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Annex for 2.4G Wi-Fi

Test Report No.: CTL2506182071-WF03

TABLE OF CONTENTS

1. Bandwidth	3
1.1 Test Result	3
1.1.1 OBW	3
1.1.2 6dB BW	3
1.2 Test Graph	4
1.2.1 OBW	4
1.2.2 6dB BW	10
2. Maximum Conducted Output Power	16
2.1 Test Result	16
2.1.1 Power	16
3. Maximum Power Spectral Density	17
3.1 Test Result	17
3.1.1 PSD	17
3.2 Test Graph	18
3.2.1 PSD	18
4. Unwanted Emissions In Non-restricted Frequency Bands	24
4.1 Test Result	24
4.1.1 Ref	24
4.1.2 CSE	24
4.2 Test Graph	25

FCC ID:2AUARTKMU8A

4.2.1 Ref..... 25

4.2.2 CSE..... 31

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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	12.565	/	Pass
		2437	1	12.599	/	Pass
		2462	1	12.619	/	Pass
802.11g	SISO	2412	1	16.925	/	Pass
		2437	1	17.743	/	Pass
		2462	1	17.810	/	Pass
802.11n (HT20)	SISO	2412	1	18.046	/	Pass
		2437	1	20.300	/	Pass
		2462	1	20.339	/	Pass
802.11n (HT40)	SISO	2422	1	36.136	/	Pass
		2437	1	36.088	/	Pass
		2452	1	36.150	/	Pass

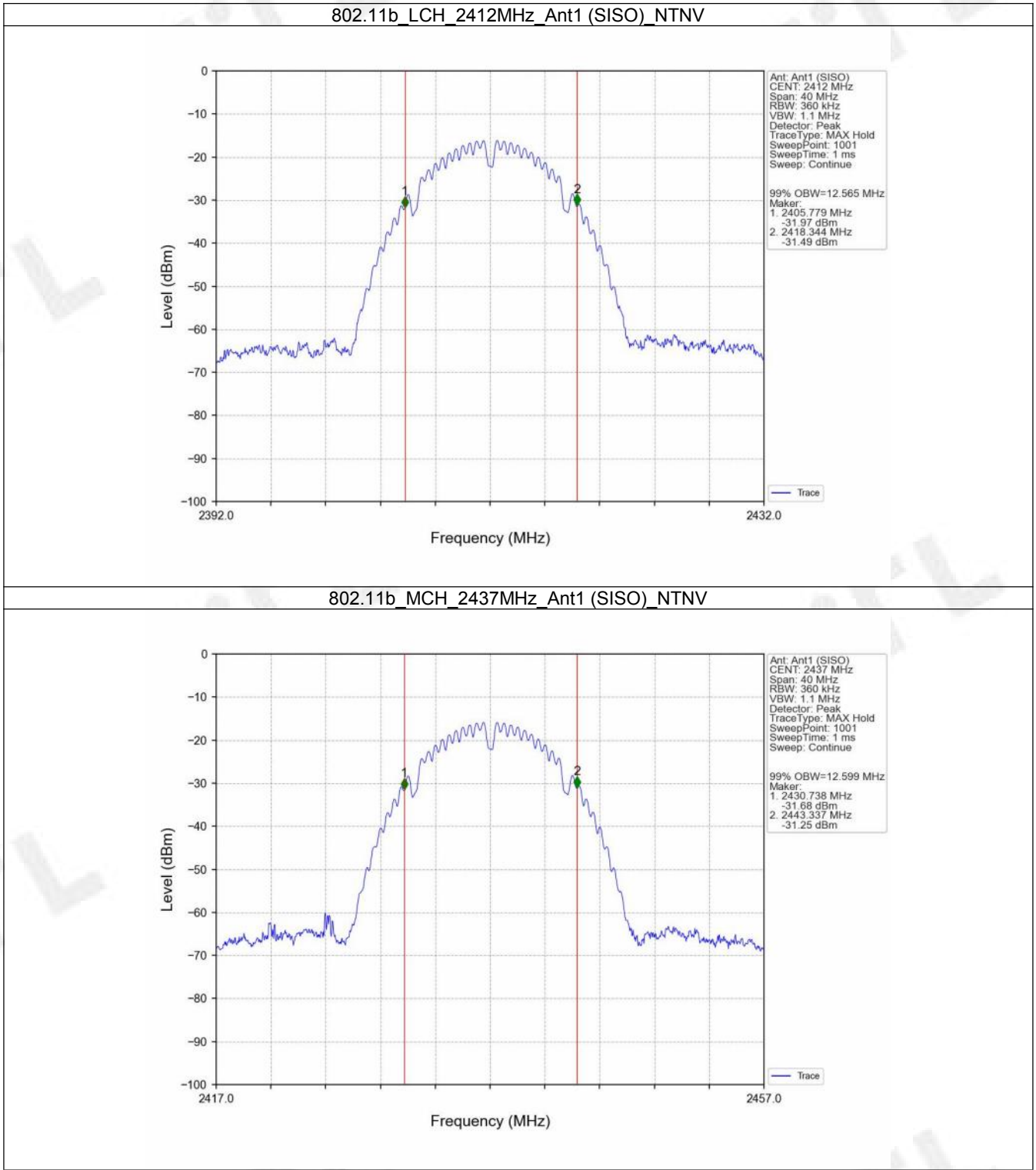
1.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	8.105	≥ 0.5	Pass
		2437	1	8.115	≥ 0.5	Pass
		2462	1	8.114	≥ 0.5	Pass
802.11g	SISO	2412	1	15.160	≥ 0.5	Pass
		2437	1	16.333	≥ 0.5	Pass
		2462	1	16.352	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	15.110	≥ 0.5	Pass
		2437	1	15.496	≥ 0.5	Pass
		2462	1	15.303	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	35.144	≥ 0.5	Pass
		2437	1	35.137	≥ 0.5	Pass
		2452	1	35.136	≥ 0.5	Pass

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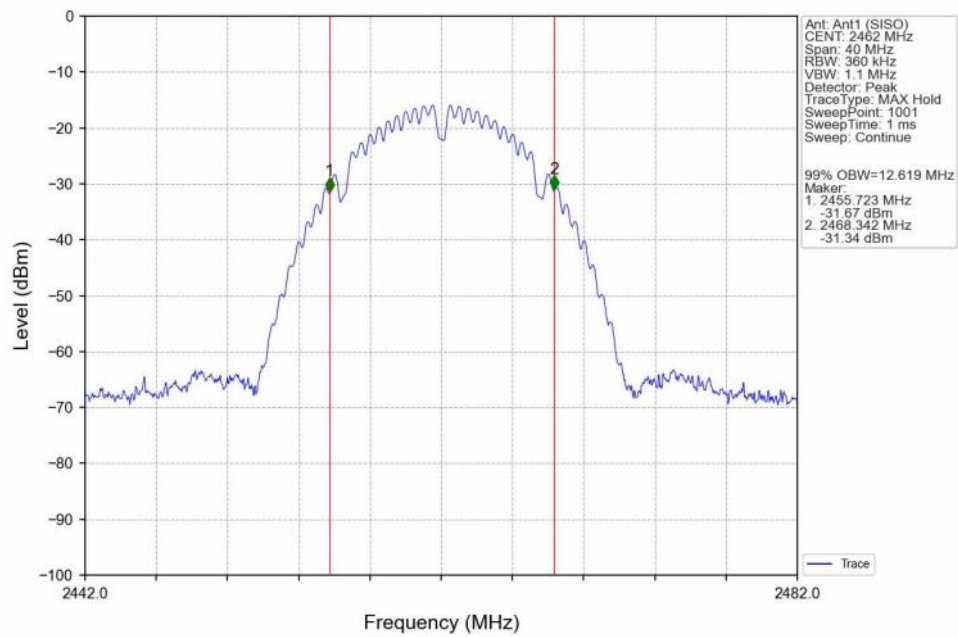
1.2 Test Graph

1.2.1 OBW

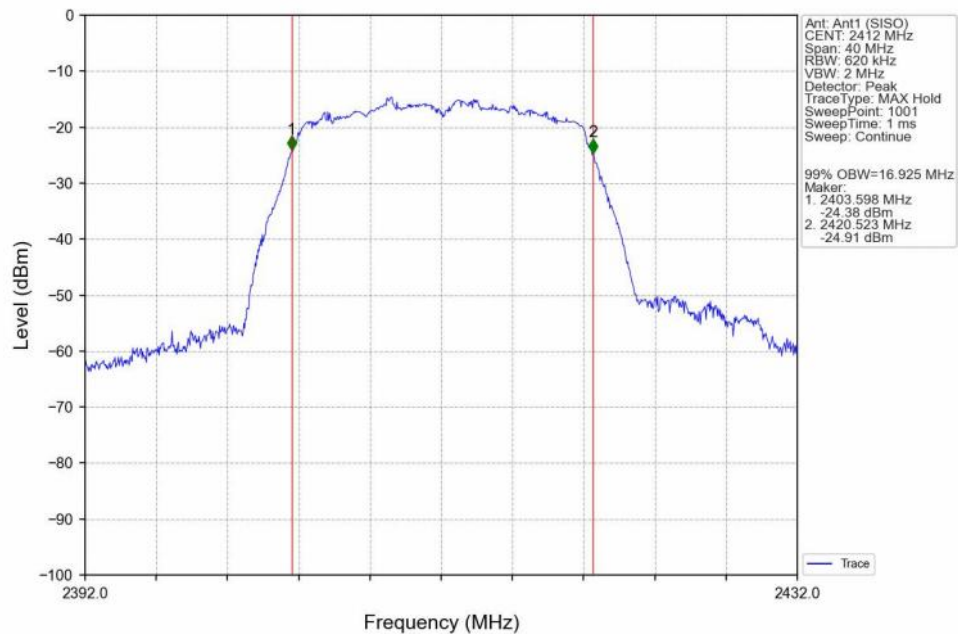


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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

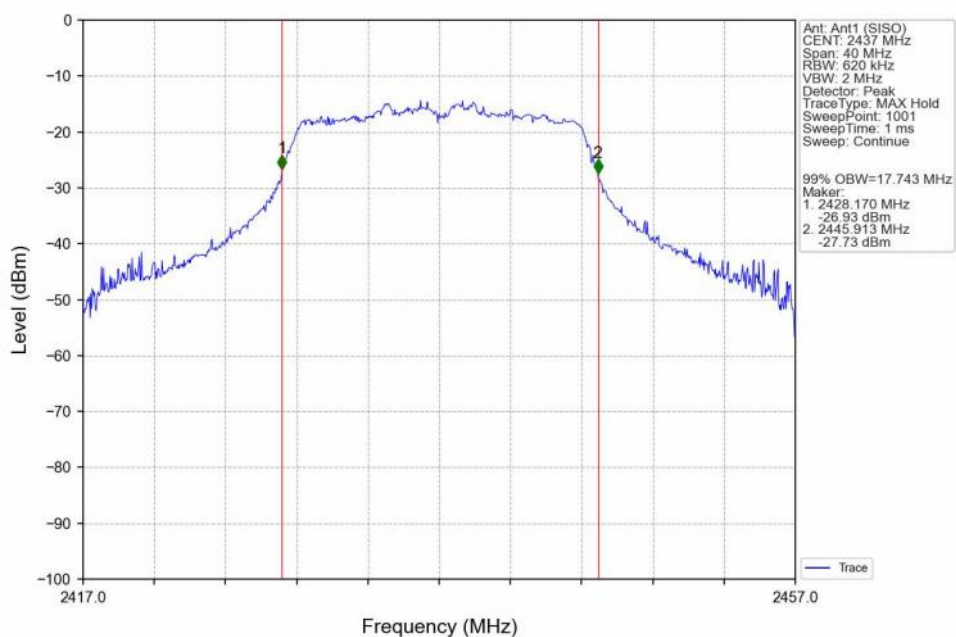


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

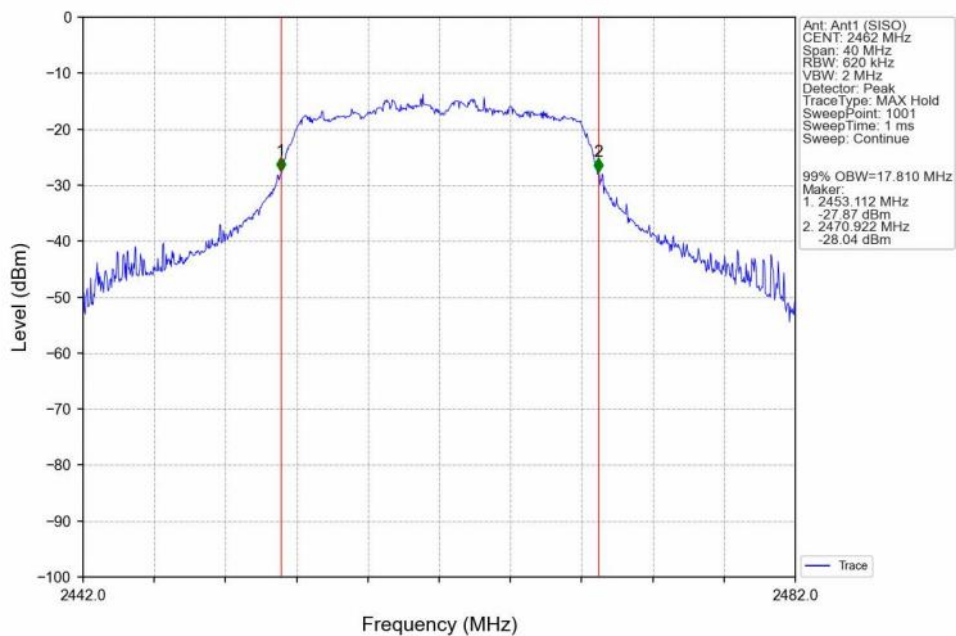


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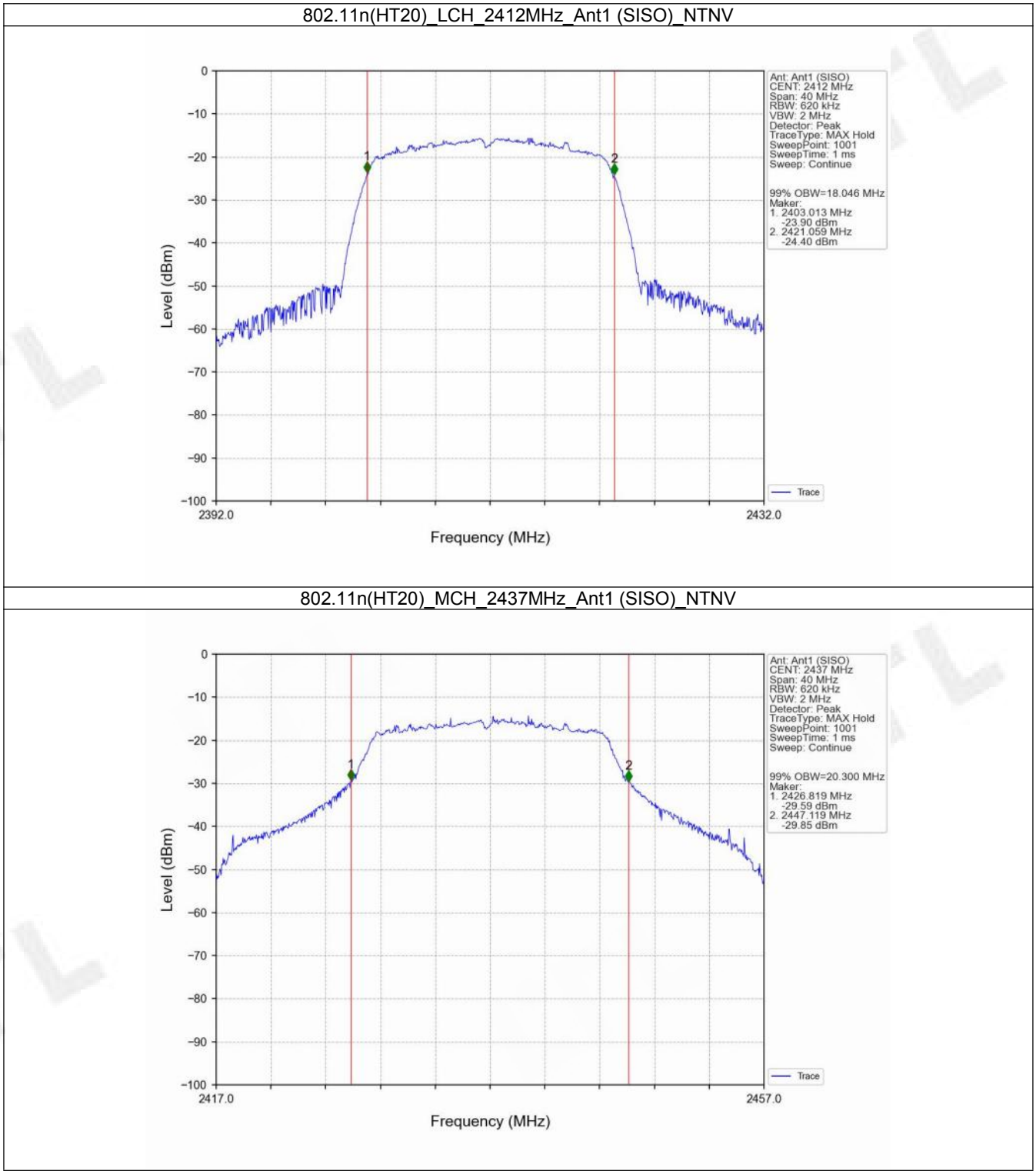
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



