

ANNEX E TEST DATA

For

Project No.:	8236EU012404W
Client:	Shenzhen Free Dynamics Development Co., Ltd.
Product Name:	Robot Vacuum Cleaner
Model No.:	BR151
FCC ID:	2AT7J-BR151
Technology:	WiFi 2.4G
Test Engineer:	<i>Mikoy zhu</i>
Test Date:	2024-12-27

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



1. Duty Cycle

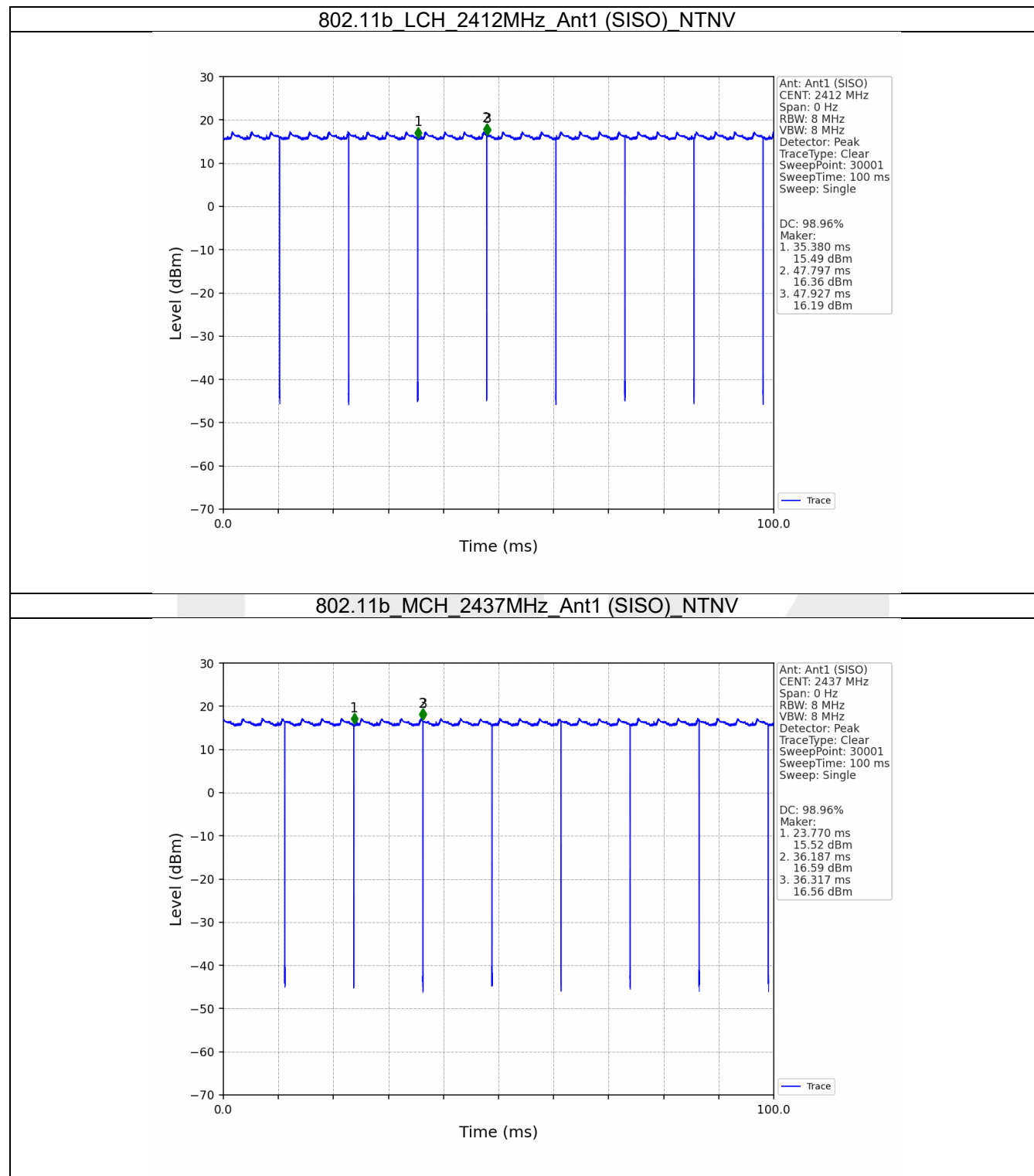
1.1 Test Result

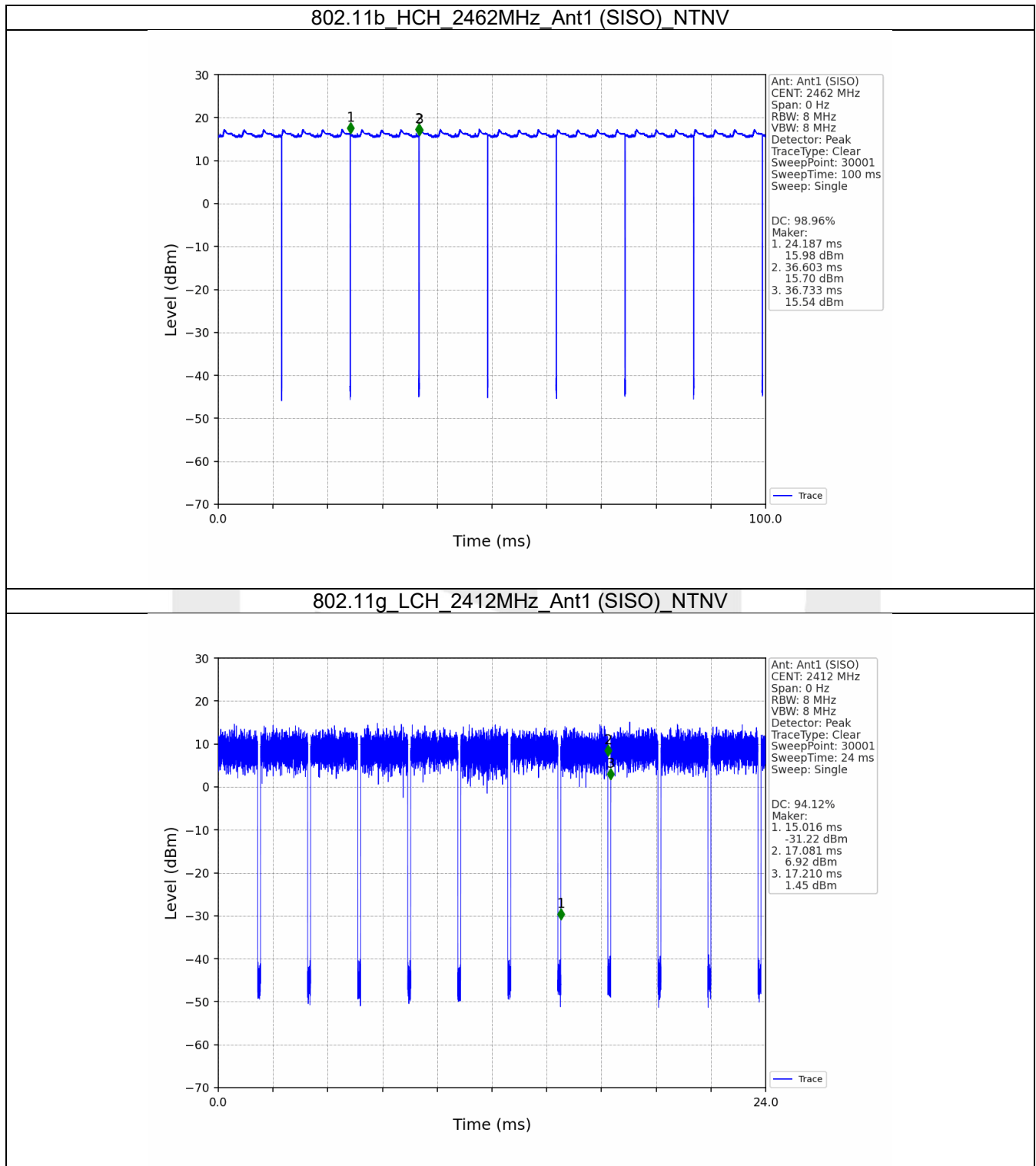
1.1.1 Ant1

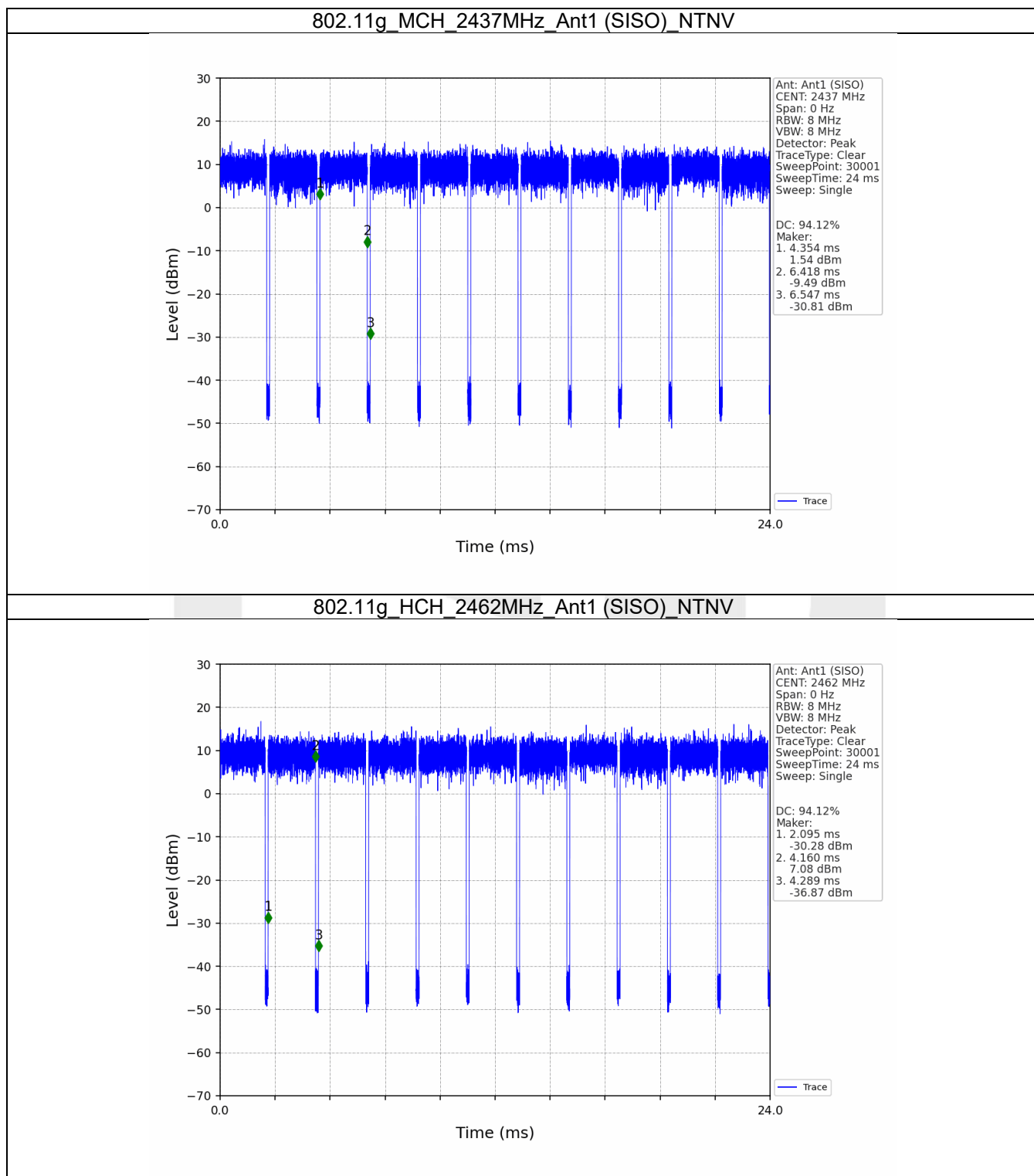
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	12.417	12.547	98.96	0.05	0.03
		2437	12.417	12.547	98.96	0.05	0.03
		2462	12.416	12.546	98.96	0.05	0.03
802.11g	SISO	2412	2.065	2.194	94.12	0.26	0.04
		2437	2.064	2.193	94.12	0.26	0.00
		2462	2.065	2.194	94.12	0.26	0.00
802.11n (HT20)	SISO	2412	1.921	2.050	93.71	0.28	0.04
		2437	1.921	2.050	93.71	0.28	0.04
		2462	1.920	2.049	93.70	0.28	0.00

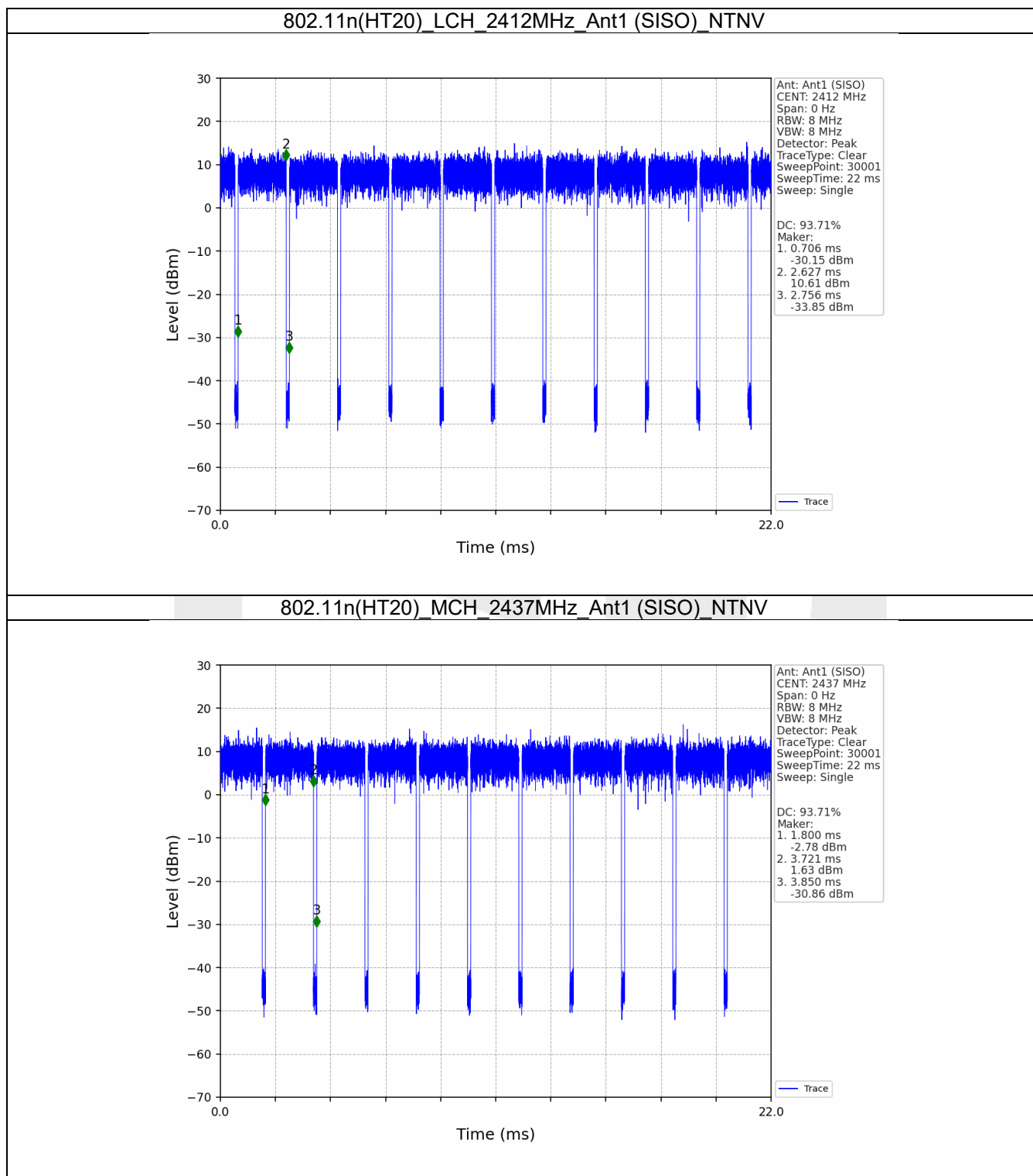
1.2 Test Graph

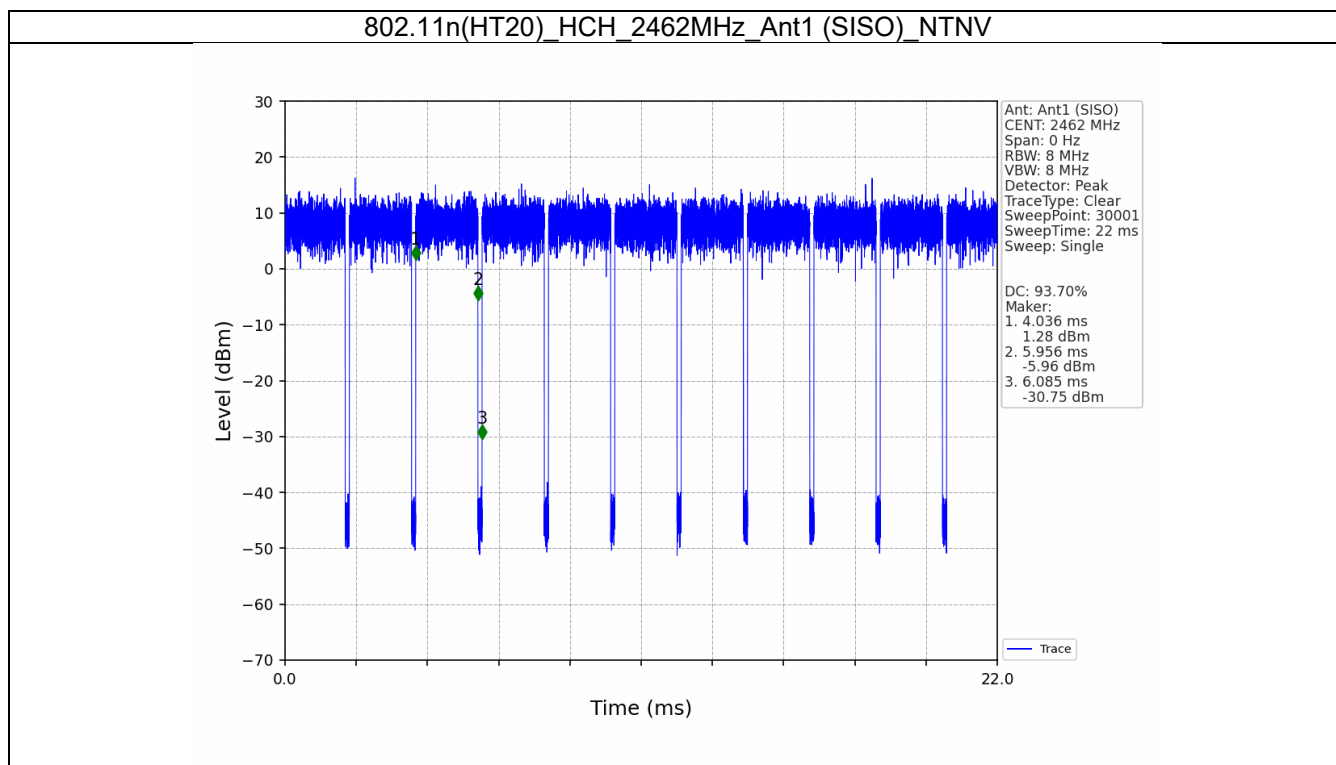
1.2.1 Ant1











2. Bandwidth

2.1 Test Result

2.1.1 OBW

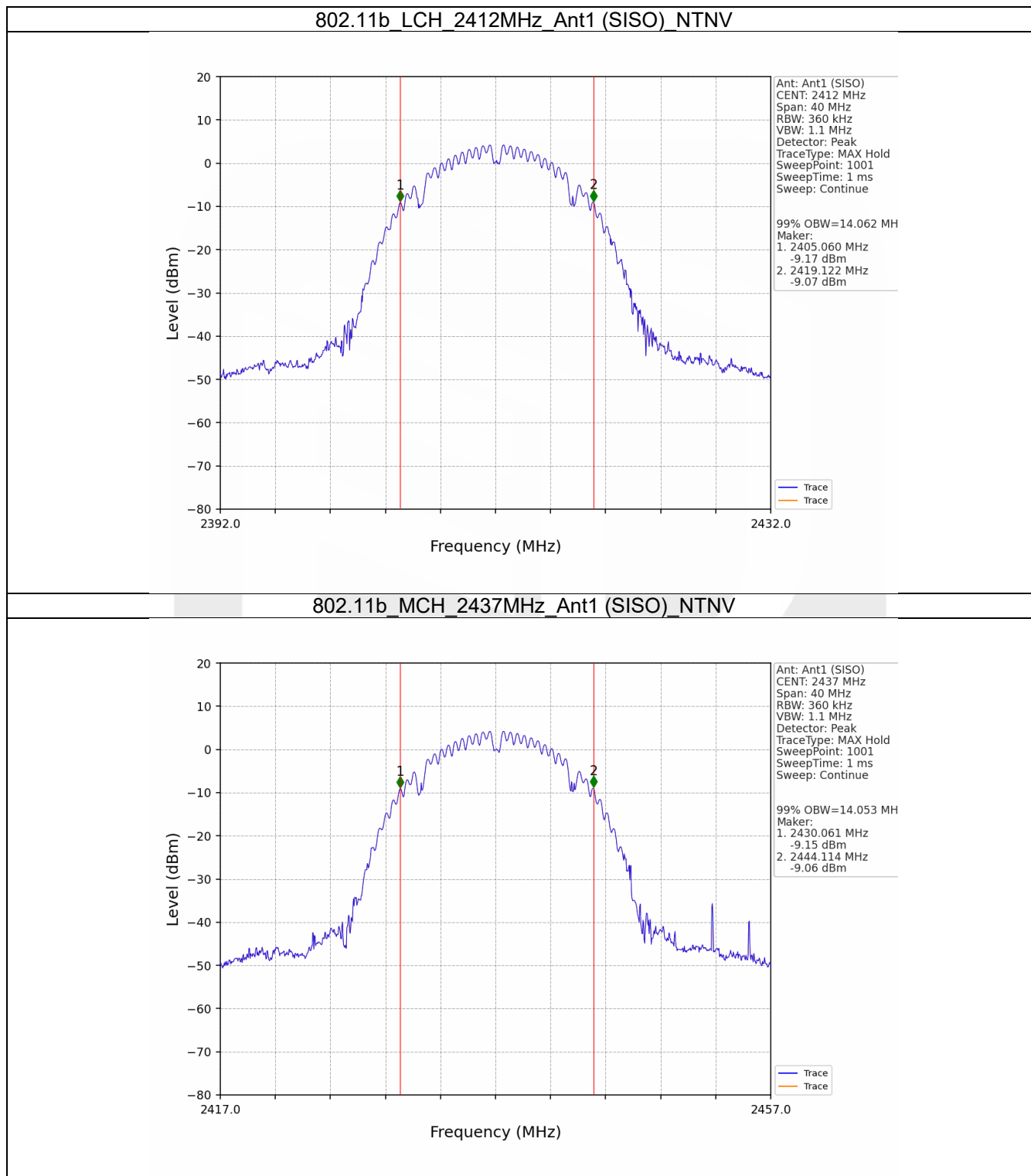
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	14.062	/	Pass
		2437	1	14.053	/	Pass
		2462	1	14.071	/	Pass
802.11g	SISO	2412	1	17.930	/	Pass
		2437	1	17.952	/	Pass
		2462	1	17.990	/	Pass
802.11n (HT20)	SISO	2412	1	18.899	/	Pass
		2437	1	18.862	/	Pass
		2462	1	18.875	/	Pass

