



FCC&IC TEST REPORT

FCC ID: 2AATL-6252B-UUB

IC: 12425A-6252BUUB

On Behalf of

FN-LINK TECHNOLOGY LIMITED

WIFI/Bluetooth MODULE

Model No.: 6252B-UUB

Prepared for : FN-LINK TECHNOLOGY LIMITED
Address : No.8, Litong Road, Liuyang Economic & Technical Development
Zone, Changsha, Hunan, China

Prepared By : Shenzhen Alpha Product Testing Co., Ltd.
Address : Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103,
Shenzhen, Guangdong, China

Report Number : A2308305-C02-R03
Date of Receipt : November 24, 2023
Date of Test : November 24, 2023 - January 12, 2024
Date of Report : January 12, 2024
Version Number : V0
Result **Pass**

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TEST REPORT DECLARATION

Applicant : FN-LINK TECHNOLOGY LIMITED
Address : No.8, Litong Road, Liuyang Economic & Technical Development Zone, Changsha, Hunan, China
Manufacturer : FN-LINK TECHNOLOGY LIMITED
Address : No.8, Litong Road, Liuyang Economic & Technical Development Zone, Changsha, Hunan, China
EUT Description : WIFI/Bluetooth MODULE
(A) Model No. : 6252B-UUB
(B) Trademark :  欧智通

Measurement Standard Used:

**FCC Rules and Regulations Part 15 Subpart C Section 15.247,
RSS-247 Issue 2, RSS-Gen Issue 5, ANSI C63.10:2013, CISPR 16-1-4:2010**

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

Tested by (name + signature).....: Yannis Wen
Project Engineer



Approved by (name + signature).....: Reak Yang
Project Manager



Date of issue.....: January 12, 2024

Revision History

Revision	Issue Date	Revisions	Revised By
V0	January 12, 2024	Initial released Issue	Yannis Wen

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Test Item	Standards Paragraph	Result
Conducted Emission	FCC Part 15: 15.207 RSS-GEN(8.8) ANSI C63.10 :2013	P
6dB Bandwidth	FCC PART 15:15.247(a)(2) RSS-247(5.2 a) ANSI C63.10 :2013	P
Output Power	FCC Part 15: 15.247(b)(3) RSS-247(5.4 d) ANSI C63.10 :2013	P
Radiated Spurious Emission	FCC Part 15: 15.209 FCC Part 15: 15.247(d) RSS-Gen(8.9), RSS-247(5.5) ANSI C63.10 :2013	P
Conducted Spurious & Band Edge Emission	FCC Part 15: 15.247(d) RSS-Gen(8.9), RSS-247(5.5) ANSI C63.10 :2013	P
Power Spectral Density	FCC PART 15:15.247(e) RSS-247(5.2 b) ANSI C63.10 :2013	P
Radiated Band Edge Emission	FCC Part 15: 15.247(d) RSS-GEN(6.13) ANSI C63.10 :2013	P
Frequency stability	RSS-GEN(6.11)	P
Antenna Requirement	FCC Part 15: 15.203 RSS-GEN(6.8)	P

Note:

1. P is an abbreviation for Pass.
2. F is an abbreviation for Fail.
3. N/A is an abbreviation for Not Applicable.
4. Decision rules for the conclusion of this test report: decision by actual test data without considering measurement uncertainty.

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Description/PMN : WIFI/Bluetooth MODULE

Model
Number/HVIN(s) : 6252B-UUB
Diff. : N/A

Test Voltage : DC 3.3V from USB adapter board

Radio Technology : 2.4G WIFI

Operation frequency : 2412MHz-2462MHz for IEEE 802.11 b, g, n/HT20, ax20,
2422MHz~2452MHz for IEEE802.11n/HT40, ax40

Channel No. : 802.11b/802.11g /802.11n(HT20)/802.11ax20: 11
802.11(HT40)/802.11ax40: 7

Modulation type : IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK)
IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK)
IEEE 802.11n :OFDM(64QAM, 16QAM, QPSK, BPSK)
IEEE 802.11ax : OFDMA
(64QAM,16QAM,QPSK,BPSK,256QAM,1024QAM)
Rod antenna 1, max gain 2.99dBi

Antenna Type : Rod antenna 2, max gain 2.99dBi
The antenna MIMO combining gain is 5.99dBi.
(Antenna information is provided by applicant.)

Software Version : V1.0

Hardware version/FVIN : V1.0

Remark:

1. The worst-case simultaneous transmission configuration was evaluated with no non-compliance found.
Results in this report are only for 2.4G Wi-Fi function, and there is no other transmitter involved.
2. In this report, the main test model is 6252B-UUB, and the main test model serial number is A0000001

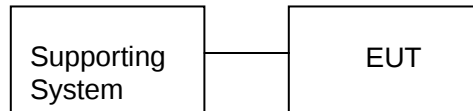
2.2. Accessories of Device (EUT)

Accessories : /
Manufacturer : /
Model : /
Ratings : /

2.3. Tested Supporting System Details

No.	Description	Manufacturer	Model	Serial Number	Certification or SDOC
1	Notebook PC	Lenovo	Thinkpad E14	N/A	N/A

2.4. Block Diagram of connection between EUT and simulators



2.5. Test Mode Description

Duty cycle :100%Keeping TX			
Mode	Data rate (Mbps)	Channel	Frequency (MHz)
IEEE 802.11b	1	Low :CH1	2412
	1	Middle: CH6	2437
	1	High: CH11	2462
IEEE 802.11g	6	Low :CH1	2412
	6	Middle: CH6	2437
	6	High: CH11	2462
IEEE 802.11 n/HT20	6.5	Low :CH1	2412
	6.5	Middle: CH6	2437
	6.5	High: CH11	2462
IEEE 802.11 n/HT40	13	Low :CH3	2422
	13	Middle: CH6	2437
	13	High: CH9	2452
IEEE 802.11 ax 20	6.5	Low :CH1	2412
	6.5	Middle: CH6	2437
	6.5	High: CH11	2462
IEEE 802.11 ax 40	13	Low :CH3	2422
	13	Middle: CH6	2437
	13	High: CH9	2452
Note: According exploratory test, EUT will have maximum output power in those data rate. So those data rate were used for all test.			

Channel list:					
For IEEE 802.11b, g, n/HT20, ax20, n/HT40, ax40					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH1	2412	CH5	2432	CH9	2452
CH2	2417	CH6	2437	CH10	2457
CH3	2422	CH7	2442	CH11	2462
CH4	2427	CH8	2447		

2.6. Test Conditions

Items	Required	Actual
Temperature range:	15-35°C	24°C
Humidity range:	25-75%	56%
Pressure range:	86-106kPa	98kPa

2.7. Test Facility

Shenzhen Alpha Product Testing Co., Ltd

Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103,
Shenzhen, Guangdong, China

June 21, 2018 File on Federal Communication Commission

Registration Number: 293961

Designation Number: CN1236

July 15, 2019 Certificated by IC

Registration Number: 12135A

2.8. Measurement Uncertainty

(95% confidence levels, k=2)

Item	Uncertainty
Uncertainty for Power point Conducted Emissions Test	1.63dB
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	3.5dB
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.74dB(Polarize: V)
	3.76dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	3.77dB(Polarize: V)
	3.80dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber (18GHz to 40GHz)	4.31 dB(Polarize: V)
	4.30 dB(Polarize: H)
Uncertainty for radio frequency	5.06×10^{-8} GHz
Uncertainty for conducted RF Power	0.40dB
Uncertainty for temperature	0.2°C
Uncertainty for humidity	1%
Uncertainty for DC and low frequency voltages	0.06%

2.9. Test Equipment List

Equipment	Manufacture	Model No.	Firmware version	Serial No.	Last cal.	Cal Interval
9*6*6 anechoic chamber	CHENYU	9*6*6	/	N/A	2022.05.17	3Year
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	2.3	102137	2023.08.16	1Year
Spectrum analyzer	Agilent	N9020A	A.14.16	MY499100060	2023.08.16	1Year
Receiver	ROHDE&SCHWARZ	ESR	2.28 SP1	1316.3003K03-10 2082-Wa	2023.08.16	1Year
Receiver	R&S	ESCI	4.42 SP1	101165	2023.08.16	1Year
Bilog Antenna	Schwarzbeck	VULB 9168	/	VULB 9168#627	2023.08.28	1Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	/	2106	2023.08.19	1Year
Loop Antenna	SCHWARZBECK	FMZB 1519B	/	00128	2023.08.19	1Year
RF Cable	Resenberger	Cable 1	/	RE1	2023.08.16	1Year
RF Cable	Resenberger	Cable 2	/	RE2	2023.08.16	1Year
RF Cable	Resenberger	Cable 3	/	CE1	2023.08.16	1Year
Pre-amplifier	HP	HP8347A	/	2834A00455	2023.08.16	1Year
Pre-amplifier	Agilent	8449B	/	3008A02664	2023.08.16	1Year
L.I.S.N.#1	Schwarzbeck	NSLK8126	/	8126-466	2023.08.16	1Year
L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	/	101043	2023.08.16	1Year
Horn Antenna	SCHWARZBECK	BBHA 9170	/	00946	2023.08.19	1Year
Preamplifier	SKET	LNPA_1840 -50	/	SK2018101801	2023.08.16	1 Year
Power Meter	Agilent	E9300A	/	MY41496628	2023.08.16	1 Year
Power Sensor	DARE	RPR3006W	/	15100041SNO91	2023.08.16	1 Year
Temp. & Humid. Chamber	Teelong	TL-HW408S	/	TL-20191205-01	2023.07.25	1 Year
Switching Mode Power Supply	JUNKE	JK12010S	/	20140927-6	2023.08.16	1 Year
Adjustable attenuator	MWRFTest	N/A	/	N/A	N/A	N/A
10dB Attenuator	Mini-Circuits	DC-6G	/	N/A	N/A	N/A

Software Information			
Test Item	Software Name	Manufacturer	Version
RE	EZ-EMC	Farad	Alpha-3A1
CE	EZ-EMC	Farad	Alpha-3A1
RF-CE	MTS 8310	MW	V2.0.0.0

3. SPURIOUS EMISSION

3.1. Test Limits

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

RSS-GEN Restricted frequency band

Table 7 – Restricted frequency bands ^{Note 1}		
MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 – 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12

6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 – 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 – 8500	
108 – 138		

Note 1: Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

15.209 Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009-0.490	300	2400/F(KHz)	/
0.490-1.705	30	24000/F(KHz)	/
1.705-30	30	30	29.5
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	
Note 1: The peak limit is 20 dB higher than the average limit			
Note 2: Peak limit applies (AVG limit + 20 dB) as well as RSS-247 Section 5.5			

Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

Table 5 – General field strength limits at frequencies above 30 MHz

Frequency (MHz)	Field strength ($\mu\text{V}/\text{m}$ at 3 m)
30 – 88	100
88 – 216	150
216 – 960	200
Above 960	500

Table 6 – General field strength limits at frequencies below 30 MHz

Frequency	Magnetic field strength (H-Field) ($\mu\text{A}/\text{m}$)	Measurement distance (m)
9 - 490 kHz ^{Note 1}	$6.37/F$ (F in kHz)	300
490 - 1705 kHz	$63.7/F$ (F in kHz)	30
1.705 - 30 MHz	0.08	30

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

3.2. Test Procedure

The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1GHz.

The EUT was placed on a rotating 0.8 m high above ground for below 1GHz and 1.5m high for above 1GHz testing, the table was rotated 360 degrees to determine the position of the highest radiation

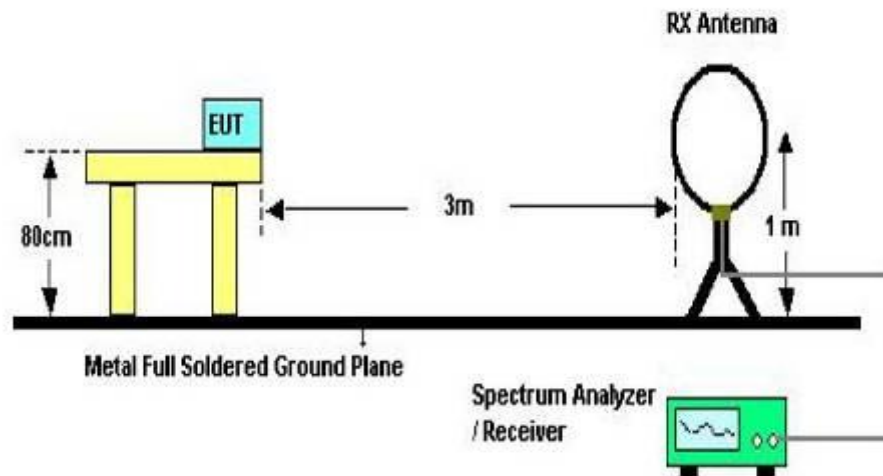
The Test antenna shall vary between 1m and 4m, both Horizontal and Vertical antenna are set of make measurement.

The initial step in collecting radiated emission data is a spectrum analyzer Peak detector mode pre-scanning the measurement frequency range. Significant Peaks are then marked. and then Quasi Peak Detector mode premeasured

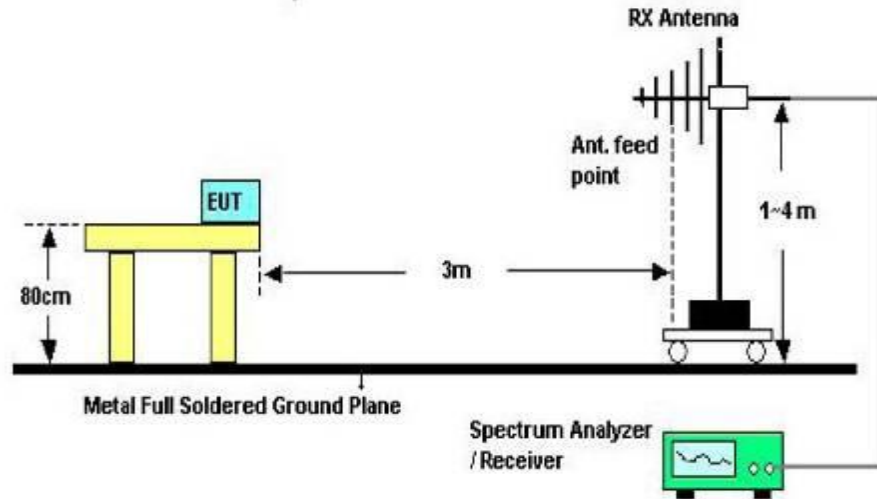
If Peak value comply with QP limit below 1GHz, the EUT deemed to comply with QP limit. But the Peak value and average value both need to comply with applicable limit above 1GHz.

