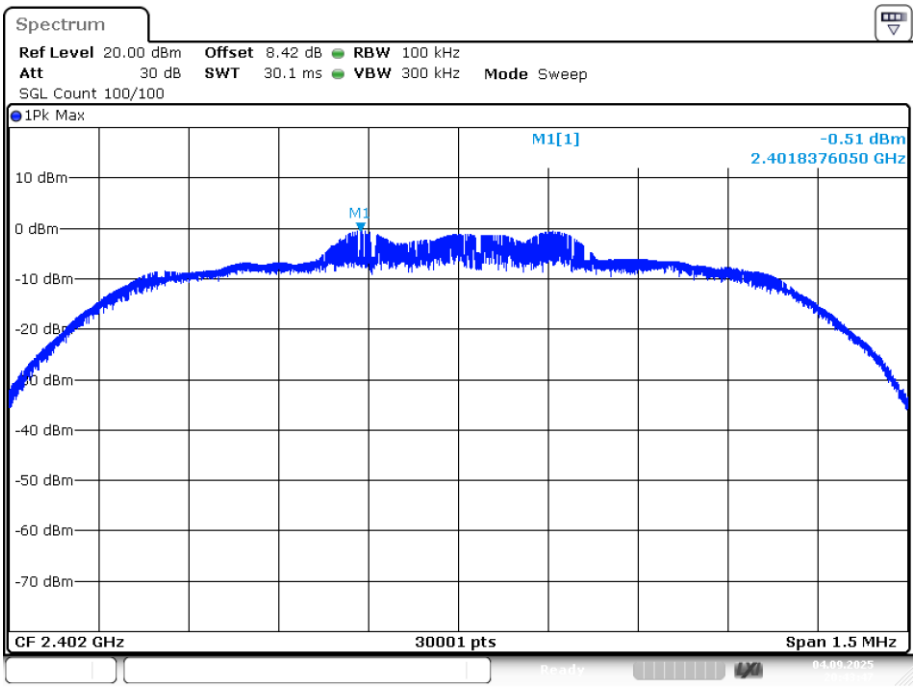
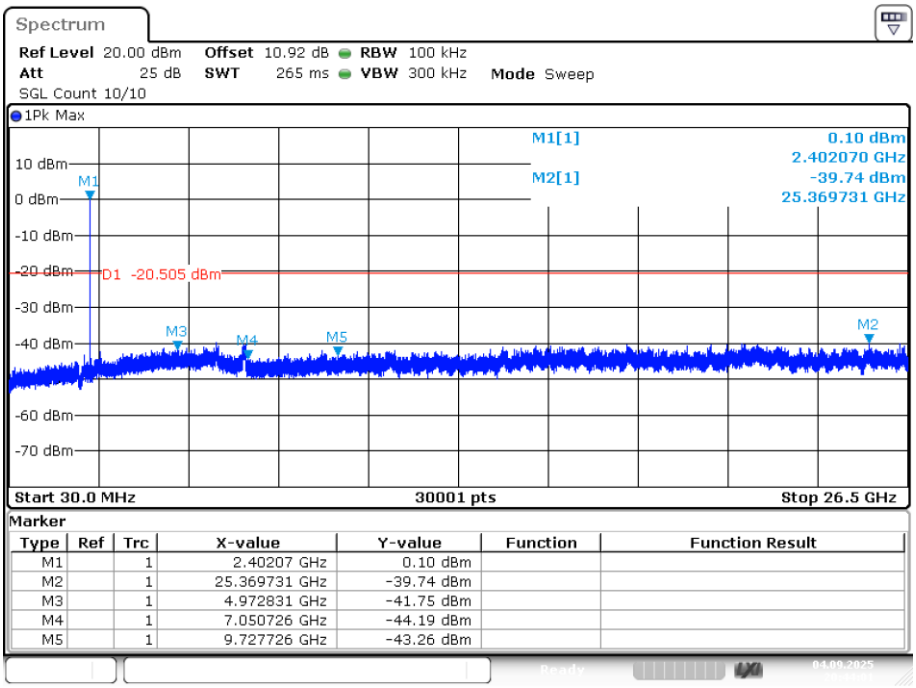
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



Date: 4.SEP.2025 20:43:47

Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission

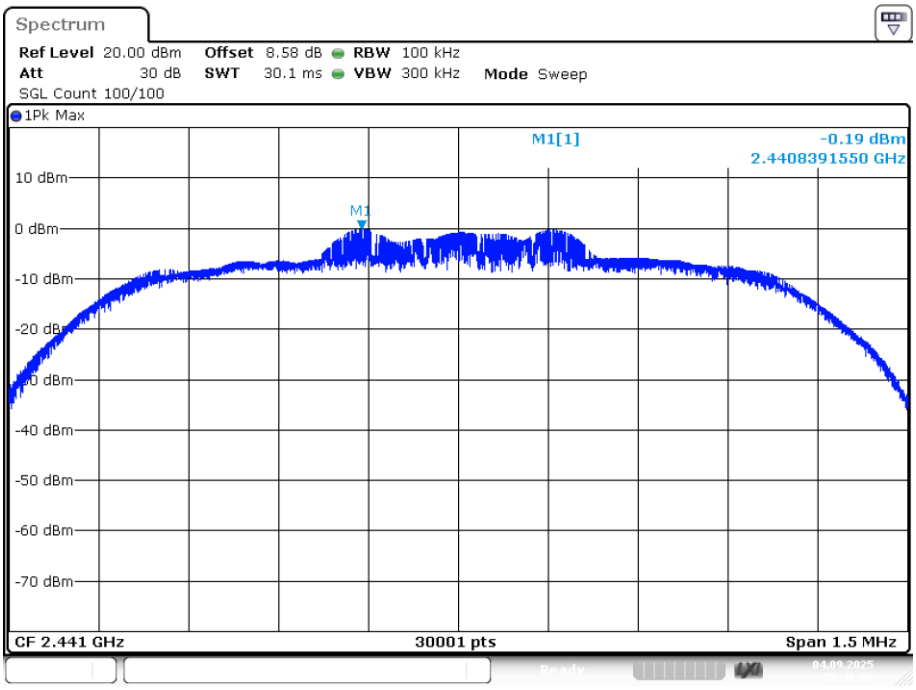


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40207 GHz	0.10 dBm		
M2		1	25.369731 GHz	-39.74 dBm		
M3		1	4.972831 GHz	-41.75 dBm		
M4		1	7.050726 GHz	-44.19 dBm		
M5		1	9.727726 GHz	-43.26 dBm		

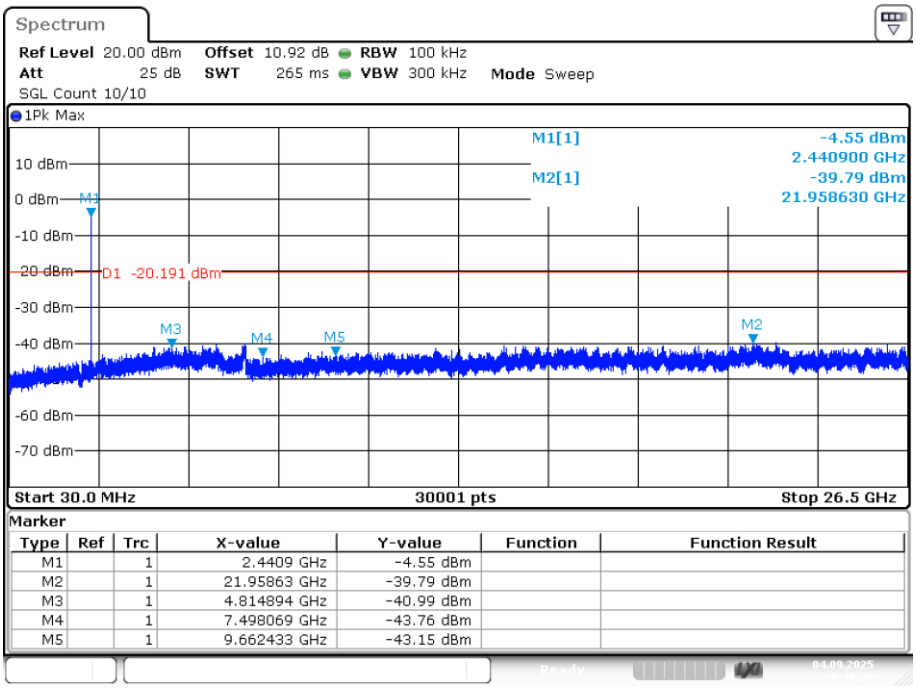
Date: 4.SEP.2025 20:44:00

Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



Date: 4.SEP.2025 20:46:06

Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission

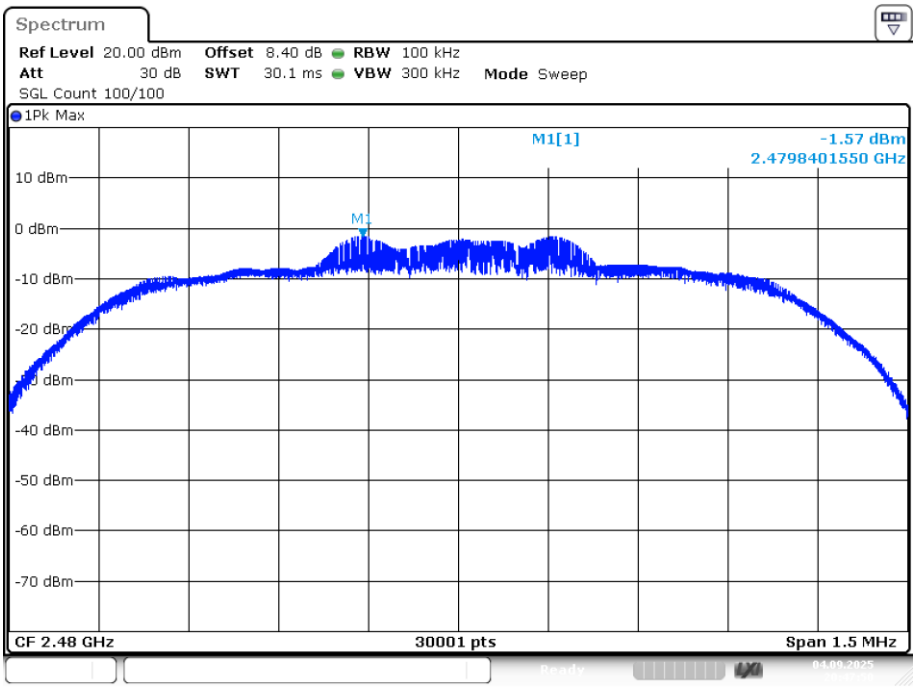


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4409 GHz	-4.55 dBm		
M2		1	21.95863 GHz	-39.79 dBm		
M3		1	4.814894 GHz	-40.99 dBm		
M4		1	7.498069 GHz	-43.76 dBm		
M5		1	9.662433 GHz	-43.15 dBm		

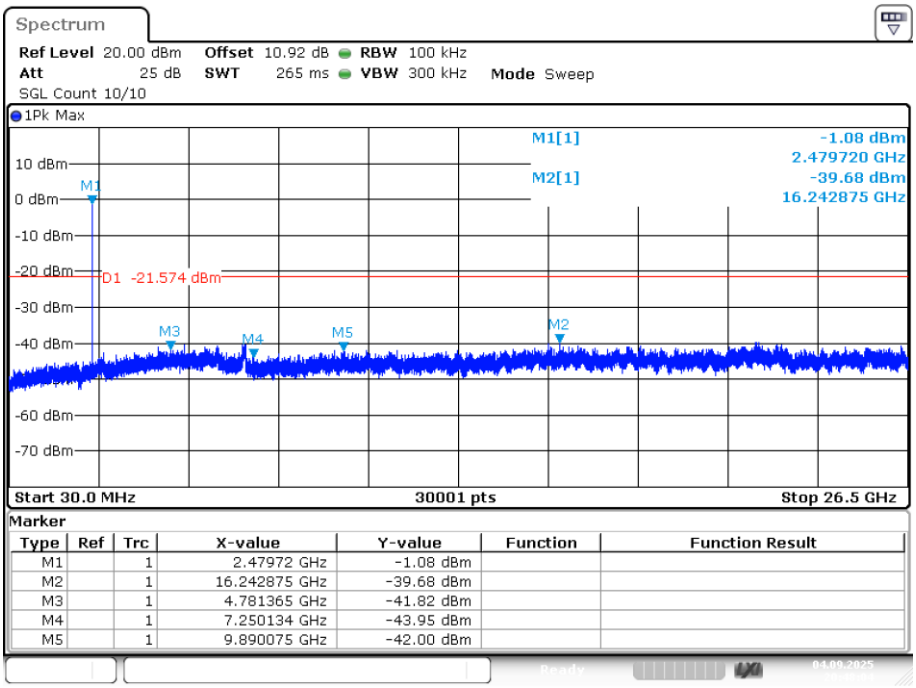
Date: 4.SEP.2025 20:46:20

Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



Date: 4.SEP.2025 20:47:50

Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission

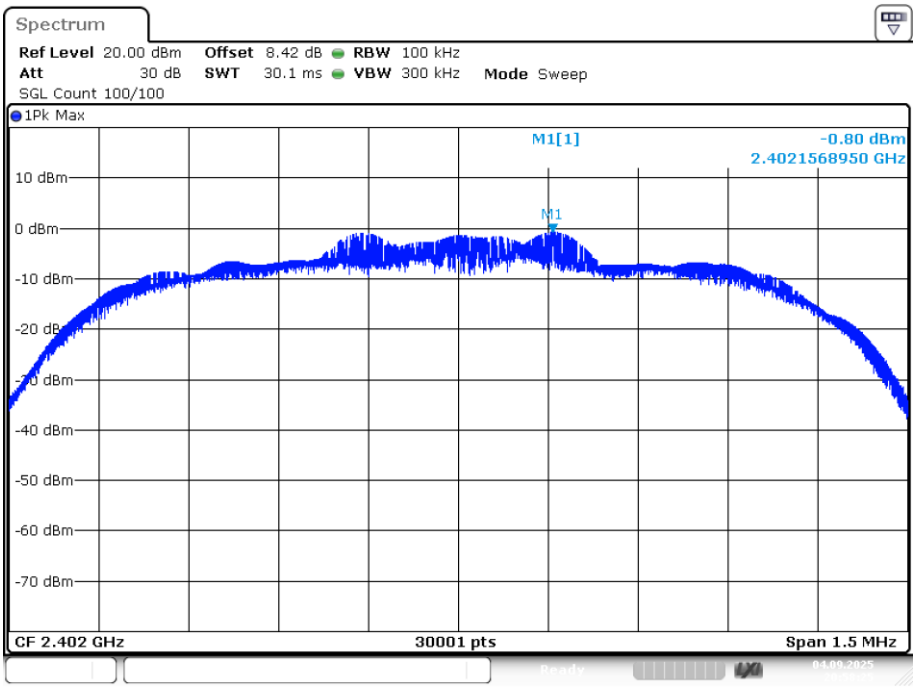


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47972 GHz	-1.08 dBm		
M2		1	16.242875 GHz	-39.68 dBm		
M3		1	4.781365 GHz	-41.82 dBm		
M4		1	7.250134 GHz	-43.95 dBm		
M5		1	9.890075 GHz	-42.00 dBm		

