



RF TEST REPORT

For

Ligowave Corporation

Product Name: Broadband Digital Transmission System

Model(s): LigoVision 5-15ac Dual, LigoVision 5ac Dual

Report Reference No. : POCE230509563ZRW

FCC ID : 2BCOH-FWBD3210

Applicant's Name : Ligowave Corporation

Address : 1710 Cumberland Point Drive Suite 1 Marietta, GA 30067 United States

Testing Laboratory : Shenzhen POCE Technology Co., Ltd.

Address : 102 Building H1 & 1/F., Building H, Hongfa Science & Technology Park,
Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China

Test Specification Standard : 47 CFR Part 15.247

Date of Receipt : May 9, 2023

Date of Test : May 9, 2023 to July 25, 2023

Data of Issue : July 25, 2023

Result : Pass

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Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	POCE230509563ZRW	July 25, 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.

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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 11.8 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.207(a)	Pass
Occupied Bandwidth	47 CFR Part 15.247	ANSI C63.10-2013, section 11.9.1 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(a)(2)	Pass
Maximum Conducted Output Power	47 CFR Part 15.247	ANSI C63.10-2013, section 11.10 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(b)(3)	Pass
Power Spectral Density	47 CFR Part 15.247	ANSI C63.10-2013 section 11.11 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(e)	Pass
Emissions in non-restricted frequency bands	47 CFR Part 15.247	ANSI C63.10-2013 section 6.10 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d)	Pass
Band edge emissions (Radiated)	47 CFR Part 15.247	ANSI C63.10-2013 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d)	Pass
Emissions in restricted frequency bands (below 1GHz)	47 CFR Part 15.247	ANSI C63.10-2013 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d)	Pass
Emissions in restricted frequency bands (above 1GHz)	47 CFR Part 15.247	Method	47 CFR 15.247(d)	Pass

2 GENERAL INFORMATION

2.1 Client Information

Applicant's Name : Ligowave Corporation
Address : 1710 Cumberland Point Drive Suite 1 Marietta, GA 30067 United States

Manufacturer : Ligowave Corporation
Address : 1710 Cumberland Point Drive Suite 1 Marietta, GA 30067 United States

2.2 Description of Device (EUT)

Product Name:	Broadband Digital Transmission System
Model/Type reference:	LigoVision 5ac Dual
Series Model:	LigoVision 5-15ac Dual
Model difference:	Item No.: LigoVision 5ac Dual, LigoVision 5-15ac Dual were identical inside, the electrical circuit design, layout, wiring, with only difference being as below: 1. antenna gain : LigoVision 5-15ac Dual used 15dBi antenna, LigoVision 5ac Dual used 7dBi antenna. 2. Plastic enclosure
Trade Mark:	N/A
Power Supply:	POE:48V/0.5A from adapter
Power Adaptor:	POE POWER ADAPTER MODEL:GRT-POE20-480050A INPUT:100-240V~50/60Hz 0.5A OUTPUT:48V--0.5A
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:	PCB antenna
Antenna Gain:	0dBi

Operation Frequency each of channel

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

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:

Test channel	Frequency (MHz)
	802.11b/802.11g/802.11n(HT20)
Lowest channel	2412MHz

Middle channel	2437MHz
Highest channel	2462MHz
Test channel	802.11n(HT40)
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 802.11b transmitting mode.
TM2	802.11g mode	Keep the EUT in 802.11g transmitting mode.
TM3	802.11n(HT20) mode	Keep the EUT in 802.11n(HT20) transmitting mode.
TM4	802.11n(HT40) mode	Keep the EUT in 802.11n(HT40) transmitting mode.
Remark: Only the data of the worst mode would be recorded in this report.		

2.4 Description of Support Units

Title	Manufacturer	Model No.	Serial No.
PC	Lenovo	Air 14 Plus	

2.5 Equipments Used During The Test

Conducted Emission at AC power line					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
loop antenna	EVERFINE	LLA-2	80900L-C	2023-02-27	2024-02-26
Power absorbing clamp	SCHWARZ BECK	MESS-ELEKTRO NIK	/	2023-02-28	2024-02-27
Electric Network	SCHWARZ BECK	CAT5 8158	CAT5 8158#207	/	/
Cable	SCHWARZ BECK	/	/	2022-12-27	2023-12-27
Pulse Limiter	SCHWARZ BECK	VTSD 9561-F Pulse limiter 10dB Ateennator	561-G071	2023-02-27	2024-02-26
50ΩCoaxial Switch	Anritsu	MP59B	M20531	/	/
Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	ID:1164.6607K03-102109-MH	2023-06-13	2024-06-12
L.I.S.N	R&S	ESH3-Z5	831.5518.52	2022-12-29	2023-12-28

Occupied Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Test Software	TACHOY	RTS-01	V2.0.0.0	/	/
High Pass filter	ZHINAN	OQHPF1-M1.5-18G-224	6210075	/	/
Power divider	MIDEWEST	PWD-2533	SMA-79	2023-05-11	2026-05-10
DC power	HP	66311B	38444359	/	/
RF Sensor Unit	Tachoy Information Technology(shenzhen) Co.,Ltd.	TR1029-2	000001	/	/
Wideband radio communication tester	R&S	CMW500	113410	2023-06-13	2024-06-12
Vector signal generator	Keysight	N5181A	MY48180415	2022-12-10	2023-12-09
Signal generator	Keysight	N5182A	MY50143455	2022-12-29	2023-12-28
Spectrum Analyzer	Keysight	N9020A	MY53420323	2022-12-29	2023-12-28

Maximum Conducted Output Power					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Test Software	TACHOY	RTS-01	V2.0.0.0	/	/
High Pass filter	ZHINAN	OQHPF1-M1.5-	6210075	/	/

		18G-224			
Power divider	MIDEWEST	PWD-2533	SMA-79	2023-05-11	2026-05-10
DC power	HP	66311B	38444359	/	/
RF Sensor Unit	Tachoy Information Technology(shenzhen) Co.,Ltd.	TR1029-2	000001	/	/
Wideband radio communication tester	R&S	CMW500	113410	2023-06-13	2024-06-12
Vector signal generator	Keysight	N5181A	MY48180415	2022-12-10	2023-12-09
Signal generator	Keysight	N5182A	MY50143455	2022-12-29	2023-12-28
Spectrum Analyzer	Keysight	N9020A	MY53420323	2022-12-29	2023-12-28

Power Spectral Density

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Test Software	TACHOY	RTS-01	V2.0.0.0	/	/
High Pass filter	ZHINAN	OQHPF1-M1.5-18G-224	6210075	/	/
Power divider	MIDEWEST	PWD-2533	SMA-79	2023-05-11	2026-05-10
DC power	HP	66311B	38444359	/	/
RF Sensor Unit	Tachoy Information Technology(shenzhen) Co.,Ltd.	TR1029-2	000001	/	/
Wideband radio communication tester	R&S	CMW500	113410	2023-06-13	2024-06-12
Vector signal generator	Keysight	N5181A	MY48180415	2022-12-10	2023-12-09
Signal generator	Keysight	N5182A	MY50143455	2022-12-29	2023-12-28
Spectrum Analyzer	Keysight	N9020A	MY53420323	2022-12-29	2023-12-28

Emissions in non-restricted frequency bands

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Test Software	TACHOY	RTS-01	V2.0.0.0	/	/
High Pass filter	ZHINAN	OQHPF1-M1.5-18G-224	6210075	/	/
Power divider	MIDEWEST	PWD-2533	SMA-79	2023-05-11	2026-05-10
DC power	HP	66311B	38444359	/	/
RF Sensor Unit	Tachoy Information Technology(shenzhen)	TR1029-2	000001	/	/

	Co.,Ltd.				
Wideband radio communication tester	R&S	CMW500	113410	2023-06-13	2024-06-12
Vector signal generator	Keysight	N5181A	MY48180415	2022-12-10	2023-12-09
Signal generator	Keysight	N5182A	MY50143455	2022-12-29	2023-12-28
Spectrum Analyzer	Keysight	N9020A	MY53420323	2022-12-29	2023-12-28

Band edge emissions (Radiated)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test software	Farad	EZ -EMC	V1.1.42	/	/
Positioning Controller	/	MF-7802	/	/	/
High Pass filter	ZHINAN	OQHPF1-M1.5-18G-224	6210075	/	/
Amplifier(18-40G)	COM-POWER	AH-1840	10100008-1	2022-04-05	2025-04-04
Horn antenna	COM-POWER	AH-1840 (18-40G)	10100008	2023-04-05	2025-04-04
Loop antenna	ZHINAN	ZN30900 C	ZN30900C	2021-07-05	2024-07-04
Cable(LF)#2	Schwarzbeck	/	/	2023-02-27	2024-02-26
Cable(LF)#1	Schwarzbeck	/	/	2023-02-27	2024-02-26
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2023-02-28	2024-02-27
Cable(HF)#1	Schwarzbeck	SYV-50-3-1	/	2023-02-27	2024-02-26
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2023-06-13	2024-06-12
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2023-06-13	2024-06-12
Wideband radio communication tester	R&S	CMW500	113410	2023-06-13	2024-06-12
Spectrum Analyzer	R&S	FSP30	1321.3008K40-101729-jR	2023-06-14	2024-06-13
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023-05-13	2025-05-12
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2023-05-21	2025-05-20
Test Receiver	R&S	ESCI	102109	2023-06-13	2024-06-12

Emissions in restricted frequency bands (below 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test software	Farad	EZ -EMC	V1.1.42	/	/
Positioning Controller	/	MF-7802	/	/	/
High Pass filter	ZHINAN	OQHPF1-M1.5-18G-224	6210075	/	/
Amplifier(18-40G)	COM-POWER	AH-1840	10100008-1	2022-04-05	2025-04-04

Horn antenna	COM-POWER	AH-1840 (18-40G)	10100008	2023-04-05	2025-04-04
Loop antenna	ZHINAN	ZN30900 C	ZN30900C	2021-07-05	2024-07-04
Cable(LF)#2	Schwarzbeck	/	/	2023-02-27	2024-02-26
Cable(LF)#1	Schwarzbeck	/	/	2023-02-27	2024-02-26
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2023-02-28	2024-02-27
Cable(HF)#1	Schwarzbeck	SYV-50-3- 1	/	2023-02-27	2024-02-26
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2023-06-13	2024-06-12
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2023-06-13	2024-06-12
Wideband radio communication tester	R&S	CMW500	113410	2023-06-13	2024-06-12
Spectrum Analyzer	R&S	FSP30	1321.3008K40- 101729-jR	2023-06-14	2024-06-13
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023-05-13	2025-05-12
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2023-05-21	2025-05-20
Test Receiver	R&S	ESCI	102109	2023-06-13	2024-06-12

Emissions in restricted frequency bands (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test software	Farad	EZ -EMC	V1.1.42	/	/
Positioning Controller	/	MF-7802	/	/	/
High Pass filter	ZHINAN	OQHPF1- M1.5- 18G-224	6210075	/	/
Amplifier(18-40G)	COM-POWER	AH-1840	10100008-1	2022-04-05	2025-04-04
Horn antenna	COM-POWER	AH-1840 (18-40G)	10100008	2023-04-05	2025-04-04
Loop antenna	ZHINAN	ZN30900 C	ZN30900C	2021-07-05	2024-07-04
Cable(LF)#2	Schwarzbeck	/	/	2023-02-27	2024-02-26
Cable(LF)#1	Schwarzbeck	/	/	2023-02-27	2024-02-26
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2023-02-28	2024-02-27
Cable(HF)#1	Schwarzbeck	SYV-50-3- 1	/	2023-02-27	2024-02-26
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2023-06-13	2024-06-12
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2023-06-13	2024-06-12
Wideband radio communication tester	R&S	CMW500	113410	2023-06-13	2024-06-12
Spectrum Analyzer	R&S	FSP30	1321.3008K40- 101729-jR	2023-06-14	2024-06-13



Horn Antenna	Sunol Sciences	DRH-118	A091114	2023-05-13	2025-05-12
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2023-05-21	2025-05-20
Test Receiver	R&S	ESCI	102109	2023-06-13	2024-06-12

2.6 Statement Of The Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Disturbance (0.15~30MHz)	$\pm 3.41\text{dB}$
Occupied Bandwidth	$\pm 3.63\%$
RF conducted power	$\pm 0.733\text{dB}$
RF power density	$\pm 0.234\%$
Conducted Spurious emissions	$\pm 1.98\text{dB}$
Radiated Emission (Above 1GHz)	$\pm 5.46\text{dB}$
Radiated Emission (Below 1GHz)	$\pm 5.79\text{dB}$
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, Shiyao, 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, Shiyao, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252
FCC Registration Number:	0032847402
Designation Number:	CN1342

2.8 Announcement

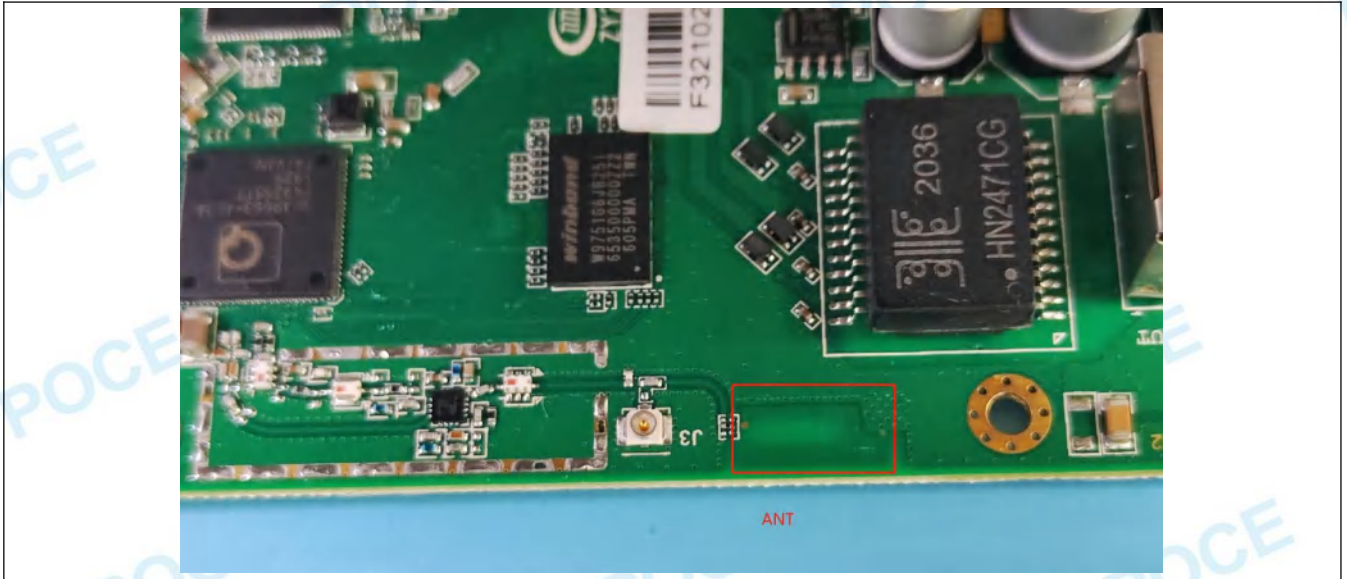
- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) 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:	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.
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3.1.1 Conclusion:



4 Radio Spectrum Matter Test Results (RF)

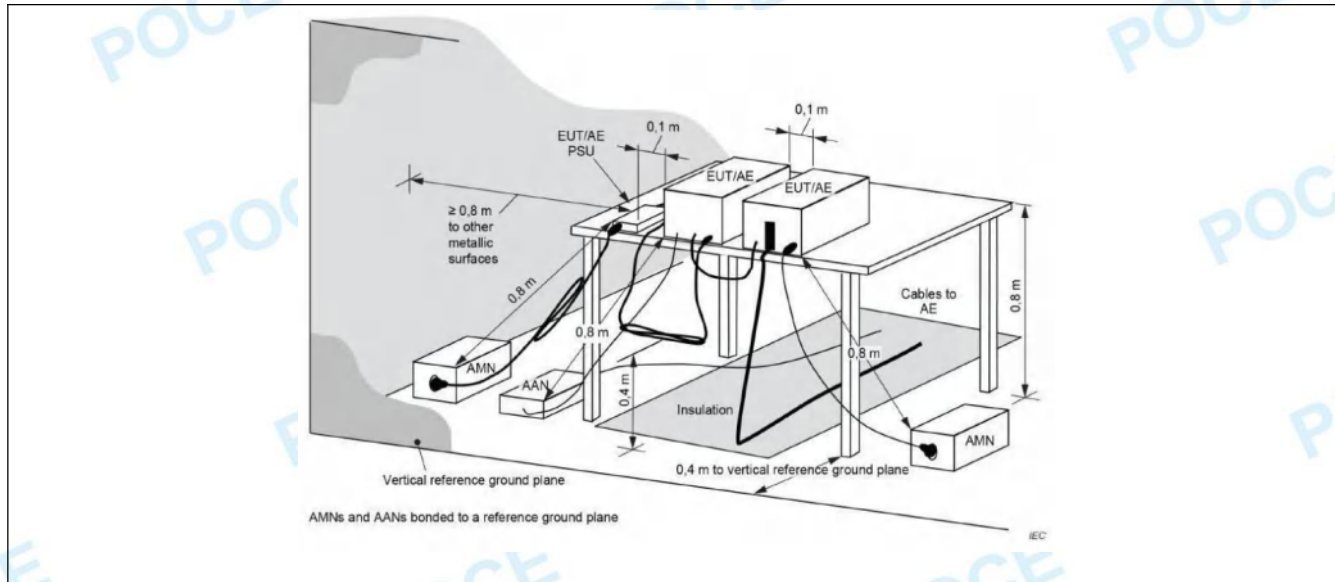
4.1 Conducted Emission at AC power line

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 μ H/50 ohms line impedance stabilization network (LISN).		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dB μ V)	
		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:

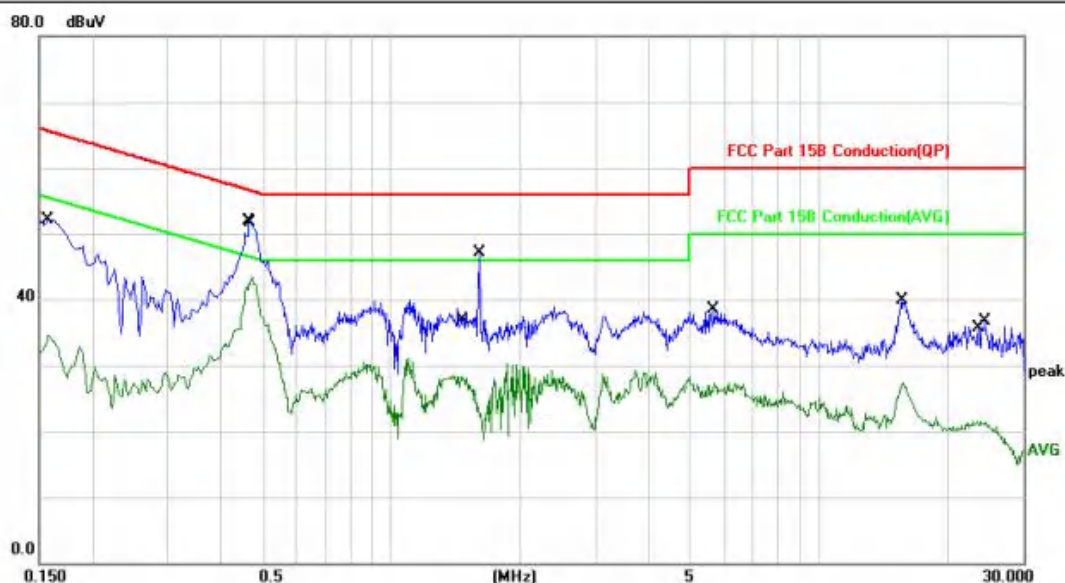
Operating Environment:					
Temperature:	22.9 °C	Humidity:	51.8 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

4.1.2 Test Setup Diagram:



4.1.3 Test Data:

TM1 / Line: Line / Band: 2.4G / BW: 20 / CH: L



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1580	42.46	9.72	52.18	65.56	-13.38	QP	
2		0.1580	24.74	9.72	34.46	55.56	-21.10	AVG	
3		0.4660	42.02	9.88	51.90	56.58	-4.68	QP	
4	*	0.4740	33.70	9.89	43.59	46.44	-2.85	AVG	
5		1.4500	18.47	9.88	28.35	46.00	-17.65	AVG	
6		1.6100	37.29	9.89	47.18	56.00	-8.82	QP	
7		5.6620	28.42	9.98	38.40	60.00	-21.60	QP	
8		5.7100	17.29	9.98	27.27	50.00	-22.73	AVG	
9		15.6220	29.95	9.98	39.93	60.00	-20.07	QP	
10		15.7180	17.38	9.98	27.36	50.00	-22.64	AVG	
11		23.4340	11.47	10.04	21.51	50.00	-28.49	AVG	
12		24.4540	26.74	10.04	36.78	60.00	-23.22	QP	

TM1 / Line: Neutral / Band: 2.4G / BW: 20 / CH: L



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1500	43.93	9.72	53.65	65.99	-12.34	QP	
2	0.1500	25.97	9.72	35.69	55.99	-20.30	AVG	
3	0.4620	43.07	9.88	52.95	56.66	-3.71	QP	
4 *	0.4620	35.04	9.88	44.92	46.66	-1.74	AVG	
5	0.8540	29.45	10.27	39.72	56.00	-16.28	QP	
6	0.9180	21.05	9.85	30.90	46.00	-15.10	AVG	
7	2.1860	20.39	9.92	30.31	46.00	-15.69	AVG	
8	2.4260	28.67	9.92	38.59	56.00	-17.41	QP	
9	5.6380	17.64	9.98	27.62	50.00	-22.38	AVG	
10	5.7580	28.25	10.00	38.25	60.00	-21.75	QP	
11	15.6140	18.62	9.98	28.60	50.00	-21.40	AVG	
12	15.7020	31.35	9.98	41.33	60.00	-18.67	QP	

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. Measurement Level = Reading level + Correct Factor, Over=Limit- Measurement
4. The test data shows only the worst case(802.11b--2412MHz mode)

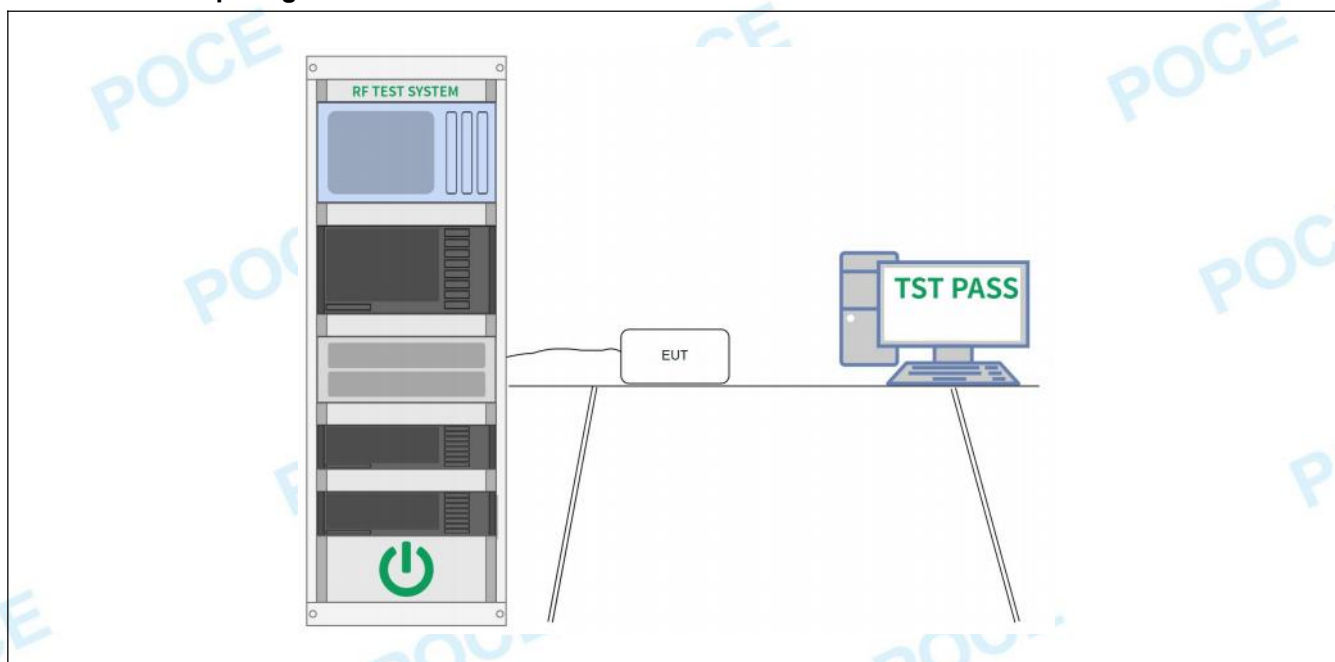
4.2 Occupied Bandwidth

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 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	a) Set RBW = 100 kHz. b) Set the VBW $\geq [3 \times \text{RBW}]$. 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:	22.9 °C		Humidity:	51.8 %	Atmospheric Pressure:	102 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.

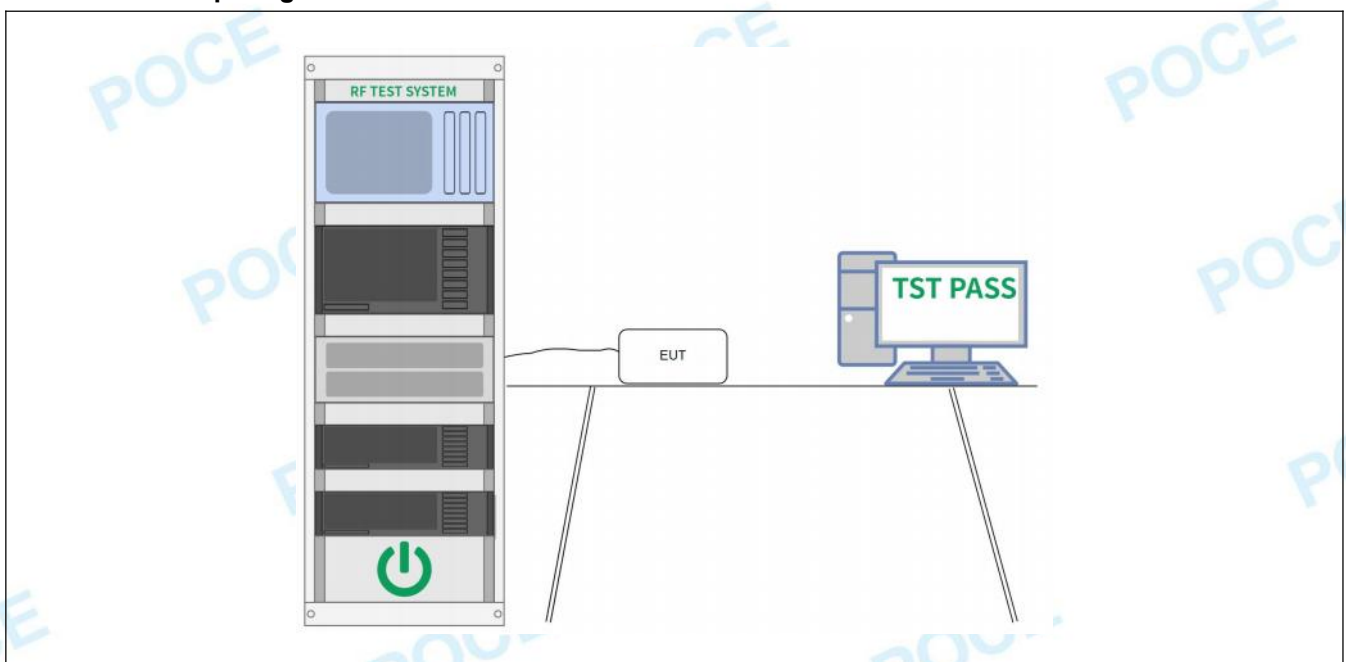
4.3 Maximum Conducted Output Power

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 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	ANSI C63.10-2013, section 11.9.2 Maximum conducted (average) output power

4.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.9 °C	Humidity:	51.8 %	Atmospheric Pressure:	102 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.

