

Test Mode: $\pi/4$ DQPSK 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
4804	45.07	V	33.95	10.18	34.26	54.94	74	-19.06	PK
4804	37.39	V	33.95	10.18	34.26	47.26	54	-6.74	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
4804	44.17	H	33.95	10.18	34.26	54.04	74	-19.96	PK
4804	34.23	H	33.95	10.18	34.26	44.10	54	-9.90	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
Test Mode: $\pi/4$ DQPSK TX Mid									
4882	44.96	V	33.93	10.2	34.29	54.80	74	-19.20	PK
4882	34.39	V	33.93	10.2	34.29	44.23	54	-9.77	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
4882	43.09	H	33.93	10.2	34.29	52.93	74	-21.07	PK
4882	35.39	H	33.93	10.2	34.29	45.23	54	-8.77	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
Test Mode: $\pi/4$ DQPSK TX High									
4960	43.56	V	33.98	10.22	34.25	53.51	74	-20.49	PK
4960	33.70	V	33.98	10.22	34.25	43.65	54	-10.35	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/
4960	45.27	H	33.98	10.22	34.25	55.22	74	-18.78	PK
4960	33.99	H	33.98	10.22	34.25	43.94	54	-10.06	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/

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.

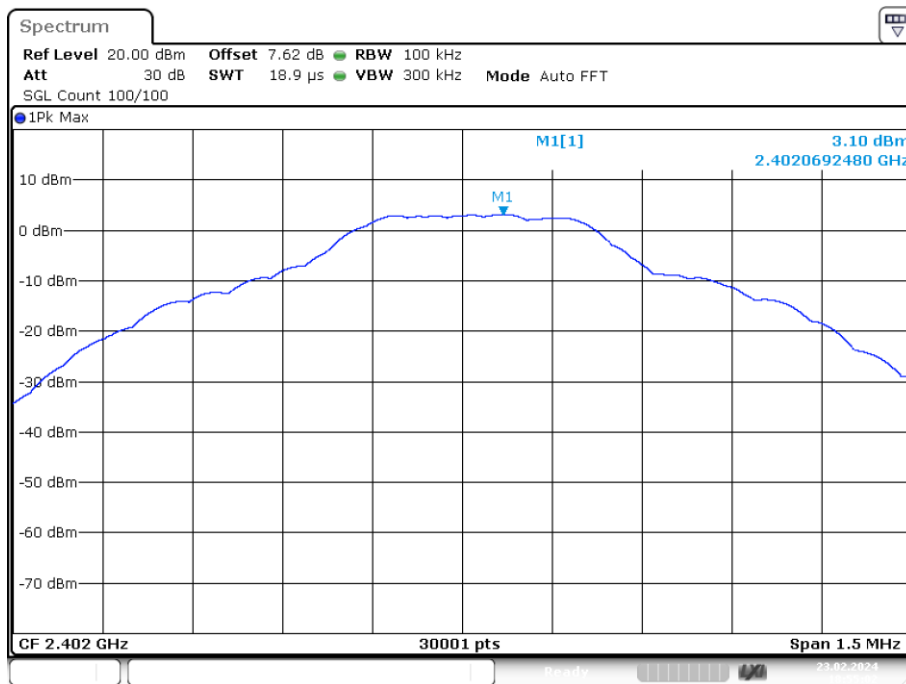
Test Mode: 8DPSK TX Low									
Freq (MHz)	Read Level (dBuV/m)	Polar (H/V)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804	46.72	V	33.95	10.18	34.26	56.59	74	-17.41	PK
4804	38.28	V	33.95	10.18	34.26	48.15	54	-5.85	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
4804	46.59	H	33.95	10.18	34.26	56.46	74	-17.54	PK
4804	34.24	H	33.95	10.18	34.26	44.11	54	-9.89	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
Test Mode: 8DPSK TX Mid									
4882	43.74	V	33.93	10.2	34.29	53.58	74	-20.42	PK
4882	33.12	V	33.93	10.2	34.29	42.96	54	-11.04	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
4882	44.72	H	33.93	10.2	34.29	54.56	74	-19.44	PK
4882	36.32	H	33.93	10.2	34.29	46.16	54	-7.84	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
Test Mode: 8DPSK TX High									
4960	42.88	V	33.98	10.22	34.25	52.83	74	-21.17	PK
4960	33.50	V	33.98	10.22	34.25	43.45	54	-10.55	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/
4960	44.69	H	33.98	10.22	34.25	54.64	74	-19.36	PK
4960	31.63	H	33.98	10.22	34.25	41.58	54	-12.42	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/

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.