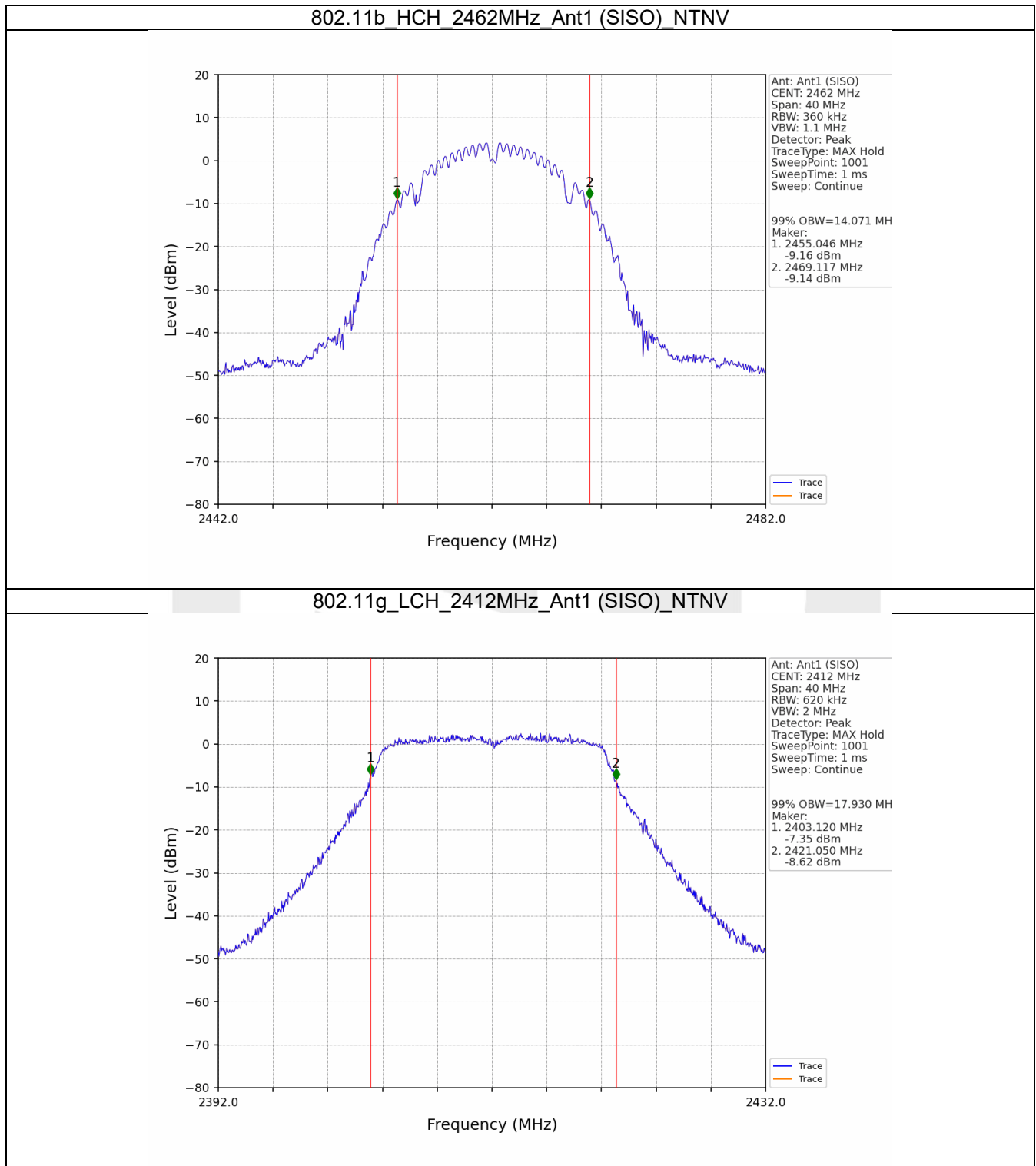
2.1.2 6dB BW

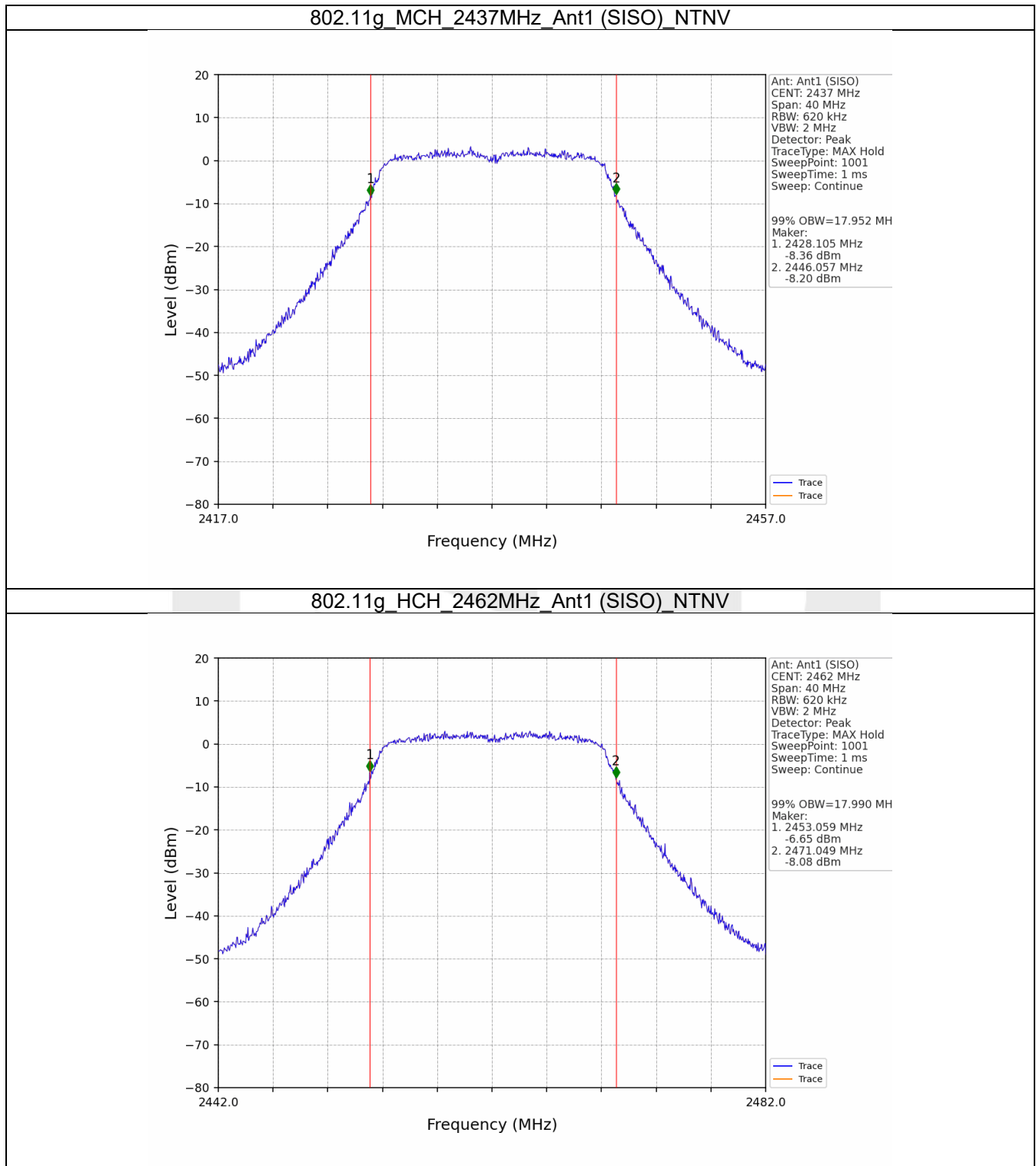
Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	9.245	≥ 0.5	Pass
		2437	1	9.247	≥ 0.5	Pass
		2462	1	9.249	≥ 0.5	Pass
802.11g	SISO	2412	1	16.573	≥ 0.5	Pass
		2437	1	16.582	≥ 0.5	Pass
		2462	1	16.477	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	17.868	≥ 0.5	Pass
		2437	1	17.786	≥ 0.5	Pass
		2462	1	17.756	≥ 0.5	Pass