For the actual test configuration, please see the test setup photo.

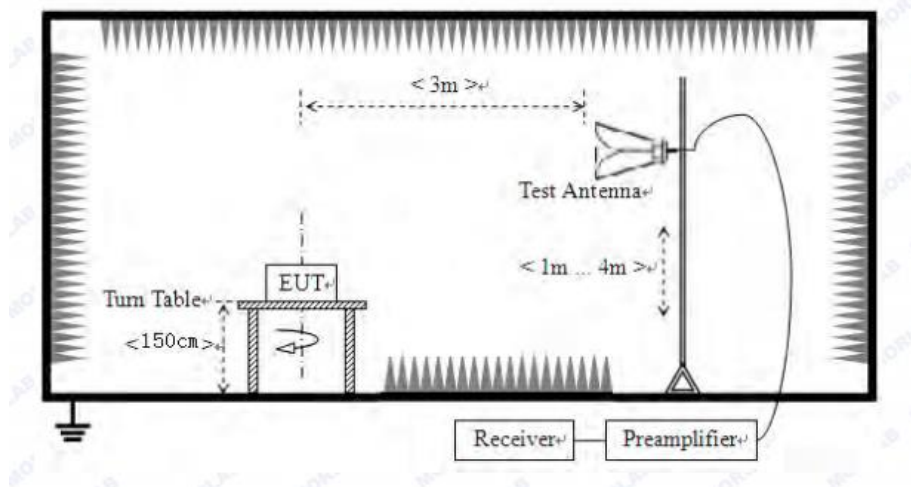
3.3. Test Setup



Below 30MHz Test Setup



Above 30MHz Test Setup



Above 1GHz Test Setup

3.4. Test Results

Test Condition

Continual Transmitting in maximum power.

9KHz~150KHz	RBW200Hz	VBW1KHz
150KHz~30MHz	RBW9KHz	VBW 30KHz
30MHZ~1GHz	RBW120KHz	VBW 300KHz
Above1GHz	RBW1MHz	VBW 3MHz

We have scanned the EUT from 9kHz up to the 10th harmonic of the fundamental.

Detailed information please see the following page.

From 9KHz to 30MHz: Conclusion: PASS

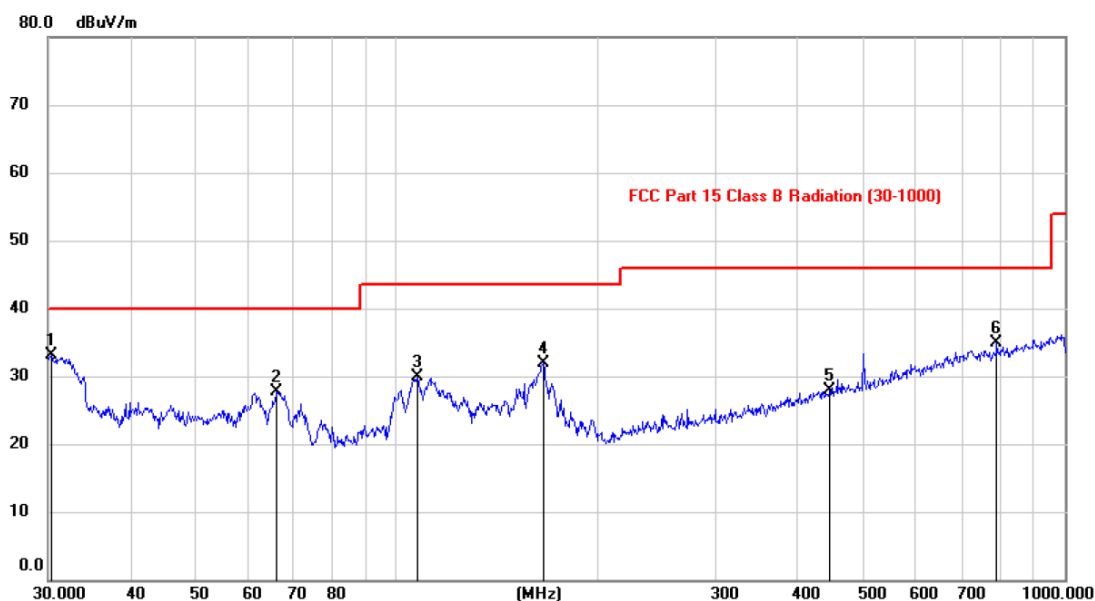
Note: 1. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

2. Except for mode b/g, other modes test the MIMO status.

3. All antennas have been tested, only the worst data of each pattern is reflected.

Test result for 802.11b (High Channel)

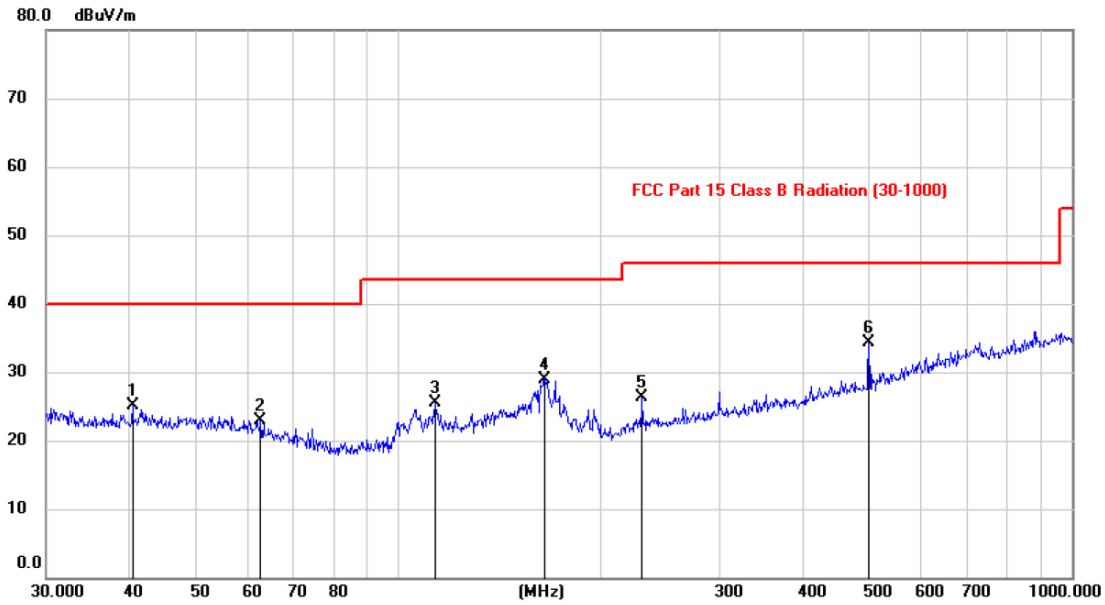
Vertical:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	30.4166	19.57	13.54	33.11	40.00	-6.89	peak		
2		66.2429	15.71	12.06	27.77	40.00	-12.23	peak		
3		107.3845	18.42	11.57	29.99	43.50	-13.51	peak		
4		165.6803	17.44	14.49	31.93	43.50	-11.57	peak		
5		445.4238	10.42	17.46	27.88	46.00	-18.12	peak		
6		792.0987	12.01	22.85	34.86	46.00	-11.14	peak		

Note:1. *:Maximum data; x:Over limit; !:over margin.

2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

Horizontal:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table
		MHz	Level	Factor	ment			Height	Degree
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree
							Detector		Comment
1		40.3652	10.77	14.42	25.19	40.00	-14.81	peak	
2		62.4679	10.12	12.70	22.82	40.00	-17.18	peak	
3		113.5284	13.28	12.26	25.54	43.50	-17.96	peak	
4		165.4674	14.48	14.52	29.00	43.50	-14.50	peak	
5		230.1523	13.97	12.31	26.28	46.00	-19.72	peak	
6	*	500.0088	16.03	18.21	34.24	46.00	-11.76	peak	

Note:1. *:Maximum data; x:Over limit; !:over margin.

2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

Notes: Above is below 1GHz test data. This report only shall the worst case mode for b 2412MHz.

Test Mode: IEEE 802.11b TX Low									
Freq (MHz)	Read Level (dBuV/m)	Polar (H/V)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4824	46.73	V	33.95	10.18	34.26	56.60	74	-17.40	PK
4824	37.17	V	33.95	10.18	34.26	47.04	54	-6.96	AV
7236	/	/	/	/	/	/	/	/	/
9648	/	/	/	/	/	/	/	/	/
4824	47.72	H	33.95	10.18	34.26	57.59	74	-16.41	PK
4824	34.64	H	33.95	10.18	34.26	44.51	54	-9.49	AV
7236	/	/	/	/	/	/	/	/	/
9648	/	/	/	/	/	/	/	/	/
Test Mode: IEEE 802.11b TX Mid									
4874	43.33	V	33.93	10.2	34.29	53.17	74	-20.83	PK
4874	34.46	V	33.93	10.2	34.29	44.30	54	-9.70	AV
7311	/	/	/	/	/	/	/	/	/
9748	/	/	/	/	/	/	/	/	/
4874	47.82	H	33.93	10.2	34.29	57.66	74	-16.34	PK
4874	34.61	H	33.93	10.2	34.29	44.45	54	-9.55	AV
7311	/	/	/	/	/	/	/	/	/
9748	/	/	/	/	/	/	/	/	/
Test Mode: IEEE 802.11b TX High									
4924	46.01	V	33.98	10.22	34.25	55.96	74	-18.04	PK
4924	36.58	V	33.98	10.22	34.25	46.53	54	-7.47	AV
7386	/	/	/	/	/	/	/	/	/
9848	/	/	/	/	/	/	/	/	/
4924	47.82	H	33.98	10.22	34.25	57.77	74	-16.23	PK
4924	32.78	H	33.98	10.22	34.25	42.73	54	-11.27	AV
7386	/	/	/	/	/	/	/	/	/
9848	/	/	/	/	/	/	/	/	/

Note:

1, Result = Read level + Antenna factor + cable loss-Amp factor

2, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note:

Note:

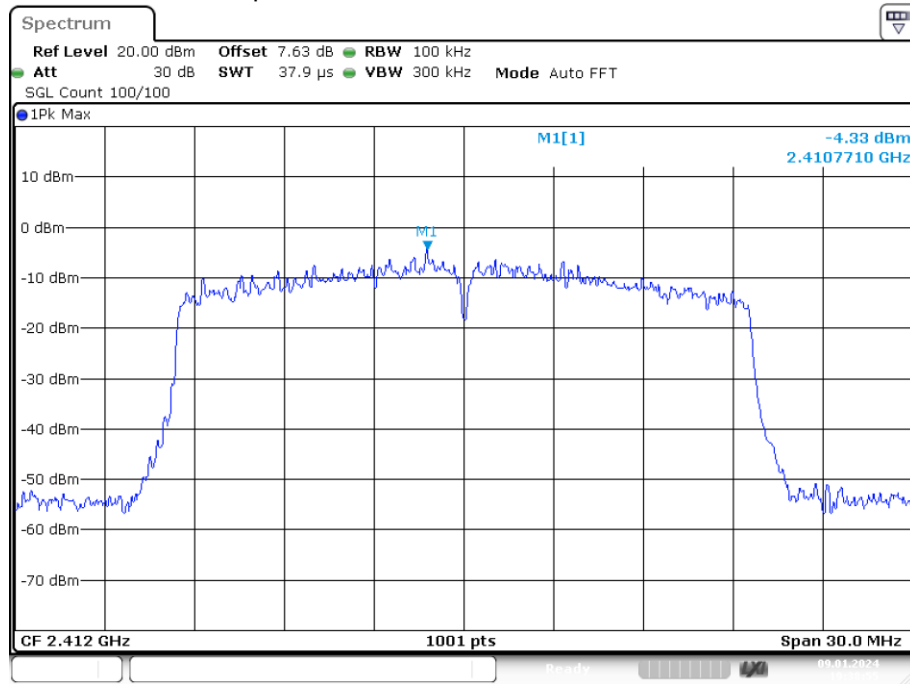
Note:

Note:

Note:

