

FCC ID: 2BGPC-ALPHA4

Applicant: TOYBOX LABS INC

Address: 66 Franklin St, Suite 300, Oakland, CA USA 94607

Manufacturer: Jia Xing De Import and Export Co.,Ltd

Address: Room 307-3, 3rd Floor, Comprehensive Building, No.583, Chang'an North Road, West District, Wuyuan Sub-district, Haiyan County, Jiaxing City, Zhejiang Province

Product Name: 3D printer

Trade Mark: Toybox

Model Number: Alpha 4

Date of Receipt: Jun. 29, 2026

Test Date: Jun. 29, 2026 - Jul. 08, 2026

Date of Report: Jul. 08, 2026

Prepared By: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

Applicable Standards: FCC PART 15 C 15.247
ANSI C63.10:2020+Cor.1:2023

Test Result: Pass

Report Number: DLE-260629024R

1. Duty Cycle

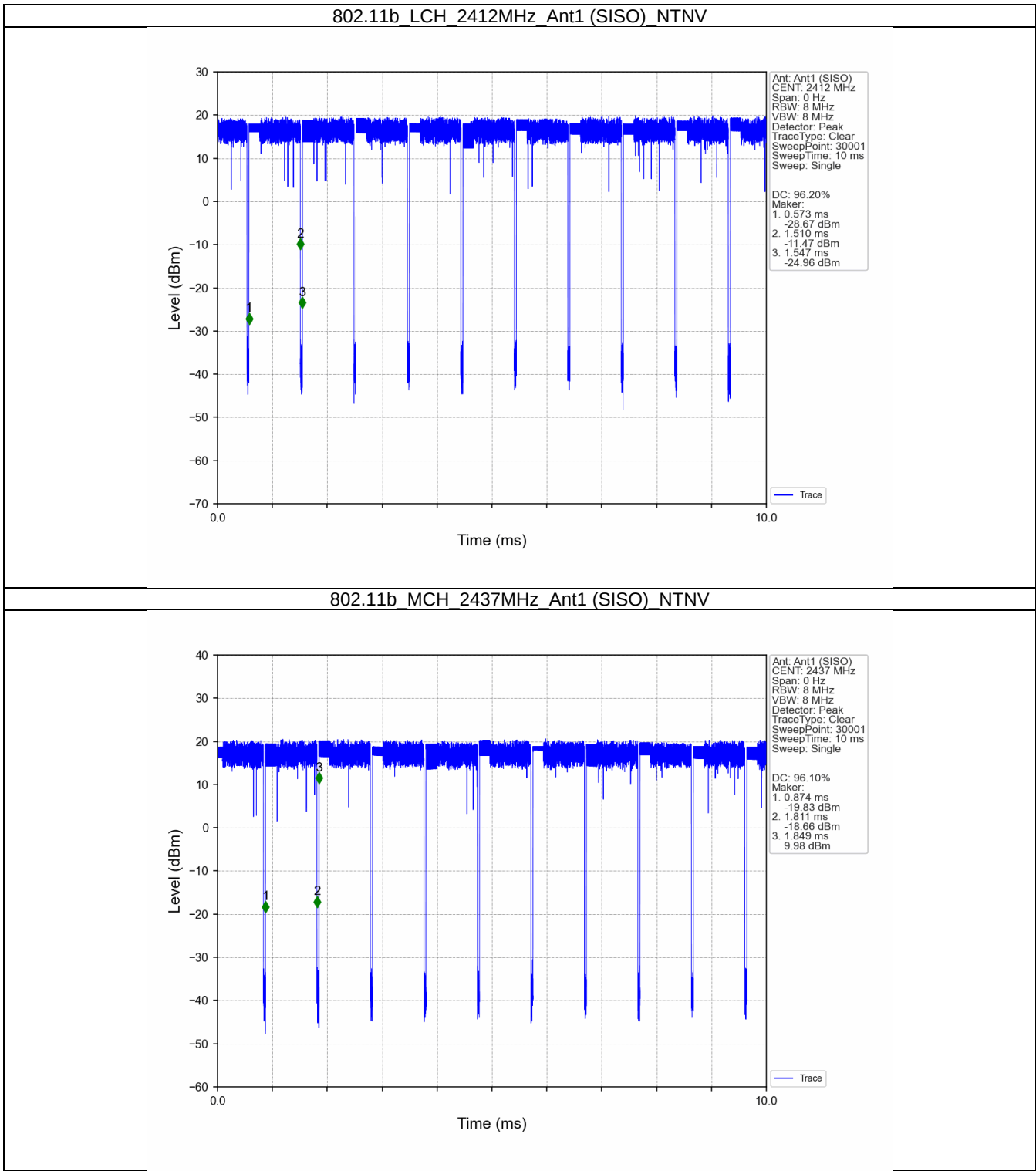
1.1 Test Result

1.1.1 Ant1

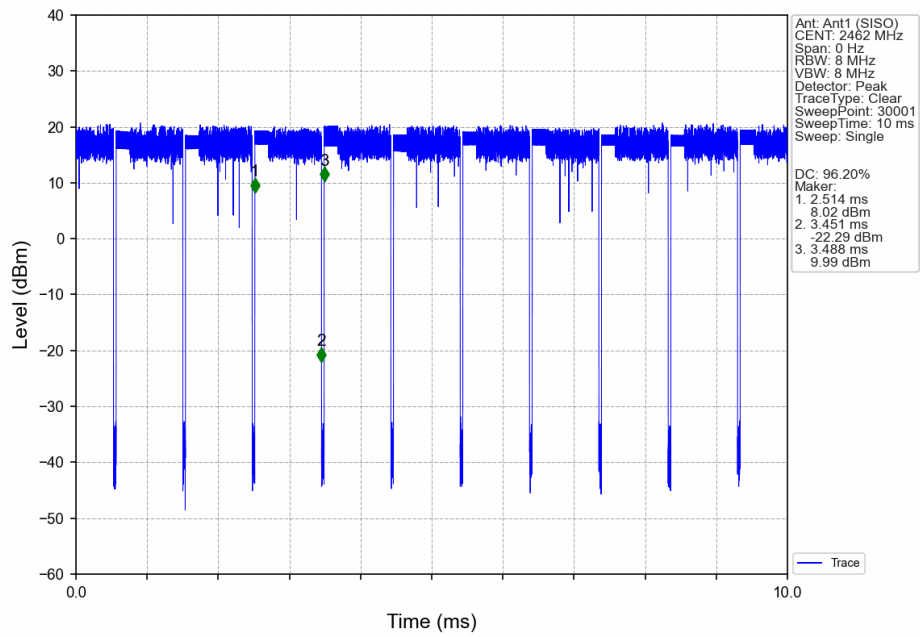
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	0.937	0.974	96.20	0.17	0.03
		2437	0.937	0.975	96.10	0.17	0.03
		2462	0.937	0.974	96.20	0.17	0.03
802.11g	SISO	2412	0.176	0.221	79.64	0.99	0.10
		2437	0.179	0.220	81.36	0.90	0.14
		2462	0.176	0.220	80.00	0.97	0.06
802.11n (HT20)	SISO	2412	0.164	0.209	78.47	1.05	0.13
		2437	0.167	0.209	79.90	0.97	0.16
		2462	0.167	0.209	79.90	0.97	0.12
802.11n (HT40)	SISO	2422	0.100	0.144	69.44	1.58	0.07
		2437	0.102	0.145	70.34	1.53	0.13
		2452	0.100	0.144	69.44	1.58	0.10

1.2 Test Graph

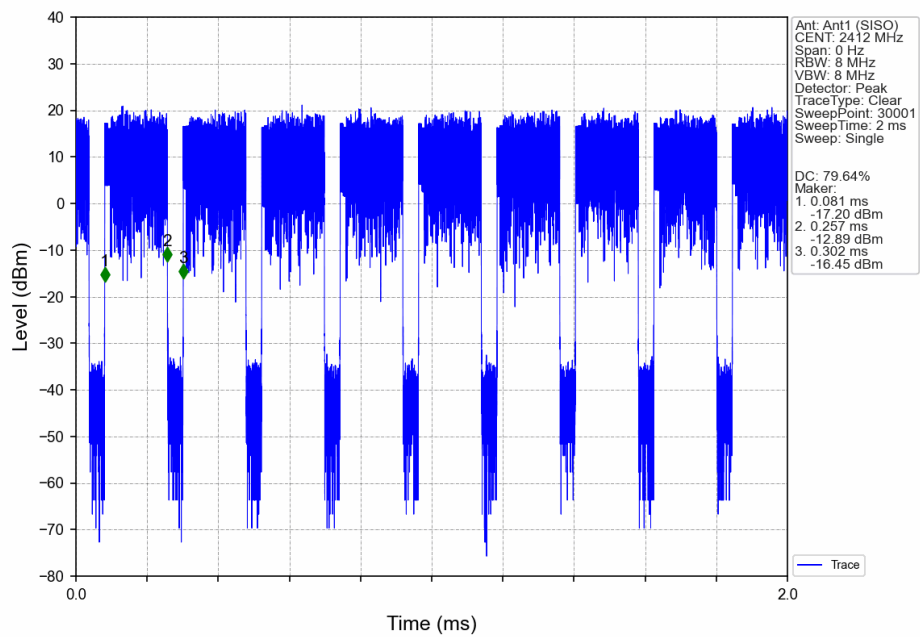
1.2.1 Ant1



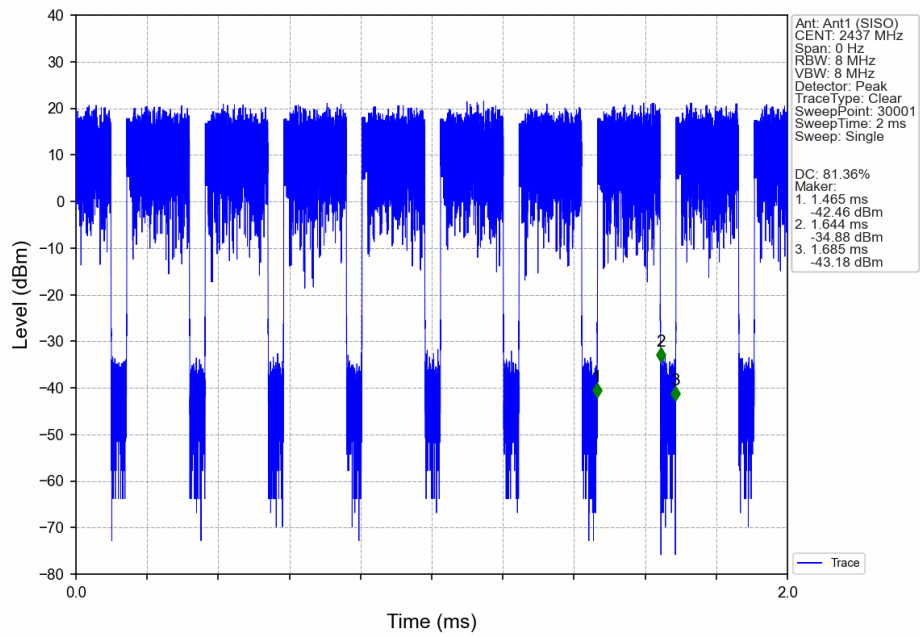
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



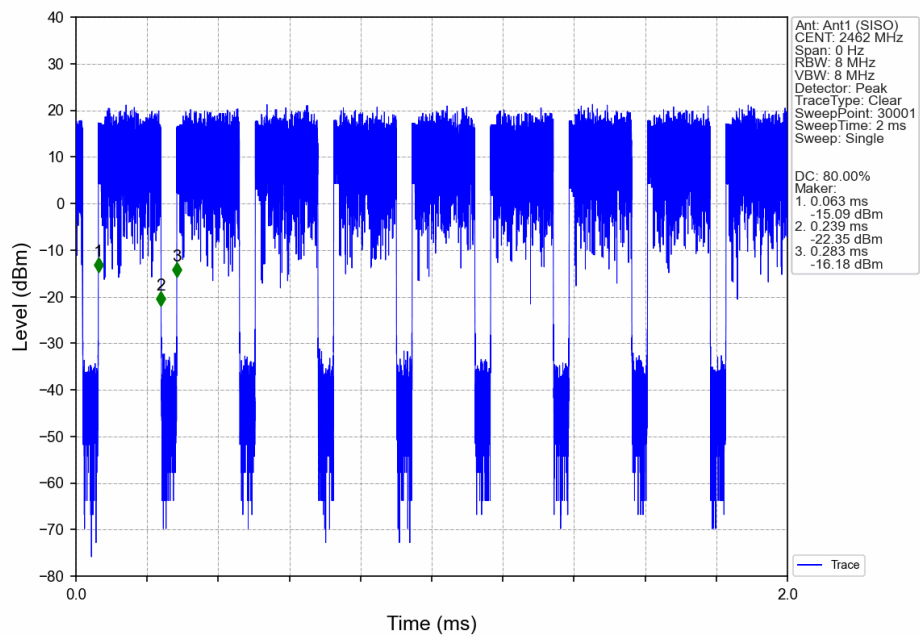
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



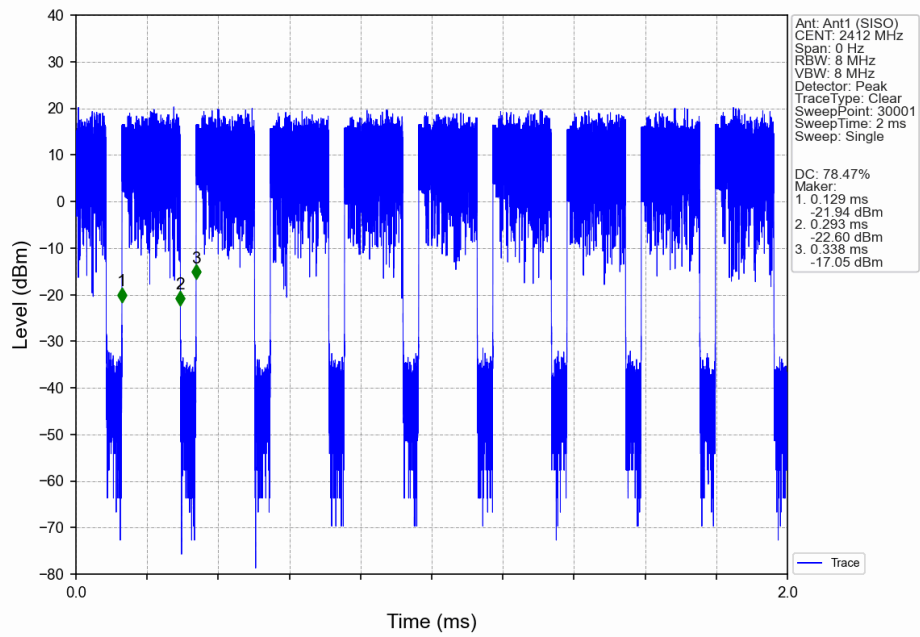
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



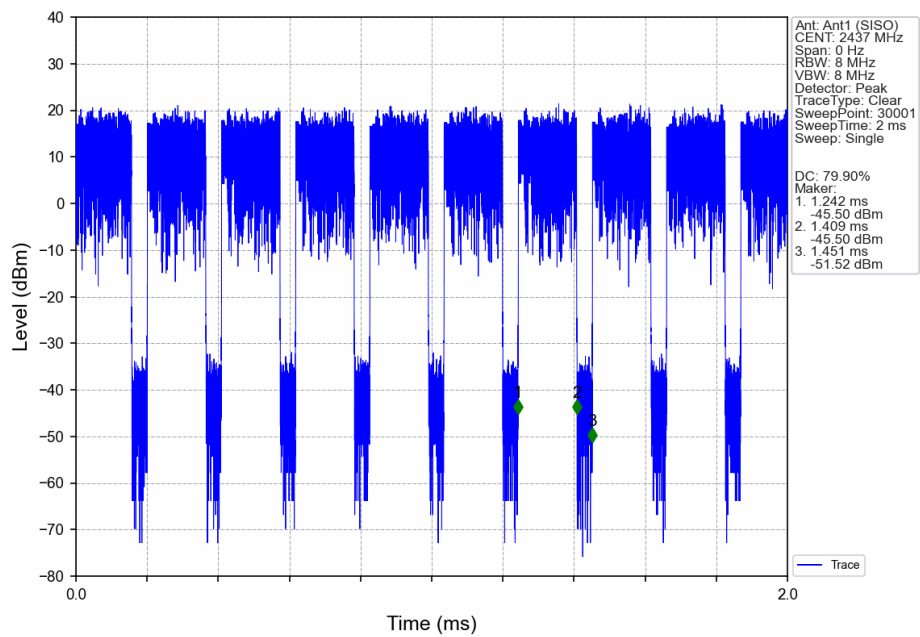
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



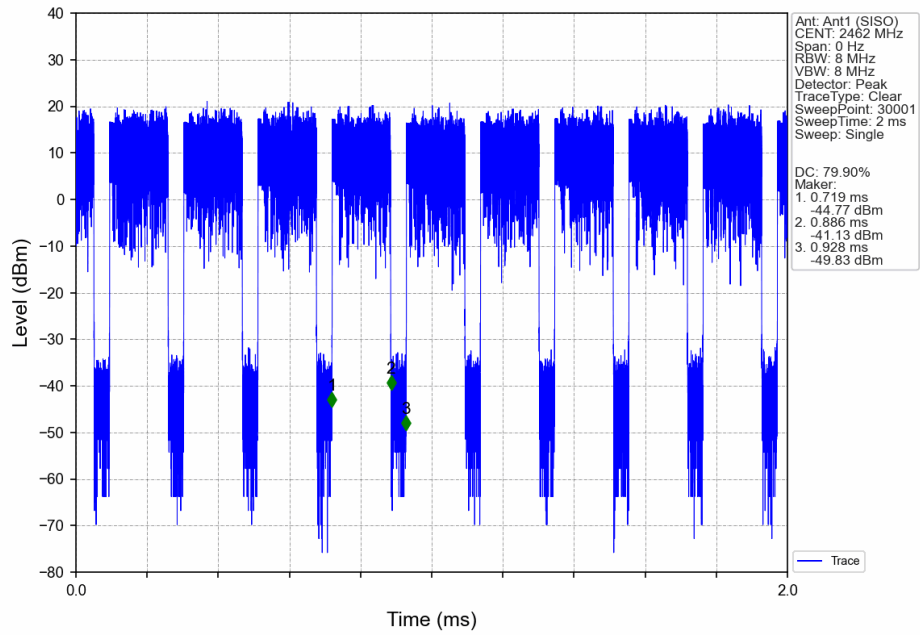
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



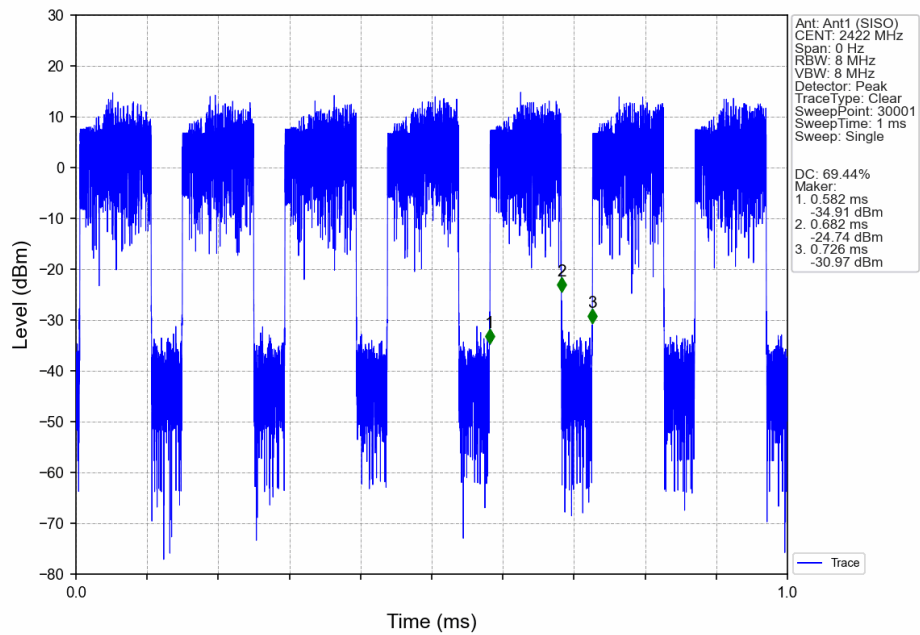
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



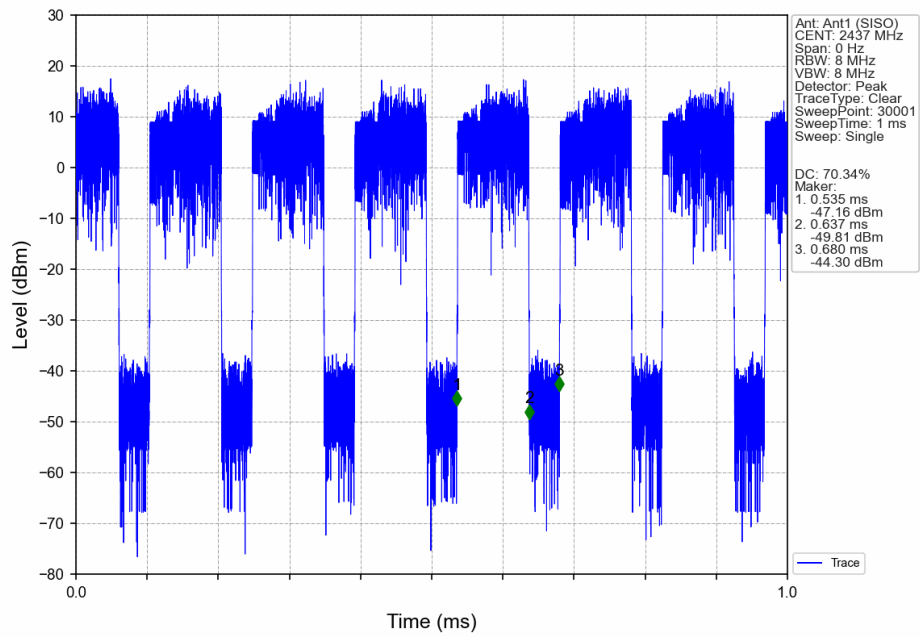
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



