



FCC TEST REPORT
FCC ID: 2BPVS-6188E-UF

On Behalf of

Hefei Hualing Co., Ltd.

RF module

Model No.: 6188E-UF

Prepared for : Hefei Hualing Co., Ltd.
Address : No.176 JinXiu Road, Hefei Economy & Technology Development
Area, Hefei City, 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 : A2507130-C02-R01
Date of Receipt : September 5, 2025
Date of Test : September 5, 2025 – December 2, 2025
Date of Report : December 2, 2025
Version Number : V0
Test Result : Pass

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TEST REPORT DECLARATION

Applicant : Hefei Hualing Co., Ltd.
Address : No.176 JinXiu Road, Hefei Economy & Technology Development Area, Hefei City, China
Manufacturer : FN-LINK TECHNOLOGY LIMITED
Address : No.8, Litong Road, Liuyang Economic & Technical Development Zone, Changsha, Hunan, China
EUT Description : RF module
(A) Model No. : 6188E-UF
(B) Trademark : N/A

Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247

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).....: Jack Xu
Project Manager 

Date of issue.....: December 2, 2025

Revision History

Revision	Issue Date	Revisions	Revised By
V0	December 2, 2025	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	N/A
6dB Bandwidth	FCC PART 15:15.247(a)(2)	P
Output Power	FCC Part 15: 15.247(b)(3)	P
Radiated Spurious Emission	FCC Part 15: 15.209, FCC Part 15: 15.247(d)	P
Conducted Spurious & Band Edge Emission	FCC Part 15: 15.247(d)	P
Power Spectral Density	FCC PART 15:15.247(e)	P
Radiated Band Edge Emission	FCC Part 15: 15.247(d)	P
Antenna Requirement	FCC Part 15: 15.203	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.		

1. Pass: The EUT complies with the essential requirements in the standard.
2. The conclusion of this test report is judged by actual test data without considering measurement uncertainty.

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT Name : RF module
Model No. : 6188E-UF
DIFF. : N/A
Power supply : DC 3.3V from USB adapter board

2.4G WIFI	:
Operation frequency	: 2412MHz-2462MHz for IEEE 802.11 b, g. n/HT20 2422MHz~2452MHz for IEEE802.11n/HT40
Channel No.	: 802.11b/802.11g /802.11n(HT20): 11CH 802.11n(HT40): 7CH
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)
Antenna Type	: FPC antenna, Maximum Gain is 3.4dBi (Antenna information is provided by applicant.)
Software version	: V1.0
Hardware version	: V1.0
Intend use environment	: Residential, commercial and light industrial environment

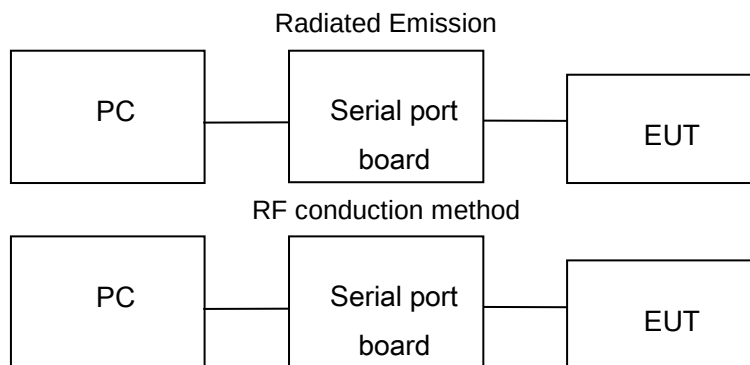
2.2. Accessories of Device (EUT)

Accessories : N/A
Manufacturer : N/A
Model : N/A
Ratings : N/A

2.3. Tested Supporting System Details

No.	Description	Manufacturer	Model	Serial Number	Certification or SDOC
1	Notebook	ACER	ZQT	/	/

2.4. Block Diagram of Test



2.5. Test Mode Description

Duty cycle :100%Keeping TX			
Mode	data rate (Mbps)(see Note)	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	MCS0	Low :CH1	2412
	MCS0	Middle: CH6	2437
	MCS0	High: CH11	2462
IEEE 802.11 n/HT40	MCS0	Low :CH3	2422
	MCS0	Middle: CH6	2437
	MCS0	High: CH9	2452
Note: 1.According exploratory test, EUT will have maximum output power in those data rate. So those data rate were used for all test. 2. Using REALTEK 11n 8188FU USB WLAN NIC Massproduction Kit testing software to control EUT work in Continuous TX mode, and select test channel, wireless mode, the power level of the test is set to default.			

Channel list:					
For IEEE 802.11b, g, n/HT20, n/HT40					
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

CAB identified: CN0085

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	5.06×10-8GHz
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%
Uncertainty for Power Spectral Density	0.39dB
Uncertainty for Occupied-Bandwidth	968Hz

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

2.9. Test Equipment List

Equipment	Manufacturer	Model No.	Firmware version	Serial No.	Last Cal.	Cal. Due day
9*6*6 anechoic chamber	CHENYU	9*6*6	/	N/A	2025.03.09	4Year
4*4*3 Shielded room	CHENYU	4*4*3	/	N/A	2025.03.09	4Year
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	2.3	102137	2025.08.04	1Year
Spectrum analyzer	Agilent	N9020A	A.14.16	MY499100060	2025.08.04	1Year
Test Receiver	ROHDE&SCHWARZ	ESR	2.28 SP1	1316.3003K03-102082-Wa	2025.08.04	1Year
Test Receiver	ROHDE&SCHWARZ	ESCI	4.42 SP1	101165	2025.08.04	1Year
Bilog Antenna	SCHWARZBECK	VULB 9168	/	VULB 9168#627	2025.08.11	2Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	/	2106	2025.08.11	2Year
Loop Antenna	SCHWARZBECK	FMZB 1519B	/	00128	2025.08.11	2Year
RF Cable	Resenberger	Cable 1	/	RE1	2025.08.04	1Year
RF Cable	Resenberger	Cable 2	/	RE2	2025.08.04	1Year
RF Cable	Resenberger	Cable 3	/	CE1	2025.08.04	1Year
Amplifier	HP	HP8347A	/	2834A00455	2025.08.04	1Year
Amplifier	Agilent	8449B	/	3008A02664	2025.08.04	1Year
L.I.S.N.#1	SCHWARZBECK	NSLK8126	/	8126-466	2025.08.04	1Year
L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	/	101043	2025.08.04	1Year
Horn Antenna	SCHWARZBECK	BBHA 9170	/	00946	2025.08.11	2Year
Preamplifier	SKET	LNPA_1840-50	/	SK2018101801	2025.08.04	1 Year
Power Meter	Agilent	E4419B	/	GB40202122	2025.08.04	1 Year
Power Sensor	Agilent	E9300A	/	MY41496628	2025.08.04	1 Year
Power Sensor	Agilent	E9304A	/	MY41496815	2025.08.04	1 Year
Temp. & Humid. Chamber	Teelong	TL-HW408S	/	TL-20191205-01	2025.07.14	1 Year
Electronic Thermo-Hygrometer	S.H.Qixiang	HTC-1	/	N/A	2025.08.04	1 Year
Switching Mode Power Supply	JUNKE	JK12010S	/	20140927-6	2025.08.04	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

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)

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			

3.2. Test Procedure

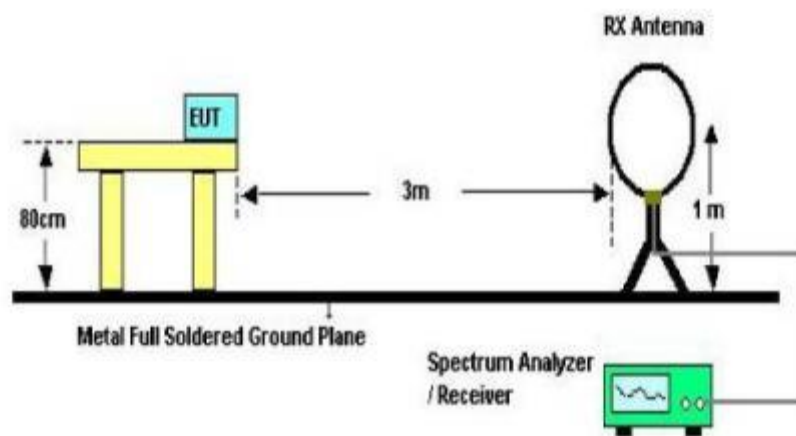
The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1GHz. The EUT was placed on a rotating 0.8 m high above ground for below 1GHz and 1.5m high for above 1GHz testing, the table was rotated 360 degrees to determine the position of the highest radiation. The Test 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

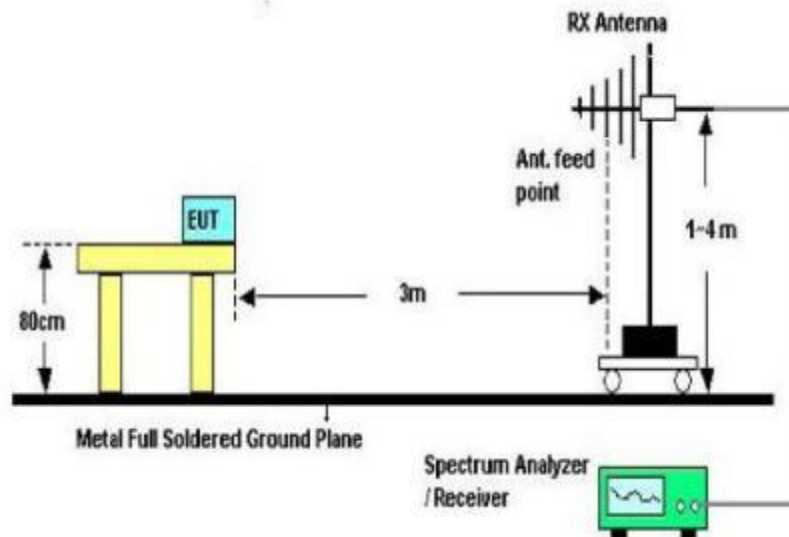
If Peak value comply with QP limit below 1GHz, the EUT deemed to comply with QP limit. But the Peak value and average value both need to comply with applicable limit above 1GHz.

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

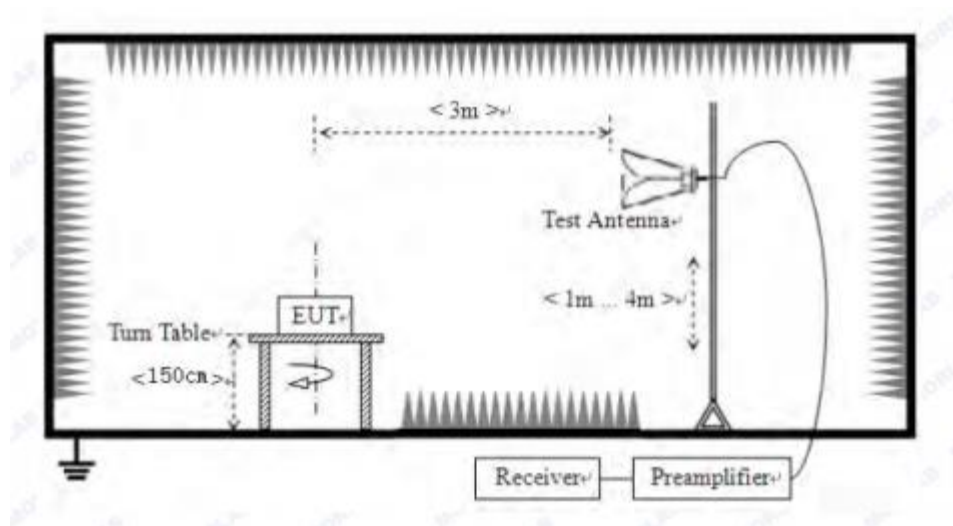
3.3. Test Setup



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.

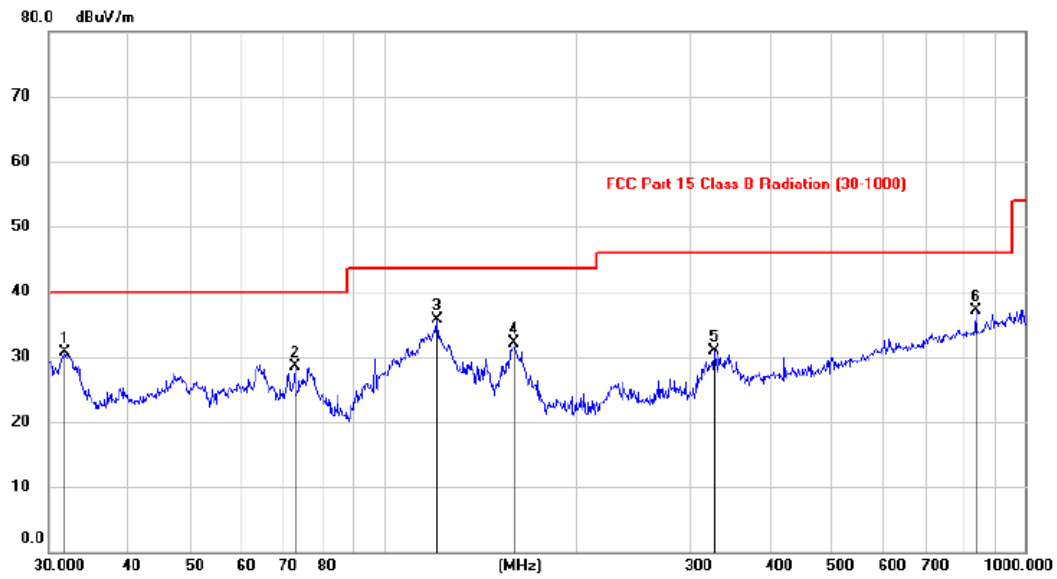
From 9KHz to 30MHz: Conclusion: PASS

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. Only show the test data of the worst Channel in this report.

From 30MHz to 1000MHz: Conclusion: PASS

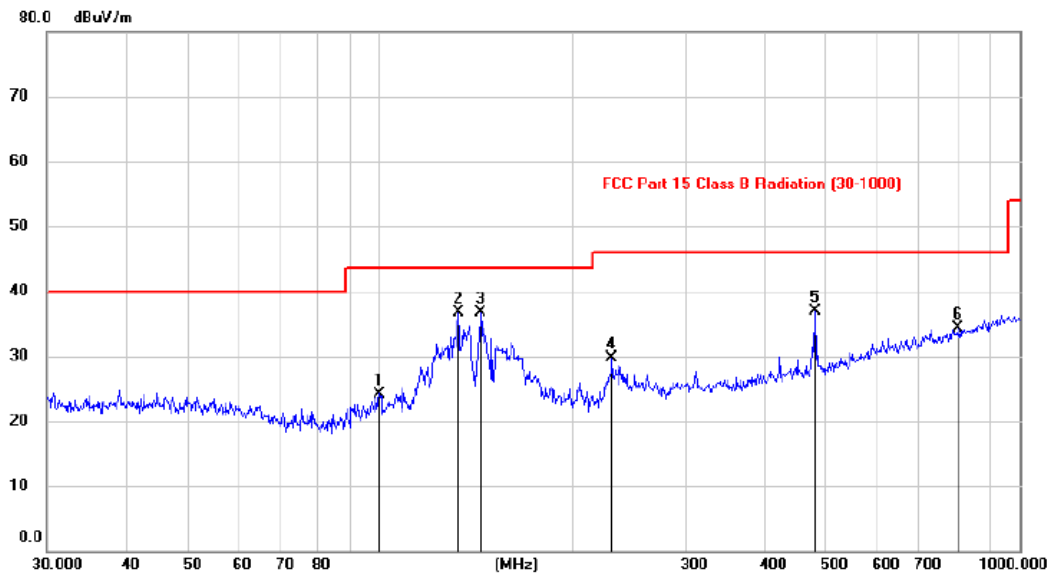
Vertical:



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		31.8688	17.09	13.60	30.69	40.00	-9.31	peak		
2		72.6935	17.65	10.90	28.55	40.00	-11.45	peak		
3	*	121.2081	22.66	13.11	35.77	43.50	-7.73	peak		
4		160.2894	17.11	15.01	32.12	43.50	-11.38	peak		
5		328.3091	16.12	14.79	30.91	46.00	-15.09	peak		
6		841.4409	13.83	23.28	37.11	46.00	-8.89	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 Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	99.8077	13.35	10.85	24.20	43.50	-19.30	peak		
2 *	132.6230	22.99	13.78	36.77	43.50	-6.73	peak		
3	143.4601	22.09	14.56	36.65	43.50	-6.85	peak		
4	230.2599	17.35	12.32	29.67	46.00	-16.33	peak		
5	480.1907	18.90	17.95	36.85	46.00	-9.15	peak		
6	801.0369	11.40	22.92	34.32	46.00	-11.68	peak		

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

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

Remark: All modes have been tested, and only worst data of b mode, Channel 2412MHz was listed in this report.

From 1G-25GHz

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	44.76	V	33.95	10.18	34.26	54.63	74	-19.37	PK
4824	36.66	V	33.95	10.18	34.26	46.53	54	-7.47	AV
7236	/	/	/	/	/	/	/	/	/
9648	/	/	/	/	/	/	/	/	/
4824	44.24	H	33.95	10.18	34.26	54.11	74	-19.89	PK
4824	34.83	H	33.95	10.18	34.26	44.70	54	-9.30	AV
7236	/	/	/	/	/	/	/	/	/
9648	/	/	/	/	/	/	/	/	/
Test Mode: IEEE 802.11b TX Mid									
4874	45.45	V	33.93	10.2	34.29	55.29	74	-18.71	PK
4874	31.47	V	33.93	10.2	34.29	41.31	54	-12.69	AV
7311	/	/	/	/	/	/	/	/	/
9748	/	/	/	/	/	/	/	/	/
4874	47.64	H	33.93	10.2	34.29	57.48	74	-16.52	PK
4874	32.74	H	33.93	10.2	34.29	42.58	54	-11.42	AV
7311	/	/	/	/	/	/	/	/	/
9748	/	/	/	/	/	/	/	/	/
Test Mode: IEEE 802.11b TX High									
4924	45.39	V	33.98	10.22	34.25	55.34	74	-18.66	PK
4924	37.50	V	33.98	10.22	34.25	47.45	54	-6.55	AV
7386	/	/	/	/	/	/	/	/	/
9848	/	/	/	/	/	/	/	/	/
4924	48.25	H	33.98	10.22	34.25	58.20	74	-15.80	PK
4924	35.61	H	33.98	10.22	34.25	45.56	54	-8.44	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.

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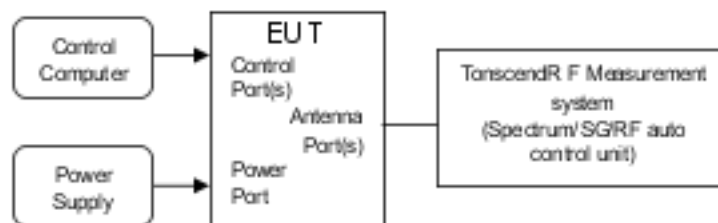
Note:

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.

4. RF CONDUCTED SPURIOUS EMISSIONS

4.1. Block diagram of test setup



4.2. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20dB.

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

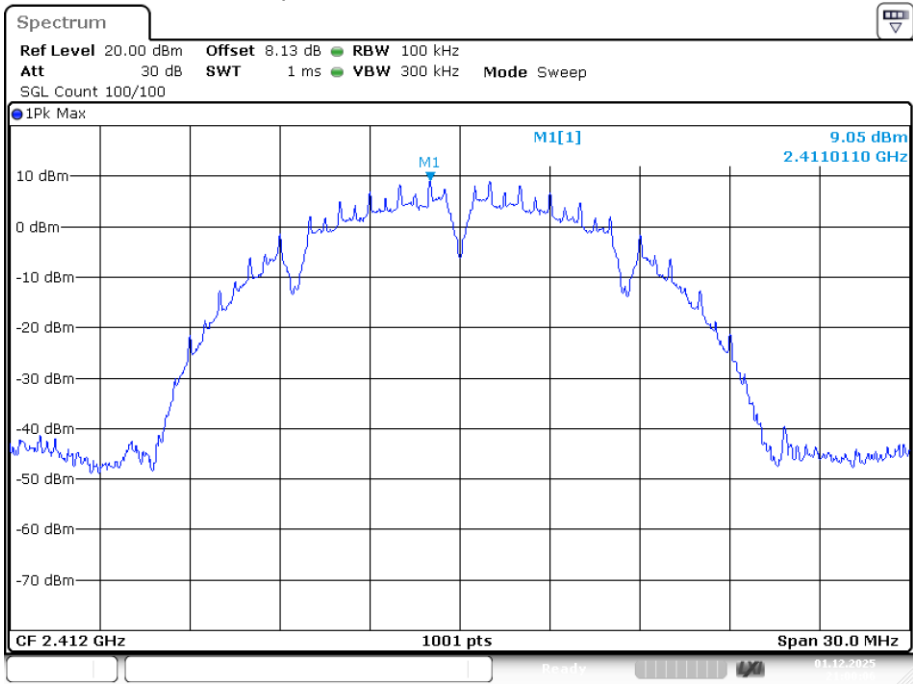
4.3. Test procedure

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz. The detector is set to Peak. The trace mode is max hold.

