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Annex for 2.4G Wi-Fi

Test Report No.: CTL2404222135-WF03

TABLE OF CONTENTS

Annex for 2.4G Wi-Fi	1
1. Bandwidth	2
2. Maximum Conducted Output Power	15
3. Maximum Power Spectral Density	22
4. Unwanted Emissions In Non-restricted Frequency Bands	29

FCC ID: 2ASC7TAB702

1. Bandwidth

1.1 Test Result

1.1.1 OBW

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	13.460	/	Pass
		2437	1	13.663	/	Pass
		2462	1	13.633	/	Pass
802.11g	SISO	2412	1	17.674	/	Pass
		2437	1	17.515	/	Pass
		2462	1	17.591	/	Pass
802.11n (HT20)	SISO	2412	1	18.376	/	Pass
		2437	1	18.949	/	Pass
		2462	1	18.321	/	Pass
802.11n (HT40)	SISO	2422	1	37.522	/	Pass
		2437	1	37.649	/	Pass
		2452	1	37.292	/	Pass

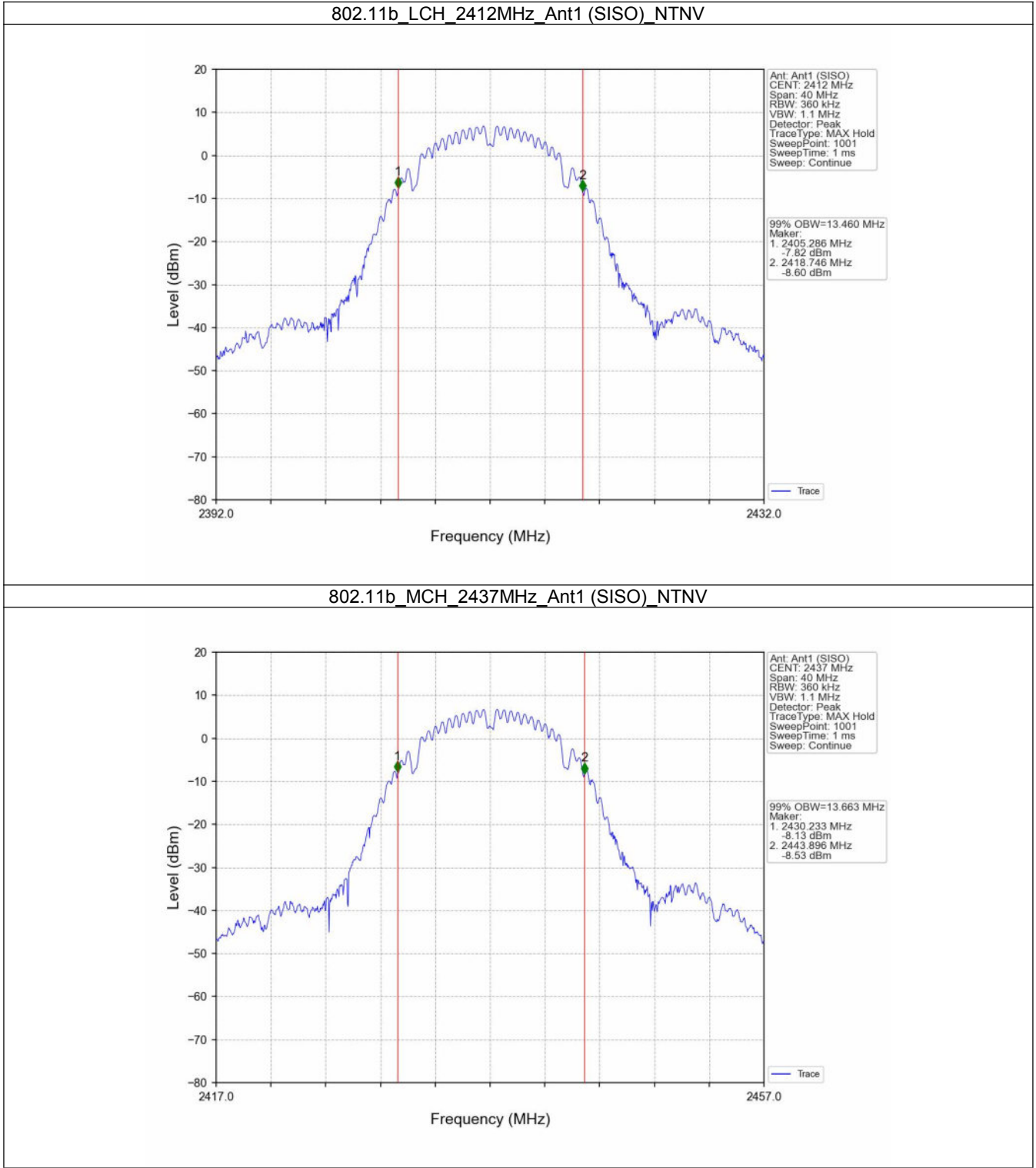
1.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	9.117	≥ 0.5	Pass
		2437	1	9.549	≥ 0.5	Pass
		2462	1	9.574	≥ 0.5	Pass
802.11g	SISO	2412	1	16.360	≥ 0.5	Pass
		2437	1	16.366	≥ 0.5	Pass
		2462	1	16.131	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	17.086	≥ 0.5	Pass
		2437	1	17.026	≥ 0.5	Pass
		2462	1	16.714	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	36.324	≥ 0.5	Pass
		2437	1	35.782	≥ 0.5	Pass
		2452	1	36.014	≥ 0.5	Pass

FCC ID: 2ASC7TAB702

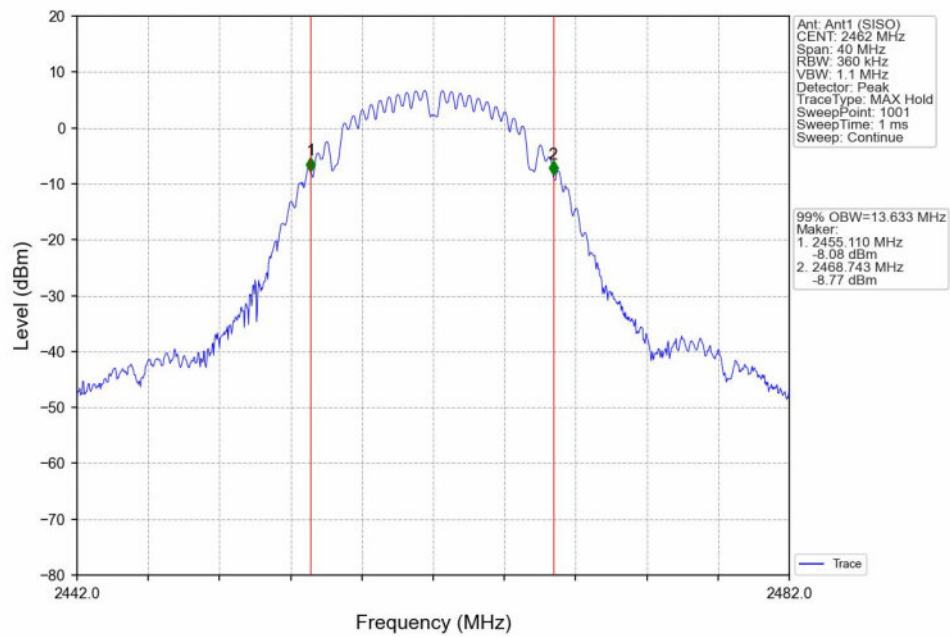
1.2 Test Graph

1.2.1 OBW

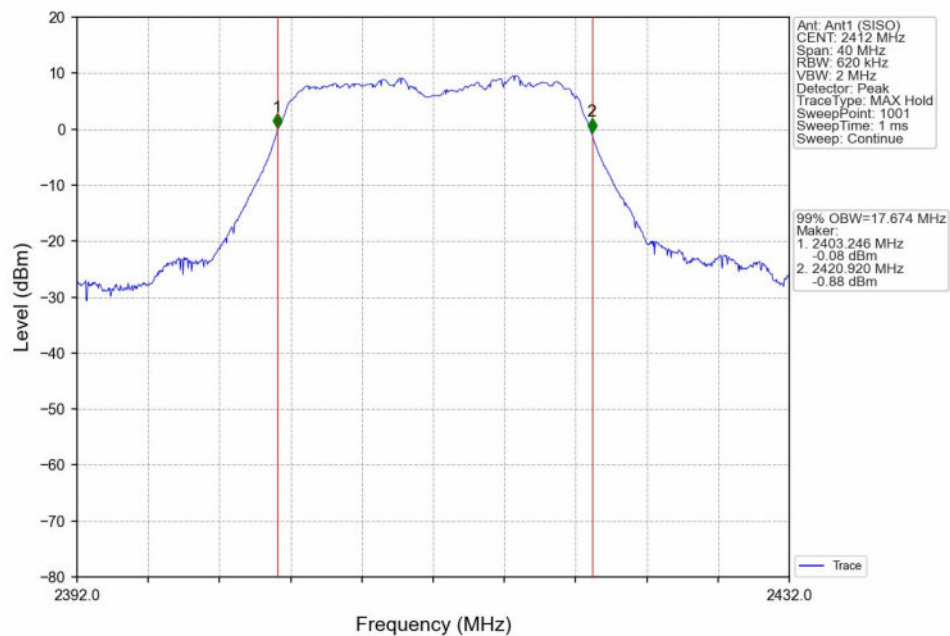


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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

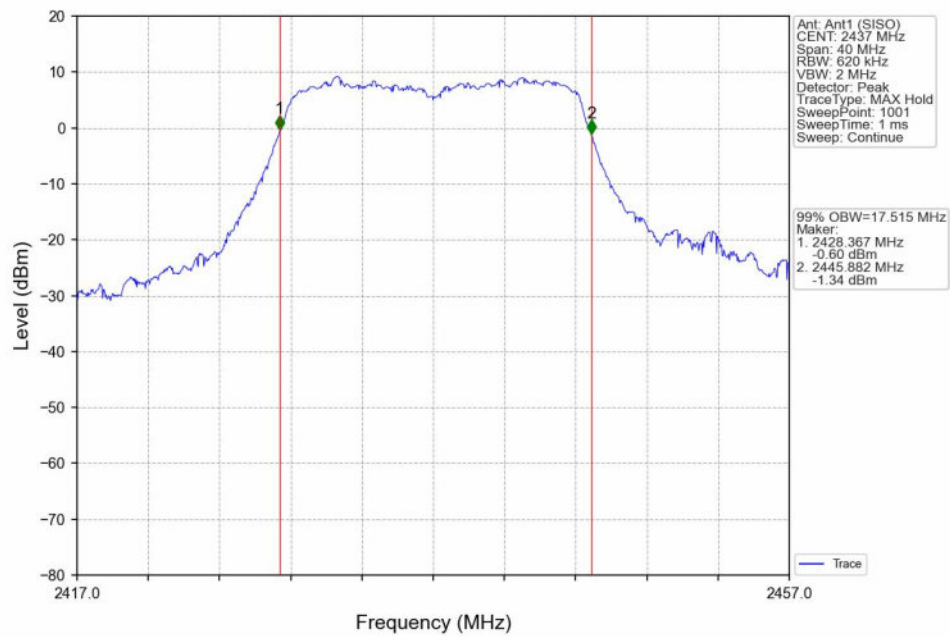


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

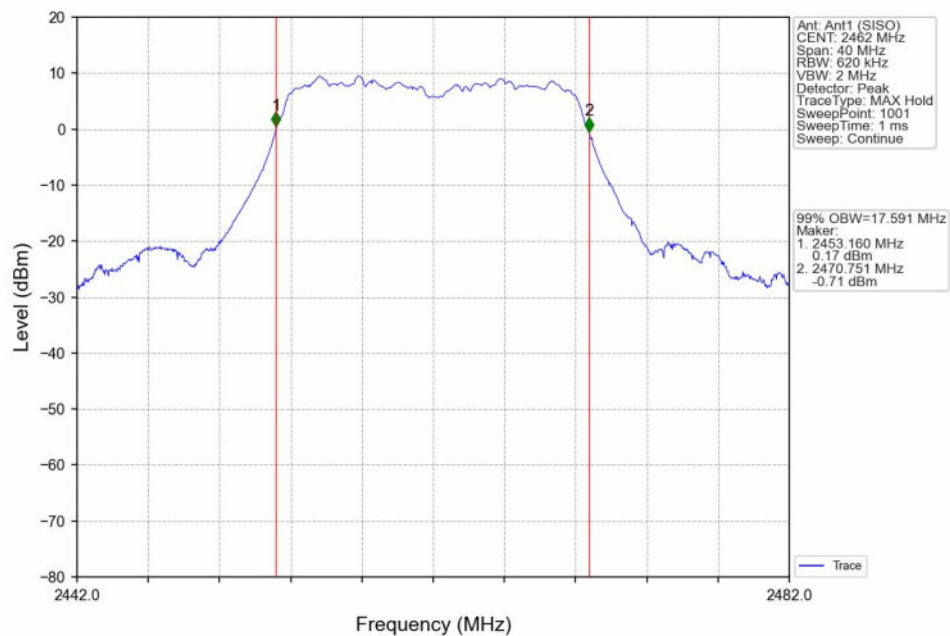


FCC ID: 2ASC7TAB702

802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

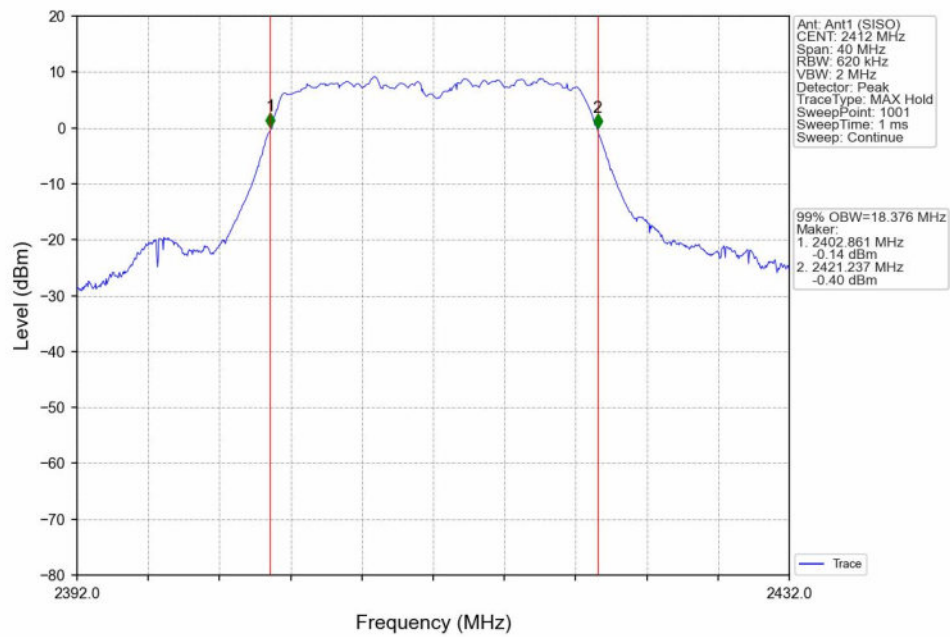


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

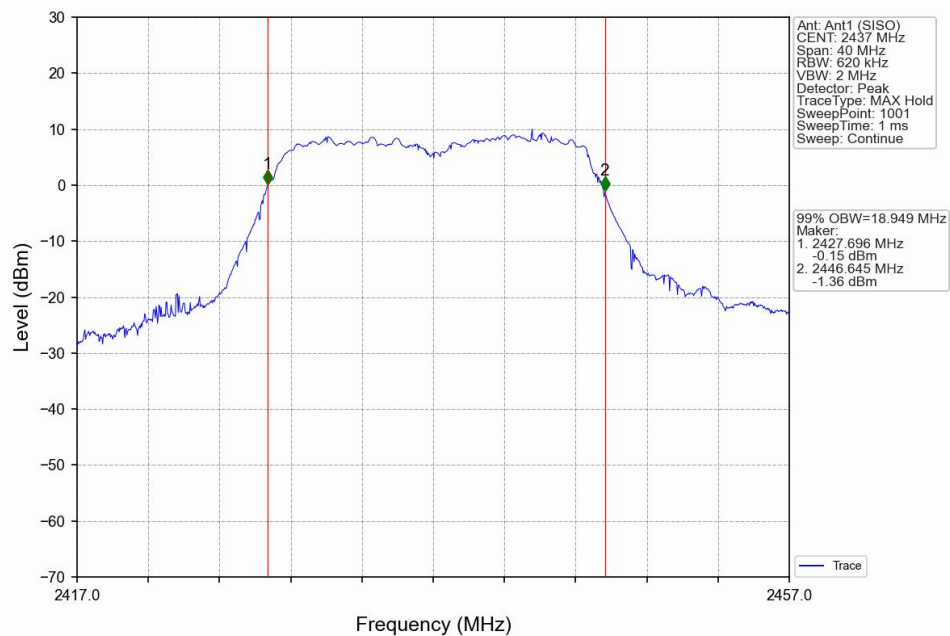


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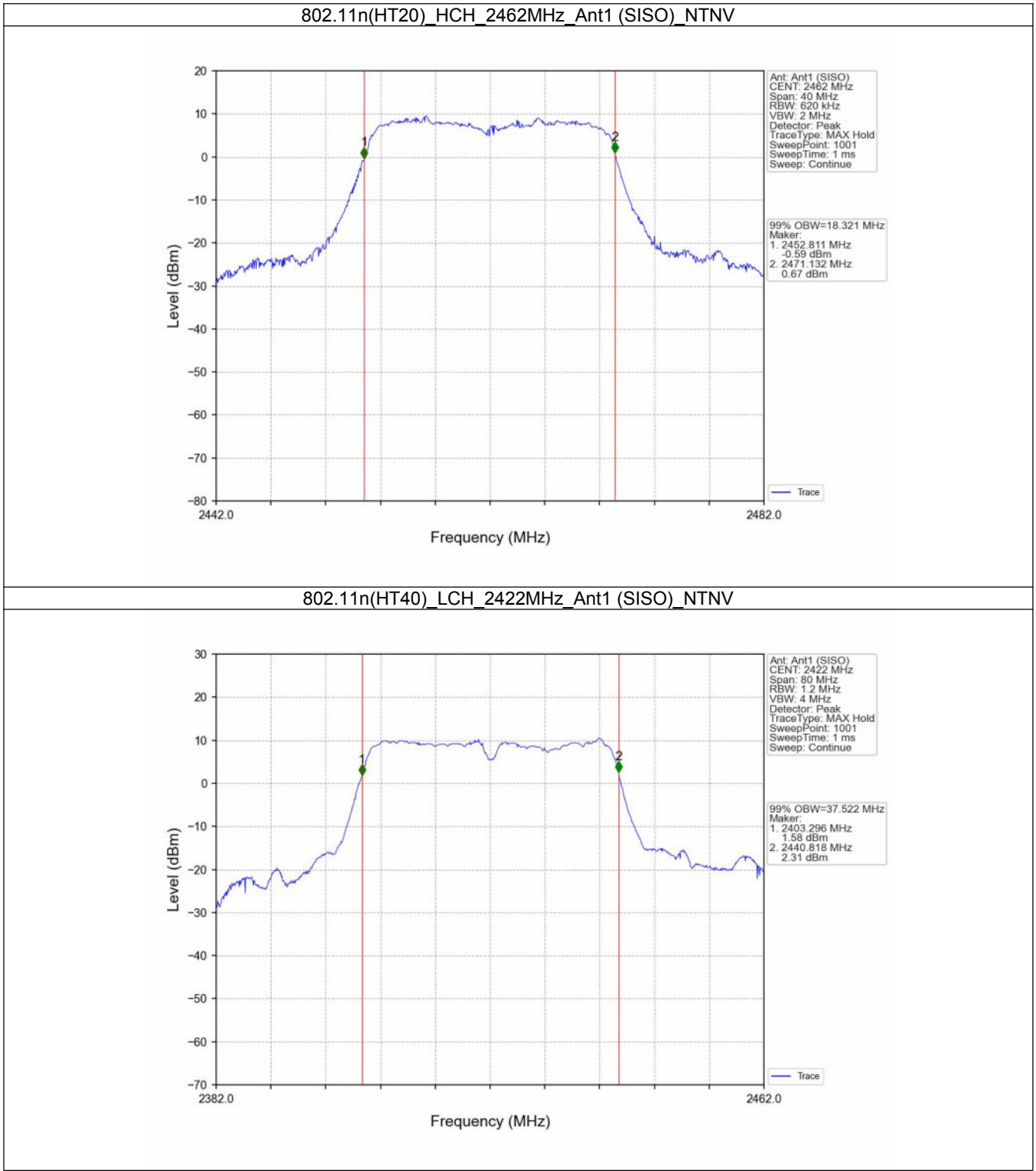
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