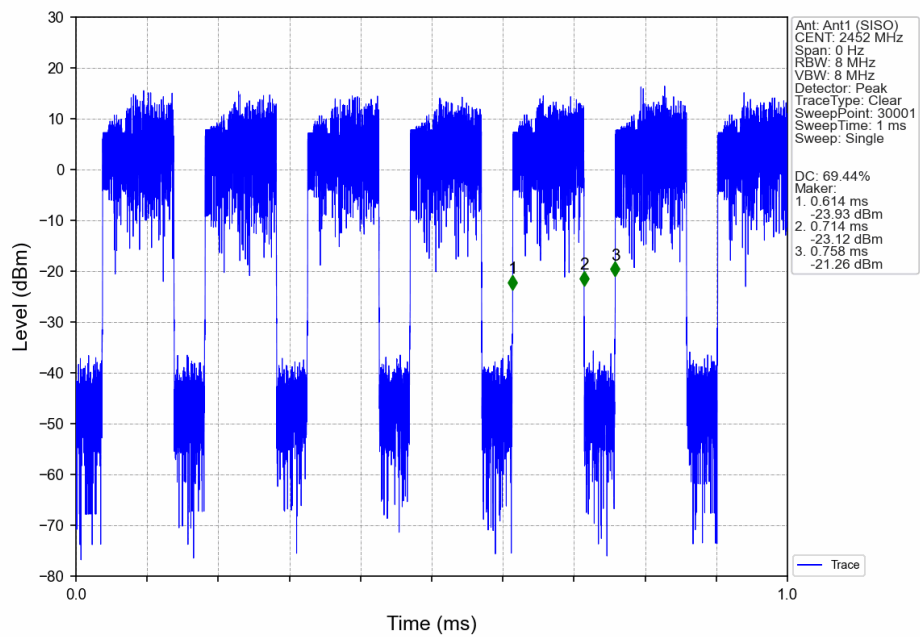
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



2. Bandwidth

2.1 Test Result

2.1.1 OBW

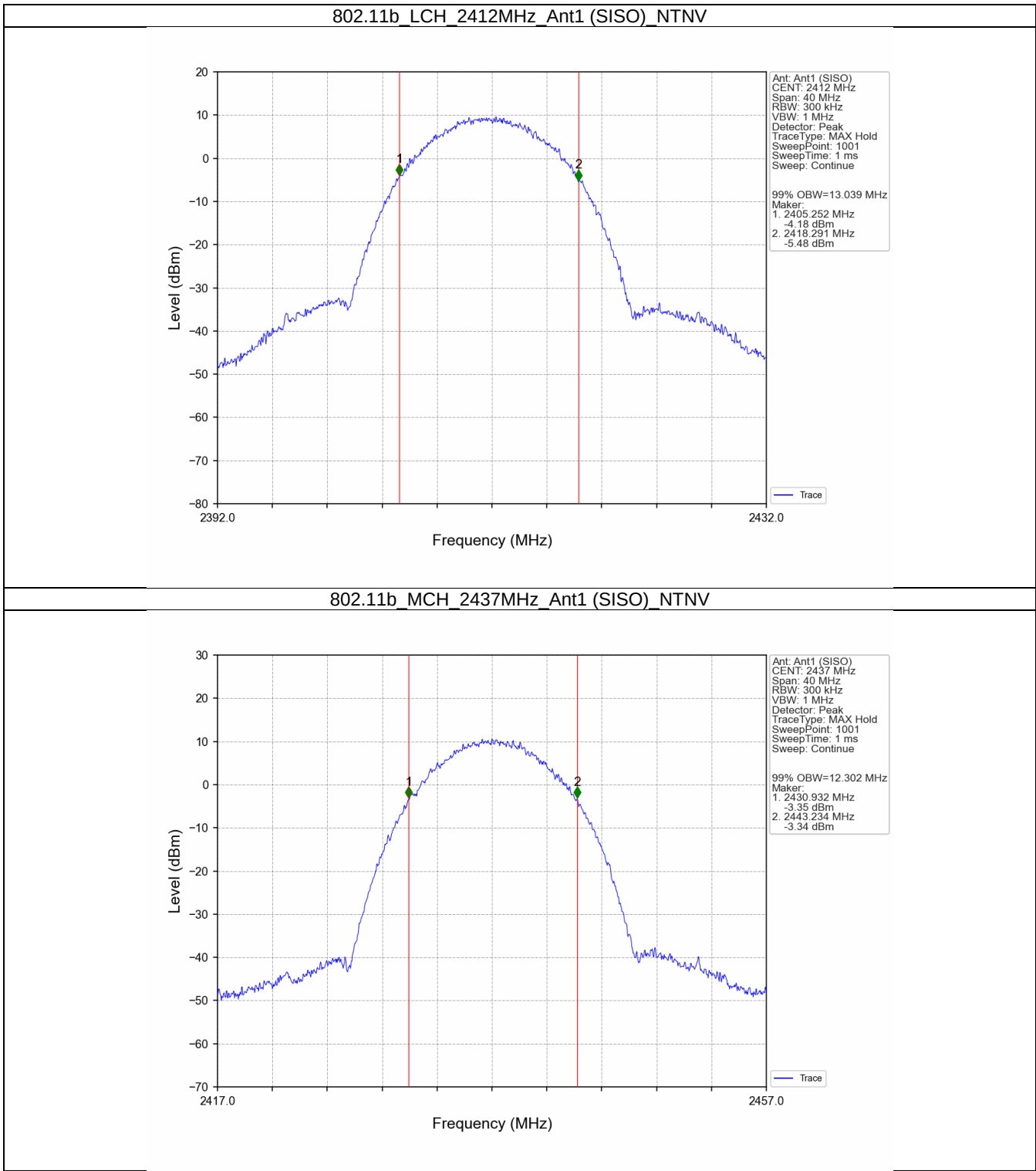
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	13.039	/	Pass
		2437	1	12.302	/	Pass
		2462	1	12.932	/	Pass
802.11g	SISO	2412	1	17.973	/	Pass
		2437	1	16.388	/	Pass
		2462	1	16.365	/	Pass
802.11n (HT20)	SISO	2412	1	18.407	/	Pass
		2437	1	17.589	/	Pass
		2462	1	17.550	/	Pass
802.11n (HT40)	SISO	2422	1	36.752	/	Pass
		2437	1	35.708	/	Pass
		2452	1	36.452	/	Pass

2.1.2 6dB BW

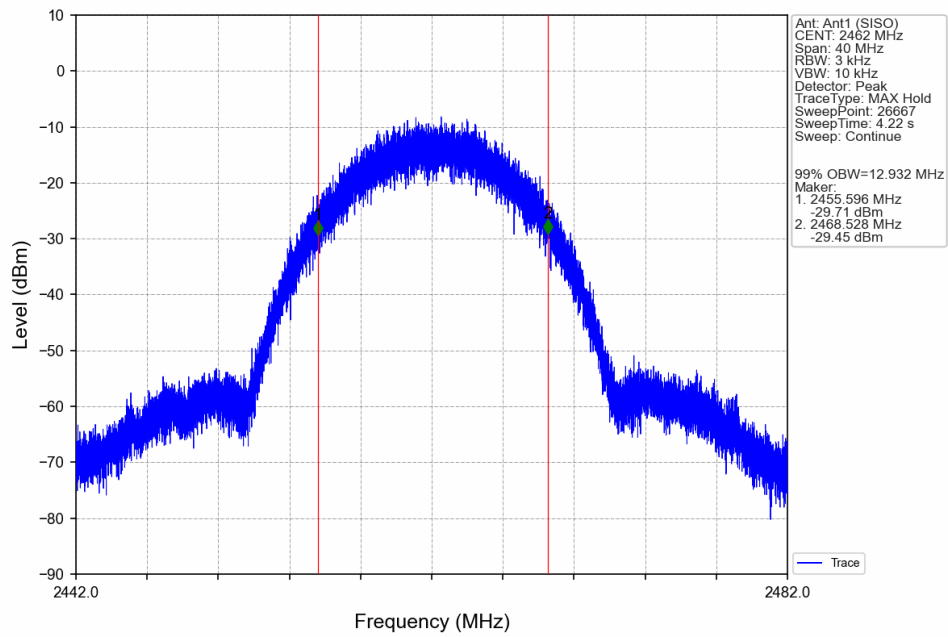
Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	8.560	≥ 0.5	Pass
		2437	1	7.481	≥ 0.5	Pass
		2462	1	8.121	≥ 0.5	Pass
802.11g	SISO	2412	1	16.465	≥ 0.5	Pass
		2437	1	14.794	≥ 0.5	Pass
		2462	1	16.231	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	17.789	≥ 0.5	Pass
		2437	1	16.646	≥ 0.5	Pass
		2462	1	16.473	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	36.275	≥ 0.5	Pass
		2437	1	28.829	≥ 0.5	Pass
		2452	1	35.747	≥ 0.5	Pass

2.2 Test Graph

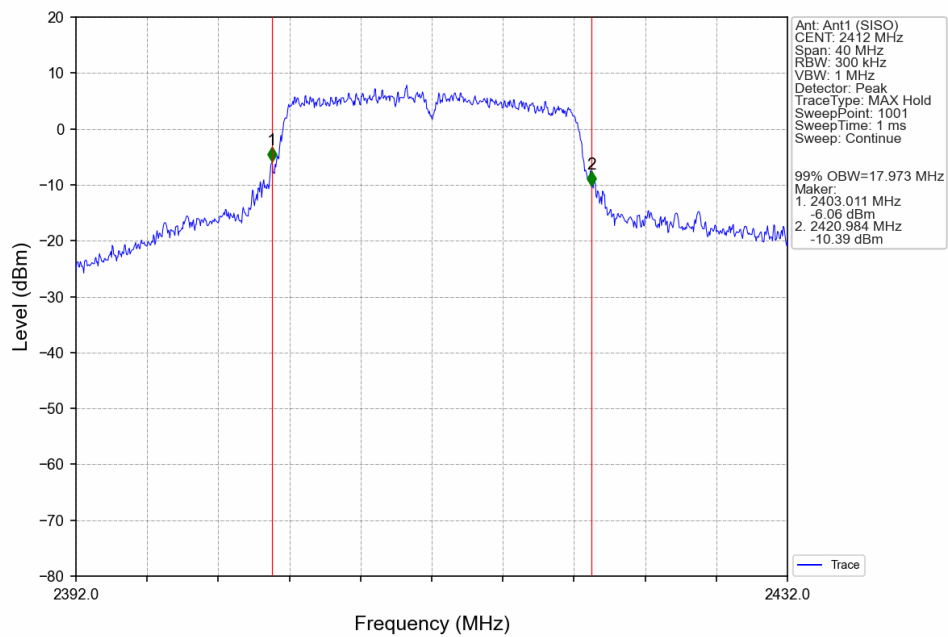
2.2.1 OBW



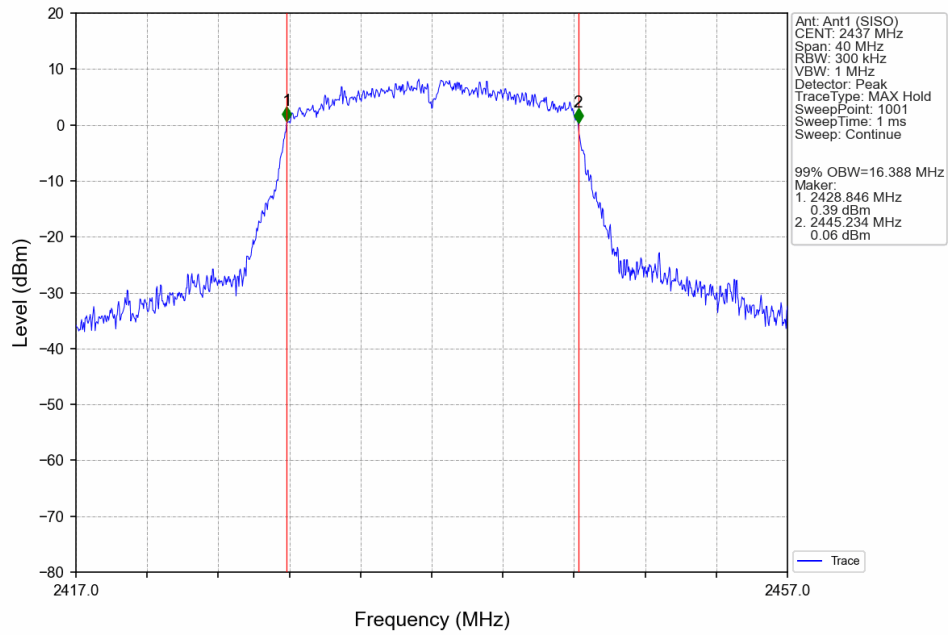
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



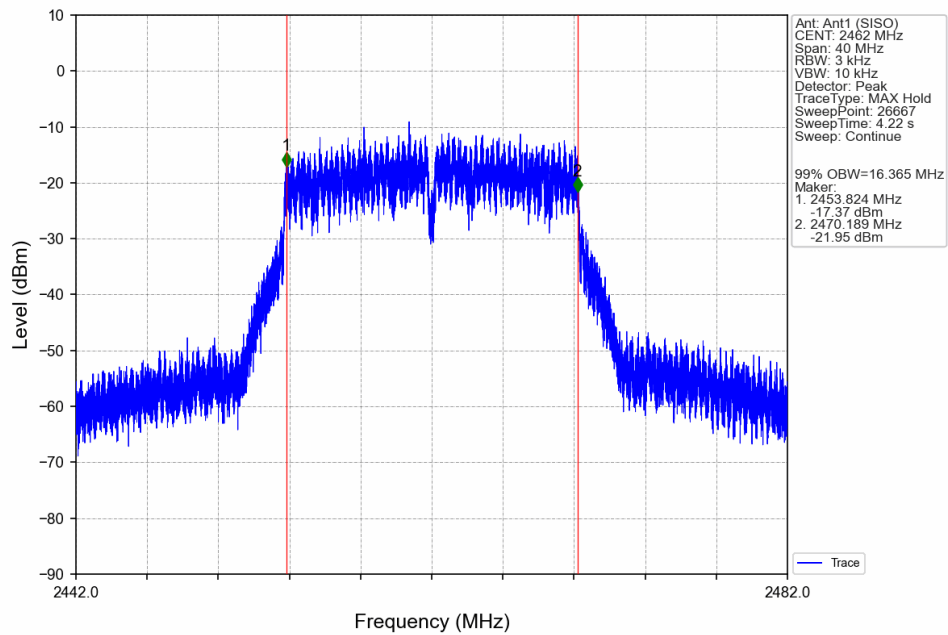
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



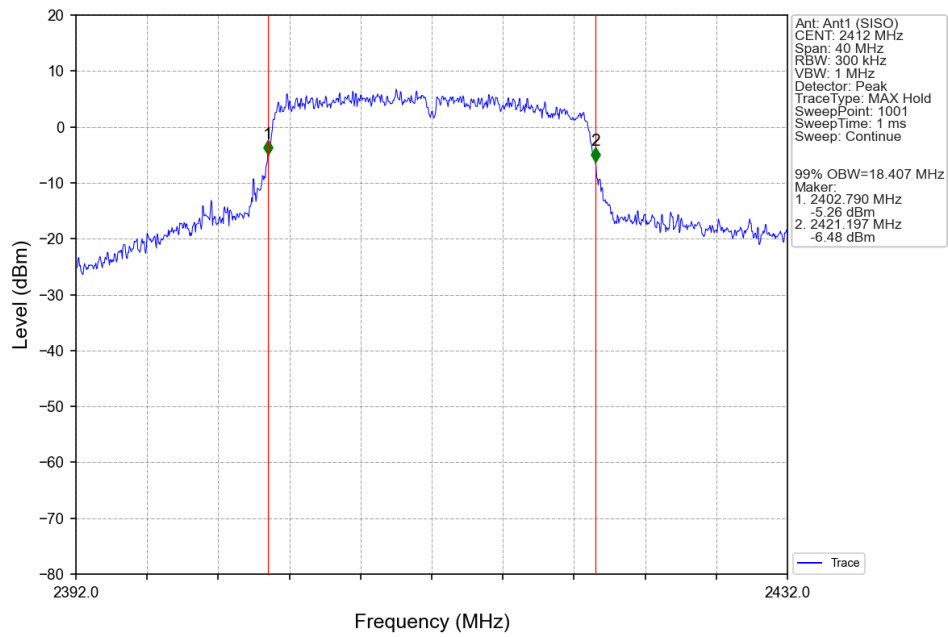
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



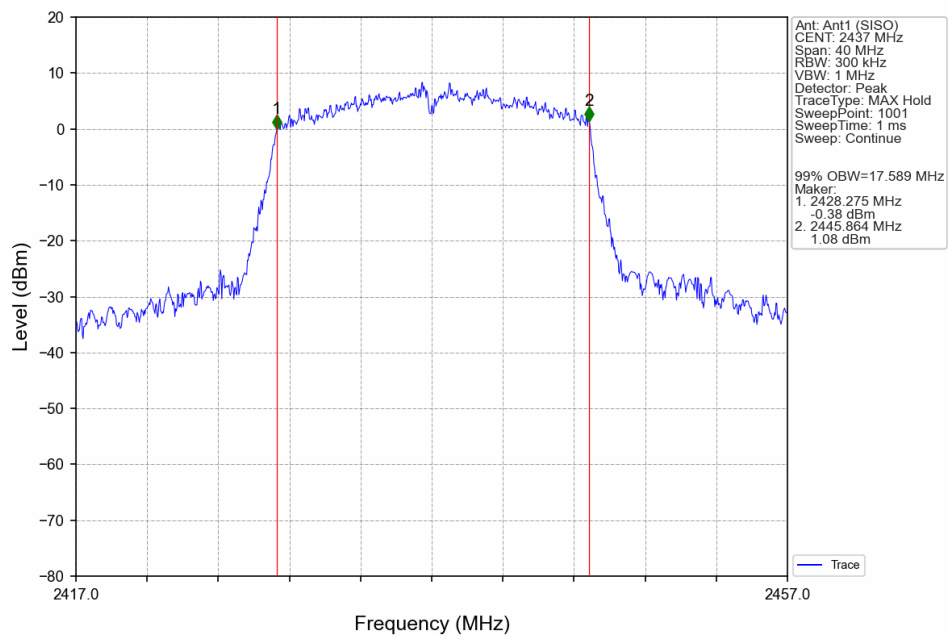
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



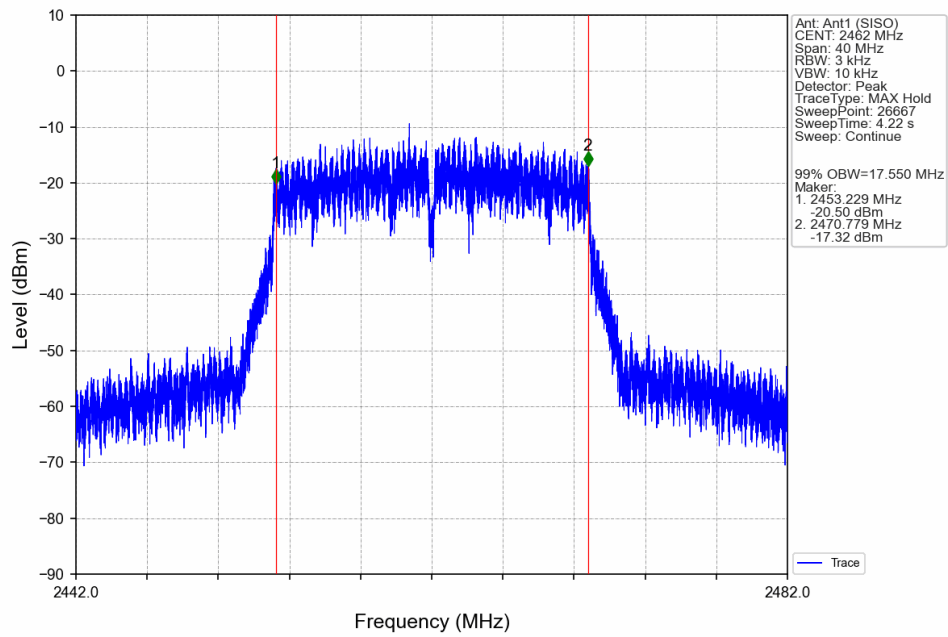
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



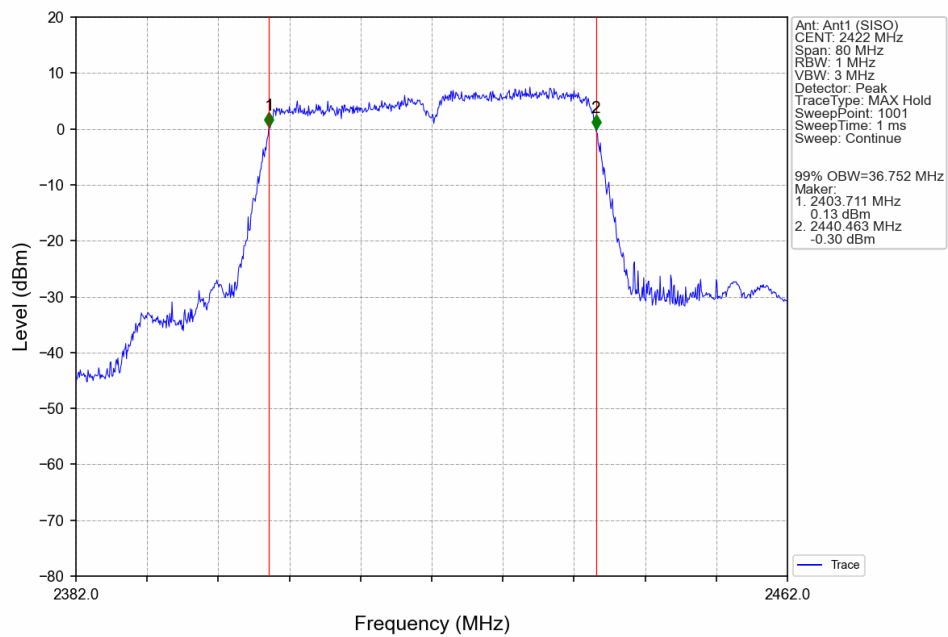
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



