



Annex for 2.4G Wi-Fi

Test Report No.: CTL2506052011-WF03

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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	12.628	/	Pass
		2437	1	12.655	/	Pass
		2462	1	12.862	/	Pass
802.11g	SISO	2412	1	17.214	/	Pass
		2437	1	17.241	/	Pass
		2462	1	17.451	/	Pass
802.11n (HT20)	SISO	2412	1	18.088	/	Pass
		2437	1	18.183	/	Pass
		2462	1	18.312	/	Pass
802.11n (HT40)	SISO	2422	1	36.529	/	Pass
		2437	1	36.279	/	Pass
		2452	1	36.466	/	Pass

1.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	8.075	≥ 0.5	Pass
		2437	1	8.069	≥ 0.5	Pass

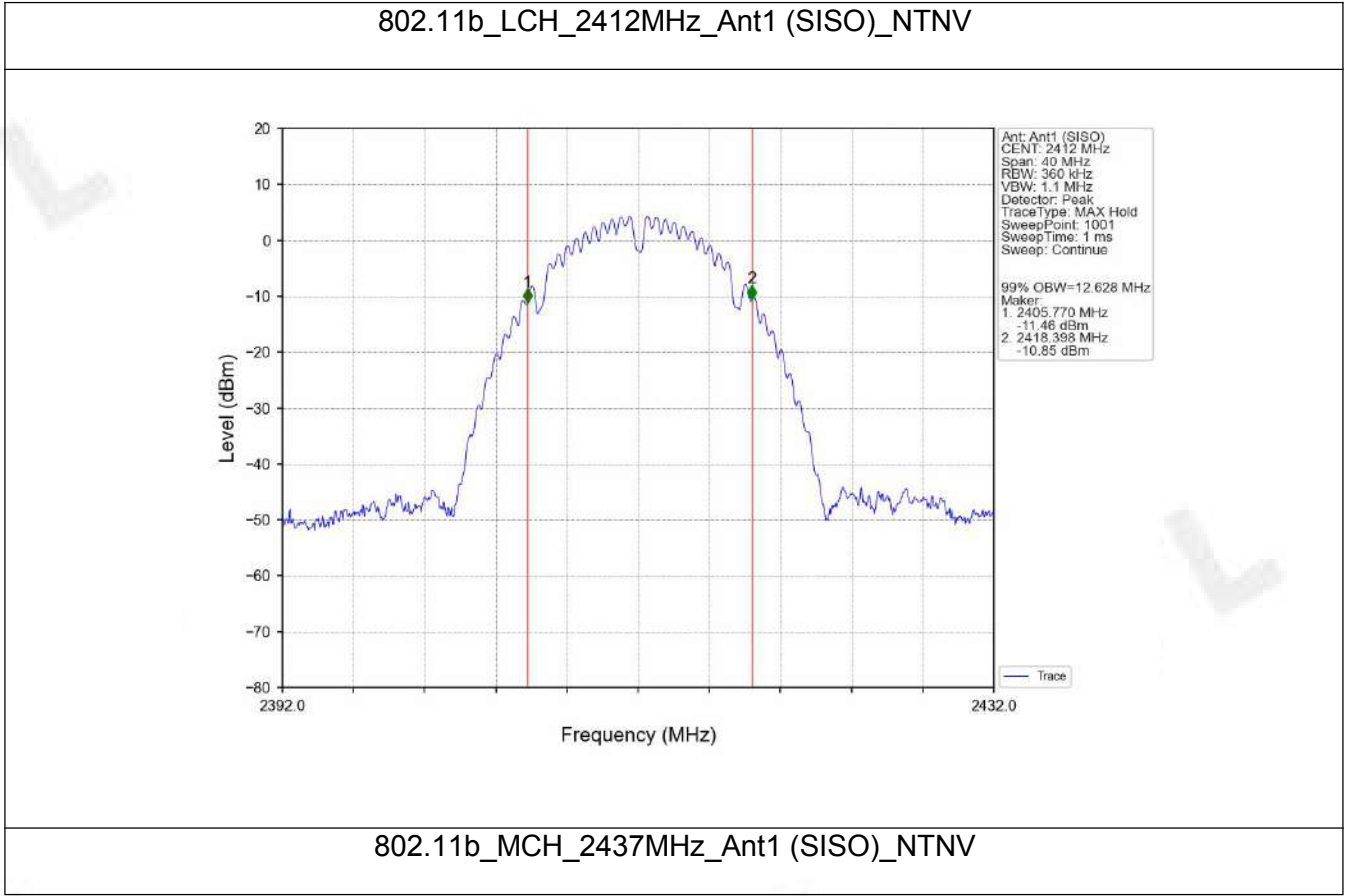
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		2462	1	8.038	≥ 0.5	Pass
802.11g	SISO	2412	1	15.143	≥ 0.5	Pass
		2437	1	15.125	≥ 0.5	Pass
		2462	1	15.333	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	15.164	≥ 0.5	Pass
		2437	1	15.975	≥ 0.5	Pass
		2462	1	15.967	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	35.297	≥ 0.5	Pass
		2437	1	35.129	≥ 0.5	Pass
		2452	1	35.156	≥ 0.5	Pass

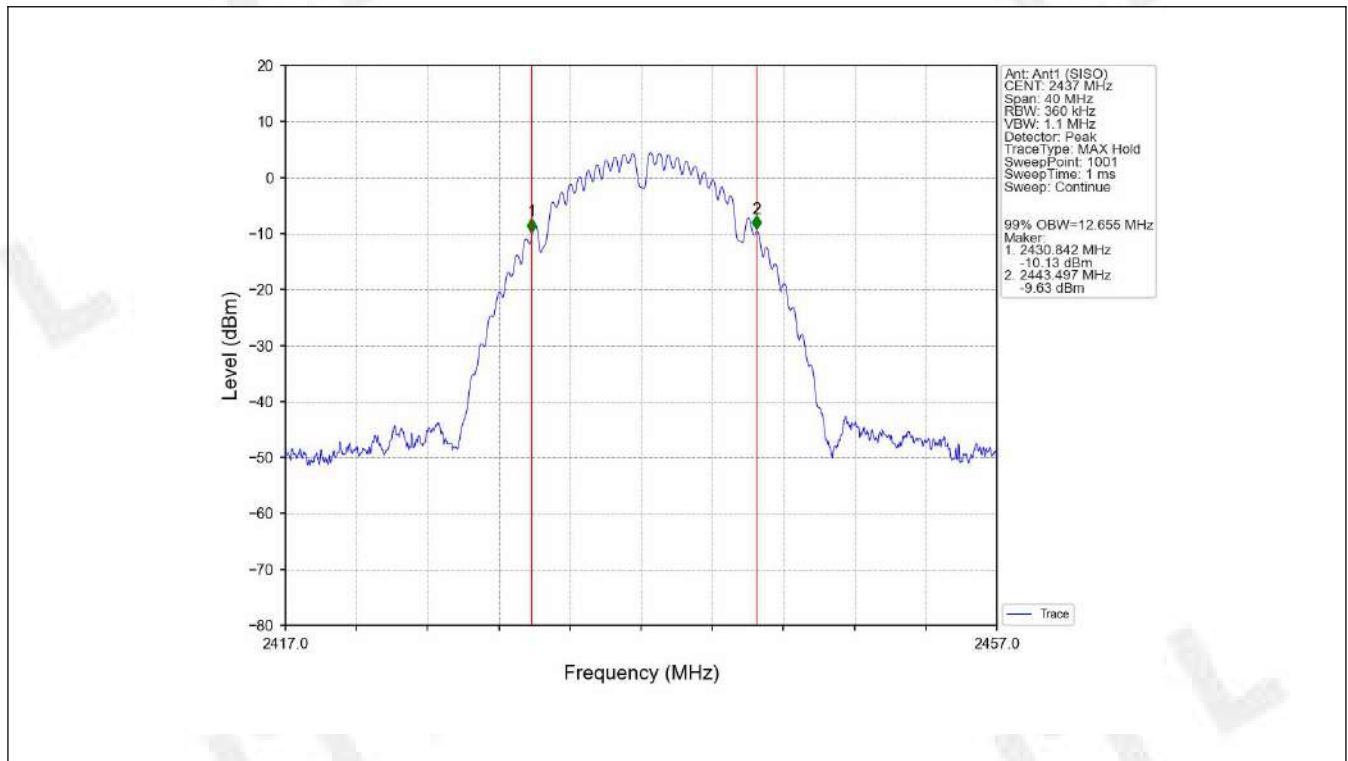
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1.2 Test Graph

1.2.1 OBW

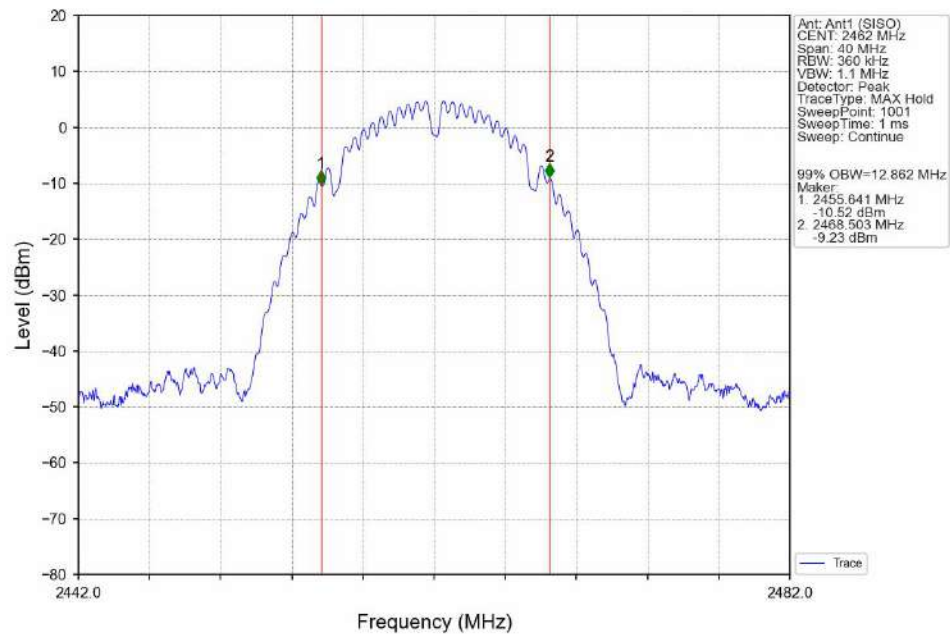


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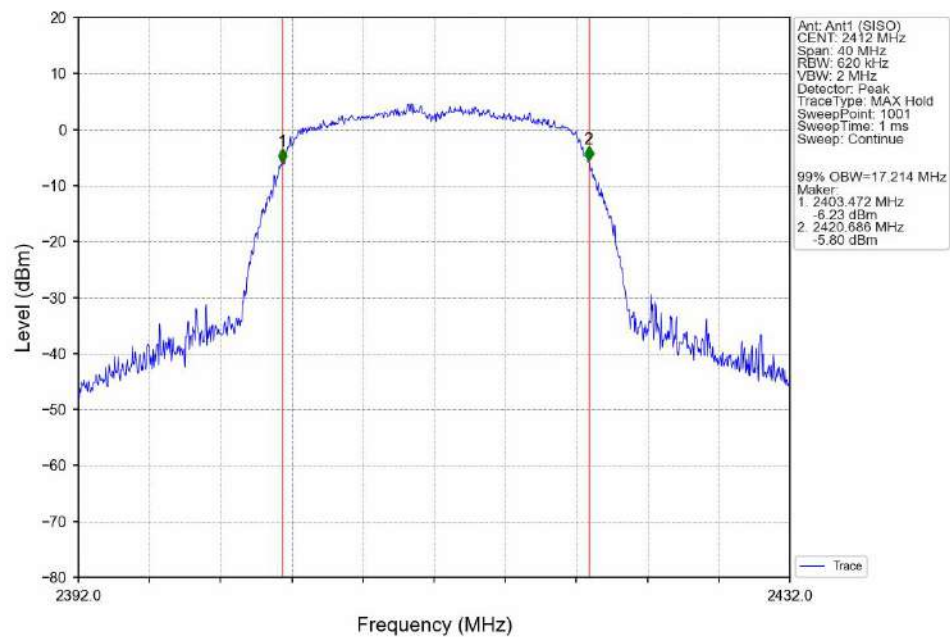


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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

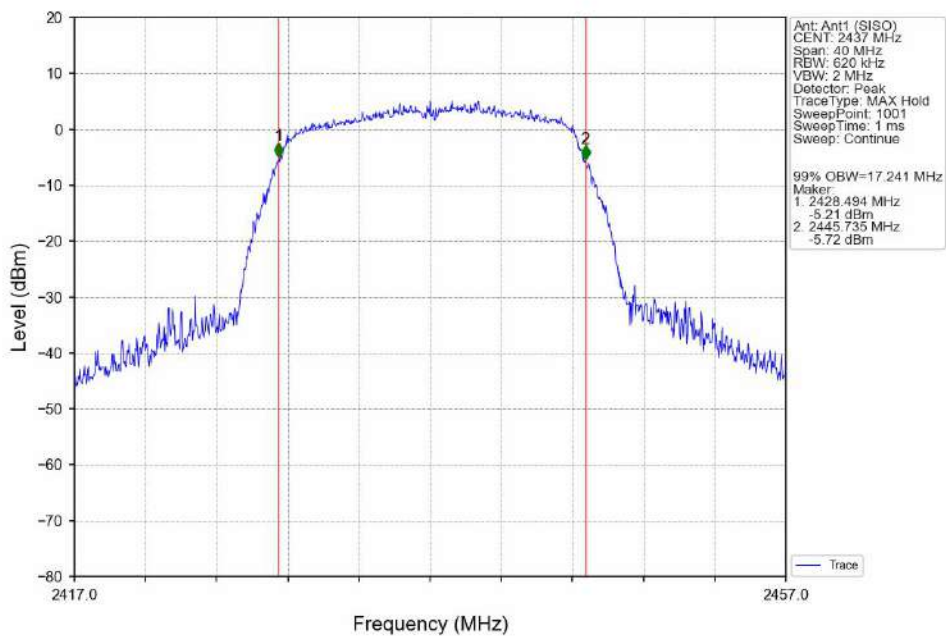


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

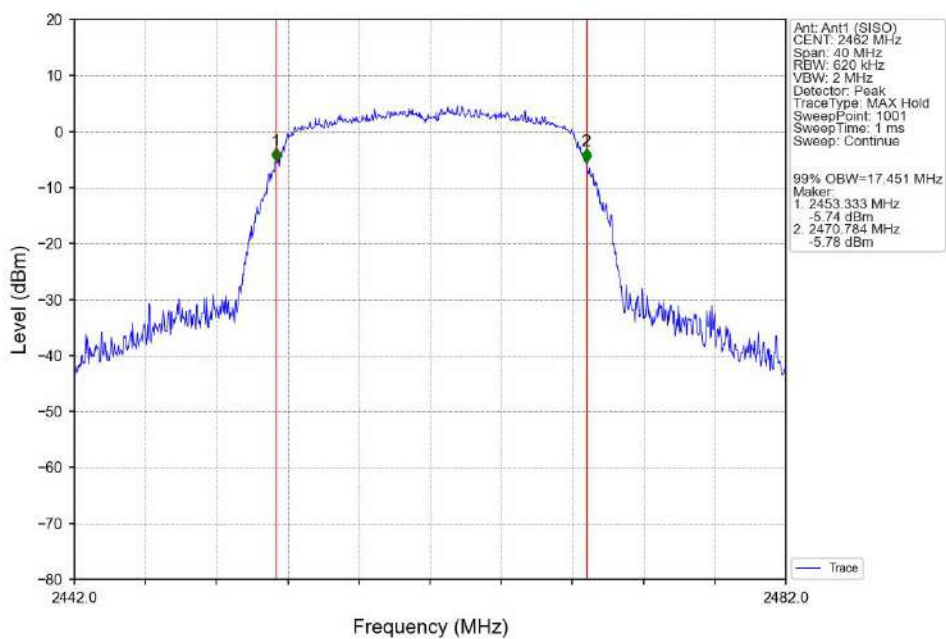


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802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

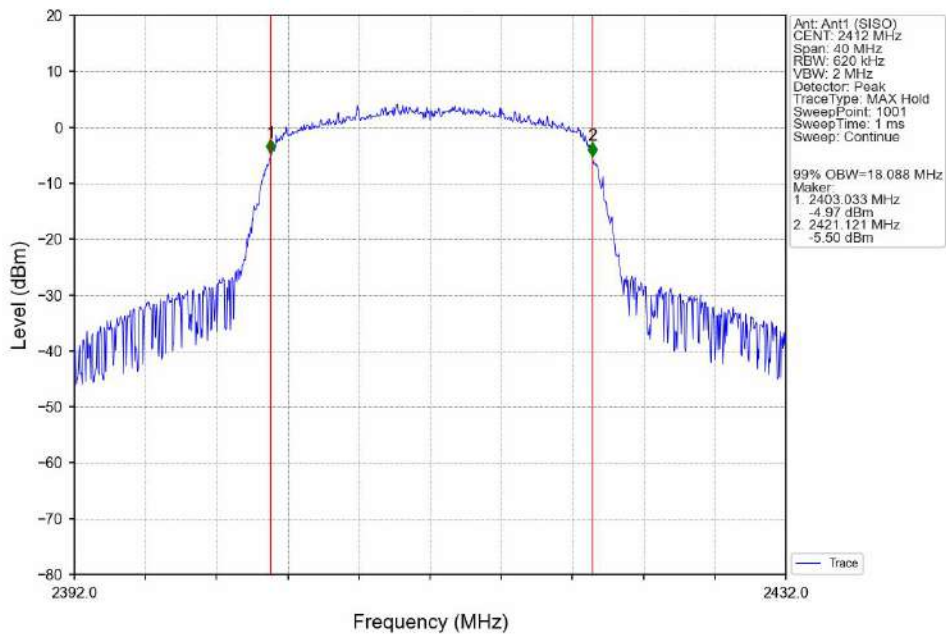


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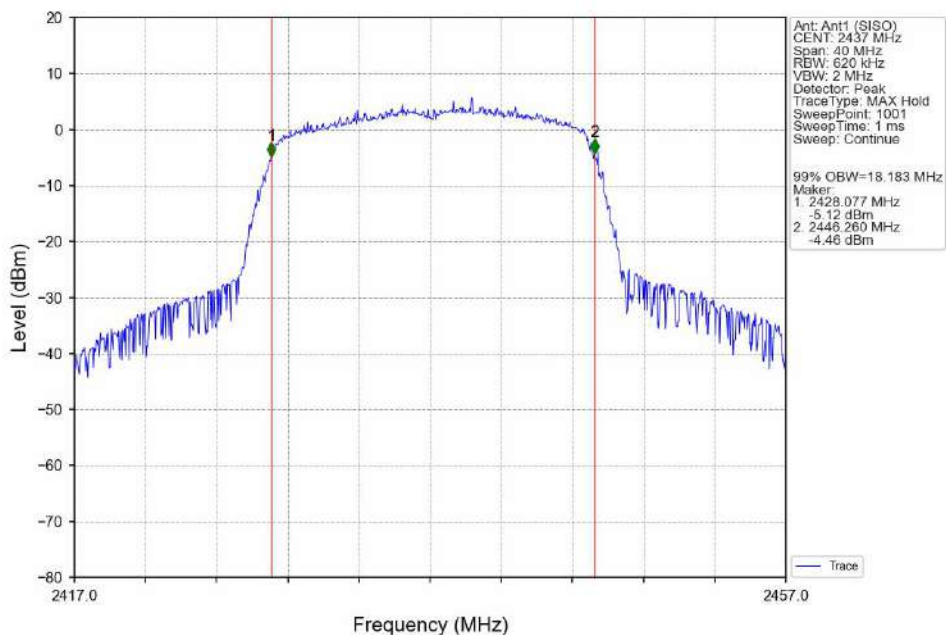