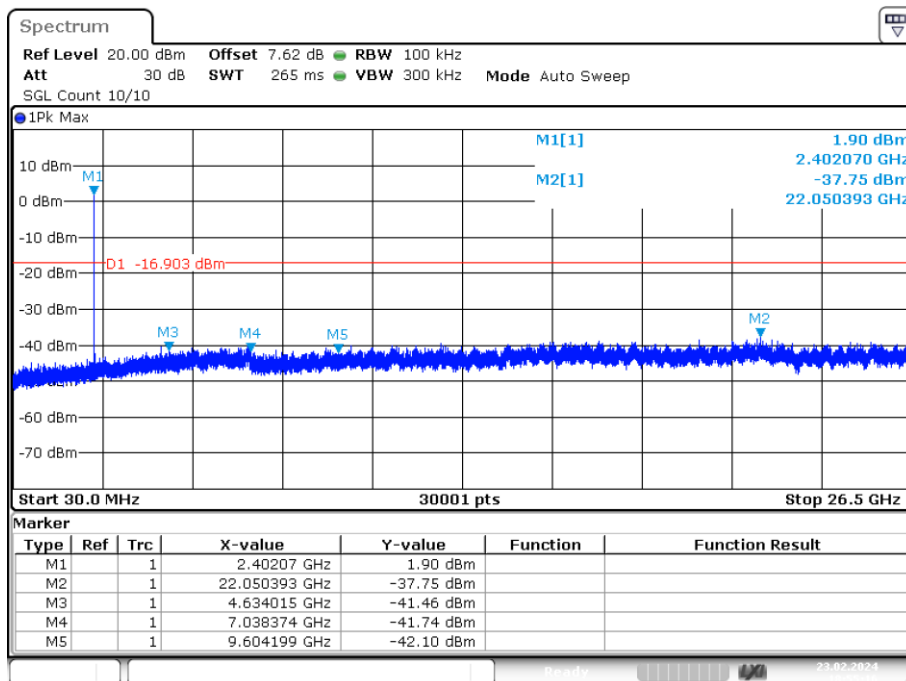
Conducted RF Spurious Emission

Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



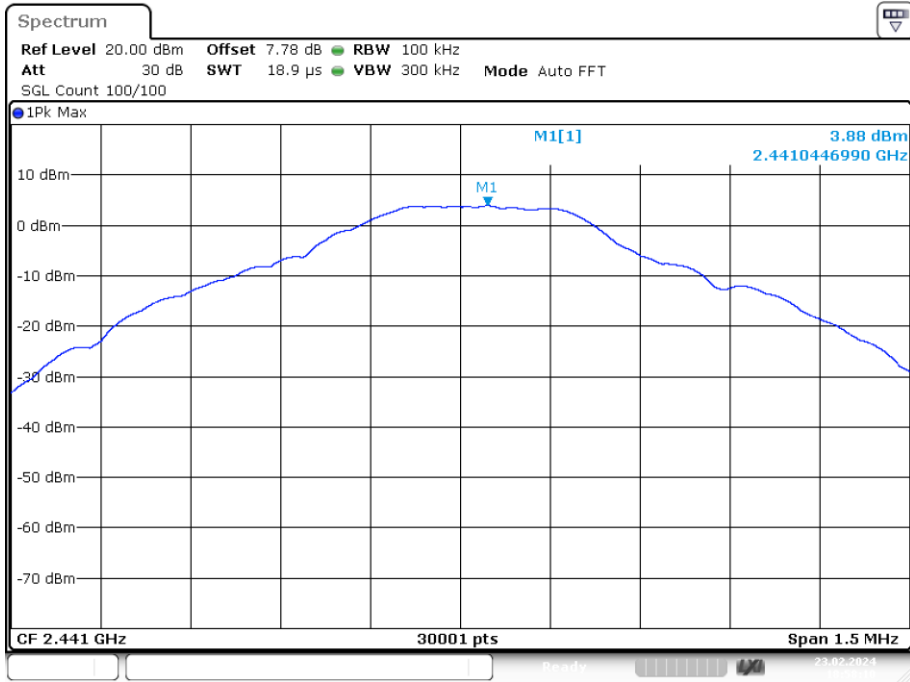
Date: 23.FEB.2024 18:55:02

Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



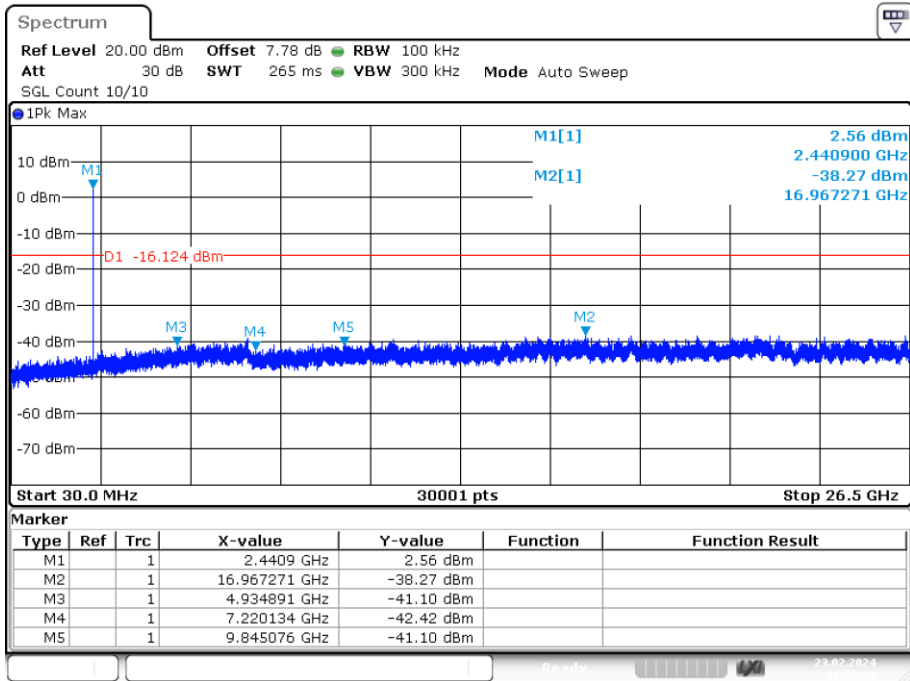
Date: 23.FEB.2024 18:55:16

Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



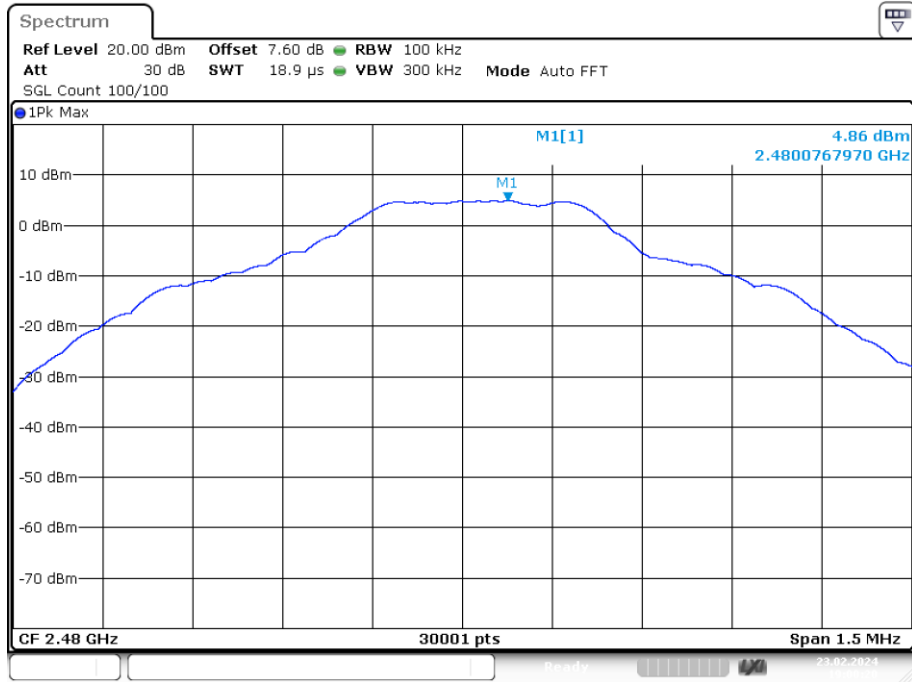
Date: 23.FEB.2024 18:58:10

Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



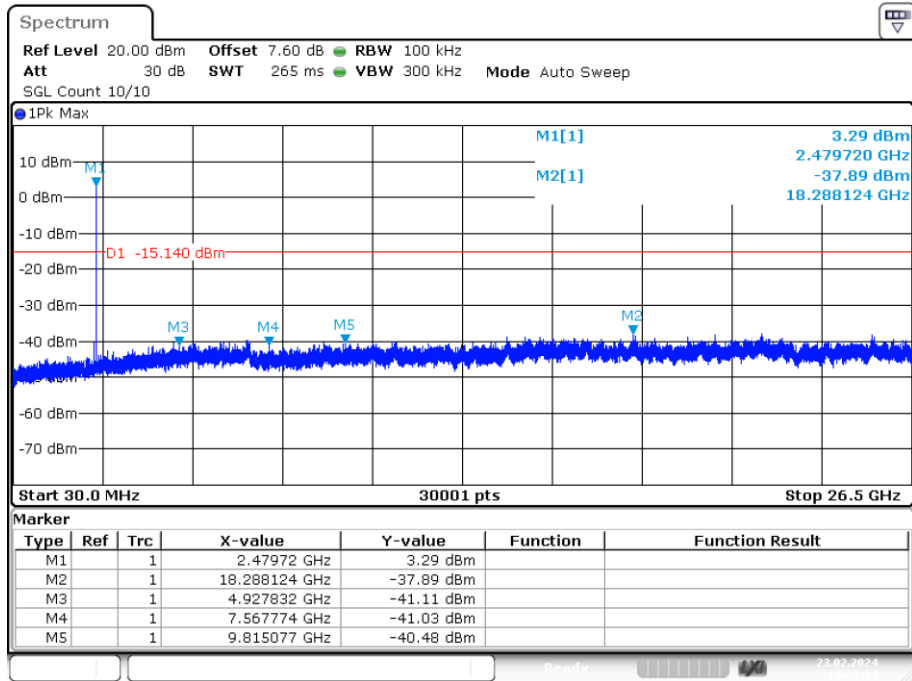
Date: 23.FEB.2024 18:58:24

Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



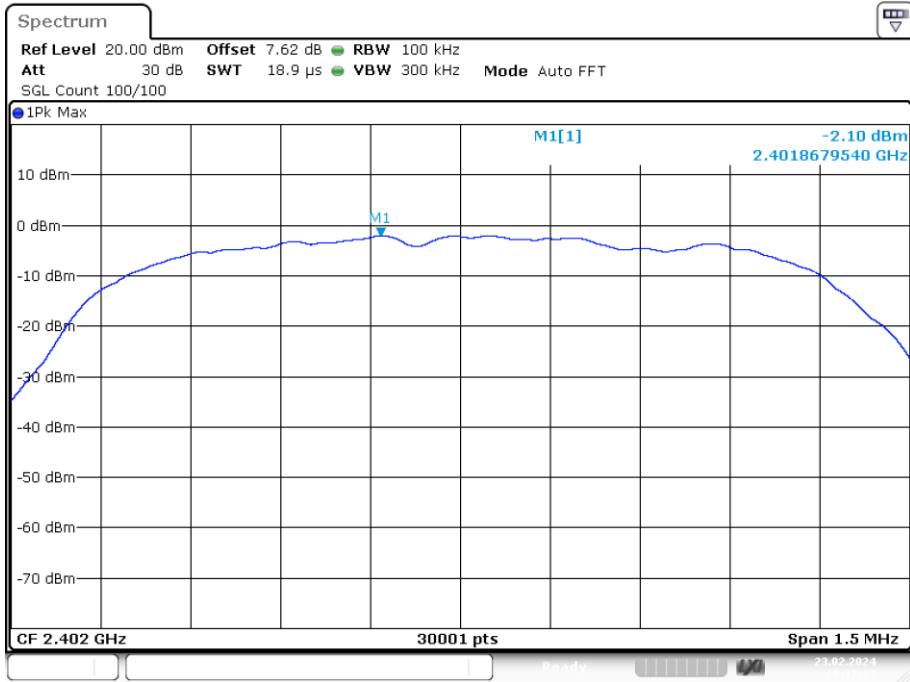
Date: 23.FEB.2024 19:00:20

Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



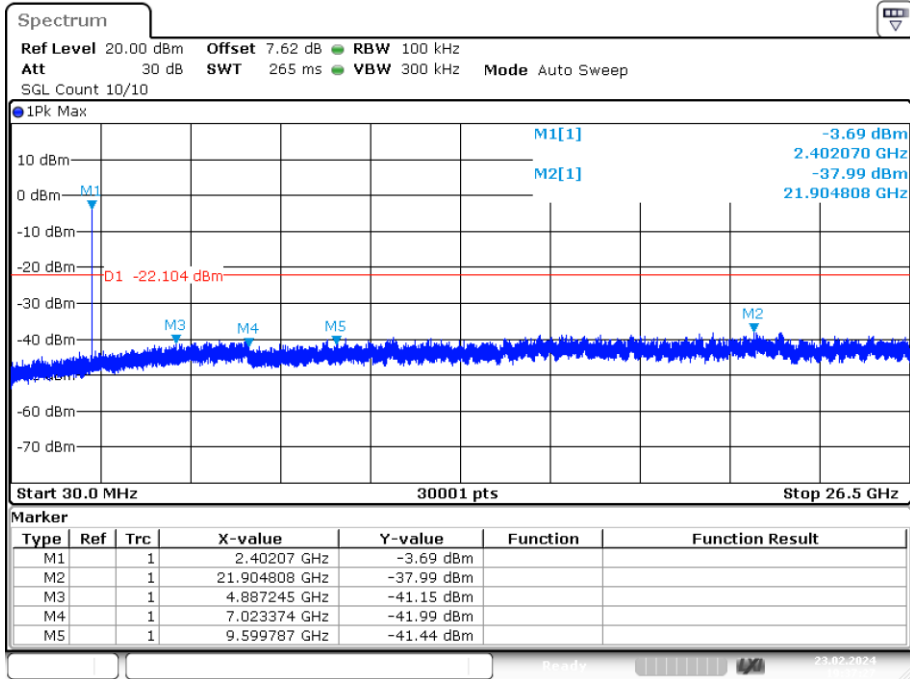
Date: 23.FEB.2024 19:00:33

Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



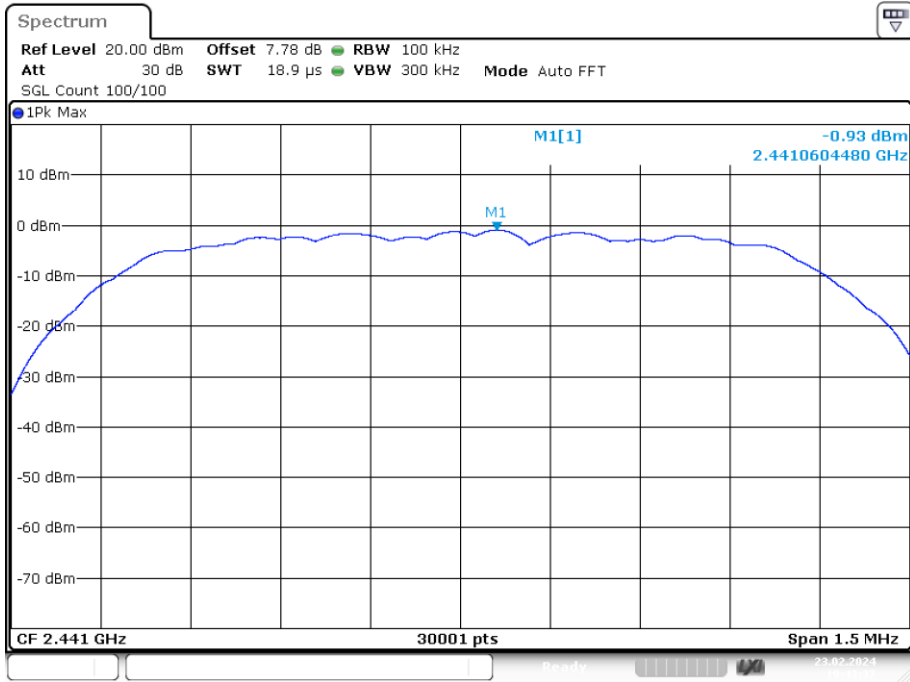
Date: 23.FEB.2024 19:37:13

Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



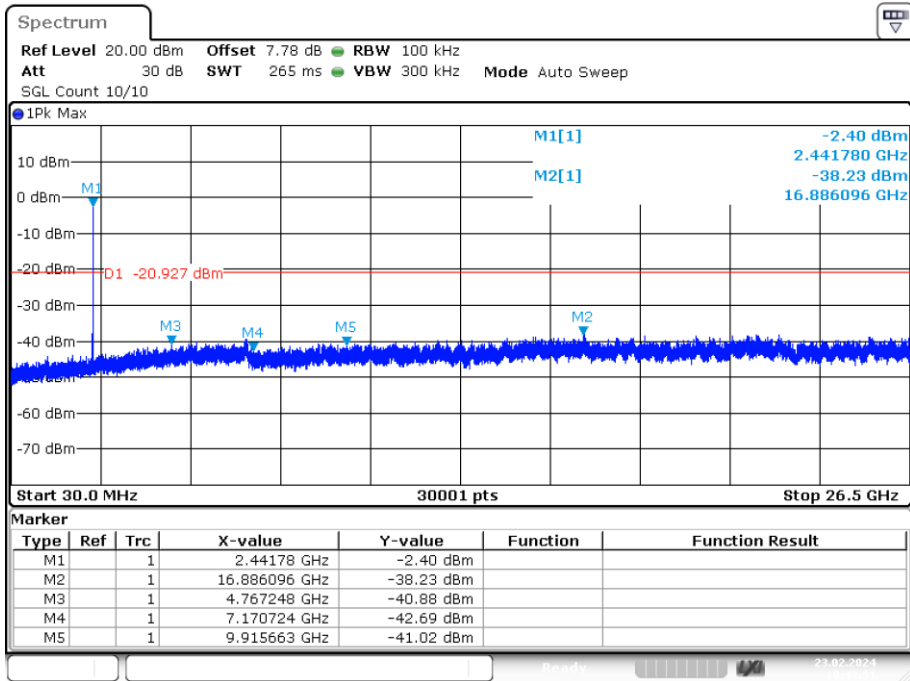
Date: 23.FEB.2024 19:37:27

Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



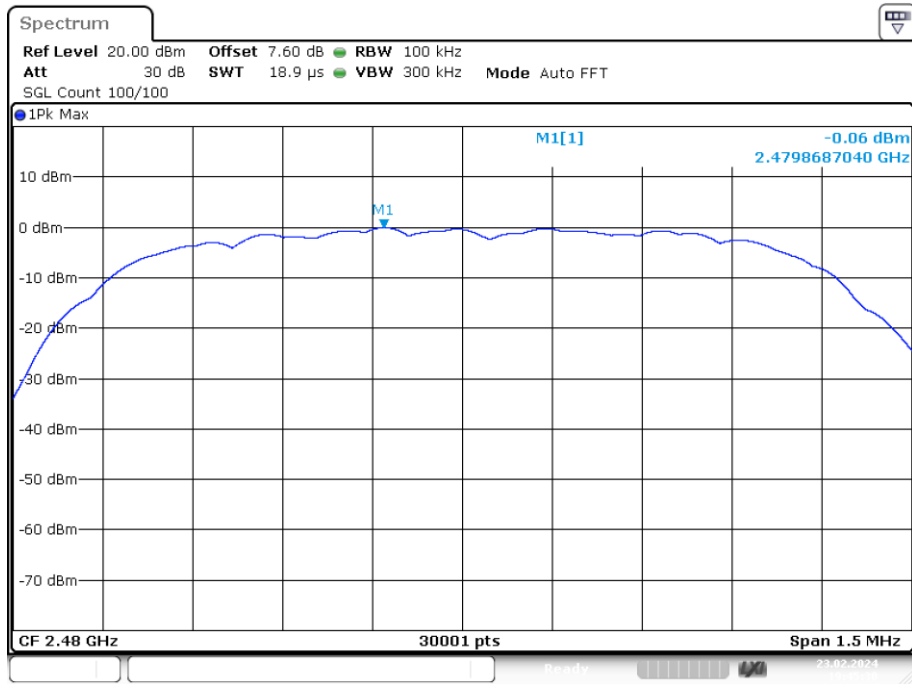
Date: 23.FEB.2024 19:43:36

Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



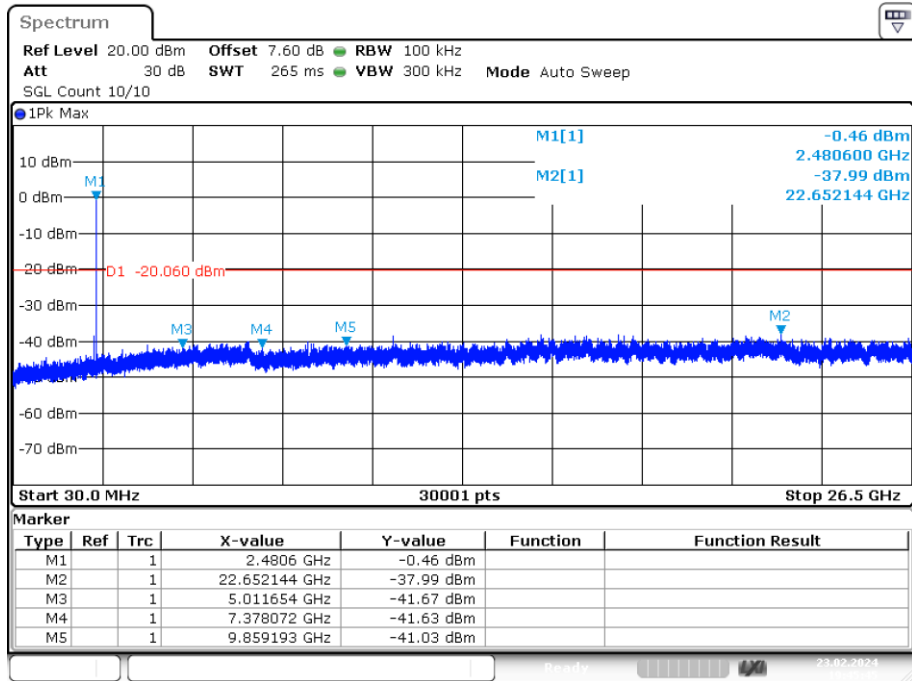
Date: 23.FEB.2024 19:43:50

Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



Date: 23.FEB.2024 19:45:30

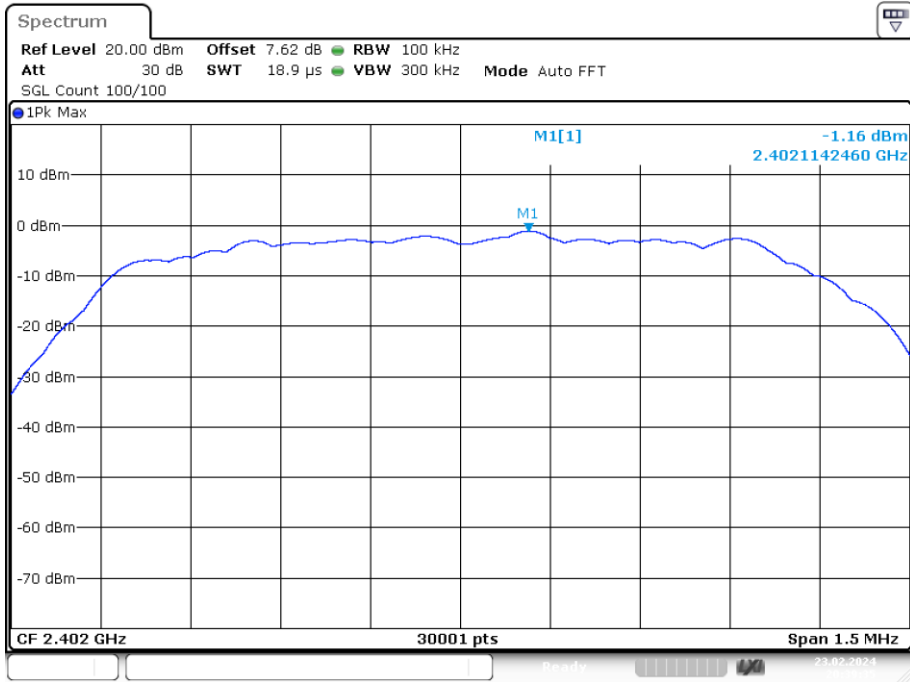
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