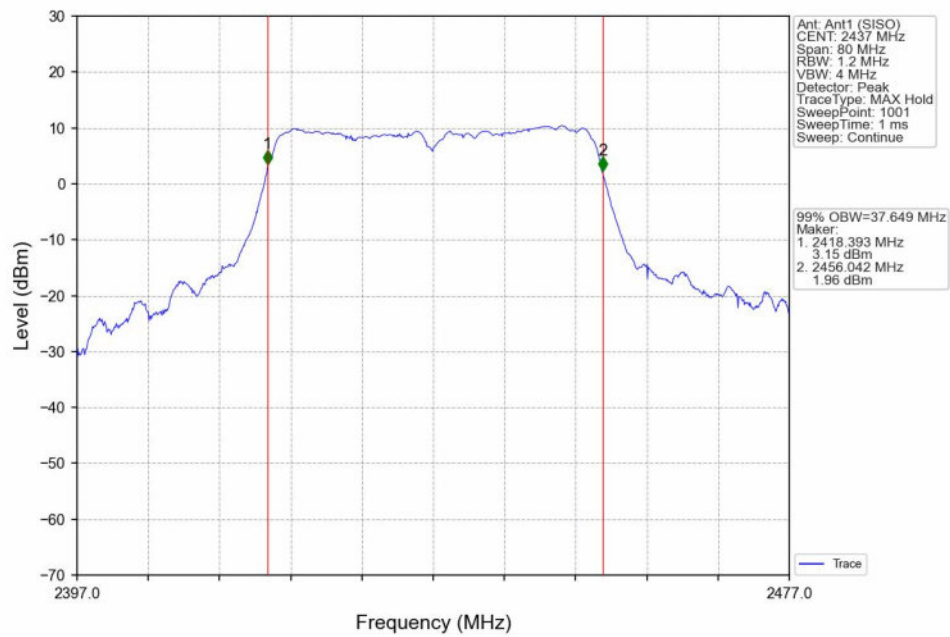


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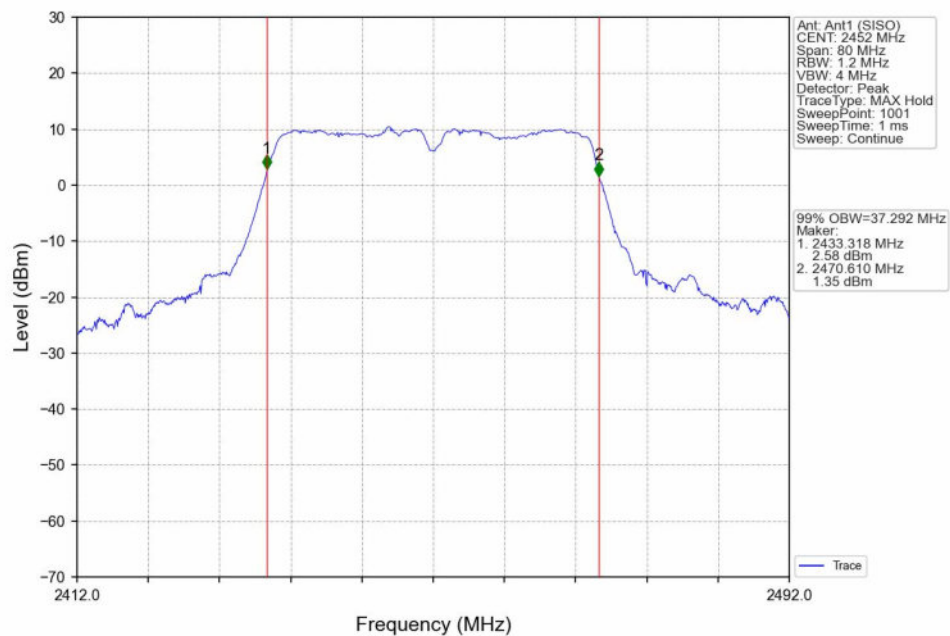


FCC ID: 2ASC7TAB702

802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV

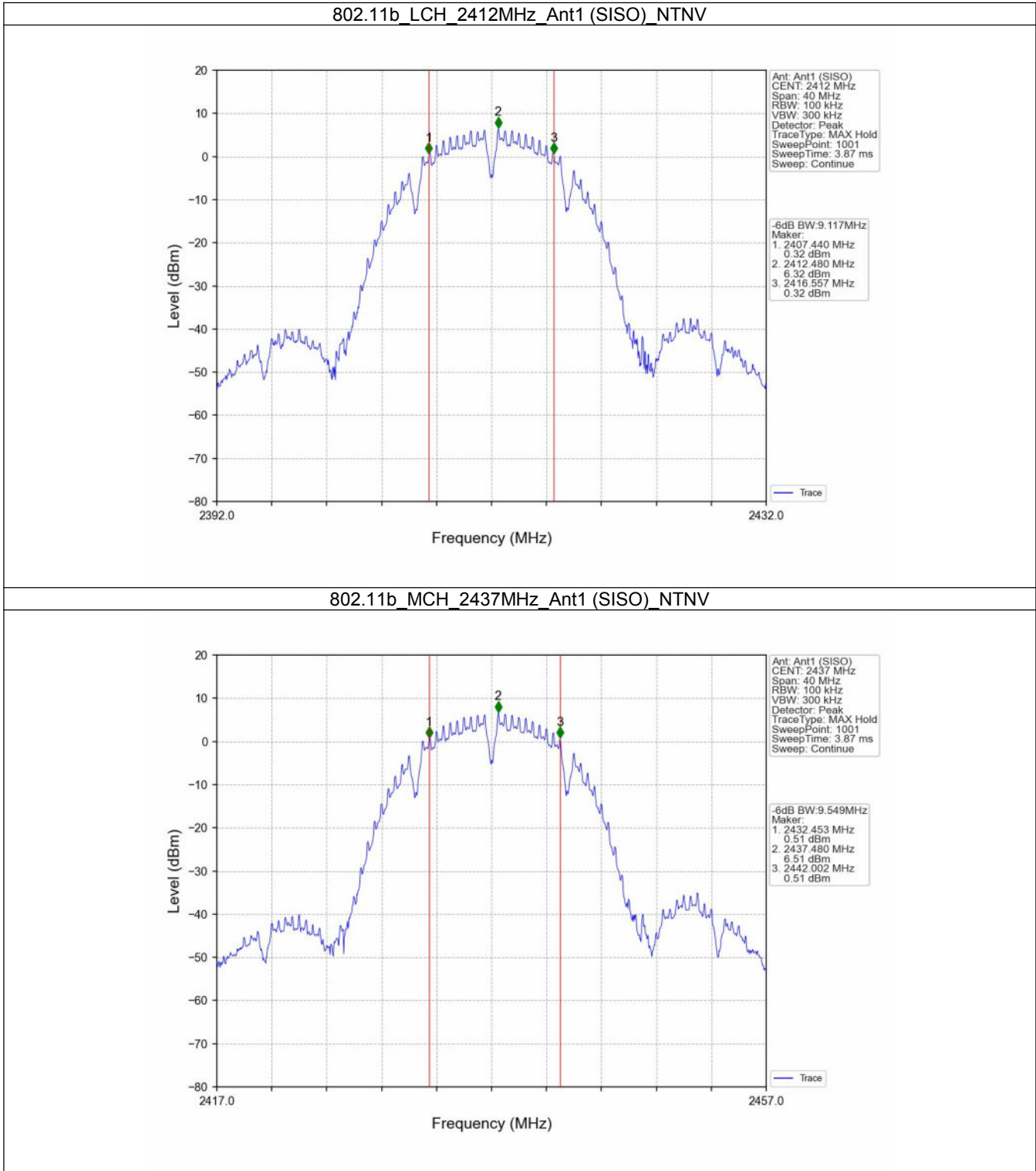


802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV

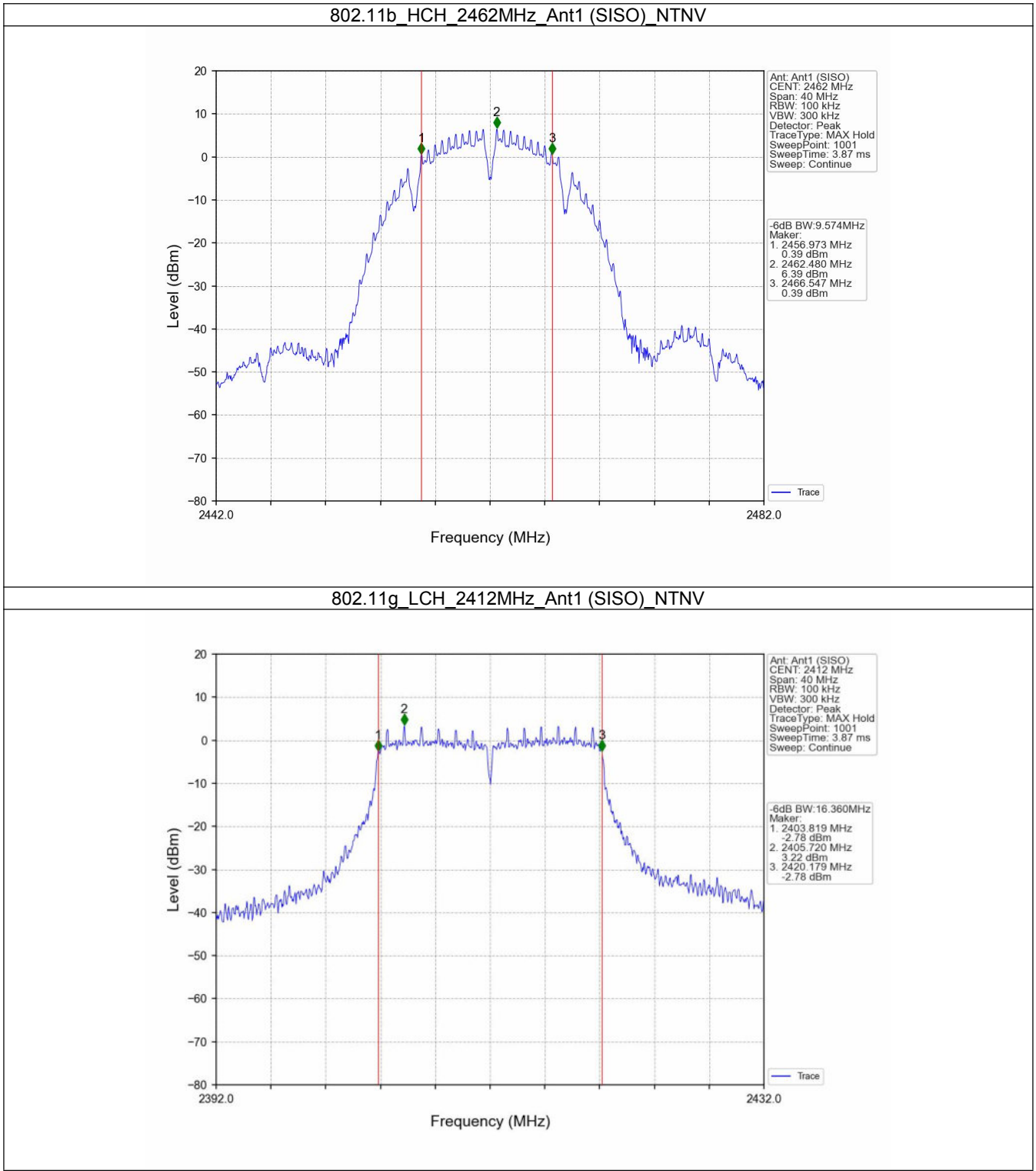


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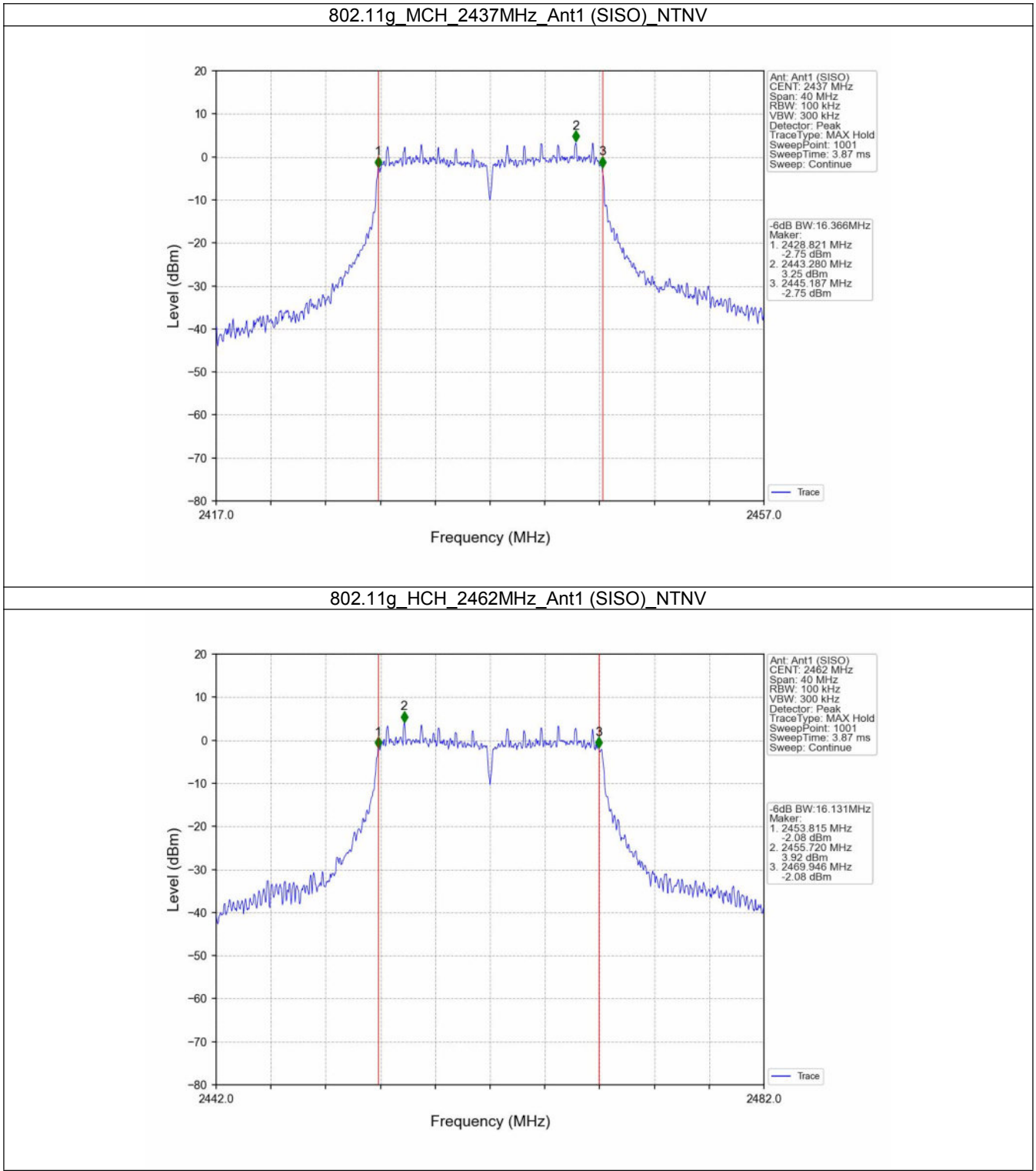
1.2.2 6dB BW



