FCC TEST REPORT
FCC ID:2BOGA-LN8X

Report No.....	:	ZHT-250613126W01
Product.....	:	Mini Camera
Trademark.....	:	N/A
Model(s).....	:	LN8X, LN29, R3H, T94, W6K, LN6K, LN4D, LN3J, LN7B, D82, C3X
Model Difference.....	:	LN8X is tested model, other models are derivative models .The models are identical in circuit, only different on the model names. So the test data of LN8X can represent the remaining models.
Applicant.....	:	Shenzhen Shifang Digital Technology Co., Ltd
Address.....	:	Room 2619, 26th Floor, Building A, United Plaza, No. 5022, Binhe Avenue, Fushan Community, Futian Street, Futian District, Shenzhen, China
Manufacturer.....	:	Shenzhen Shifang Digital Technology Co., Ltd
Address.....	:	Room 2619, 26th Floor, Building A, United Plaza, No. 5022, Binhe Avenue, Fushan Community, Futian Street, Futian District, Shenzhen, China
Prepared by.....	:	Guangdong Zhonghan Testing Technology Co., Ltd.
Address.....	:	Room 104/201, Building 1, Yibaolai Industrial Park, Qiaotou, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Date of Receipt.....	:	Jun. 13, 2025
Date of Test(s).....	:	Jun. 13, 2025 to Jun. 18, 2025
Date of Issue.....	:	Jun. 18, 2025
Test Standard(s).....	:	FCC CFR Title 47 Part 15 Subpart C Section 15.247
Test procedure.....		ANSI C63.10:2013

In the configuration tested, the EUT complied with the standards specified above.

Tested by:	Reviewed by:	Approved by:
Leon Li	Baret.Wu	Levi Lee
Leon Li/ Engineer	Baret Wu/ Director	Levi Lee/ Manager

Note: The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report shall not be reproduced except in full, without prior written approval of ZHT. This document may be altered or revised by ZHT, personnel only, and shall be noted in the revision of the document.

Table of Contents

Page

1. VERSION 4
2. SUMMARY OF TEST RESULTS 5
   2.1 TEST FACILITY 6
   2.2 MEASUREMENT UNCERTAINTY 6
3. GENERAL INFORMATION 7
   3.1 GENERAL DESCRIPTION OF EUT 7
   3.2 DESCRIPTION OF TEST MODES 8
   3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED 9
   3.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE) 9
   3.5EQUIPMENTS LIST FOR ALL TEST ITEMS 10
4. EMC EMISSION TEST 12
   4.1 CONDUCTED EMISSION MEASUREMENT 12
      4.1.1 POWER LINE CONDUCTED EMISSION Limits 12
      4.1.2 TEST PROCEDURE 12
      4.1.3 DEVIATION FROM TEST STANDARD 12
      4.1.4 TEST SETUP 13
      4.1.5 EUT OPERATING CONDITIONS 13
      4.1.6 TEST RESULT 13
   4.2 RADIATED EMISSION MEASUREMENT 16
      4.2.1 RADIATED EMISSION LIMITS 16
      4.2.2 TEST PROCEDURE 16
      4.2.3 DEVIATION FROM TEST STANDARD 17
      4.2.4 TEST SETUP 17
      4.2.5 EUT OPERATING CONDITIONS 18
      4.2.6 TEST RESULTS 18
5. RADIATED BAND EMISSIONMEASUREMENT 23
   5.1 TEST REQUIREMENT: 23
   5.2 TEST PROCEDURE 23
   5.3 DEVIATION FROM TEST STANDARD 23
   5.4 TEST SETUP 24
   5.5 EUT OPERATING CONDITIONS 24
   5.6 TEST RESULT 25
6. POWER SPECTRAL DENSITY TEST 27
   6.1 APPLIED PROCEDURES / LIMIT 27
   6.2 TEST PROCEDURE 27
   6.3 DEVIATION FROM STANDARD 27
   6.4 TEST SETUP 27
   6.5 EUT OPERATION CONDITIONS 27

6.6 TEST RESULT 28
7. CHANNEL BANDWIDTH 29
7.1 APPLIED PROCEDURES / LIMIT 29
7.2 TEST PROCEDURE 29
7.3 DEVIATION FROM STANDARD 29
7.4 TEST SETUP 29
7.5 EUT OPERATION CONDITIONS 29
7.6 TEST RESULT 30
8. OUTPUT POWER TEST 31
8.1 APPLIED PROCEDURES/LIMIT 31
8.2 TEST PROCEDURE 31
8.3 DEVIATION FROM STANDARD 31
8.4 TEST SETUP 31
8.5 EUT OPERATION CONDITIONS 31
8.6 TEST RESULT 31
9. CONDUCTED BAND EDGE AND SPURIOUS EMISSION 32
9.1 APPLICABLE STANDARD 32
9.2 TEST PROCEDURE 32
9.3 DEVIATION FROM STANDARD 32
9.4 TEST SETUP 32
9.5 EUT OPERATION CONDITIONS 32
9.6 TEST RESULTS 32
10. ANTENNA REQUIREMENT 33
11. APPENDIX WIFI 34
11.1 DUTY CYCLE 34
11.2 MAXIMUM CONDUCTED OUTPUT POWER 41
11.3 -6DB BANDWIDTH 42
11.4 OCCUPIED CHANNEL BANDWIDTH 49
11.5 MAXIMUM POWER SPECTRAL DENSITY LEVEL 56
11.6 BAND EDGE 63
11.7 CONDUCTED RF SPURIOUS EMISSION 72
12. TEST SETUP PHOTO 85
13. EUT CONSTRUCTIONAL DETAILS 85

1. VERSION

Report No.	Version	Description	Approved
ZHT-250613126W01	Rev.01	Initial issue of report	Jun. 18, 2025

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Result	Remark
FCC part 15.203/15.247 (b)(4)	Antenna requirement	PASS	
FCC part 15.207	AC Power Line Conducted Emission	PASS	
FCC part 15.247 (b)(3)	Conducted Output Power	PASS	
FCC part 15.247 (a)(2)	Channel Bandwidth	PASS	
FCC part 15.247 (e)	Power Spectral Density	PASS	
FCC part 15.247(d)	Band Edge	PASS	
FCC part 15.205/15.209	Spurious Emission	PASS	

NOTE:

(1) ” N/A” denotes test is not applicable in this Test Report

2.1 TEST FACILITY

Guangdong Zhonghan Testing Technology Co., Ltd.
Add. : Room 104/201, Building 1, Yibaolai Industrial Park, Qiaotou, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

FCC Registration Number:255941
Designation Number: CN0325
IC Registered No.: 29832
CAB identifier: CN0143

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U,where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2,providing a level of confidence of approximately 95 %。

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	RF conducted power	±0.16dB
3	Conducted spurious emissions	±0.21dB
4	All radiated emissions (9k-30MHz)	±4.68dB
5	All radiated emissions (<1G)	±4.68dB
6	All radiated emissions (>1G)	±4.89dB
7	Temperature	±0.5°C
8	Humidity	±2%
9	Occupied Bandwidth	±4.96%

Decision Rule

☒ Uncertainty is not included

☐ Uncertainty is included

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	Mini Camera
Test Model No.:	LN8X
Hardware Version:	V1.0
Software Version:	V1.0
Sample(s) Status:	Engineer sample
Channel numbers:	802.11b/802.11g /802.11n(HT20):11, /802.11n(HT40):7
Operation Frequency:	802.11b/802.11g /802.11n(HT20): 2412-2462MHz/802.11n(HT40): 2422-2452MHz
Channel separation:	5MHz
Modulation technology:	IEEE 802.11b: DQPSK/DBPSK/DSSS/CCK IEEE 802.11g: QPSK/BPSK/16QAM/64QAM/OFDM IEEE 802.11n: QPSK/BPSK/16QAM/64QAM/OFDM
Antenna Type:	Chip antenna
Antenna gain:	2.95dBi
Power supply:	Input:Type-C DC 5V or DC 3.7V by battery
Remark:The antenna gain is provided by the customer, if the data provided by the customer is not accurate, Guangdong Zhonghan Testing Technology Co., Ltd. does not assume any responsibility.	

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

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

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

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

3.2 DESCRIPTION OF TEST MODES

Transmitting mode	Keep the EUT in continuously transmitting mode
Remark: EUT use new battery during the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)
Data rate	1Mbps	6Mbps	6.5Mbps	13.5Mbps

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission

Adapter → EUT

Radiated Emission

EUT

3.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Adapter	Xiaomi	MDY-08-EH	N/A	AE

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

(3) The test software is the SecureCRTPortable.exe which can set the EUT into the individual test modes.TX Power:Default.

3.5EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Equipment	Manufacturer	Model	Serial No.	Last Cal.	Next Cal.
1	Receiver	R&S	ESCI	100874	May 6, 2025	May 5, 2026
2	Loop Antenna	TESEQ	HLA6121	58357	Oct. 11, 2024	Oct. 10, 2025
3	Amplifier	Schwarzbeck	BBV 9743 B	00378	May 6, 2025	May 5, 2026
4	Amplifier	Schwarzbeck	BBV 9718 B	00040	Jun. 13, 2025	May 6, 2026
5	Bilog Antenna	Schwarzbeck	VULB9162	00498	May 15, 2025	May 14, 2026
6	Horn Antenna	Schwarzbeck	BBHA9120D	02623	May 15, 2025	May 14, 2026
7	Horn Antenna	A.H.SYSTEMS	SAS574	588	Oct. 21, 2024	Oct. 20, 2025
8	Amplifier	AEROFLEX	100KHz-40GHz	097	Oct. 21, 2024	Oct. 20, 2025
9	Spectrum Analyzer	R&S	FSV40	101413	Oct. 21, 2024	Oct. 20, 2025
10	Spectrum Analyzer	KEYSIGHT	N9020A	MY53420208	Jun. 13, 2025	May 6, 2026
11	WIDBAND RADIO COMMUNICATION TESTER	R&S	CMW500	109863	Jun. 13, 2025	May 6, 2026
12	Single Generator	Agilent	N5182A	MY48180575	Jun. 13, 2025	May 6, 2026
13	MWRF Power Meter Test system	MW	MW100-RFCB	/	Jun. 13, 2025	May 6, 2026
14	CABLE	EMToni	DA800-NM-NM-11000MM	/	May 6, 2025	May 5, 2026

Conduction Test equipment

Equipment	Manufacturer	Model	Serial No.	Last Cal.	Next Cal.
Receiver	R&S	ESCI	100874	May 6, 2025	May 5, 2026
LISN	R&S	ENV216	102794	May 6, 2025	May 5, 2026
ISN CAT 6	Schwarzbeck	NTFM 8158	00318	Jun. 13, 2025	May 6, 2026
ISN CAT 5	Schwarzbeck	CAT5 8158	00343	Jun. 13, 2025	May 6, 2026
Capacitive Voltage Probe	Schwarzbeck	CVP 9222 C	00101	May 8, 2025	May 7, 2026
Current Transformer Clamp	Schwarzbeck	SW 9605	SW9605 #209	May 8, 2025	May 7, 2026
CABLE	EMToni	G223-NM-BNCM -2000MM	/	Jun. 13, 2025	May 6, 2026

Conducted Test equipment

Item	Equipment	Manufacturer	Model	Serial No.	Last Cal.	Next Cal.
1	Spectrum Analyzer	R&S	FSV40	101413	Oct. 21, 2024	Oct. 20, 2025
2	Spectrum Analyzer	KEYSIGHT	N9020A	MY53420208	Jun. 13, 2025	May 6, 2026
3	Power Sensor	MWRFtest	MW100-RFCB	/	Jun. 13, 2025	May 6, 2026

Testing software

Project	Software name	Edition
RF Conducted	MTS 8310	2.0.0.0
Conducted Emission	EZ-EMC	EMC-CON 3A1.1+
Radiated Emission	EZ-EMC	FA-03A2 RE+

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

4.1.1 POWER LINE CONDUCTED EMISSION Limits

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) *Decreases with the logarithm of the frequency.

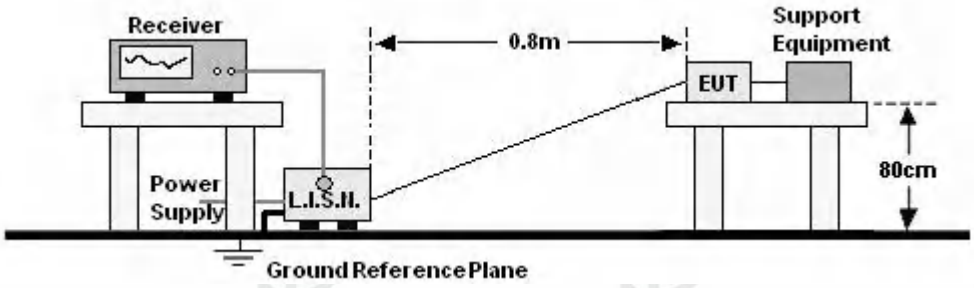
4.1.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP

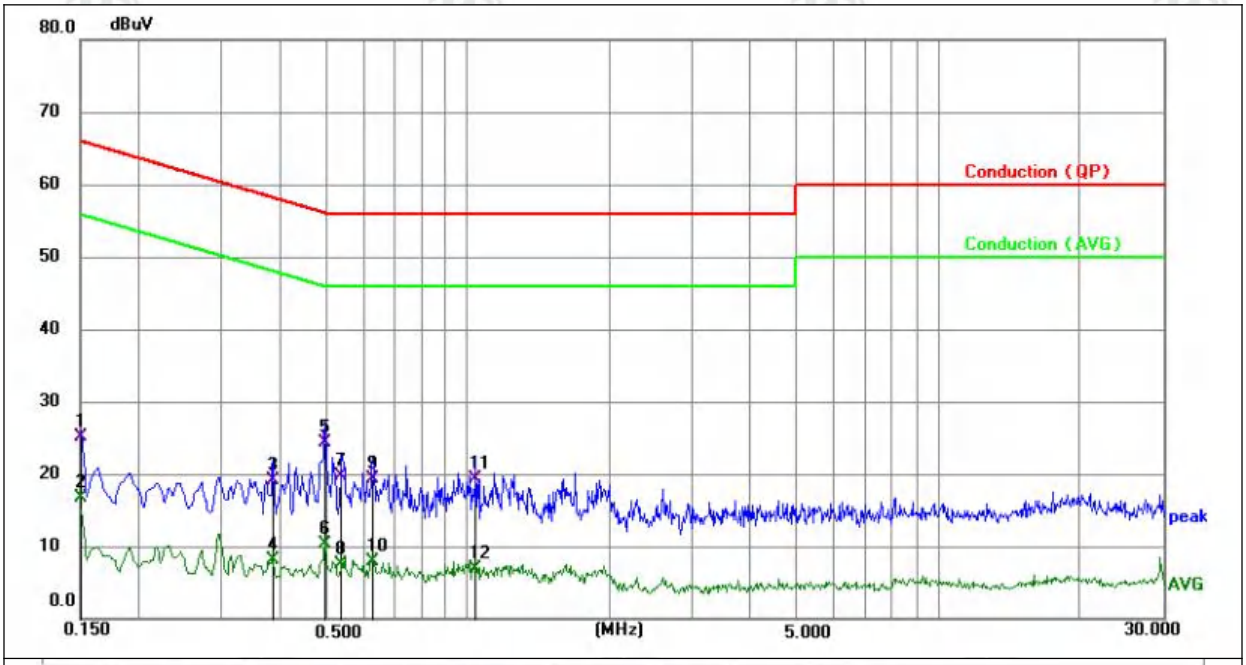


4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

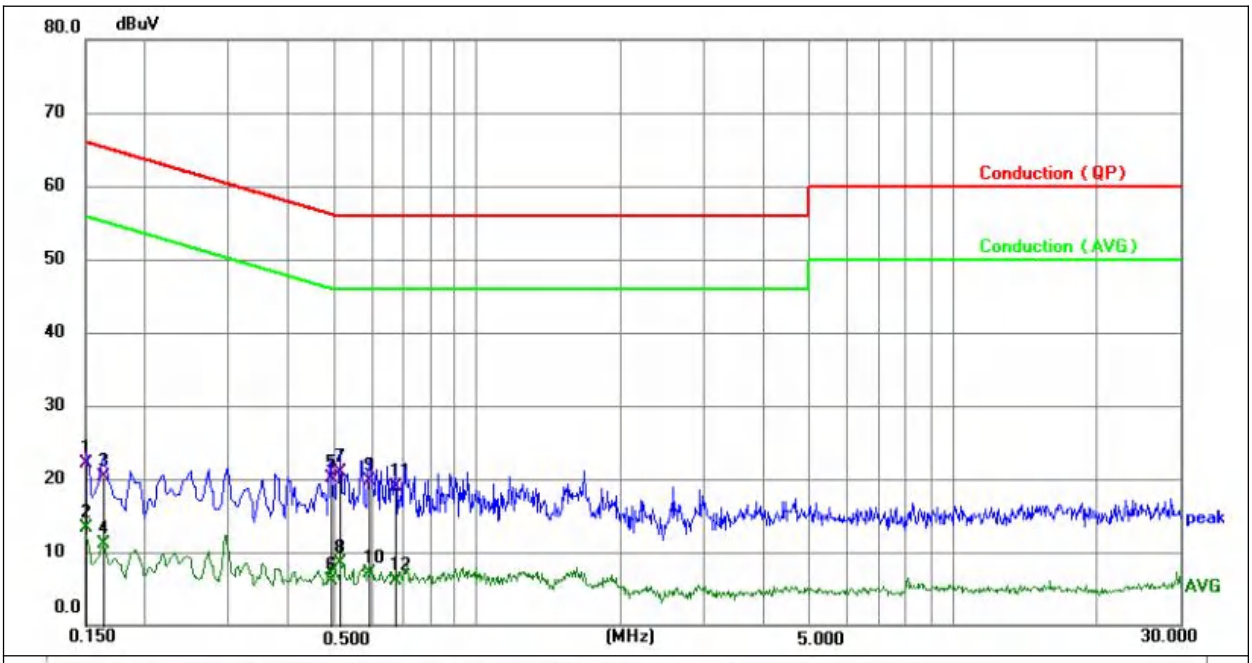
4.1.6 TEST RESULT

Temperature :	25.1℃	Relative Humidity :	50%
Pressure :	101kPa	Polarization :	Line
Test Voltage :	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	15.28	9.89	25.17	66.00	-40.83	QP	P	
2	0.1500	6.72	9.89	16.61	56.00	-39.39	AVG	P	
3	0.3840	9.15	9.98	19.13	58.19	-39.06	QP	P	
4	0.3840	-1.87	9.98	8.11	48.19	-40.08	AVG	P	
5 *	0.4964	14.33	10.02	24.35	56.06	-31.71	QP	P	
6	0.4964	0.35	10.02	10.37	46.06	-35.69	AVG	P	
7	0.5370	9.70	10.02	19.72	56.00	-36.28	QP	P	
8	0.5370	-2.58	10.02	7.44	46.00	-38.56	AVG	P	
9	0.6270	9.18	10.03	19.21	56.00	-36.79	QP	P	
10	0.6270	-2.13	10.03	7.90	46.00	-38.10	AVG	P	
11	1.0410	9.28	10.06	19.34	56.00	-36.66	QP	P	
12	1.0410	-3.13	10.06	6.93	46.00	-39.07	AVG	P	

Temperature :	25.1℃	Relative Humidity :	50%
Pressure :	101kPa	Polarization :	Neutral
Test Voltage :	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	12.29	9.89	22.18	66.00	-43.82	QP	P	
2	0.1500	3.39	9.89	13.28	56.00	-42.72	AVG	P	
3	0.1635	10.49	9.90	20.39	65.28	-44.89	QP	P	
4	0.1635	1.20	9.90	11.10	55.28	-44.18	AVG	P	
5	0.4920	10.11	10.02	20.13	56.13	-36.00	QP	P	
6	0.4920	-3.97	10.02	6.05	46.13	-40.08	AVG	P	
7 *	0.5144	10.95	10.02	20.97	56.00	-35.03	QP	P	
8	0.5144	-1.43	10.02	8.59	46.00	-37.41	AVG	P	
9	0.5910	9.60	10.03	19.63	56.00	-36.37	QP	P	
10	0.5910	-3.01	10.03	7.02	46.00	-38.98	AVG	P	
11	0.6720	8.93	10.03	18.96	56.00	-37.04	QP	P	
12	0.6720	-3.83	10.03	6.20	46.00	-39.80	AVG	P	

Remarks:
1.Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2.The emission levels of other frequencies are very lower than the limit and not show in test report.
3.The test data shows only the worst case 802.11n40 mode (High Channel:2452MHz).

4.2 RADIATED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.209
Test Method:	ANSI C63.10:2013
Test Frequency Range:	9kHz to 25GHz
Test site:	Measurement Distance: 3m
Receiver setup:	

Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

4.2.1 RADIATED EMISSION LIMITS

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

4.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoiccamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of avariable-height antenna tower.

c. 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.
d. 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 1meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. 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 10dBmargin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).
h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel

Note:

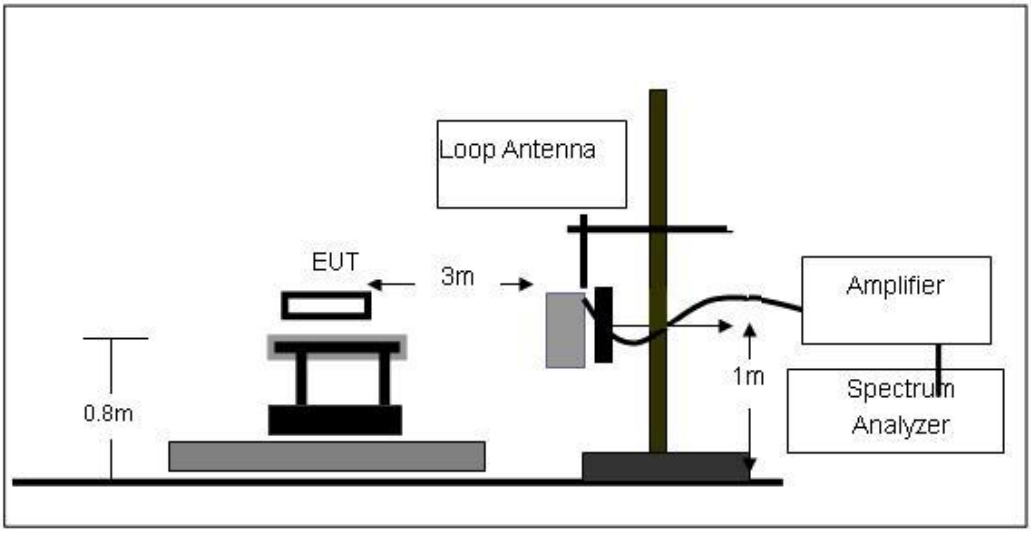
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

4.2.3 DEVIATION FROM TEST STANDARD

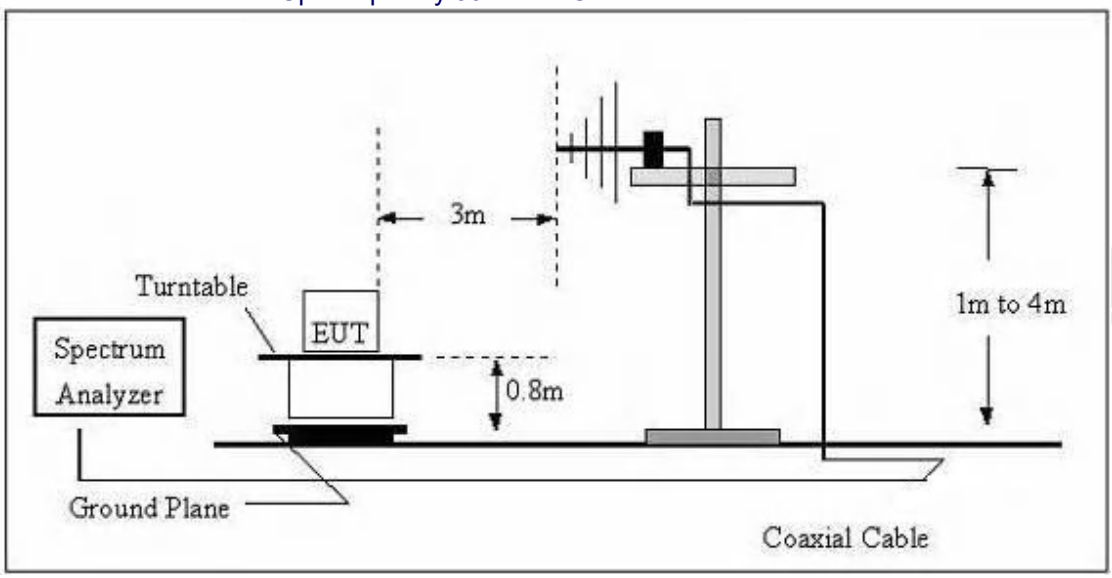
No deviation

4.2.4 TEST SETUP

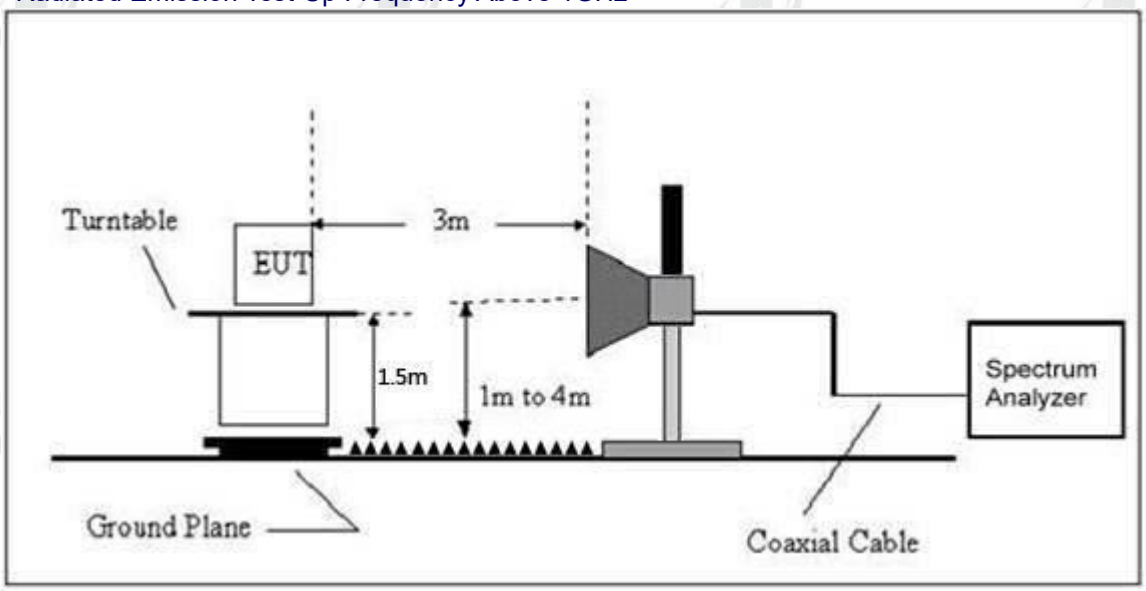
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



4.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

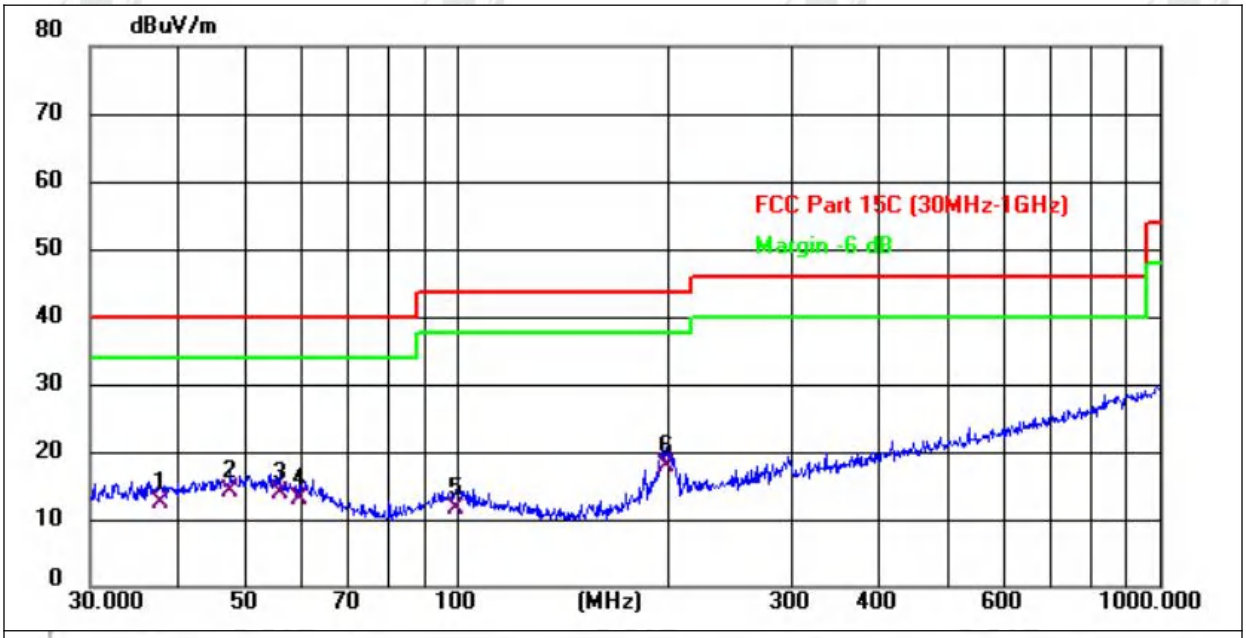
4.2.6 TEST RESULTS

Between 9KHz – 30MHz

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

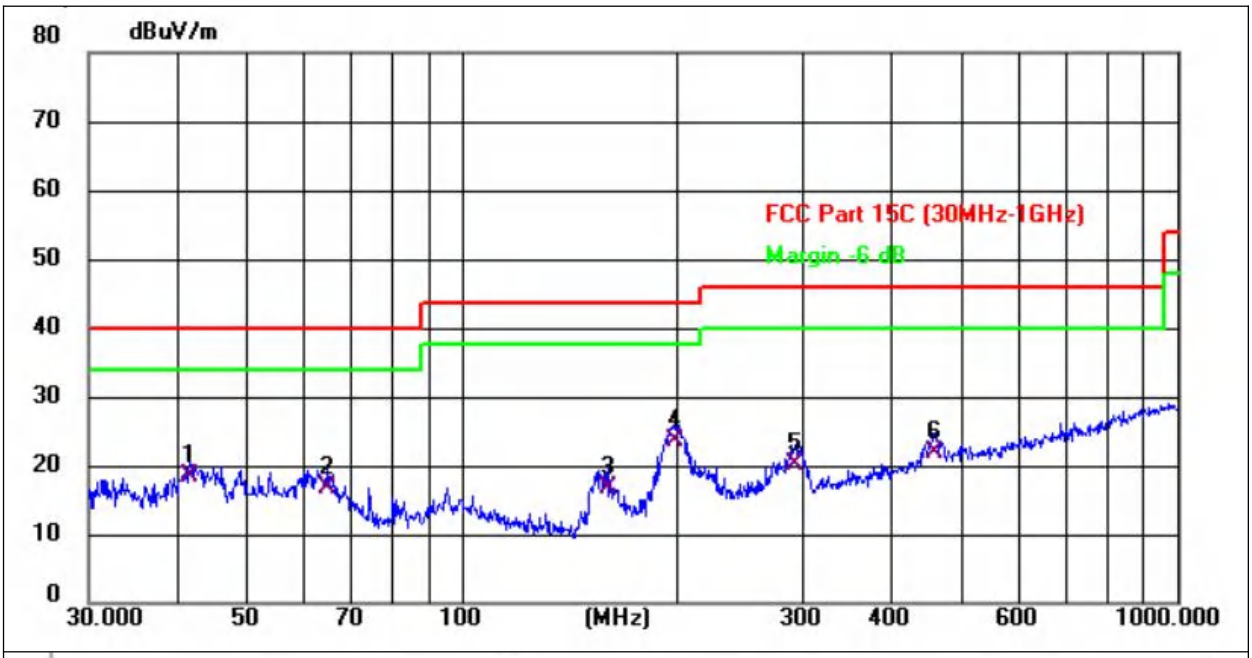
Between 30MHz – 1GHz

Temperature :	25.1℃	Relative Humidity :	50%
Pressure :	101kPa	Polarization :	Horizontal
Test Voltage :	DC 3.7V		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	37.6796	22.95	-10.46	12.49	40.00	-27.51	QP
2	47.4917	23.52	-9.48	14.04	40.00	-25.96	QP
3	55.8046	23.98	-10.04	13.94	40.00	-26.06	QP
4	59.6492	23.63	-10.56	13.07	40.00	-26.93	QP
5	99.5279	22.80	-11.32	11.48	43.50	-32.02	QP
6 *	197.8926	29.13	-11.29	17.84	43.50	-25.66	QP

Temperature :	25.1℃	Relative Humidity :	50%
Pressure :	101kPa	Polarization :	Vertical
Test Voltage :	DC 3.7V		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	41.5670	28.45	-10.00	18.45	40.00	-21.55	QP
2	64.8864	28.76	-11.91	16.85	40.00	-23.15	QP
3	159.7844	30.36	-13.61	16.75	43.50	-26.75	QP
4 *	198.5880	34.91	-11.24	23.67	43.50	-19.83	QP
5	292.0582	28.44	-8.41	20.03	46.00	-25.97	QP
6	457.5072	26.78	-4.92	21.86	46.00	-24.14	QP

Remarks:
1.Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2.The emission levels of other frequencies are very lower than the limit and not show in test report.
3.The test data shows only the worst case 802.11n40 mode (High Channel:2452MHz).