Date: 23.FEB.2024 19:45:44

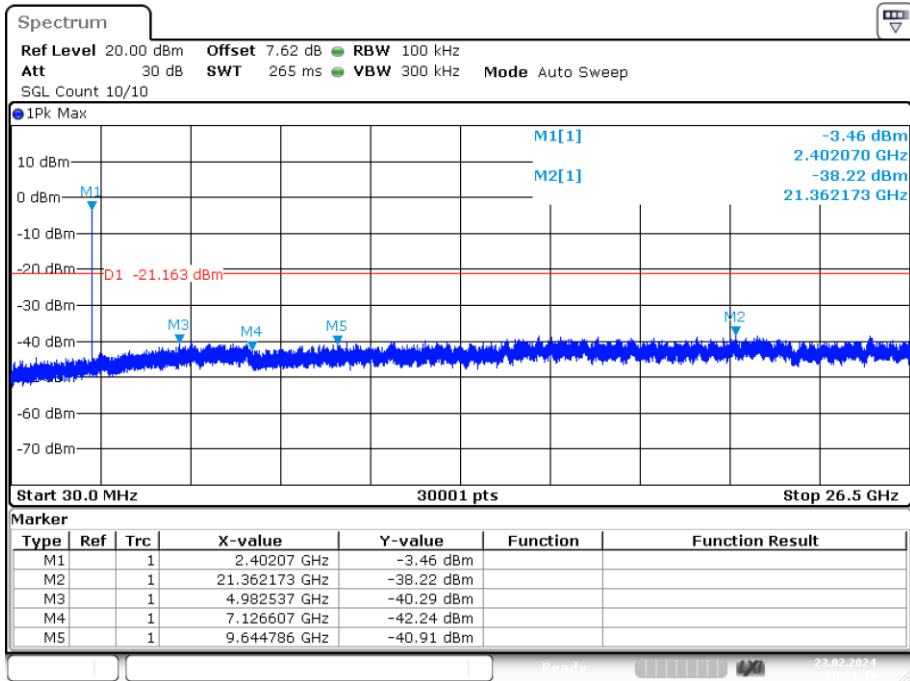


Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



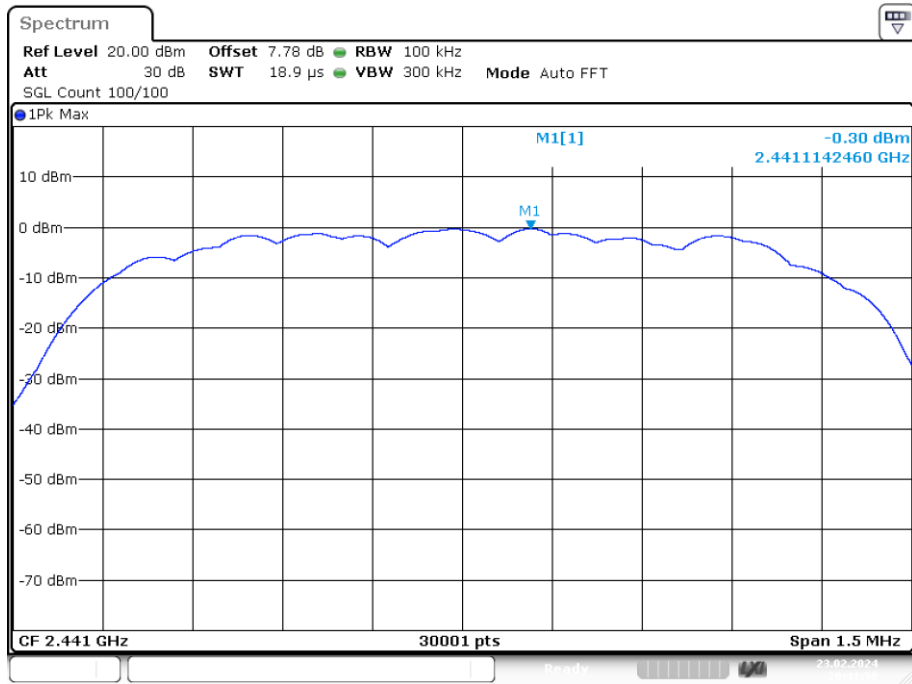
Date: 23.FEB.2024 20:39:35

Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



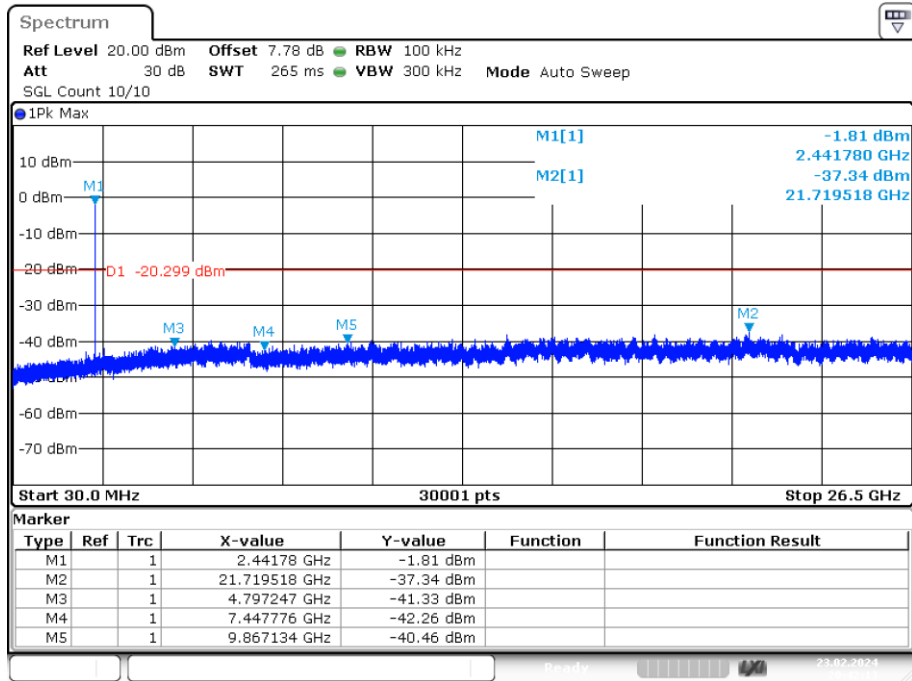
Date: 23.FEB.2024 20:39:49

Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



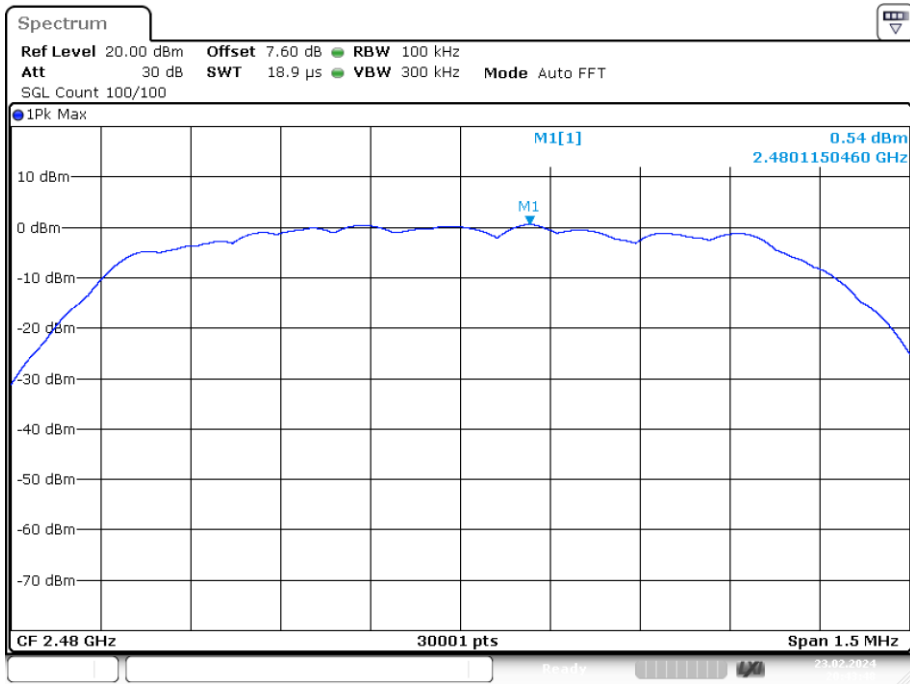
Date: 23.FEB.2024 20:41:58

Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



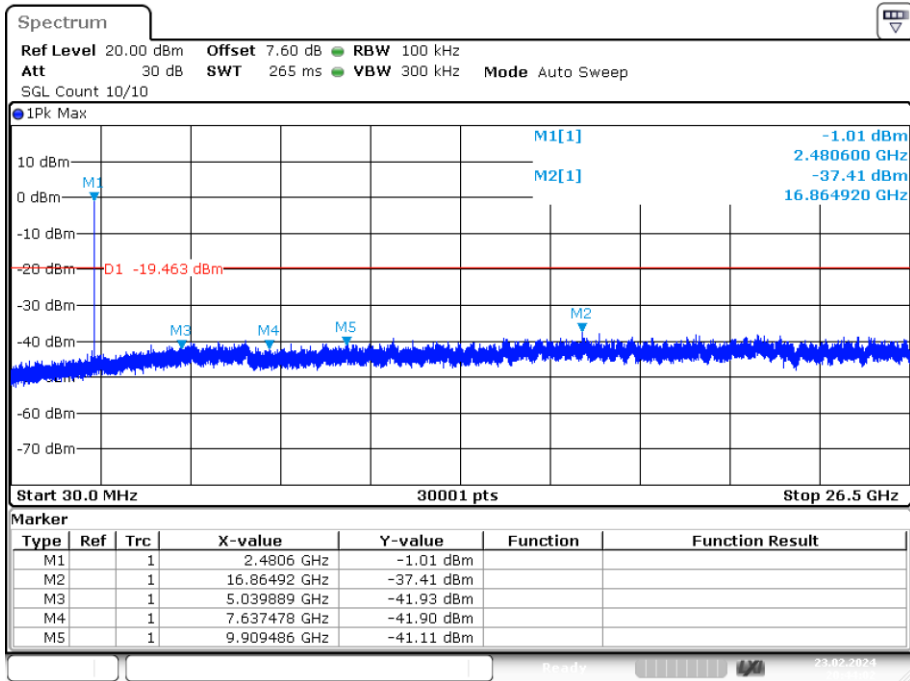
Date: 23.FEB.2024 20:42:12

Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Date: 23.FEB.2024 20:43:48

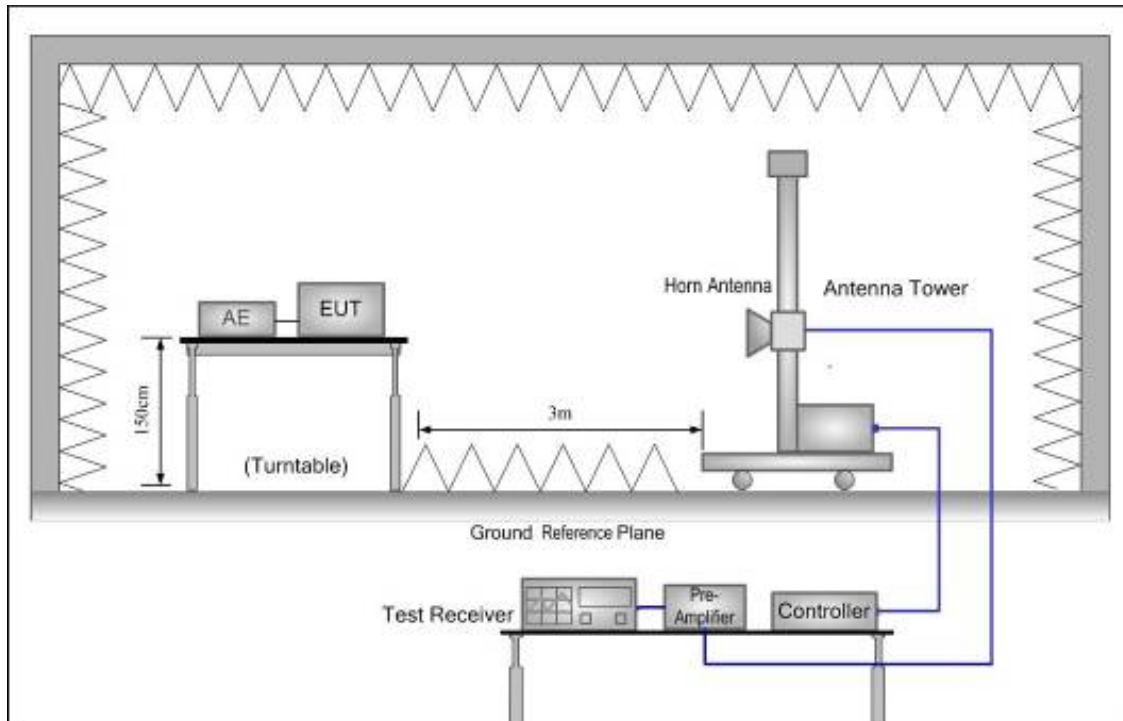
Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission



