



Shenzhen CTL Testing Technology Co., Ltd.

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Annex for 2.4G Wi-Fi

Test Report No.: CTL2509082043-WF02

TABLE OF CONTENTS

1. Duty Cycle	3
1.1 Test Result	3
1.1.1 Ant1	3
1.2 Test Graph.....	4
1.2.1 Ant1	4
2. Bandwidth.....	10
2.1 Test Result	10
2.1.1 OBW	10
2.1.2 6dB BW	10
2.2 Test Graph.....	11
2.2.1 OBW	11
2.2.2 6dB BW	17
3. Maximum Conducted Output Power	23
3.1 Test Result	23
3.1.1 Power	23
4. Maximum Power Spectral Density	24
4.1 Test Result	24
4.1.1 PSD	24
4.2 Test Graph.....	25



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4.2.1 PSD	25
5. Unwanted Emissions In Non-restricted Frequency Bands.....	31
5.1 Test Result	31
5.1.1 Ref.....	31
5.1.2 CSE.....	31
5.2 Test Graph.....	32
5.2.1 Ref.....	32
5.2.2 CSE.....	38

FCC ID: 2APQC-KD1

1. Duty Cycle

1.1 Test Result

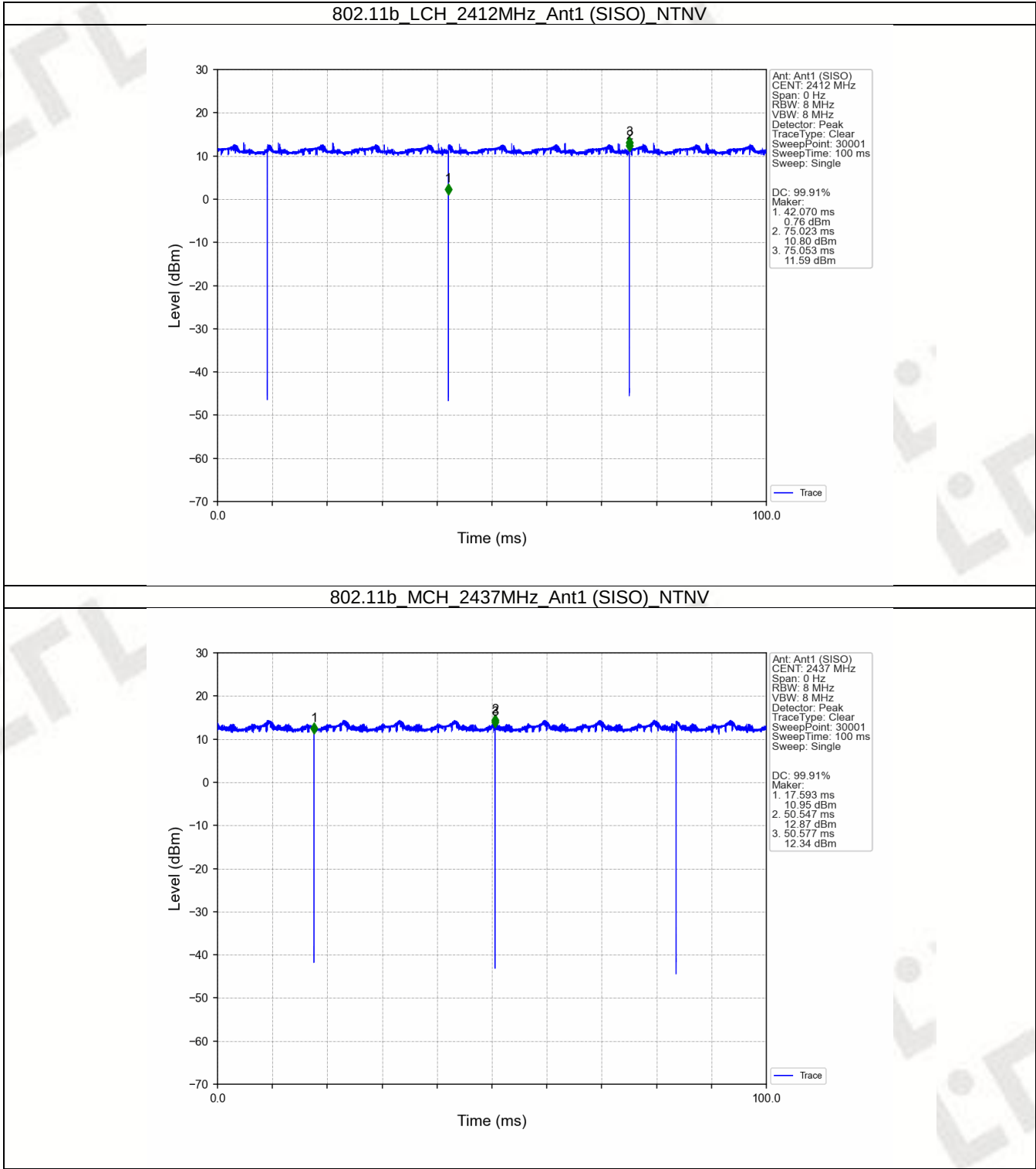
1.1.1 Ant1

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	32.953	32.983	99.91	0.00	0.01
		2437	32.954	32.984	99.91	0.00	0.01
		2462	32.953	32.983	99.91	0.00	0.01
802.11g	SISO	2412	5.486	5.510	99.56	0.02	0.00
		2437	5.484	5.510	99.53	0.02	0.00
		2462	5.484	5.510	99.53	0.02	0.04
802.11n (HT20)	SISO	2412	5.080	5.105	99.51	0.02	0.00
		2437	5.079	5.105	99.49	0.02	0.00
		2462	5.079	5.105	99.49	0.02	0.04
802.11n (HT40)	SISO	2422	2.469	2.494	99.00	0.04	0.03
		2437	2.469	2.494	99.00	0.04	0.03
		2452	2.469	2.494	99.00	0.04	0.03

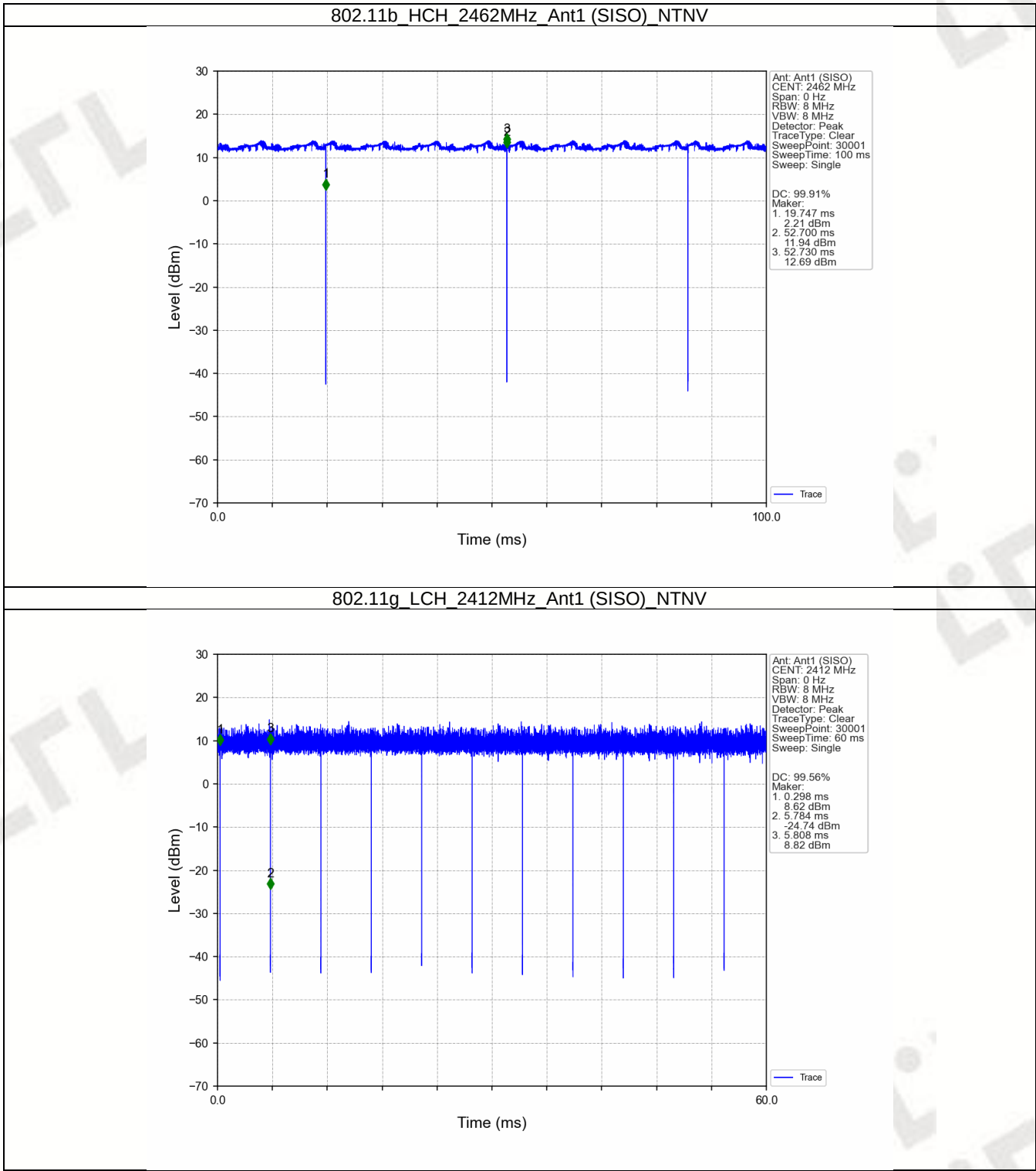
FCC ID: 2APQC-KD1

1.2 Test Graph

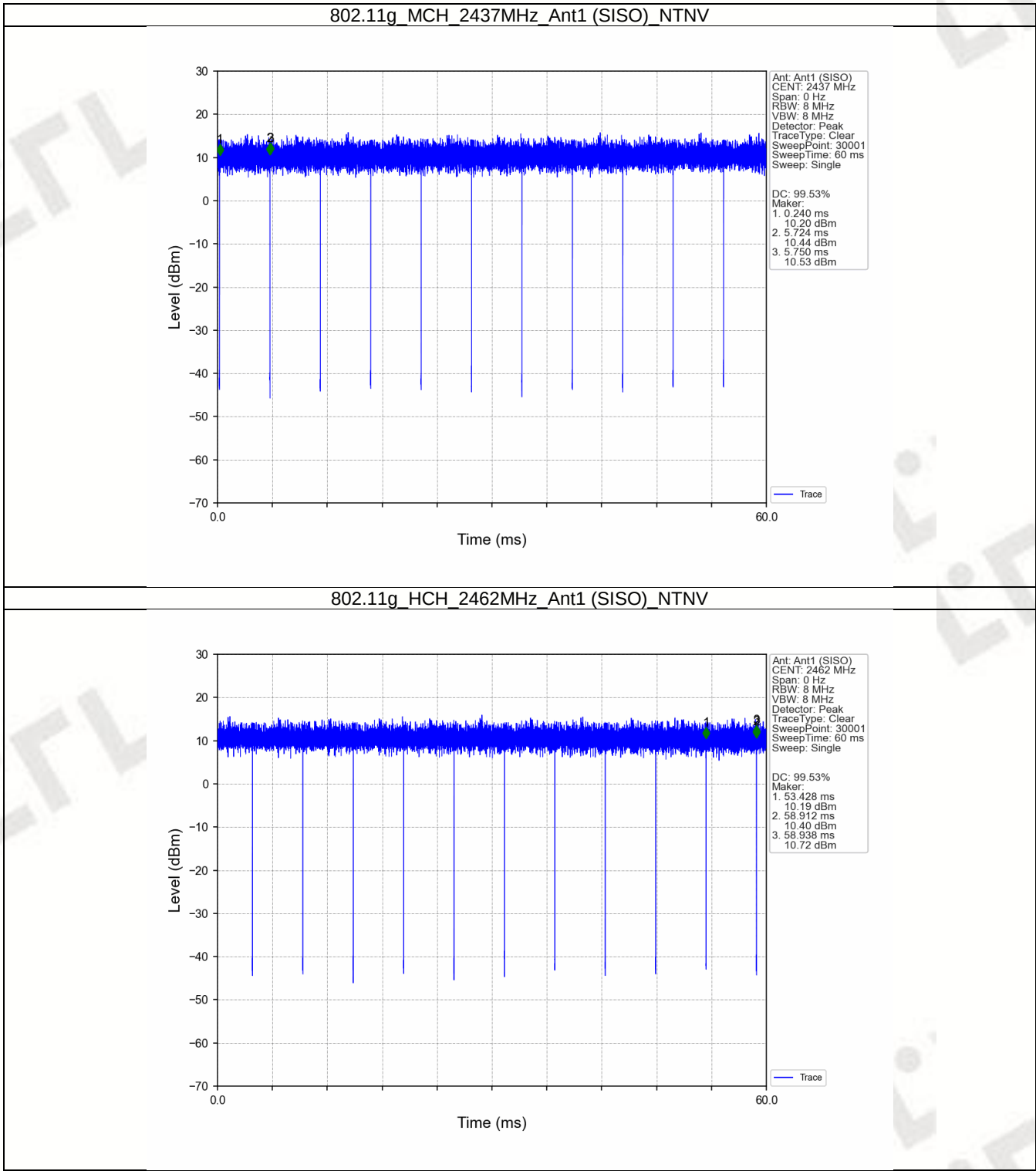
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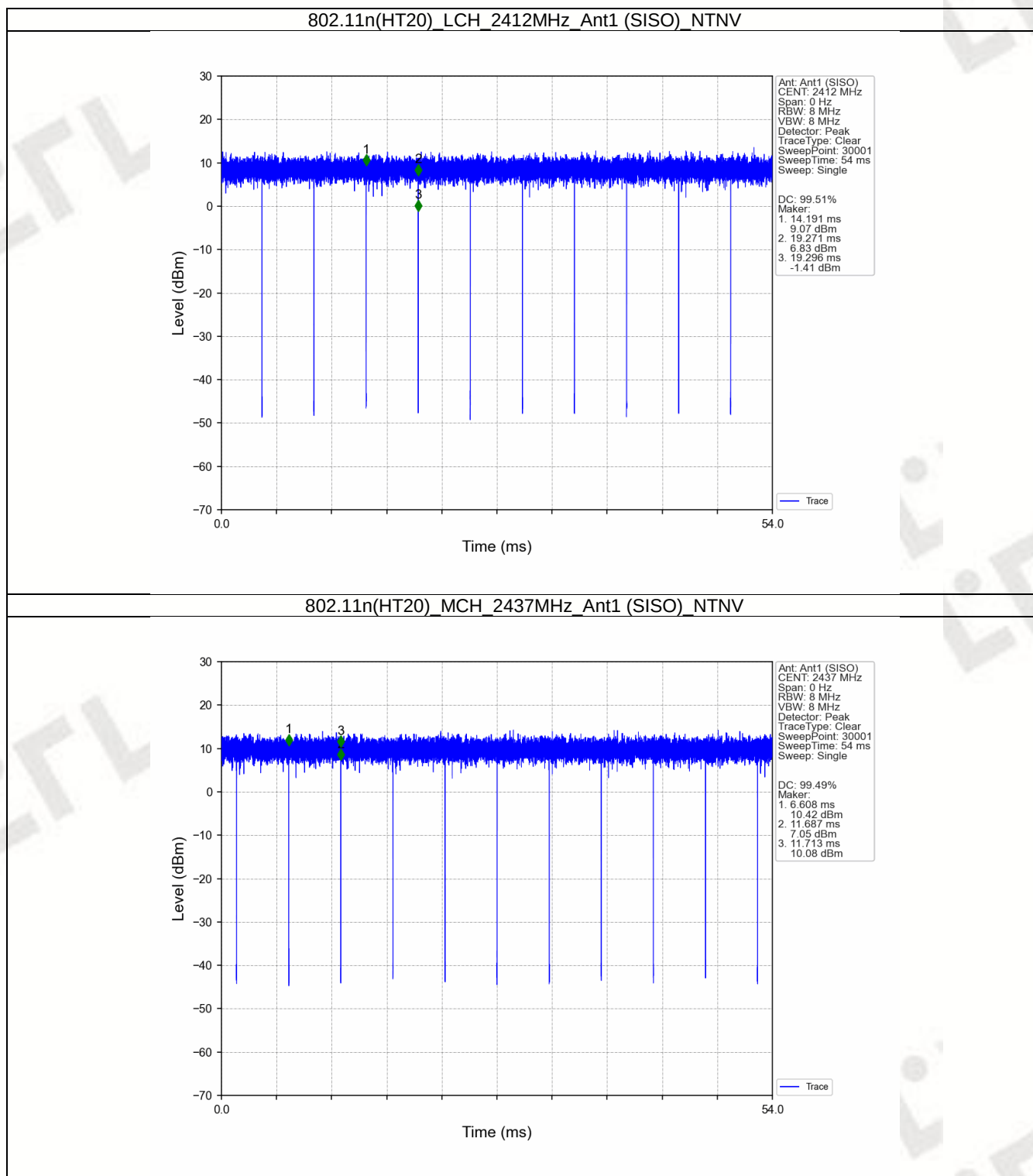
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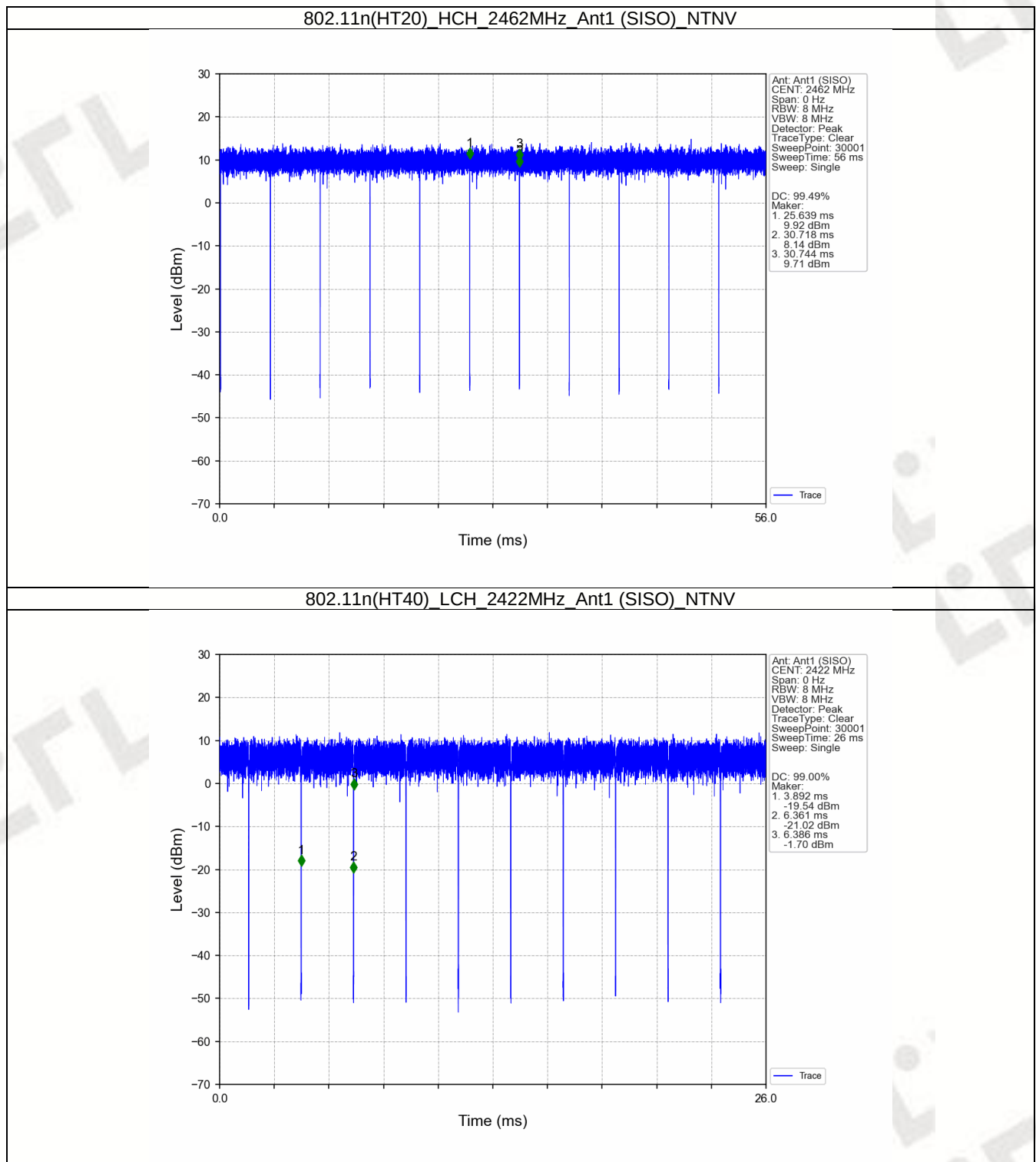
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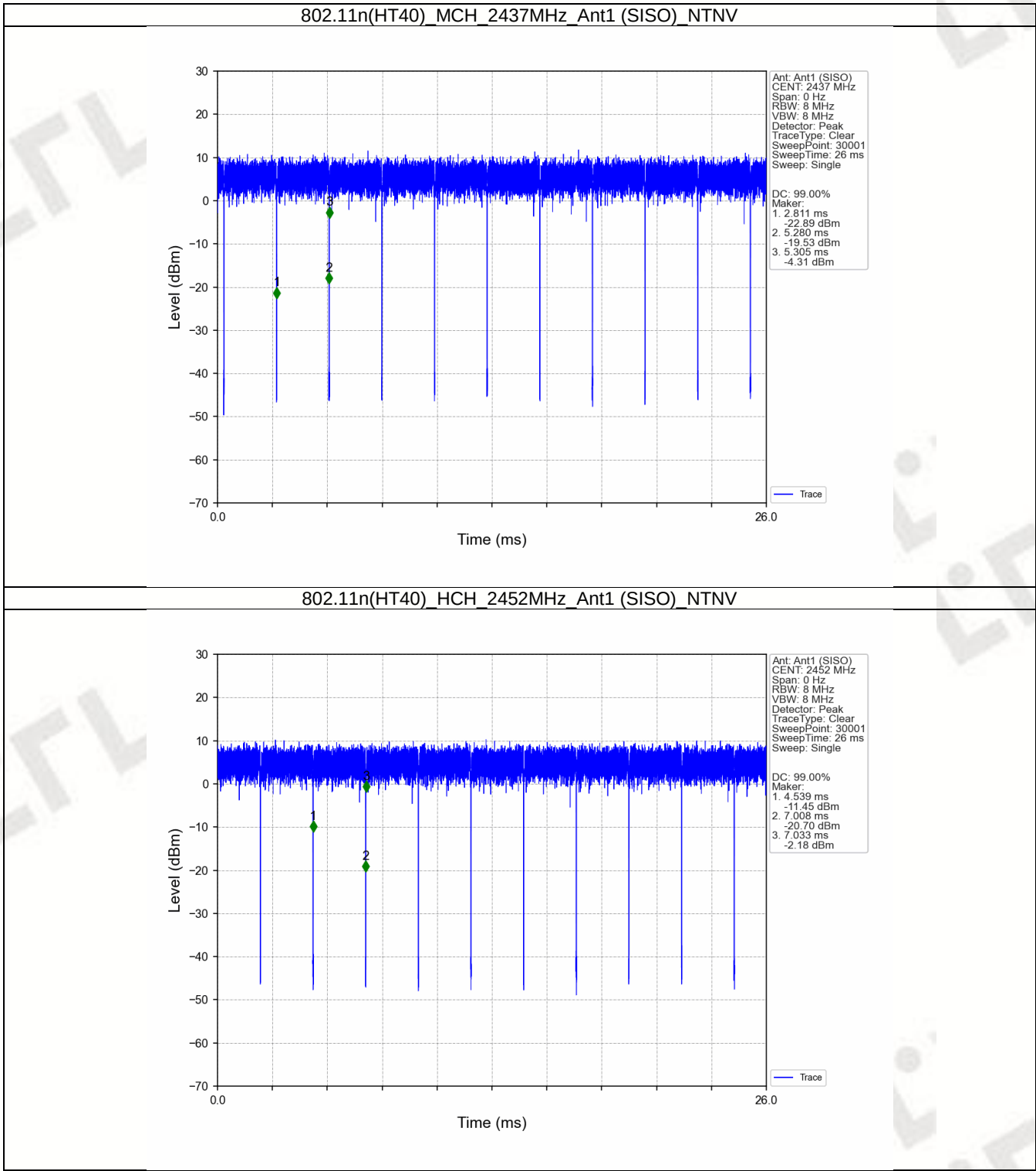
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FCC ID: 2APQC-KD1



