RF TEST REPORT

For

Shenzhen Jieweite Technology Co., LTD
Product Name: Bluetooth speaker
Test Model(s).: MT

Report Reference No.	:	**DACE241220008RL001**
FCC ID	:	**2BNDF-MT**
Applicant's Name	:	Shenzhen Jieweite Technology Co., LTD
Address	:	305, Block A, Building B3, No. 381, Shajing South Ring Road, Dawangshan Community, Shajing Street, Baoan District, Shenzhen
Testing Laboratory	:	Shenzhen DACE Testing Technology Co., Ltd.
Address	:	102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Test Specification Standard	:	**47 CFR Part 15.247**
Date of Receipt	:	December 20, 2024
Date of Test	:	December 20, 2024 to December 31, 2024
Data of Issue	:	December 31, 2024
Result	:	**Pass**

Apply for company information

Applicant's Name	:	Shenzhen Jieweite Technology Co., LTD
Address	:	305, Block A, Building B3, No. 381, Shajing South Ring Road, Dawangshan Community, Shajing Street, Baoan District, Shenzhen
Product Name	:	Bluetooth speaker
Test Model(s)	:	MT
Series Model(s)	:	M1,M3,PK-D18,PK-D,BK201,BK202,S1
Test Specification Standard(s)	:	47 CFR Part 15.247

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:
Keren Huang	Ben Tang	Machael Mo
Keren Huang / Test Engineer	Ben Tang / Project Engineer	Machael Mo / Manager
December 31, 2024	December 31, 2024	December 31, 2024

Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	DACE241220008RL001	December 31, 2024

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
20dB Bandwidth	47 CFR Part 15.247	ANSI C63.10-2013, section 7.8.7 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(a)(1)	Pass
Maximum Conducted Output Power	47 CFR Part 15.247	ANSI C63.10-2013, section 7.8.5 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(b)(1)	Pass
Channel Separation	47 CFR Part 15.247	ANSI C63.10-2013, section 7.8.2 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(a)(1)	Pass
Number of Hopping Frequencies	47 CFR Part 15.247	ANSI C63.10-2013, section 7.8.3 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(a)(1)(iii)	Pass
Dwell Time	47 CFR Part 15.247	ANSI C63.10-2013, section 7.8.4 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(a)(1)(iii)	Pass
Emissions in non-restricted frequency bands	47 CFR Part 15.247	ANSI C63.10-2013 section 7.8.8 KDB 558074 D01 15.247 Meas Guidance v05r02	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 KDB 558074 D01 15.247 Meas Guidance v05r02	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 KDB 558074 D01 15.247 Meas Guidance v05r02	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 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d), 15.209, 15.205	Pass

2 GENERAL INFORMATION

2.1 Client Information

Applicant's Name : Shenzhen Jieweite Technology Co., LTD

Address : 305, Block A, Building B3, No. 381, Shajing South Ring Road, Dawangshan Community, Shajing Street, Baoan District, Shenzhen

Manufacturer : Shenzhen Jieweite Technology Co., LTD

Address : 305, Block A, Building B3, No. 381, Shajing South Ring Road, Dawangshan Community, Shajing Street, Baoan District, Shenzhen

2.2 Description of Device (EUT)

Product Name:	Bluetooth speaker
Model/Type reference:	MT
Series Model:	M1,M3,PK-D18,PK-D,BK201,BK202,S1
Model Difference:	The product has many models, only the model name is different, and the other parts such as the circuit principle, pcb and electrical structure are the same.
Trade Mark:	N/A
Power Supply:	DC 5V/1A from adapter Battery:DC3.7V 300mAh
Operation Frequency:	2402MHz to 2480MHz
Number of Channels:	79
Modulation Type:	GFSK, π/4 DQPSK, 8DPSK
Antenna Type:	PCB
Antenna Gain:	-0.58dBi
Hardware Version:	V1.0
Software Version:	V1.0

(Remark:The Antenna Gain is supplied by the customer.DACE is not responsible for
This data and the related calculations associated with it)

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402MHz	21	2422MHz	41	2442MHz	61	2462MHz
2	2403MHz	22	2423MHz	42	2443MHz	62	2463MHz
3	2404MHz	23	2424MHz	43	2444MHz	63	2464MHz
4	2405MHz	24	2425MHz	44	2445MHz	64	2465MHz
5	2406MHz	25	2426MHz	45	2446MHz	65	2466MHz
6	2407MHz	26	2427MHz	46	2447MHz	66	2467MHz
7	2408MHz	27	2428MHz	47	2448MHz	67	2468MHz
8	2409MHz	28	2429MHz	48	2449MHz	68	2469MHz
9	2410MHz	29	2430MHz	49	2450MHz	69	2470MHz
10	2411MHz	30	2431MHz	50	2451MHz	70	2471MHz
11	2412MHz	31	2432MHz	51	2452MHz	71	2472MHz
12	2413MHz	32	2433MHz	52	2453MHz	72	2473MHz
13	2414MHz	33	2434MHz	53	2454MHz	73	2474MHz

14	2415MHz	34	2435MHz	54	2455MHz	74	2475MHz
15	2416MHz	35	2436MHz	55	2456MHz	75	2476MHz
16	2417MHz	36	2437MHz	56	2457MHz	76	2477MHz
17	2418MHz	37	2438MHz	57	2458MHz	77	2478MHz
18	2419MHz	38	2439MHz	58	2459MHz	78	2479MHz
19	2420MHz	39	2440MHz	59	2460MHz	79	2480MHz
20	2421MHz	40	2441MHz	60	2461MHz		

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)**
	BDR/EDR
Lowest channel	2402MHz
Middle channel	2441MHz
Highest channel	2480MHz

2.3 Description of Test Modes

No	**Title**	**Description**
TM1	TX-GFSK (Non-Hopping)	Keep the EUT in continuously transmitting mode (non-hopping) with GFSK modulation at lowest, middle and highest channel.
TM2	TX-Pi/4DQPSK (Non-Hopping)	Keep the EUT in continuously transmitting mode (non-hopping) with Pi/4DQPSK modulation at lowest, middle and highest channel.
TM3	TX-8DPSK (Non-Hopping)	Keep the EUT in continuously transmitting mode (non-hopping) with 8DPSK modulation at lowest, middle and highest channel.
TM4	TX-GFSK (Hopping)	Keep the EUT in continuously transmitting mode (hopping) with GFSK modulation,.
TM5	TX-Pi/4DQPSK (Hopping)	Keep the EUT in continuously transmitting mode (hopping) with Pi/4DQPSK modulation.
TM6	TX-8DPSK (Hopping)	Keep the EUT in continuously transmitting mode (hopping) with 8DPSK modulation.
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.**
AC-DC adapter	HUAWEI	P0005	

2.5 Equipments Used During The Test

Conducted Emission at AC power line

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Power absorbing clamp	SCHWARZ BECK	MESS-ELEKTRONIK	/	2024-03-25	2025-03-24
Electric Network	SCHWARZ BECK	CAT5 8158	CAT5 8158#207	/	/
Cable	SCHWARZ BECK	/	/	2024-03-20	2025-03-19
Pulse Limiter	SCHWARZ BECK	VTSD 9561-F Pulse limiter 10dB Attenuation	561-G071	2024-12-06	2025-12-05
50ΩCoaxial Switch	Anritsu	MP59B	M20531	/	/
Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	ID:1164.6607K 03-102109-MH	2024-06-12	2025-06-11
L.I.S.N	R&S	ESH3-Z5	831.5518.52	2023-12-12	2025-12-11
L.I.S.N	SCHWARZ BECK	NSLK 8126	05055	2024-06-14	2025-06-13
Pulse Limiter	CYBERTEK	EM5010A	/	2024-09-27	2025-09-26
EMI test software	EZ -EMC	EZ	V1.1.42	/	/

Dwell Time
Emissions in non-restricted frequency bands
20dB Bandwidth
Maximum Conducted Output Power
Channel Separation
Number of Hopping Frequencies

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Test Software	Tachoy Information Technology(shenzhen) Co.,Ltd.	RTS-01	V1.0.0	/	/
Power divider	MIDEWEST	PWD-2533	SMA-79	2023-05-11	2026-05-10
RF Sensor Unit	Tachoy Information Technology(shenzhen) Co.,Ltd.	TR1029-2	000001	/	/
Wideband radio communication tester	R&S	CMW500	113410	2024-06-12	2025-06-11
Vector Signal Generator	Keysight	N5181A	MY50143455	2024-12-06	2025-12-05
Signal Generator	Keysight	N5182A	MY48180415	2024-12-06	2025-12-05
Spectrum Analyzer	Keysight	N9020A	MY53420323	2024-12-06	2025-12-05

Band edge emissions (Radiated)
Emissions in frequency bands (below 1GHz)
Emissions in 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	MF-7802	/	/	/
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	ZN30900C	ZN30900C	2024-06-14	2026-06-13
Cable(LF)#2	Schwarzbeck	/	/	2024-02-19	2025-02-18
Cable(LF)#1	Schwarzbeck	/	/	2024-02-19	2025-02-18
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2024-03-20	2025-03-19
Cable(HF)#1	Schwarzbeck	SYV-50-3-1	/	2024-03-20	2025-03-19
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2024-06-12	2025-06-11
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2024-06-12	2025-06-11
Wideband radio communication tester	R&S	CMW500	113410	2024-06-12	2025-06-11
Spectrum Analyzer	R&S	FSP30	1321.3008K40 -101729-jR	2024-06-12	2025-06-11
Test Receiver	R&S	ESCI 3	1166.5950K03 -101431-Jq	2024-06-13	2025-06-12
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023-05-13	2025-05-12
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2024-09-28	2026-09-27

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
Duty cycle	±3.1%
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 DACE Testing Technology Co., Ltd.
Address:	102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Connunity, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252

Identification of the Responsible Testing Location

Company Name:	Shenzhen DACE Testing Technology Co., Ltd.
Address:	102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Connunity, Shiyan Subdistrict, 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 Number:	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 DACE 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)

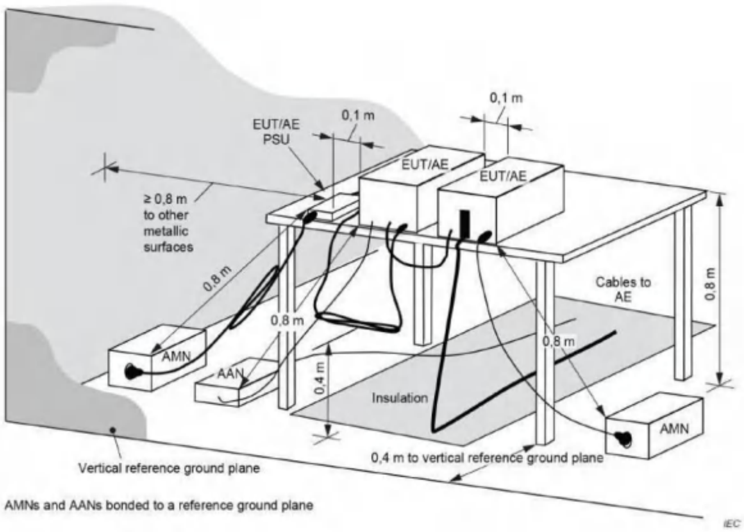
4.1 Conducted Emission at AC power line

<table>
<tr><td>Test Requirement:</td><td>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).</td></tr>
<tr><td>Test Limit:</td><td><table>
<tr><td rowspan="2">Frequency of emission (MHz)</td><td colspan="2">Conducted limit (dBμV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>*Decreases with the logarithm of the frequency.</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10-2013 section 6.2</td></tr>
<tr><td>Procedure:</td><td>Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices</td></tr>
</table>

4.1.1 E.U.T. Operation:

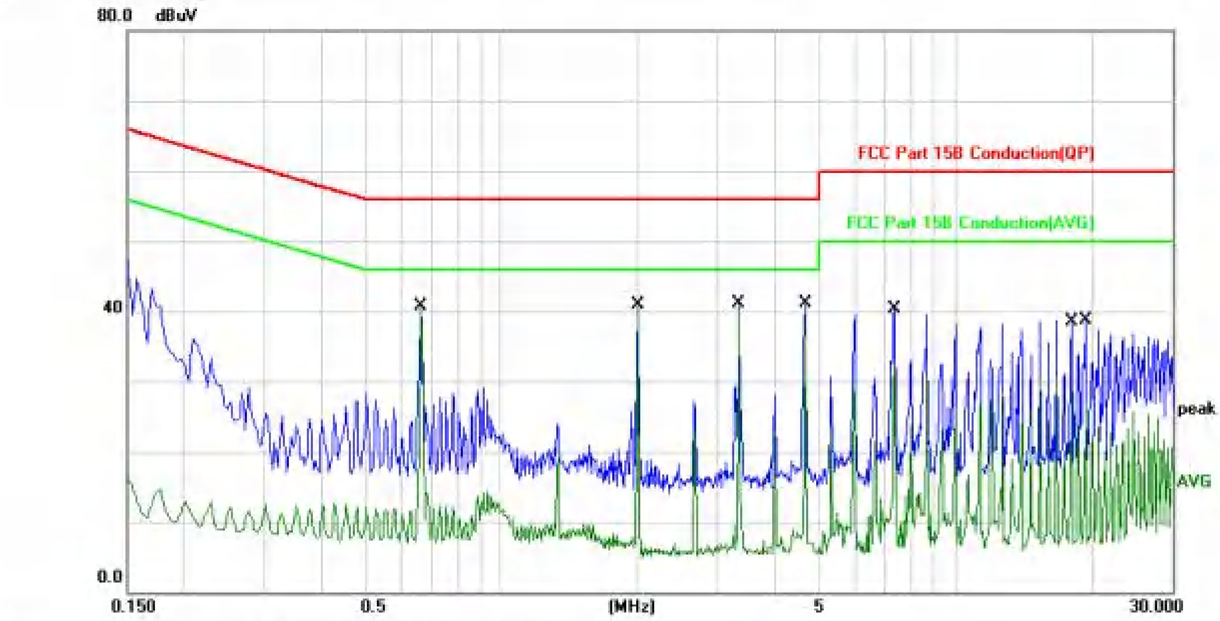
<table>
<tr><td colspan="6">Operating Environment:</td></tr>
<tr><td>Temperature:</td><td>22.2 °C</td><td>Humidity:</td><td>49 %</td><td>Atmospheric Pressure:</td><td>101 kPa</td></tr>
<tr><td>Pretest mode:</td><td colspan="5">TM1,TM2,TM3</td></tr>
<tr><td>Final test mode:</td><td colspan="5">TM1</td></tr>
</table>

4.1.2 Test Setup Diagram:



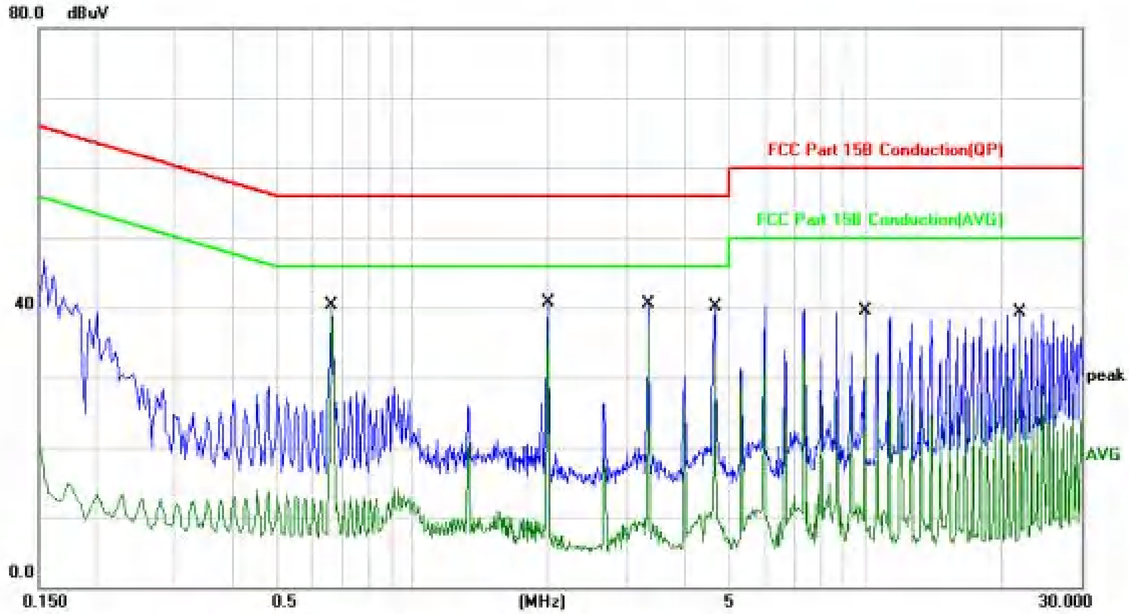
4.1.3 Test Data:

TM1 / Line: Line / Band: 2400-2483.5 MHz / BW: 1 / CH: L



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.6660	30.71	10.08	40.79	56.00	-15.21	QP	
2	*	0.6660	30.20	10.08	40.28	46.00	-5.72	AVG	
3		1.9980	30.90	9.99	40.89	56.00	-15.11	QP	
4		1.9980	30.16	9.99	40.15	46.00	-5.85	AVG	
5		3.3340	31.03	10.10	41.13	56.00	-14.87	QP	
6		3.3340	29.98	10.10	40.08	46.00	-5.92	AVG	
7		4.6660	30.87	10.18	41.05	56.00	-14.95	QP	
8		4.6660	29.40	10.18	39.58	46.00	-6.42	AVG	
9		7.3300	30.11	10.24	40.35	60.00	-19.65	QP	
10		7.3300	21.79	10.24	32.03	50.00	-17.97	AVG	
11		17.9740	18.24	10.55	28.79	50.00	-21.21	AVG	
12		19.2979	28.17	10.57	38.74	60.00	-21.26	QP	

TM1 / Line: Neutral / Band: 2400-2483.5 MHz / BW: 1 / CH: L



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.6660	30.30	10.08	40.38	56.00	-15.62	QP	
2	*	0.6660	29.68	10.08	39.76	46.00	-6.24	AVG	
3		1.9980	30.73	9.99	40.72	56.00	-15.28	QP	
4		1.9980	29.34	9.99	39.33	46.00	-6.67	AVG	
5		3.3300	30.48	10.10	40.58	56.00	-15.42	QP	
6		3.3300	26.91	10.10	37.01	46.00	-8.99	AVG	
7		4.6620	29.84	10.18	40.02	56.00	-15.98	QP	
8		4.6620	22.95	10.18	33.13	46.00	-12.87	AVG	
9		9.9940	29.09	10.33	39.42	60.00	-20.58	QP	
10		9.9940	24.66	10.33	34.99	50.00	-15.01	AVG	
11		21.9900	28.70	10.68	39.38	60.00	-20.62	QP	
12		21.9900	22.11	10.68	32.79	50.00	-17.21	AVG	

4.2 20dB Bandwidth

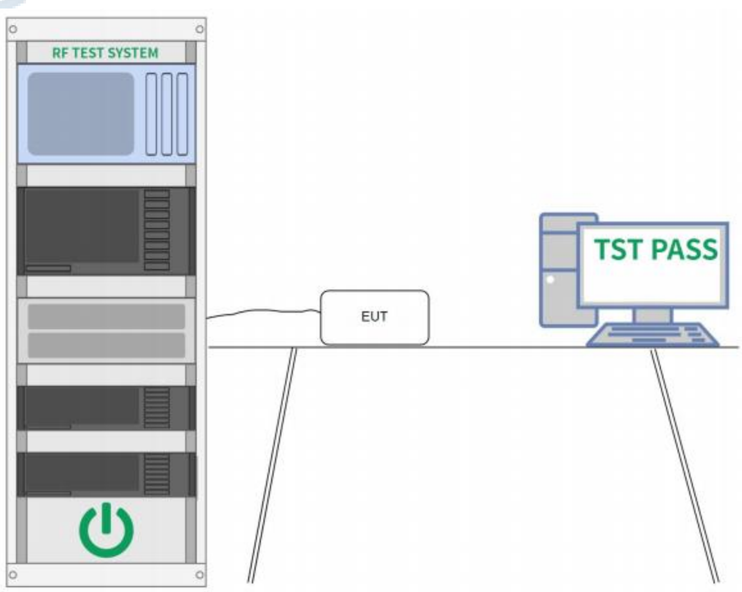
Test Requirement:	47 CFR 15.247(a)(1)
Test Limit:	Refer to 47 CFR 15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.
Test Method:	ANSI C63.10-2013, section 7.8.7, For occupied bandwidth measurements, use the procedure in 6.9.2. KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW. b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement. c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2. d) Steps a) through c) might require iteration to adjust within the specified tolerances. e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “−xx dB down” requirement; that is, if the requirement calls for measuring the −20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value. f) Set detection mode to peak and trace mode to max hold. g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value). h) Determine the “−xx dB down amplitude” using [(reference value) − xx]. Alternatively, this calculation may be made by using the marker-delta function of the instrument. i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j). j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-xx dB down amplitude” determined in step h). If a marker is below this “−xx dB down amplitude” value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “-xx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth. k) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

4.2.1 E.U.T. Operation:

Operating Environment:

Temperature:	22.2 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

4.2.2 Test Setup Diagram:



4.2.3 Test Data:

Please Refer to Appendix for Details.

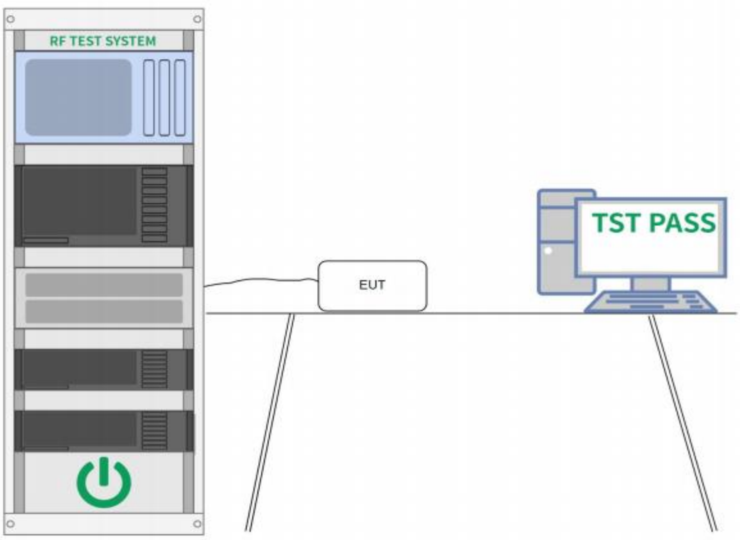
4.3 Maximum Conducted Output Power

Test Requirement:	47 CFR 15.247(b)(1)
Test Limit:	Refer to 47 CFR 15.247(b)(1), For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.
Test Method:	ANSI C63.10-2013, section 7.8.5 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	This is an RF-conducted test to evaluate maximum peak output power. Use a direct connection between the antenna port of the unlicensed wireless device and the spectrum analyzer, through suitable attenuation. The hopping shall be disabled for this test: a) Use the following spectrum analyzer settings: 1) Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel. 2) RBW > 20 dB bandwidth of the emission being measured. 3) VBW >= RBW. 4) Sweep: Auto. 5) Detector function: Peak. 6) Trace: Max hold. b) Allow trace to stabilize. c) Use the marker-to-peak function to set the marker to the peak of the emission. d) The indicated level is the peak output power, after any corrections for external attenuators and cables. e) A plot of the test results and setup description shall be included in the test report. NOTE—A peak responding power meter may be used, where the power meter and sensor system video bandwidth is greater than the occupied bandwidth of the unlicensed wireless device, rather than a spectrum analyzer.

4.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.2 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

4.3.2 Test Setup Diagram:



4.3.3 Test Data:

Please Refer to Appendix for Details.

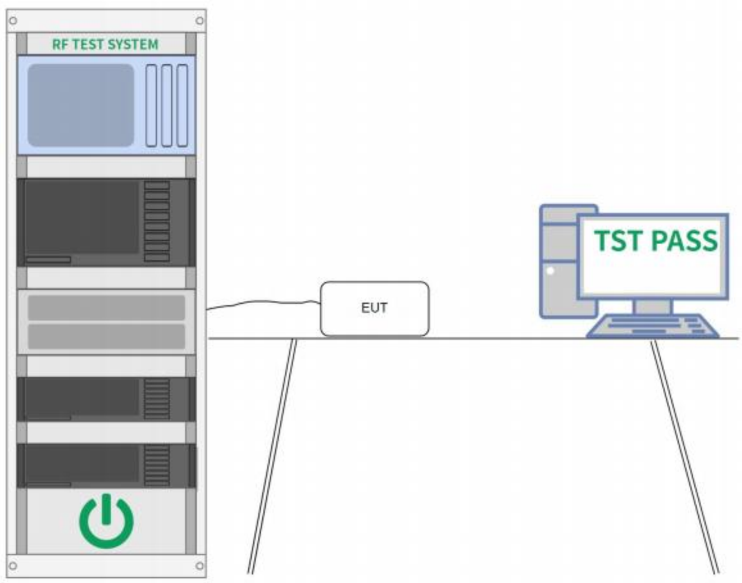
4.4 Channel Separation

Test Requirement:	47 CFR 15.247(a)(1)
Test Limit:	Refer to 47 CFR 15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.
Test Method:	ANSI C63.10-2013, section 7.8.2 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: Wide enough to capture the peaks of two adjacent channels. b) RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel. c) Video (or average) bandwidth (VBW) ≥ RBW. d) Sweep: Auto. e) Detector function: Peak. f) Trace: Max hold. g) Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. Compliance of an EUT with the appropriate regulatory limit shall be determined. A plot of the data shall be included in the test report.

4.4.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.2 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM4, TM5, TM6				
Final test mode:	TM4, TM5, TM6				

4.4.2 Test Setup Diagram:



4.4.3 Test Data:

Please Refer to Appendix for Details.

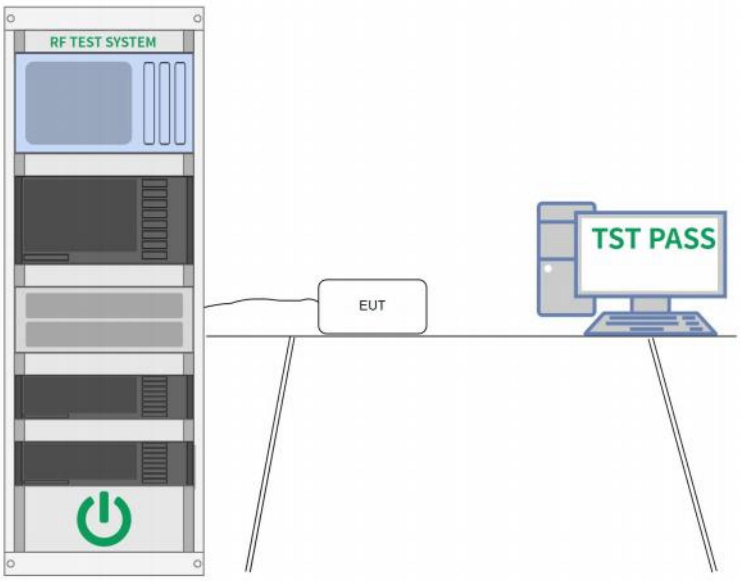
4.5 Number of Hopping Frequencies

Test Requirement:	47 CFR 15.247(a)(1)(iii)
Test Limit:	Refer to 47 CFR 15.247(a)(1)(iii), Fequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.
Test Method:	ANSI C63.10-2013, section 7.8.3 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen. b) RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller. c) VBW ≥ RBW. d) Sweep: Auto. e) Detector function: Peak. f) Trace: Max hold. g) Allow the trace to stabilize. It might prove necessary to break the span up into subranges to show clearly all of the hopping frequencies. Compliance of an EUT with the appropriate regulatory limit shall be determined for the number of hopping channels. A plot of the data shall be included in the test report.

4.5.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.2 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM4, TM5, TM6				
Final test mode:	TM4, TM5, TM6				

4.5.2 Test Setup Diagram:



4.5.3 Test Data:

Please Refer to Appendix for Details.

