

Appendix RF test data for WIFI2.4G

1. Duty Cycle

1.1 Test Result

1.1.1 Ant1

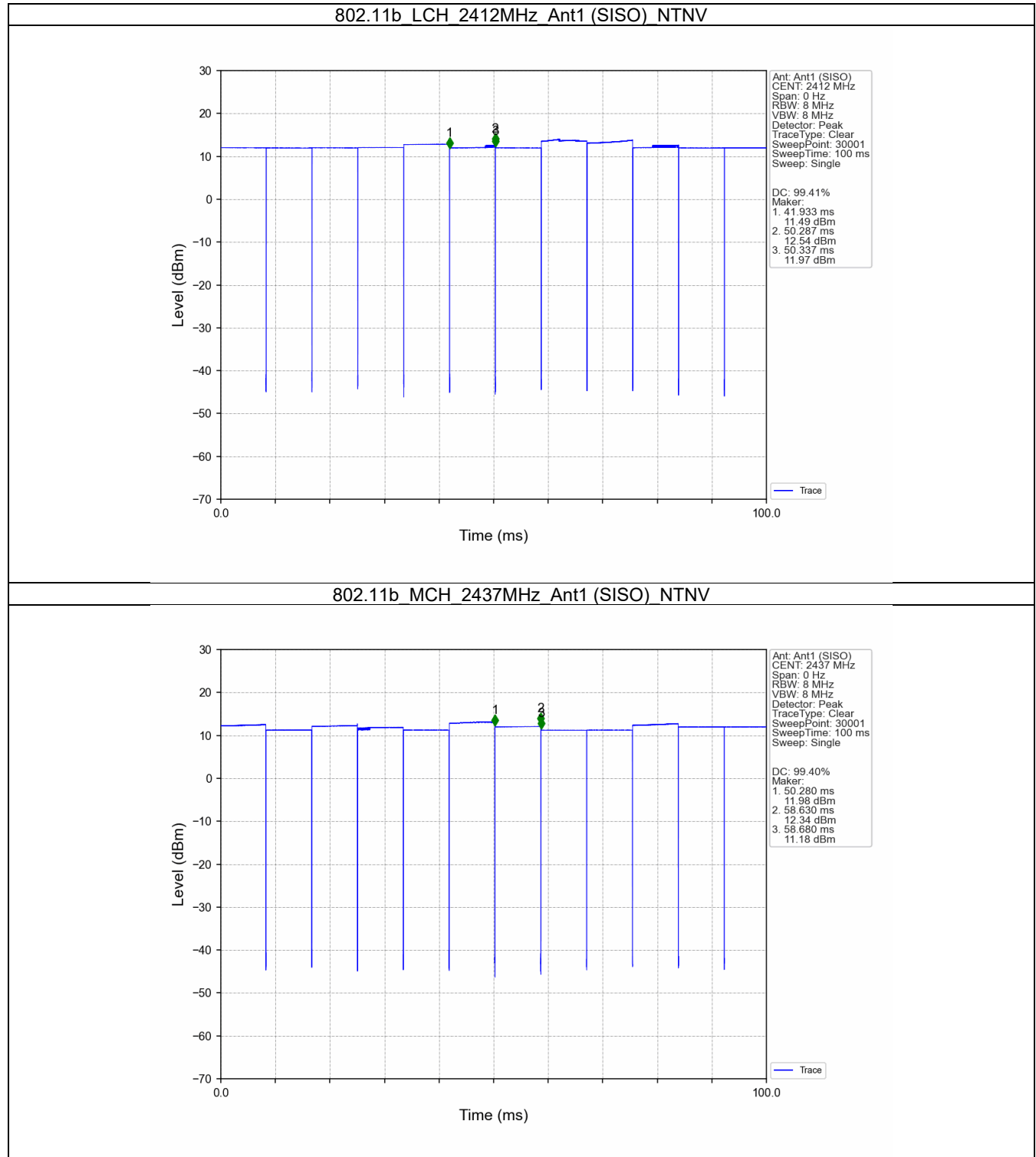
Ant1							
Mode	Tx Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	8.354	8.404	99.41	0.03	0.04
		2437	8.350	8.400	99.40	0.03	0.04
		2462	8.353	8.400	99.44	0.02	0.00
802.11g	SISO	2412	0.149	0.198	75.25	1.23	0.95
		2437	0.148	0.196	75.51	1.22	0.45
		2462	0.149	0.197	75.63	1.21	0.45
802.11n (HT20)	MIMO	2412	0.312	0.361	86.43	0.63	0.55
		2437	0.313	0.361	86.70	0.62	0.58
		2462	0.313	0.361	86.70	0.62	0.68
802.11n (HT40)	MIMO	2422	0.320	0.368	86.96	0.61	0.44
		2437	0.320	0.369	86.72	0.62	0.38
		2452	0.320	0.368	86.96	0.61	0.47

1.1.2 Ant2

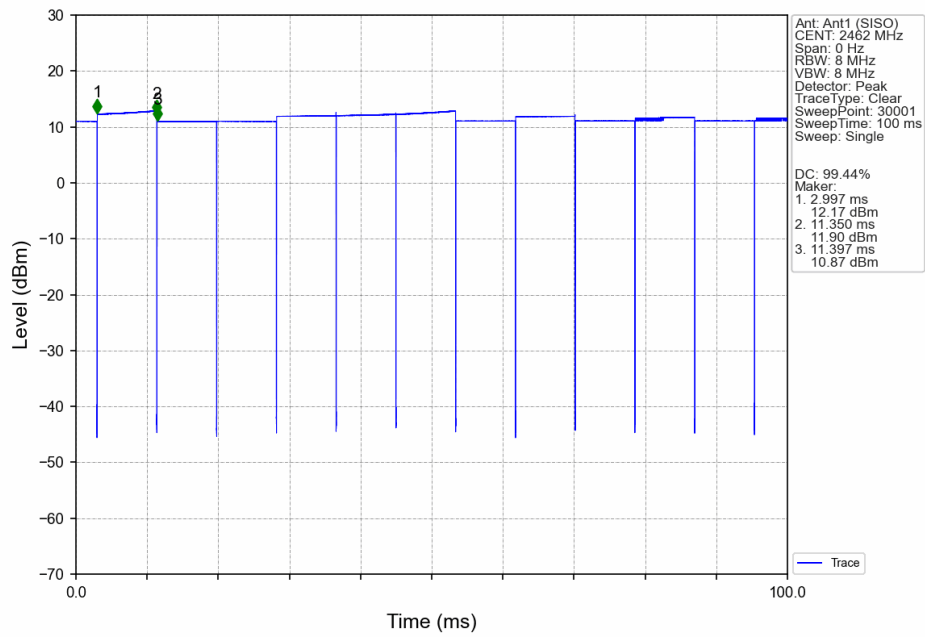
Ant2							
Mode	Tx Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	8.353	8.403	99.40	0.03	0.04
		2437	8.353	8.400	99.44	0.02	0.00
		2462	8.353	8.403	99.40	0.03	0.08
802.11g	SISO	2412	0.149	0.197	75.63	1.21	0.57
		2437	0.148	0.196	75.51	1.22	0.42
		2462	0.149	0.197	75.63	1.21	1.09
802.11n (HT20)	MIMO	2412	0.313	0.361	86.70	0.62	0.49
		2437	0.313	0.362	86.46	0.63	0.64
		2462	0.313	0.361	86.70	0.62	0.39
802.11n (HT40)	MIMO	2422	0.321	0.369	86.99	0.61	0.47
		2437	0.321	0.369	86.99	0.61	0.41
		2452	0.321	0.369	86.99	0.61	0.32

1.2 Test Graph

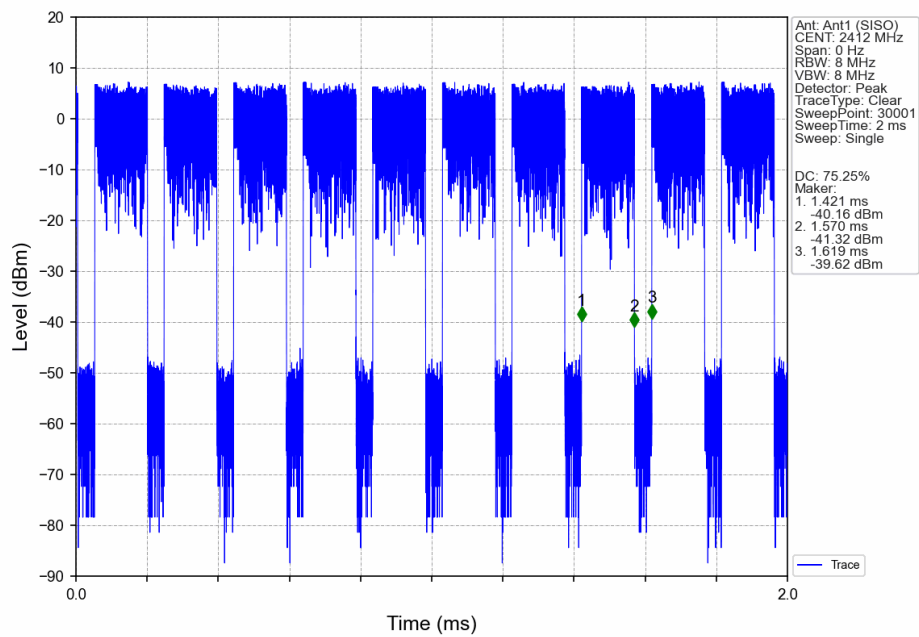
1.2.1 Ant1



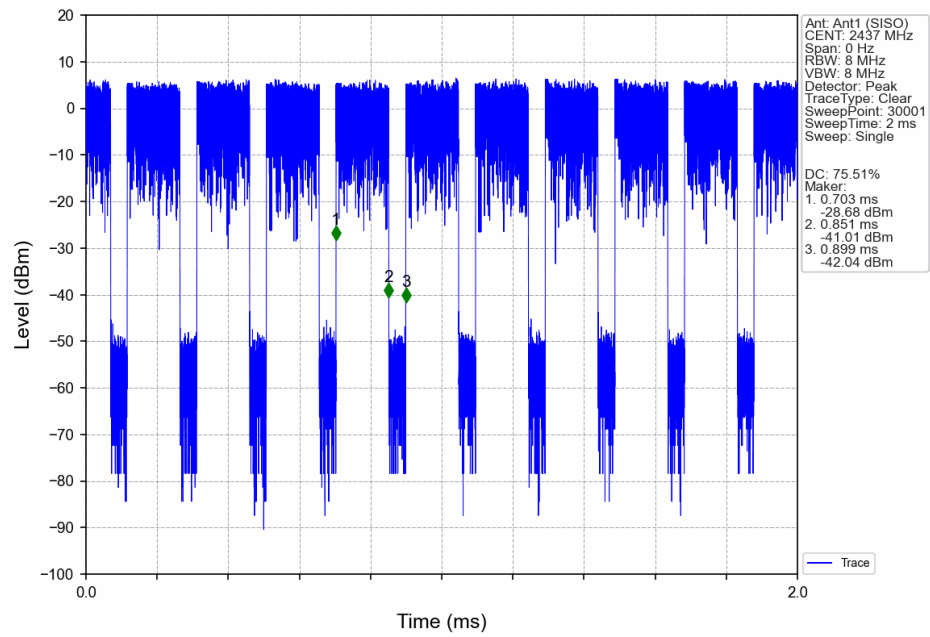
802.11b HCH 2462MHz Ant1 (SISO) NTNV



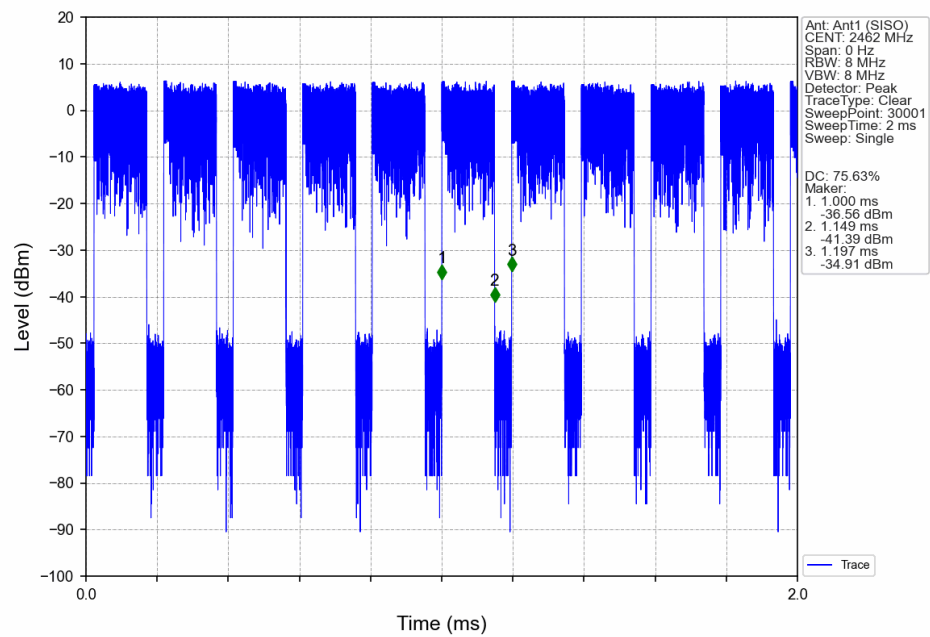
802.11g LCH 2412MHz Ant1 (SISO) NTNV



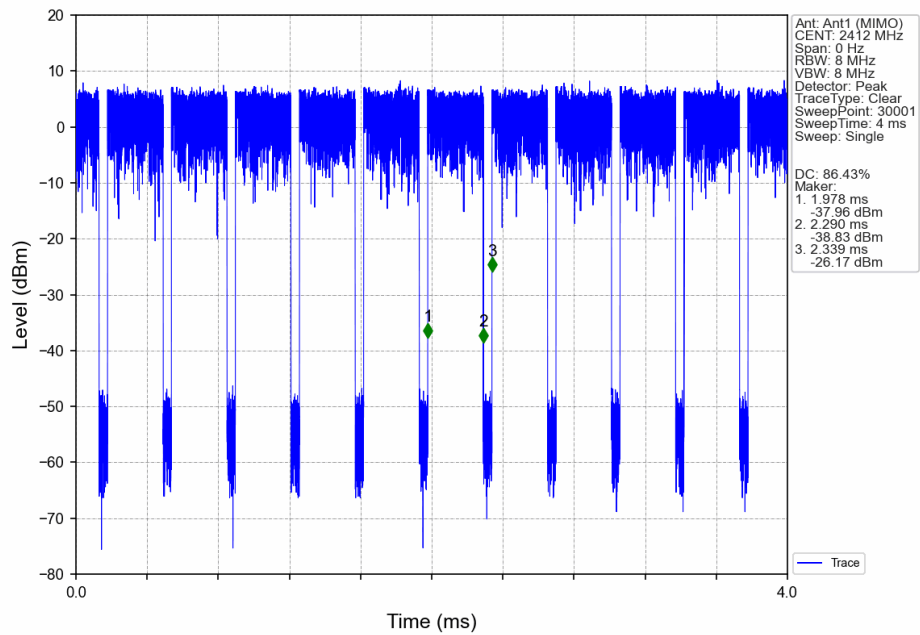
802.11g MCH 2437MHz Ant1 (SISO) NTNV



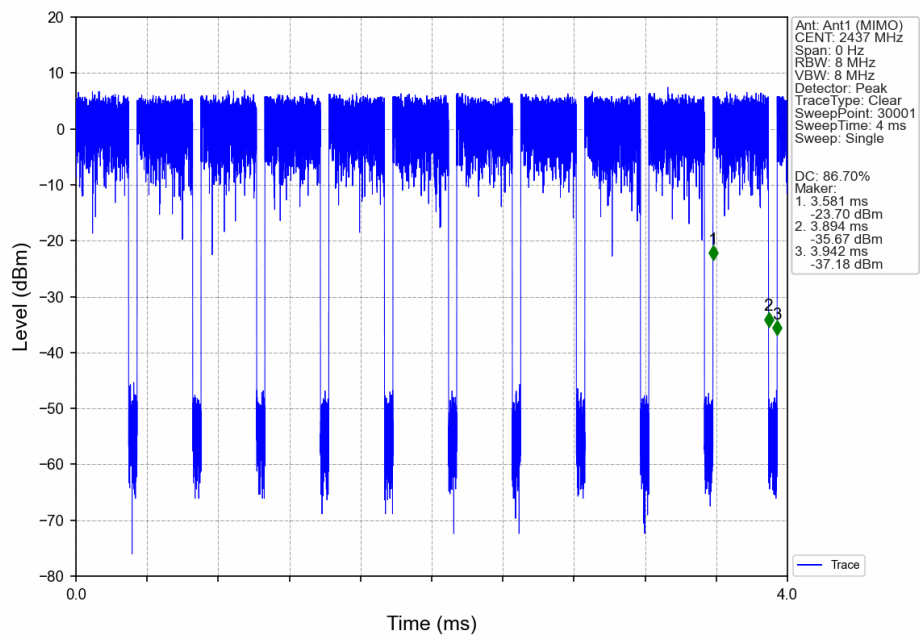
802.11g HCH 2462MHz Ant1 (SISO) NTNV



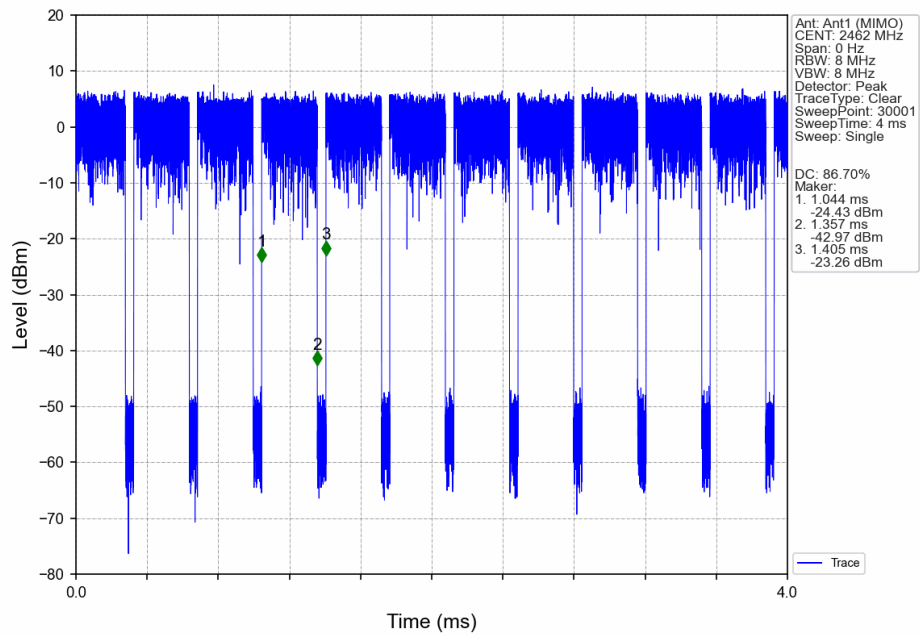
802.11n(HT20) LCH 2412MHz Ant1 (MIMO) NTNV



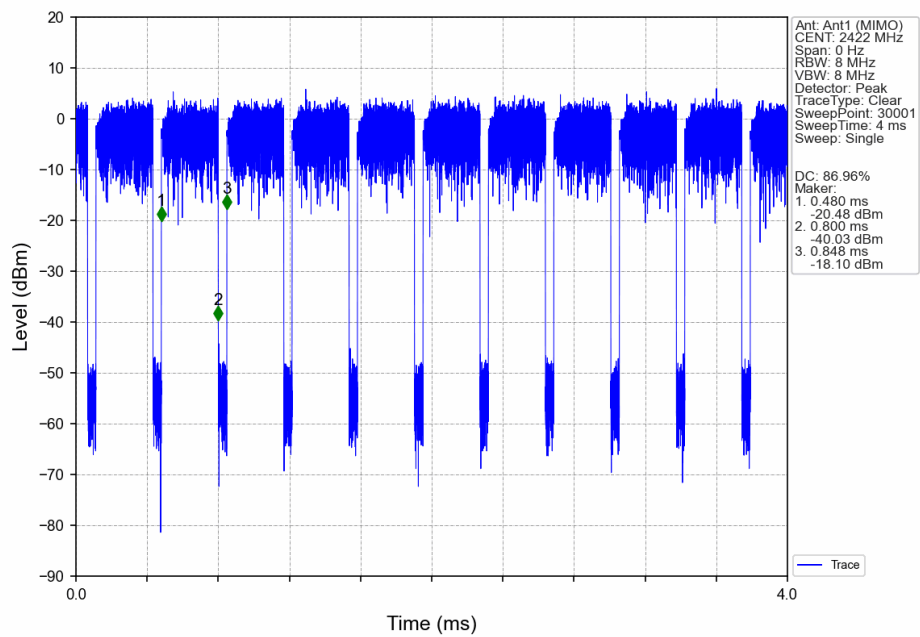
802.11n(HT20) MCH 2437MHz Ant1 (MIMO) NTNV



