RF TEST REPORT

For

Shenzhen Liu Box plastic products Co., LTD

Product Name: Tablet

Model(s).: AT71K

Report Reference No.	:	**POCE230921005RL002**
FCC ID	:	**2BC4O-AT71K**
Applicant's Name	:	Shenzhen Liu Box plastic products Co., LTD
Address	:	A102, Building A, No. 604, South America Road, Xiner Community, Xinqiao Street, Baoan District, Shenzhen
Testing Laboratory	:	Shenzhen POCE Testing Technology Co., Ltd.
Address	:	H1 Building 102, H Building 1/F, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Test Specification Standard	:	**47 CFR Part 15.247** **ANSI C63.10-2013 & KDB 558074 D01 15.247 Meas Guidance v05r02**
Date of Receipt	:	September 21, 2023
Date of Test	:	September 21, 2023 to October 16, 2023
Data of Issue	:	October 16, 2023
Result	:	**Pass**

Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	POCE230921005RL002	October 16, 2023

NOTE1:
The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

Compiled by:	Supervised by:	Approved by:
Stone Yin / File administrators	Tom Chen/ Technique principal	Machael Mo / manager

CONTENTS

1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

47 CFR Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

1.2 Summary of Test Result

Item	Standard	Method	Requirement	Result
Antenna requirement	47 CFR Part 15.247		47 CFR 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.247	ANSI C63.10-2013 section 6.2	47 CFR 15.207(a)	Pass
Occupied Bandwidth	47 CFR Part 15.247	ANSI C63.10-2013, section 11.8	47 CFR 15.247(a)(2)	Pass
Maximum Conducted Output Power	47 CFR Part 15.247	ANSI C63.10-2013, section 11.9.2	47 CFR 15.247(b)(3)	Pass
Power Spectral Density	47 CFR Part 15.247	ANSI C63.10-2013, section 11.10	47 CFR 15.247(e)	Pass
Emissions in non-restricted frequency bands	47 CFR Part 15.247	ANSI C63.10-2013 section 11.11	47 CFR 15.247(d), 15.209, 15.205	Pass
Band edge emissions (Radiated)	47 CFR Part 15.247	ANSI C63.10-2013 section 6.10	47 CFR 15.247(d), 15.209, 15.205	Pass
Emissions in frequency bands (below 1GHz)	47 CFR Part 15.247	ANSI C63.10-2013 section 6.6.4	47 CFR 15.247(d), 15.209, 15.205	Pass
Emissions in frequency bands (above 1GHz)	47 CFR Part 15.247	ANSI C63.10-2013 section 6.6.4	47 CFR 15.247(d), 15.209, 15.205	Pass

Note: 1.N/A -this device(EUT) is not applicable to this testing item
2. RF-conducted test results including cable loss.

2 GENERAL INFORMATION

2.1 Client Information

Applicant's Name : Shenzhen Liu Box plastic products Co., LTD
Address : A102, Building A, No. 604, South America Road, Xiner Community, Xinqiao Street, Baoan District, Shenzhen

Manufacturer : SHENZHEN PEICHENG TECHNOLOGY CO.,LTD
Address : 5F Building 64/2F Building 61, Baotian Industrial Zone, Chentian Community, Xixiang Street, Baoan District, Shenzhen

2.2 Description of Device (EUT)

Product Name:	Tablet
Model/Type reference:	AT71K
Trade Mark:	Aheadthink
Product Description:	Tablet
Power Supply:	DC 5V-2A from adapter and DC 3.85V from battery
Cable:	USB CABEL-0.5M
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz; 802.11n(HT40): 2422MHz to 2452MHz
Number of Channels:	802.11b/g/n(HT20): 11 Channels; 802.11n(HT40): 7 Channels
Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK); 802.11g: OFDM(BPSK, QPSK, 16QAM, 64QAM); 802.11n(HT20 and HT40): OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type:	FPC ANTENNA
Antenna Gain:	0.68dBi
Hardware Version:	A86V-D8UA
Software Version:	V1.0
Sample No.:	230916005-1

Operation Frequency each of channel

Channel	Frequency	Channel	Frequency
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz	/	/

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:

	802.11b/g/n(HT20)
Test channel	**Frequency (MHz)**
Lowest channel	2412MHz
Middle channel	2437MHz
Highest channel	2462MHz

	802.11n(HT40)
Test channel	**Frequency (MHz)**
Lowest channel	2422MHz
Middle channel	2437MHz
Highest channel	2452MHz

2.3 Description of Test Modes

No	Title	Description
TM1	802.11b mode	Keep the EUT in continuously transmitting mode with 802.11b modulation type. All bandwidth and data rates has been tested and found the data rate @ 11Mbps is the worst case. Only the data of worst case is recorded in the report.
TM2	802.11g mode	Keep the EUT in continuously transmitting mode with 802.11g modulation type. All bandwidth and data rates has been tested and found the data rate @ 54Mbps is the worst case. Only the data of worst case is recorded in the report.
TM3	802.11n(HT20) mode	Keep the EUT in continuously transmitting mode with 802.11b modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS7 is the worst case. Only the data of worst case is recorded in the report.
TM4	802.11n(HT40) mode	Keep the EUT in continuously transmitting mode with 802.11b modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS7 is the worst case. Only the data of worst case is recorded in the report.

Title	Description
TM1	Keep the EUT works in continuously transmitting mode with GFSK modulation.
	☐Special software is used. ☐Through engineering command into the engineering mode. engineering command: *#*#3646633#*#* ☒Other method: adb mode
	Special software: /

2.4 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.

Item	Description	Manufacturer	Model No.	Remark	Certification
1	adapter	Shenzhen Fangxin Technology Co.,Ltd.	MODEL: WRP2E-050200U; INPUT: 100-240Vac 50/60Hz 0.4A Max; OUTPUT: 5.0V 2A	Provide by Clinet	SDOC

2.5 Equipments Used During The Test

Conducted Emission at AC power line					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal. Due Date**
Shielding room	CY	8*4*3	20160102	2023/1/26	2025/1/25
Pulse Limiter	Schwarzbeck	VTSD 9561	561-G071	2023/2/27	2024/2/26
Cable	Schwarzbeck	/	/	2023/2/27	2024/2/26
Test Receiver	Rohde & Schwarz	ESPI	1164.6607K03-102109-MH	2023/6/13	2024/6/12
L.I.S.N	R&S	ESH3-Z5	831.5518.52	2022/12/29	2023/12/28
L.I.S.N	Schwarzbeck	NSLK 8126	NSLK 8126	2023/8/8	2024/8/7
50ΩCoaxial Switch	Anritsu	MP59B	M20531	/	/
EMI Testsoftware	Farad	EZ -EMC	V1.1.42	/	/

Emissions in restricted frequency bands and RF					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Test Receiver	R&S	ESCI	102109	2023/6/13	2024/6/12
Spectrum Analyzer	R&S	FSP30	1321.3008K40-101729-jR	2023/6/14	2024/6/13
966 Chamber	CY	9*6*6	20160101	2023/1/26	2025/1/25
Bore-sighting Antenna rack	PBB	1308503	16033	/	/
Loop antenna	ZHINAN	ZN30900C	ZN30900C	2021/7/5	2024/7/4
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2023/5-21	2025/5-20
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023/5/13	2025/5/12
Horn antenna	COM-POWER	AH-1840(40G)	10100008	2023/4/5	2025/4/4
Power APM(LF)	Schwarzbeck	BBV9743	9743-151	2023/6/13	2024/6/12
Power APM(HF)	Schwarzbeck	BBV9718	9718-282	2023/6/13	2024/6/12
Cable(LF)#2	Schwarzbeck	/	/	2023/2/27	2024/2/26
Cable(LF)#1	Schwarzbeck	/	/	2023/2/27	2024/2/26
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2023/2/28	2024/2/27
Cable(HF)#1	Schwarzbeck	SYV-50-3-1	/	2023/2/27	2024/2/26
Power divider	MIDEWEST	PWD-2533	SMA-79	2023/5/11	2026/5/10
signal generator	Keysight	N5181A	MY48180415	2022/12/10	2023/12/9
signal generator	Keysight	N5182A	MY50143455	2022/12/29	2023/12/28
Spectrum Analyzer	Keysight	N9020A	MY53420323	2022/12/29	2023/12/28
RF Sensor Unit	TACHOY	TR1029-2	000001	/	/
RF Control Unit	TACHOY	TR1029-1	000001	/	/
Position Controller	MF	MF-7802	/	/	/
EMI Testsoftware	Farad	EZ -EMC	V1.1.42	/	/
RF TestSoftware	TACHOY	RTS-01	V2.0.0.0	/	/

2.6 Statement Of The Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Disturbance (0.15~30MHz)	±3.41dB
Occupied Bandwidth	±3.63%
RF conducted power	±0.733dB
RF power density	±0.234%
Conducted Spurious emissions	±1.98dB
Radiated Emission (Above 1GHz)	±5.46dB
Radiated Emission (Below 1GHz)	±5.79dB
Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

2.7 Identification of Testing Laboratory

Company Name:	Shenzhen POCE Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252

Identification of the Responsible Testing Location

Company Name:	Shenzhen POCE Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252
FCC Registration Number:	0032847402
Designation Number:	CN1342
Test Firm Registration No.:	778666
A2LA Certificate Number:	6270.01

2.8 Announcement

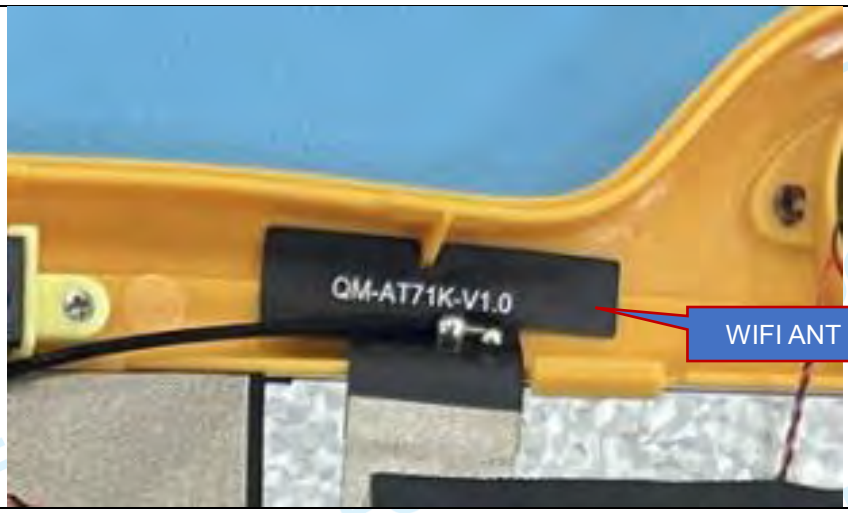
(1) The test report reference to the report template version v0.
(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
(3) The test report is invalid if there is any evidence and/or falsification.
(4) This document may not be altered or revised in any way unless done so by POCE and all revisions are duly noted in the revisions section.
(5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
(6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

3 Evaluation Results (Evaluation)

3.1 Antenna requirement

Test Requirement:	Refer to 47 CFR Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

3.1.1 Conclusion:



4 Radio Spectrum Matter Test Results (RF)

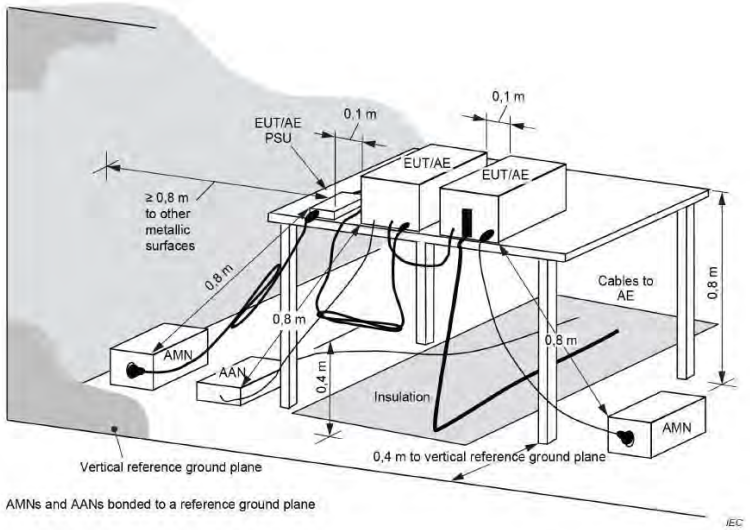
4.1 Conducted Emission at AC power line

Test Requirement:	Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b)and (c)of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN).
Test Limit:	Frequency of emission (MHz) / Conducted limit (dBμV): Quasi-peak / Average 0.15-0.5: 66 to 56* / 56 to 46* 0.5-5: 56 / 46 5-30: 60 / 50 *Decreases with the logarithm of the frequency.
Test Method:	ANSI C63.10-2013 section 6.2
Procedure:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices

4.1.1 E.U.T. Operation:

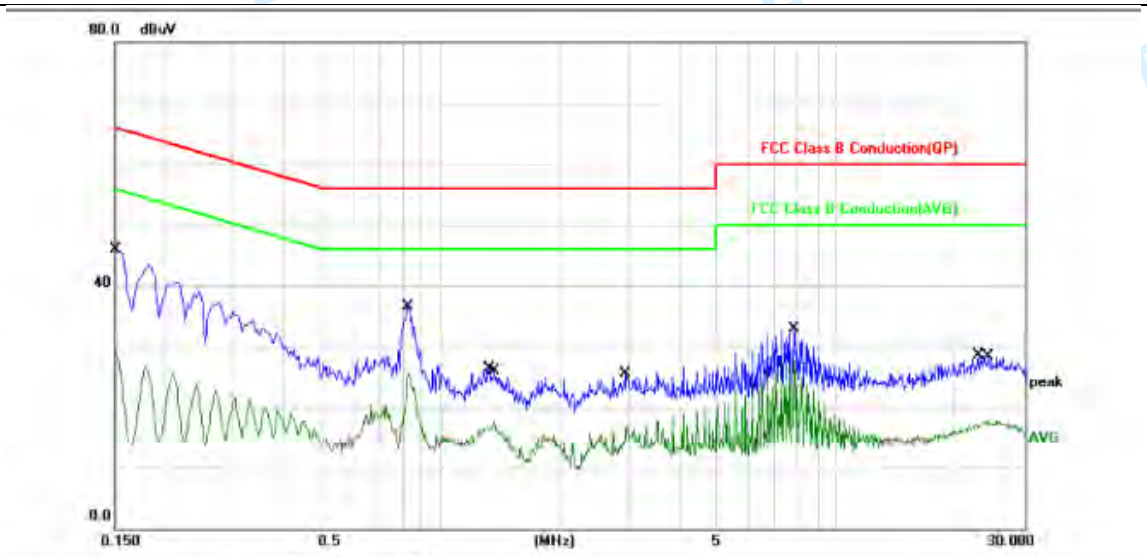
Operating Environment:					
Temperature:	22.1 °C	Humidity:	46.9 %	Atmospheric Pressure:	101 kPa
Pre test mode:	TM2				
Final test mode:	TM2				

4.1.2 Test Setup Diagram:



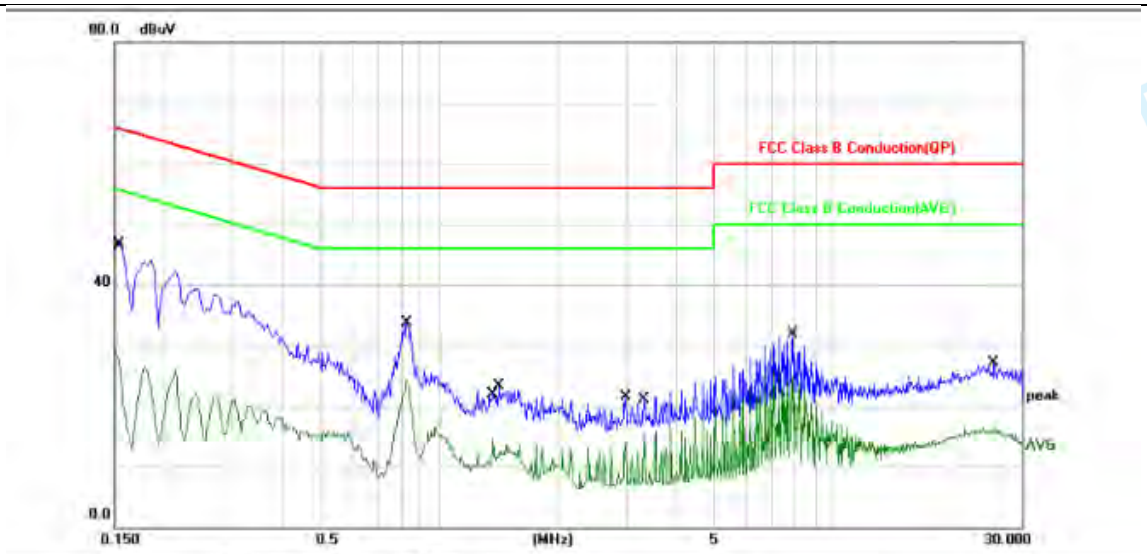
4.1.3 Test Data:

TM2 / Line: Line / Band: 2400-2483.5 MHz / BW: 20 / CH: L



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	36.13	9.73	45.86	65.99	-20.13	QP	
2		0.1500	19.72	9.73	29.45	55.99	-26.54	AVG	
3	*	0.8300	26.62	9.86	36.48	56.00	-19.52	QP	
4		0.8340	15.57	9.86	25.43	46.00	-20.57	AVG	
5		1.3300	16.43	9.88	26.31	56.00	-29.69	QP	
6		1.3700	7.74	9.88	17.62	46.00	-28.38	AVG	
7		2.9340	15.47	9.93	25.40	56.00	-30.60	QP	
8		2.9580	7.01	9.93	16.94	46.00	-29.06	AVG	
9		7.8500	22.87	10.07	32.94	60.00	-27.06	QP	
10		7.8500	17.74	10.07	27.81	50.00	-22.19	AVG	
11		22.8140	18.40	10.05	28.45	60.00	-31.55	QP	
12		24.1820	7.81	10.09	17.90	50.00	-32.10	AVG	

TM2 / Line: Neutral / Band: 2400-2483.5 MHz / BW: 20 / CH: L



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	19.51	9.73	29.24	55.99	-26.75	AVG	
2	*	0.1539	37.00	9.73	46.73	65.78	-19.05	QP	
3		0.8260	14.16	9.86	24.02	46.00	-21.98	AVG	
4		0.8300	23.87	9.86	33.73	56.00	-22.27	QP	
5		1.3700	4.61	9.88	14.49	46.00	-31.51	AVG	
6		1.4180	13.33	9.88	23.21	56.00	-32.79	QP	
7		2.9620	11.60	9.93	21.53	56.00	-34.47	QP	
8		3.3020	5.28	9.93	15.21	46.00	-30.79	AVG	
9		7.8540	21.75	10.07	31.82	60.00	-28.18	QP	
10		7.8540	14.80	10.07	24.87	50.00	-25.13	AVG	
11		25.5540	17.06	10.11	27.17	60.00	-32.83	QP	
12		25.8260	6.32	10.11	16.43	50.00	-33.57	AVG	

NOTE:
1.An initial pre-scan was performed on the line and neutral lines with peak detector.
2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3.Mesurement Level = Reading level + Correct Factor, Over=Limit- Mesurement
4. The test results only show the worst mode or worst channel.

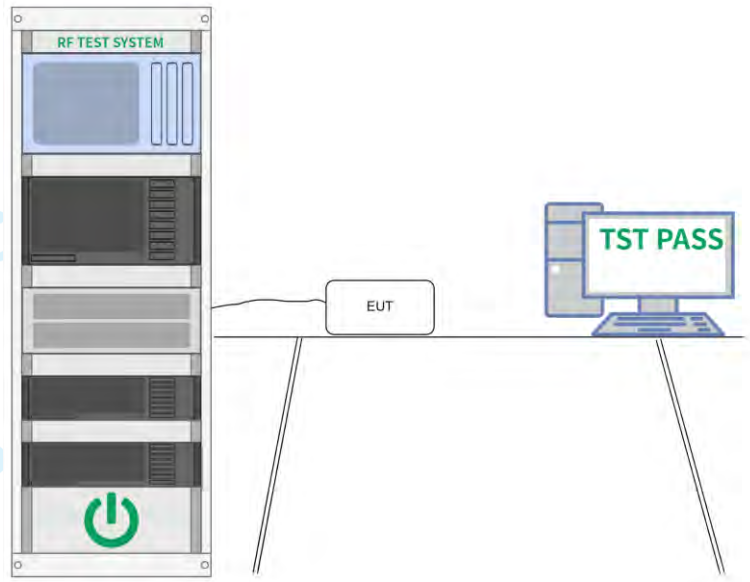
4.2 Occupied Bandwidth

Test Requirement:	47 CFR 15.247(a)(2)
Test Limit:	Refer to 47 CFR 15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
Test Method:	ANSI C63.10-2013, section 11.8
Procedure:	a) Set RBW = 100 kHz. b) Set the VBW >= [3 × RBW]. c) Detector = peak. d) Trace mode = max hold. e) Sweep = auto couple. f) Allow the trace to stabilize. g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

4.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.1 °C	Humidity:	46.9 %	Atmospheric Pressure:	101 kPa
Pre test mode:	TM1, TM2, TM3, TM4				
Final test mode:	TM1, TM2, TM3, TM4				

4.2.2 Test Setup Diagram:



4.2.3 Test Data:

Please Refer to Appendix for Details.

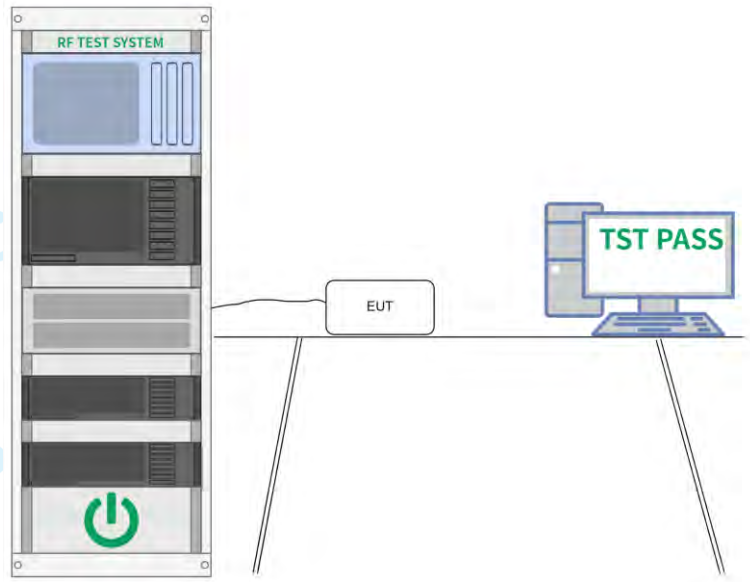
4.3 Maximum Conducted Output Power

Test Requirement:	47 CFR 15.247(b)(3)
Test Limit:	Refer to 47 CFR 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Test Method:	ANSI C63.10-2013, section 11.9.2
Procedure:	ANSI C63.10-2013, section 11.9.2 Maximum conducted (average) output power

4.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.1 °C	Humidity:	46.9 %	Atmospheric Pressure:	101 kPa
Pre test mode:	TM1, TM2, TM3, TM4				
Final test mode:	TM1, TM2, TM3, TM4				

4.3.2 Test Setup Diagram:



4.3.3 Test Data:

Please Refer to Appendix for Details.

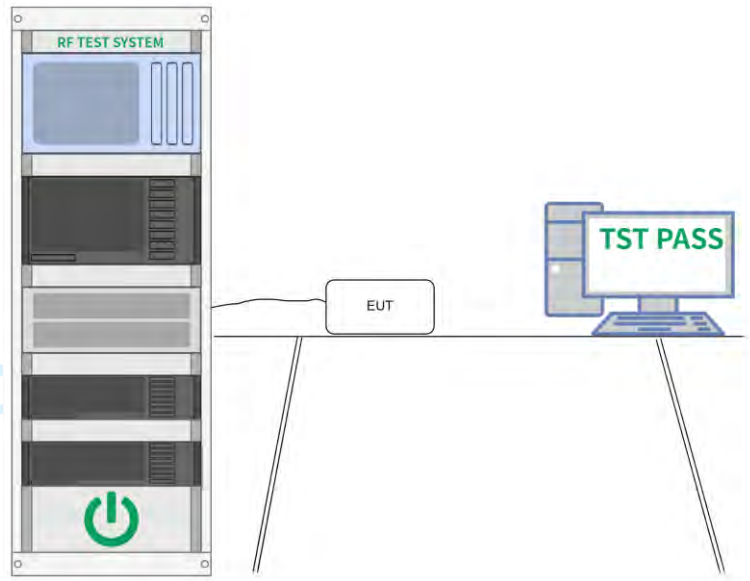
4.4 Power Spectral Density

Test Requirement:	47 CFR 15.247(e)
Test Limit:	Refer to 47 CFR 15.247(e), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Test Method:	ANSI C63.10-2013, section 11.10
Procedure:	ANSI C63.10-2013, section 11.10, Maximum power spectral density level in the fundamental emission

4.4.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.1 °C	Humidity:	46.9 %	Atmospheric Pressure:	101 kPa
Pre test mode:	TM1, TM2, TM3, TM4				
Final test mode:	TM1, TM2, TM3, TM4				

4.4.2 Test Setup Diagram:



4.4.3 Test Data:

Please Refer to Appendix for Details.

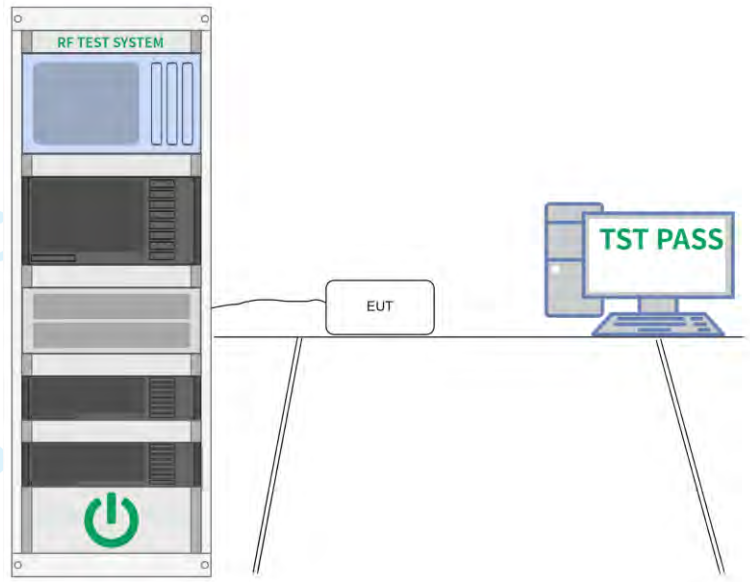
4.5 Emissions in non-restricted frequency bands

Test Requirement:	47 CFR 15.247(d), 15.209, 15.205
Test Limit:	Refer to 47 CFR 15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
Test Method:	ANSI C63.10-2013 section 11.11
Procedure:	ANSI C63.10-2013 Section 11.11.1, Section 11.11.2, Section 11.11.3

4.5.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.1 °C	Humidity:	46.9 %	Atmospheric Pressure:	101 kPa
Pre test mode:	TM1, TM2, TM3, TM4				
Final test mode:	TM1, TM2, TM3, TM4				

4.5.2 Test Setup Diagram:



4.5.3 Test Data:

Please Refer to Appendix for Details.

4.6 Band edge emissions (Radiated)

Test Requirement:	Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`
Test Limit:	

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100 **	3
88-216	150 **	3
216-960	200 **	3
Above 960	500	3

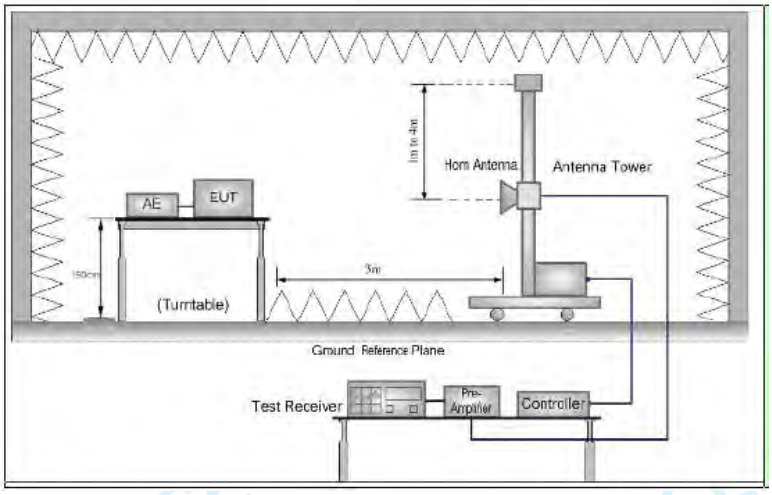
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

Test Method:	ANSI C63.10-2013 section 6.10
Procedure:	ANSI C63.10-2013 section 6.10.5.2

4.6.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.1 °C	Humidity:	46.9 %	Atmospheric Pressure:	101 kPa
Pre test mode:	TM1, TM2				
Final test mode:	TM1, TM2				

4.6.2 Test Setup Diagram:

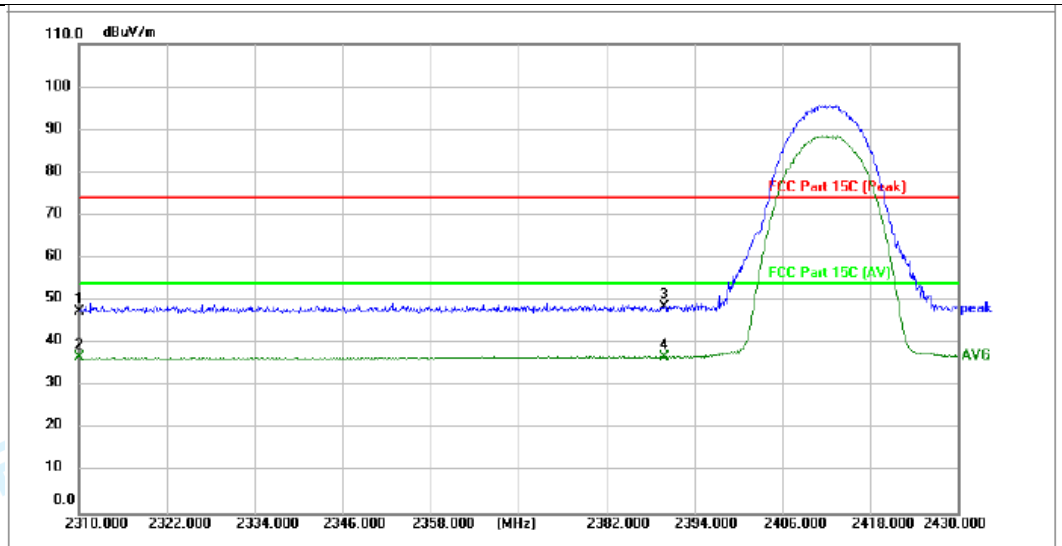


4.6.3

4.6.4 Test Data:

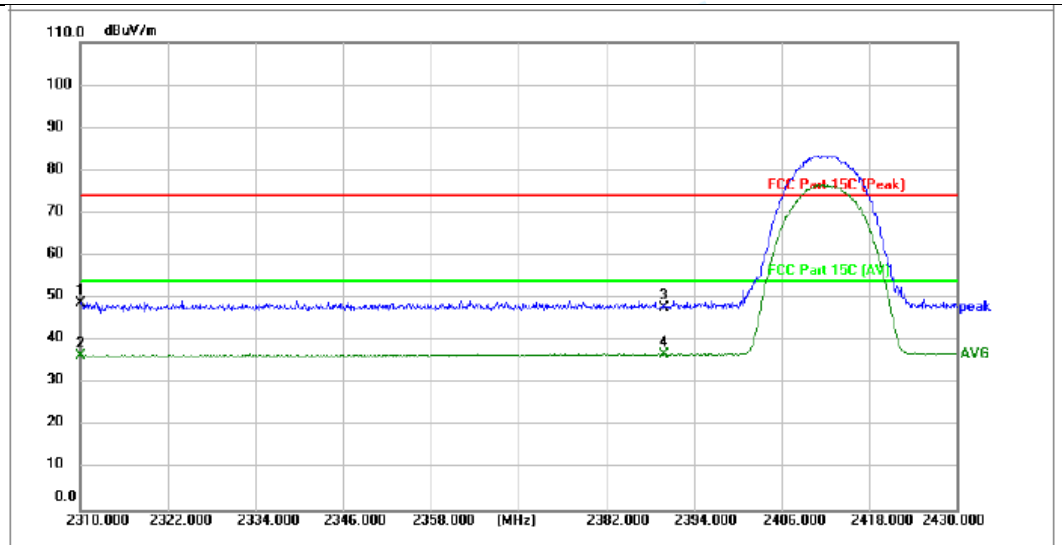
NOTE: The test results only show the worst mode or worst channel.