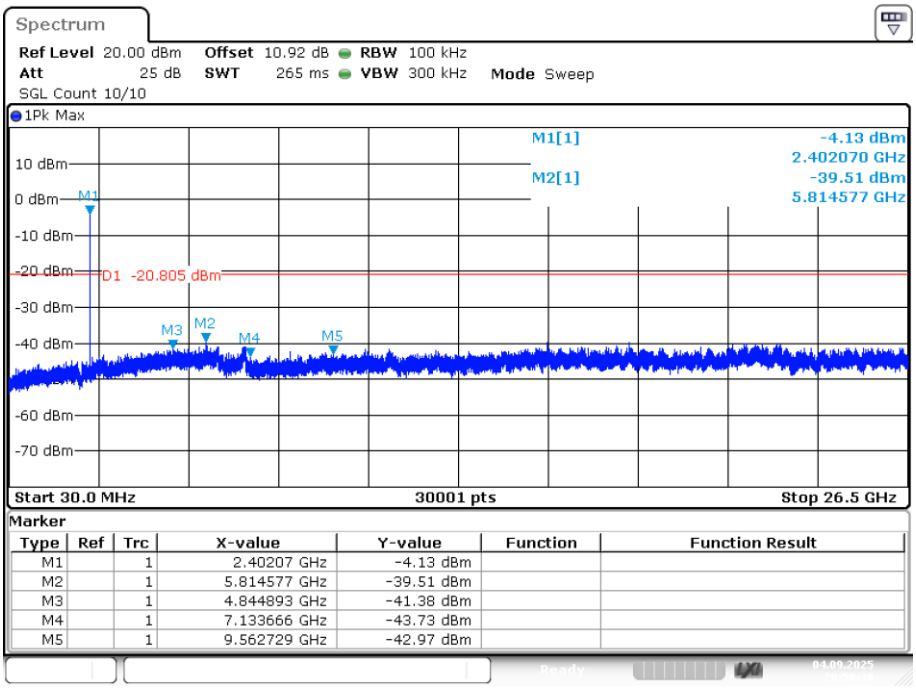
Date: 4.SEP.2025 20:48:04

Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref



Date: 4.SEP.2025 20:58:25

Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission

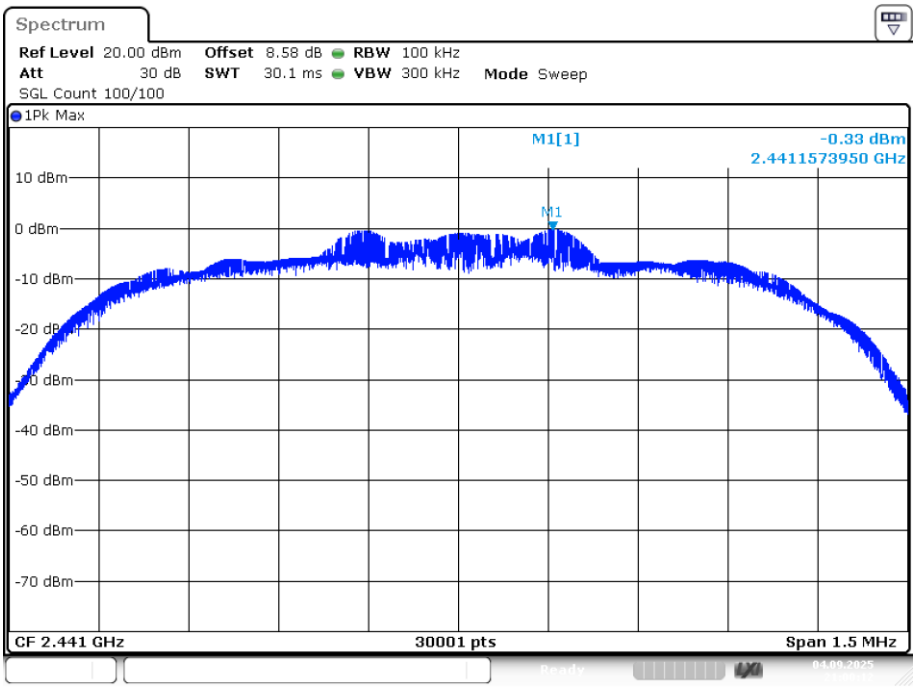


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40207 GHz	-4.13 dBm		
M2		1	5.814577 GHz	-39.51 dBm		
M3		1	4.844893 GHz	-41.38 dBm		
M4		1	7.133666 GHz	-43.73 dBm		
M5		1	9.562729 GHz	-42.97 dBm		

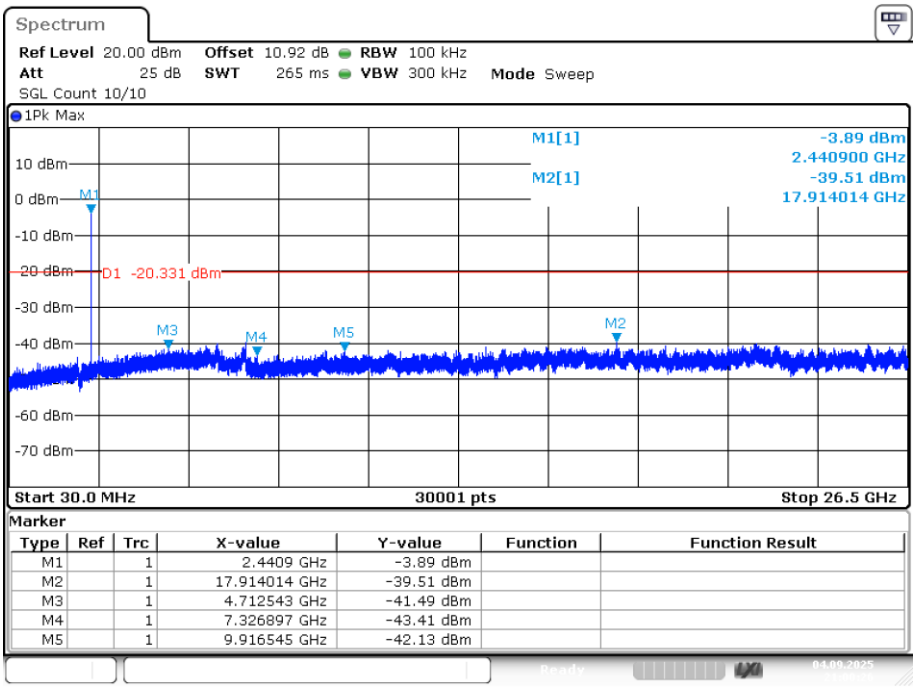
Date: 4.SEP.2025 20:58:39

Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



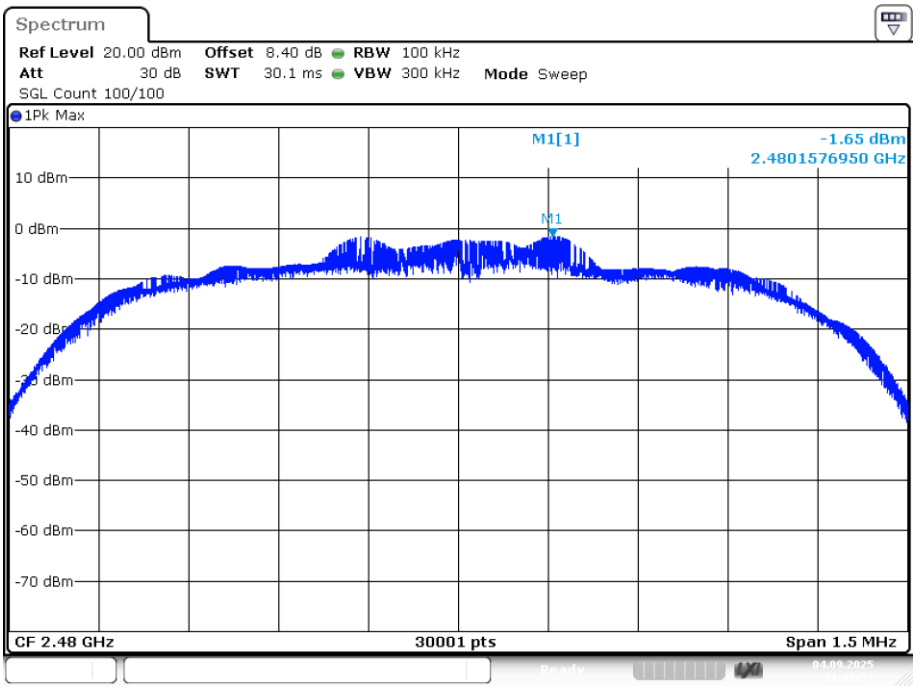
Date: 4.SEP.2025 21:00:12

Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission



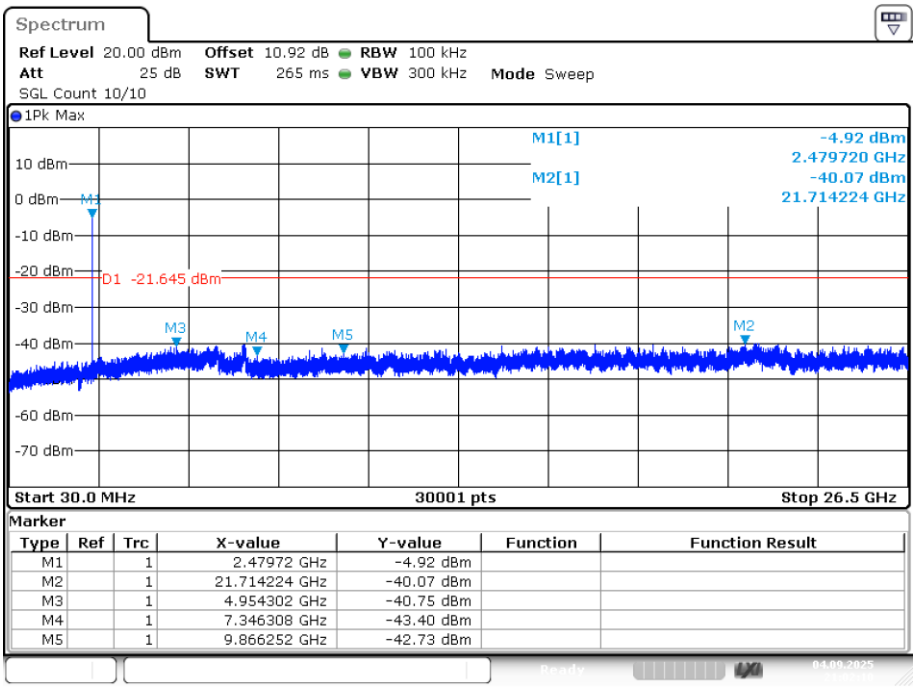
Date: 4.SEP.2025 21:00:25

Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Date: 4.SEP.2025 21:01:57

Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission



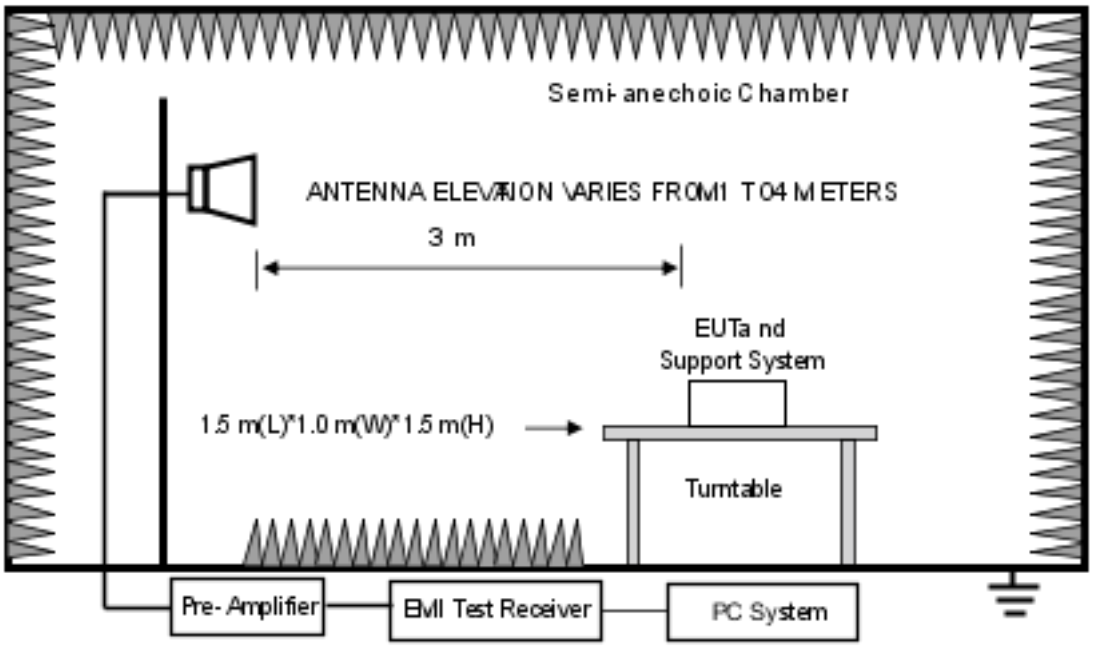
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47972 GHz	-4.92 dBm		
M2		1	21.714224 GHz	-40.07 dBm		
M3		1	4.954302 GHz	-40.75 dBm		
M4		1	7.346308 GHz	-43.40 dBm		
M5		1	9.866252 GHz	-42.73 dBm		