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	12.951	/	Pass
		2437	1	13.031	/	Pass
		2462	1	12.842	/	Pass
802.11g	SISO	2412	1	16.929	/	Pass
		2437	1	16.975	/	Pass
		2462	1	16.820	/	Pass
802.11n (HT20)	SISO	2412	1	17.612	/	Pass
		2437	1	17.560	/	Pass
		2462	1	17.500	/	Pass
802.11n (HT40)	SISO	2422	1	35.421	/	Pass
		2437	1	35.862	/	Pass
		2452	1	35.910	/	Pass

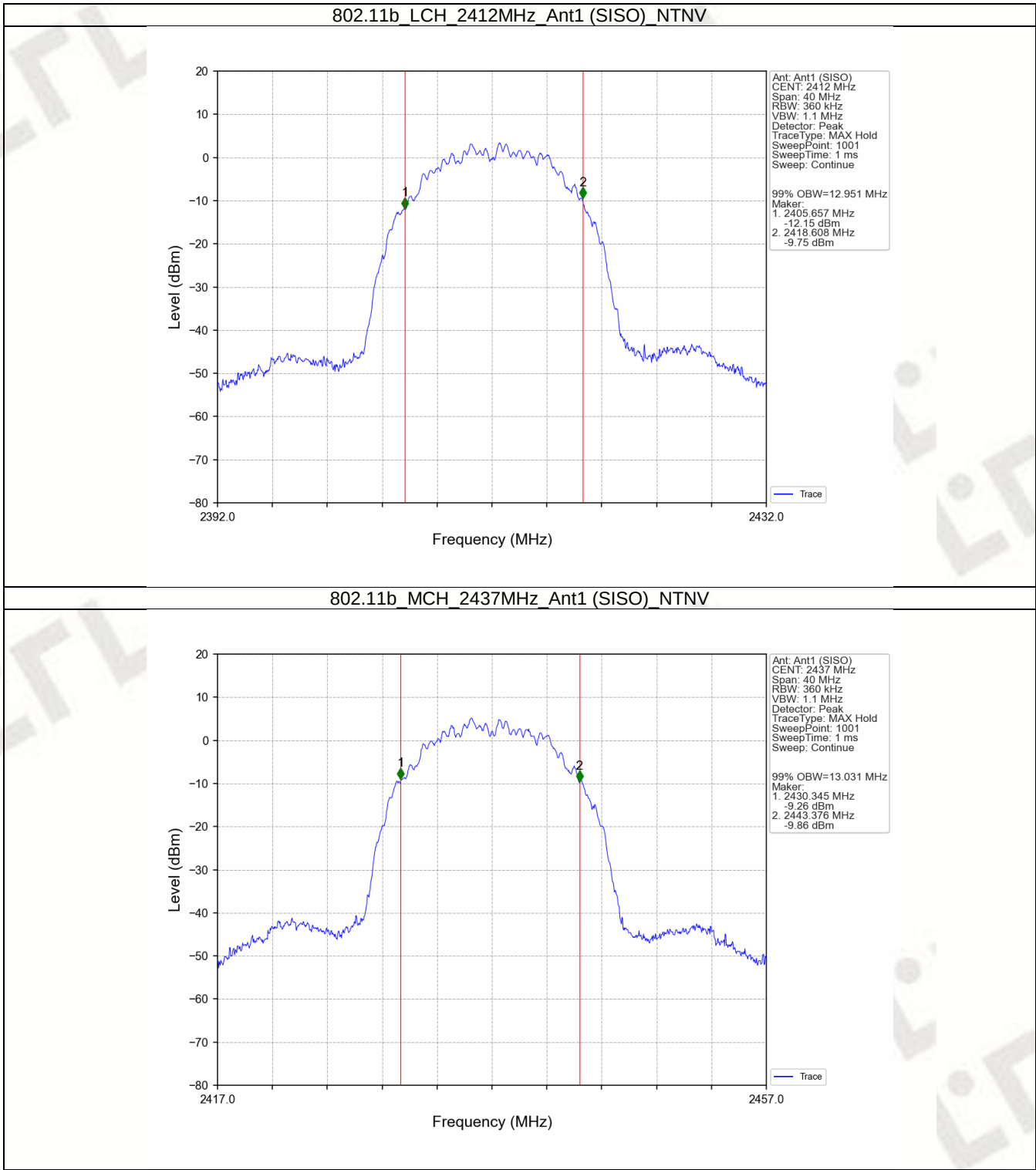
2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	8.571	≥ 0.5	Pass
		2437	1	8.888	≥ 0.5	Pass
		2462	1	8.423	≥ 0.5	Pass
802.11g	SISO	2412	1	16.415	≥ 0.5	Pass
		2437	1	16.580	≥ 0.5	Pass
		2462	1	16.374	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	17.018	≥ 0.5	Pass
		2437	1	17.344	≥ 0.5	Pass
		2462	1	17.038	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	34.135	≥ 0.5	Pass
		2437	1	35.436	≥ 0.5	Pass
		2452	1	35.407	≥ 0.5	Pass

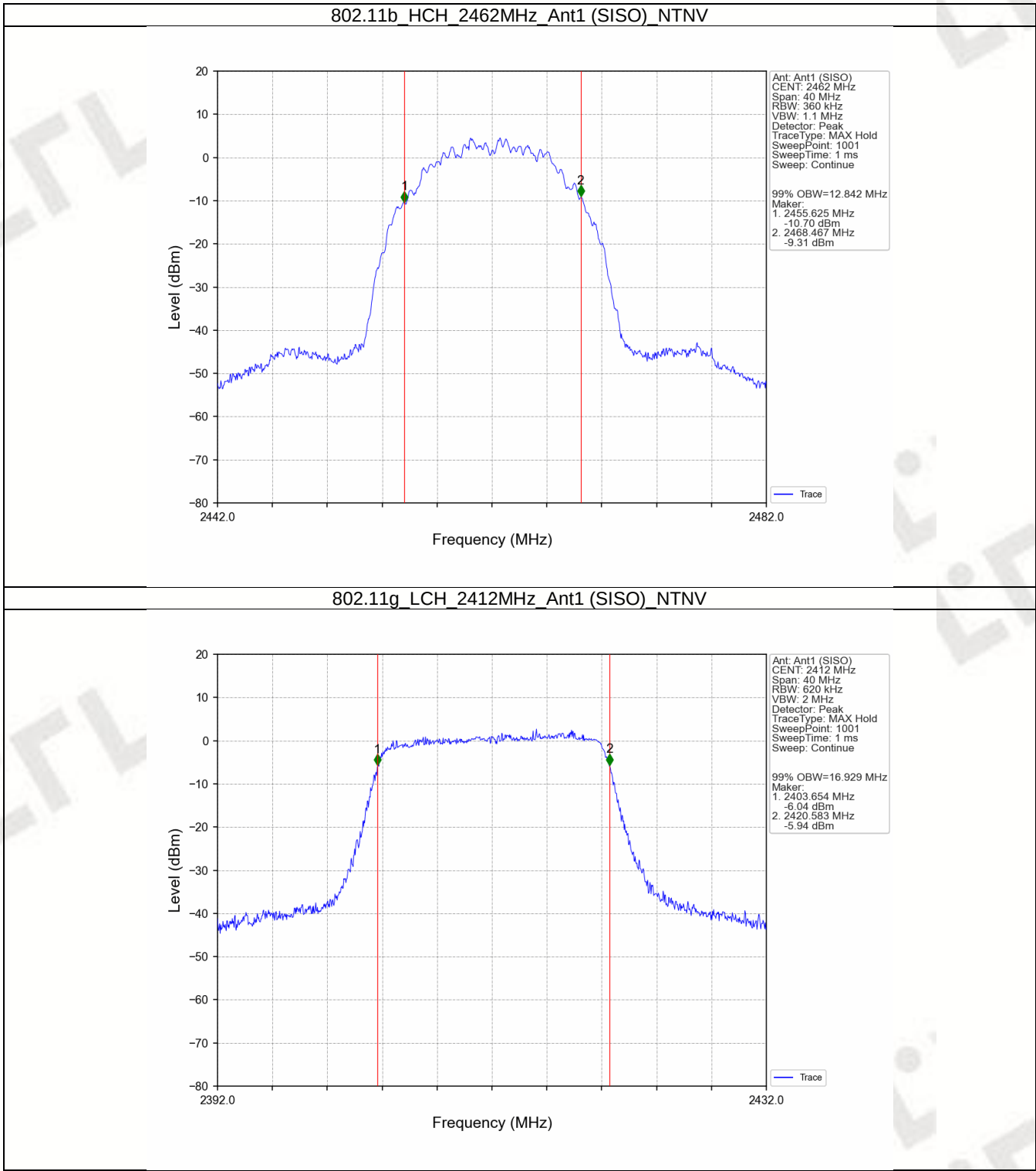
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2.2 Test Graph