FCC ID: 2ASC7TAB702

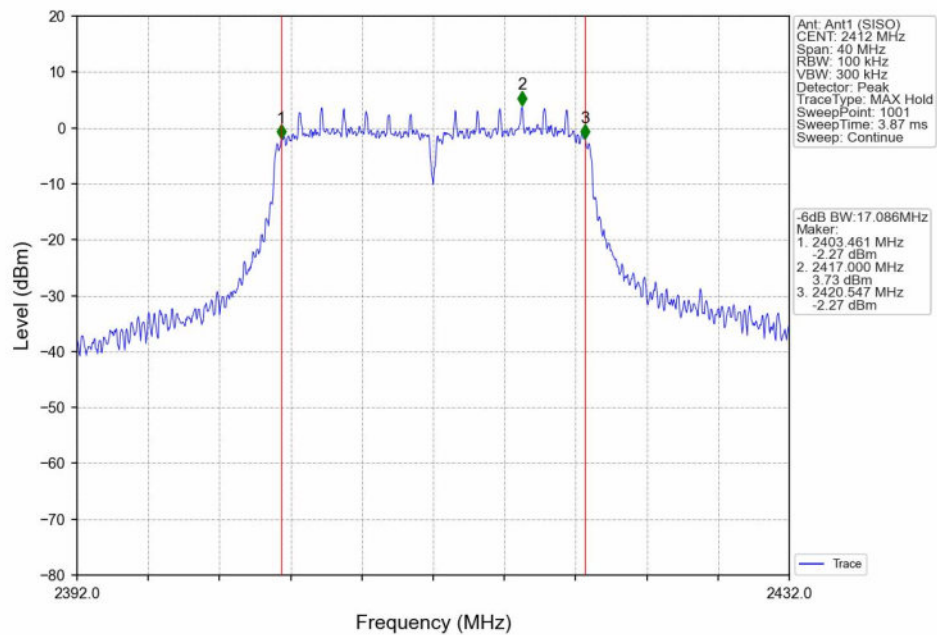


FCC ID: 2ASC7TAB702

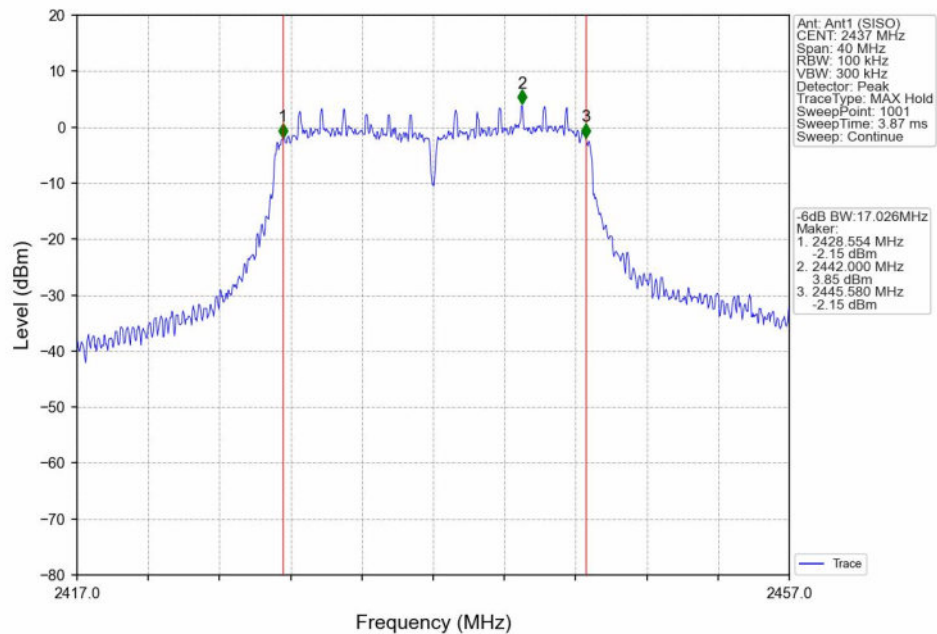


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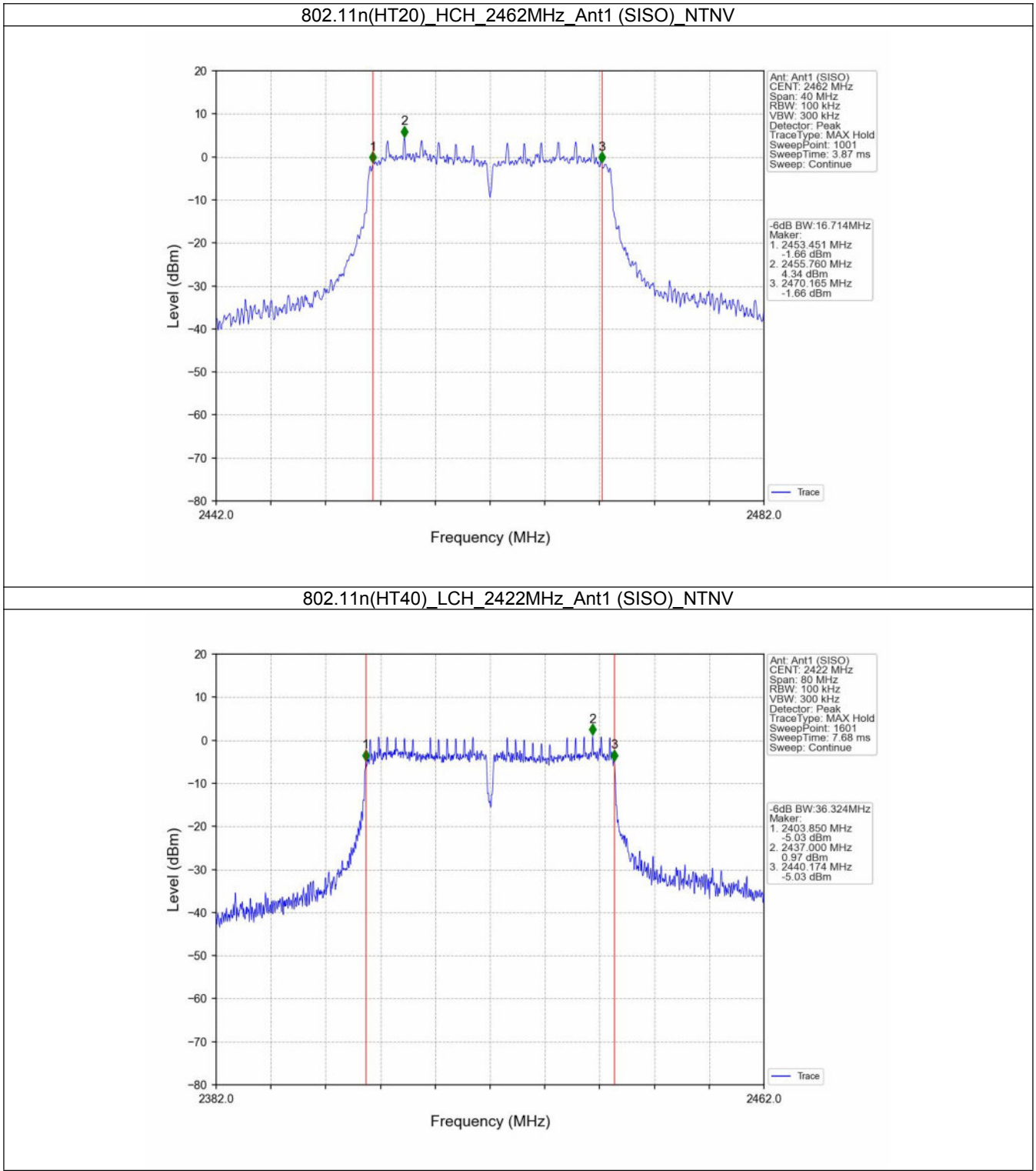
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



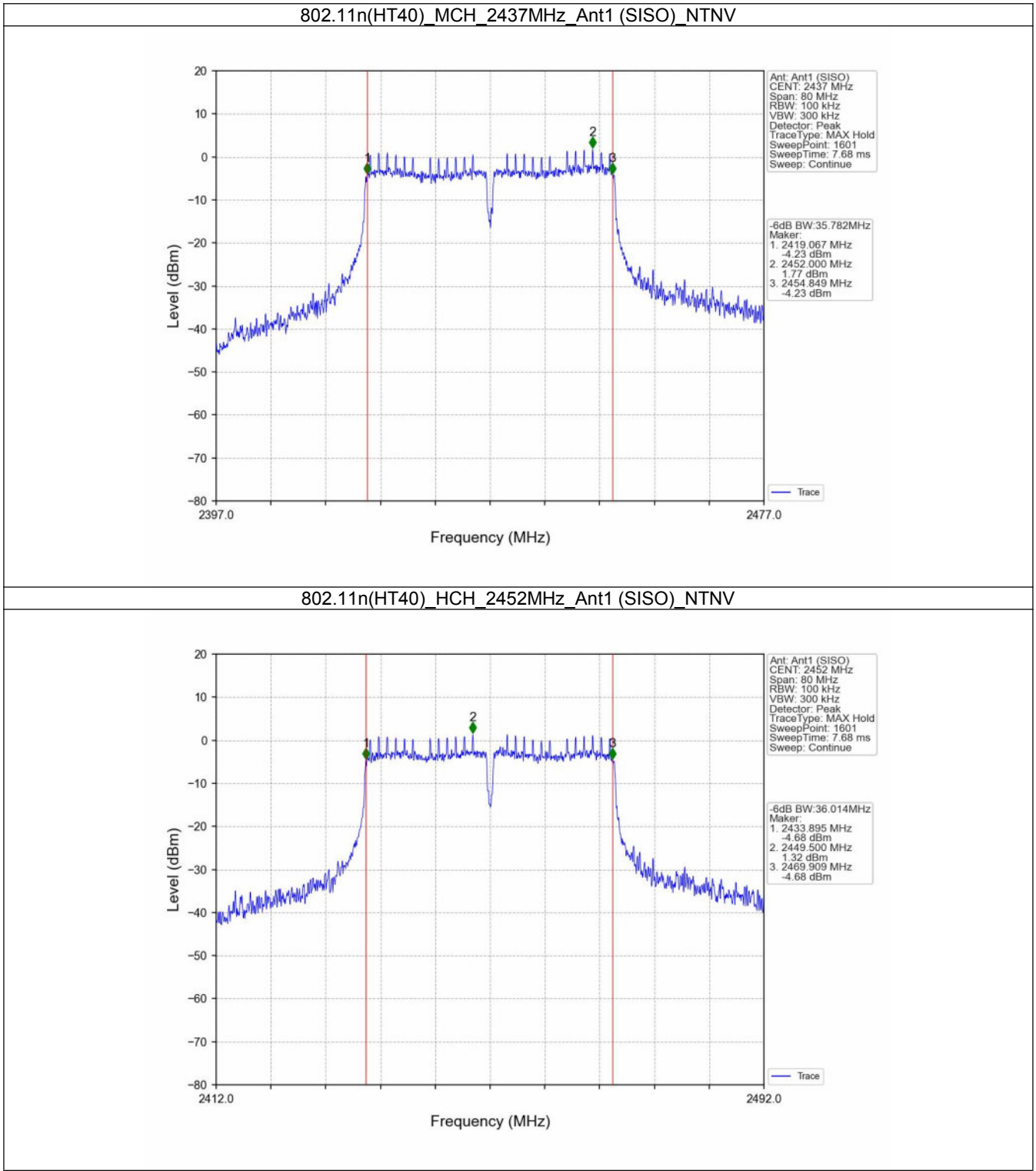
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



FCC ID: 2ASC7TAB702



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2. Maximum Conducted Output Power

2.1 Test Result

2.1.1 Power

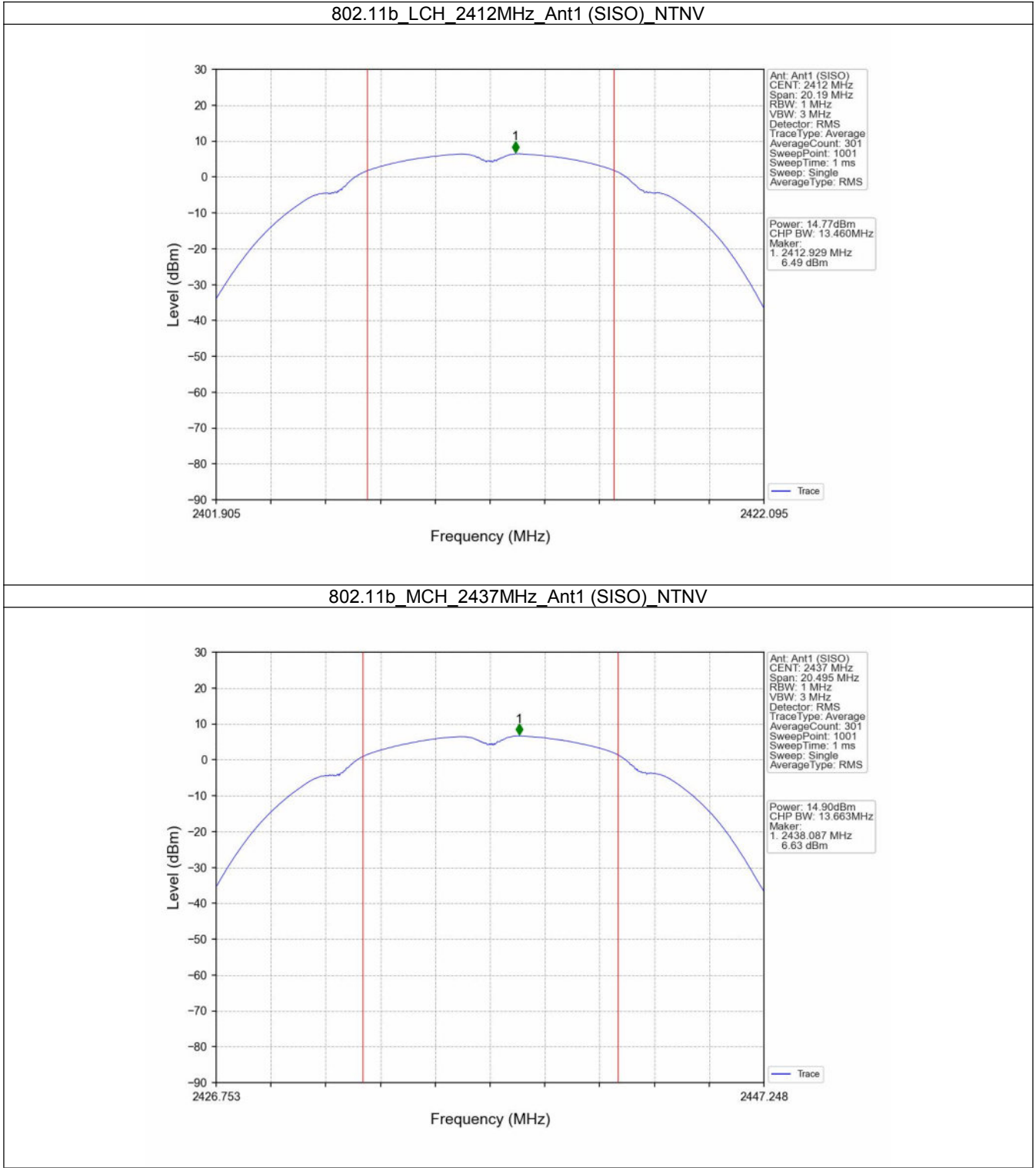
Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	14.77	<=30	Pass
		2437	14.90	<=30	Pass
		2462	14.97	<=30	Pass
802.11g	SISO	2412	14.38	<=30	Pass
		2437	14.26	<=30	Pass
		2462	14.49	<=30	Pass
802.11n (HT20)	SISO	2412	14.60	<=30	Pass
		2437	14.60	<=30	Pass
		2462	14.82	<=30	Pass
802.11n (HT40)	SISO	2422	14.99	<=30	Pass
		2437	15.15	<=30	Pass
		2452	15.27	<=30	Pass

Note1: Antenna Gain: Ant1: 1.89dBi;

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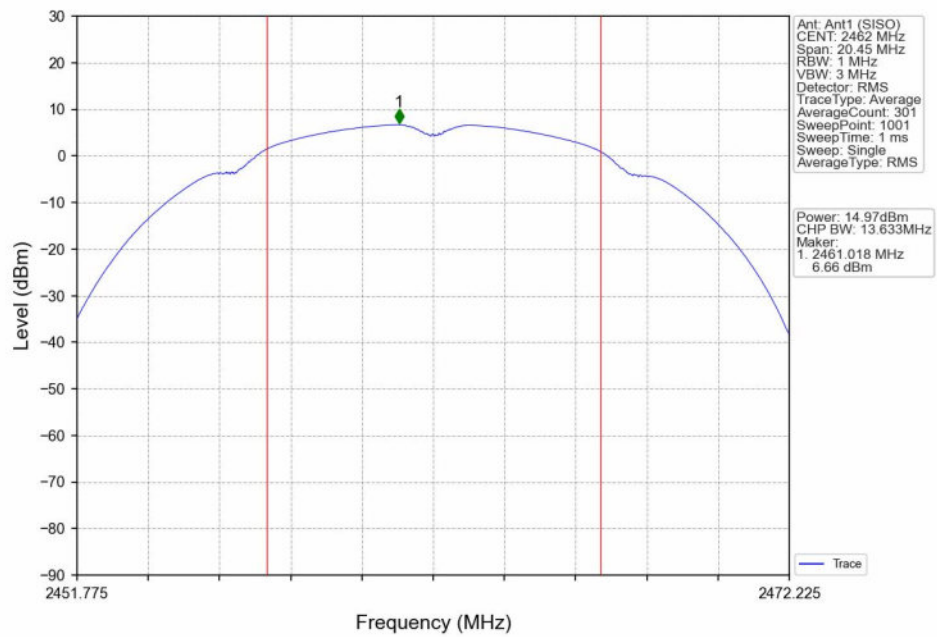
2.2 Test Graph

2.2.1 Power

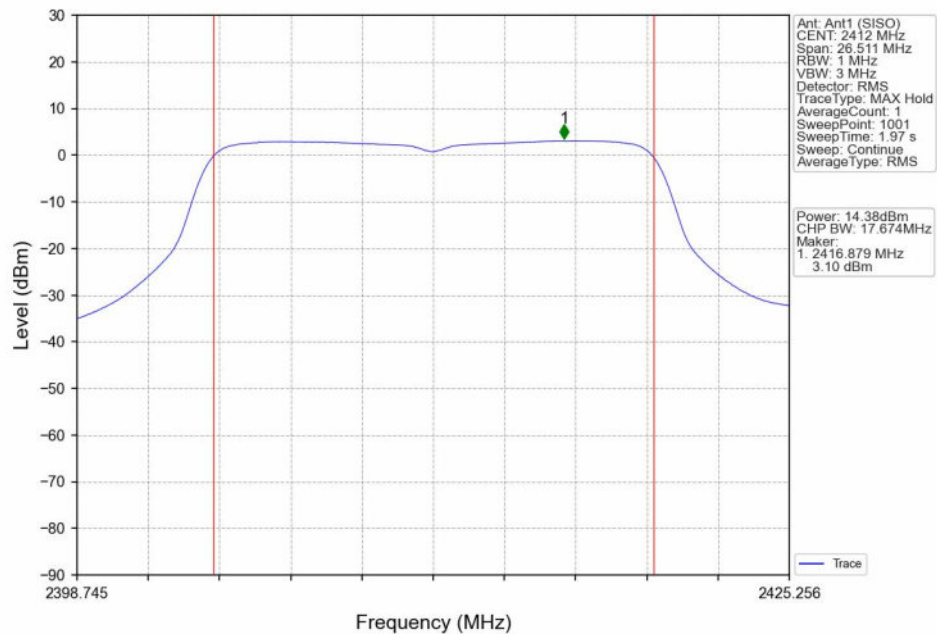


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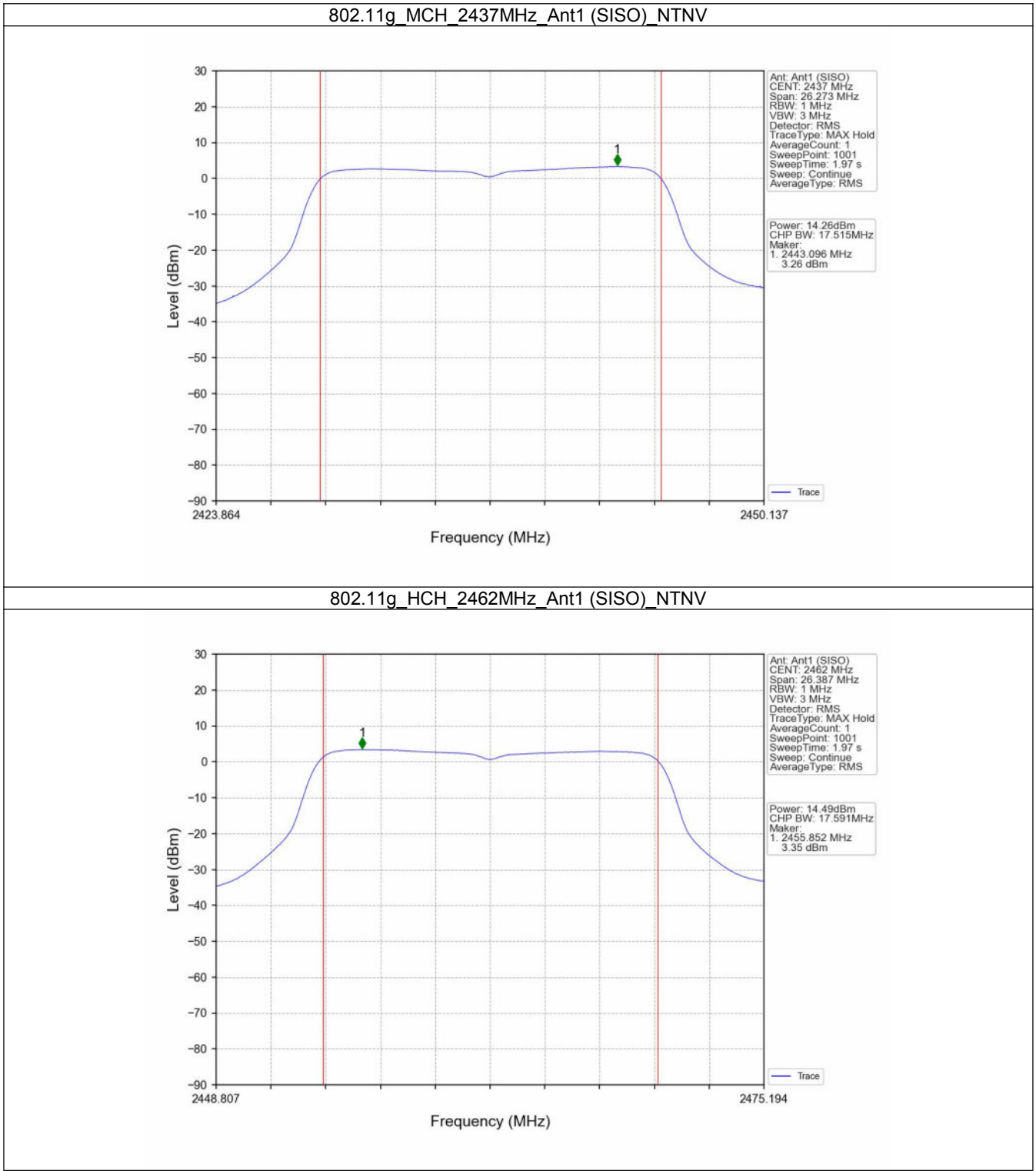
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

