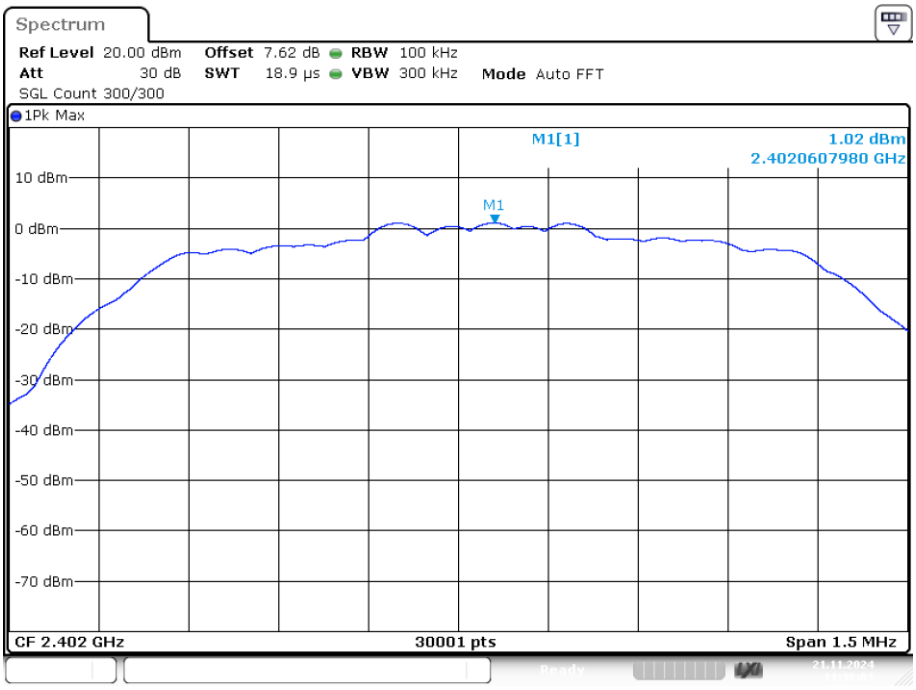
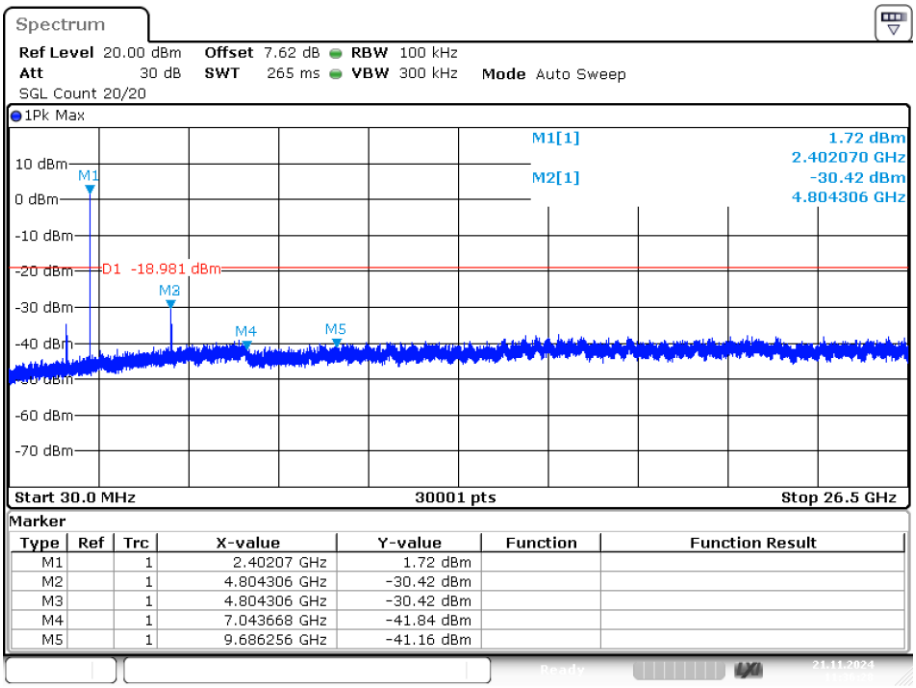
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



Date: 21.NOV.2024 11:36:03

Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission

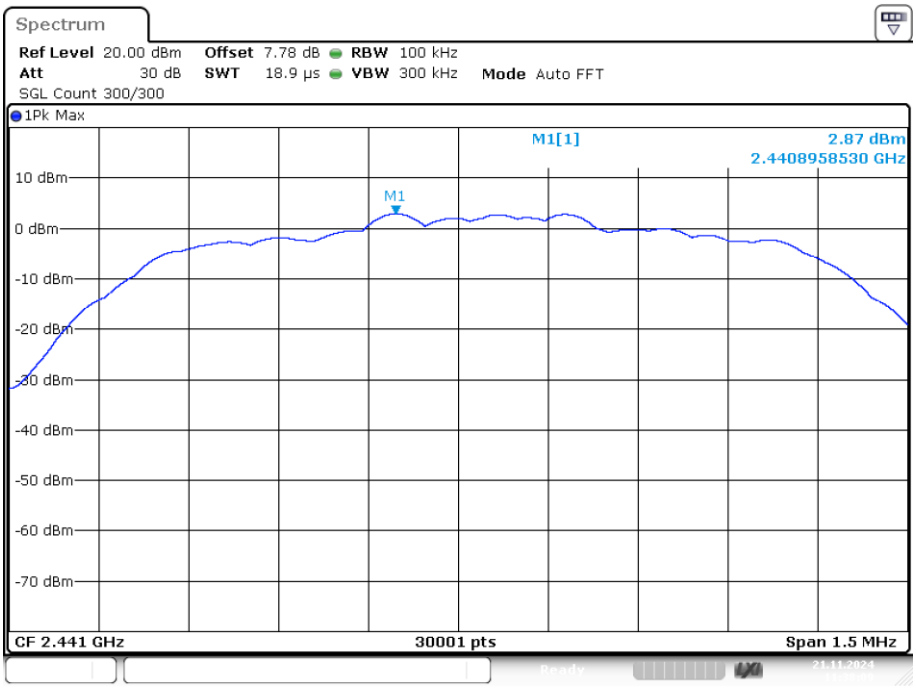


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40207 GHz	1.72 dBm		
M2		1	4.804306 GHz	-30.42 dBm		
M3		1	4.804306 GHz	-30.42 dBm		
M4		1	7.043668 GHz	-41.84 dBm		
M5		1	9.686256 GHz	-41.16 dBm		

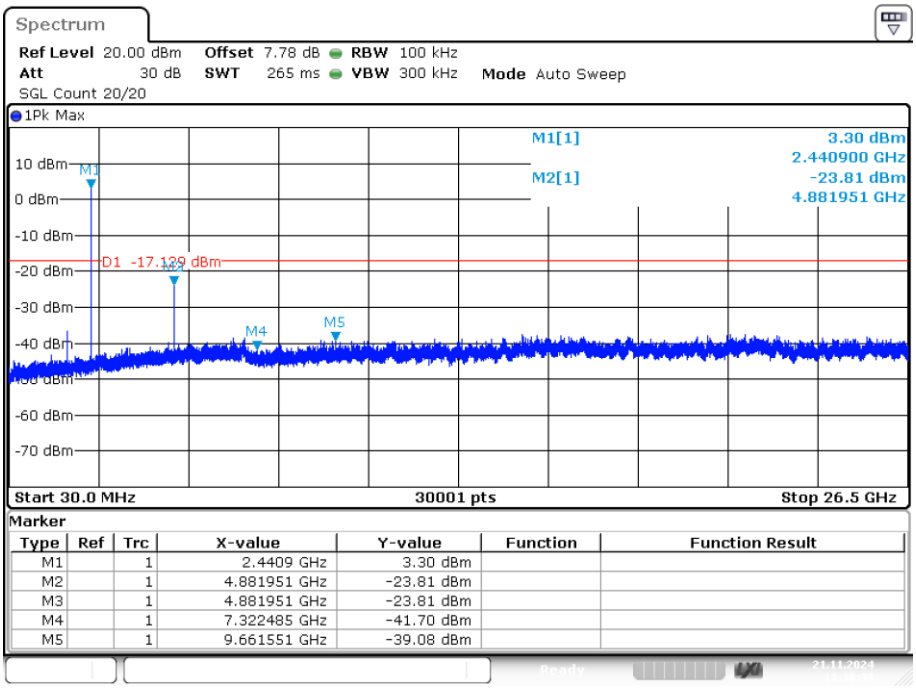
Date: 21.NOV.2024 11:36:27

Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



Date: 21.NOV.2024 11:38:09

Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission

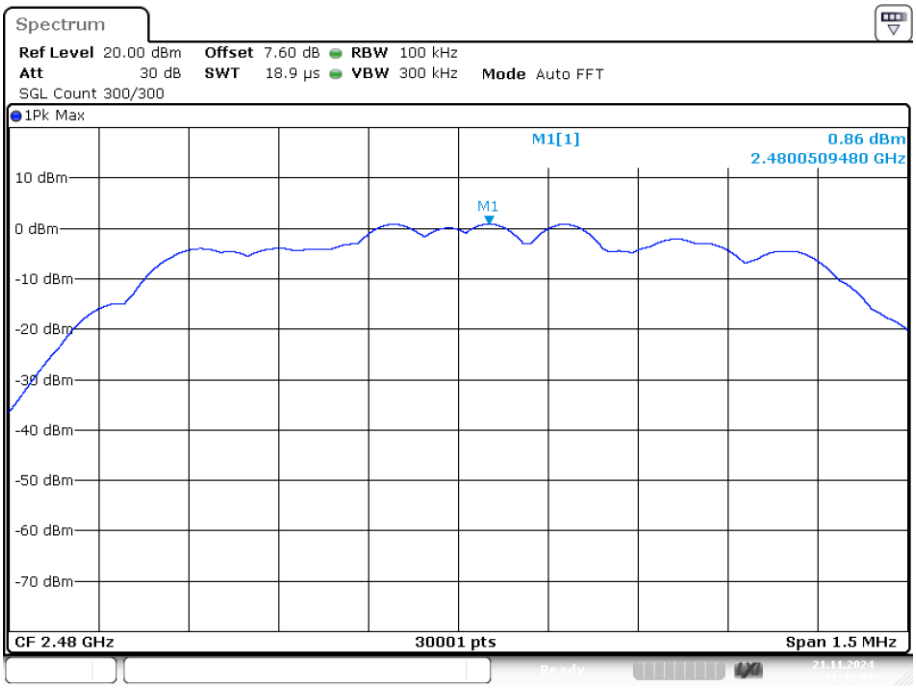


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4409 GHz	3.30 dBm		
M2		1	4.881951 GHz	-23.81 dBm		
M3		1	4.881951 GHz	-23.81 dBm		
M4		1	7.322485 GHz	-41.70 dBm		
M5		1	9.661551 GHz	-39.08 dBm		