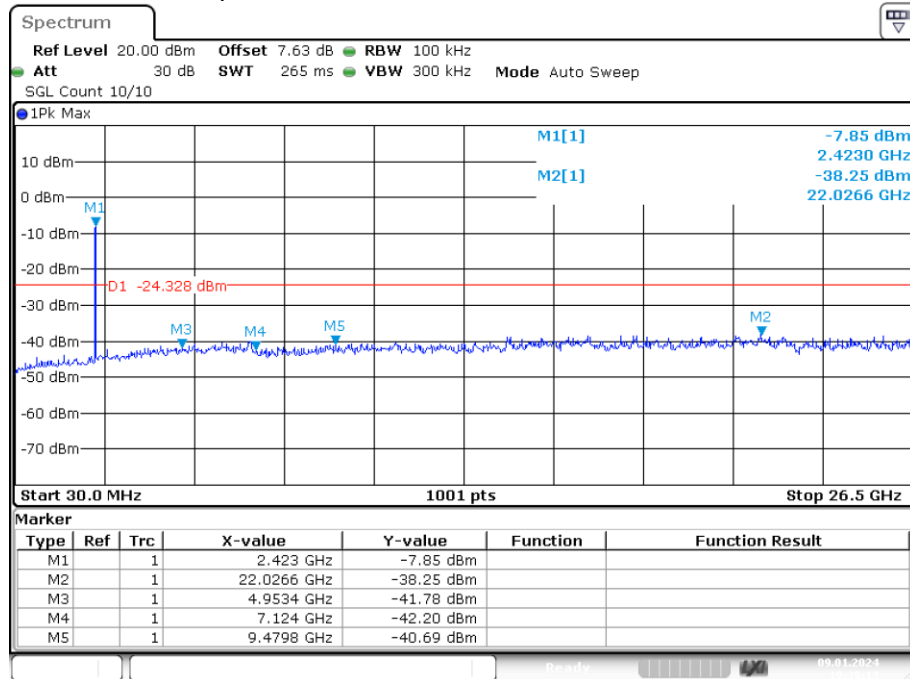
Conducted RF Spurious Emission

Tx. Spurious NVNT ax20 2412MHz MIMO Ref



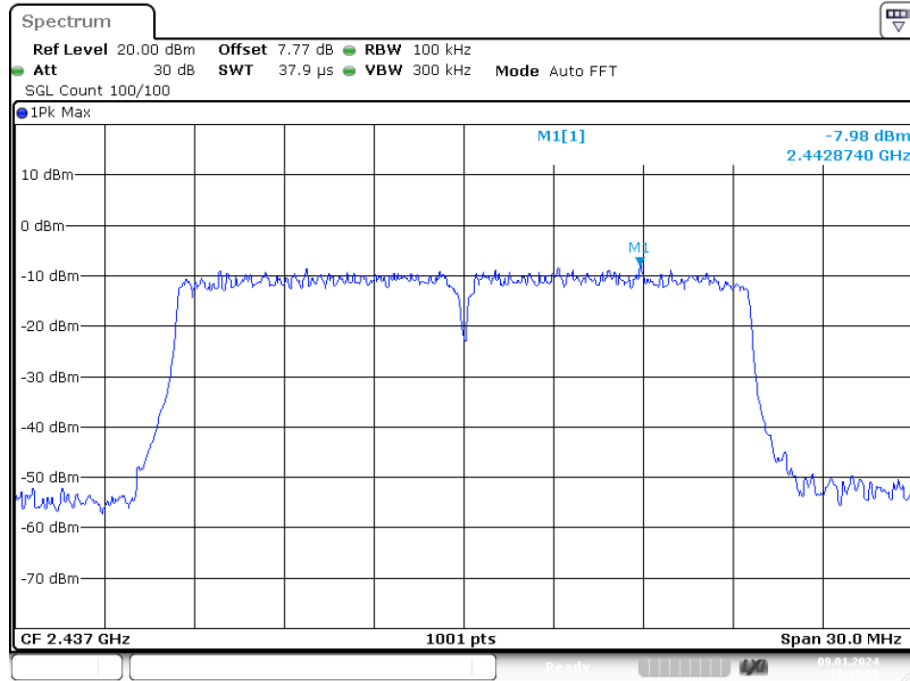
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Tx. Spurious NVNT ax20 2412MHz MIMO Emission