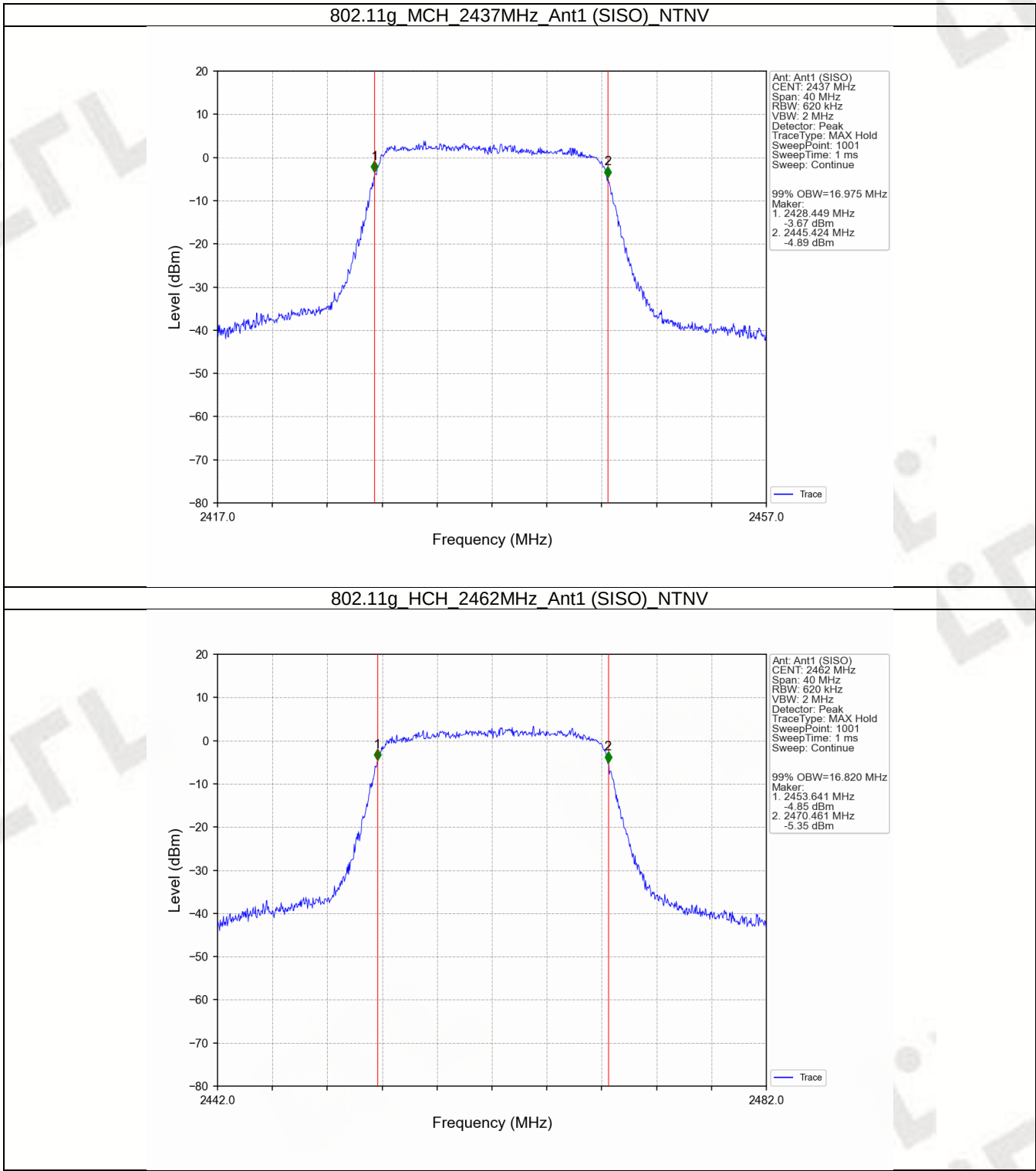
2.2.1 OBW



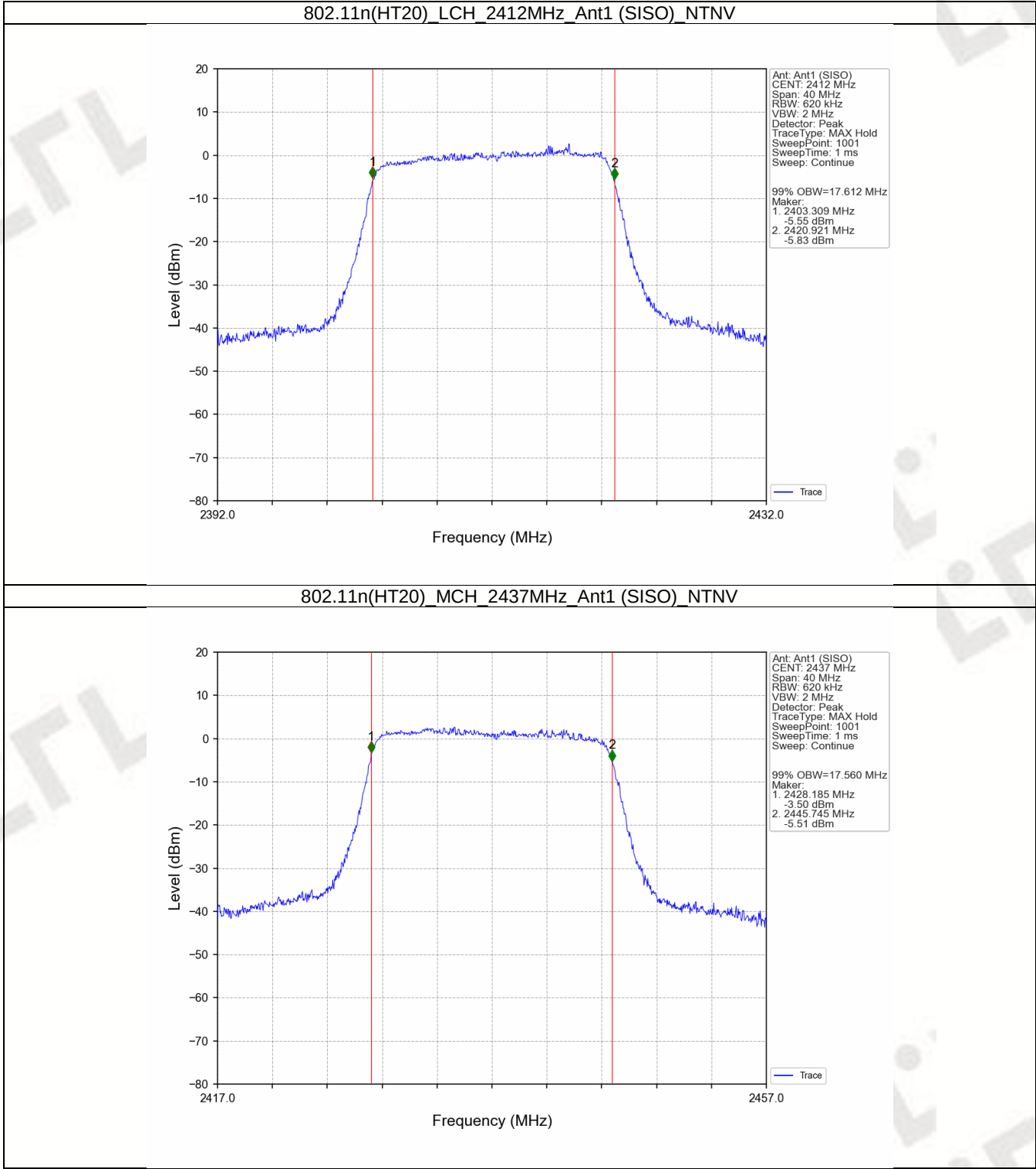
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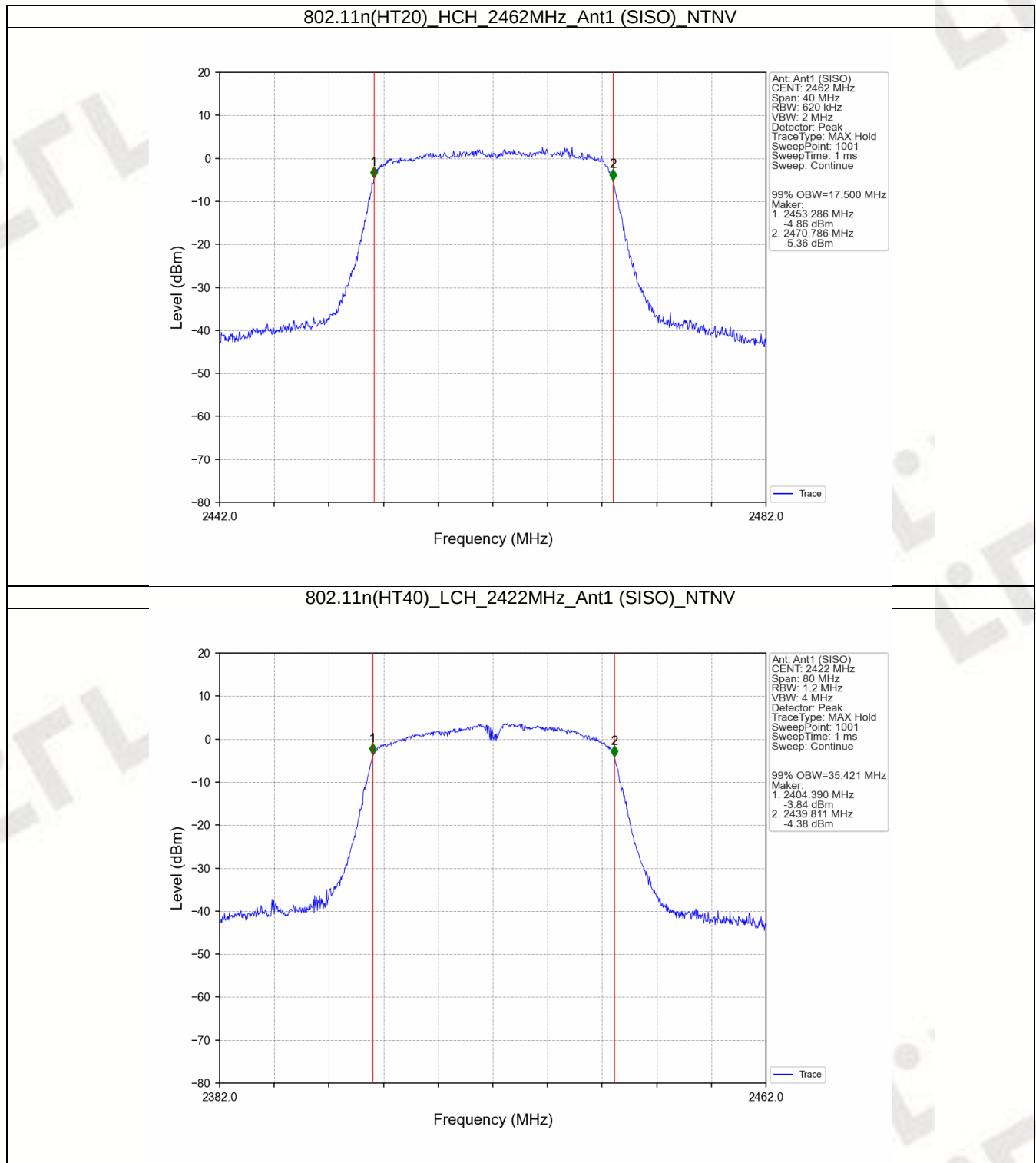
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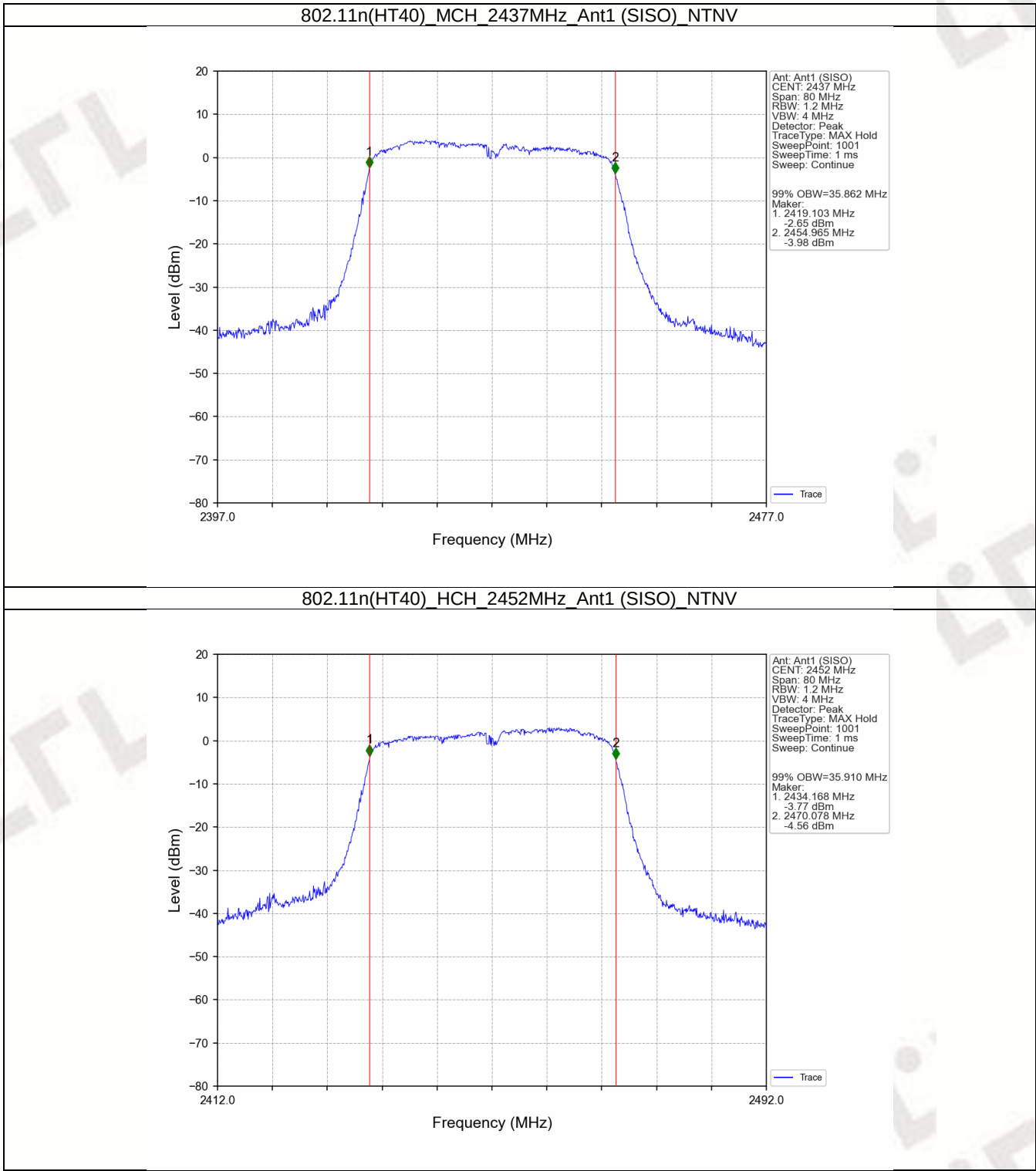
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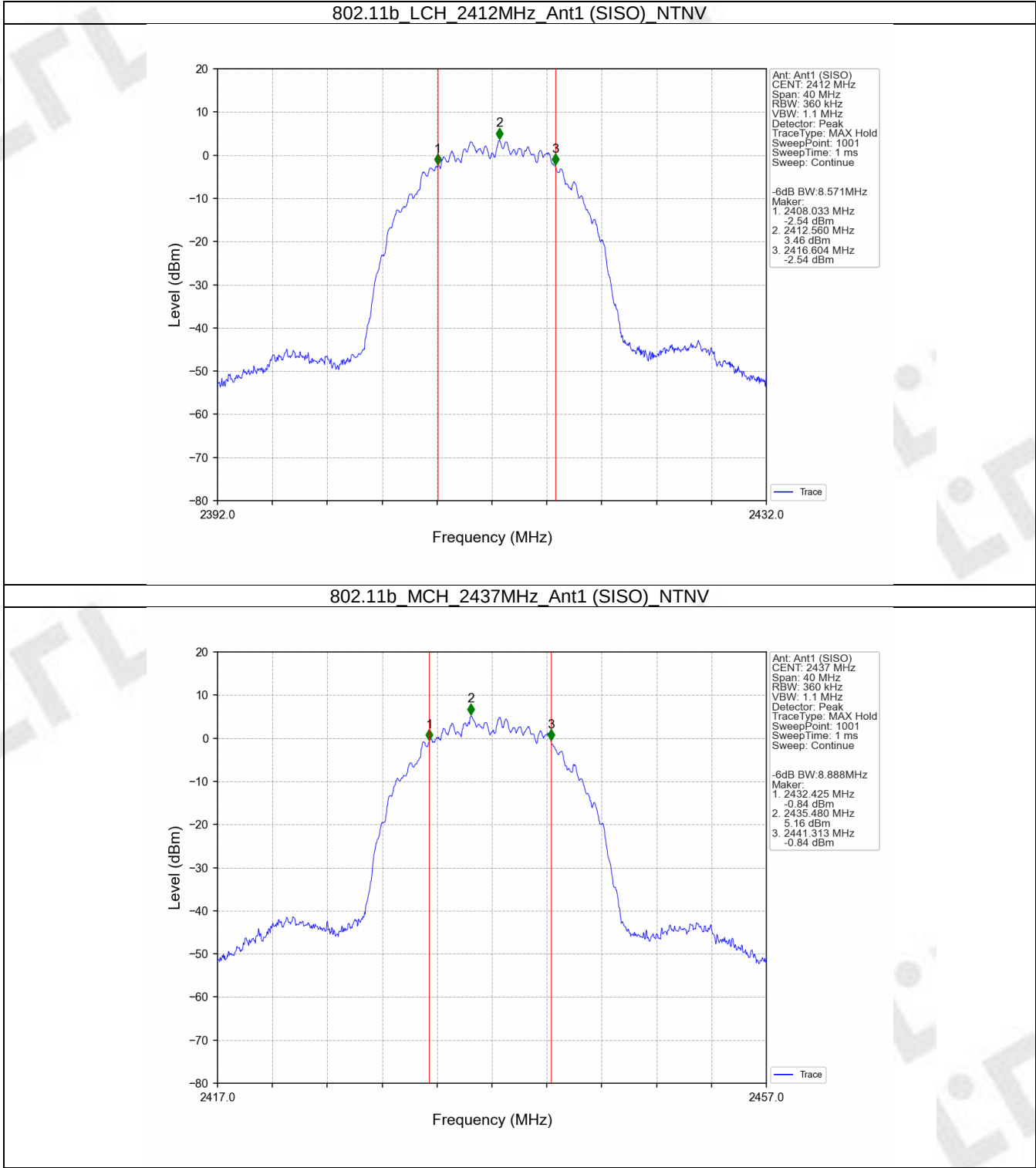


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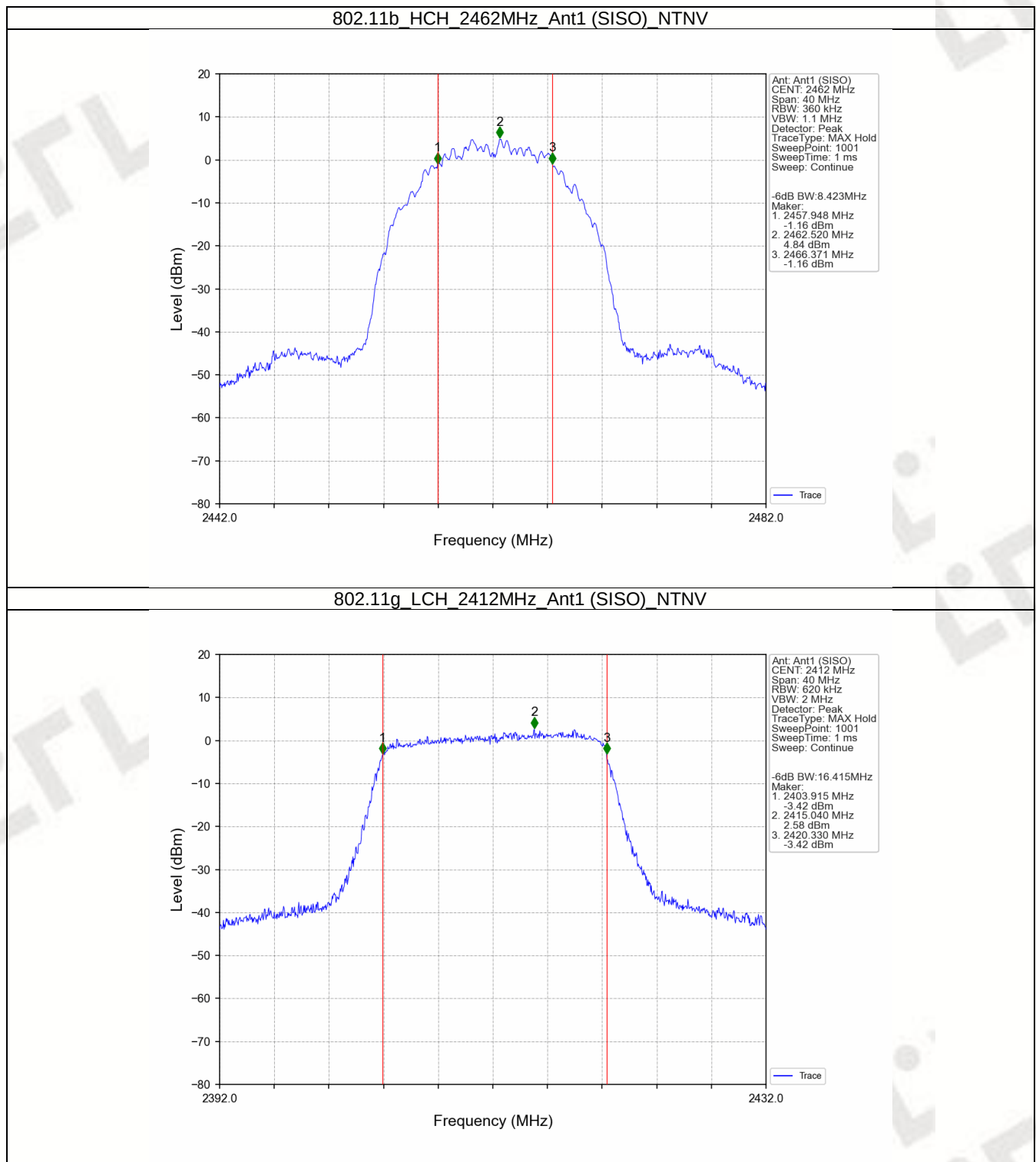