1GHz~25GHz

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
802.11b									
Low Channel:2412MHz									
V	4824.00	58.84	30.55	5.77	24.66	58.72	74	-15.28	Pk
V	4824.00	43.91	30.55	5.77	24.66	43.79	54	-10.21	AV
H	4824.00	55.2	30.33	6.32	24.55	55.74	74	-18.26	Pk
H	4824.00	42.45	30.33	6.32	24.55	42.99	54	-11.01	AV
Middle Channel:2437MHz									
V	4874.00	56.72	30.55	5.77	24.66	56.6	74	-17.4	Pk
V	4874.00	41.19	30.55	5.77	24.66	41.07	54	-12.93	AV
H	4874.00	56.7	30.33	6.32	24.55	57.24	74	-16.76	Pk
H	4874.00	42.34	30.33	6.32	24.55	42.88	54	-11.12	AV
High Channel:2462MHz									
V	4924.00	57.73	30.55	5.77	24.66	57.61	74	-16.39	Pk
V	4924.00	41.12	30.55	5.77	24.66	41	54	-13	AV
H	4924.00	59.59	30.33	6.32	24.55	60.13	74	-13.87	Pk
H	4924.00	42.94	30.33	6.32	24.55	43.48	54	-10.52	AV
802.11g									
Low Channel:2412MHz									
V	4824.00	57.12	30.55	5.77	24.66	57	74	-17	Pk
V	4824.00	41.07	30.55	5.77	24.66	40.95	54	-13.05	AV
H	4824.00	59.66	30.33	6.32	24.55	60.2	74	-13.8	Pk
H	4824.00	41.13	30.33	6.32	24.55	41.67	54	-12.33	AV
Middle Channel:2437MHz									
V	4874.00	56.21	30.55	5.77	24.66	56.09	74	-17.91	Pk
V	4874.00	41.45	30.55	5.77	24.66	41.33	54	-12.67	AV
H	4874.00	55.82	30.33	6.32	24.55	56.36	74	-17.64	Pk
H	4874.00	44.88	30.33	6.32	24.55	45.42	54	-8.58	AV
High Channel:2462MHz									
V	4924.00	59.73	30.55	5.77	24.66	59.61	74	-14.39	Pk
V	4924.00	44.66	30.55	5.77	24.66	44.54	54	-9.46	AV
H	4924.00	57.36	30.33	6.32	24.55	57.9	74	-16.1	Pk
H	4924.00	42.06	30.33	6.32	24.55	42.6	54	-11.4	AV
802.11n 20									
Low Channel:2412MHz									
V	4824.00	59.99	30.55	5.77	24.66	59.87	74	-14.13	Pk
V	4824.00	44.16	30.55	5.77	24.66	44.04	54	-9.96	AV
H	4824.00	56.96	30.33	6.32	24.55	57.5	74	-16.5	Pk
H	4824.00	42.97	30.33	6.32	24.55	43.51	54	-10.49	AV
Middle Channel:2437MHz									
V	4874.00	59.42	30.55	5.77	24.66	59.3	74	-14.7	Pk
V	4874.00	45	30.55	5.77	24.66	44.88	54	-9.12	AV
H	4874.00	55.91	30.33	6.32	24.55	56.45	74	-17.55	Pk
	4874.00	43.37	30.33	6.32	24.55	43.91	54	-10.09	AV
High Channel:2462MHz									
V	4924.00	57.22	30.55	5.77	24.66	57.1	74	-16.9	Pk
V	4924.00	41.26	30.55	5.77	24.66	41.14	54	-12.86	AV
H	4924.00	55.46	30.33	6.32	24.55	56	74	-18	Pk
H	4924.00	42.68	30.33	6.32	24.55	43.22	54	-10.78	AV
802.11n 40									
Low Channel:2422MHz									
V	4844.00	55.21	30.55	5.77	24.66	55.09	74	-18.91	Pk
V	4844.00	41.14	30.55	5.77	24.66	41.02	54	-12.98	AV

H	4844.00	56.27	30.33	6.32	24.55	56.81	74	-17.19	Pk
H	4844.00	41.05	30.33	6.32	24.55	41.59	54	-12.41	AV
Middle Channel:2437MHz									
V	4874.00	55.23	30.55	5.77	24.66	55.11	74	-18.89	Pk
V	4874.00	41.25	30.55	5.77	24.66	41.13	54	-12.87	AV
H	4874.00	57.7	30.33	6.32	24.55	58.24	74	-15.76	Pk
H	4874.00	41.74	30.33	6.32	24.55	42.28	54	-11.72	AV
High Channel:2452MHz									
V	4904.00	56.12	30.55	5.77	24.66	56	74	-18	Pk
V	4904.00	43.36	30.55	5.77	24.66	43.24	54	-10.76	AV
H	4904.00	57.96	30.33	6.32	24.55	58.5	74	-15.5	Pk
H	4904.00	43.74	30.33	6.32	24.55	44.28	54	-9.72	AV

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4.For above 1GHz, the test result of peak was 20dB below to the limit of peak, which can be compliant to the average limit, so just peak value was recorded.

5. RADIATED BAND EMISSIONMEASUREMENT

5.1 TEST REQUIREMENT:

Test Requirement:	FCC Part15 C Section 15.209 and 15.205
Test Method:	ANSI C63.10: 2013
Test Frequency Range:	All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed.
Test site:	Measurement Distance: 3m
Receiver setup:	

Frequency	Detector	RBW	VBW	Value
Above 1GHz	Peak	1MHz	3MHz	Peak
	Average	1MHz	3MHz	Average

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

5.2 TEST PROCEDURE

Above 1GHz test procedure as below:

a. 1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. 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.

d. 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 and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. 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 10dBmargin would be re-tested one by one using peak, quasi-peak or average method as specified and then reportedin a data sheet.

g. Test the EUT in the lowest channel,the Highest channel

Note:

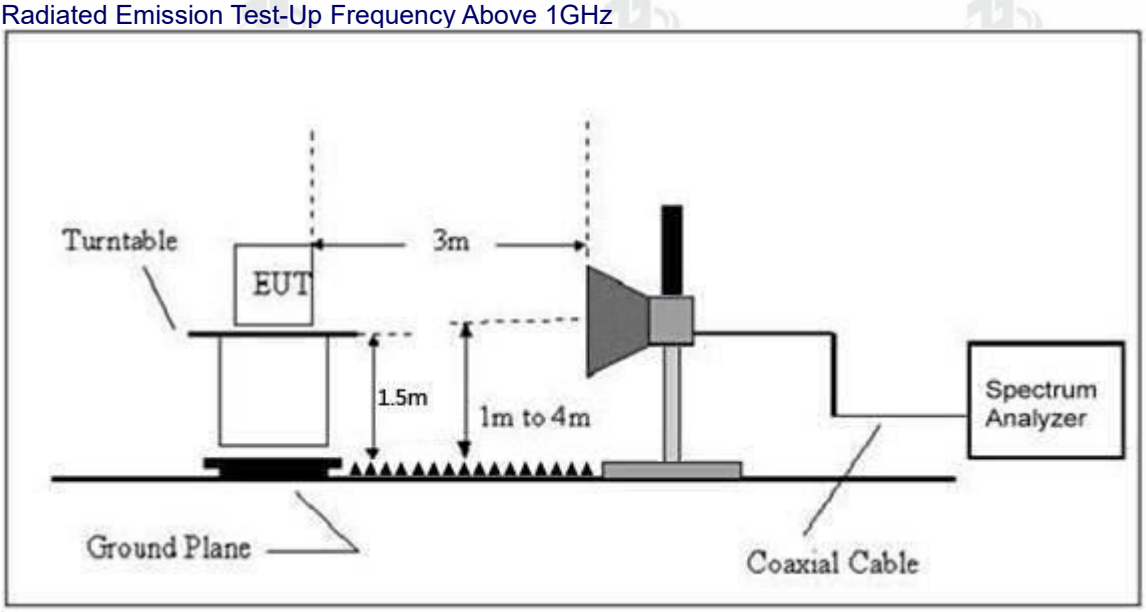
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

5.3 DEVIATION FROM TEST STANDARD

No deviation

5.4 TEST SETUP

Radiated Emission Test-Up Frequency Above 1GHz



5.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULT

	Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type	Result
802.11b	Low Channel 2412MHz										
	H	2390.00	61.98	30.22	4.85	23.98	60.59	74.00	-13.41	PK	PASS
	H	2390.00	46.96	30.22	4.85	23.98	45.57	54.00	-8.43	AV	PASS
	H	2400.00	59.20	30.22	4.85	23.98	57.81	74.00	-16.19	PK	PASS
	H	2400.00	47.34	30.22	4.85	23.98	45.95	54.00	-8.05	AV	PASS
	V	2390.00	62.30	30.22	4.85	23.98	60.91	74.00	-13.09	PK	PASS
	V	2390.00	47.39	30.22	4.85	23.98	46.00	54.00	-8.00	AV	PASS
	V	2400.00	62.69	30.22	4.85	23.98	61.30	74.00	-12.70	PK	PASS
	V	2400.00	46.21	30.22	4.85	23.98	44.82	54.00	-9.18	AV	PASS
	High Channel 2462MHz										
	H	2483.50	61.54	30.22	4.85	23.98	60.15	74.00	-13.85	AV	PASS
	H	2483.50	46.60	30.22	4.85	23.98	45.21	54.00	-8.79	PK	PASS
	H	2500.00	62.94	30.22	4.85	23.98	61.55	74.00	-12.45	AV	PASS
	H	2500.00	46.83	30.22	4.85	23.98	45.44	54.00	-8.56	PK	PASS
	V	2483.50	60.02	30.22	4.85	23.98	58.63	74.00	-15.37	AV	PASS
	V	2483.50	46.49	30.22	4.85	23.98	45.10	54.00	-8.90	PK	PASS
	V	2500.00	60.84	30.22	4.85	23.98	59.45	74.00	-14.55	AV	PASS
	V	2500.00	46.61	30.22	4.85	23.98	45.22	54.00	-8.78	AV	PASS
802.11g	Low Channel 2412MHz										
	H	2390.00	59.09	30.22	4.85	23.98	57.70	74.00	-16.30	PK	PASS
	H	2390.00	46.39	30.22	4.85	23.98	45.00	54.00	-9.00	AV	PASS
	H	2400.00	62.93	30.22	4.85	23.98	61.54	74.00	-12.46	PK	PASS
	H	2400.00	46.45	30.22	4.85	23.98	45.06	54.00	-8.94	AV	PASS
	V	2390.00	59.34	30.22	4.85	23.98	57.95	74.00	-16.05	PK	PASS
	V	2390.00	48.69	30.22	4.85	23.98	47.30	54.00	-6.70	AV	PASS
	V	2400.00	60.82	30.22	4.85	23.98	59.43	74.00	-14.57	PK	PASS
	V	2400.00	47.61	30.22	4.85	23.98	46.22	54.00	-7.78	AV	PASS
	High Channel 2462MHz										
	H	2483.50	62.60	30.22	4.85	23.98	61.21	74.00	-12.79	PK	PASS
	H	2483.50	49.00	30.22	4.85	23.98	47.61	54.00	-6.39	AV	PASS
	H	2500.00	59.38	30.22	4.85	23.98	57.99	74.00	-16.01	PK	PASS
	H	2500.00	47.46	30.22	4.85	23.98	46.07	54.00	-7.93	AV	PASS
	V	2483.50	60.94	30.22	4.85	23.98	59.55	74.00	-14.45	PK	PASS
	V	2483.50	46.42	30.22	4.85	23.98	45.03	54.00	-8.97	AV	PASS
	V	2500.00	62.40	30.22	4.85	23.98	61.01	74.00	-12.99	PK	PASS
	V	2500.00	46.39	30.22	4.85	23.98	45.00	54.00	-9.00	AV	PASS
802.11n20	Low Channel 2412MHz										
	H	2390.00	59.95	30.22	4.85	23.98	58.56	74.00	-15.44	PK	PASS
	H	2390.00	46.80	30.22	4.85	23.98	45.41	54.00	-8.59	AV	PASS
	H	2400.00	62.52	30.22	4.85	23.98	61.13	74.00	-12.87	PK	PASS
	H	2400.00	47.92	30.22	4.85	23.98	46.53	54.00	-7.47	AV	PASS
	V	2390.00	62.23	30.22	4.85	23.98	60.84	74.00	-13.16	PK	PASS
	V	2390.00	46.89	30.22	4.85	23.98	45.50	54.00	-8.50	AV	PASS
	V	2400.00	60.18	30.22	4.85	23.98	58.79	74.00	-15.21	PK	PASS
	V	2400.00	47.97	30.22	4.85	23.98	46.58	54.00	-7.42	AV	PASS
	High Channel 2462MHz										
	H	2483.50	62.98	30.22	4.85	23.98	61.59	74.00	-12.41	PK	PASS
	H	2483.50	46.44	30.22	4.85	23.98	45.05	54.00	-8.95	AV	PASS
	H	2500.00	60.31	30.22	4.85	23.98	58.92	74.00	-15.08	PK	PASS
	H	2500.00	48.35	30.22	4.85	23.98	46.96	54.00	-7.04	AV	PASS
	V	2483.50	59.40	30.22	4.85	23.98	58.01	74.00	-15.99	PK	PASS
	V	2483.50	48.68	30.22	4.85	23.98	47.29	54.00	-6.71	AV	PASS

	V	2500.00	61.79	30.22	4.85	23.98	60.40	74.00	-13.60	PK	PASS
	V	2500.00	48.67	30.22	4.85	23.98	47.28	54.00	-6.72	AV	PASS
802.11n 40	Low Channel 2422MHz										
	H	2390.00	62.60	30.22	4.85	23.98	61.21	74.00	-12.79	PK	PASS
	H	2390.00	46.42	30.22	4.85	23.98	45.03	54.00	-8.97	AV	PASS
	H	2400.00	59.40	30.22	4.85	23.98	58.01	74.00	-15.99	PK	PASS
	H	2400.00	48.34	30.22	4.85	23.98	46.95	54.00	-7.05	AV	PASS
	V	2390.00	62.30	30.22	4.85	23.98	60.91	74.00	-13.09	PK	PASS
	V	2390.00	48.92	30.22	4.85	23.98	47.53	54.00	-6.47	AV	PASS
	V	2400.00	59.52	30.22	4.85	23.98	58.13	74.00	-15.87	PK	PASS
	V	2400.00	47.59	30.22	4.85	23.98	46.20	54.00	-7.80	AV	PASS
	High Channel 2452MHz										
	H	2483.50	62.86	30.22	4.85	23.98	61.47	74.00	-12.53	PK	PASS
	H	2483.50	48.85	30.22	4.85	23.98	47.46	54.00	-6.54	AV	PASS
	H	2500.00	62.76	30.22	4.85	23.98	61.37	74.00	-12.63	PK	PASS
	H	2500.00	47.55	30.22	4.85	23.98	46.16	54.00	-7.84	AV	PASS
	V	2483.50	61.03	30.22	4.85	23.98	59.64	74.00	-14.36	PK	PASS
	V	2483.50	46.55	30.22	4.85	23.98	45.16	54.00	-8.84	AV	PASS
	V	2500.00	62.81	30.22	4.85	23.98	61.42	74.00	-12.58	PK	PASS
	V	2500.00	47.66	30.22	4.85	23.98	46.27	54.00	-7.73	AV	PASS

Remark:

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

6. POWER SPECTRAL DENSITY TEST

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8dBm/3kHz	2400-2483.5	PASS

6.2 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ 3 x RBW.
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 within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP

6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULT

Temperature：	25.9℃	Relative Humidity：	52%
Pressure：	101kPa	Test Voltage ：	DC 3.7V

Please refer to APPENDIX WIFI

7. CHANNEL BANDWIDTH

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

7.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

7.2 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 xRBW.
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 frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP

7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.6 TEST RESULT

Temperature :	25.8℃	Relative Humidity :	52%
Pressure :	101kPa	Test Voltage :	DC 3.7V
Test Mode :	TX Mode		

Please refer to APPENDIX WIFI

8. OUTPUT POWER TEST

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

8.1 APPLIED PROCEDURES/LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Output Power	1 watt or 30dBm	2400-2483.5	PASS

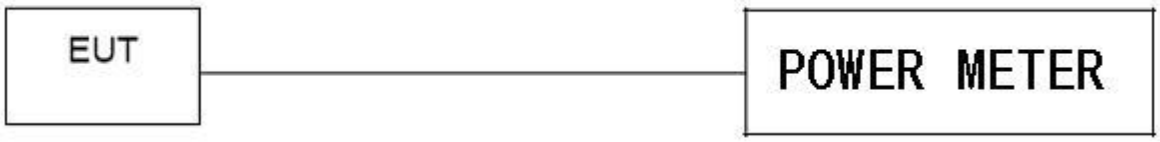
8.2 TEST PROCEDURE

a. The EUT was directly connected to the Power Meter

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

1. Connected the EUT's antenna port to peak power meter

8.6 TEST RESULT

Temperature :	25.3℃	Relative Humidity :	55%
Pressure :	101kPa	Test Voltage :	DC 3.7V

Please refer to APPENDIX WIFI

9. CONDUCTED BAND EDGE AND SPURIOUS EMISSION

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

9.1 APPLICABLE STANDARD

in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, 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 in15.209(a).

9.2 TEST PROCEDURE

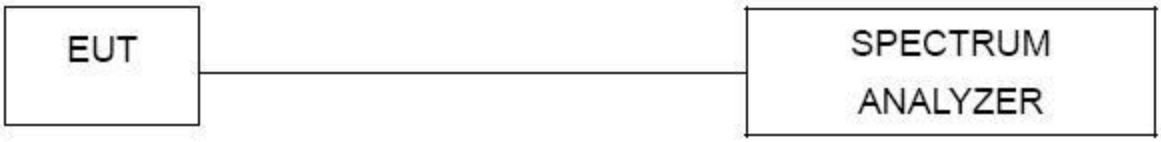
Using the following spectrum analyzer setting:

A) Set the RBW = 100KHz.
B) Set the VBW = 300KHz.
C) Sweep time = auto couple.
D) Detector function = peak.
E) Trace mode = max hold.
F) Allow trace to fully stabilize.

9.3 DEVIATION FROM STANDARD

No deviation.

9.4 TEST SETUP



9.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

9.6 TEST RESULTS

Please refer to APPENDIX WIFI

10. ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203 /247(b)(4)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 15.247(b) (4) requirement: (4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.	
EUT Antenna:	
The antenna is Chip antenna, the best case gain of the antenna is 2.95dBi, reference to the appendix II for details	

11. APPENDIX WIFI

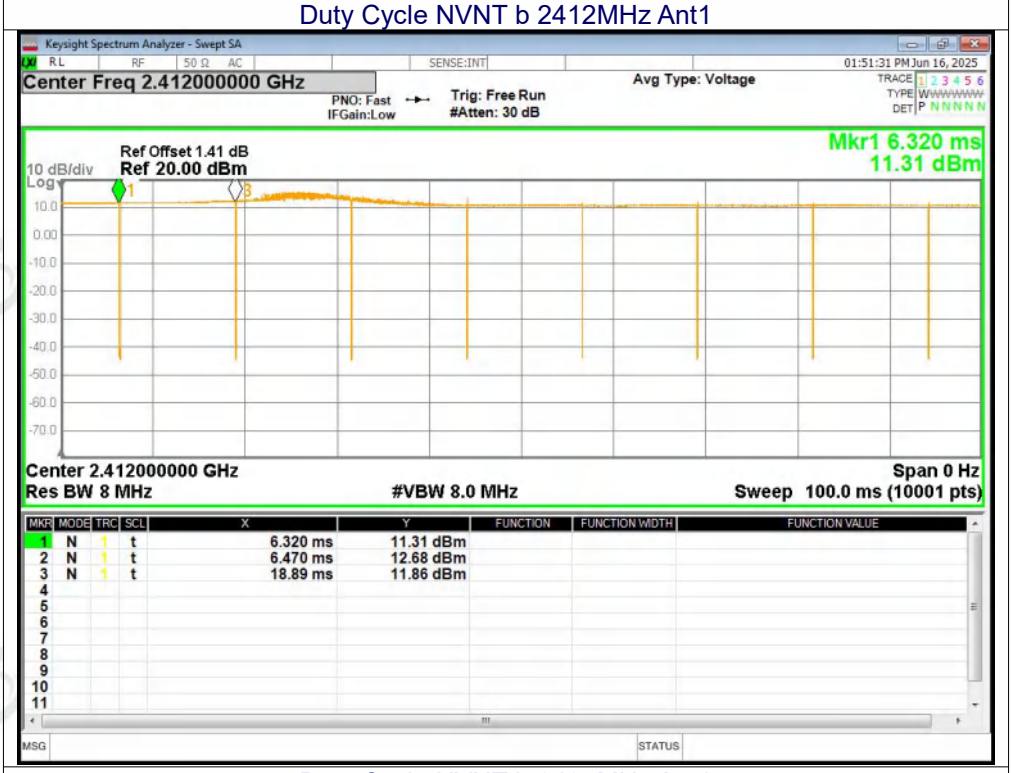
11.1 Duty Cycle

Mode	Frequency (MHz)	T_{on} ms	T_{otal} ms	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
b	2412	12.42	12.57	98.81	0	0.08
b	2437	12.42	12.55	98.96	0	0.08
b	2462	12.42	12.51	99.28	0	0.08
g	2412	2.06	2.10	98.1	0	0.49
g	2437	2.06	2.20	93.64	0.29	0.49
g	2462	2.07	2.21	93.67	0.28	0.48
n20	2412	1.93	2.09	92.34	0.35	0.52
n20	2437	1.93	2.10	91.9	0.37	0.52
n20	2462	1.92	1.96	97.96	0.09	0.52
n40	2422	0.94	1.07	87.85	0.56	1.06
n40	2437	0.94	1.03	91.26	0.4	1.06
n40	2452	0.95	1.07	88.79	0.52	1.05

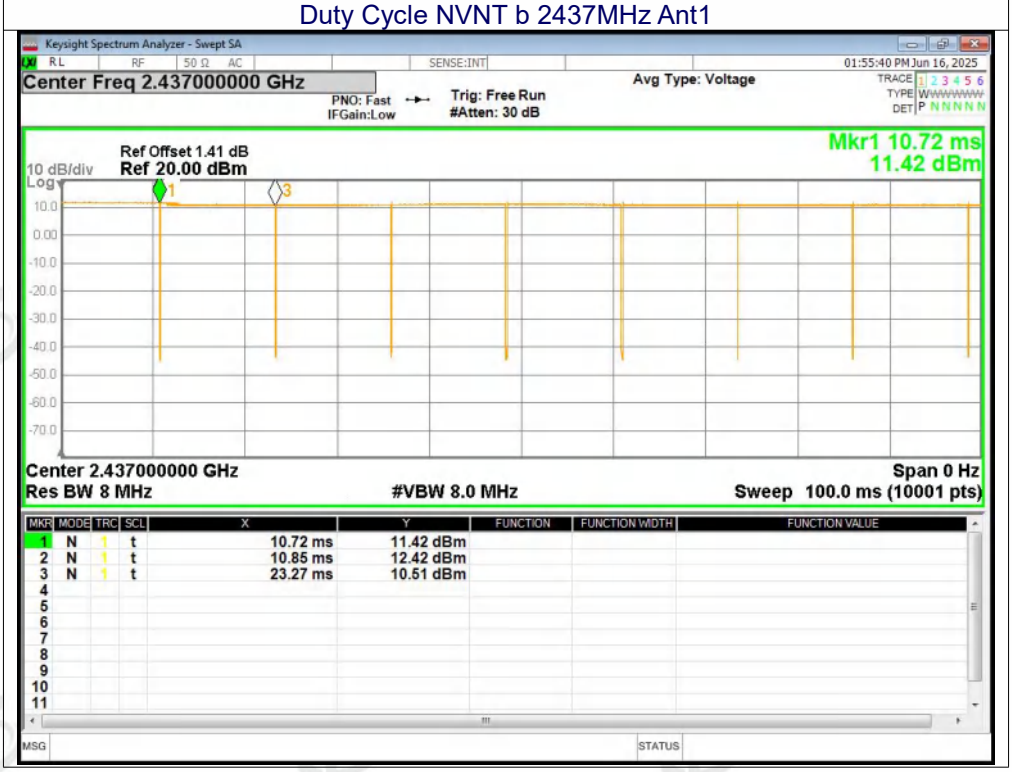
Note:
1. Duty Cycle = T_{on} / T_{otal}
2.Correction Factor = 10 log (1/ Duty Cycle).
3.1/T=1/T_{on}

