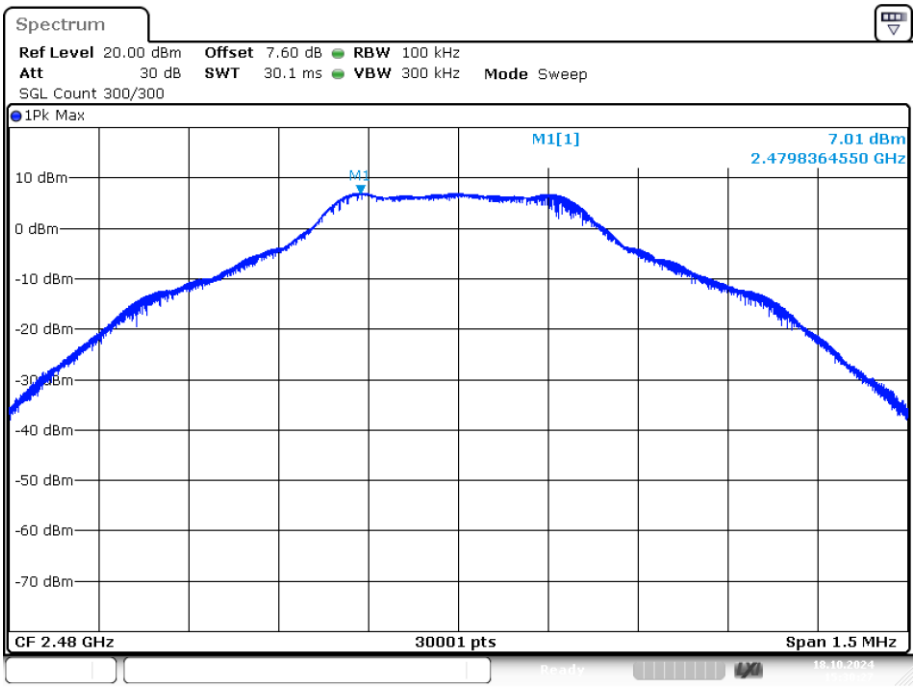
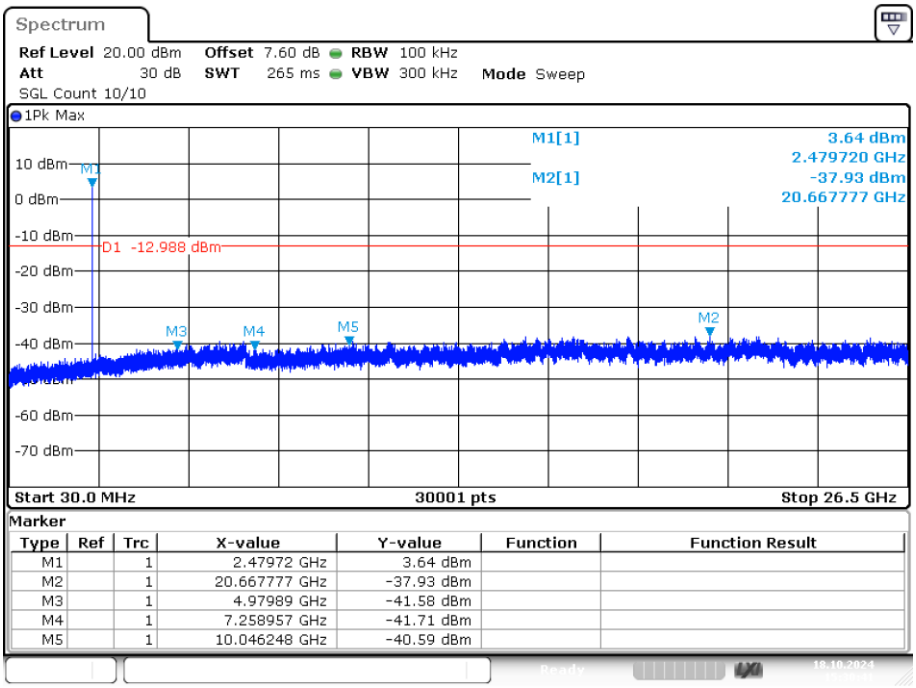
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



Date: 18.OCT.2024 15:30:27

Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission

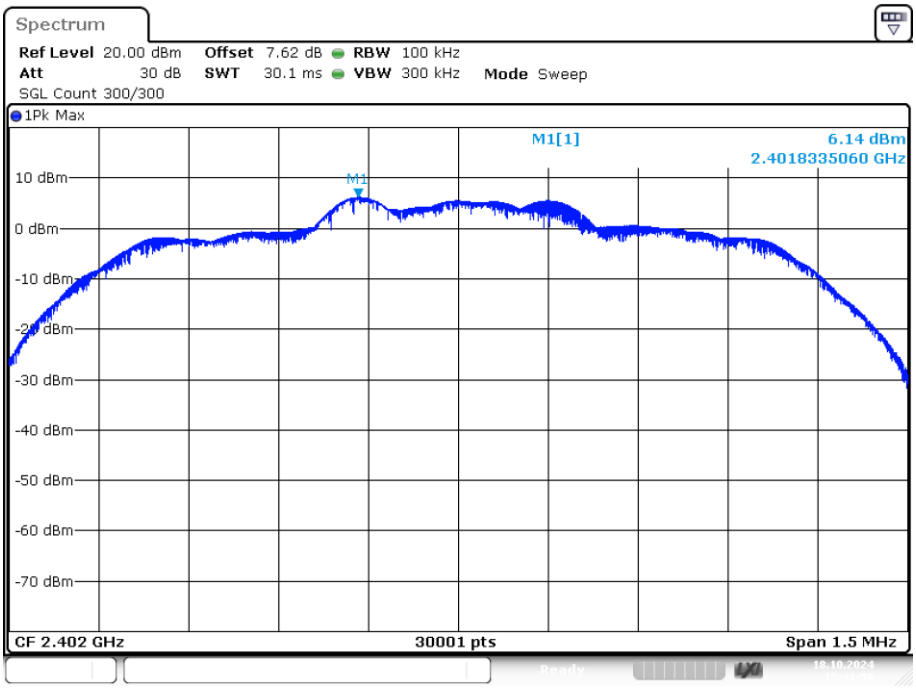


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47972 GHz	3.64 dBm		
M2		1	20.667777 GHz	-37.93 dBm		
M3		1	4.97989 GHz	-41.58 dBm		
M4		1	7.258957 GHz	-41.71 dBm		
M5		1	10.046248 GHz	-40.59 dBm		

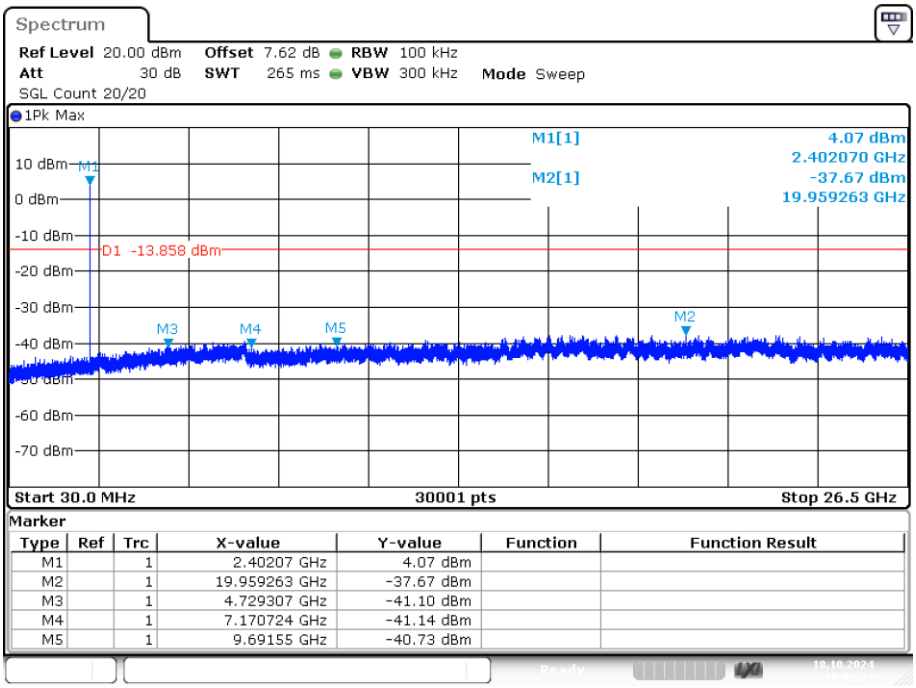
Date: 18.OCT.2024 15:30:41

Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



Date: 18.OCT.2024 15:41:59

Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission

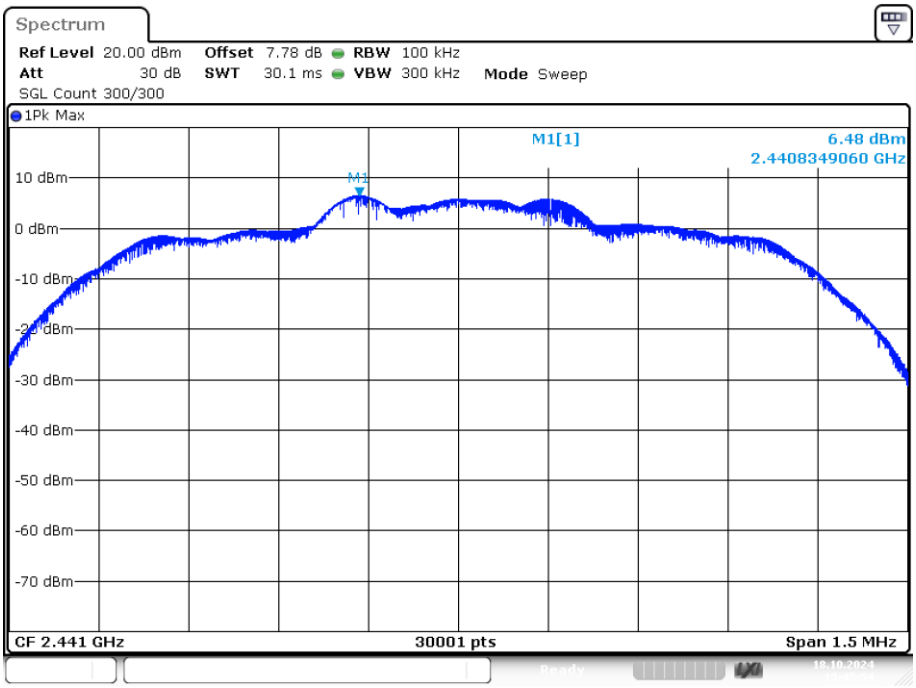


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40207 GHz	4.07 dBm		
M2		1	19.959263 GHz	-37.67 dBm		
M3		1	4.729307 GHz	-41.10 dBm		
M4		1	7.170724 GHz	-41.14 dBm		
M5		1	9.69155 GHz	-40.73 dBm		

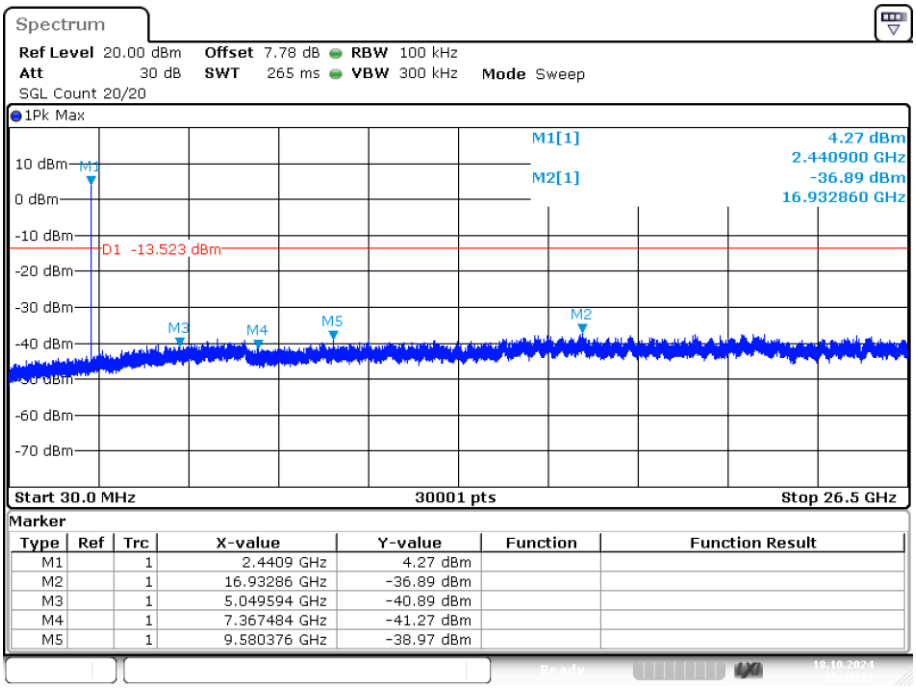
Date: 18.OCT.2024 15:42:23

Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



Date: 18.OCT.2024 15:45:54

Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission

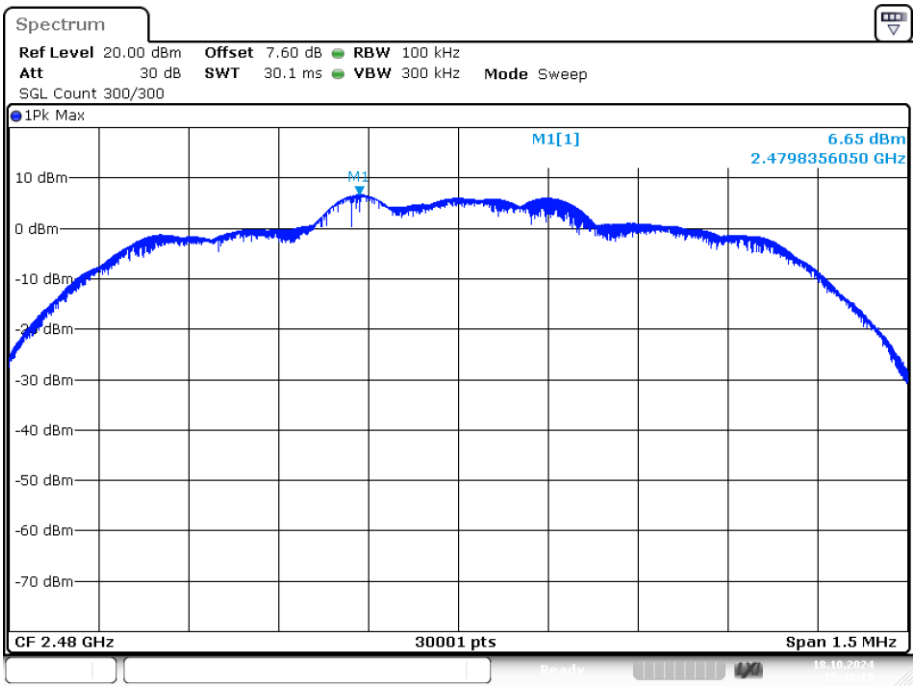


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4409 GHz	4.27 dBm		
M2		1	16.93286 GHz	-36.89 dBm		
M3		1	5.049594 GHz	-40.89 dBm		
M4		1	7.367484 GHz	-41.27 dBm		
M5		1	9.580376 GHz	-38.97 dBm		