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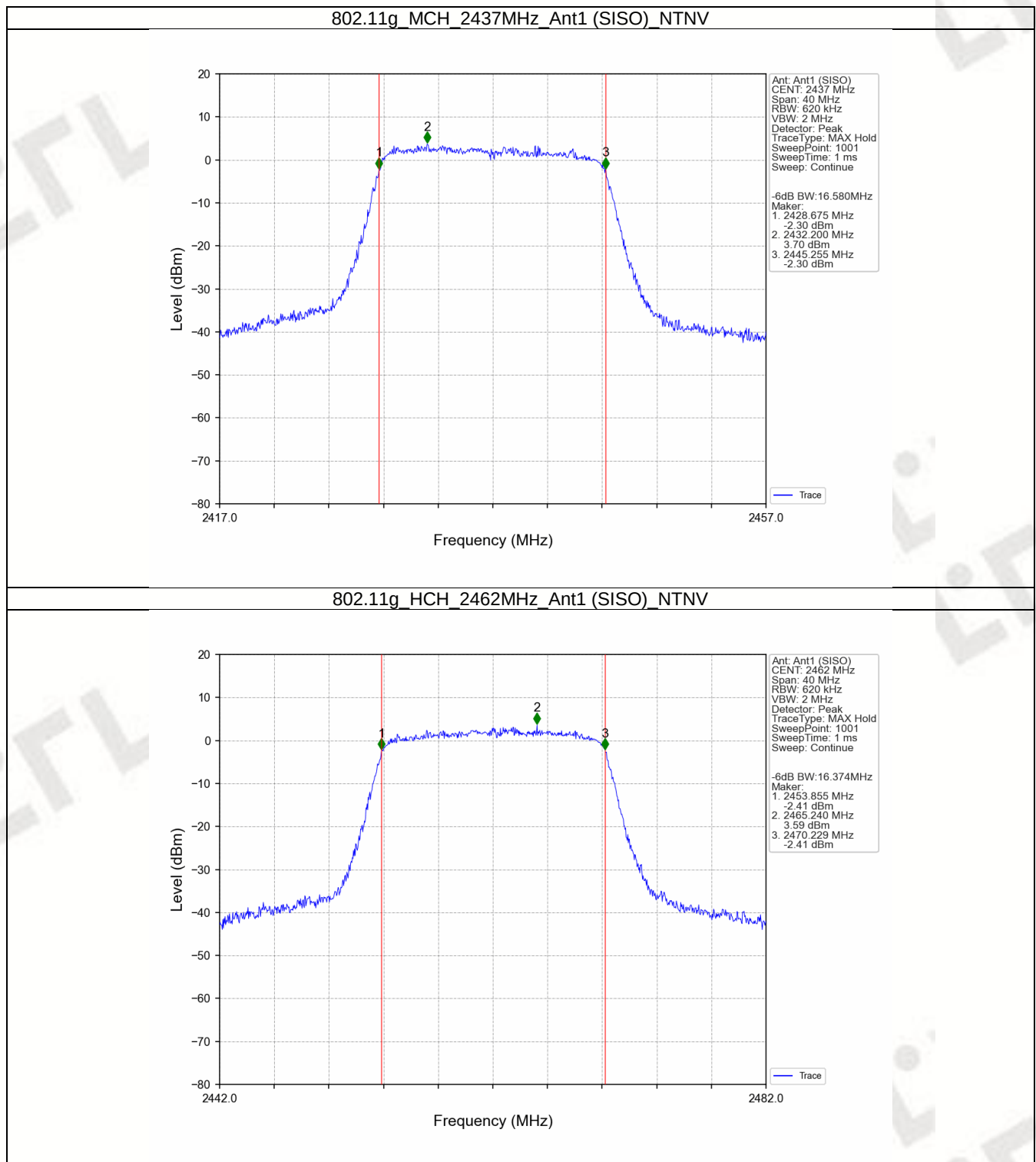
2.2.2 6dB BW



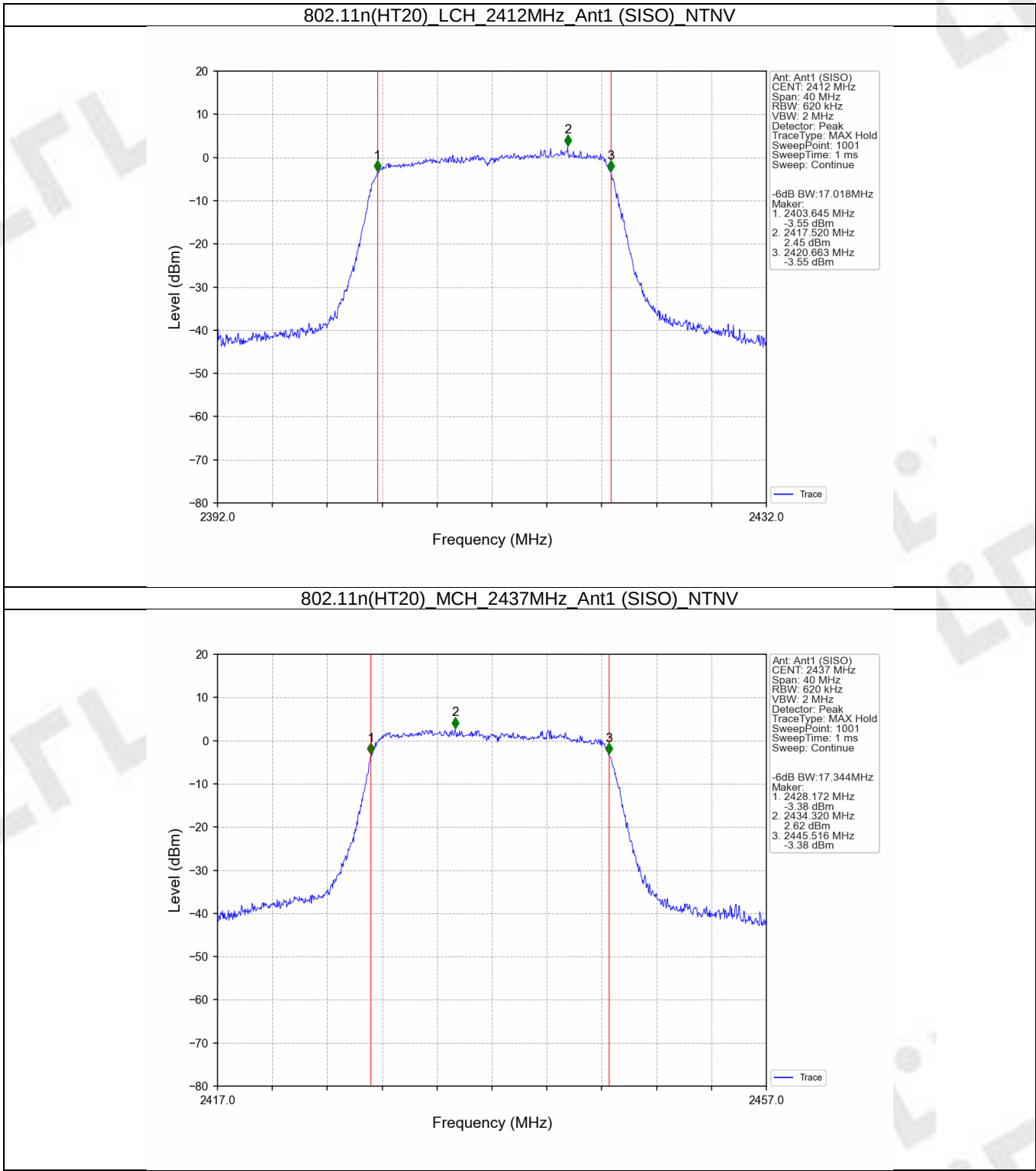
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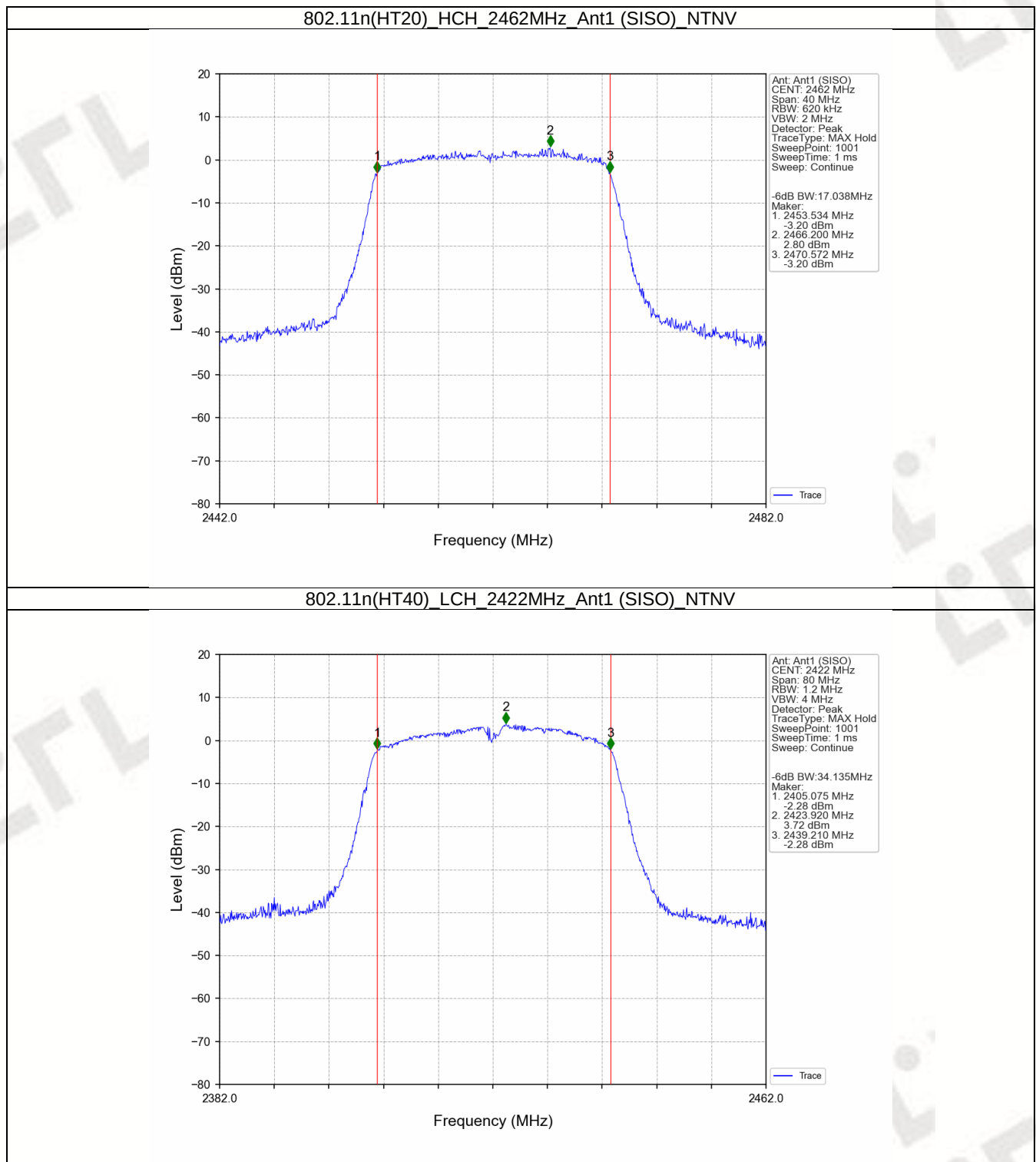
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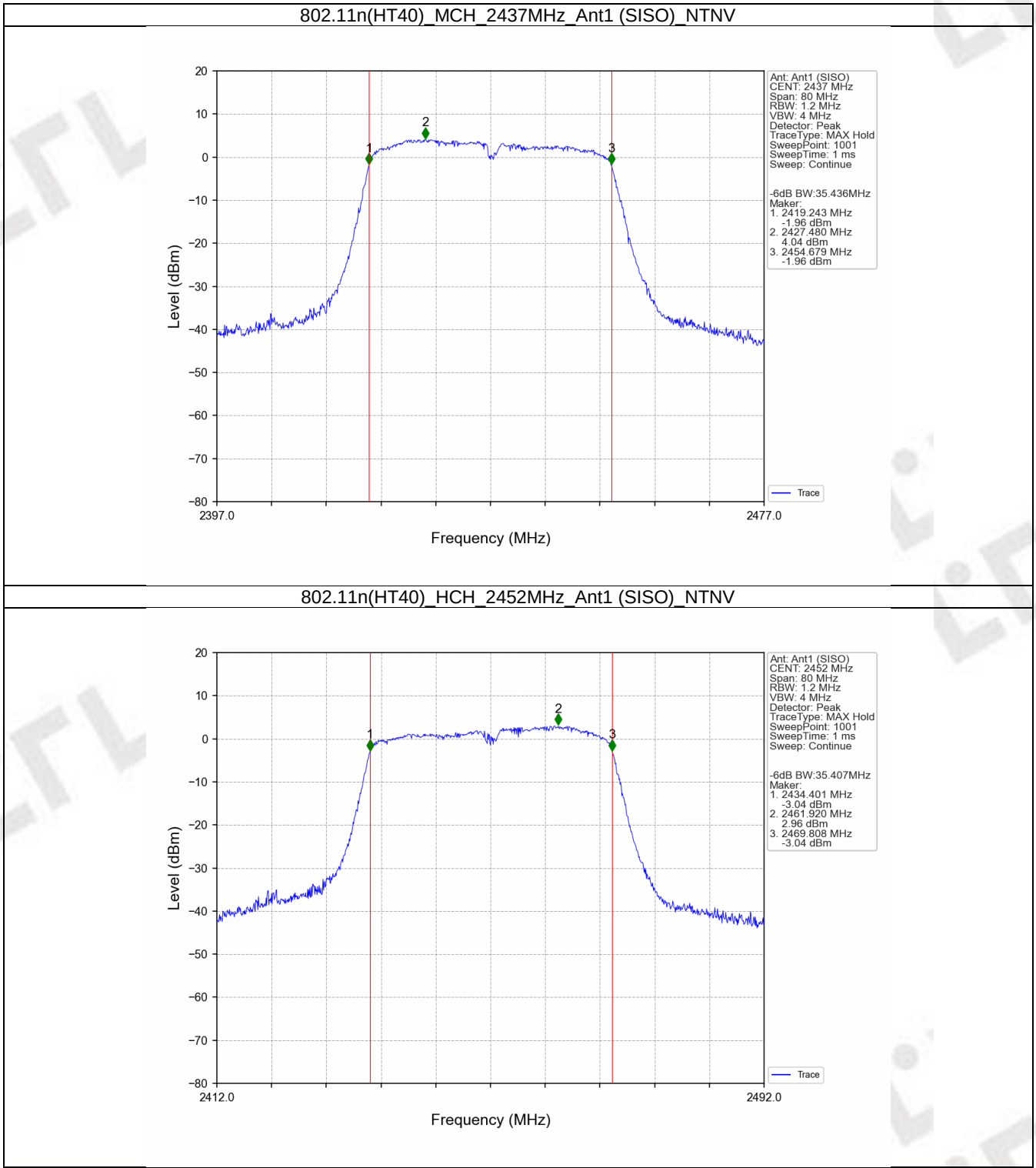
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FCC ID: 2APQC-KD1



FCC ID: 2APQC-KD1



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	13.73	<=30	Pass
		2437	15.37	<=30	Pass
		2462	15.09	<=30	Pass
802.11g	SISO	2412	15.05	<=30	Pass
		2437	16.43	<=30	Pass
		2462	15.95	<=30	Pass
802.11n (HT20)	SISO	2412	14.56	<=30	Pass
		2437	15.99	<=30	Pass
		2462	15.51	<=30	Pass
802.11n (HT40)	SISO	2422	15.31	<=30	Pass
		2437	16.33	<=30	Pass
		2452	15.13	<=30	Pass

Note1: Antenna Gain: Ant1: 3.26dBi;

Note2: RF Cable loss=0.5dB

Note3: The test results include RF Cable loss.

FCC ID: 2APQC-KD1

4. Maximum Power Spectral Density

4.1 Test Result

4.1.1 PSD

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-0.57	<=8	Pass
		2437	0.85	<=8	Pass
		2462	0.98	<=8	Pass
802.11g	SISO	2412	-3.38	<=8	Pass
		2437	-2.97	<=8	Pass
		2462	-2.48	<=8	Pass
802.11n (HT20)	SISO	2412	-3.95	<=8	Pass
		2437	-2.63	<=8	Pass
		2462	-3.17	<=8	Pass
802.11n (HT40)	SISO	2422	-5.30	<=8	Pass
		2437	-5.40	<=8	Pass
		2452	-5.94	<=8	Pass

Note1: Antenna Gain: Ant1: 3.26dBi;

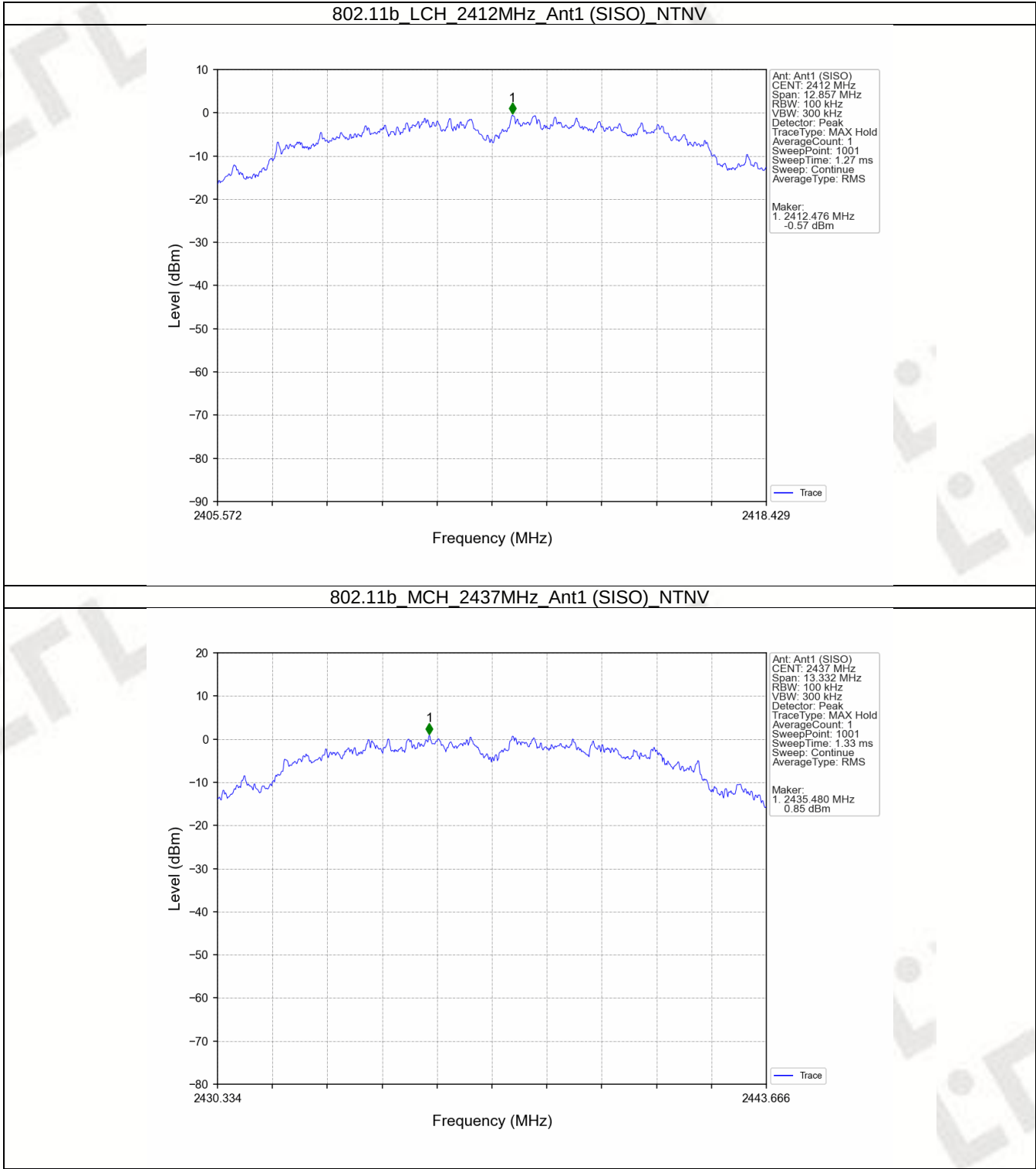
Note2: RF Cable loss=0.5dB

Note3: The test results include RF Cable loss.