Test Graphs

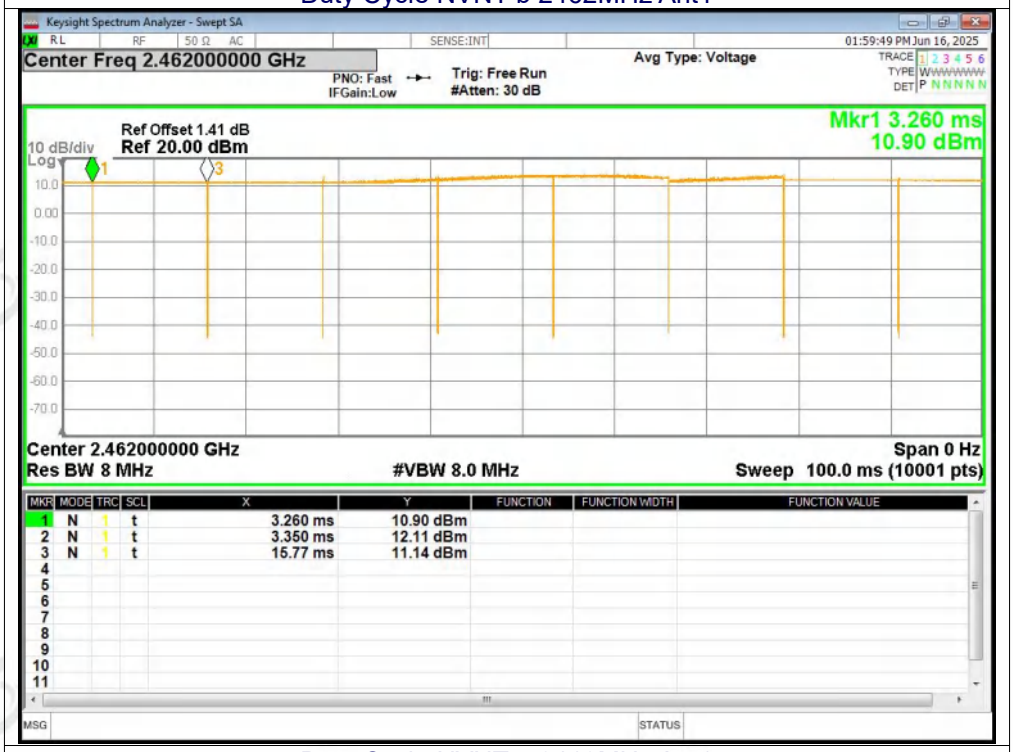
Duty Cycle NVNT b 2412MHz Ant1



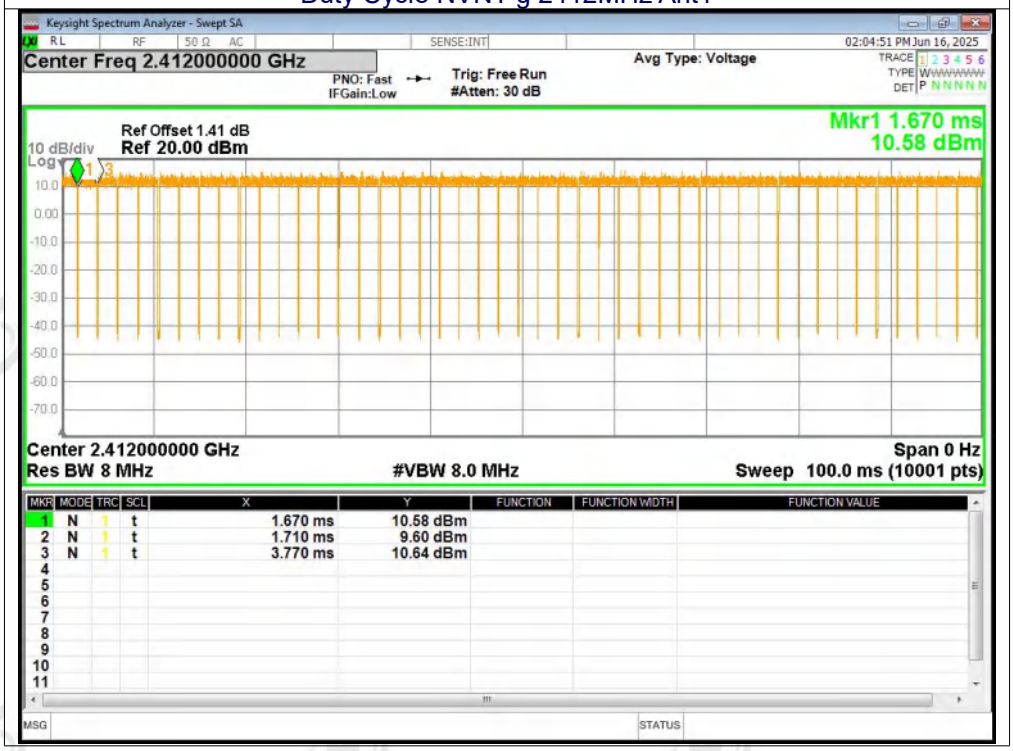
Duty Cycle NVNT b 2437MHz Ant1



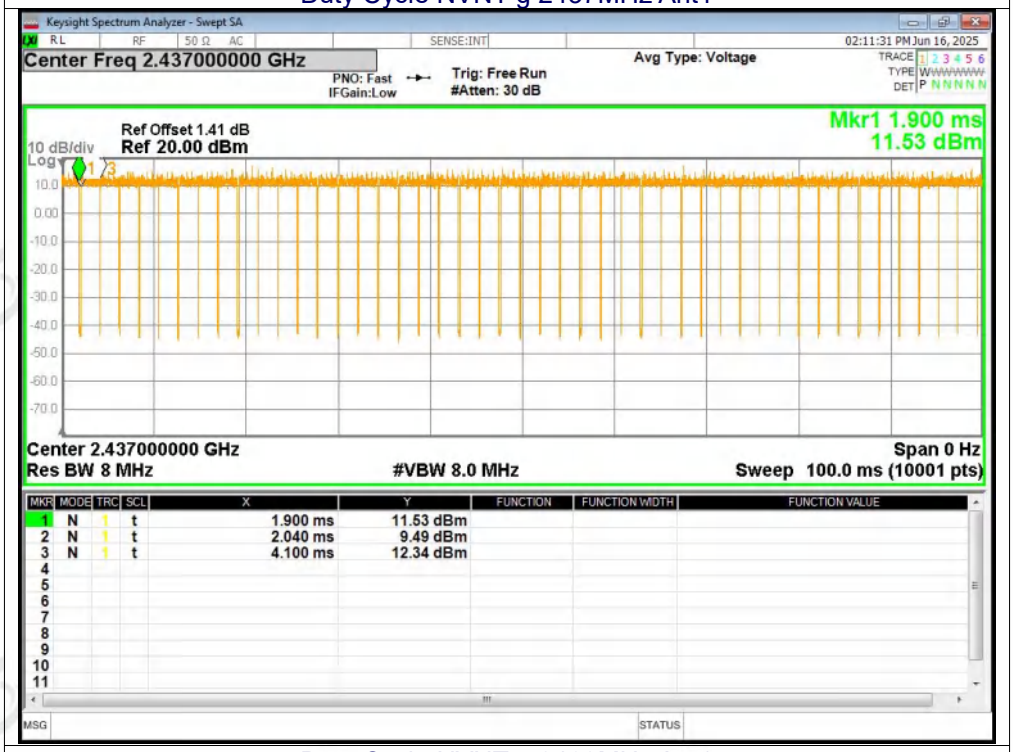
Duty Cycle NVNT b 2462MHz Ant1



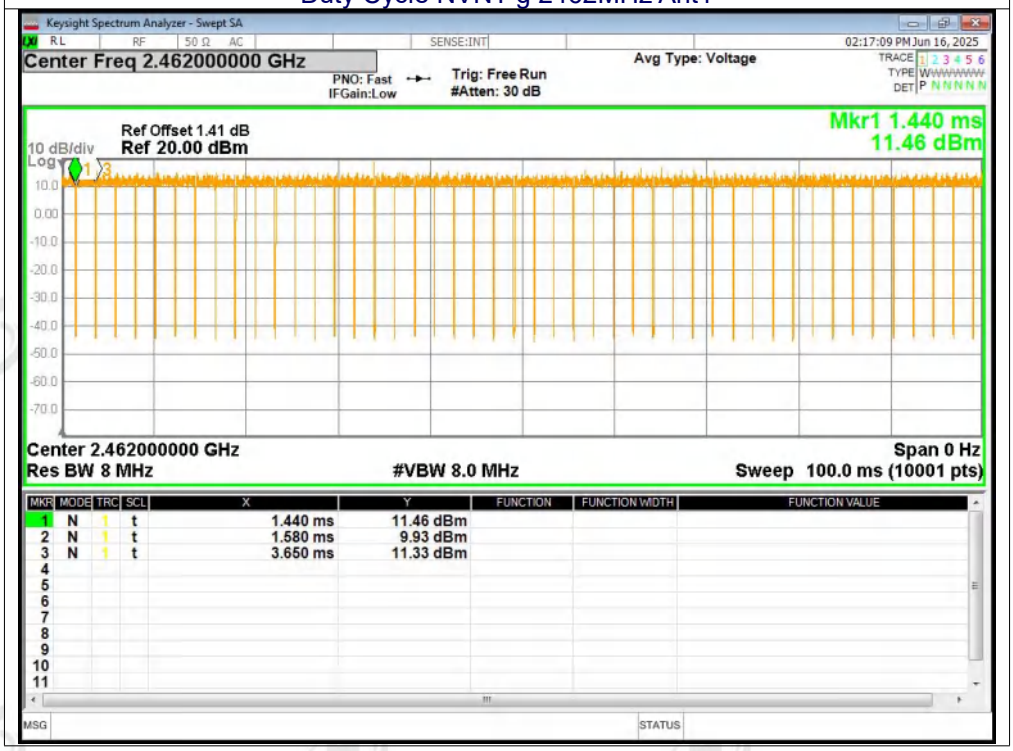
Duty Cycle NVNT g 2412MHz Ant1



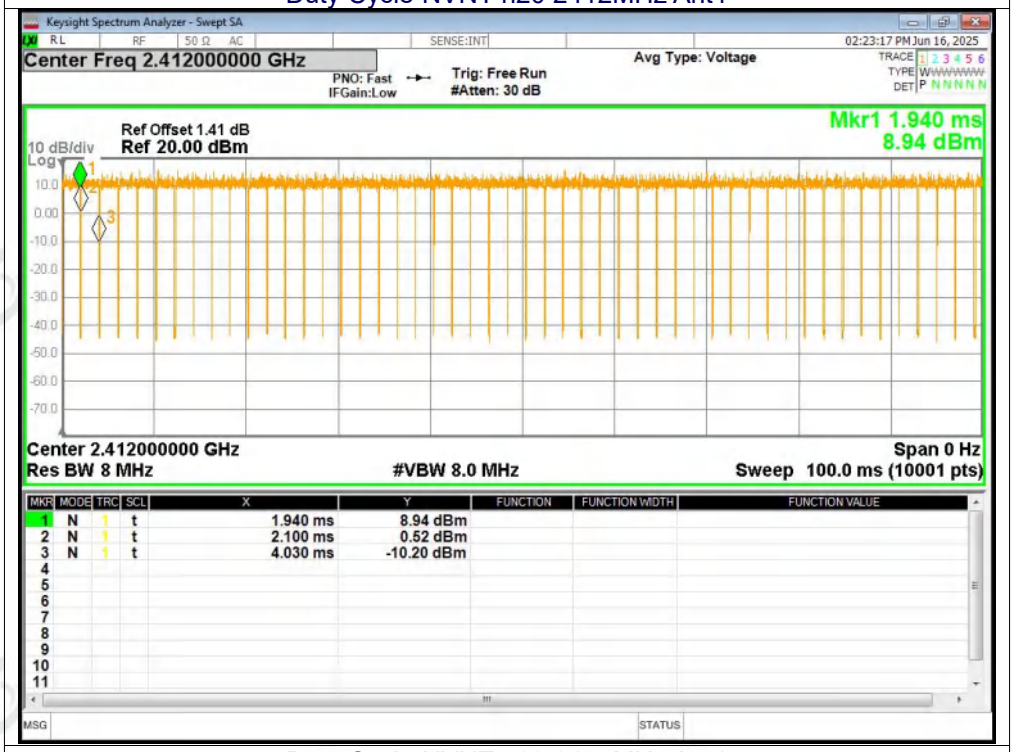
Duty Cycle NVNT g 2437MHz Ant1



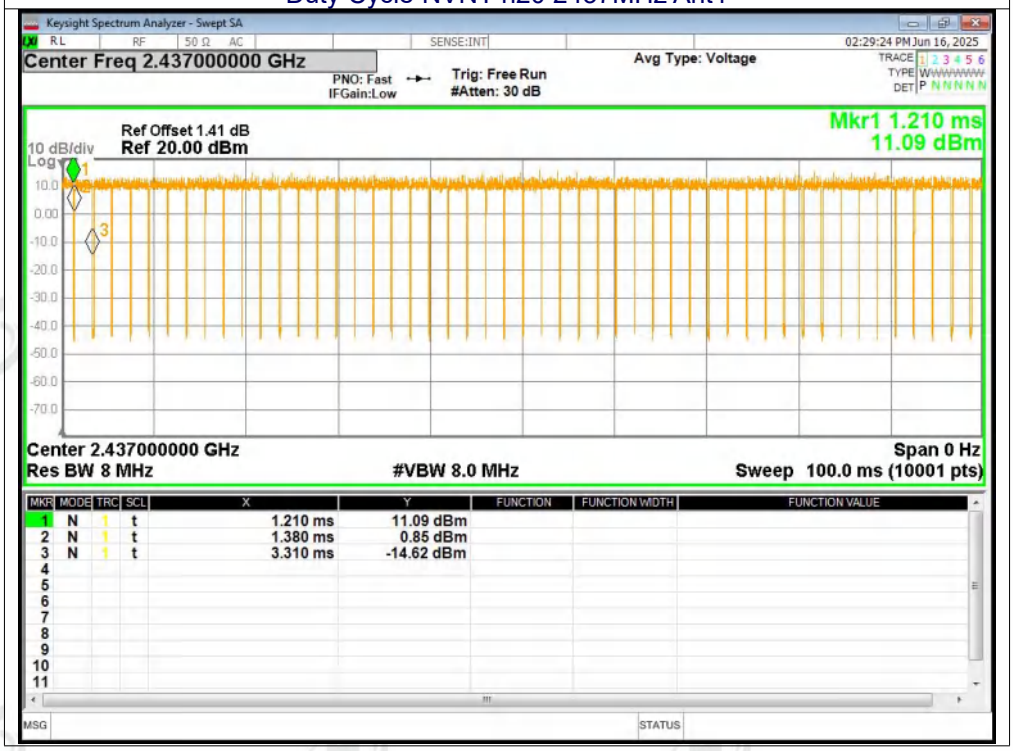
Duty Cycle NVNT g 2462MHz Ant1



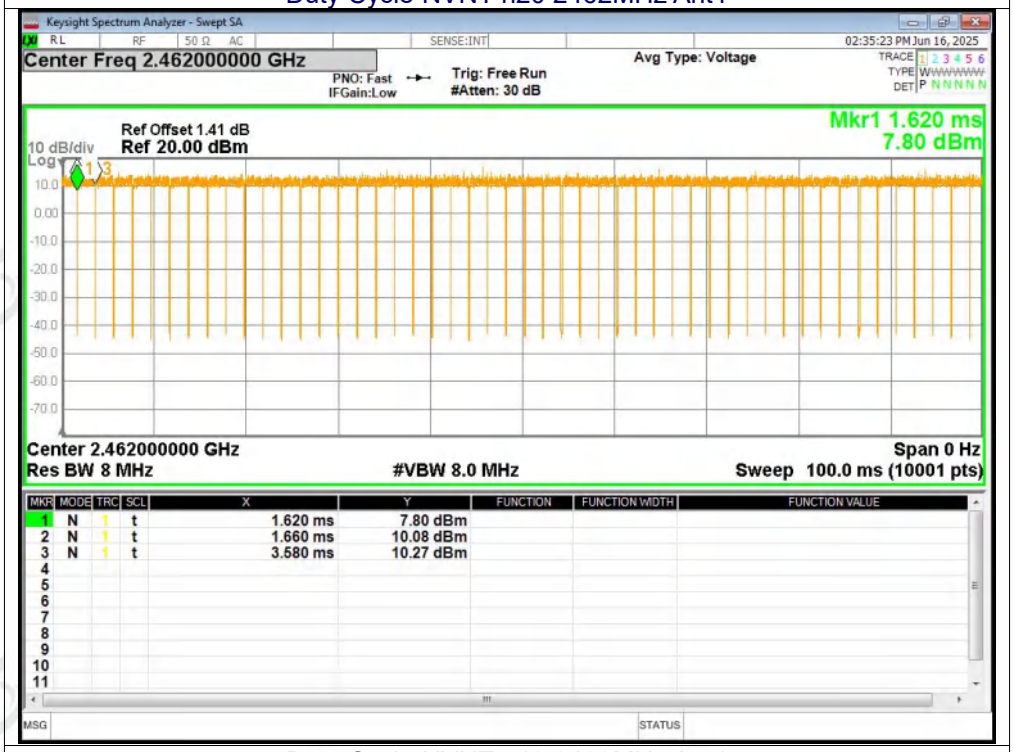
Duty Cycle NVNT n20 2412MHz Ant1



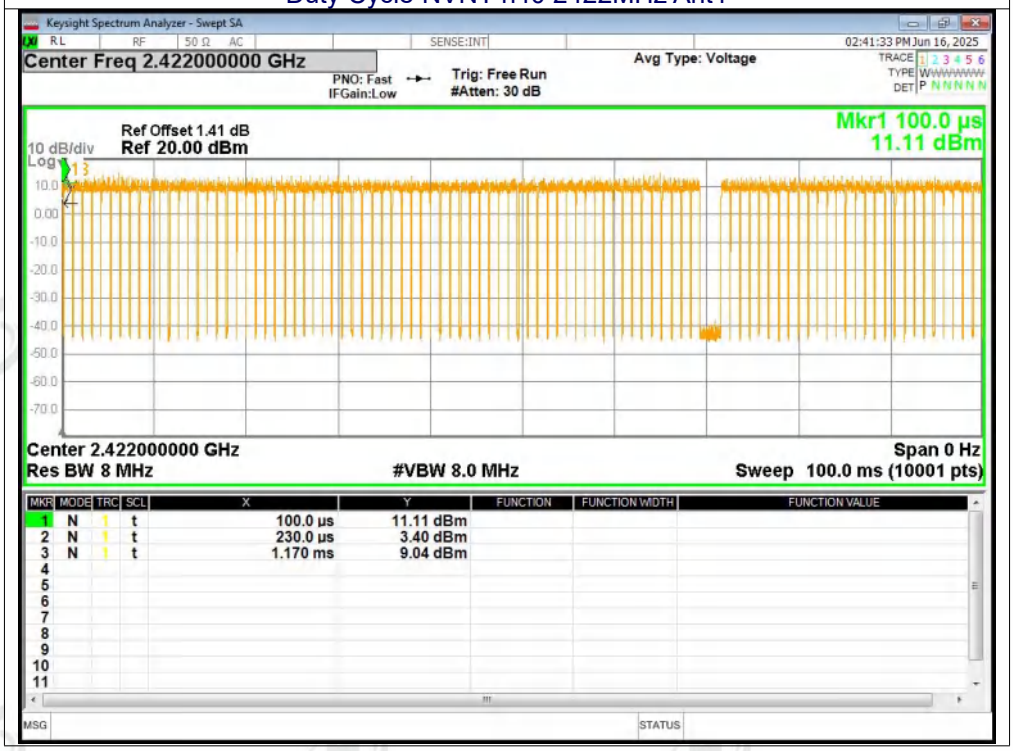
Duty Cycle NVNT n20 2437MHz Ant1



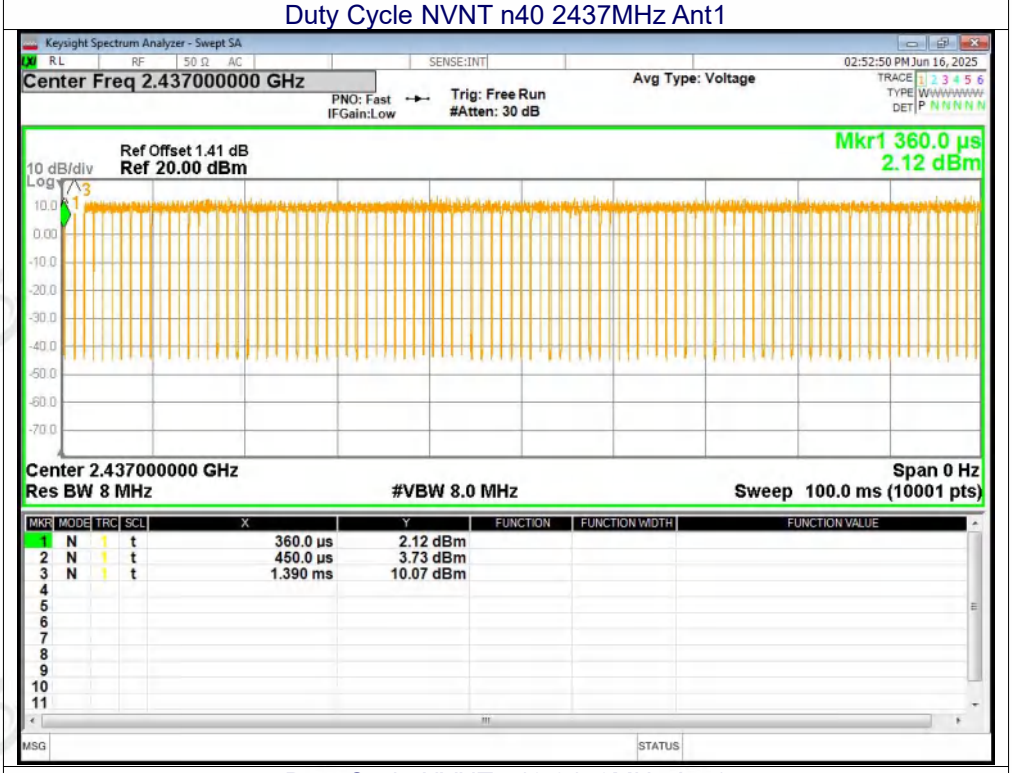
Duty Cycle NVNT n20 2462MHz Ant1



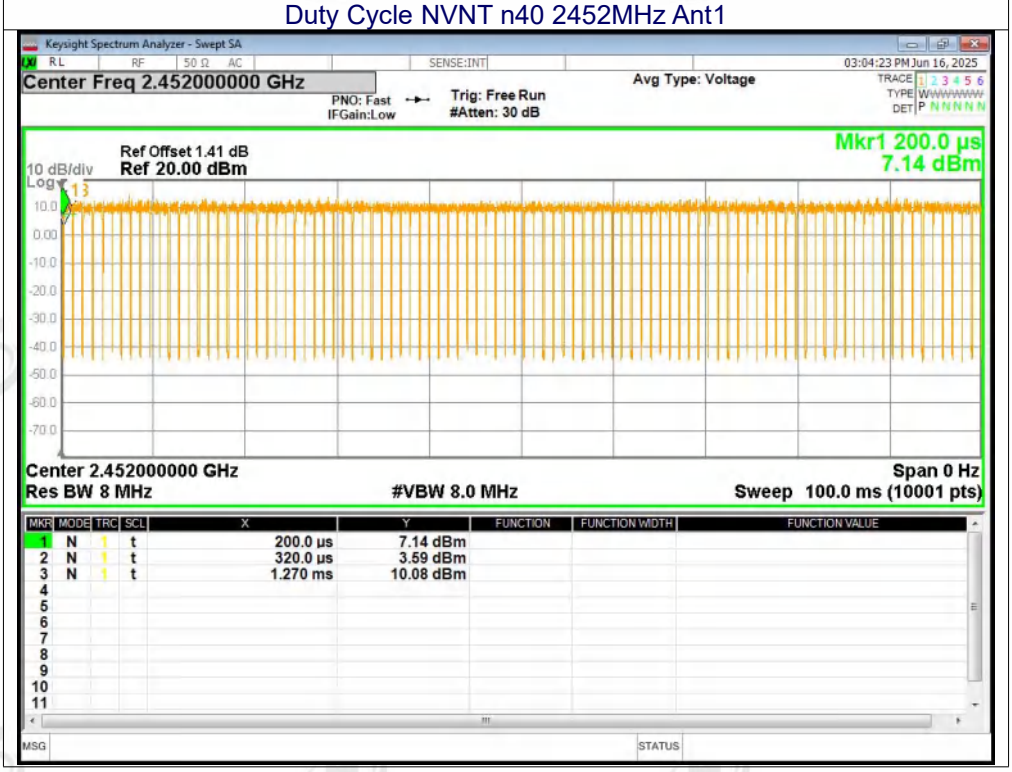
Duty Cycle NVNT n40 2422MHz Ant1



Duty Cycle NVNT n40 2437MHz Ant1



Duty Cycle NVNT n40 2452MHz Ant1



11.2 Maximum Conducted Output Power

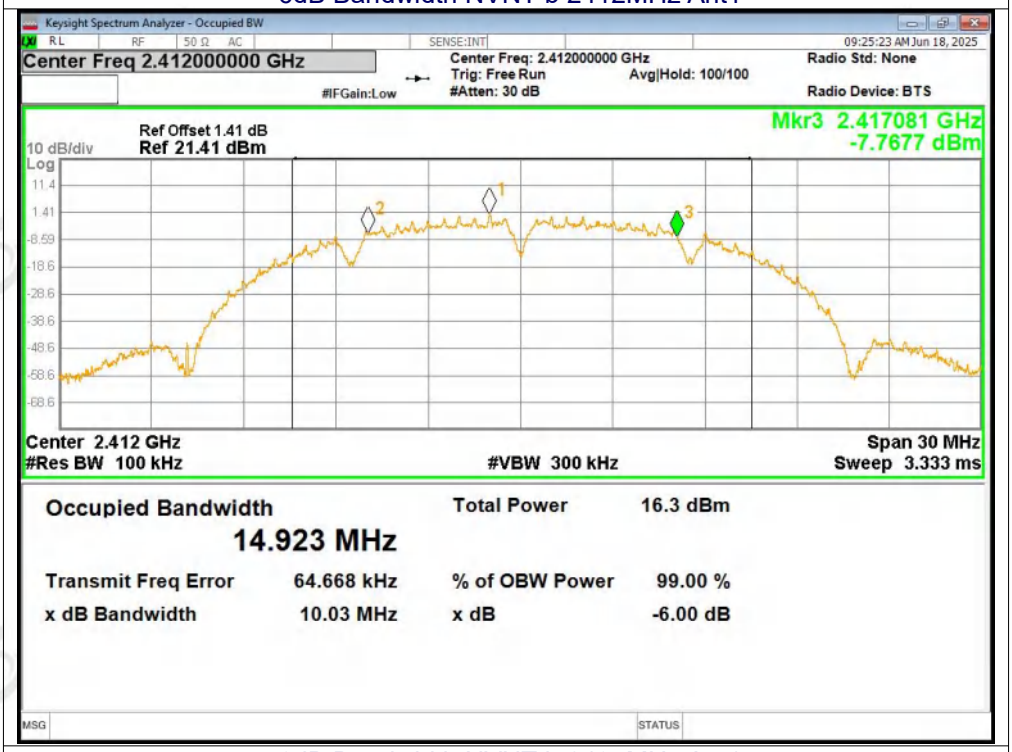
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	7.76	30	Pass
NVNT	b	2437	Ant1	7.99	30	Pass
NVNT	b	2462	Ant1	8.19	30	Pass
NVNT	g	2412	Ant1	8.26	30	Pass
NVNT	g	2437	Ant1	7.76	30	Pass
NVNT	g	2462	Ant1	7.89	30	Pass
NVNT	n20	2412	Ant1	7.38	30	Pass
NVNT	n20	2437	Ant1	7.27	30	Pass
NVNT	n20	2462	Ant1	7.95	30	Pass
NVNT	n40	2422	Ant1	8.68	30	Pass
NVNT	n40	2437	Ant1	8.92	30	Pass
NVNT	n40	2452	Ant1	8.89	30	Pass

11.3 -6dB Bandwidth

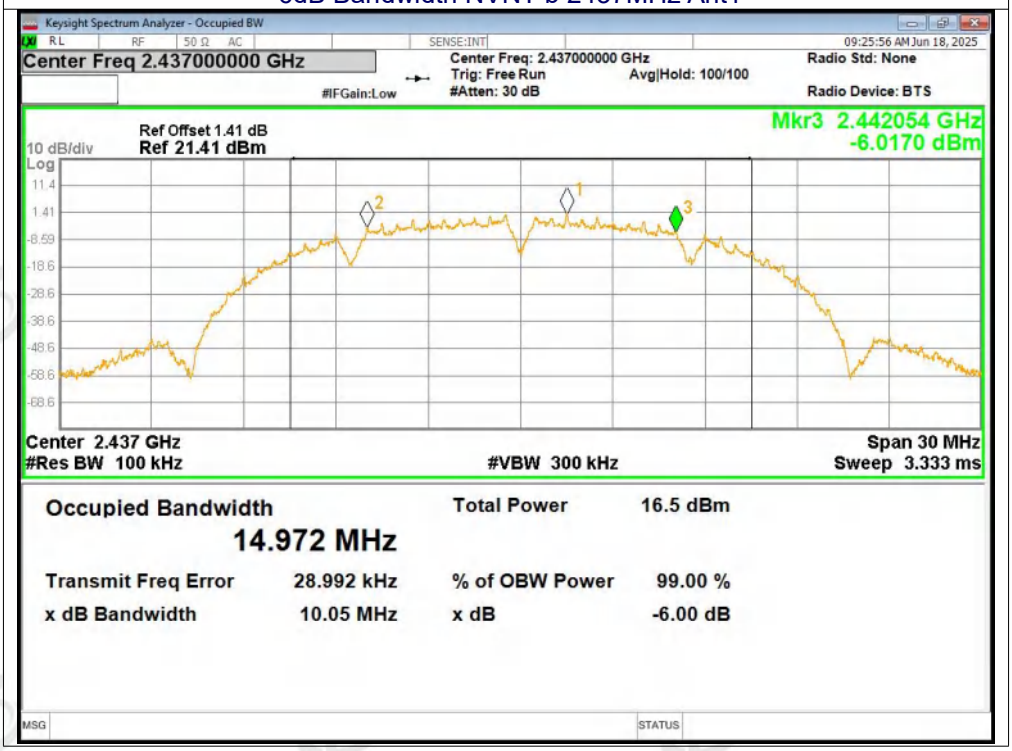
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	10.03	0.5	Pass
NVNT	b	2437	Ant1	10.05	0.5	Pass
NVNT	b	2462	Ant1	9.58	0.5	Pass
NVNT	g	2412	Ant1	16.30	0.5	Pass
NVNT	g	2437	Ant1	16.34	0.5	Pass
NVNT	g	2462	Ant1	16.30	0.5	Pass
NVNT	n20	2412	Ant1	17.30	0.5	Pass
NVNT	n20	2437	Ant1	17.51	0.5	Pass
NVNT	n20	2462	Ant1	17.03	0.5	Pass
NVNT	n40	2422	Ant1	35.28	0.5	Pass
NVNT	n40	2437	Ant1	35.64	0.5	Pass
NVNT	n40	2452	Ant1	35.35	0.5	Pass