Date: 4.SEP.2025 21:02:11

10. BAND EDGE COMPLIANCE

10.1.Block Diagram of Test Setup



10.2.Limit

Please refer section 15.247.

10.3.Test Procedure

Details see the KDB 558074 D01 15.247 Meas Guidance v05r02

10.3.1 Put the EUT on a 0.8m high table, power on the EUT. Emissions were scanned and measured rotating the EUT to 360 degrees, Find the maximum Emission

10.3.2 Check the spurious emissions out of band.

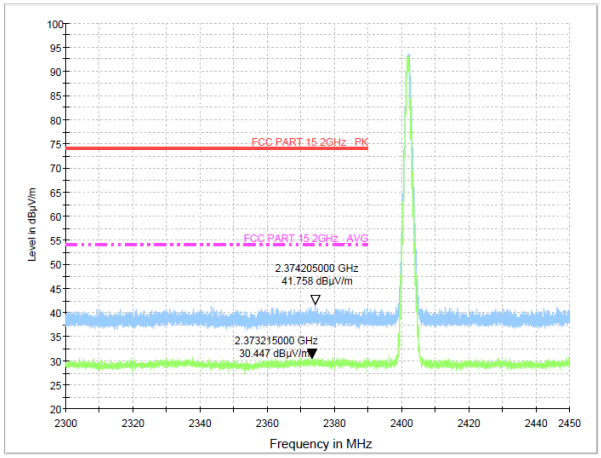
10.3.3 RBW 1MHz, VBW 3MHz, peak detector for peak value, RBW 1MHz, VBW 3MHz, RMS detector for AV value.

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

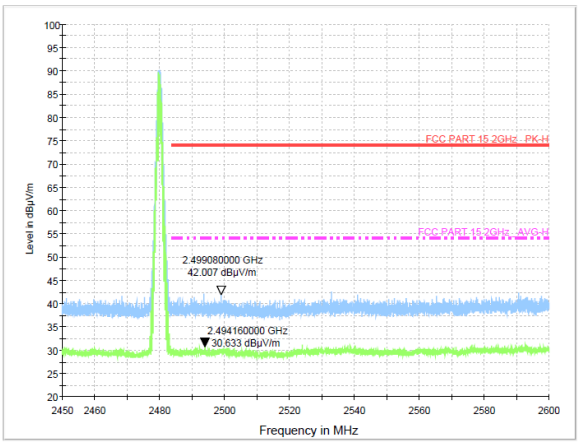
10.4.Test Result

PASS. (See below detailed test data)

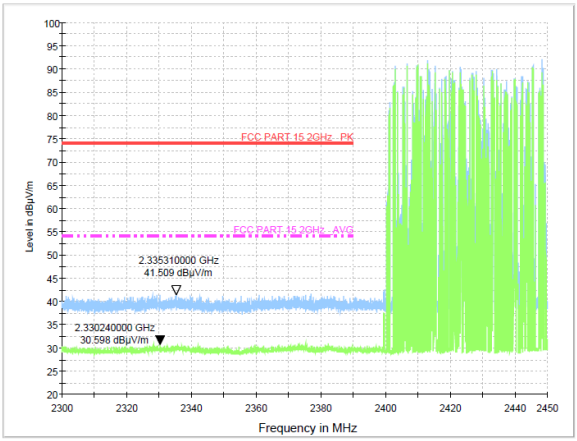
Test Mode: GFSK-Low Hopping-off



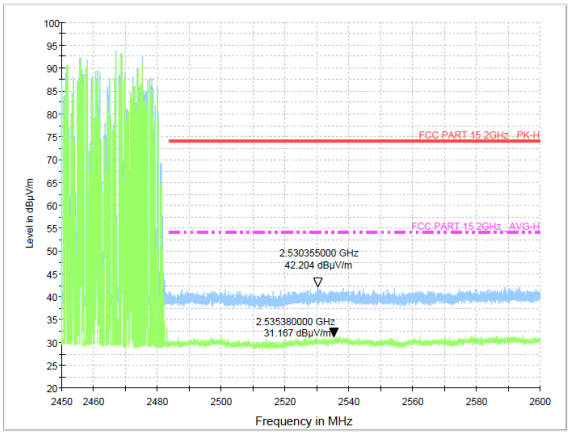
Test Mode: GFSK-High Hopping-off



Test Mode: GFSK-Low Hopping-on



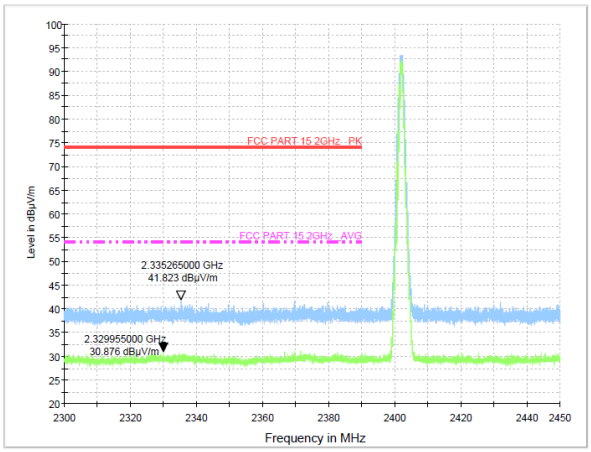
Test Mode: GFSK-High Hopping-on



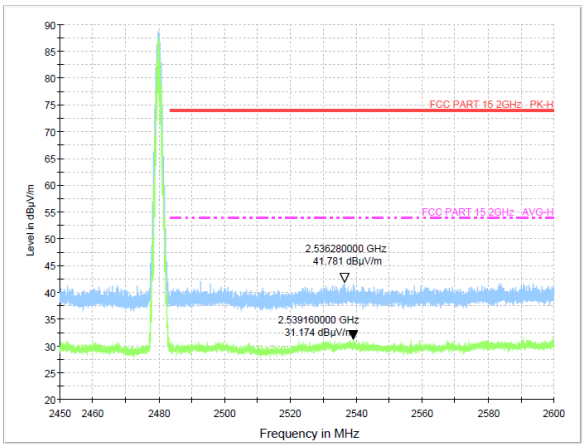
Note: 1. *:Maximum data; x:Over limit; !:over margin.

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

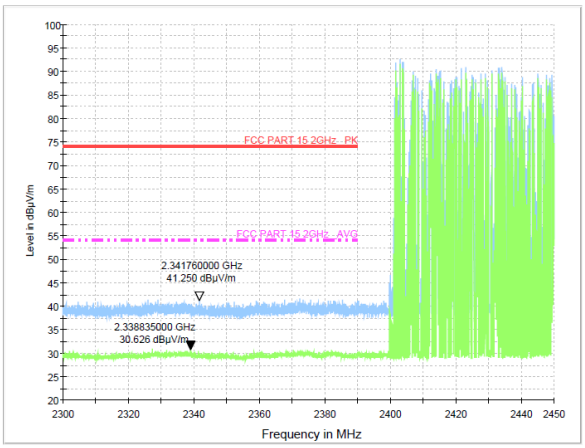
Test Mode: π/4 DQPSK-Low Hopping-off



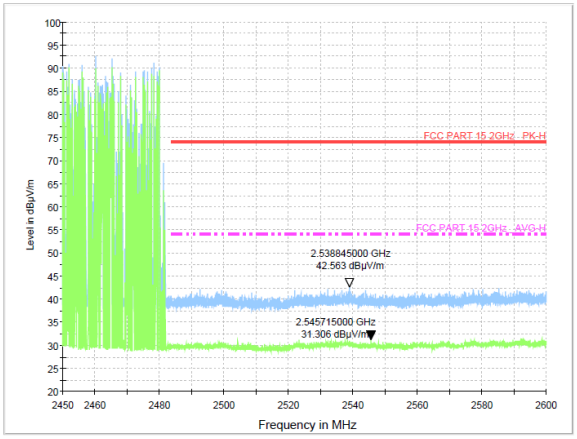
Test Mode: π/4 DQPSK-High Hopping-off



Test Mode: π/4 DQPSK-Low Hopping-on



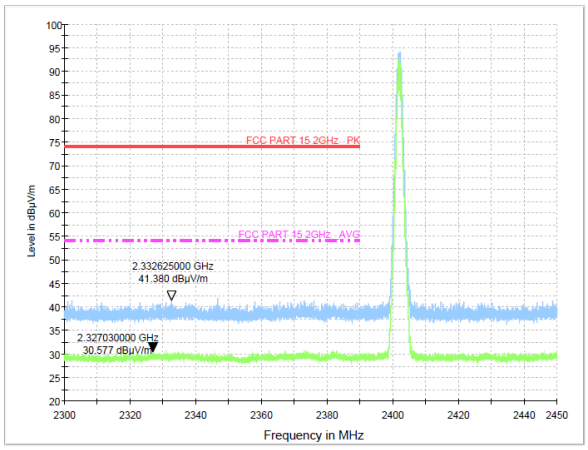
Test Mode: π/4 DQPSK-High Hopping-on



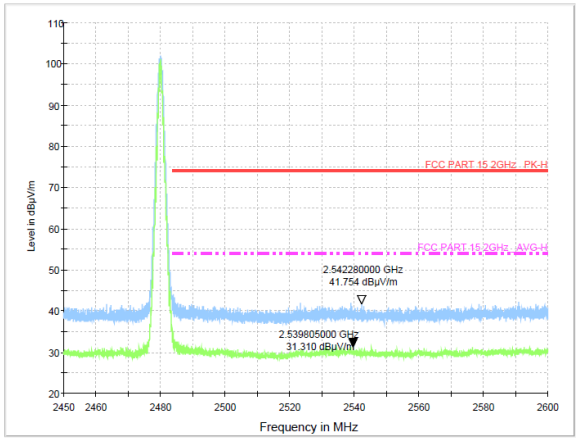
Note: 1. *:Maximum data; x:Over limit; !:over margin.

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

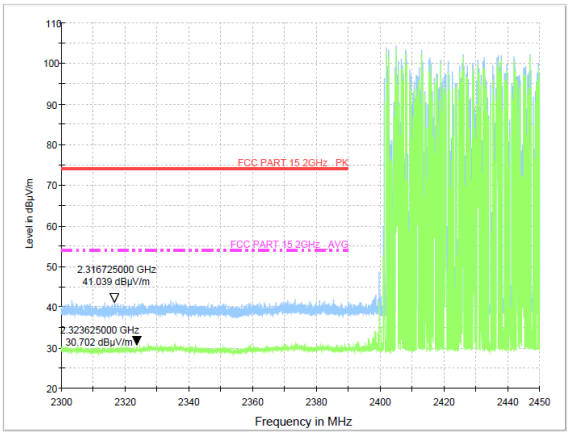
Test Mode: 8DPSKLow Hopping-off



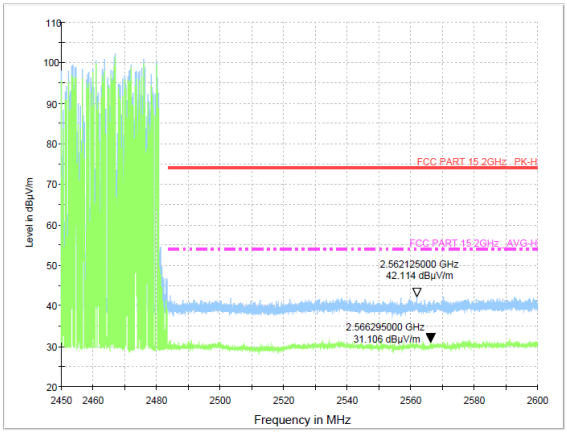
Test Mode: 8DPSK-High Hopping-off



Test Mode: 8DPSK-Low Hopping-on

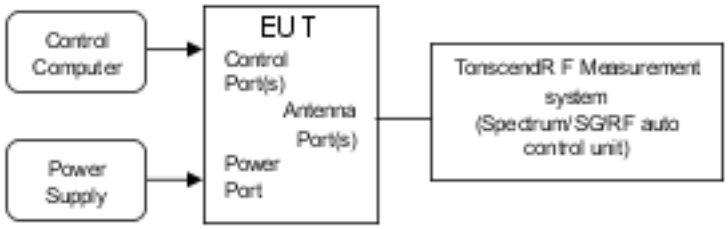


Test Mode: 8DPSK-High Hopping-on



11. BAND EDGE (CONDUCTED)

11.1.Block diagram of test setup



11.2.Test 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 20 dB.