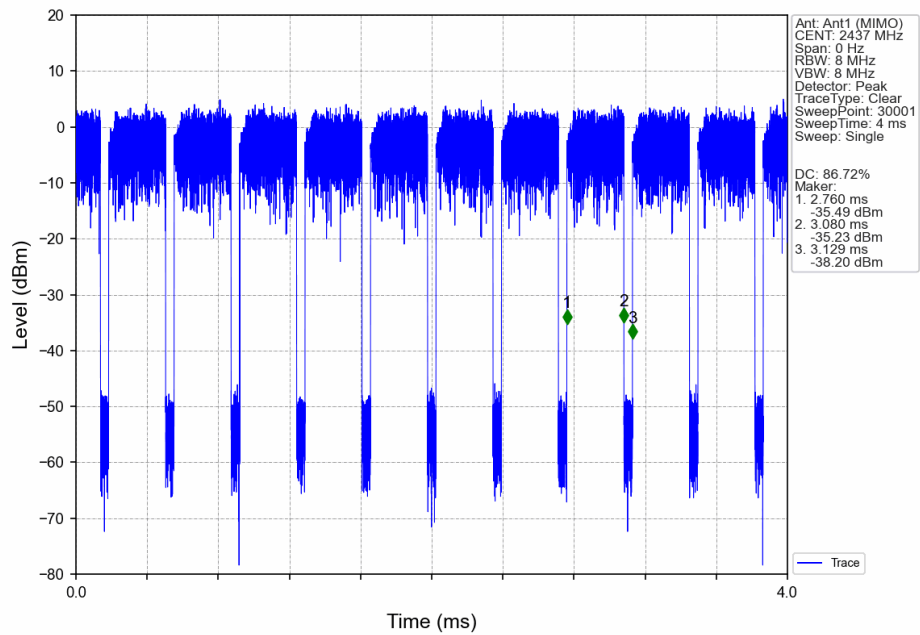
802.11n(HT20) HCH 2462MHz Ant1 (MIMO) NTNV



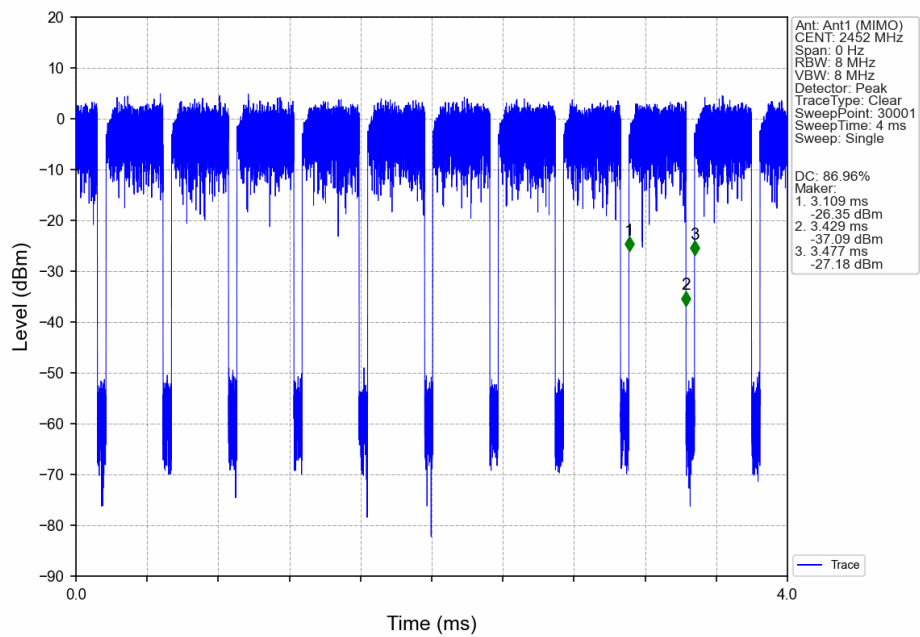
802.11n(HT40) LCH 2422MHz Ant1 (MIMO) NTNV



802.11n(HT40) MCH 2437MHz Ant1 (MIMO) NTNV

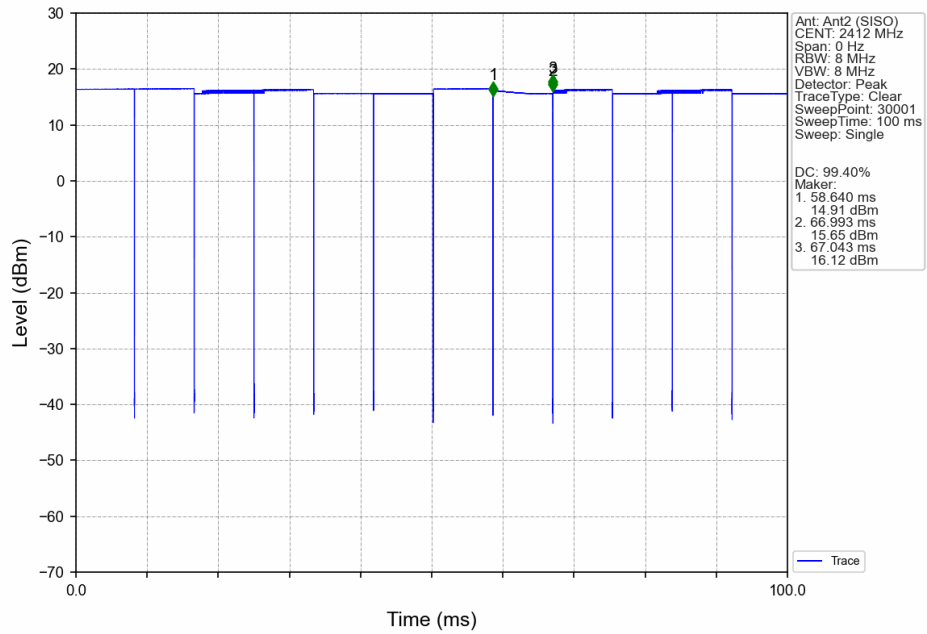


802.11n(HT40) HCH 2452MHz Ant1 (MIMO) NTNV

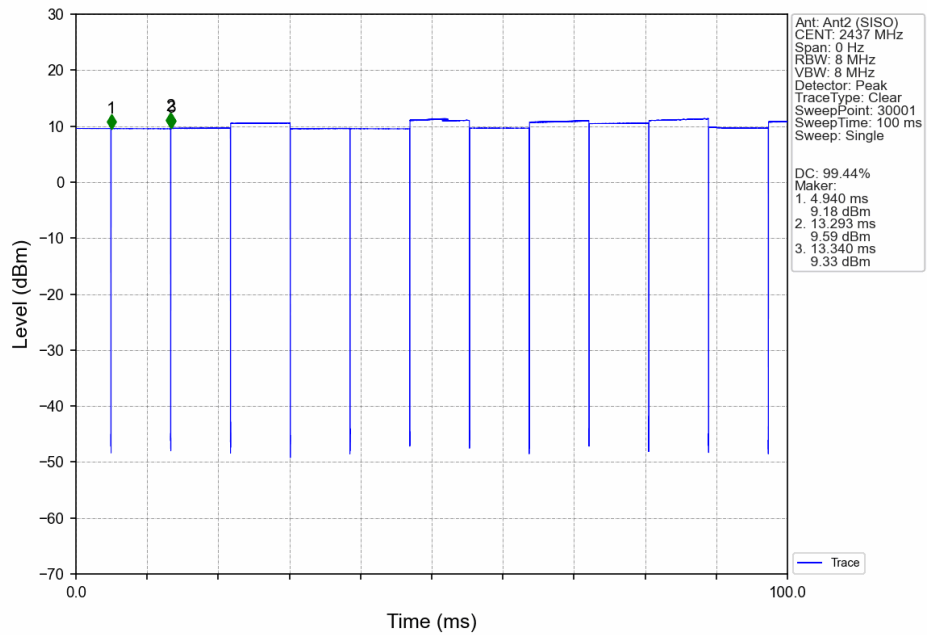


1.2.2 Ant2

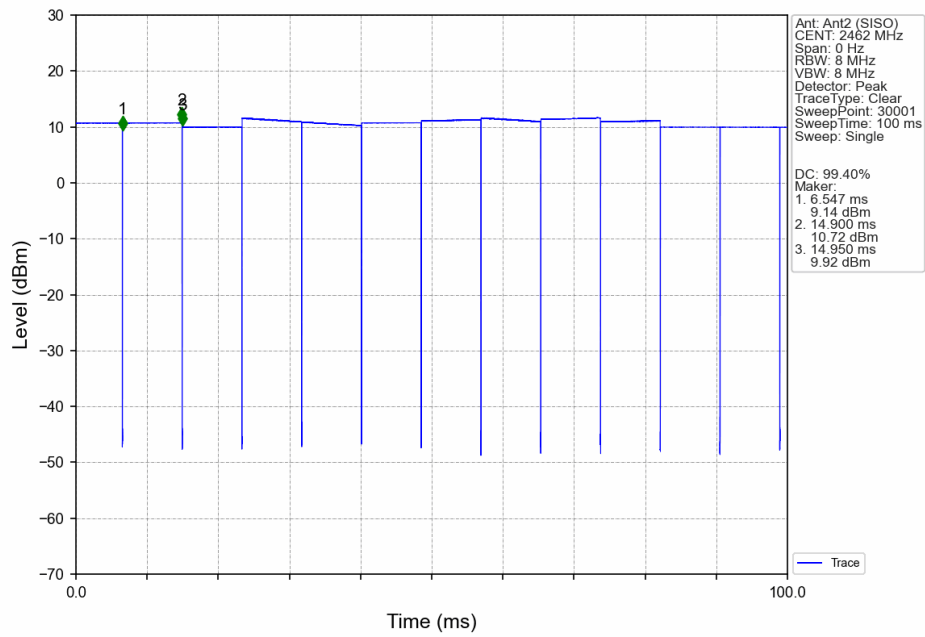
802.11b LCH 2412MHz Ant2 (SISO) NTN



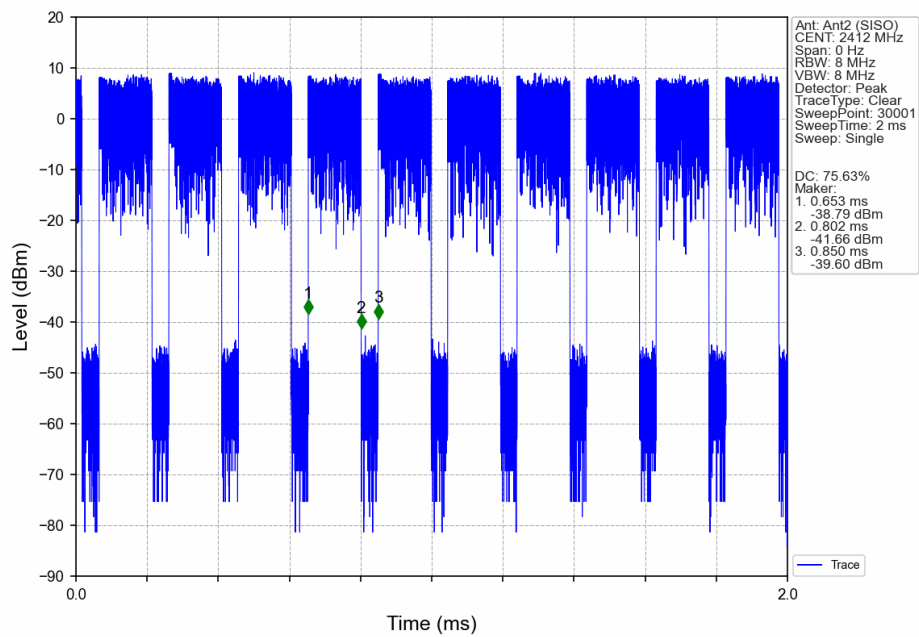
802.11b MCH 2437MHz Ant2 (SISO) NTN



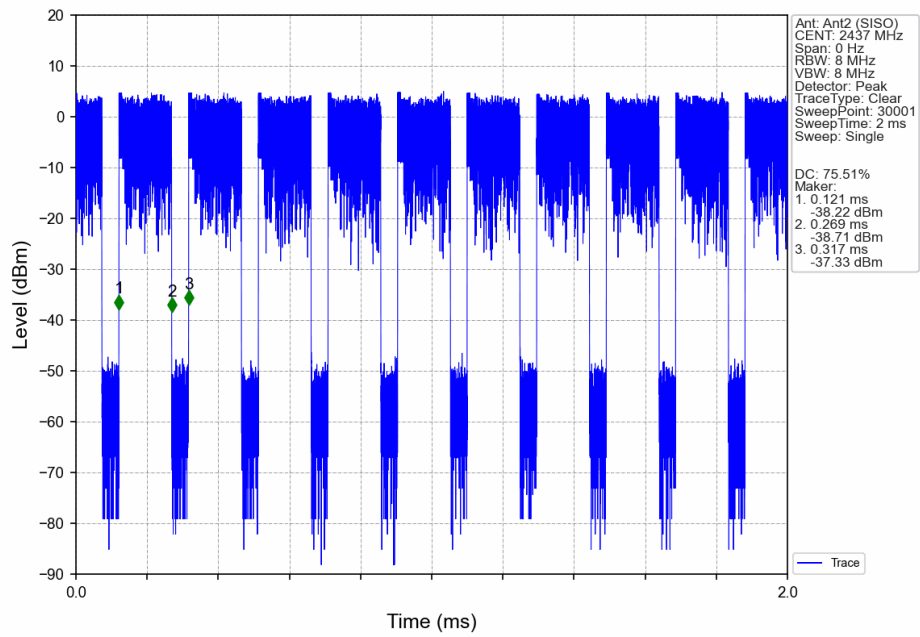
802.11b HCH 2462MHz Ant2 (SISO) NTNv



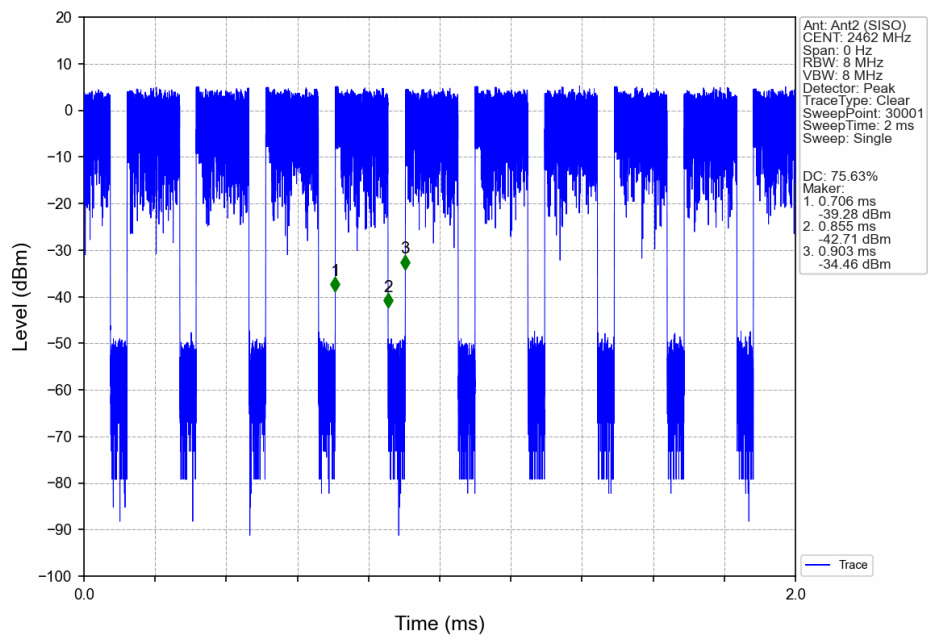
802.11g LCH 2412MHz Ant2 (SISO) NTNv



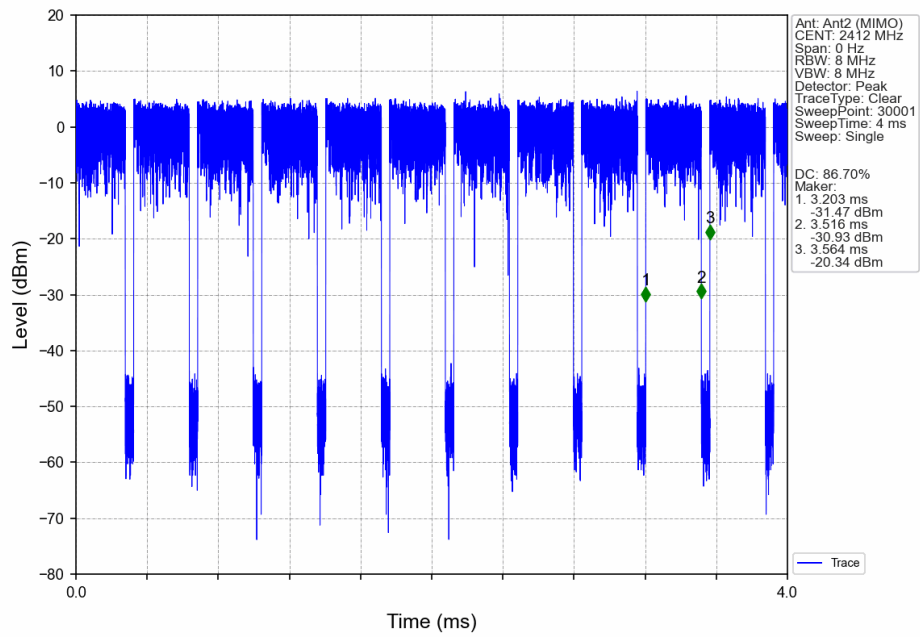
802.11g MCH 2437MHz Ant2 (SISO) NTNV



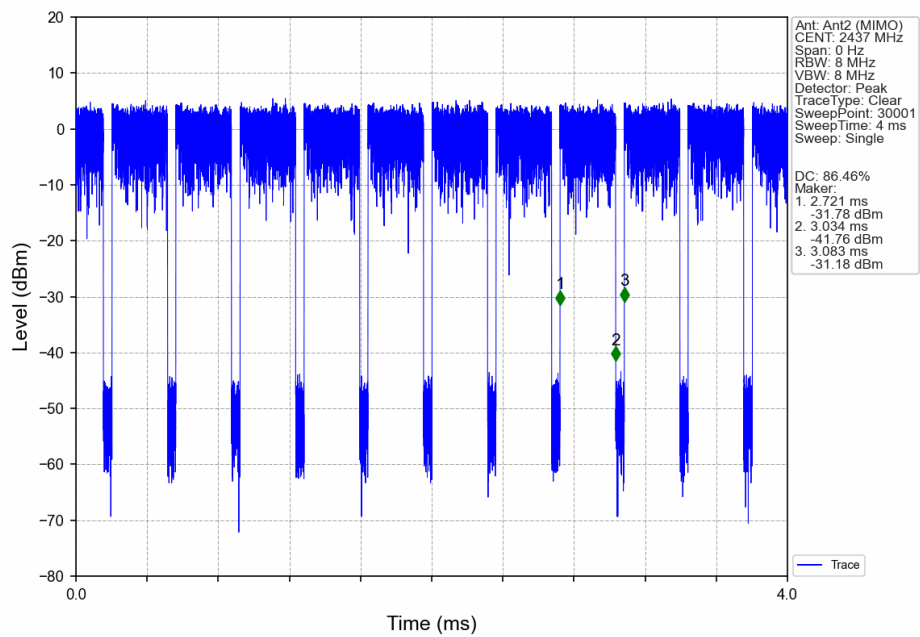
802.11g HCH 2462MHz Ant2 (SISO) NTNV



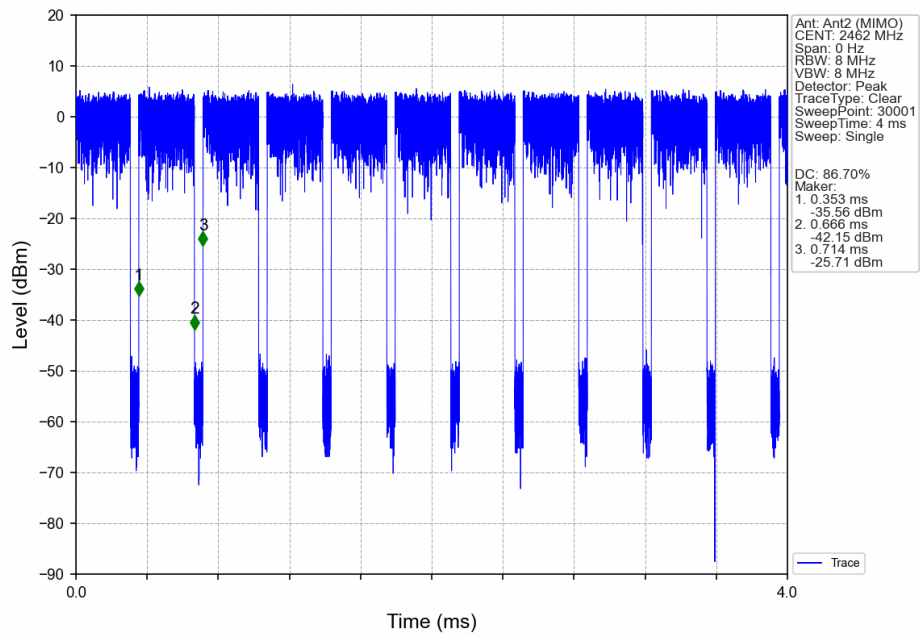
802.11n(HT20) LCH 2412MHz Ant2 (MIMO) NTNV