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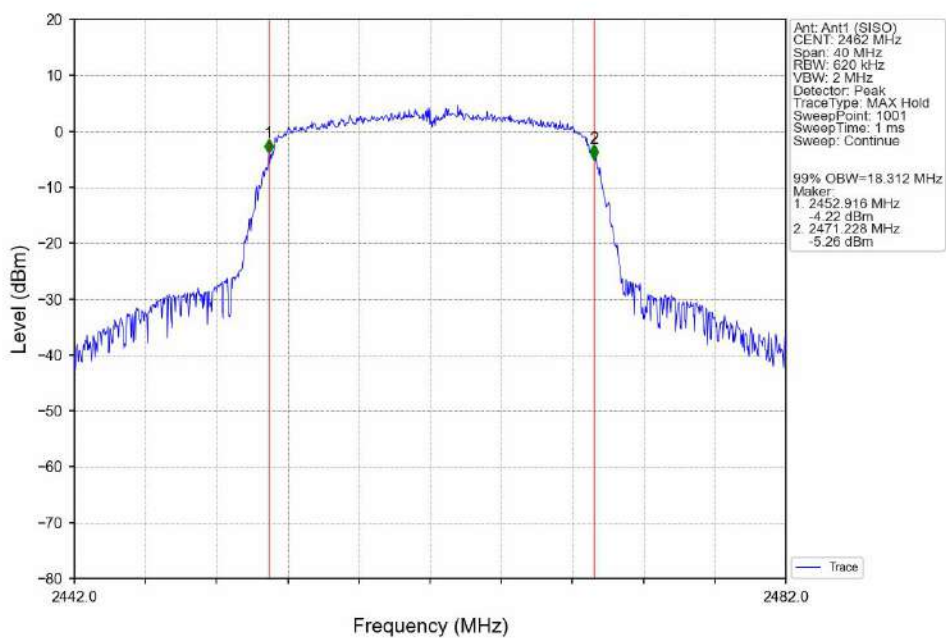


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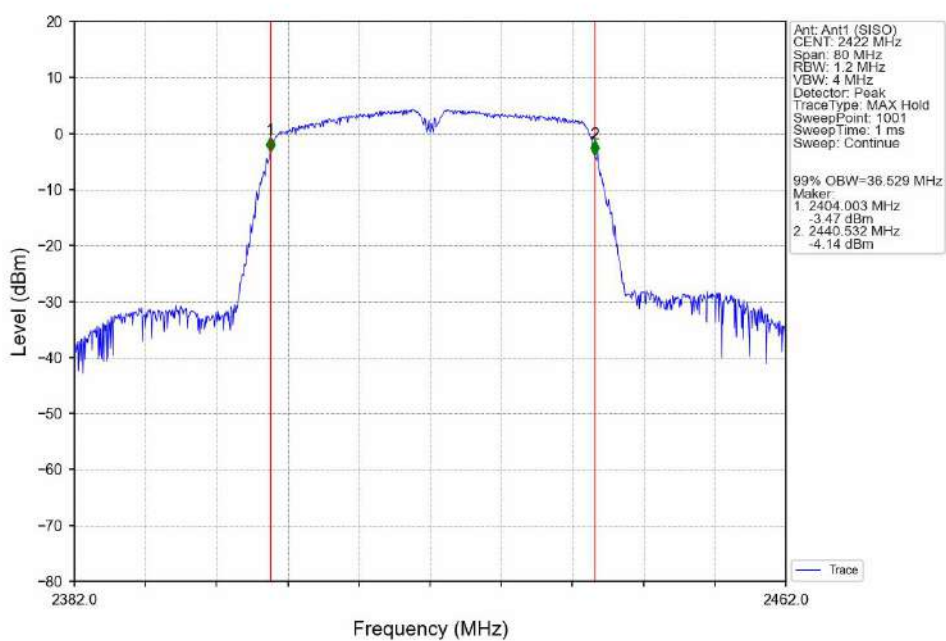


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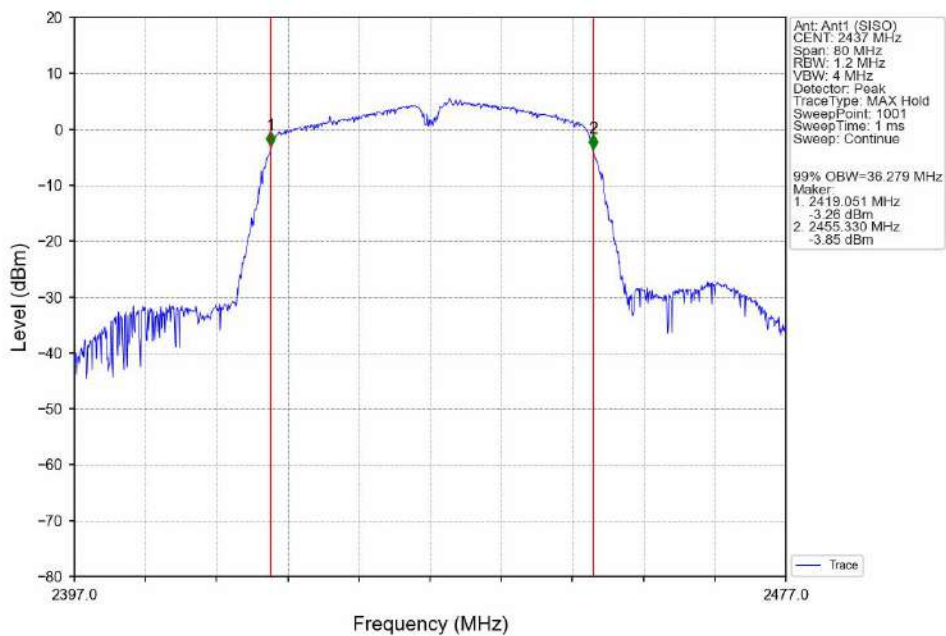


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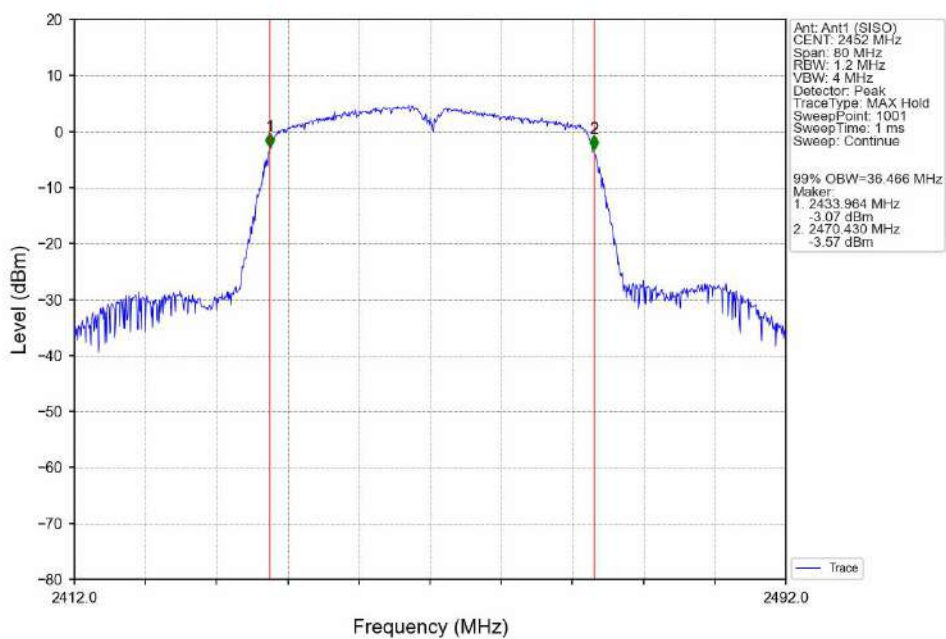


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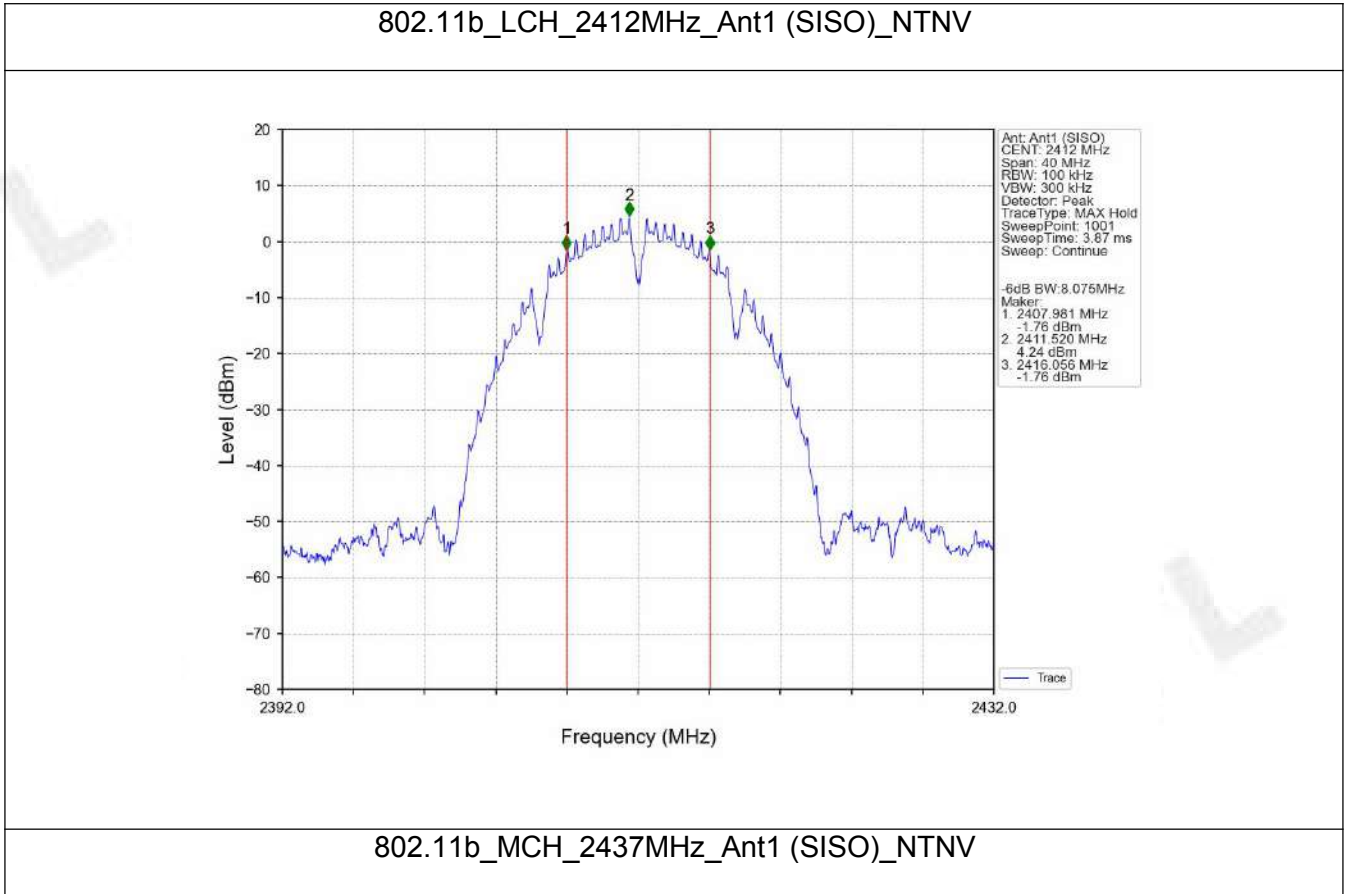


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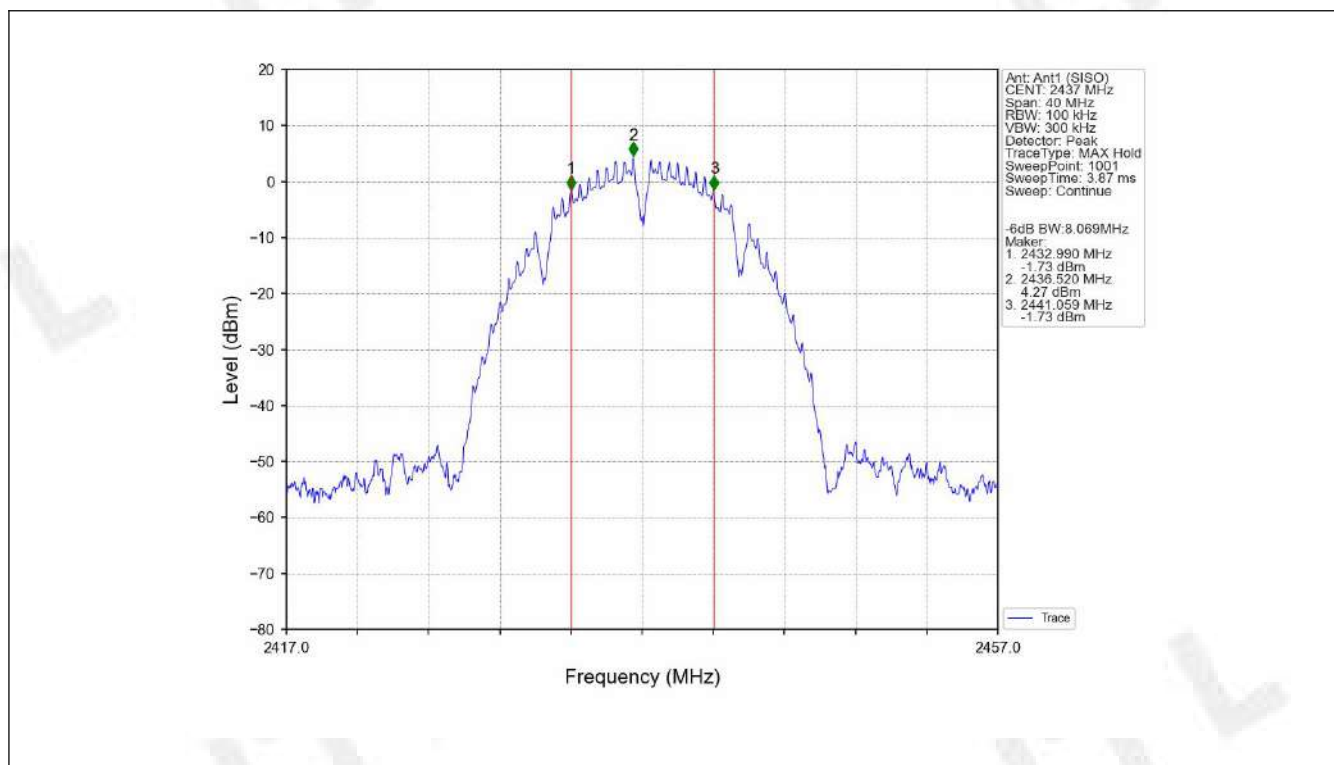


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2.2.2 6dB BW

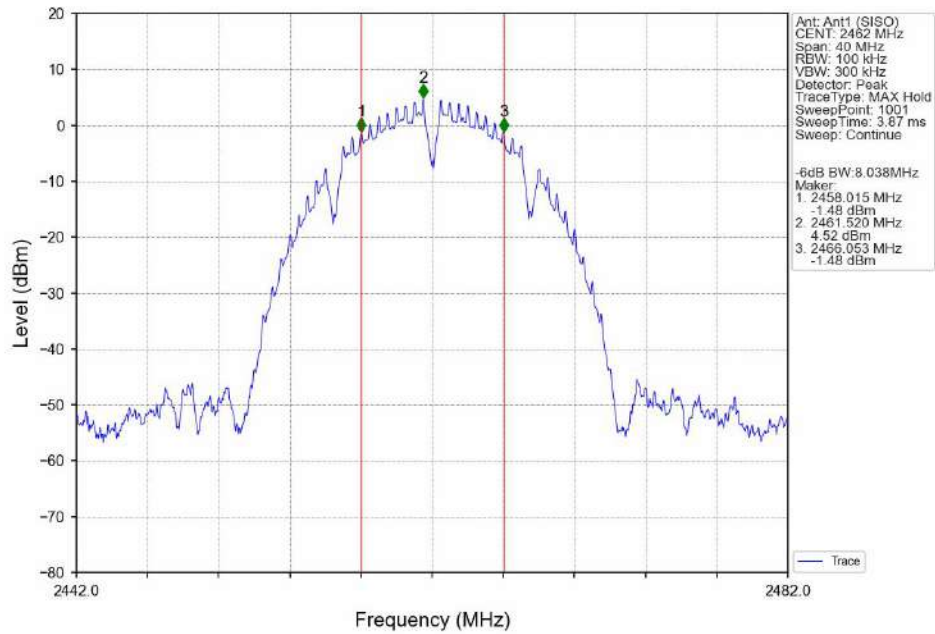


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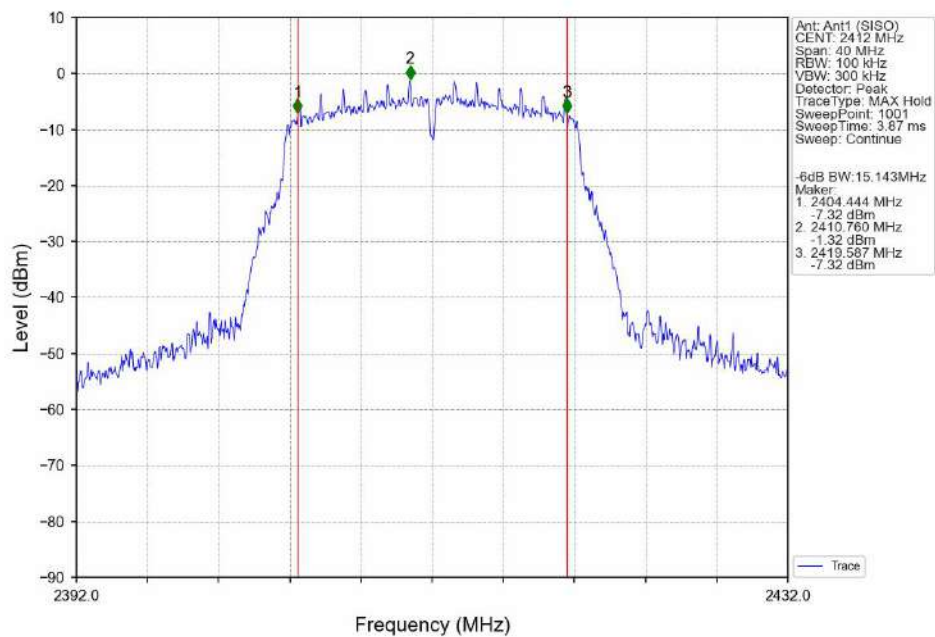