11.3.Test Procedure

Details see the KDB 558074 D01 15.247 Meas Guidance v05r02

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

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

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

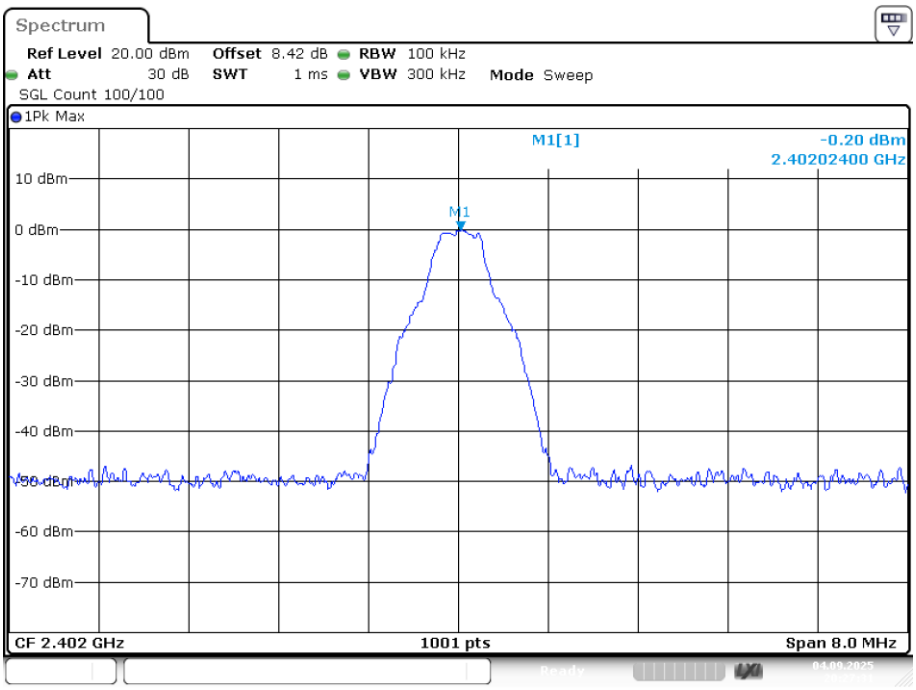
11.3.3. Set the spectrum analyzer as RBW=100KHz, VBW=300KHz, Sweep = auto.

11.3.4. Repeat above procedures until all frequency measured were complete..

11.4.Test Results

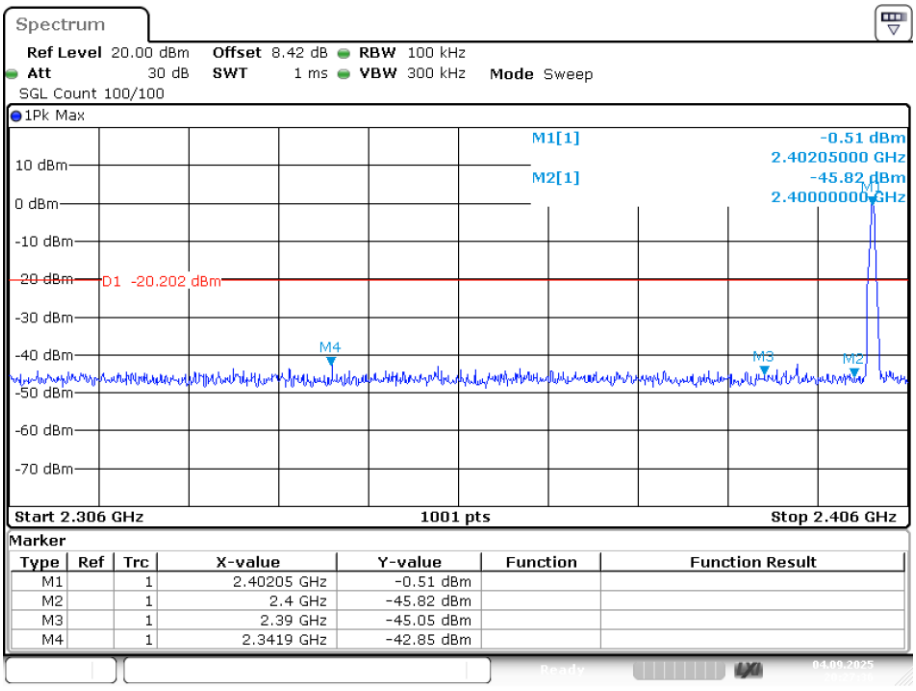
Pass

Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



Date: 4.SEP.2025 20:27:31

Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

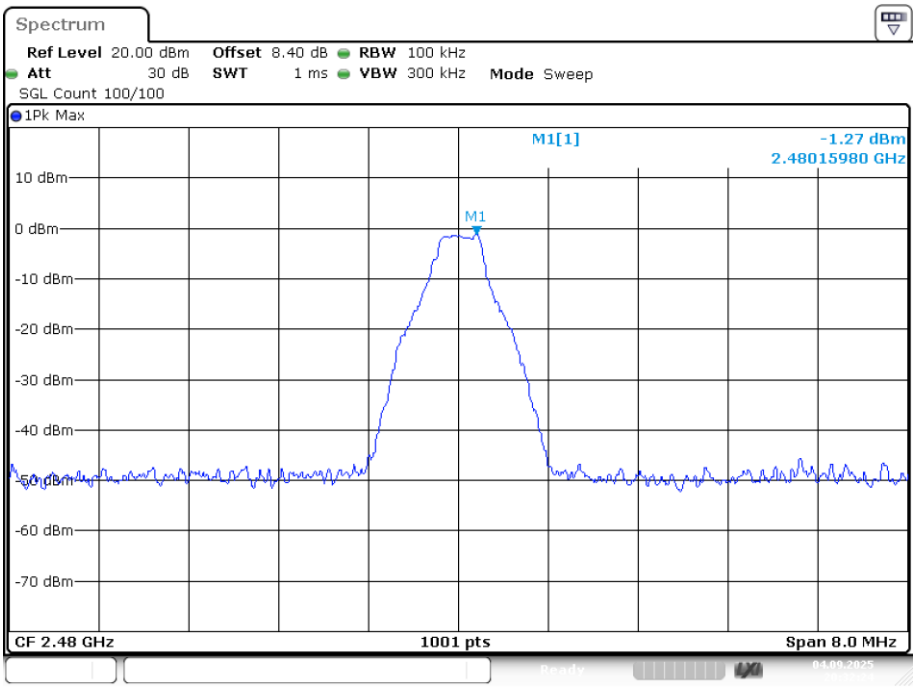


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40205 GHz	-0.51 dBm		
M2		1	2.4 GHz	-45.82 dBm		
M3		1	2.39 GHz	-45.05 dBm		
M4		1	2.3419 GHz	-42.85 dBm		