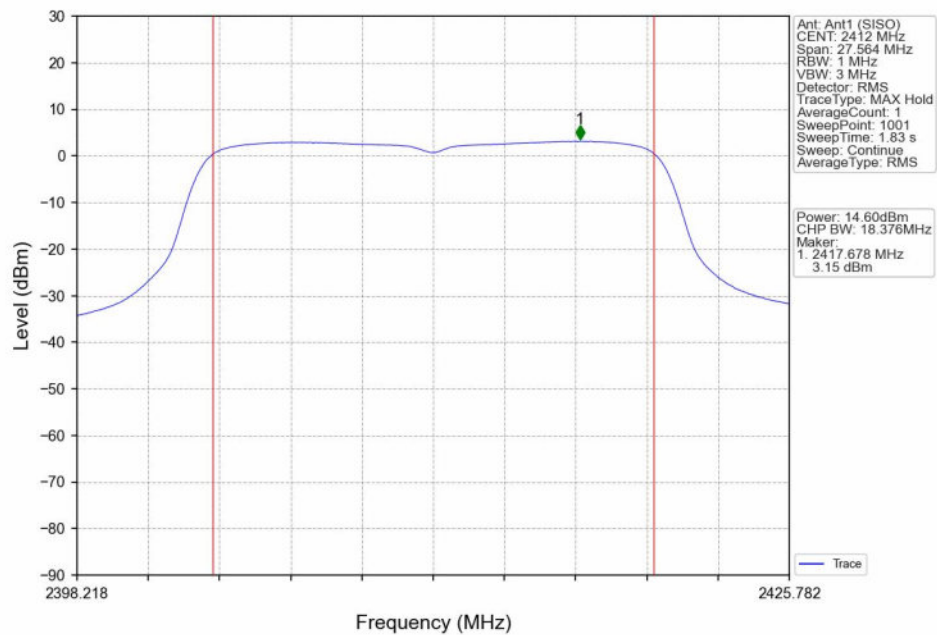


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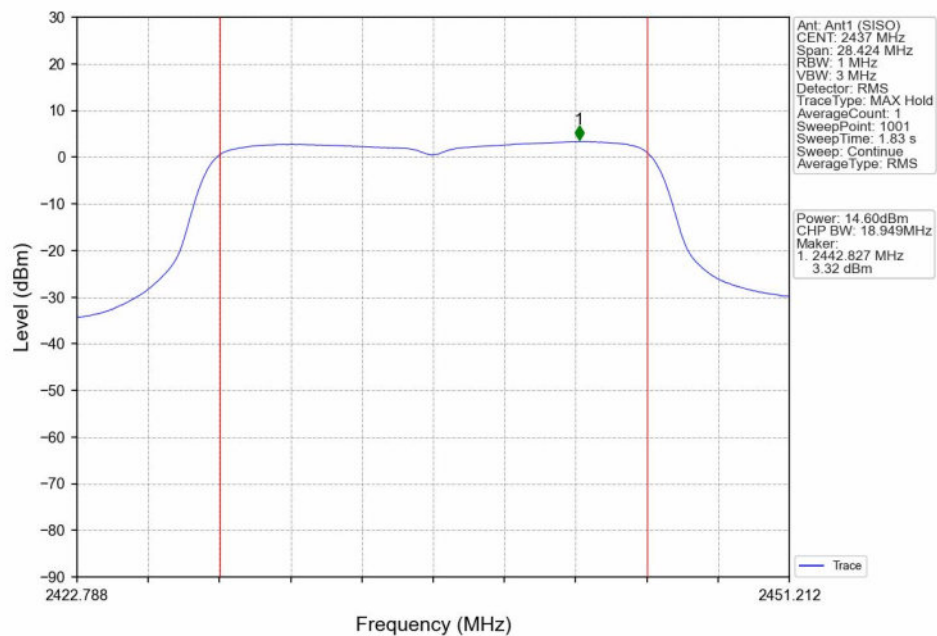


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802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

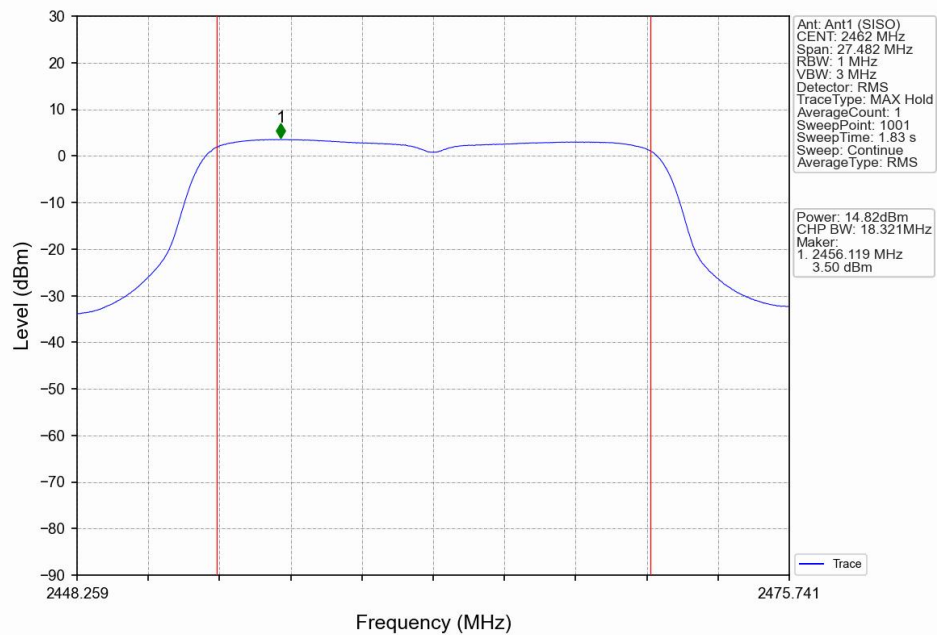


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

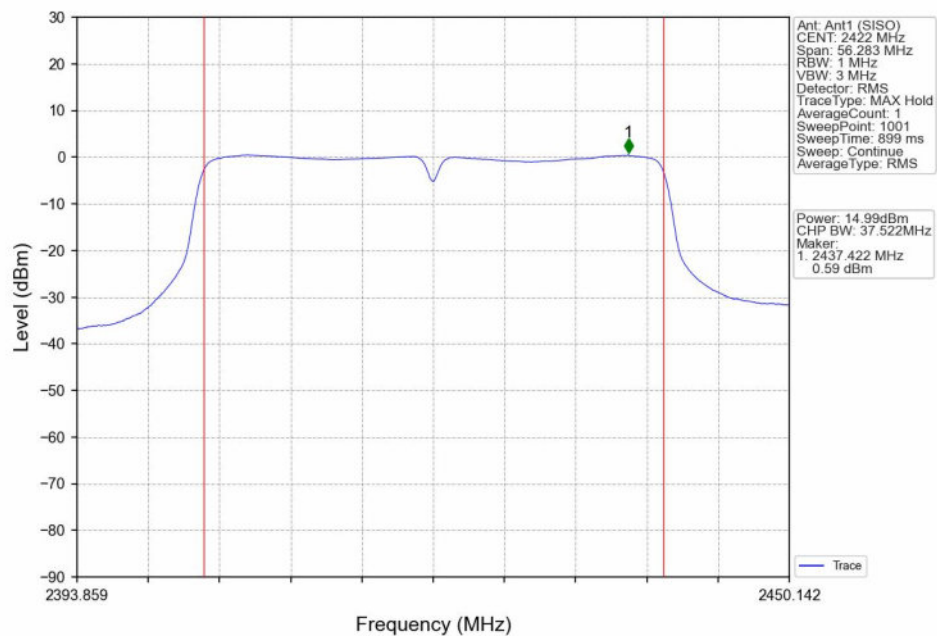


FCC ID: 2ASC7TAB702

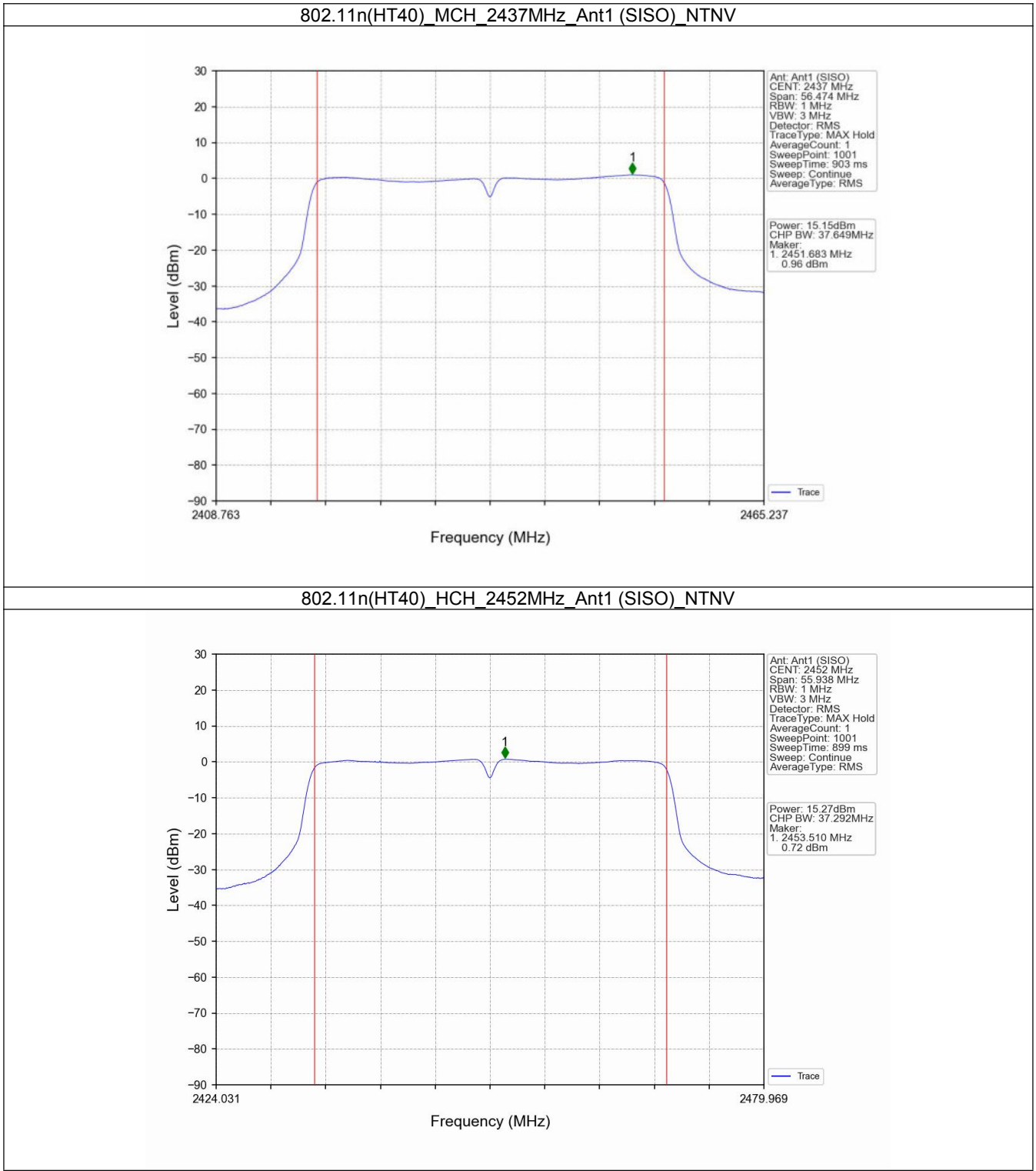
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



FCC ID: 2ASC7TAB702



FCC ID: 2ASC7TAB702

3. Maximum Power Spectral Density

3.1 Test Result

3.1.1 PSD

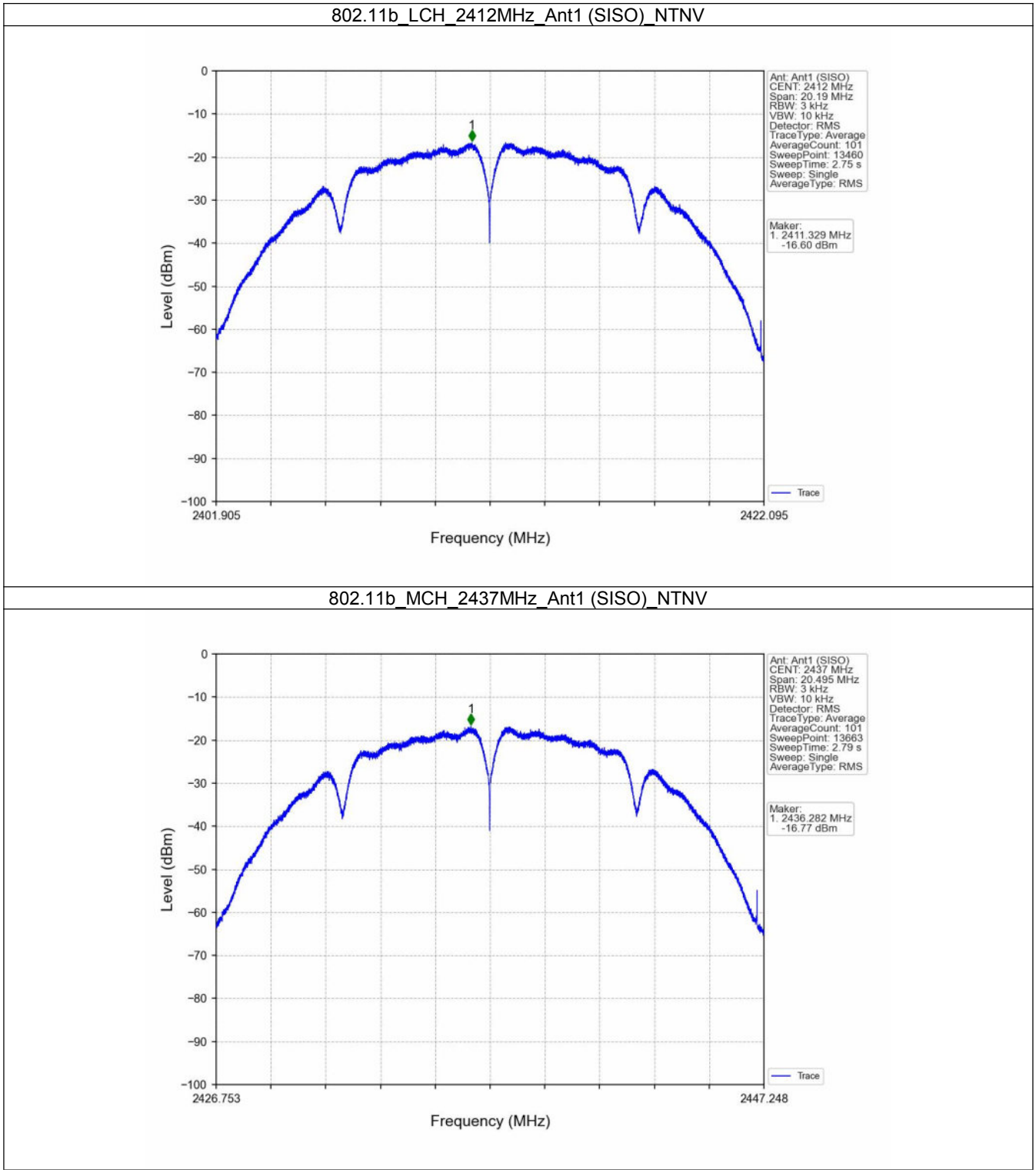
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-16.60	<=8	Pass
		2437	-16.77	<=8	Pass
		2462	-16.61	<=8	Pass
802.11g	SISO	2412	-17.08	<=8	Pass
		2437	-16.67	<=8	Pass
		2462	-16.79	<=8	Pass
802.11n (HT20)	SISO	2412	-15.77	<=8	Pass
		2437	-16.98	<=8	Pass
		2462	-15.93	<=8	Pass
802.11n (HT40)	SISO	2422	-18.14	<=8	Pass
		2437	-18.30	<=8	Pass
		2452	-18.10	<=8	Pass

Note1: Antenna Gain: Ant1: 1.89dBi;