4.4. Test result

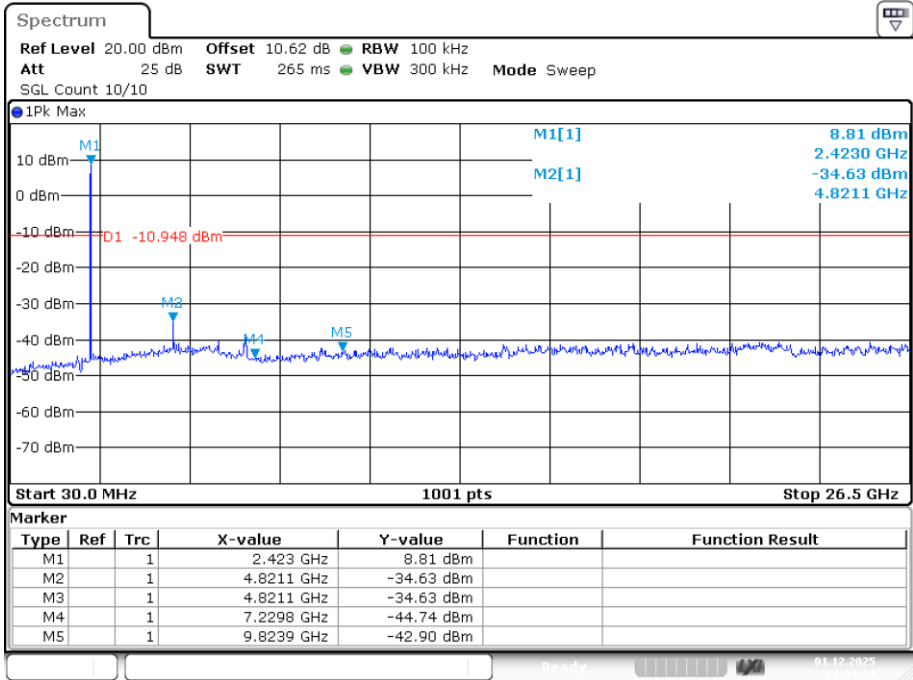
PASS

Tx. Spurious NVNT b 2412MHz Ant1 Ref



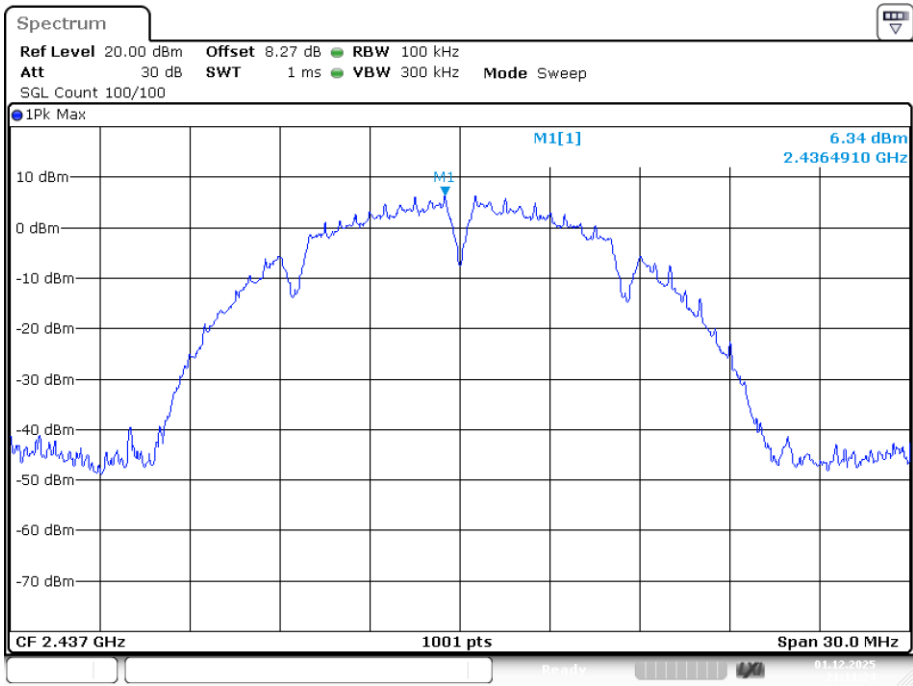
Date: 1.DEC.2025 21:00:06

Tx. Spurious NVNT b 2412MHz Ant1 Emission



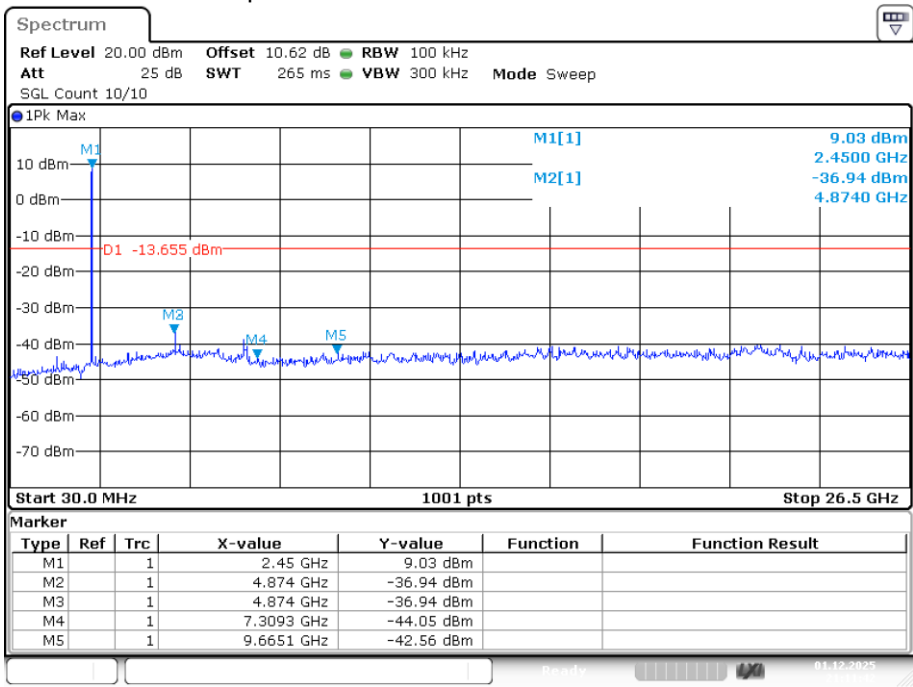
Date: 1.DEC.2025 21:00:23

Tx. Spurious NVNT b 2437MHz Ant1 Ref



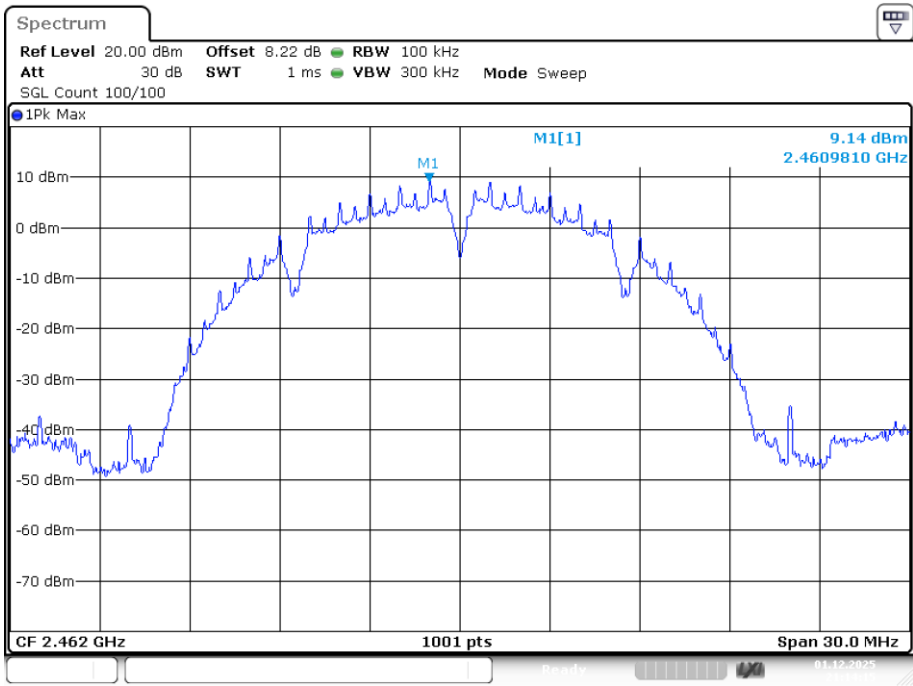
Date: 1.DECEMBER 2025 21:11:24

Tx. Spurious NVNT b 2437MHz Ant1 Emission



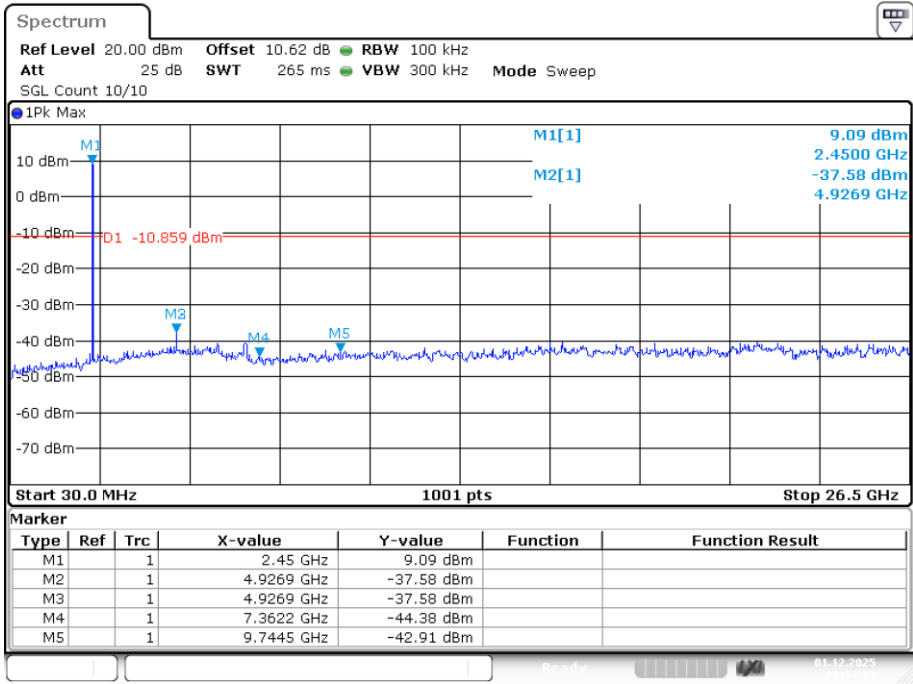
Date: 1.DECEMBER 2025 21:11:42

Tx. Spurious NVNT b 2462MHz Ant1 Ref



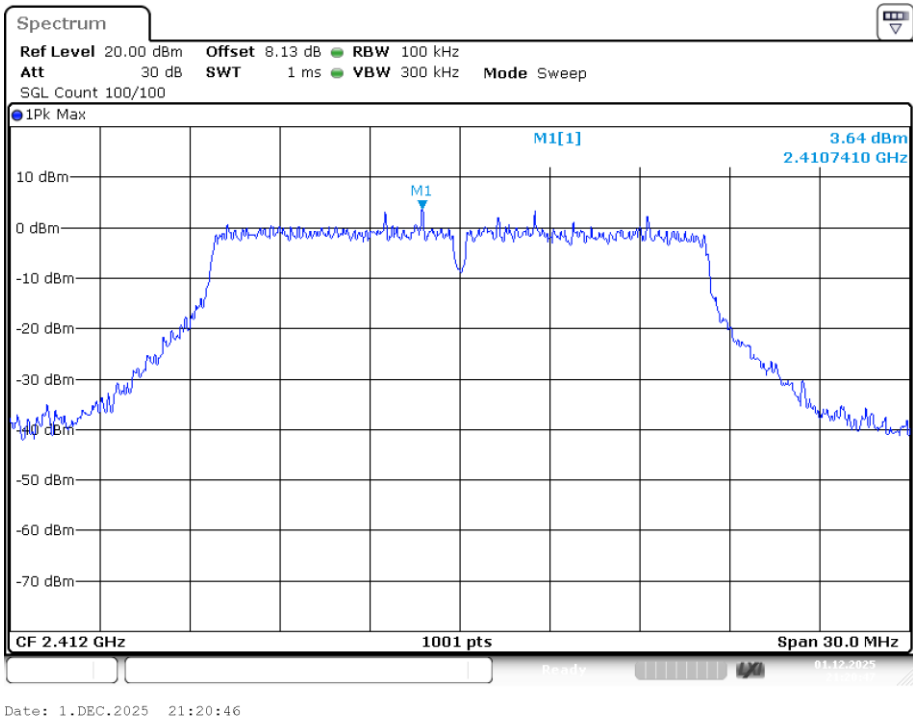
Date: 1.DEC.2025 21:14:15

Tx. Spurious NVNT b 2462MHz Ant1 Emission

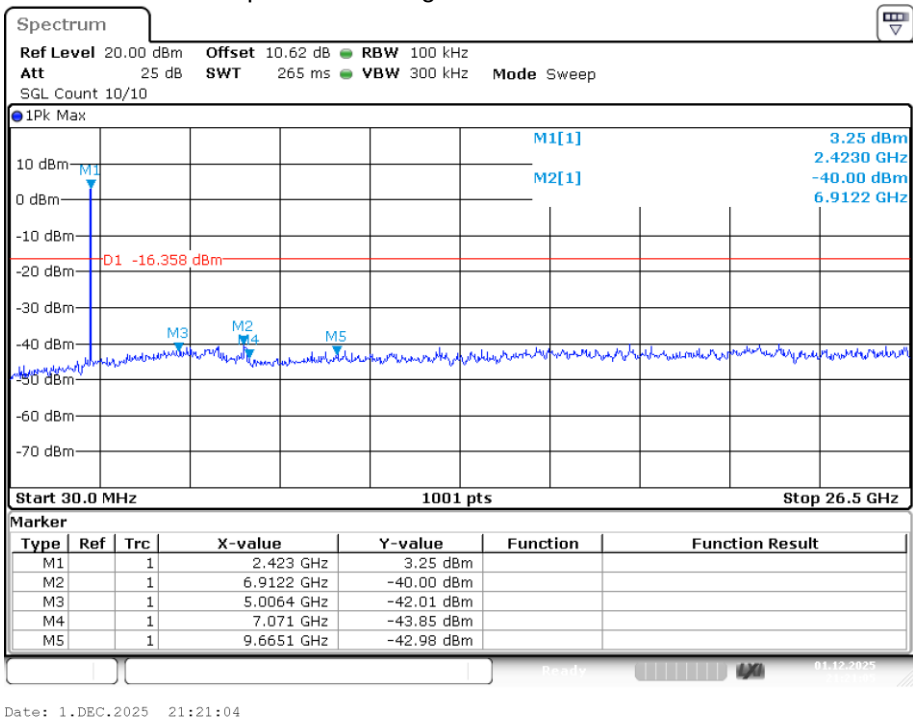


Date: 1.DEC.2025 21:14:33

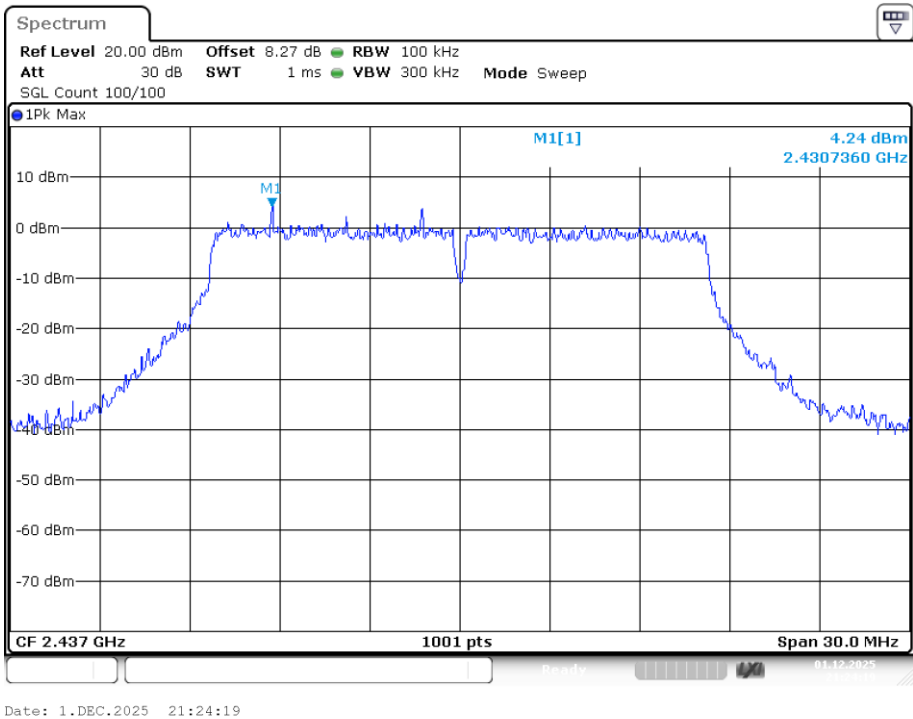
Tx. Spurious NVNT g 2412MHz Ant1 Ref



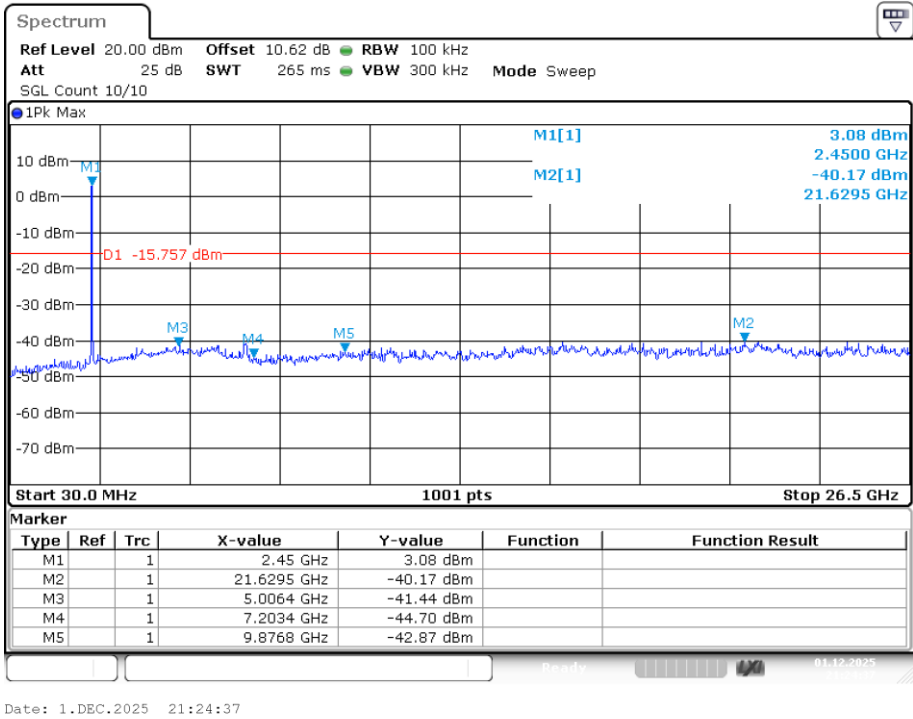
Tx. Spurious NVNT g 2412MHz Ant1 Emission



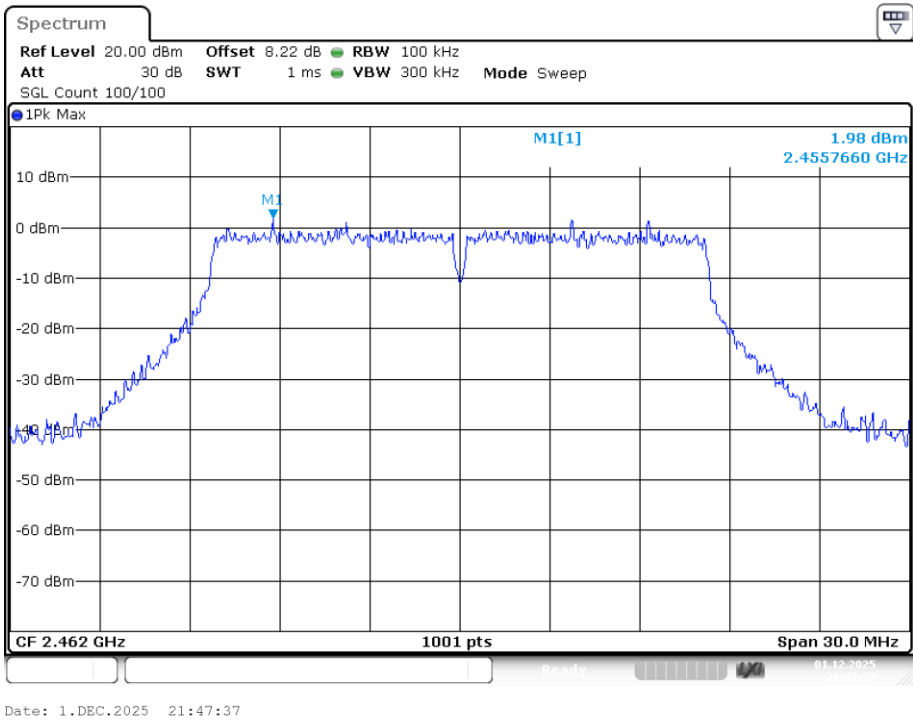
Tx. Spurious NVNT g 2437MHz Ant1 Ref



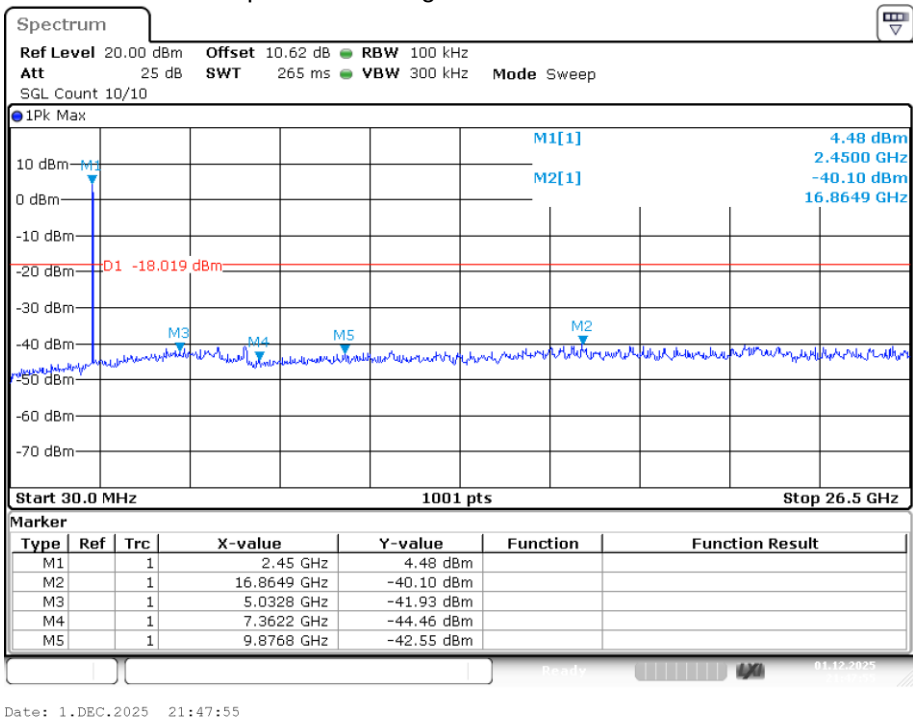
Tx. Spurious NVNT g 2437MHz Ant1 Emission