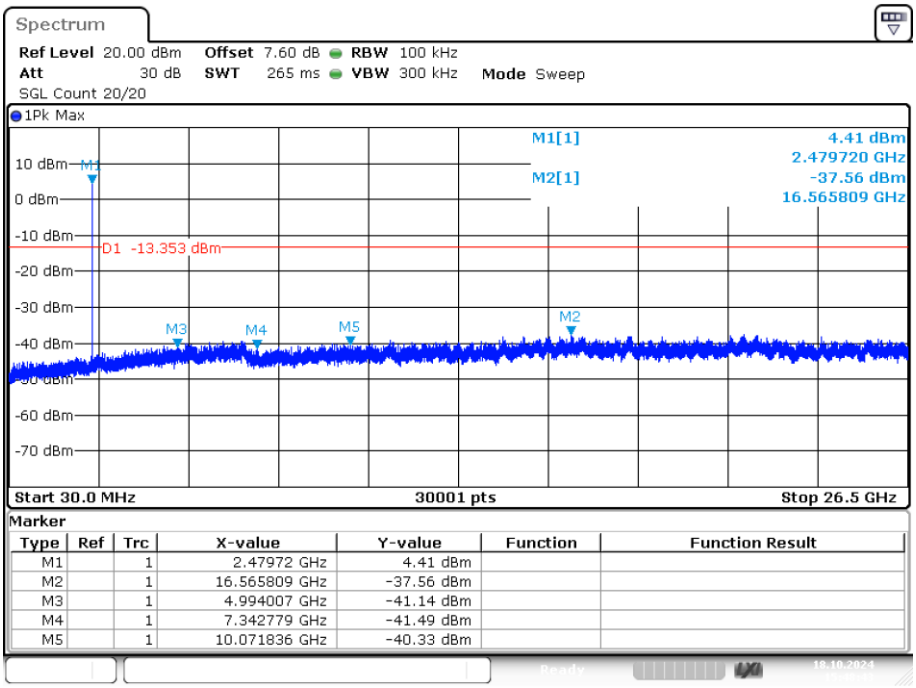
Date: 18.OCT.2024 15:46:19

Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



Date: 18.OCT.2024 15:48:19

Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission

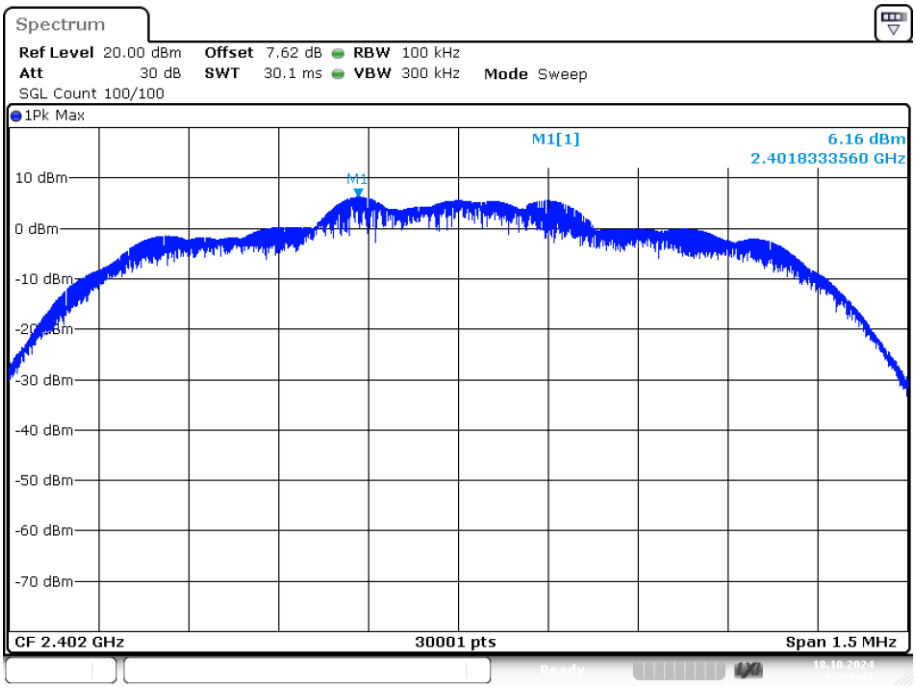


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47972 GHz	4.41 dBm		
M2		1	16.565809 GHz	-37.56 dBm		
M3		1	4.994007 GHz	-41.14 dBm		
M4		1	7.342779 GHz	-41.49 dBm		
M5		1	10.071836 GHz	-40.33 dBm		

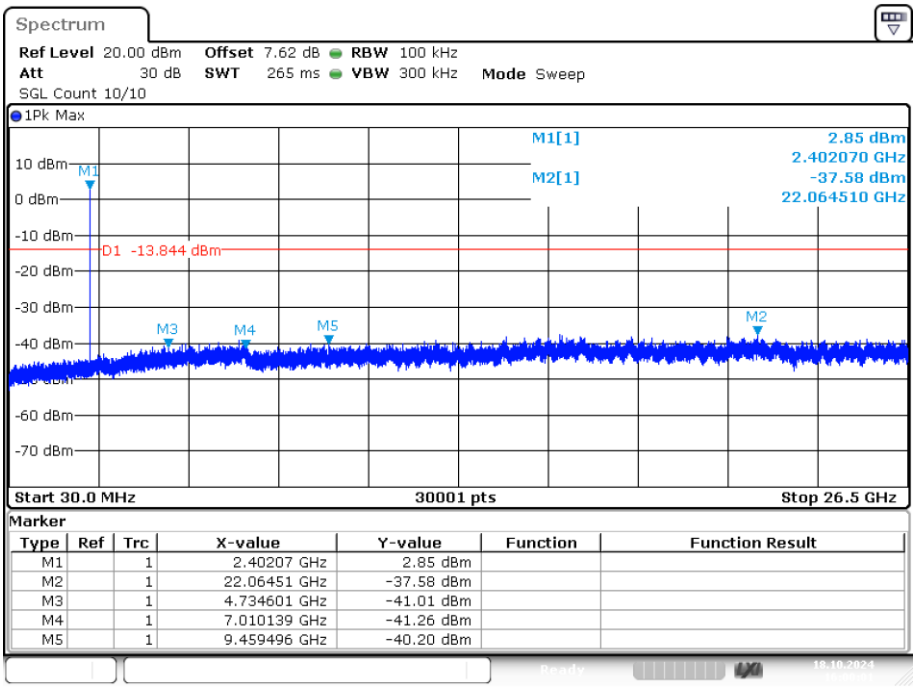
Date: 18.OCT.2024 15:48:44

Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



Date: 18.OCT.2024 15:59:47

Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission

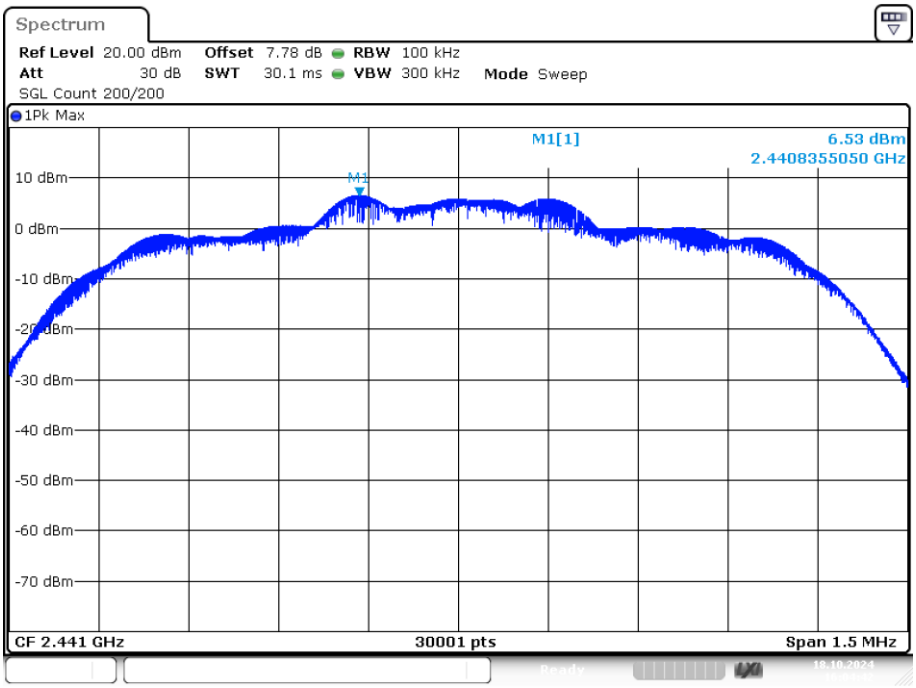


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40207 GHz	2.85 dBm		
M2		1	22.06451 GHz	-37.58 dBm		
M3		1	4.734601 GHz	-41.01 dBm		
M4		1	7.010139 GHz	-41.26 dBm		
M5		1	9.459496 GHz	-40.20 dBm		

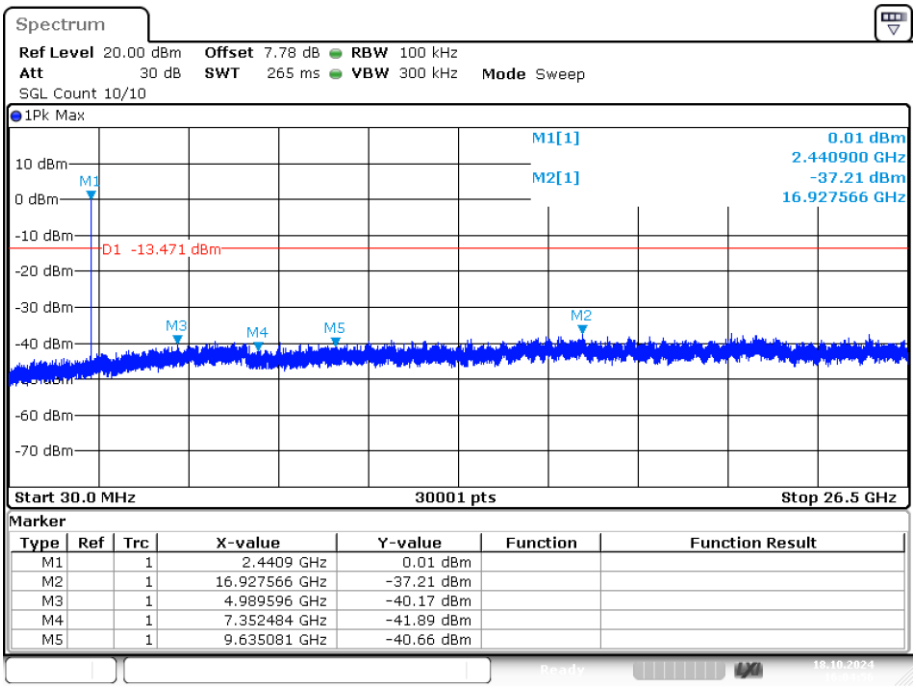
Date: 18.OCT.2024 16:00:01

Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



Date: 18.OCT.2024 16:04:42

Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission

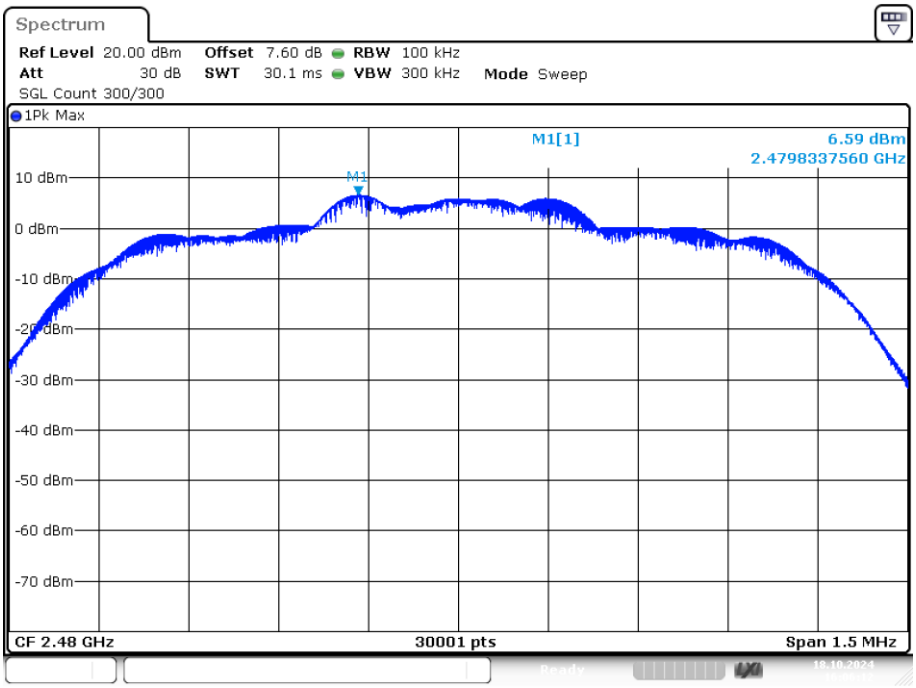


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4409 GHz	0.01 dBm		
M2		1	16.927566 GHz	-37.21 dBm		
M3		1	4.989596 GHz	-40.17 dBm		
M4		1	7.352484 GHz	-41.89 dBm		
M5		1	9.635081 GHz	-40.66 dBm		

