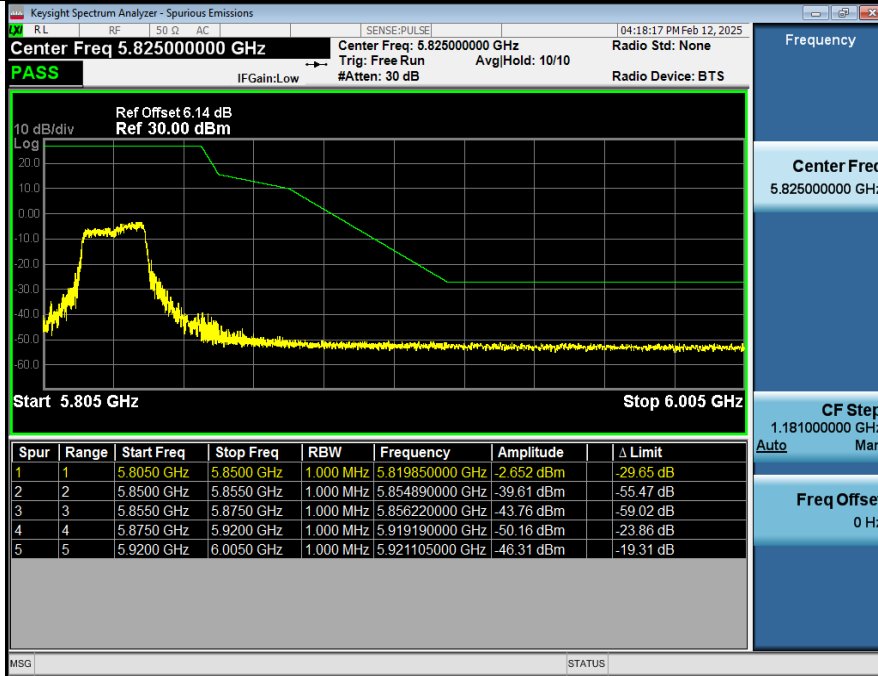


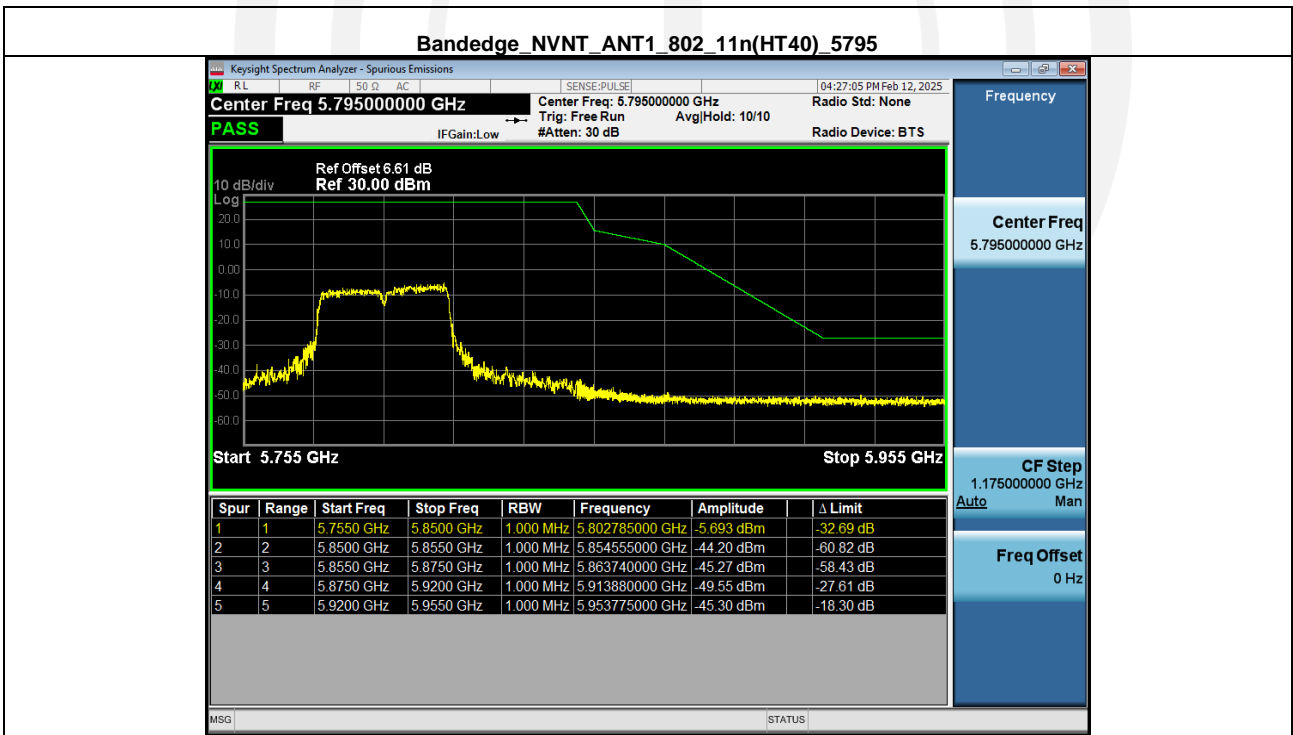