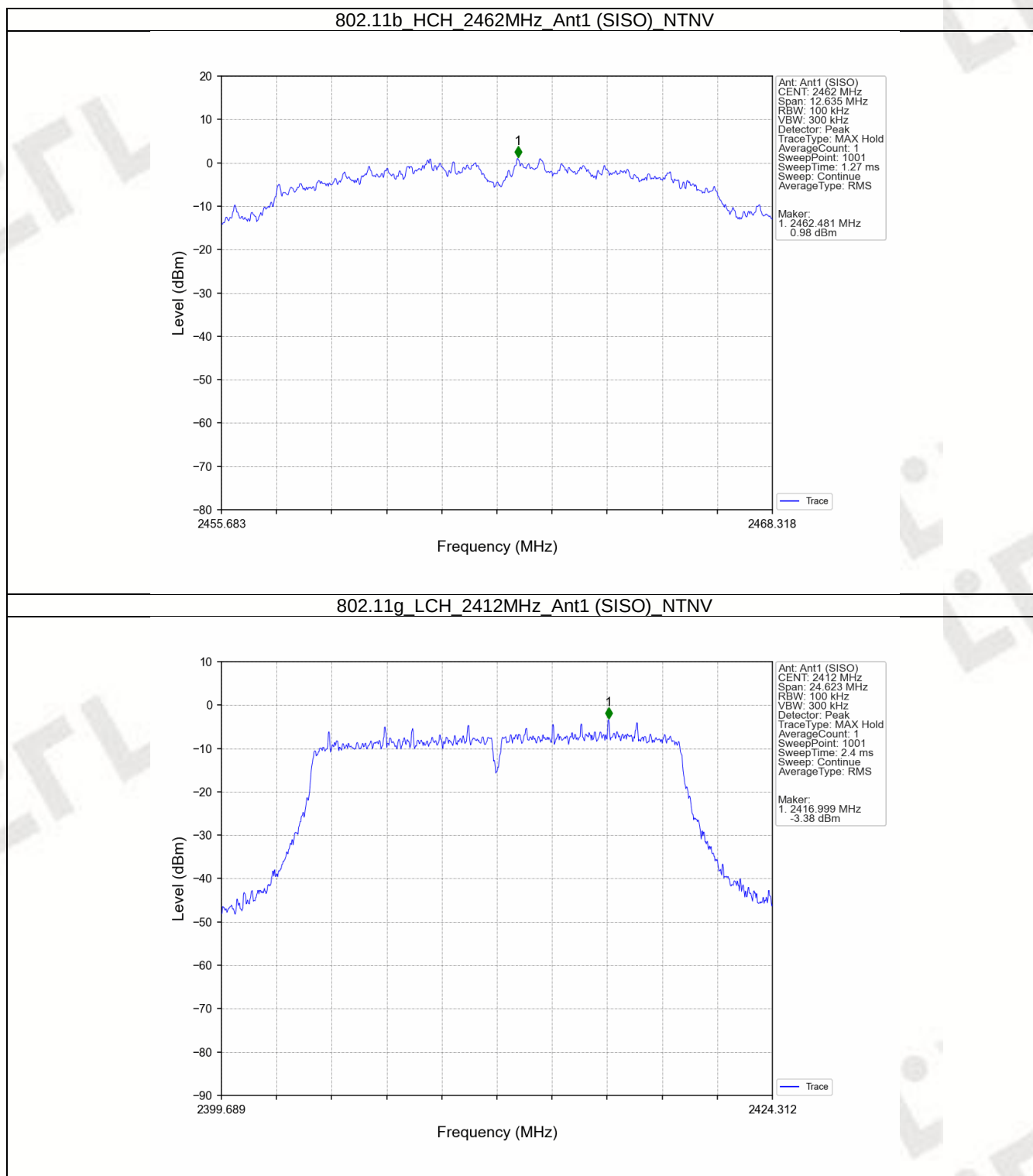
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4.2 Test Graph

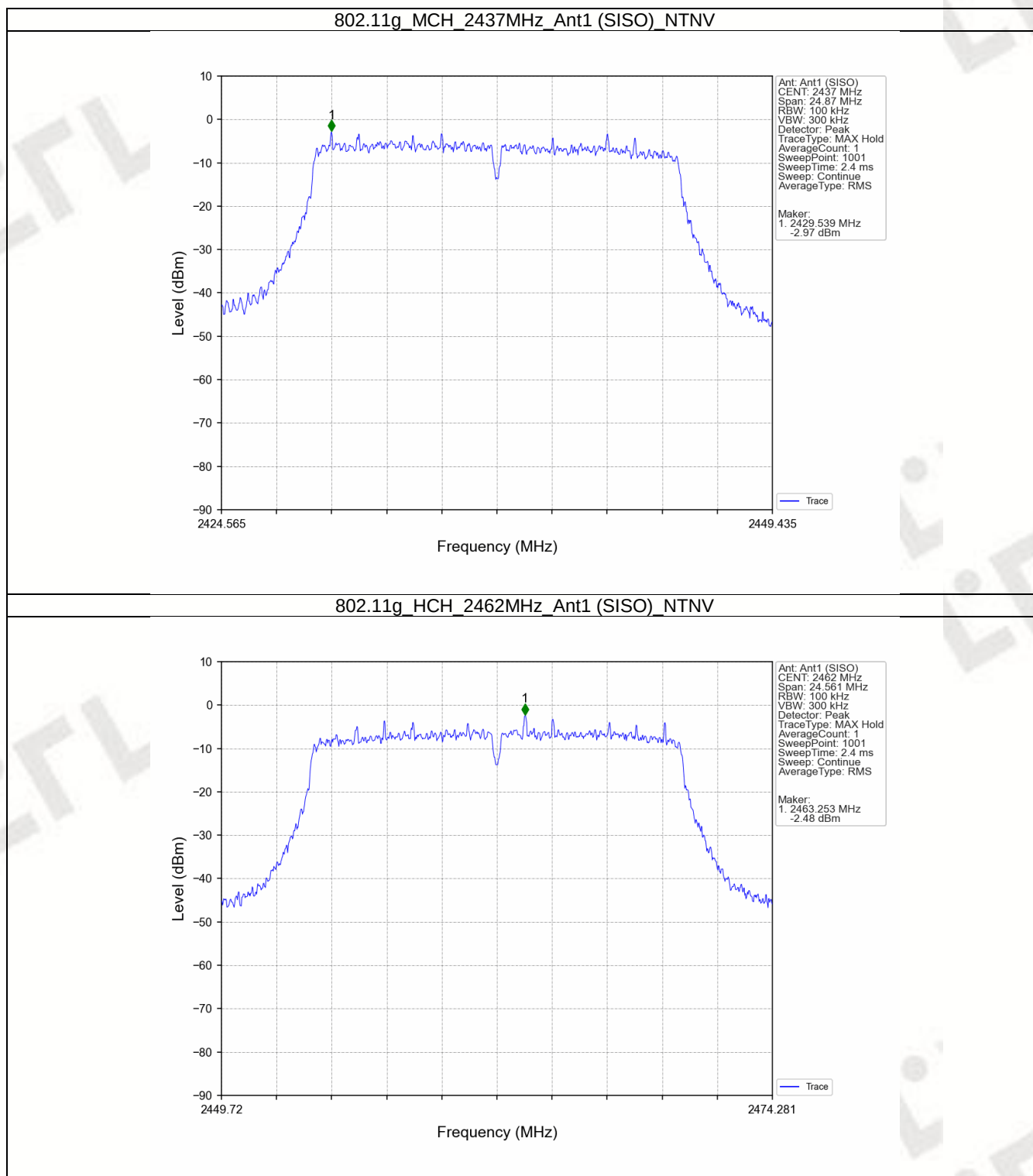
4.2.1 PSD



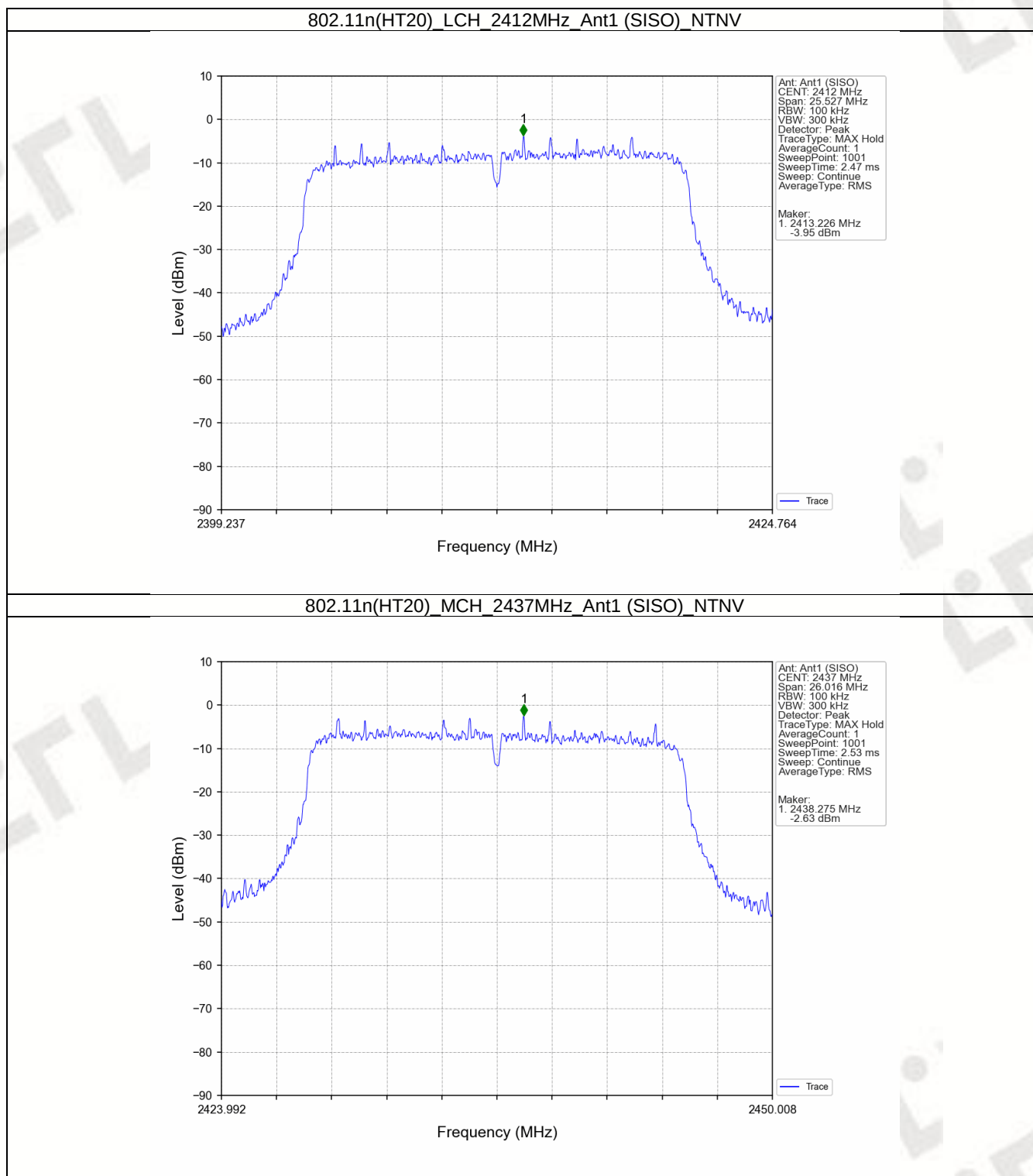
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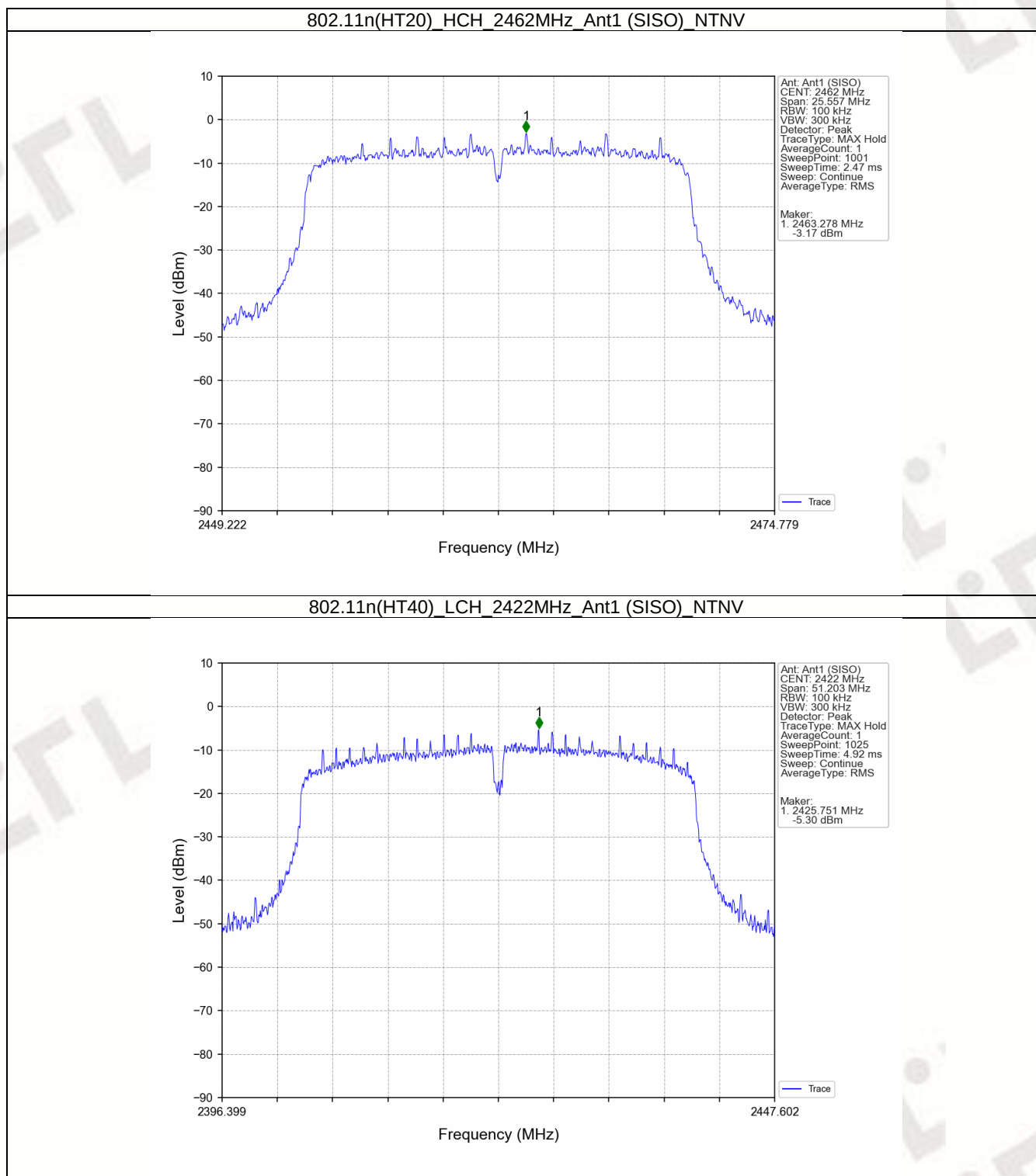
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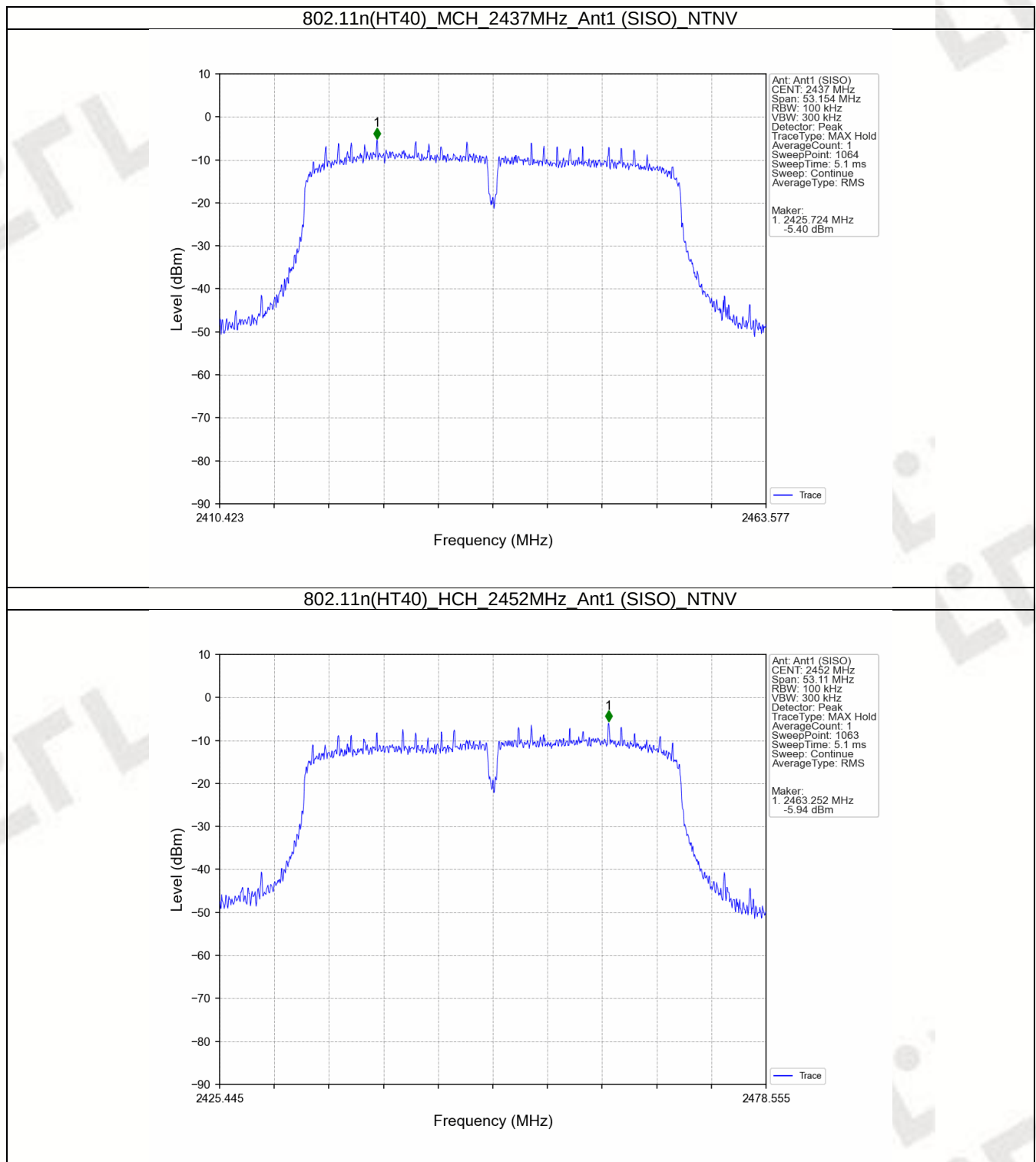
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FCC ID: 2APQC-KD1



FCC ID: 2APQC-KD1



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	-0.91
		2437	1	1.44
		2462	1	1.23
802.11g	SISO	2412	1	-4.07
		2437	1	-2.38
		2462	1	-3.28
802.11n (HT20)	SISO	2412	1	-4.04
		2437	1	-2.69
		2462	1	-2.64
802.11n (HT40)	SISO	2422	1	-5.31
		2437	1	-4.52
		2452	1	-6.25