Test Graphs

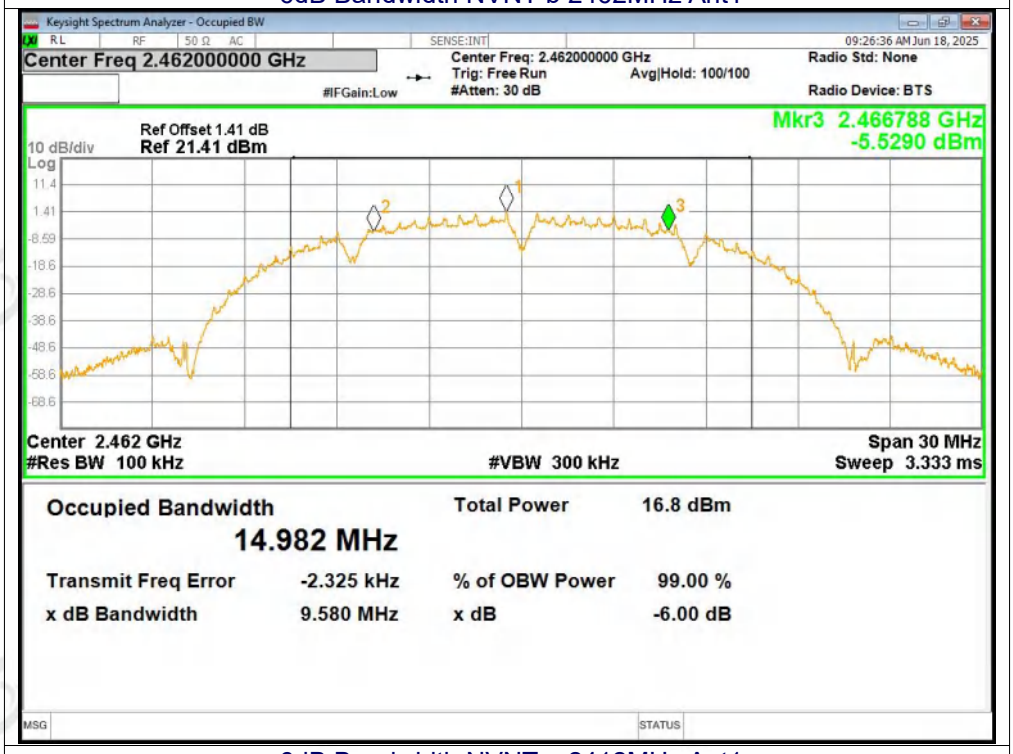
-6dB Bandwidth NVNT b 2412MHz Ant1



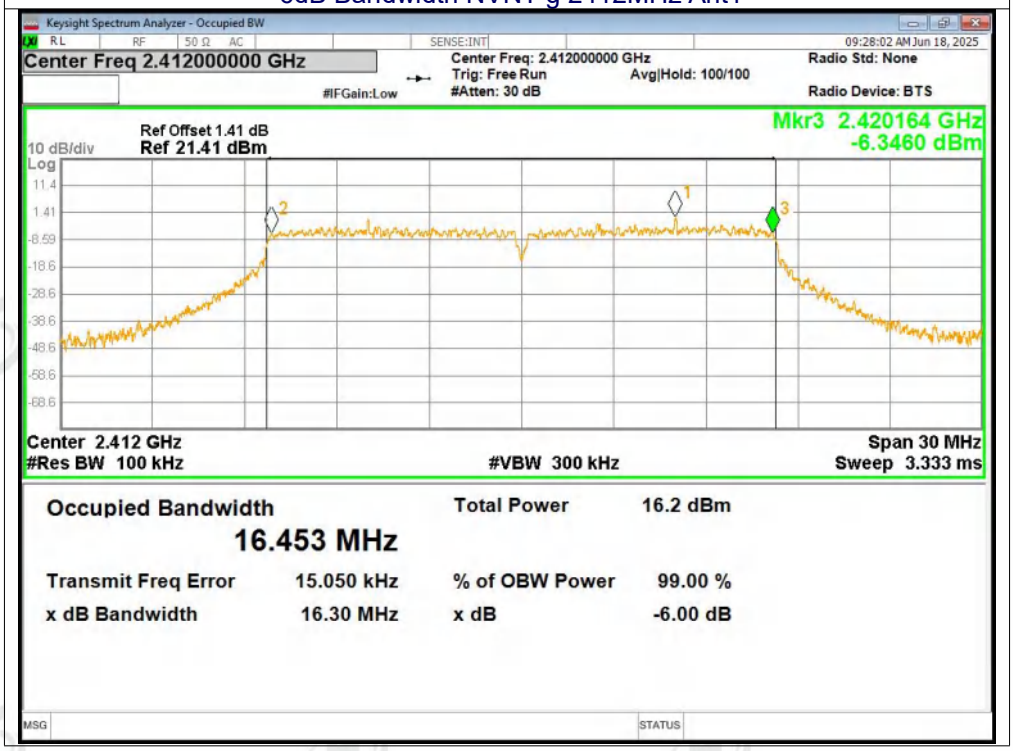
-6dB Bandwidth NVNT b 2437MHz Ant1



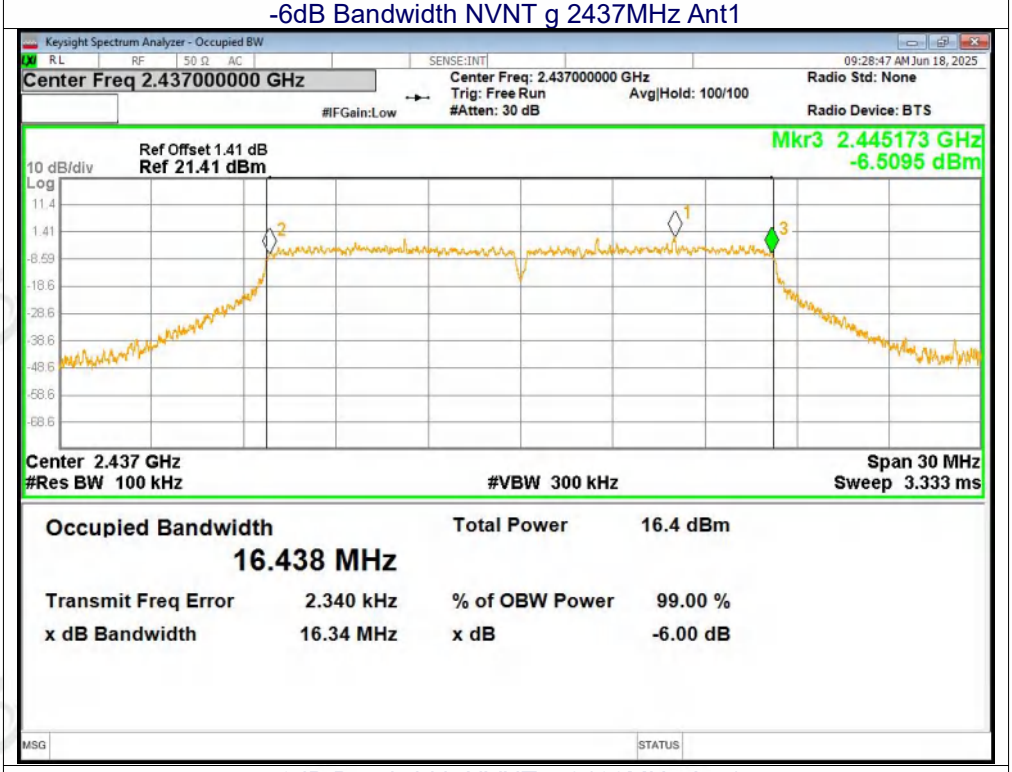
-6dB Bandwidth NVNT b 2462MHz Ant1



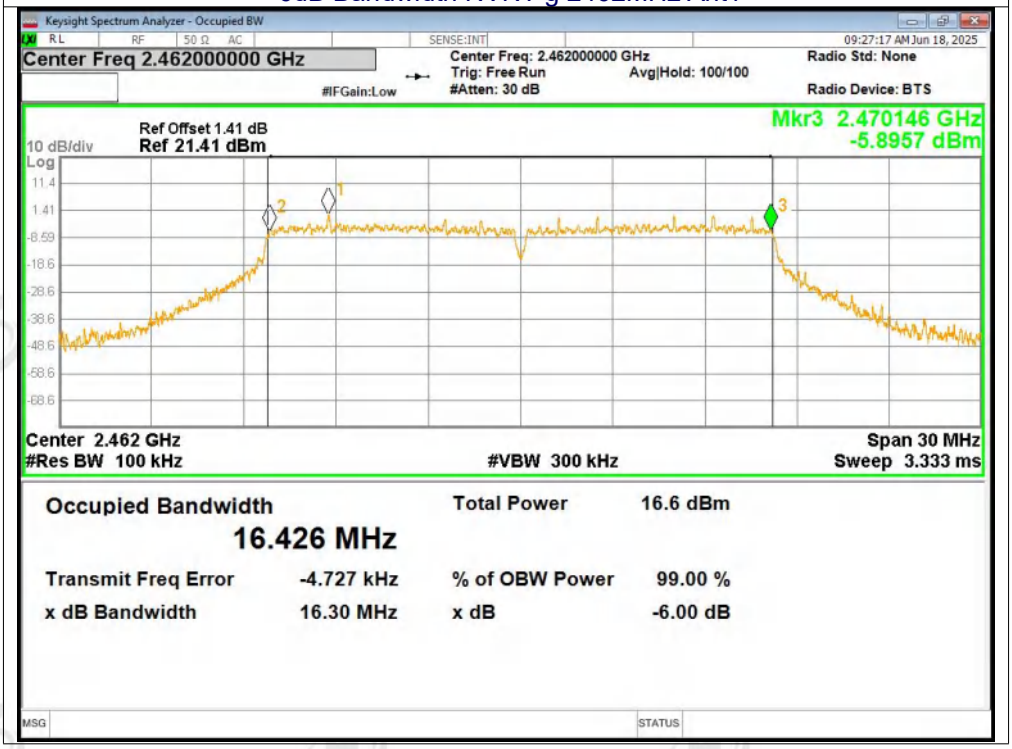
-6dB Bandwidth NVNT g 2412MHz Ant1



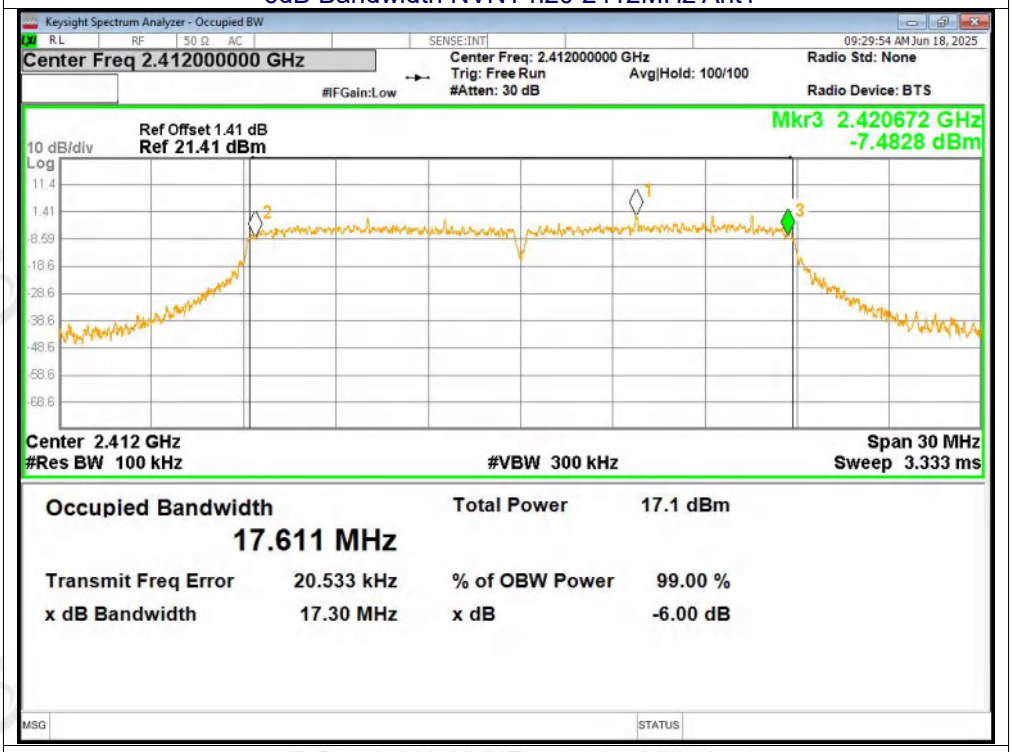
-6dB Bandwidth NVNT g 2437MHz Ant1



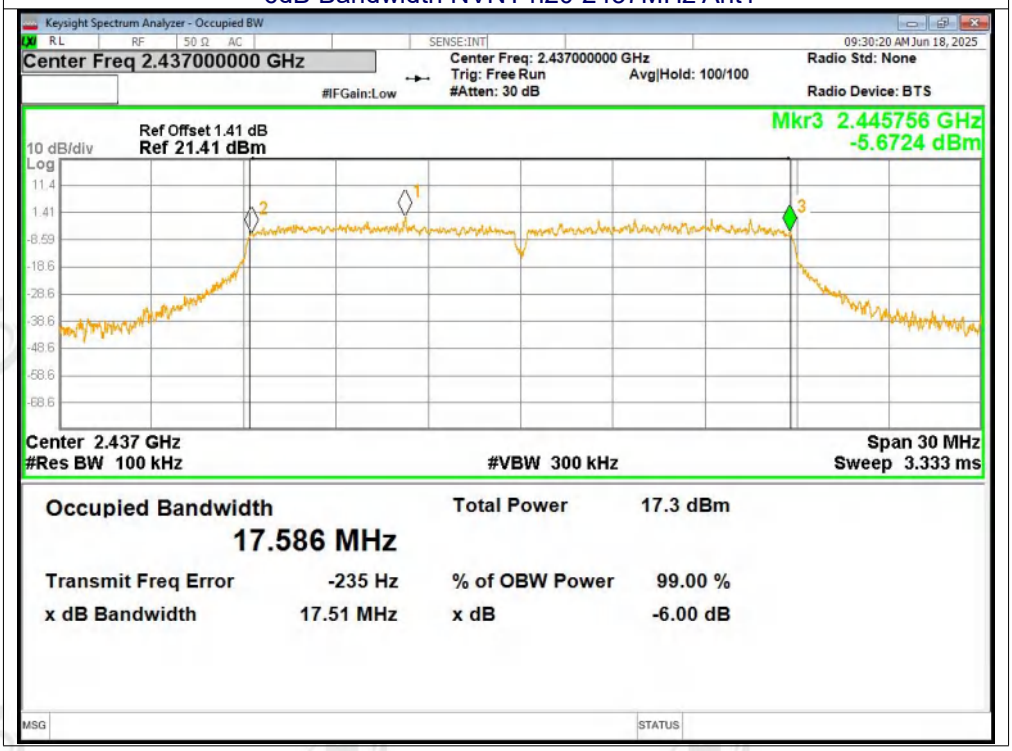
-6dB Bandwidth NVNT g 2462MHz Ant1



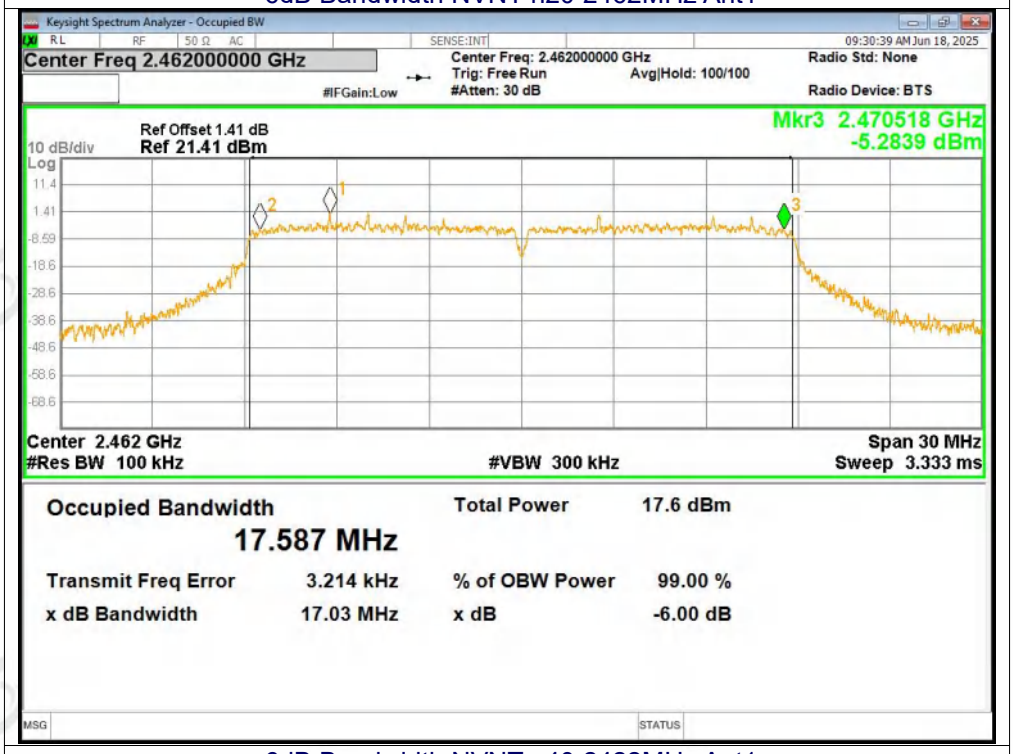
-6dB Bandwidth NVNT n20 2412MHz Ant1



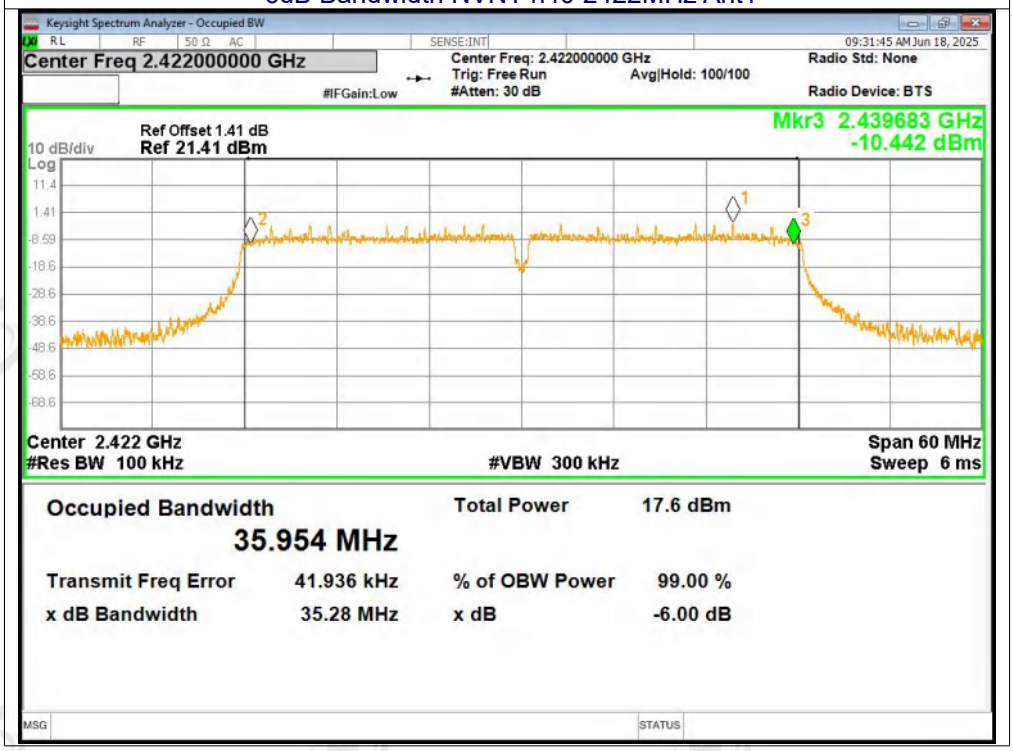
-6dB Bandwidth NVNT n20 2437MHz Ant1



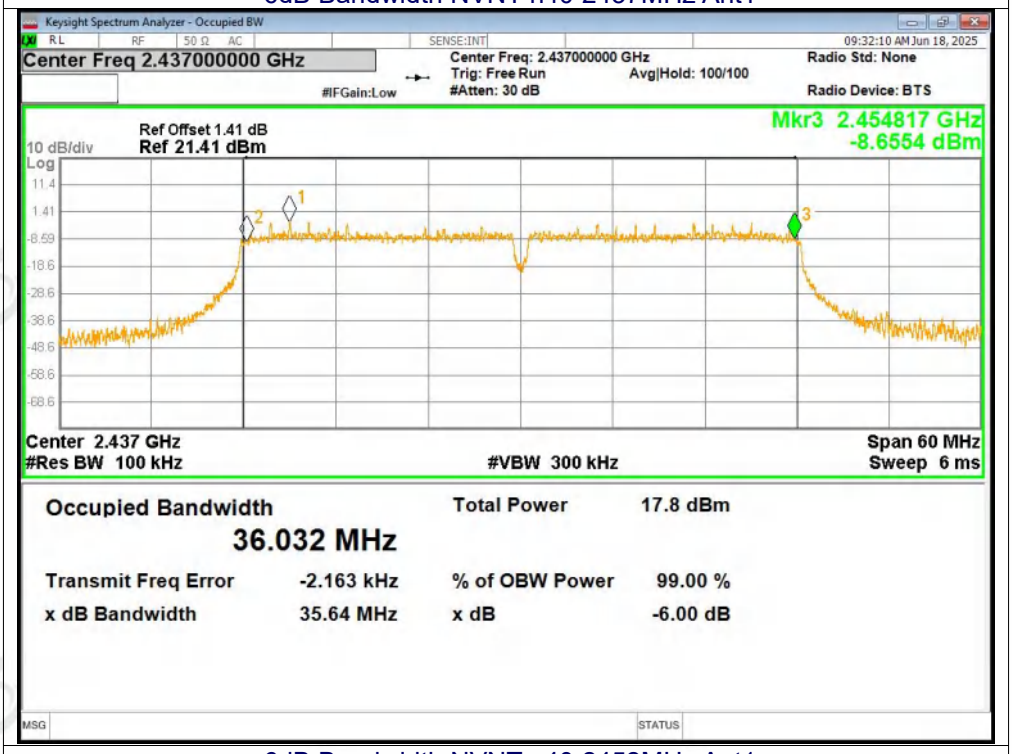
-6dB Bandwidth NVNT n20 2462MHz Ant1



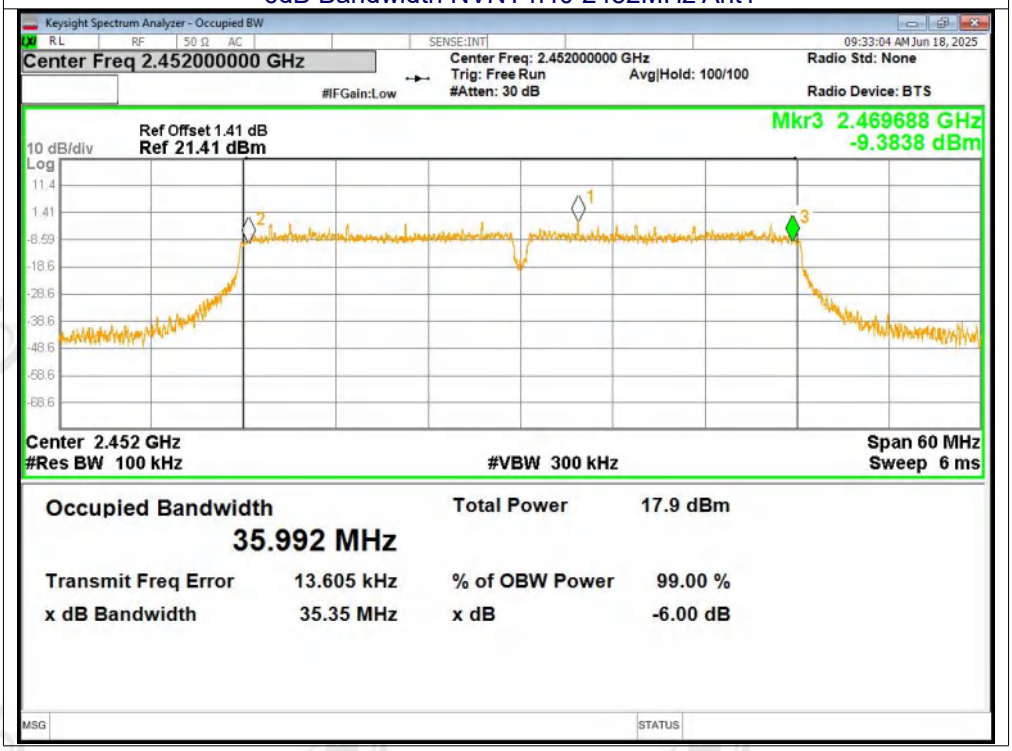
-6dB Bandwidth NVNT n40 2422MHz Ant1



-6dB Bandwidth NVNT n40 2437MHz Ant1



-6dB Bandwidth NVNT n40 2452MHz Ant1

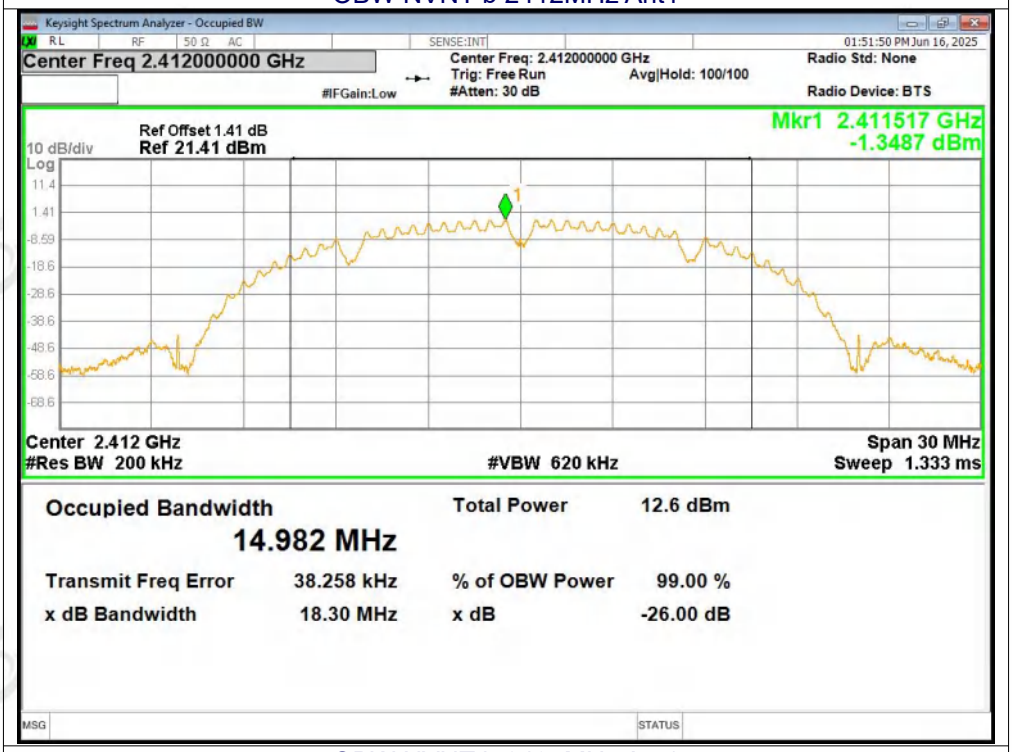


11.4 Occupied Channel Bandwidth

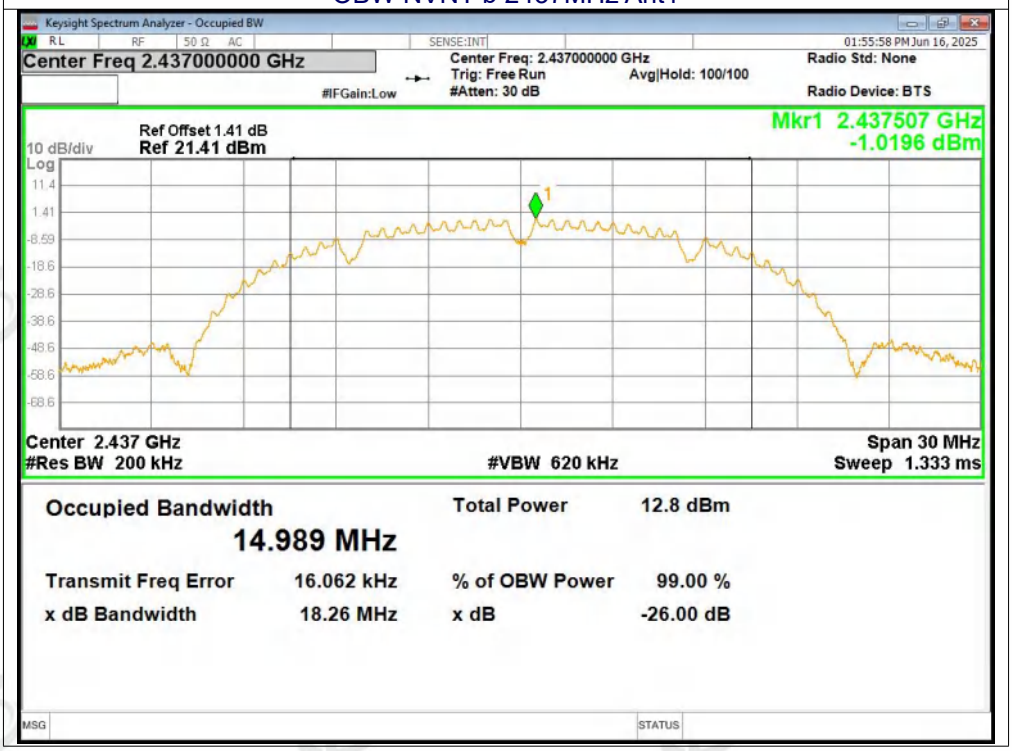
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	b	2412	Ant1	14.982
NVNT	b	2437	Ant1	14.989
NVNT	b	2462	Ant1	14.964
NVNT	g	2412	Ant1	16.524
NVNT	g	2437	Ant1	16.584
NVNT	g	2462	Ant1	16.546
NVNT	n20	2412	Ant1	17.632
NVNT	n20	2437	Ant1	17.641
NVNT	n20	2462	Ant1	17.606
NVNT	n40	2422	Ant1	36.121
NVNT	n40	2437	Ant1	36.144
NVNT	n40	2452	Ant1	36.1