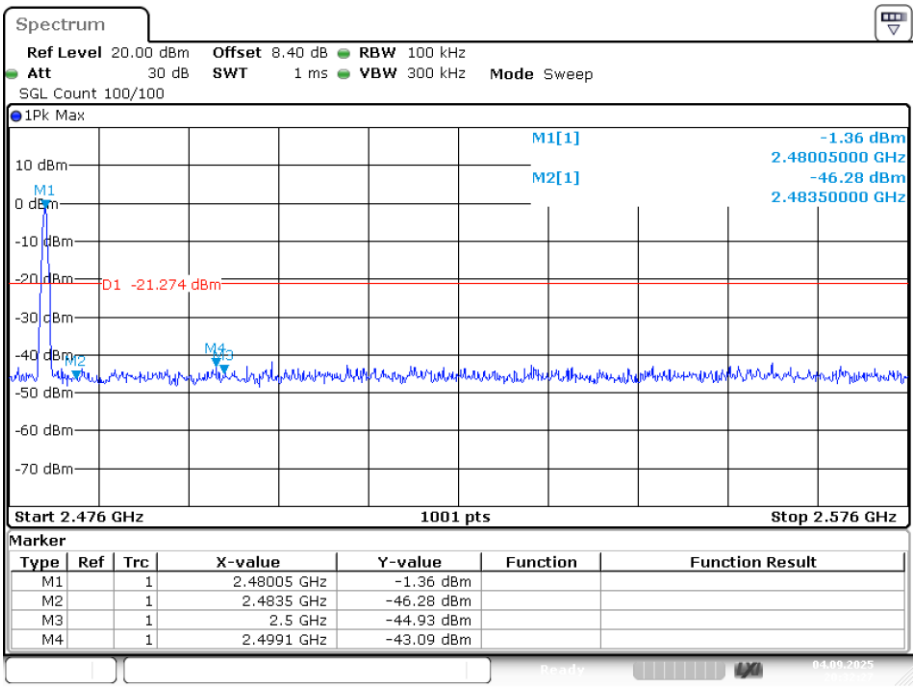
Date: 4.SEP.2025 20:27:35

Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



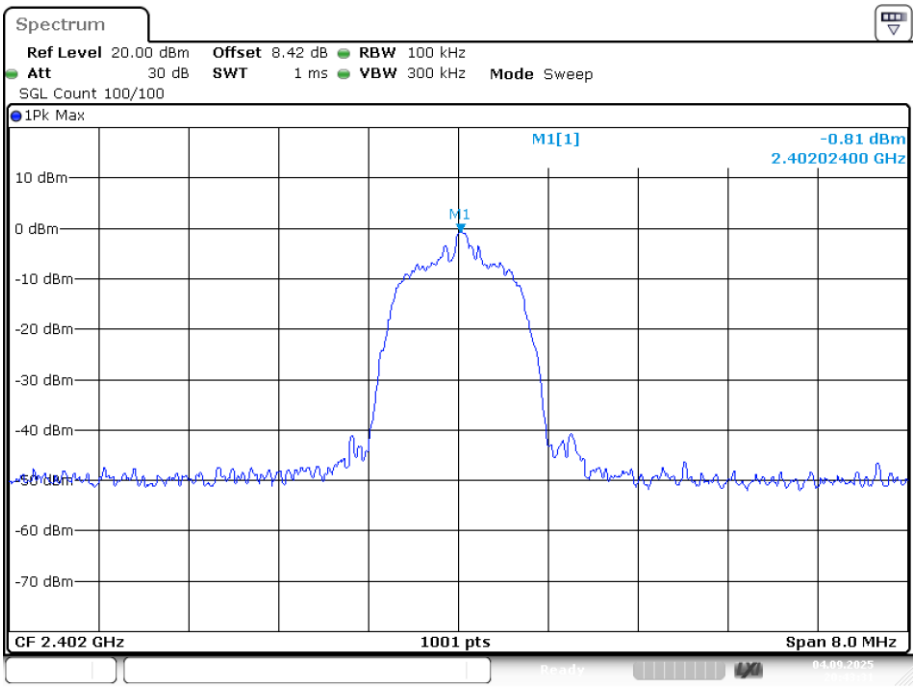
Date: 4.SEP.2025 20:32:24

Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



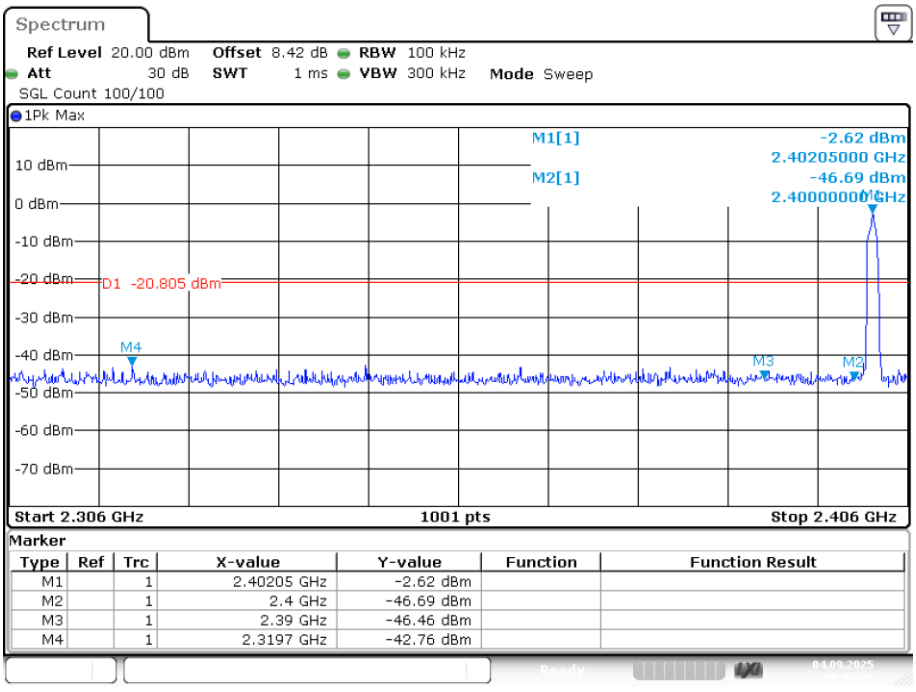
Date: 4.SEP.2025 20:32:27

Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref



Date: 4.SEP.2025 20:43:31

Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission

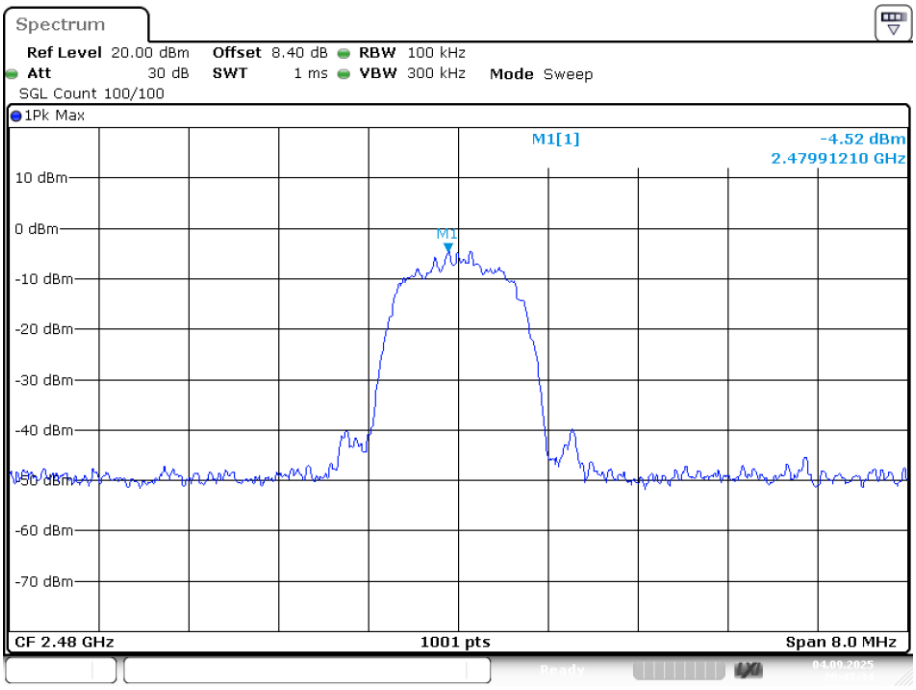


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40205 GHz	-2.62 dBm		
M2		1	2.4 GHz	-46.69 dBm		
M3		1	2.39 GHz	-46.46 dBm		
M4		1	2.3197 GHz	-42.76 dBm		