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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

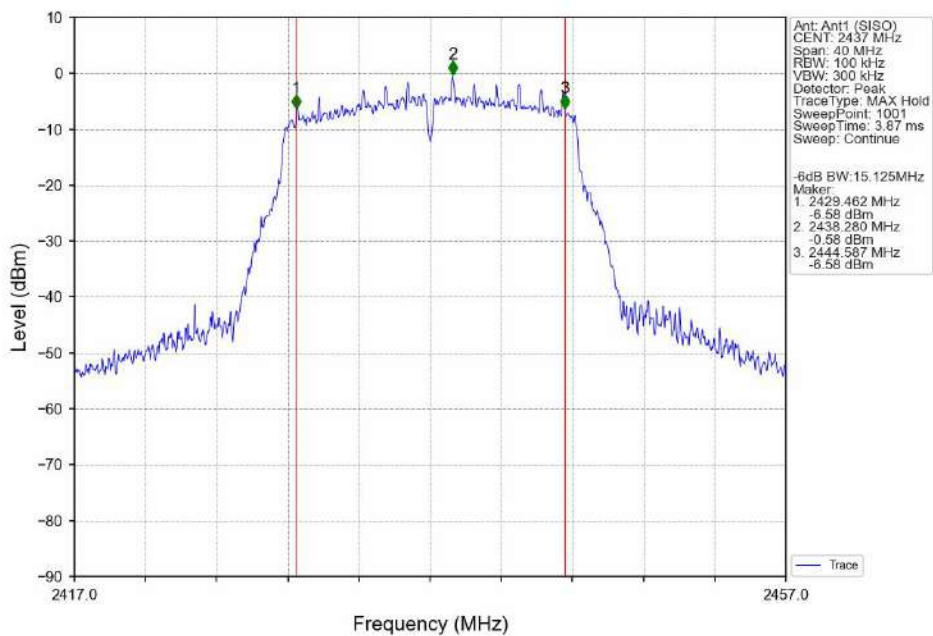


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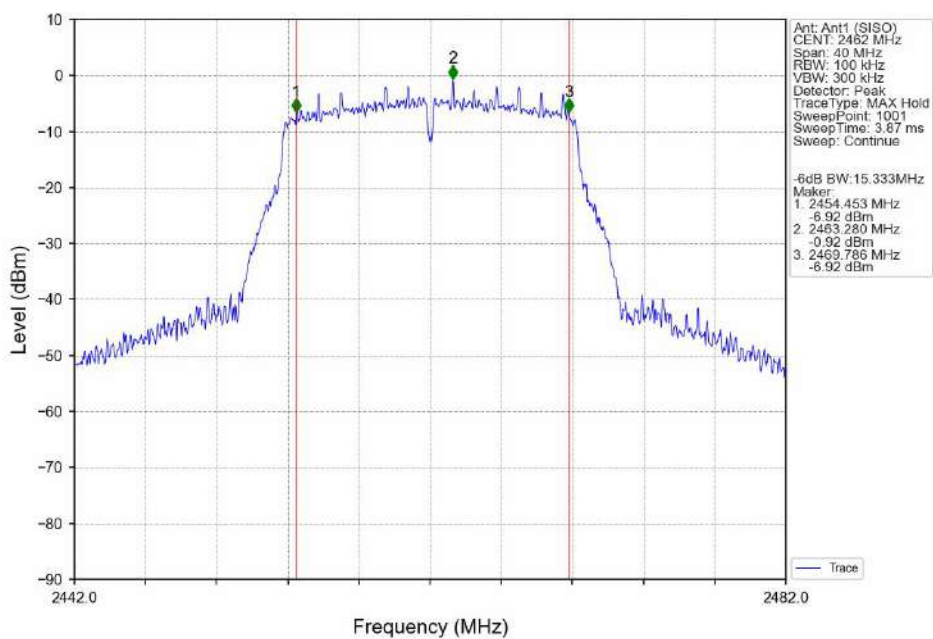


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802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

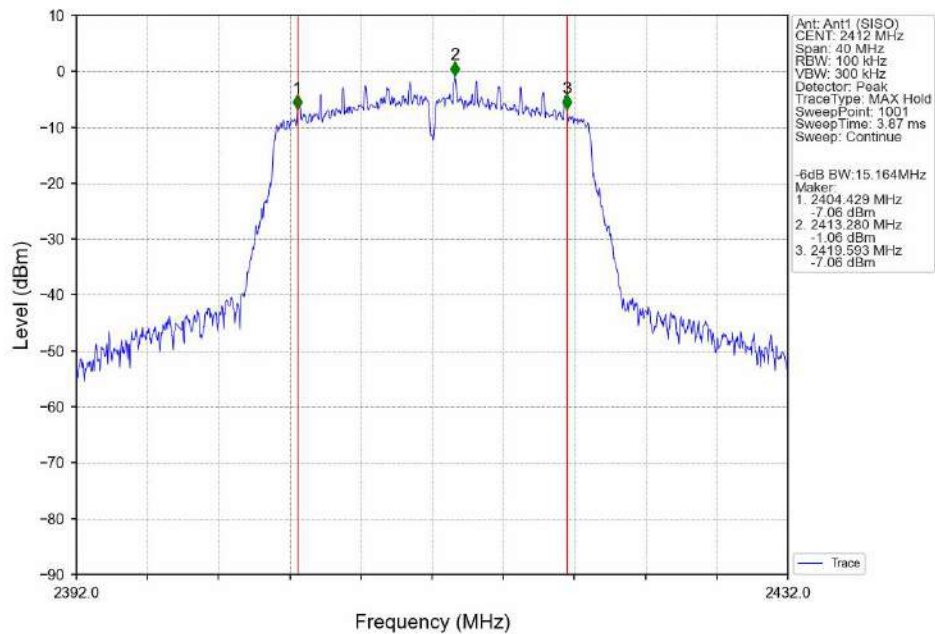


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

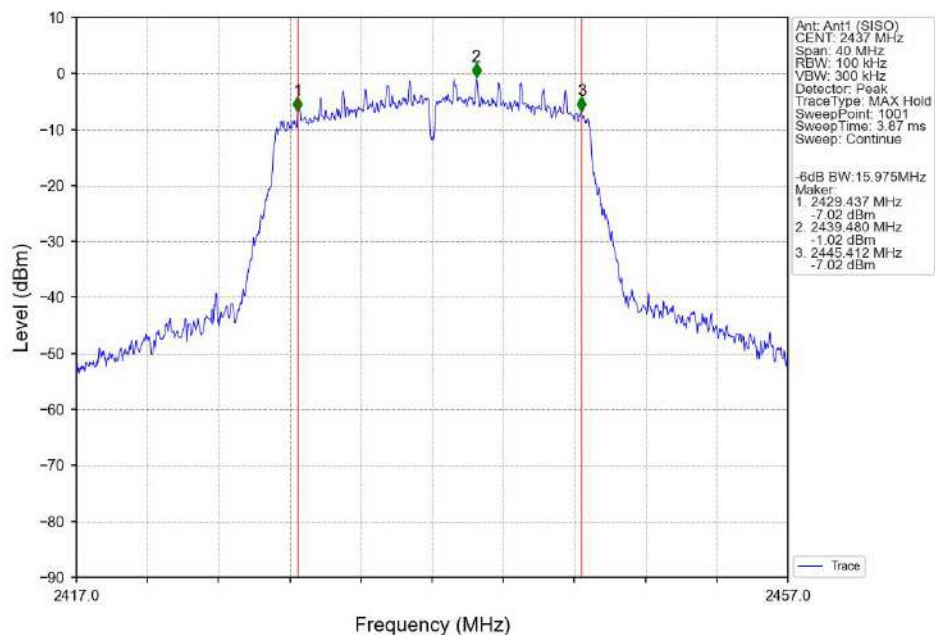


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802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

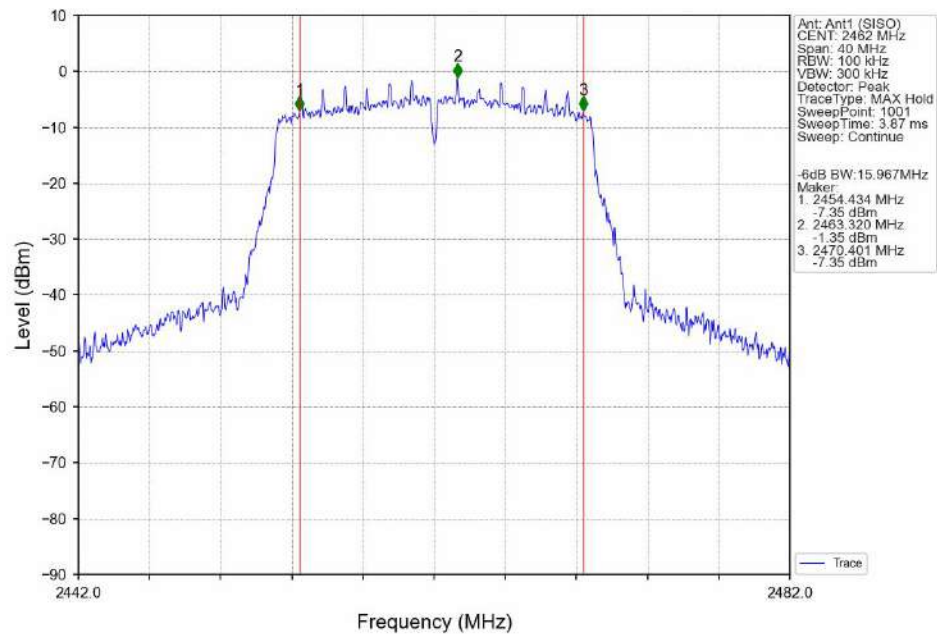


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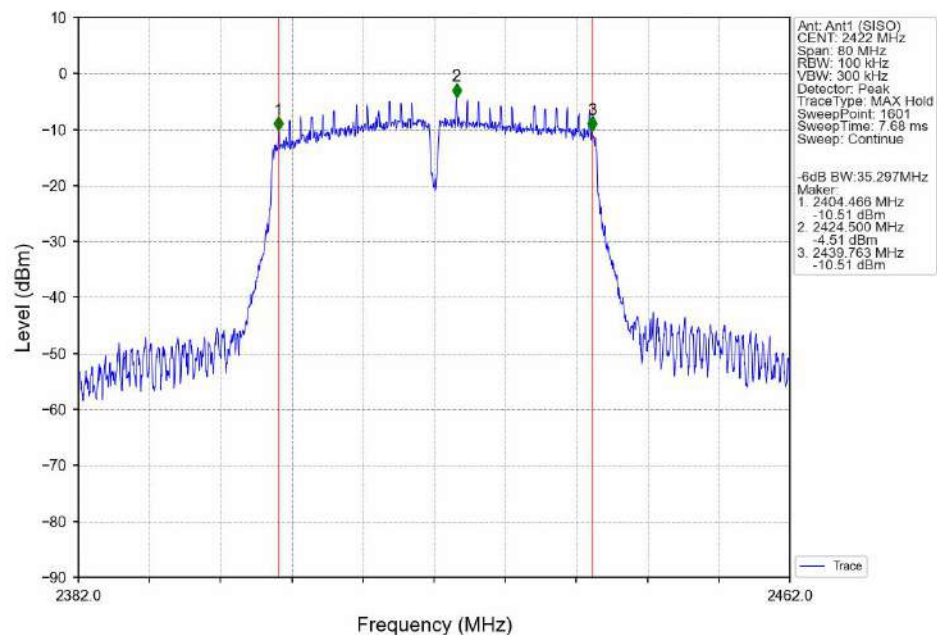


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802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

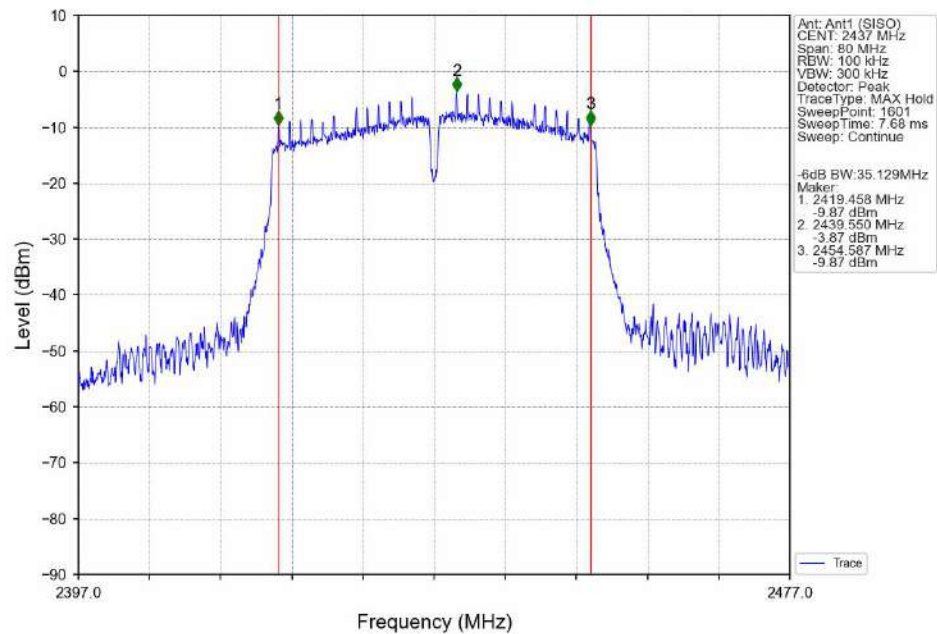


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

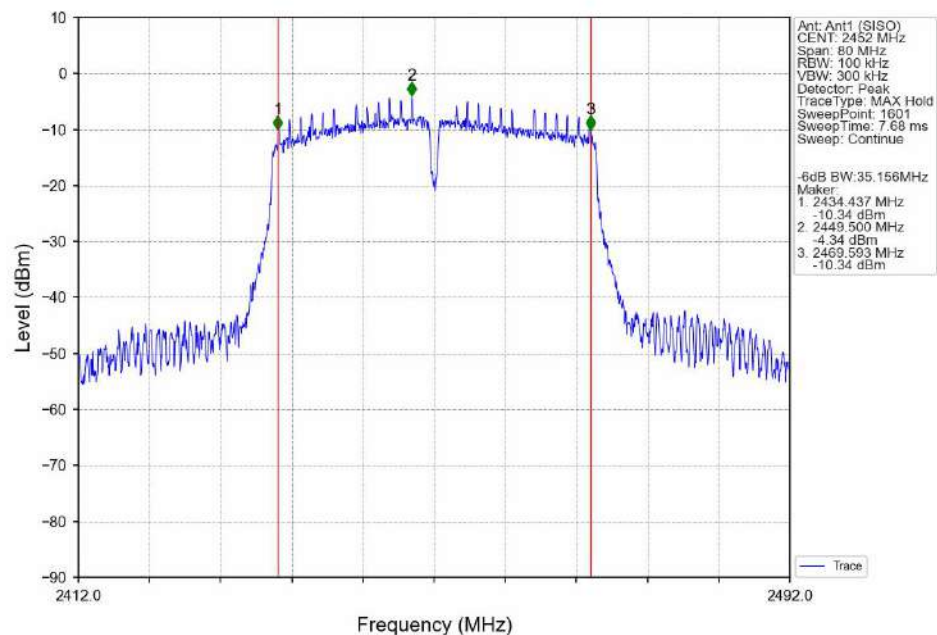


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802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_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	14.42	<=30	Pass
		2437	14.74	<=30	Pass
		2462	14.77	<=30	Pass
802.11g	SISO	2412	16.75	<=30	Pass
		2437	16.87	<=30	Pass
		2462	16.92	<=30	Pass
802.11n (HT20)	SISO	2412	16.48	<=30	Pass
		2437	16.95	<=30	Pass
		2462	16.72	<=30	Pass
802.11n (HT40)	SISO	2422	16.67	<=30	Pass
		2437	16.57	<=30	Pass
		2452	16.51	<=30	Pass

Note1: Antenna Gain: Ant1: 3.58dBi;

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3. Maximum Power Spectral Density