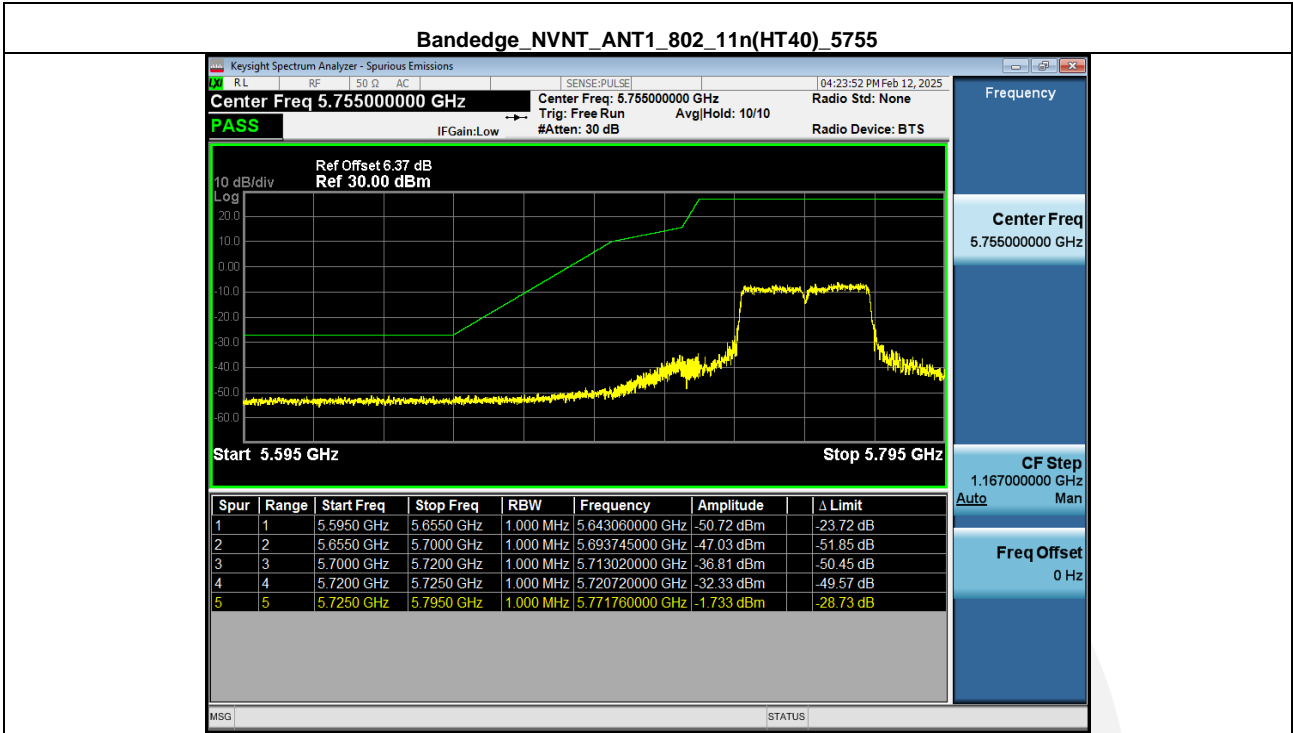


