

ANNEX E TEST DATA

For

Project No.:	8326EU010303W
Client:	Woan Technology (Shenzhen) Co., Ltd.
Product Description:	SwitchBot Hub 3
Model No.:	W7202100
FCC ID:	2AKXB-W7202100
Technology:	Bluetooth BLE
Test Engineer:	<i>Mikey zhu</i>
Test Date:	2025-01-16

Test Summary

Item	Result
Duty Cycle	Pass
Bandwidth	Pass
Maximum Conducted Output Power	Pass
Maximum Power Spectral Density	Pass
Unwanted Emissions In Non-restricted Frequency Bands	Pass

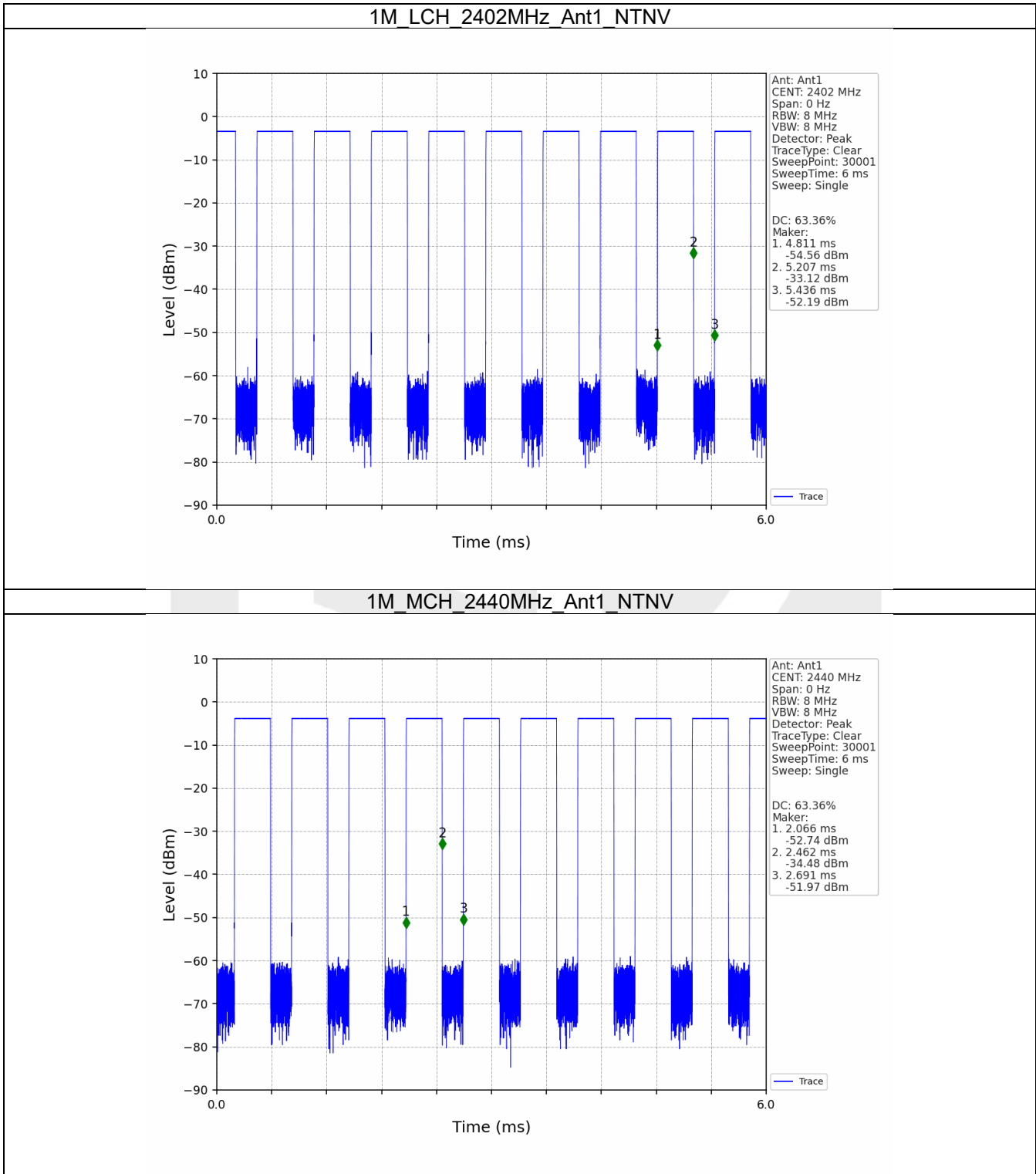


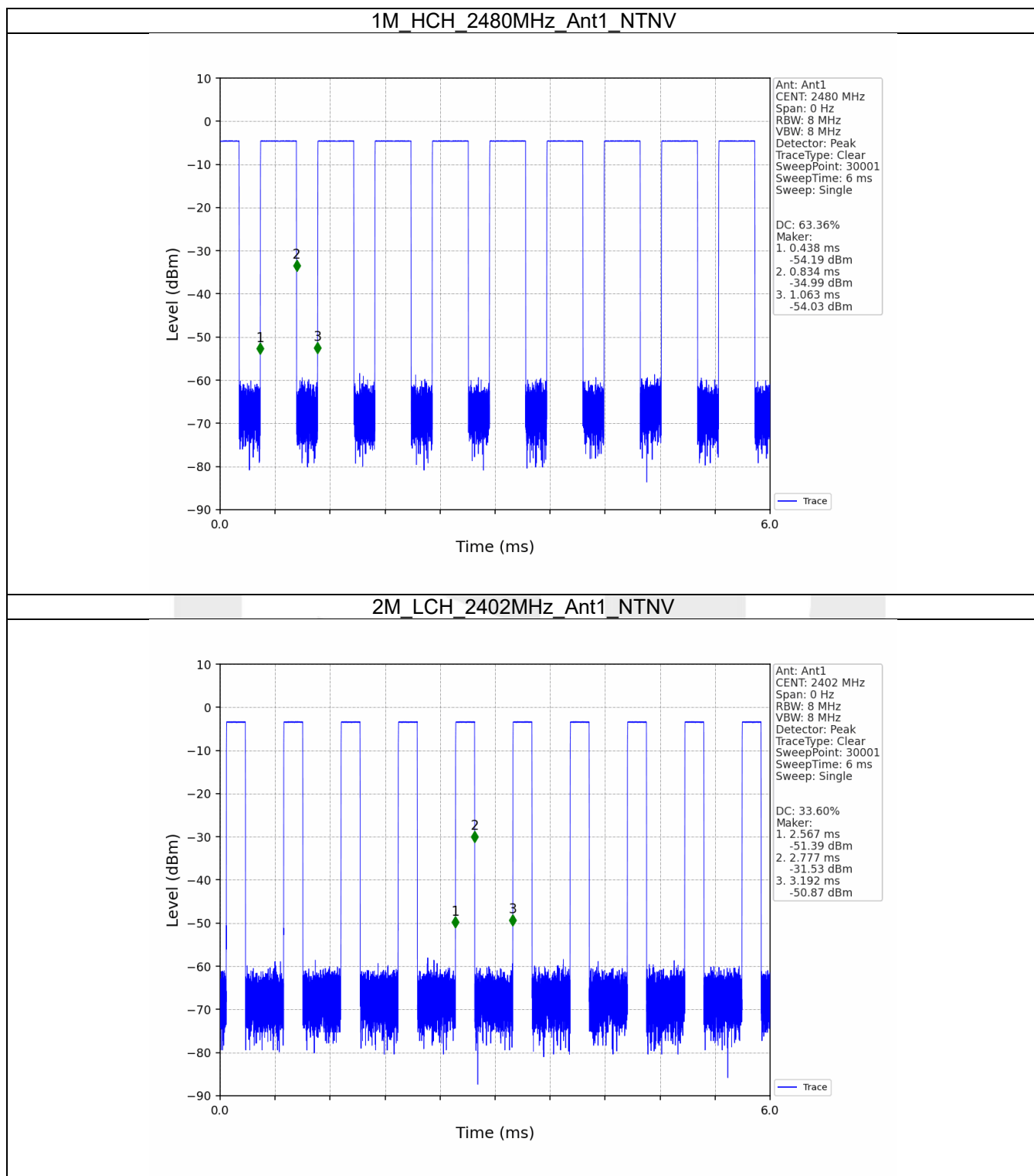
BLE 1 (for chip NRF52833)
1. Duty Cycle
1.1 Test Result
1.1.1 Ant1

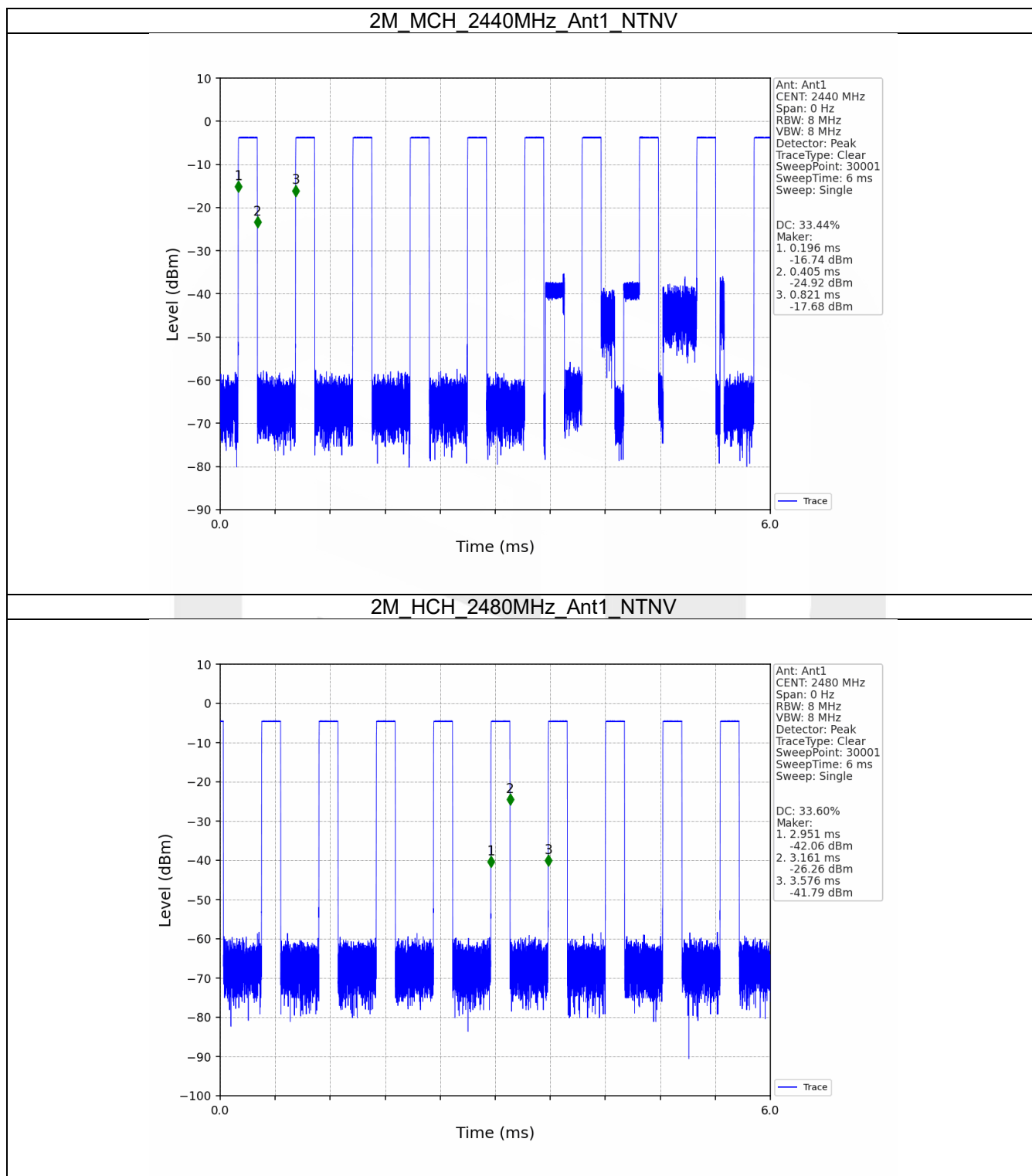
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
1M	SISO	2402	0.396	0.625	63.36	1.98	0.02
		2440	0.396	0.625	63.36	1.98	0.03
		2480	0.396	0.625	63.36	1.98	0.03
2M	SISO	2402	0.210	0.625	33.60	4.74	0.03
		2440	0.209	0.625	33.44	4.76	0.03
		2480	0.210	0.625	33.60	4.74	0.06

1.2 Test Graph

1.2.1 Ant1







2. Bandwidth

2.1 Test Result

2.1.1 OBW

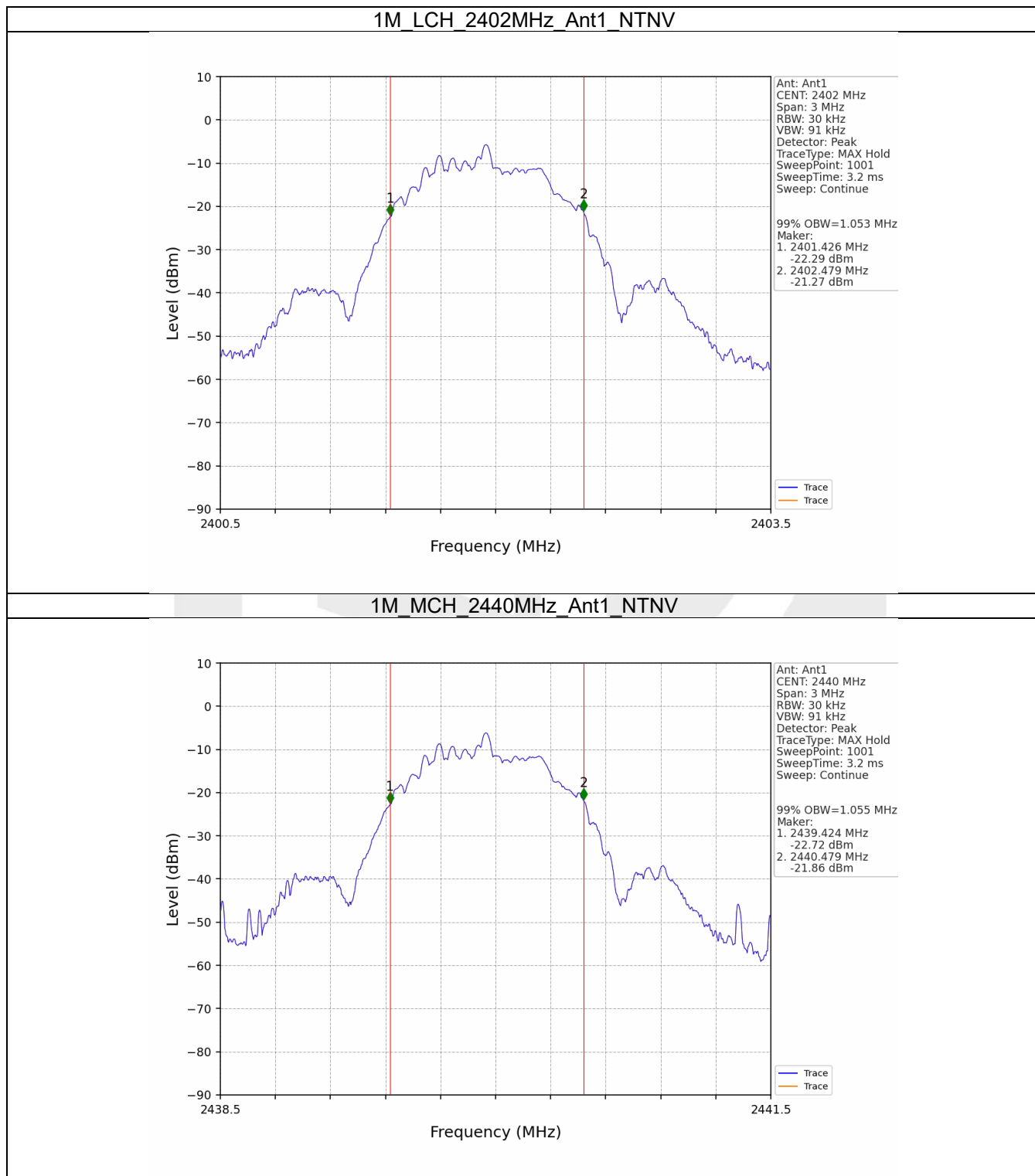
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	1.053	/	Pass
		2440	1	1.055	/	Pass
		2480	1	1.054	/	Pass
2M	SISO	2402	1	2.068	/	Pass
		2440	1	2.078	/	Pass
		2480	1	2.071	/	Pass

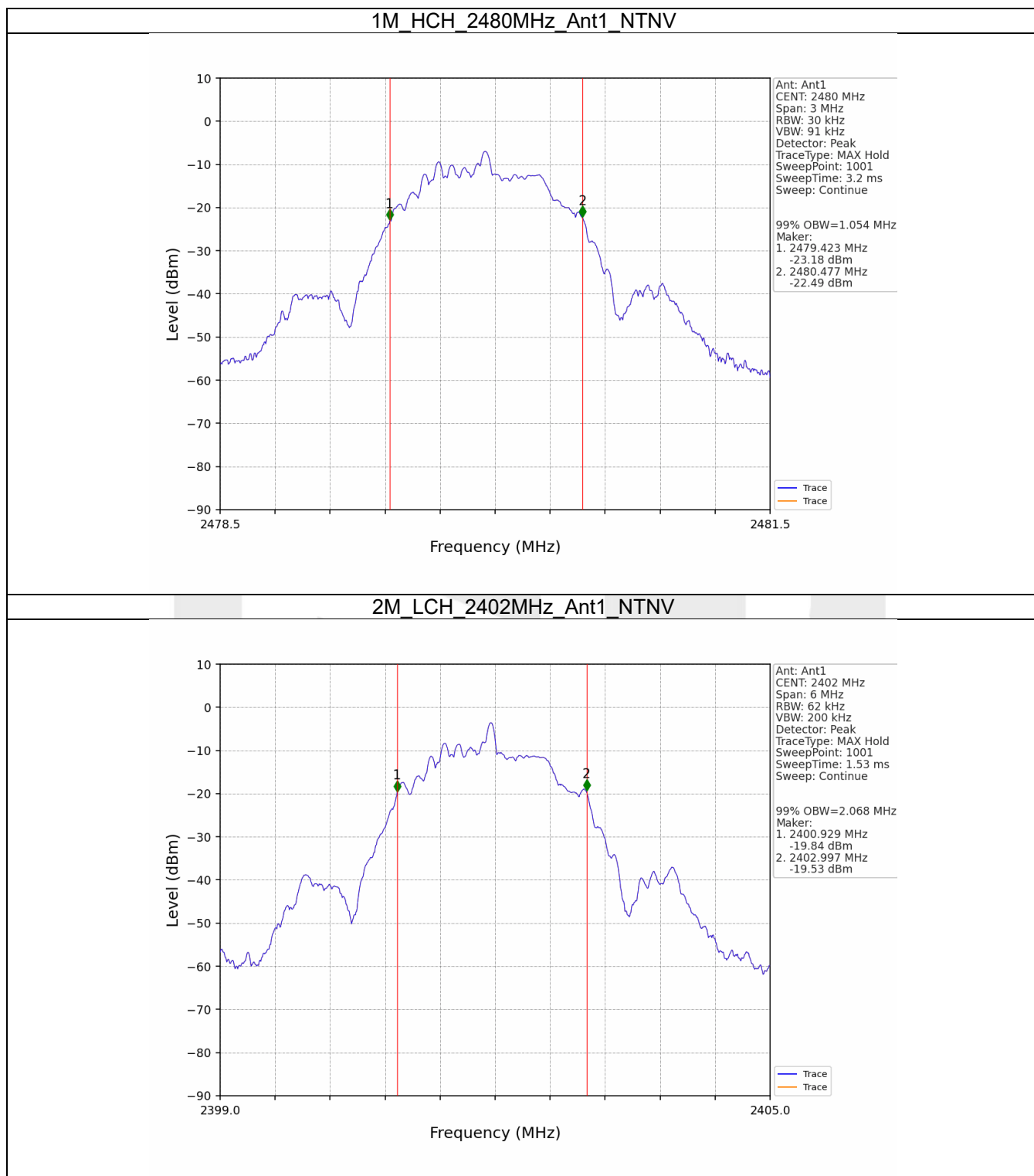
2.1.2 6dB BW

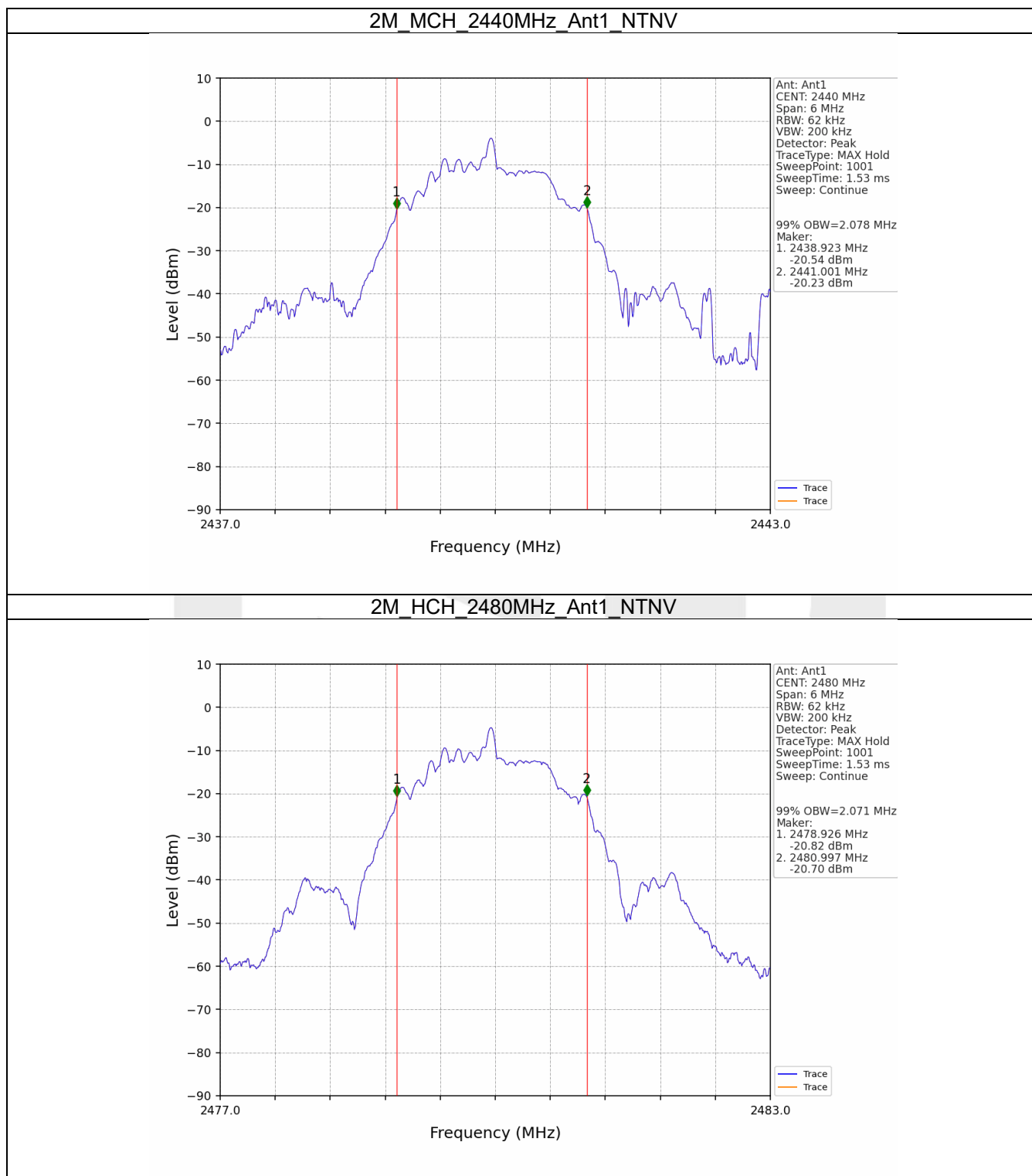
Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	0.692	≥ 0.5	Pass
		2440	1	0.697	≥ 0.5	Pass
		2480	1	0.693	≥ 0.5	Pass
2M	SISO	2402	1	1.148	≥ 0.5	Pass
		2440	1	1.147	≥ 0.5	Pass
		2480	1	1.145	≥ 0.5	Pass