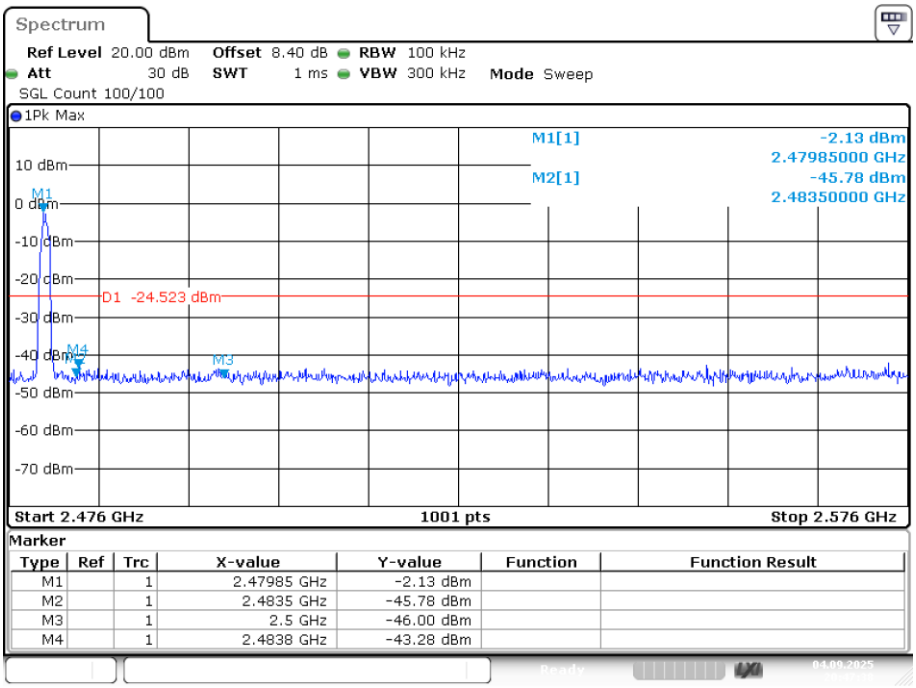
Date: 4.SEP.2025 20:43:35

Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref



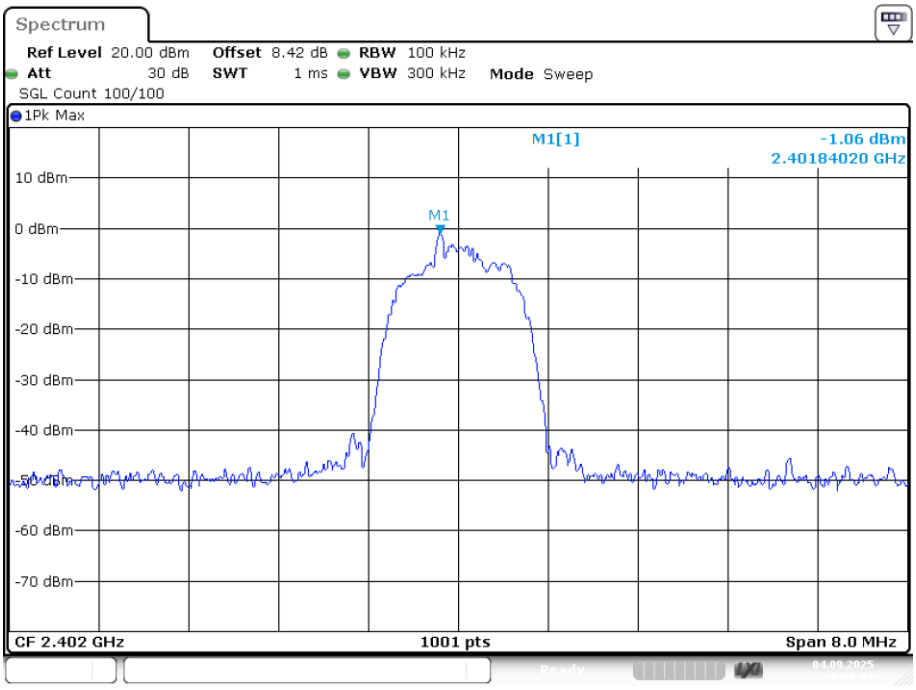
Date: 4.SEP.2025 20:47:35

Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission



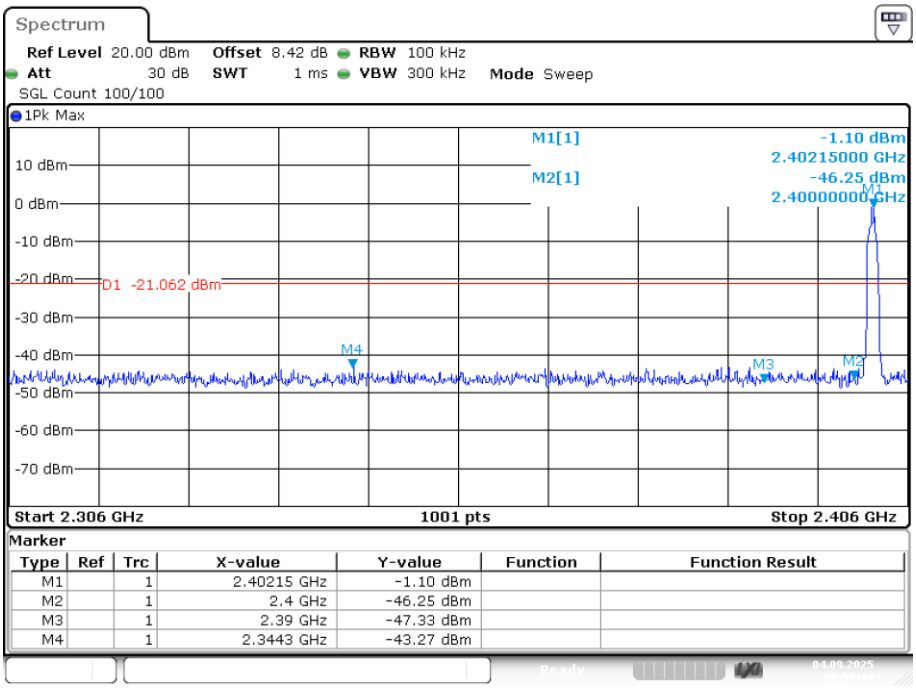
Date: 4.SEP.2025 20:47:38

Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



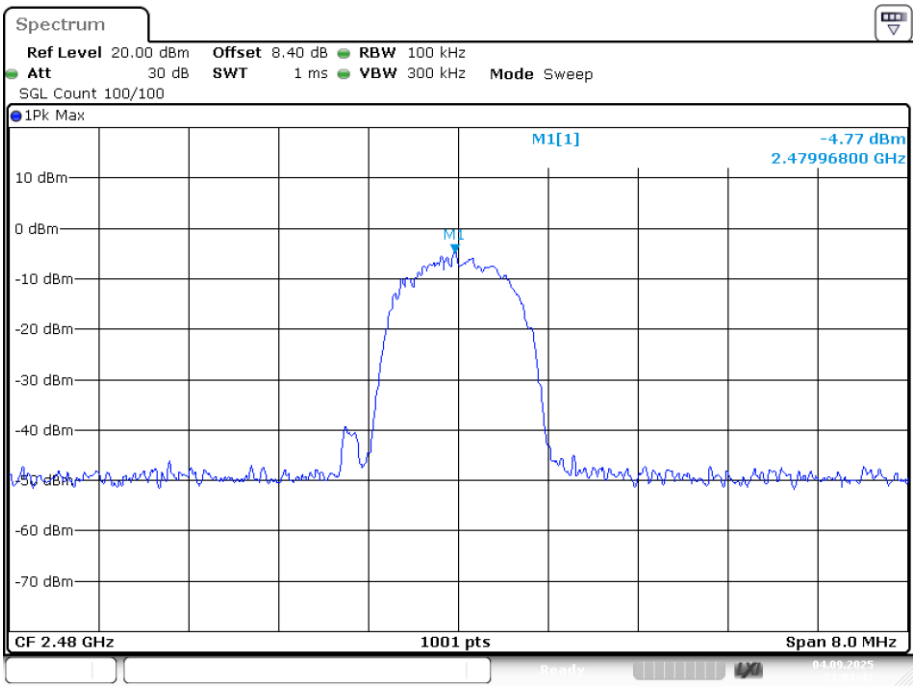
Date: 4.SEP.2025 20:58:09

Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission



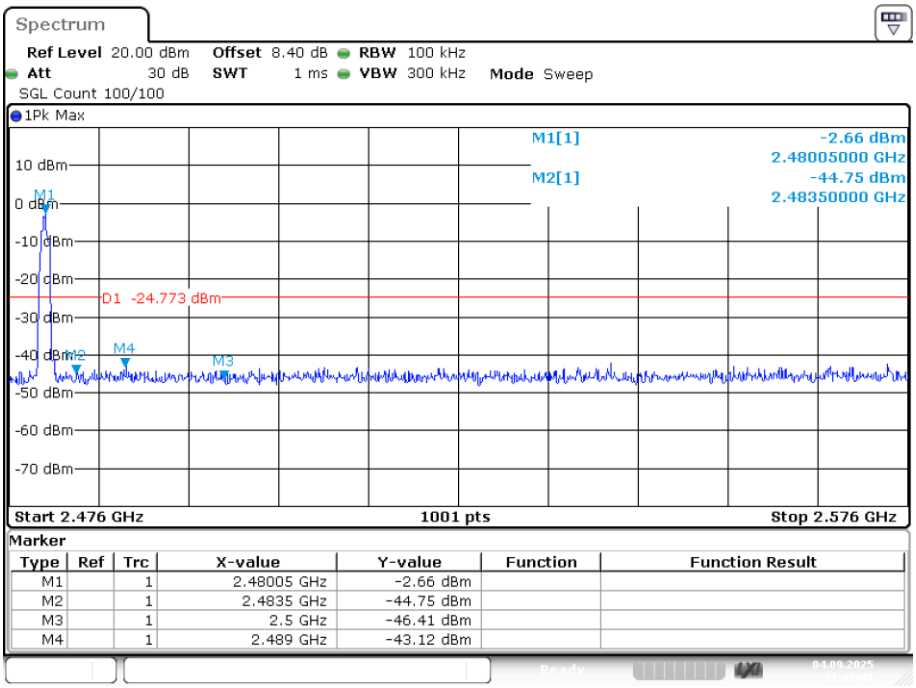
Date: 4.SEP.2025 20:58:13

Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



Date: 4.SEP.2025 21:01:41

Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Emission

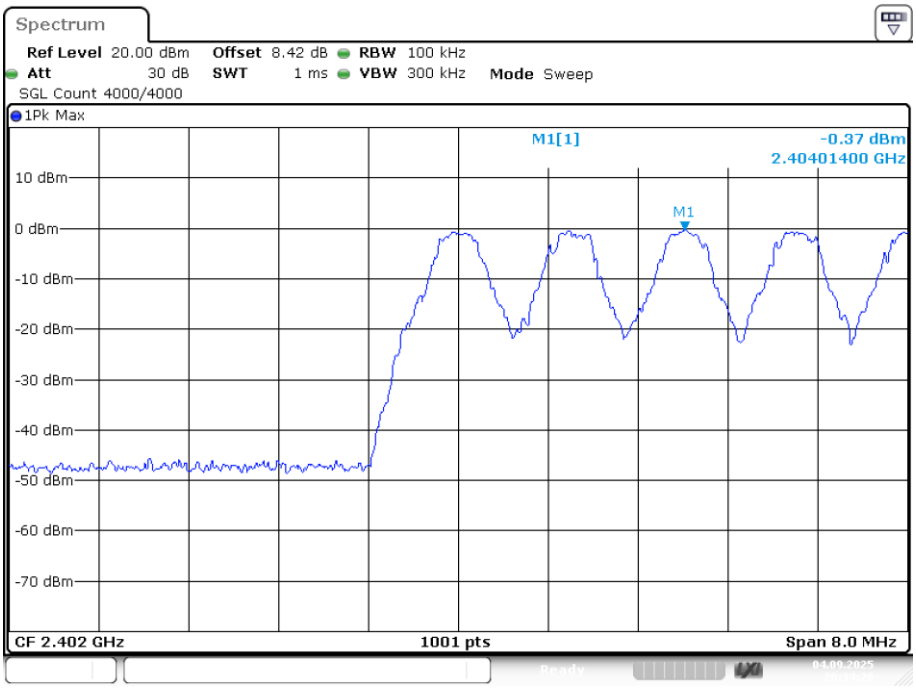


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48005 GHz	-2.66 dBm		
M2		1	2.4835 GHz	-44.75 dBm		
M3		1	2.5 GHz	-46.41 dBm		
M4		1	2.489 GHz	-43.12 dBm		

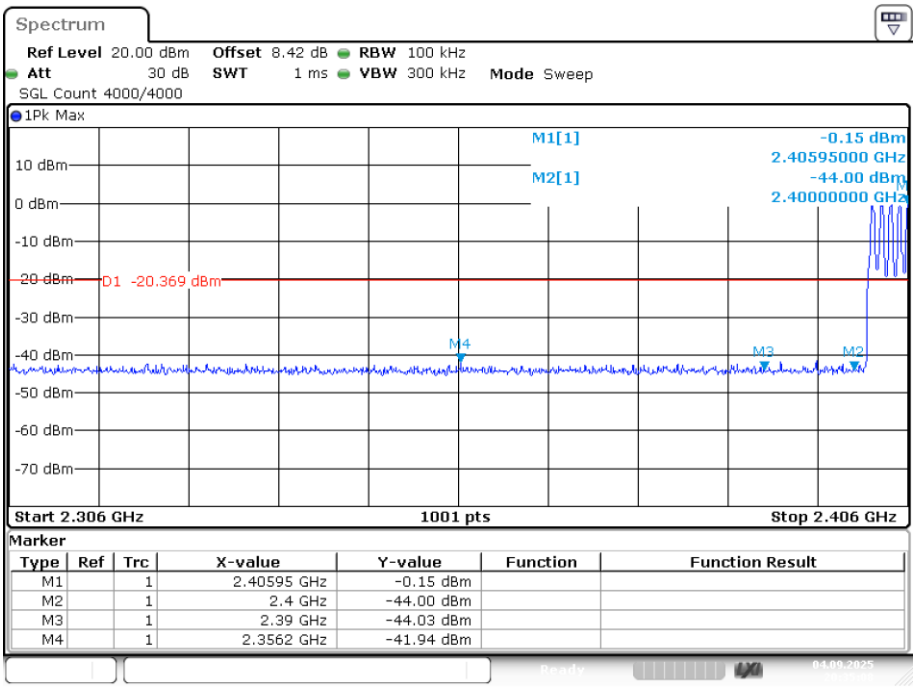
Date: 4.SEP.2025 21:01:45

Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref



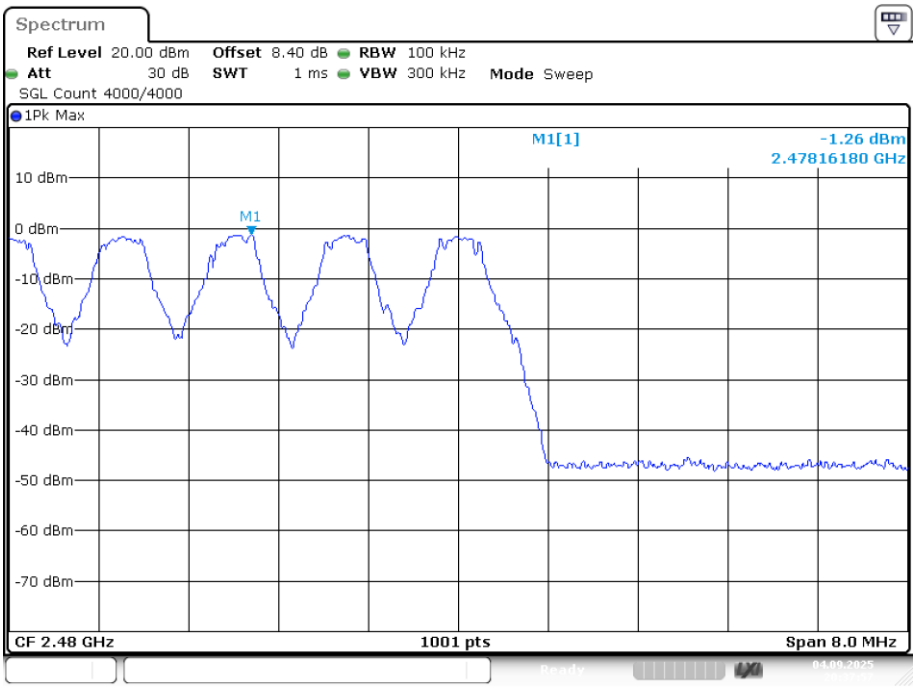
Date: 4.SEP.2025 20:34:20

Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission



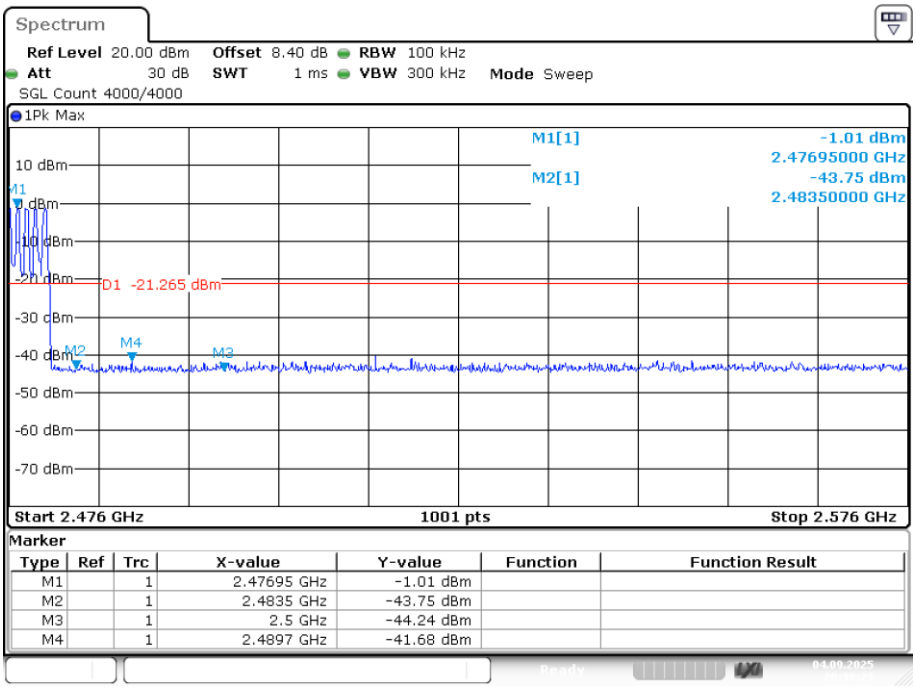
Date: 4.SEP.2025 20:35:08

Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



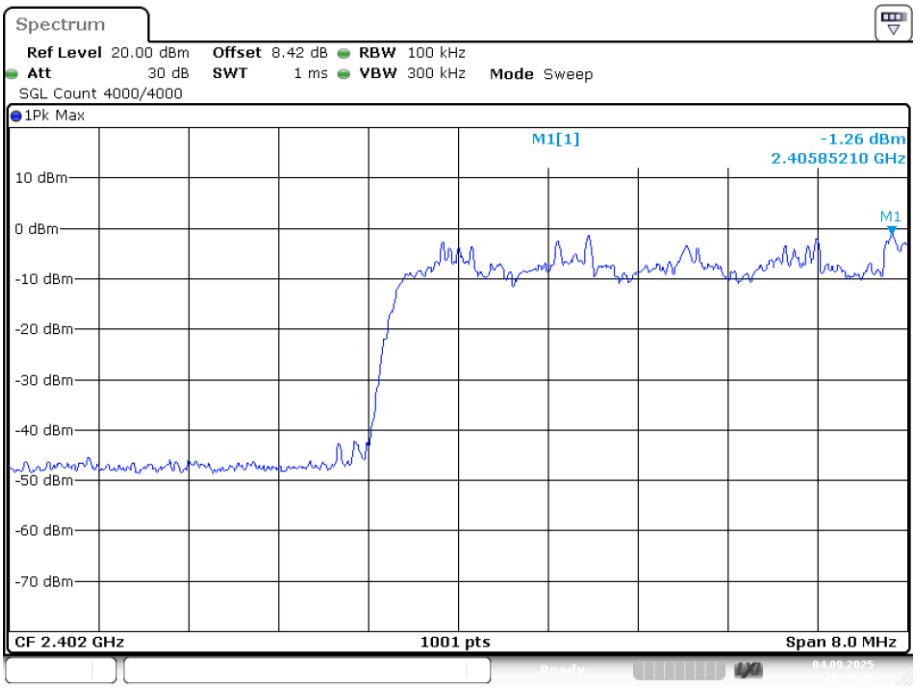
Date: 4.SEP.2025 20:37:58

Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission



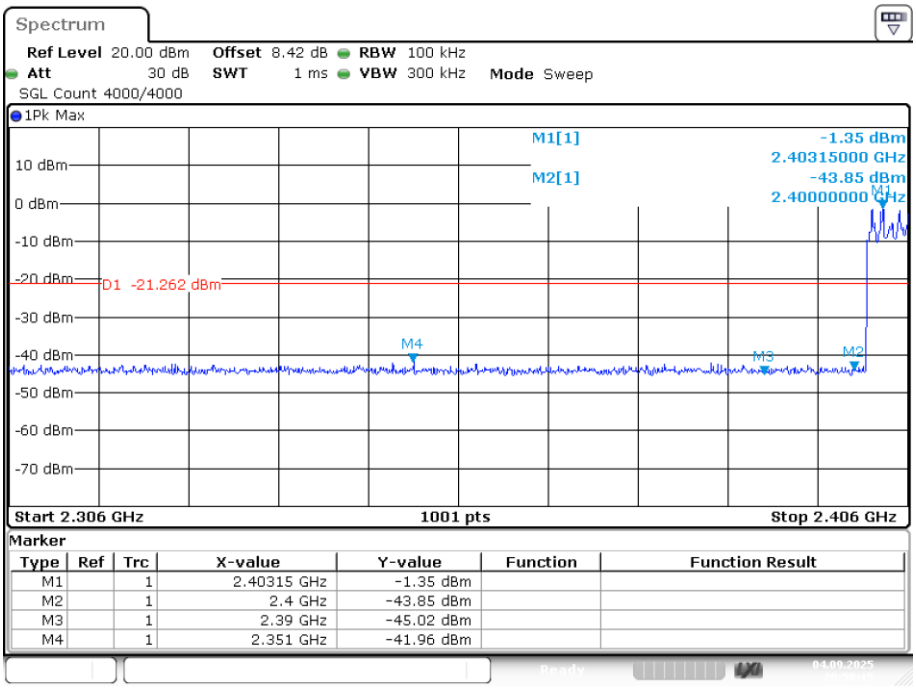
Date: 4.SEP.2025 20:38:23

Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref



Date: 4.SEP.2025 20:49:27

Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission

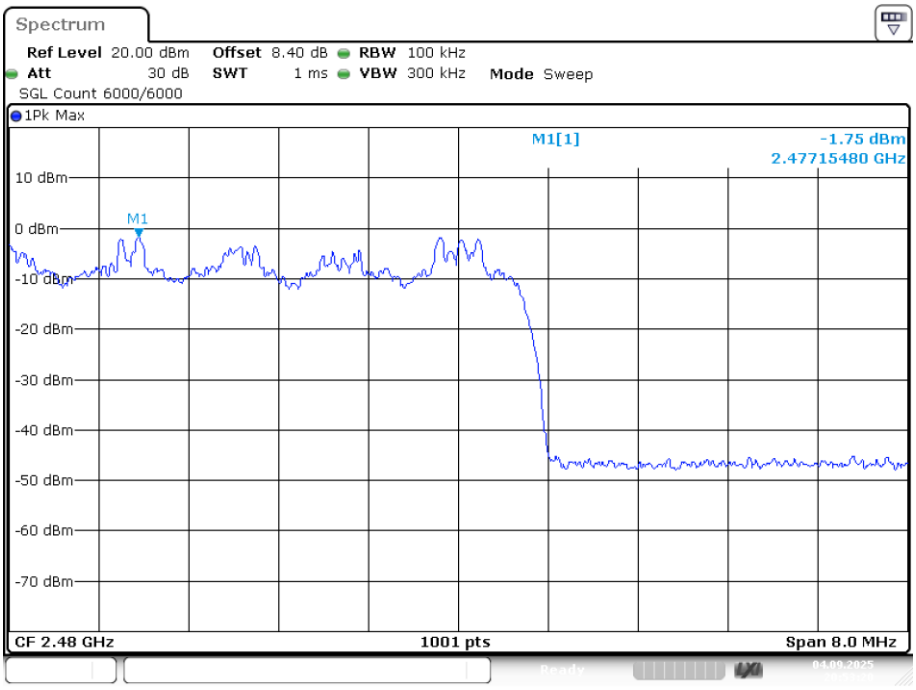


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40315 GHz	-1.35 dBm		
M2		1	2.4 GHz	-43.85 dBm		
M3		1	2.39 GHz	-45.02 dBm		
M4		1	2.351 GHz	-41.96 dBm		

