

Appendix A for SHCR220100004001

1. Duty Cycle

1.1 Ant1

1.1.1 Test Result

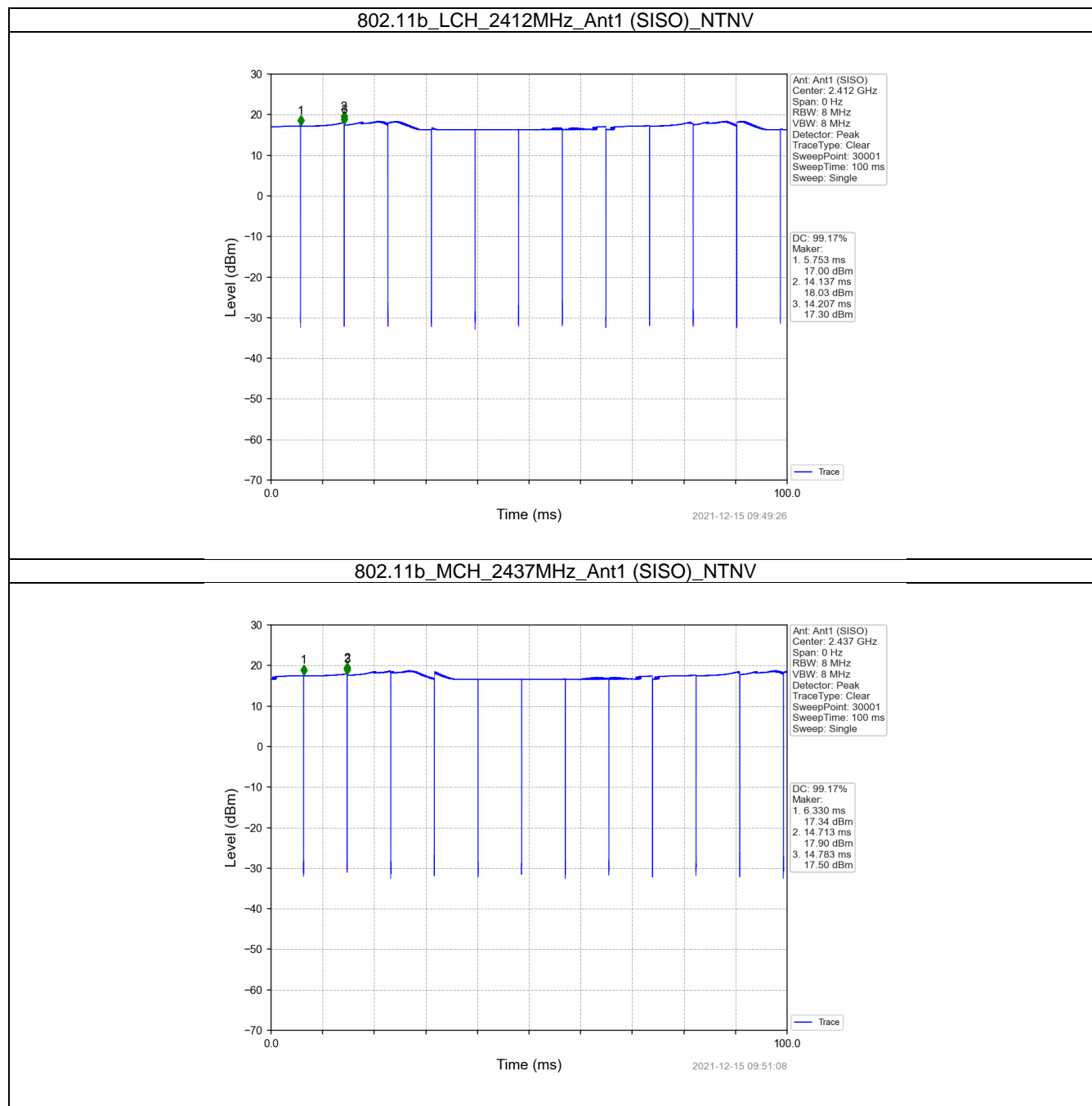
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	8.384	8.454	99.17	0.04	0.00
		2437	8.383	8.453	99.17	0.04	0.04
		2462	8.384	8.454	99.17	0.04	0.04
802.11g	SISO	2412	1.391	1.459	95.34	0.21	0.03
		2437	1.392	1.460	95.34	0.21	0.03
		2462	1.392	1.460	95.34	0.21	0.03
802.11n (HT20)	SISO	2412	5.084	5.152	98.68	0.06	0.03
		2437	5.083	5.152	98.66	0.06	0.04
		2462	5.083	5.151	98.68	0.06	0.03
802.11n (HT40)	SISO	2422	2.468	2.536	97.32	0.12	0.03
		2437	2.467	2.536	97.28	0.12	0.03
		2452	2.467	2.536	97.28	0.12	0.03



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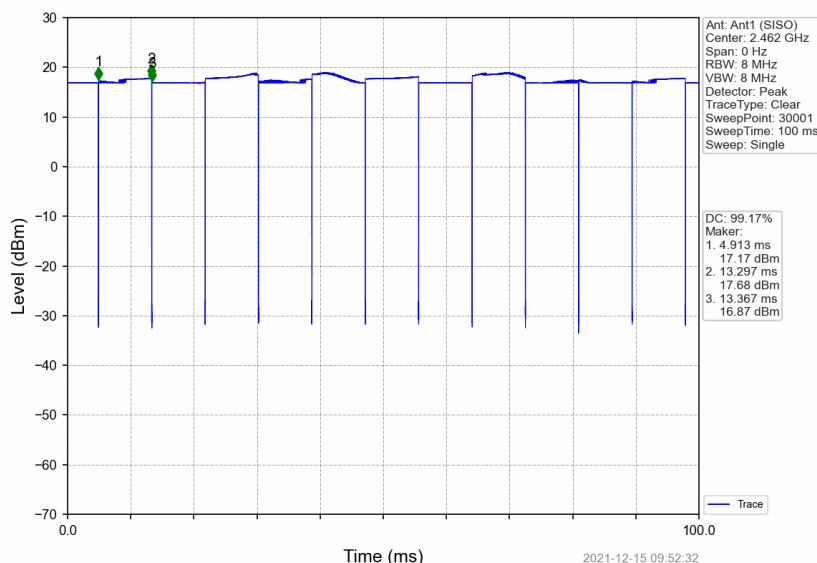
1.1.2 Test Graph



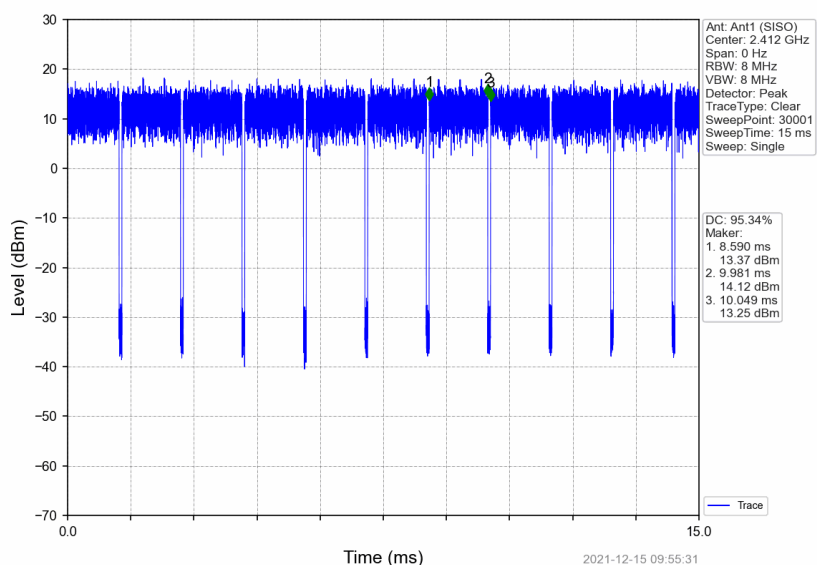
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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



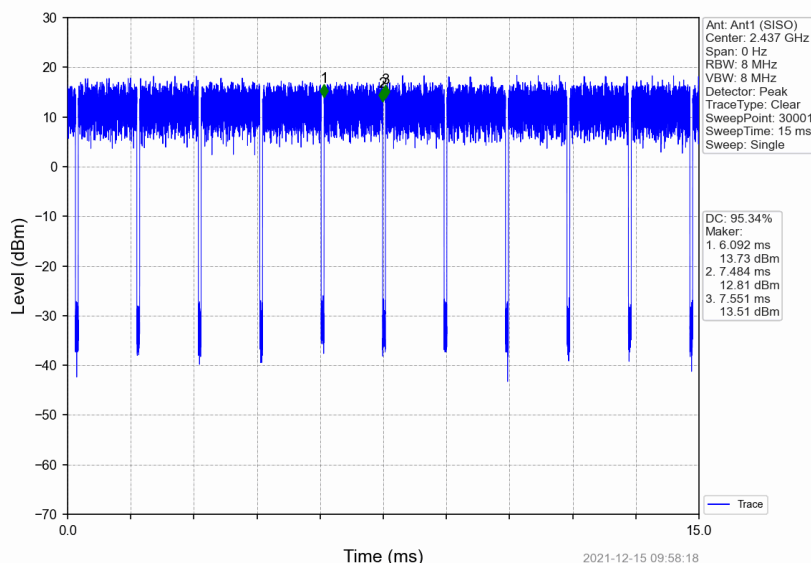
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



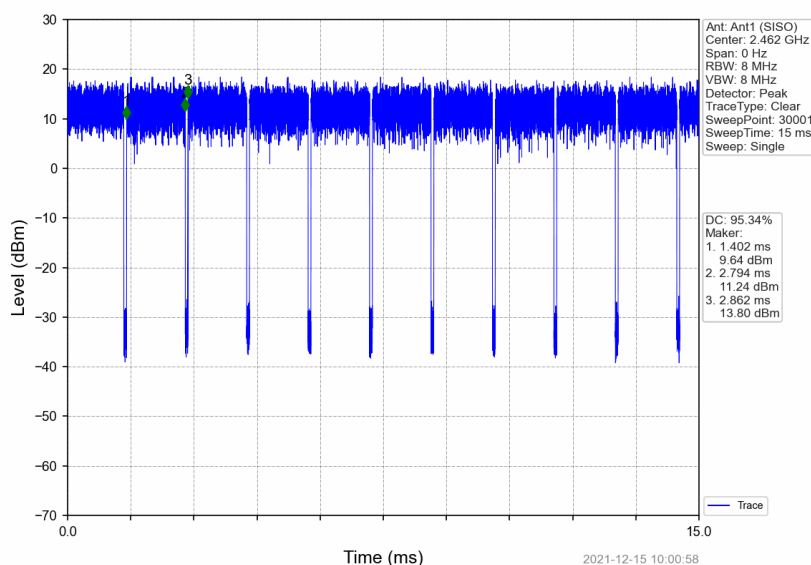
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802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



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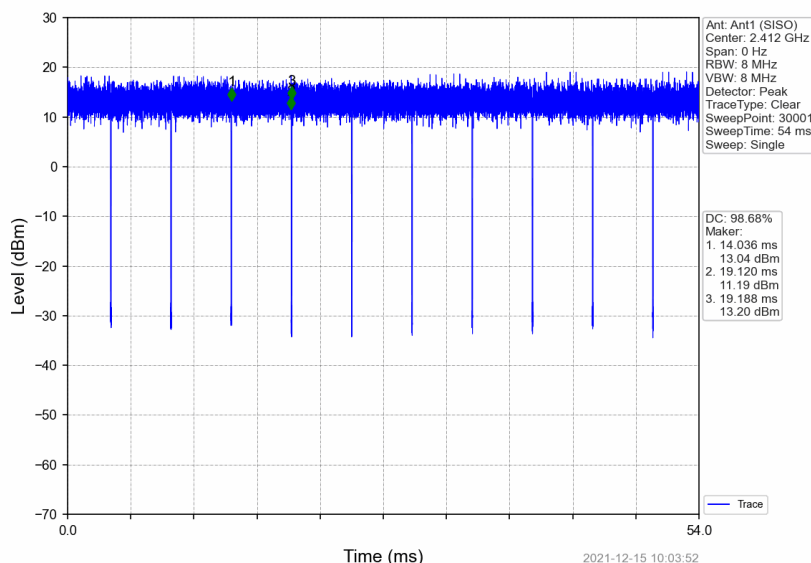
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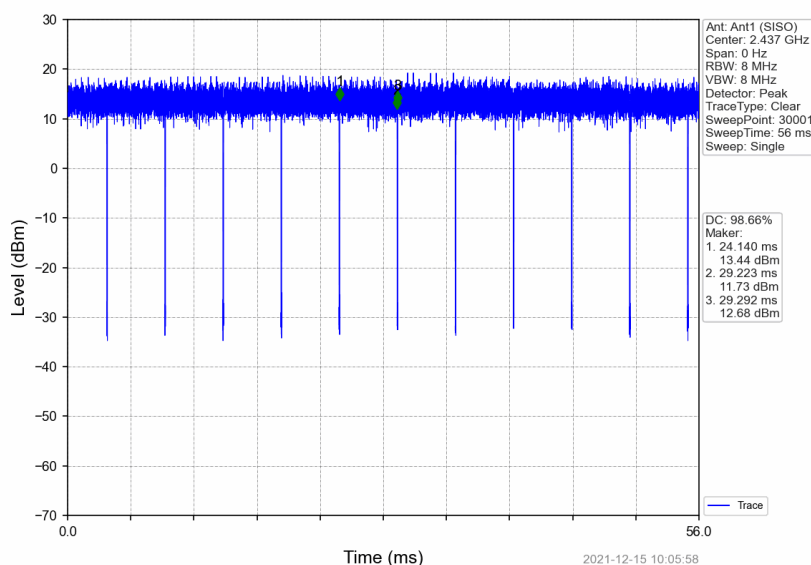
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802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



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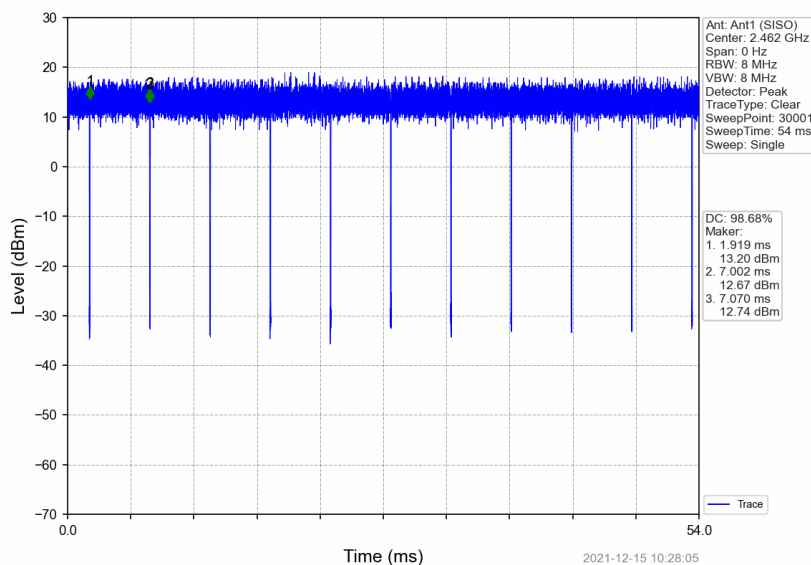
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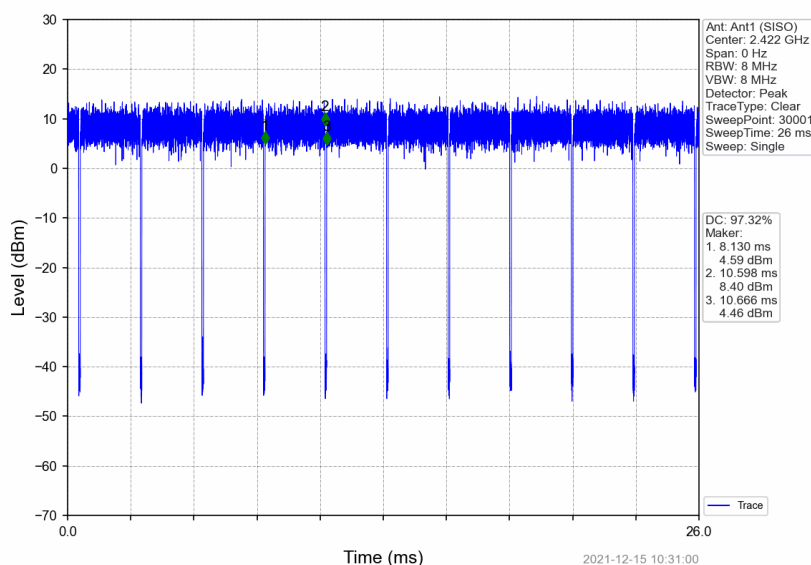
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802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



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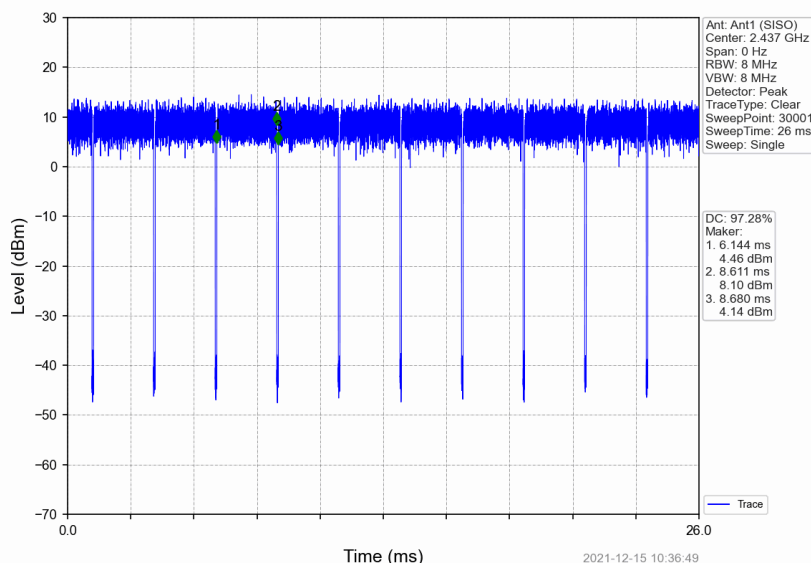
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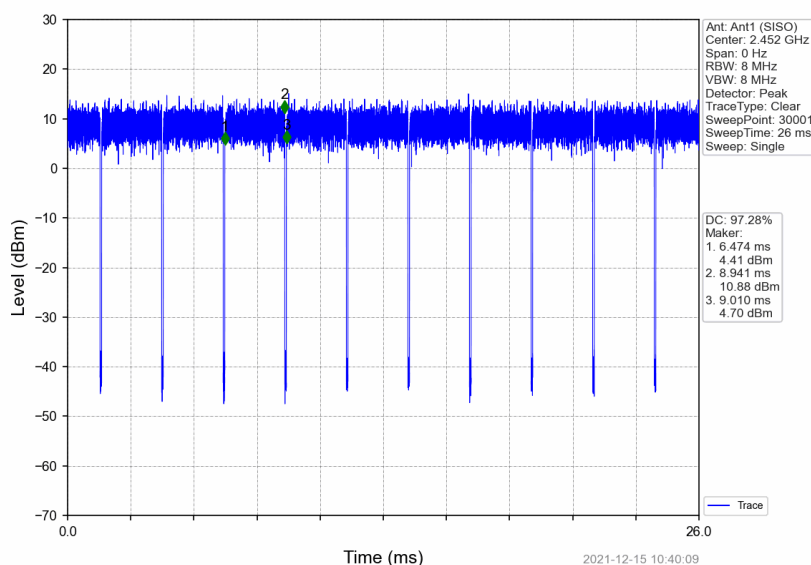
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802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