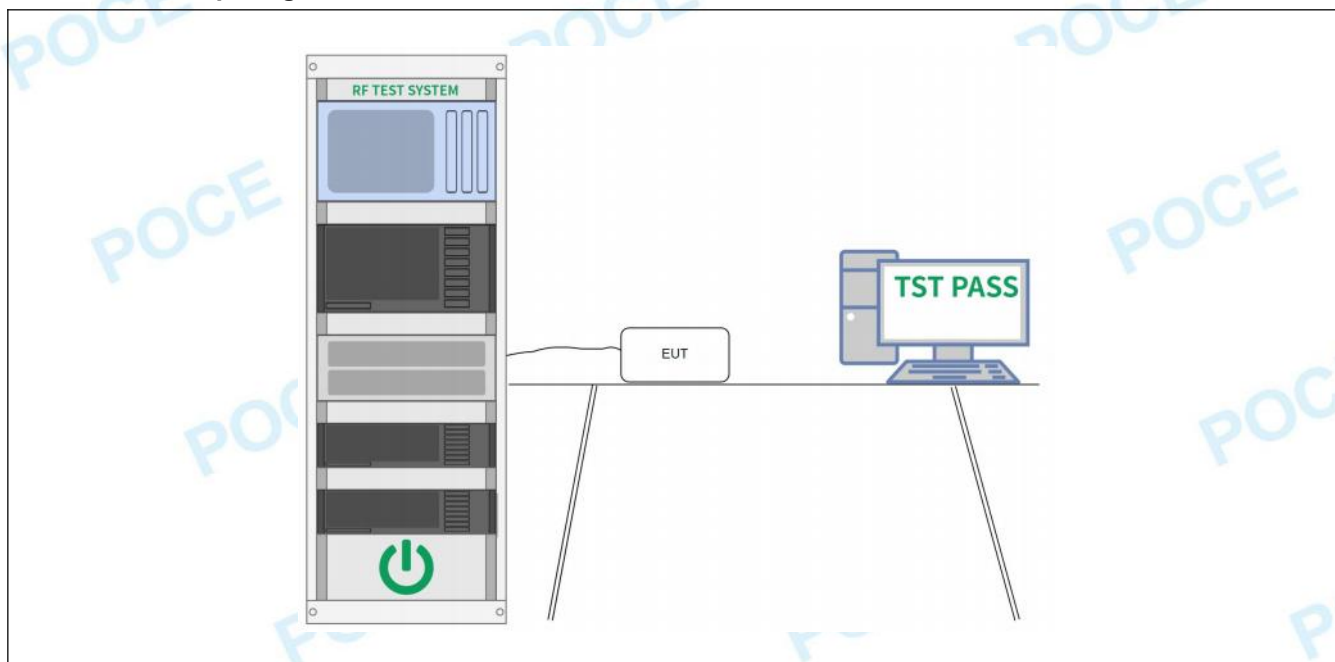
4.4 Power Spectral Density

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 KDB 558074 D01 15.247 Meas Guidance v05r02
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:	22.9 °C	Humidity:	51.8 %	Atmospheric Pressure:	102 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.

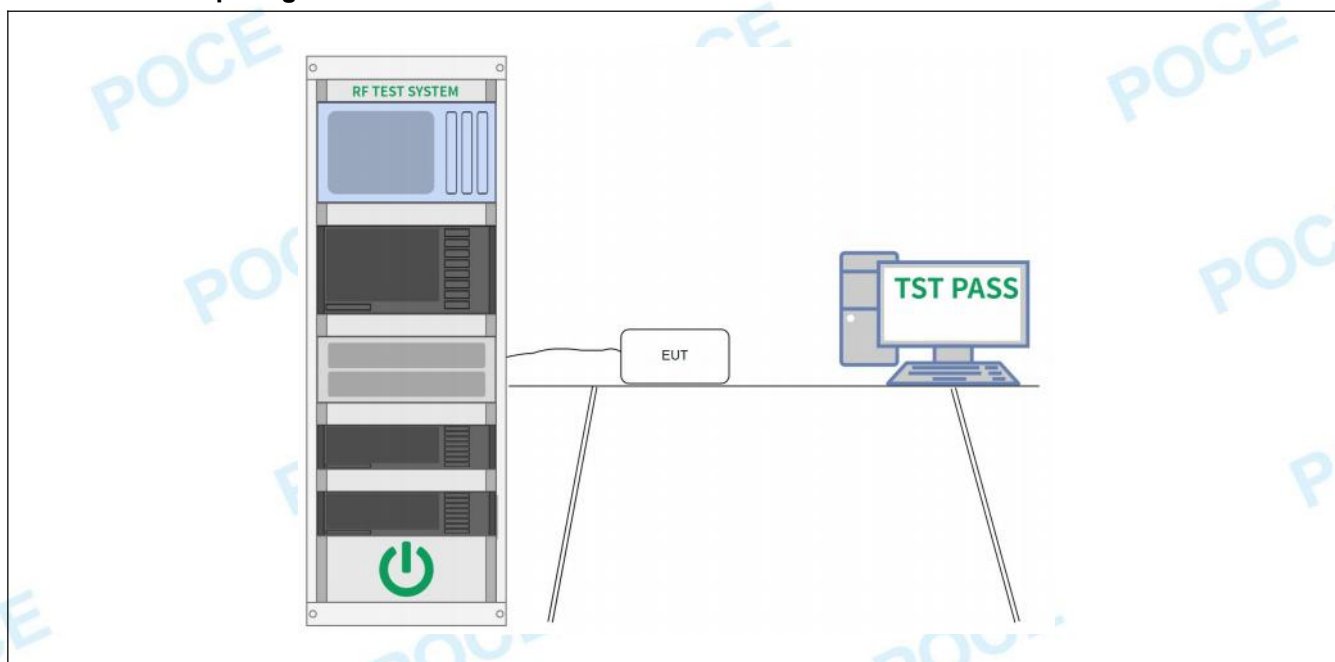
4.5 Emissions in non-restricted frequency bands

Test Requirement:	47 CFR 15.247(d)
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 KDB 558074 D01 15.247 Meas Guidance v05r02
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:	22.9 °C	Humidity:	51.8 %	Atmospheric Pressure:	102 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.

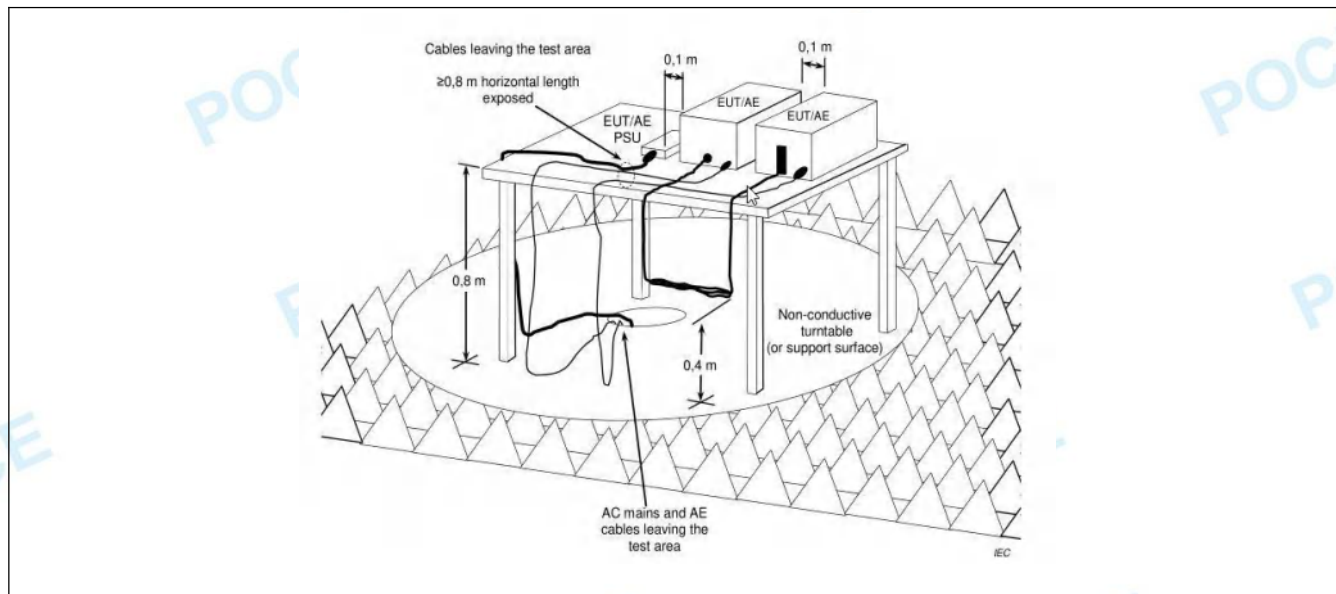
4.6 Band edge emissions (Radiated)

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 KDB 558074 D01 15.247 Meas Guidance v05r02		
Procedure:	ANSI C63.10-2013 section 6.10.5.2		

4.6.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.9 °C	Humidity:	51.8 %	Atmospheric Pressure:	102 kPa
Pre test mode:		TM1, TM2, TM3, TM4			
Final test mode:		TM1, TM2, TM3, TM4			

4.6.2 Test Setup Diagram:



4.6.3 Test Data:

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type	Result
Low Channel 2412MHz--802.11b										
H	2390.00	55.36	30.22	4.85	23.98	53.97	74	-20.03	PK	PASS
H	2390.00	36.51	30.22	4.85	23.98	35.12	54	-18.88	AV	PASS
H	2400.00	53.47	30.22	4.85	23.98	52.08	74	-21.92	PK	PASS
H	2400.00	39.44	30.22	4.85	23.98	38.05	54	-15.95	AV	PASS
V	2390.00	52.42	30.22	4.85	23.98	51.03	74	-22.97	PK	PASS
V	2390.00	39.99	30.22	4.85	23.98	38.60	54	-15.40	AV	PASS
V	2400.00	51.92	30.22	4.85	23.98	50.53	74	-23.47	PK	PASS
V	2400.00	38.57	30.22	4.85	23.98	37.18	54	-16.82	AV	PASS
High Channel 2462MHz--802.11b										
H	2483.50	55.66	30.22	4.85	23.98	54.27	74	-19.73	PK	PASS
H	2485.50	36.21	30.22	4.85	23.98	34.82	54	-19.18	AV	PASS
H	2500.00	52.06	30.22	4.85	23.98	50.67	74	-23.33	PK	PASS
H	2500.00	38.11	30.22	4.85	23.98	36.72	54	-17.28	AV	PASS
V	2483.50	53.06	30.22	4.85	23.98	51.67	74	-22.33	PK	PASS
V	2485.50	41.08	30.22	4.85	23.98	39.69	54	-14.31	AV	PASS
V	2500.00	53.13	30.22	4.85	23.98	51.74	74	-22.26	PK	PASS
V	2500.00	38.23	30.22	4.85	23.98	36.84	54	-17.16	AV	PASS

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type	Result
Low Channel 2412MHz--802.11g										
H	2390.00	55.19	30.22	4.85	23.98	53.80	74	-20.20	PK	PASS
H	2390.00	36.56	30.22	4.85	23.98	35.17	54	-18.83	AV	PASS
H	2400.00	52.84	30.22	4.85	23.98	51.45	74	-22.55	PK	PASS
H	2400.00	38.31	30.22	4.85	23.98	36.92	54	-17.08	AV	PASS
V	2390.00	52.96	30.22	4.85	23.98	51.57	74	-22.43	PK	PASS
V	2390.00	41.02	30.22	4.85	23.98	39.63	54	-14.37	AV	PASS
V	2400.00	51.08	30.22	4.85	23.98	49.69	74	-24.31	PK	PASS
V	2400.00	37.45	30.22	4.85	23.98	36.06	54	-17.94	AV	PASS
High Channel 2462MHz--802.11g										
H	2483.50	54.22	30.22	4.85	23.98	52.83	74	-21.17	PK	PASS
H	2485.50	37.28	30.22	4.85	23.98	35.89	54	-18.11	AV	PASS
H	2500.00	51.91	30.22	4.85	23.98	50.52	74	-23.48	PK	PASS
H	2500.00	39.33	30.22	4.85	23.98	37.94	54	-16.06	AV	PASS
V	2483.50	53.13	30.22	4.85	23.98	51.74	74	-22.26	PK	PASS
V	2485.50	41.53	30.22	4.85	23.98	40.14	54	-13.86	AV	PASS
V	2500.00	52.50	30.22	4.85	23.98	51.11	74	-22.89	PK	PASS
V	2500.00	37.29	30.22	4.85	23.98	35.90	54	-18.10	AV	PASS

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type	Result
Low Channel 2412MHz--802.11n20										
H	2390.00	55.42	30.22	4.85	23.98	54.03	74	-19.97	PK	PASS
H	2390.00	35.83	30.22	4.85	23.98	34.44	54	-19.56	AV	PASS
H	2400.00	52.64	30.22	4.85	23.98	51.25	74	-22.75	PK	PASS
H	2400.00	39.78	30.22	4.85	23.98	38.39	54	-15.61	AV	PASS
V	2390.00	50.02	30.22	4.85	23.98	48.63	74	-25.37	PK	PASS
V	2390.00	41.68	30.22	4.85	23.98	40.29	54	-13.71	AV	PASS
V	2400.00	51.76	30.22	4.85	23.98	50.37	74	-23.63	PK	PASS
V	2400.00	36.97	30.22	4.85	23.98	35.58	54	-18.42	AV	PASS
High Channel 2462MHz--802.11n20										
H	2483.50	56.73	30.22	4.85	23.98	55.34	74	-18.66	PK	PASS
H	2485.50	38.33	30.22	4.85	23.98	36.94	54	-17.06	AV	PASS
H	2500.00	52.42	30.22	4.85	23.98	51.03	74	-22.97	PK	PASS
H	2500.00	40.36	30.22	4.85	23.98	38.97	54	-15.03	AV	PASS
V	2483.50	50.86	30.22	4.85	23.98	49.47	74	-24.53	PK	PASS
V	2485.50	41.71	30.22	4.85	23.98	40.32	54	-13.68	AV	PASS
V	2500.00	52.05	30.22	4.85	23.98	50.66	74	-23.34	PK	PASS
V	2500.00	38.60	30.22	4.85	23.98	37.21	54	-16.79	AV	PASS

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type	Result
Low Channel 2422MHz--802.11n40										
H	2390.00	56.73	30.22	4.85	23.98	55.34	74	-18.66	PK	PASS
H	2390.00	36.13	30.22	4.85	23.98	34.74	54	-19.26	AV	PASS
H	2400.00	53.93	30.22	4.85	23.98	52.54	74	-21.46	PK	PASS
H	2400.00	38.15	30.22	4.85	23.98	36.76	54	-17.24	AV	PASS
V	2390.00	52.28	30.22	4.85	23.98	50.89	74	-23.11	PK	PASS
V	2390.00	41.38	30.22	4.85	23.98	39.99	54	-14.01	AV	PASS
V	2400.00	51.65	30.22	4.85	23.98	50.26	74	-23.74	PK	PASS
V	2400.00	39.65	30.22	4.85	23.98	38.26	54	-15.74	AV	PASS
High Channel 2452MHz--802.11n40										
H	2483.50	54.51	30.22	4.85	23.98	53.12	74	-20.88	PK	PASS
H	2485.50	37.35	30.22	4.85	23.98	35.96	54	-18.04	AV	PASS
H	2500.00	51.96	30.22	4.85	23.98	50.57	74	-23.43	PK	PASS
H	2500.00	37.87	30.22	4.85	23.98	36.48	54	-17.52	AV	PASS
V	2483.50	52.25	30.22	4.85	23.98	50.86	74	-23.14	PK	PASS
V	2485.50	41.56	30.22	4.85	23.98	40.17	54	-13.83	AV	PASS
V	2500.00	53.01	30.22	4.85	23.98	51.62	74	-22.38	PK	PASS
V	2500.00	37.88	30.22	4.85	23.98	36.49	54	-17.51	AV	PASS

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The test data shows only the worst case(802.11b mode)

4.7 Emissions in restricted frequency bands (below 1GHz)

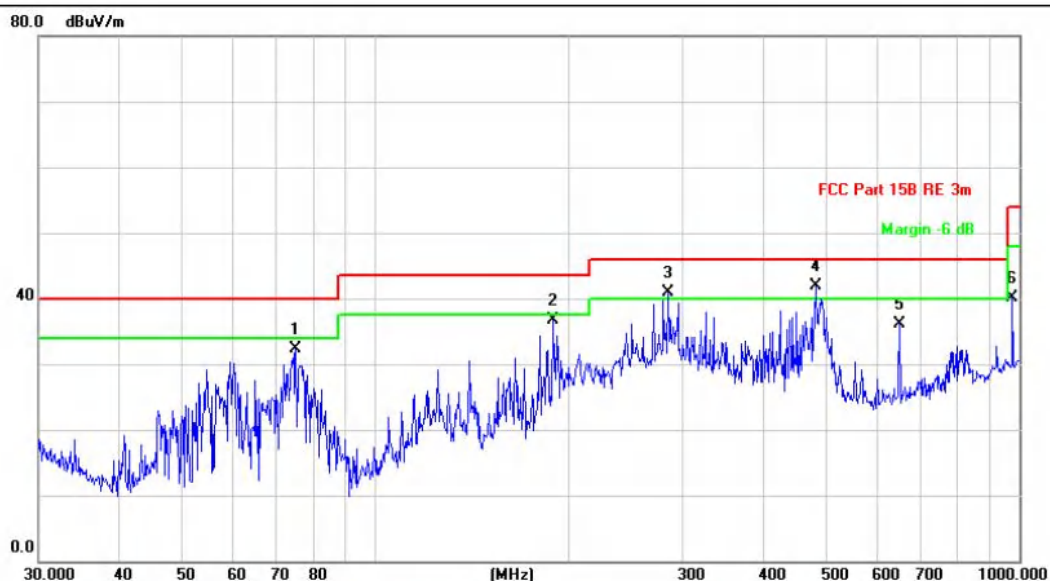
Test Requirement:	Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement 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 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02		
Procedure:	ANSI C63.10-2013 section 6.6.4		

4.7.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.9 °C	Humidity:	51.8 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1, TM2, TM3, TM4				
Final test mode:	TM1, TM2, TM3, TM4				

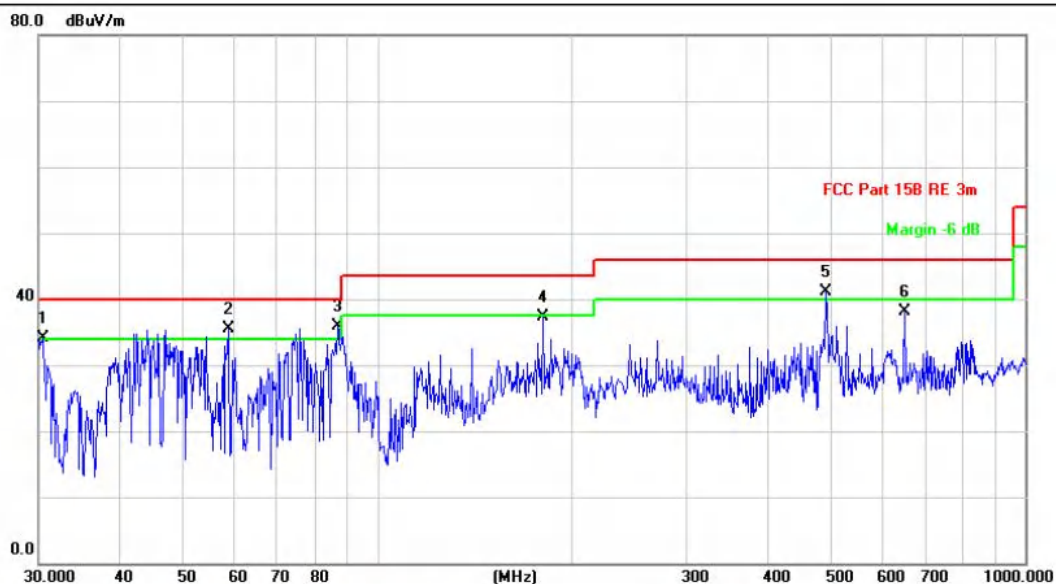
4.7.2 Test Data:

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree	
							Detector		degree	Comment
1		75.1822	42.36	-10.05	32.31	40.00	-7.69	QP	100	247
2		188.4125	42.20	-5.48	36.72	43.50	-6.78	QP	100	124
3	!	284.9767	43.03	-2.09	40.94	46.00	-5.06	QP	100	247
4	*	482.2156	40.01	1.96	41.97	46.00	-4.03	QP	100	265
5		651.9417	31.91	4.18	36.09	46.00	-9.91	QP	100	148
6		975.7529	30.86	9.21	40.07	54.00	-13.93	QP	100	274

TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	!	30.4238	36.39	-2.28	34.11	40.00	-5.89	QP	100	47
2	!	58.8185	45.53	-9.94	35.59	40.00	-4.41	QP	100	245
3	*	86.8068	45.18	-9.25	35.93	40.00	-4.07	QP	100	125
4		180.0165	42.76	-5.39	37.37	43.50	-6.13	QP	100	45
5	!	492.4685	38.62	2.44	41.06	46.00	-4.94	QP	100	354
6		651.9417	33.23	4.87	38.10	46.00	-7.90	QP	100	221

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,

Margin= Emission Level - Limit

2. If peak below the average limit, the average emission was no test.

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

4. The test data shows only the worst case(802.11b mode)

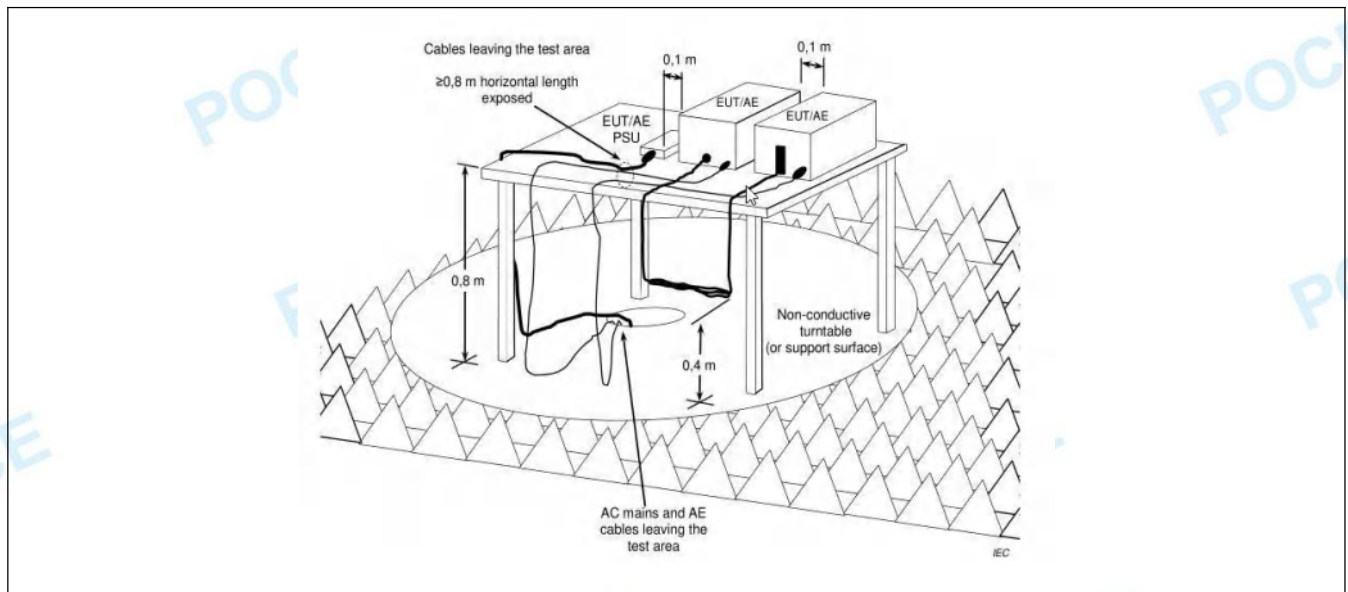
4.8 Emissions in restricted frequency bands (above 1GHz)

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:	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 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02		
Procedure:	ANSI C63.10-2013 section 6.6.4		

4.8.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.9 °C	Humidity:	51.8 %	Atmospheric Pressure:	102 kPa
Pre test mode:		TM1, TM2, TM3, TM4			
Final test mode:		TM1, TM2, TM3, TM4			

4.8.2 Test Setup Diagram:



4.8.3 Test Data:

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
Low Channel:2412MHz--802.11b									
V	4824	54.85	30.55	5.77	24.66	54.73	74.00	-19.27	PK
V	4824	40.80	30.55	5.77	24.66	40.68	54.00	-13.32	AV
V	7236	52.83	30.33	6.32	24.55	53.37	74.00	-20.63	PK
V	7236	40.30	30.33	6.32	24.55	40.84	54.00	-13.16	AV
V	9648	51.95	30.85	7.45	24.69	53.24	74.00	-20.76	PK
V	9648	38.10	30.85	7.45	24.69	39.39	54.00	-14.61	AV
H	4824	54.27	30.55	5.77	24.66	54.15	74.00	-19.85	PK
H	4824	40.05	30.55	5.77	24.66	39.93	54.00	-14.07	AV
H	7236	53.83	30.33	6.32	24.55	54.37	74.00	-19.63	PK
H	7236	39.94	30.33	6.32	24.55	40.48	54.00	-13.52	AV
H	9648	50.32	30.85	7.45	24.69	51.61	74.00	-22.39	PK
H	9648	37.66	30.85	7.45	24.69	38.95	54.00	-15.05	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
Middle Channel:2437MHz--802.11b									
V	4874	54.59	30.55	5.77	24.66	54.47	74.00	-19.53	PK
V	4874	42.06	30.55	5.77	24.66	41.94	54.00	-12.06	AV
V	7311	54.45	30.33	6.32	24.55	54.99	74.00	-19.01	PK
V	7311	41.94	30.33	6.32	24.55	42.48	54.00	-11.52	AV
V	9748	51.30	30.85	7.45	24.69	52.59	74.00	-21.41	PK
V	9748	38.69	30.85	7.45	24.69	39.98	54.00	-14.02	AV
H	4874	55.86	30.55	5.77	24.66	55.74	74.00	-18.26	PK
H	4874	41.27	30.55	5.77	24.66	41.15	54.00	-12.85	AV
H	7311	54.46	30.33	6.32	24.55	55.00	74.00	-19.00	PK
H	7311	41.32	30.33	6.32	24.55	41.86	54.00	-12.14	AV
H	9748	50.69	30.85	7.45	24.69	51.98	74.00	-22.02	PK
H	9748	36.40	30.85	7.45	24.69	37.69	54.00	-16.31	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
High Channel:2462MHz--802.11b									
V	4924	53.77	30.55	5.77	24.66	53.65	74.00	-20.35	PK
V	4924	41.54	30.55	5.77	24.66	41.42	54.00	-12.58	AV
V	7386	53.92	30.33	6.32	24.55	54.46	74.00	-19.54	PK
V	7386	41.05	30.33	6.32	24.55	41.59	54.00	-12.41	AV
V	9848	51.68	30.85	7.45	24.69	52.97	74.00	-21.03	PK
V	9848	38.04	30.85	7.45	24.69	39.33	54.00	-14.67	AV
H	4924	53.90	30.55	5.77	24.66	53.78	74.00	-20.22	PK
H	4924	41.15	30.55	5.77	24.66	41.03	54.00	-12.97	AV
H	7386	53.91	30.33	6.32	24.55	54.45	74.00	-19.55	PK
H	7386	40.97	30.33	6.32	24.55	41.51	54.00	-12.49	AV
H	9848	51.04	30.85	7.45	24.69	52.33	74.00	-21.67	PK
H	9848	37.64	30.85	7.45	24.69	38.93	54.00	-15.07	AV

**Remark:**

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. During the test, pre-scan the 802.11b/g/n mode, and found the 802.11b mode which it is worse case.