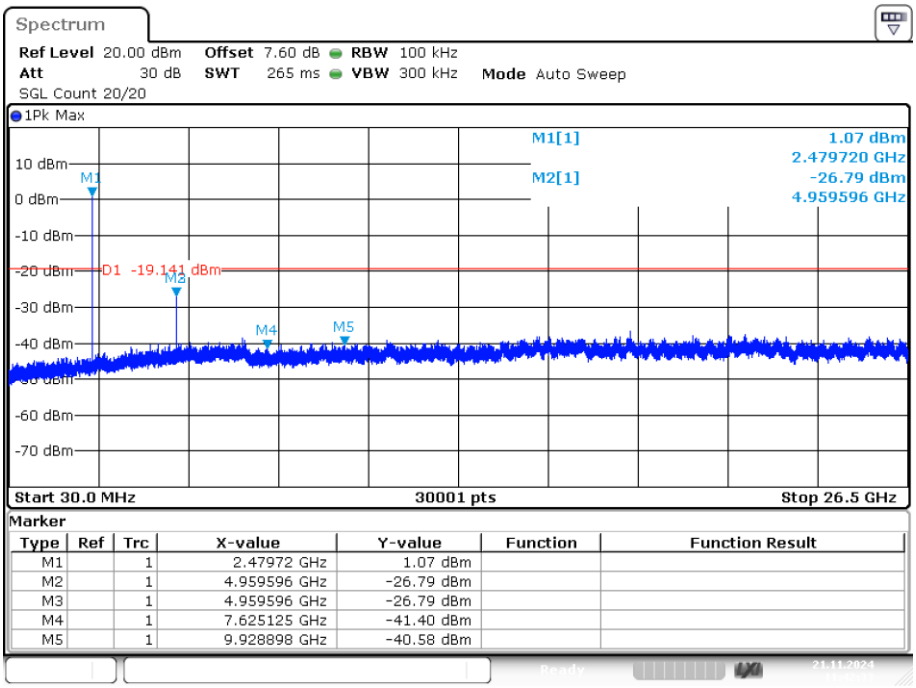
Date: 21.NOV.2024 11:38:33

Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



Date: 21.NOV.2024 11:42:08

Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission

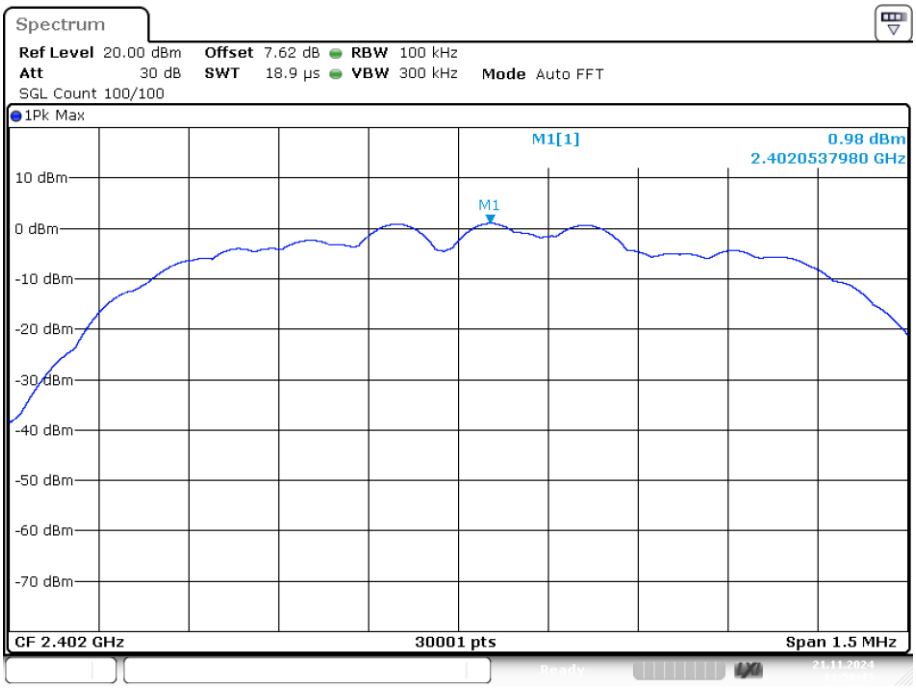


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47972 GHz	1.07 dBm		
M2		1	4.959596 GHz	-26.79 dBm		
M3		1	4.959596 GHz	-26.79 dBm		
M4		1	7.625125 GHz	-41.40 dBm		
M5		1	9.928898 GHz	-40.58 dBm		