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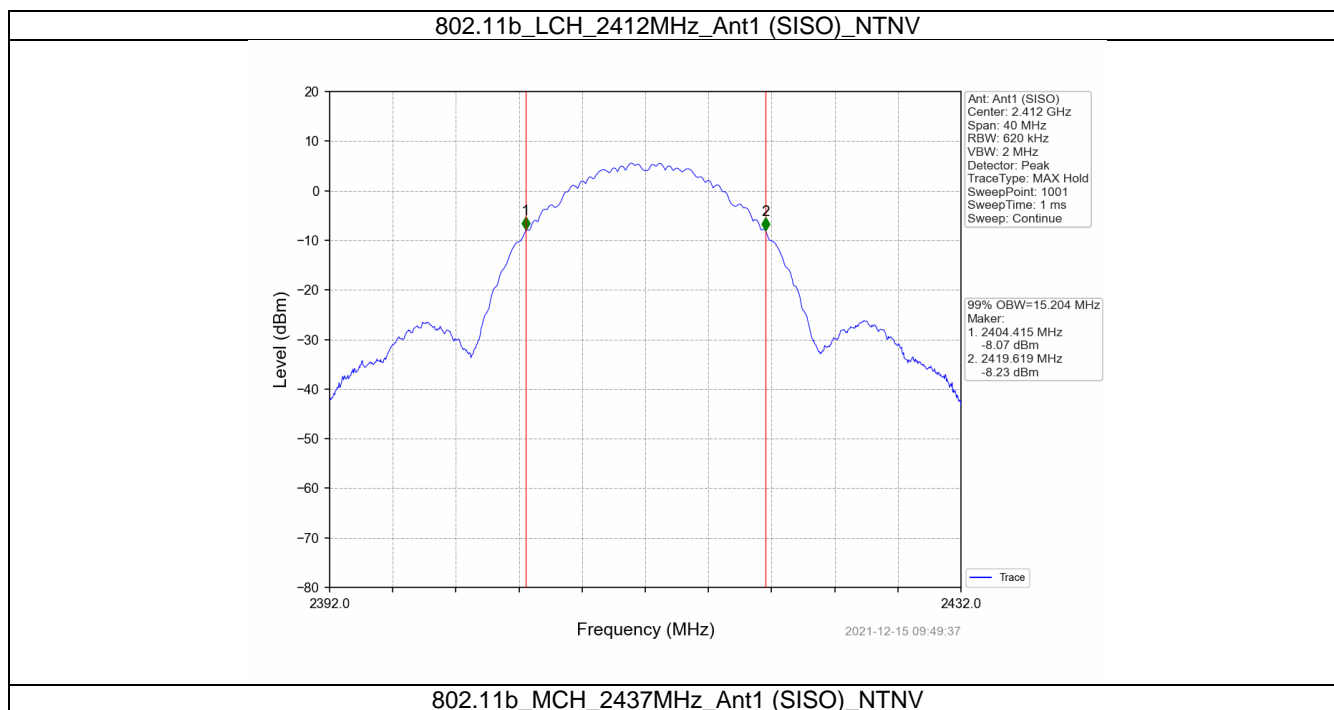
2. Bandwidth

2.1 OBW

2.1.1 Test Result

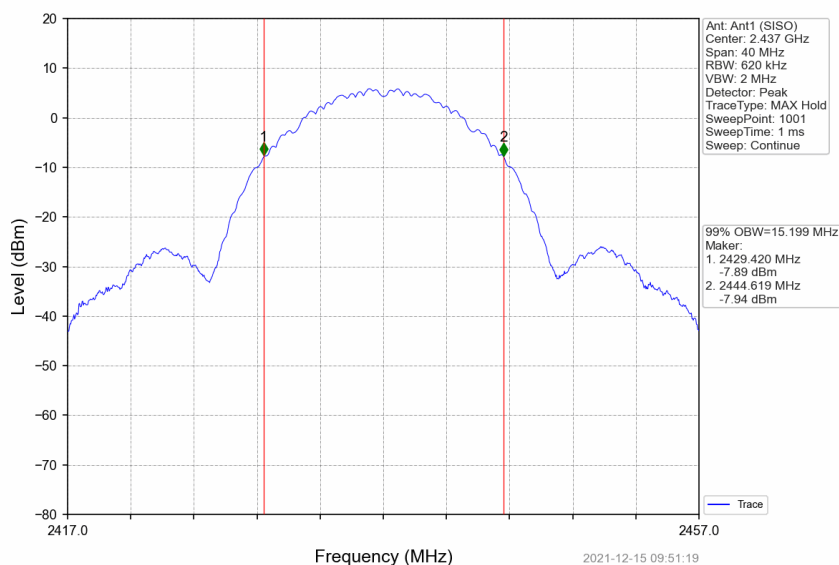
Mode	TX Type	Frequency (MHz)	Ant	99% Occupied Bandwidth (MHz)	Verdict
				Result	
802.11b	SISO	2412	1	15.204	Pass
		2437	1	15.199	Pass
		2462	1	15.202	Pass
802.11g	SISO	2412	1	17.902	Pass
		2437	1	17.925	Pass
		2462	1	17.940	Pass
802.11n (HT20)	SISO	2412	1	18.571	Pass
		2437	1	18.576	Pass
		2462	1	18.570	Pass
802.11n (HT40)	SISO	2422	1	37.085	Pass
		2437	1	37.077	Pass
		2452	1	37.077	Pass

2.1.2 Test Graph

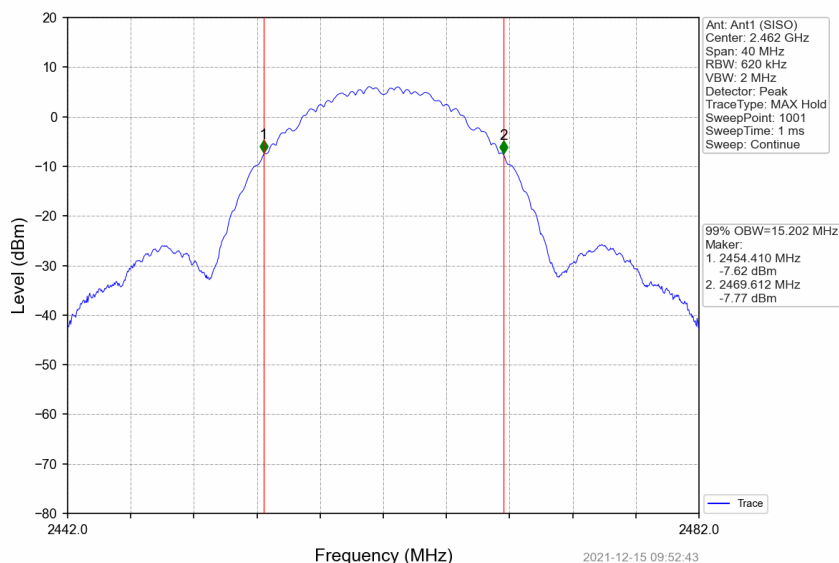


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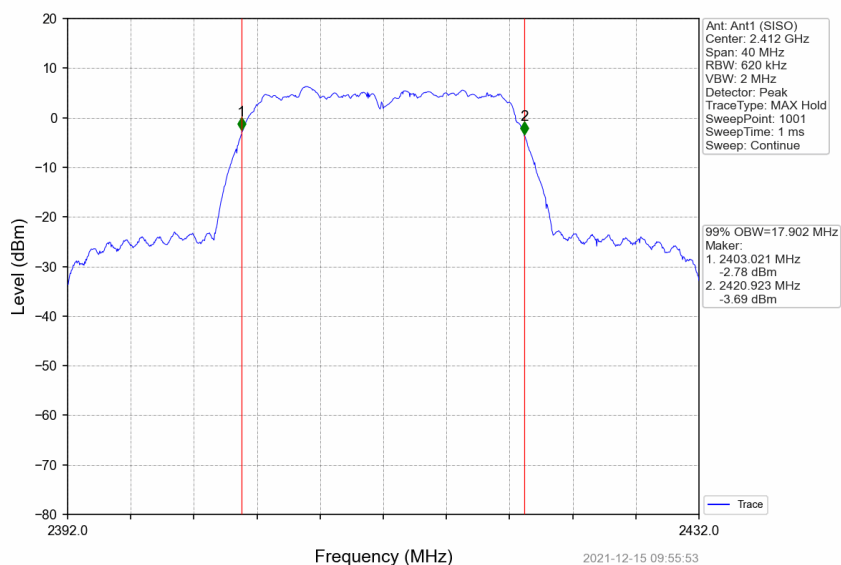


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

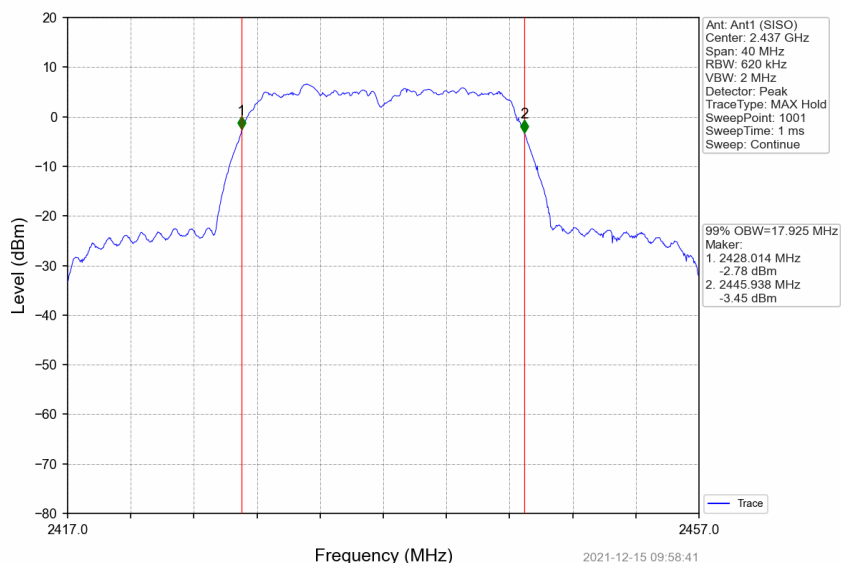


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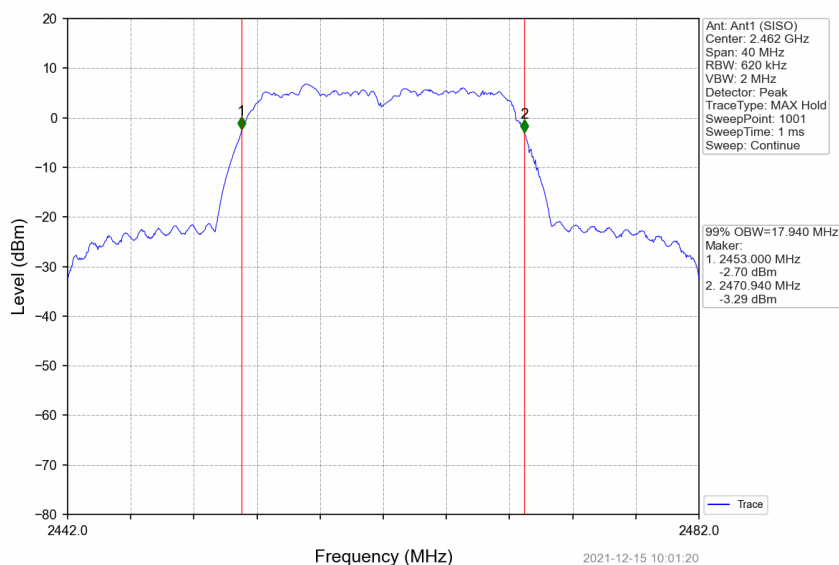


802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

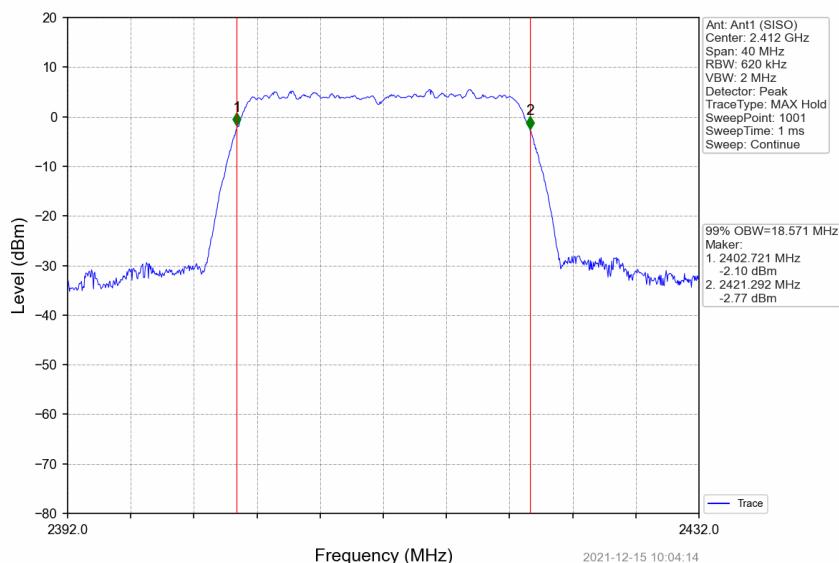


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV





802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

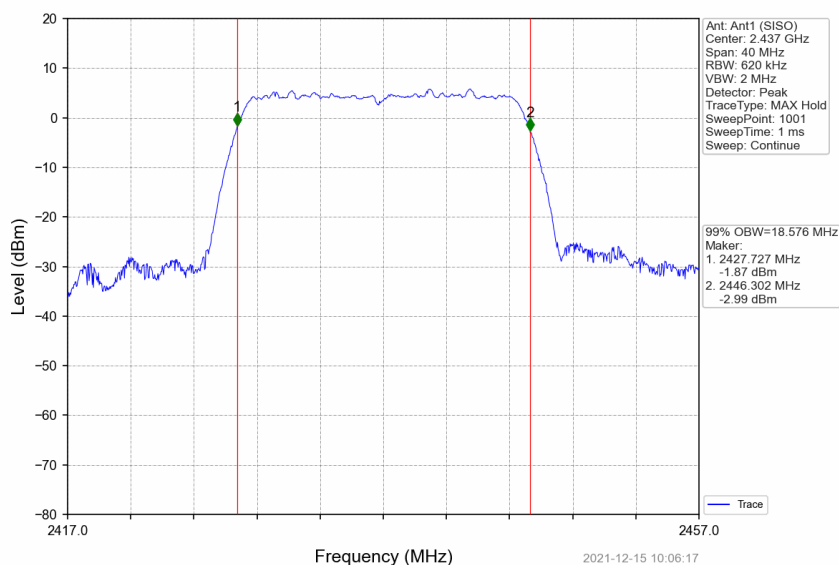


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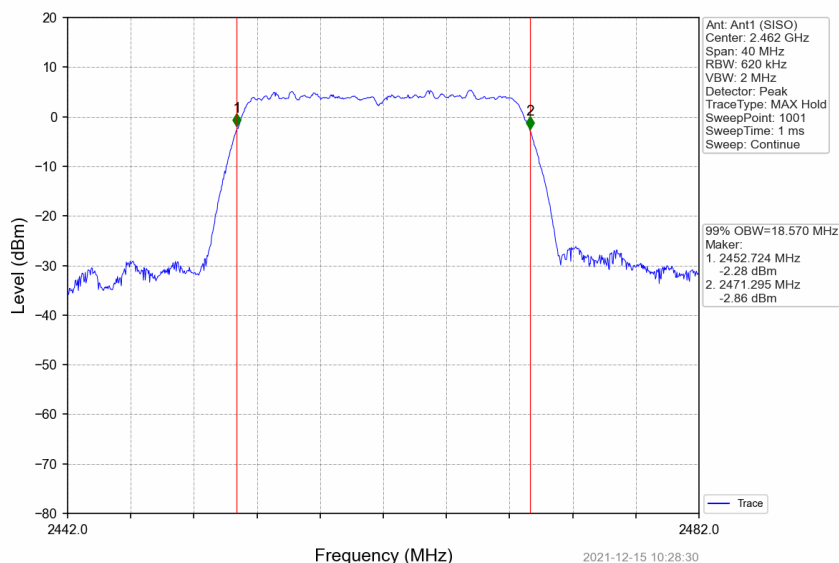


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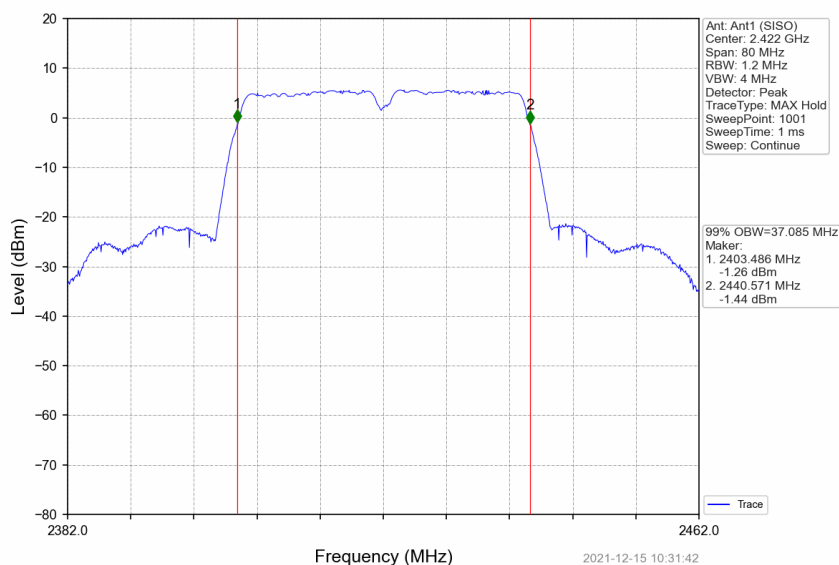


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

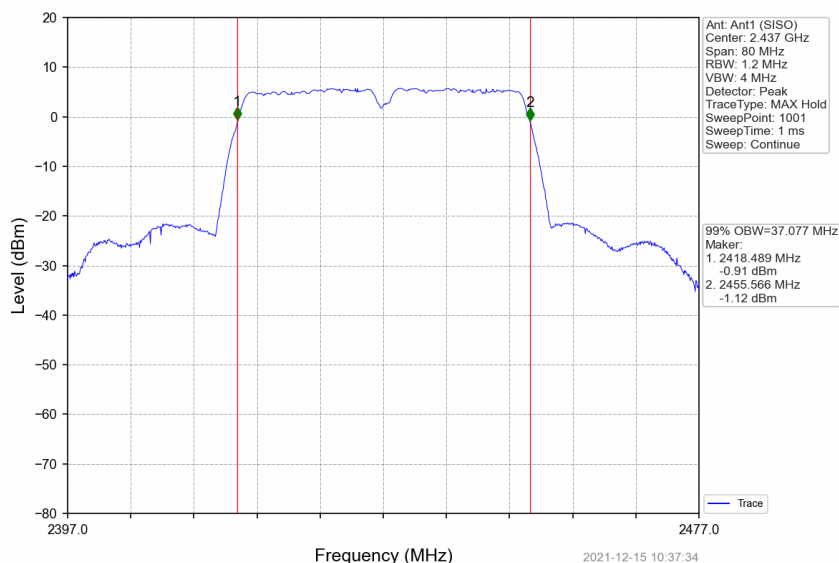


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802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV