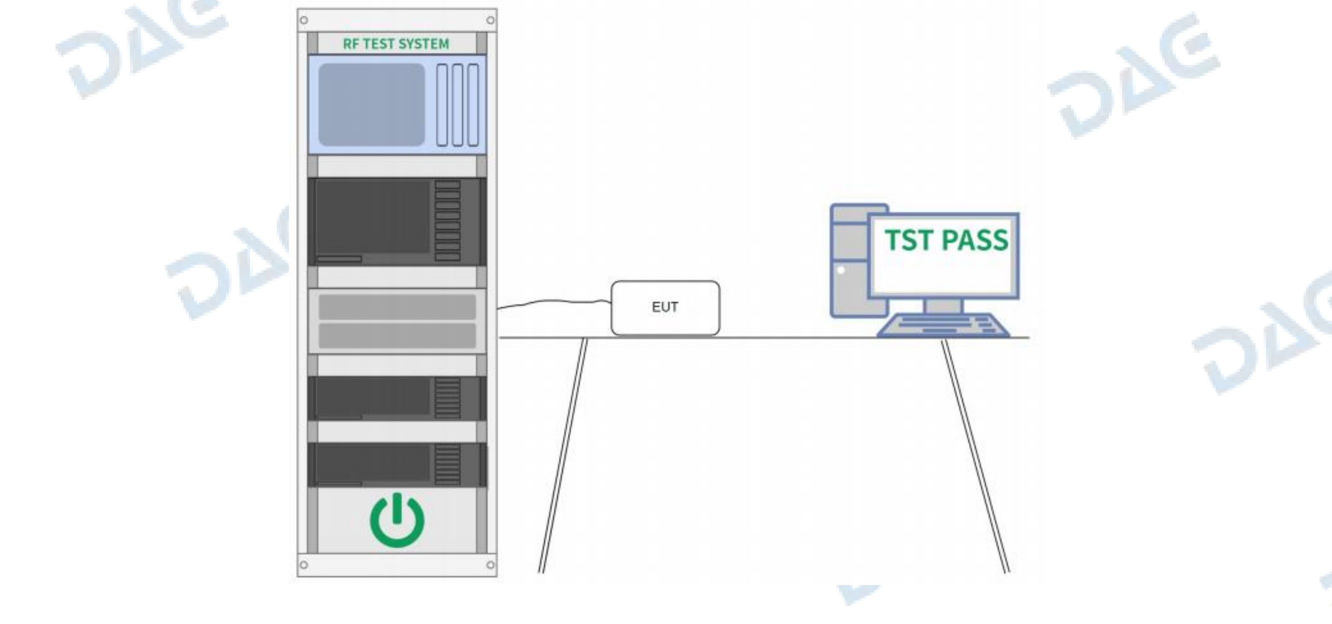
4.6 Dwell Time

Test Requirement:	47 CFR 15.247(a)(1)(iii)
Test Limit:	Refer to 47 CFR 15.247(a)(1)(iii), Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.
Test Method:	ANSI C63.10-2013, section 7.8.4 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: Zero span, centered on a hopping channel. b) RBW shall be <= channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel. c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel. d) Detector function: Peak. e) Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time shall be equal to, or less than, the period specified in the requirements. Determine the number of hops over the sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements) = (number of hops on spectrum analyzer) × (period specified in the requirements / analyzer sweep time) The average time of occupancy is calculated from the transmit time per hop multiplied by the number of hops in the period specified in the requirements. If the number of hops in a specific time varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation. The measured transmit time and time between hops shall be consistent with the values described in the operational description for the EUT.

4.6.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.2 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM4, TM5, TM6				
Final test mode:	TM4, TM5, TM6				

4.6.2 Test Setup Diagram:



4.6.3 Test Data:

Please Refer to Appendix for Details.

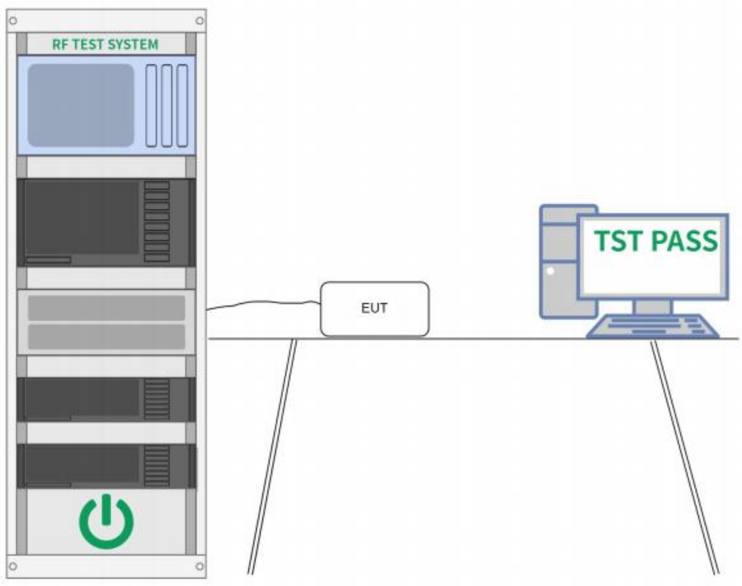
4.7 Emissions in non-restricted frequency bands

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 7.8.8 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	Conducted spurious emissions shall be measured for the transmit frequency, per 5.5 and 5.6, and at the maximum transmit powers. Connect the primary antenna port through an attenuator to the spectrum analyzer input; in the results, account for all losses between the unlicensed wireless device output and the spectrum analyzer. The instrument shall span 30 MHz to 10 times the operating frequency in GHz, with a resolution bandwidth of 100 kHz, video bandwidth of 300 kHz, and a coupled sweep time with a peak detector. The band 30 MHz to the highest frequency may be split into smaller spans, as long as the entire spectrum is covered.

4.7.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.2 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6				

4.7.2 Test Setup Diagram:



4.7.3 Test Data:

Please Refer to Appendix for Details.

4.8 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:	(see table below)

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

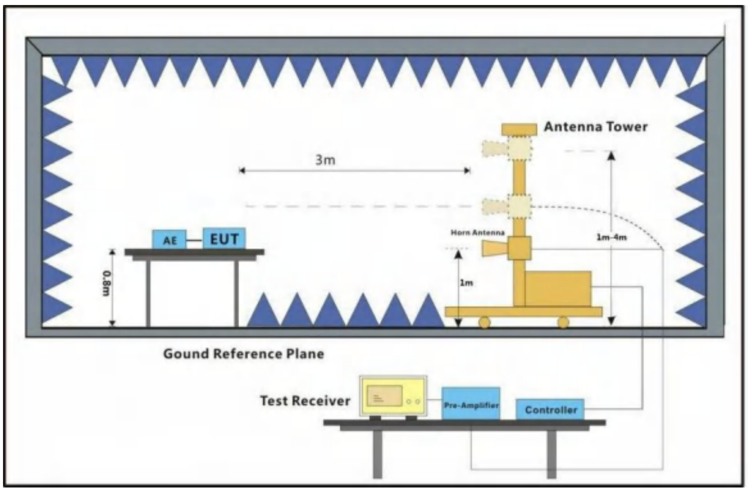
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.
In the emission table above, the tighter limit applies at the band edges.
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

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

4.8.1 E.U.T. Operation:

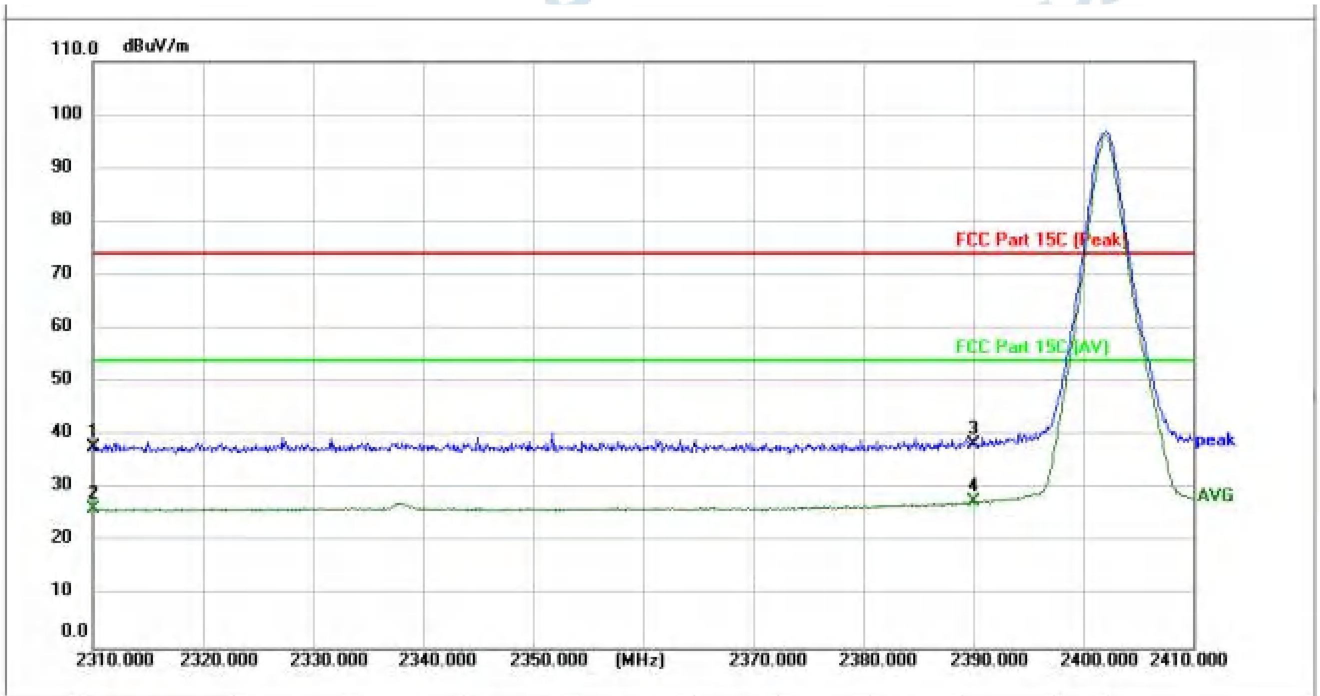
Operating Environment:					
Temperature:	22.2 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1, TM2, TM3				
Final test mode:	TM1				

4.8.2 Test Setup Diagram:



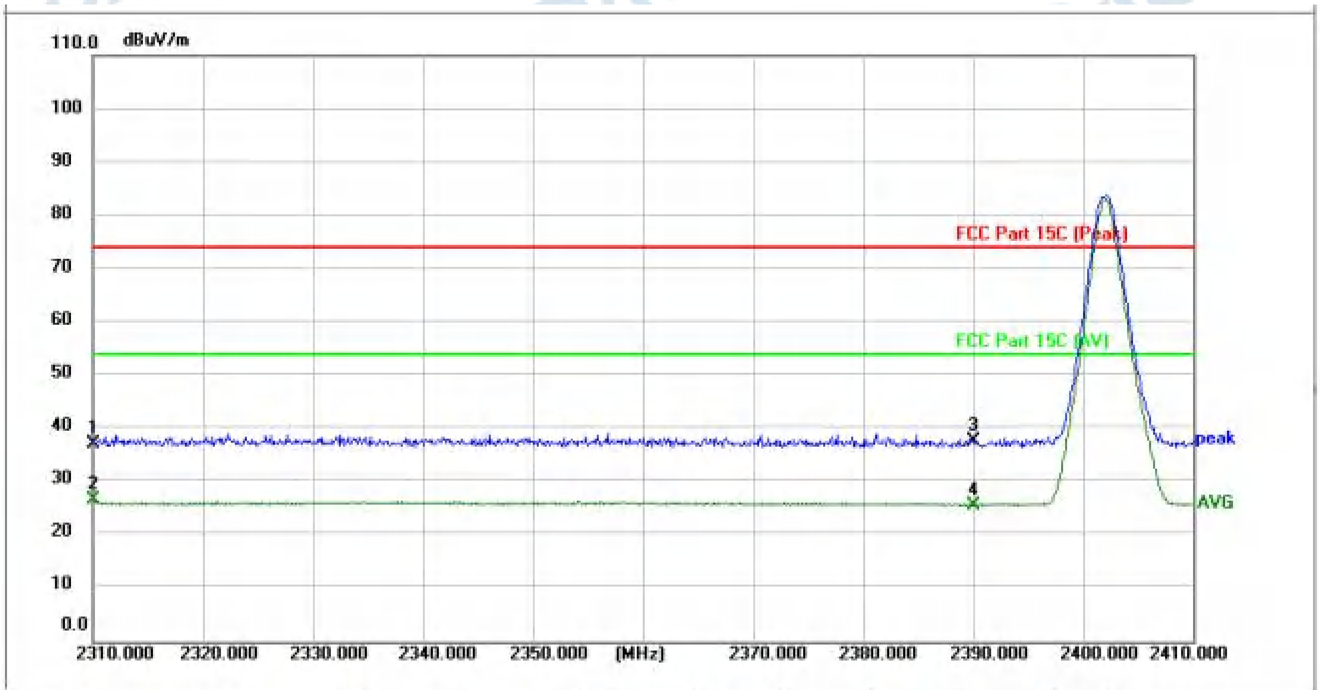
4.8.3 Test Data:

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: L



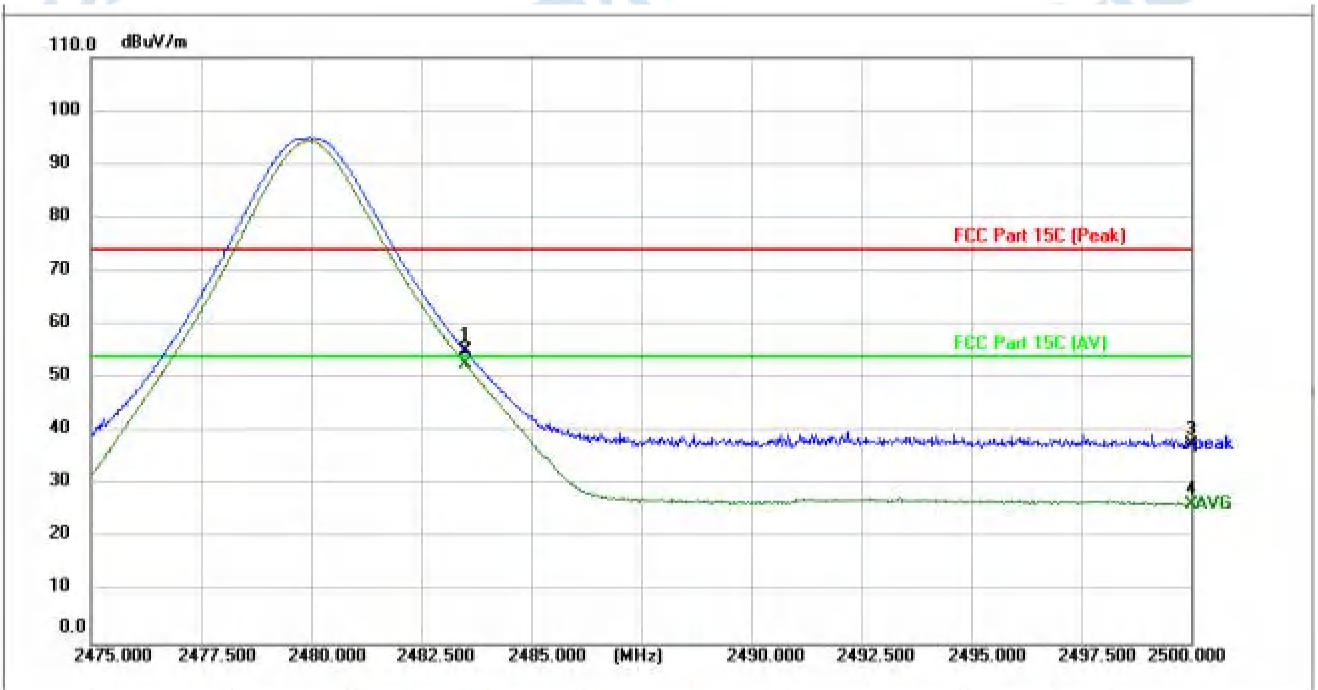
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2310.000	41.37	-3.63	37.74	74.00	-36.26	peak	150		P	
2	2310.000	29.89	-3.63	26.26	54.00	-27.74	AVG	150		P	
3	2390.000	41.86	-3.42	38.44	74.00	-35.56	peak	150		P	
4 *	2390.000	31.10	-3.42	27.68	54.00	-26.32	AVG	150		P	

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: L



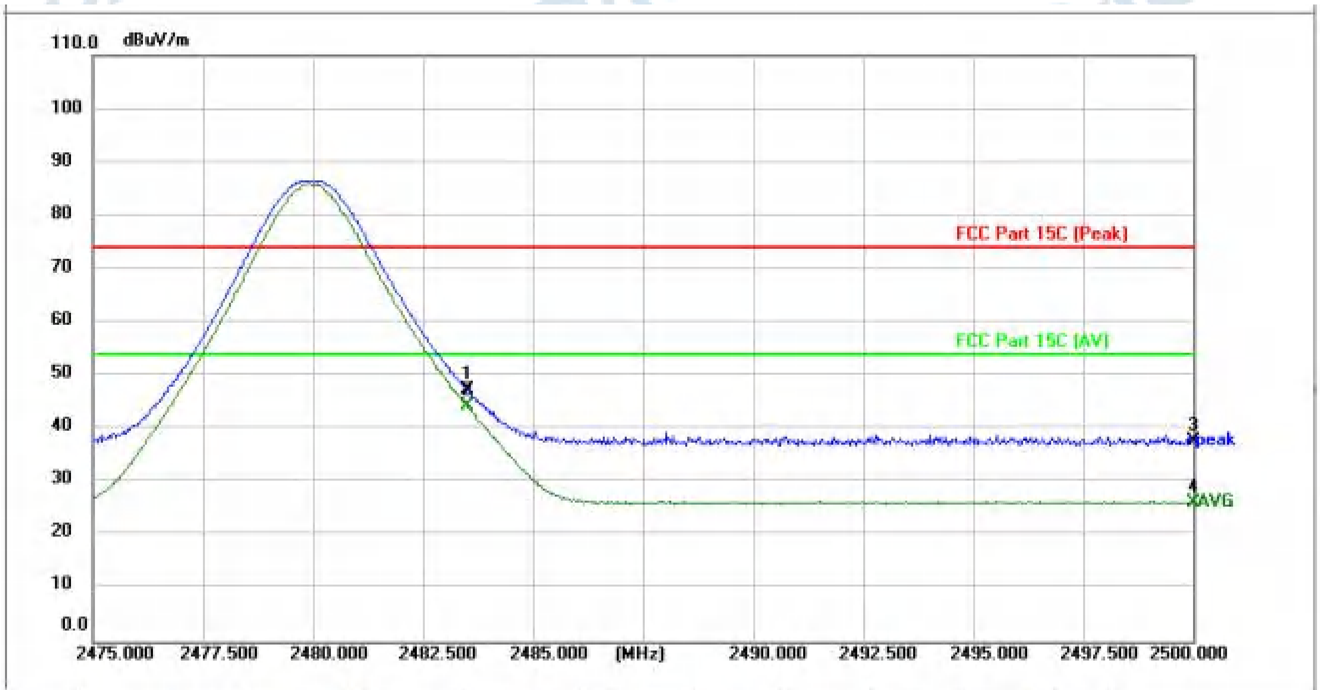
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2310.000	40.87	-3.63	37.24	74.00	-36.76	peak	150		P	
2 *	2310.000	30.42	-3.63	26.79	54.00	-27.21	AVG	150		P	
3	2390.000	41.10	-3.42	37.68	74.00	-36.32	peak	150		P	
4	2390.000	29.22	-3.42	25.80	54.00	-28.20	AVG	150		P	

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / 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	58.31	-3.17	55.14	74.00	-18.86	peak	150		P	
2 *	2483.500	55.83	-3.17	52.66	54.00	-1.34	AVG	150		P	
3	2500.000	40.61	-3.13	37.48	74.00	-36.52	peak	150		P	
4	2500.000	29.42	-3.13	26.29	54.00	-27.71	AVG	150		P	

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / 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	50.57	-3.17	47.40	74.00	-26.60	peak	150		P	
2 *	2483.500	47.71	-3.17	44.54	54.00	-9.46	AVG	150		P	
3	2500.000	40.95	-3.13	37.82	74.00	-36.18	peak	150		P	
4	2500.000	29.46	-3.13	26.33	54.00	-27.67	AVG	150		P	

4.9 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><td>Frequency (MHz)</td><td>Field strength (microvolts/meter)</td><td>Measurement distance (meters)</td></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. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
Test Method:	ANSI C63.10-2013 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02
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

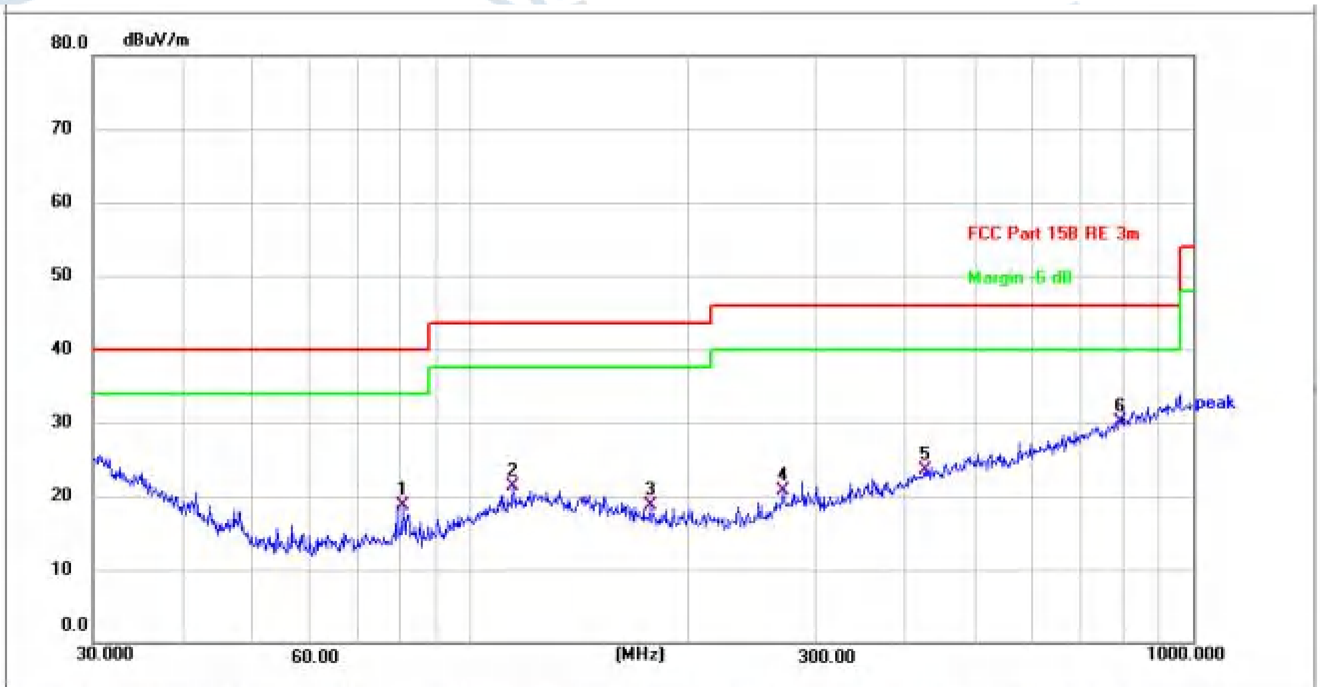
	channel. Only the worst case is recorded in the report. 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Final Test Level =Receiver Reading + Antenna Factor + Cable Factor ¨C Preamplifier Factor 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.

4.9.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.2 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1,TM2,TM3				
Final test mode:	TM1				

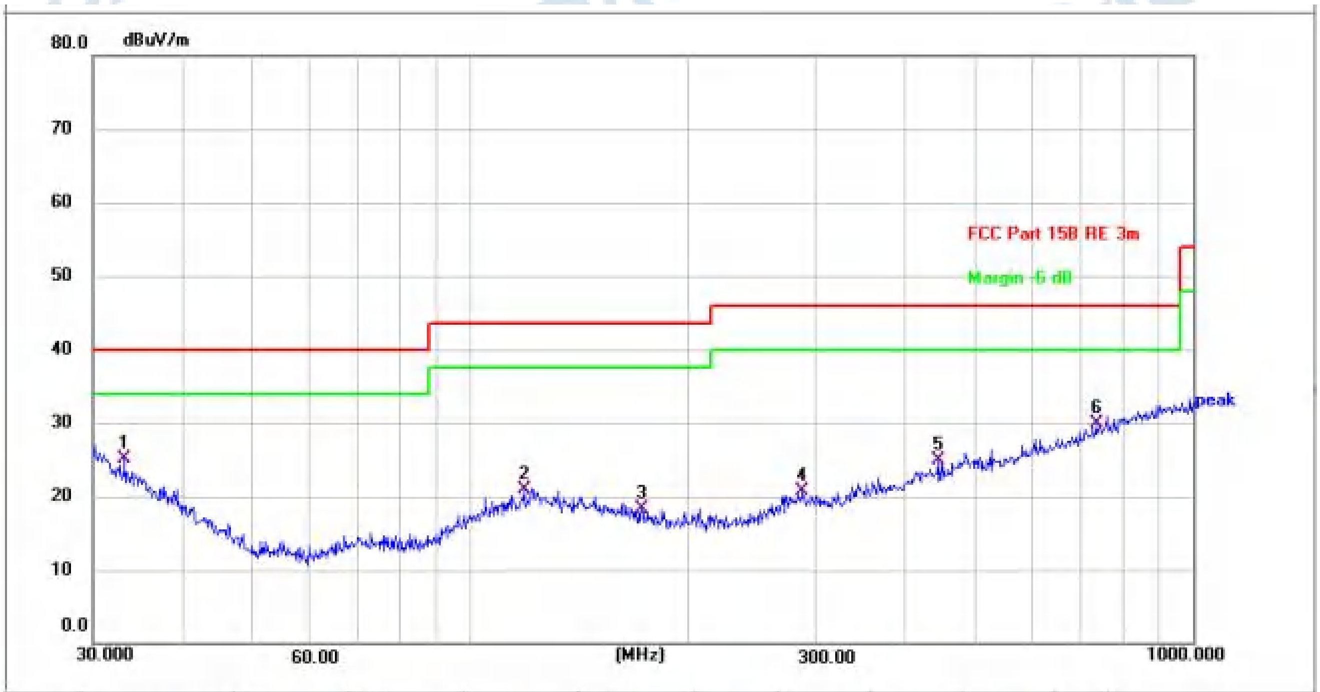
4.9.2 Test Data:

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / 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	80.6442	30.75	-12.10	18.65	40.00	-21.35	QP	100		P	
2	114.5146	27.31	-5.94	21.37	43.50	-22.13	QP	100		P	
3	177.5092	27.16	-8.43	18.73	43.50	-24.77	QP	100		P	
4	270.3748	27.39	-6.59	20.80	46.00	-25.20	QP	100		P	
5	425.0280	26.05	-2.55	23.50	46.00	-22.50	QP	100		P	
6 *	793.3960	25.82	4.20	30.02	46.00	-15.98	QP	100		P	

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / 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 *	33.2112	27.32	-2.16	25.16	40.00	-14.84	QP	100		P	
2	118.6014	26.59	-5.70	20.89	43.50	-22.61	QP	100		P	
3	172.5988	26.31	-7.98	18.33	43.50	-25.17	QP	100		P	
4	287.9904	26.72	-5.96	20.76	46.00	-25.24	QP	100		P	
5	443.2943	27.39	-2.54	24.85	46.00	-21.15	QP	100		P	
6	734.4913	26.52	3.38	29.90	46.00	-16.10	QP	100		P	

4.10 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:	(see table below)

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.
In the emission table above, the tighter limit applies at the band edges.
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

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

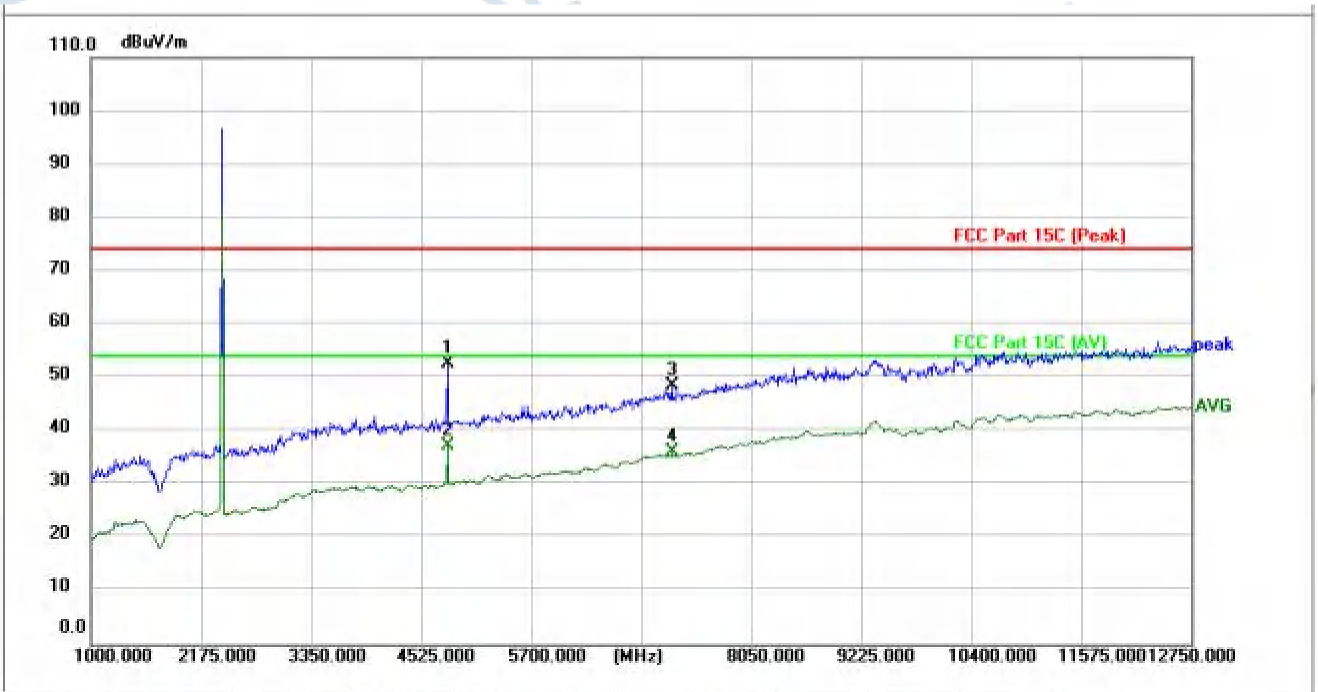
	channel. Only the worst case is recorded in the report. 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Final Test Level =Receiver Reading + Antenna Factor + Cable Factor ¨C Preamplifier Factor 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.