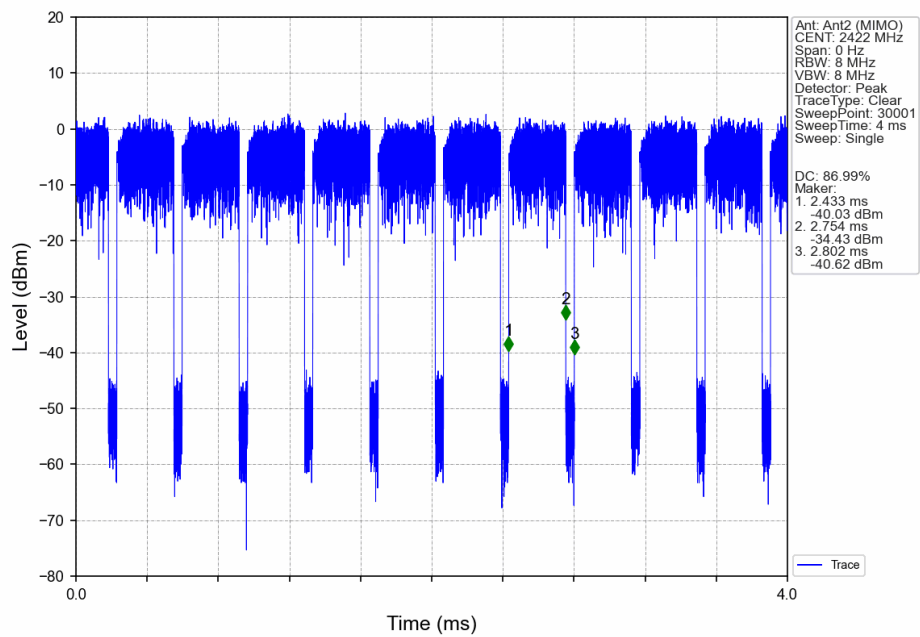
802.11n(HT20) MCH 2437MHz Ant2 (MIMO) NTNV



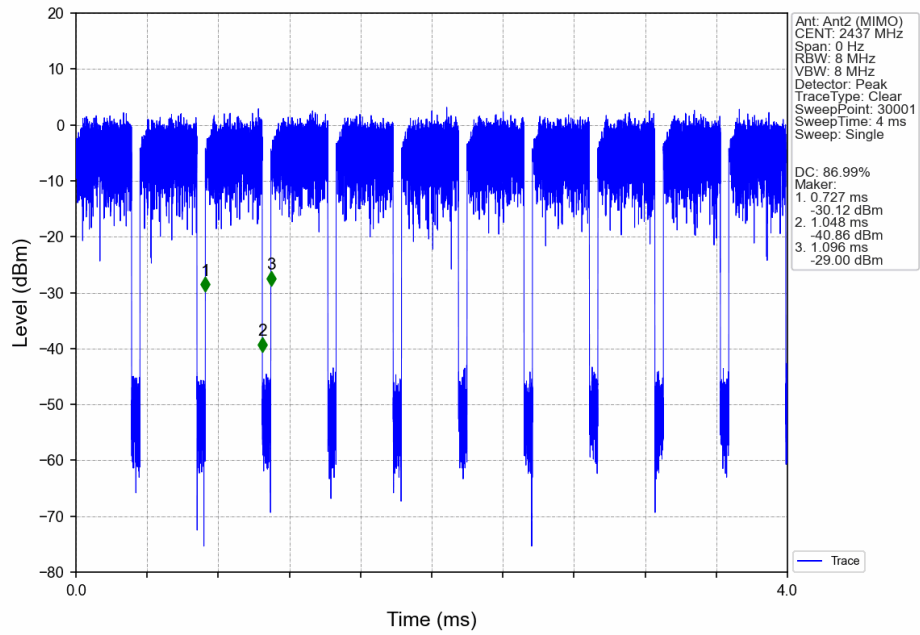
802.11n(HT20) HCH 2462MHz Ant2 (MIMO) NTNV



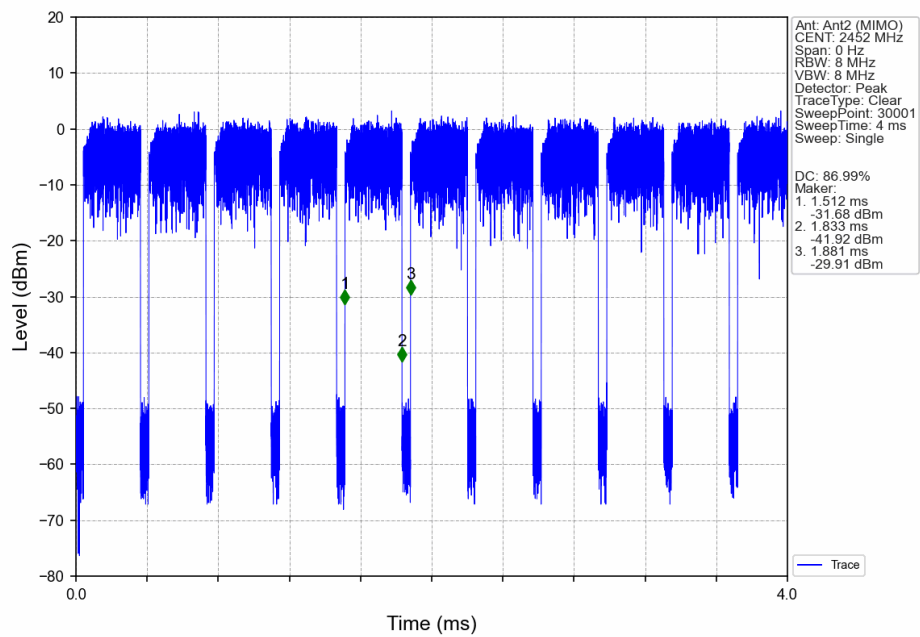
802.11n(HT40) LCH 2422MHz Ant2 (MIMO) NTNV



802.11n(HT40) MCH 2437MHz Ant2 (MIMO) NTN



802.11n(HT40) HCH 2452MHz Ant2 (MIMO) NTN



2. Bandwidth

2.1 Test Result

2.1.1 OBW

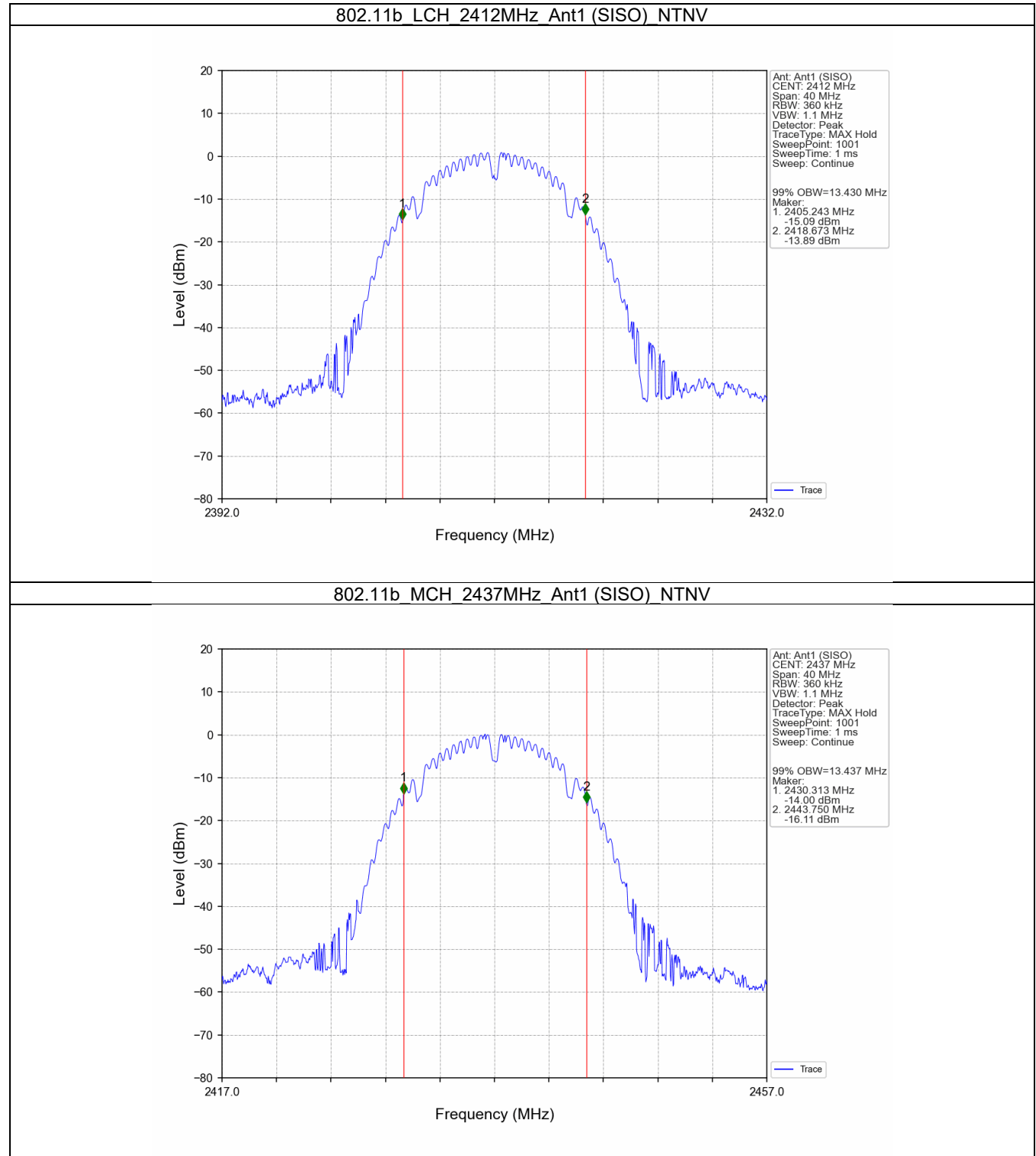
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	13.430	/	Pass
		2437	1	13.437	/	Pass
		2462	1	13.504	/	Pass
802.11g	SISO	2412	1	17.429	/	Pass
		2437	1	17.487	/	Pass
		2462	1	17.542	/	Pass
802.11n (HT20)	MIMO	2412	1	18.396	/	Pass
		2437	1	18.474	/	Pass
		2462	1	18.428	/	Pass
802.11n (HT40)	MIMO	2422	1	36.488	/	Pass
		2437	1	36.445	/	Pass
		2452	1	36.447	/	Pass

2.1.2 6dB BW

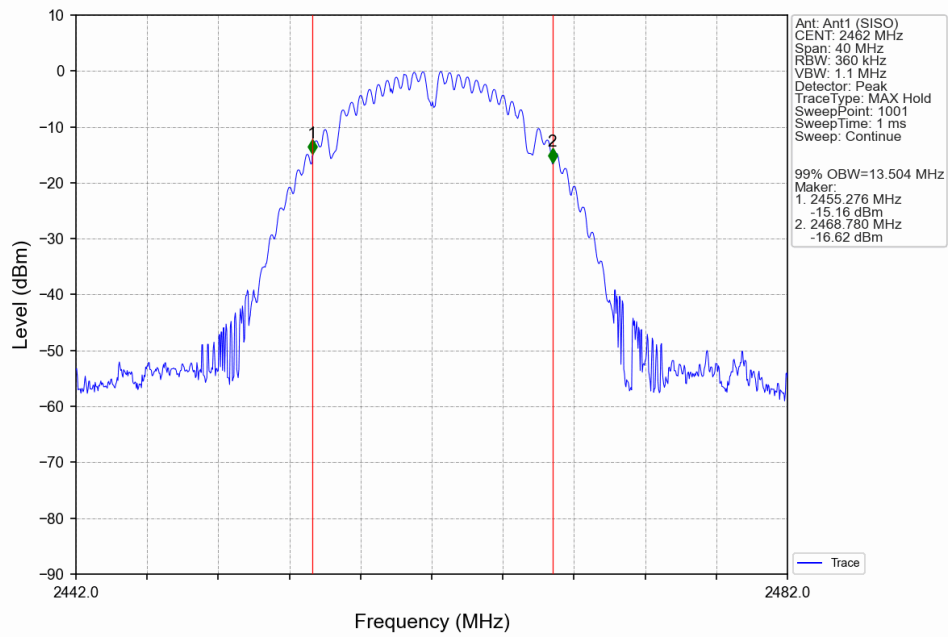
Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	9.205	≥ 0.5	Pass
		2437	1	9.192	≥ 0.5	Pass
		2462	1	9.211	≥ 0.5	Pass
802.11g	SISO	2412	1	16.212	≥ 0.5	Pass
		2437	1	16.245	≥ 0.5	Pass
		2462	1	16.129	≥ 0.5	Pass
802.11n (HT20)	MIMO	2412	1	17.358	≥ 0.5	Pass
		2437	1	17.435	≥ 0.5	Pass
		2462	1	17.325	≥ 0.5	Pass
802.11n (HT40)	MIMO	2422	1	35.949	≥ 0.5	Pass
		2437	1	35.955	≥ 0.5	Pass
		2452	1	35.979	≥ 0.5	Pass