Test Graphs

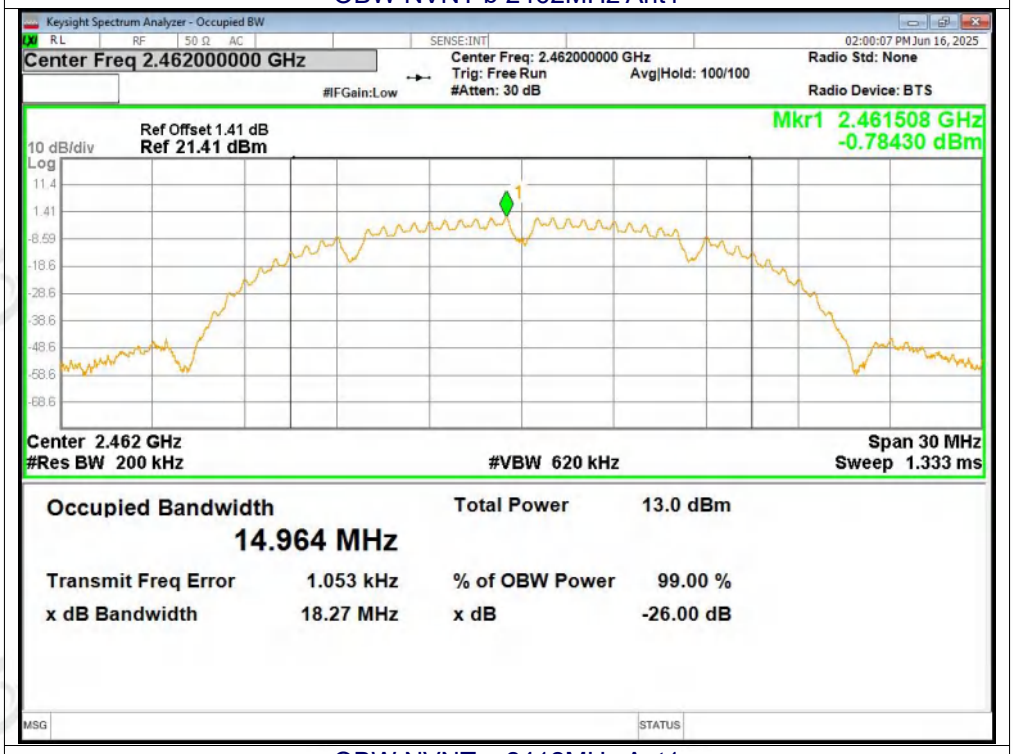
OBW NVNT b 2412MHz Ant1



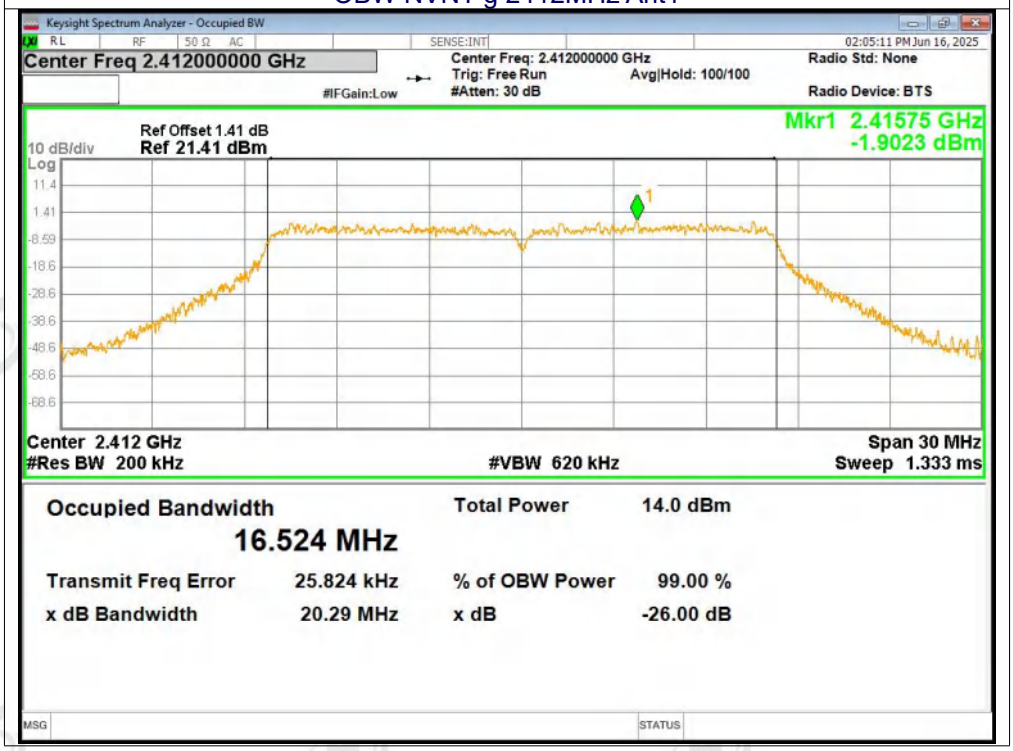
OBW NVNT b 2437MHz Ant1



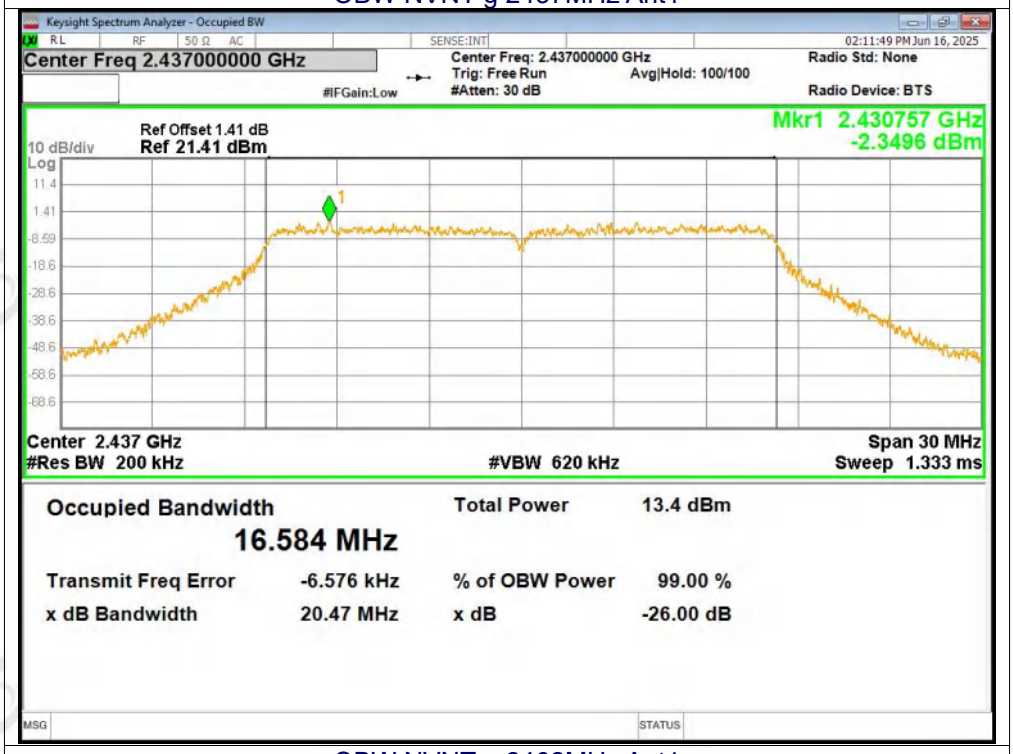
OBW NVNT b 2462MHz Ant1



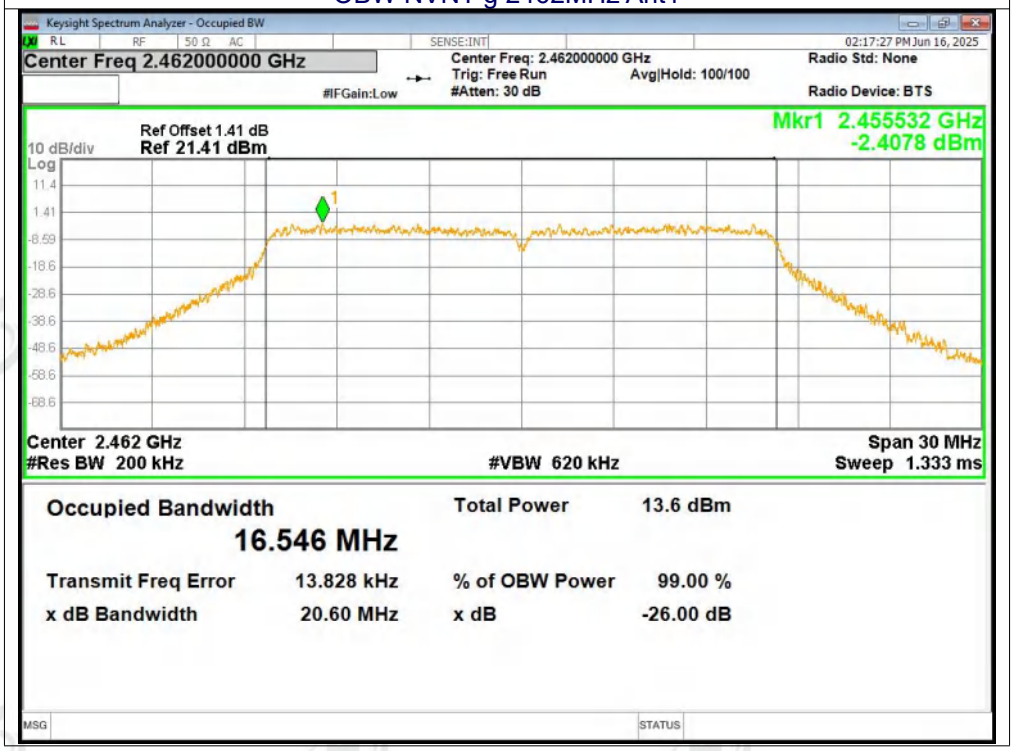
OBW NVNT g 2412MHz Ant1



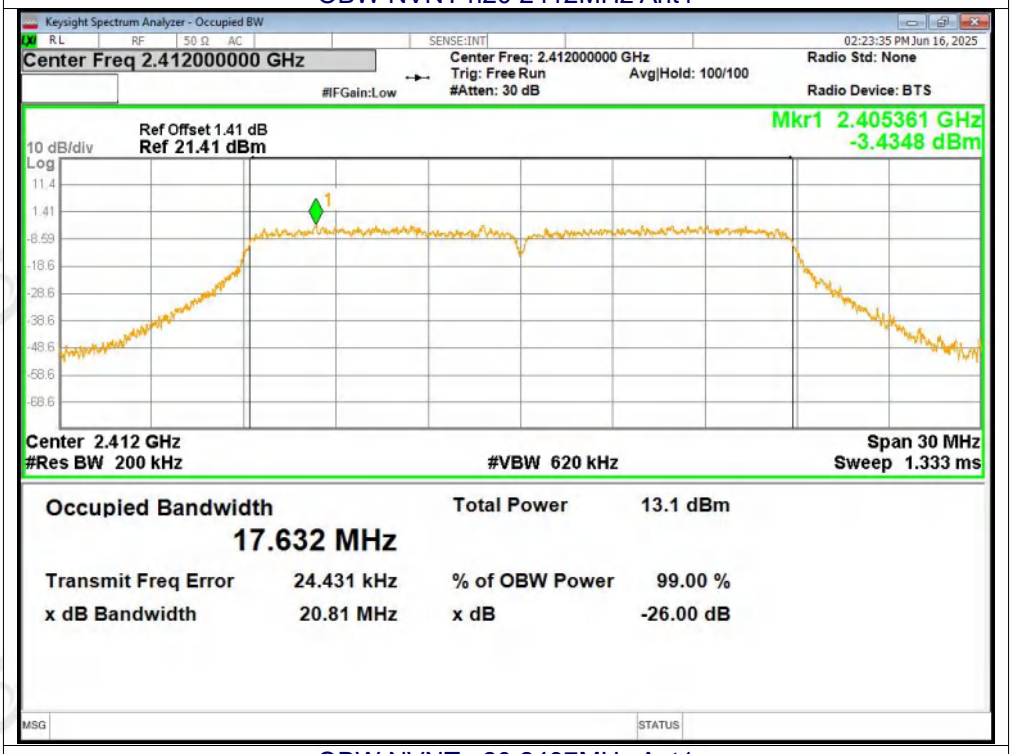
OBW NVNT g 2437MHz Ant1



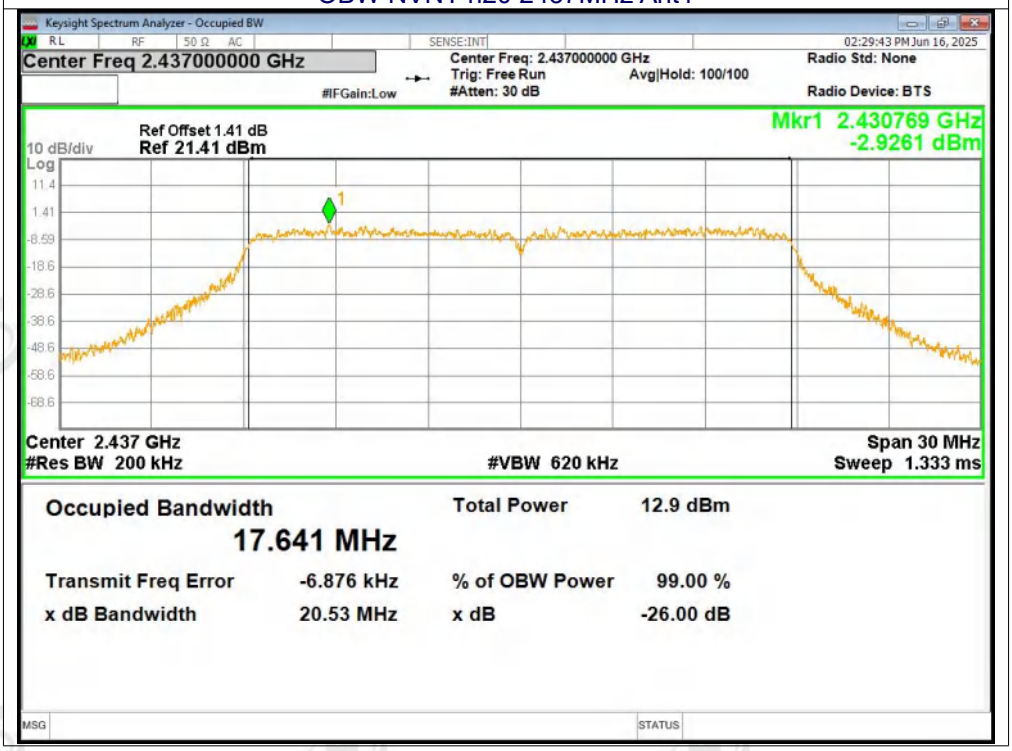
OBW NVNT g 2462MHz Ant1



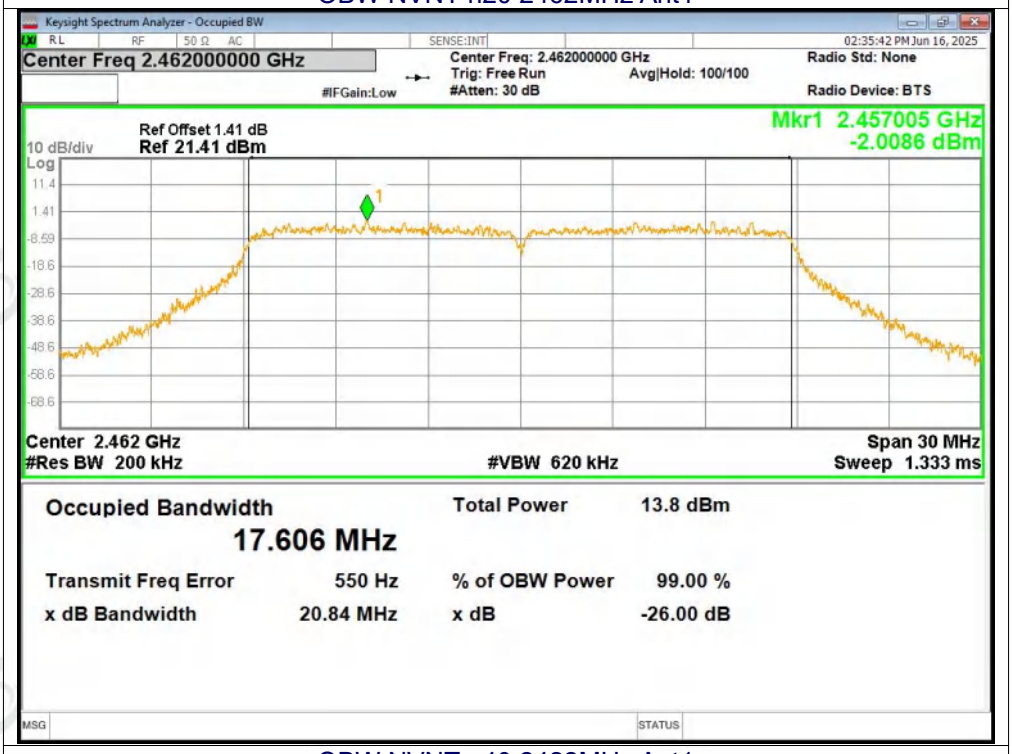
OBW NVNT n20 2412MHz Ant1



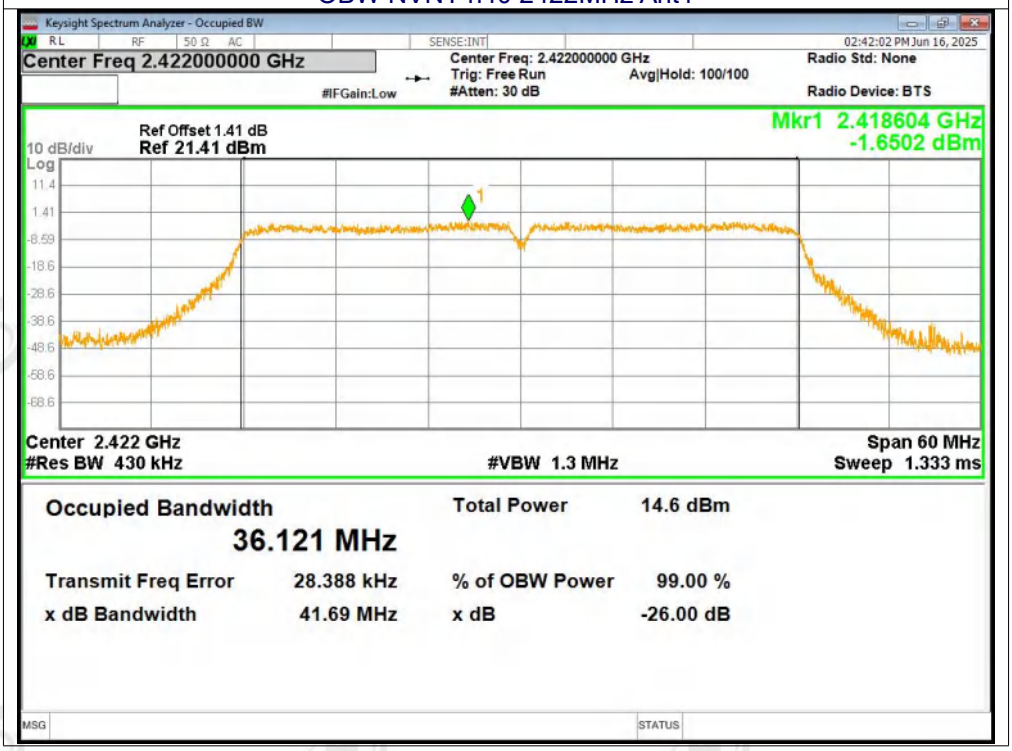
OBW NVNT n20 2437MHz Ant1



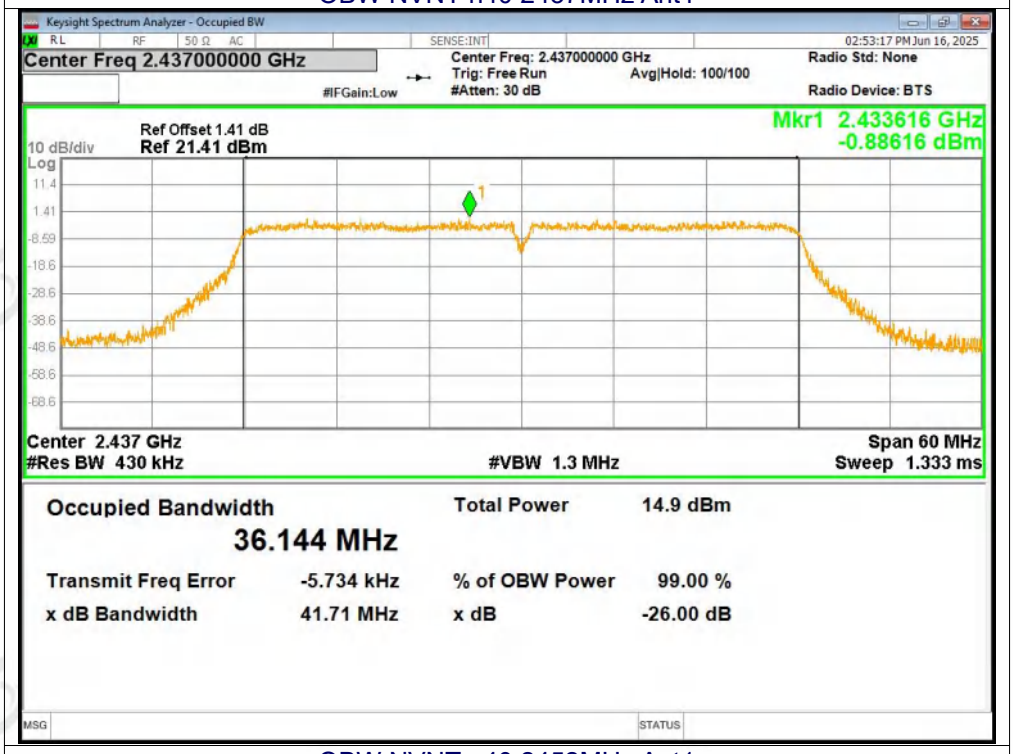
OBW NVNT n20 2462MHz Ant1



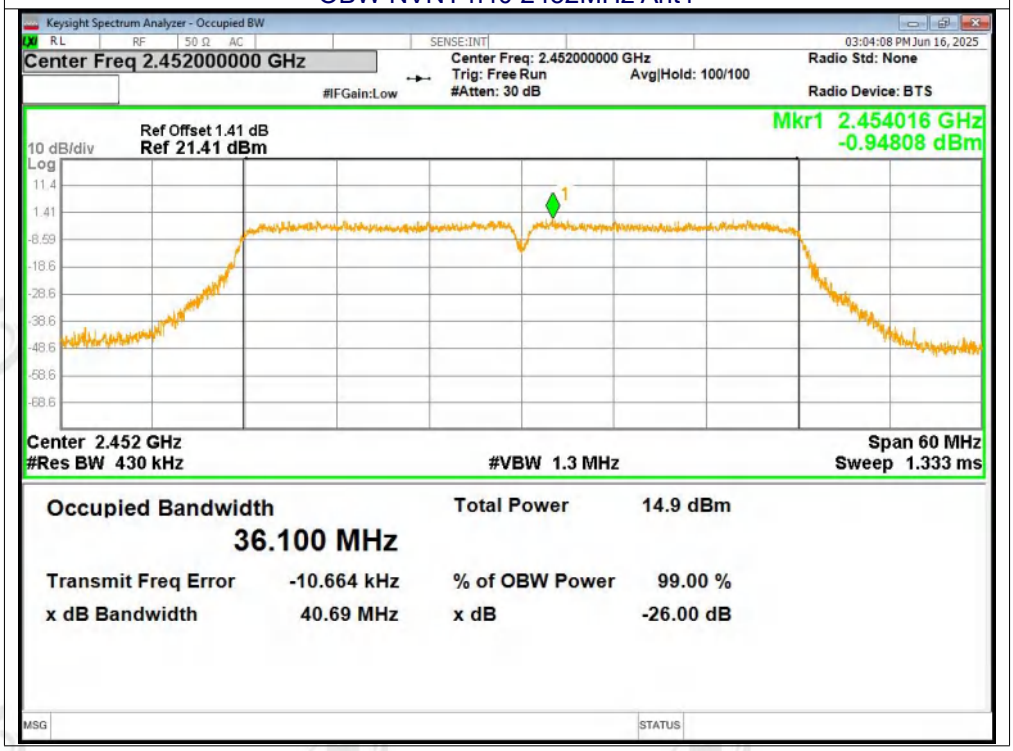
OBW NVNT n40 2422MHz Ant1



OBW NVNT n40 2437MHz Ant1



OBW NVNT n40 2452MHz Ant1

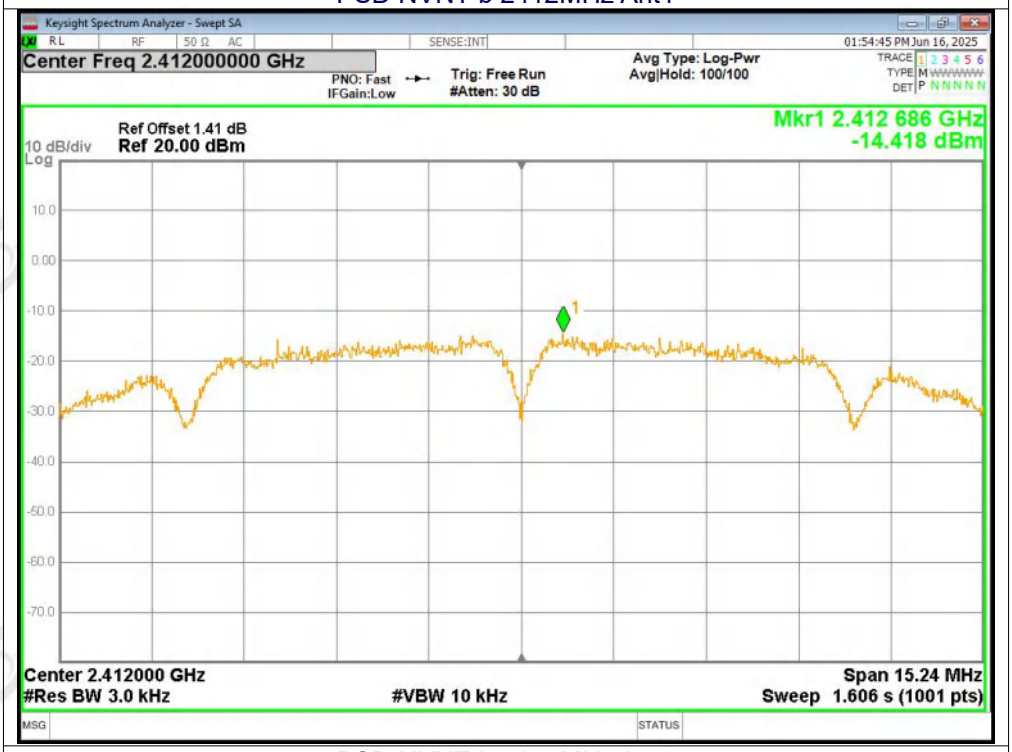


11.5 Maximum Power Spectral Density Level

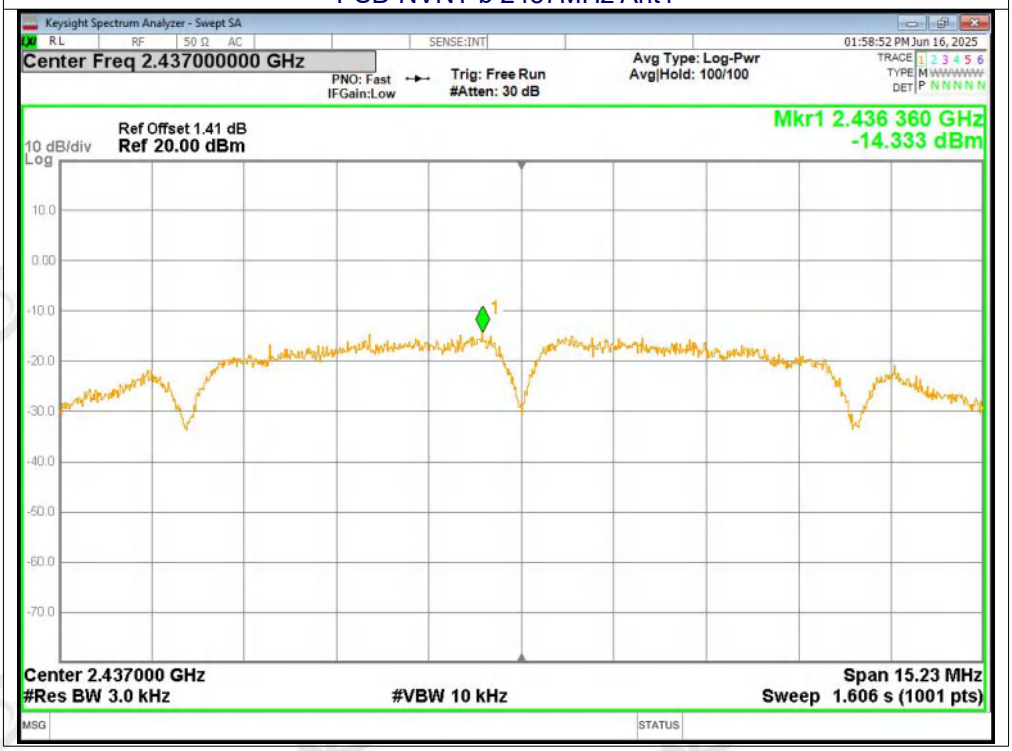
Condition	Mode	Frequency (MHz)	Antenna	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant1	-14.42	8	Pass
NVNT	b	2437	Ant1	-14.33	8	Pass
NVNT	b	2462	Ant1	-13.37	8	Pass
NVNT	g	2412	Ant1	-14.94	8	Pass
NVNT	g	2437	Ant1	-15.62	8	Pass
NVNT	g	2462	Ant1	-16.58	8	Pass
NVNT	n20	2412	Ant1	-16.92	8	Pass
NVNT	n20	2437	Ant1	-16.9	8	Pass
NVNT	n20	2462	Ant1	-16.46	8	Pass
NVNT	n40	2422	Ant1	-17.49	8	Pass
NVNT	n40	2437	Ant1	-18.86	8	Pass
NVNT	n40	2452	Ant1	-18.75	8	Pass