Date: 23.FEB.2024 20:44:02

## 9. BAND EDGE COMPLIANCE

### 9.1. Block Diagram of Test Setup



### 9.2. Limit

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

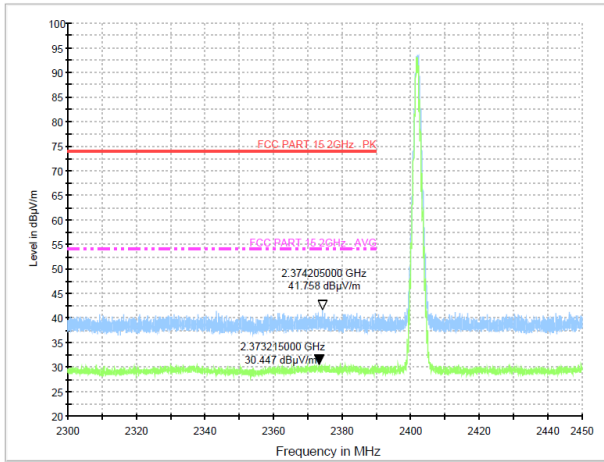
### 9.3. Test Procedure

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

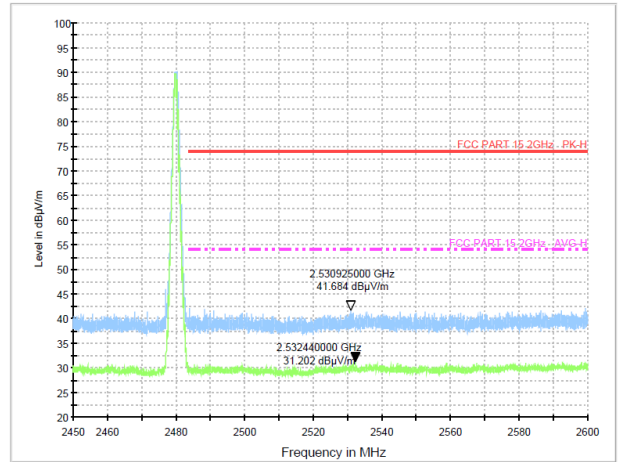
### 9.4. Test Result

PASS. (See below detailed test data)

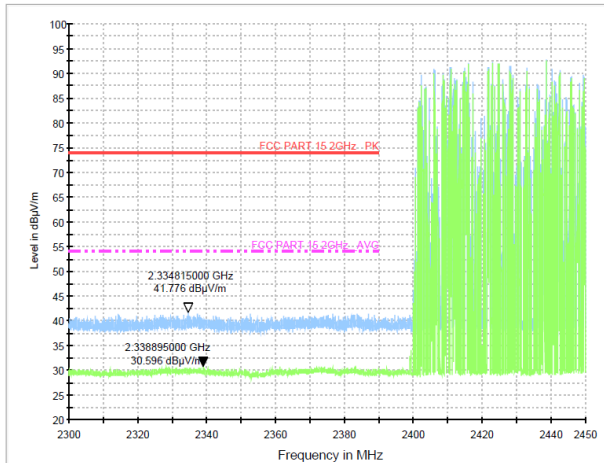
Test Mode: GFSK-Low Hopping-off



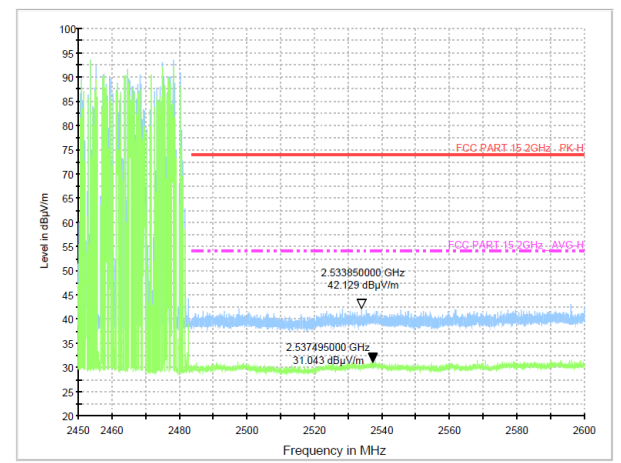
Test Mode: GFSK-High Hopping-off



Test Mode: GFSK-Low Hopping-on



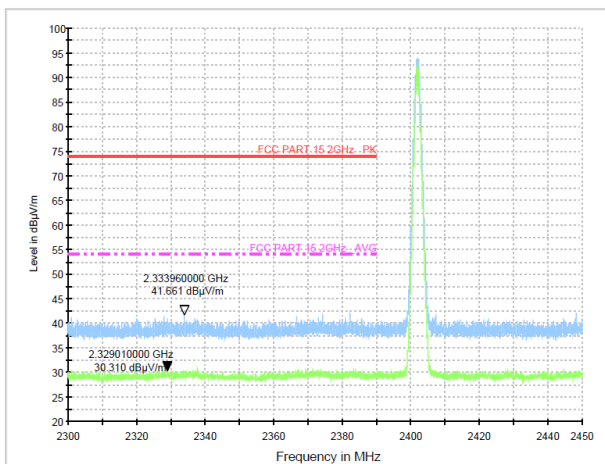
Test Mode: GFSK-High Hopping-on



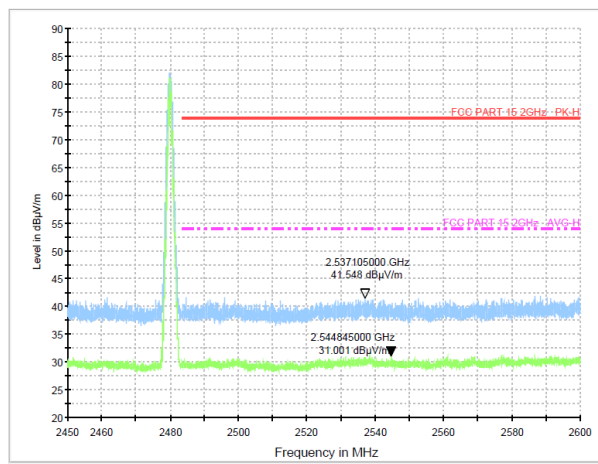
Note: 1. \*:Maximum data; x:Over limit; !:over margin.

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

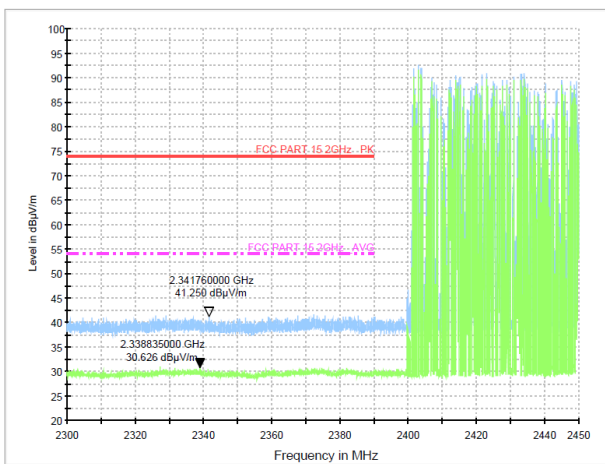
Test Mode:  $\pi/4$  DQPSK-Low Hopping-off



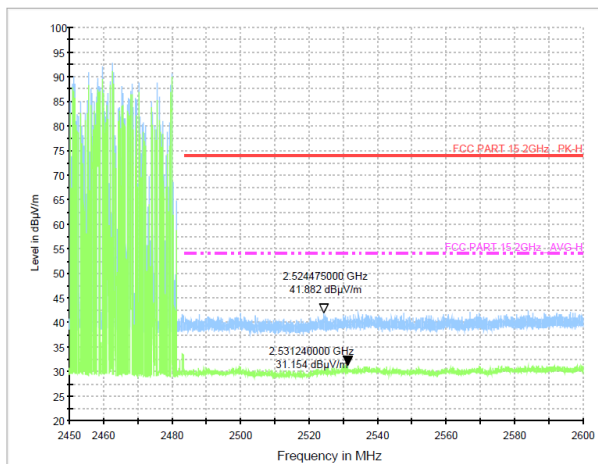
Test Mode:  $\pi/4$  DQPSK-High Hopping-off



Test Mode:  $\pi/4$  DQPSK-Low Hopping-on



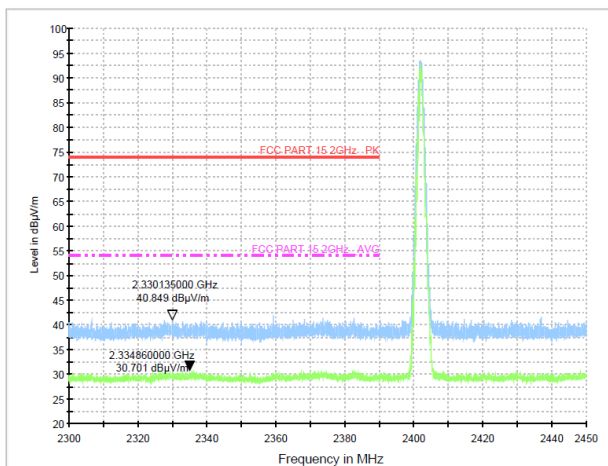
Test Mode:  $\pi/4$  DQPSK-High Hopping-on



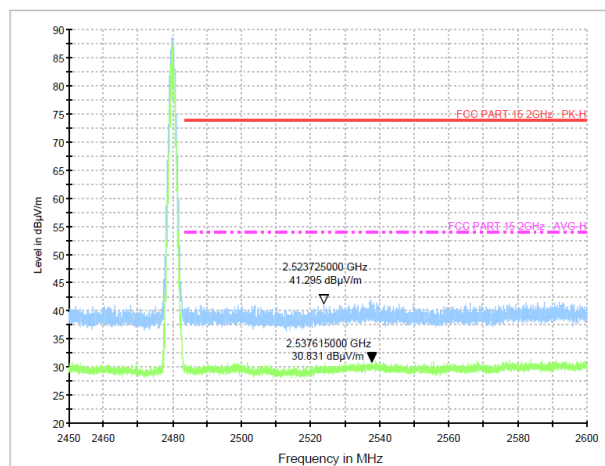
Note: 1. \*:Maximum data; x:Over limit; !:over margin.

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

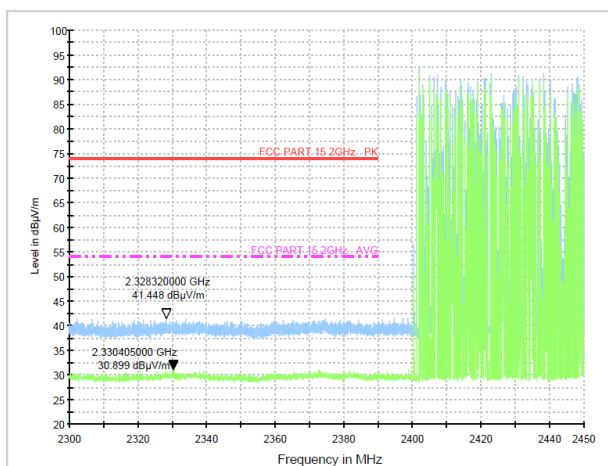
Test Mode: 8DPSK-Low Hopping-off



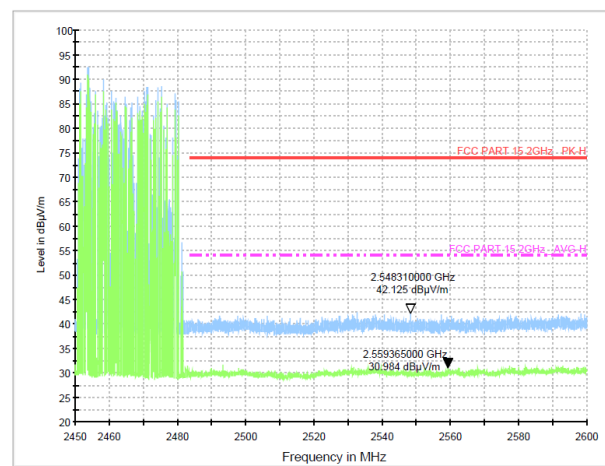
Test Mode: 8DPSK-High Hopping-off



Test Mode: 8DPSK-Low Hopping-on



Test Mode: 8DPSK-High Hopping-on

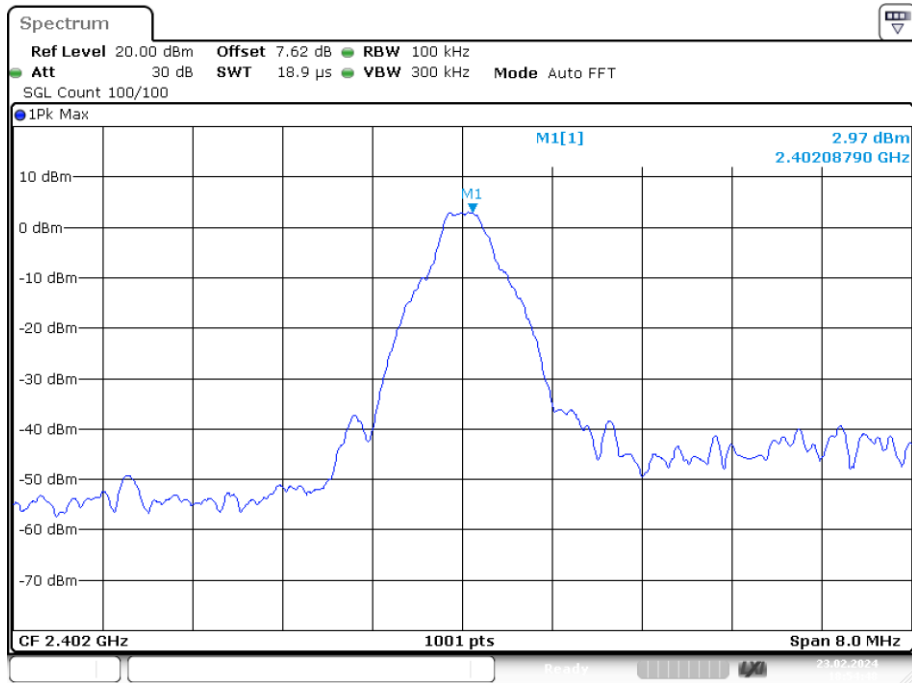


Note: 1. \*:Maximum data; x:Over limit; !:over margin.