2.2 Test Graph

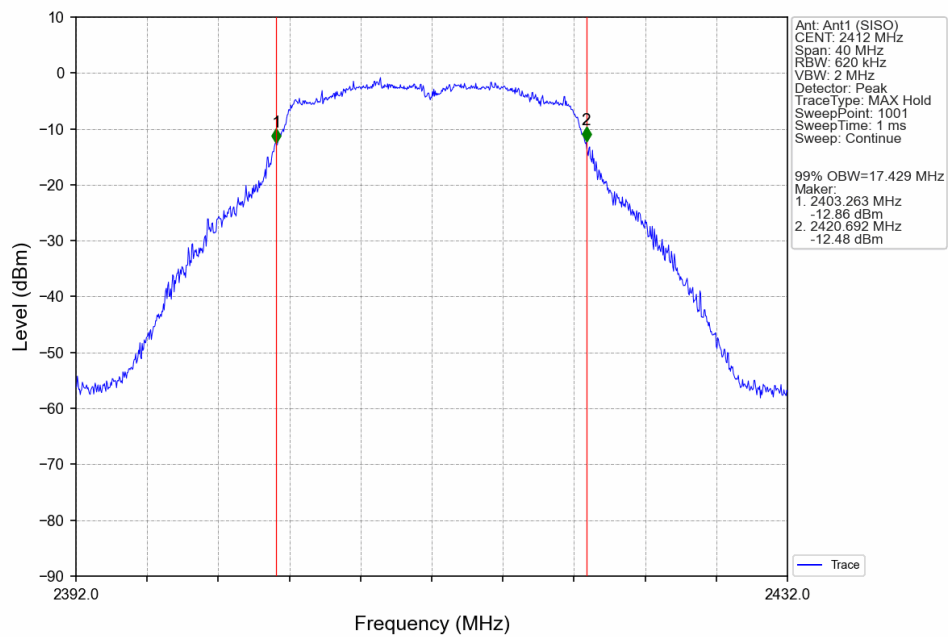
2.2.1 OBW



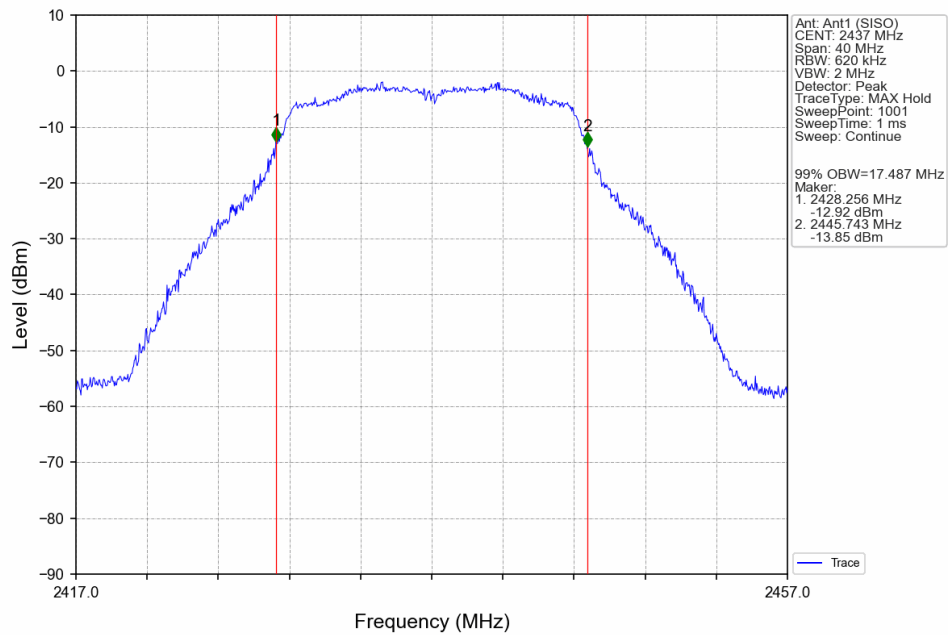
802.11b HCH 2462MHz Ant1 (SISO) NTN



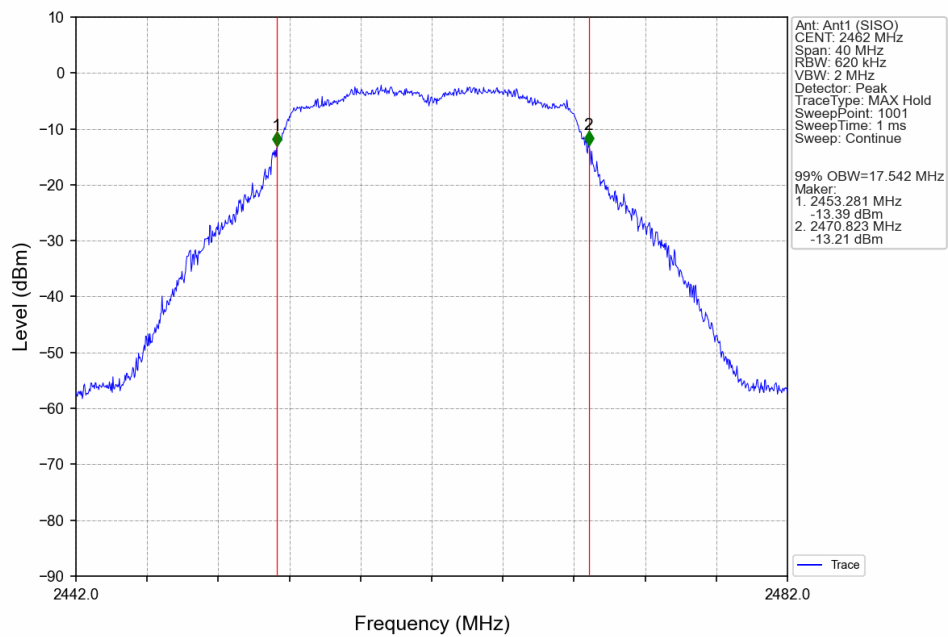
802.11g LCH 2412MHz Ant1 (SISO) NTN



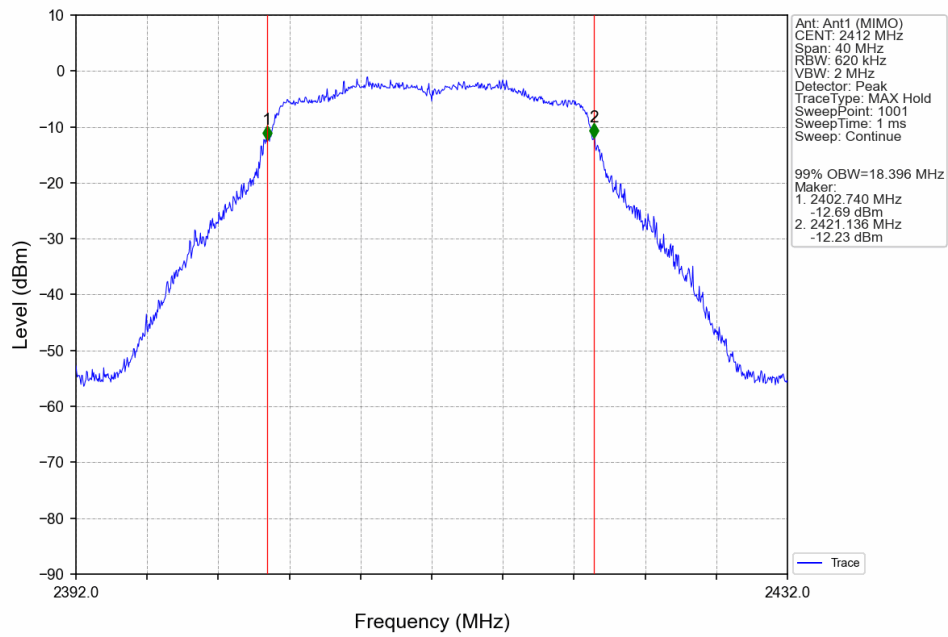
802.11g MCH 2437MHz Ant1 (SISO) NTNV



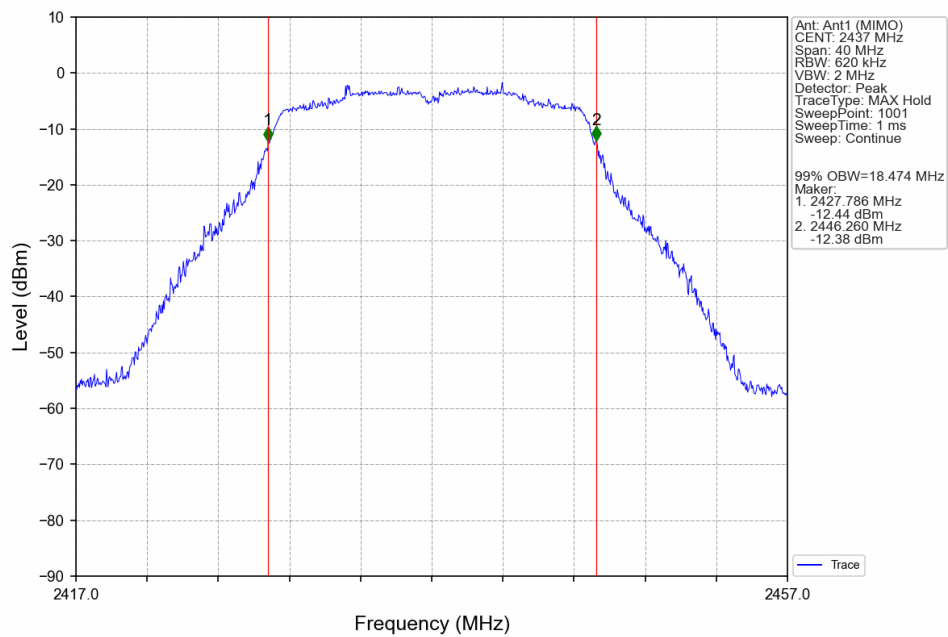
802.11g HCH 2462MHz Ant1 (SISO) NTNV



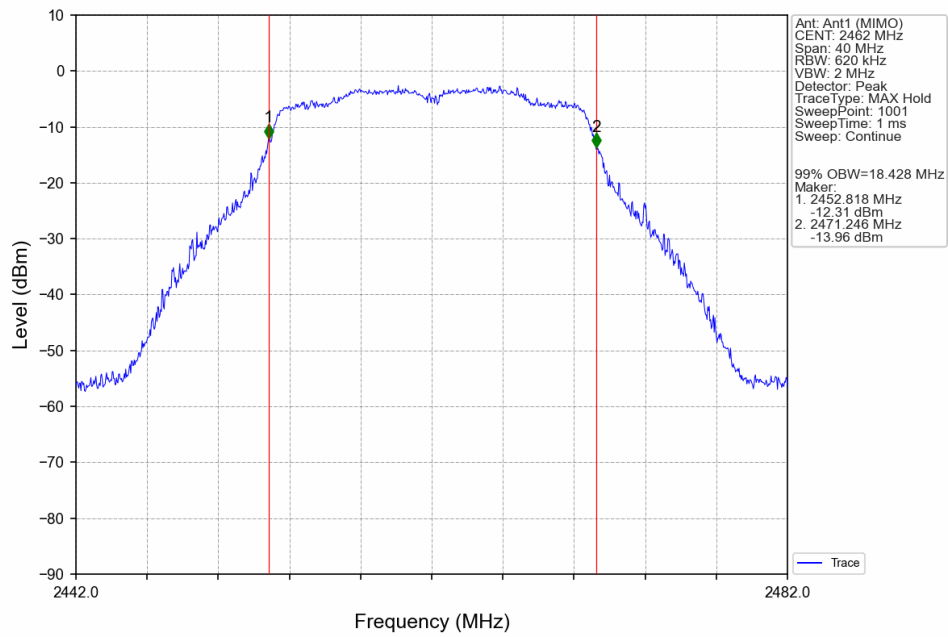
802.11n(HT20) LCH 2412MHz Ant1 (MIMO) NTNV



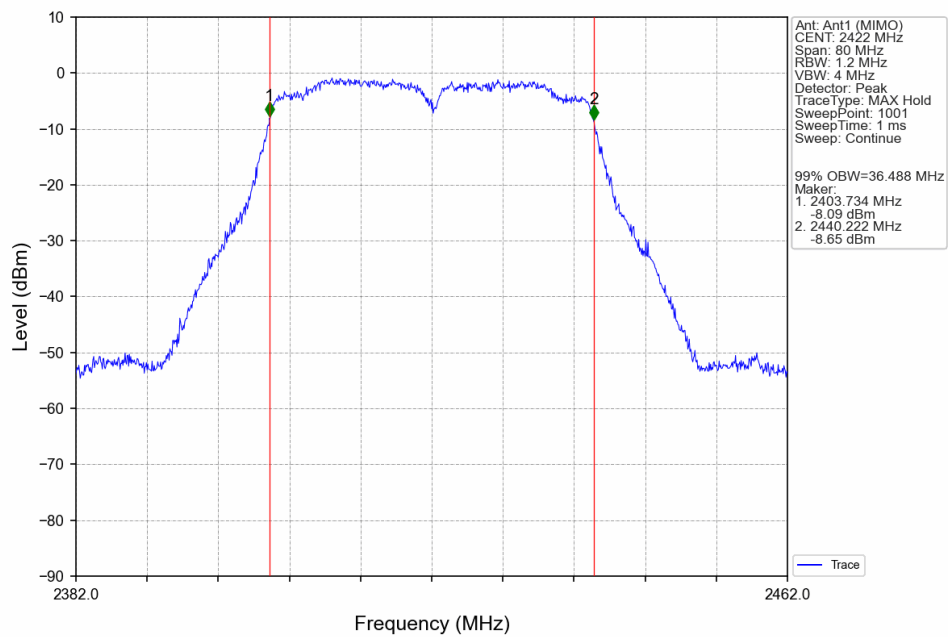
802.11n(HT20) MCH 2437MHz Ant1 (MIMO) NTNV



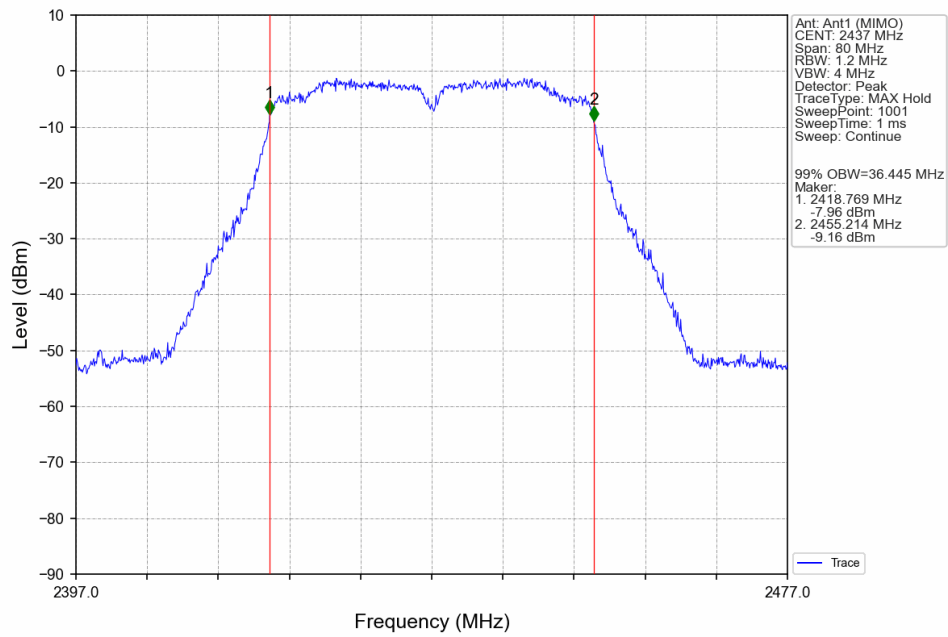
802.11n(HT20) HCH 2462MHz Ant1 (MIMO) NTNV



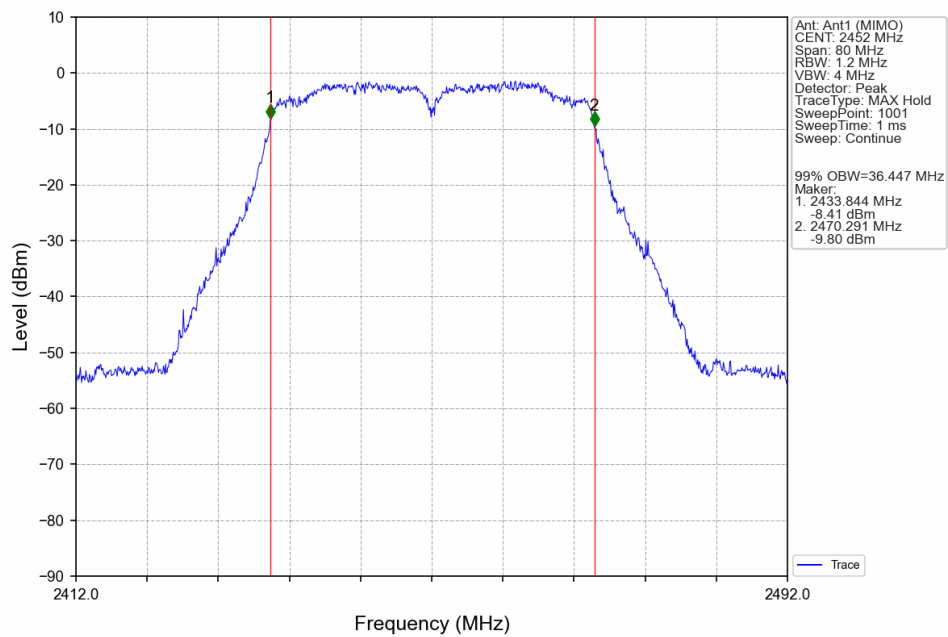
802.11n(HT40) LCH 2422MHz Ant1 (MIMO) NTNV



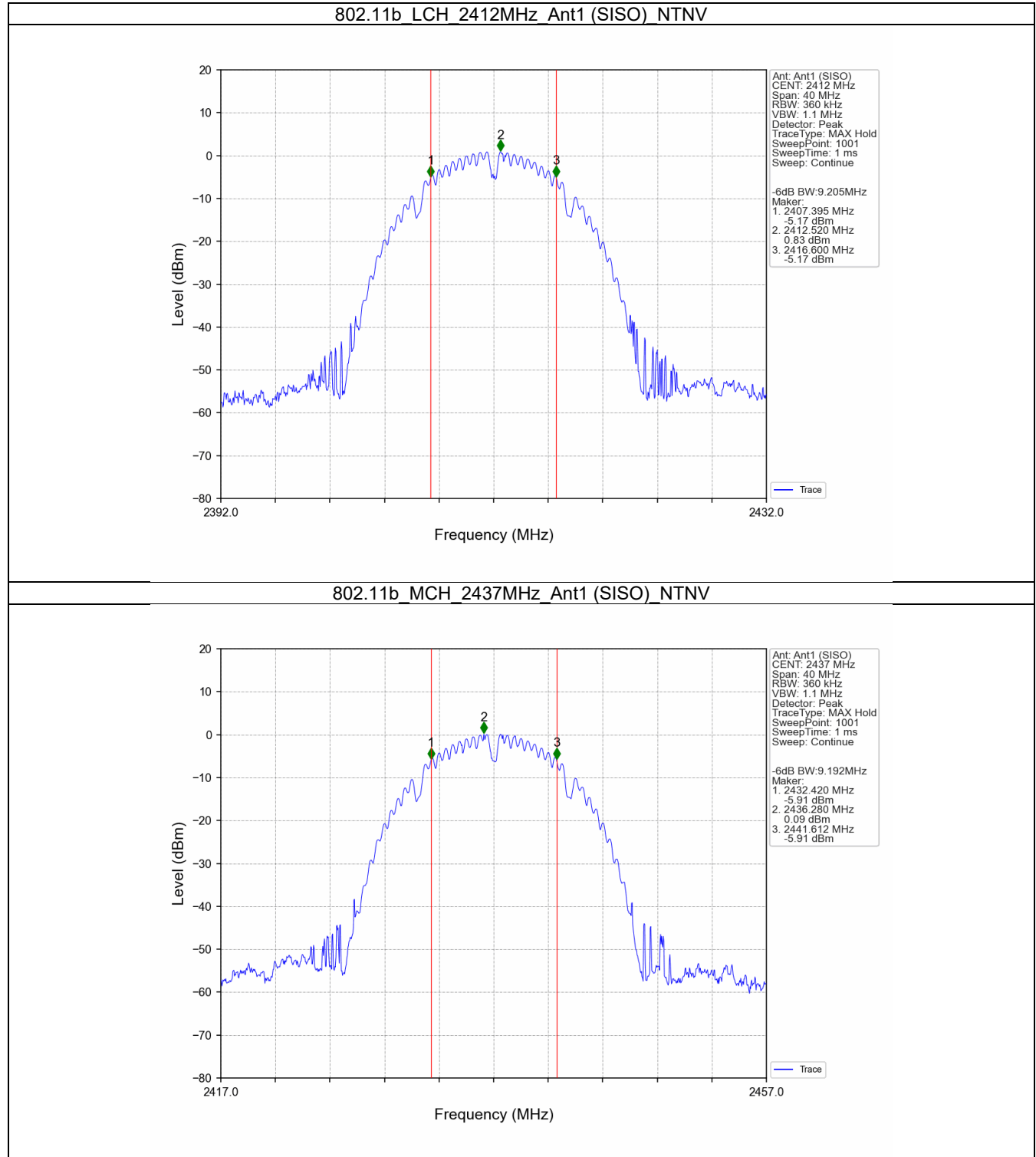
802.11n(HT40) MCH 2437MHz Ant1 (MIMO) NTNV



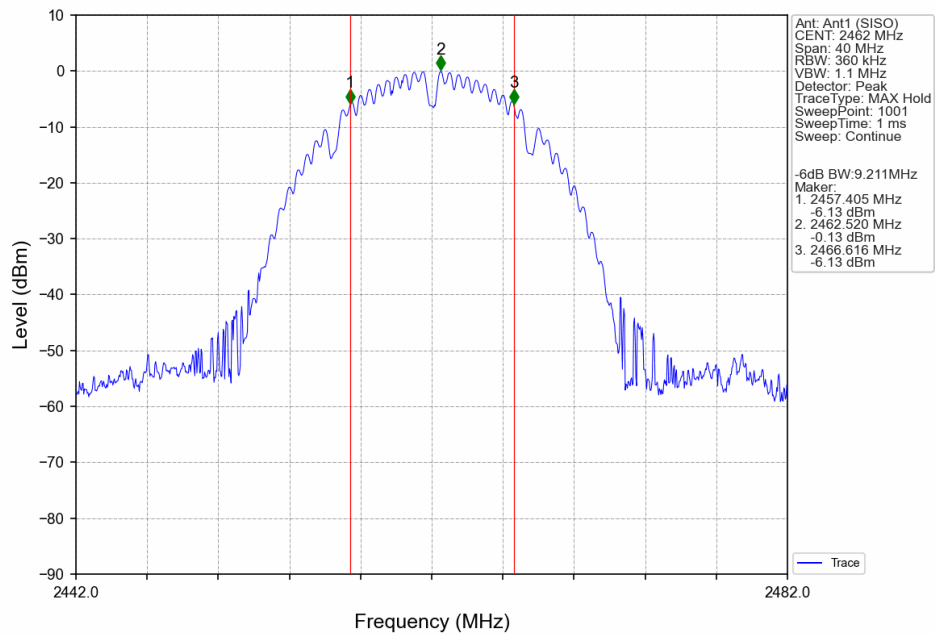
802.11n(HT40) HCH 2452MHz Ant1 (MIMO) NTNV