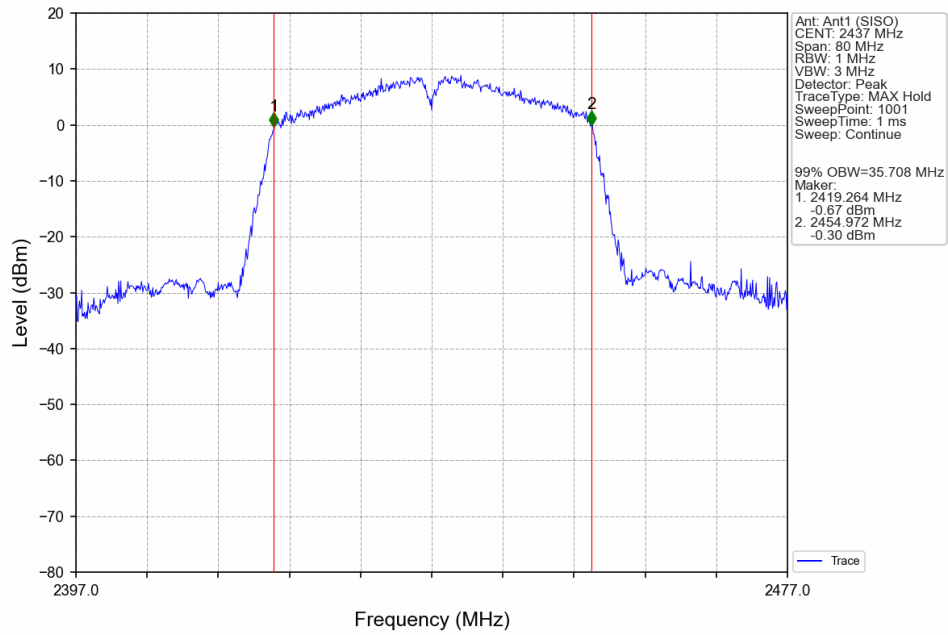
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



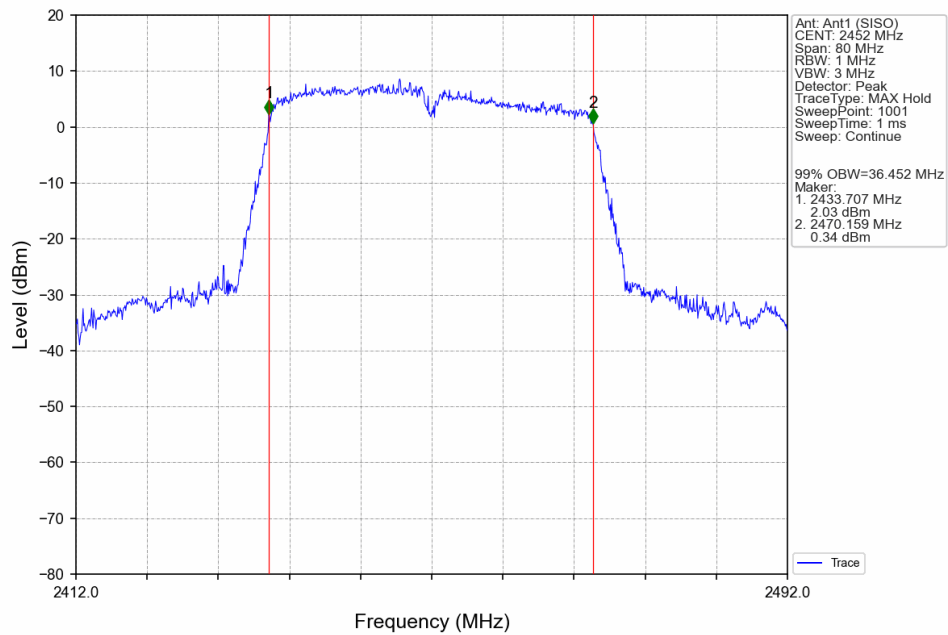
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



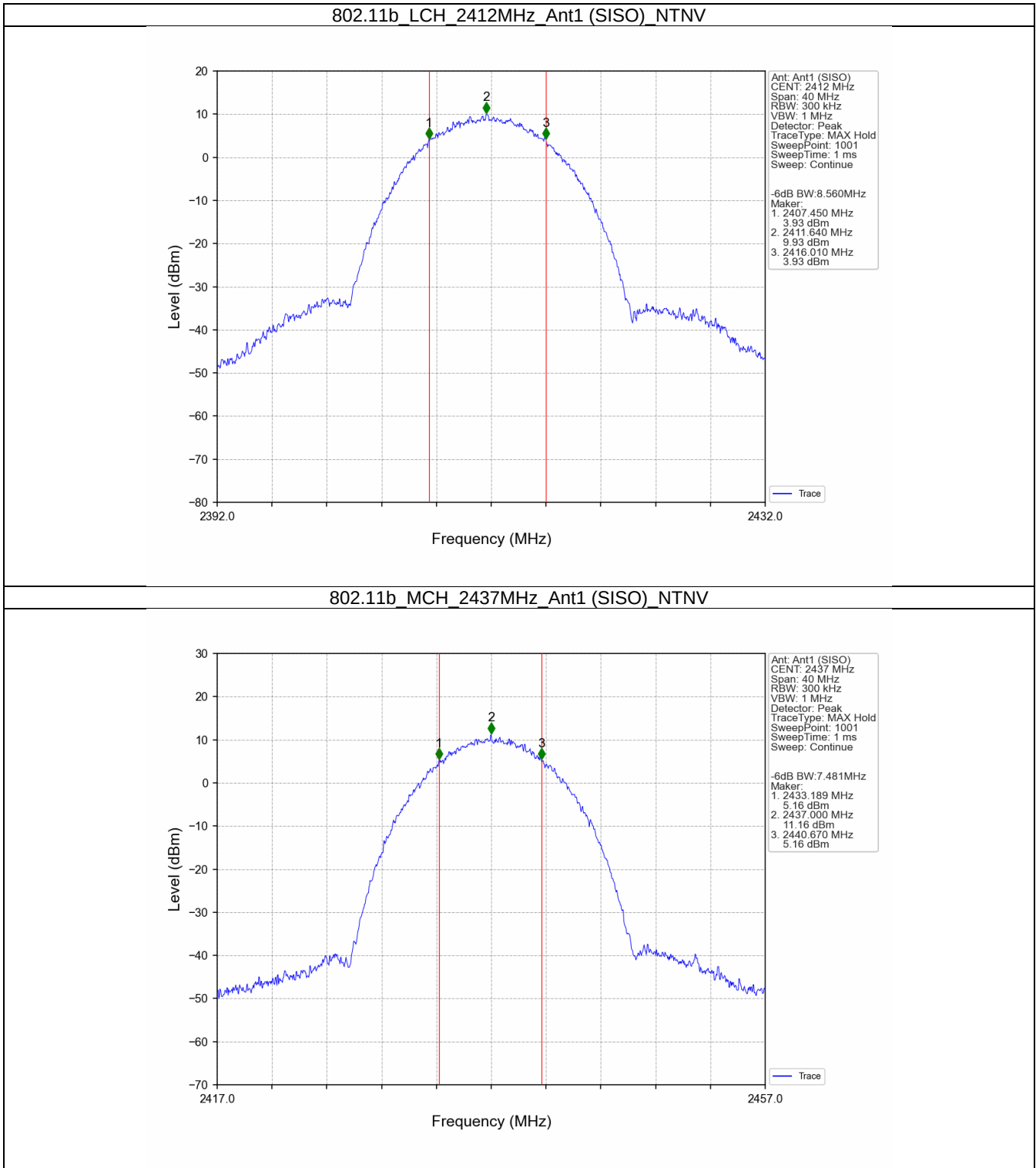
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



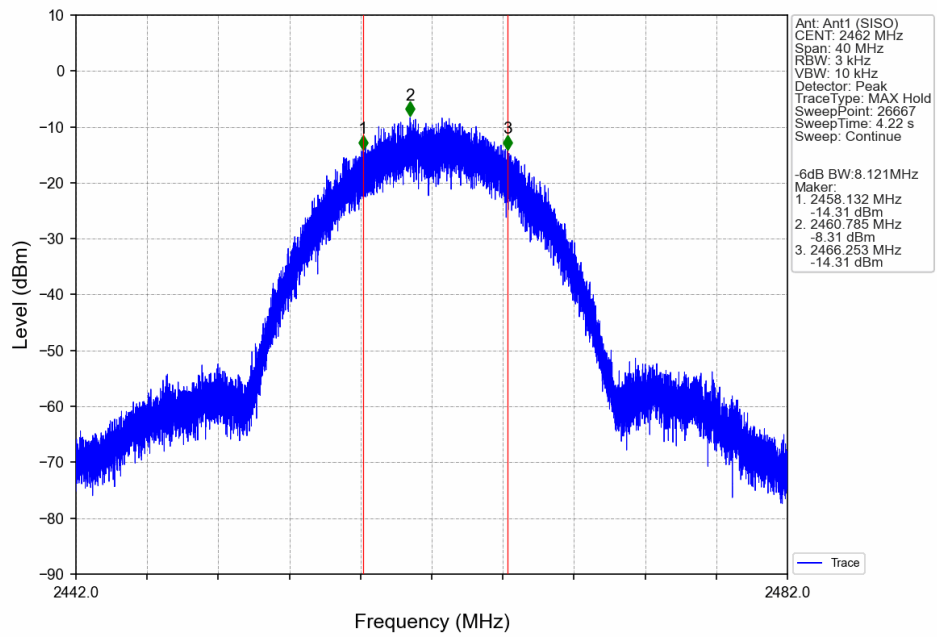
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



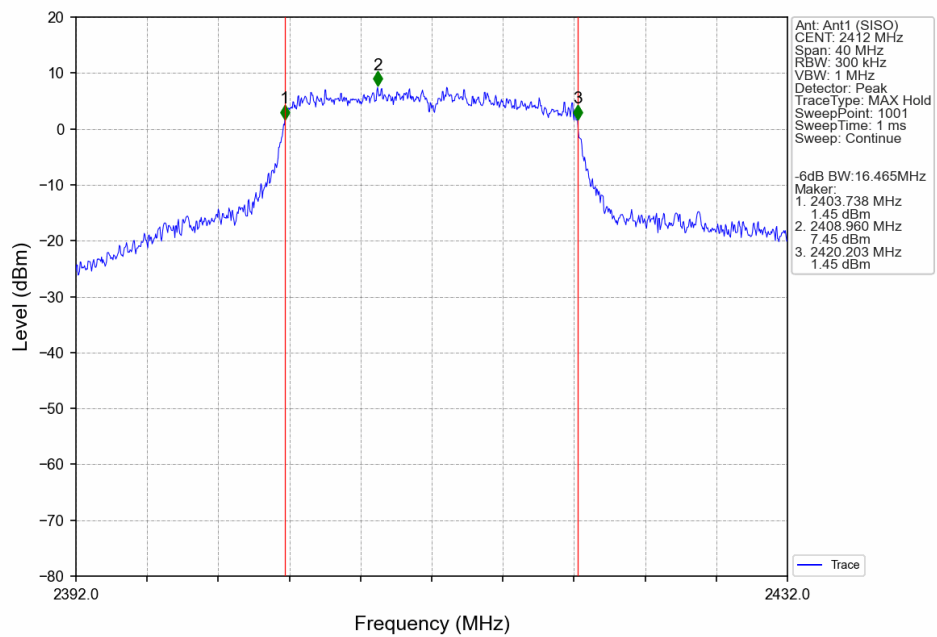
2.2.2 6dB BW



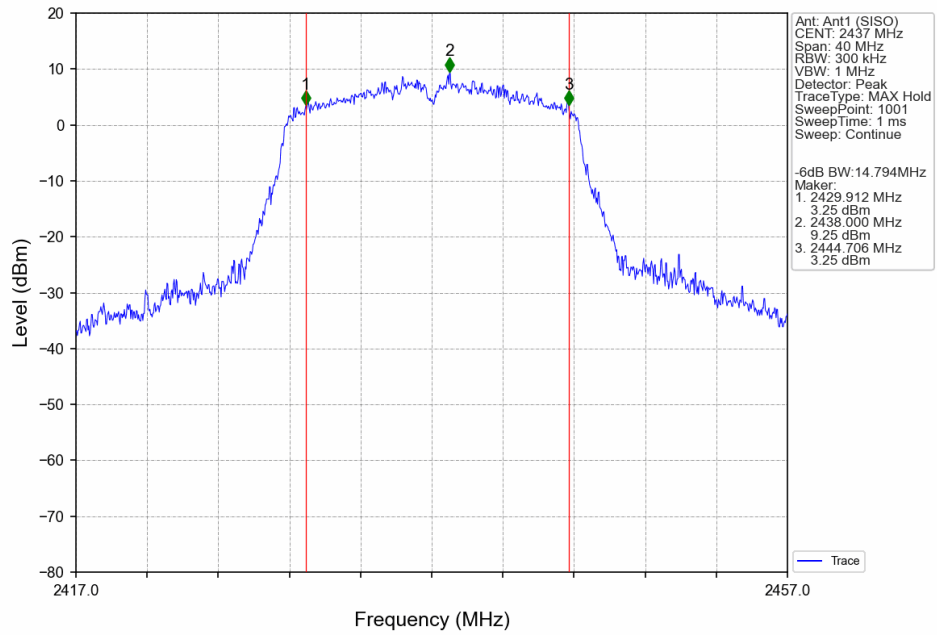
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



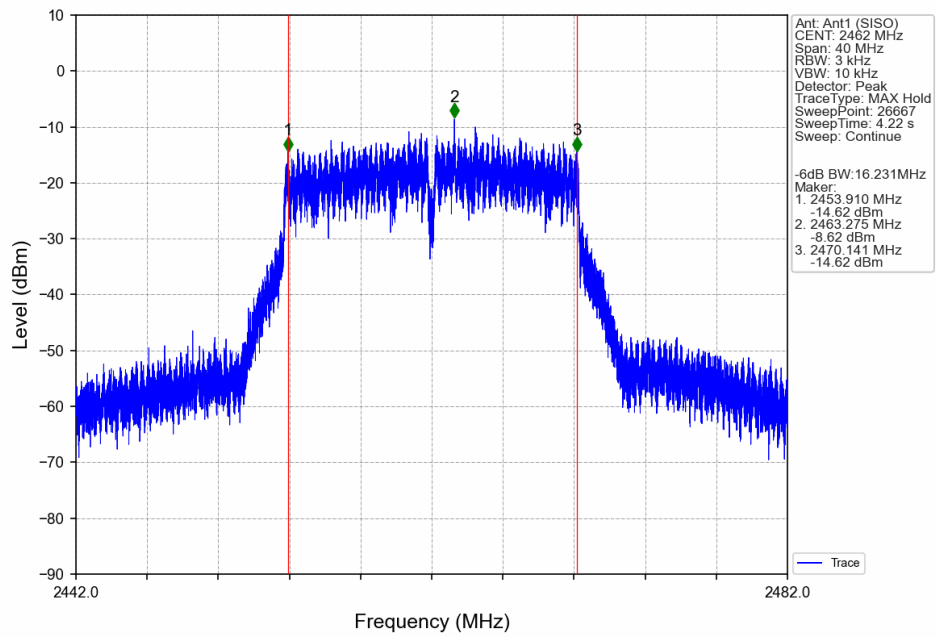
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



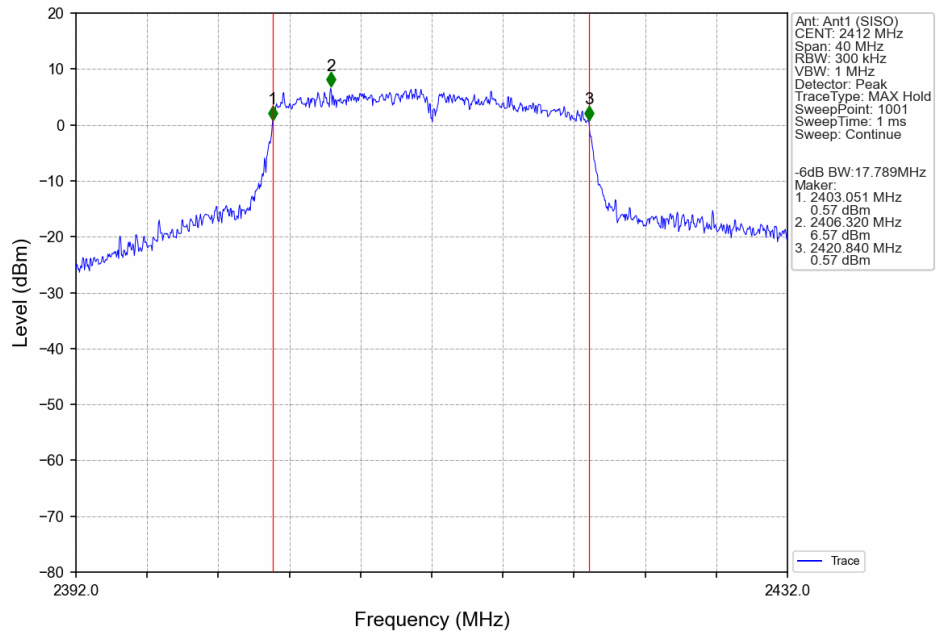
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



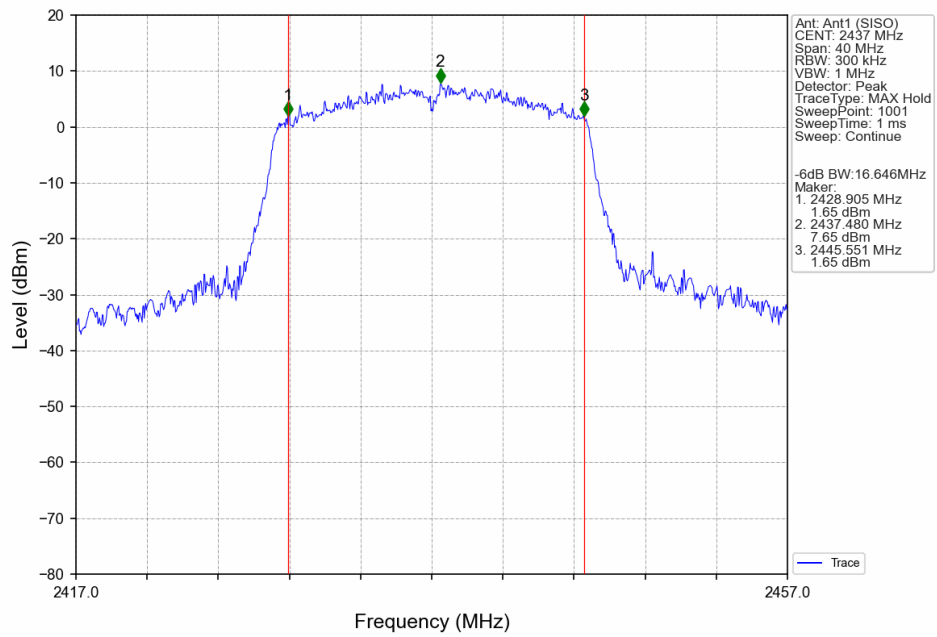
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



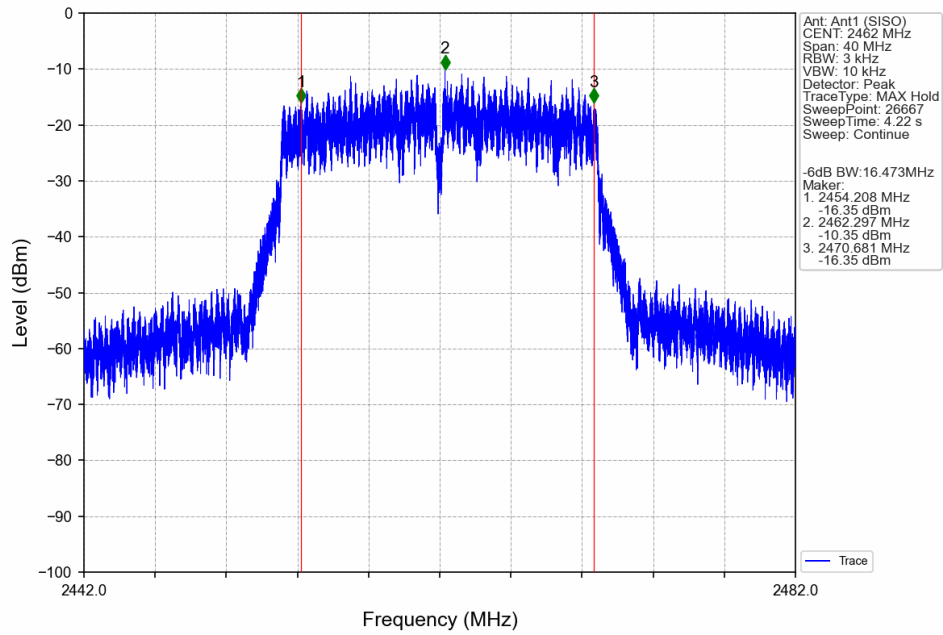
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



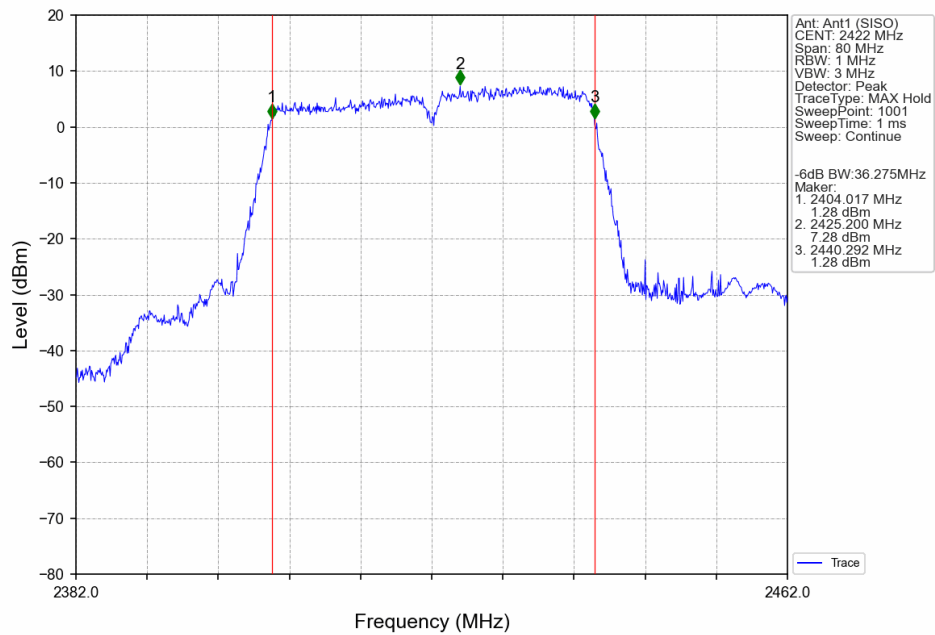
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