2.2 Test Graph

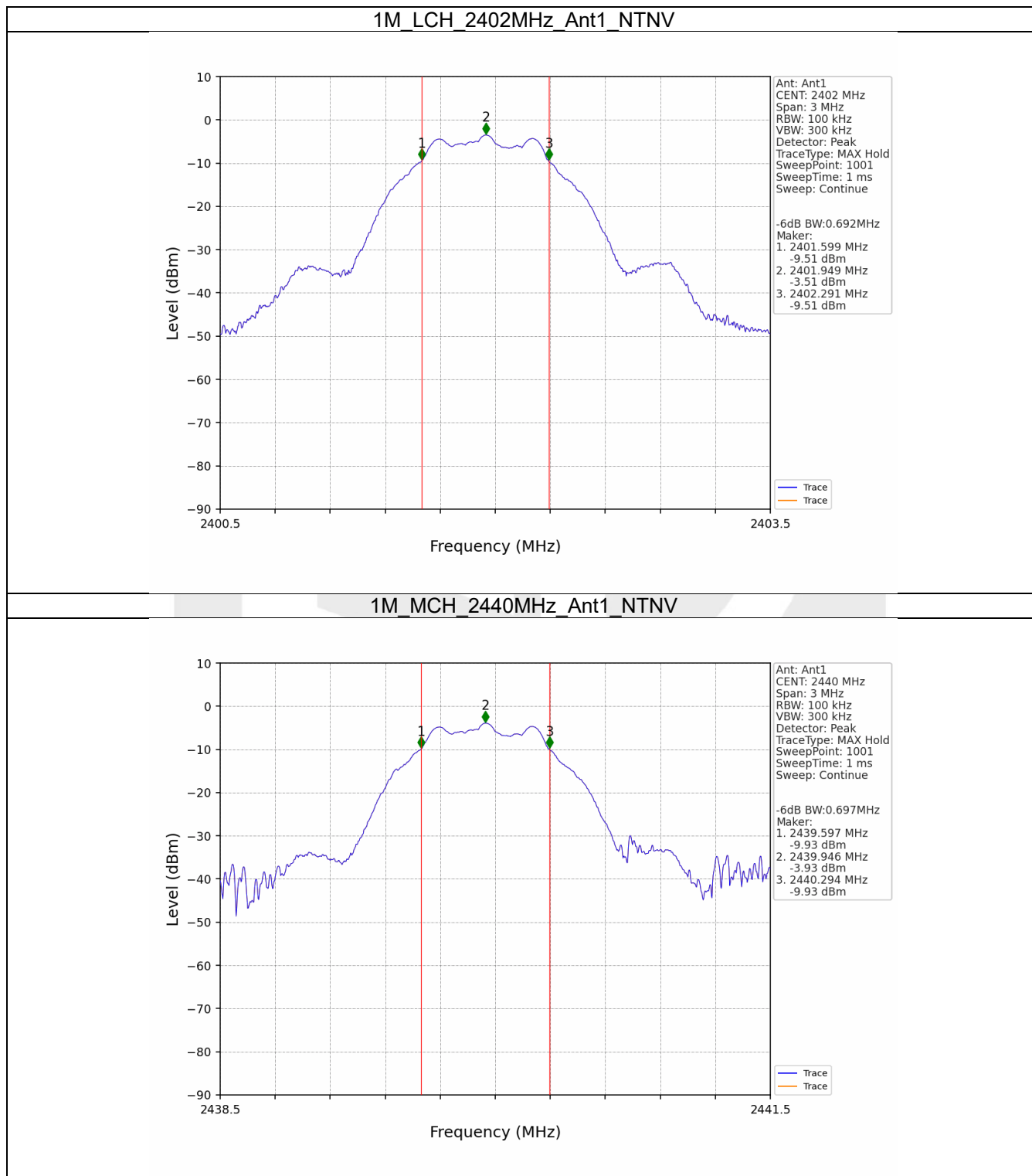
2.2.1 OBW

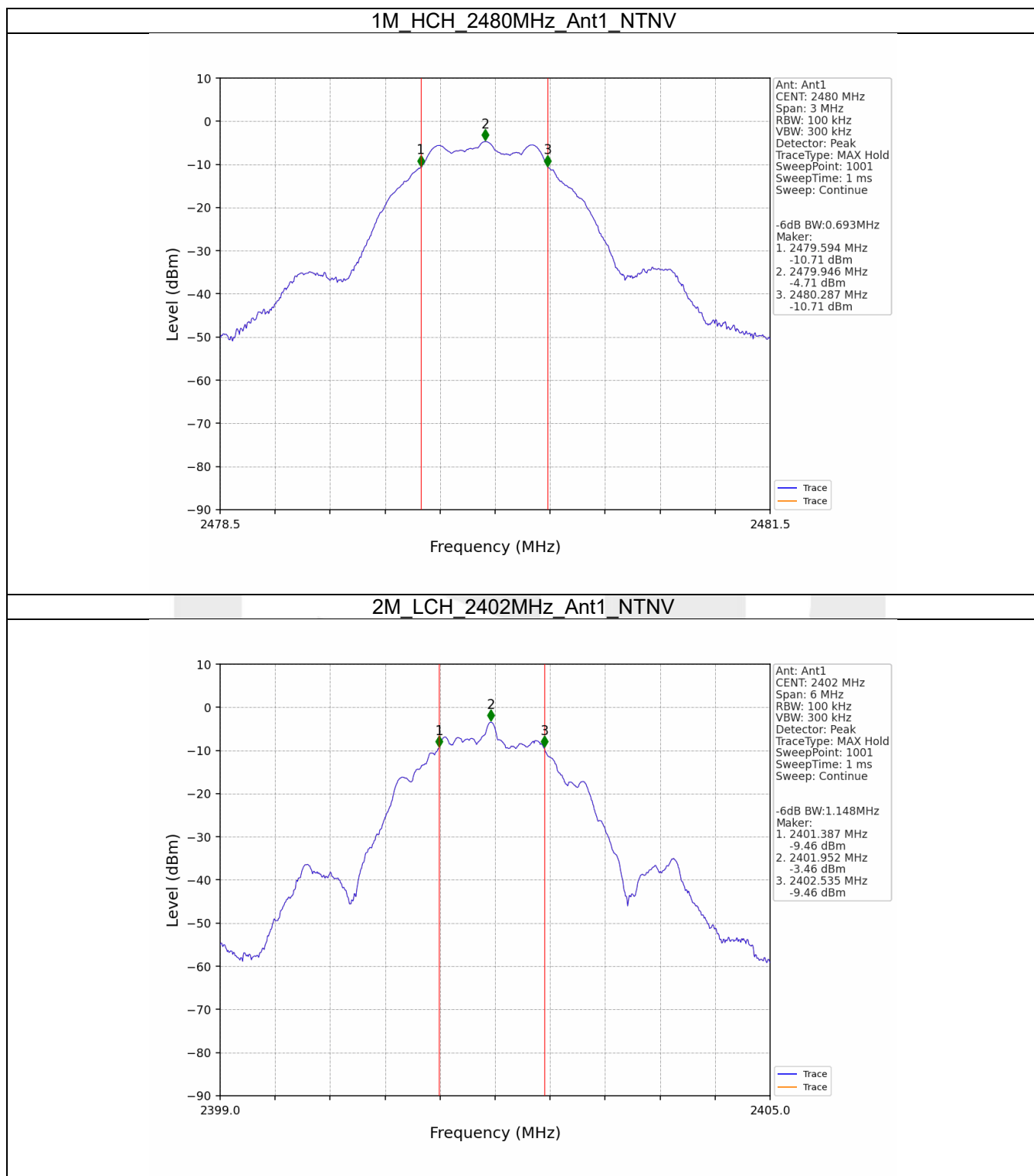


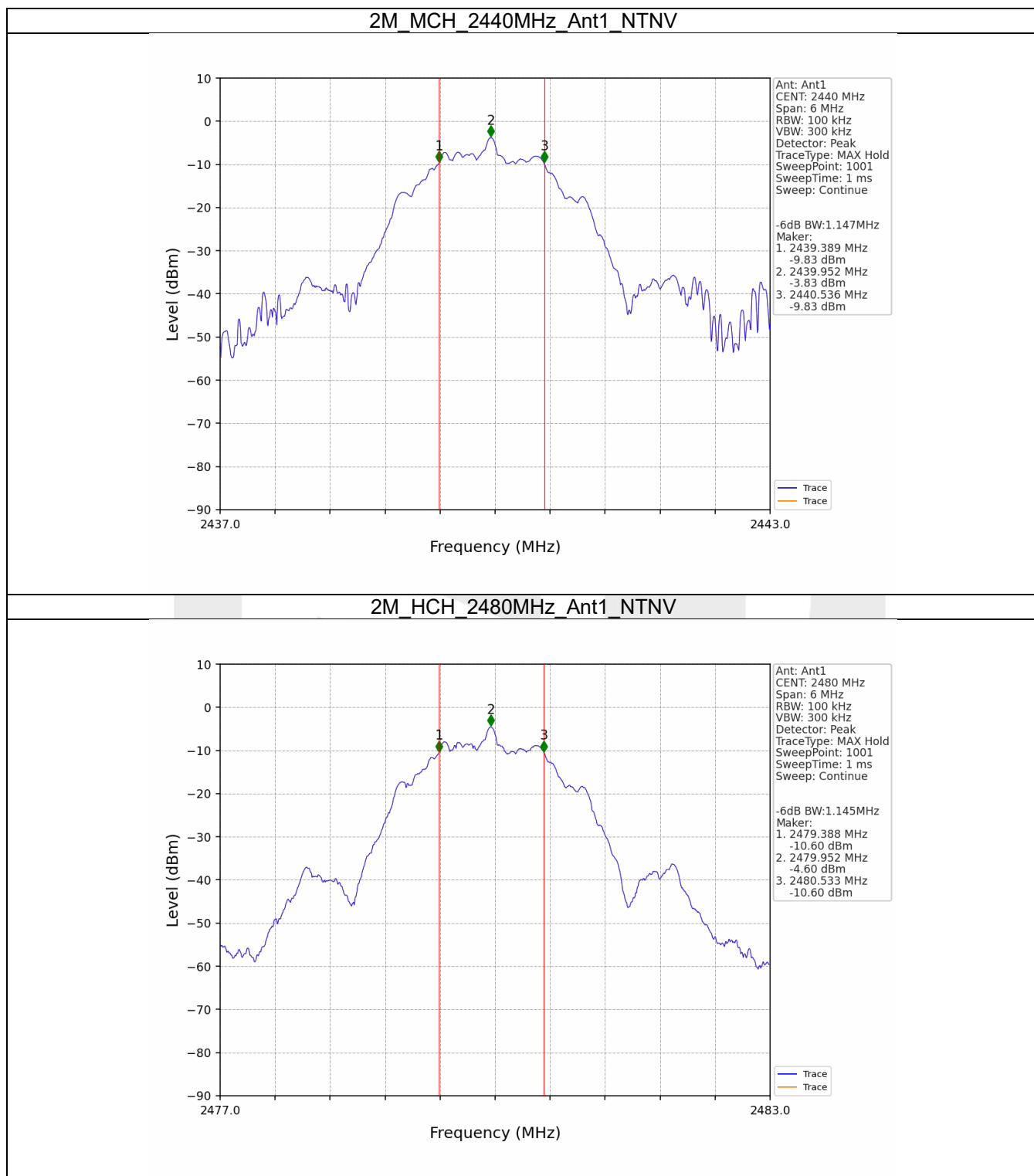




2.2.2 6dB BW







3. Maximum Conducted Output Power

3.1 Test Result

3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
1M	SISO	2402	-3.29	<=30	Pass
		2440	-3.43	<=30	Pass
		2480	-4.54	<=30	Pass
2M	SISO	2402	-3.22	<=30	Pass
		2440	-3.01	<=30	Pass
		2480	-4.45	<=30	Pass

4. Maximum Power Spectral Density

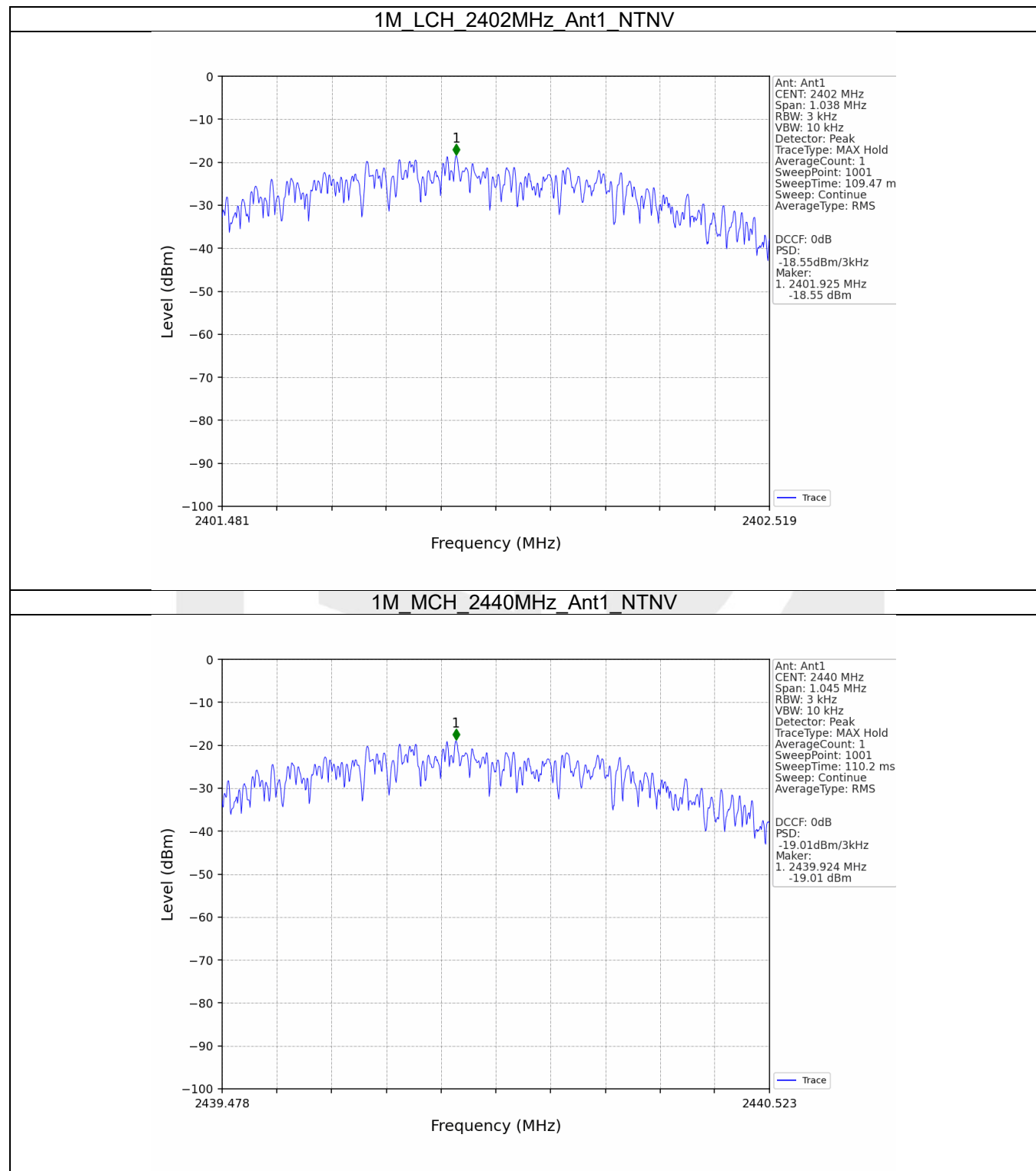
4.1 Test Result

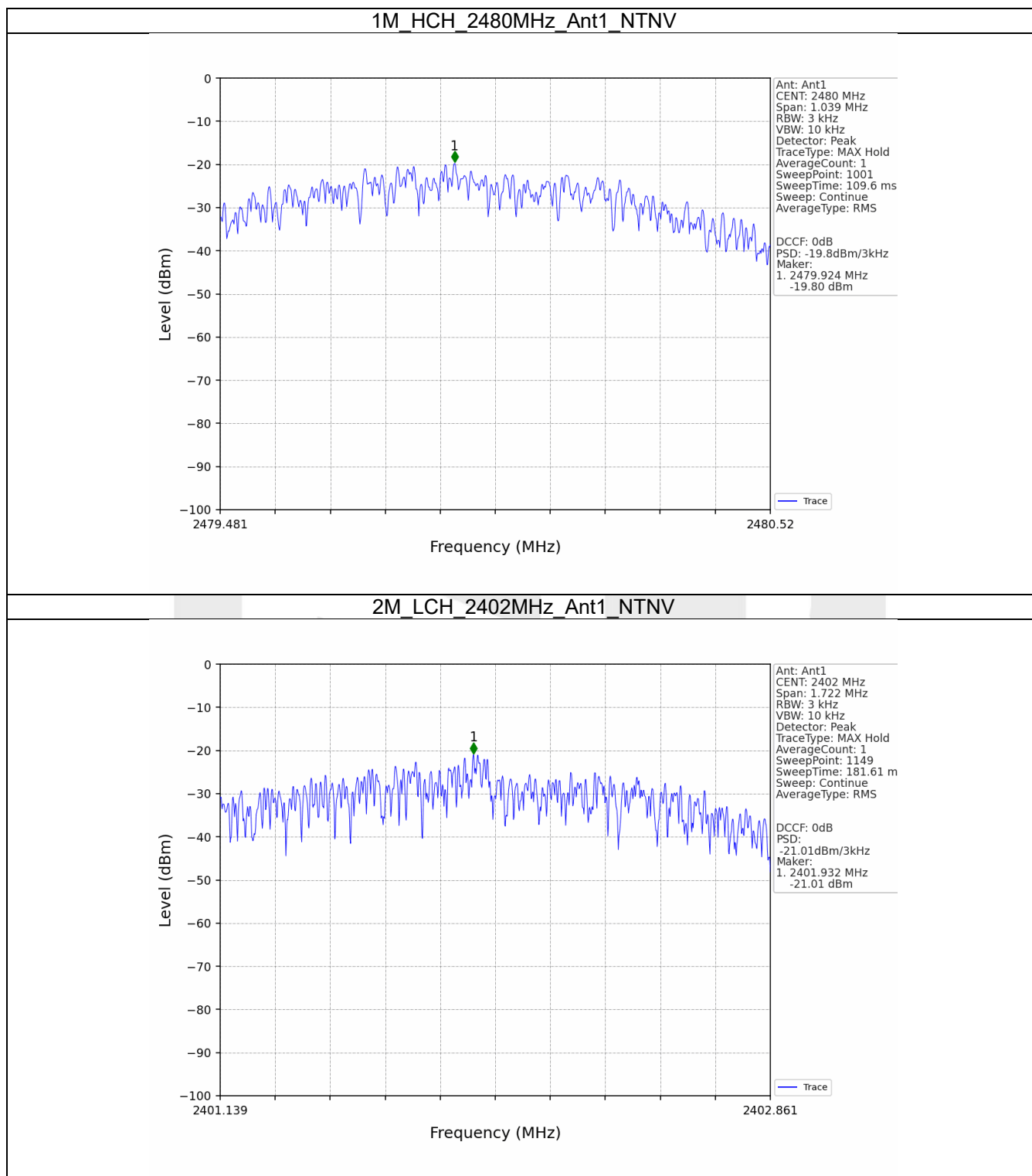
4.1.1 PSD

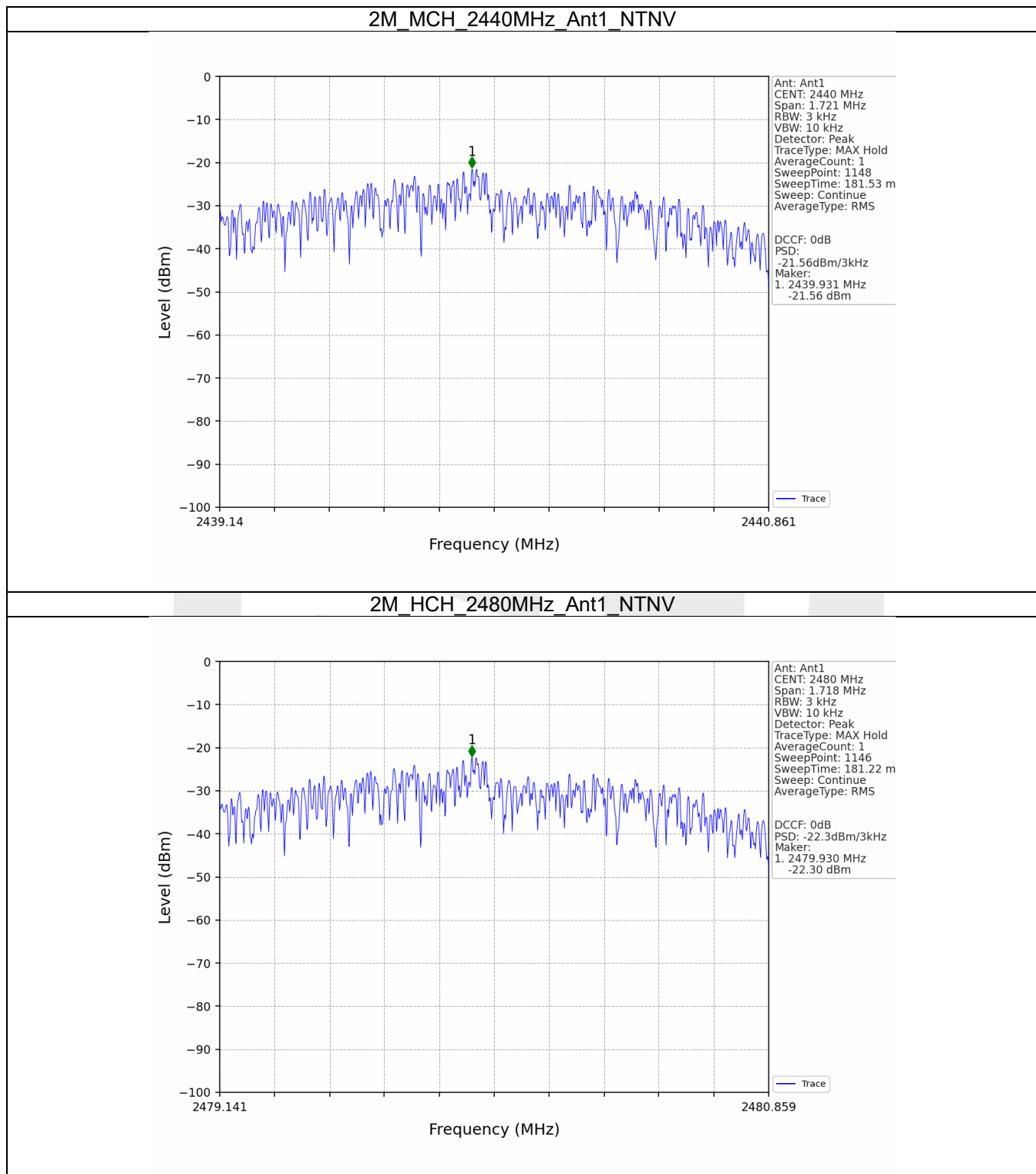
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
1M	SISO	2402	-18.55	<=8	Pass
		2440	-19.01	<=8	Pass
		2480	-19.80	<=8	Pass
2M	SISO	2402	-21.01	<=8	Pass
		2440	-21.56	<=8	Pass
		2480	-22.30	<=8	Pass