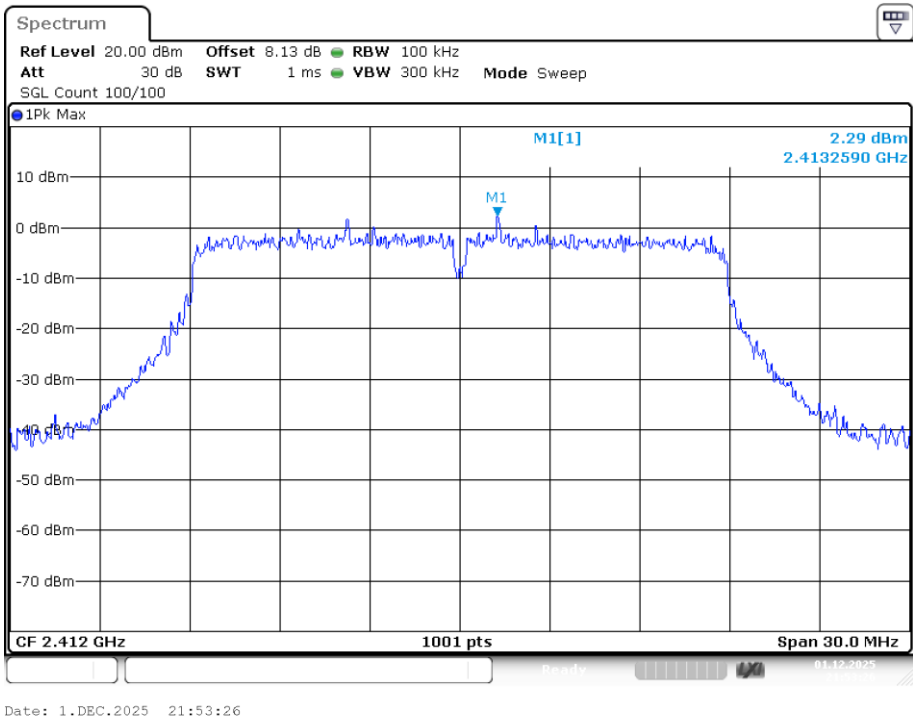
Tx. Spurious NVNT g 2462MHz Ant1 Ref



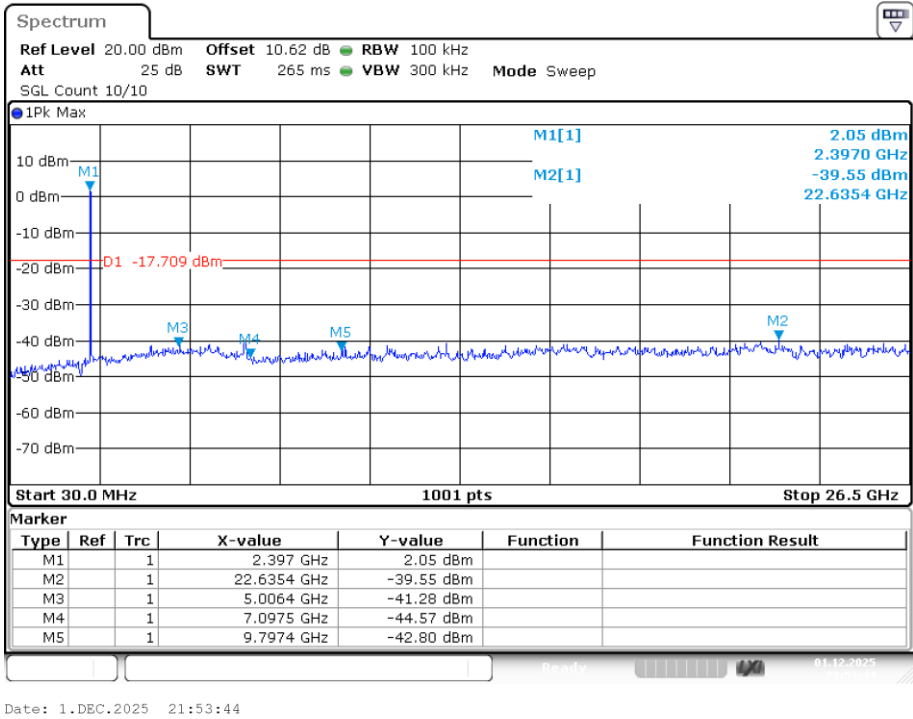
Tx. Spurious NVNT g 2462MHz Ant1 Emission



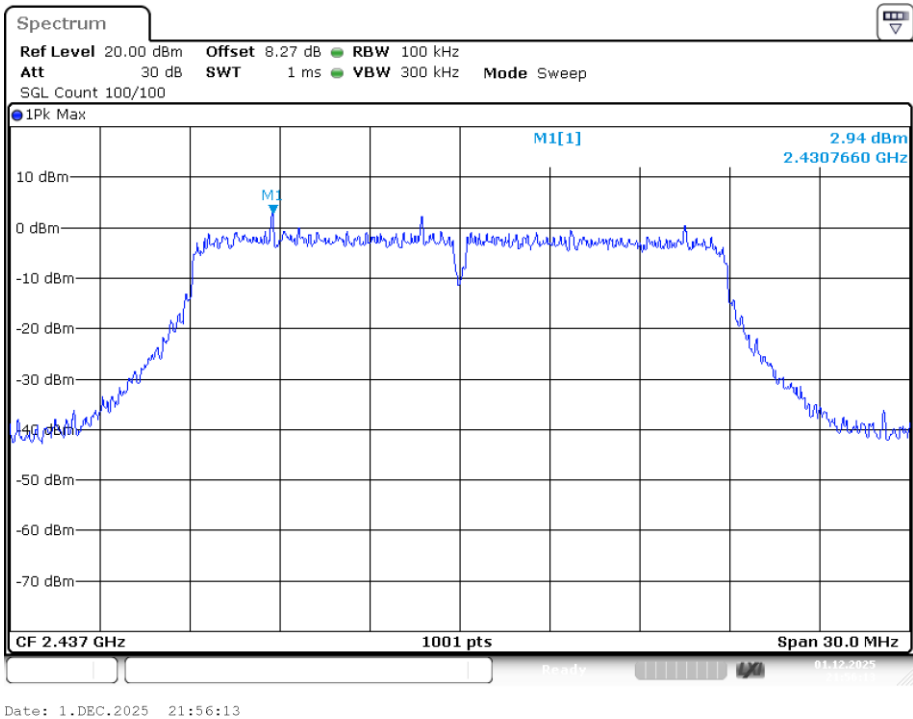
Tx. Spurious NVNT n20 2412MHz Ant1 Ref



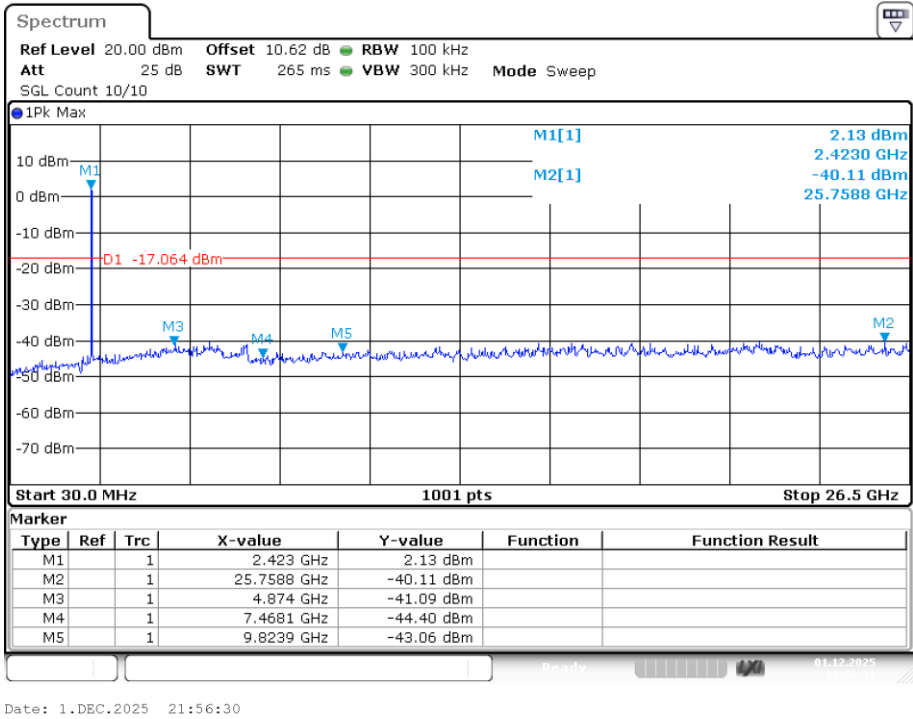
Tx. Spurious NVNT n20 2412MHz Ant1 Emission



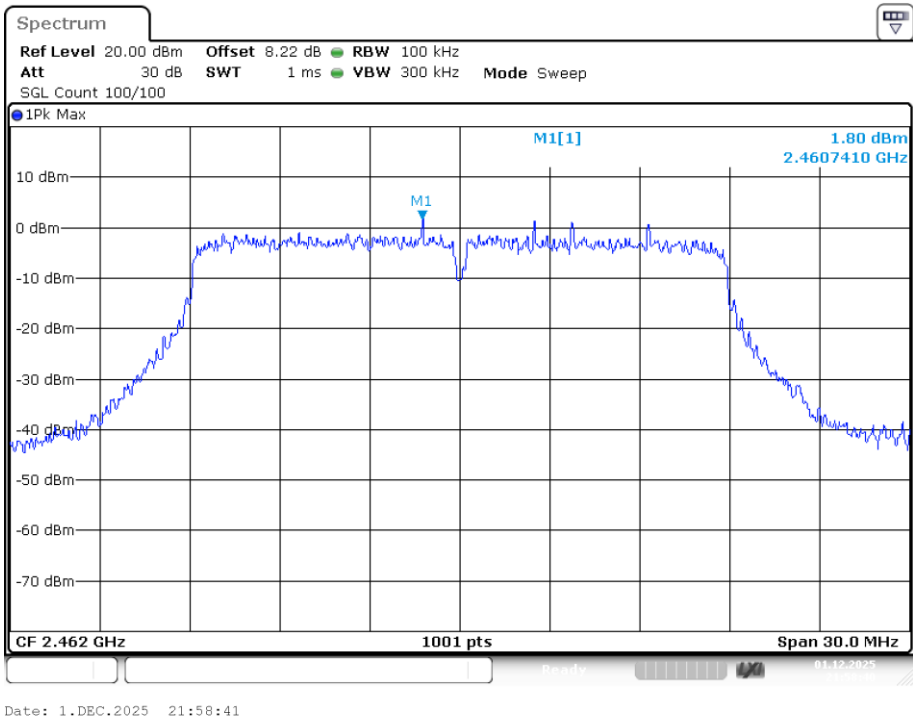
Tx. Spurious NVNT n20 2437MHz Ant1 Ref



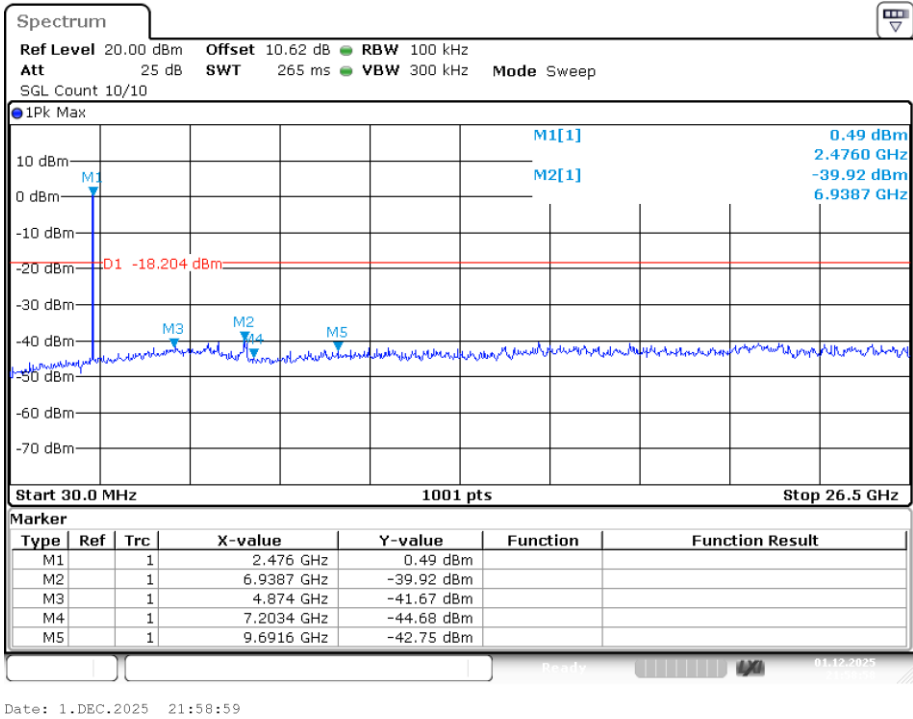
Tx. Spurious NVNT n20 2437MHz Ant1 Emission



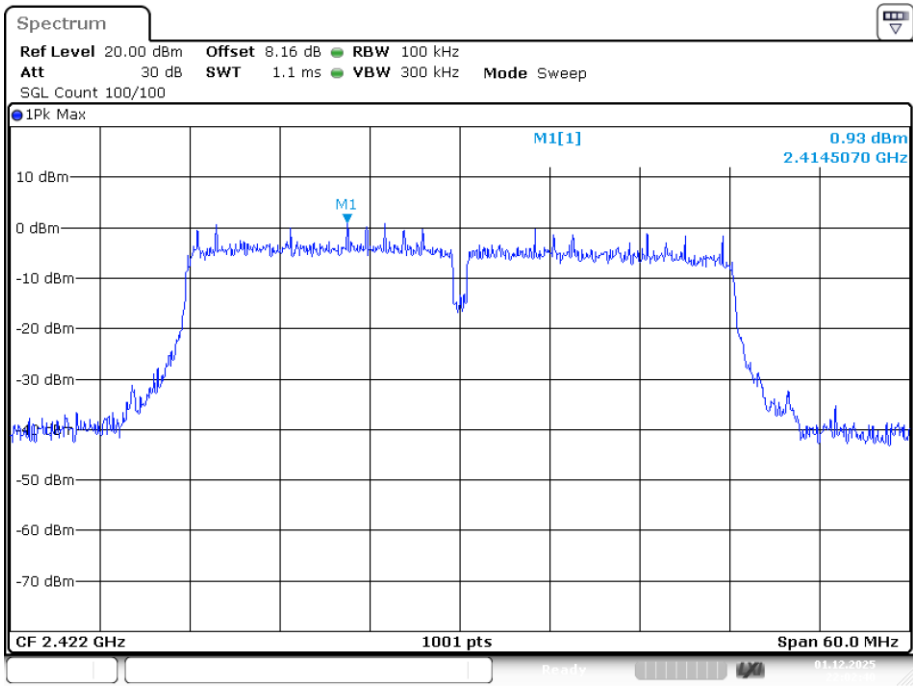
Tx. Spurious NVNT n20 2462MHz Ant1 Ref



Tx. Spurious NVNT n20 2462MHz Ant1 Emission

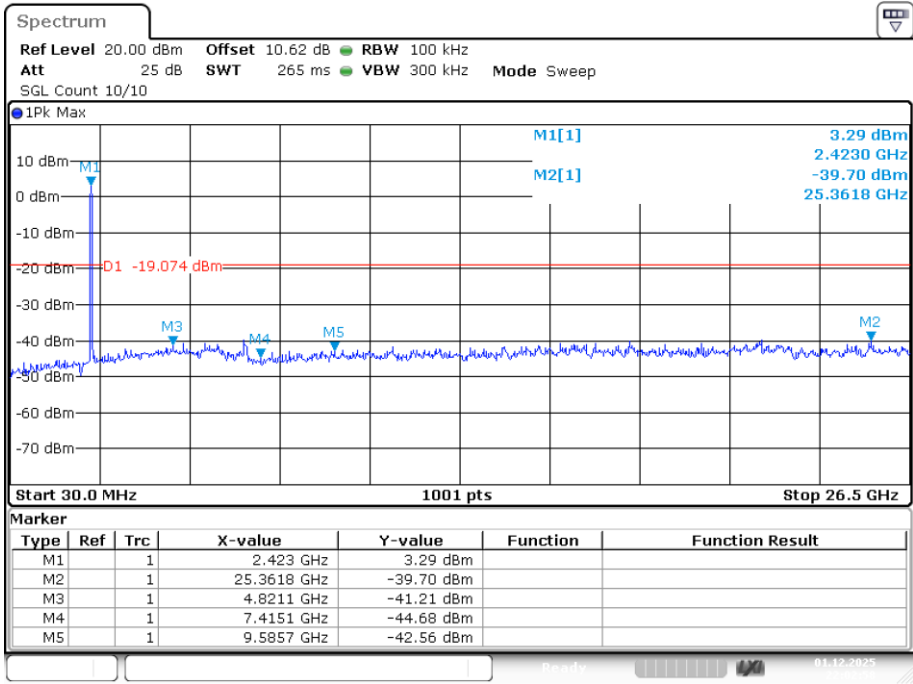


Tx. Spurious NVNT n40 2422MHz Ant1 Ref



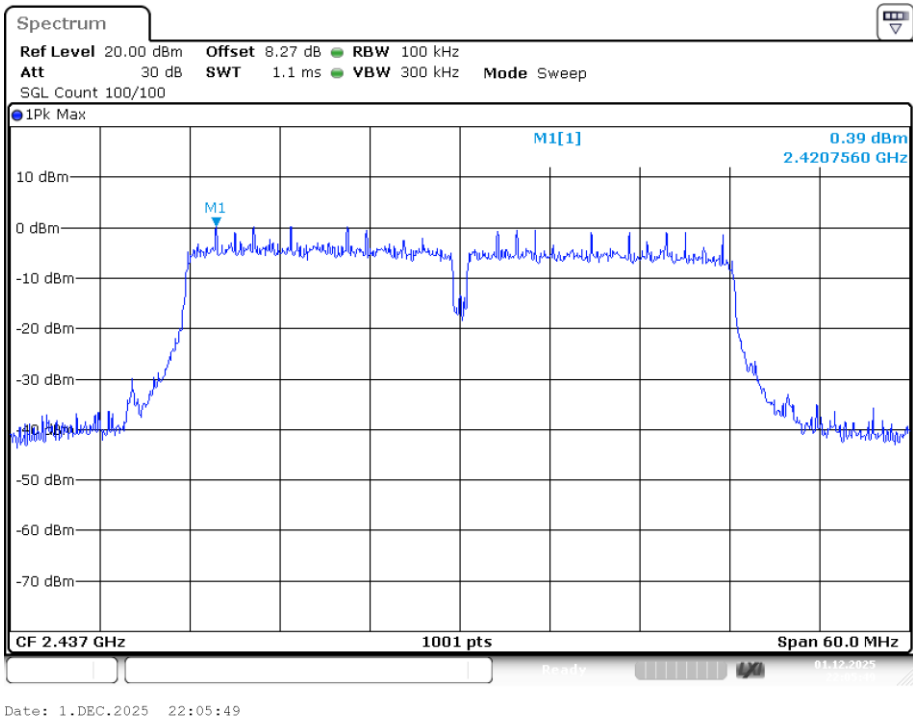
Date: 1.DEC.2025 22:02:40

Tx. Spurious NVNT n40 2422MHz Ant1 Emission

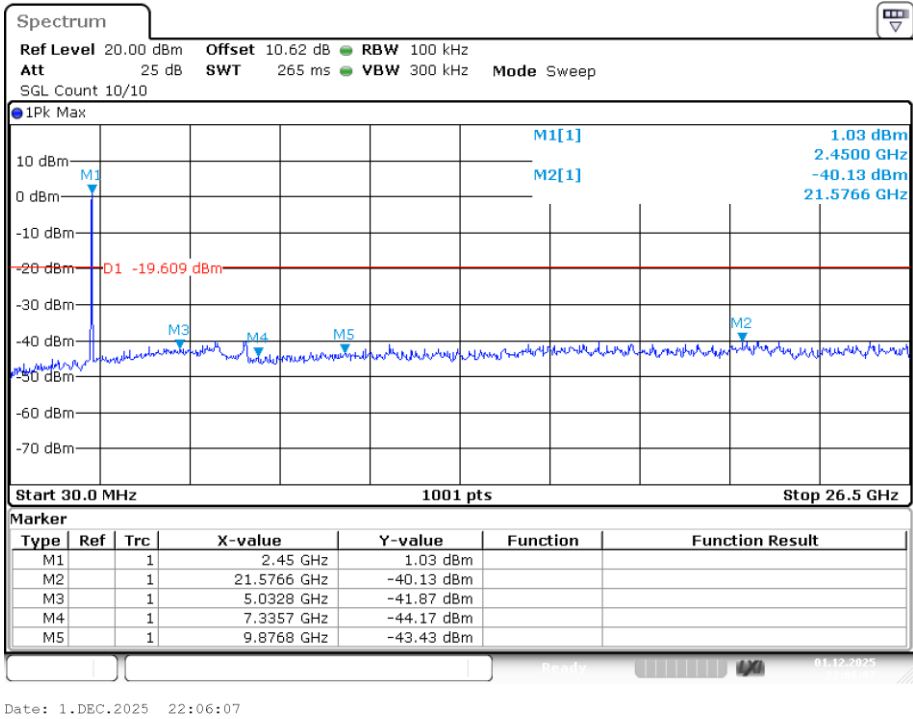


Date: 1.DEC.2025 22:02:58

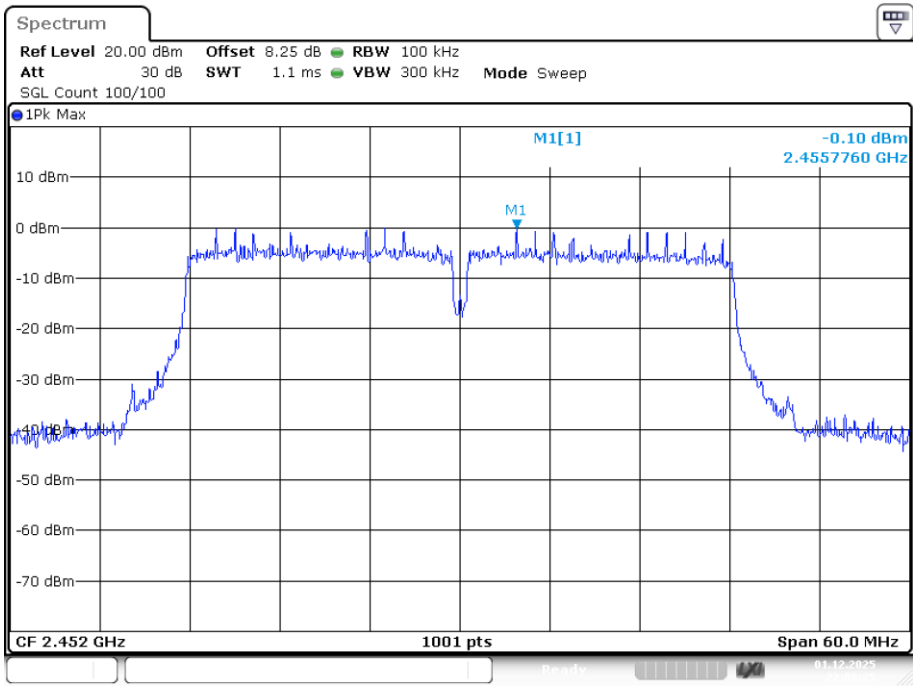
Tx. Spurious NVNT n40 2437MHz Ant1 Ref



Tx. Spurious NVNT n40 2437MHz Ant1 Emission

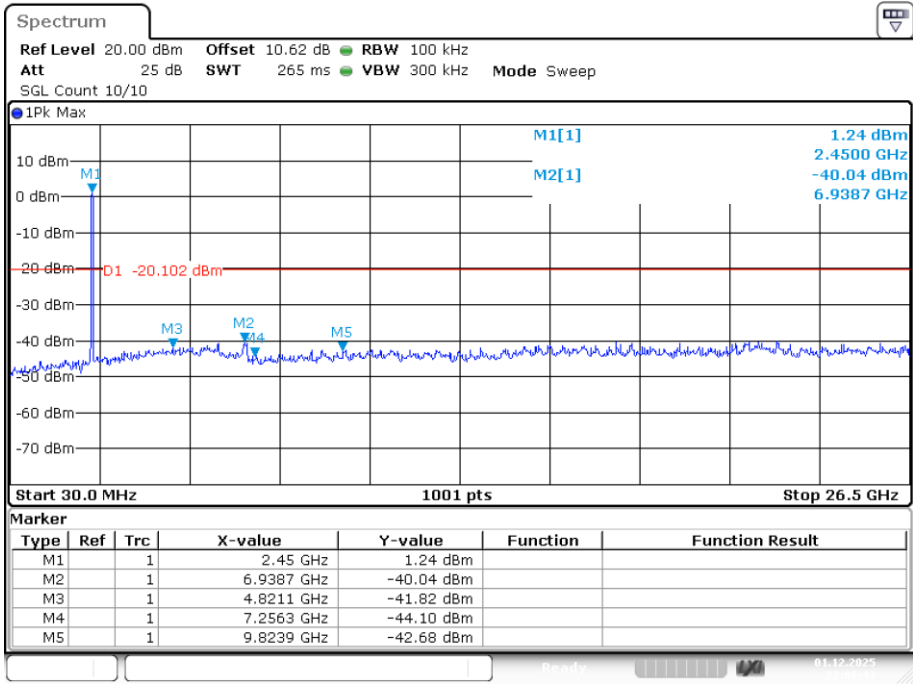


Tx. Spurious NVNT n40 2452MHz Ant1 Ref



Date: 1.DEC.2025 22:08:25

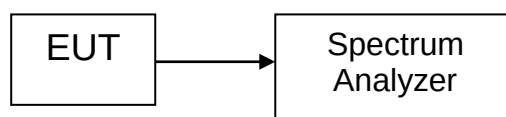
Tx. Spurious NVNT n40 2452MHz Ant1 Emission



Date: 1.DEC.2025 22:08:43

5. DUTY CYCLE

5.1. Block diagram of test setup



5.2. Test Procedure

Details see the ANSI C63.10-2020

5.2.1 A diode detector and an oscilloscope that together have a sufficiently short response time to permit accurate measurements of the ON and OFF times of the transmitted signal.

