RF TEST REPORT

For

BESING TECHNOLOGY (SHENZHEN) CO., LTD
Product Name: Active Noise Cancelling Headphones
Test Model(s): H3

Report Reference No.	:	**DACE260527006RL001**
FCC ID	:	**2ATU8-H3**
Applicant's Name	:	BESING TECHNOLOGY (SHENZHEN) CO., LTD
Address	:	2F, Block 1, Tianxin Resident Group Industrial Park, Shangwu Community, Shiyan Street, Baoan District, Shenzhen, China
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	:	May 27, 2026
Date of Test	:	May 27, 2026 to June 1, 2026
Date of Issue	:	June 1, 2026
Result	:	**Pass**

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Apply for company information

Applicant's Name	:	BESING TECHNOLOGY (SHENZHEN) CO., LTD
Address	:	2F, Block 1, Tianxin Resident Group Industrial Park, Shangwu Community, Shiyan Street, Baoan District, Shenzhen, China
Product Name	:	Active Noise Cancelling Headphones
Test Model(s)	:	H3
Series Model(s)	:	N/A
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:
Lucy Mo	Ben Tang	Machael Mo
Lucy Mo / Test Engineer	Ben Tang / Project Engineer	Machael Mo / Manager
June 1, 2026	June 1, 2026	June 1, 2026

Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	DACE260527006RL001	June 1, 2026

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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 C63.10-2020 section 6.2	47 CFR 15.207(a)	Pass
6dB Bandwidth		KDB 558074 D01 15.247 Meas Guidance v05r02		Pass
Maximum Conducted Output Power	47 CFR Part 15.247	ANSI C63.10-2020, 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 C63.10-2020, 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 C63.10-2020, 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 C63.10-2020, 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 C63.10-2020 section 7.8.7 ANSI C63.10-2020+Cor 1-2023 section 7.8.7 ANSI C63.10-2020+C63.10a-2024 section 7.8.7 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d)	Pass
Band edge emissions (Radiated)	47 CFR Part 15.247	ANSI C63.10-2020 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 C63.10-2020 section 6.5.4 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 C63.10-2020 section 6.5.4 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 : BESING TECHNOLOGY (SHENZHEN) CO., LTD
Address : 2F, Block 1, Tianxin Resident Group Industrial Park, Shangwu Community, Shiyan Street, Baoan District, Shenzhen, China

Manufacturer : BESING TECHNOLOGY (SHENZHEN) CO., LTD
Address : 2F, Block 1, Tianxin Resident Group Industrial Park, Shangwu Community, Shiyan Street, Baoan District, Shenzhen, China

2.2 Description of Device (EUT)

Product Name:	Active Noise Cancelling Headphones
Model/Type reference:	H3
Series Model:	N/A
Model Difference:	N/A
Trade Mark:	N/A
Power Supply:	DC 5V/1A from adapter Battery:DC3.7V 650mAh
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

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)**
	BR/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:Both left and right ears have been tested, and only the worst left ear data is reflected in the report.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**
loop antenna	EVERFINE	LLA-2	80900L-C	2026-04-14	2027-04-13
Power absorbing clamp	SCHWARZ BECK	MESS-ELEKTRONIK	/	2026-04-14	2027-04-13
Electric Network	SCHWARZ BECK	CAT5 8158	CAT5 8158#207	2026-04-14	2027-04-13
Cable	SCHWARZ BECK	/	/	2026-04-14	2027-04-13
Pulse Limiter	SCHWARZ BECK	VTSD 9561-F Pulse limiter 10dB Attenuation	561-G071	2025-12-02	2026-12-01
Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	1164.6607K03 -102109-MH	2026-04-14	2027-04-13
L.I.S.N	R&S	ESH3-Z5	831.5518.52	2026-04-14	2027-04-13
L.I.S.N	SCHWARZ BECK	NSLK 8126	05055	2026-04-14	2027-04-13
Pulse Limiter	CYBERTEK	EM5010A	/	2026-04-14	2027-04-13
EMI test software	EZ -EMC	EZ	V1.1.42	/	/

Channel Separation Number of Hopping Frequencies Dwell Time Emissions in non-restricted frequency bands 6dB Bandwidth Maximum Conducted Output Power					
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	2026-04-16	2027-04-15
RF Sensor Unit	Tachoy Information Technology(shenzhen) Co.,Ltd.	TR1029-2	000001	/	/
Wideband radio communication tester	R&S	CMW500	113410	2026-04-14	2027-04-13
Vector Signal Generator	Keysight	N5181A	MY50143455	2025-12-02	2026-12-01
Signal Generator	Keysight	N5182A	MY48180415	2025-12-02	2026-12-01
Spectrum Analyzer	Keysight	N9020A	MY53420323	2025-12-02	2026-12-01
Power meter	Agilent	E4416	MY48200166	2025-12-06	2026-12-05

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	2024-04-26	2027-04-25
Horn antenna	COM-POWER	AH-1840 (18-40G)	10100008	2024-04-26	2027-04-25
Loop antenna	ZHINAN	ZN30900C	ZN30900C	2026-04-14	2027-04-13
Cable(LF)#2	Schwarzbeck	/	/	2026-04-13	2027-04-12
Cable(LF)#1	Schwarzbeck	/	/	2026-04-14	2027-04-13
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2026-04-14	2027-04-13
Cable(HF)#1	Schwarzbeck	SYV-50-3-1	/	2026-04-14	2027-04-13
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2026-04-14	2027-04-13
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2026-04-14	2027-04-13
Wideband radio communication tester	R&S	CMW500	113410	2026-04-14	2027-04-13
Spectrum Analyzer	R&S	FSP30	1321.3008K40 -101729-jR	2026-04-14	2027-04-13
Test Receiver	R&S	ESCI 3	1166.5950K03 -101431-Jq	2026-04-14	2027-04-13
Horn Antenna	Sunol Sciences	DRH-118	A091114	2026-04-14	2027-04-13
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.

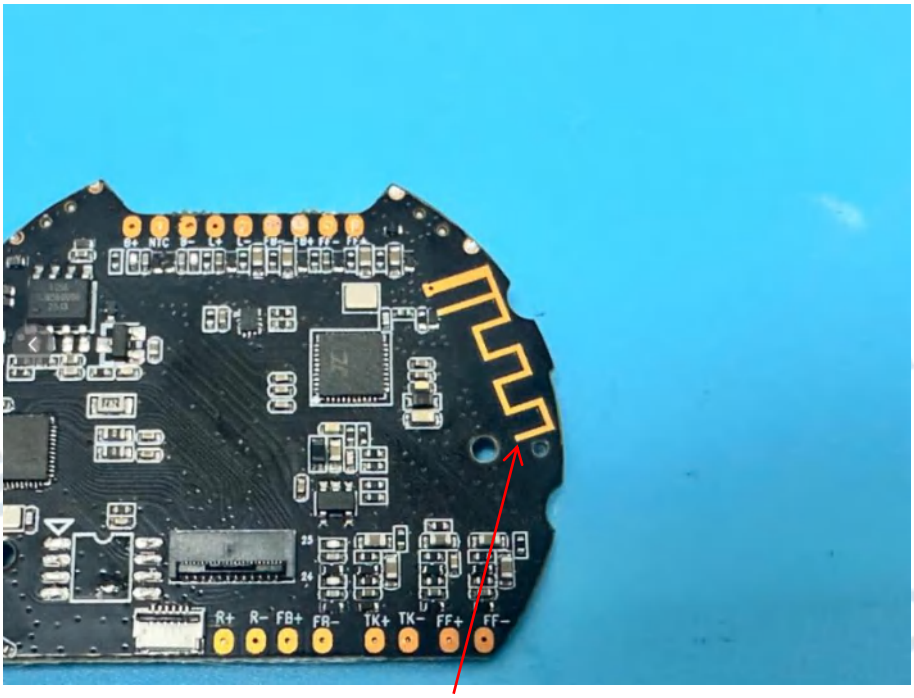
(6) We hereby declare that the laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant. the laboratory is not responsible for the accuracy of the information provided by the client(item 2.2). When the information provided by the customer may affect the effectiveness of the results, the responsibility lies with the customer, and the laboratory does not assume any responsibility.

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.
Test Method:	---

3.1.1 Conclusion:



ANT

4 Radio Spectrum Matter Test Results (RF)

4.1 Conducted Emission at AC power line

Test Requirement:	Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b)and (c)of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN).
Test Limit:	

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

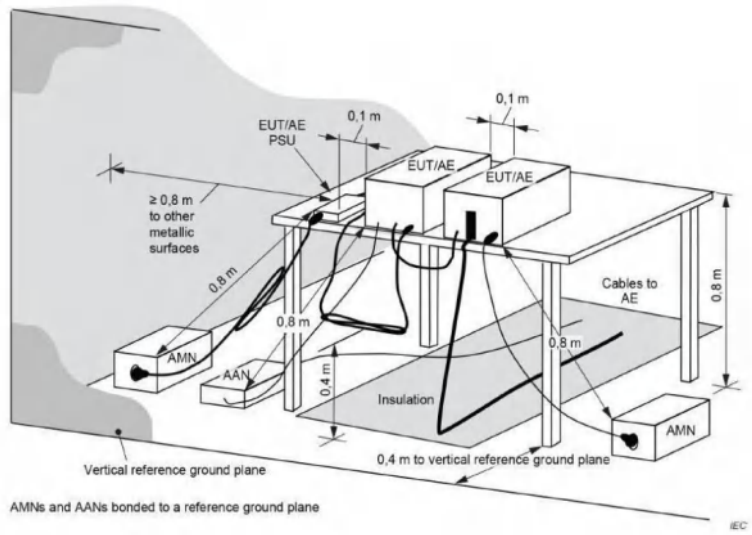
*Decreases with the logarithm of the frequency.

Test Method:	ANSI C63.10-2020 section 6.2
Procedure:	Refer to ANSI C63.10-2020 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices

4.1.1 E.U.T. Operation:

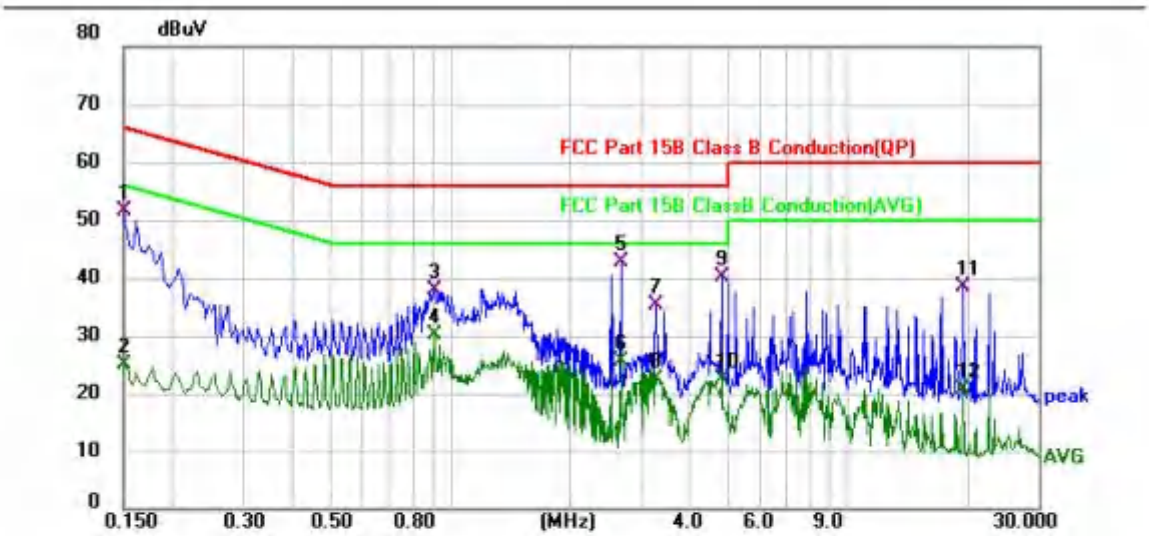
Operating Environment:					
Temperature:	22.8 °C	Humidity:	50 %	Atmospheric Pressure:	101.2 kPa
Pretest mode:	TM1, TM2,TM3				
Final test mode:	TM1				

4.1.2 Test Setup Diagram:



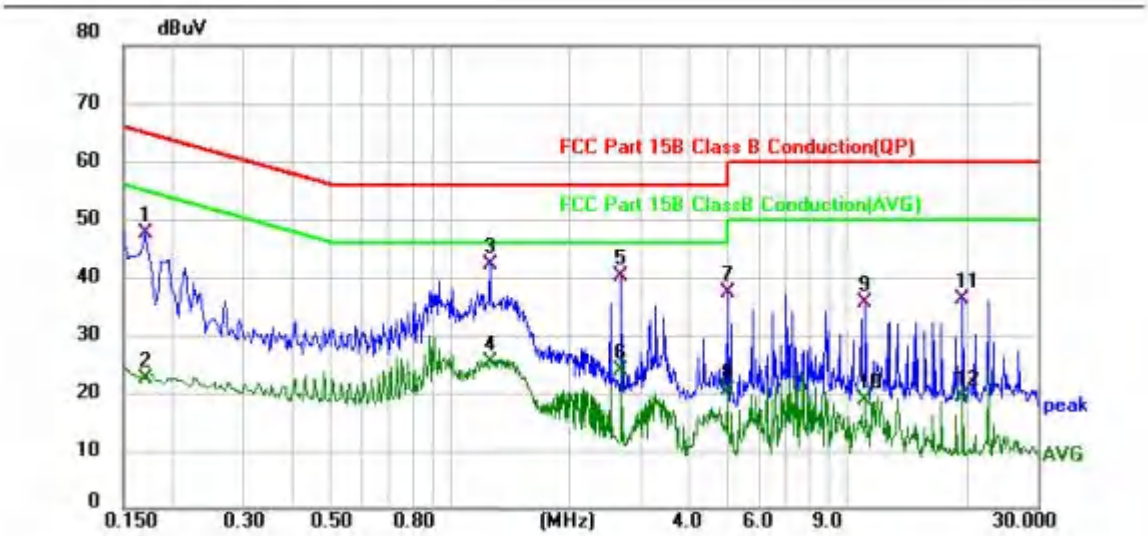
4.1.3 Test Data:

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



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	41.58	10.08	51.66	66.00	-14.34	QP	
2		0.1500	15.02	10.08	25.10	56.00	-30.90	AVG	
3		0.9100	27.91	10.08	37.99	56.00	-18.01	QP	
4		0.9100	20.18	10.08	30.26	46.00	-15.74	AVG	
5	*	2.6900	32.77	10.05	42.82	56.00	-13.18	QP	
6		2.6900	15.53	10.05	25.58	46.00	-20.42	AVG	
7		3.2900	25.09	10.11	35.20	56.00	-20.80	QP	
8		3.2900	12.39	10.11	22.50	46.00	-23.50	AVG	
9		4.8220	30.03	10.19	40.22	56.00	-15.78	QP	
10		4.8220	12.35	10.19	22.54	46.00	-23.46	AVG	
11		19.4980	27.83	10.60	38.43	60.00	-21.57	QP	
12		19.4980	10.21	10.60	20.81	50.00	-29.19	AVG	

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



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1700	37.37	10.08	47.45	64.96	-17.51	QP	
2		0.1700	12.44	10.08	22.52	54.96	-32.44	AVG	
3	*	1.2579	32.10	10.06	42.16	56.00	-13.84	QP	
4		1.2579	15.18	10.06	25.24	46.00	-20.76	AVG	
5		2.6940	30.18	10.05	40.23	56.00	-15.77	QP	
6		2.6940	13.92	10.05	23.97	46.00	-22.03	AVG	
7		4.9860	27.22	10.19	37.41	56.00	-18.59	QP	
8		4.9860	10.22	10.19	20.41	46.00	-25.59	AVG	
9		11.0980	25.13	10.36	35.49	60.00	-24.51	QP	
10		11.0980	8.23	10.36	18.59	50.00	-31.41	AVG	
11		19.5020	25.67	10.60	36.27	60.00	-23.73	QP	
12		19.5020	8.78	10.60	19.38	50.00	-30.62	AVG	

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

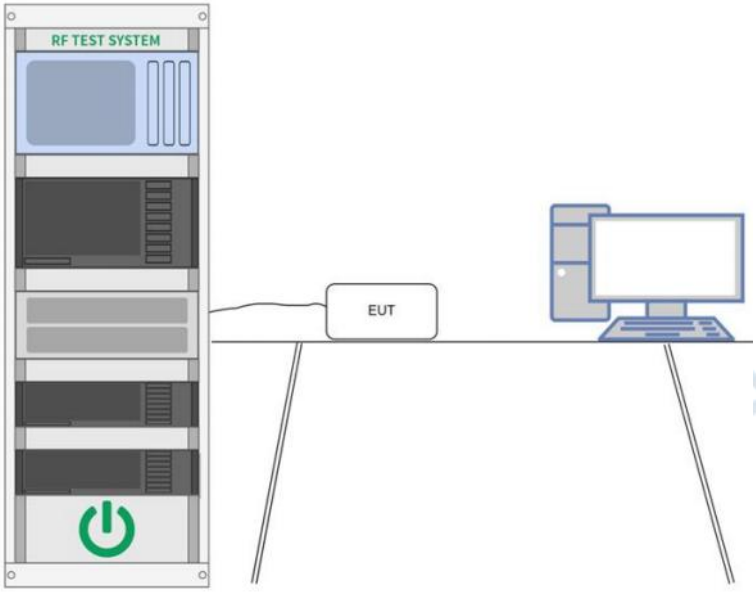
4.2 6dB Bandwidth

Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02

4.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.3 °C	Humidity:	53 %	Atmospheric Pressure:	101.2 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.

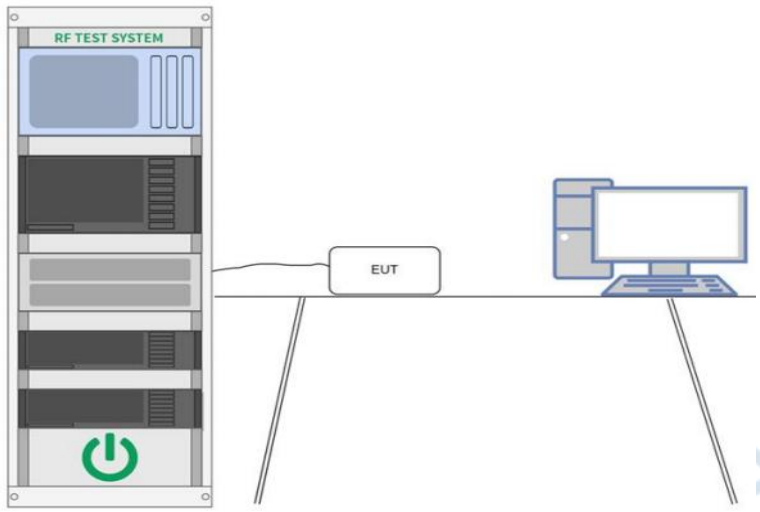
4.3 Maximum Conducted Output Power

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 C63.10-2020, 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. Frequency hopping shall be disabled for this test. Use the following spectrum analyzer settings: a) Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel. b) RBW > 20 dB bandwidth of the emission being measured. c) VBW ≥ RBW. d) Sweep: No faster than coupled (auto) time. e) Detector function: Peak. f) Trace: Max-hold. g) Allow trace to stabilize. h) Use the marker-to-peak function to set the marker to the peak of the emission. i) The indicated level is the peak output power, after any corrections for external attenuators and cables. j) A spectral 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:	22.6 °C	Humidity:	54 %	Atmospheric Pressure:	101.2 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.

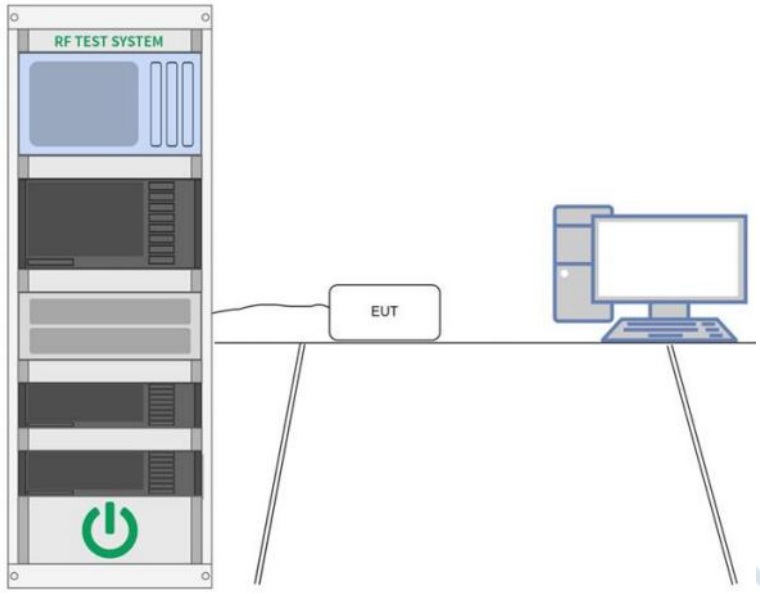
4.4 Channel Separation

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 C63.10-2020, 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: No faster than coupled (auto) time. 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 spectral plot of the data shall be included in the test report.

4.4.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.8 °C	Humidity:	53 %	Atmospheric Pressure:	101.2 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.

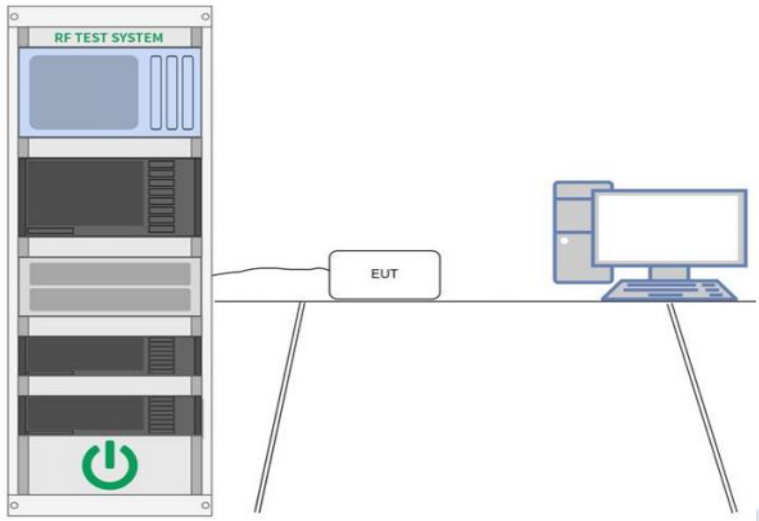
4.5 Number of Hopping Frequencies

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 C63.10-2020, 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 could 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: No faster than coupled (auto) time. 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 spectral plot of the data shall be included in the test report.

4.5.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.8 °C	Humidity:	50 %	Atmospheric Pressure:	101.2 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

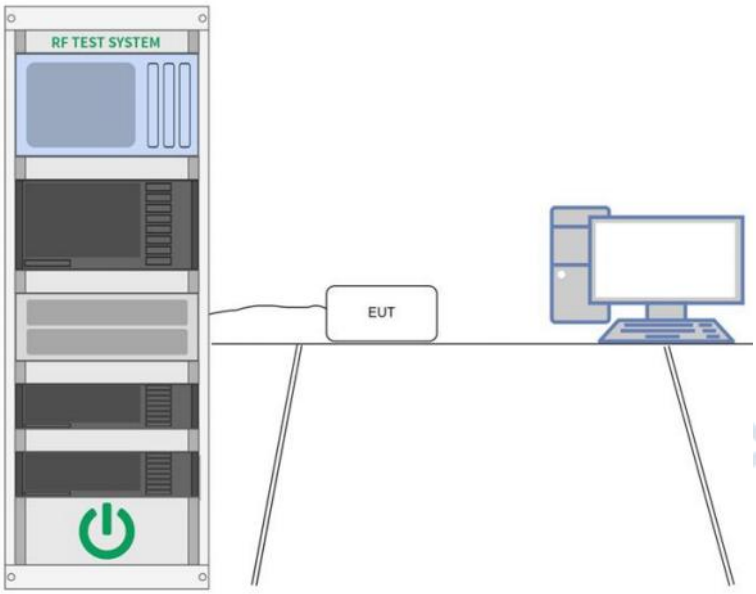
Test Requirement:	47 CFR 15.247(a)(1)(iii)
Test Limit:	Refer to 47 CFR 15.247(a)(1)(iii), Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied 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 C63.10-2020, section 7.8.4 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	The dwell time per hop on a channel is the time from the start of the first transmission to the end of the last transmission for that hop. If the device has a single transmission per hop then the dwell time is the duration of that transmission. If the device has a multiple transmissions per hop then the dwell time is measured from the start of the first transmission to the end of the last transmission. The time of occupancy is the total time that the device dwells on a channel over an observation period specified in the regulatory requirement. To determine the time of occupancy the spectrum analyzer will be configured to measure both the dwell time per hop and the number of times the device transmits on a specific channel in a given period. The EUT shall have its hopping function enabled. Compliance with the requirements shall be made with the minimum and with the maximum number of channels enabled. If the dwell time per channel does not vary with the number of channels than compliance with the requirements may be based on the minimum number of channels. If the device supports different dwell times per channel (example Bluetooth devices can dwell on a channel for 1, 3 or 5 time slots) then measurements can be limited to the longest dwell time with the minimum number of channels. Use the following spectrum analyzer settings to determine the dwell time per hop: 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 transmission time per hop. c) Sweep time: Set so that the start of the first transmission and end of the last transmission for the hop are clearly captured. Setting the sweep time to be slightly longer than the hopping period per channel (hopping period = 1/hopping rate) should achieve this. d) Use a video trigger, where possible with a trigger delay, so that the start of the transmission is clearly observed. The trigger level might need adjustment to reduce the chance of triggering when the system hops on an adjacent channel. e) Detector function: Peak. f) Trace: Clear-write, single sweep. g) Place markers at the start of the first transmission on the channel and at the end of the last transmission. The dwell time per hop is the time between these two markers. To determine the number of hops on a channel in the regulatory observation period repeat the measurement using a longer sweep time. When the device uses a single hopping sequence the period of measurement should be sufficient to capture at least 2 hops. When the device uses a dynamic hopping sequence, or the sequence varies, the period of measurement may need to capture multiple hops to better determine the average time of occupancy. Count the number of hops on the channel across the sweep time. The average number of hops on the same channel within the regulatory observation period is calculated from the number of hops on the channel divided by the spectrum analyzer sweep time multiplied by the regulatory observation period. For example, if three hops are counted with an analyzer sweep time of 500 ms and the regulatory observation period is 10 s, then the number of hops in that ten seconds is 3 / 0.5 × 10, or 60 hops.

	The average time of occupancy is calculated by multiplying the dwell time per hop by the number of hops in the observation period.

4.6.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.6 °C	Humidity:	55 %	Atmospheric Pressure:	101.2 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

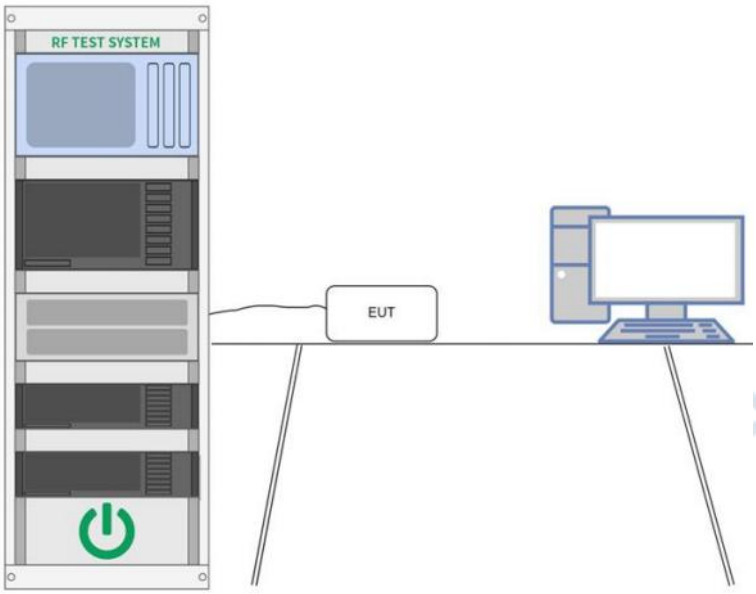
Test Requirement:	47 CFR 15.247(d)
Test Limit:	Refer to 47 CFR 15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 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 C63.10-2020 section 7.8.7 ANSI C63.10-2020+Cor 1-2023 section 7.8.7 ANSI C63.10-2020+C63.10a-2024 section 7.8.7 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	7.8.7.1 General considerations To demonstrate compliance with the relative out-of-band emissions requirements conducted spurious emissions shall be measured for the transmit frequencies, per 5.5 and 5.6, and at the maximum transmit powers. Frequency hopping shall be disabled for this test with the exception of measurements at the allocated band-edges which shall be repeated with hopping enabled. 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 frequency range of testing shall span 30 MHz to 10 times the operating frequency and this may be done in a single sweep or, to aid resolution, across a number of sweeps. The resolution bandwidth shall be 100 kHz, video bandwidth 300 kHz, and a coupled sweep time with a peak detector. The limit is based on the highest in-band level across all channels measured using the same instrument settings (resolution bandwidth of 100 kHz, video bandwidth of 300 kHz, and a coupled sweep time with a peak detector). To help clearly demonstrate compliance a display line may be set at the required offset (typically 20 dB) below the highest in-band level. Where the highest in-band level is not clearly identified in the out-of-band measurements a separate spectral plot showing the in-band level shall be provided. When conducted measurements cannot be made (for example a device with integrated, non-removable antenna) radiated measurements shall be used. The reference level for determining the limit shall be established by maximizing the field strength from the highest power channel and measuring using the resolution and video bandwidth settings and peak detector as described above. The field strength limit for spurious emissions outside of restricted-bands shall then be set at the required offset (typically 20 dB) below the highest in-band level. Radiated measurements will follow the standards measurement procedures described in Clause 6 with the exception that the resolution bandwidth shall be 100 kHz, video bandwidth 300 kHz, and a coupled sweep time with a peak detector. Note that use of wider measurement bandwidths are acceptable for measuring the spurious emissions provided that the peak detector is used and that the measured value of spurious emissions are compared to the highest in-band level measured with the 100 kHz / 300 kHz bandwidth settings to determine compliance. 7.8.7.2 Band-edges Compliance with a relative limit at the band-edges (e.g., −20 dBc) shall be made on the lowest and on the highest channels with frequency hopping disabled and repeated with frequency hopping enabled. For the latter test the hopping sequence shall include the lowest and highest channels. For measurements with the hopping disabled the analyzer screen shall clearly show compliance with the requirement within 10 MHz of the allocated band-edge.

	For measurements with the hopping enabled the analyzer screen shall clearly show compliance with the requirement within 10 MHz of both of the allocated band-edges. This could require separate spectral plots for each band-edge.

