



Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055
Tel: +86-755-89486194 E-mail: ctl@ctl-lab.com

Annex for BLE

Test Report No.: CTL2406117011-WF02

TABLE OF CONTENTS

Annex for BLE	1
1. Bandwidth	2
2. Maximum Conducted Output Power	9
3. Maximum Power Spectral Density	13
4. Unwanted Emissions In Non-restricted Frequency Bands	17

FCCID: 2AC9N-1686202

1. Bandwidth

1.1 Test Result

1.1.1 OBW

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	0.998	/	Pass
		2440	1	0.997	/	Pass
		2480	1	0.999	/	Pass
2M	SISO	2402	1	1.992	/	Pass
		2440	1	1.994	/	Pass
		2480	1	1.996	/	Pass

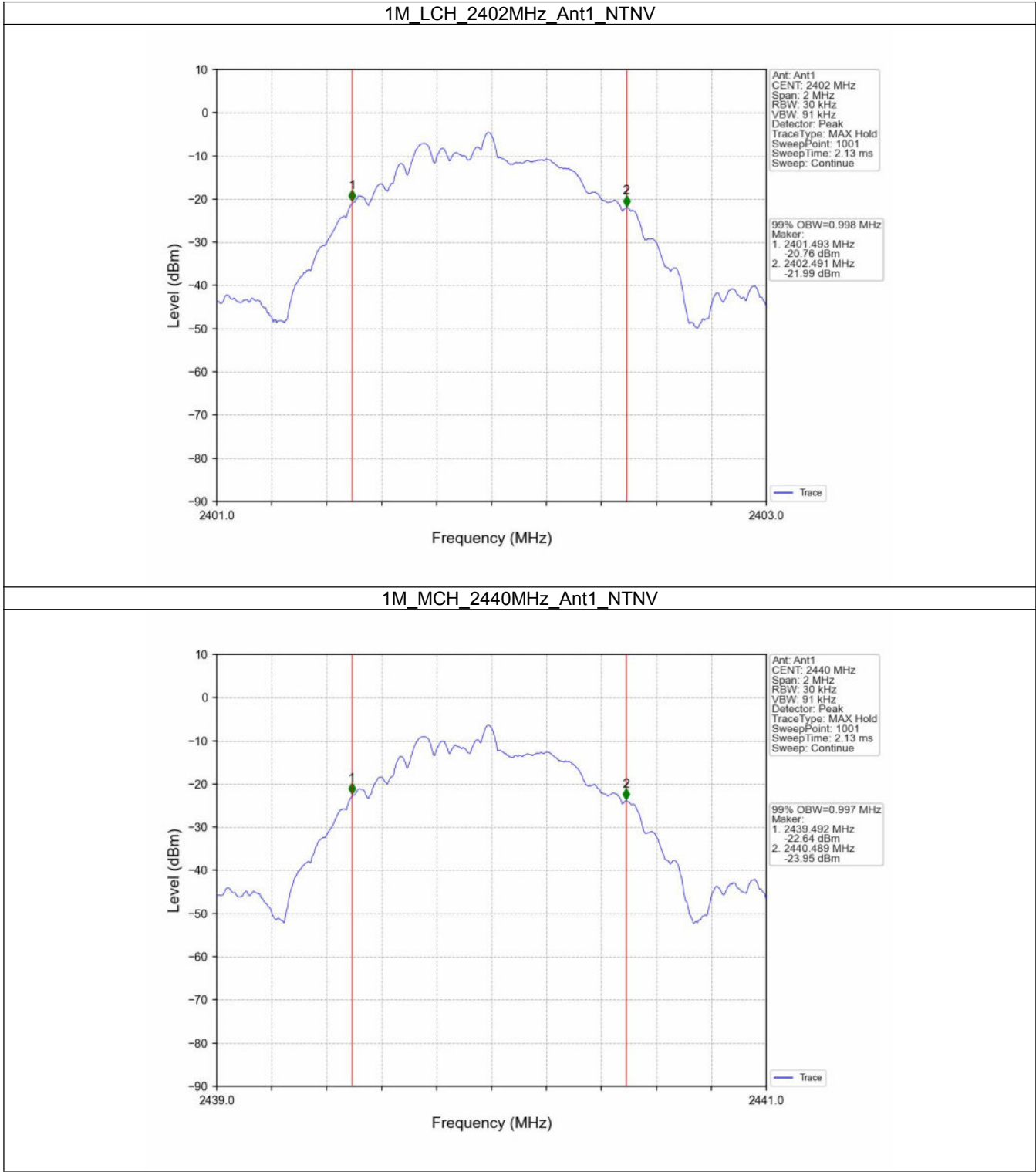
1.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	0.630	≥ 0.5	Pass
		2440	1	0.634	≥ 0.5	Pass
		2480	1	0.632	≥ 0.5	Pass
2M	SISO	2402	1	1.090	≥ 0.5	Pass
		2440	1	1.087	≥ 0.5	Pass
		2480	1	1.089	≥ 0.5	Pass