Test Graphs

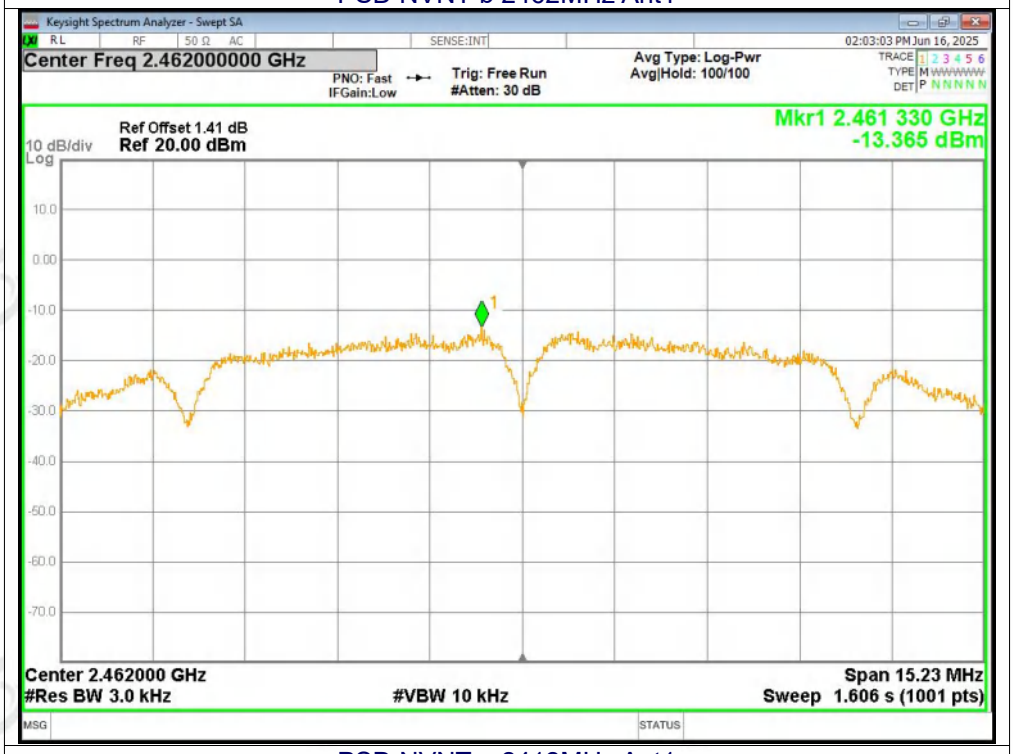
PSD NVNT b 2412MHz Ant1



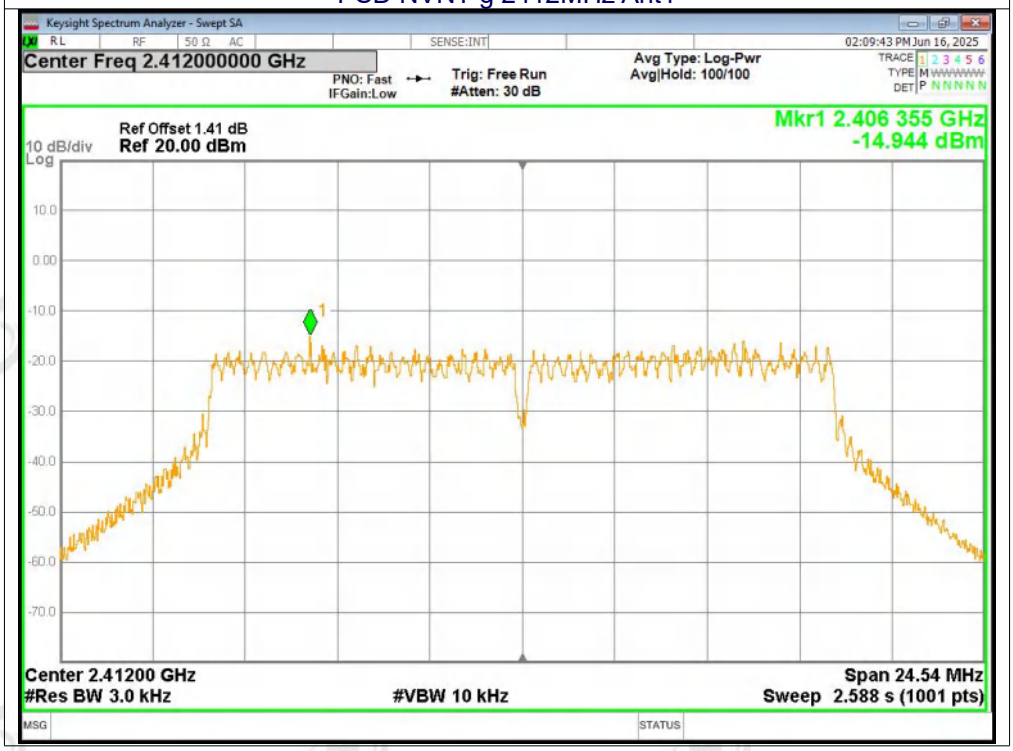
PSD NVNT b 2437MHz Ant1



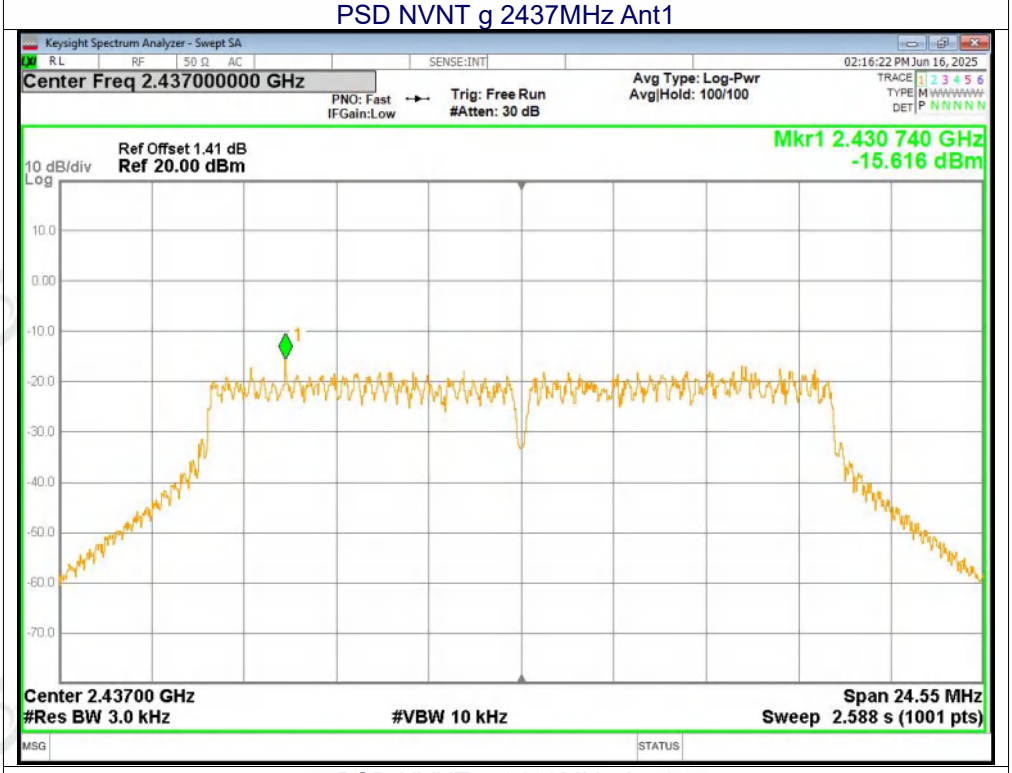
PSD NVNT b 2462MHz Ant1



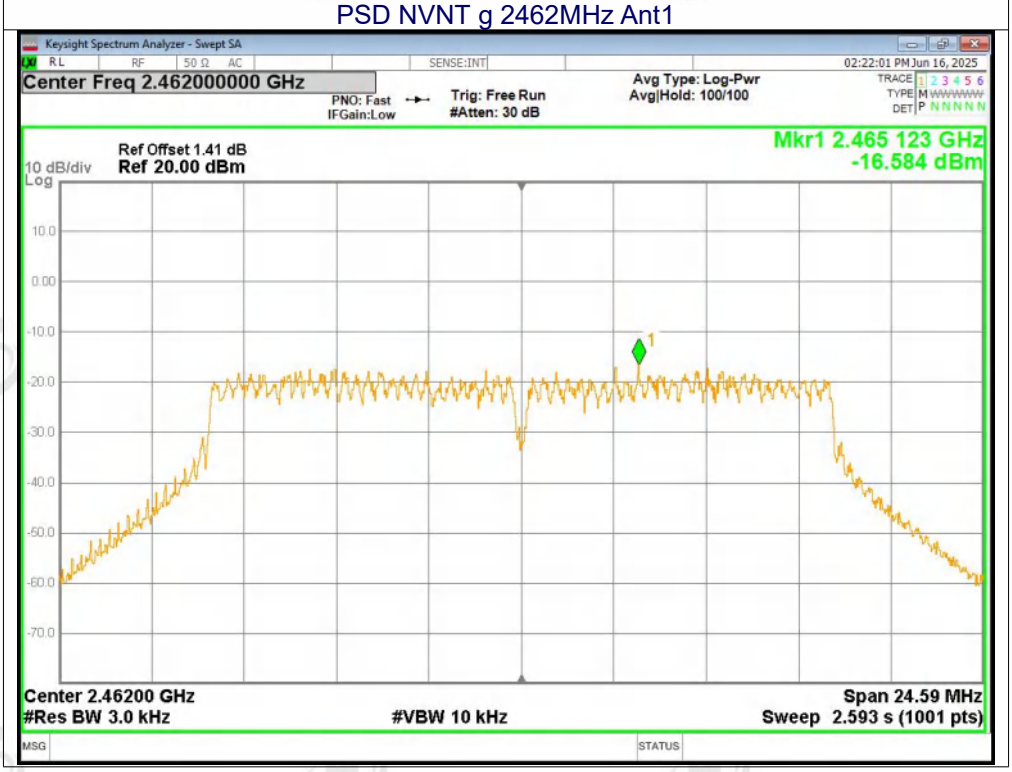
PSD NVNT g 2412MHz Ant1



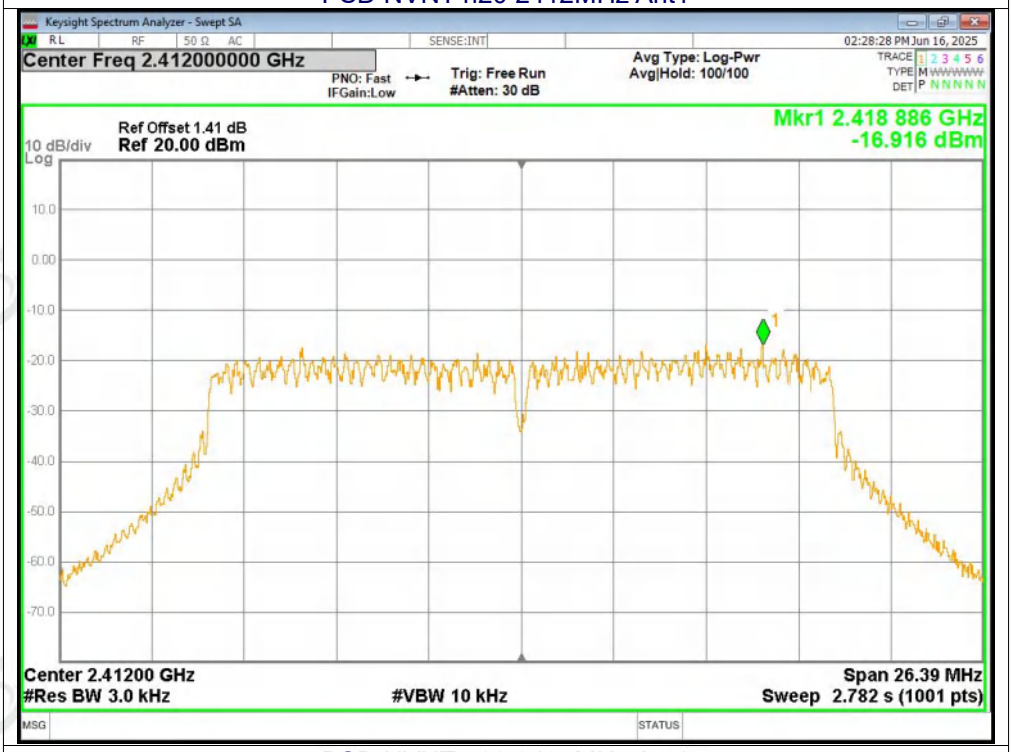
PSD NVNT g 2437MHz Ant1



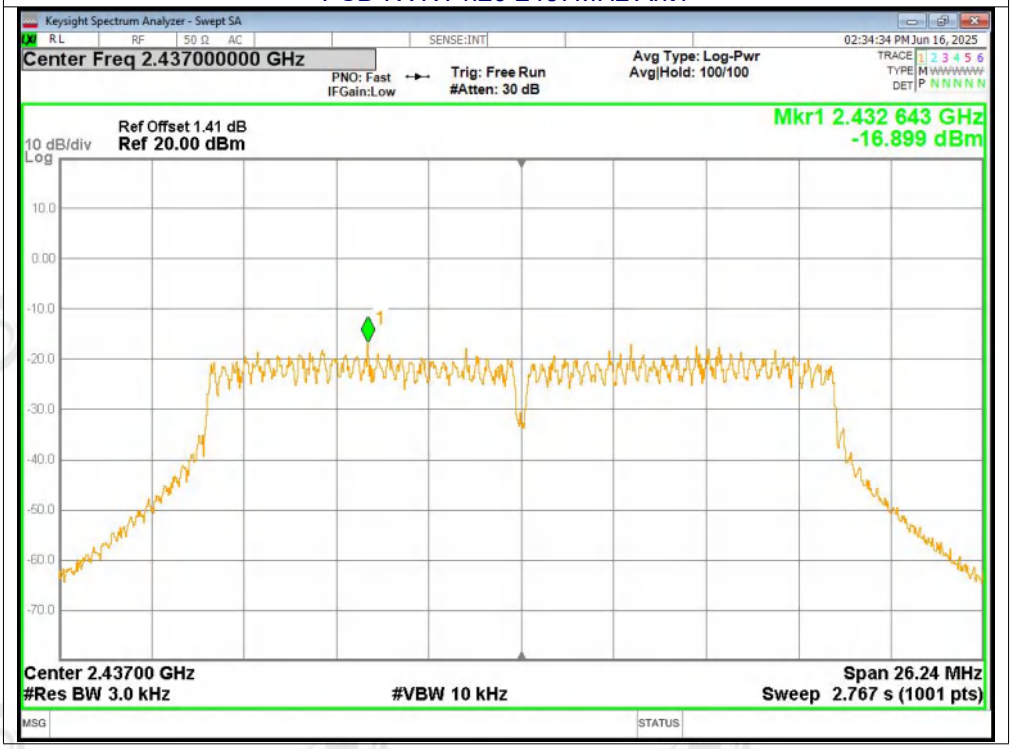
PSD NVNT g 2462MHz Ant1



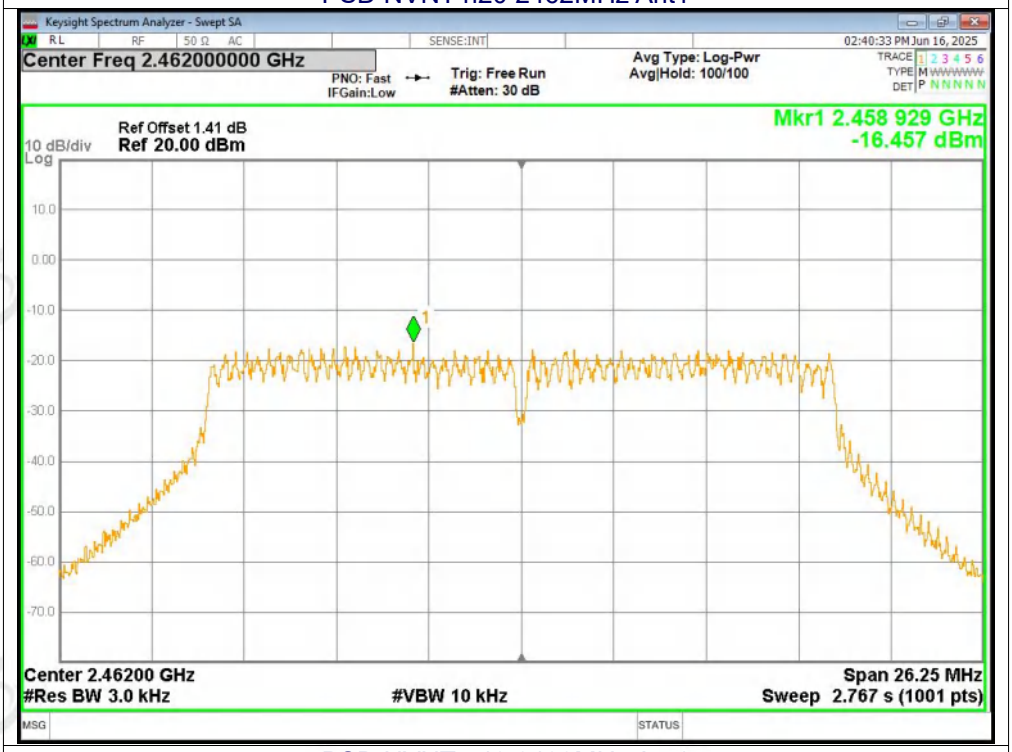
PSD NVNT n20 2412MHz Ant1



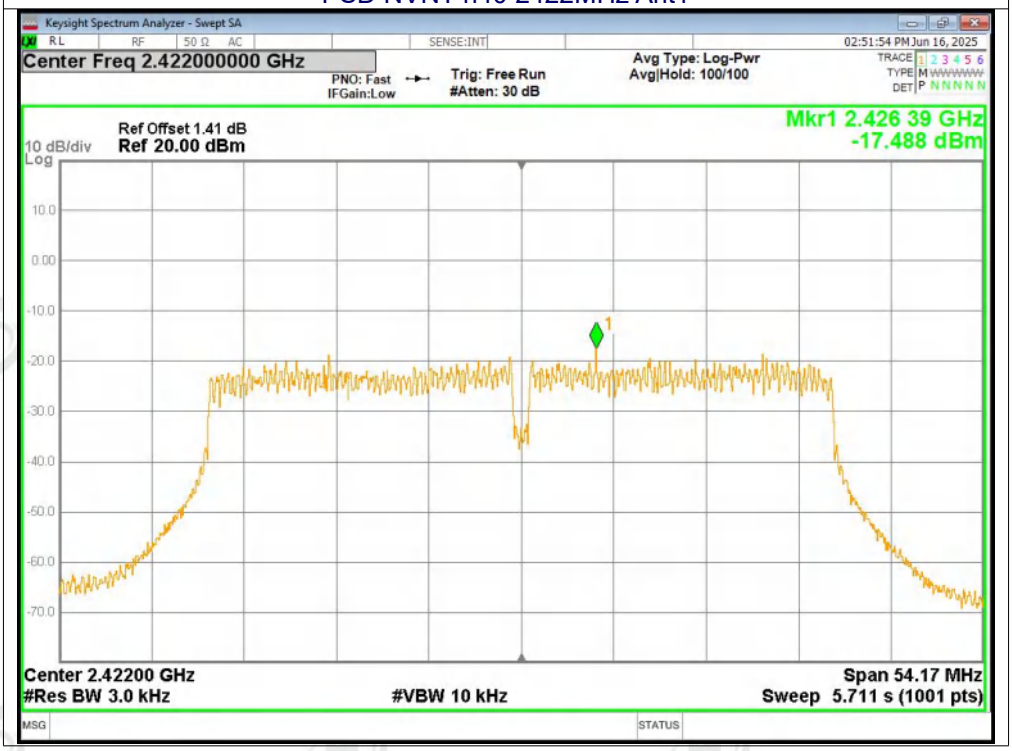
PSD NVNT n20 2437MHz Ant1



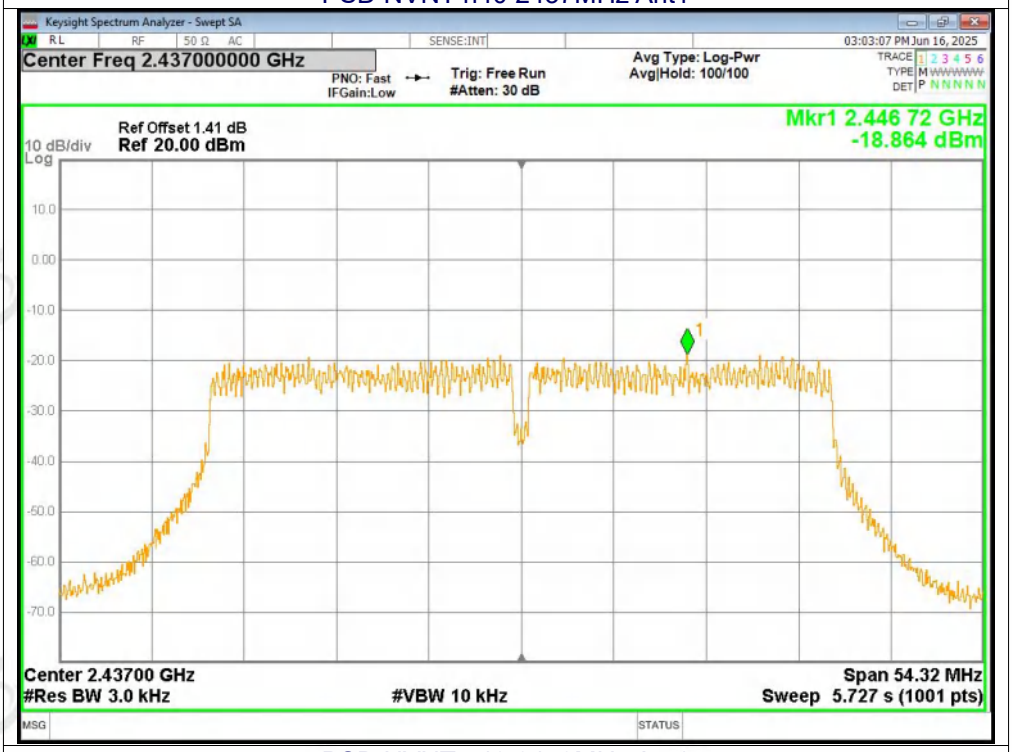
PSD NVNT n20 2462MHz Ant1



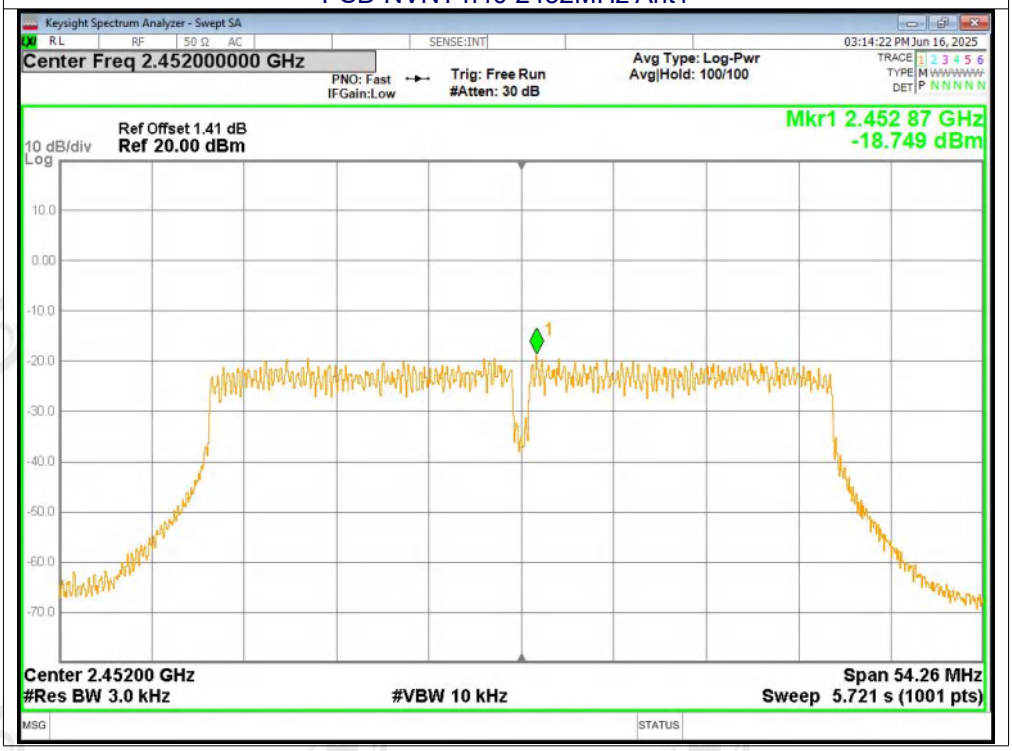
PSD NVNT n40 2422MHz Ant1



PSD NVNT n40 2437MHz Ant1



PSD NVNT n40 2452MHz Ant1

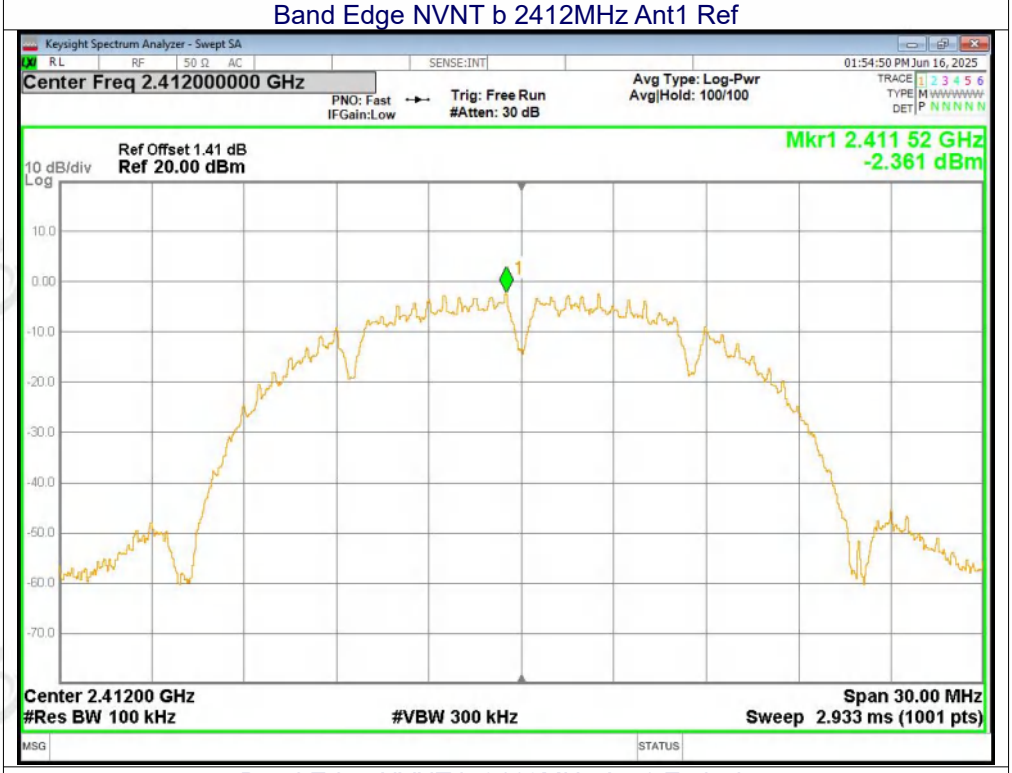


11.6 Band Edge

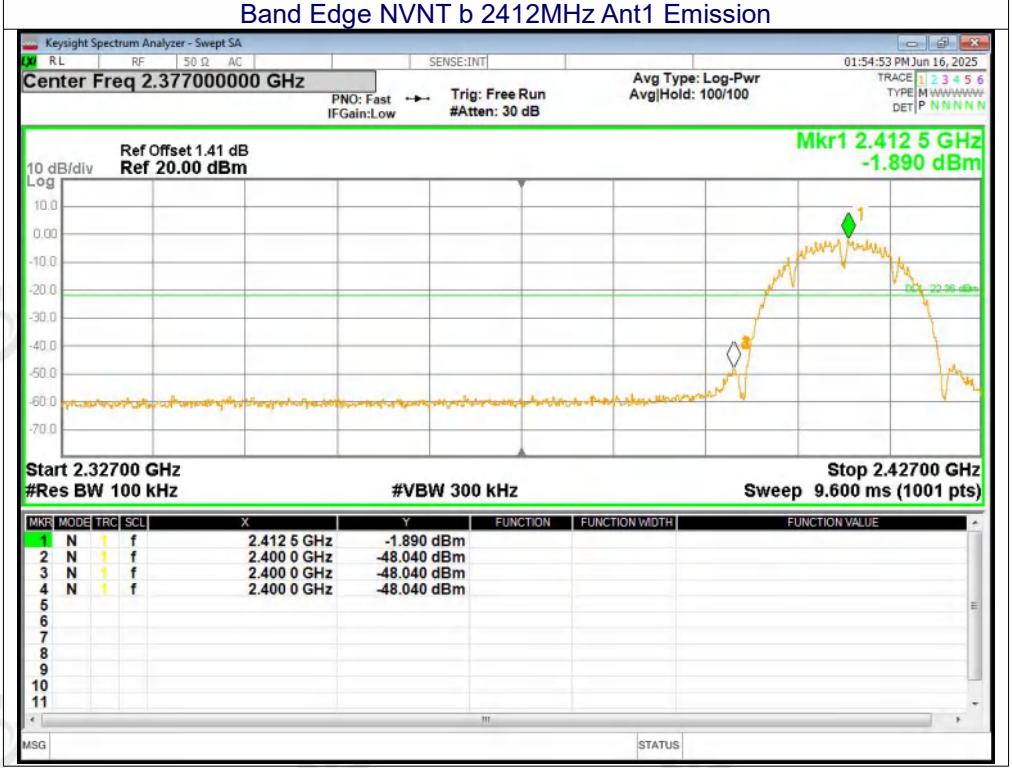
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-45.68	-20	Pass
NVNT	b	2462	Ant1	-55.59	-20	Pass
NVNT	g	2412	Ant1	-37.64	-20	Pass
NVNT	g	2462	Ant1	-52.31	-20	Pass
NVNT	n20	2412	Ant1	-39.31	-20	Pass
NVNT	n20	2462	Ant1	-51.23	-20	Pass
NVNT	n40	2422	Ant1	-36.88	-20	Pass
NVNT	n40	2452	Ant1	-44.7	-20	Pass

Test Graphs

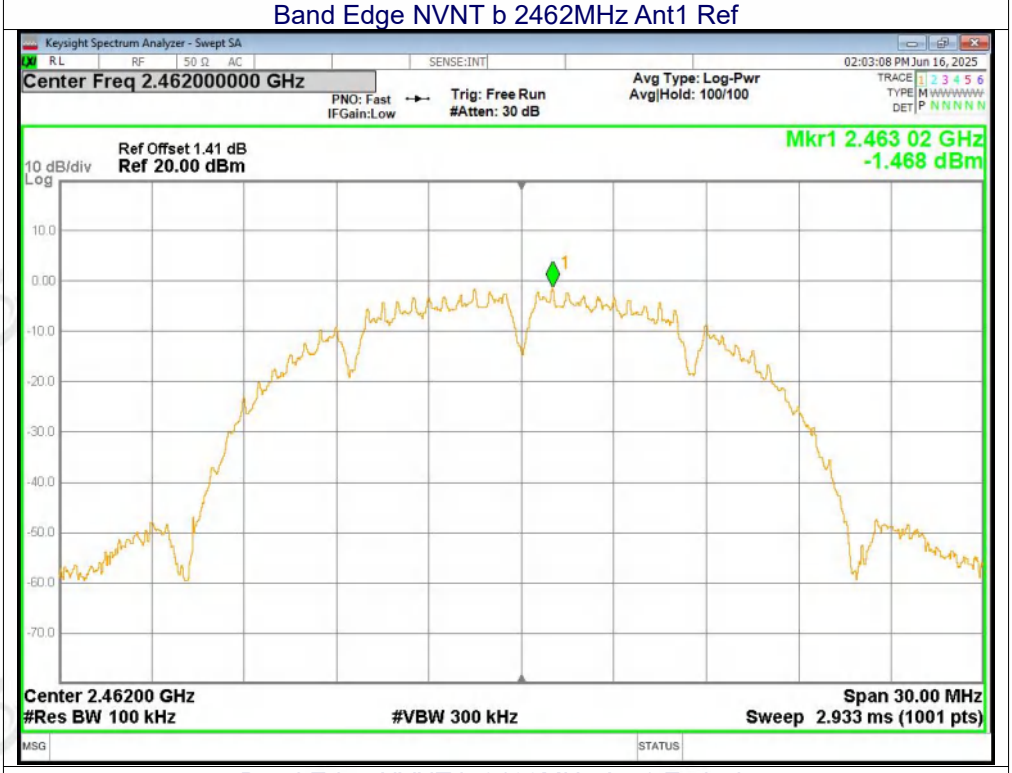
Band Edge NVNT b 2412MHz Ant1 Ref



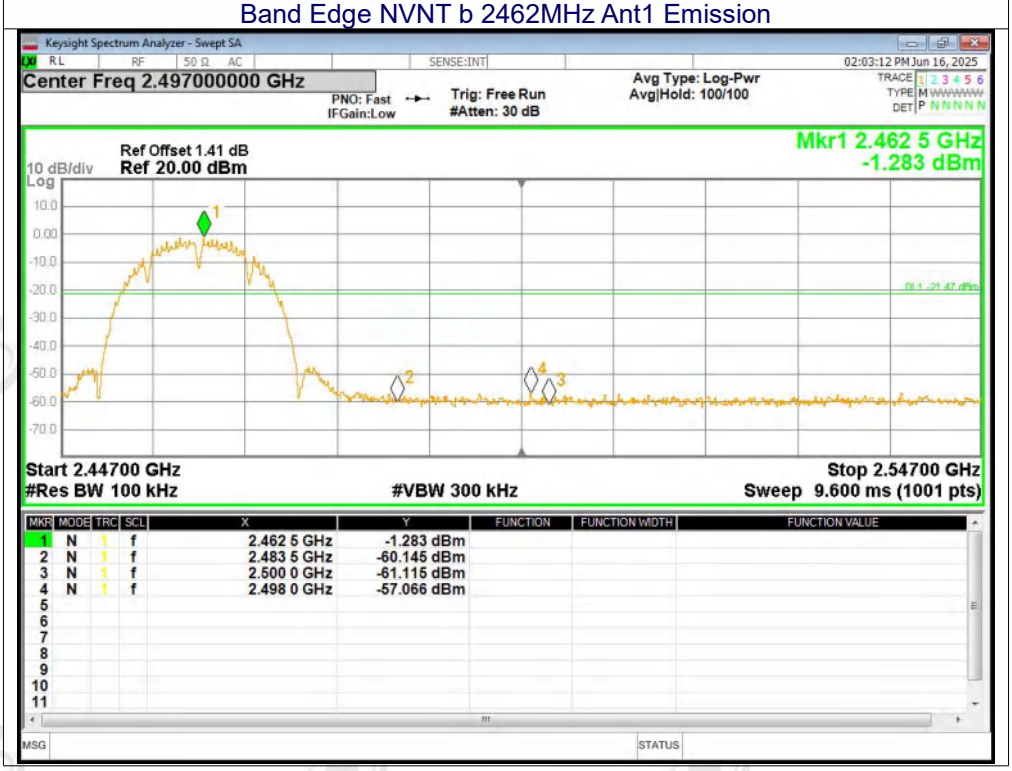
Band Edge NVNT b 2412MHz Ant1 Emission



Band Edge NVNT b 2462MHz Ant1 Ref

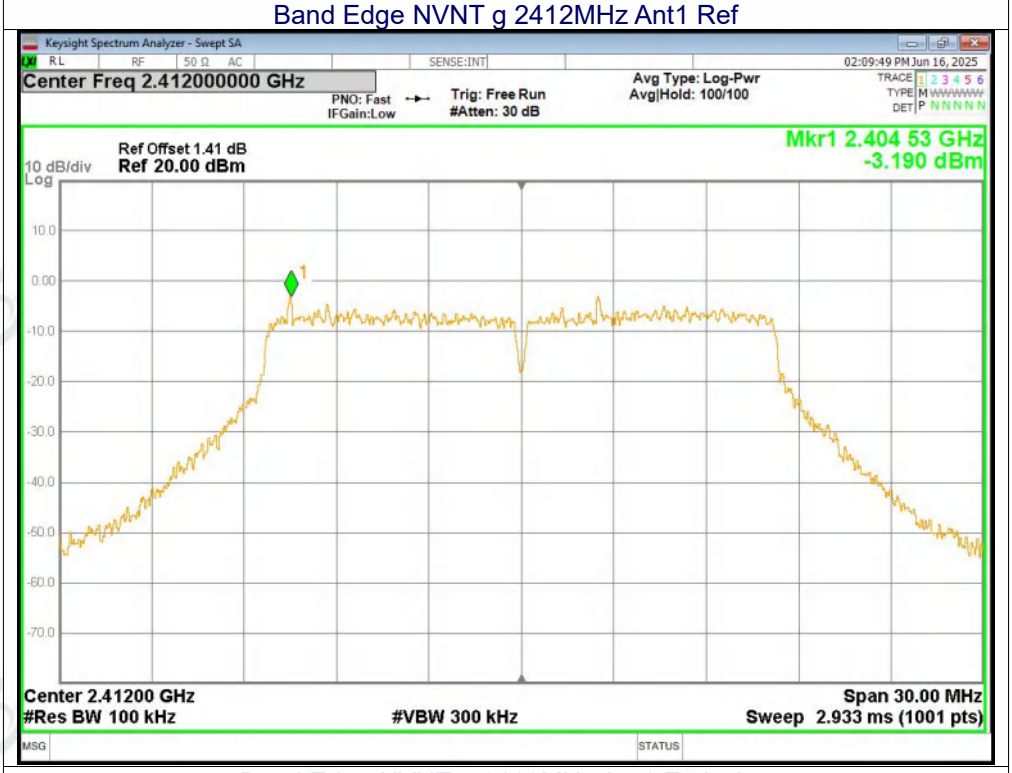


Band Edge NVNT b 2462MHz Ant1 Emission

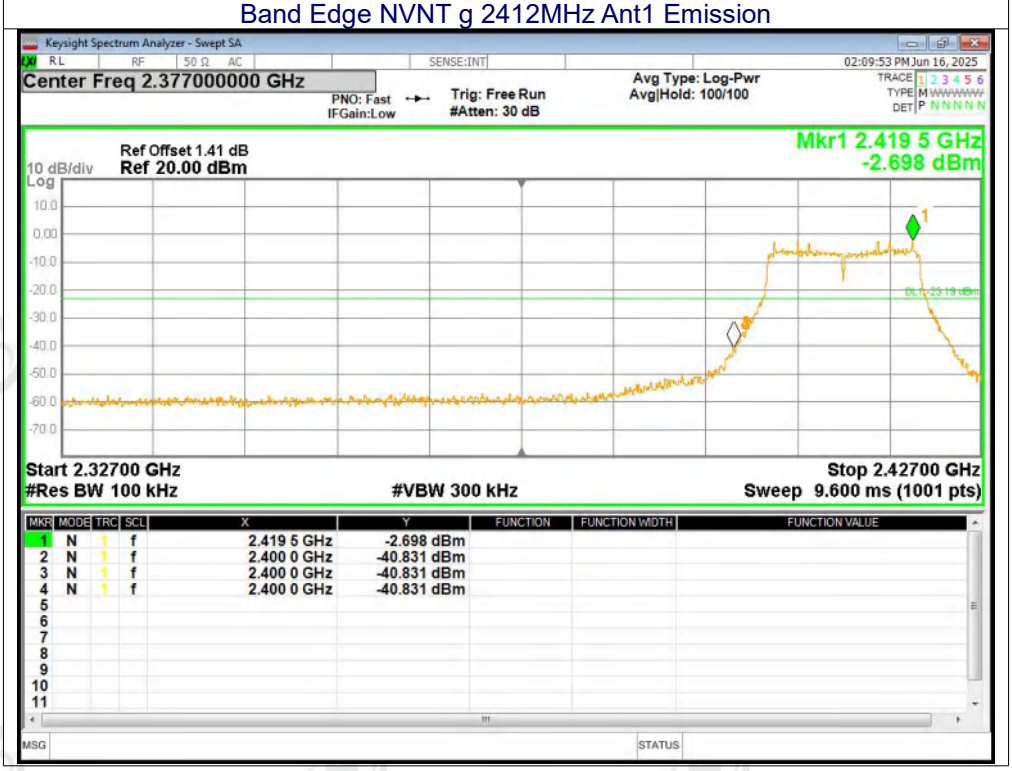


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.462 5 GHz	-1.283 dBm			
2	N	1	f	2.483 5 GHz	-60.145 dBm			
3	N	1	f	2.500 0 GHz	-61.115 dBm			
4	N	1	f	2.498 0 GHz	-57.066 dBm			
5								
6								
7								
8								
9								
10								
11								

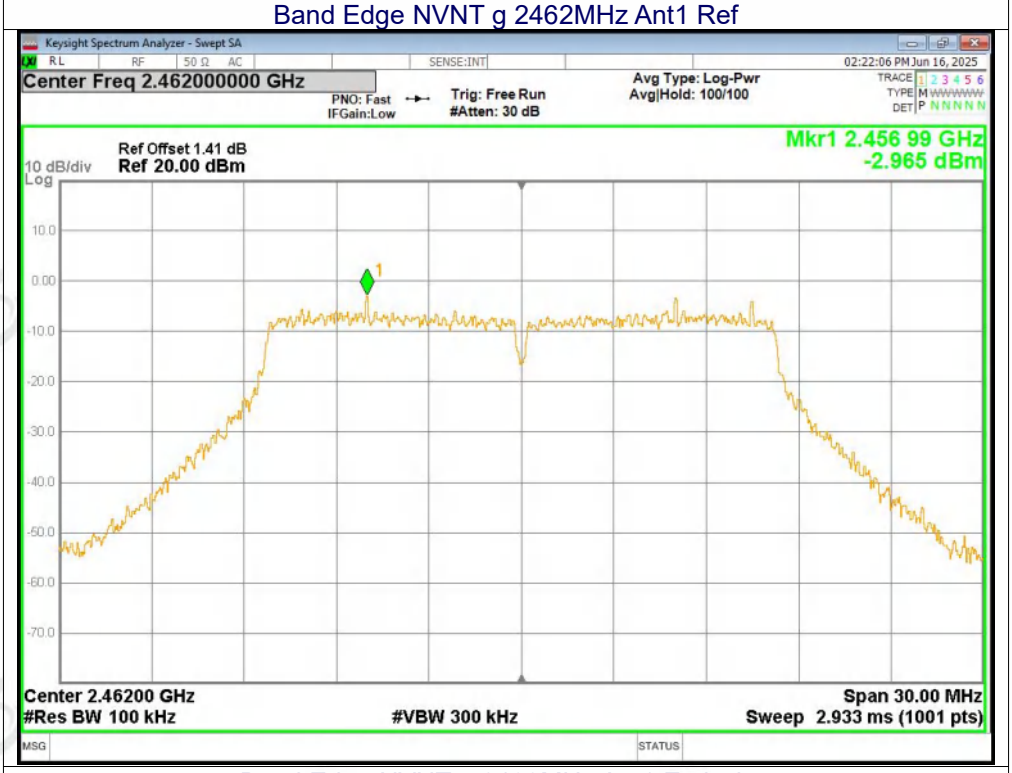
Band Edge NVNT g 2412MHz Ant1 Ref



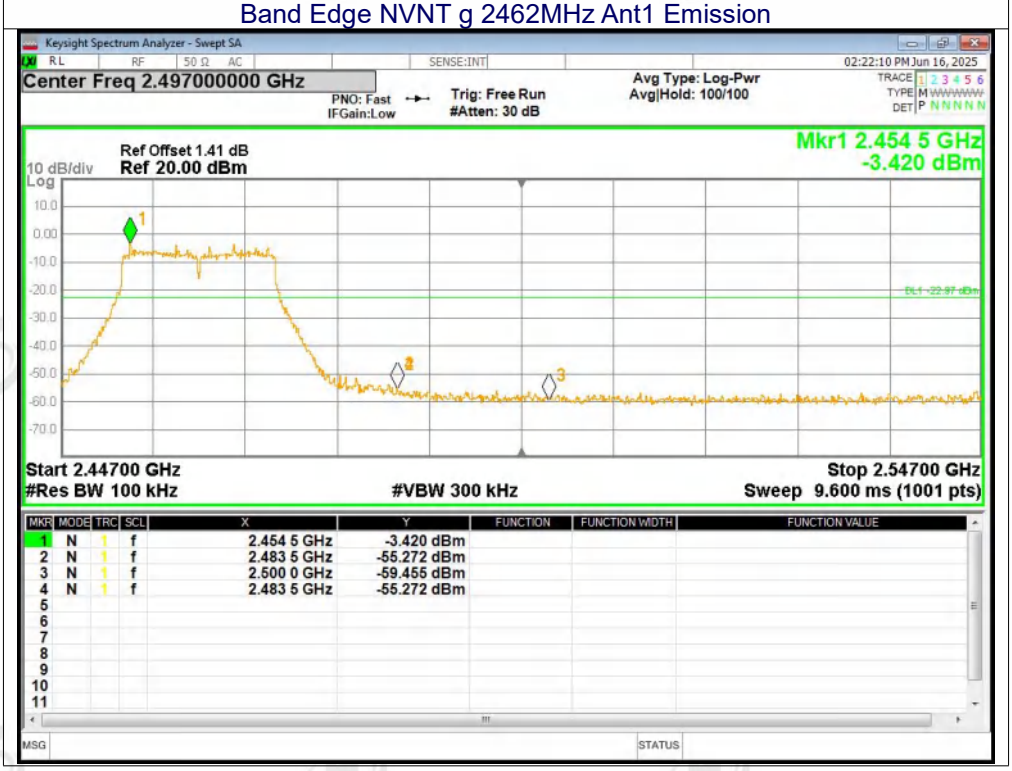
Band Edge NVNT g 2412MHz Ant1 Emission



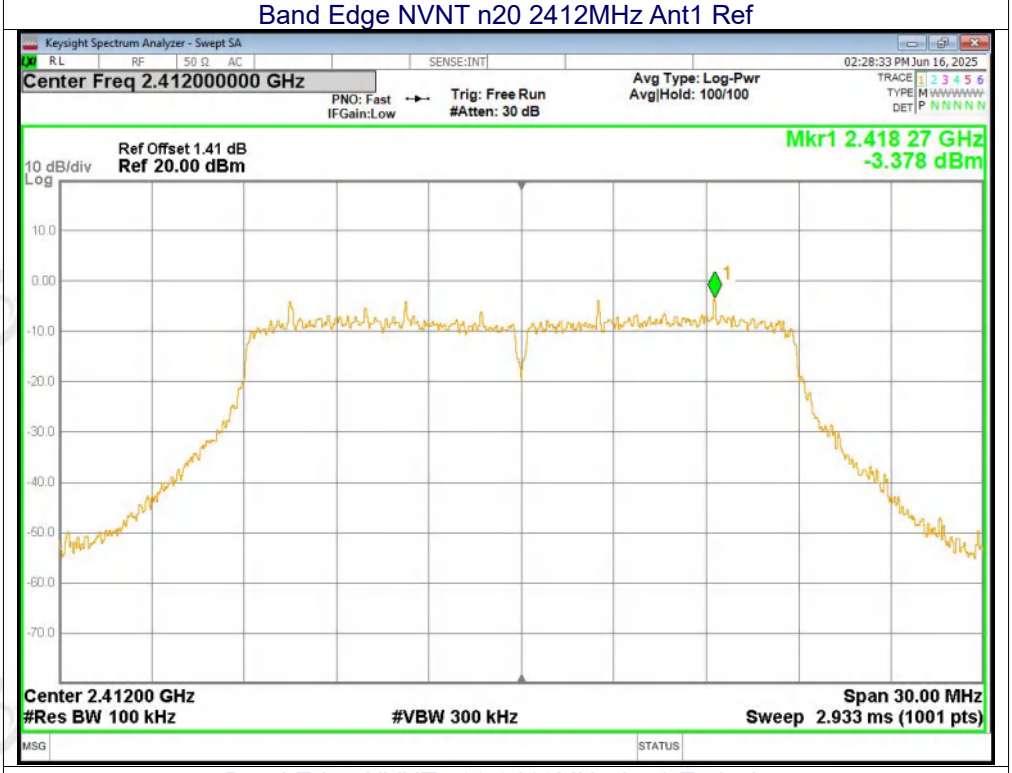
Band Edge NVNT g 2462MHz Ant1 Ref



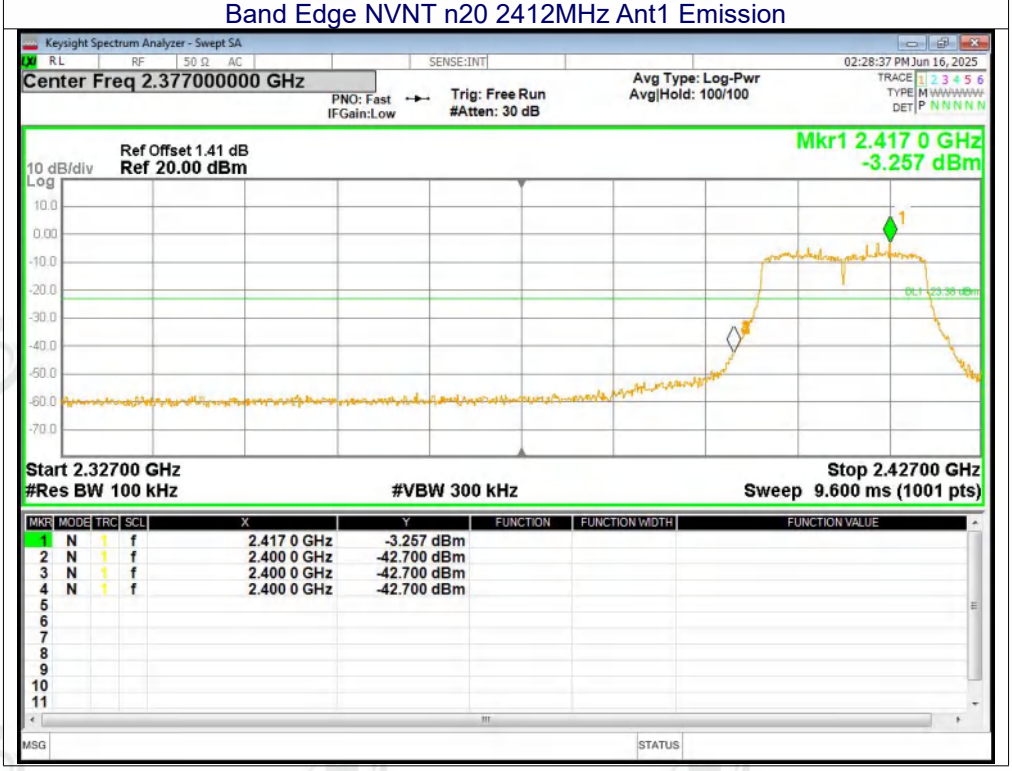
Band Edge NVNT g 2462MHz Ant1 Emission



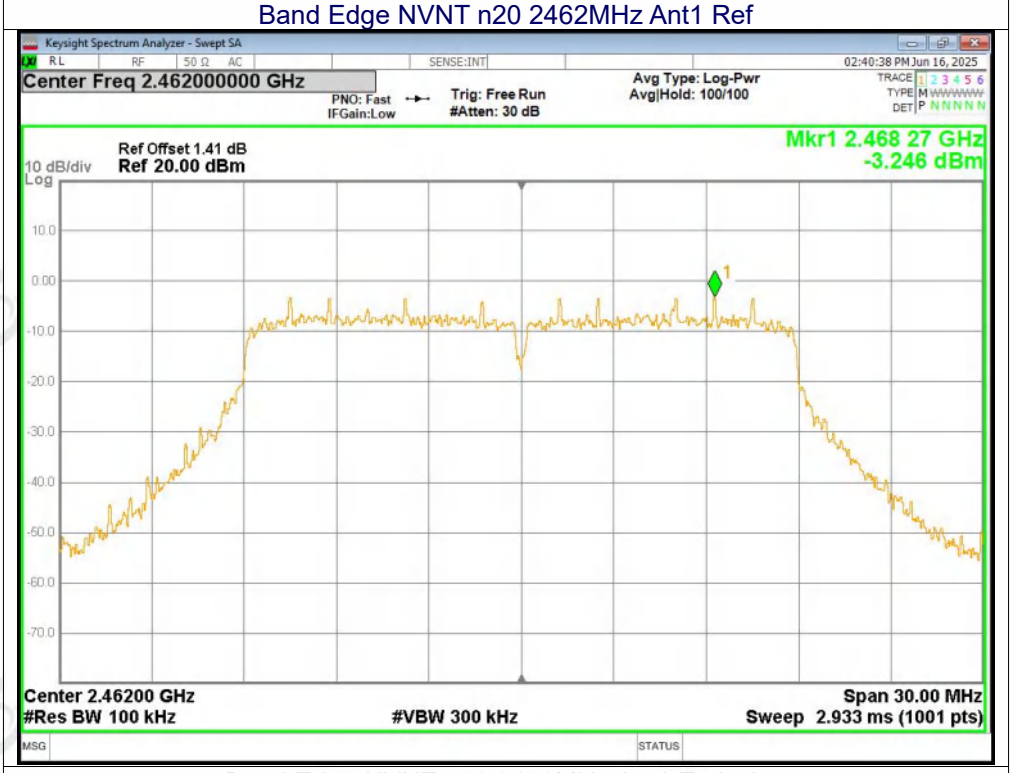
Band Edge NVNT n20 2412MHz Ant1 Ref



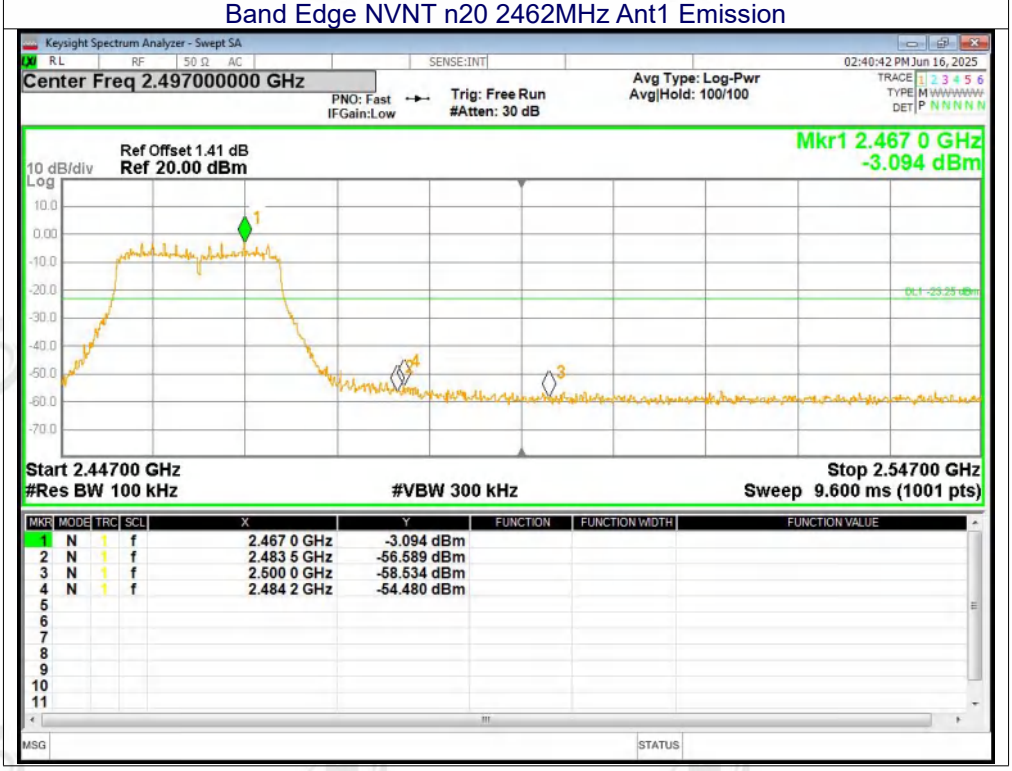
Band Edge NVNT n20 2412MHz Ant1 Emission



Band Edge NVNT n20 2462MHz Ant1 Ref

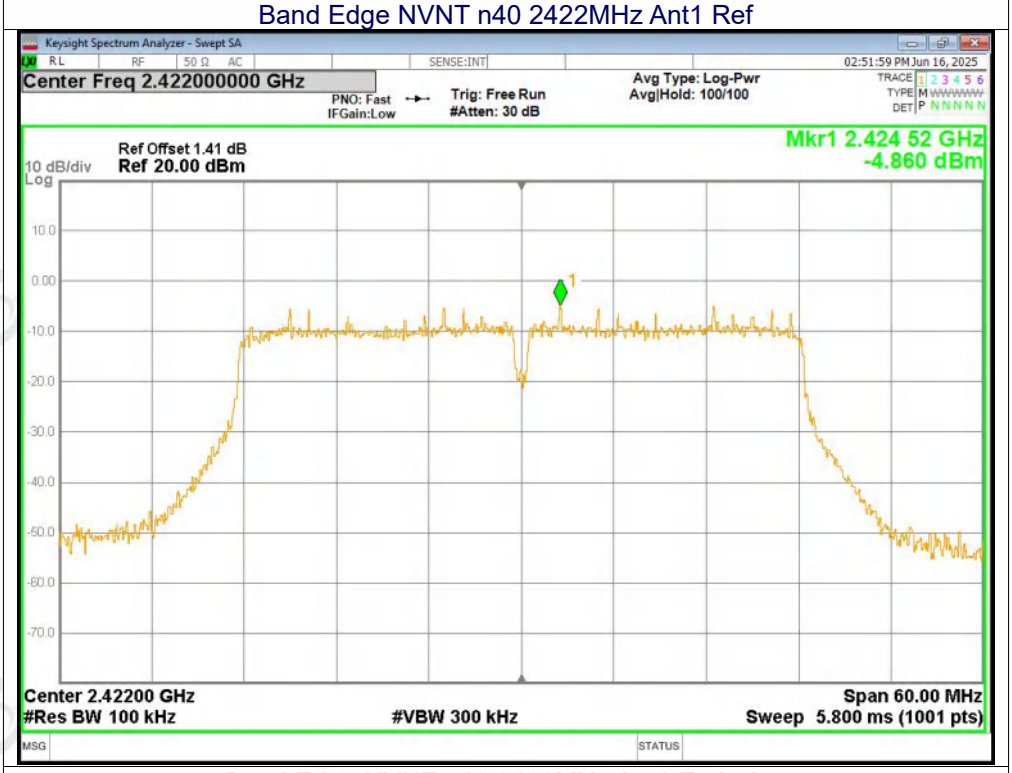


Band Edge NVNT n20 2462MHz Ant1 Emission

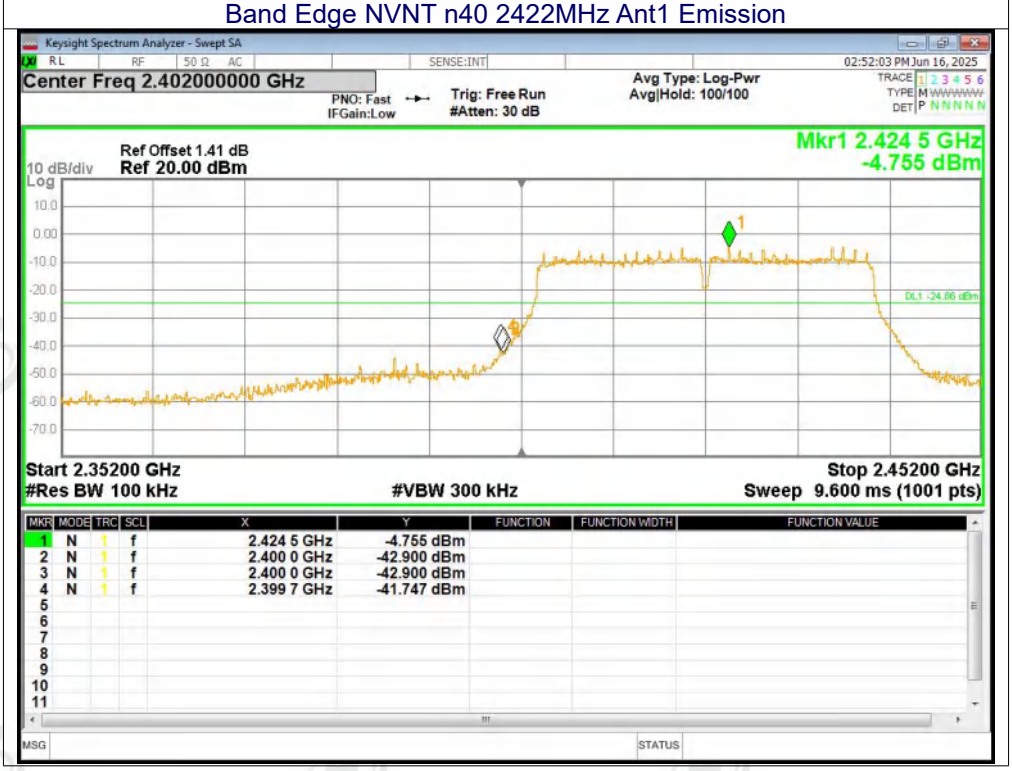


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.467 0 GHz	-3.094 dBm			
2	N	1	f	2.483 5 GHz	-56.589 dBm			
3	N	1	f	2.500 0 GHz	-58.534 dBm			
4	N	1	f	2.484 2 GHz	-54.480 dBm			
5								
6								
7								
8								
9								
10								
11								