5.2.2 The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:

- a) Set the center frequency of the instrument to the center frequency of the transmission.
- b) Set RBW $\geq$ OBW if possible; otherwise, set RBW to the largest available value.
- c) Set VBW $\geq$ RBW. Set detector = peak or average.
- d) The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$ and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if $T \leq 16.7$ us.)

5.3. Test Results

Pass

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)
NVNT	b	2412	Ant1	99.53	0.02
NVNT	b	2437	Ant1	99.53	0.02
NVNT	b	2462	Ant1	99.07	0.04
NVNT	g	2412	Ant1	96.61	0.15
NVNT	g	2437	Ant1	95.89	0.18
NVNT	g	2462	Ant1	90.91	0.41
NVNT	n20	2412	Ant1	97.06	0.13
NVNT	n20	2437	Ant1	87.84	0.56
NVNT	n20	2462	Ant1	94.29	0.26
NVNT	n40	2422	Ant1	90.28	0.44
NVNT	n40	2437	Ant1	81.25	0.9
NVNT	n40	2452	Ant1	81.25	0.9

6. MAXIMUM CONDUCTED OUTPUT POWER

6.1. Test limits

Please refer FCC PART 15: 15.247.

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

6.2. Test Procedure

Details see the ANSI C63.10-2020

6.2.1 Measure the duty cycle D of the transmitter output signal.

6.2.2 Set span to >1.5 times the OBW.

6.2.3 Set RBW = 1% to 5% of the OBW, but do not exceed 1 MHz.

6.2.4 Set VBW $\geq$ [3 * RBW].

6.2.5 Number of points in sweep $\geq$ [2 * span / RBW].

6.2.6 Sweep time = auto.

6.2.7 Detector = power averaging (rms).

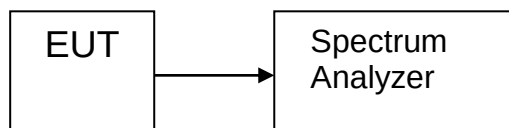
6.2.8 If transmit duty cycle < 98%, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at the maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no OFF intervals) or at duty cycle $\geq$ 98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run.”

6.2.9 Trace average at least 100 traces in power averaging (rms) mode.

6.2.10 Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with band limits set equal to the OBW band-edges. If the instrument does not have a band-power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

6.2.11 Add [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

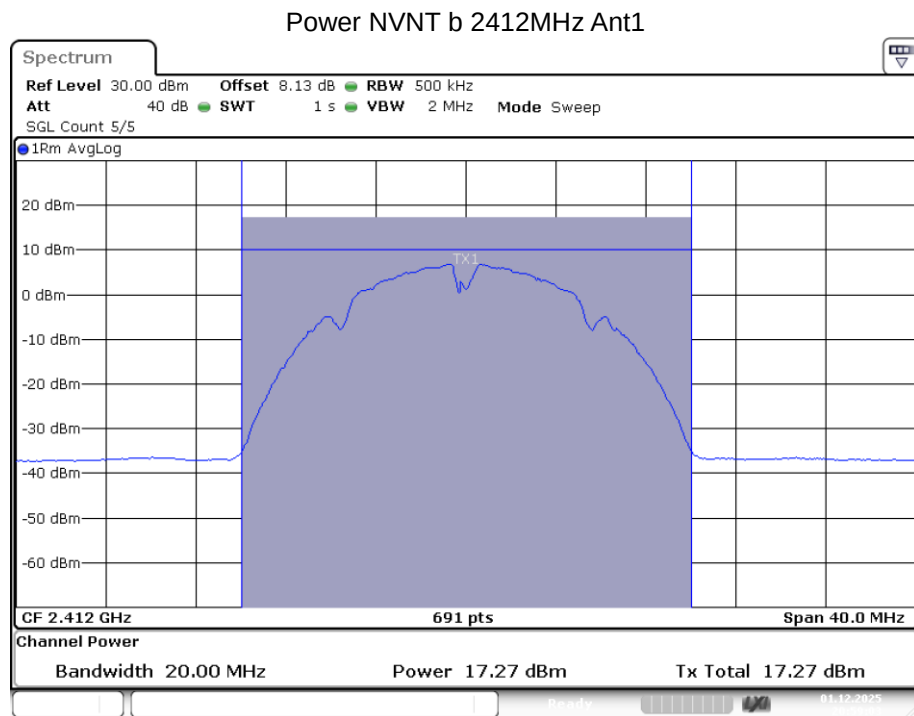
6.3. Test Setup



6.4. Test Results

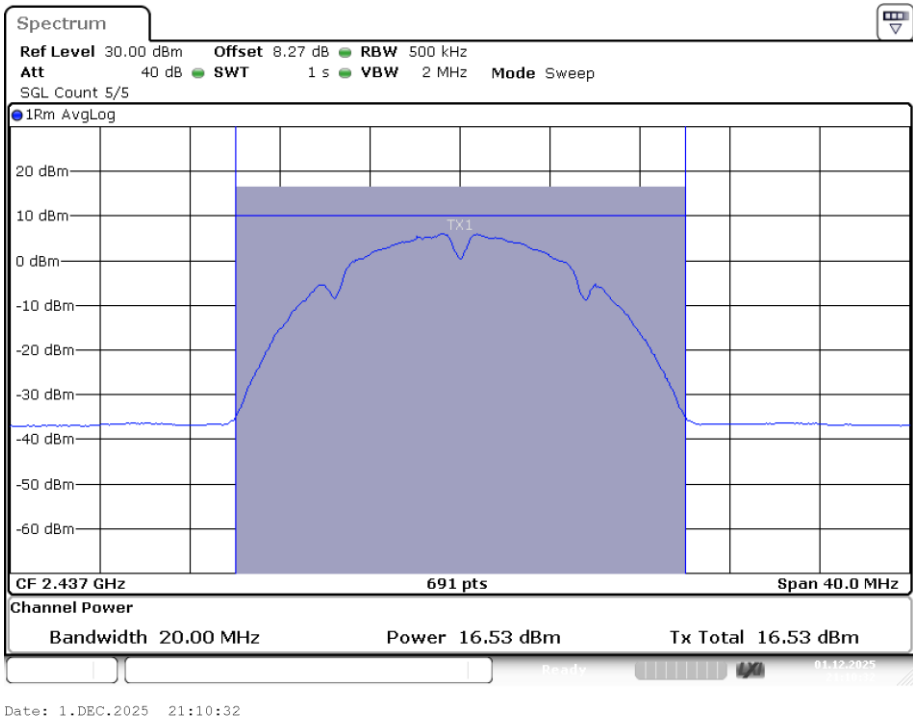
PASS

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	17.272	30	Pass
NVNT	b	2437	Ant1	16.529	30	Pass
NVNT	b	2462	Ant1	17.516	30	Pass
NVNT	g	2412	Ant1	14.886	30	Pass
NVNT	g	2437	Ant1	15.174	30	Pass
NVNT	g	2462	Ant1	14.274	30	Pass
NVNT	n20	2412	Ant1	13.744	30	Pass
NVNT	n20	2437	Ant1	13.846	30	Pass
NVNT	n20	2462	Ant1	13.413	30	Pass
NVNT	n40	2422	Ant1	14.018	30	Pass
NVNT	n40	2437	Ant1	13.848	30	Pass
NVNT	n40	2452	Ant1	13.623	30	Pass