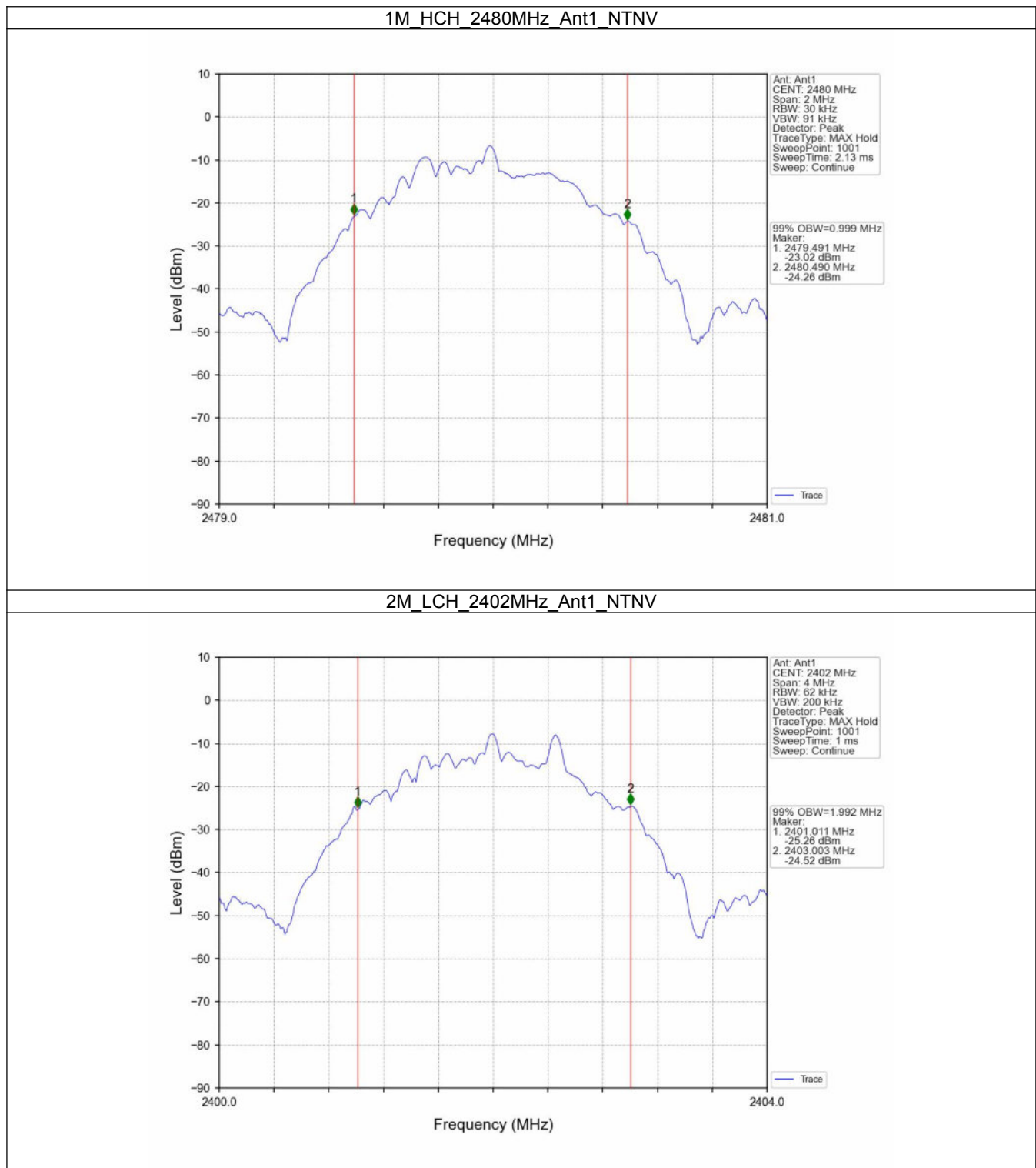
FCCID: 2AC9N-1686202

1.2 Test Graph

1.2.1 OBW

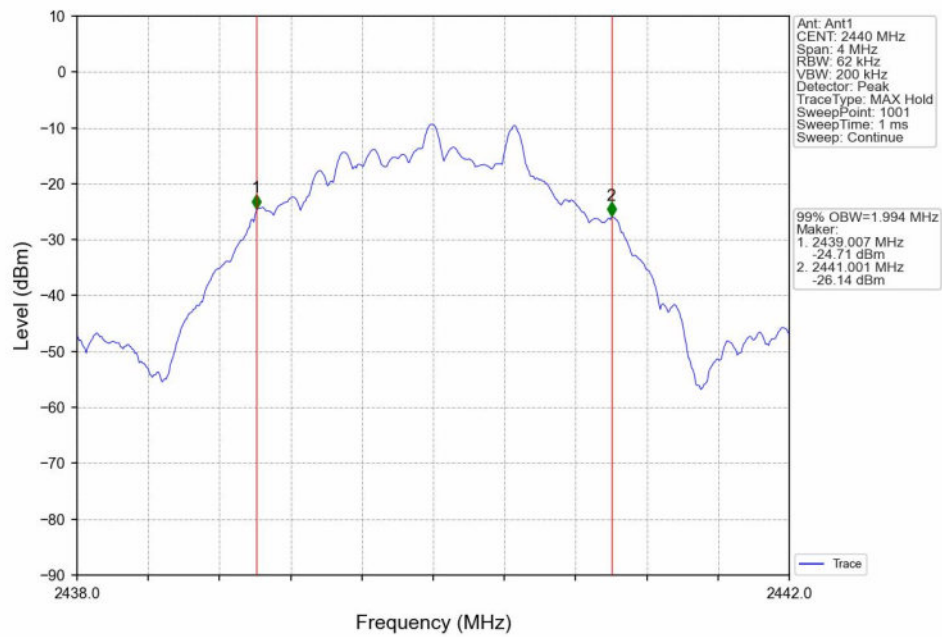


FCCID: 2AC9N-1686202

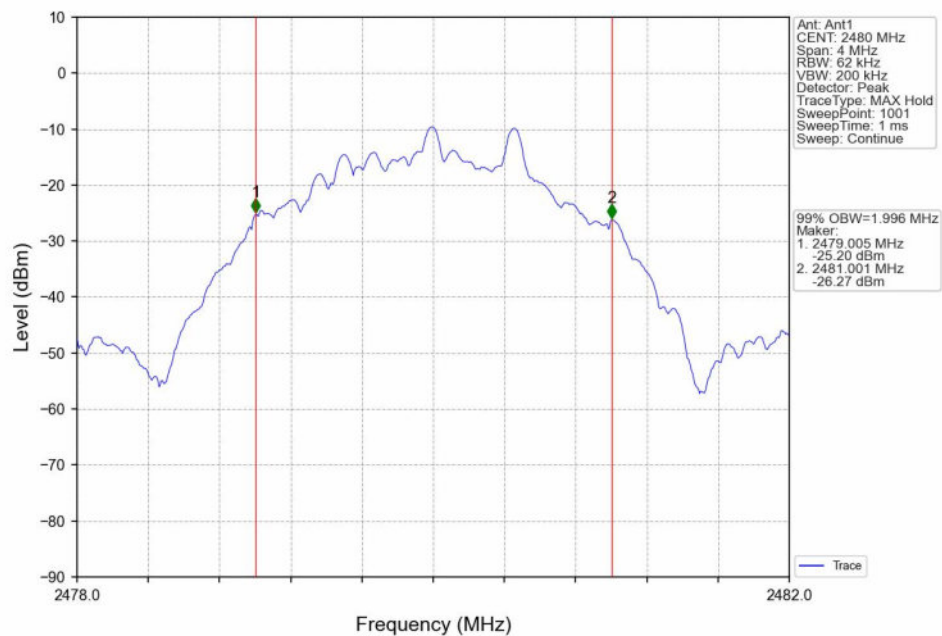


FCCID: 2AC9N-1686202

2M_MCH_2440MHz_Ant1_NTNV

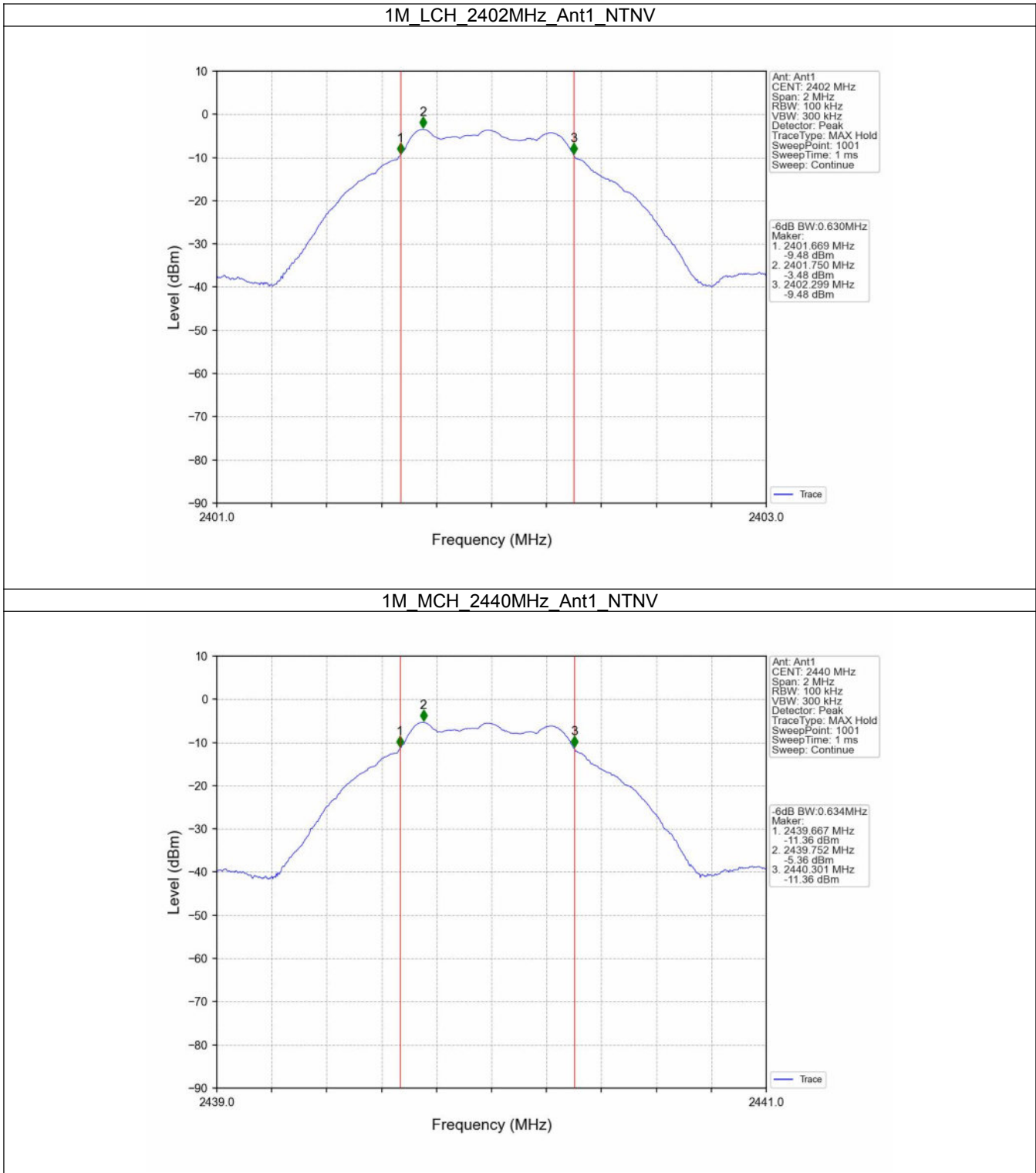


2M_HCH_2480MHz_Ant1_NTNV



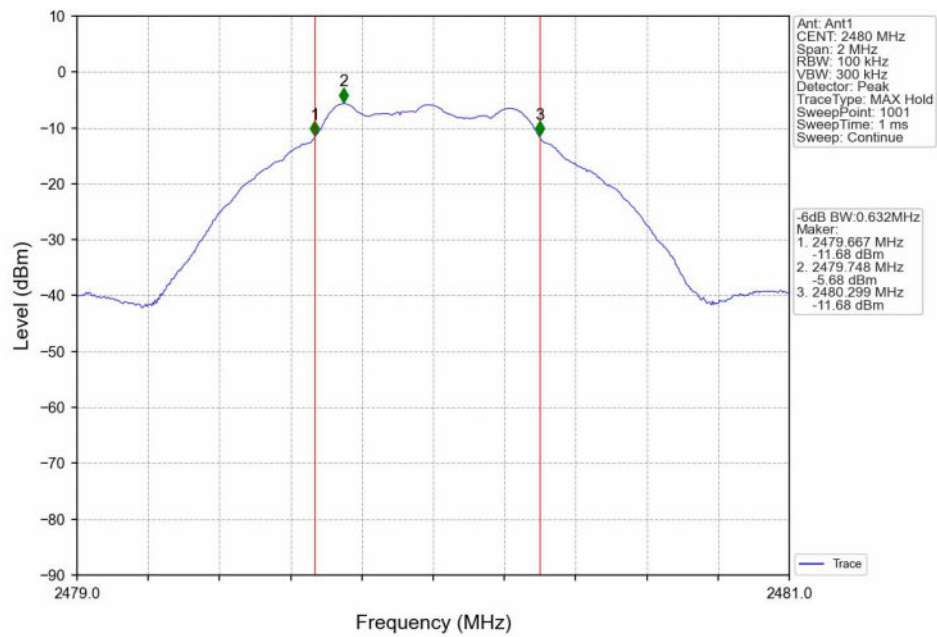
FCCID: 2AC9N-1686202

1.2.2 6dB BW

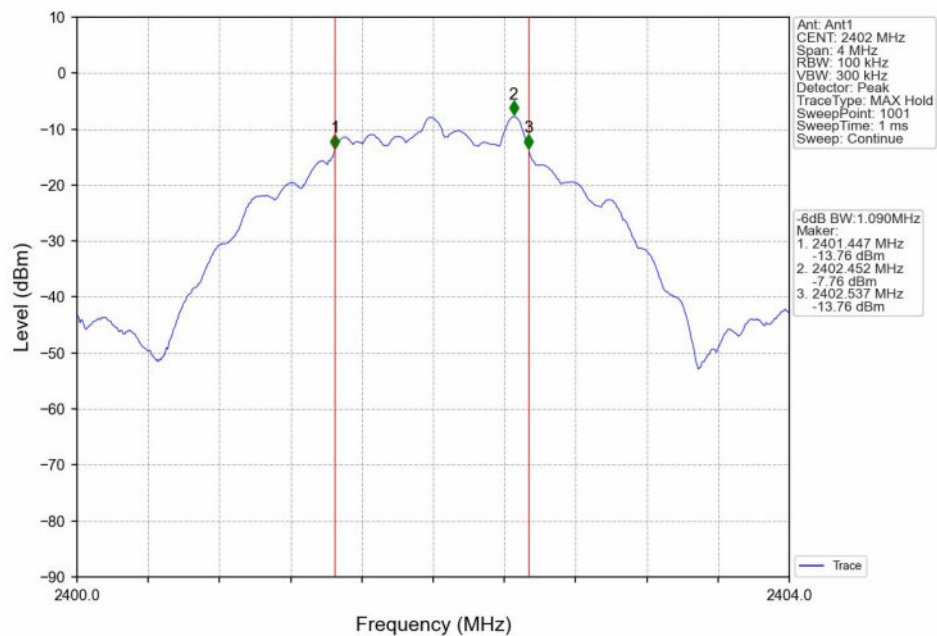


FCCID: 2AC9N-1686202