5 TEST SETUP PHOTOS

Refer to Appendix - Test Setup Photos

6 PHOTOS OF THE EUT

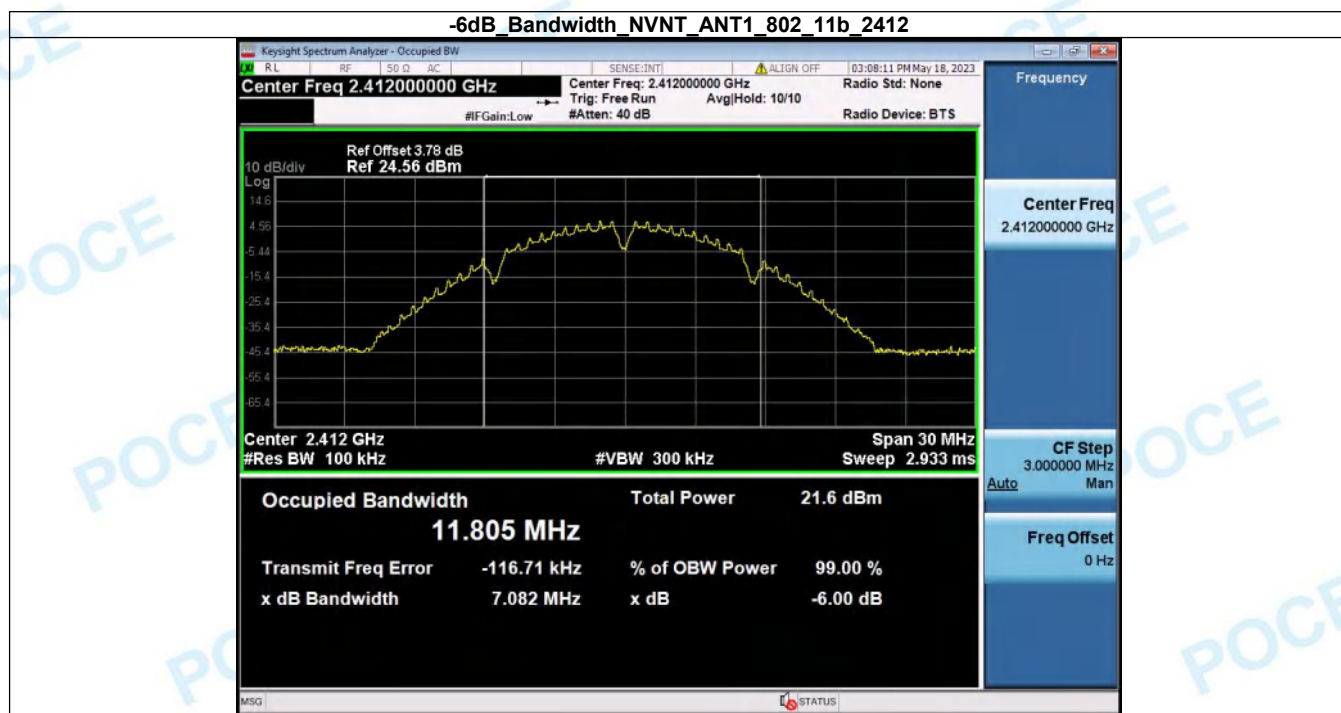
Refer to Appendix - EUT Photos



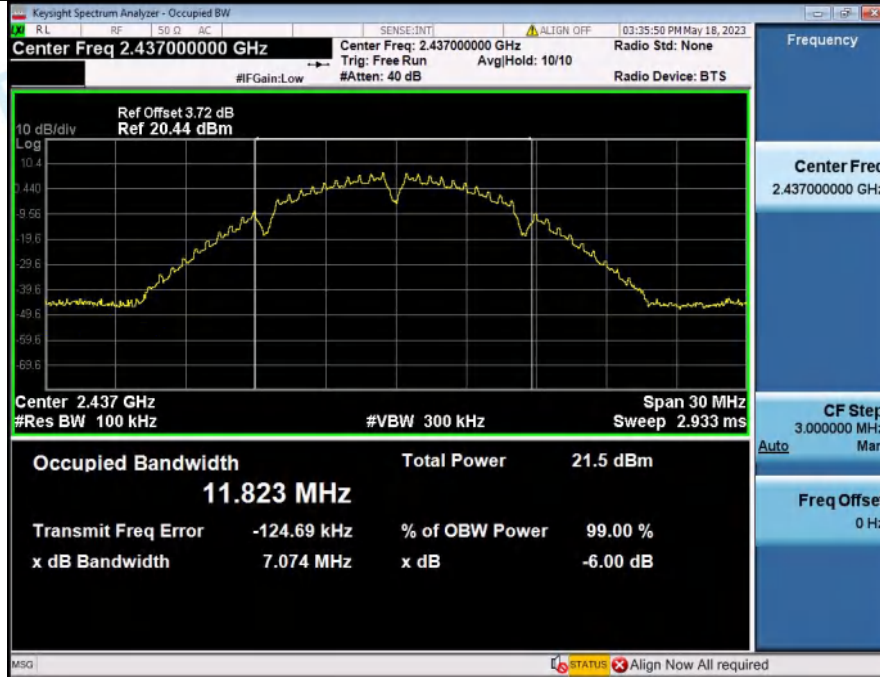
Appendix

1. -6dB Bandwidth

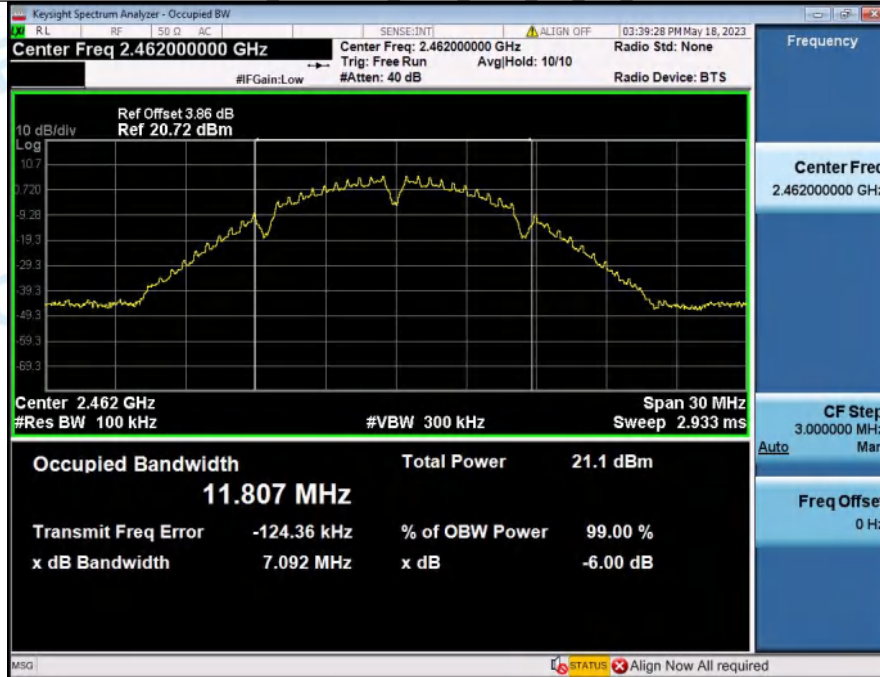
Condition	Antenna	Modulation	Frequency (MHz)	-6dB BW(MHz)	limit(kHz)	Result
NVNT	ANT1	802.11b	2412.00	7.08	500	Pass
NVNT	ANT1	802.11b	2437.00	7.07	500	Pass
NVNT	ANT1	802.11b	2462.00	7.09	500	Pass
NVNT	ANT1	802.11g	2412.00	15.11	500	Pass
NVNT	ANT1	802.11g	2437.00	15.09	500	Pass
NVNT	ANT1	802.11g	2462.00	15.12	500	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	15.11	500	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	15.09	500	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	15.11	500	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	32.56	500	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	31.34	500	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	32.49	500	Pass



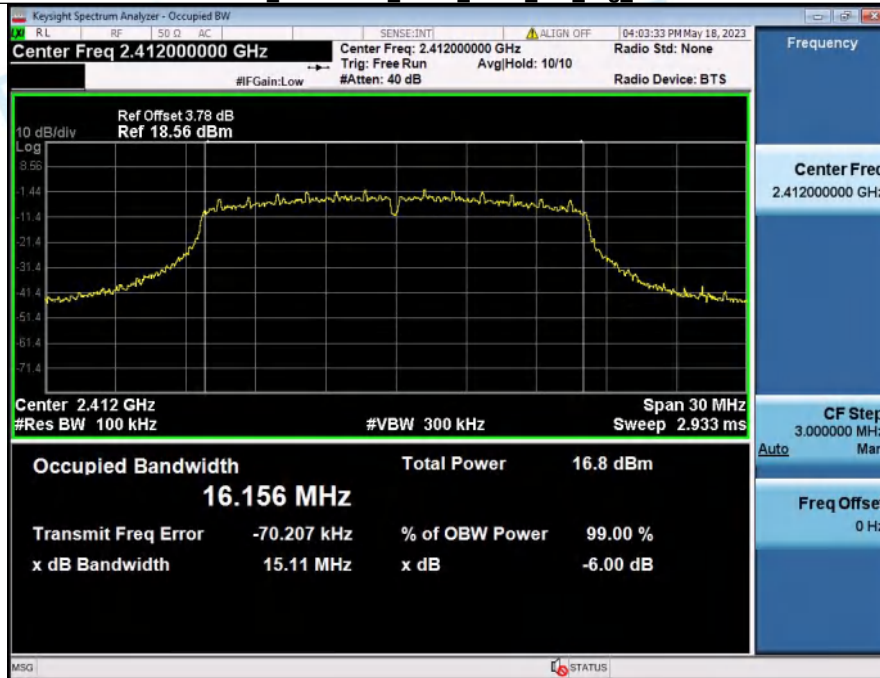
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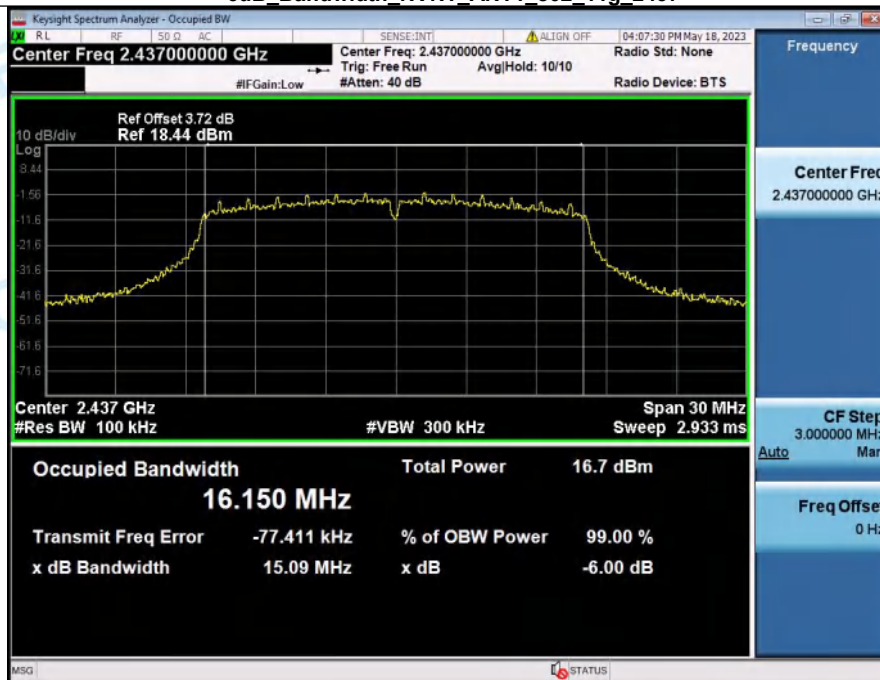
-6dB_Bandwidth_NVNT_ANT1_802_11b_2462



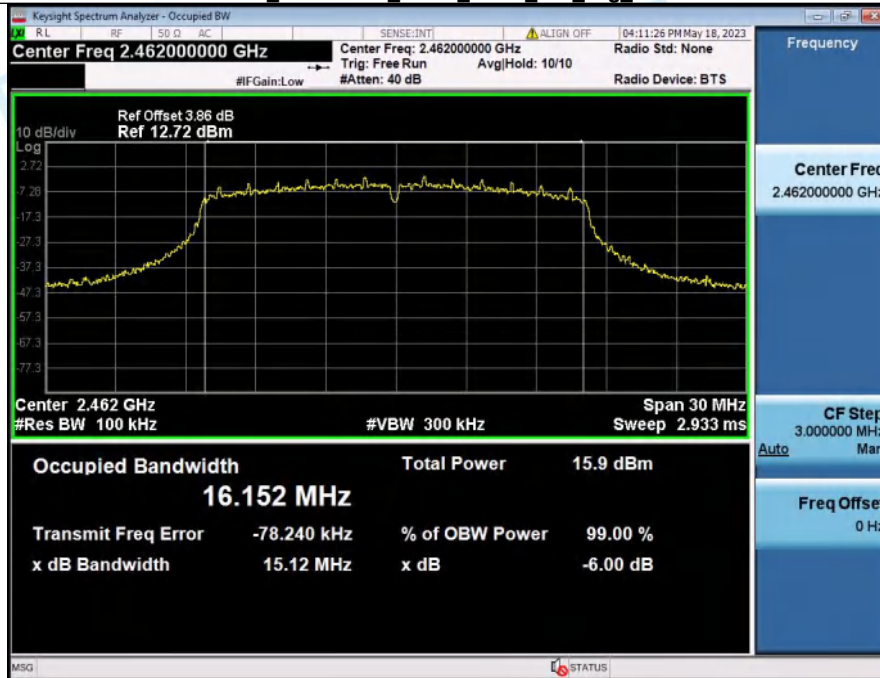
-6dB_Bandwidth_NVNT_ANT1_802_11g_2412



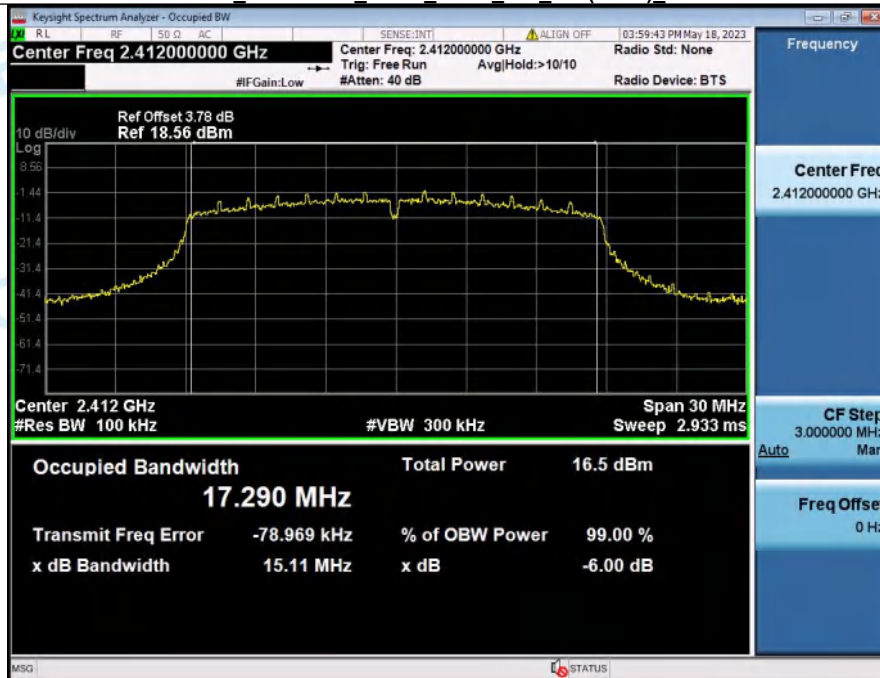
-6dB_Bandwidth_NVNT_ANT1_802_11g_2437



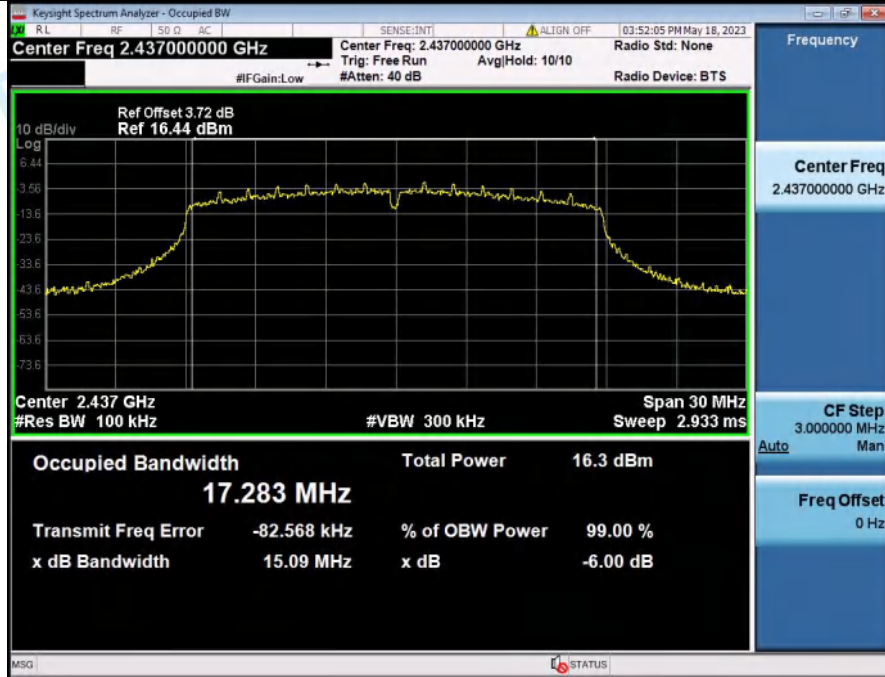
-6dB_Bandwidth_NVNT_ANT1_802_11g_2462



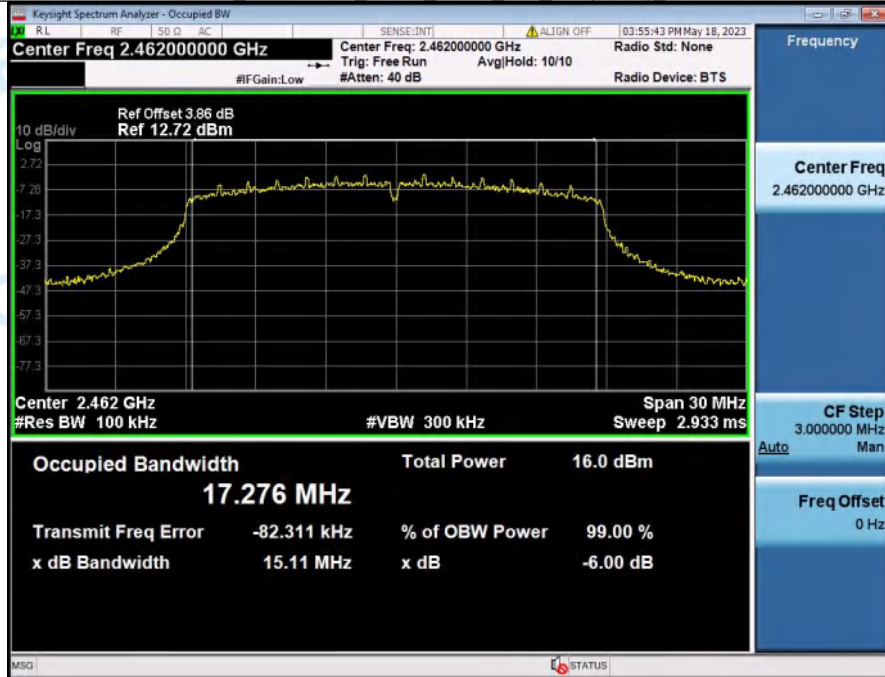
-6dB_Bandwidth_NVNT_ANT1_802_11n(HT20)_2412



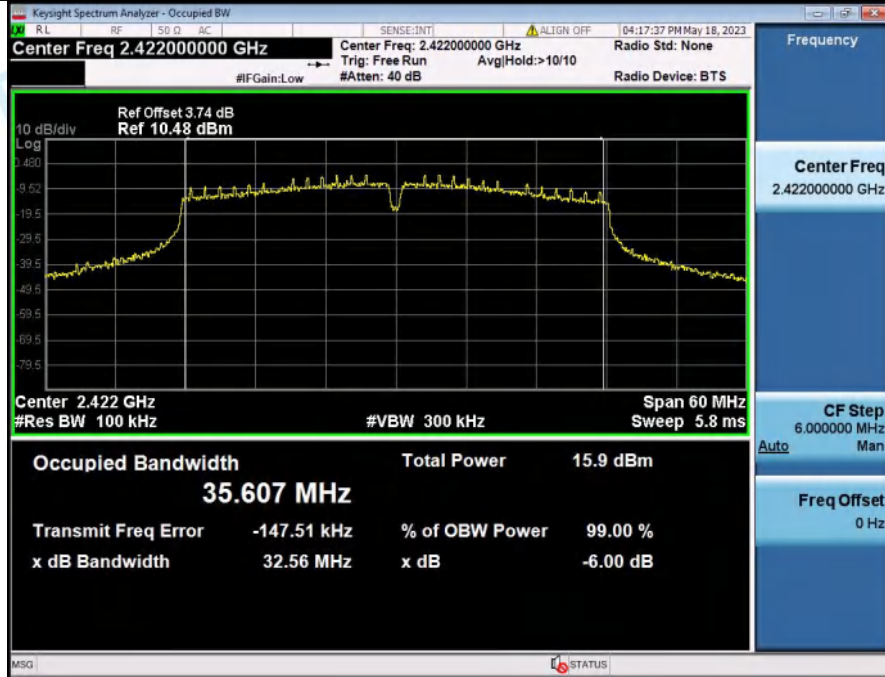
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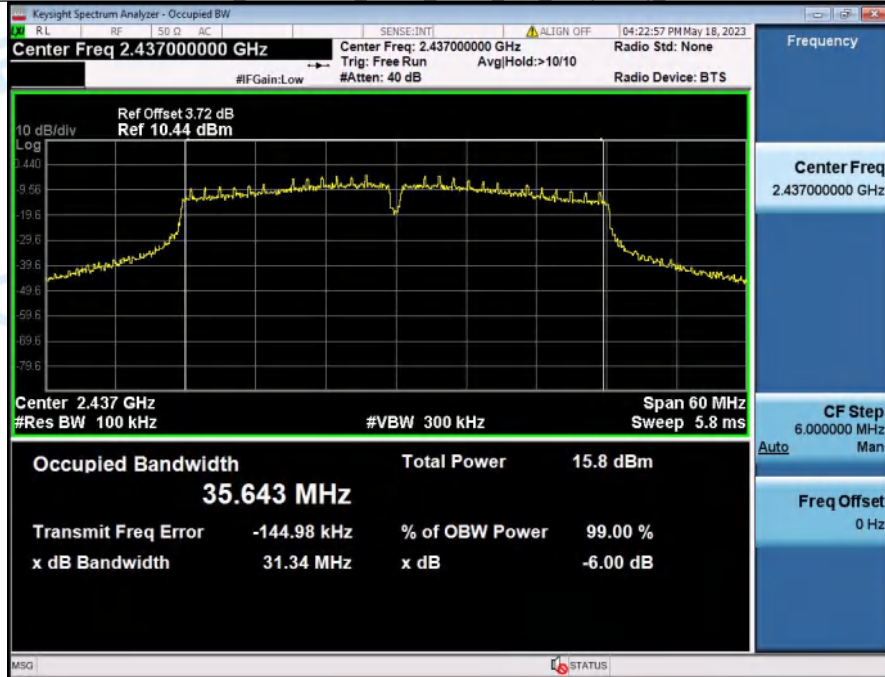
-6dB_Bandwidth_NVNT_ANT1_802_11n(HT20)_2462