4.10.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.2 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1, TM2, TM3				
Final test mode:	TM1				

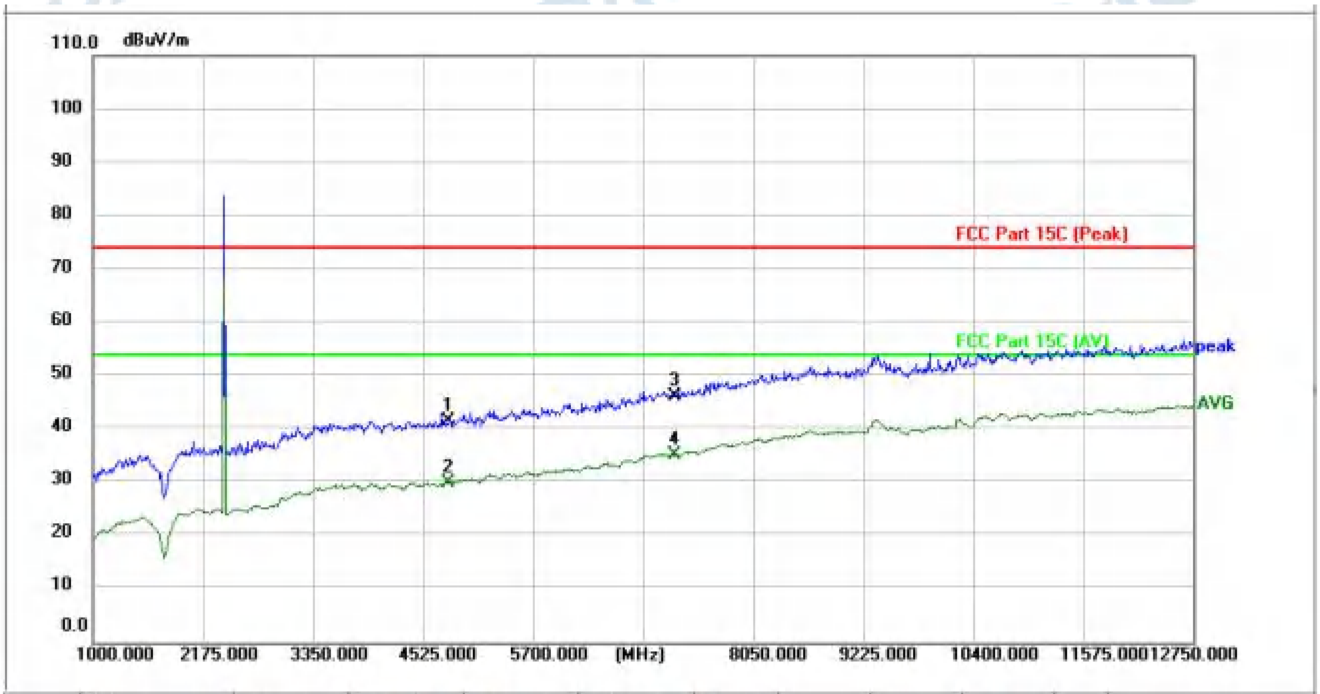
4.10.2 Test Data:

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: L



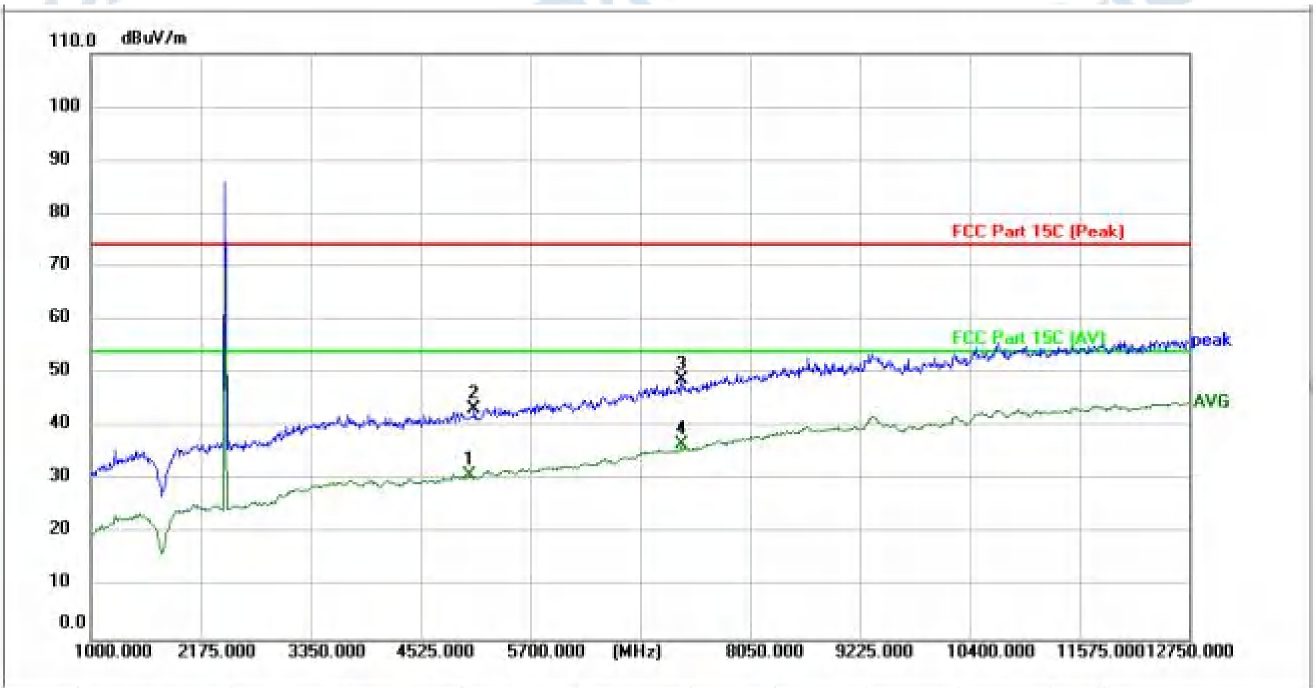
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4807.000	49.29	3.31	52.60	74.00	-21.40	peak	150		P	
2 *	4807.000	34.02	3.31	37.33	54.00	-16.67	AVG	150		P	
3	7204.000	38.19	10.37	48.56	74.00	-25.44	peak	150		P	
4	7204.000	25.73	10.37	36.10	54.00	-17.90	AVG	150		P	

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: L



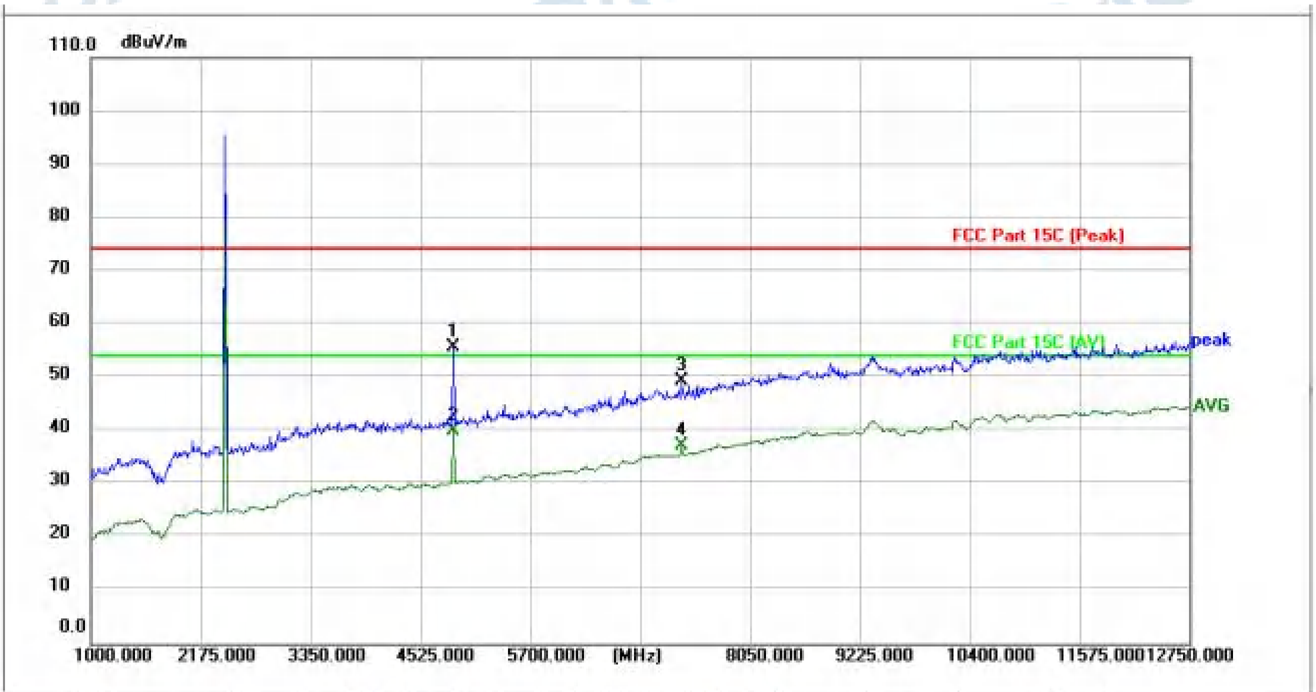
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4804.000	38.46	3.30	41.76	74.00	-32.24	peak	150		P	
2	4804.000	26.81	3.30	30.11	54.00	-23.89	AVG	150		P	
3	7206.000	36.05	10.37	46.42	74.00	-27.58	peak	150		P	
4 *	7206.000	24.97	10.37	35.34	54.00	-18.66	AVG	150		P	

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: M



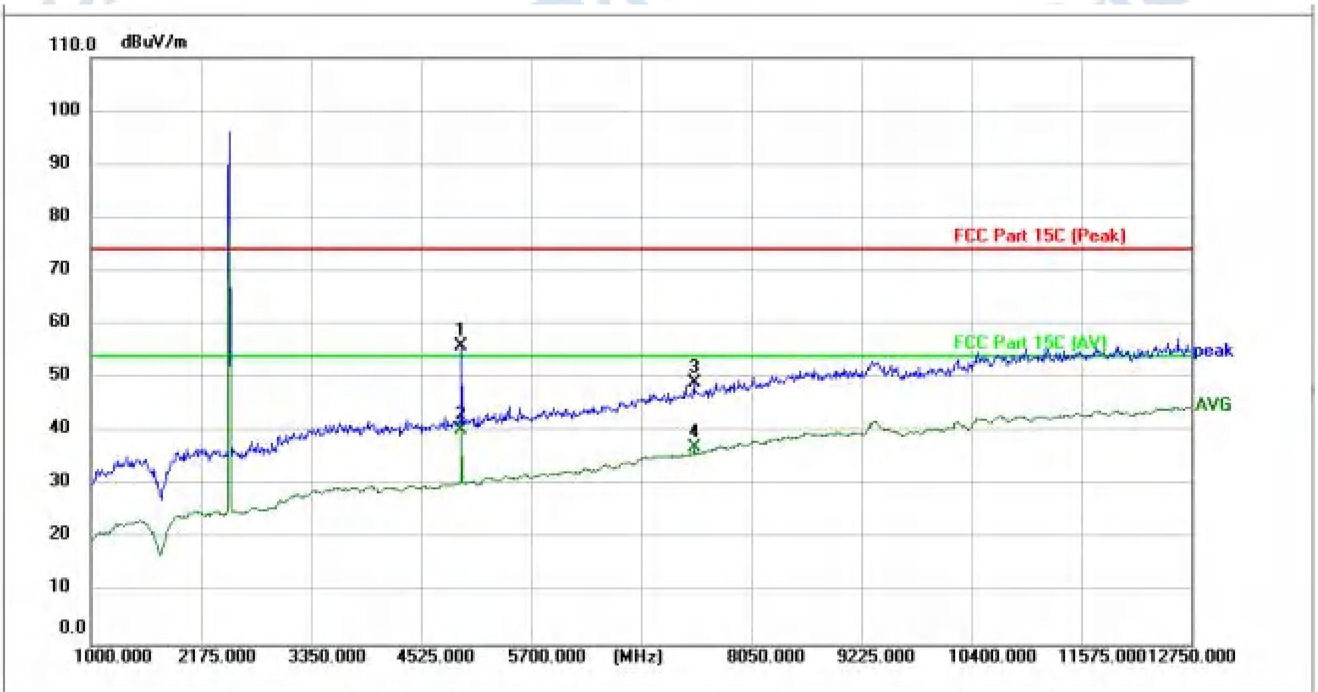
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5042.000	26.73	4.09	30.82	54.00	-23.18	AVG	150		P	
2	5100.750	39.14	4.26	43.40	74.00	-30.60	peak	150		P	
3	7321.500	38.29	10.57	48.86	74.00	-25.14	peak	150		P	
4 *	7321.500	26.25	10.57	36.82	54.00	-17.18	AVG	150		P	

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: M



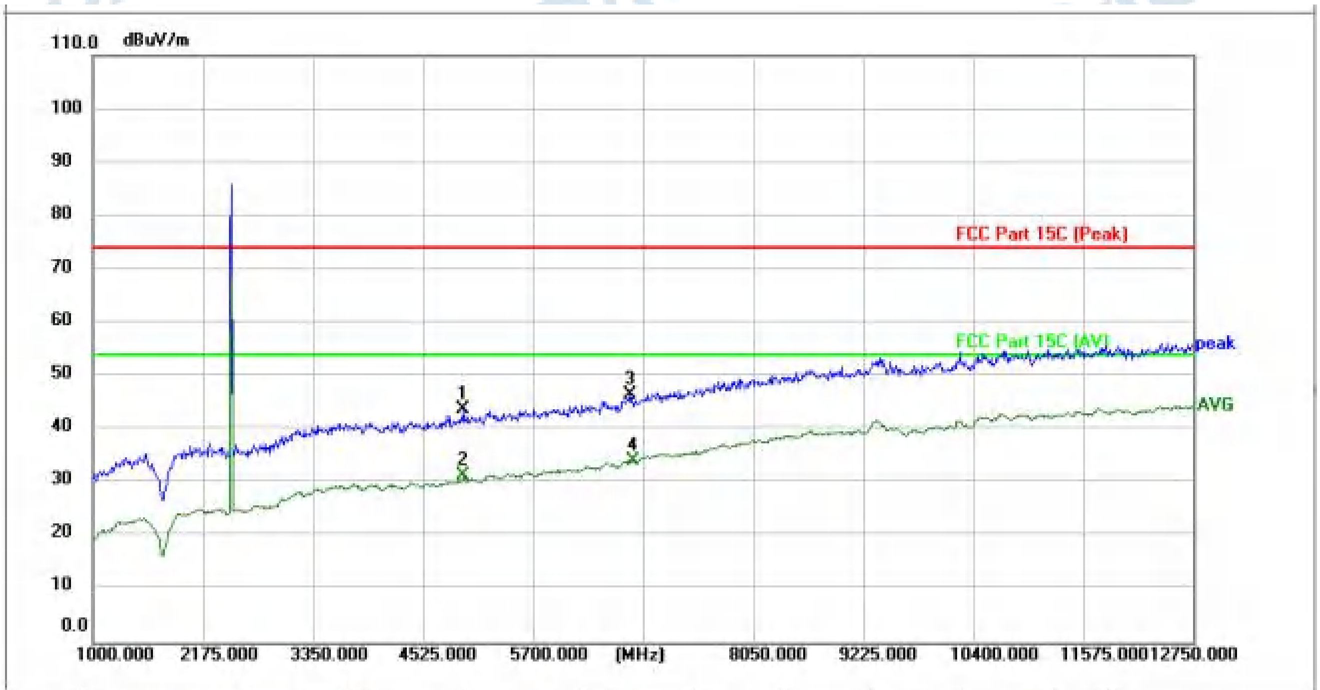
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4877.500	52.08	3.55	55.63	74.00	-18.37	peak	150		P	
2 *	4877.500	36.36	3.55	39.91	54.00	-14.09	AVG	150		P	
3	7321.500	38.92	10.57	49.49	74.00	-24.51	peak	150		P	
4	7321.500	26.83	10.57	37.40	54.00	-16.60	AVG	150		P	

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / 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	4959.750	52.26	3.83	56.09	74.00	-17.91	peak	150		P	
2 *	4959.750	36.45	3.83	40.28	54.00	-13.72	AVG	150		P	
3	7439.000	38.25	10.78	49.03	74.00	-24.97	peak	150		P	
4	7439.000	26.24	10.78	37.02	54.00	-16.98	AVG	150		P	

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / 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	4959.750	40.12	3.83	43.95	74.00	-30.05	peak	150		P	
2	4959.750	27.64	3.83	31.47	54.00	-22.53	AVG	150		P	
3	6734.000	37.62	8.99	46.61	74.00	-27.39	peak	150		P	
4 *	6769.250	25.07	9.13	34.20	54.00	-19.80	AVG	150		P	

5 TEST SETUP PHOTOS

Reference to the Test setup file for details.

6 PHOTOS OF THE EUT

Reference to the external photos file and internal photos file for details.

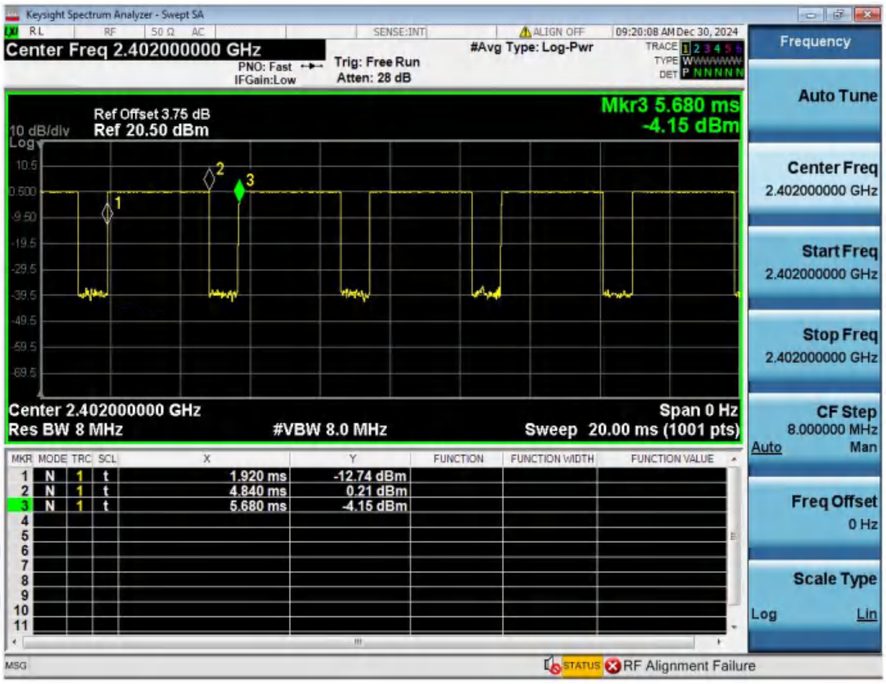
Appendix

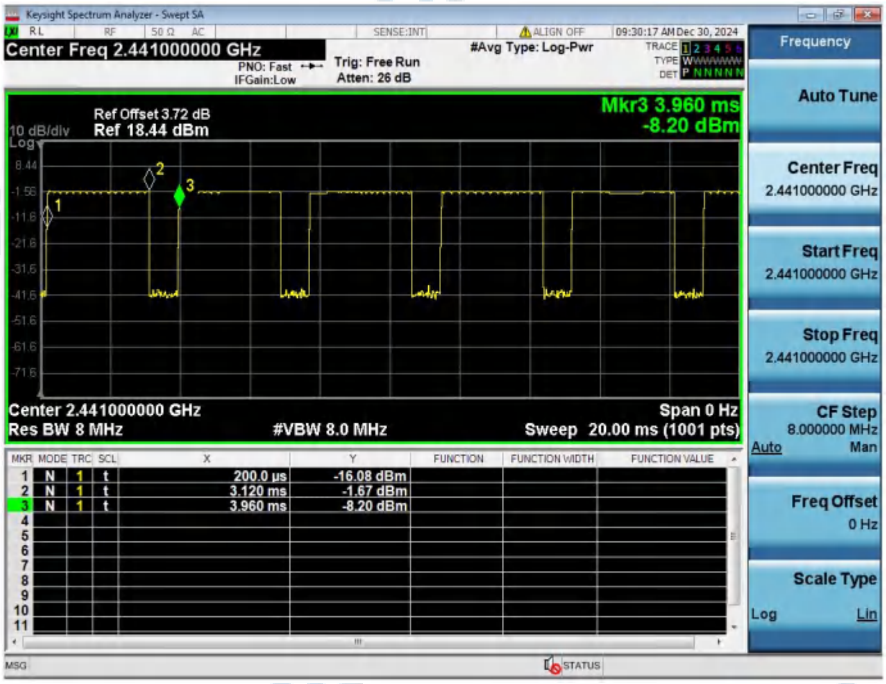
HT241210003--MT--EDR--FCC
FCC_BT (Part15.247) Test Data

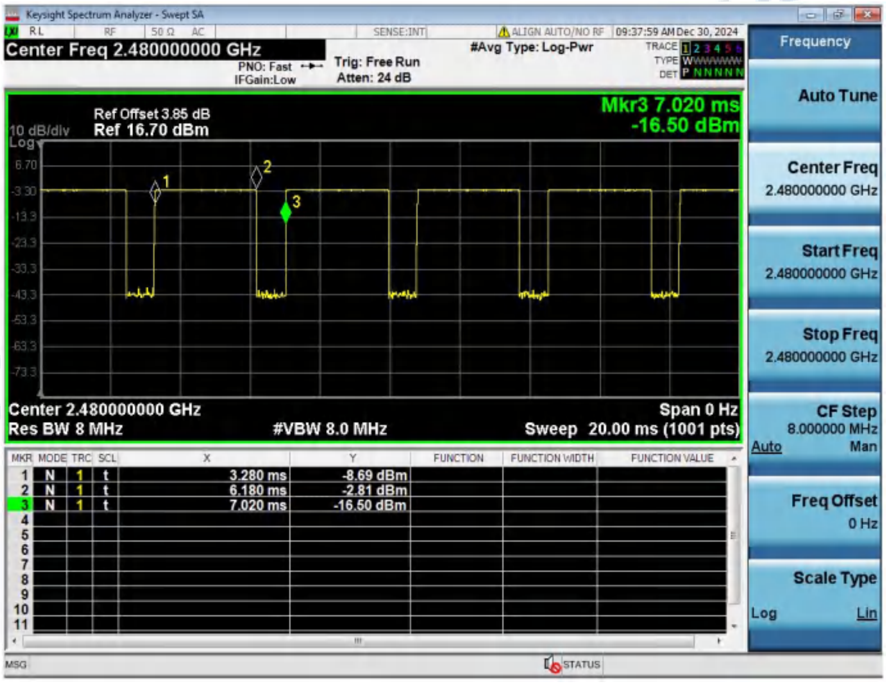
1. Duty Cycle

Condition	Antenna	Rate	Frequency (MHz)	Dutycycle(%)	Duty_factor
NVNT	ANT1	1-DH5	2402.00	78.19	1.07
NVNT	ANT1	1-DH5	2441.00	77.66	1.10
NVNT	ANT1	1-DH5	2480.00	78.07	1.07
NVNT	ANT1	2-DH5	2402.00	78.19	1.07
NVNT	ANT1	2-DH5	2441.00	78.19	1.07
NVNT	ANT1	2-DH5	2480.00	78.19	1.07
NVNT	ANT1	3-DH5	2402.00	78.19	1.07
NVNT	ANT1	3-DH5	2441.00	77.66	1.10
NVNT	ANT1	3-DH5	2480.00	78.61	1.05