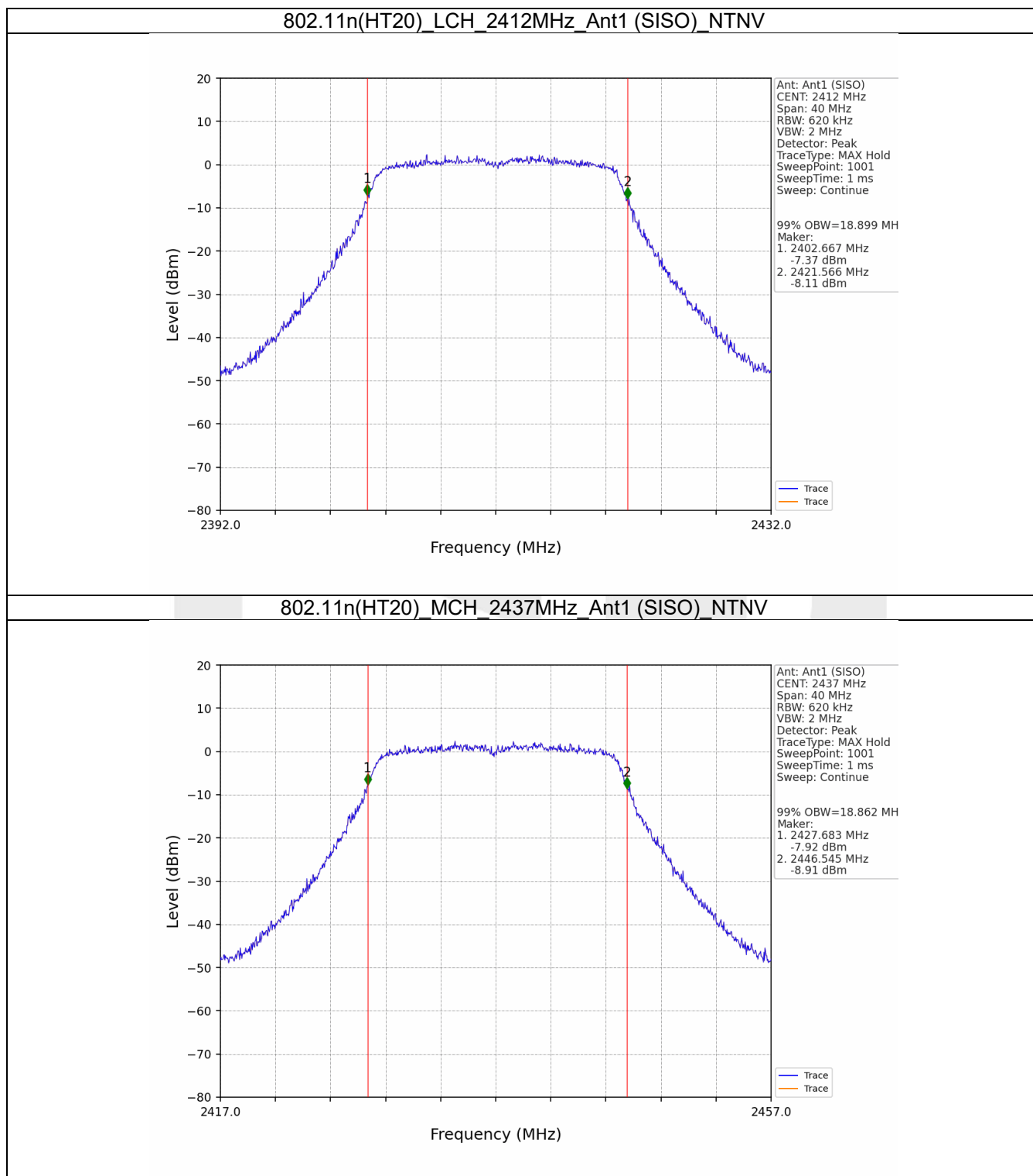
2.2 Test Graph

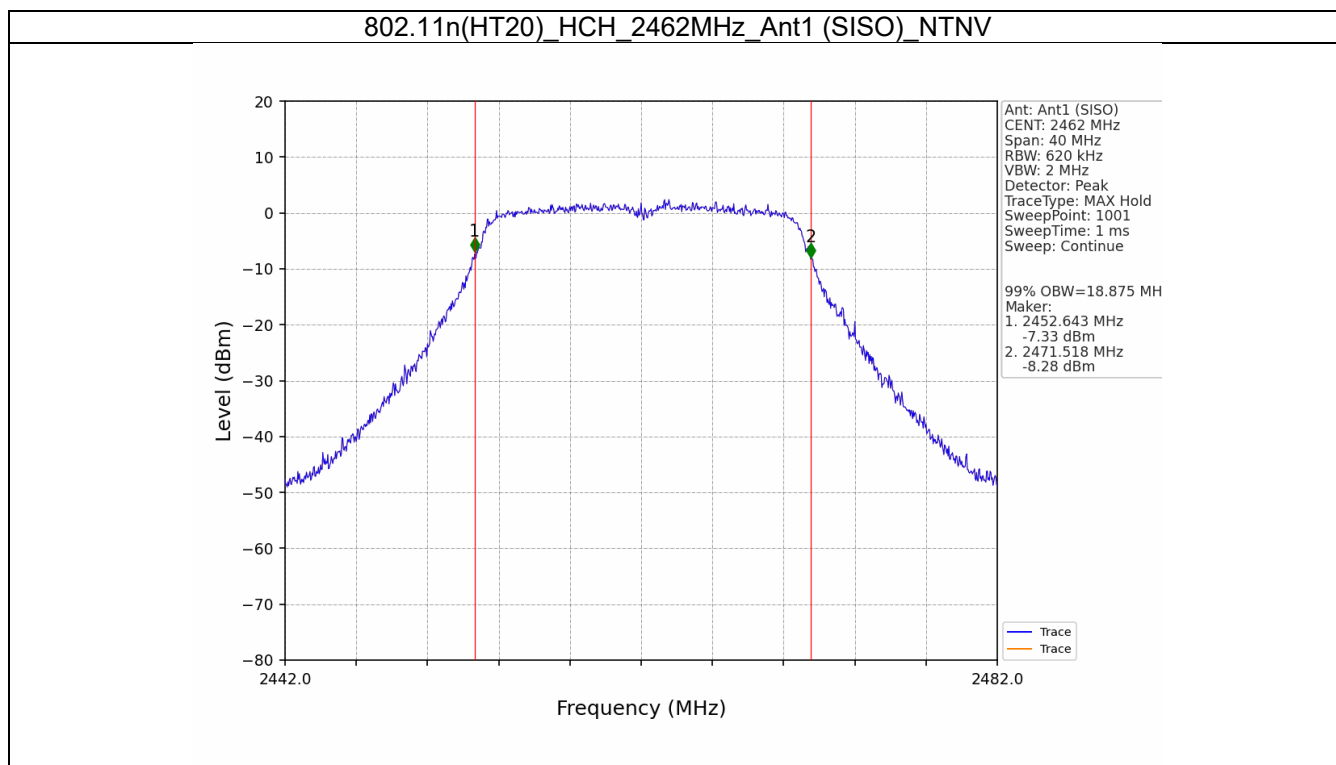
2.2.1 OBW



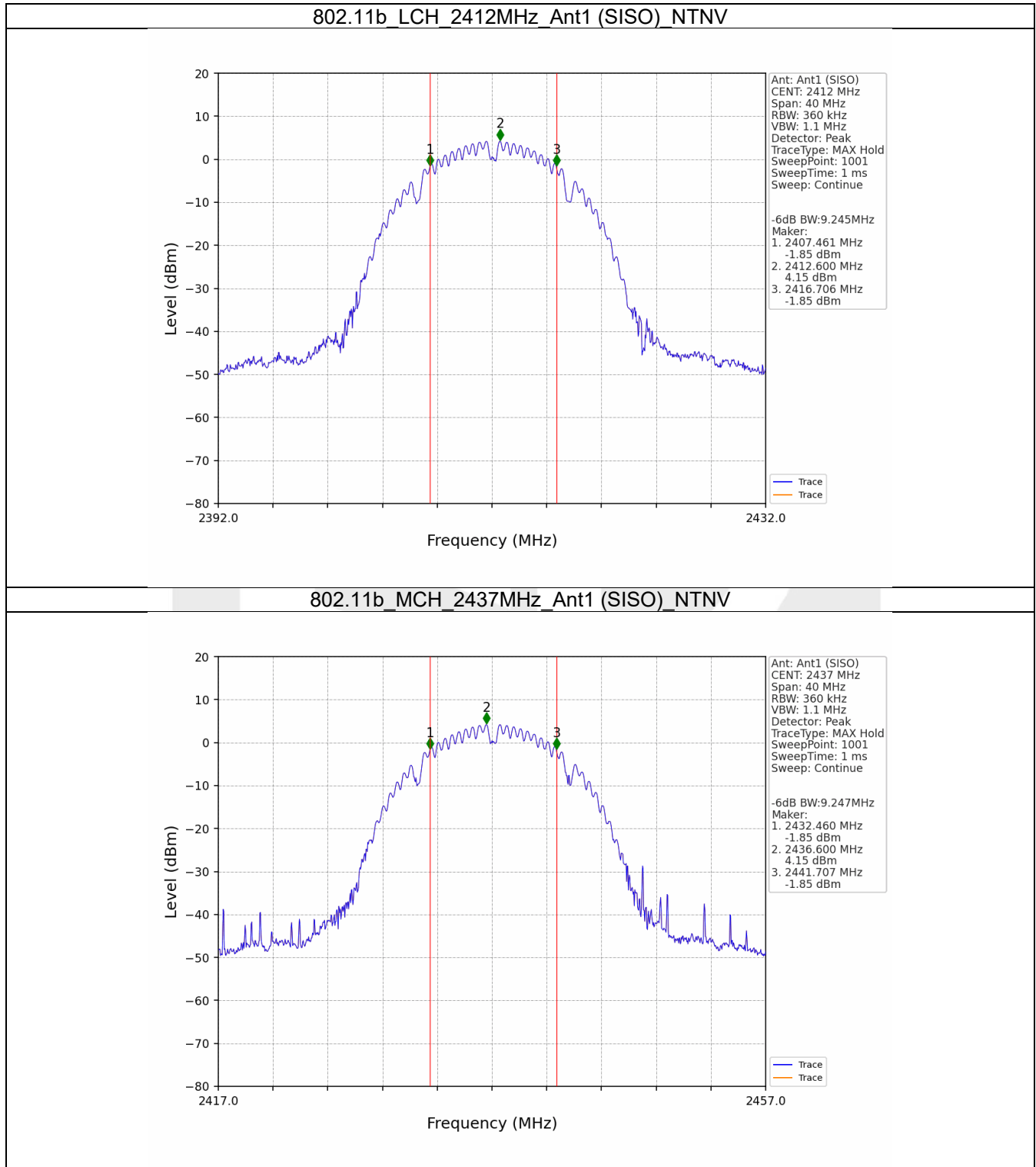


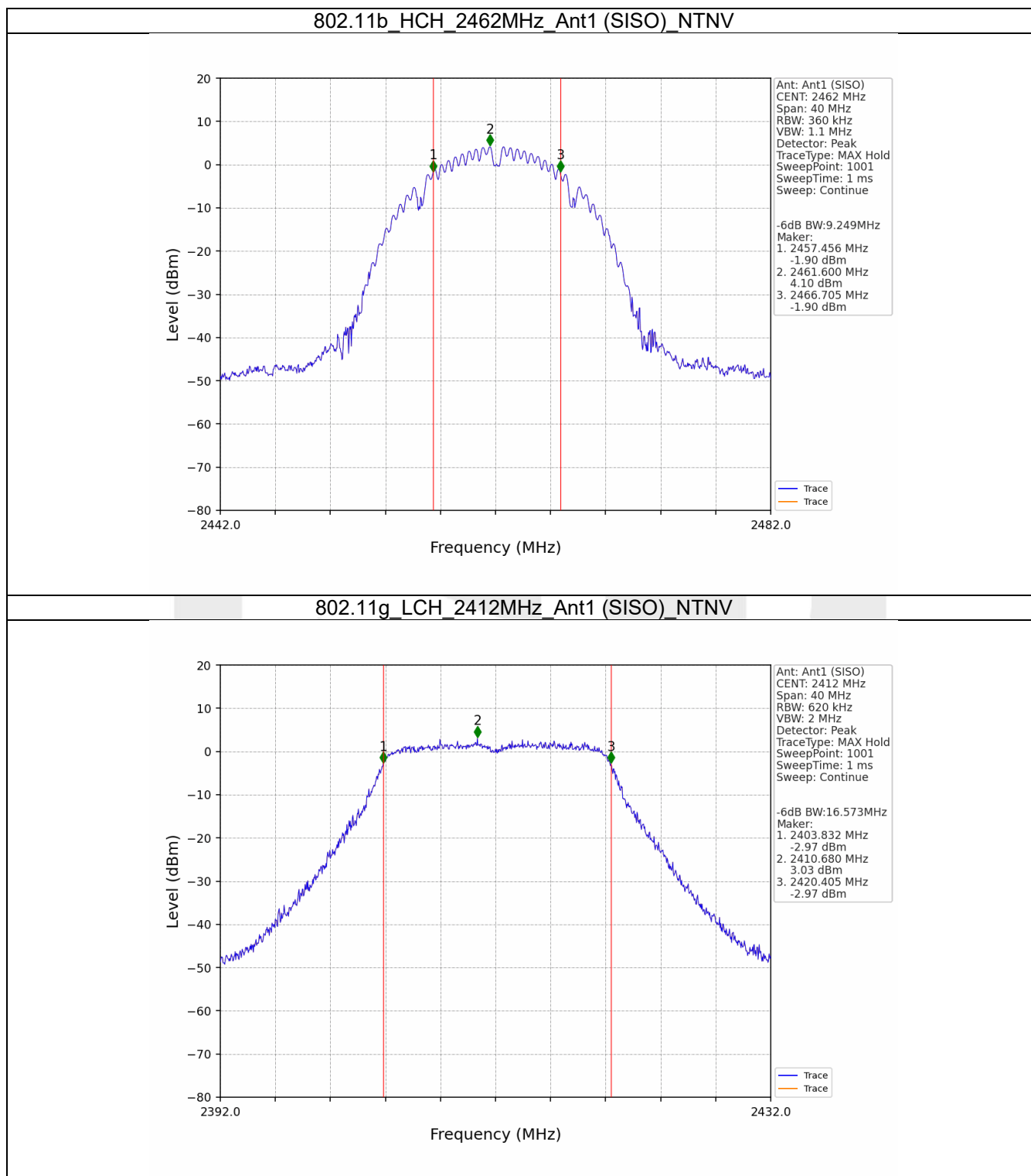


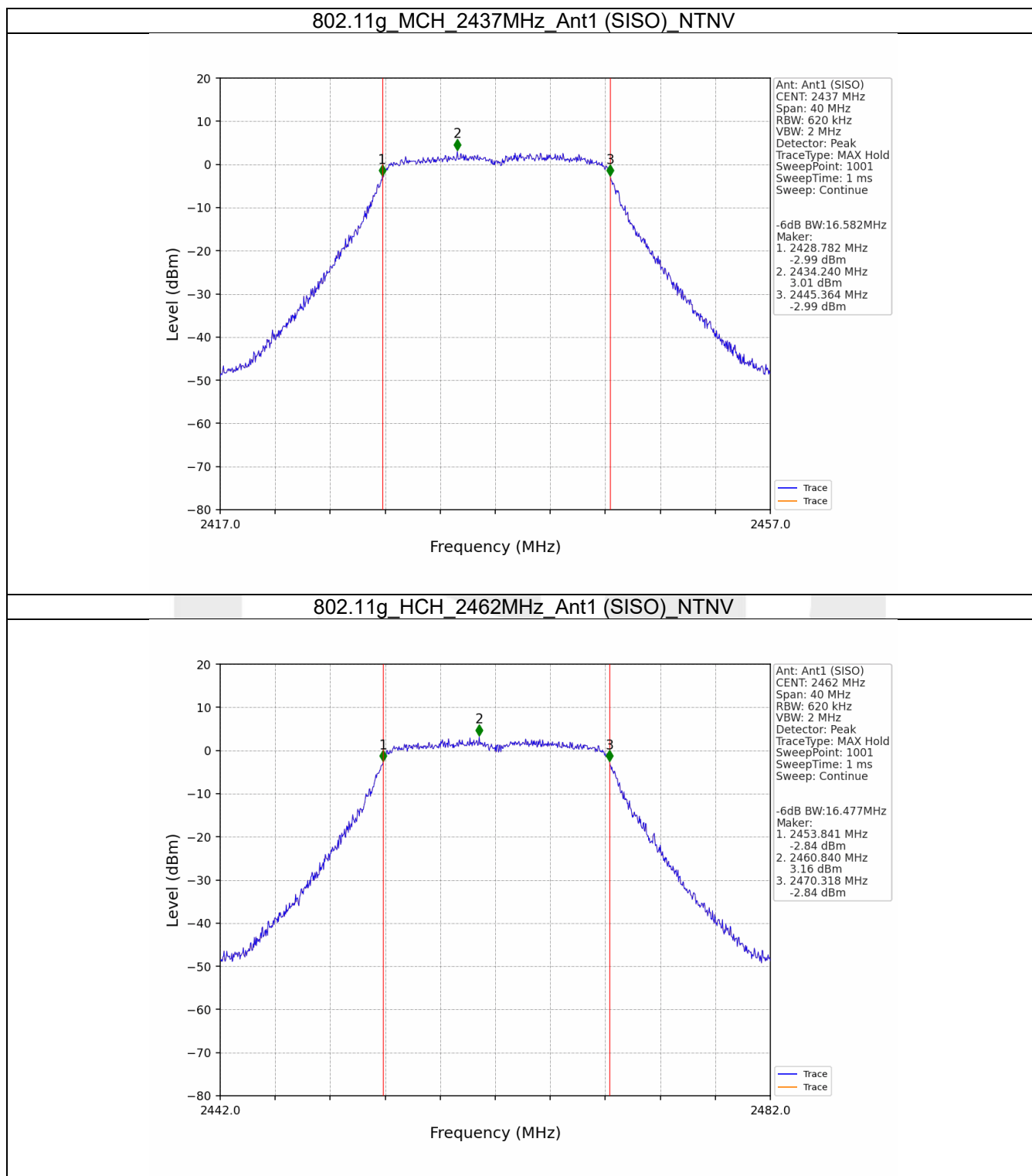


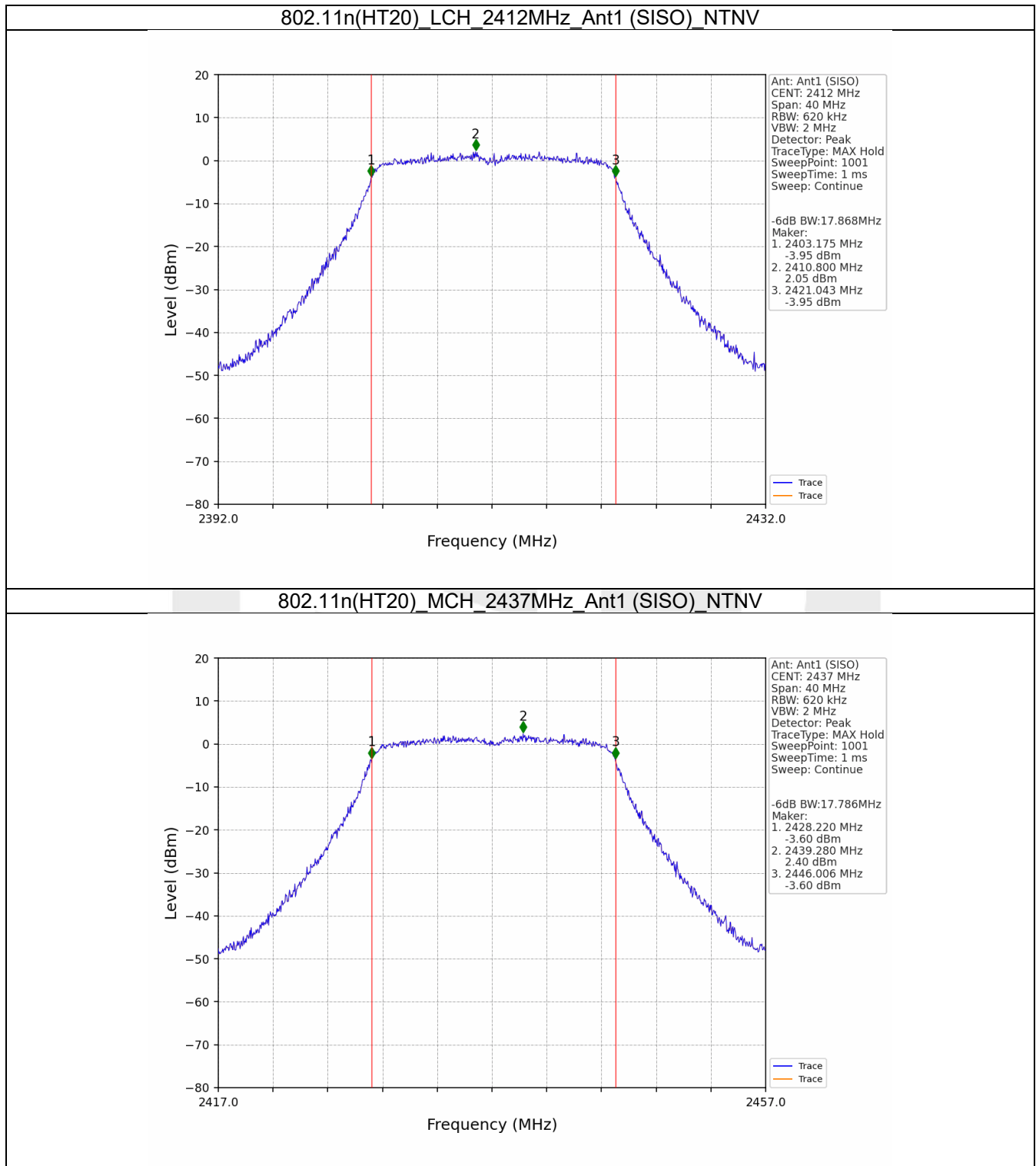


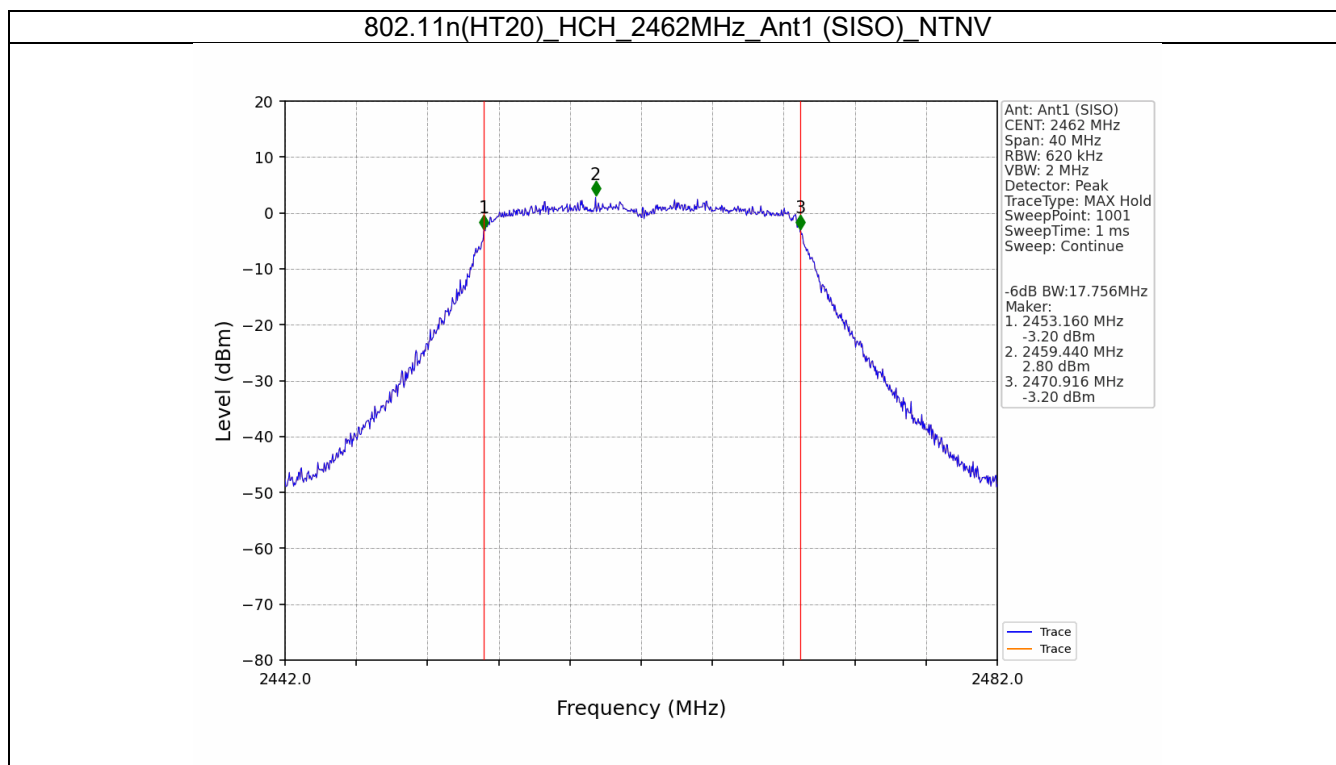
2.2.2 6dB BW











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	
802.11b	SISO	2412	14.94	<=30	Pass
		2437	14.91	<=30	Pass
		2462	14.90	<=30	Pass
802.11g	SISO	2412	15.39	<=30	Pass
		2437	15.58	<=30	Pass
		2462	15.66	<=30	Pass
802.11n (HT20)	SISO	2412	15.05	<=30	Pass
		2437	15.19	<=30	Pass
		2462	15.34	<=30	Pass