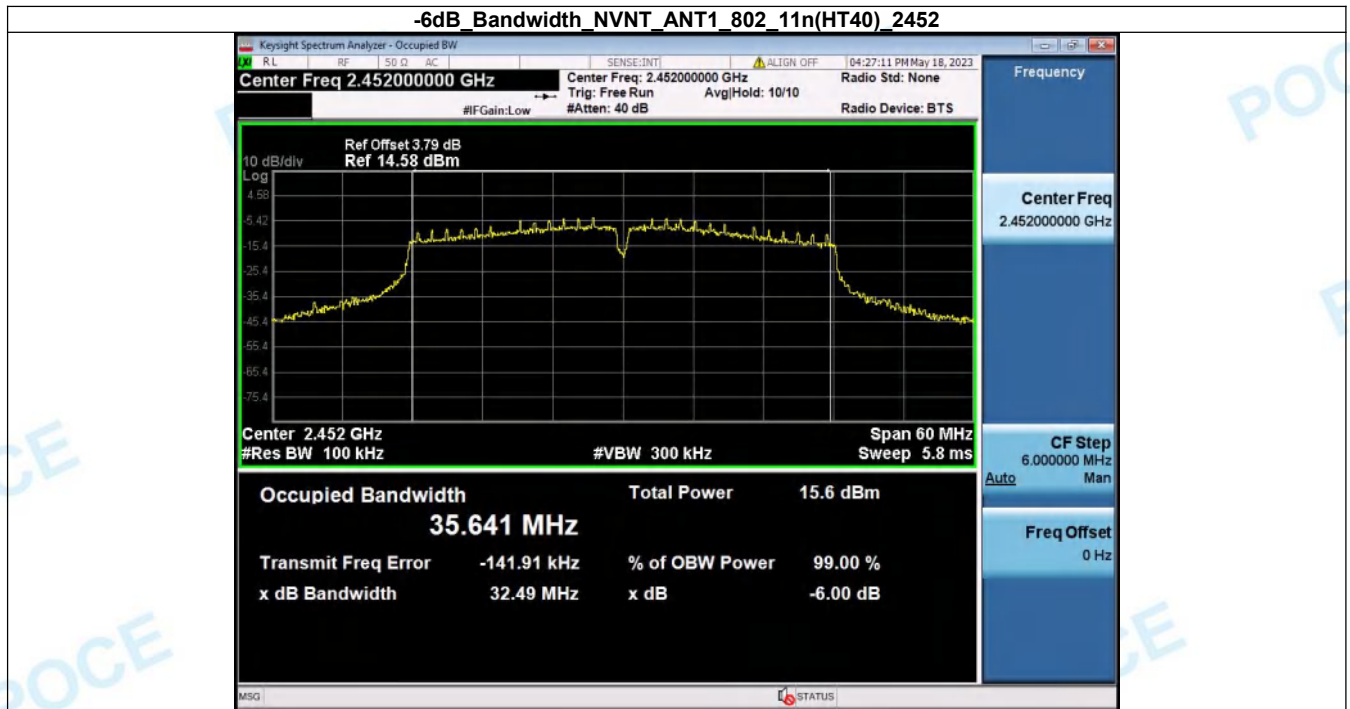


-6dB_Bandwidth_NVNT_ANT1_802_11n(HT40)_2422



-6dB_Bandwidth_NVNT_ANT1_802_11n(HT40)_2437





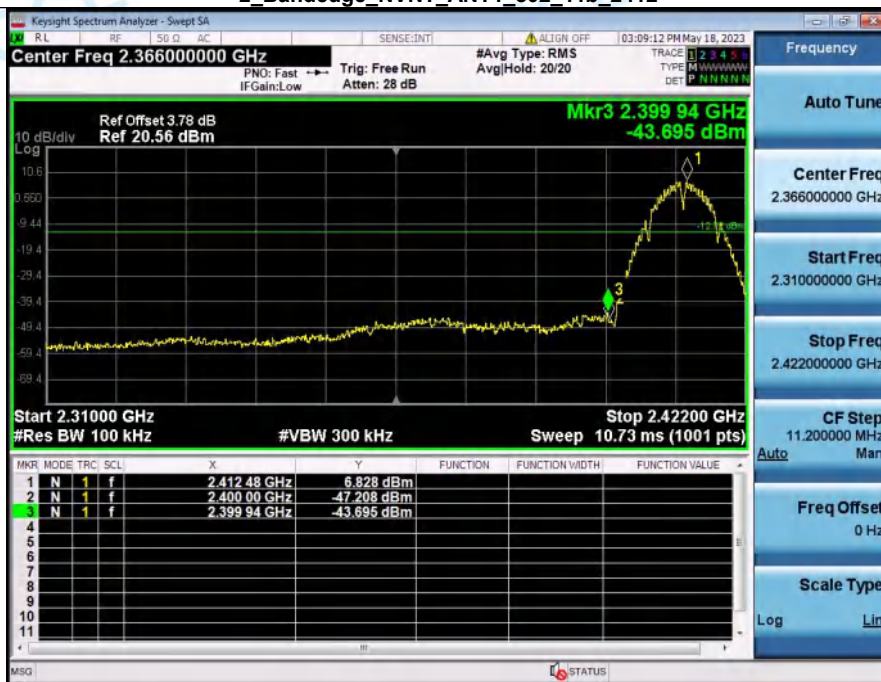
2. Bandedge

Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark_frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11b	2412.00	2399.94	-43.69	-12.72	Pass
NVNT	ANT1	802.11b	2462.00	2497.98	-46.36	-13.90	Pass
NVNT	ANT1	802.11g	2412.00	2399.94	-39.64	-20.62	Pass
NVNT	ANT1	802.11g	2462.00	2483.87	-51.72	-20.87	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	2399.94	-40.42	-20.38	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	2483.54	-50.58	-21.12	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	2399.36	-35.66	-23.87	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	2484.43	-47.44	-24.09	Pass

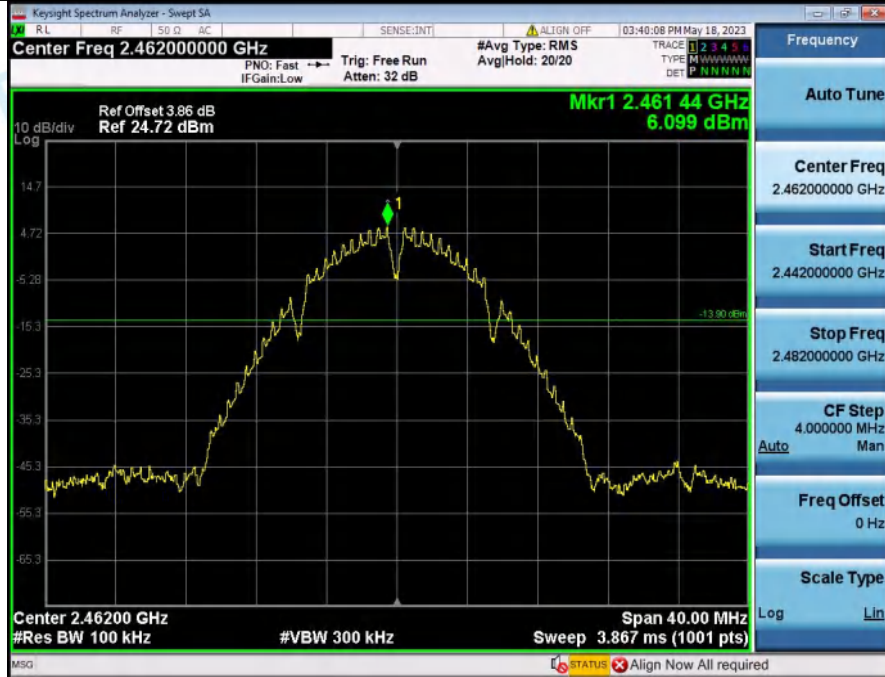
1_Reference_Level_NVNT_ANT1_802_11b_2412



2_Bandedge_NVNT_ANT1_802_11b_2412



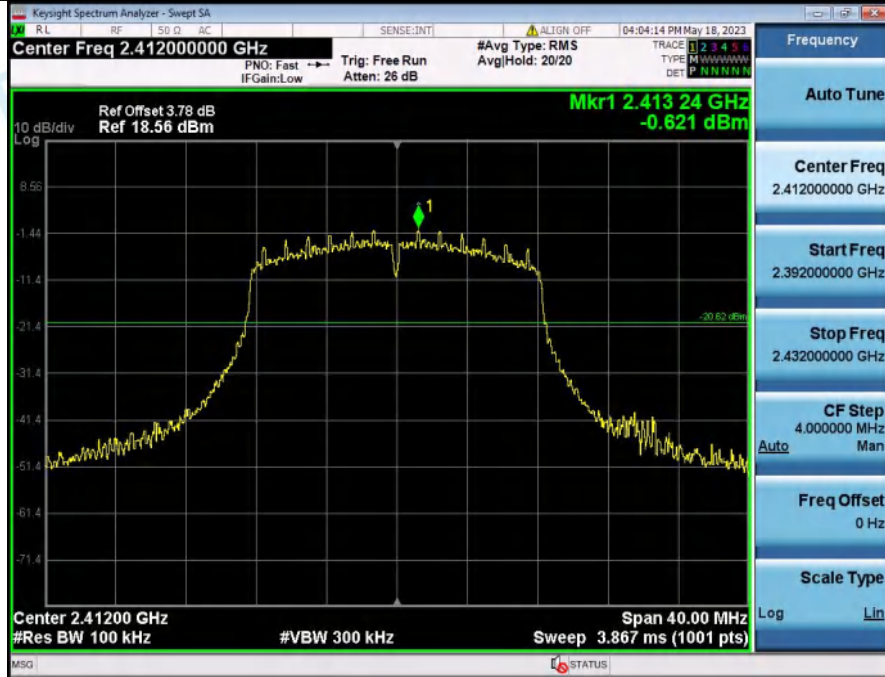
1 Reference_Level_NVNT_ANT1_802_11b_2462



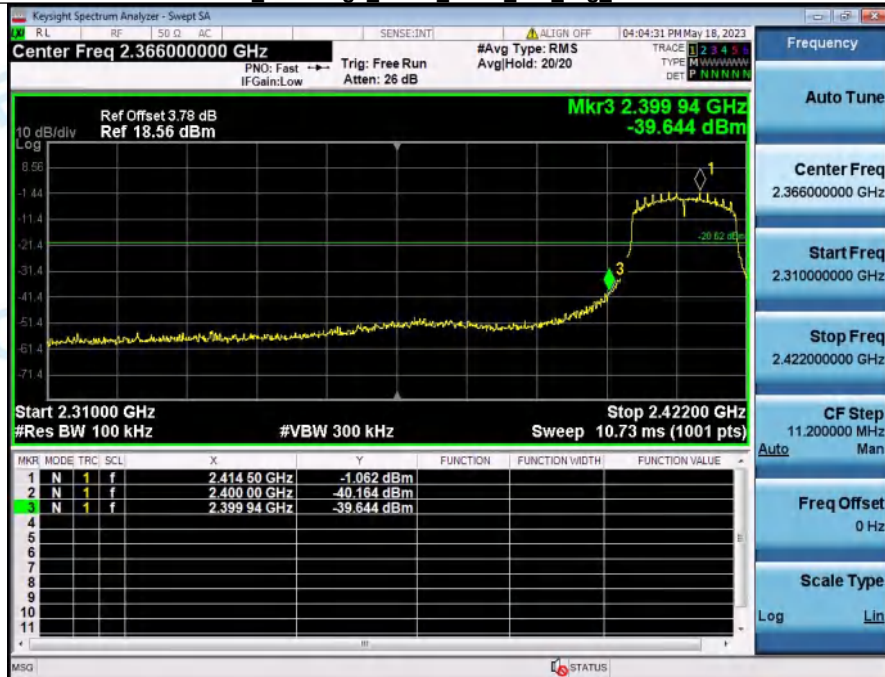
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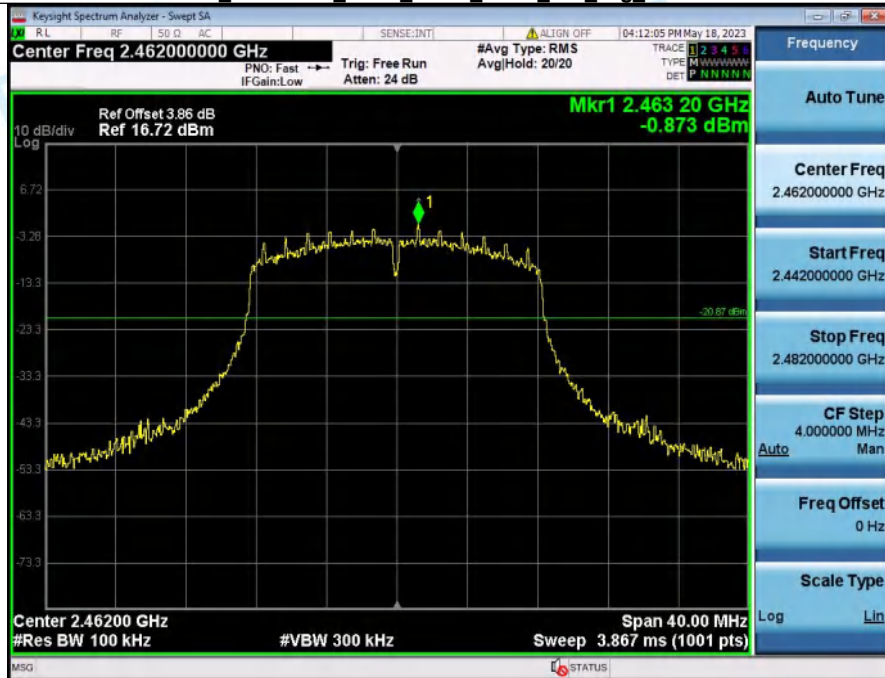
1 Reference_Level_NVNT_ANT1_802_11g_2412



2 Bandedge_NVNT_ANT1_802_11g_2412



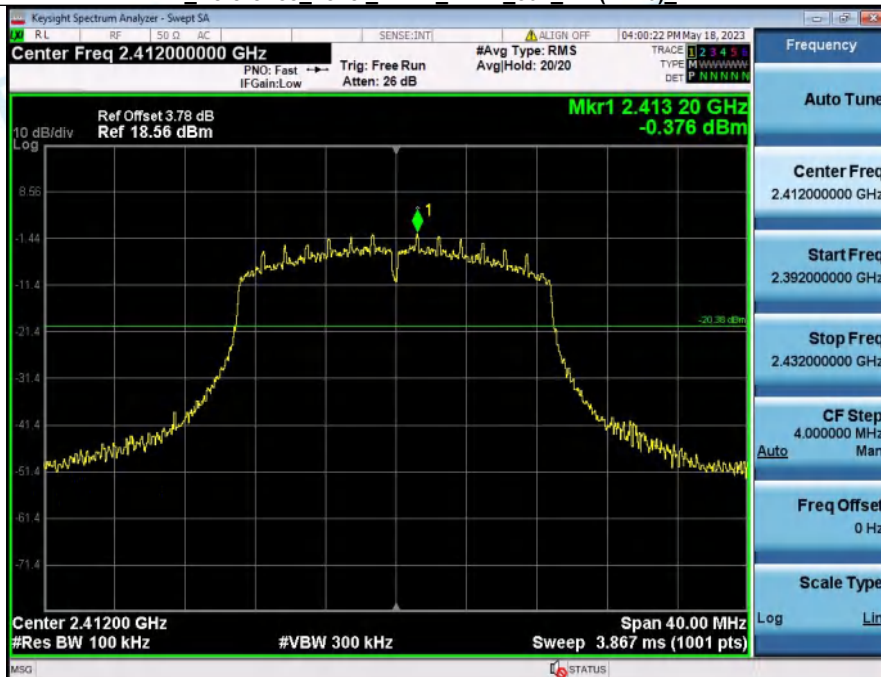
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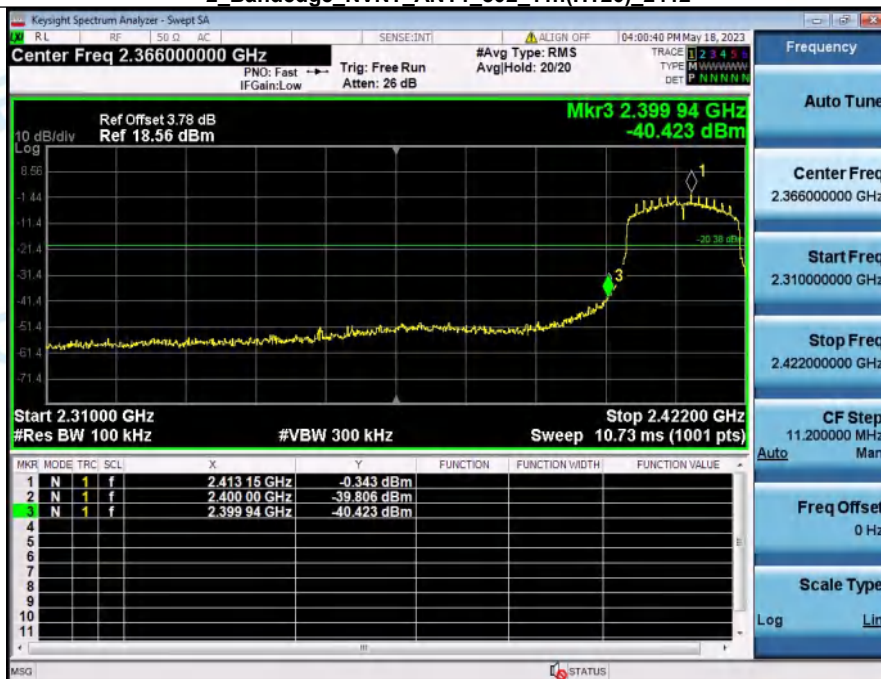
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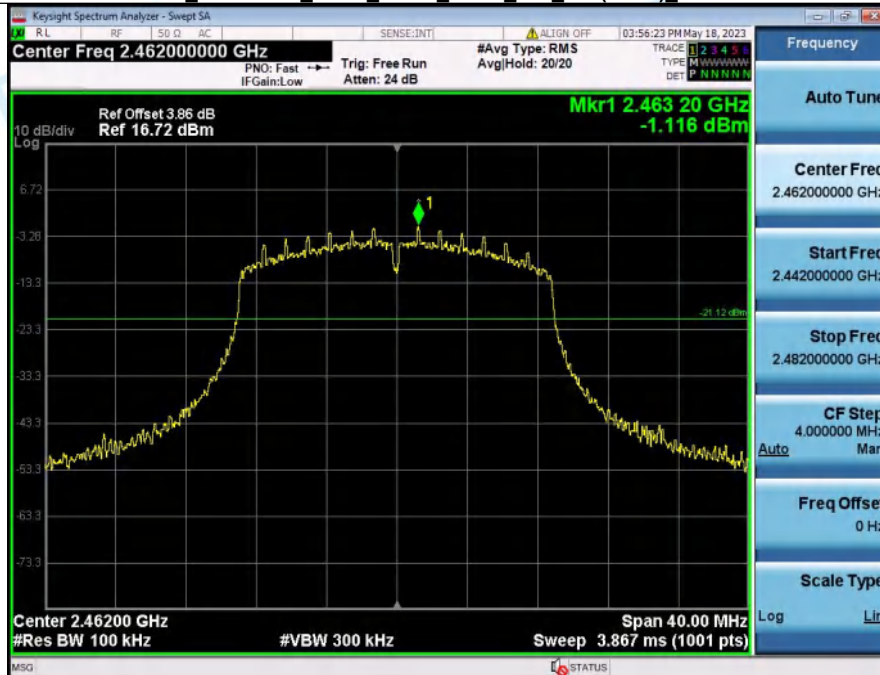
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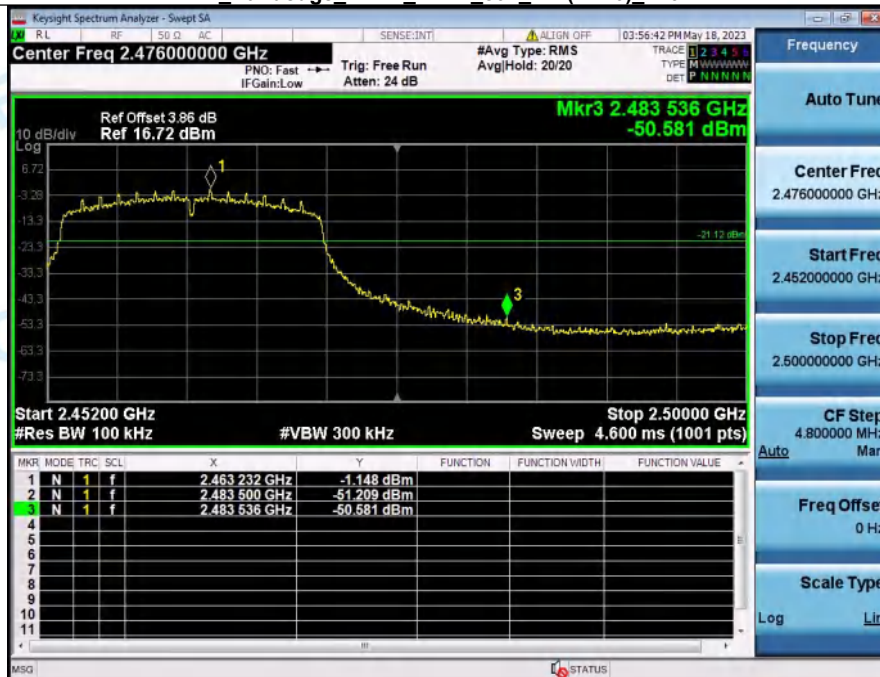
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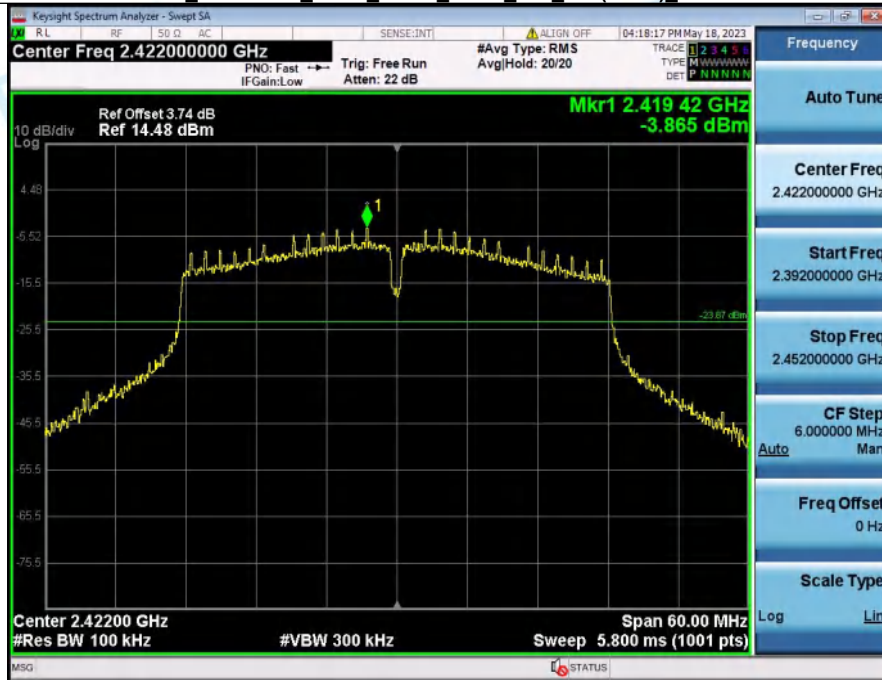
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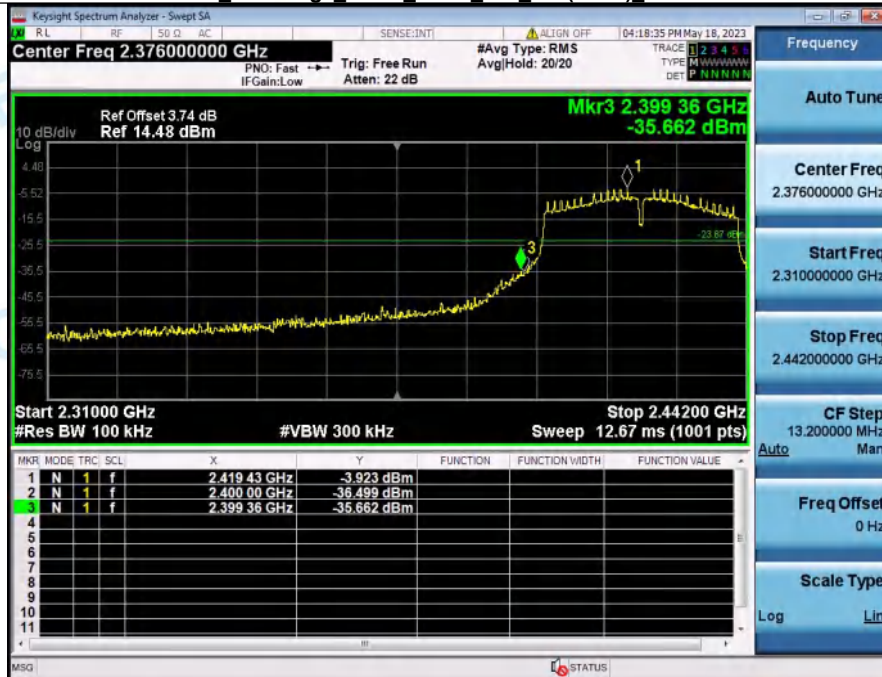
2 Bandedge_NVNT_ANT1_802_11n(HT20)_2462



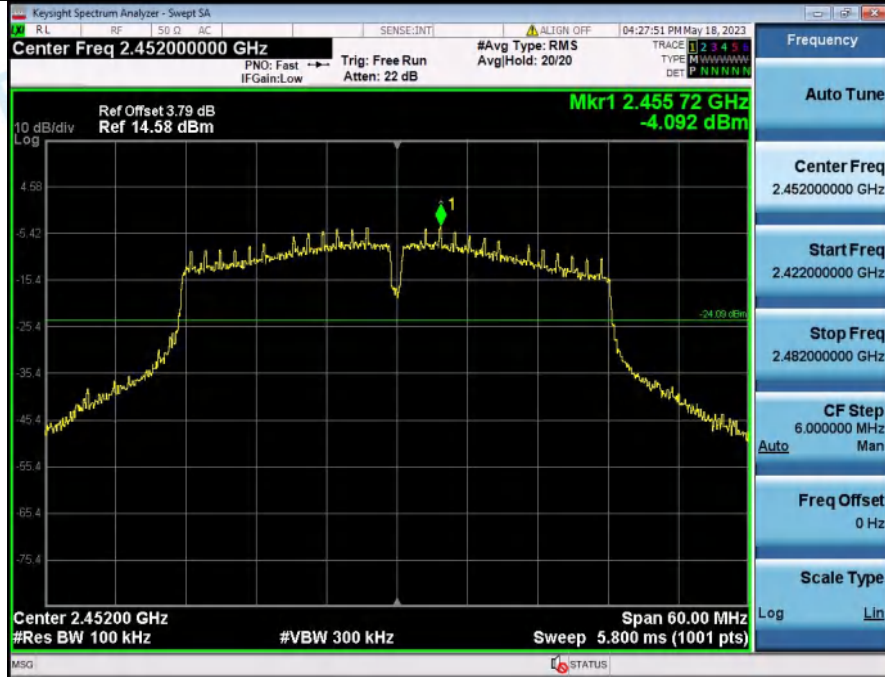
1 Reference_Level_NVNT_ANT1_802_11n(HT40)_2422