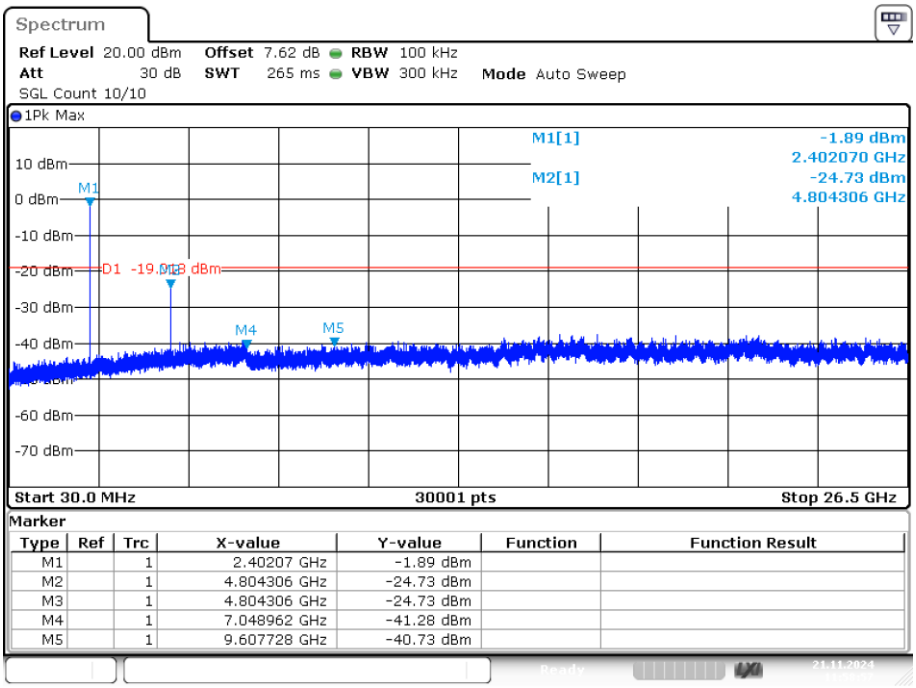
Date: 21.NOV.2024 11:42:32

Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



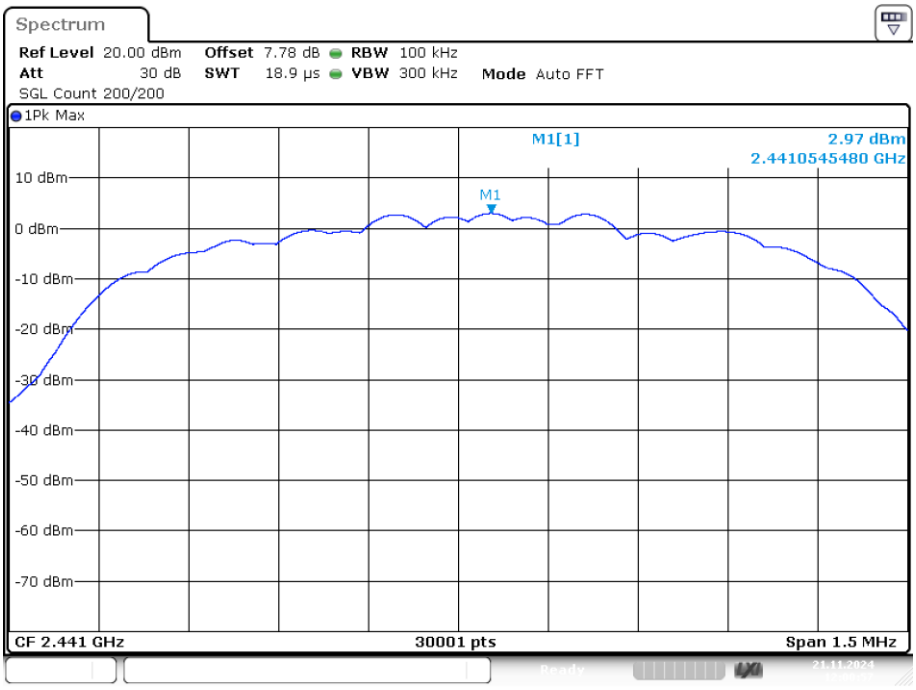
Date: 21.NOV.2024 11:58:43

Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



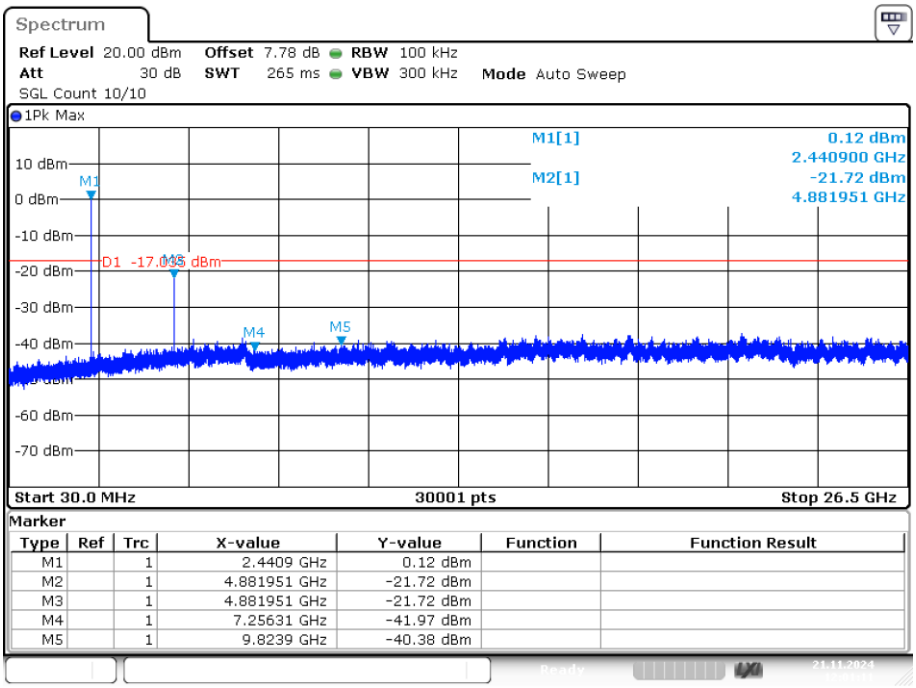
Date: 21.NOV.2024 11:58:57

Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



Date: 21.NOV.2024 12:00:57

Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission

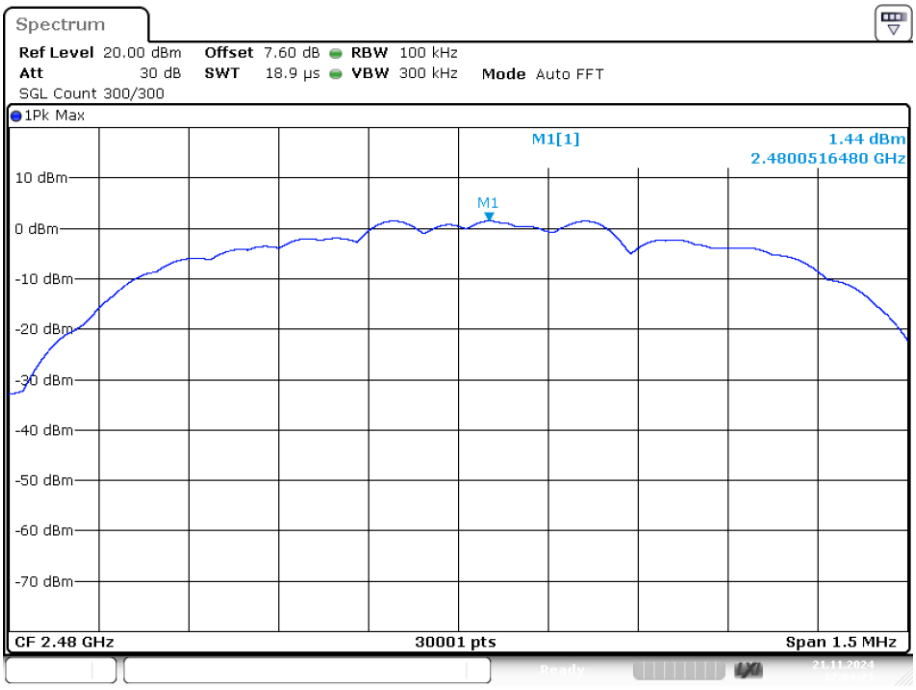


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4409 GHz	0.12 dBm		
M2		1	4.881951 GHz	-21.72 dBm		
M3		1	4.881951 GHz	-21.72 dBm		
M4		1	7.25631 GHz	-41.97 dBm		
M5		1	9.8239 GHz	-40.38 dBm		

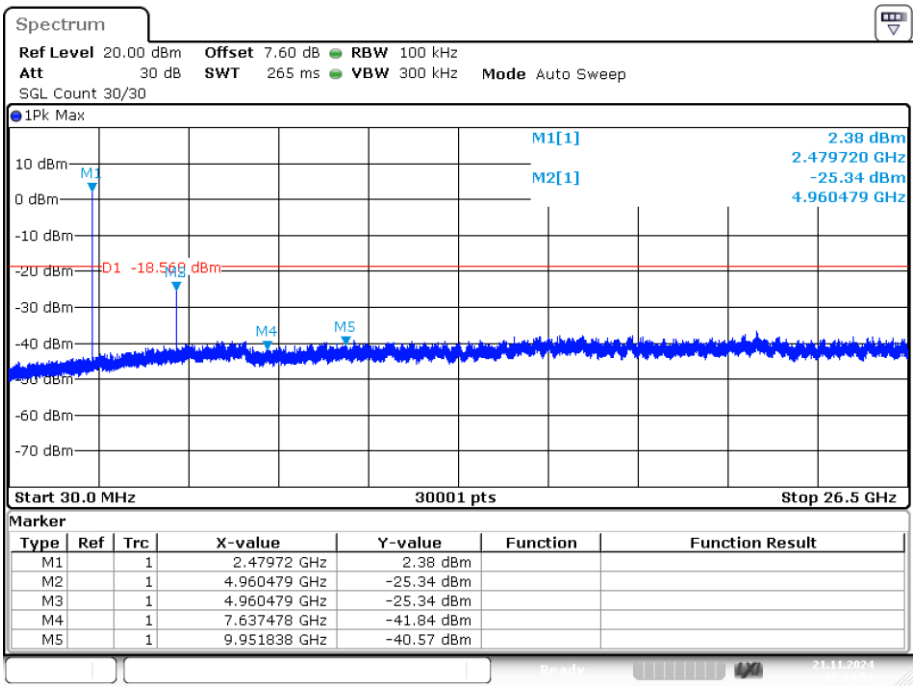
Date: 21.NOV.2024 12:01:11

Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Date: 21.NOV.2024 12:04:23

Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission



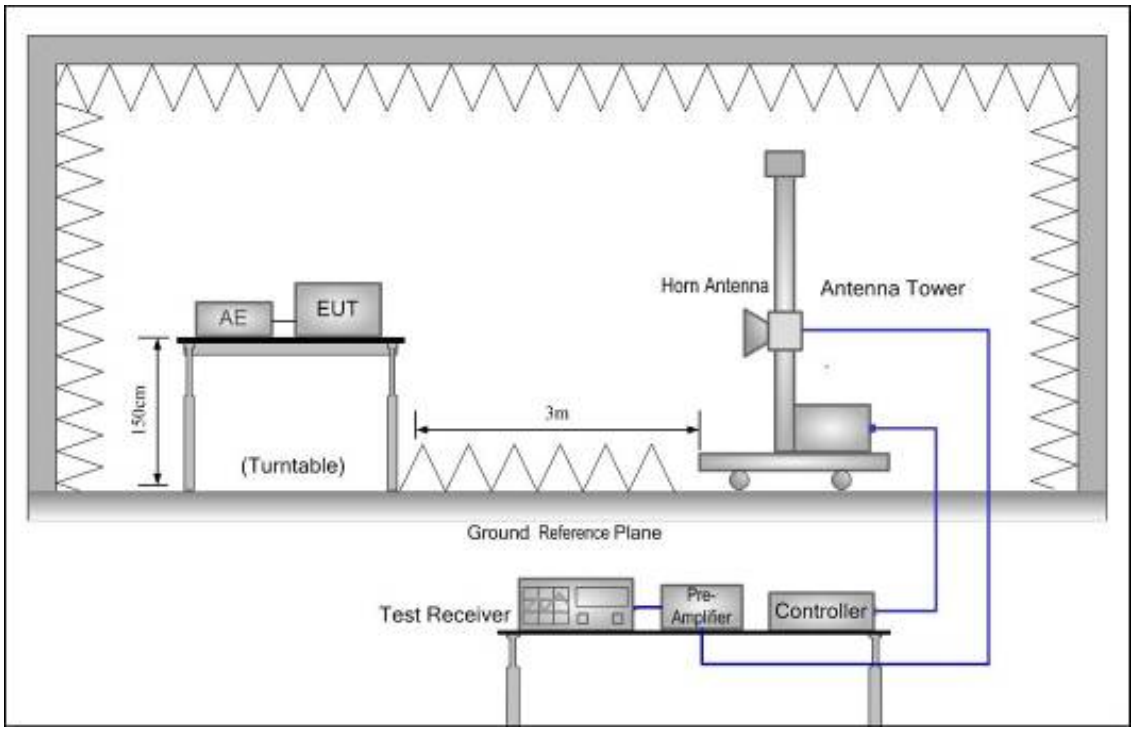
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47972 GHz	2.38 dBm		
M2		1	4.960479 GHz	-25.34 dBm		
M3		1	4.960479 GHz	-25.34 dBm		
M4		1	7.637478 GHz	-41.84 dBm		
M5		1	9.951838 GHz	-40.57 dBm		

Date: 21.NOV.2024 12:04:57

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.