3.1 Test Result

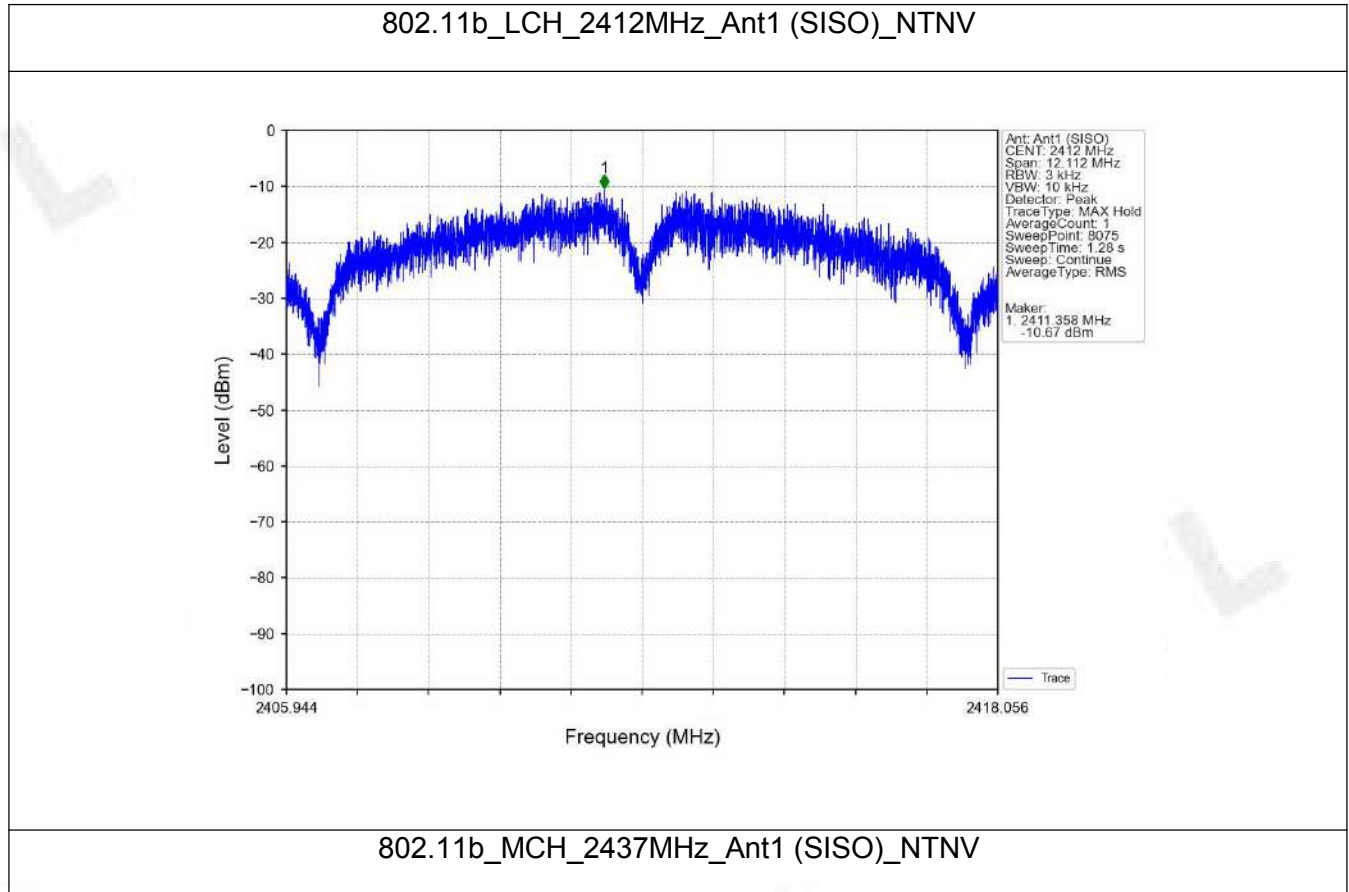
3.1.1 PSD

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-10.67	<=8	Pass
		2437	-10.61	<=8	Pass
		2462	-10.01	<=8	Pass
802.11g	SISO	2412	-15.03	<=8	Pass
		2437	-15.02	<=8	Pass
		2462	-15.07	<=8	Pass
802.11n (HT20)	SISO	2412	-16.38	<=8	Pass
		2437	-15.46	<=8	Pass
		2462	-16.05	<=8	Pass
802.11n (HT40)	SISO	2422	-18.89	<=8	Pass
		2437	-18.16	<=8	Pass
		2452	-18.35	<=8	Pass
Note1: Antenna Gain: Ant1: 3.58dBi;					

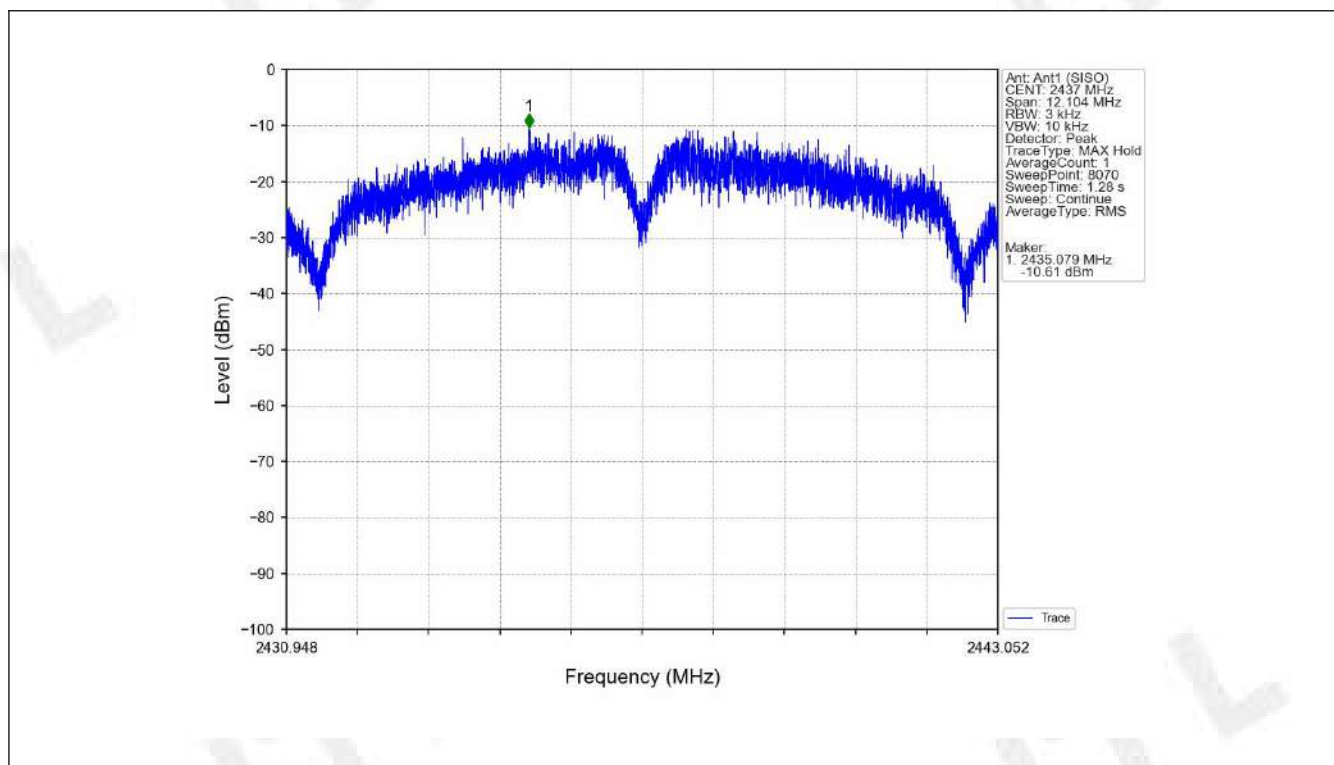
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3.2 Test Graph

3.2.1 PSD

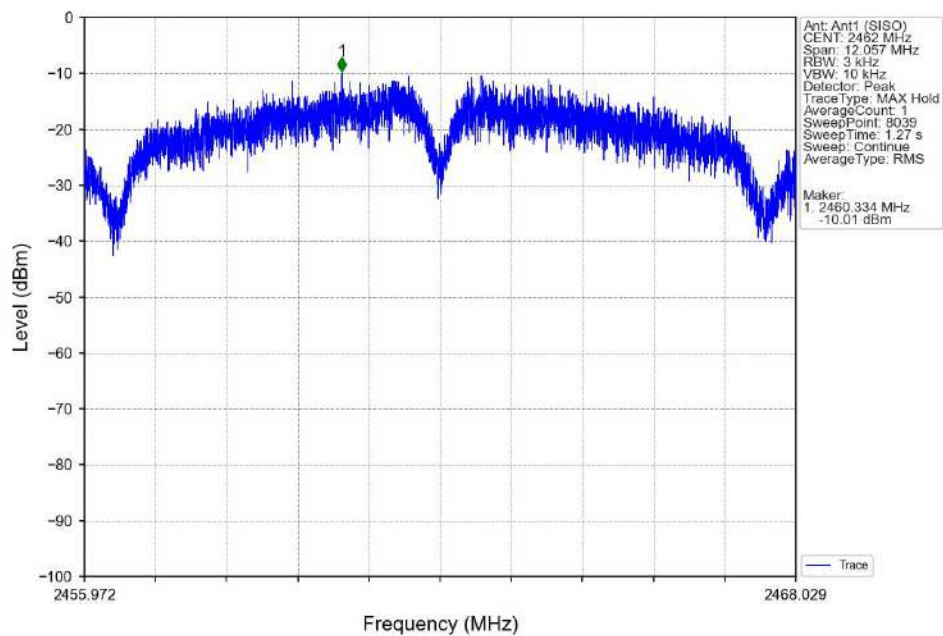


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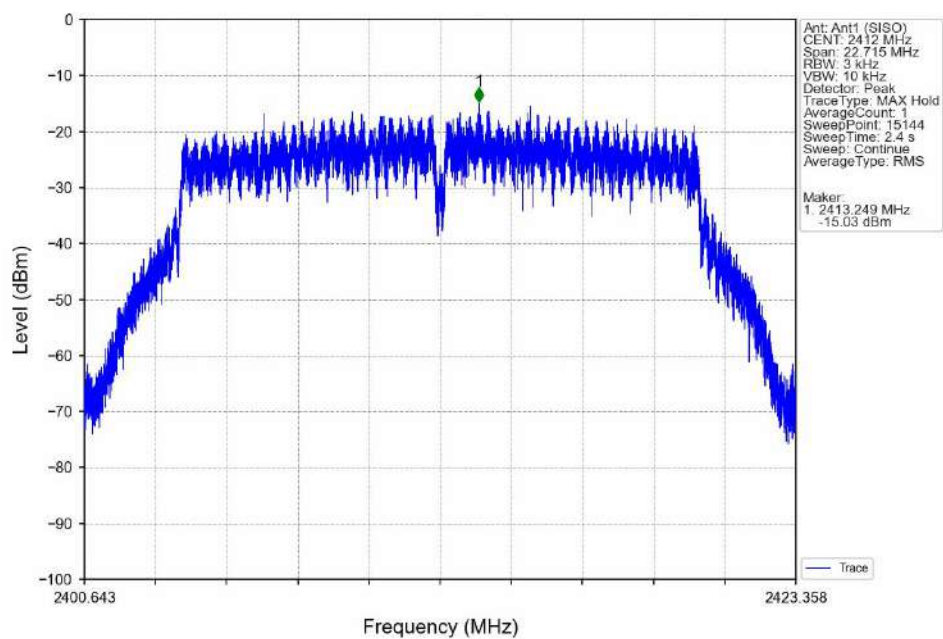


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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

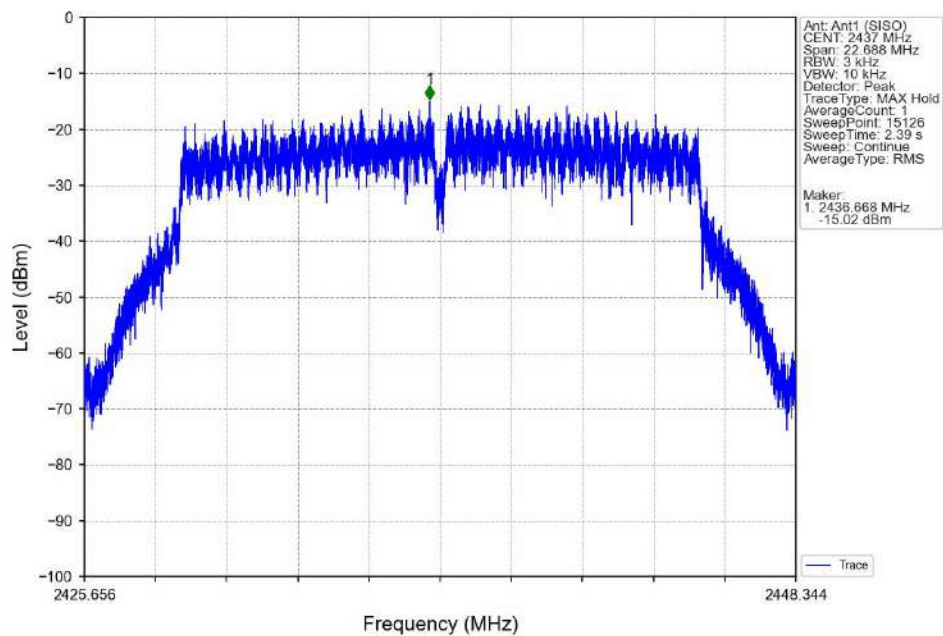


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

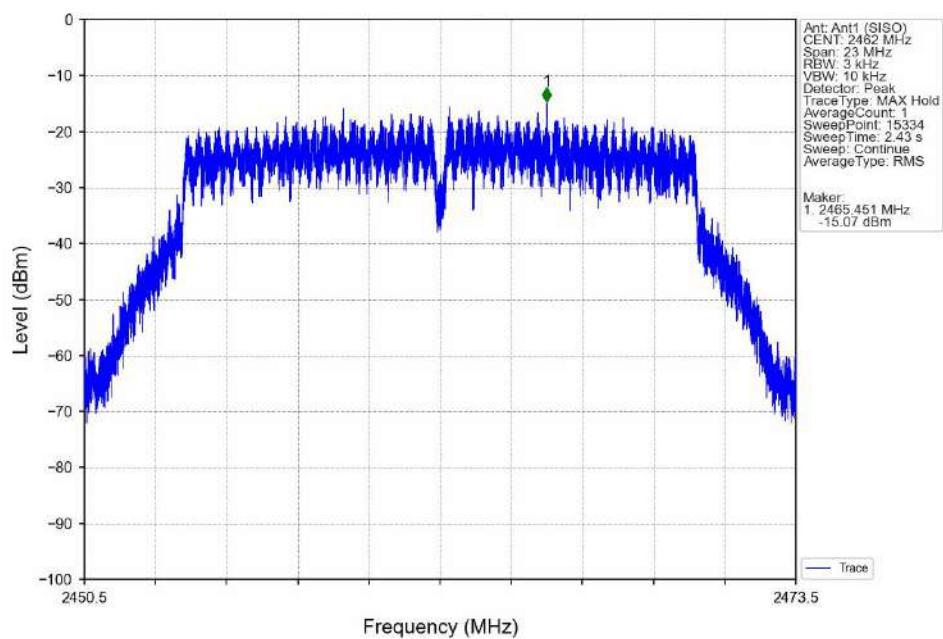


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802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

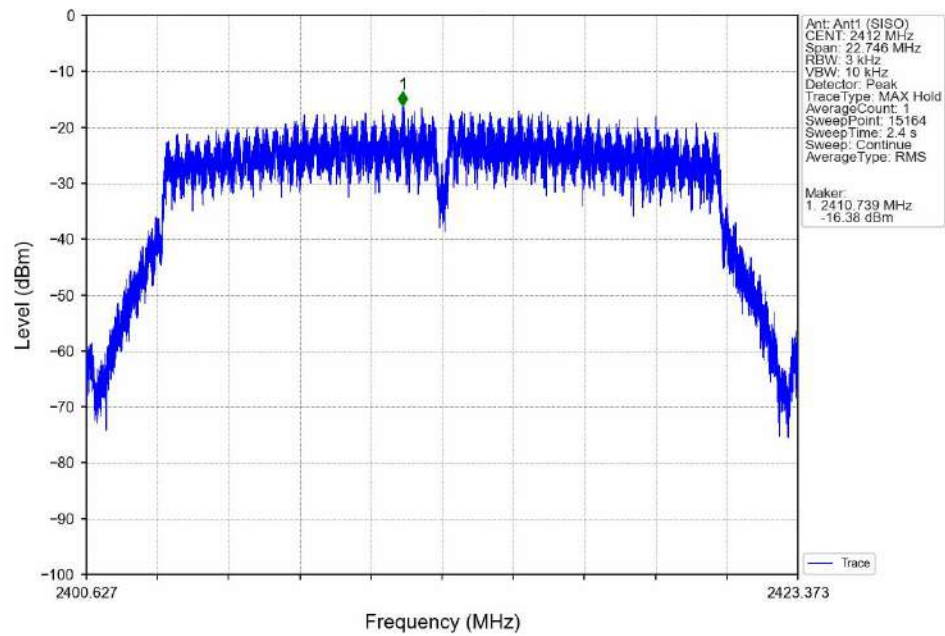


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

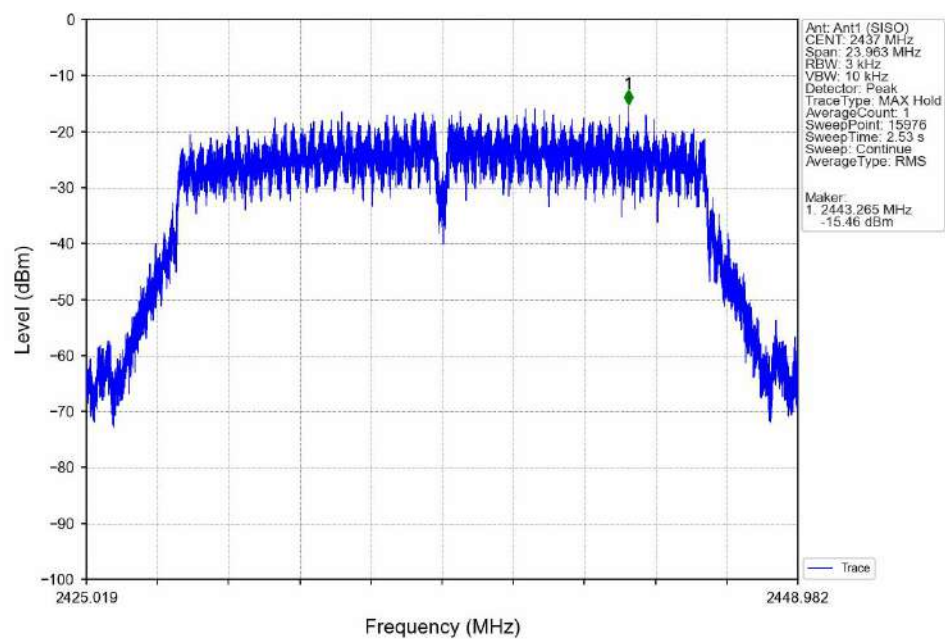


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802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