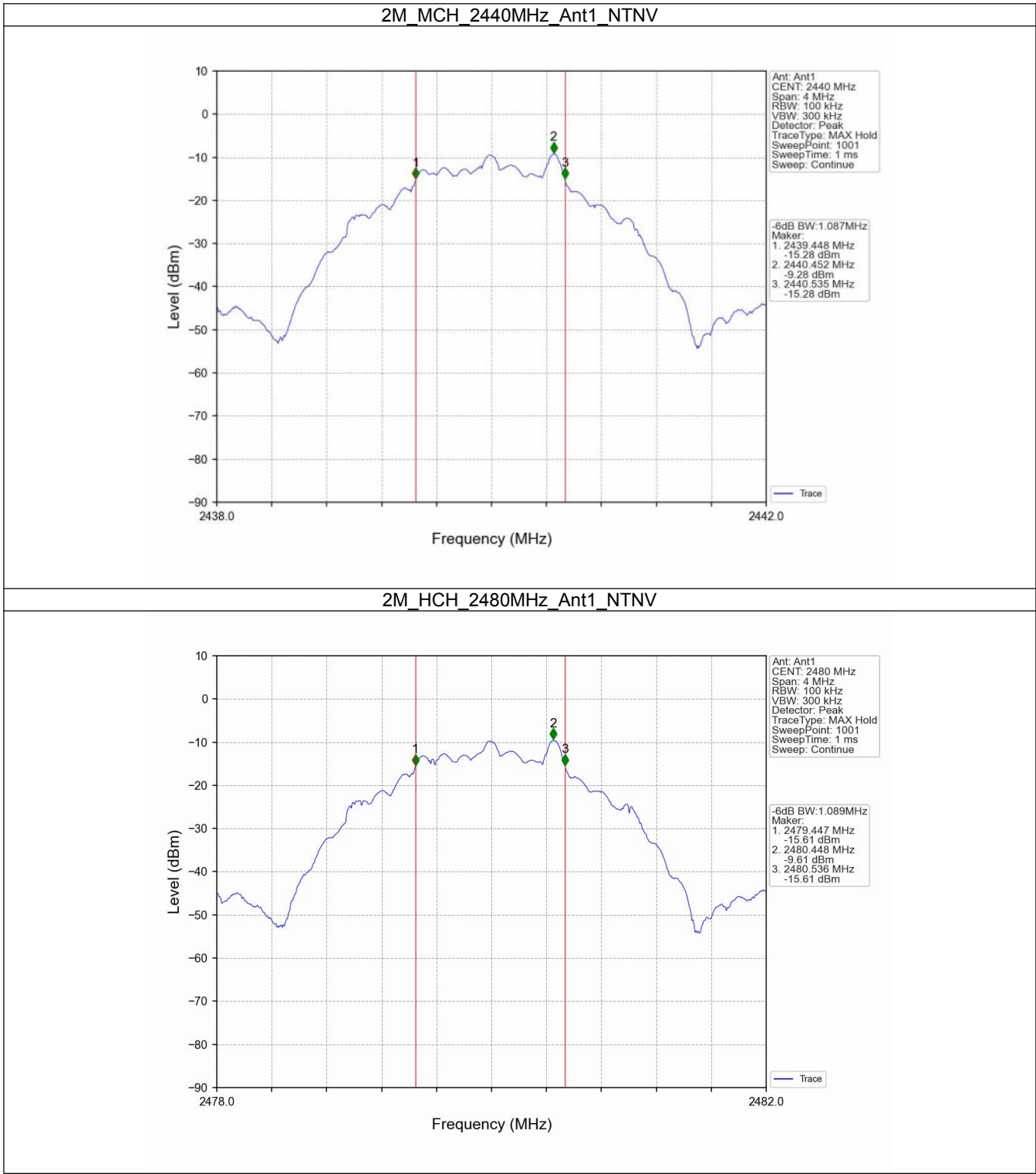
1M_HCH_2480MHz_Ant1_NTNV



2M_LCH_2402MHz_Ant1_NTNV



FCCID: 2AC9N-1686202



FCCID: 2AC9N-1686202

2. Maximum Conducted Output Power

2.1 Test Result

2.1.1 Power

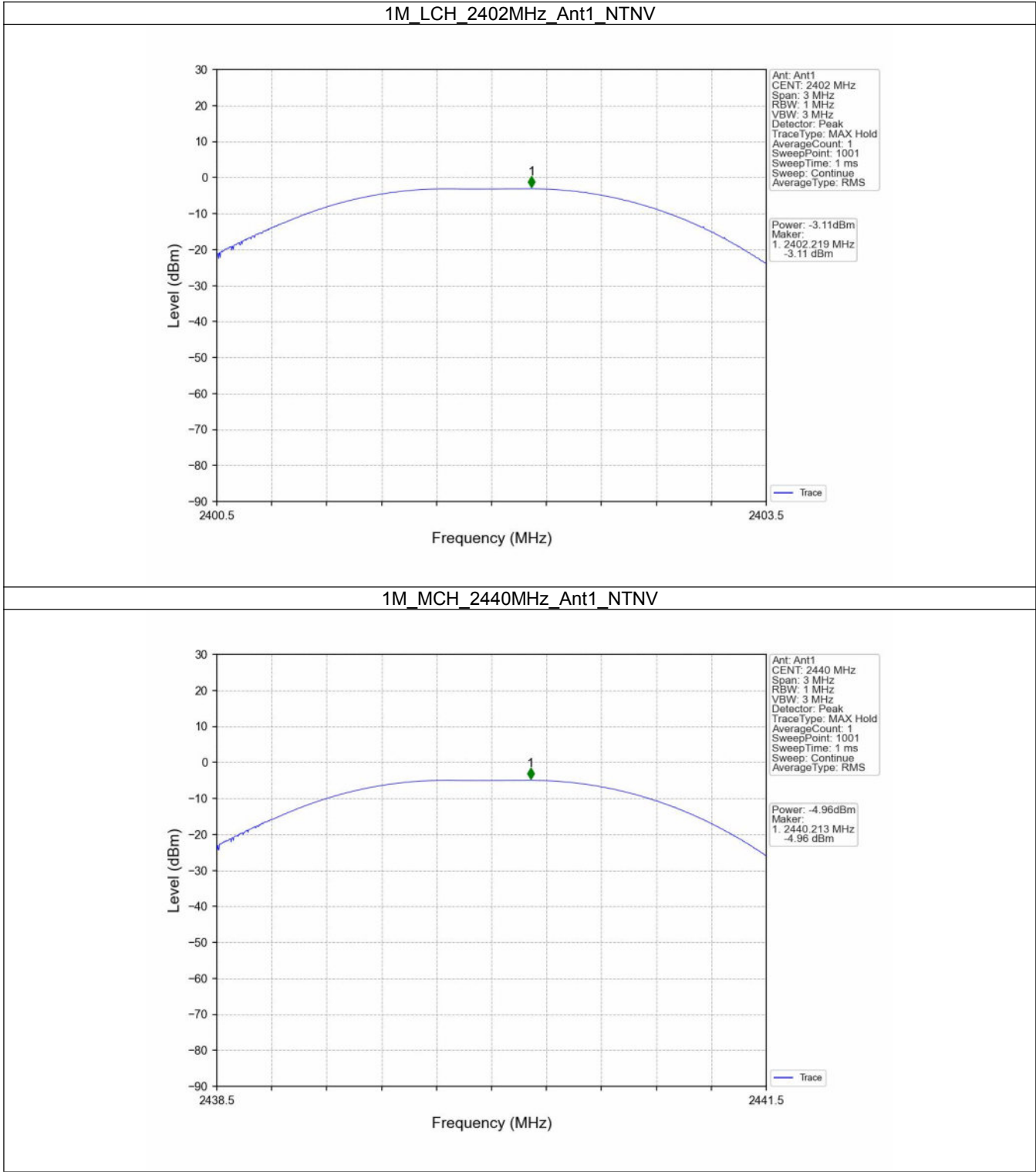
Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
1M	SISO	2402	-3.11	<=30	Pass
		2440	-4.96	<=30	Pass
		2480	-5.29	<=30	Pass
2M	SISO	2402	-7.22	<=30	Pass
		2440	-8.66	<=30	Pass
		2480	-8.93	<=30	Pass

Note1: Antenna Gain: Ant1: -0.68dBi;