Band Edge NVNT n40 2422MHz Ant1 Ref

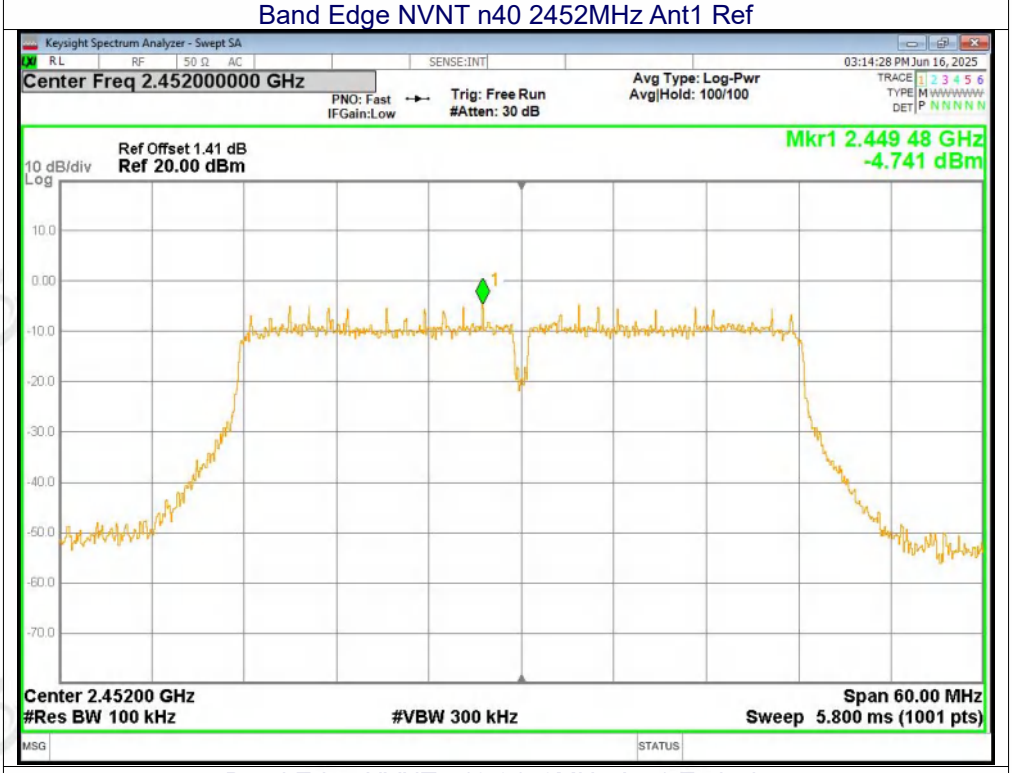


Band Edge NVNT n40 2422MHz Ant1 Emission

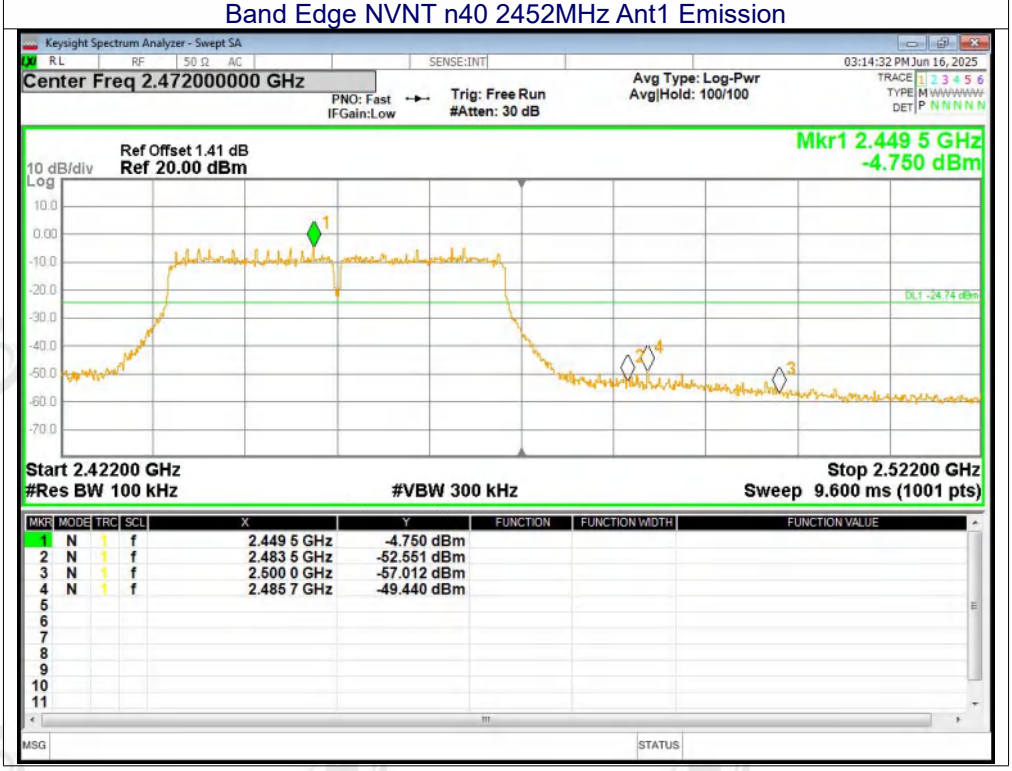


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.424 5 GHz	-4.755 dBm			
2	N	1	f	2.400 0 GHz	-42.900 dBm			
3	N	1	f	2.400 0 GHz	-42.900 dBm			
4	N	1	f	2.399 7 GHz	-41.747 dBm			
5								
6								
7								
8								
9								
10								
11								

Band Edge NVNT n40 2452MHz Ant1 Ref



Band Edge NVNT n40 2452MHz Ant1 Emission



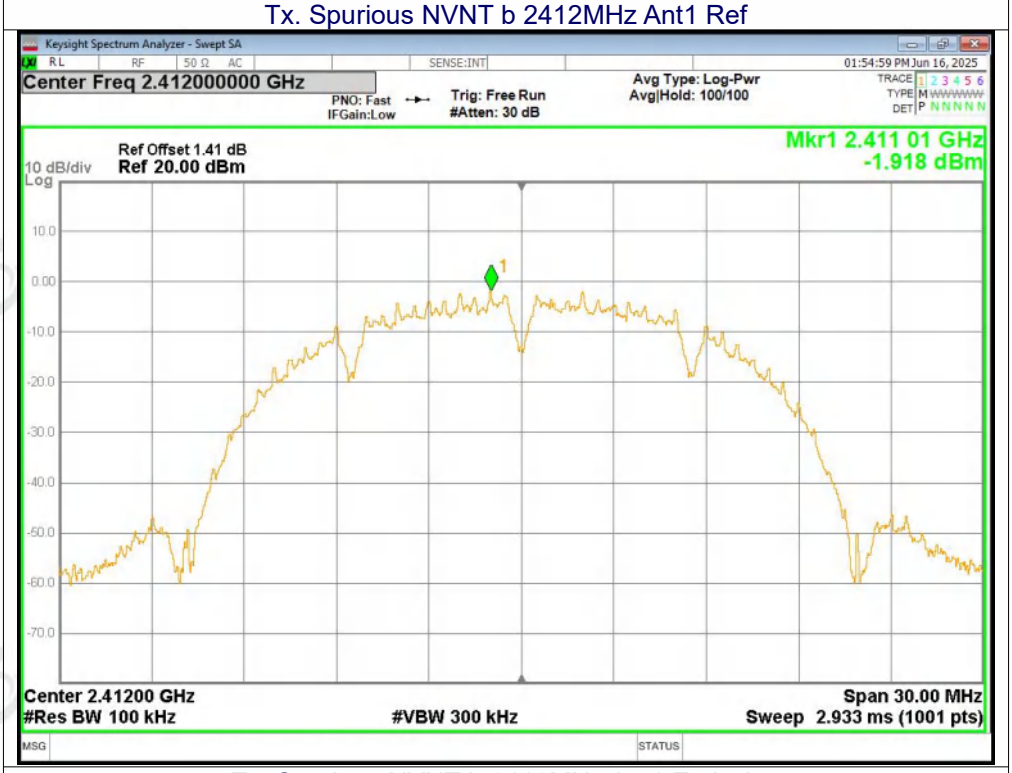
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.449 5 GHz	-4.750 dBm			
2	N	1	f	2.483 5 GHz	-52.551 dBm			
3	N	1	f	2.500 0 GHz	-57.012 dBm			
4	N	1	f	2.485 7 GHz	-49.440 dBm			
5								
6								
7								
8								
9								
10								
11								

11.7 Conducted RF Spurious Emission

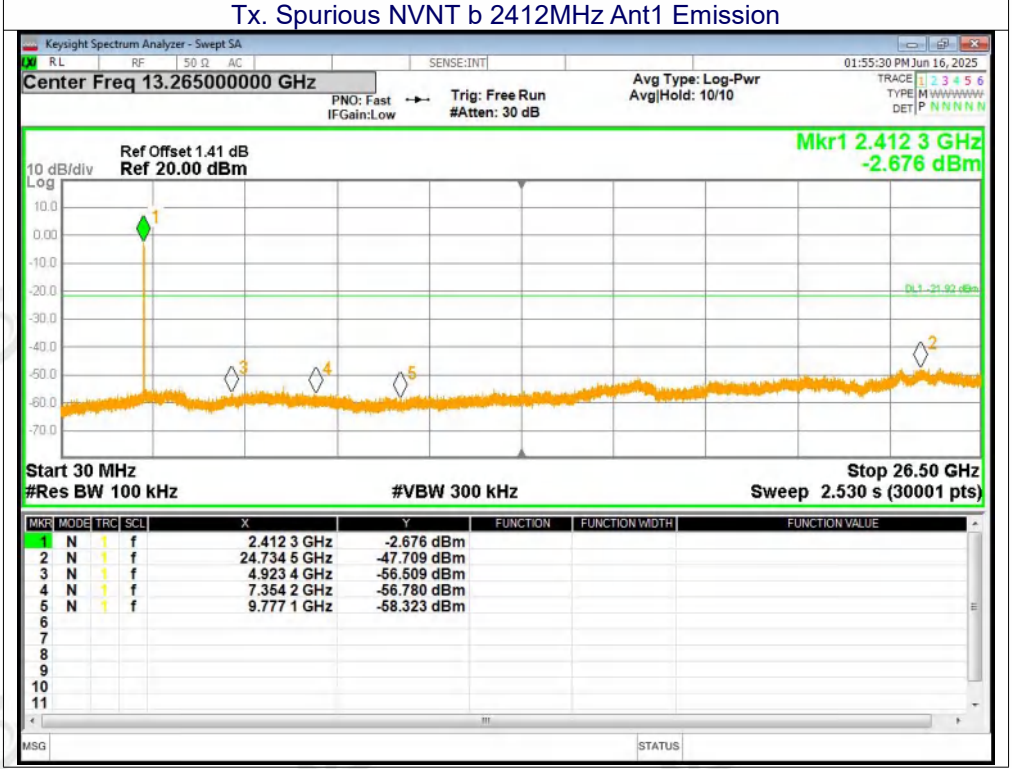
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-45.78	-20	Pass
NVNT	b	2437	Ant1	-45.29	-20	Pass
NVNT	b	2462	Ant1	-45.97	-20	Pass
NVNT	g	2412	Ant1	-44.81	-20	Pass
NVNT	g	2437	Ant1	-41.92	-20	Pass
NVNT	g	2462	Ant1	-43.81	-20	Pass
NVNT	n20	2412	Ant1	-43.34	-20	Pass
NVNT	n20	2437	Ant1	-43.58	-20	Pass
NVNT	n20	2462	Ant1	-43.84	-20	Pass
NVNT	n40	2422	Ant1	-42.08	-20	Pass
NVNT	n40	2437	Ant1	-42.43	-20	Pass
NVNT	n40	2452	Ant1	-41.93	-20	Pass

Test Graphs

Tx. Spurious NVNT b 2412MHz Ant1 Ref

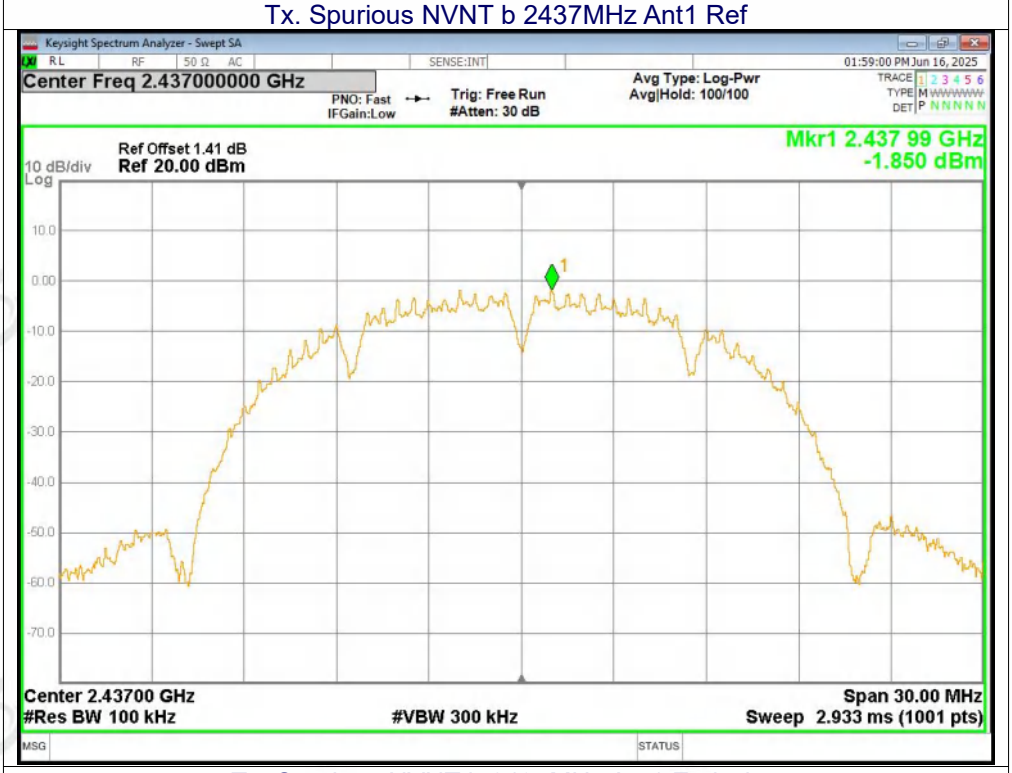


Tx. Spurious NVNT b 2412MHz Ant1 Emission

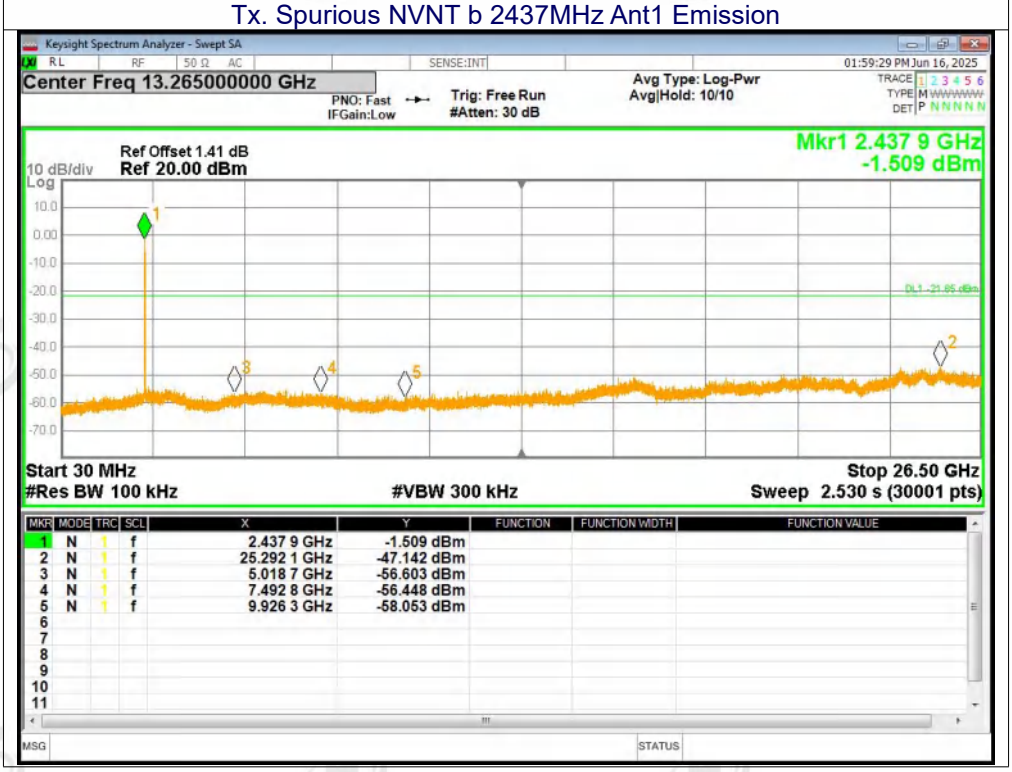


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.412 3 GHz	-2.676 dBm			
2	N	1	f	24.734 5 GHz	-47.709 dBm			
3	N	1	f	4.923 4 GHz	-56.509 dBm			
4	N	1	f	7.354 2 GHz	-56.780 dBm			
5	N	1	f	9.777 1 GHz	-58.323 dBm			
6								
7								
8								
9								
10								
11								

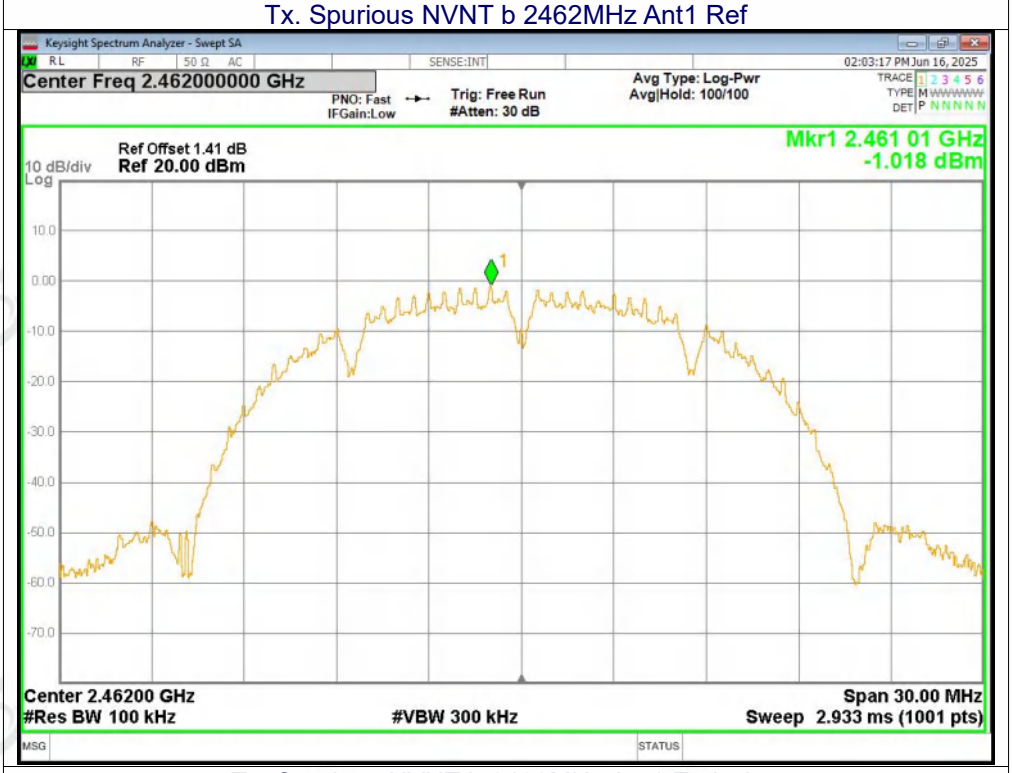
Tx. Spurious NVNT b 2437MHz Ant1 Ref



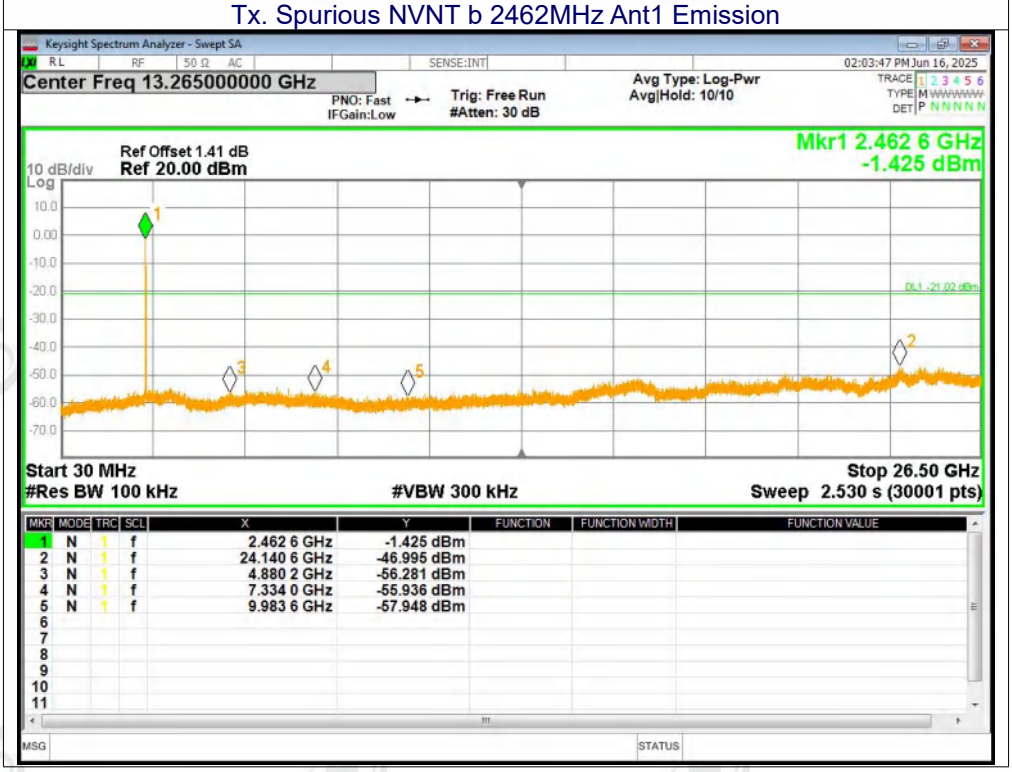
Tx. Spurious NVNT b 2437MHz Ant1 Emission



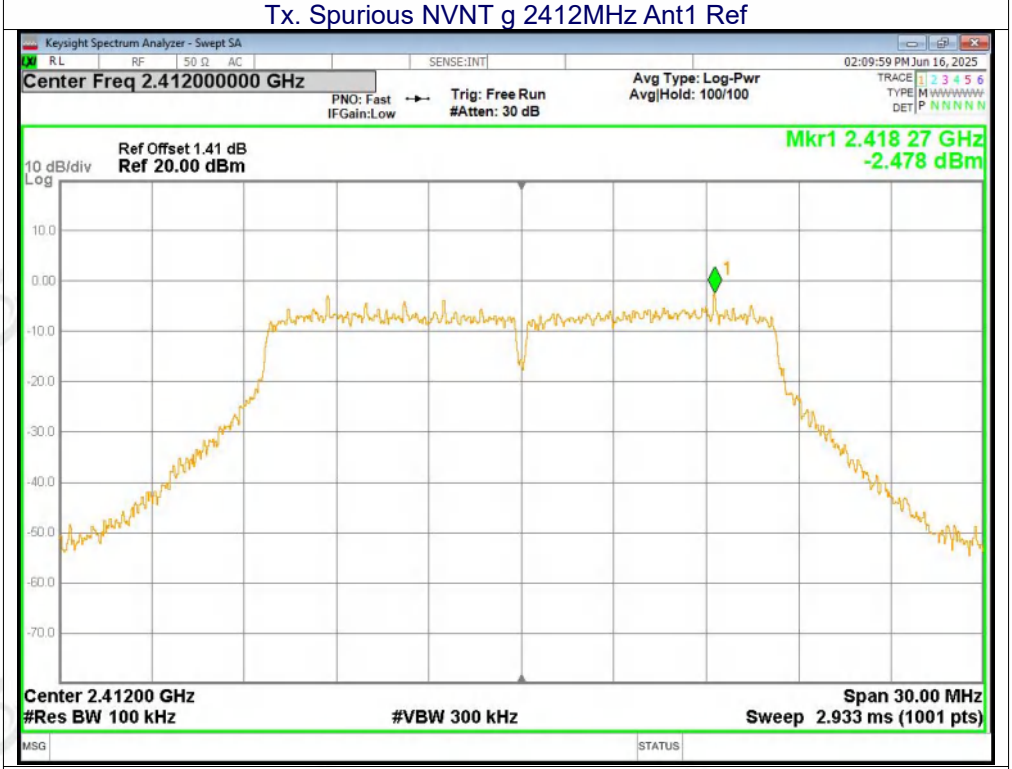
Tx. Spurious NVNT b 2462MHz Ant1 Ref



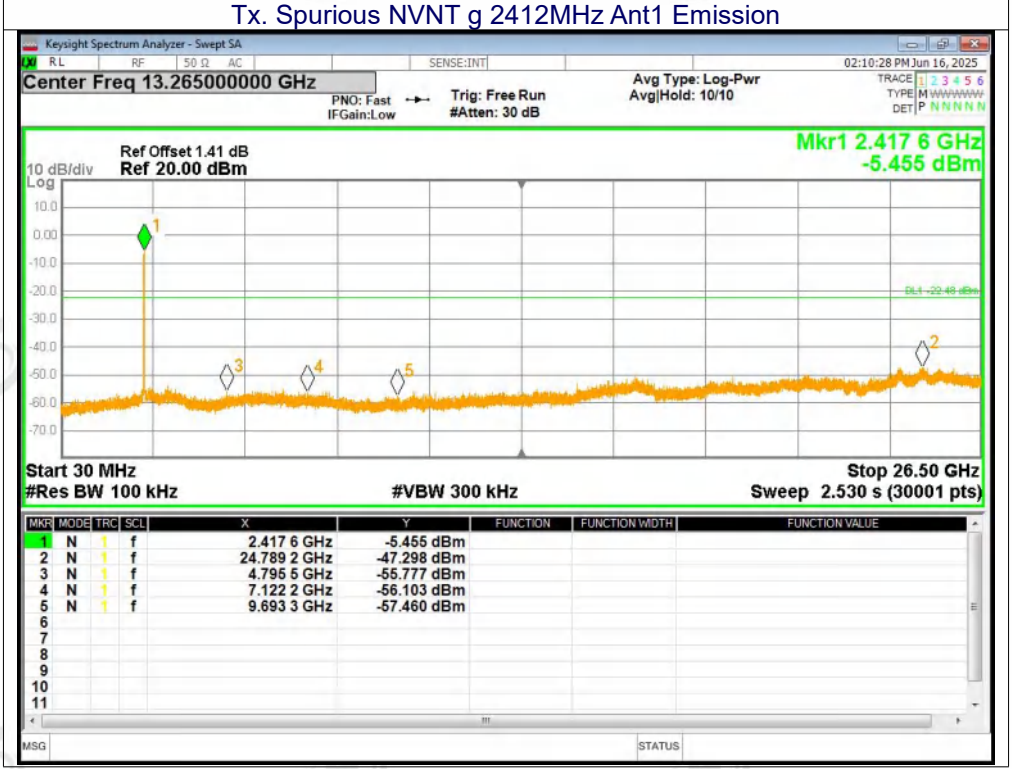
Tx. Spurious NVNT b 2462MHz Ant1 Emission



Tx. Spurious NVNT g 2412MHz Ant1 Ref

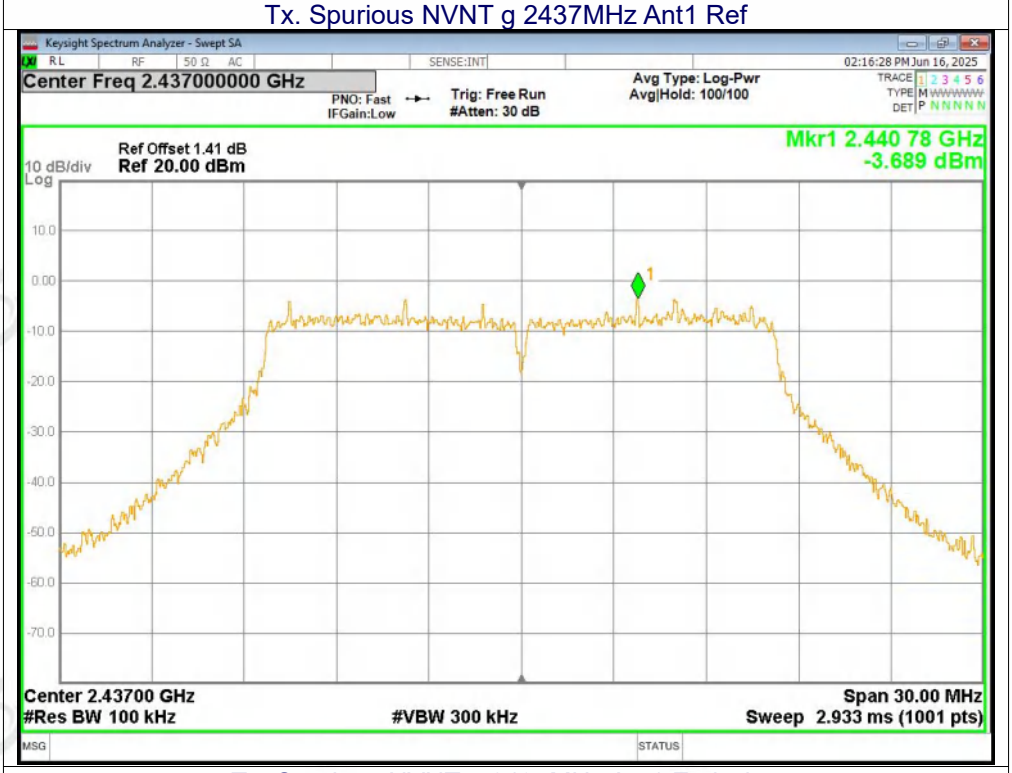


Tx. Spurious NVNT g 2412MHz Ant1 Emission

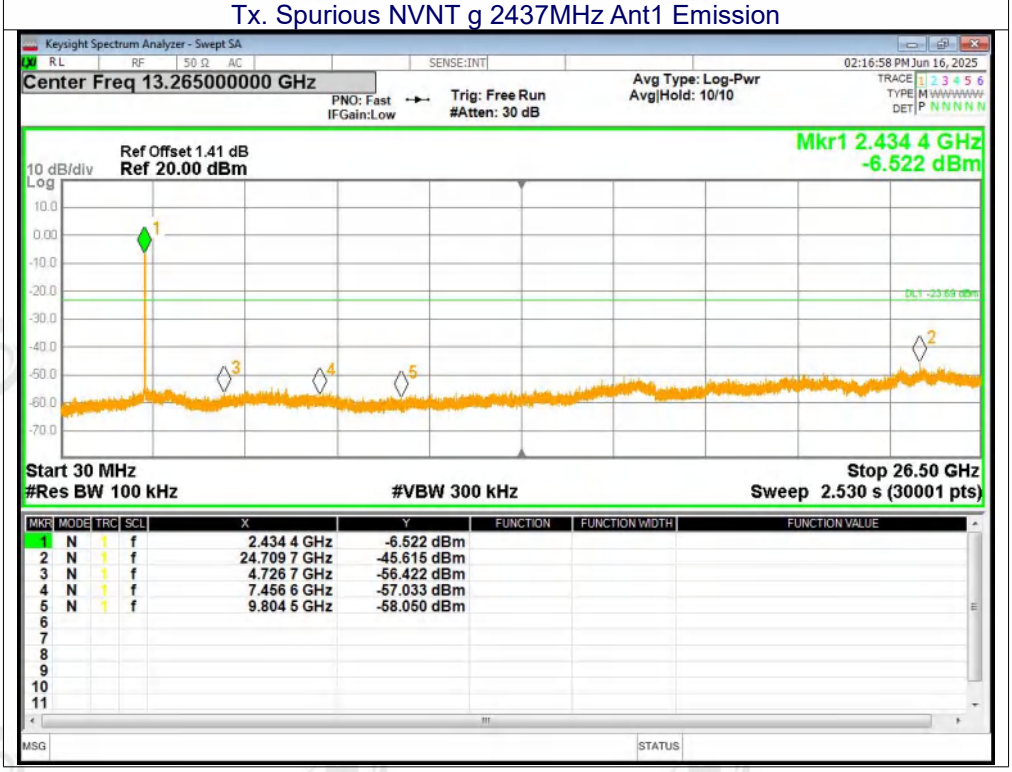


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.417 6 GHz	-5.455 dBm			
2	N	1	f	24.789 2 GHz	-47.298 dBm			
3	N	1	f	4.795 5 GHz	-55.777 dBm			
4	N	1	f	7.122 2 GHz	-56.103 dBm			
5	N	1	f	9.693 3 GHz	-57.460 dBm			
6								
7								
8								
9								
10								
11								