**Bandedge\_NVNT\_ANT1\_802\_11ac(VHT20)\_5745**

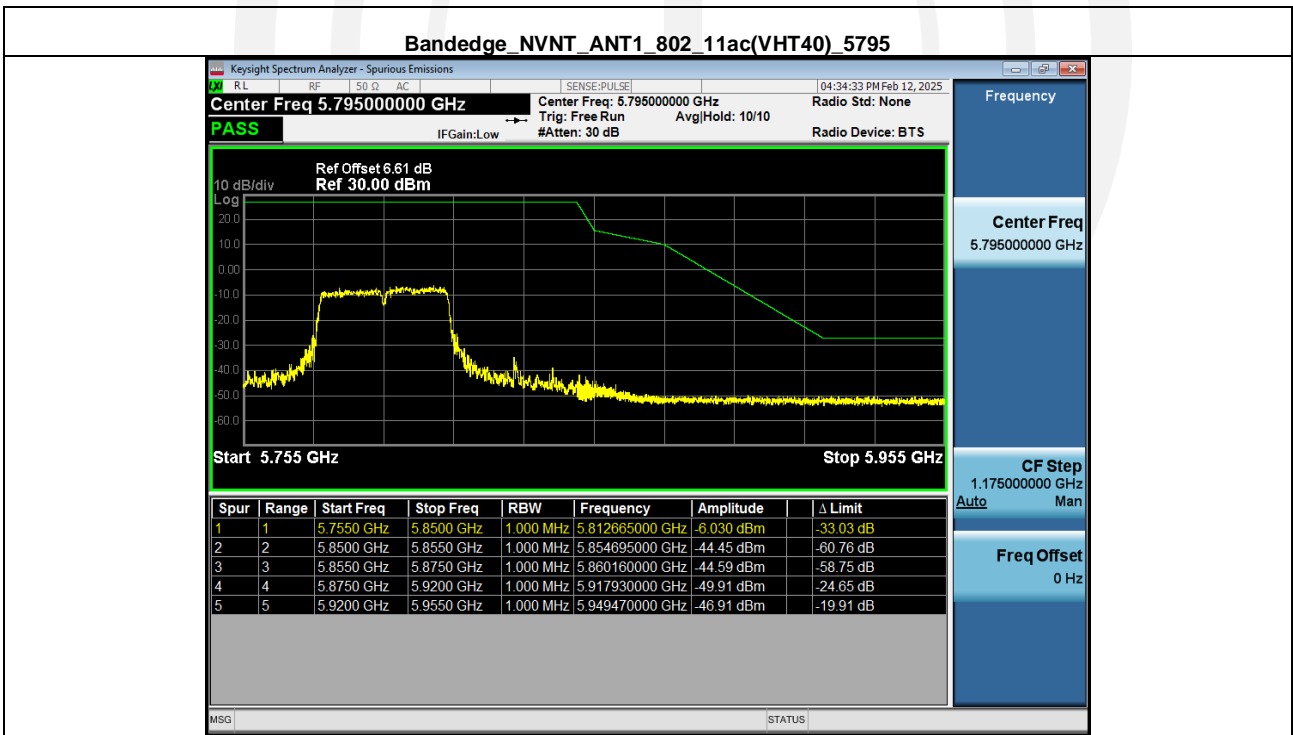
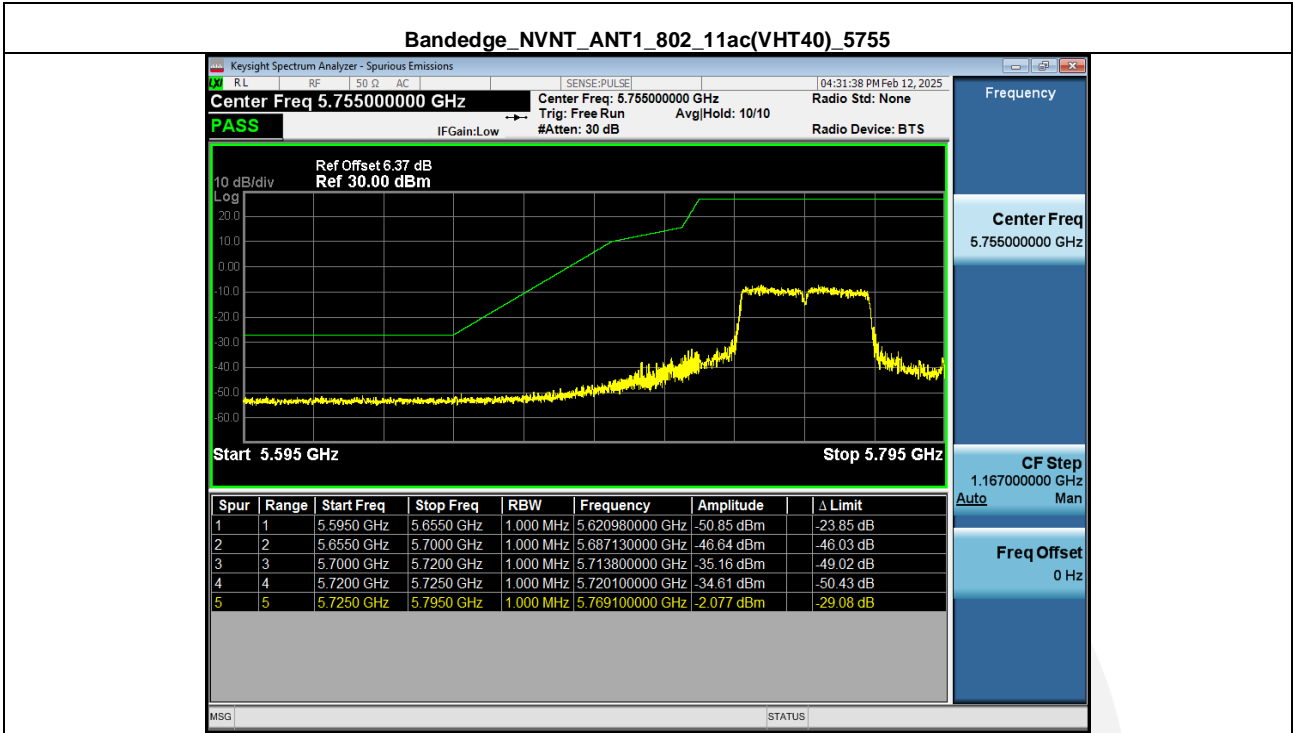