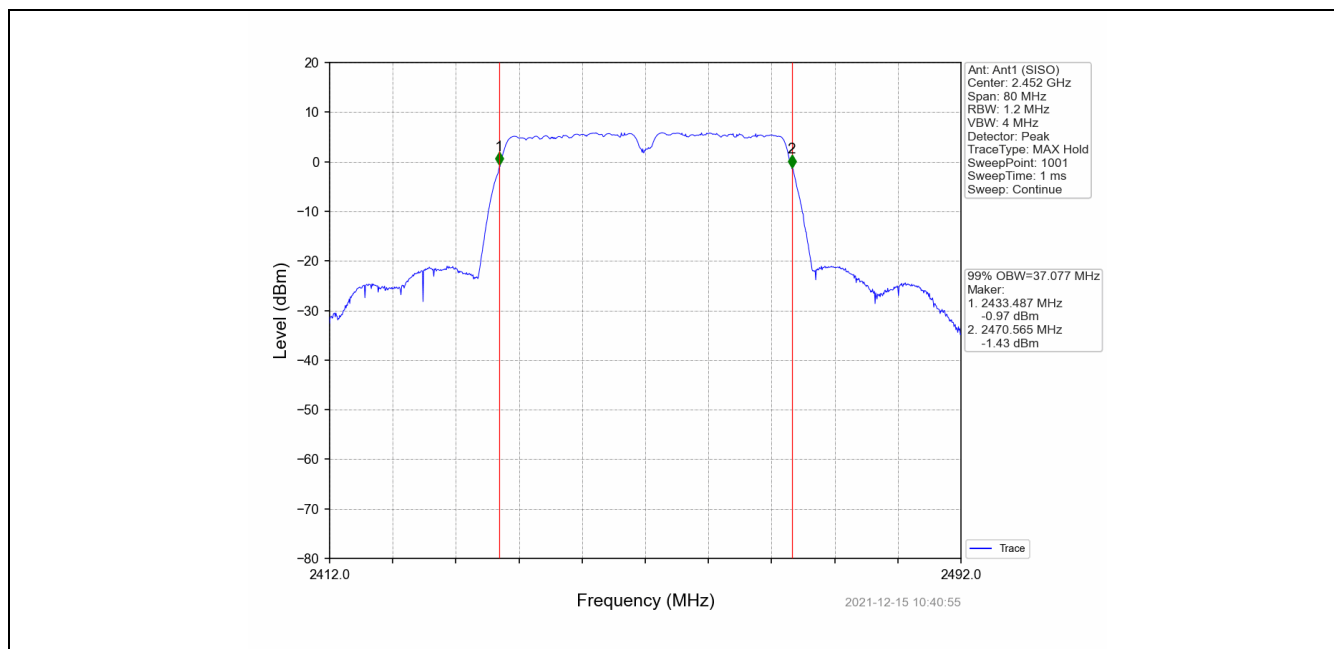


802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



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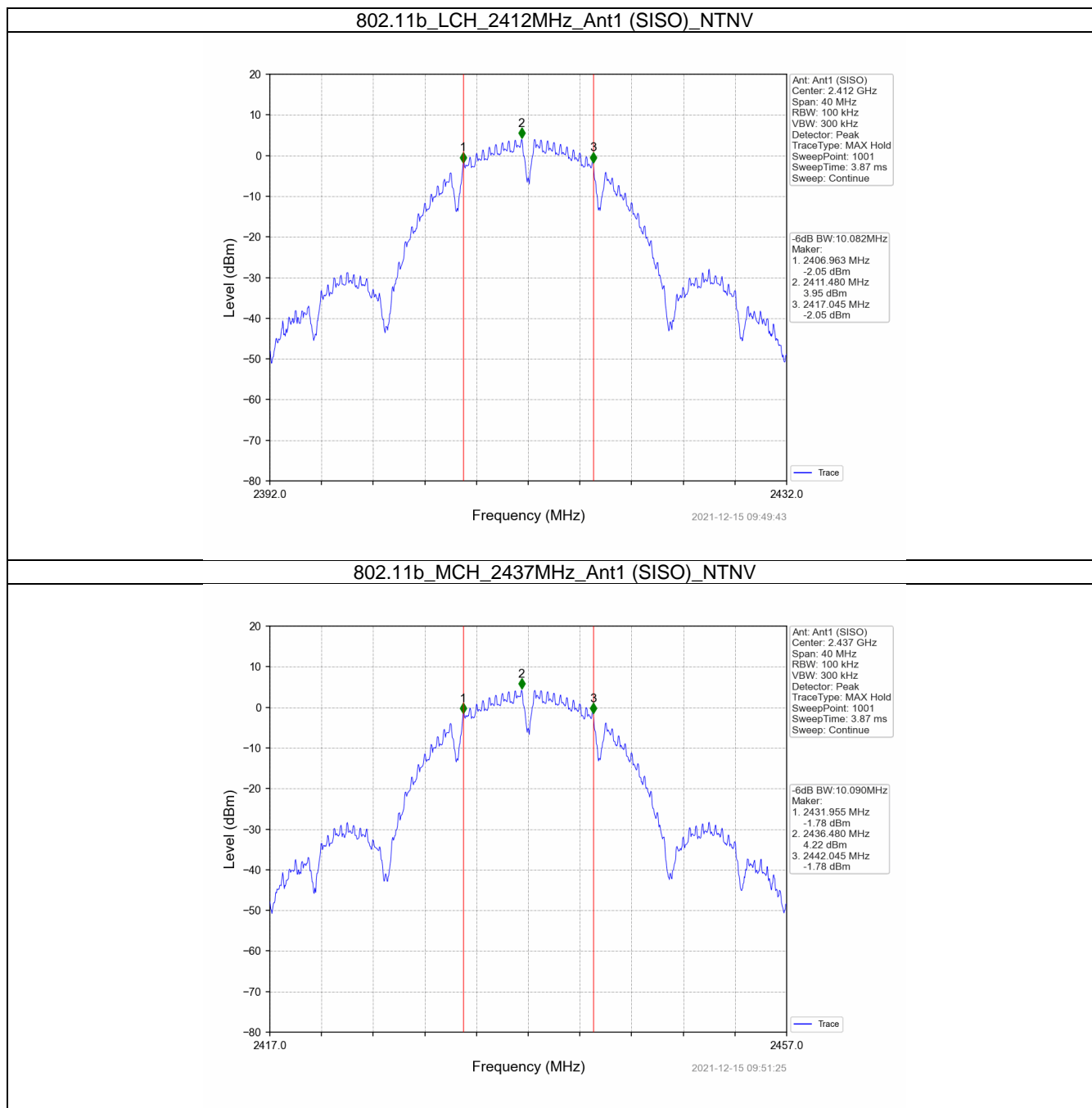
2.2 6dB BW

2.2.1 Test Result

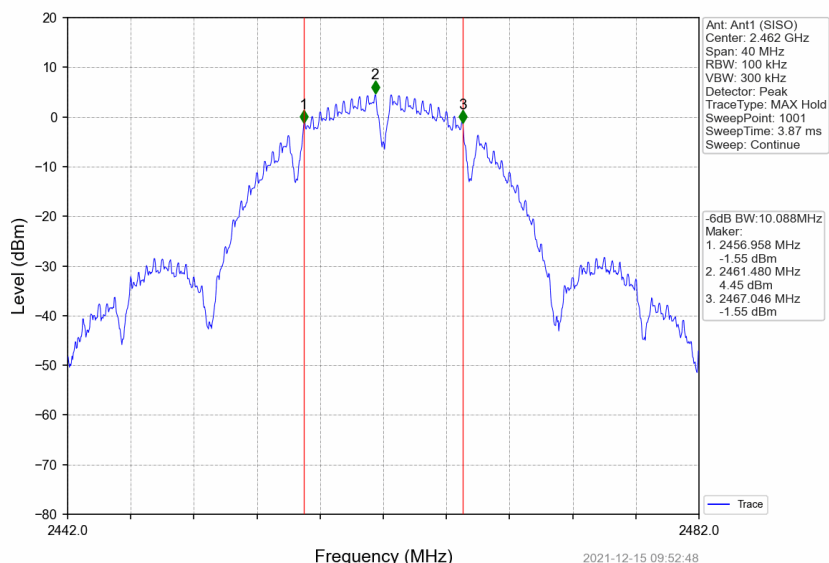
Mode	TX Type	Frequency (MHz)	Ant	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	10.082	≥ 0.5	Pass
		2437	1	10.090	≥ 0.5	Pass
		2462	1	10.088	≥ 0.5	Pass
802.11g	SISO	2412	1	16.387	≥ 0.5	Pass
		2437	1	16.399	≥ 0.5	Pass
		2462	1	16.385	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	17.645	≥ 0.5	Pass
		2437	1	17.653	≥ 0.5	Pass
		2462	1	17.646	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	36.344	≥ 0.5	Pass
		2437	1	36.347	≥ 0.5	Pass
		2452	1	36.350	≥ 0.5	Pass



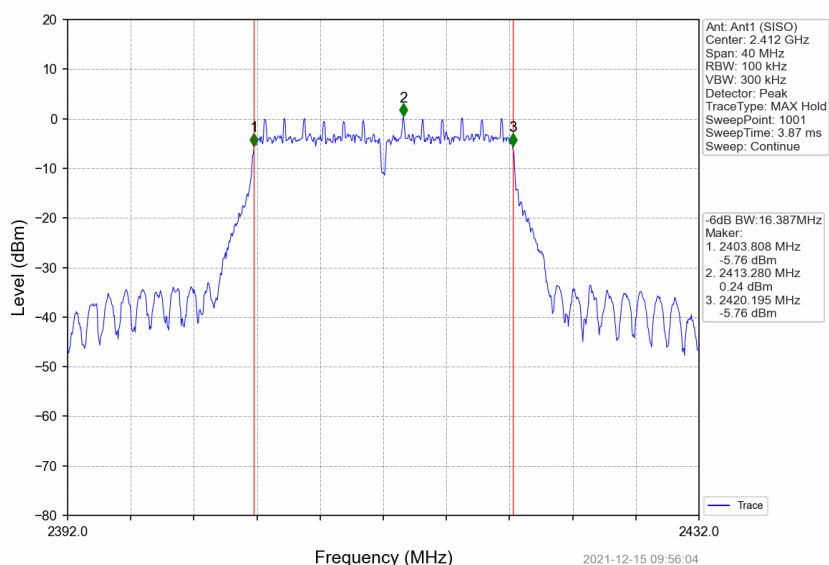
2.2.2 Test Graph



802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



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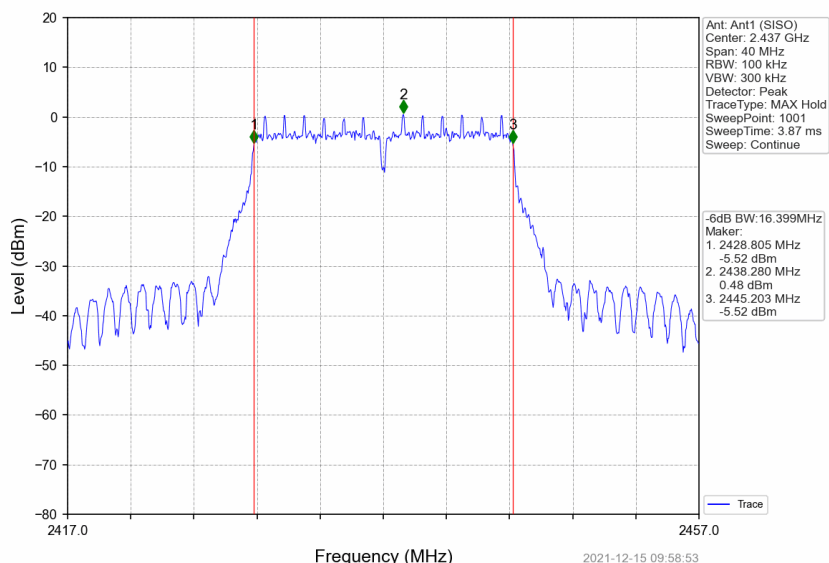
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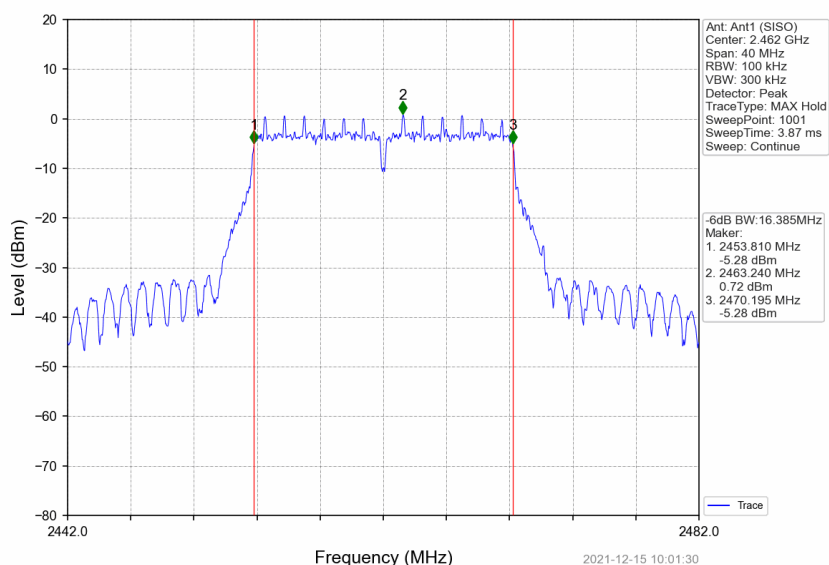
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802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



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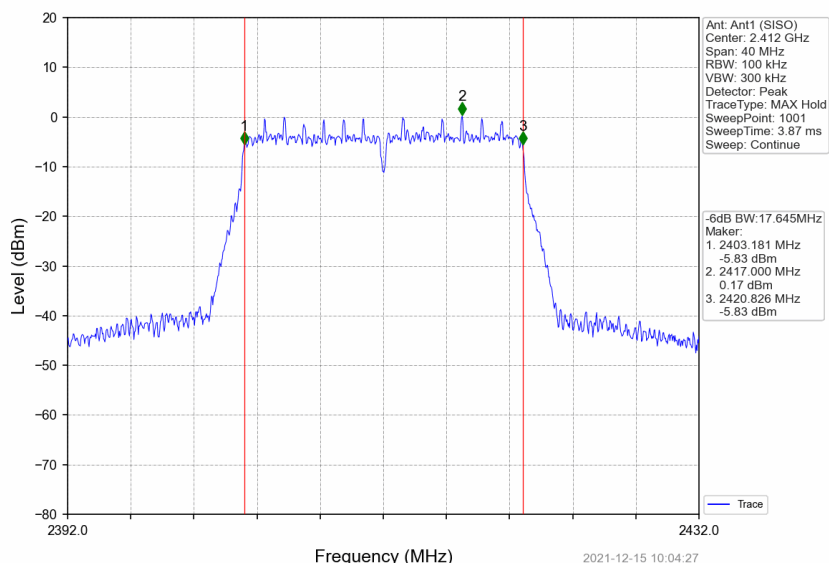
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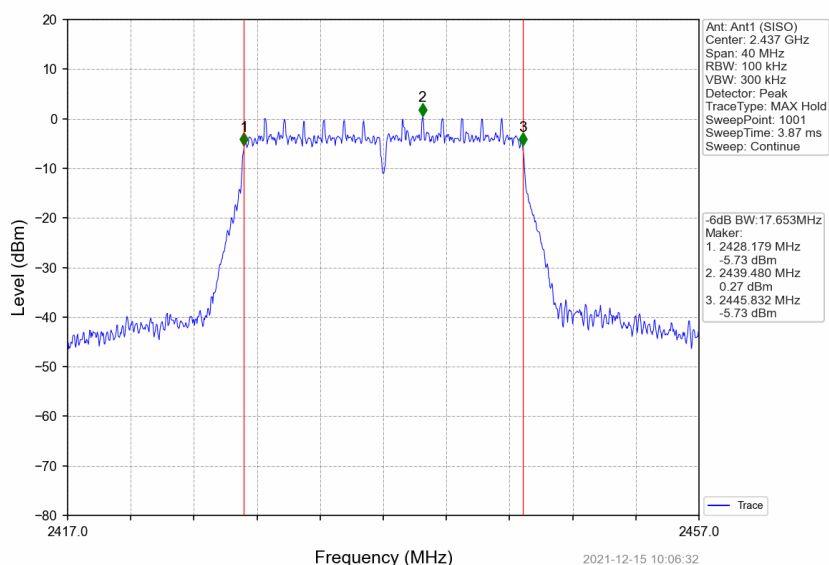
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802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



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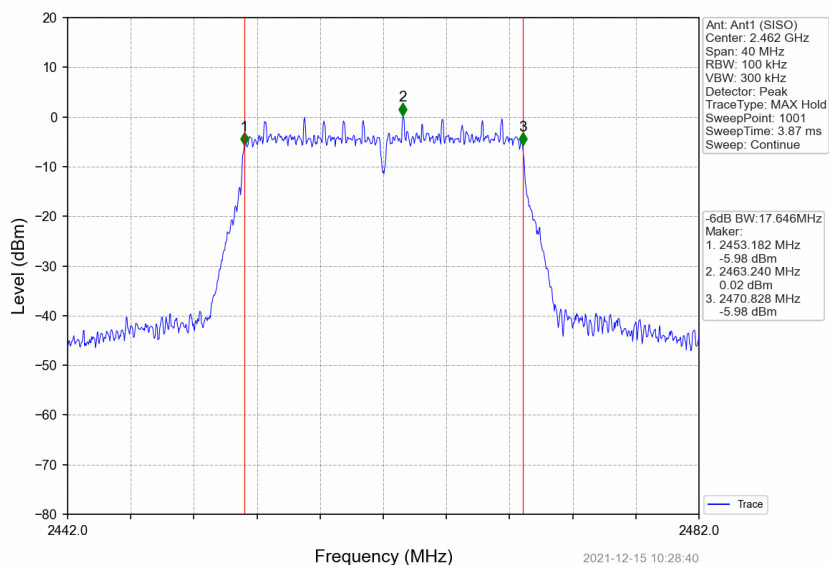
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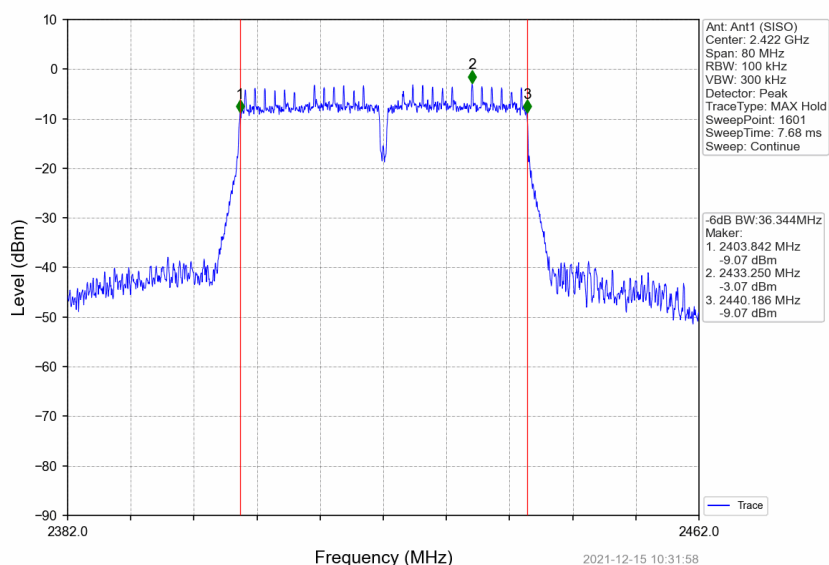
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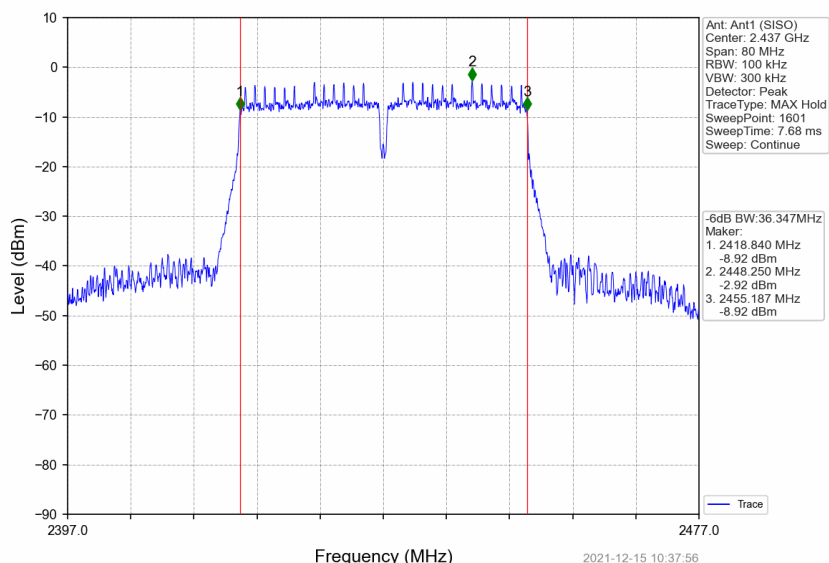
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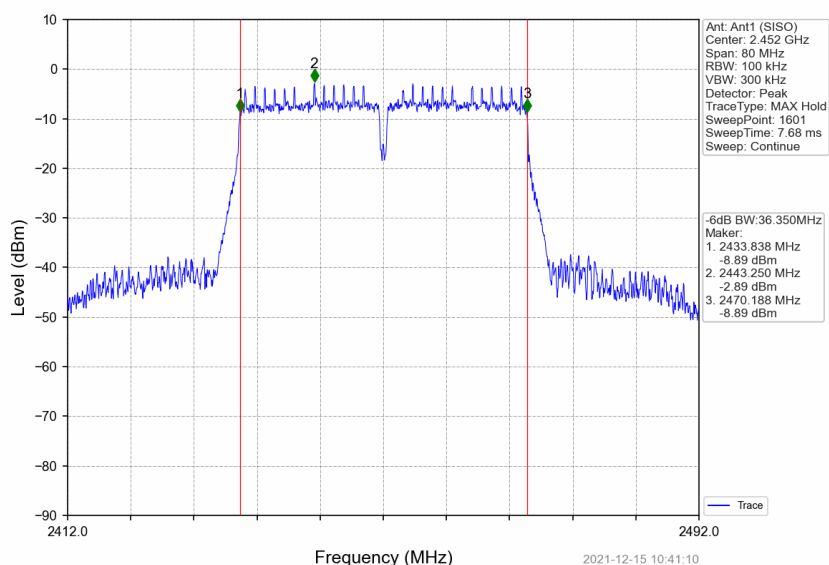
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802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