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: L



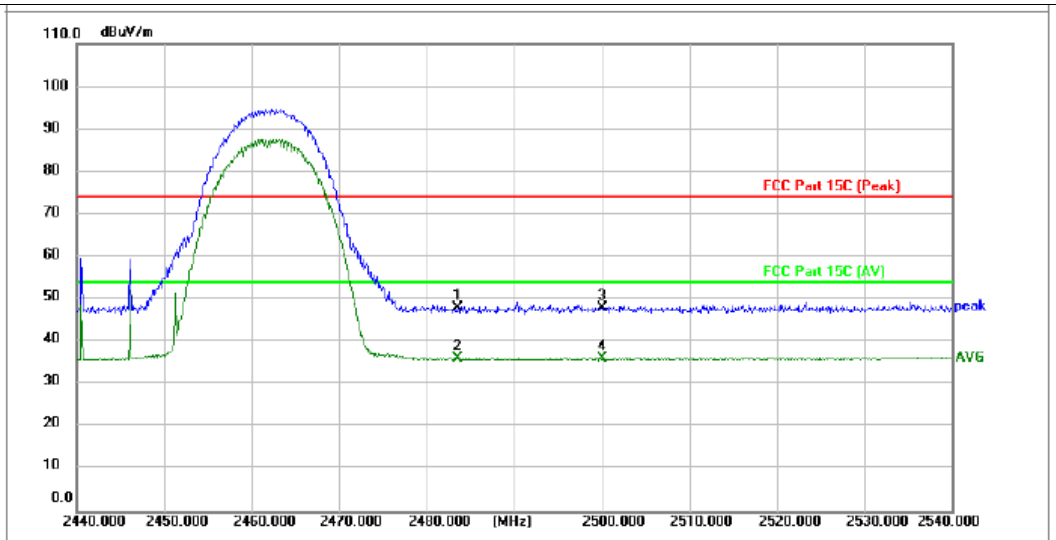
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2310.000	44.49	3.07	47.56	74.00	-26.44	peak			P	
2	2310.000	33.57	3.07	36.64	54.00	-17.36	AVG			P	
3	2390.000	45.28	3.28	48.56	74.00	-25.44	peak			P	
4 *	2390.000	33.53	3.28	36.81	54.00	-17.19	AVG			P	

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: L



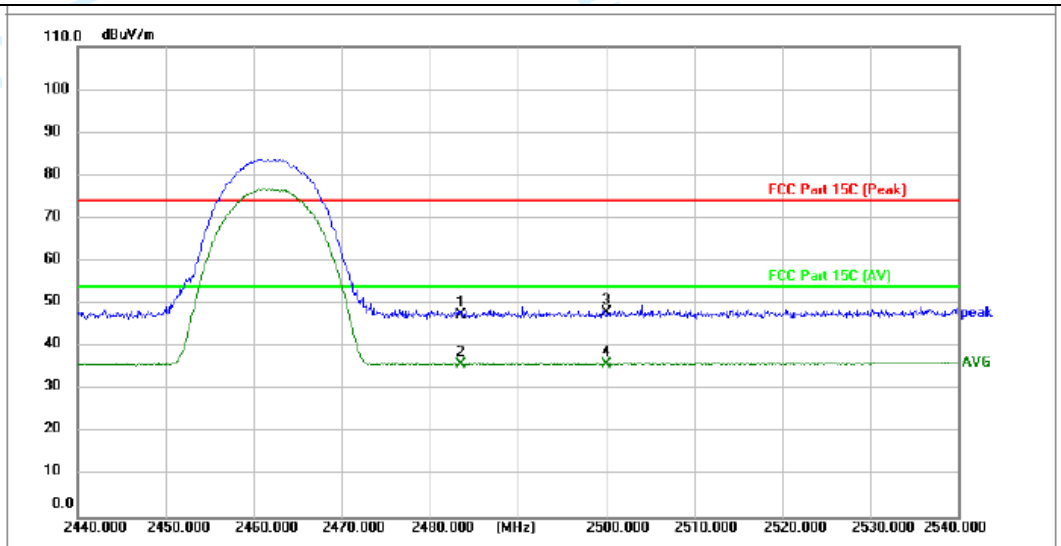
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2310.000	47.08	1.77	48.85	74.00	-25.15	peak			P	
2	2310.000	34.80	1.77	36.57	54.00	-17.43	AVG			P	
3	2390.000	45.64	2.09	47.73	74.00	-26.27	peak			P	
4 *	2390.000	34.65	2.09	36.74	54.00	-17.26	AVG			P	

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: H



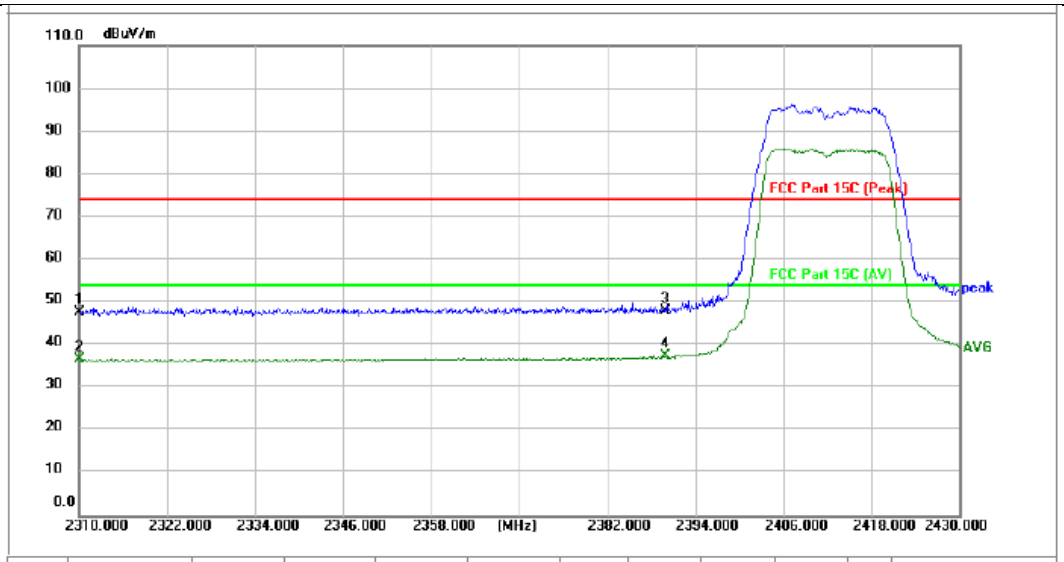
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2483.500	44.43	3.53	47.96	74.00	-26.04	peak			P	
2	2483.500	32.51	3.53	36.04	54.00	-17.96	AVG			P	
3	2500.000	44.47	3.57	48.04	74.00	-25.96	peak			P	
4 *	2500.000	32.50	3.57	36.07	54.00	-17.93	AVG			P	

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: H



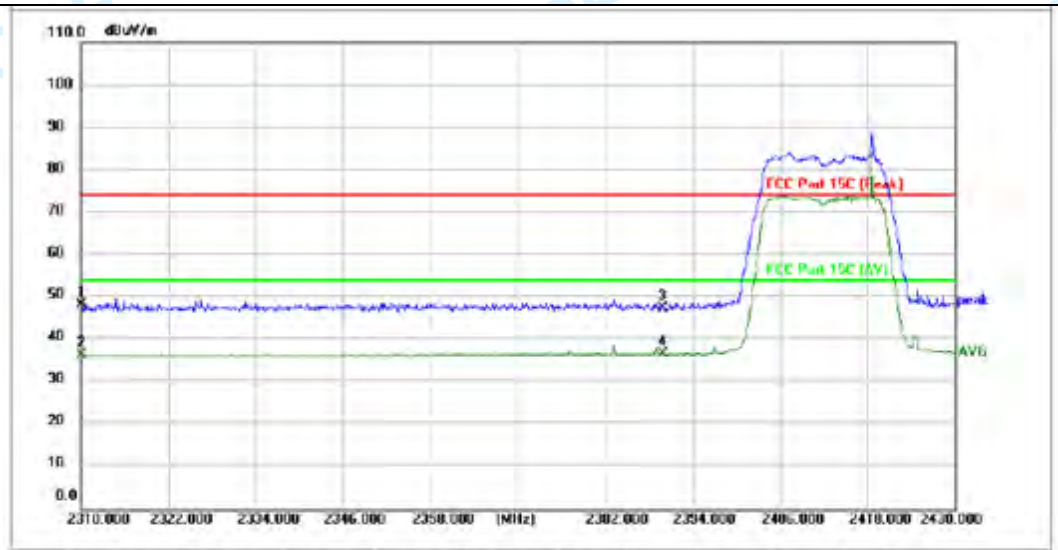
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2483.500	44.87	2.46	47.33	74.00	-26.67	peak			P	
2	2483.500	33.44	2.46	35.90	54.00	-18.10	AVG			P	
3	2500.000	45.44	2.52	47.96	74.00	-26.04	peak			P	
4 *	2500.000	33.46	2.52	35.98	54.00	-18.02	AVG			P	

TM2 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: L



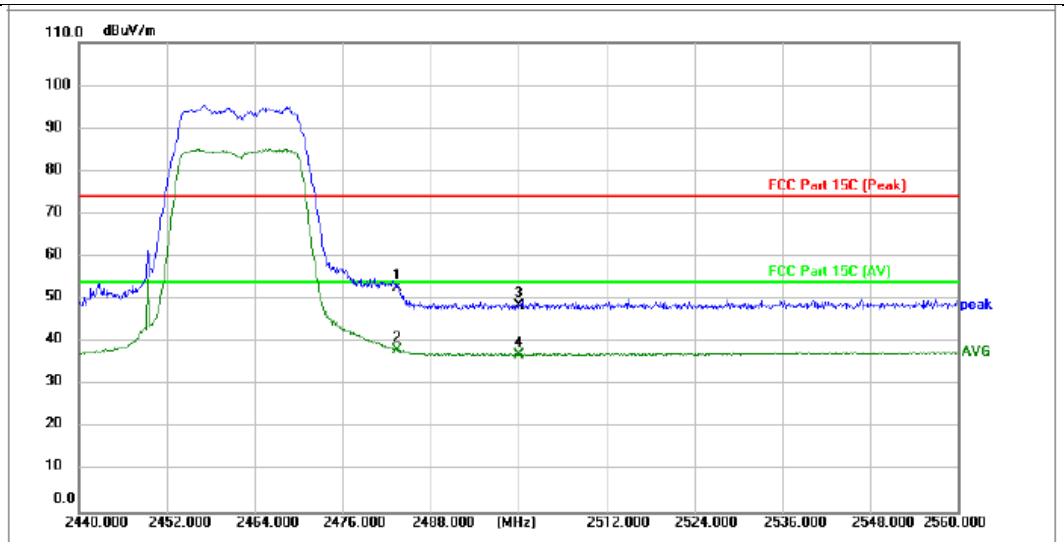
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2310.000	44.59	3.07	47.66	74.00	-26.34	peak			P	
2	2310.000	33.57	3.07	36.64	54.00	-17.36	AVG			P	
3	2390.000	44.73	3.28	48.01	74.00	-25.99	peak			P	
4 *	2390.000	34.15	3.28	37.43	54.00	-16.57	AVG			P	

TM2 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: L



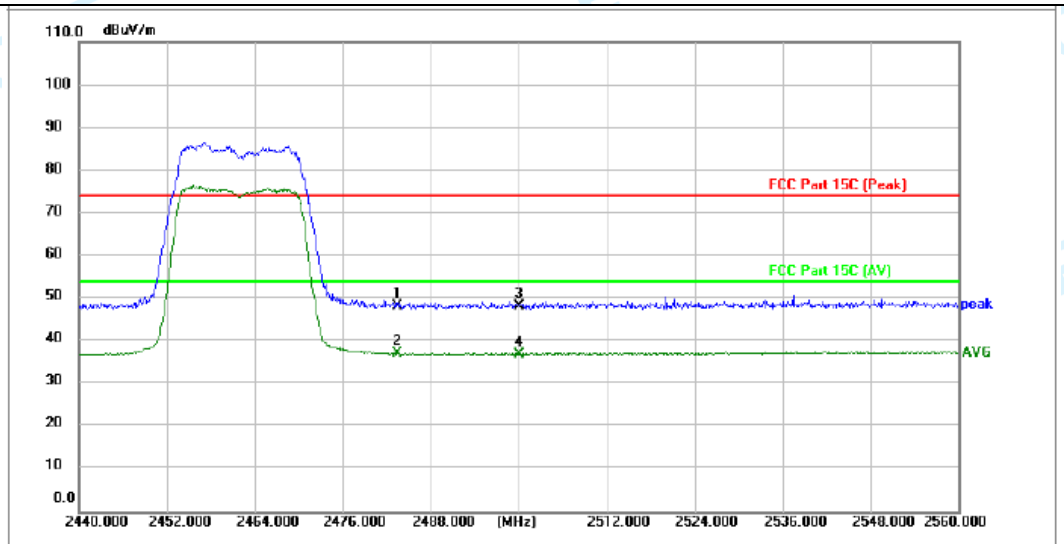
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2310.000	46.51	1.77	48.28	74.00	-25.72	peak			P	
2	2310.000	34.59	1.77	36.36	54.00	-17.64	AVG			P	
3	2390.000	45.43	2.09	47.52	74.00	-26.48	peak			P	
4 *	2390.000	34.62	2.09	36.71	54.00	-17.29	AVG			P	

TM2 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2483.500	49.09	3.53	52.62	74.00	-21.38	peak			P	
2 *	2483.500	34.59	3.53	38.12	54.00	-15.88	AVG			P	
3	2500.000	44.88	3.57	48.45	74.00	-25.55	peak			P	
4	2500.000	33.53	3.57	37.10	54.00	-16.90	AVG			P	

TM2 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2483.500	45.76	2.46	48.22	74.00	-25.78	peak			P	
2 *	2483.500	34.67	2.46	37.13	54.00	-16.87	AVG			P	
3	2500.000	45.75	2.52	48.27	74.00	-25.73	peak			P	
4	2500.000	34.45	2.52	36.97	54.00	-17.03	AVG			P	

Note: Peak and Average measurement were performed at the frequencies with maximized peak emission.
Mesurement Level = Reading level + Correct Factor, Over=Limit- Mesurement

Note:
Per ANSI C63.10-2013, if there are two or more antnnas, the conducted powers at Core 0, Core 1,…, Core i were first measured separately, as shown in the section above(this product olny have one antenna). The measured values were then summed in linear power units then converted back to dBm.

Per ANSI C63.10-2013 Section 14.4.3.2.3, the directional gain is calculated using the following formula, where GN is the gain of the nth antenna and NANT, the total number of antennas used.
For correlated unequal antenna gain
Directional gain = 10*log[(10G1/20 + 10G2/20 + … + 10GN/20)2 / NANT] dBi

For completely uncorrelated unequal antenna gain
Directional gain = 10*log[(10G1/10 + 10G2/10 + … + 10GN/10)/ NANT] dBi

Sample Multiple antennas Calculation: Core 0 + Core 1 +…Core i. = MIMO/CDD
(i is the number of antennas)
(#VALUE! mW + mW) = #VALUE! mW = dBm
Sample e.i.r.p. Calculation:
e.i.r.p. (dBm) = Conducted Power (dBm) + Ant gain (dBi)

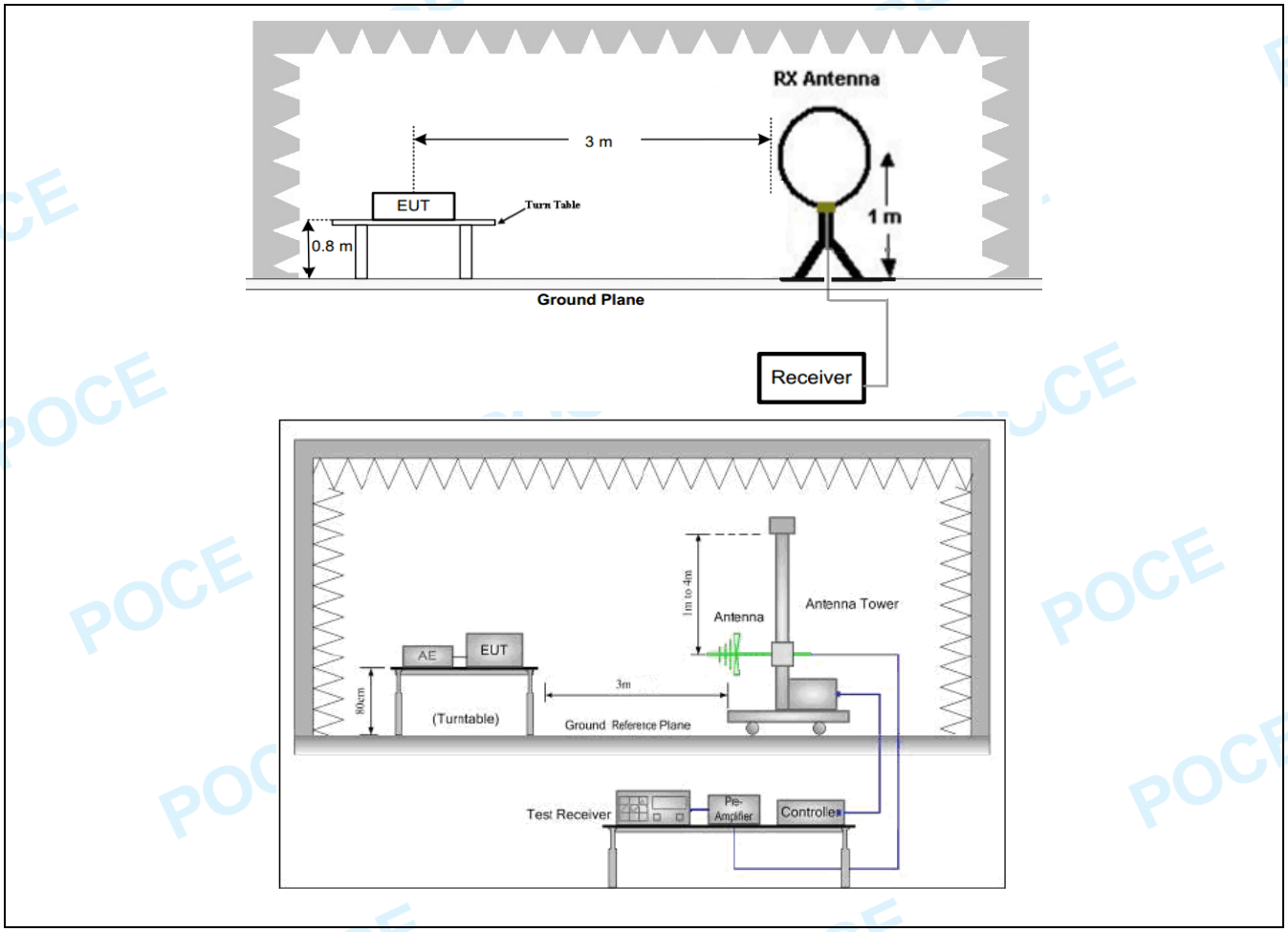
4.7 Emissions in frequency bands (below 1GHz)

Test Requirement:	Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`
Test Limit:	<table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100 **</td><td>3</td></tr><tr><td>88-216</td><td>150 **</td><td>3</td></tr><tr><td>216-960</td><td>200 **</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></table> ** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.
Test Method:	ANSI C63.10-2013 section 6.6.4
Procedure:	a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. d. 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. e. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. g. 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. h. Test the EUT in the lowest channel, the middle channel, the Highest channel. i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. j. Repeat above procedures until all frequencies measured was complete. Remark: 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report. 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Final Test Level =Receiver Reading + Antenna Factor + Cable Factor ¨C Preamplifier Factor 3) Scan from 9kHz to 25GHz, the disturbance above 12.75GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. Fundamental frequency is blocked by filter, and only spurious emission is shown.

4.7.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.1 °C	Humidity:	46.9 %	Atmospheric Pressure:	101 kPa
Pre test mode:	TM2				
Final test mode:	TM2				

4.7.2 Test Setup Diagram:



4.7.3 Test Data:

Between 9KHz – 30MHz
The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

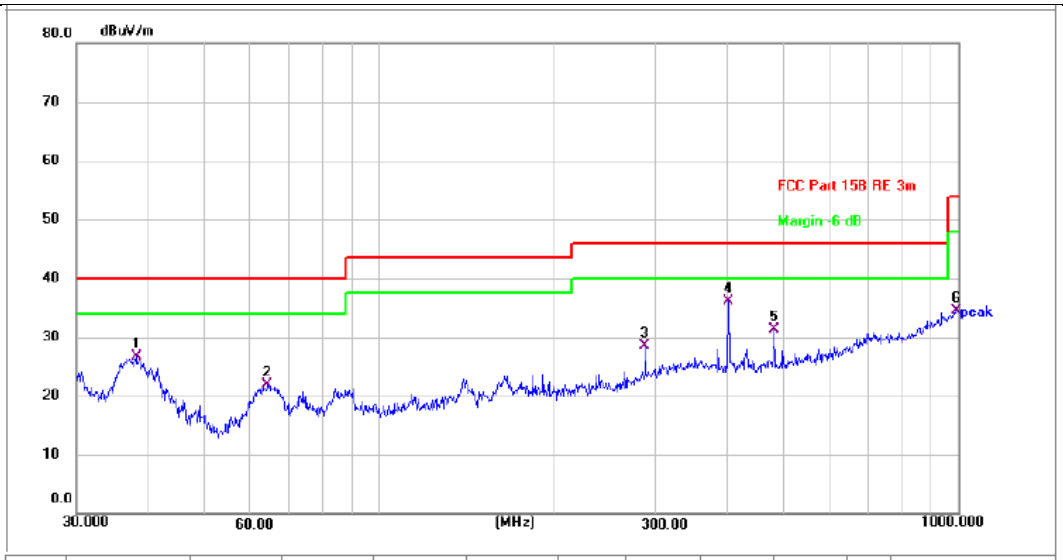
Test results only record the worst mode or channel

Between 30MHz – 1000MHz

TM2 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	31.7312	23.99	-3.33	20.66	40.00	-19.34	QP	100		P	
2	61.1315	27.04	-8.97	18.07	40.00	-21.93	QP	100		P	
3 *	167.8242	28.89	-3.37	25.52	43.50	-17.98	QP	100		P	
4	222.1697	27.19	-2.58	24.61	46.00	-21.39	QP	100		P	
5	256.5210	28.36	-1.75	26.61	46.00	-19.39	QP	100		P	
6	986.0716	25.13	10.07	35.20	54.00	-18.80	QP	100		P	

TM2 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	38.0783	31.79	-5.04	26.75	40.00	-13.25	QP	100		P	
2	64.2074	30.70	-8.84	21.86	40.00	-18.14	QP	100		P	
3	287.9904	29.09	-0.60	28.49	46.00	-17.51	QP	100		P	
4 *	400.4319	34.75	1.37	36.12	46.00	-9.88	QP	100		P	
5	480.5276	29.64	1.60	31.24	46.00	-14.76	QP	100		P	
6	993.0114	24.24	10.26	34.50	54.00	-19.50	QP	100		P	

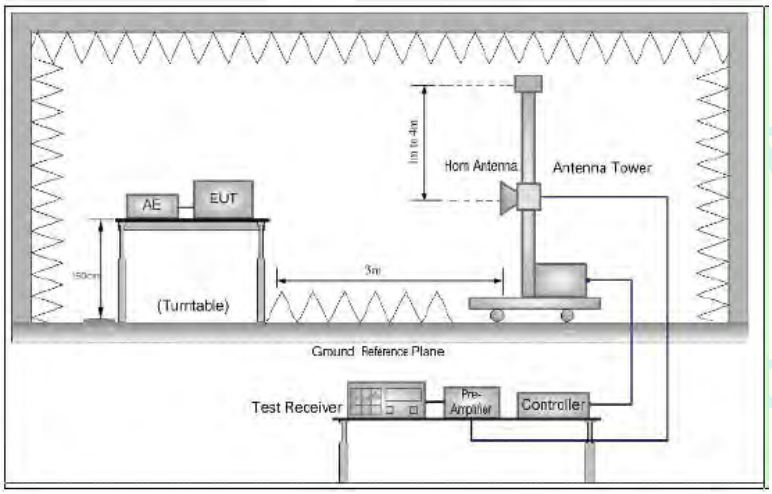
4.8 Emissions in frequency bands (above 1GHz)

Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`
Test Limit:	<table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100 **</td><td>3</td></tr><tr><td>88-216</td><td>150 **</td><td>3</td></tr><tr><td>216-960</td><td>200 **</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></table> ** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.
Test Method:	ANSI C63.10-2013 section 6.6.4
Procedure:	a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. d. 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. e. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. g. 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. h. Test the EUT in the lowest channel, the middle channel, the Highest channel. i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. j. Repeat above procedures until all frequencies measured was complete. Remark: 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report. 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Final Test Level =Receiver Reading + Antenna Factor + Cable Factor ¨C Preamplifier Factor 3) Scan from 9kHz to 25GHz, the disturbance above 12.75GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. Fundamental frequency is blocked by filter, and only spurious emission is shown.

4.8.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.1 °C	Humidity:	46.9 %	Atmospheric Pressure:	101 kPa
Pre test mode:	TM1, TM2				
Final test mode:	TM1, TM2				

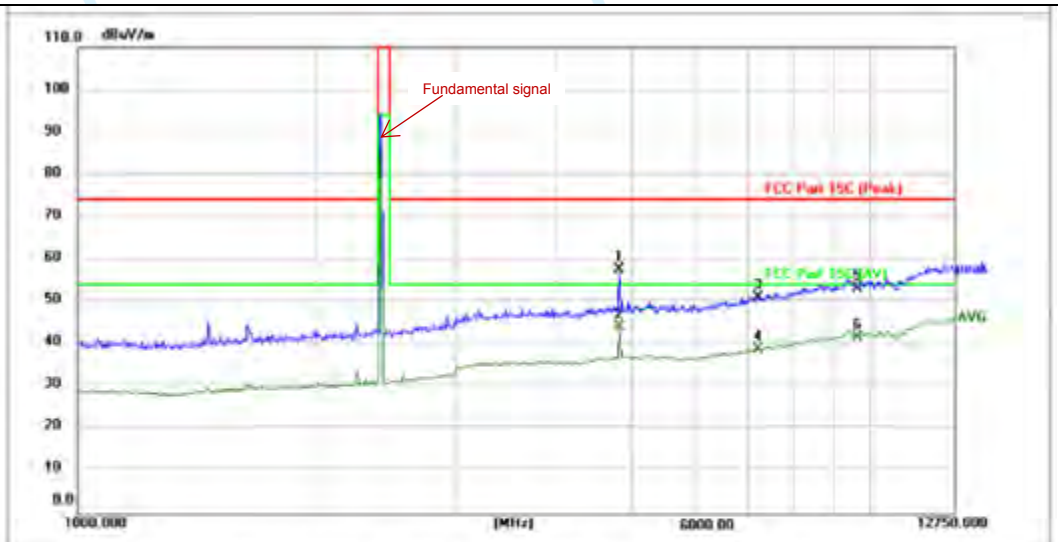
4.8.2 Test Setup Diagram:



4.8.3 Test Data:

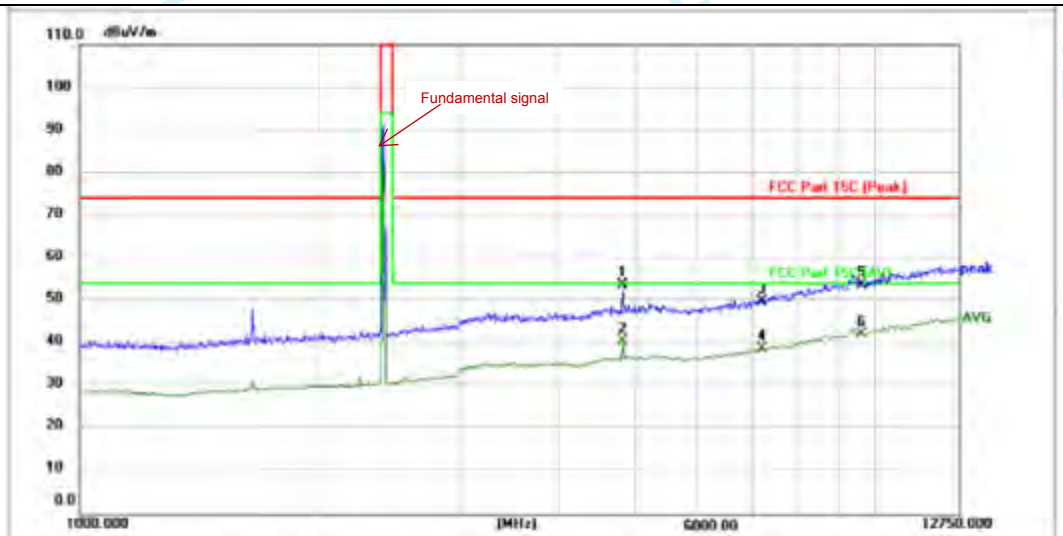
Test results only record the worst mode or channel, and test frequency 12.75GHz to 25GHz only background waveform, therefore not recorded in the report.