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

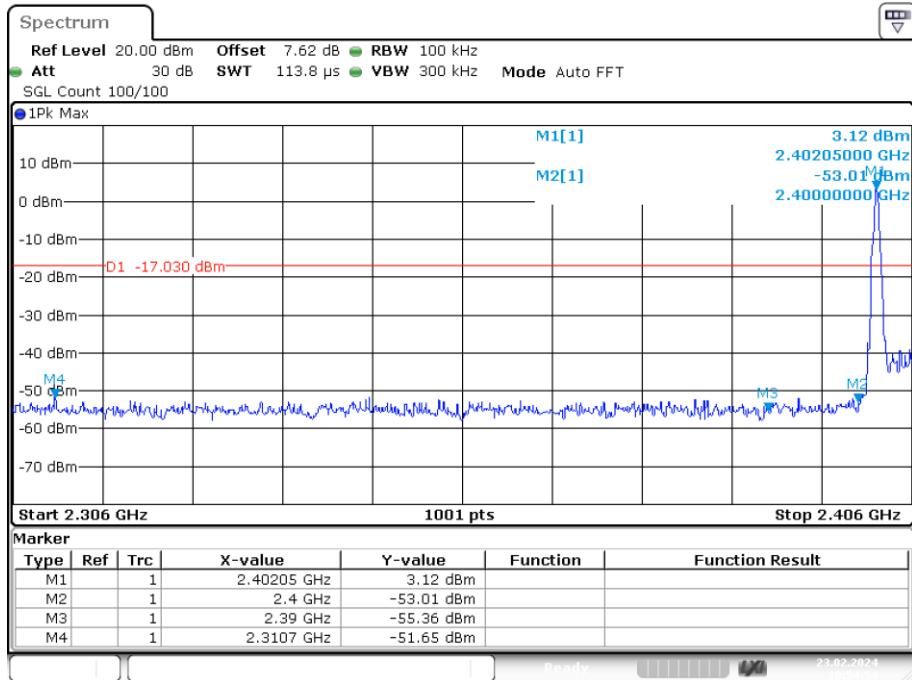
Conducted Method

Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



Date: 23.FEB.2024 18:54:47

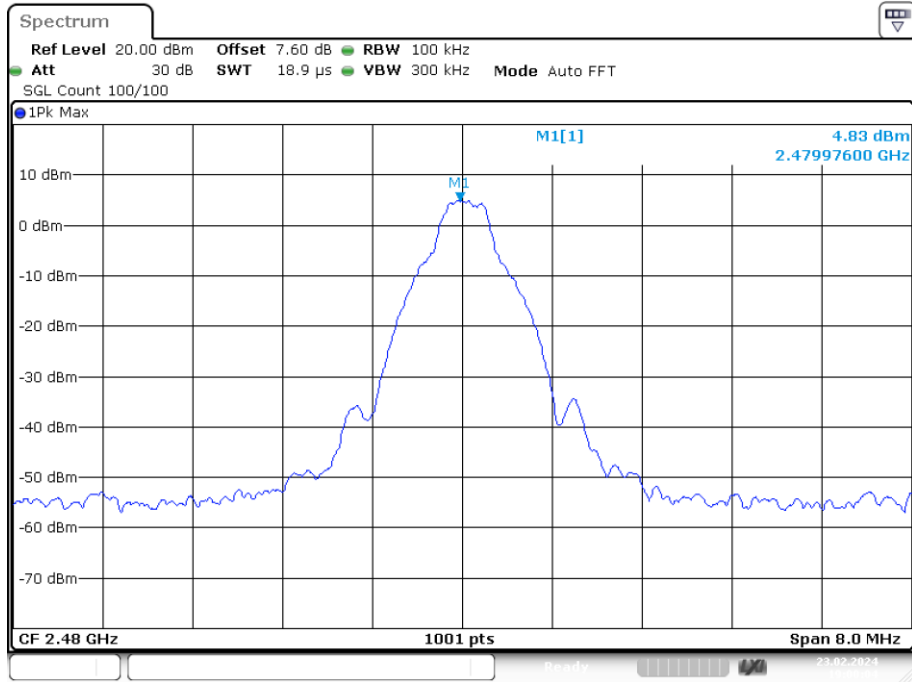
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