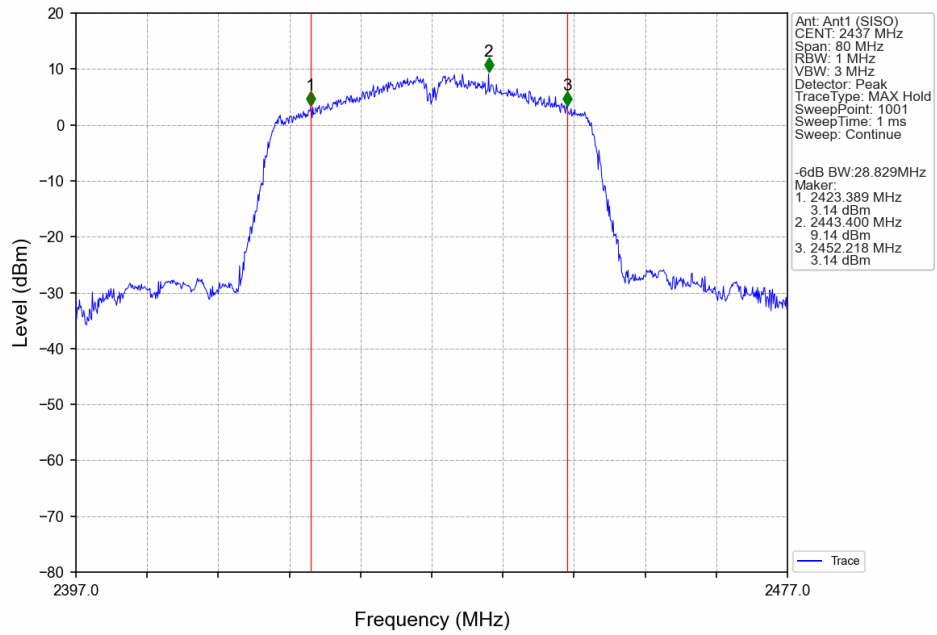
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



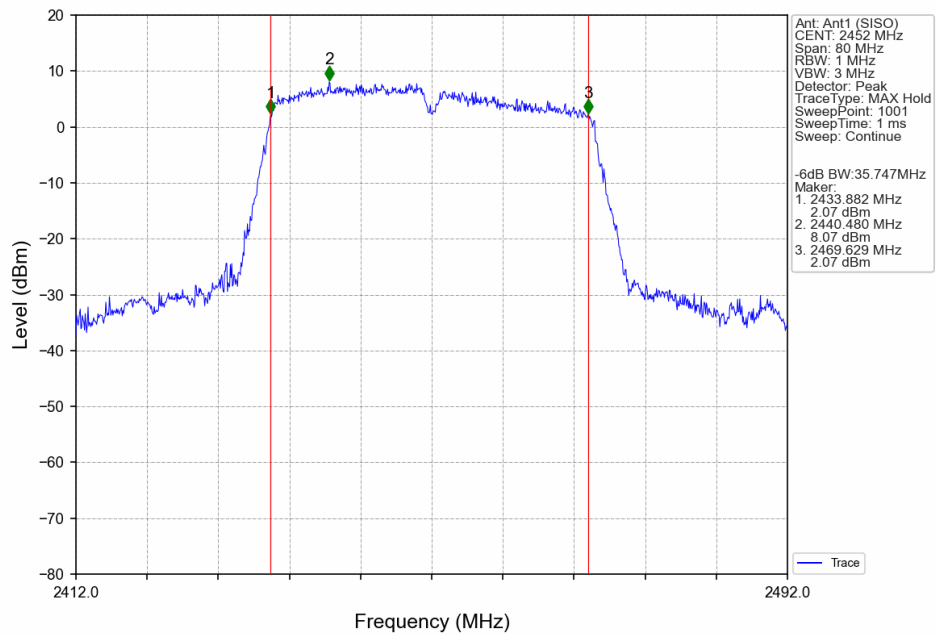
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



3. Maximum Conducted Output Power

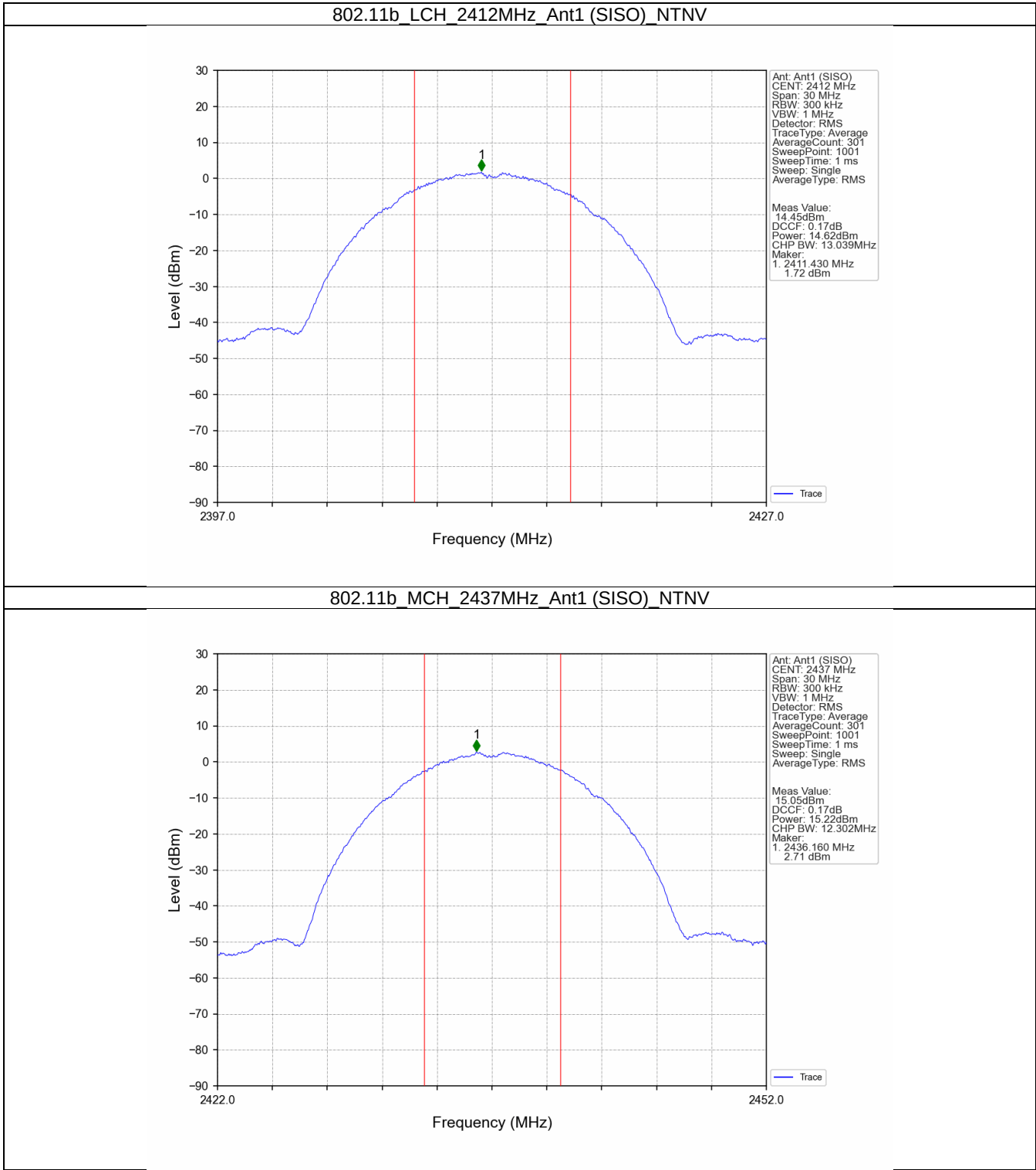
3.1 Test Result

3.1.1 Power

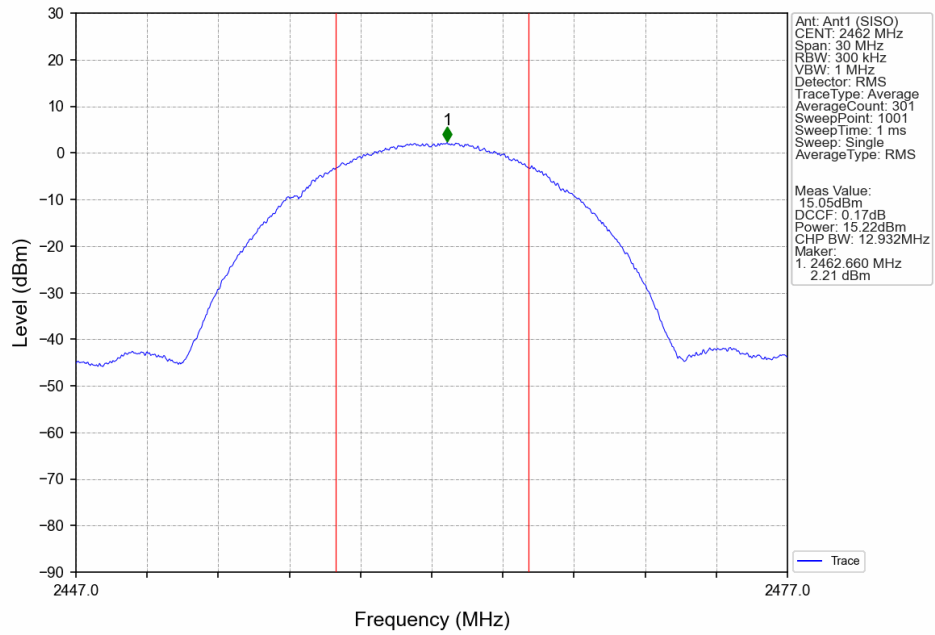
Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	14.62	<=30	Pass
		2437	15.22	<=30	Pass
		2462	15.22	<=30	Pass
802.11g	SISO	2412	14.74	<=30	Pass
		2437	14.86	<=30	Pass
		2462	15.11	<=30	Pass
802.11n (HT20)	SISO	2412	14.26	<=30	Pass
		2437	14.53	<=30	Pass
		2462	14.52	<=30	Pass
802.11n (HT40)	SISO	2422	12.03	<=30	Pass
		2437	13.86	<=30	Pass
		2452	12.93	<=30	Pass

3.2 Test Graph

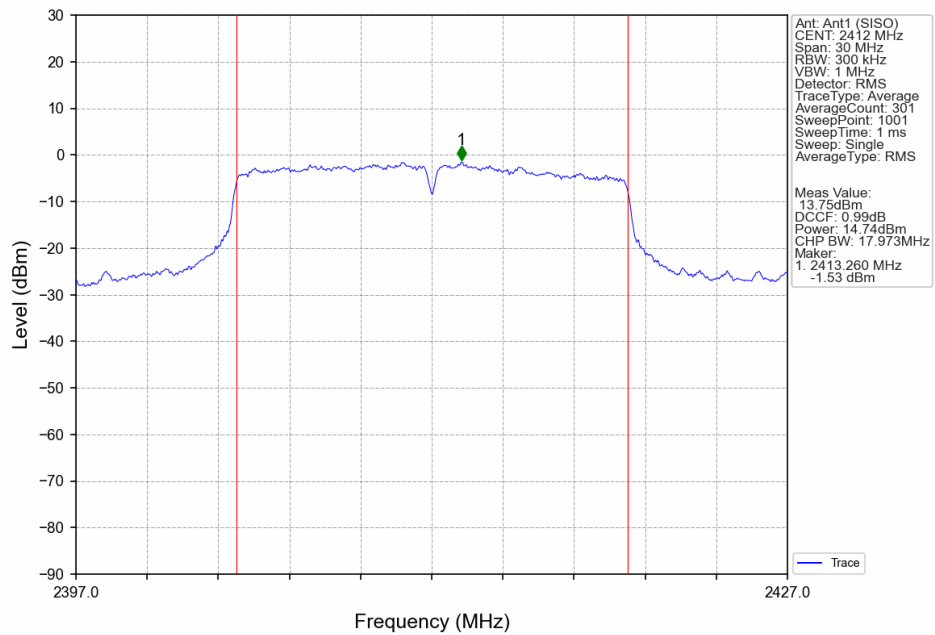
3.2.1 Power



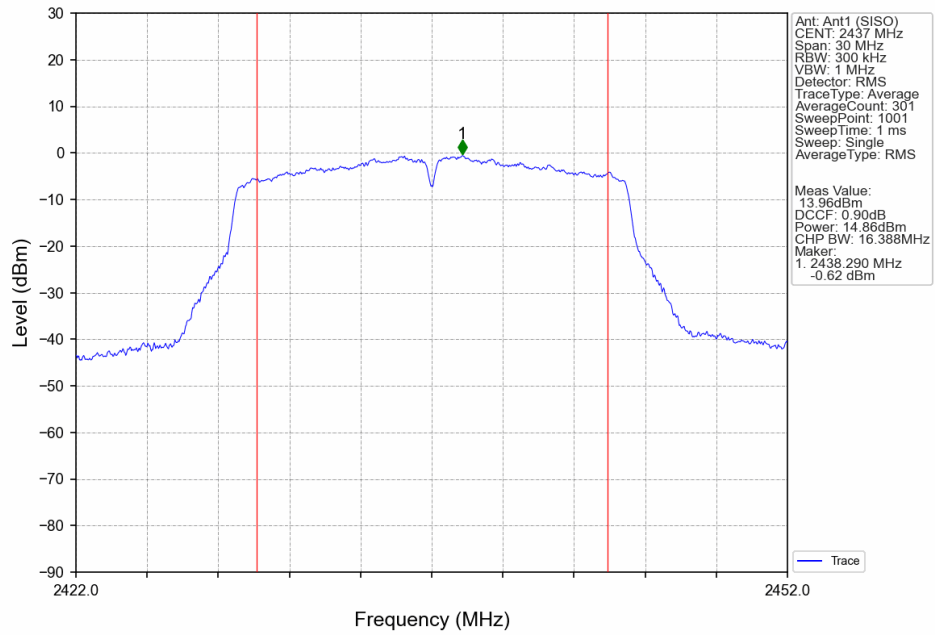
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



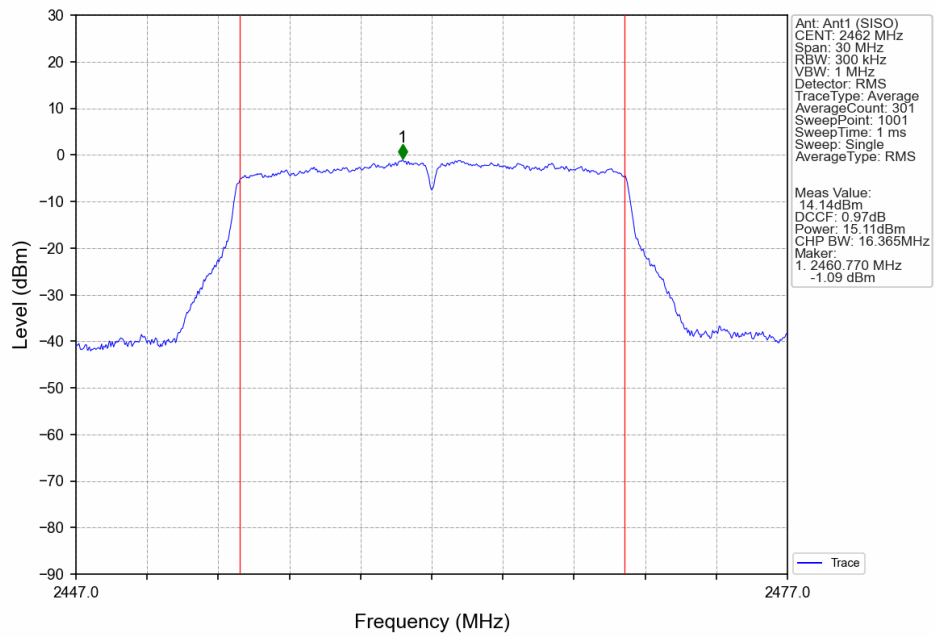
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



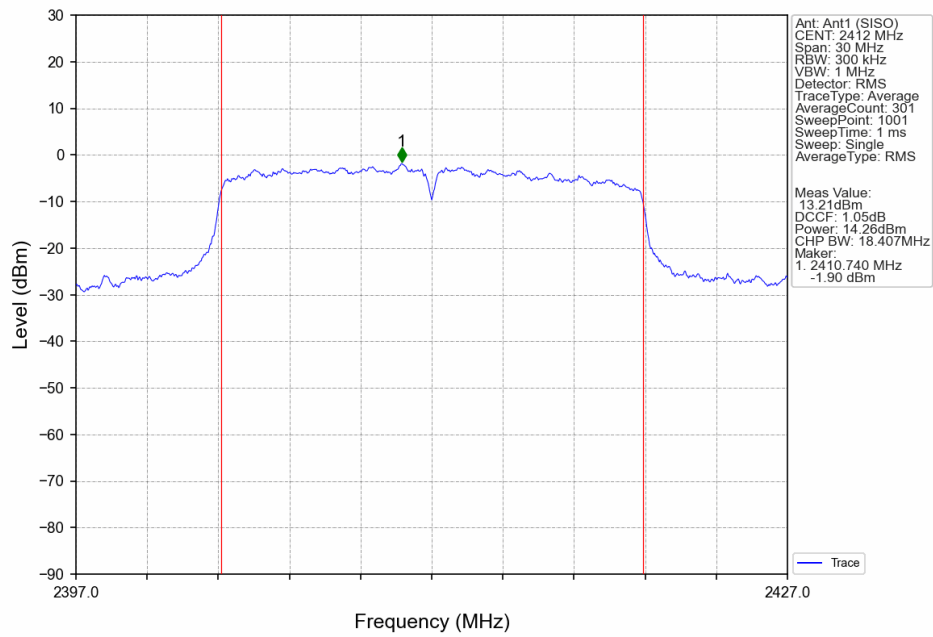
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



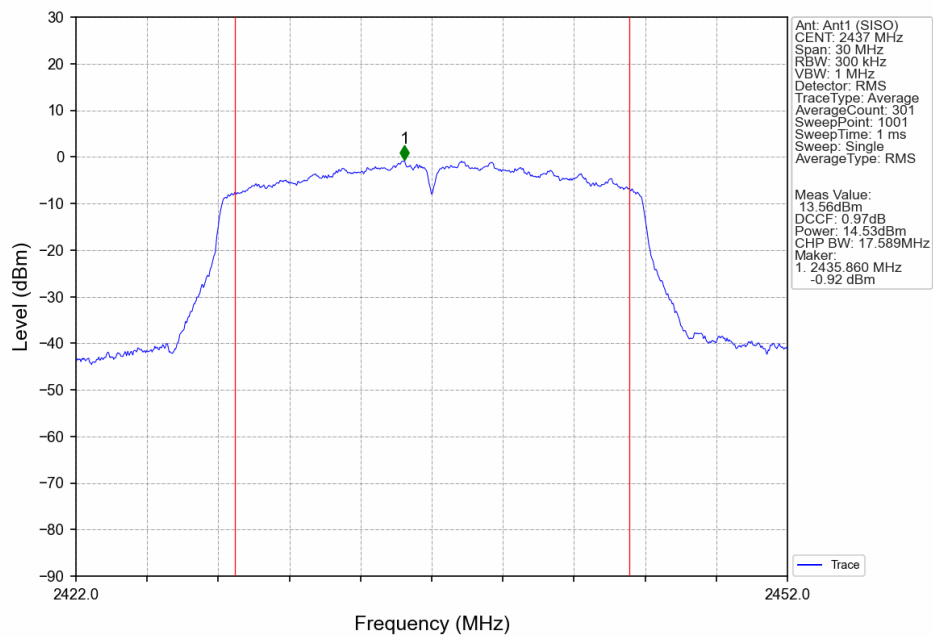
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



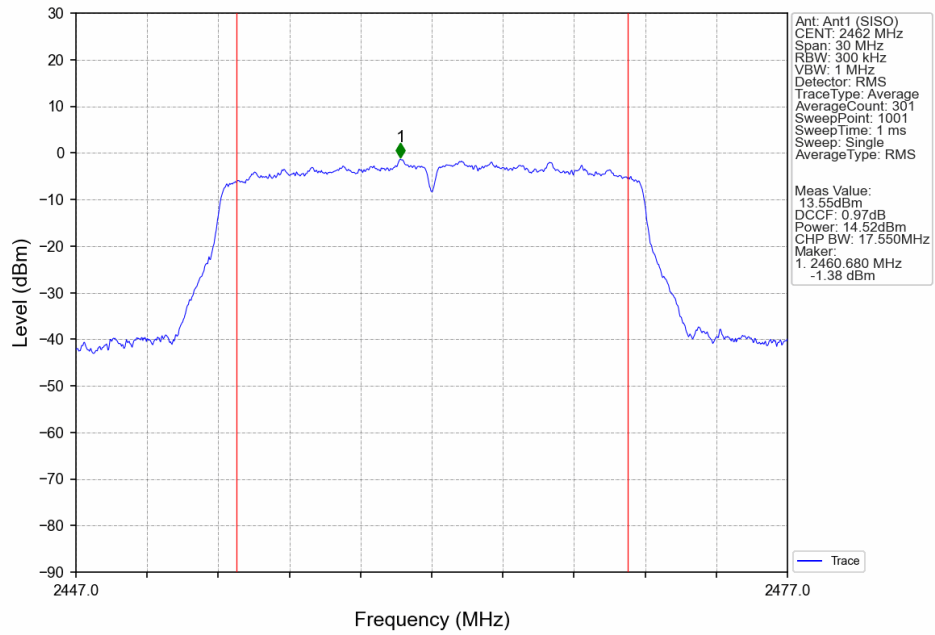
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