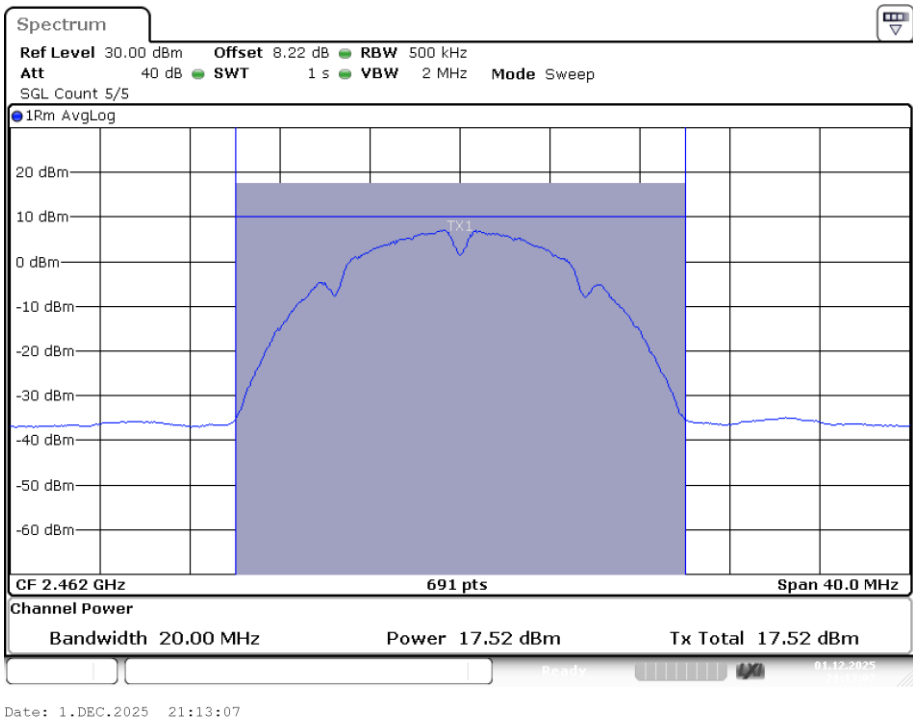


Date: 1.DEC.2025 20:59:03

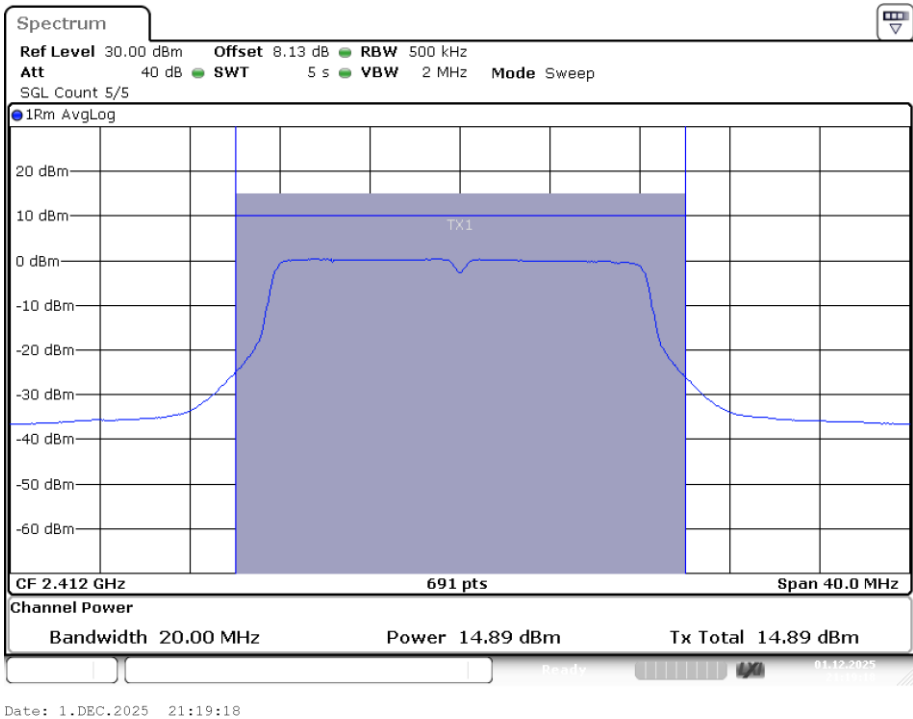
Power NVNT b 2437MHz Ant1



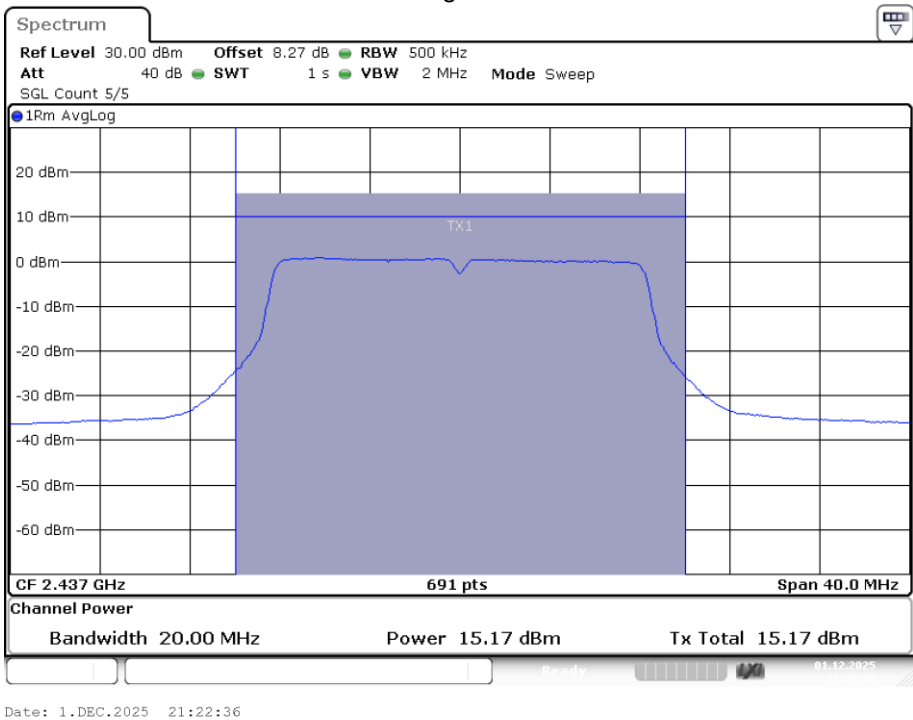
Power NVNT b 2462MHz Ant1



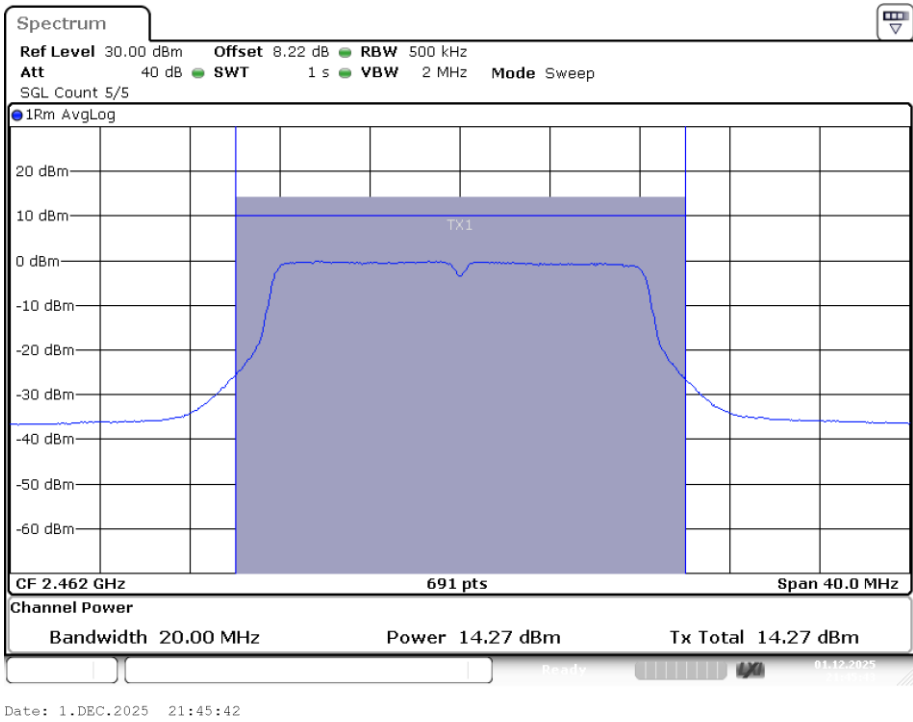
Power NVNT g 2412MHz Ant1



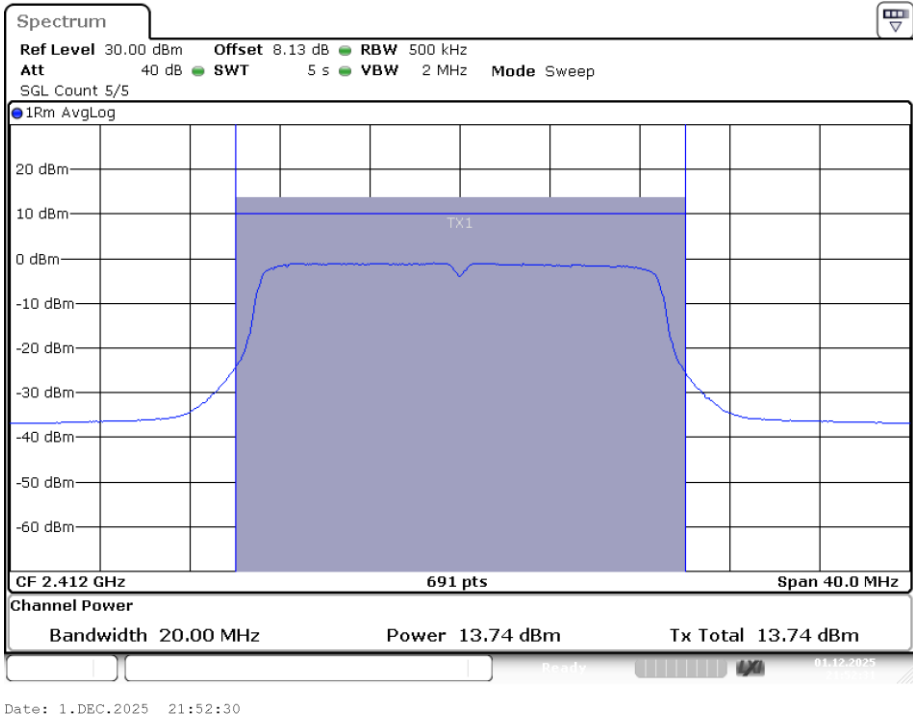
Power NVNT g 2437MHz Ant1



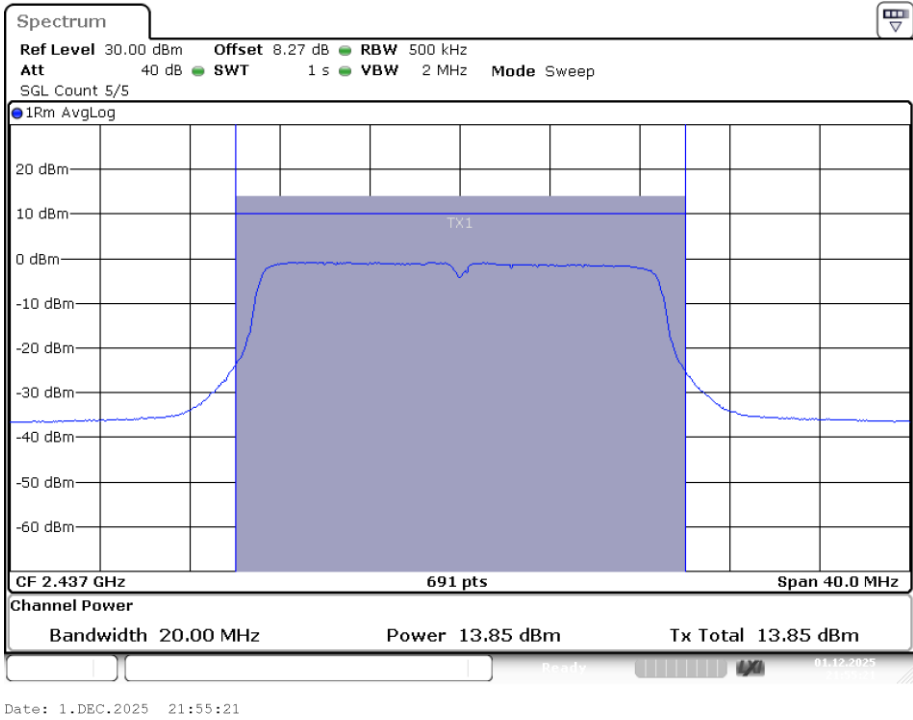
Power NVNT g 2462MHz Ant1



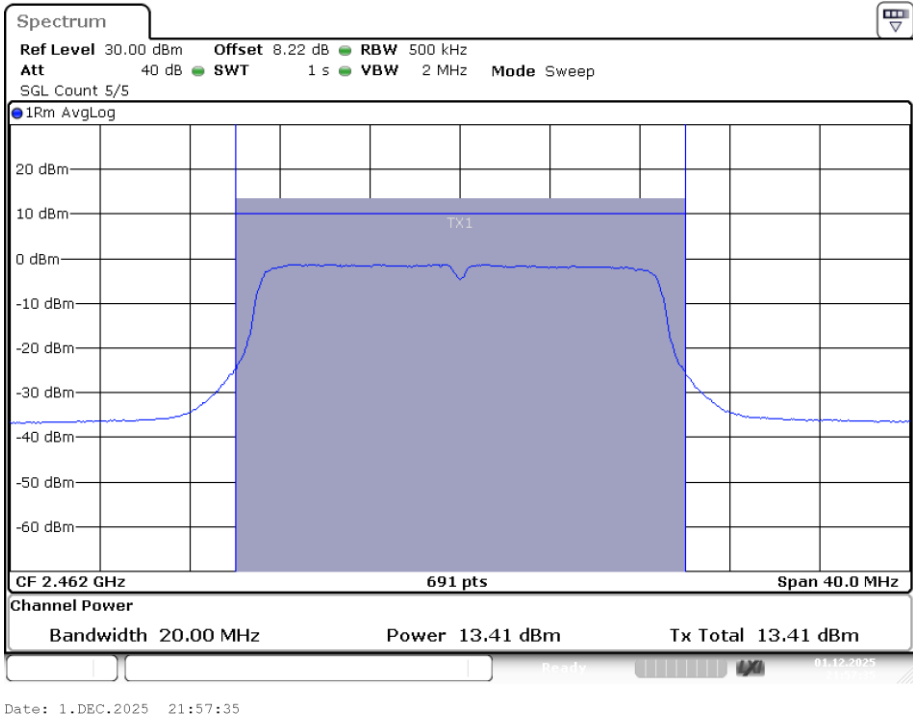
Power NVNT n20 2412MHz Ant1



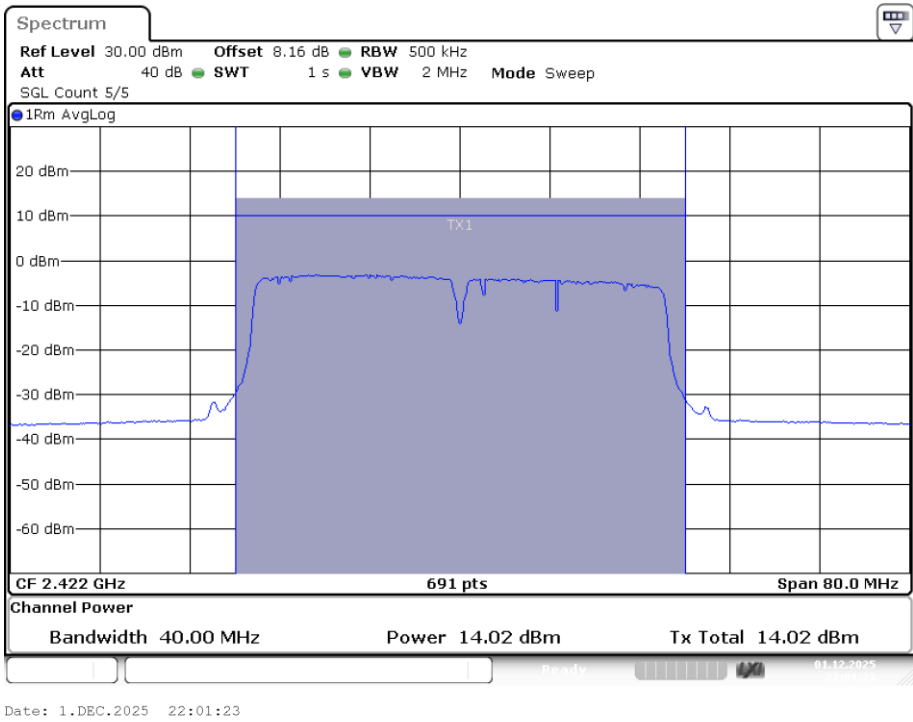
Power NVNT n20 2437MHz Ant1



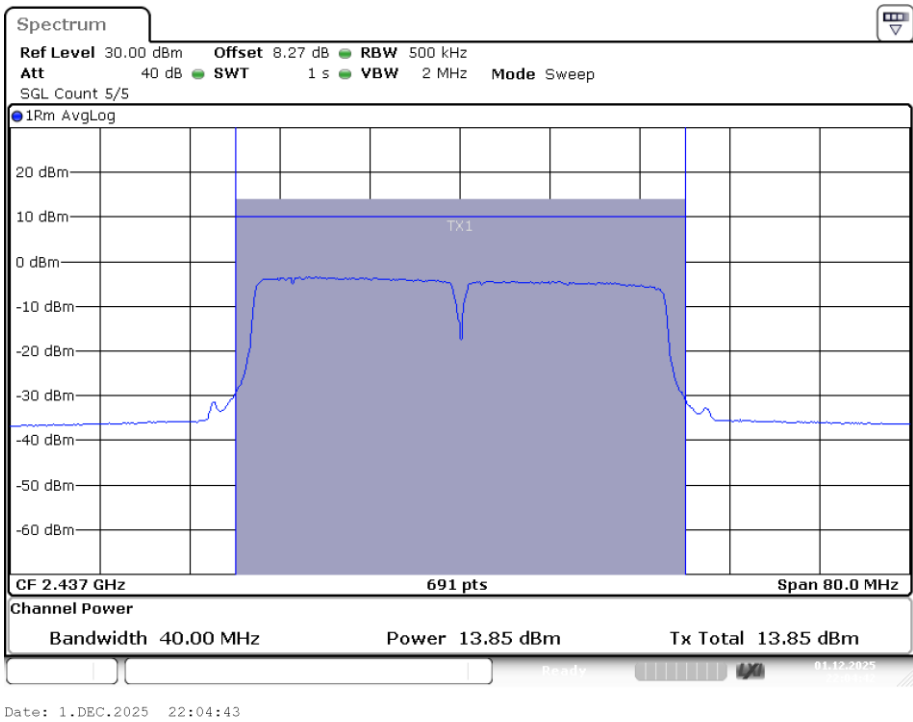
Power NVNT n20 2462MHz Ant1



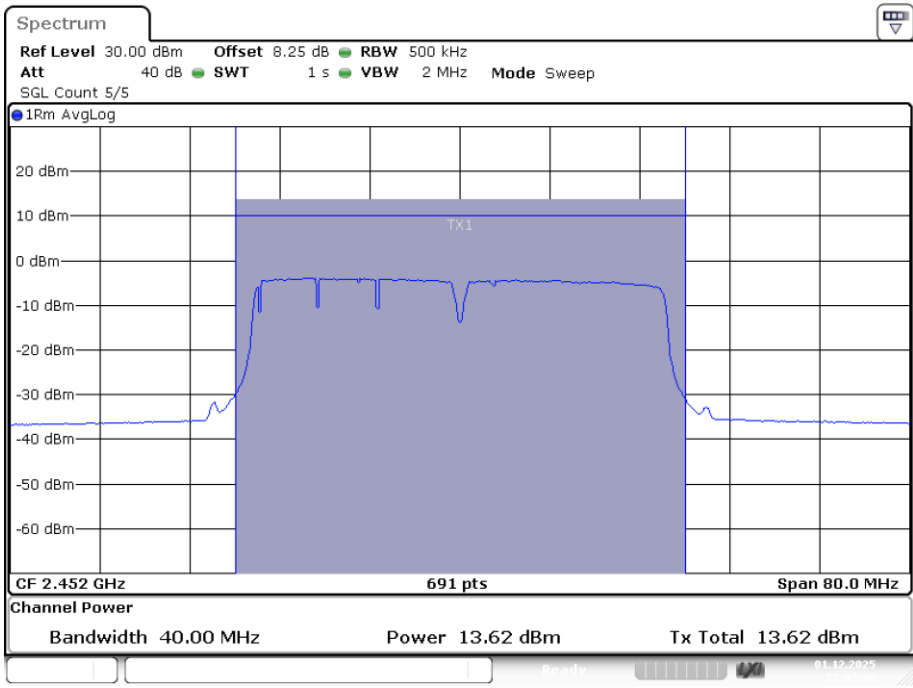
Power NVNT n40 2422MHz Ant1



Power NVNT n40 2437MHz Ant1



Power NVNT n40 2452MHz Ant1



Date: 1.DEC.2025 22:07:08

7. POWER SPECTRAL DENSITY

7.1. Test limits

7.1.1 Please refer FCC PART 15: 15.247.

7.1.2 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.

7.1.3 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.

7.2. Test Procedure

Details see the ANSI C63.10-2020

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

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

7.2.3 Set analyzer center frequency to DTS channel center frequency.

7.2.4 Set span to > 1.5 times the OBW.

7.2.5 Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.

7.2.6 Set VBW $\geq [3 * \text{RBW}]$.

7.2.7 Detector = power averaging (rms)

7.2.8 Ensure that the number of measurement points in the sweep $\geq [2 * \text{span} / \text{RBW}]$.

7.2.9 Sweep time = auto couple.

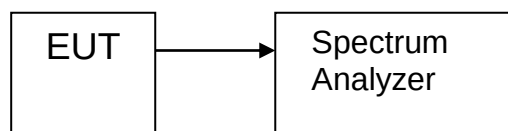
7.2.10 Employ trace averaging (rms) mode over a minimum of 100 traces.

7.2.11 Use the peak marker function to determine the maximum amplitude level.

7.2.12 If the measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat (note that this might require zooming in on the emission of interest and reducing the span to meet the minimum measurement point requirement as the RBW is reduced).

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

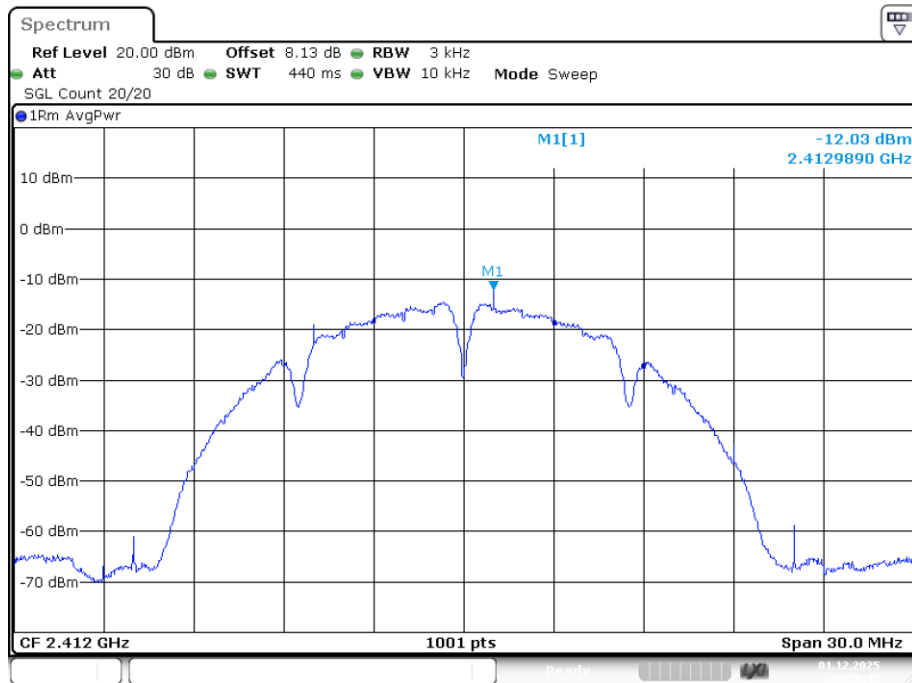
7.3. Test Setup



7.4. Test Results

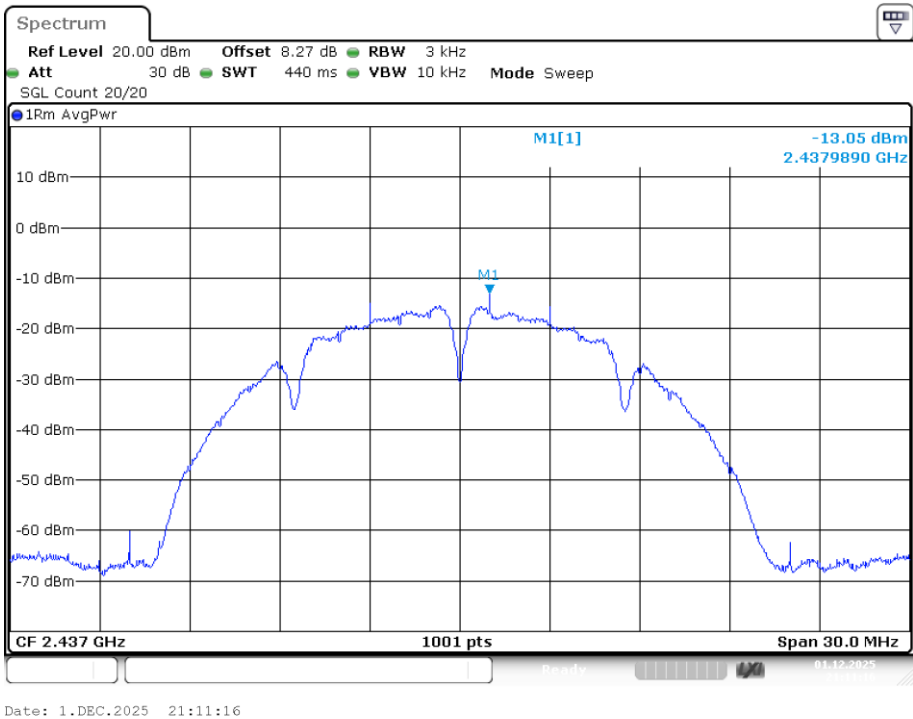
Condition	Mode	Frequency (MHz)	Antenna	Conduct PSD (dBm/3KHz)	Duty Factor (dB)	Total PSD (dBm/3KHz)	Limit (dBm/3KHz)	Verdict
NVNT	b	2412	Ant1	-12.028	0.02	-12.008	8	Pass
NVNT	b	2437	Ant1	-13.05	0.02	-13.03	8	Pass
NVNT	b	2462	Ant1	-14.626	0.04	-14.586	8	Pass
NVNT	g	2412	Ant1	-19.591	0.15	-19.441	8	Pass
NVNT	g	2437	Ant1	-18.96	0.18	-18.78	8	Pass
NVNT	g	2462	Ant1	-20.409	0.41	-19.999	8	Pass
NVNT	n20	2412	Ant1	-20.481	0.13	-20.351	8	Pass
NVNT	n20	2437	Ant1	-20.781	0.56	-20.221	8	Pass
NVNT	n20	2462	Ant1	-21.011	0.26	-20.751	8	Pass
NVNT	n40	2422	Ant1	-23.547	0.44	-23.107	8	Pass
NVNT	n40	2437	Ant1	-23.965	0.9	-23.065	8	Pass
NVNT	n40	2452	Ant1	-24.358	0.9	-23.458	8	Pass