TM2 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: L



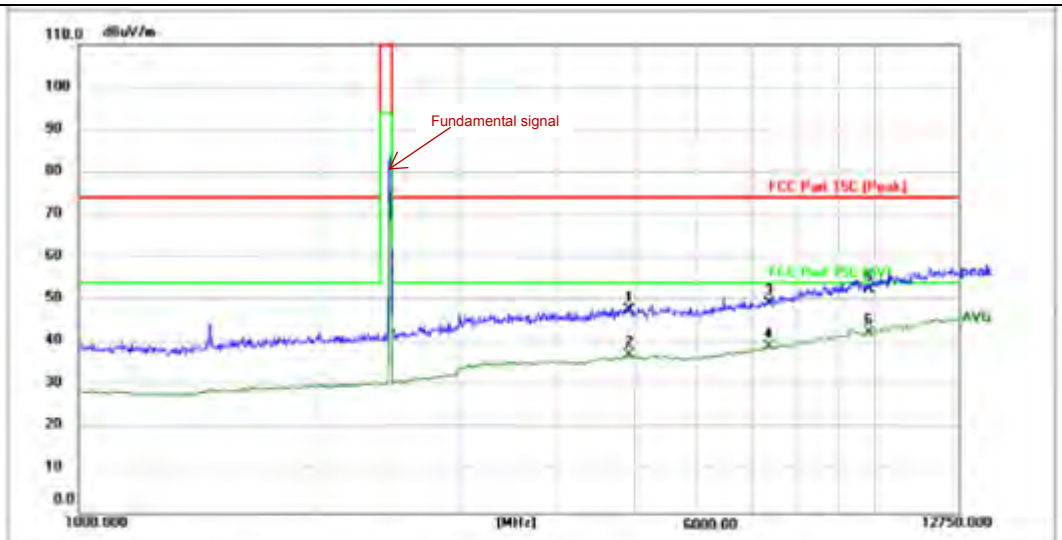
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4821.757	47.80	9.78	57.58	74.00	-16.42	peak	150		P	
2 *	4821.757	34.47	9.78	44.25	54.00	-9.75	AVG	150		P	
3	7236.000	36.97	14.16	51.13	74.00	-22.87	peak	150		P	
4	7236.000	24.83	14.16	38.99	54.00	-15.01	AVG	150		P	
5	9648.000	35.14	18.05	53.19	74.00	-20.81	peak	150		P	
6	9648.000	23.72	18.05	41.77	54.00	-12.23	AVG	150		P	

TM2 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: L



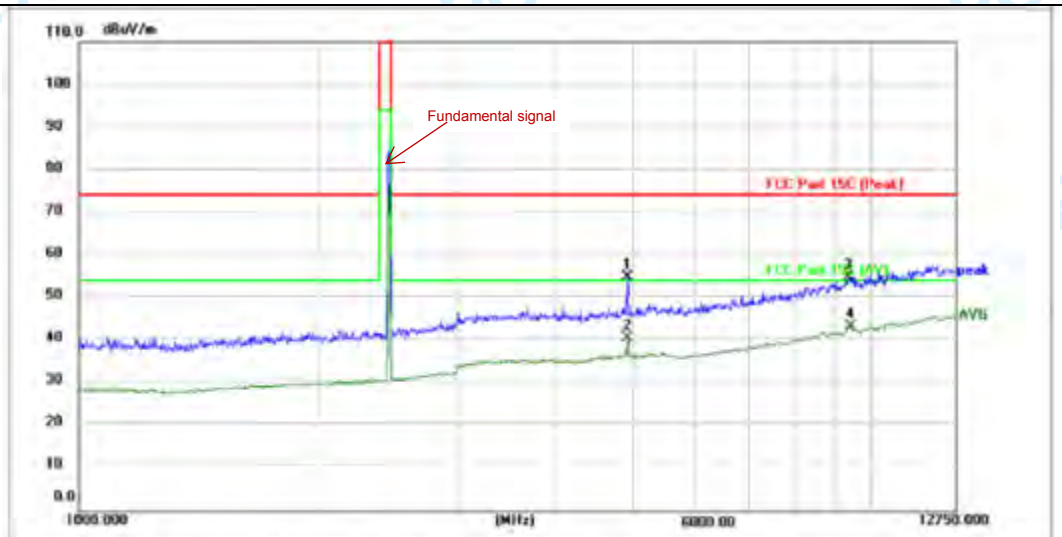
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4821.757	44.68	9.16	53.84	74.00	-20.16	peak	150		P	
2	4821.757	31.32	9.16	40.48	54.00	-13.52	AVG	150		P	
3	7236.000	35.85	14.17	50.02	74.00	-23.98	peak	150		P	
4	7236.000	24.71	14.17	38.88	54.00	-15.12	AVG	150		P	
5	9648.000	35.79	18.10	53.89	74.00	-20.11	peak	150		P	
6 *	9648.000	24.00	18.10	42.10	54.00	-11.90	AVG	150		P	

TM2 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4924.000	37.69	10.11	47.80	74.00	-26.20	peak			P	
2	4924.000	27.07	10.11	37.18	54.00	-16.82	AVG			P	
3	7386.000	34.97	14.52	49.49	74.00	-24.51	peak			P	
4	7386.000	24.67	14.52	39.19	54.00	-14.81	AVG			P	
5	9848.000	34.61	18.19	52.80	74.00	-21.20	peak			P	
6 *	9848.000	24.33	18.19	42.52	54.00	-11.48	AVG			P	

TM2 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4920.955	45.35	9.50	54.85	74.00	-19.15	peak			P	
2	4920.955	31.18	9.50	40.68	54.00	-13.32	AVG			P	
3	9370.083	36.93	18.07	55.00	74.00	-19.00	peak			P	
4 *	9393.966	25.31	18.08	43.39	54.00	-10.61	AVG			P	

Remark: Margin = Limit – Level
Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
Level=Test receiver reading + correction factor

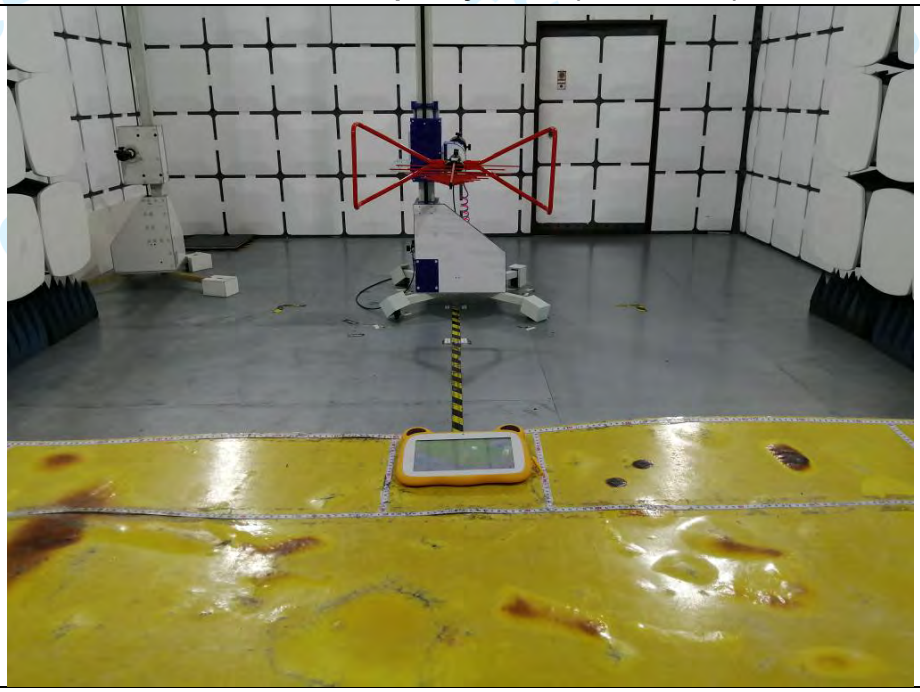
Note:
Per ANSI C63.10-2013, if there are two or more antnnas, the conducted powers at Core 0, Core 1,…, Core i were first measured separately, as shown in the section above(this product olny have one antenna). The measured values were then summed in linear power units then converted back to dBm.

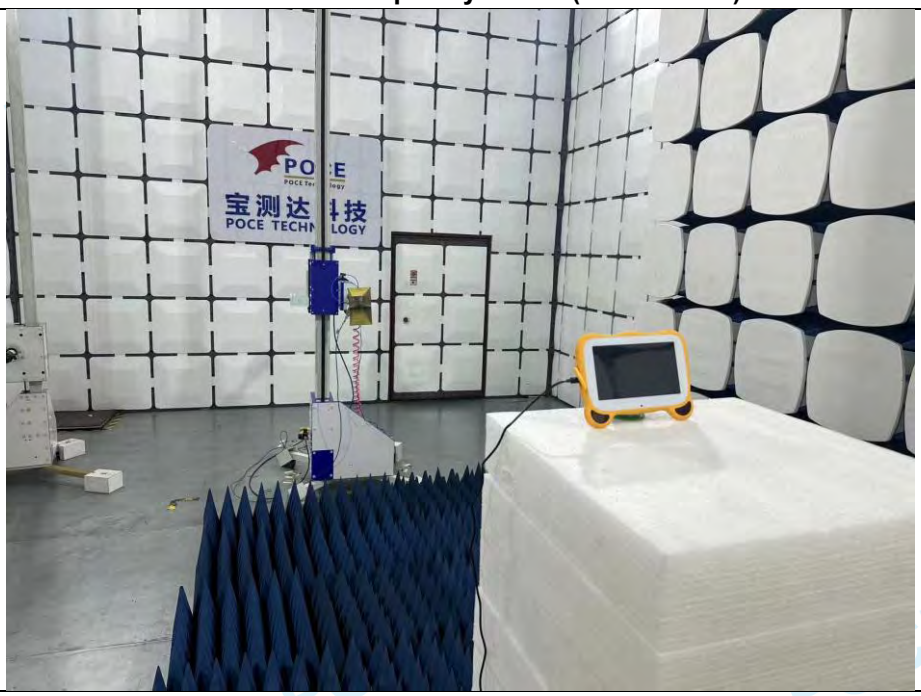
Sample Multiple antennas Calculation: Core 0 + Core 1 +…Core i. = MIMO/CDD
(i is the number of antennas)

(#VALUE! mW + XX mW) = #VALUE! mW = XX dBm
Sample e.i.r.p. Calculation:
XX dBm= Conducted Power (dBm) + Ant gain (dBi)

5 TEST SETUP PHOTOS

Conducted Emission at AC power line


Emissions in frequency bands (below 1GHz)


Emissions in frequency bands (above 1GHz)


6 PHOTOS OF THE EUT

Please refer to report No.: POCE230921005RL001

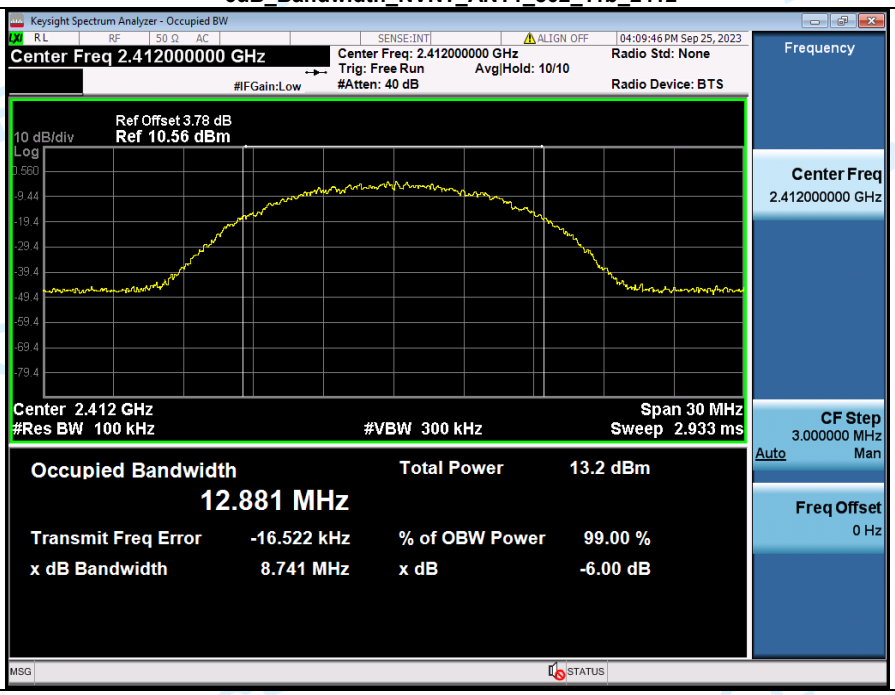
Appendix

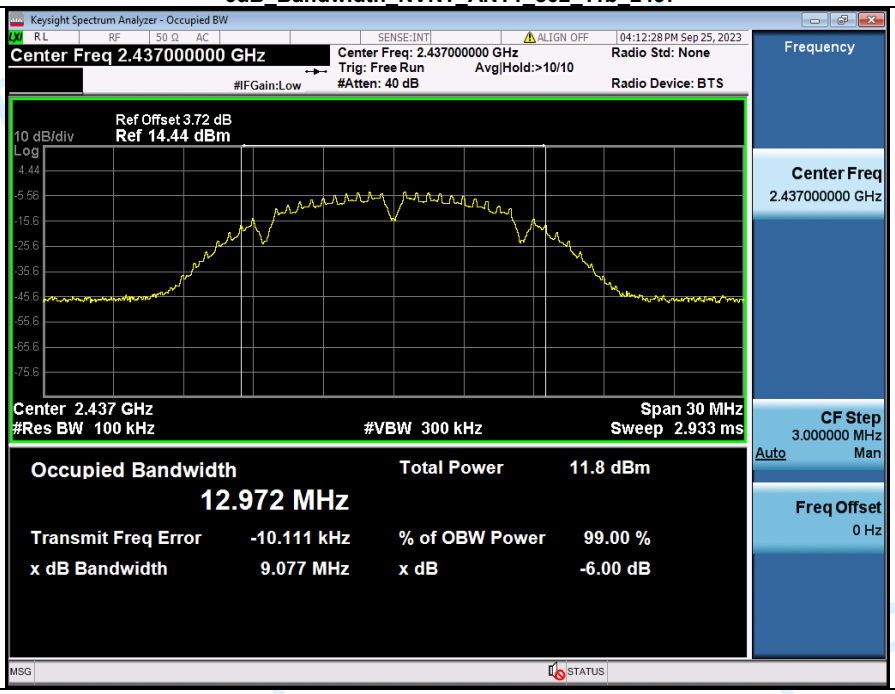
FCC_2.4G_WIFI (Part15.247) Test Data

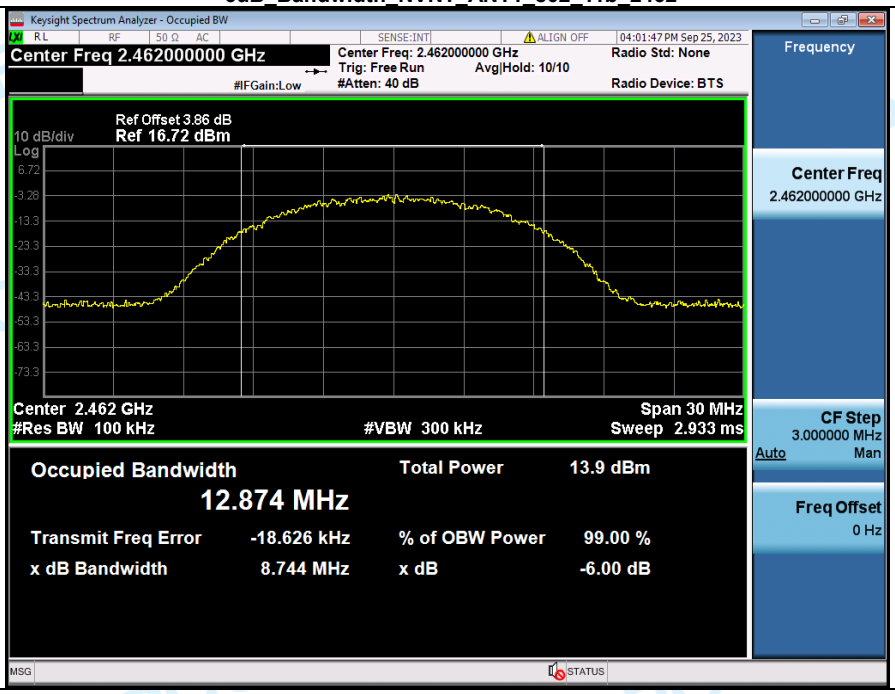
1. -6dB Bandwidth

Condition	Antenna	Modulation	Frequency (MHz)	-6dB BW(MHz)	limit(kHz)	Result
NVNT	ANT1	802.11b	2412.00	8.74	500	Pass
NVNT	ANT1	802.11b	2437.00	9.08	500	Pass
NVNT	ANT1	802.11b	2462.00	8.74	500	Pass
NVNT	ANT1	802.11g	2412.00	16.51	500	Pass
NVNT	ANT1	802.11g	2437.00	16.51	500	Pass
NVNT	ANT1	802.11g	2462.00	16.50	500	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	17.66	500	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	17.66	500	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	17.66	500	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	36.49	500	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	36.49	500	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	36.50	500	Pass

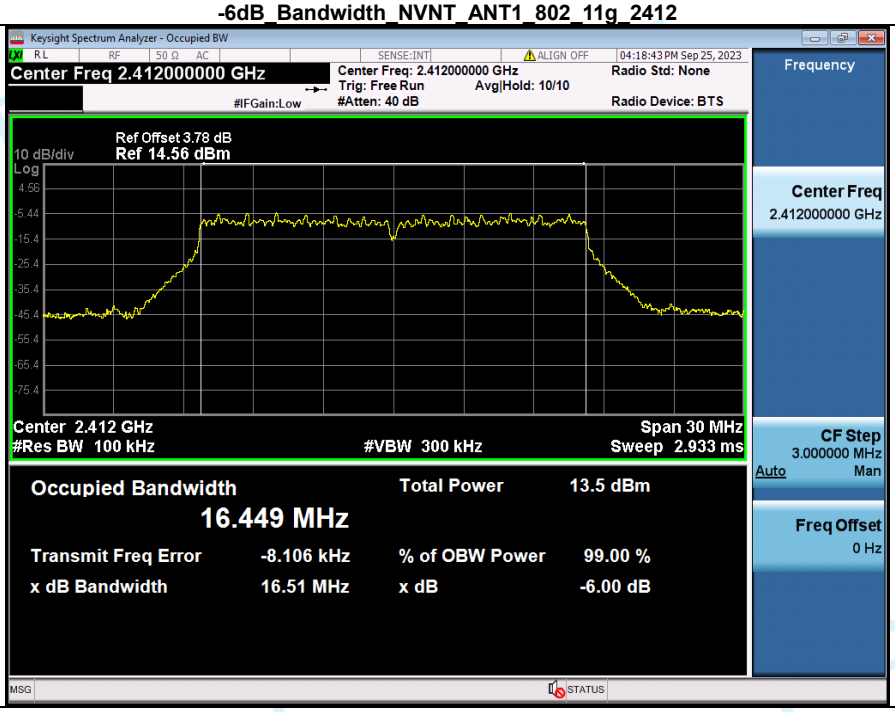
-6dB_Bandwidth_NVNT_ANT1_802_11b_2412



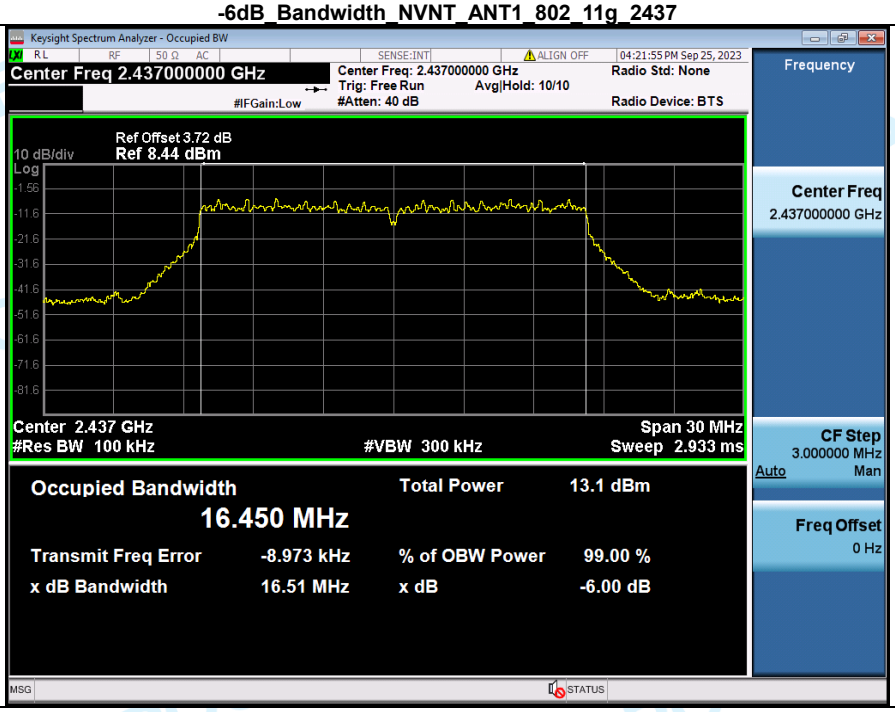
-6dB_Bandwidth_NVNT_ANT1_802_11b_2437


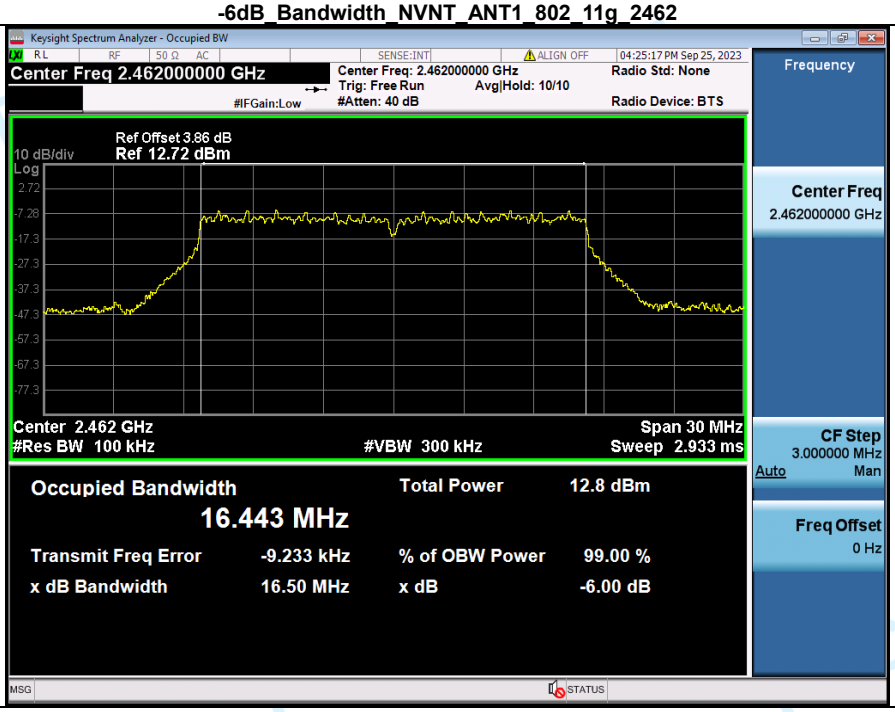
-6dB_Bandwidth_NVNT_ANT1_802_11b_2462


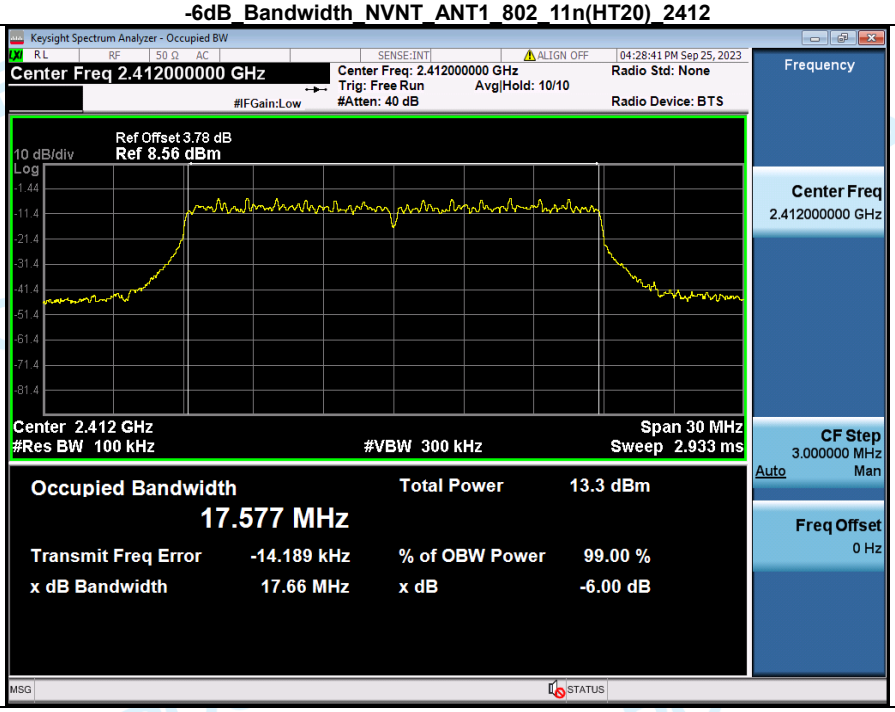
-6dB_Bandwidth_NVNT_ANT1_802_11g_2412

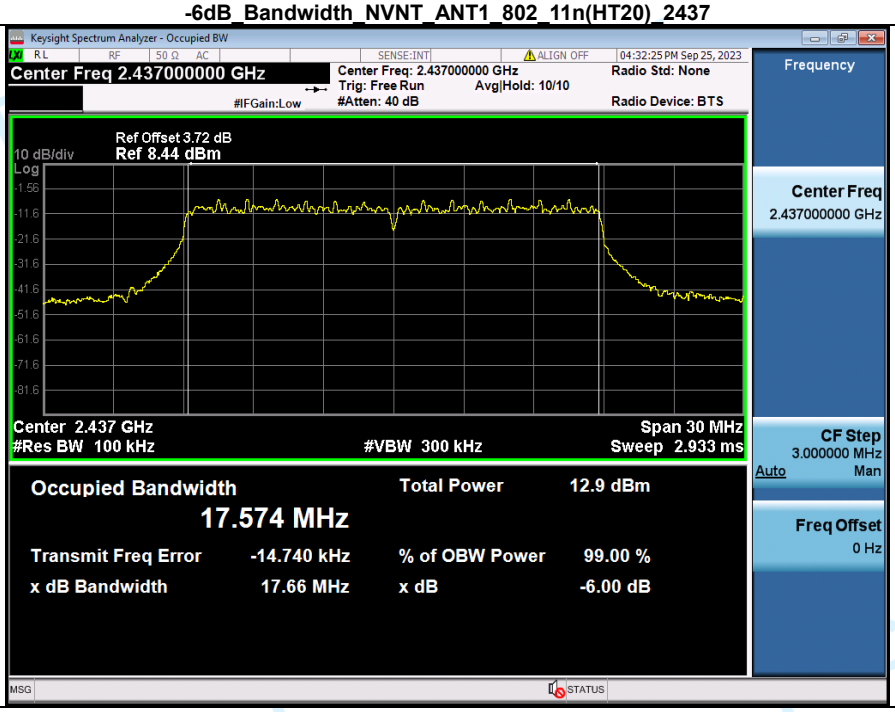


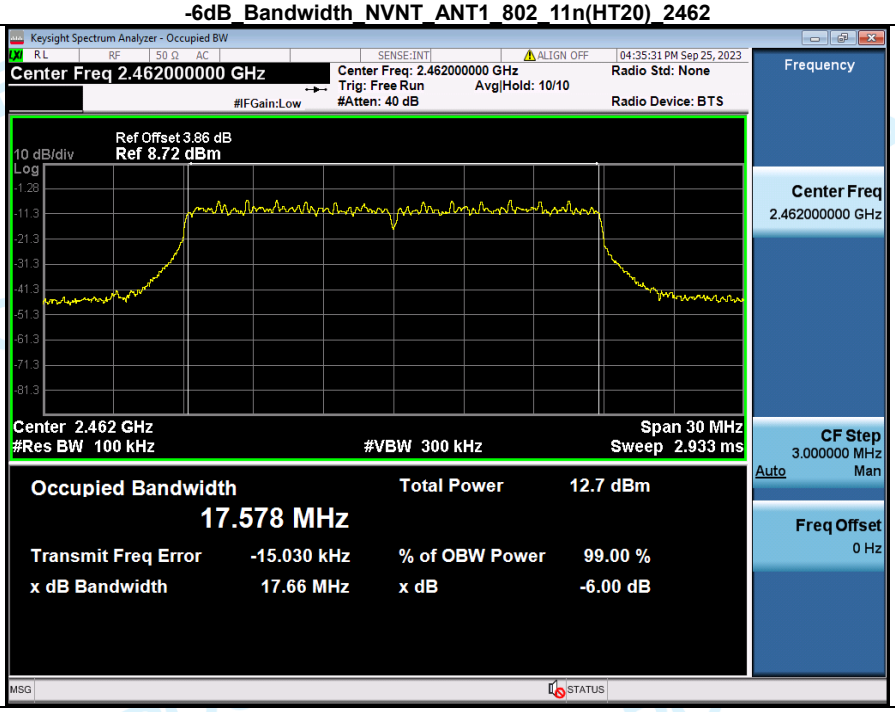
-6dB_Bandwidth_NVNT_ANT1_802_11g_2437

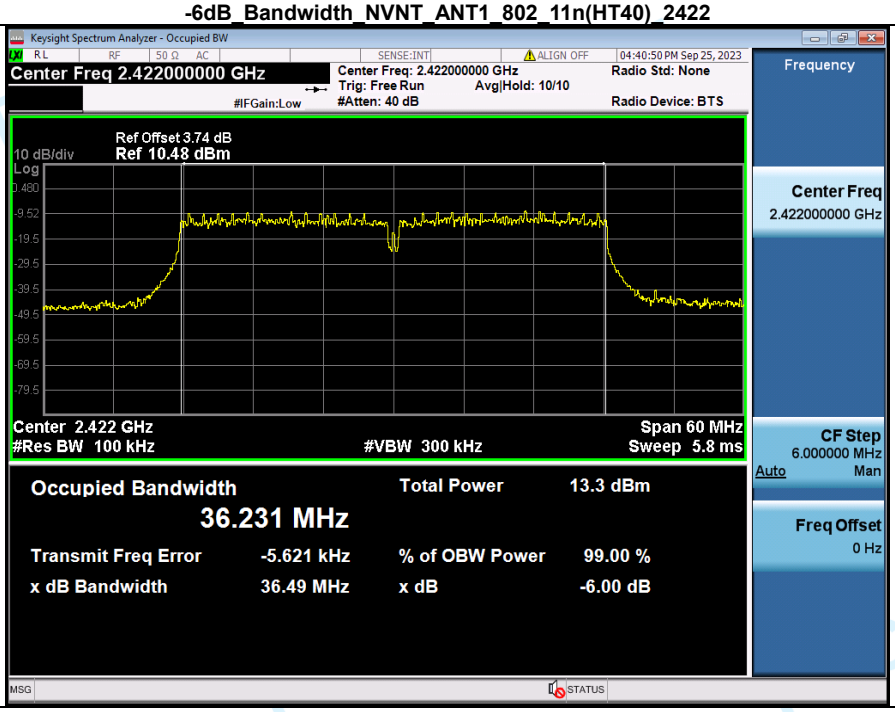


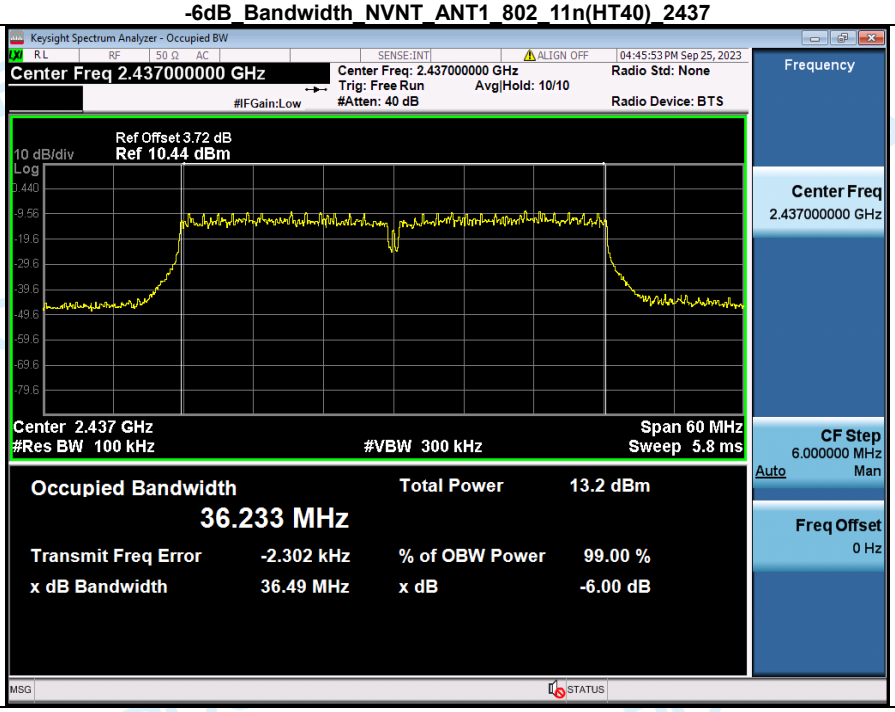
-6dB_Bandwidth_NVNT_ANT1_802_11g_2462


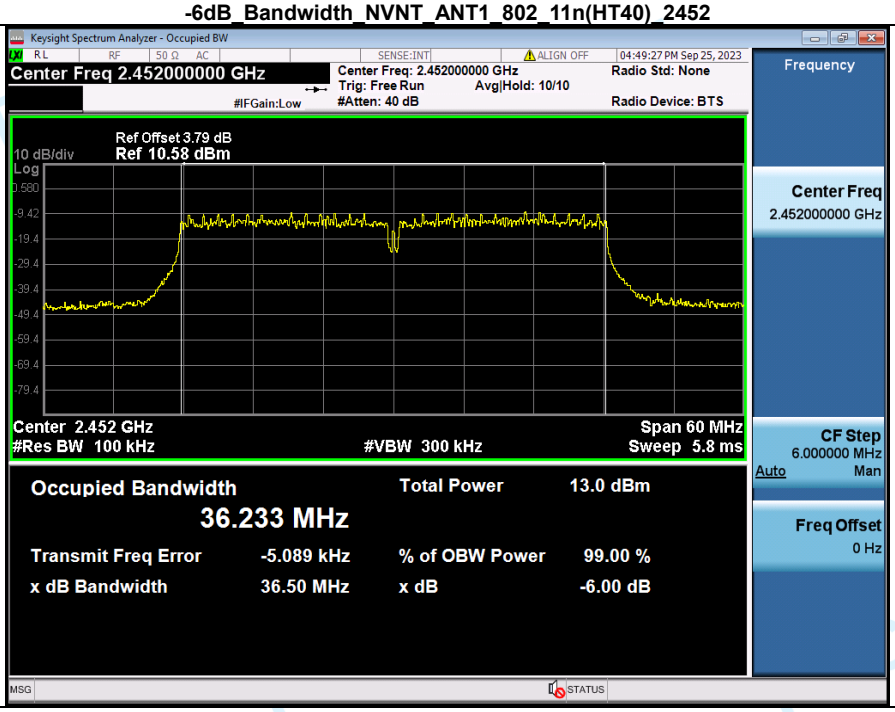
-6dB_Bandwidth_NVNT_ANT1_802_11n(HT20)_2412