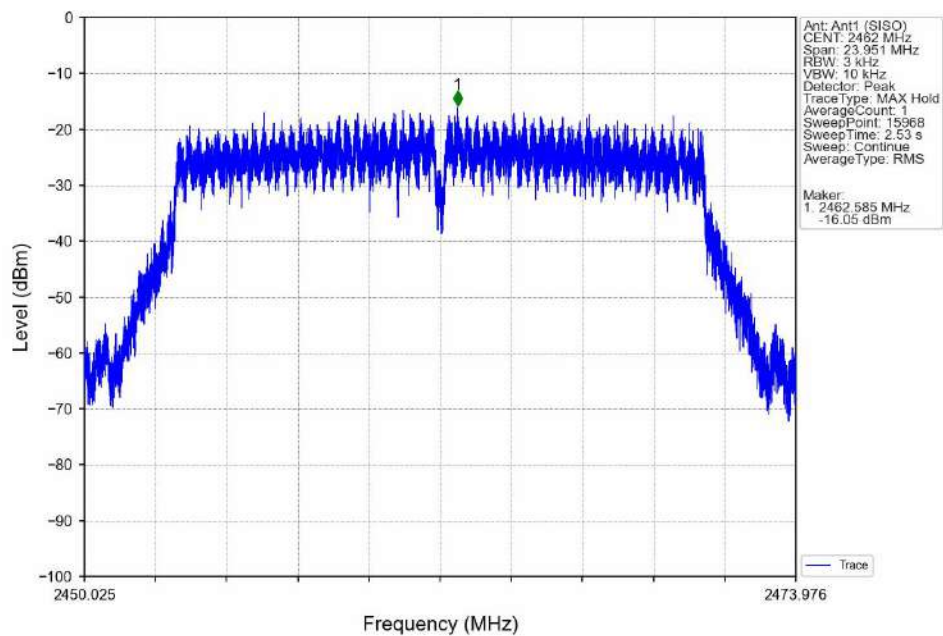


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

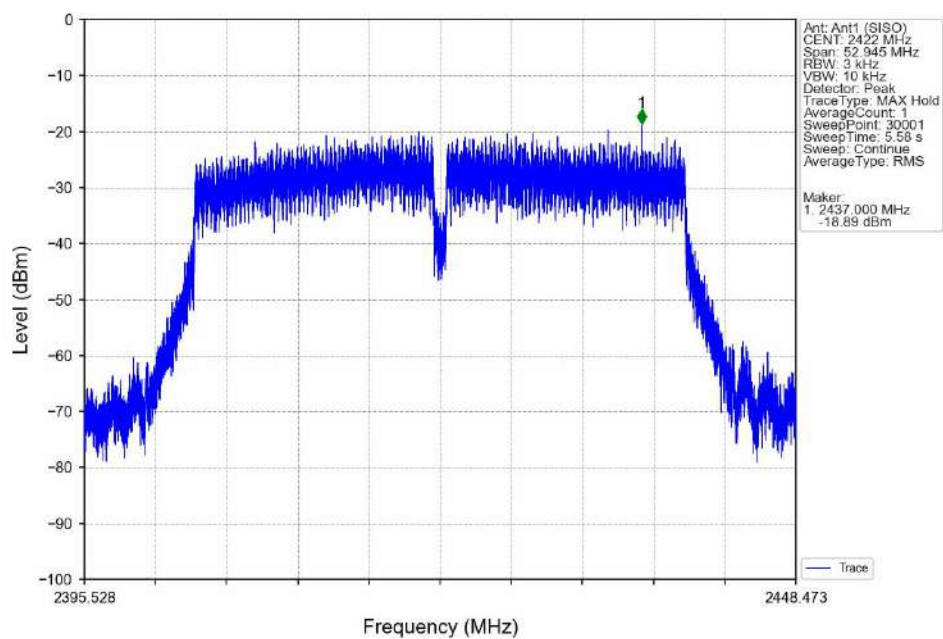


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802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

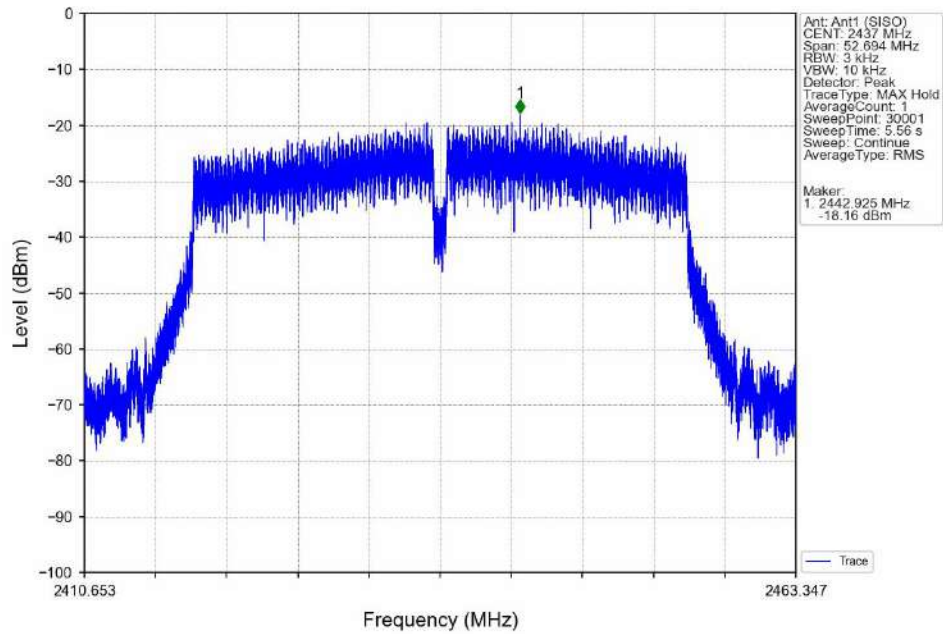


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

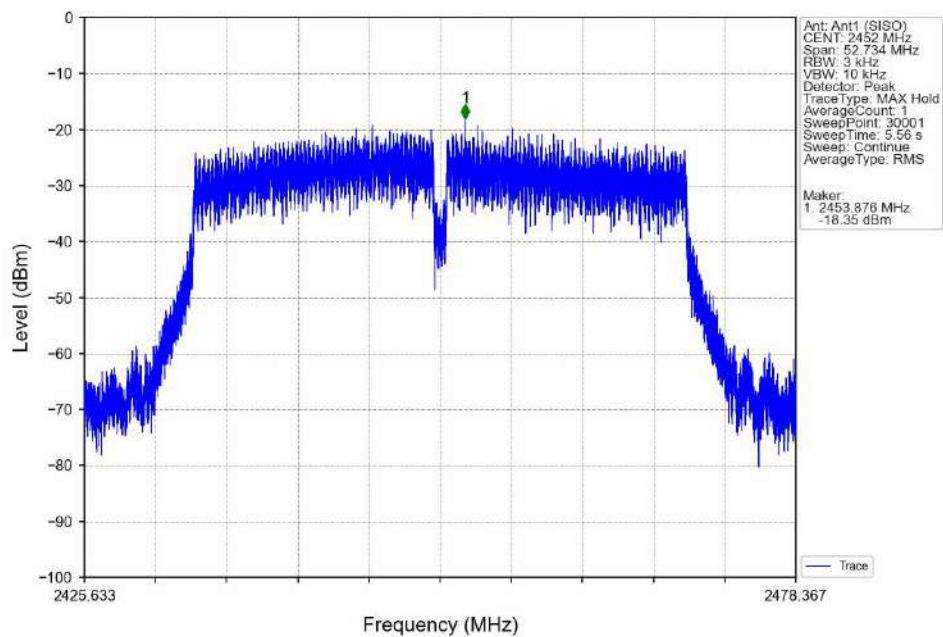


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802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_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	4.39
		2437	1	4.39
		2462	1	4.21
802.11g	SISO	2412	1	-0.87
		2437	1	-0.69
		2462	1	-0.82
802.11n (HT20)	SISO	2412	1	-1.28
		2437	1	-0.93
		2462	1	-0.85
802.11n (HT40)	SISO	2422	1	-4.53
		2437	1	-3.67
		2452	1	-4.10
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	4.39	-15.61	Pass
		2437	1	4.39	-15.61	Pass
		2462	1	4.39	-15.61	Pass

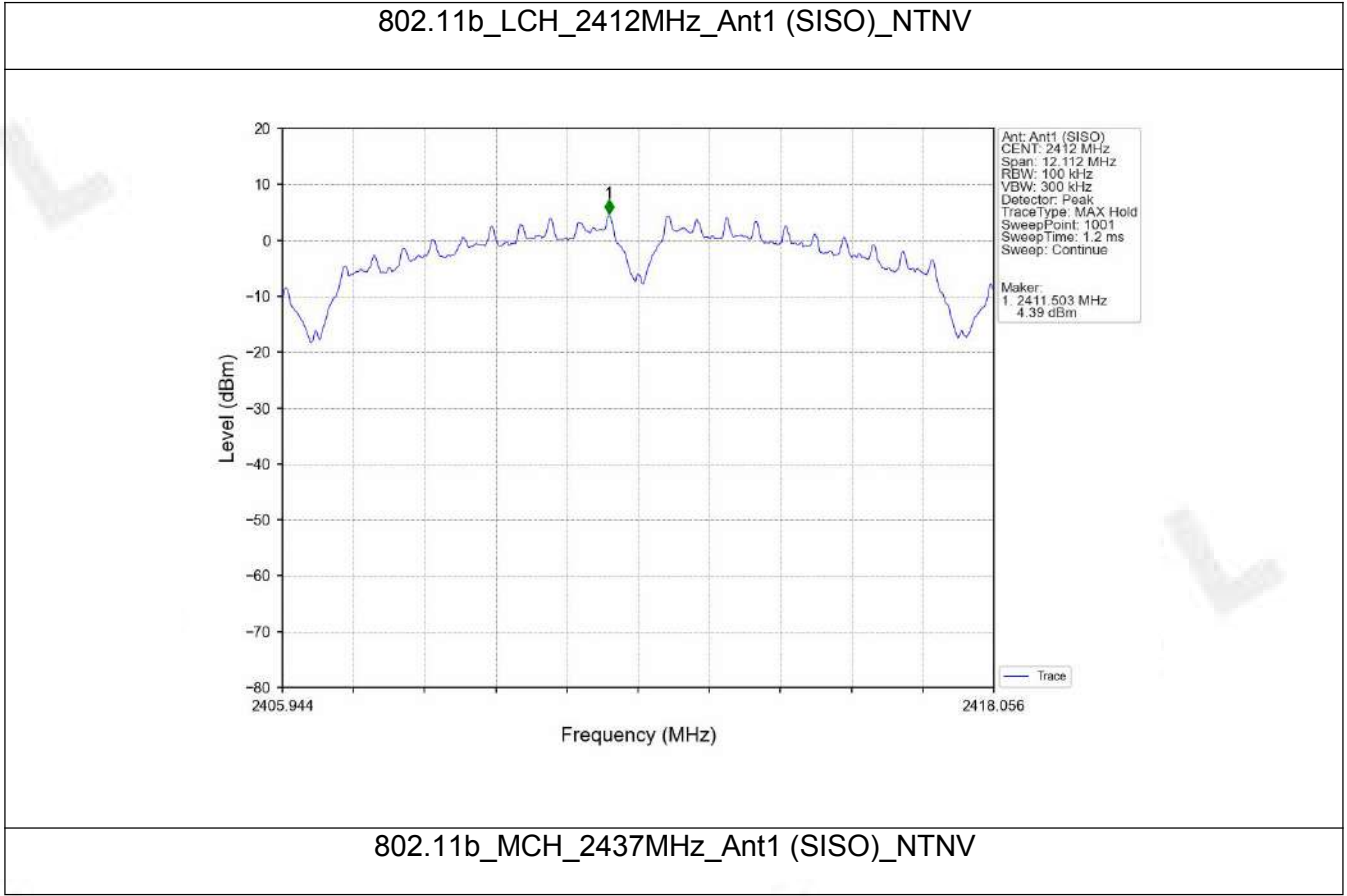
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802.11g	SISO	2412	1	-0.69	-20.69	Pass
		2437	1	-0.69	-20.69	Pass
		2462	1	-0.69	-20.69	Pass
802.11n (HT20)	SISO	2412	1	-0.85	-20.85	Pass
		2437	1	-0.85	-20.85	Pass
		2462	1	-0.85	-20.85	Pass
802.11n (HT40)	SISO	2422	1	-3.67	-23.67	Pass
		2437	1	-3.67	-23.67	Pass
		2452	1	-3.67	-23.67	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.						

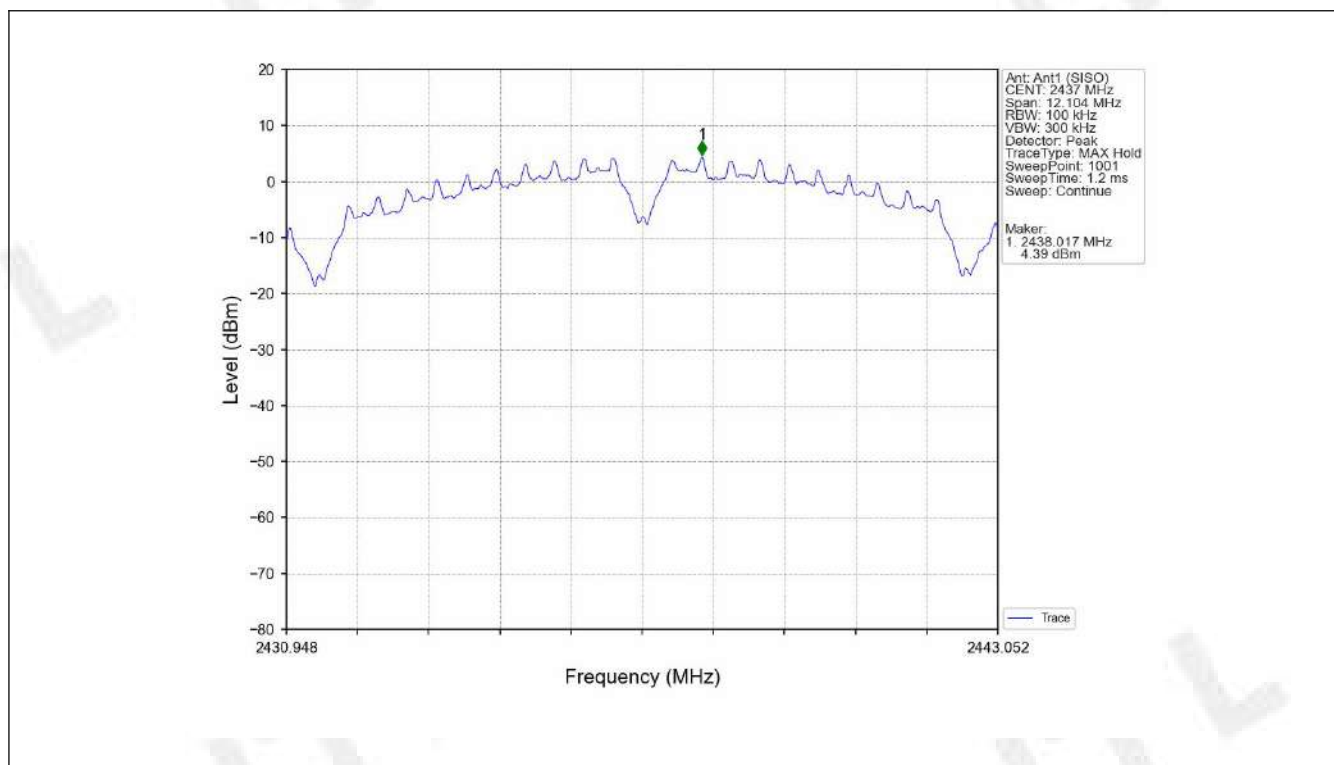
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4.2 Test Graph

4.2.1 Ref

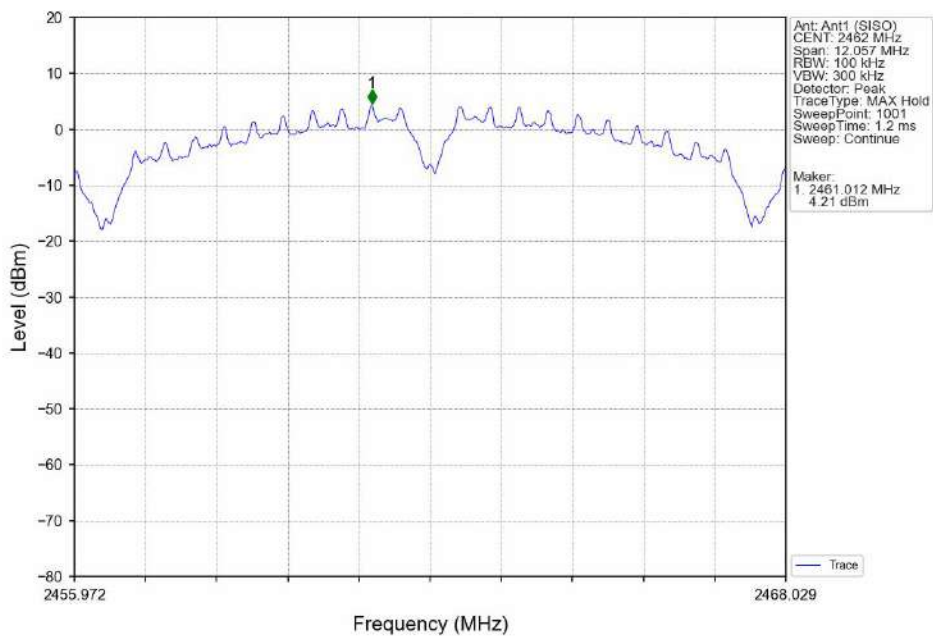


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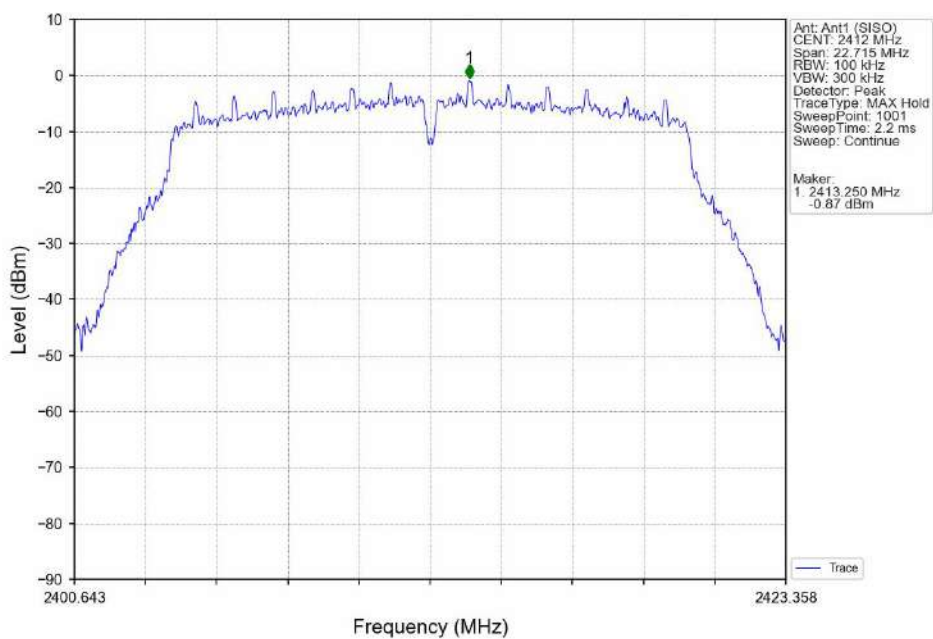