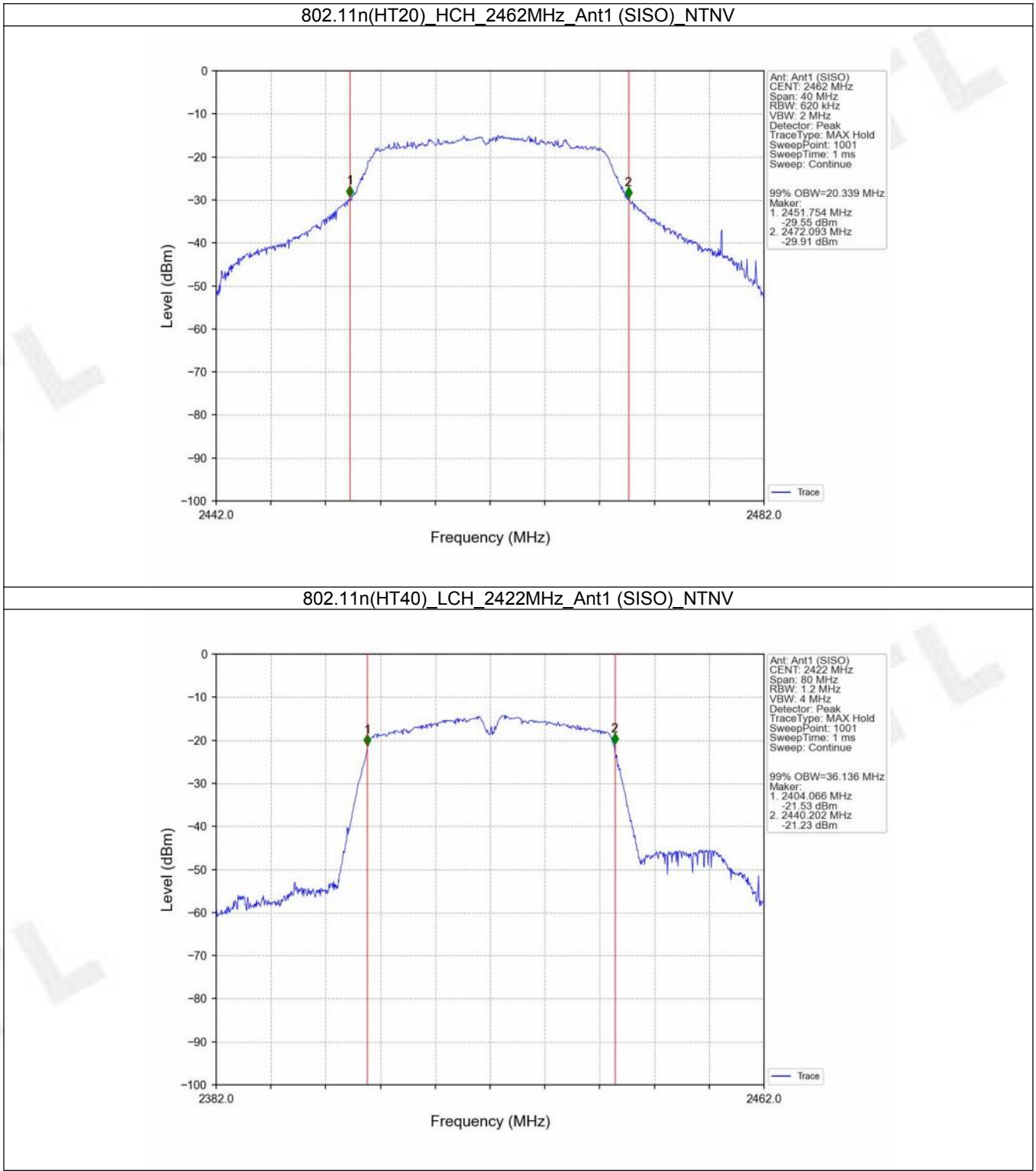
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



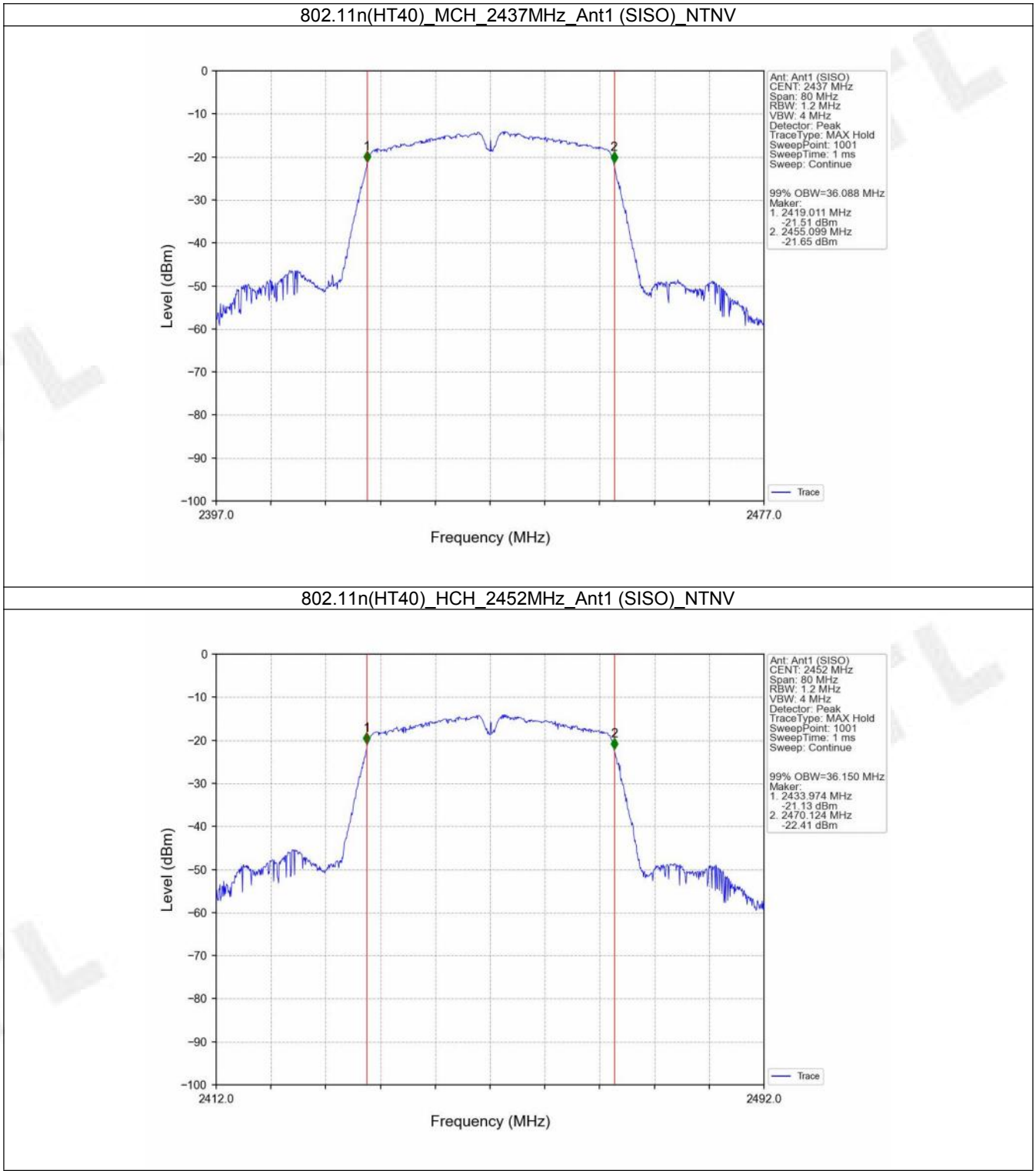
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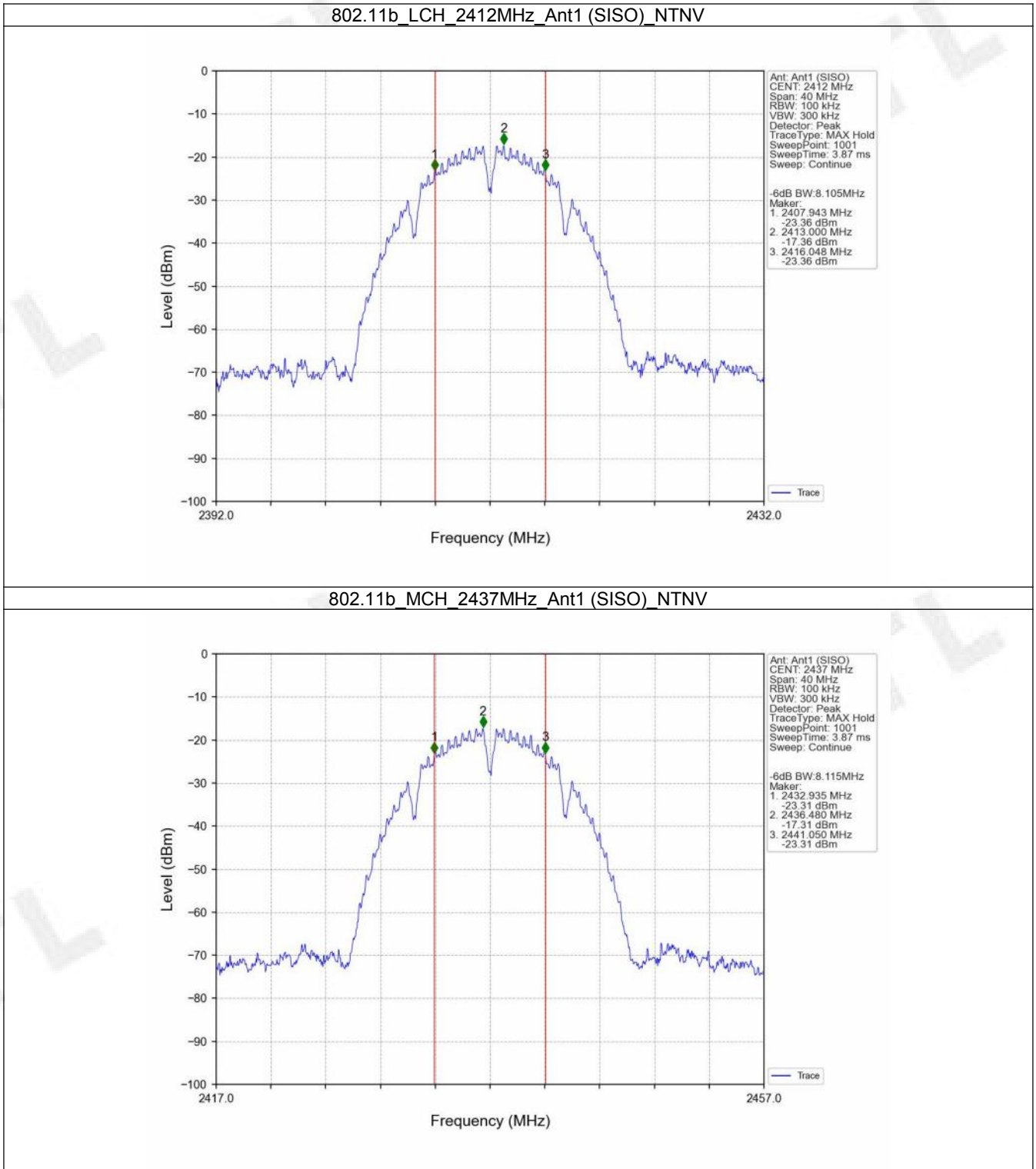


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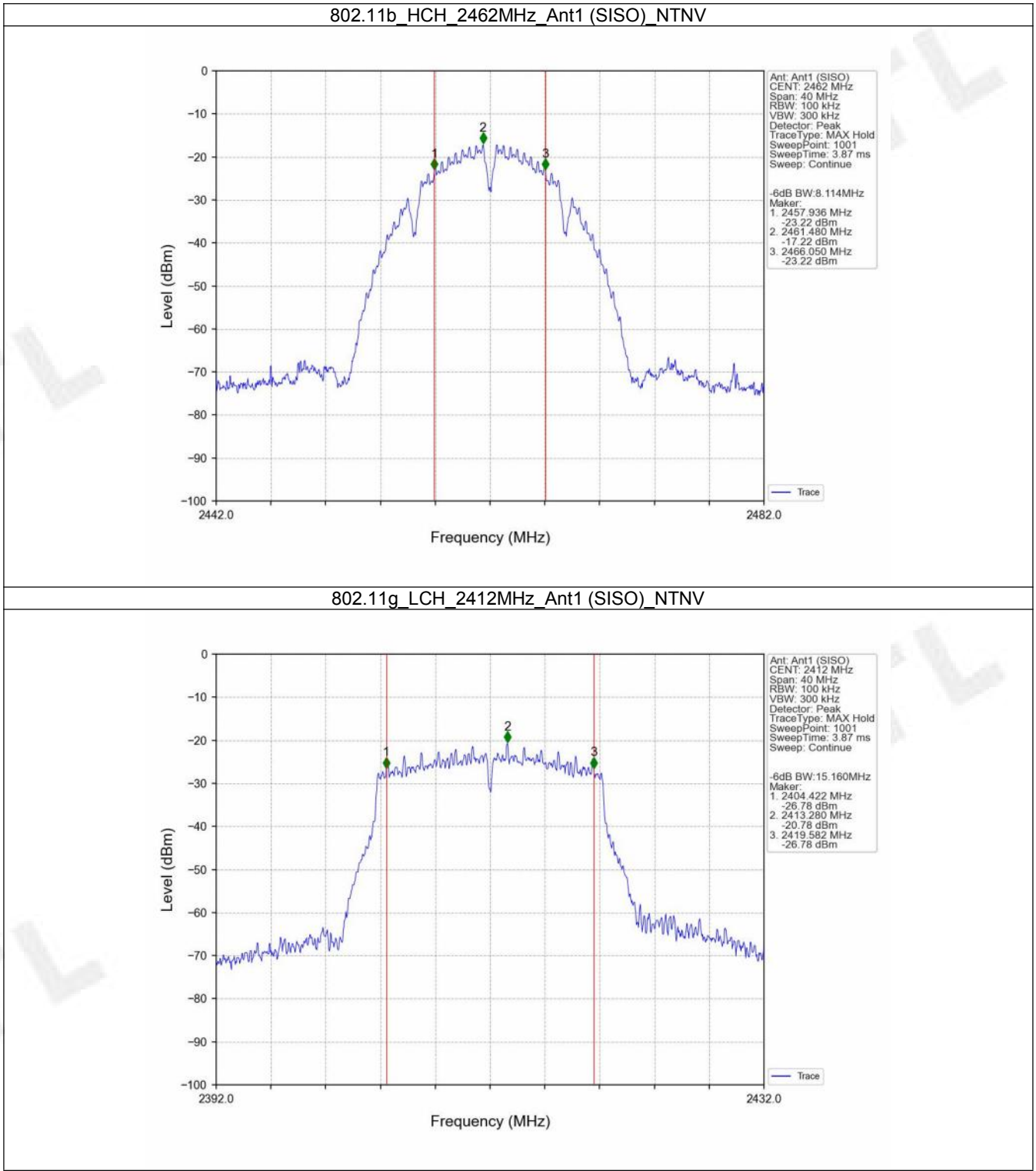