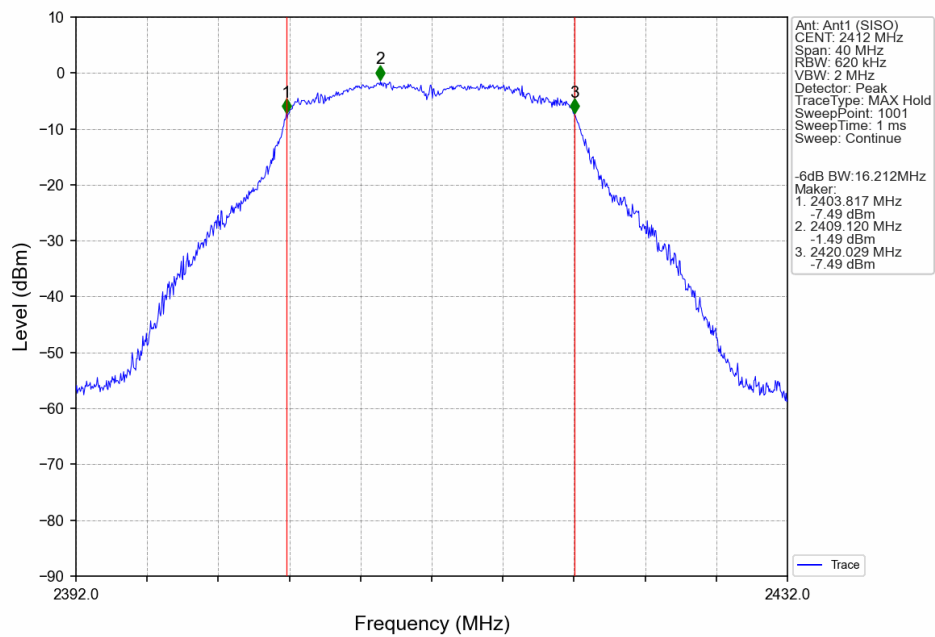
2.2.2 6dB BW



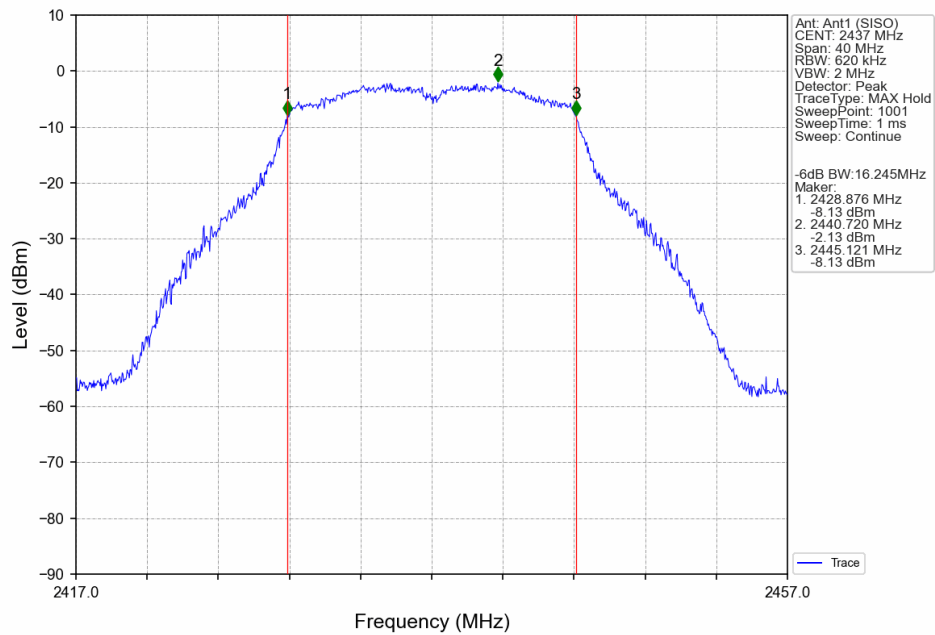
802.11b HCH 2462MHz Ant1 (SISO) NTN



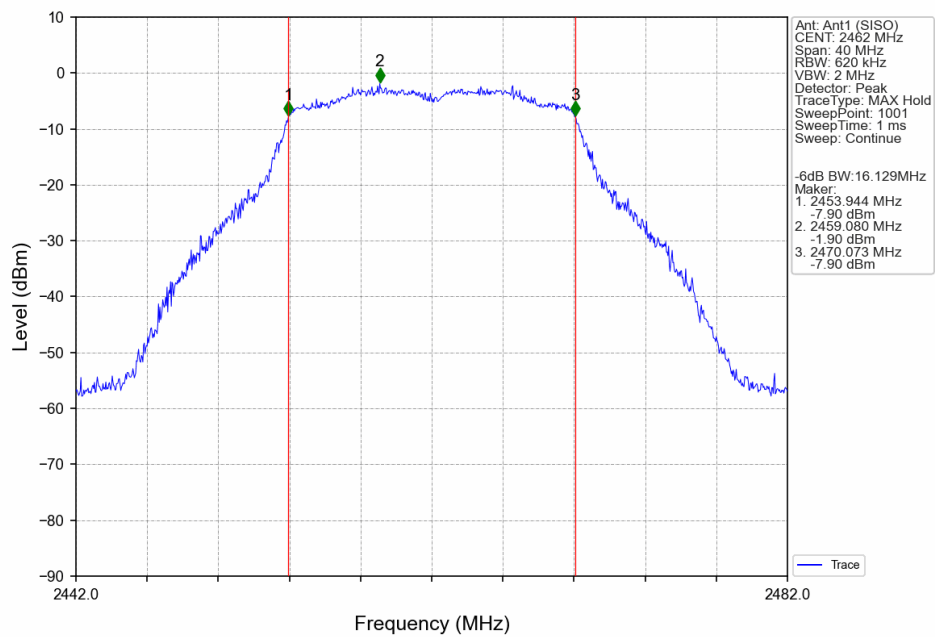
802.11g LCH 2412MHz Ant1 (SISO) NTN



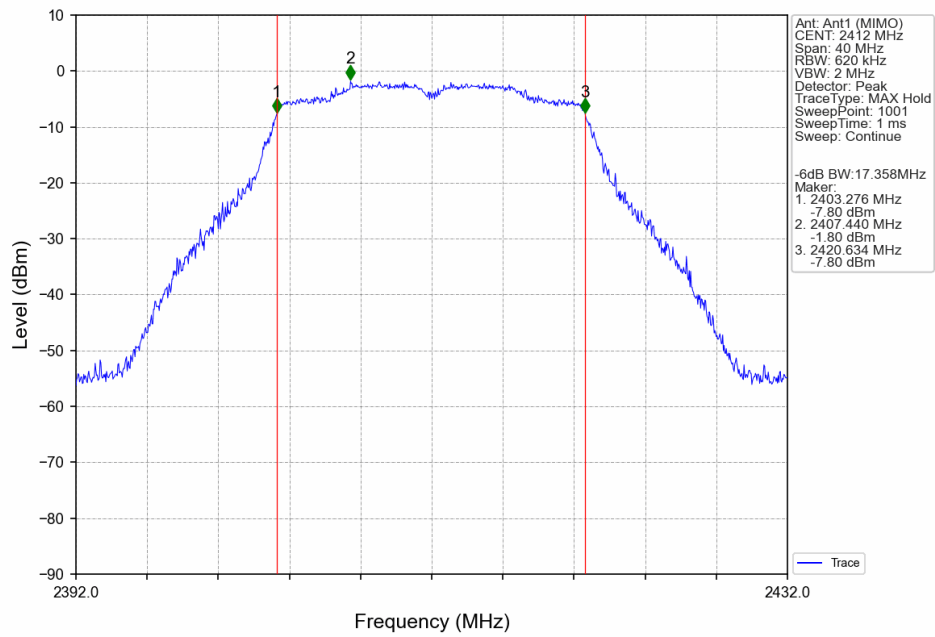
802.11g MCH 2437MHz Ant1 (SISO) NTN



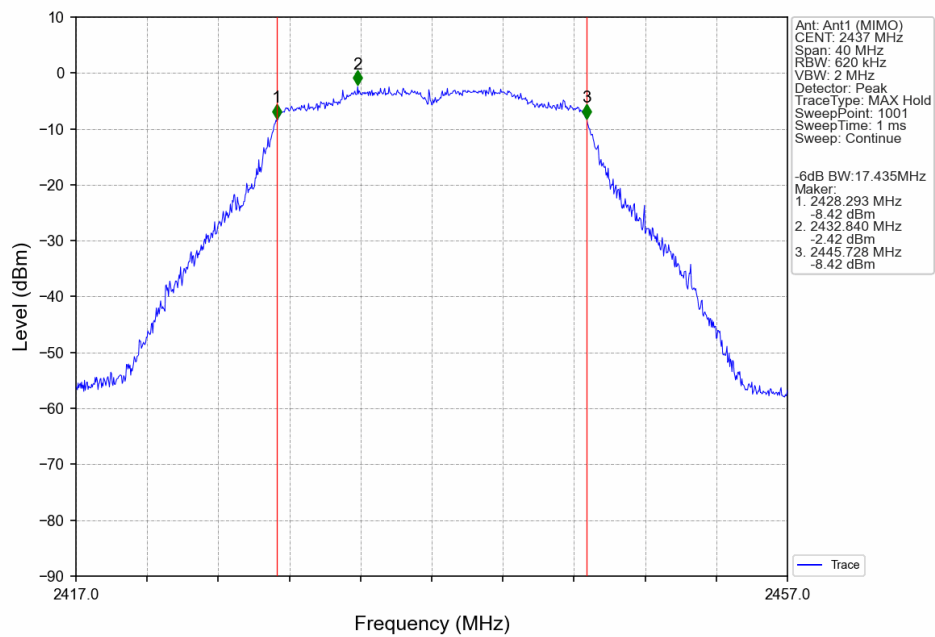
802.11g HCH 2462MHz Ant1 (SISO) NTN



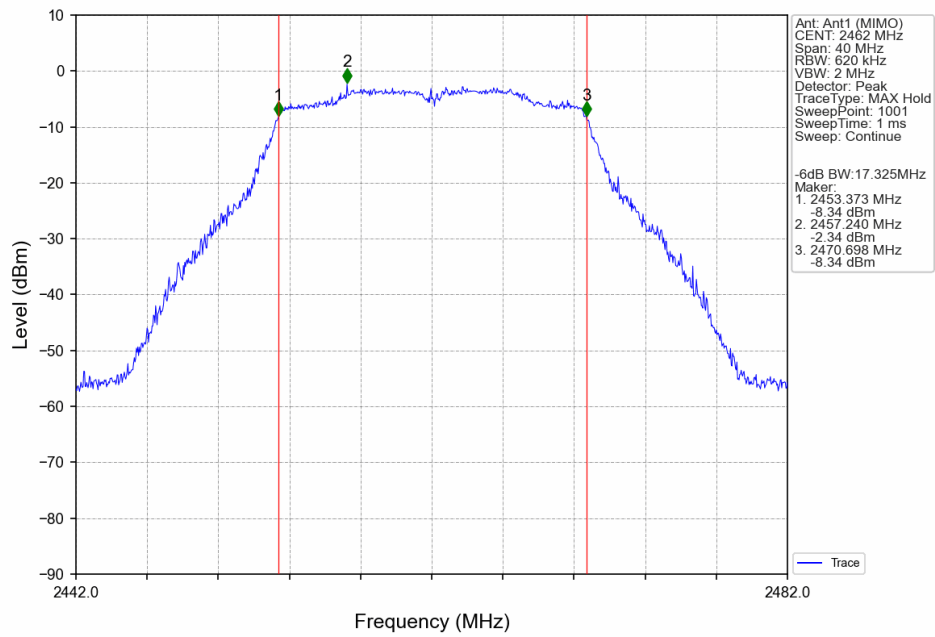
802.11n(HT20) LCH 2412MHz Ant1 (MIMO) NTNV



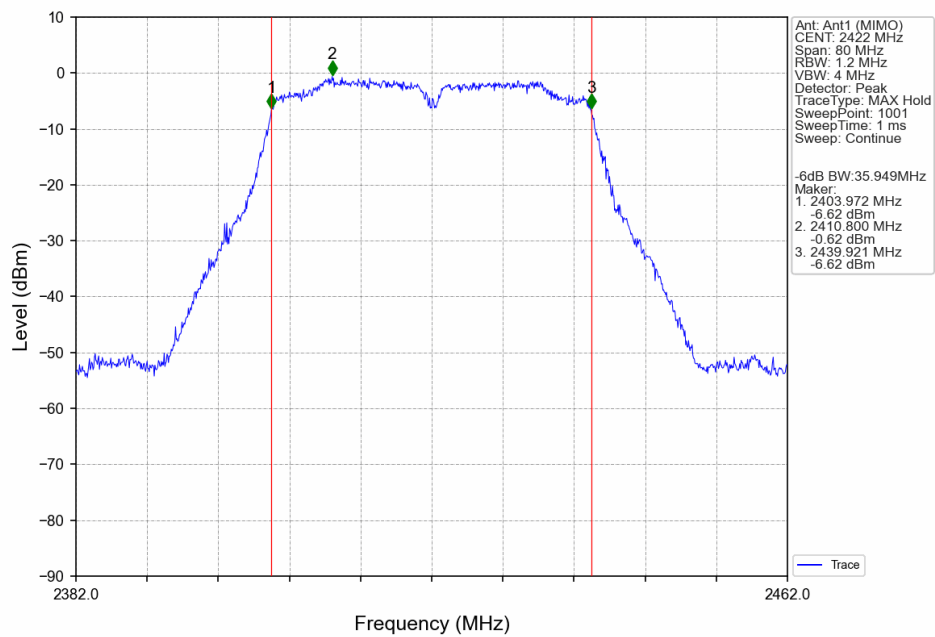
802.11n(HT20) MCH 2437MHz Ant1 (MIMO) NTNV



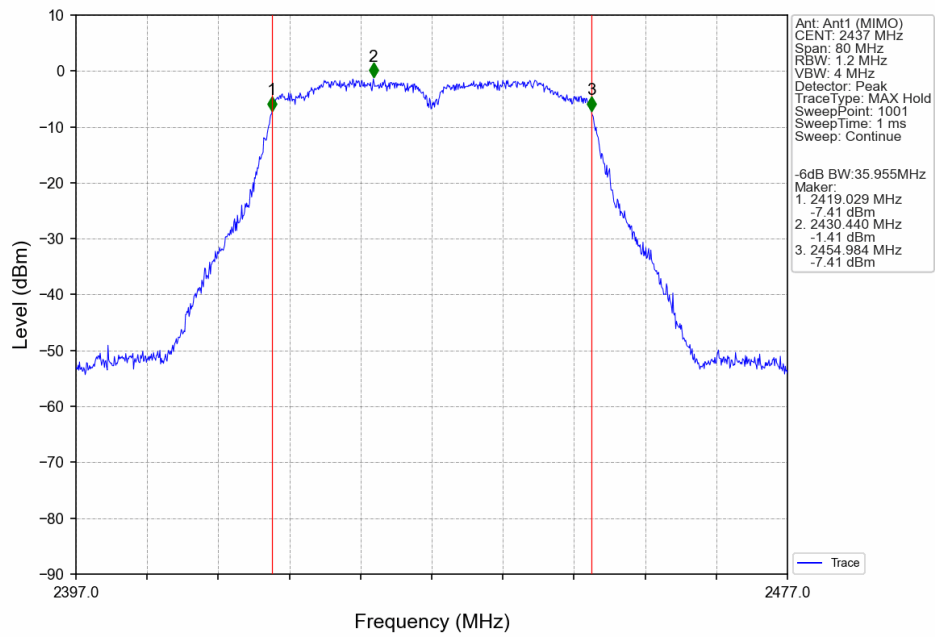
802.11n(HT20) HCH 2462MHz Ant1 (MIMO) NTNV



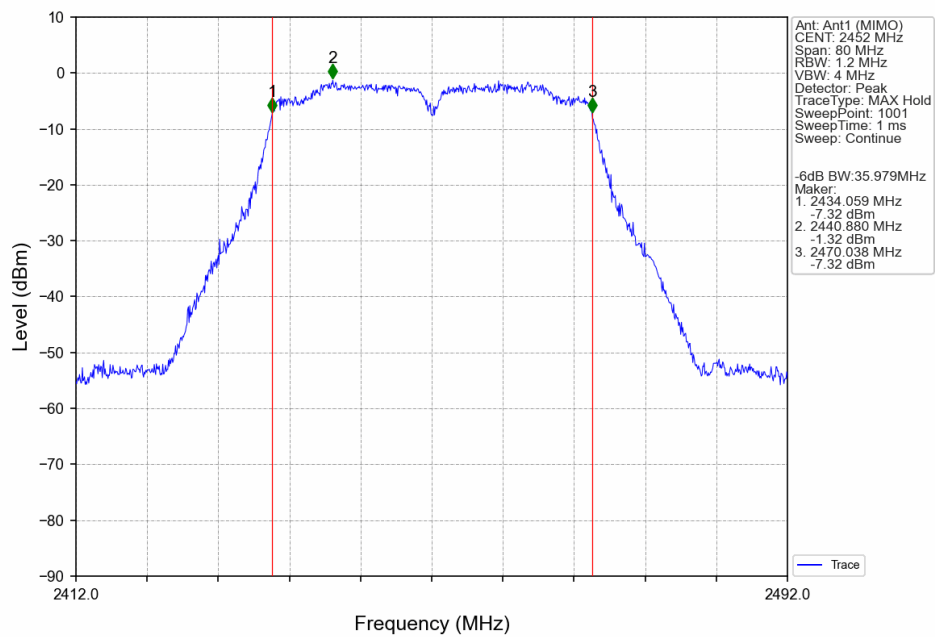
802.11n(HT40) LCH 2422MHz Ant1 (MIMO) NTNV



802.11n(HT40) MCH 2437MHz Ant1 (MIMO) NTNV



802.11n(HT40) HCH 2452MHz Ant1 (MIMO) NTNV



3. Maximum Conducted Output Power

3.1 Test Result

3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)				Verdict
			ANT1	ANT2	MIMO	Limit	
802.11b	SISO	2412	11.48	9.60	/	<=30	Pass
		2437	10.61	9.07	/	<=30	Pass
		2462	10.52	9.42	/	<=30	Pass
802.11g	SISO	2412	11.32	9.16	/	<=30	Pass
		2437	10.50	8.90	/	<=30	Pass
		2462	10.44	9.15	/	<=30	Pass
802.11n (HT20)	MIMO	2412	11.20	9.06	13.27	<=30	Pass
		2437	10.51	8.85	12.77	<=30	Pass
		2462	10.34	9.12	12.78	<=30	Pass
802.11n (HT40)	MIMO	2422	11.31	9.27	13.42	<=30	Pass
		2437	10.95	9.12	13.14	<=30	Pass
		2452	10.85	9.05	13.05	<=30	Pass
Note1: Antenna Gain: Ant1: 2.0dBi; Ant2: 2.0dBi; Note2: Directional Gain: 5.01dBi							

4. Maximum Power Spectral Density

4.1 Test Result

4.1.1 PSD

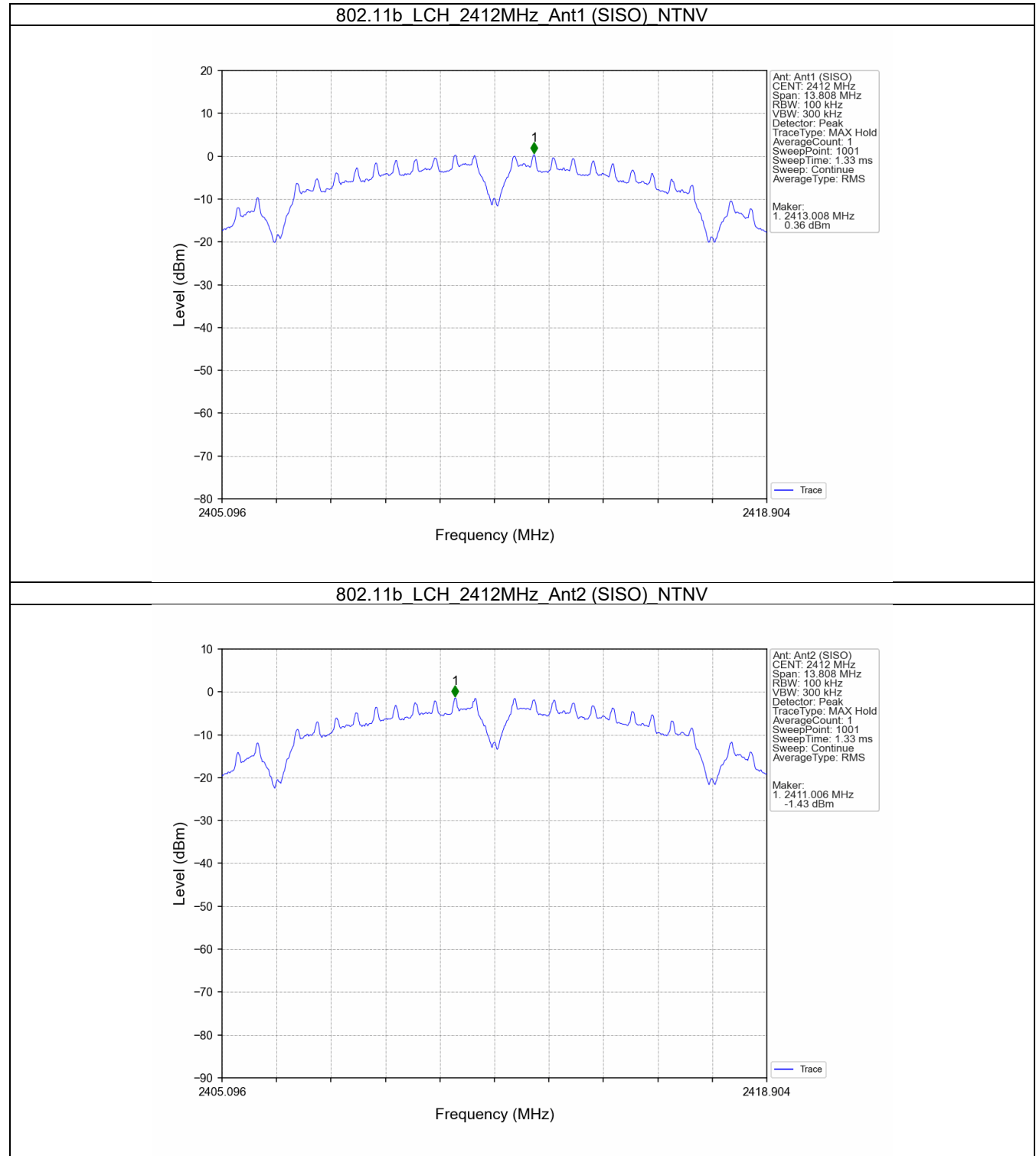
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)				Verdict
			ANT1	ANT2	MIMO	Limit	
802.11b	SISO	2412	0.36	-1.43	/	<=8	Pass
		2437	-0.30	-1.89	/	<=8	Pass
		2462	-0.45	-1.67	/	<=8	Pass
802.11g	SISO	2412	-6.09	-8.46	/	<=8	Pass
		2437	-6.89	-8.72	/	<=8	Pass
		2462	-7.04	-8.41	/	<=8	Pass
802.11n (HT20)	MIMO	2412	-6.15	-8.54	-4.17	<=7.86	Pass
		2437	-6.85	-8.74	-4.70	<=7.86	Pass
		2462	-7.07	-8.41	-4.69	<=7.86	Pass
802.11n (HT40)	MIMO	2422	-9.68	-12.17	-7.77	<=7.86	Pass
		2437	-10.29	-12.30	-8.17	<=7.86	Pass
		2452	-10.39	-12.22	-8.29	<=7.86	Pass

Note1: Antenna Gain: Ant1: 2.0dBi; Ant2: 2.0dBi;