4.7.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23 °C	Humidity:	51 %	Atmospheric Pressure:	101.2 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)

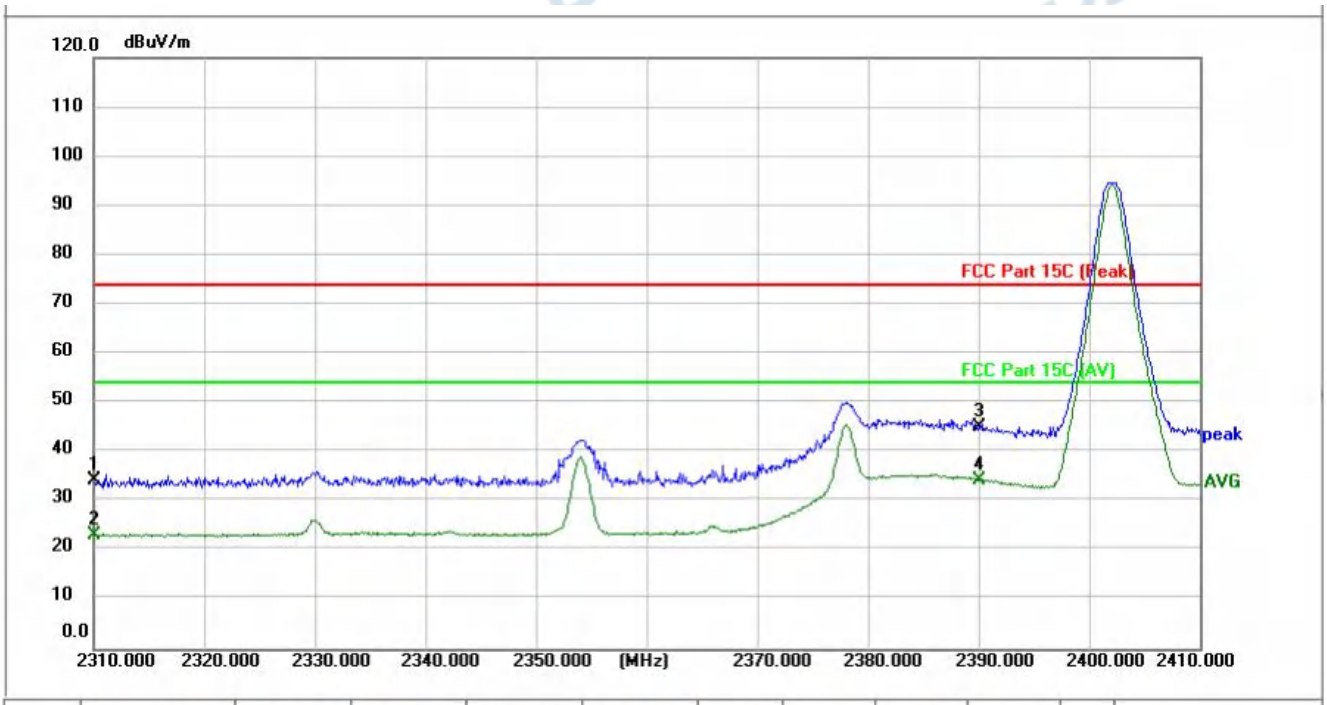
<table>
<tr><td>Test Requirement:</td><td>Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).</td></tr>
<tr><td>Test Limit:</td><td>
<table>
<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.
</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10-2020 section 6.10
KDB 558074 D01 15.247 Meas Guidance v05r02</td></tr>
<tr><td>Procedure:</td><td>ANSI C63.10-2020 section 6.10.5.2</td></tr>
</table>

4.8.1 E.U.T. Operation:

<table>
<tr><td colspan="6">Operating Environment:</td></tr>
<tr><td>Temperature:</td><td>23.1 °C</td><td>Humidity:</td><td>46 %</td><td>Atmospheric Pressure:</td><td>101.2 kPa</td></tr>
<tr><td colspan="2">Pretest mode:</td><td colspan="4">TM1, TM2, TM3</td></tr>
<tr><td colspan="2">Final test mode:</td><td colspan="4">TM1, TM2, TM3</td></tr>
</table>

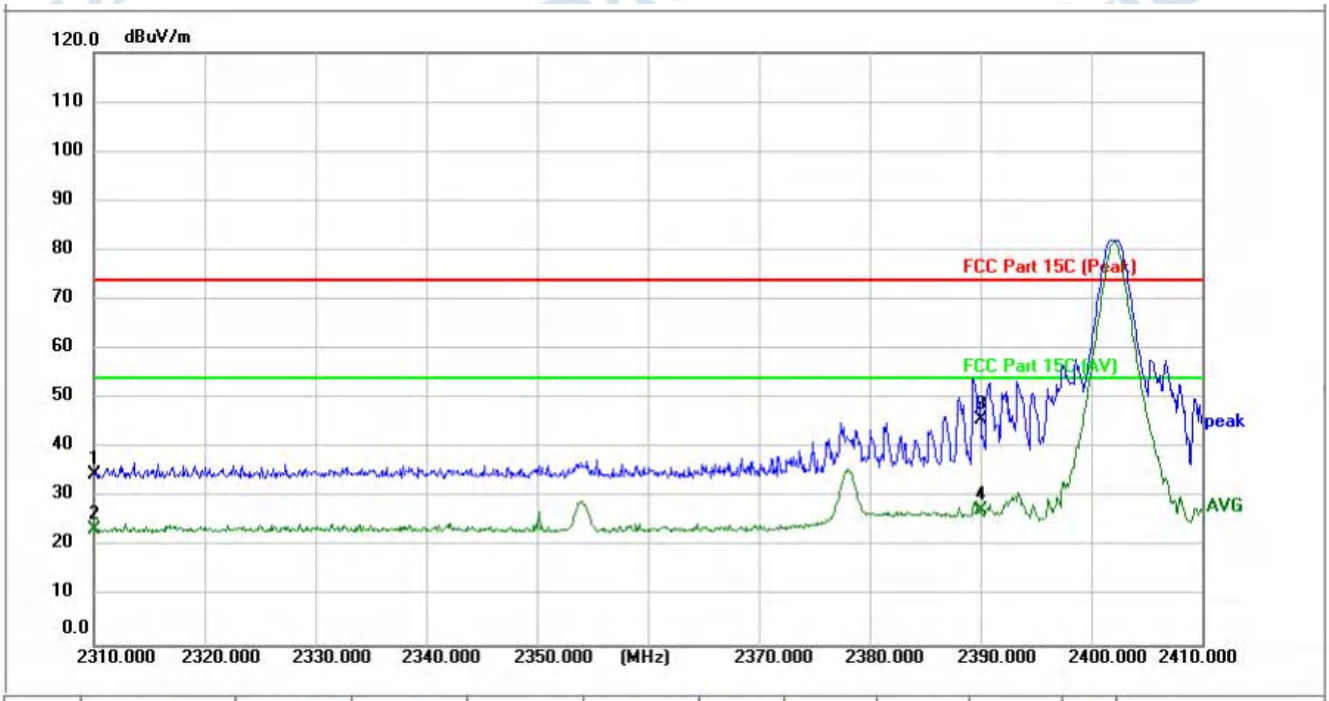
4.8.2 Test Data:

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



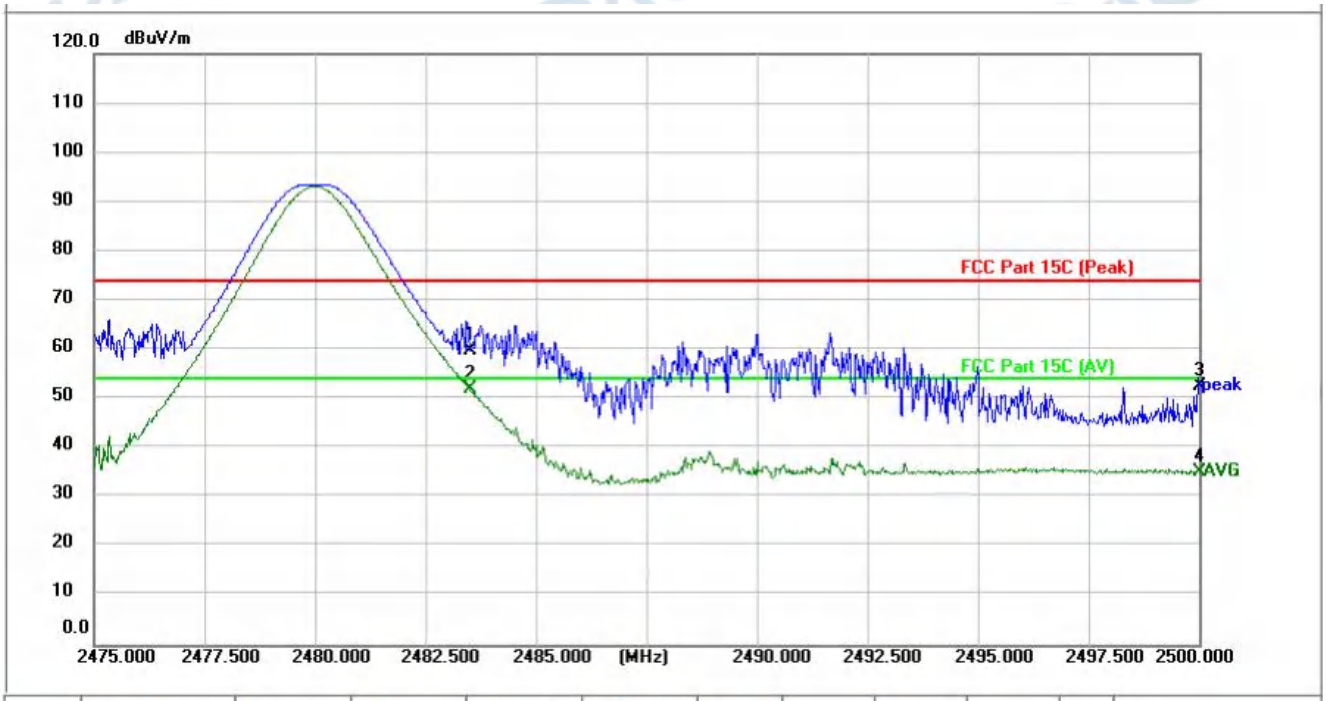
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2310.000	40.93	-6.63	34.30	74.00	-39.70	peak			P	
2	2310.000	29.81	-6.63	23.18	54.00	-30.82	AVG			P	
3	2390.000	51.66	-6.42	45.24	74.00	-28.76	peak			P	
4 *	2390.000	40.89	-6.42	34.47	54.00	-19.53	AVG			P	

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



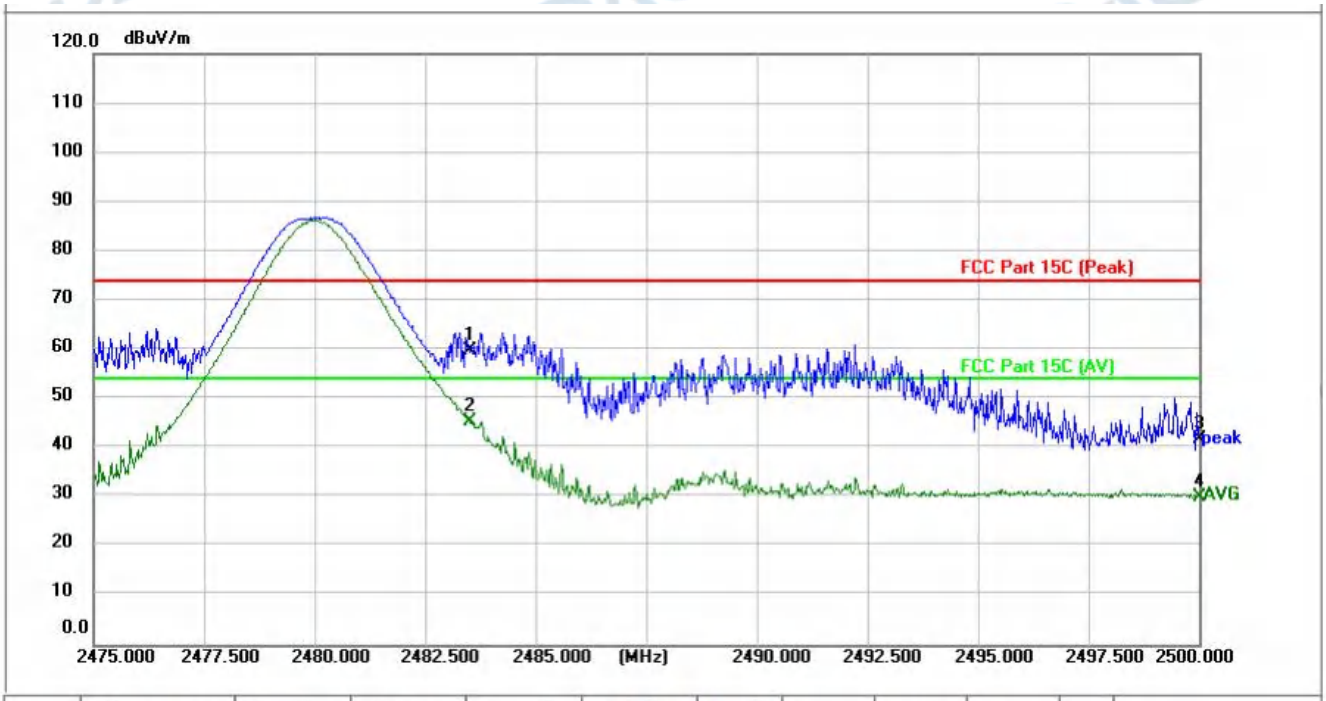
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2310.000	41.43	-6.63	34.80	74.00	-39.20	peak			P	
2	2310.000	30.07	-6.63	23.44	54.00	-30.56	AVG			P	
3	2390.000	52.25	-6.42	45.83	74.00	-28.17	peak			P	
4 *	2390.000	33.73	-6.42	27.31	54.00	-26.69	AVG			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	66.00	-6.17	59.83	74.00	-14.17	peak	150		P	
2 *	2483.500	58.15	-6.17	51.98	54.00	-2.02	AVG	150		P	
3	2500.000	58.68	-6.13	52.55	74.00	-21.45	peak	150		P	
4	2500.000	41.25	-6.13	35.12	54.00	-18.88	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	65.90	-6.17	59.73	74.00	-14.27	peak	150		P	
2 *	2483.500	51.55	-6.17	45.38	54.00	-8.62	AVG	150		P	
3	2500.000	48.11	-6.13	41.98	74.00	-32.02	peak	150		P	
4	2500.000	36.43	-6.13	30.30	54.00	-23.70	AVG	150		P	

Remark:Margin=Level - Limit, Level=Test receiver reading + correction factor
The test software will only record the worst test angle and height, and only the worst case will be recorded in the test report.

4.9 Emissions in frequency bands (below 1GHz)

<table>
<tr><td>Test Requirement:</td><td>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)).</td></tr>
<tr><td>Test Limit:</td><td>
<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.
</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10-2020 section 6.5.4
KDB 558074 D01 15.247 Meas Guidance v05r02</td></tr>
<tr><td>Procedure:</td><td>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</td></tr>
</table>

	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:	23.6 °C	Humidity:	46 %	Atmospheric Pressure:	101.2 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

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 *	33.9173	21.77	-1.41	20.36	40.00	-19.64	QP			P	
2	66.0342	23.03	-9.16	13.87	40.00	-26.13	QP			P	
3	124.5690	22.51	-2.46	20.05	43.50	-23.45	QP			P	
4	180.0164	26.13	-4.53	21.60	43.50	-21.90	QP			P	
5	273.2340	22.84	-3.51	19.33	46.00	-26.67	QP			P	
6	397.6334	22.83	-0.05	22.78	46.00	-23.22	QP			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	30.1051	20.84	3.27	24.11	40.00	-15.89	QP			P	
2	66.0340	25.03	-9.16	15.87	40.00	-24.13	QP			P	
3	124.5690	23.51	-2.46	21.05	43.50	-22.45	QP			P	
4	180.0164	27.13	-4.53	22.60	43.50	-20.90	QP			P	
5	742.2586	22.74	6.14	28.88	46.00	-17.12	QP			P	
6 *	952.0937	22.48	10.75	33.23	46.00	-12.77	QP			P	

4.10 Emissions in frequency bands (above 1GHz)

<table>
<tr><td>Test Requirement:</td><td>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)).</td></tr>
<tr><td>Test Limit:</td><td>
<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.
</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10-2020 section 6.5.4
KDB 558074 D01 15.247 Meas Guidance v05r02</td></tr>
<tr><td>Procedure:</td><td>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:</td></tr>
</table>

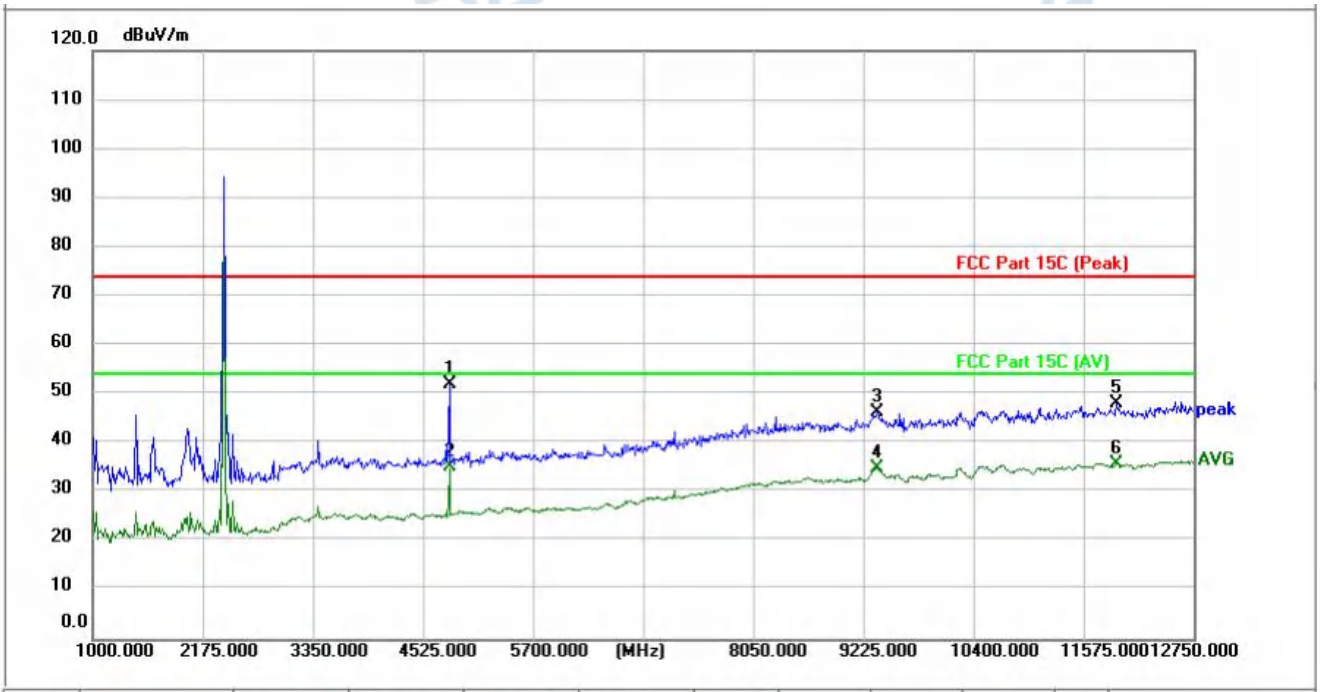
	1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report. 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Final Test 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:	23.5 °C	Humidity:	51 %	Atmospheric Pressure:	101.2 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

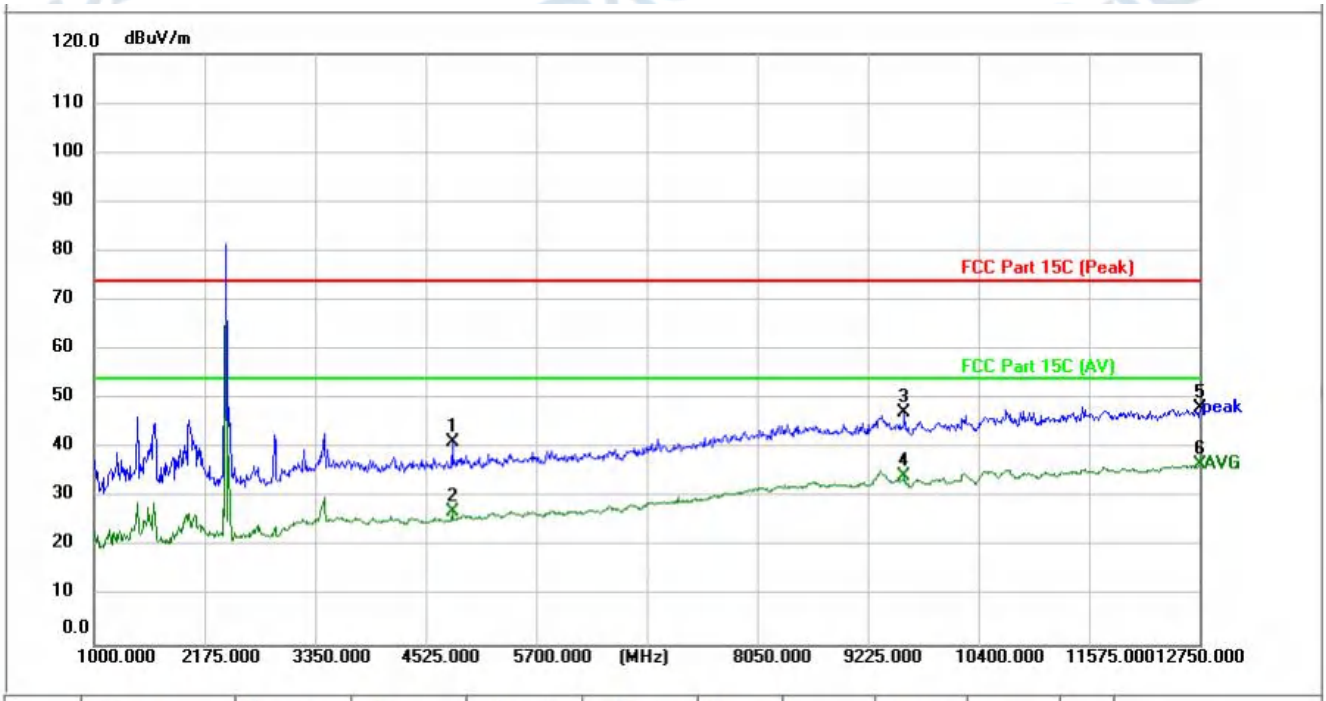
4.10.2 Test Data:

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



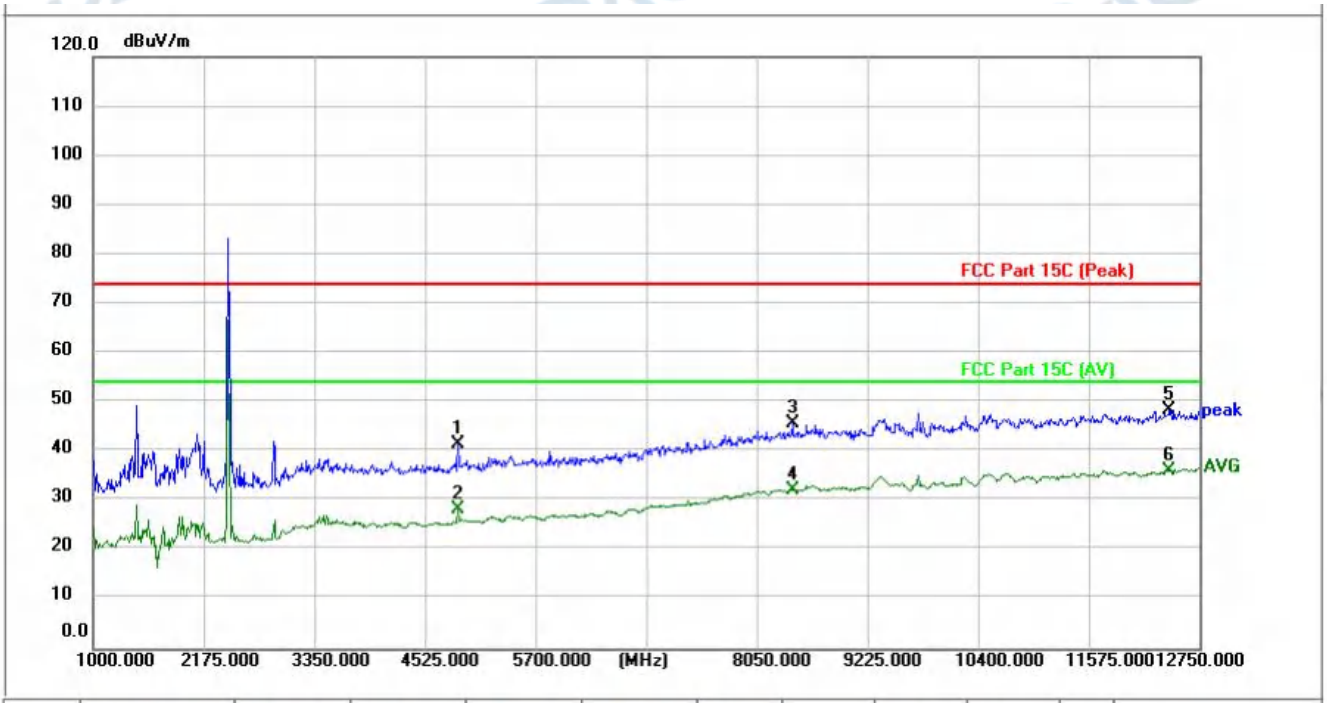
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4807.000	52.86	-0.69	52.17	74.00	-21.83	peak	150		P	
2	4807.000	35.79	-0.69	35.10	54.00	-18.90	AVG	150		P	
3	9366.000	38.26	8.15	46.41	74.00	-27.59	peak	150		P	
4	9366.000	26.78	8.15	34.93	54.00	-19.07	AVG	150		P	
5	11927.500	38.13	9.96	48.09	74.00	-25.91	peak	150		P	
6 *	11927.500	25.79	9.96	35.75	54.00	-18.25	AVG	150		P	

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



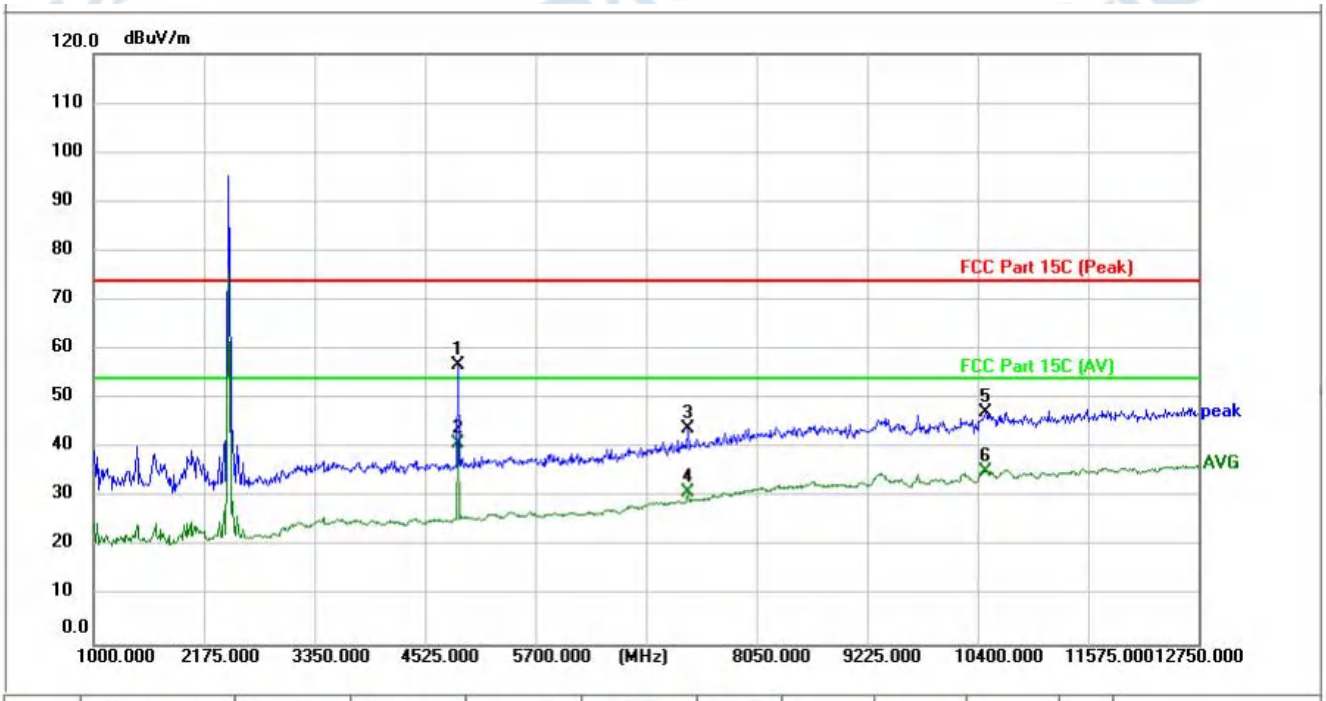
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4807.000	42.07	-0.69	41.38	74.00	-32.62	peak			P	
2	4807.000	27.71	-0.69	27.02	54.00	-26.98	AVG			P	
3	9612.750	39.17	8.10	47.27	74.00	-26.73	peak			P	
4	9612.750	26.28	8.10	34.38	54.00	-19.62	AVG			P	
5	12750.000	36.82	11.44	48.26	74.00	-25.74	peak			P	
6 *	12750.000	25.23	11.44	36.67	54.00	-17.33	AVG			P	