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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

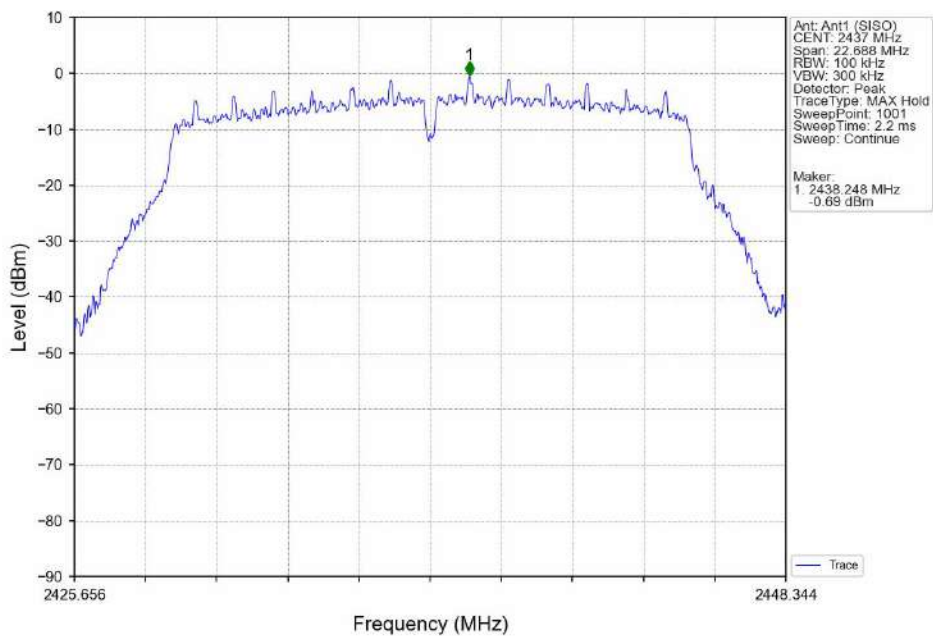


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

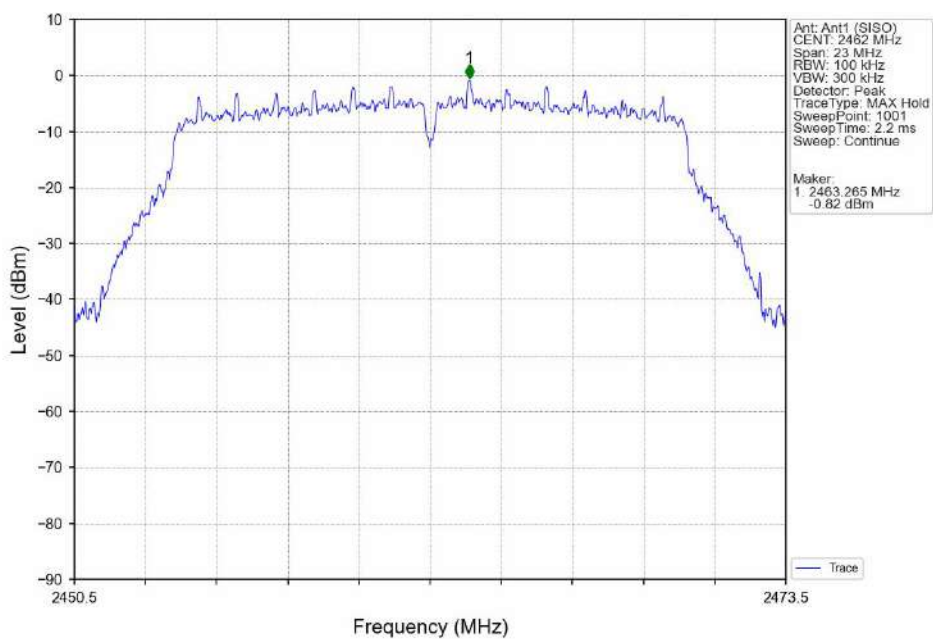


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802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

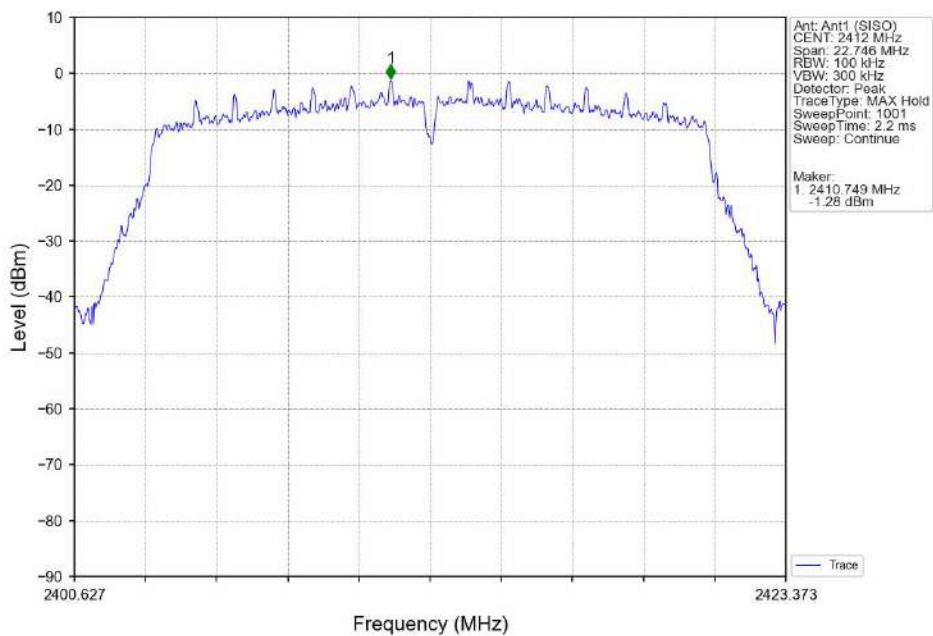


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

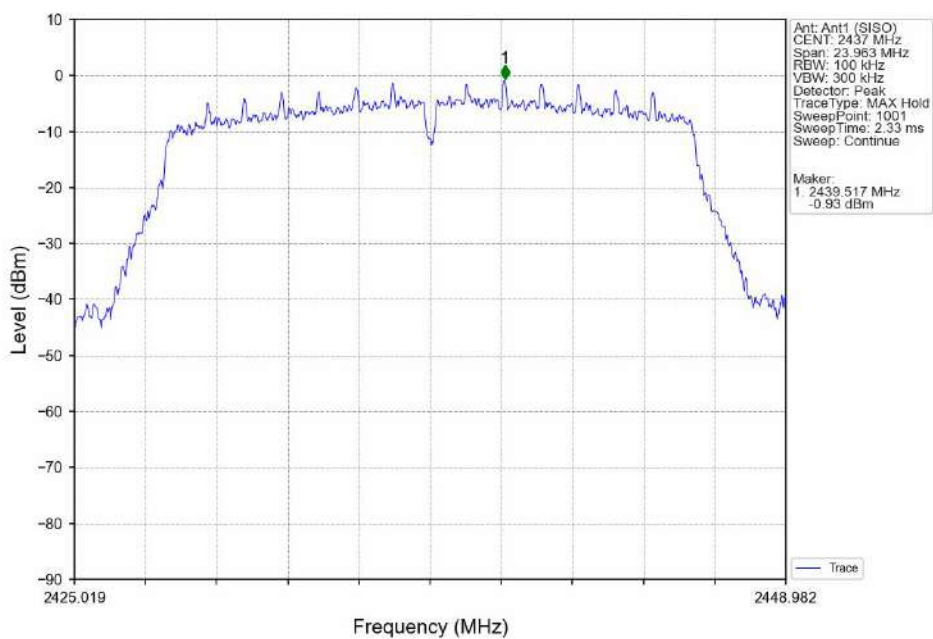


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802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

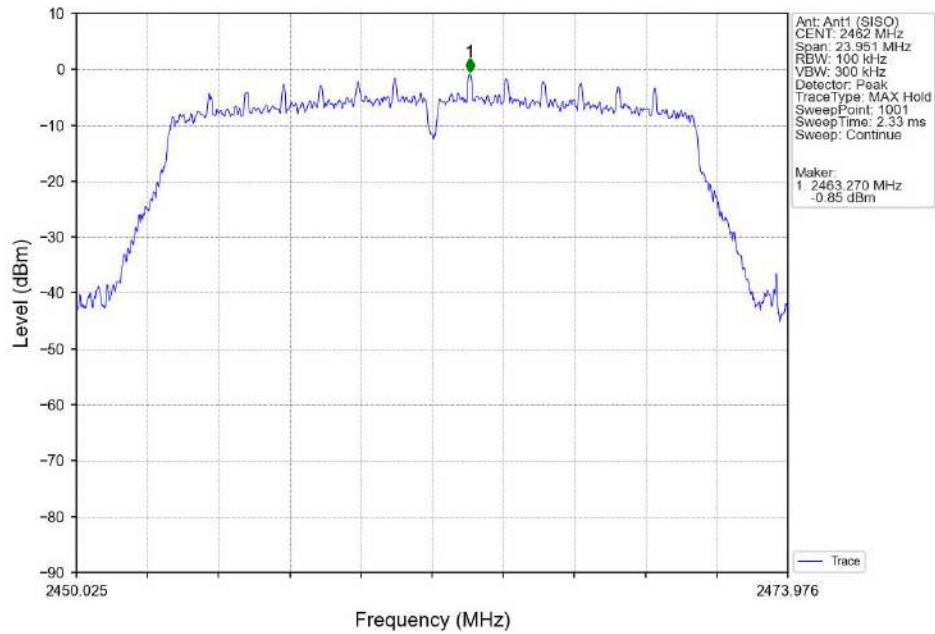


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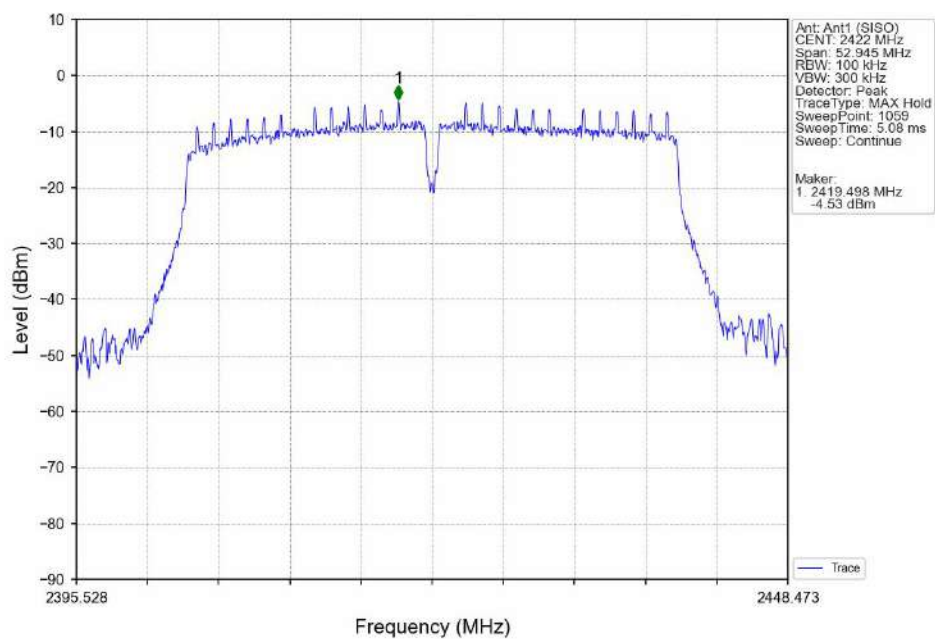


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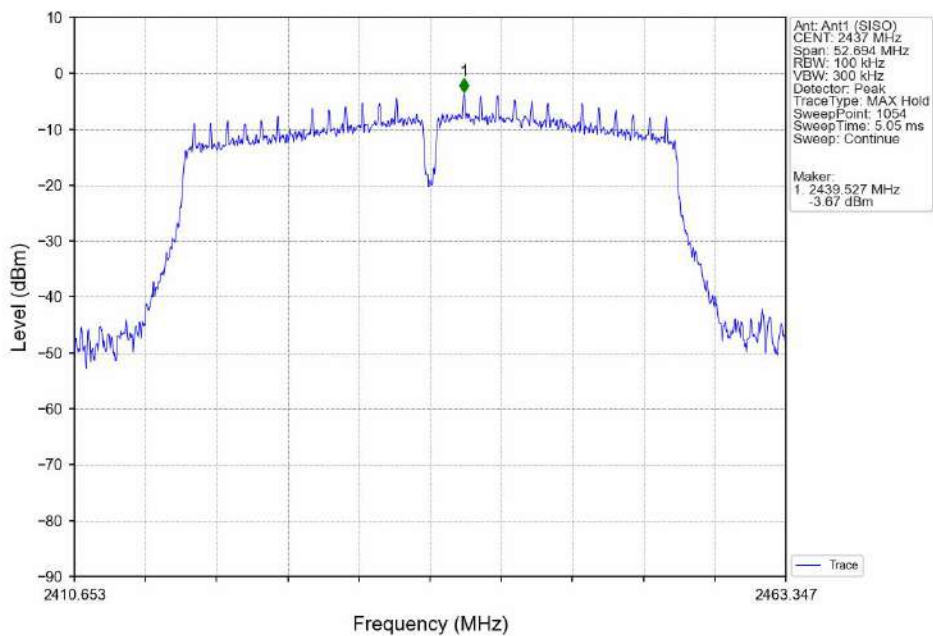


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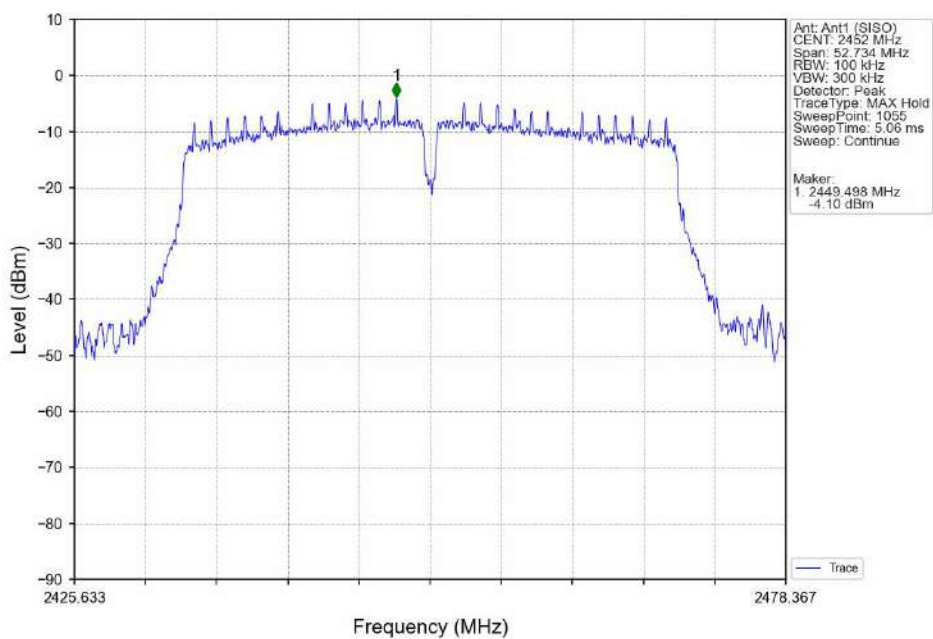