4. Maximum Power Spectral Density

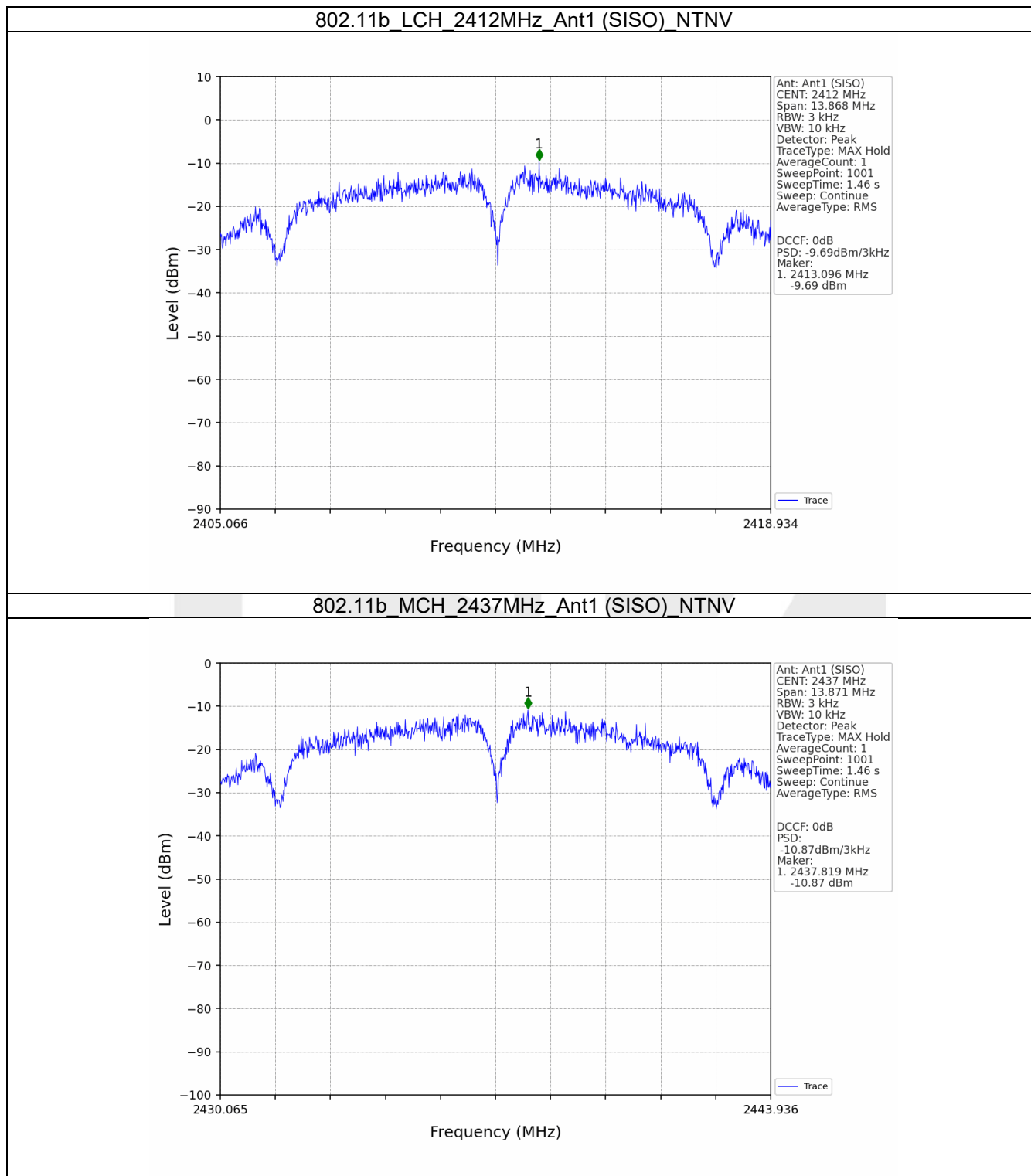
4.1 Test Result

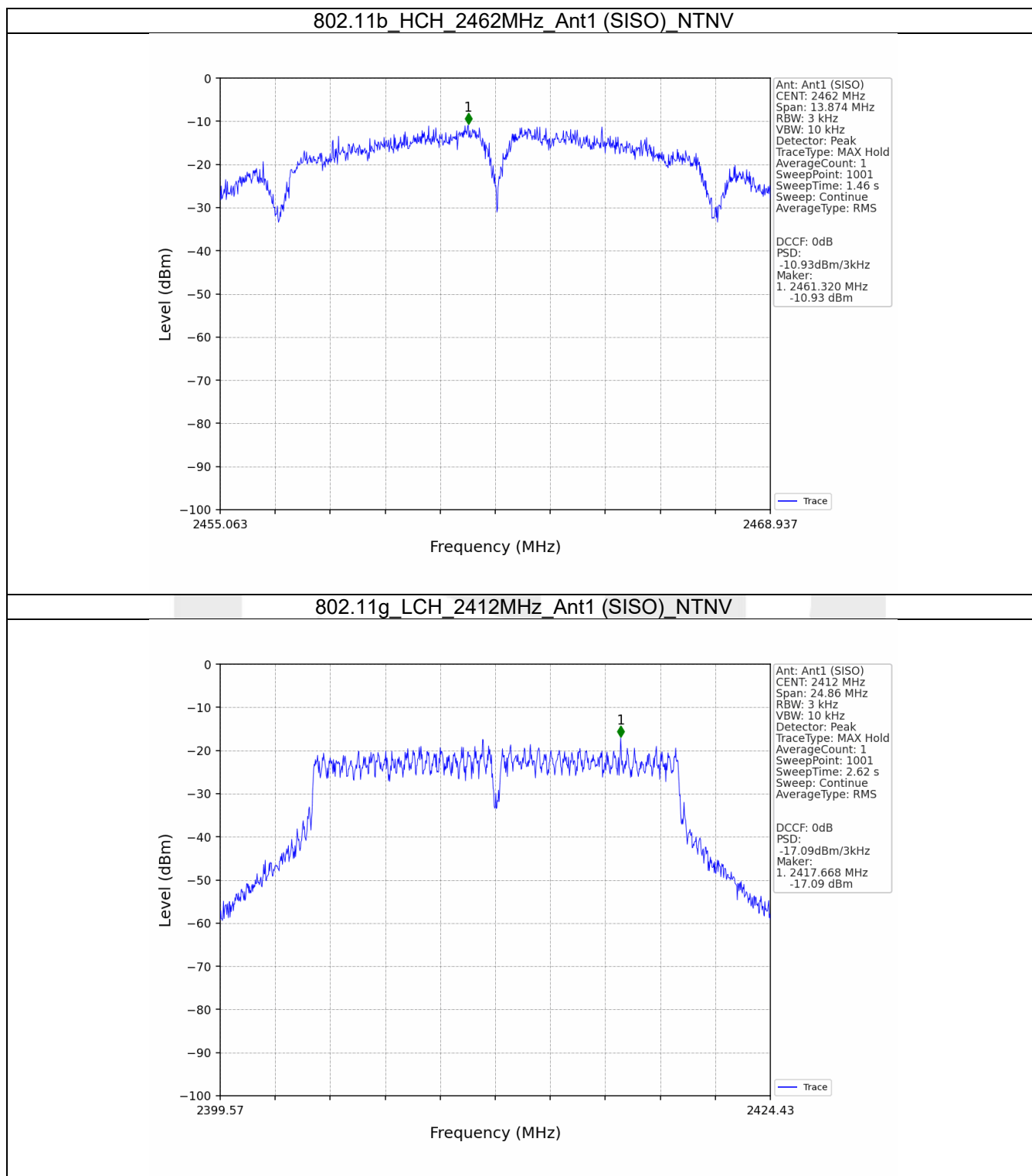
4.1.1 PSD

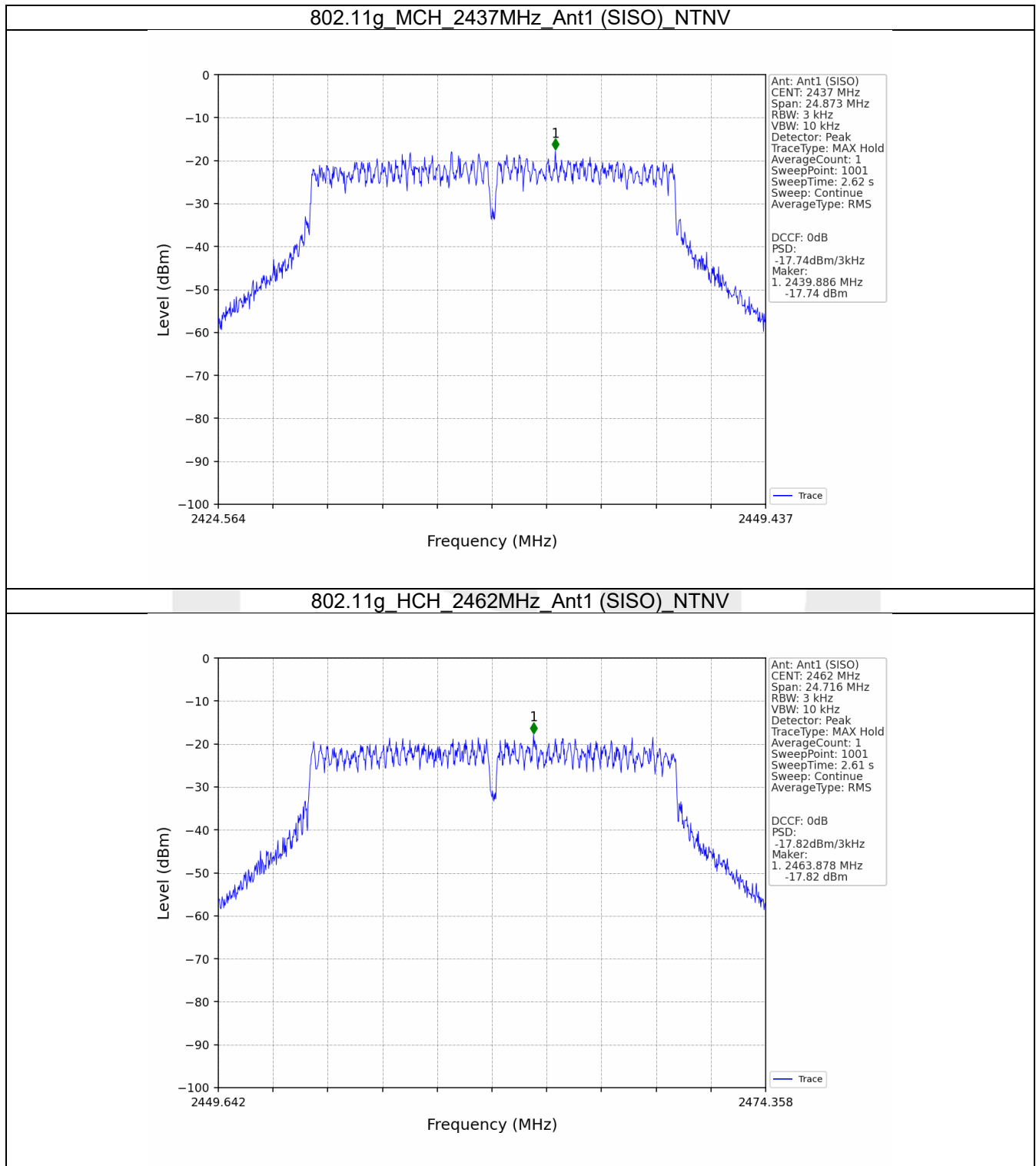
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-9.69	<=8	Pass
		2437	-10.87	<=8	Pass
		2462	-10.93	<=8	Pass
802.11g	SISO	2412	-17.09	<=8	Pass
		2437	-17.74	<=8	Pass
		2462	-17.82	<=8	Pass
802.11n (HT20)	SISO	2412	-18.52	<=8	Pass
		2437	-18.51	<=8	Pass
		2462	-18.08	<=8	Pass

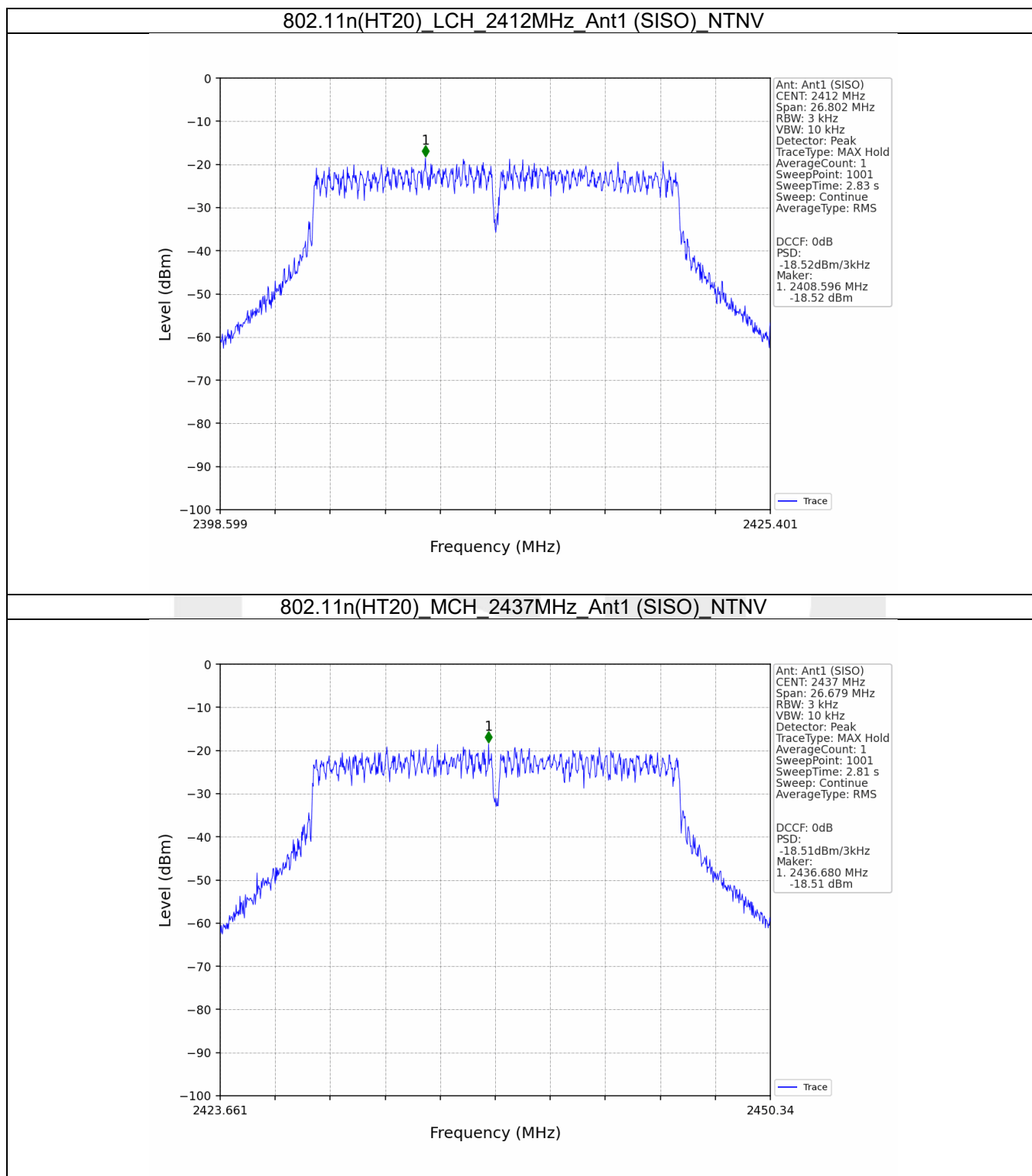
4.2 Test Graph

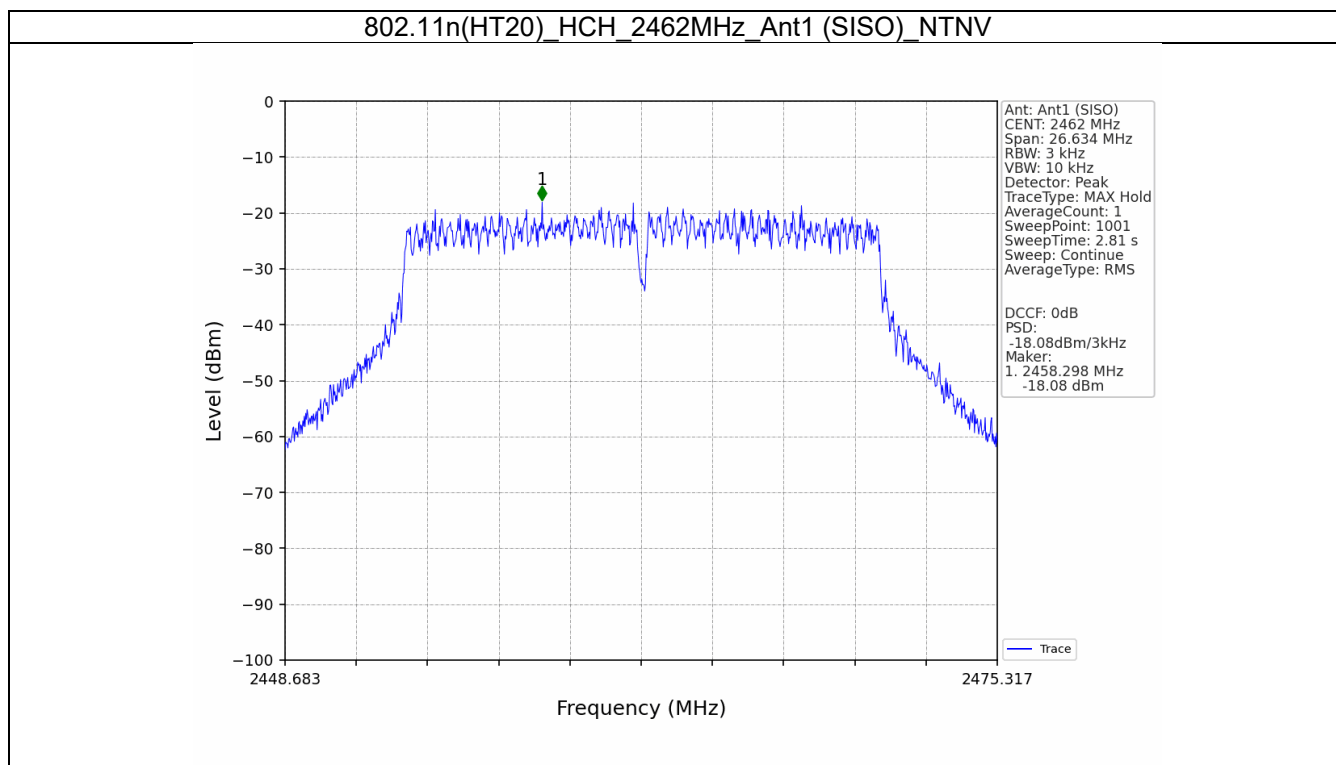
4.2.1 PSD











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)
802.11b	SISO	2412	1	3.48
		2437	1	3.79
		2462	1	3.68
802.11g	SISO	2412	1	-3.34
		2437	1	-3.19
		2462	1	-3.12
802.11n (HT20)	SISO	2412	1	-4.18
		2437	1	-4.00
		2462	1	-3.61

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.

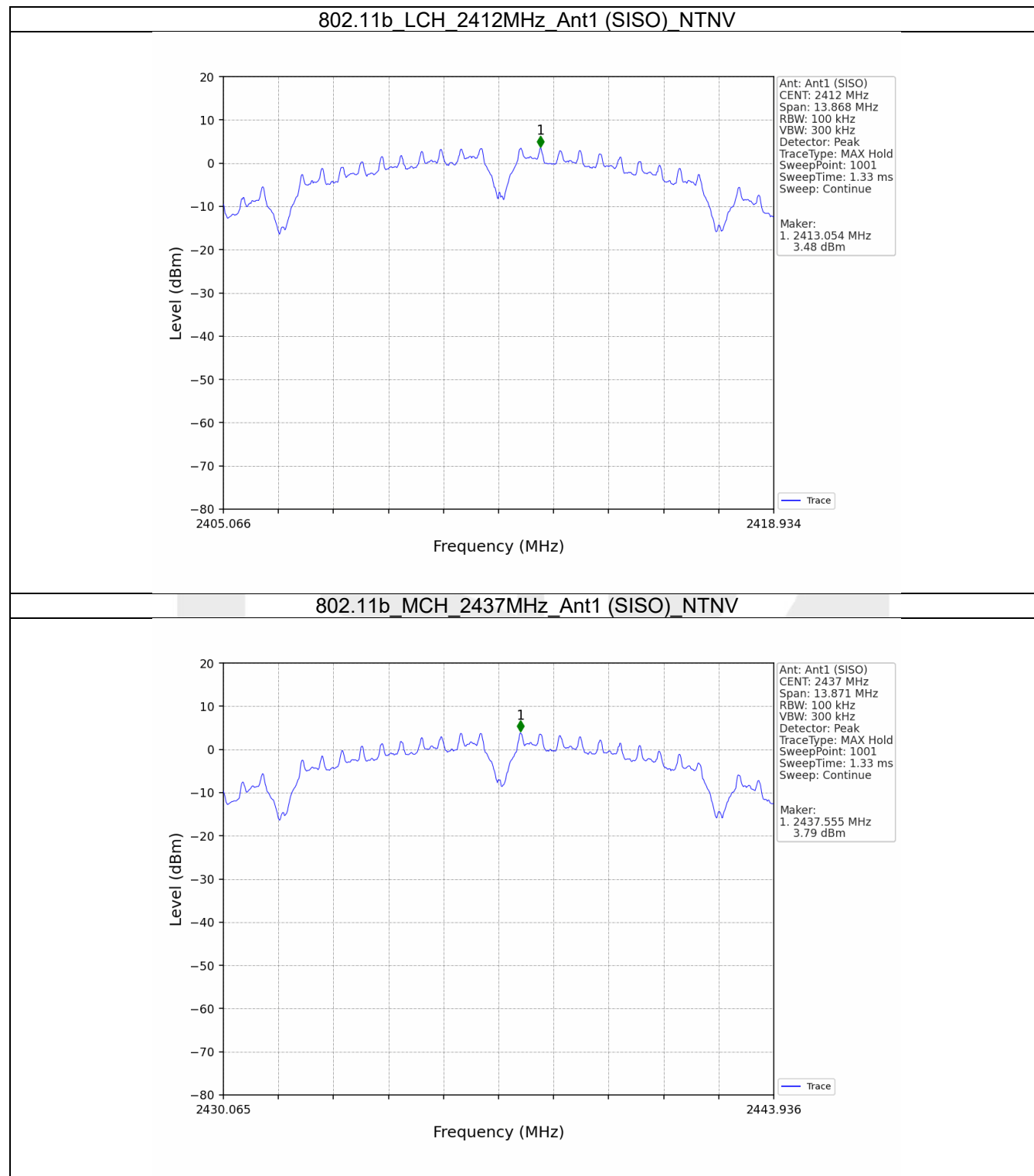
5.1.2 CSE

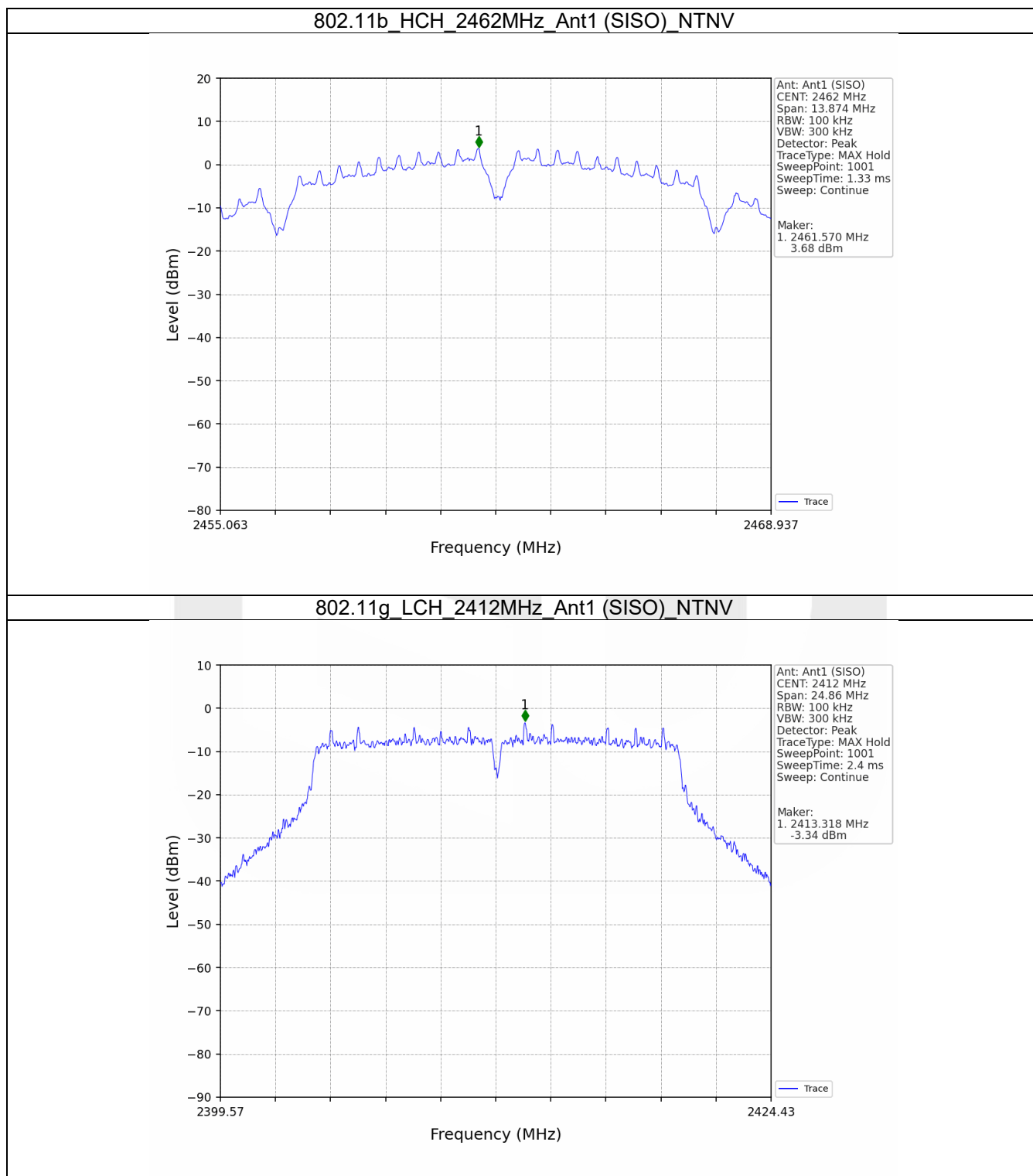
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	3.48	-16.52	Pass
		2437	1	3.79	-16.21	Pass
		2462	1	3.68	-16.32	Pass
802.11g	SISO	2412	1	-3.34	-23.34	Pass
		2437	1	-3.19	-23.19	Pass
		2462	1	-3.12	-23.12	Pass
802.11n (HT20)	SISO	2412	1	-4.18	-24.18	Pass
		2437	1	-4.00	-24.00	Pass
		2462	1	-3.61	-23.61	Pass

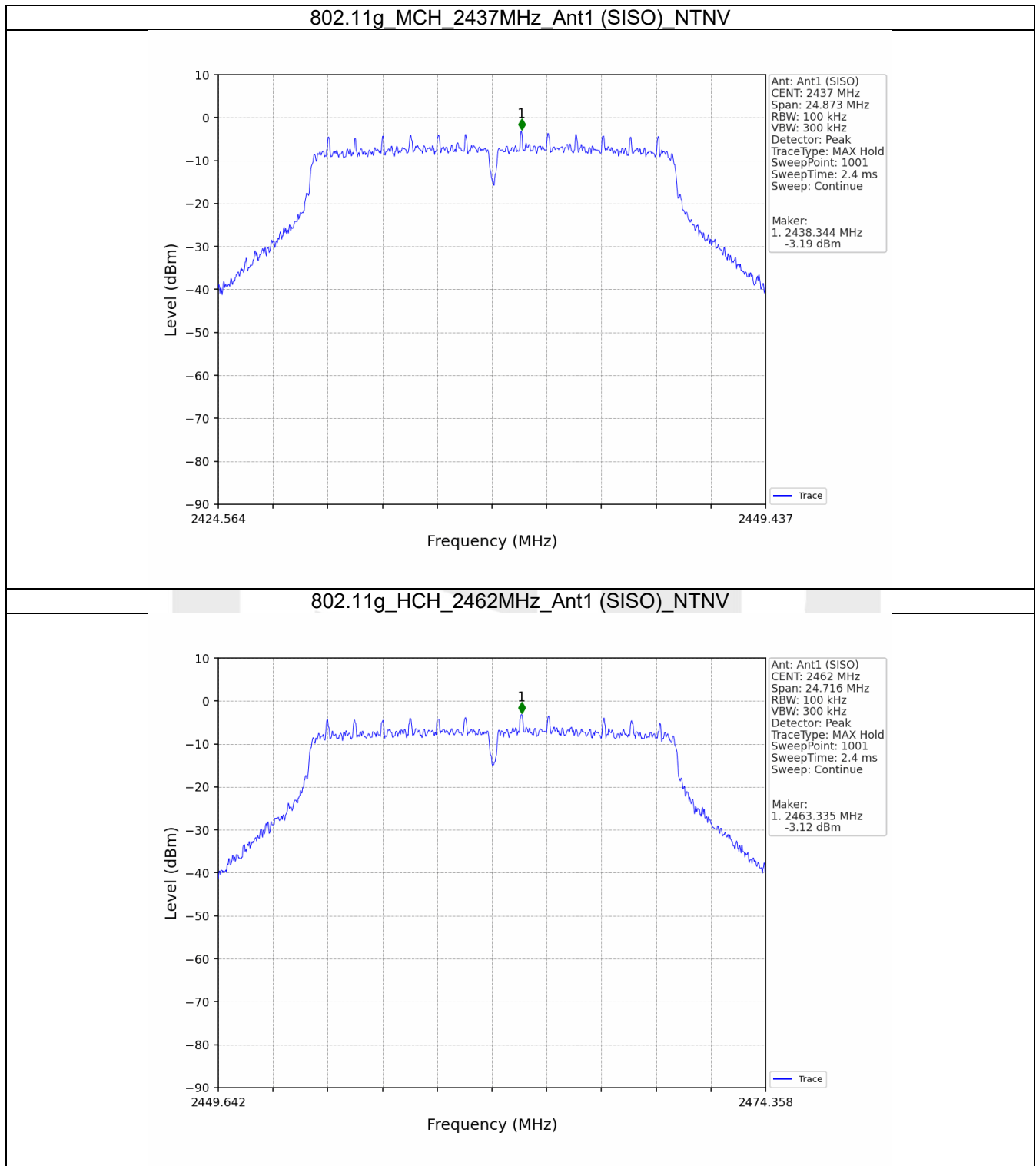
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