-6dB_Bandwidth_NVNT_ANT1_802_11n(HT20)_2437


-6dB_Bandwidth_NVNT_ANT1_802_11n(HT20)_2462


-6dB_Bandwidth_NVNT_ANT1_802_11n(HT40)_2422


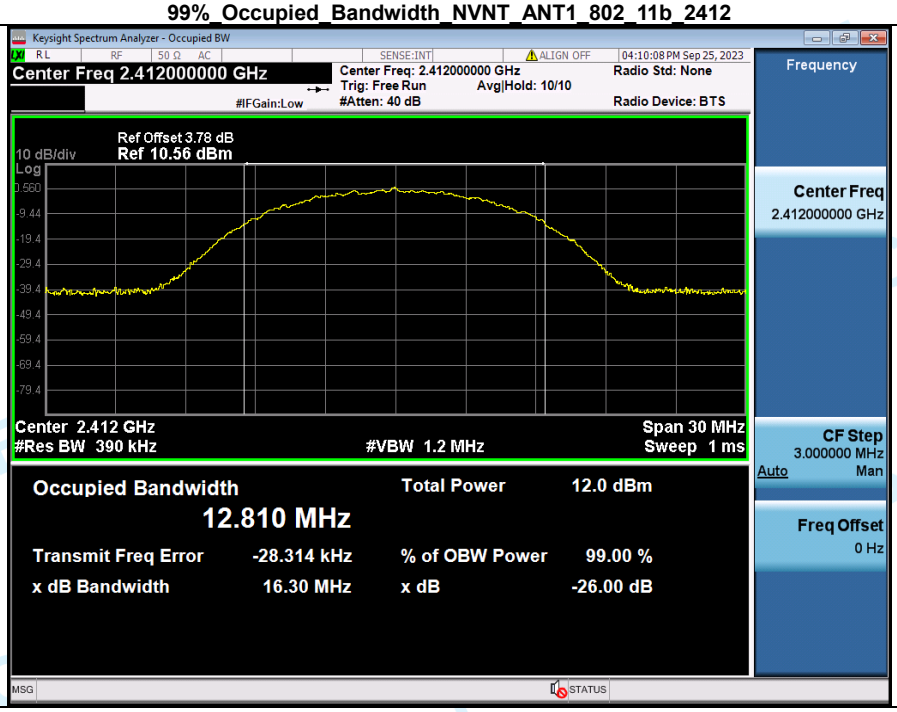
-6dB_Bandwidth_NVNT_ANT1_802_11n(HT40)_2437


-6dB_Bandwidth_NVNT_ANT1_802_11n(HT40)_2452


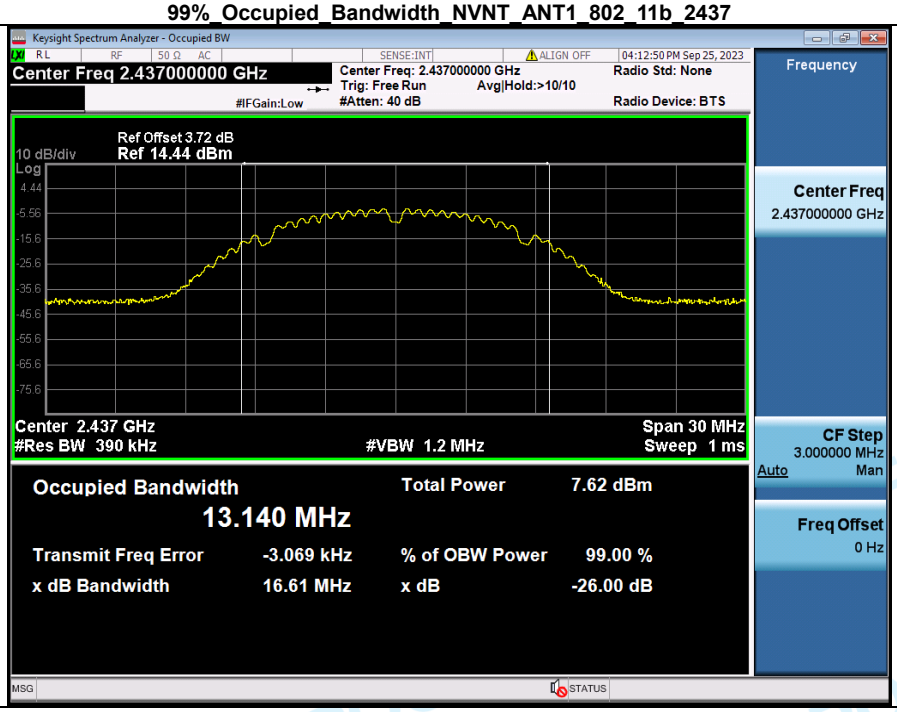
2. 99% Occupied Bandwidth

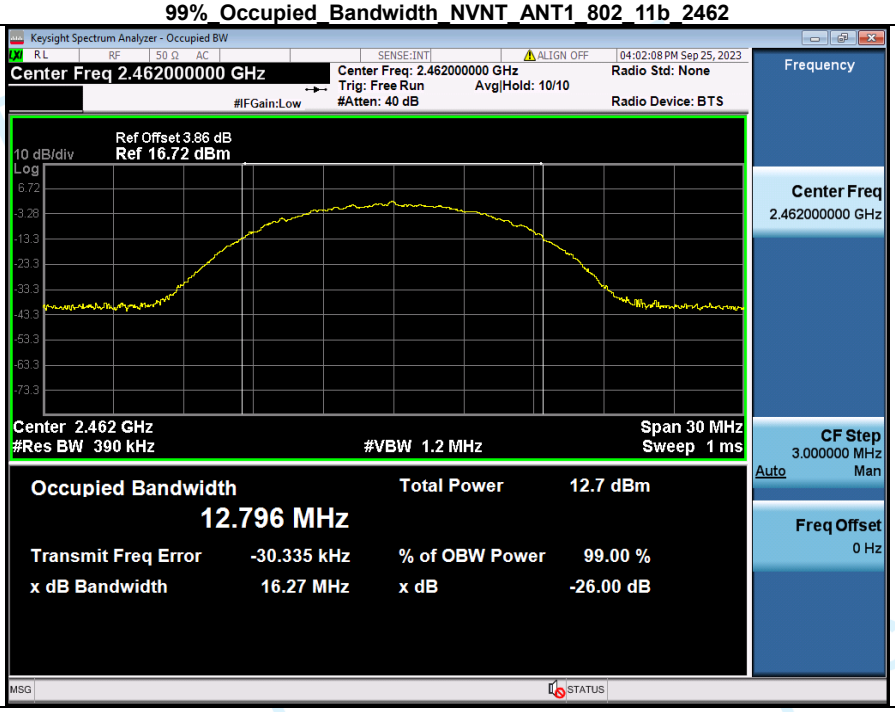
Condition	Antenna	Modulation	Frequency (MHz)	99%%BW(MHz)
NVNT	ANT1	802.11b	2412.00	12.810
NVNT	ANT1	802.11b	2437.00	13.140
NVNT	ANT1	802.11b	2462.00	12.796
NVNT	ANT1	802.11g	2412.00	16.915
NVNT	ANT1	802.11g	2437.00	16.910
NVNT	ANT1	802.11g	2462.00	16.909
NVNT	ANT1	802.11n(HT20)	2412.00	17.774
NVNT	ANT1	802.11n(HT20)	2437.00	17.775
NVNT	ANT1	802.11n(HT20)	2462.00	17.776
NVNT	ANT1	802.11n(HT40)	2422.00	36.722
NVNT	ANT1	802.11n(HT40)	2437.00	36.703
NVNT	ANT1	802.11n(HT40)	2452.00	36.714

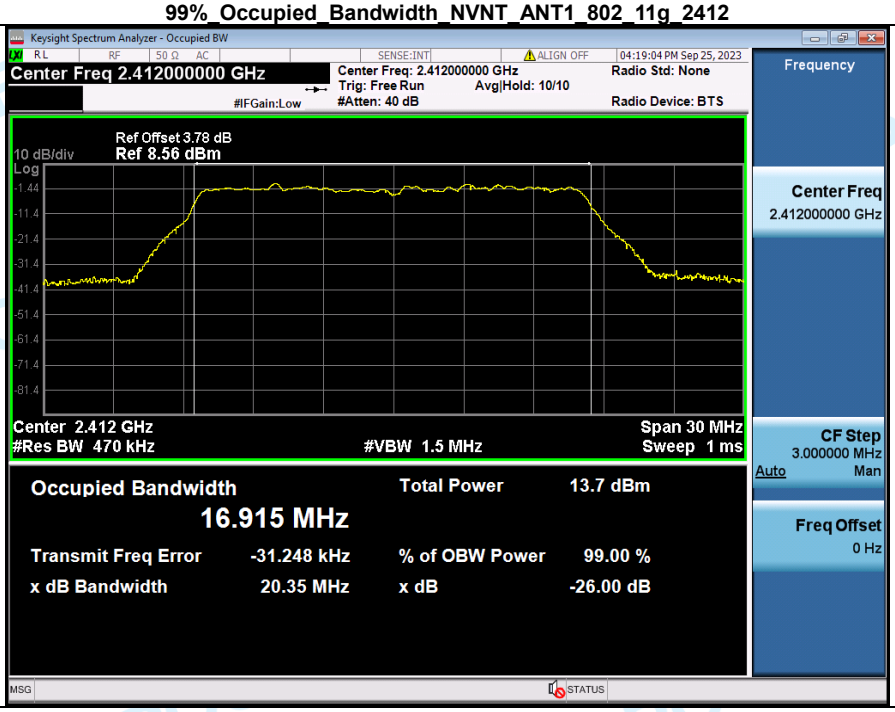
99%_Occupied_Bandwidth_NVNT_ANT1_802_11b_2412



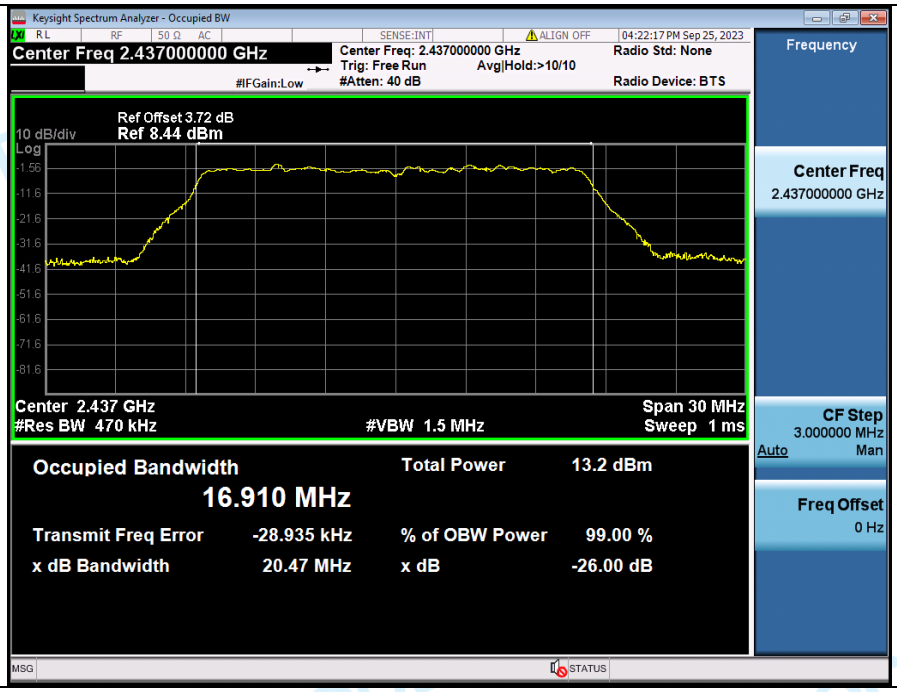
99%_Occupied_Bandwidth_NVNT_ANT1_802_11b_2437



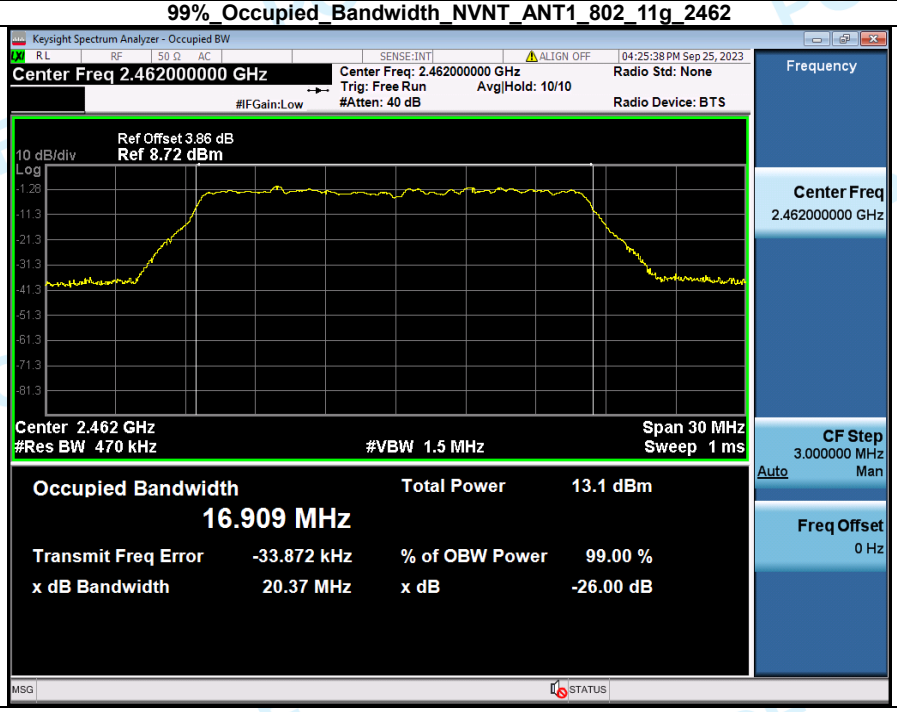
99%_Occupied_Bandwidth_NVNT_ANT1_802_11b_2462


99%_Occupied_Bandwidth_NVNT_ANT1_802_11g_2412


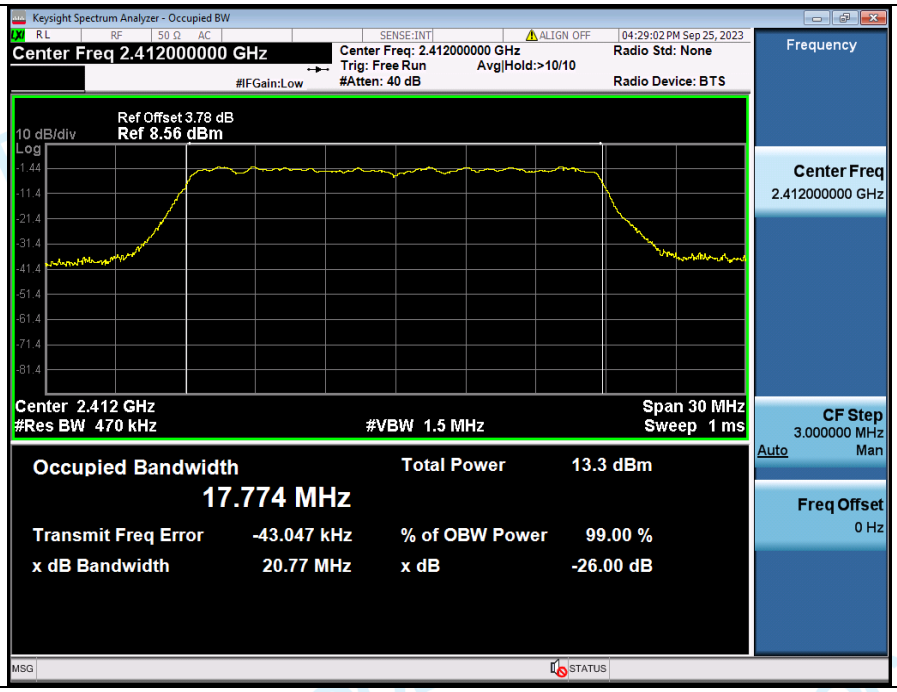
99%_Occupied_Bandwidth_NVNT_ANT1_802_11g_2437



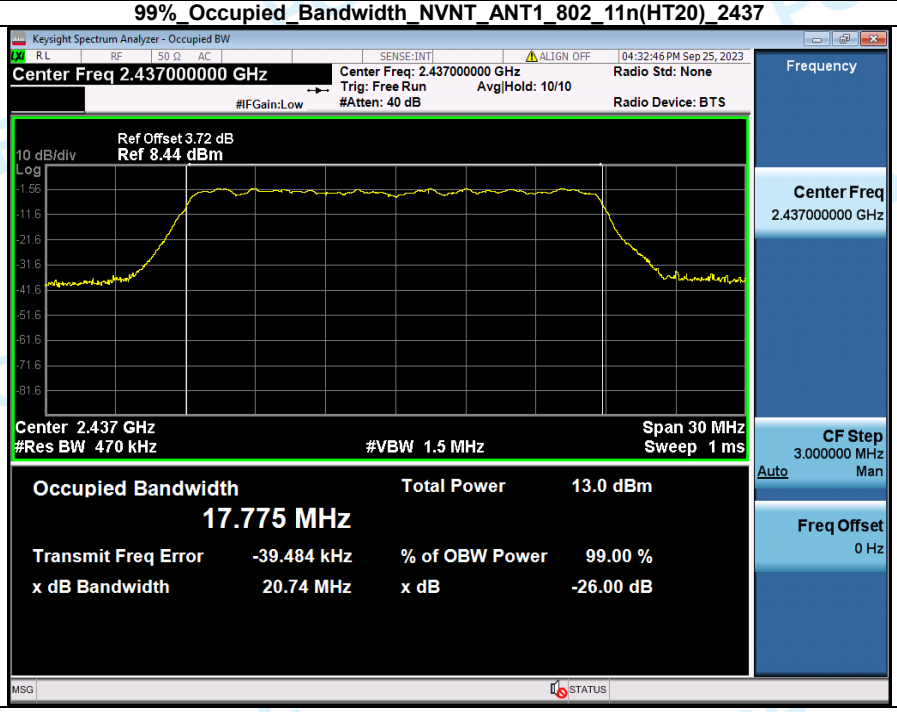
99%_Occupied_Bandwidth_NVNT_ANT1_802_11g_2462



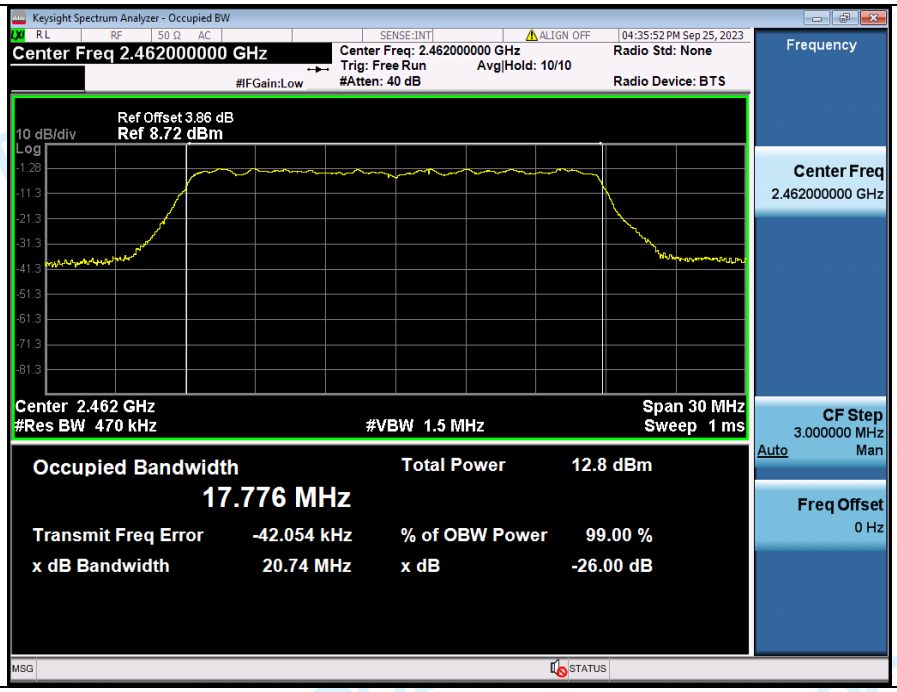
99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT20)_2412



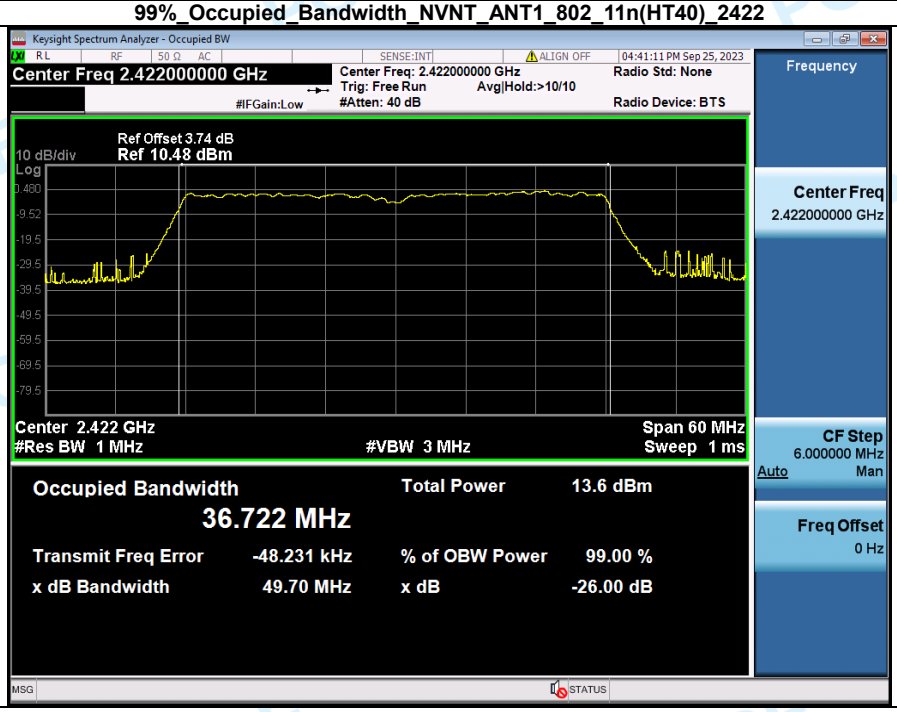
99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT20)_2437



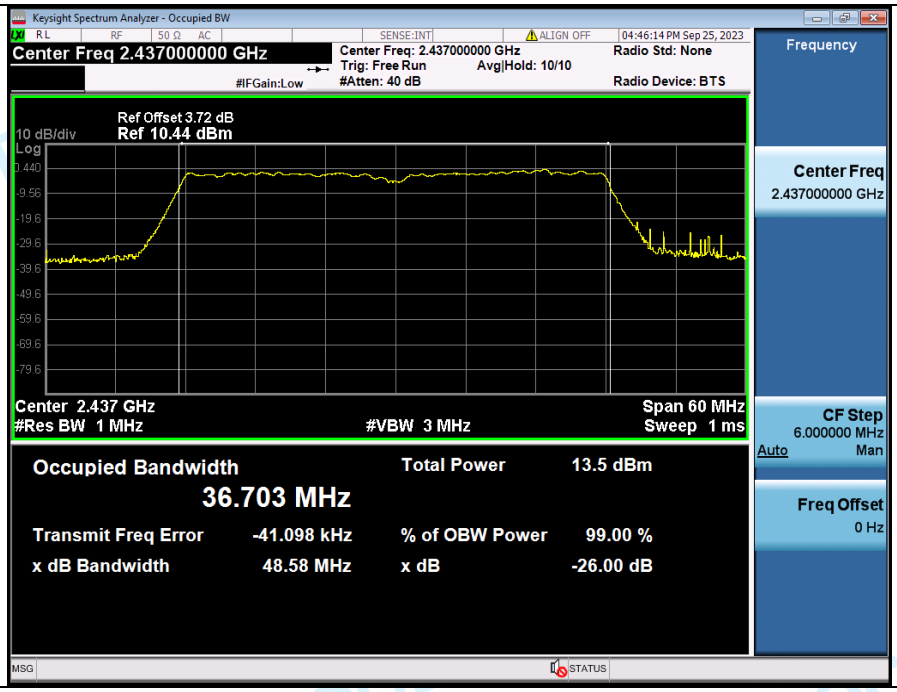
99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT20)_2462



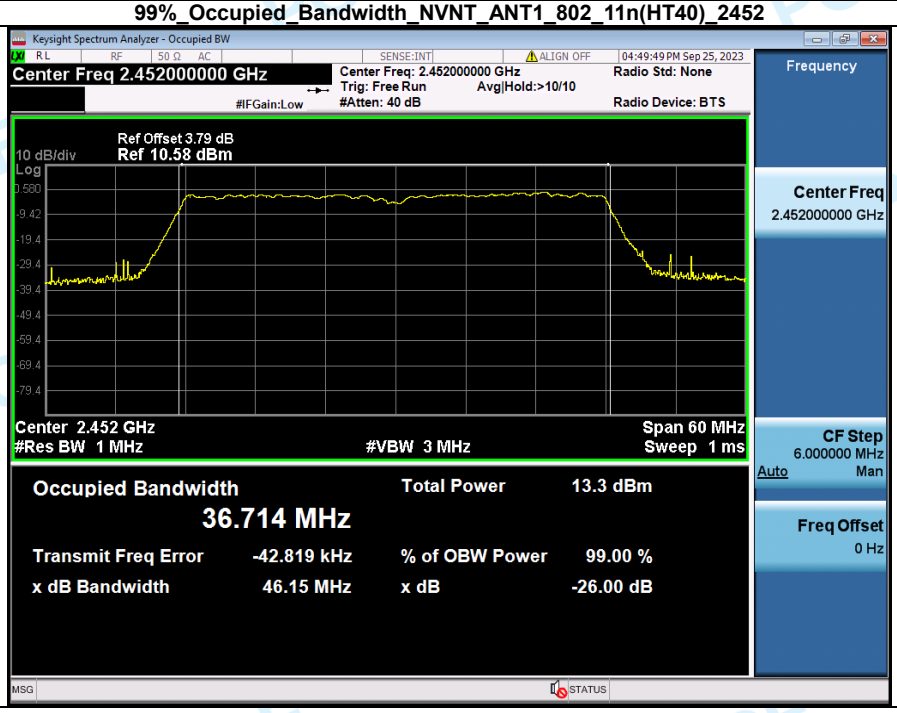
99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT40)_2422



99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT40)_2437



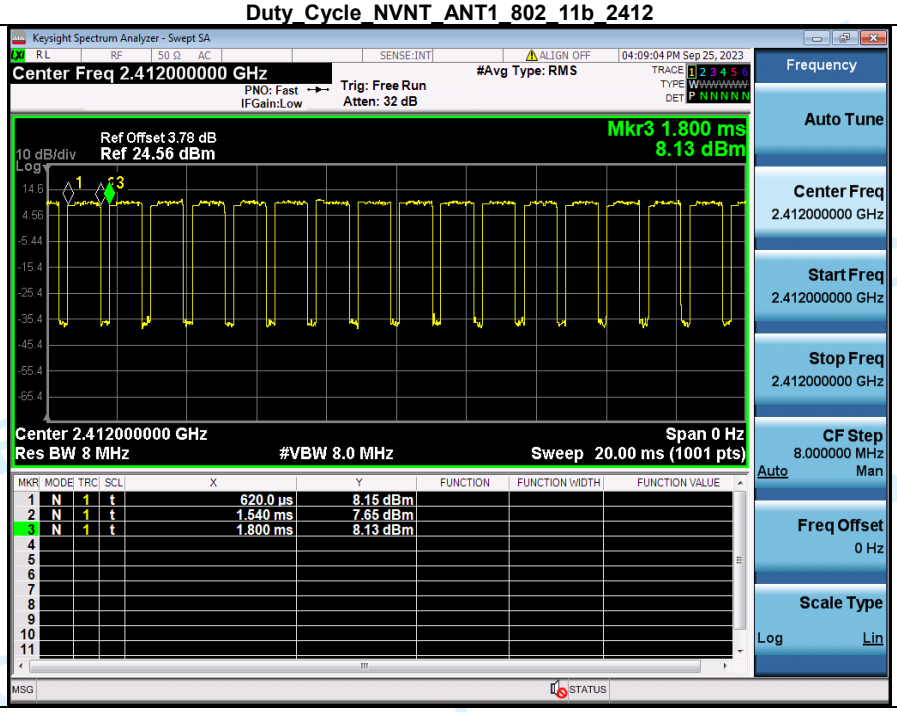
99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT40)_2452



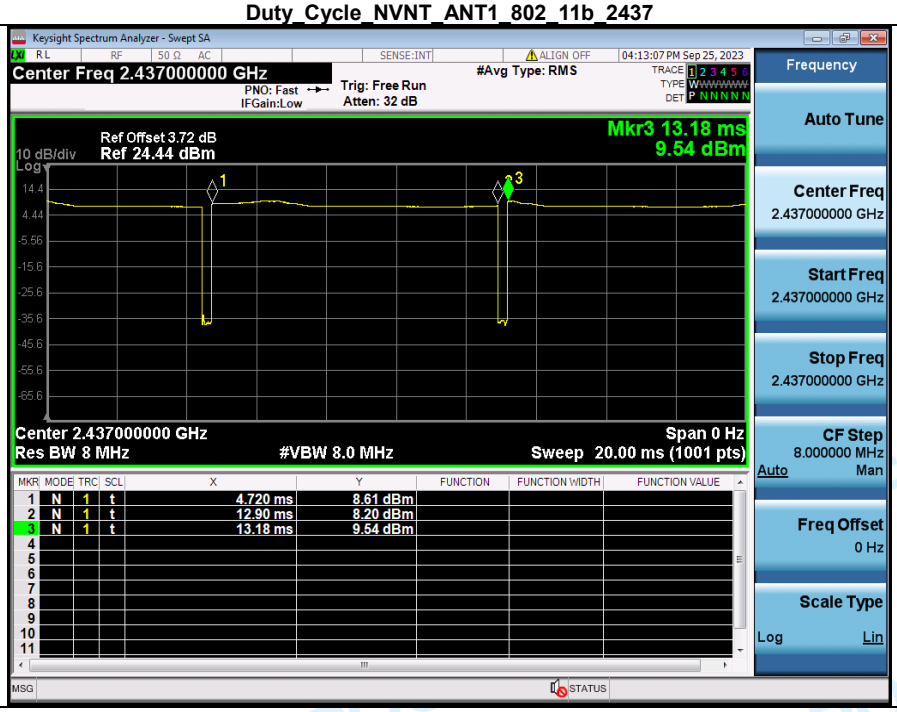
3. Duty Cycle

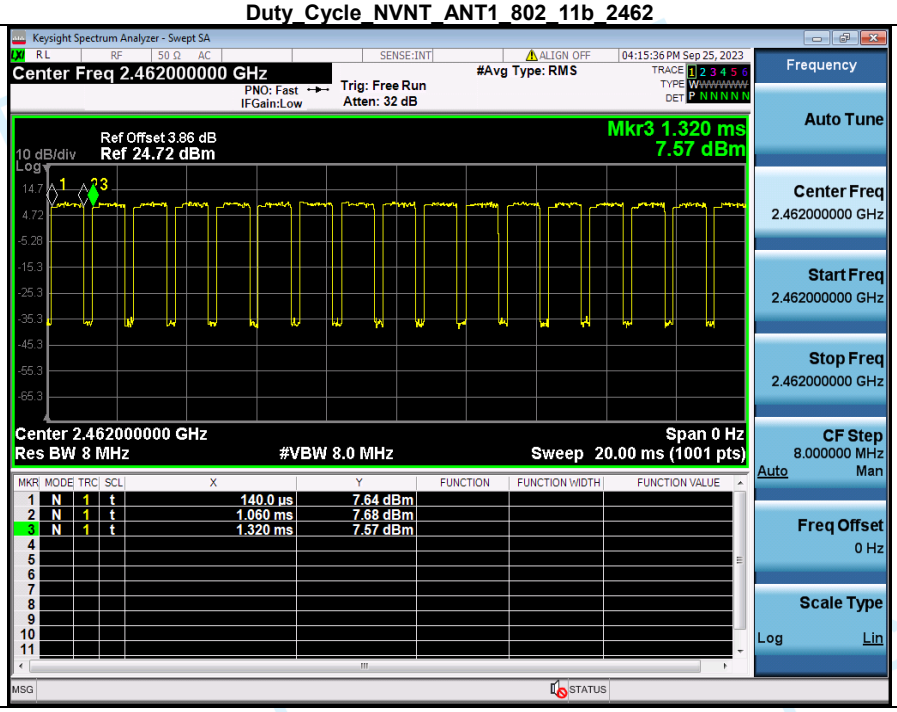
Condition	Antenna	Modulation	Frequency (MHz)	Duty cycle(%)	Duty factor(dB)
NVNT	ANT1	802.11b	2412.00	79.66	0.99
NVNT	ANT1	802.11b	2437.00	96.93	0.14
NVNT	ANT1	802.11b	2462.00	77.97	1.08
NVNT	ANT1	802.11g	2412.00	71.11	1.48
NVNT	ANT1	802.11g	2437.00	71.11	1.48
NVNT	ANT1	802.11g	2462.00	68.89	1.62
NVNT	ANT1	802.11n(HT20)	2412.00	65.85	1.81
NVNT	ANT1	802.11n(HT20)	2437.00	68.29	1.66
NVNT	ANT1	802.11n(HT20)	2462.00	68.29	1.66
NVNT	ANT1	802.11n(HT40)	2422.00	53.57	2.71
NVNT	ANT1	802.11n(HT40)	2437.00	50.00	3.01
NVNT	ANT1	802.11n(HT40)	2452.00	53.57	2.71