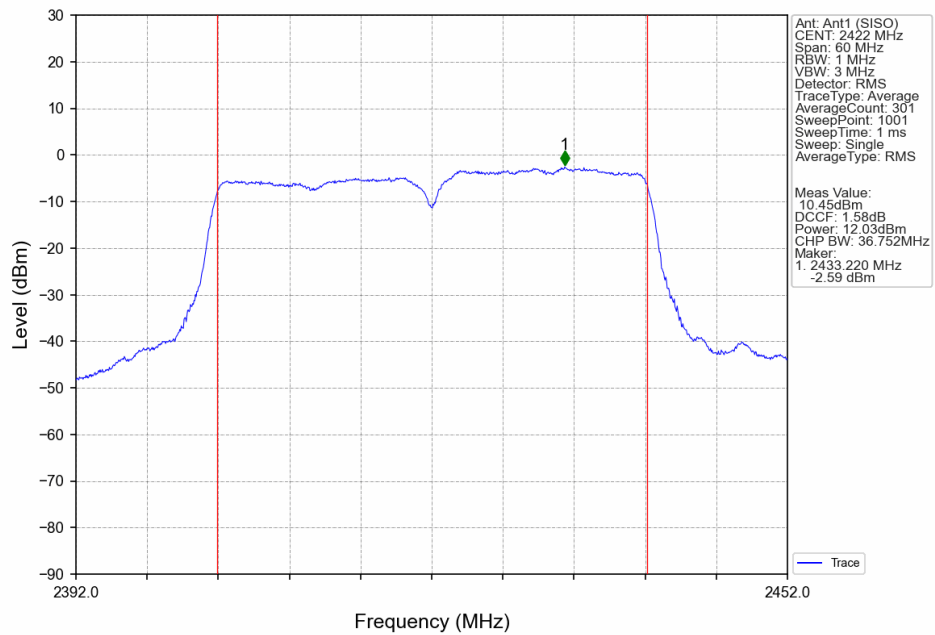
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



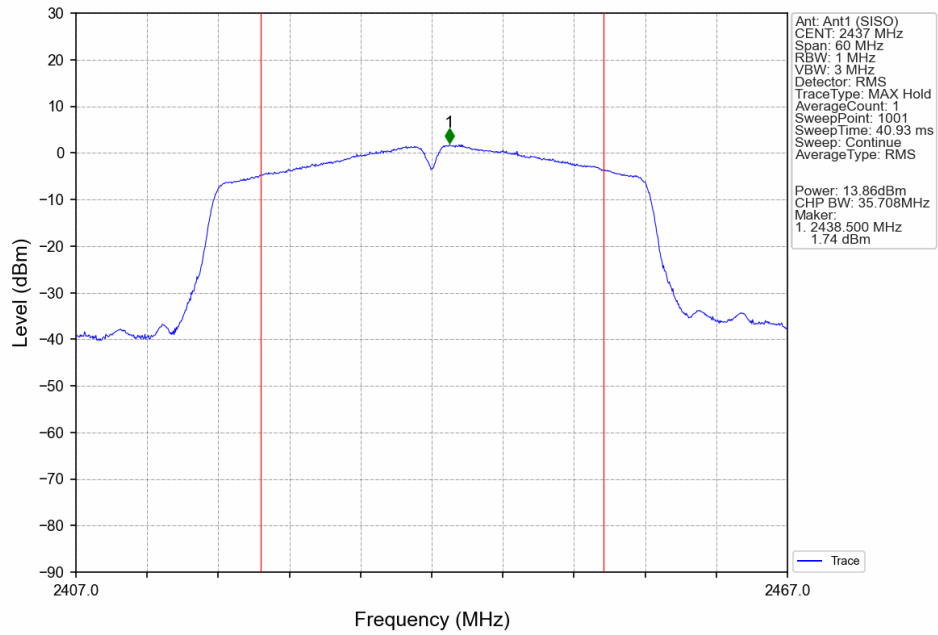
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



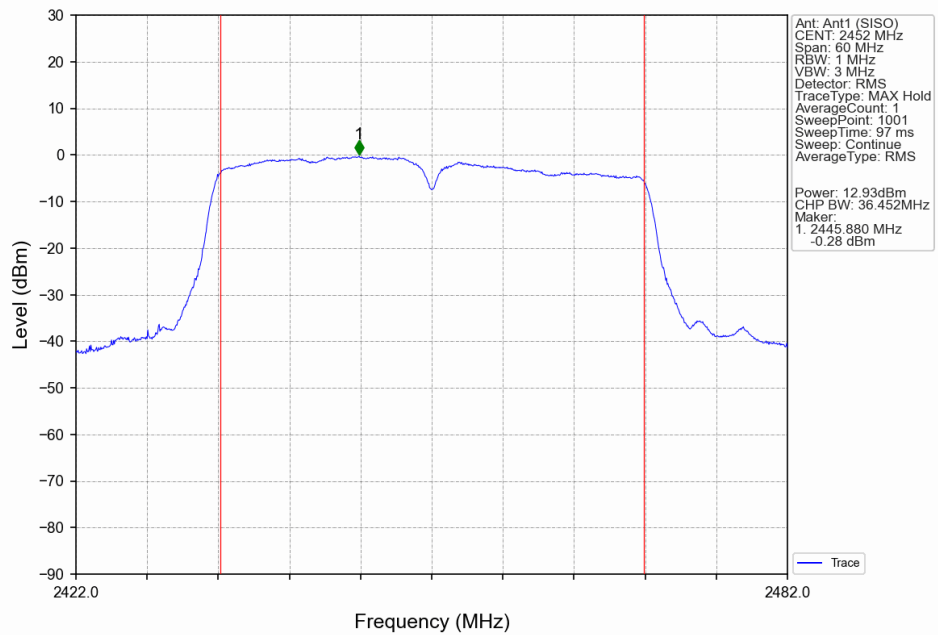
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



4. Maximum Power Spectral Density

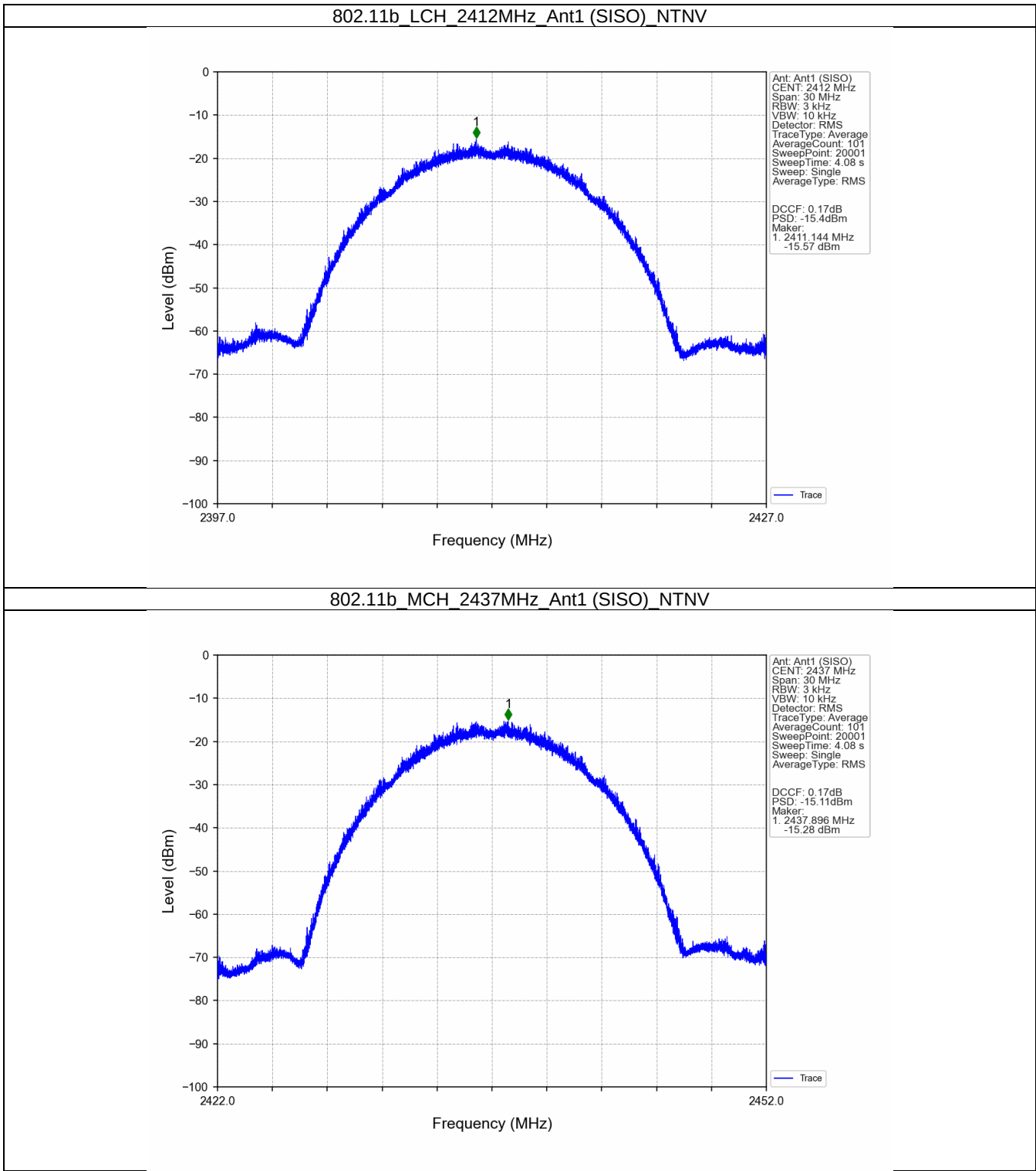
4.1 Test Result

4.1.1 PSD

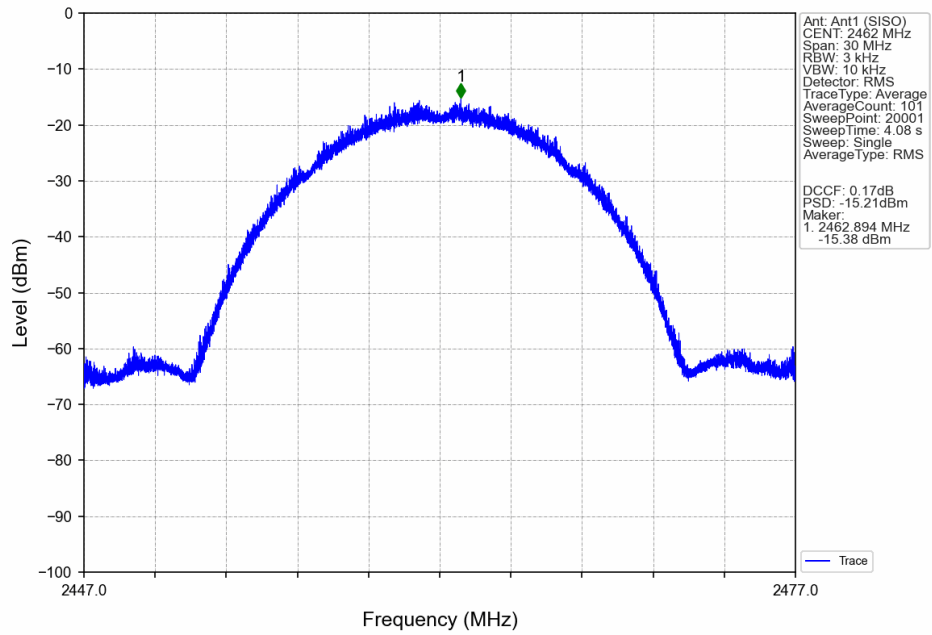
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-15.40	<=8	Pass
		2437	-15.11	<=8	Pass
		2462	-15.21	<=8	Pass
802.11g	SISO	2412	-15.72	<=8	Pass
		2437	-14.52	<=8	Pass
		2462	-14.73	<=8	Pass
802.11n (HT20)	SISO	2412	-14.42	<=8	Pass
		2437	-13.68	<=8	Pass
		2462	-14.27	<=8	Pass
802.11n (HT40)	SISO	2422	-17.31	<=8	Pass
		2437	-14.66	<=8	Pass
		2452	-15.86	<=8	Pass

4.2 Test Graph

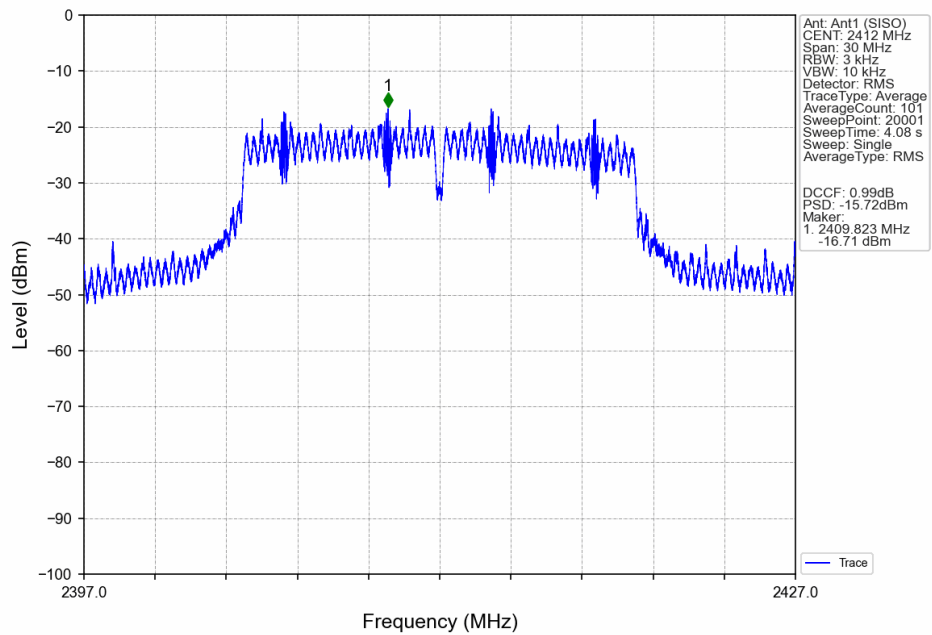
4.2.1 PSD



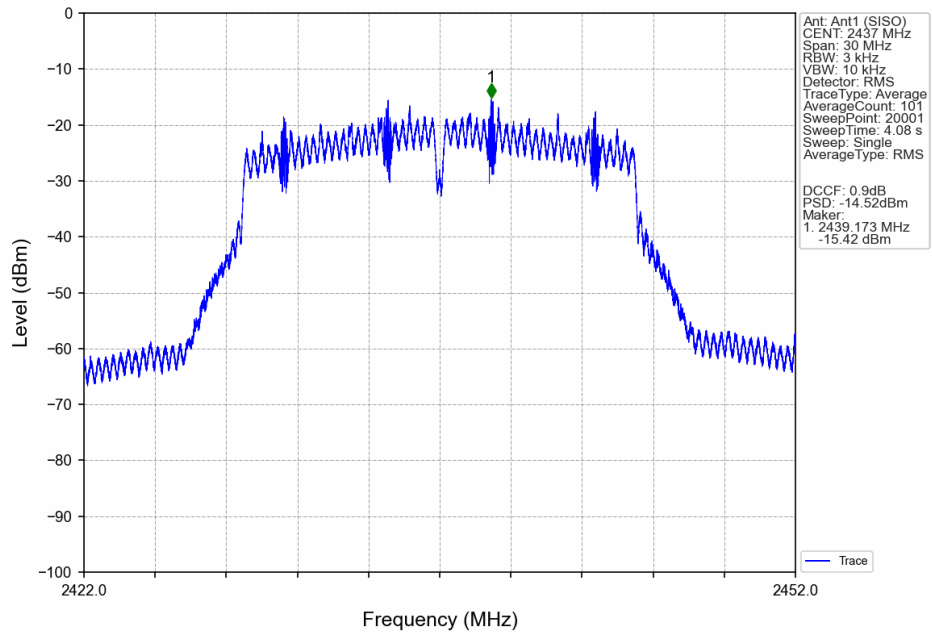
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



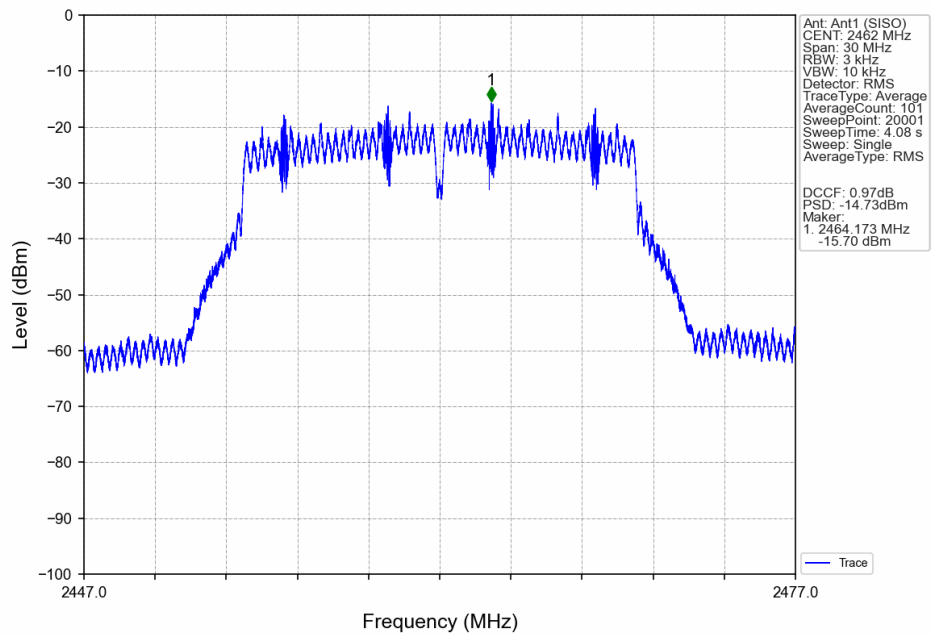
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



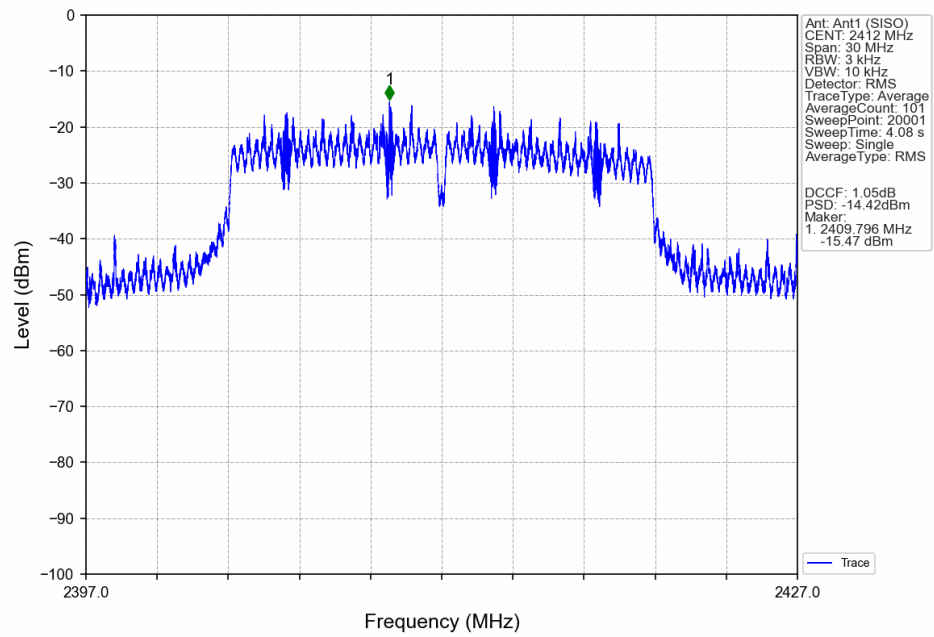
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



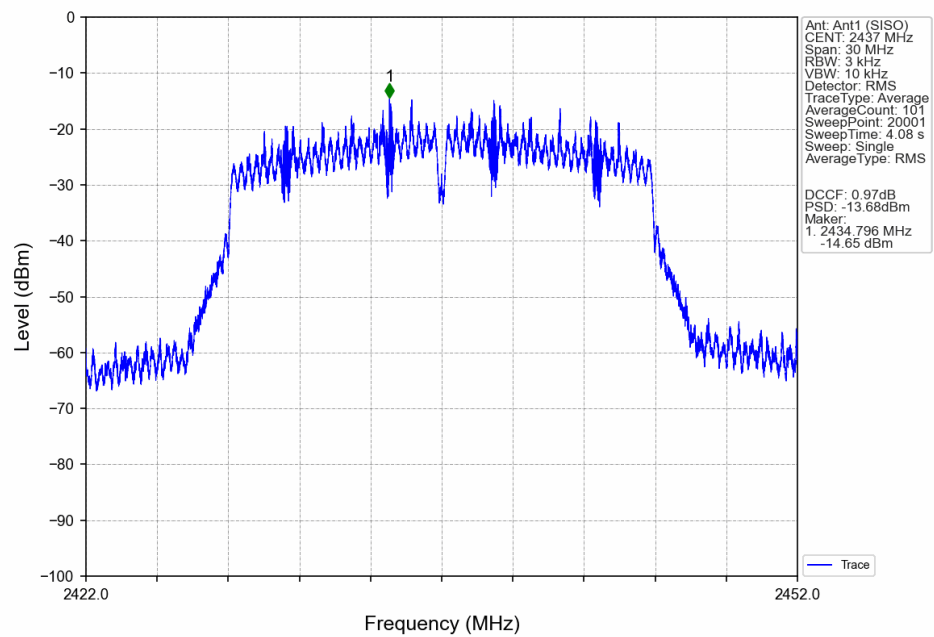
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



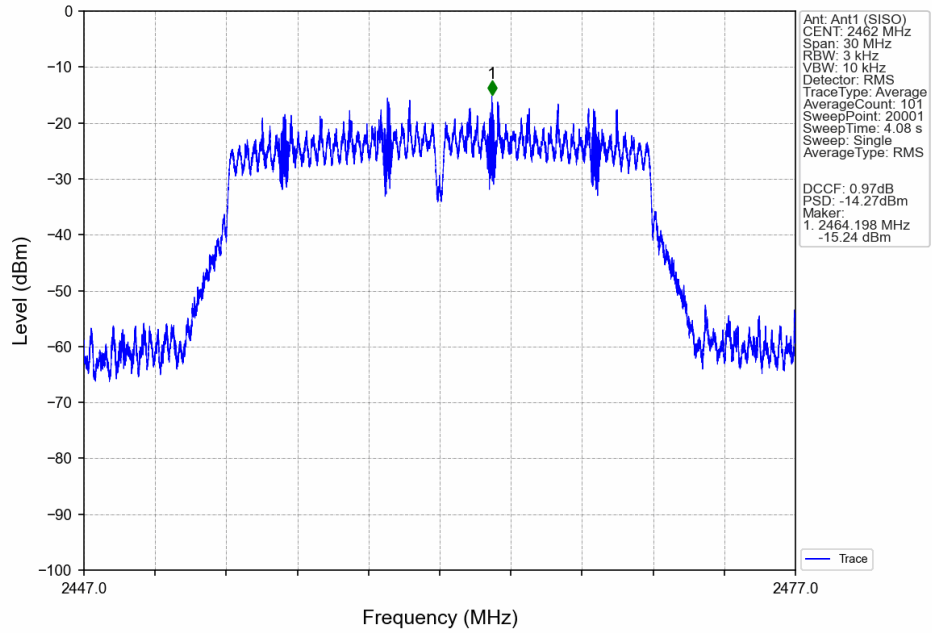
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