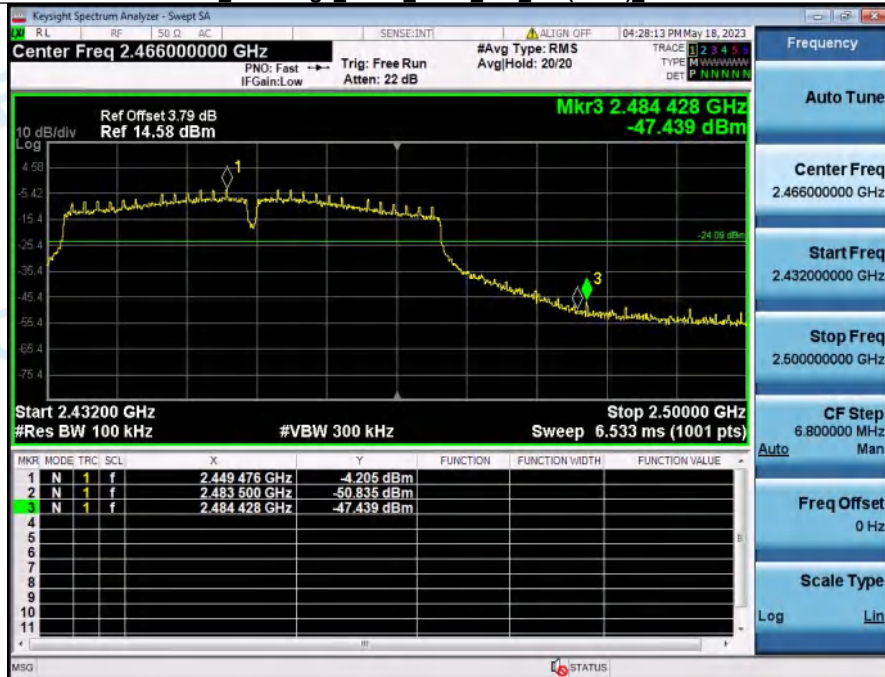
2 Bandedge_NVNT_ANT1_802_11n(HT40)_2422



1 Reference_Level_NVNT_ANT1_802_11n(HT40)_2452



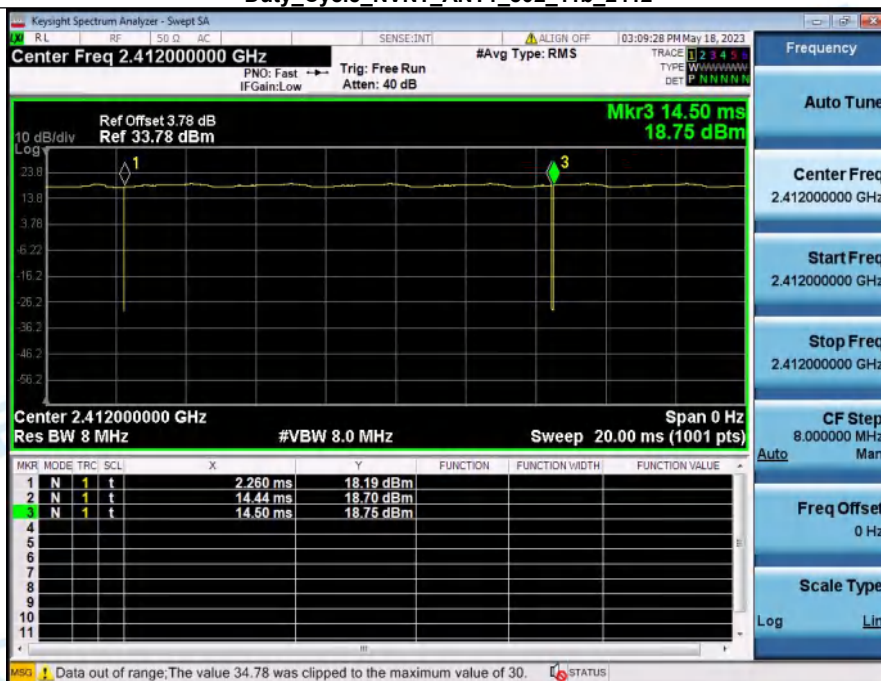
2 Bandedge_NVNT_ANT1_802_11n(HT40)_2452



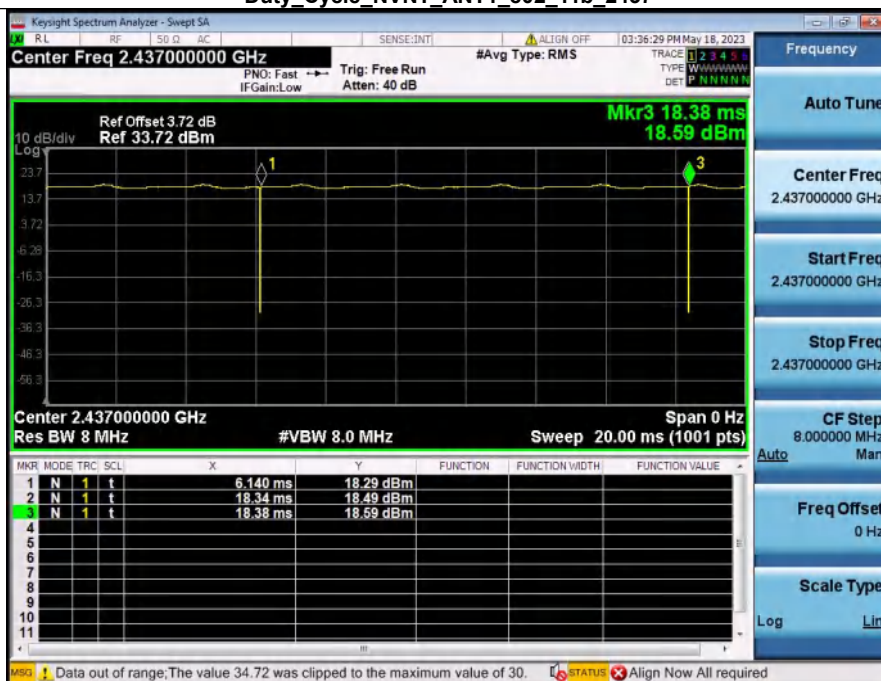
3. Duty Cycle

Condition	Antenna	Modulation	Frequency (MHz)	Dutycycle(%)	Duty_factor
NVNT	ANT1	802.11b	2412.00	99.67	0.00
NVNT	ANT1	802.11b	2437.00	99.84	0.00
NVNT	ANT1	802.11b	2462.00	99.84	0.00
NVNT	ANT1	802.11g	2412.00	98.08	0.00
NVNT	ANT1	802.11g	2437.00	99.04	0.00
NVNT	ANT1	802.11g	2462.00	99.03	0.00
NVNT	ANT1	802.11n(HT20)	2412.00	97.94	0.09
NVNT	ANT1	802.11n(HT20)	2437.00	97.94	0.09
NVNT	ANT1	802.11n(HT20)	2462.00	98.97	0.00
NVNT	ANT1	802.11n(HT40)	2422.00	97.92	0.09
NVNT	ANT1	802.11n(HT40)	2437.00	97.96	0.09
NVNT	ANT1	802.11n(HT40)	2452.00	97.92	0.09

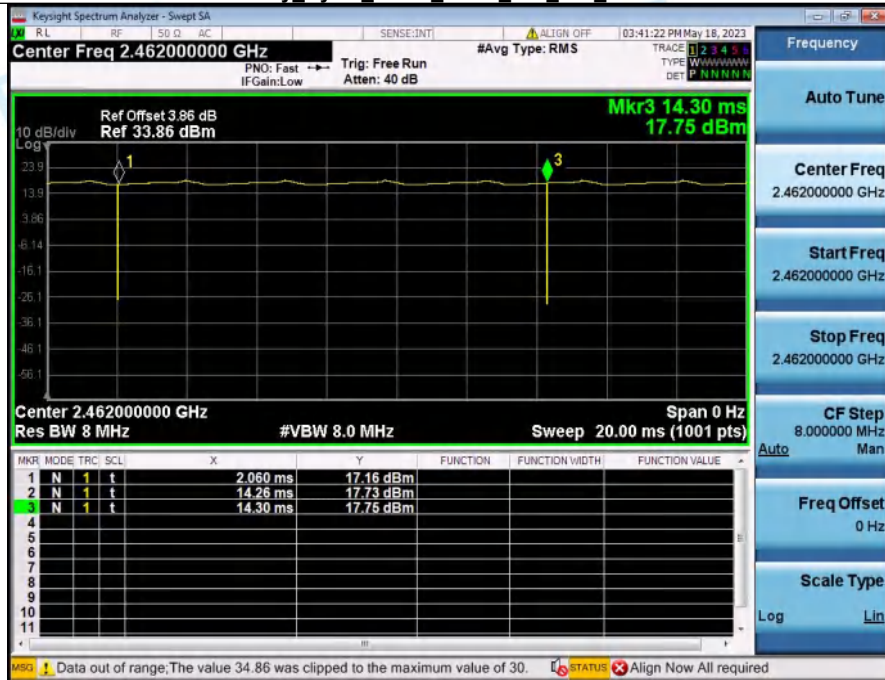
Duty_Cycle_NVNT_ANT1_802_11b_2412



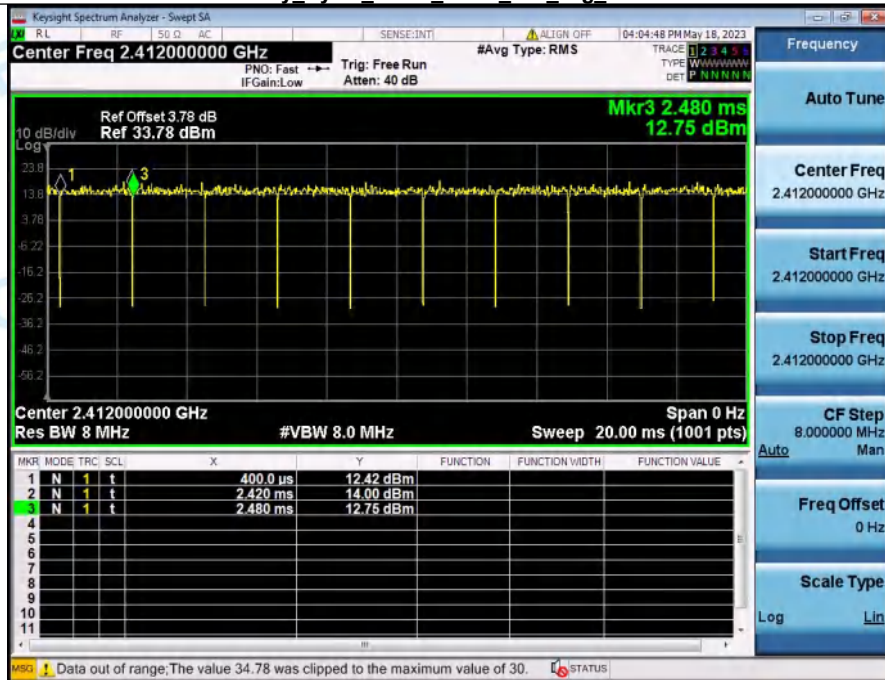
Duty_Cycle_NVNT_ANT1_802_11b_2437



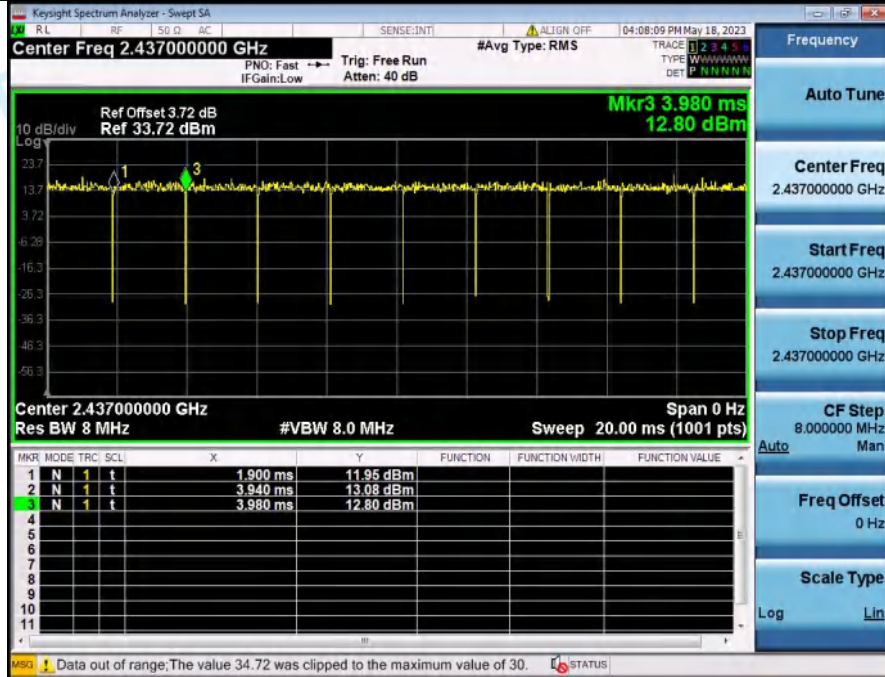
Duty Cycle_NVNT_ANT1_802_11b_2462



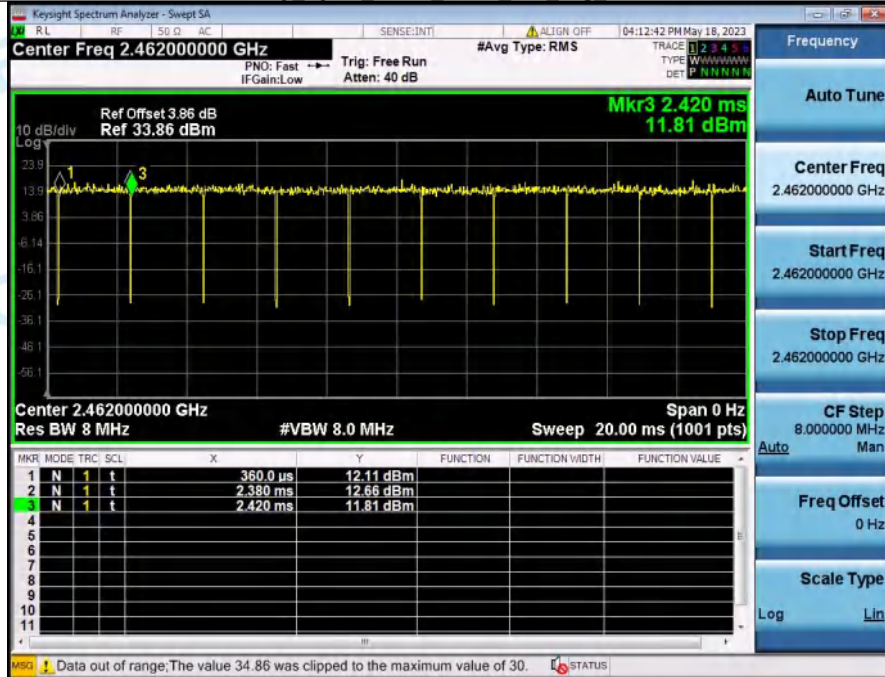
Duty Cycle_NVNT_ANT1_802_11g_2412



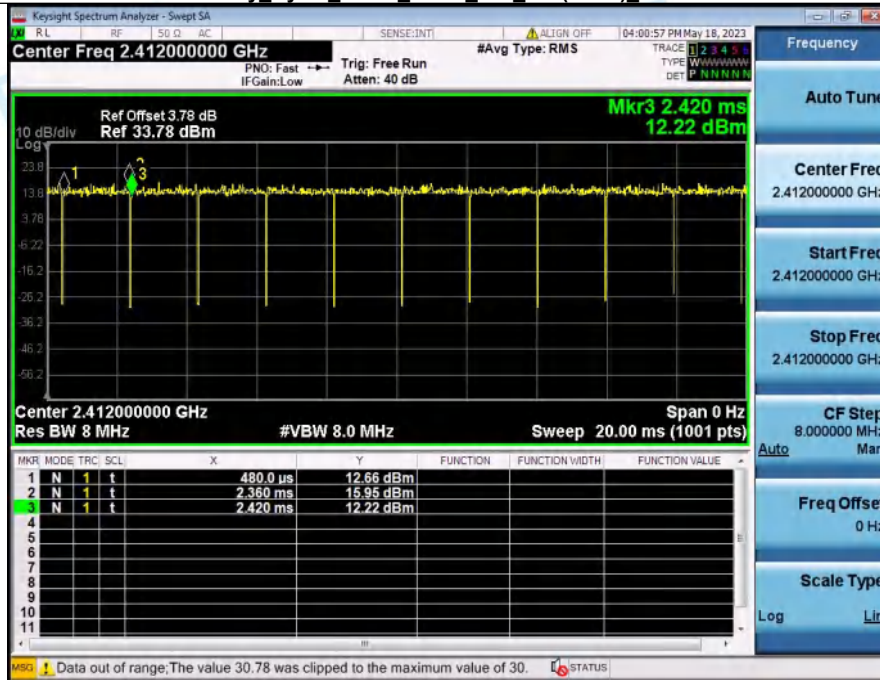
Duty Cycle_NVNT_ANT1_802_11g_2437



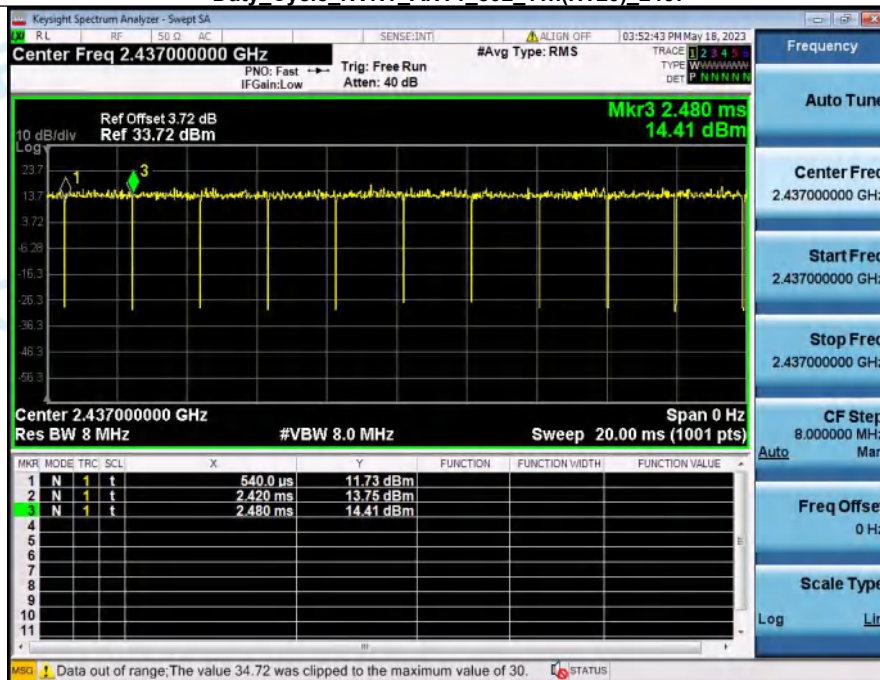
Duty Cycle_NVNT_ANT1_802_11g_2462

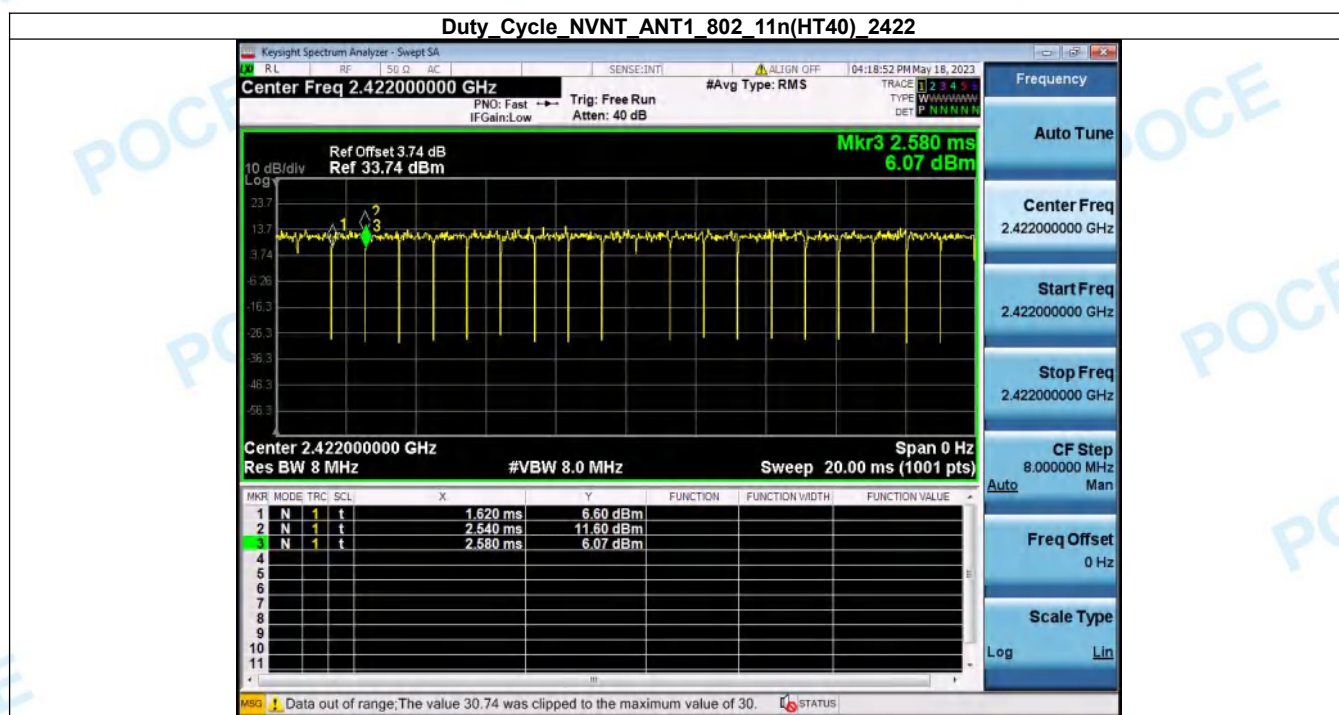
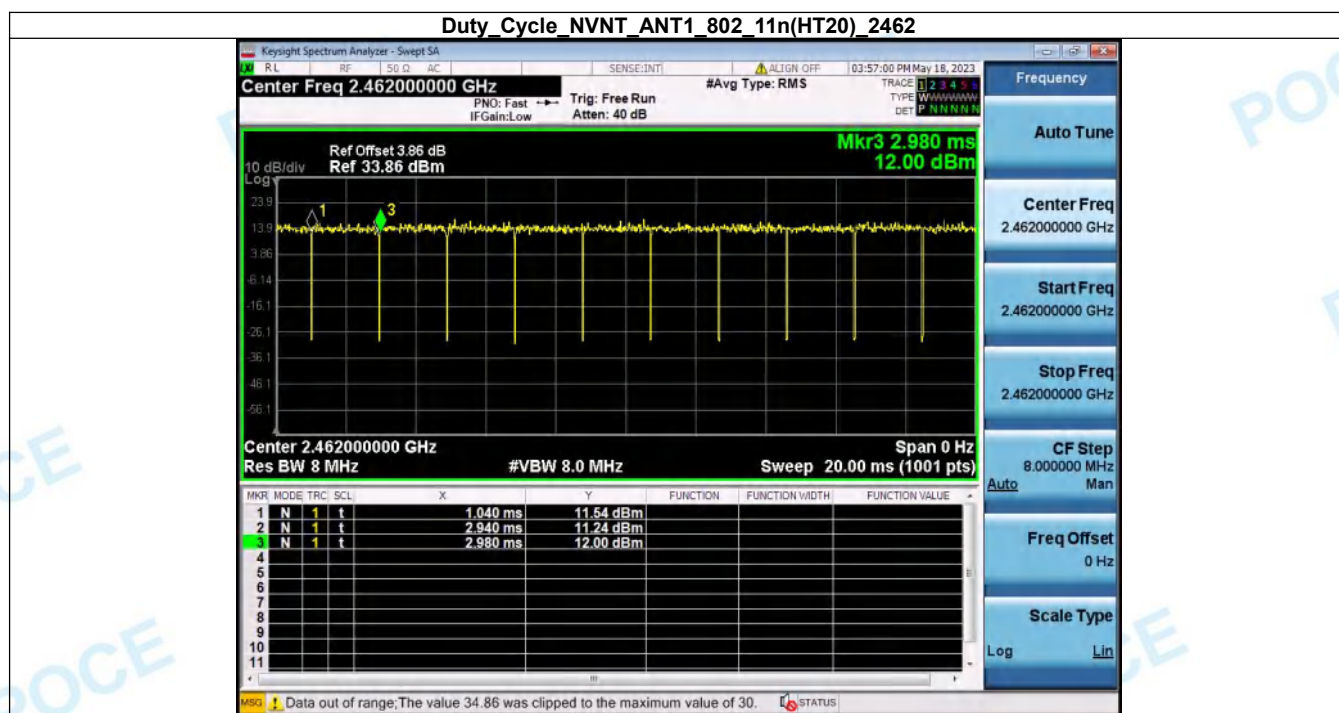