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3. Maximum Conducted Output Power

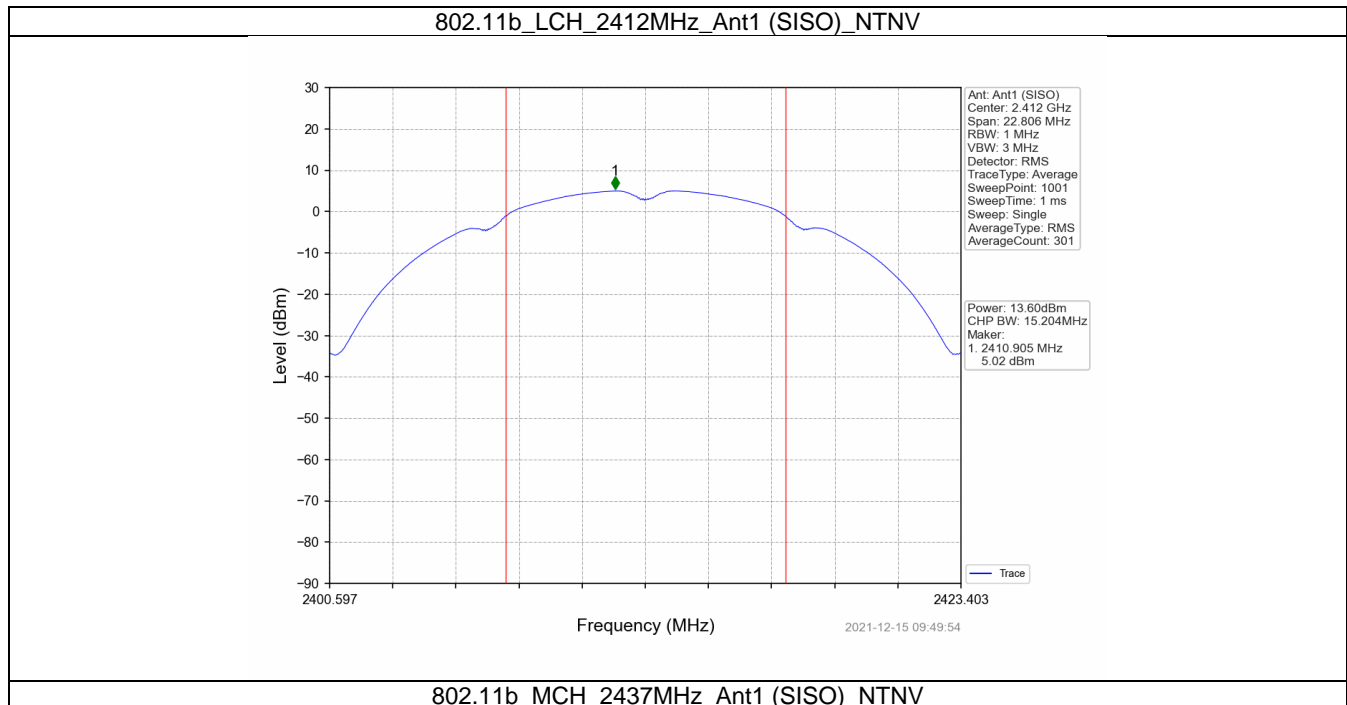
3.1 Power

3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			Ant1	Limit	
802.11b	SISO	2412	13.60	<=30	Pass
		2437	13.89	<=30	Pass
		2462	14.09	<=30	Pass
802.11g	SISO	2412	11.46	<=30	Pass
		2437	11.74	<=30	Pass
		2462	11.89	<=30	Pass
802.11n (HT20)	SISO	2412	11.33	<=30	Pass
		2437	11.58	<=30	Pass
		2462	11.19	<=30	Pass
802.11n (HT40)	SISO	2422	11.00	<=30	Pass
		2437	11.16	<=30	Pass
		2452	11.26	<=30	Pass

Note1: Antenna Gain: Ant1: 2.84dBi;

3.1.2 Test Graph



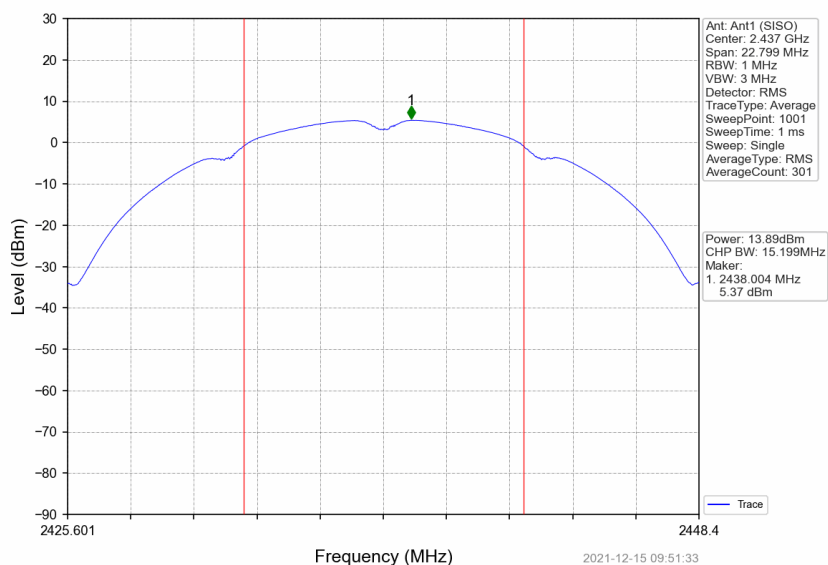
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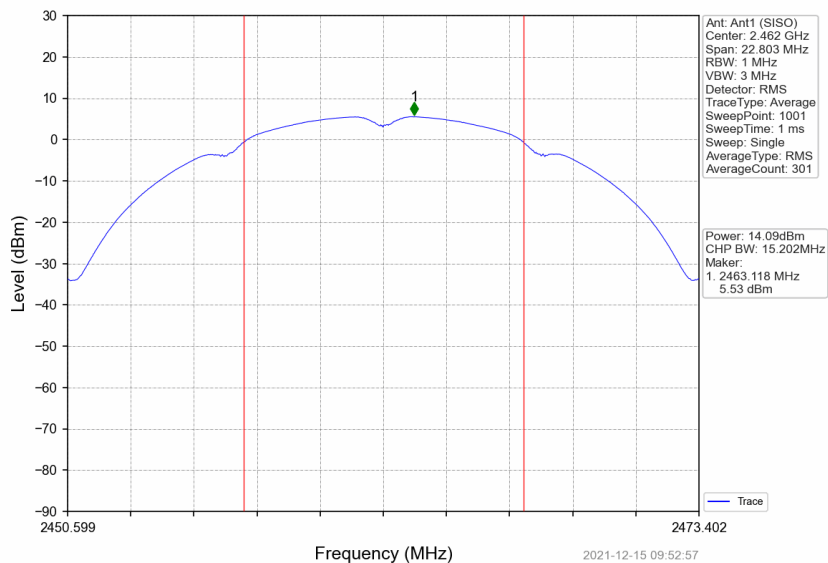
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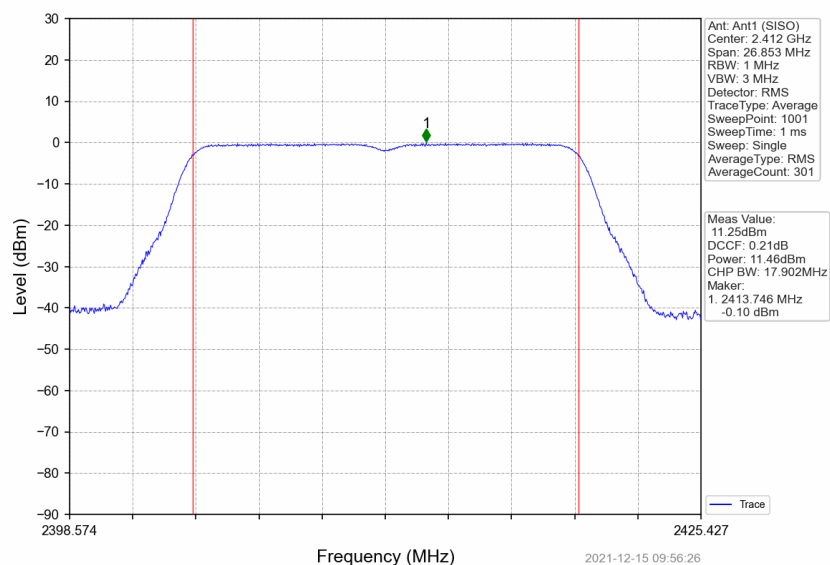


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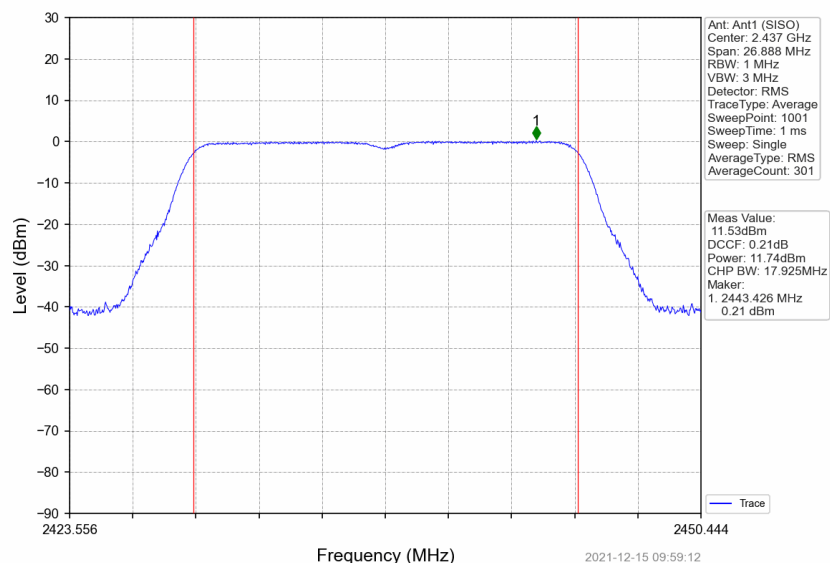


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV





802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

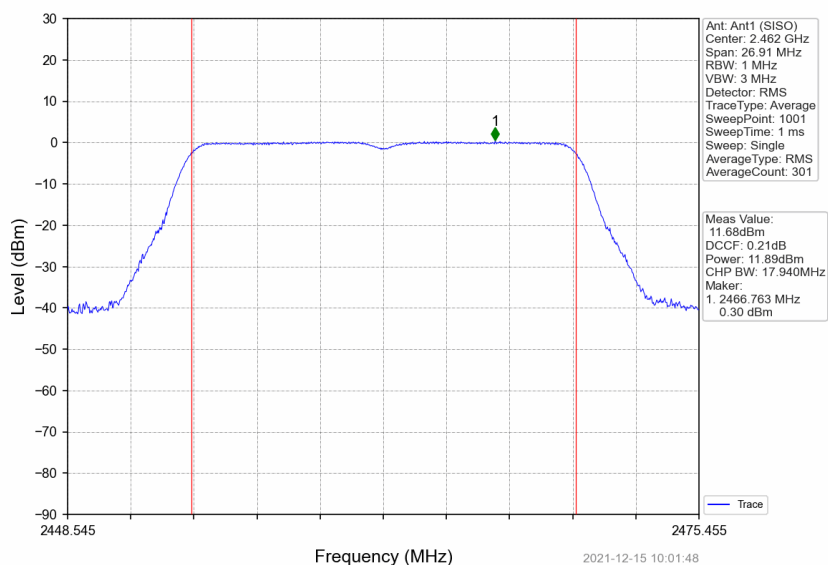


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

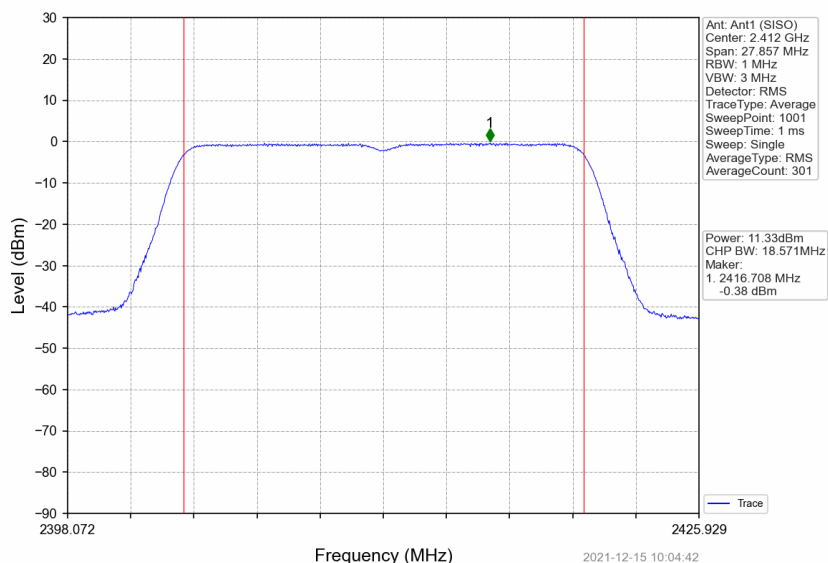


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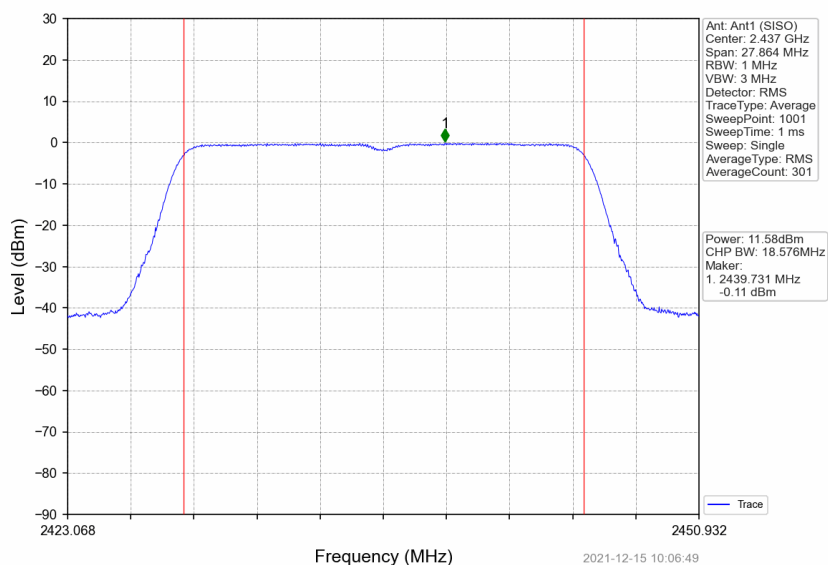


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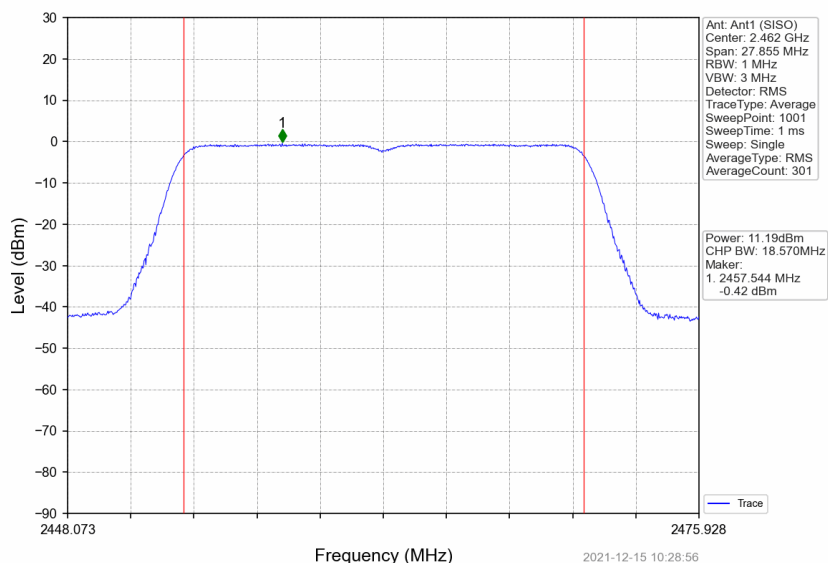