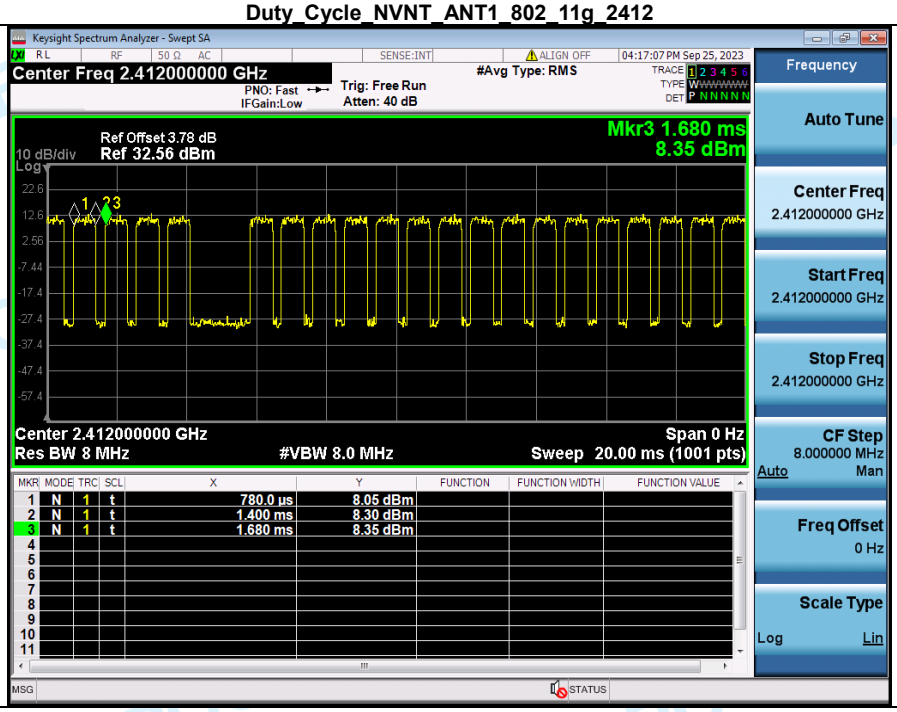
Duty_Cycle_NVNT_ANT1_802_11b_2412



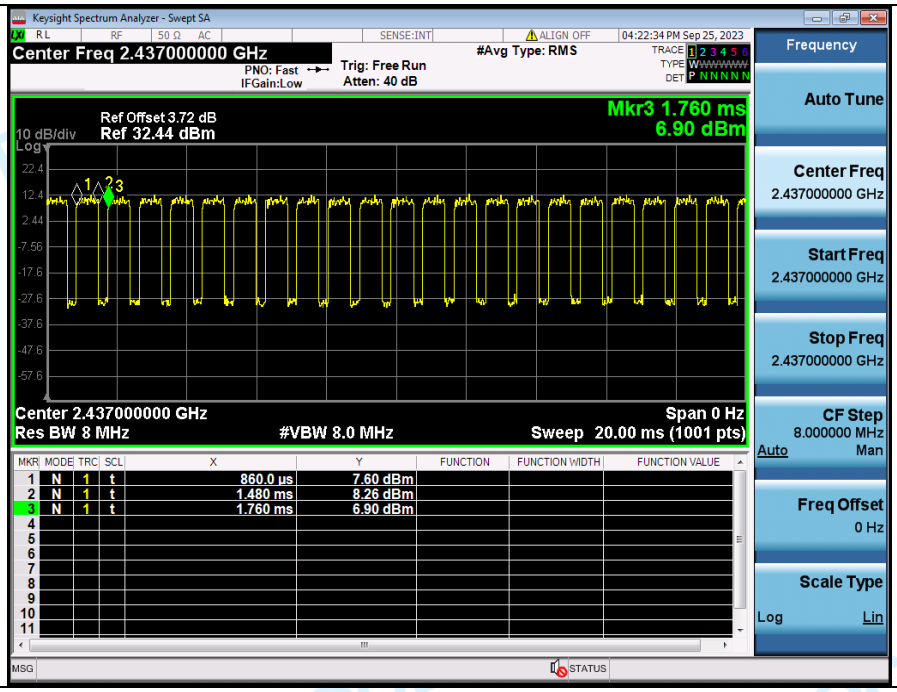
Duty_Cycle_NVNT_ANT1_802_11b_2437



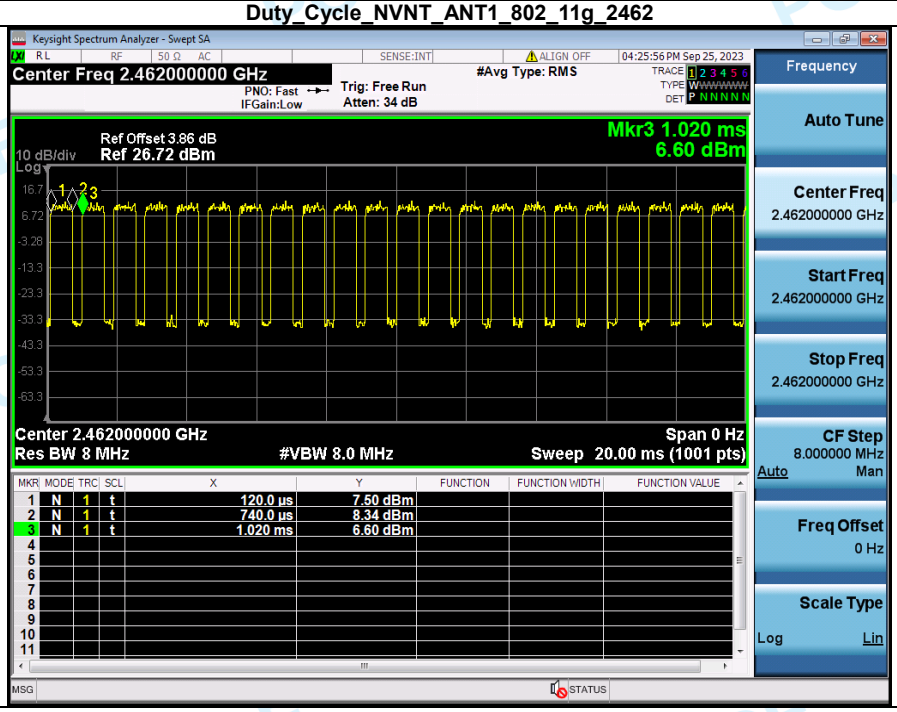
Duty_Cycle_NVNT_ANT1_802_11b_2462


Duty_Cycle_NVNT_ANT1_802_11g_2412


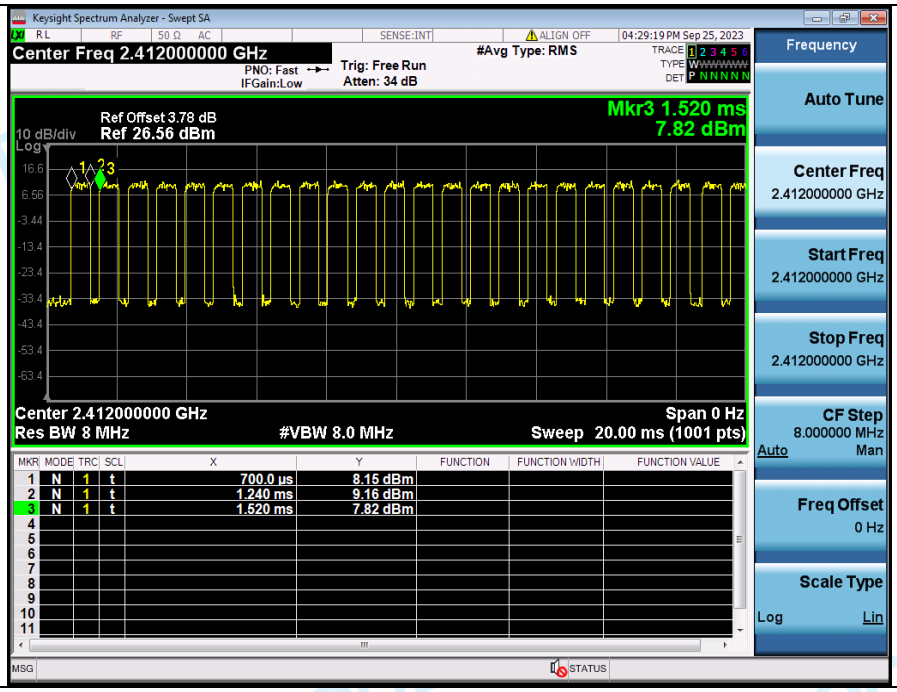
Duty_Cycle_NVNT_ANT1_802_11g_2437



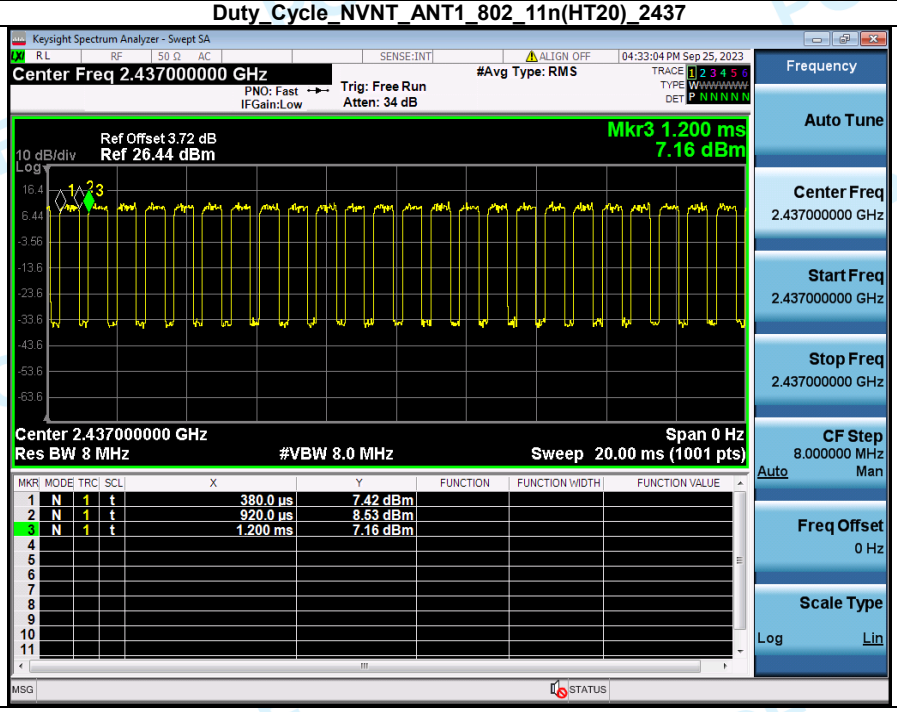
Duty_Cycle_NVNT_ANT1_802_11g_2462



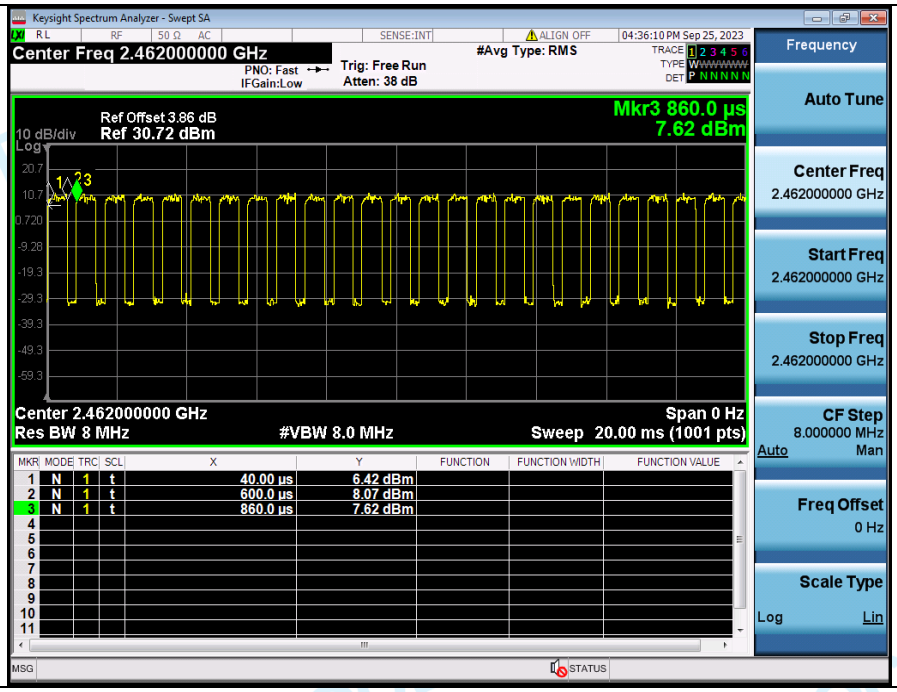
Duty_Cycle_NVNT_ANT1_802_11n(HT20)_2412



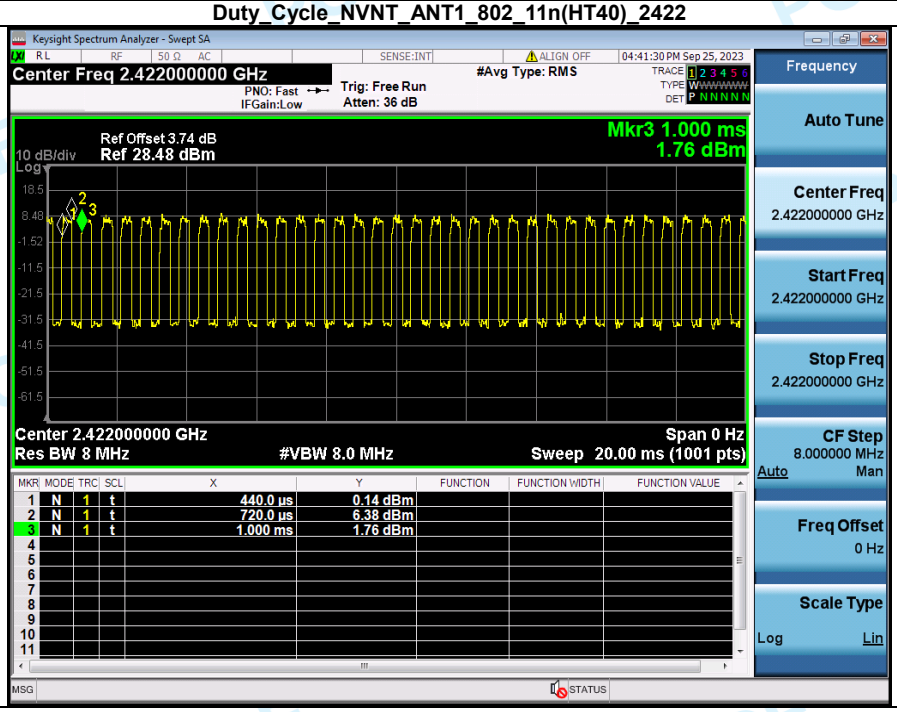
Duty_Cycle_NVNT_ANT1_802_11n(HT20)_2437



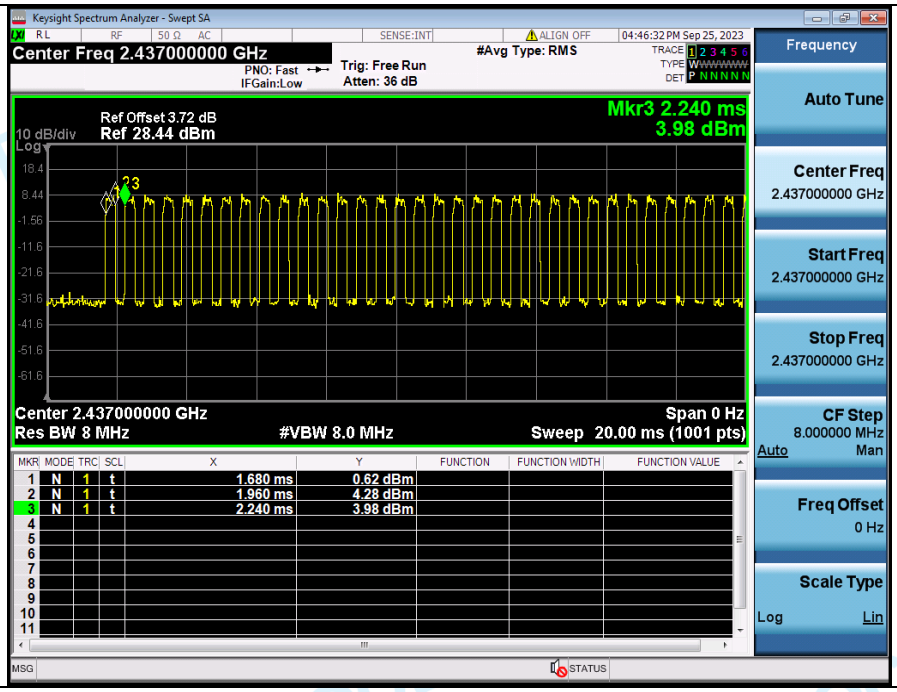
Duty_Cycle_NVNT_ANT1_802_11n(HT20)_2462



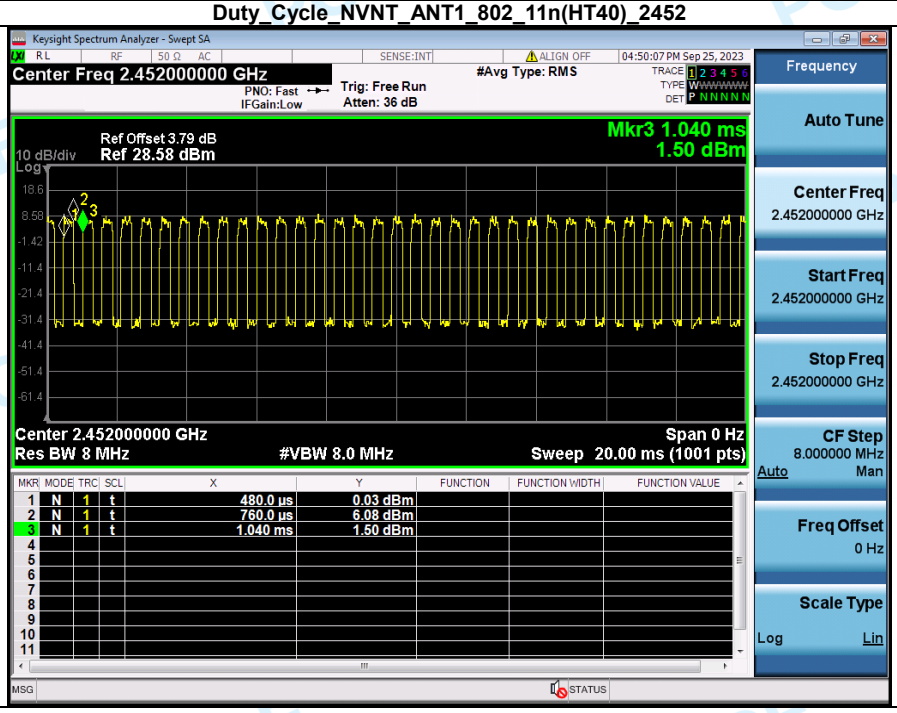
Duty_Cycle_NVNT_ANT1_802_11n(HT40)_2422



Duty_Cycle_NVNT_ANT1_802_11n(HT40)_2437



Duty_Cycle_NVNT_ANT1_802_11n(HT40)_2452



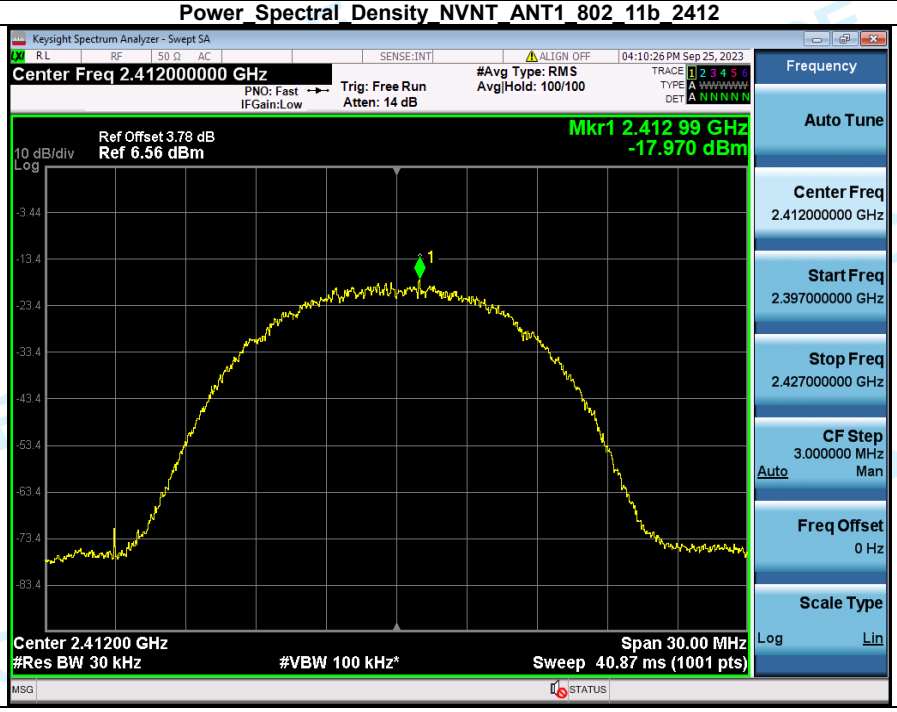
4. MAX. Output Power

Condition	Antenna	Modulation	Frequency (MHz)	Detector	Conducted AV Power(dBm)	Duty factor(dB)	Total Power(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11b	2412.00	RMS	3.81	0.99	4.80	30	Pass
NVNT	ANT1	802.11b	2437.00	RMS	4.24	0.14	4.38	30	Pass
NVNT	ANT1	802.11b	2462.00	RMS	3.26	1.08	4.34	30	Pass
NVNT	ANT1	802.11g	2412.00	RMS	4.38	1.48	5.86	30	Pass
NVNT	ANT1	802.11g	2437.00	RMS	3.84	1.48	5.32	30	Pass
NVNT	ANT1	802.11g	2462.00	RMS	3.86	1.62	5.48	30	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	RMS	4.25	1.81	6.06	30	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	RMS	3.75	1.66	5.41	30	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	RMS	3.66	1.66	5.32	30	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	RMS	2.28	2.71	4.99	30	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	RMS	2.49	3.01	5.50	30	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	RMS	2.23	2.71	4.94	30	Pass

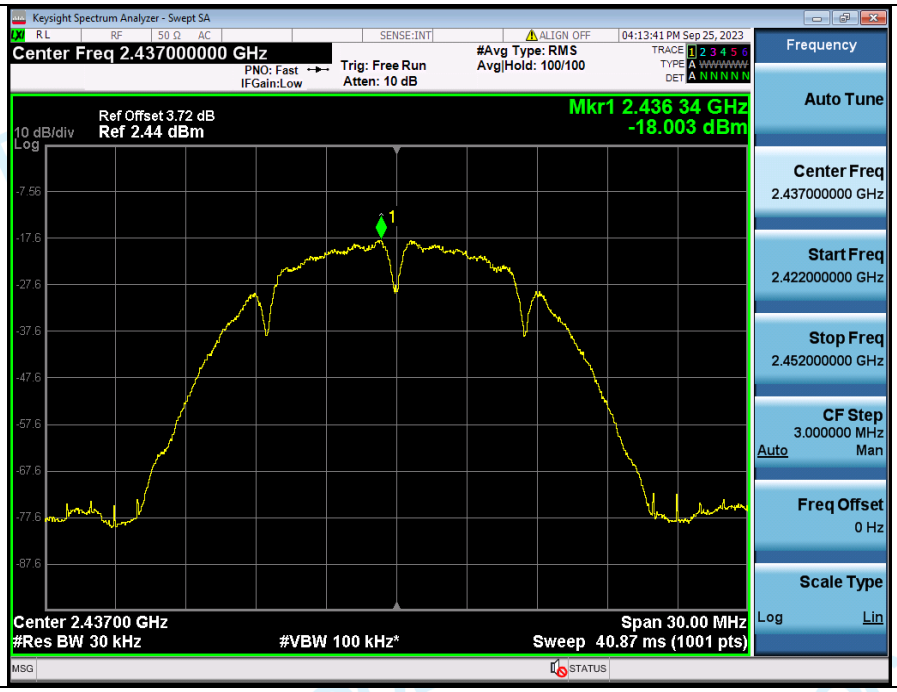
5. Power Spectral Density

Condition	Antenna	Modulation	Frequency (MHz)	PSD (dBm/30kHz)	PSD (dBm/3kHz)	Duty factor(dB)	Total PSD (dBm/3kHz)	limit(dBm/3kHz)	Result
NVNT	ANT1	802.11b	2412.00	-17.97	-27.97	0.99	-26.98	8	Pass
NVNT	ANT1	802.11b	2437.00	-18.00	-28.00	0.14	-27.86	8	Pass
NVNT	ANT1	802.11b	2462.00	-17.75	-27.75	0.99	-26.76	8	Pass
NVNT	ANT1	802.11g	2412.00	-20.04	-30.04	1.48	-28.56	8	Pass
NVNT	ANT1	802.11g	2437.00	-19.82	-29.82	1.48	-28.34	8	Pass
NVNT	ANT1	802.11g	2462.00	-19.75	-29.75	1.62	-28.13	8	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	-19.23	-29.23	1.81	-27.42	8	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	-19.52	-29.52	1.66	-27.86	8	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	-19.91	-29.91	1.66	-28.25	8	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	-23.14	-33.14	2.71	-30.43	8	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	-23.75	-33.75	3.01	-30.74	8	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	-24.35	-34.35	2.71	-31.64	8	Pass

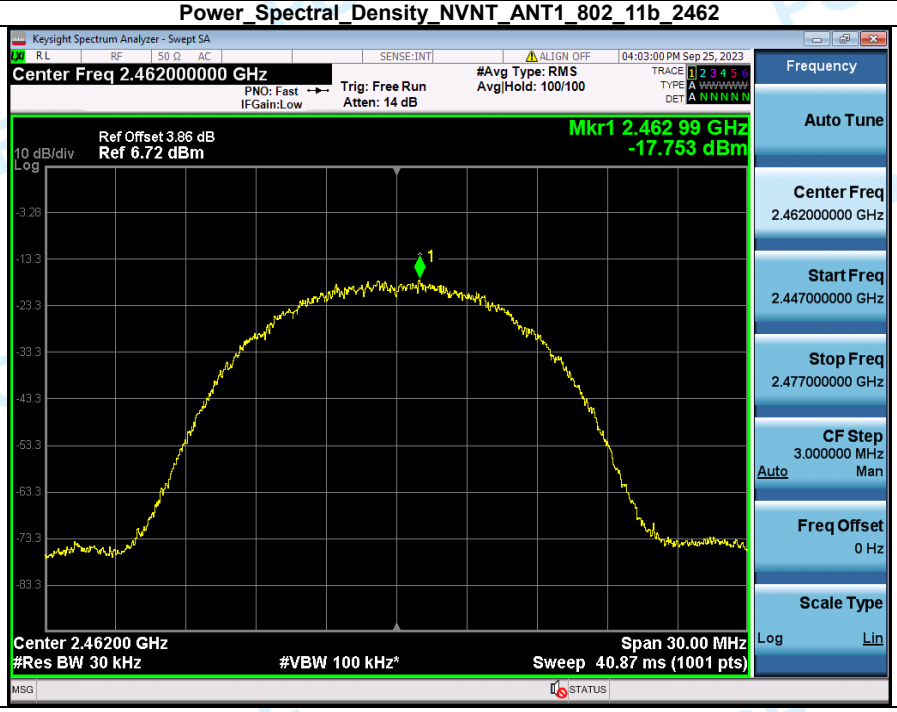
Power_Spectral_Density_NVNT_ANT1_802_11b_2412



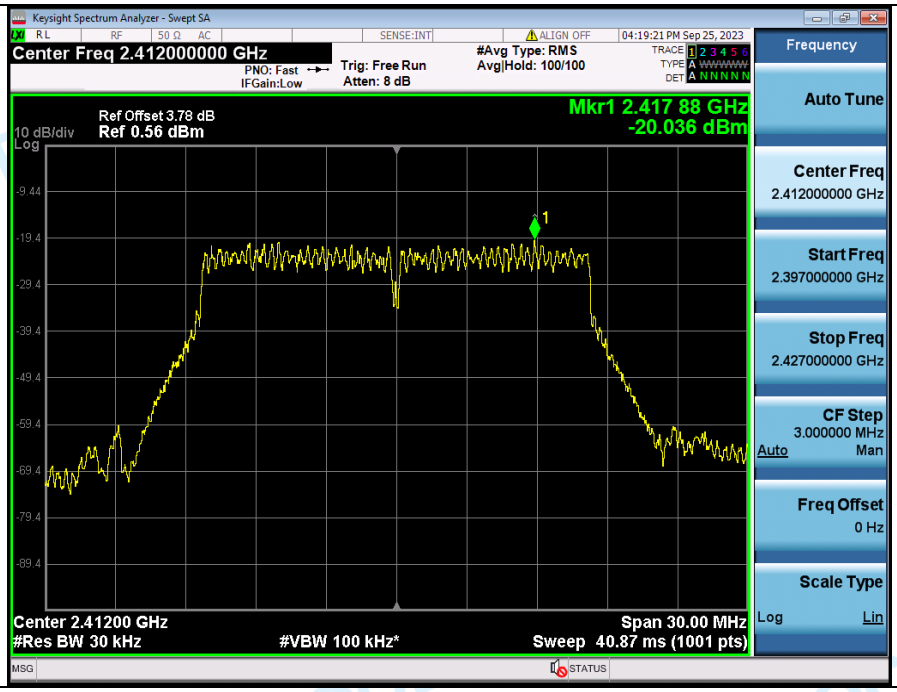
Power_Spectral_Density_NVNT_ANT1_802_11b_2437