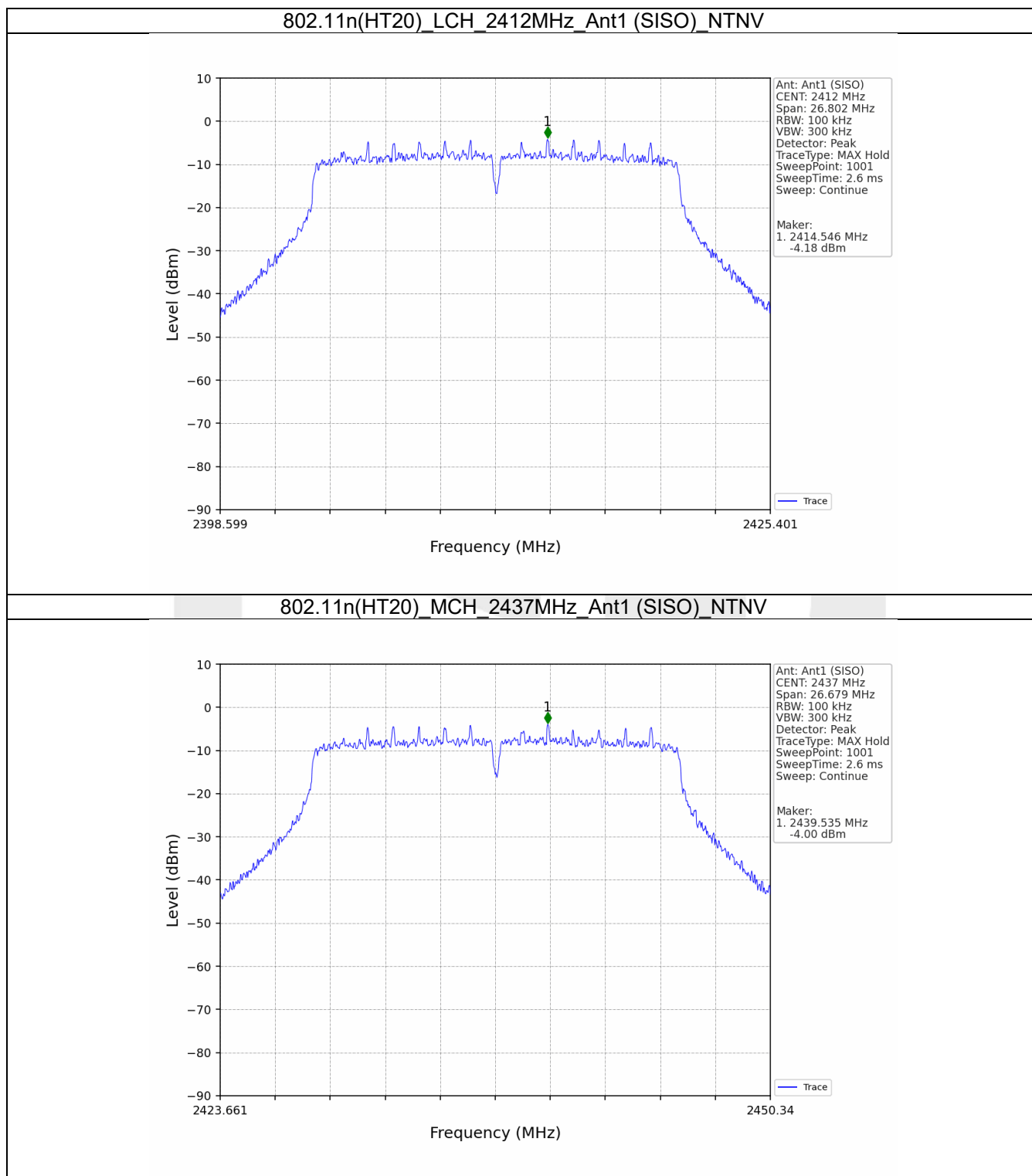
5.2 Test Graph

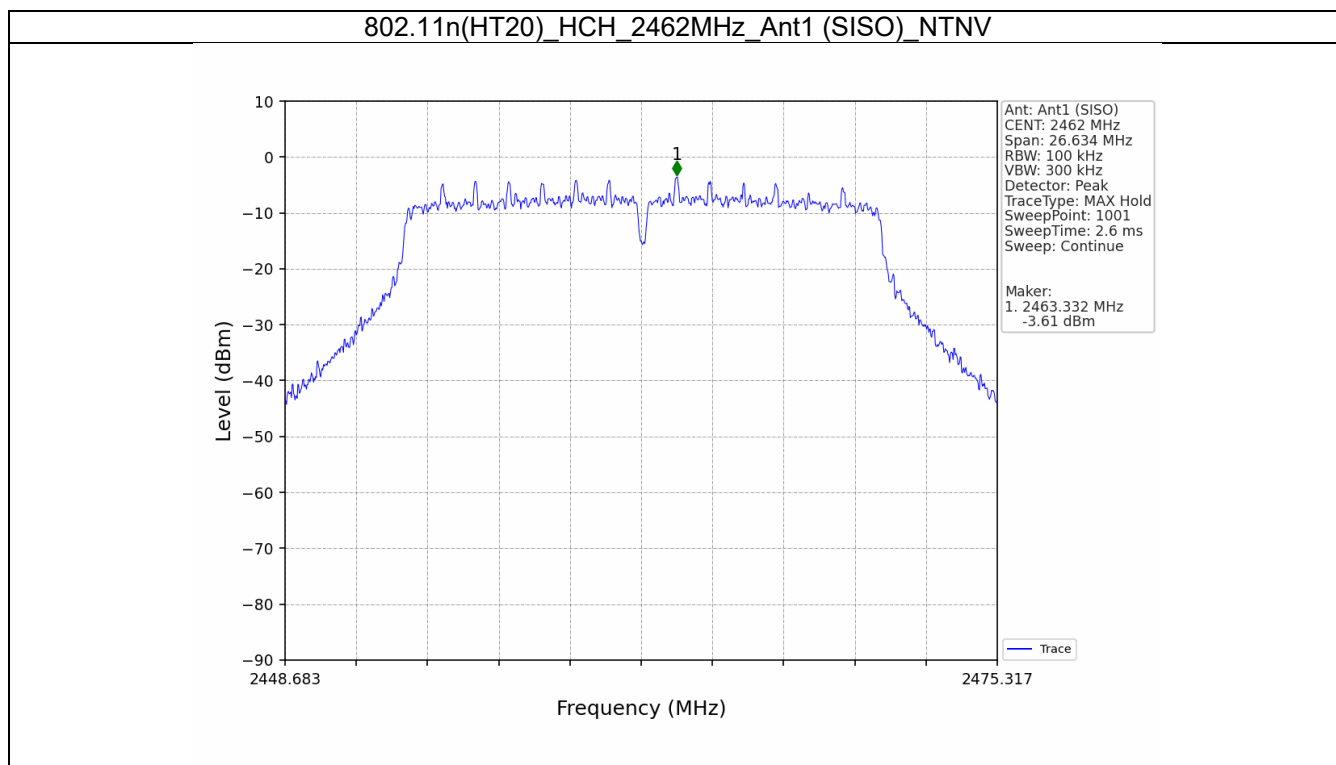
5.2.1 Ref



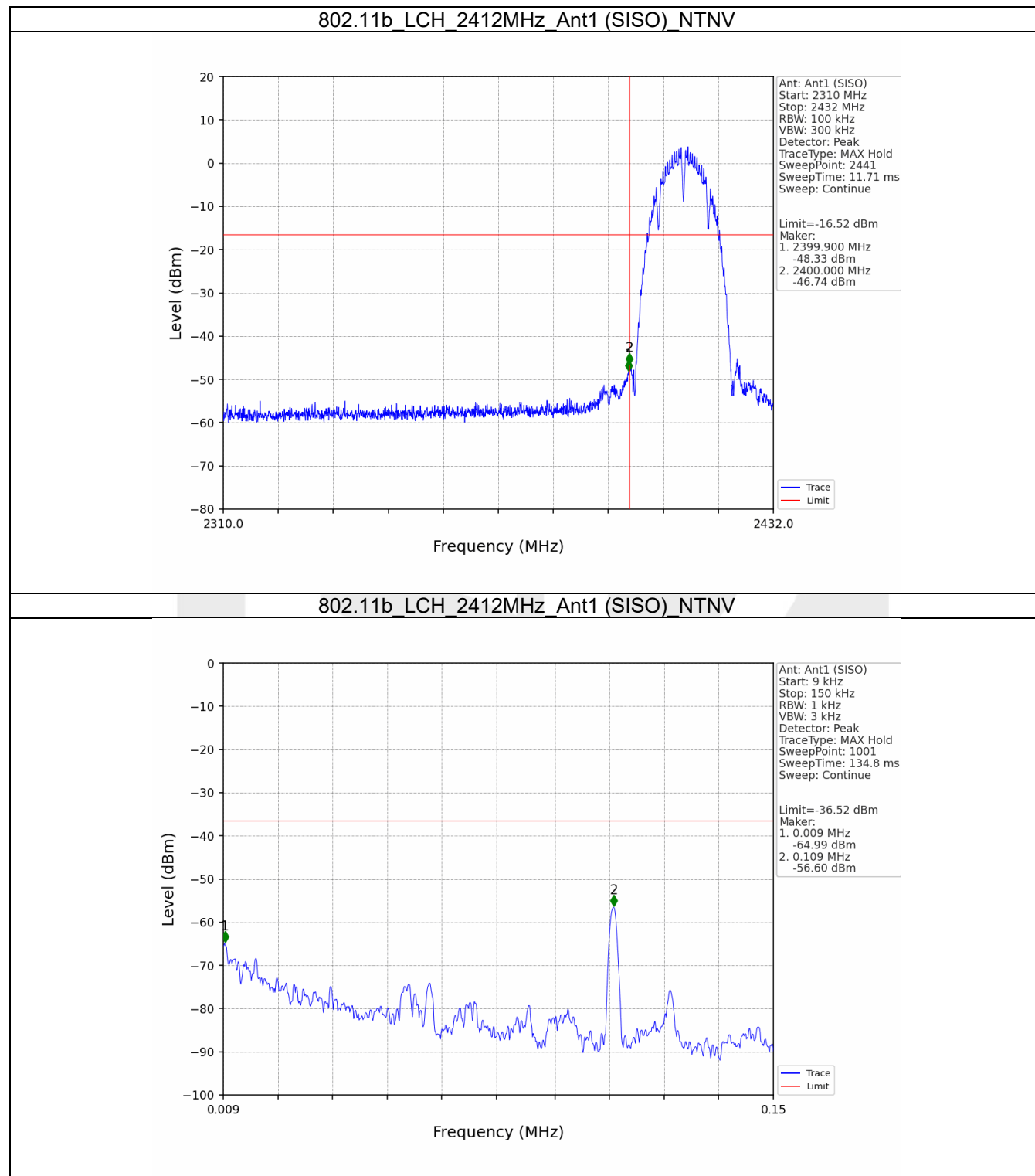


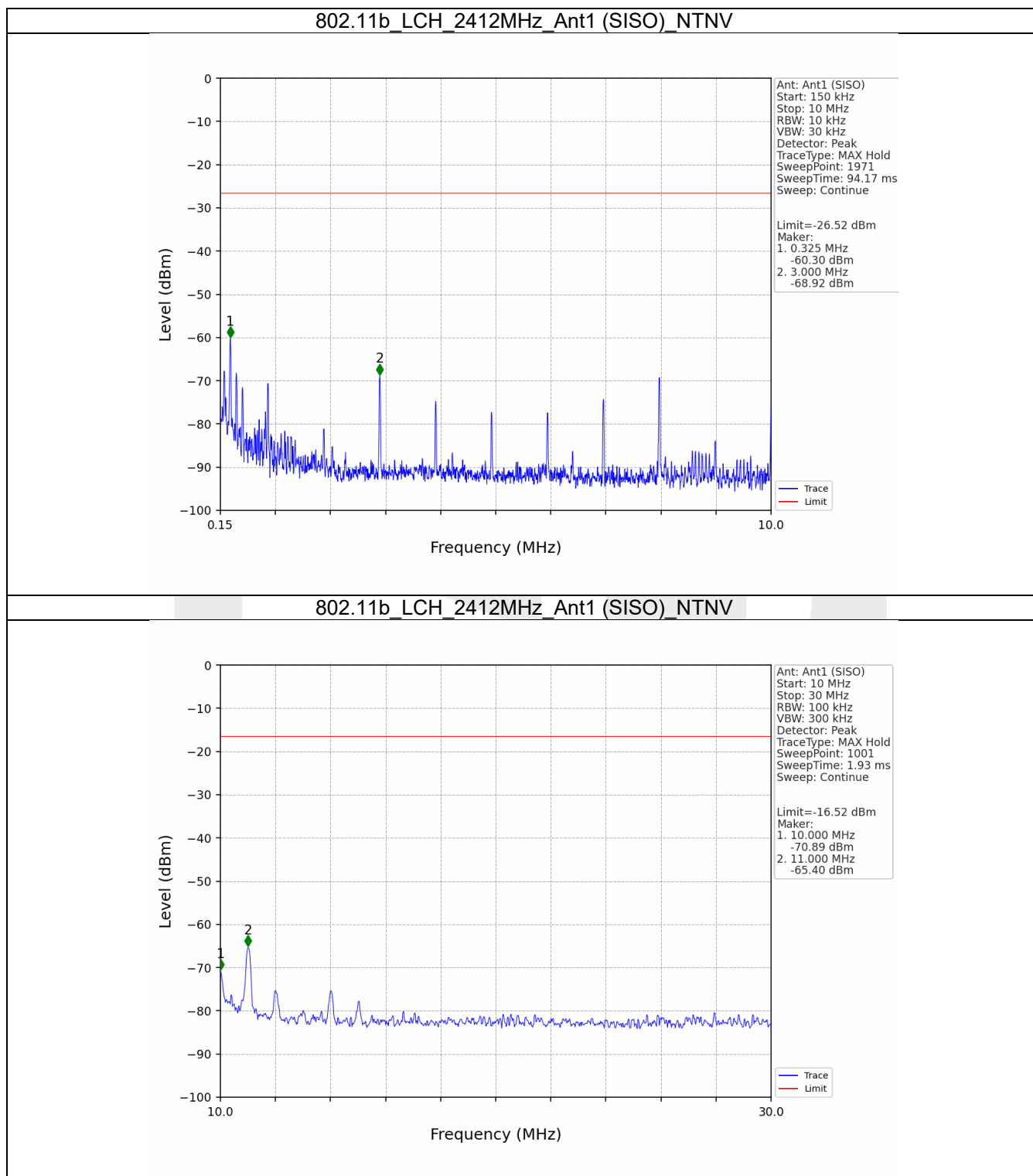


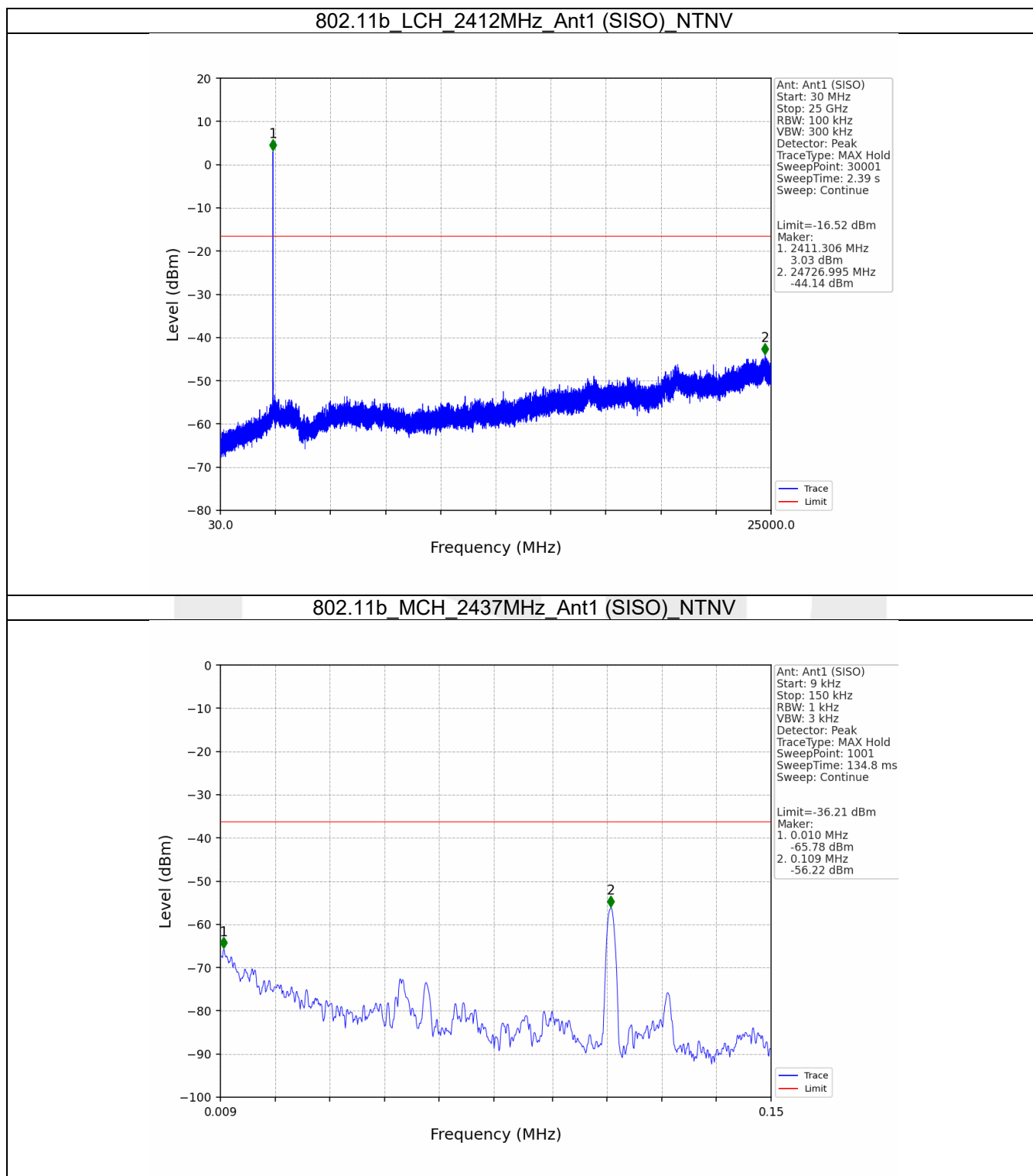


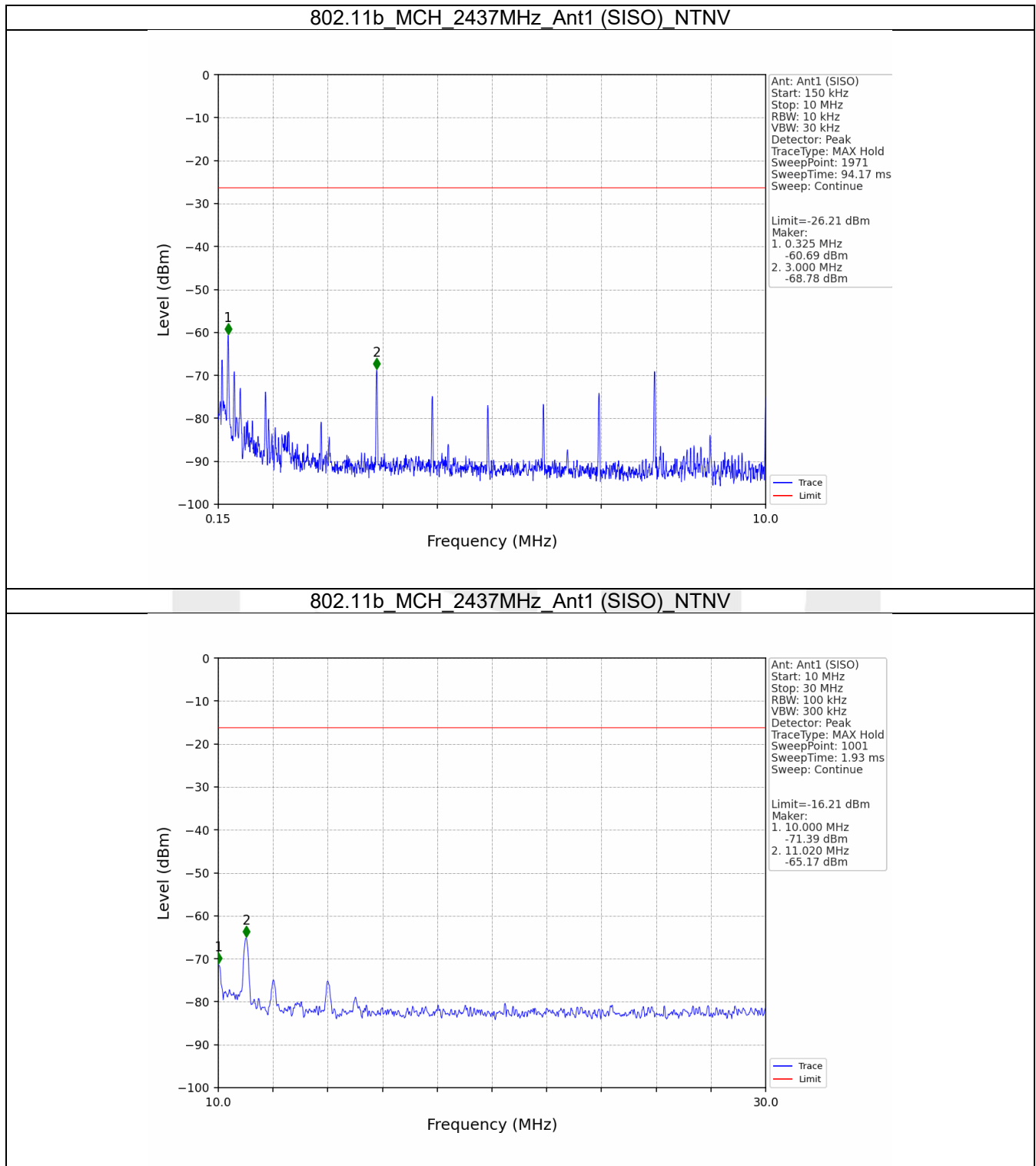