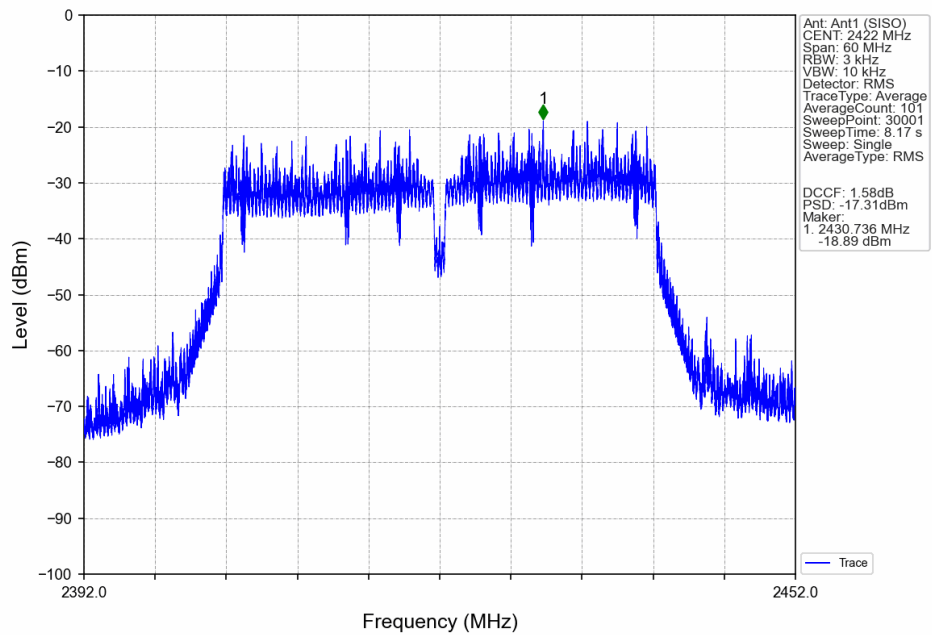
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



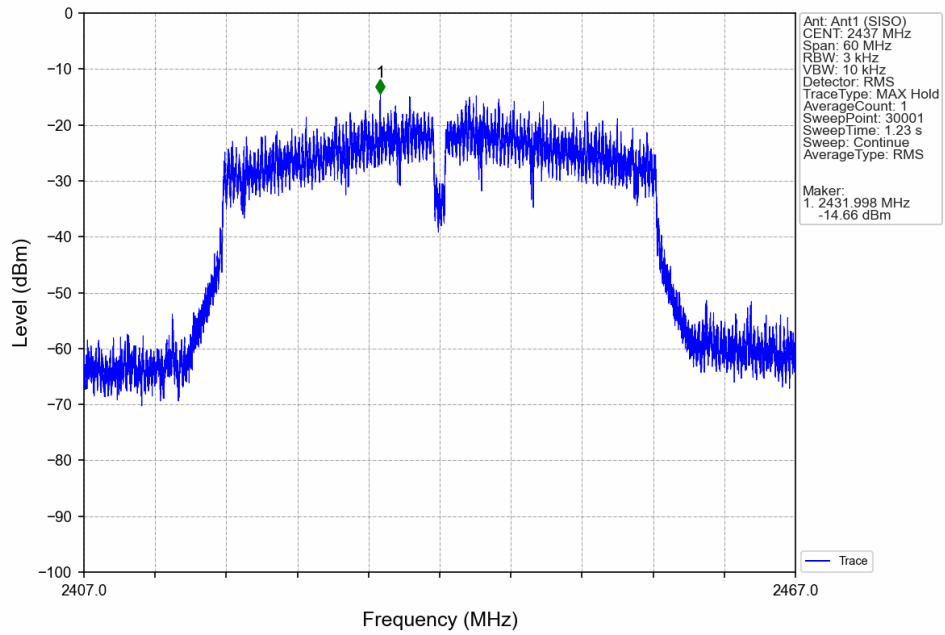
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



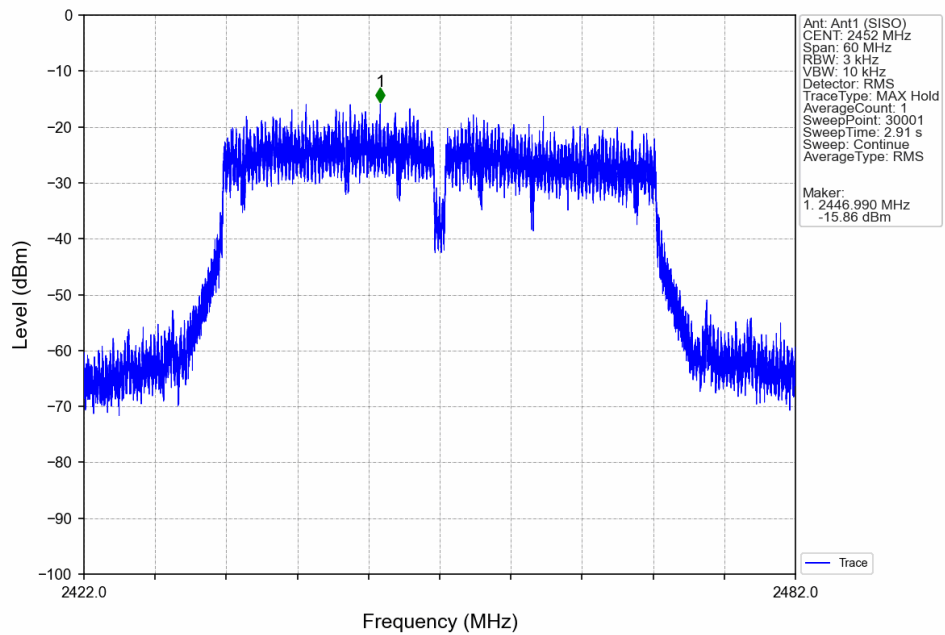
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



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	6.70
		2437	1	8.02
		2462	1	7.19
802.11g	SISO	2412	1	2.22
		2437	1	5.67
		2462	1	5.03
802.11n (HT20)	SISO	2412	1	2.05
		2437	1	5.43
		2462	1	4.59
802.11n (HT40)	SISO	2422	1	-0.71
		2437	1	0.89
		2452	1	-0.43

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10:2020+Cor.1:2023, the channel contains the maximum PSD level was used to establish the reference level.

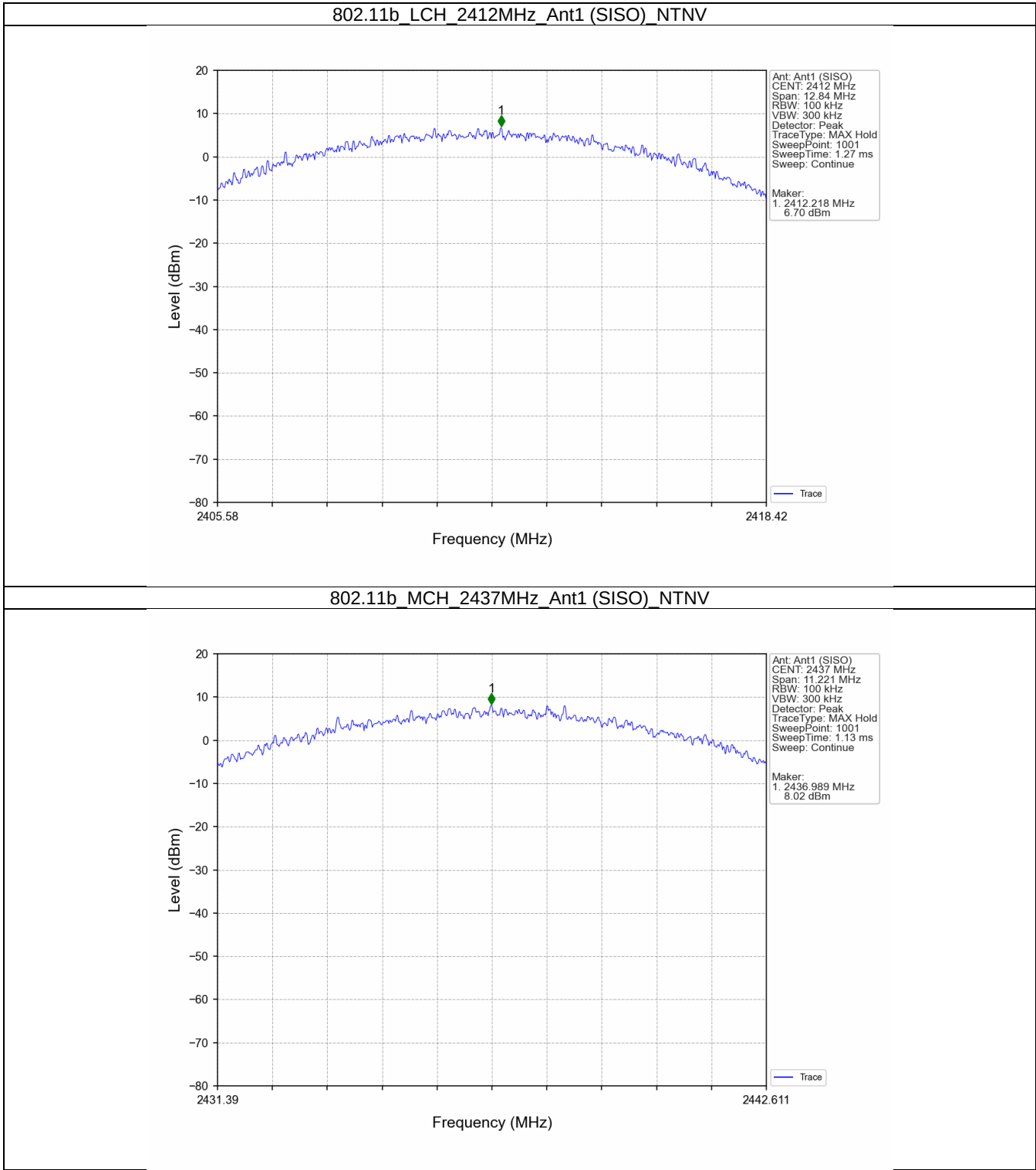
5.1.2 CSE

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	6.70	-23.30	Pass
		2437	1	8.02	-21.98	Pass
		2462	1	7.19	-22.81	Pass
802.11g	SISO	2412	1	2.22	-27.78	Pass
		2437	1	5.67	-24.33	Pass
		2462	1	5.03	-24.97	Pass
802.11n (HT20)	SISO	2412	1	2.05	-27.95	Pass
		2437	1	5.43	-24.57	Pass
		2462	1	4.59	-25.41	Pass
802.11n (HT40)	SISO	2422	1	-0.71	-30.71	Pass
		2437	1	0.89	-29.11	Pass
		2452	1	-0.43	-30.43	Pass

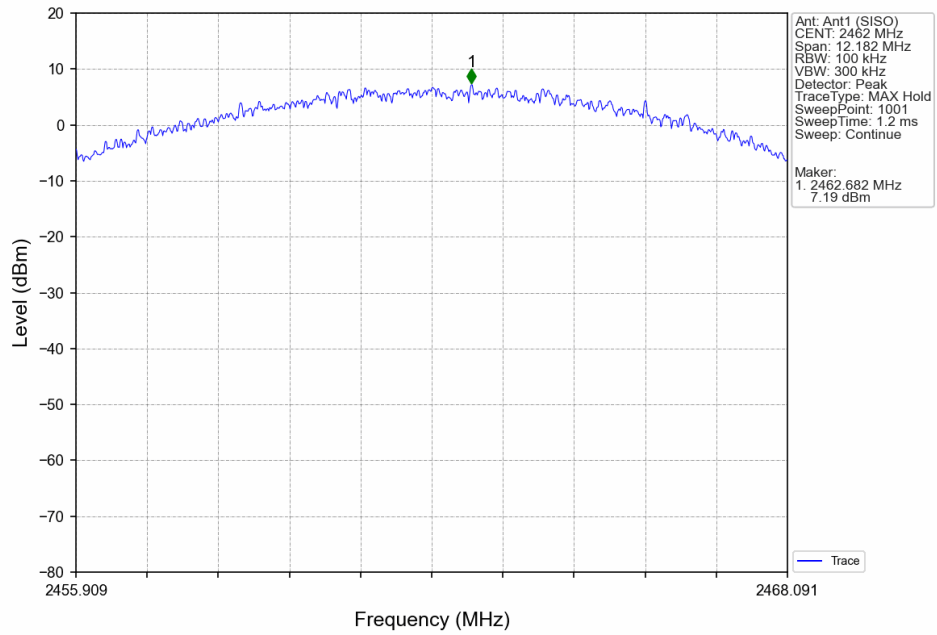
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10:2020+Cor.1:2023, the channel contains the maximum PSD level was used to establish the reference level.

5.2 Test Graph

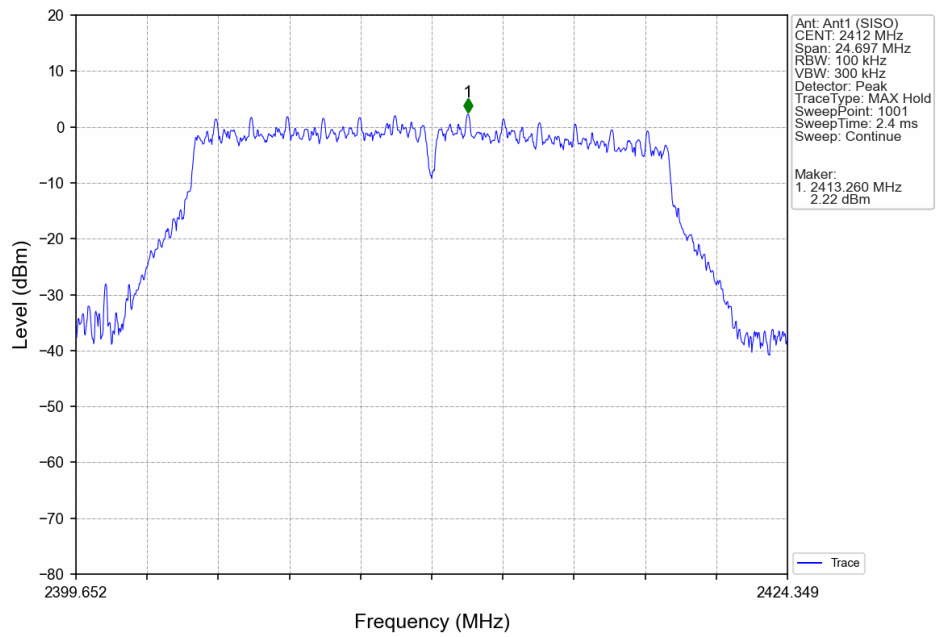
5.2.1 Ref



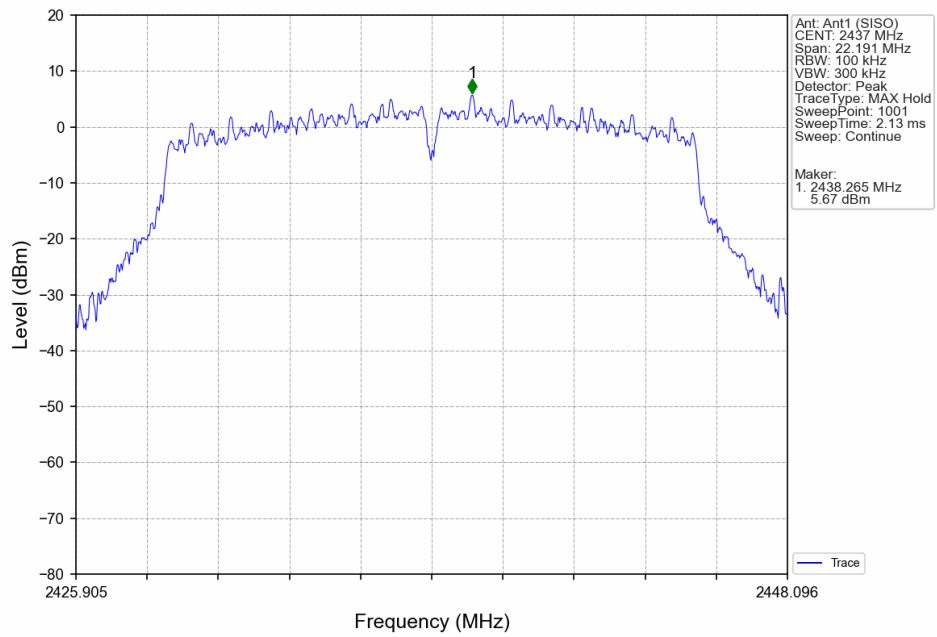
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



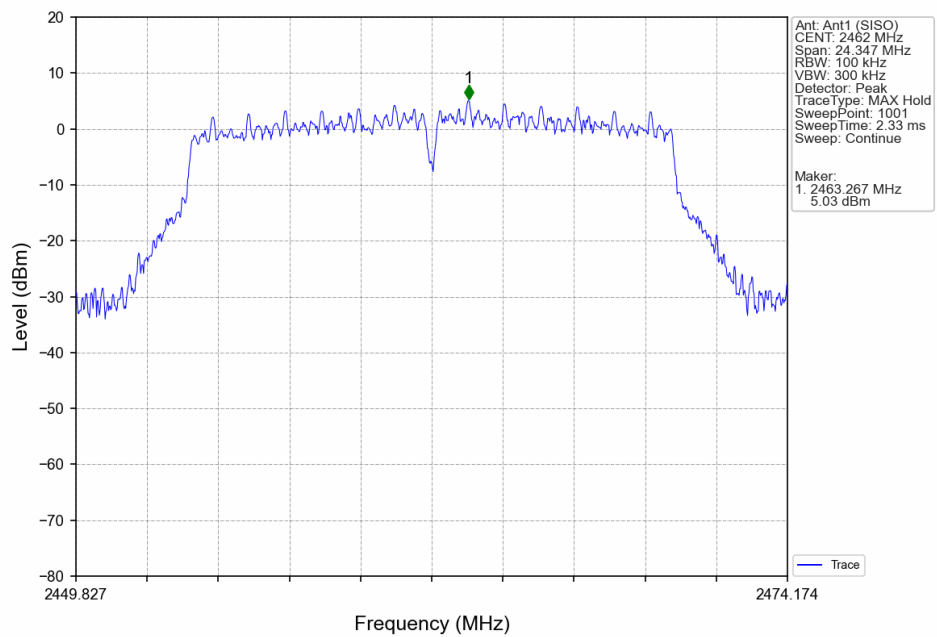
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



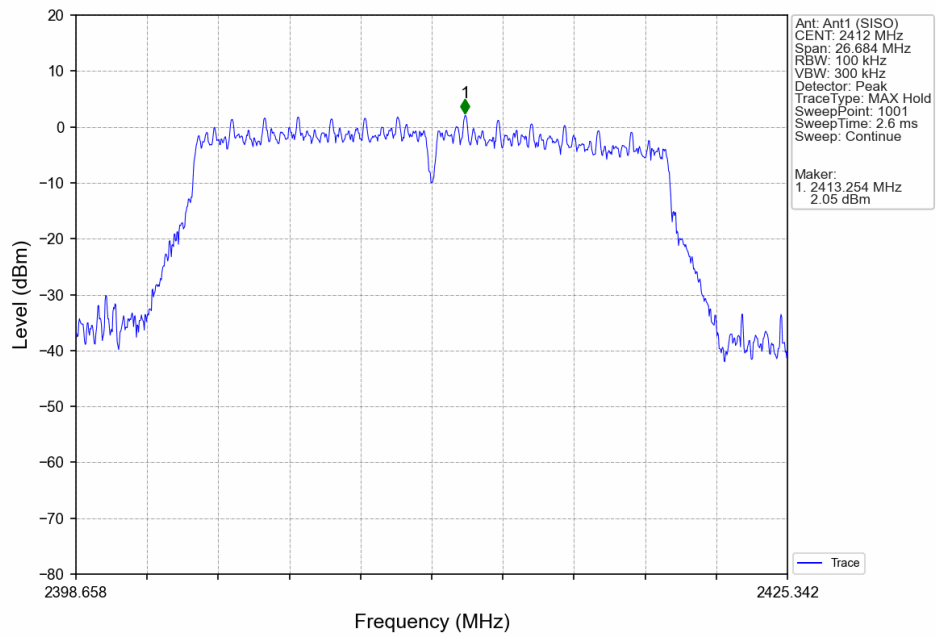
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



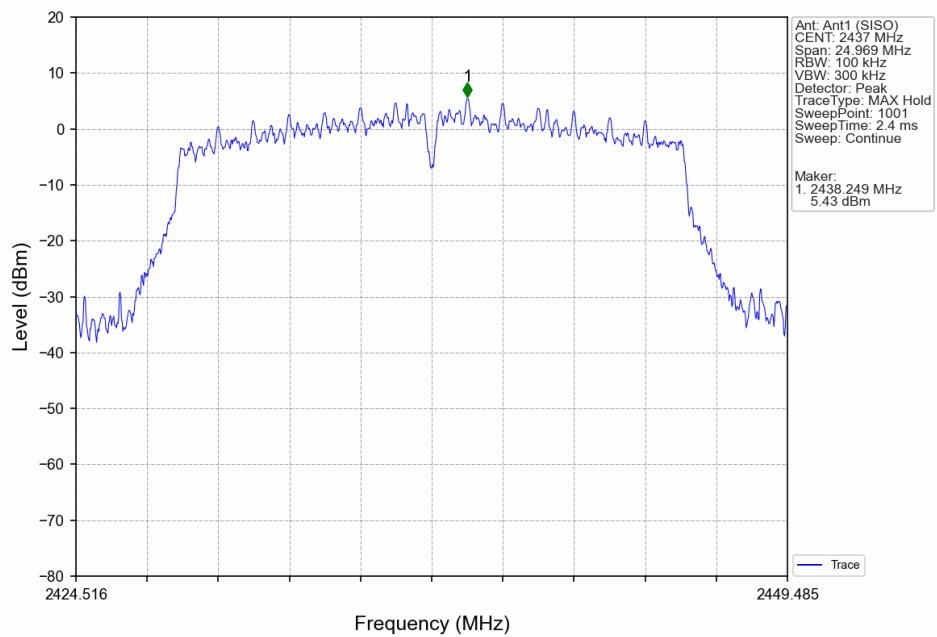
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