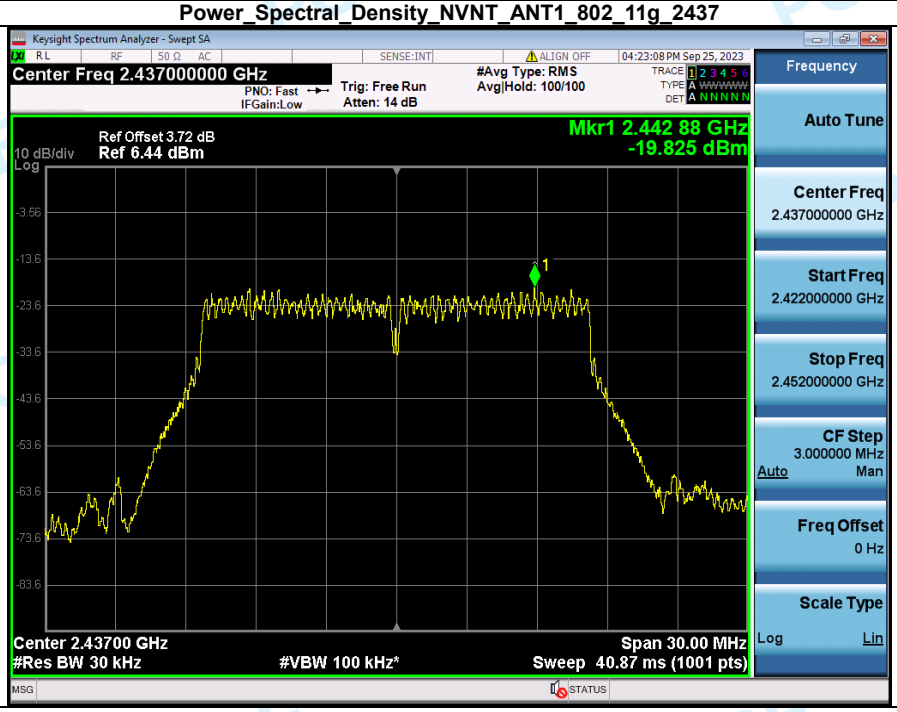
Power_Spectral_Density_NVNT_ANT1_802_11b_2462



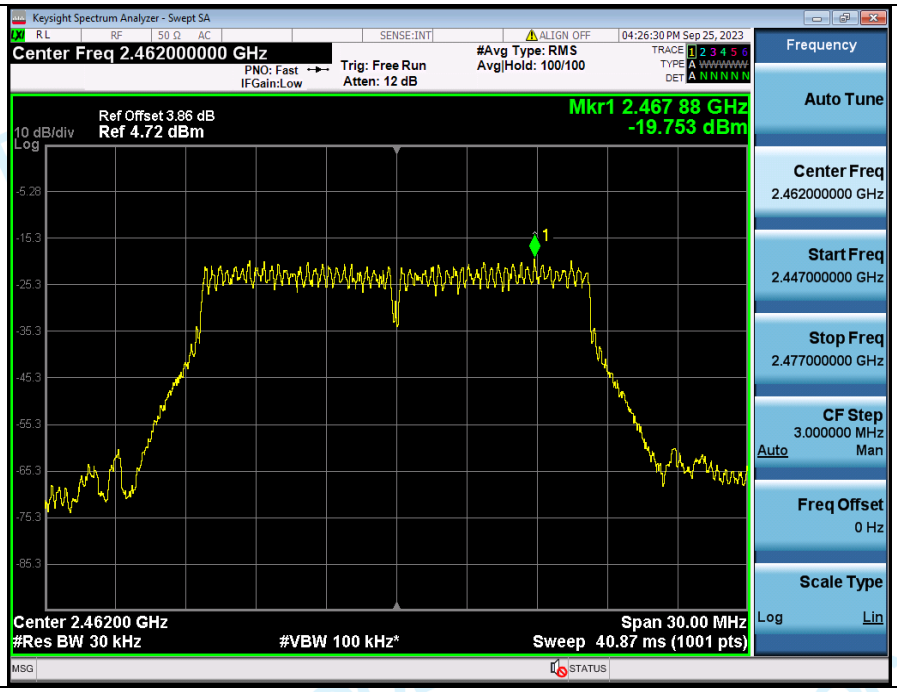
Power_Spectral_Density_NVNT_ANT1_802_11g_2412



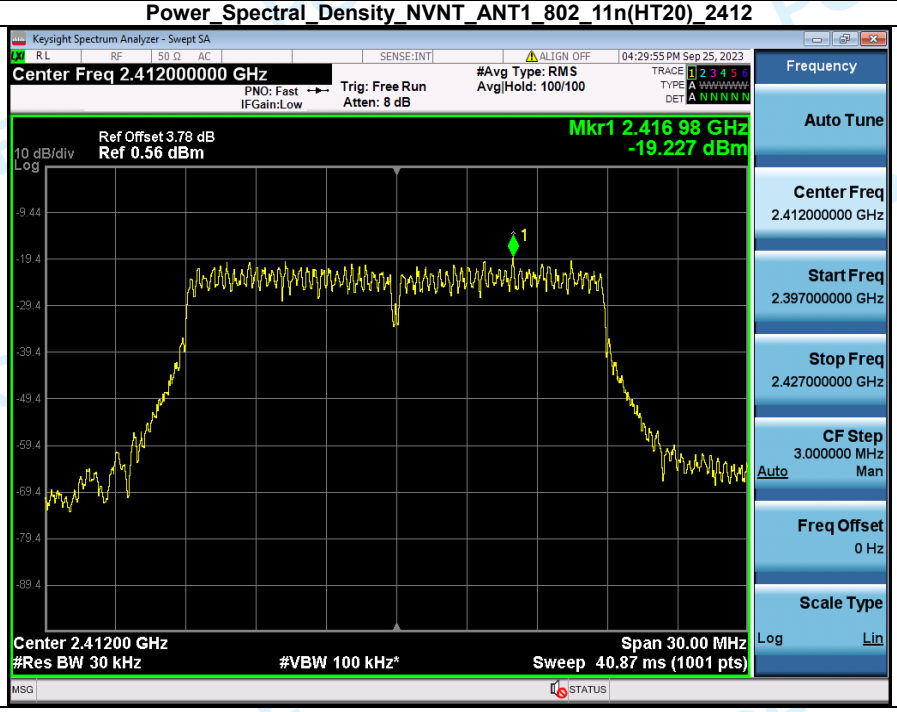
Power_Spectral_Density_NVNT_ANT1_802_11g_2437



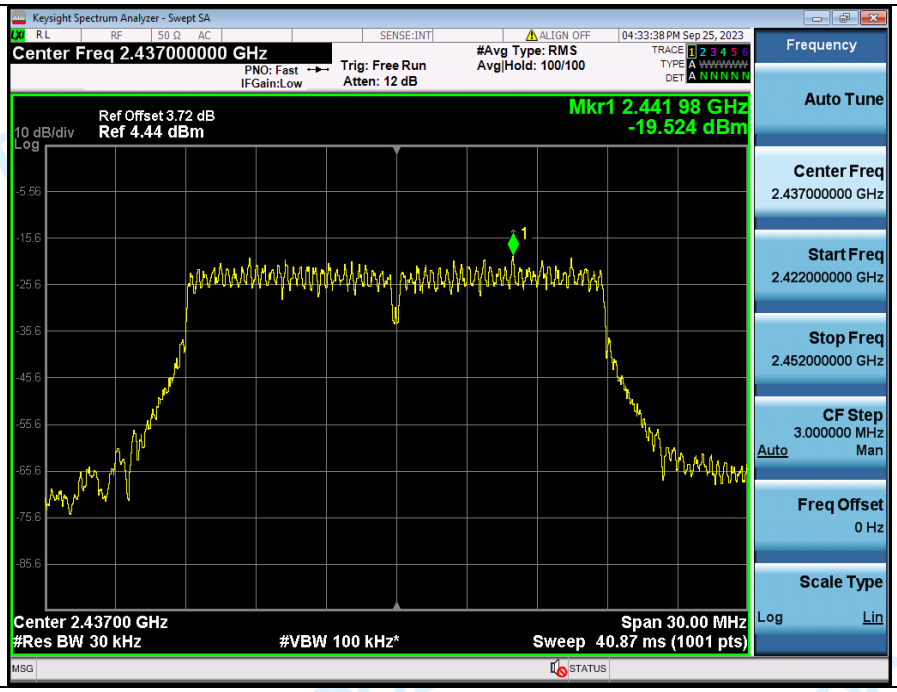
Power_Spectral_Density_NVNT_ANT1_802_11g_2462



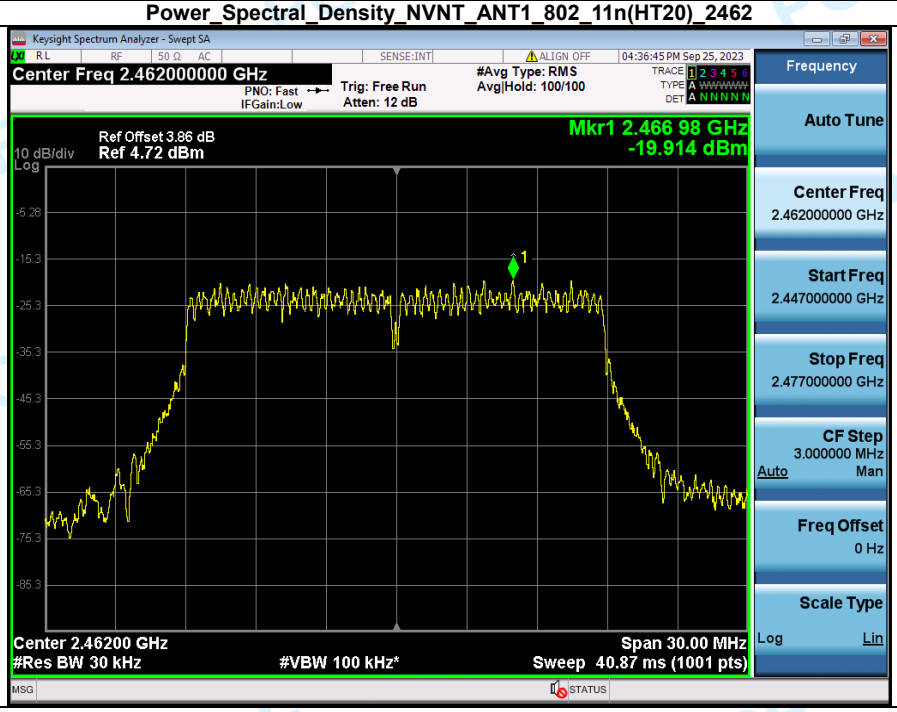
Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_2412



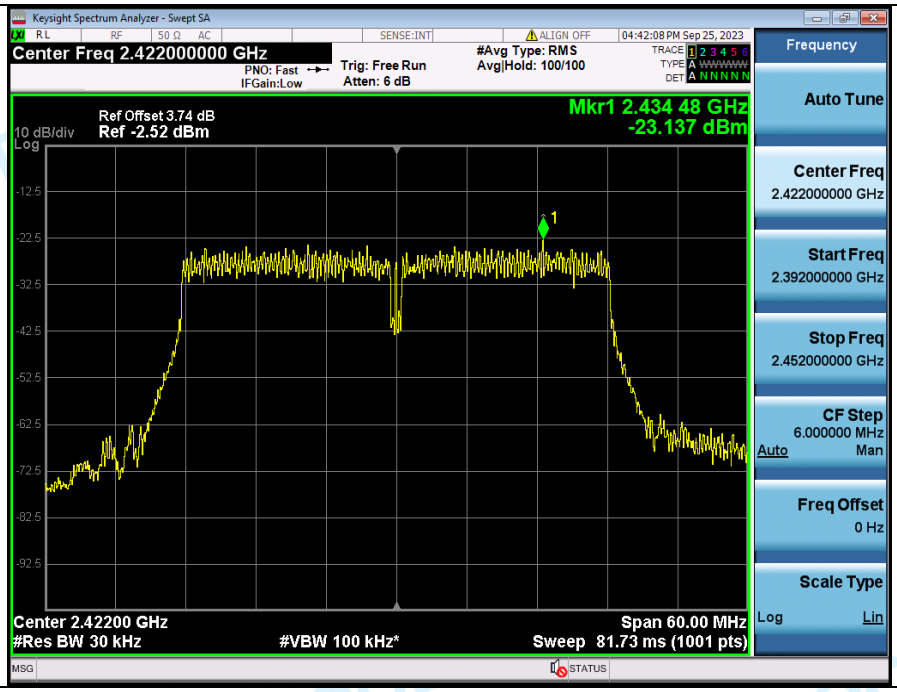
Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_2437



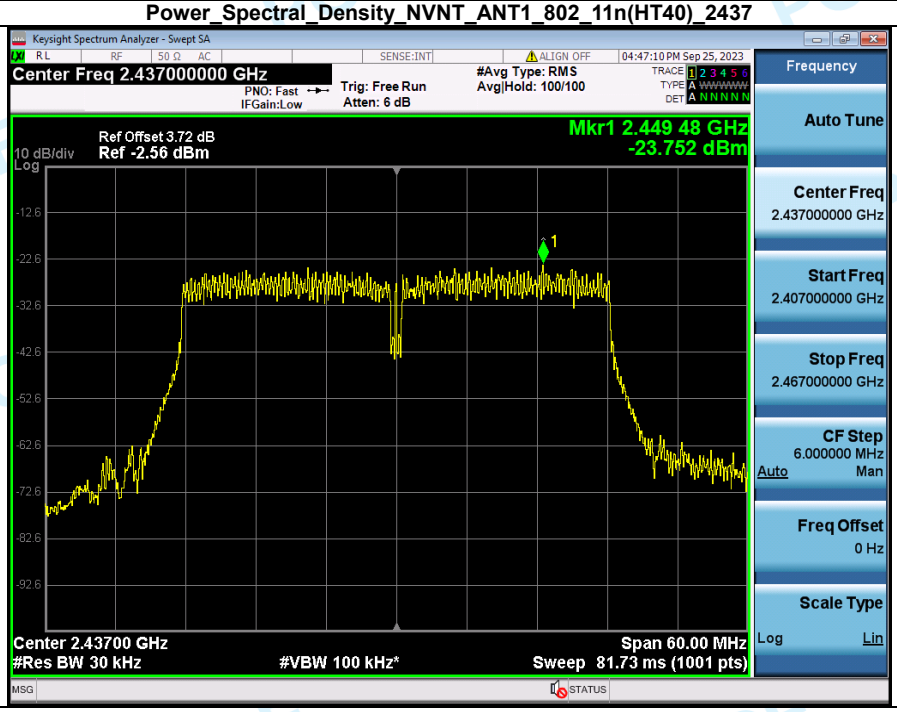
Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_2462



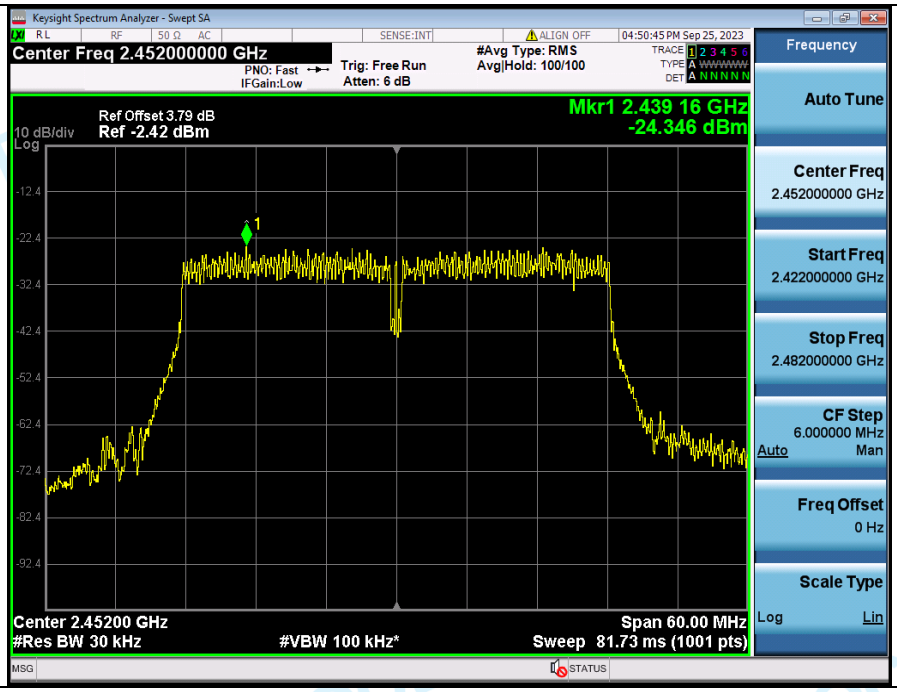
Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_2422



Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_2437



Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_2452

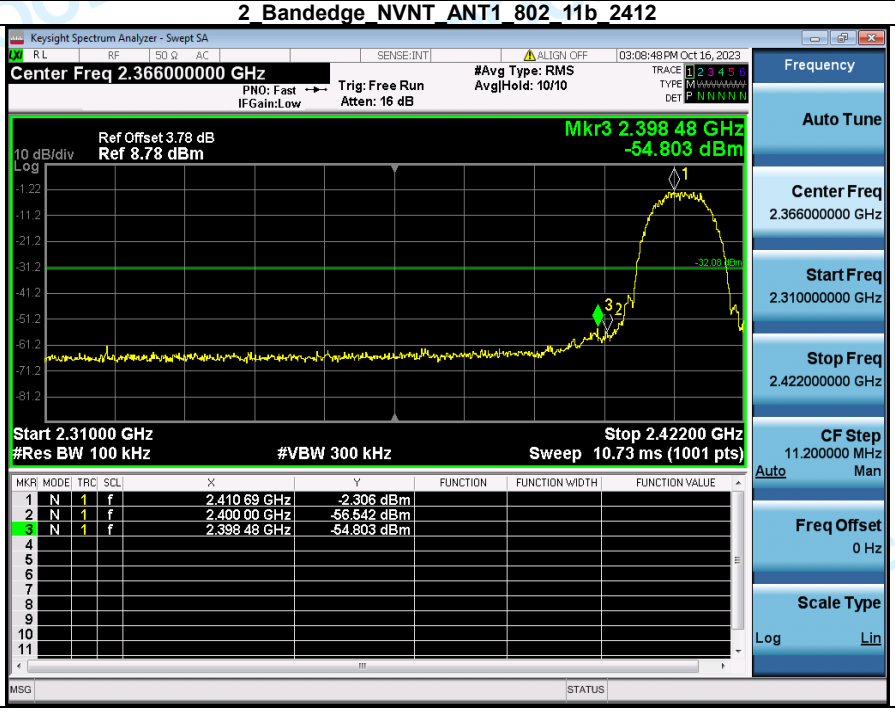

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.452000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
#Avg Type: RMS
Avg|Hold: 100/100
04:50:45 PM Sep 25, 2023
Ref Offset 3.79 dB
10 dB/div
Log
Ref -2.42 dBm
Mkr1 2.439 16 GHz
-24.346 dBm
Center 2.45200 GHz
#Res BW 30 kHz
#VBW 100 kHz*
Span 60.00 MHz
Sweep 81.73 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.452000000 GHz
Start Freq
2.422000000 GHz
Stop Freq
2.482000000 GHz
CF Step
6.000000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
MSG
STATUS

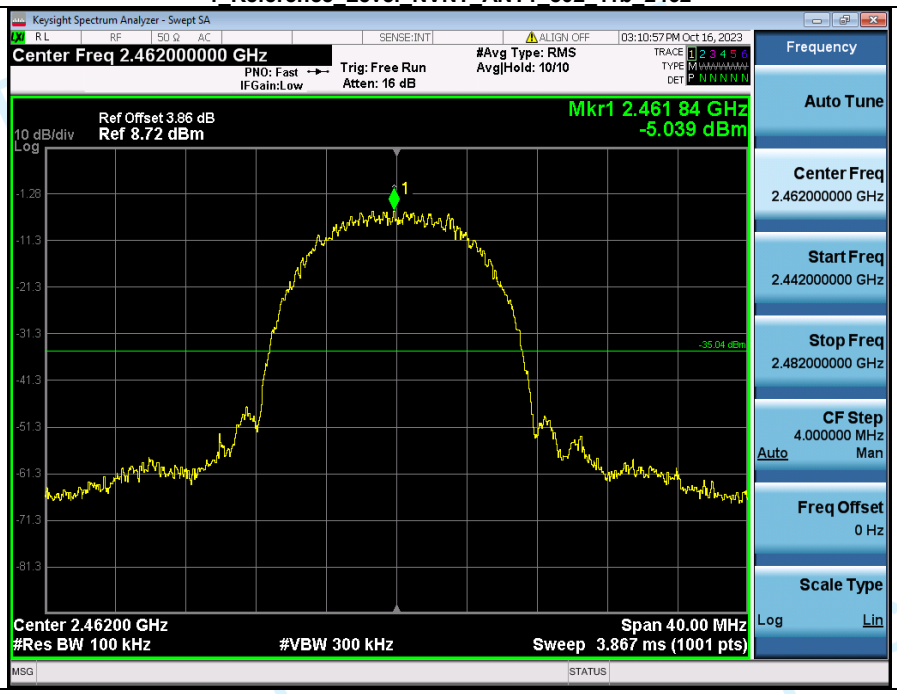
6. Bandedge

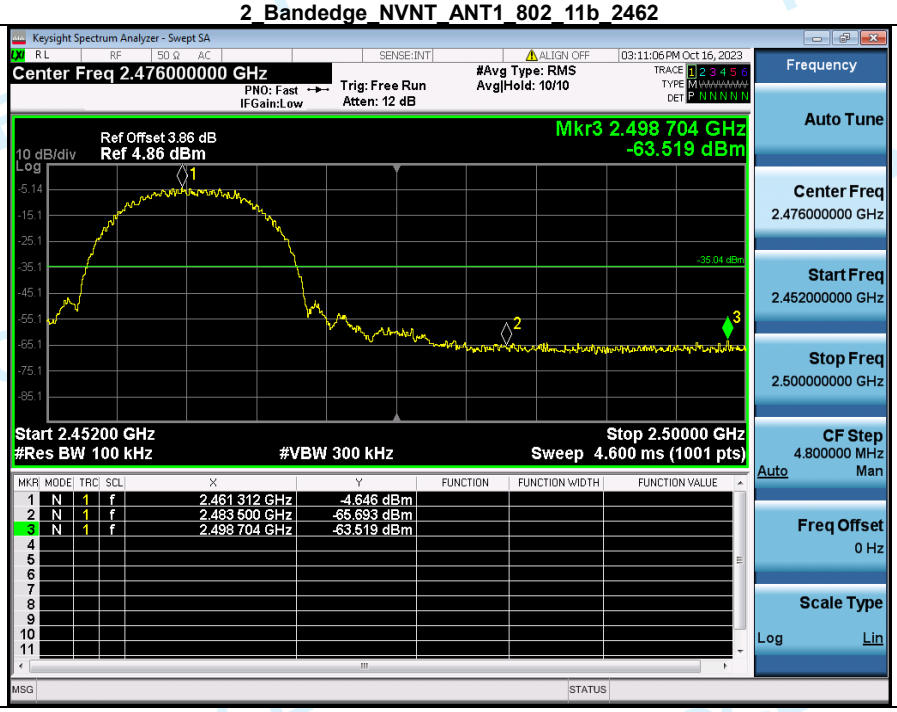
Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark_frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11b	2412.00	2398.480	-54.803	-32.080	Pass
NVNT	ANT1	802.11b	2462.00	2498.704	-63.519	-35.039	Pass
NVNT	ANT1	802.11g	2412.00	2399.824	-48.617	-33.678	Pass
NVNT	ANT1	802.11g	2462.00	2483.584	-59.640	-35.602	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	2397.024	-48.004	-33.732	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	2494.192	-61.329	-34.920	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	2396.988	-44.686	-37.505	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	2484.496	-50.349	-38.282	Pass

1_Reference_Level_NVNT_ANT1_802_11b_2412

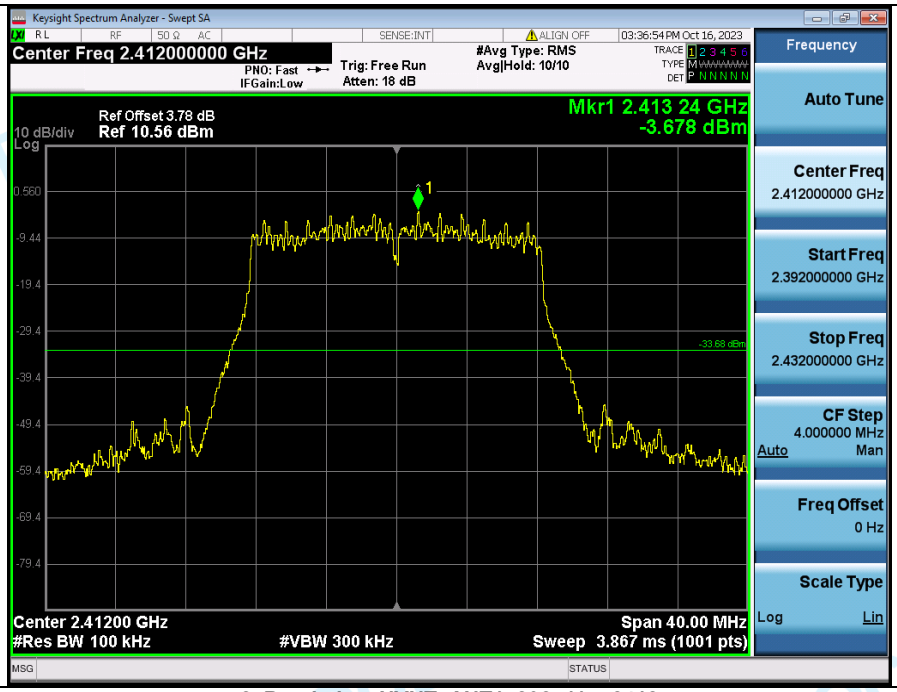
2_Bandedge_NVNT_ANT1_802_11b_2412



1_Reference_Level_NVNT_ANT1_802_11b_2462


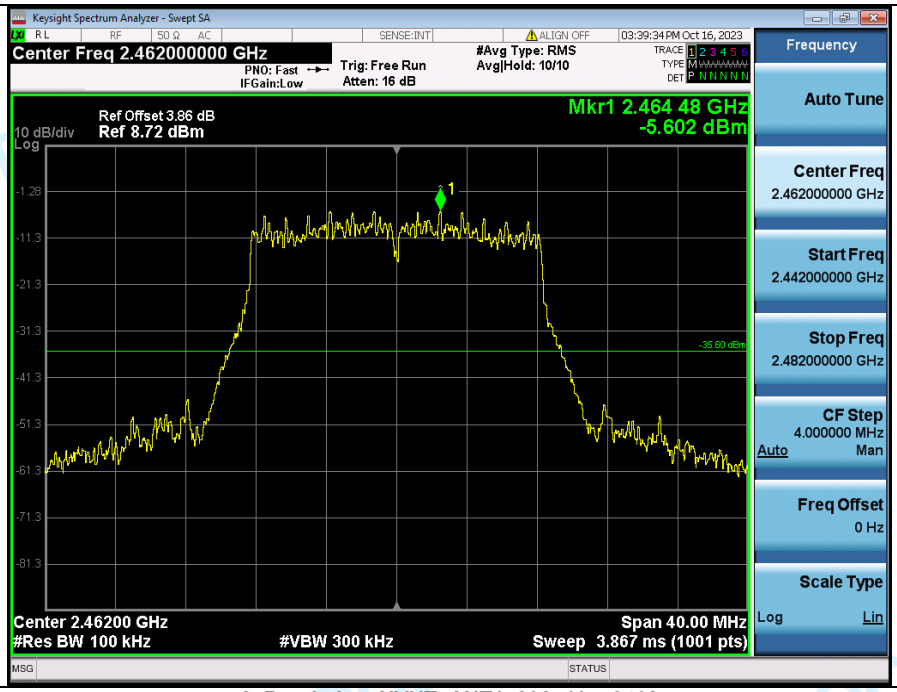
2_Bandedge_NVNT_ANT1_802_11b_2462


1_Reference_Level_NVNT_ANT1_802_11g_2412



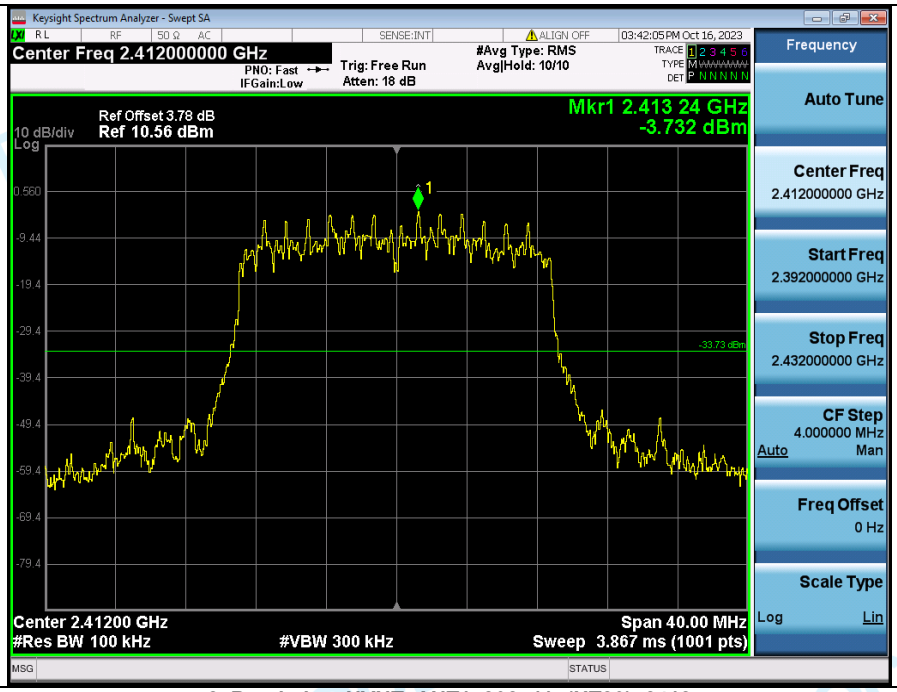
2_Bandedge_NVNT_ANT1_802_11g_2412

1_Reference_Level_NVNT_ANT1_802_11g_2462

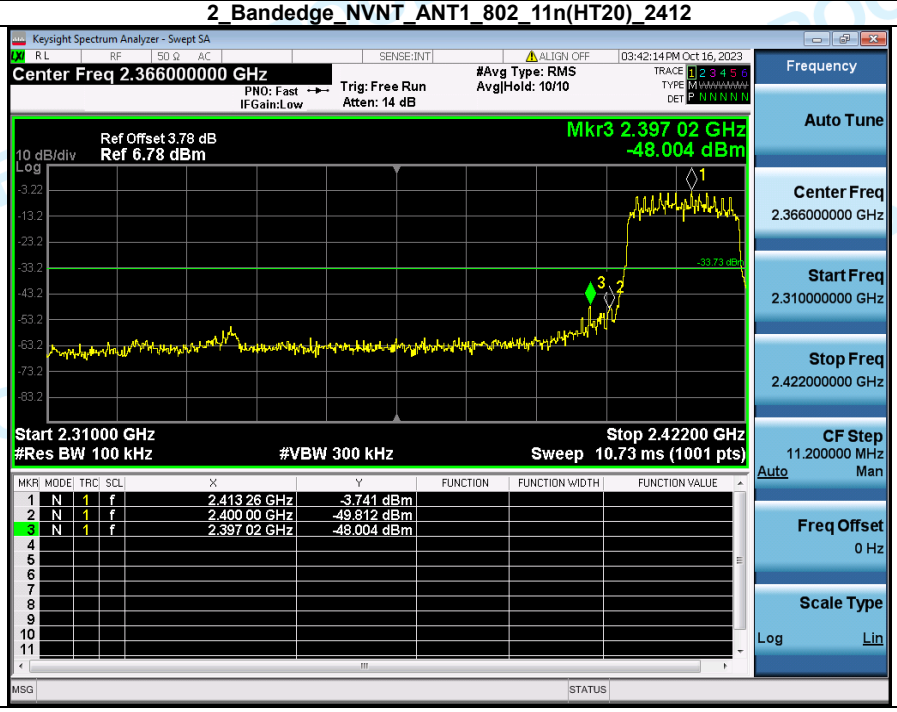


2_Bandedge_NVNT_ANT1_802_11g_2462

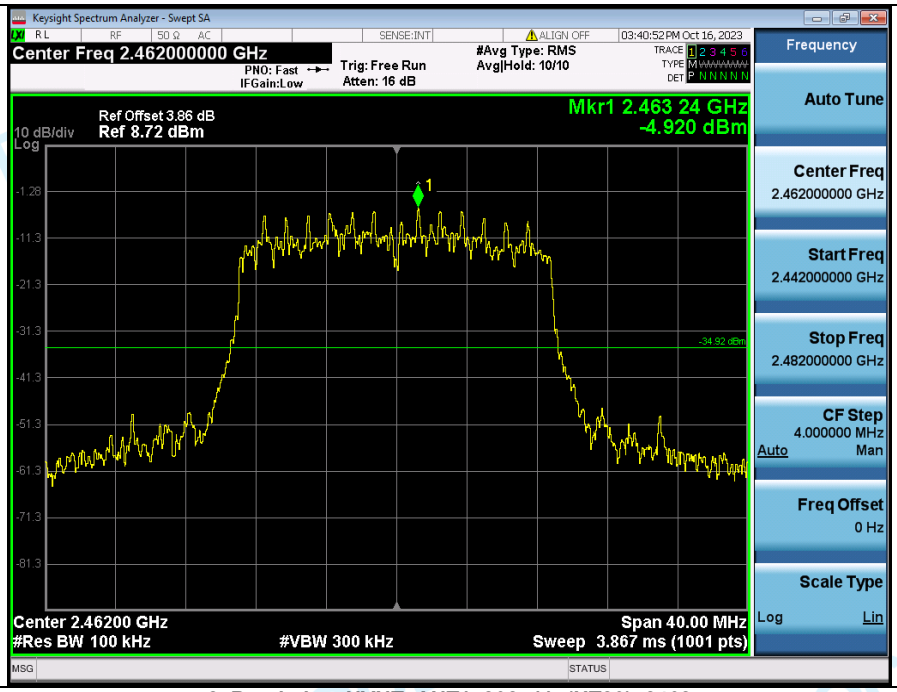
1_Reference_Level_NVNT_ANT1_802_11n(HT20)_2412