PSD NVNT b 2412MHz Ant1

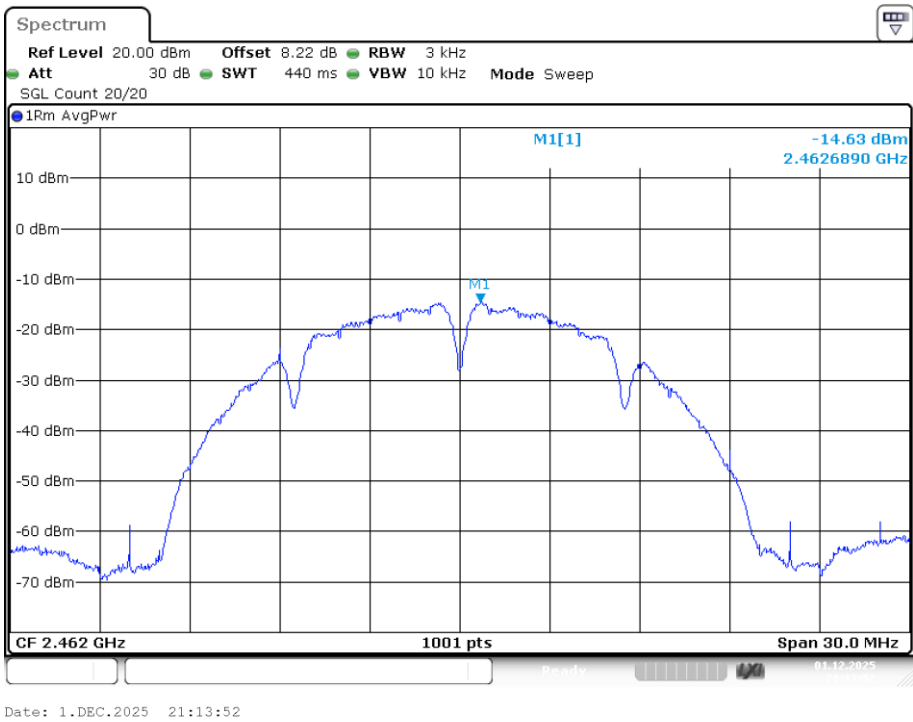


Date: 1.DEC.2025 20:59:46

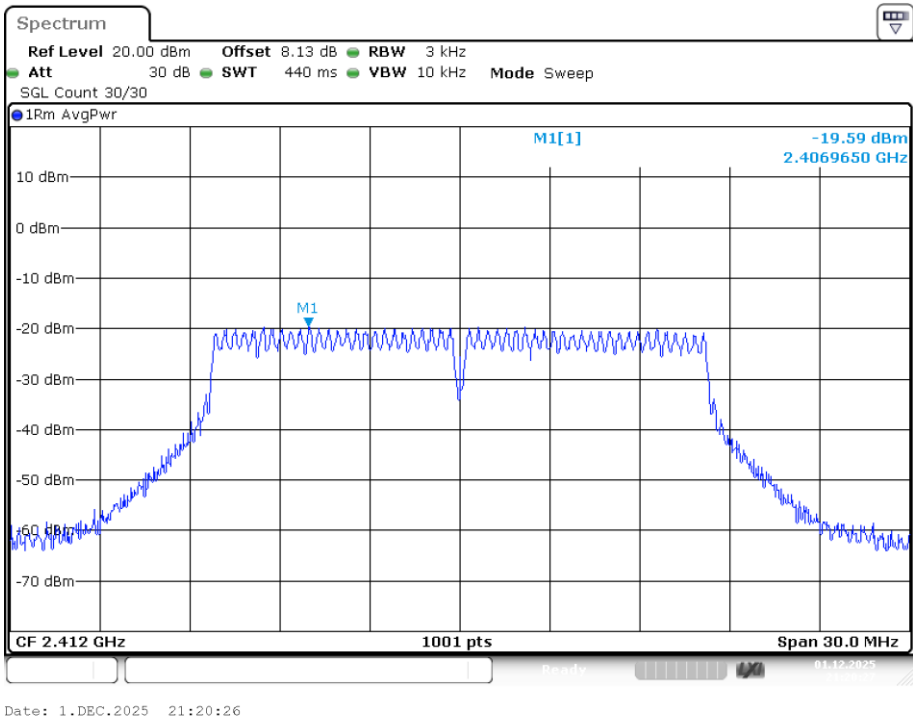
PSD NVNT b 2437MHz Ant1



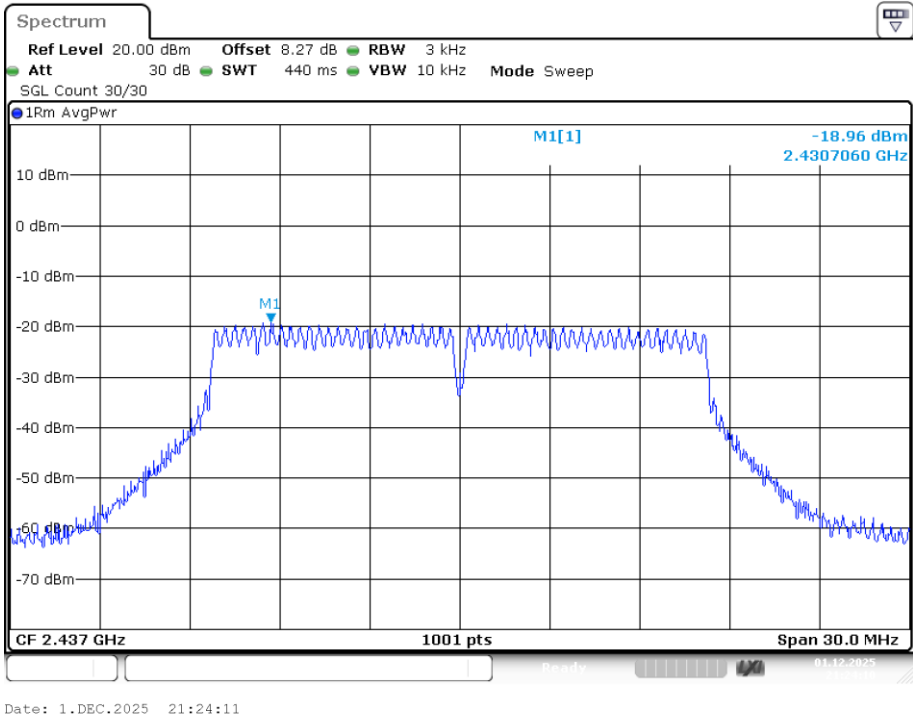
PSD NVNT b 2462MHz Ant1



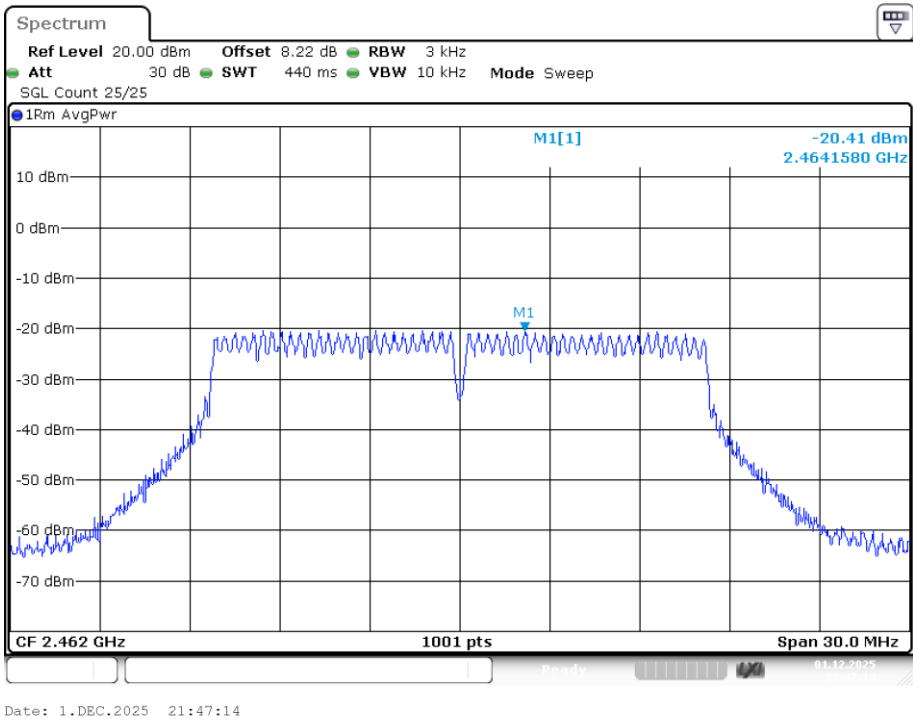
PSD NVNT g 2412MHz Ant1



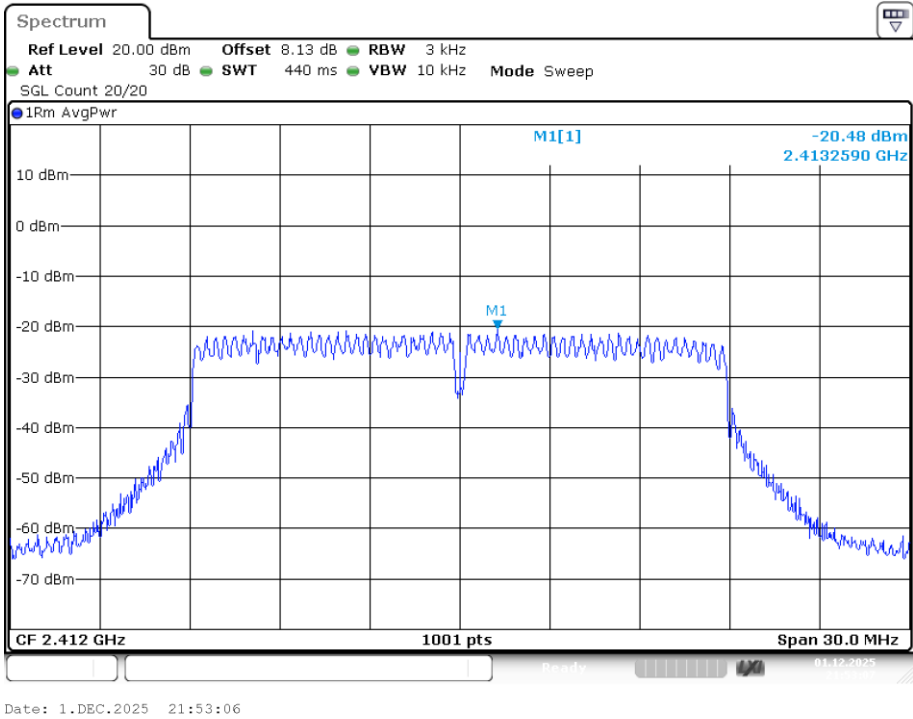
PSD NVNT g 2437MHz Ant1



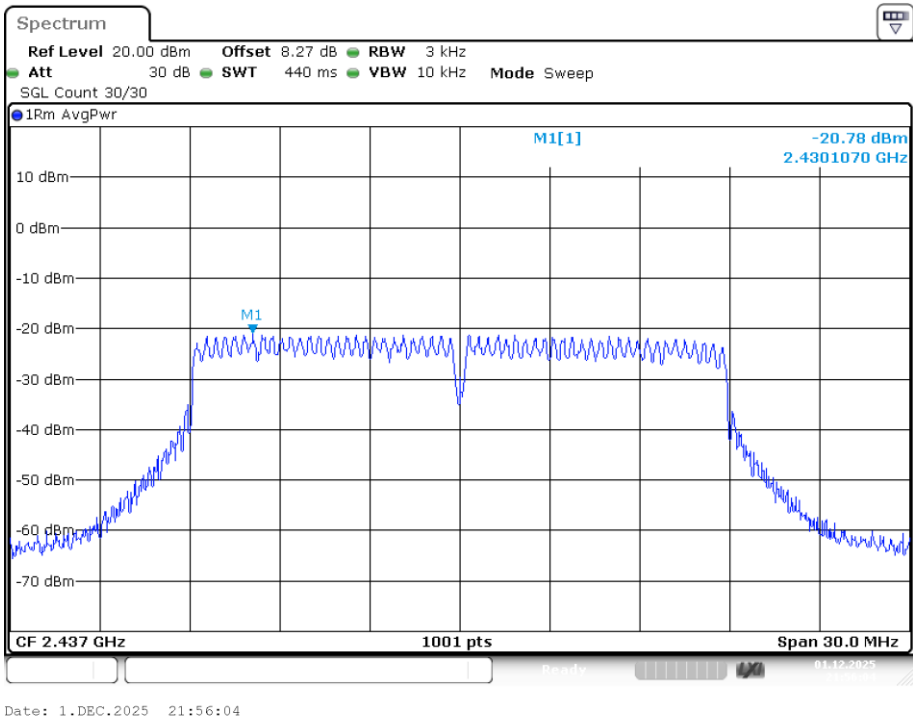
PSD NVNT g 2462MHz Ant1



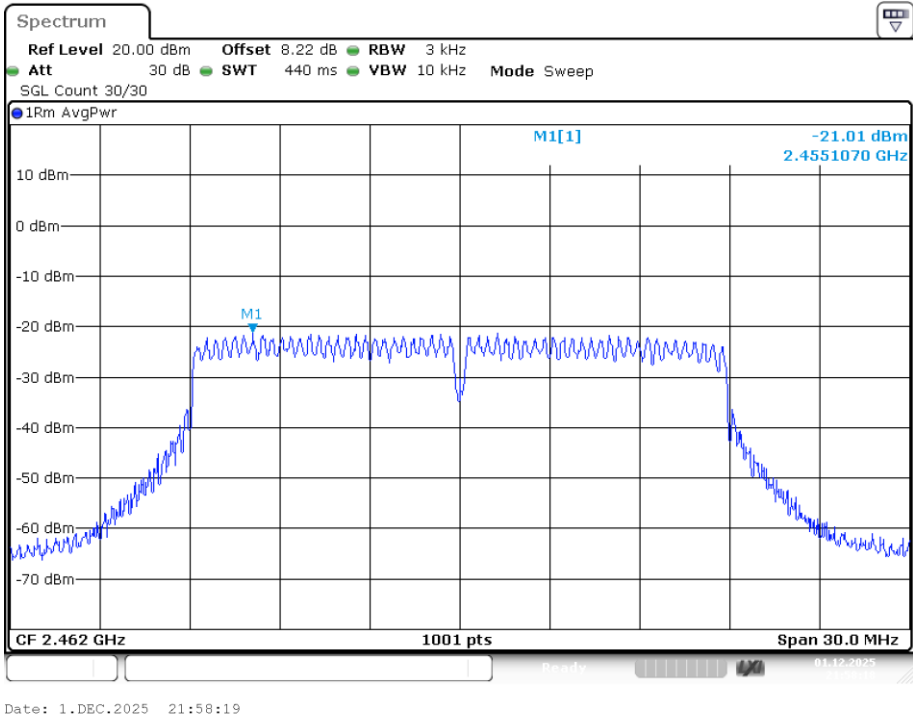
PSD NVNT n20 2412MHz Ant1



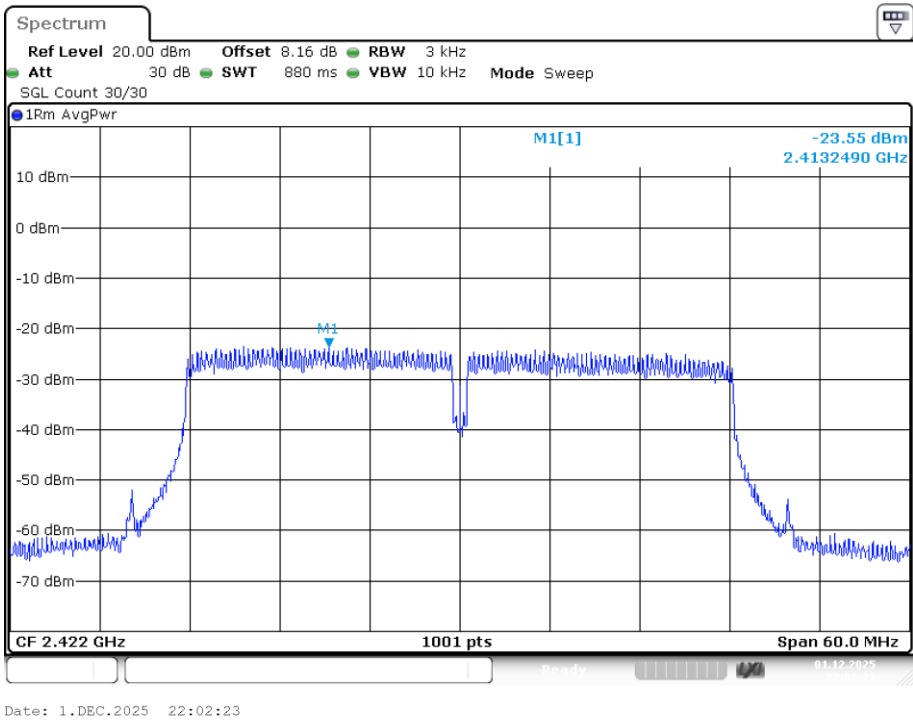
PSD NVNT n20 2437MHz Ant1



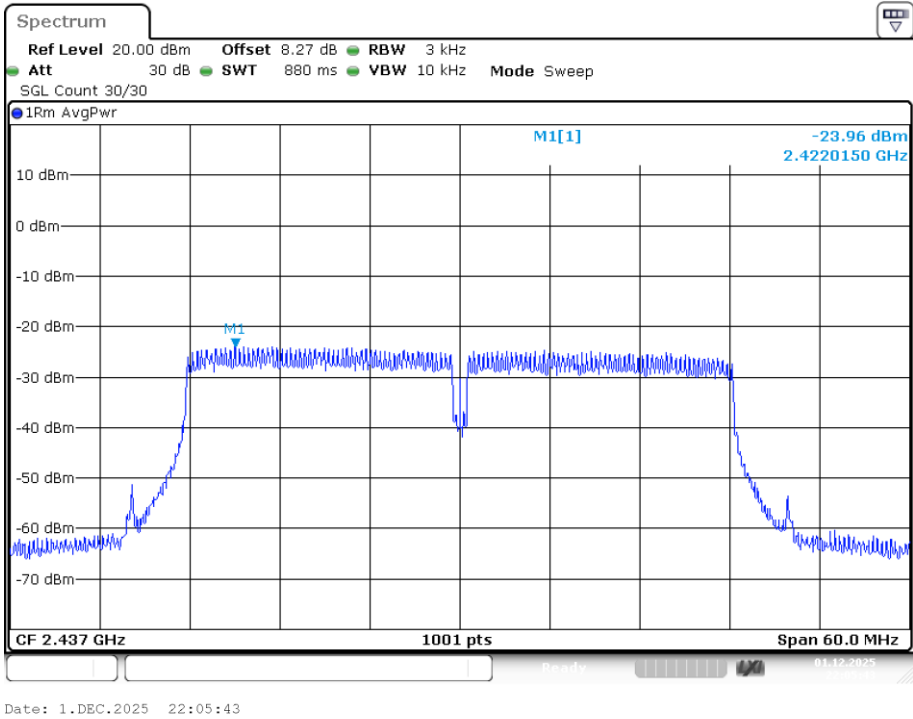
PSD NVNT n20 2462MHz Ant1



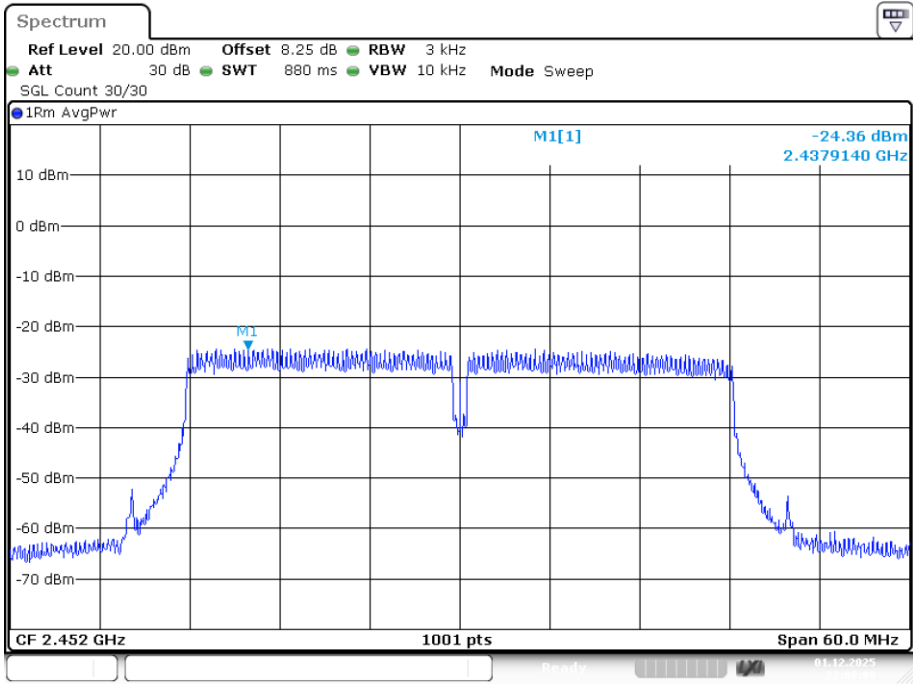
PSD NVNT n40 2422MHz Ant1



PSD NVNT n40 2437MHz Ant1



PSD NVNT n40 2452MHz Ant1



Date: 1.DEC.2025 22:08:08

8. BANDWIDTH

8.1. Test limits

Please refer FCC PART 15: 15.247

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500 kHz.

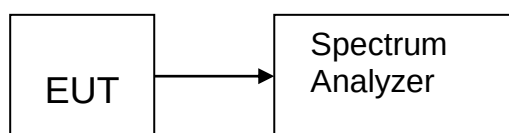
8.2. Test Procedure

Details see the ANSI C63.10-2020

a) The bandwidth is measured at an amplitude level reduced 6dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

b) The test receiver set RBW =1-5%BW, VBW $\geq$ 3*RBW, Sweep time set auto, detail see the test plot for 99% Bandwidth and 6dB Bandwidth.

8.3. Test Setup

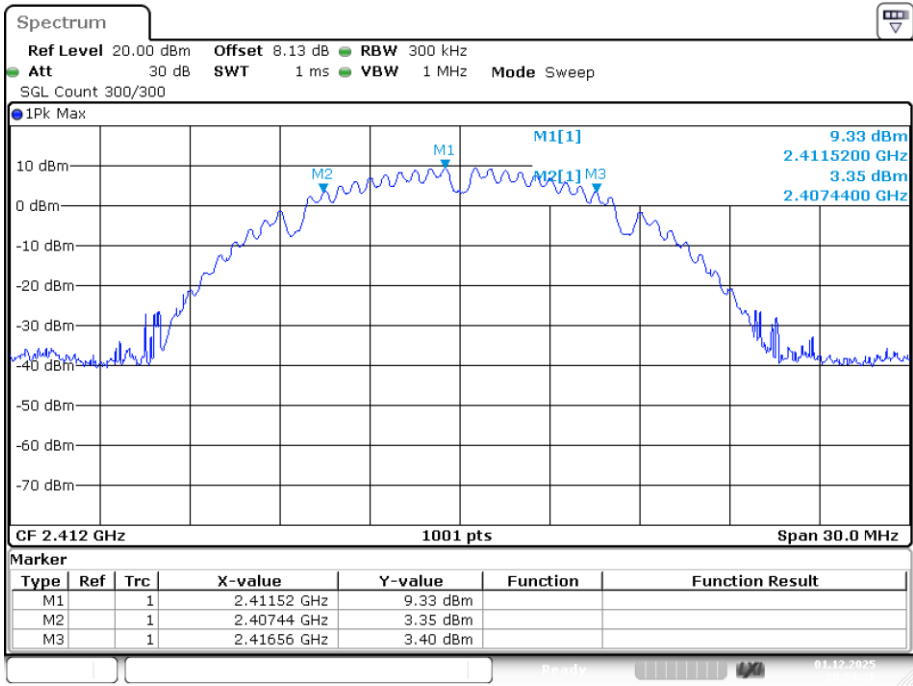


8.4. Test Results

-6dB Bandwidth

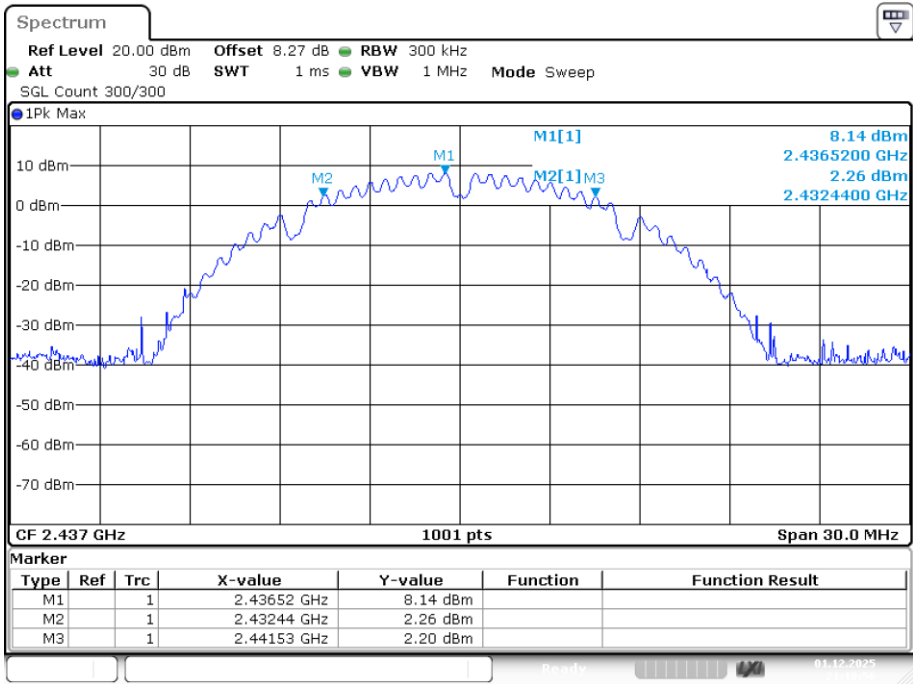
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	9.12	0.5	Pass
NVNT	b	2437	Ant1	9.09	0.5	Pass
NVNT	b	2462	Ant1	8.67	0.5	Pass
NVNT	g	2412	Ant1	16.44	0.5	Pass
NVNT	g	2437	Ant1	16.5	0.5	Pass
NVNT	g	2462	Ant1	16.44	0.5	Pass
NVNT	n20	2412	Ant1	17.61	0.5	Pass
NVNT	n20	2437	Ant1	17.58	0.5	Pass
NVNT	n20	2462	Ant1	17.52	0.5	Pass
NVNT	n40	2422	Ant1	36.12	0.5	Pass
NVNT	n40	2437	Ant1	36.24	0.5	Pass
NVNT	n40	2452	Ant1	36.3	0.5	Pass