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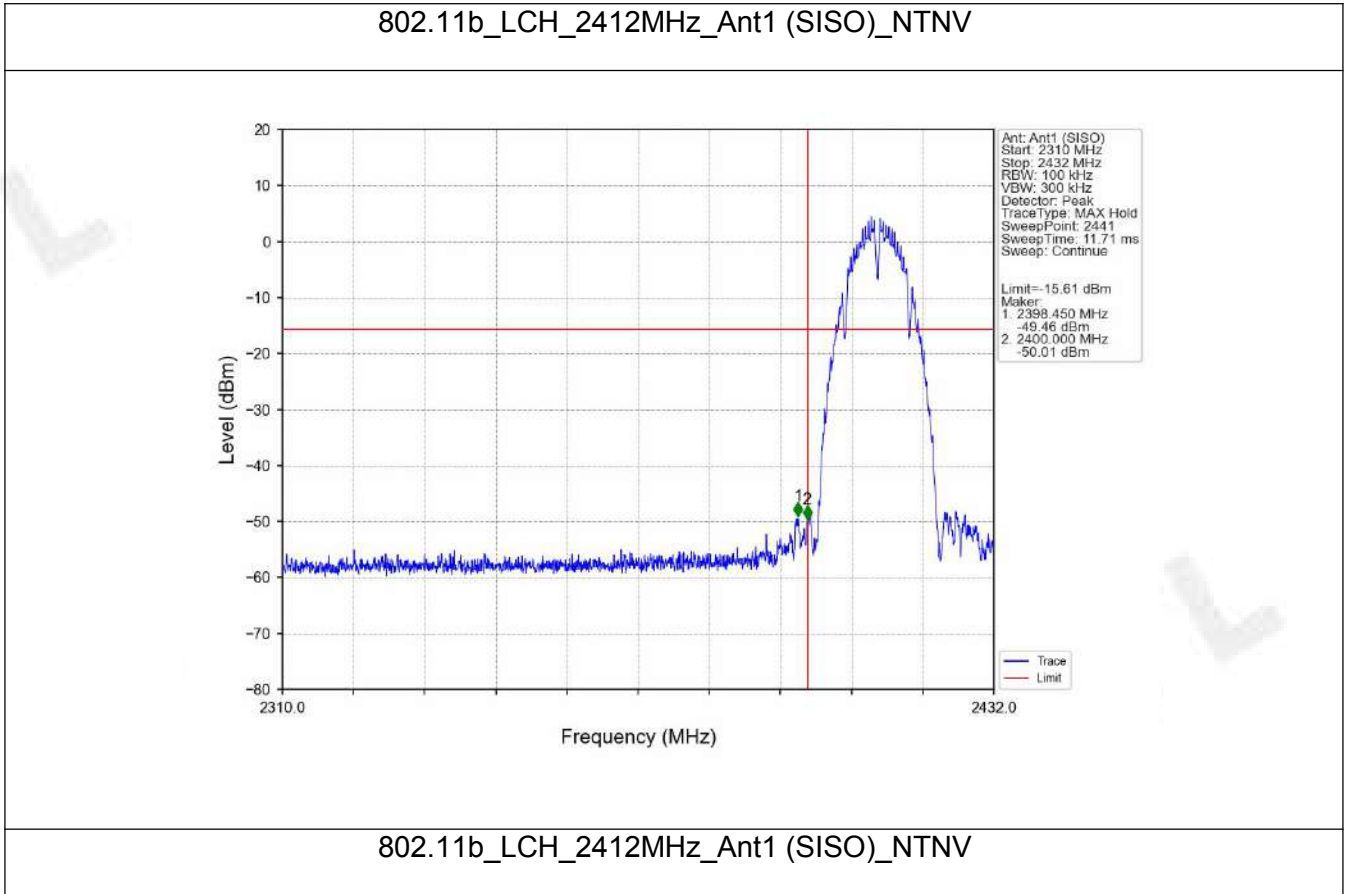


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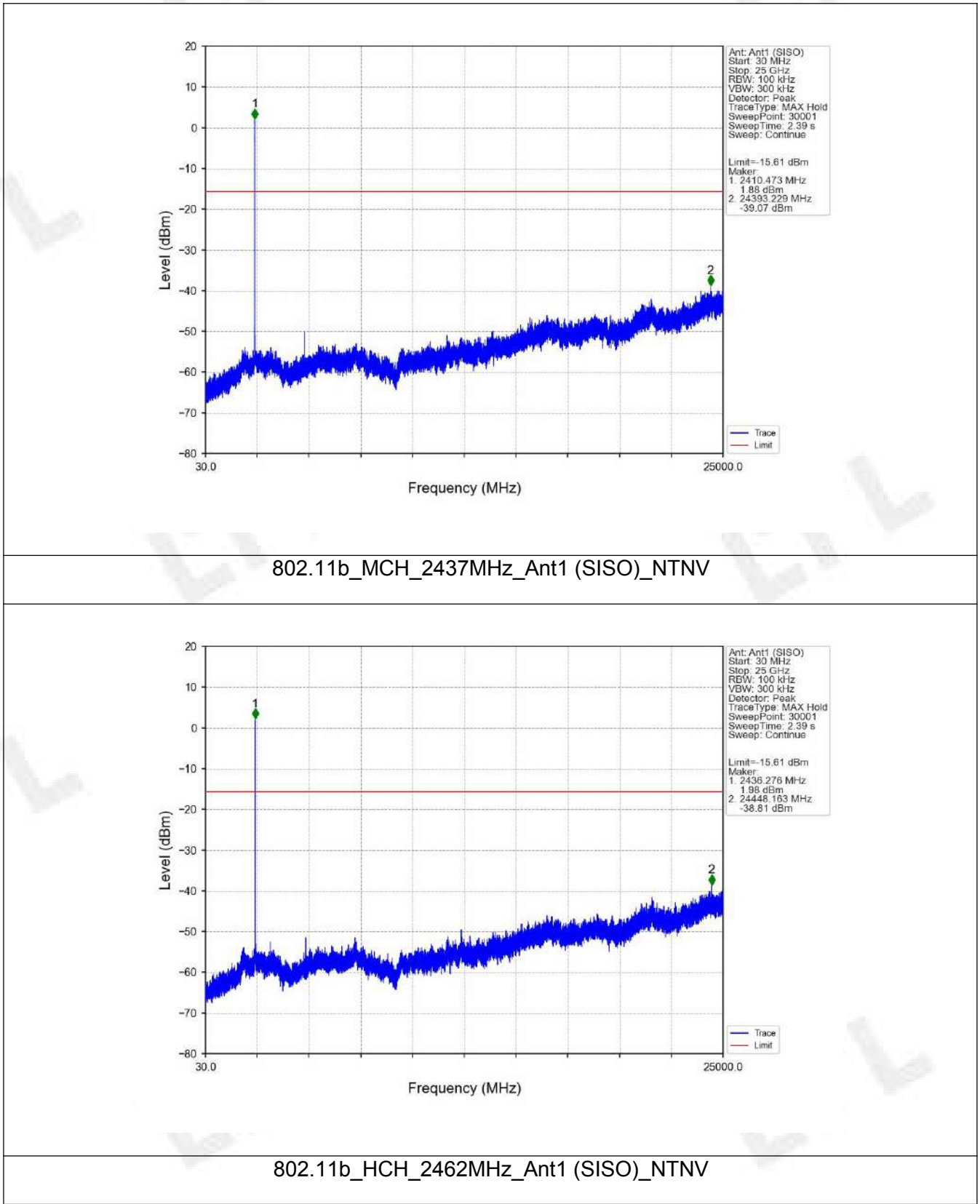


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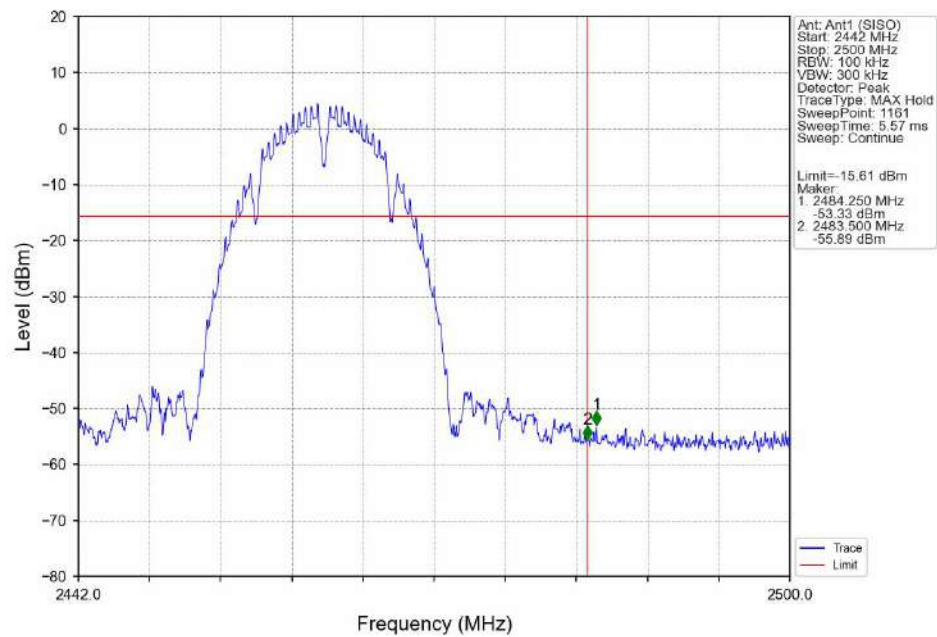
5.2.2 CSE



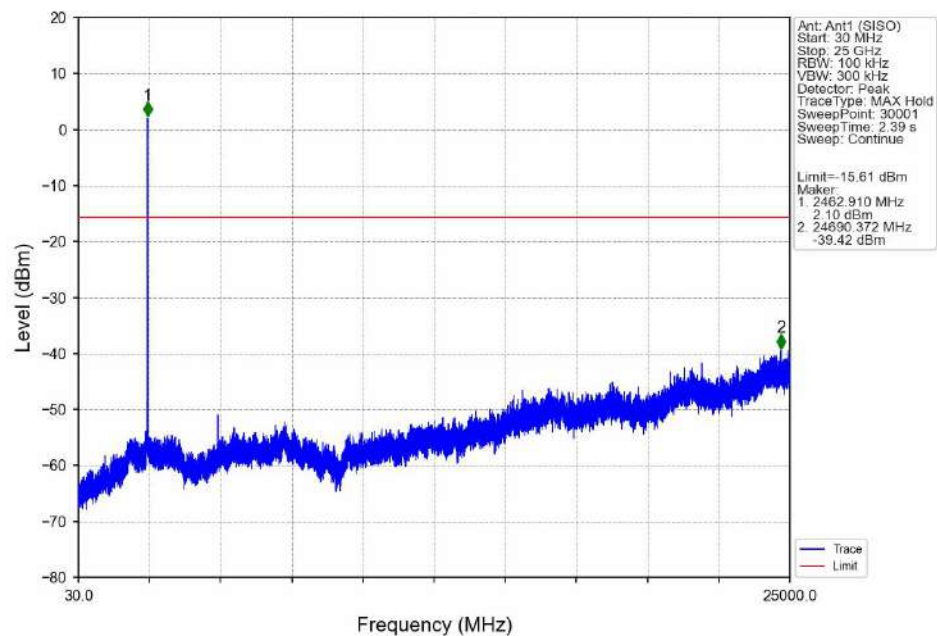
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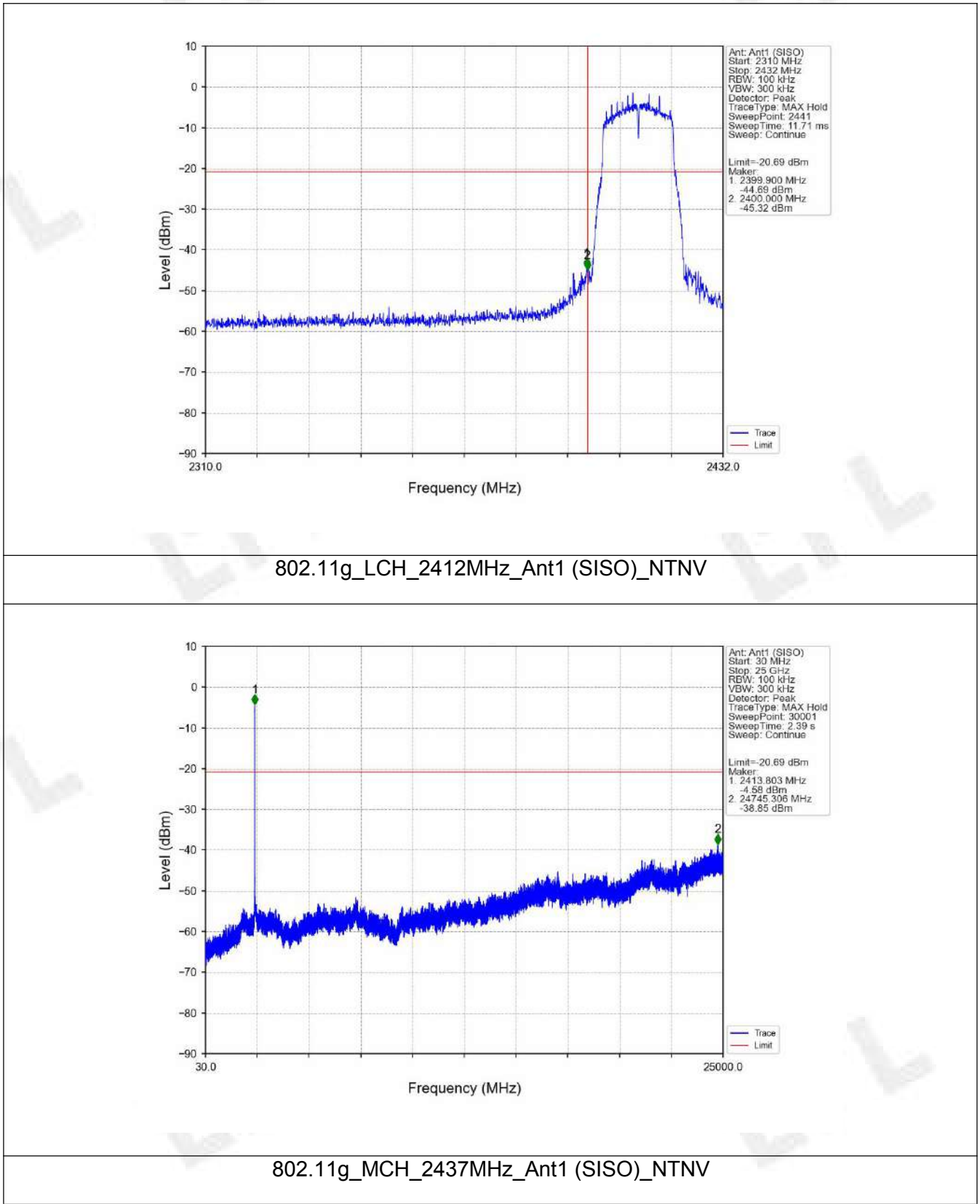


802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

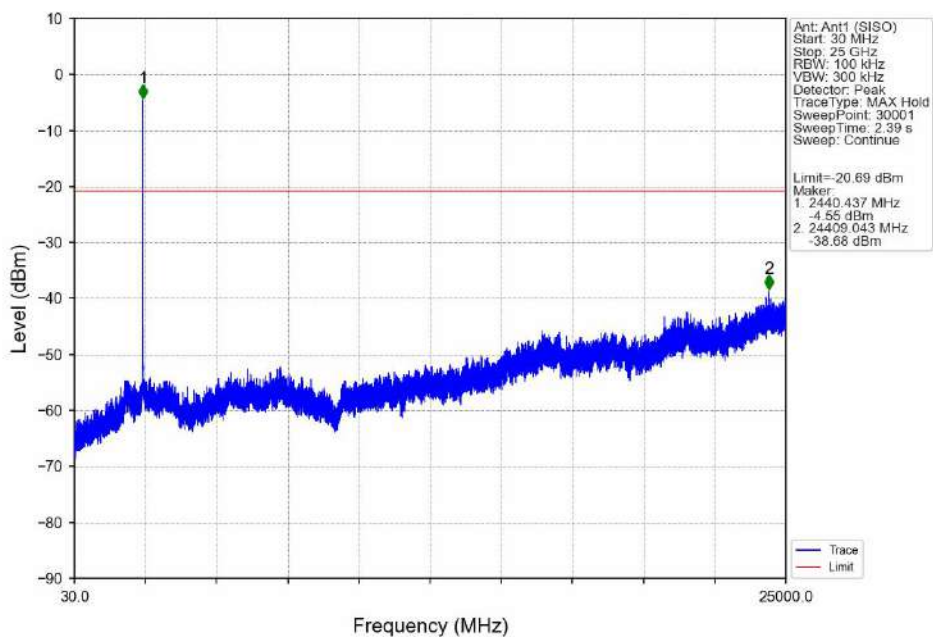


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

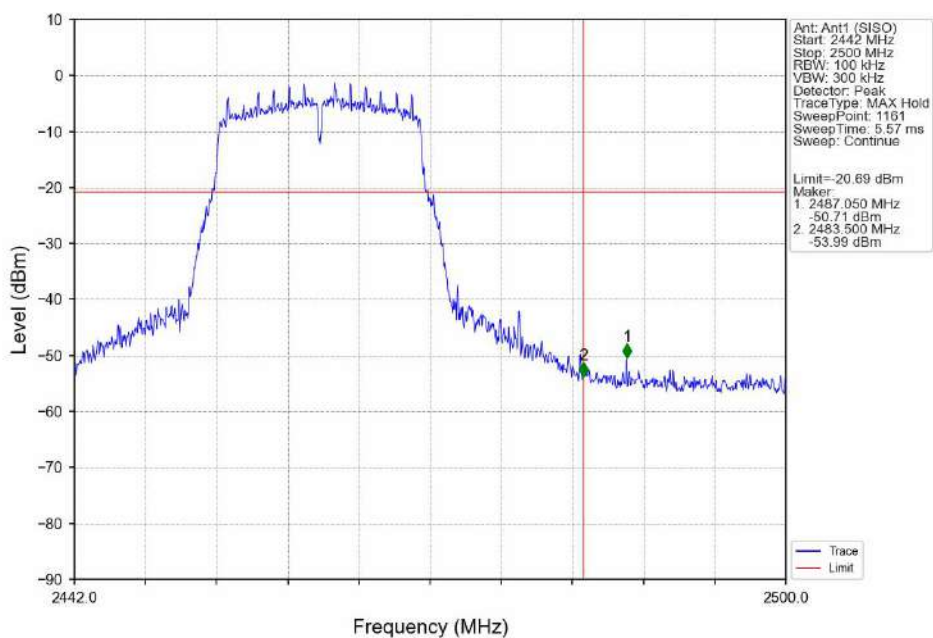
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FCC ID: 2AUARVENU701