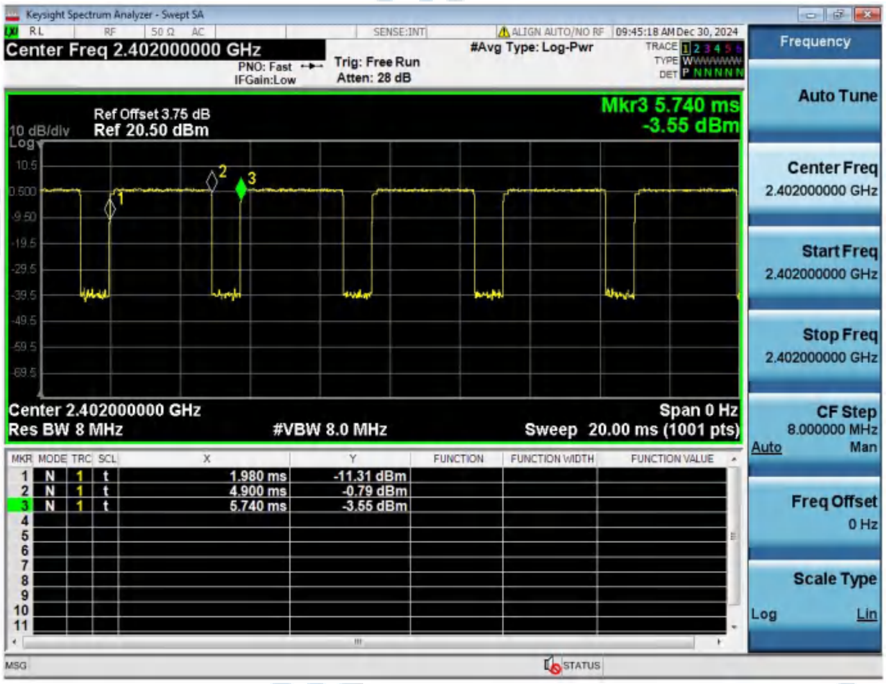
Duty_Cycle_NVNT_ANT1_1-DH5_2402



Duty_Cycle_NVNT_ANT1_1-DH5_2441


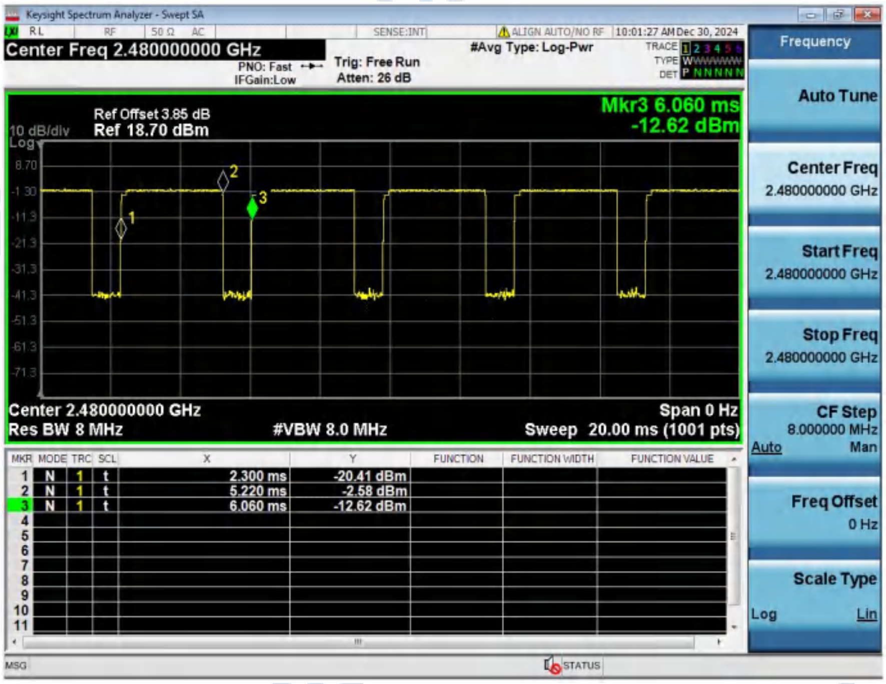
Duty_Cycle_NVNT_ANT1_1-DH5_2480


Duty_Cycle_NVNT_ANT1_2-DH5_2402

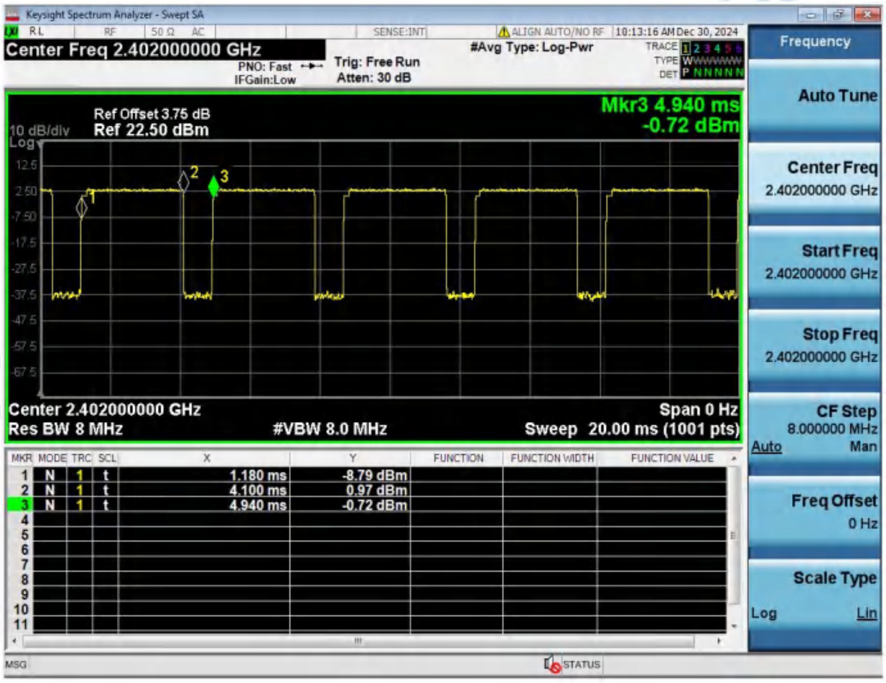


Duty_Cycle_NVNT_ANT1_2-DH5_2441

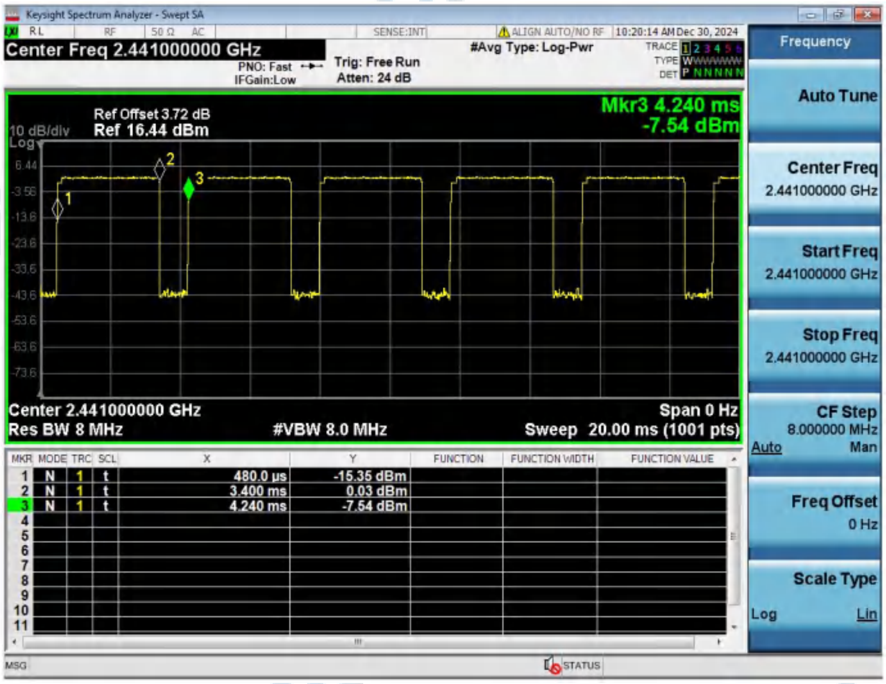
Duty_Cycle_NVNT_ANT1_2-DH5_2480



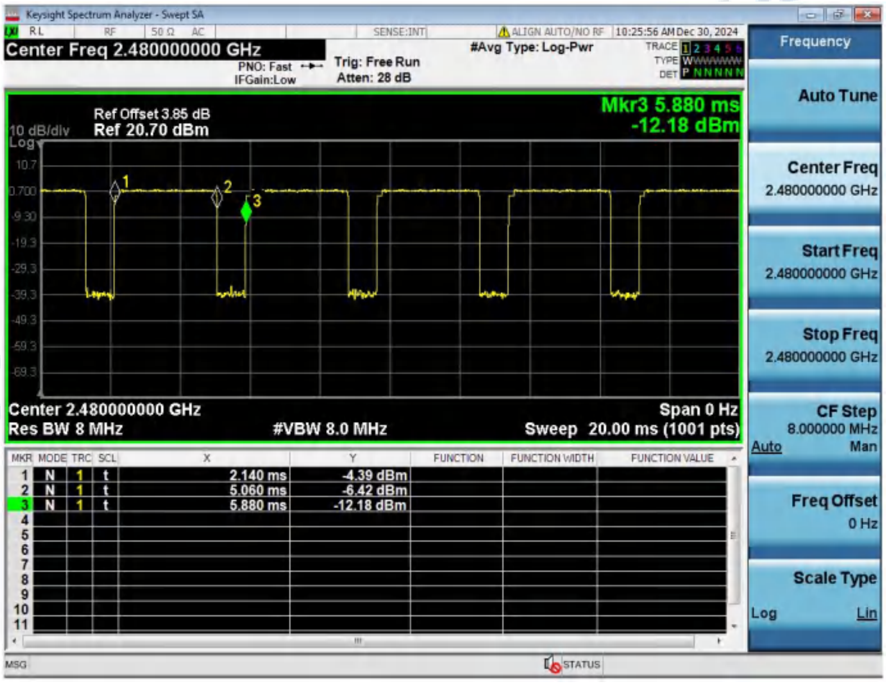
Duty_Cycle_NVNT_ANT1_3-DH5_2402



Duty_Cycle_NVNT_ANT1_3-DH5_2441



Duty_Cycle_NVNT_ANT1_3-DH5_2480



2. -20dB Bandwidth

Condition	Antenna	Modulation	Frequency (MHz)	-20dB BW(MHz)	if larger than CFS
NVNT	ANT1	1-DH5	2402.00	0.995	No
NVNT	ANT1	1-DH5	2441.00	0.941	No
NVNT	ANT1	1-DH5	2480.00	0.951	No
NVNT	ANT1	2-DH5	2402.00	1.292	Yes
NVNT	ANT1	2-DH5	2441.00	1.342	Yes
NVNT	ANT1	2-DH5	2480.00	1.295	Yes
NVNT	ANT1	3-DH5	2402.00	1.303	Yes
NVNT	ANT1	3-DH5	2441.00	1.304	Yes
NVNT	ANT1	3-DH5	2480.00	1.318	Yes

-20dB_Bandwidth_NVNT_ANT1_1-DH5_2402_00

-20dB_Bandwidth_NVNT_ANT1_1-DH5_2441_00

-20dB_Bandwidth_NVNT_ANT1_1-DH5_2480_00

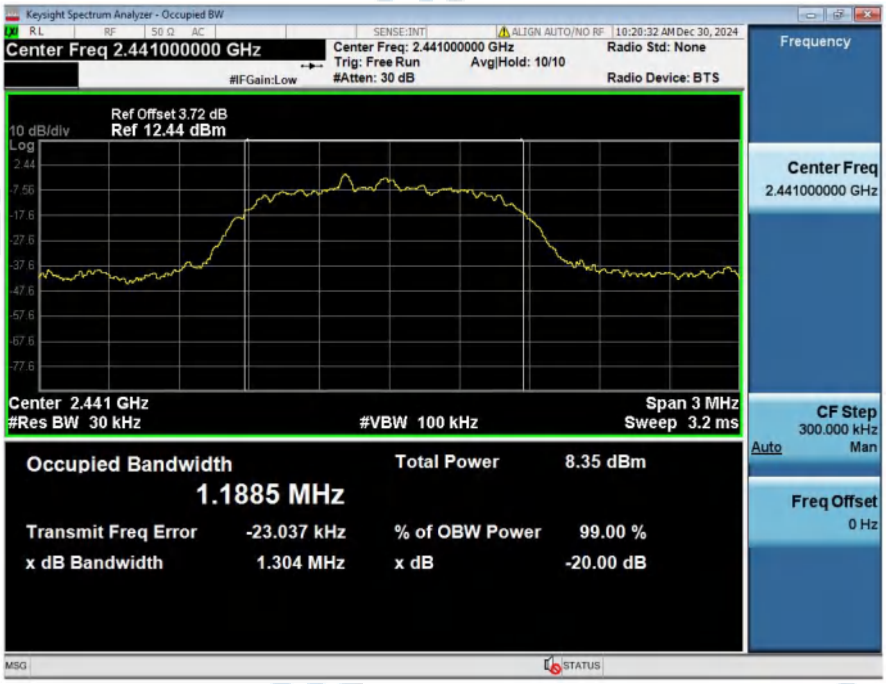
-20dB_Bandwidth_NVNT_ANT1_2-DH5_2402_00

-20dB_Bandwidth_NVNT_ANT1_2-DH5_2441_00

-20dB_Bandwidth_NVNT_ANT1_2-DH5_2480_00


-20dB_Bandwidth_NVNT_ANT1_3-DH5_2402_00


-20dB_Bandwidth_NVNT_ANT1_3-DH5_2441_00



-20dB_Bandwidth_NVNT_ANT1_3-DH5_2480_00

3. 99% Occupied Bandwidth

Condition	Antenna	Modulation	Frequency (MHz)	99%%BW(MHz)
NVNT	ANT1	1-DH5	2402.00	0.910
NVNT	ANT1	1-DH5	2441.00	0.879
NVNT	ANT1	1-DH5	2480.00	0.887
NVNT	ANT1	2-DH5	2402.00	1.197
NVNT	ANT1	2-DH5	2441.00	1.197
NVNT	ANT1	2-DH5	2480.00	1.193
NVNT	ANT1	3-DH5	2402.00	1.181
NVNT	ANT1	3-DH5	2441.00	1.188
NVNT	ANT1	3-DH5	2480.00	1.195

99%_Occupied_Bandwidth_NVNT_ANT1_1-DH5_2402_00

99%_Occupied_Bandwidth_NVNT_ANT1_1-DH5_2441_00

99%_Occupied_Bandwidth_NVNT_ANT1_1-DH5_2480_00

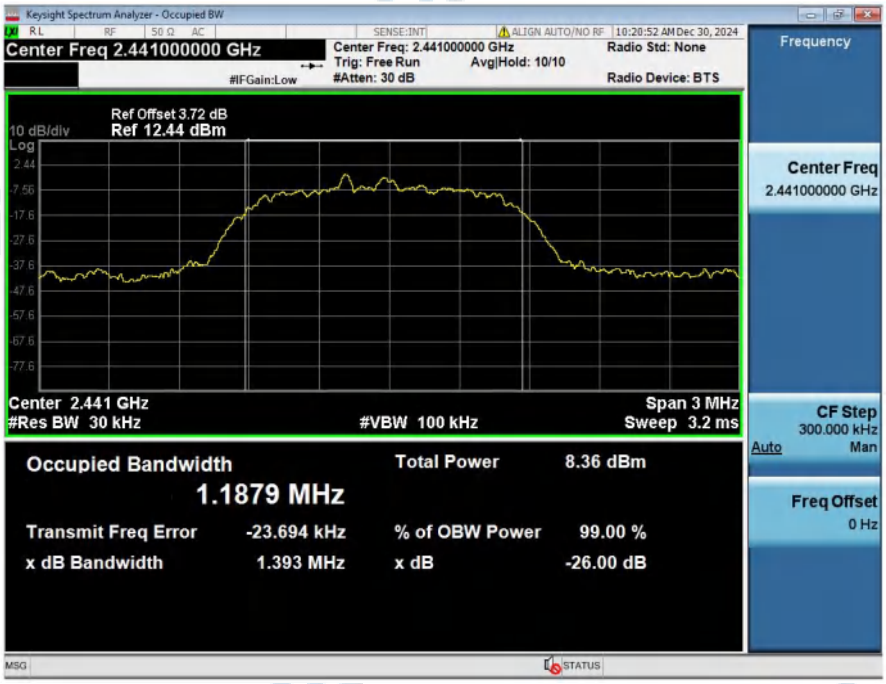
99%_Occupied_Bandwidth_NVNT_ANT1_2-DH5_2402_00

99%_Occupied_Bandwidth_NVNT_ANT1_2-DH5_2441_00

99%_Occupied_Bandwidth_NVNT_ANT1_2-DH5_2480_00

99%_Occupied_Bandwidth_NVNT_ANT1_3-DH5_2402_00

99%_Occupied_Bandwidth_NVNT_ANT1_3-DH5_2441_00



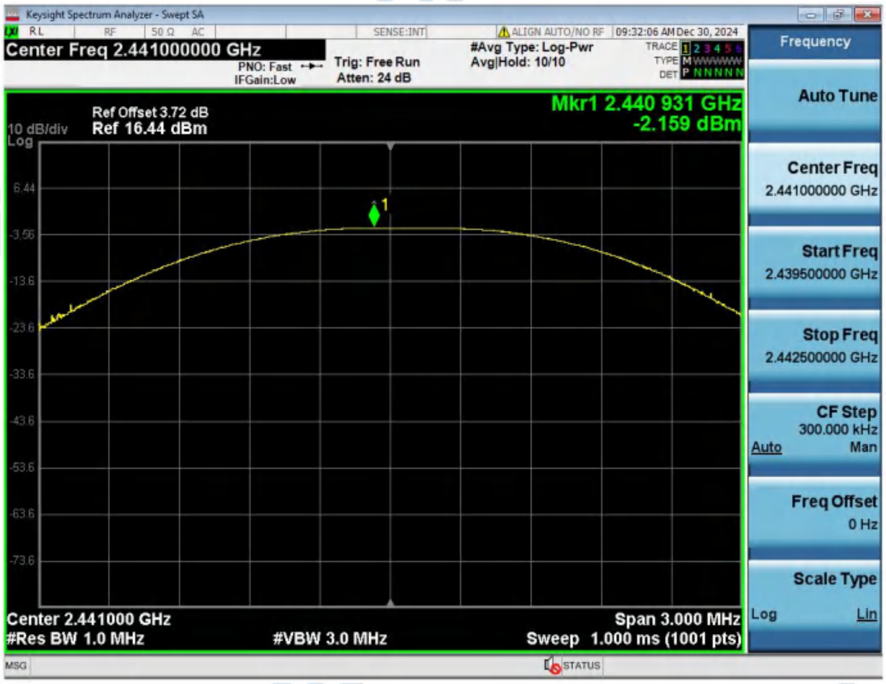
99%_Occupied_Bandwidth_NVNT_ANT1_3-DH5_2480_00

4. Peak Output Power

Condition	Antenna	Modulation	Frequency (MHz)	Max. Conducted Power(dBm)	Max. Conducted Power(mW)	Limit(mW)	Result
NVNT	ANT1	1-DH5	2402.00	-0.81	0.83	1000	Pass
NVNT	ANT1	1-DH5	2441.00	-2.16	0.61	1000	Pass
NVNT	ANT1	1-DH5	2480.00	-2.97	0.50	1000	Pass
NVNT	ANT1	2-DH5	2402.00	1.40	1.38	125	Pass
NVNT	ANT1	2-DH5	2441.00	0.22	1.05	125	Pass
NVNT	ANT1	2-DH5	2480.00	-0.83	0.83	125	Pass
NVNT	ANT1	3-DH5	2402.00	3.69	2.34	125	Pass
NVNT	ANT1	3-DH5	2441.00	2.28	1.69	125	Pass
NVNT	ANT1	3-DH5	2480.00	1.45	1.40	125	Pass

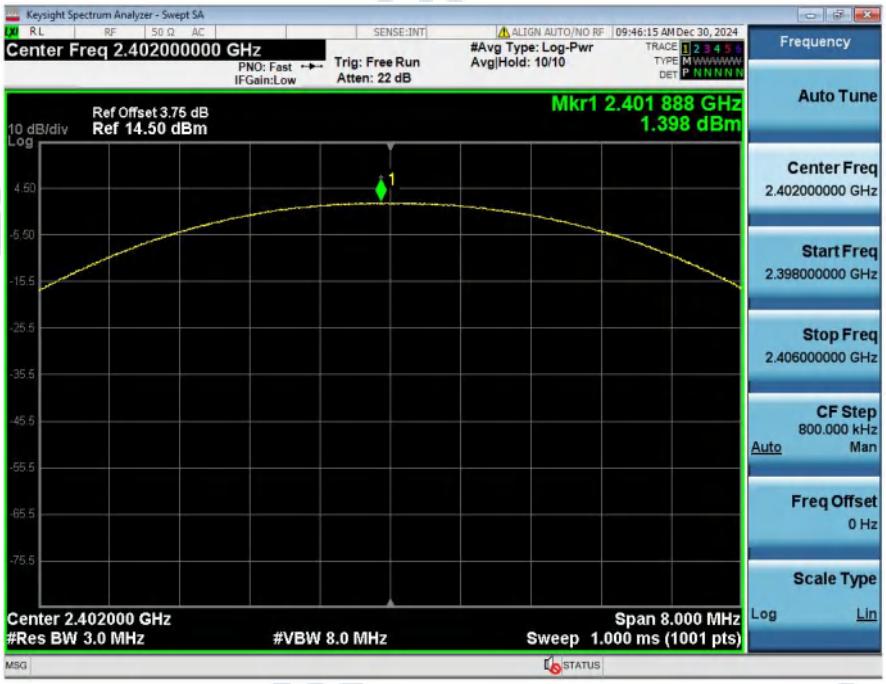
Peak_Output_Power_NVNT_ANT1_1-DH5_2402_00

Peak_Output_Power_NVNT_ANT1_1-DH5_2441_00



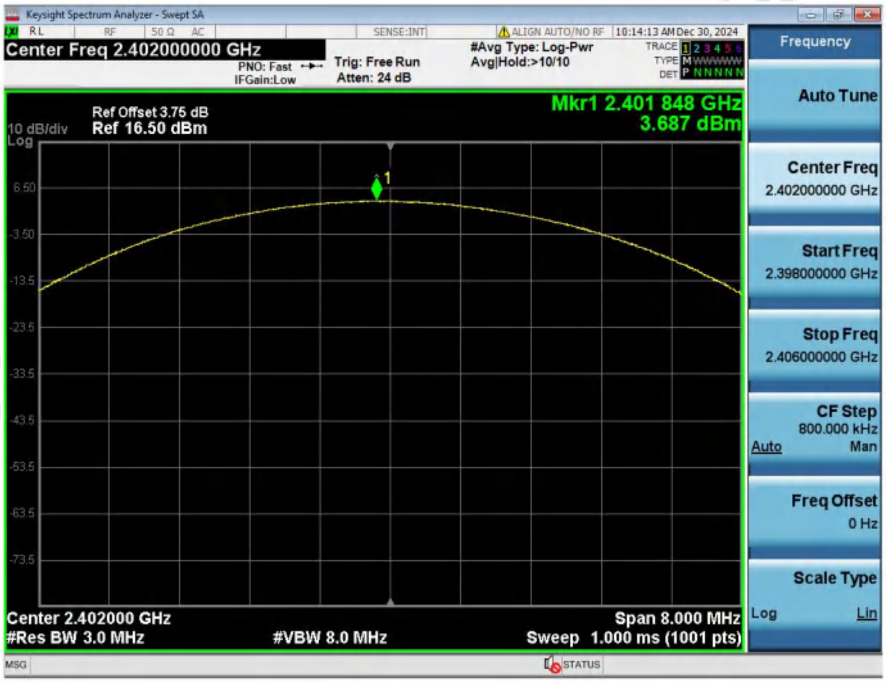
Peak_Output_Power_NVNT_ANT1_1-DH5_2480_00

Peak_Output_Power_NVNT_ANT1_2-DH5_2402_00



Peak_Output_Power_NVNT_ANT1_2-DH5_2441_00

Peak_Output_Power_NVNT_ANT1_2-DH5_2480_00


Peak_Output_Power_NVNT_ANT1_3-DH5_2402_00


Peak_Output_Power_NVNT_ANT1_3-DH5_2441_00

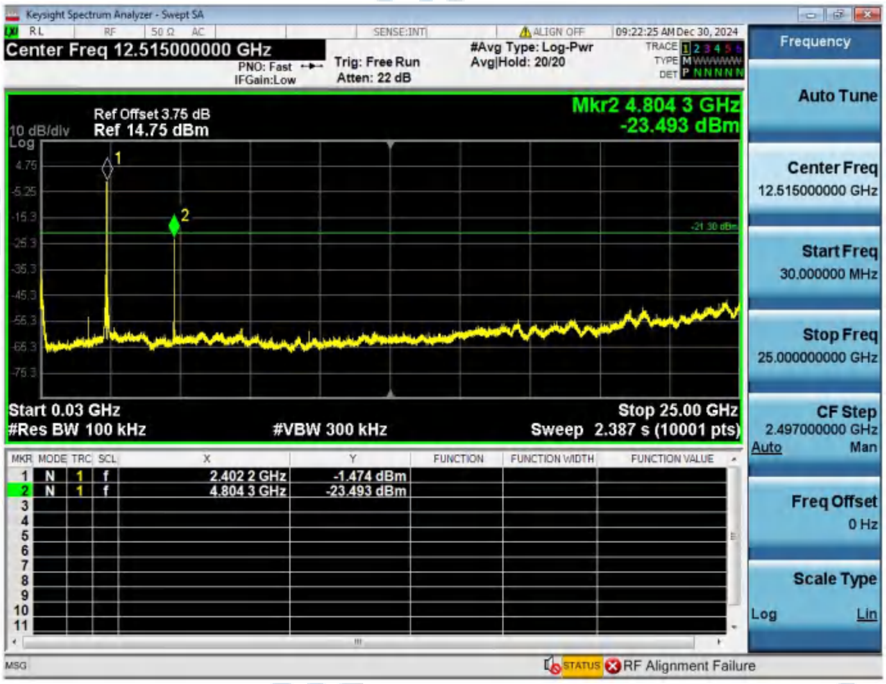

Peak_Output_Power_NVNT_ANT1_3-DH5_2480_00


5. Spurious Emissions

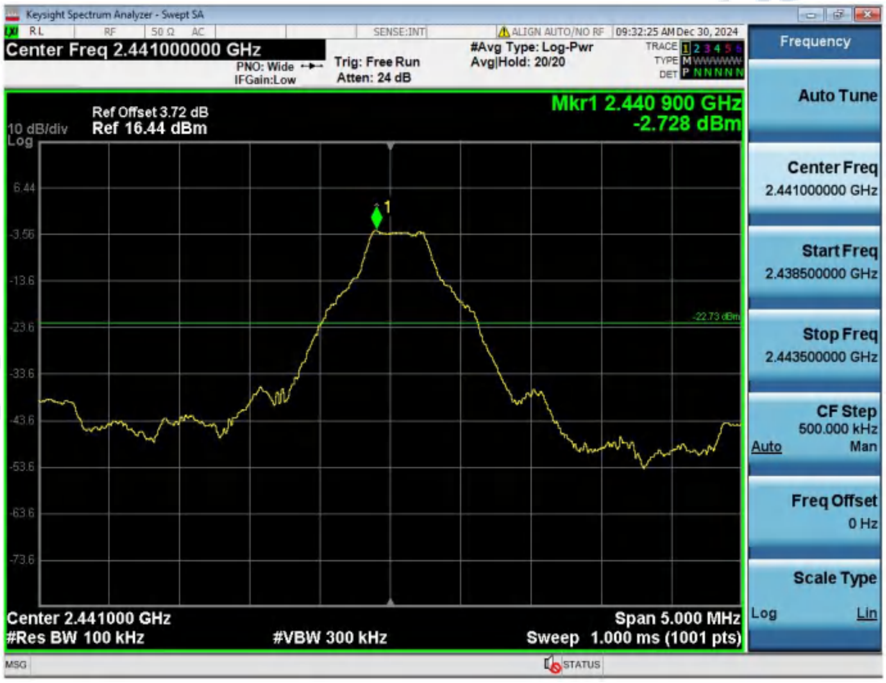
Condition	Antenna	Modulation	TX Mode	Ref_level(dBm)	Spurious MAX.Value(dBm)	Limit	Result
NVNT	ANT1	1-DH5	2402.00	-1.302	-23.493	-21.302	Pass
NVNT	ANT1	1-DH5	2441.00	-2.728	-24.635	-22.728	Pass
NVNT	ANT1	1-DH5	2480.00	-3.517	-29.417	-23.517	Pass
NVNT	ANT1	2-DH5	2402.00	-1.566	-23.333	-21.566	Pass
NVNT	ANT1	2-DH5	2441.00	-2.201	-26.251	-22.201	Pass
NVNT	ANT1	2-DH5	2480.00	-1.883	-27.479	-21.883	Pass
NVNT	ANT1	3-DH5	2402.00	1.023	-19.167	-18.977	Pass
NVNT	ANT1	3-DH5	2441.00	0.018	-21.354	-19.982	Pass
NVNT	ANT1	3-DH5	2480.00	-1.292	-24.713	-21.292	Pass

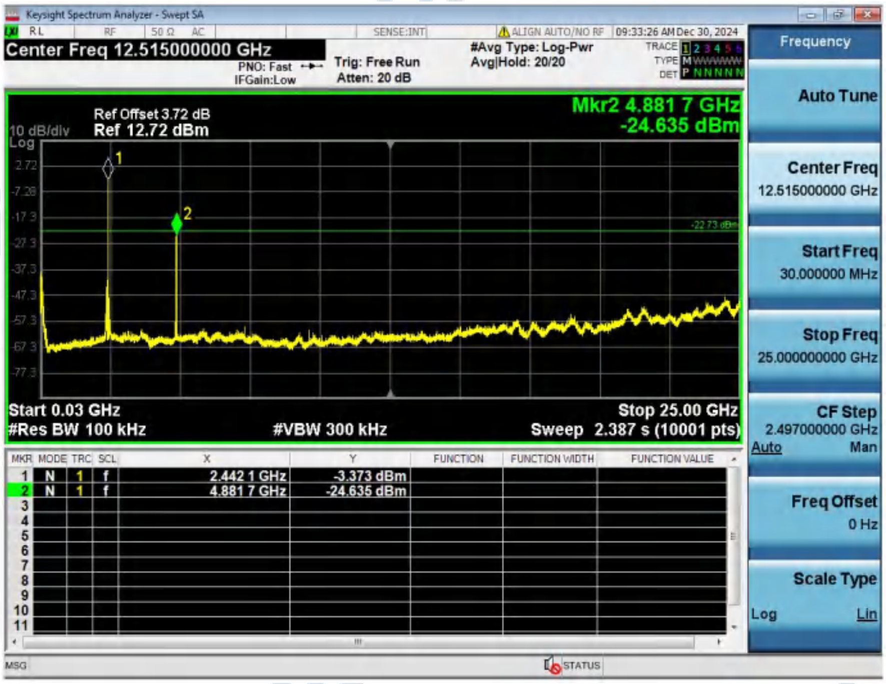
1_Reference_Level_NVNT_ANT1_1-DH5_2402_00