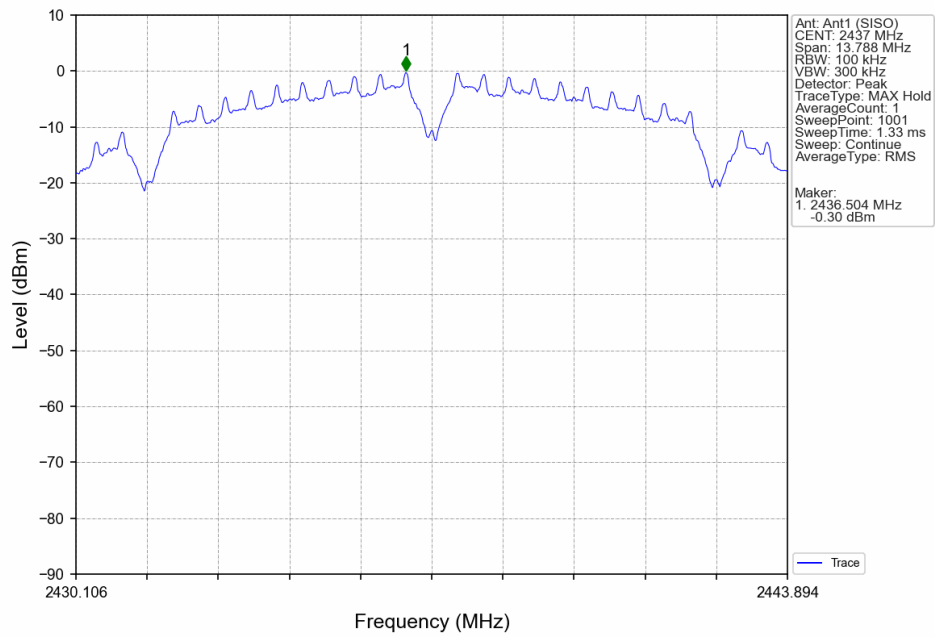
Note2: Directional Gain: Band1: 5.01dBi

4.2 Test Graph

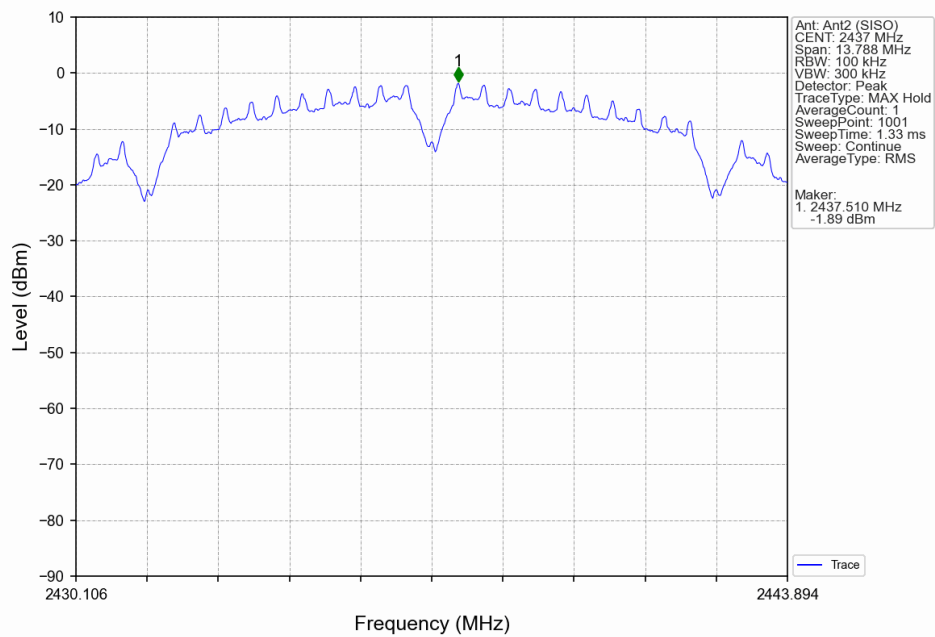
4.2.1 PSD



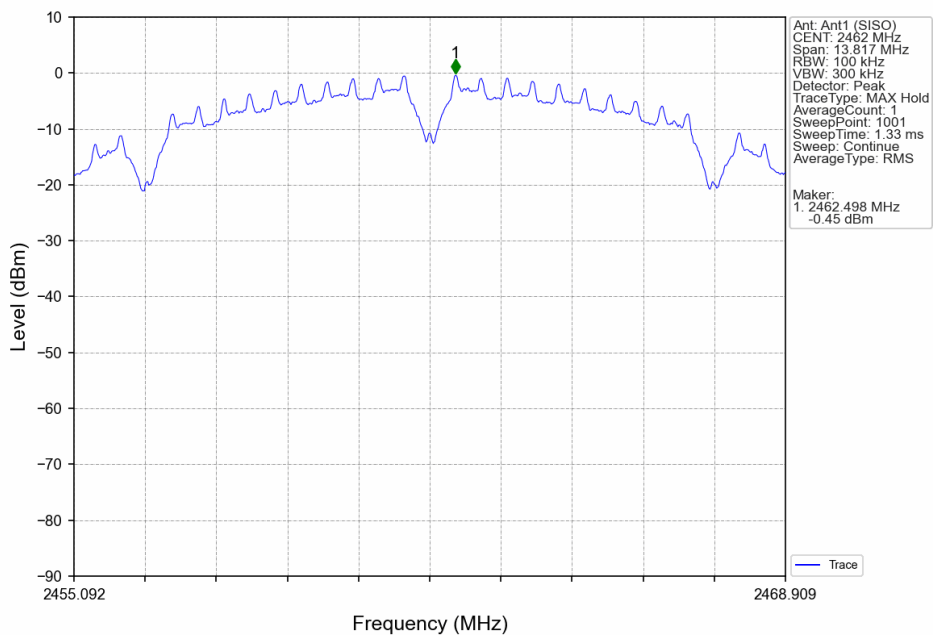
802.11b MCH 2437MHz Ant1 (SISO) NTN



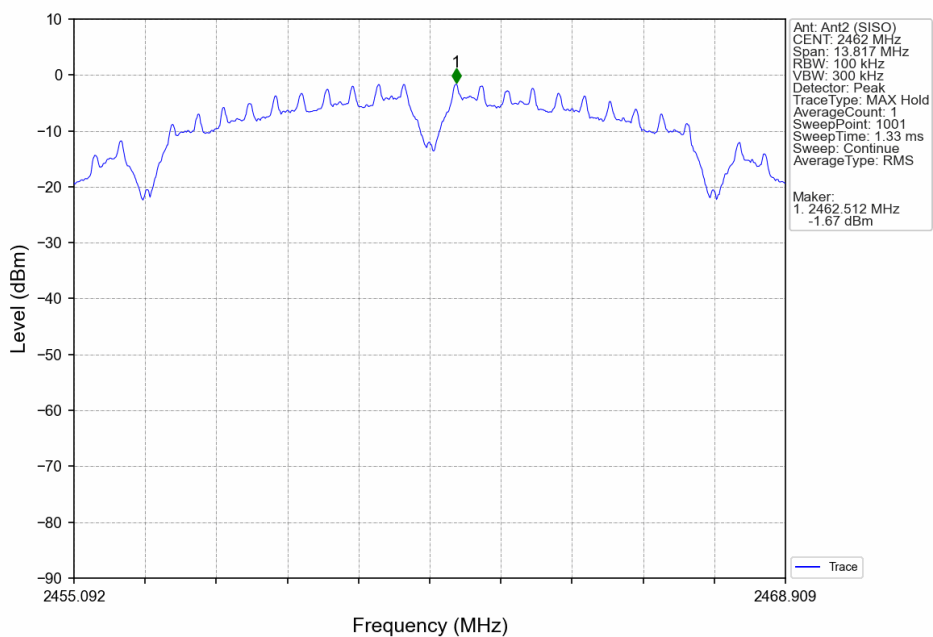
802.11b MCH 2437MHz Ant2 (SISO) NTN



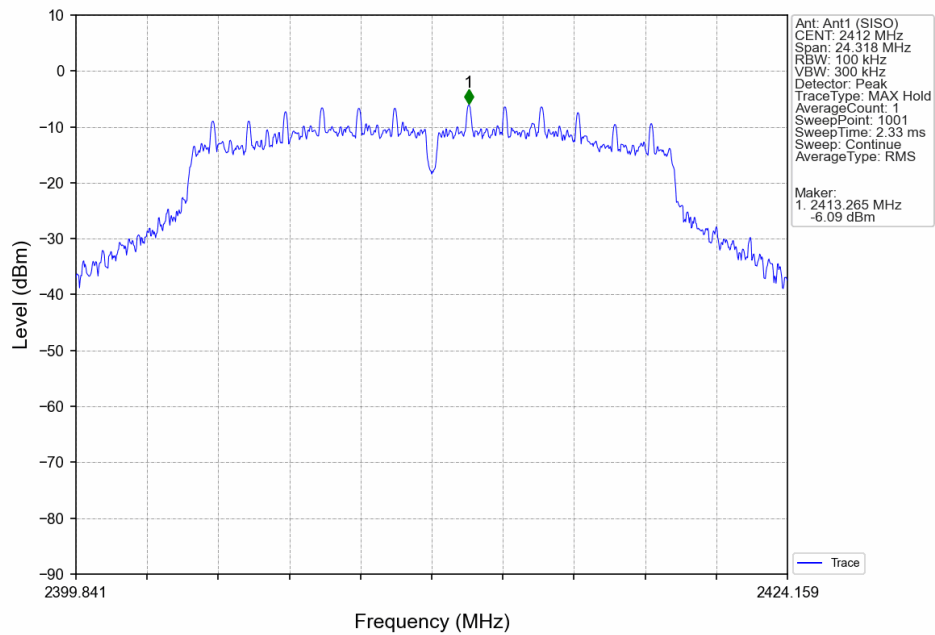
802.11b HCH 2462MHz Ant1 (SISO) NTN



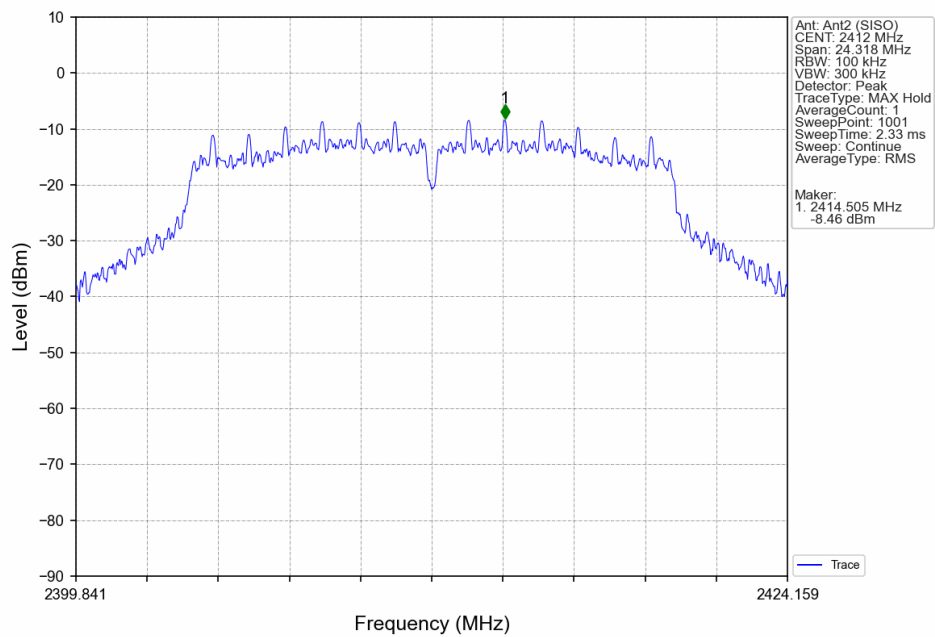
802.11b HCH 2462MHz Ant2 (SISO) NTN



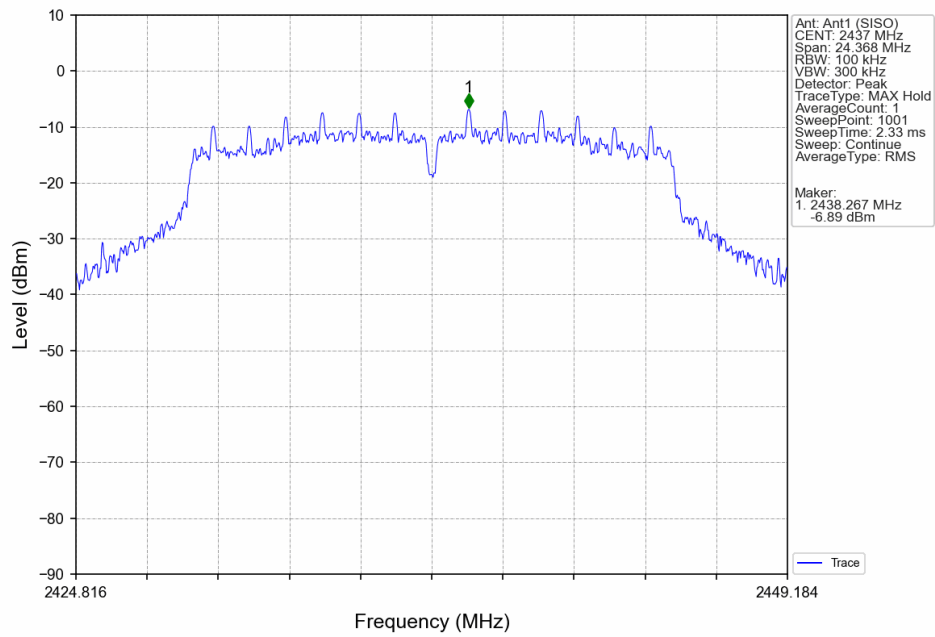
802.11g LCH 2412MHz Ant1 (SISO) NTN



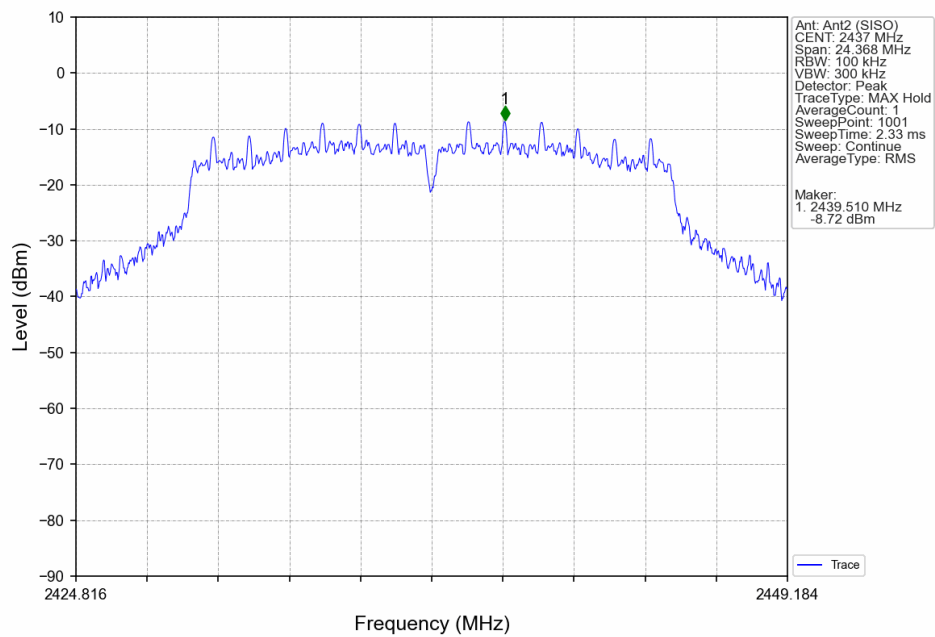
802.11g LCH 2412MHz Ant2 (SISO) NTN



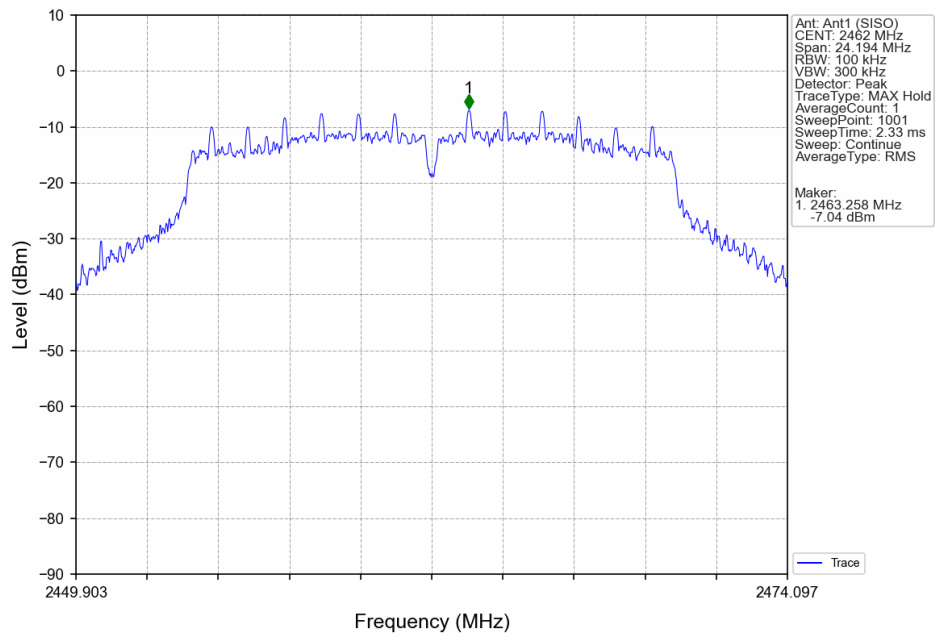
802.11g MCH 2437MHz Ant1 (SISO) NTNV



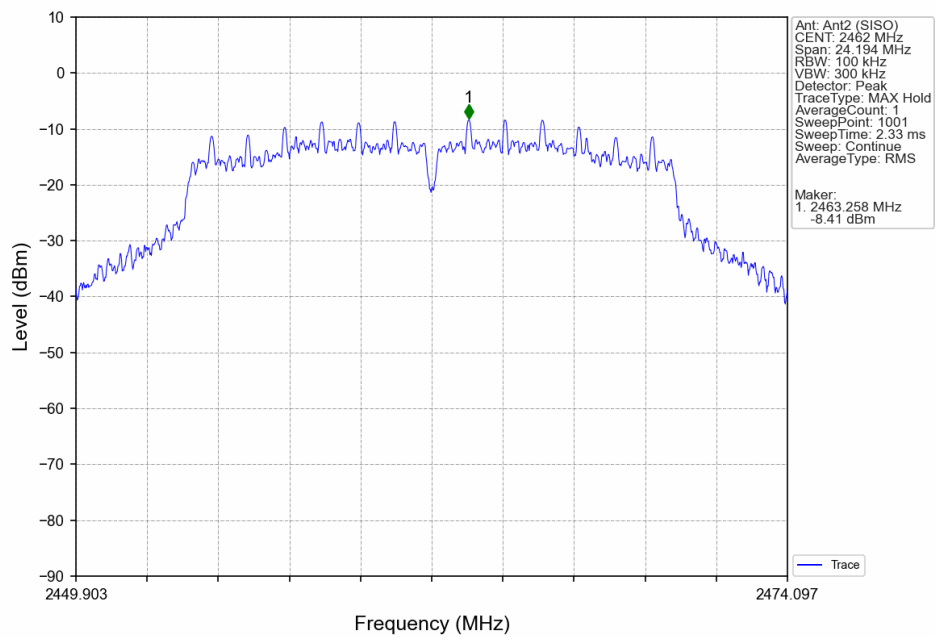
802.11g MCH 2437MHz Ant2 (SISO) NTNV



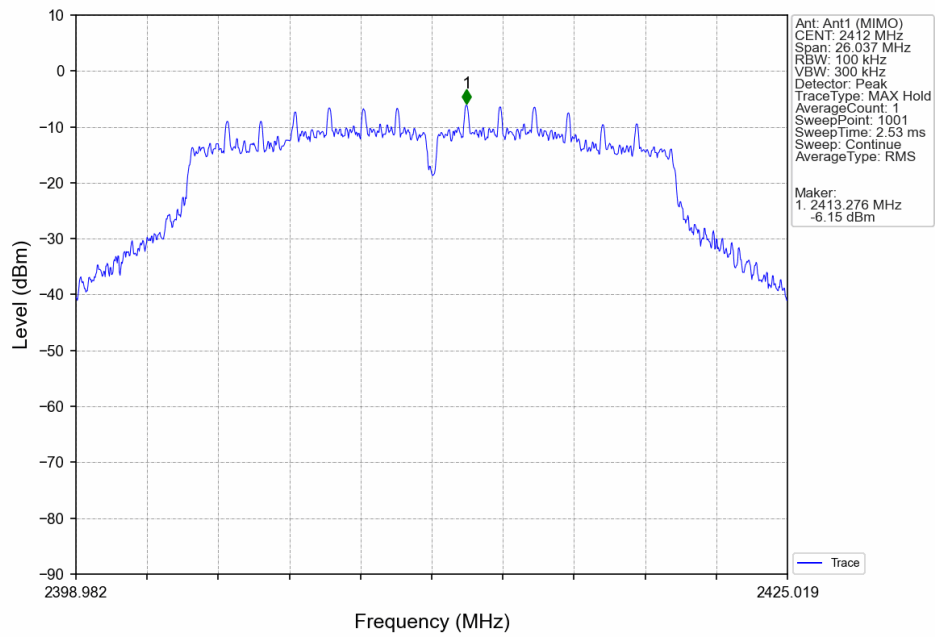
802.11g HCH 2462MHz Ant1 (SISO) NTN



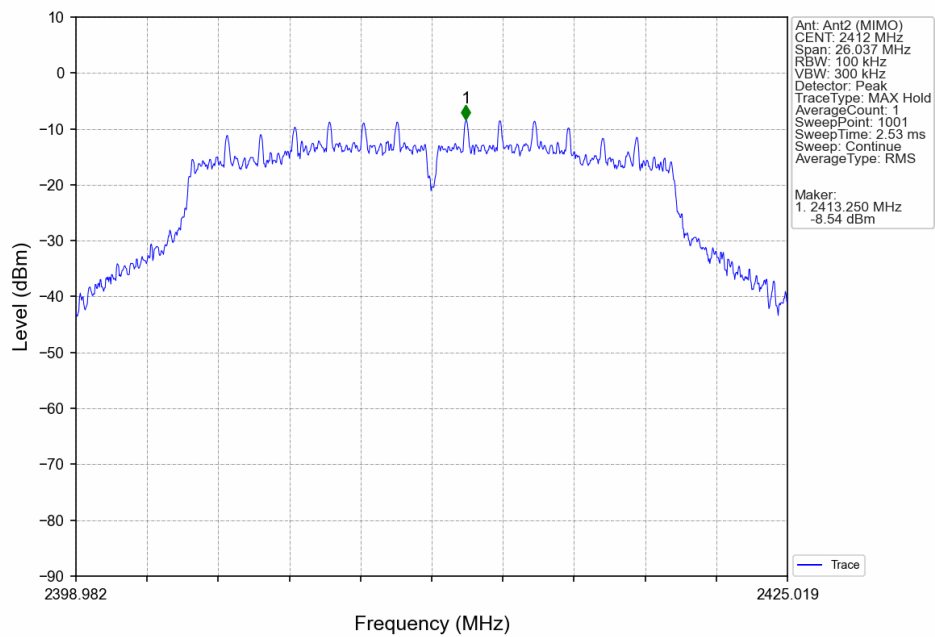
802.11g HCH 2462MHz Ant2 (SISO) NTN



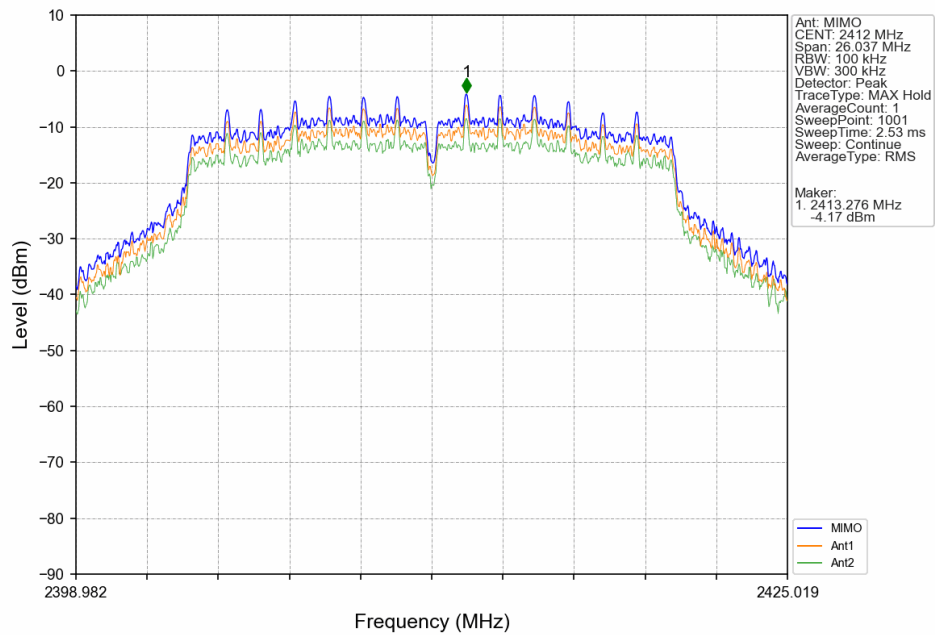
802.11n(HT20) LCH 2412MHz Ant1 (MIMO) NTNV