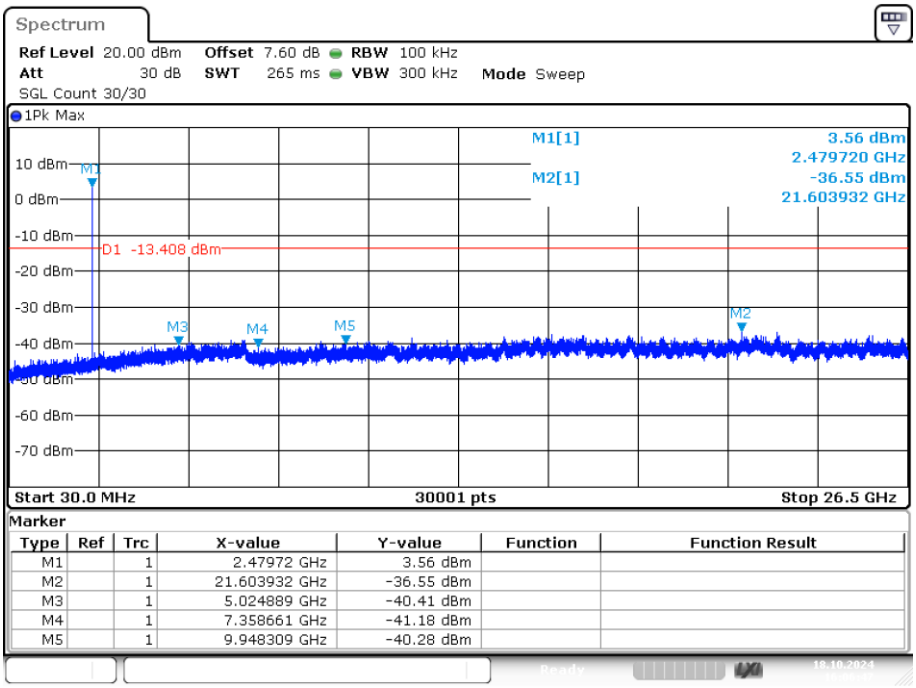
Date: 18.OCT.2024 16:04:55

Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Date: 18.OCT.2024 16:06:12

Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission



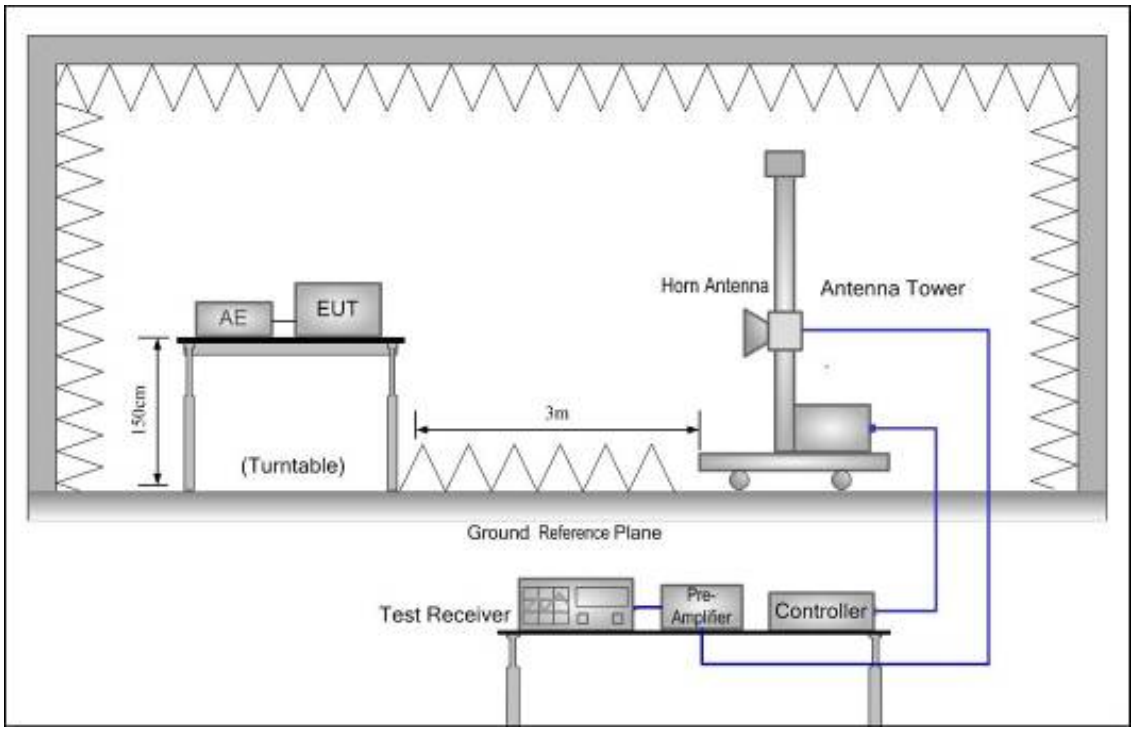
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47972 GHz	3.56 dBm		
M2		1	21.603932 GHz	-36.55 dBm		
M3		1	5.024889 GHz	-40.41 dBm		
M4		1	7.358661 GHz	-41.18 dBm		
M5		1	9.948309 GHz	-40.28 dBm		

Date: 18.OCT.2024 16:06:46

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.

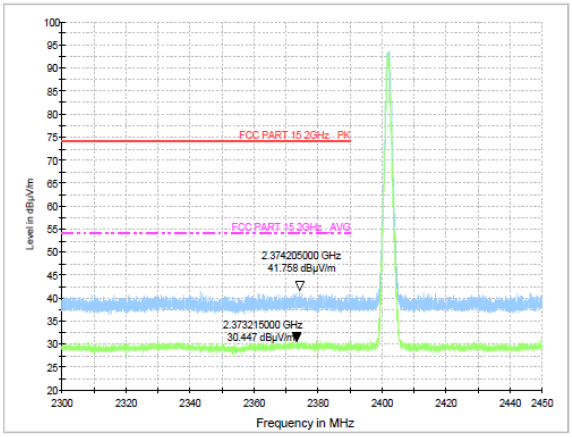
9.3. Test Procedure

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

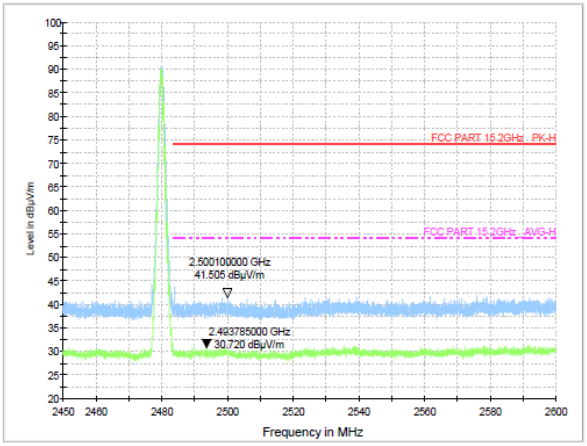
9.4. Test Result

PASS. (See below detailed test data)

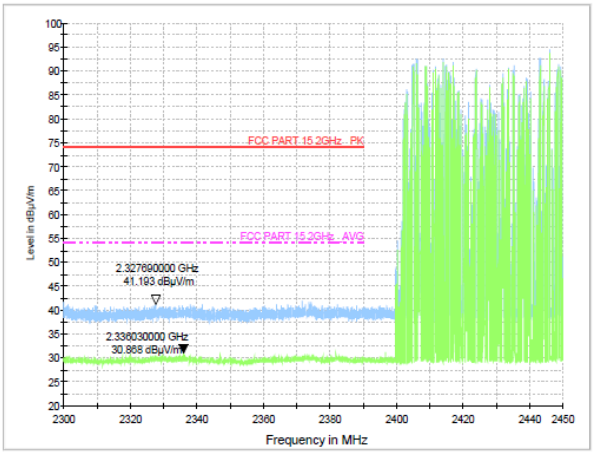
Test Mode: GFSK-Low Hopping-off



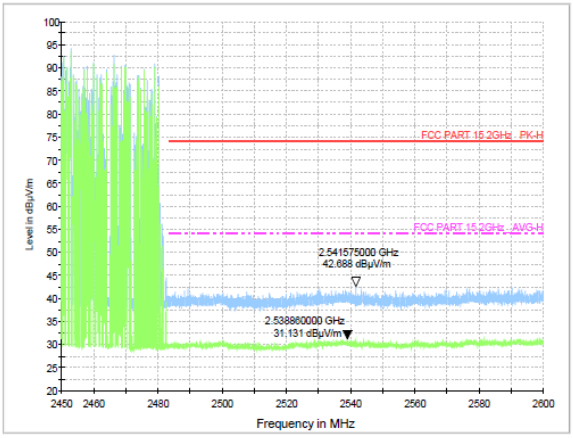
Test Mode: GFSK-High Hopping-off



Test Mode: GFSK-Low Hopping-on



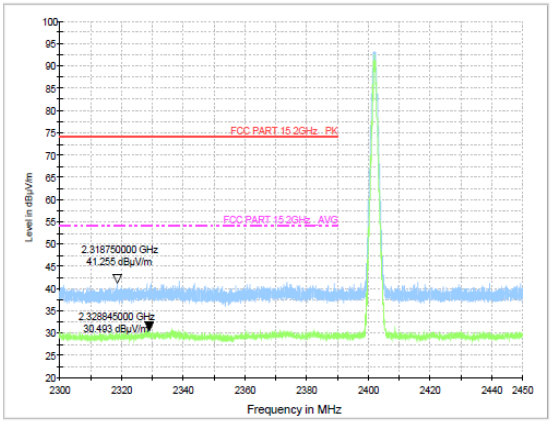
Test Mode: GFSK-High Hopping-on



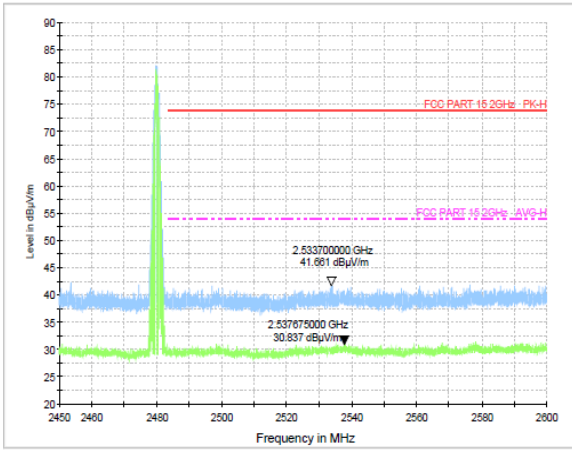
Note: 1. *:Maximum data; x:Over limit; !:over margin.

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

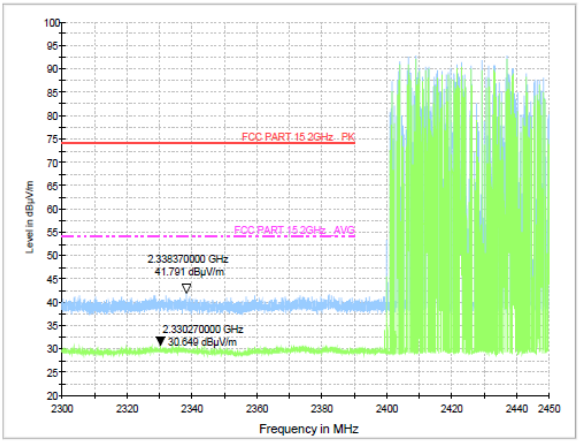
Test Mode: π/4 DQPSK-Low Hopping-off



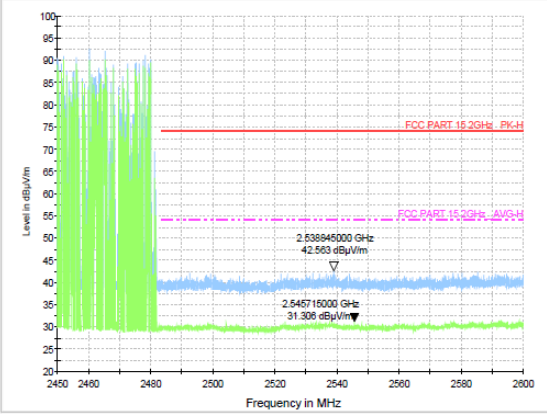
Test Mode: π/4 DQPSK-High Hopping-off



Test Mode: π/4 DQPSK-Low Hopping-on



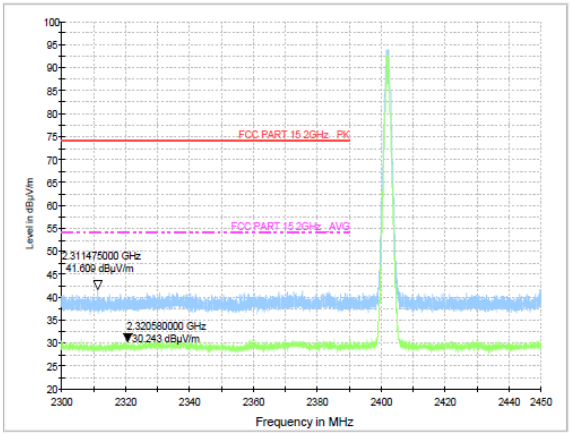
Test Mode: π/4 DQPSK-High Hopping-on



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



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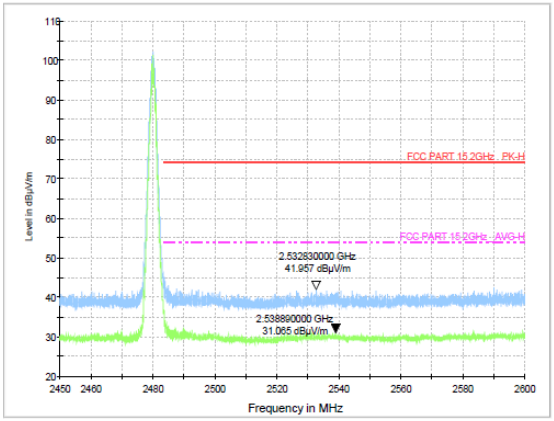

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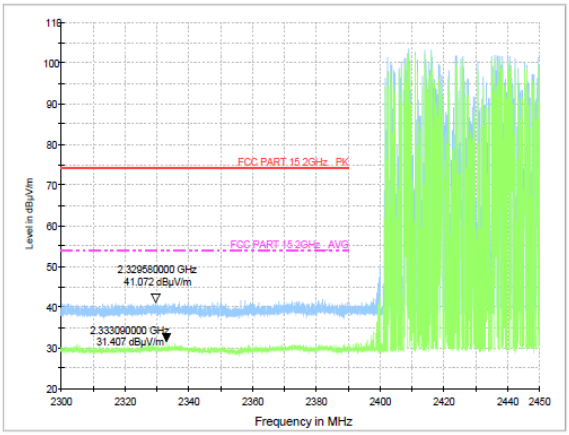
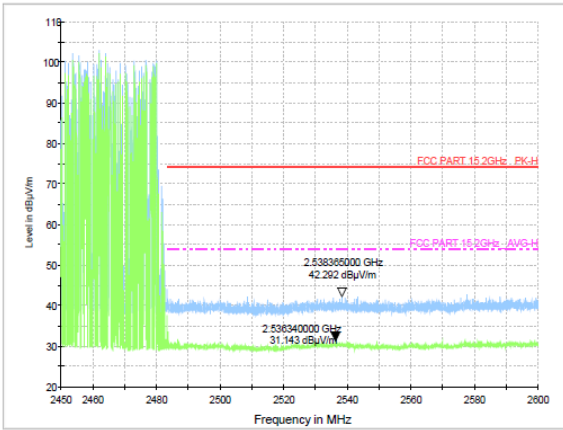


Test Mode: 8DPSK-High Hopping-on



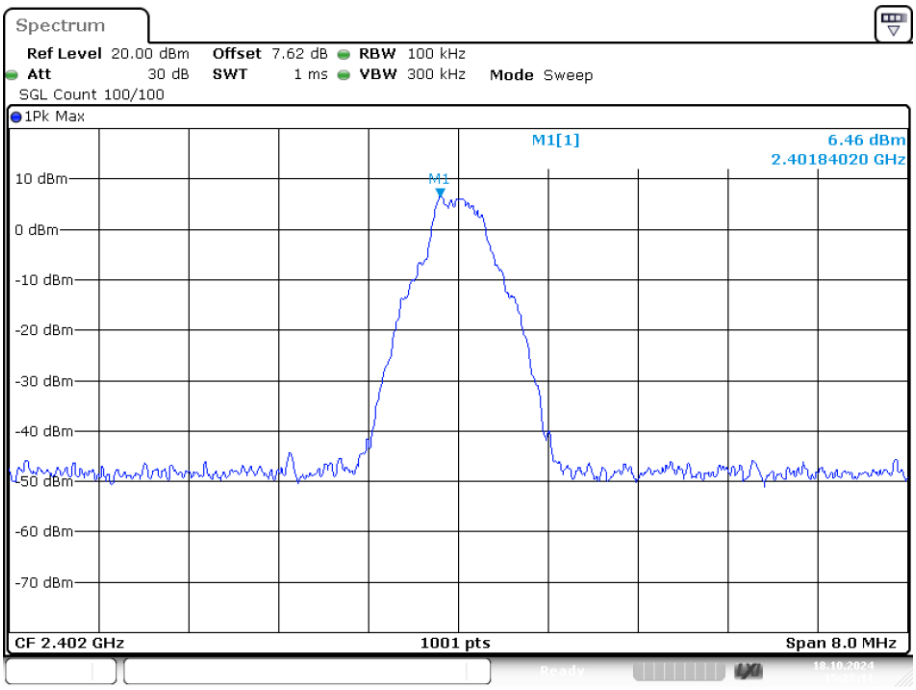
Note: 1. *:Maximum data; x:Over limit; !:over margin.