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV





802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

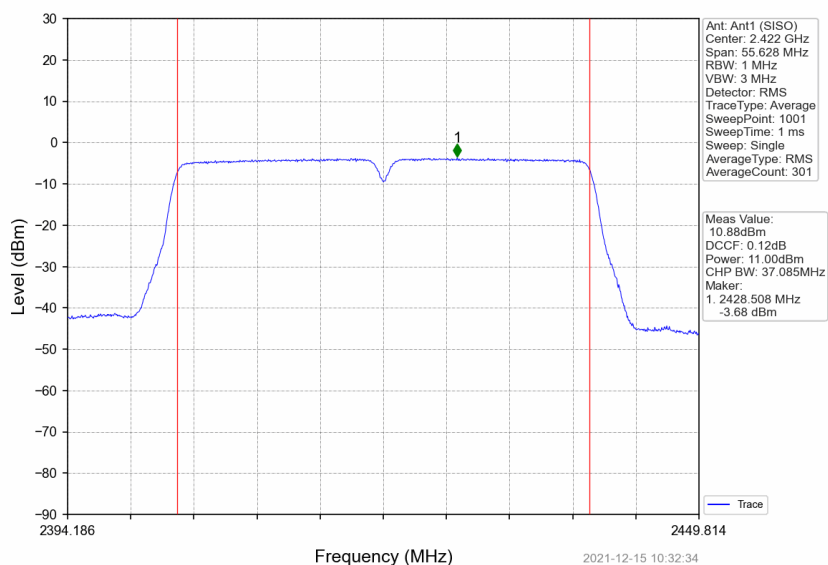


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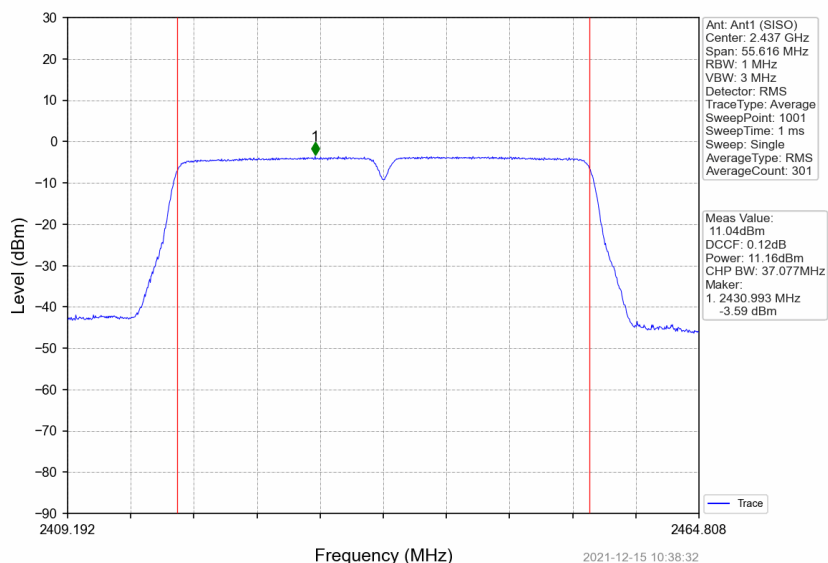
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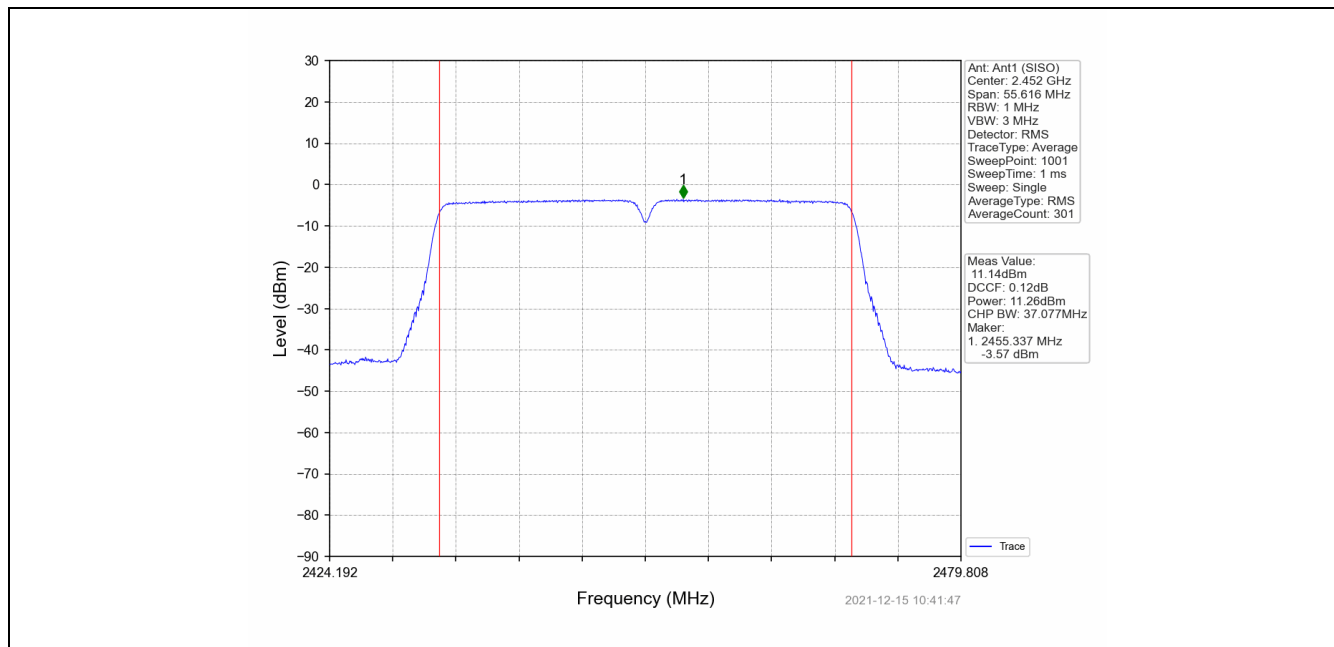


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4. Maximum Power Spectral Density

4.1 PSD

4.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			Ant1	Limit	
802.11b	SISO	2412	-12.91	<=8	Pass
		2437	-12.38	<=8	Pass
		2462	-12.24	<=8	Pass
802.11g	SISO	2412	-16.05	<=8	Pass
		2437	-15.21	<=8	Pass
		2462	-15.74	<=8	Pass
802.11n (HT20)	SISO	2412	-15.86	<=8	Pass
		2437	-15.51	<=8	Pass
		2462	-16.65	<=8	Pass
802.11n (HT40)	SISO	2422	-18.93	<=8	Pass
		2437	-18.14	<=8	Pass
		2452	-18.60	<=8	Pass

Note1: Antenna Gain: Ant1: 2.84dBi;



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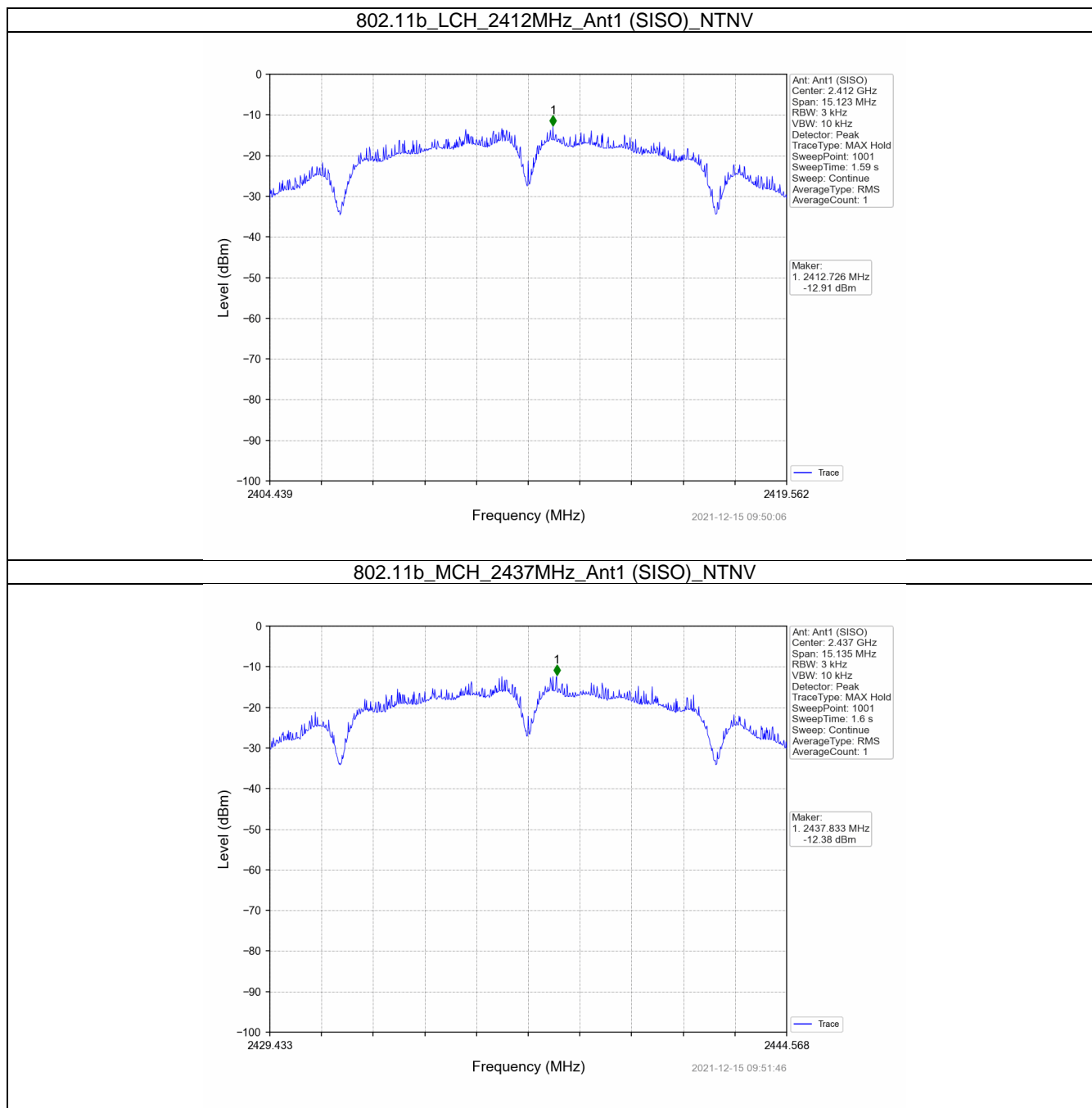
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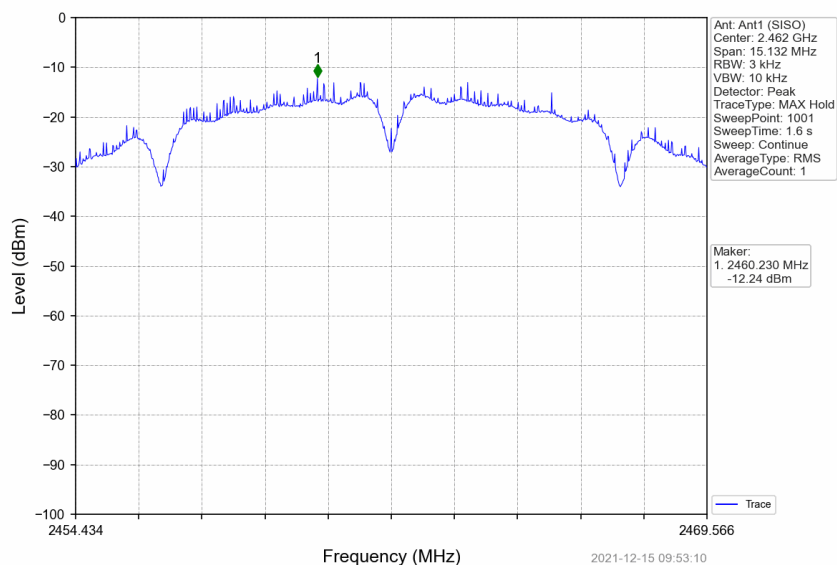
4.1.2 Test Graph



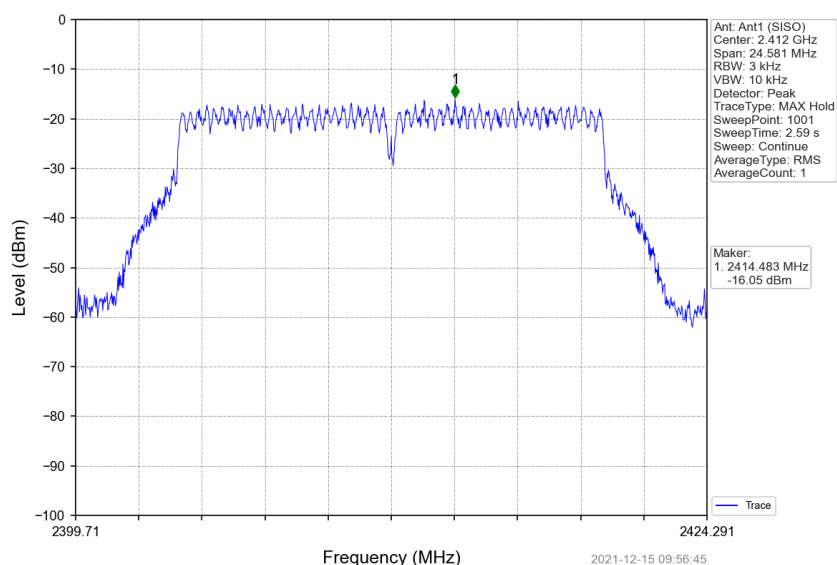
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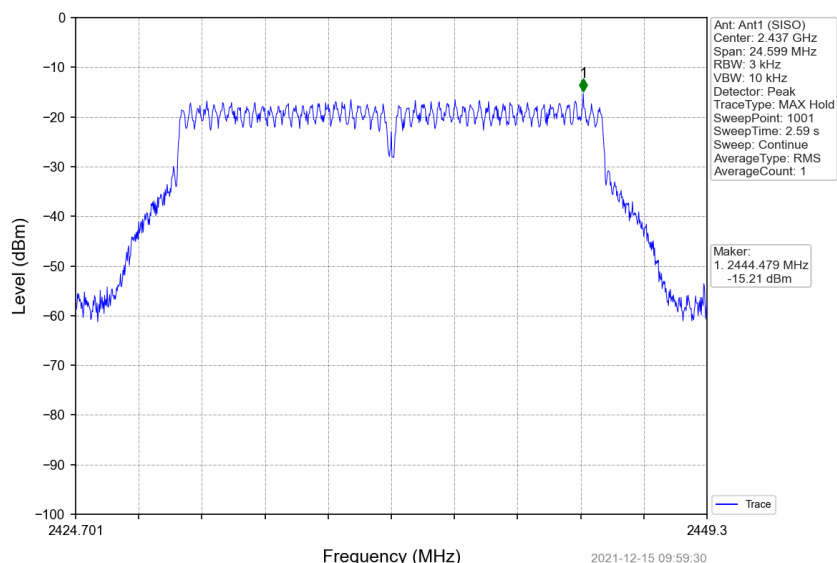
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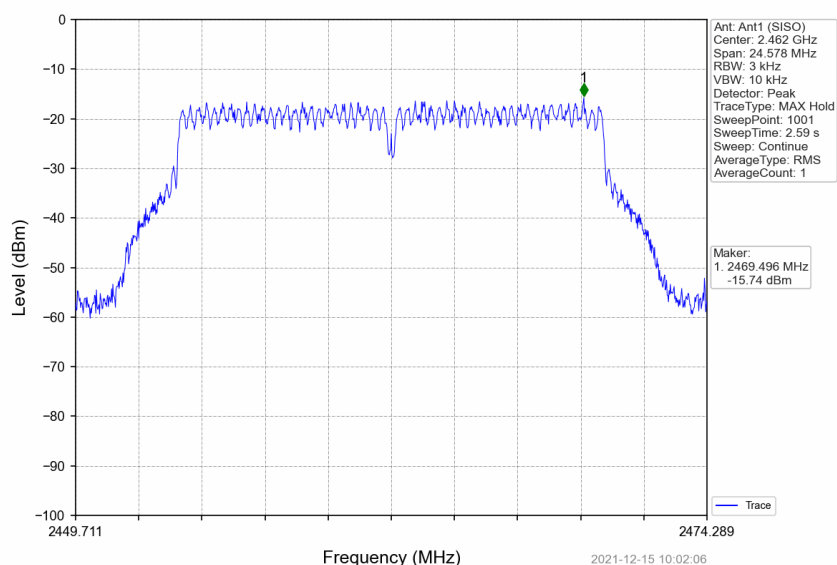
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802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



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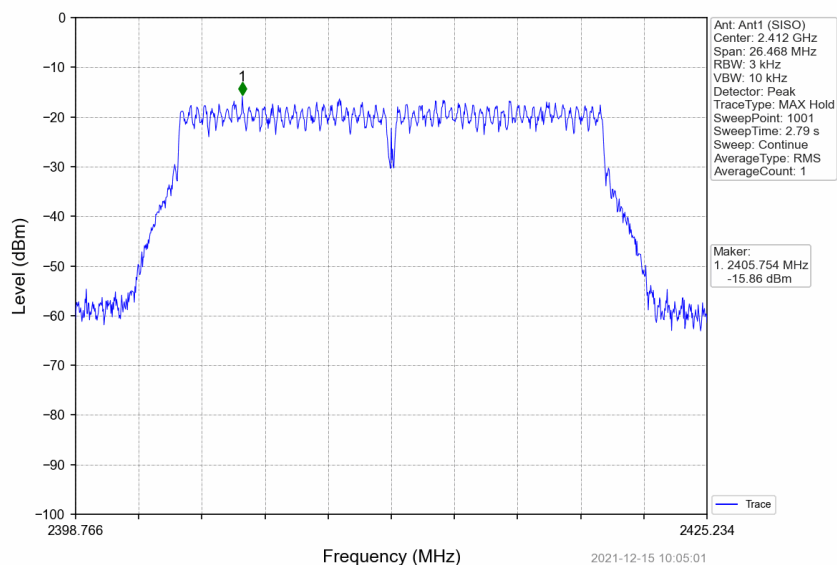
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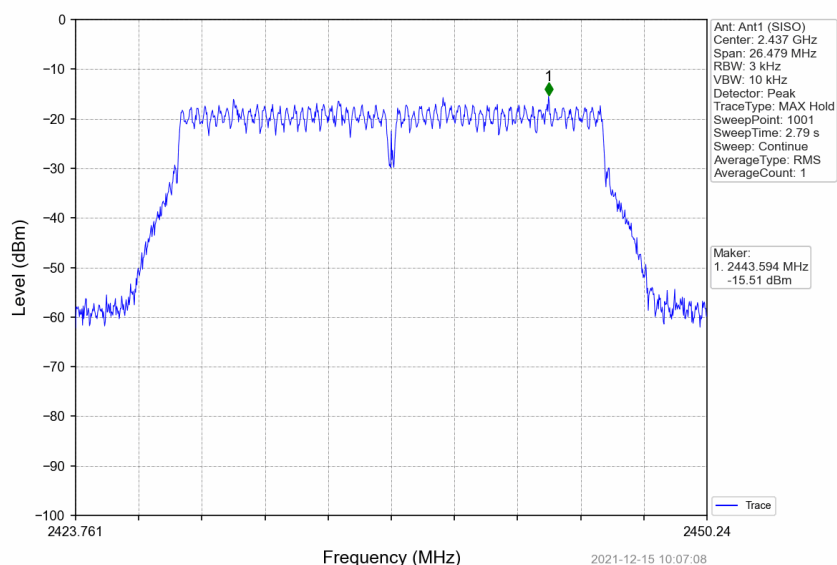
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802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