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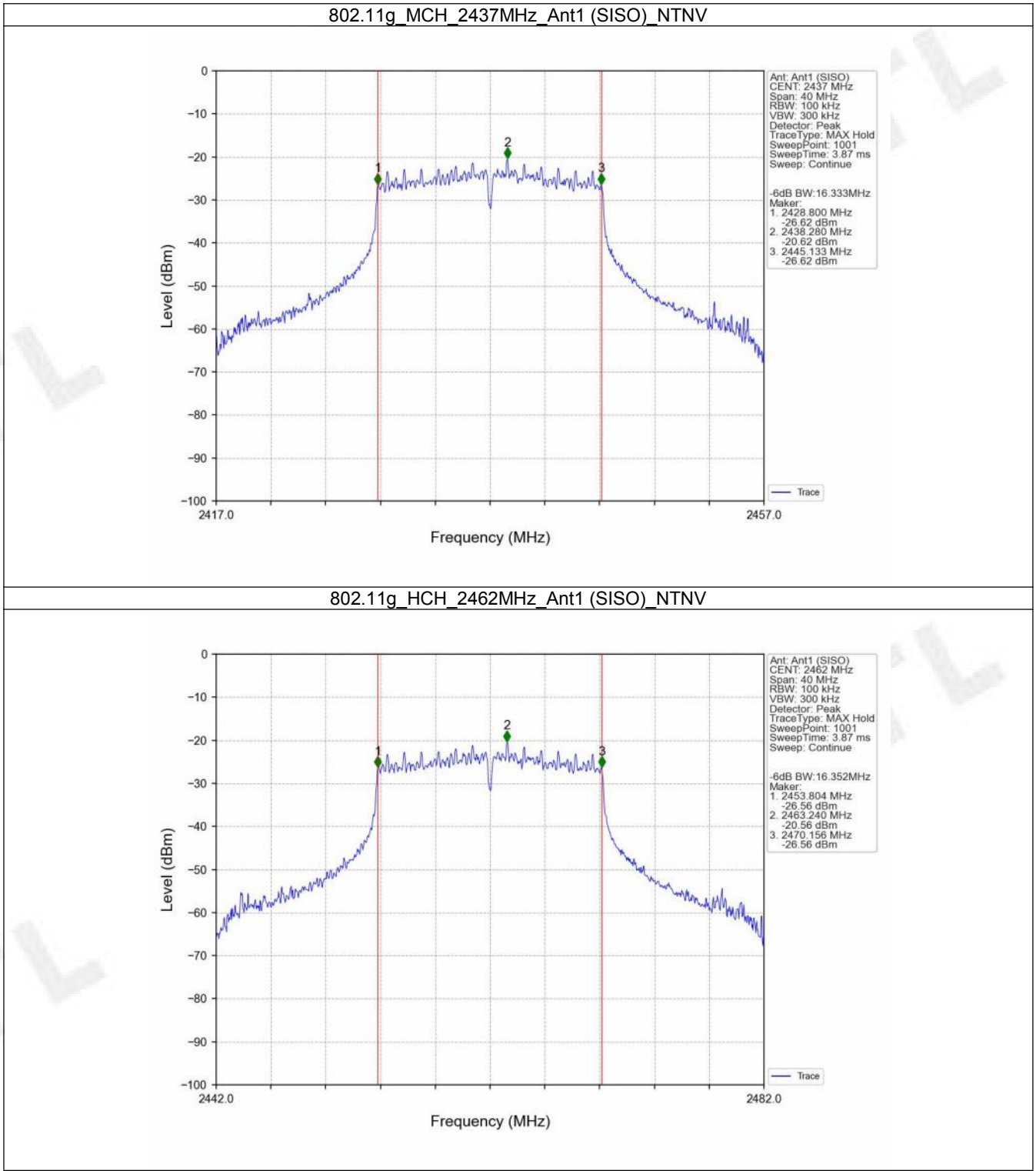
1.2.2 6dB BW



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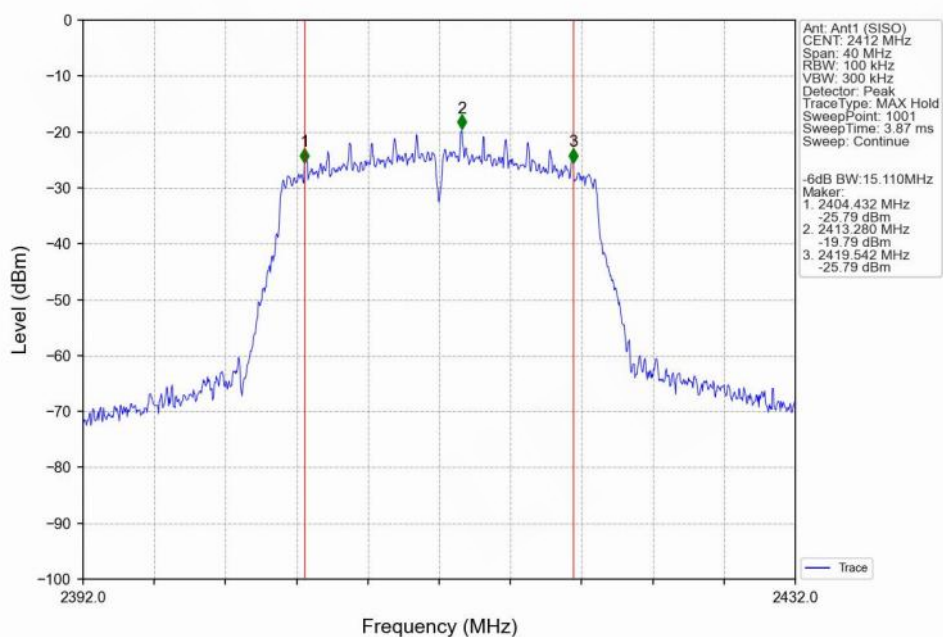


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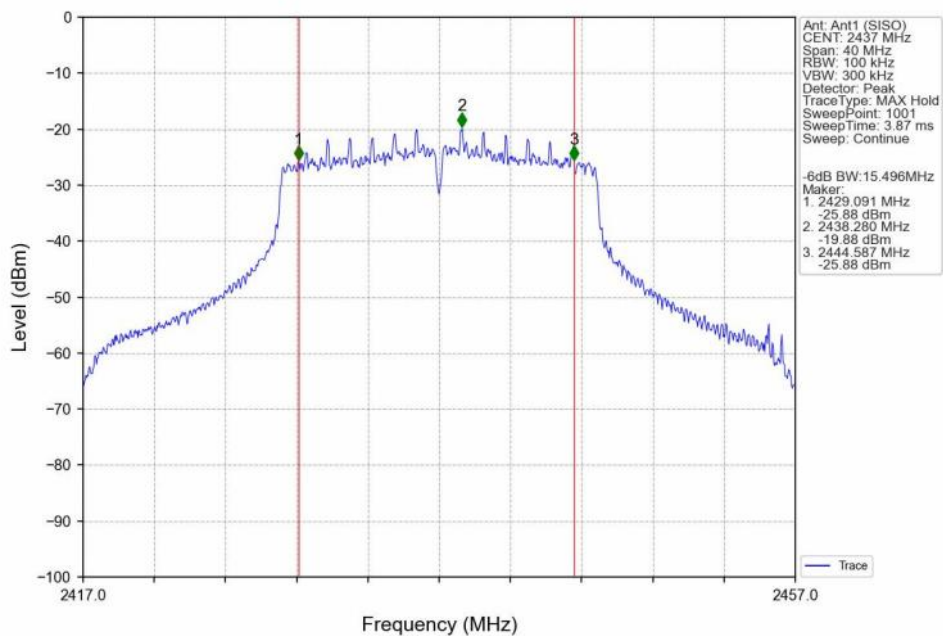


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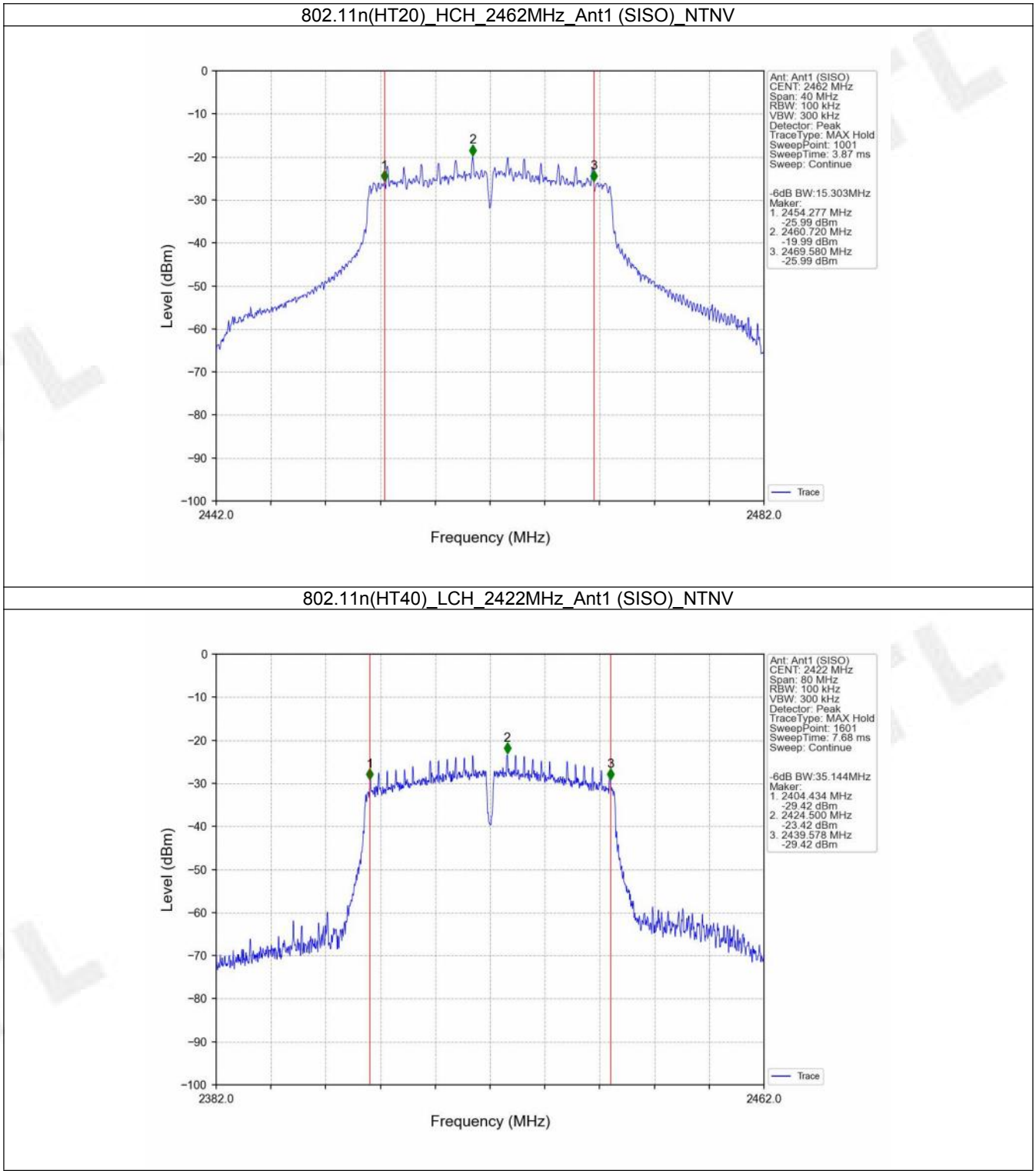
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



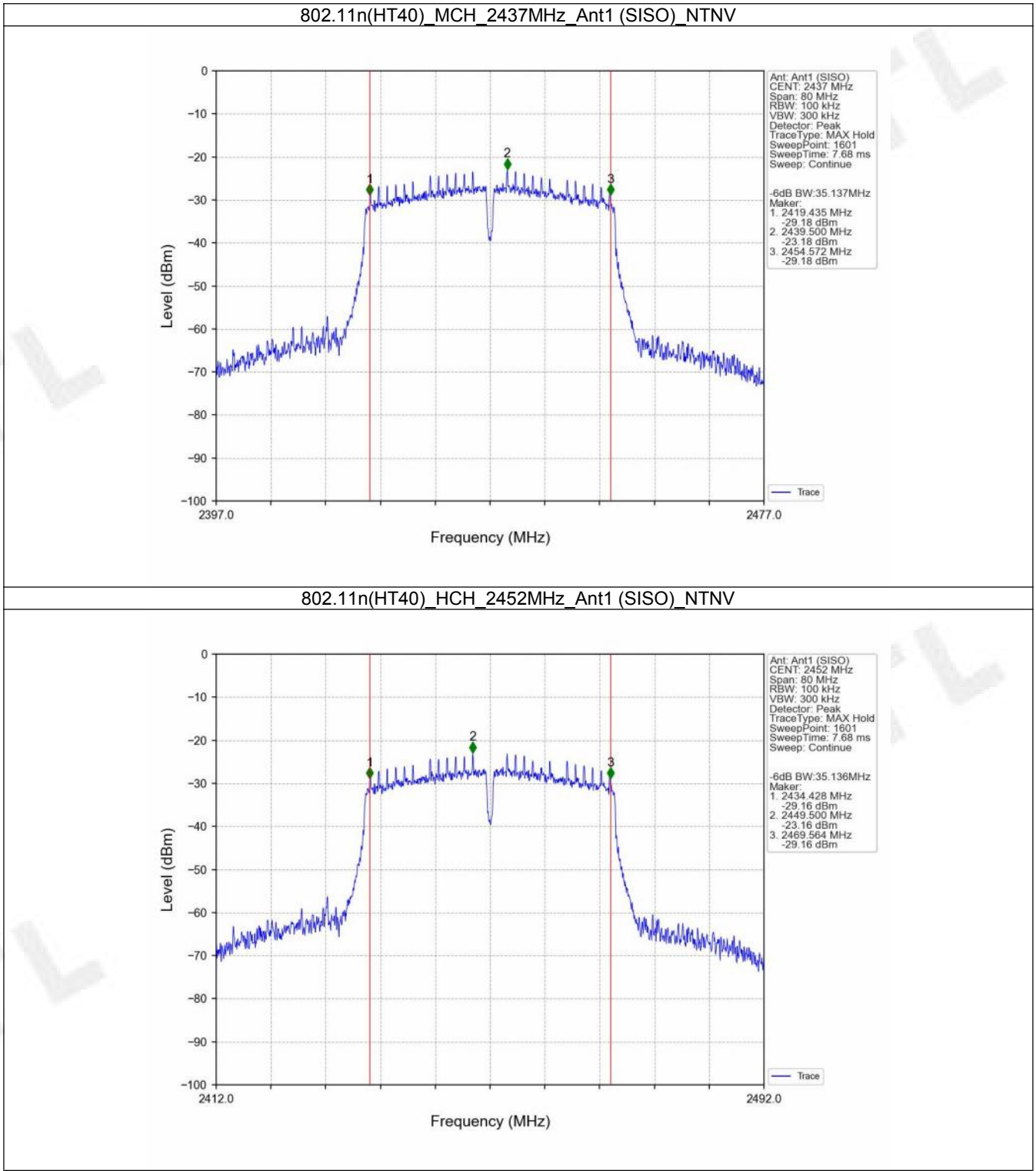
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



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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	
802.11b	SISO	2412	-6.11	<=30	Pass
		2437	-5.87	<=30	Pass
		2462	-5.79	<=30	Pass
802.11g	SISO	2412	-2.80	<=30	Pass
		2437	-2.42	<=30	Pass
		2462	-2.27	<=30	Pass
802.11n (HT20)	SISO	2412	-2.44	<=30	Pass
		2437	-1.90	<=30	Pass
		2462	-1.92	<=30	Pass
802.11n (HT40)	SISO	2422	-2.53	<=30	Pass
		2437	-2.34	<=30	Pass
		2452	-2.30	<=30	Pass

Note1: Antenna Gain: Ant1: 4.81dBi;

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3. Maximum Power Spectral Density