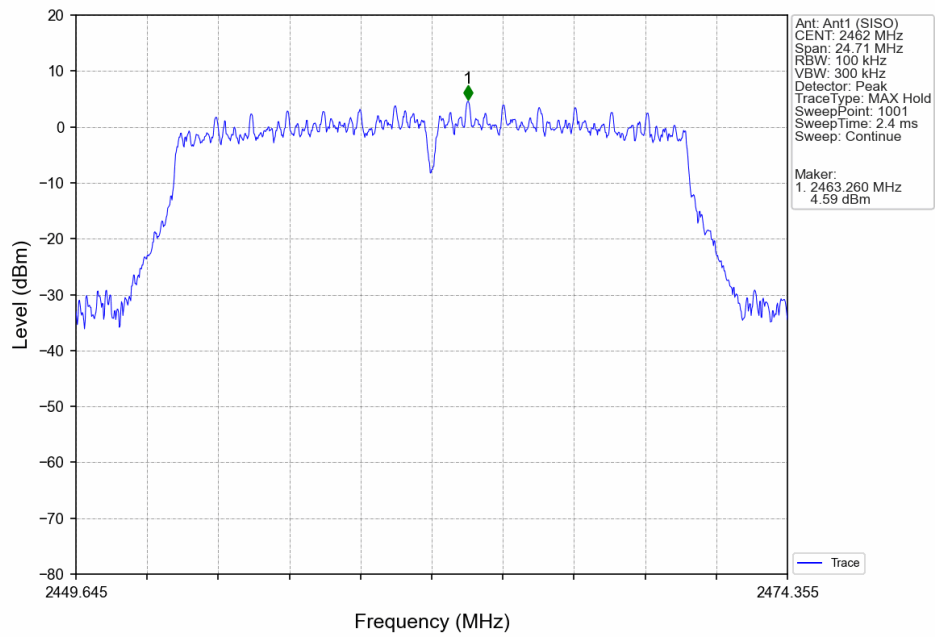
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



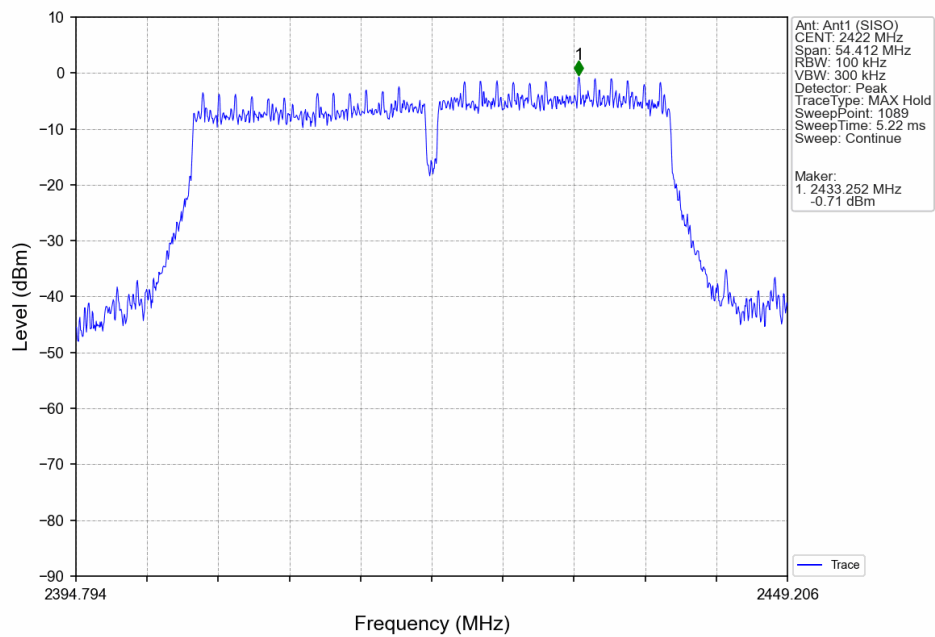
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



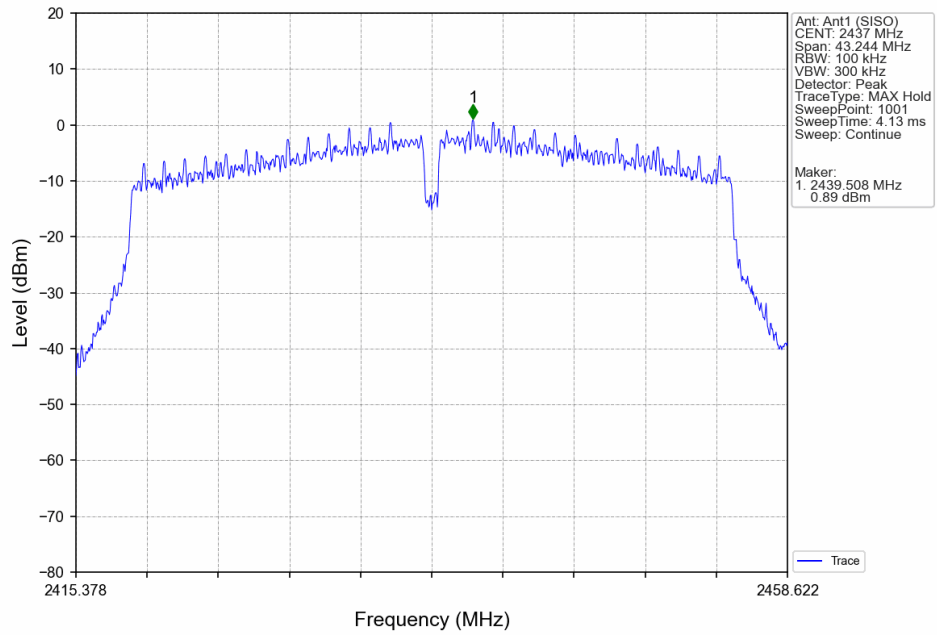
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



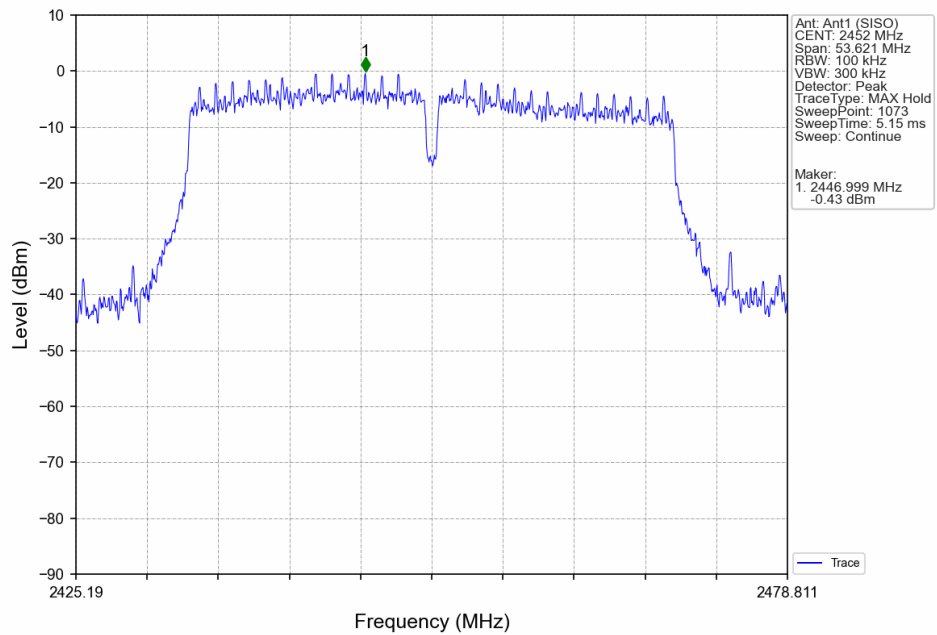
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



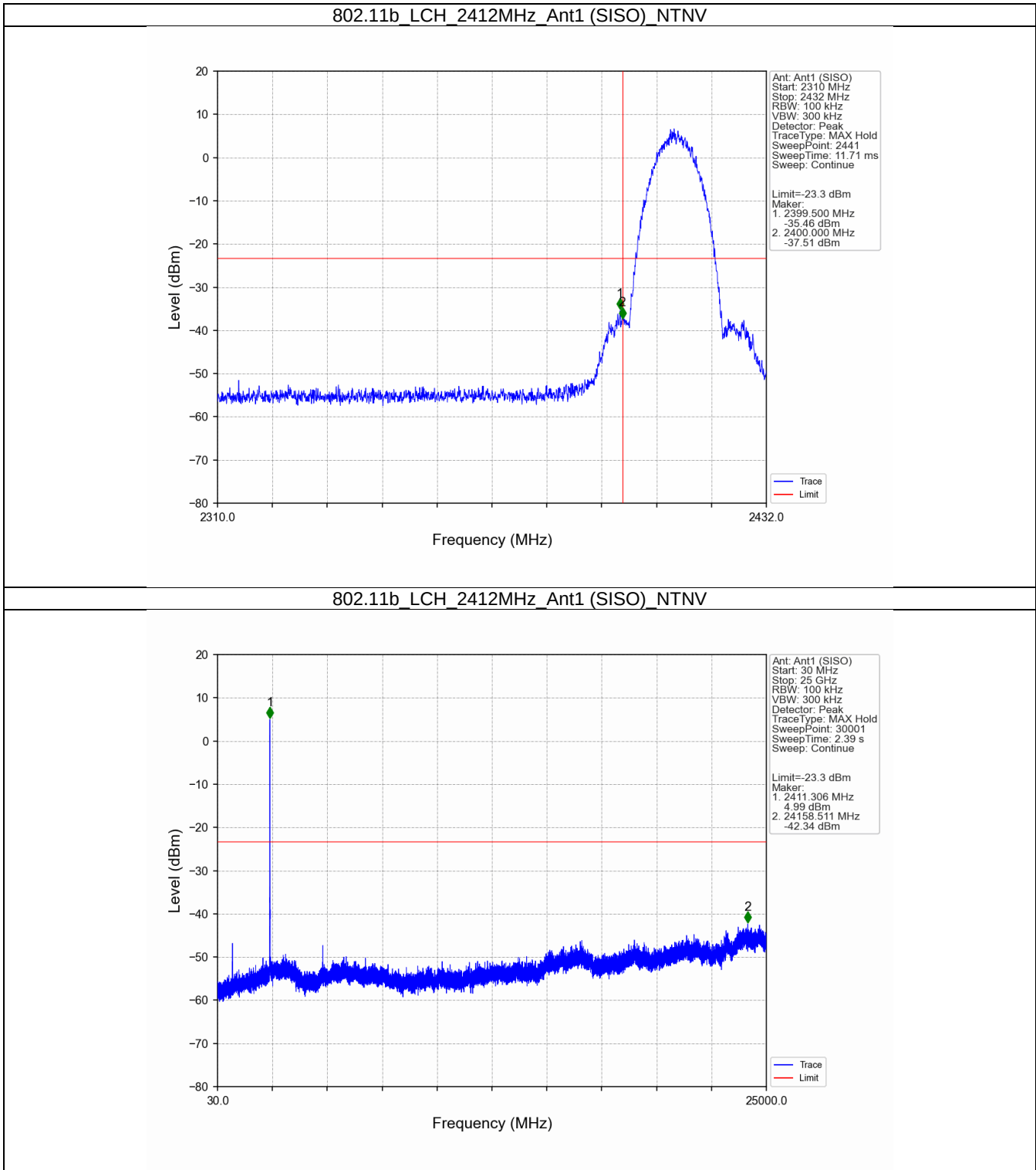
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



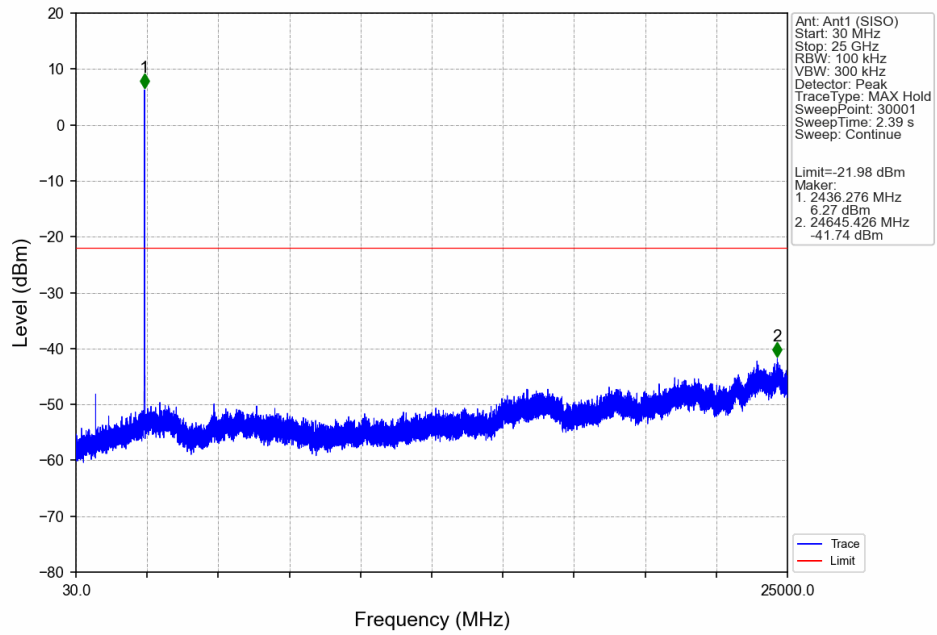
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



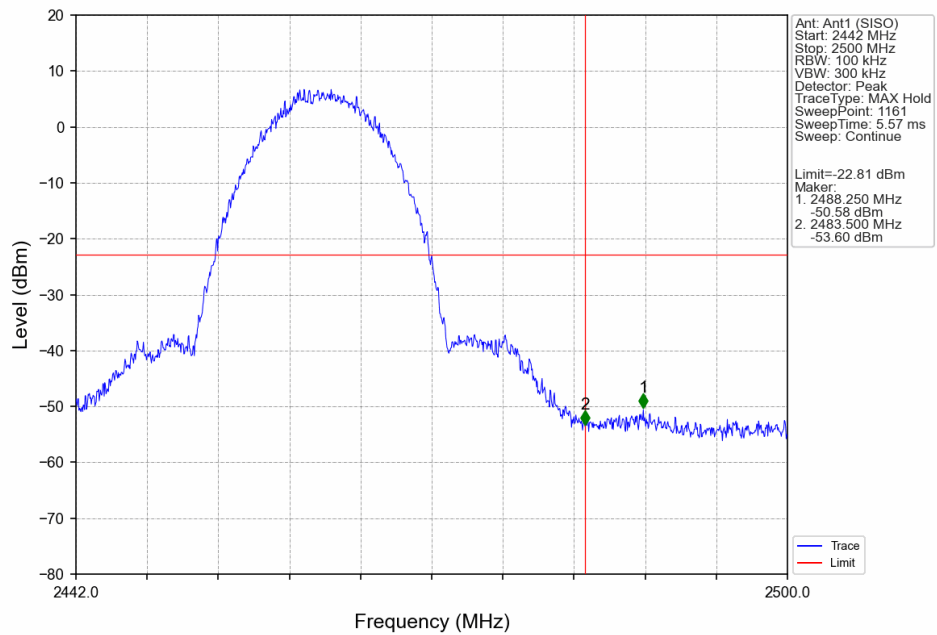
5.2.2 CSE



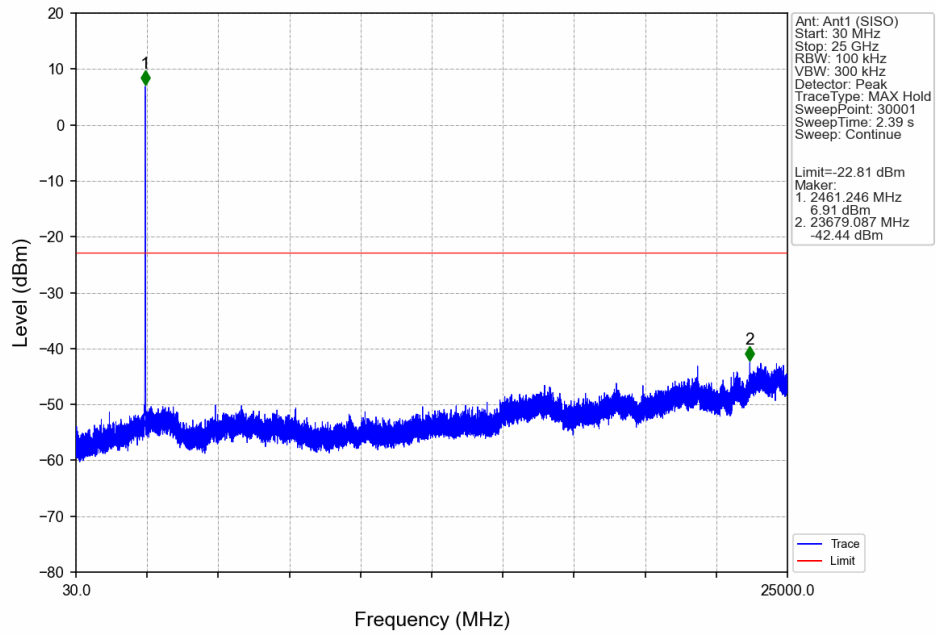
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



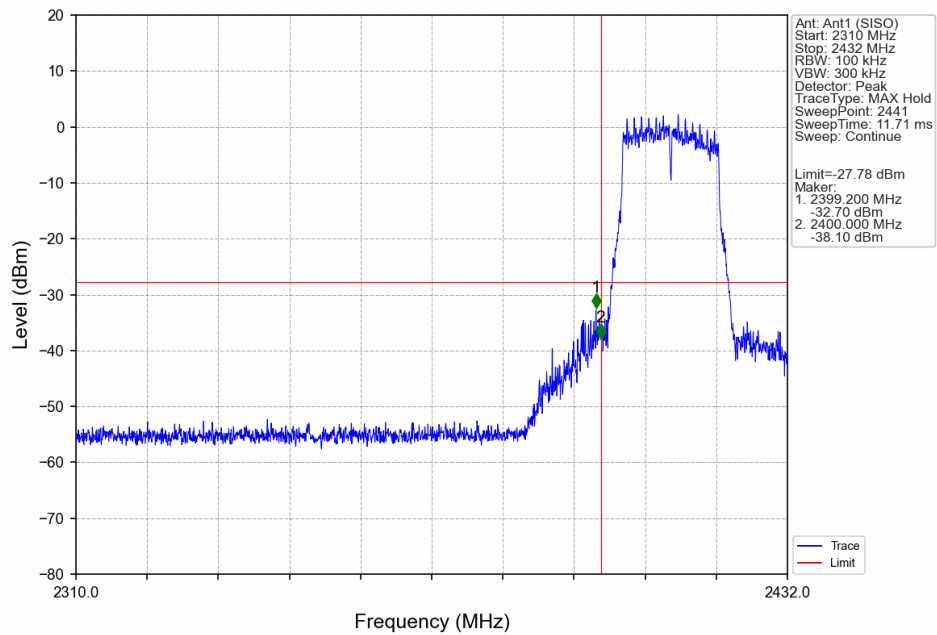
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



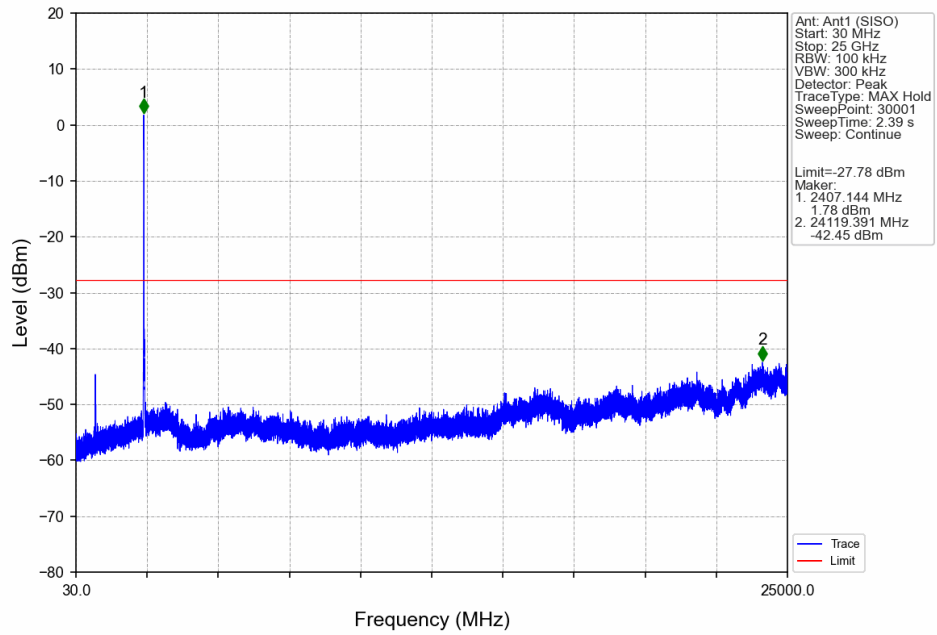
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



