

TEST REPORT



Report No.: TW2501165-04E  
Applicant: DMR Technologies  
Product: Unmanned Aircraft  
Model No.: D-Series 313, D-Series  
Trademark: N/A  
Test Standards: FCC Part 15.247

Test Result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10, FCC Part 15.247 for the evaluation of electromagnetic compatibility

Approved By

A handwritten signature in black ink that reads 'Terry Tang'.

---

Terry Tang  
Manager

Dated: February 19, 2025

**Results appearing herein relate only to the sample tested  
The technical reports is issued errors and omissions exempt and is subject to  
withdrawal at**

**SHENZHEN TIMEWAY TESTING LABORATORIES**

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com



### **Special Statement:**

#### **FCC-Registration No.: 744189**

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

#### **Industry Canada (IC) —Registration No.:5205A**

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

#### **A2LA (Certification Number:5013.01)**

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

#### **CAB identifier: CN0033**

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Test Report Conclusion

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## 1.0 General Details

### 1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.  
Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China  
Telephone: (755) 83448688  
Fax: (755) 83442996

### 1.2 Applicant Details

Applicant: DMR Technologies  
Address: 2050 15th St., Detroit, MI 48216

### 1.3 Description of EUT

Product: Unmanned Aircraft  
Manufacturer: DMR Technologies  
Address: 2050 15th St., Detroit, MI 48216  
Trademark: N/A  
Additional Trademark: N/A  
Model Number: D-Series 313  
Additional Model Number: D-Series  
Hardware Version: R500-4G-SIM7600-V2.2  
Software Version: V1.4.6  
Serial No.: 2110F313000000000005  
Type of Modulation: OFDM  
Frequency range: 2412-2462MHz  
Channel Separation: 1MHz  
Channel Number: 51  
Rating: Input: DC22.2V  
Battery: DC22.2V, 7000mAh Li-ion battery  
Antenna Designation: Integral antenna, the gain is 2.13dBi maximum (Get from the antenna specification)

### 1.4 Submitted Sample: 2 Samples

### 1.5 Test Duration

2025-01-22 to 2025-02-19



1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty =5%

Conducted Emissions Uncertainty =3.6dB

Note: The measurement uncertainty is for coverage factor of  $k=2$  and a level of confidence of 95%.

1.7 Test Engineer

The sample tested by \_\_\_\_\_

*Andy Xing*

Print Name: Andy Xing



<b>2.0 Test Equipment</b>					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100253	2024-07-12	2025-07-11
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2024-07-12	2025-07-11
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17
Spectrum	R&S	FSIQ26	100292	2024-07-12	2025-07-11
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-07-18	2025-07-17
Horn Antenna	R&S	BBHA 9120D	9120D-631	2022-07-18	2025-07-17
Power meter	Anritsu	ML2487A	6K00003613	2024-07-12	2025-07-11
Power sensor	Anritsu	MA2491A	32263	2024-07-12	2025-07-11
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2022-07-18	2025-07-17
9*6*6 Anechoic	--	--	N/A	2022-07-26	2025-07-25
EMI Test Receiver	RS	ESVB	826156/011	2024-07-12	2025-07-11
EMI Test Receiver	RS	ESCS 30	834115/006	2024-07-12	2025-07-11
Spectrum	HP/Agilent	E4407B	MY50441392	2024-07-12	2025-07-11
Spectrum	RS	FSP	1164.4391.38	2024-07-12	2025-07-11
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA	--	2024-07-12	2025-07-11
RF Cable	Zhengdi	7m	--	2024-07-12	2025-07-11
Pre-Amplifier	Schwarebeck	BBV9743	#218	2024-07-12	2025-07-11
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2024-07-12	2025-07-11
LISN	SCHAFFNER	NNB42	00012	2024-07-12	2025-07-11
ESPI Test Receiver	R&S	ESPI 3	100379	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11

## 2.2 Automation Test Software

### For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

### For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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**3.0 Technical Details**

**3.1 Summary of test results**

<b>The EUT has been tested according to the following specifications:</b>			
<b>Standard</b>	<b>Test Type</b>	<b>Result</b>	<b>Notes</b>
<b>FCC Part 15, Paragraph 15.203</b>	<b>Antenna Requirement</b>	<b>Pass</b>	<b>Complies</b>
<b>FCC Part 15, Paragraph 15.207</b>	<b>Conducted Emission Test</b>	<b>N/A</b>	<b>N/A</b>
<b>FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit</b>	<b>Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth&gt;500kHz</b>	<b>Pass</b>	<b>Complies</b>
<b>FCC Part 15, Paragraph 15.247(b)</b>	<b>Maximum peak output power Limit: max. 30dBm</b>	<b>Pass</b>	<b>Complies</b>
<b>FCC Part 15, Paragraph 15.205 &amp; 15.209</b>	<b>Transmitter Radiated Emission Limit: Table 15.209</b>	<b>Pass</b>	<b>Complies</b>
<b>FCC Part 15, Paragraph 15.247(e)</b>	<b>Power Spectral Density Limit: max. 8dBm/3kHz</b>	<b>Pass</b>	<b>Complies</b>
<b>FCC Part 15, Paragraph 15.247(d)</b>	<b>Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209</b>	<b>Pass</b>	<b>Complies</b>

**3.2 Test Standards**

**FCC Part 15 Subpart & Subpart C, Paragraph 15.247**

**4.0 EUT Modification**

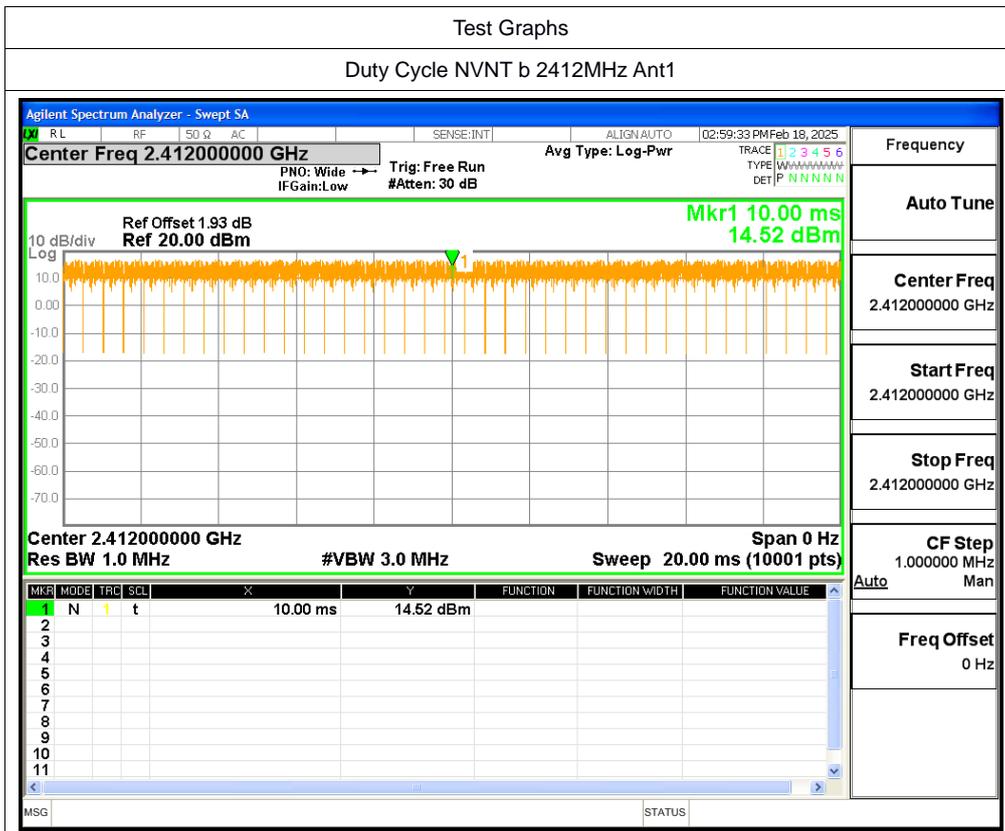
**No modification by SHENZHEN TIMEWAY TESTING LABORATORIES.**

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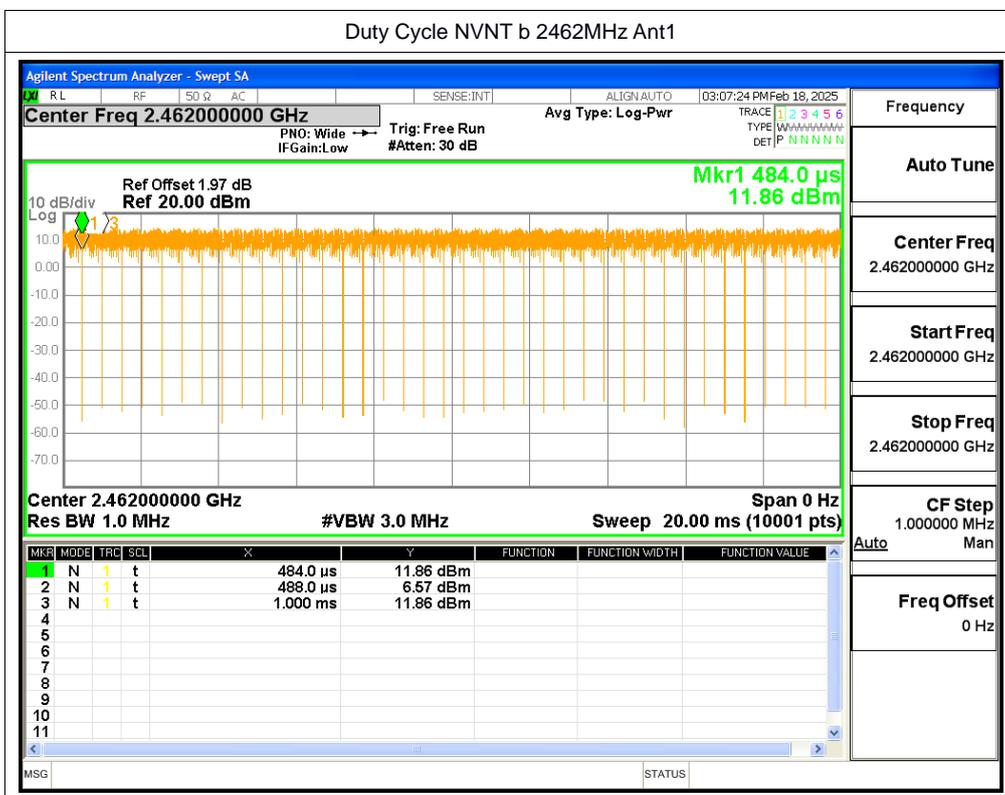
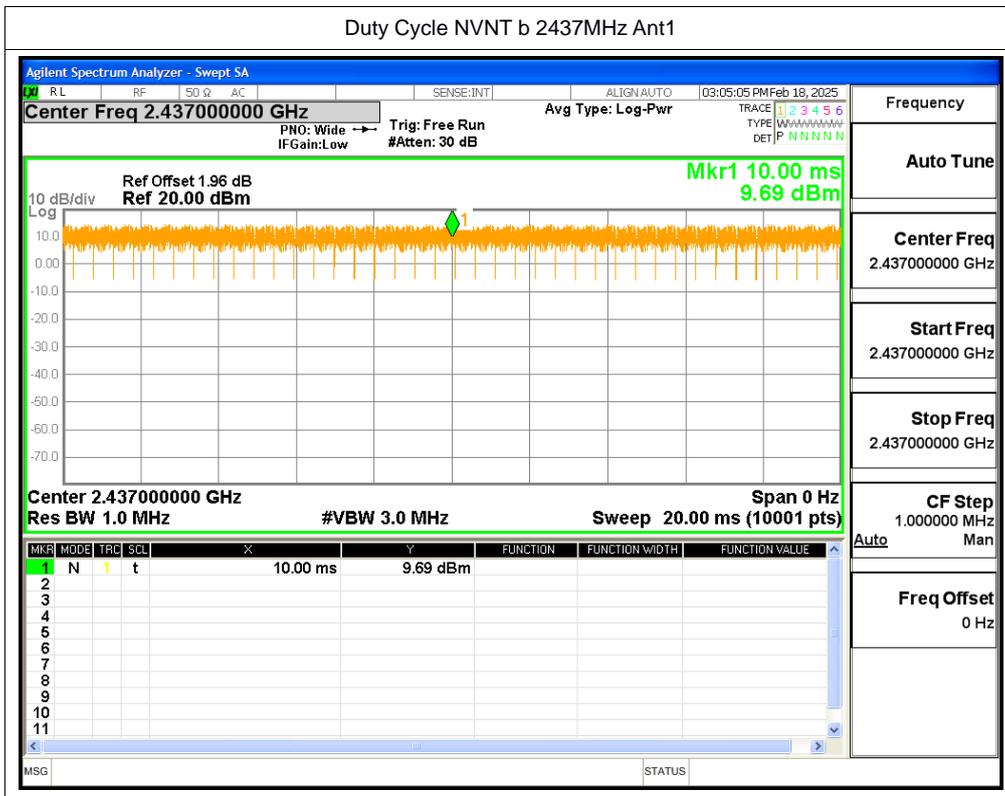


**5.0 Duty Cycle**  
**10M Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant1	100	0	0
		2437		100	0	0
		2462		99.22	0	1.95



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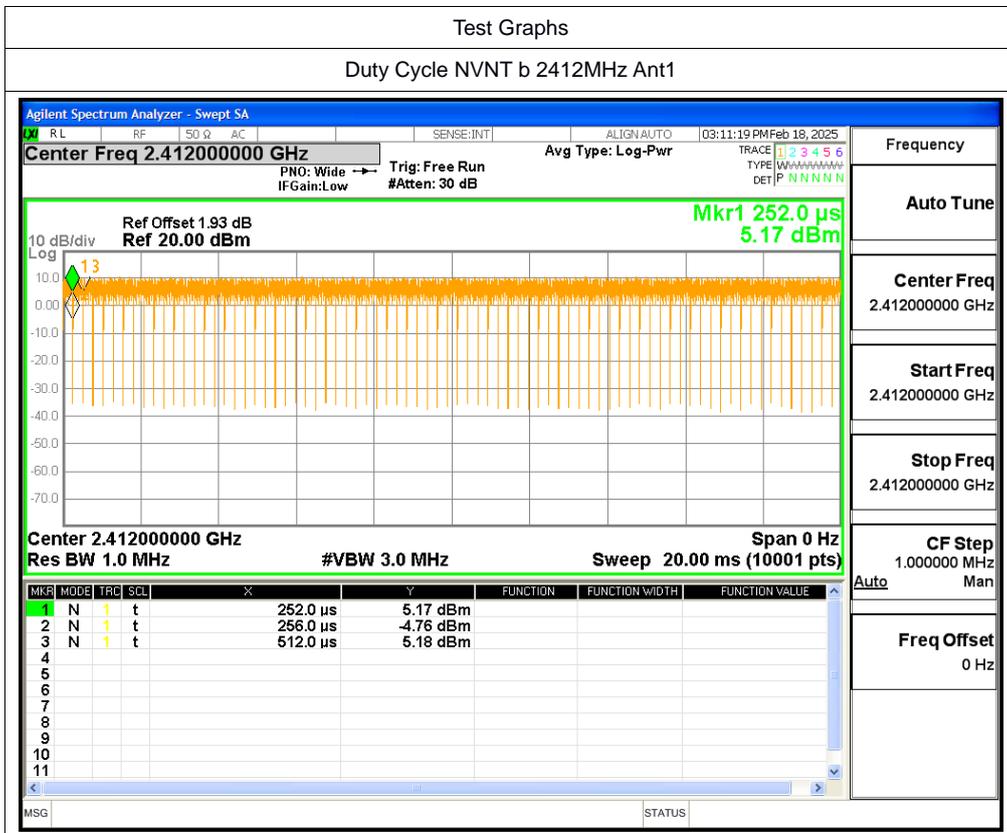