4.2 Test Graph

4.2.1 PSD







5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Test Result

5.1.1 Ref

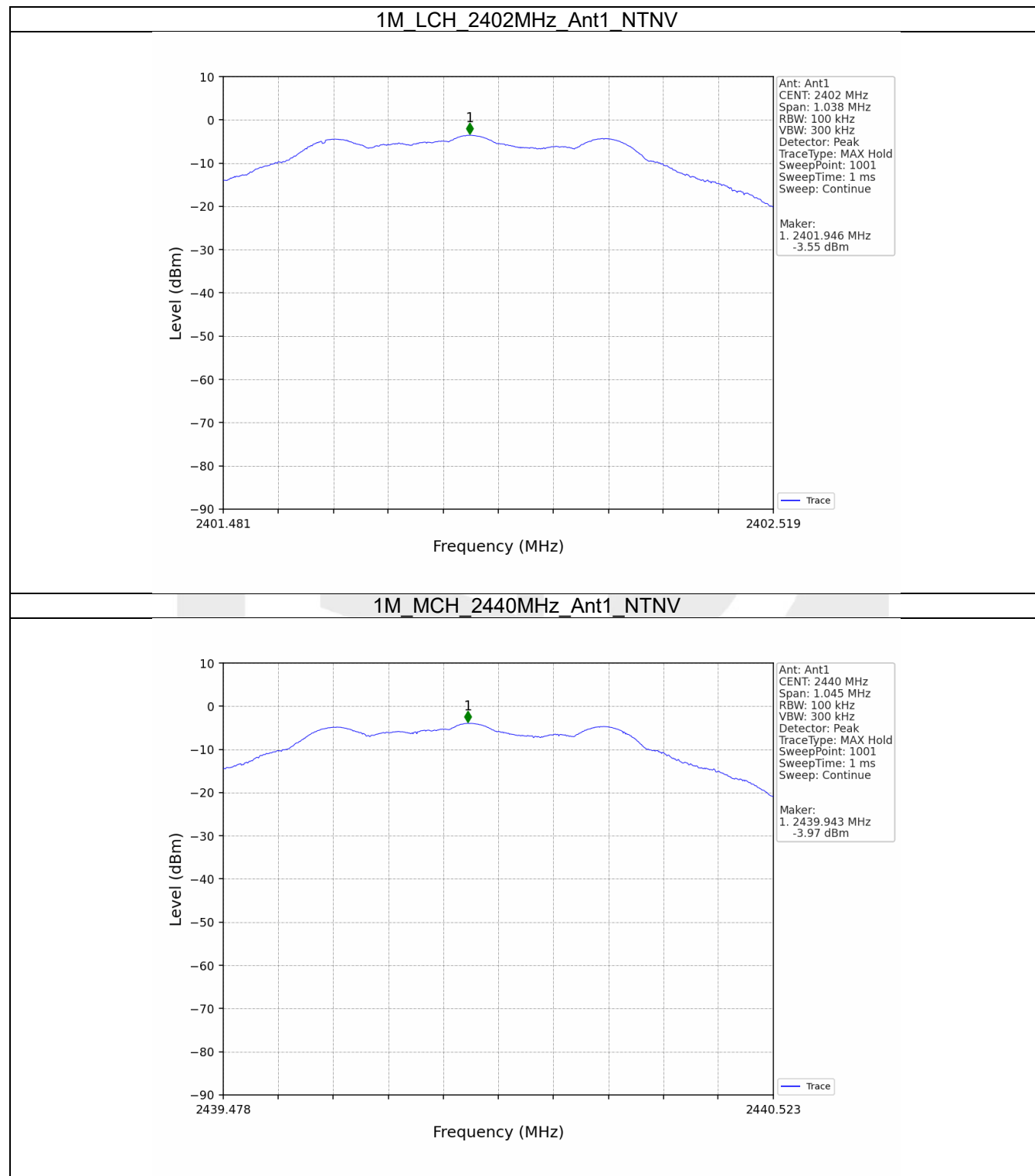
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
1M	SISO	2402	1	-3.55
		2440	1	-3.97
		2480	1	-4.75
2M	SISO	2402	1	-3.55
		2440	1	-3.93
		2480	1	-4.69
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.				

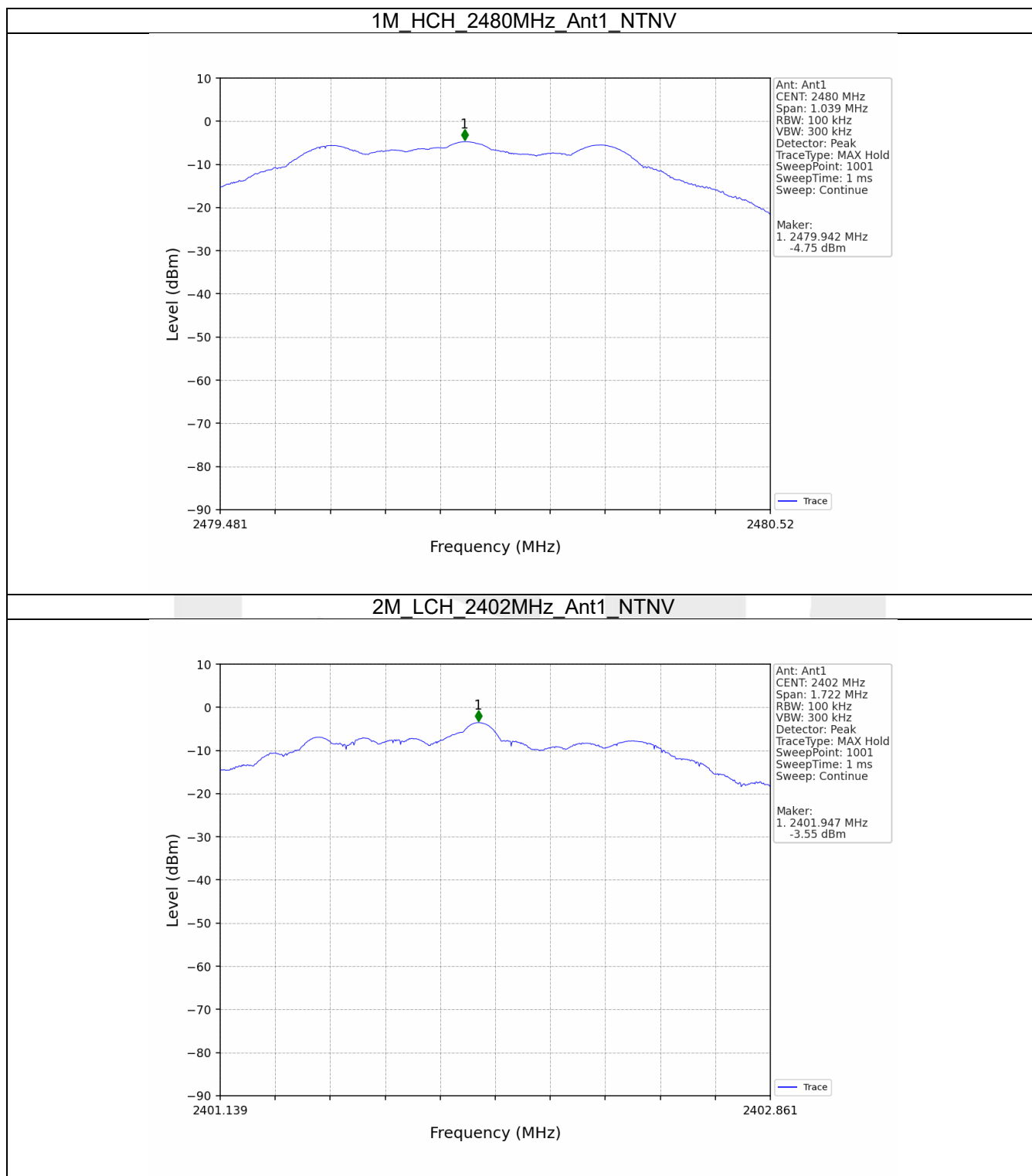
5.1.2 CSE

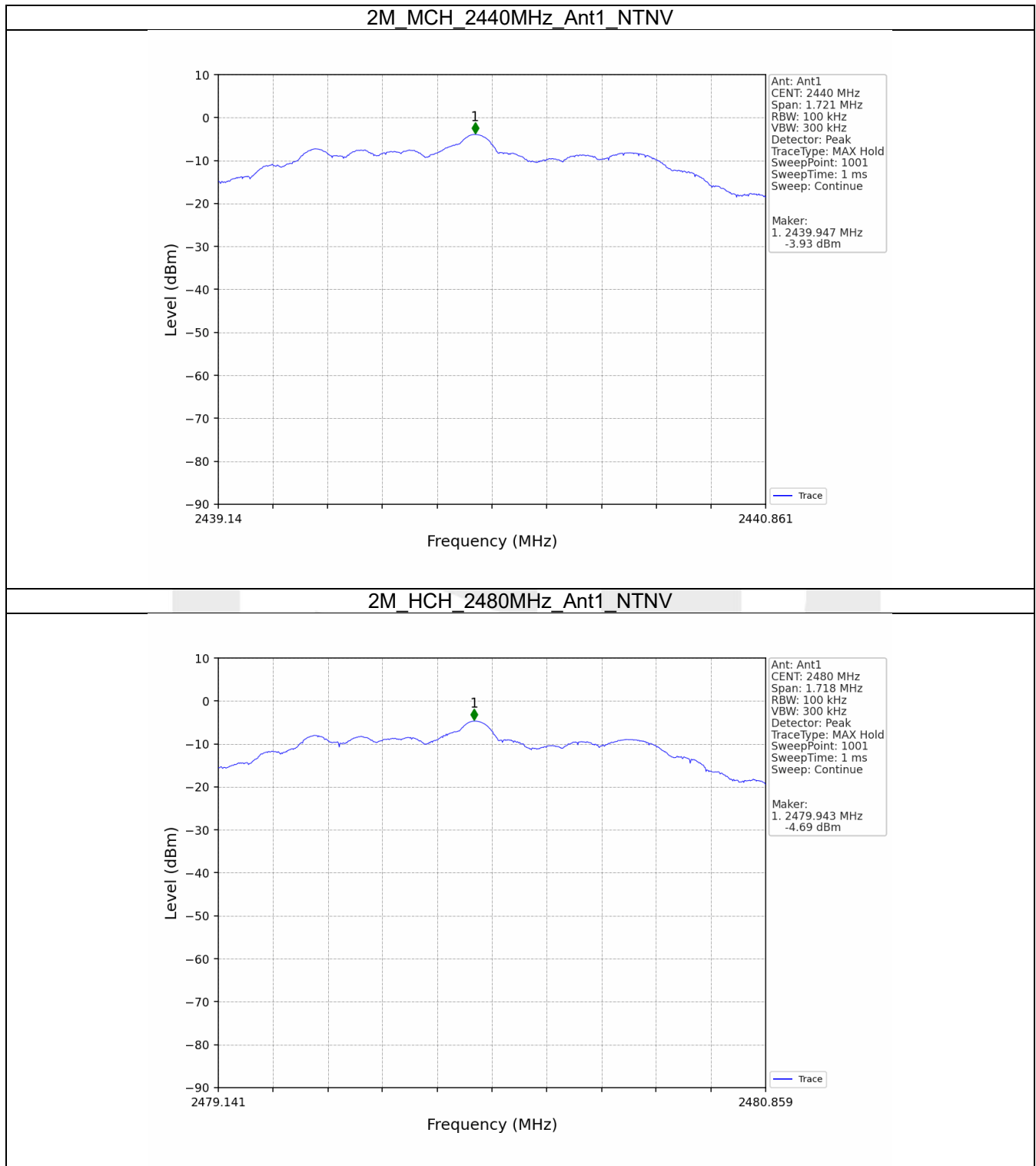
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
1M	SISO	2402	1	-3.55	-23.55	Pass
		2440	1	-3.97	-23.97	Pass
		2480	1	-4.75	-24.75	Pass
2M	SISO	2402	1	-3.55	-23.55	Pass
		2440	1	-3.93	-23.93	Pass
		2480	1	-4.69	-24.69	Pass
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.						