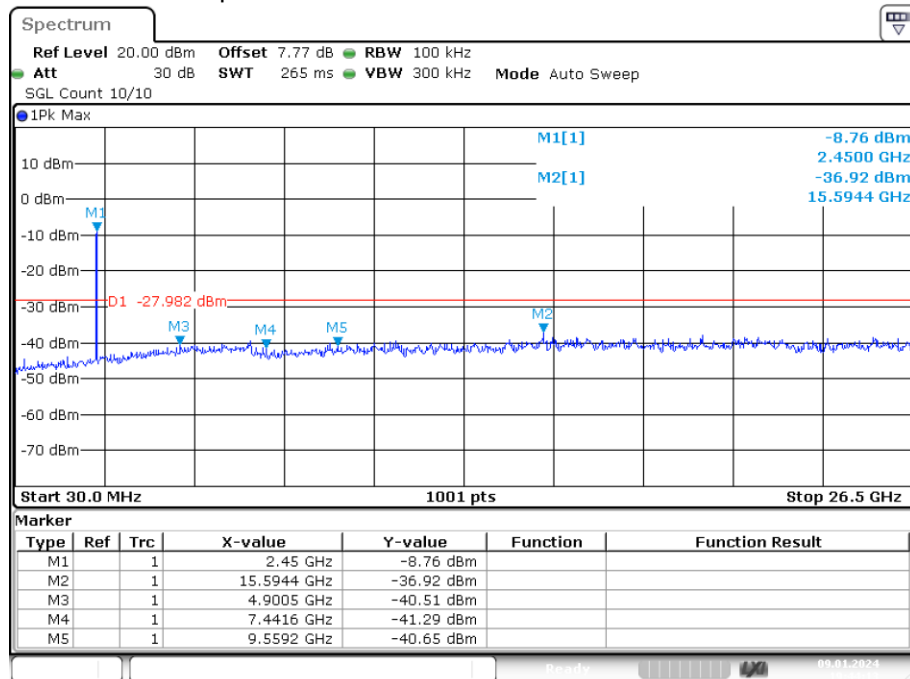
Date: 9.JAN.2024 19:39:13

Tx. Spurious NVNT ax20 2437MHz MIMO Ref



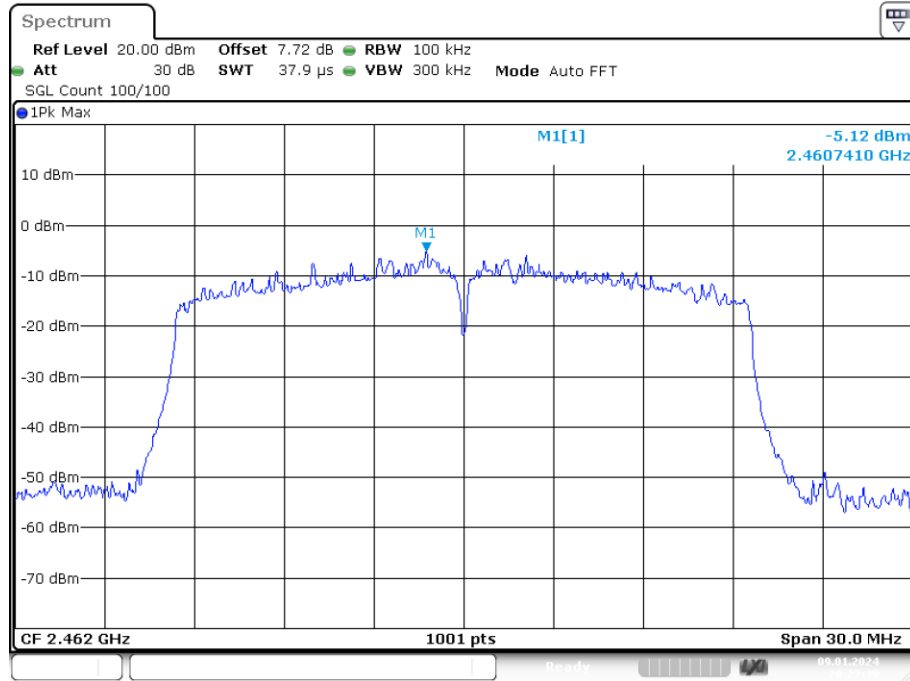
Date: 9.JAN.2024 19:43:55

Tx. Spurious NVNT ax20 2437MHz MIMO Emission



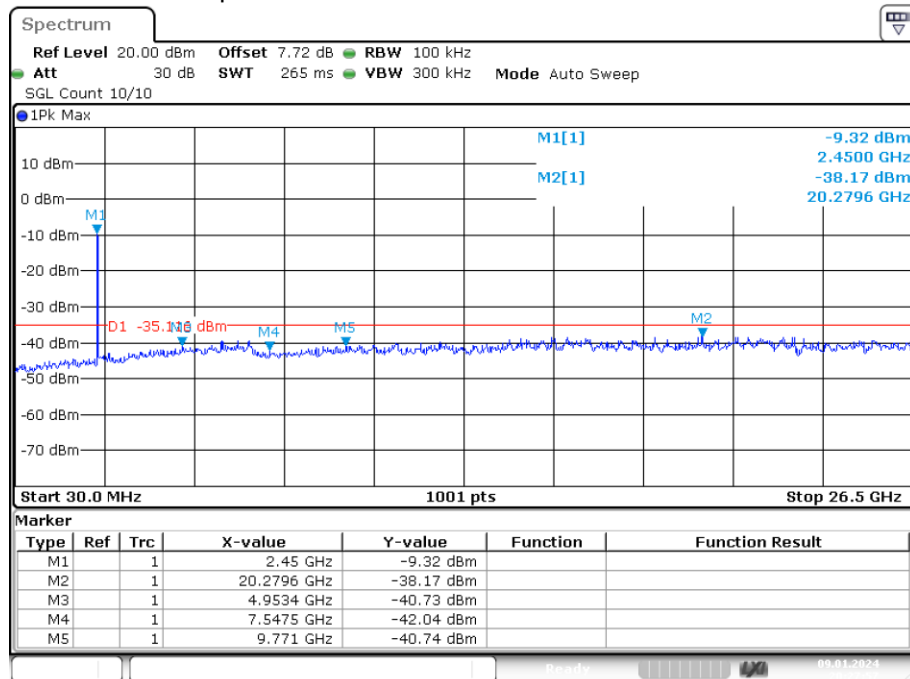
Date: 9.JAN.2024 19:44:13

Tx. Spurious NVNT ax20 2462MHz MIMO Ref



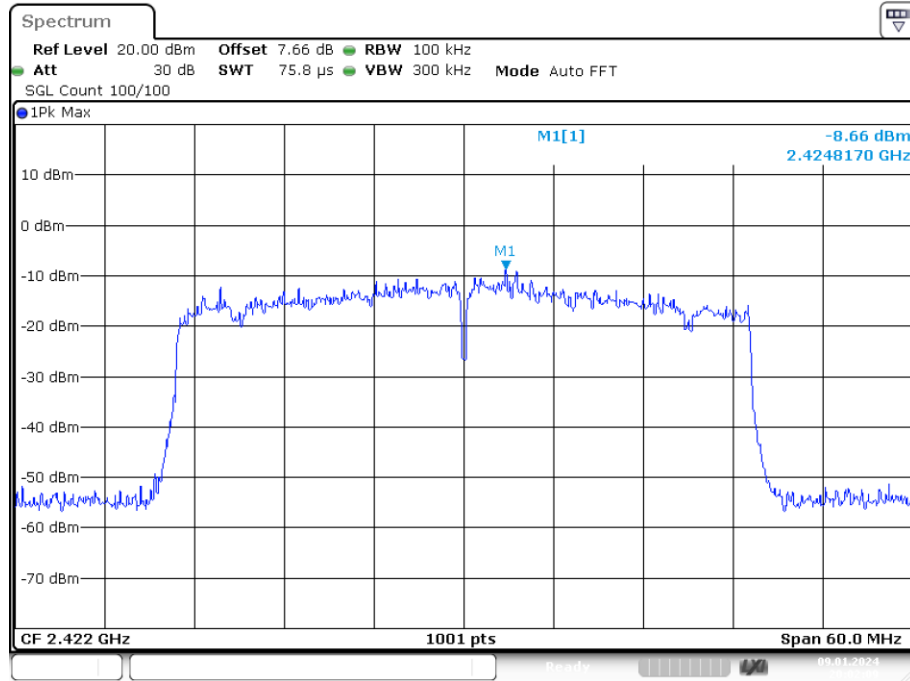
Date: 9.JAN.2024 20:27:39

Tx. Spurious NVNT ax20 2462MHz MIMO Emission



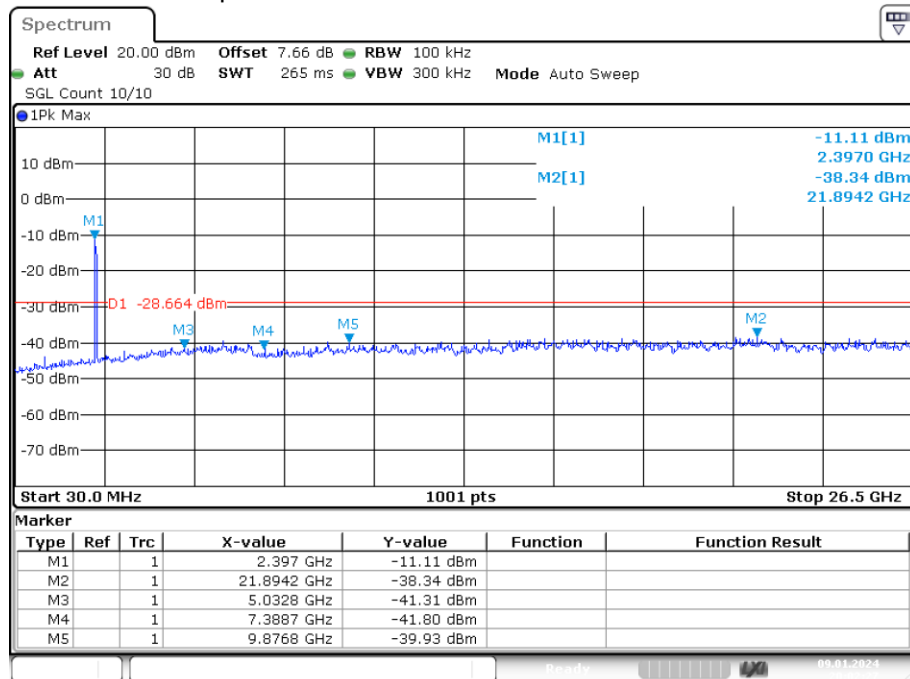
Date: 9.JAN.2024 20:27:57

Tx. Spurious NVNT ax40 2422MHz MIMO Ref



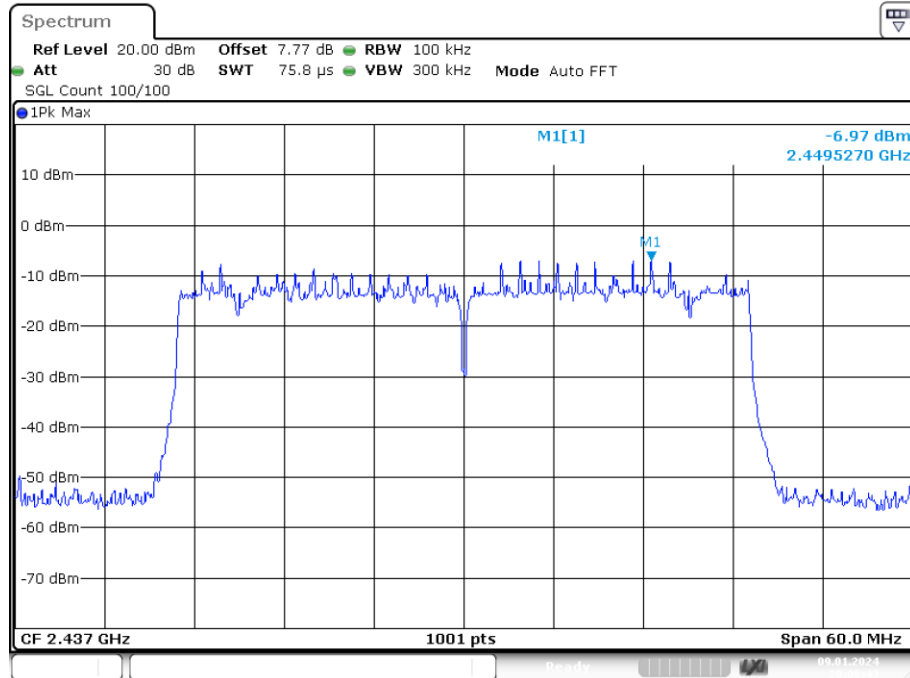
Date: 9.JAN.2024 20:02:09

Tx. Spurious NVNT ax40 2422MHz MIMO Emission



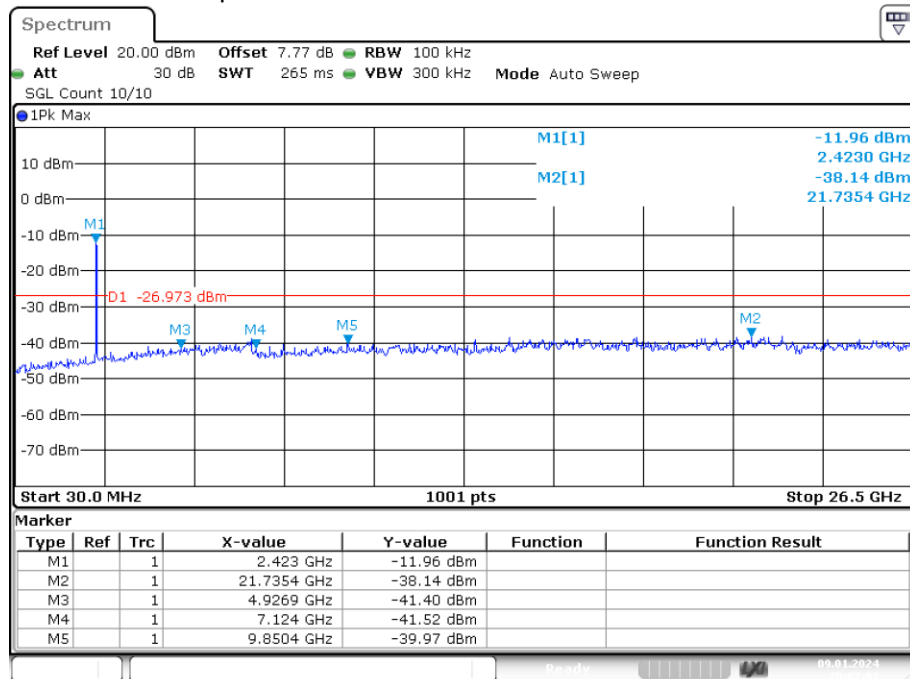
Date: 9.JAN.2024 20:02:27

Tx. Spurious NVNT ax40 2437MHz MIMO Ref



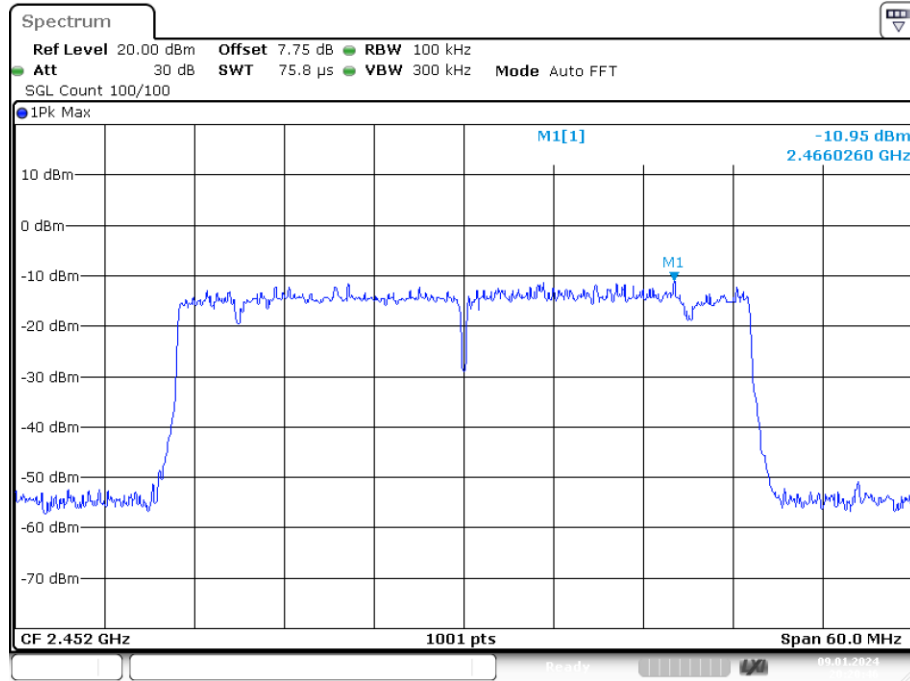
Date: 9.JAN.2024 20:06:42

Tx. Spurious NVNT ax40 2437MHz MIMO Emission



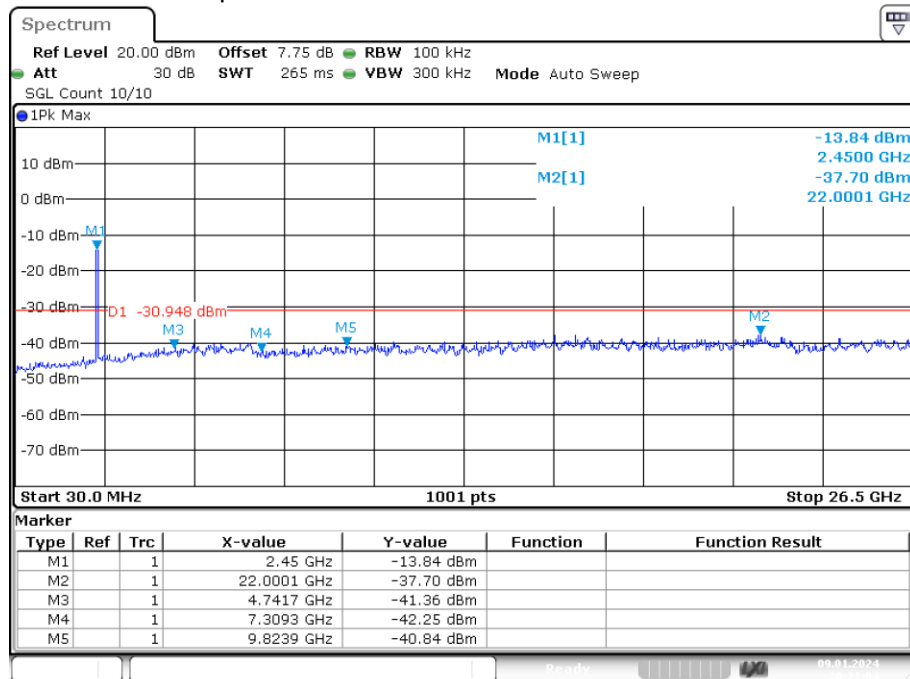
Date: 9.JAN.2024 20:07:00