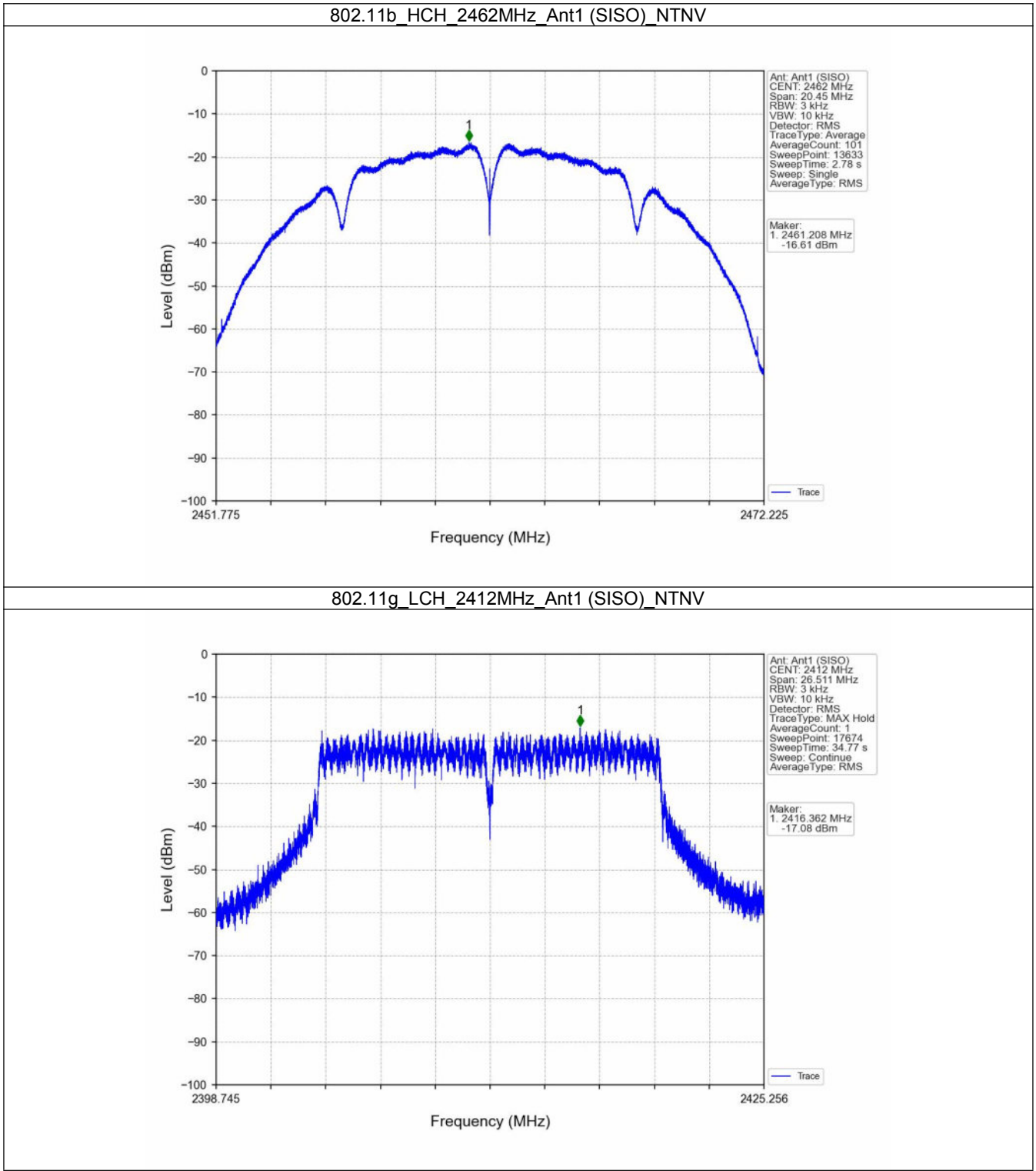
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3.2 Test Graph

3.2.1 PSD

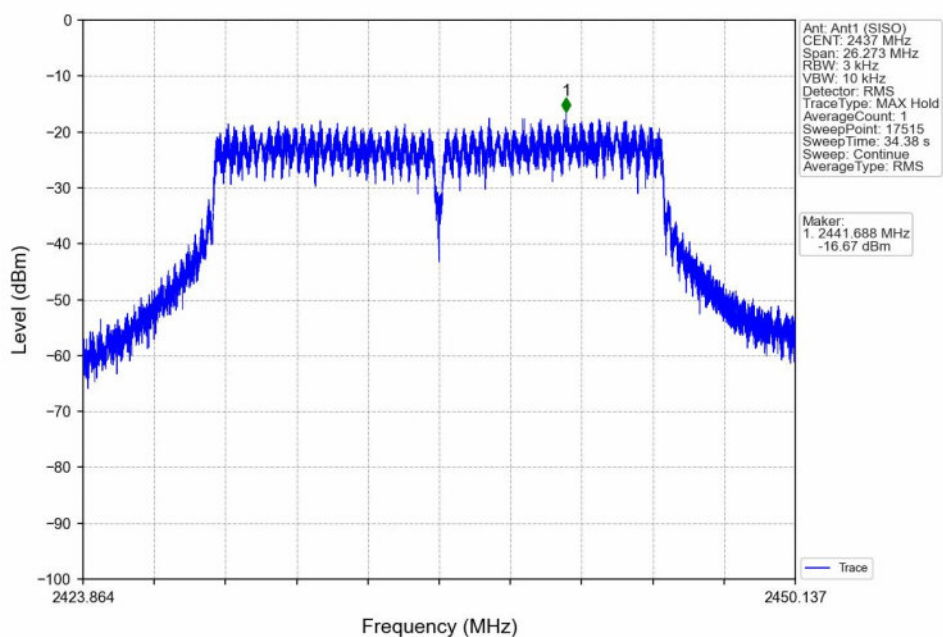


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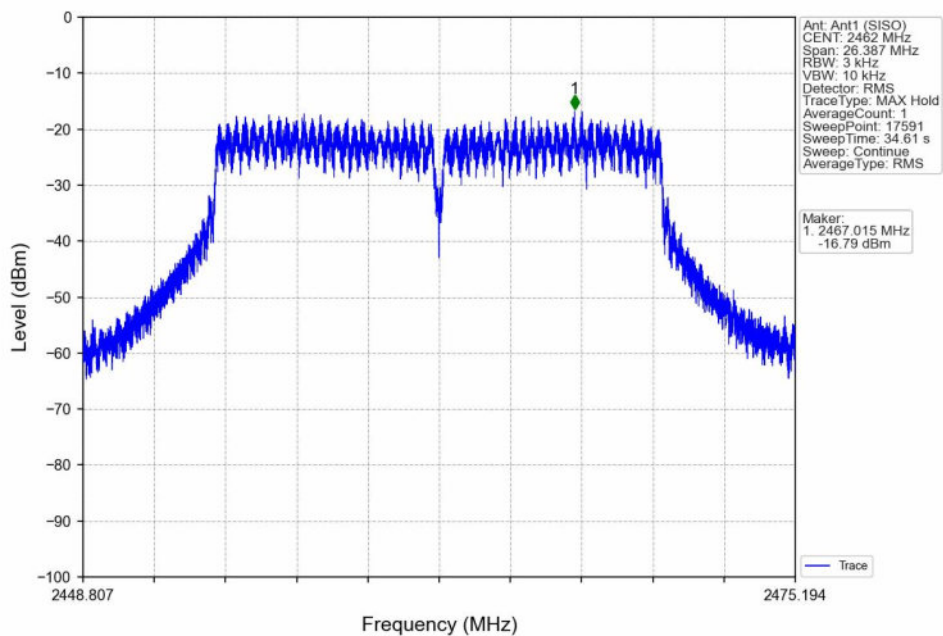


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802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

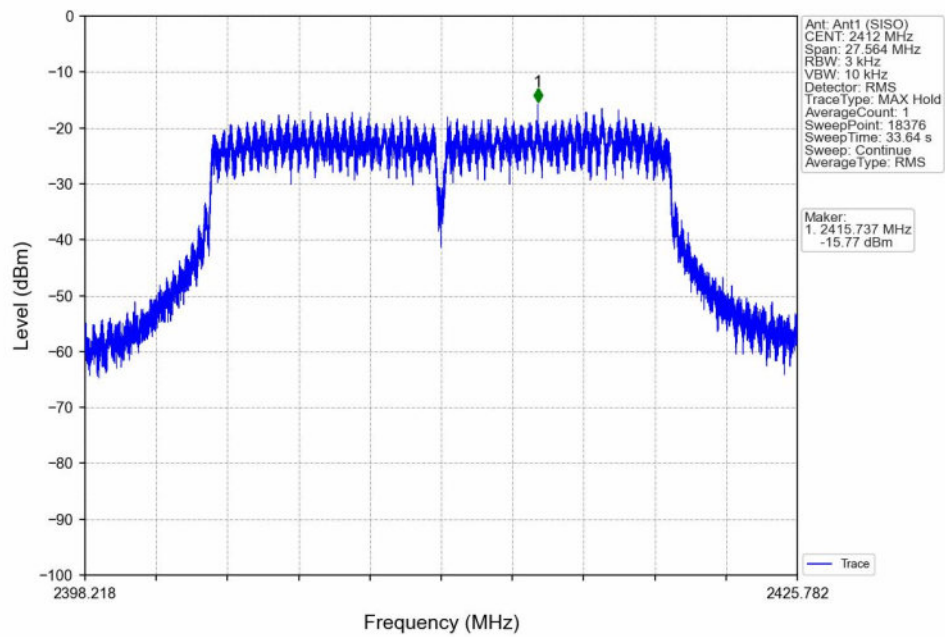


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

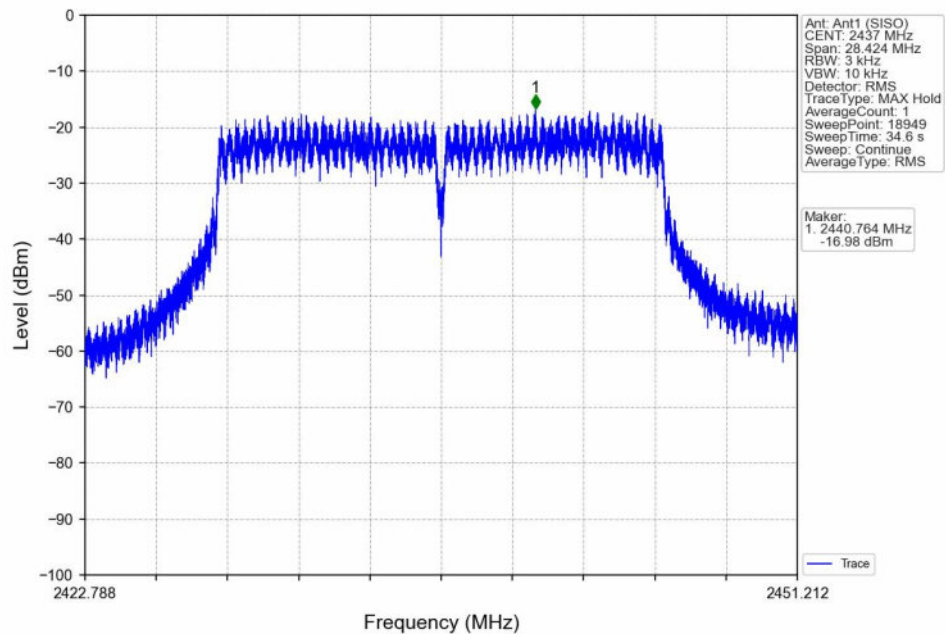


FCC ID: 2ASC7TAB702

802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

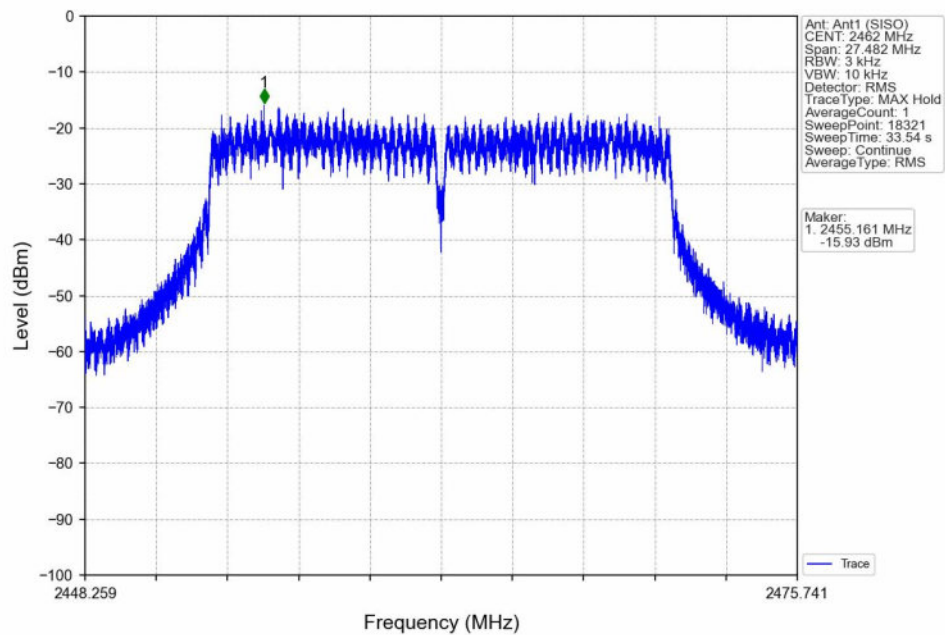


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

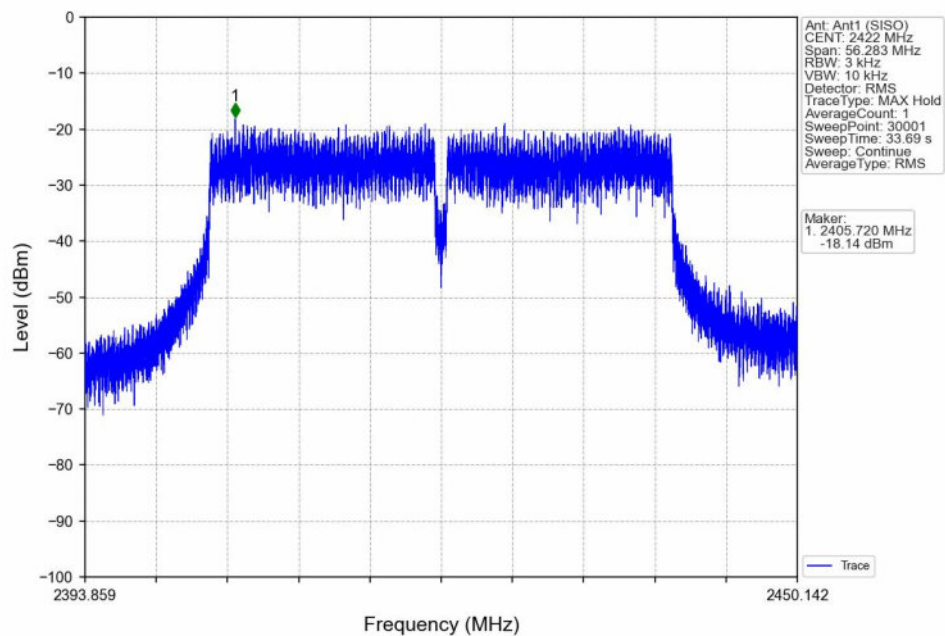


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802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

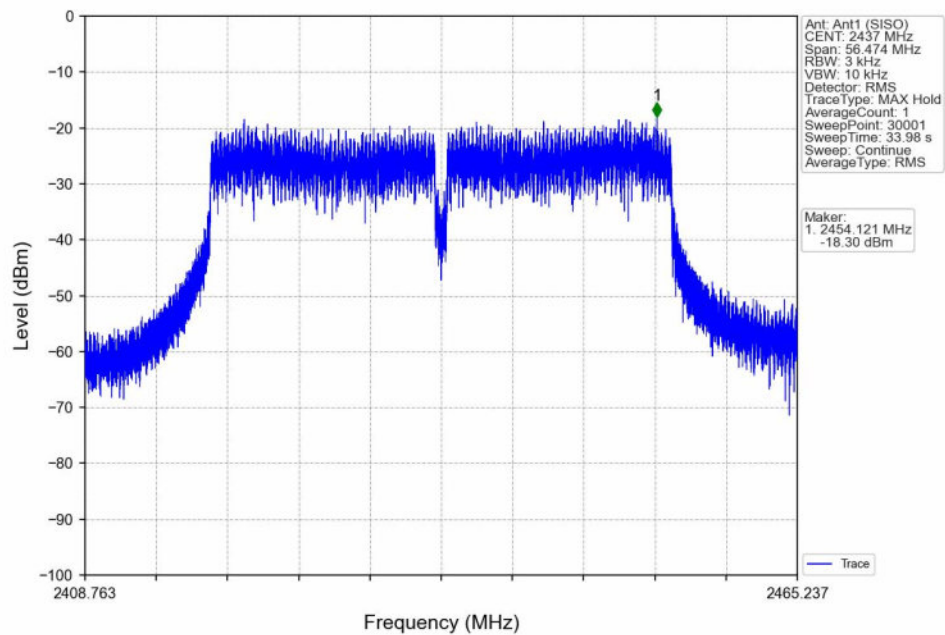


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

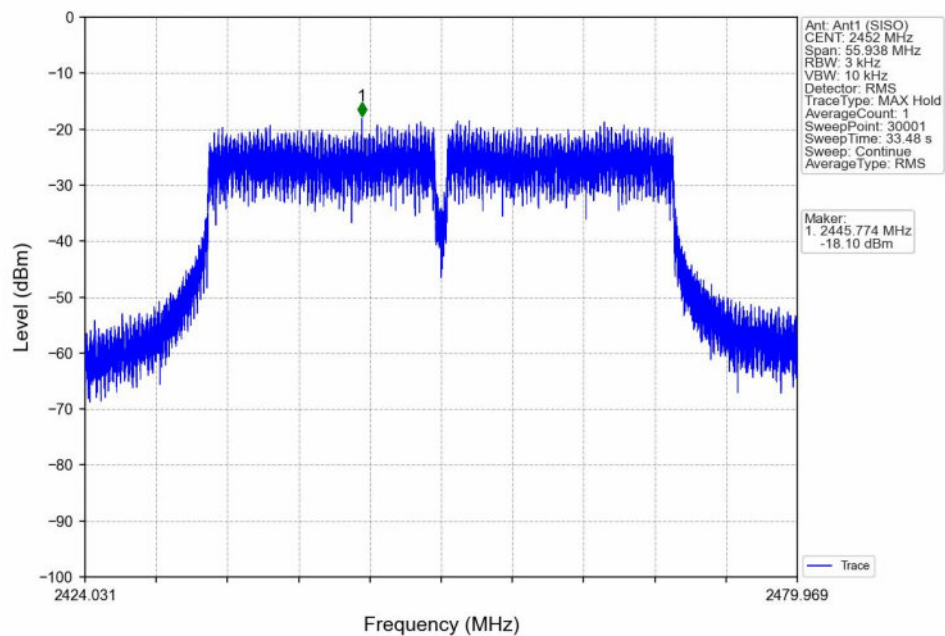


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802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



FCC ID: 2ASC7TAB702

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)
802.11b	SISO	2412	1	6.70
		2437	1	6.22
		2462	1	6.21
802.11g	SISO	2412	1	3.39
		2437	1	3.31
		2462	1	3.78
802.11n (HT20)	SISO	2412	1	3.73
		2437	1	3.80
		2462	1	4.29
802.11n (HT40)	SISO	2422	1	0.96
		2437	1	1.70
		2452	1	1.22