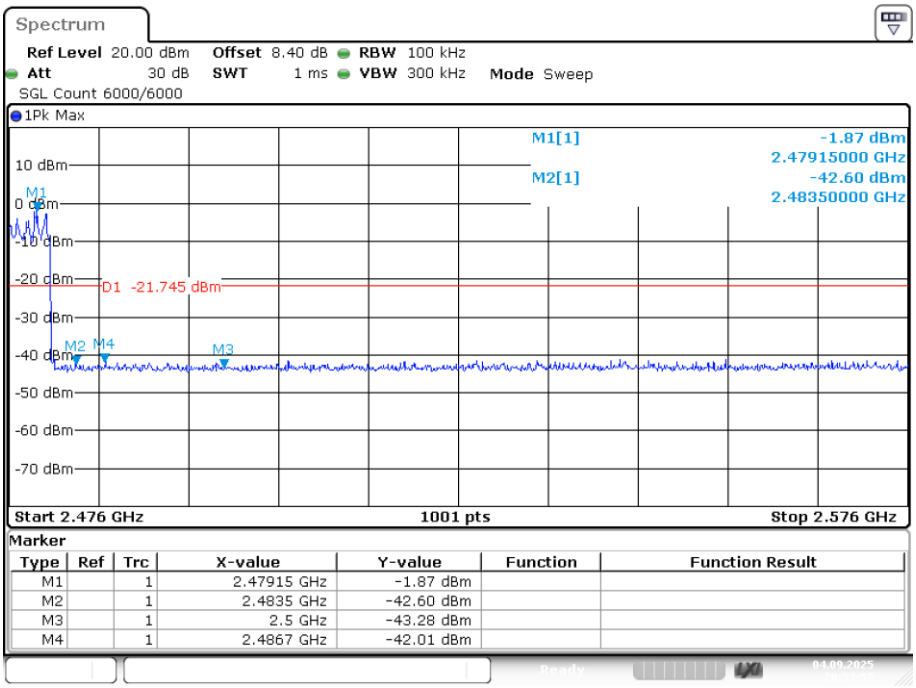
Date: 4.SEP.2025 20:50:14

Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref



Date: 4.SEP.2025 20:53:20

Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission

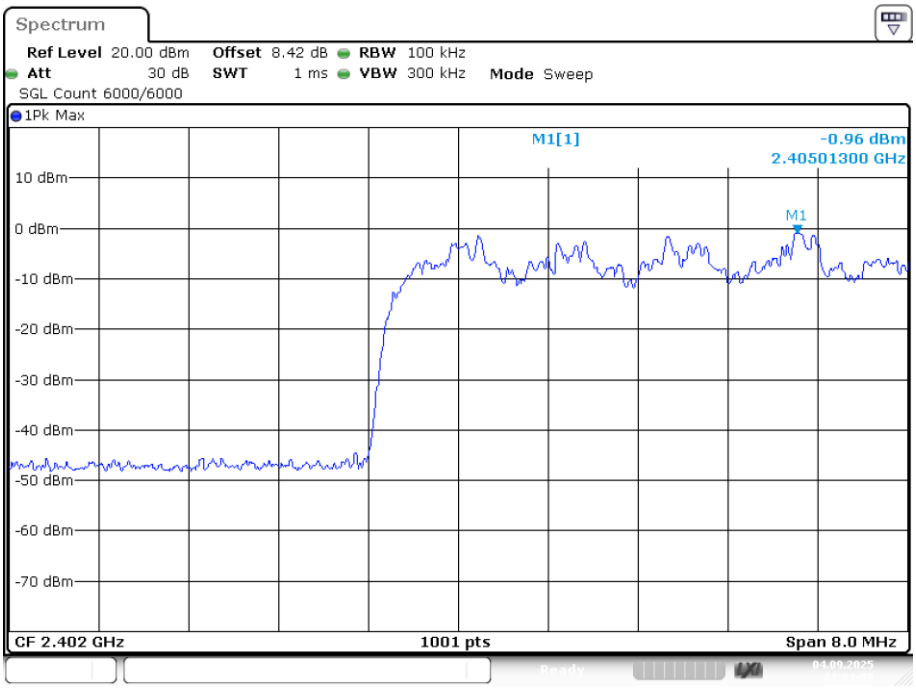


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47915 GHz	-1.87 dBm		
M2		1	2.4835 GHz	-42.60 dBm		
M3		1	2.5 GHz	-43.28 dBm		
M4		1	2.4867 GHz	-42.01 dBm		

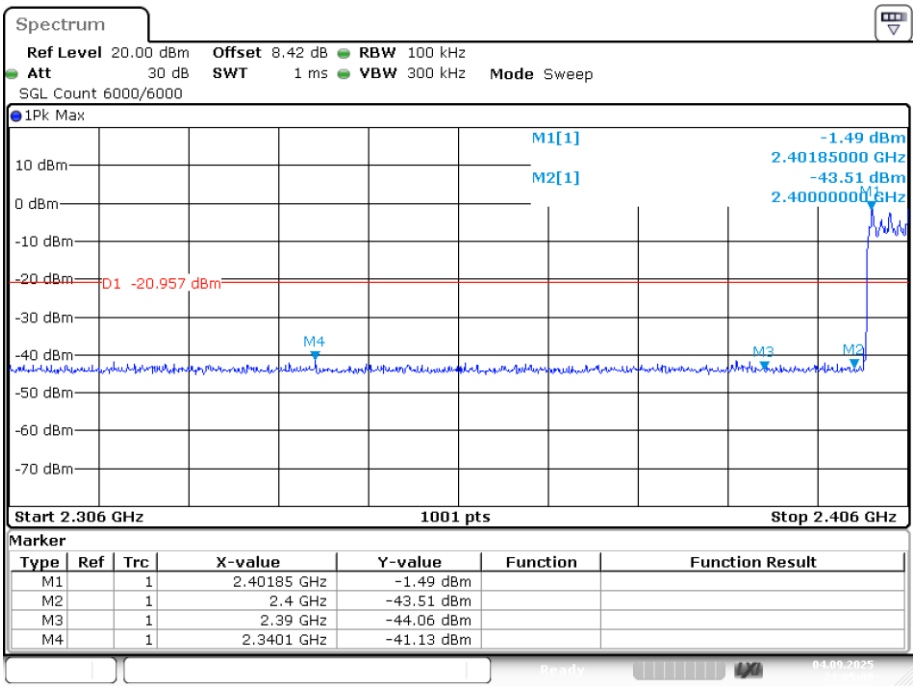
Date: 4.SEP.2025 20:53:57

Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



Date: 4.SEP.2025 21:03:51

Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission

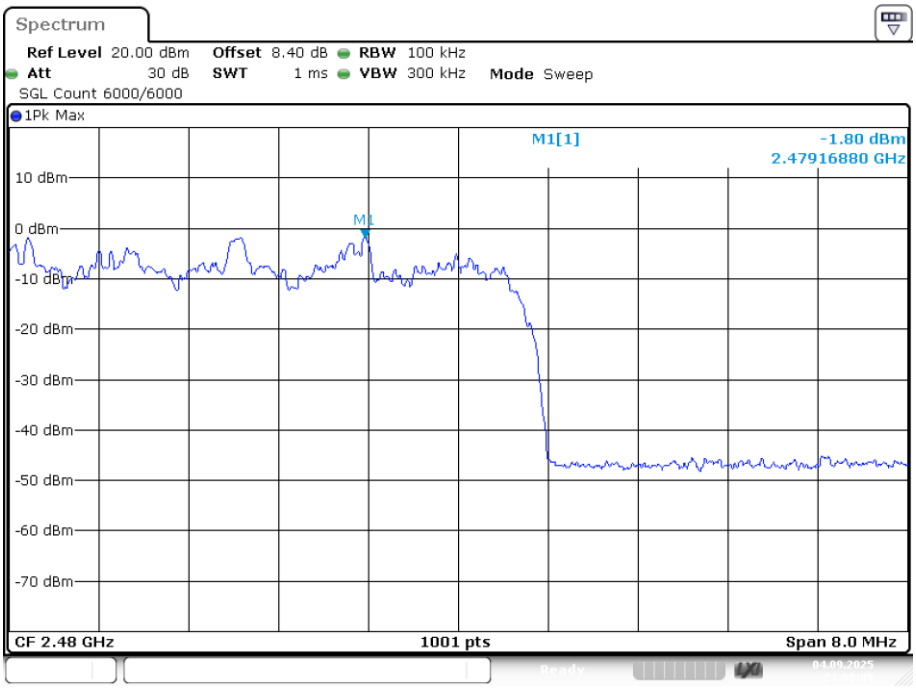


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40185 GHz	-1.49 dBm		
M2		1	2.4 GHz	-43.51 dBm		
M3		1	2.39 GHz	-44.06 dBm		
M4		1	2.3401 GHz	-41.13 dBm		

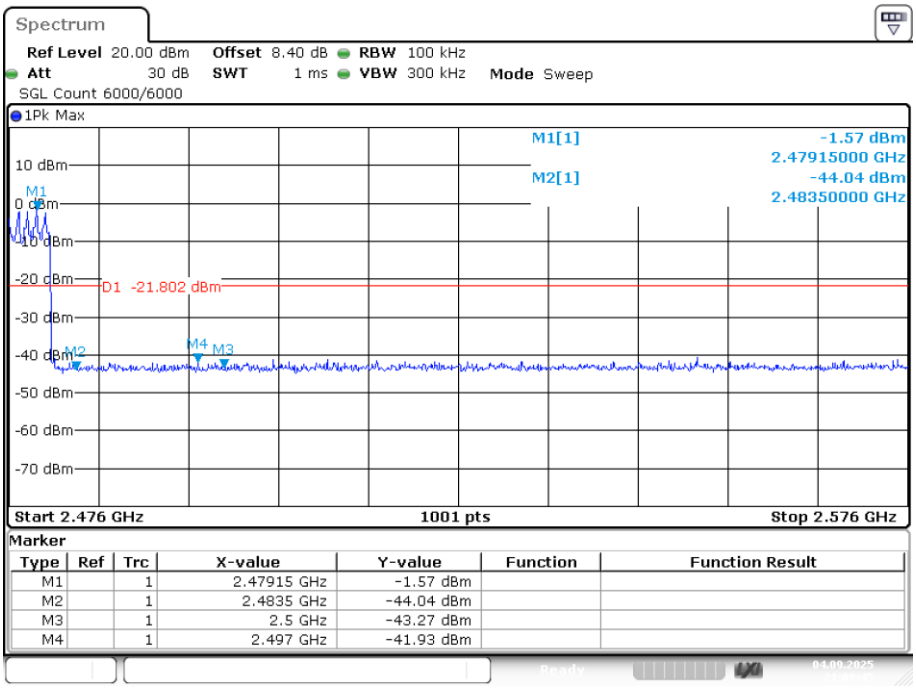
Date: 4.SEP.2025 21:04:59

Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



Date: 4.SEP.2025 21:09:09

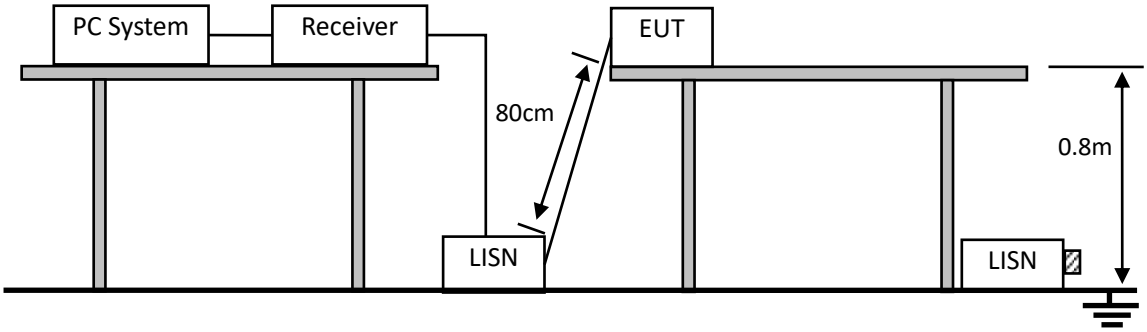
Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Emission



Date: 4.SEP.2025 21:09:45

12. POWER LINE CONDUCTED EMISSIONS

12.1.Block Diagram of Test Setup



:50Ω Terminator

12.2.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.