Tx. Spurious NVNT ax40 2452MHz MIMO Ref



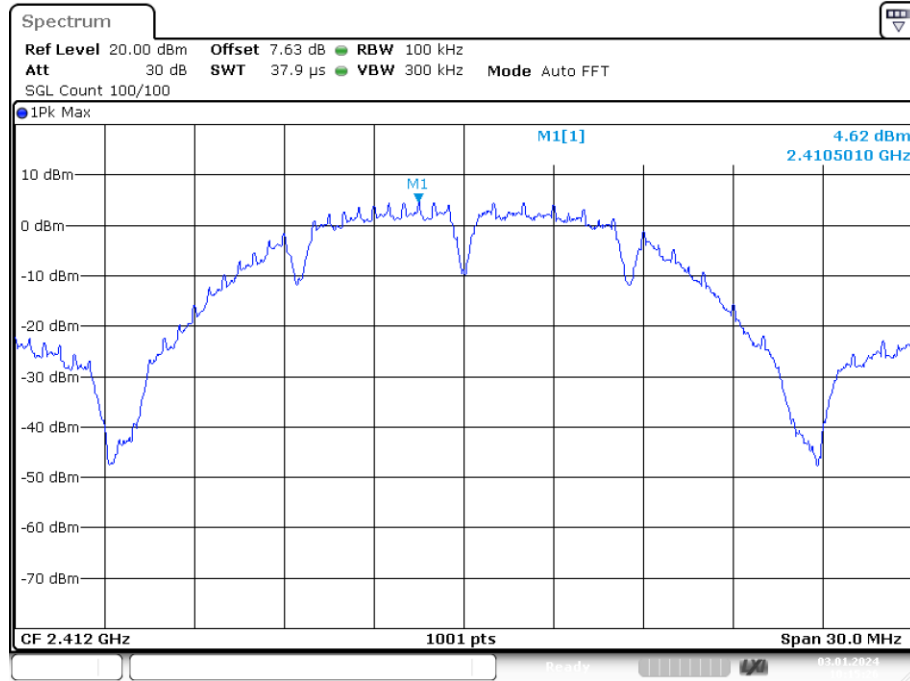
Date: 9.JAN.2024 20:20:46

Tx. Spurious NVNT ax40 2452MHz MIMO Emission



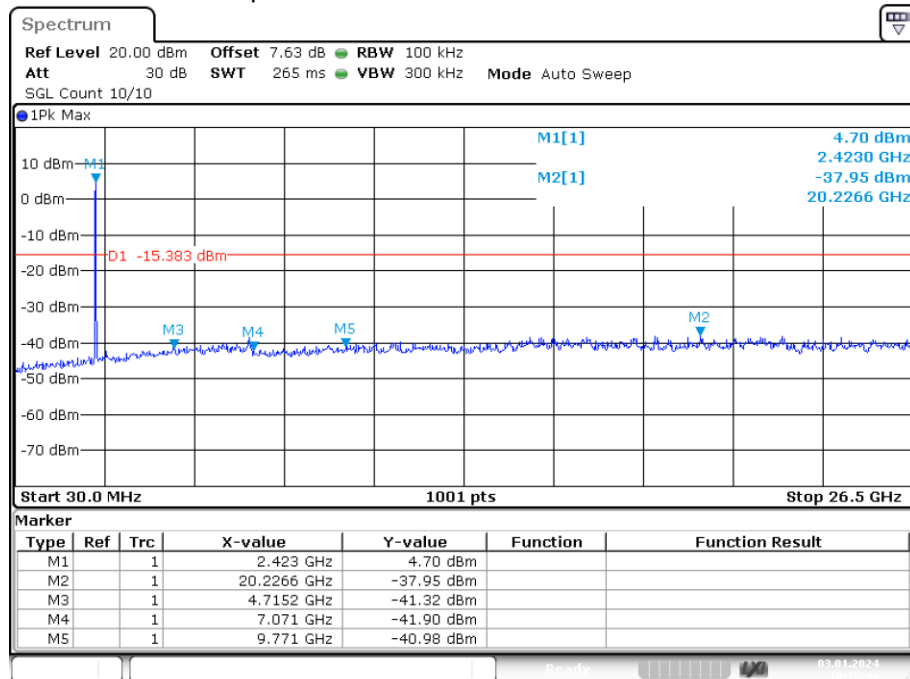
Date: 9.JAN.2024 20:21:04

Tx. Spurious NVNT b 2412MHz Ant1 Ref



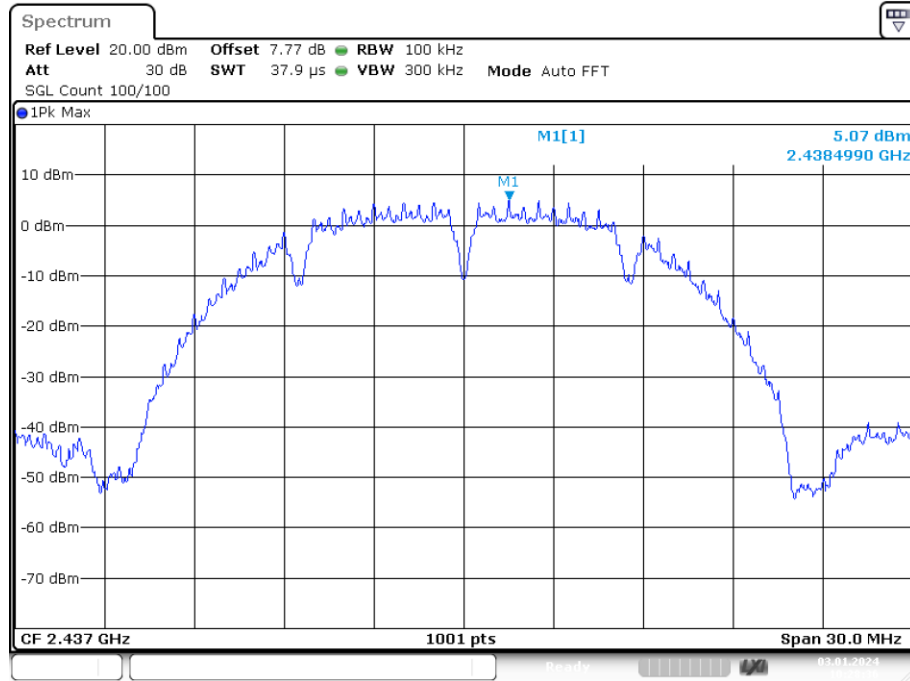
Date: 3.JAN.2024 10:15:25

Tx. Spurious NVNT b 2412MHz Ant1 Emission



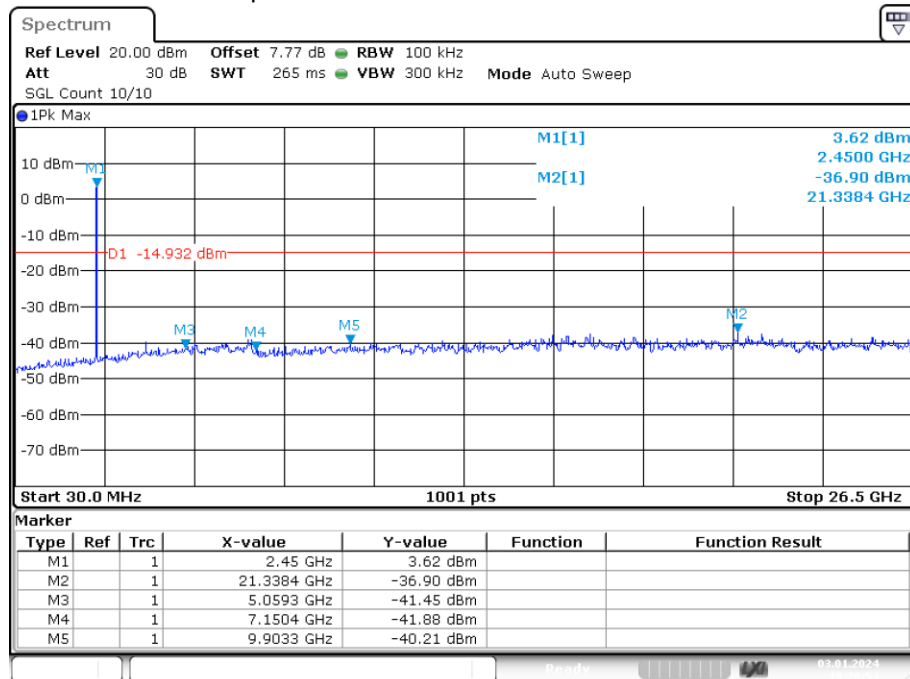
Date: 3.JAN.2024 10:15:43

Tx. Spurious NVNT b 2437MHz Ant1 Ref



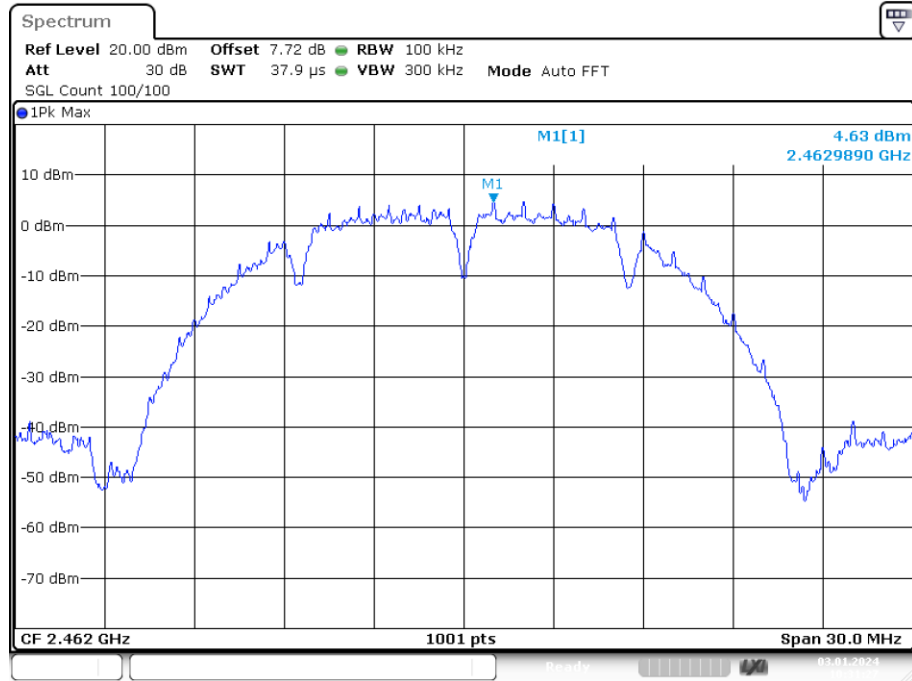
Date: 3.JAN.2024 10:28:37

Tx. Spurious NVNT b 2437MHz Ant1 Emission



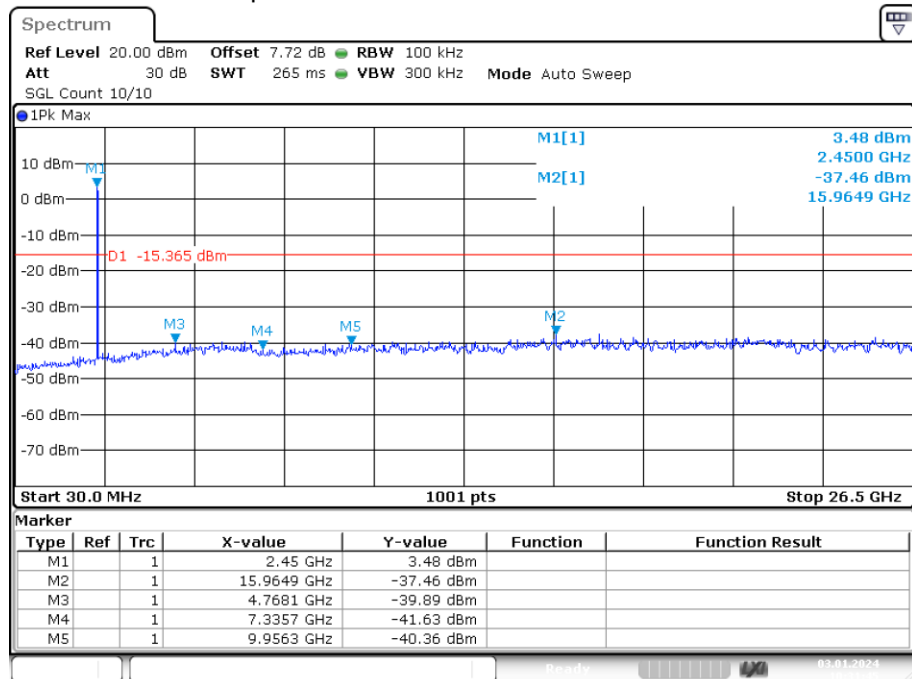
Date: 3.JAN.2024 10:28:54

Tx. Spurious NVNT b 2462MHz Ant1 Ref



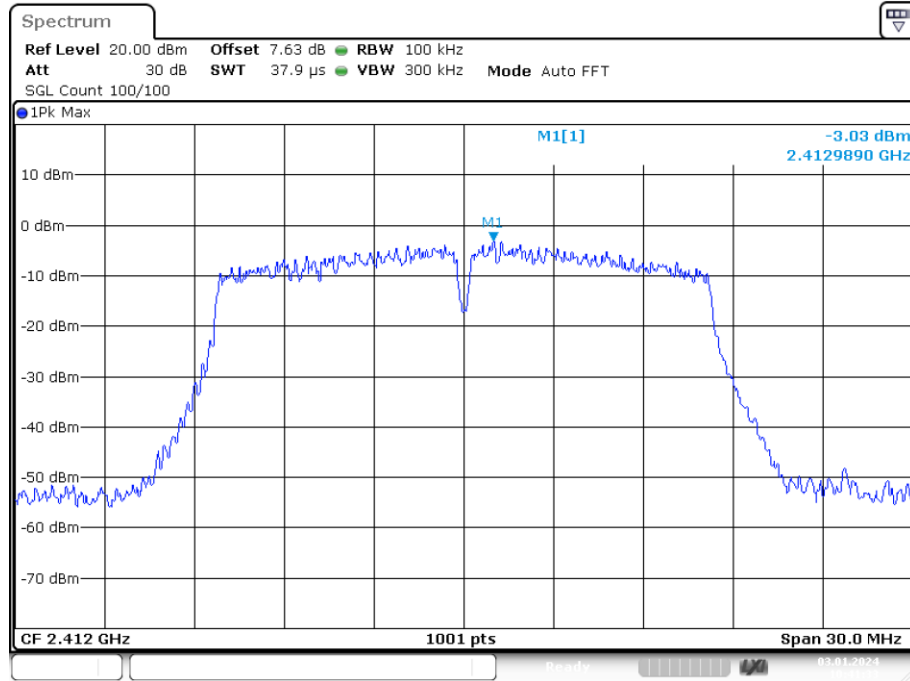
Date: 3.JAN.2024 10:31:27

Tx. Spurious NVNT b 2462MHz Ant1 Emission



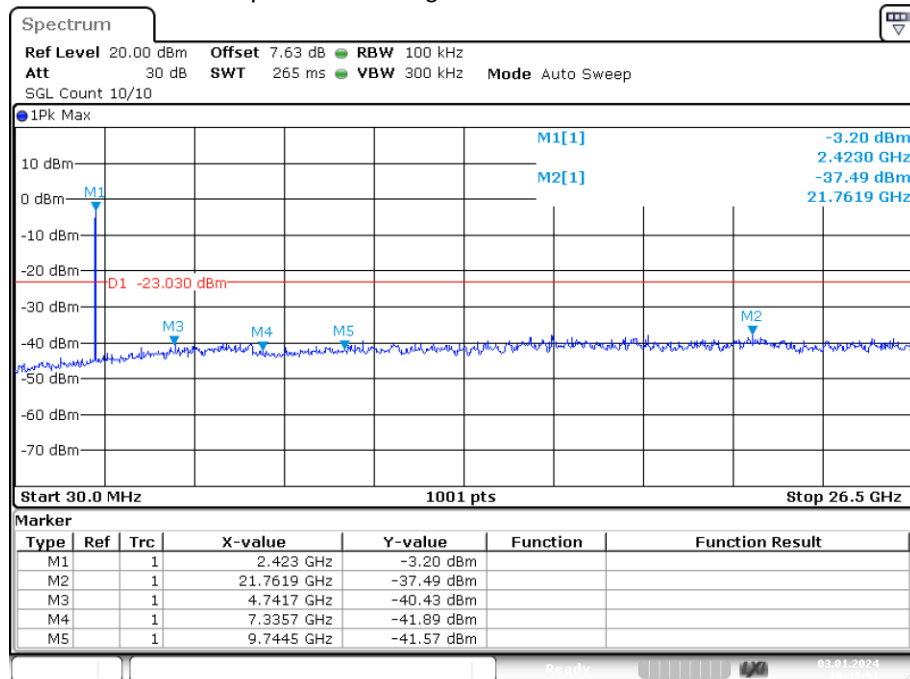
Date: 3.JAN.2024 10:31:44

Tx. Spurious NVNT g 2412MHz Ant1 Ref



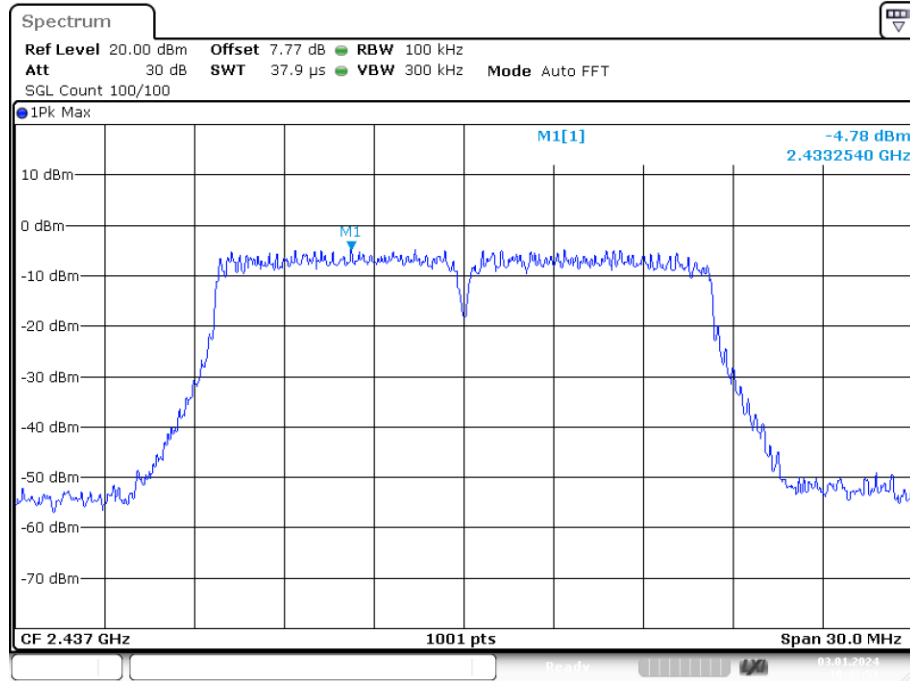