5.2 Test Graph

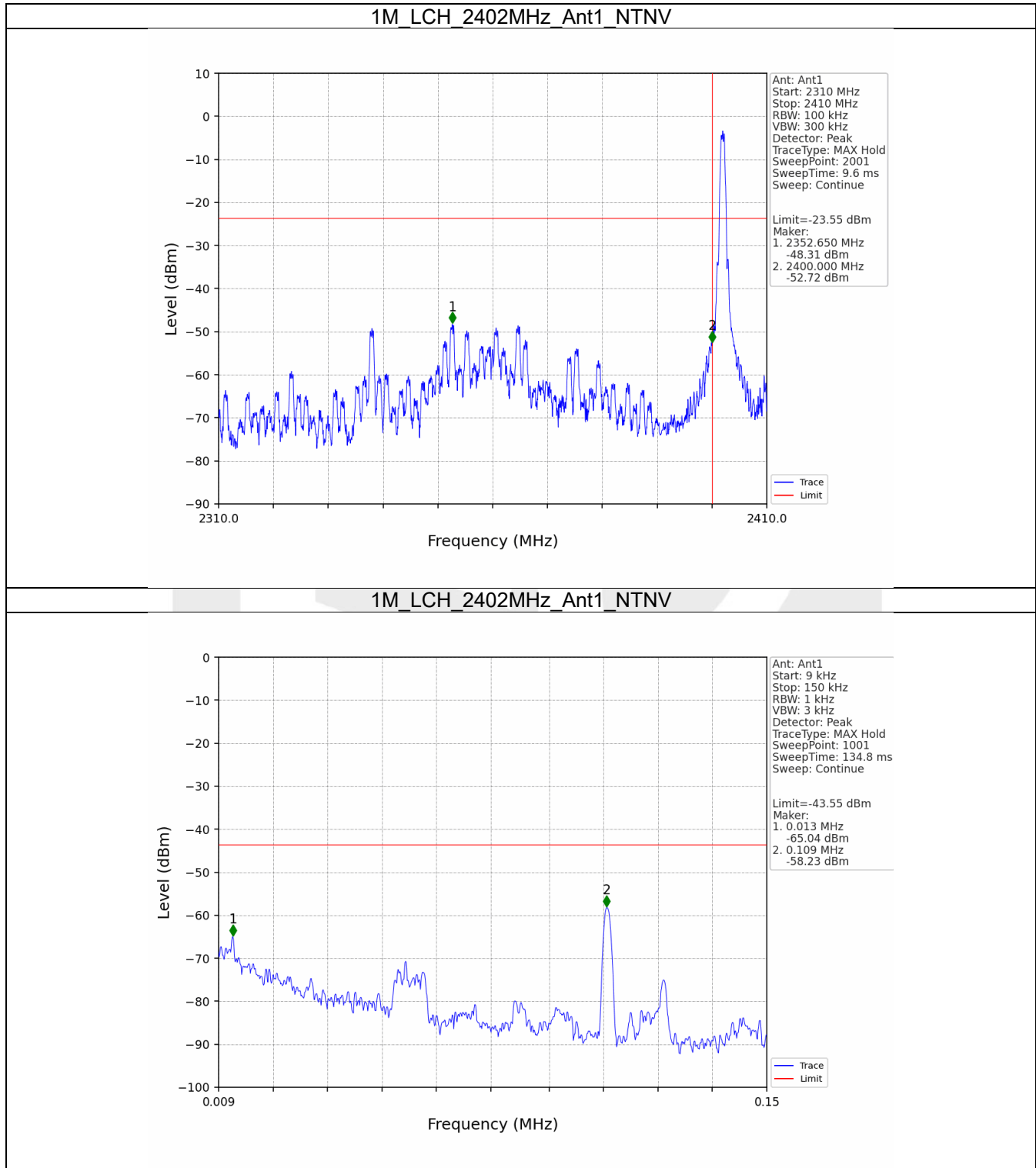
5.2.1 Ref

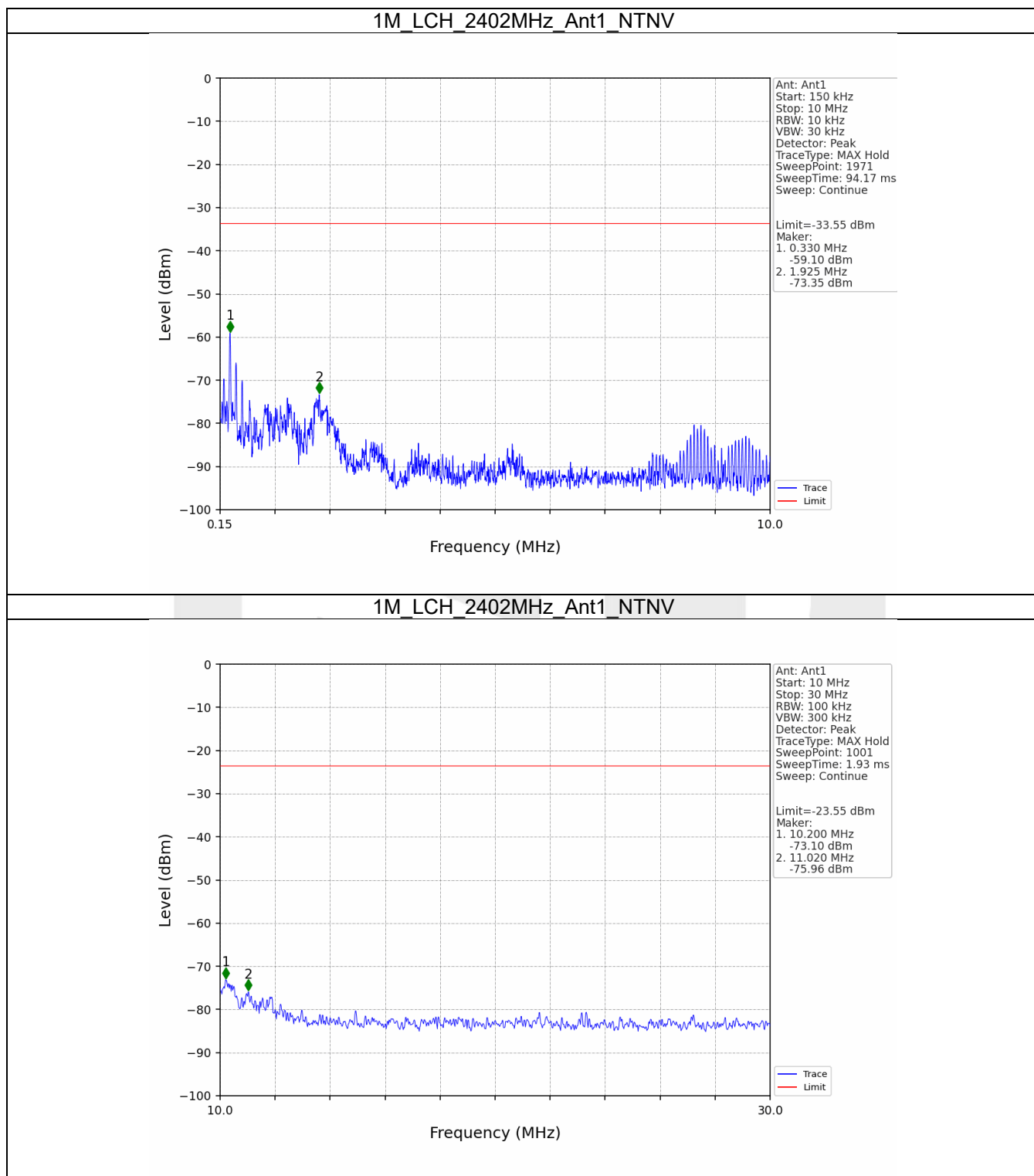


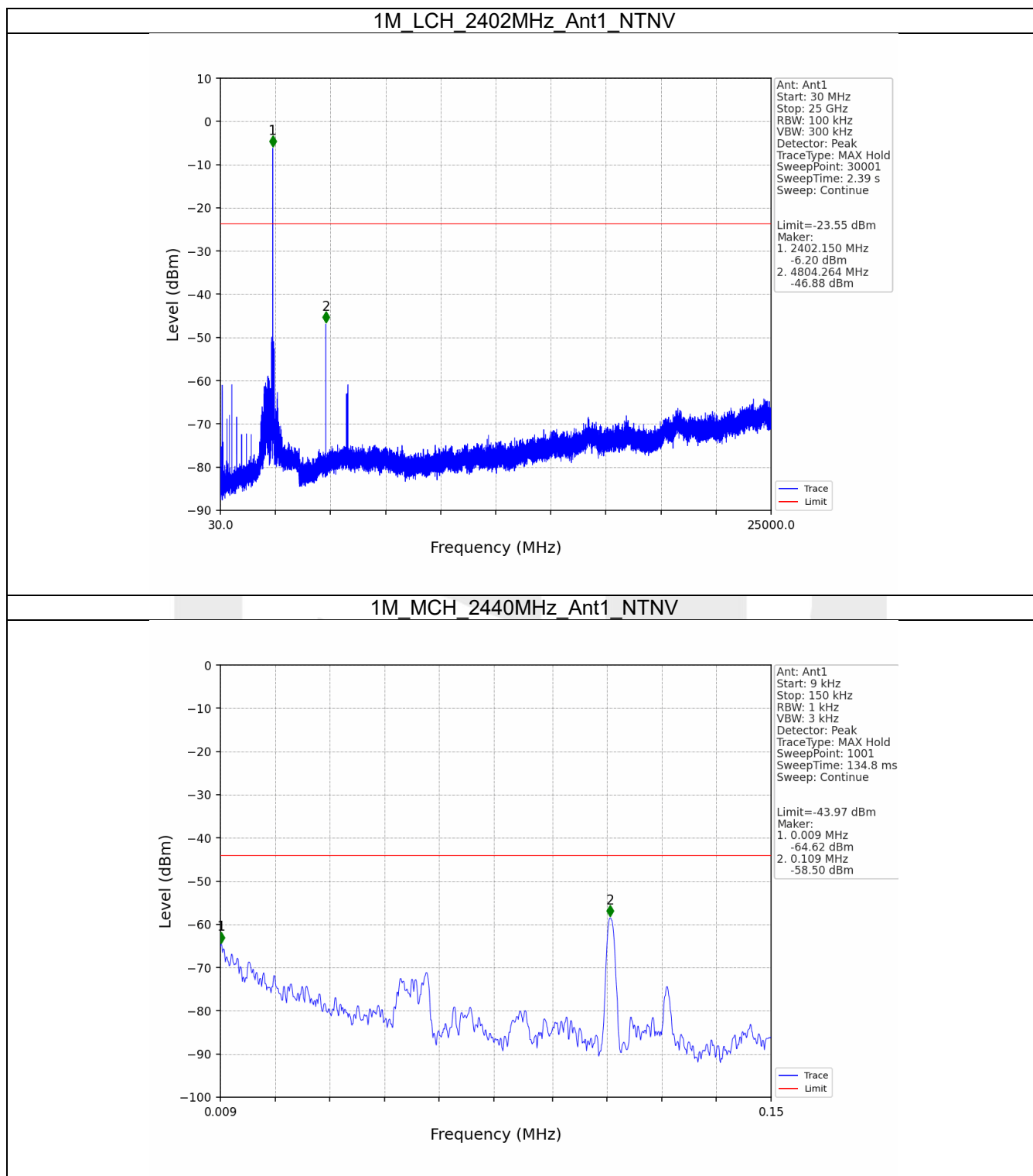


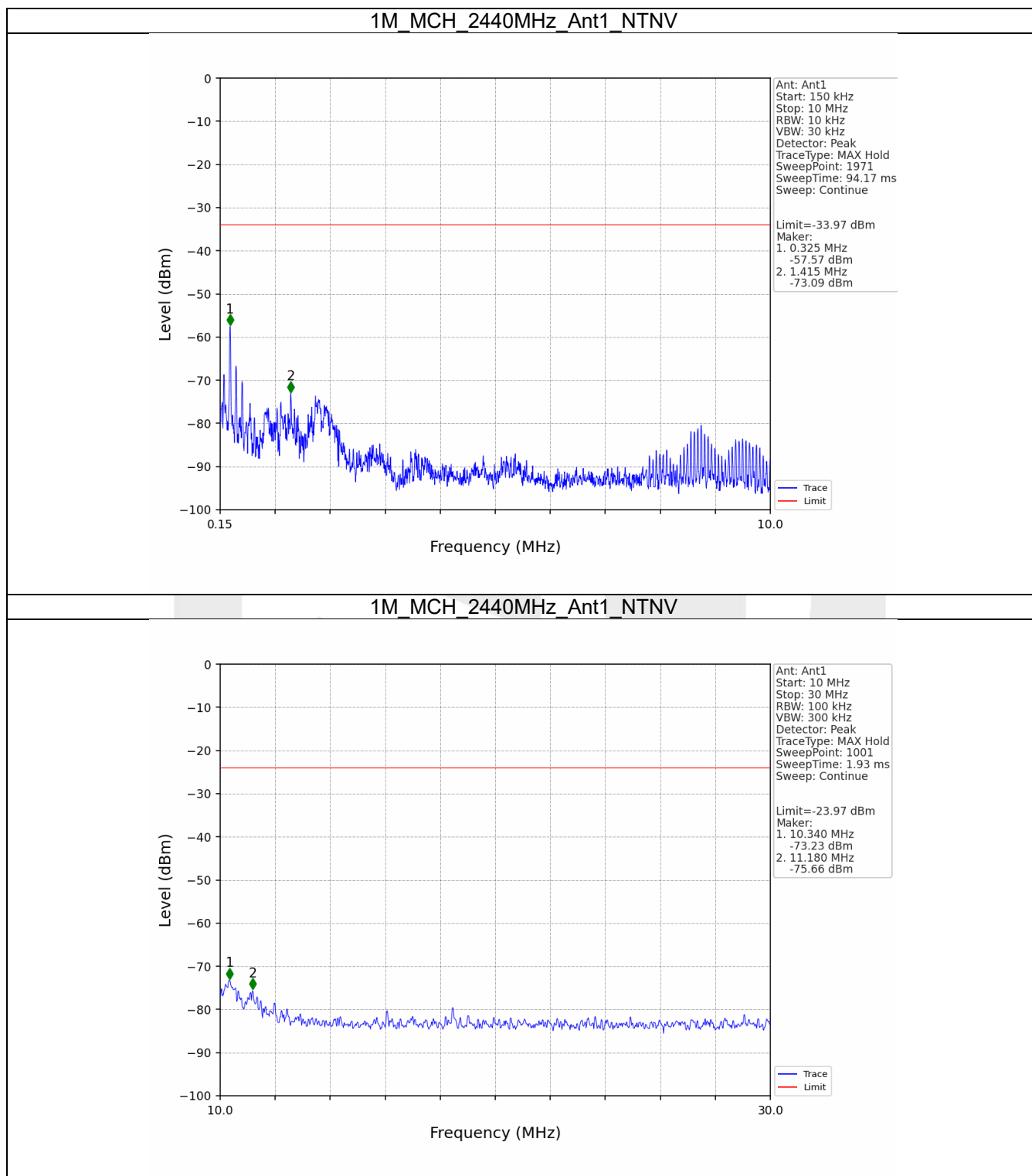


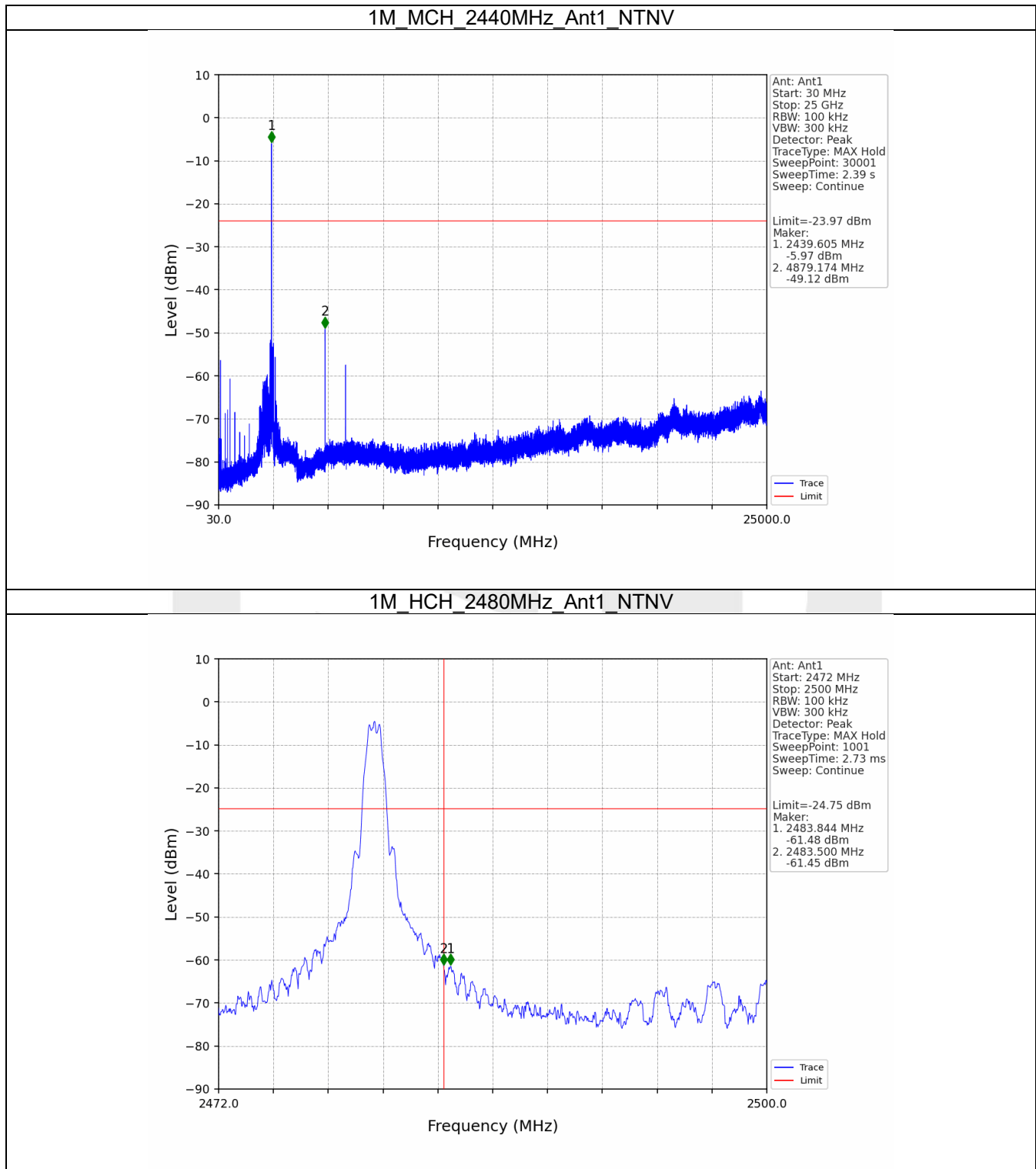
5.2.2 CSE

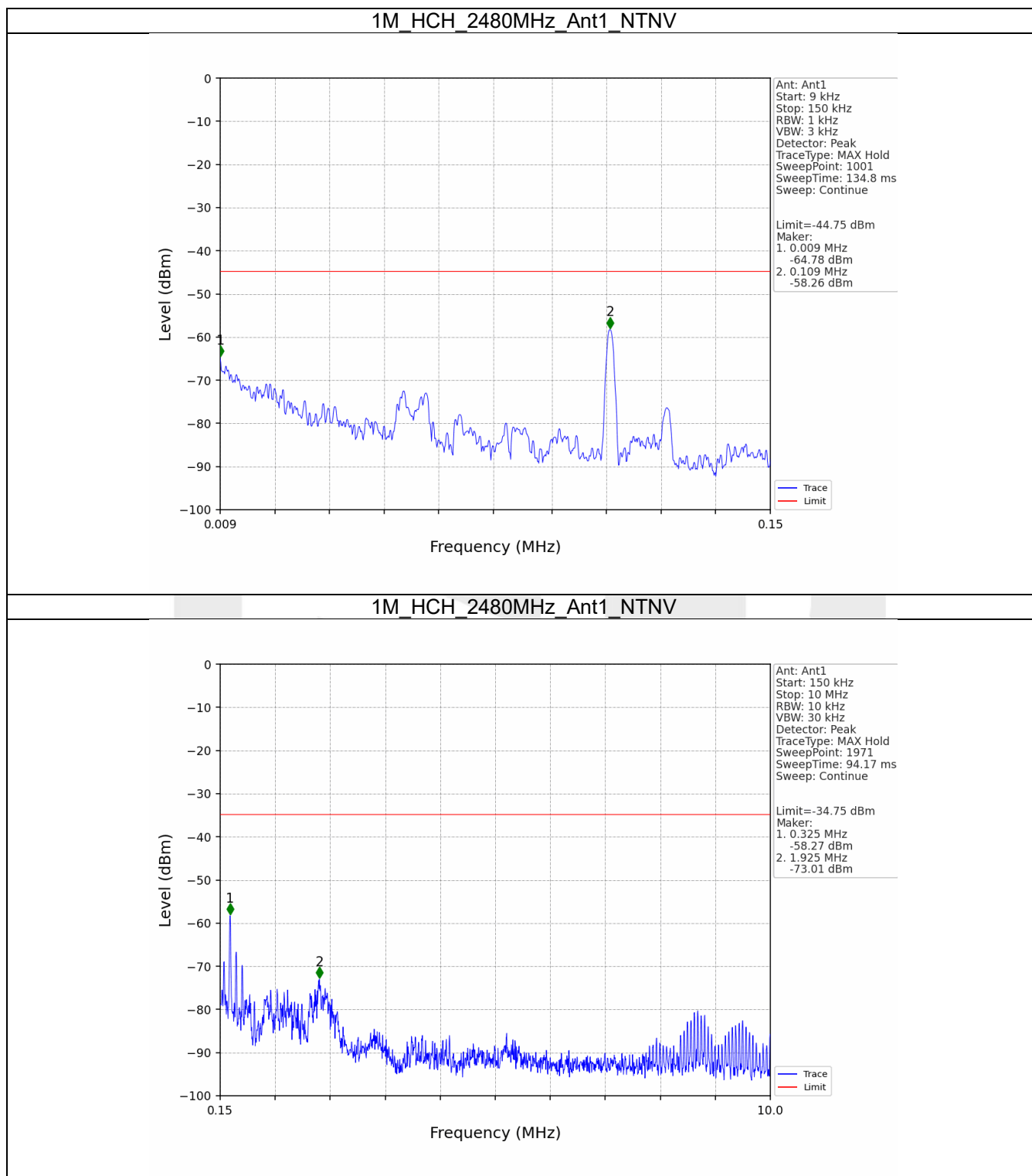


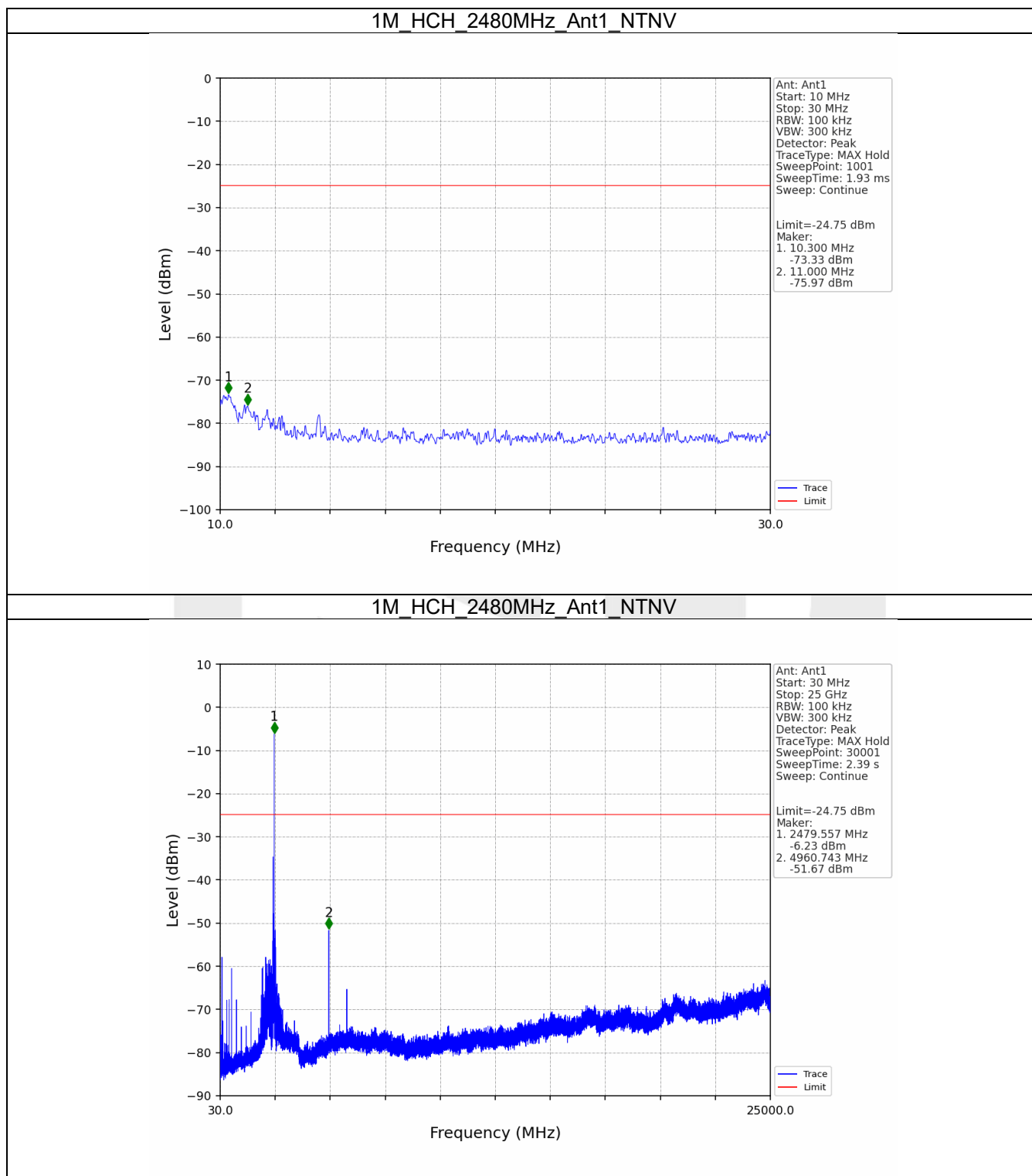


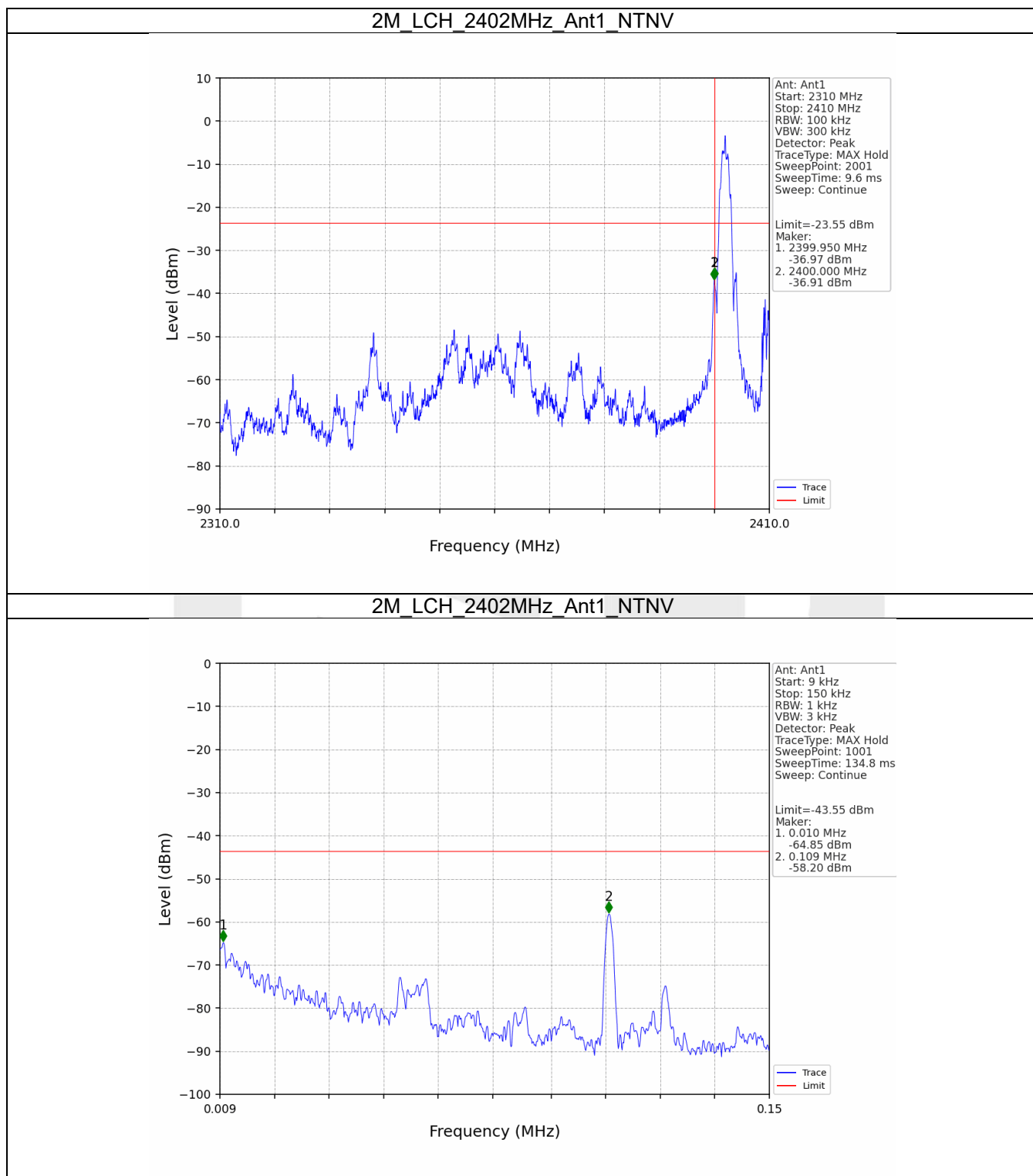


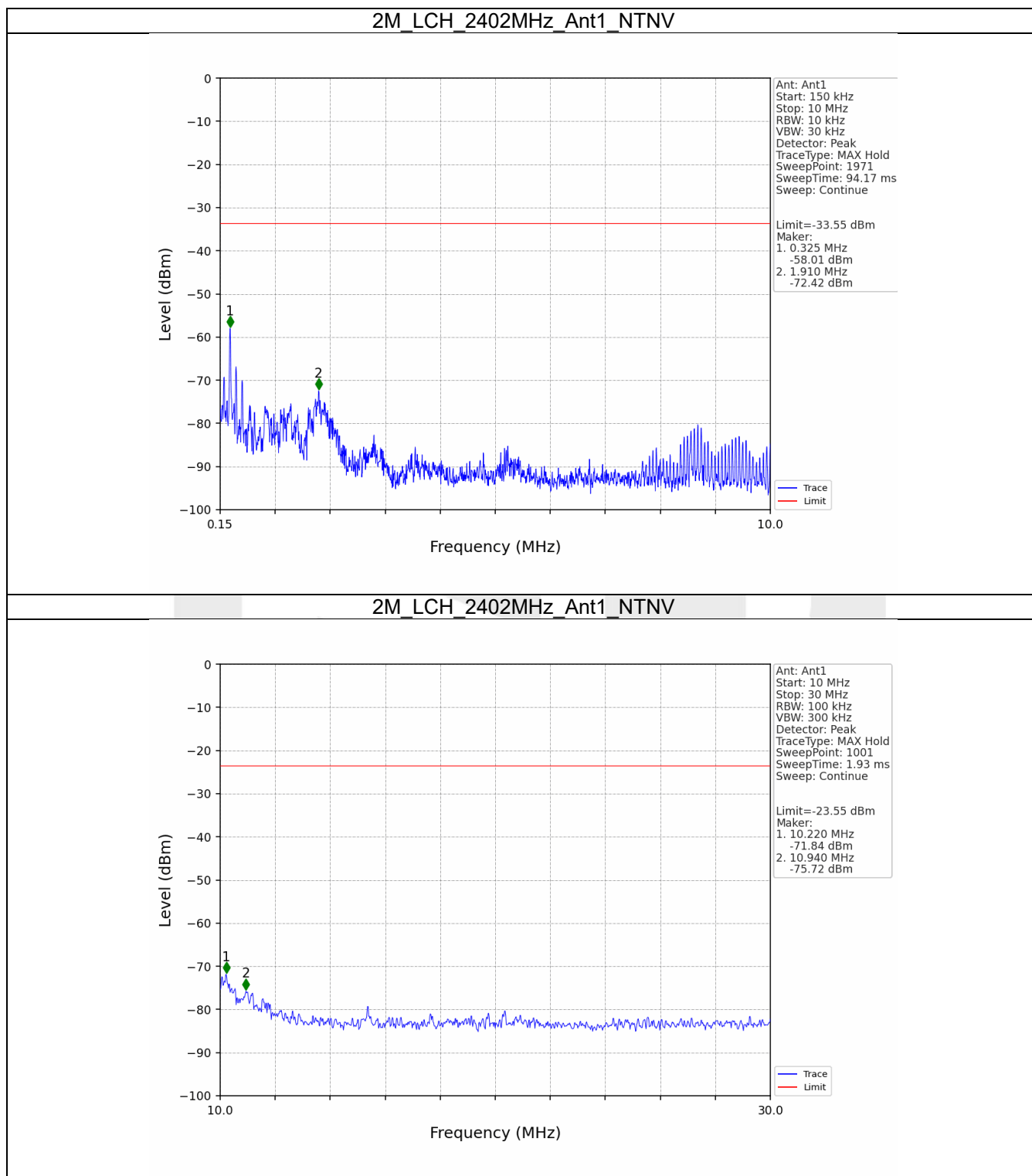


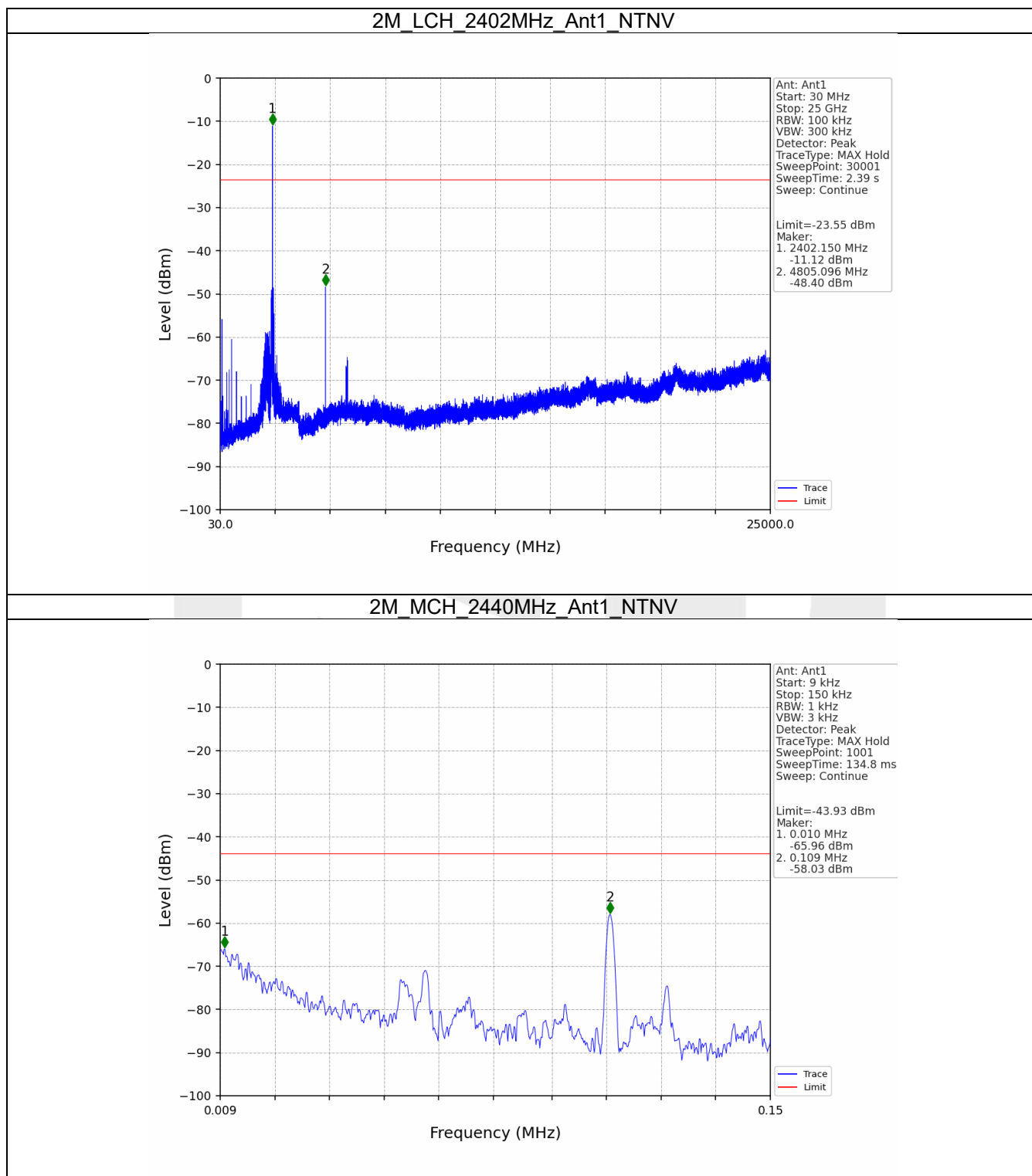