**Bandedge\_NVNT\_ANT1\_802\_11ac(VHT20)\_5825**



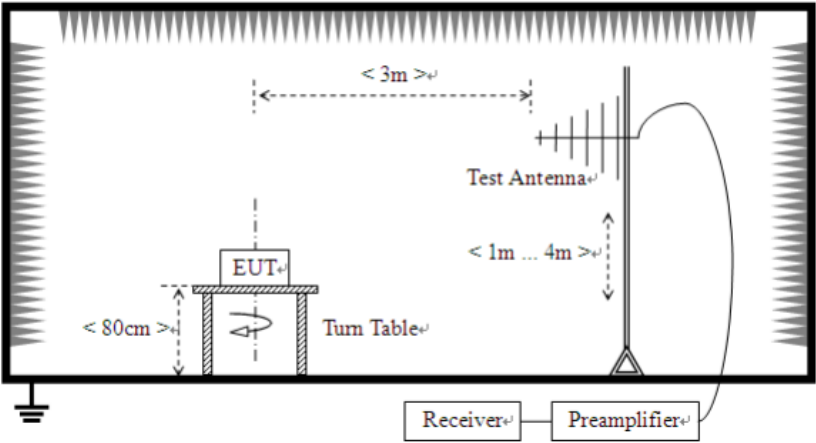


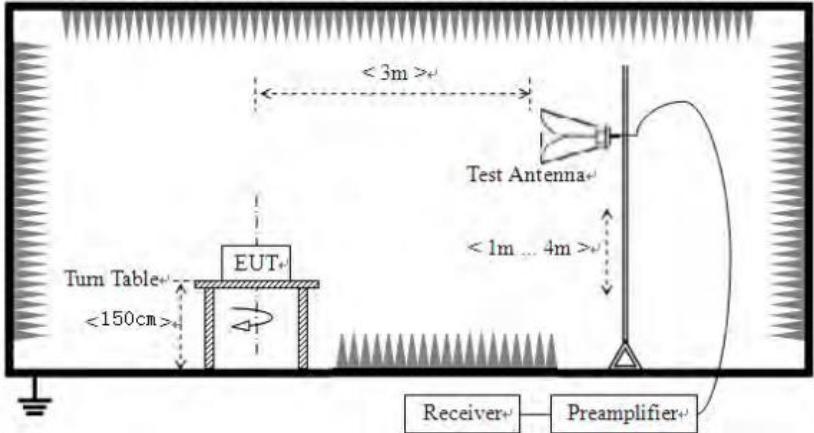




#### 4.7 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.209 and 15.205, RSS-Gen §8.9				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	30MHz to 40GHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
AV		1MHz	3MHz	Average Value	
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	30MHz-88MHz		40.0		Quasi-peak Value
	88MHz-216MHz		43.5		Quasi-peak Value
	216MHz-960MHz		46.0		Quasi-peak Value
	960MHz-1GHz		54.0		Quasi-peak Value
	Above 1GHz		74.0		Peak Value
54.0			Average Value		
Test Procedure:	<p>Substitution method was performed to determine the actual ERP emission levels of the EUT. The following test procedure as below:</p> <p>1&gt;.Below 1GHz test procedure:</p> <ol style="list-style-type: none"> <li>1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>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.</li> <li>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.</li> <li>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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>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.</li> </ol> <p>2&gt;.Above 1GHz test procedure:</p> <ol style="list-style-type: none"> <li>1. On the test site as test setup graph above, the EUT shall be placed at the 1.5m support on the turntable and in the position closest to normal use as declared by the provider.</li> <li>2. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter. The output of the test antenna shall be connected to the measuring receiver.</li> <li>3. The transmitter shall be switched on, if possible, without modulation and the measuring receiver shall be tuned to the frequency of the</li> </ol>				

	<p>transmitter under test.</p> <ol style="list-style-type: none"> <li>4. The test antenna shall be raised and lowered from 1m to 4m until a maximum signal level is detected by the measuring receiver. Then the turntable should be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.</li> <li>5. Repeat step 4 for test frequency with the test antenna polarized horizontally.</li> <li>6. Remove the transmitter and replace it with a substitution antenna</li> <li>7. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends vertically polarized, and with the signal generator tuned to a particular test frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.</li> <li>8. Repeat step 7 with both antennas horizontally polarized for each test frequency.</li> <li>9. Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps 7 and 8 by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:  <math display="block">\text{EIRP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBi)}</math>           where:            Pg is the generator output power into the substitution antenna.</li> </ol>
Test setup:	<p>Below 1GHz</p>  <p>Above 1GHz</p>

	
Test Instruments:	Refer to section 3.0 for details
Test mode:	Refer to section 2.2 for details
Test results:	Pass