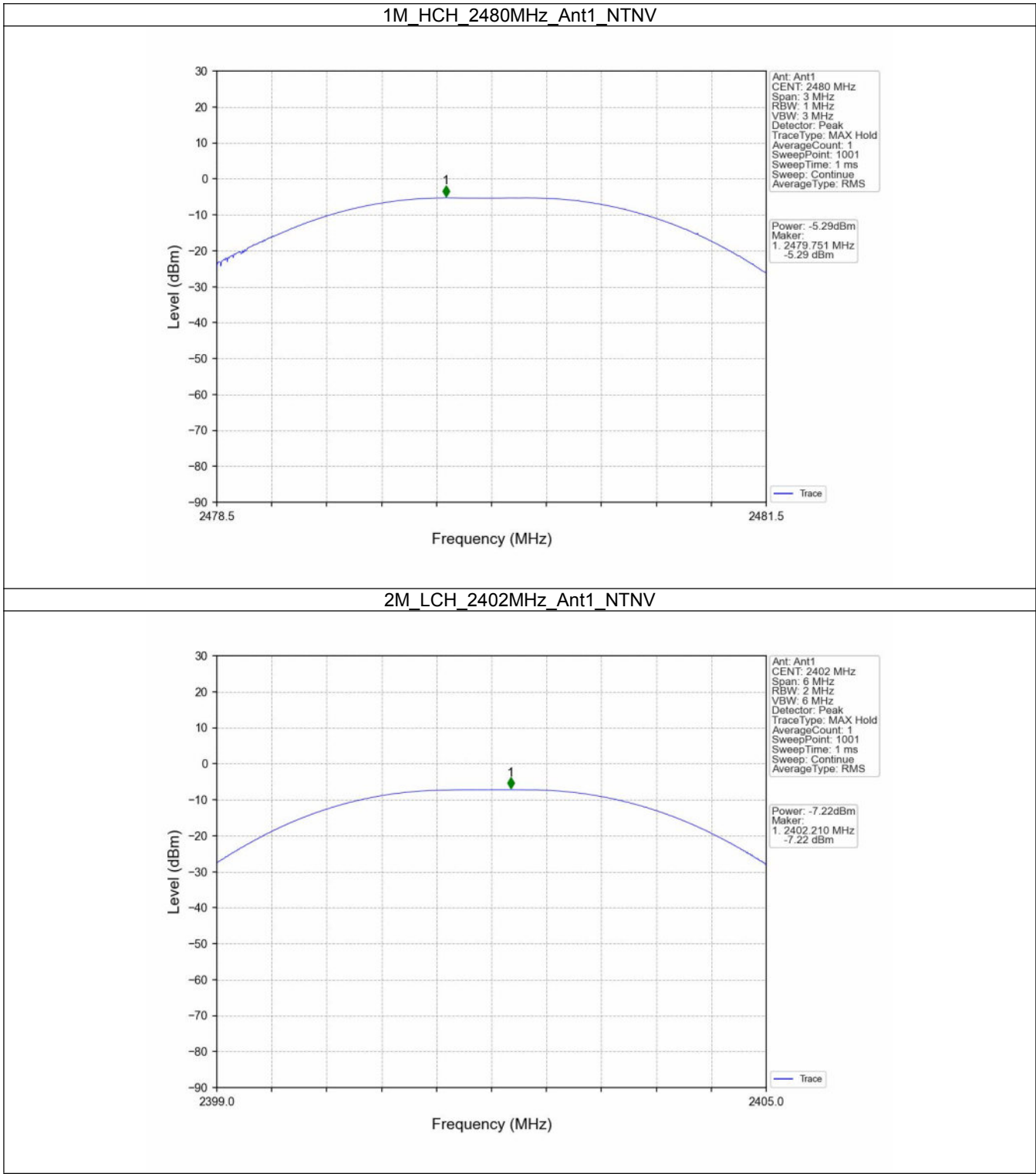
FCCID: 2AC9N-1686202

2.2 Test Graph

2.2.1 Power

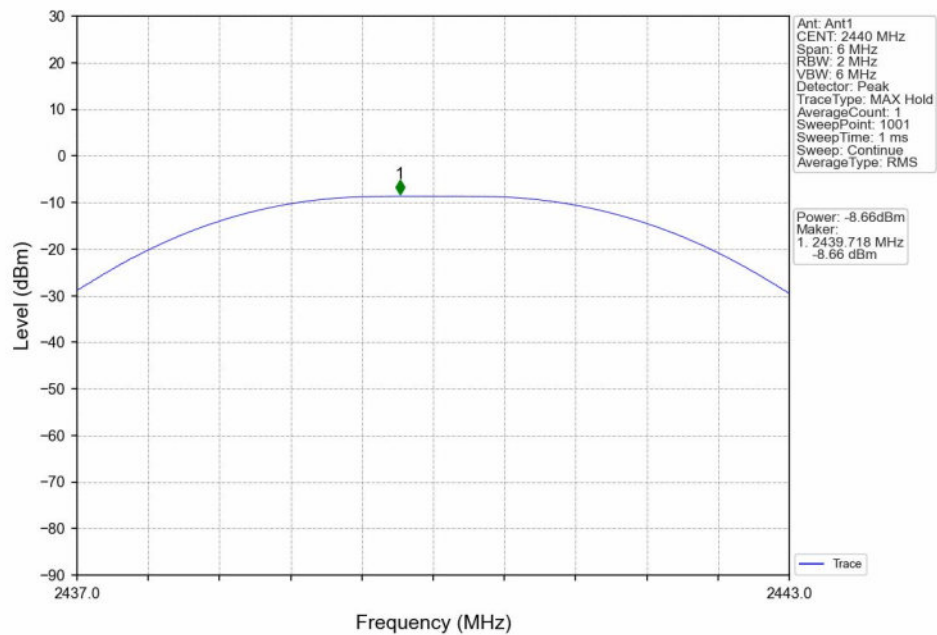


FCCID: 2AC9N-1686202

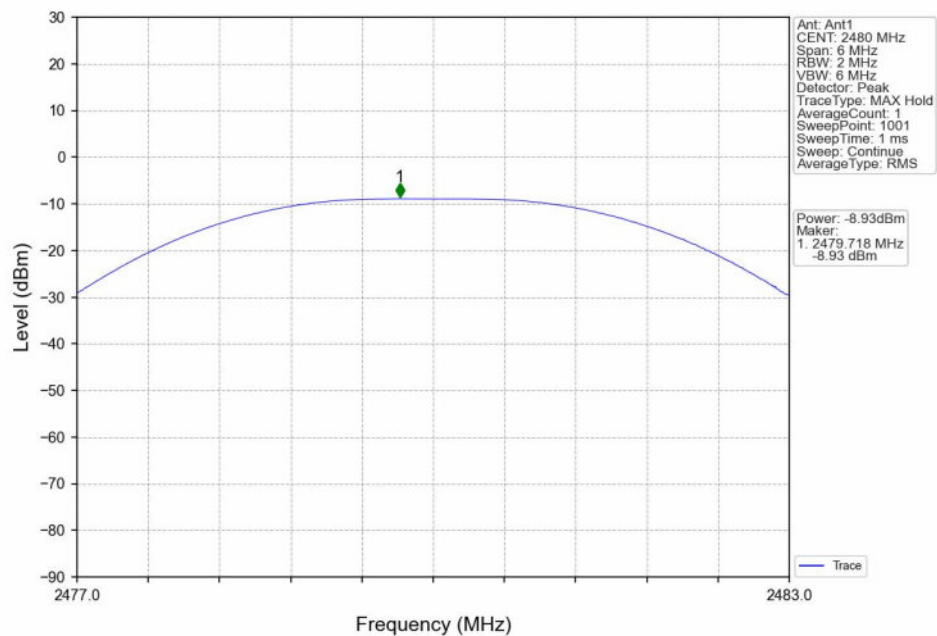


FCCID: 2AC9N-1686202

2M_MCH_2440MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



FCCID: 2AC9N-1686202

3. Maximum Power Spectral Density

3.1 Test Result

3.1.1 PSD

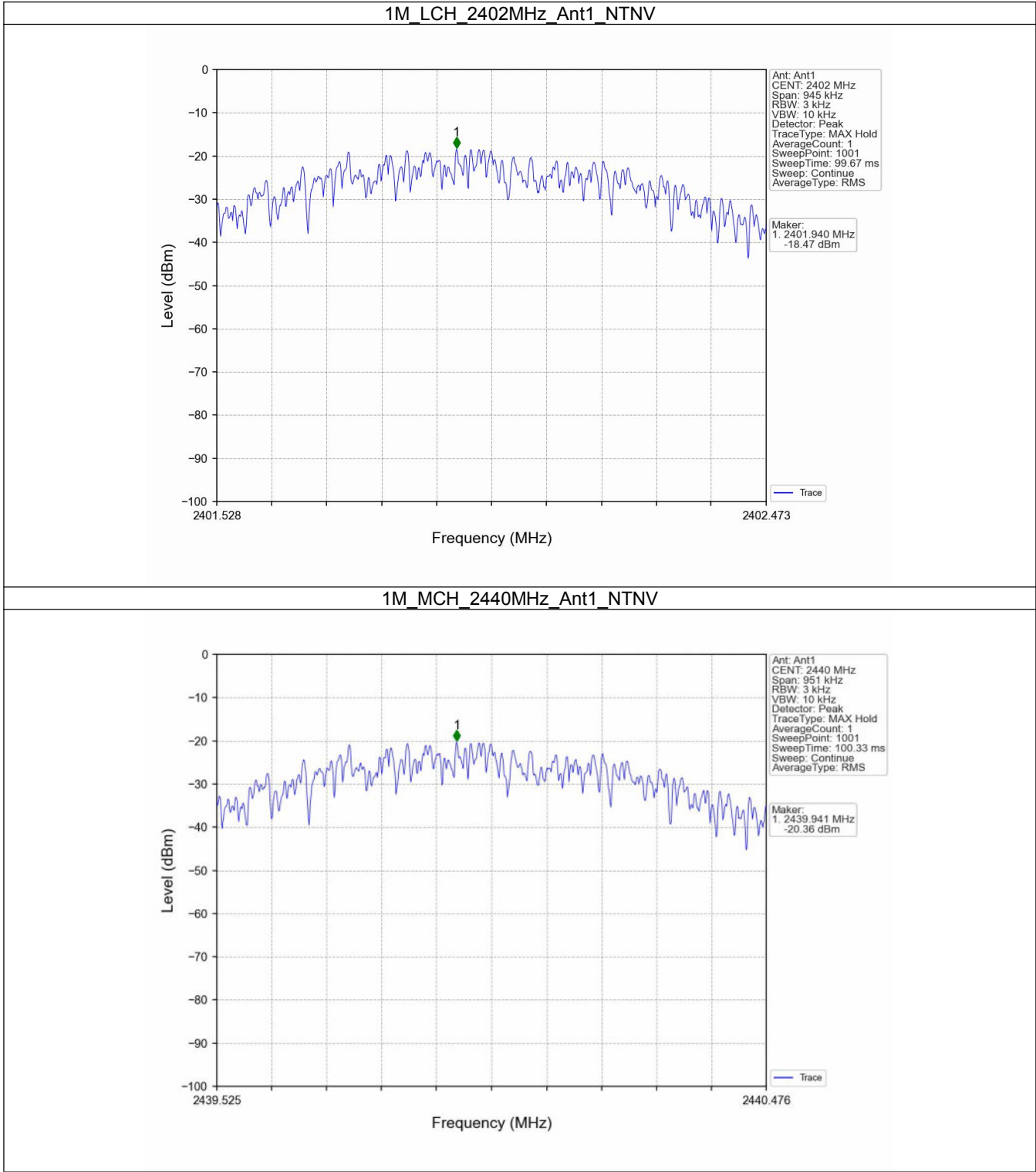
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
1M	SISO	2402	-18.47	<=8	Pass
		2440	-20.36	<=8	Pass
		2480	-20.80	<=8	Pass