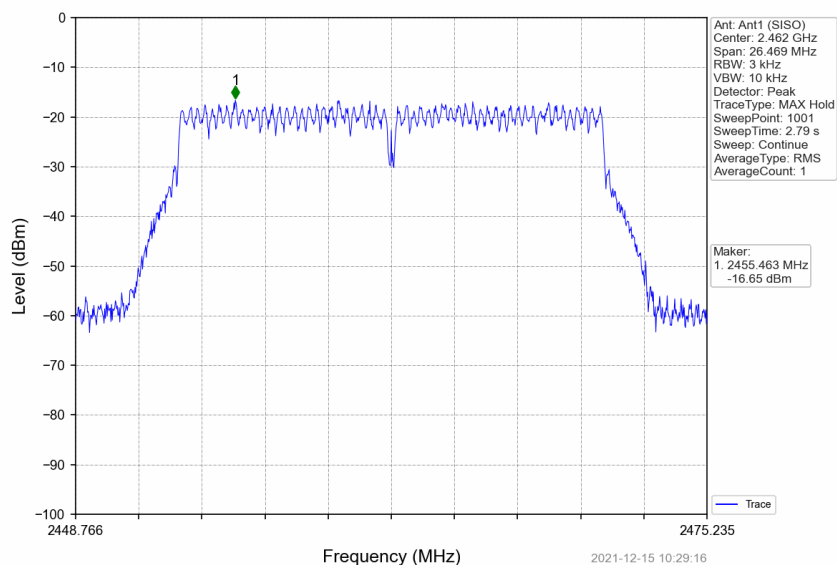
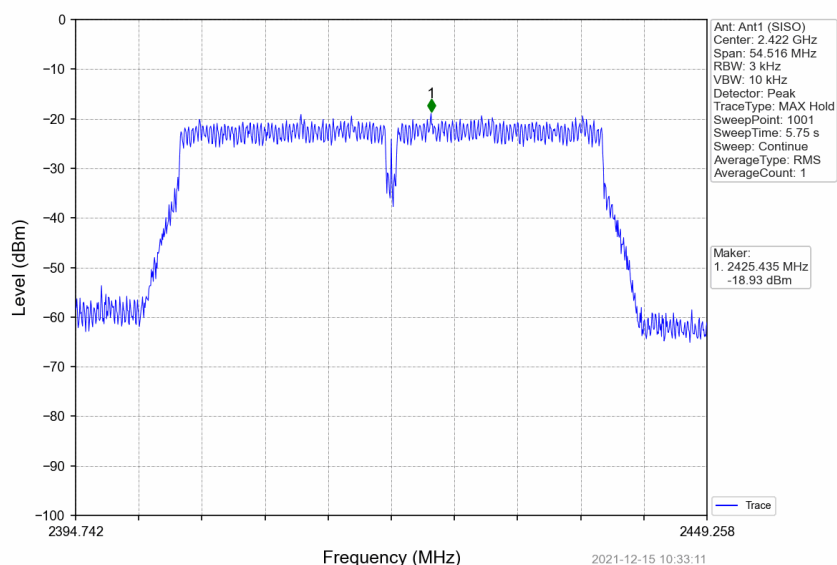


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



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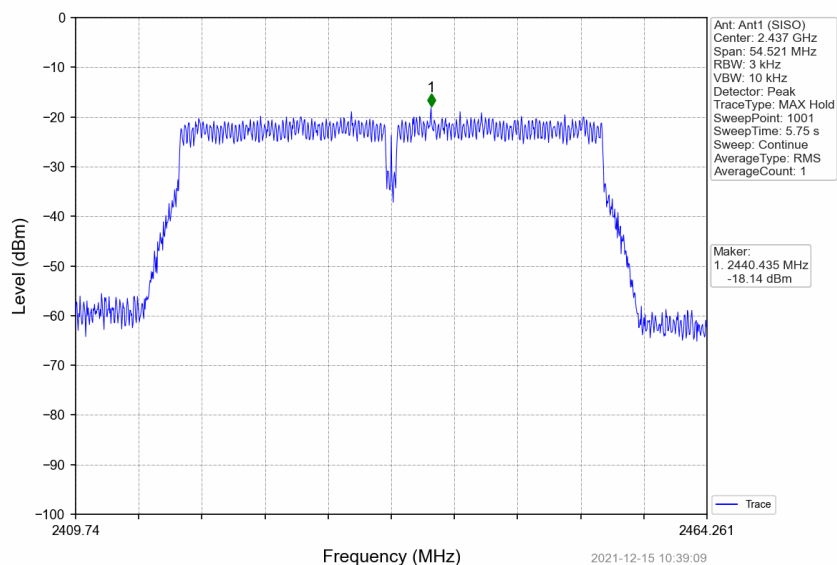
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802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV


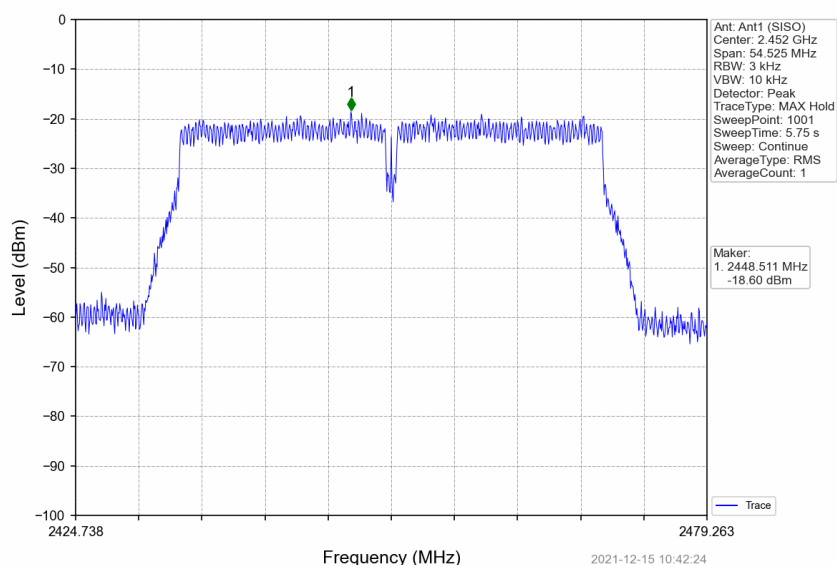
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802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



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5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Ref

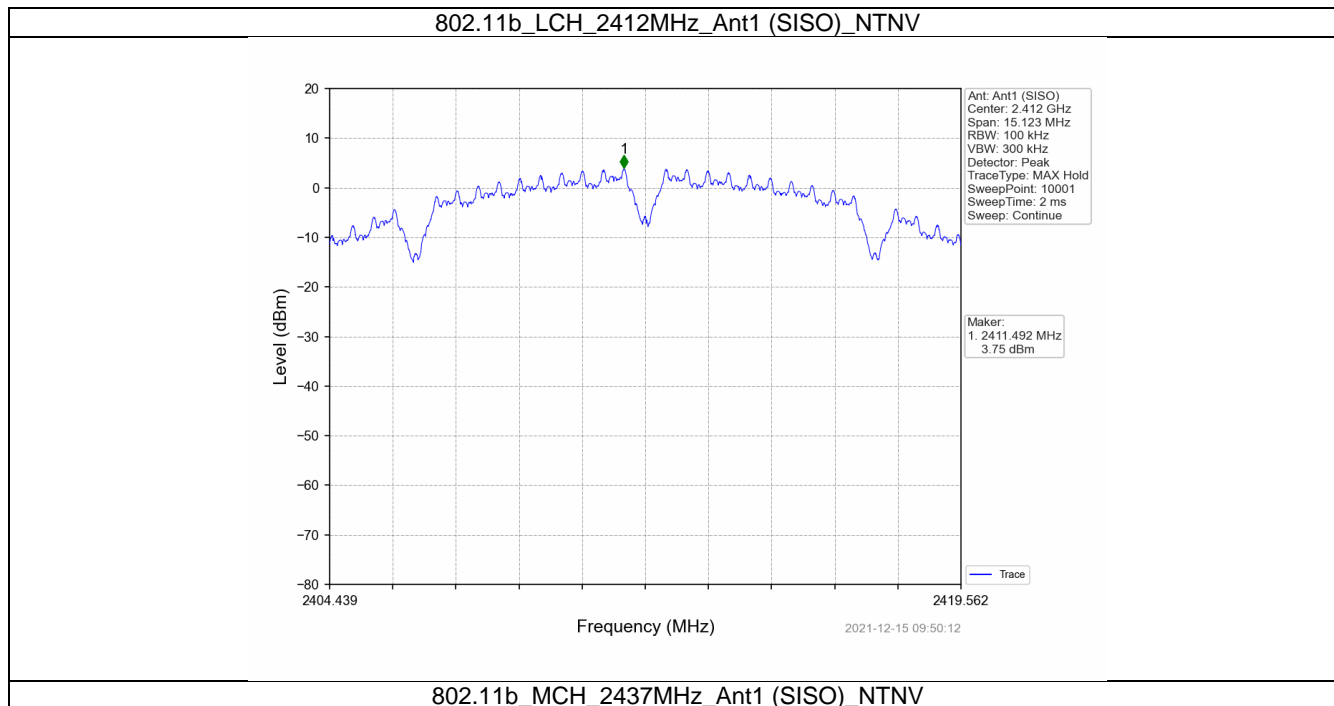
5.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Ant	Level of Reference (dBm)
802.11b	SISO	2412	1	3.75
		2437	1	4.00
		2462	1	4.23
802.11g	SISO	2412	1	0.11
		2437	1	0.39
		2462	1	0.43
802.11n (HT20)	SISO	2412	1	0.15
		2437	1	0.31
		2462	1	0.04
802.11n (HT40)	SISO	2422	1	-3.18
		2437	1	-3.03
		2452	1	-3.03

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.

Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.

5.1.2 Test Graph



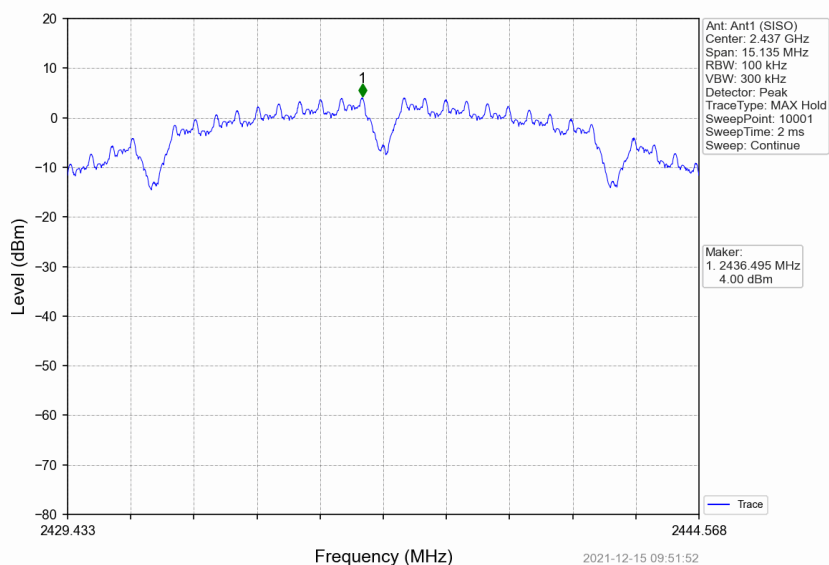
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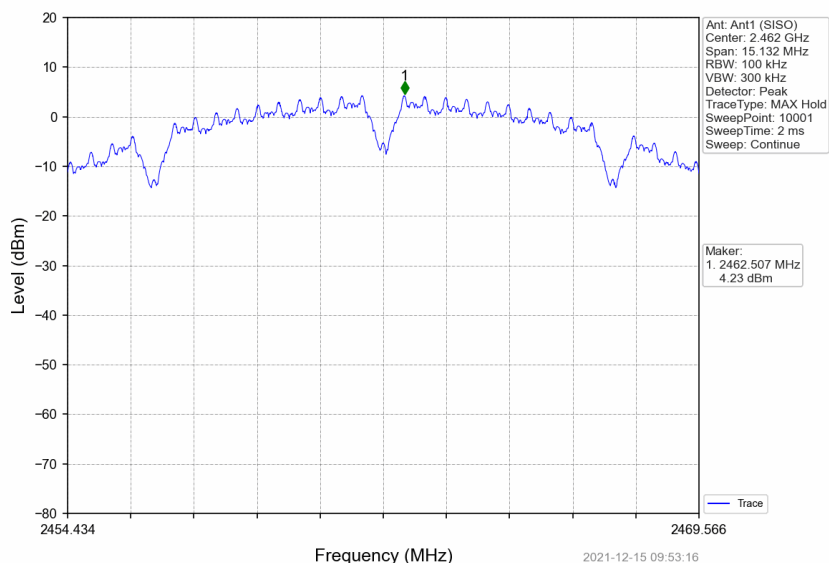
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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

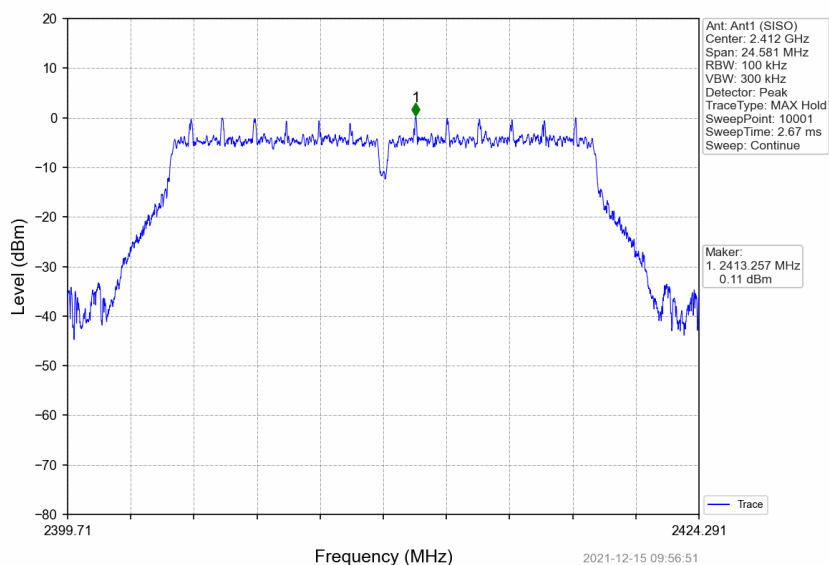


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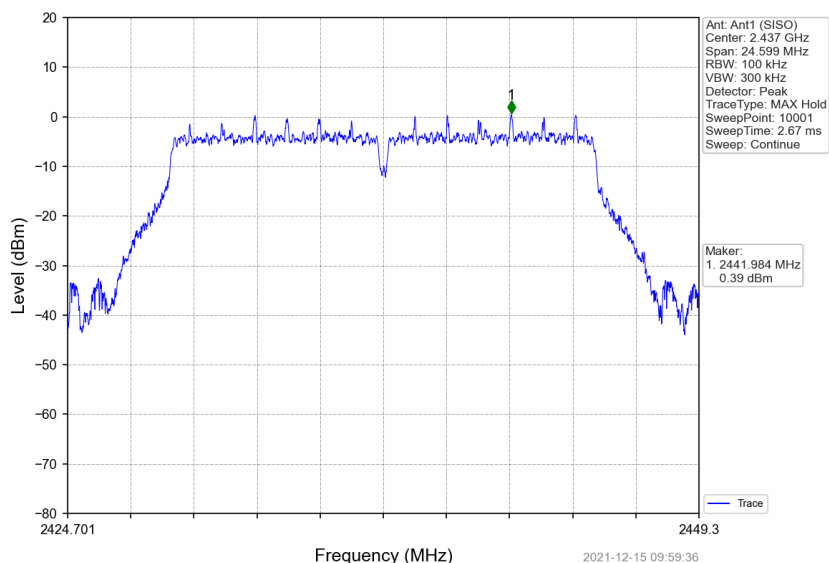
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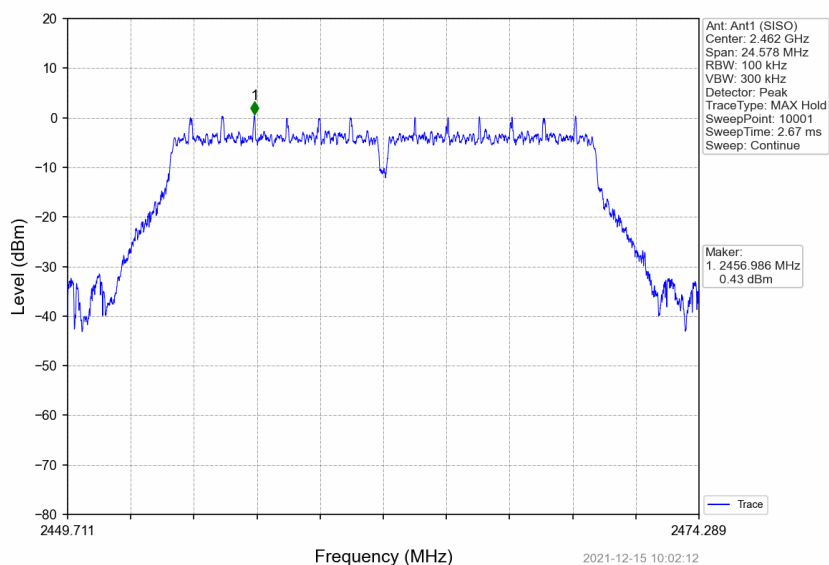


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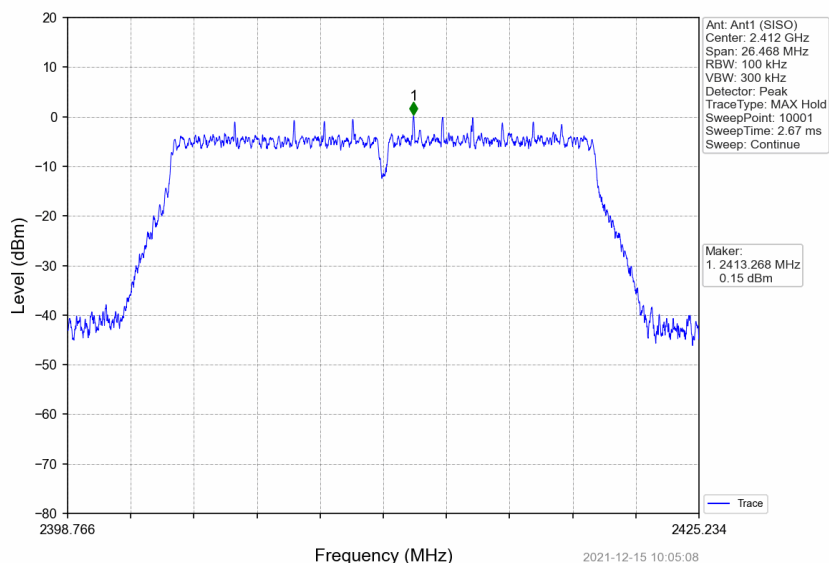


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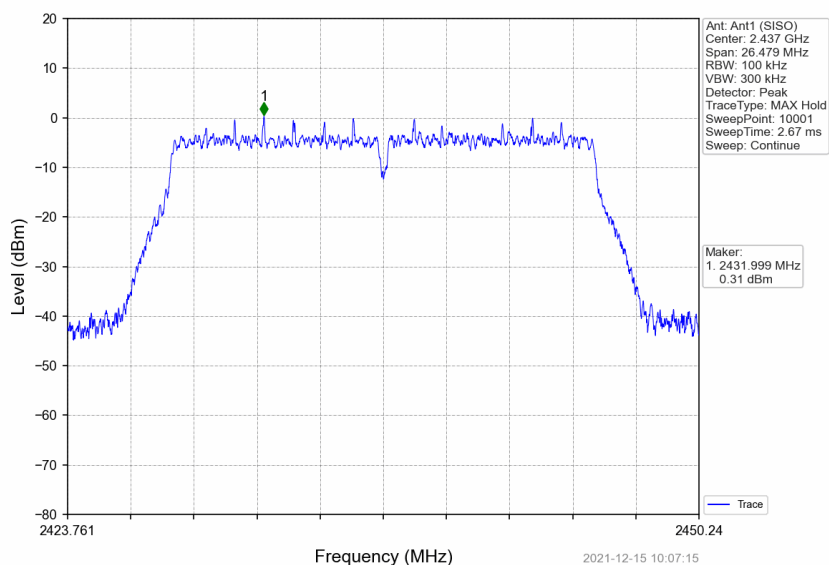