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

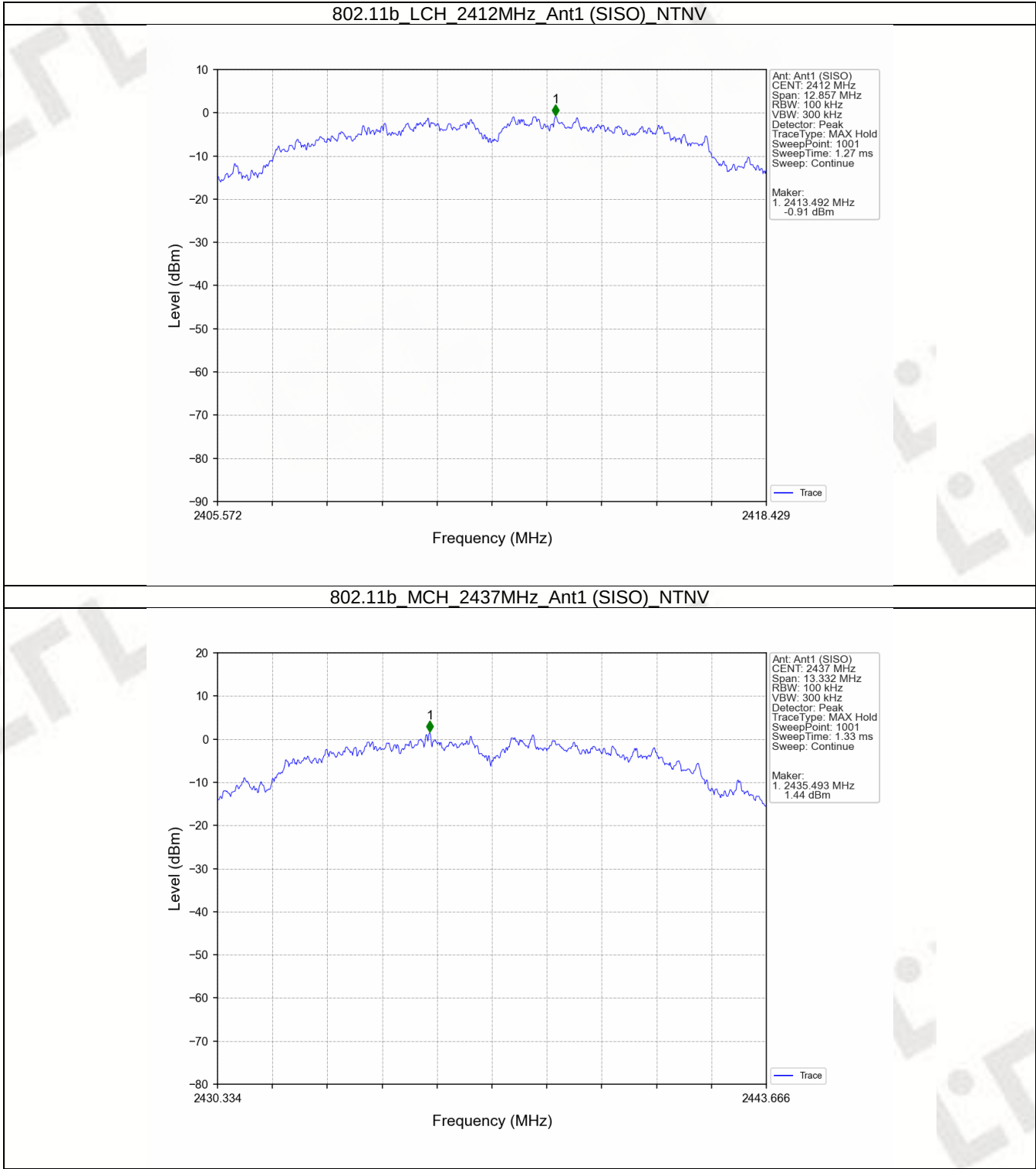
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	1.44	-18.56	Pass
		2437	1	1.44	-18.56	Pass
		2462	1	1.44	-18.56	Pass
802.11g	SISO	2412	1	-2.38	-22.38	Pass
		2437	1	-2.38	-22.38	Pass
		2462	1	-2.38	-22.38	Pass
802.11n (HT20)	SISO	2412	1	-2.64	-22.64	Pass
		2437	1	-2.64	-22.64	Pass
		2462	1	-2.64	-22.64	Pass
802.11n (HT40)	SISO	2422	1	-4.52	-24.52	Pass
		2437	1	-4.52	-24.52	Pass
		2452	1	-4.52	-24.52	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.

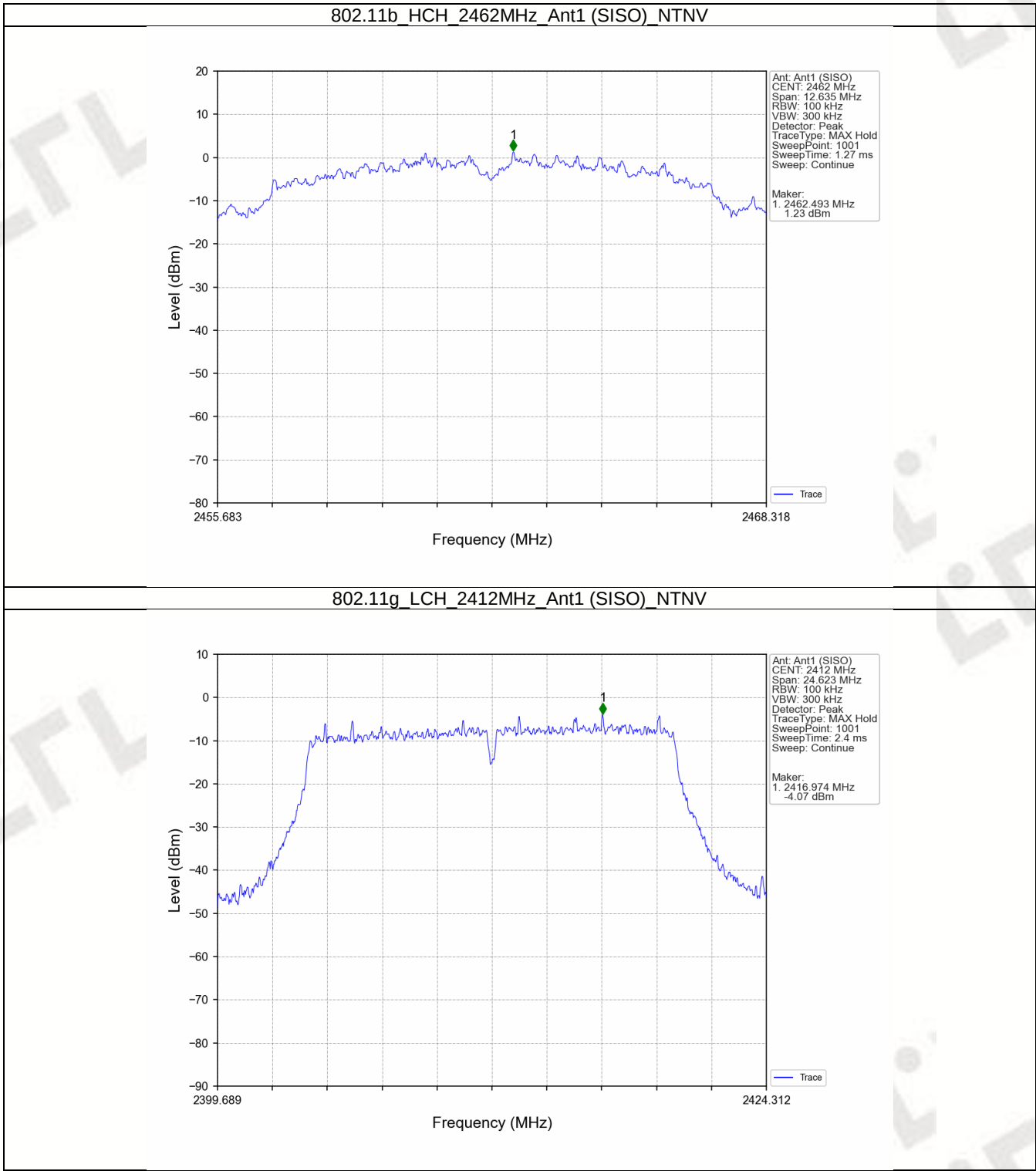
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5.2 Test Graph