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



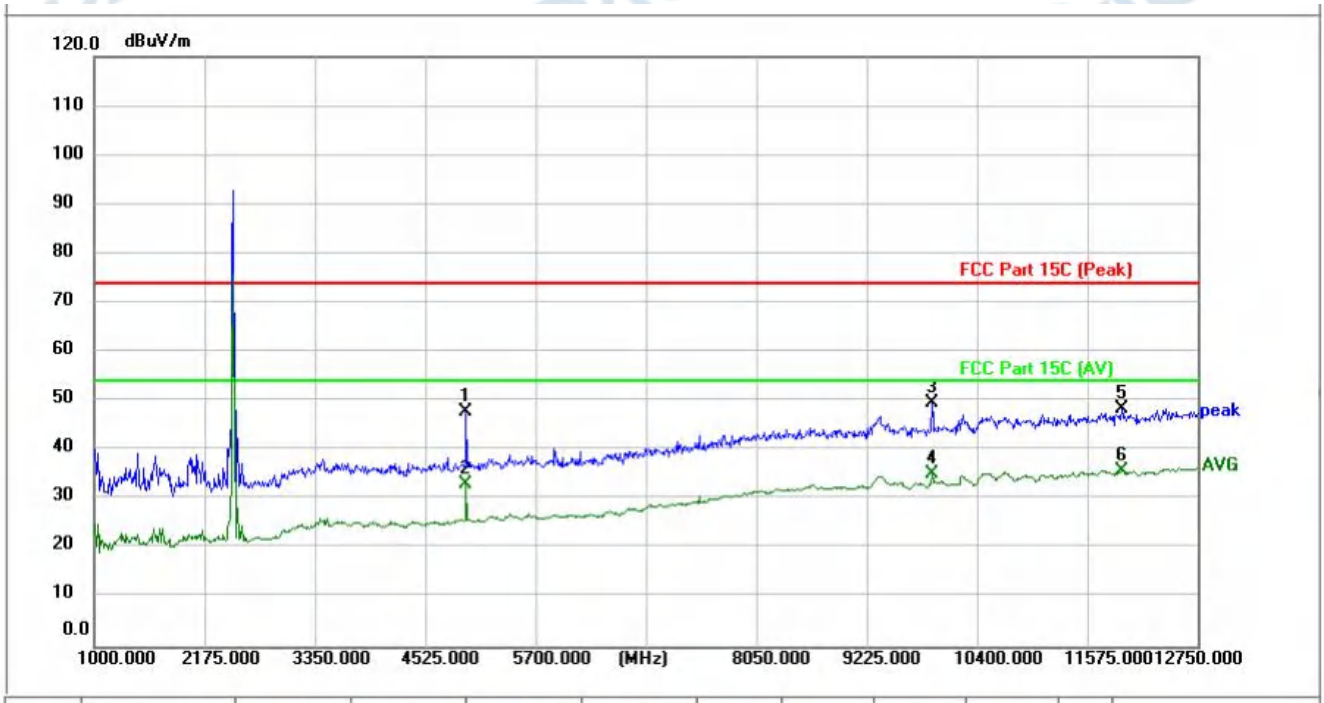
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4877.500	42.00	-0.45	41.55	74.00	-32.45	peak			P	
2	4877.500	28.75	-0.45	28.30	54.00	-25.70	AVG			P	
3	8426.000	38.33	7.33	45.66	74.00	-28.34	peak			P	
4	8426.000	25.05	7.33	32.38	54.00	-21.62	AVG			P	
5	12432.750	37.56	10.90	48.46	74.00	-25.54	peak			P	
6 *	12432.750	25.34	10.90	36.24	54.00	-17.76	AVG			P	

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



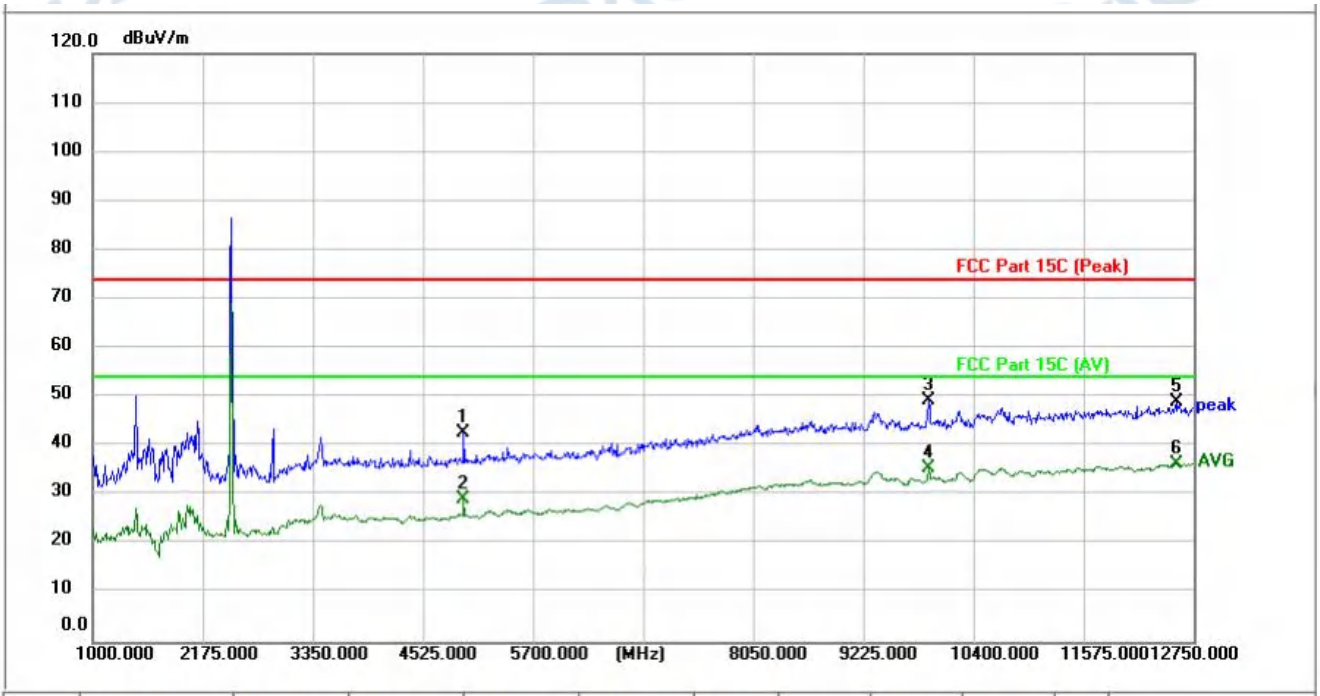
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4877.500	57.21	-0.45	56.76	74.00	-17.24	peak	150		P	
2 *	4877.500	41.52	-0.45	41.07	54.00	-12.93	AVG	150		P	
3	7321.500	39.37	4.57	43.94	74.00	-30.06	peak	150		P	
4	7321.500	26.61	4.57	31.18	54.00	-22.82	AVG	150		P	
5	10482.250	38.34	8.97	47.31	74.00	-26.69	peak	150		P	
6	10482.250	26.19	8.97	35.16	54.00	-18.84	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	48.16	-0.17	47.99	74.00	-26.01	peak			P	
2	4959.750	33.18	-0.17	33.01	54.00	-20.99	AVG			P	
3	9918.250	41.51	8.08	49.59	74.00	-24.41	peak			P	
4	9918.250	27.13	8.08	35.21	54.00	-18.79	AVG			P	
5	11939.250	38.59	9.97	48.56	74.00	-25.44	peak			P	
6 *	11939.250	25.94	9.97	35.91	54.00	-18.09	AVG			P	

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



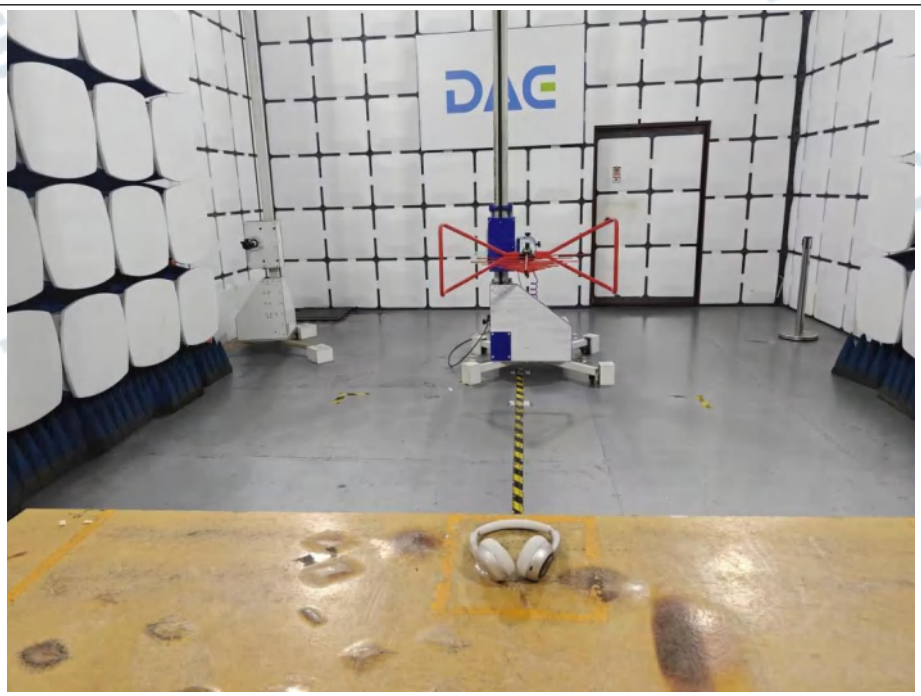
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4959.750	42.85	-0.17	42.68	74.00	-31.32	peak	150		P	
2	4959.750	29.41	-0.17	29.24	54.00	-24.76	AVG	150		P	
3	9918.250	41.37	8.08	49.45	74.00	-24.55	peak	150		P	
4	9918.250	27.52	8.08	35.60	54.00	-18.40	AVG	150		P	
5	12562.000	38.04	11.12	49.16	74.00	-24.84	peak	150		P	
6 *	12562.000	25.25	11.12	36.37	54.00	-17.63	AVG	150		P	

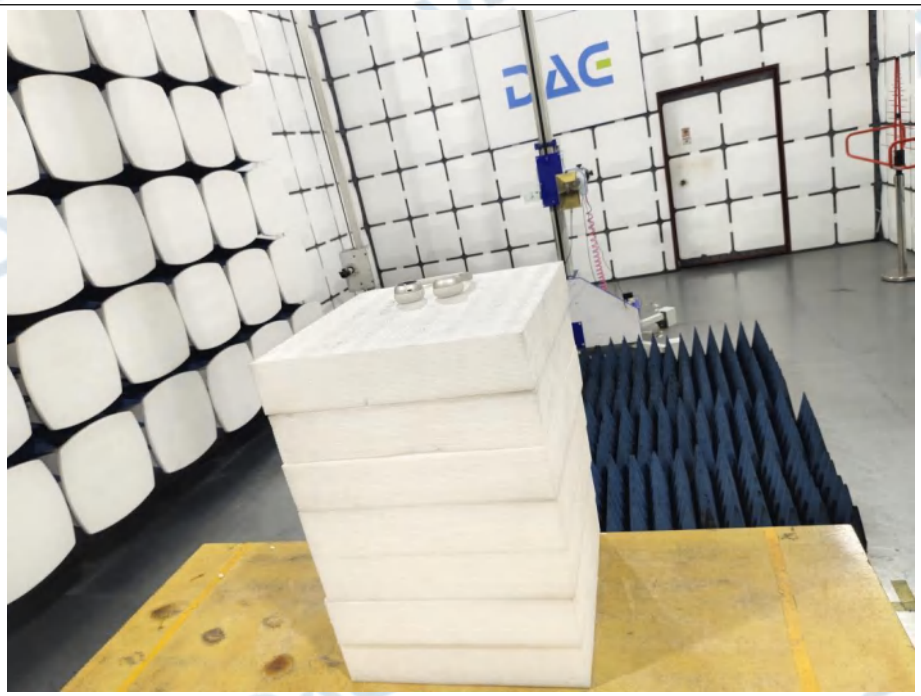
Remark:Margin=Level - Limit, Level=Test receiver reading + correction factor
The test software will only record the worst test angle and height, and only the worst case will be recorded in the test report.

5 TEST SETUP PHOTOS

Conducted Emission at AC power line

Emissions in frequency bands (below 1GHz)



Emissions in frequency bands (above 1GHz)


6 PHOTOS OF THE EUT

Please refer to external photos file and internal photos file

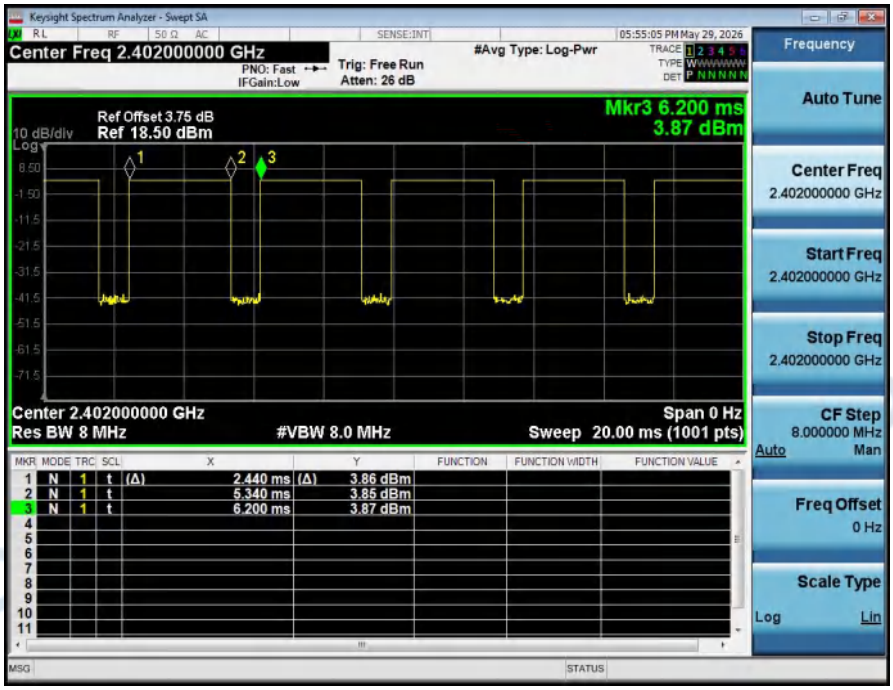
Appendix

HT260527003-H3-FCC ID-EDR
FCC_BT (Part15.247) Test Data

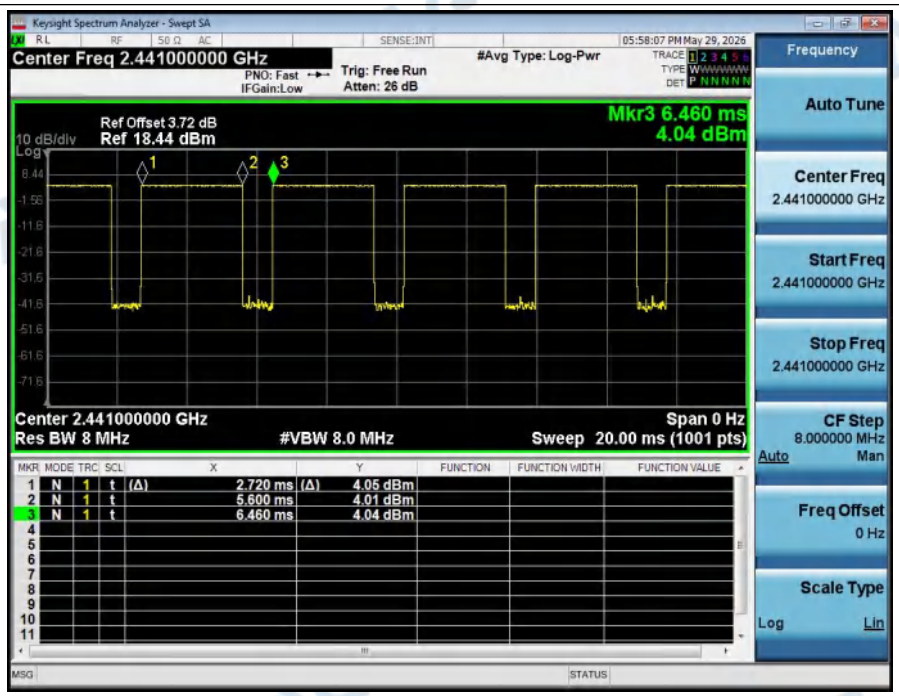
1. Duty Cycle

Condition	Antenna	Rate	Frequency (MHz)	Dutycycle(%)	Duty_factor
NVNT	ANT1	1-DH5	2402.00	77.66	1.10
NVNT	ANT1	1-DH5	2441.00	77.54	1.10
NVNT	ANT1	1-DH5	2480.00	77.54	1.10
NVNT	ANT1	2-DH5	2402.00	77.66	1.10
NVNT	ANT1	2-DH5	2441.00	77.13	1.13
NVNT	ANT1	2-DH5	2480.00	77.66	1.10
NVNT	ANT1	3-DH5	2402.00	77.66	1.10
NVNT	ANT1	3-DH5	2441.00	77.66	1.10
NVNT	ANT1	3-DH5	2480.00	77.01	1.13

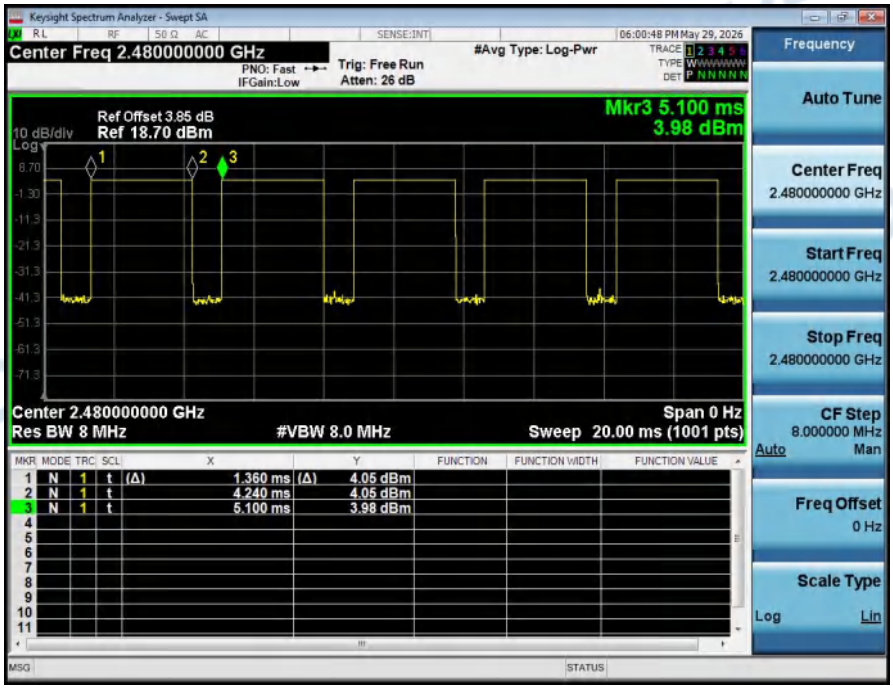
Duty_Cycle_NVNT_ANT1_1-DH5_2402



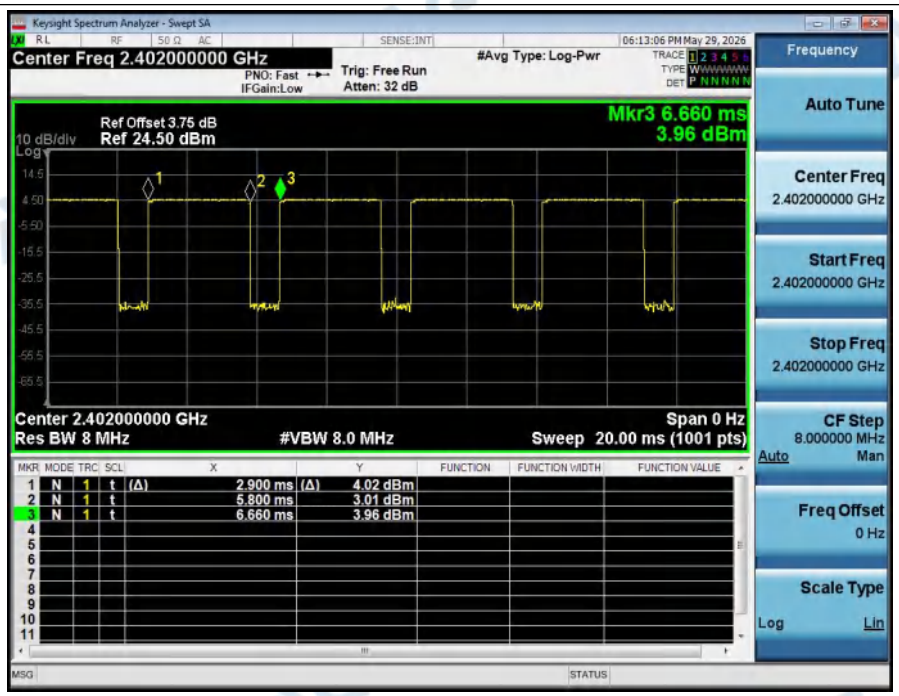
Duty_Cycle_NVNT_ANT1_1-DH5_2441



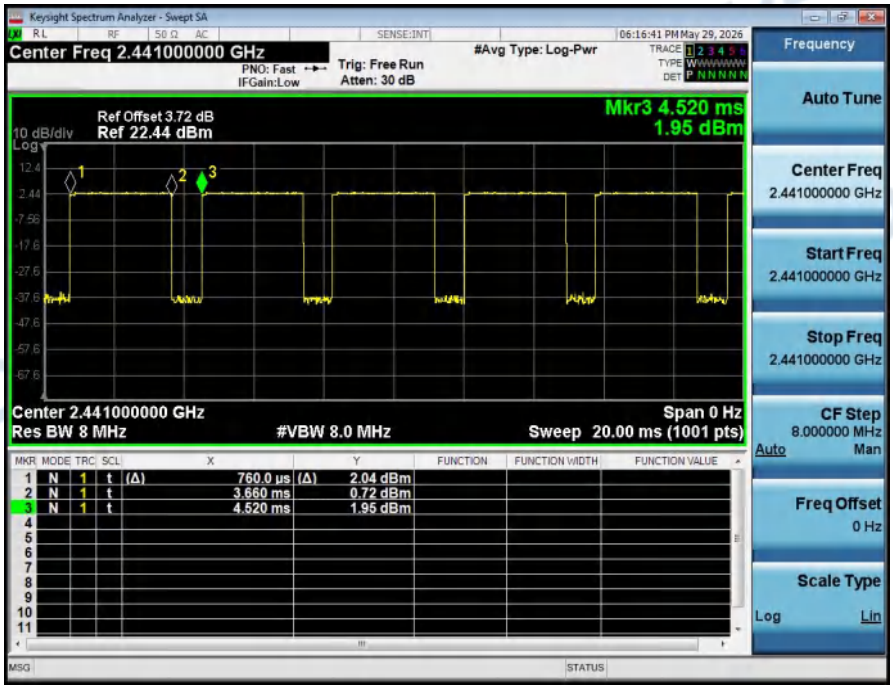
Duty_Cycle_NVNT_ANT1_1-DH5_2480



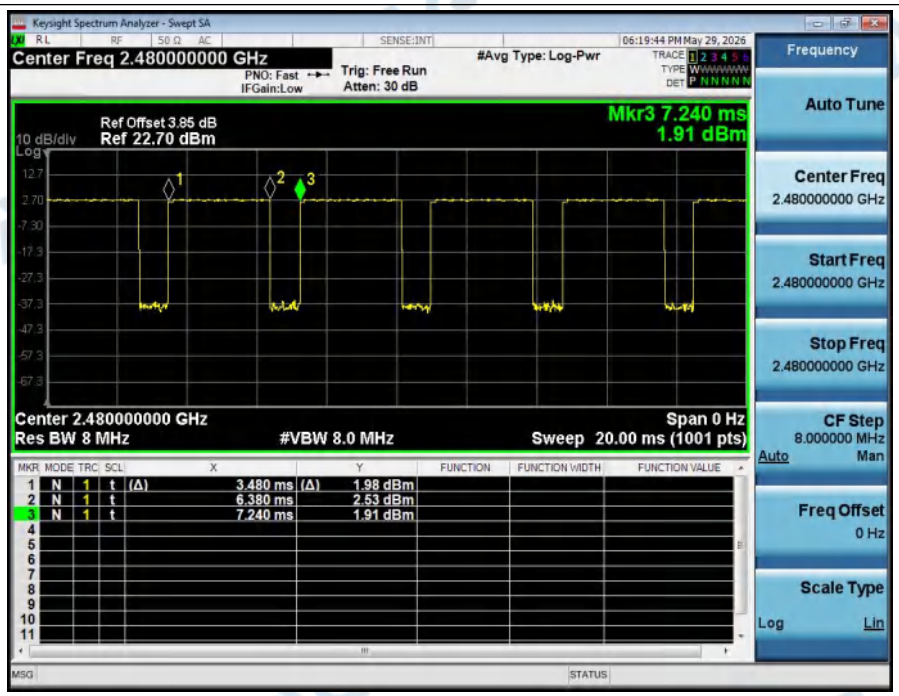
Duty_Cycle_NVNT_ANT1_2-DH5_2402



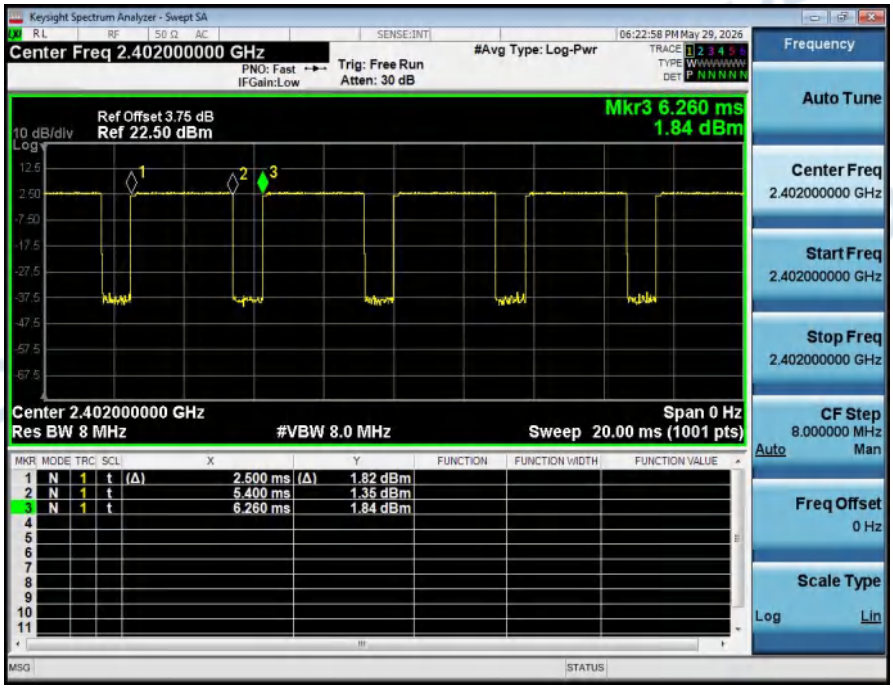
Duty_Cycle_NVNT_ANT1_2-DH5_2441



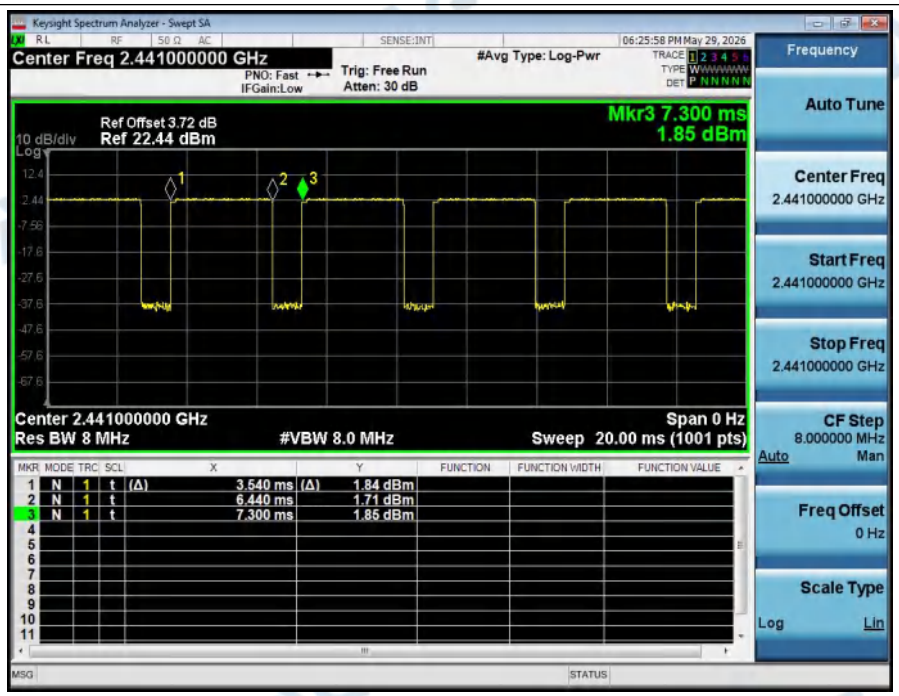
Duty_Cycle_NVNT_ANT1_2-DH5_2480



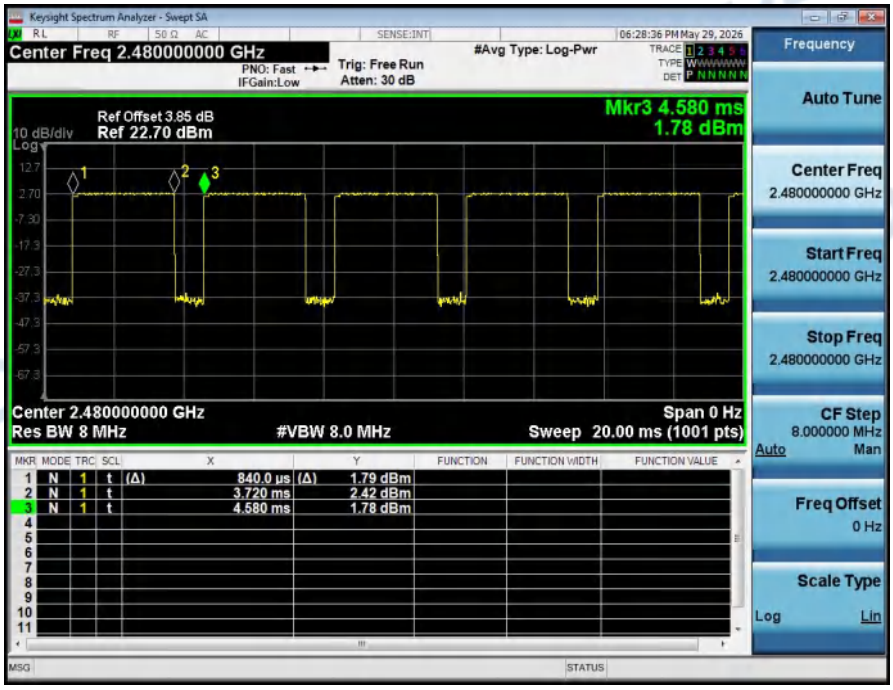
Duty_Cycle_NVNT_ANT1_3-DH5_2402



Duty_Cycle_NVNT_ANT1_3-DH5_2441



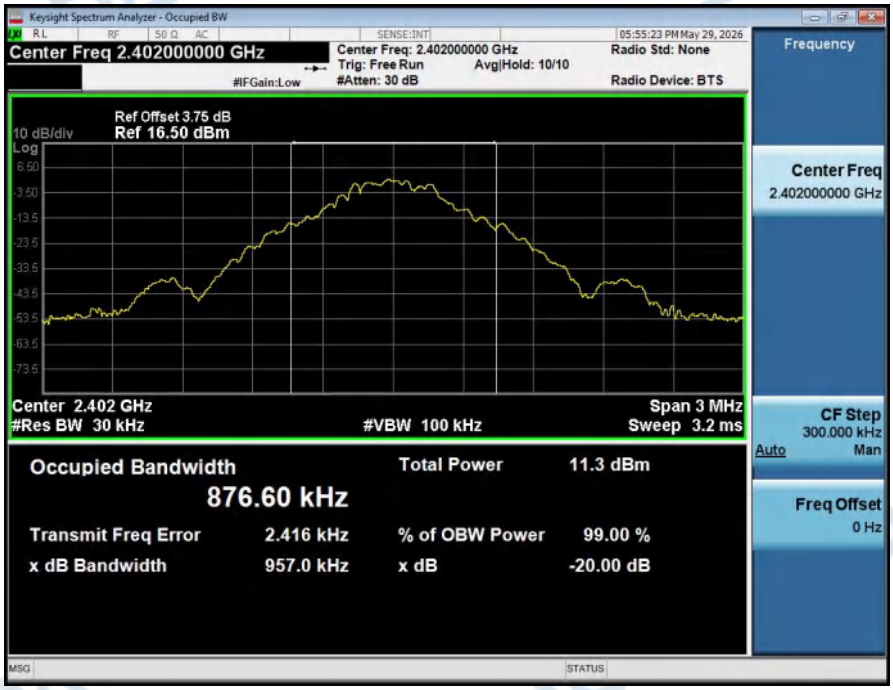
Duty_Cycle_NVNT_ANT1_3-DH5_2480



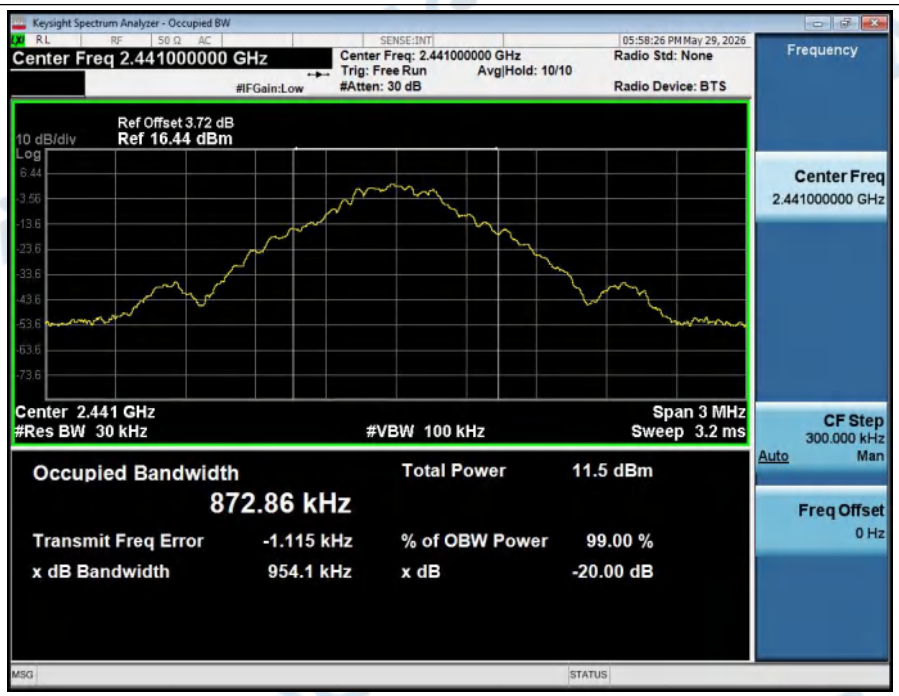
2. -20dB Bandwidth

Condition	Antenna	Modulation	Frequency (MHz)	-20dB BW(MHz)	if larger than CFS
NVNT	ANT1	1-DH5	2402.00	0.957	No
NVNT	ANT1	1-DH5	2441.00	0.954	No
NVNT	ANT1	1-DH5	2480.00	0.956	No
NVNT	ANT1	2-DH5	2402.00	1.285	Yes
NVNT	ANT1	2-DH5	2441.00	1.281	Yes
NVNT	ANT1	2-DH5	2480.00	1.282	Yes
NVNT	ANT1	3-DH5	2402.00	1.299	Yes
NVNT	ANT1	3-DH5	2441.00	1.297	Yes
NVNT	ANT1	3-DH5	2480.00	1.297	Yes