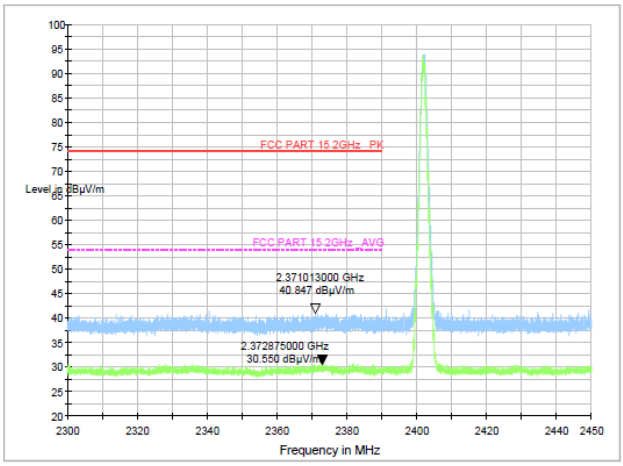
9.3. Test Procedure

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

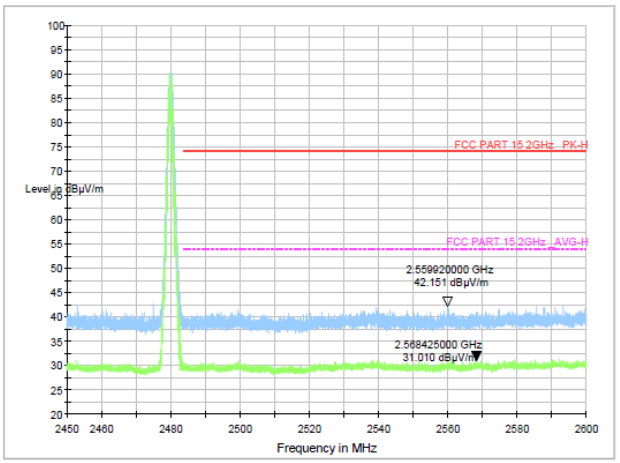
9.4. Test Result

PASS. (See below detailed test data)

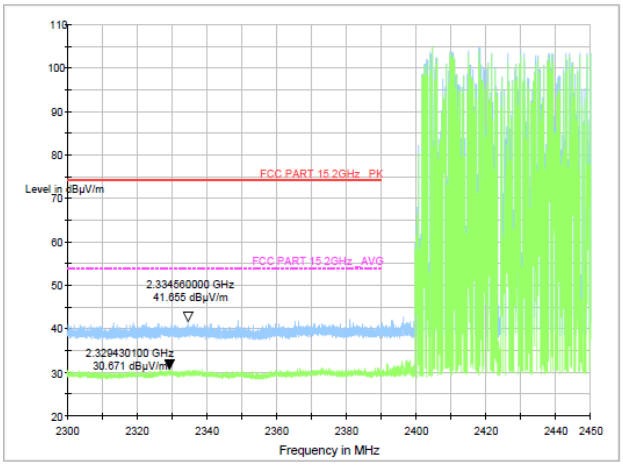
Test Mode: GFSK-Low Hopping-off



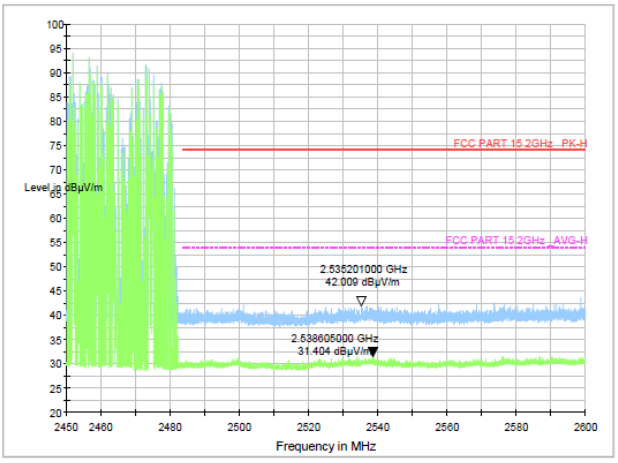
Test Mode: GFSK-High Hopping-off



Test Mode: GFSK-Low Hopping-on



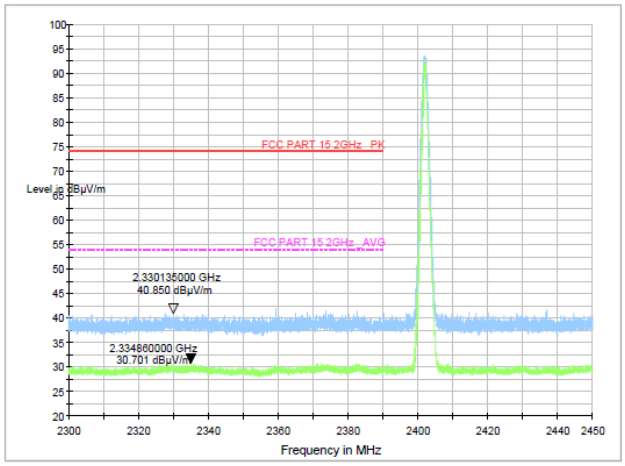
Test Mode: GFSK-High Hopping-on



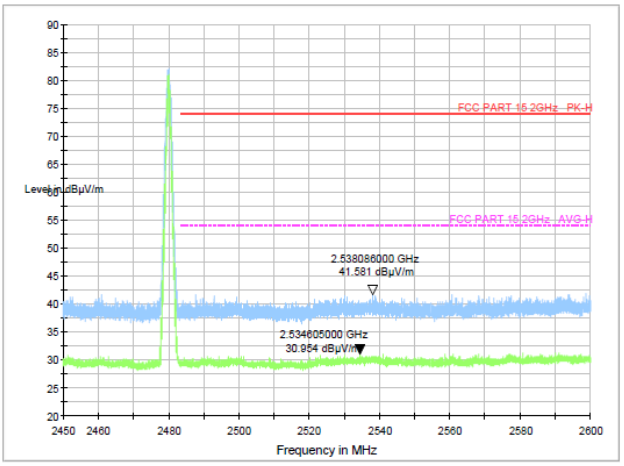
Note: 1. *:Maximum data; x:Over limit; !:over margin.

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

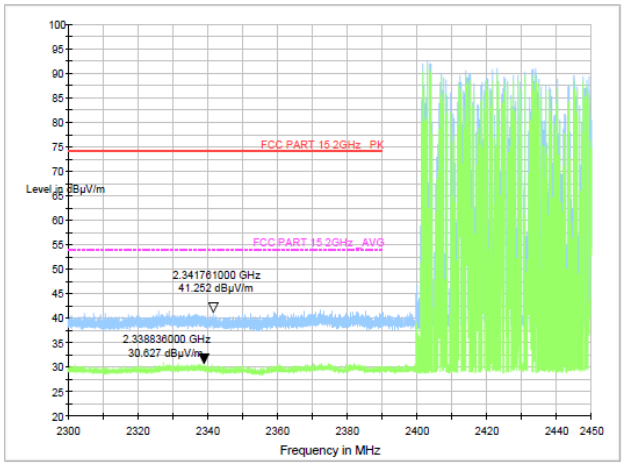
Test Mode: π/4 DQPSK-Low Hopping-off



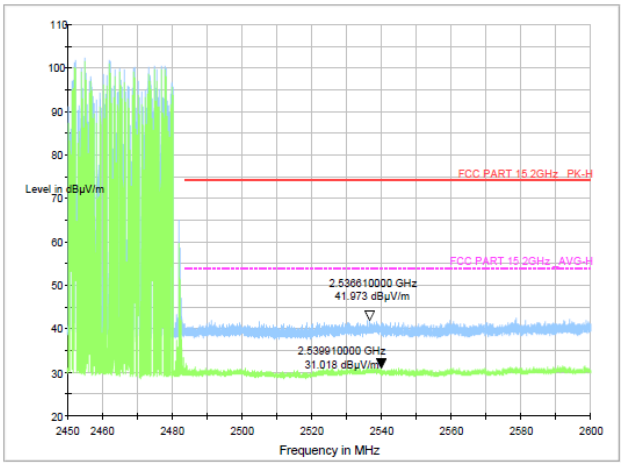
Test Mode: π/4 DQPSK-High Hopping-off



Test Mode: π/4 DQPSK-Low Hopping-on



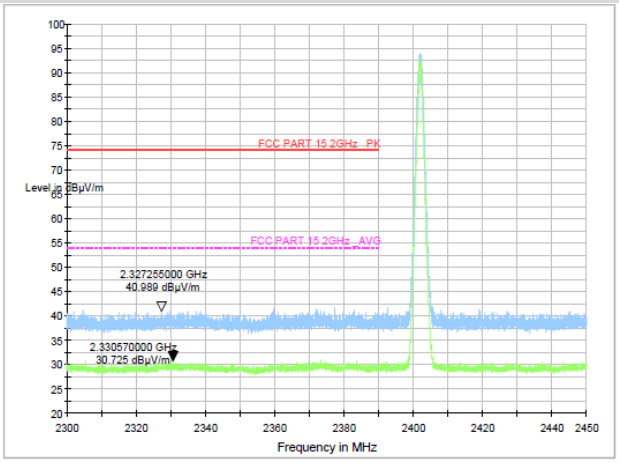
Test Mode: π/4 DQPSK-High Hopping-on



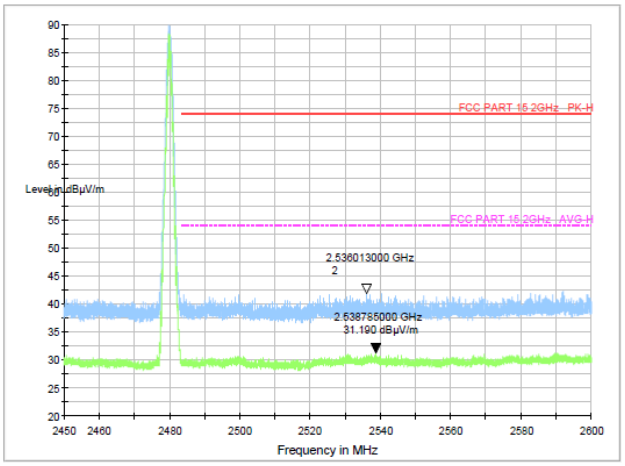
Note: 1. *:Maximum data; x:Over limit; !:over margin.