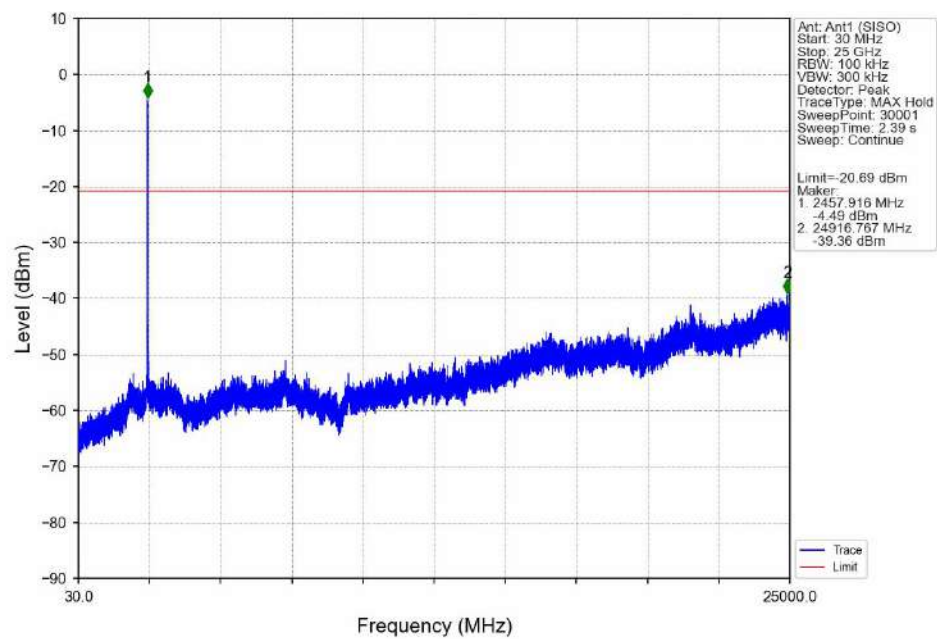


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

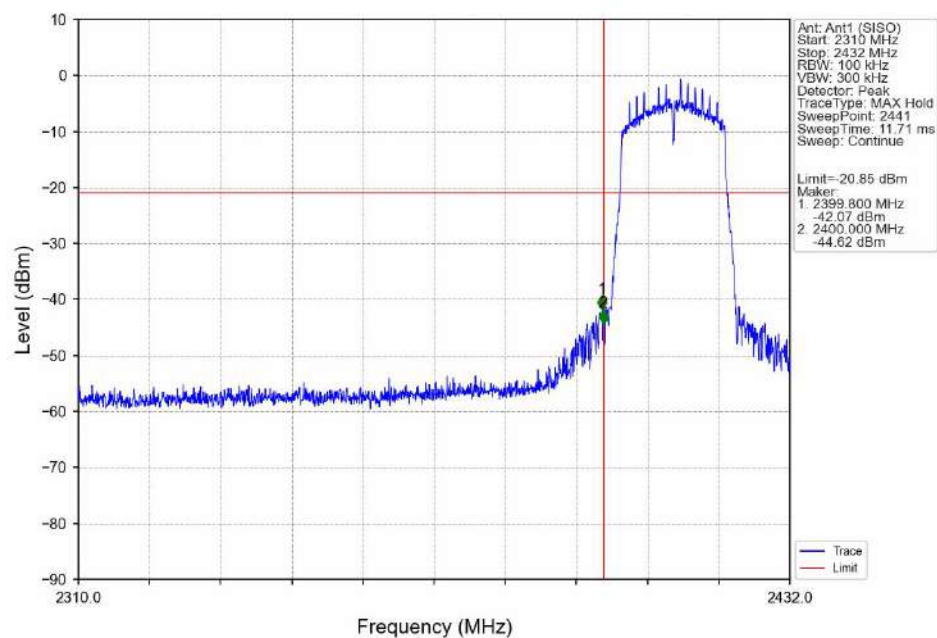


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

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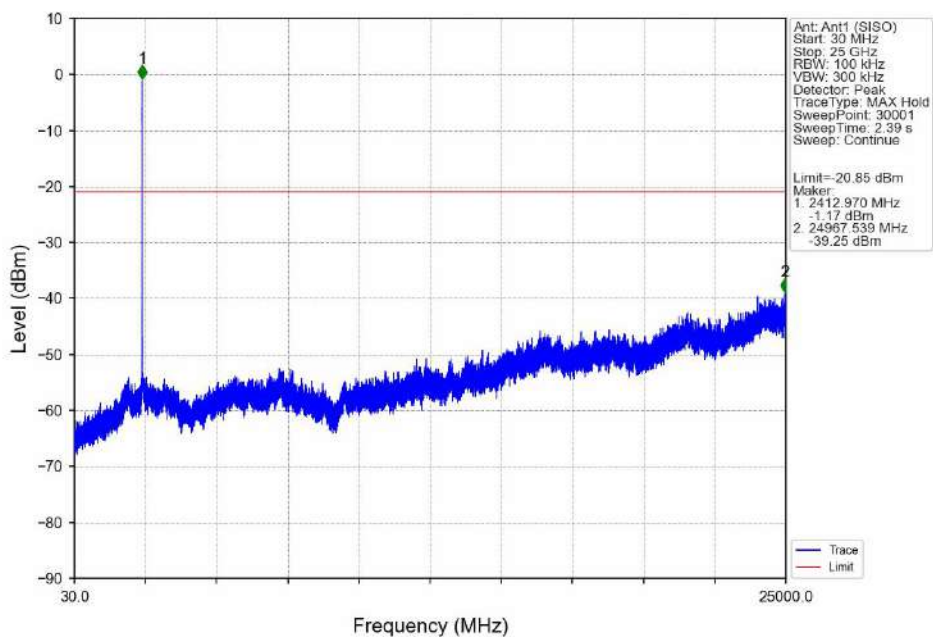


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

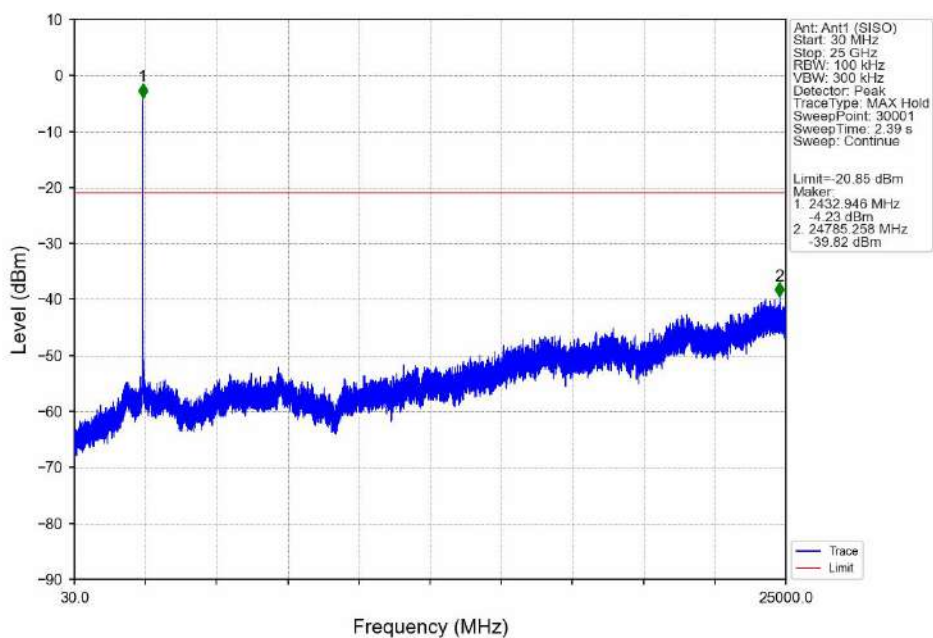


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

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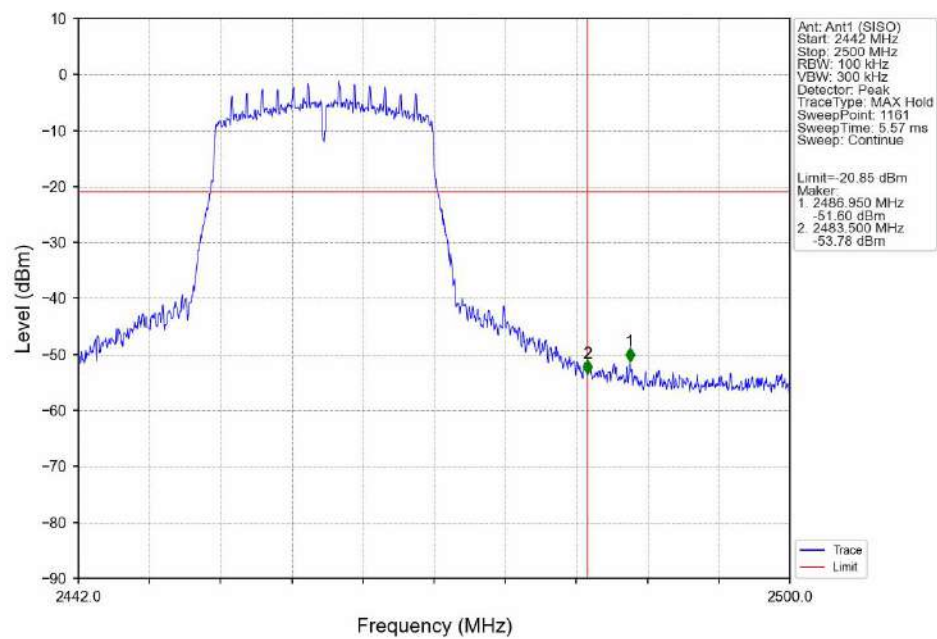


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

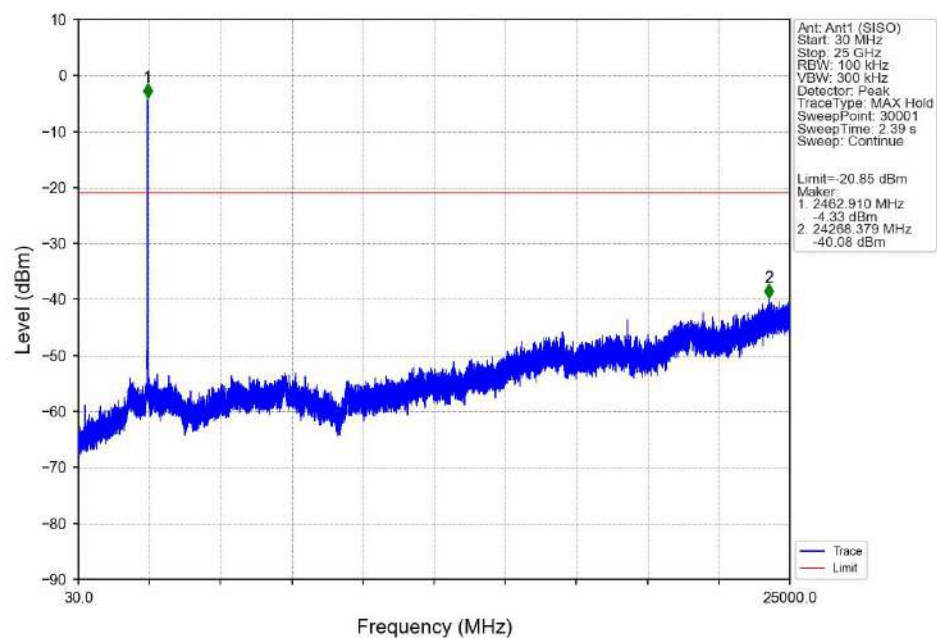


802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

FCC ID: 2AUARVENU701

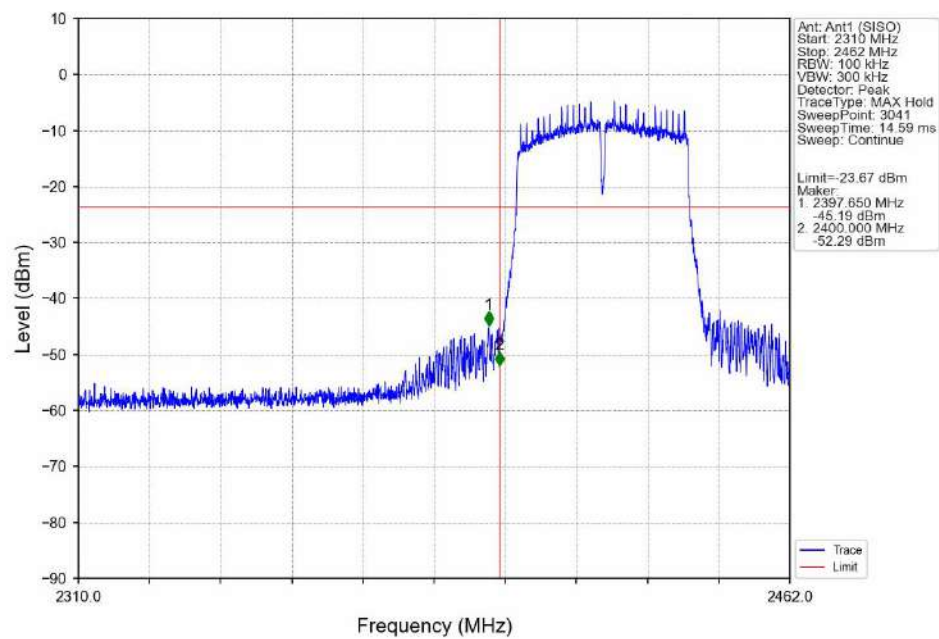


802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

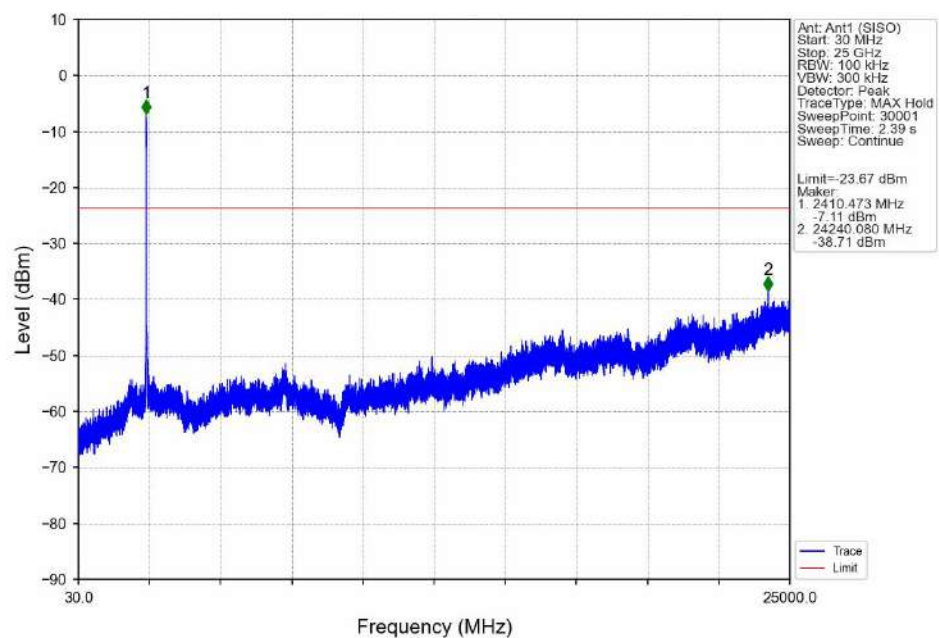


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

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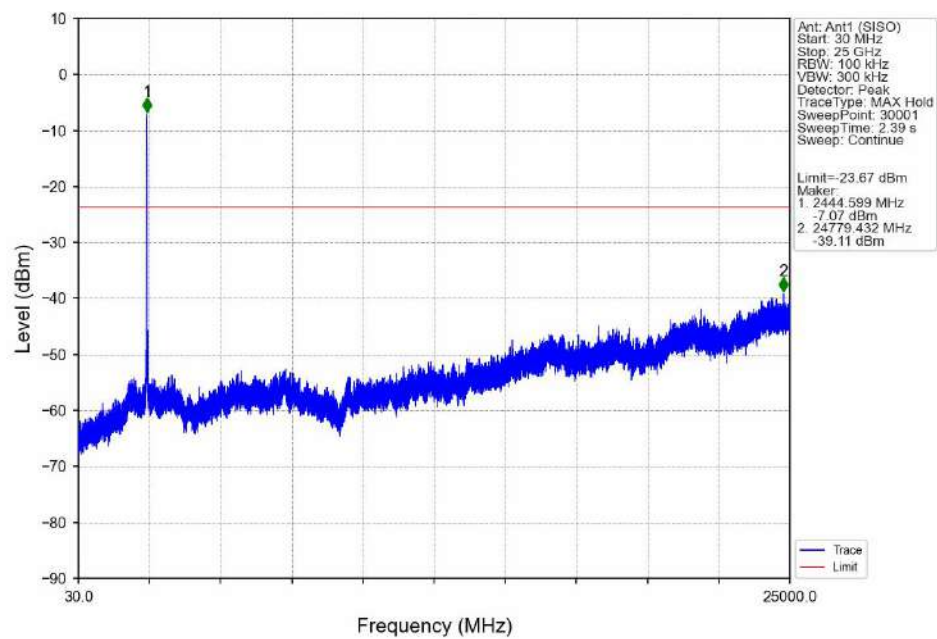


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

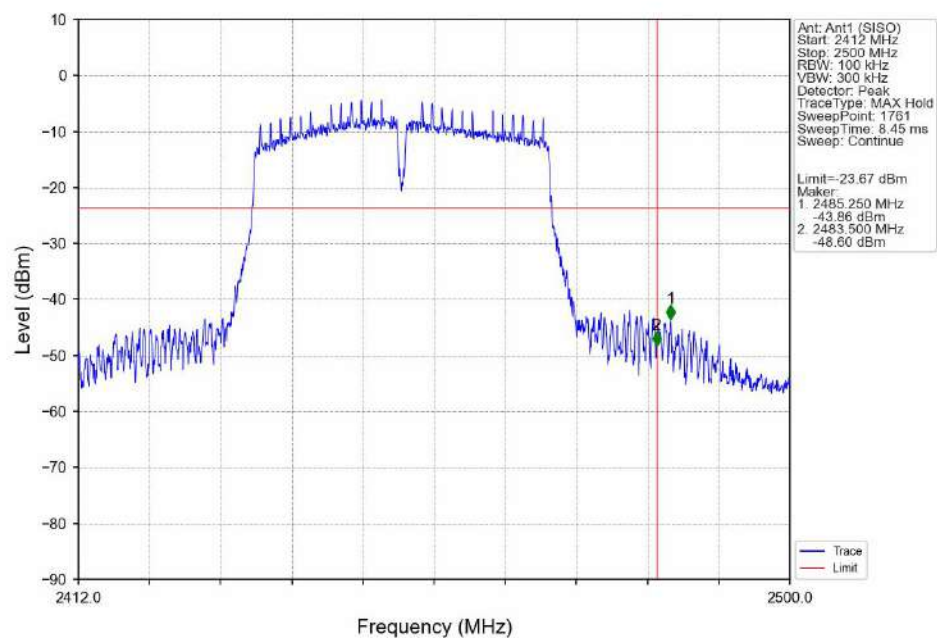


802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV

FCC ID: 2AUARVENU701



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV

FCC ID: 2AUARVENU701