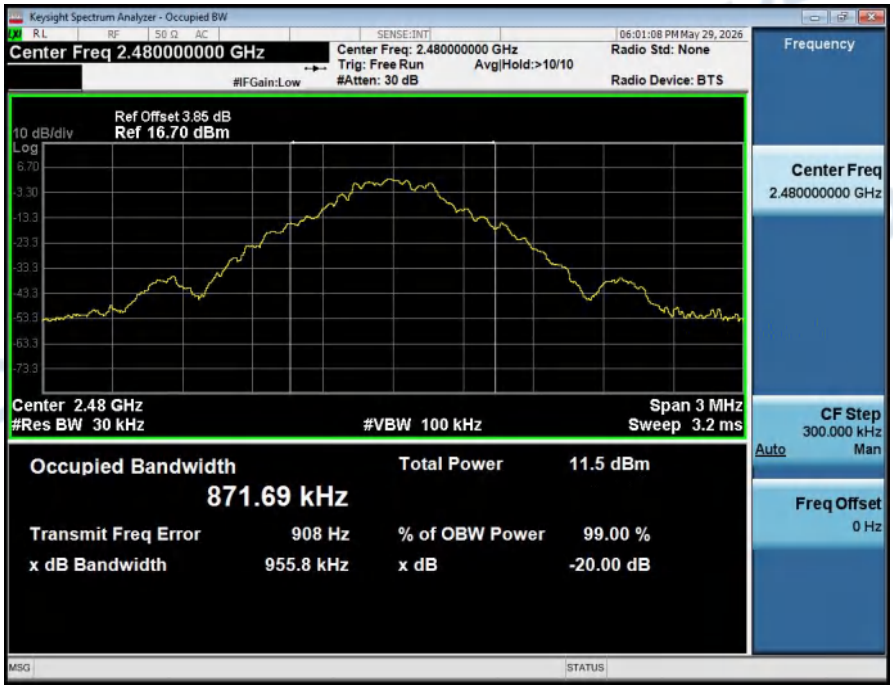
-20dB_Bandwidth_NVNT_ANT1_1-DH5_2402_00



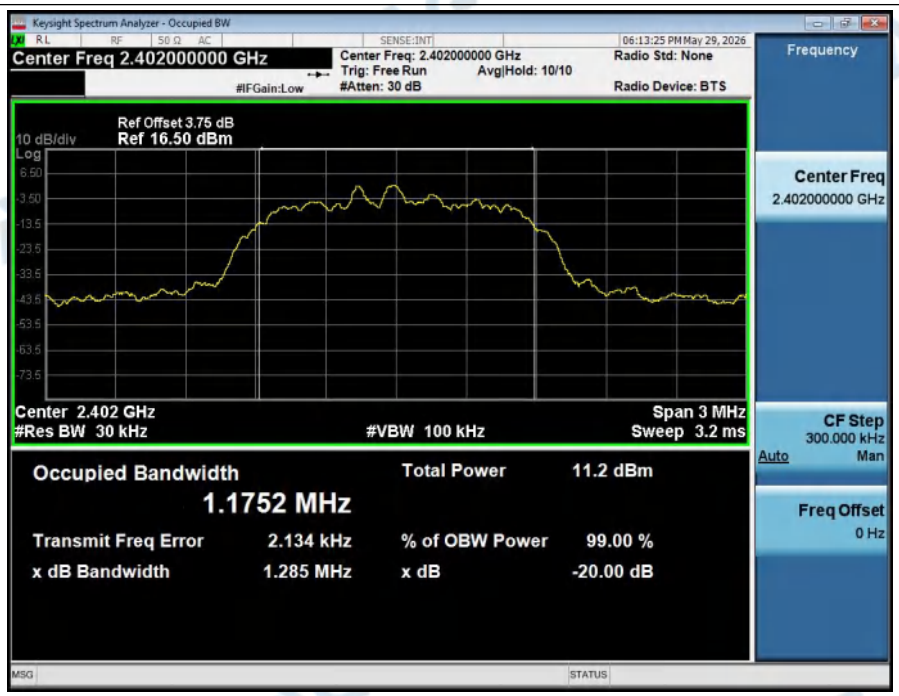
-20dB_Bandwidth_NVNT_ANT1_1-DH5_2441_00



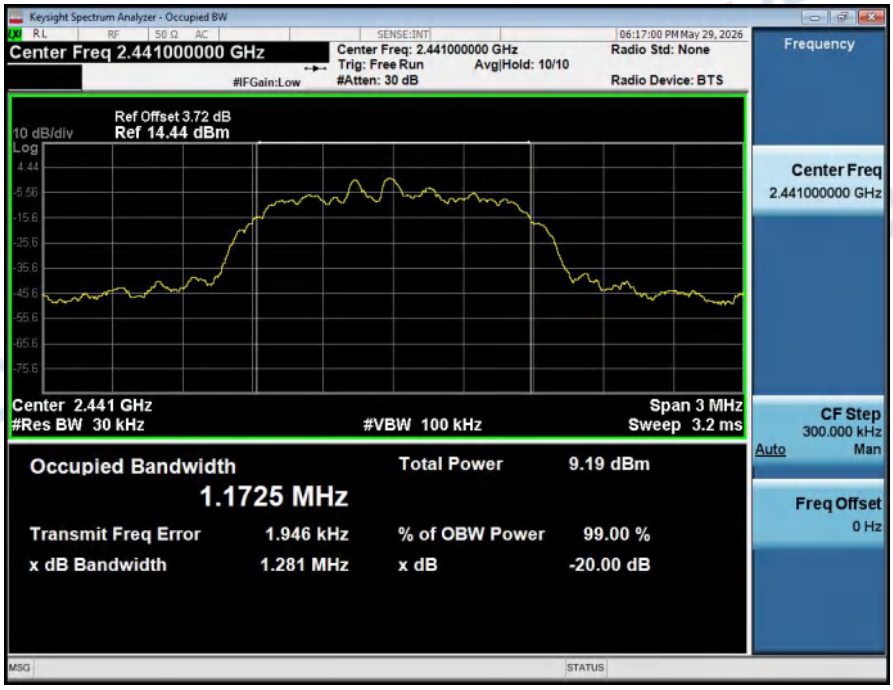
-20dB_Bandwidth_NVNT_ANT1_1-DH5_2480_00



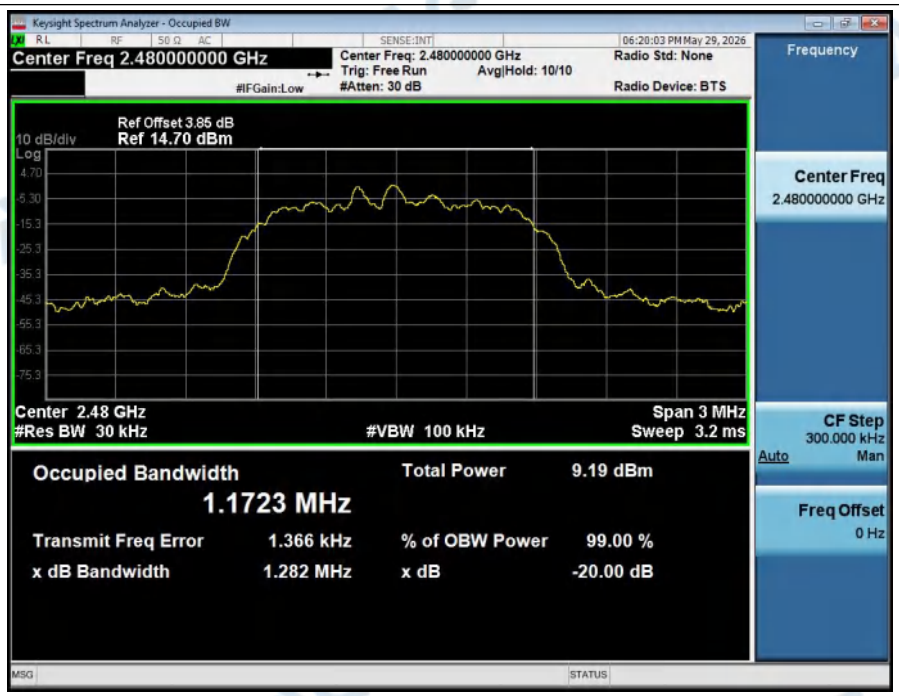
-20dB_Bandwidth_NVNT_ANT1_2-DH5_2402_00



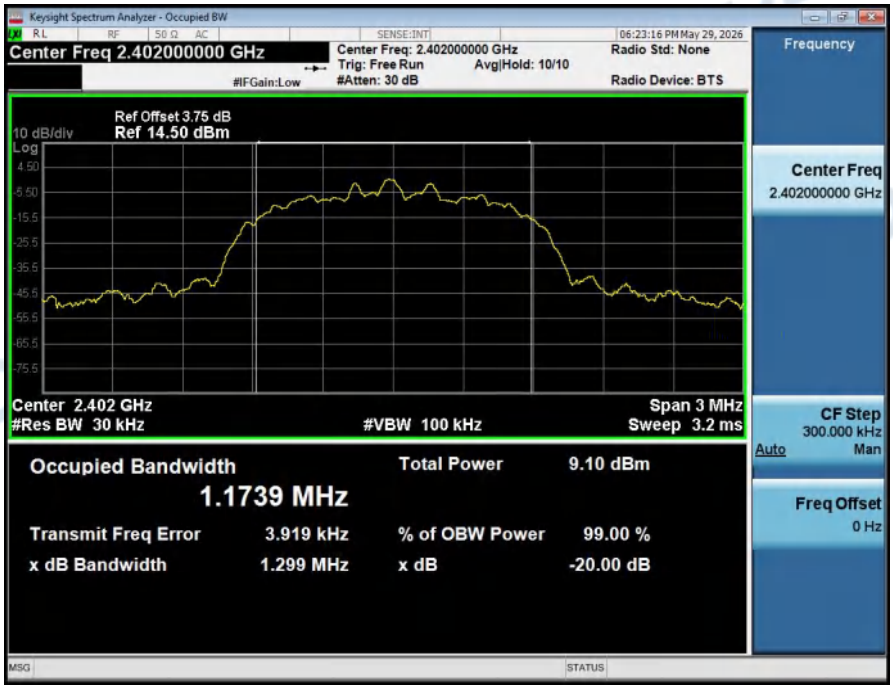
-20dB_Bandwidth_NVNT_ANT1_2-DH5_2441_00



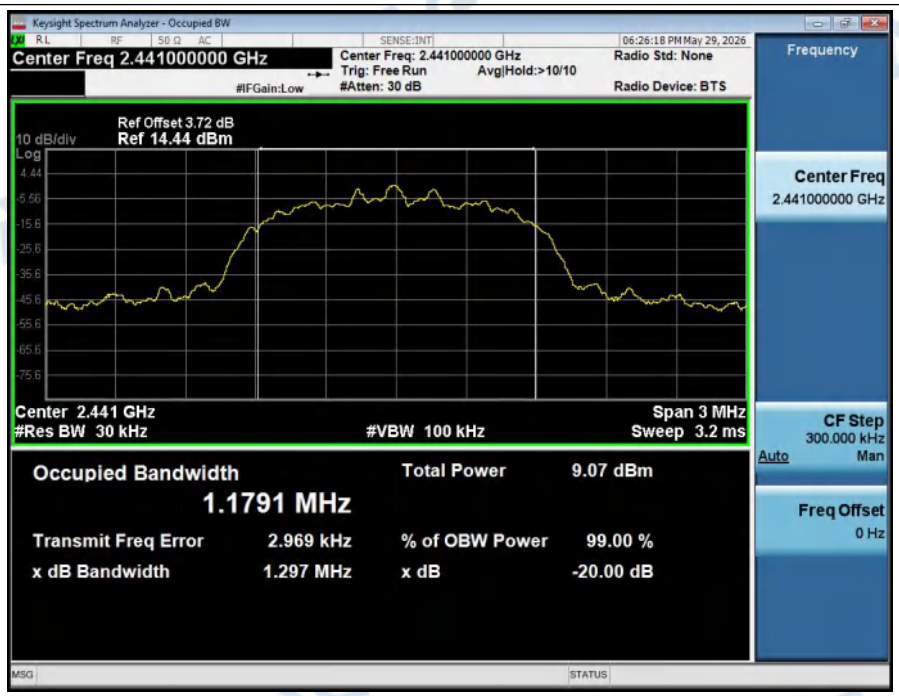
-20dB_Bandwidth_NVNT_ANT1_2-DH5_2480_00



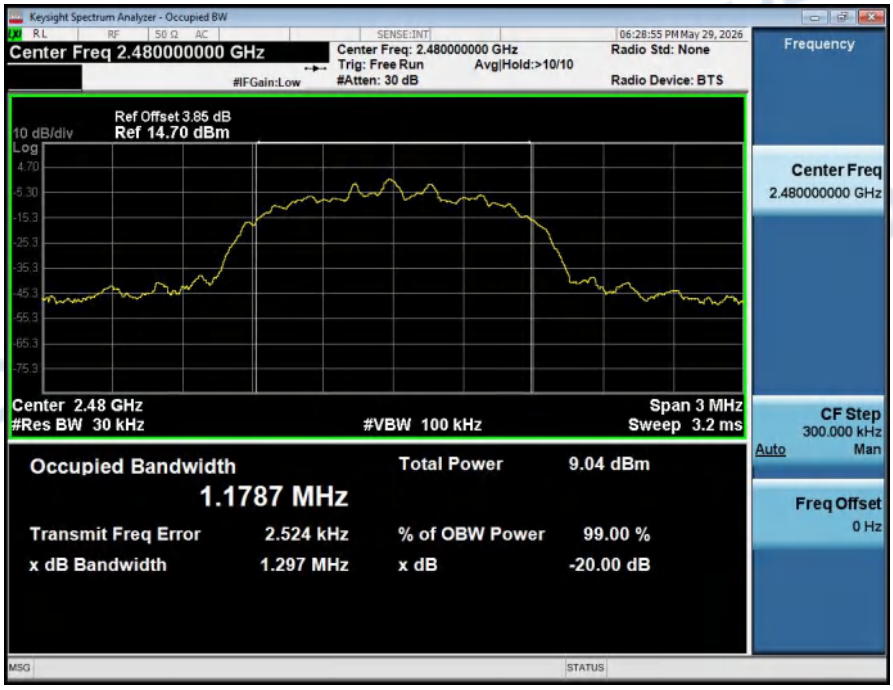
-20dB_Bandwidth_NVNT_ANT1_3-DH5_2402_00



-20dB_Bandwidth_NVNT_ANT1_3-DH5_2441_00



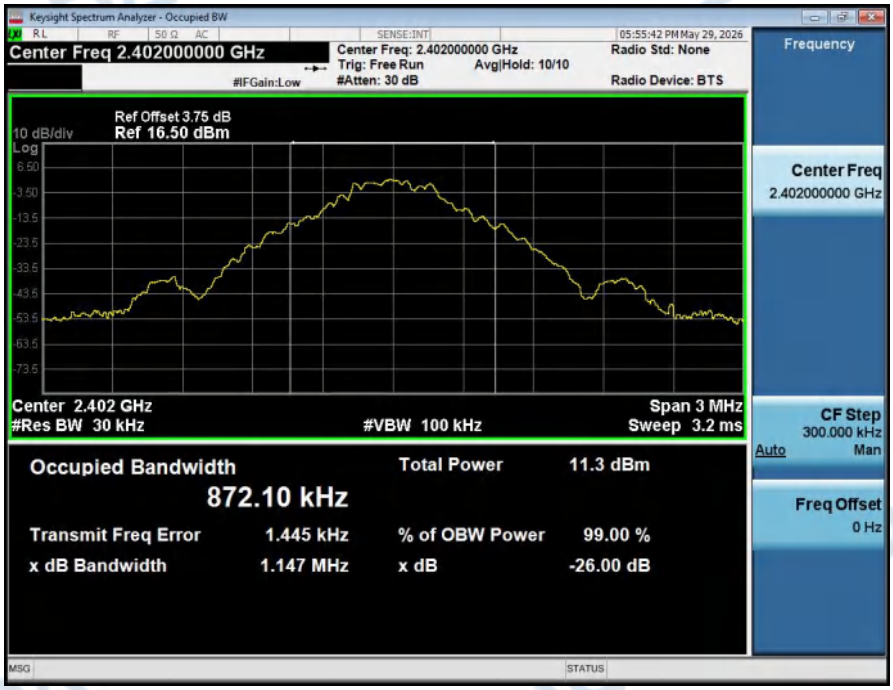
-20dB_Bandwidth_NVNT_ANT1_3-DH5_2480_00



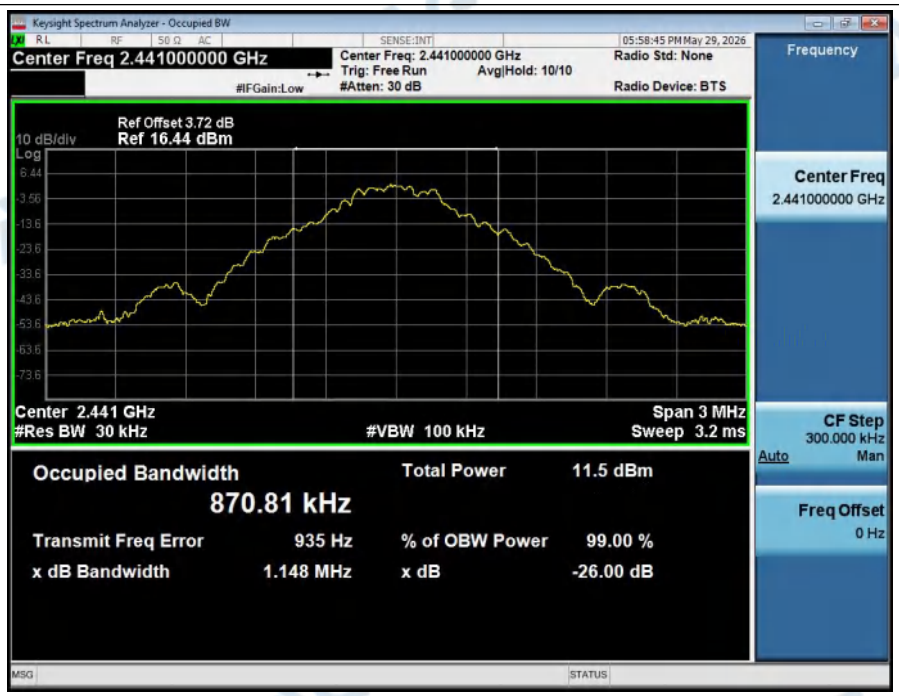
3. 99% Occupied Bandwidth

Condition	Antenna	Modulation	Frequency (MHz)	99%%BW(MHz)
NVNT	ANT1	1-DH5	2402.00	0.872
NVNT	ANT1	1-DH5	2441.00	0.871
NVNT	ANT1	1-DH5	2480.00	0.873
NVNT	ANT1	2-DH5	2402.00	1.175
NVNT	ANT1	2-DH5	2441.00	1.172
NVNT	ANT1	2-DH5	2480.00	1.172
NVNT	ANT1	3-DH5	2402.00	1.176
NVNT	ANT1	3-DH5	2441.00	1.179
NVNT	ANT1	3-DH5	2480.00	1.183

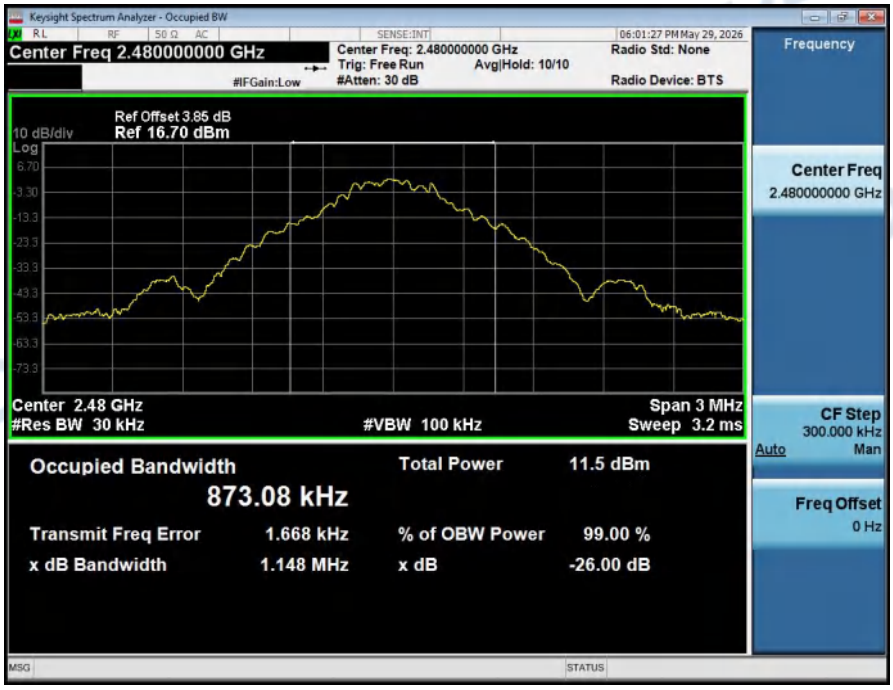
99%_Occupied_Bandwidth_NVNT_ANT1_1-DH5_2402_00



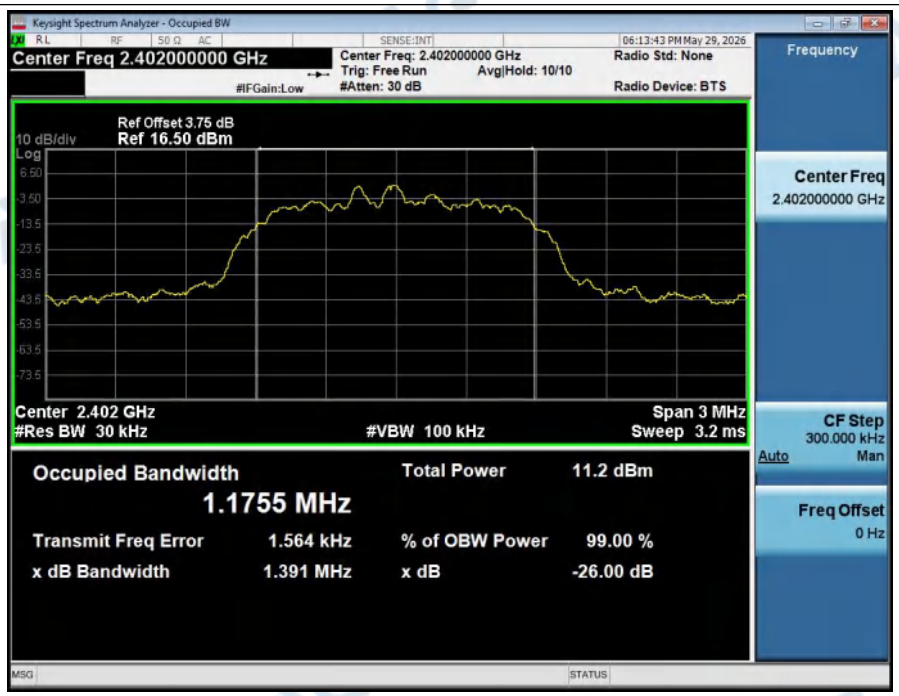
99%_Occupied_Bandwidth_NVNT_ANT1_1-DH5_2441_00



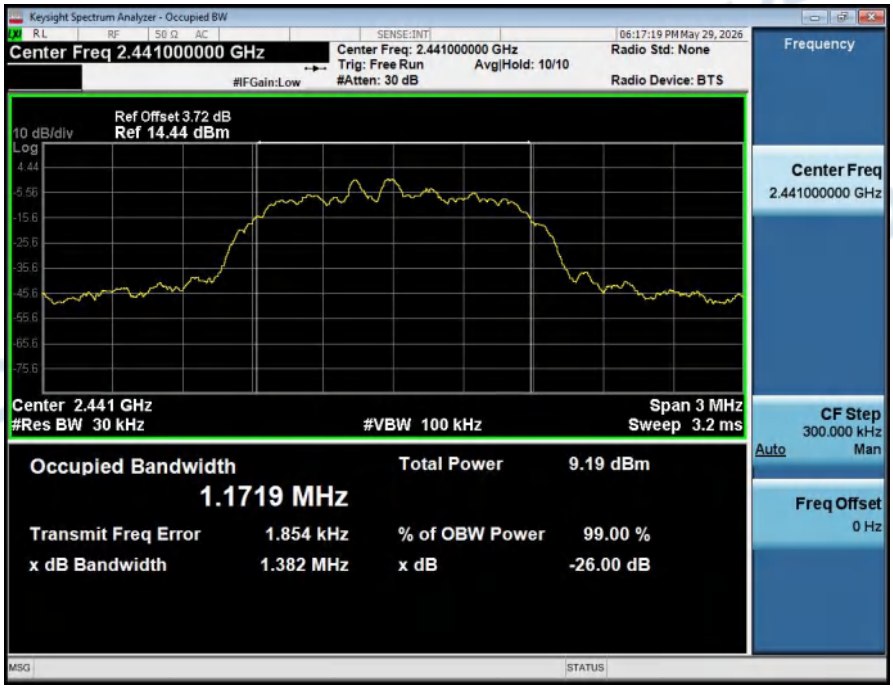
99%_Occupied_Bandwidth_NVNT_ANT1_1-DH5_2480_00



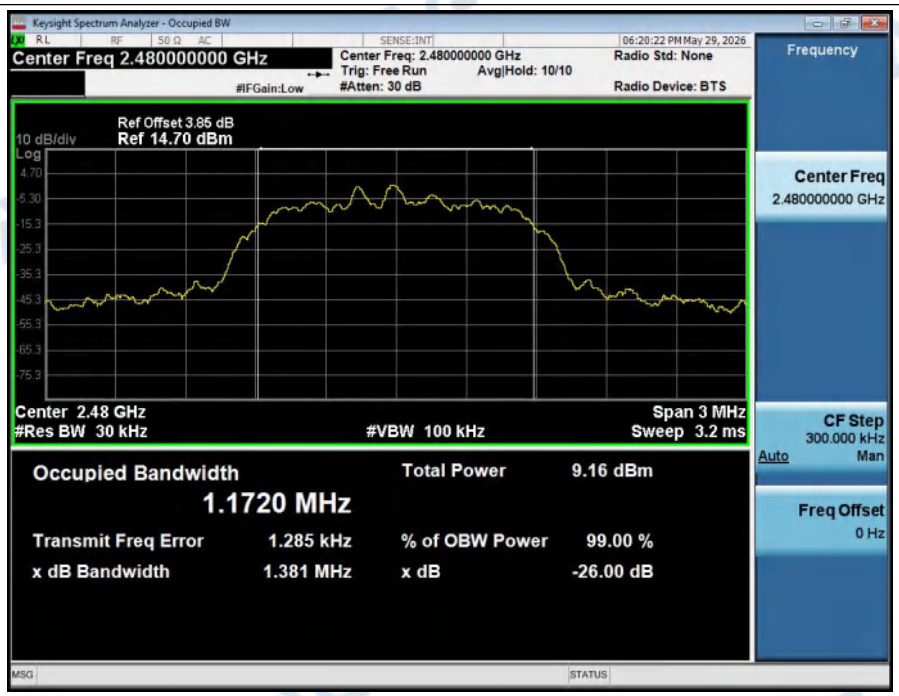
99%_Occupied_Bandwidth_NVNT_ANT1_2-DH5_2402_00