3.1 Test Result

3.1.1 PSD

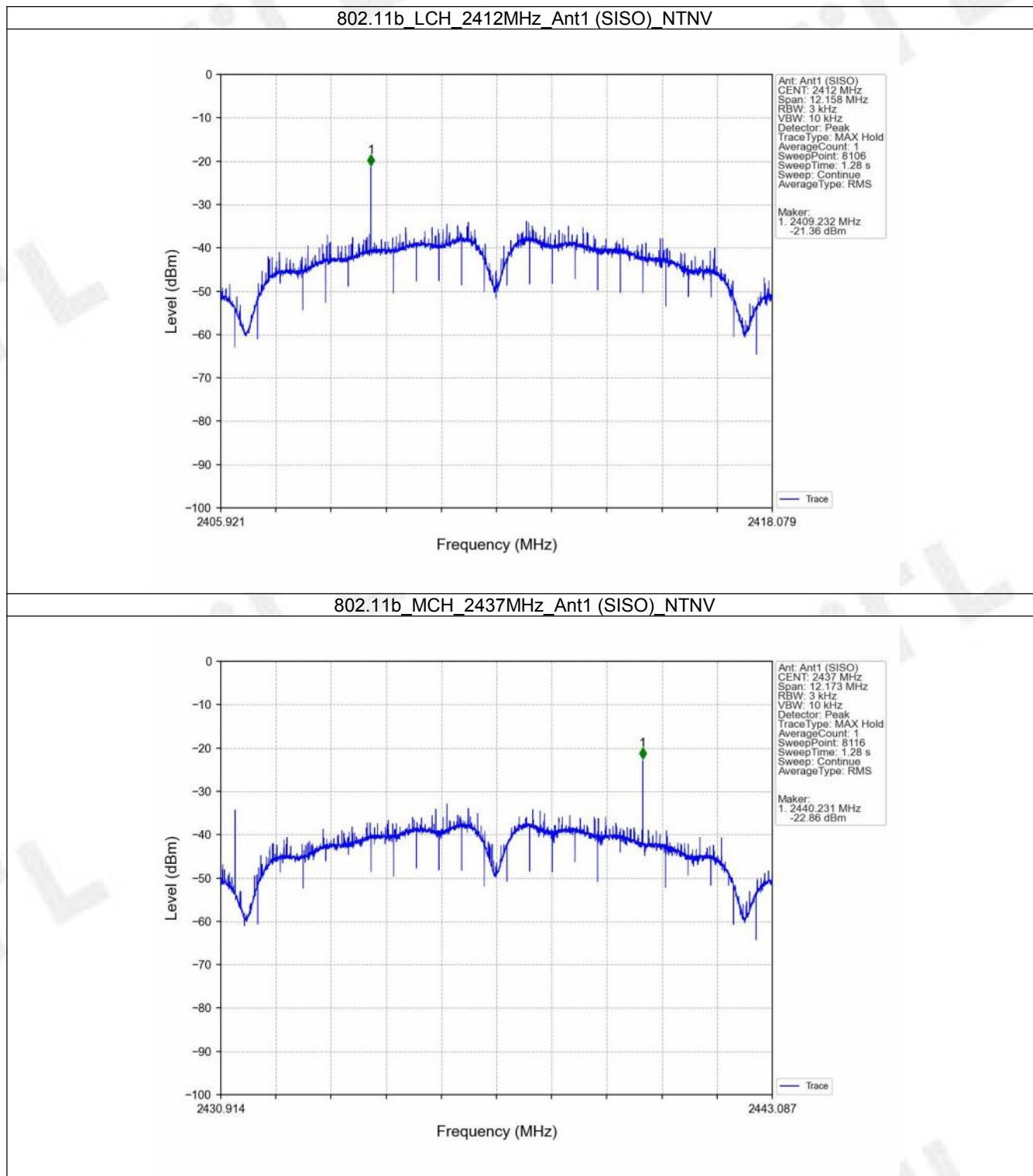
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-21.36	<=8	Pass
		2437	-22.86	<=8	Pass
		2462	-18.37	<=8	Pass
802.11g	SISO	2412	-35.20	<=8	Pass
		2437	-35.52	<=8	Pass
		2462	-33.84	<=8	Pass
802.11n (HT20)	SISO	2412	-36.29	<=8	Pass
		2437	-36.33	<=8	Pass
		2462	-36.60	<=8	Pass
802.11n (HT40)	SISO	2422	-38.81	<=8	Pass
		2437	-39.24	<=8	Pass
		2452	-38.99	<=8	Pass

Note1: Antenna Gain: Ant1: 4.81dBi;

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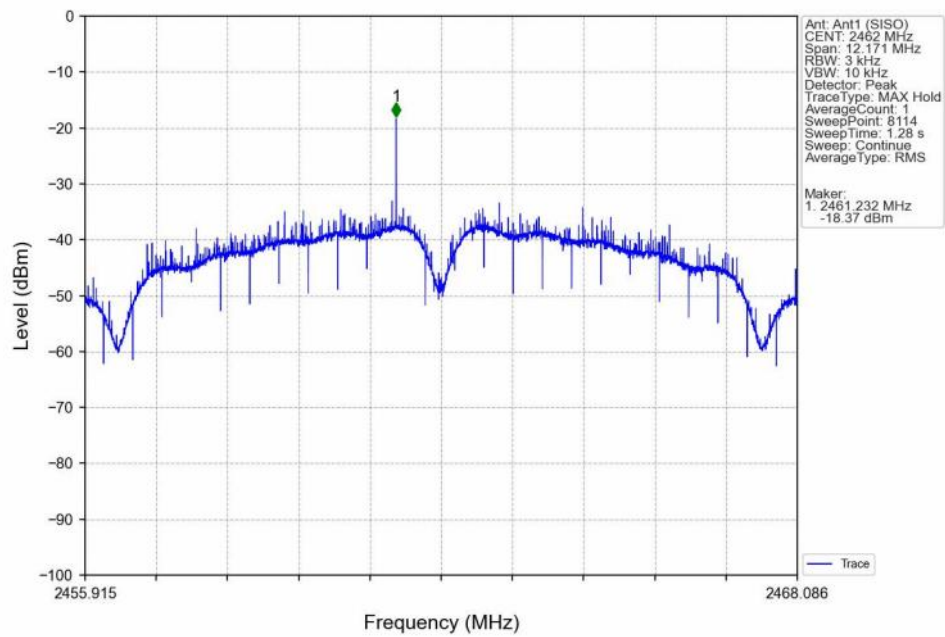
3.2 Test Graph

3.2.1 PSD

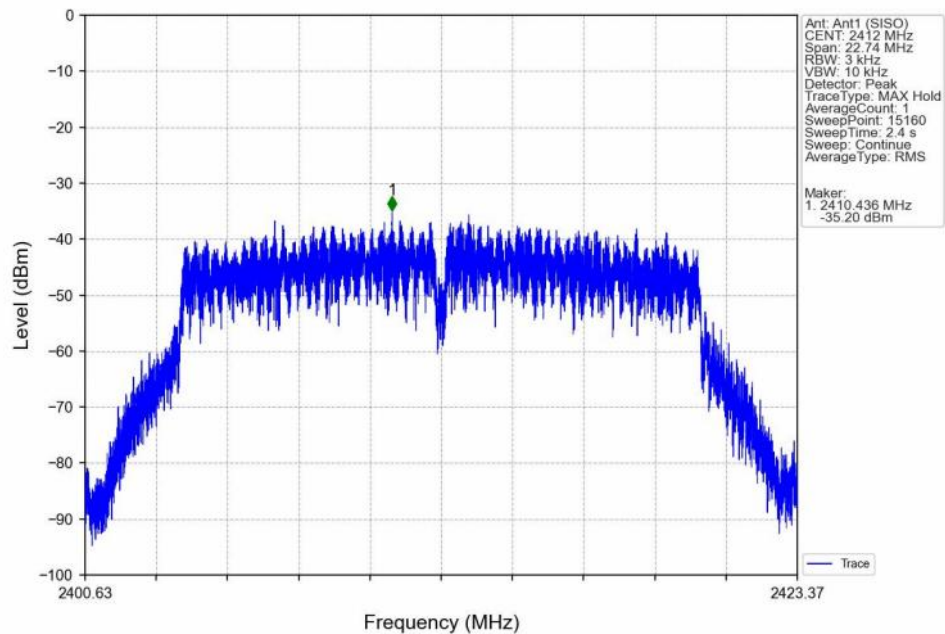


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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

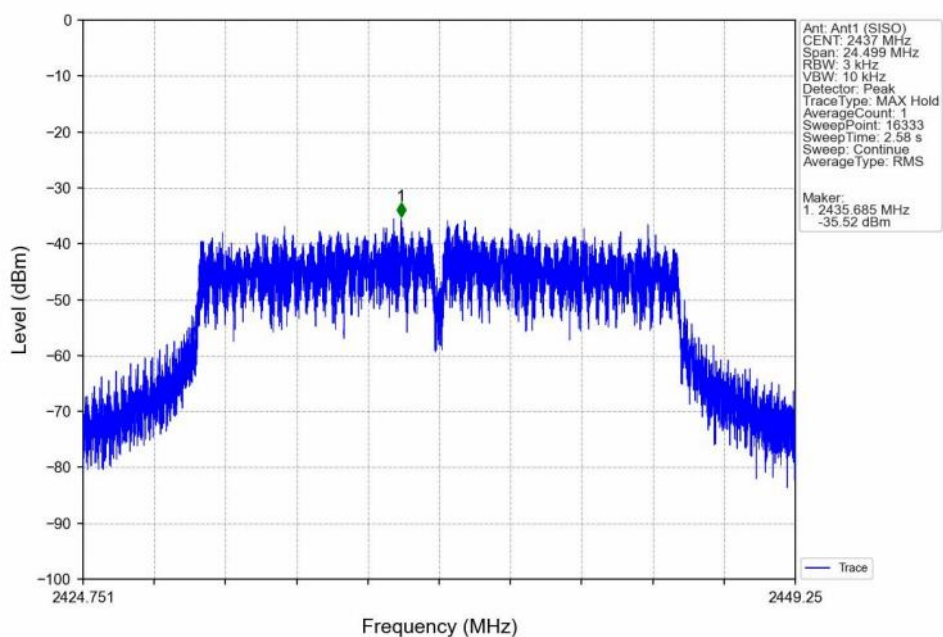


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

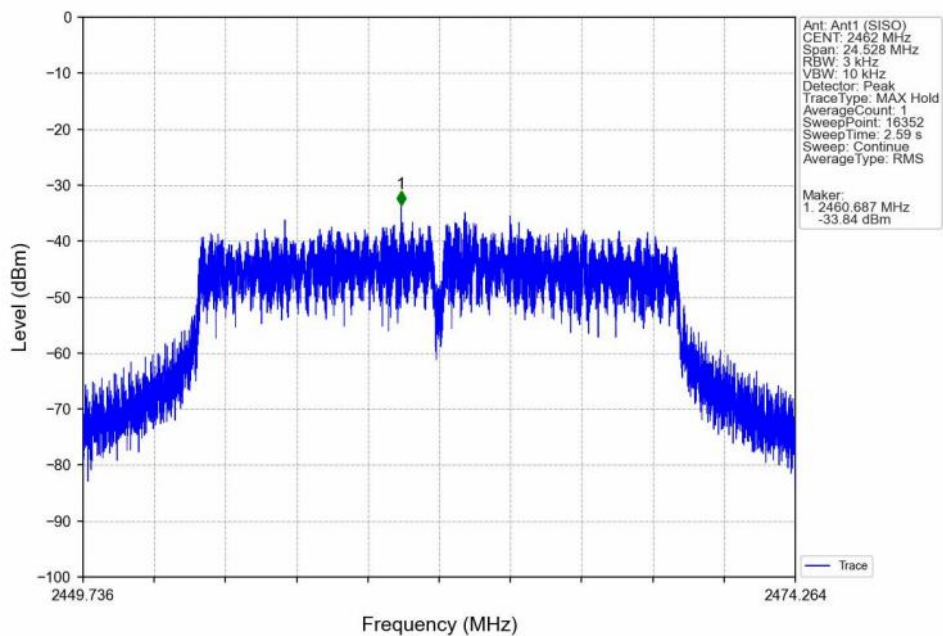


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802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

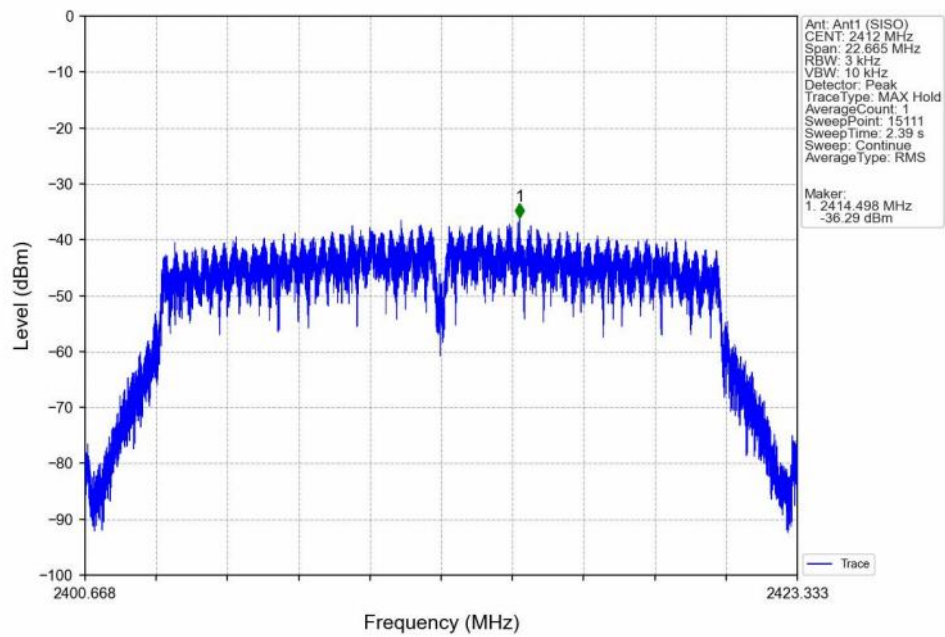


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

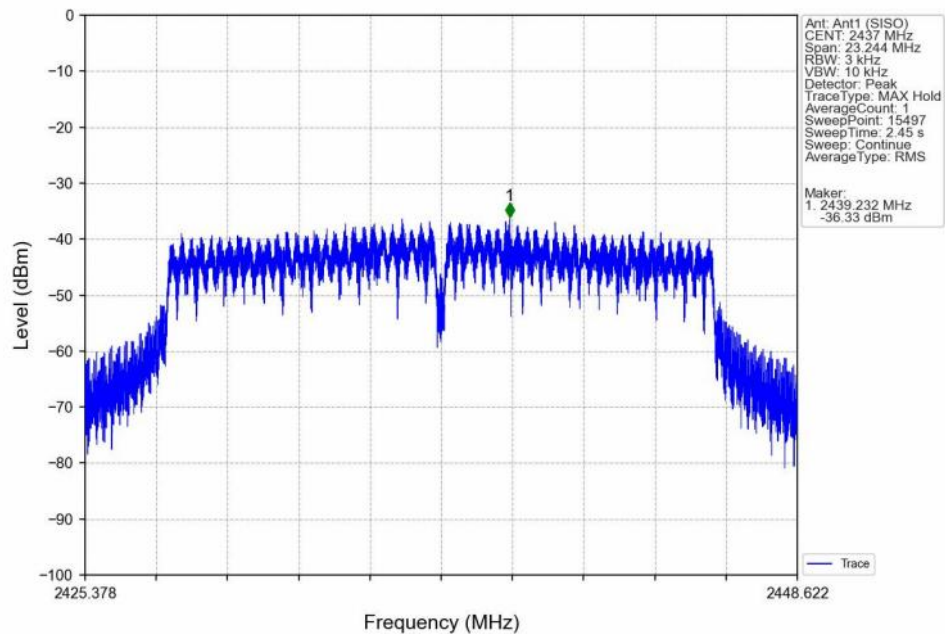


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802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