-6dB Bandwidth NVNT b 2412MHz Ant1



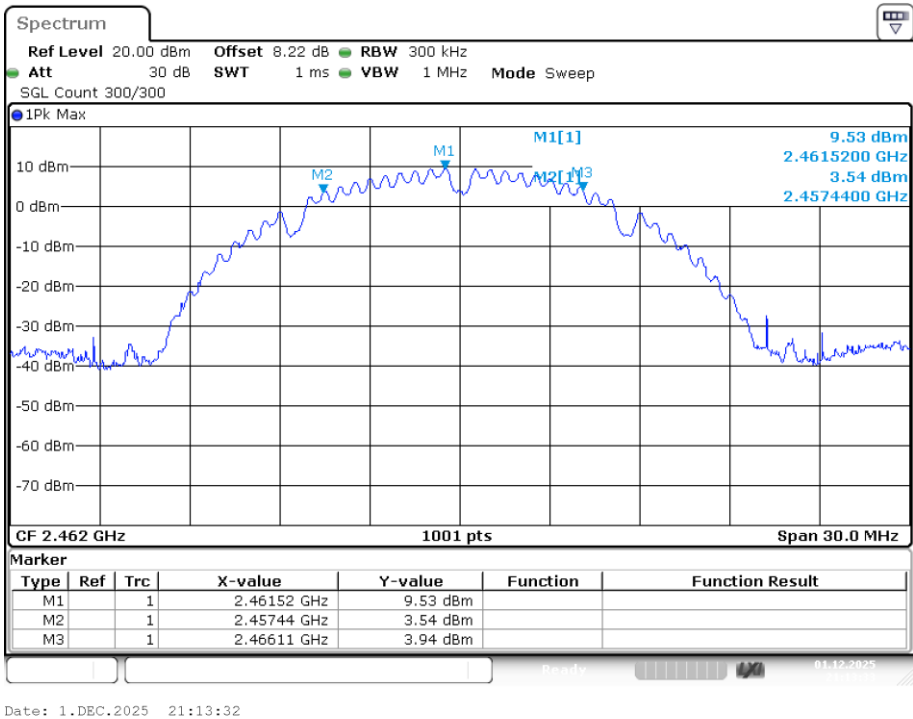
Date: 1.DEC.2025 20:59:26

-6dB Bandwidth NVNT b 2437MHz Ant1

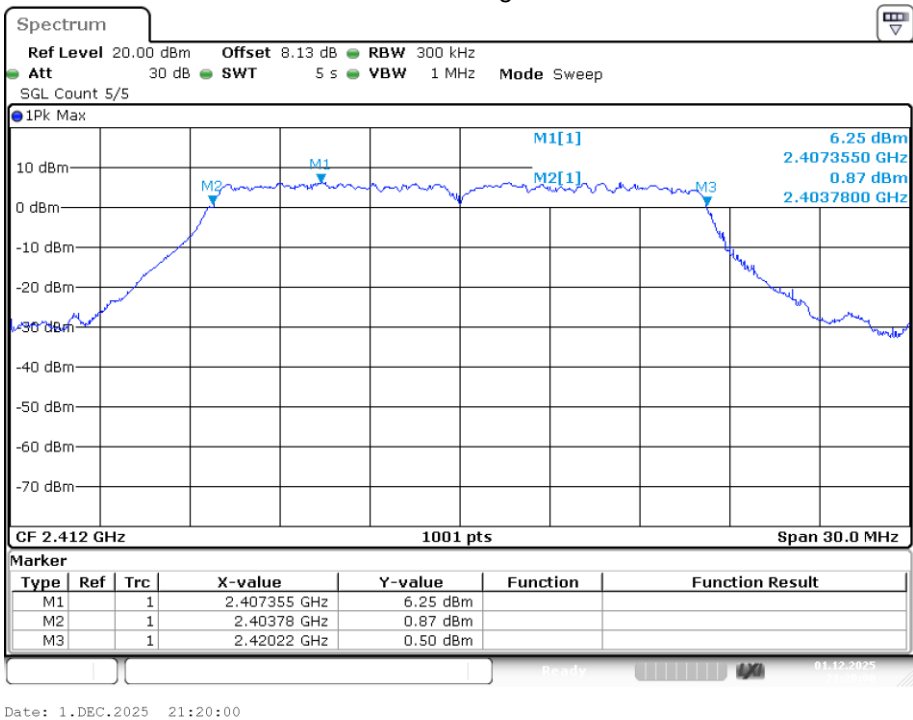


Date: 1.DEC.2025 21:10:56

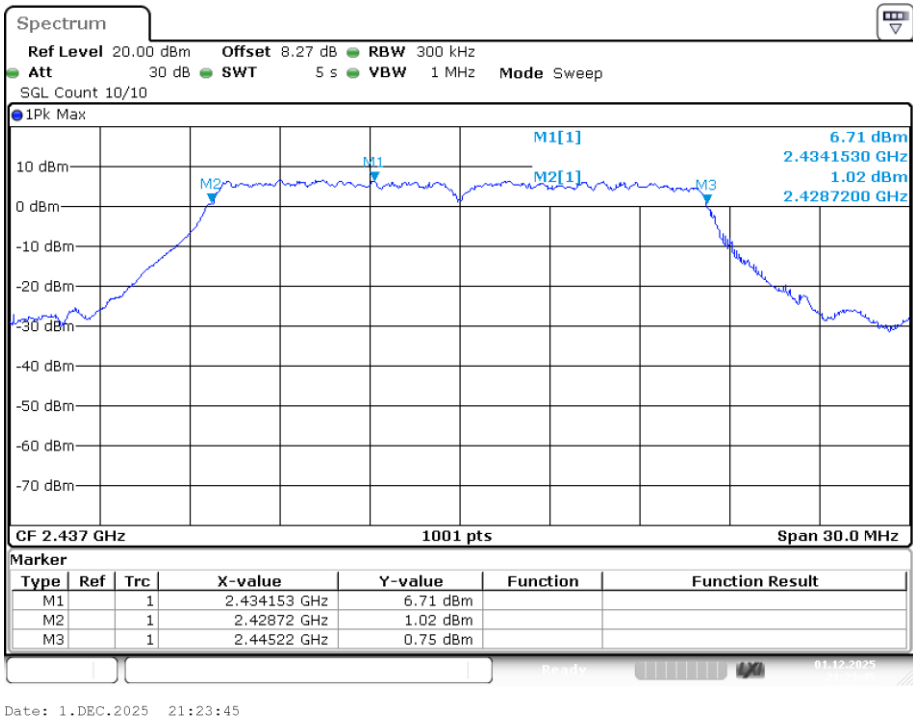
-6dB Bandwidth NVNT b 2462MHz Ant1



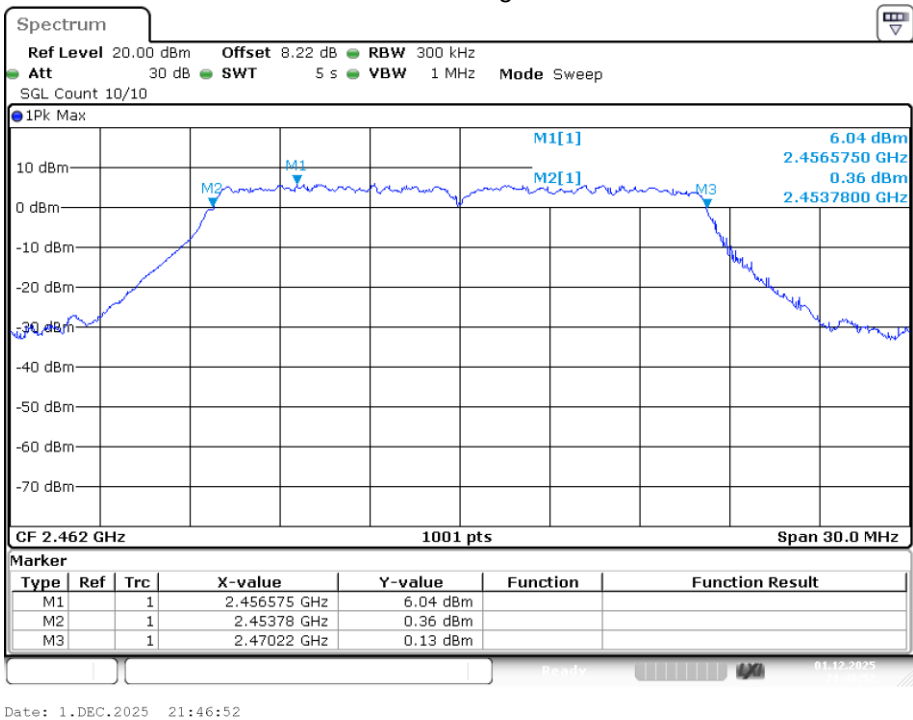
-6dB Bandwidth NVNT g 2412MHz Ant1



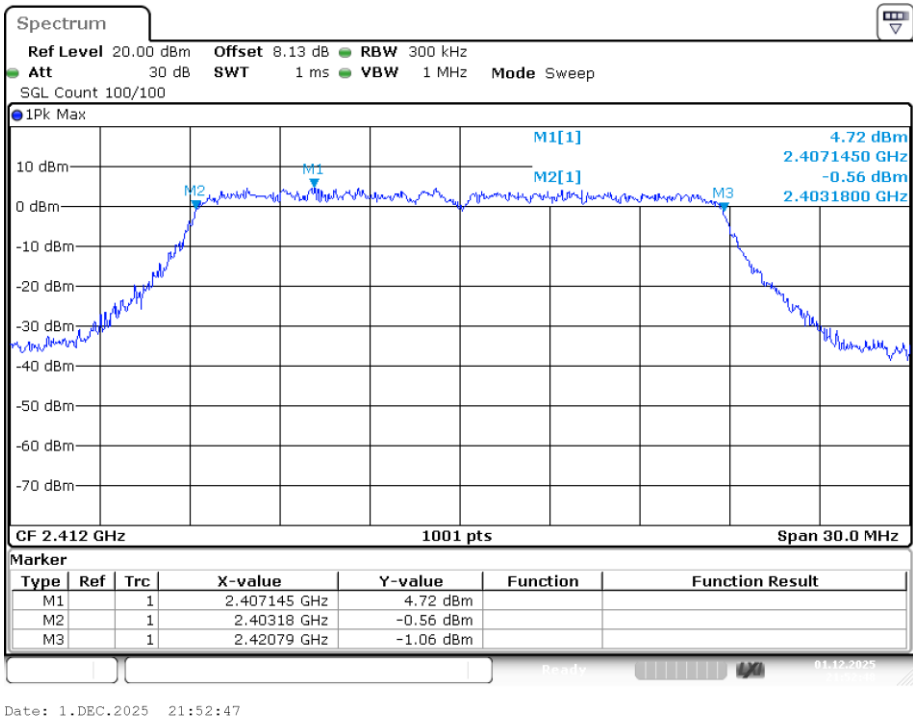
-6dB Bandwidth NVNT g 2437MHz Ant1



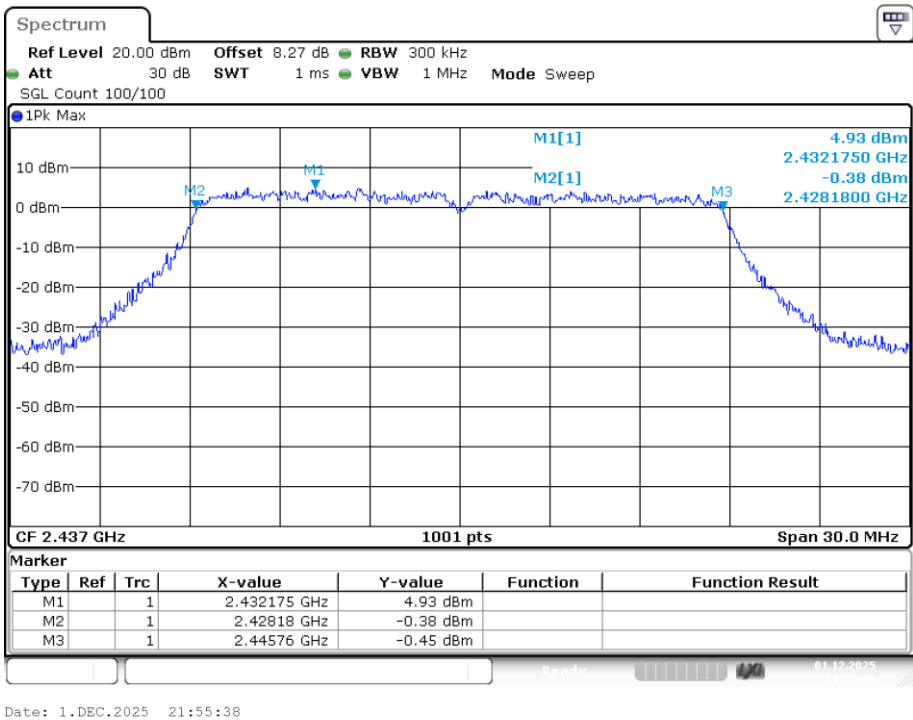
-6dB Bandwidth NVNT g 2462MHz Ant1



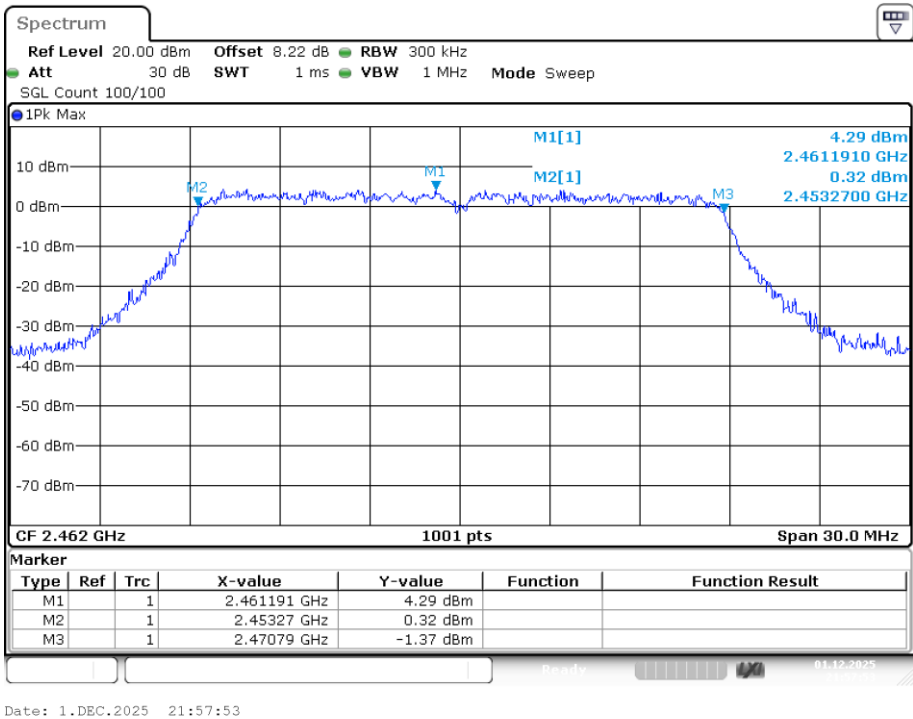
-6dB Bandwidth NVNT n20 2412MHz Ant1



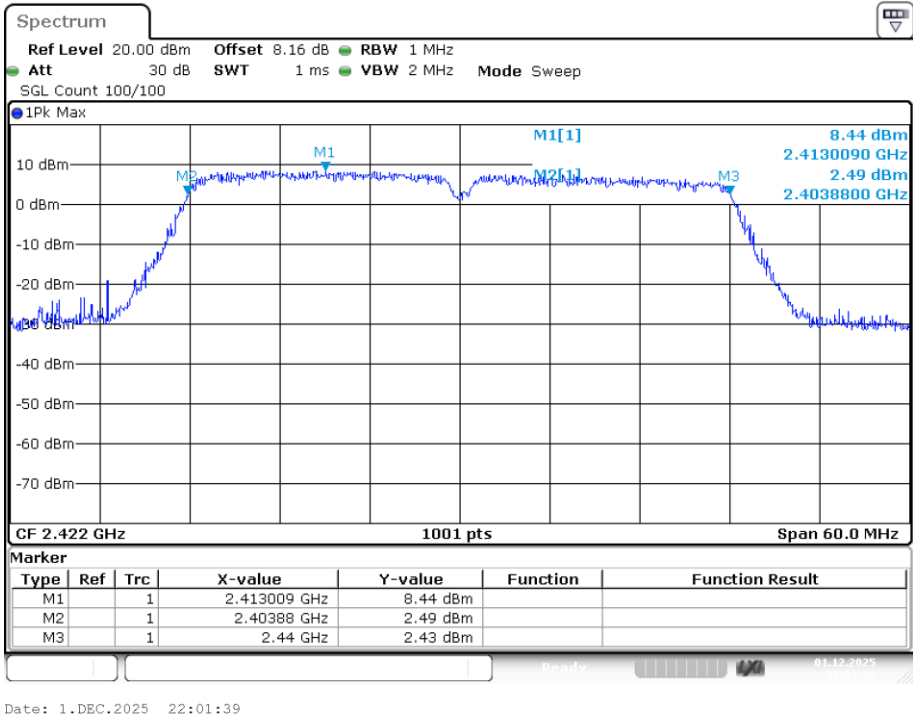
-6dB Bandwidth NVNT n20 2437MHz Ant1



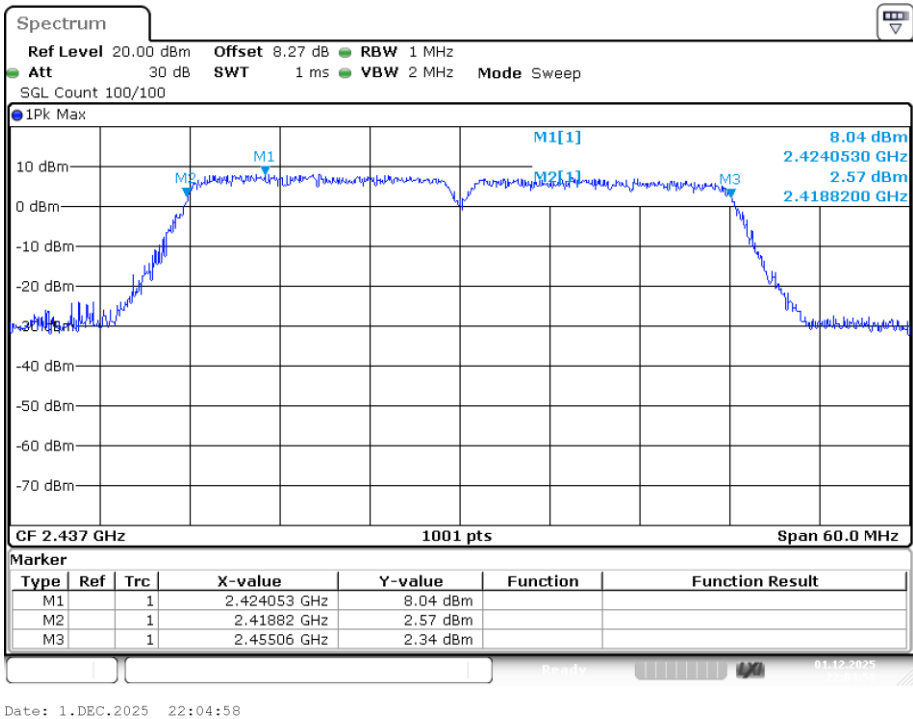
-6dB Bandwidth NVNT n20 2462MHz Ant1



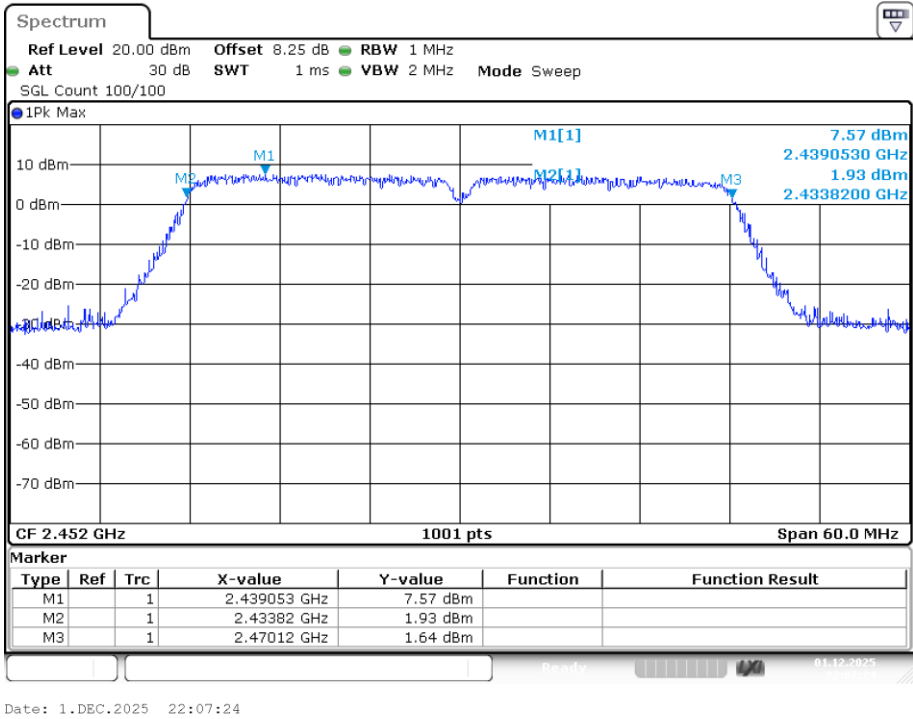
-6dB Bandwidth NVNT n40 2422MHz Ant1



-6dB Bandwidth NVNT n40 2437MHz Ant1



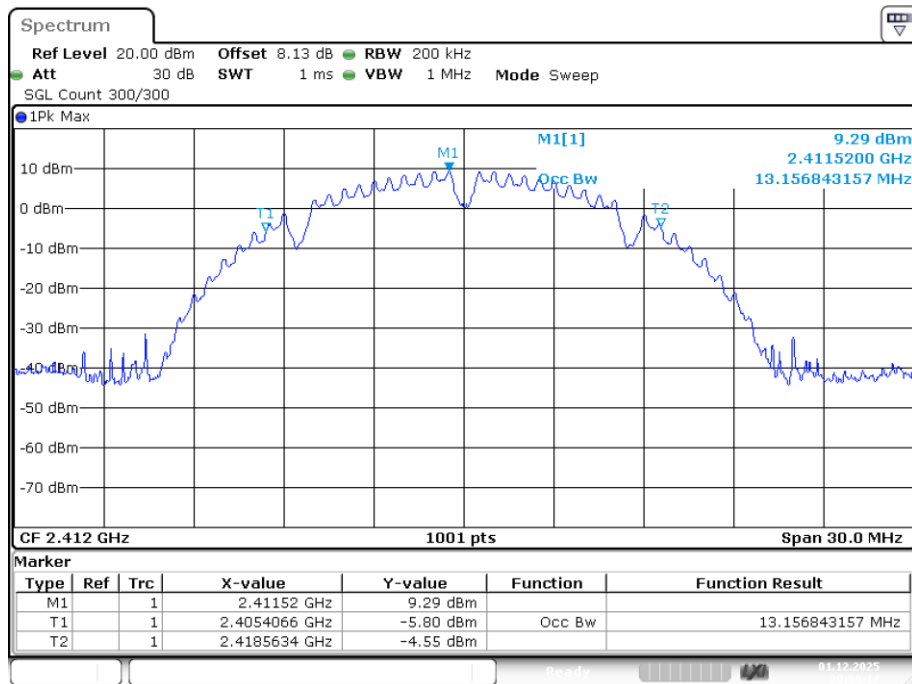
-6dB Bandwidth NVNT n40 2452MHz Ant1



Occupied Channel Bandwidth

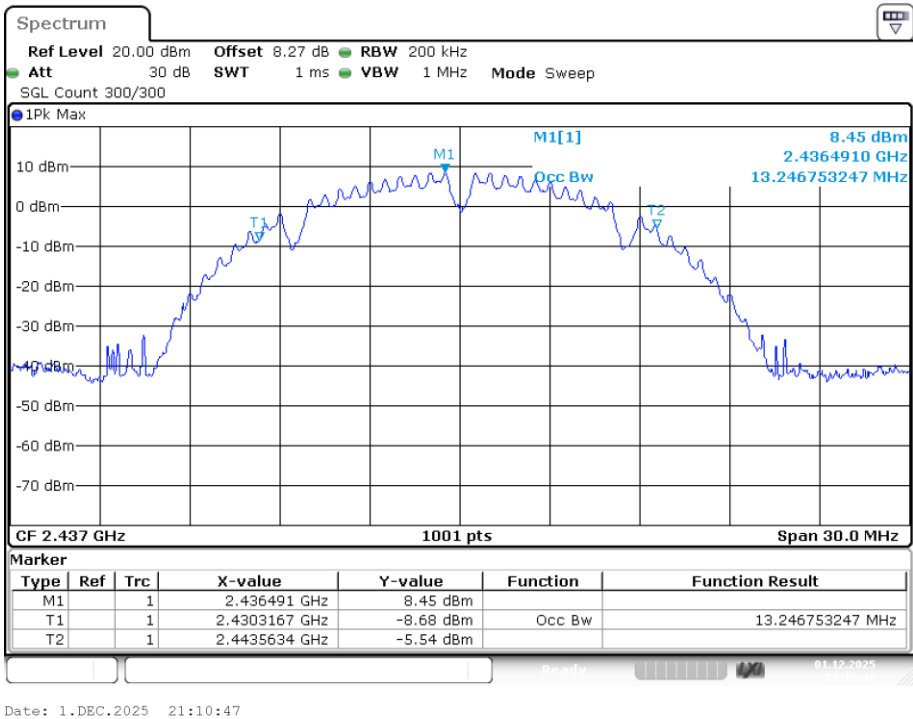
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	b	2412	Ant1	13.157
NVNT	b	2437	Ant1	13.247
NVNT	b	2462	Ant1	13.097
NVNT	g	2412	Ant1	16.543
NVNT	g	2437	Ant1	16.573
NVNT	g	2462	Ant1	16.543
NVNT	n20	2412	Ant1	17.652
NVNT	n20	2437	Ant1	17.682
NVNT	n20	2462	Ant1	17.652
NVNT	n40	2422	Ant1	36.204
NVNT	n40	2437	Ant1	36.264
NVNT	n40	2452	Ant1	36.264