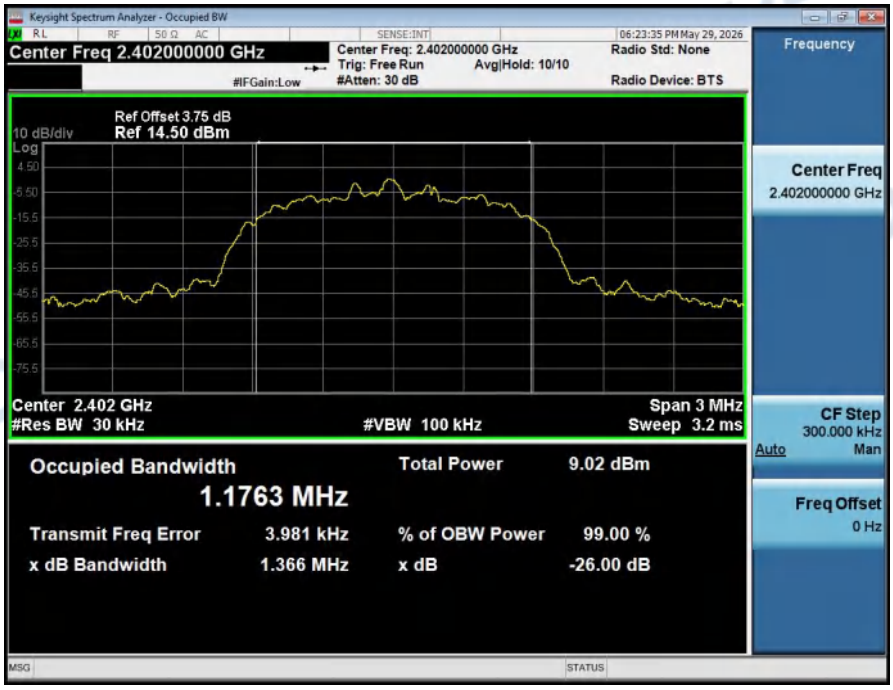
99%_Occupied_Bandwidth_NVNT_ANT1_2-DH5_2441_00



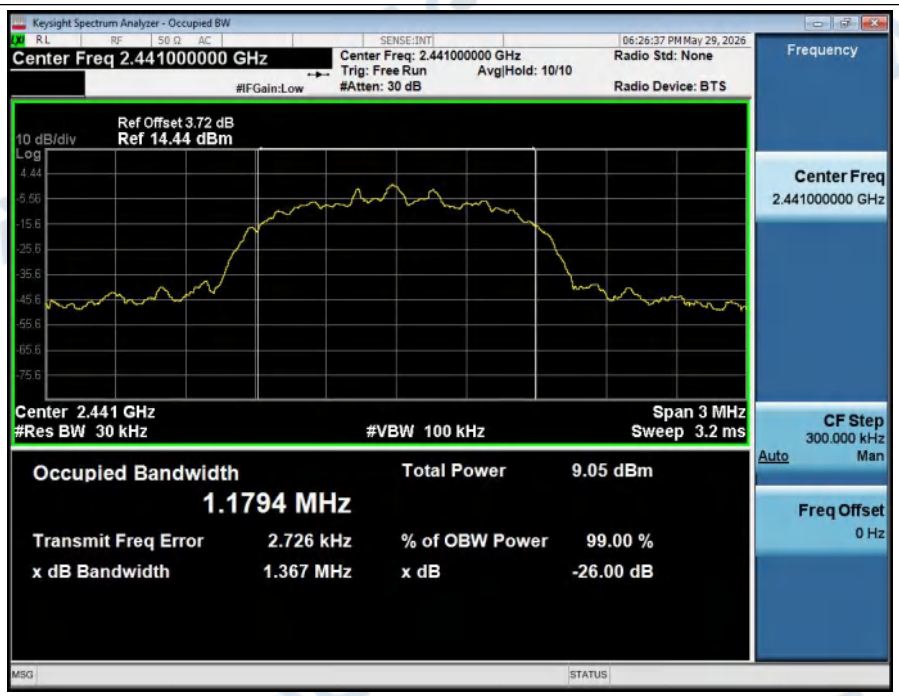
99%_Occupied_Bandwidth_NVNT_ANT1_2-DH5_2480_00



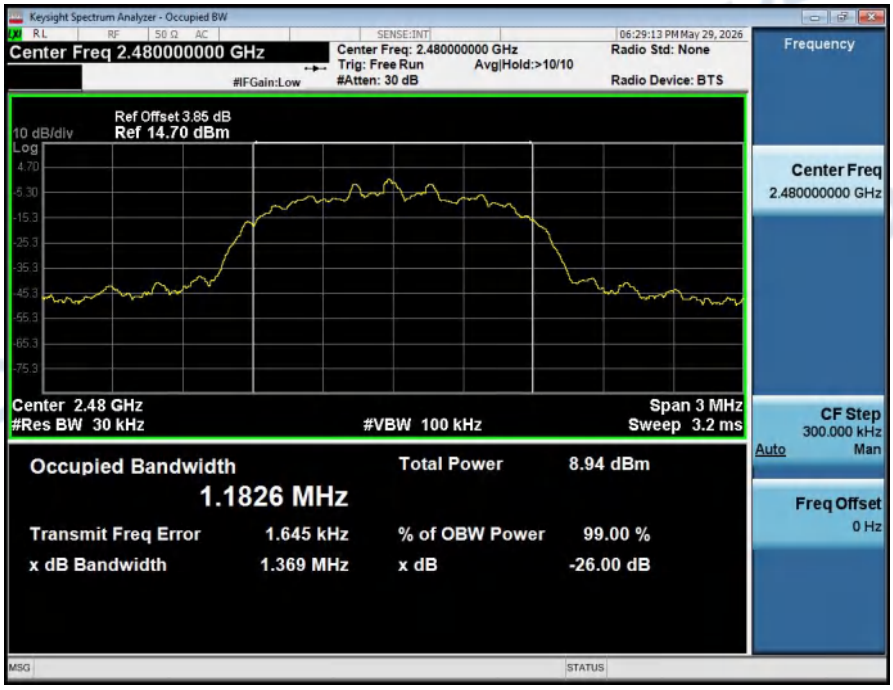
99%_Occupied_Bandwidth_NVNT_ANT1_3-DH5_2402_00



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	3.84	2.42	1000	Pass
NVNT	ANT1	1-DH5	2441.00	4.04	2.53	1000	Pass
NVNT	ANT1	1-DH5	2480.00	4.04	2.54	1000	Pass
NVNT	ANT1	2-DH5	2402.00	2.64	1.84	125	Pass
NVNT	ANT1	2-DH5	2441.00	2.82	1.91	125	Pass
NVNT	ANT1	2-DH5	2480.00	2.78	1.90	125	Pass
NVNT	ANT1	3-DH5	2402.00	3.15	2.07	125	Pass
NVNT	ANT1	3-DH5	2441.00	3.16	2.07	125	Pass
NVNT	ANT1	3-DH5	2480.00	3.05	2.02	125	Pass

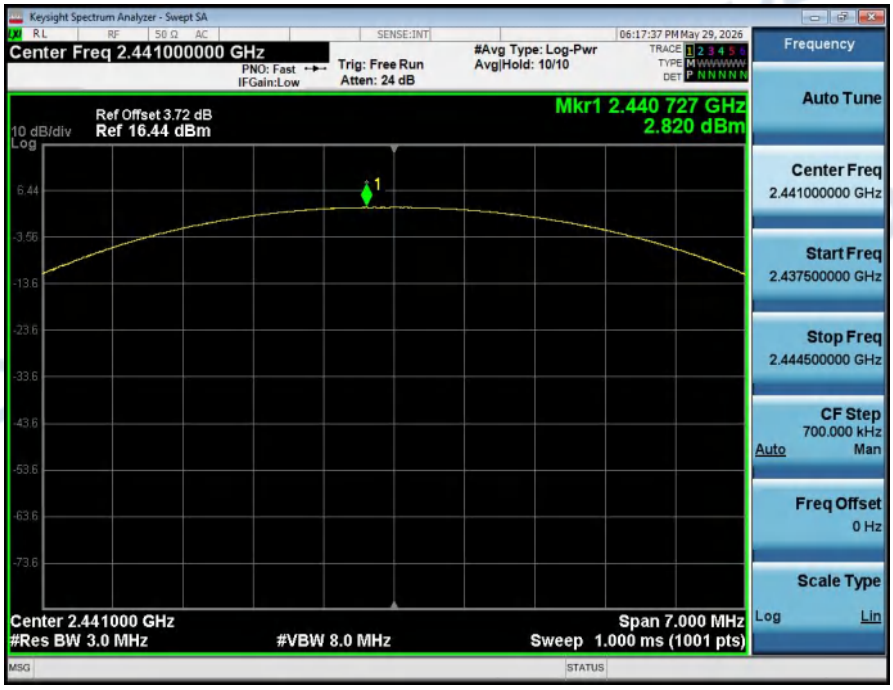
Peak_Output_Power_NVNT_ANT1_1-DH5_2402_00

Peak_Output_Power_NVNT_ANT1_1-DH5_2441_00

Peak_Output_Power_NVNT_ANT1_1-DH5_2480_00

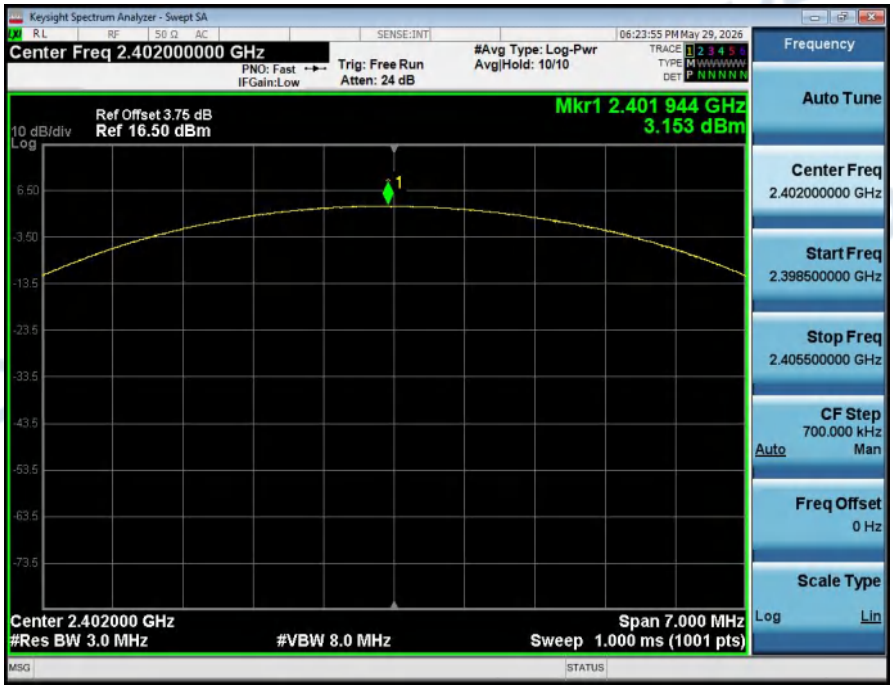
Peak_Output_Power_NVNT_ANT1_2-DH5_2402_00

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



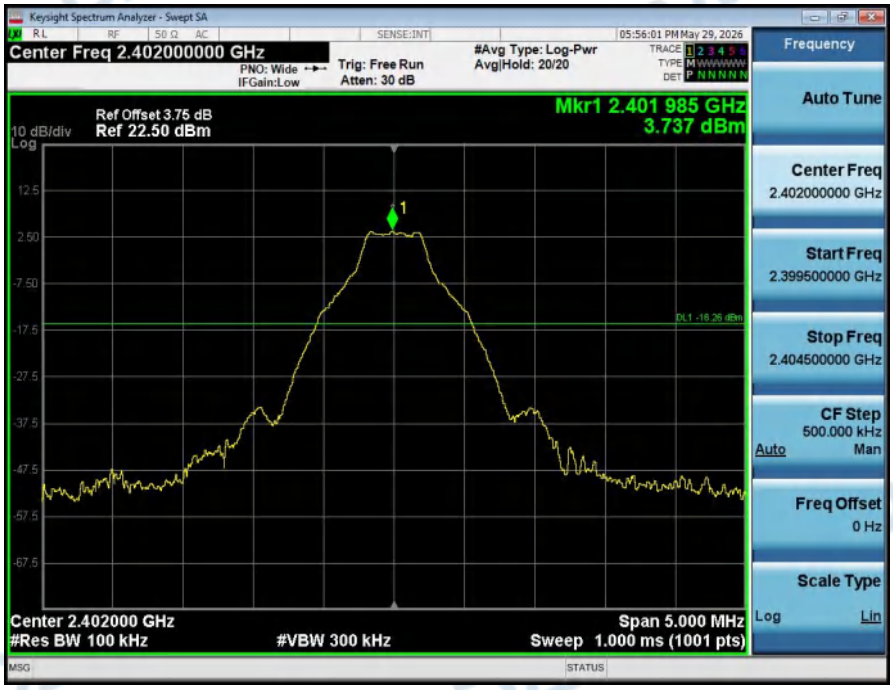
Peak_Output_Power_NVNT_ANT1_3-DH5_2441_00

Peak_Output_Power_NVNT_ANT1_3-DH5_2480_00

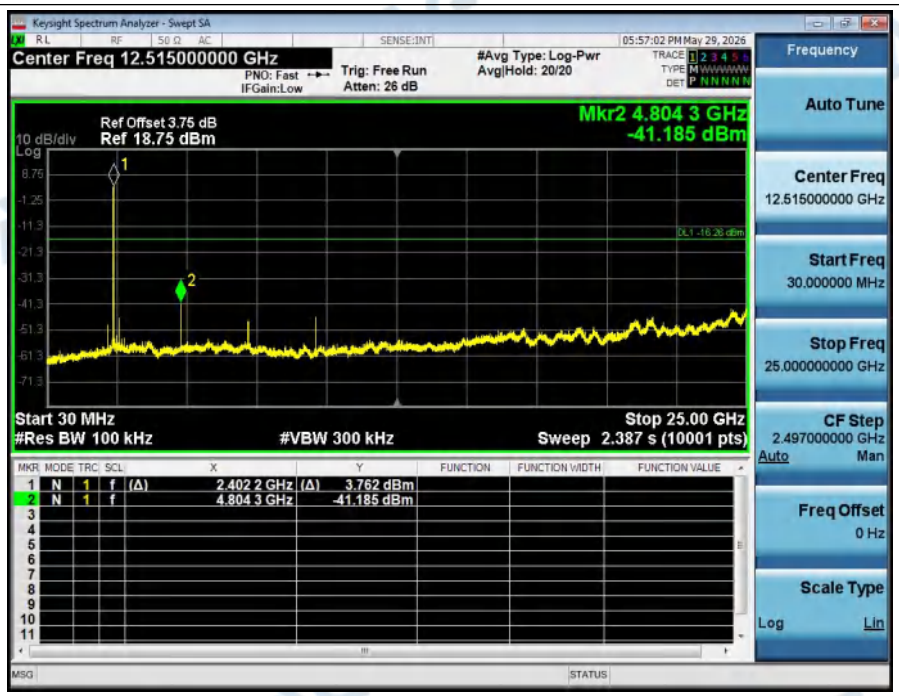
5. Spurious Emissions

Condition	Antenna	Modulation	TX Mode	Ref_level(dBm)	Spurious MAX.Value(dBm)	Limit	Result
NVNT	ANT1	1-DH5	2402.00	3.737	-41.185	-16.263	Pass
NVNT	ANT1	1-DH5	2441.00	3.861	-40.300	-16.139	Pass
NVNT	ANT1	1-DH5	2480.00	3.946	-40.330	-16.054	Pass
NVNT	ANT1	2-DH5	2402.00	3.864	-43.736	-16.136	Pass
NVNT	ANT1	2-DH5	2441.00	1.850	-46.029	-18.150	Pass
NVNT	ANT1	2-DH5	2480.00	1.817	-45.184	-18.183	Pass
NVNT	ANT1	3-DH5	2402.00	1.622	-45.111	-18.378	Pass
NVNT	ANT1	3-DH5	2441.00	1.690	-45.322	-18.310	Pass
NVNT	ANT1	3-DH5	2480.00	1.629	-44.899	-18.371	Pass

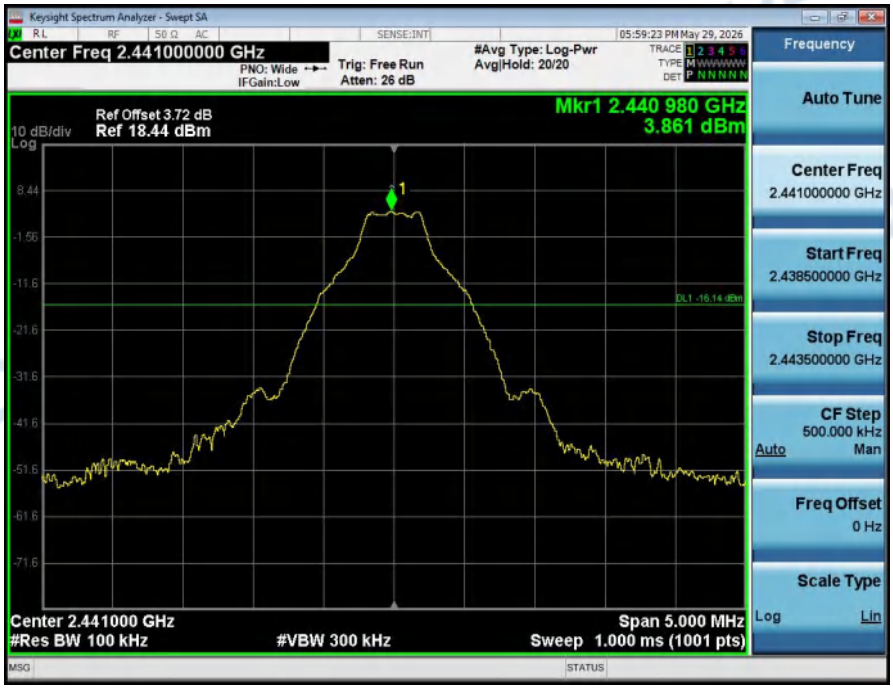
1_Reference_Level_NVNT_ANT1_1-DH5_2402_00



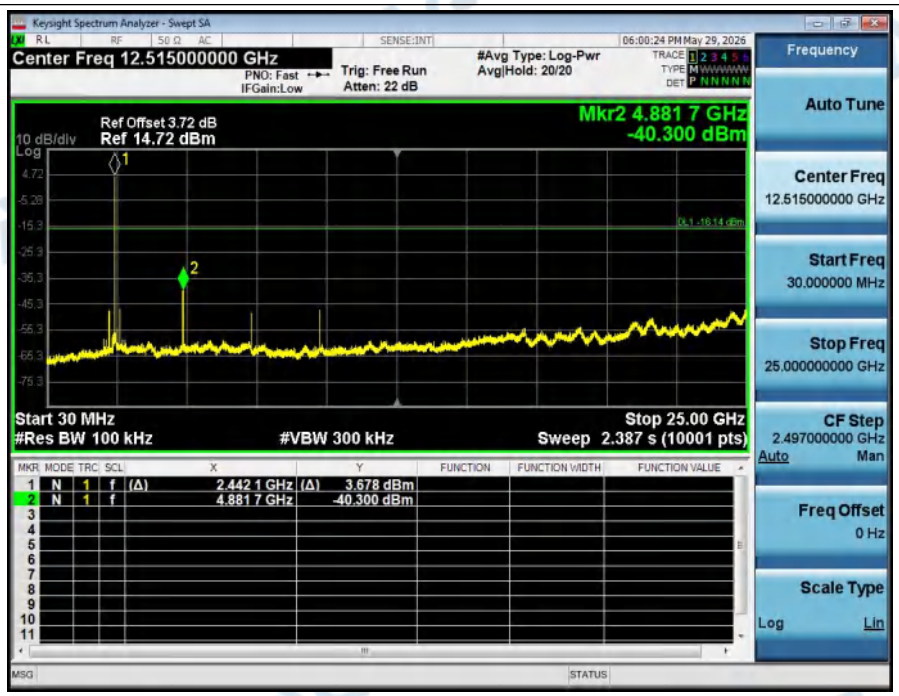
2_Spurious_Emissions_NVNT_ANT1_1-DH5_2402_00



1_Reference_Level_NVNT_ANT1_1-DH5_2441_00

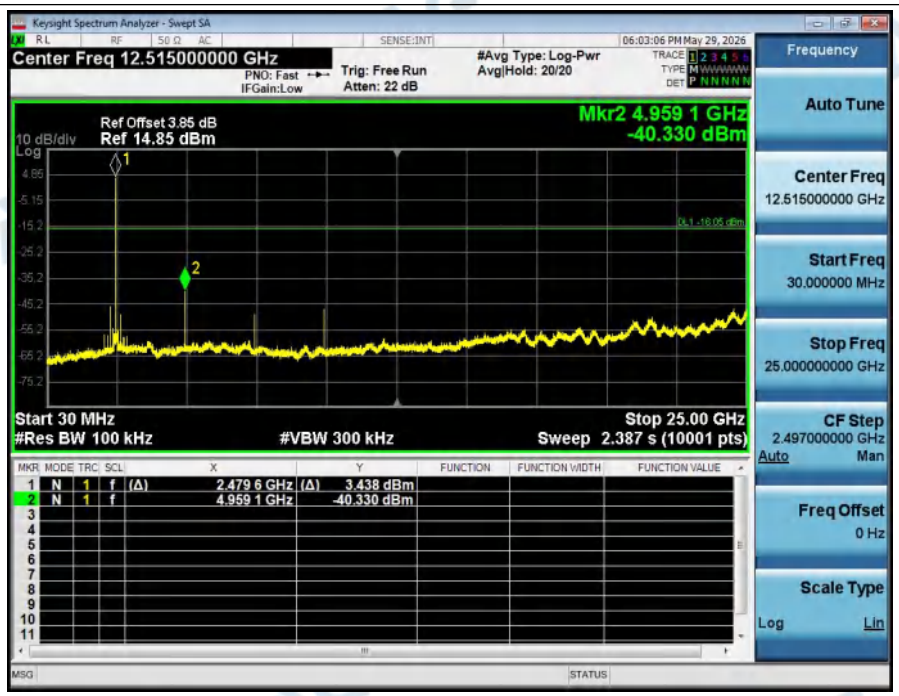


2_Spurious_Emissions_NVNT_ANT1_1-DH5_2441_00

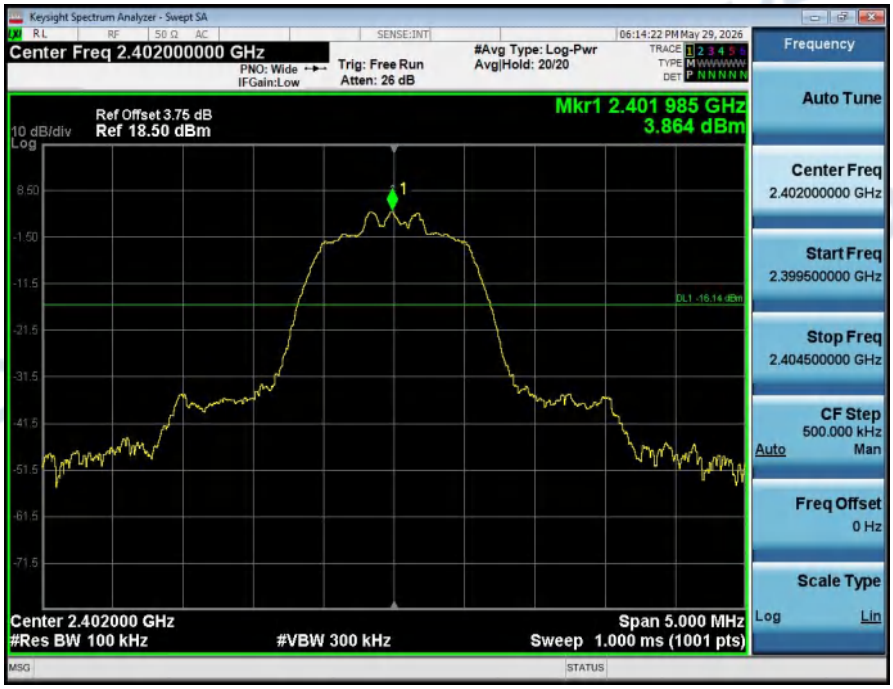


1_Reference_Level_NVNT_ANT1_1-DH5_2480_00

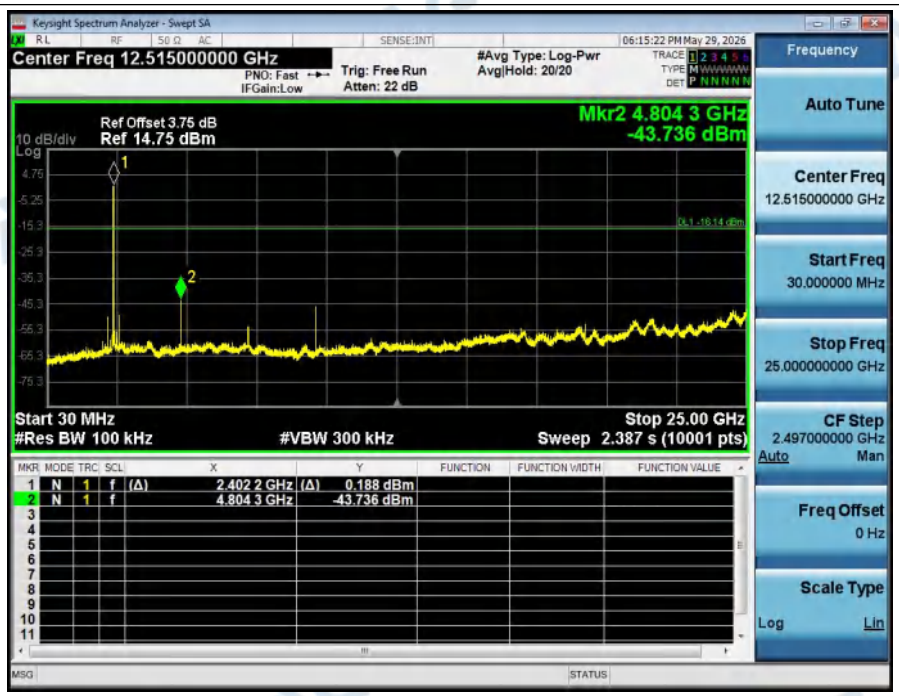
2_Spurious_Emissions_NVNT_ANT1_1-DH5_2480_00



1_Reference_Level_NVNT_ANT1_2-DH5_2402_00

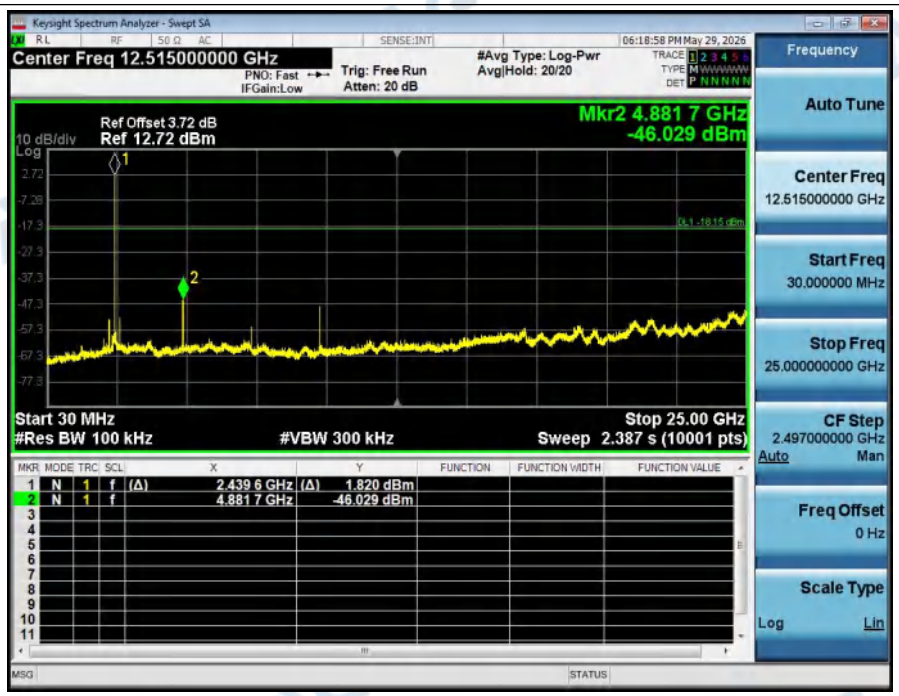


2_Spurious_Emissions_NVNT_ANT1_2-DH5_2402_00



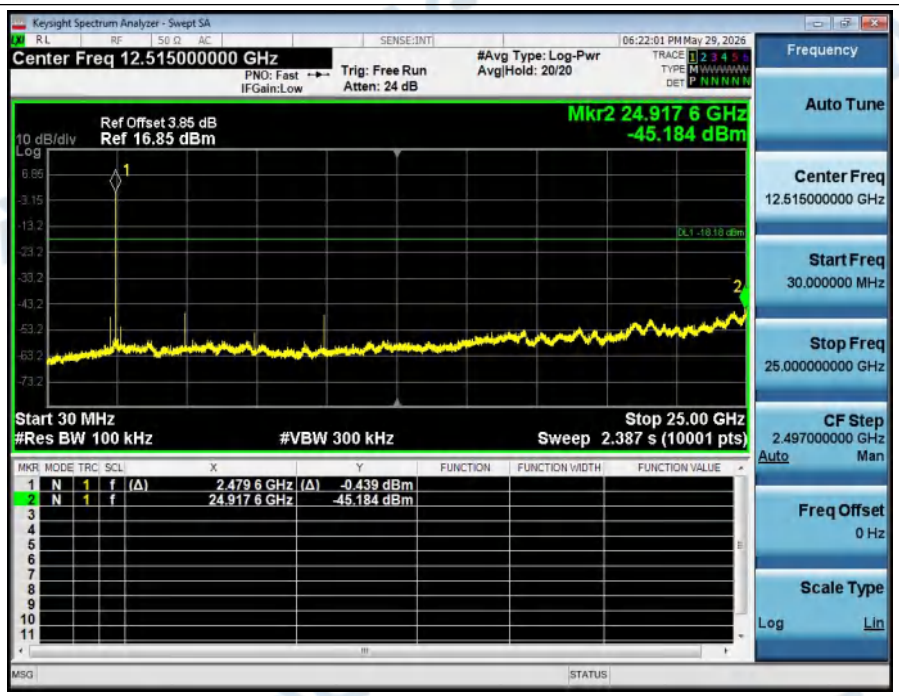
1_Reference_Level_NVNT_ANT1_2-DH5_2441_00