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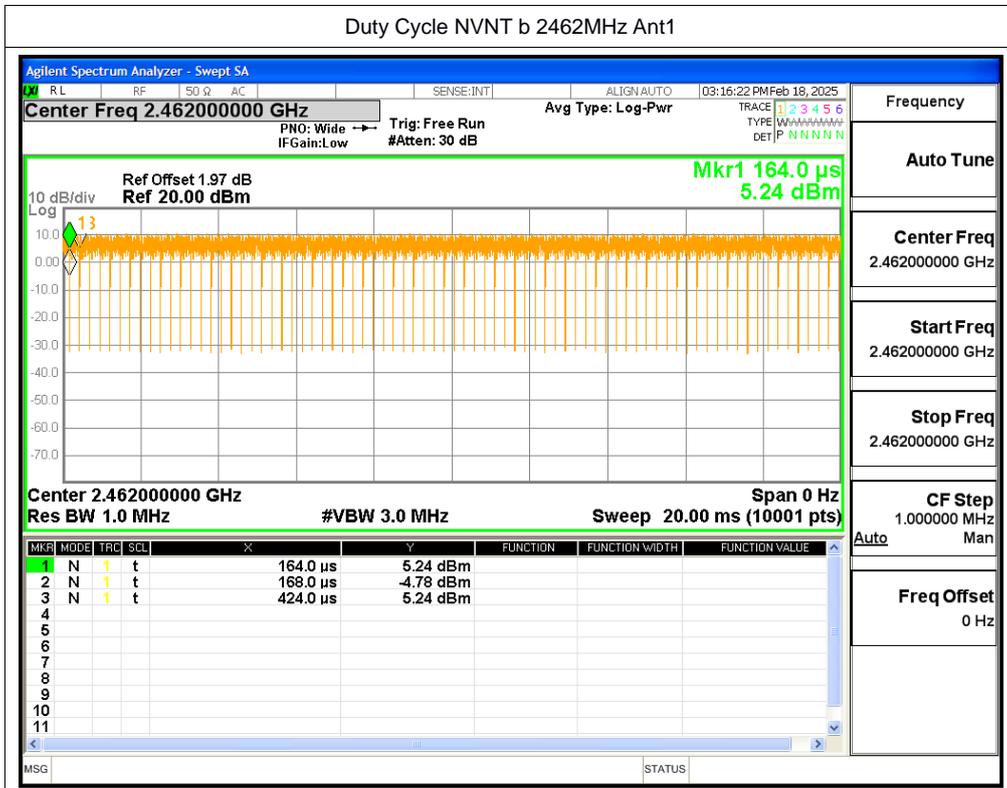
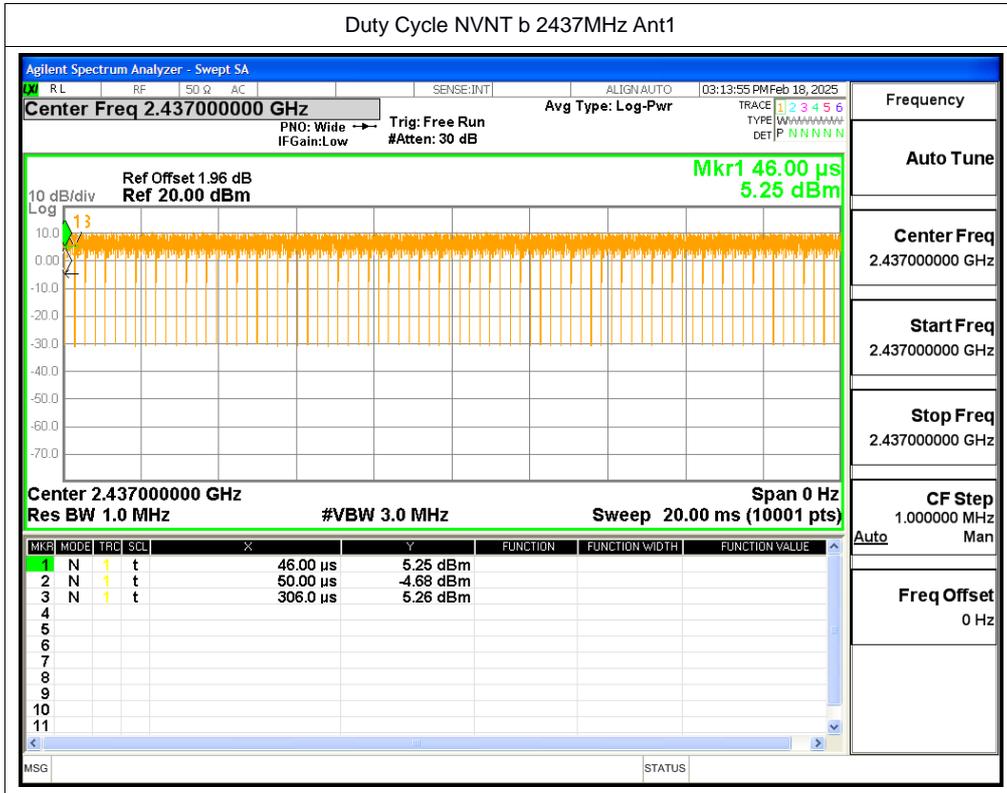


**20M Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant1	98.46	0	3.91
		2437		98.46	0	3.91
		2462		98.46	0	3.91



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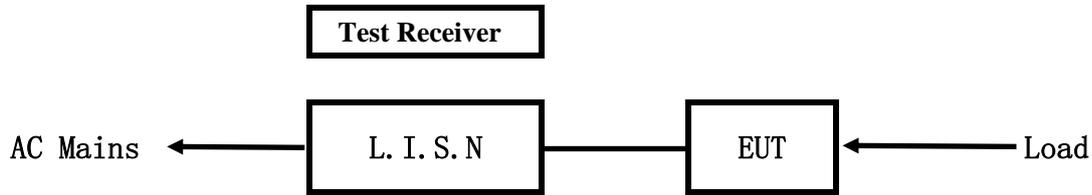


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### 6.0 Power Line Conducted Emission Test

#### 6.1 Schematics of the test



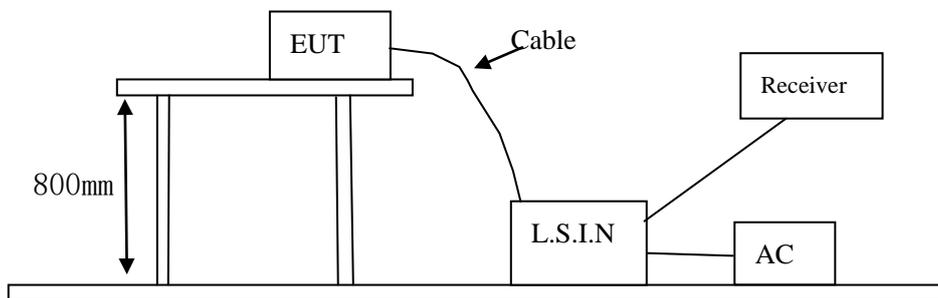
EUT: Equipment Under Test

#### 6.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10-2013.

Test Voltage: N/A

Block diagram of Test setup



#### 6.3 Configuration of the EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

##### A. EUT

Device	Manufacturer	Model	FCC ID
Unmanned Aircraft	DMR Technologies	D-Series 313, D-Series	2BM3J-D313

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B. Internal Device

Device	Manufacturer	Model	Rating

C. Peripherals

Device	Manufacturer	Model	Rating
N/A			

6.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

6.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

- Notes: 1. \*Decreasing linearly with logarithm of frequency.  
 2. The tighter limit shall apply at the transition frequencies

6.6 Test Results

N/A

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

**Note: EUT not directly or in-directly connected to the AC power source. so this test item not applicable.**



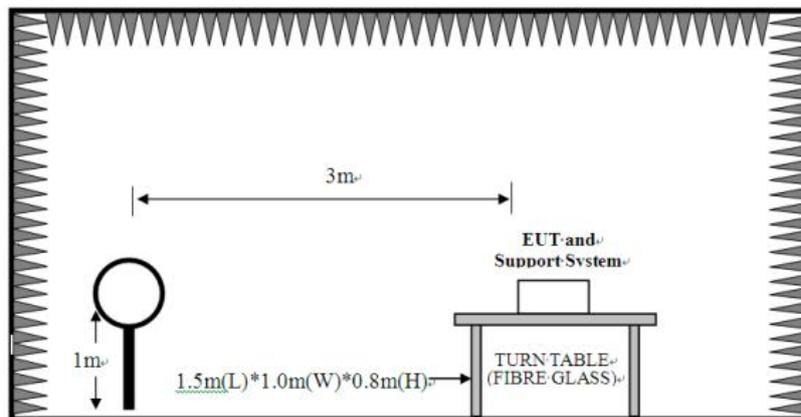
## 7.0 Radiated Emission Test

### 7.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No.744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=1MHz VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a “QP” in the data table.
- (6) The antenna polarization: Vertical polarization and Horizontal polarization.

### Block diagram of Test setup

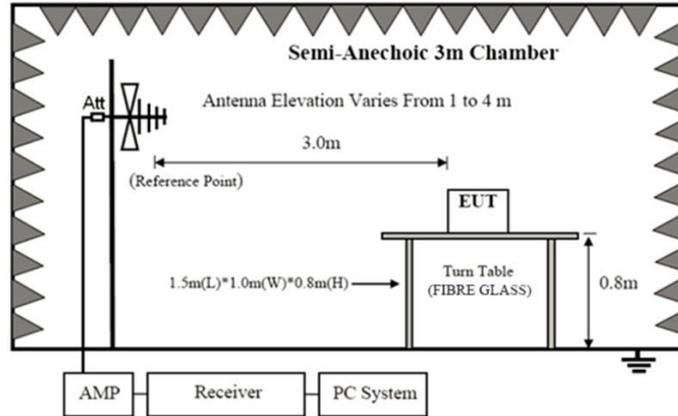
For radiated emissions from 9kHz to 30MHz



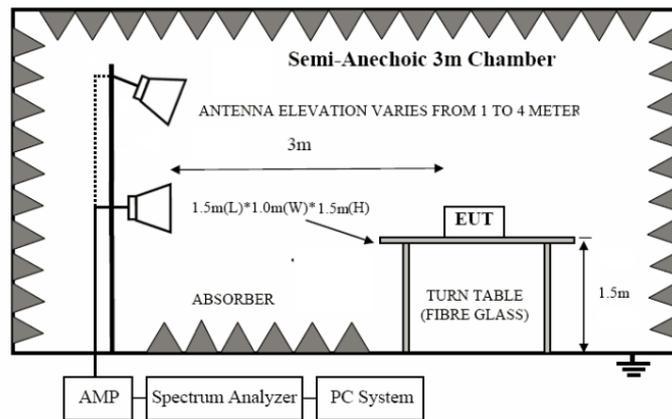
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For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



## 7.2 Configuration of The EUT

Same as section 5.3 of this report

## 7.3 EUT Operating Condition

Same as section 5.4 of this report.

## 7.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

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**Frequencies in restricted band are complied to limit on Paragraph 15.209**

Frequency Range (MHz)	Distance (m)	Field strength (dB $\mu$ V/m)
0.009-0.490	3	$20\log(2400/F(\text{kHz})) + 40\log(300/3)$
0.490-1.705	3	$20\log(24000/F(\text{kHz})) + 40\log(30/3)$
1.705-30	3	69.5
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- Note:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
  2. In the Above Table, the higher limit applies at the band edges.
  3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
  4. Battery was fully charged during test

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**Test result**

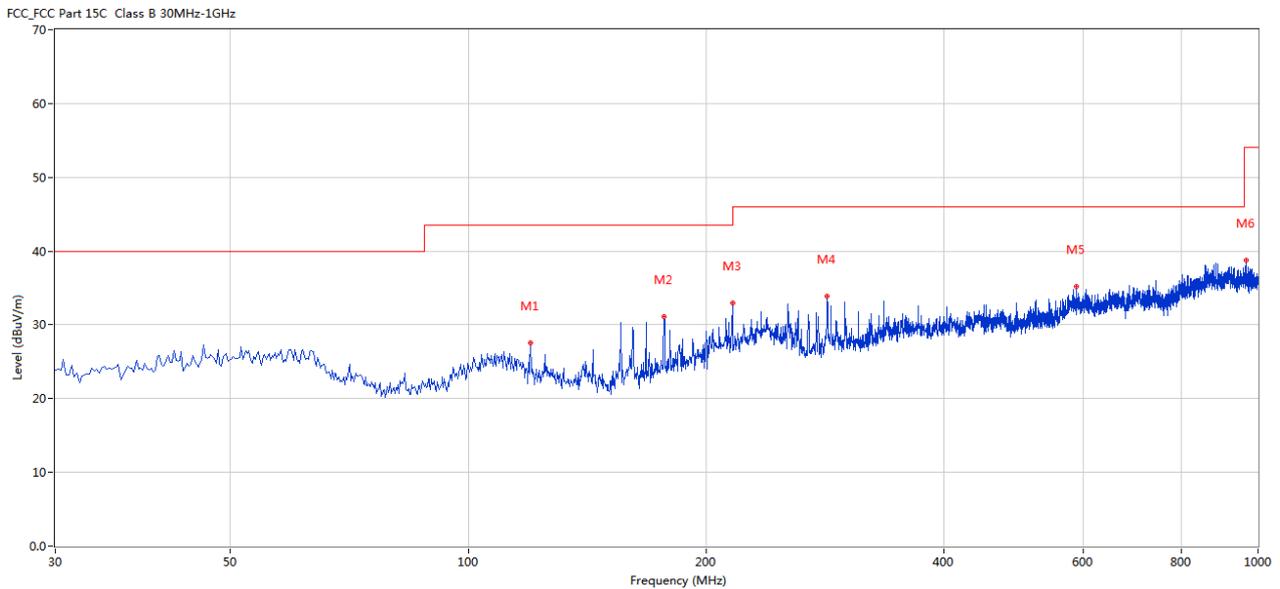
**General Radiated Emission Data and Harmonics Radiated Emission Data**

**Radiated Emission In Horizontal (30MHz----1000MHz)**

**EUT set Condition: Keep Transmitting**

**Results: Pass**

Test Figure:



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	119.945	27.50	-8.02	43.5	16.00	Peak	48.00	100	Horizontal	Pass
2	177.161	31.05	-8.35	43.5	12.45	Peak	337.00	100	Horizontal	Pass
3	215.951	32.92	-6.71	43.5	10.58	Peak	360.00	100	Horizontal	Pass
4	284.804	33.86	-4.57	46.0	12.14	Peak	360.00	100	Horizontal	Pass
5	588.338	35.25	1.61	46.0	10.75	Peak	94.00	100	Horizontal	Pass
6	965.089	38.76	5.14	54.0	15.24	Peak	173.00	100	Horizontal	Pass