12.3.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.

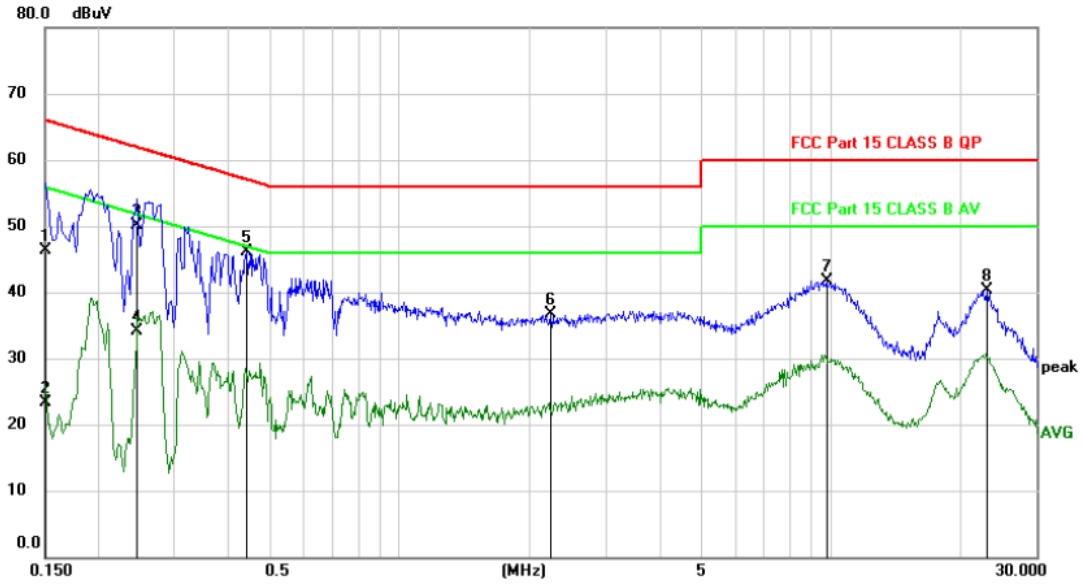
(5) The frequency range from 150 KHz to 30MHz is checked.

12.4.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:

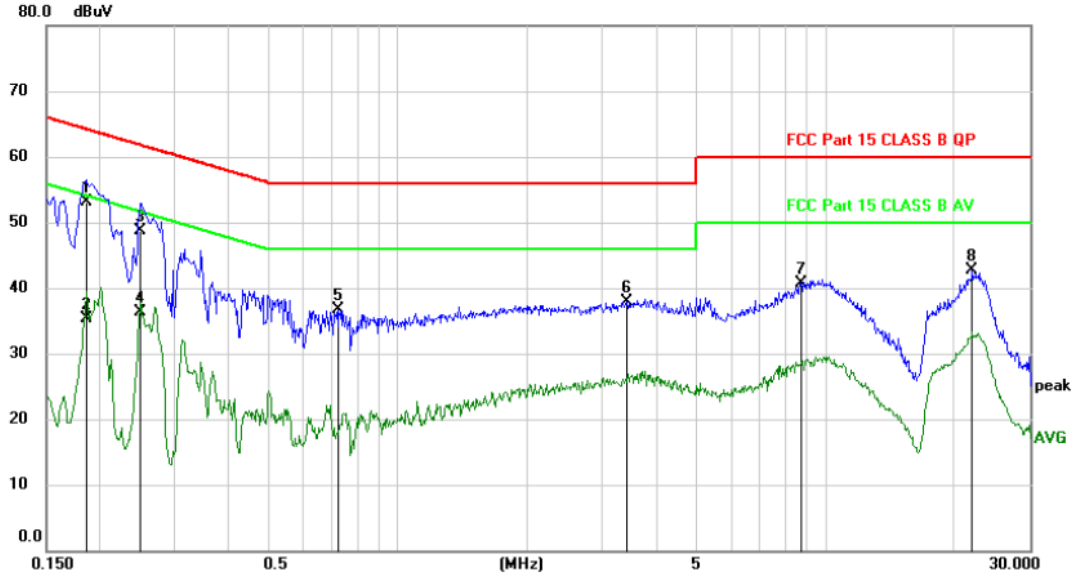


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	36.32	9.94	46.26	66.00	-19.74	QP	
2		0.1500	13.45	9.94	23.39	56.00	-32.61	AVG	
3		0.2460	40.17	9.97	50.14	61.89	-11.75	QP	
4		0.2460	24.08	9.97	34.05	51.89	-17.84	AVG	
5	*	0.4410	36.07	9.95	46.02	57.04	-11.02	peak	
6		2.2380	26.89	9.89	36.78	56.00	-19.22	peak	
7		9.8040	31.49	10.20	41.69	60.00	-18.31	peak	
8		23.0640	29.78	10.45	40.23	60.00	-19.77	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	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1860	43.13	9.92	53.05	64.21	-11.16	QP	
2		0.1860	25.39	9.92	35.31	54.21	-18.90	AVG	
3		0.2490	38.70	9.97	48.67	61.79	-13.12	QP	
4		0.2490	26.42	9.97	36.39	51.79	-15.40	AVG	
5		0.7260	26.69	9.93	36.62	56.00	-19.38	peak	
6		3.4200	27.92	9.96	37.88	56.00	-18.12	peak	
7		8.7420	30.56	10.17	40.73	60.00	-19.27	peak	
8		21.9510	32.31	10.46	42.77	60.00	-17.23	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.

13. ANTENNA REQUIREMENTS

13.1.Limit

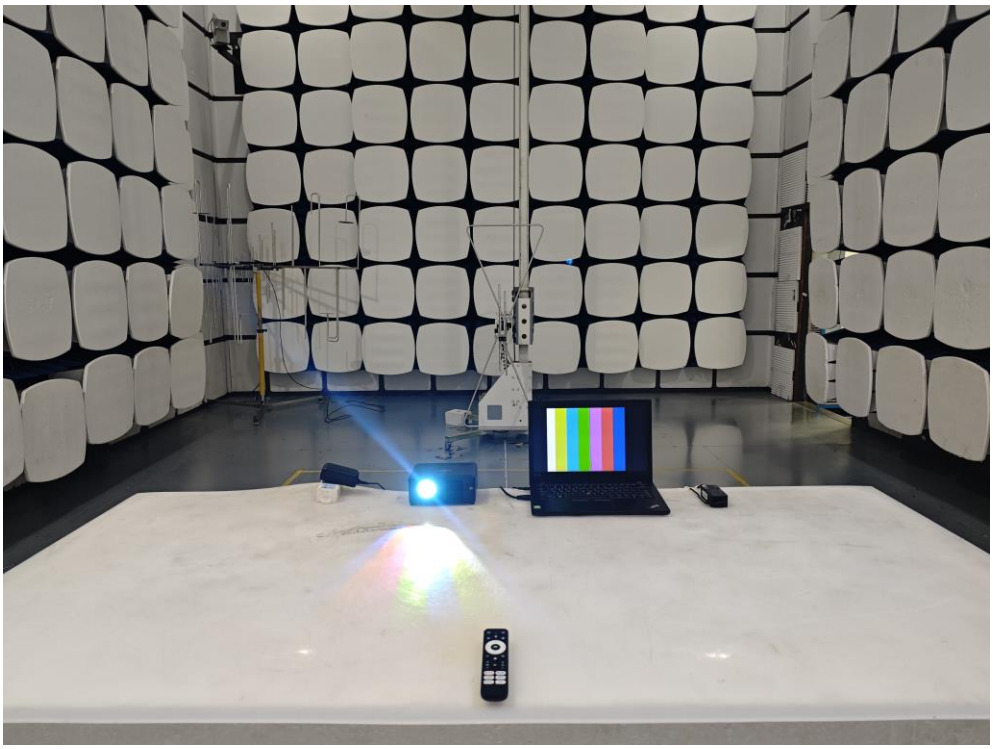
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional 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.

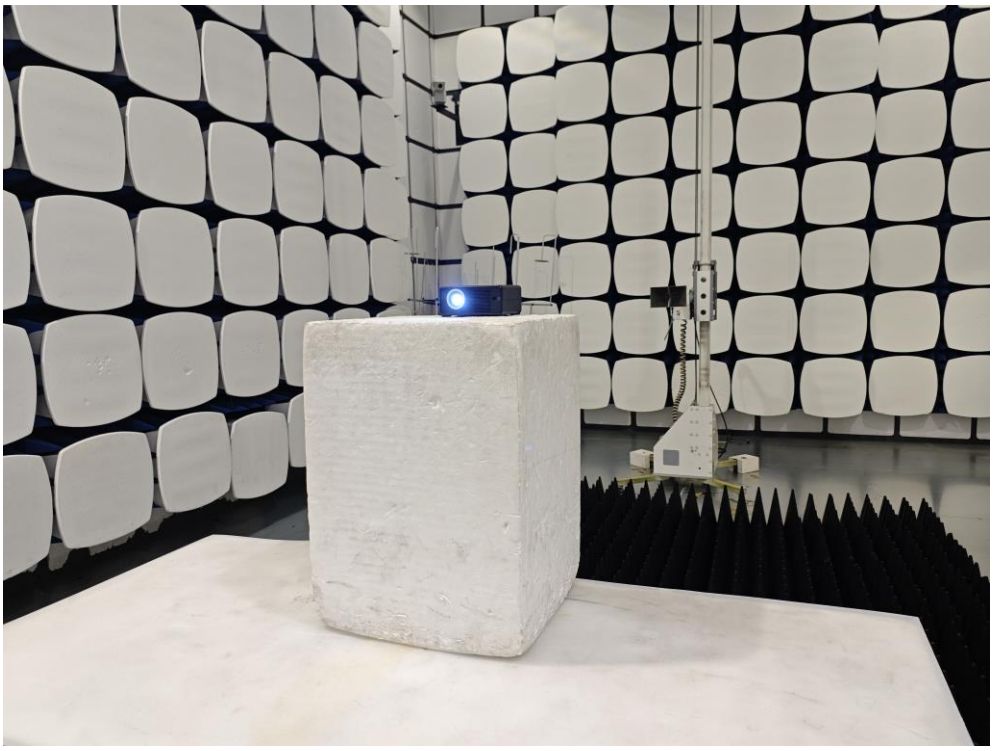
13.2.Result

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

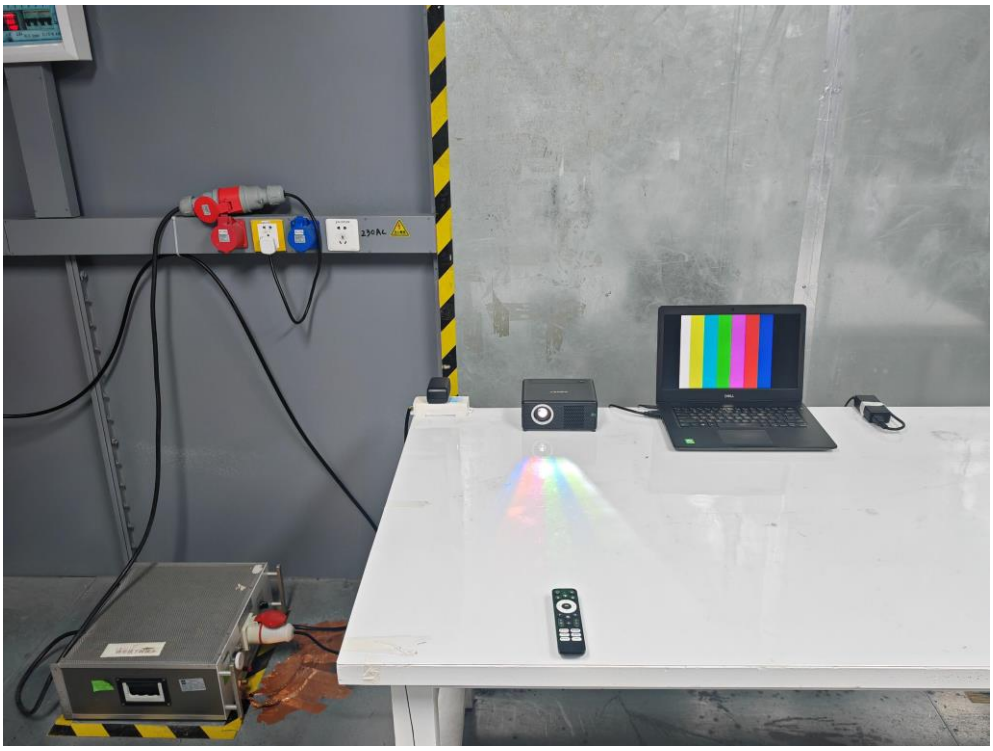
14. TEST SETUP PHOTO

14.1.Photo of Radiated Emission test





14.2.Photo of Conducted Emission test



15. PHOTOS OF EUT

Please refer to report A2508189-C04-R01.

-------END OF REPORT-------