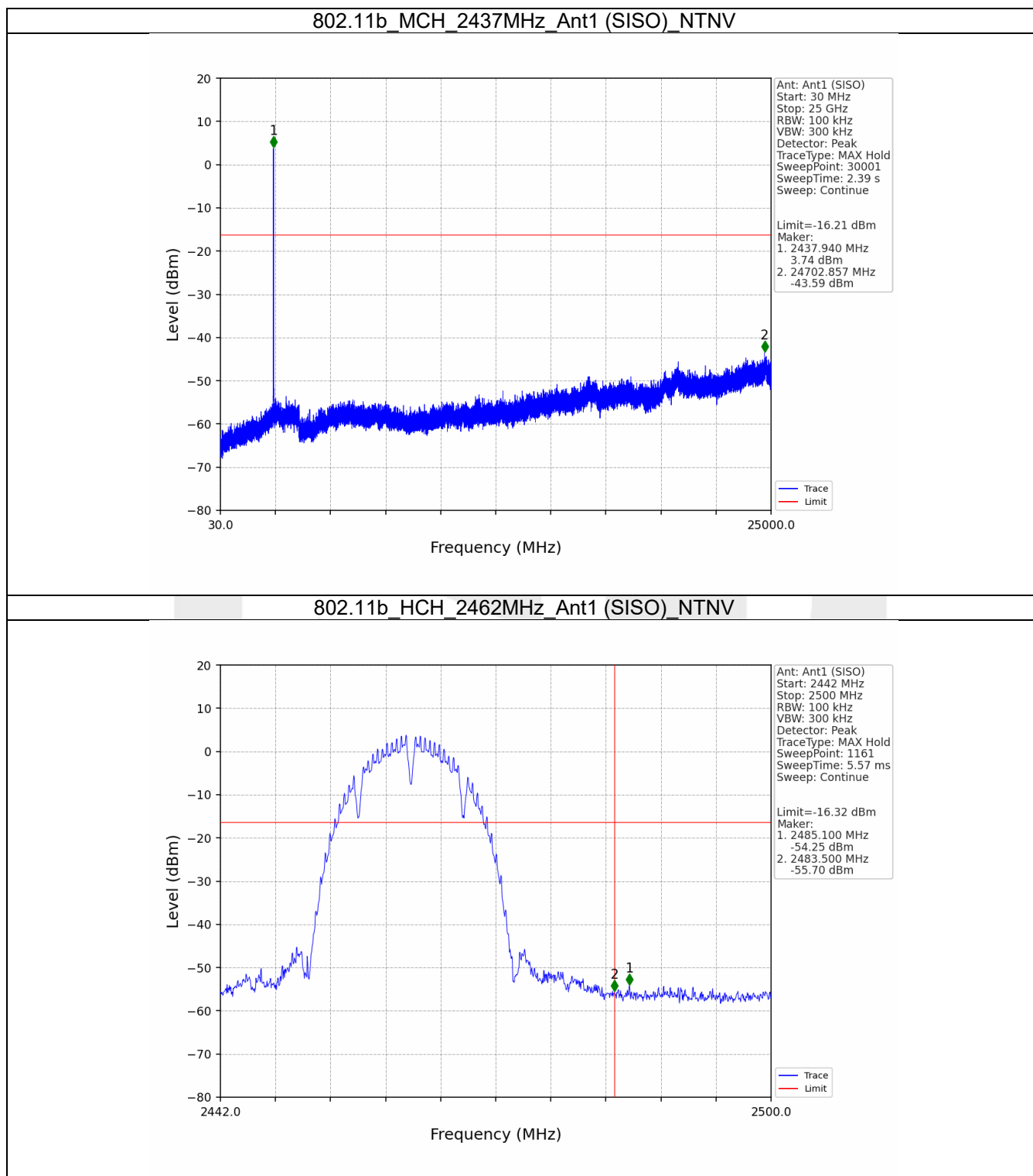
5.2.2 CSE

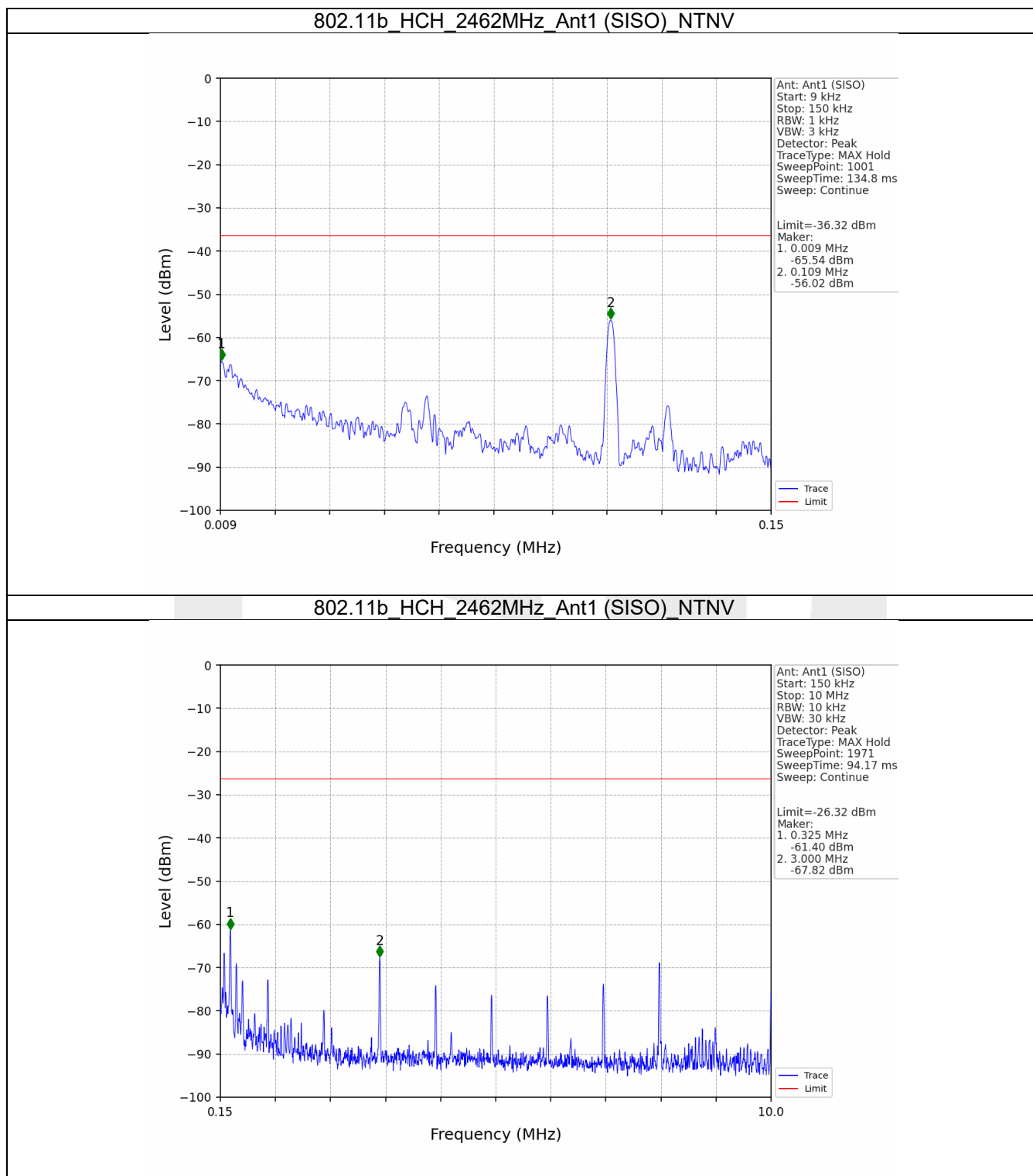


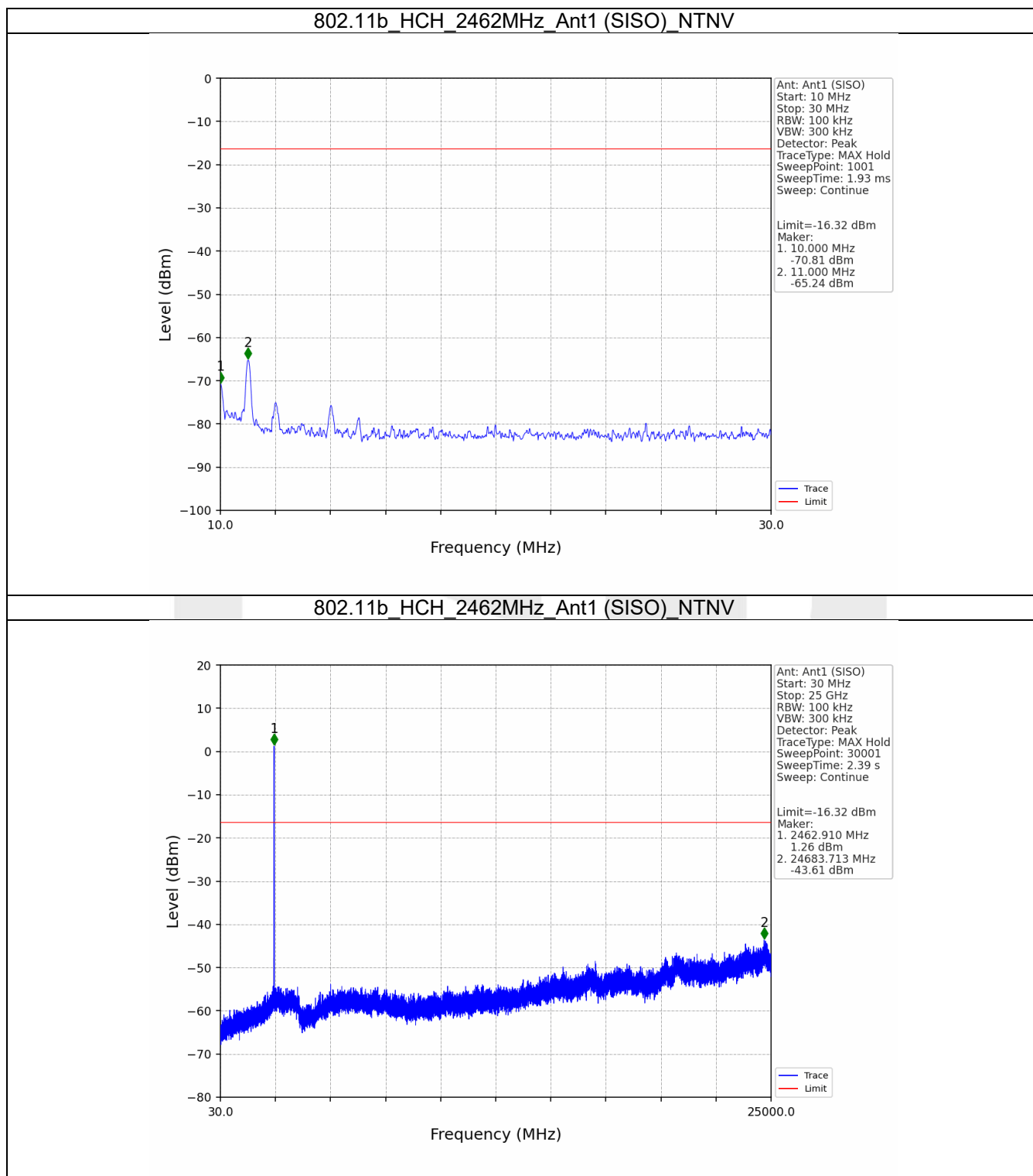


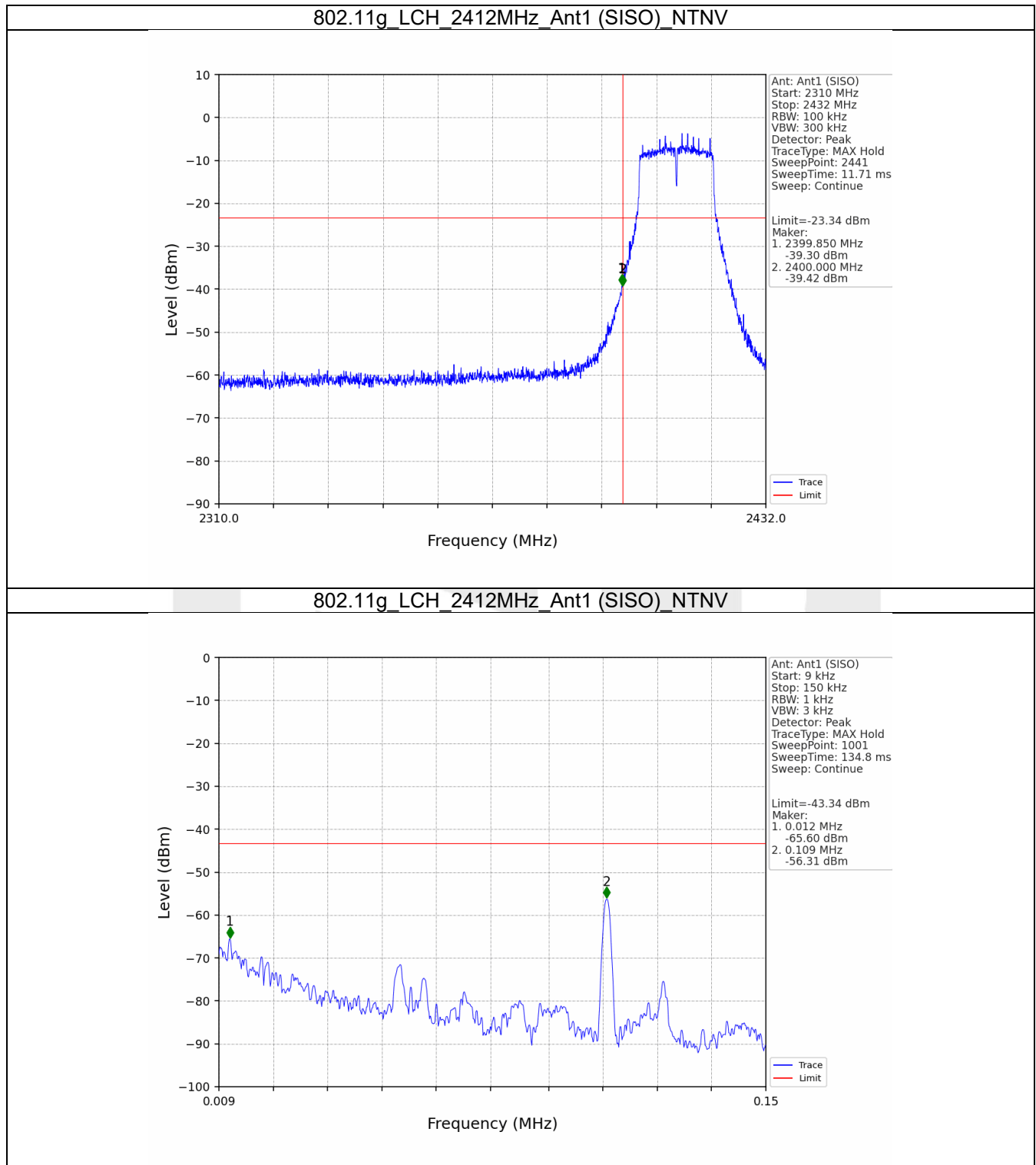


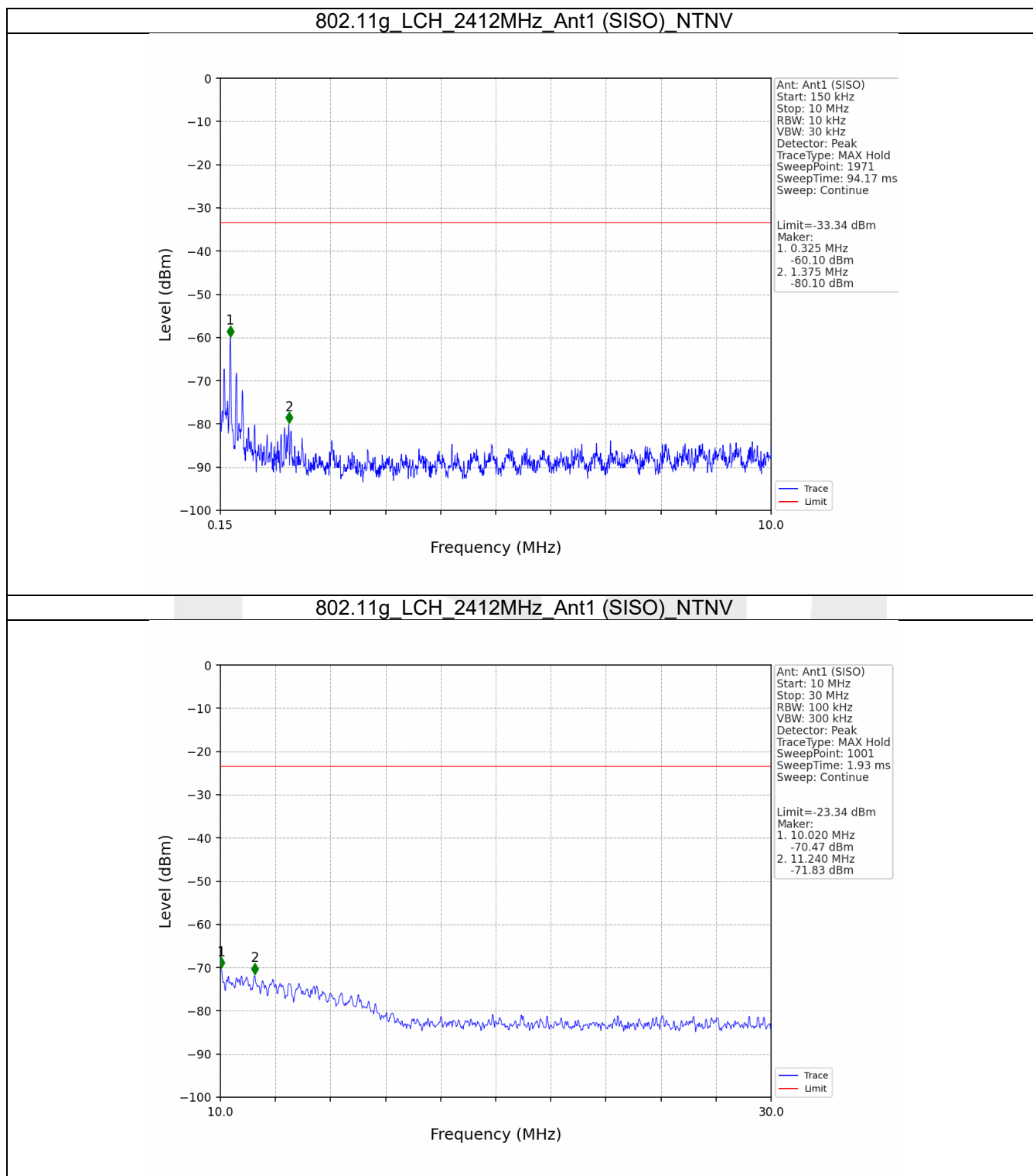


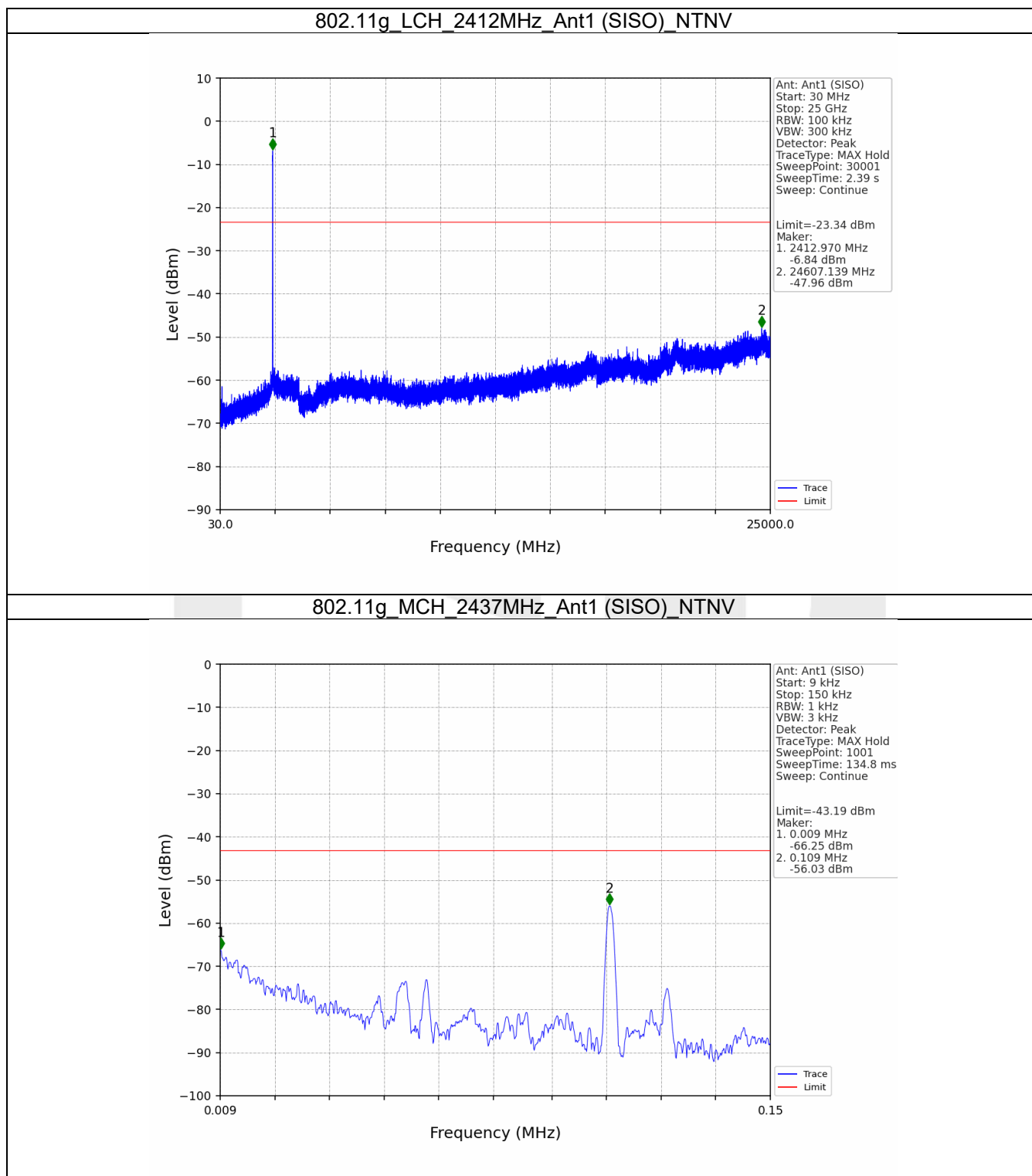