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

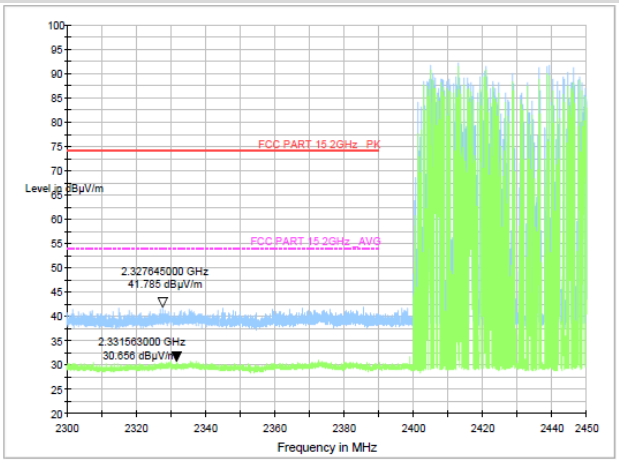
Test Mode: 8DPSK-Low Hopping-off



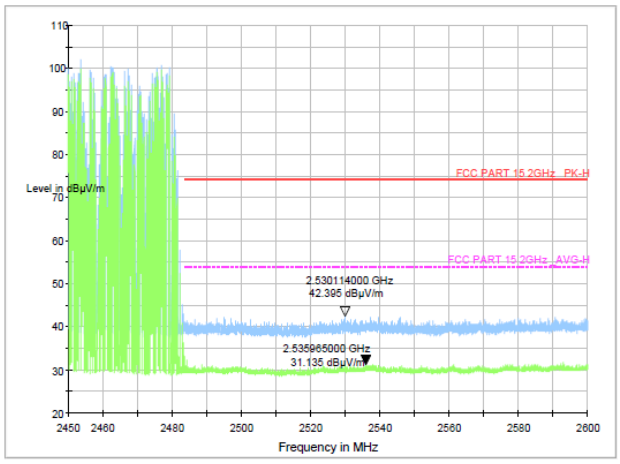
Test Mode: 8DPSK-High Hopping-off



Test Mode: 8DPSK-Low Hopping-on



Test Mode: 8DPSK-High Hopping-on

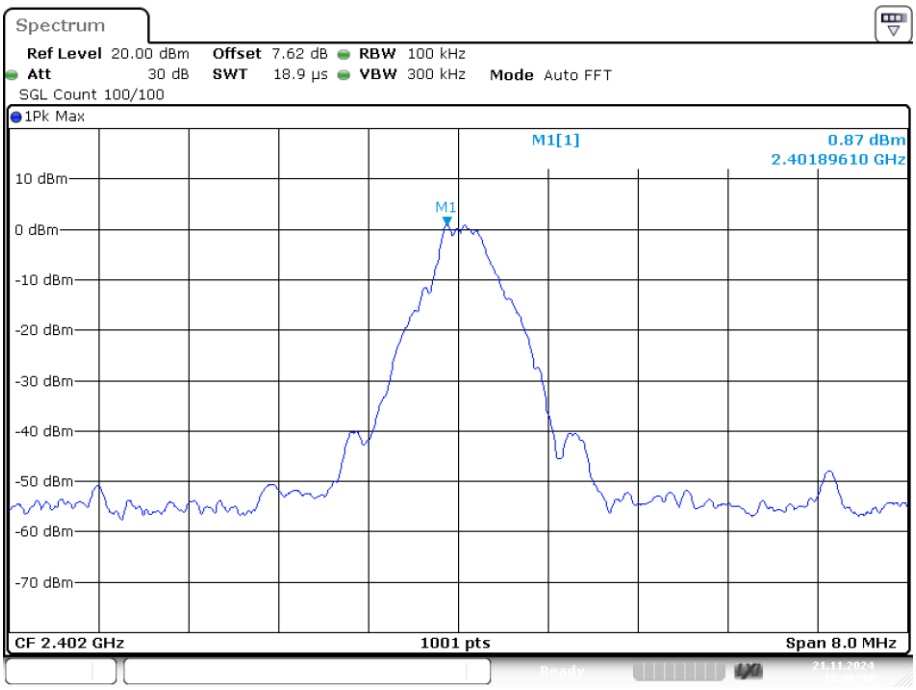


Note: 1. *:Maximum data; x:Over limit; !:over margin.

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

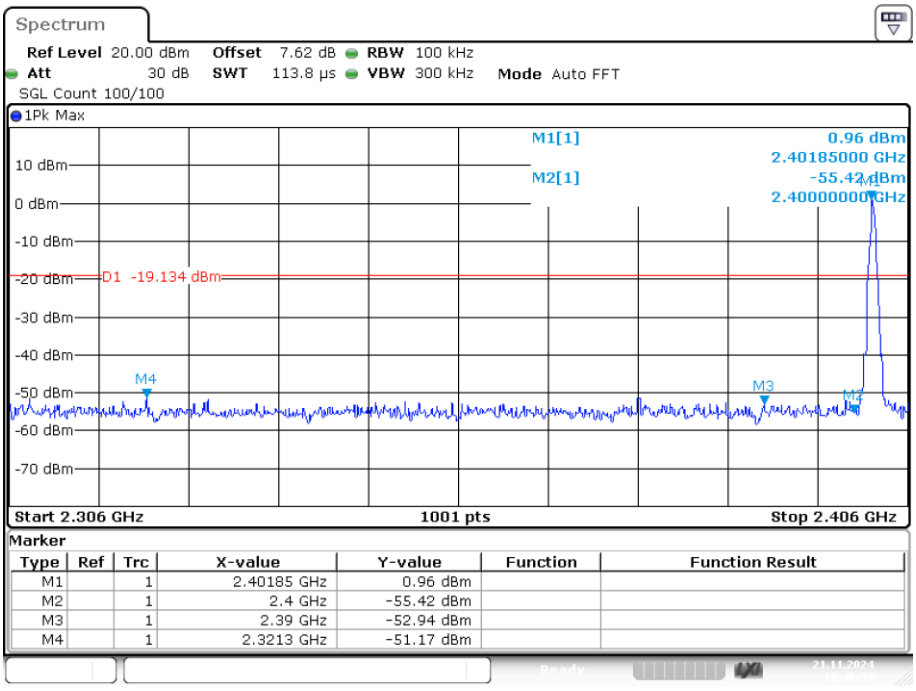
Conducted Method

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



Date: 21.NOV.2024 10:46:49

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

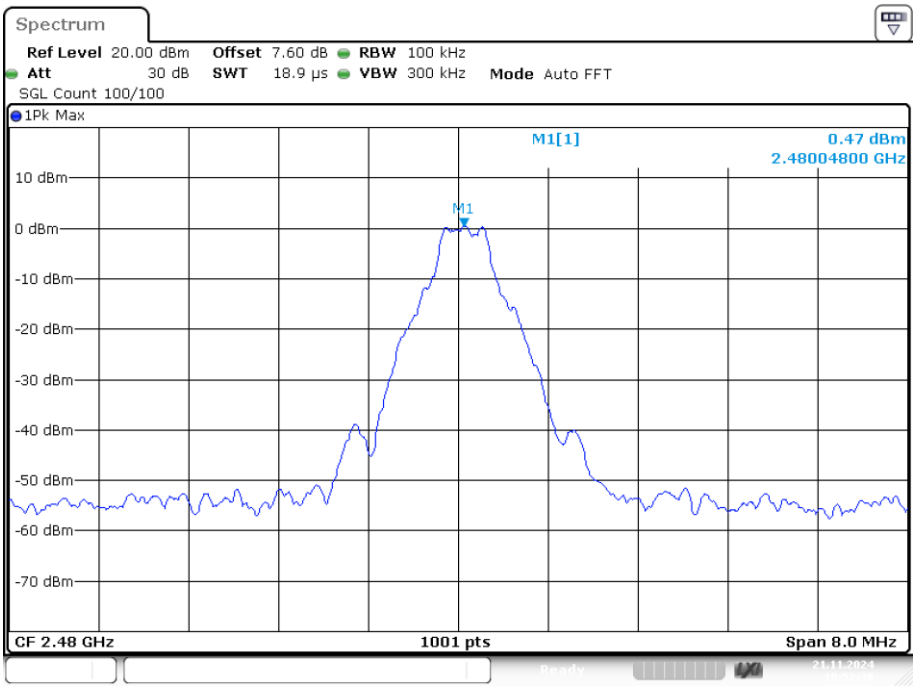


Marker

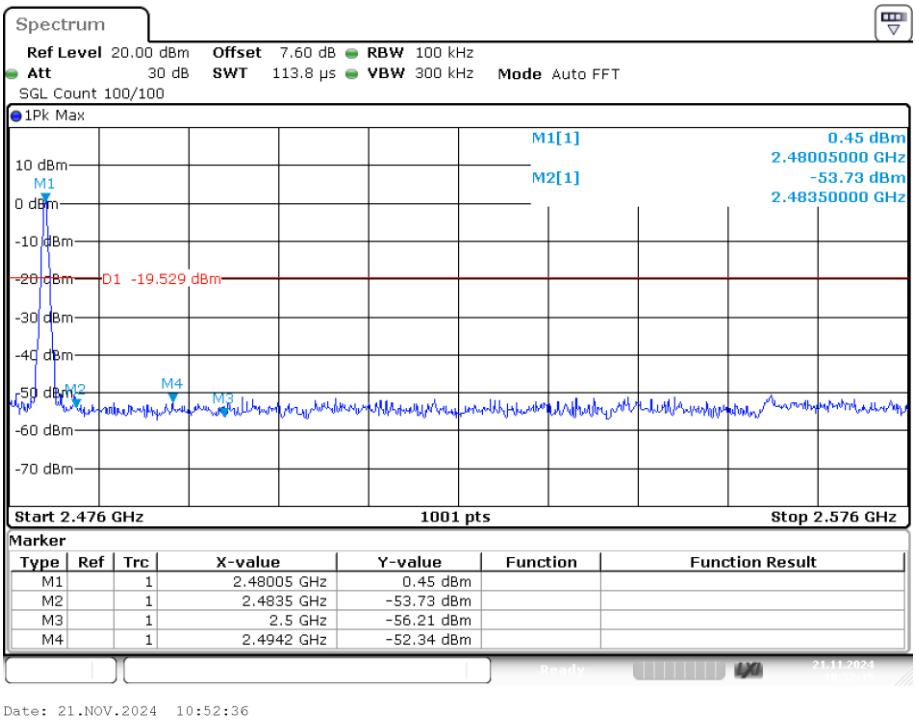
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40185 GHz	0.96 dBm		
M2		1	2.4 GHz	-55.42 dBm		
M3		1	2.39 GHz	-52.94 dBm		
M4		1	2.3213 GHz	-51.17 dBm		