Duty Cycle NVNT_ANT1_802_11n(HT20)_2412

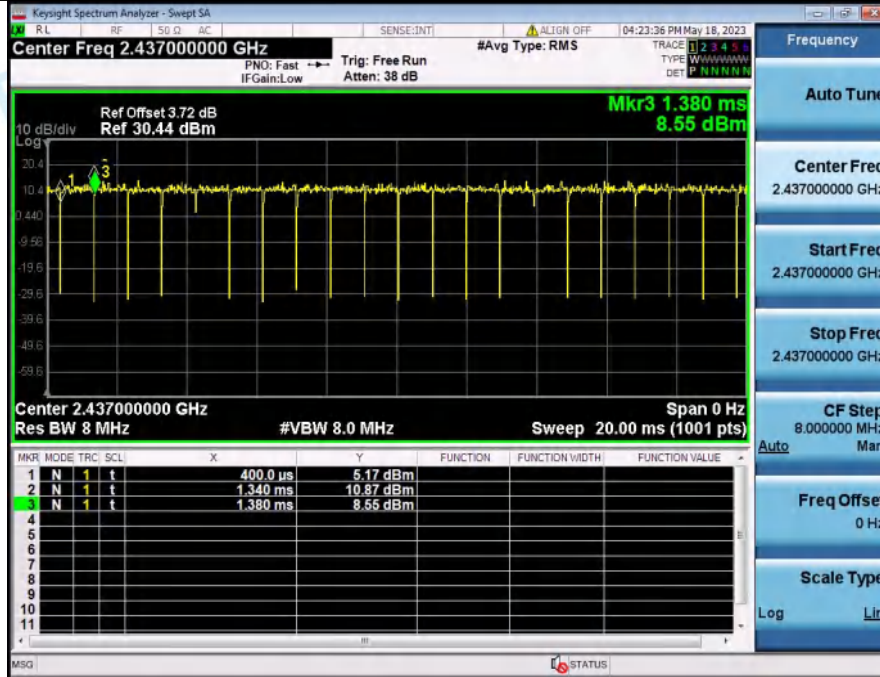


Duty Cycle NVNT_ANT1_802_11n(HT20)_2437

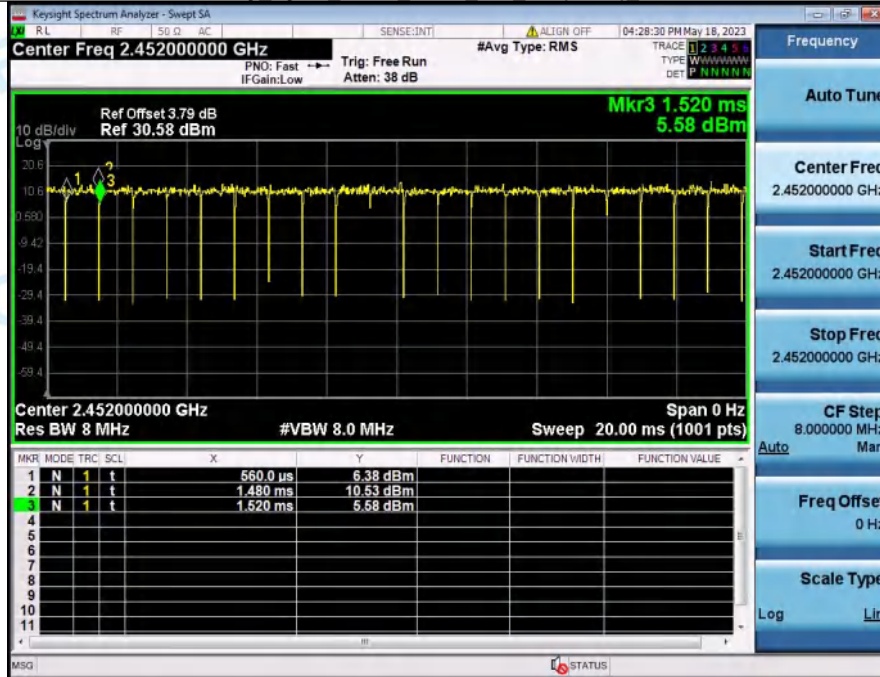




Duty Cycle NVNT_ANT1_802_11n(HT40)_2437



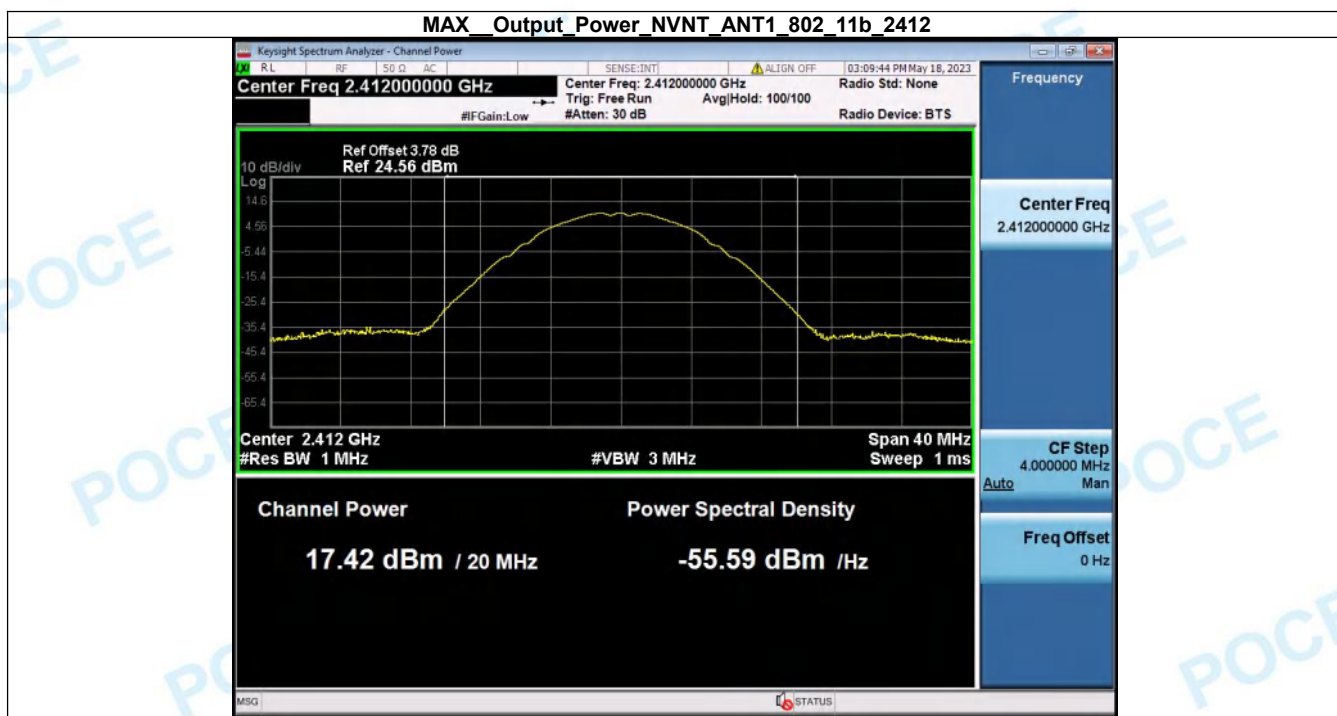
Duty Cycle NVNT_ANT1_802_11n(HT40)_2452



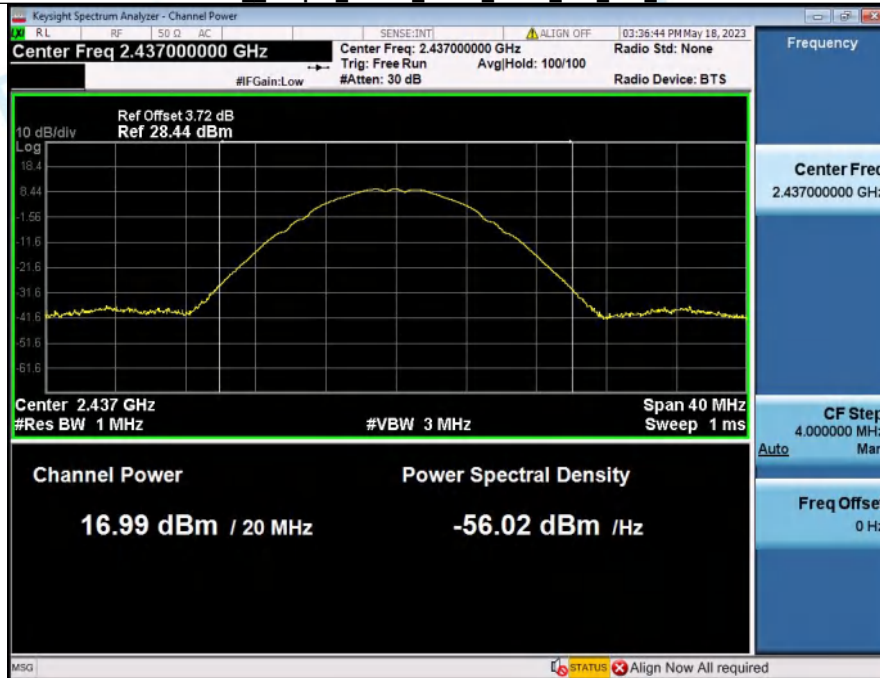
4. MAX. Output Power

Condition	Antenna	Modulation	Frequency (MHz)	Detector	Conducted Power(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11b	2412.00	Peak	17.42	30	Pass
NVNT	ANT1	802.11b	2437.00	Peak	16.99	30	Pass
NVNT	ANT1	802.11b	2462.00	Peak	16.83	30	Pass
NVNT	ANT1	802.11g	2412.00	Peak	17.74	30	Pass
NVNT	ANT1	802.11g	2437.00	Peak	17.70	30	Pass
NVNT	ANT1	802.11g	2462.00	Peak	17.12	30	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	Peak	17.61	30	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	Peak	17.08	30	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	Peak	16.85	30	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	Peak	16.60	30	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	Peak	16.41	30	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	Peak	16.26	30	Pass

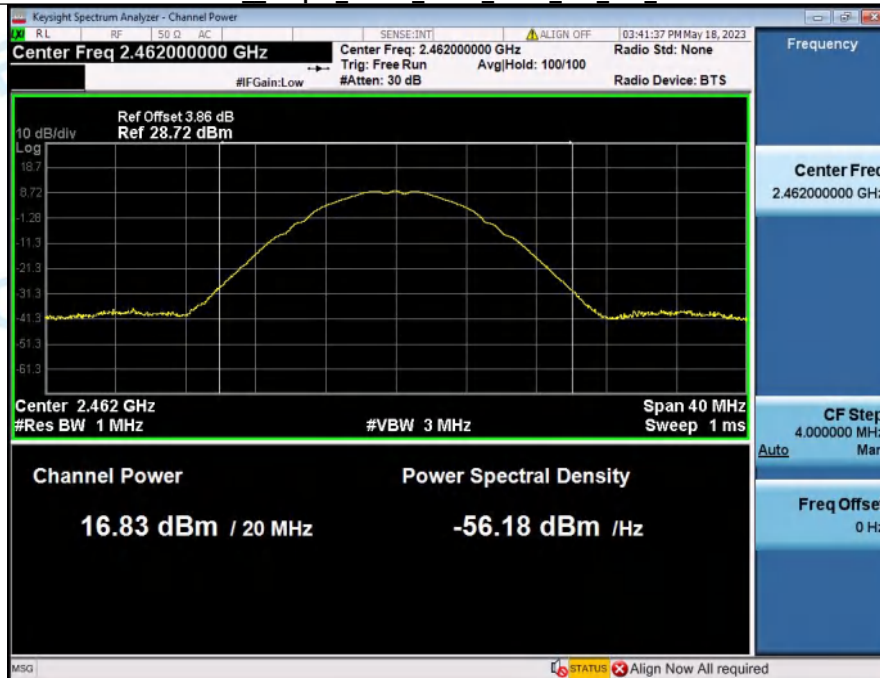
MAX Output Power_NVNT_ANT1_802_11b_2412



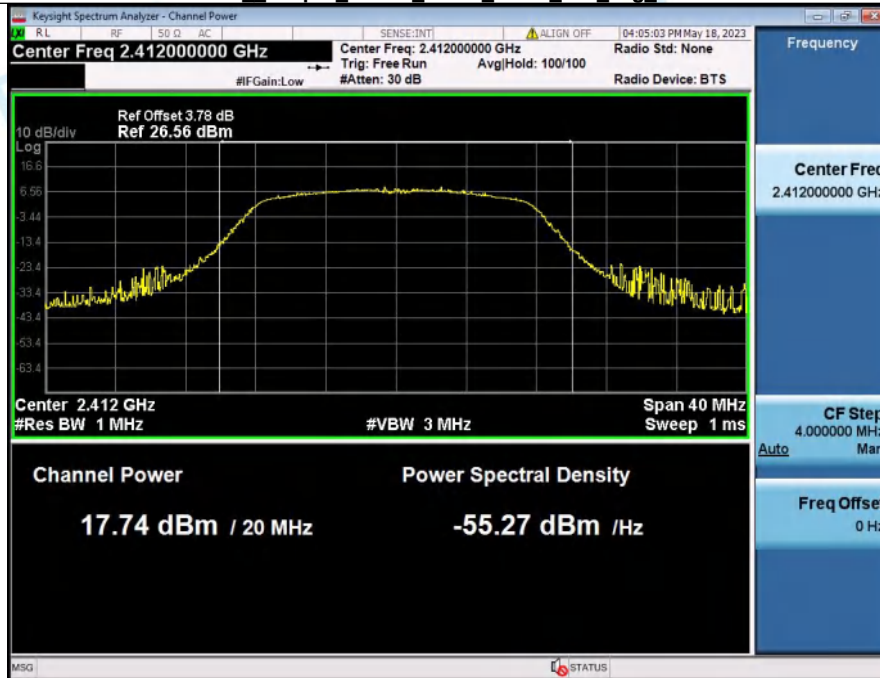
MAX_Output_Power_NVNT_ANT1_802_11b_2437



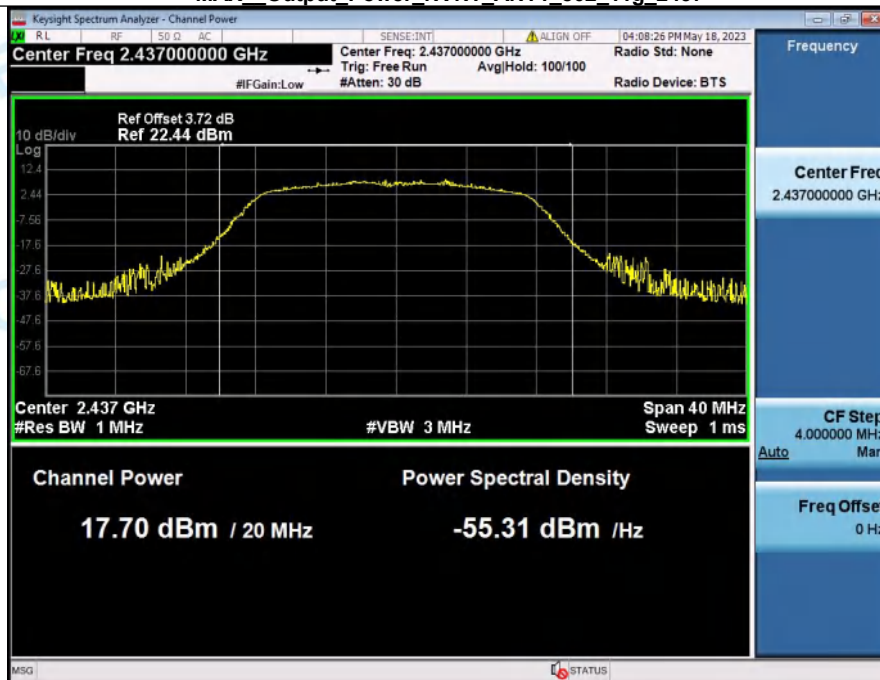
MAX_Output_Power_NVNT_ANT1_802_11b_2462



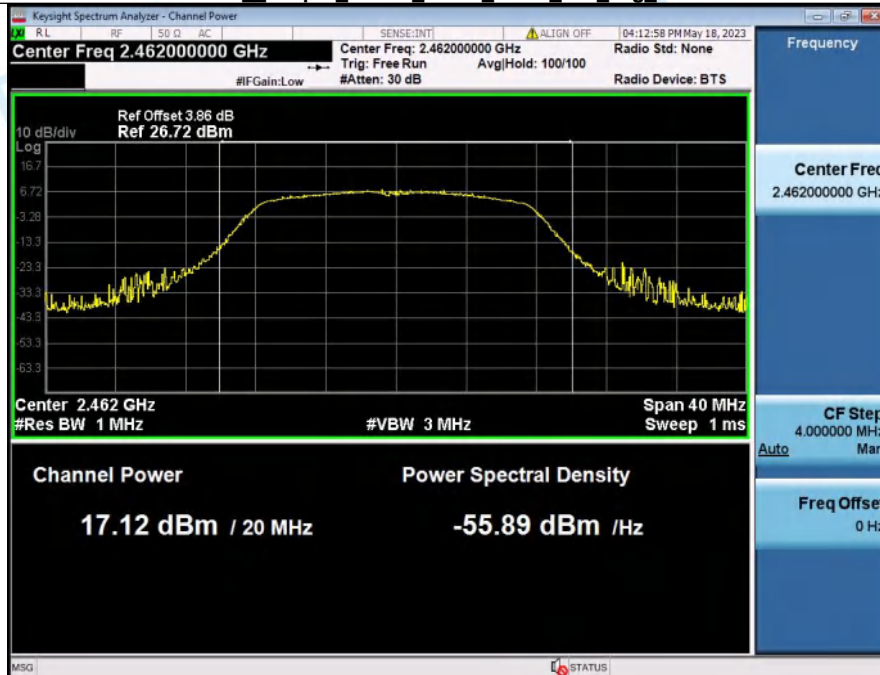
MAX_Output_Power_NVNT_ANT1_802_11g_2412



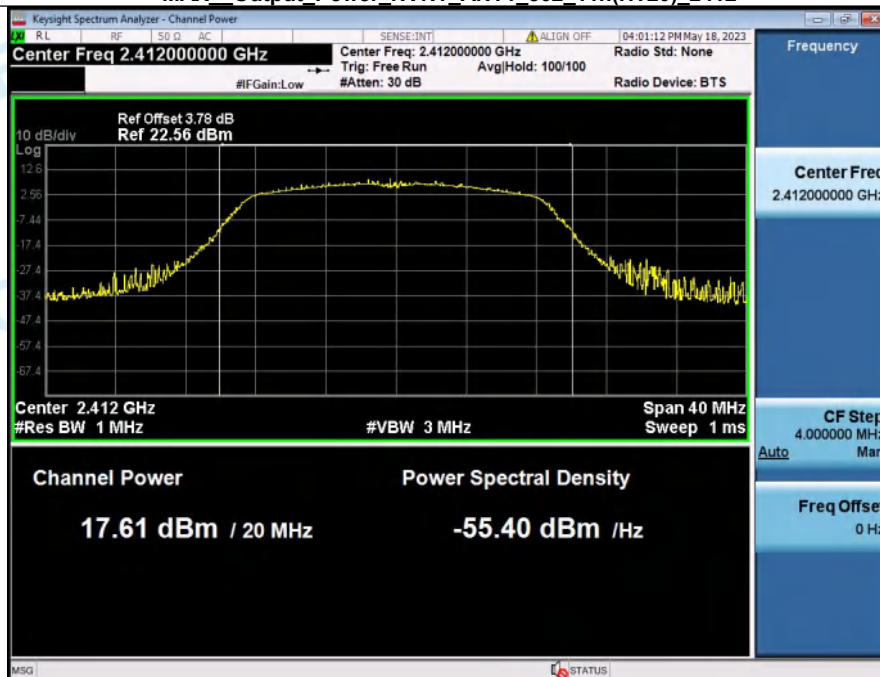
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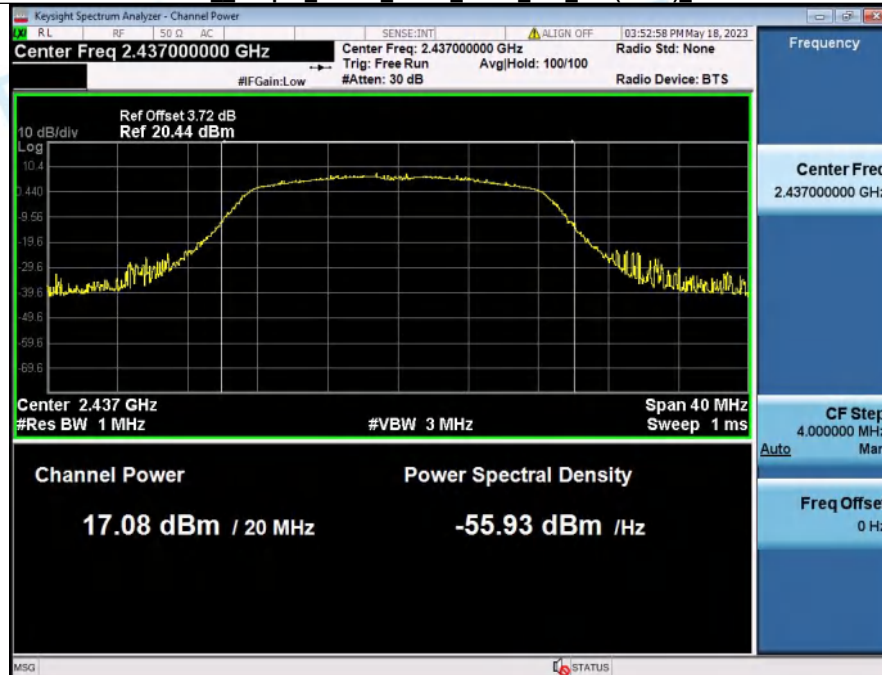
MAX_Output_Power_NVNT_ANT1_802_11g_2462



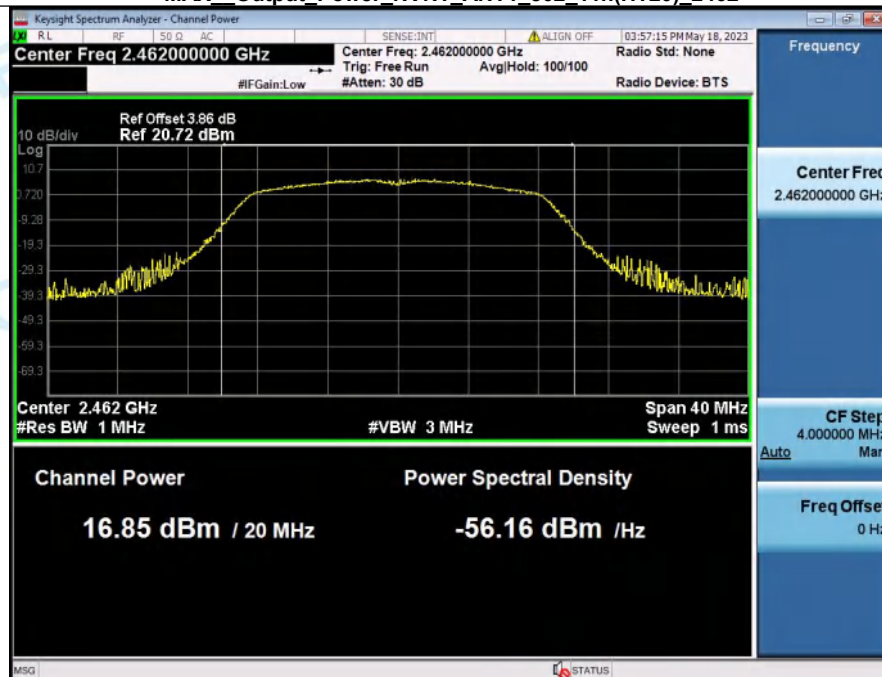
MAX_Output_Power_NVNT_ANT1_802_11n(HT20)_2412



MAX_Output_Power_NVNT_ANT1_802_11n(HT20)_2437



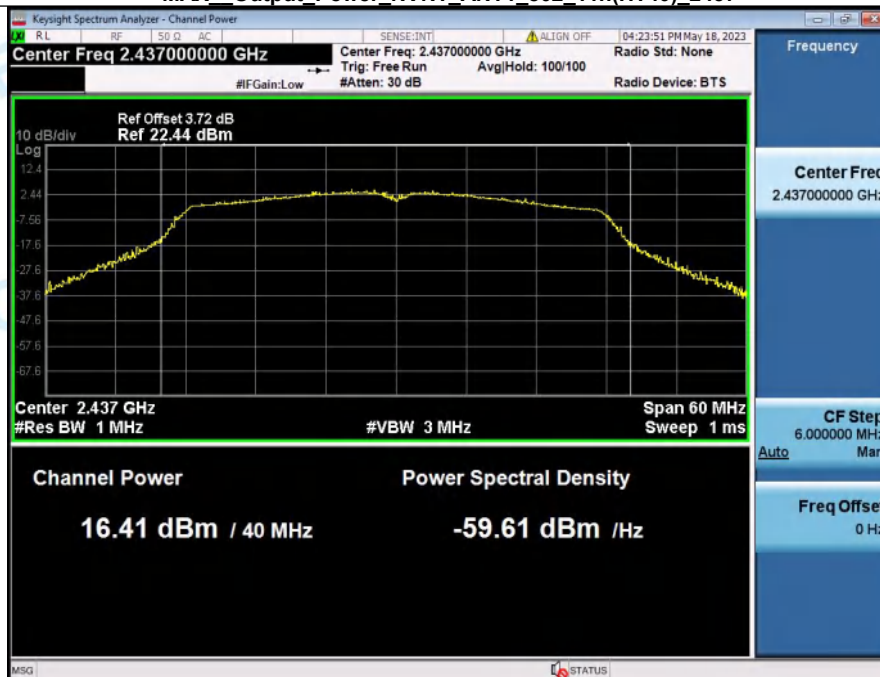
MAX_Output_Power_NVNT_ANT1_802_11n(HT20)_2462



MAX_Output_Power_NVNT_ANT1_802_11n(HT40)_2422



MAX_Output_Power_NVNT_ANT1_802_11n(HT40)_2437





5. Power Spectral Density

Condition	Antenna	Modulation	Frequency (MHz)	PSD(dBm/3kHz)	limit(dBm/3kHz)	Result
NVNT	ANT1	802.11b	2412.00	-7.12	8	Pass
NVNT	ANT1	802.11b	2437.00	-7.72	8	Pass
NVNT	ANT1	802.11b	2462.00	-8.06	8	Pass
NVNT	ANT1	802.11g	2412.00	-14.49	8	Pass
NVNT	ANT1	802.11g	2437.00	-14.54	8	Pass
NVNT	ANT1	802.11g	2462.00	-15.07	8	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	-14.89	8	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	-14.18	8	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	-15.16	8	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	-16.35	8	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	-18.55	8	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	-16.76	8	Pass

Power Spectral Density NVNT_ANT1_802_11b_2412



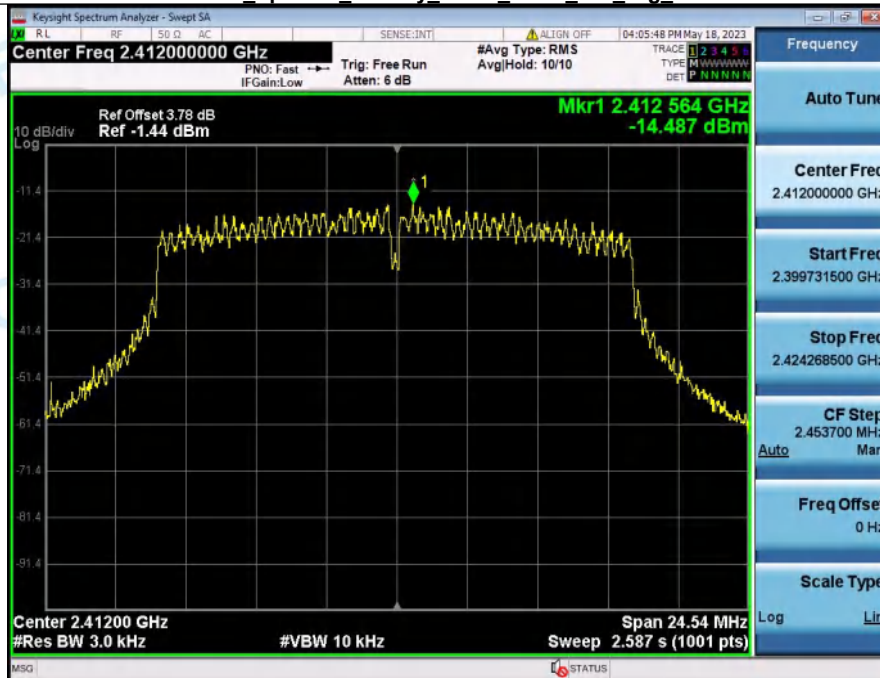
Power Spectral Density NVNT_ANT1_802_11b_2437



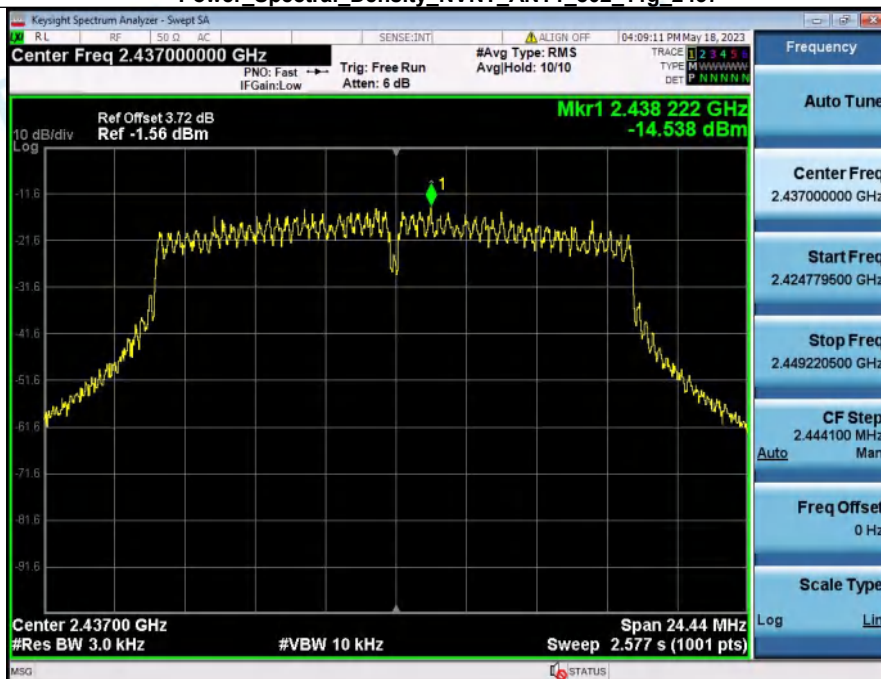
Power Spectral Density NVNT_ANT1_802_11b_2462