2M	SISO	2402	-23.57	<=8	Pass
		2440	-24.82	<=8	Pass
		2480	-25.29	<=8	Pass

Note1: Antenna Gain: Ant1: -0.68dBi;

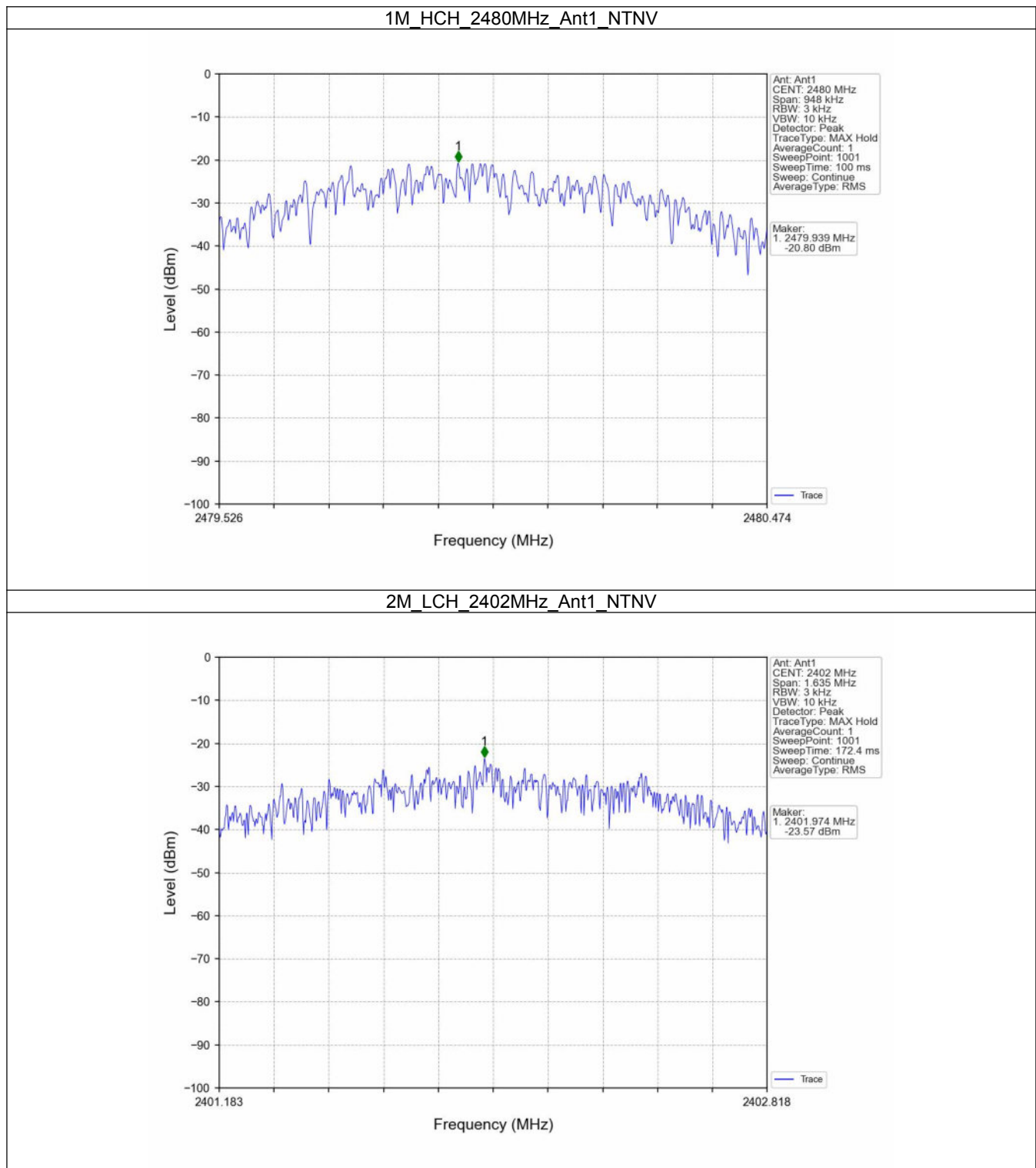
FCCID: 2AC9N-1686202

3.2 Test Graph

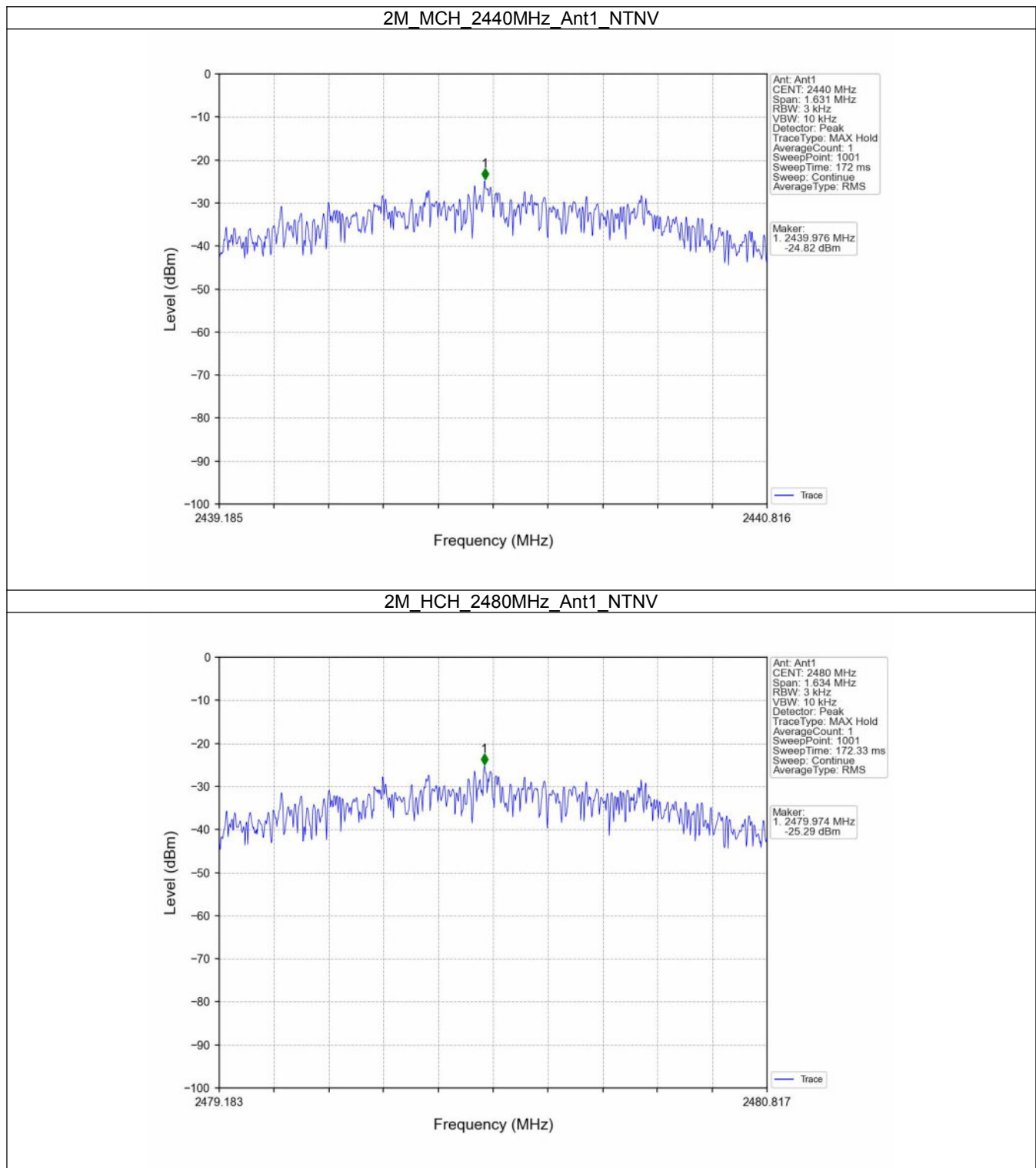
3.2.1 PSD



FCCID: 2AC9N-1686202



FCCID: 2AC9N-1686202



FCCID: 2AC9N-1686202

4. Unwanted Emissions In Non-restricted Frequency Bands

4.1 Test Result

4.1.1 Ref

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
1M	SISO	2402	1	-3.48
		2440	1	-5.35
		2480	1	-5.68
2M	SISO	2402	1	-7.78
		2440	1	-9.29
		2480	1	-9.55