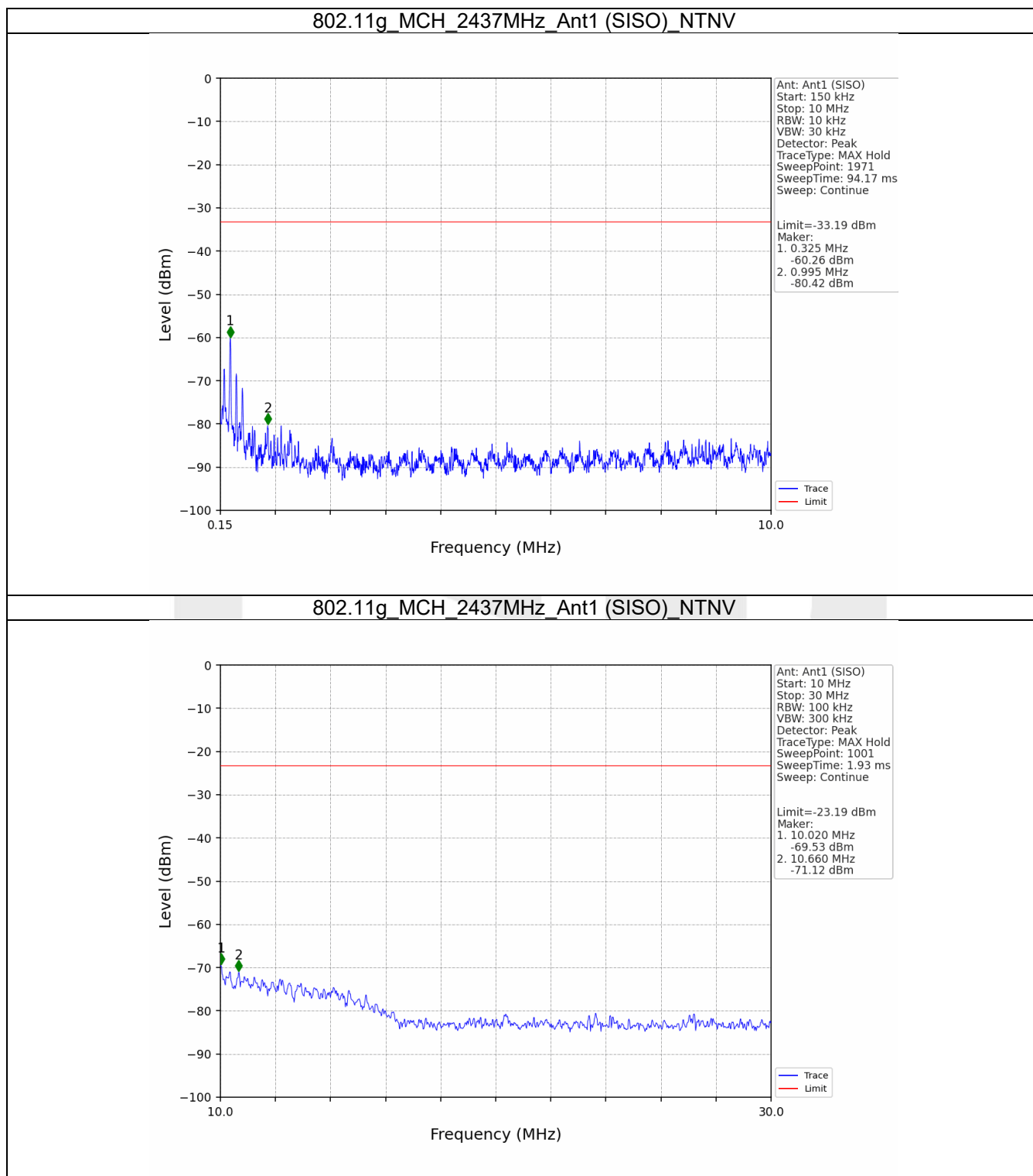


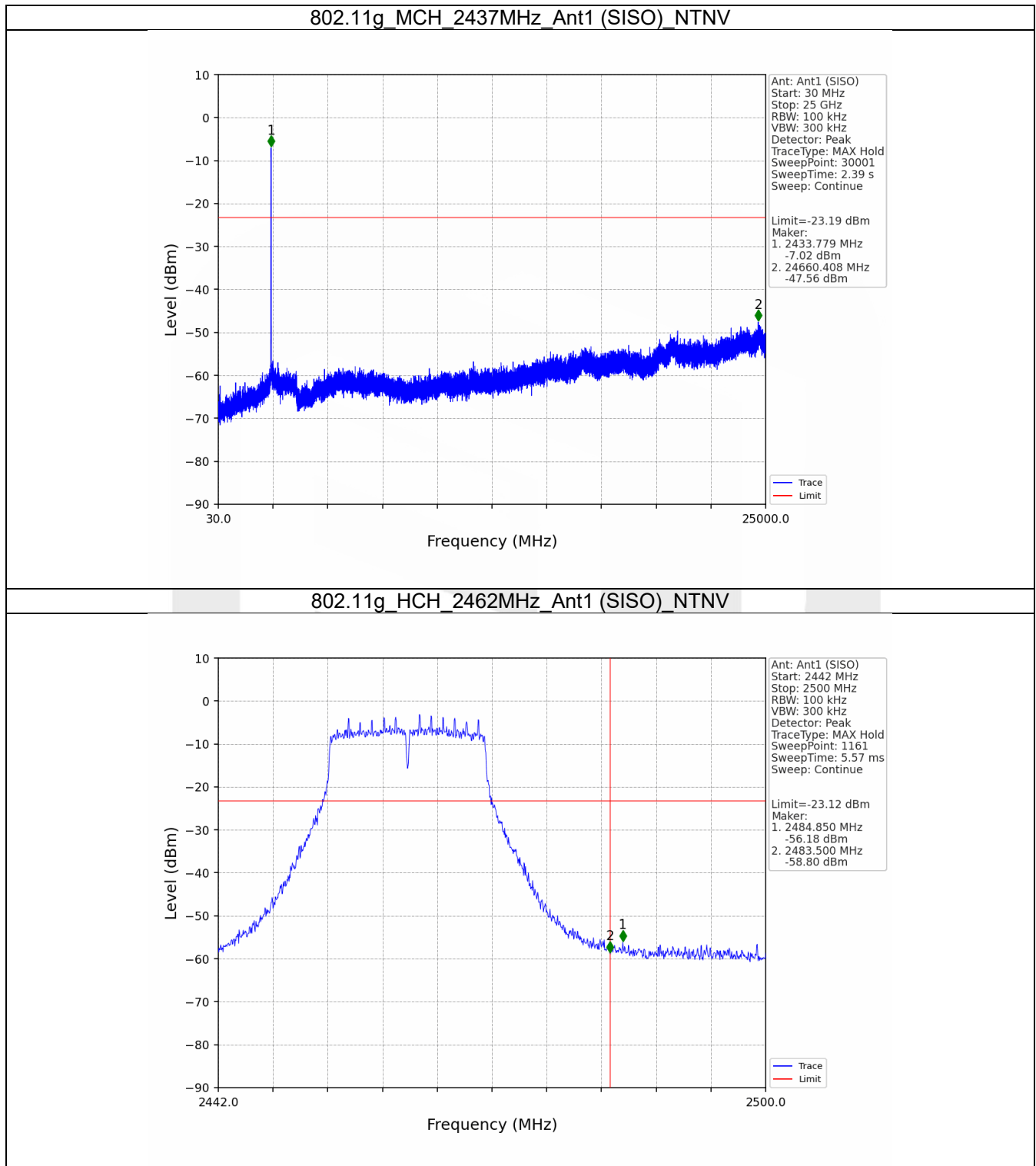


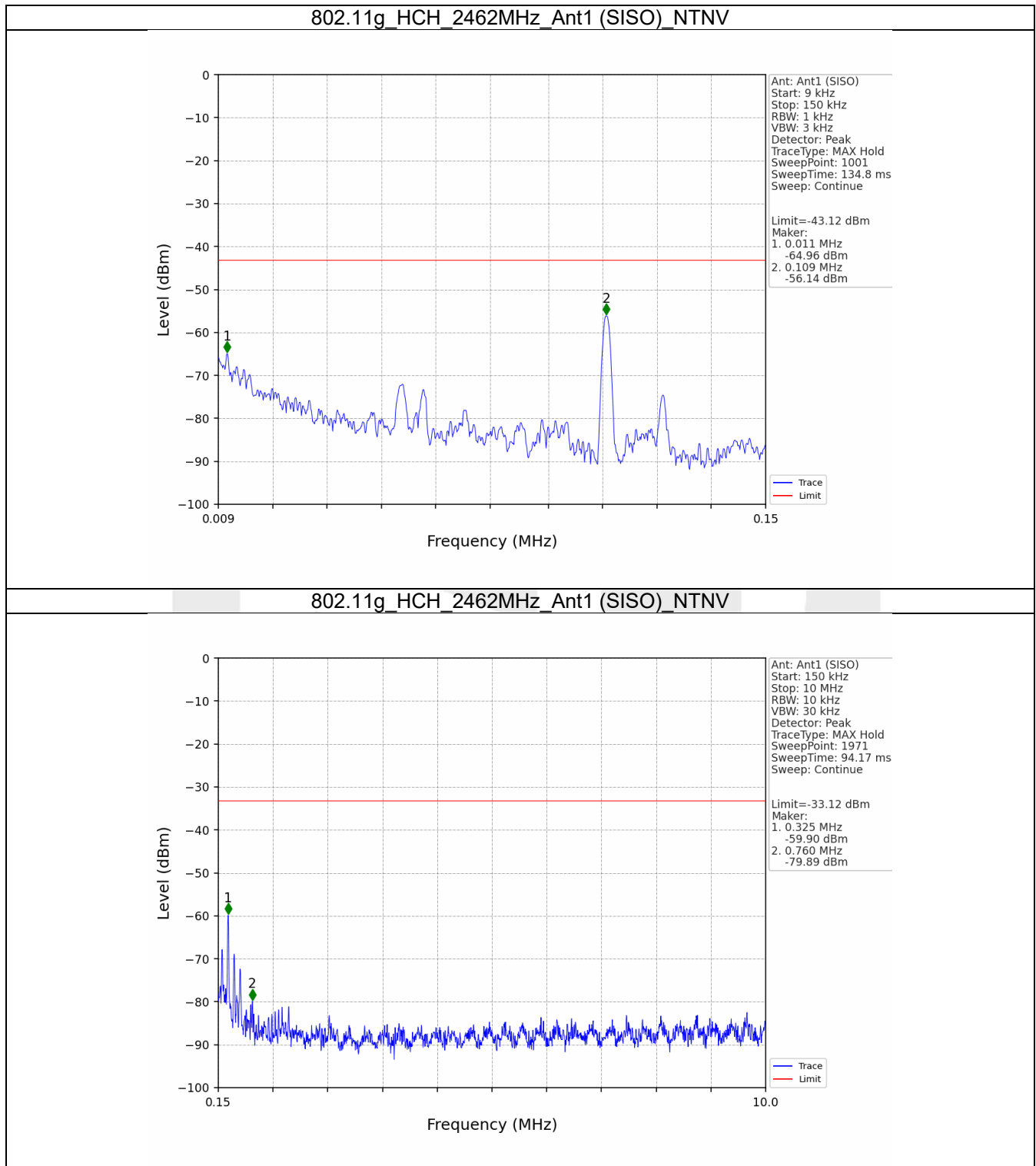


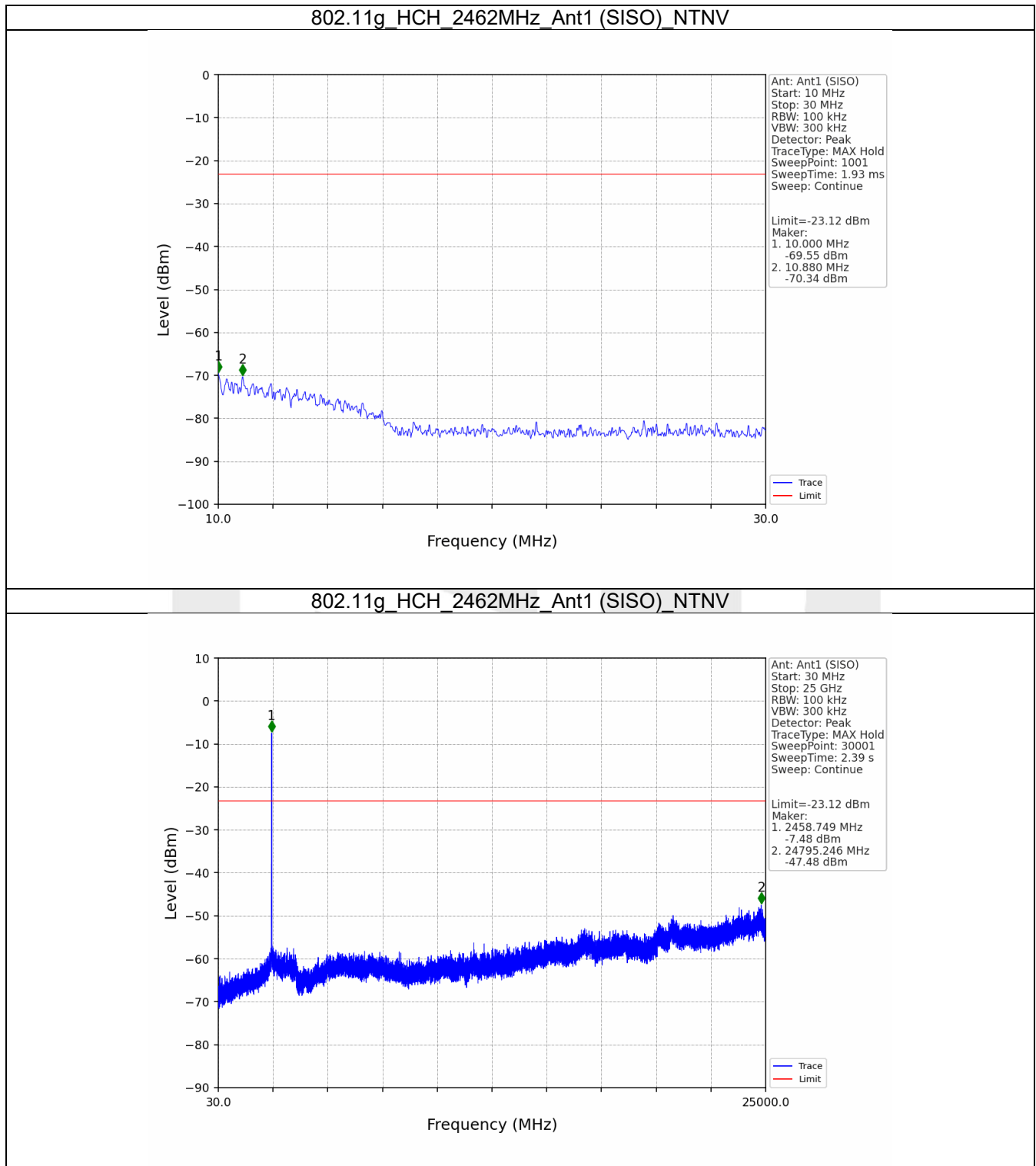


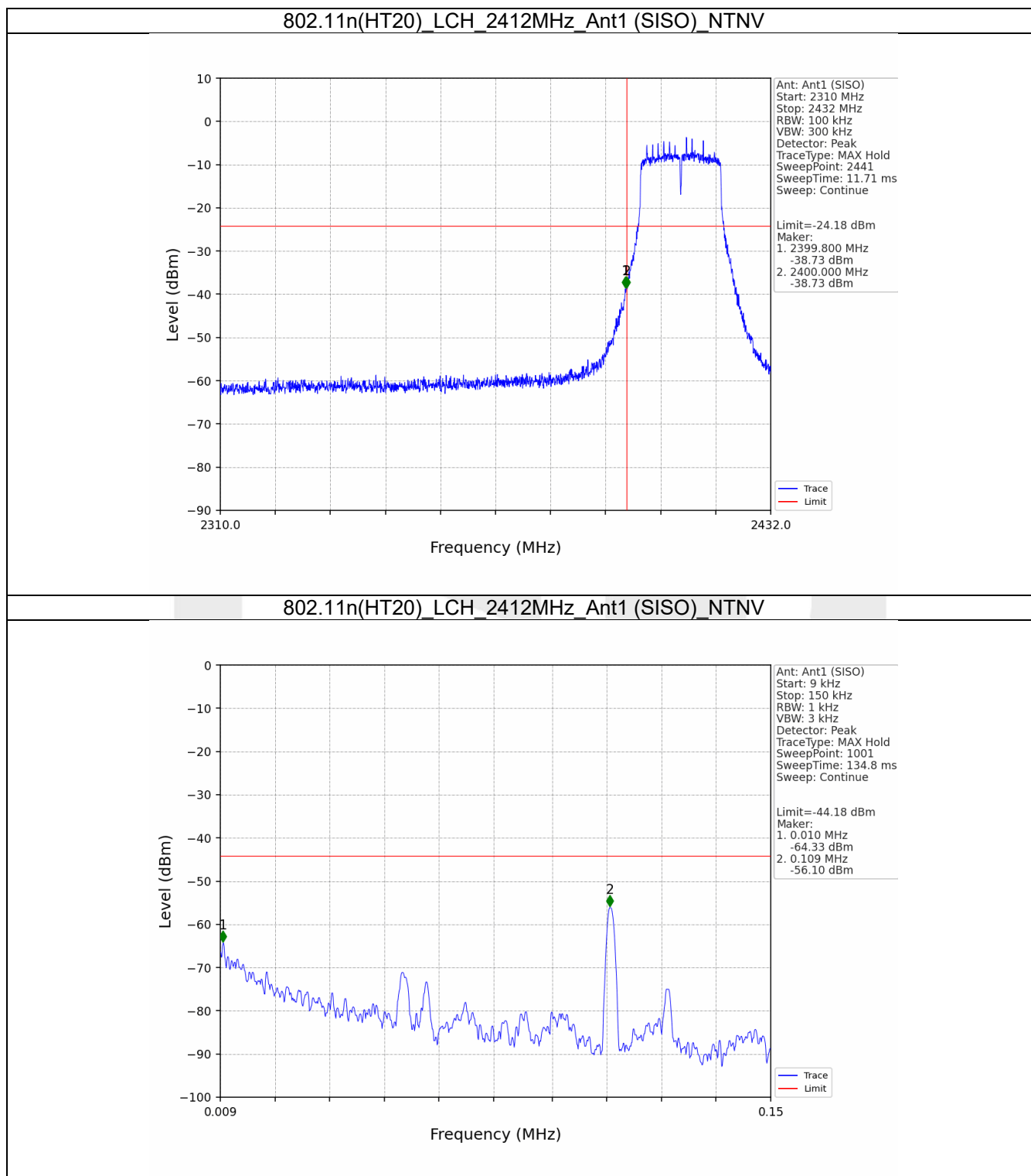


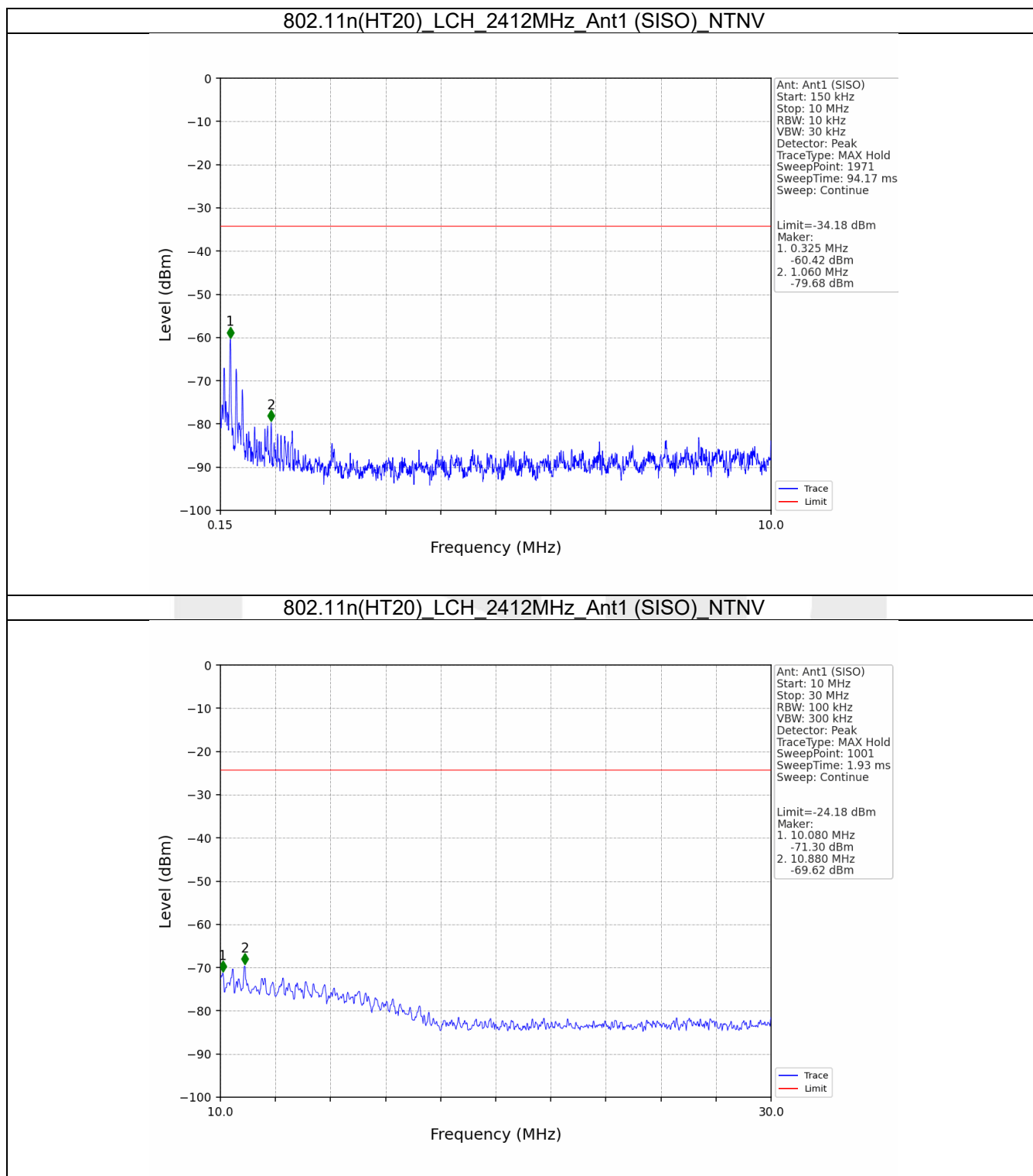