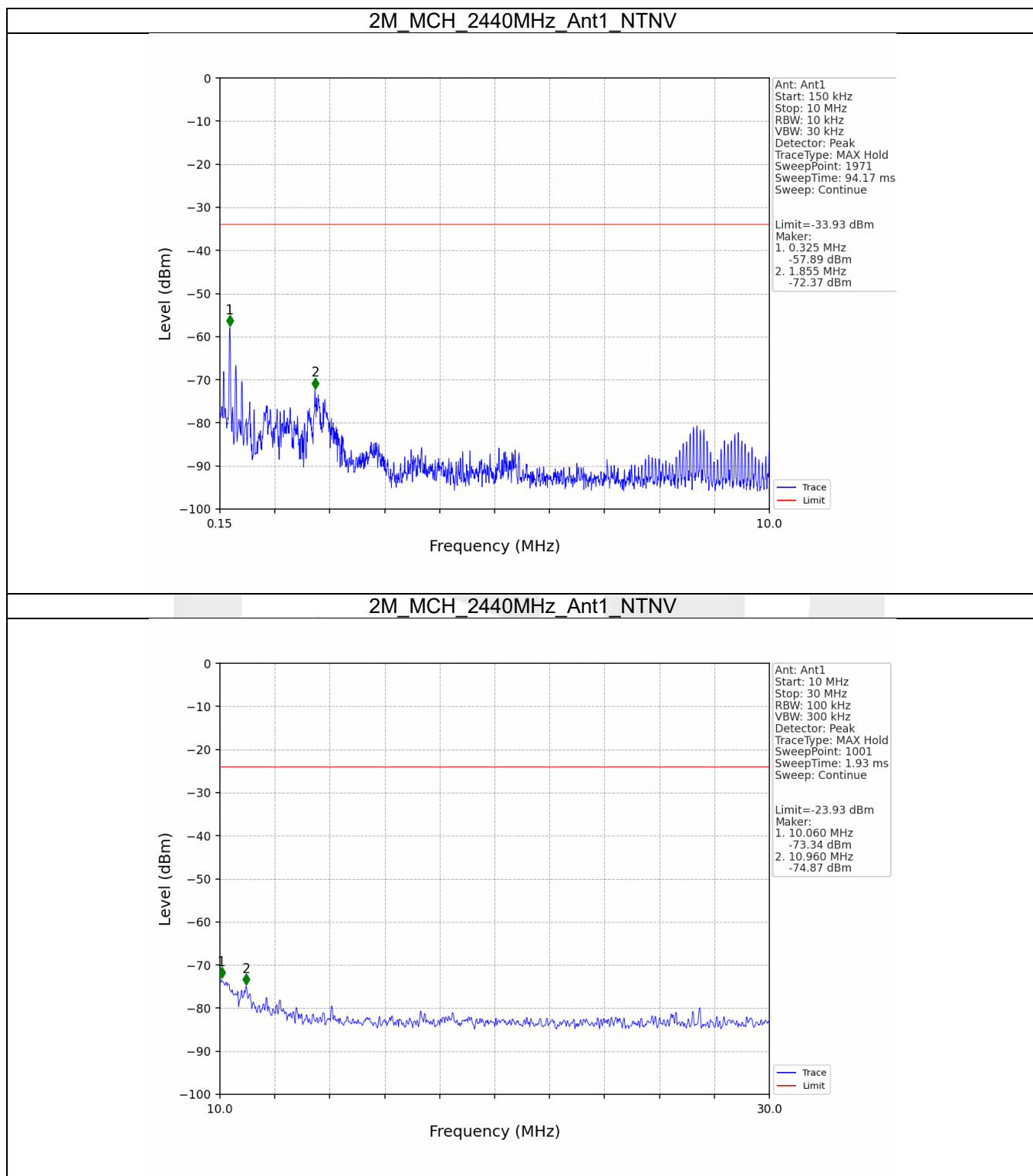


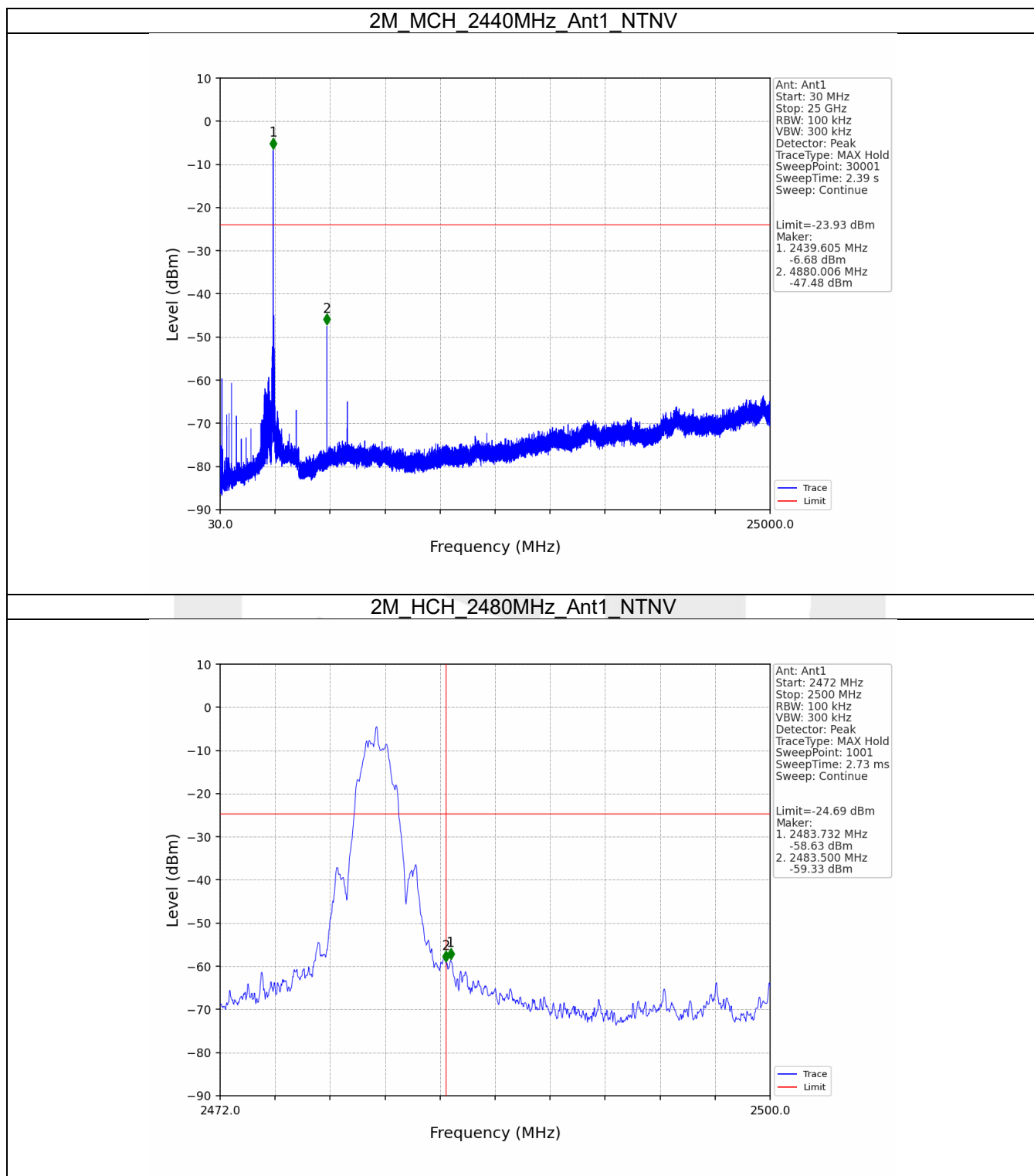


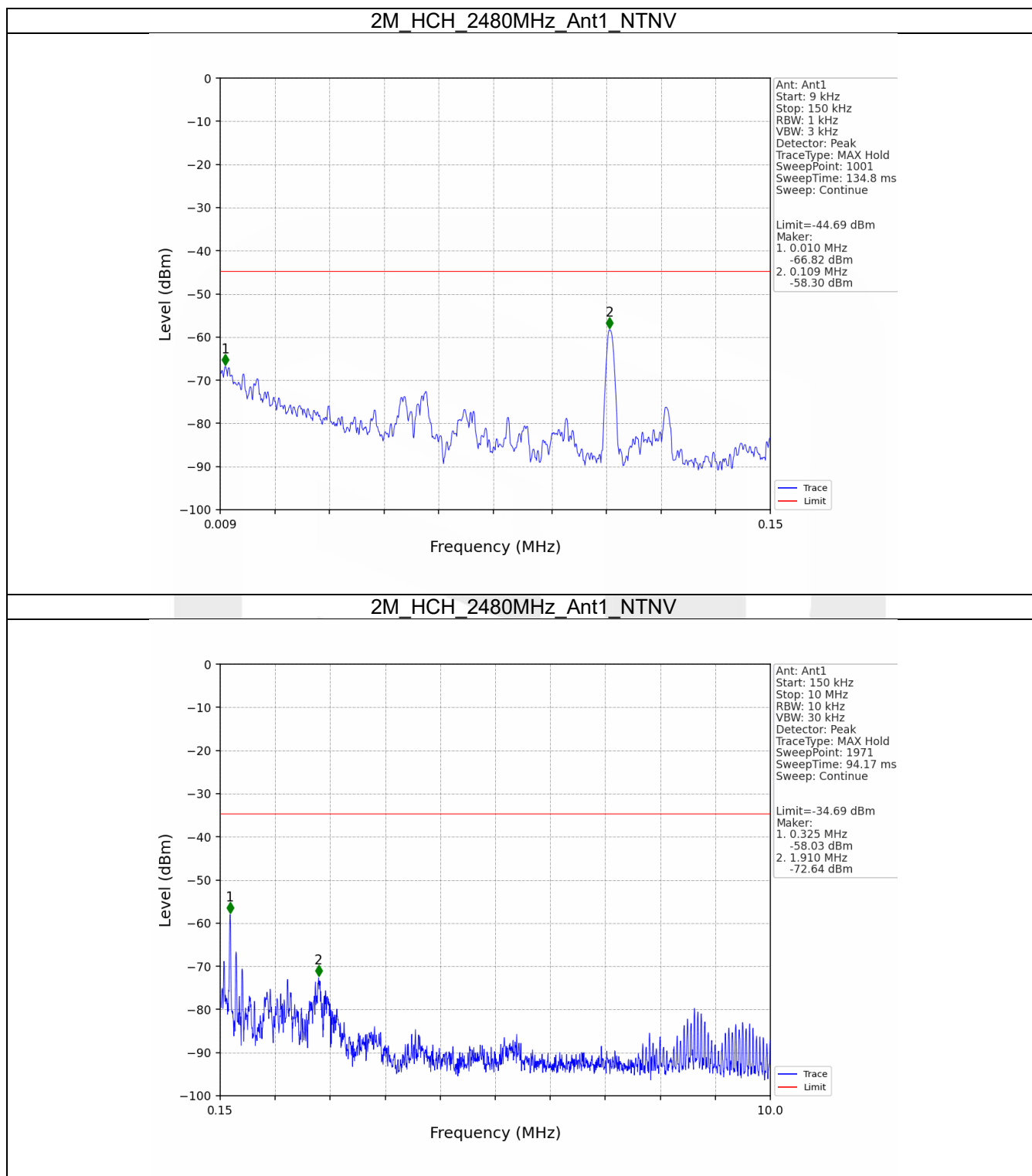


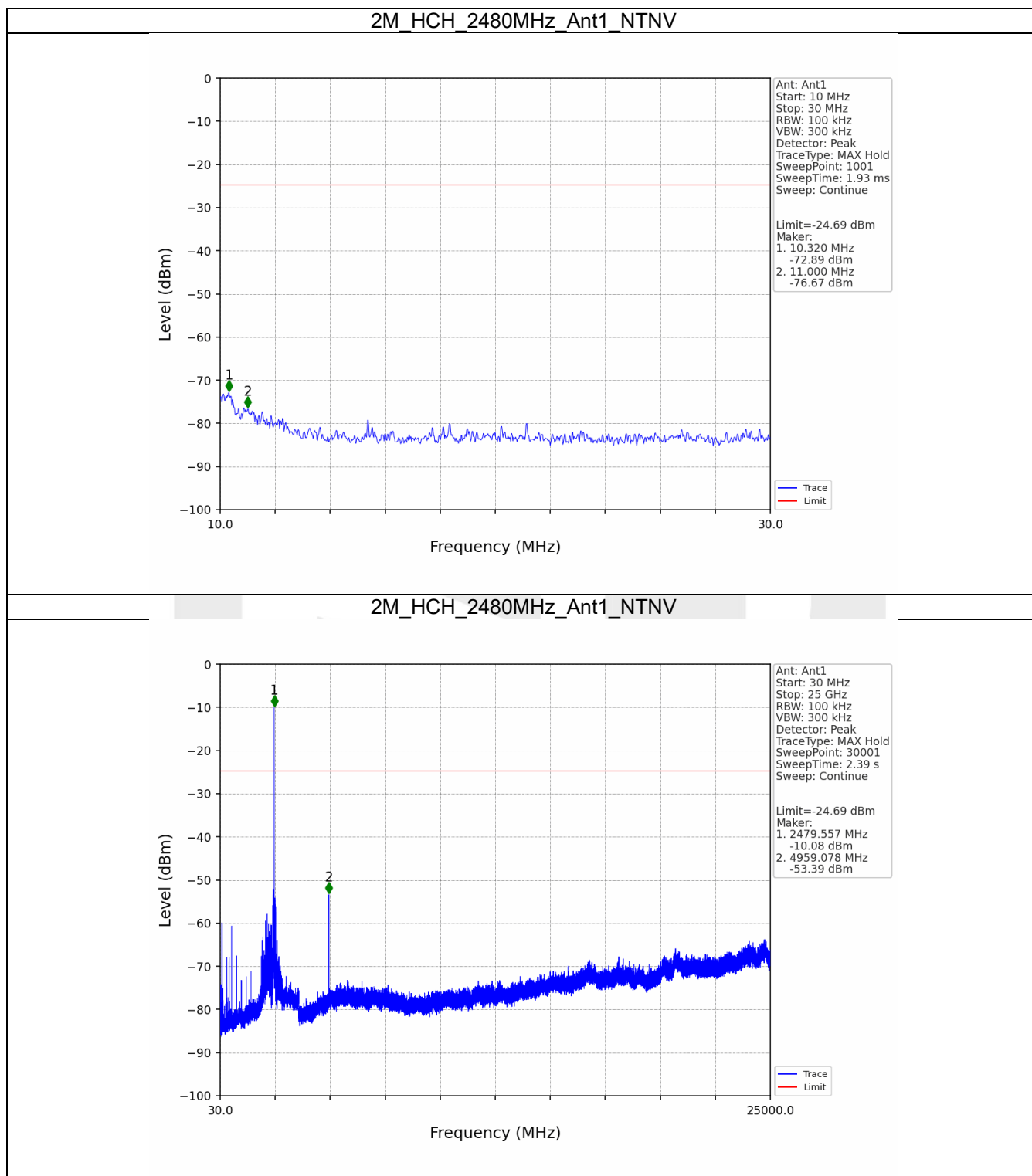










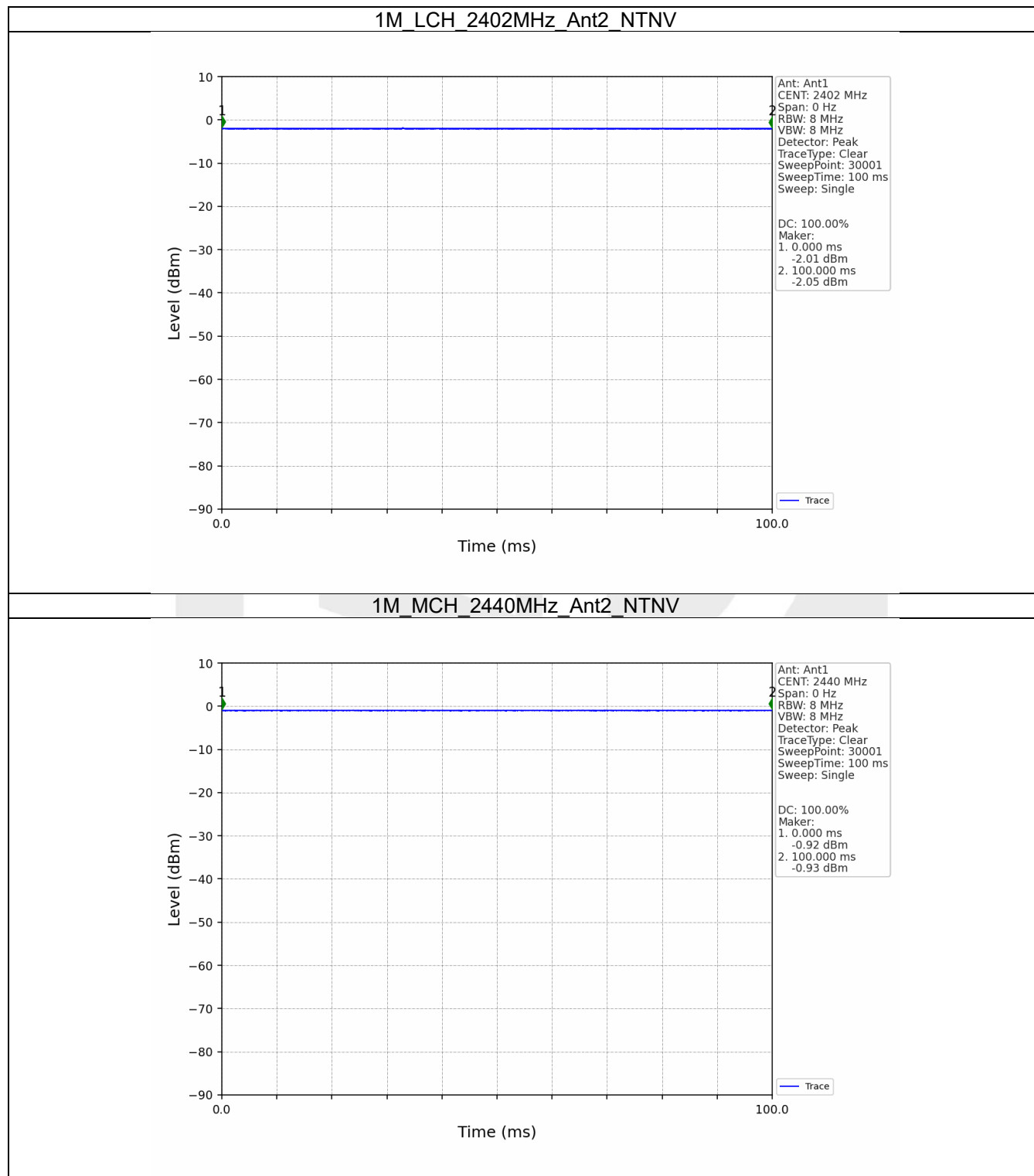


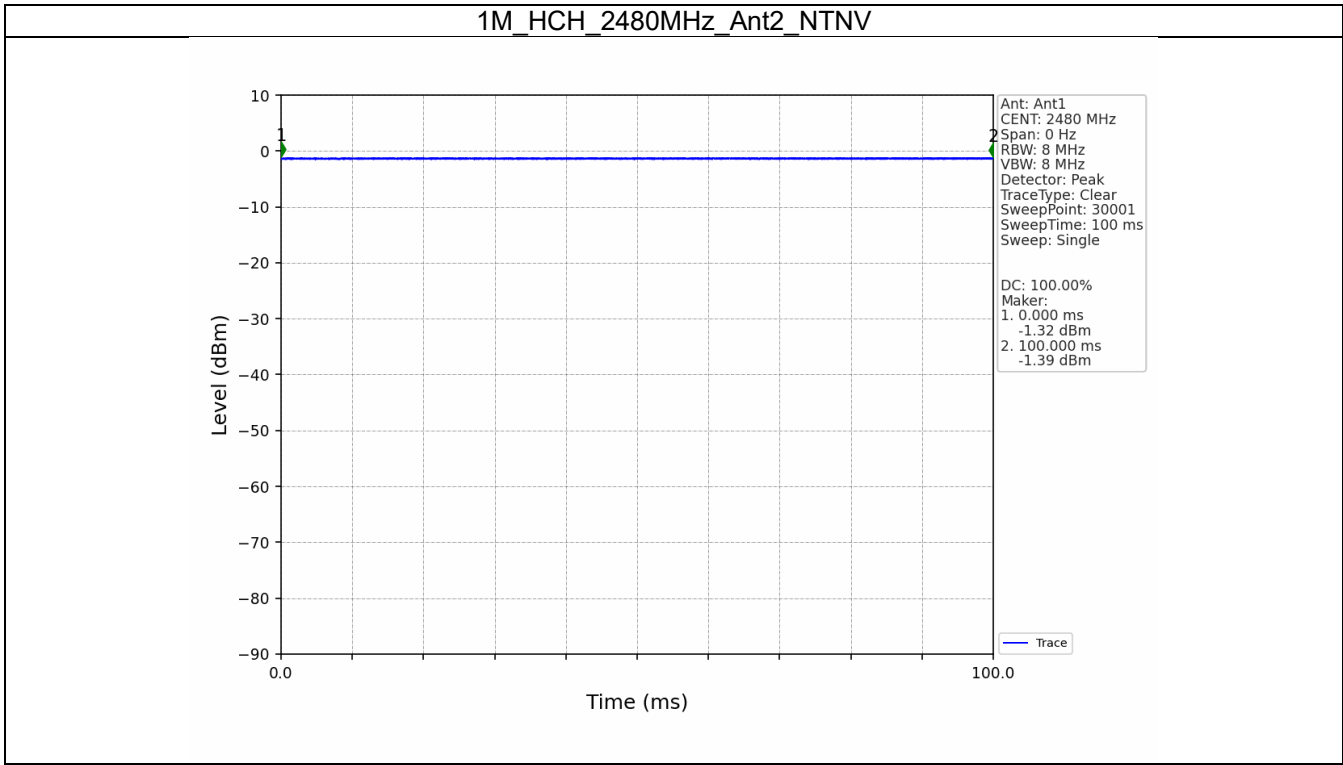
BLE 2 (for chip FR5086D)
1. Duty Cycle
1.1 Test Result
1.1.1 Ant2

Ant2							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
1M	SISO	2402	100.000	100.000	100.00	0.00	0.00