**Measurement Data:****Below 1GHz**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
33.42	48.47	11.64	0.98	30.47	30.62	40	-9.38	Vertical
54.70	41.16	12.37	1.25	30.40	24.38	40	-15.62	Vertical
121.18	46.97	9.72	1.68	29.89	28.48	43.5	-15.02	Vertical
172.50	43.04	8.80	2.00	29.61	24.23	43.5	-19.27	Vertical
441.12	36.72	16.57	3.33	29.69	26.93	46	-19.07	Vertical
860.65	32.72	22.24	5.10	29.55	30.51	46	-15.49	Vertical
65.07	36.53	9.07	1.24	30.23	16.60	40	-23.40	Horizontal
99.73	33.88	12.17	1.63	30.14	17.54	43.5	-25.96	Horizontal
270.01	45.80	12.87	2.56	30.13	31.10	46	-14.90	Horizontal
351.47	36.45	14.67	2.79	29.90	24.01	46	-21.99	Horizontal
627.29	35.83	19.83	4.23	29.67	30.22	46	-15.78	Horizontal
955.67	41.38	22.59	5.11	29.15	39.93	46	-6.07	Horizontal

**Above 1GHz:****802.11a 5180MHz**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.69	50.84	11.50	14.92	33.05	44.21	68.2	-29.79	Vertical
15540.71	51.22	12.07	18.06	34.83	46.52	74	-27.48	Vertical
10360.70	52.91	9.84	14.80	33.04	44.50	68.2	-29.50	Horizontal
15540.96	53.67	8.93	17.95	34.54	46.01	74	-27.99	Horizontal

**802.11a 5200MHz**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.77	50.37	11.45	14.77	33.07	43.52	68.2	-30.48	Vertical
15540.69	51.08	12.37	18.07	34.59	46.93	74	-27.07	Vertical
10360.03	52.59	9.78	14.72	32.90	44.19	68.2	-29.81	Horizontal
15540.92	53.95	8.88	18.07	34.96	45.94	74	-28.06	Horizontal

**802.11a 5240MHz**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.60	50.04	11.62	14.97	32.67	43.96	68.2	-30.04	Vertical
15540.79	51.87	12.17	17.71	34.70	47.04	74	-26.96	Vertical
10360.07	52.29	9.53	14.94	33.01	43.76	68.2	-30.24	Horizontal
15540.39	53.78	8.52	18.04	34.59	45.75	74	-28.25	Horizontal

**802.11n(HT20) 5180MHz**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.72	50.65	11.68	14.95	32.81	44.46	68.2	-29.54	Vertical
15540.02	51.43	12.24	17.89	34.62	46.94	74	-27.06	Vertical
10360.16	52.09	9.69	15.10	32.85	44.03	68.2	-29.97	Horizontal
15540.18	53.88	8.82	17.70	34.70	45.70	74	-28.30	Horizontal

**802.11n(HT20) 5200MHz**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.32	51.00	11.30	15.03	32.99	44.34	68.2	-29.66	Vertical
15540.33	51.76	11.95	18.13	34.68	47.16	74	-26.84	Vertical
10360.00	52.27	9.63	14.75	32.76	43.88	68.2	-30.12	Horizontal
15540.02	53.07	8.79	17.94	34.85	44.95	74	-29.05	Horizontal

## 802.11n(HT20) 5240MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.77	50.42	11.64	14.76	32.76	44.05	68.2	-29.95	Vertical
15540.16	51.87	12.24	18.09	34.50	47.69	74	-26.31	Vertical
10360.60	52.11	9.86	14.85	32.92	43.90	68.2	-30.10	Horizontal
15540.66	53.85	8.57	17.94	34.66	45.70	74	-28.30	Horizontal

## 802.11ac(HT20) 5180MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.07	50.86	11.65	14.77	32.94	44.33	68.2	-29.67	Vertical
15540.59	51.34	12.25	17.85	34.80	46.64	74	-27.36	Vertical
10360.37	52.51	9.62	14.65	32.70	44.08	68.2	-29.92	Horizontal
15540.79	53.78	8.99	17.87	34.62	46.01	74	-27.99	Horizontal

## 802.11ac(HT20) 5200MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.42	50.18	11.68	14.77	32.81	43.81	68.2	-30.19	Vertical
15540.80	51.20	12.28	18.04	34.53	46.99	74	-27.01	Vertical
10360.06	52.39	9.63	15.05	32.73	44.33	68.2	-29.67	Horizontal
15540.92	53.23	8.56	17.80	34.83	44.76	74	-29.24	Horizontal