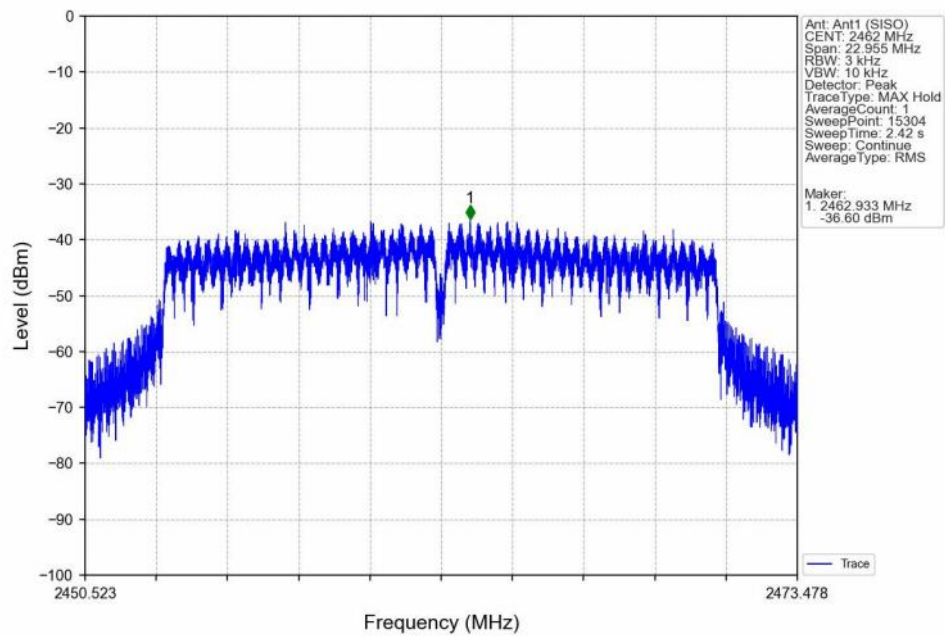


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

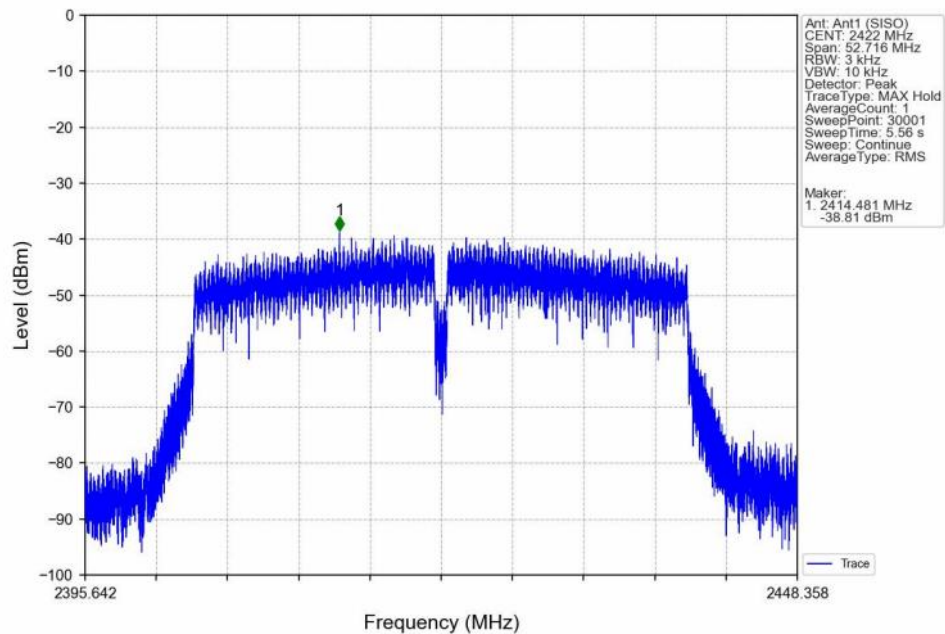


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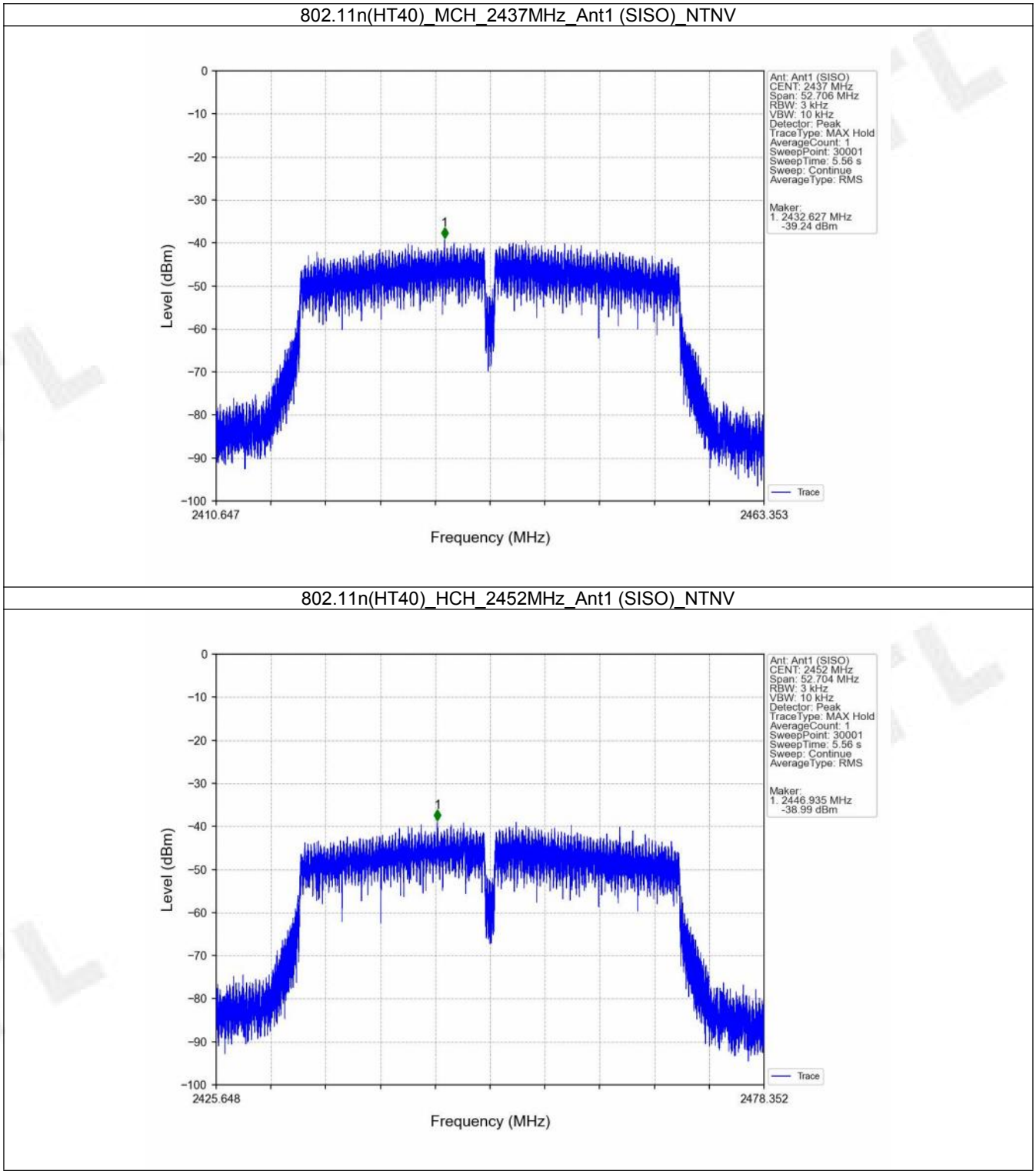
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



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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	-17.35
		2437	1	-17.09
		2462	1	-17.21
802.11g	SISO	2412	1	-20.80
		2437	1	-20.63
		2462	1	-20.51
802.11n (HT20)	SISO	2412	1	-19.85
		2437	1	-19.38
		2462	1	-19.43
802.11n (HT40)	SISO	2422	1	-23.26
		2437	1	-23.12
		2452	1	-23.31

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

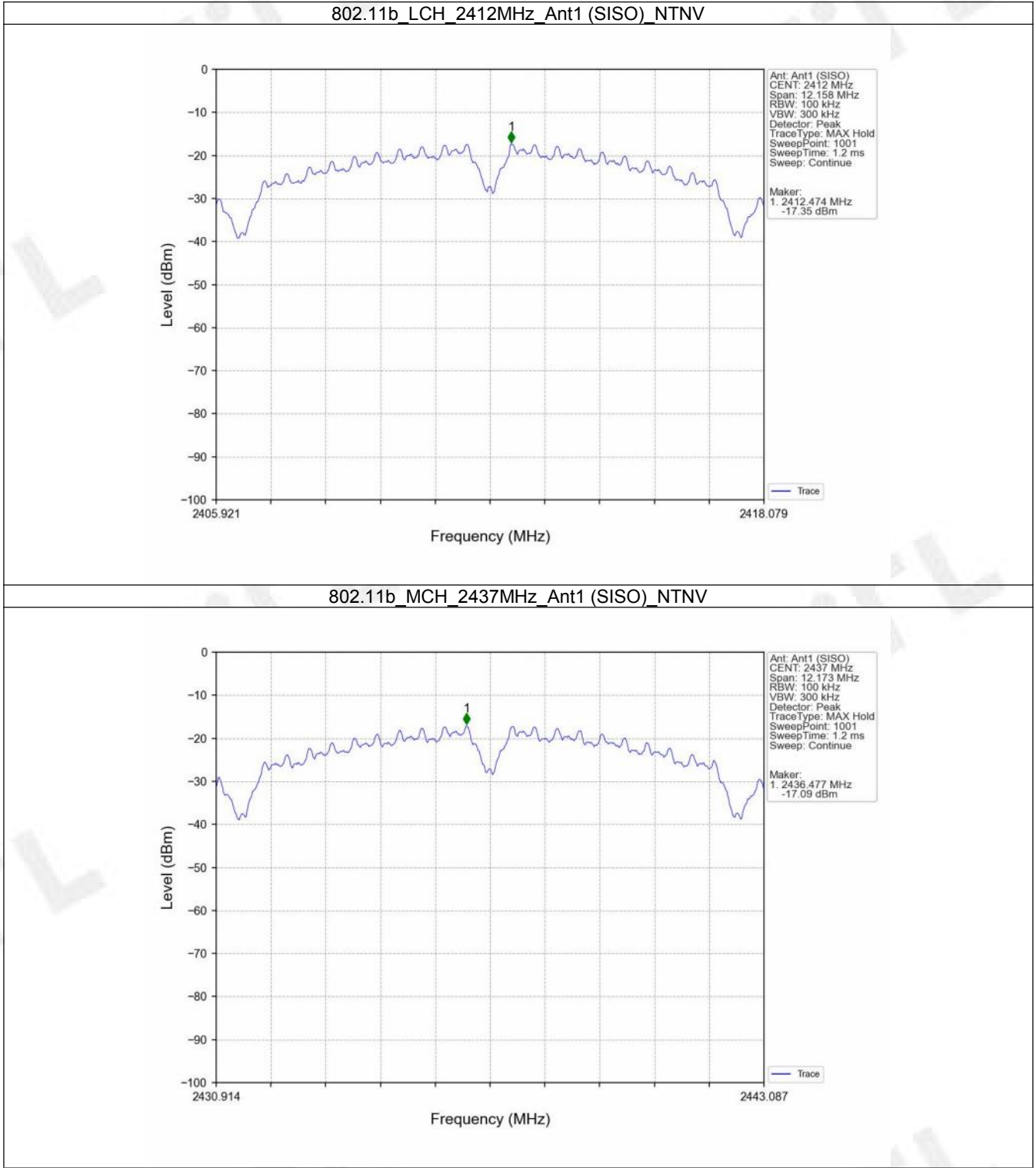
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	-17.09	-37.09	Pass
		2437	1	-17.09	-37.09	Pass
		2462	1	-17.09	-37.09	Pass
802.11g	SISO	2412	1	-20.51	-40.51	Pass
		2437	1	-20.51	-40.51	Pass
		2462	1	-20.51	-40.51	Pass
802.11n (HT20)	SISO	2412	1	-19.38	-39.38	Pass
		2437	1	-19.38	-39.38	Pass
		2462	1	-19.38	-39.38	Pass
802.11n (HT40)	SISO	2422	1	-23.12	-43.12	Pass
		2437	1	-23.12	-43.12	Pass
		2452	1	-23.12	-43.12	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.

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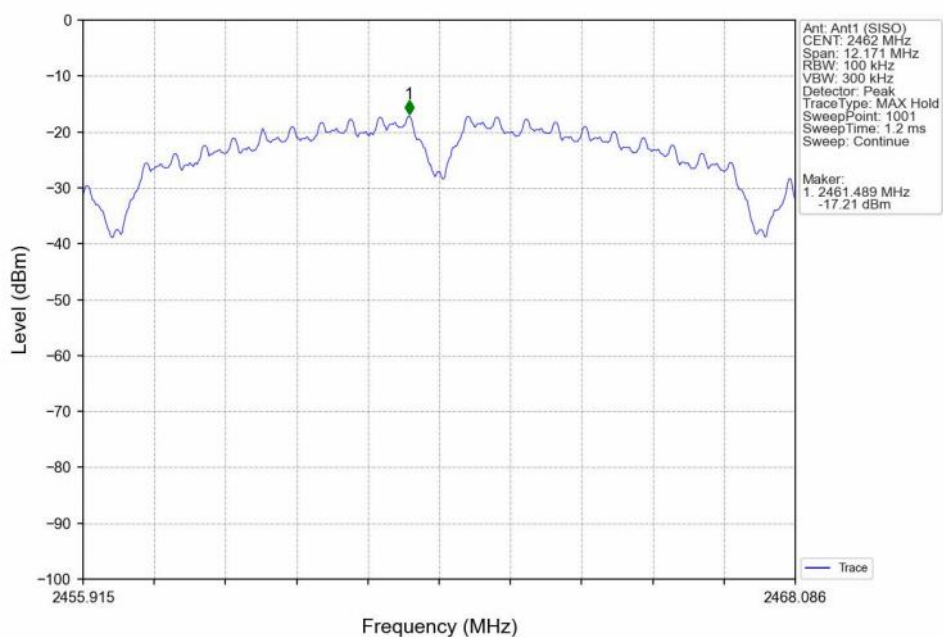
4.2 Test Graph

4.2.1 Ref

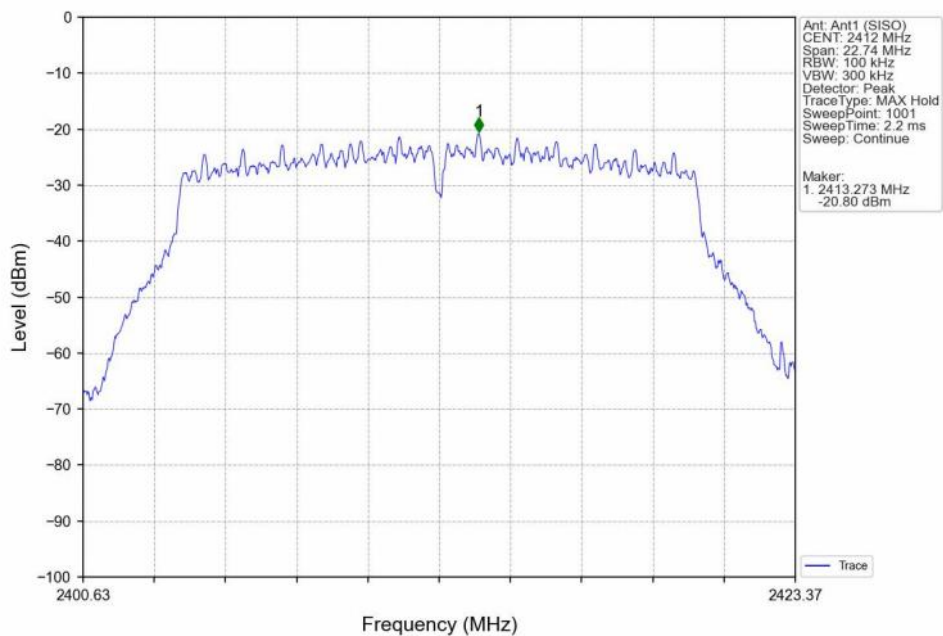


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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