Date: 21.NOV.2024 10:46:55

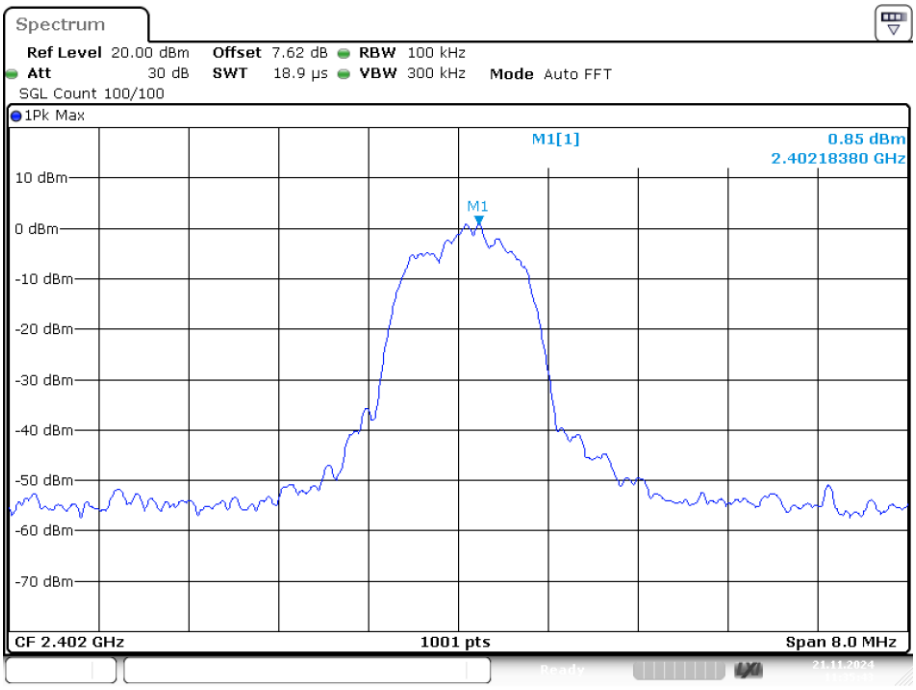
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