2_Spurious_Emissions_NVNT_ANT1_2-DH5_2441_00



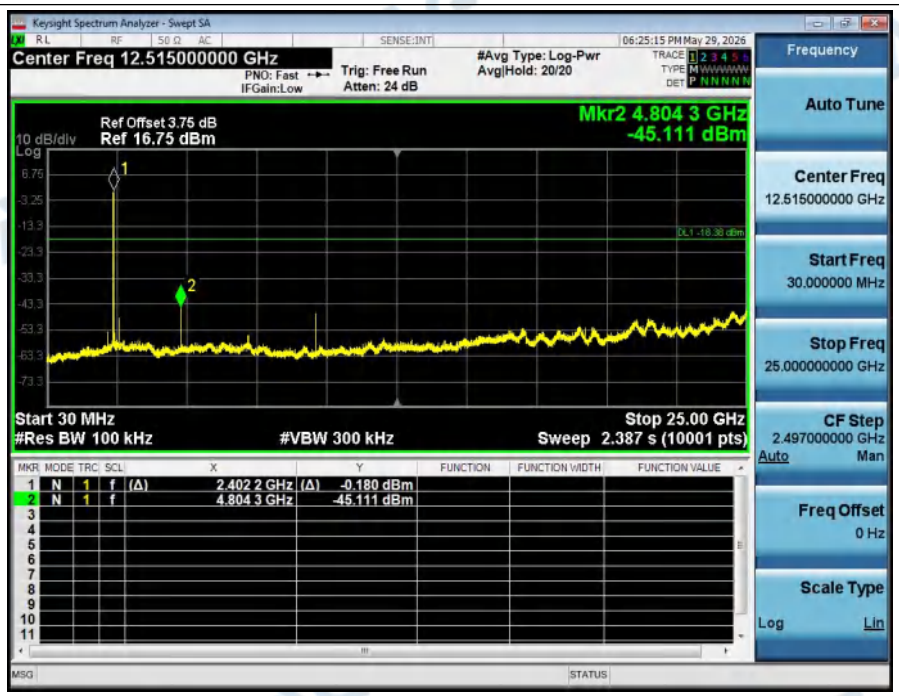
1_Reference_Level_NVNT_ANT1_2-DH5_2480_00

2_Spurious_Emissions_NVNT_ANT1_2-DH5_2480_00



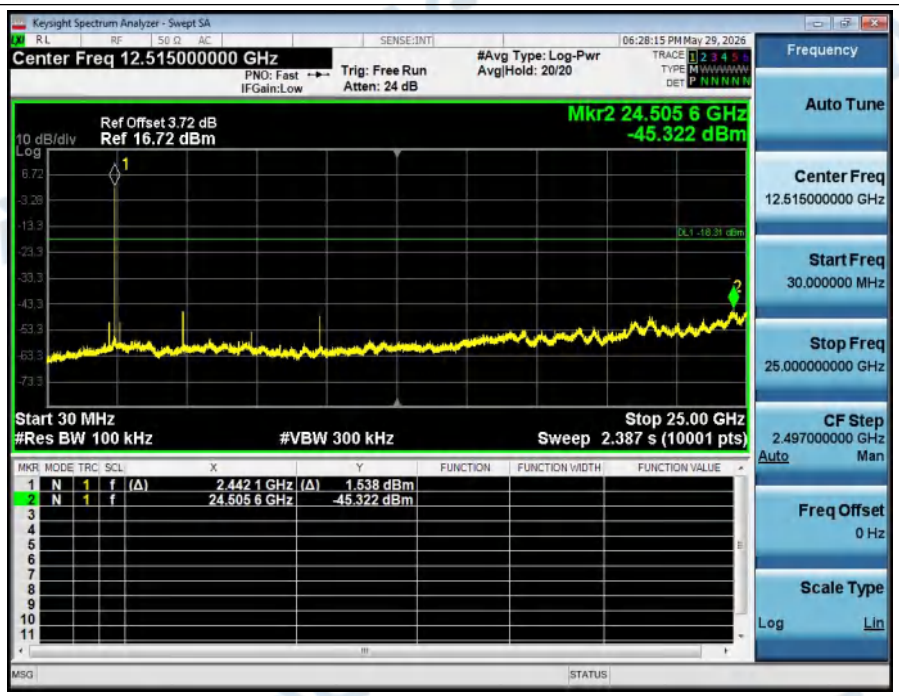
1_Reference_Level_NVNT_ANT1_3-DH5_2402_00

2_Spurious_Emissions_NVNT_ANT1_3-DH5_2402_00



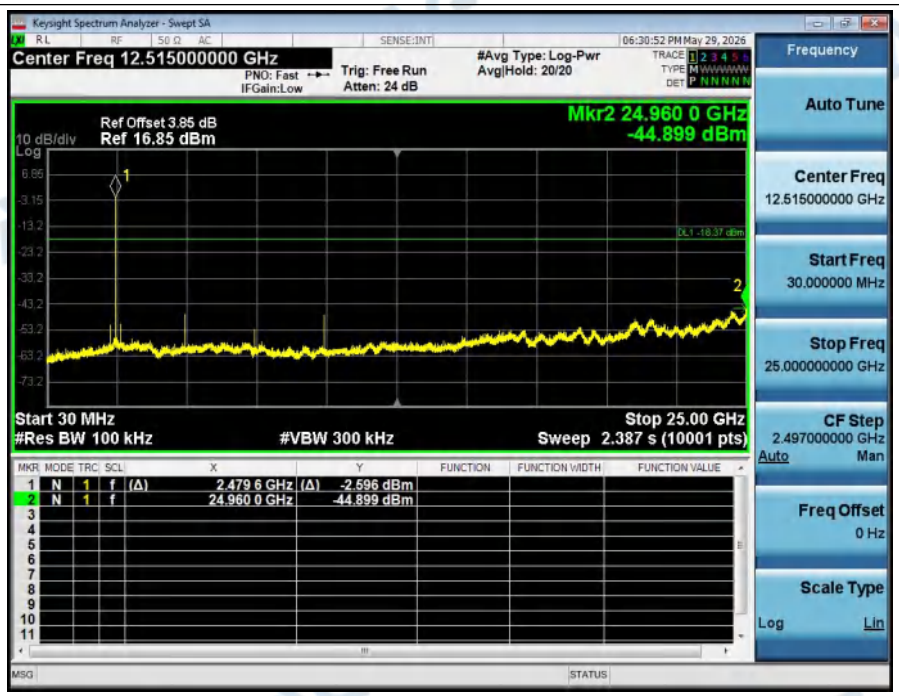
1_Reference_Level_NVNT_ANT1_3-DH5_2441_00

2_Spurious_Emissions_NVNT_ANT1_3-DH5_2441_00



1_Reference_Level_NVNT_ANT1_3-DH5_2480_00

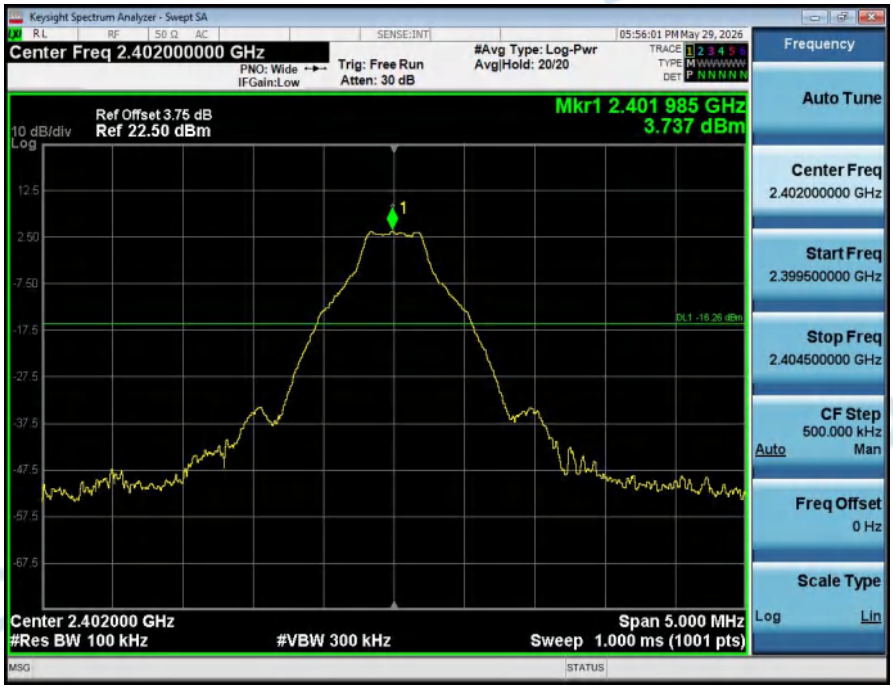
2_Spurious_Emissions_NVNT_ANT1_3-DH5_2480_00



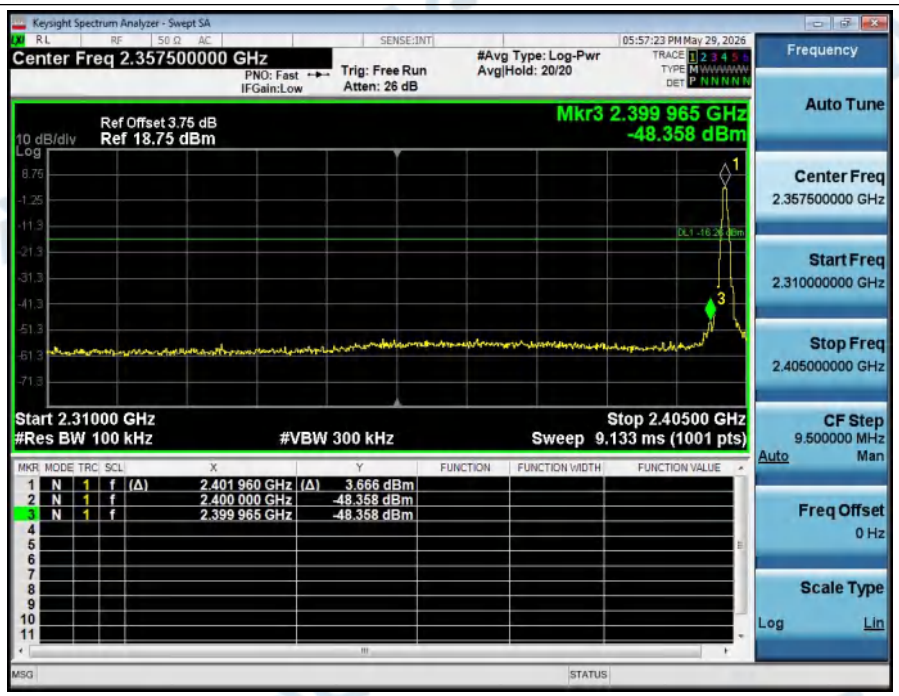
6. Bandedge

Condition	Antenna	Modulation	TX Mode	Ref_level(dBm)	Bandedge MAX.Value	Limit	Result
NVNT	ANT1	1-DH5	2402.00	3.737	-48.358	-16.263	Pass
NVNT	ANT1	1-DH5	Hopping_LCH	3.909	-54.473	-16.091	Pass
NVNT	ANT1	1-DH5	2480.00	3.946	-57.462	-16.054	Pass
NVNT	ANT1	1-DH5	Hopping_HCH	4.000	-53.607	-16.000	Pass
NVNT	ANT1	2-DH5	2402.00	3.864	-46.779	-16.136	Pass
NVNT	ANT1	2-DH5	Hopping_LCH	3.987	-53.383	-16.013	Pass
NVNT	ANT1	2-DH5	2480.00	1.817	-56.412	-18.183	Pass
NVNT	ANT1	2-DH5	Hopping_HCH	3.947	-54.849	-16.053	Pass
NVNT	ANT1	3-DH5	2402.00	1.622	-47.542	-18.378	Pass
NVNT	ANT1	3-DH5	Hopping_LCH	1.712	-56.485	-18.288	Pass
NVNT	ANT1	3-DH5	2480.00	1.629	-56.751	-18.371	Pass
NVNT	ANT1	3-DH5	Hopping_HCH	2.046	-56.172	-17.954	Pass

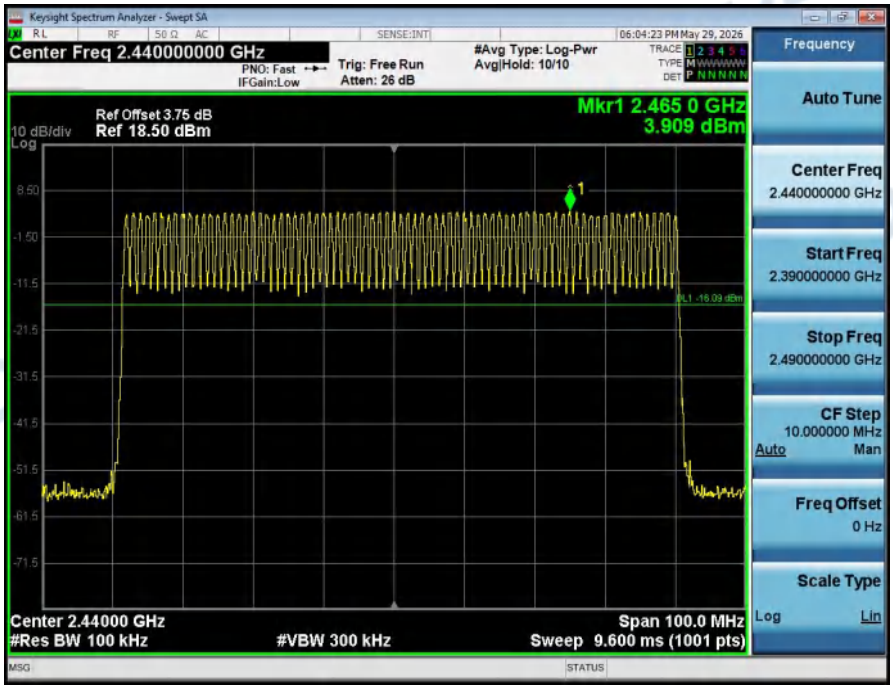
1_Reference_Level_NVNT_ANT1_1-DH5_2402_00



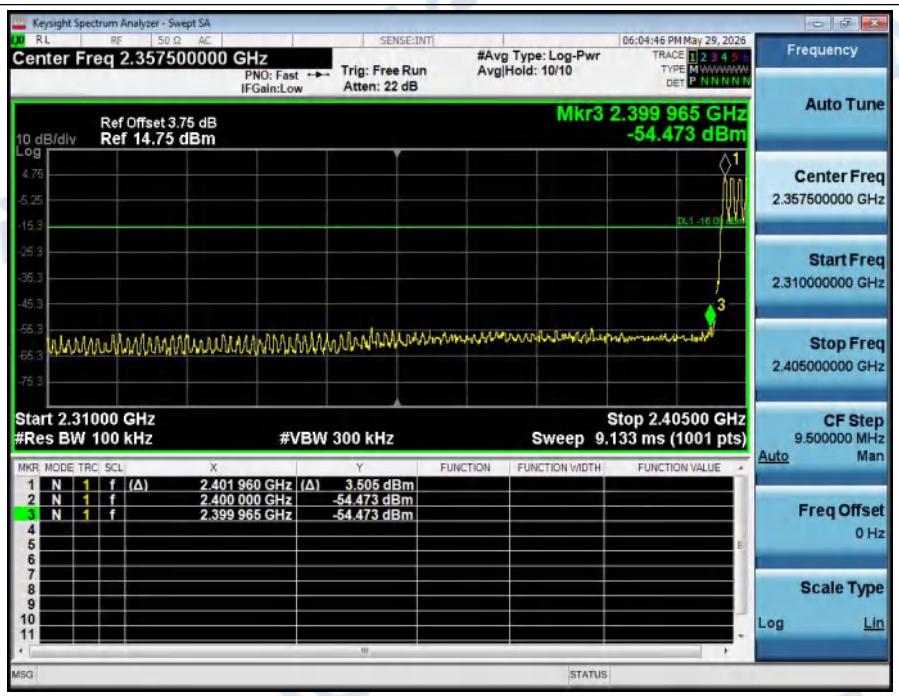
2_Bandedge_NVNT_ANT1_1-DH5_2402_00



1_Reference_Level_Hopping_NVNT_ANT1_1-DH5_Hopping

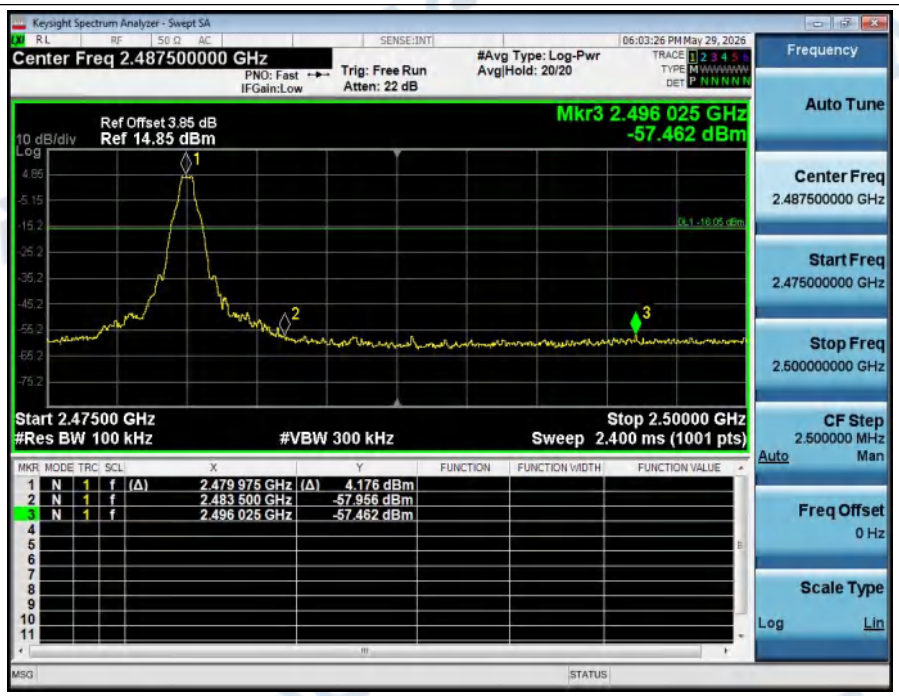


2_Band_Edge_(Hopping)_NVNT_ANT1_1-DH5_Hopping

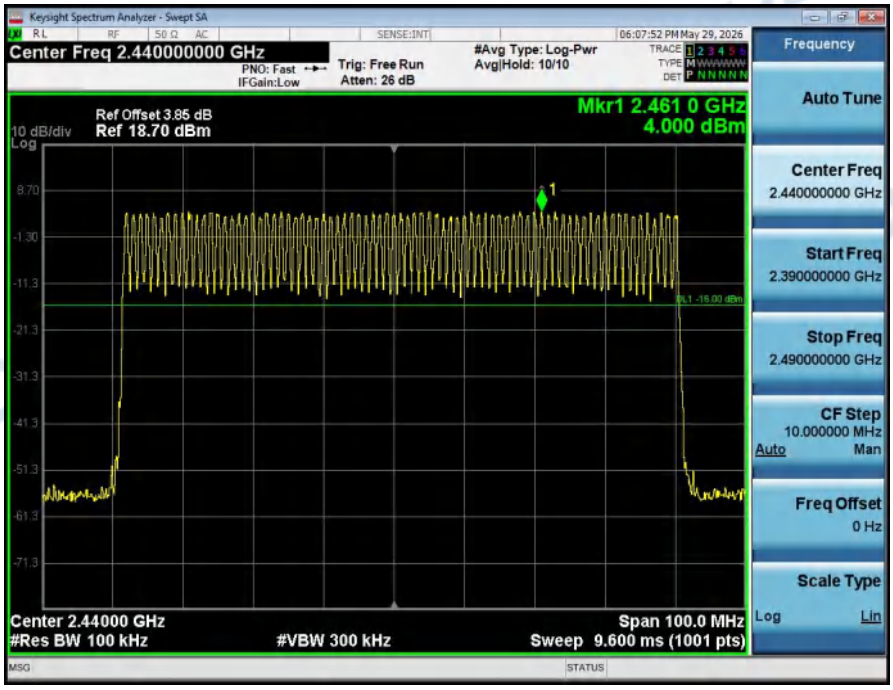


1_Reference_Level_NVNT_ANT1_1-DH5_2480_00

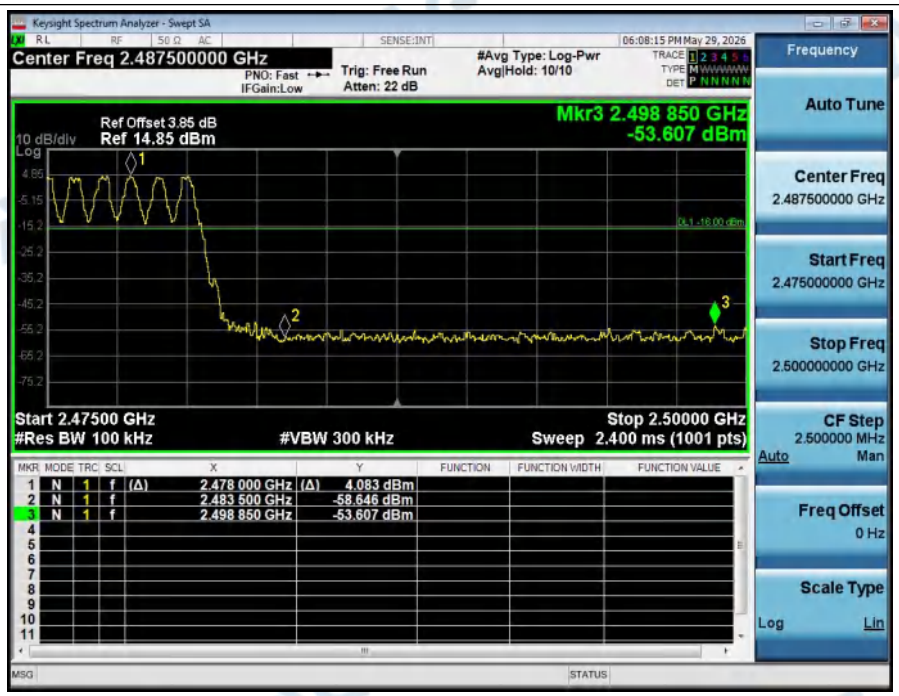
2_Bandedge_NVNT_ANT1_1-DH5_2480_00



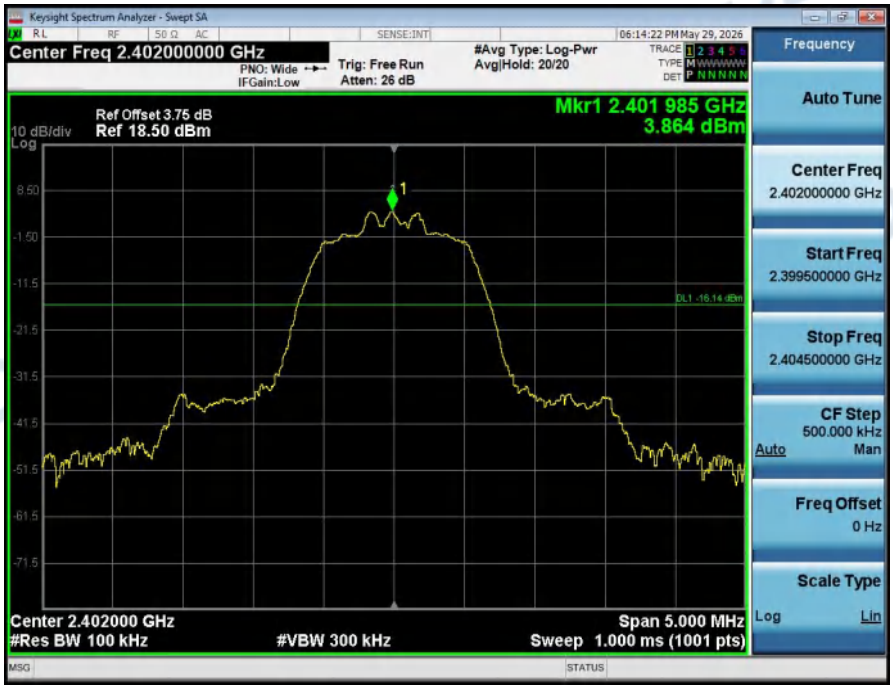
1_Reference_Level_Hopping_NVNT_ANT1_1-DH5_Hopping



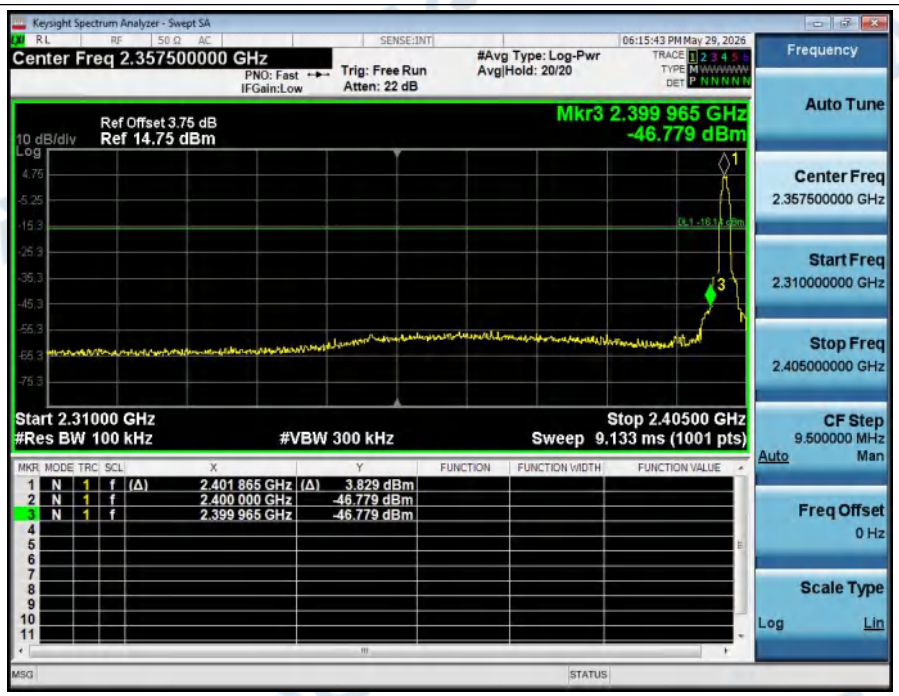
2_Band_Edge_(Hopping)_NVNT_ANT1_1-DH5_Hopping



1_Reference_Level_NVNT_ANT1_2-DH5_2402_00

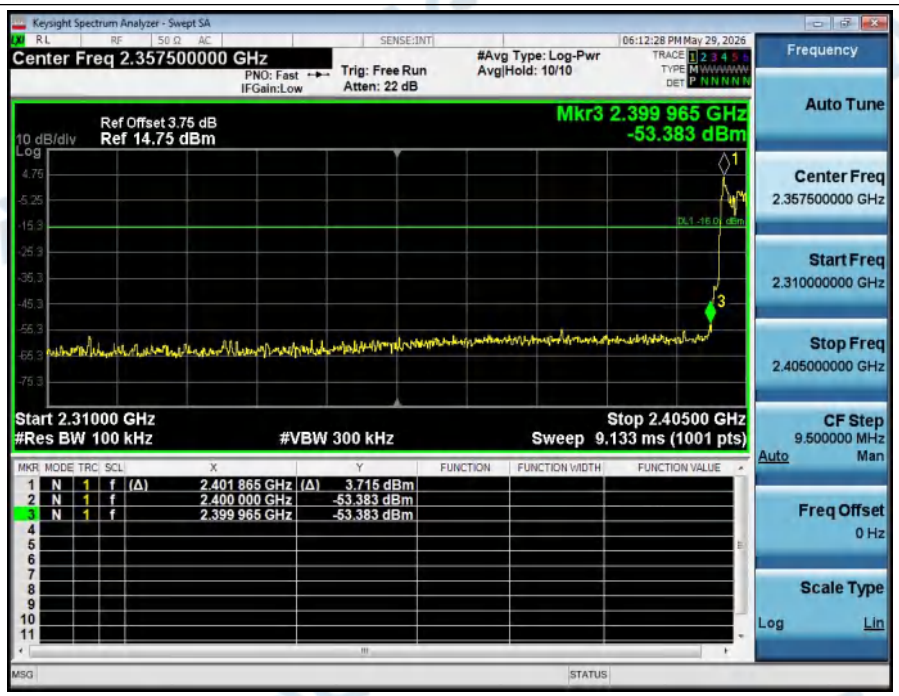


2_Bandedge_NVNT_ANT1_2-DH5_2402_00



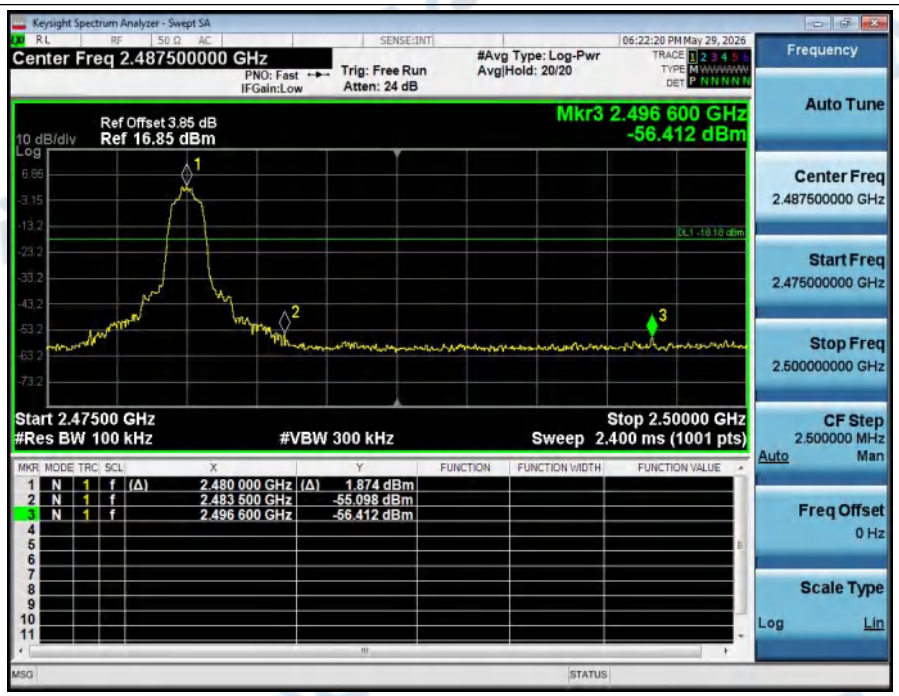
1_Reference_Level_Hopping_NVNT_ANT1_2-DH5_Hopping