## 802.11ac(HT20) 5240MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.53	50.38	11.40	15.04	32.74	44.09	68.2	-29.91	Vertical
15540.92	51.28	12.16	18.07	34.93	46.57	74	-27.43	Vertical
10360.28	52.28	9.52	14.63	33.11	43.32	68.2	-30.68	Horizontal
15540.48	53.97	8.60	17.87	34.50	45.94	74	-28.06	Horizontal

## 802.11n(HT40) 5190MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.10	50.08	11.44	14.74	32.74	43.51	68.2	-30.49	Vertical
15540.71	51.78	12.13	17.91	34.62	47.21	74	-26.79	Vertical
10360.13	52.39	9.51	14.69	32.66	43.93	68.2	-30.07	Horizontal
15540.52	53.36	8.51	18.02	34.54	45.35	74	-28.65	Horizontal

## 802.11n(HT40) 5230MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.67	50.05	11.67	14.94	33.04	43.63	68.2	-30.37	Vertical
15540.69	51.10	12.15	18.12	34.60	46.77	74	-27.23	Vertical
10360.09	52.08	9.75	14.63	32.65	43.81	68.2	-30.19	Horizontal
15540.02	53.93	8.75	17.97	34.60	46.05	74	-27.95	Horizontal

## 802.11ac(HT40) 5190MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.17	50.69	11.48	14.95	33.01	44.12	68.2	-29.88	Vertical
15540.88	51.29	12.18	18.05	34.90	46.61	74	-27.39	Vertical
10360.46	52.85	9.76	14.81	32.94	44.48	68.2	-29.52	Horizontal
15540.40	53.58	8.68	17.99	34.94	45.32	74	-28.68	Horizontal

## 802.11ac(HT40) 5230MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.68	50.97	11.30	15.10	33.14	44.23	68.2	-29.77	Vertical
15540.19	51.53	12.12	17.89	34.79	46.75	74	-27.25	Vertical
10360.65	52.42	9.59	15.07	32.90	44.19	68.2	-29.81	Horizontal
15540.20	53.07	8.61	18.07	34.94	44.80	74	-29.20	Horizontal

## Note:

1. Level = Read Level + Antenna Factor+ Cable loss- Preamp Factor.
2. The test trace is same as the ambient noise (the test frequency range: 18GHz~40GHz), therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.
4. This Report only show the test plots of the worst case (U-NII-1).

#### 4.8 Frequency stability

Test Standard	15.407(f), RSS-Gen §6.11
Test limit	Manufacturers 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.
Test results:	Pass

#### Measurement Data:

Mode	Voltage (V)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
Band 1 (5150-5250 MHz)	DC 10.8V	5179.991	9	5239.997	3
	DC 12V	5179.997	3	5239.991	9
	DC 13.2V	5179.998	2	5239.999	1
Mode	Voltage (V)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
Band 4 (5725-5850 MHz)	DC 10.8V	5744.997	3	5824.997	3
	DC 12V	5744.996	4	5824.995	5
	DC 13.2V	5744.993	7	5824.996	4

Mode	Temperature (°C)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
Band 1 (5150-5250 MHz)	-10°C	5179.995	5	5239.991	9
	0°C	5179.994	6	5239.999	1
	+10°C	5179.991	9	5239.998	2
	+20°C	5179.998	2	5239.993	7
	+30°C	5179.996	4	5239.996	4
	+40°C	5179.991	9	5239.994	6
	+50°C	5179.992	8	5239.997	3
Mode	Temperature (°C)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
Band 4 (5725-5850 MHz)	-10°C	5744.999	1	5824.996	4
	0°C	5744.997	3	5824.995	5
	+10°C	5744.991	9	5824.995	5
	+20°C	5744.999	1	5824.991	9
	+30°C	5744.991	9	5824.997	3
	+40°C	5744.997	3	5824.996	4
	+50°C	5744.999	1	5824.997	3

-----END OF REPORT-----