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**Test result**

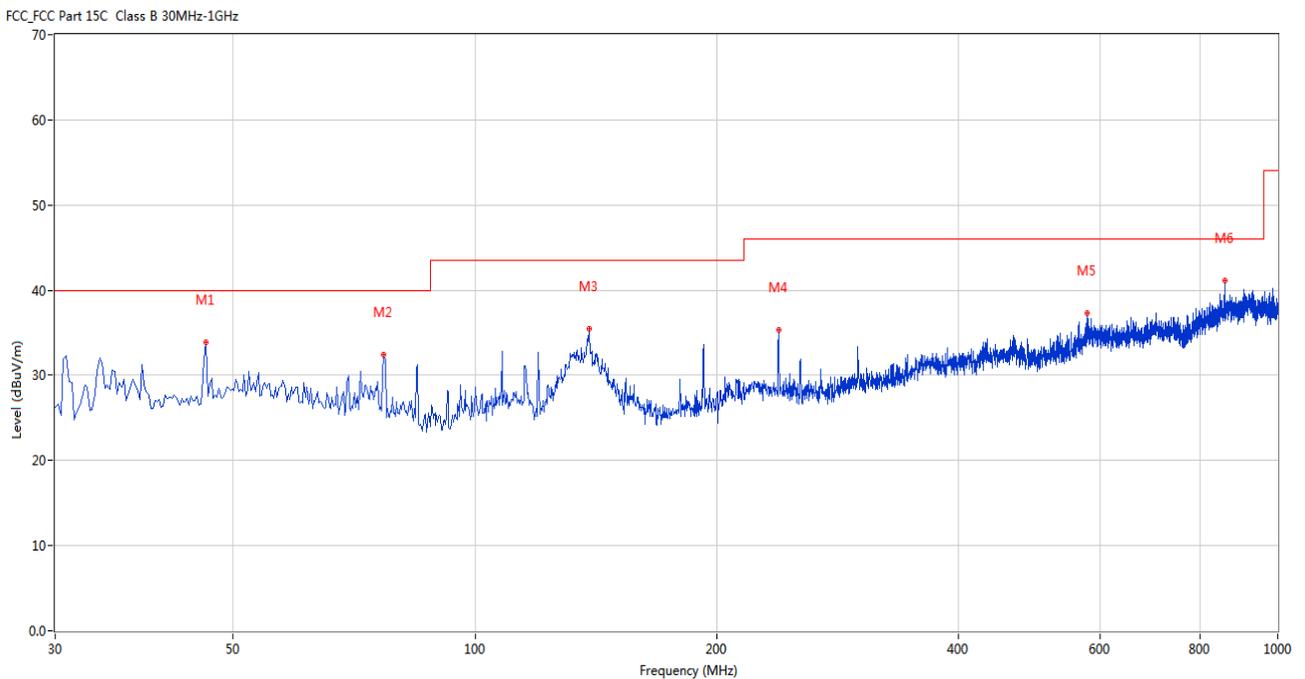
**General Radiated Emission Data and Harmonics Radiated Emission Data**

**Radiated Emission In Vertical (30MHz----1000MHz)**

EUT set Condition: **Keep Transmitting**

**Results: Pass**

Test Figure:



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	46.243	33.87	-5.97	40.0	6.13	Peak	360.00	100	Vertical	Pass
2	77.033	32.44	-9.66	40.0	7.56	Peak	281.00	100	Vertical	Pass
3	138.613	35.44	-9.89	43.5	8.06	Peak	47.00	100	Vertical	Pass
4	238.740	35.32	-5.63	46.0	10.68	Peak	52.00	100	Vertical	Pass
5	578.640	37.34	1.72	46.0	8.66	Peak	264.00	100	Vertical	Pass
6	859.385	41.15	4.84	46.0	4.85	Peak	28.00	100	Vertical	Pass

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**10M Bandwidth**

**Operation Mode: Transmitting under Low Channel (2412MHz)**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
4824.00	61.6(PK) / 45.5 (AV)	H	74(Peak)/ 54(AV)
4824.00	56.5 (PK) / 41.4 (AV)	V	74(Peak)/ 54(AV)
7236.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)
12060	--	H/V	74(Peak)/ 54(AV)
14472	--	H/V	74(Peak)/ 54(AV)
16884	--	H/V	74(Peak)/ 54(AV)
19296	--	H/V	74(Peak)/ 54(AV)
21708	--	H/V	74(Peak)/ 54(AV)
24120	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
 2. Remark “---” means that the emissions level is too low to be measured

**Operation Mode: Transmitting g under Middle Channel (2437MHz)**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
4874.00	59.3 (PK)/ 43.3 (AV)	H	74(Peak)/ 54(AV)
4874.00	55.0 (PK)/ 39.6 (AV)	V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
 2. Remark “---” means that the emissions level is too low to be measured

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**Operation Mode: Transmitting under High Channel (2462MHz)**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
4924	60.9(PK) / 44.9 (AV)	H	74(Peak)/ 54(AV)
4924	56.3 (PK) / 41.0(AV)	V	74(Peak)/ 54(AV)
7368	--	H/V	74(Peak)/ 54(AV)
9848	--	H/V	74(Peak)/ 54(AV)
12310	--	H/V	74(Peak)/ 54(AV)
14772	--	H/V	74(Peak)/ 54(AV)
17234	--	H/V	74(Peak)/ 54(AV)
19696	--	H/V	74(Peak)/ 54(AV)
22158	--	H/V	74(Peak)/ 54(AV)
24620	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Result Level = Reading + Factor  
 2. Factor= AF + Cable Loss- Preamp  
 3. Margin = Result– Limit  
 4. For radiated Emissions from 18-25GHz and below 30MHz, it is only the floor noise and less than the limit for more than 20dB. No necessary to take down.  
 5. Note: the final peak measurement results less than the AV limit. No necessary to take down the final AV measurement result

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**20M Bandwidth**

**Operation Mode: Transmitting under Low Channel (2412MHz)**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
4824.00	58.5(PK) / 42.8 (AV)	H	74(Peak)/ 54(AV)
4824.00	53.9 (PK) / 38.3 (AV)	V	74(Peak)/ 54(AV)
7236.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)
12060	--	H/V	74(Peak)/ 54(AV)
14472	--	H/V	74(Peak)/ 54(AV)
16884	--	H/V	74(Peak)/ 54(AV)
19296	--	H/V	74(Peak)/ 54(AV)
21708	--	H/V	74(Peak)/ 54(AV)
24120	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
 2. Remark "---" means that the emissions level is too low to be measured

**Operation Mode: Transmitting g under Middle Channel (2437MHz)**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
4874.00	56.0(PK)/ 40.6 (AV)	H	74(Peak)/ 54(AV)
4874.00	52.3 (PK)/ 36.2(AV)	V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
 2. Remark "---" means that the emissions level is too low to be measured

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**Operation Mode: Transmitting under High Channel (2462MHz)**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
4924	57.9(PK) / 41.6 (AV)	H	74(Peak)/ 54(AV)
4924	53.8 (PK) /38.5(AV)	V	74(Peak)/ 54(AV)
7368	--	H/V	74(Peak)/ 54(AV)
9848	--	H/V	74(Peak)/ 54(AV)
12310	--	H/V	74(Peak)/ 54(AV)
14772	--	H/V	74(Peak)/ 54(AV)
17234	--	H/V	74(Peak)/ 54(AV)
19696	--	H/V	74(Peak)/ 54(AV)
22158	--	H/V	74(Peak)/ 54(AV)
24620	--	H/V	74(Peak)/ 54(AV)

Note: 1. Result Level = Reading + Factor

2. Factor= AF + Cable Loss- Preamp

3. Margin = Result– Limit

4. For radiated Emissions from 18-25GHz and below 30MHz, it is only the floor noise and less than the limit for more than 20dB. No necessary to take down.

5. Note: the final peak measurement results less than the AV limit. No necessary to take down the final AV measurement result

The report refers only to the sample tested and does not apply to the bulk.

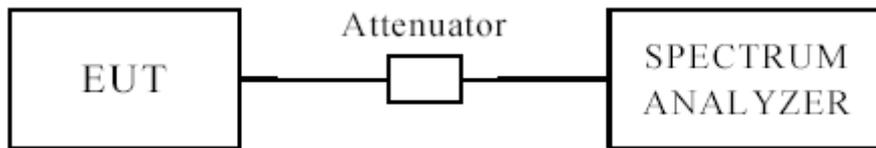
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## 8.0 6dB Bandwidth Measurement

### 8.1 Test Setup



### 8.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500 kHz

### 8.3 Test Procedure

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 8.4 Test Result

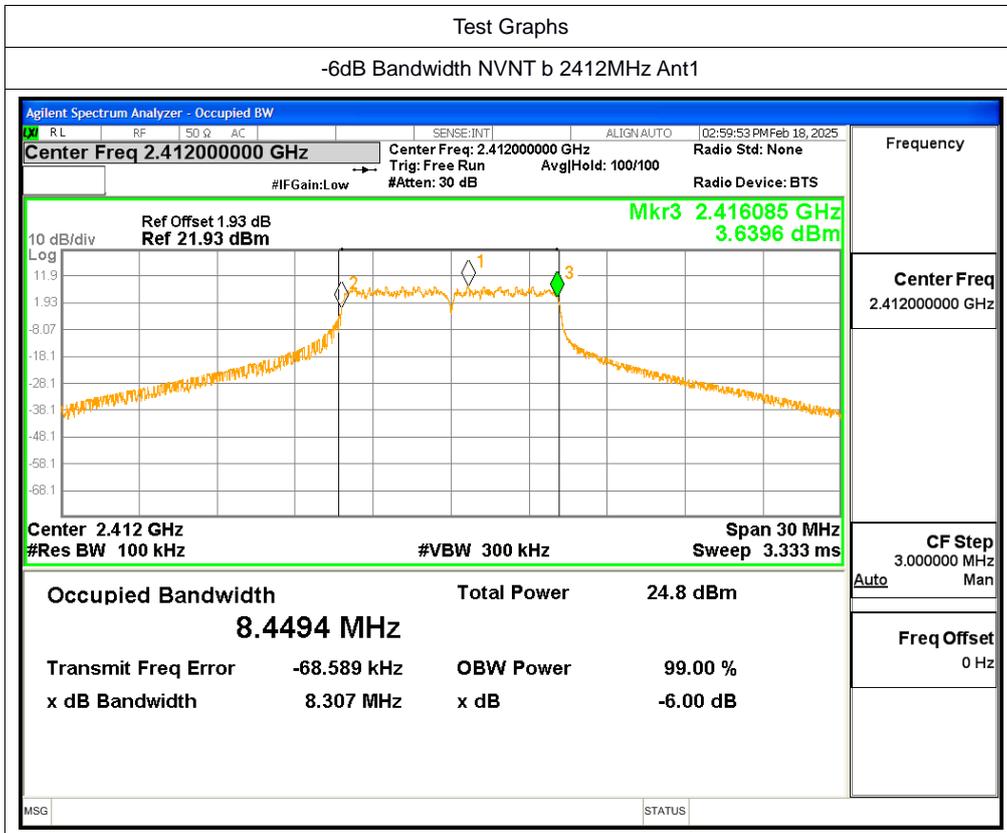
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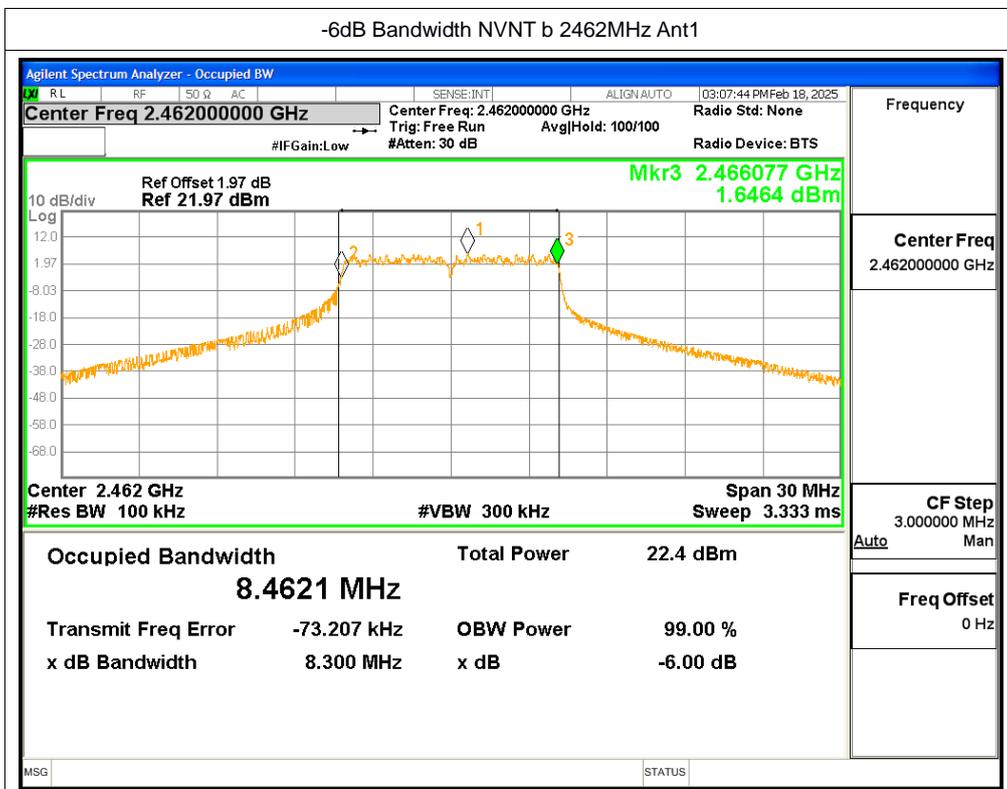
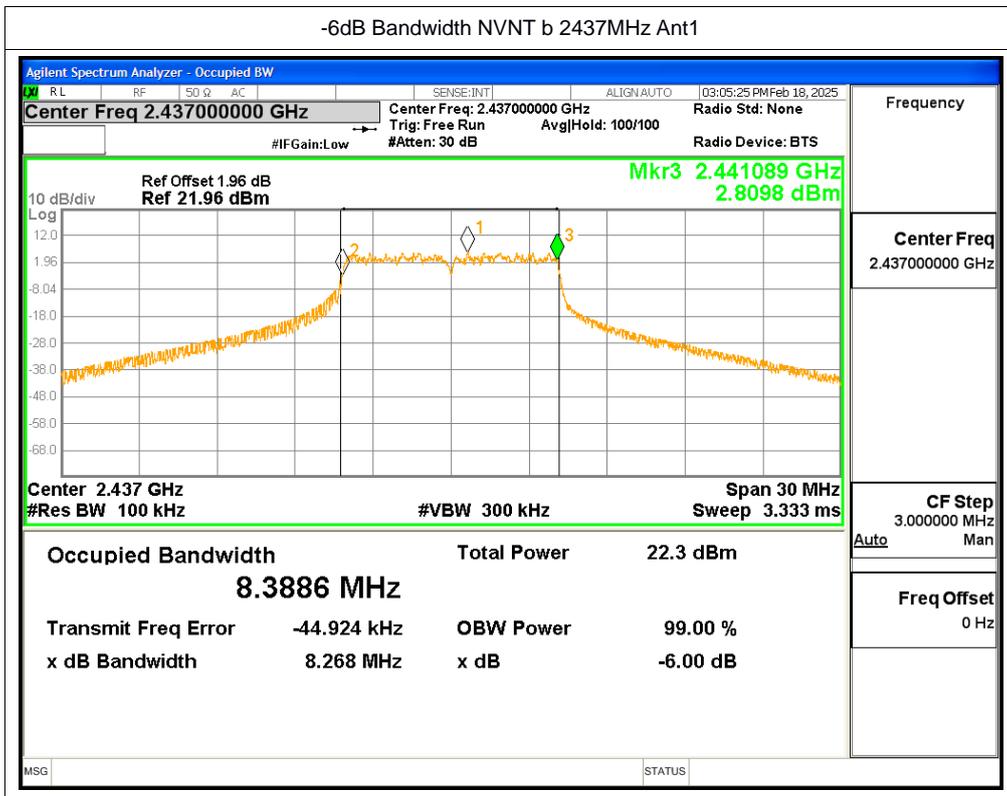
**6dB BW**