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

Conducted Method

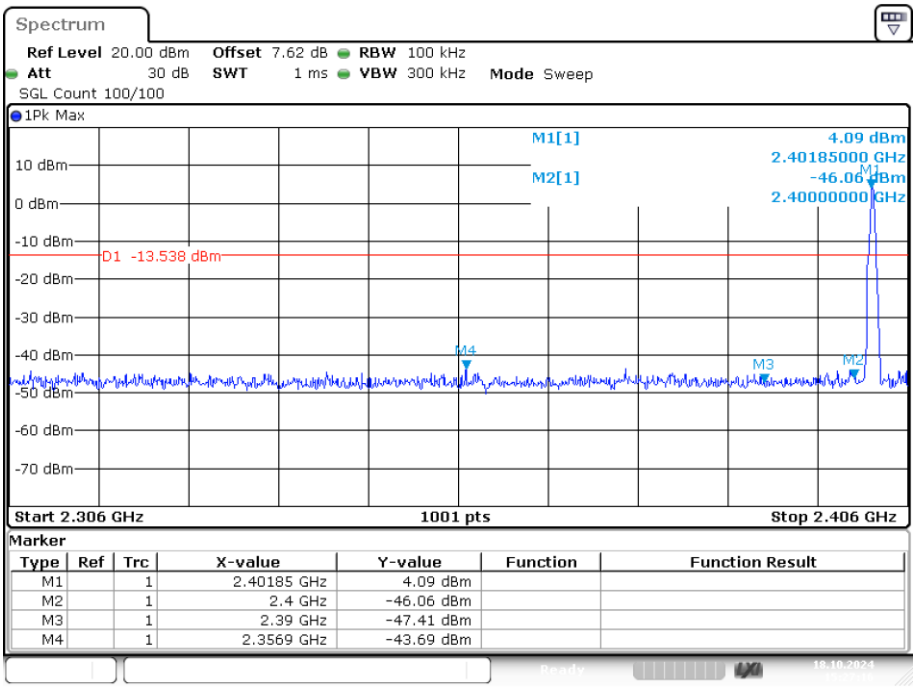
GFSK Mode:

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



Date: 18.OCT.2024 15:27:12

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

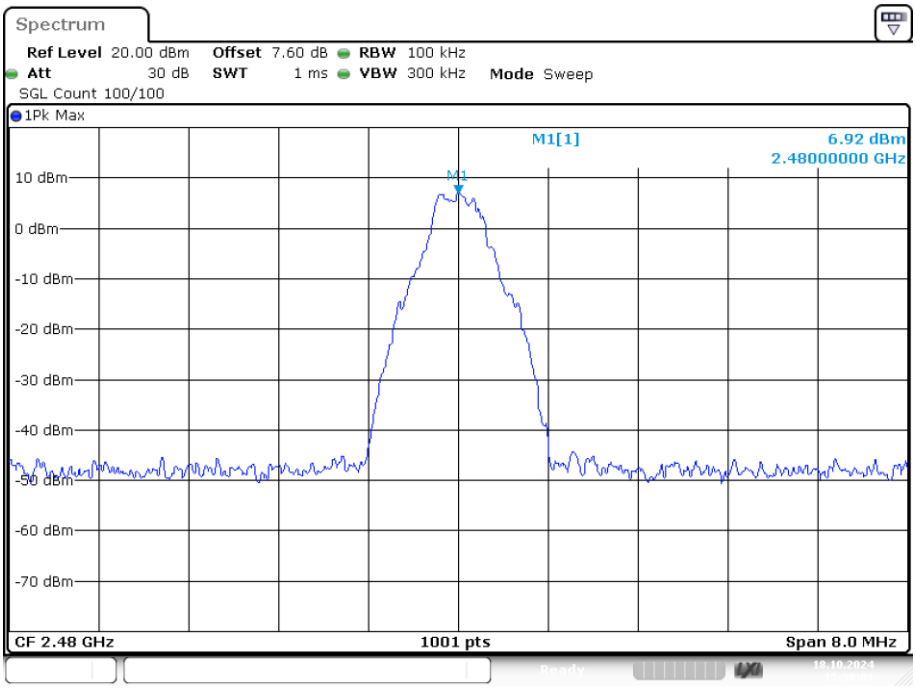


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40185 GHz	4.09 dBm		
M2		1	2.4 GHz	-46.06 dBm		
M3		1	2.39 GHz	-47.41 dBm		
M4		1	2.3569 GHz	-43.69 dBm		

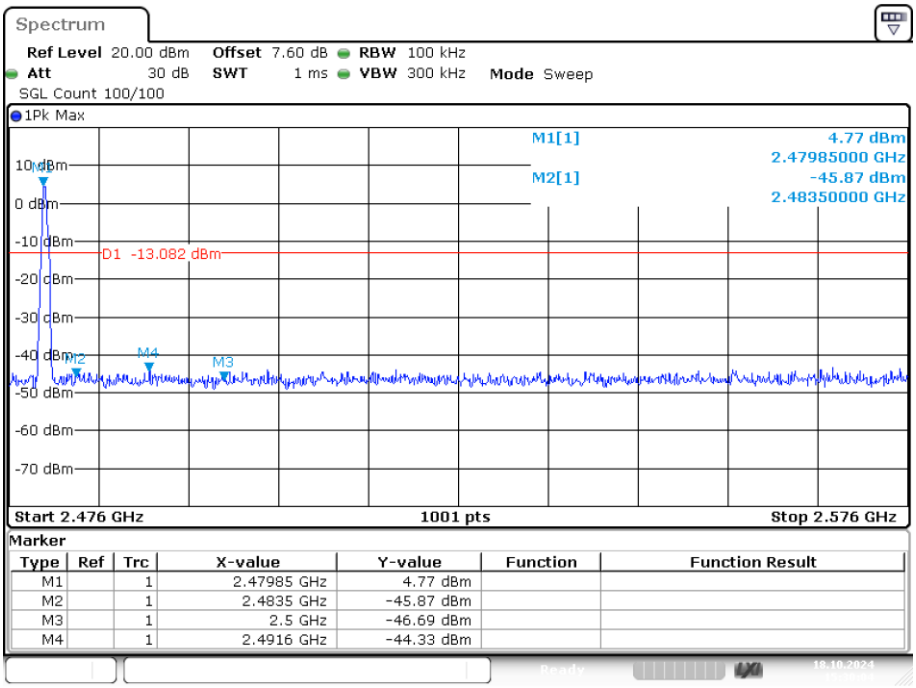
Date: 18.OCT.2024 15:27:16

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



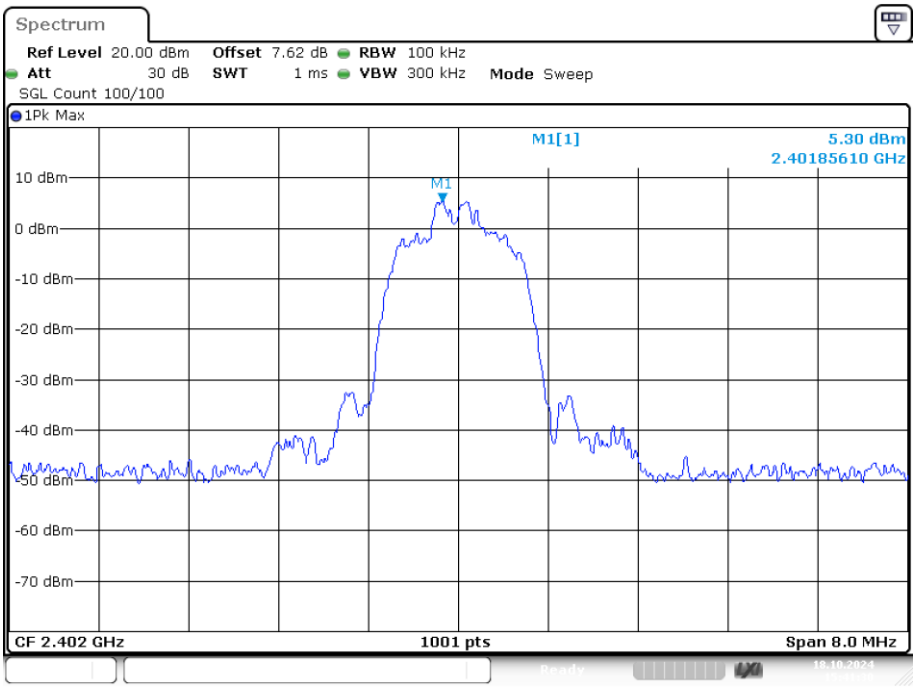
Date: 18.OCT.2024 15:30:01

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



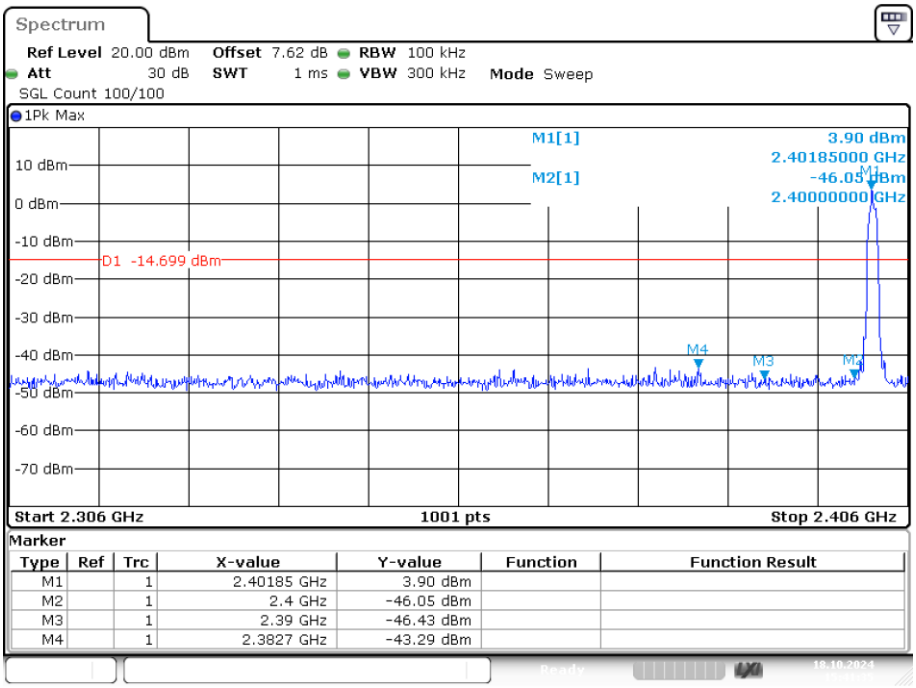
Date: 18.OCT.2024 15:30:04

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



Date: 18.OCT.2024 15:41:30

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

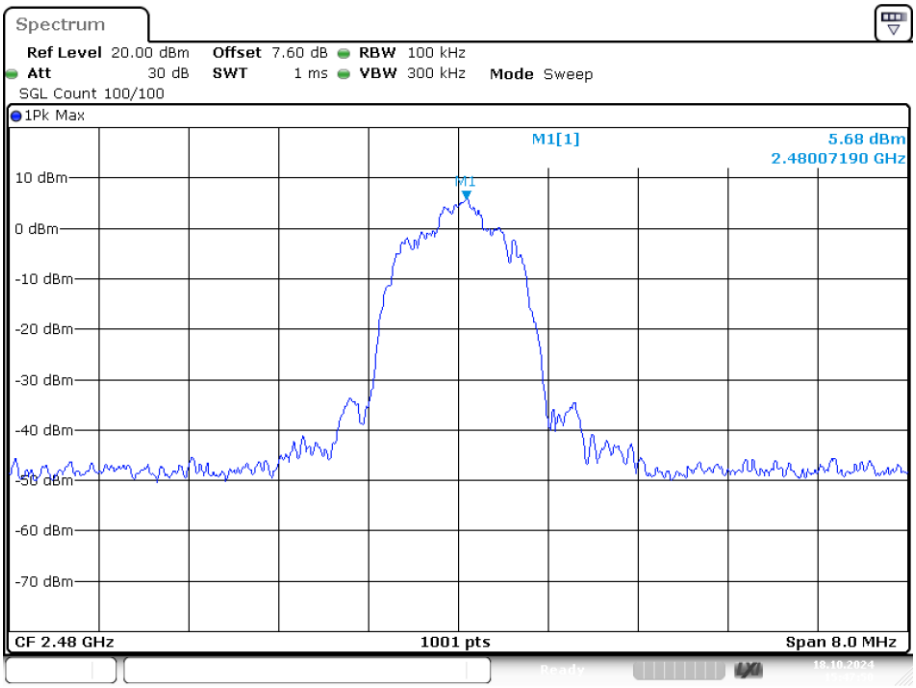


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40185 GHz	3.90 dBm		
M2		1	2.4 GHz	-46.05 dBm		
M3		1	2.39 GHz	-46.43 dBm		
M4		1	2.3827 GHz	-43.29 dBm		