		2440	100.000	100.000	100.00	0.00	0.00
		2480	100.000	100.000	100.00	0.00	0.00

1.2 Test Graph

1.2.1 Ant2





2. Bandwidth

2.1 Test Result

2.1.1 OBW

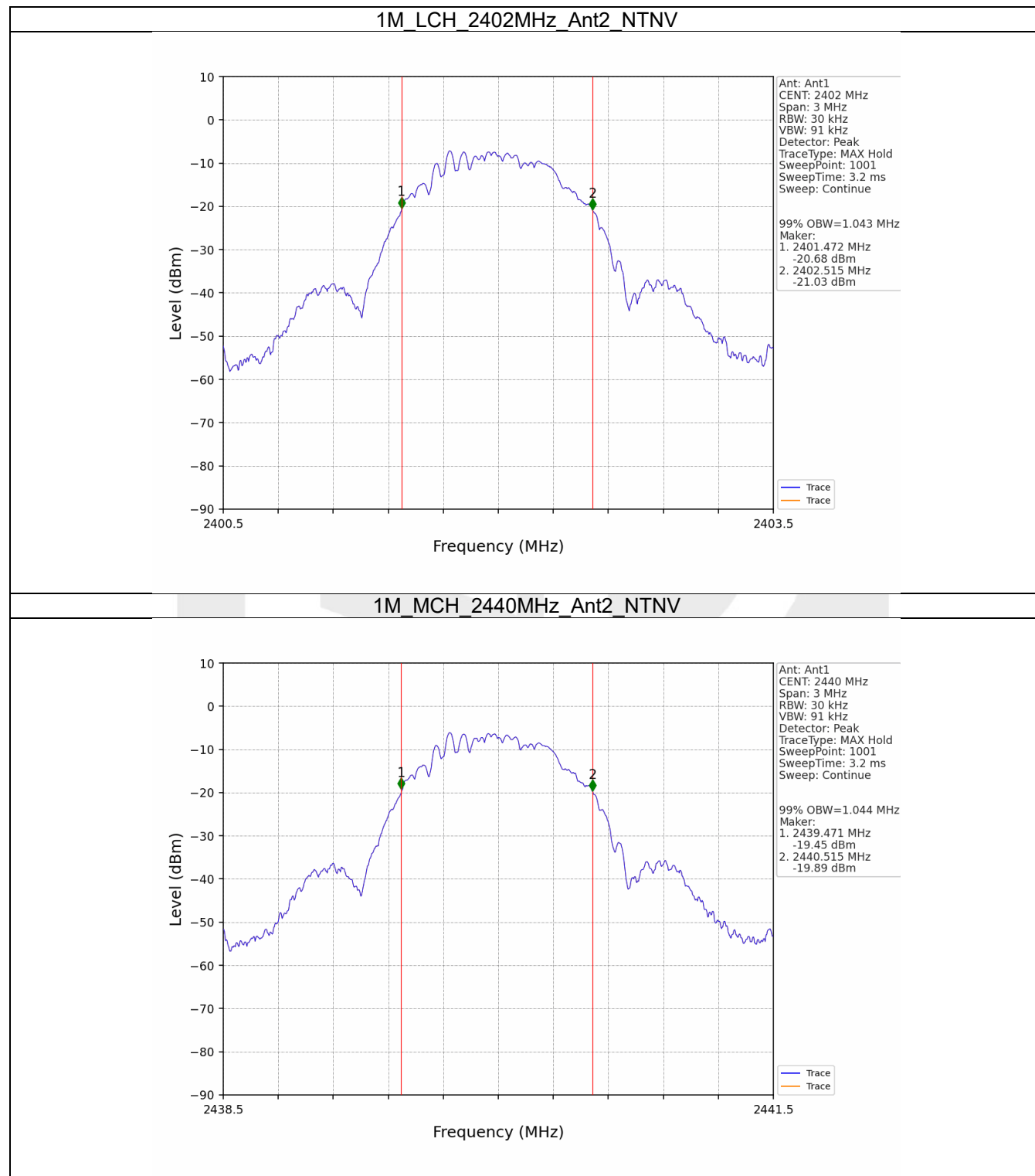
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	1.043	/	Pass
		2440	1	1.044	/	Pass
		2480	1	1.043	/	Pass

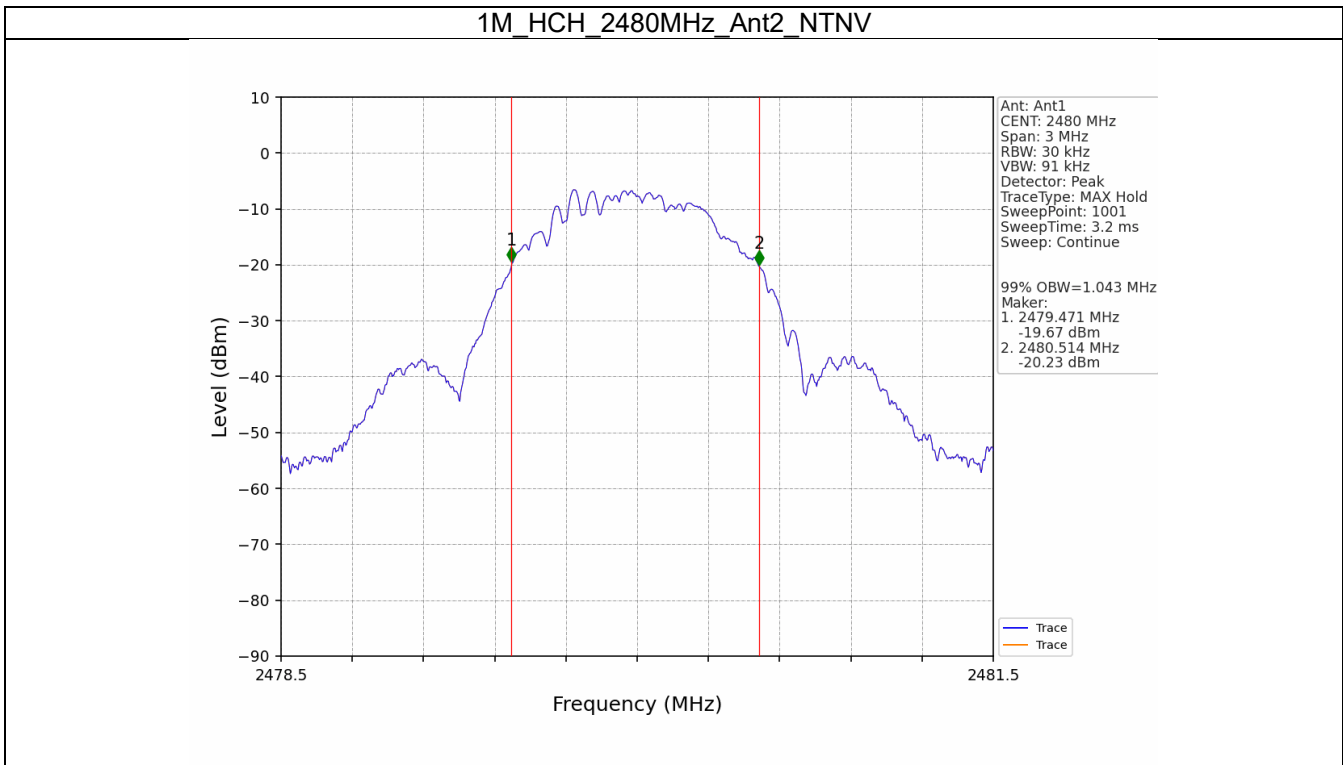
2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	0.712	≥ 0.5	Pass
		2440	1	0.715	≥ 0.5	Pass
		2480	1	0.716	≥ 0.5	Pass