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

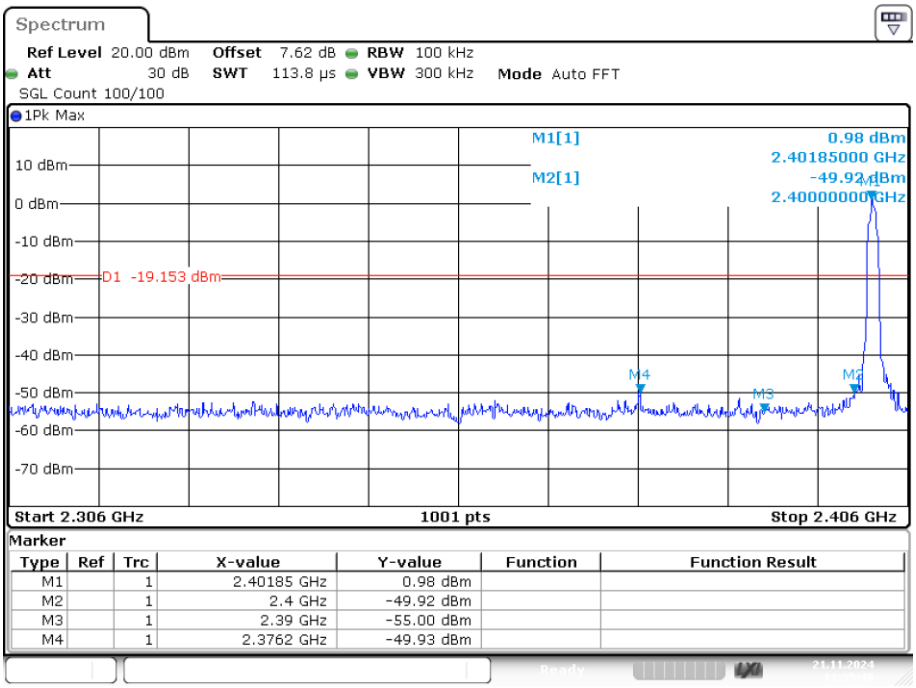


Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



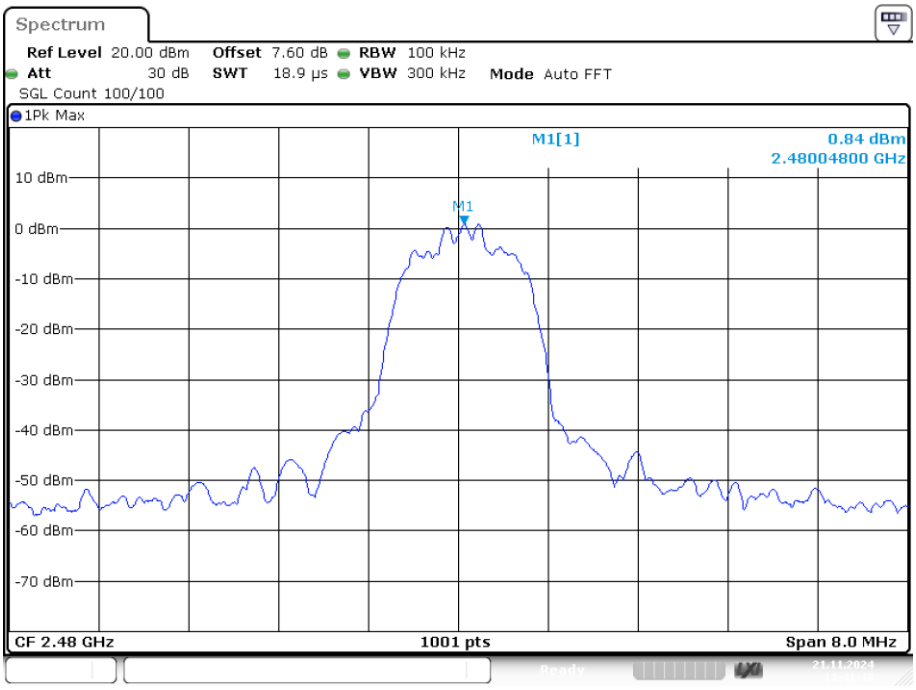
Date: 21.NOV.2024 11:35:42

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



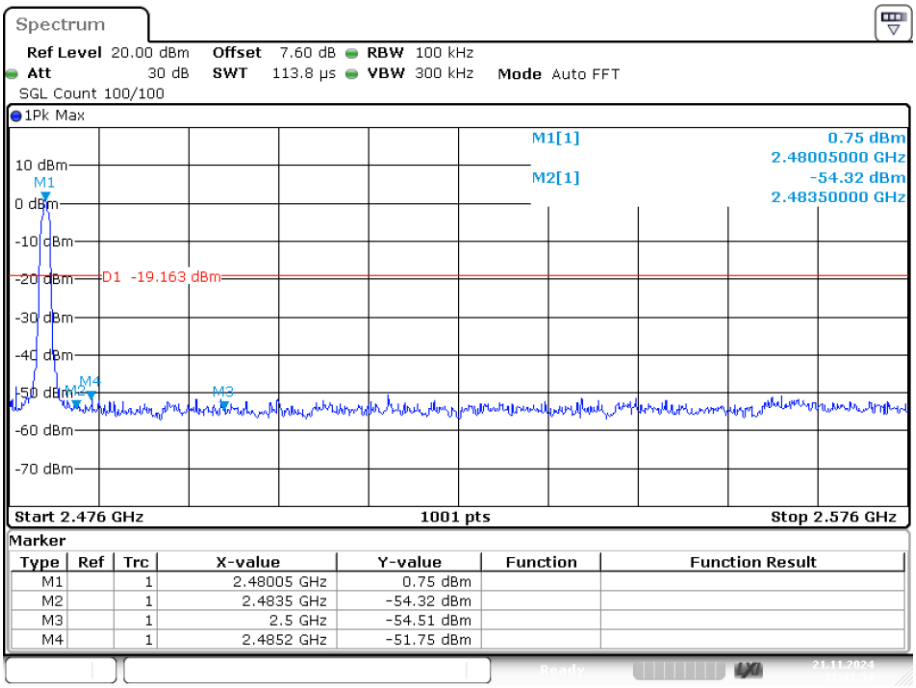
Date: 21.NOV.2024 11:35:48

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



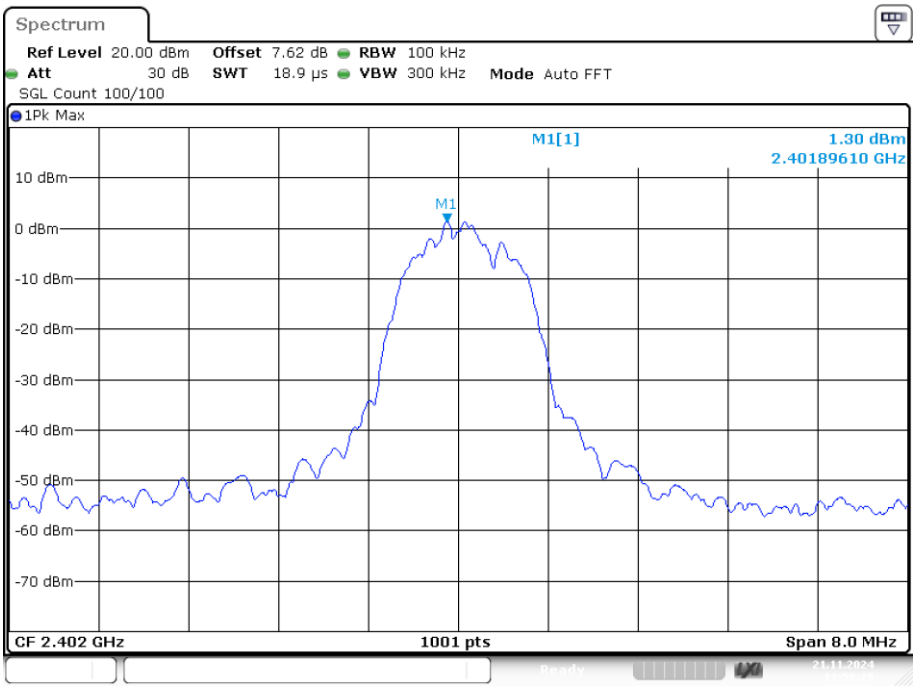
Date: 21.NOV.2024 11:41:47

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



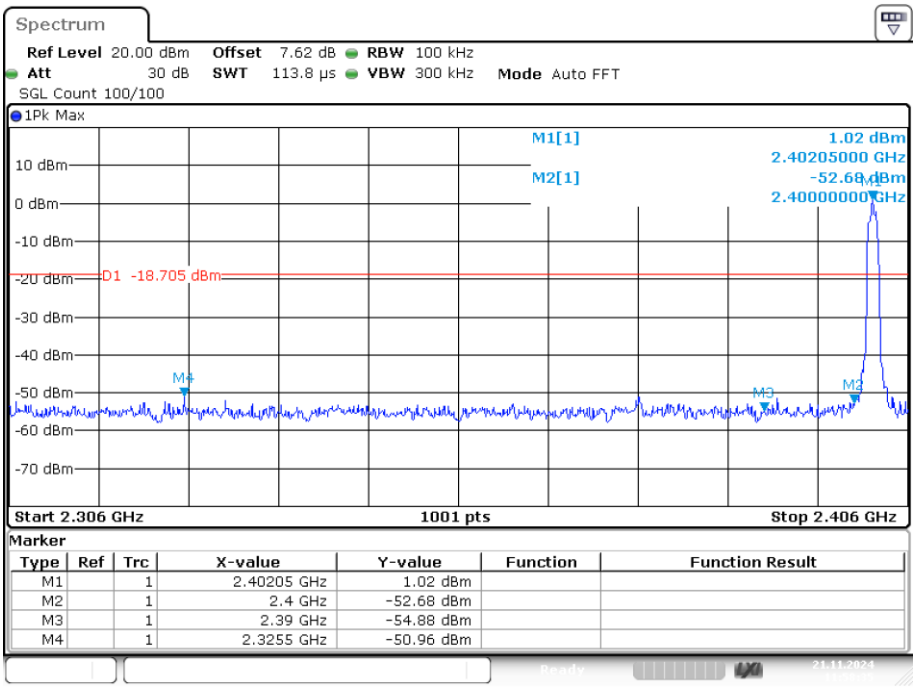
Date: 21.NOV.2024 11:41:53

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



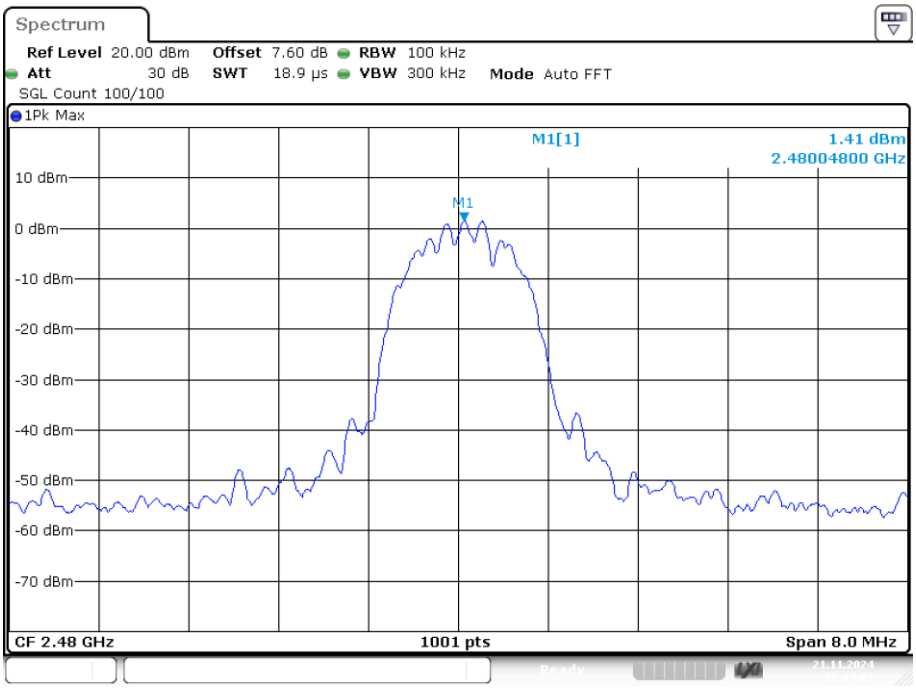
Date: 21.NOV.2024 11:58:29

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



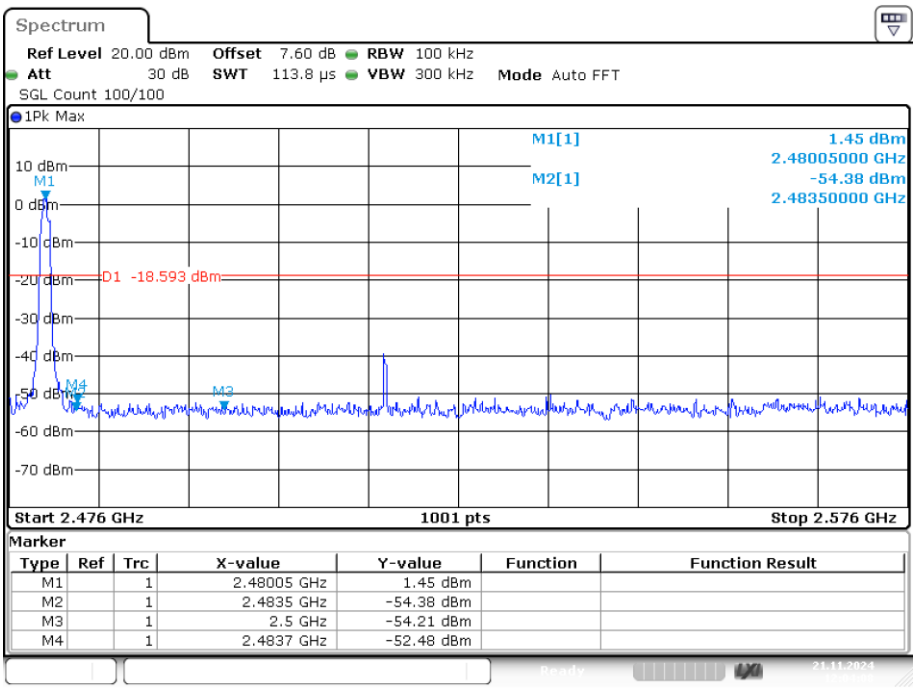
Date: 21.NOV.2024 11:58:35

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



Date: 21.NOV.2024 12:04:02

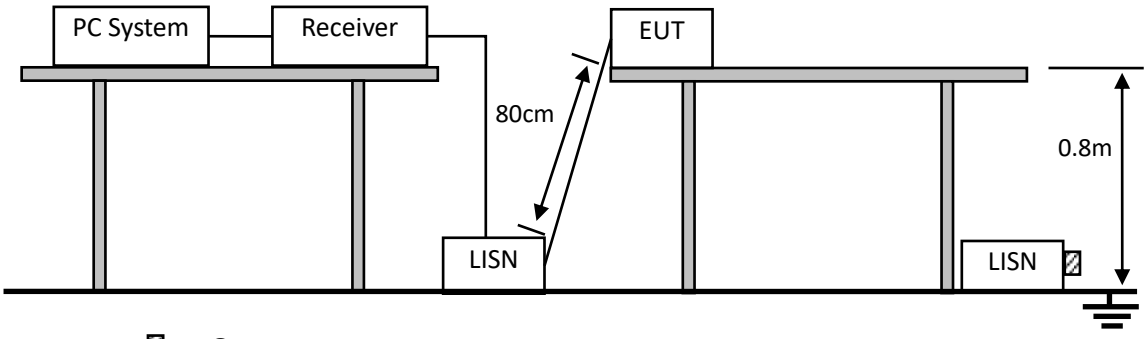
Band Edge NVNT 3-DH1 2480MHz Ant1 No-Hopping Emission



Date: 21.NOV.2024 12:04:07

10. POWER LINE CONDUCTED EMISSIONS

10.1.Block Diagram of Test Setup



:50Ω Terminator

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

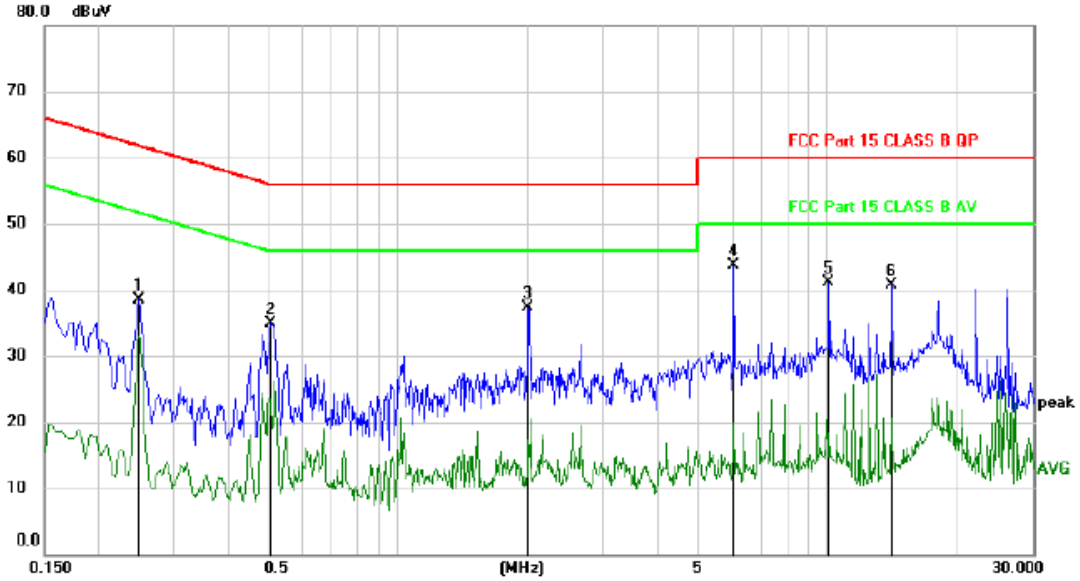
Note: See below original test data.

1. This mode is worst case mode, so this report only reflected the worst mode.

2. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector and quasi-peak detector need not be carried out.

3. If the limits for the measurement with the average detector are met when using a receiver with a quasi-peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out.