**10M Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	8.307	0.5	Pass
		2437		8.268	0.5	Pass
		2462		8.3	0.5	Pass



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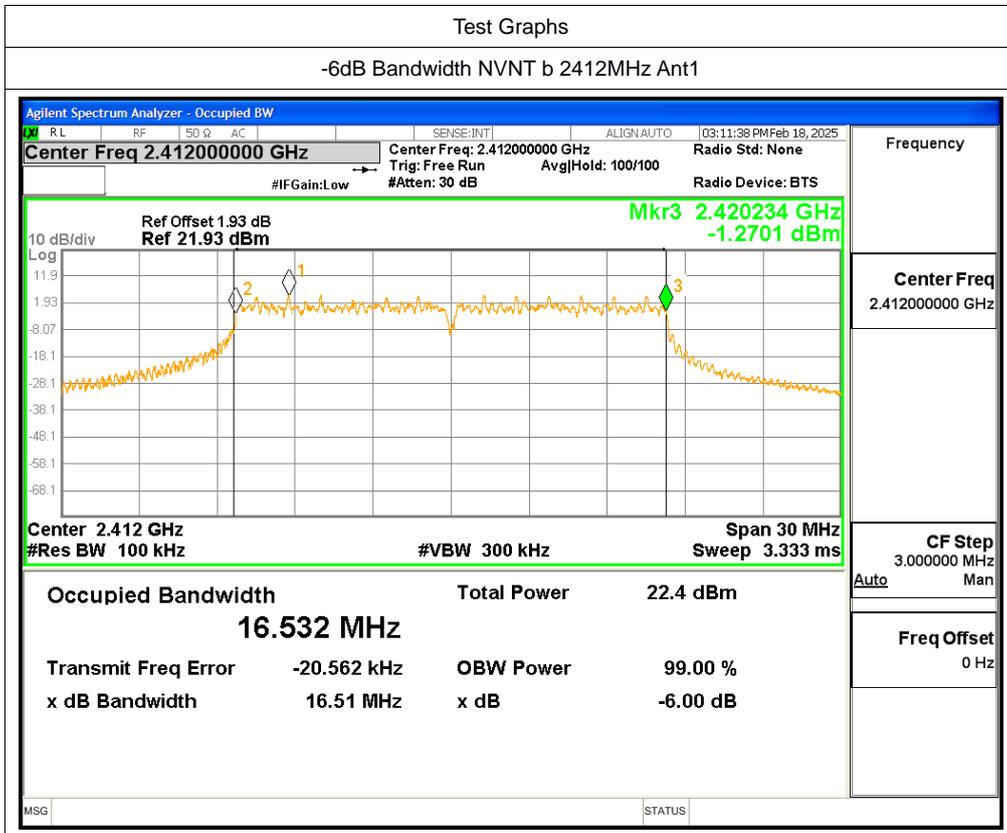


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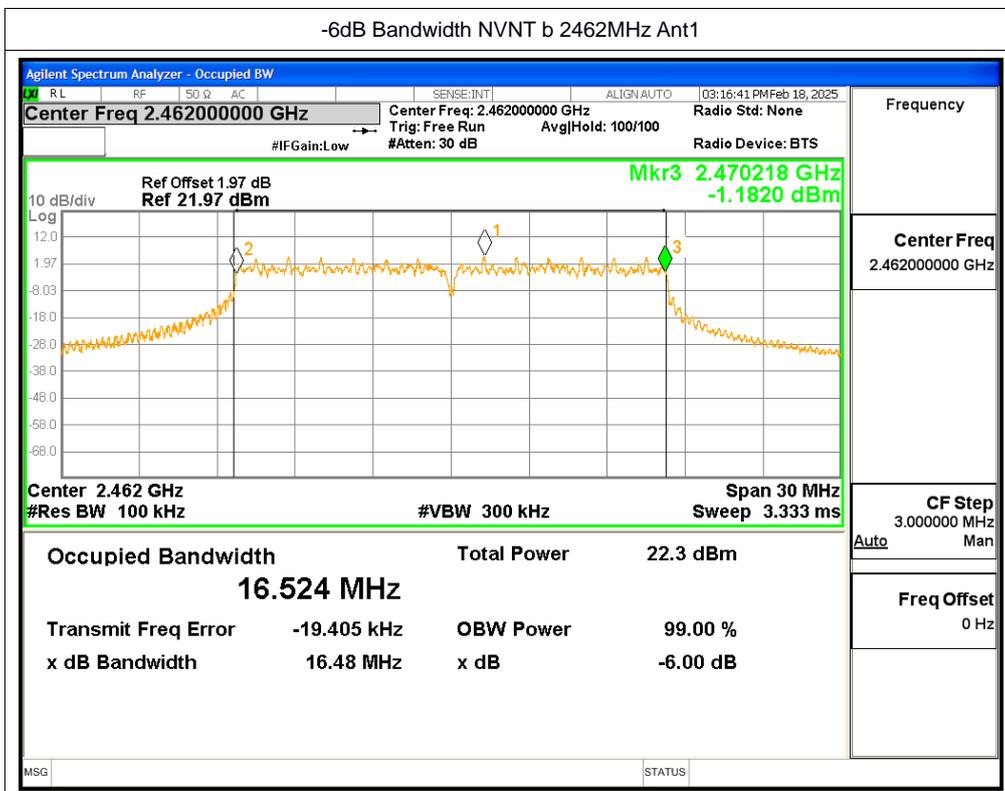
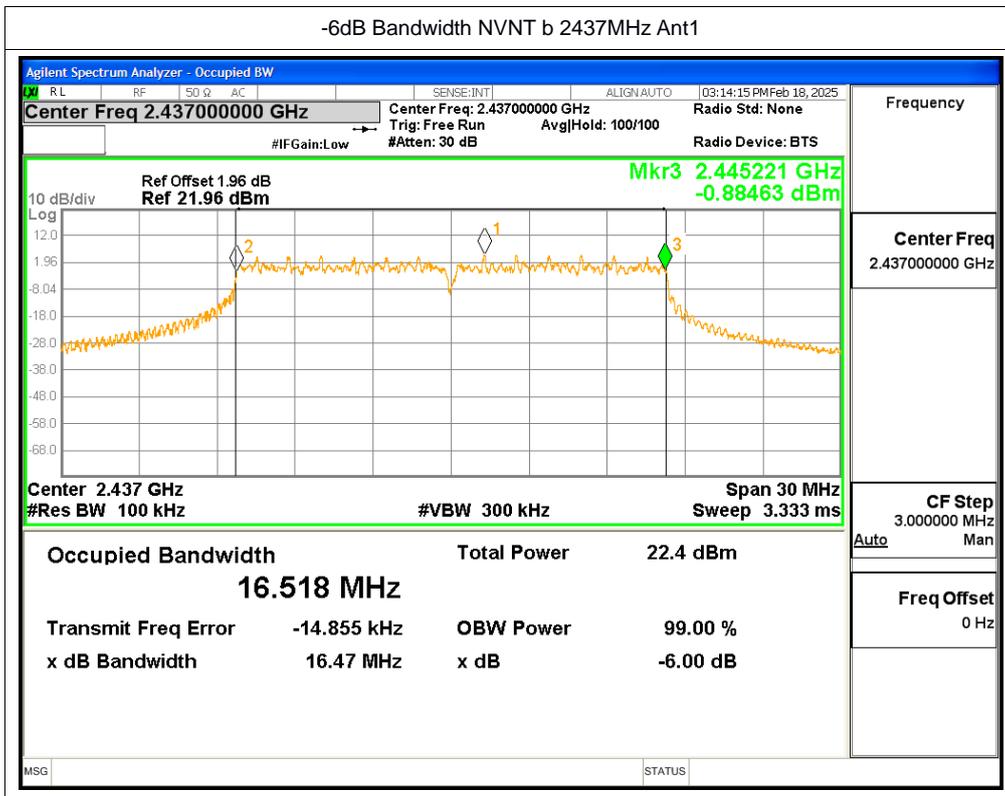


**20M Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	16.51	0.5	Pass
		2437		16.47	0.5	Pass
		2462		16.48	0.5	Pass



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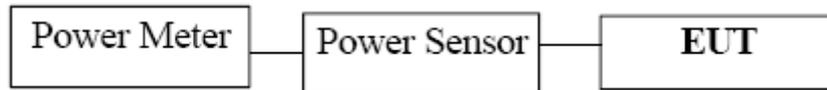


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## 9. Maximum Output Power

### 9.1 Test Setup



### 9.2 Limits of Maximum Output Power

The Maximum Output Power Measurement is 30dBm.

### 9.3 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

**Note: the Peak power were measured.**



## 8.4 Test Results

### 10M Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	17.32	0	17.32	30	Pass
		2437		16.38	0	16.38	30	Pass
		2462		17.35	0	17.35	30	Pass

### 20M Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	17.2	0	17.2	30	Pass
		2437		16.24	0	16.24	30	Pass
		2462		17.16	0	17.16	30	Pass

Note: 1. the result basic equation calculation as follow:

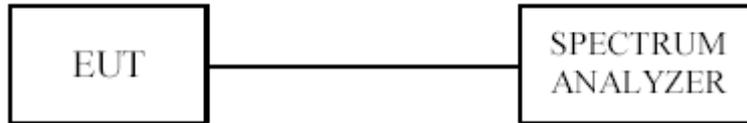
$$\text{Max. Power Output} = \text{Power Reading} + \text{Cable loss} + \text{Attenuator}$$

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## 10. Power Spectral Density Measurement

### 10.1 Test Setup



### 10.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm/3kHz.

### 10.3 Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 3 kHz.
3. Set the VBW  $\geq$  10 kHz.
4. Set the span to 1.5 times the DTS channel bandwidth.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
11. The resulting peak PSD level must be  $\leq$  8 dBm/3kHz.

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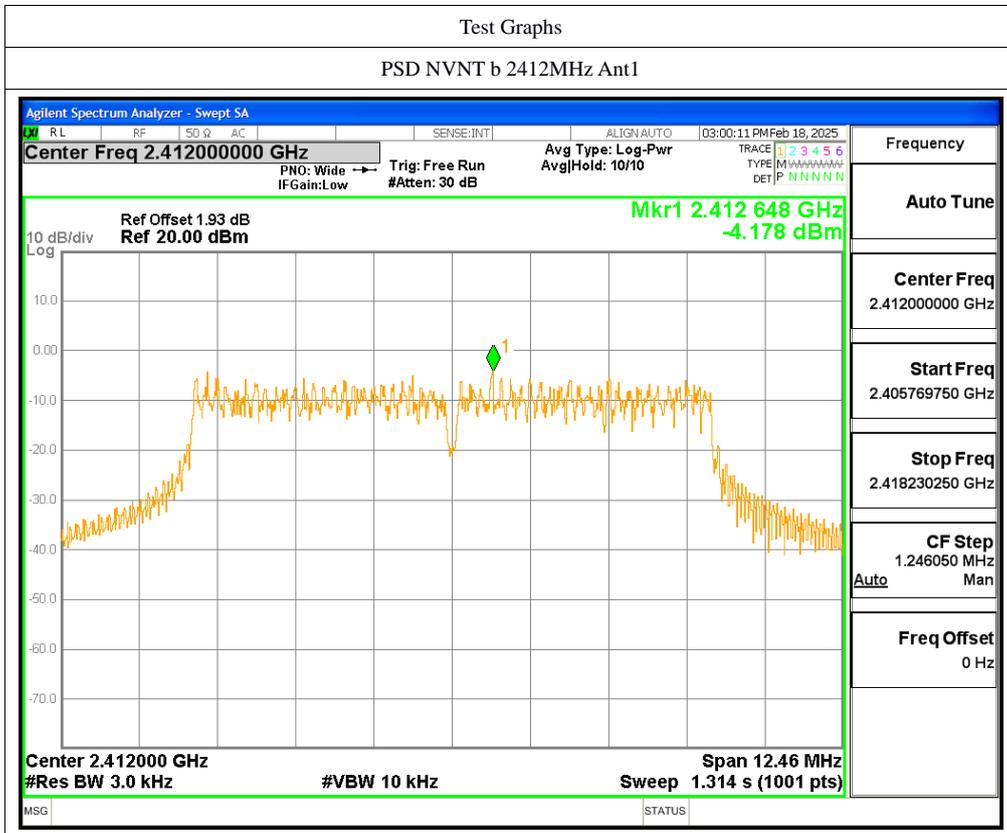
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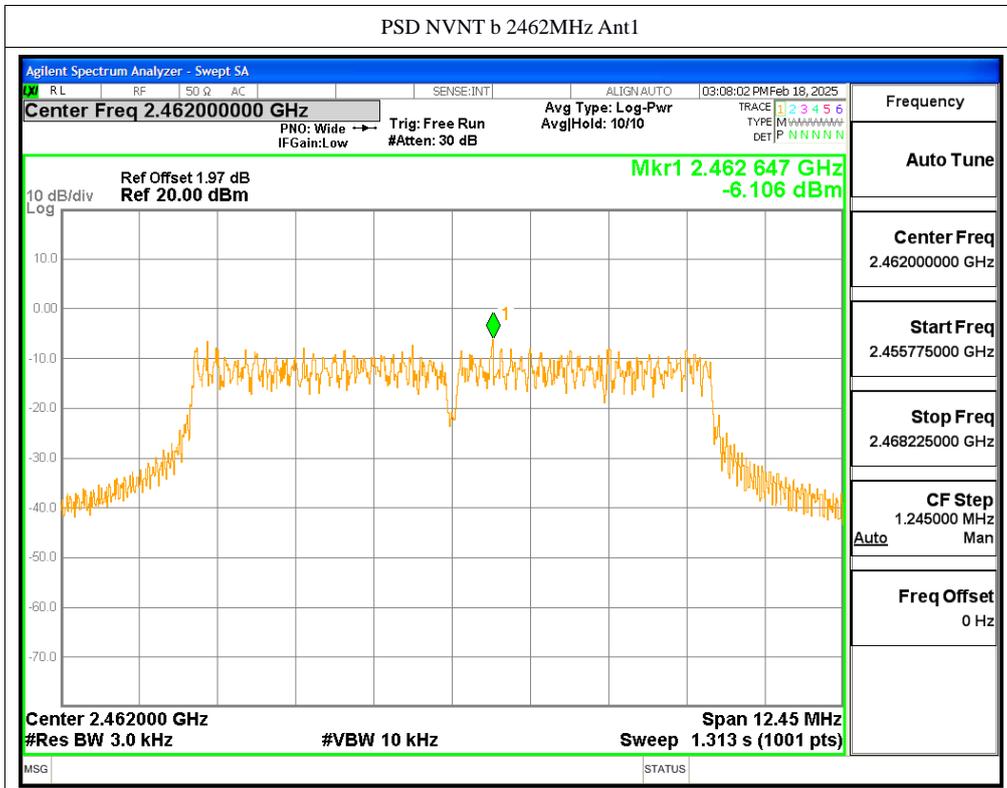
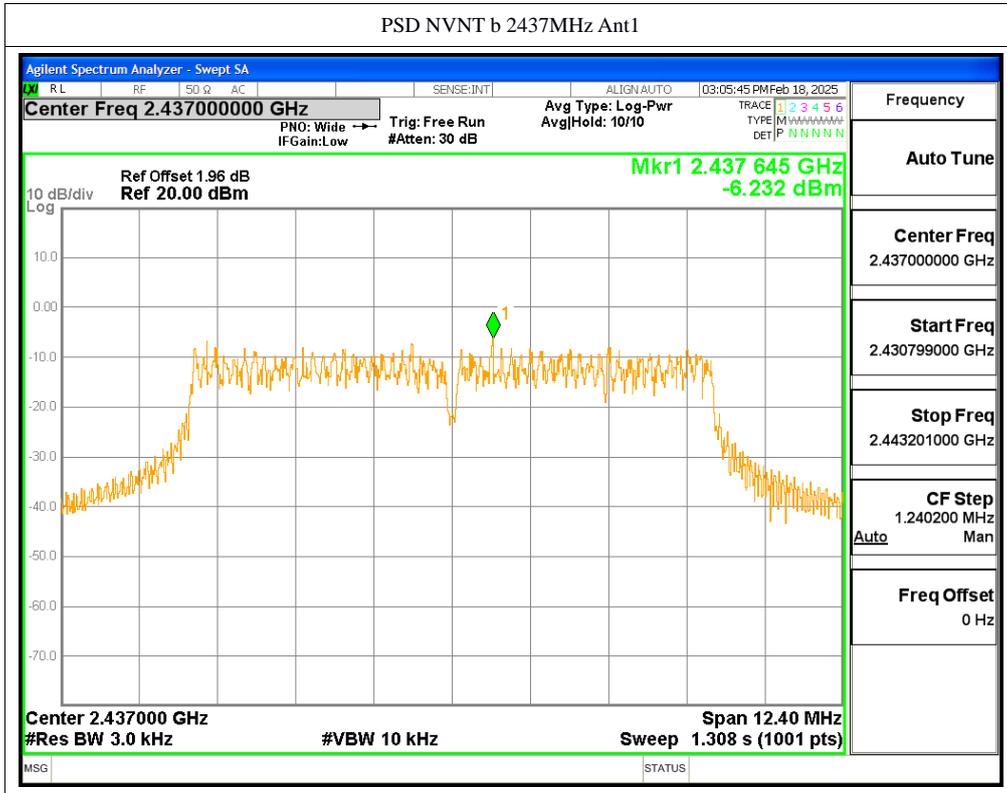
9.4 Test Result