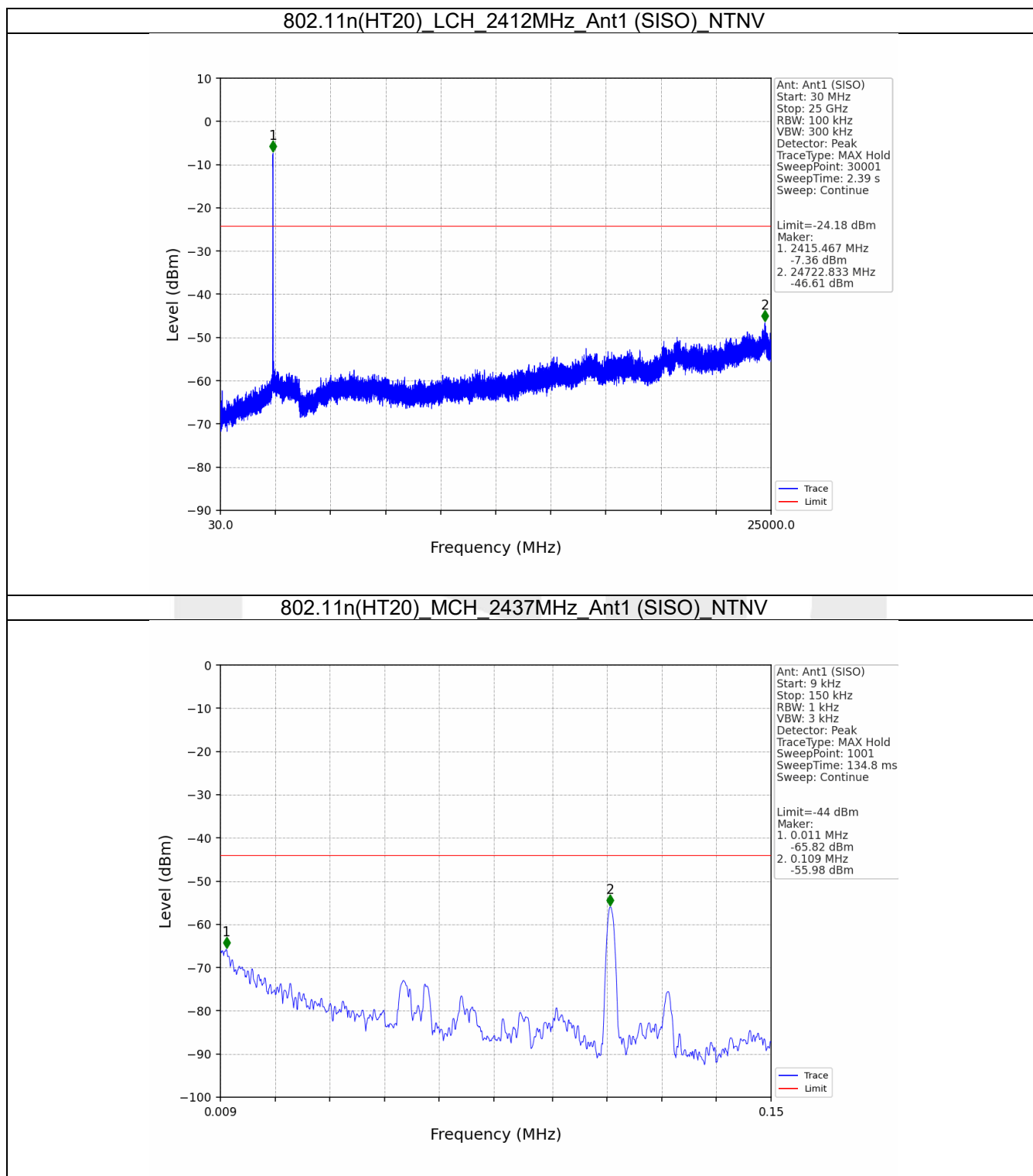


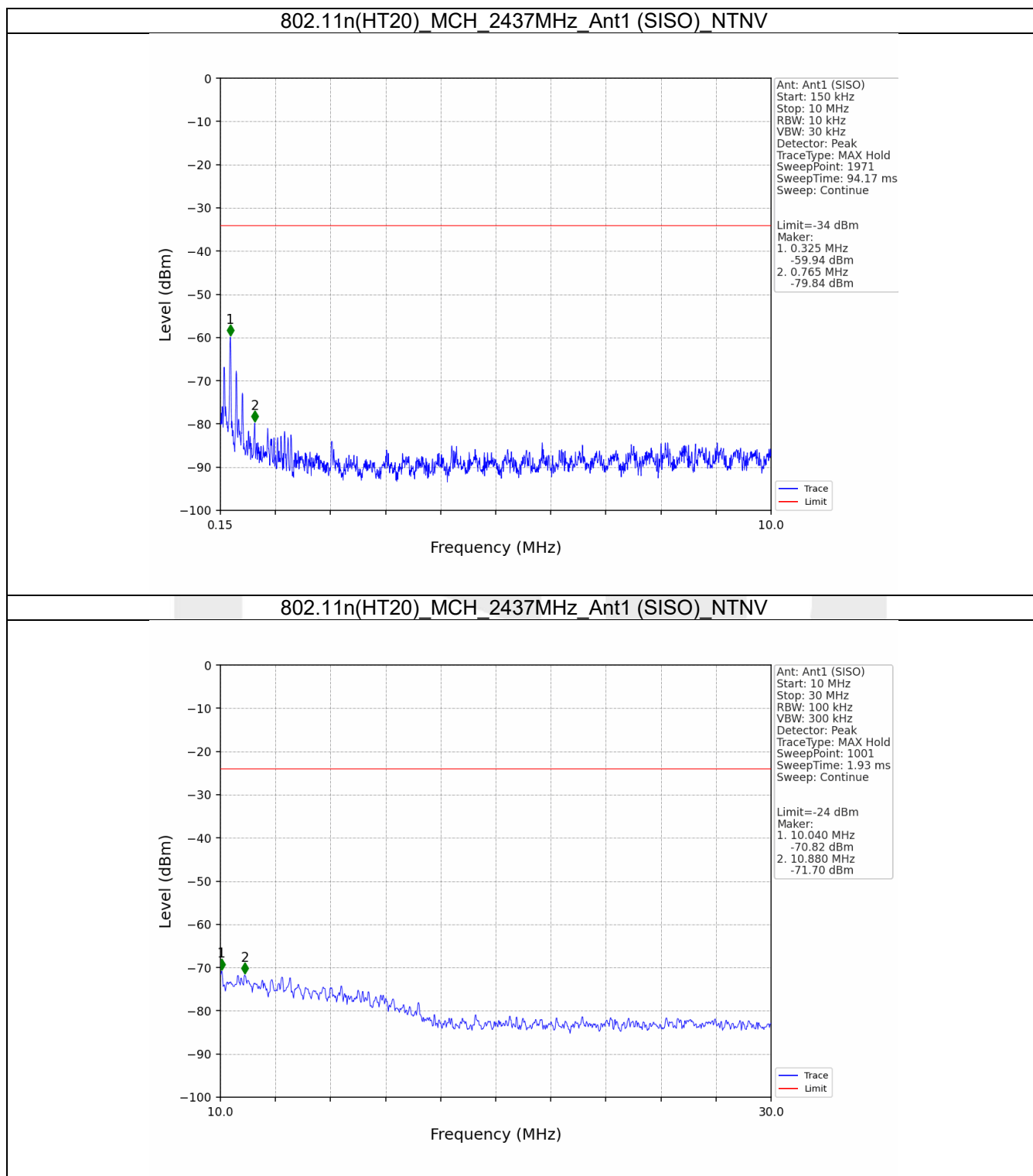


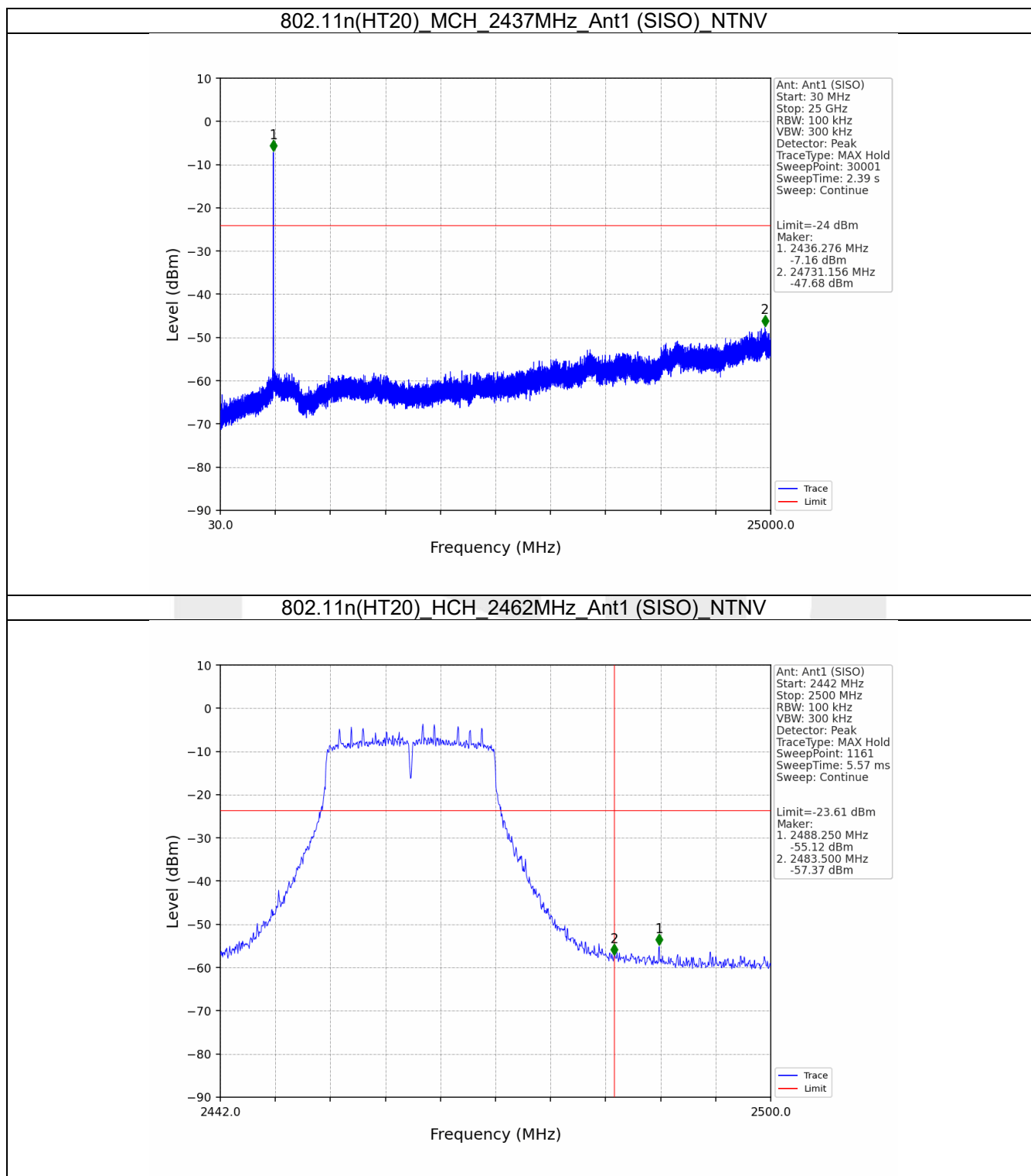


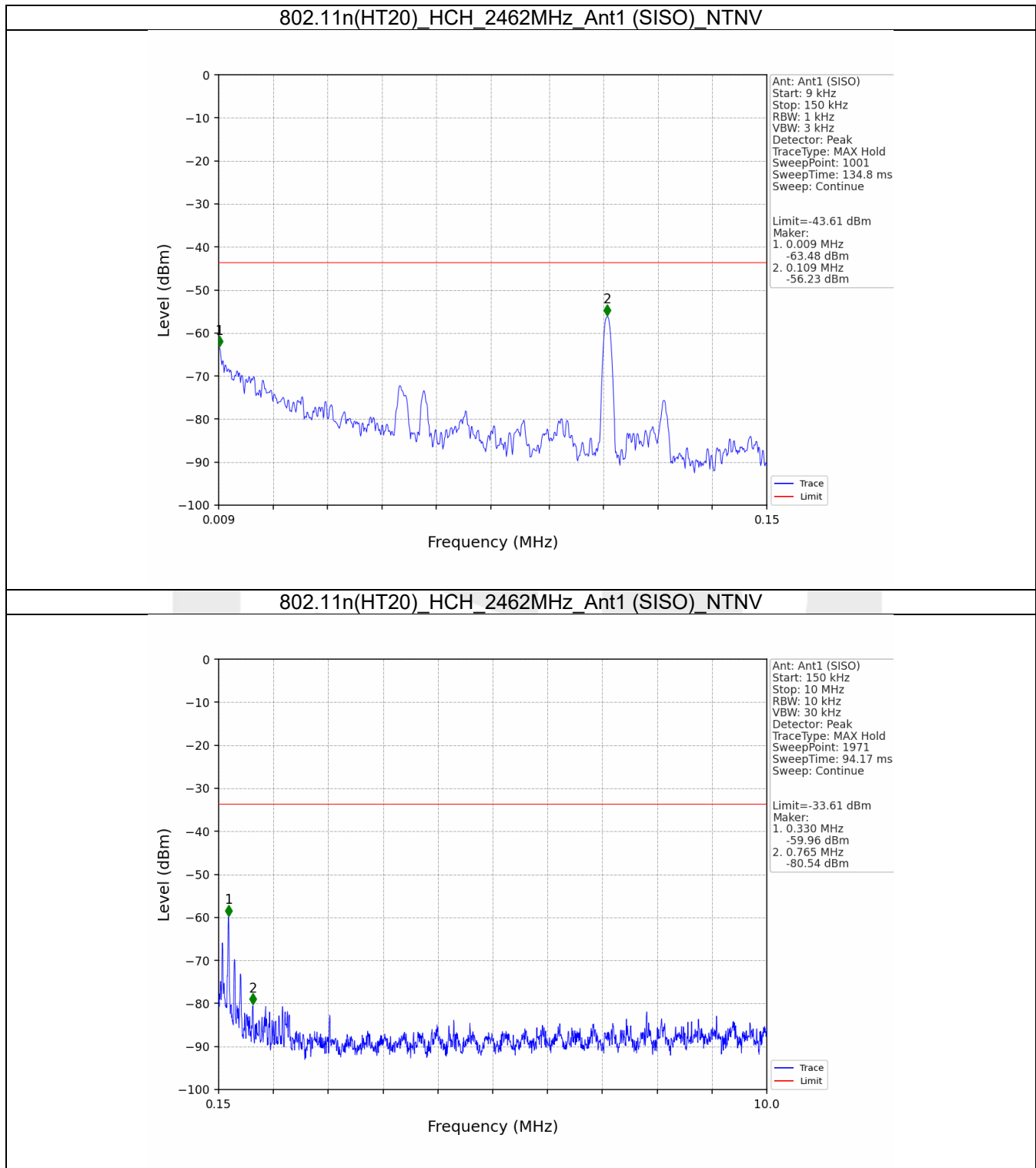


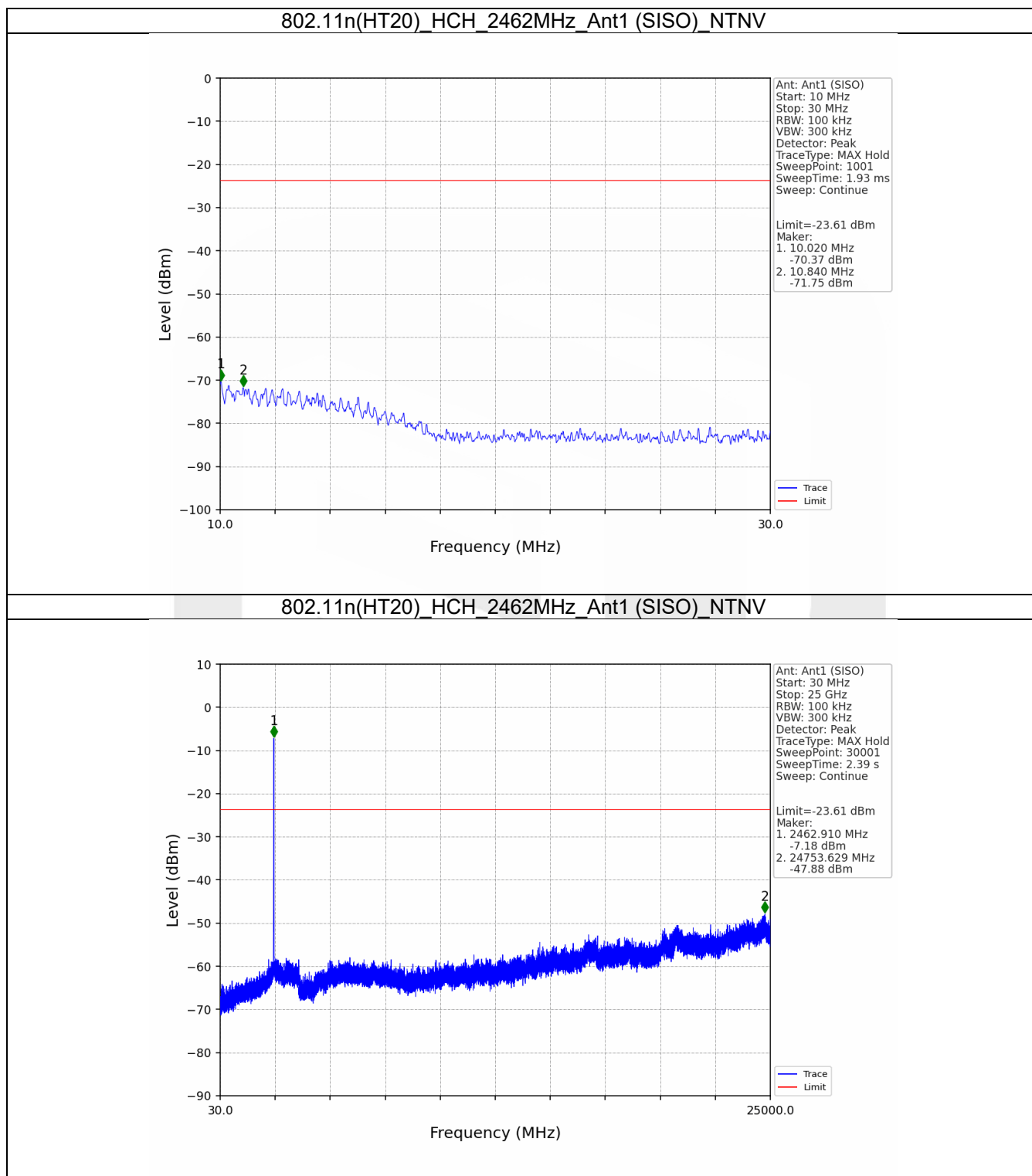












----- End of Report -----