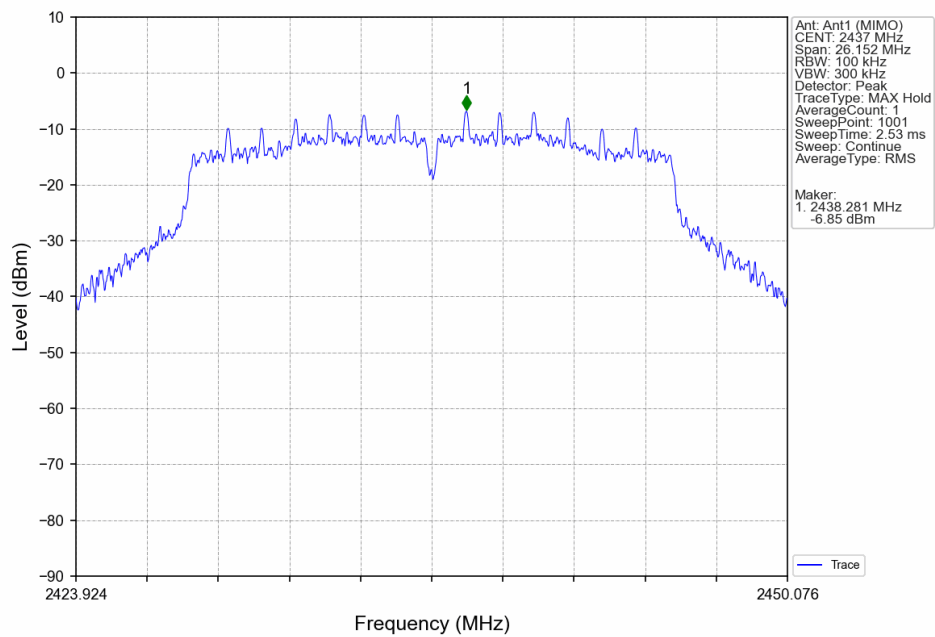
802.11n(HT20) LCH 2412MHz Ant2 (MIMO) NTNV



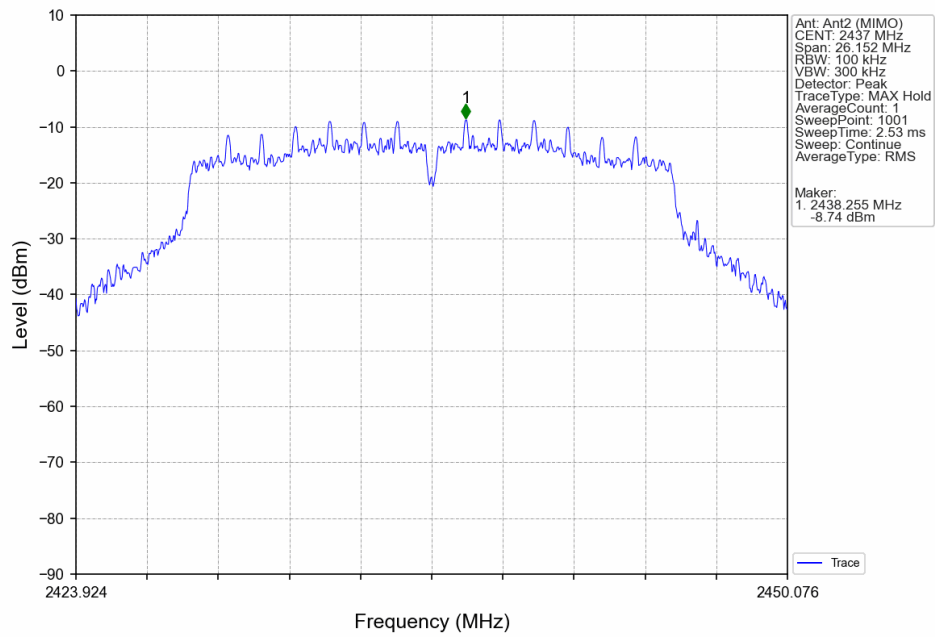
802.11n(HT20) LCH 2412MHz MIMO NTNV



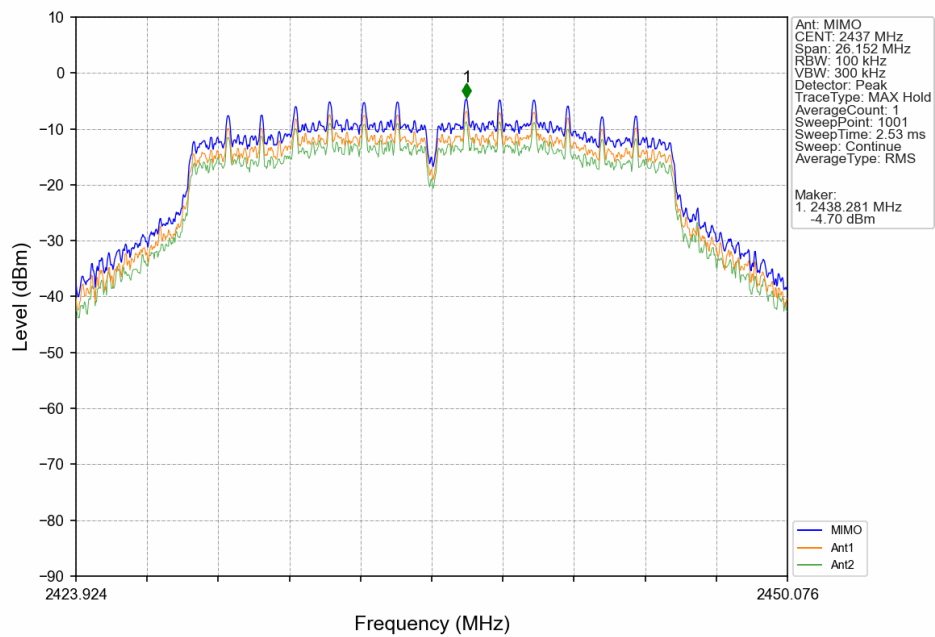
802.11n(HT20) MCH 2437MHz Ant1 (MIMO) NTNV



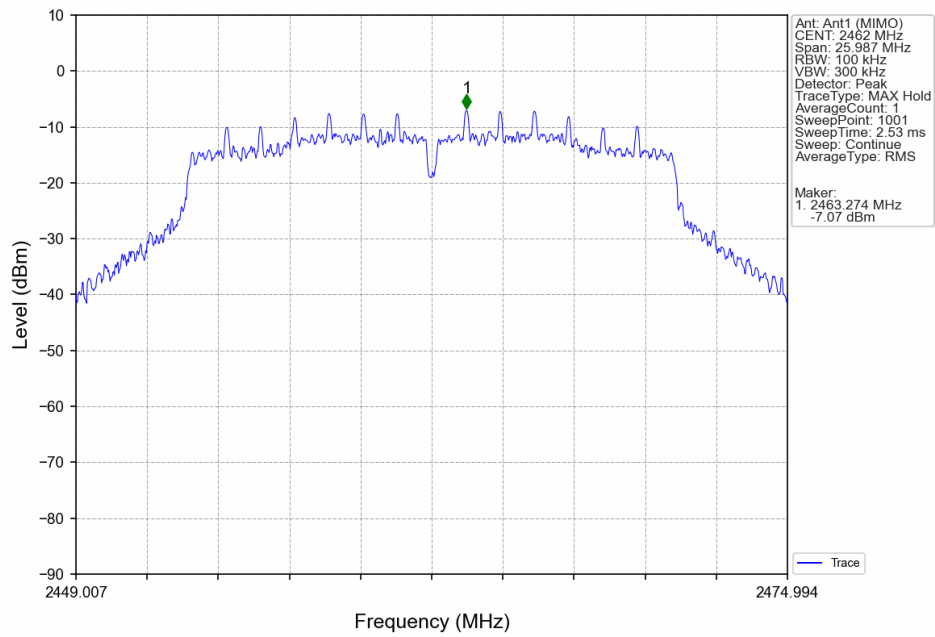
802.11n(HT20) MCH 2437MHz Ant2 (MIMO) NTNV



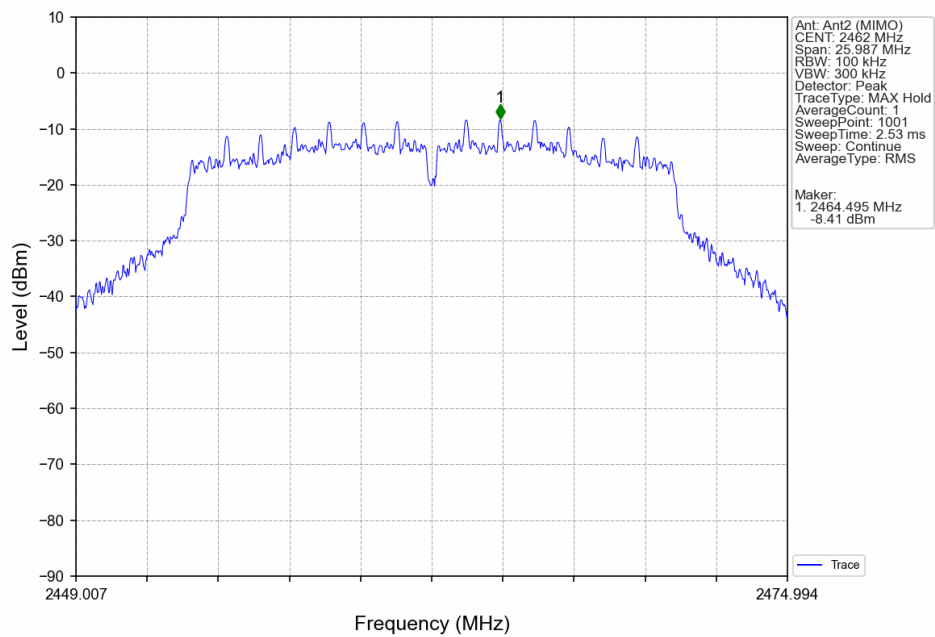
802.11n(HT20) MCH 2437MHz MIMO NTNV



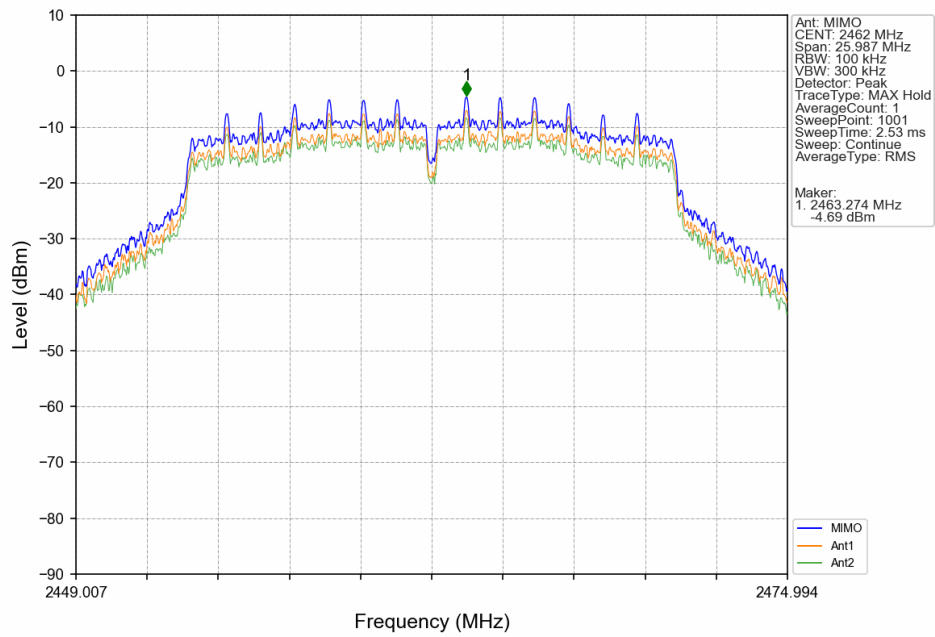
802.11n(HT20) HCH 2462MHz Ant1 (MIMO) NTNV



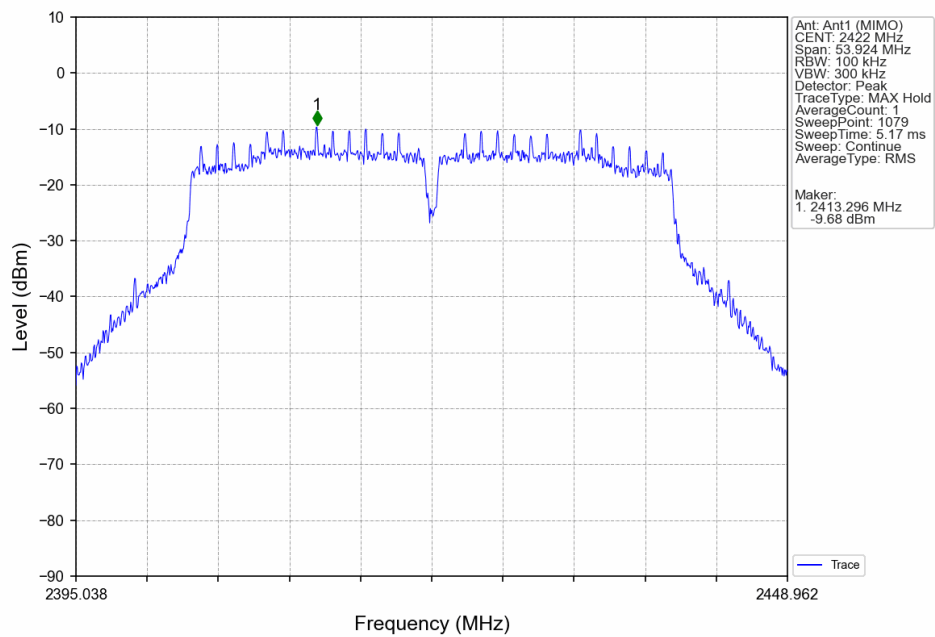
802.11n(HT20) HCH 2462MHz Ant2 (MIMO) NTNV



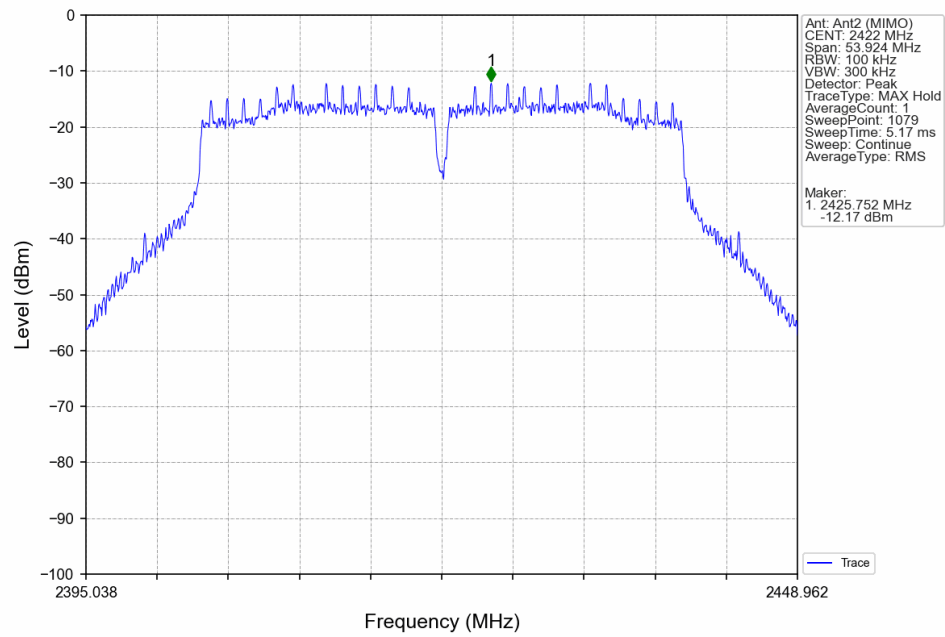
802.11n(HT20) HCH 2462MHz MIMO NTN



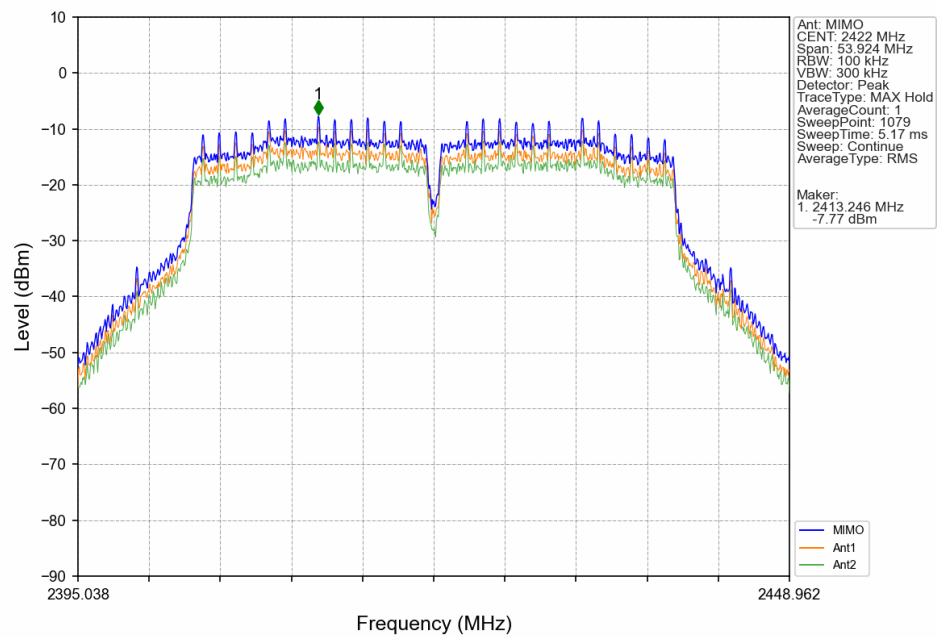
802.11n(HT40) LCH 2422MHz Ant1 (MIMO) NTN