10M Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant1	-4.18	0	-4.18	8	Pass
		2437		-6.23	0	-6.23	8	Pass
		2462		-6.11	0	-6.11	8	Pass



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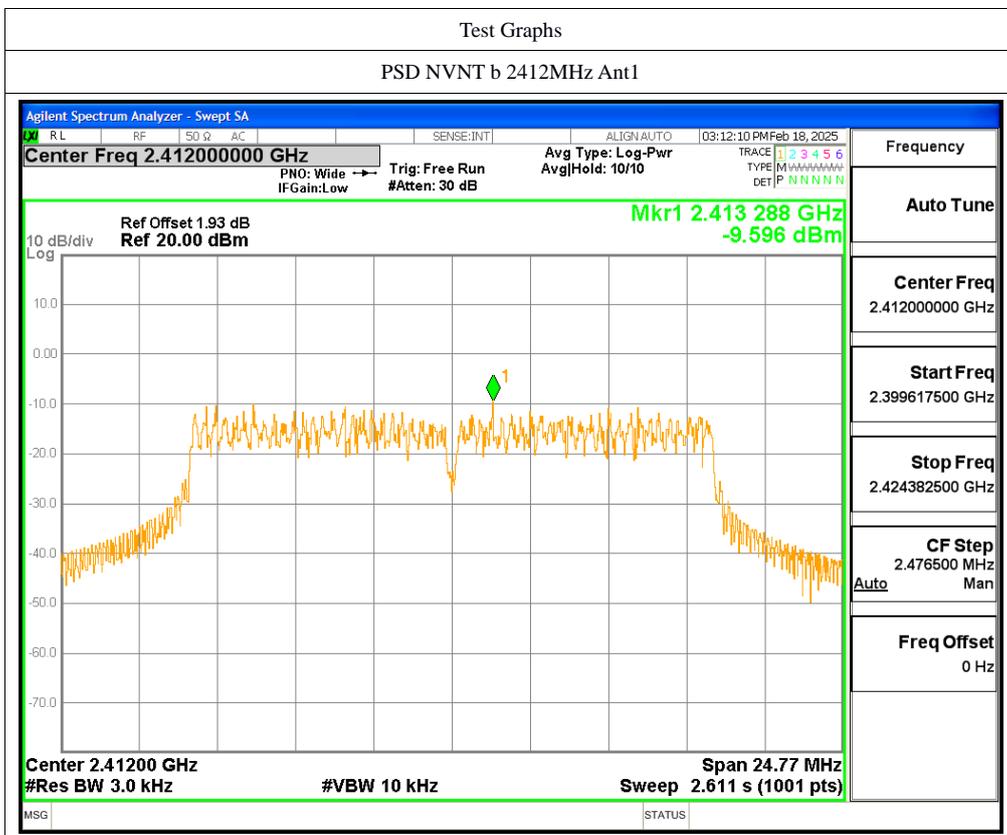


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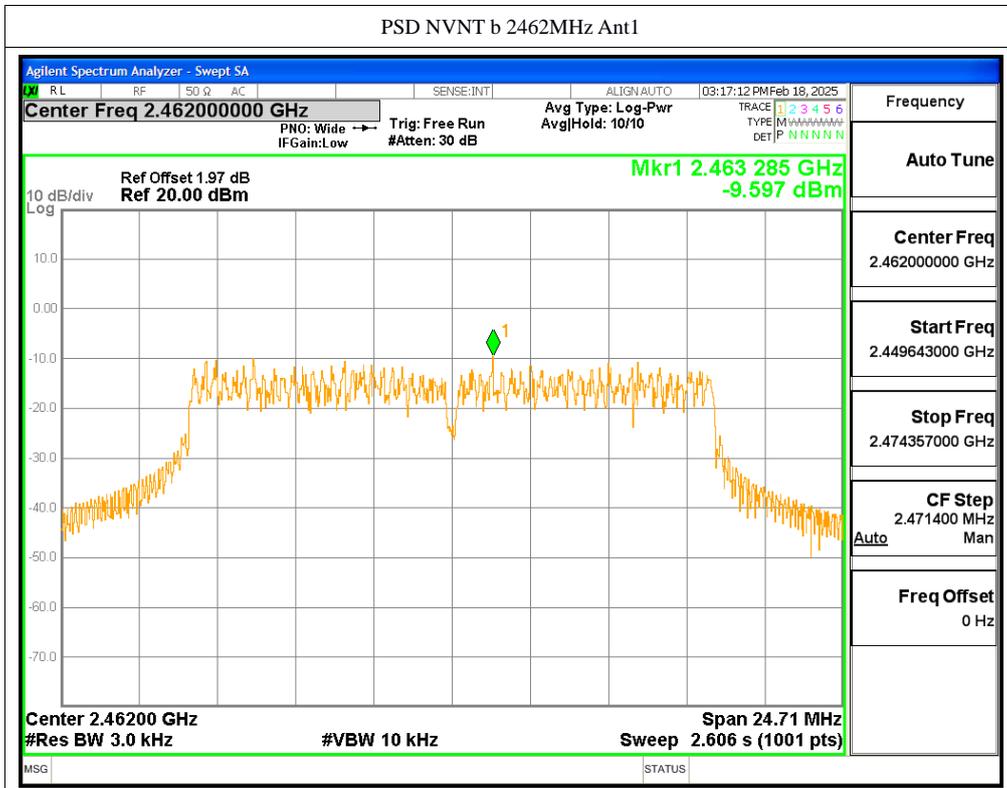
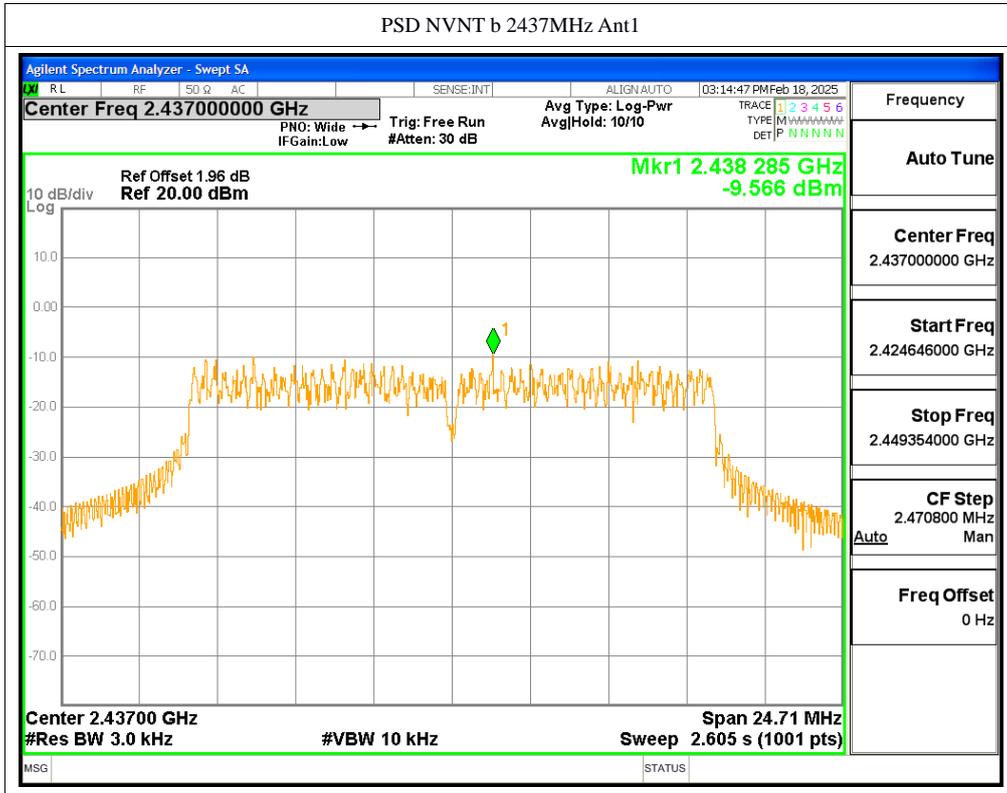


**20M Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant1	-9.6	0	-9.6	8	Pass
		2437		-9.57	0	-9.57	8	Pass
		2462		-9.6	0	-9.6	8	Pass



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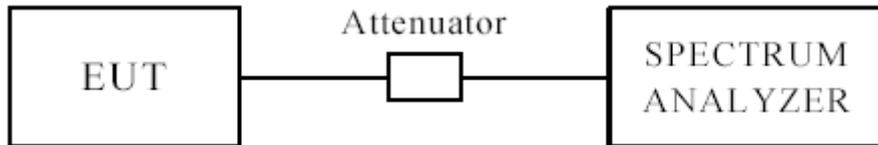


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## 11 Out of Band Measurement

### 11.1 Test Setup for band edge



**The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup**

### 11.2 Limits of Out of Band Emissions Measurement

1. Below  $-20\text{dB}$  of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

### 11.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of Radiated emission test. (Peak values with RBW=1MHz, VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector)

For bandage test, the spectrum set as follows: RBW=100 kHz, VBW=300 kHz. A conducted measurement used

### 11.4 Test Result

Please see next pages

Note: For band-edge measurement, the frequency from 30MHz-25GHz was tested. And It met the FCC rule.

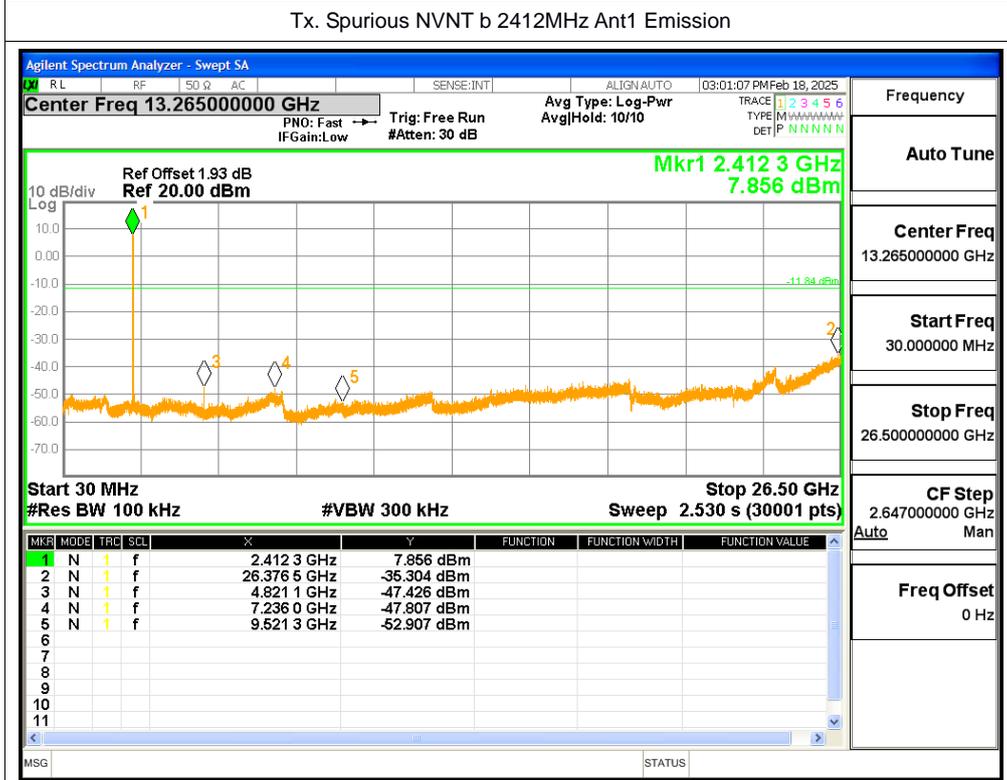
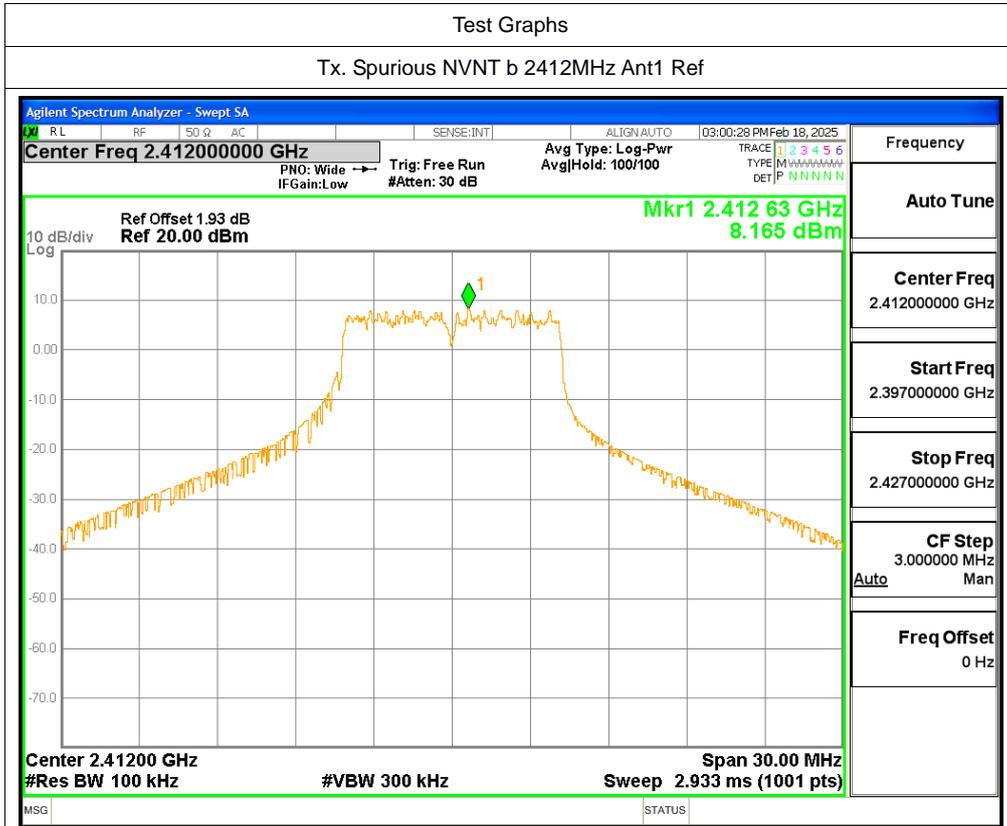