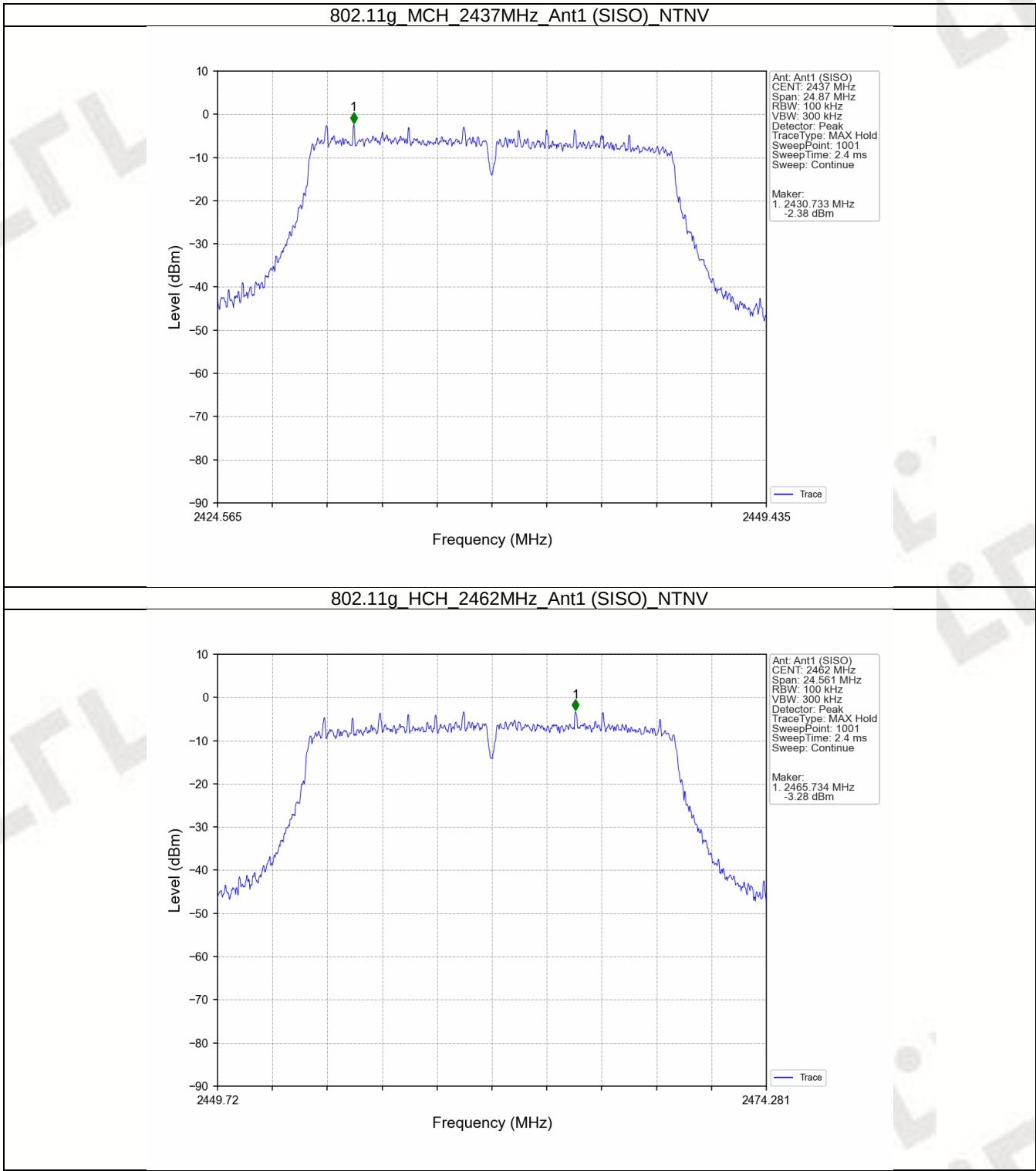
5.2.1 Ref



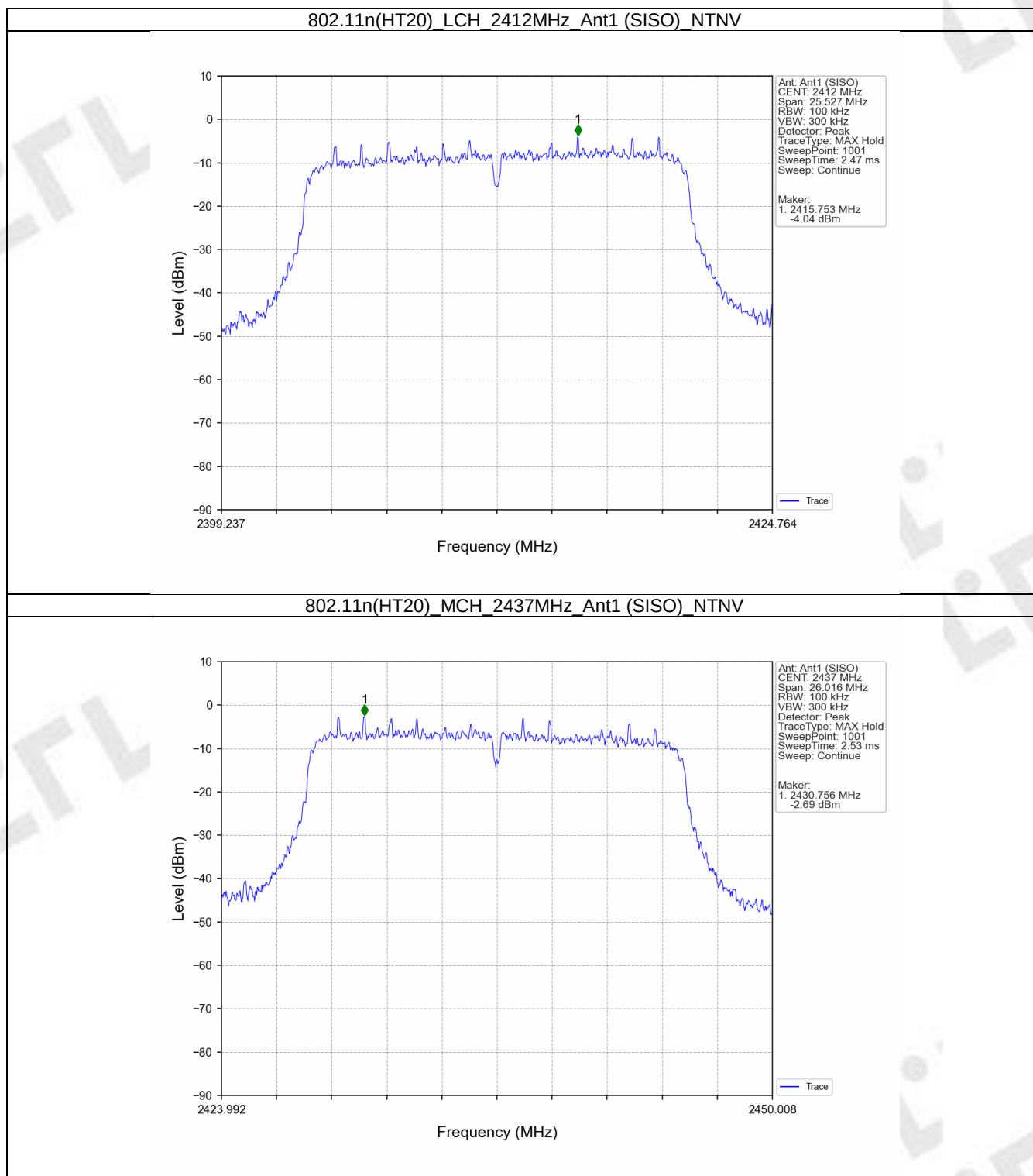
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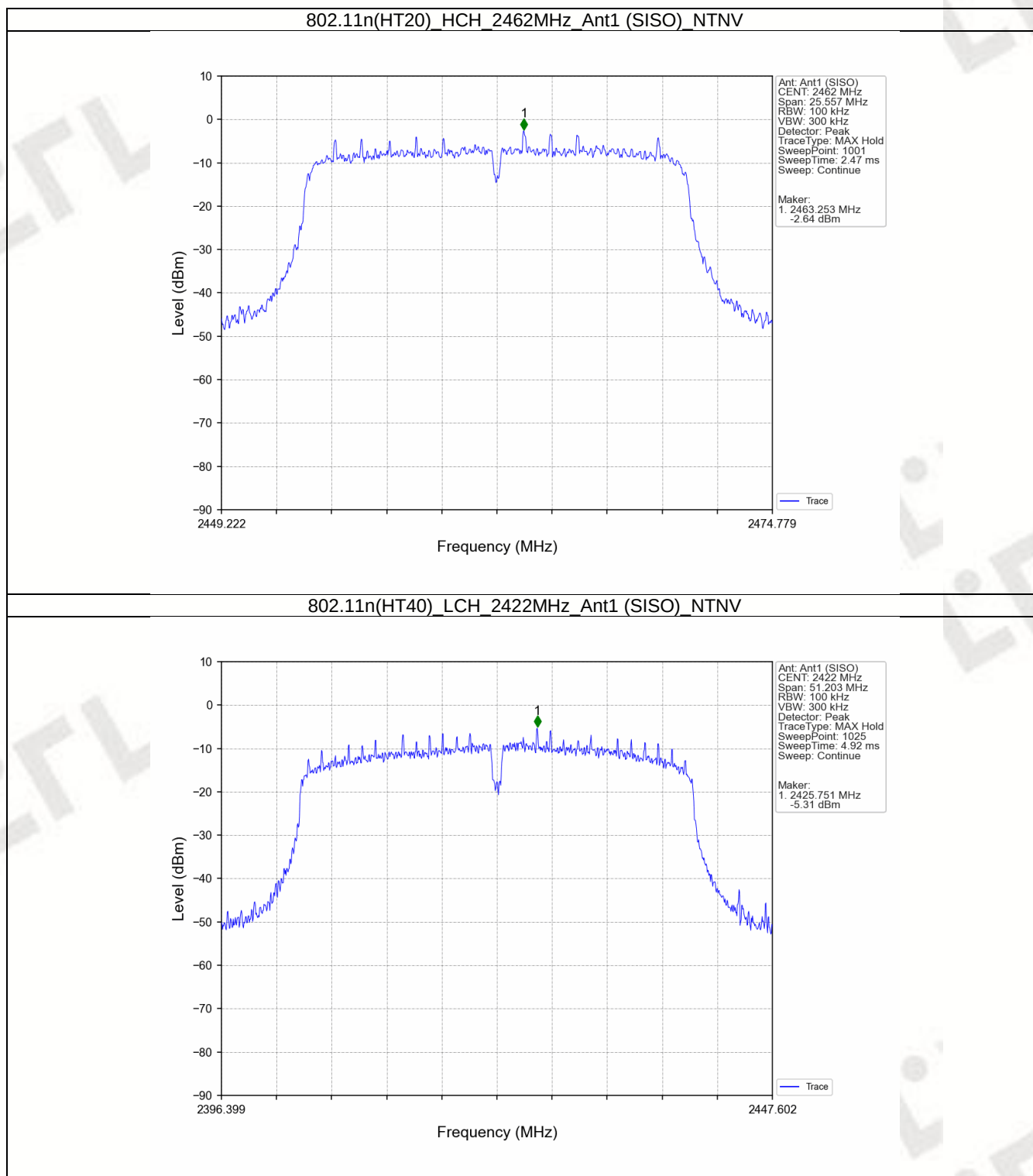
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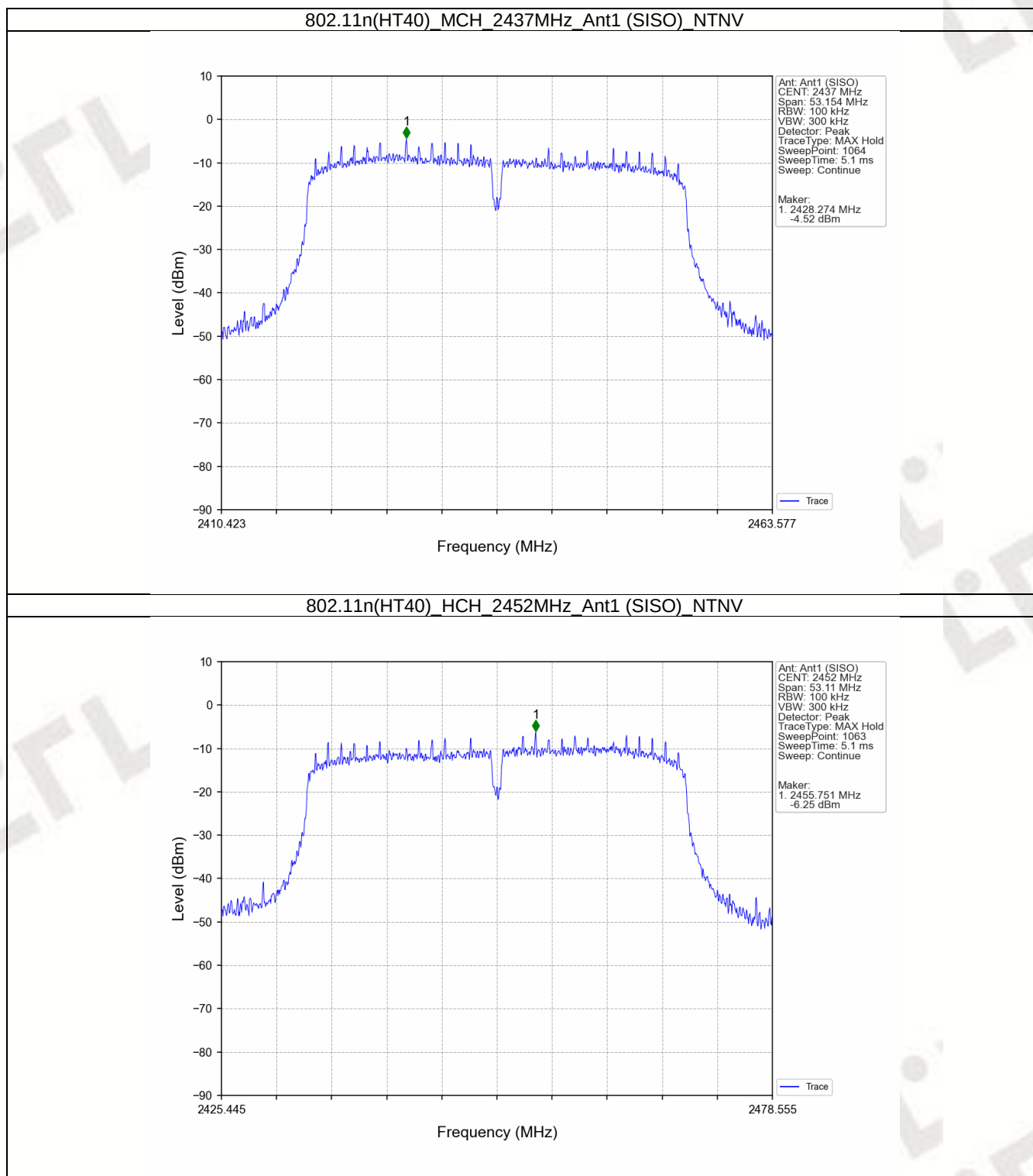
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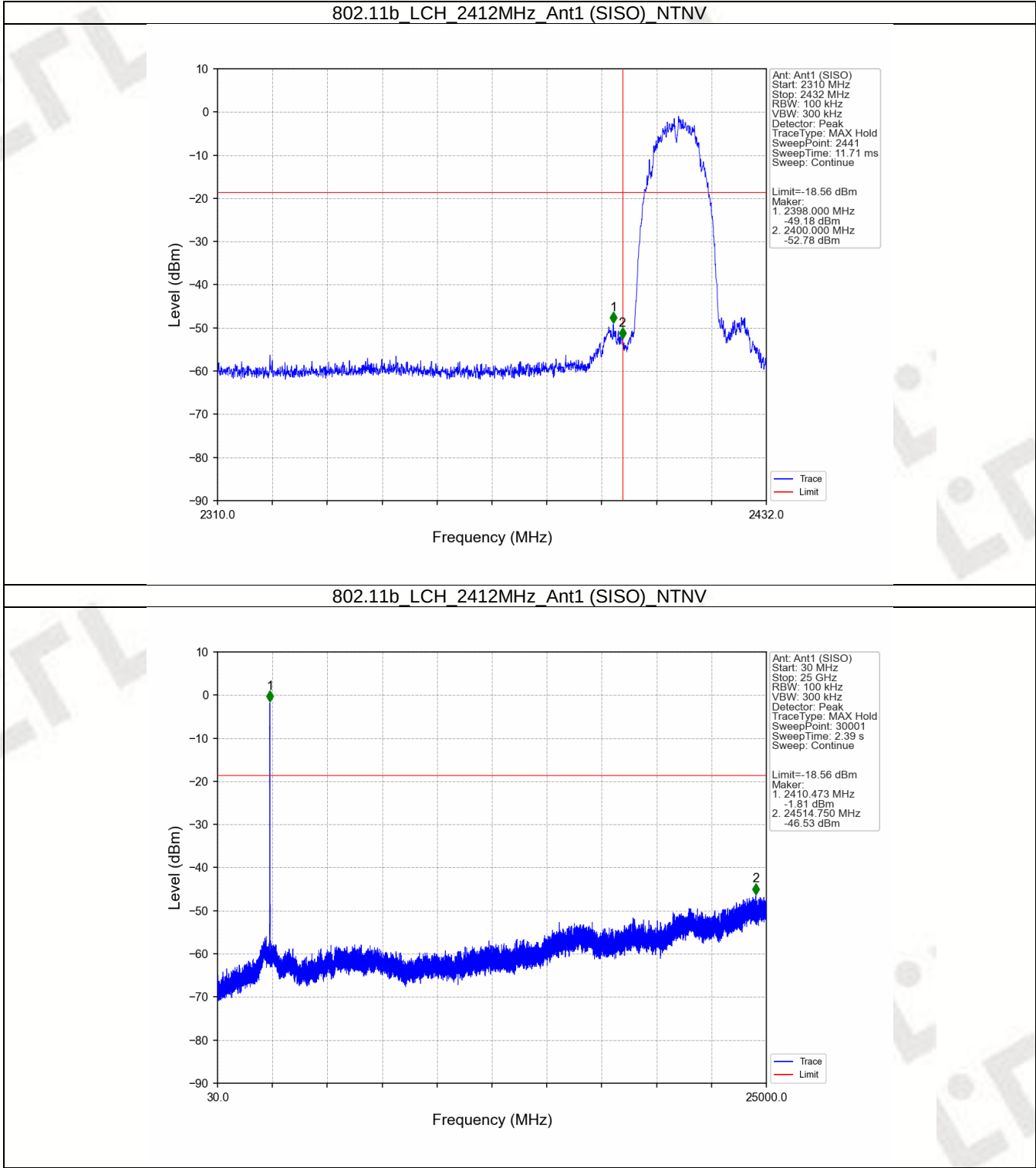


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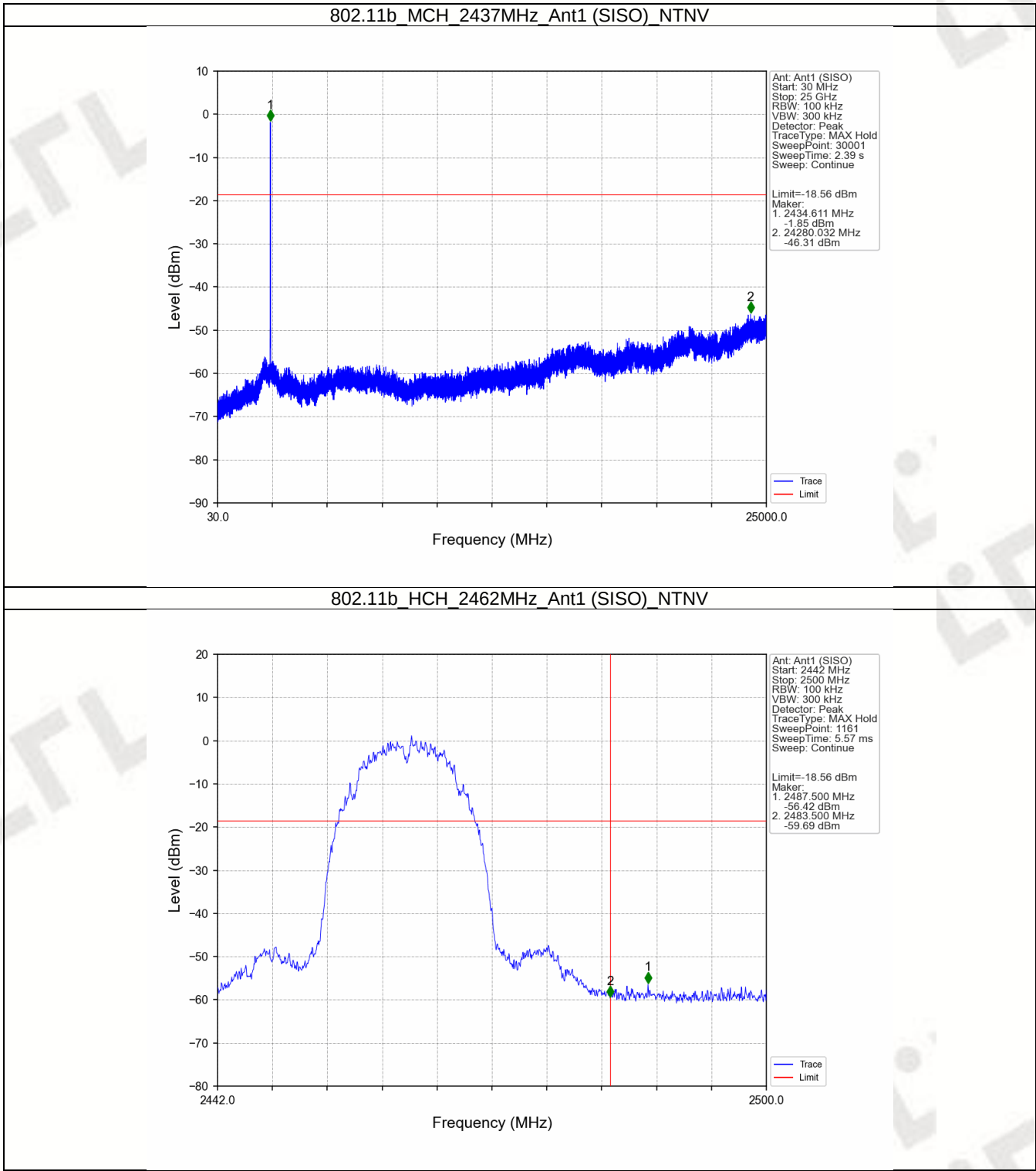