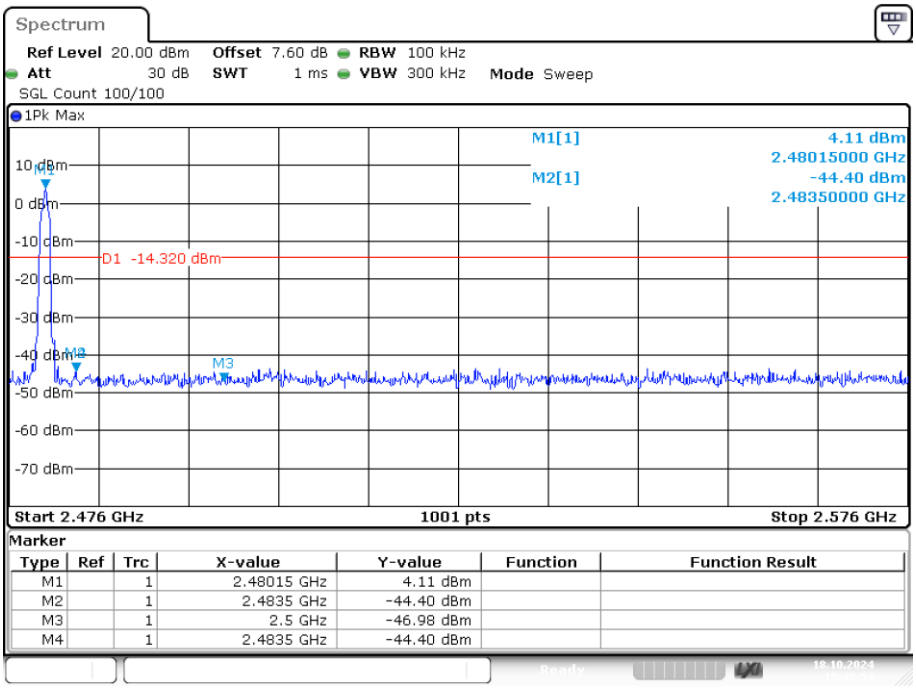
Date: 18.OCT.2024 15:41:34

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



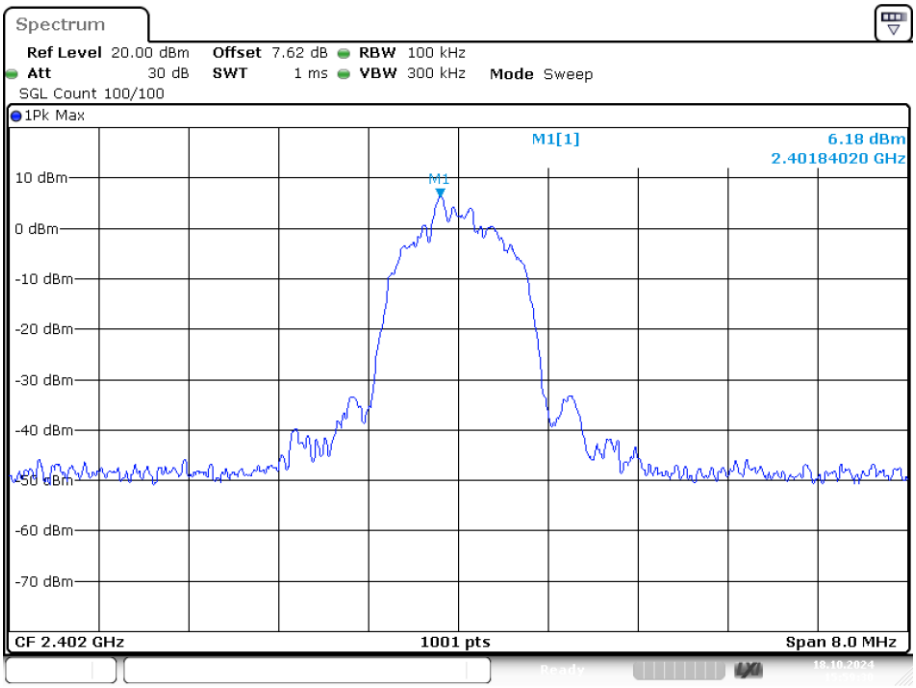
Date: 18.OCT.2024 15:47:50

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



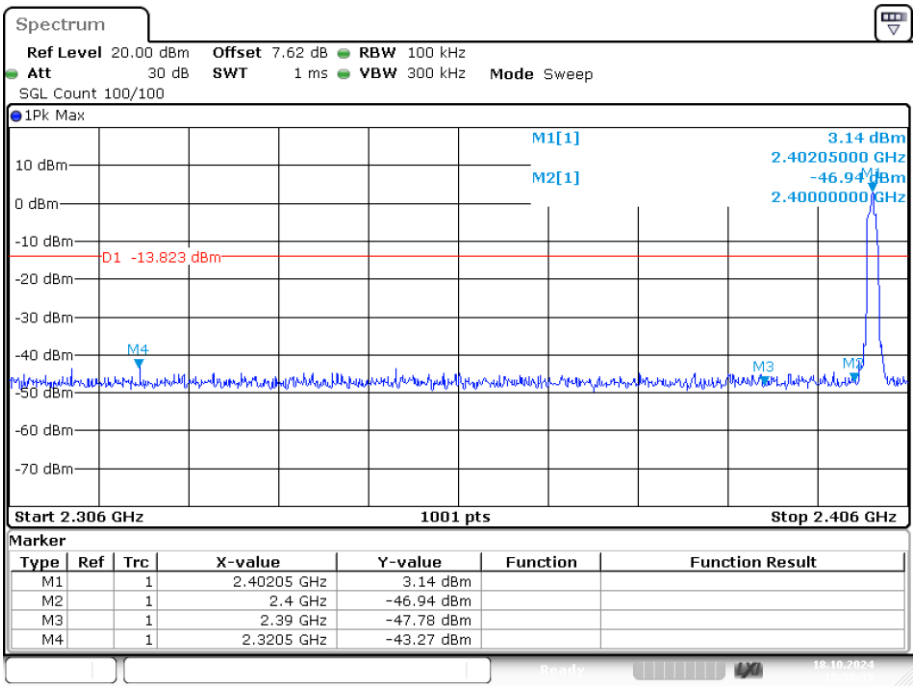
Date: 18.OCT.2024 15:47:54

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



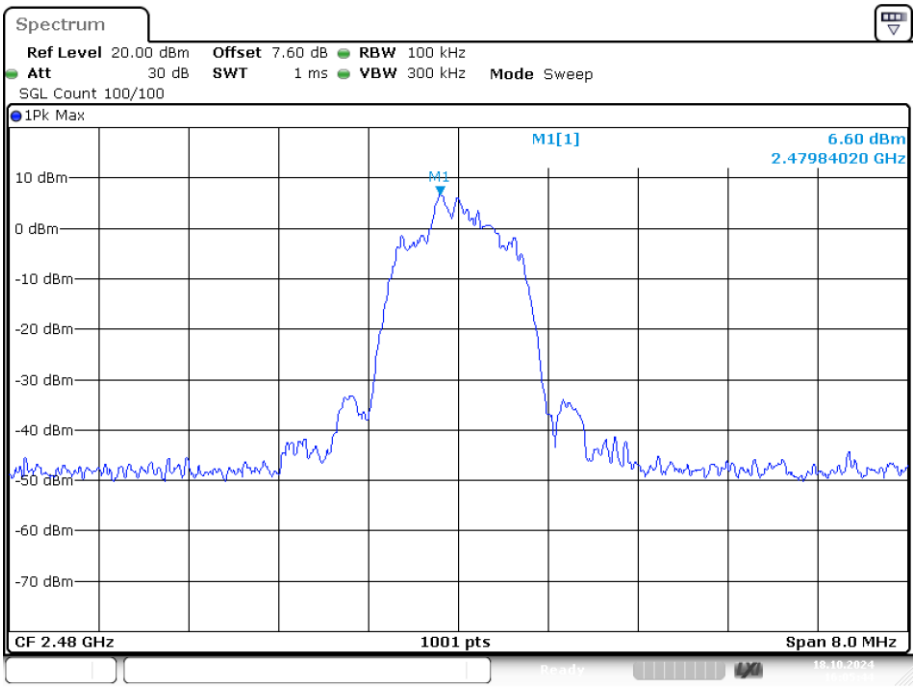
Date: 18.OCT.2024 15:59:30

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



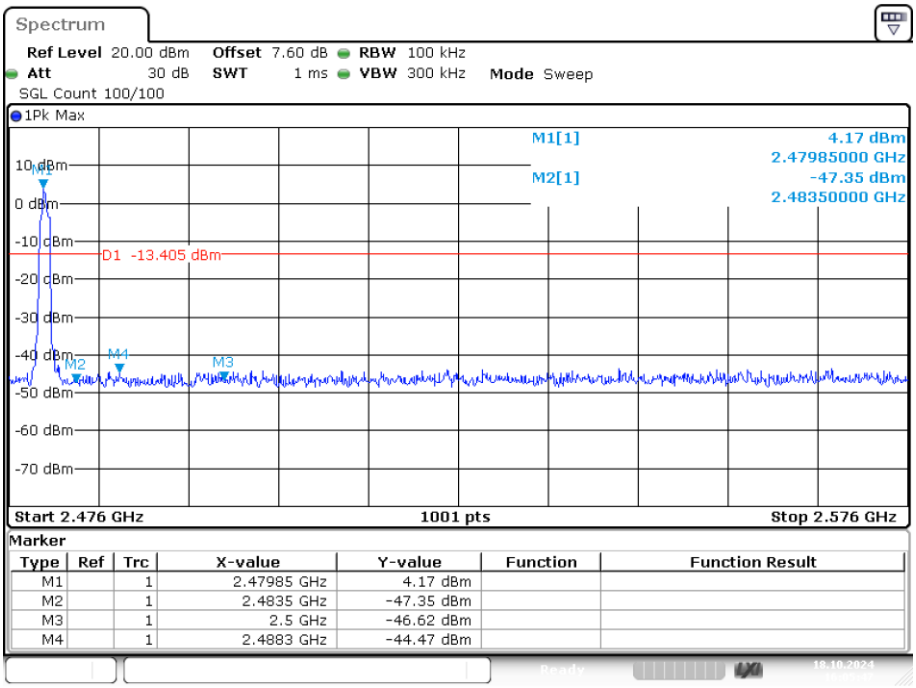
Date: 18.OCT.2024 15:59:34

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



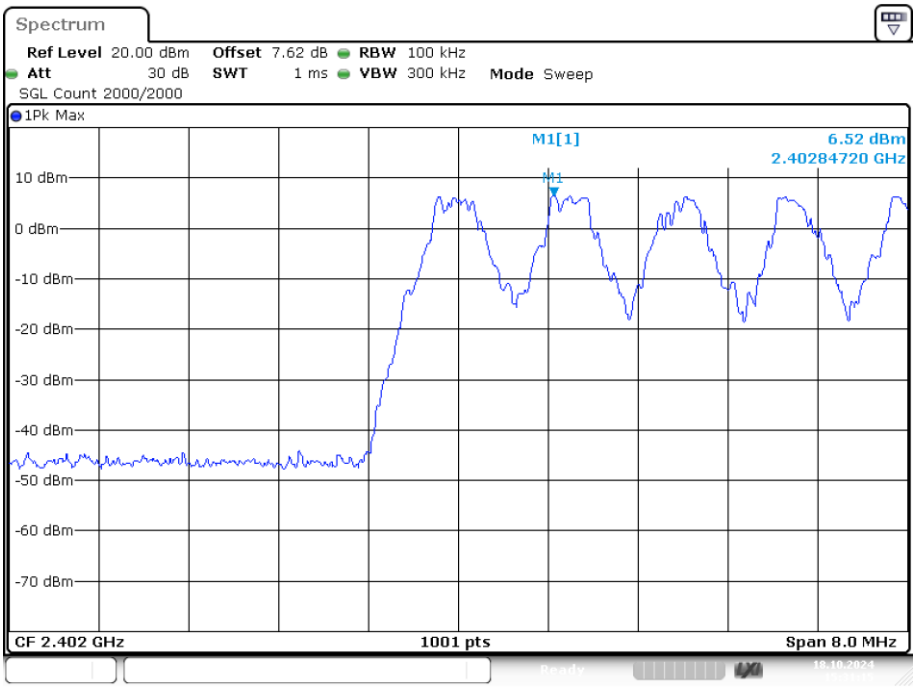
Date: 18.OCT.2024 16:05:43

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



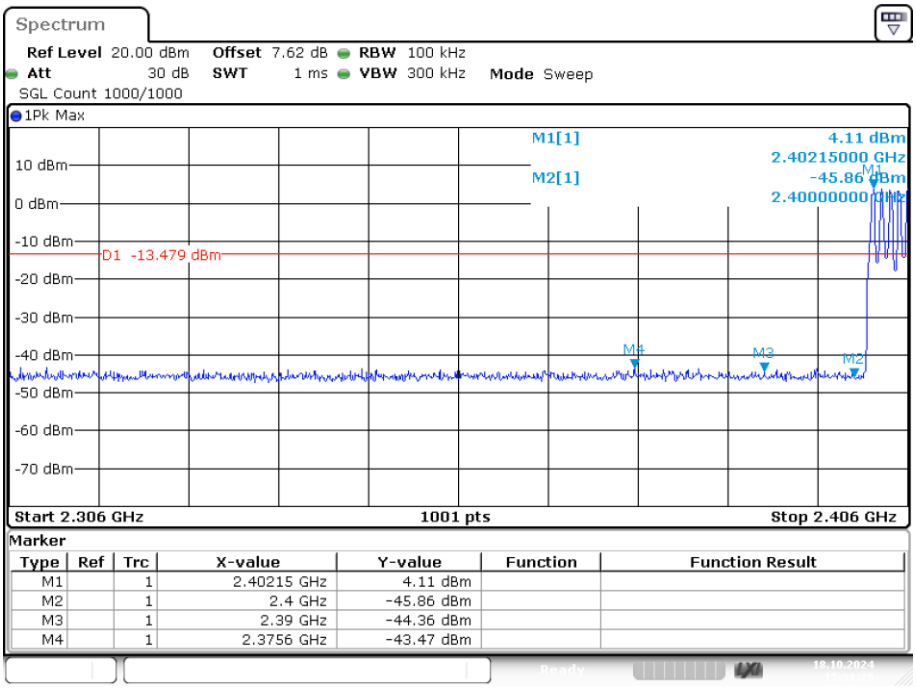
Date: 18.OCT.2024 16:05:47

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



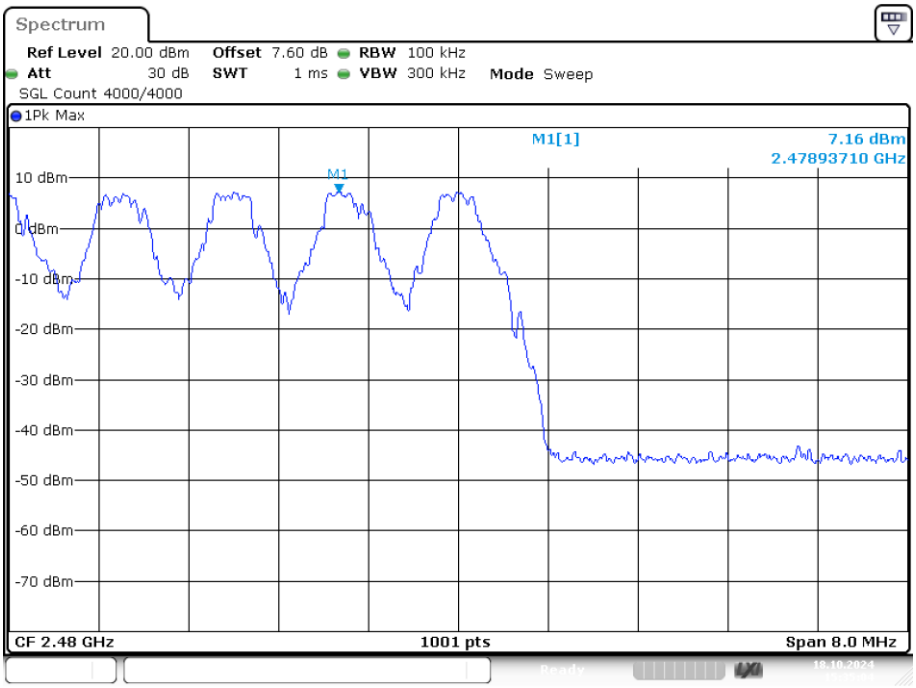
Date: 18.OCT.2024 15:31:14

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



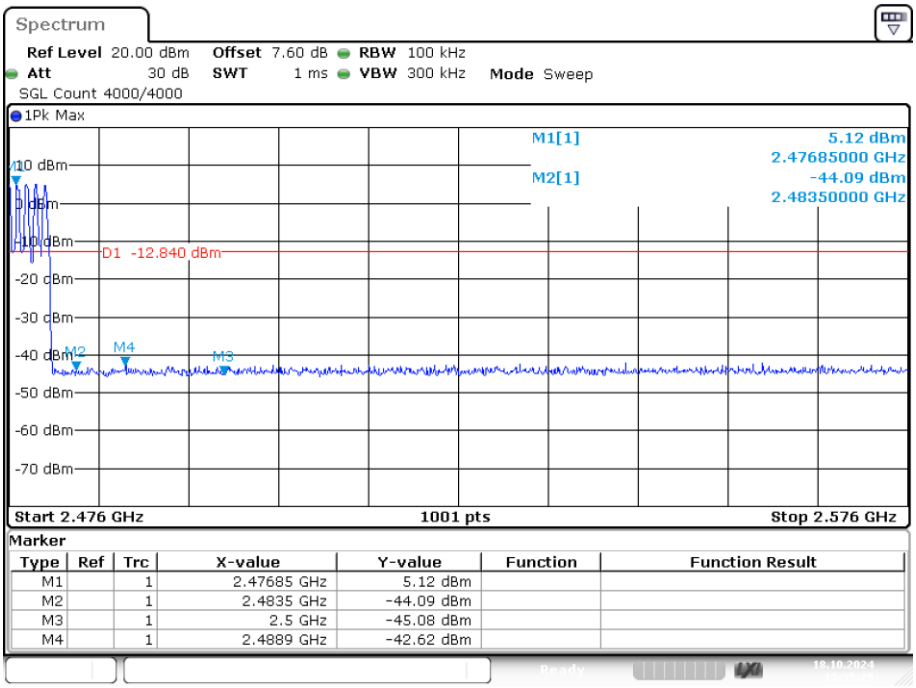
Date: 18.OCT.2024 15:31:28

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