## Conducted RF Spurious Emission

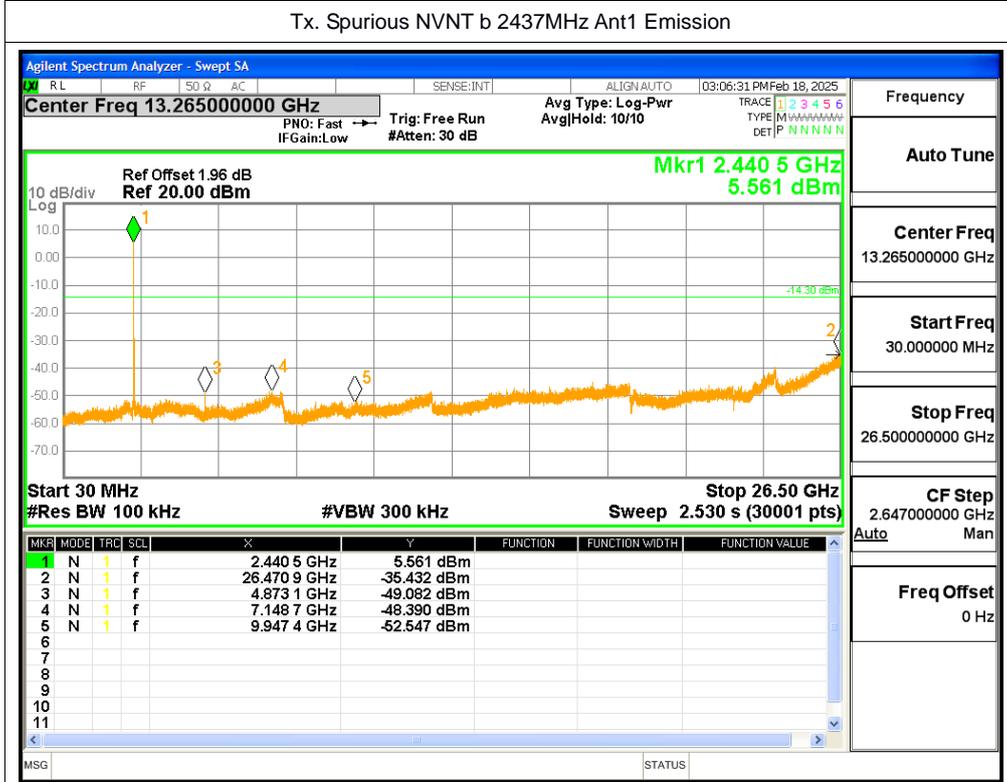
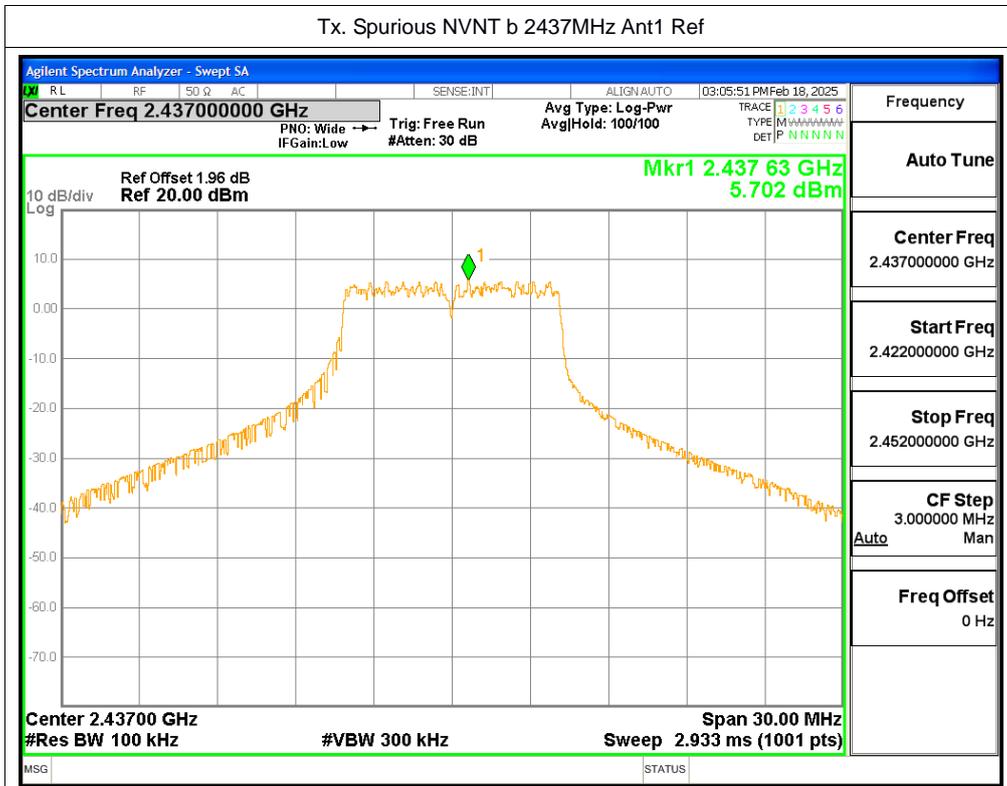
### 10M Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-43.47	-20	Pass
		2437		-41.13	-20	Pass
		2462		-41.02	-20	Pass

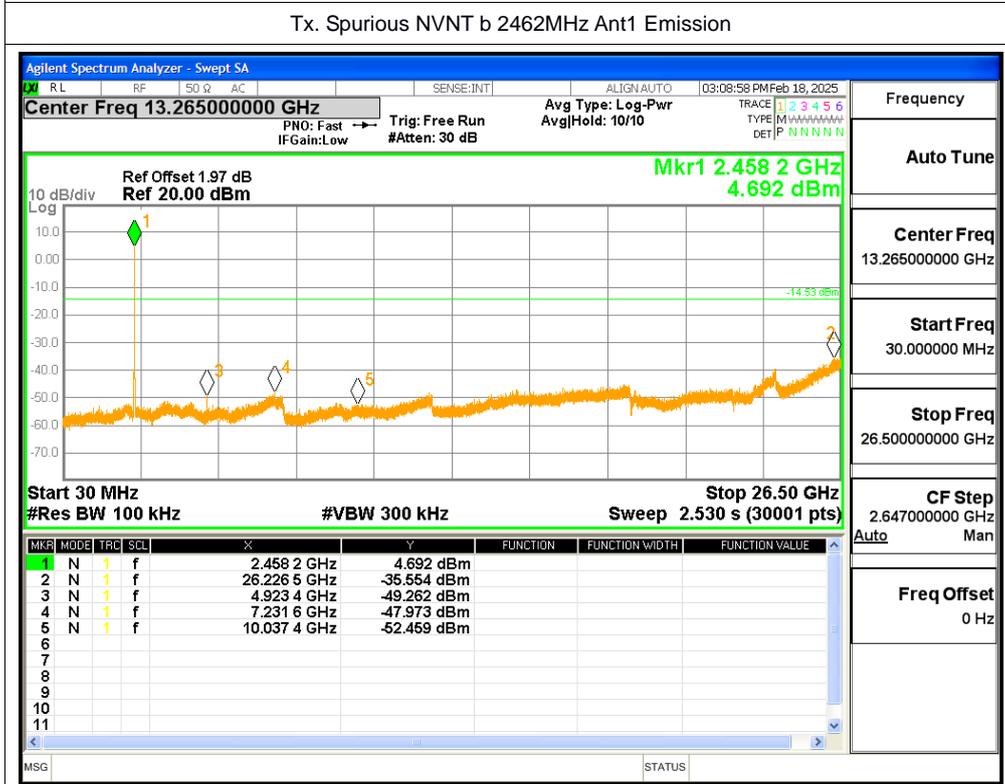
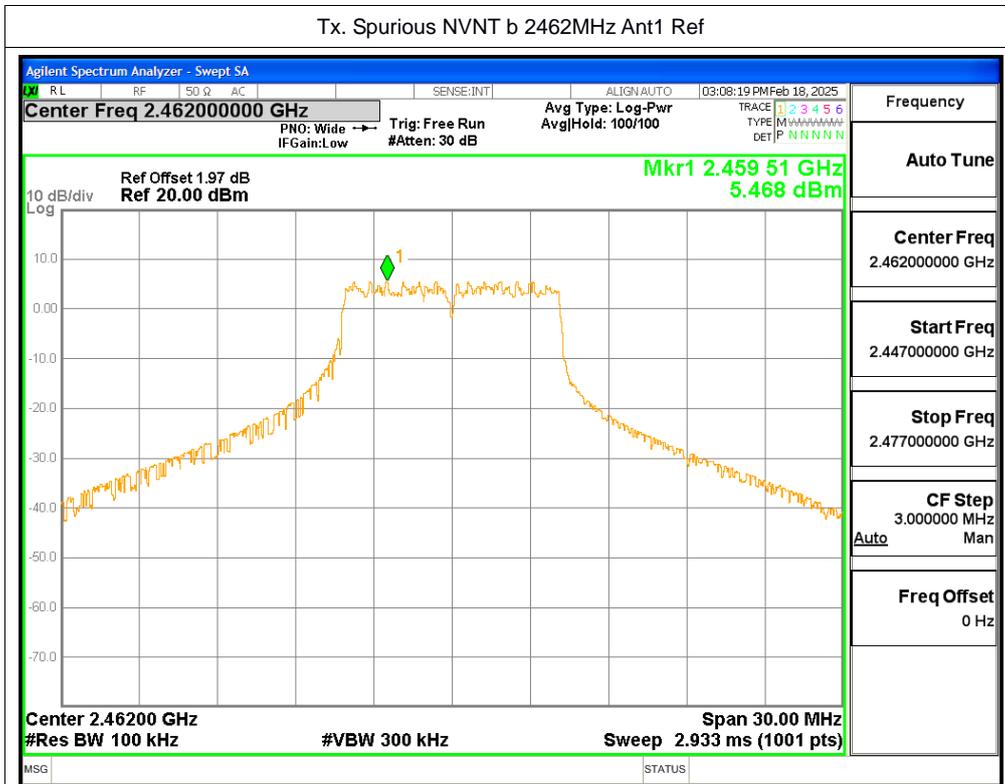
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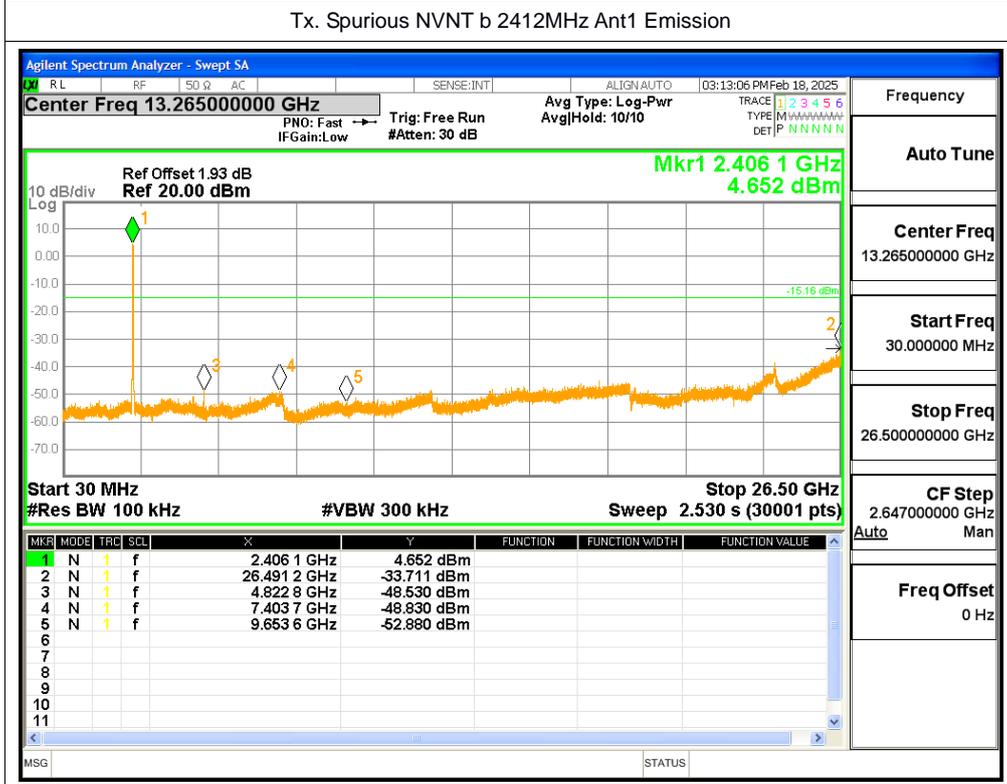
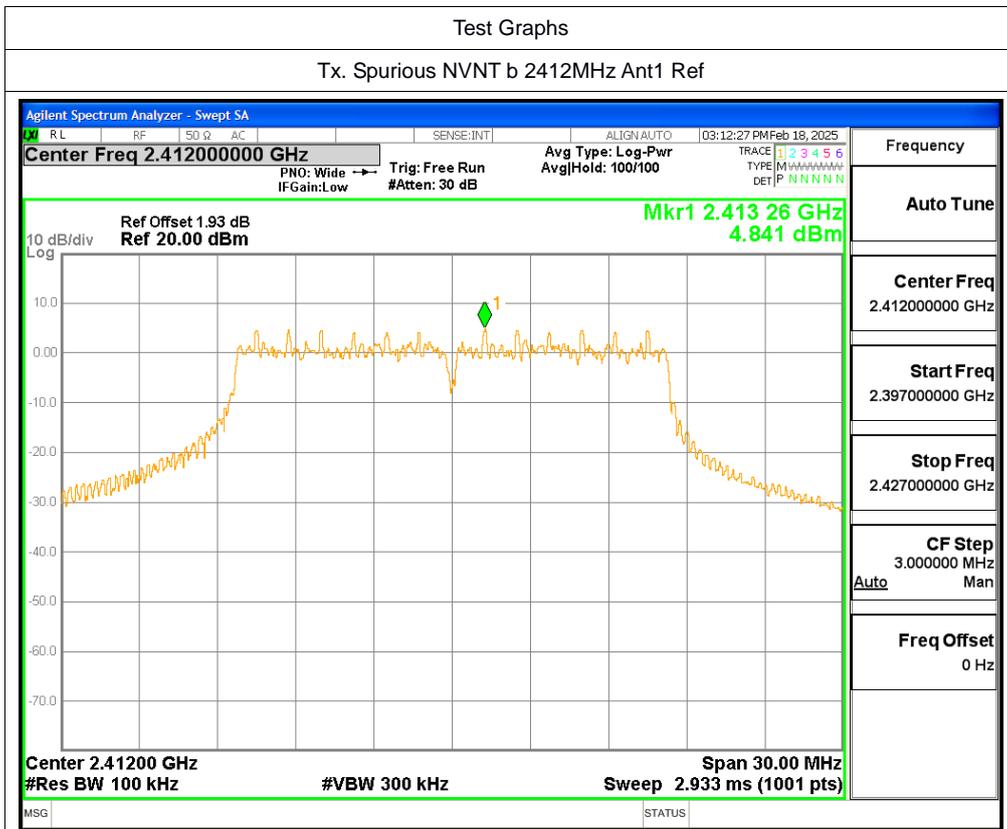
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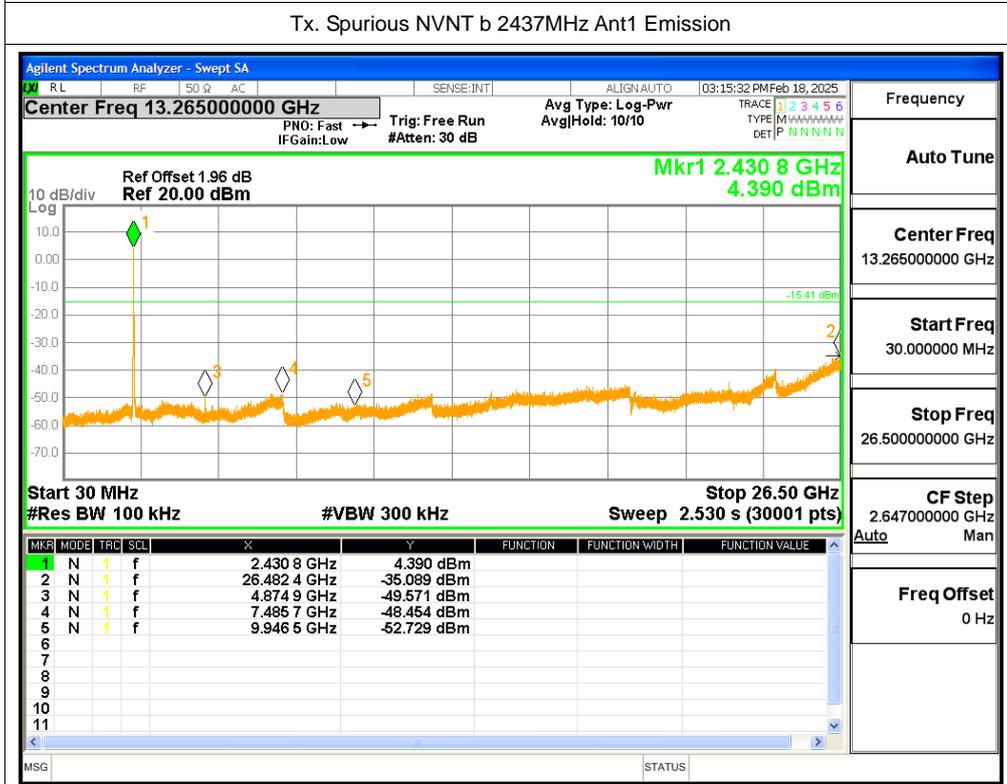
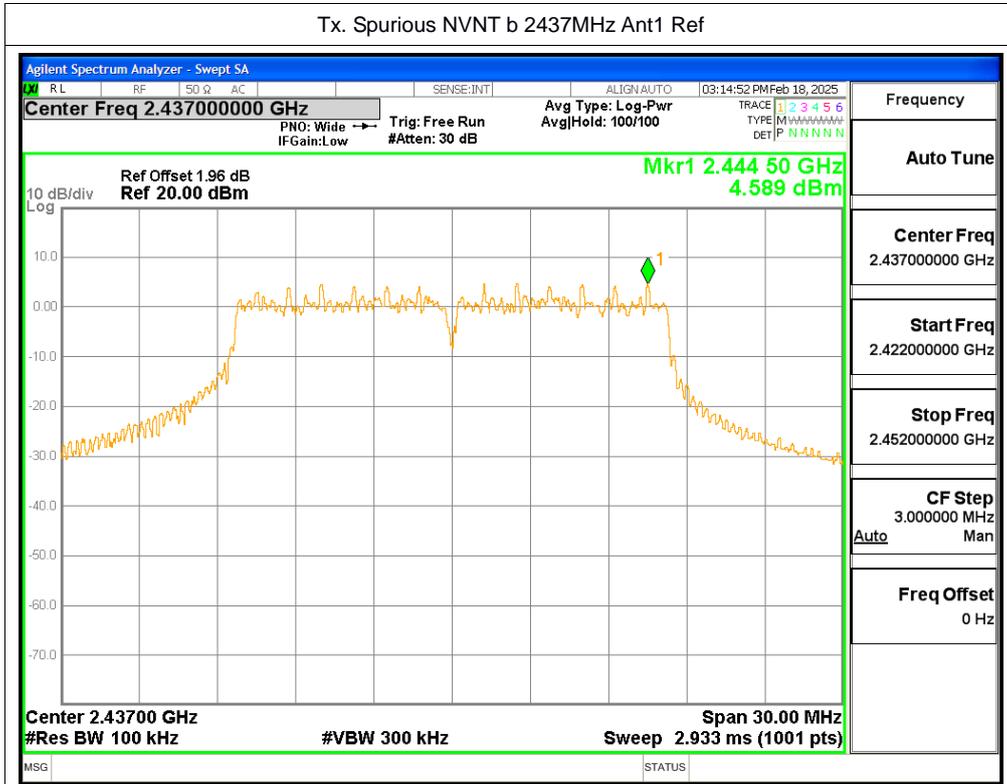
**20M Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-38.55	-20	Pass
		2437		-39.67	-20	Pass
		2462		-40.19	-20	Pass