Date: 3.JAN.2024 10:41:34

Tx. Spurious NVNT g 2412MHz Ant1 Emission



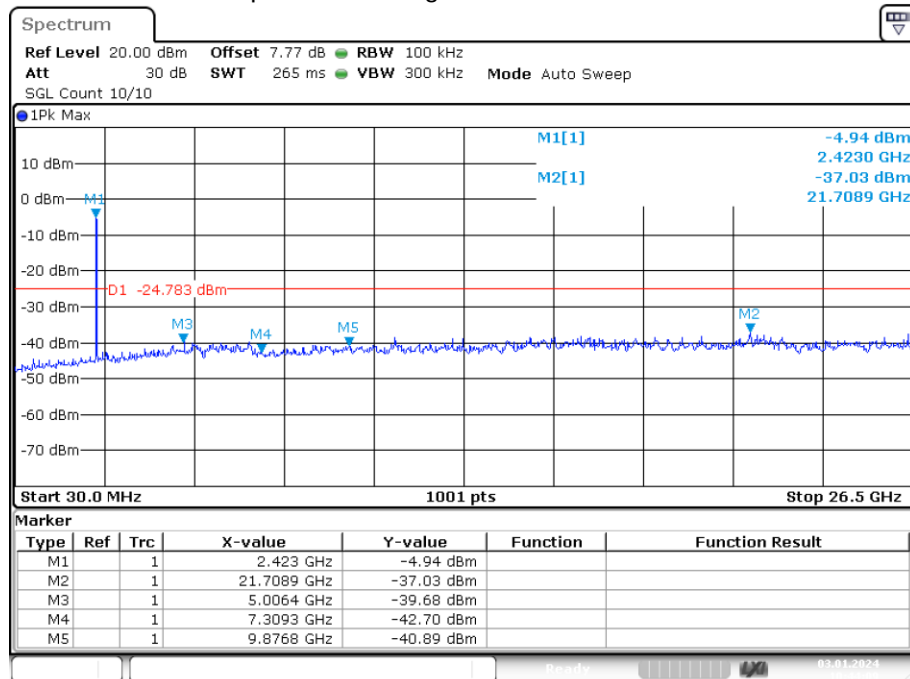
Date: 3.JAN.2024 10:41:52

Tx. Spurious NVNT g 2437MHz Ant1 Ref



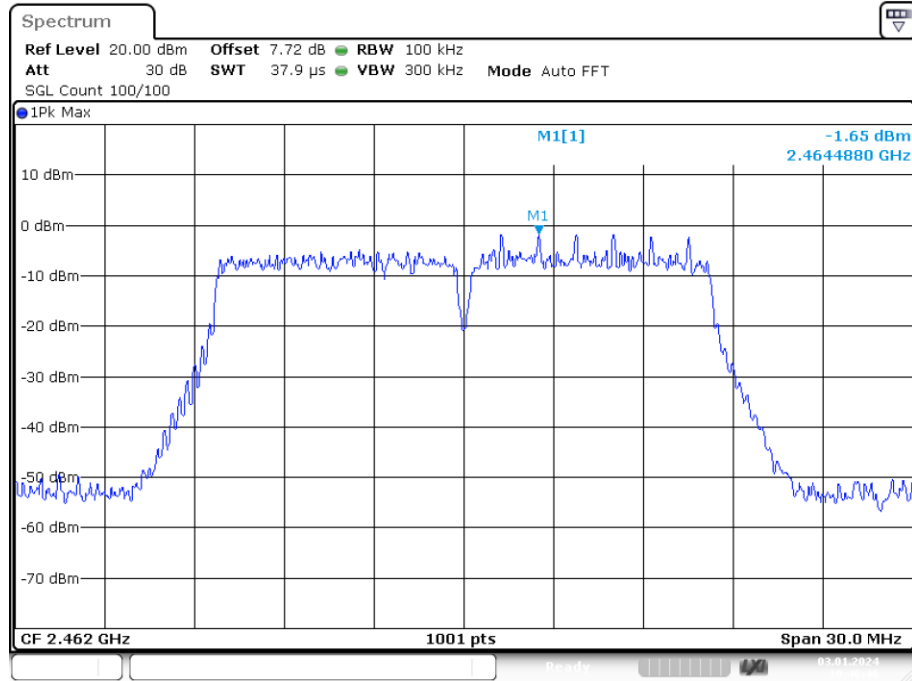
Date: 3.JAN.2024 10:43:50

Tx. Spurious NVNT g 2437MHz Ant1 Emission



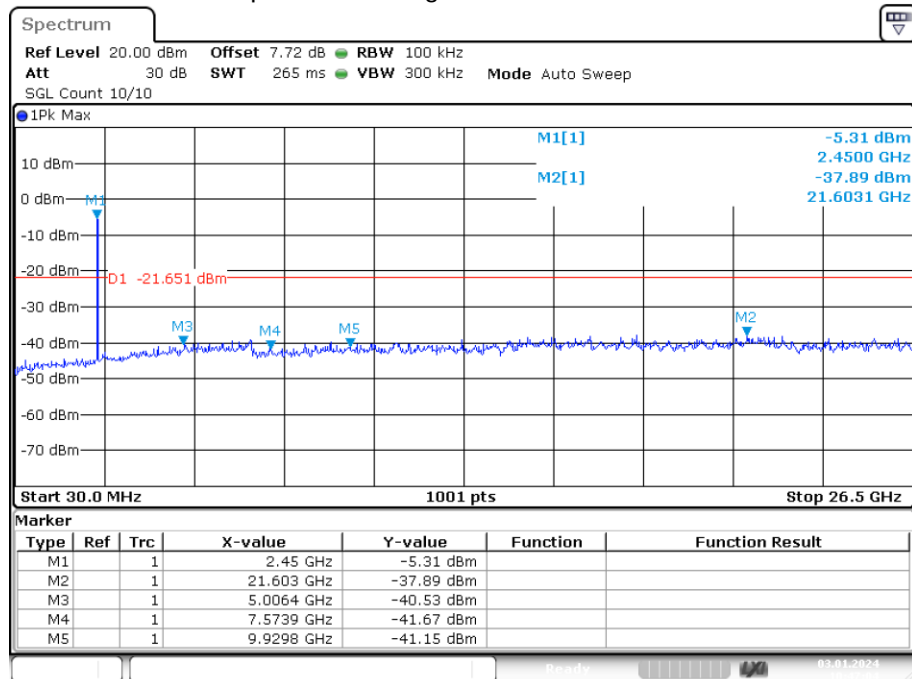
Date: 3.JAN.2024 10:44:08

Tx. Spurious NVNT g 2462MHz Ant1 Ref



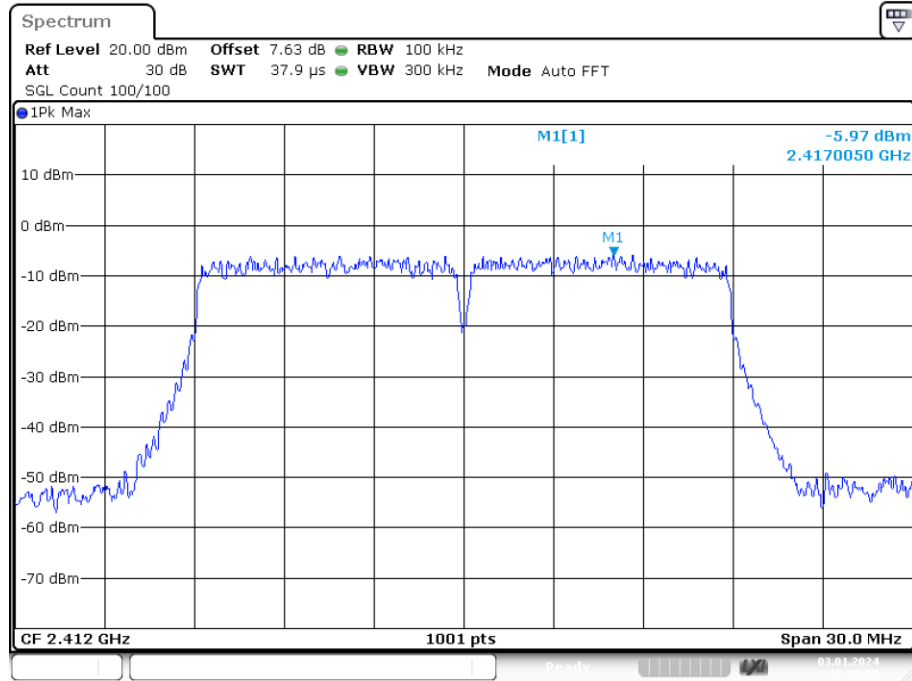
Date: 3.JAN.2024 10:46:46

Tx. Spurious NVNT g 2462MHz Ant1 Emission



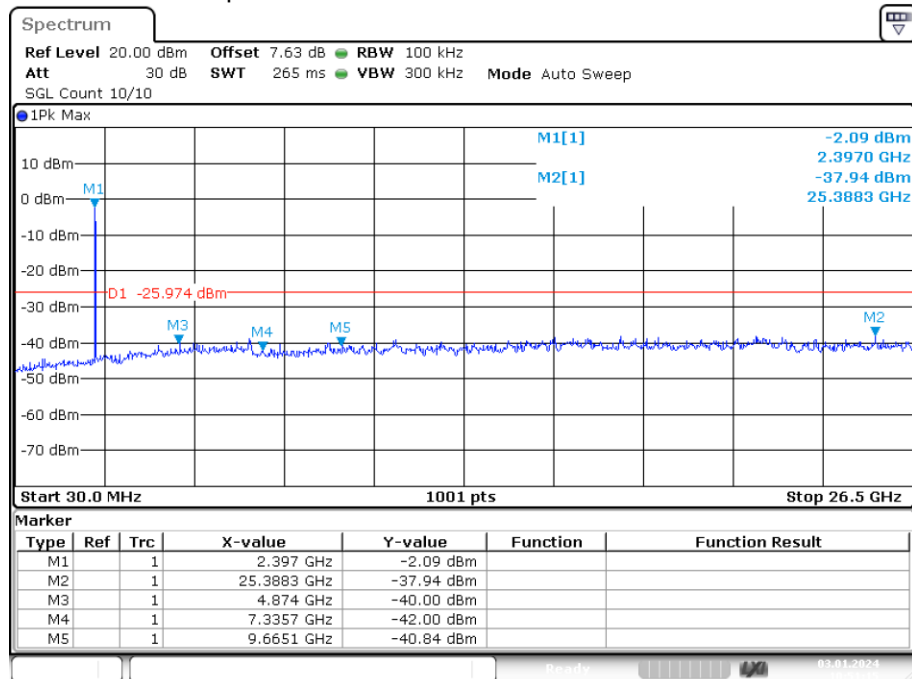
Date: 3.JAN.2024 10:47:03

Tx. Spurious NVNT n20 2412MHz MIMO Ref



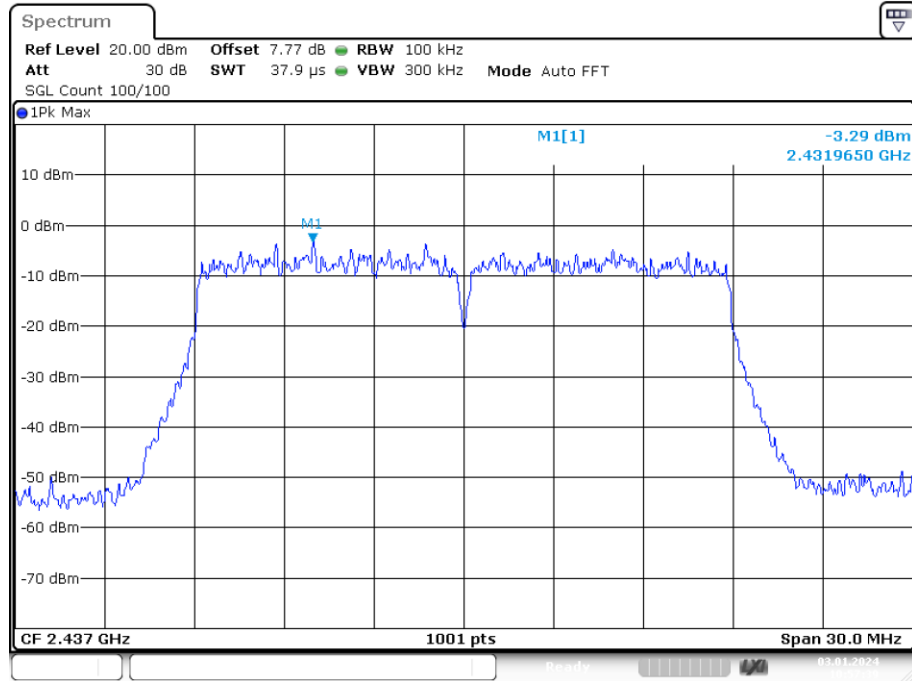
Date: 3.JAN.2024 10:50:57

Tx. Spurious NVNT n20 2412MHz MIMO Emission



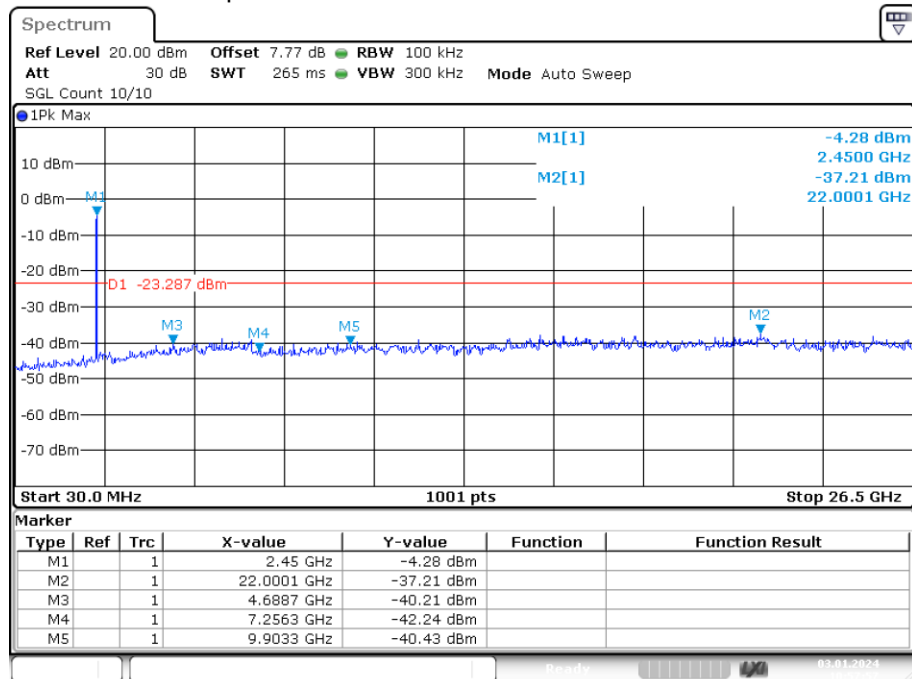
Date: 3.JAN.2024 10:51:15

Tx. Spurious NVNT n20 2437MHz MIMO Ref



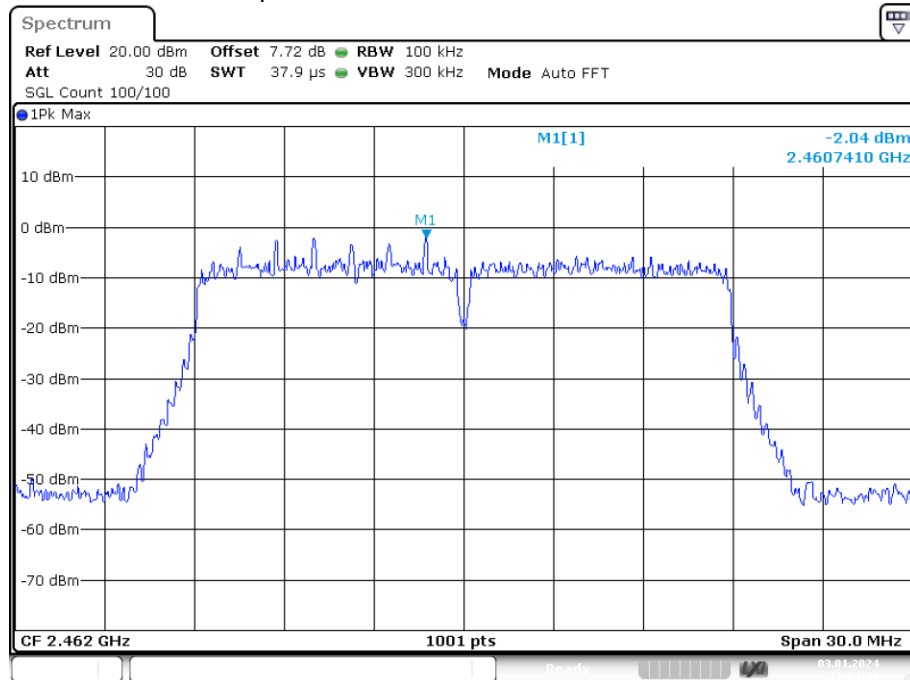
Date: 3.JAN.2024 10:57:39

Tx. Spurious NVNT n20 2437MHz MIMO Emission