Date: 18.OCT.2024 15:35:03

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

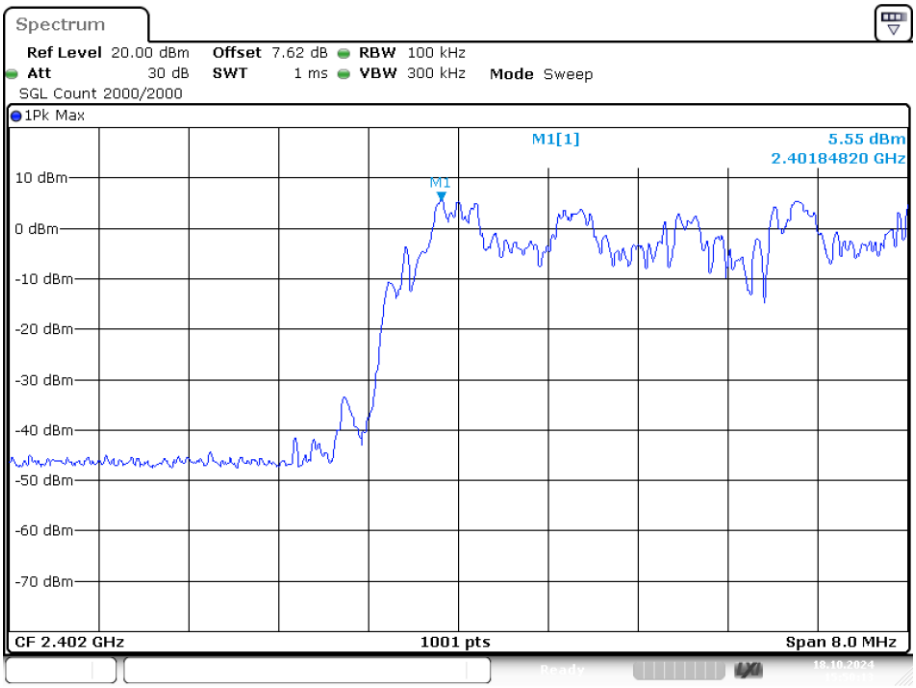


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47685 GHz	5.12 dBm		
M2		1	2.4835 GHz	-44.09 dBm		
M3		1	2.5 GHz	-45.08 dBm		
M4		1	2.4889 GHz	-42.62 dBm		

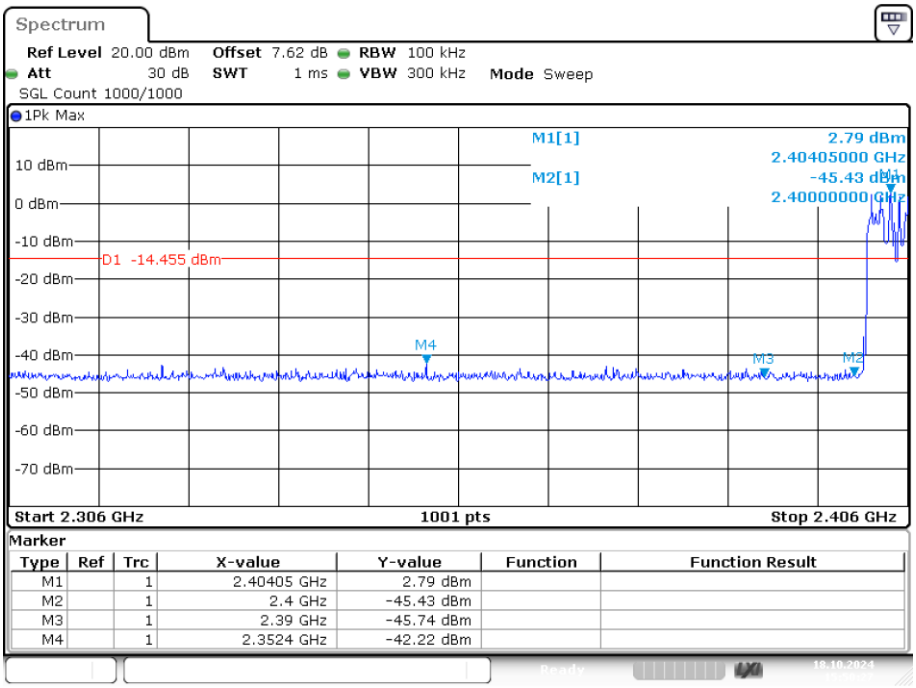
Date: 18.OCT.2024 15:35:29

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



Date: 18.OCT.2024 15:50:13

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

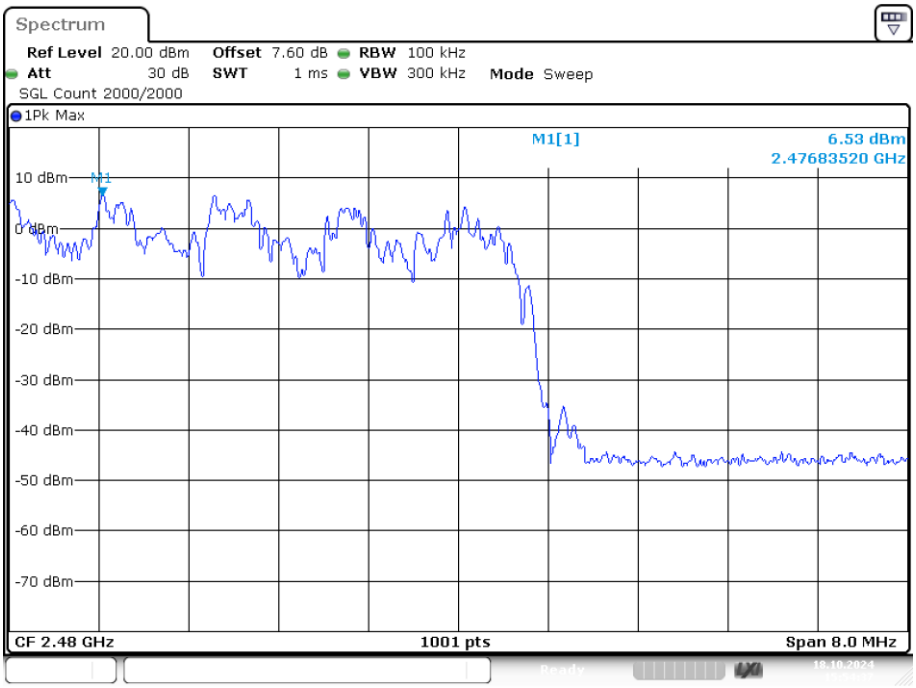


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40405 GHz	2.79 dBm		
M2		1	2.4 GHz	-45.43 dBm		
M3		1	2.39 GHz	-45.74 dBm		
M4		1	2.3524 GHz	-42.22 dBm		

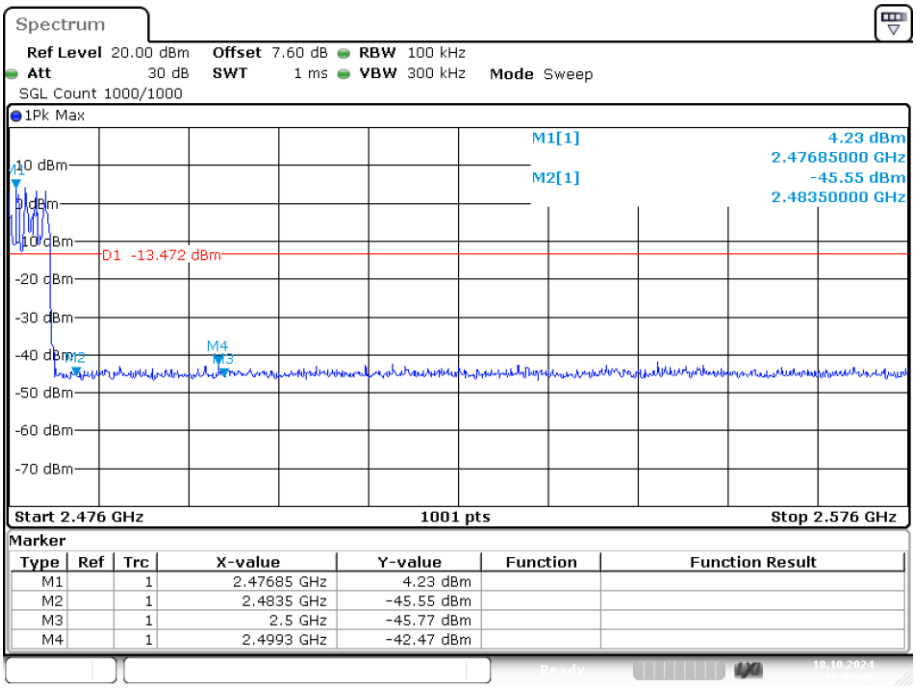
Date: 18.OCT.2024 15:50:27

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



Date: 18.OCT.2024 15:54:37

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

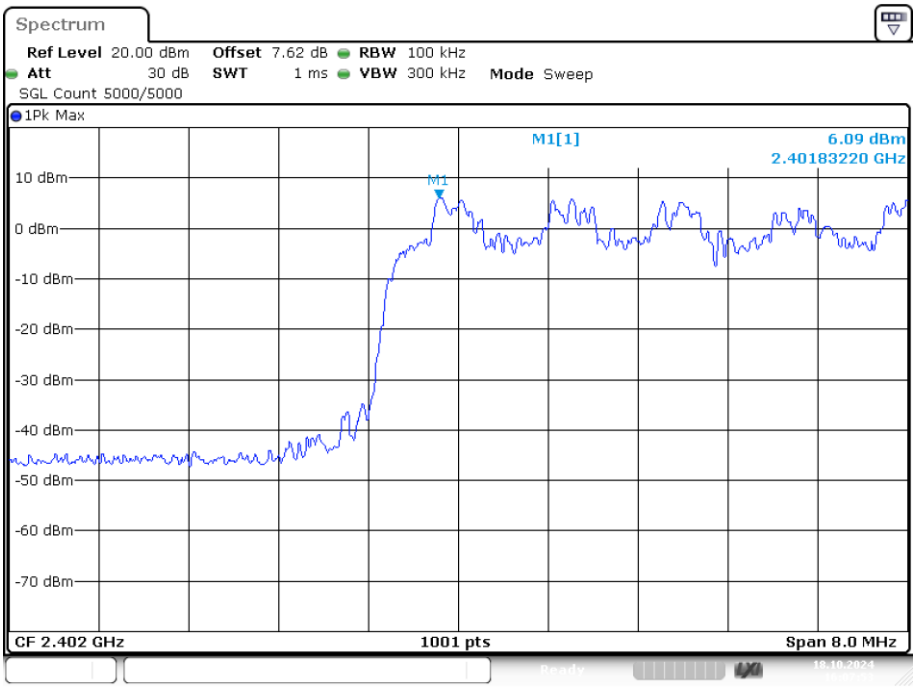


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47685 GHz	4.23 dBm		
M2		1	2.4835 GHz	-45.55 dBm		
M3		1	2.5 GHz	-45.77 dBm		
M4		1	2.4993 GHz	-42.47 dBm		