OBW NVNT b 2412MHz Ant1



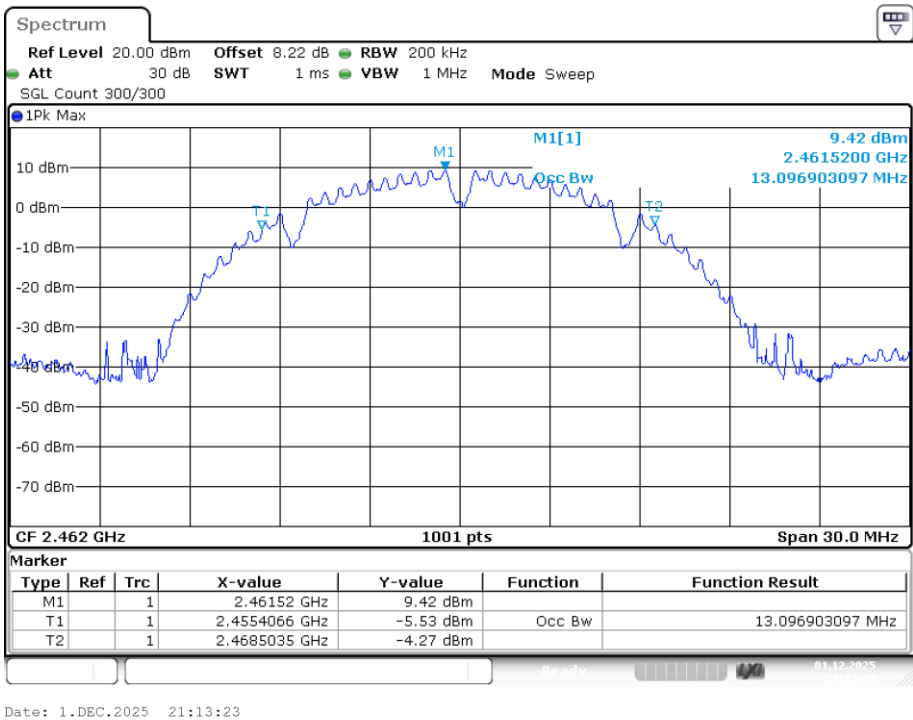
Date: 1.DEC.2025 20:59:17

OBW NVNT b 2437MHz Ant1



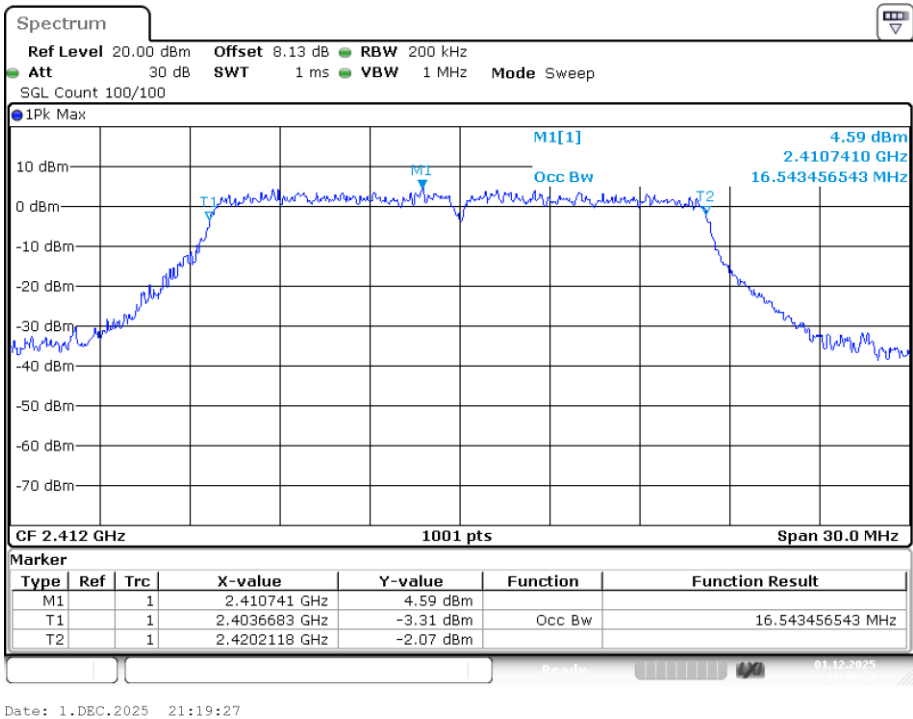
Date: 1.DEC.2025 21:10:47

OBW NVNT b 2462MHz Ant1

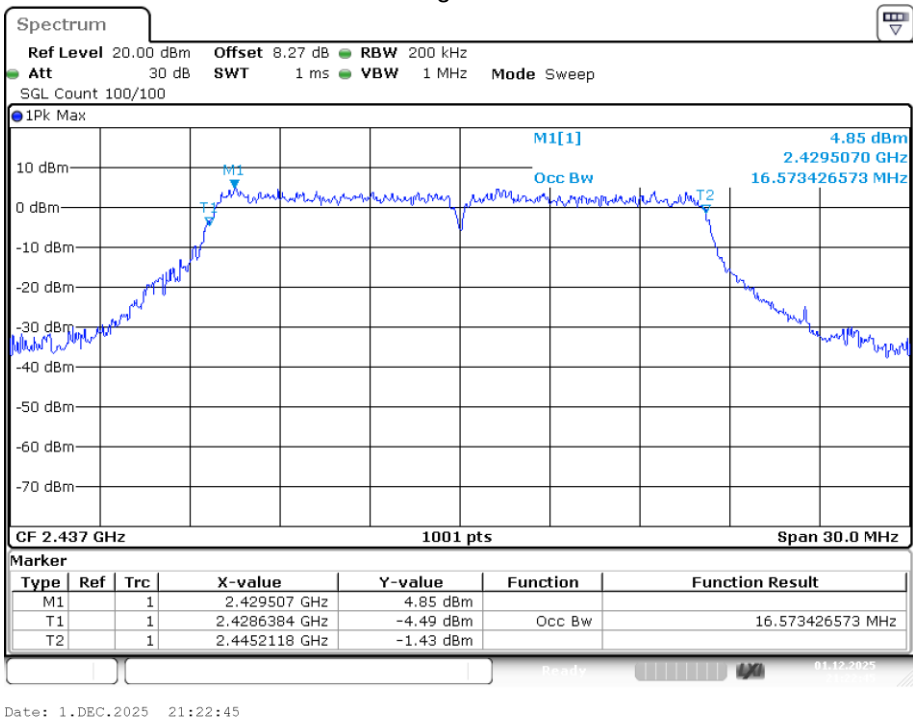


Date: 1.DEC.2025 21:13:23

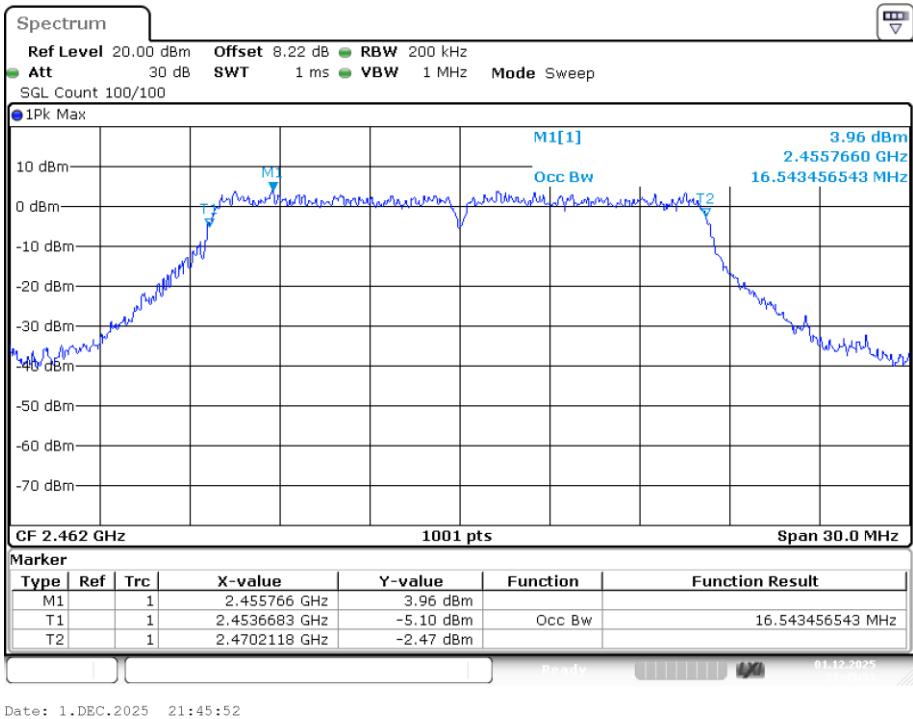
OBW NVNT g 2412MHz Ant1



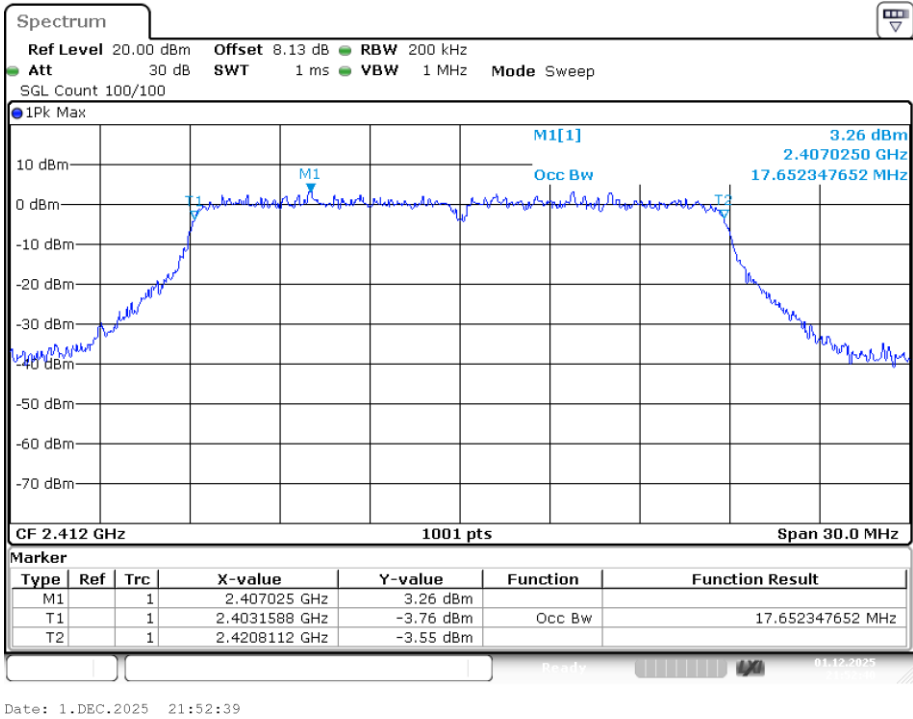
OBW NVNT g 2437MHz Ant1



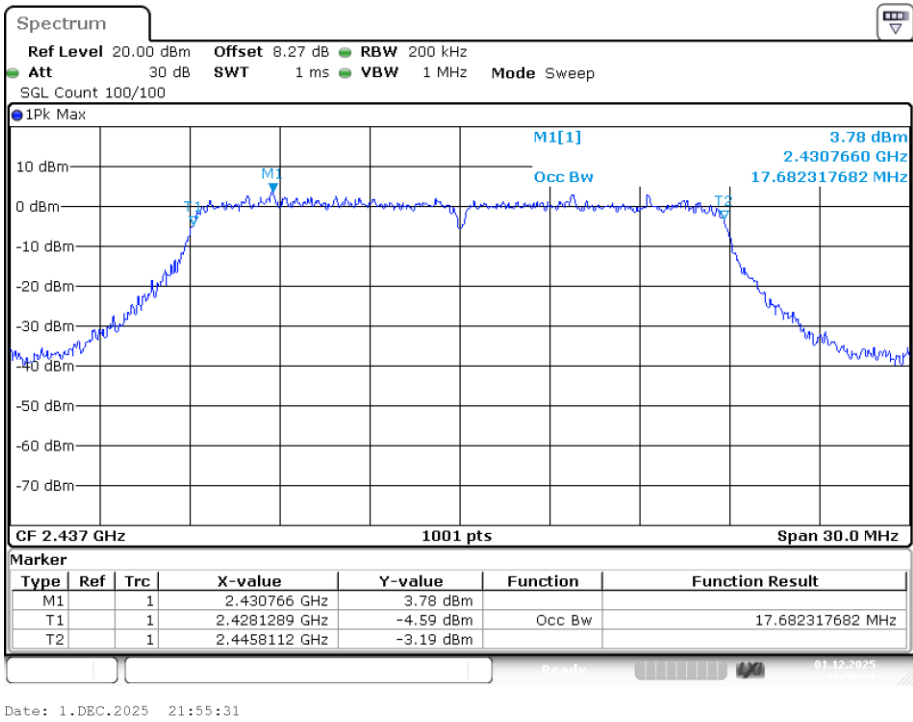
OBW NVNT g 2462MHz Ant1



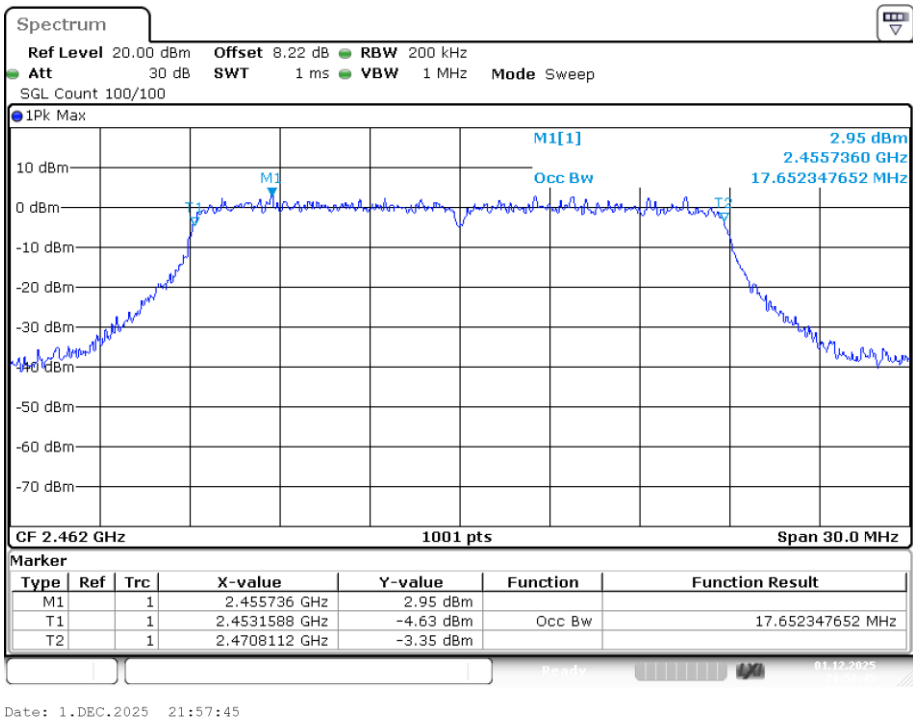
OBW NVNT n20 2412MHz Ant1



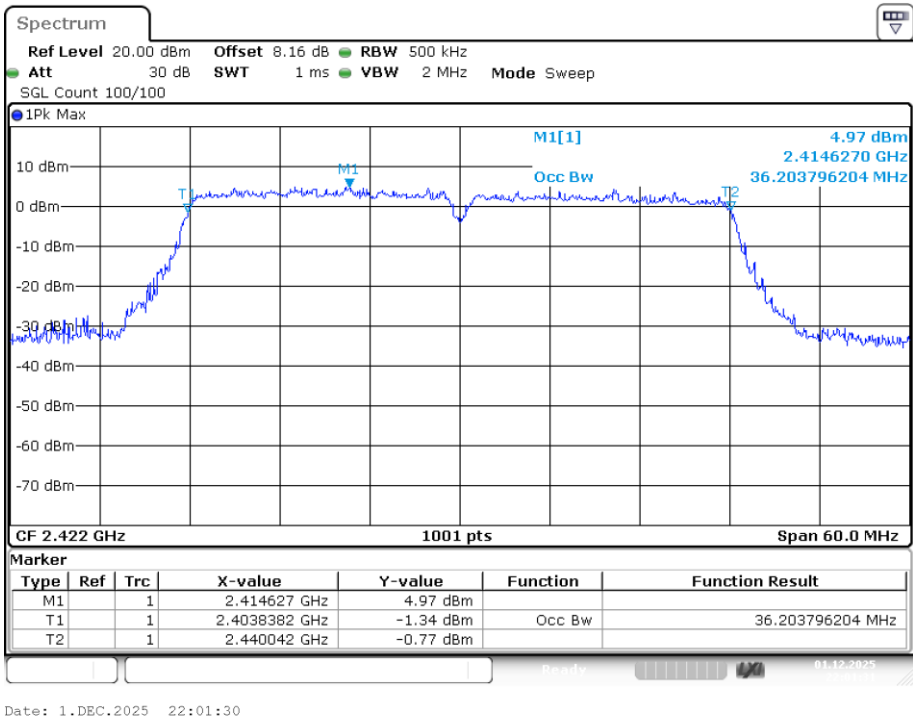
OBW NVNT n20 2437MHz Ant1



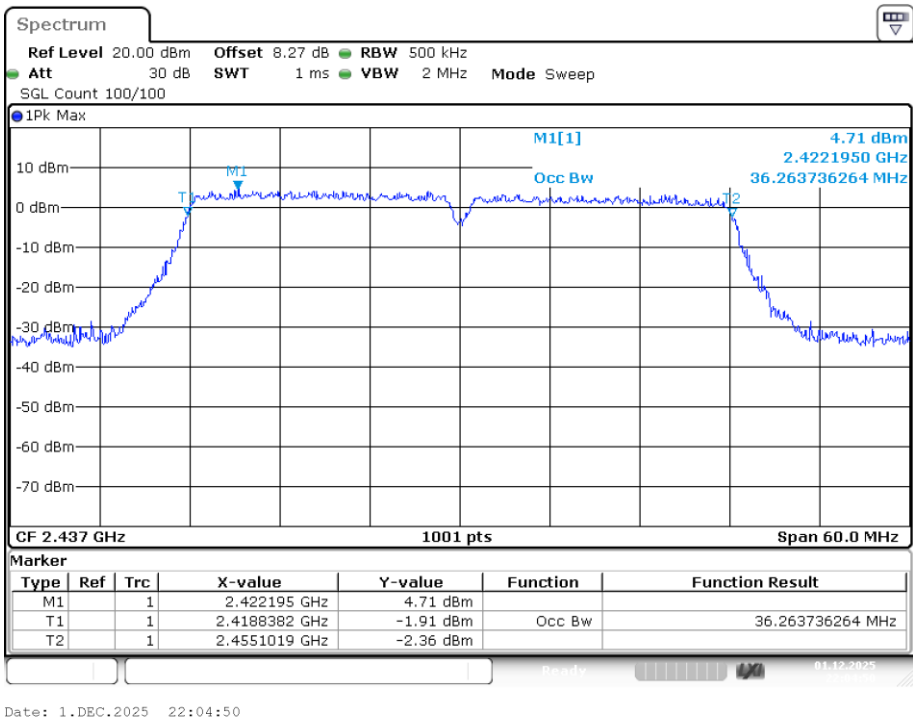
OBW NVNT n20 2462MHz Ant1



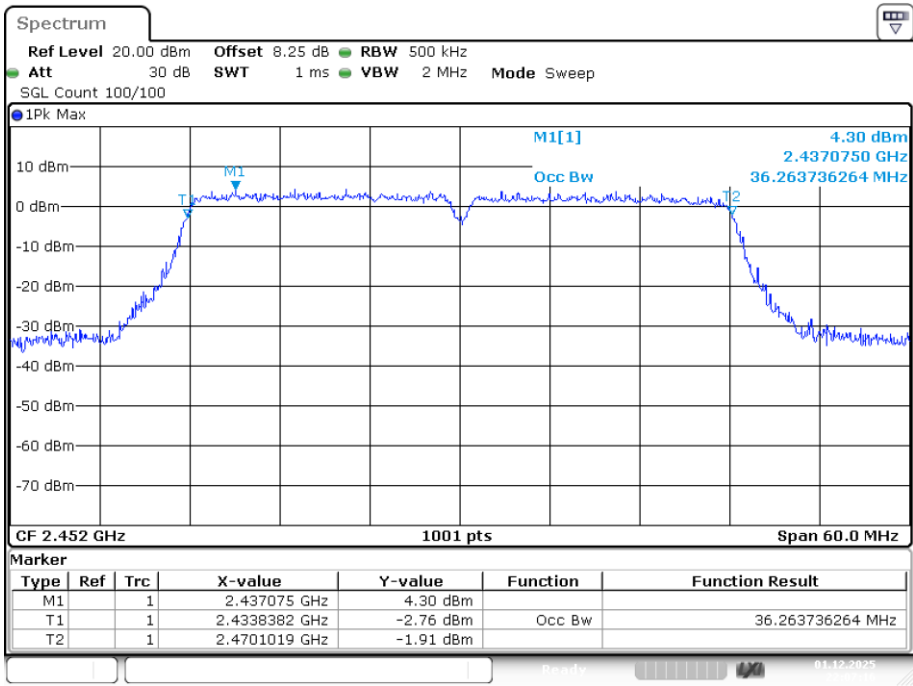
OBW NVNT n40 2422MHz Ant1



OBW NVNT n40 2437MHz Ant1



OBW NVNT n40 2452MHz Ant1



Date: 1.DECEMBER.2025 22:07:16

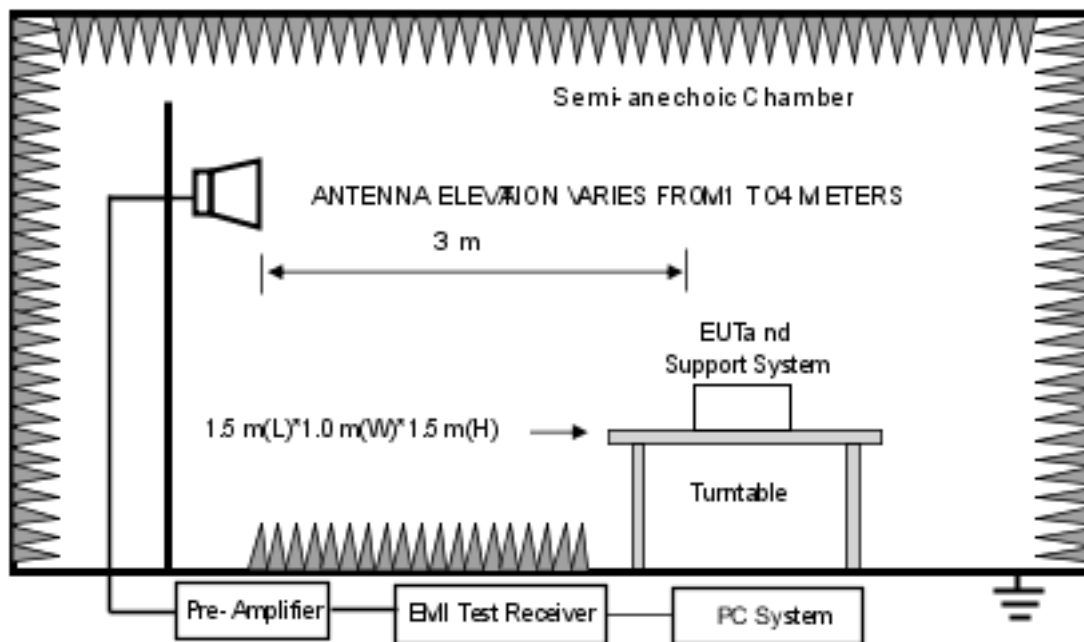
9. BAND EDGE CHECK

9.1. Test limits

Please refer FCC PART 15: 15.247

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits and RSS-GEN limits.

9.2. Block diagram of test setup



9.3. Test Procedure

Details see the ANSI C63.10-2020

9.3.1 Put the EUT on a 1.5m high table, power on the EUT. Emissions were scanned and measured rotating the EUT to 360 degrees, Find the maximum Emission

9.3.2 Check the spurious emissions out of band.

9.3.3 RBW 1MHz , VBW 3MHz , peak detector for peak value , RBW 1MHz , VBW 3MHz , RMS detector for AV value.

All restriction band and non- restriction band have been tested, only worse case is reported.

9.4. Test Results

PASS.

Detailed information please see the following page.