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

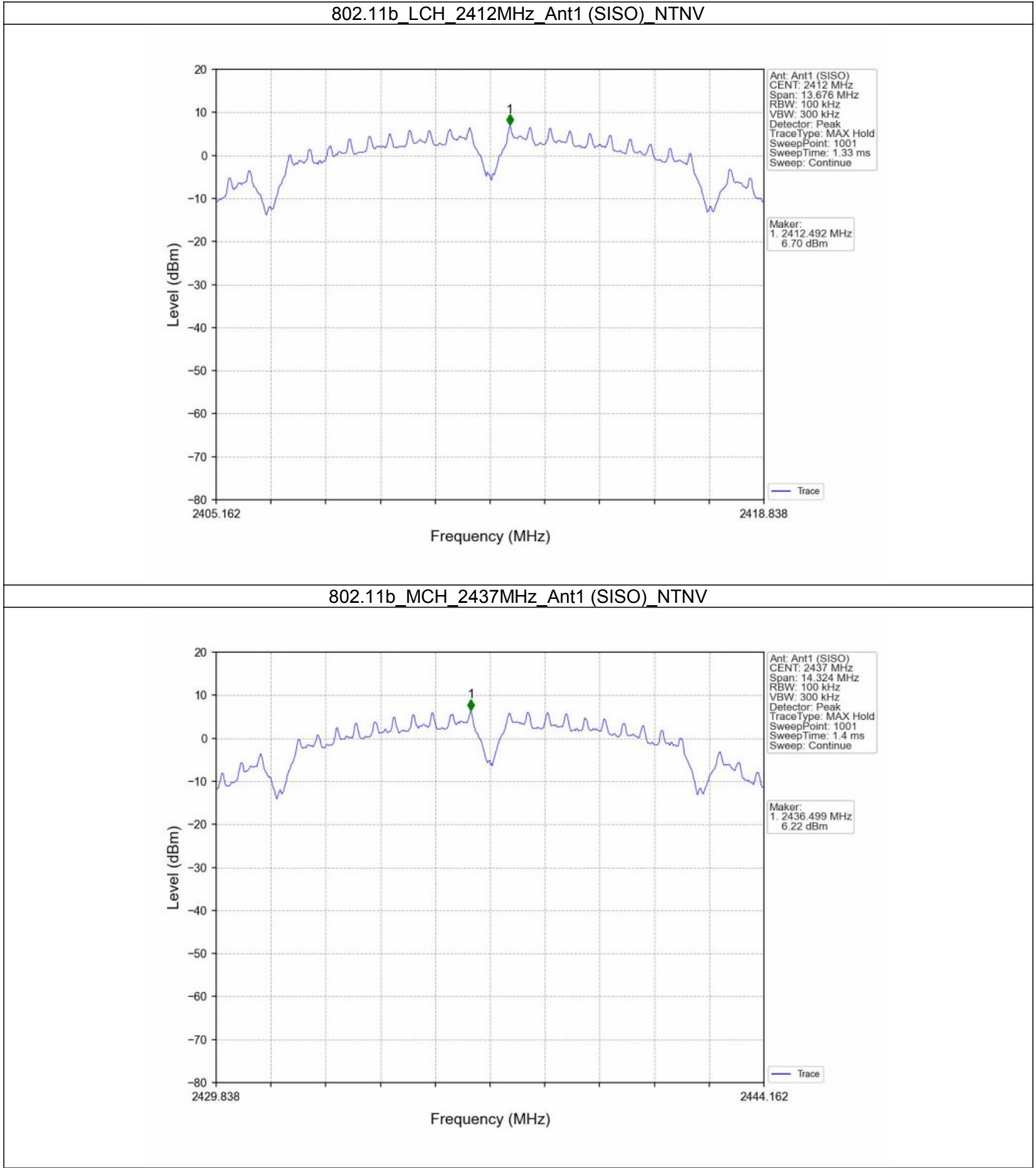
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	6.70	-23.30	Pass
		2437	1	6.70	-23.30	Pass
		2462	1	6.70	-23.30	Pass
802.11g	SISO	2412	1	3.78	-26.22	Pass
		2437	1	3.78	-26.22	Pass
		2462	1	3.78	-26.22	Pass
802.11n (HT20)	SISO	2412	1	4.29	-25.71	Pass
		2437	1	4.29	-25.71	Pass
		2462	1	4.29	-25.71	Pass
802.11n (HT40)	SISO	2422	1	1.70	-28.30	Pass
		2437	1	1.70	-28.30	Pass
		2452	1	1.70	-28.30	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.

FCC ID: 2ASC7TAB702

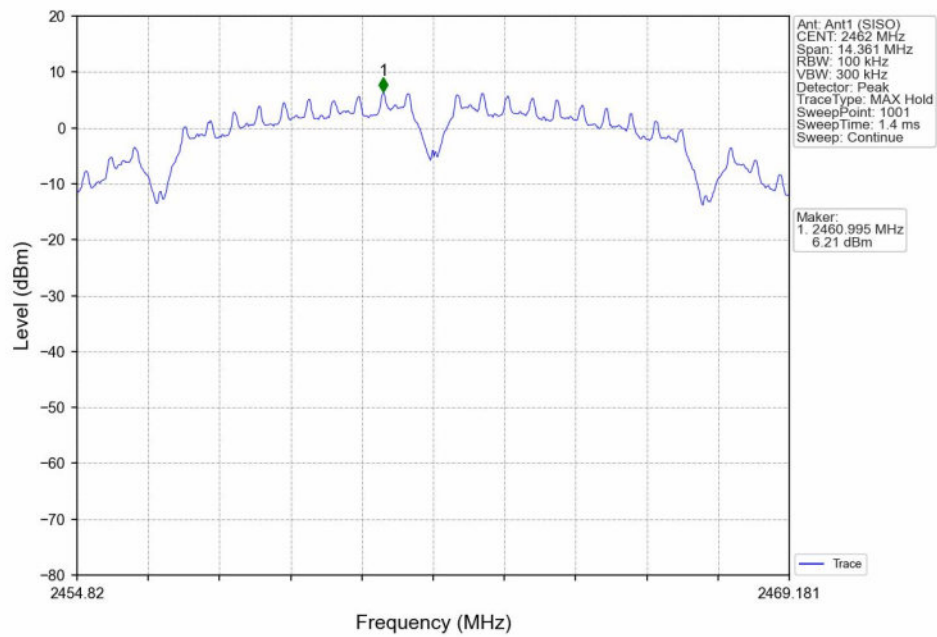
4.2 Test Graph

4.2.1 Ref

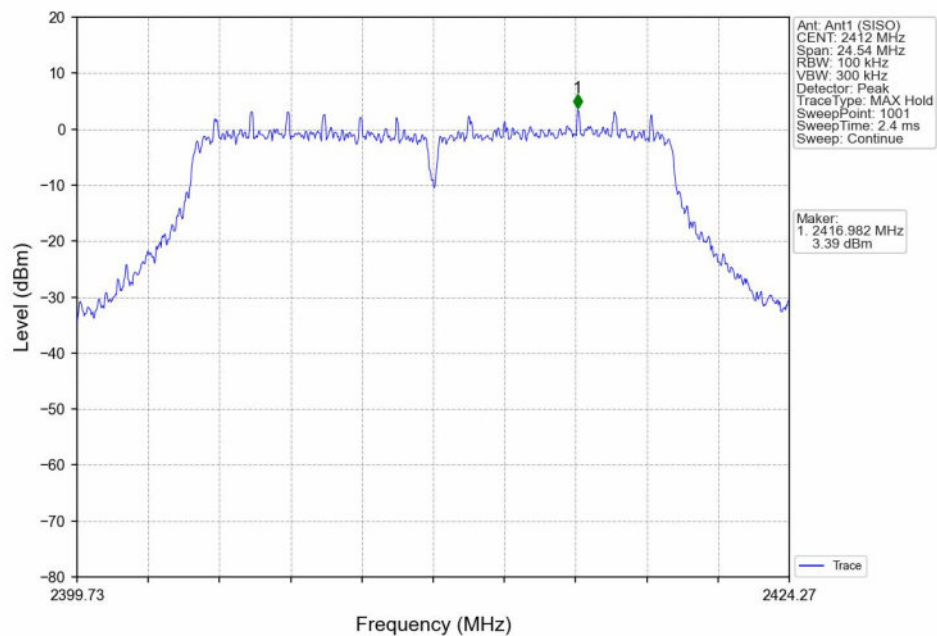


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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

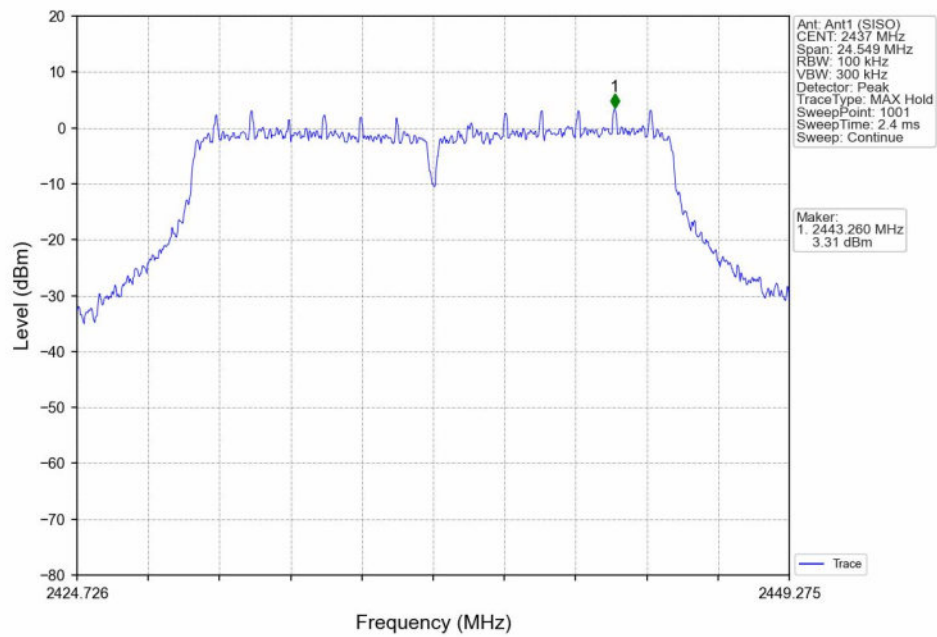


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

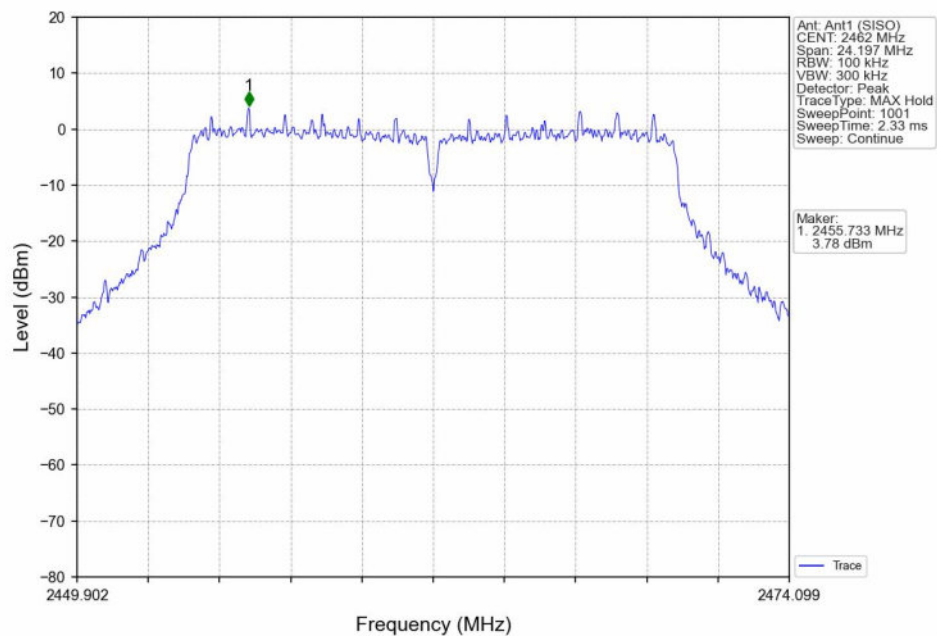


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802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

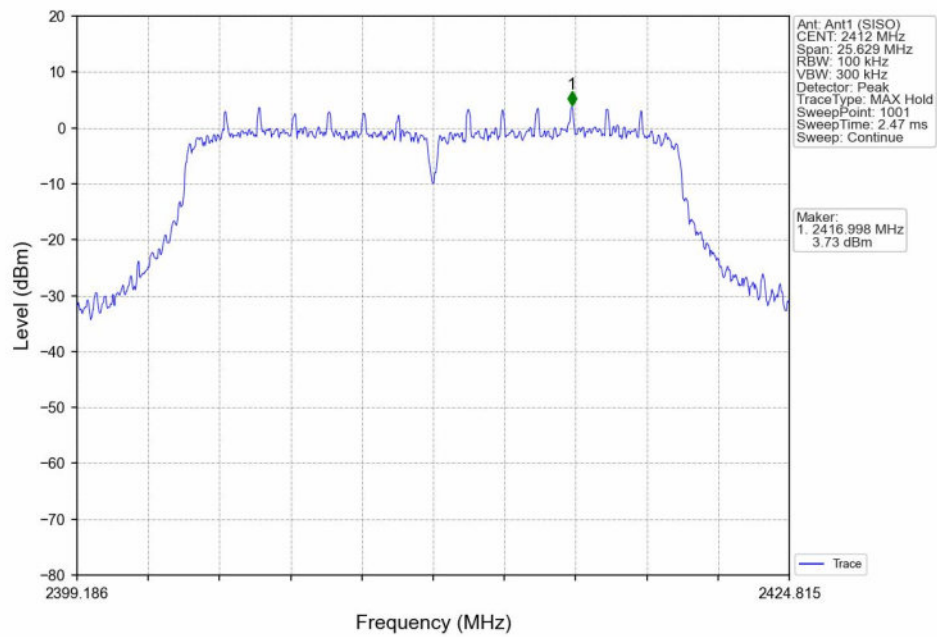


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

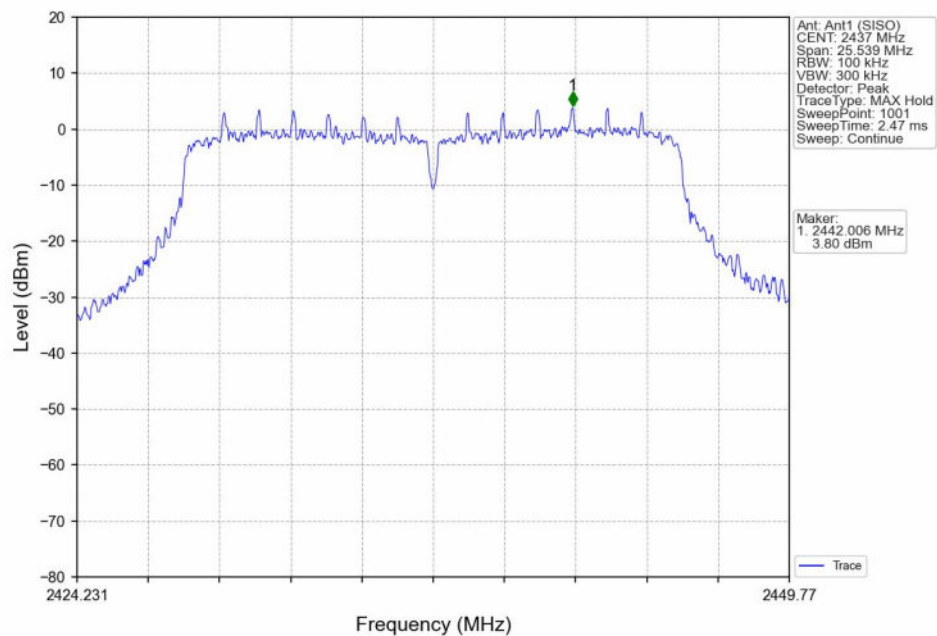


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802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

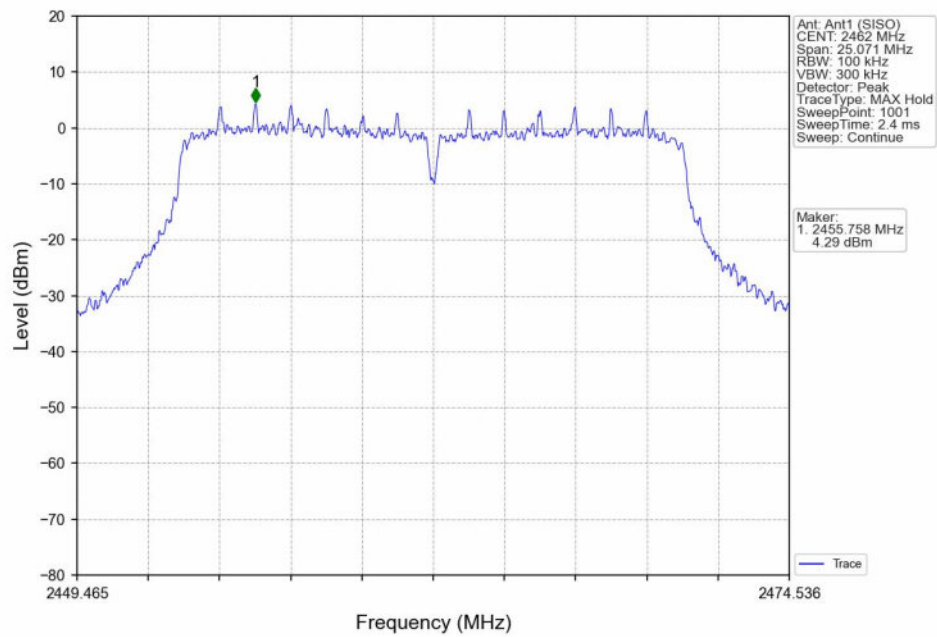


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

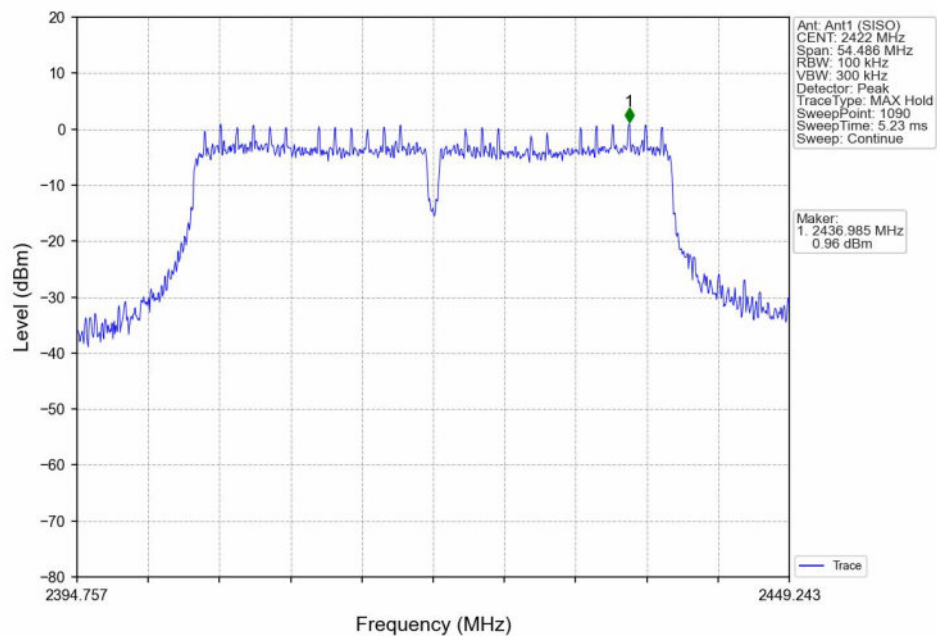


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802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