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

4.1.2 CSE

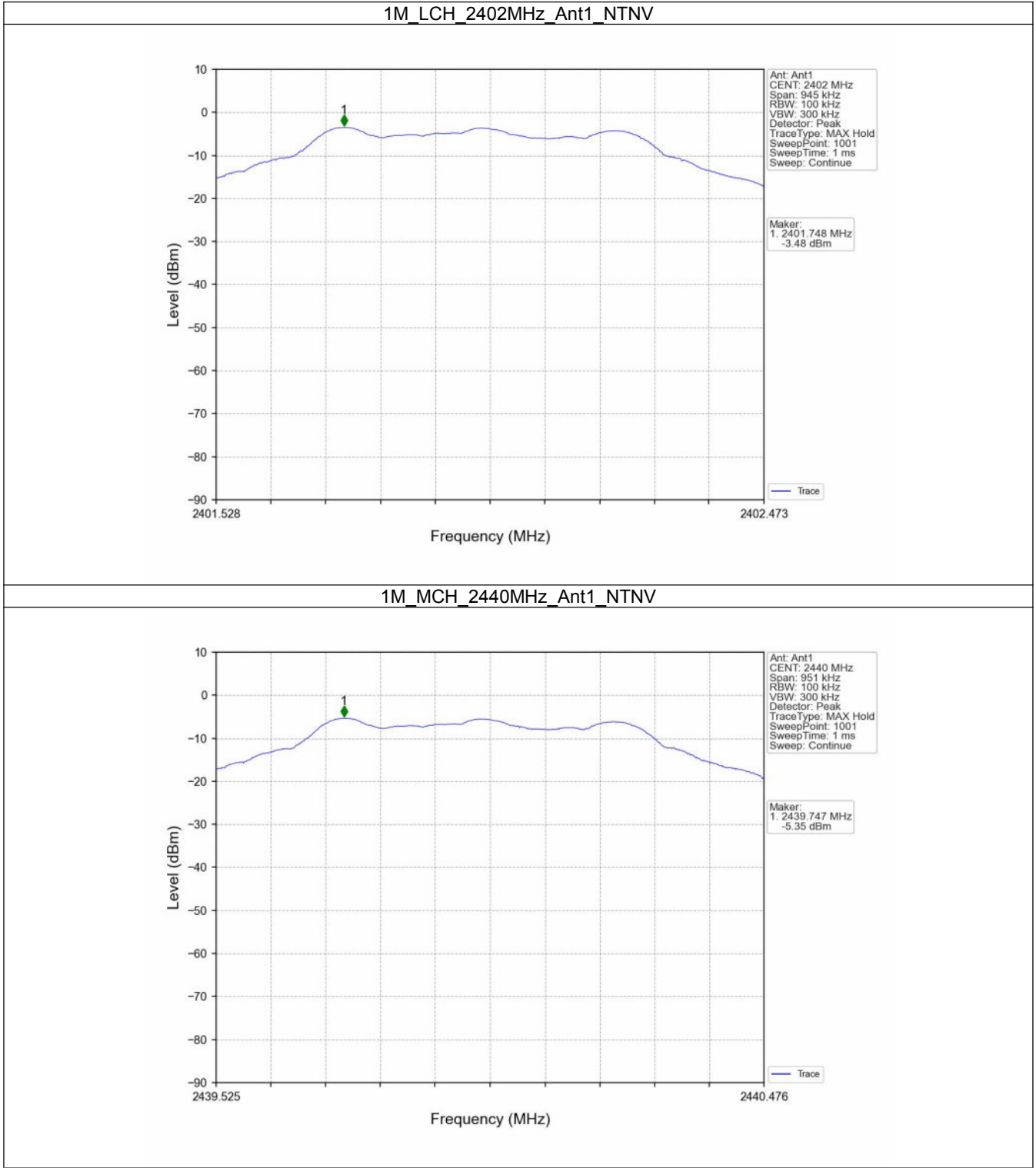
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
1M	SISO	2402	1	-3.48	-23.48	Pass
		2440	1	-3.48	-23.48	Pass
		2480	1	-3.48	-23.48	Pass
2M	SISO	2402	1	-7.78	-27.78	Pass
		2440	1	-7.78	-27.78	Pass
		2480	1	-7.78	-27.78	Pass