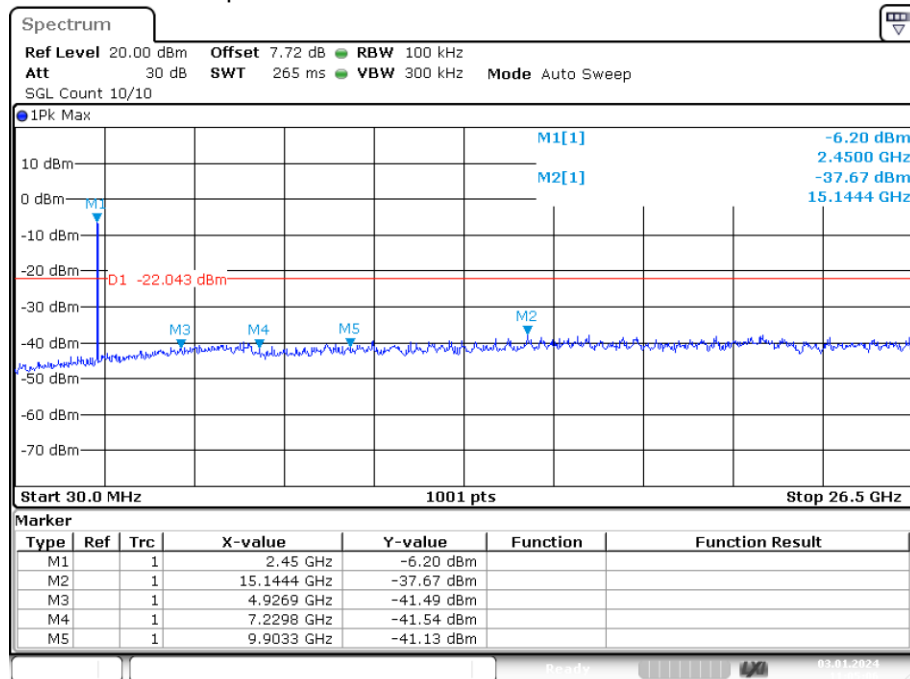
Date: 3.JAN.2024 10:57:56

Tx. Spurious NVNT n20 2462MHz MIMO Ref



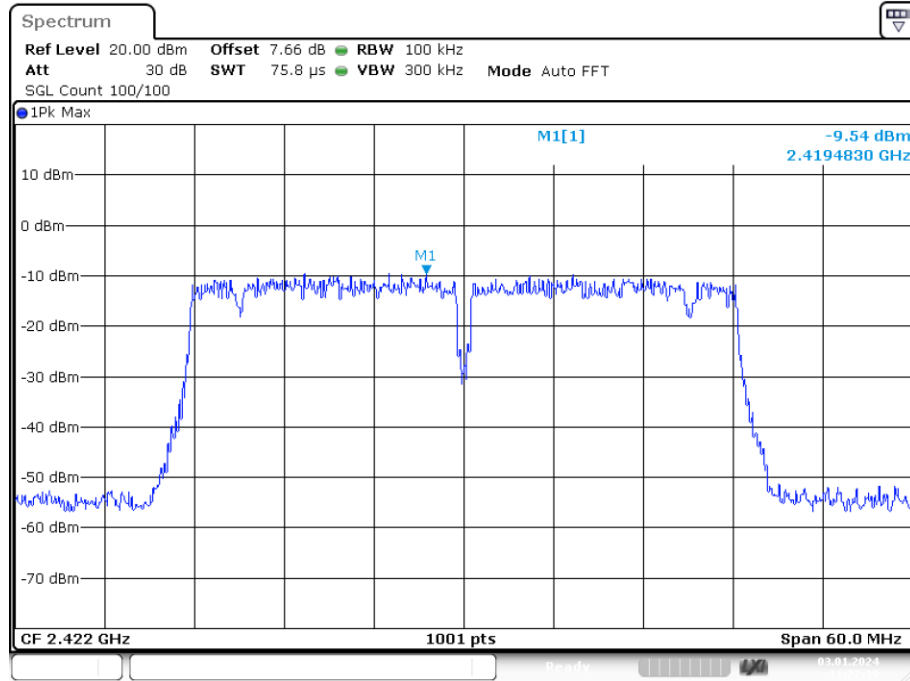
Date: 3.JAN.2024 11:04:48

Tx. Spurious NVNT n20 2462MHz MIMO Emission



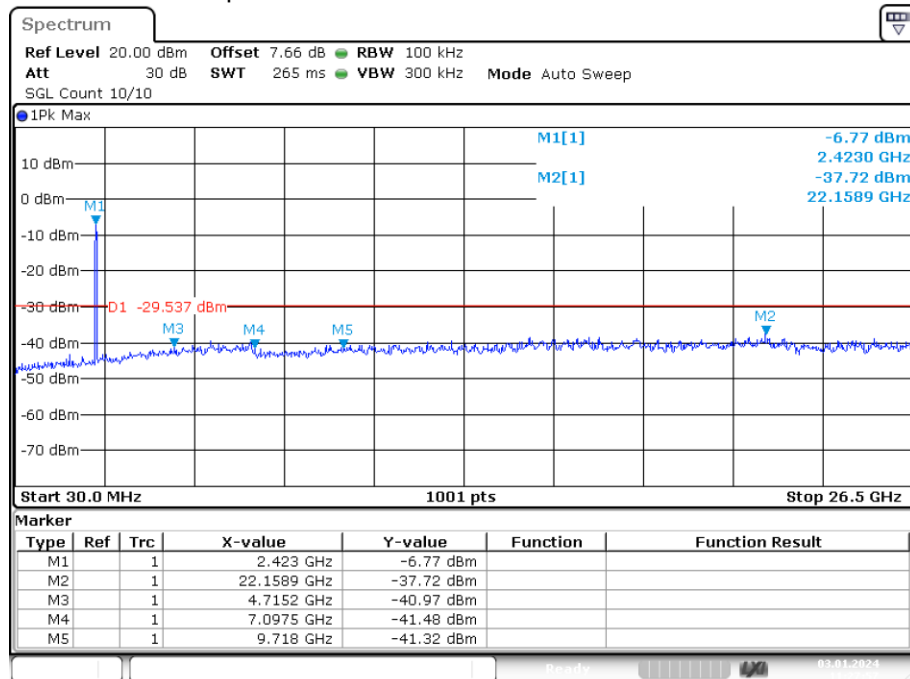
Date: 3.JAN.2024 11:05:06

Tx. Spurious NVNT n40 2422MHz MIMO Ref



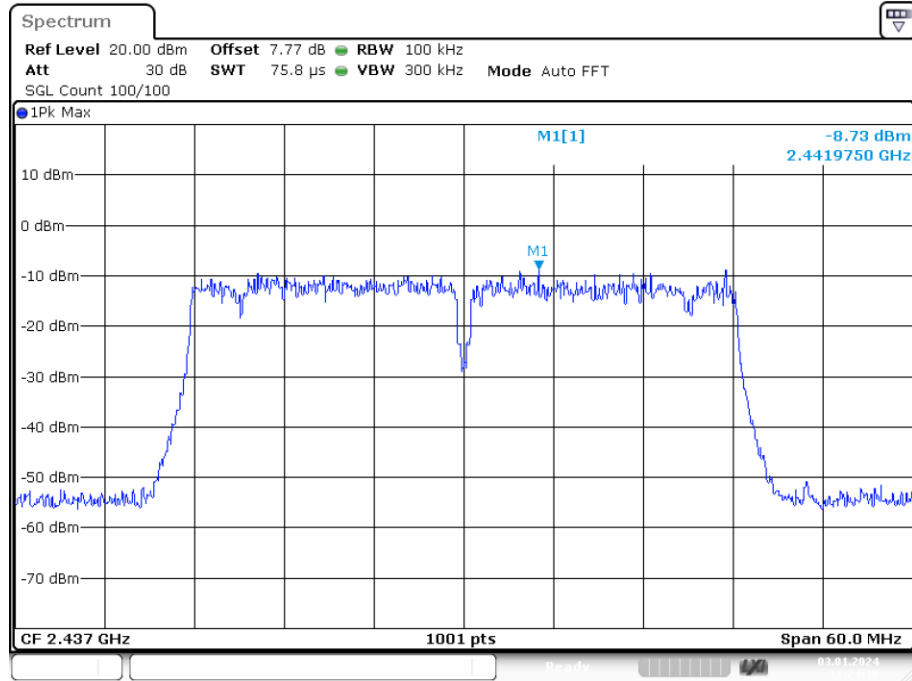
Date: 3.JAN.2024 11:27:39

Tx. Spurious NVNT n40 2422MHz MIMO Emission



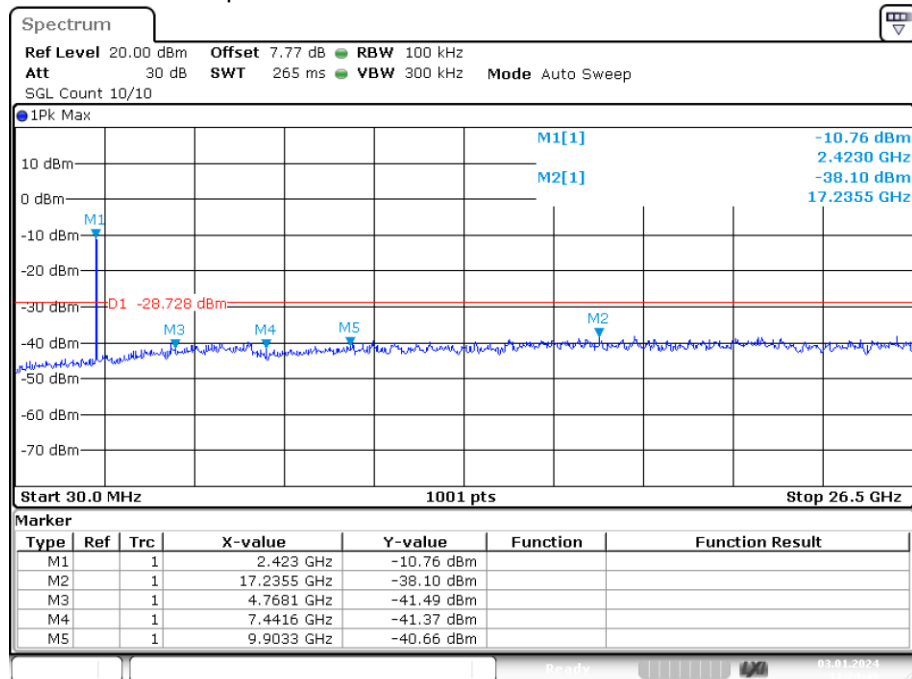
Date: 3.JAN.2024 11:27:56

Tx. Spurious NVNT n40 2437MHz MIMO Ref



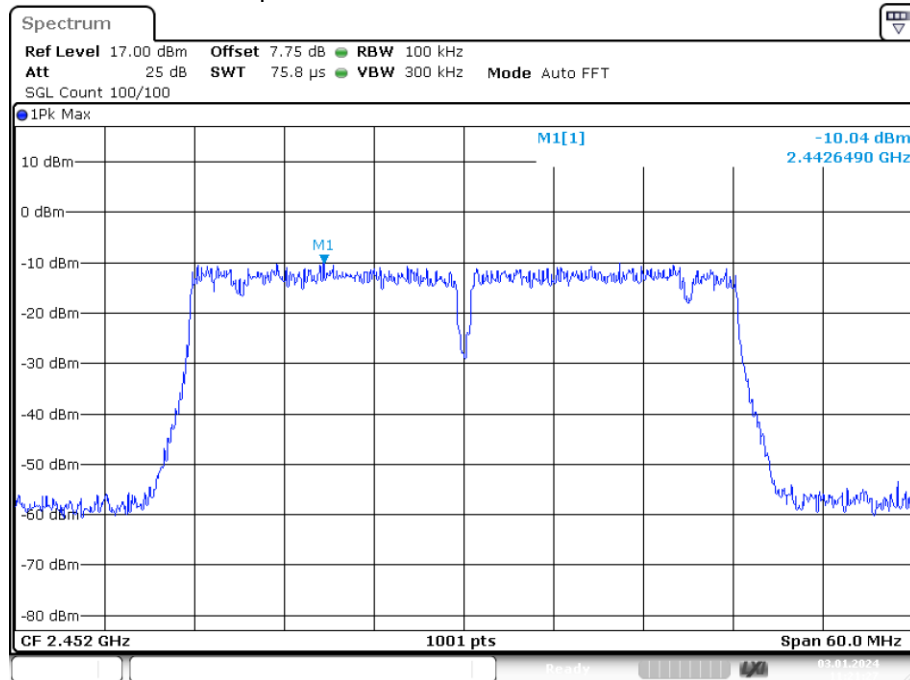
Date: 3.JAN.2024 11:24:30

Tx. Spurious NVNT n40 2437MHz MIMO Emission

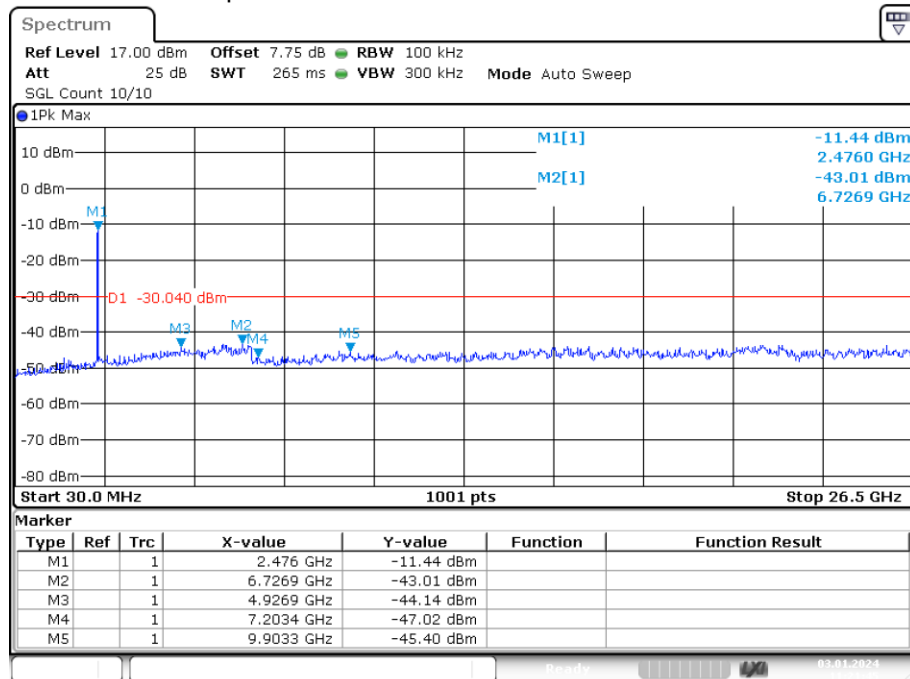


Date: 3.JAN.2024 11:24:48

Tx. Spurious NVNT n40 2452MHz MIMO Ref



Tx. Spurious NVNT n40 2452MHz MIMO Emission



- Note: 1. Except for mode b/g, other modes test the MIMO status.
 2. All antennas have been tested, only the worst data of each pattern is reflected.