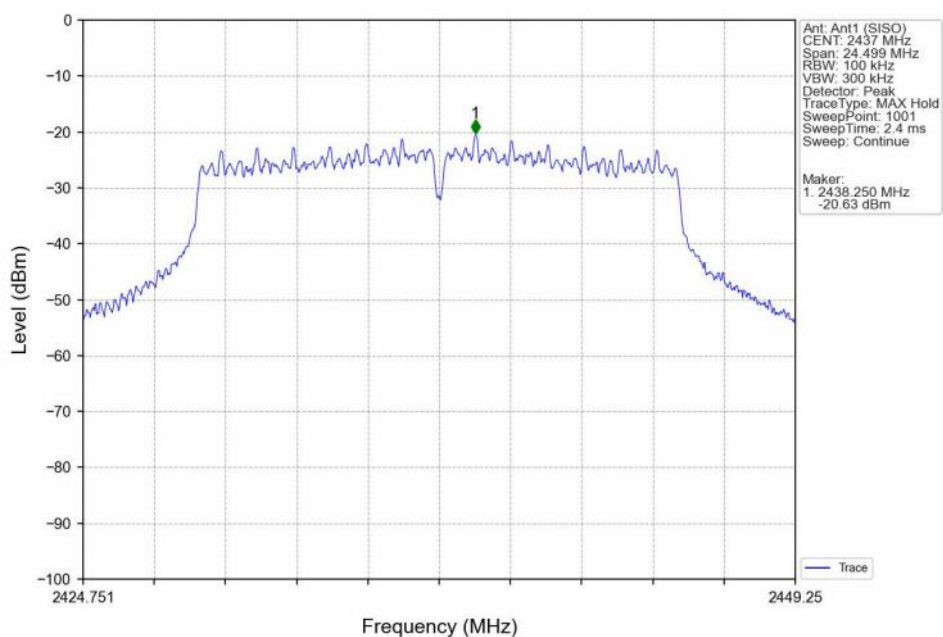


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

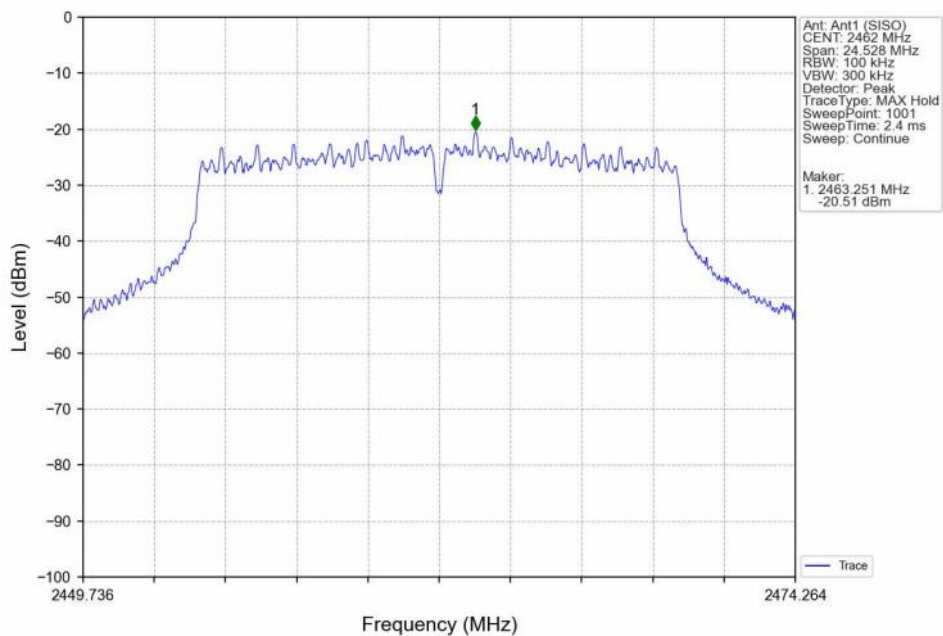


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802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

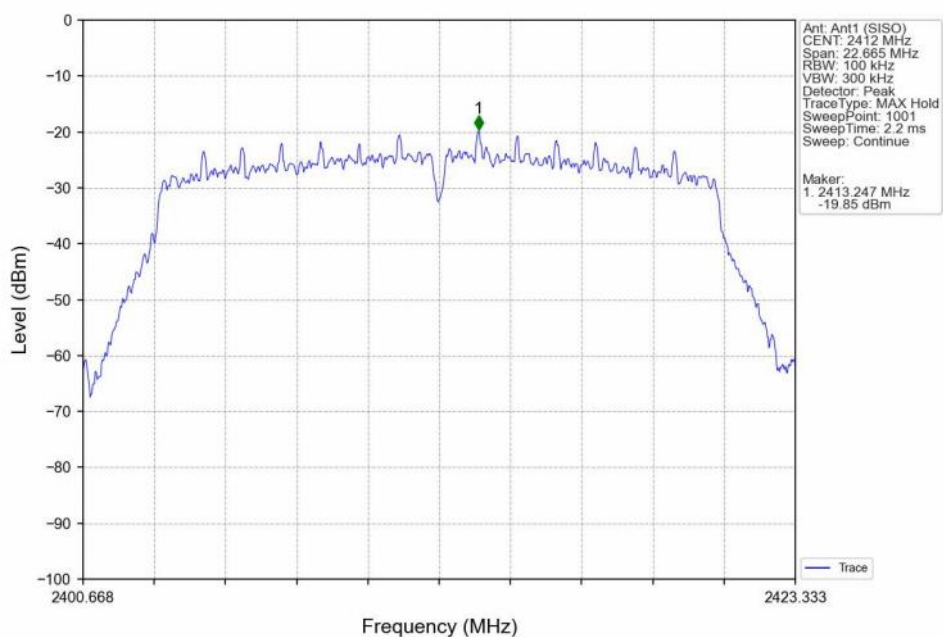


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

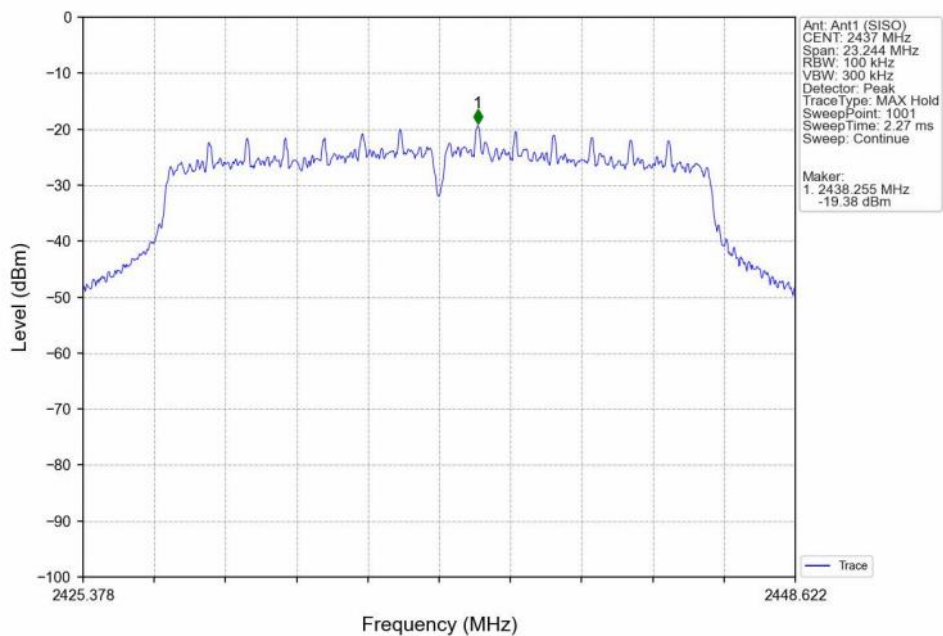


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802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

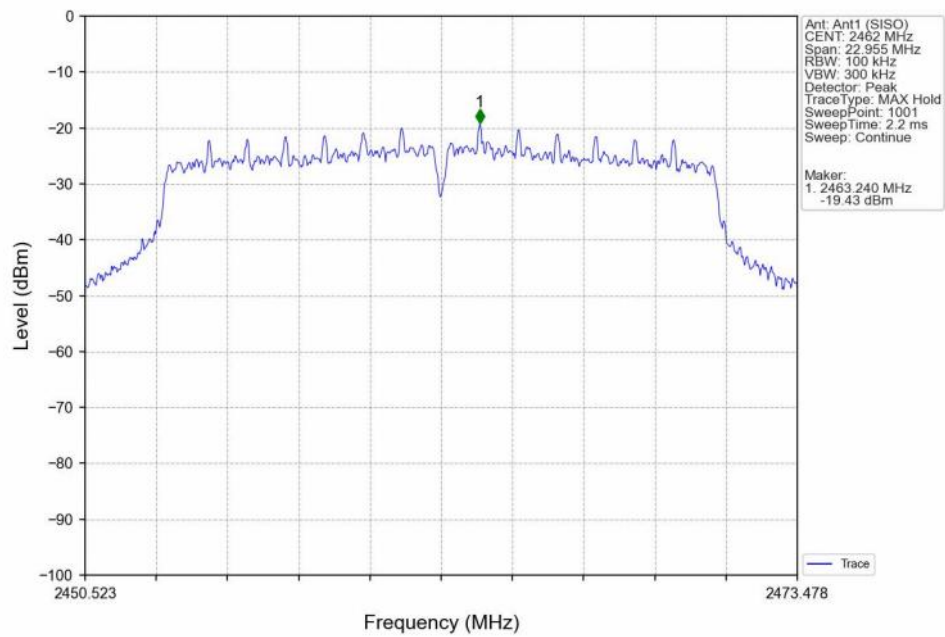


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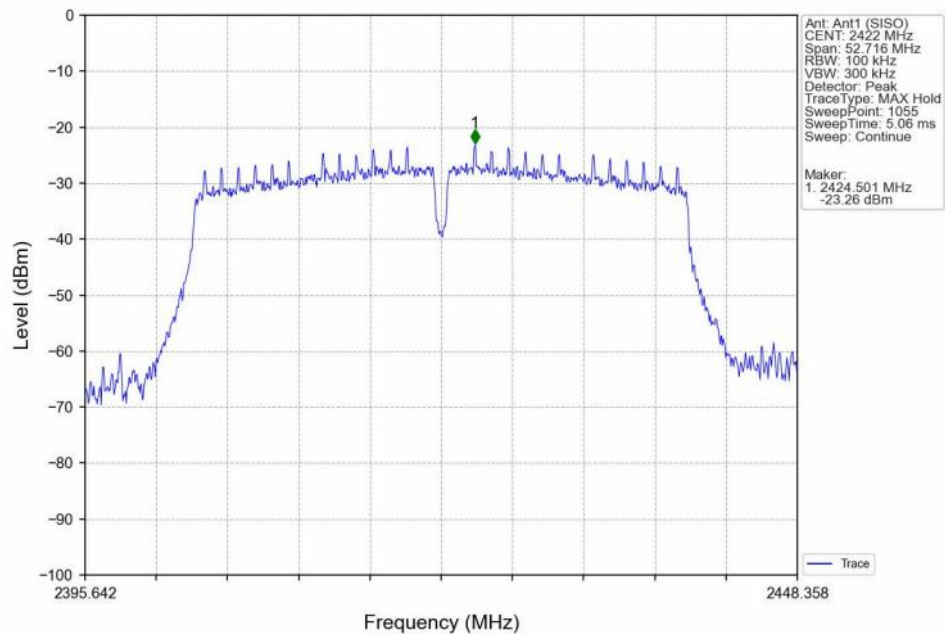


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802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

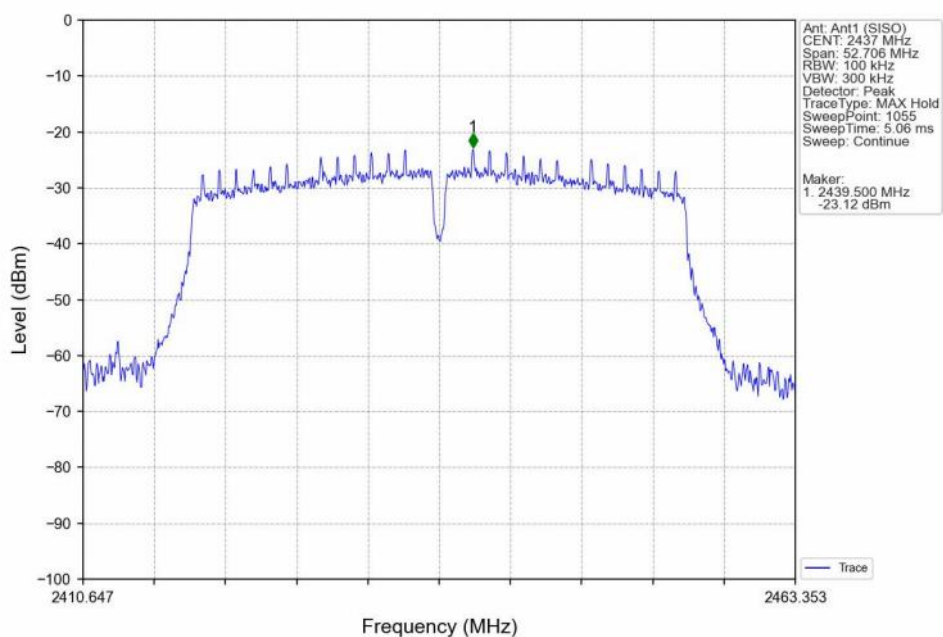


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

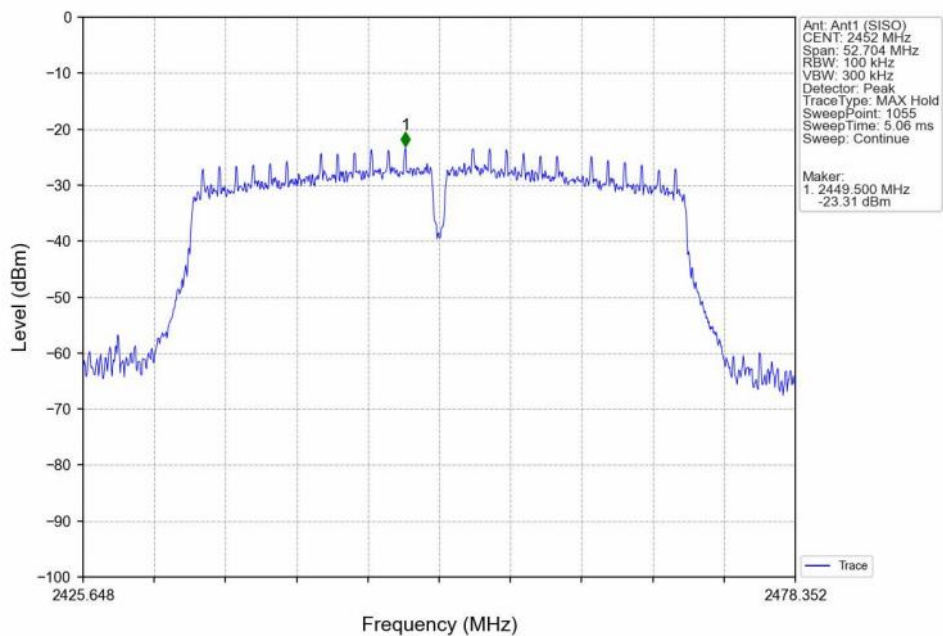


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802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV