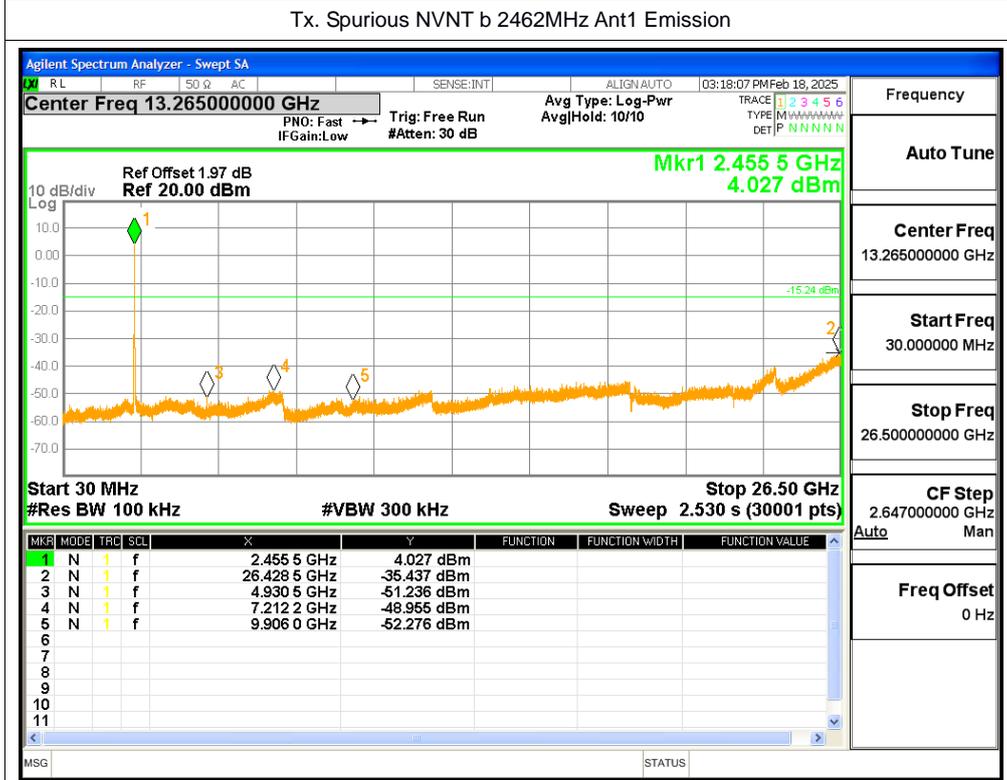
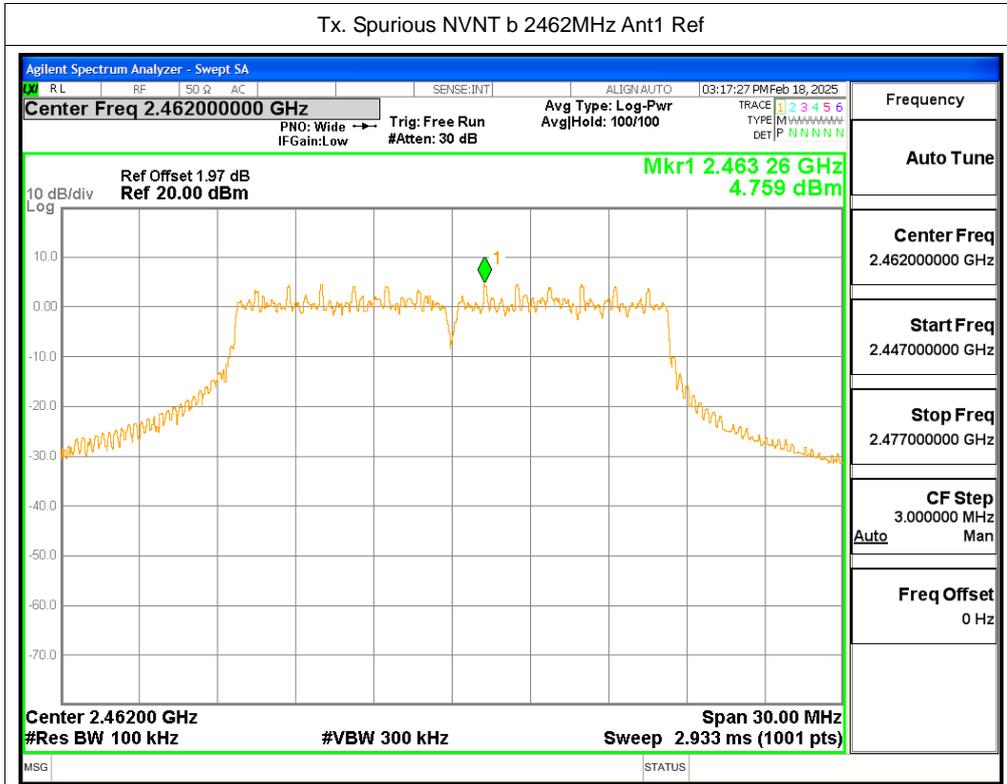
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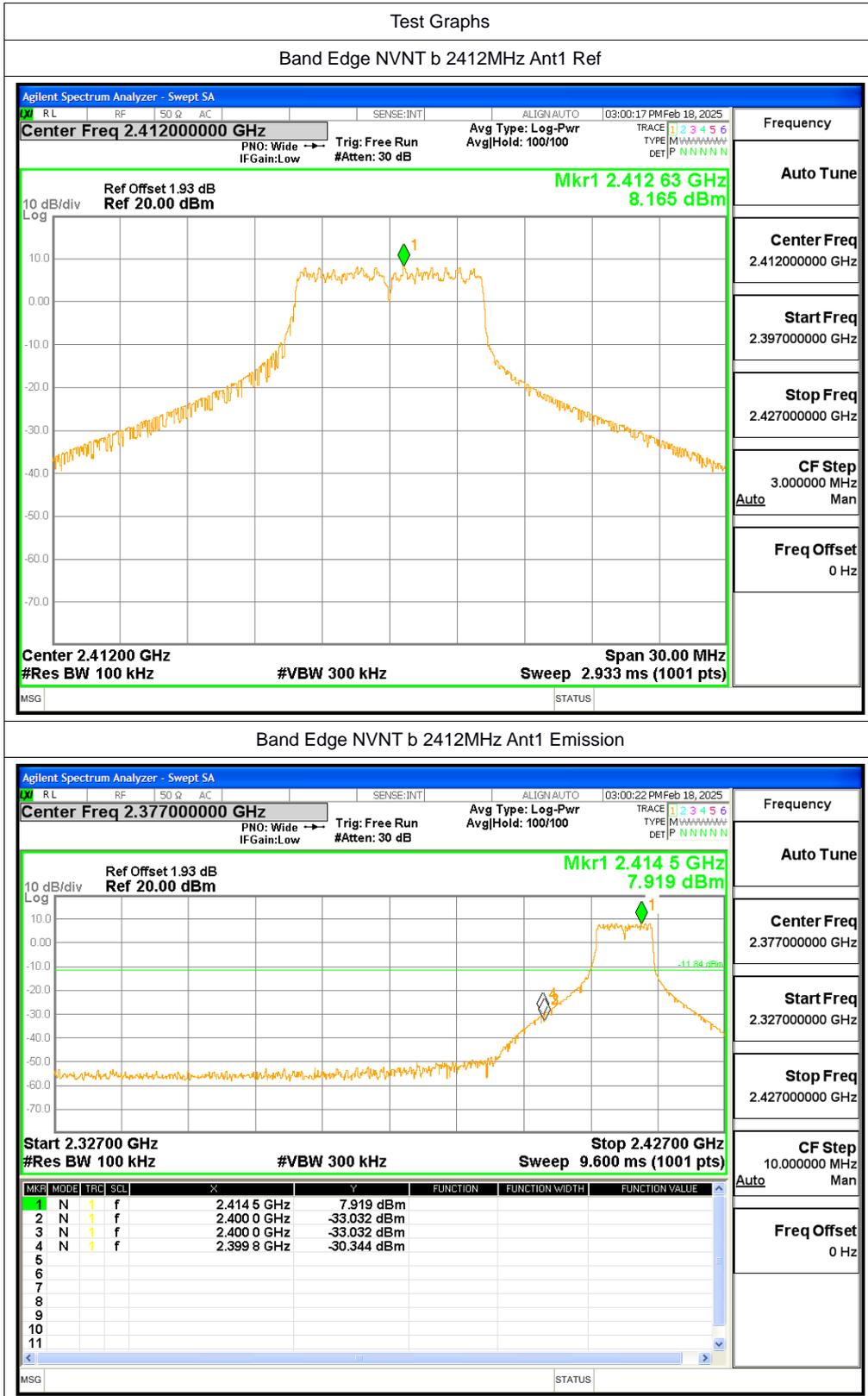


## Band Edge

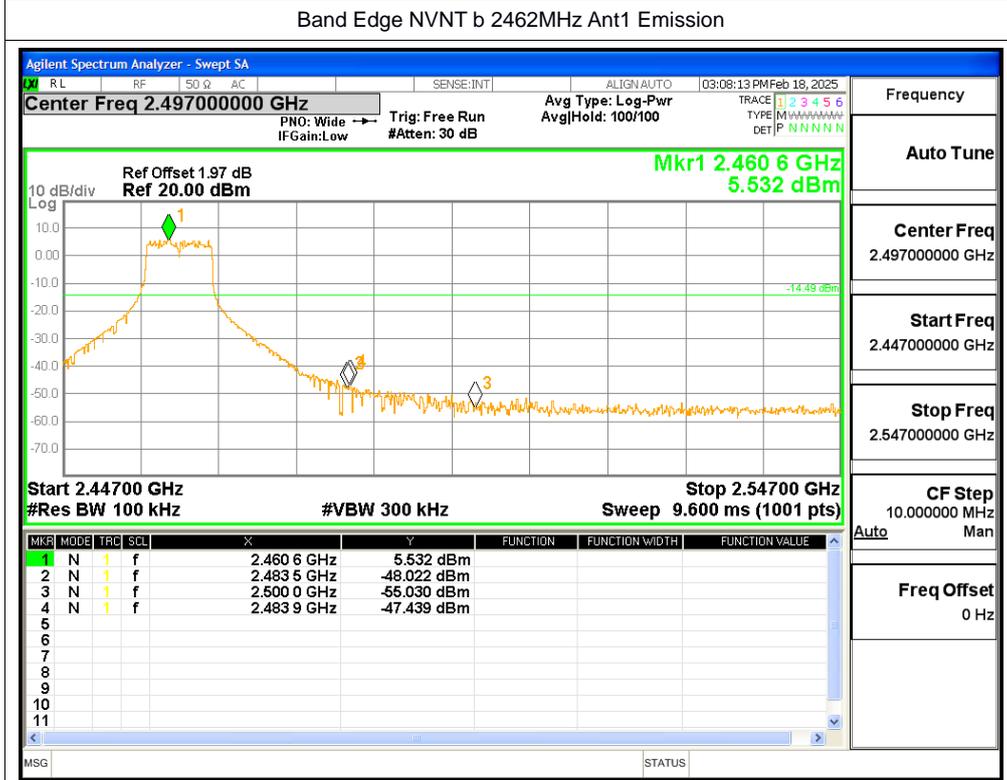
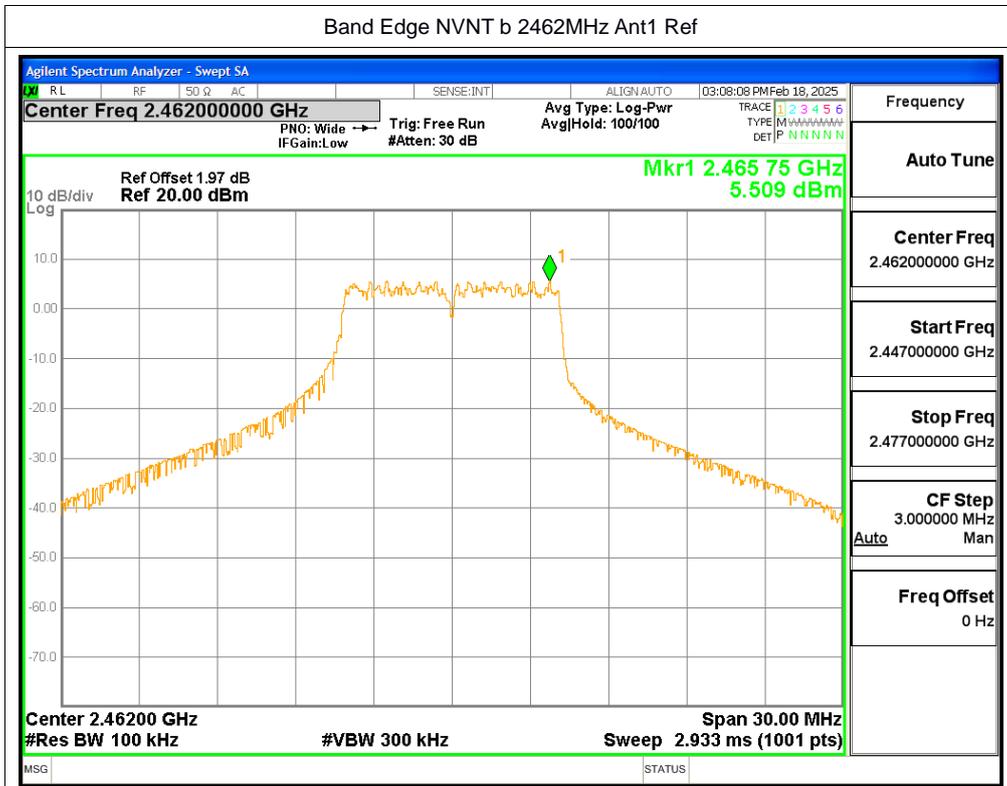
### 10M Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-38.5	-20	Pass
		2462		-52.94	-20	Pass