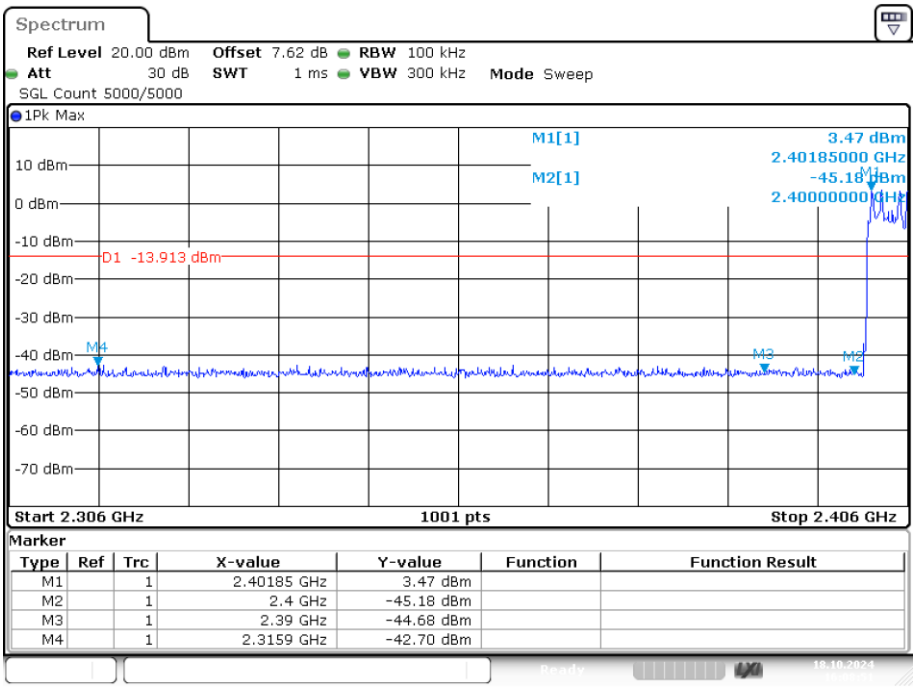
Date: 18.OCT.2024 15:54:46

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



Date: 18.OCT.2024 16:07:53

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

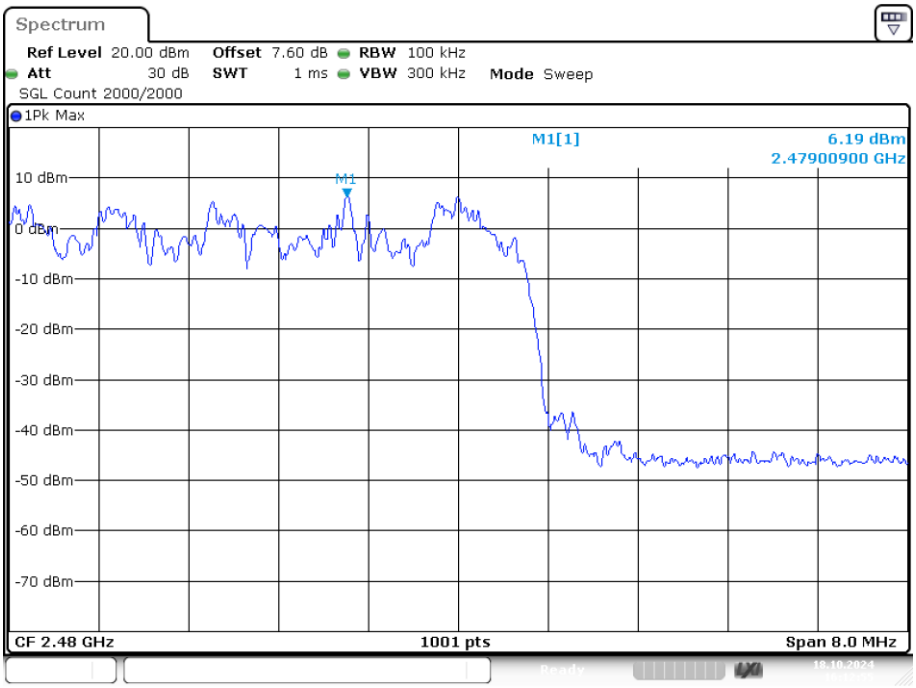


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40185 GHz	3.47 dBm		
M2		1	2.4 GHz	-45.18 dBm		
M3		1	2.39 GHz	-44.68 dBm		
M4		1	2.3159 GHz	-42.70 dBm		

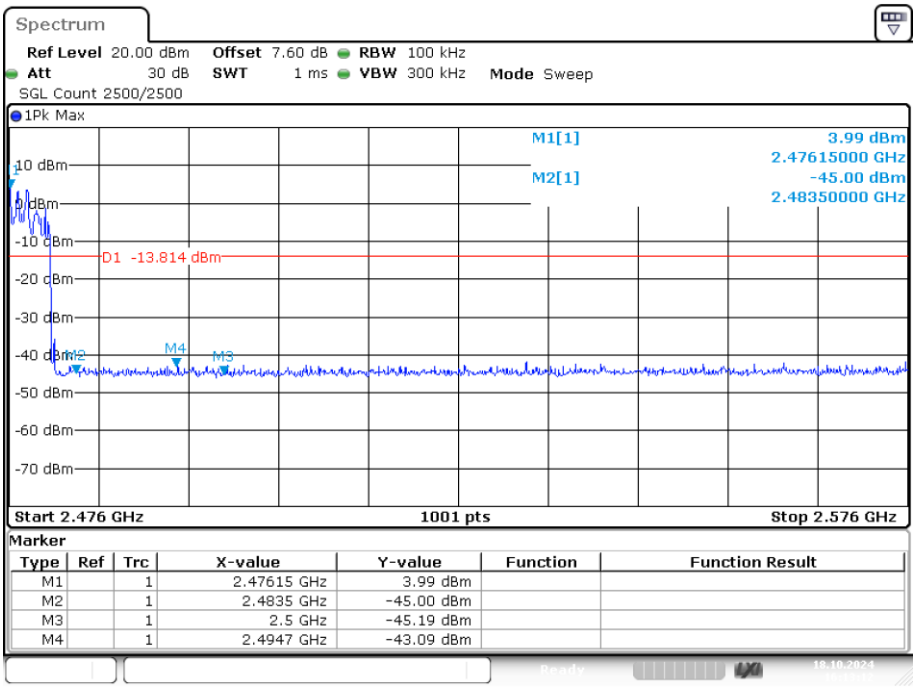
Date: 18.OCT.2024 16:08:50

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



Date: 18.OCT.2024 16:12:55

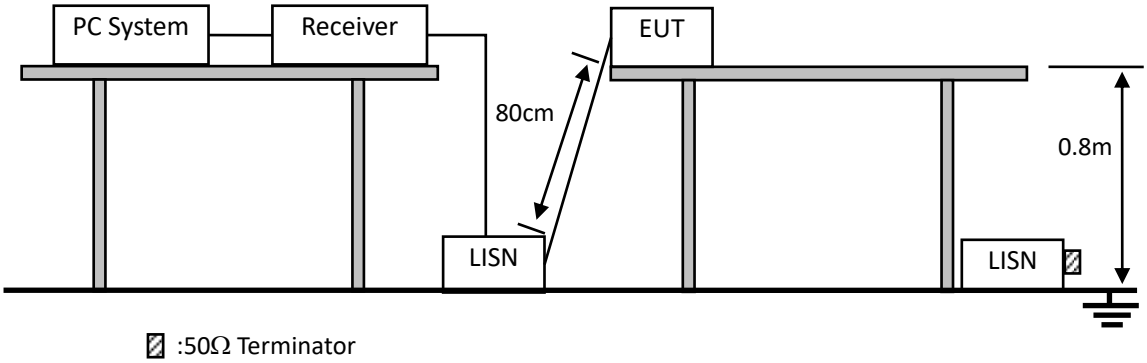
Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Emission



Date: 18.OCT.2024 16:13:12

10. POWER LINE CONDUCTED EMISSIONS

10.1.Block Diagram of Test Setup



10.2.Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
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

Not applicable for equipment operated with PC, battery, or DC Power Supply.

11. ANTENNA REQUIREMENTS

11.1.Limit

For intentional device, according to FCC 47 CFR Section 15.203 and RSS-GEN, 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 Dipole Antenna. It complies with the standard requirement.