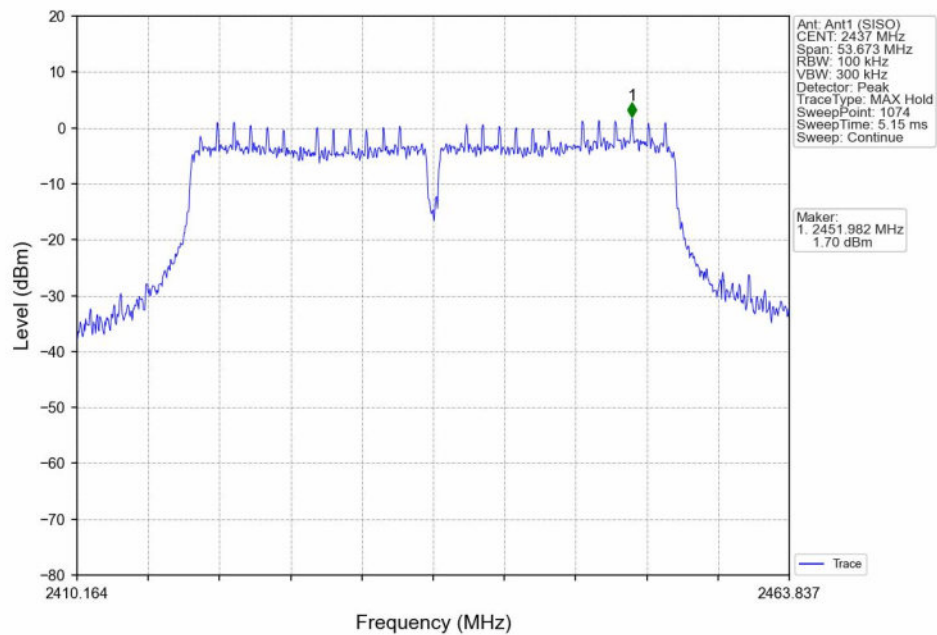


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

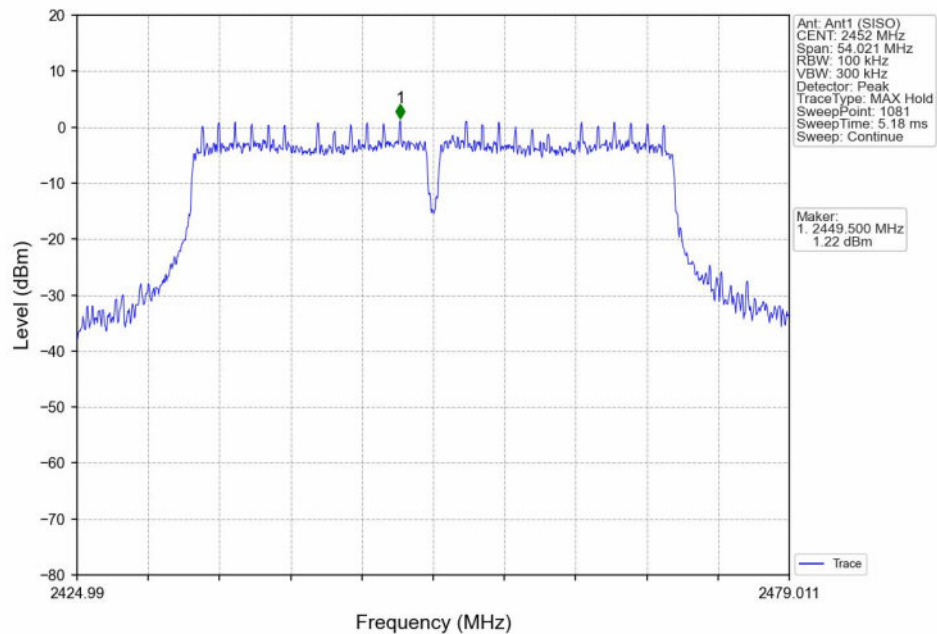


FCC ID: 2ASC7TAB702

802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV

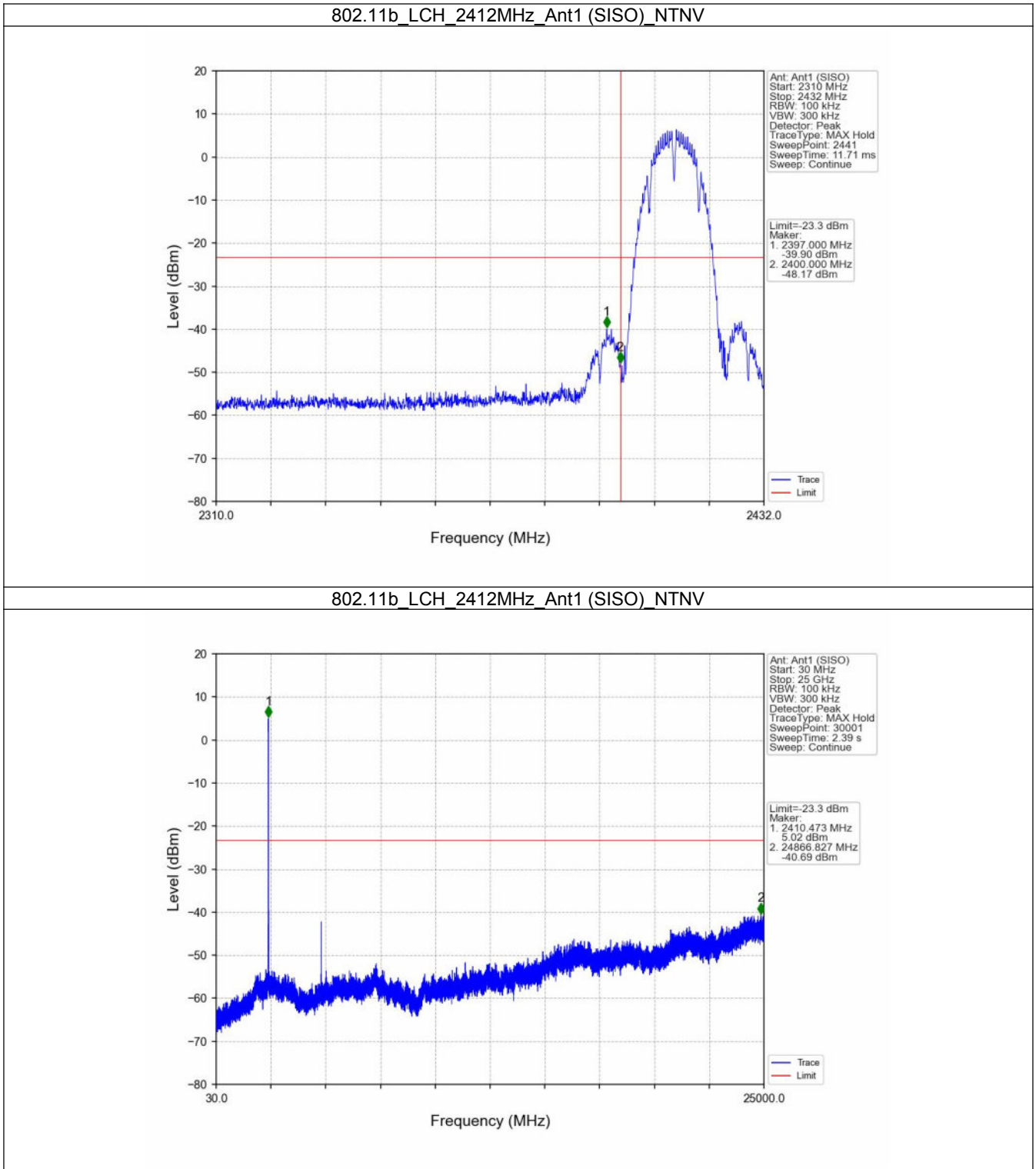


802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



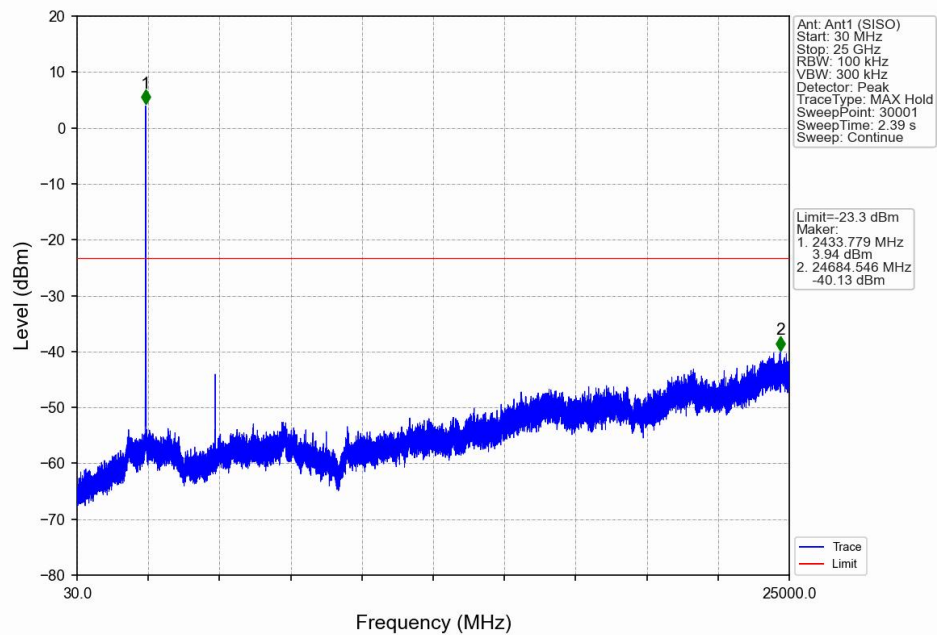
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4.2.2 CSE

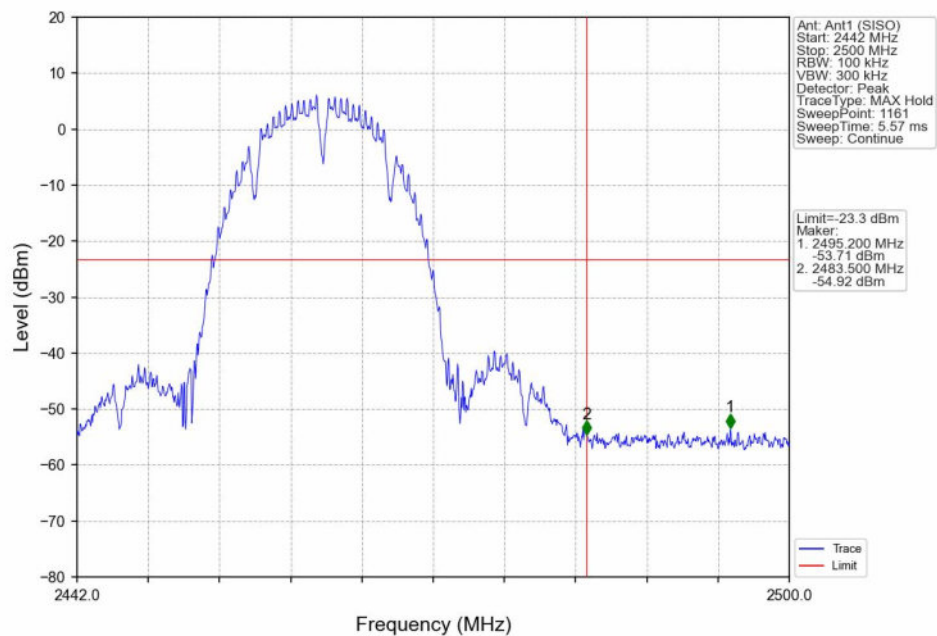


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802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV

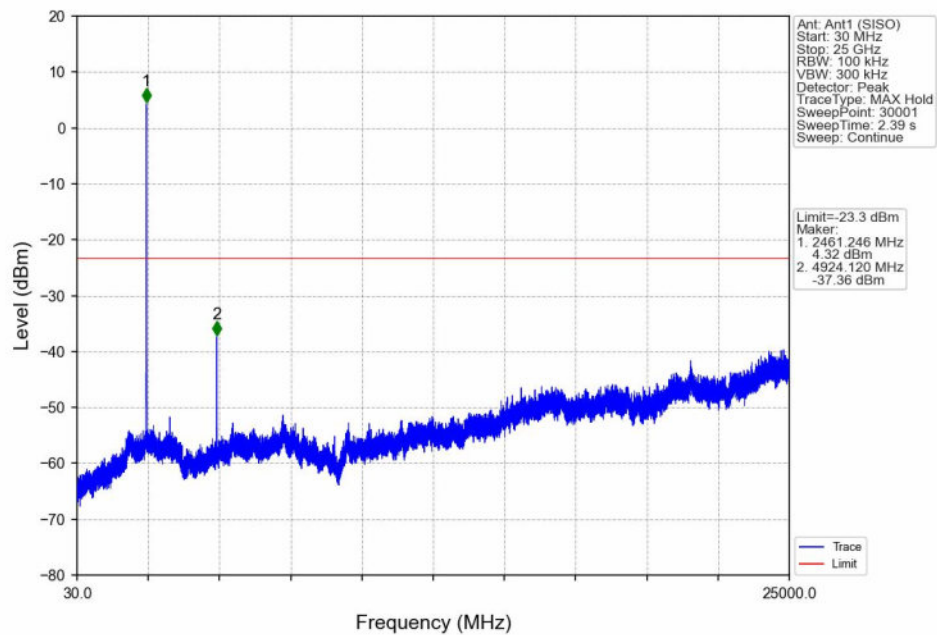


802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

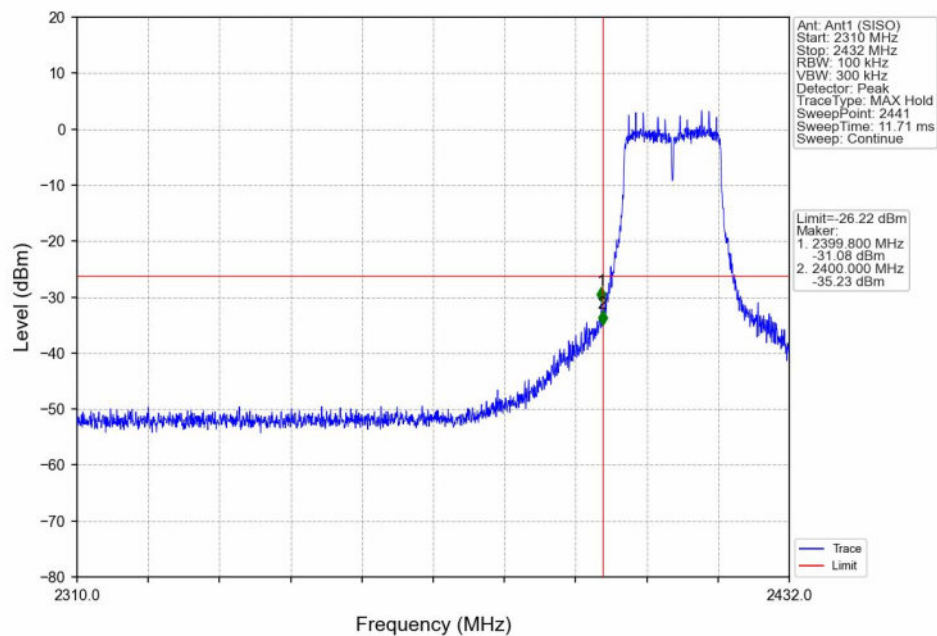


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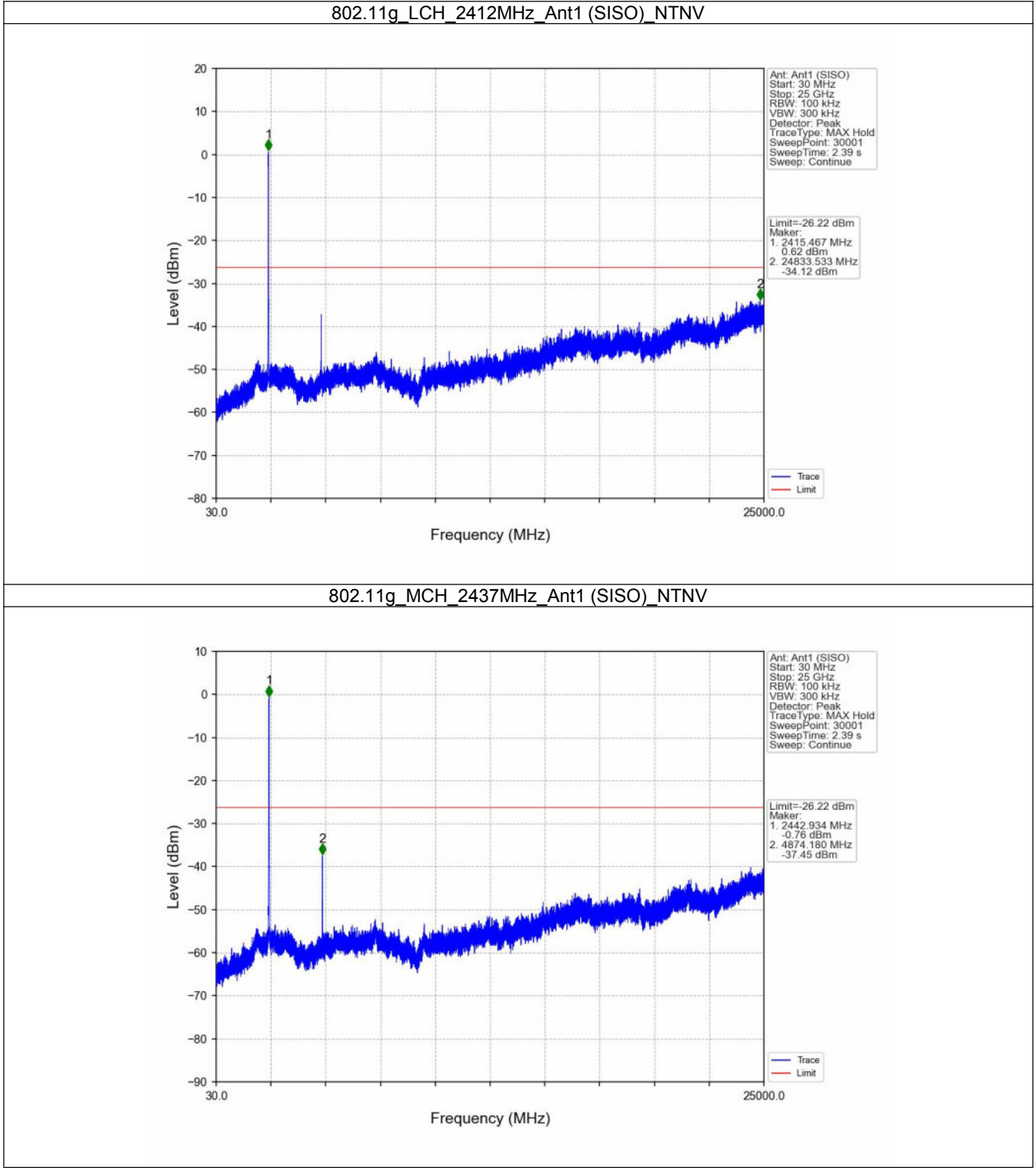
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