2_Band_Edge_(Hopping)_NVNT_ANT1_2-DH5_Hopping

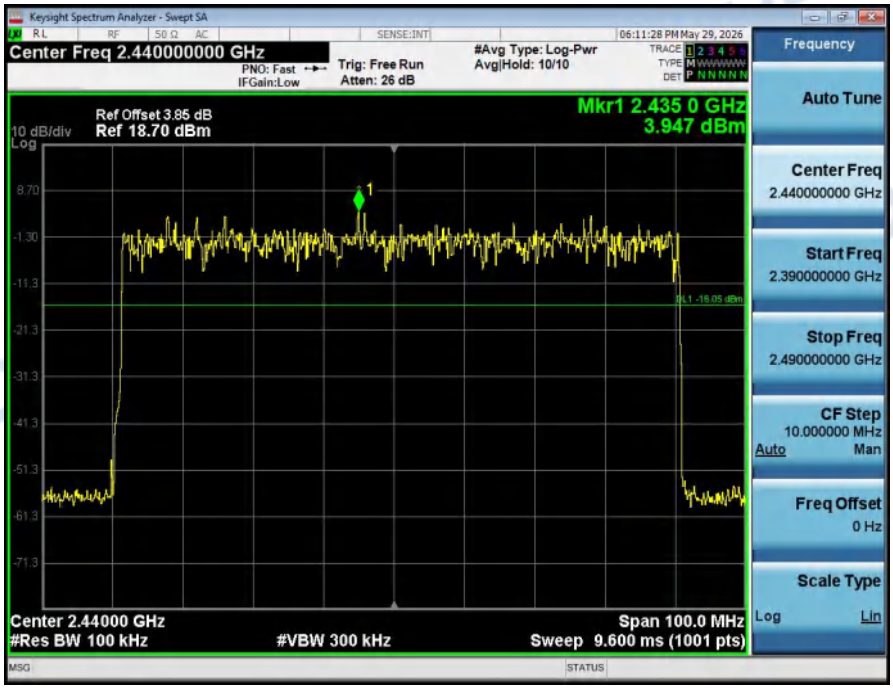


1_Reference_Level_NVNT_ANT1_2-DH5_2480_00

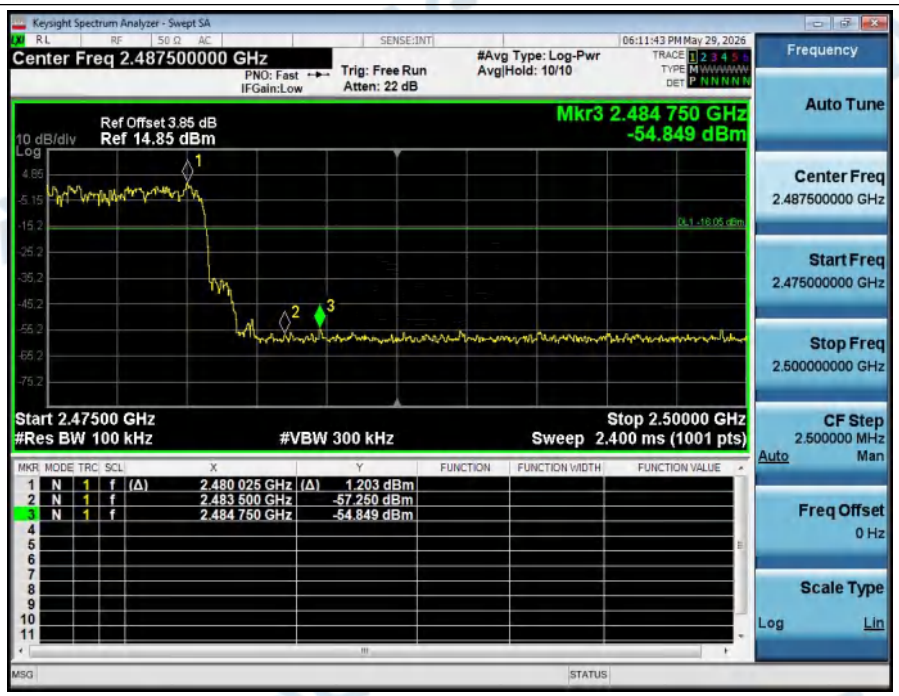
2_Bandedge_NVNT_ANT1_2-DH5_2480_00



1_Reference_Level_Hopping_NVNT_ANT1_2-DH5_Hopping

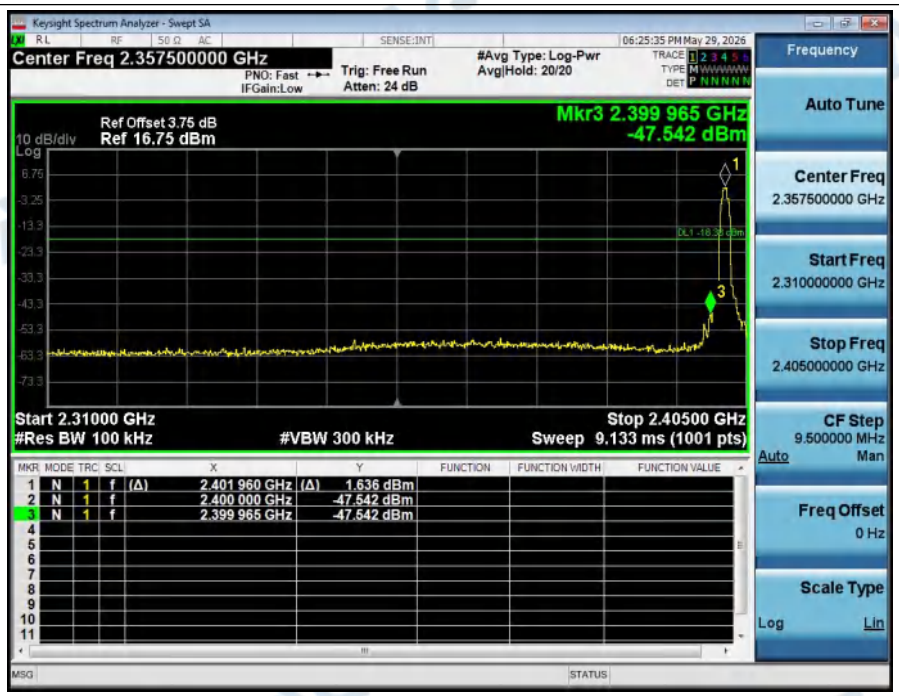


2_Band_Edge_(Hopping)_NVNT_ANT1_2-DH5_Hopping

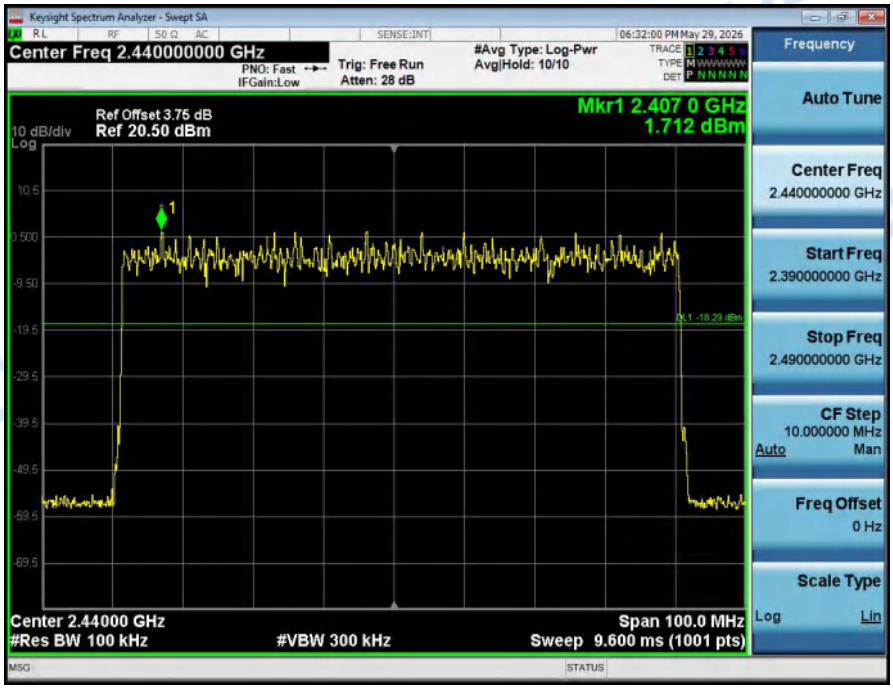


1_Reference_Level_NVNT_ANT1_3-DH5_2402_00

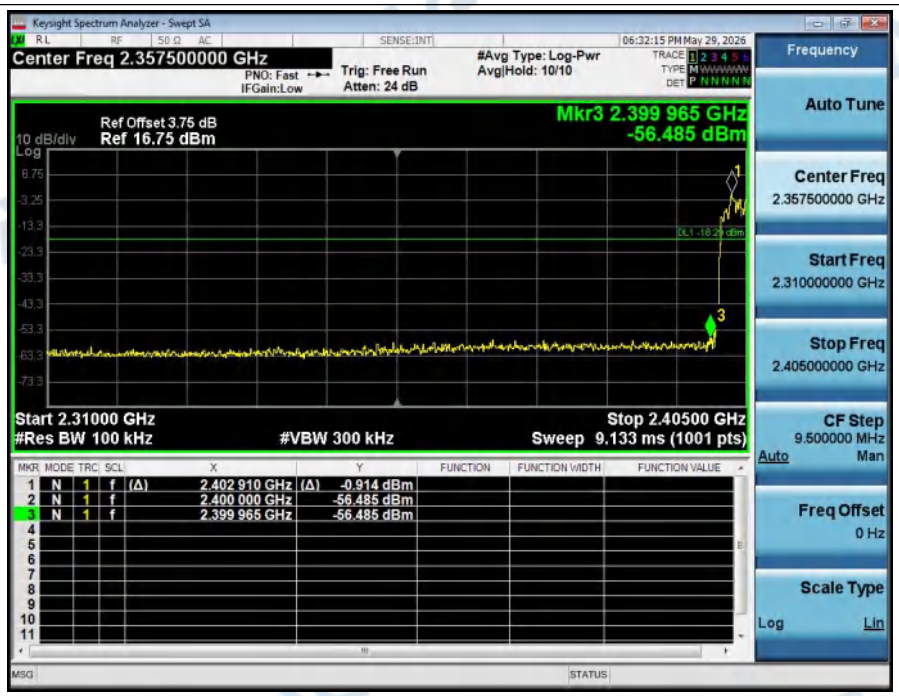
2_Bandedge_NVNT_ANT1_3-DH5_2402_00



1_Reference_Level_Hopping_NVNT_ANT1_3-DH5_Hopping

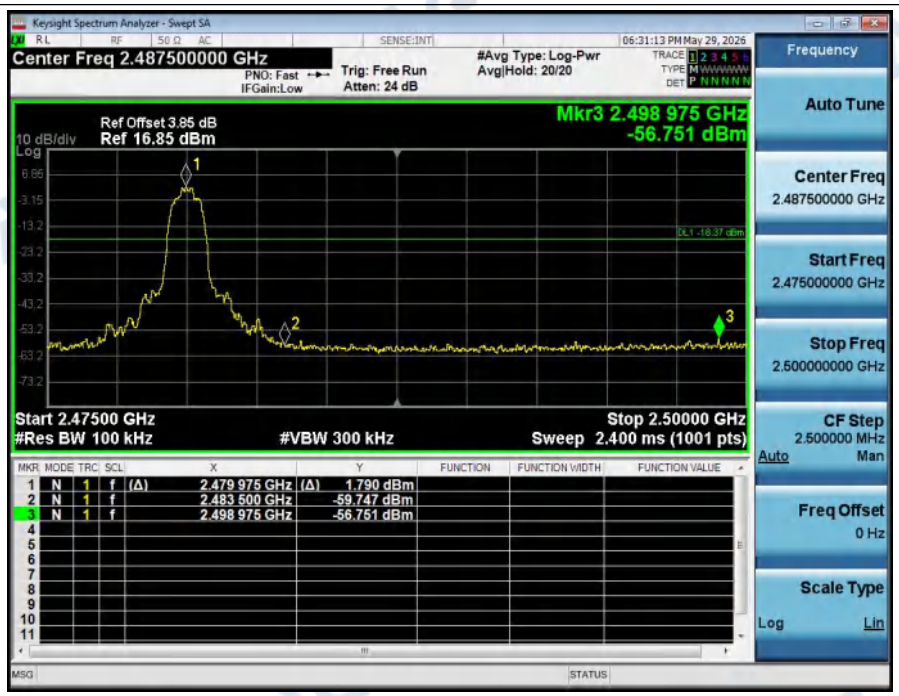


2_Band_Edge_(Hopping)_NVNT_ANT1_3-DH5_Hopping

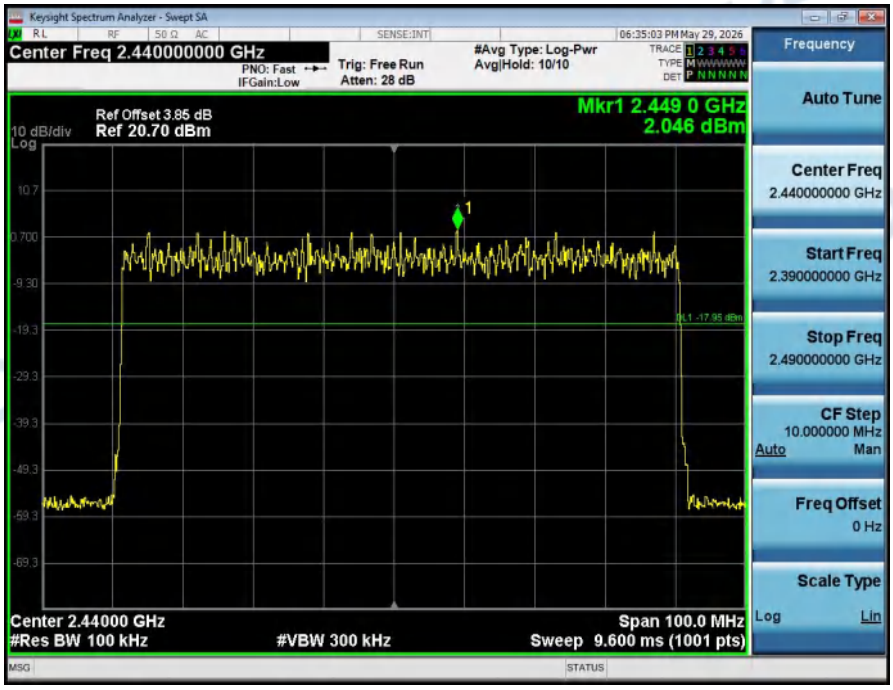


1_Reference_Level_NVNT_ANT1_3-DH5_2480_00

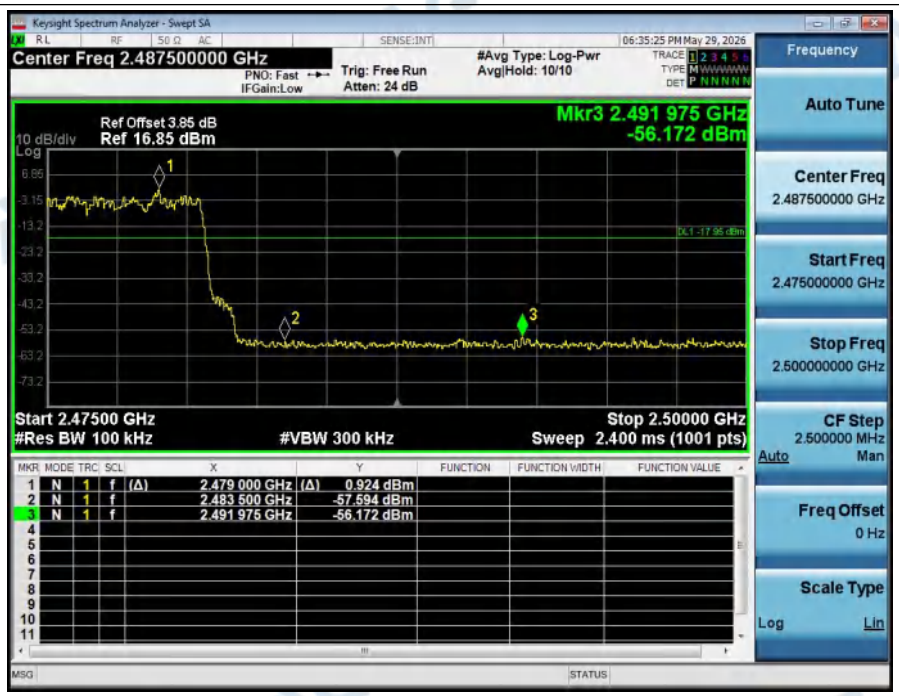
2_Bandedge_NVNT_ANT1_3-DH5_2480_00



1_Reference_Level_Hopping_NVNT_ANT1_3-DH5_Hopping



2_Band_Edge_(Hopping)_NVNT_ANT1_3-DH5_Hopping



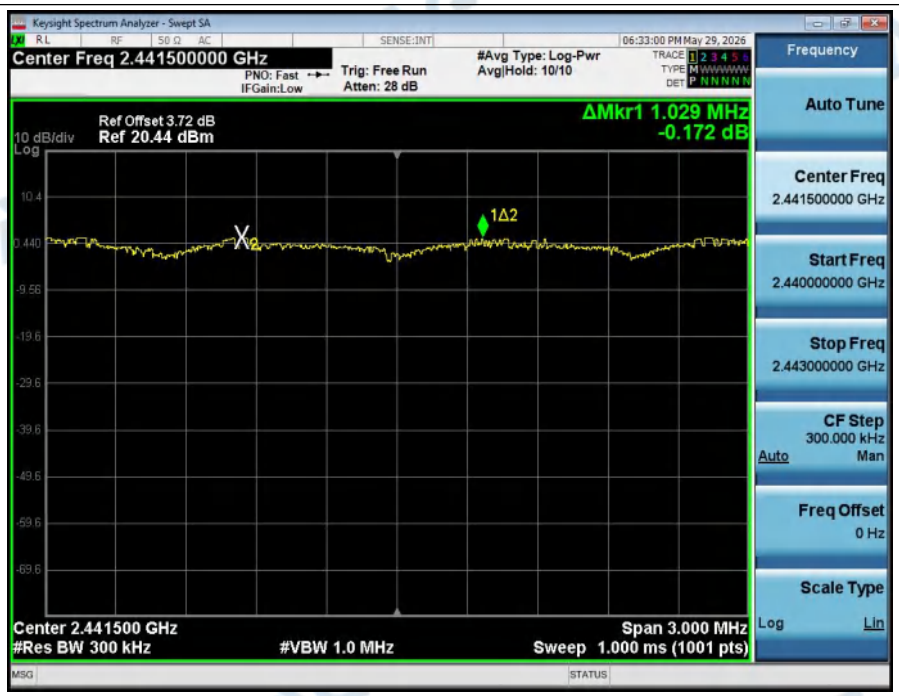
7. Carrier Frequencies Separation (Hopping)

Condition	Antenna	Modulation	Frequency(MHz)	Hopping NO.0 (MHz)	Hopping NO.1 (MHz)	Carrier Frequencies Separation(MHz)	Limit(MHz)	Result
NVNT	ANT1	1-DH5	2441.00	2440.834	2441.827	0.99	0.954	Pass
NVNT	ANT1	2-DH5	2441.00	2440.987	2442.034	1.05	0.854	Fail
NVNT	ANT1	3-DH5	2441.00	2440.837	2441.866	1.03	0.865	Pass

Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_1-DH5_Hopping

Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_2-DH5_Hopping

Carrier_Frequencies_Separation_(Hopping)_NVNT_ANT1_3-DH5_Hopping

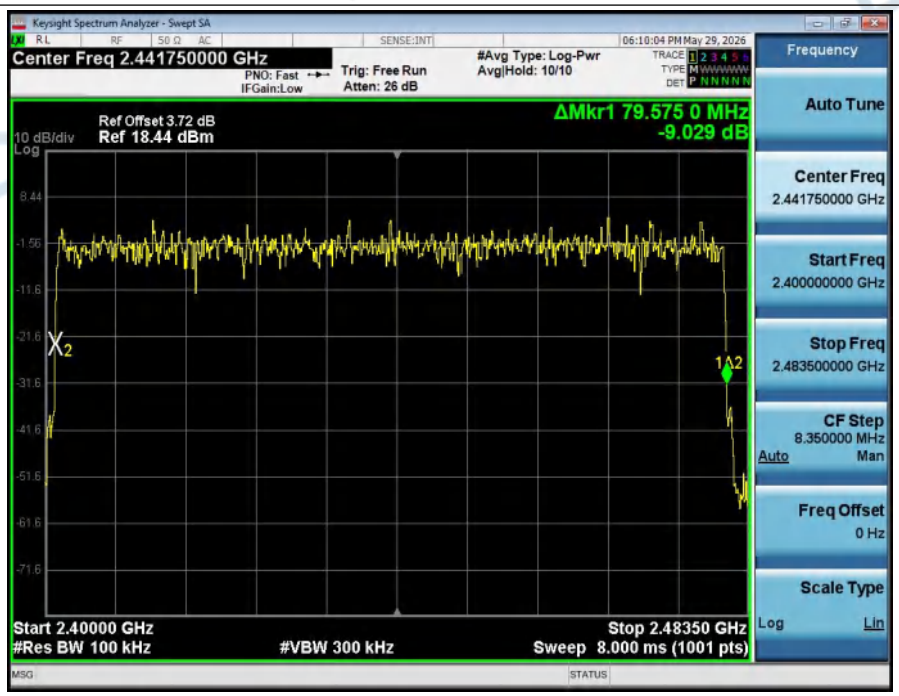


8. Number of Hopping Channel (Hopping)

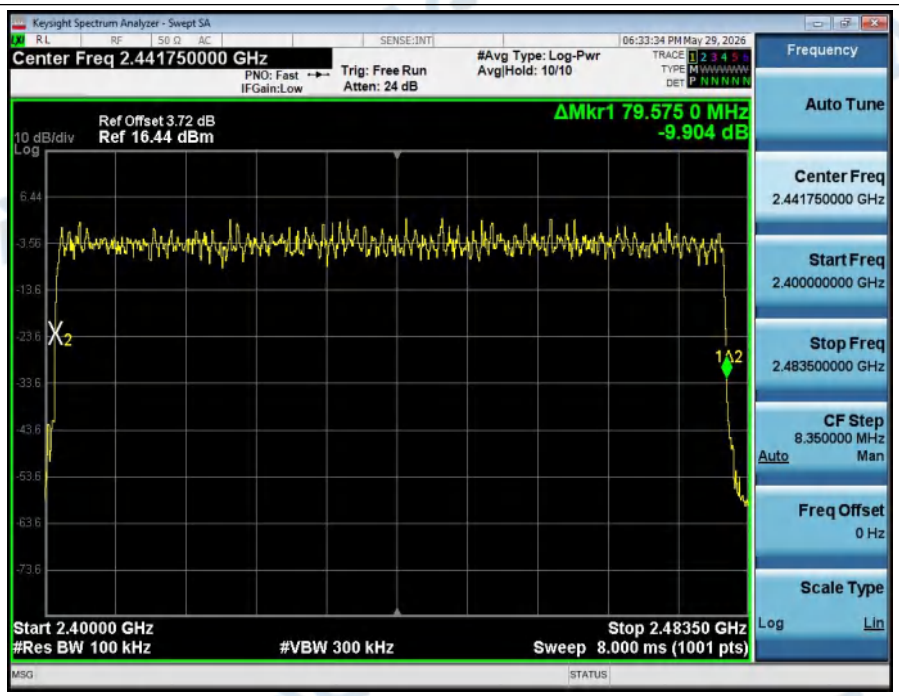
Condition	Antenna	Modulation	Hopping Num	Limit	Result
NVNT	ANT1	1-DH5	79	15	Pass
NVNT	ANT1	2-DH5	79	15	Pass
NVNT	ANT1	3-DH5	79	15	Pass

Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_1-DH5_Hopping

Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_2-DH5_Hopping



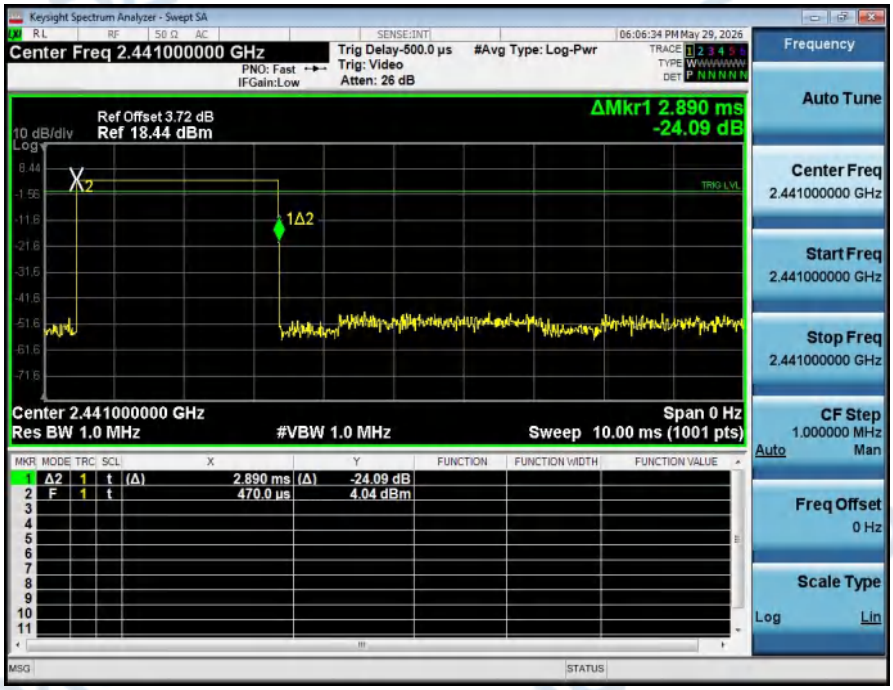
Number_of_Hopping_Channel_(Hopping)_NVNT_ANT1_3-DH5_Hopping



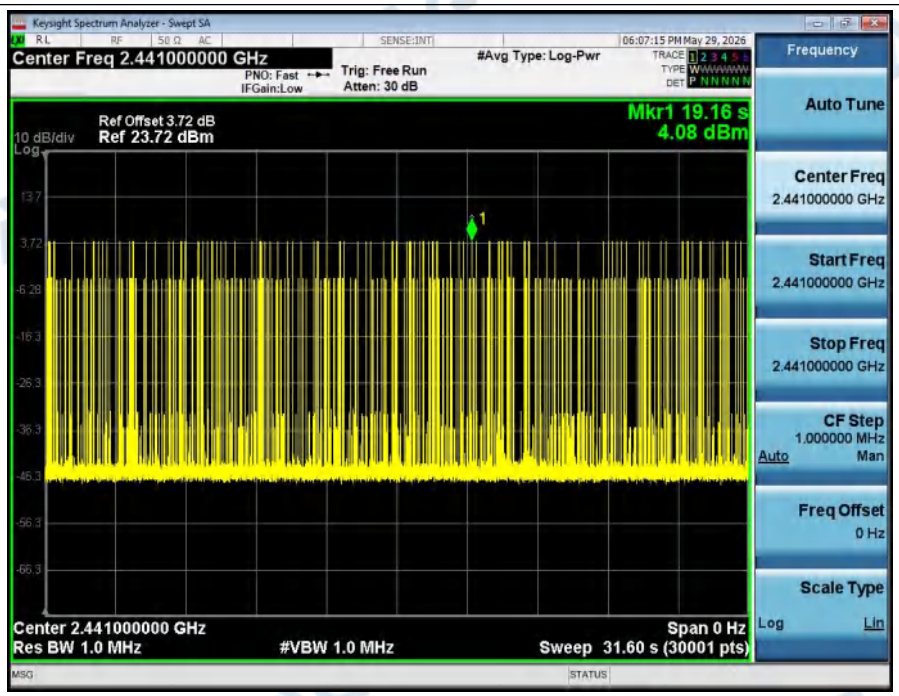
9. Dwell Time (Hopping)

Condition	Antenna	Packet Type	Pulse Time(ms)	Hops	Dwell Time(ms)	Limit(s)	Result
NVNT	ANT1	1-DH5	2.890	113.00	326.570	0.40	Pass
NVNT	ANT1	2-DH5	2.910	97.00	282.270	0.40	Pass
NVNT	ANT1	3-DH5	2.910	93.00	270.630	0.40	Pass
NVNT	ANT1	1-DH1	0.390	320.00	124.800	0.40	Pass
NVNT	ANT1	1-DH3	1.650	157.00	259.050	0.40	Pass
NVNT	ANT1	2-DH1	0.400	321.00	128.400	0.40	Pass
NVNT	ANT1	2-DH3	1.660	162.00	268.920	0.40	Pass
NVNT	ANT1	3-DH1	0.400	320.00	128.000	0.40	Pass
NVNT	ANT1	3-DH3	1.650	164.00	270.600	0.40	Pass

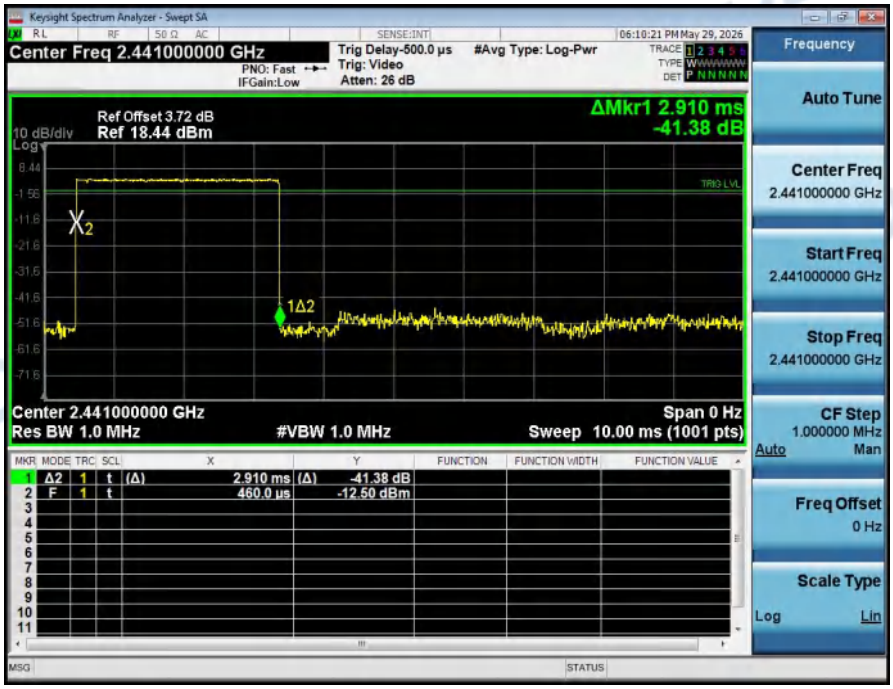
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH5_2441_00_One_Burst_Time