2_Spurious_Emissions_NVNT_ANT1_1-DH5_2402_00

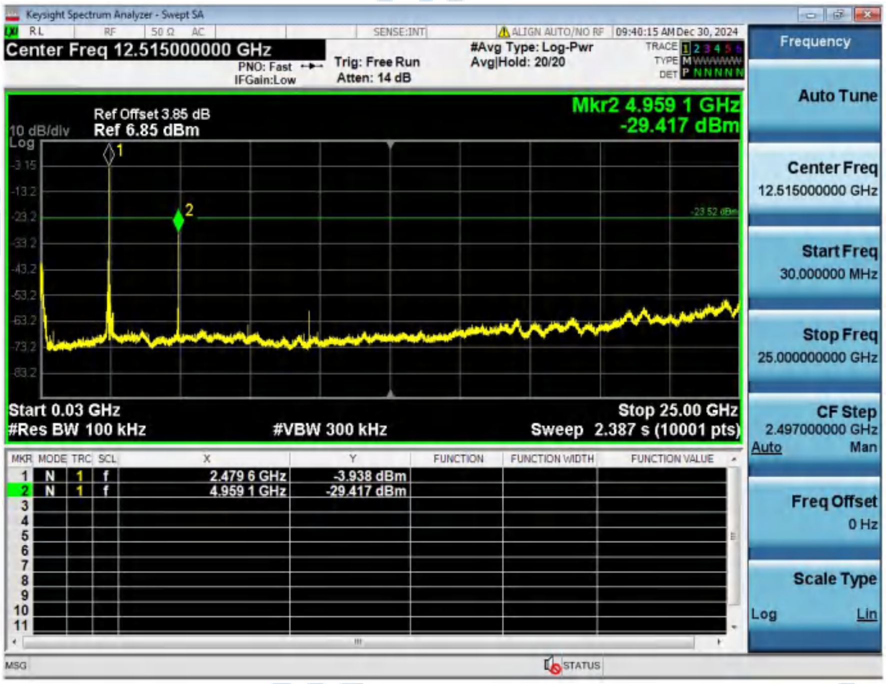


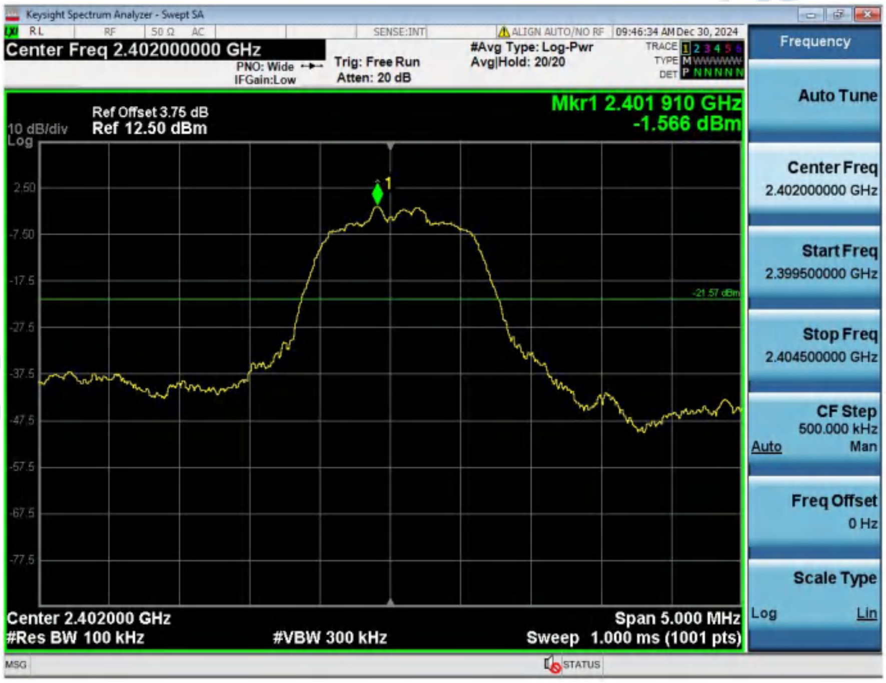
1_Reference_Level_NVNT_ANT1_1-DH5_2441_00

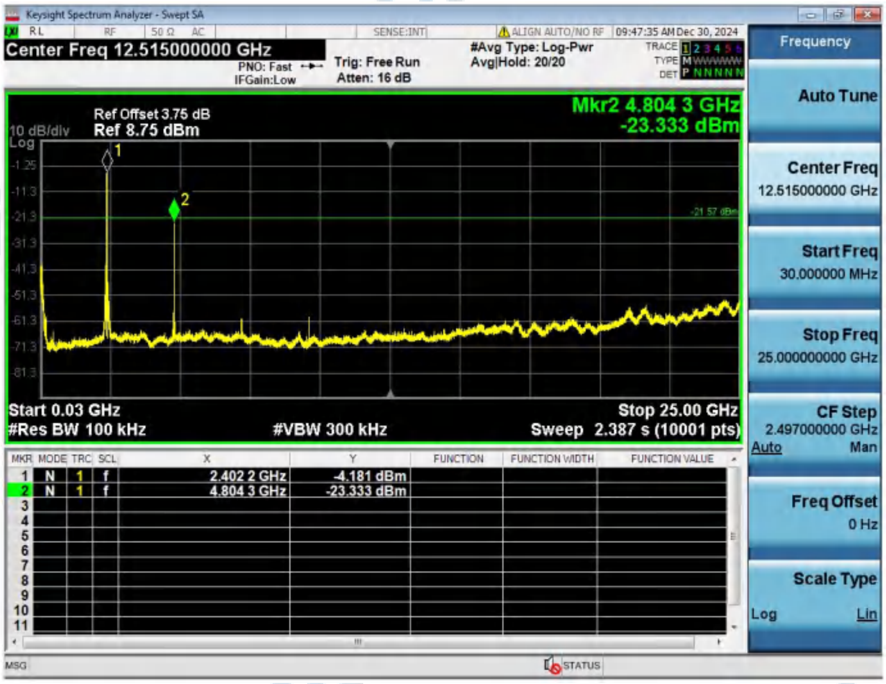


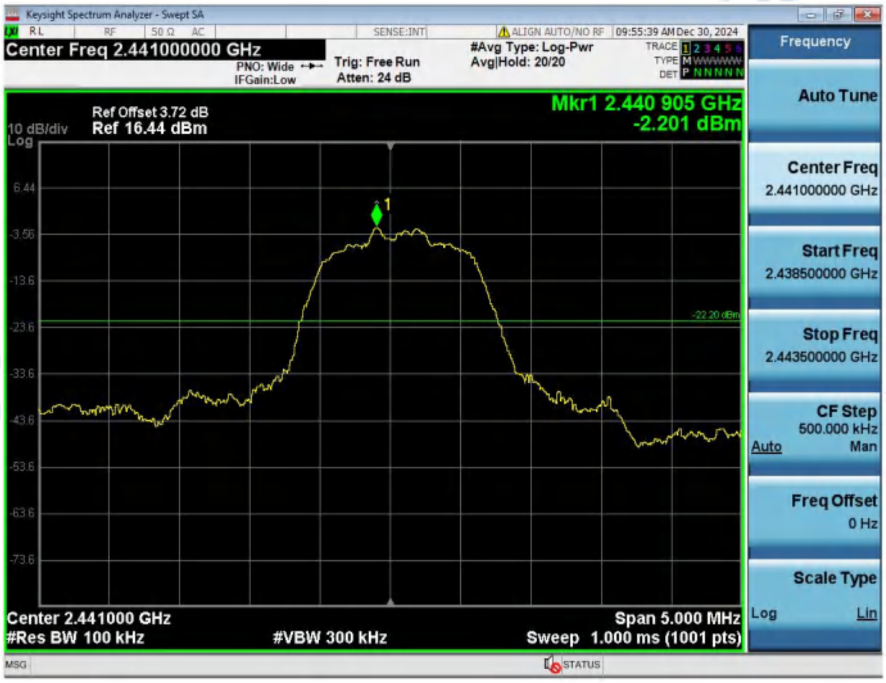
2_Spurious_Emissions_NVNT_ANT1_1-DH5_2441_00


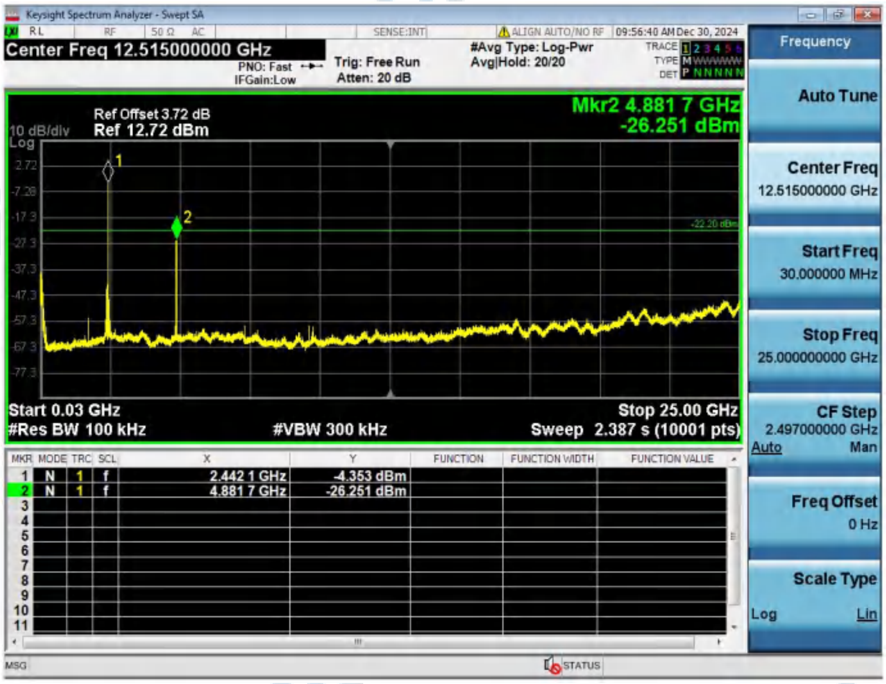
1_Reference_Level_NVNT_ANT1_1-DH5_2480_00


2_Spurious_Emissions_NVNT_ANT1_1-DH5_2480_00


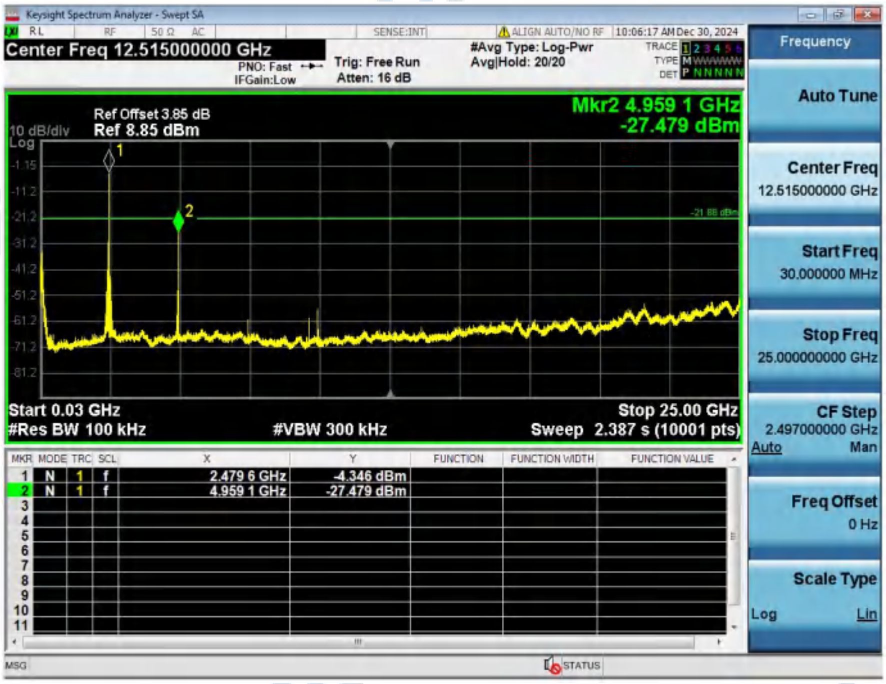
1_Reference_Level_NVNT_ANT1_2-DH5_2402_00


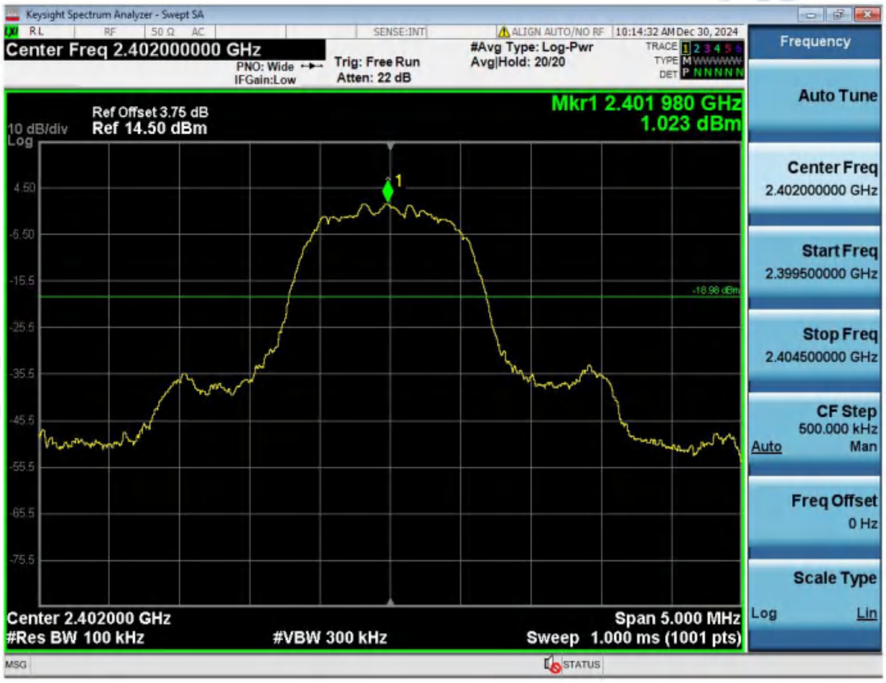
2_Spurious_Emissions_NVNT_ANT1_2-DH5_2402_00


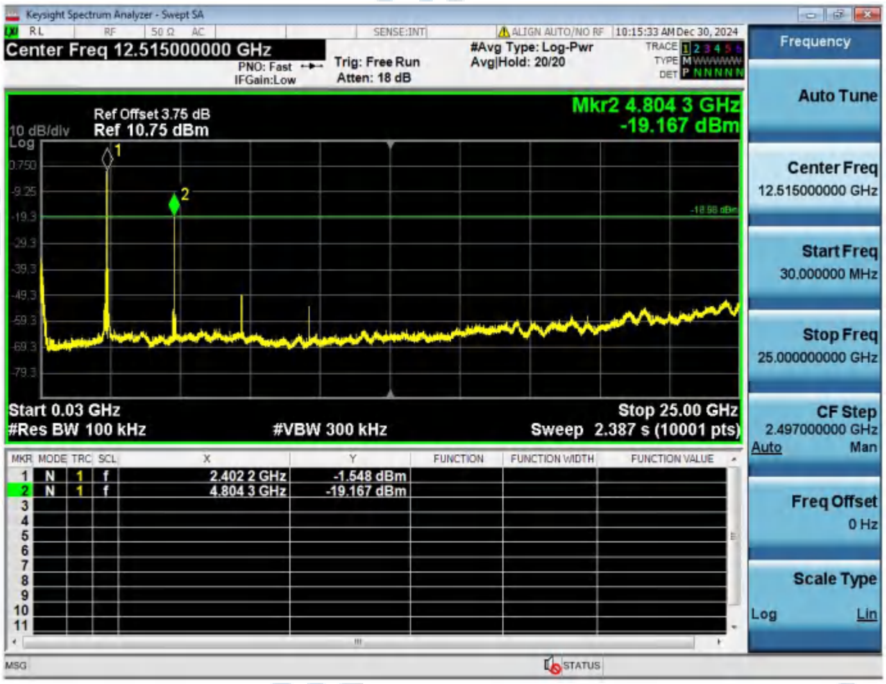
1_Reference_Level_NVNT_ANT1_2-DH5_2441_00


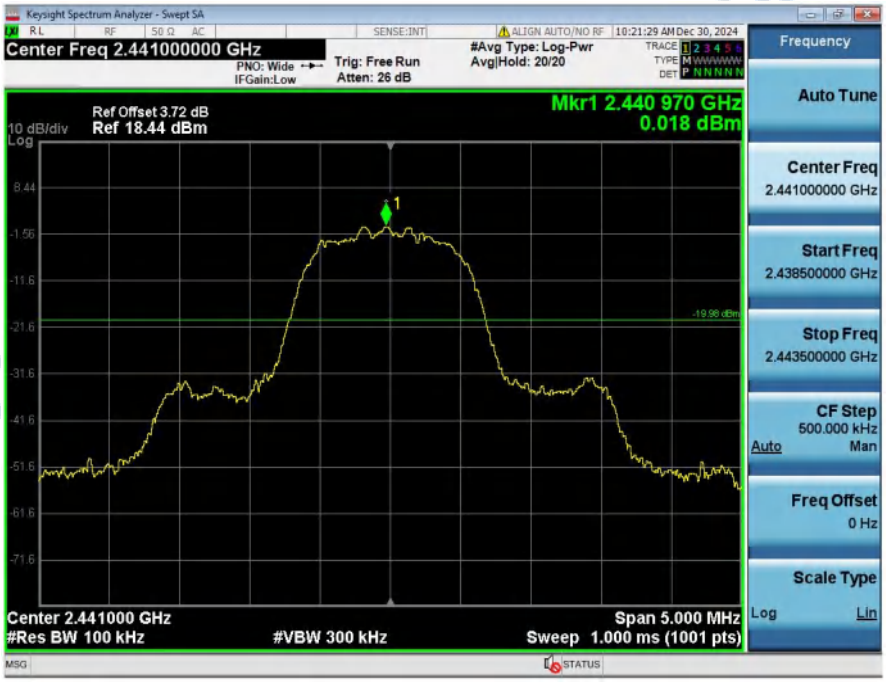
2_Spurious_Emissions_NVNT_ANT1_2-DH5_2441_00


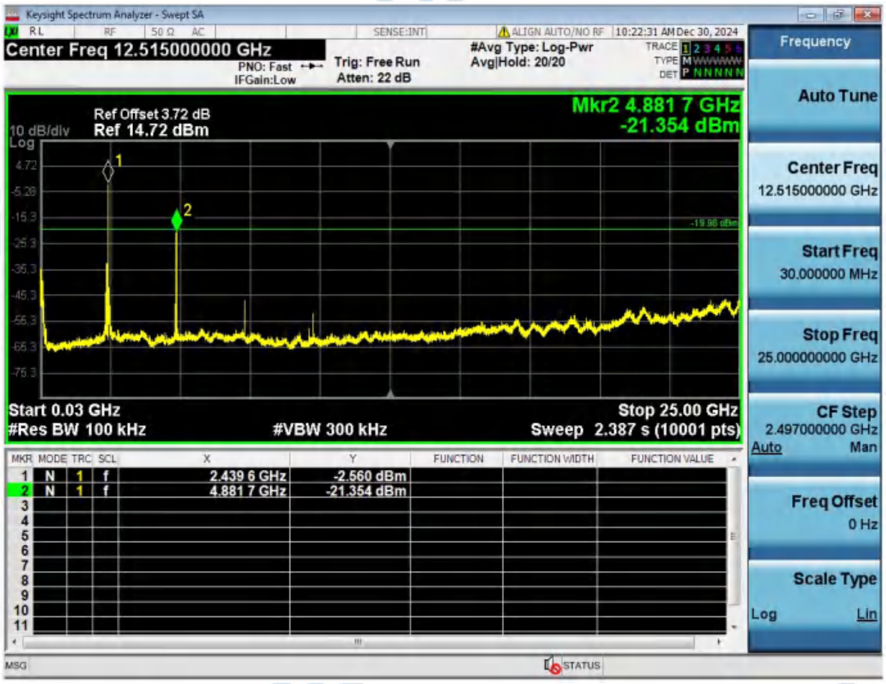
1_Reference_Level_NVNT_ANT1_2-DH5_2480_00

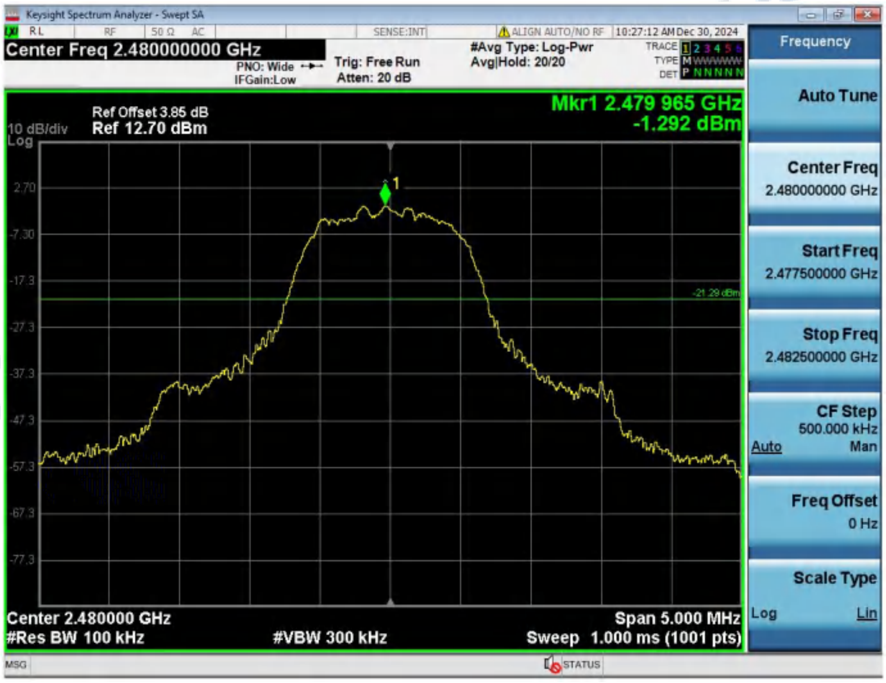

2_Spurious_Emissions_NVNT_ANT1_2-DH5_2480_00


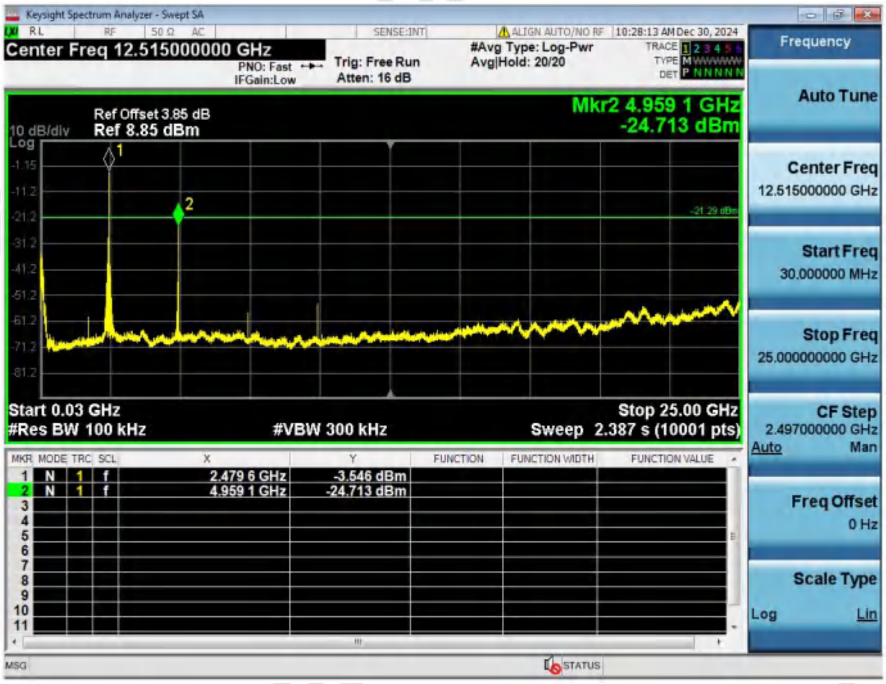
1_Reference_Level_NVNT_ANT1_3-DH5_2402_00


2_Spurious_Emissions_NVNT_ANT1_3-DH5_2402_00


1_Reference_Level_NVNT_ANT1_3-DH5_2441_00


2_Spurious_Emissions_NVNT_ANT1_3-DH5_2441_00


1_Reference_Level_NVNT_ANT1_3-DH5_2480_00


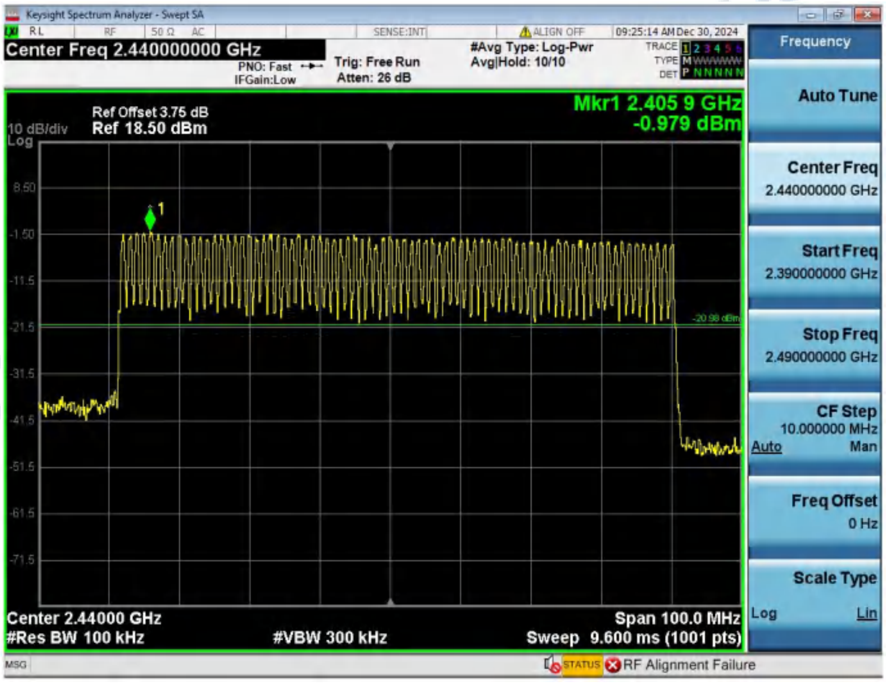
2_Spurious_Emissions_NVNT_ANT1_3-DH5_2480_00