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

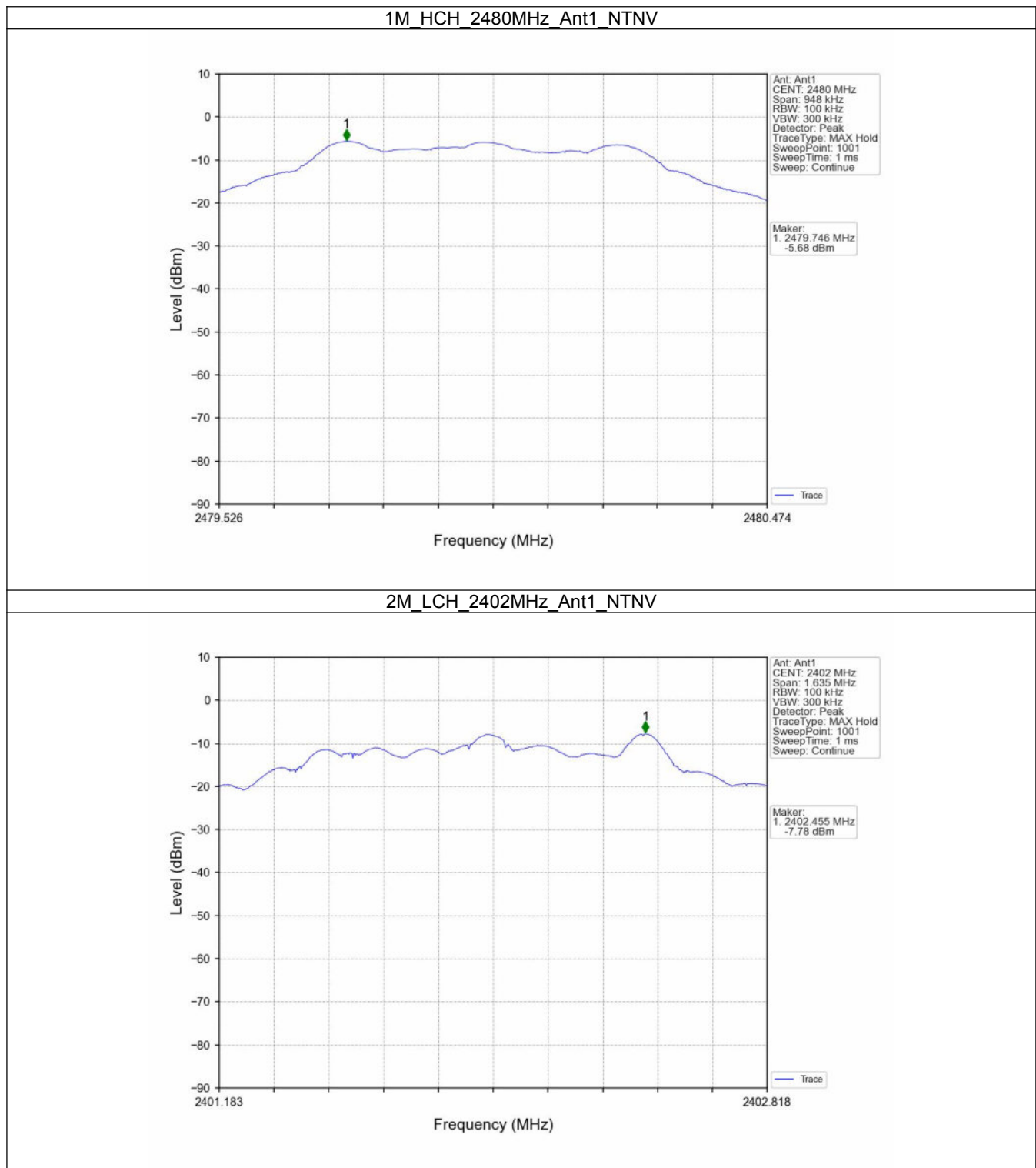
FCCID: 2AC9N-1686202

4.2 Test Graph

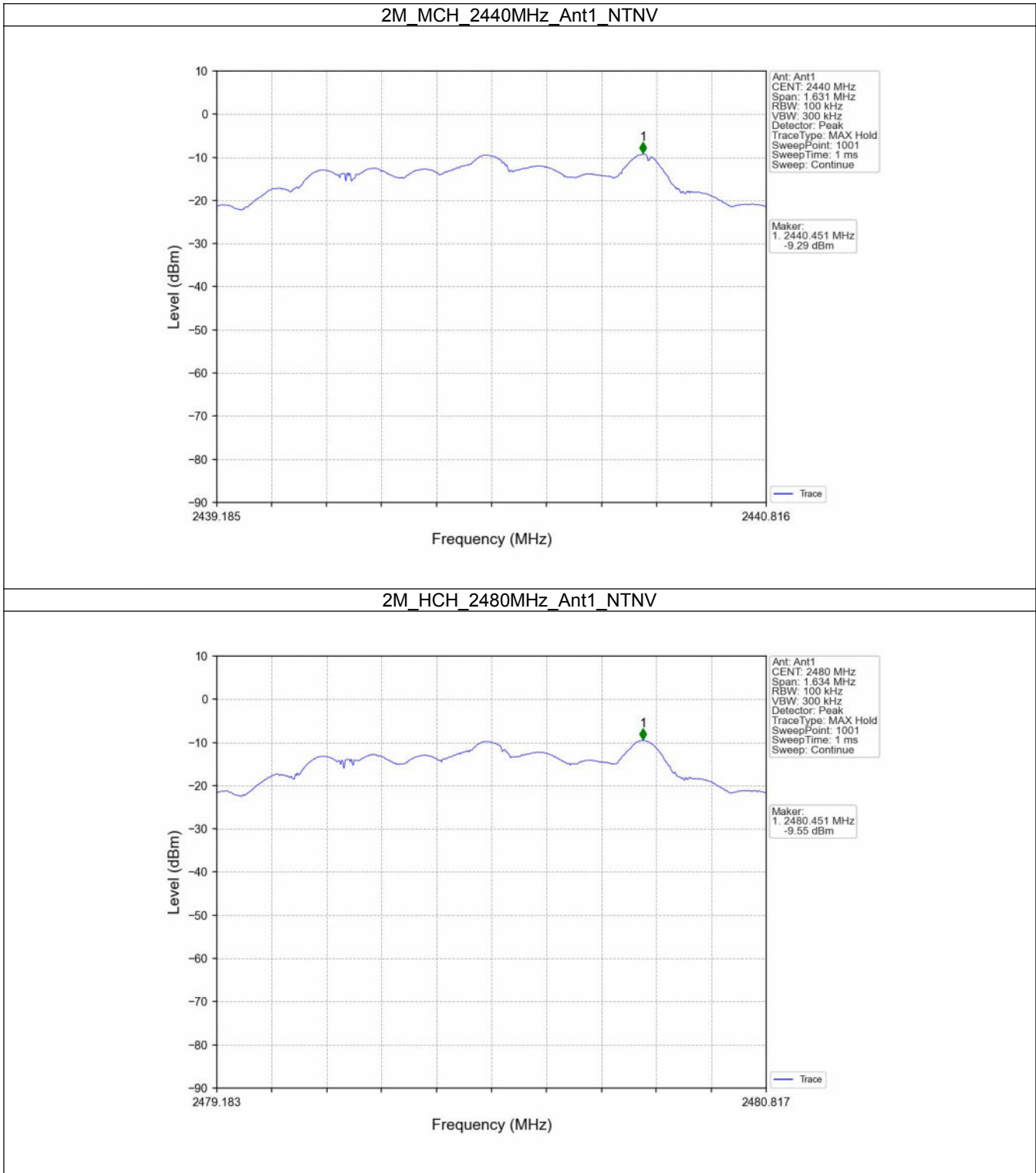
4.2.1 Ref



FCCID: 2AC9N-1686202

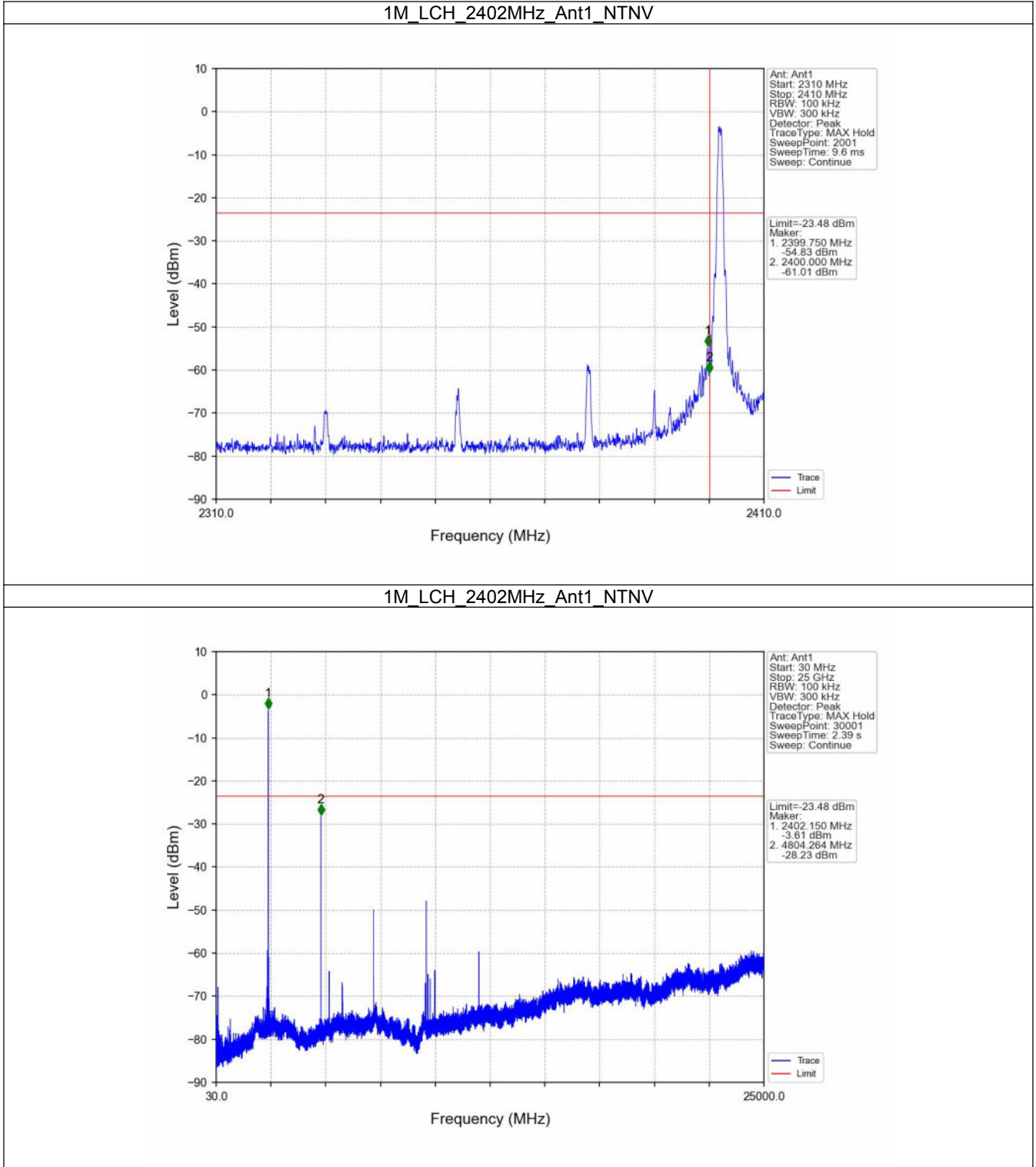


FCCID: 2AC9N-1686202

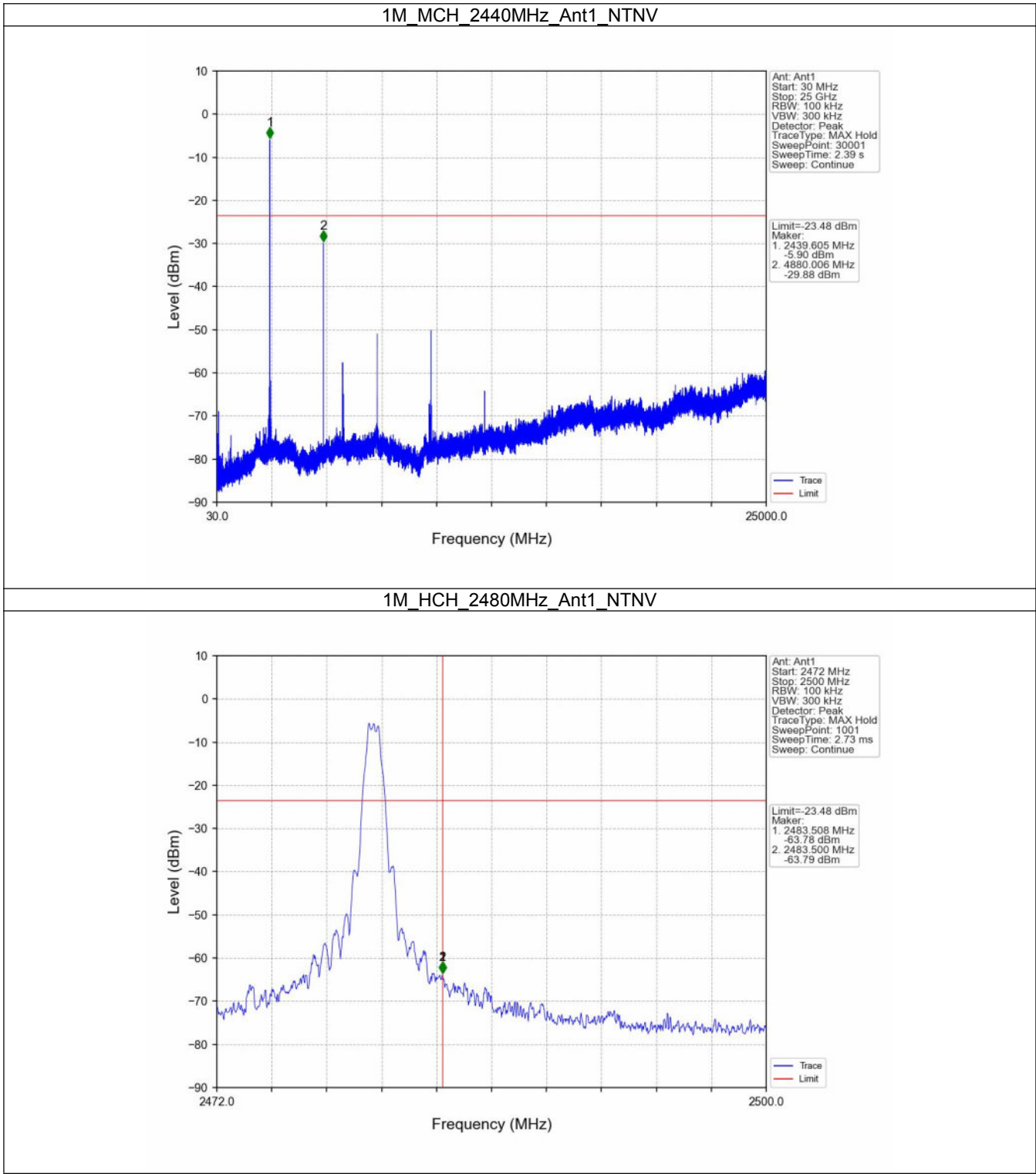


FCCID: 2AC9N-1686202

4.2.2 CSE