Date: 23.FEB.2024 18:54:53

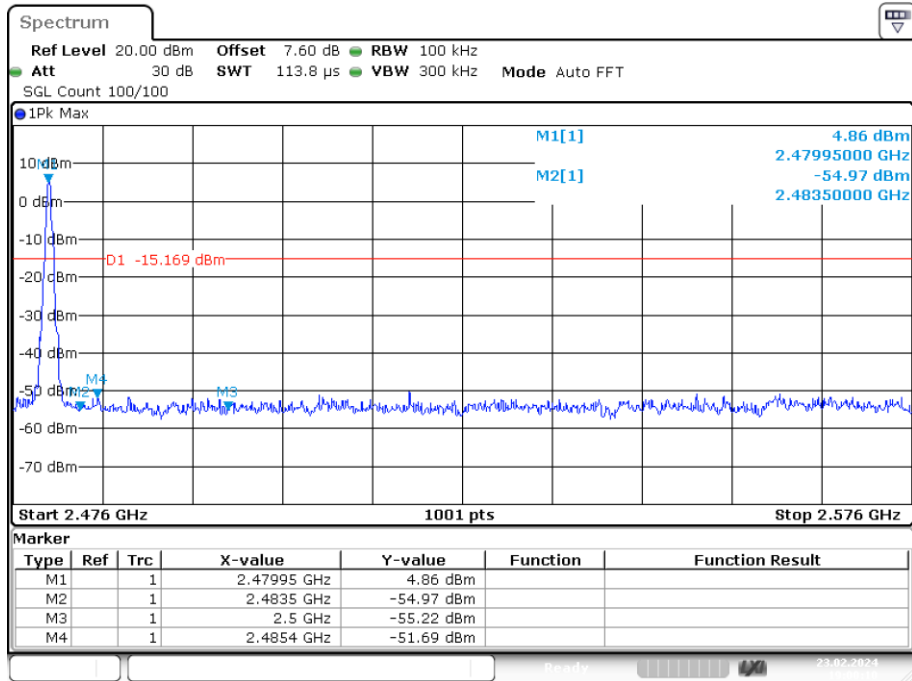


Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



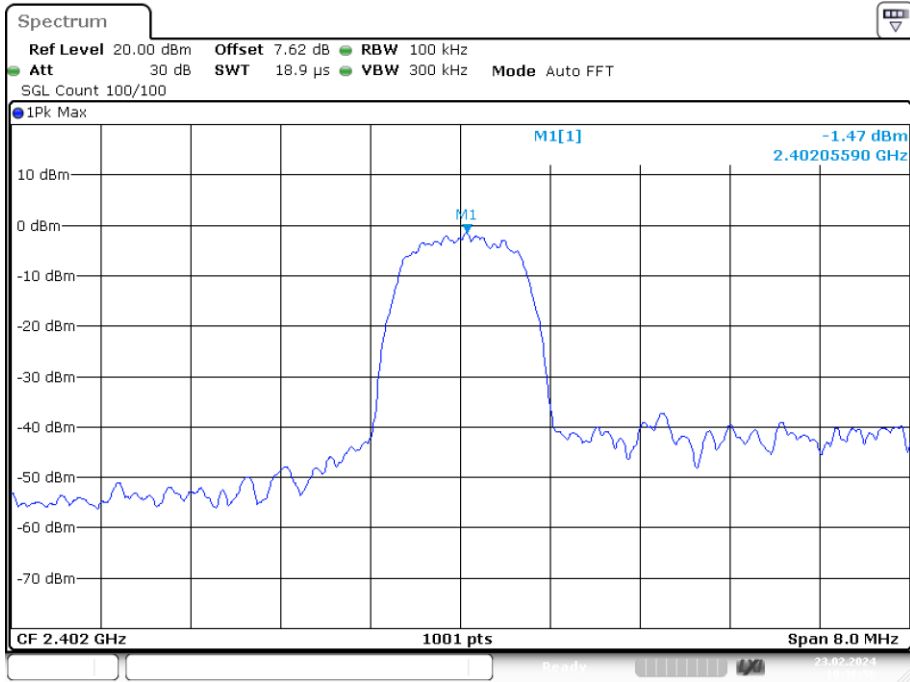
Date: 23.FEB.2024 19:00:03

Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



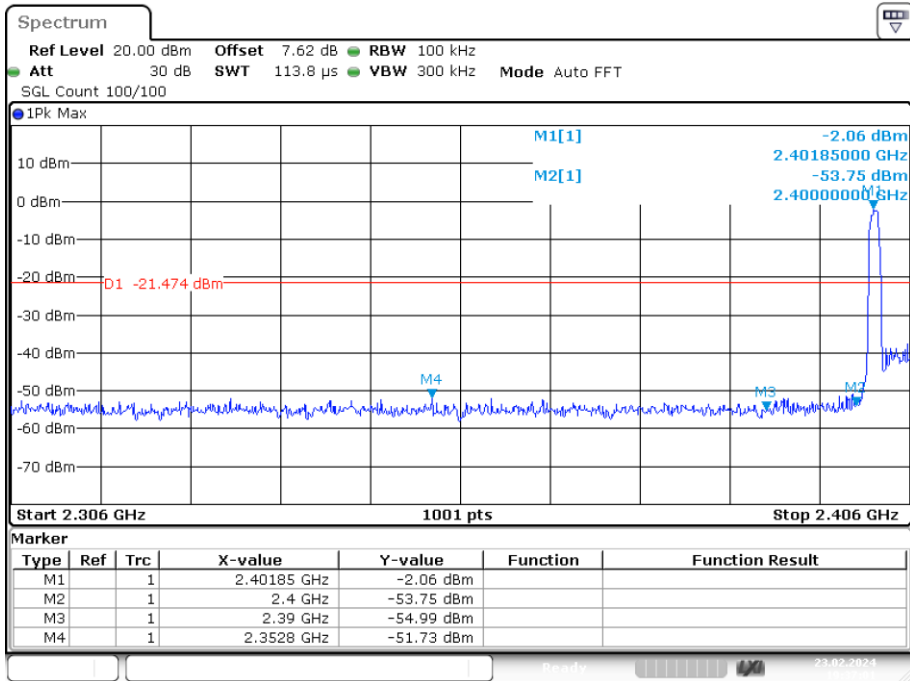
Date: 23.FEB.2024 19:00:09

Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



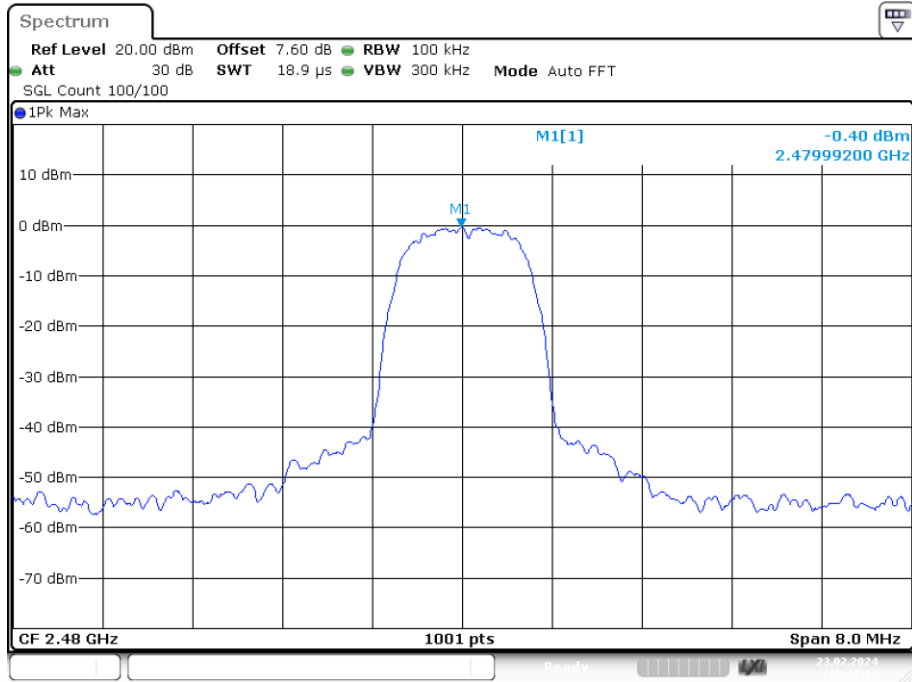
Date: 23.FEB.2024 19:36:55

Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



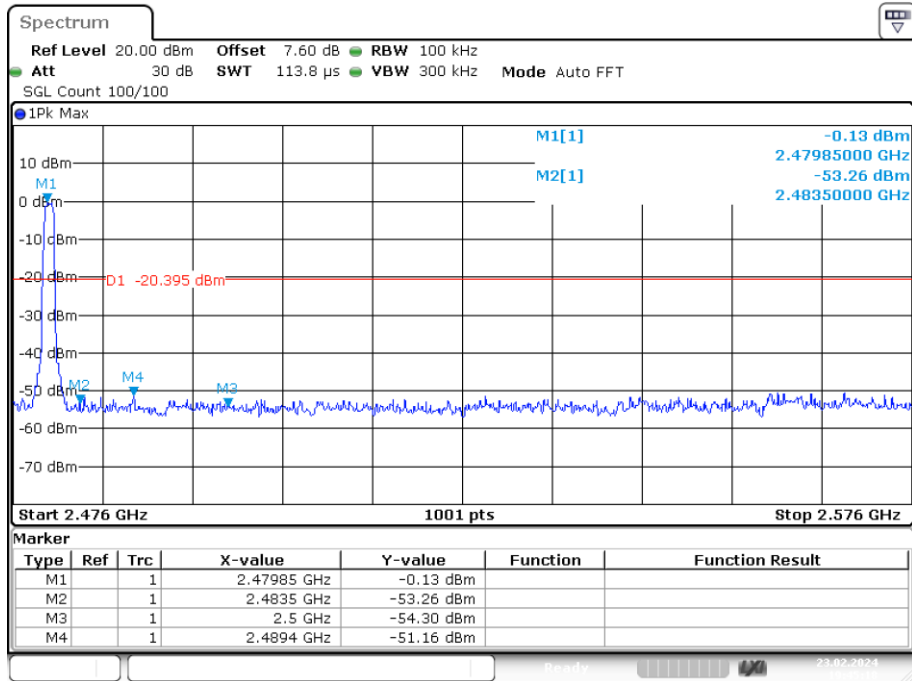
Date: 23.FEB.2024 19:37:01

Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



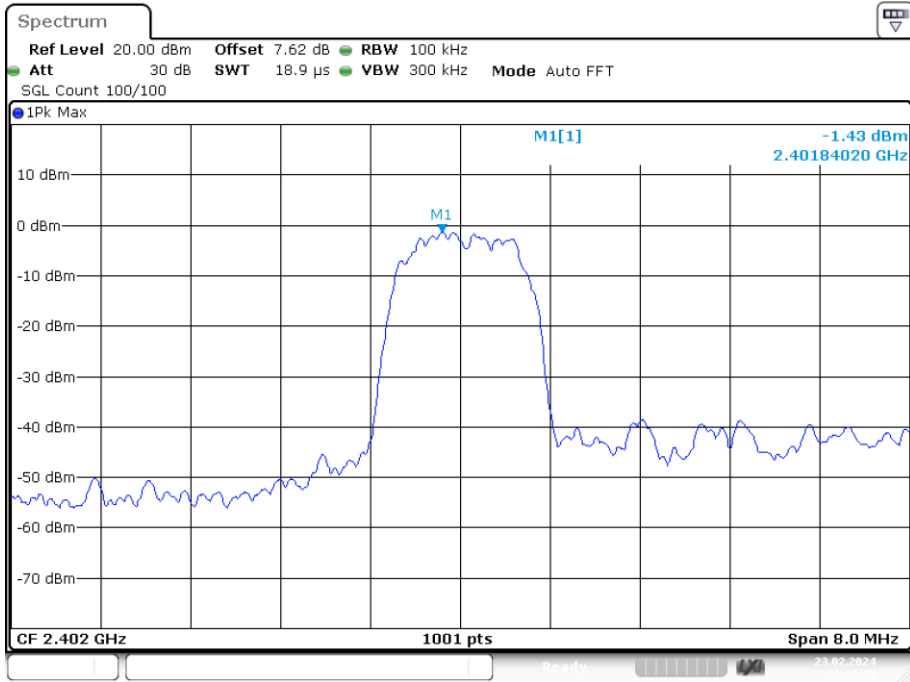
Date: 23.FEB.2024 19:45:12

Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



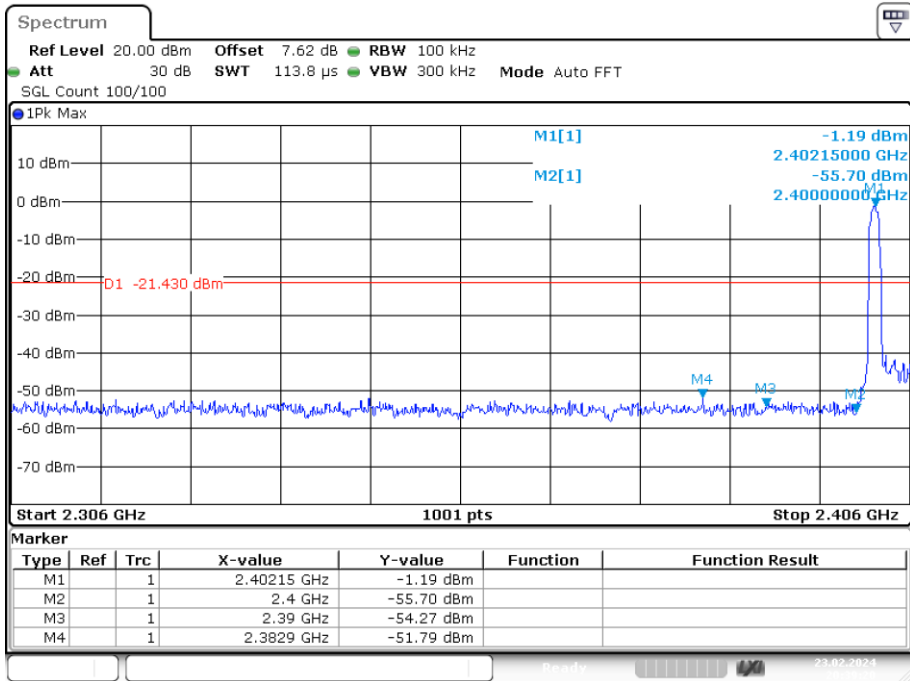
Date: 23.FEB.2024 19:45:18

Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



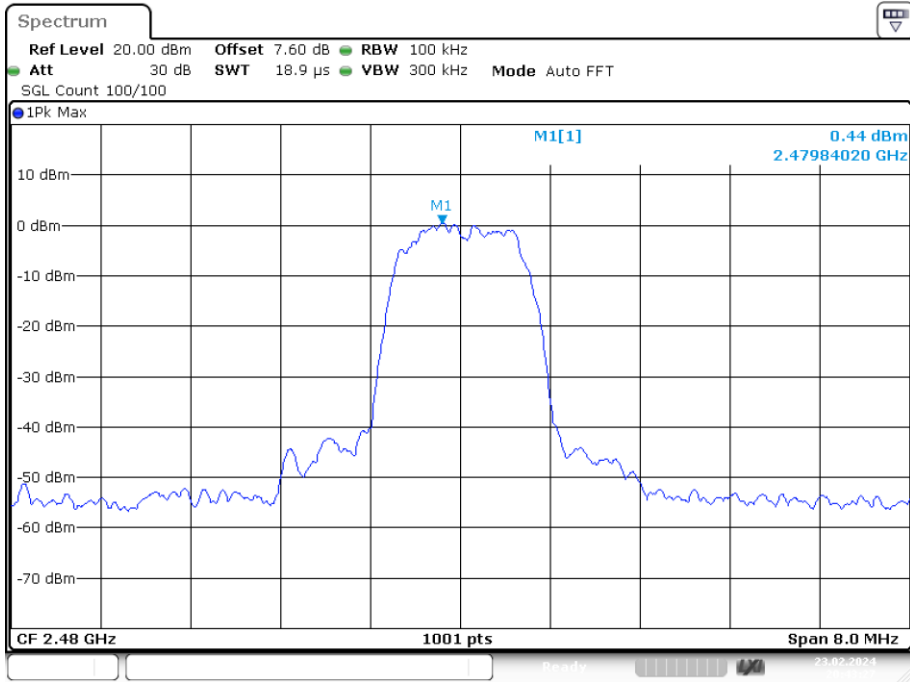
Date: 23.FEB.2024 20:39:14

Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



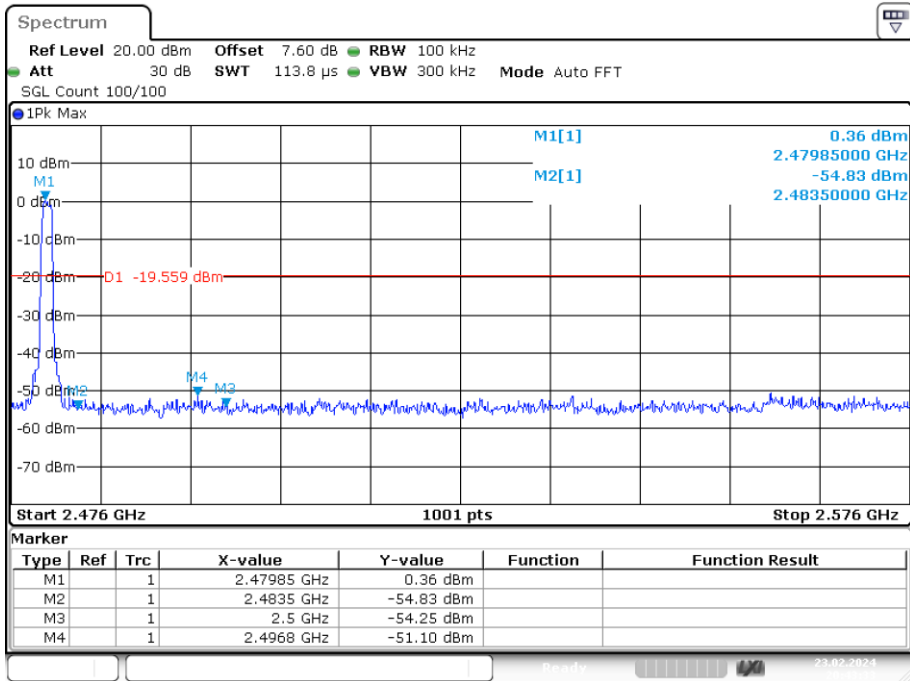
Date: 23.FEB.2024 20:39:20

Band Edge NVNT 3-DH1 2480MHz Ant1 No-Hopping Ref



Date: 23.FEB.2024 20:43:27

Band Edge NVNT 3-DH1 2480MHz Ant1 No-Hopping Emission



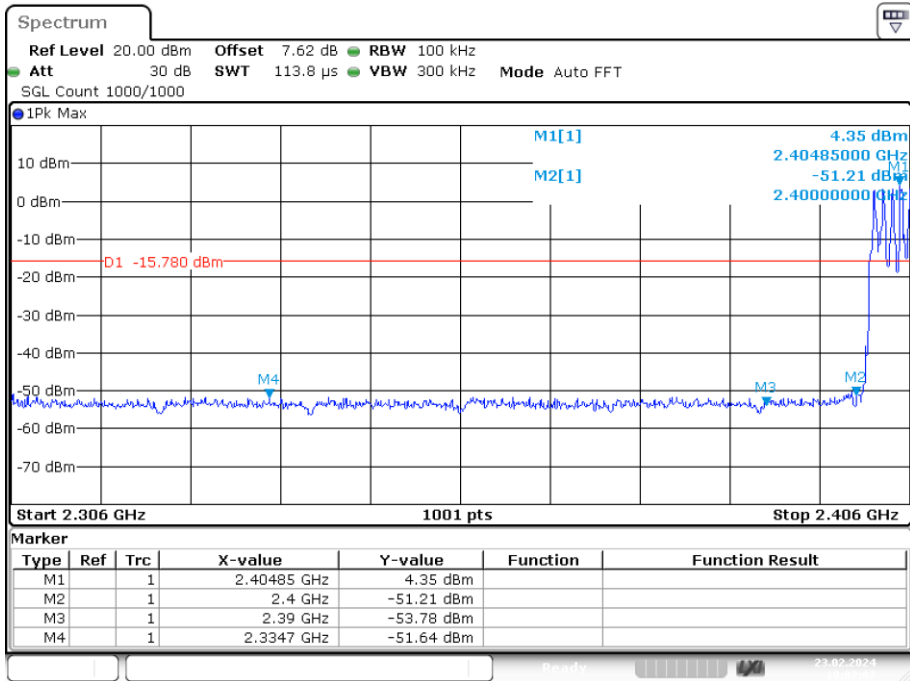
Date: 23.FEB.2024 20:43:33

Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref



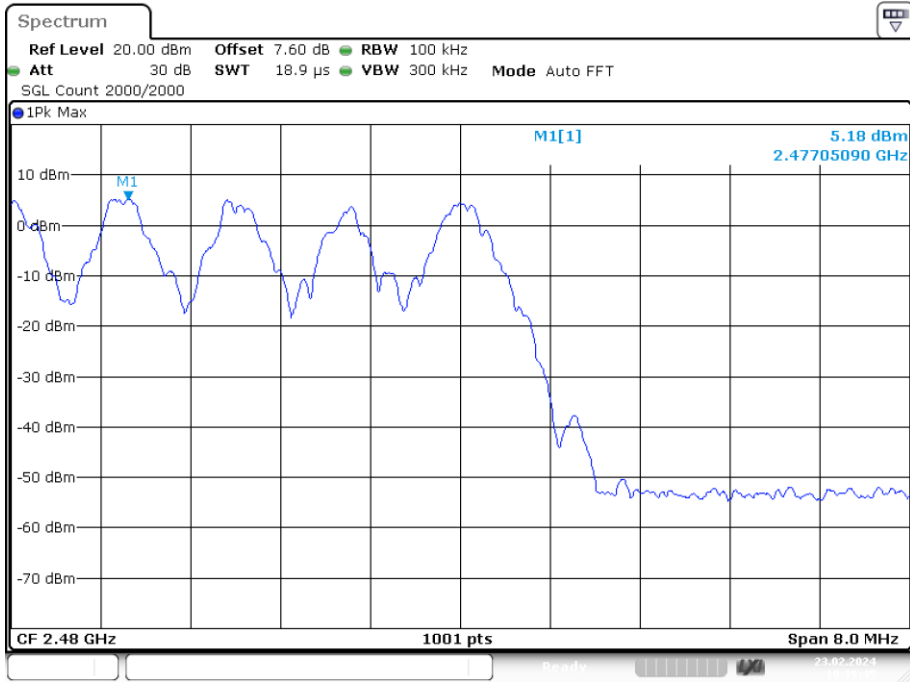
Date: 23.FEB.2024 19:06:36

Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission

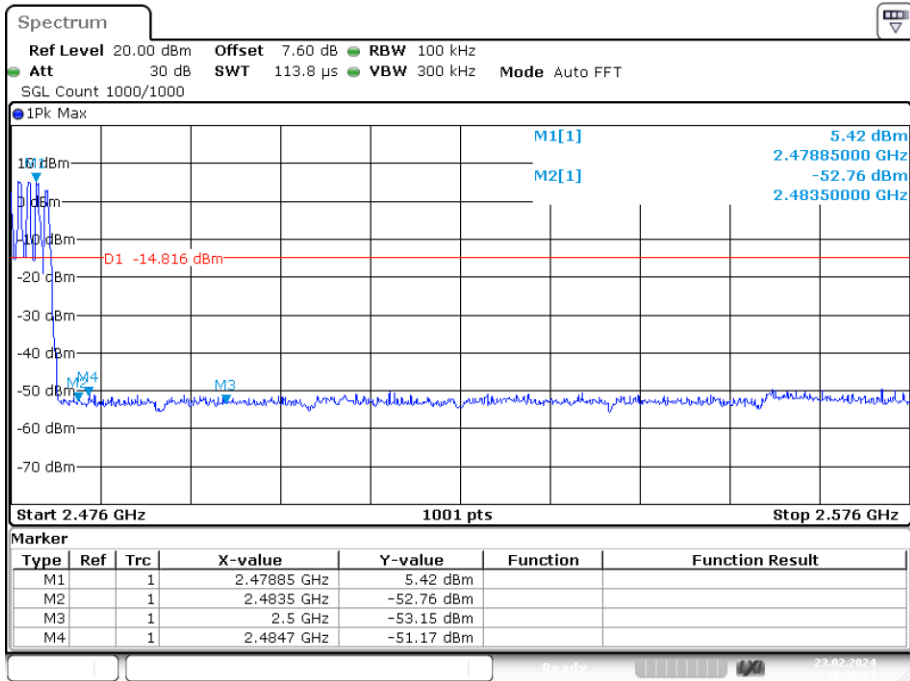


Date: 23.FEB.2024 19:07:07

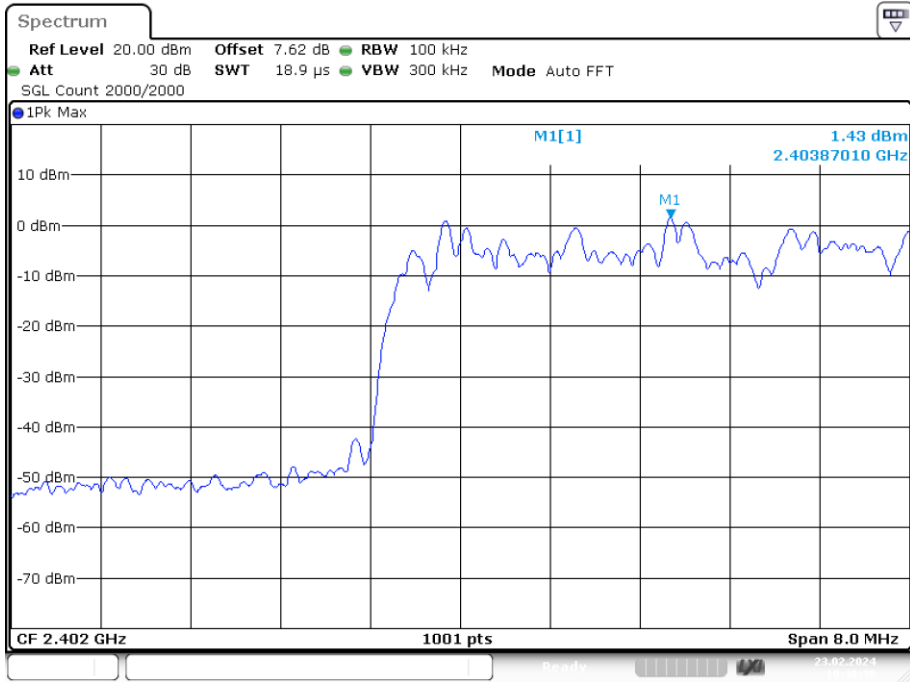
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission

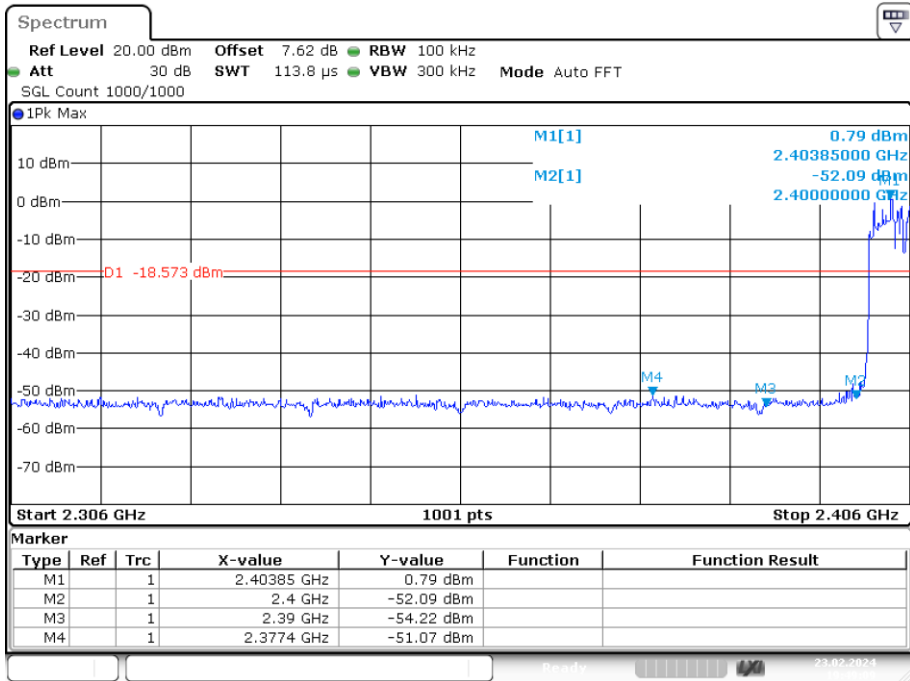


Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref



Date: 23.FEB.2024 19:48:38

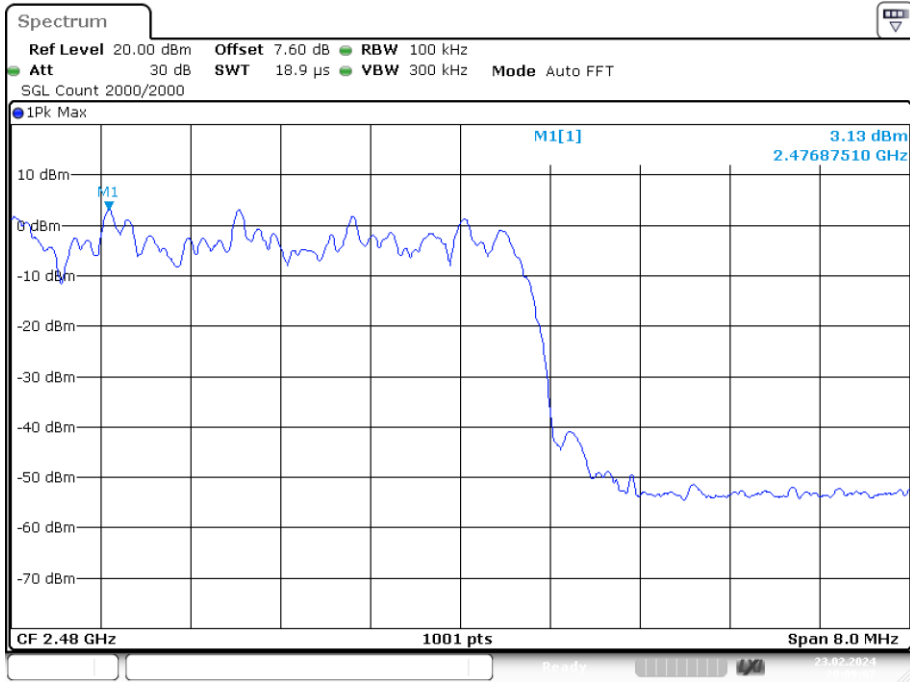
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission