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

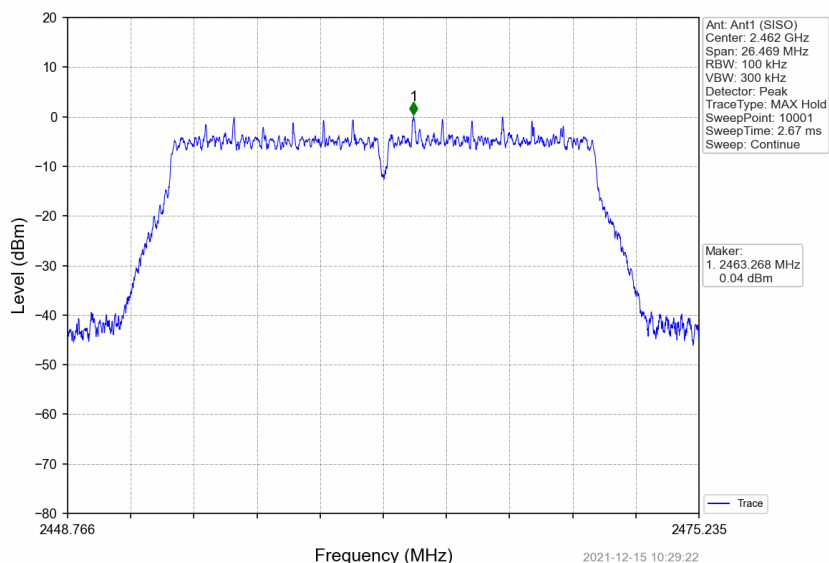


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV





802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



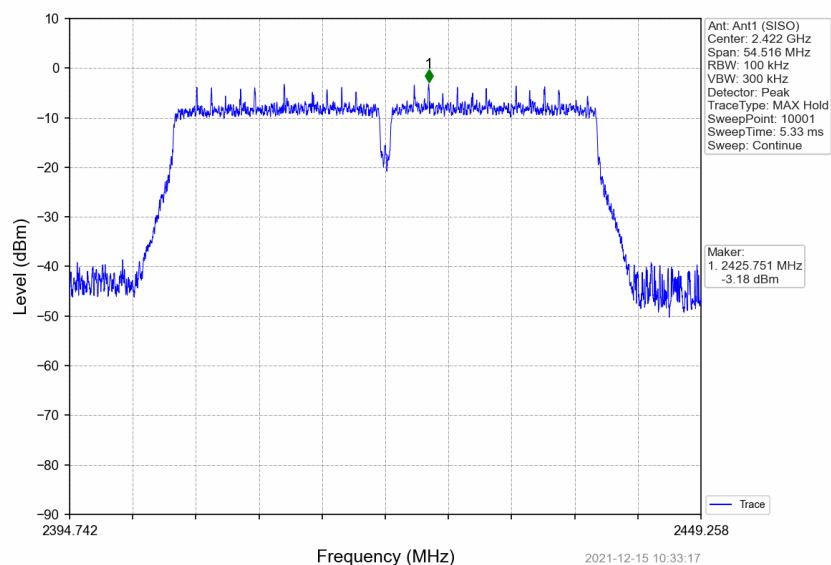
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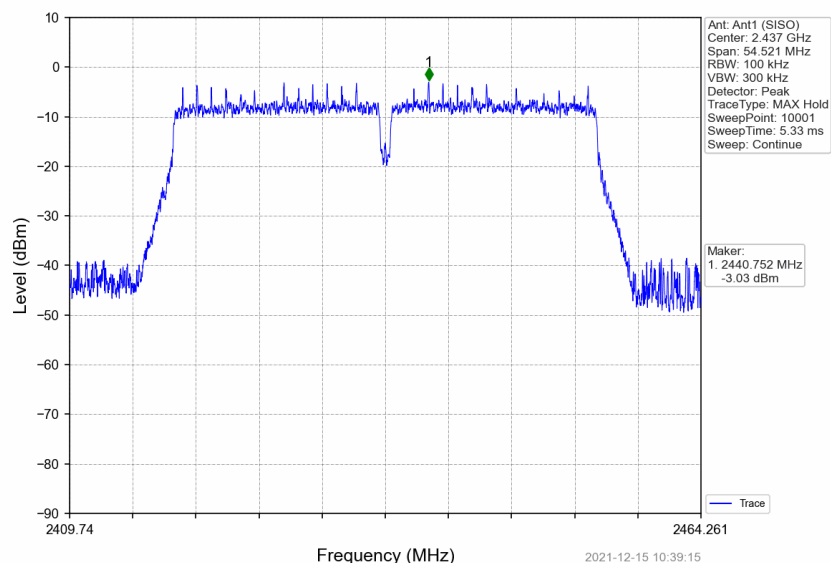
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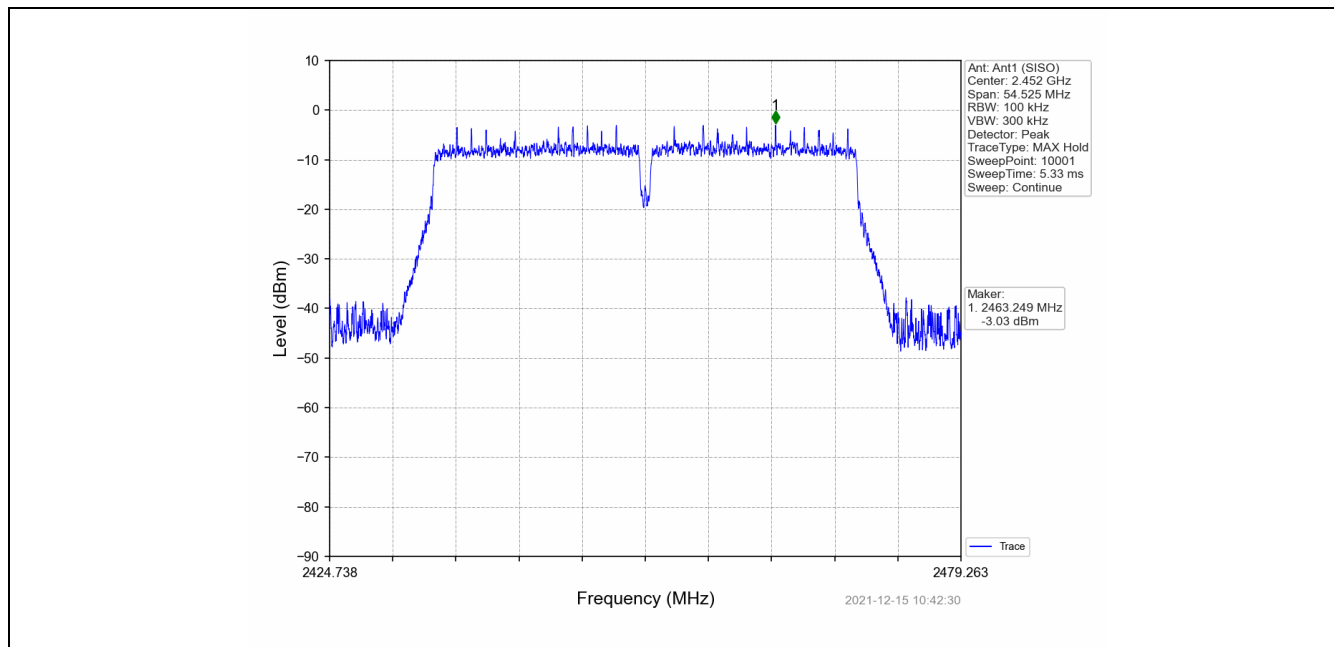


802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV





5.2 CSE

5.2.1 Test Result

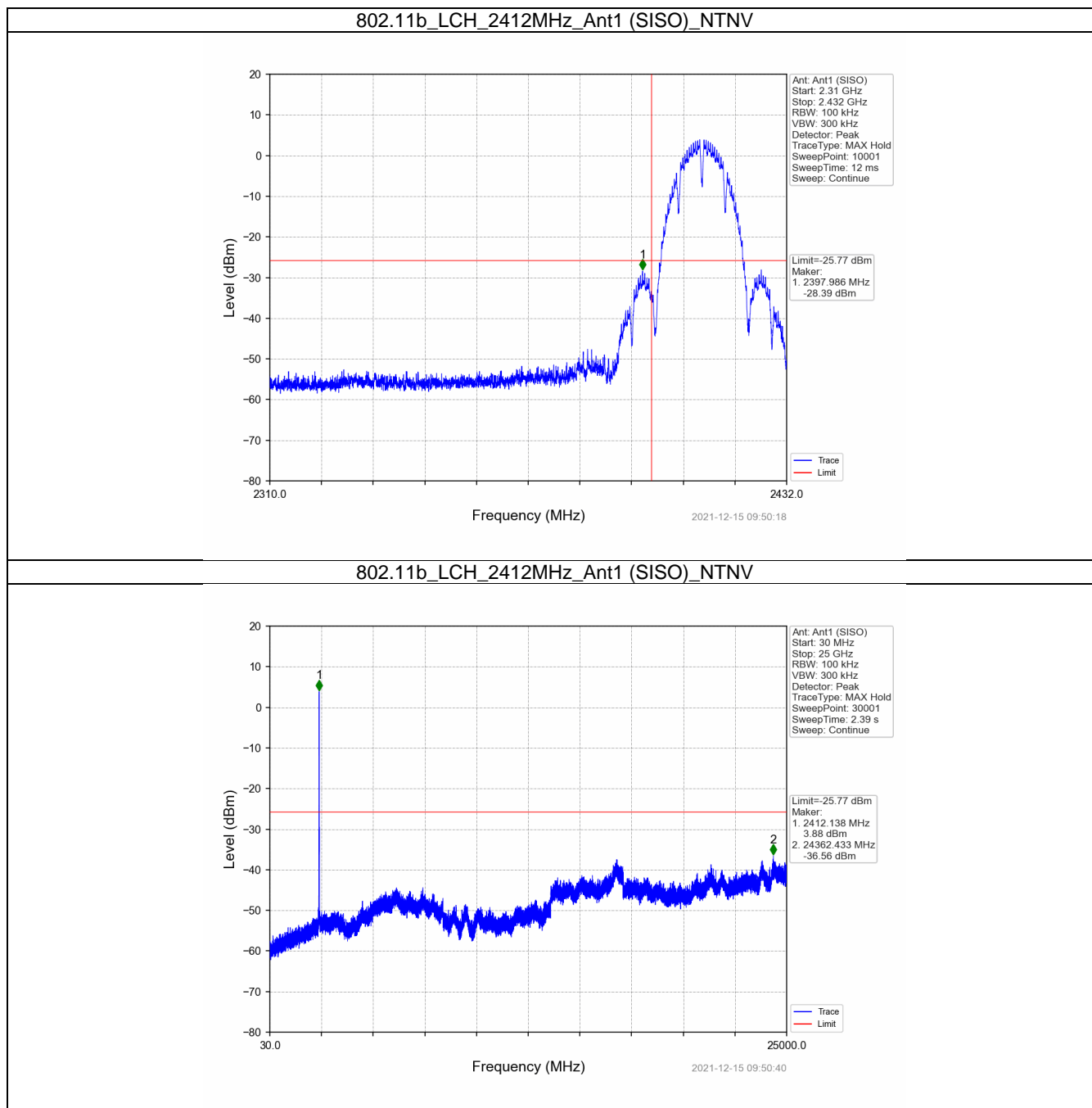
Mode	TX Type	Frequency (MHz)	Ant	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	4.23	-25.77	Pass
		2437	1	4.23	-25.77	Pass
		2462	1	4.23	-25.77	Pass
802.11g	SISO	2412	1	0.43	-29.57	Pass
		2437	1	0.43	-29.57	Pass
		2462	1	0.43	-29.57	Pass
802.11n (HT20)	SISO	2412	1	0.31	-29.69	Pass
		2437	1	0.31	-29.69	Pass
		2462	1	0.31	-29.69	Pass
802.11n (HT40)	SISO	2422	1	-3.03	-33.03	Pass
		2437	1	-3.03	-33.03	Pass
		2452	1	-3.03	-33.03	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.

Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.



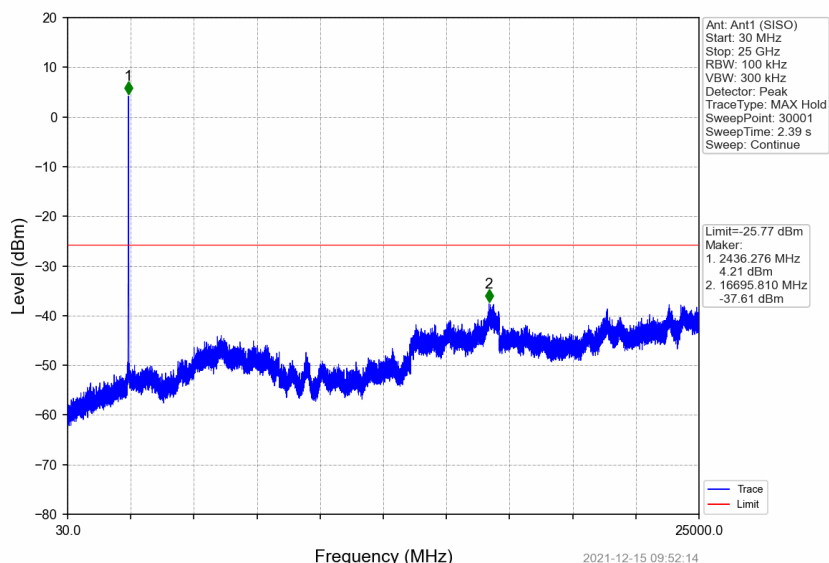
5.2.2 Test Graph



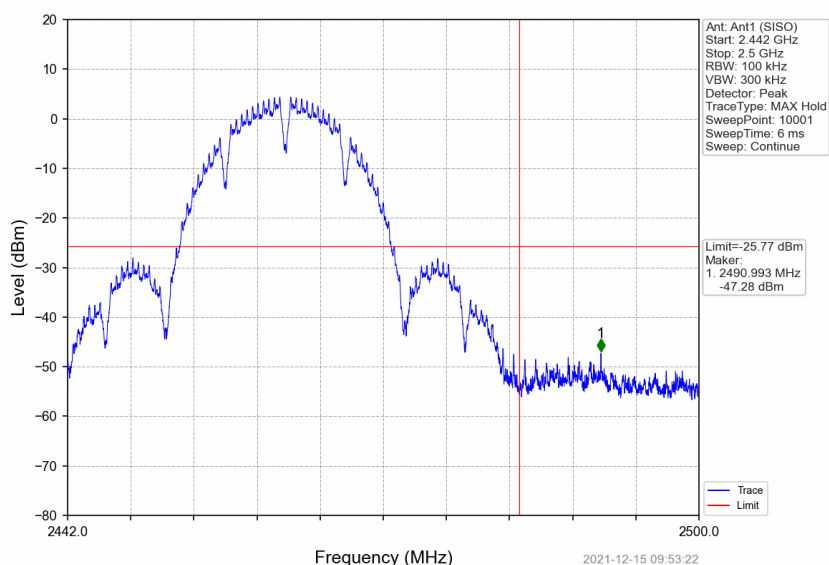
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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



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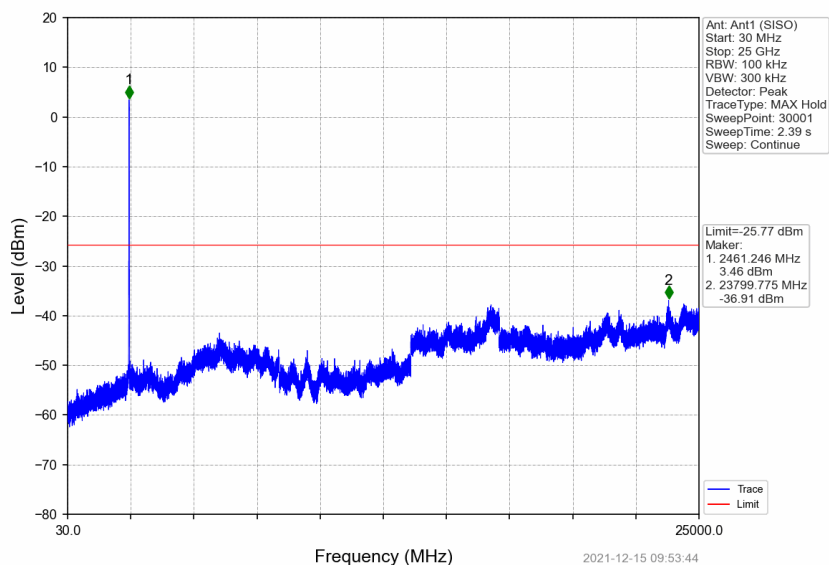
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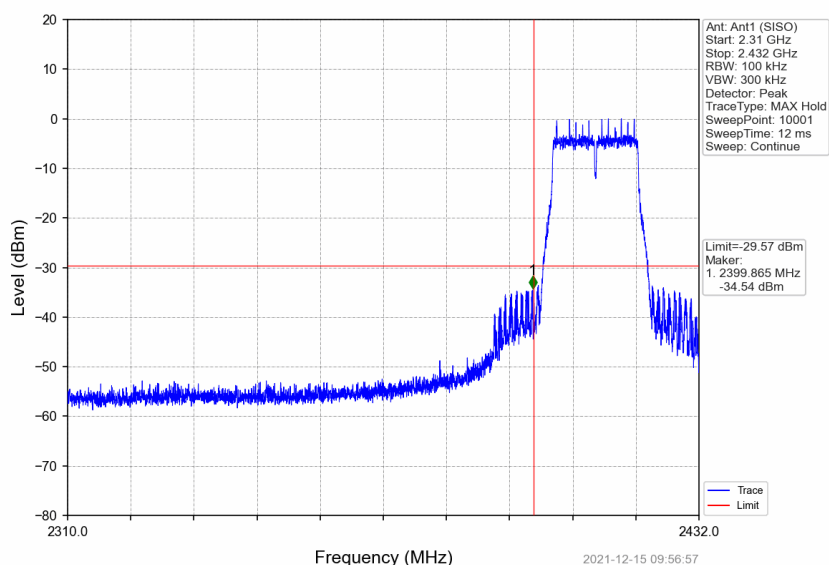
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802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