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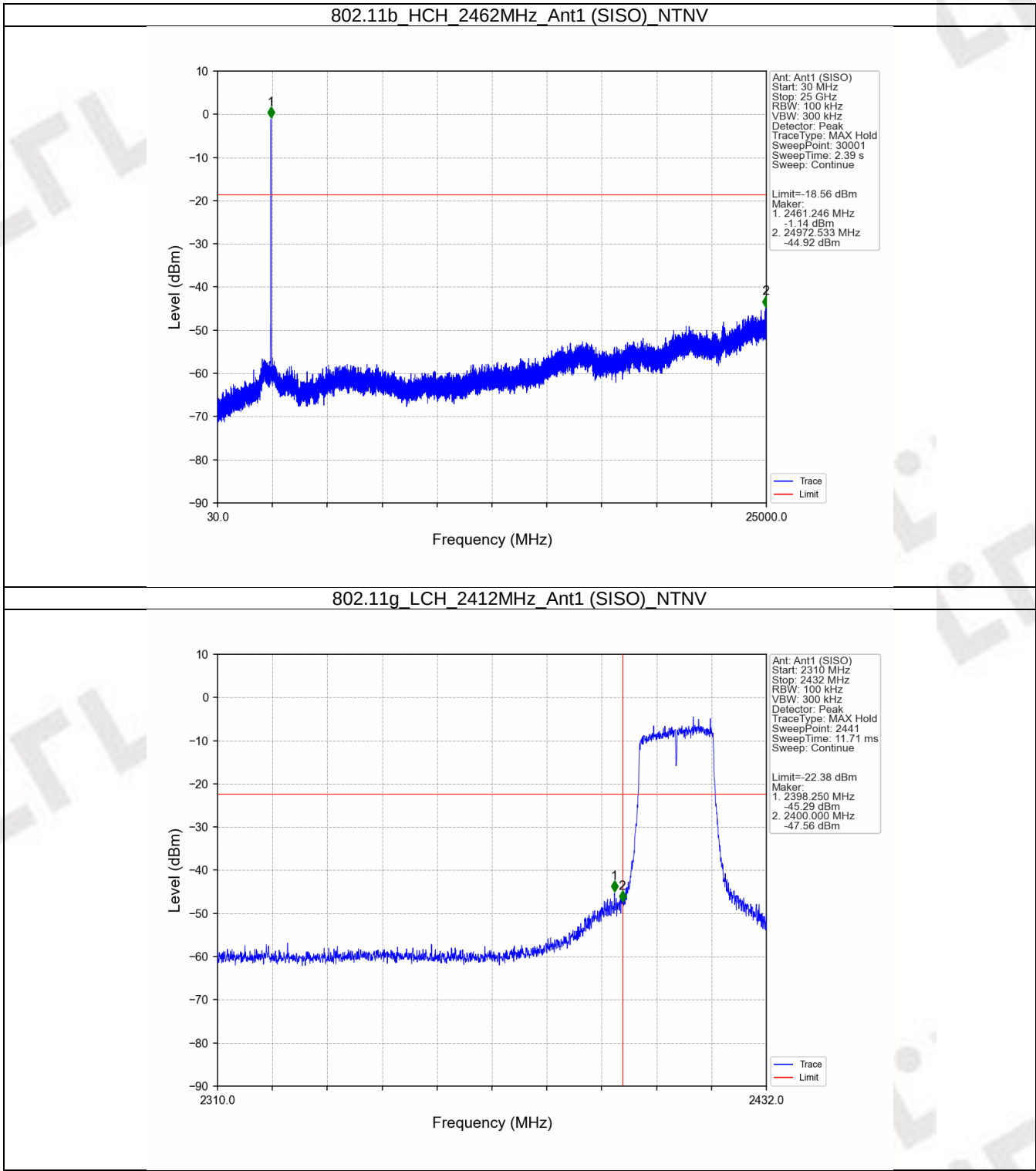
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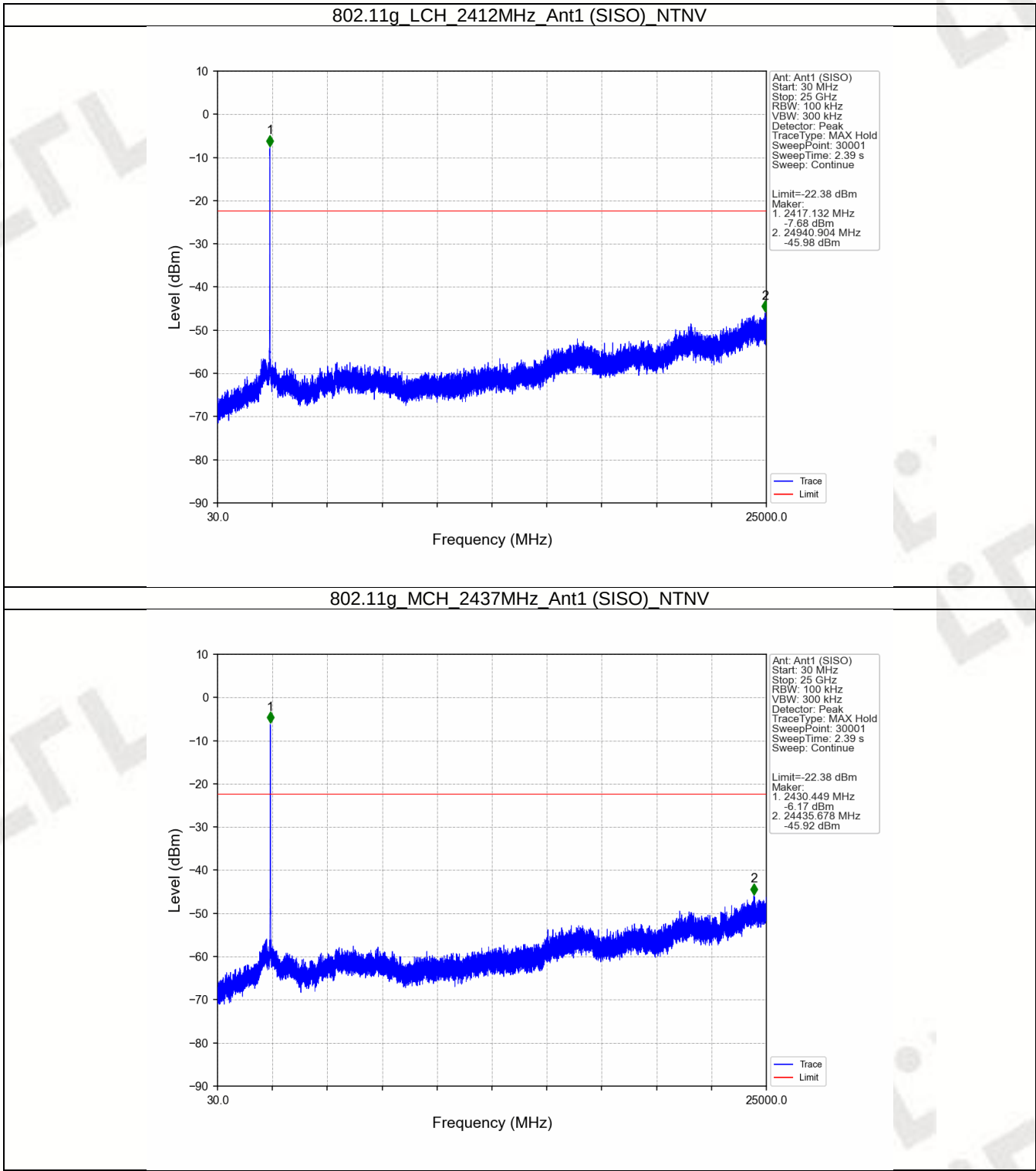
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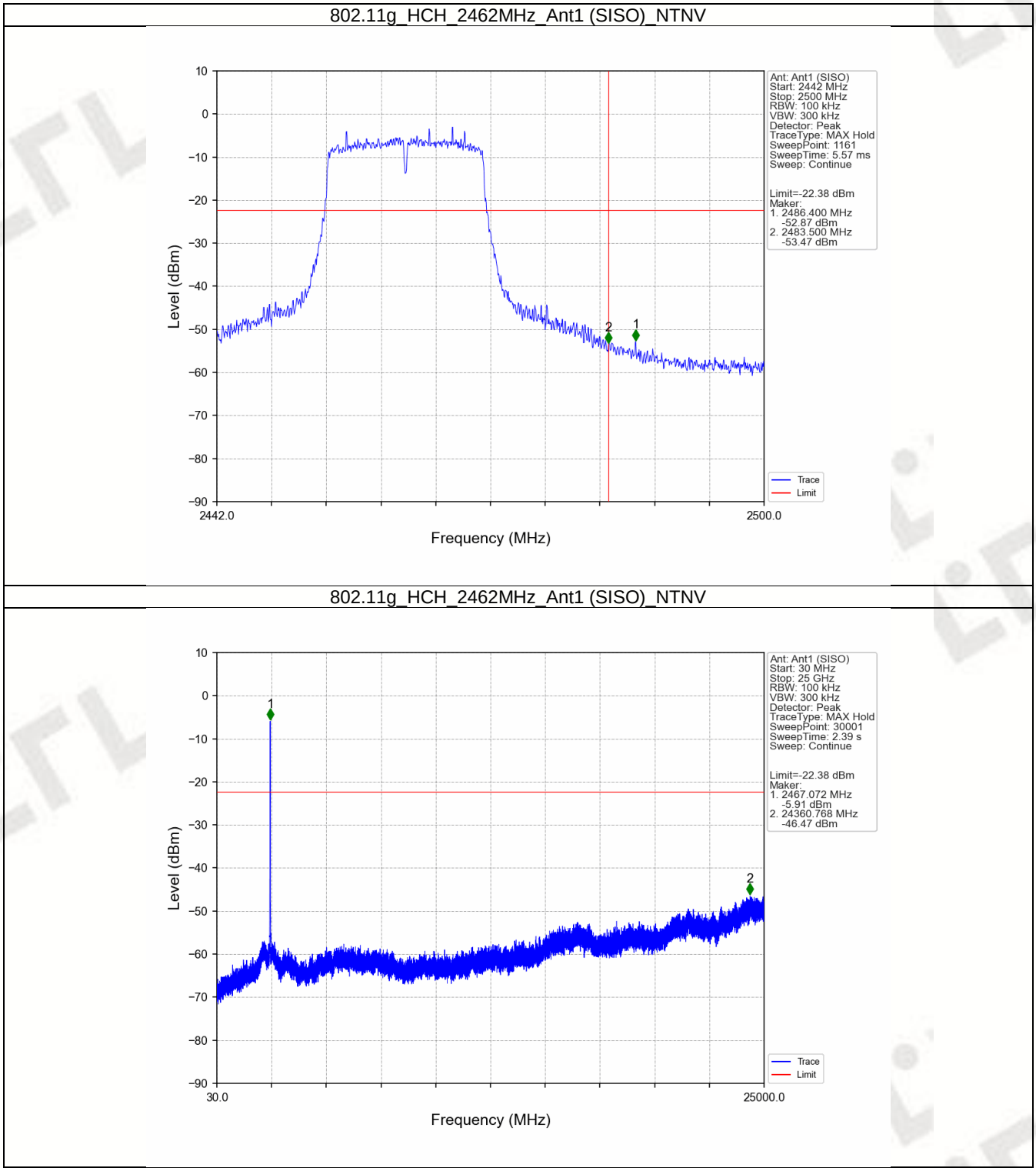
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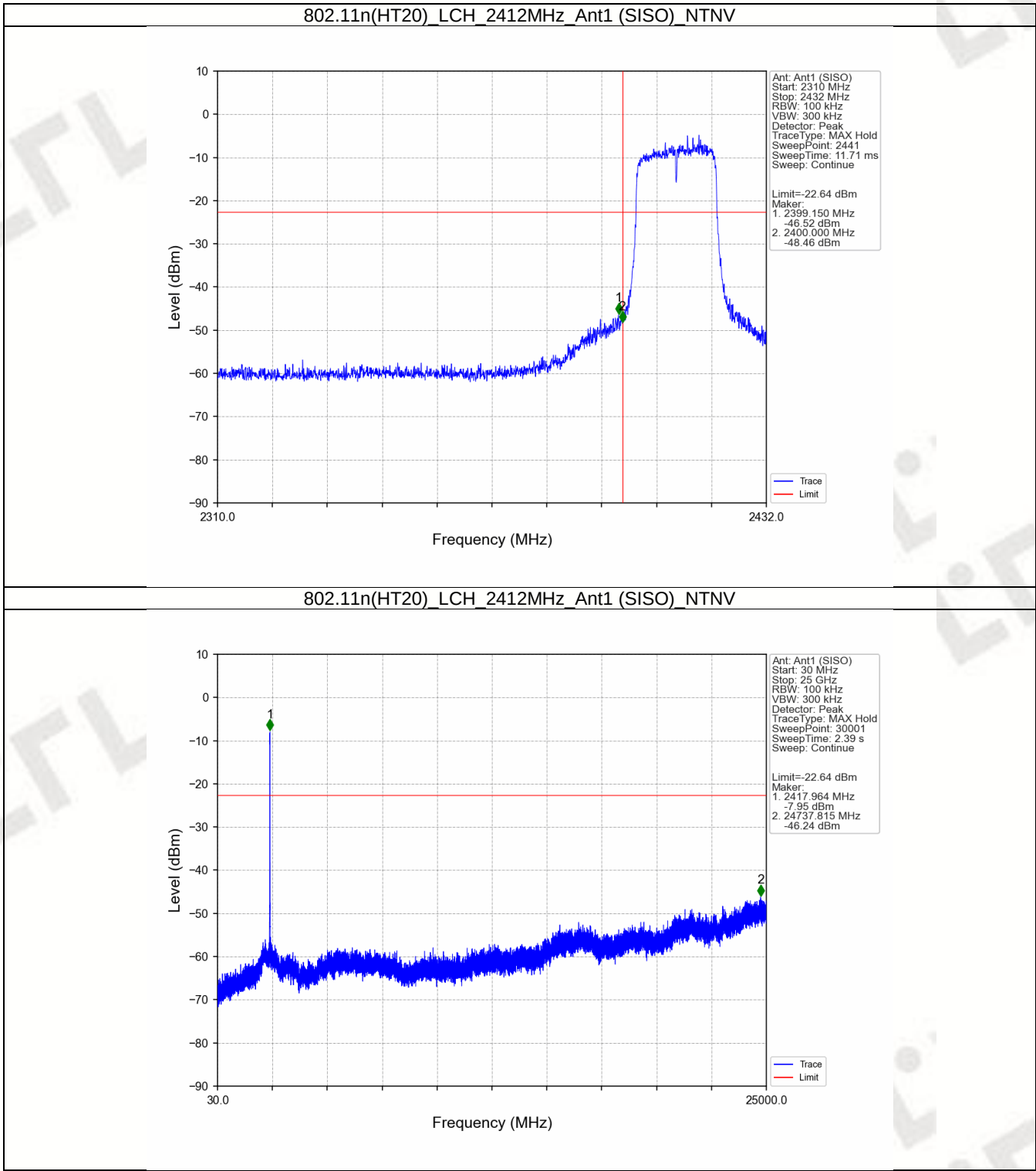
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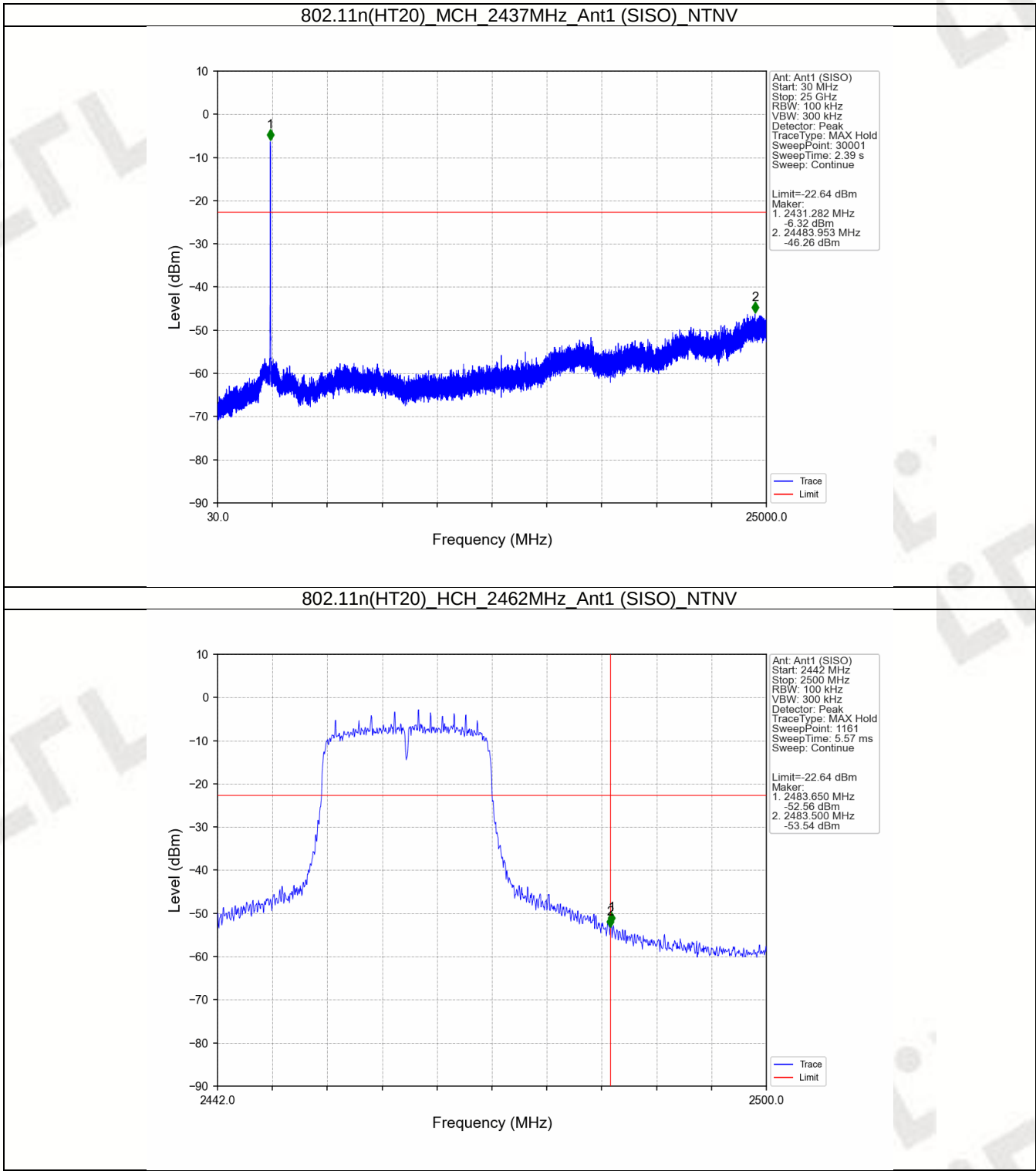
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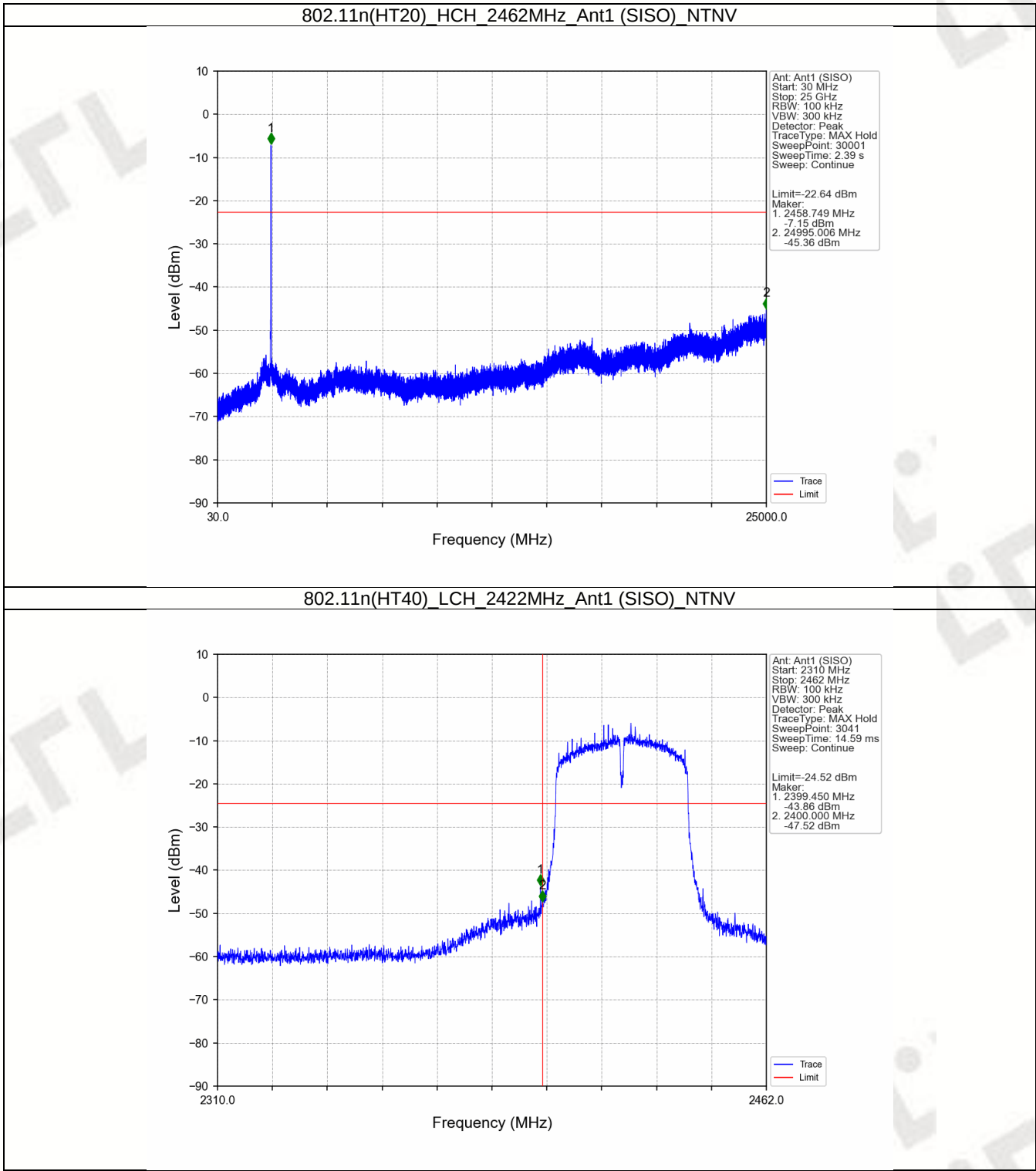
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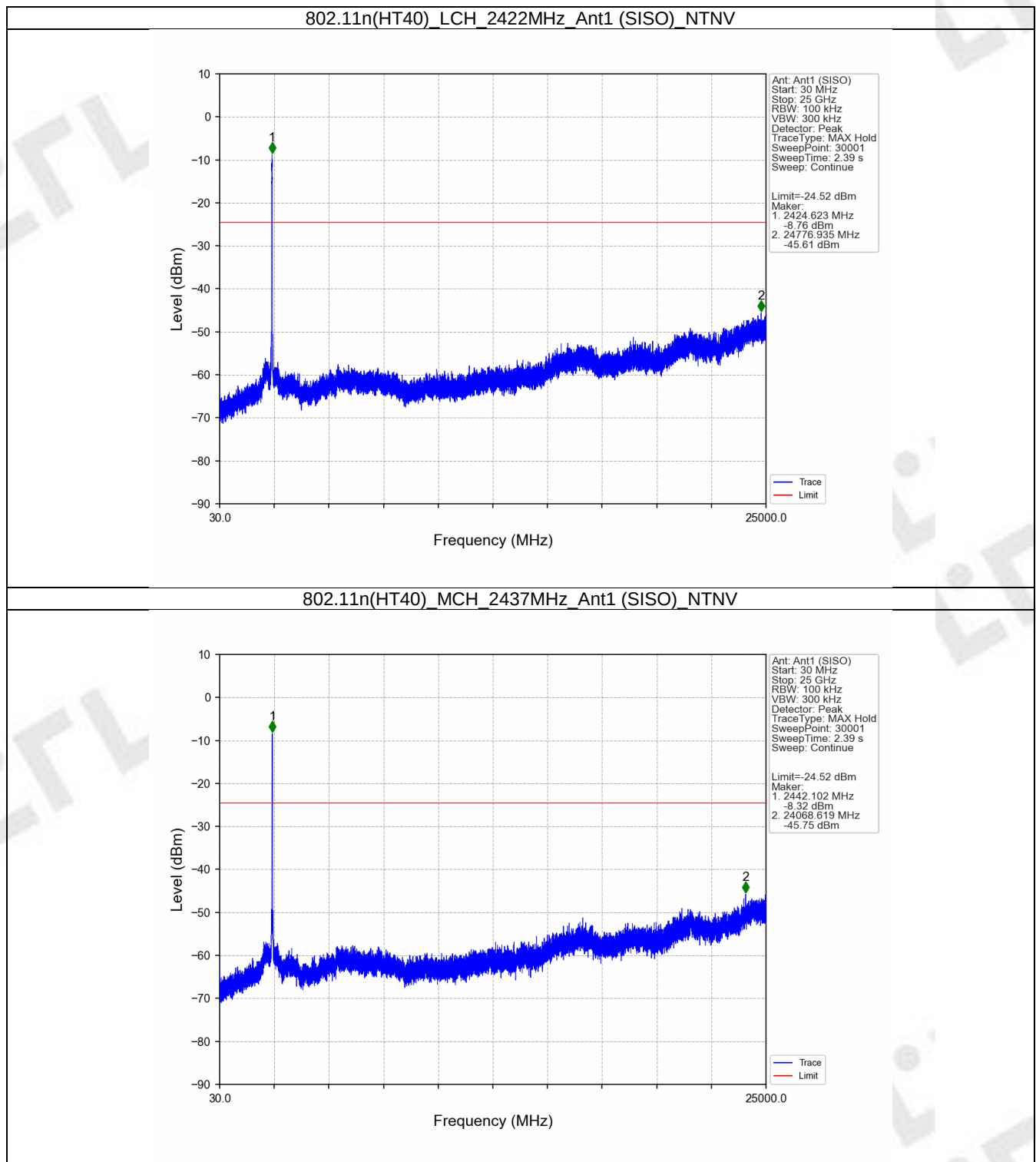
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