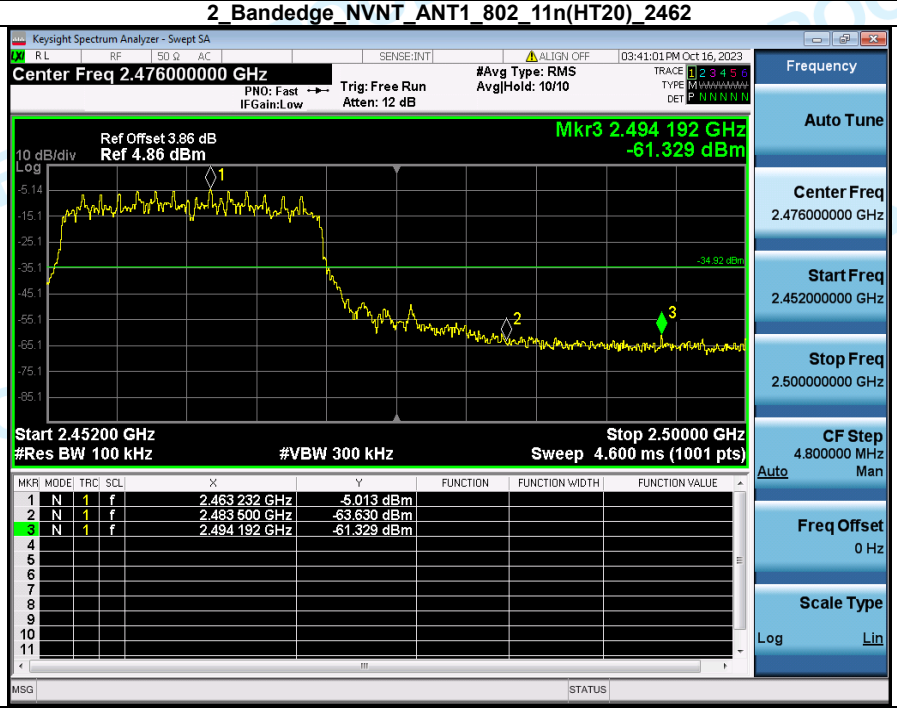
2_Bandedge_NVNT_ANT1_802_11n(HT20)_2412



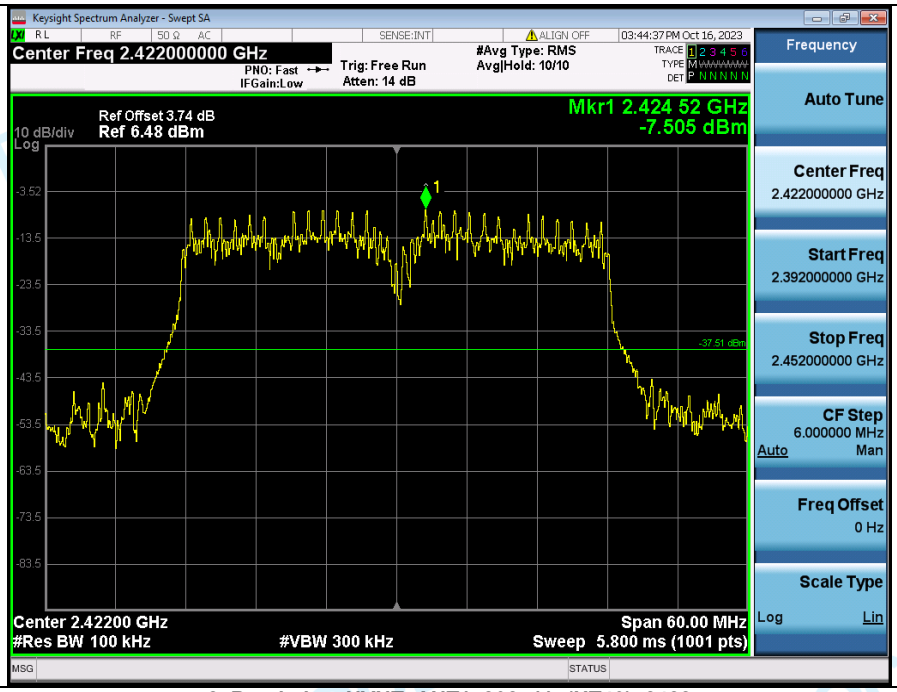
1_Reference_Level_NVNT_ANT1_802_11n(HT20)_2462



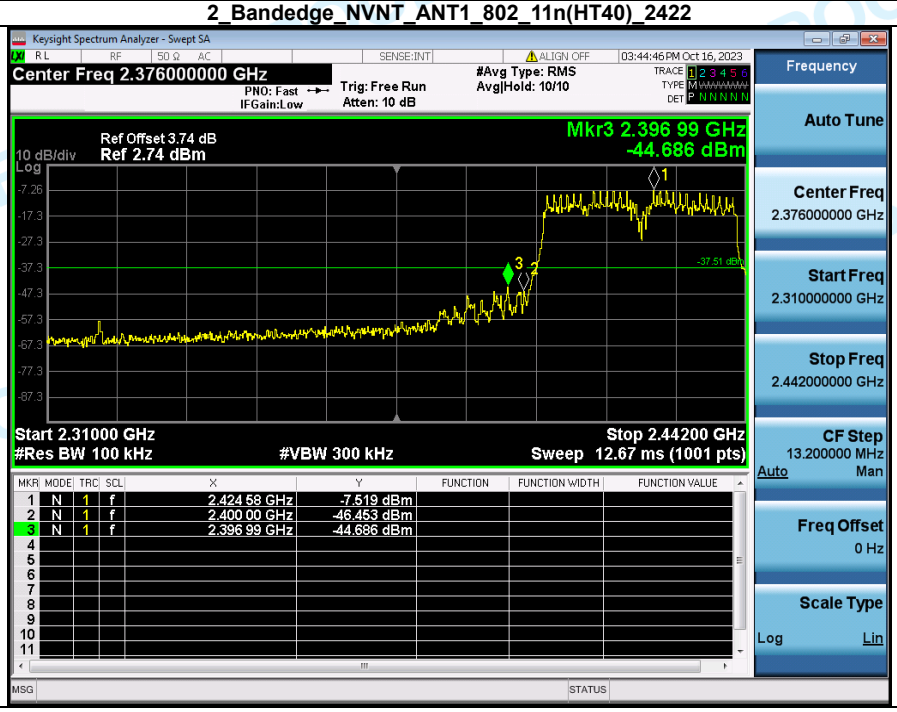
2_Bandedge_NVNT_ANT1_802_11n(HT20)_2462



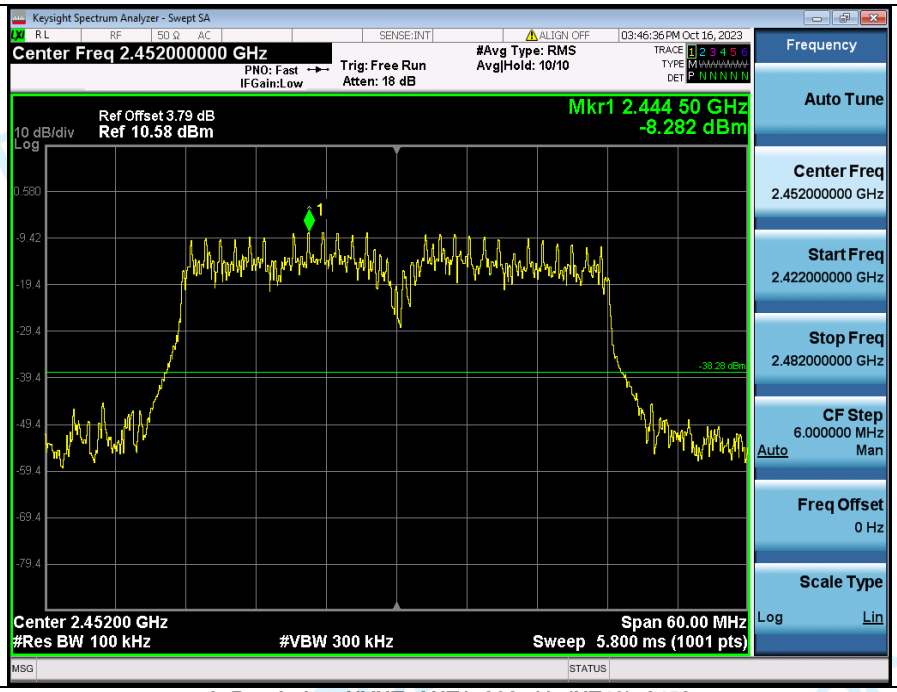
1_Reference_Level_NVNT_ANT1_802_11n(HT40)_2422



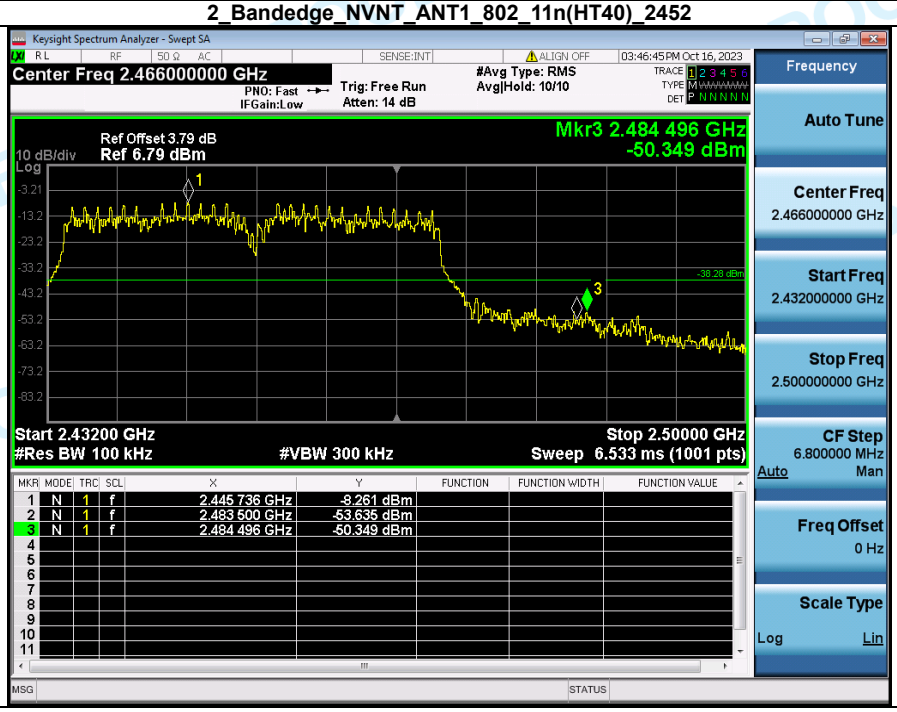
2_Bandedge_NVNT_ANT1_802_11n(HT40)_2422



1_Reference_Level_NVNT_ANT1_802_11n(HT40)_2452



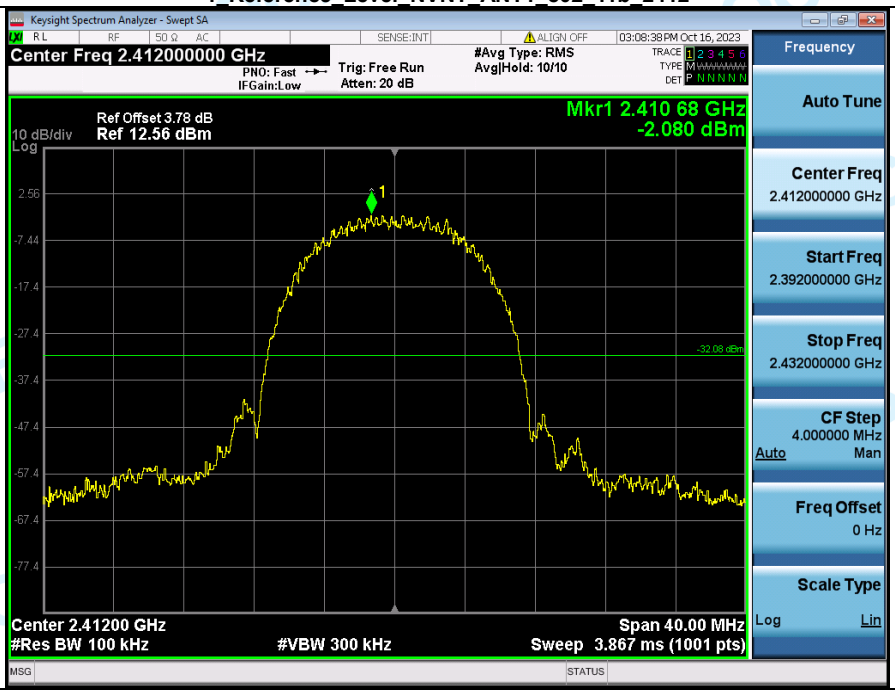
2_Bandedge_NVNT_ANT1_802_11n(HT40)_2452



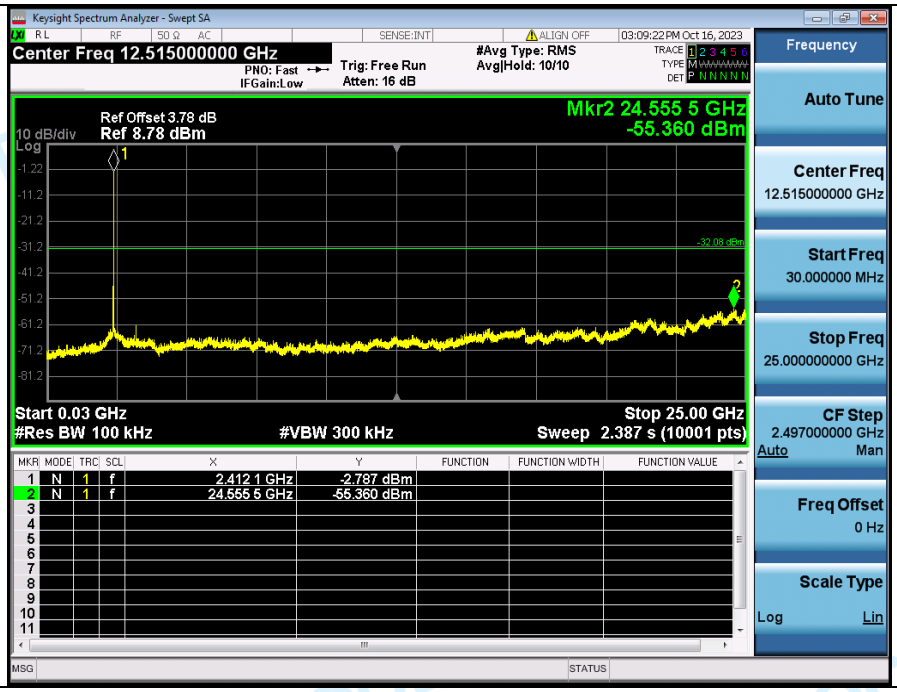
7. Spurious Emission

8. Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark_frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11b	2412.00	24555.534	-55.360	-32.080	Pass
NVNT	ANT1	802.11b	2462.00	24550.540	-58.805	-35.039	Pass
NVNT	ANT1	802.11b	2437.00	23988.715	-52.989	-34.968	Pass
NVNT	ANT1	802.11g	2412.00	24980.024	-57.274	-33.678	Pass
NVNT	ANT1	802.11g	2462.00	24033.661	-59.448	-35.602	Pass
NVNT	ANT1	802.11g	2437.00	24523.073	-53.981	-34.287	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	24493.109	-57.737	-33.732	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	24907.611	-59.243	-34.920	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	24533.061	-53.759	-34.291	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	2279.797	-57.448	-37.505	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	2309.761	-55.163	-38.282	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	2292.282	-57.063	-37.858	Pass

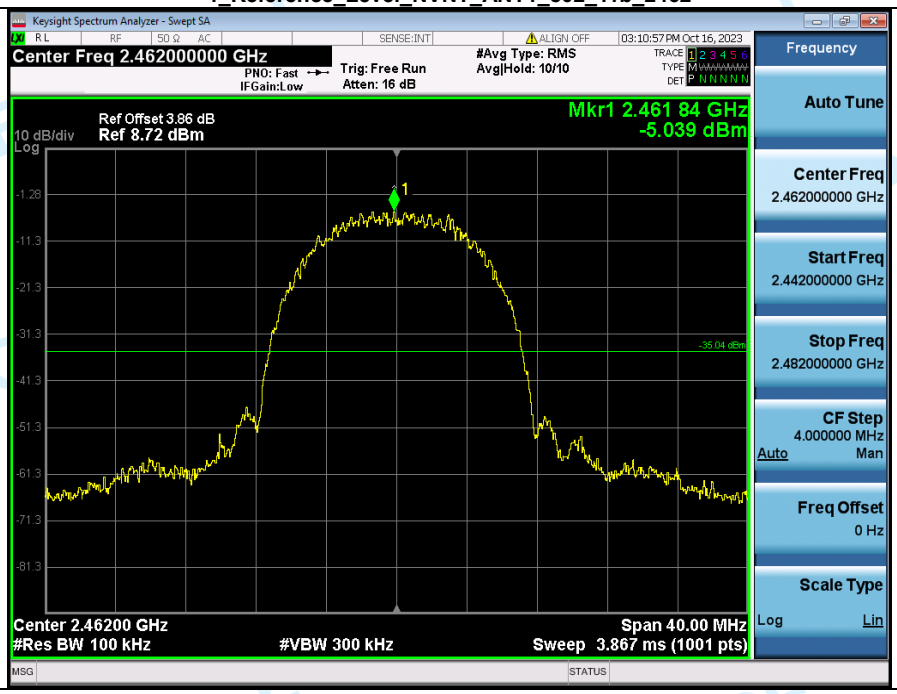
1_Reference_Level_NVNT_ANT1_802_11b_2412



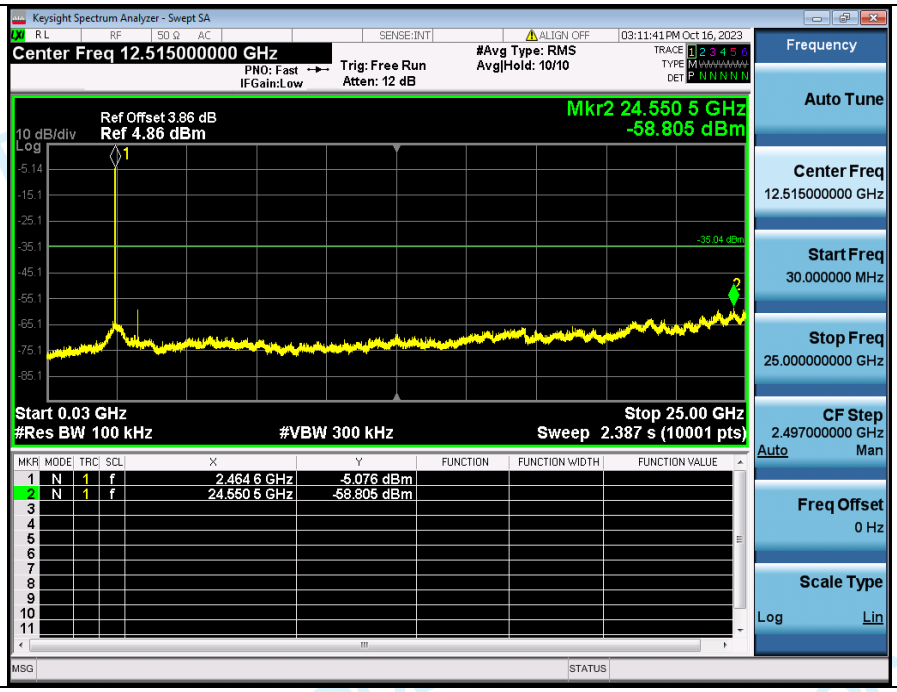
2_Spurious_Emission_NVNT_ANT1_802_11b_2412



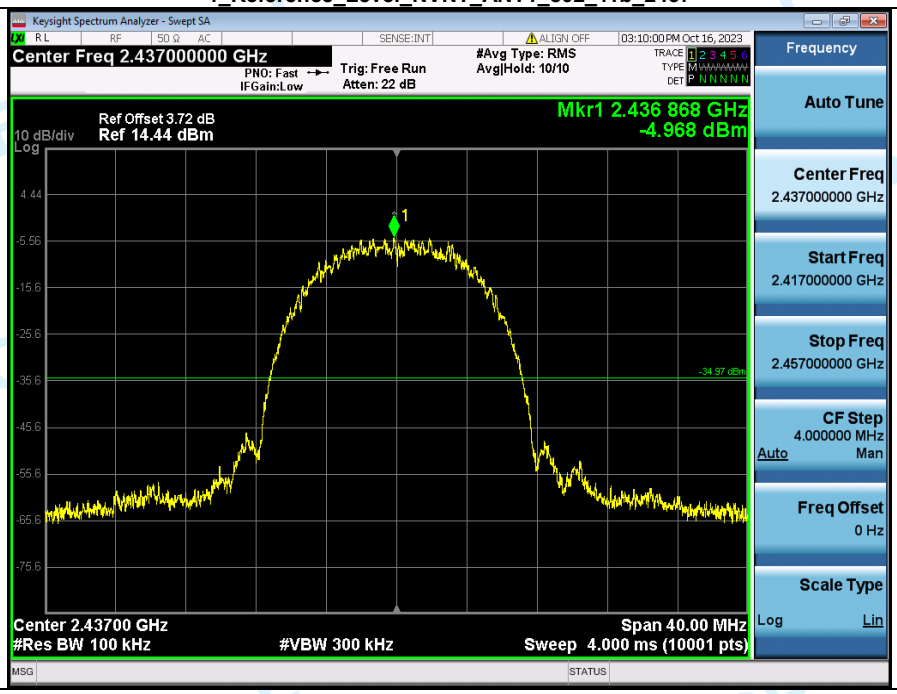
1_Reference_Level_NVNT_ANT1_802_11b_2462



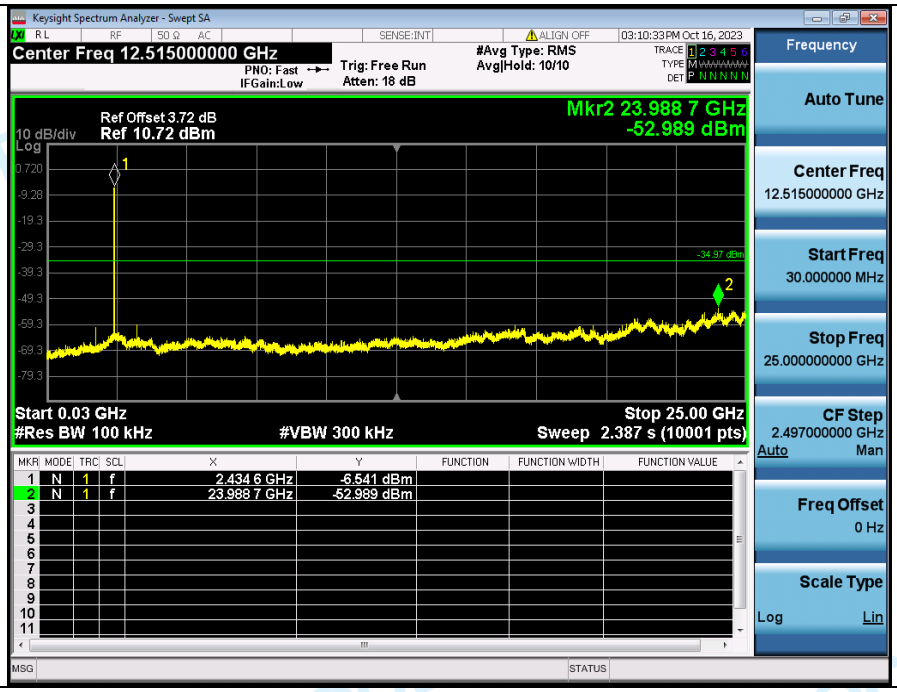
2_Spurious_Emission_NVNT_ANT1_802_11b_2462



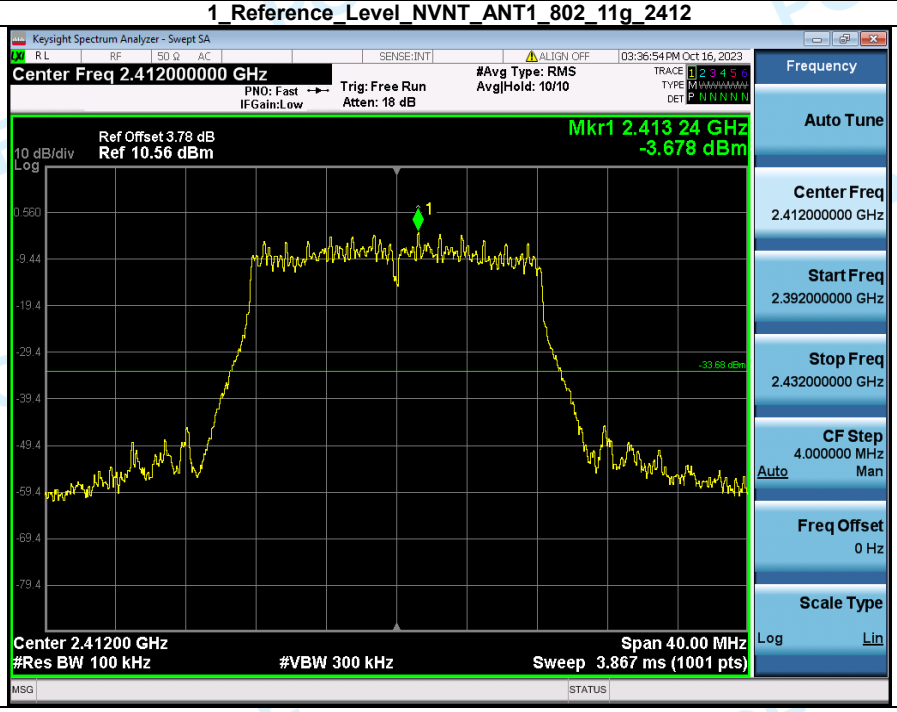
1_Reference_Level_NVNT_ANT1_802_11b_2437



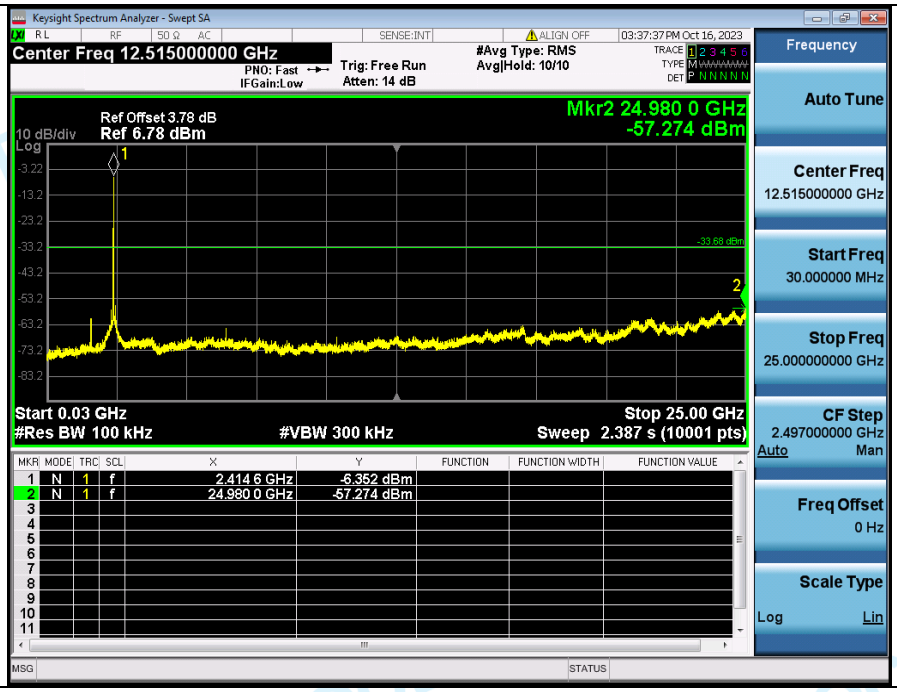
2_Spurious_Emission_NVNT_ANT1_802_11b_2437



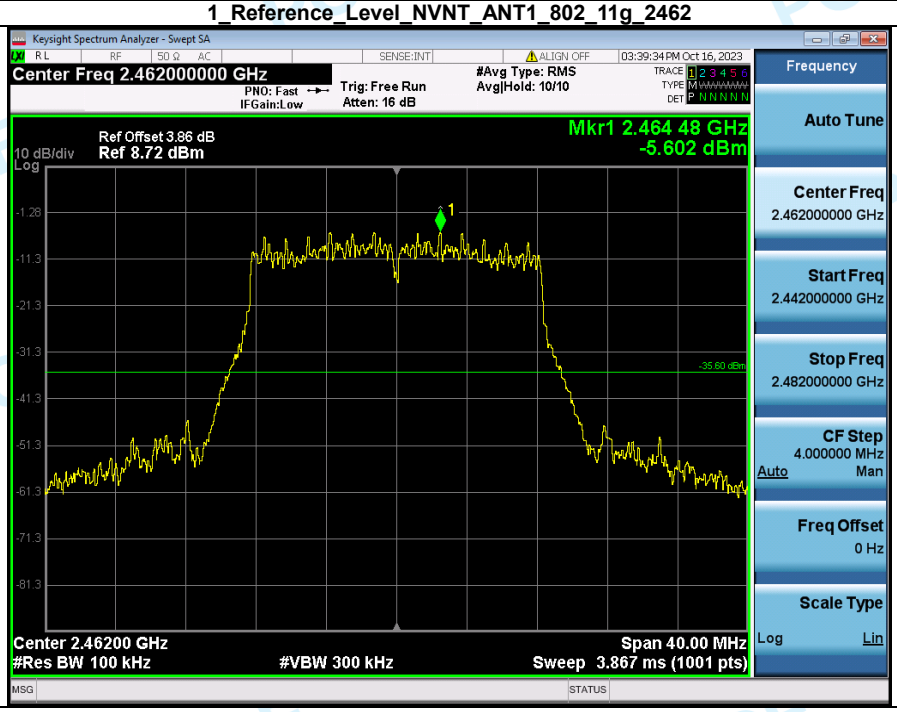
1_Reference_Level_NVNT_ANT1_802_11g_2412