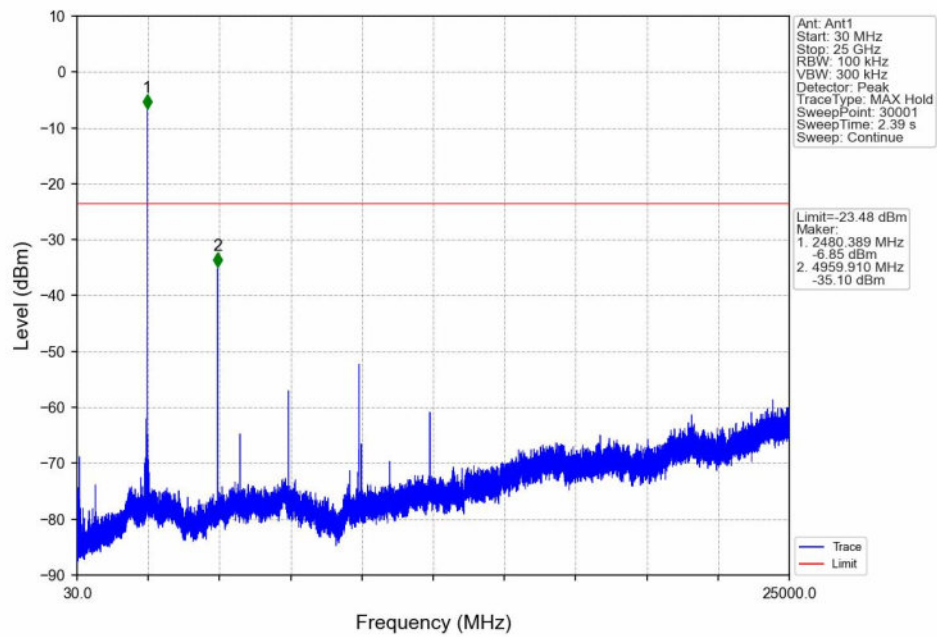


FCCID: 2AC9N-1686202

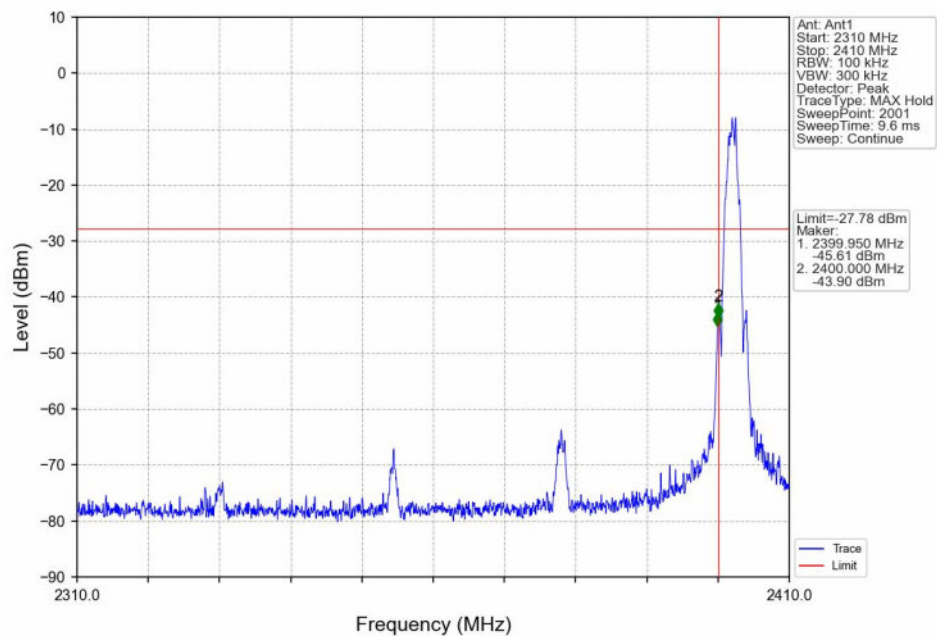


FCCID: 2AC9N-1686202

1M_HCH_2480MHz_Ant1_NTNV

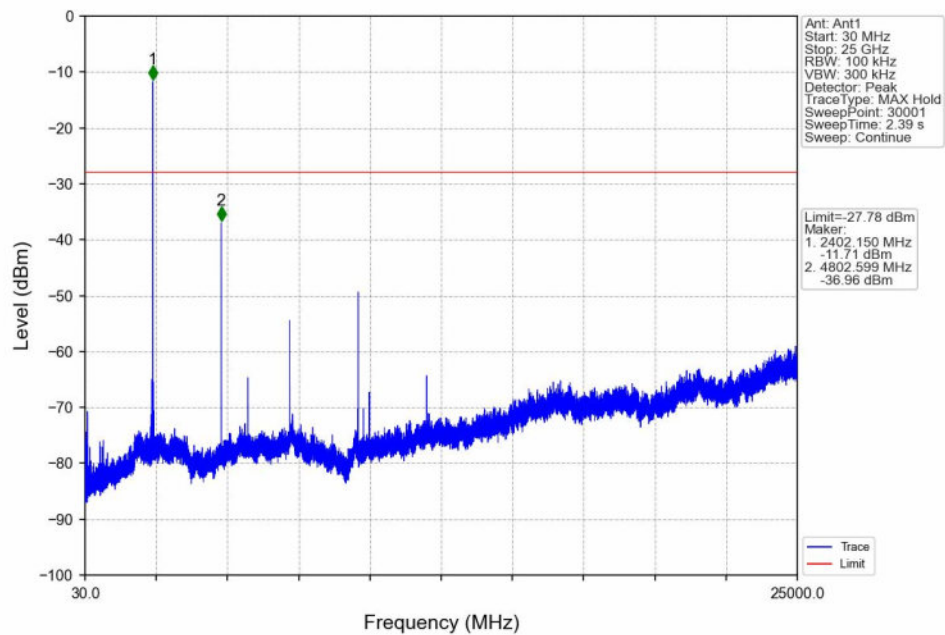


2M_LCH_2402MHz_Ant1_NTNV

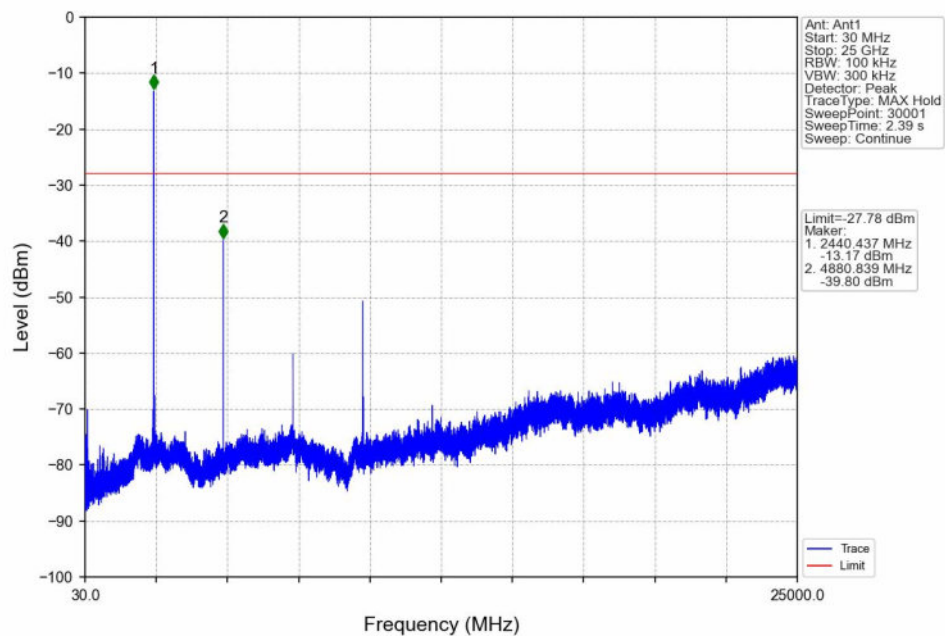


FCCID: 2AC9N-1686202

2M_LCH_2402MHz_Ant1_NTNV



2M_MCH_2440MHz_Ant1_NTNV



FCCID: 2AC9N-1686202