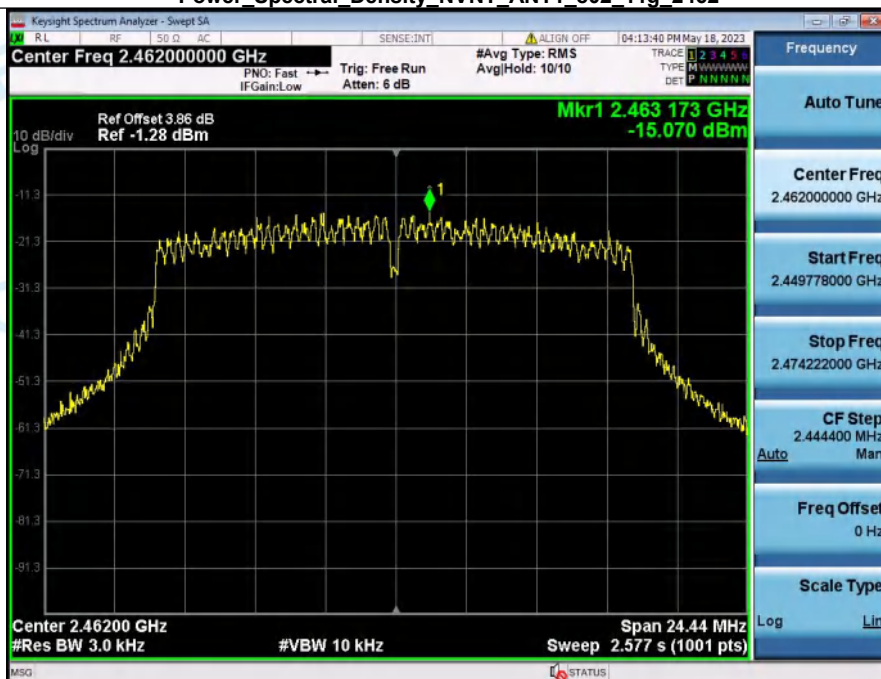
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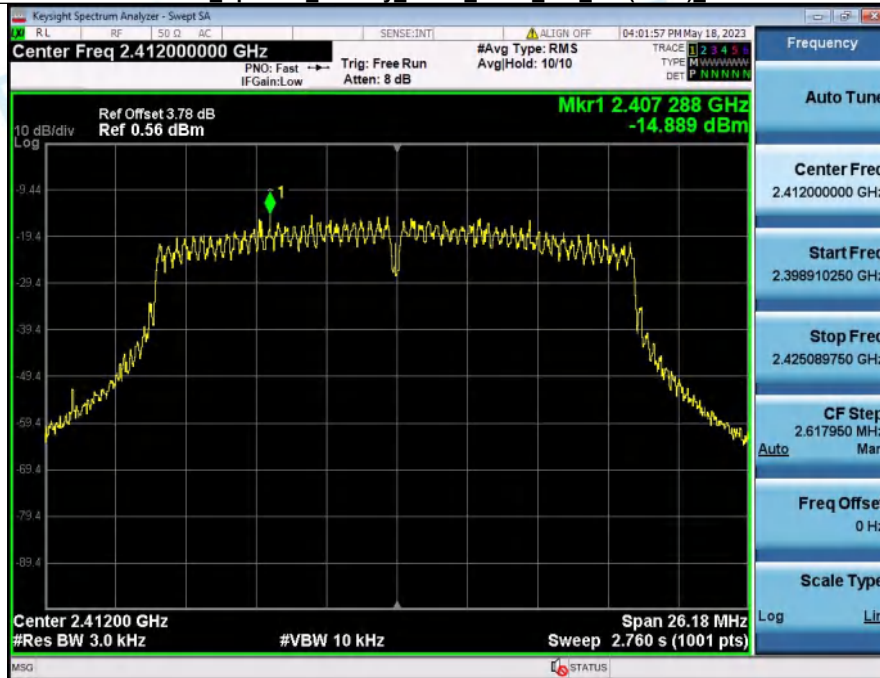
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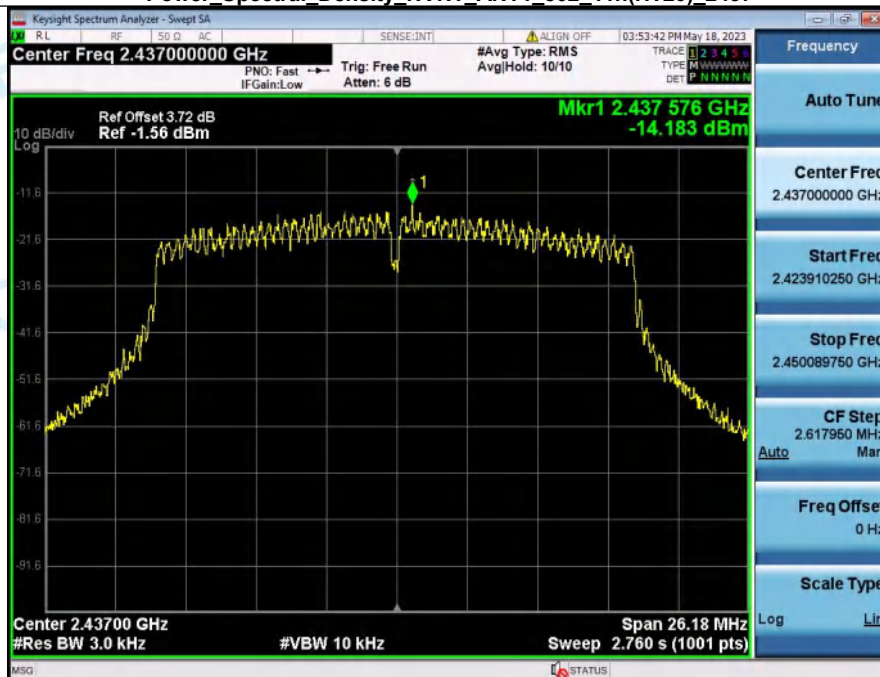
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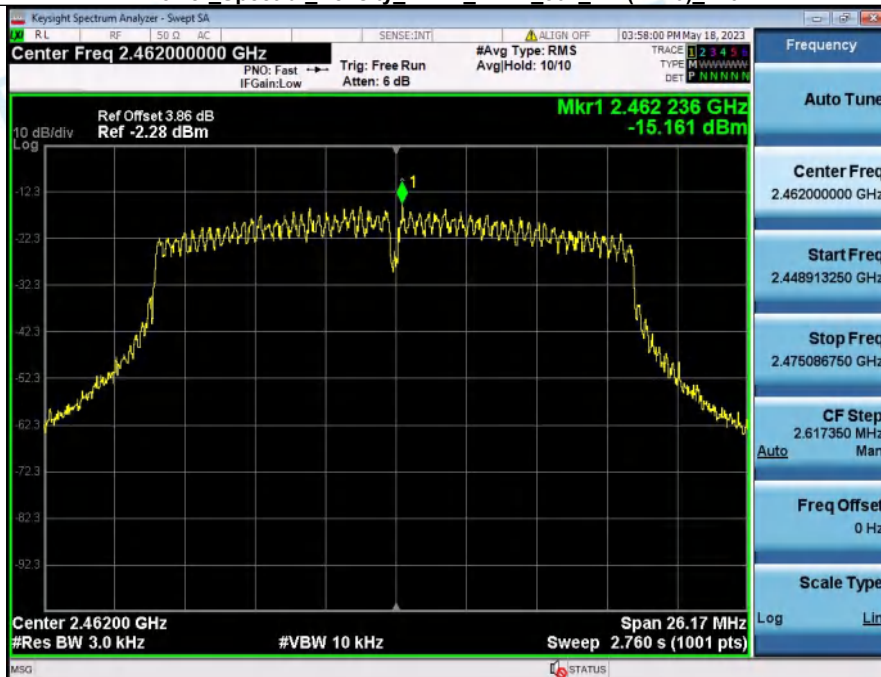
Power Spectral Density_NVNT_ANT1_802_11n(HT20)_2412



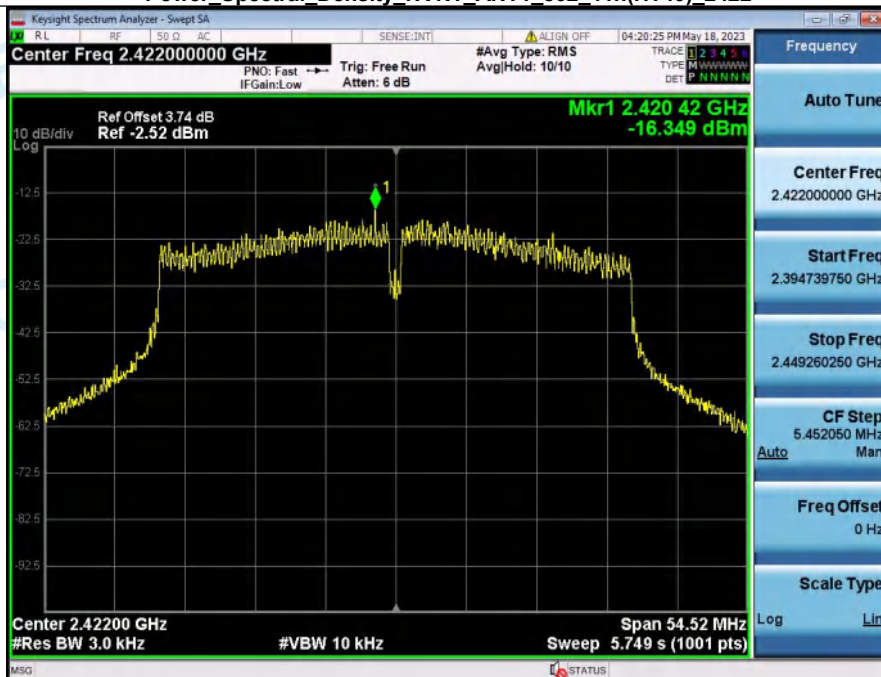
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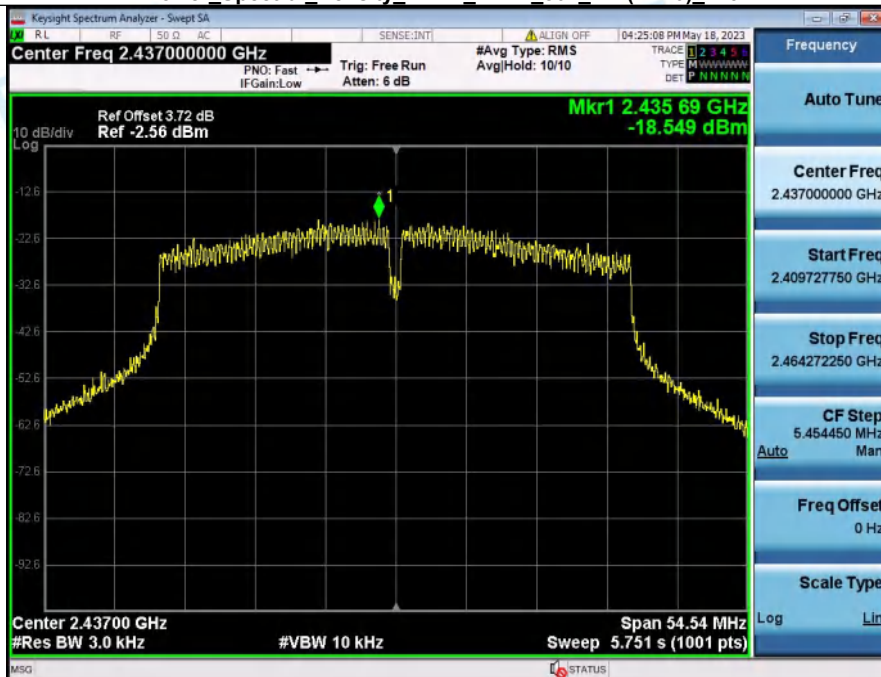
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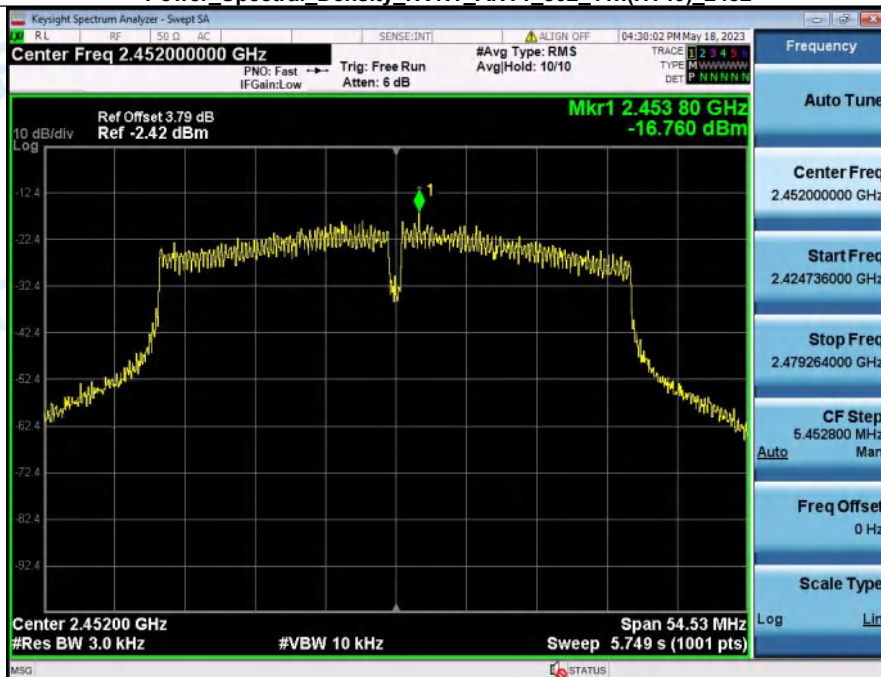
Power Spectral Density_NVNT_ANT1_802_11n(HT40)_2422



Power Spectral Density_NVNT_ANT1_802_11n(HT40)_2437



Power Spectral Density_NVNT_ANT1_802_11n(HT40)_2452



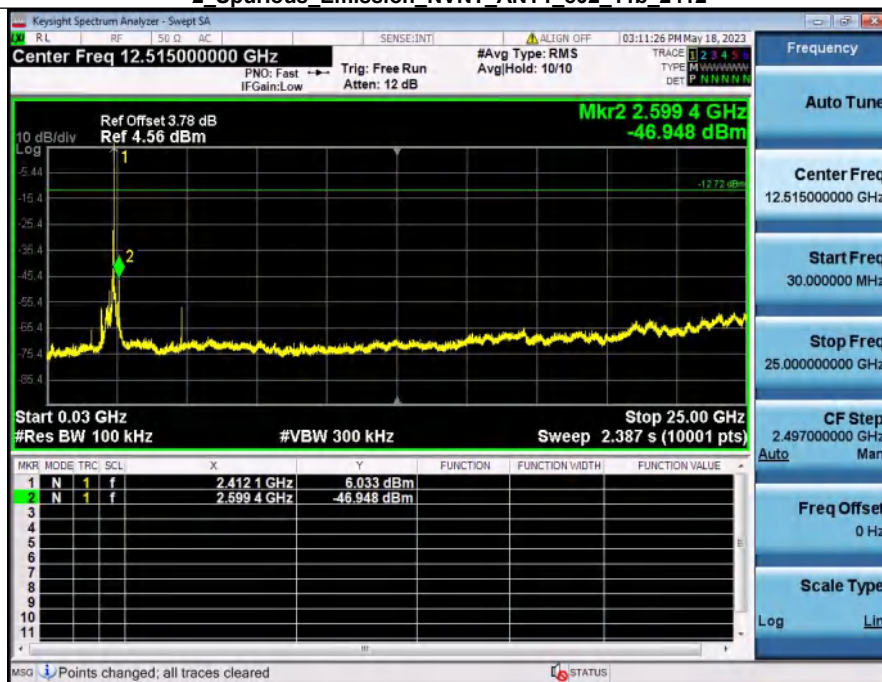
6. Spurious Emission

Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark_frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11b	2412.00	2599.41	-46.95	-12.72	Pass
NVNT	ANT1	802.11b	2437.00	24595.49	-43.34	-13.38	Pass
NVNT	ANT1	802.11b	2462.00	24538.06	-39.02	-13.75	Pass
NVNT	ANT1	802.11g	2412.00	2274.80	-47.45	-20.62	Pass
NVNT	ANT1	802.11g	2437.00	2599.41	-47.94	-20.52	Pass
NVNT	ANT1	802.11g	2462.00	2599.41	-46.42	-20.87	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	2599.41	-46.08	-20.38	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	2599.41	-46.86	-20.76	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	2599.41	-45.16	-21.12	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	2599.41	-44.68	-23.87	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	2599.41	-45.20	-24.12	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	2599.41	-47.66	-24.09	Pass

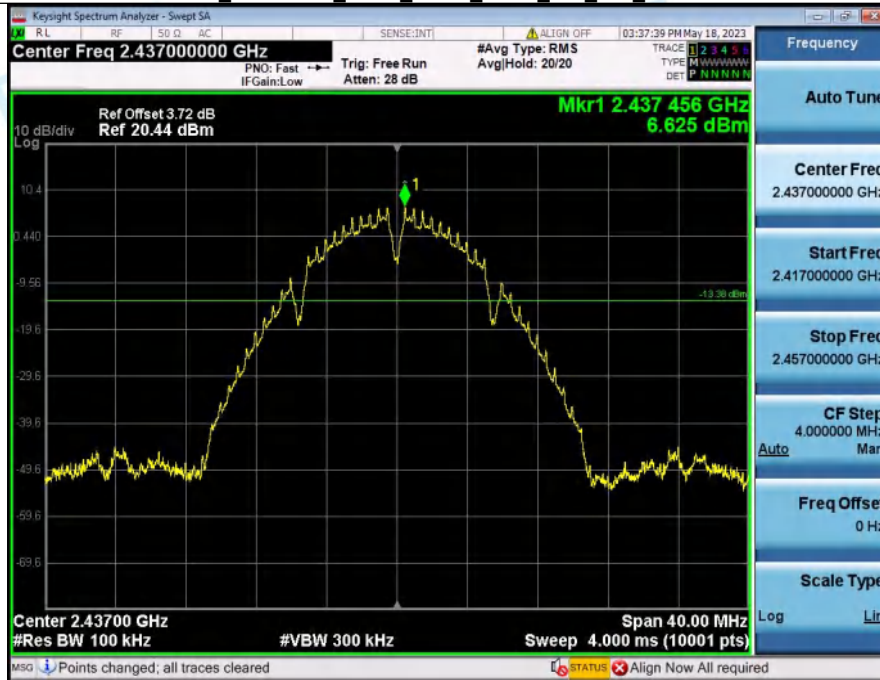
1_Reference_Level_NVNT_ANT1_802_11b_2412



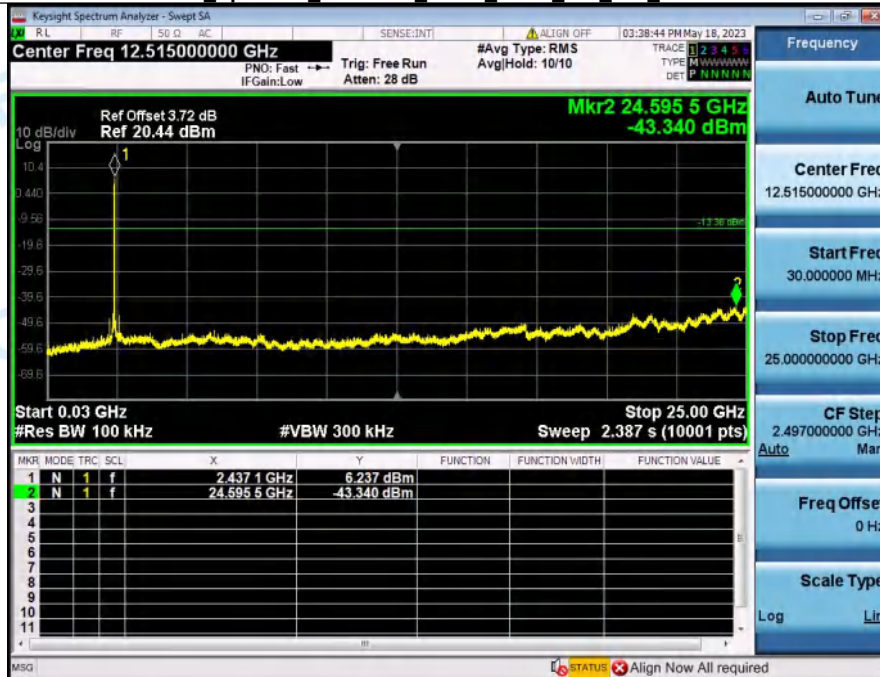
2_Spurious Emission_NVNT_ANT1_802_11b_2412



1 Reference Level NVNT_ANT1_802_11b_2437



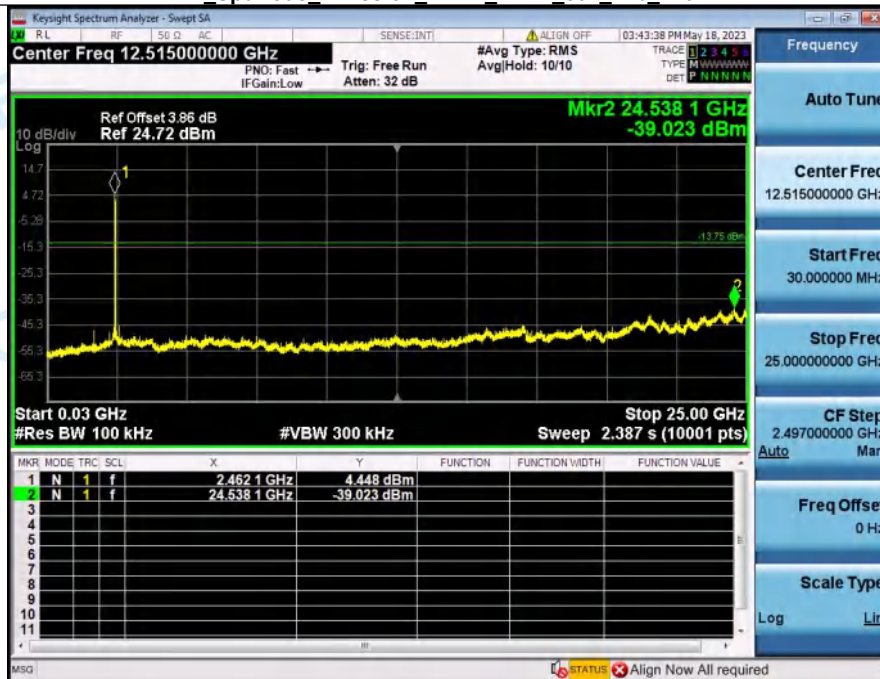
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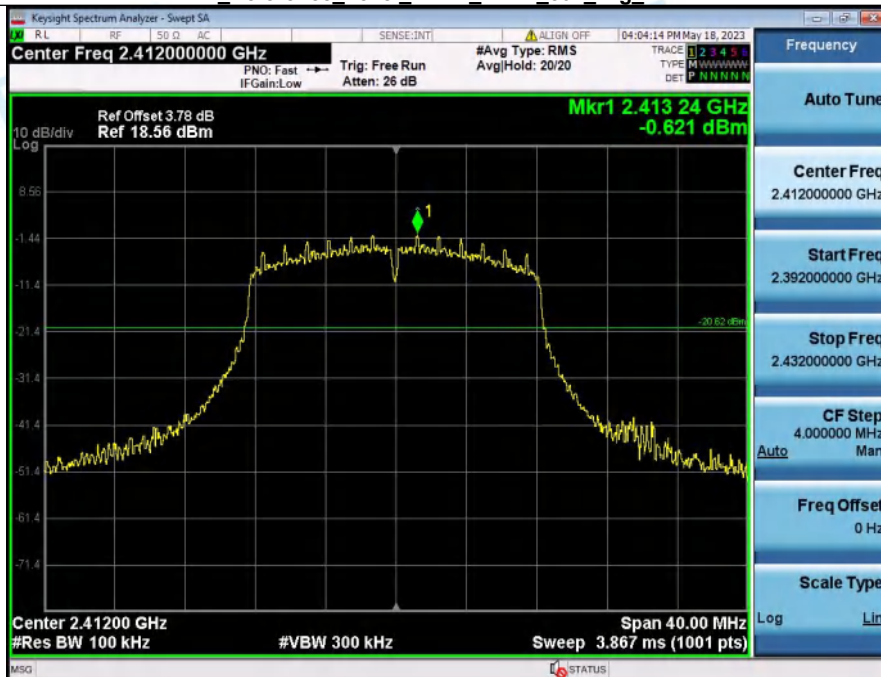
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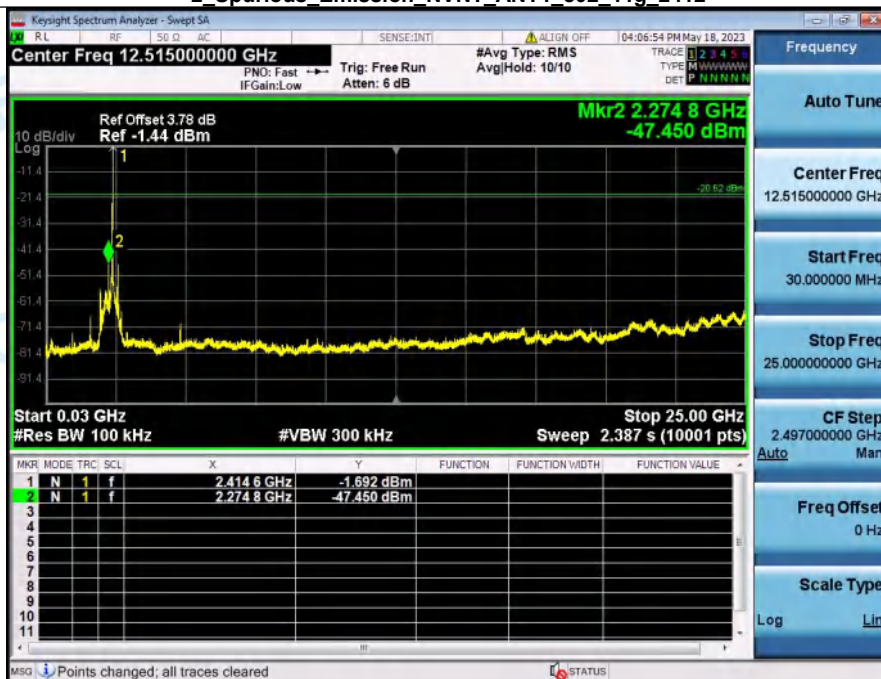
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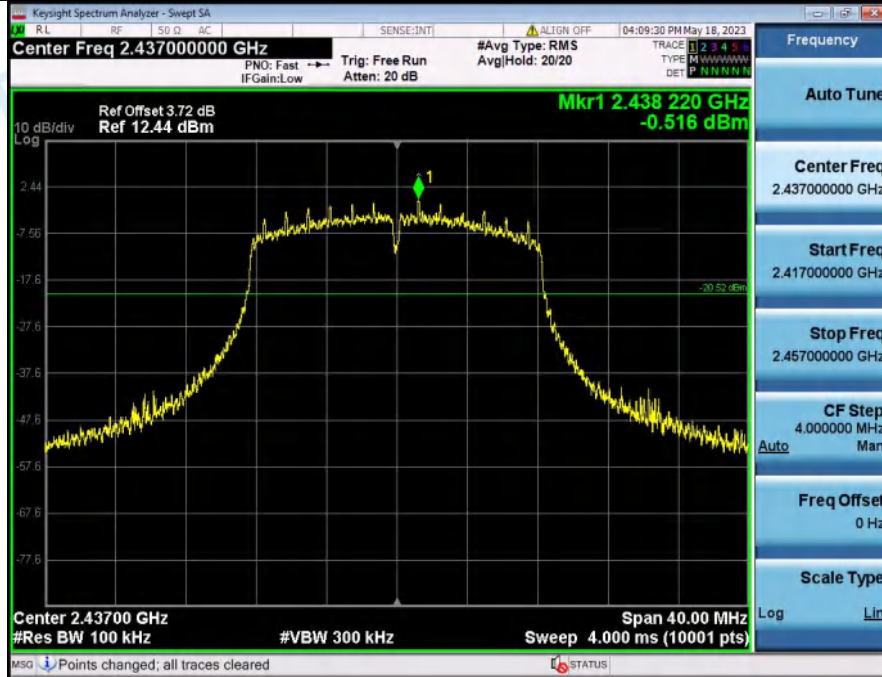
1 Reference Level NVNT ANT1 802 11g 2412