Date: 23.FEB.2024 19:49:09

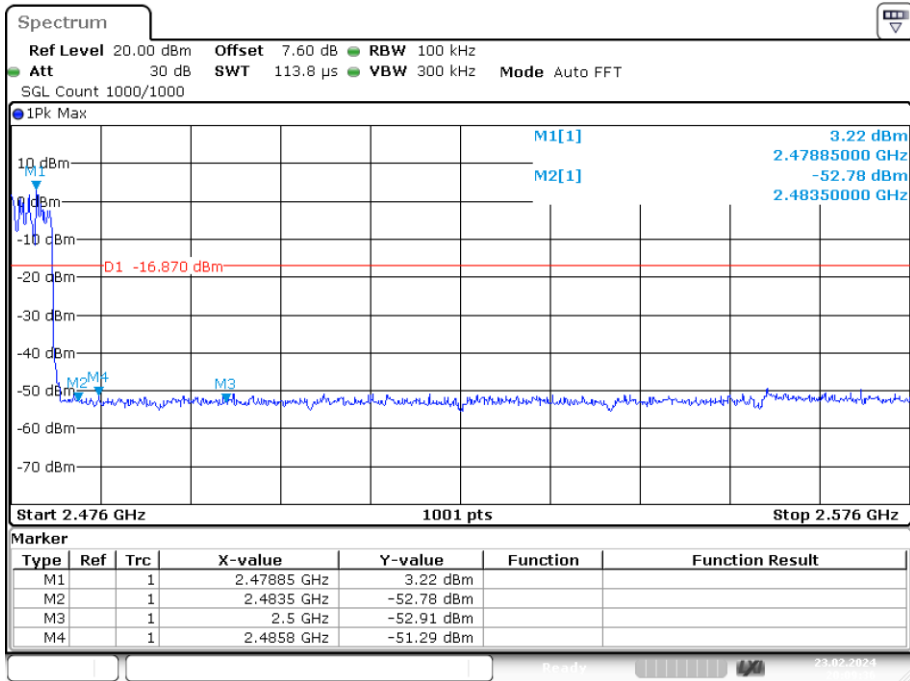


Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Ref



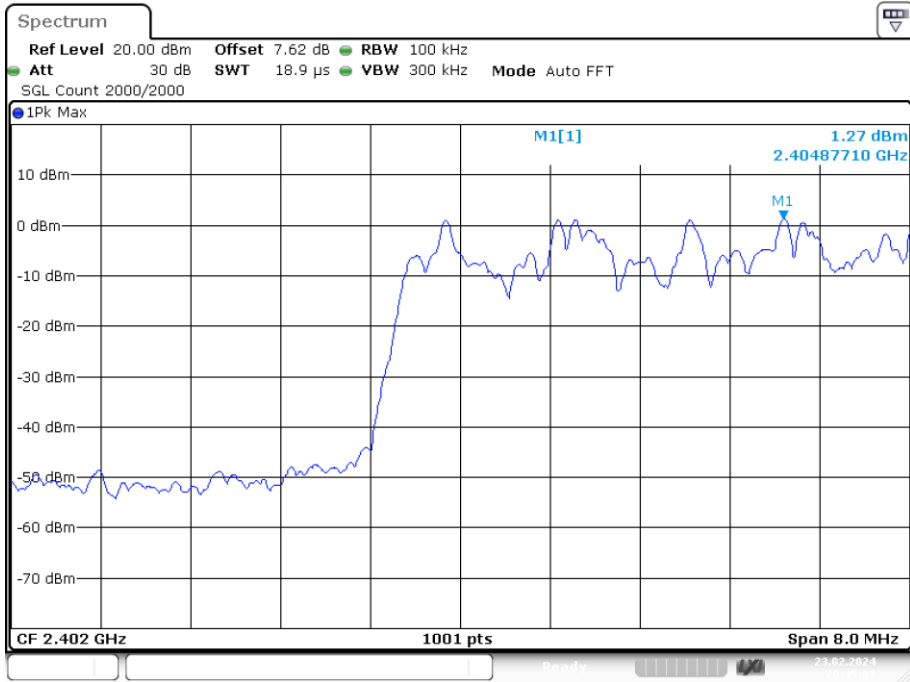
Date: 23.FEB.2024 20:09:07

Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Emission



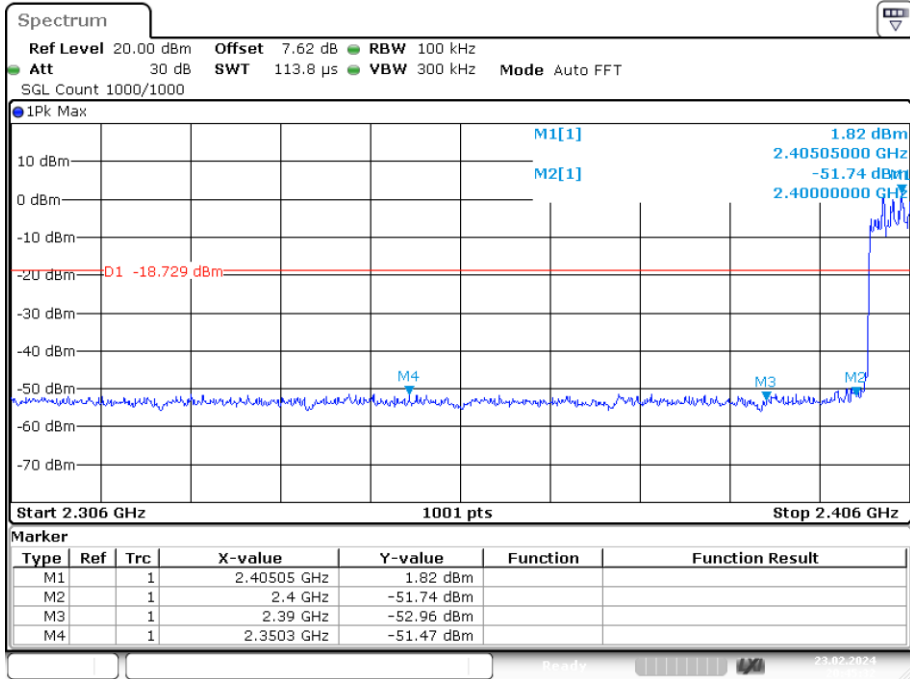
Date: 23.FEB.2024 20:09:36

Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Ref



Date: 23.FEB.2024 20:45:01

Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Emission



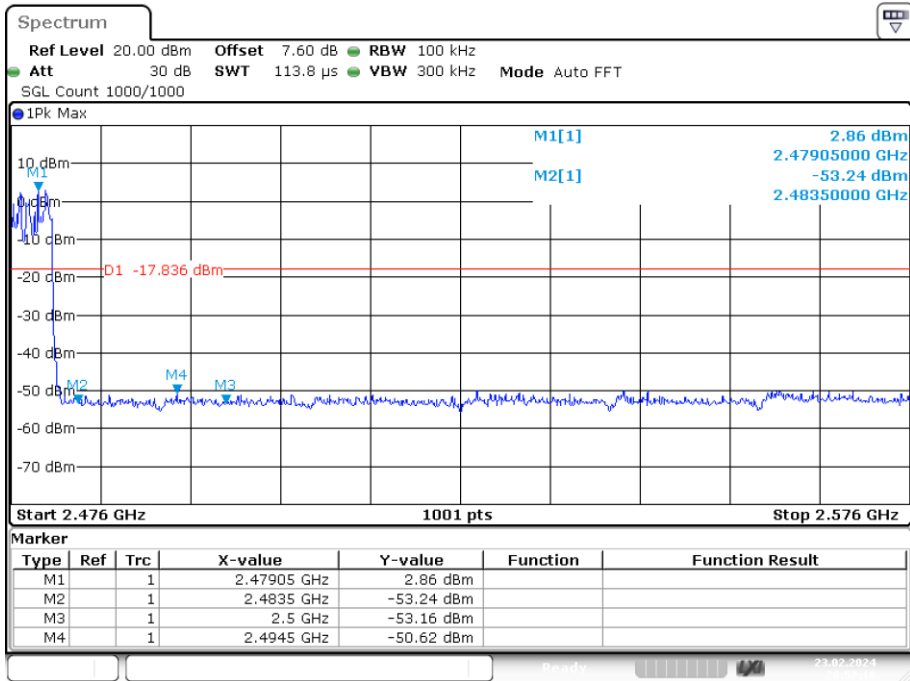
Date: 23.FEB.2024 20:45:32

Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Ref



Date: 23.FEB.2024 20:56:49

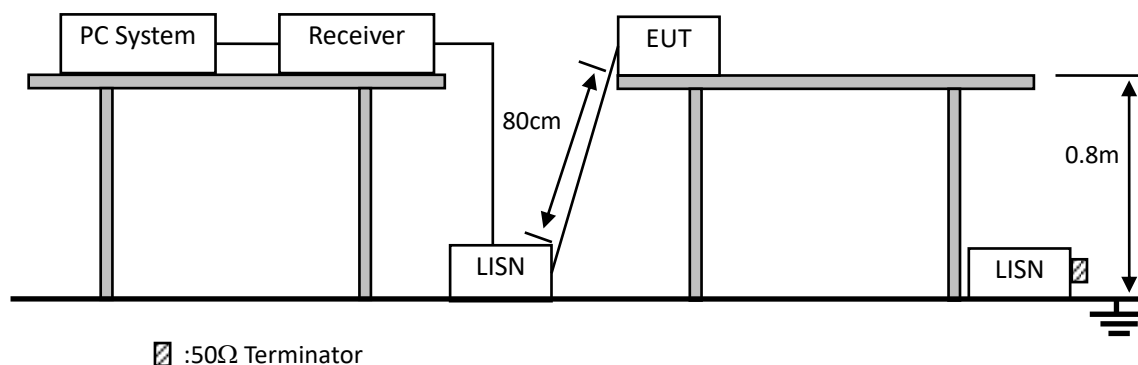
Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Emission



Date: 23.FEB.2024 20:57:18

## 10. POWER LINE CONDUCTED EMISSIONS

### 10.1. Block Diagram of Test Setup



### 10.2. Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB( $\mu$ V)	Average Level dB( $\mu$ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

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

### 10.3. Test Procedure

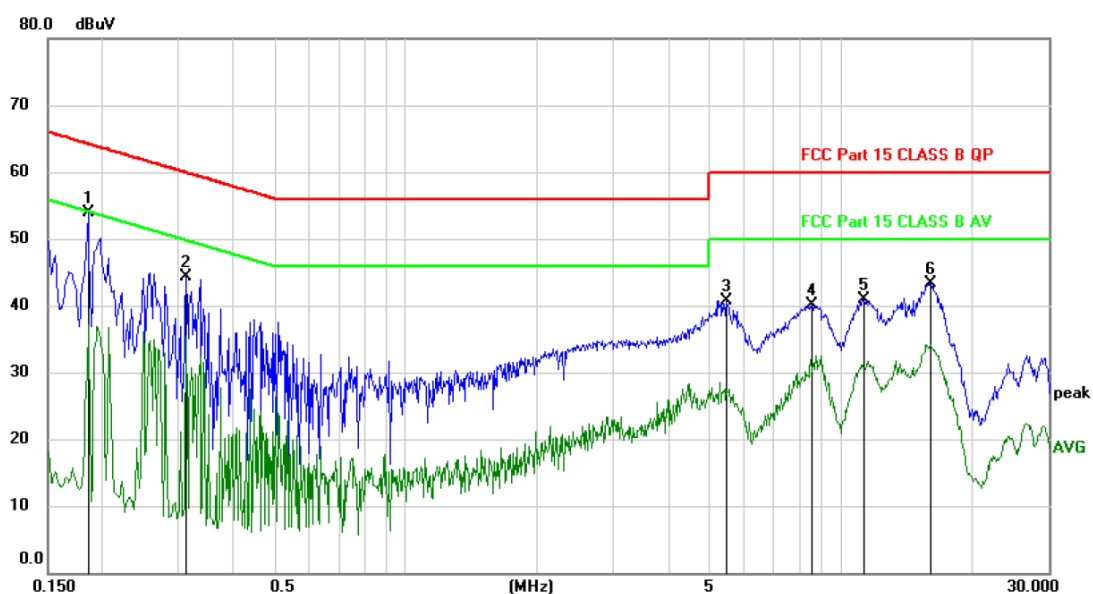
- (1) The EUT was placed on a non-metallic table, 80cm above the ground plane.
- (2) Setup the EUT and simulator as shown in 10.1
- (3) The EUT Power connected to the power mains through a power adapter and a line impedance stabilization network (L.I.S.N1). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N2), this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10 :2013on conducted Emission test.
- (4) The bandwidth of test receiver is set at 10KHz.
- (5) The frequency range from 150 KHz to 30MHz is checked.

### 10.4. Test Result

PASS. (See below detailed test data)

Note: If peak Result comply with AV limit, QP and AV Result is deemed to comply with AV limit

Line:



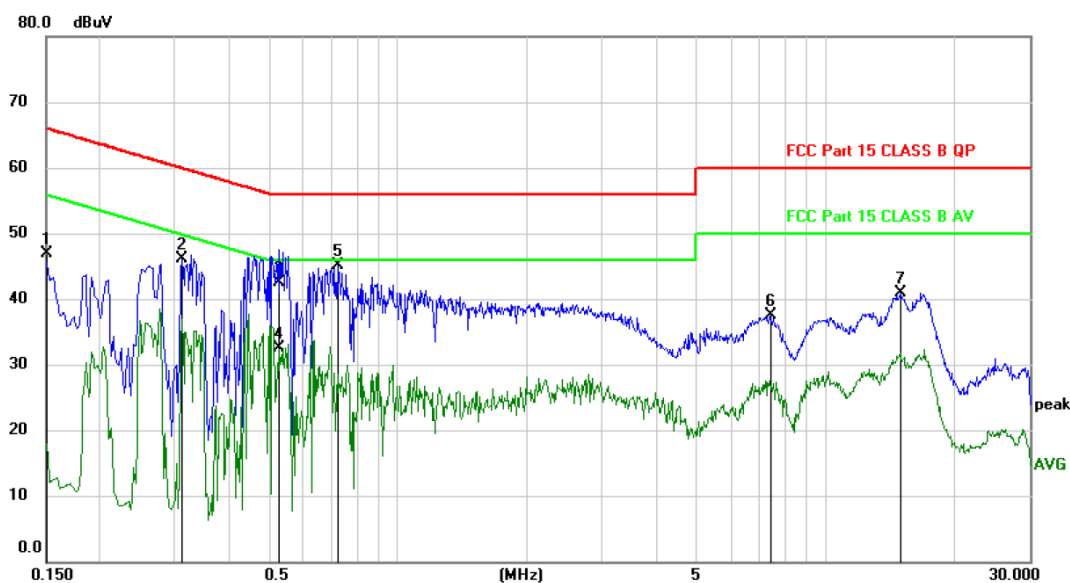
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1860	43.98	9.83	53.81	64.21	-10.40	peak	
2		0.3120	34.39	9.83	44.22	59.92	-15.70	peak	
3		5.4540	30.81	9.90	40.71	60.00	-19.29	peak	
4		8.5740	30.16	9.95	40.11	60.00	-19.89	peak	
5		11.2830	30.91	10.03	40.94	60.00	-19.06	peak	
6		16.0980	33.20	10.05	43.25	60.00	-16.75	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.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1500	36.99	9.83	46.82	66.00	-19.18	peak	
2		0.3120	36.24	9.83	46.07	59.92	-13.85	peak	
3		0.5280	32.77	9.83	42.60	56.00	-13.40	QP	
4		0.5280	22.69	9.83	32.52	46.00	-13.48	AVG	
5	*	0.7200	35.31	9.84	45.15	56.00	-10.85	peak	
6		7.4100	27.55	9.93	37.48	60.00	-22.52	peak	
7		14.9310	30.84	10.04	40.88	60.00	-19.12	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

Note: All modes and channels have been tested and only the GFSK 2402MHz mode with the worst data is listed.

## **11. ANTENNA REQUIREMENTS**

### **11.1. Limit**

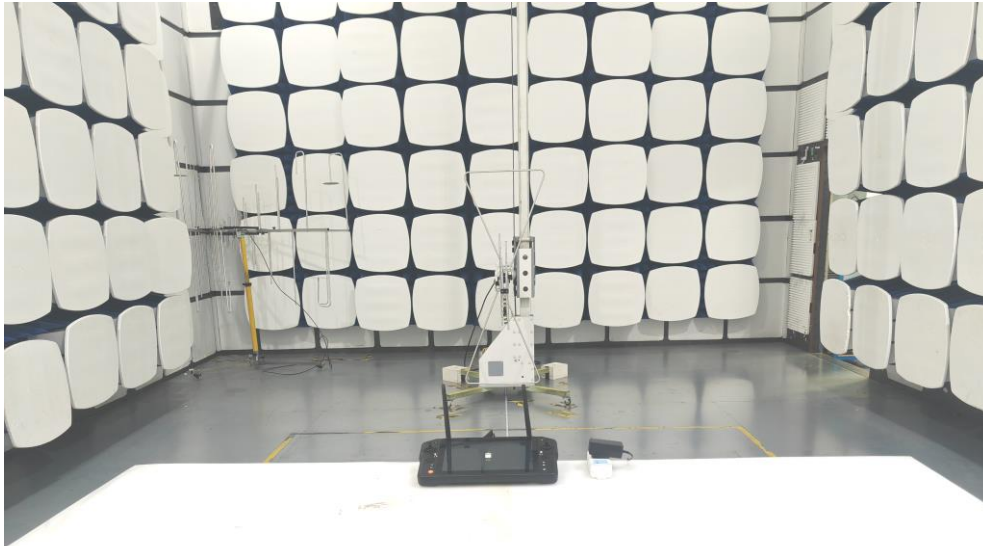
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### **11.2. Result**

The EUT antenna is Internal Antenna. It complies with the standard requirement.

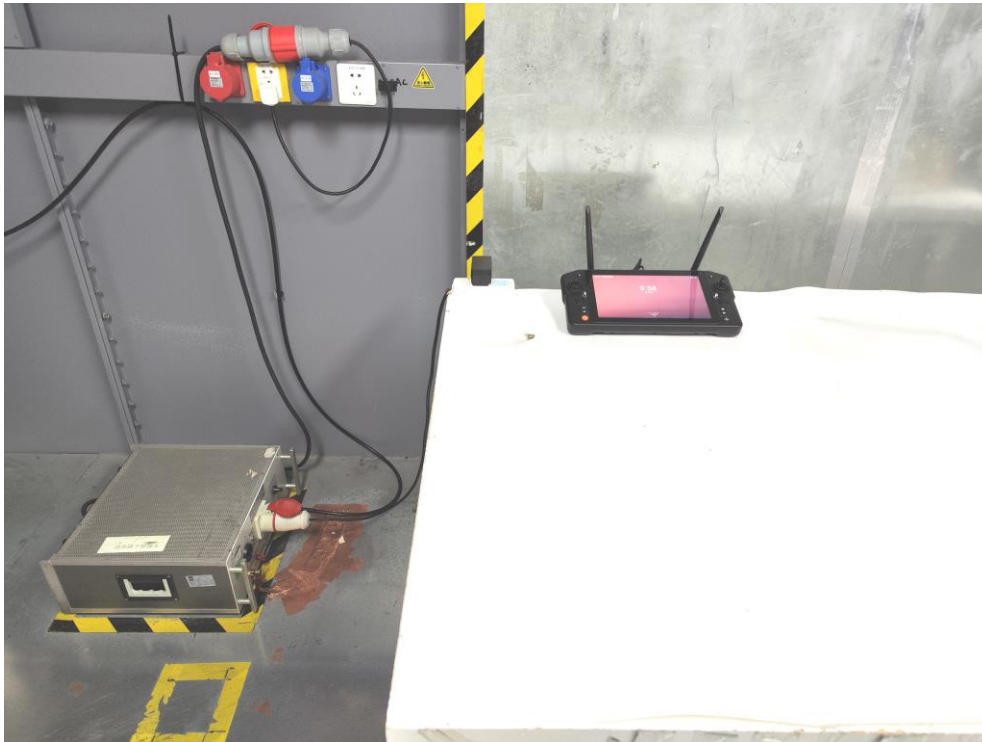
## 12. TEST SETUP PHOTO

### 12.1. Photo of Radiated Emission test





12.2.Photo of Conducted Emission test



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