Polarization: L

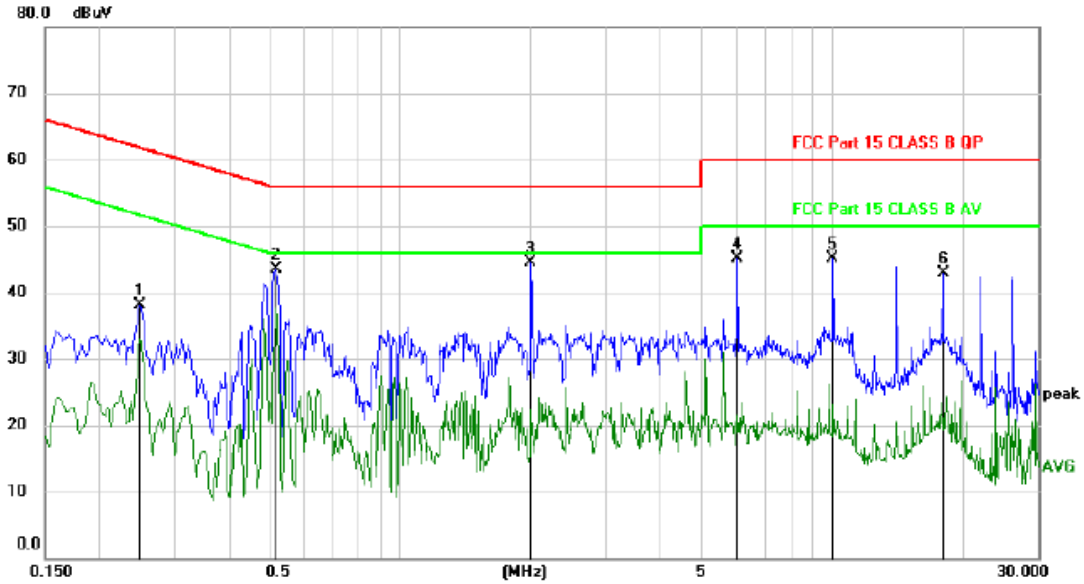


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2490	28.53	9.97	38.50	61.79	-23.29	peak	
2		0.5070	24.91	9.96	34.87	56.00	-21.13	peak	
3		2.0100	27.50	9.88	37.38	56.00	-18.62	peak	
4	*	6.0390	33.56	10.08	43.64	60.00	-16.36	peak	
5		10.0560	30.97	10.21	41.18	60.00	-18.82	peak	
6		14.0850	30.48	10.31	40.79	60.00	-19.21	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

Polarization: N



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2490	28.13	9.97	38.10	61.79	-23.69	peak	
2		0.5130	33.47	9.95	43.42	56.00	-12.58	peak	
3	*	2.0100	34.58	9.88	44.46	56.00	-11.54	peak	
4		6.0360	34.97	10.08	45.05	60.00	-14.95	peak	
5		10.0470	34.83	10.21	45.04	60.00	-14.96	peak	
6		18.0960	32.46	10.42	42.88	60.00	-17.12	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

11. ANTENNA REQUIREMENTS

11.1.Limit

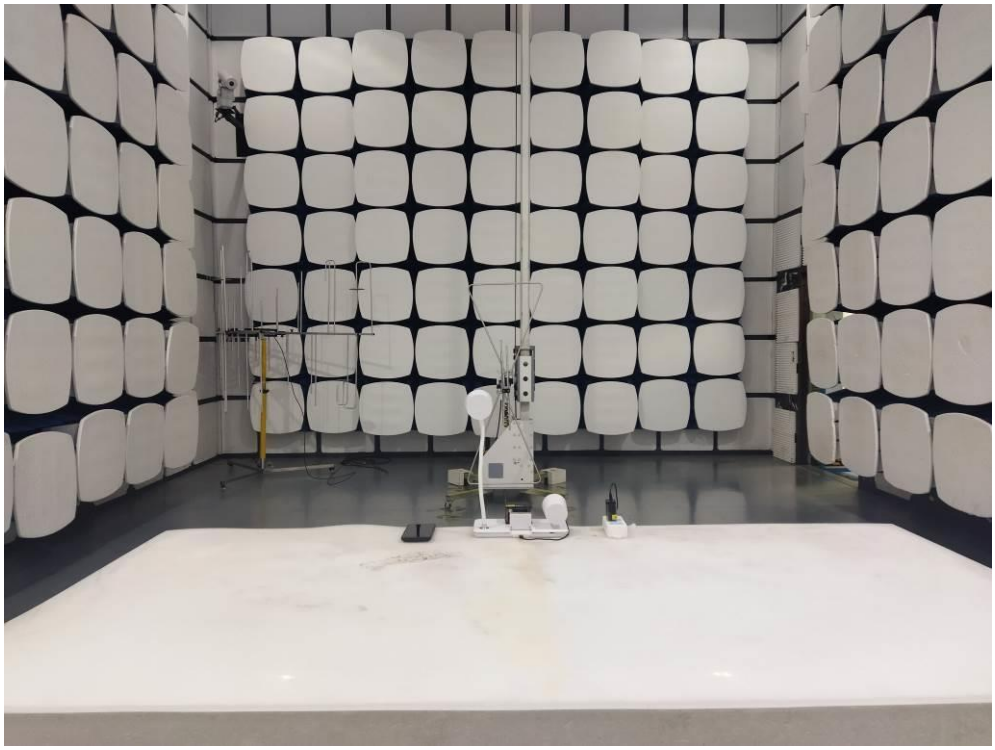
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional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

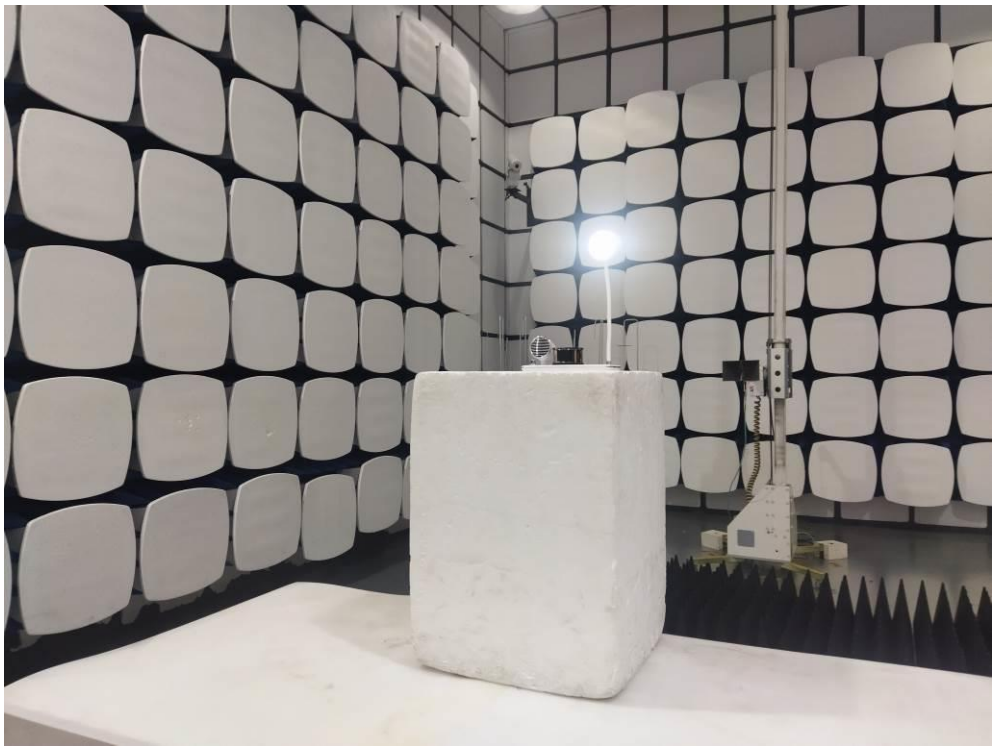
11.2.Result

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

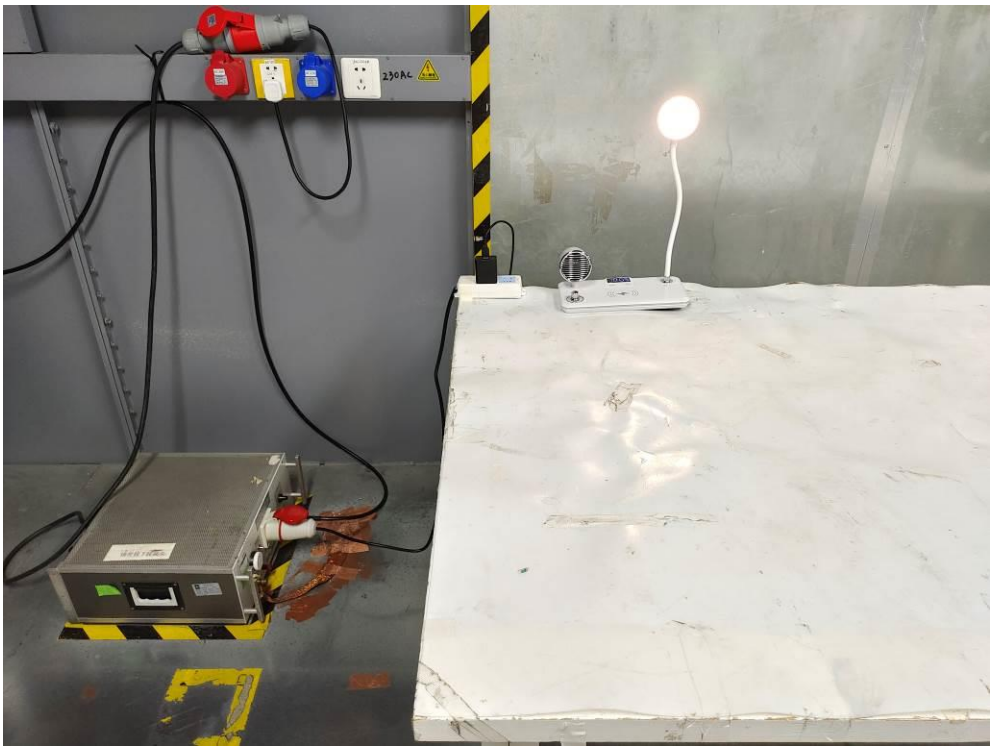
12. TEST SETUP PHOTO

12.1.Photo of Radiated Emission test





12.2.Photo of Conducted Emission test



13. EUT Photo

Please refer to the report A2411076-C02-R01.

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