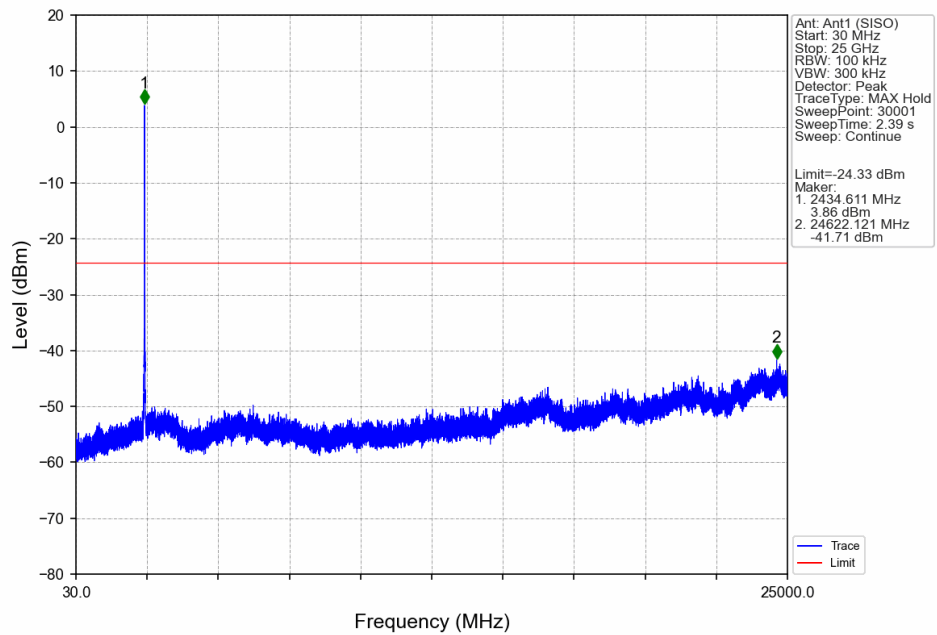
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



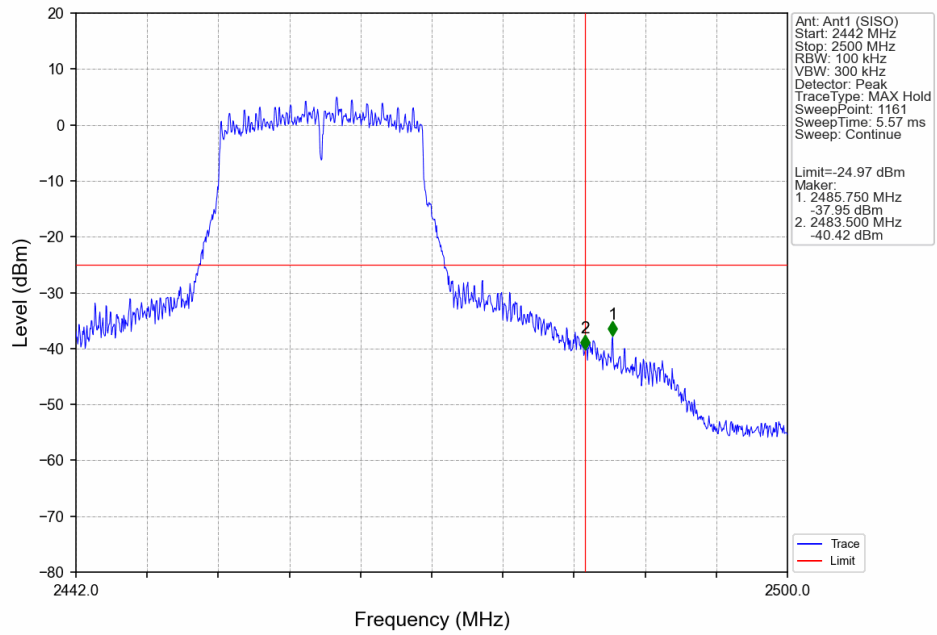
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



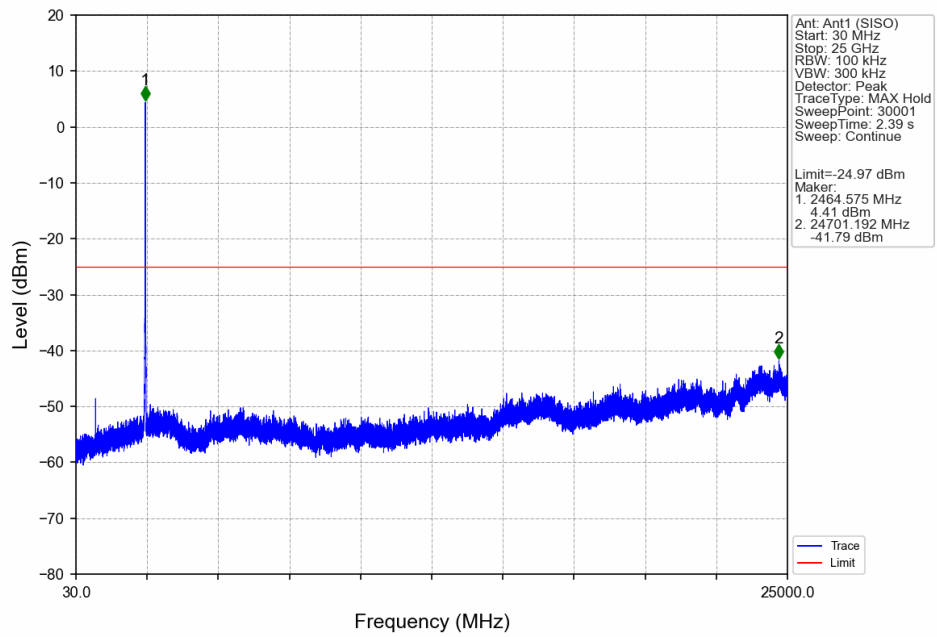
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



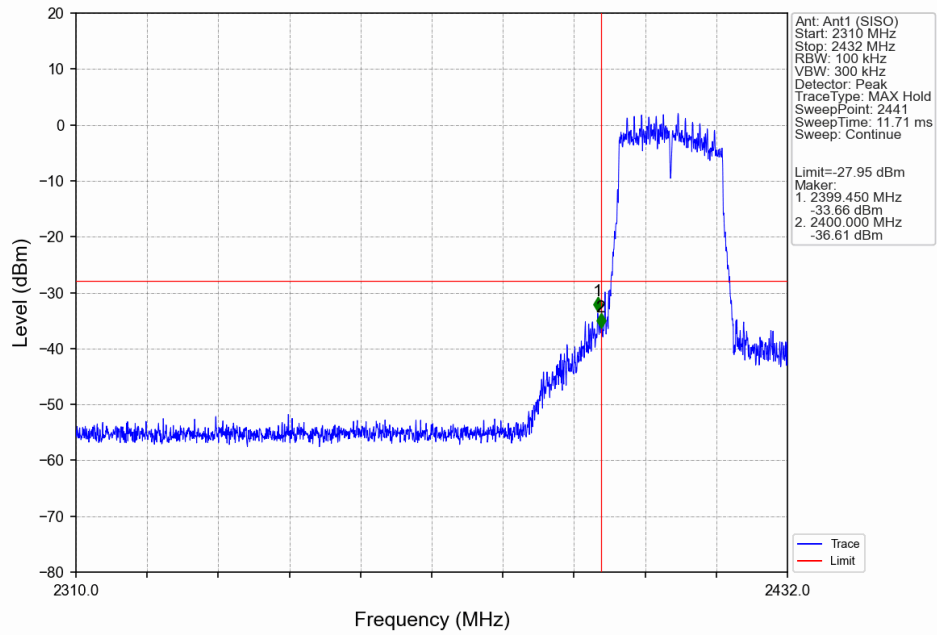
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



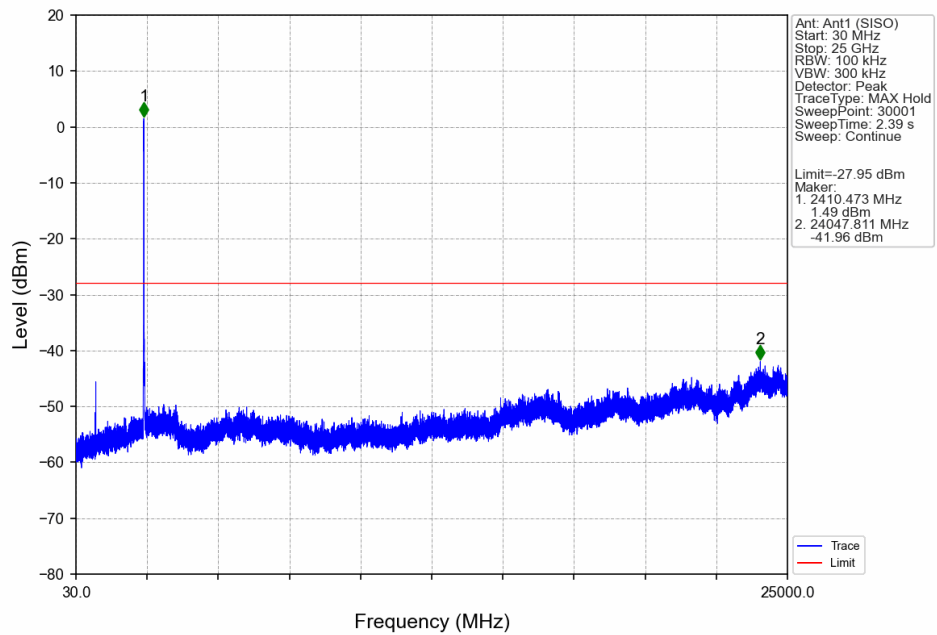
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



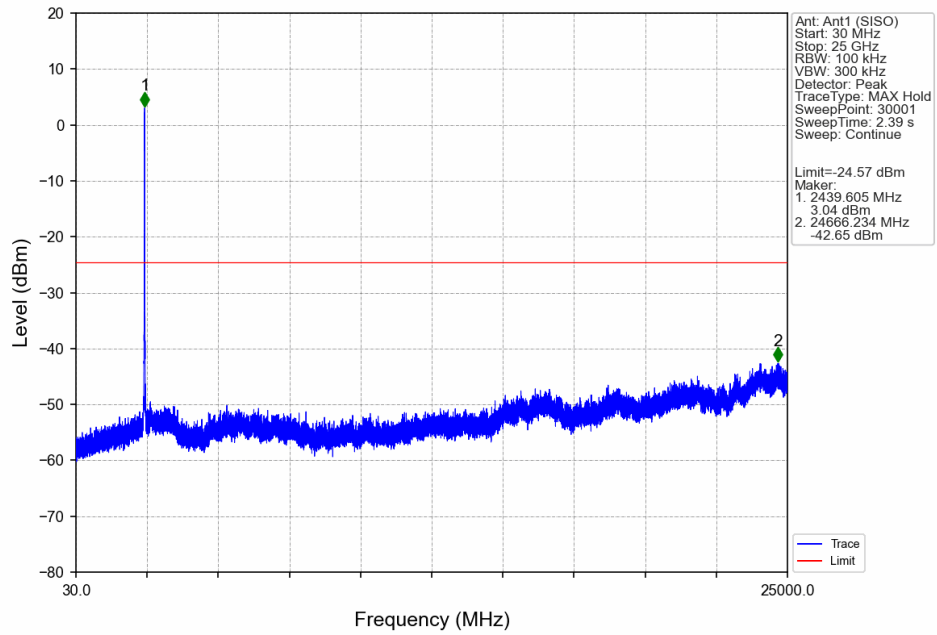
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



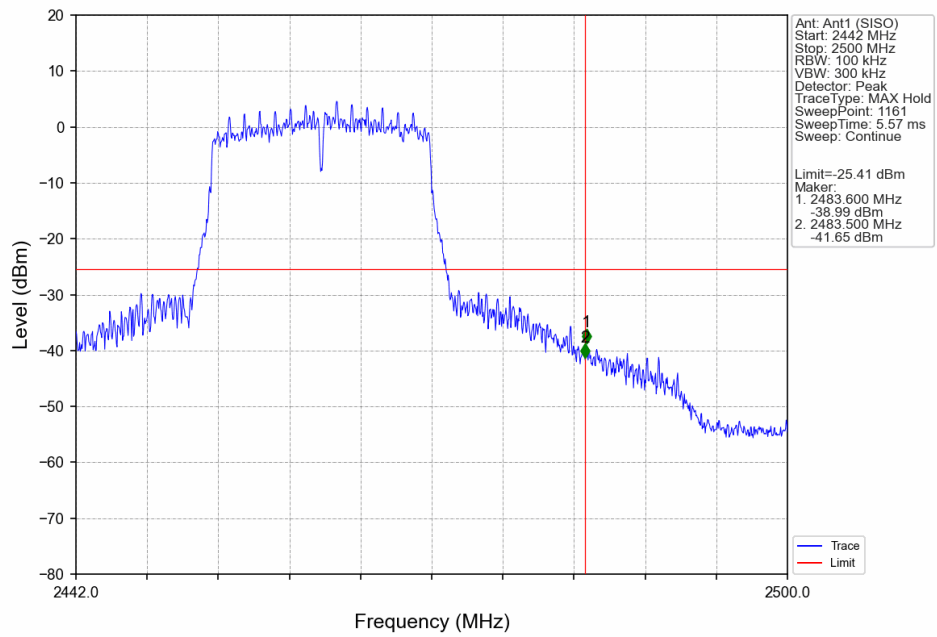
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



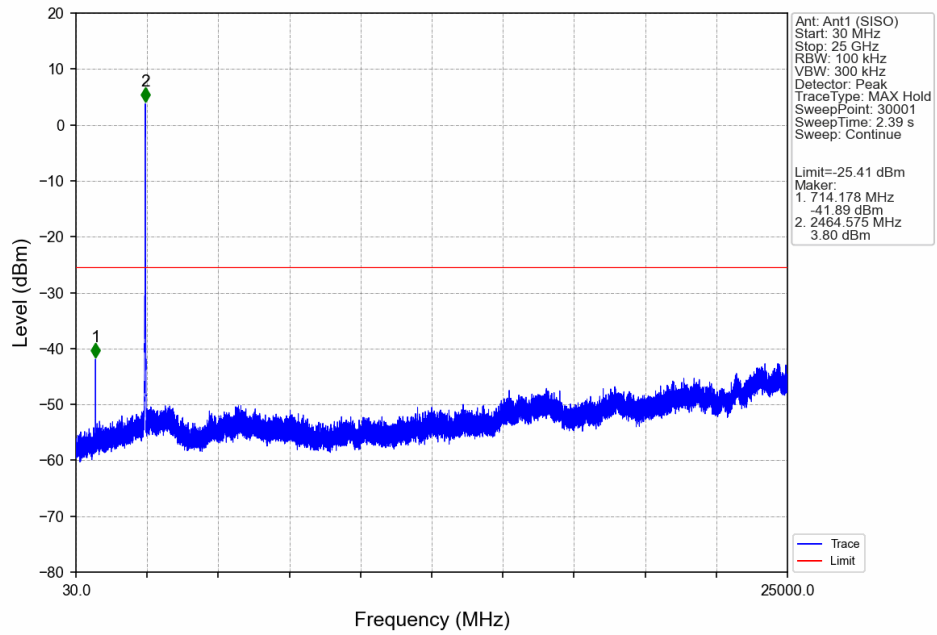
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



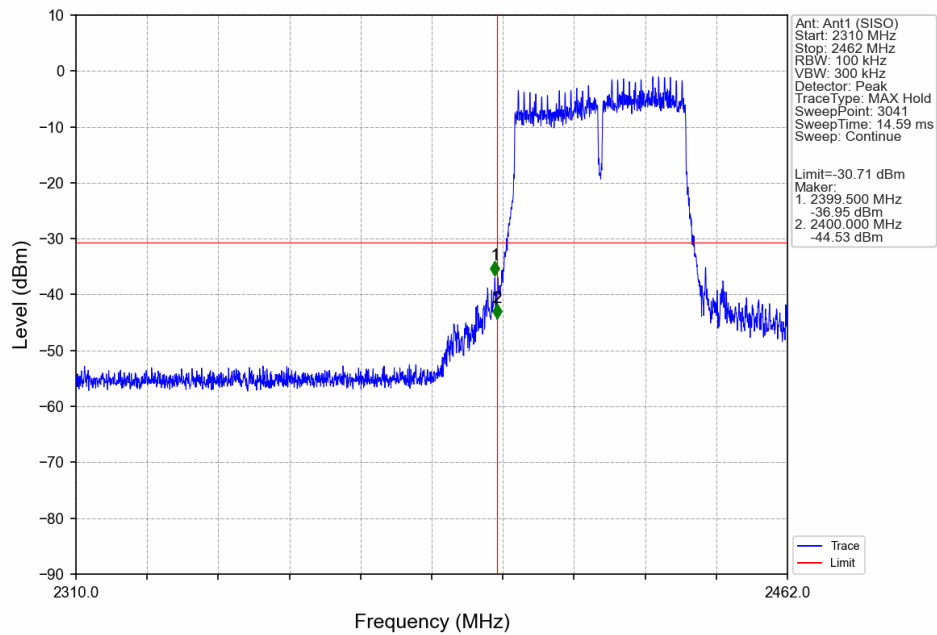
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



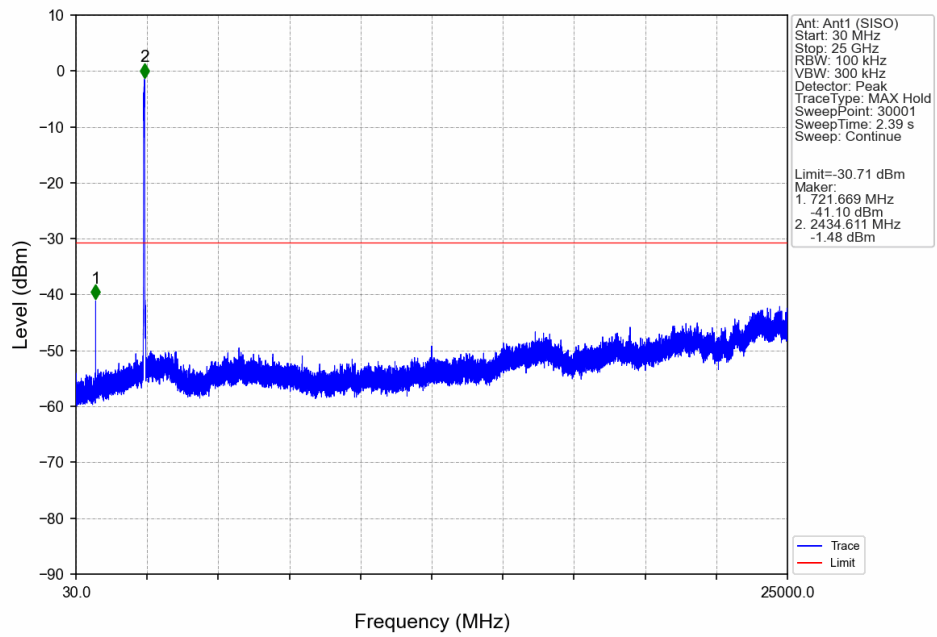
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



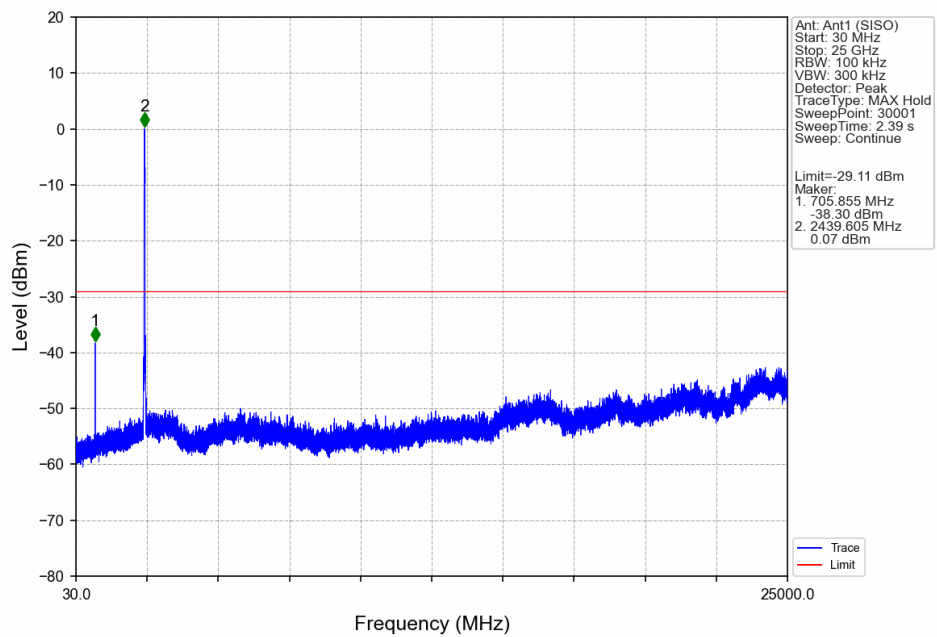
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



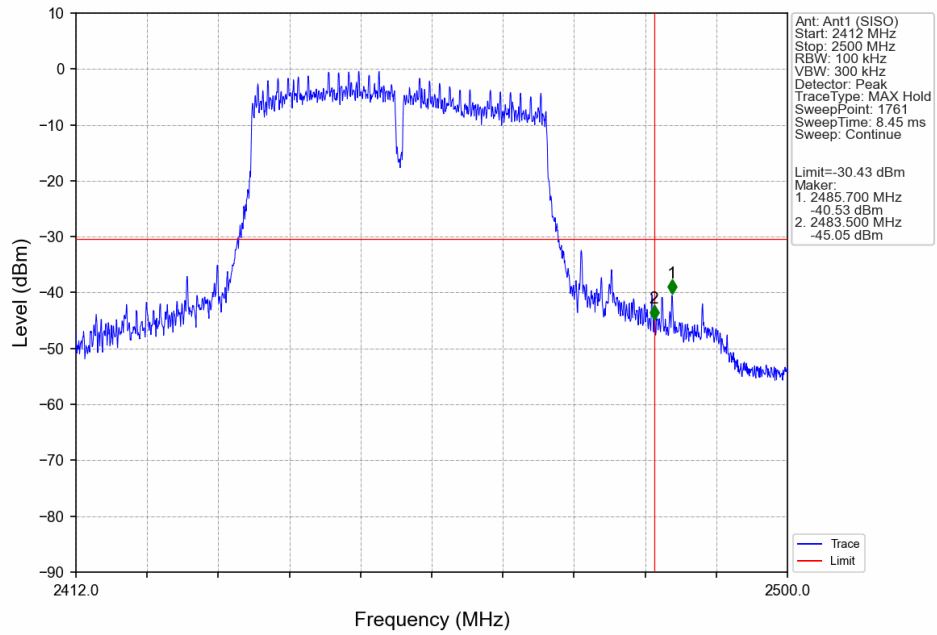
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV