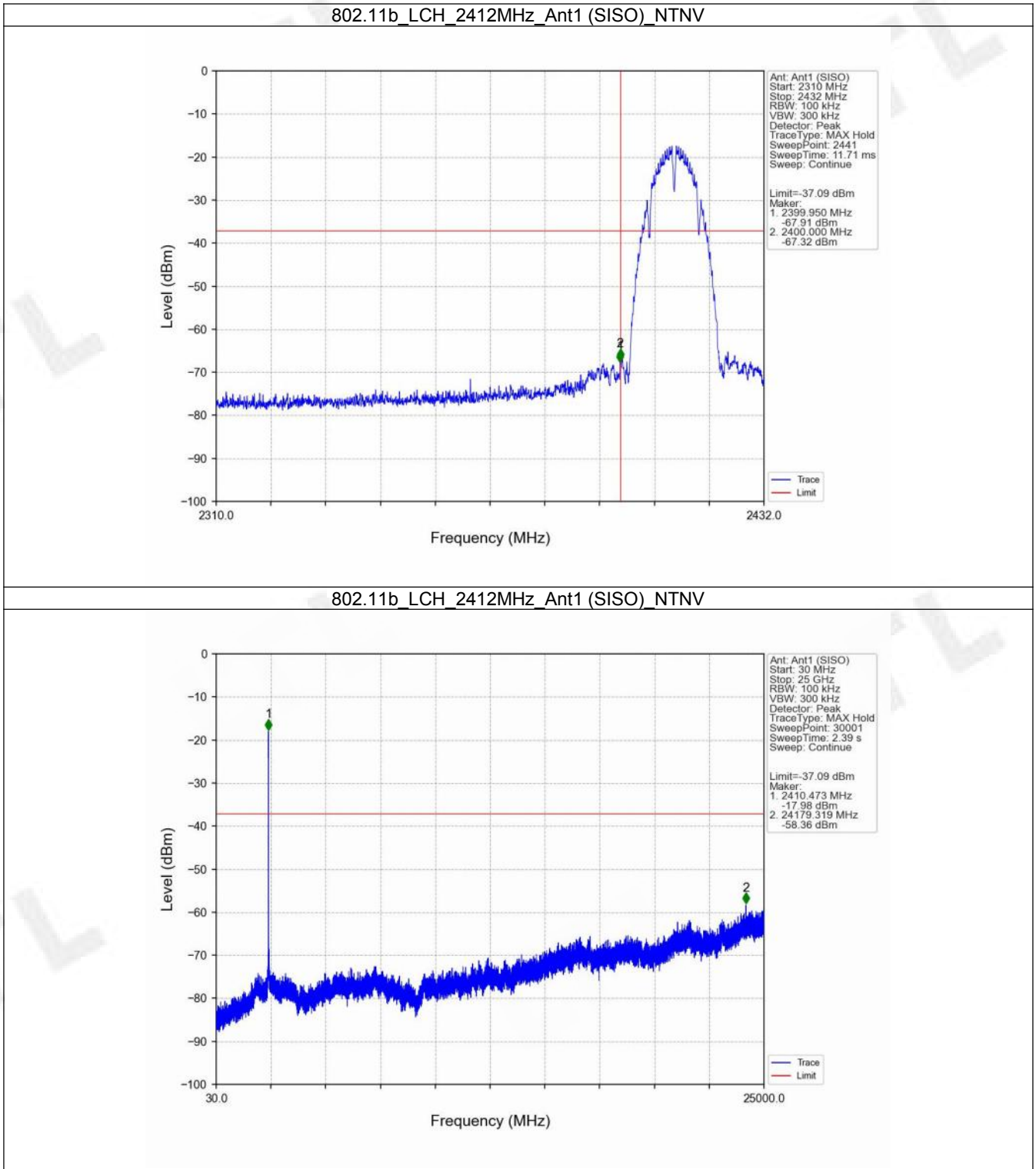


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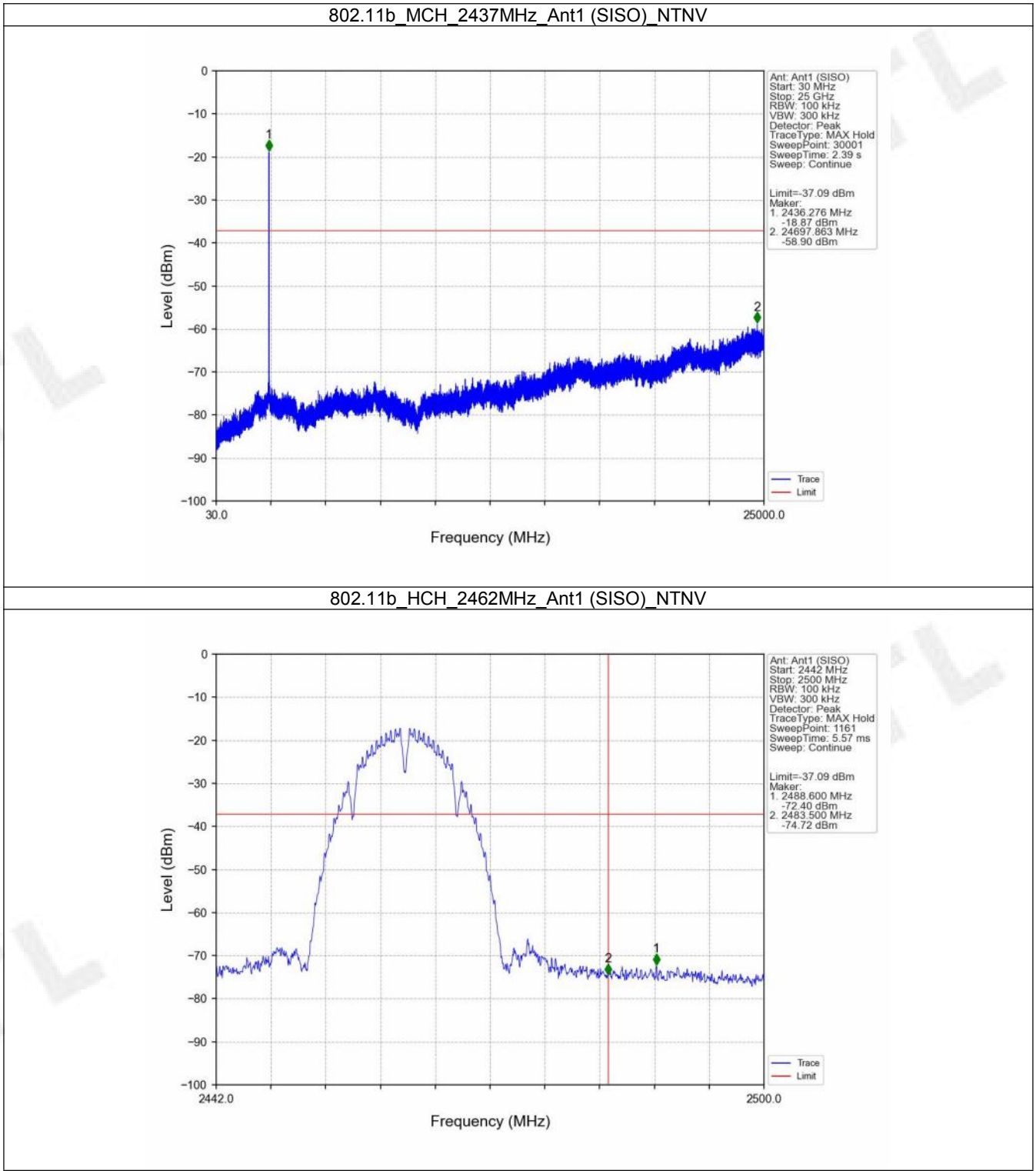


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4.2.2 CSE

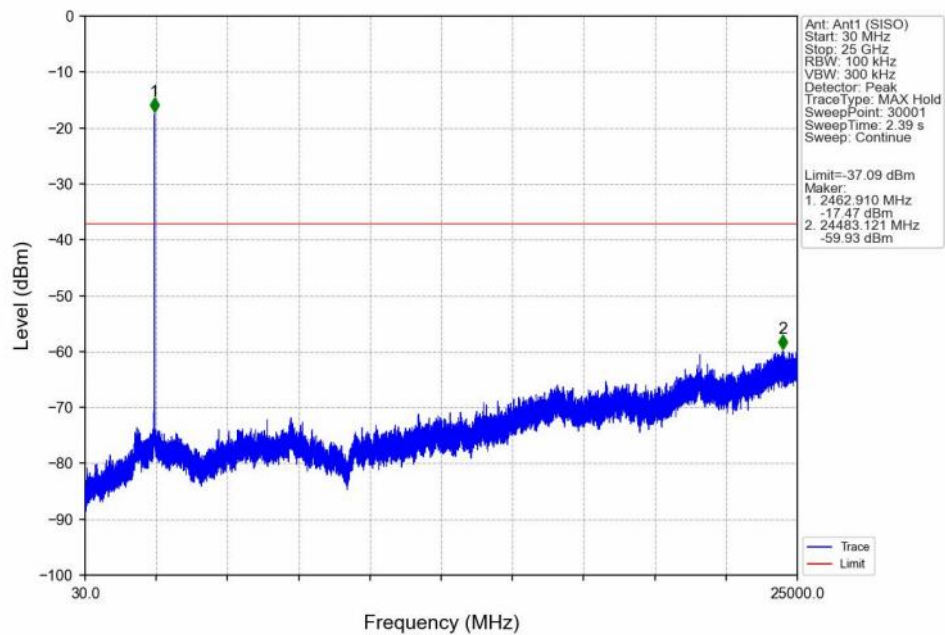


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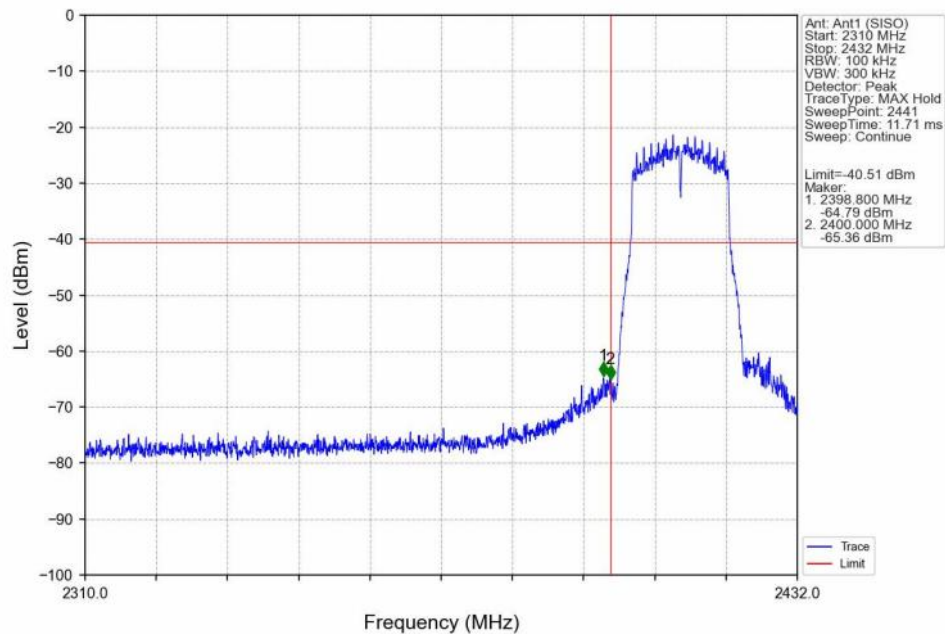


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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

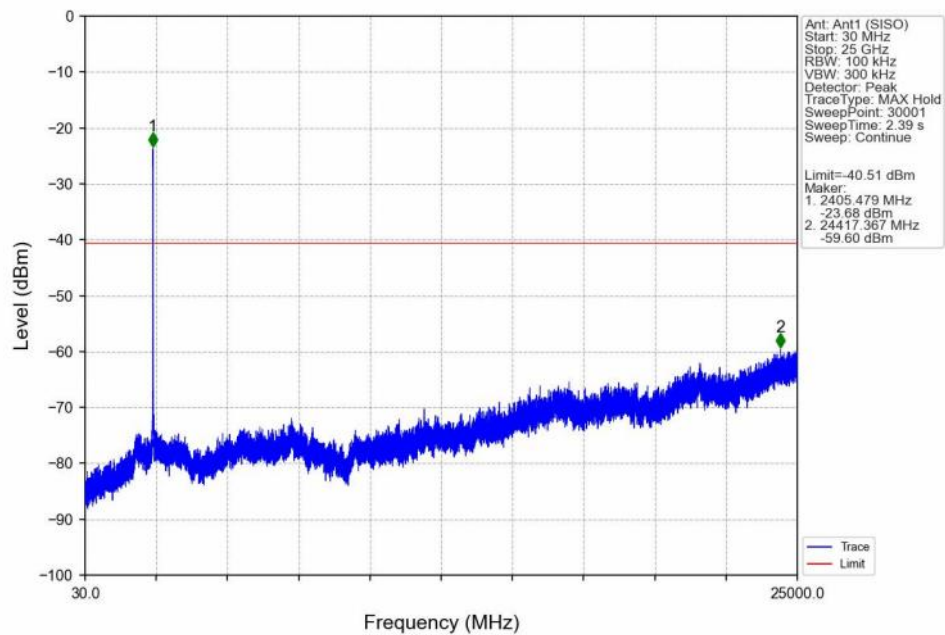


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

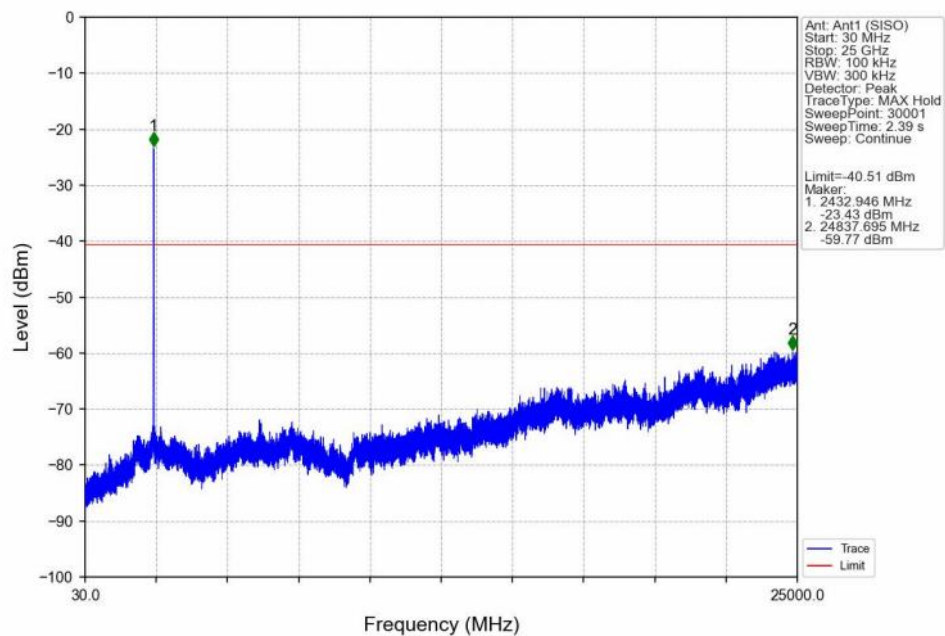


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802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

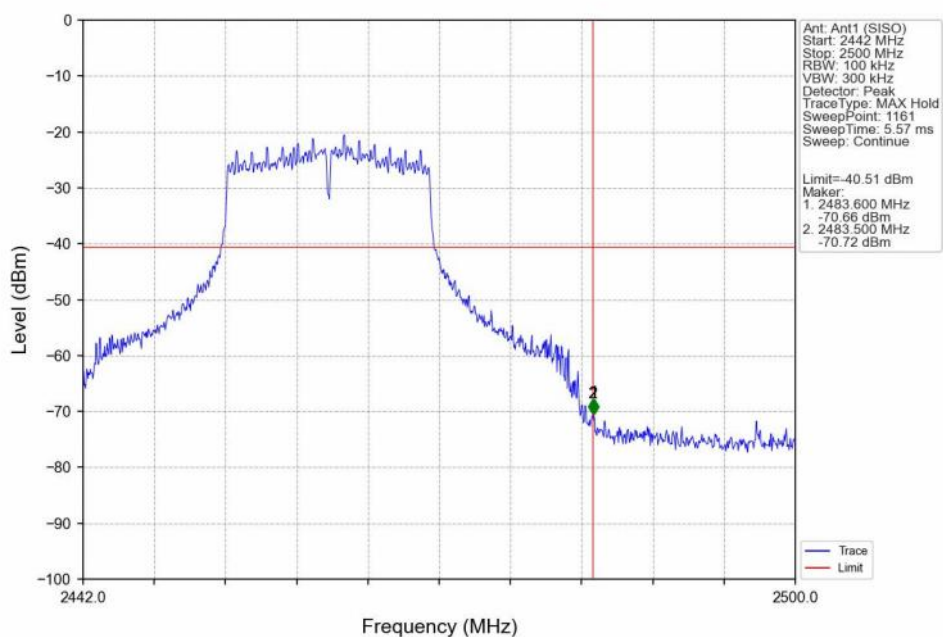


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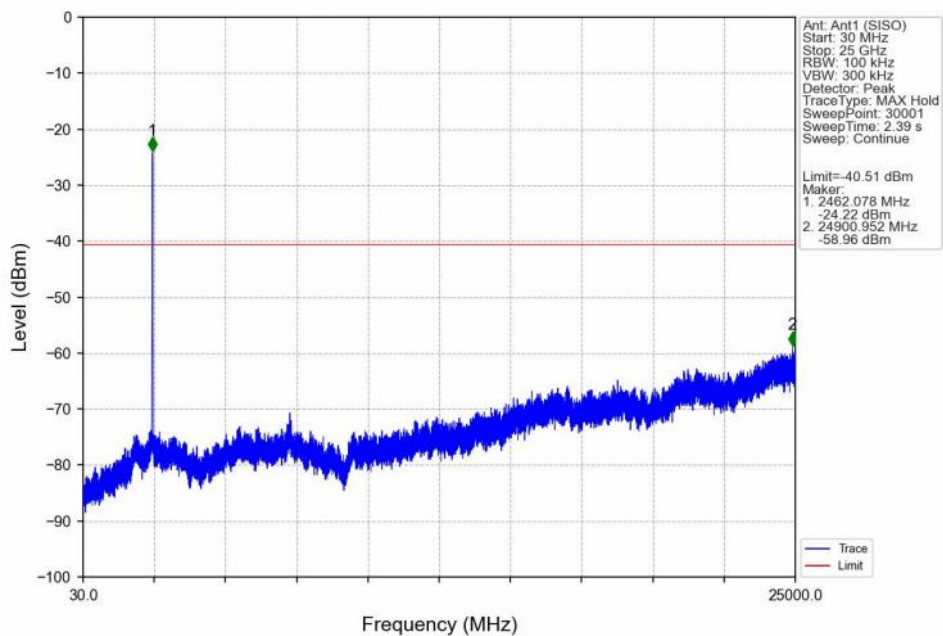