6. Bandedge

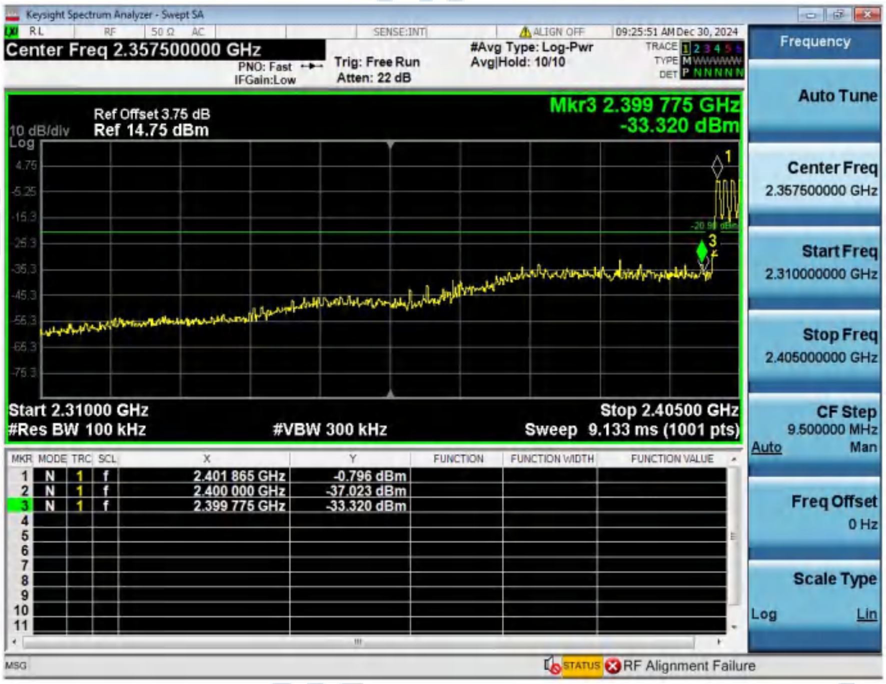
Condition	Antenna	Modulation	TX Mode	Ref_level(dBm)	Bandedge MAX.Value	Limit	Result
NVNT	ANT1	1-DH5	2402.00	-1.302	-35.415	-21.302	Pass
NVNT	ANT1	1-DH5	Hopping_LCH	-0.979	-33.320	-20.979	Pass
NVNT	ANT1	1-DH5	2480.00	-3.517	-52.234	-23.517	Pass
NVNT	ANT1	1-DH5	Hopping_HCH	-1.446	-46.343	-21.446	Pass
NVNT	ANT1	2-DH5	2402.00	-1.566	-36.999	-21.566	Pass
NVNT	ANT1	2-DH5	Hopping_LCH	-1.383	-38.070	-21.383	Pass
NVNT	ANT1	2-DH5	2480.00	-1.883	-58.526	-21.883	Pass
NVNT	ANT1	2-DH5	Hopping_HCH	0.618	-36.970	-19.382	Pass
NVNT	ANT1	3-DH5	2402.00	1.023	-49.136	-18.977	Pass
NVNT	ANT1	3-DH5	Hopping_LCH	0.983	-33.667	-19.017	Pass
NVNT	ANT1	3-DH5	2480.00	-1.292	-57.576	-21.292	Pass
NVNT	ANT1	3-DH5	Hopping_HCH	0.948	-35.754	-19.052	Pass

1_Reference_Level_NVNT_ANT1_1-DH5_2402_00

2_Bandedge_NVNT_ANT1_1-DH5_2402_00


1_Reference_Level_Hopping_NVNT_ANT1_1-DH5_Hopping


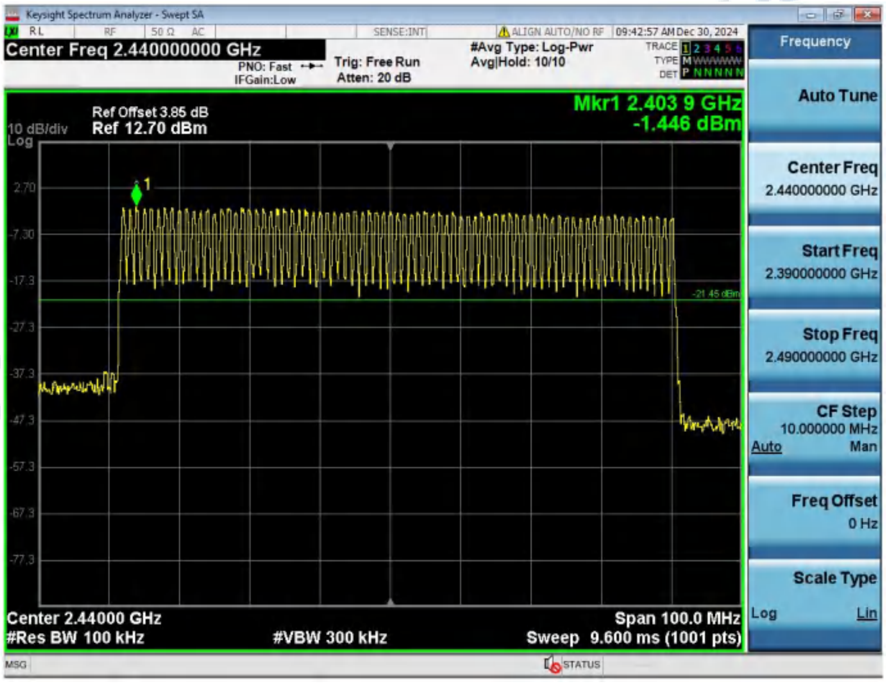
2_Band_Edge_(Hopping)_NVNT_ANT1_1-DH5_Hopping



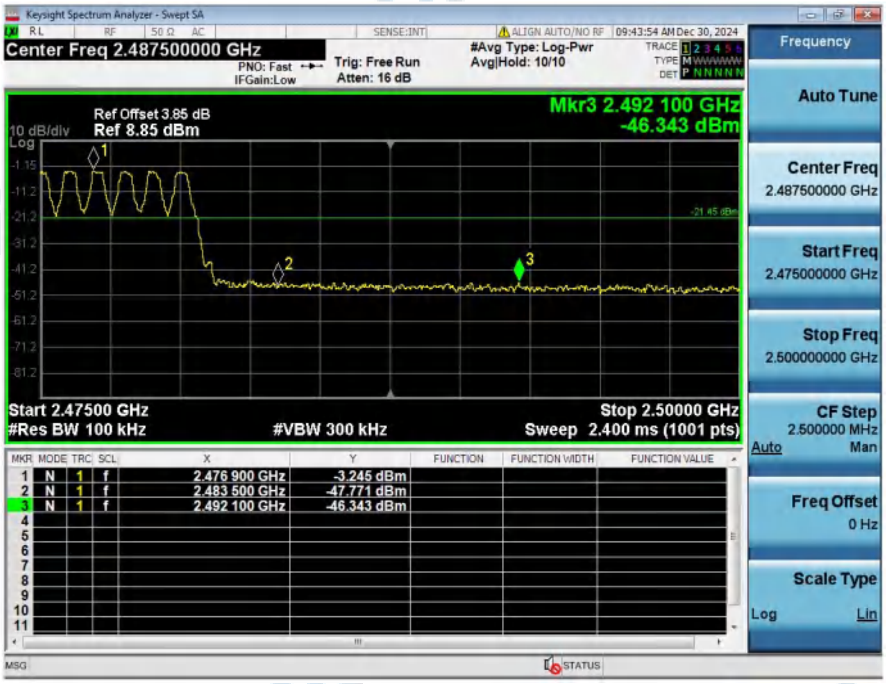
1_Reference_Level_NVNT_ANT1_1-DH5_2480_00

2_Bandedge_NVNT_ANT1_1-DH5_2480_00

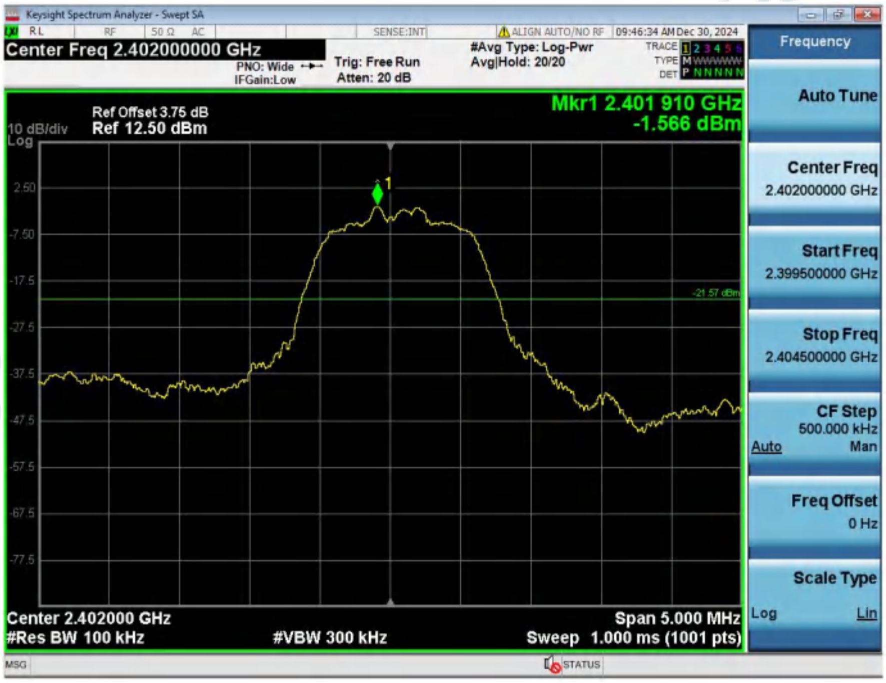
1_Reference_Level_Hopping_NVNT_ANT1_1-DH5_Hopping



2_Band_Edge_(Hopping)_NVNT_ANT1_1-DH5_Hopping

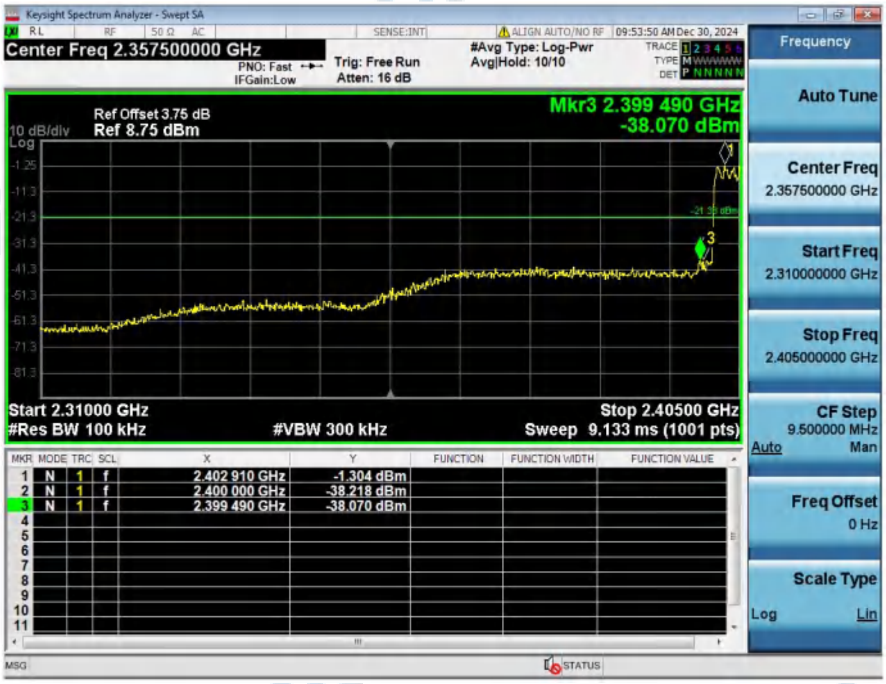


1_Reference_Level_NVNT_ANT1_2-DH5_2402_00



2_Bandedge_NVNT_ANT1_2-DH5_2402_00


1_Reference_Level_Hopping_NVNT_ANT1_2-DH5_Hopping


2_Band_Edge_(Hopping)_NVNT_ANT1_2-DH5_Hopping


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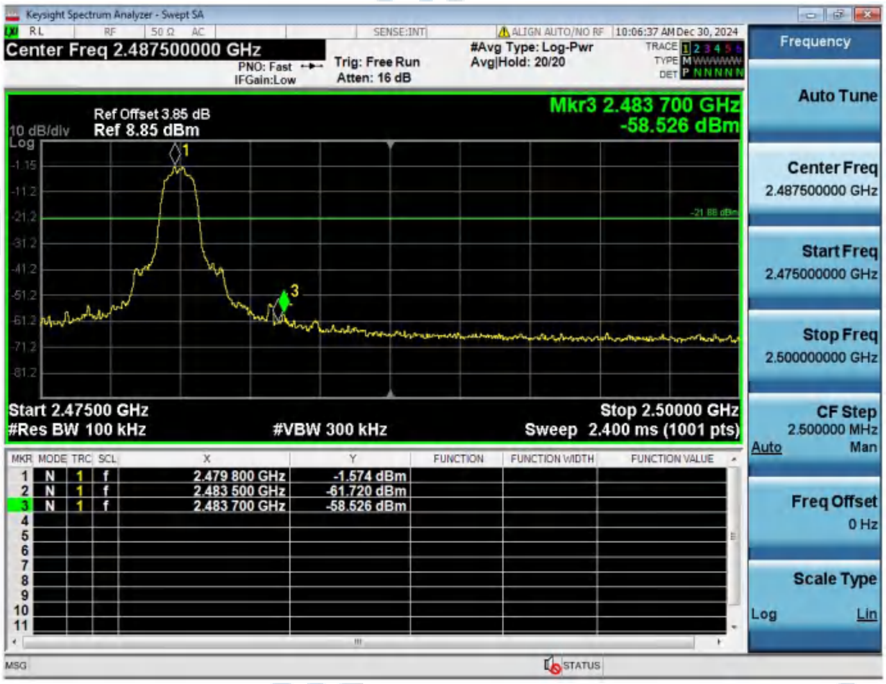
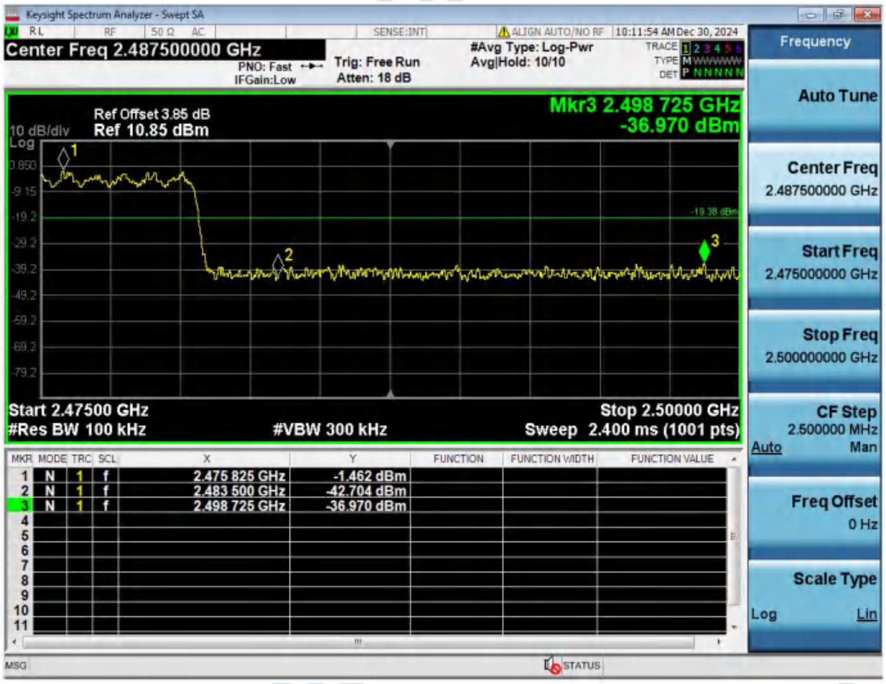
2_Bandedge_NVNT_ANT1_2-DH5_2480_00


1_Reference_Level_Hopping_NVNT_ANT1_2-DH5_Hopping


2_Band_Edge_(Hopping)_NVNT_ANT1_2-DH5_Hopping



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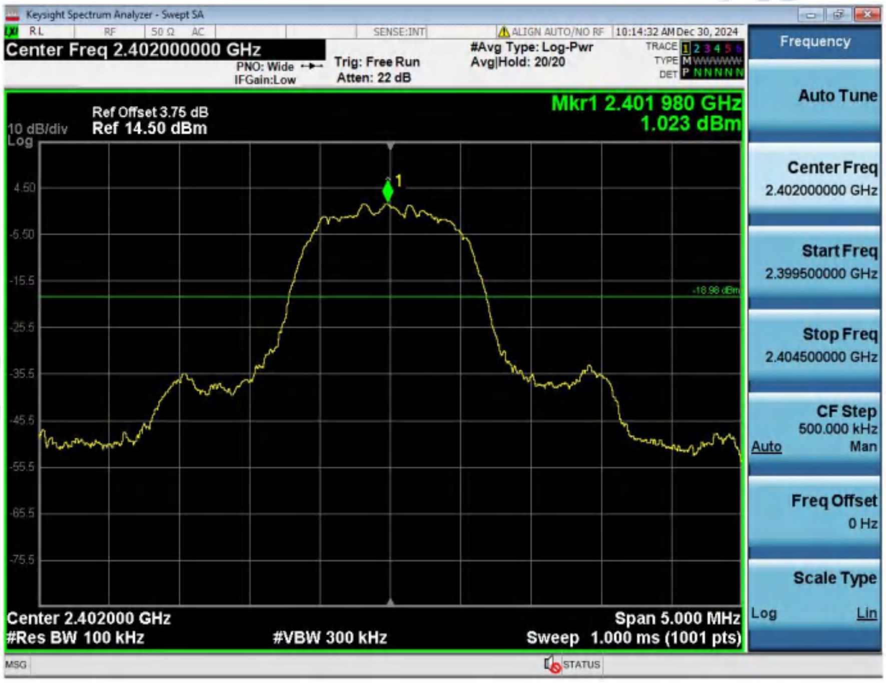
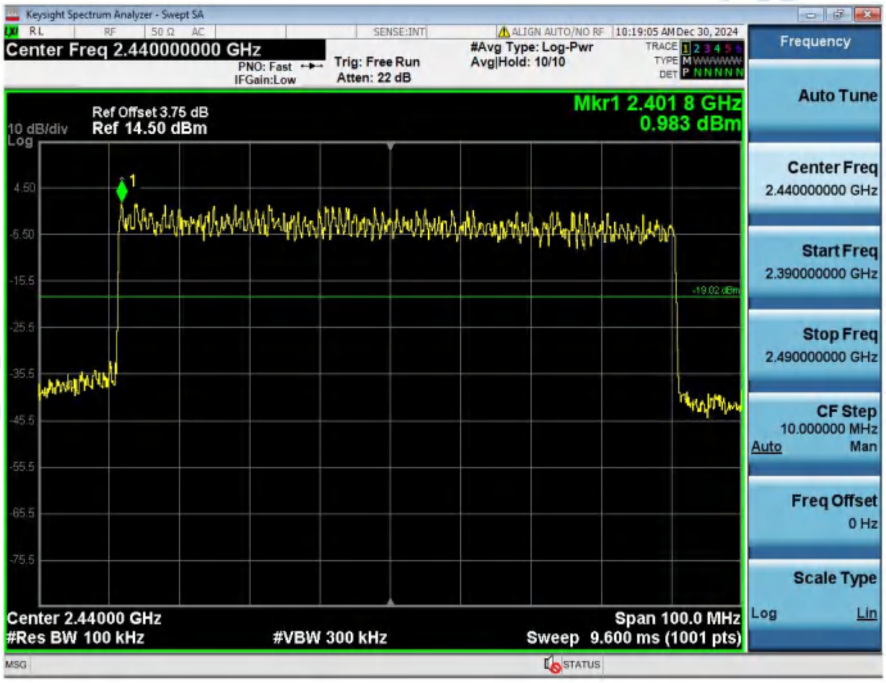
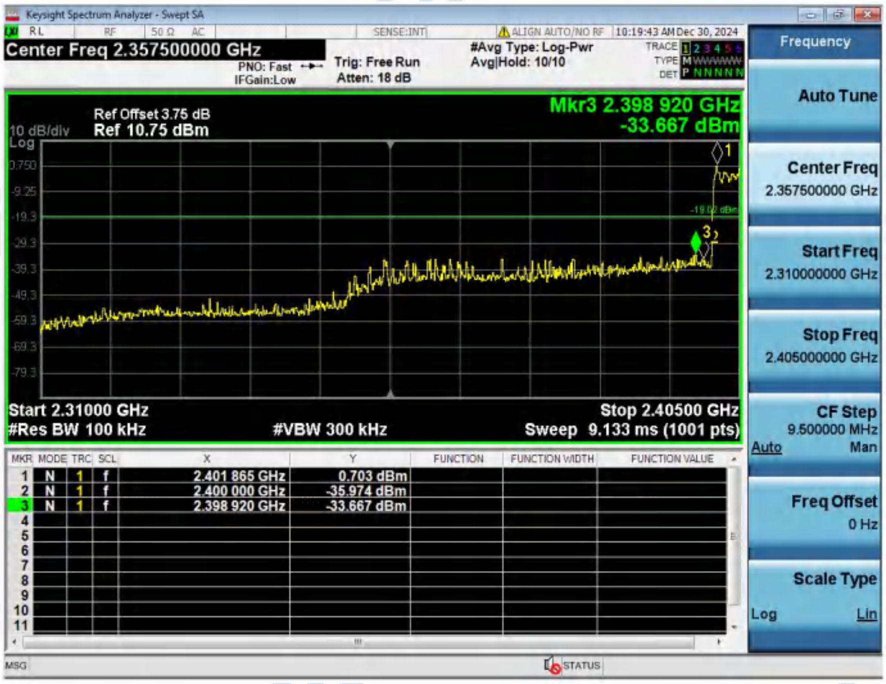


2_Bandedge_NVNT_ANT1_3-DH5_2402_00

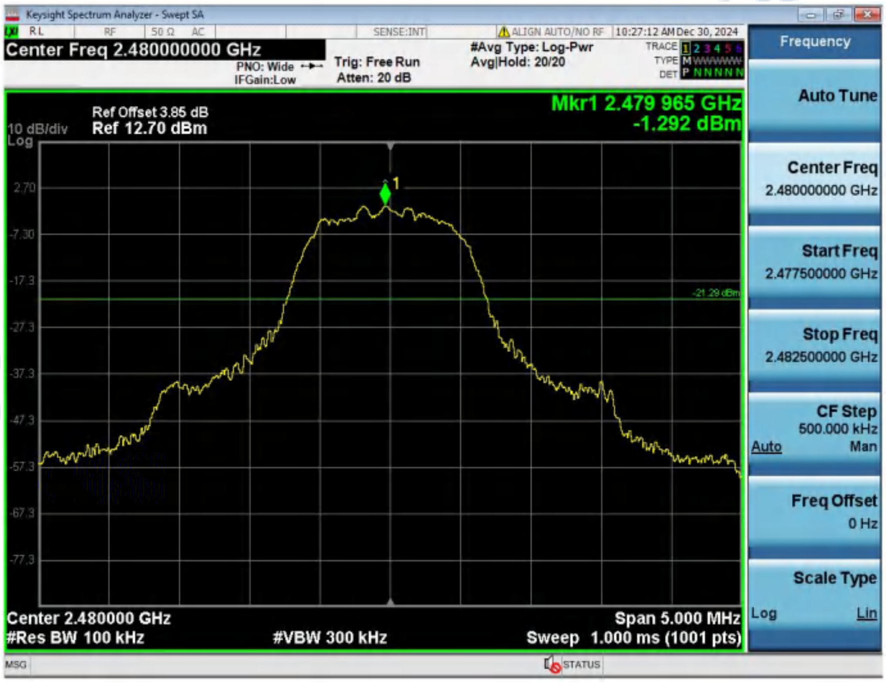
1_Reference_Level_Hopping_NVNT_ANT1_3-DH5_Hopping



2_Band_Edge_(Hopping)_NVNT_ANT1_3-DH5_Hopping



1_Reference_Level_NVNT_ANT1_3-DH5_2480_00



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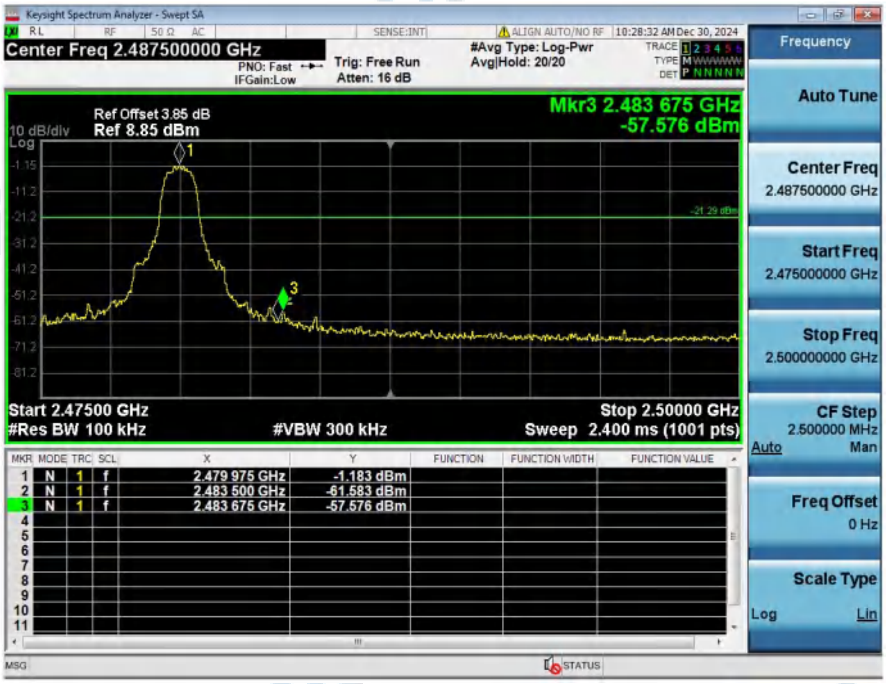
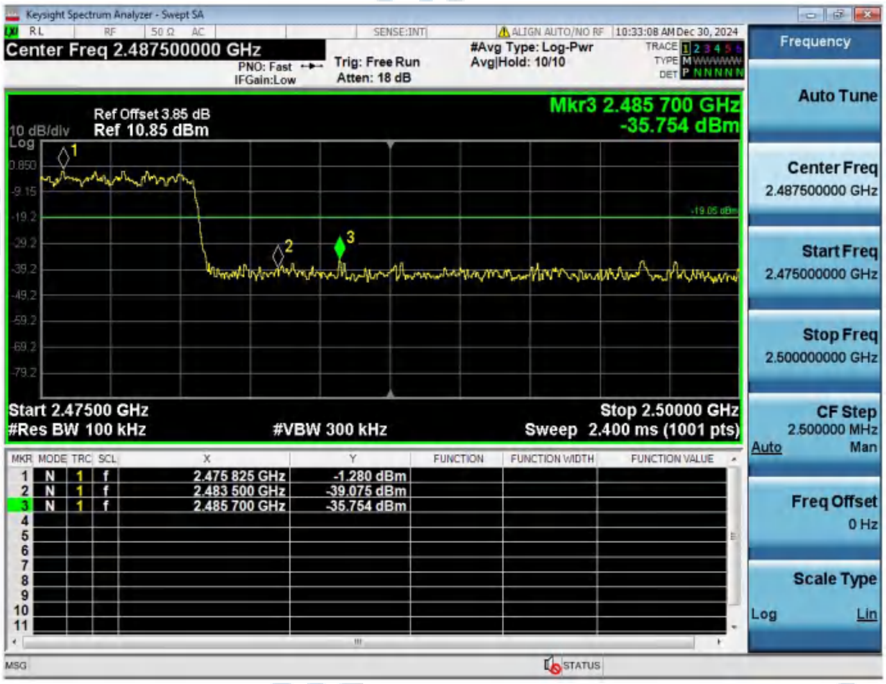


1_Reference_Level_Hopping_NVNT_ANT1_3-DH5_Hopping


2_Band_Edge_(Hopping)_NVNT_ANT1_3-DH5_Hopping


7. Carrier Frequencies Separation (Hopping)

Condition	Antenna	Modulation	Frequency(MHz)	Hopping NO.0 (MHz)	Hopping NO.1 (MHz)	Carrier Frequencies Separation(MHz)	Limit(MHz)	Result
NVNT	ANT1	1-DH5	2402.00	2402.206	2403.217	1.01	0.995	Pass
NVNT	ANT1	1-DH5	2441.00	2440.900	2441.908	1.01	0.941	Pass
NVNT	ANT1	1-DH5	2480.00	2478.903	2479.914	1.01	0.951	Pass
NVNT	ANT1	2-DH5	2402.00	2401.906	2402.899	0.99	0.861	Pass
NVNT	ANT1	2-DH5	2441.00	2440.897	2442.217	1.32	0.895	Pass
NVNT	ANT1	2-DH5	2480.00	2478.804	2479.824	1.02	0.863	Pass
NVNT	ANT1	3-DH5	2402.00	2401.987	2402.977	0.99	0.869	Pass
NVNT	ANT1	3-DH5	2441.00	2440.981	2441.980	1.00	0.869	Pass
NVNT	ANT1	3-DH5	2480.00	2478.966	2479.956	0.99	0.879	Pass