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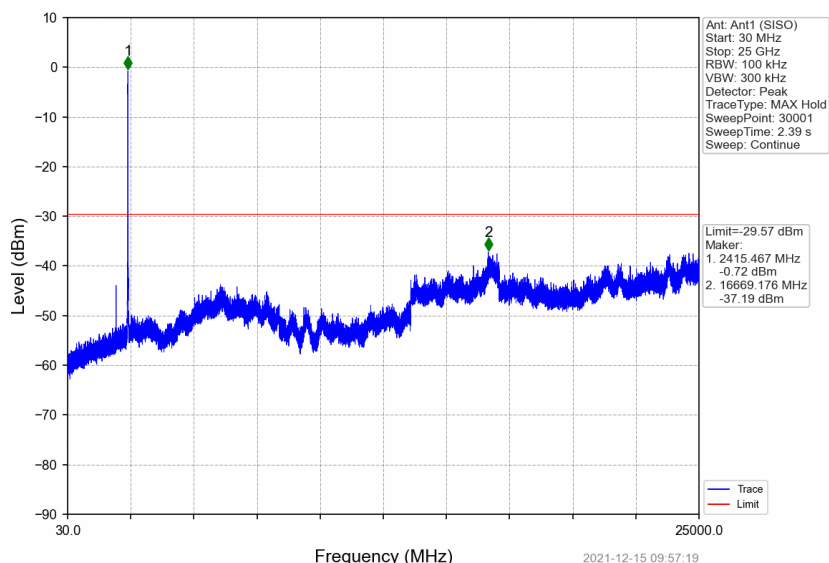
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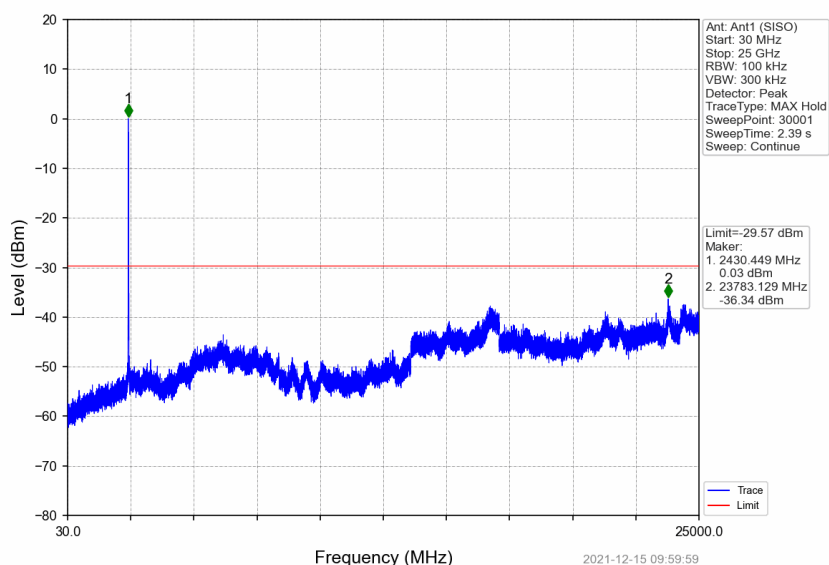
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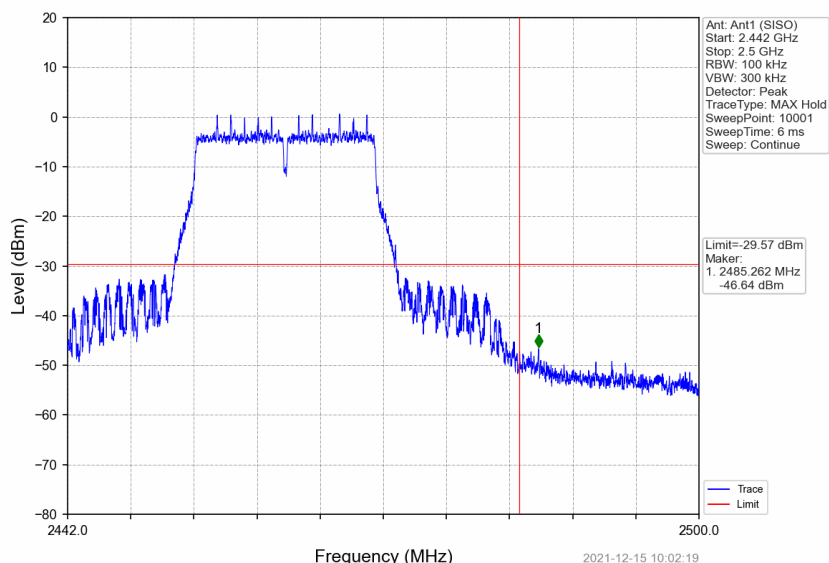
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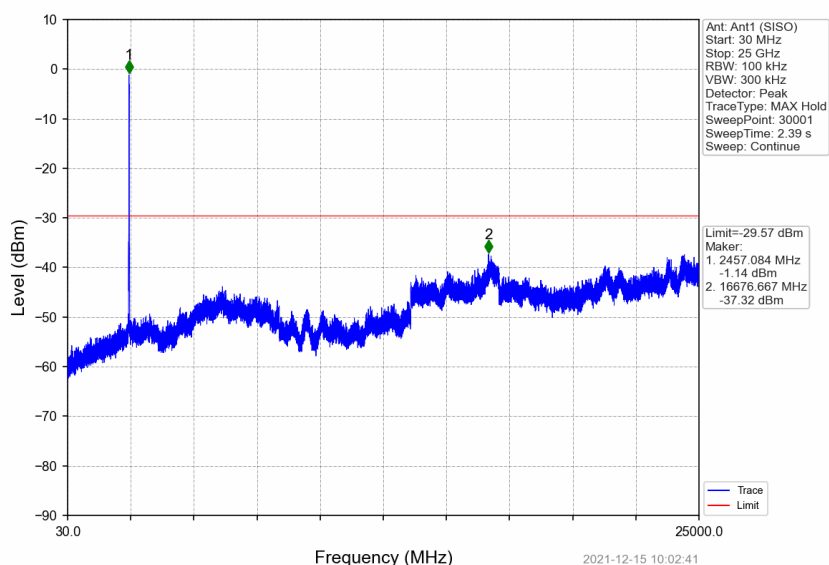
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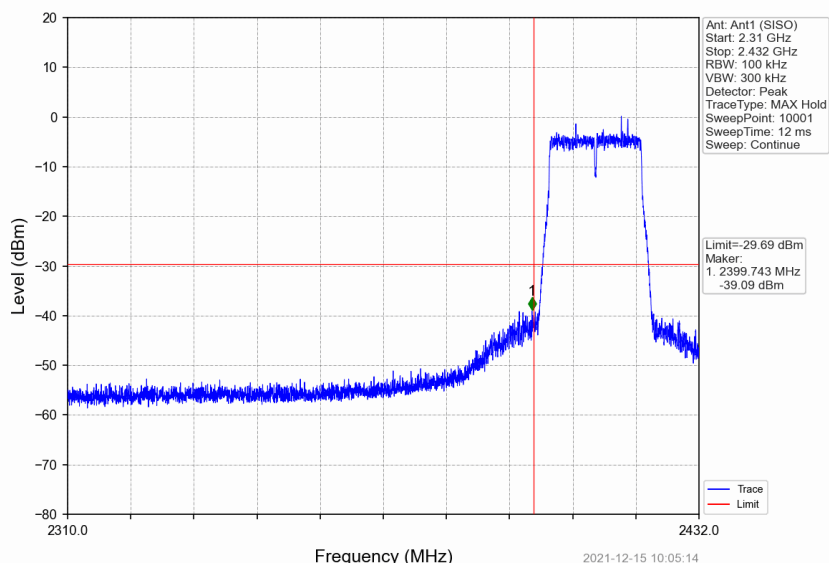
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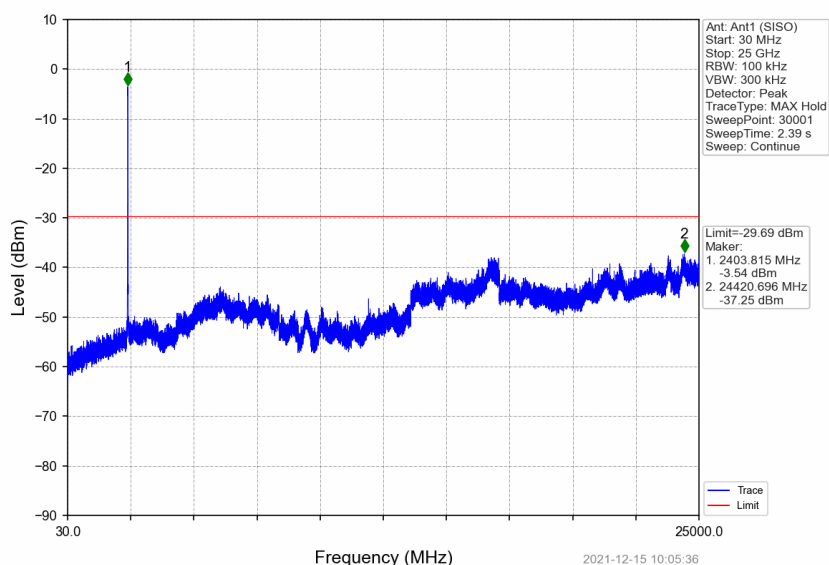
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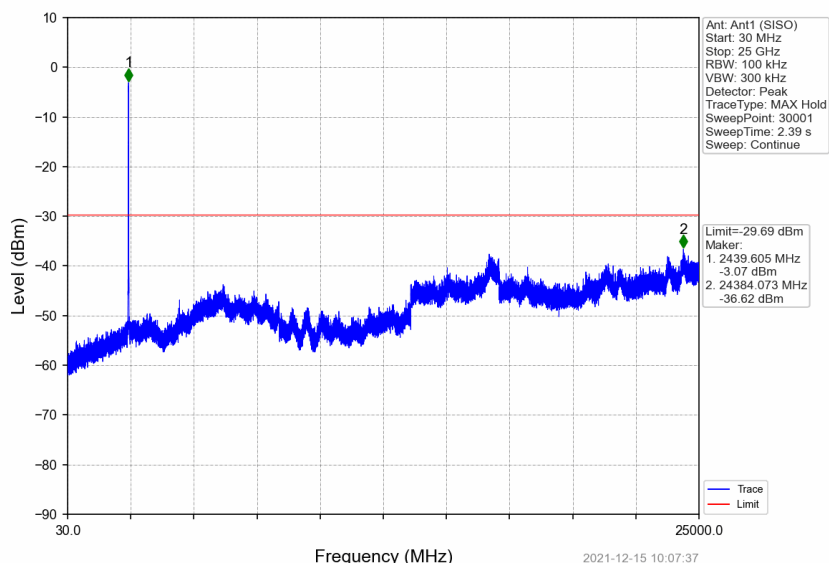
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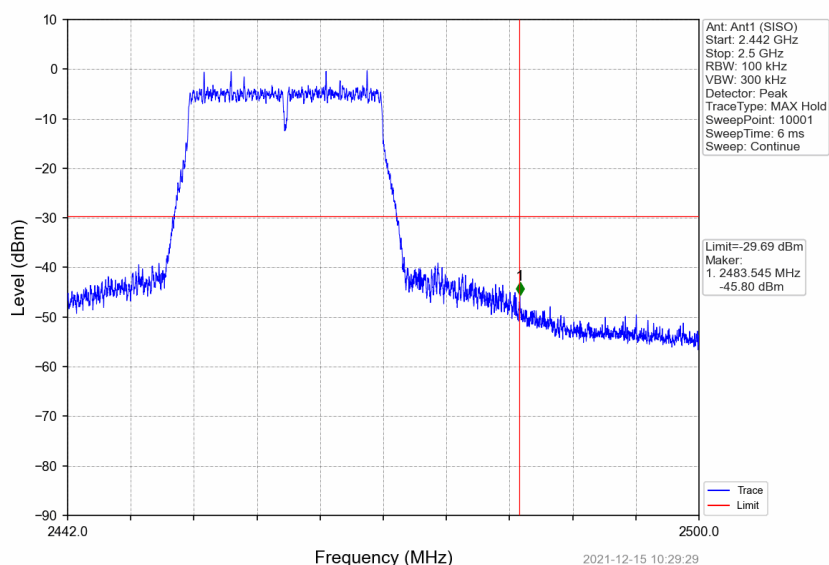
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802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



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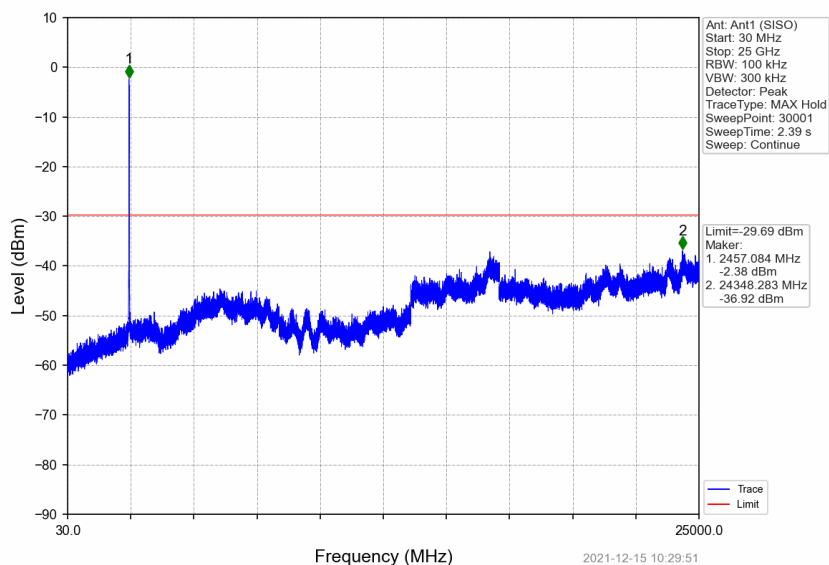
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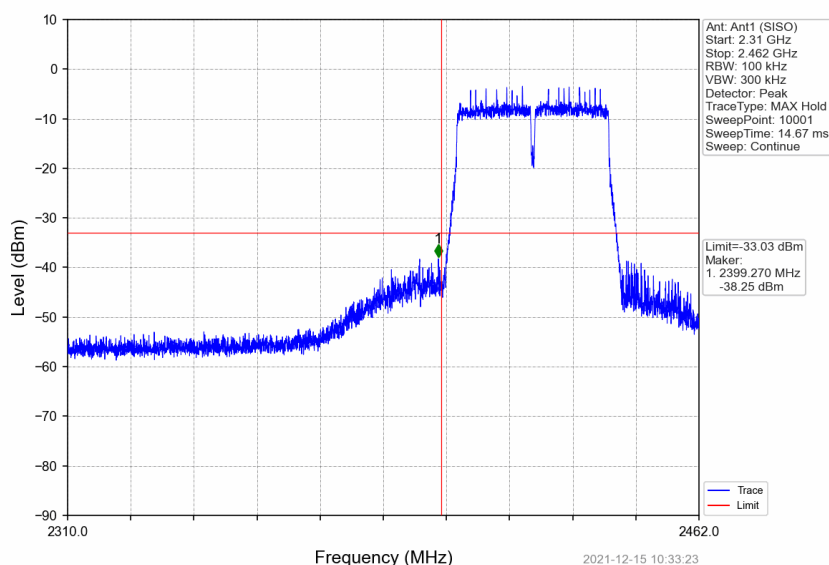
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802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



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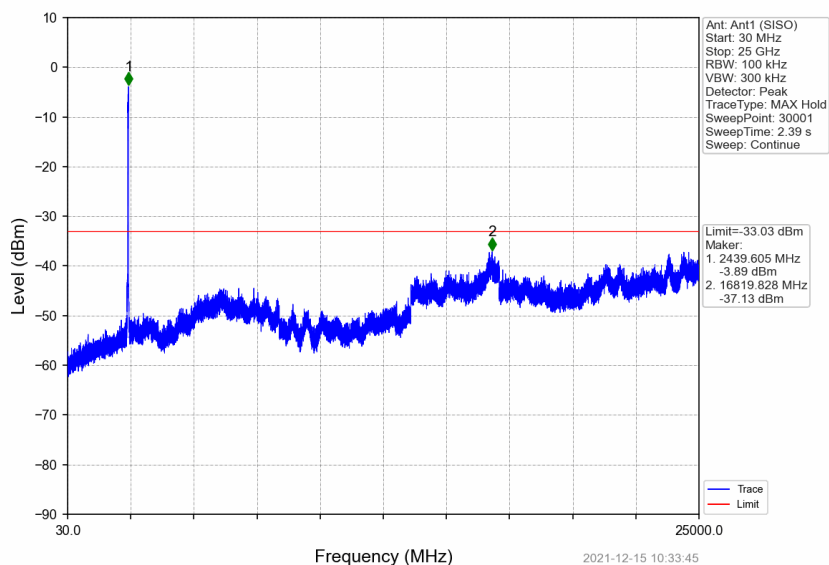
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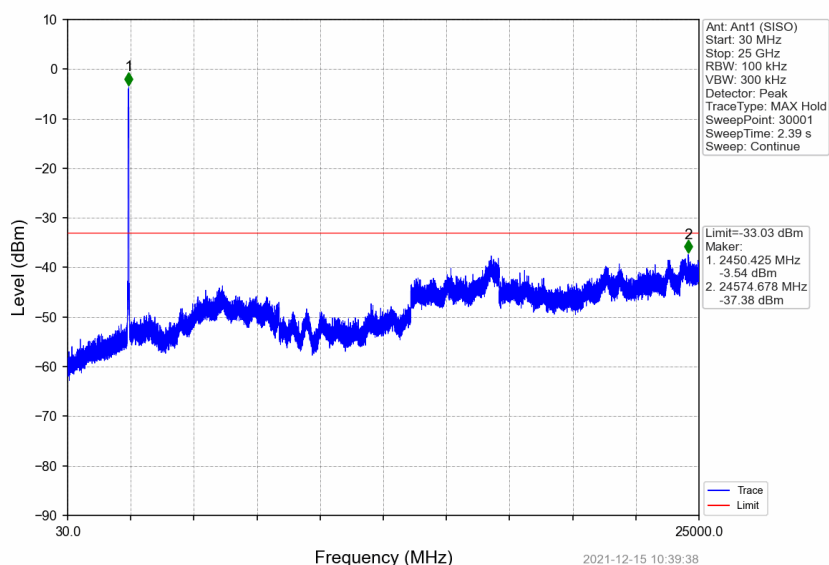
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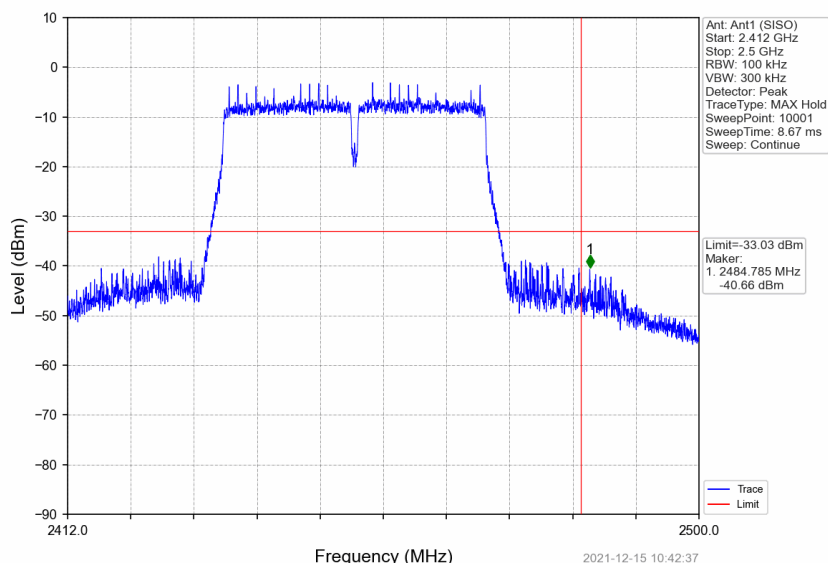
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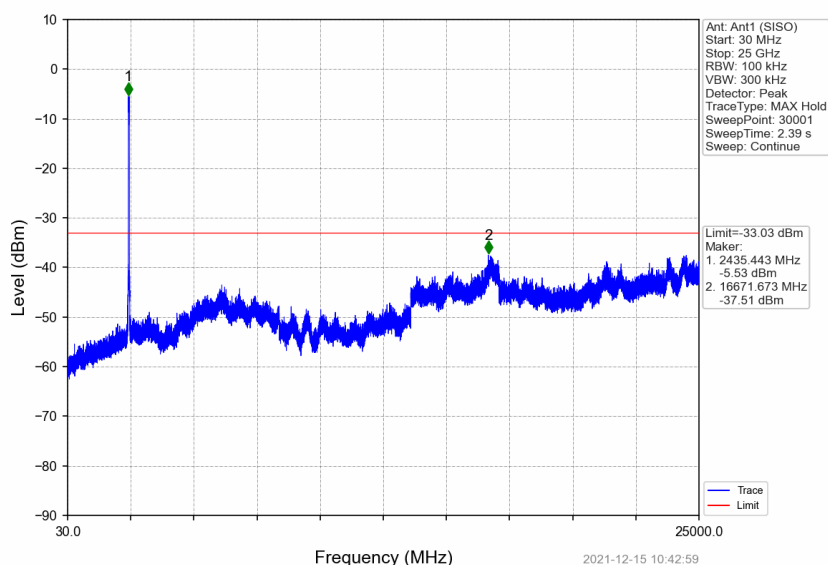
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