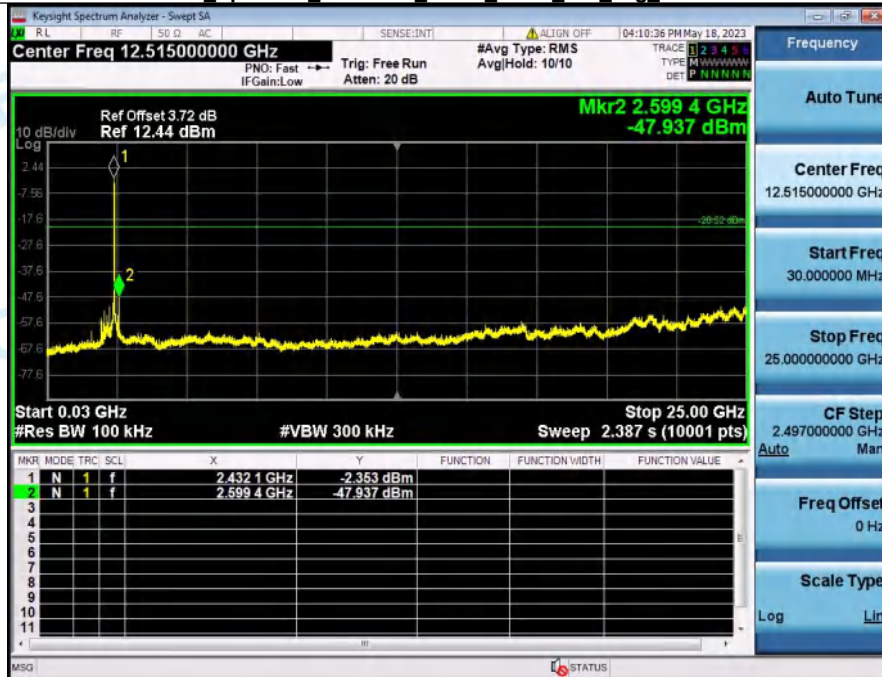
2 Spurious Emission NVNT ANT1 802 11g 2412



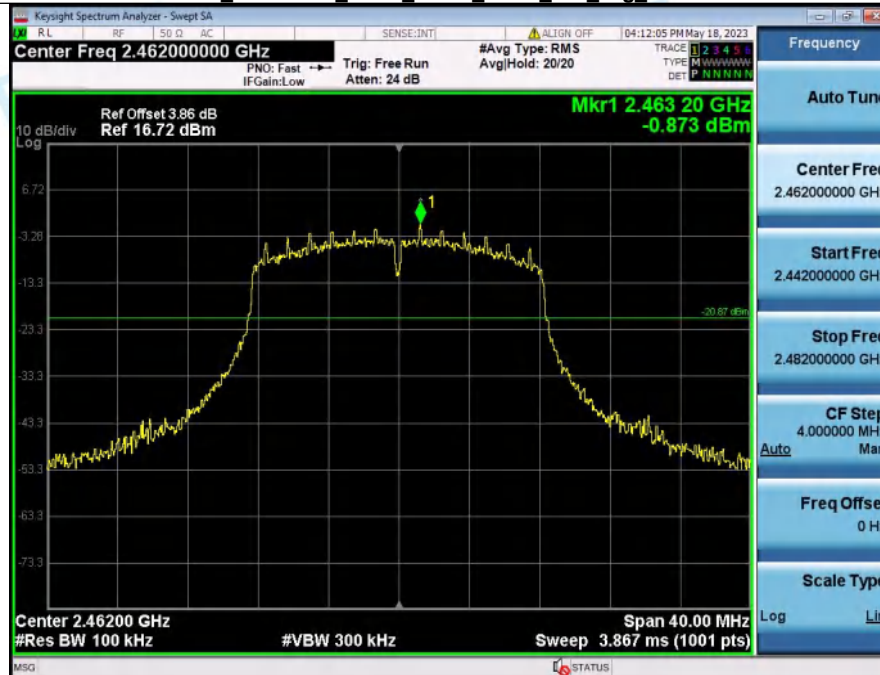
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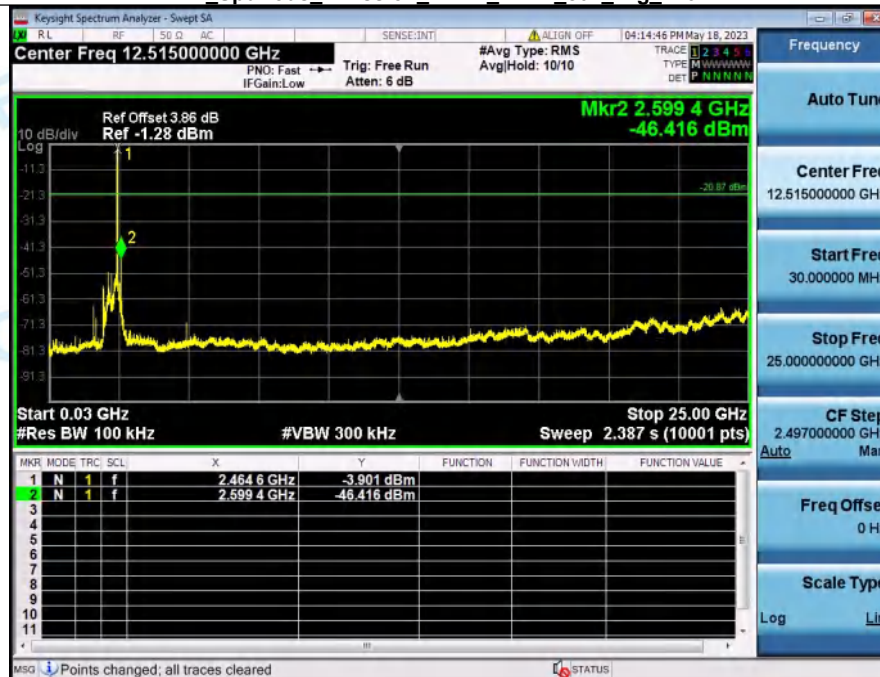
2 Spurious Emission NVNT ANT1 802 11g 2437



1 Reference Level NVNT ANT1 802 11g 2462



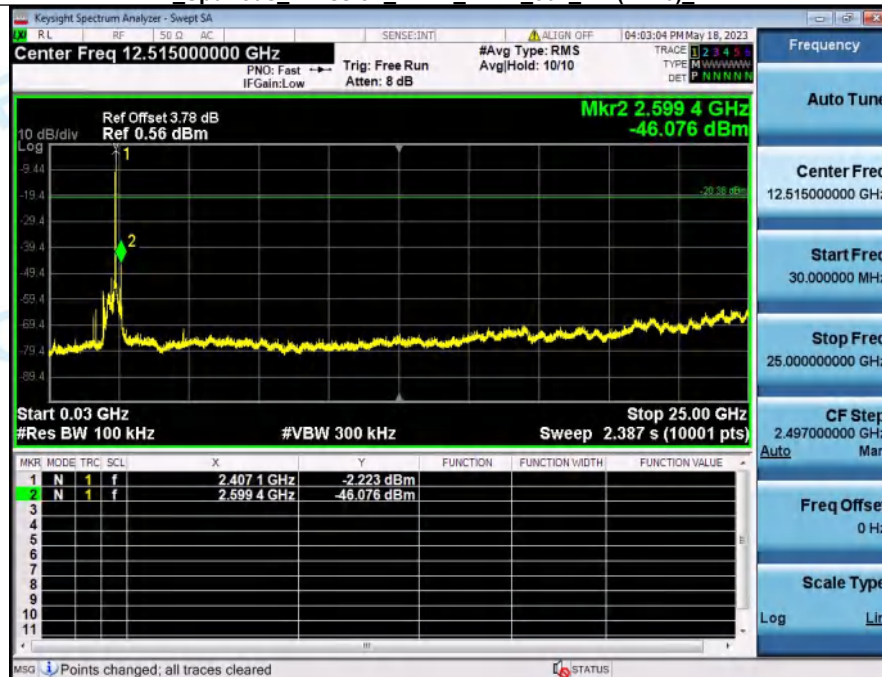
2 Spurious Emission NVNT ANT1 802 11g 2462



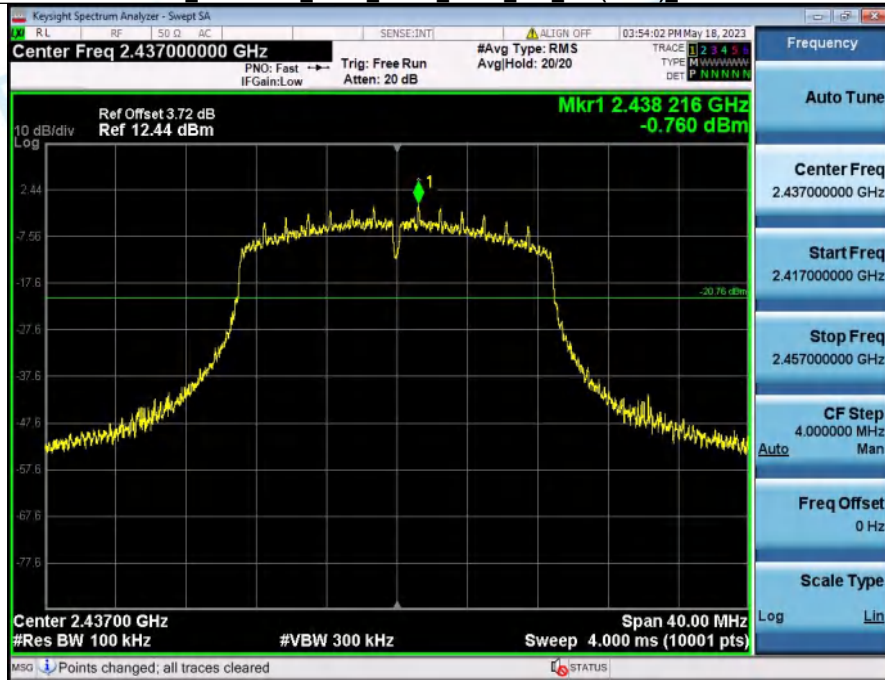
1 Reference_Level_NVNT_ANT1_802_11n(HT20)_2412



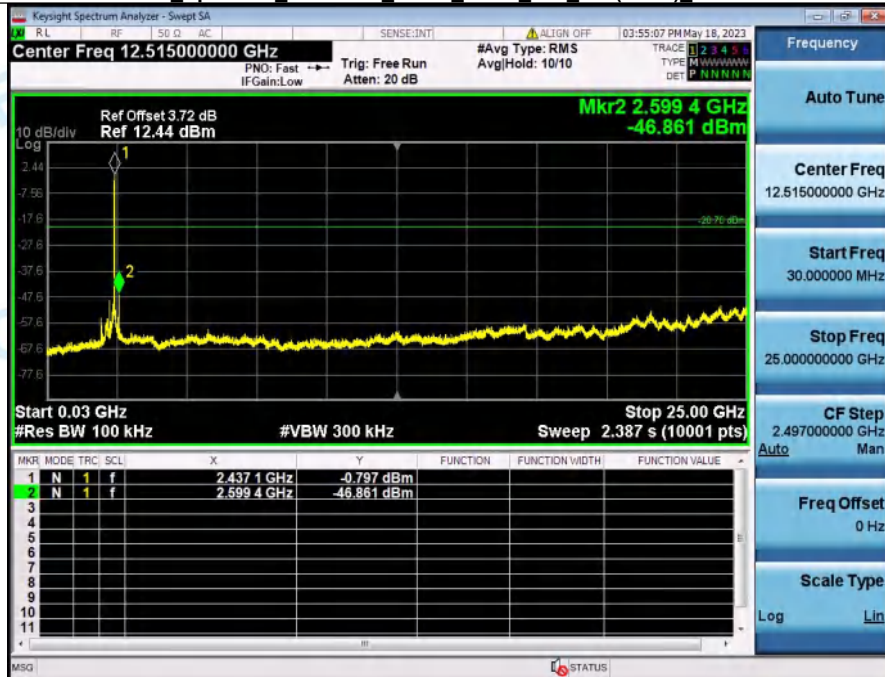
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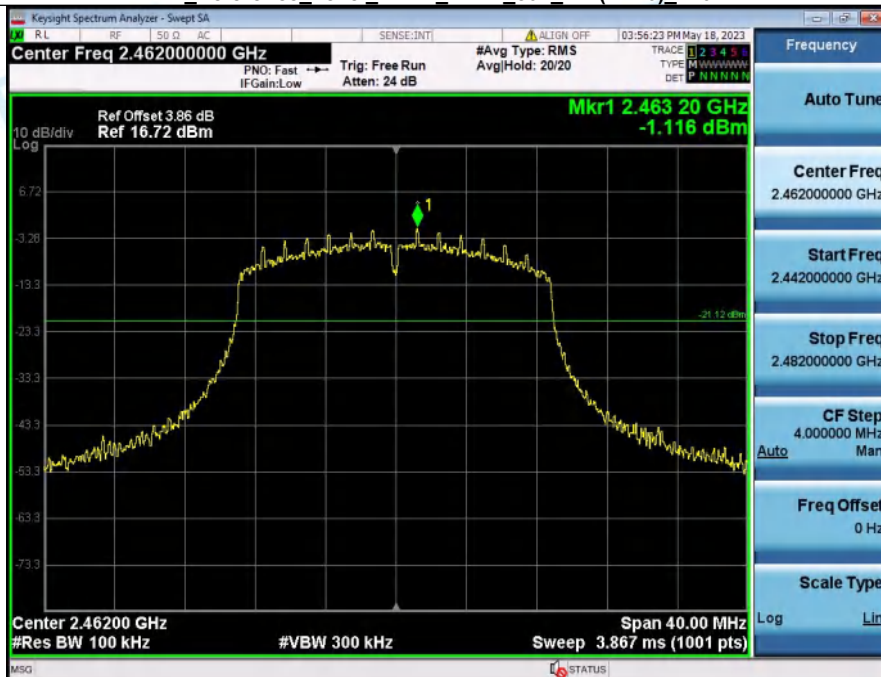
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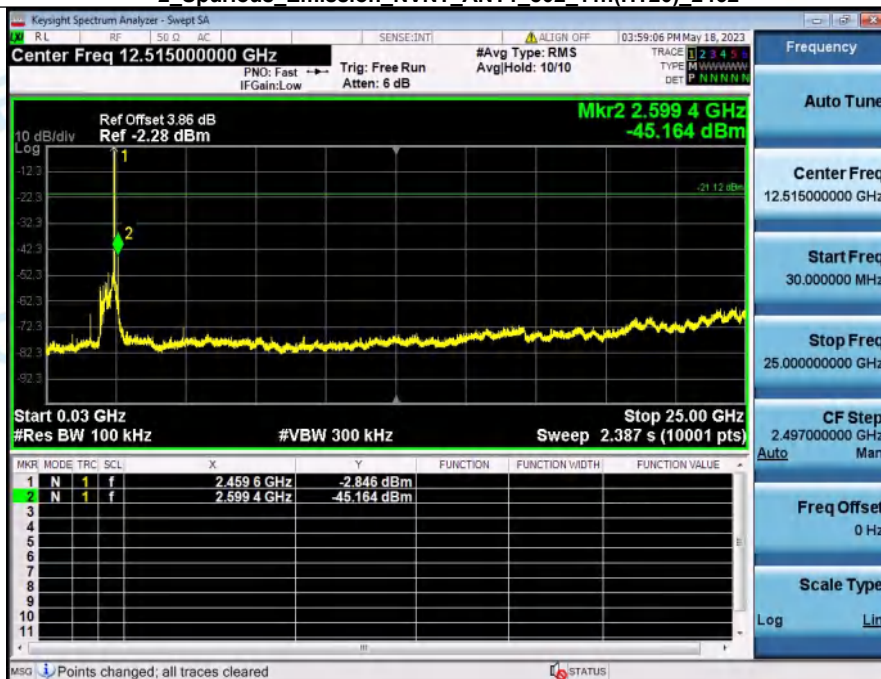
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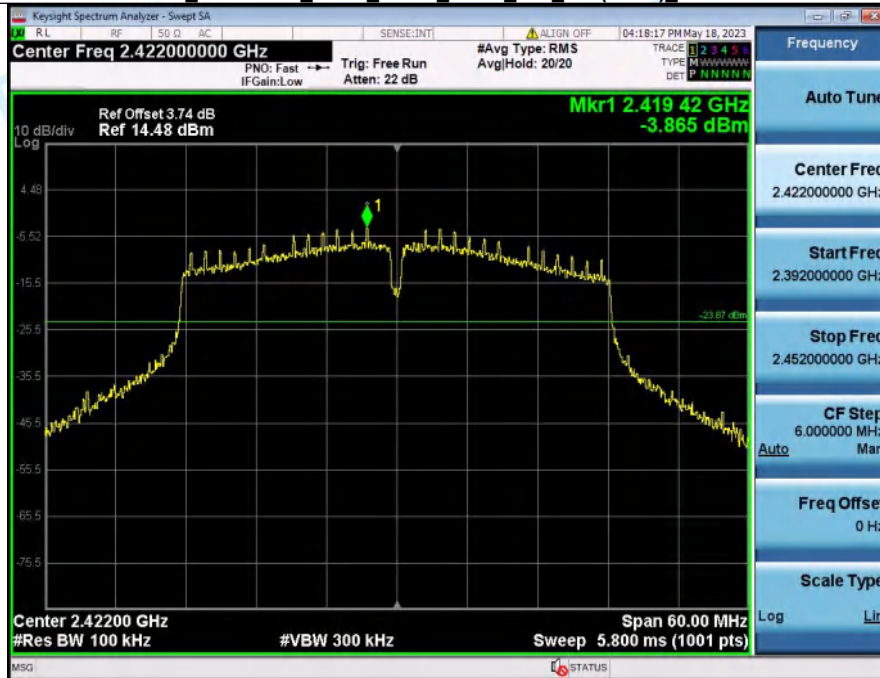
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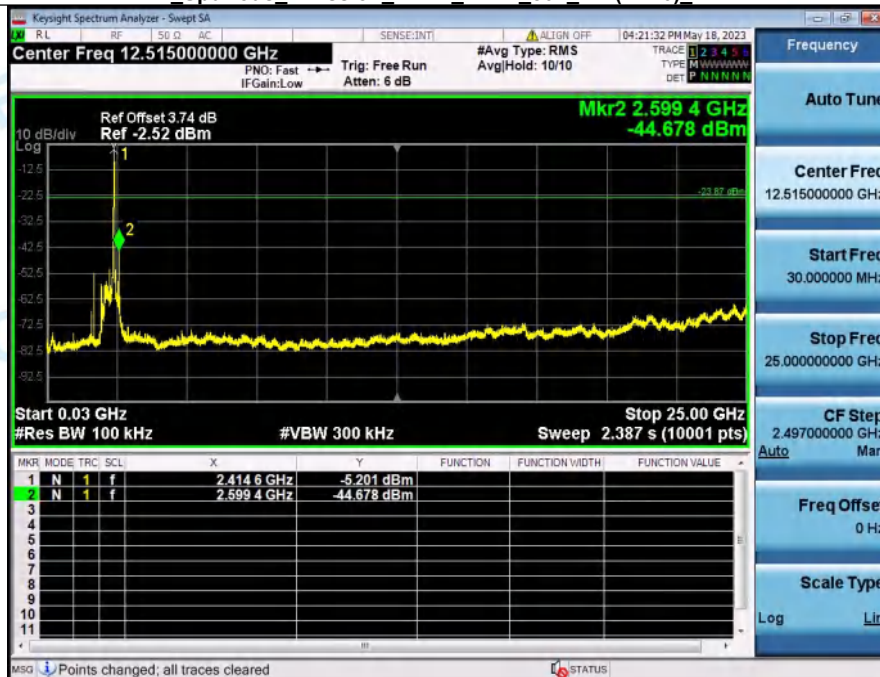
2 Spurious Emission_NVNT_ANT1_802_11n(HT20)_2462



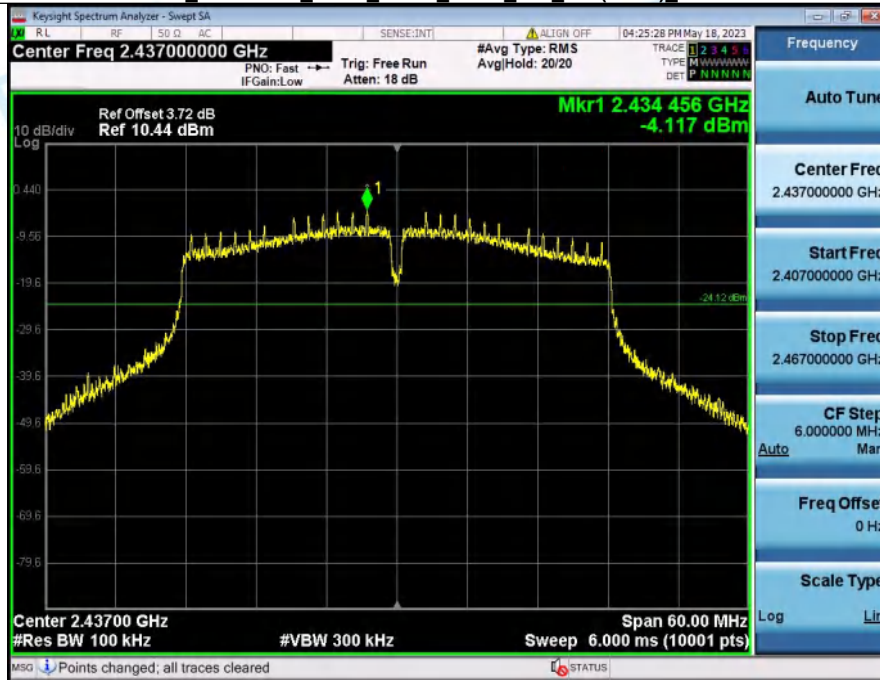
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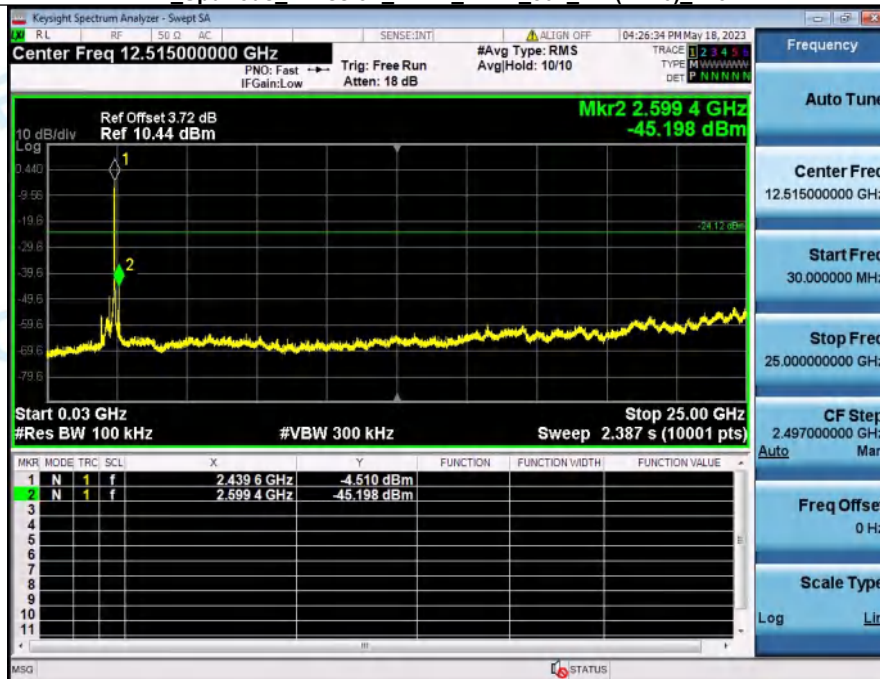
2 Spurious Emission_NVNT_ANT1_802_11n(HT40)_2422



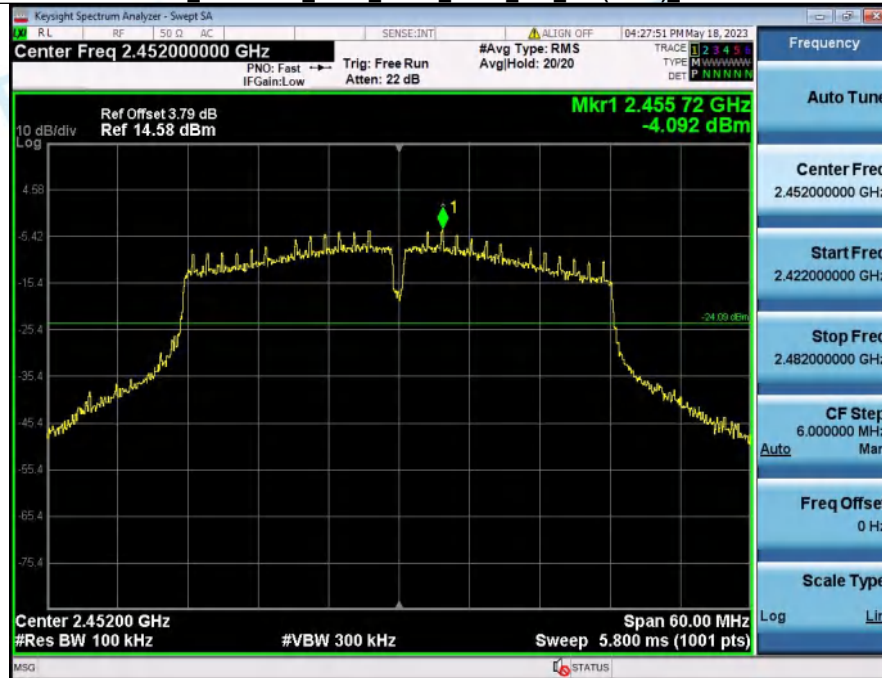
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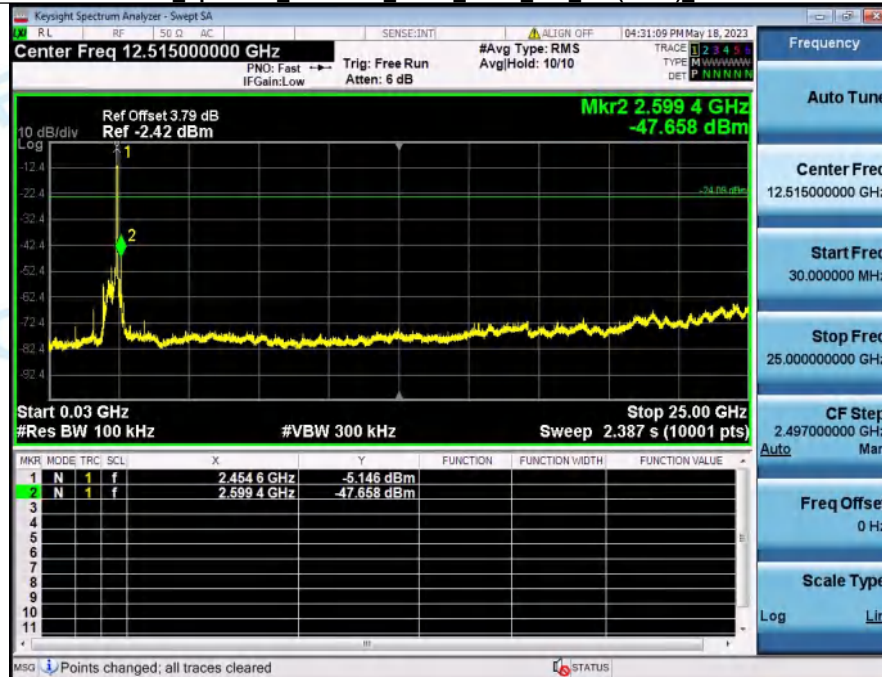
2 Spurious Emission_NVNT_ANT1_802_11n(HT40)_2437



1 Reference_Level_NVNT_ANT1_802_11n(HT40)_2452



2 Spurious Emission_NVNT_ANT1_802_11n(HT40)_2452



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