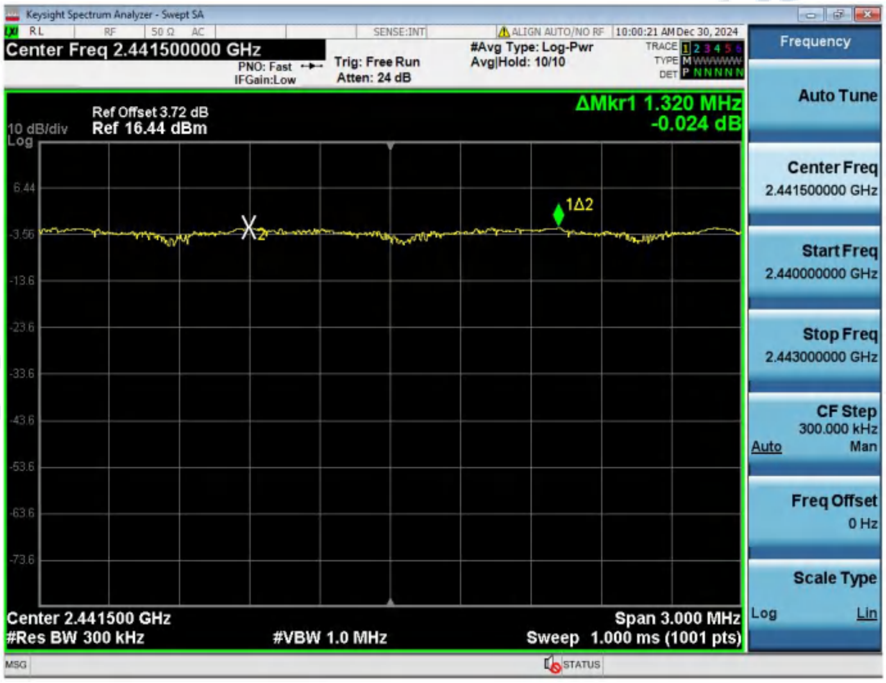
Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_1-DH5_Hopping

Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_1-DH5_Hopping


Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_1-DH5_Hopping

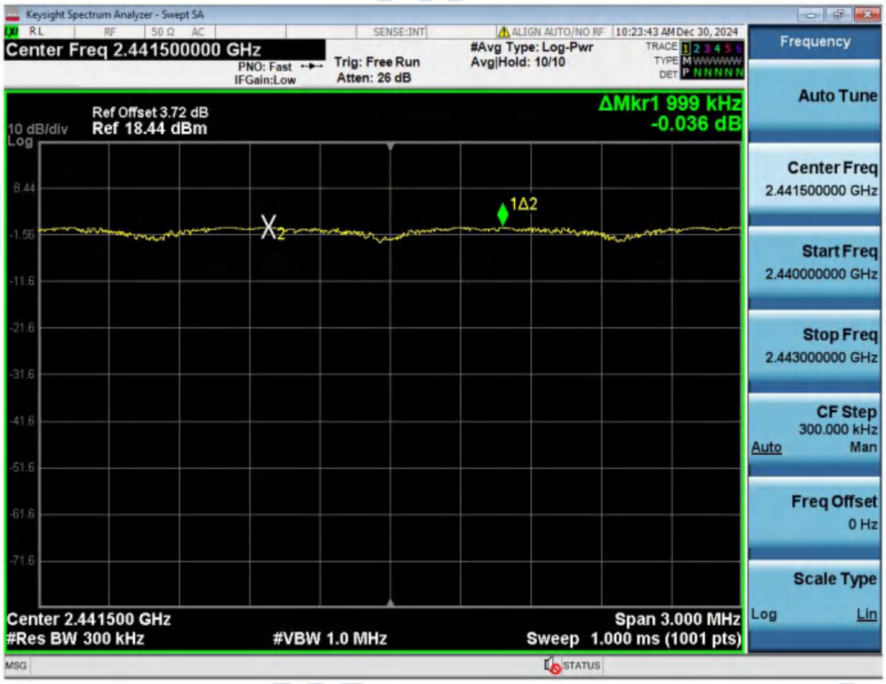

Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_2-DH5_Hopping

Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_2-DH5_Hopping



Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_2-DH5_Hopping


Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_3-DH5_Hopping

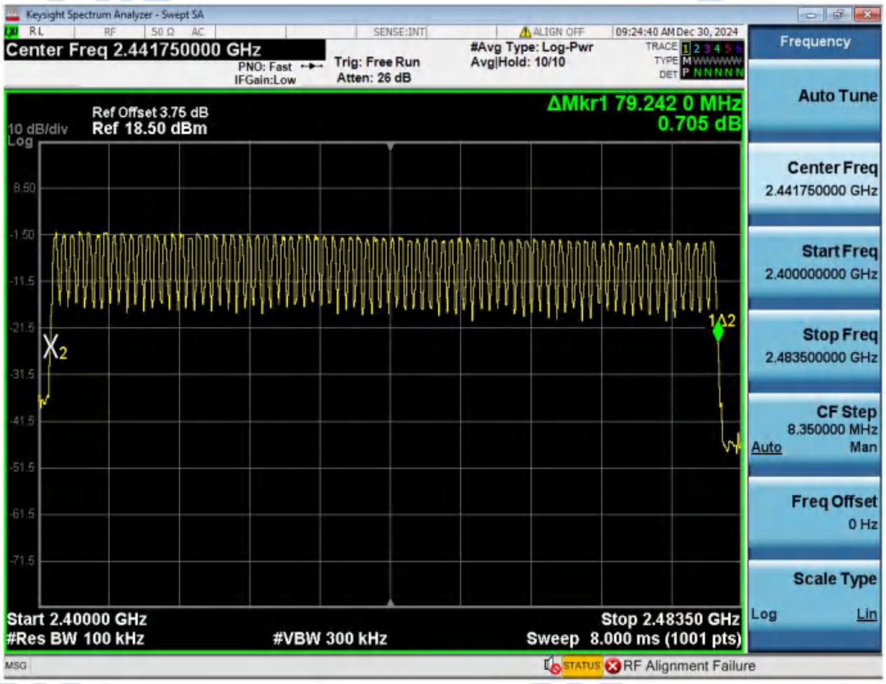

Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_3-DH5_Hopping


Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_3-DH5_Hopping


8. Number of Hopping Channel (Hopping)

Condition	Antenna	Modulation	Hopping Num	Limit	Result
NVNT	ANT1	1-DH5	79	15	Pass
NVNT	ANT1	1-DH5	79	15	Pass
NVNT	ANT1	1-DH5	79	15	Pass
NVNT	ANT1	2-DH5	79	15	Pass
NVNT	ANT1	2-DH5	79	15	Pass
NVNT	ANT1	2-DH5	79	15	Pass
NVNT	ANT1	3-DH5	79	15	Pass
NVNT	ANT1	3-DH5	79	15	Pass
NVNT	ANT1	3-DH5	79	15	Pass

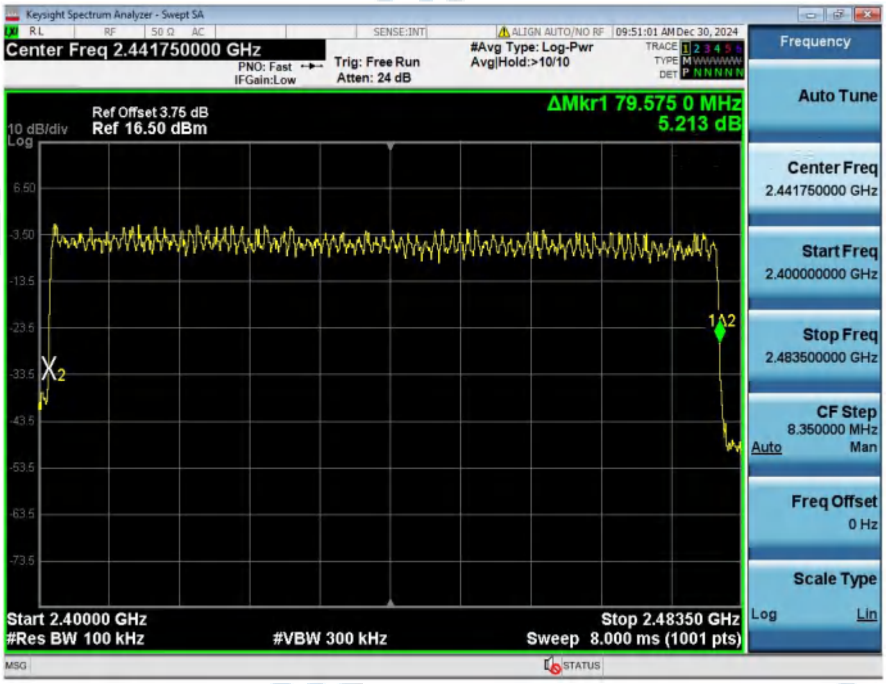
Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_1-DH5_Hopping



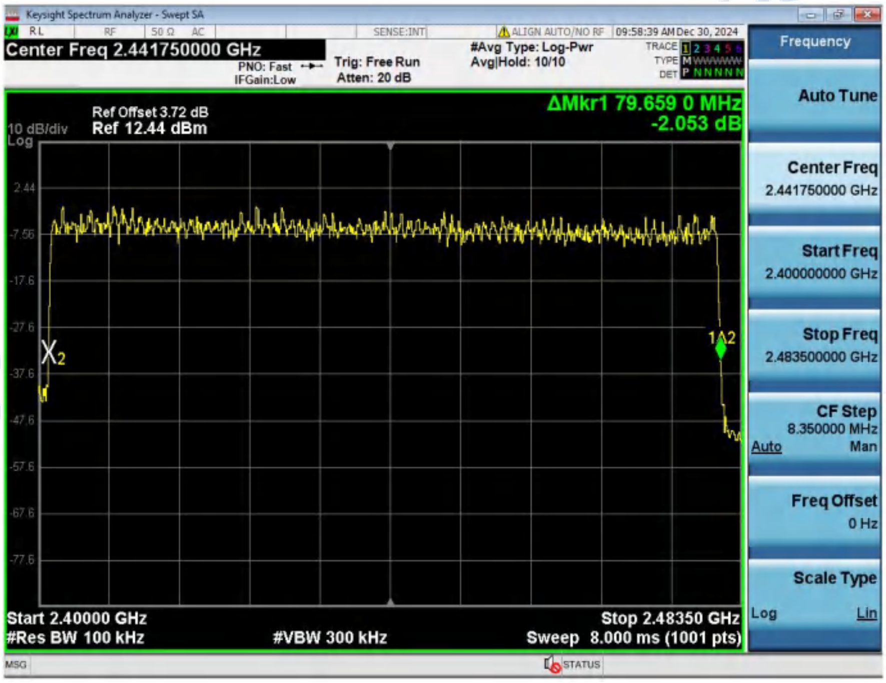
Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_1-DH5_Hopping

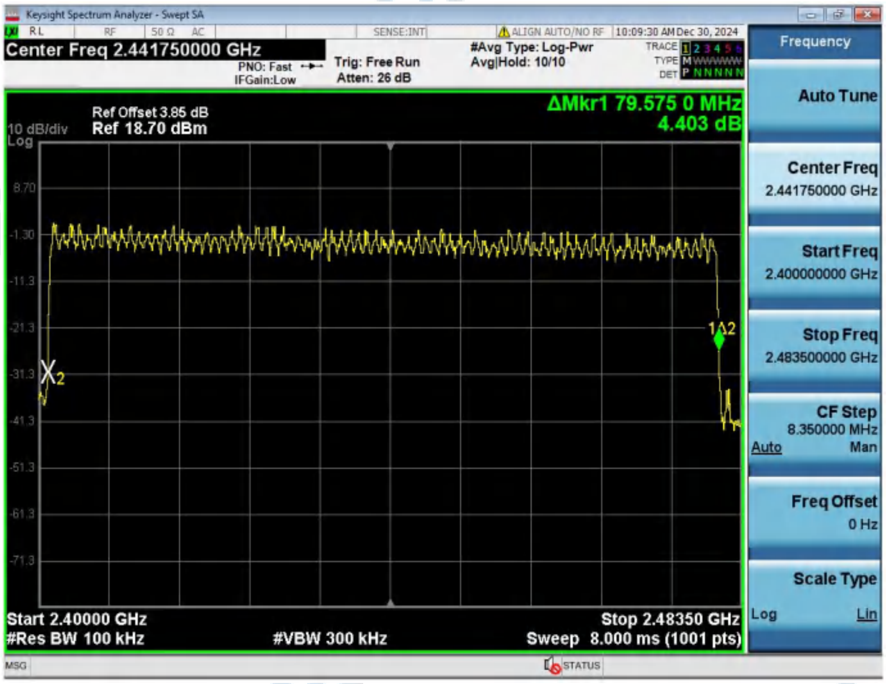

Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_1-DH5_Hopping

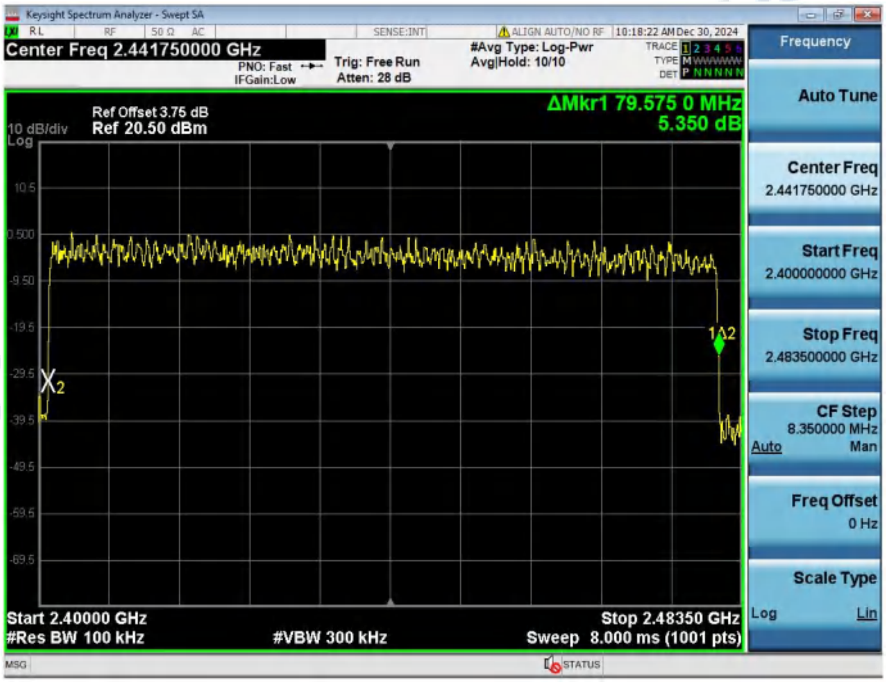

Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_2-DH5_Hopping

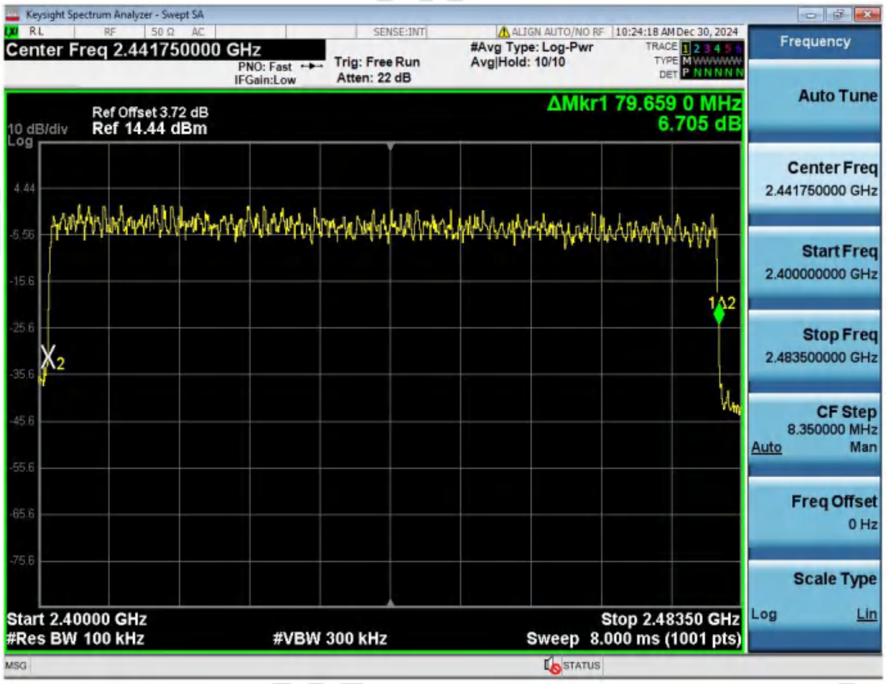


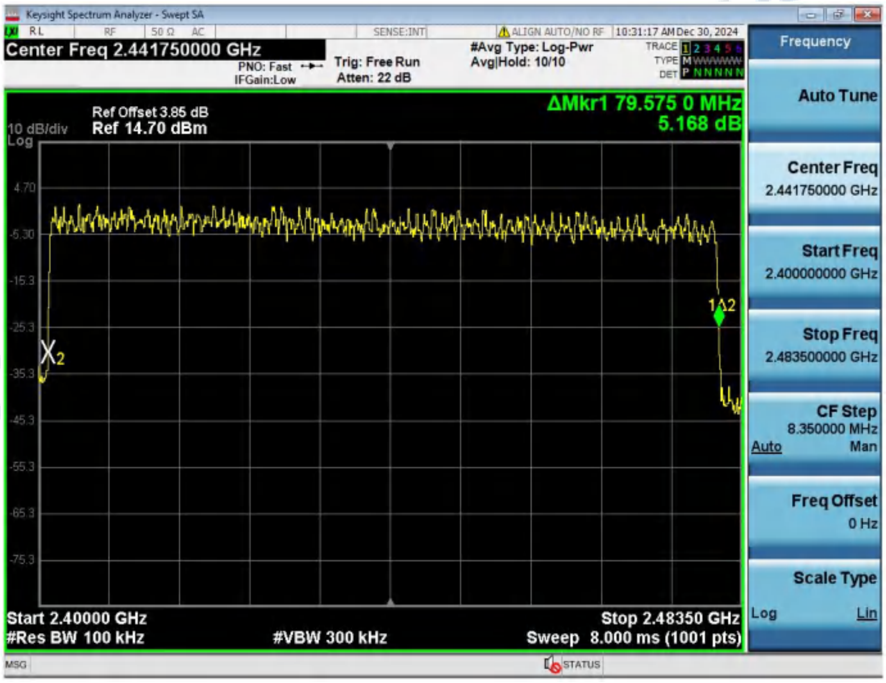
Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_2-DH5_Hopping



Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_2-DH5_Hopping


Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_3-DH5_Hopping


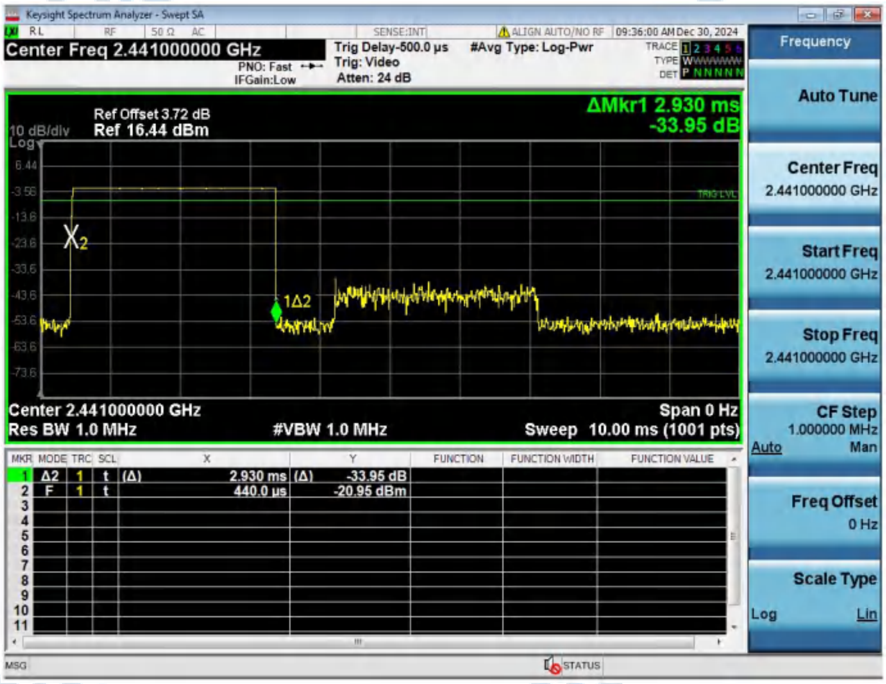
Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_3-DH5_Hopping


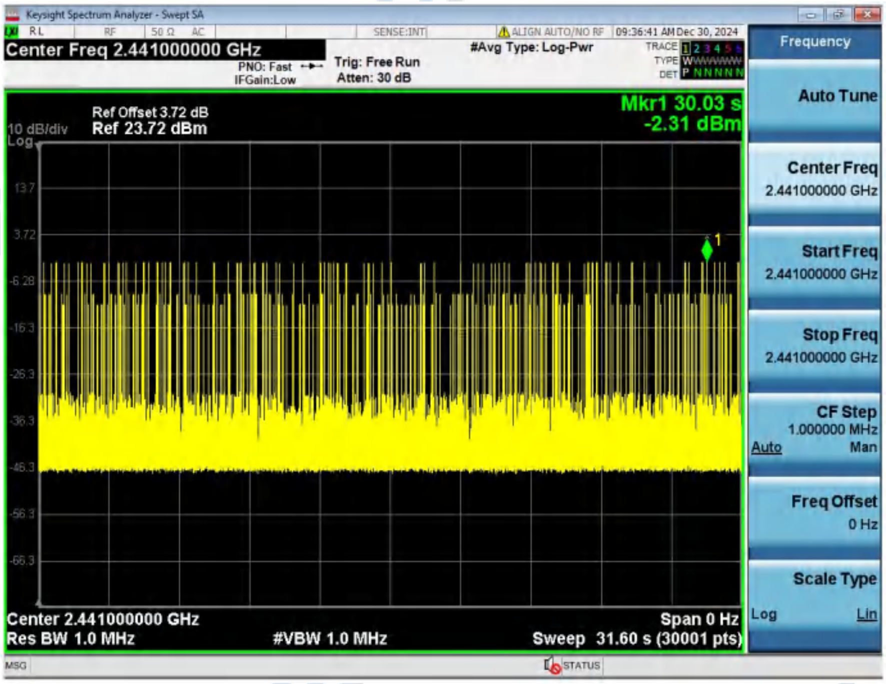
Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_3-DH5_Hopping


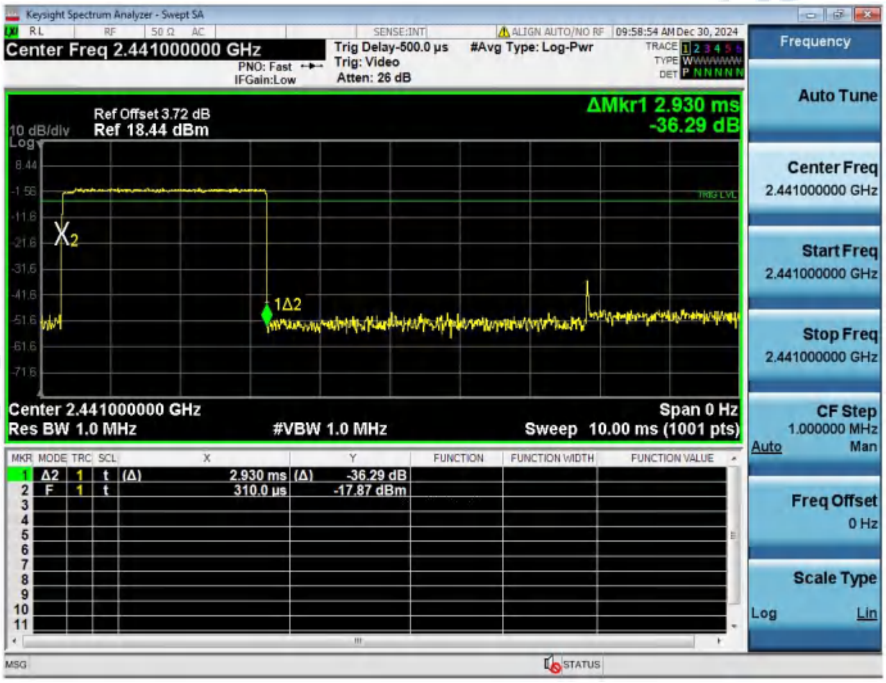
9. Dwell Time (Hopping)

Condition	Antenna	Packet Type	Pulse Time(ms)	Hops	Dwell Time(ms)	Limit(s)	Result
NVNT	ANT1	1-DH5	2.930	109.00	319.370	0.40	Pass
NVNT	ANT1	2-DH5	2.930	105.00	307.650	0.40	Pass
NVNT	ANT1	3-DH5	2.930	118.00	345.740	0.40	Pass
NVNT	ANT1	1-DH1	0.430	320.00	137.600	0.40	Pass
NVNT	ANT1	1-DH3	1.670	167.00	278.890	0.40	Pass
NVNT	ANT1	2-DH1	0.430	320.00	137.600	0.40	Pass
NVNT	ANT1	2-DH3	1.680	161.00	270.480	0.40	Pass
NVNT	ANT1	3-DH1	0.430	320.00	137.600	0.40	Pass
NVNT	ANT1	3-DH3	1.680	158.00	265.440	0.40	Pass

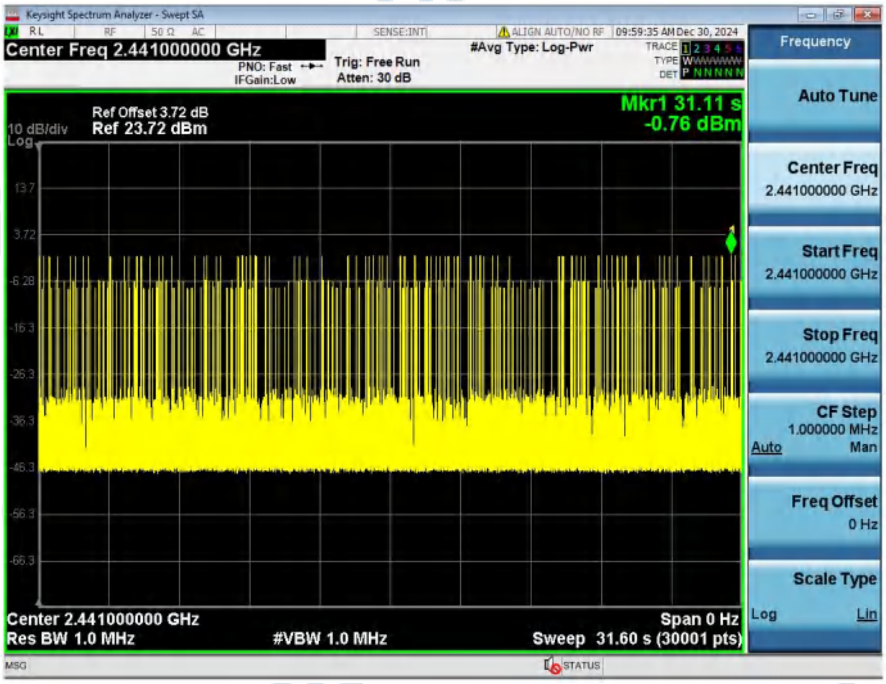
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH5_2441_00_One_Burst_Time