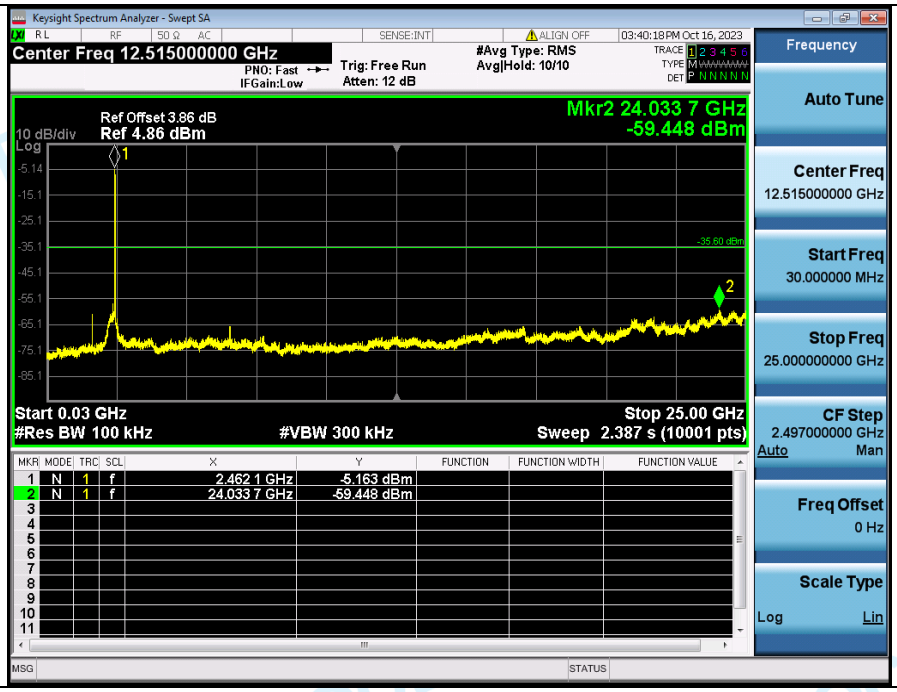
2_Spurious_Emission_NVNT_ANT1_802_11g_2412



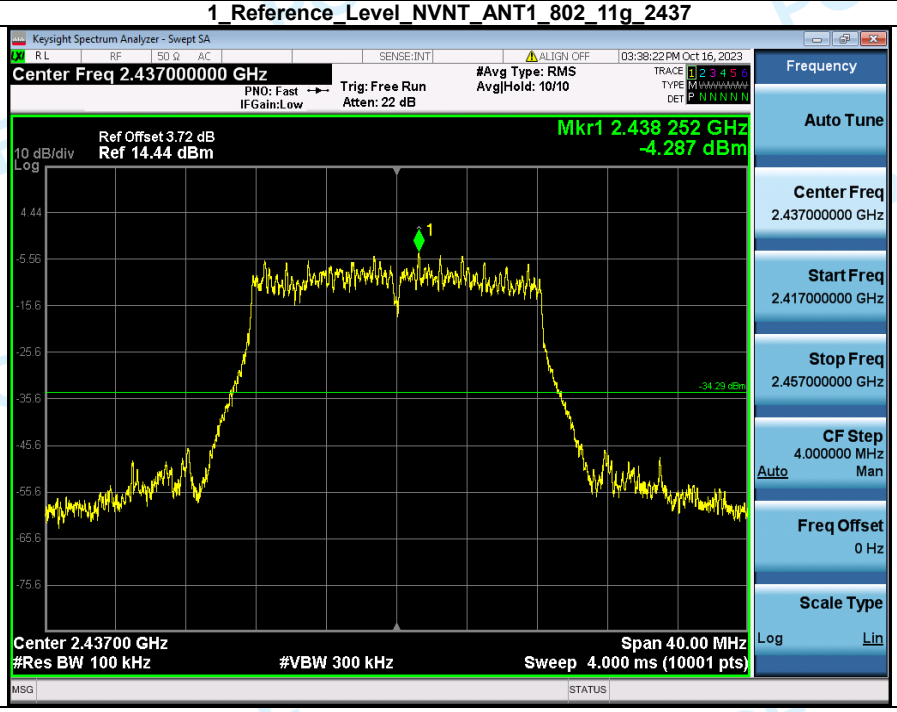
1_Reference_Level_NVNT_ANT1_802_11g_2462



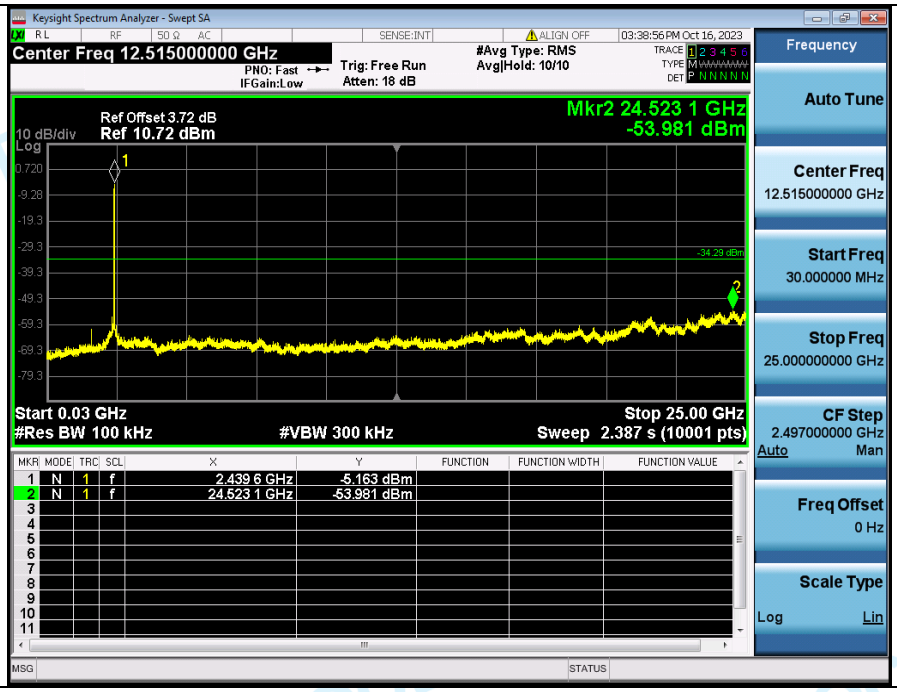
2_Spurious_Emission_NVNT_ANT1_802_11g_2462



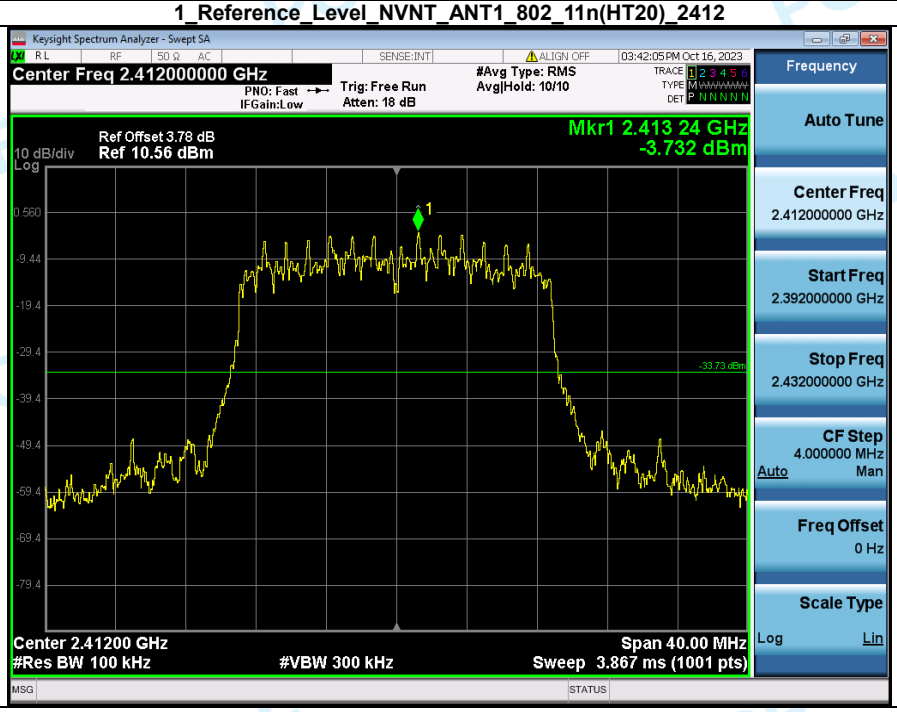
1_Reference_Level_NVNT_ANT1_802_11g_2437



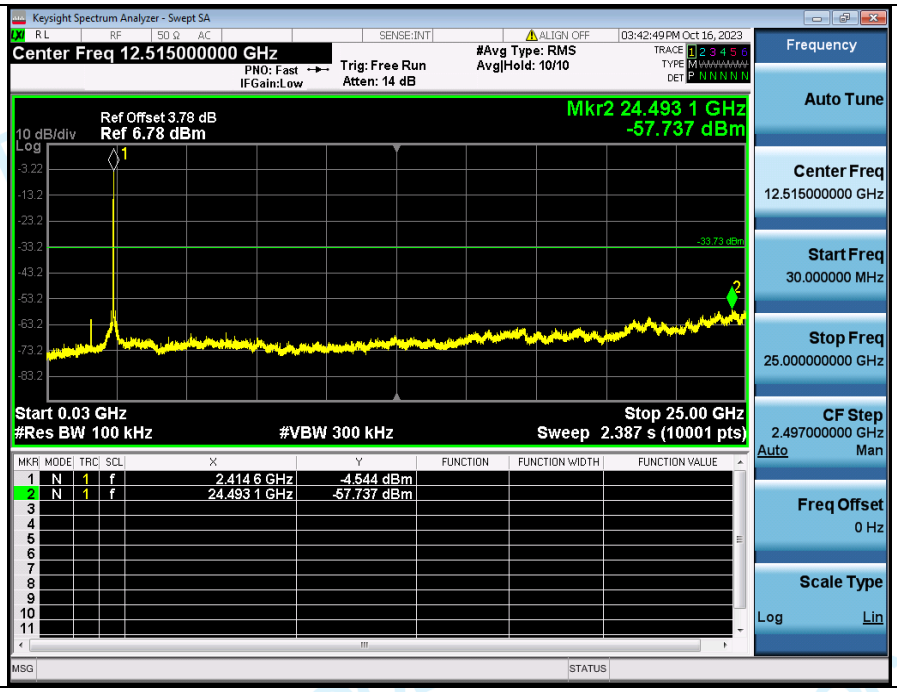
2_Spurious_Emission_NVNT_ANT1_802_11g_2437



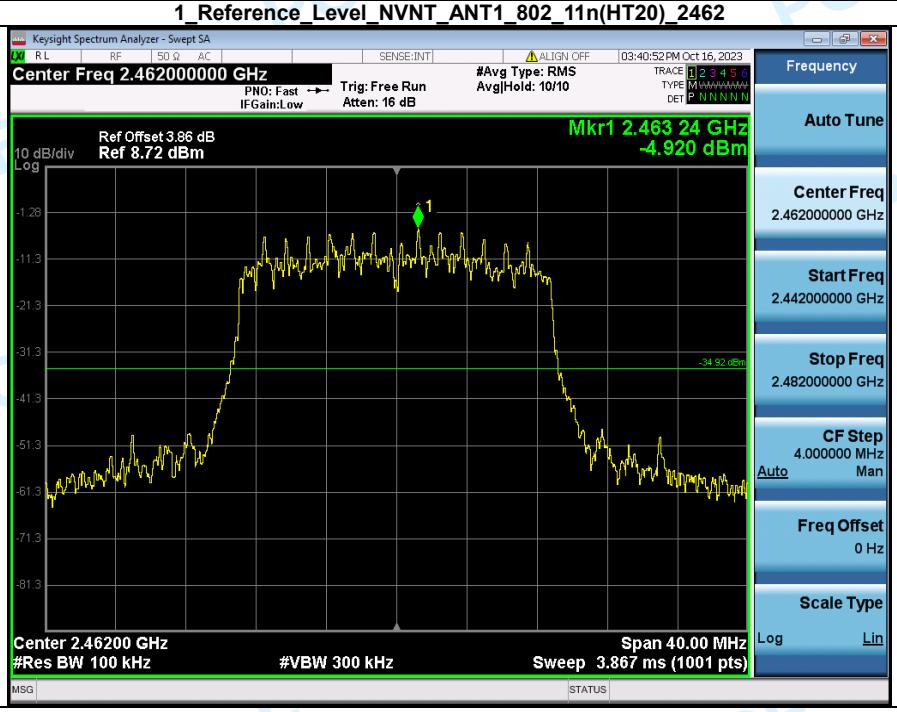
1_Reference_Level_NVNT_ANT1_802_11n(HT20)_2412



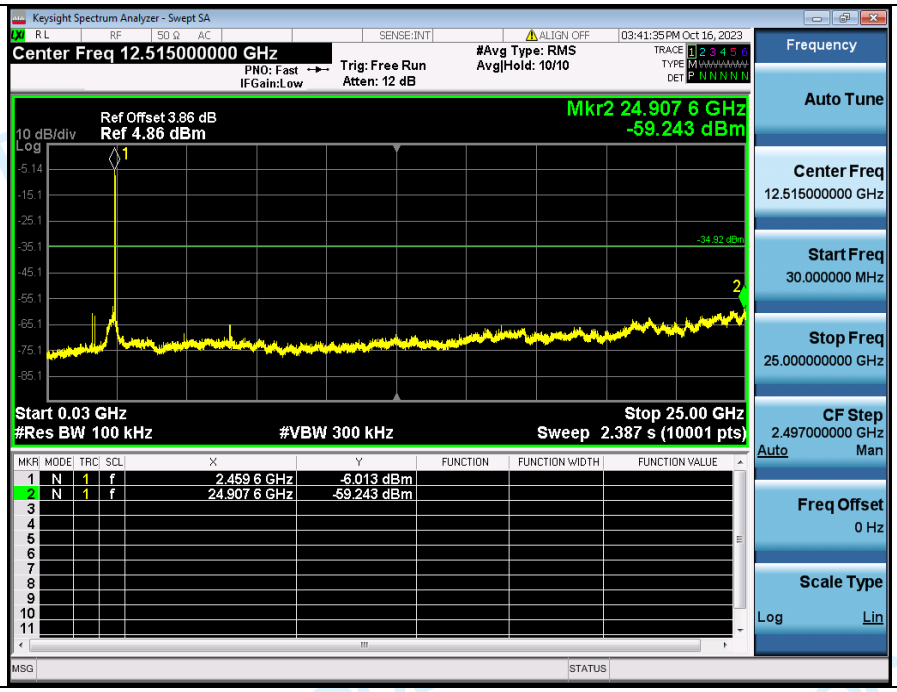
2_Spurious_Emission_NVNT_ANT1_802_11n(HT20)_2412



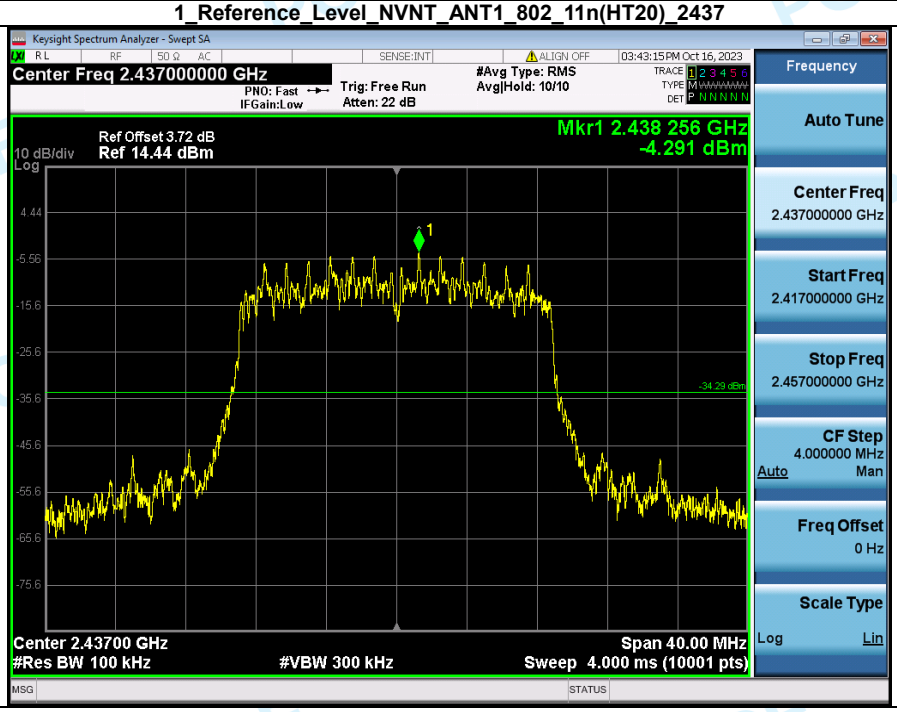
1_Reference_Level_NVNT_ANT1_802_11n(HT20)_2462



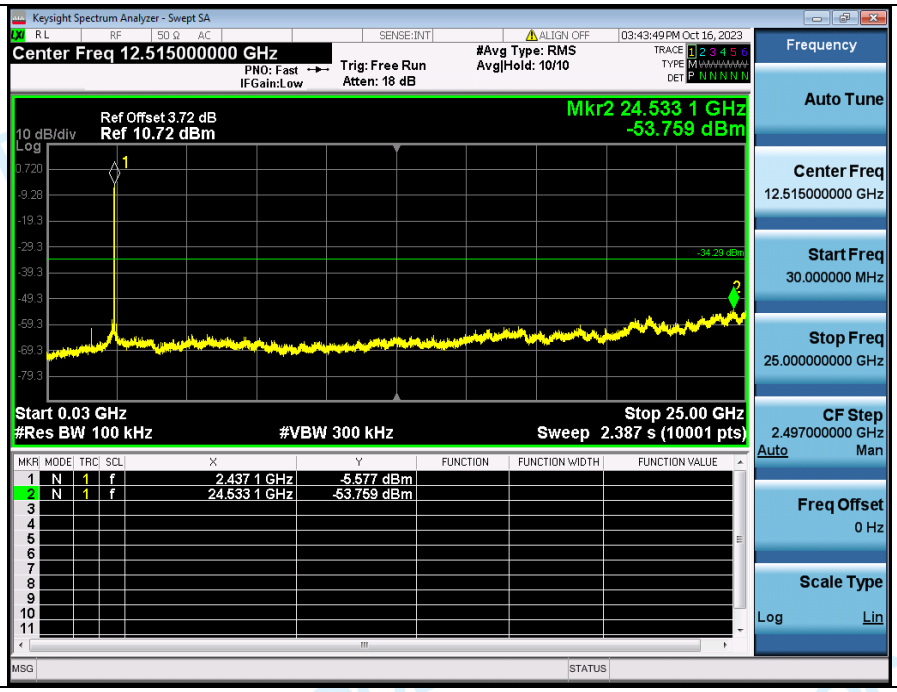
2_Spurious_Emission_NVNT_ANT1_802_11n(HT20)_2462



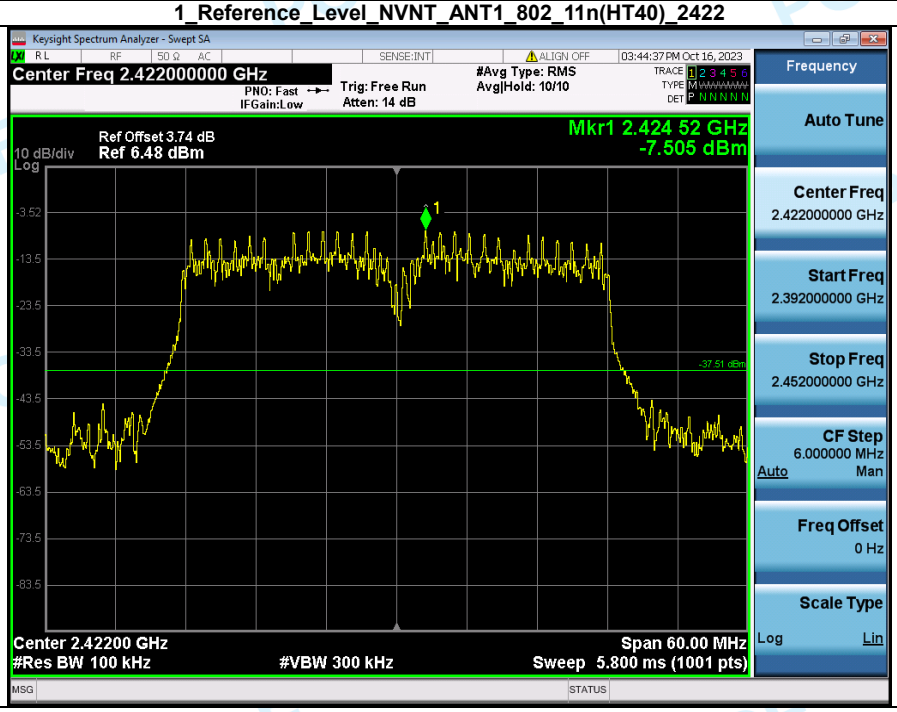
1_Reference_Level_NVNT_ANT1_802_11n(HT20)_2437



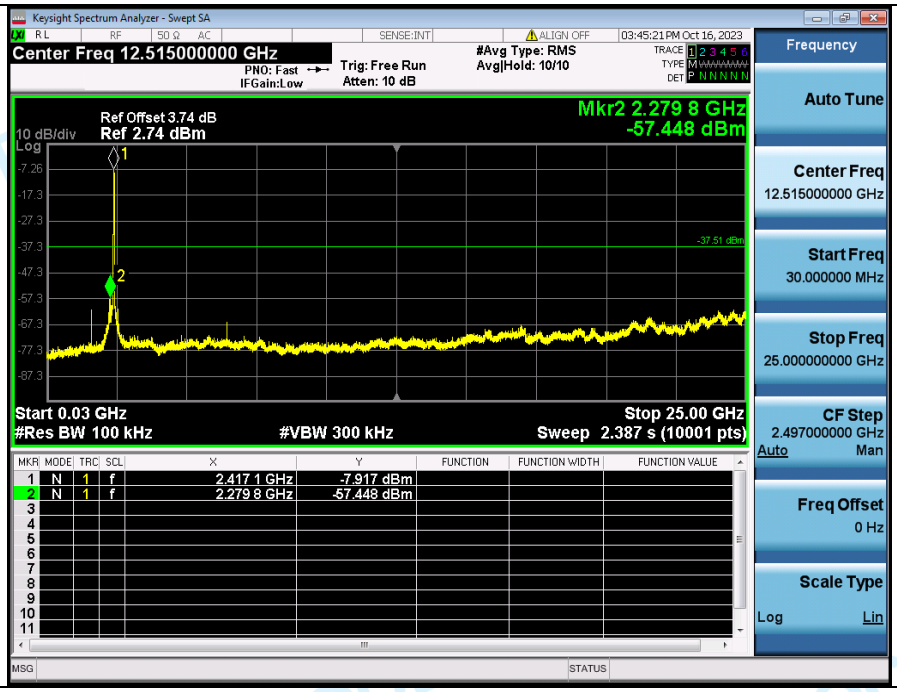
2_Spurious_Emission_NVNT_ANT1_802_11n(HT20)_2437



1_Reference_Level_NVNT_ANT1_802_11n(HT40)_2422



2_Spurious_Emission_NVNT_ANT1_802_11n(HT40)_2422



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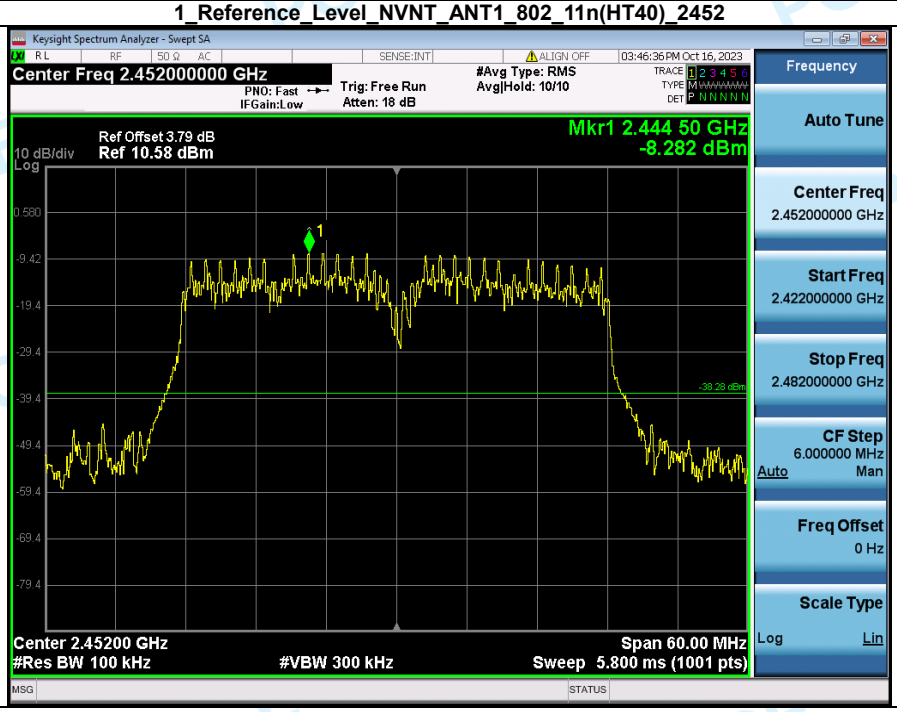

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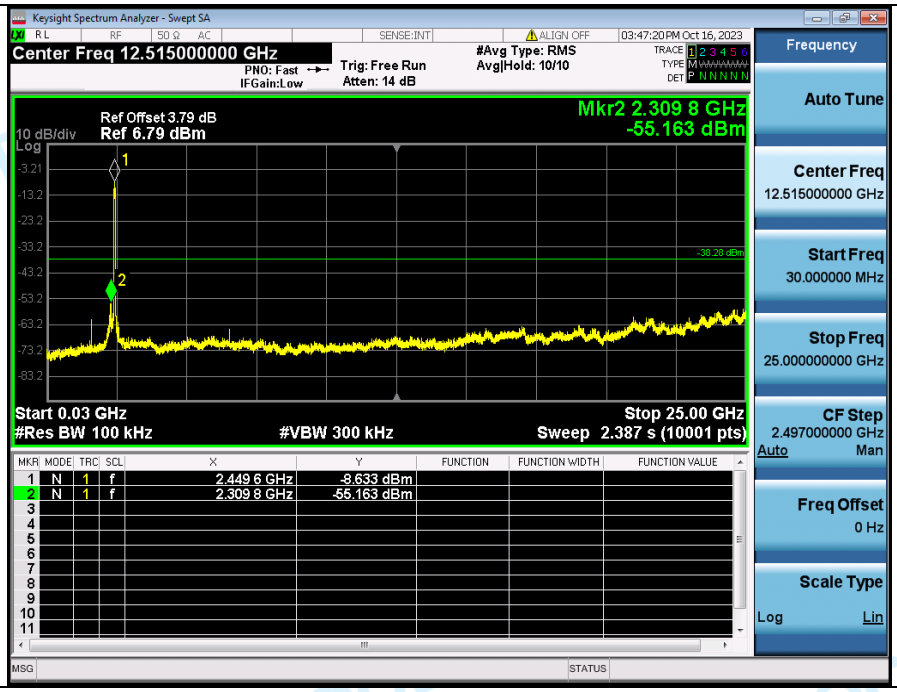
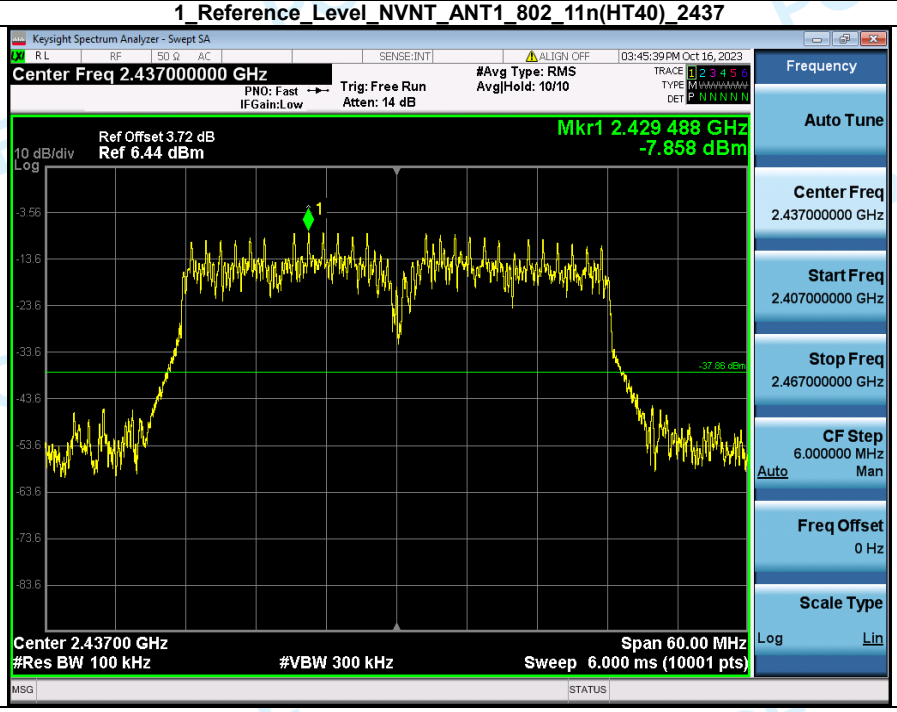
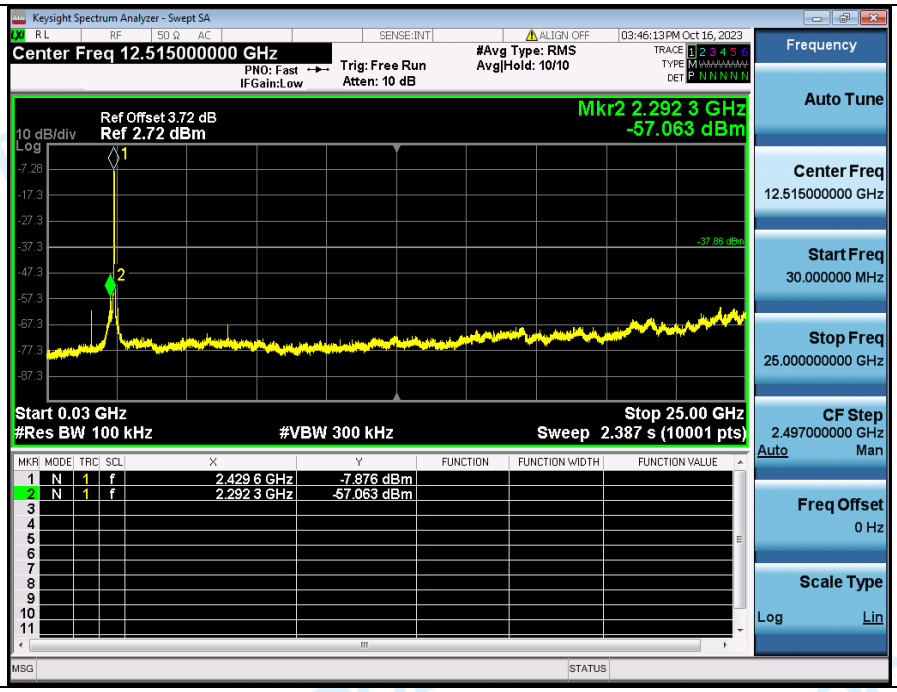


1_Reference_Level_NVNT_ANT1_802_11n(HT40)_2437



2_Spurious_Emission_NVNT_ANT1_802_11n(HT40)_2437



********** End of Report **********