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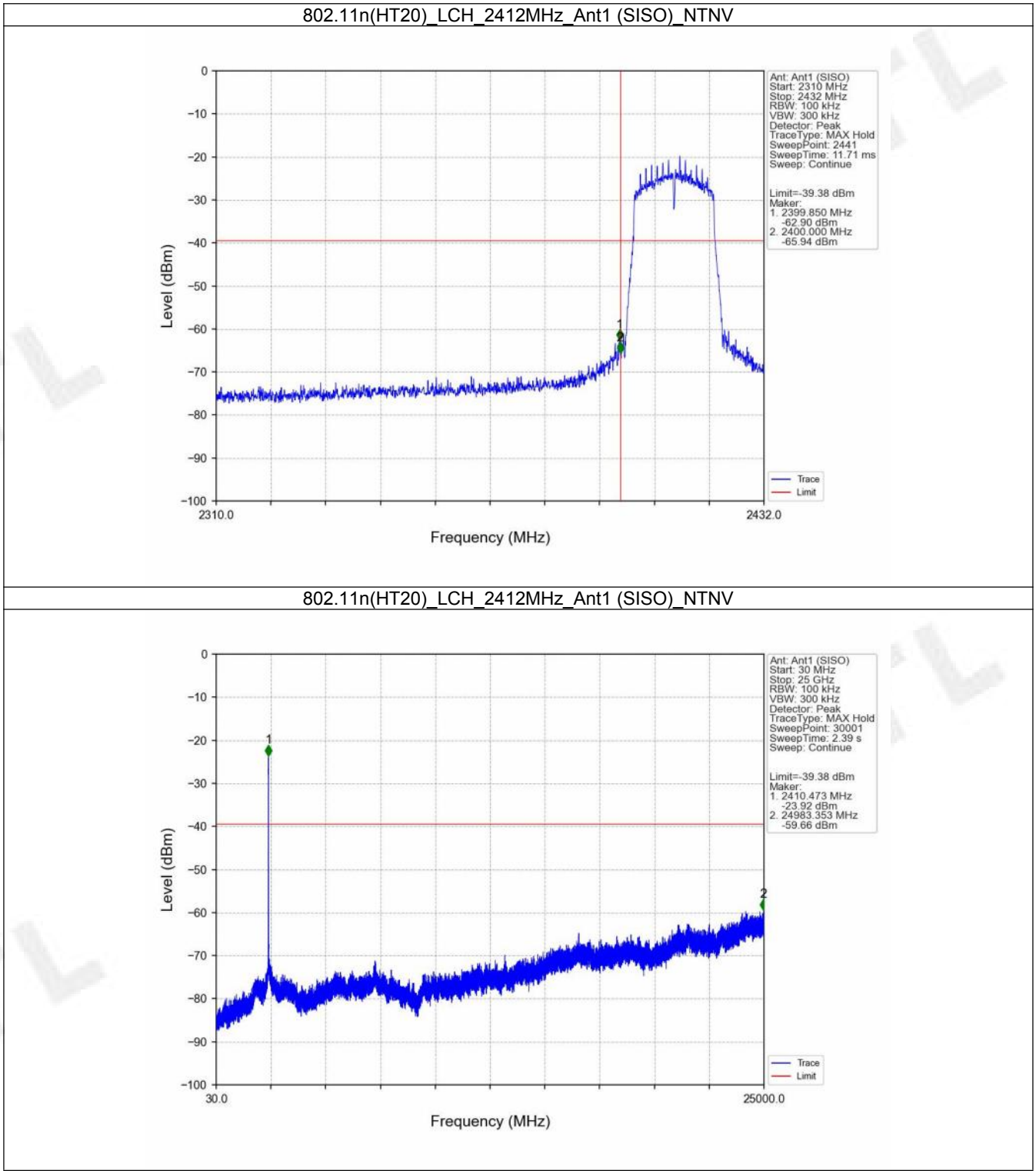
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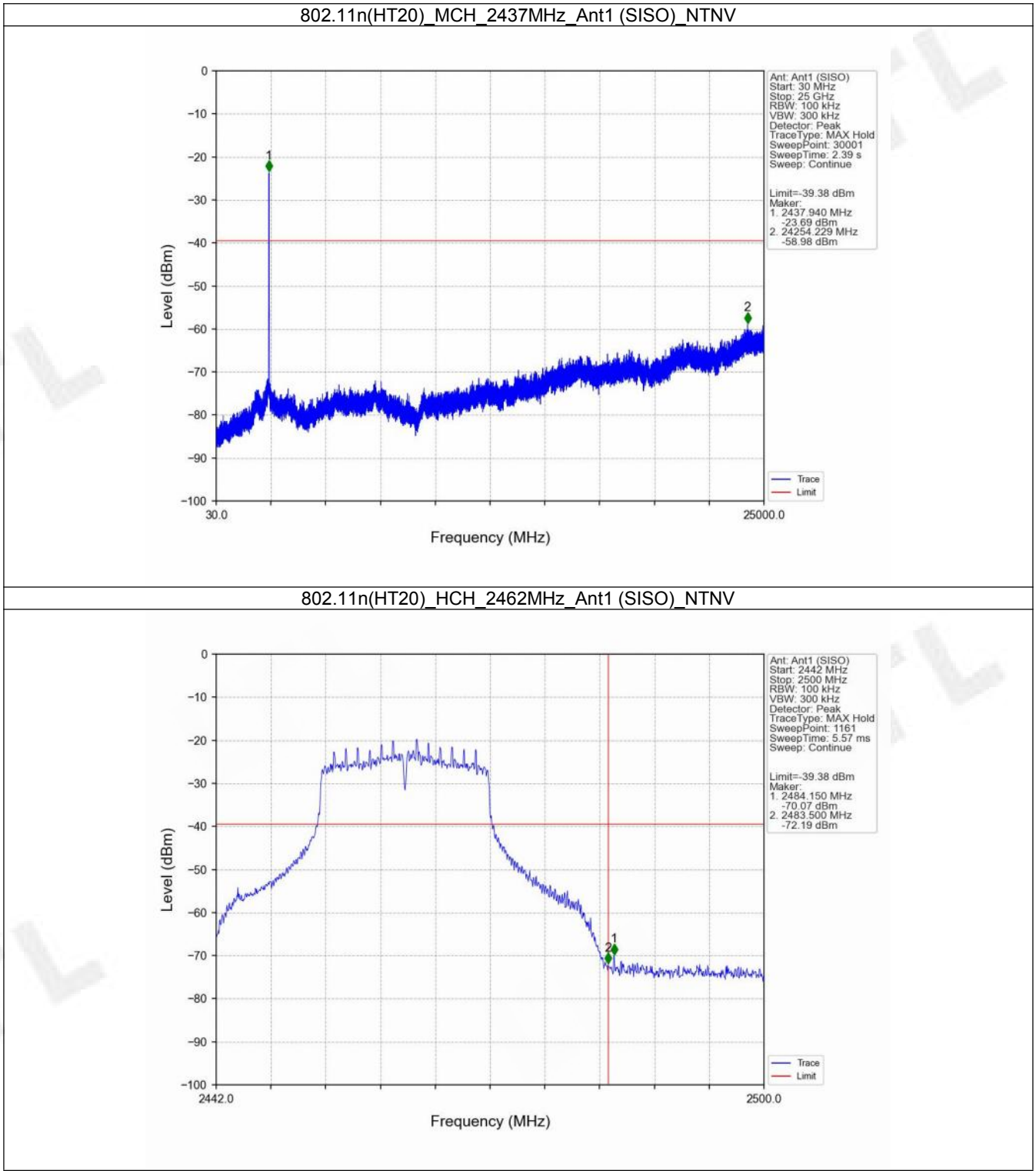
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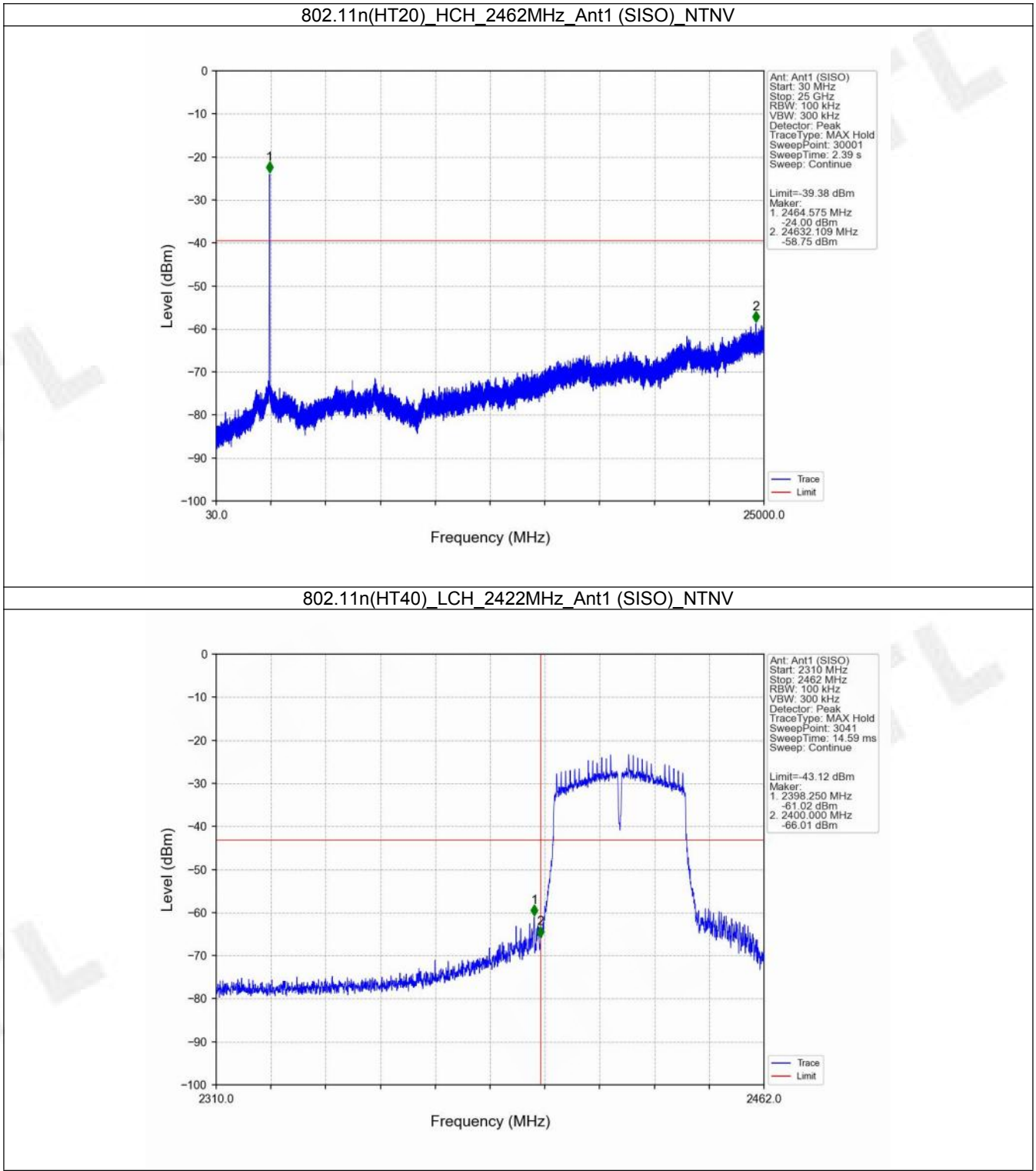
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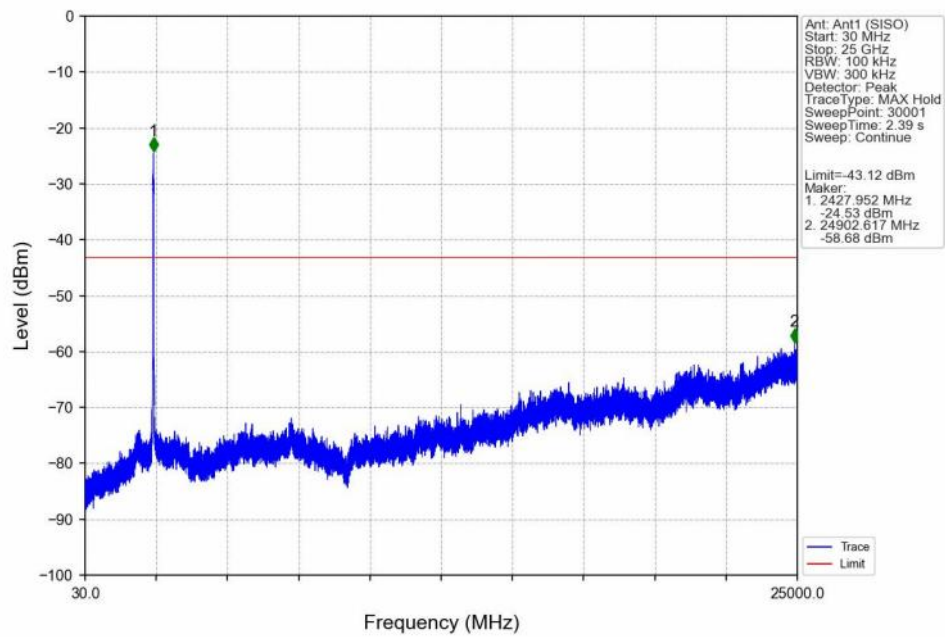


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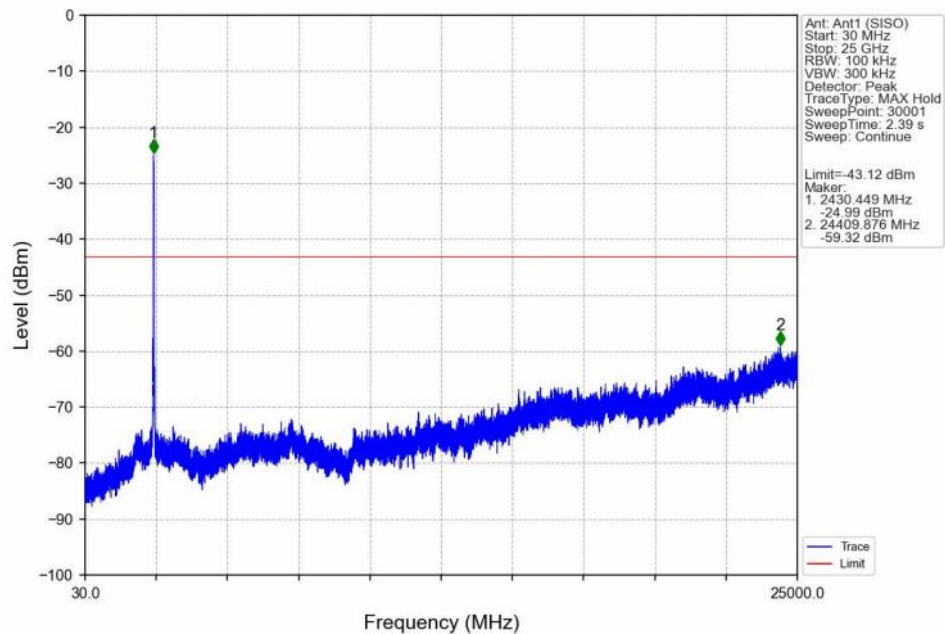


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802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



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