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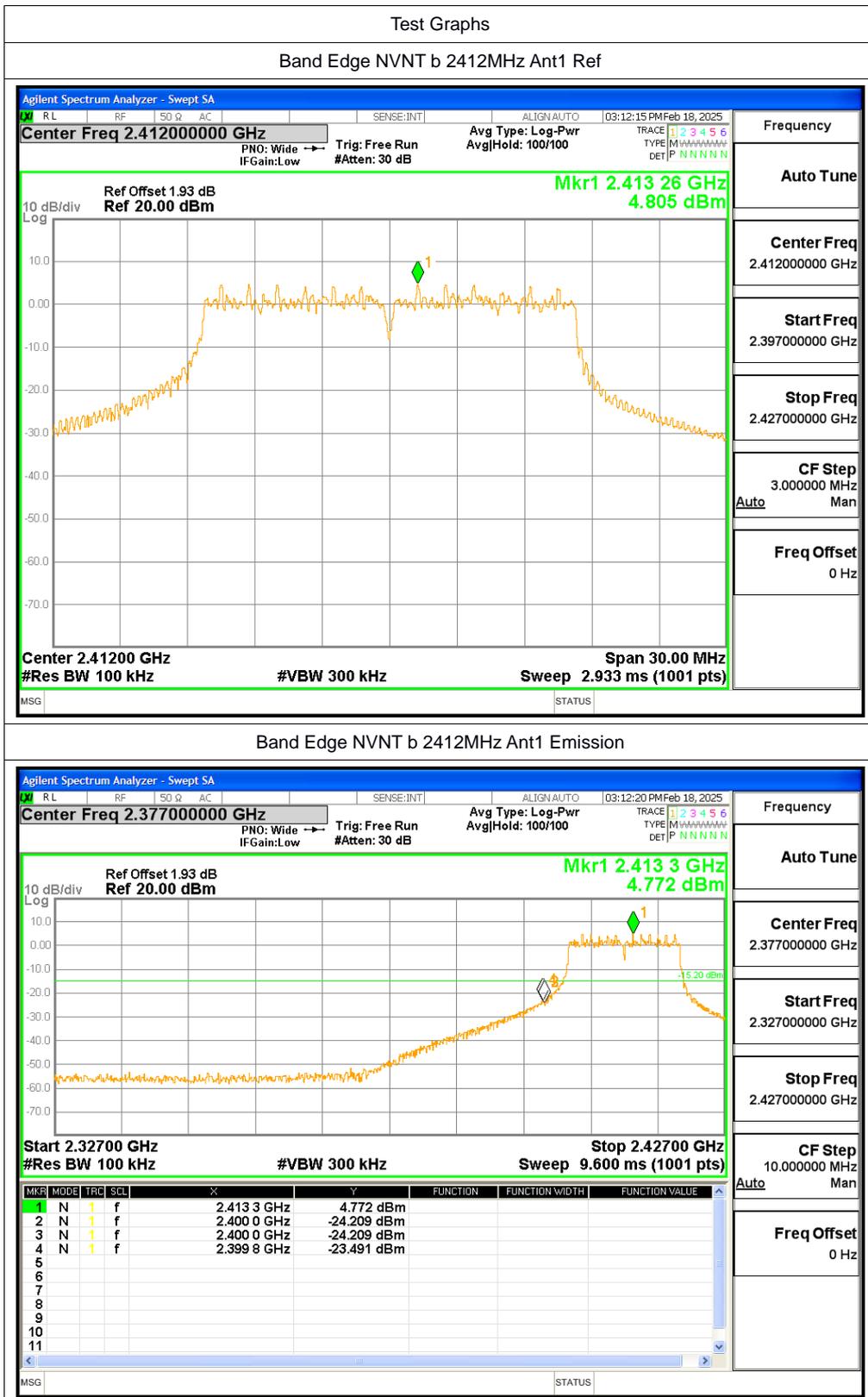
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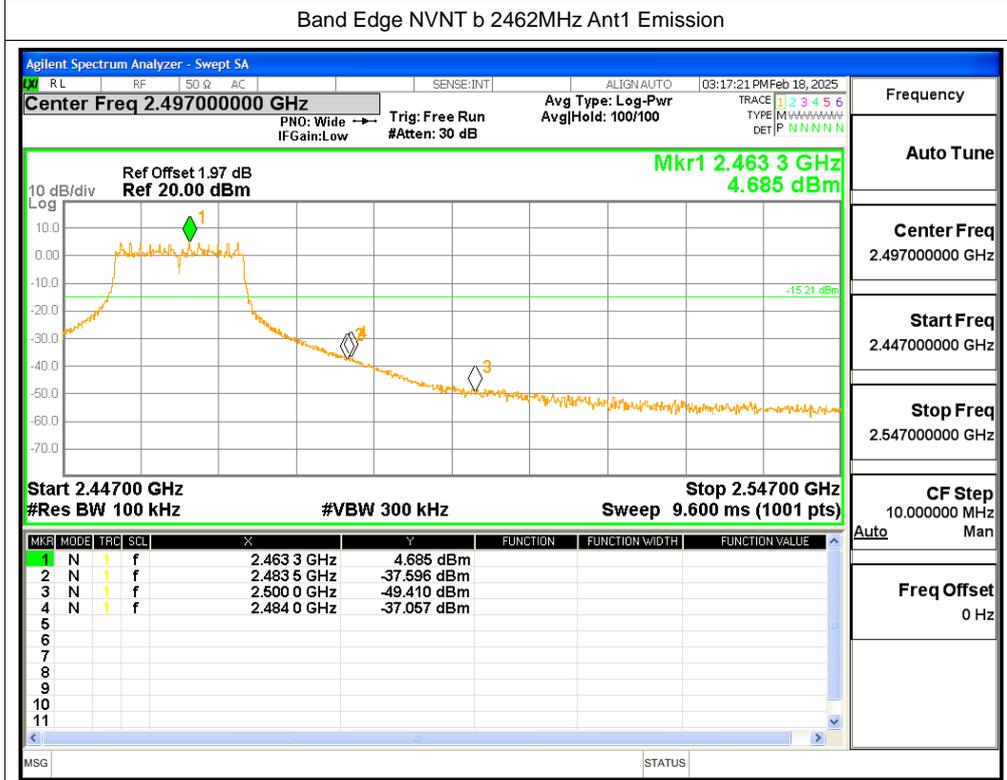
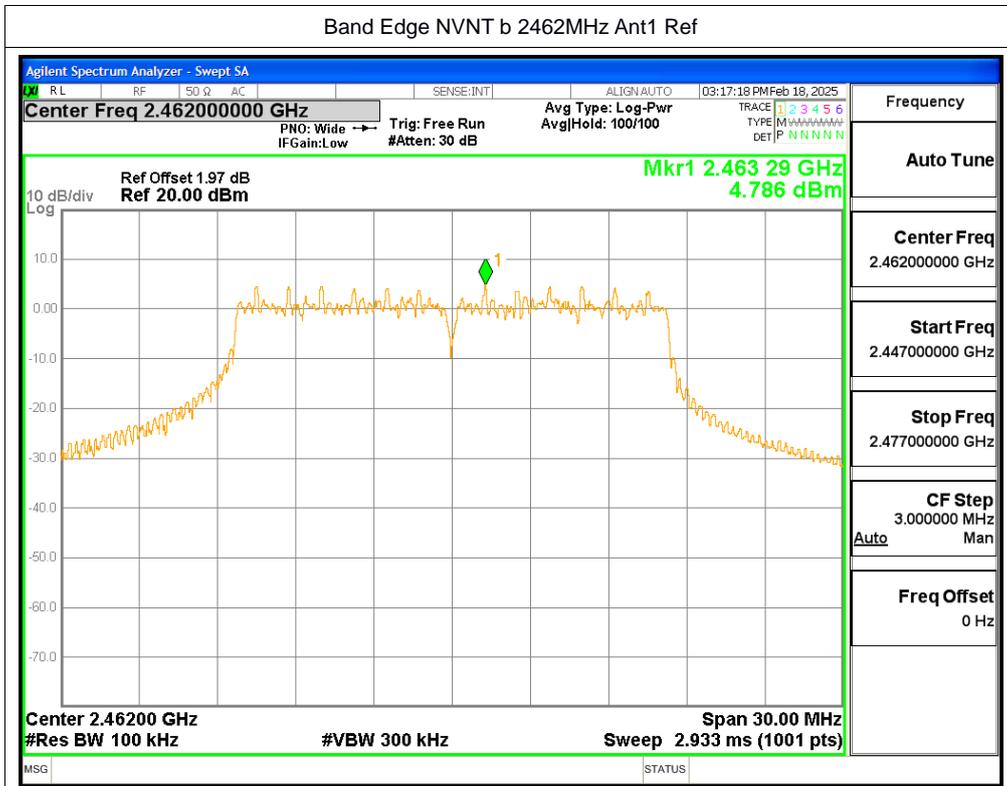
### 20M Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-28.3	-20	Pass
		2462		-41.84	-20	Pass

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**10M Bandwidth**

**10.5 Restricted band Measurement**

EUT	Unmanned Aircraft		Model	D-Series 313
Mode	Keeping Transmitting		Test Voltage	DC22.2V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
Low Channel, Horizontal				
2390	PK (dB $\mu$ V/m)	49.39	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	--		54(dB $\mu$ V/m)
Low Channel, Vertical				
2390	PK (dB $\mu$ V/m)	45.60	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	--		54(dB $\mu$ V/m)

**10.5 Restricted band Measurement**

EUT	Unmanned Aircraft		Model	D-Series 313
Mode	Keeping Transmitting		Test Voltage	DC22.2V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
High Channel, Horizontal				
2483.5	PK (dB $\mu$ V/m)	48.13	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	--		54(dB $\mu$ V/m)
High Channel, Vertical				
2483.5	PK (dB $\mu$ V/m)	44.78	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	--		54(dB $\mu$ V/m)

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**20M Bandwidth**

**10.5 Restricted band Measurement**

EUT	Unmanned Aircraft		Model	D-Series 313
Mode	Keeping Transmitting		Test Voltage	DC22.2V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
Low Channel, Horizontal				
2390	PK (dB $\mu$ V/m)	51.91	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	--		54(dB $\mu$ V/m)
Low Channel Vertical				
2390	PK (dB $\mu$ V/m)	46.86	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	--		54(dB $\mu$ V/m)

**10.5 Restricted band Measurement**

EUT	Unmanned Aircraft		Model	D-Series 313
Mode	Keeping Transmitting		Test Voltage	DC22.2V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
High Channel, Horizontal				
2483.5	PK (dB $\mu$ V/m)	50.28	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	--		54(dB $\mu$ V/m)
High Channel, Vertical				
2483.5	PK (dB $\mu$ V/m)	45.37	Limit	74(dB $\mu$ V/m)
	AV (dB $\mu$ V/m)	--		54(dB $\mu$ V/m)

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## **12.0 Antenna Requirement**

### **12.1 Standard Applicable**

For intentional device, according to FCC 47 CFR Section 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **12.2 Antenna Connected construction**

Integral antenna used. The gain of the antennas is 2.13dBi (Get from the antenna test report)

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### 13.0 FCC ID Label

#### FCC ID: 2BM3J-D313

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

#### Mark Location:



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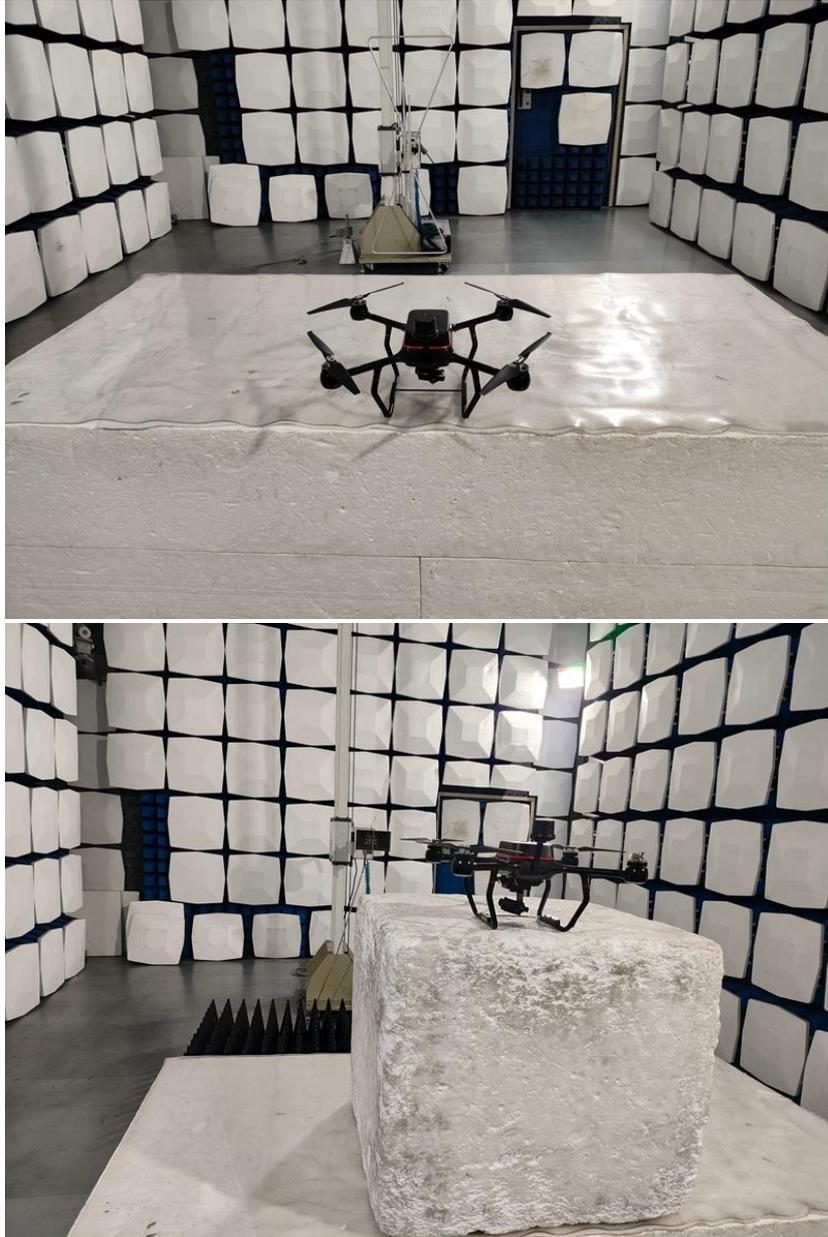


#### 14.0 Photo of testing

Conducted Emission Test Setup:

N/A

Radiated Emission Test Setup:



#### Photographs – EUT

Please refer test report TW2501165-02E

**-End of the report-**

The report refers only to the sample tested and does not apply to the bulk.  
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