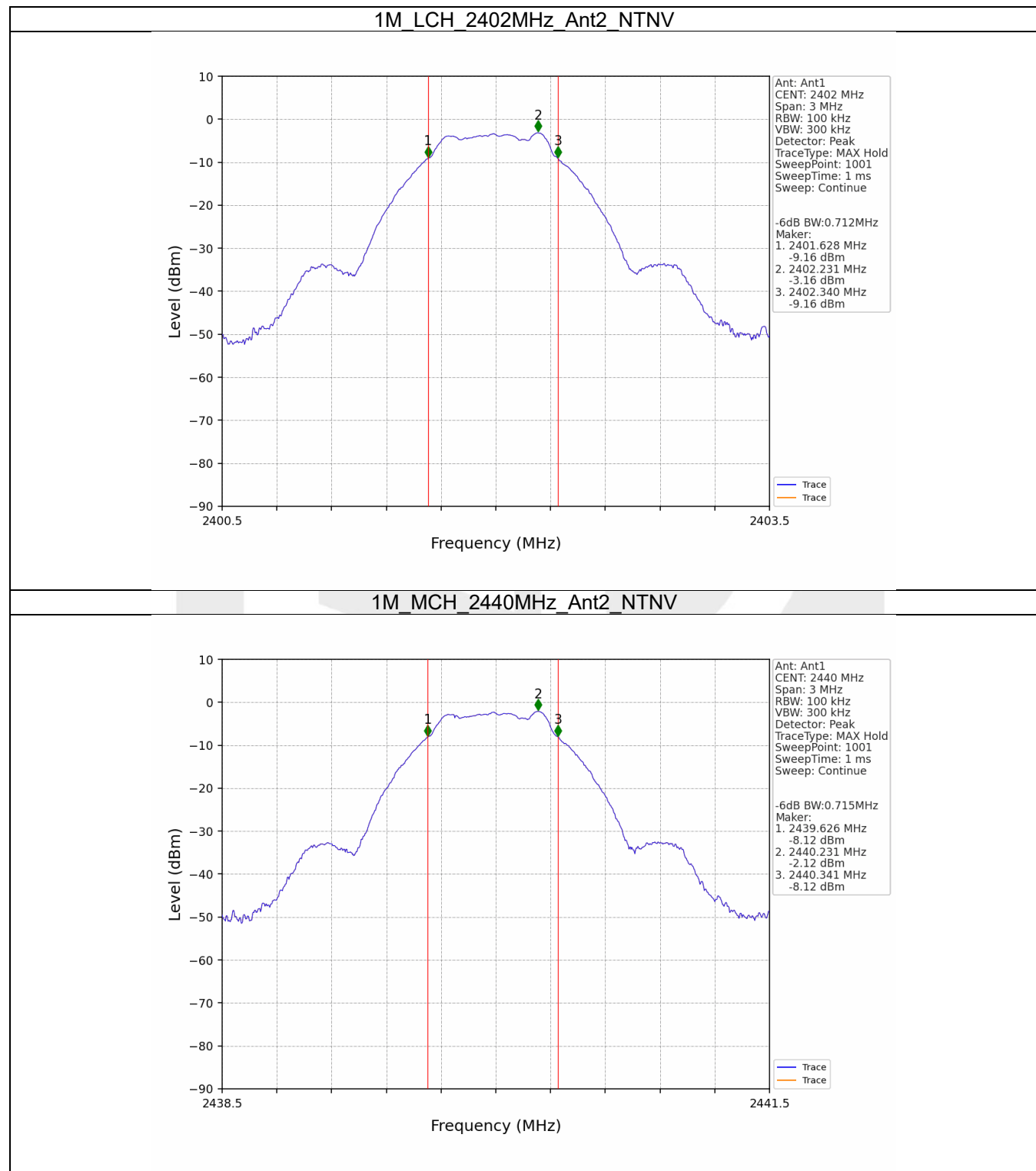
2.2 Test Graph

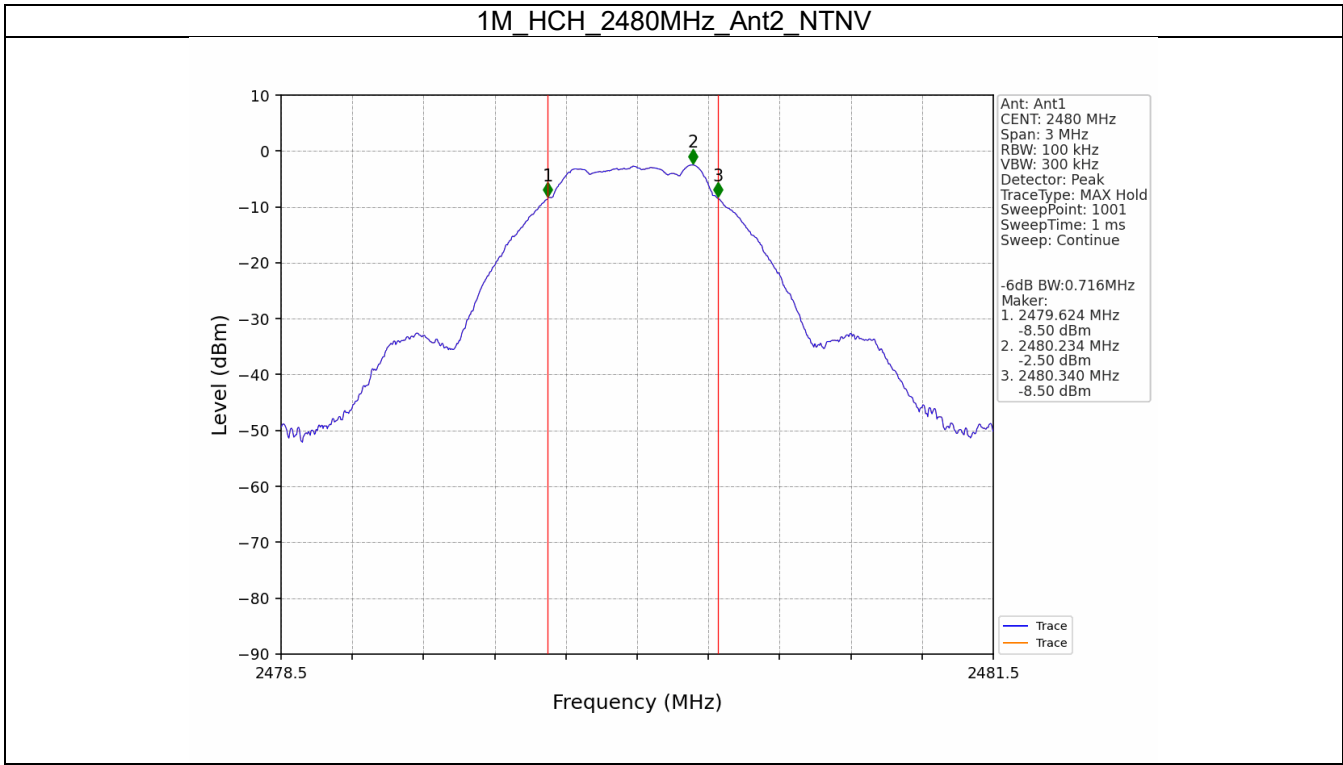
2.2.1 OBW





2.2.2 6dB BW





3. Maximum Conducted Output Power

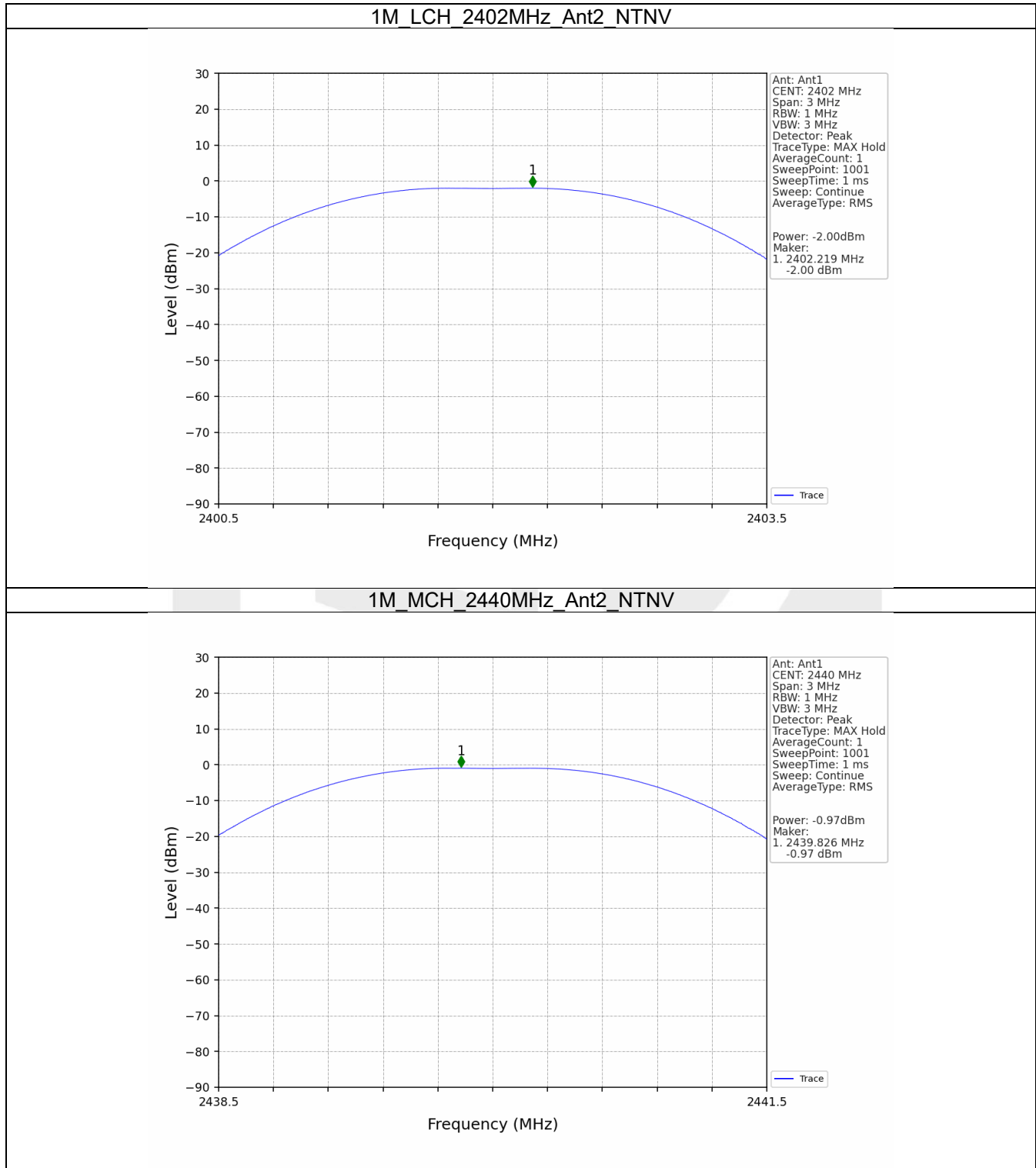
3.1 Test Result

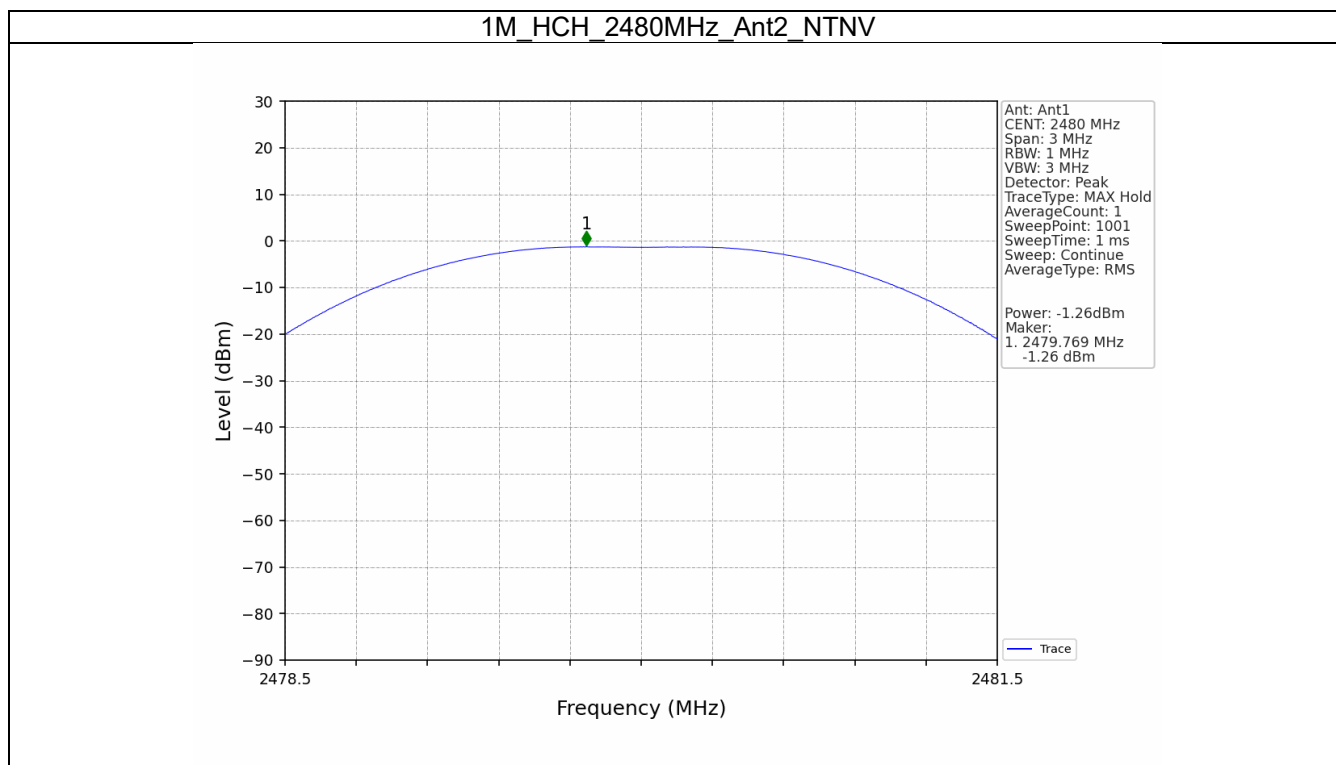
3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
1M	SISO	2402	-2.00	<=30	Pass
		2440	-0.97	<=30	Pass
		2480	-1.26	<=30	Pass
Note1: Antenna Gain: Ant2: 2.67dBi;					

3.2 Test Graph

3.2.1 Power





4. Maximum Power Spectral Density

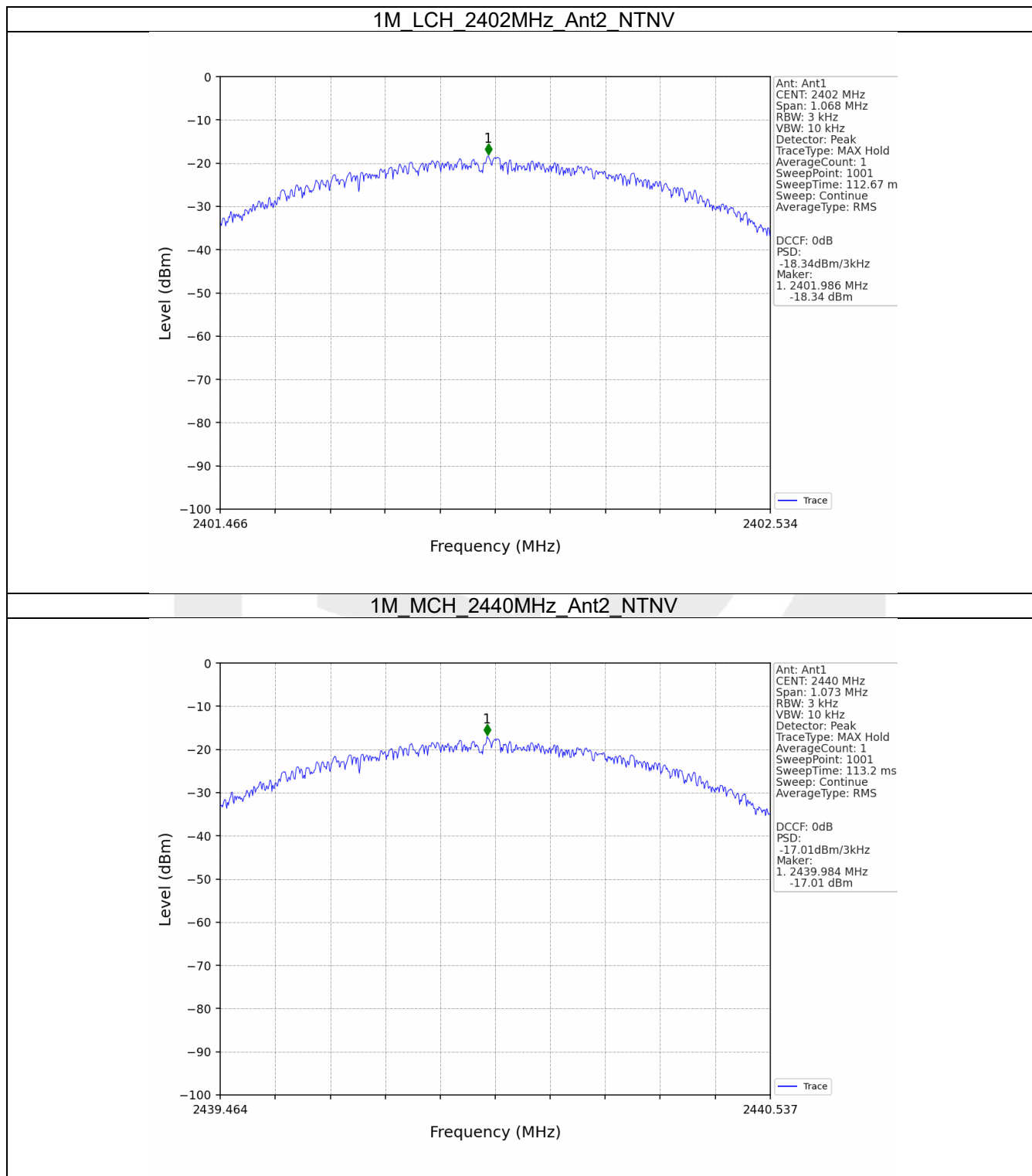
4.1 Test Result

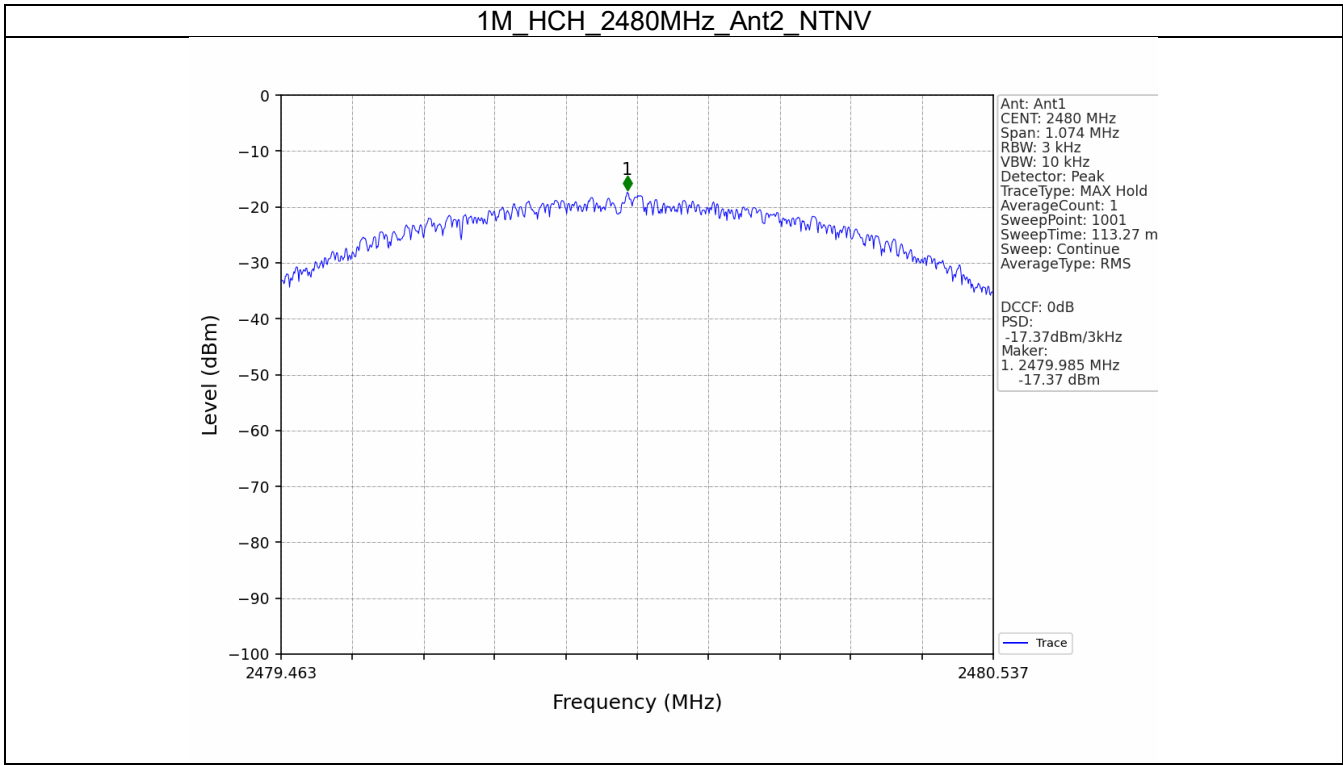
4.1.1 PSD

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
1M	SISO	2402	-18.34	<=8	Pass
		2440	-17.01	<=8	Pass
		2480	-17.37	<=8	Pass
Note1: Antenna Gain: Ant2: 2.67dBi:					

4.2 Test Graph

4.2.1 PSD





5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Test Result

5.1.1 Ref

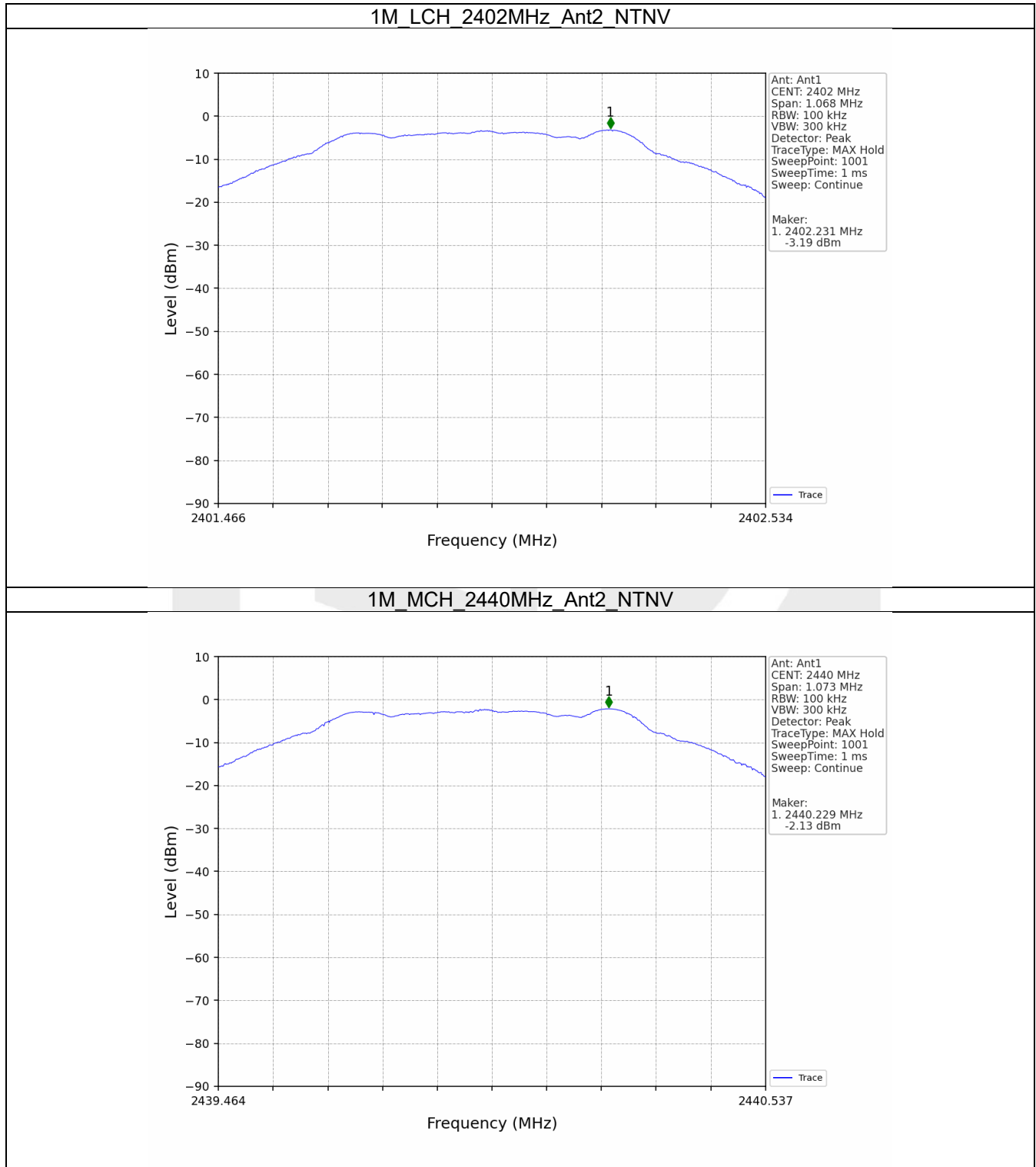
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
1M	SISO	2402	1	-3.19
		2440	1	-2.13
		2480	1	-2.51
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.				

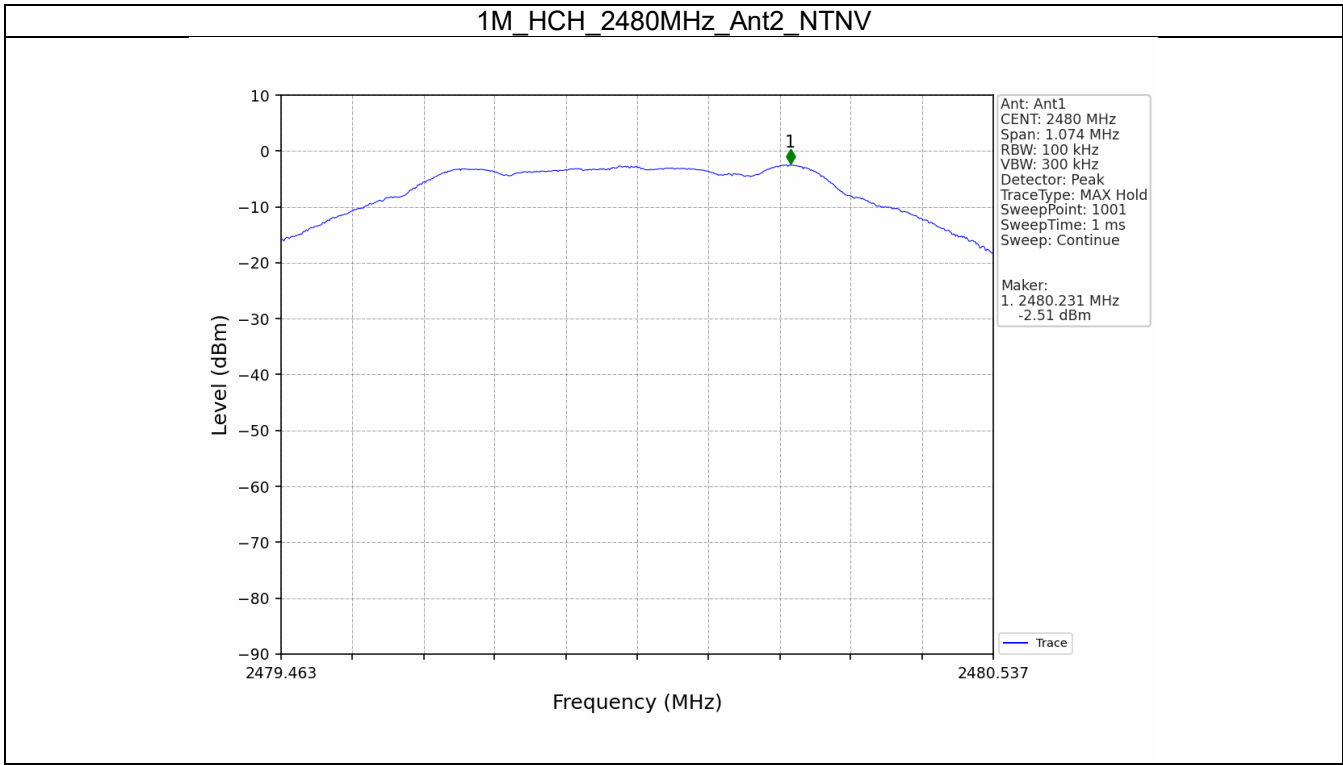
5.1.2 CSE

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
1M	SISO	2402	1	-3.19	-23.19	Pass
		2440	1	-2.13	-22.13	Pass
		2480	1	-2.51	-22.51	Pass
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.						