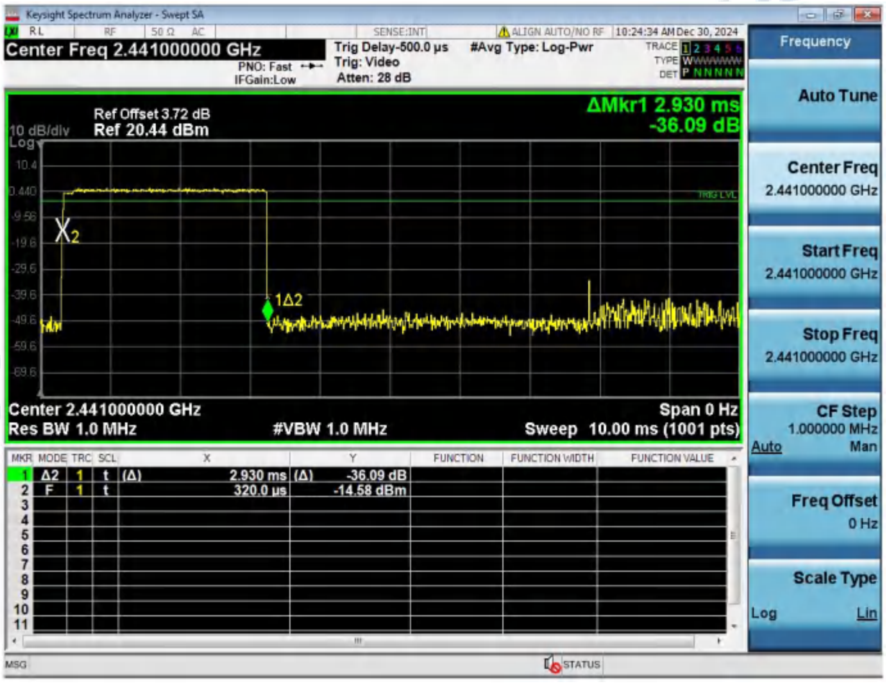
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH5_2441_00_Accumulated


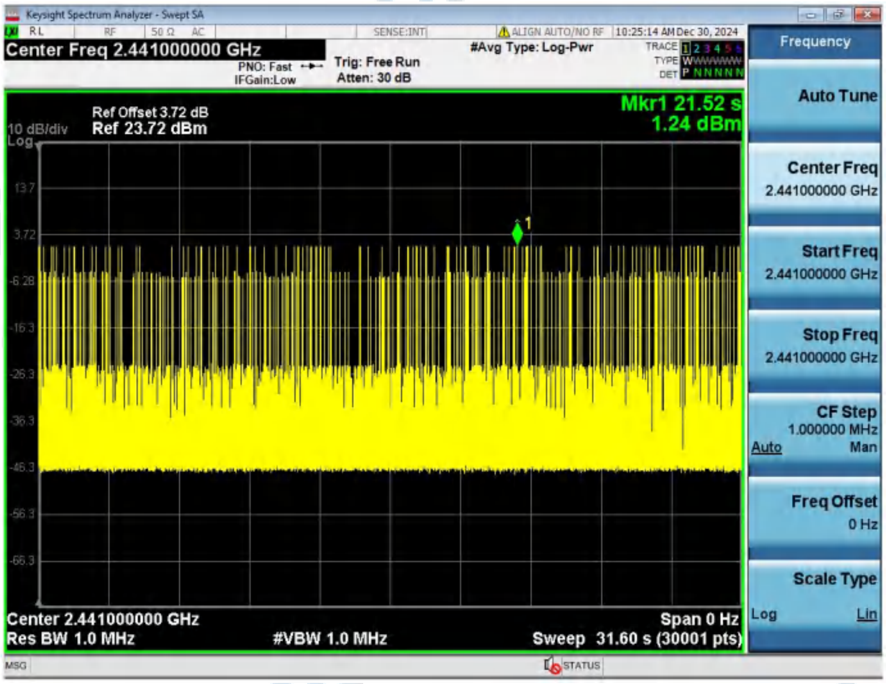
Dwell_Time_(Hopping)_NVNT_ANT1_2-DH5_2441_00_One_Burst_Time


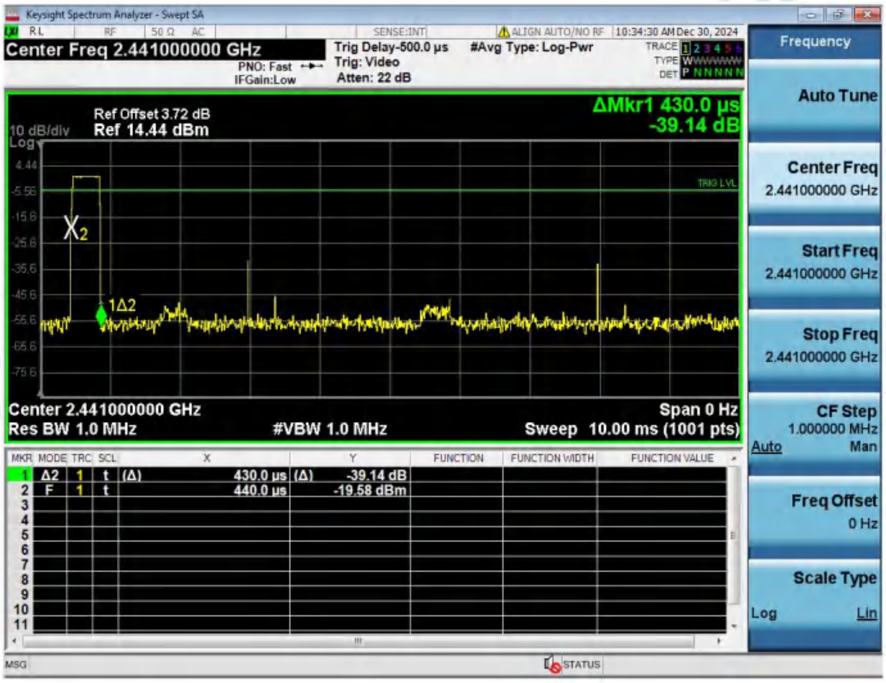
Dwell_Time_(Hopping)_NVNT_ANT1_2-DH5_2441_00_Accumulated



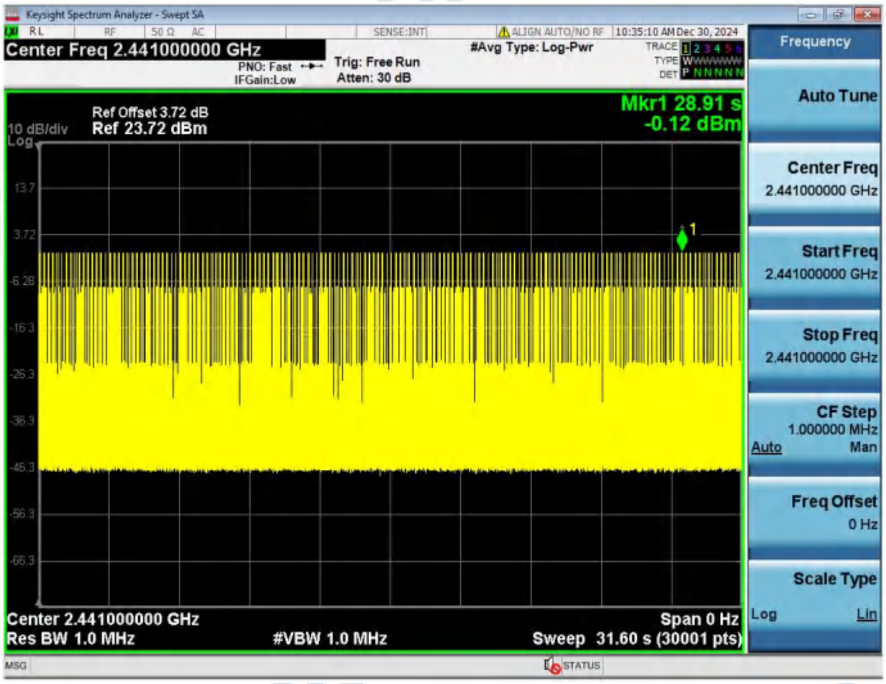
Dwell_Time_(Hopping)_NVNT_ANT1_3-DH5_2441_00_One_Burst_Time



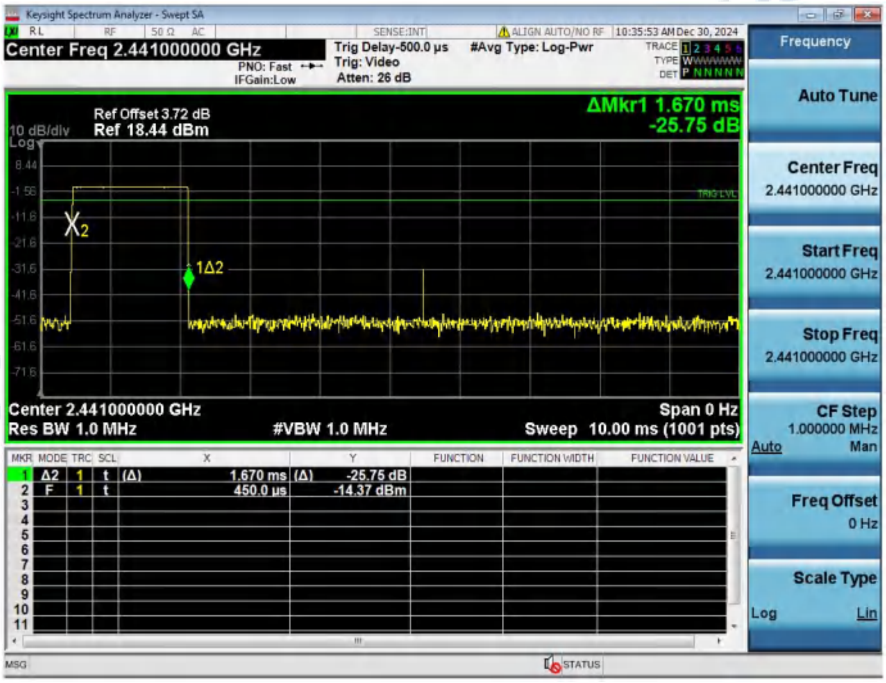
Dwell_Time_(Hopping)_NVNT_ANT1_3-DH5_2441_00_Accumulated


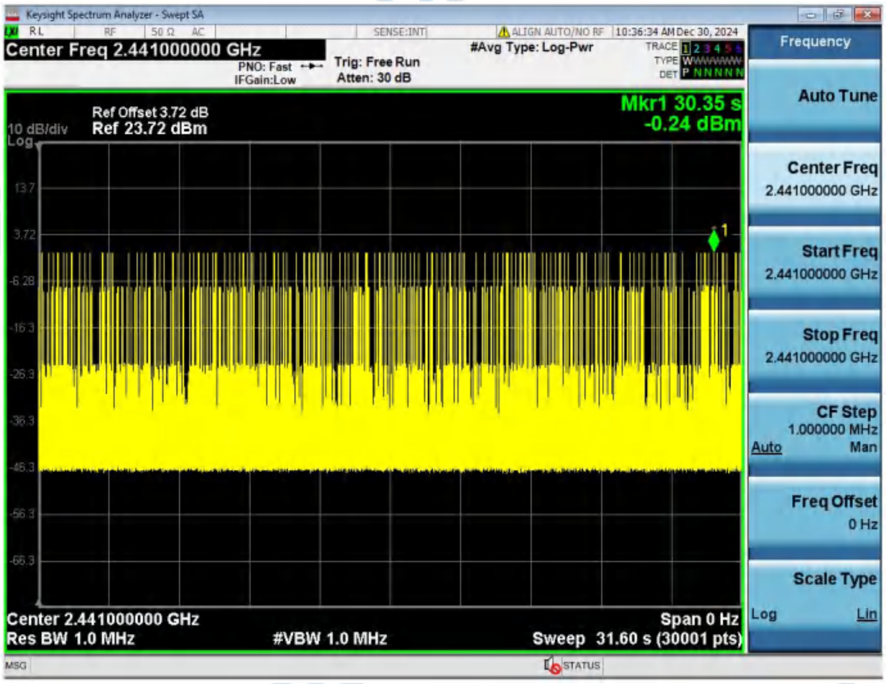
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH1_2441_00_One_Burst_Time


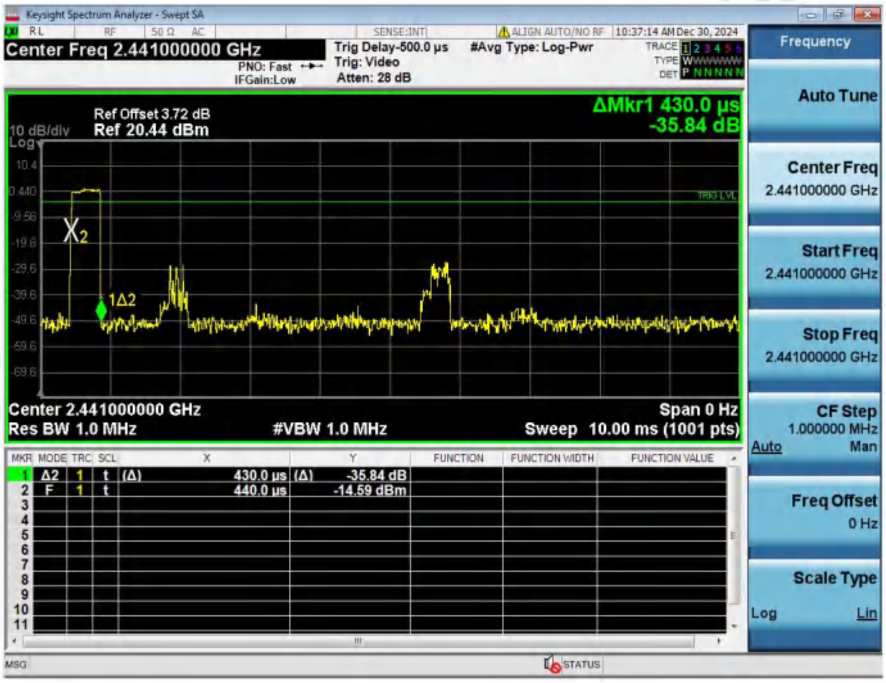
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH1_2441_00_Accumulated



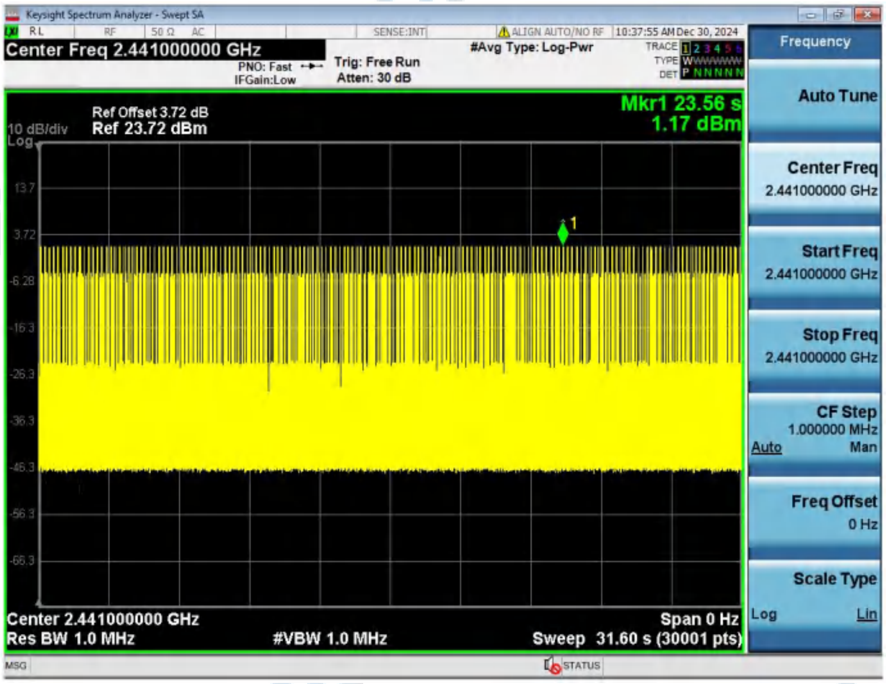
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH3_2441_00_One_Burst_Time



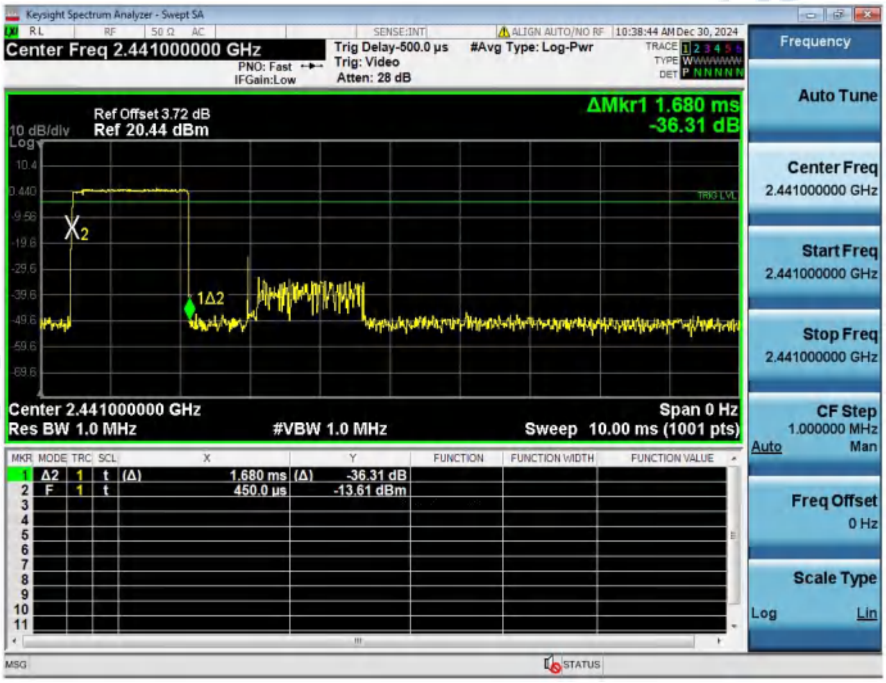
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH3_2441_00_Accumulated


Dwell_Time_(Hopping)_NVNT_ANT1_2-DH1_2441_00_One_Burst_Time


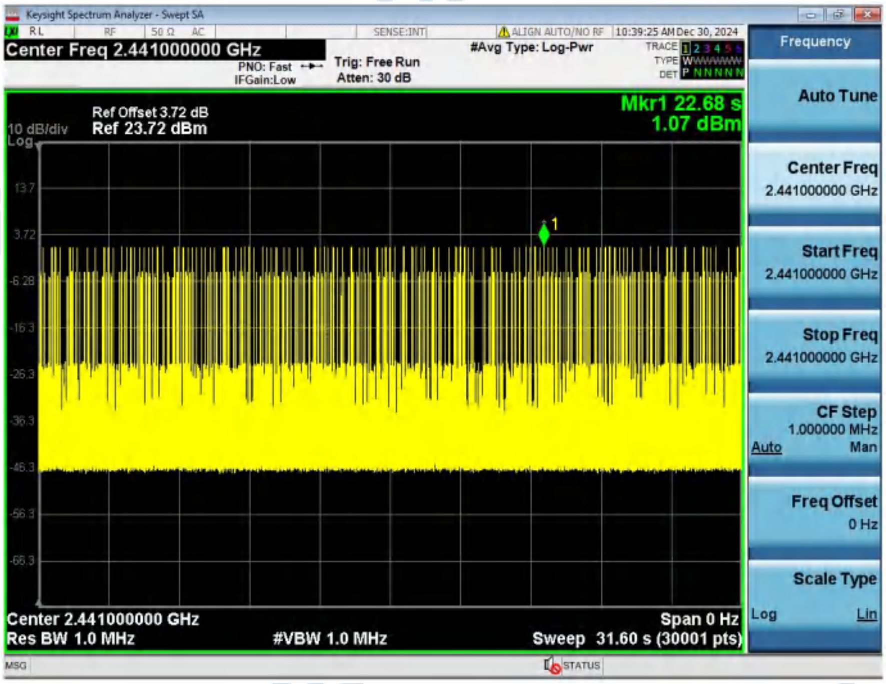
Dwell_Time_(Hopping)_NVNT_ANT1_2-DH1_2441_00_Accumulated



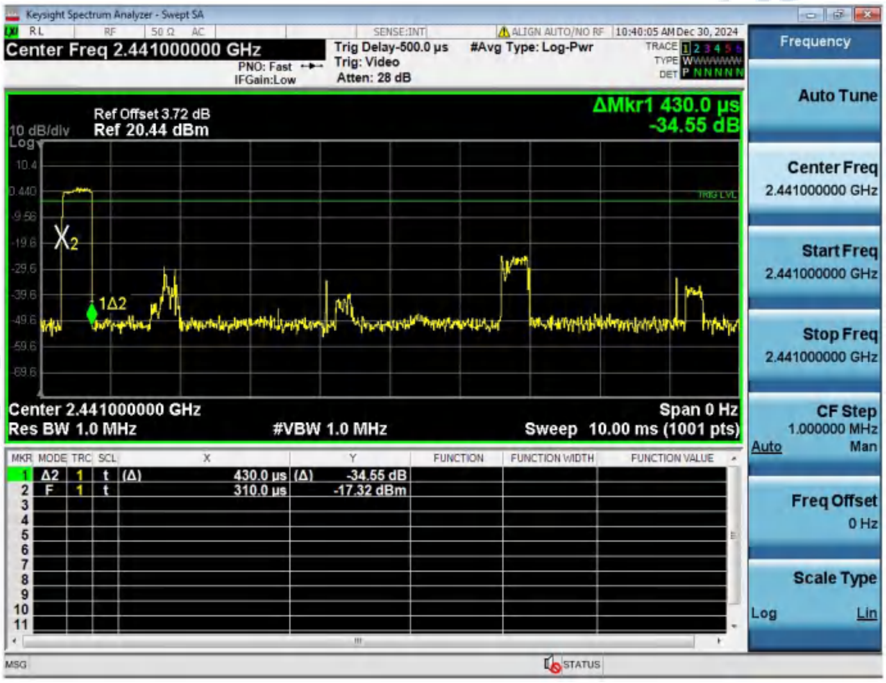
Dwell_Time_(Hopping)_NVNT_ANT1_2-DH3_2441_00_One_Burst_Time

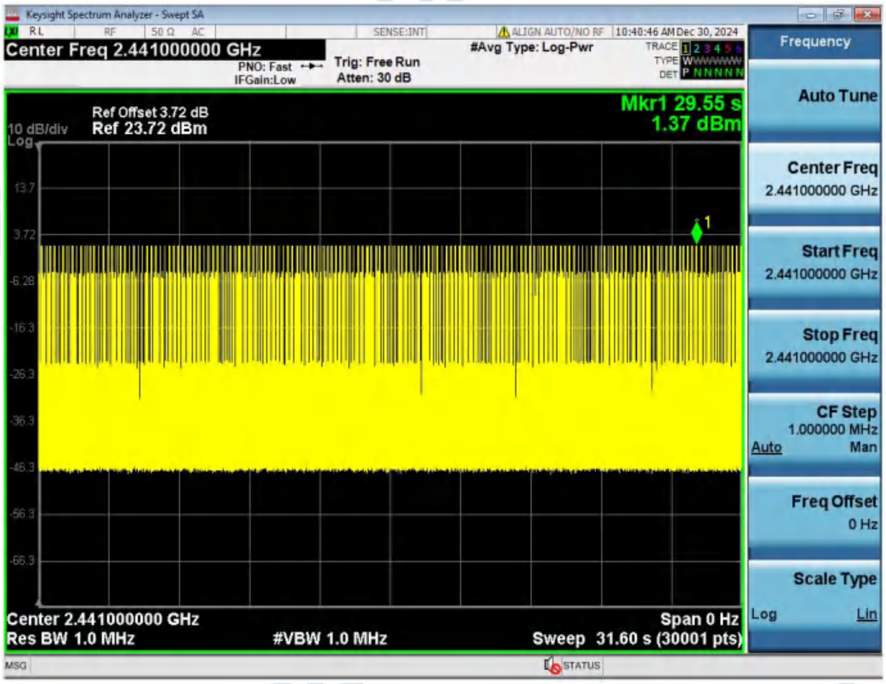


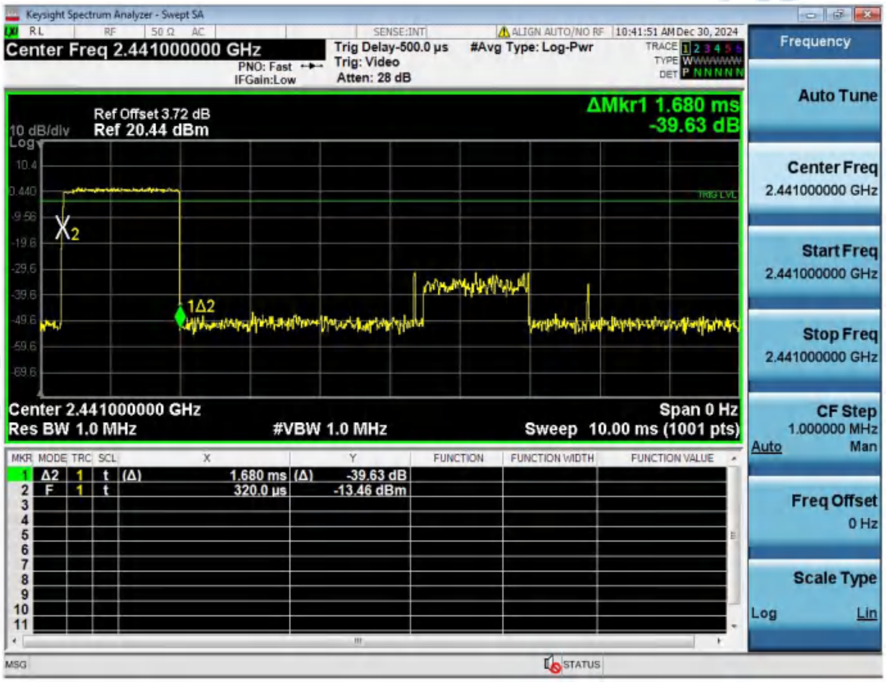
Dwell_Time_(Hopping)_NVNT_ANT1_2-DH3_2441_00_Accumulated

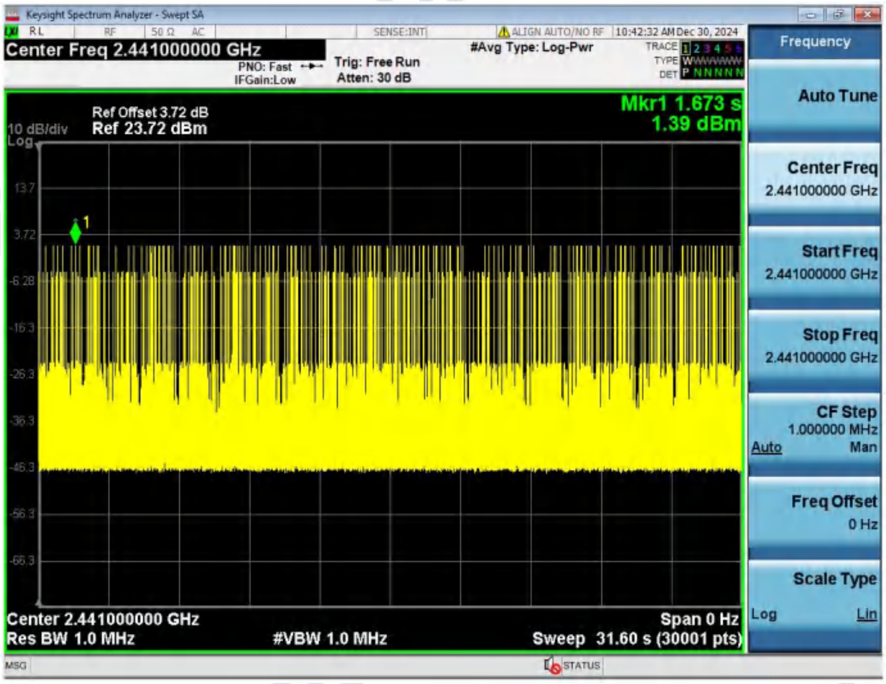


Dwell_Time_(Hopping)_NVNT_ANT1_3-DH1_2441_00_One_Burst_Time



Dwell_Time_(Hopping)_NVNT_ANT1_3-DH1_2441_00_Accumulated


Dwell_Time_(Hopping)_NVNT_ANT1_3-DH3_2441_00_One_Burst_Time


Dwell_Time_(Hopping)_NVNT_ANT1_3-DH3_2441_00_Accumulated


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