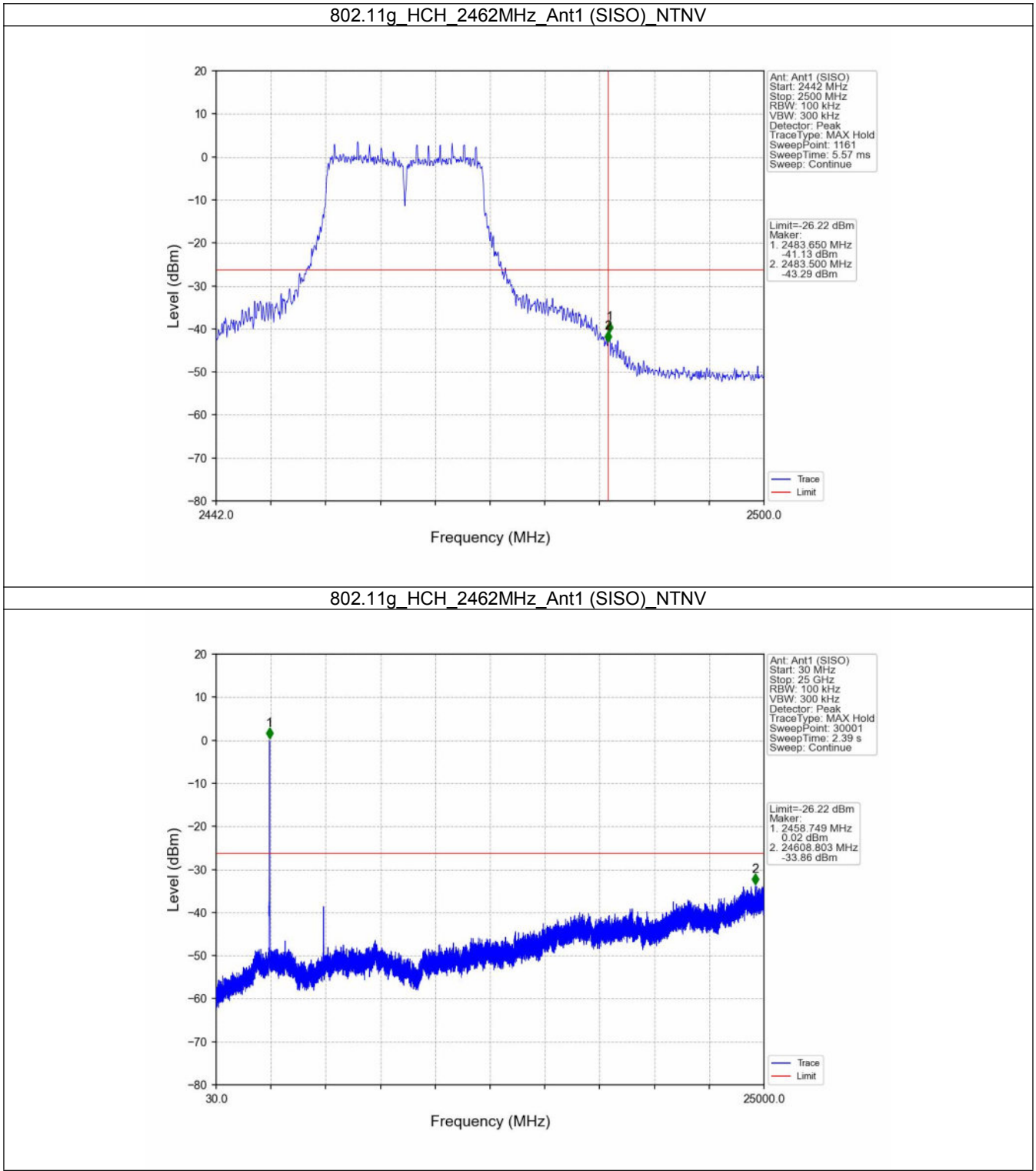
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



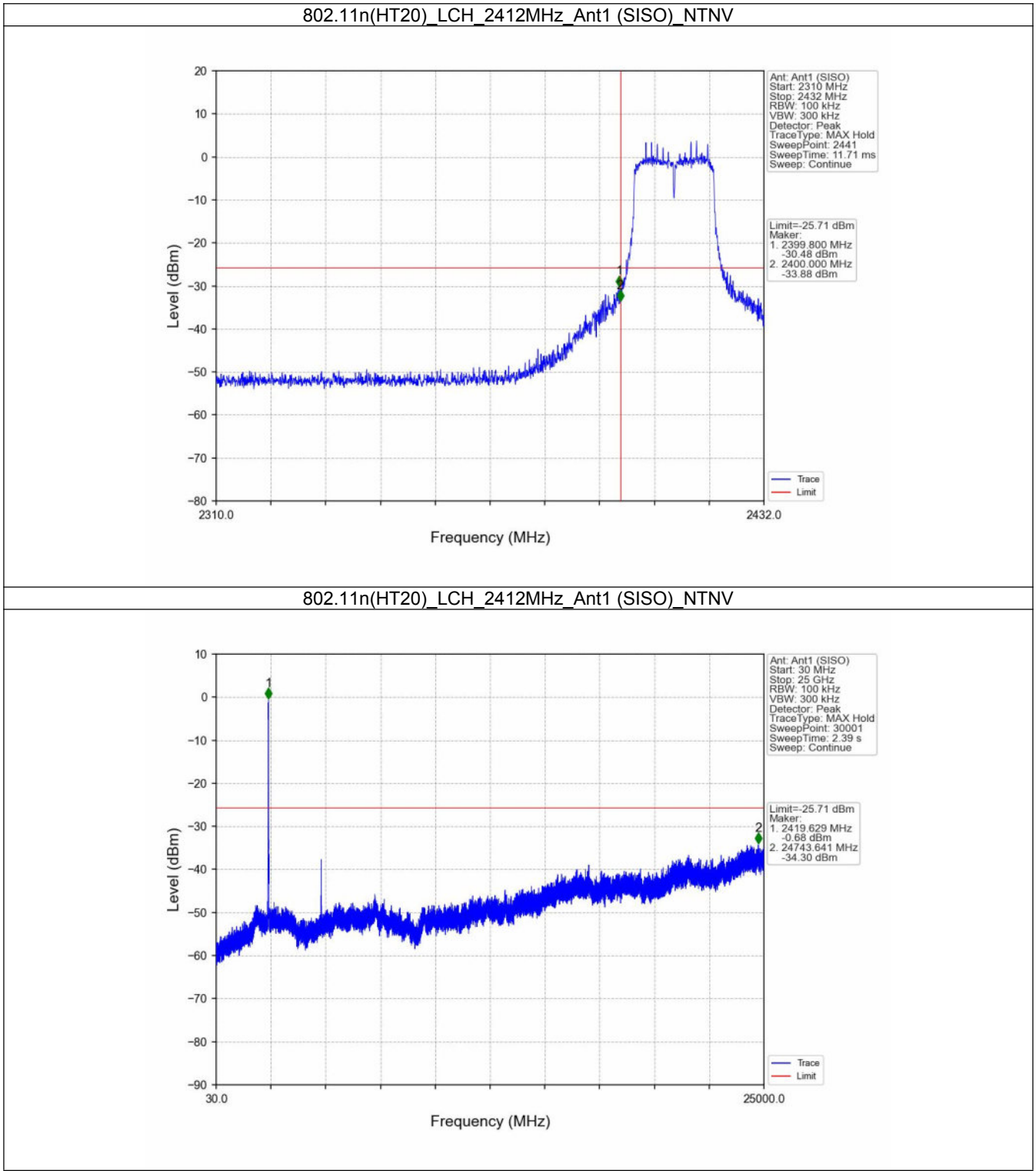
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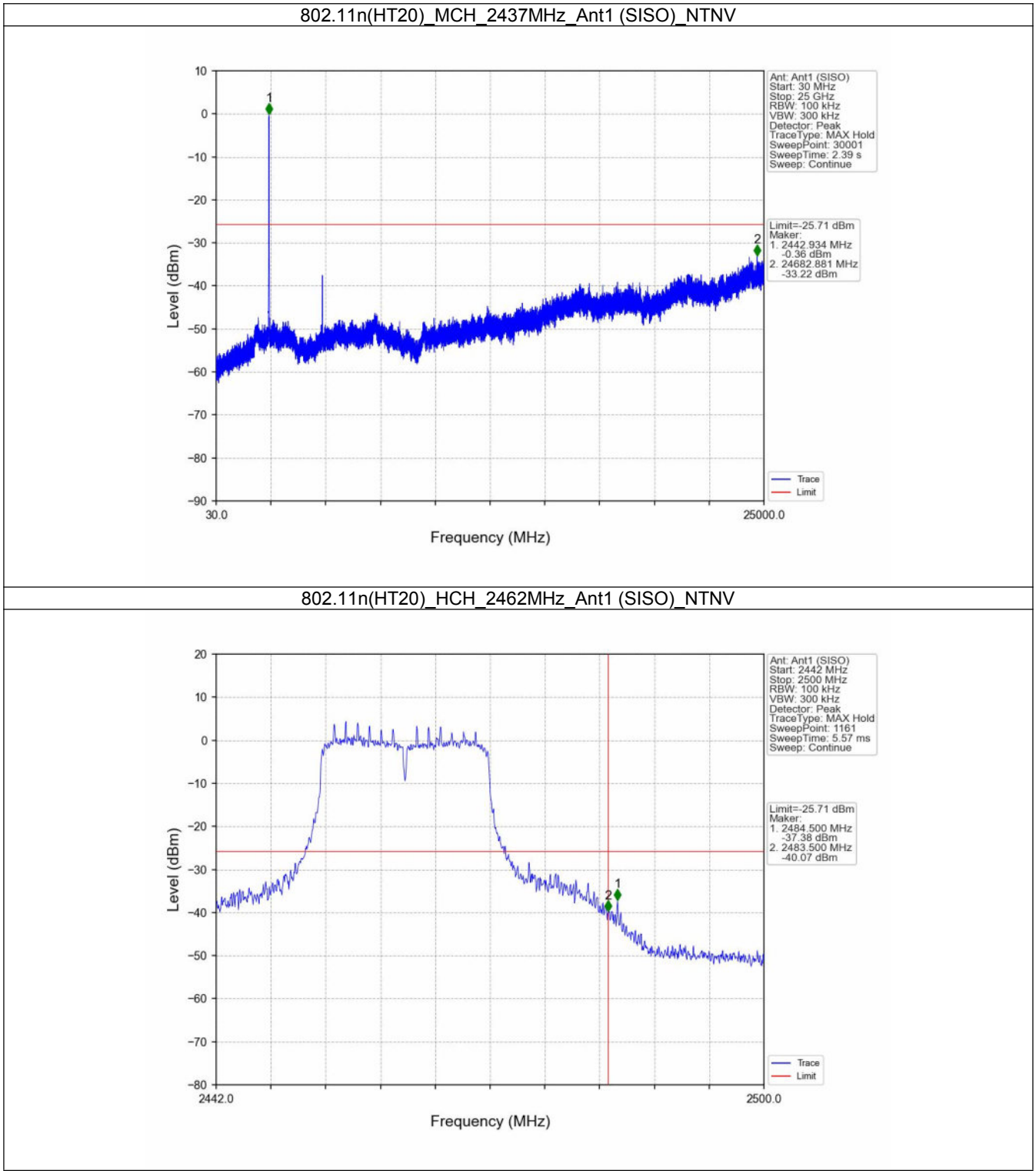
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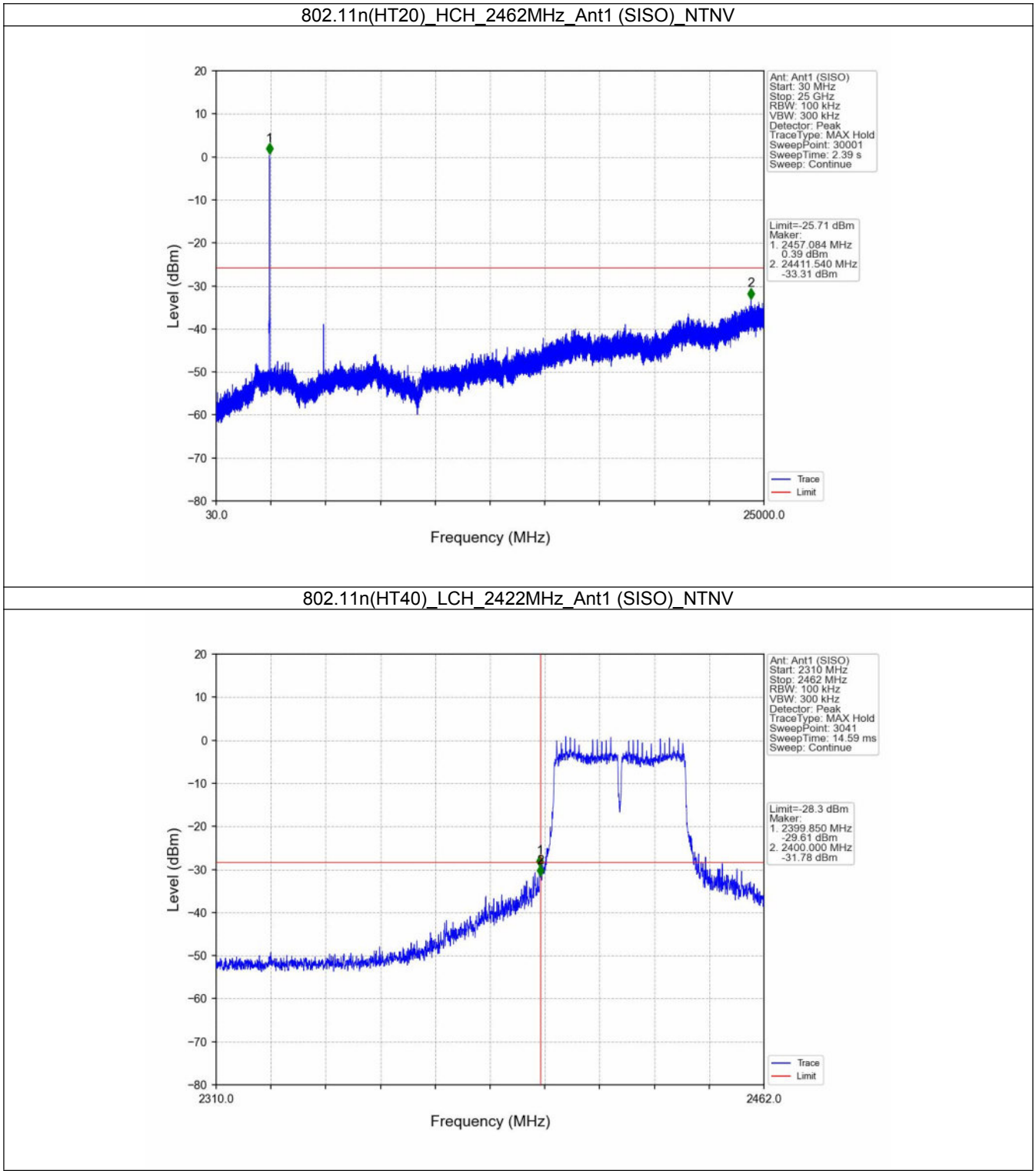
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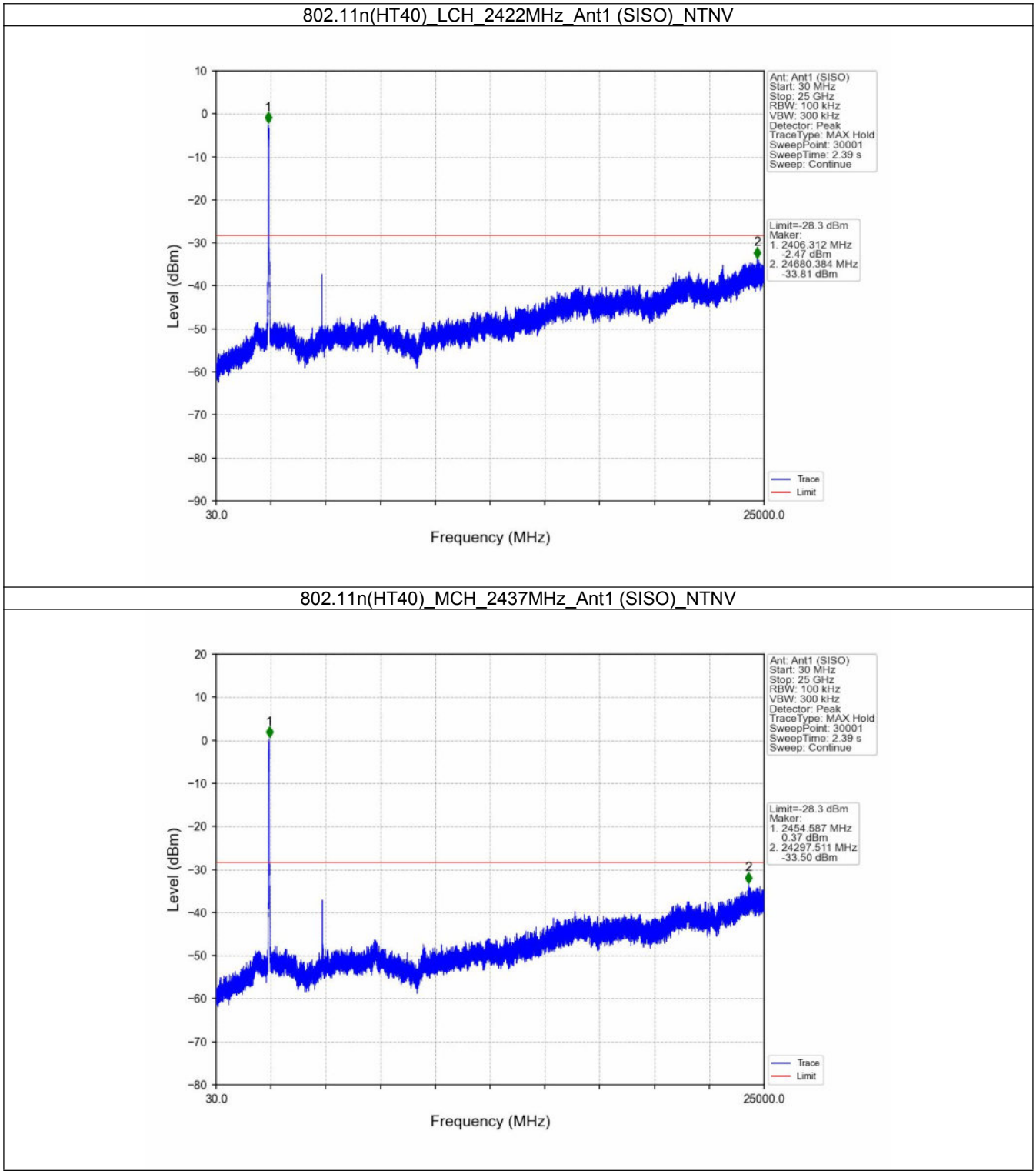
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