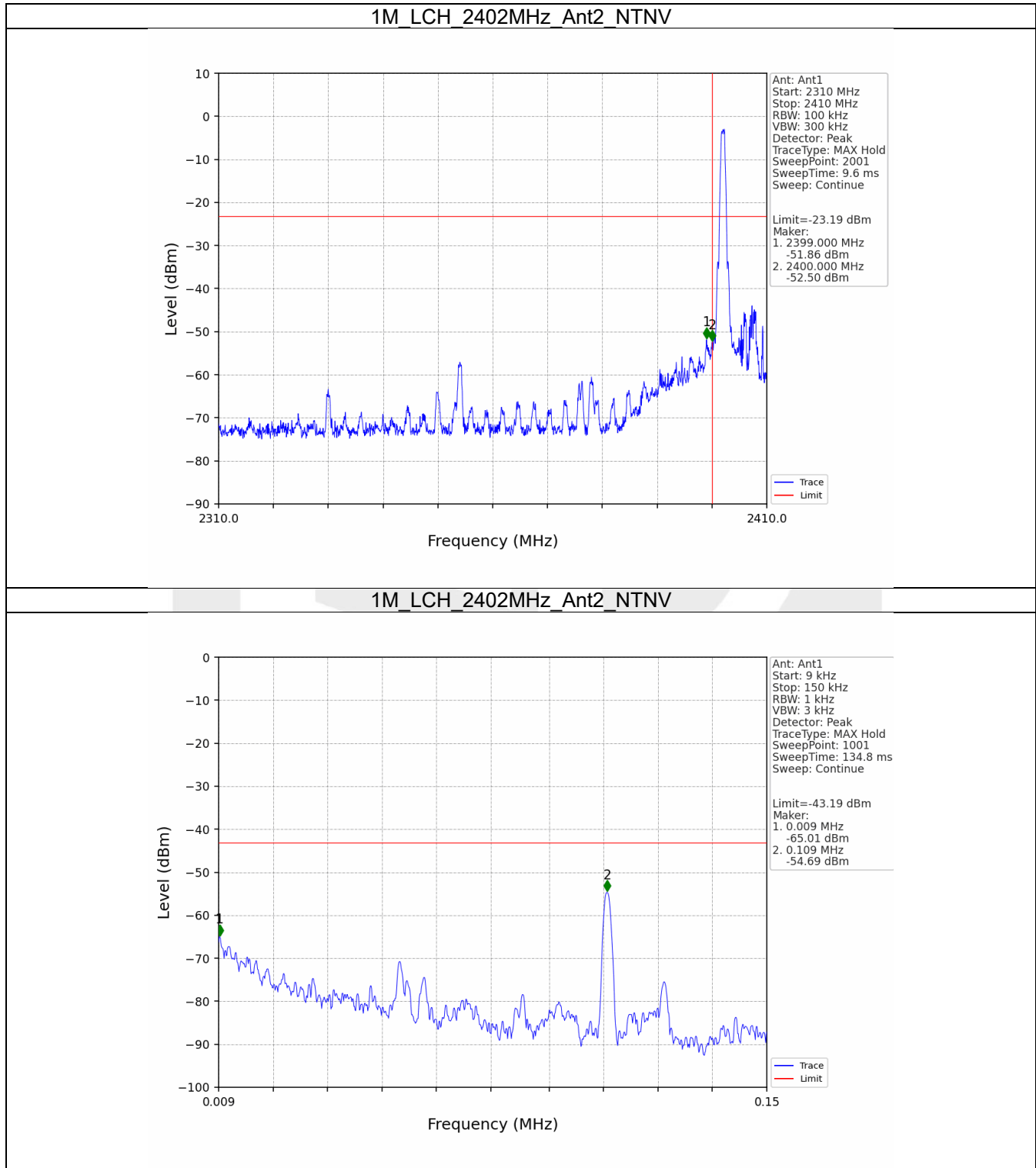
5.2 Test Graph

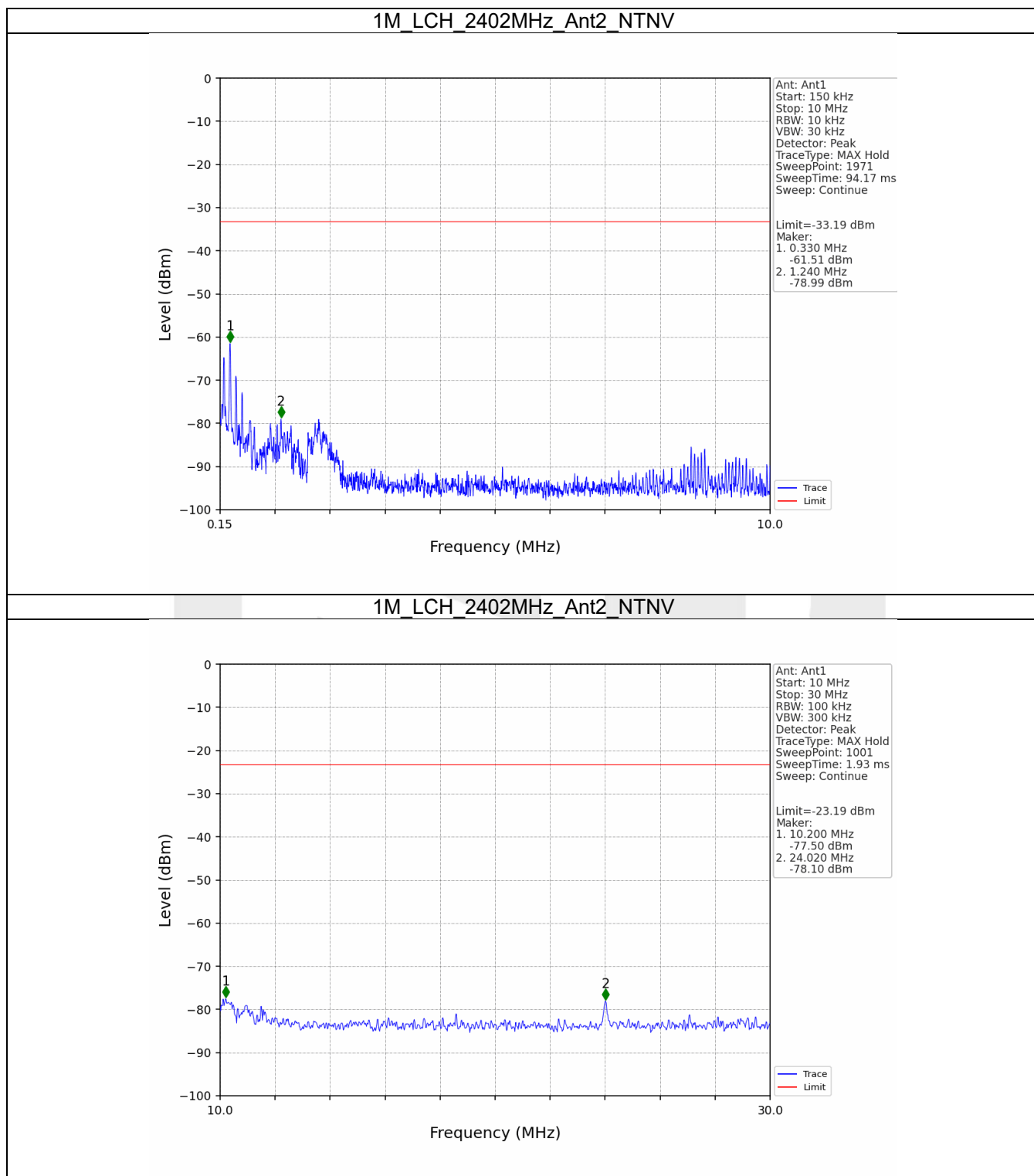
5.2.1 Ref

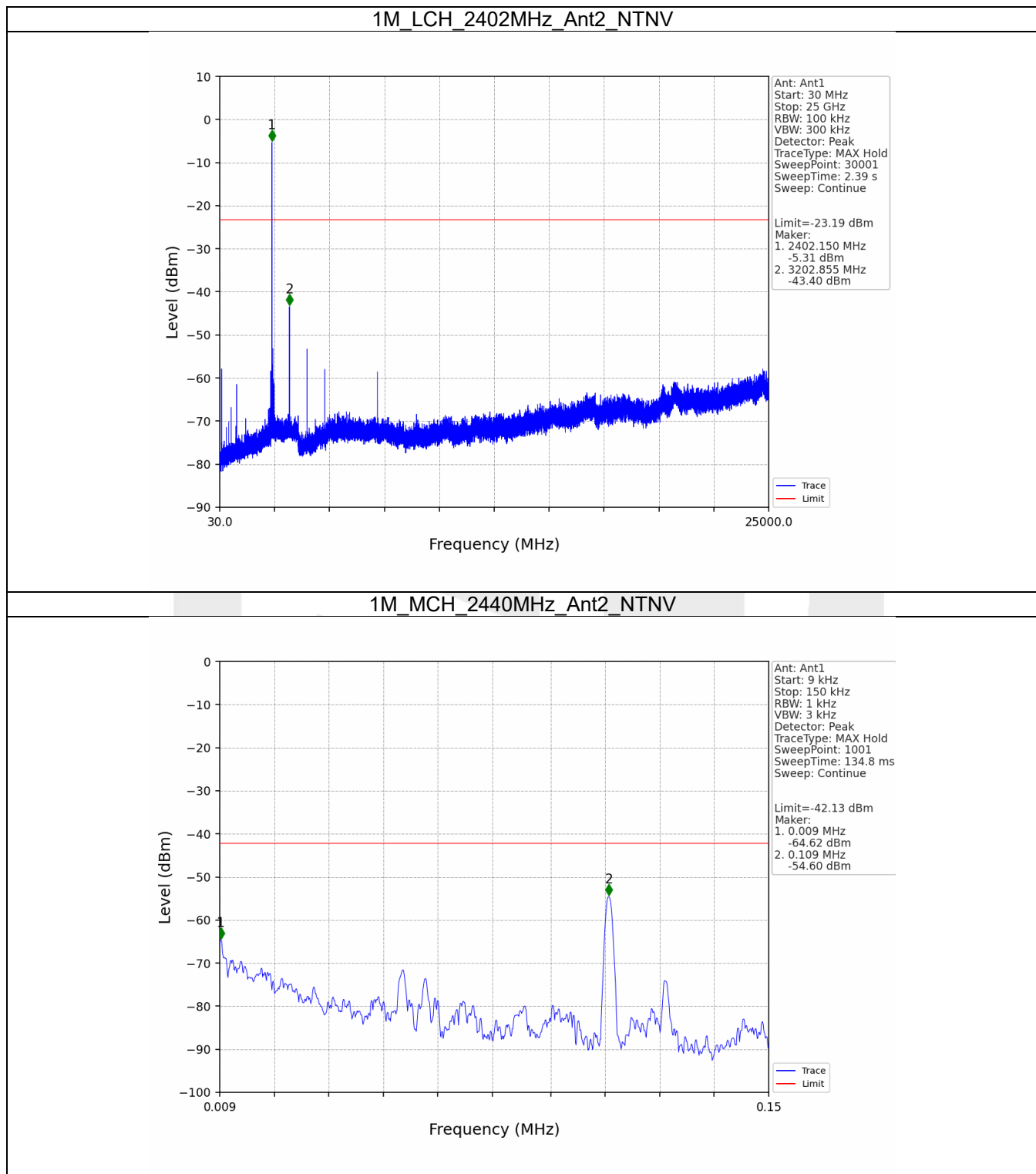


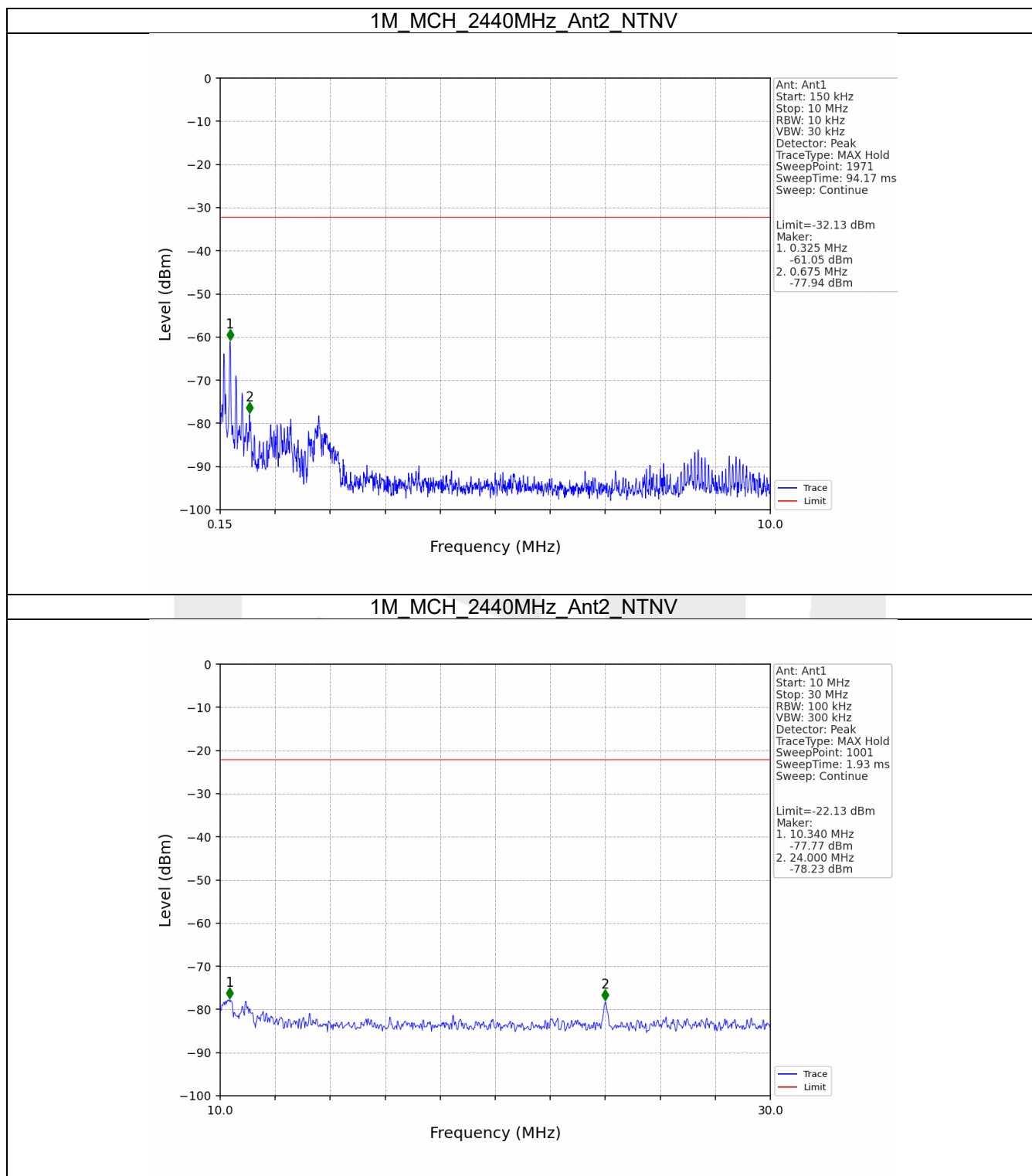


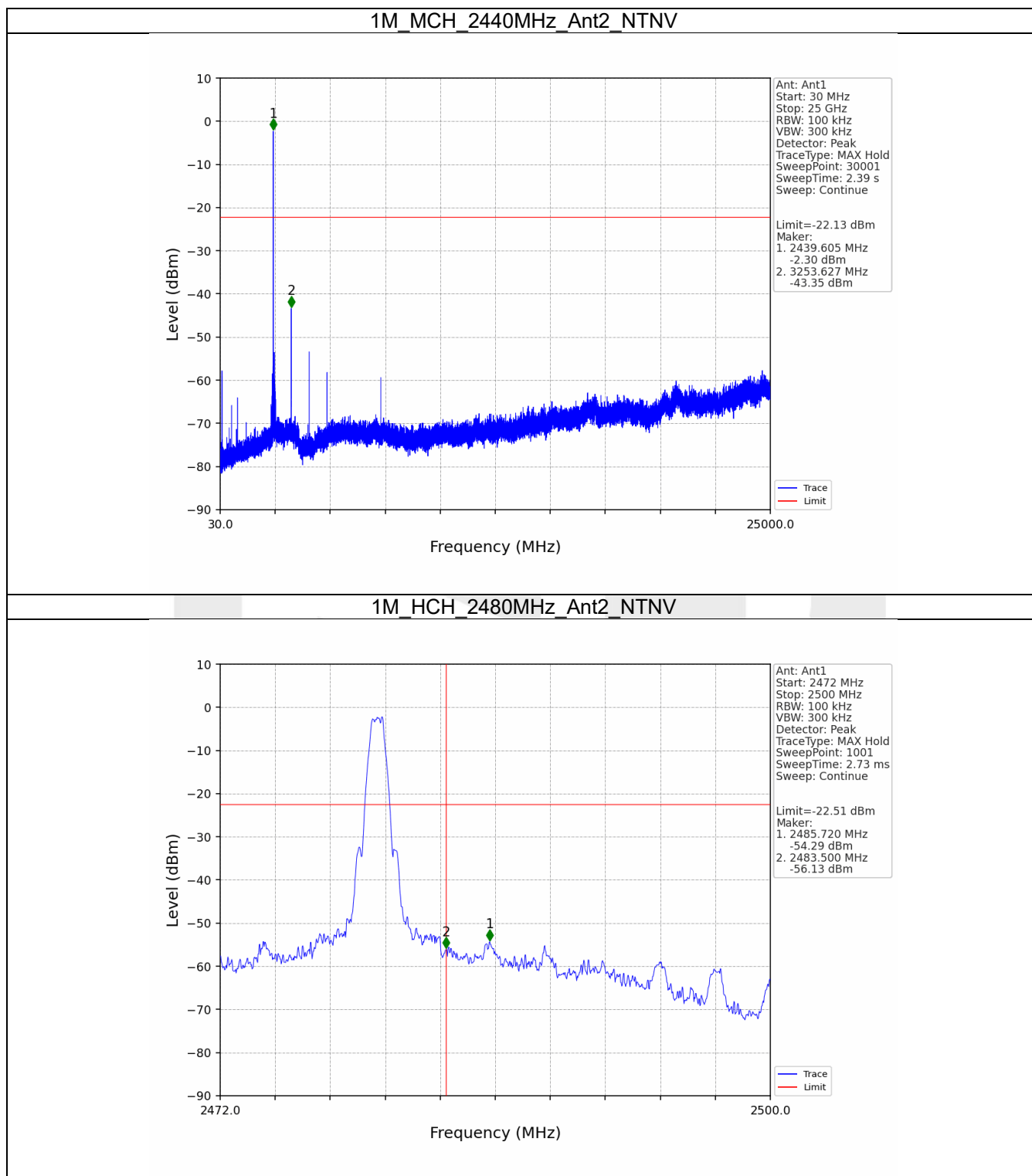
5.2.2 CSE

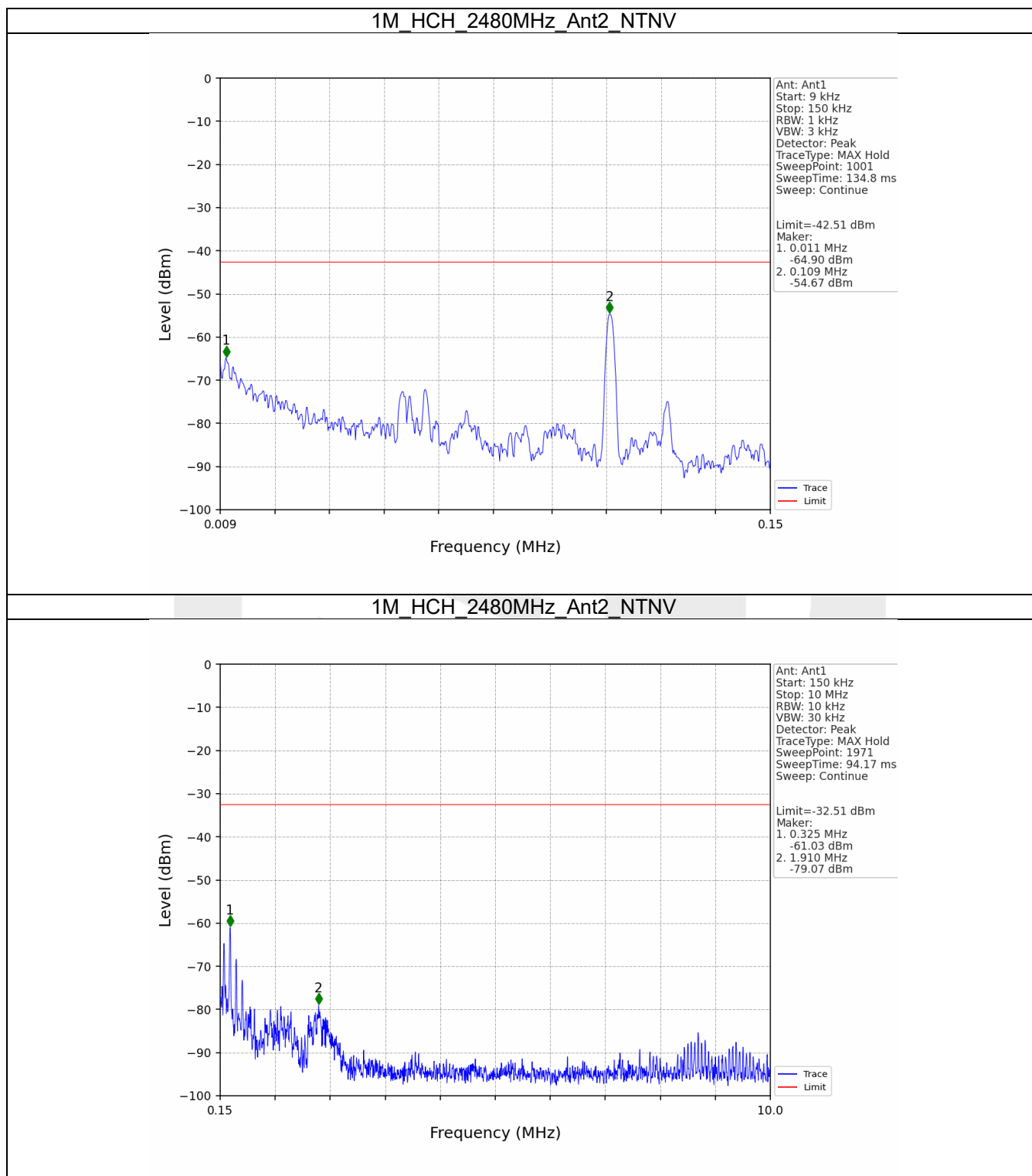


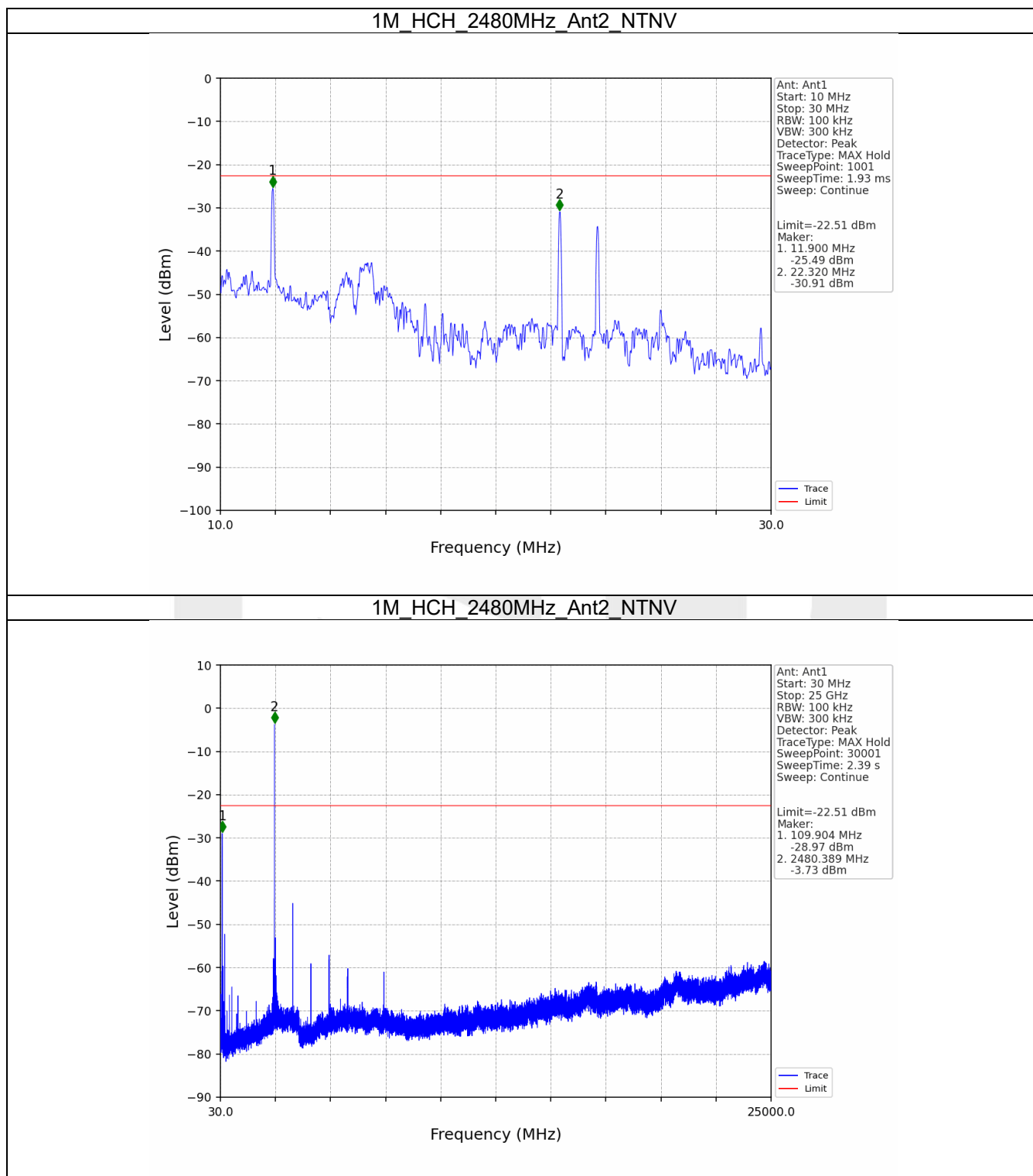












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