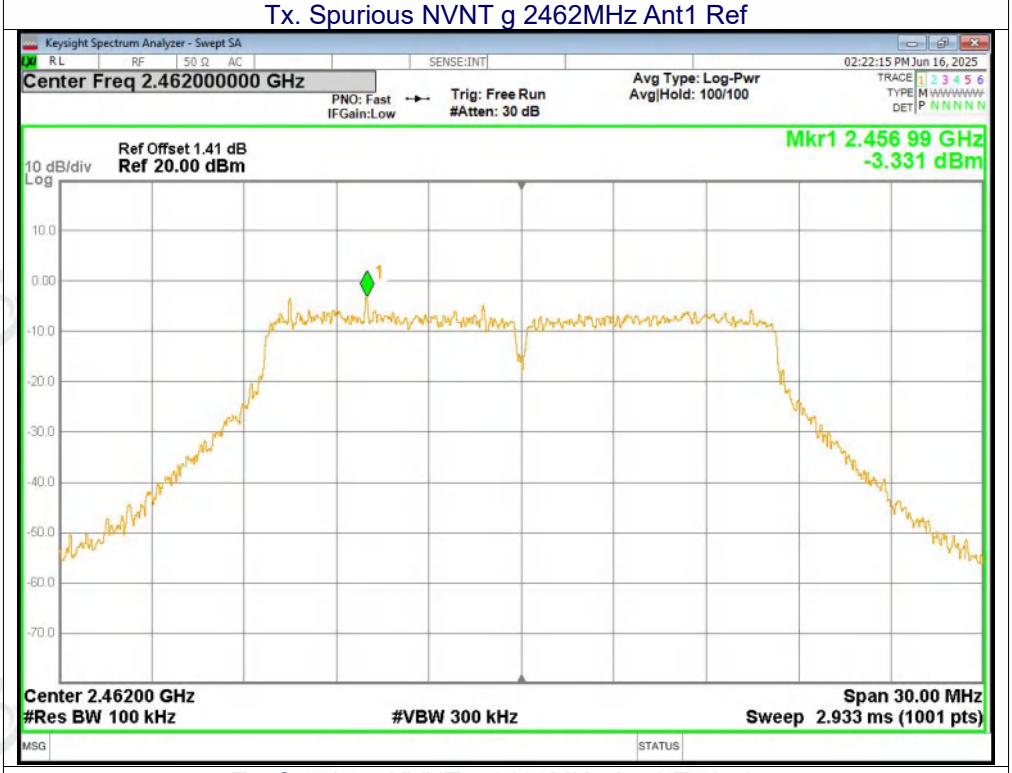
Tx. Spurious NVNT g 2437MHz Ant1 Ref



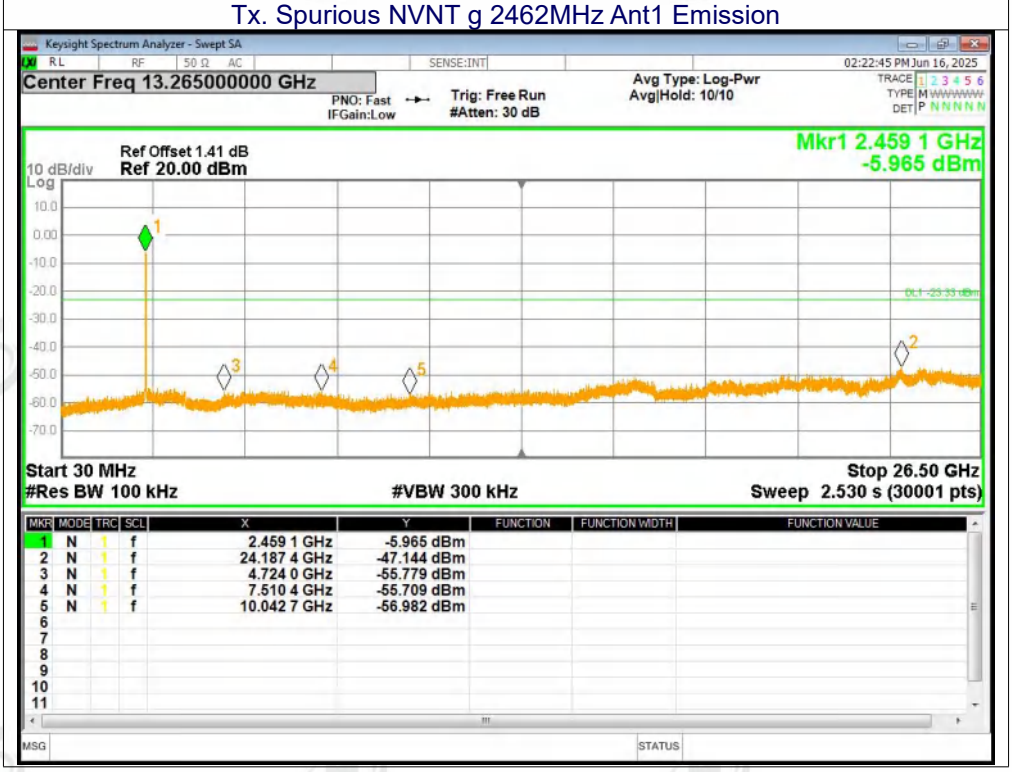
Tx. Spurious NVNT g 2437MHz Ant1 Emission



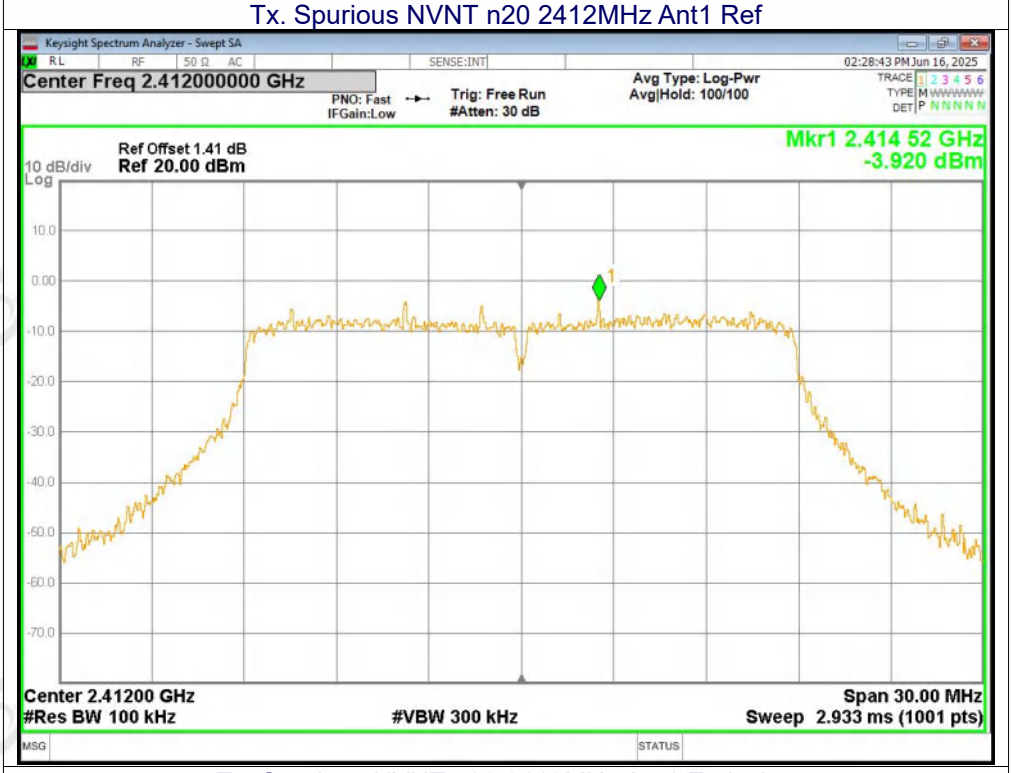
Tx. Spurious NVNT g 2462MHz Ant1 Ref



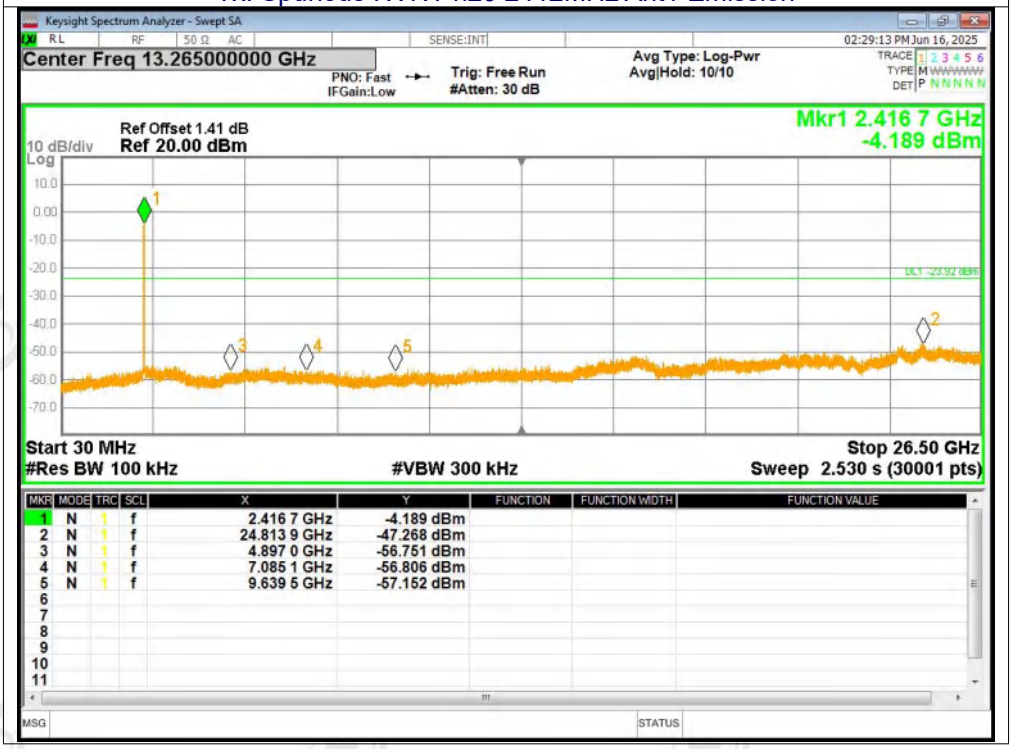
Tx. Spurious NVNT g 2462MHz Ant1 Emission



Tx. Spurious NVNT n20 2412MHz Ant1 Ref

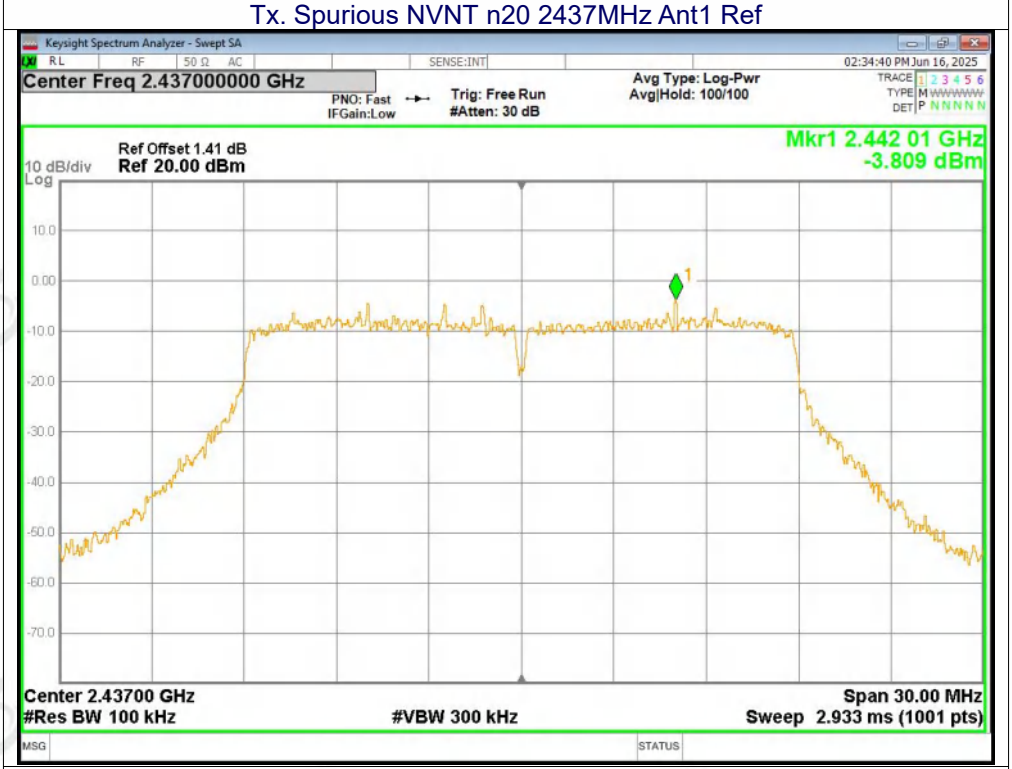


Tx. Spurious NVNT n20 2412MHz Ant1 Emission

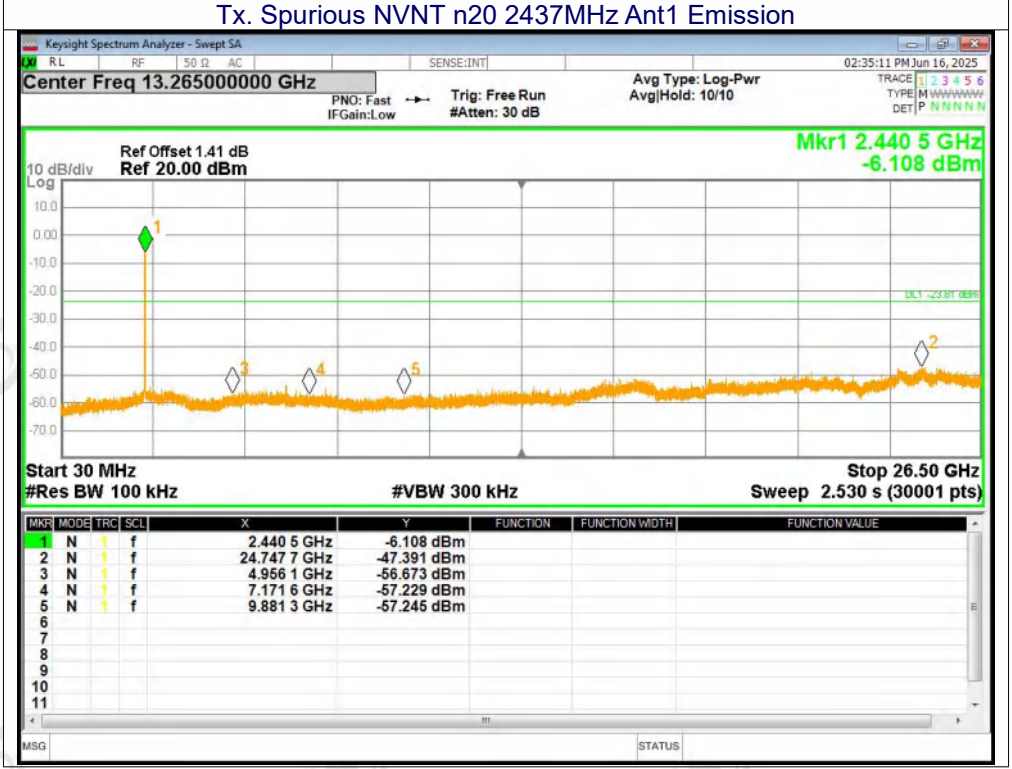


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.416 7 GHz	-4.189 dBm			
2	N	1	f	24.813 9 GHz	-47.268 dBm			
3	N	1	f	4.897 0 GHz	-56.751 dBm			
4	N	1	f	7.085 1 GHz	-56.806 dBm			
5	N	1	f	9.639 5 GHz	-57.152 dBm			
6								
7								
8								
9								
10								
11								

Tx. Spurious NVNT n20 2437MHz Ant1 Ref

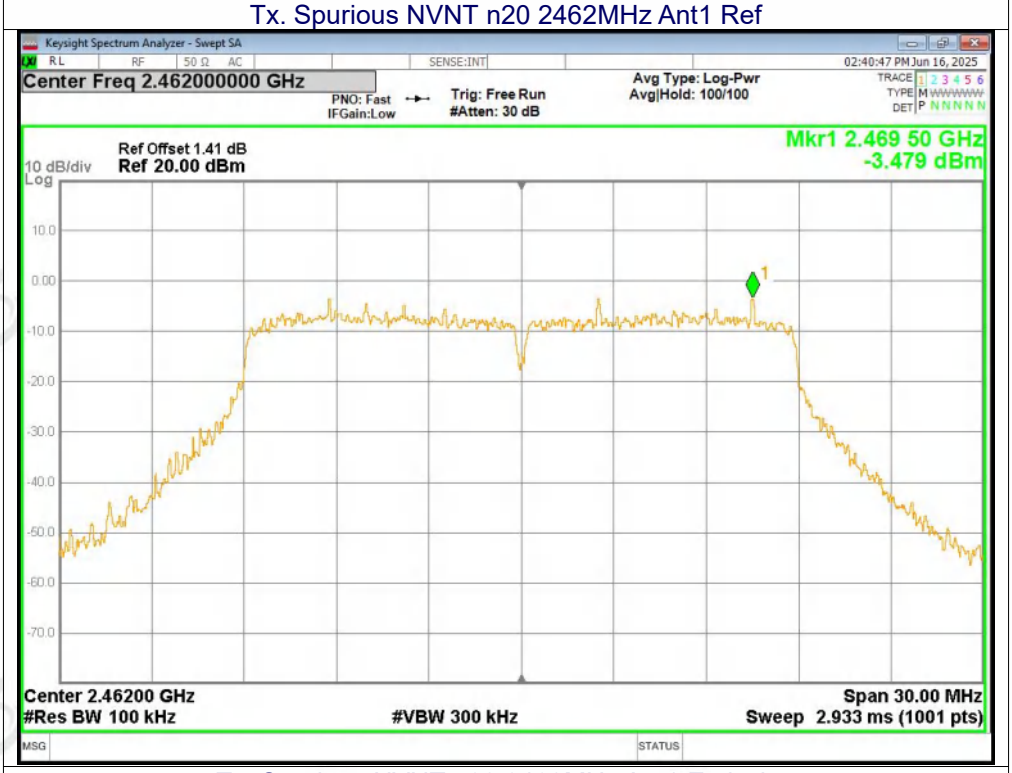


Tx. Spurious NVNT n20 2437MHz Ant1 Emission

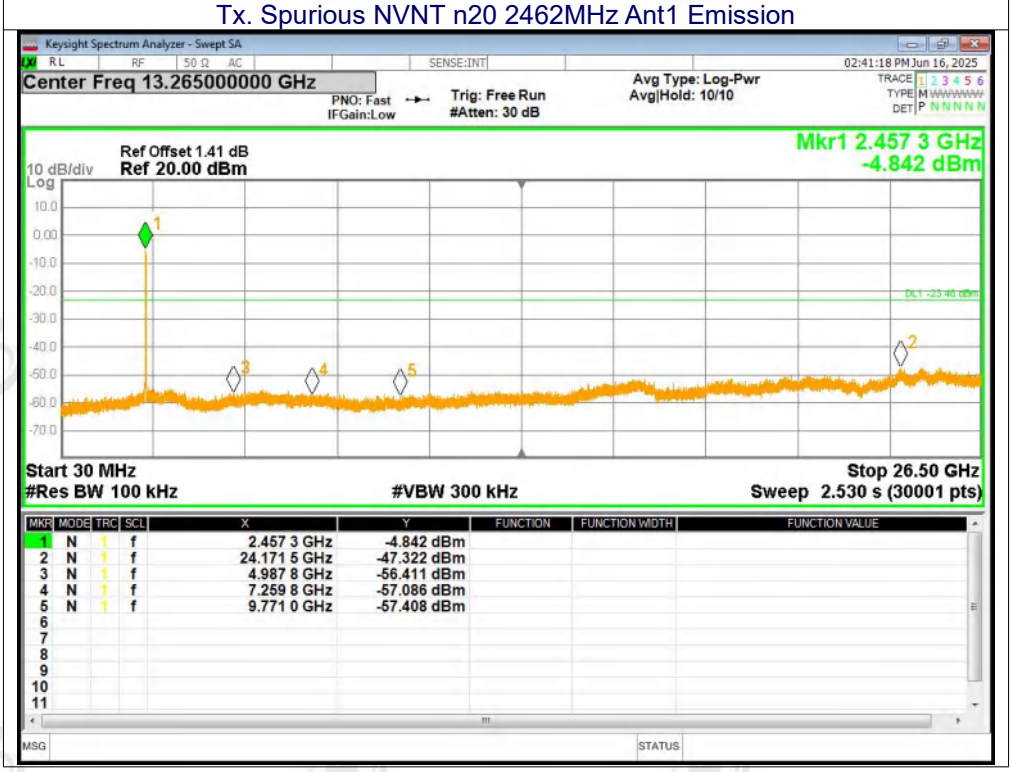


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.440 5 GHz	-6.108 dBm			
2	N	1	f	24.747 7 GHz	-47.391 dBm			
3	N	1	f	4.956 1 GHz	-56.673 dBm			
4	N	1	f	7.171 6 GHz	-57.229 dBm			
5	N	1	f	9.881 3 GHz	-57.245 dBm			
6								
7								
8								
9								
10								
11								

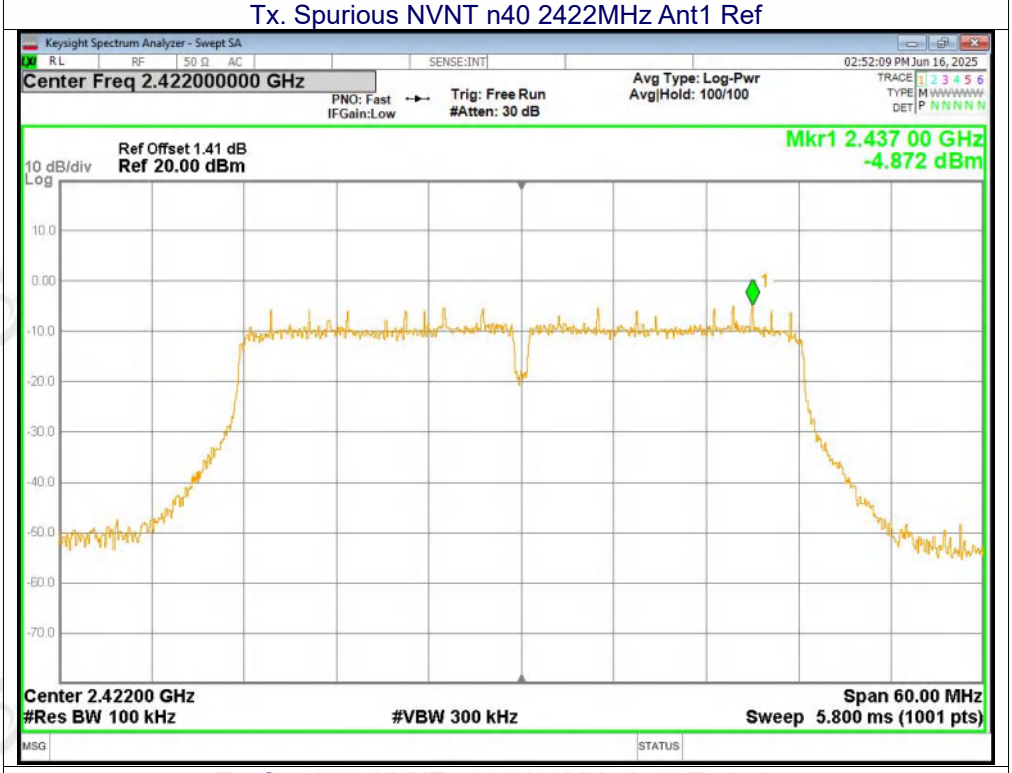
Tx. Spurious NVNT n20 2462MHz Ant1 Ref



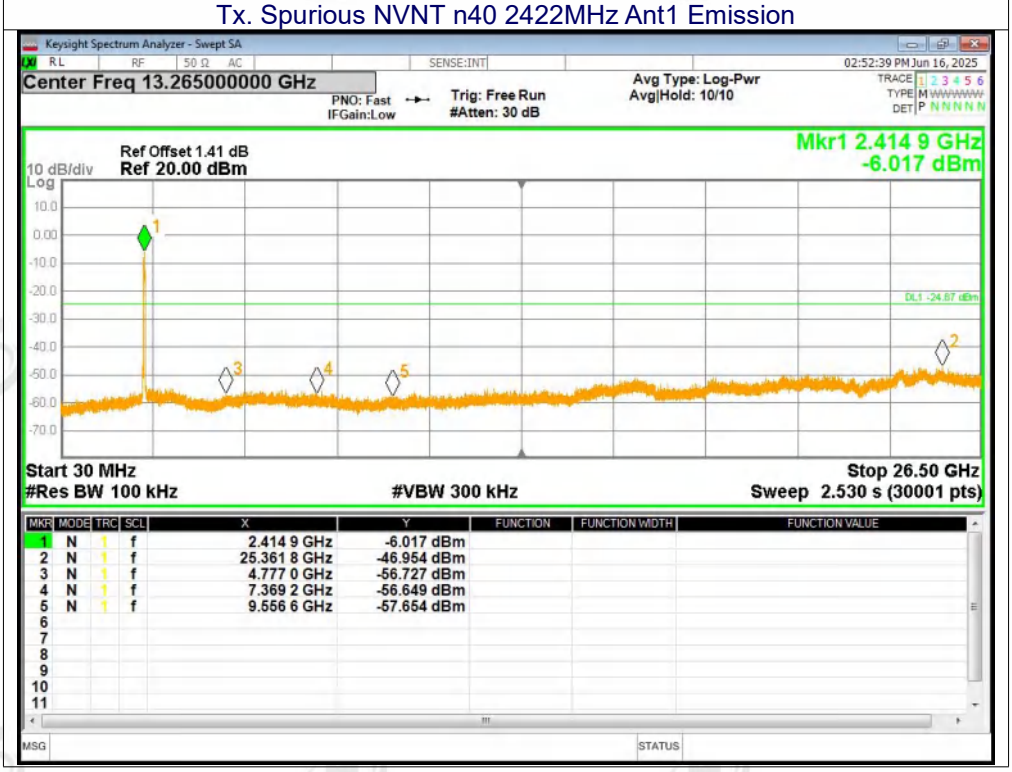
Tx. Spurious NVNT n20 2462MHz Ant1 Emission



Tx. Spurious NVNT n40 2422MHz Ant1 Ref

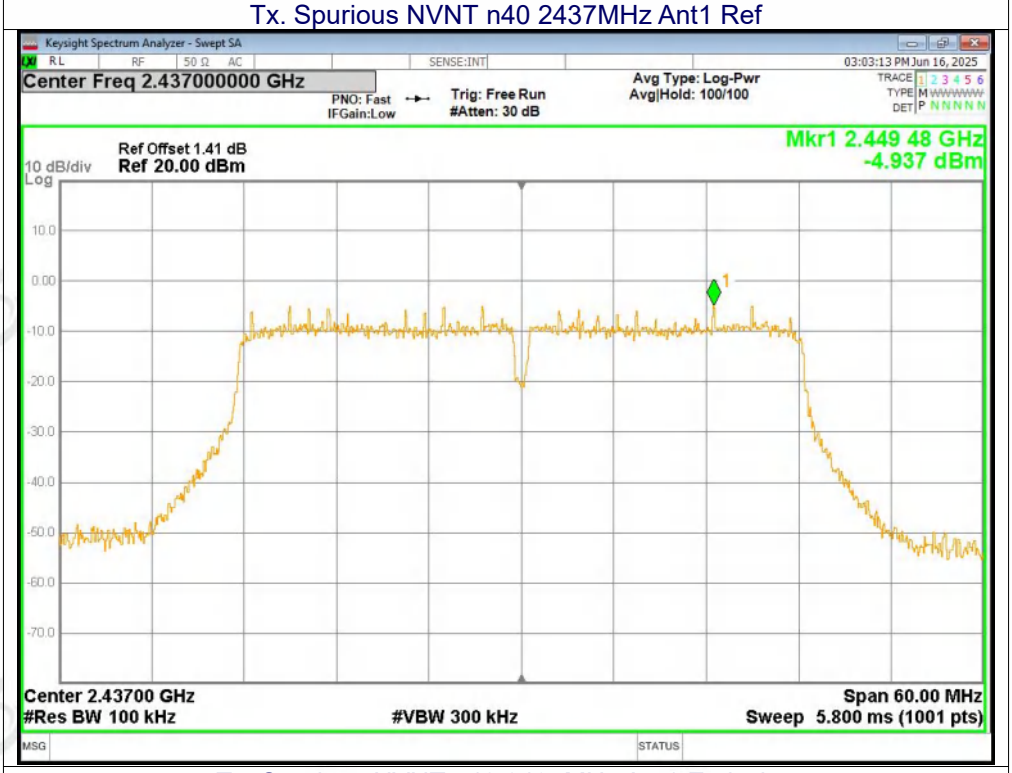


Tx. Spurious NVNT n40 2422MHz Ant1 Emission

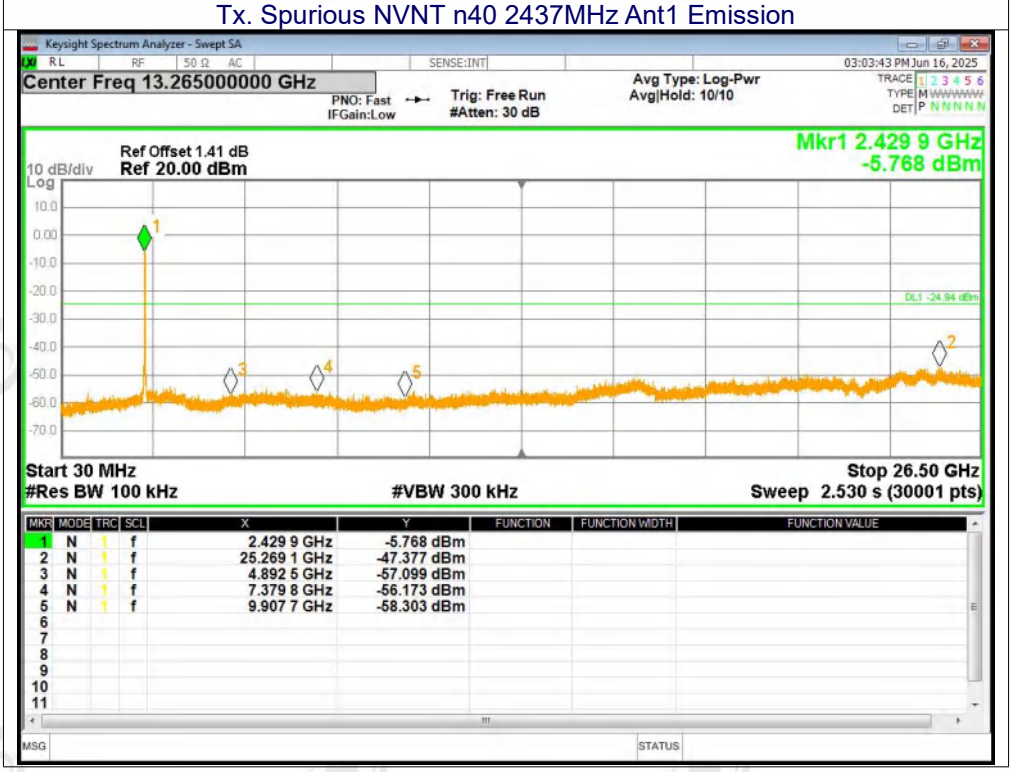


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.414 9 GHz	-6.017 dBm			
2	N	1	f	25.361 8 GHz	-46.954 dBm			
3	N	1	f	4.777 0 GHz	-56.727 dBm			
4	N	1	f	7.369 2 GHz	-56.649 dBm			
5	N	1	f	9.556 6 GHz	-57.654 dBm			
6								
7								
8								
9								
10								
11								

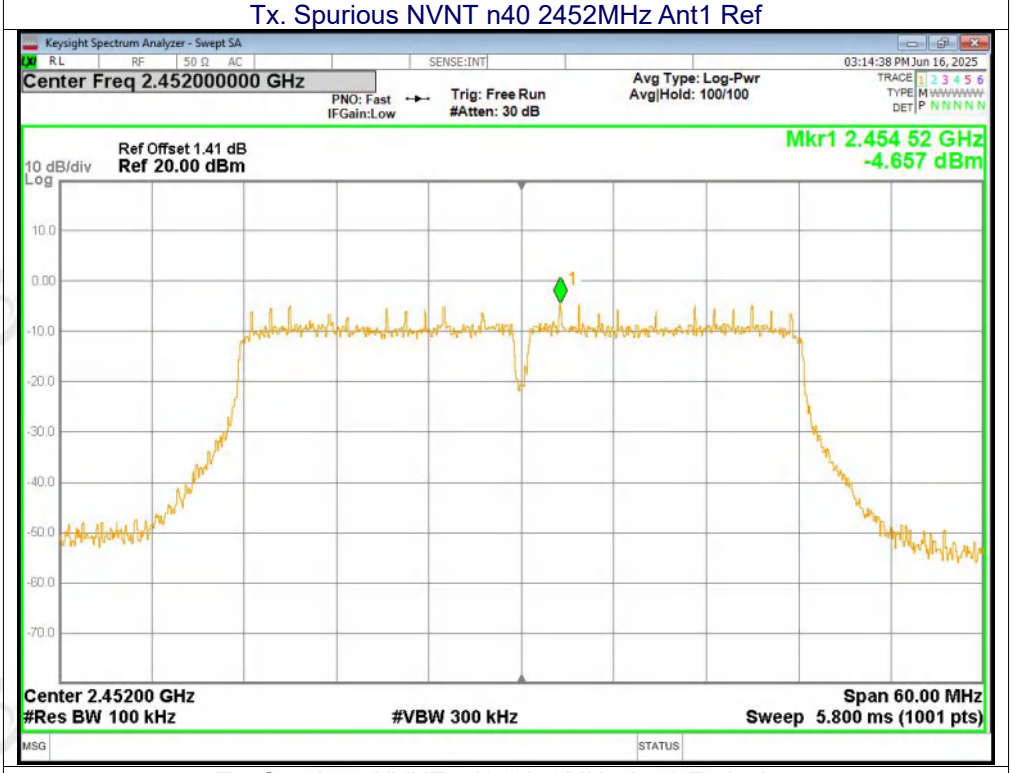
Tx. Spurious NVNT n40 2437MHz Ant1 Ref



Tx. Spurious NVNT n40 2437MHz Ant1 Emission



Tx. Spurious NVNT n40 2452MHz Ant1 Ref



Tx. Spurious NVNT n40 2452MHz Ant1 Emission

12. TEST SETUP PHOTO

Reference to the appendix I for details.

13. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

※※※※※ **END OF REPORT** ※※※※※