12. TEST SETUP PHOTO

12.1.Photo of Radiated Emission test

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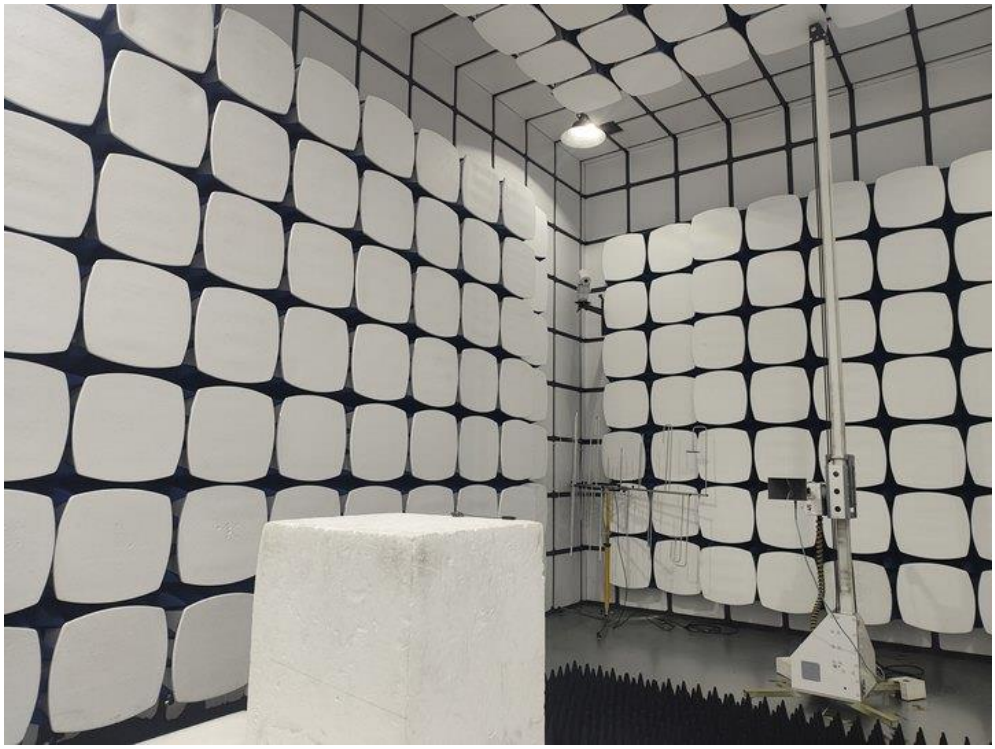
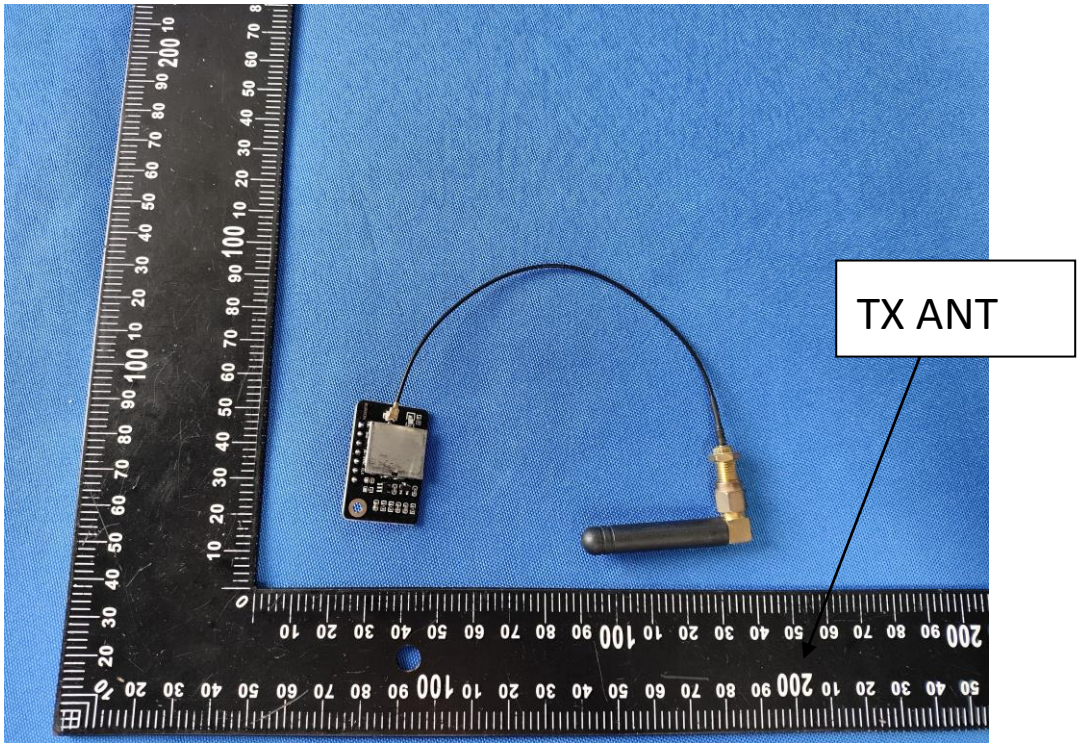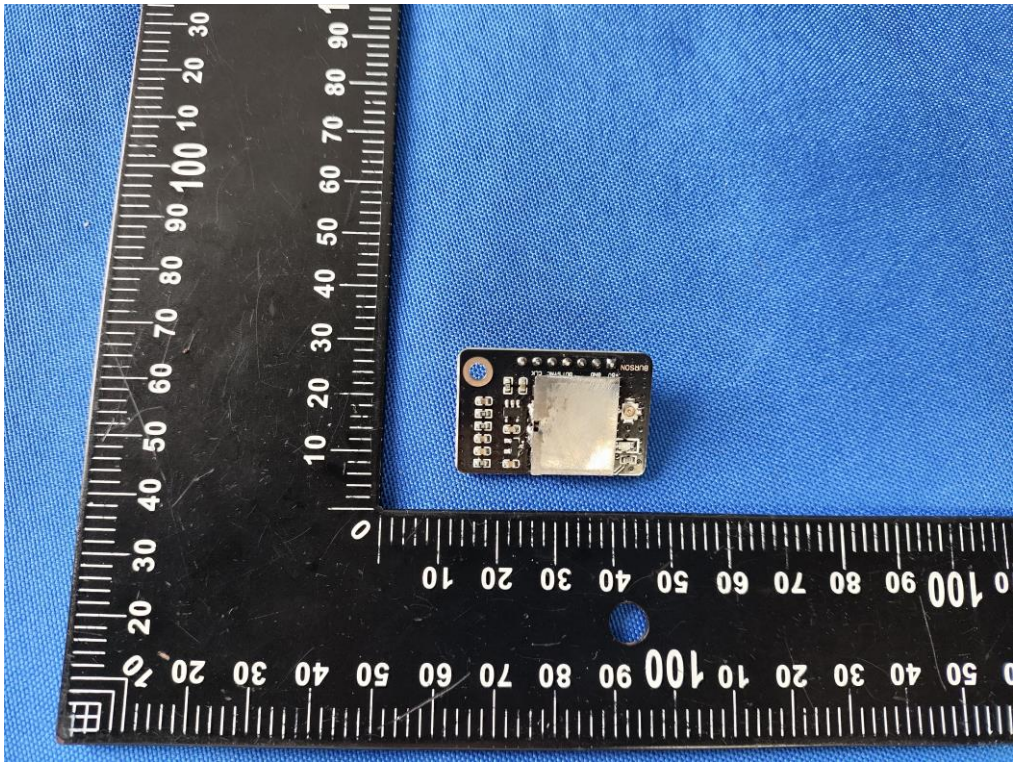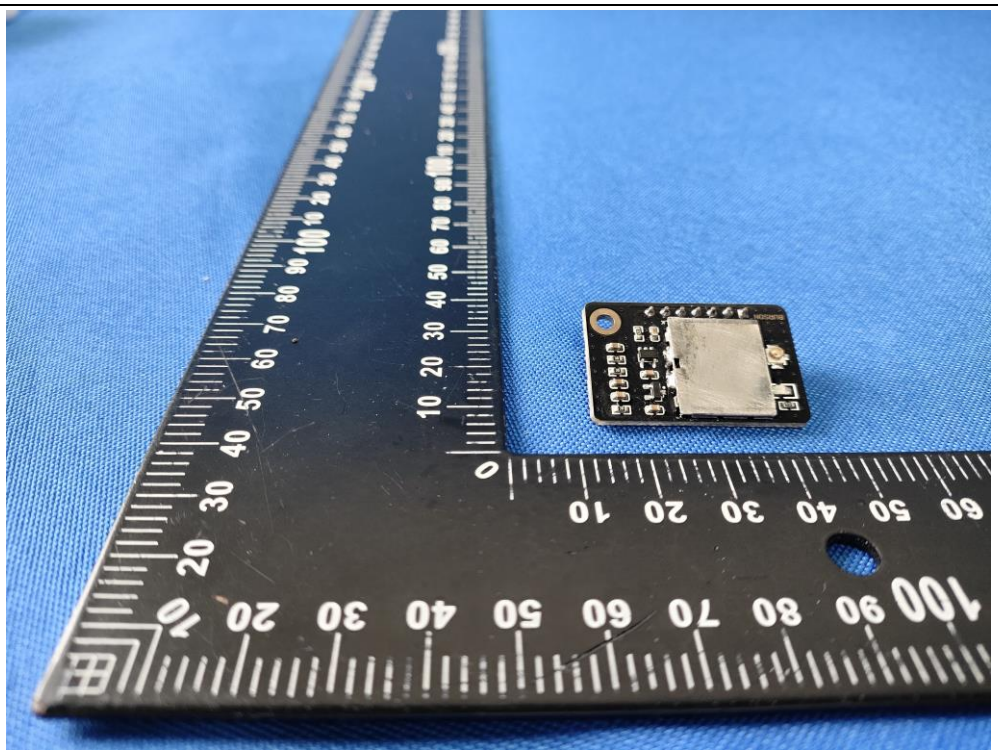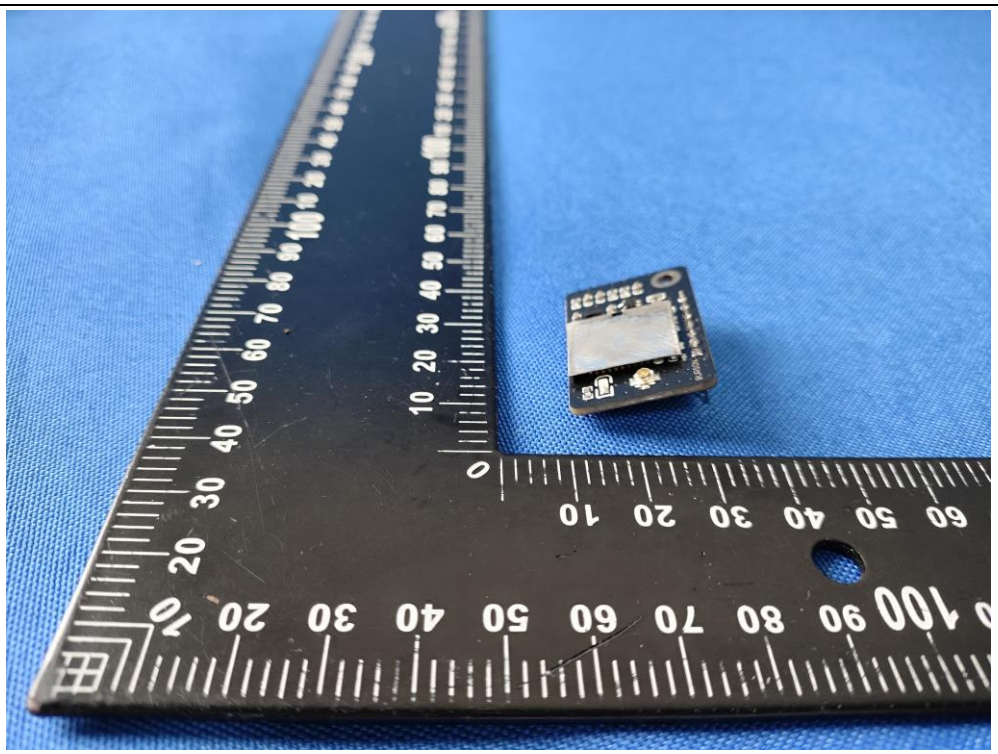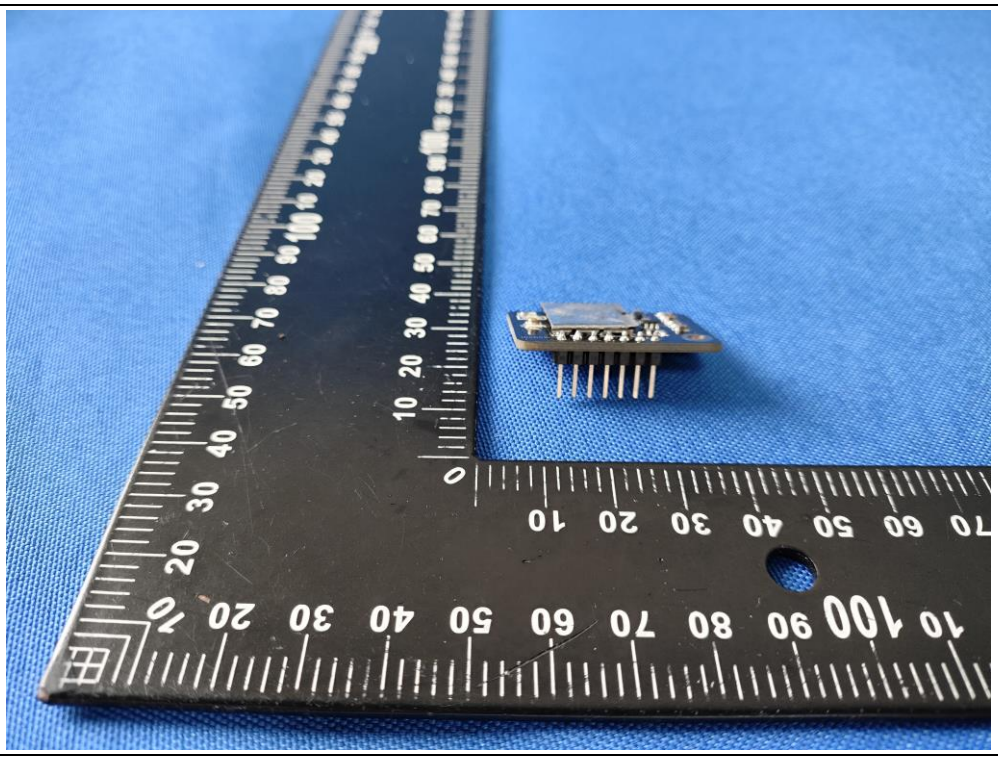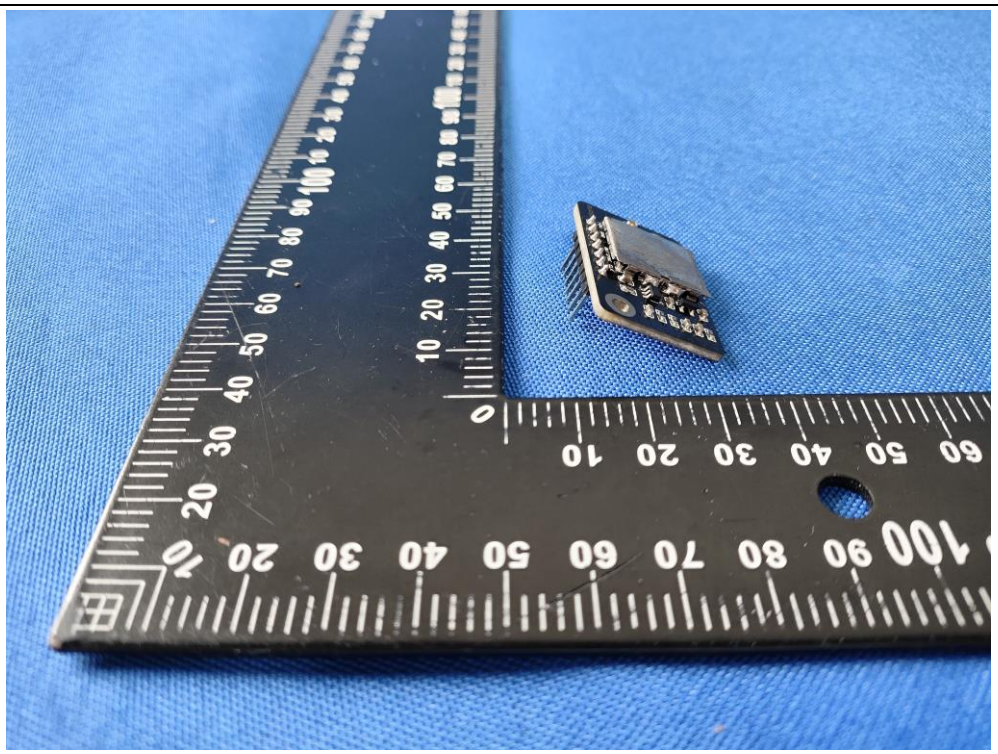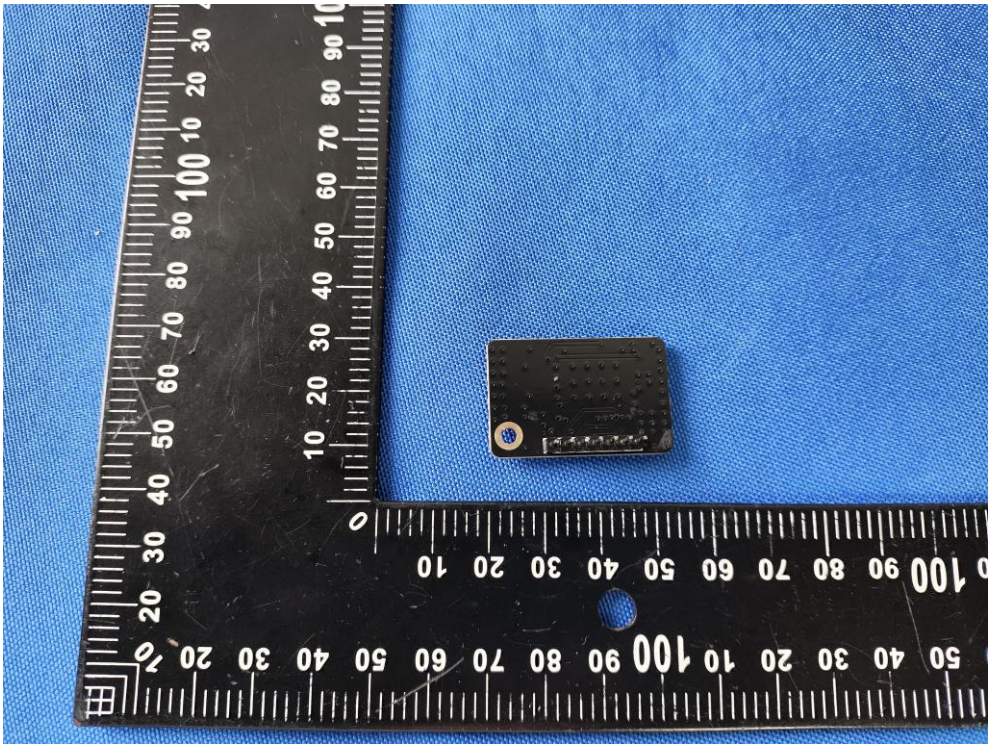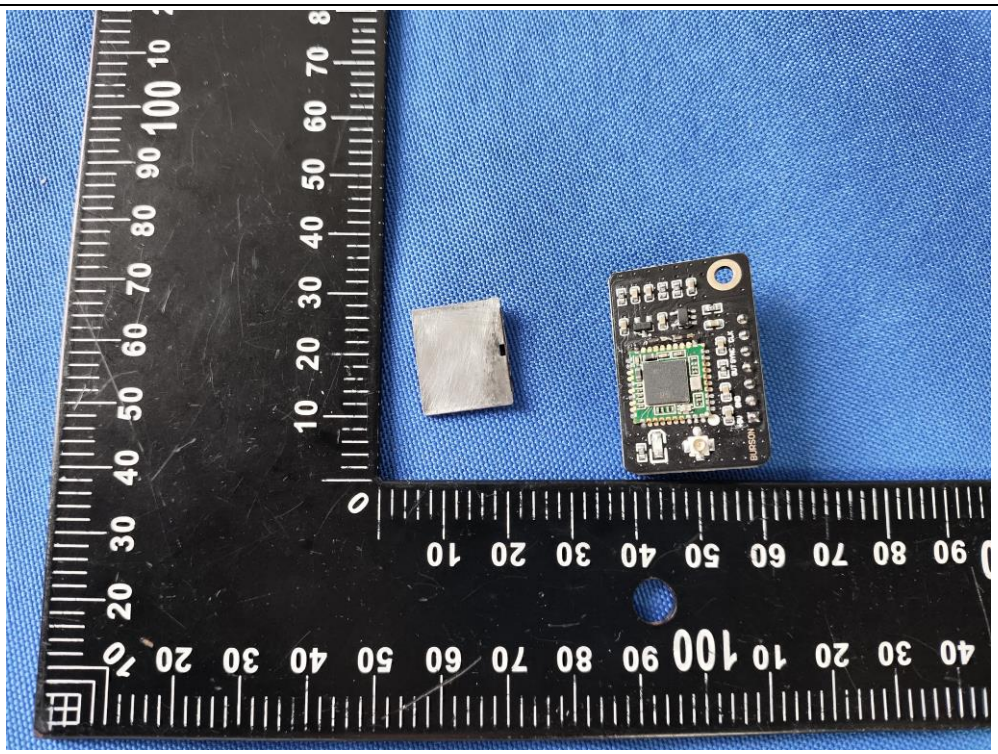
13. EUT Photo