4. POWER LINE CONDUCTED EMISSION

4.1. Test Limits

Frequency MHz	Limits dB(μ V)	
	Quasi-peak Level	Average Level
0.15 -0.50	66 -56*	56 - 46*
0.50 -5.00	56	46
5.00 -30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

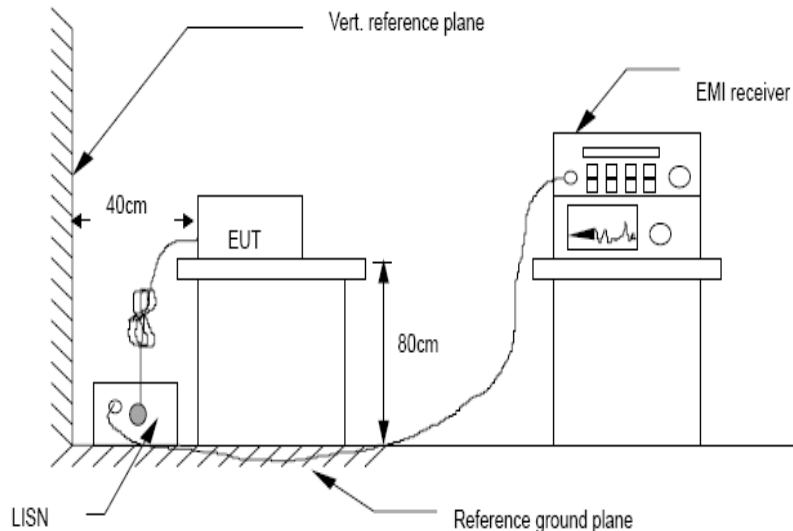
3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.2. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10:2013 on Conducted Emission Measurement.

The bandwidth of test receiver is set at 9 kHz.

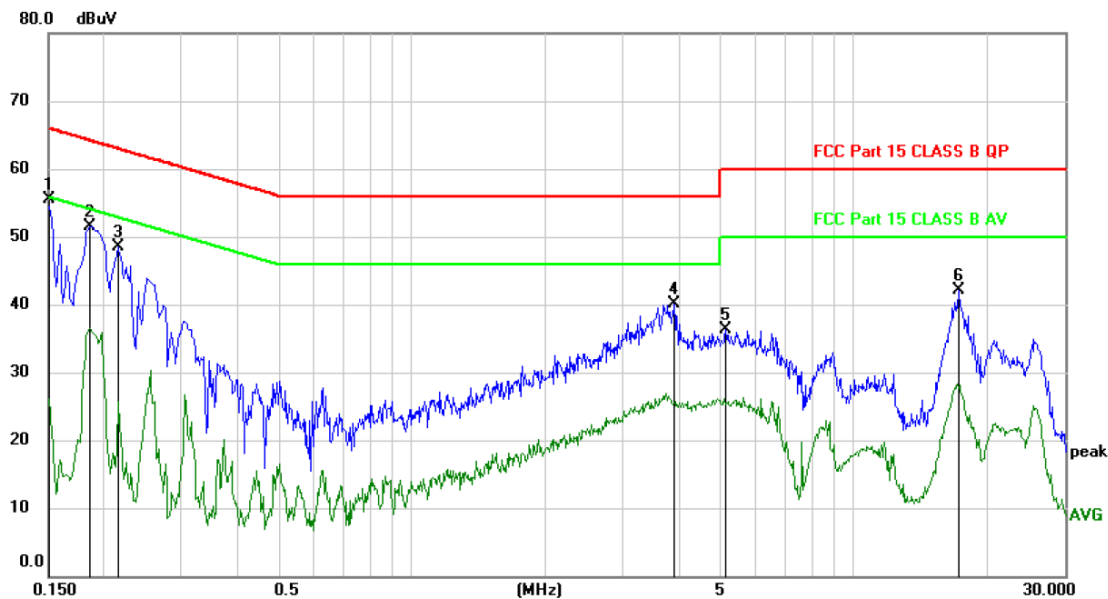
4.3. Test Setup



4.4. Test Results

Test result for 802.11b (2412MHz), AC 120V/ 60Hz

Line:



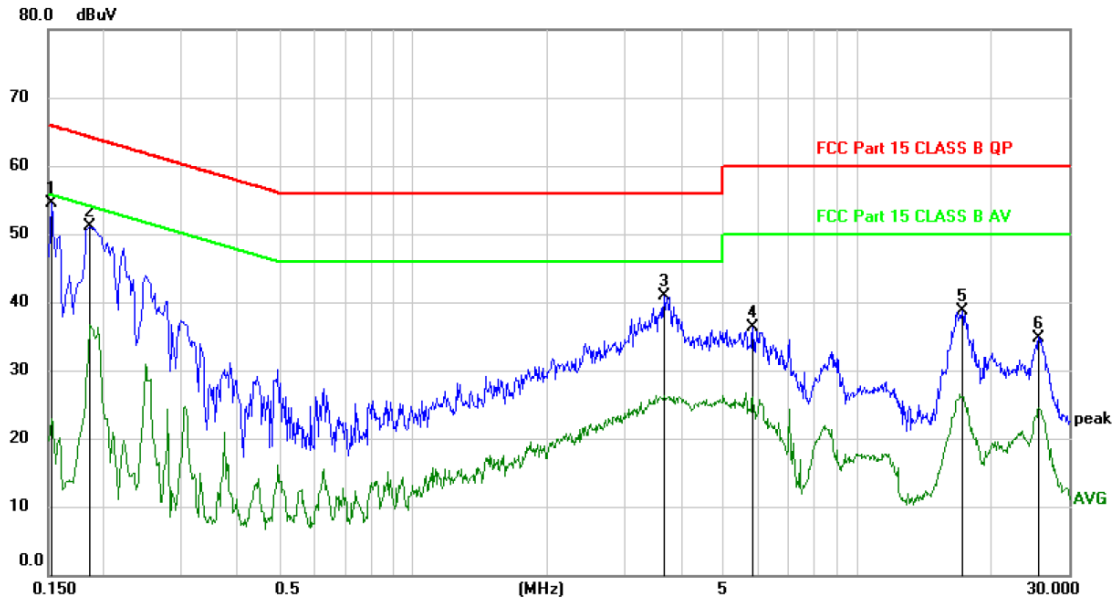
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1500	55.51	0.00	55.51	66.00	-10.49	peak	
2		0.1860	51.44	0.00	51.44	64.21	-12.77	peak	
3		0.2160	48.50	0.00	48.50	62.97	-14.47	peak	
4		3.9150	40.02	0.00	40.02	56.00	-15.98	peak	
5		5.1180	36.38	0.00	36.38	60.00	-23.62	peak	
6		17.2740	42.15	0.00	42.15	60.00	-17.85	peak	

*:Maximum data x:Over limit !:over margin

(Reference Only)

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

Neutral:



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1530	54.42	0.00	54.42	65.84	-11.42	peak	
2		0.1860	51.05	0.00	51.05	64.21	-13.16	peak	
3		3.6780	40.95	0.00	40.95	56.00	-15.05	peak	
4		5.8110	36.21	0.00	36.21	60.00	-23.79	peak	
5		17.2290	38.71	0.00	38.71	60.00	-21.29	peak	
6		25.6920	34.80	0.00	34.80	60.00	-25.20	peak	

*:Maximum data x:Over limit !:over margin

(Reference Only)

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

Notes: This report only shall the worst case mode for b 2412MHz.

5. CONDUCTED MAXIMUM OUTPUT POWER

5.1. Test limits

Please refer RSS-247 & FCC PART 15: 15.247.

Regulation 15.247(b) The limit of Maximum Peak Output Power Measurement is 1W(30dBm).

5.2. Test Procedure

Details see the KDB558074 D01 Meas Guidance v05r02

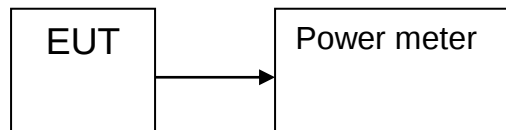
5.2.1 Place the EUT on the table and set it in transmitting mode.

5.2.2 Connected the EUT's antenna port to peak power meter by 20dB attenuator.

5.2.3 Measure out each mode and each bands peak output power of EUT.

Note: The cable loss and attenuator loss were offset into measure device as amplitude offset.

5.3. Test Setup



5.4. Test Results

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	EIRP (dBm)	Limit (dBm)	Verdict
NVNT	ax20	2412	Ant1	12.706	15.696	30	Pass
NVNT	ax20	2437	Ant1	12.718	15.708	30	Pass
NVNT	ax20	2462	Ant1	12.976	15.966	30	Pass
NVNT	ax40	2422	Ant1	12.83	15.82	30	Pass
NVNT	ax40	2437	Ant1	12.616	15.606	30	Pass
NVNT	ax40	2452	Ant1	12.6	15.59	30	Pass
NVNT	b	2412	Ant1	15.953	18.943	30	Pass
NVNT	b	2437	Ant1	15.708	18.698	30	Pass
NVNT	b	2462	Ant1	15.417	18.407	30	Pass
NVNT	g	2412	Ant1	14.827	17.817	30	Pass
NVNT	g	2437	Ant1	14.414	17.404	30	Pass
NVNT	g	2462	Ant1	14.127	17.117	30	Pass
NVNT	n20	2412	Ant1	16.448	19.438	30	Pass
NVNT	n20	2437	Ant1	16.138	19.128	30	Pass
NVNT	n20	2462	Ant1	16.463	19.453	30	Pass
NVNT	n40	2422	Ant1	16.428	19.418	30	Pass
NVNT	n40	2437	Ant1	16.642	19.632	30	Pass
NVNT	n40	2452	Ant1	16.652	19.642	30	Pass

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	EIRP (dBm)	Limit (dBm)	Verdict
NVNT	ax20	2412	Ant2	12.947	15.937	30	Pass
NVNT	ax20	2437	Ant2	12.374	15.364	30	Pass
NVNT	ax20	2462	Ant2	12.385	15.375	30	Pass
NVNT	ax40	2422	Ant2	12.415	15.405	30	Pass
NVNT	ax40	2437	Ant2	12.227	15.217	30	Pass
NVNT	ax40	2452	Ant2	12.456	15.446	30	Pass
NVNT	b	2412	Ant2	15.173	18.163	30	Pass
NVNT	b	2437	Ant2	15.325	18.315	30	Pass
NVNT	b	2462	Ant2	15.517	18.507	30	Pass
NVNT	g	2412	Ant2	14.715	17.705	30	Pass
NVNT	g	2437	Ant2	14.919	17.909	30	Pass
NVNT	g	2462	Ant2	14.737	17.727	30	Pass
NVNT	n20	2412	Ant2	16.593	19.583	30	Pass
NVNT	n20	2437	Ant2	16.256	19.246	30	Pass
NVNT	n20	2462	Ant2	16.481	19.471	30	Pass
NVNT	n40	2422	Ant2	16.663	19.653	30	Pass
NVNT	n40	2437	Ant2	16.068	19.058	30	Pass
NVNT	n40	2452	Ant2	16.058	19.048	30	Pass

Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	ax20	2412	MIMO	18.83	30	Pass
NVNT	ax20	2437	MIMO	18.55	30	Pass
NVNT	ax20	2462	MIMO	18.69	30	Pass
NVNT	ax40	2422	MIMO	18.63	30	Pass
NVNT	ax40	2437	MIMO	18.43	30	Pass
NVNT	ax40	2452	MIMO	18.53	30	Pass
NVNT	n20	2412	MIMO	22.52	30	Pass
NVNT	n20	2437	MIMO	22.20	30	Pass
NVNT	n20	2462	MIMO	22.47	30	Pass
NVNT	n40	2422	MIMO	22.55	30	Pass
NVNT	n40	2437	MIMO	22.36	30	Pass
NVNT	n40	2452	MIMO	22.37	30	Pass

6. PEAK POWER SPECTRAL DENSITY

6.1. Test limits

6.1.1 Please refer RSS-247 & FCC PART 15: 15.247.

6.1.2 For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

6.1.3 The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

6.2. Test Procedure

Details see the KDB558074 D01 Meas Guidance v05r02

6.2.1 Place the EUT on the table and set it in transmitting mode.

6.2.2 Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

6.2.3 Set the spectrum analyzer as RBW = 3kHz(Set the RBW to: $3\text{ kHz} \leq \text{RBW} \leq 100\text{ kHz}$.), VBW = 10kHz(Set the $\text{VBW} \geq 3 \times \text{RBW}$), span $\geq 1.5 \times \text{DTS bandwidth}$., detail see the test plot.

6.2.4 Record the max reading.

6.2.5 Repeat the above procedure until the measurements for all frequencies are completed.

6.3. Test Setup