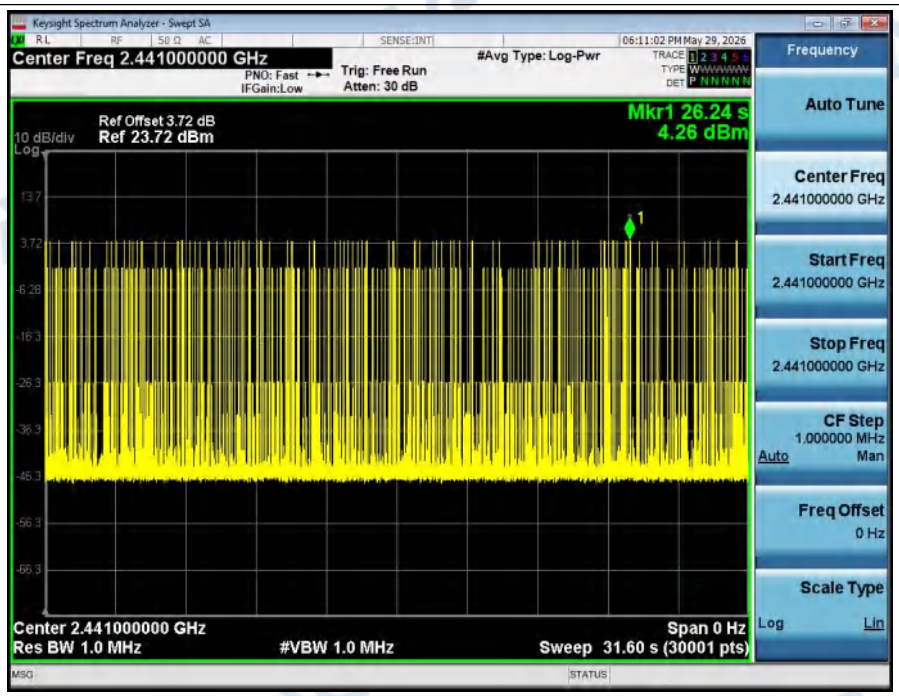
Dwell_Time_(Hopping)_NVNT_ANT1_1-DH5_2441_00_Accumulated



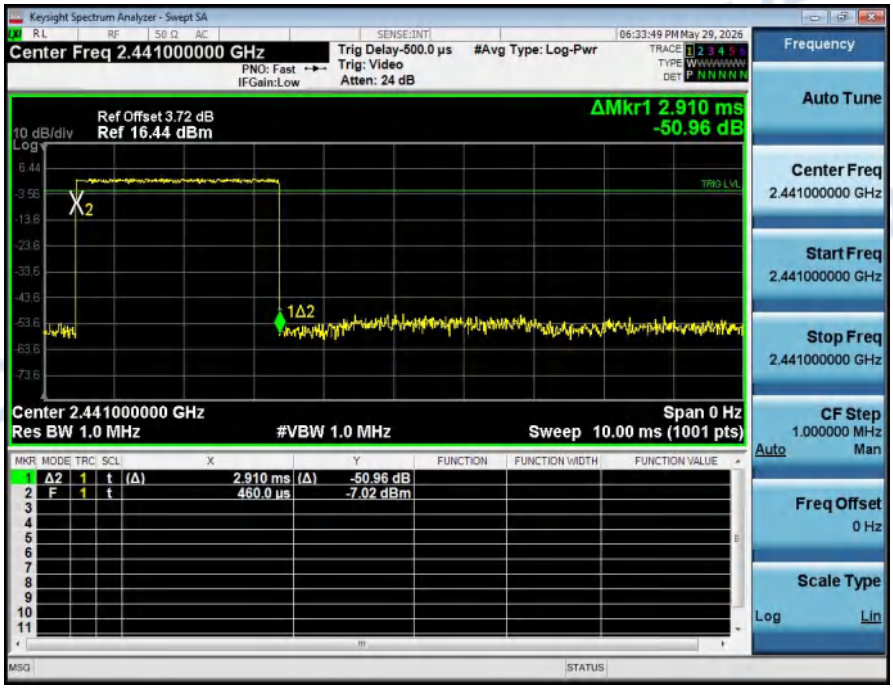
Dwell_Time_(Hopping)_NVNT_ANT1_2-DH5_2441_00_One_Burst_Time



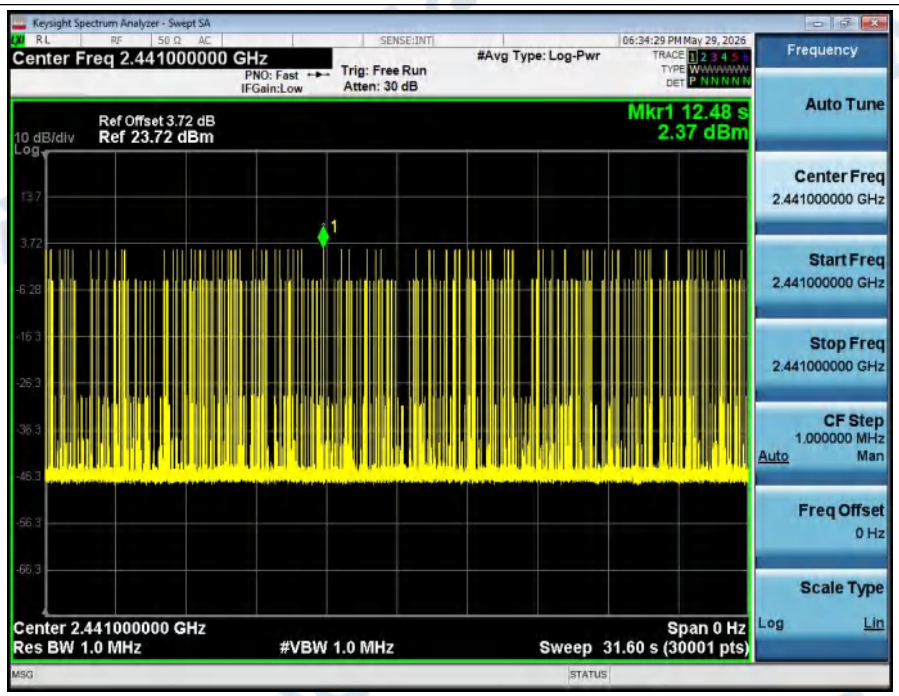
Dwell_Time_(Hopping)_NVNT_ANT1_2-DH5_2441_00_Accumulated



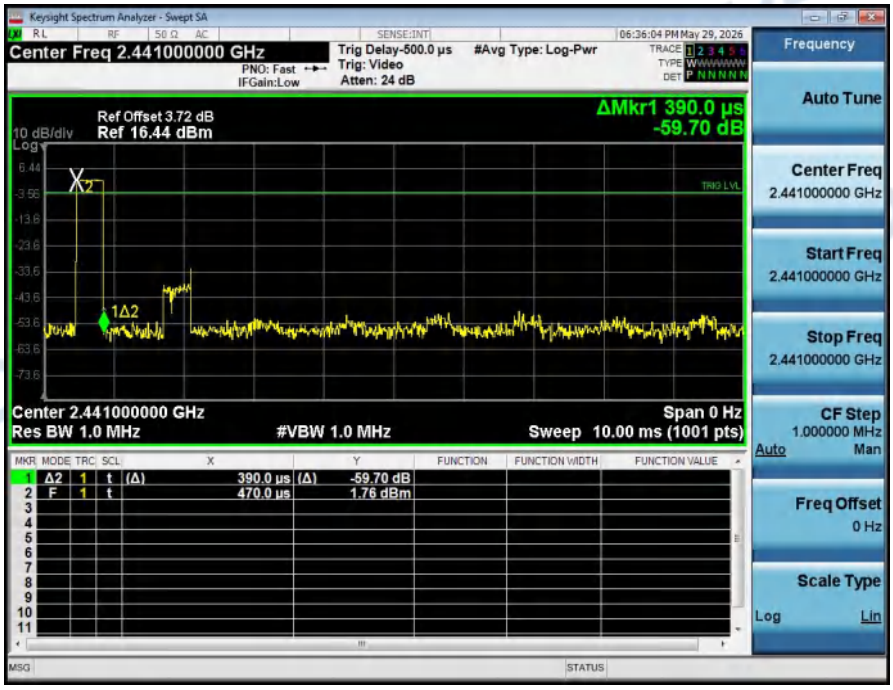
Dwell_Time_(Hopping)_NVNT_ANT1_3-DH5_2441_00_One_Burst_Time



Dwell_Time_(Hopping)_NVNT_ANT1_3-DH5_2441_00_Accumulated



Dwell_Time_(Hopping)_NVNT_ANT1_1-DH1_2441_00_One_Burst_Time



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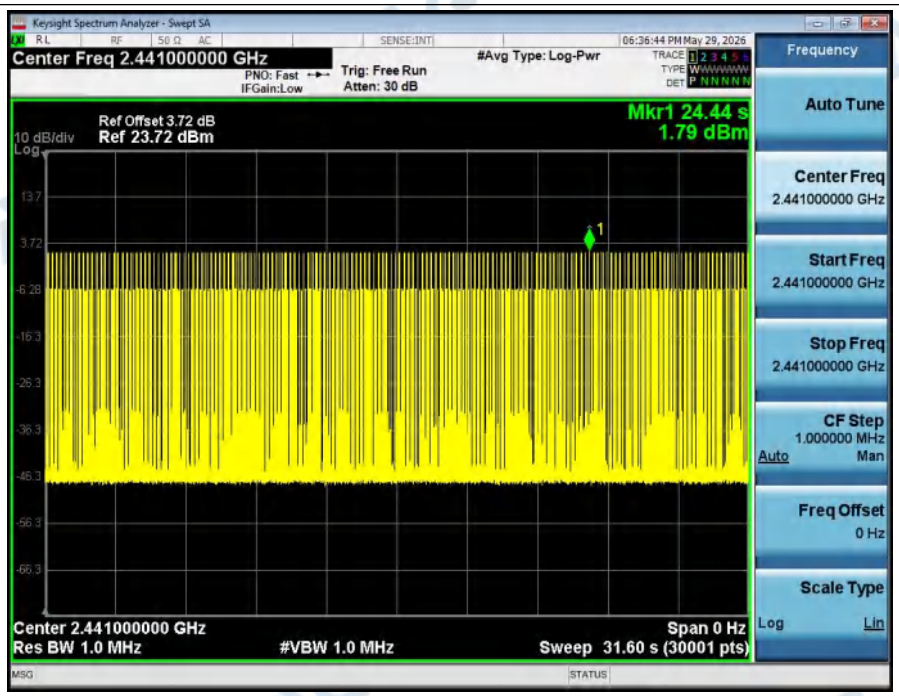
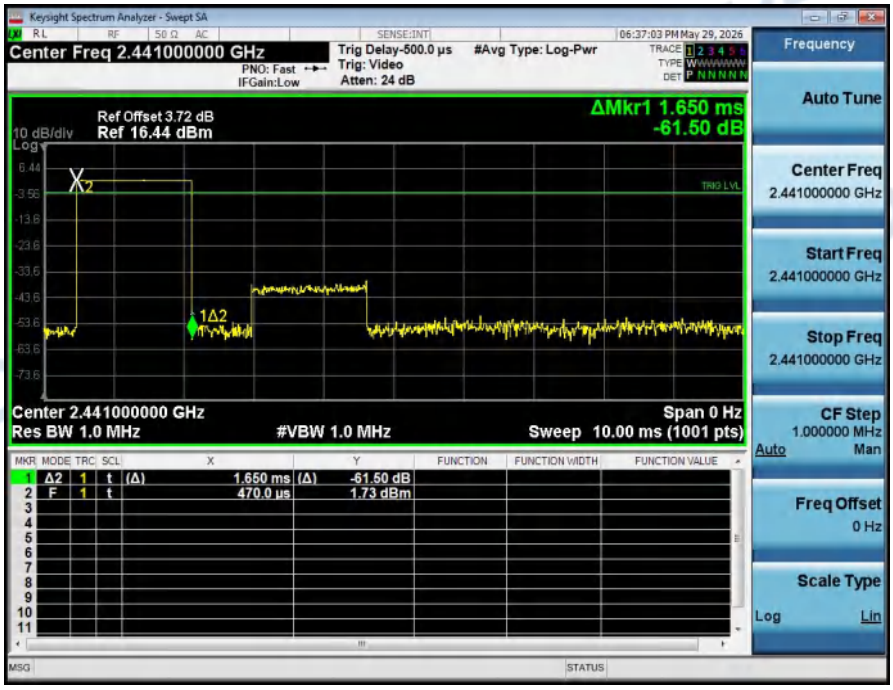


Dwell_Time_(Hopping)_NVNT_ANT1_1-DH3_2441_00_One_Burst_Time



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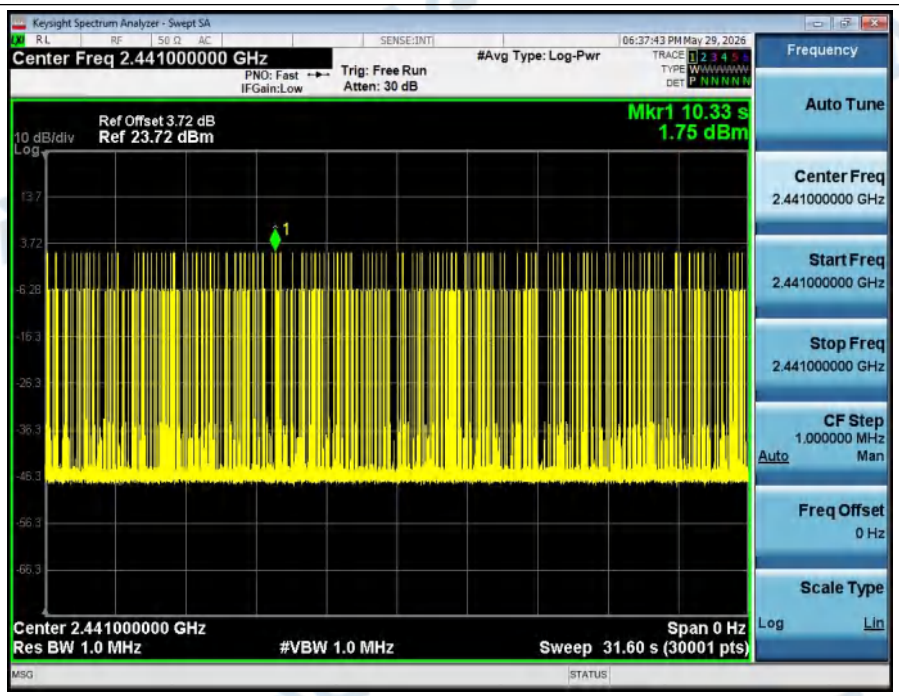

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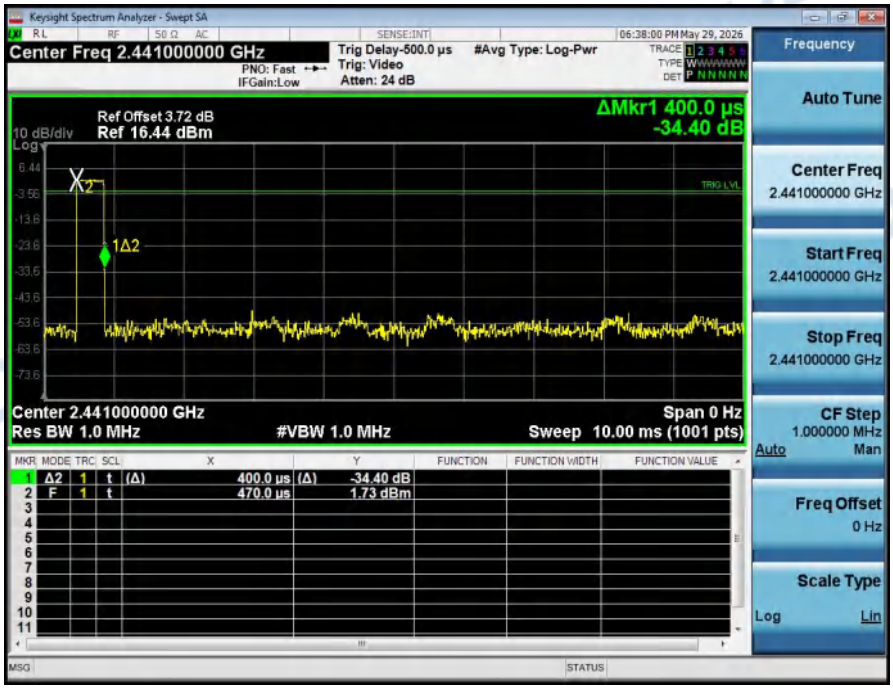

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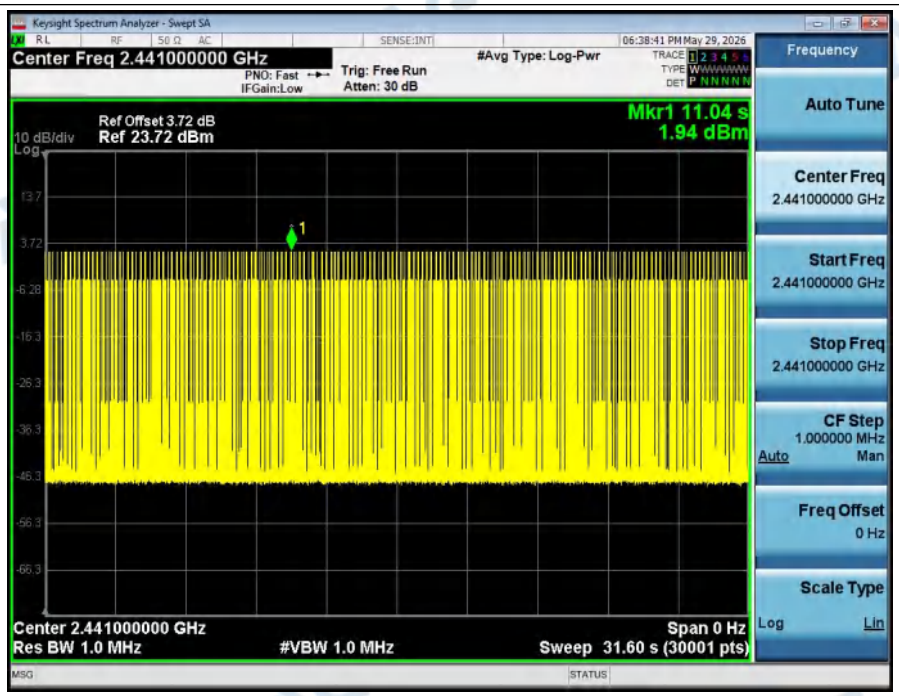
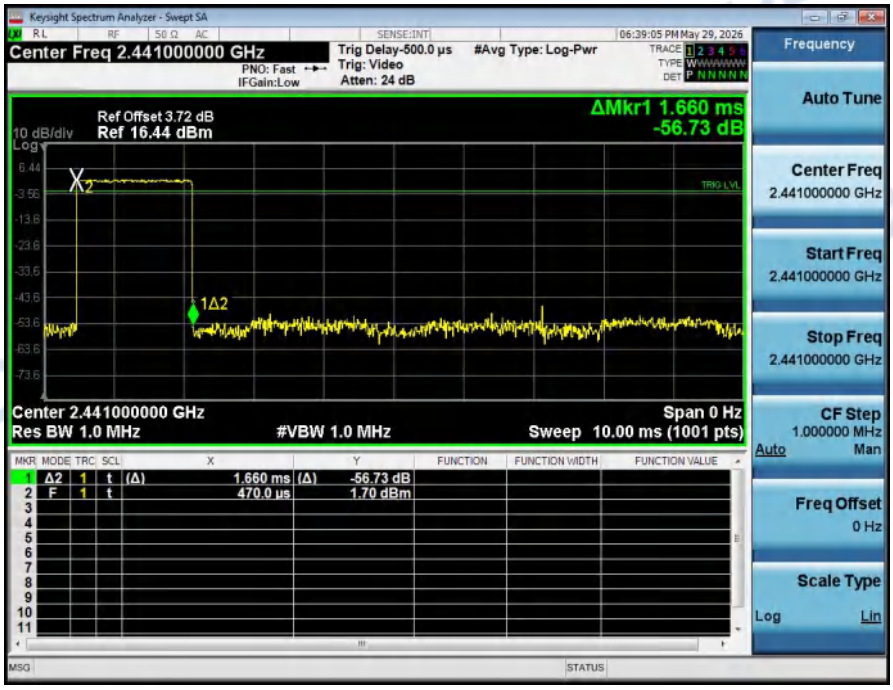


Dwell_Time_(Hopping)_NVNT_ANT1_2-DH3_2441_00_One_Burst_Time



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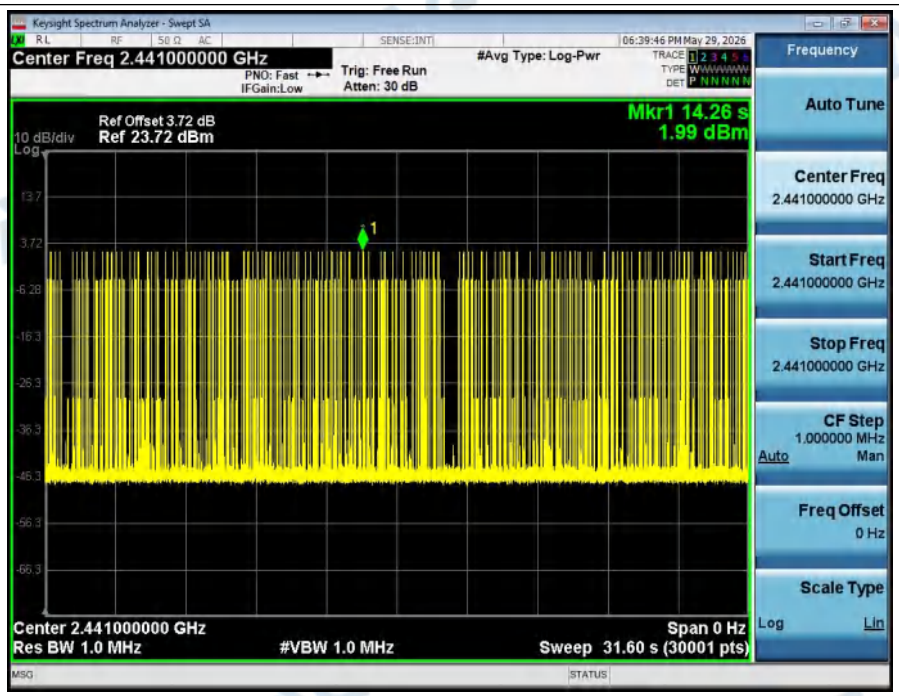

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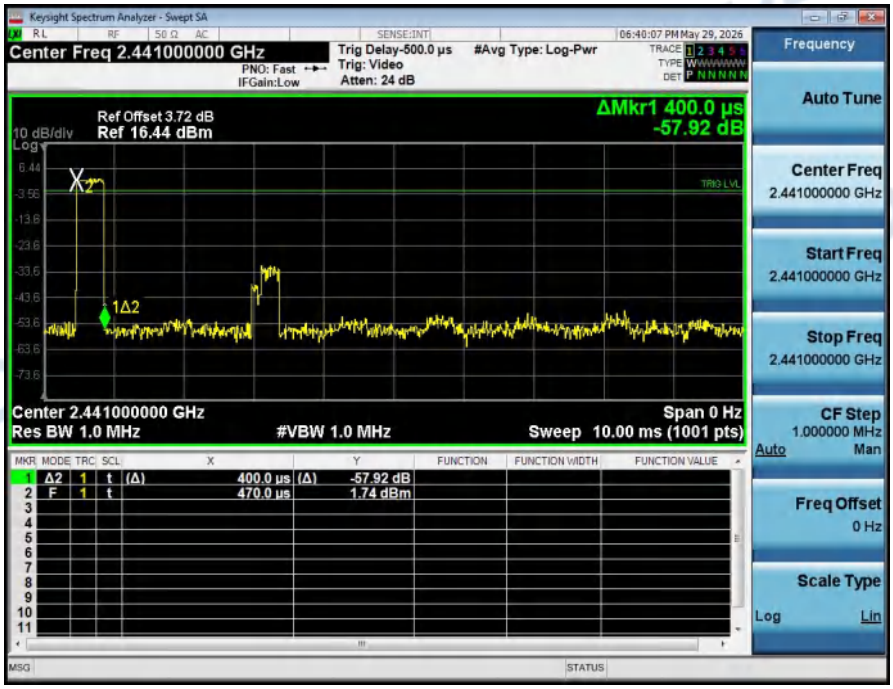

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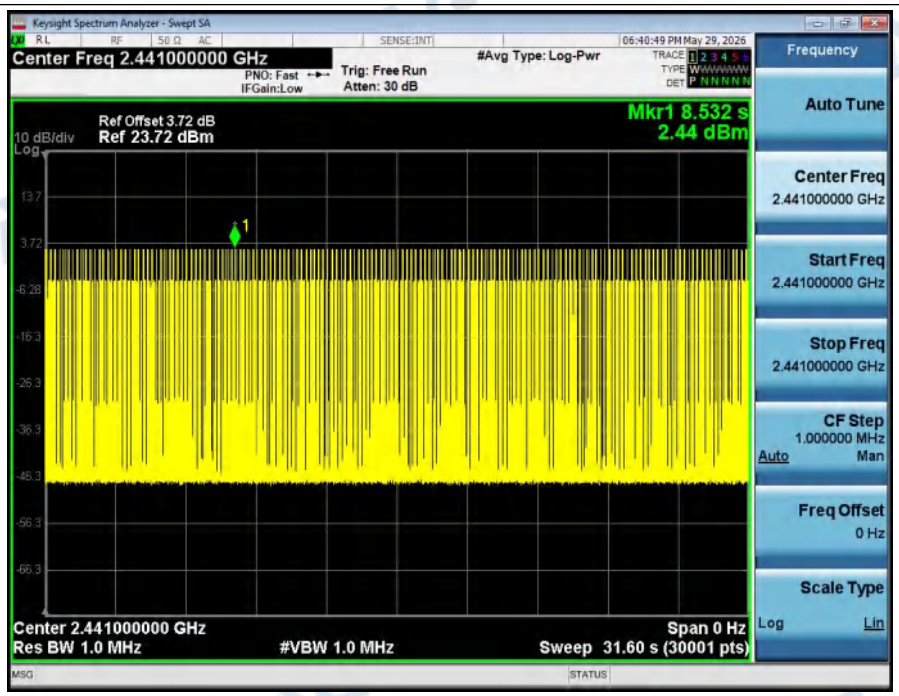

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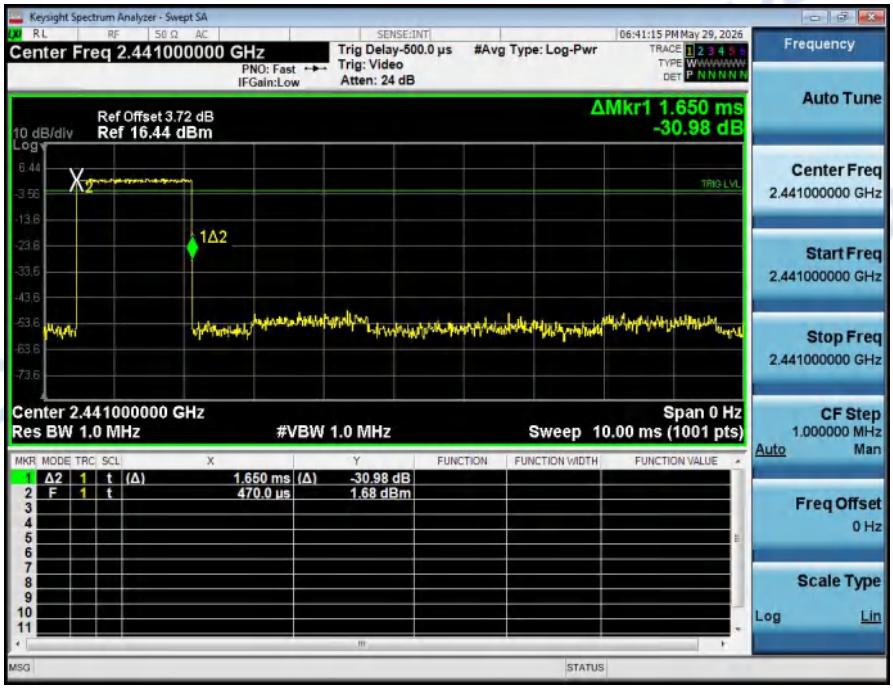

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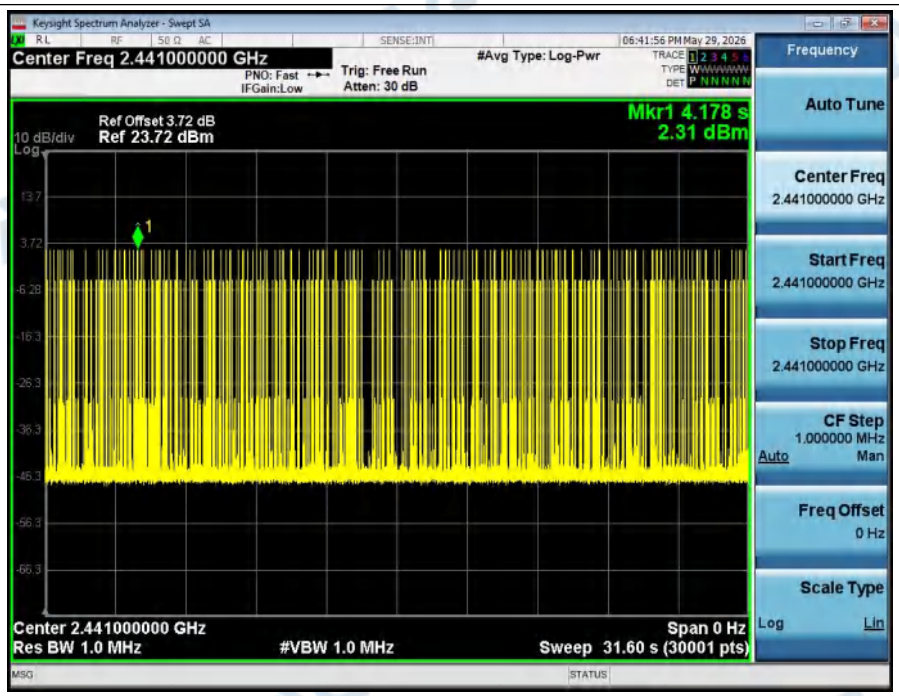

********** End of Report **********