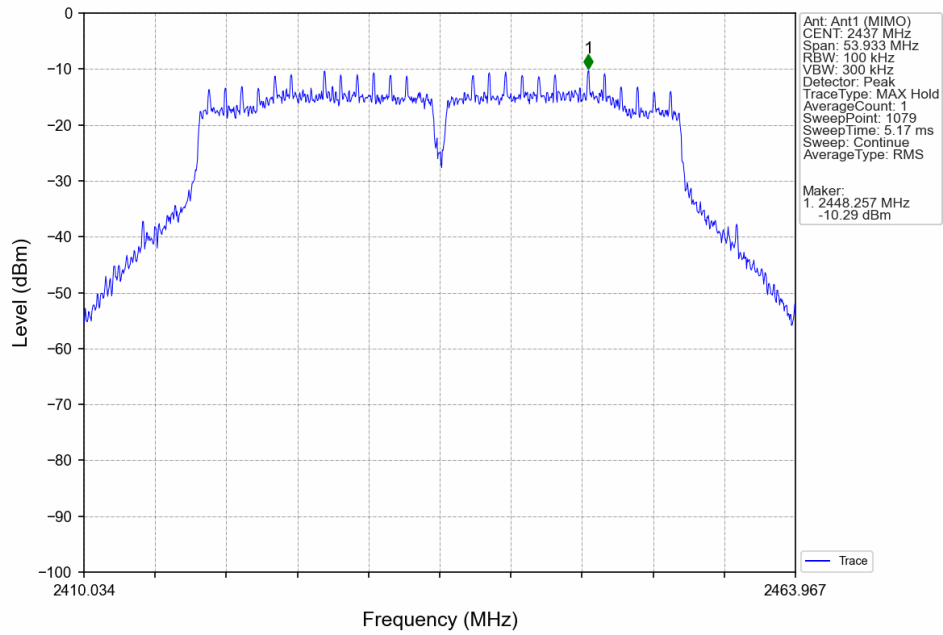
802.11n(HT40) LCH 2422MHz Ant2 (MIMO) NTN



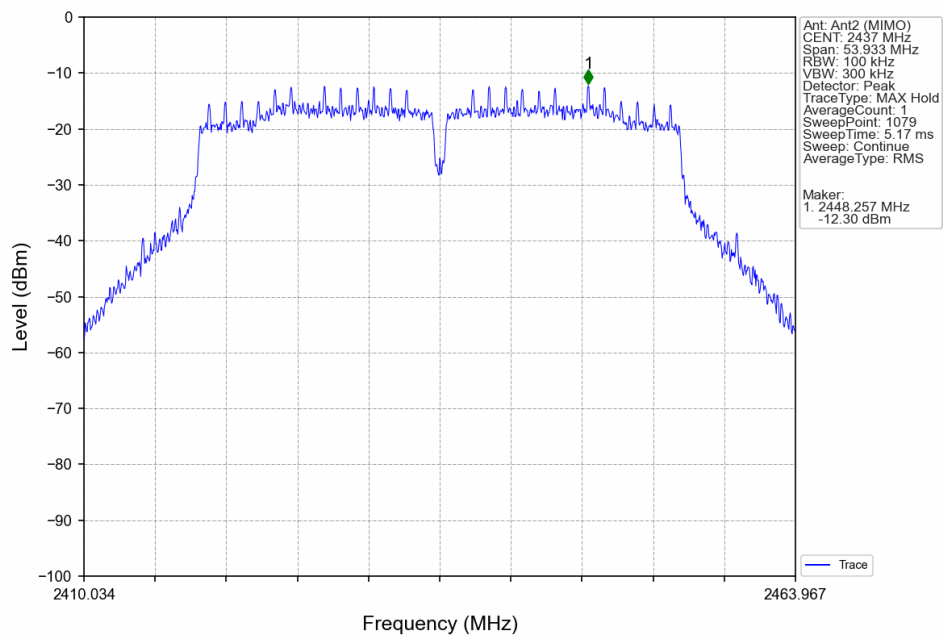
802.11n(HT40) LCH 2422MHz MIMO NTN



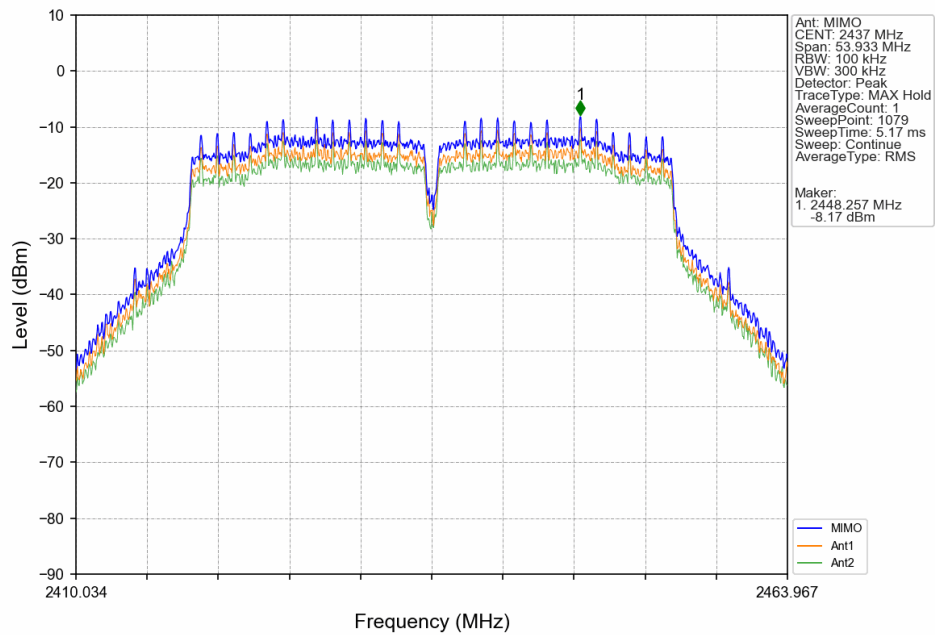
802.11n(HT40) MCH 2437MHz Ant1 (MIMO) NTNV



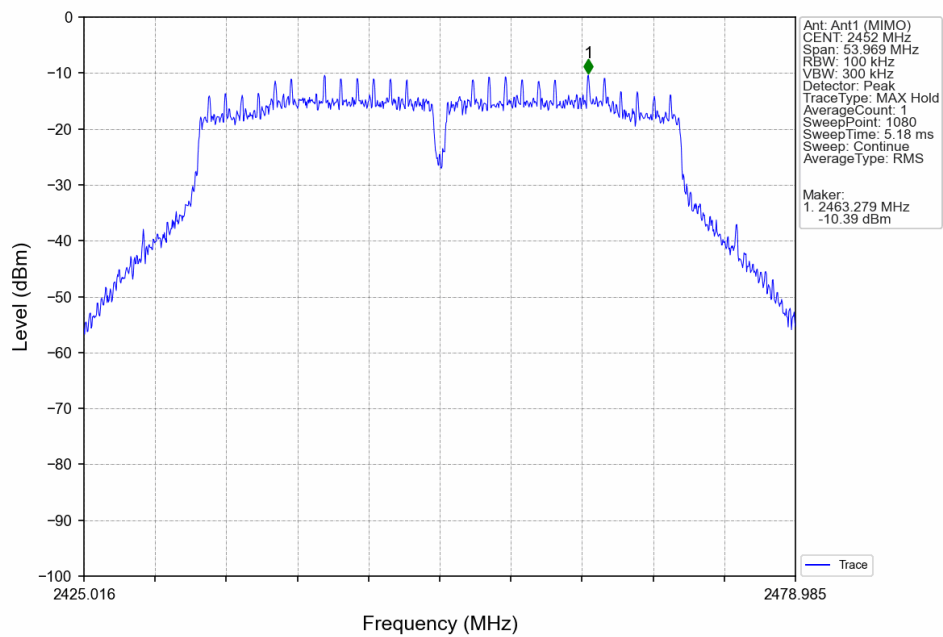
802.11n(HT40) MCH 2437MHz Ant2 (MIMO) NTNV



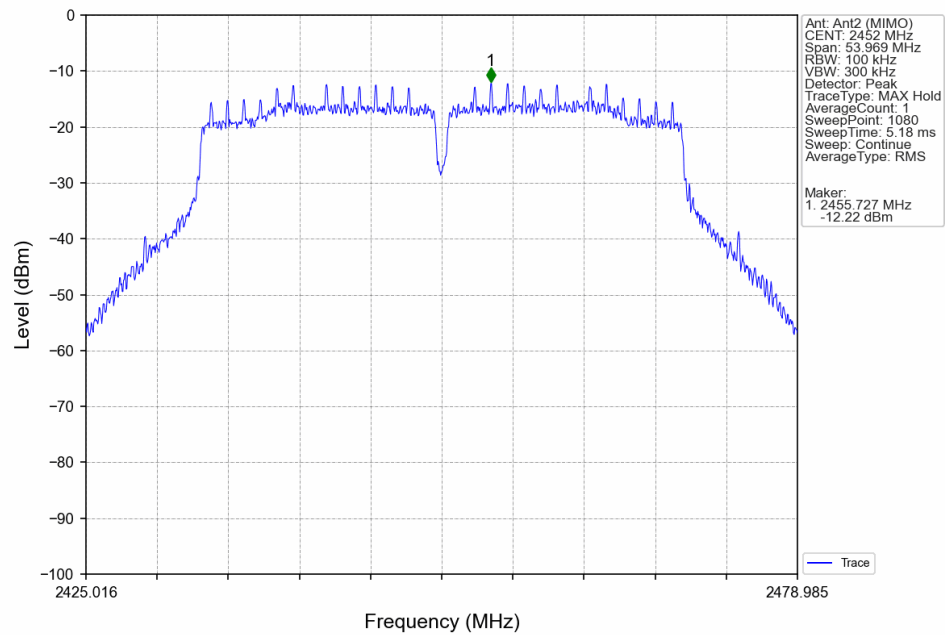
802.11n(HT40) MCH 2437MHz MIMO NTN



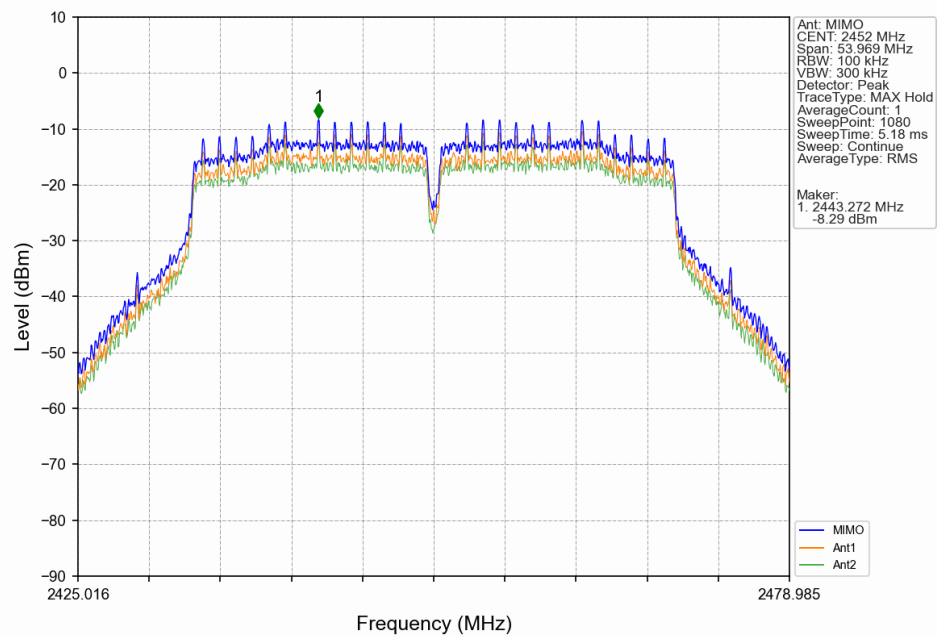
802.11n(HT40) HCH 2452MHz Ant1 (MIMO) NTN



802.11n(HT40) HCH 2452MHz Ant2 (MIMO) NTN



802.11n(HT40) HCH 2452MHz MIMO NTN



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	0.56
			2	-1.36
		2437	1	-0.27
			2	-1.80
		2462	1	-0.53
			2	-1.66
802.11g	SISO	2412	1	-6.11
			2	-8.46
		2437	1	-6.87
			2	-8.72
		2462	1	-7.04
			2	-8.41
802.11n (HT20)	MIMO	2412	1	-6.12
			2	-8.54
		2437	1	-6.84
			2	-8.75
		2462	1	-7.04
			2	-8.42
802.11n (HT40)	MIMO	2422	1	-9.72
			2	-12.11
		2437	1	-10.25
			2	-12.30
		2452	1	-10.38
			2	-12.12

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

5.1.2 CSE

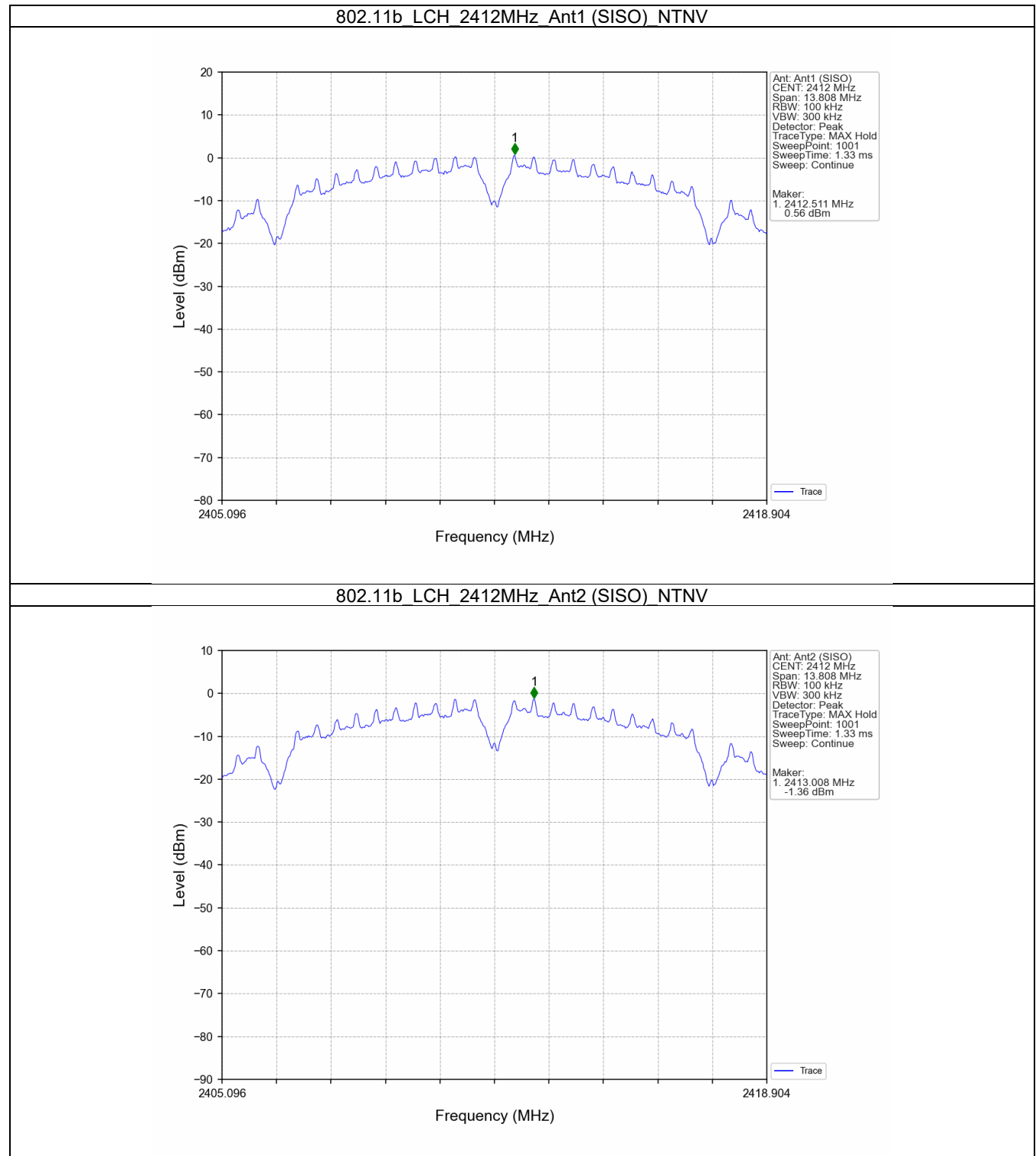
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	0.56	-19.44	Pass
			2	-1.36	-21.36	Pass
		2437	1	0.56	-19.44	Pass
			2	-1.36	-21.36	Pass
		2462	1	0.56	-19.44	Pass
			2	-1.36	-21.36	Pass
802.11g	SISO	2412	1	-6.11	-26.11	Pass
			2	-8.41	-28.41	Pass
		2437	1	-6.11	-26.11	Pass
			2	-8.41	-28.41	Pass
		2462	1	-6.11	-26.11	Pass
			2	-8.41	-28.41	Pass
802.11n (HT20)	MIMO	2412	1	-6.12	-26.12	Pass
			2	-8.42	-28.42	Pass
		2437	1	-6.12	-26.12	Pass



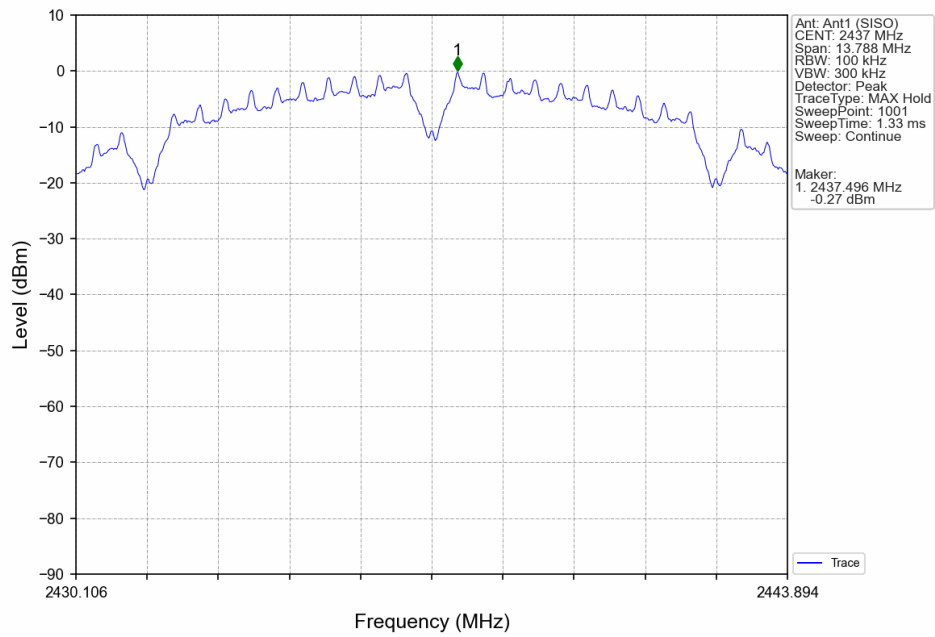
802.11n (HT40)	MIMO	2462	2	-8.42	-28.42	Pass
			1	-6.12	-26.12	Pass
			2	-8.42	-28.42	Pass
		2422	1	-9.72	-29.72	Pass
			2	-12.11	-32.11	Pass
		2437	1	-9.72	-29.72	Pass
			2	-12.11	-32.11	Pass
		2452	1	-9.72	-29.72	Pass
			2	-12.11	-32.11	Pass
		Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.				

5.2 Test Graph

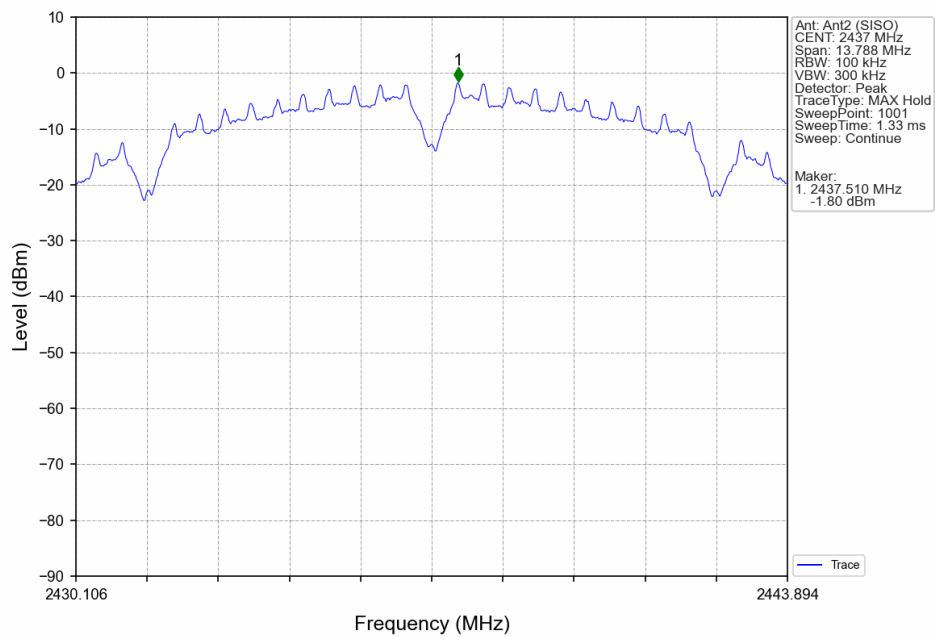
5.2.1 Ref



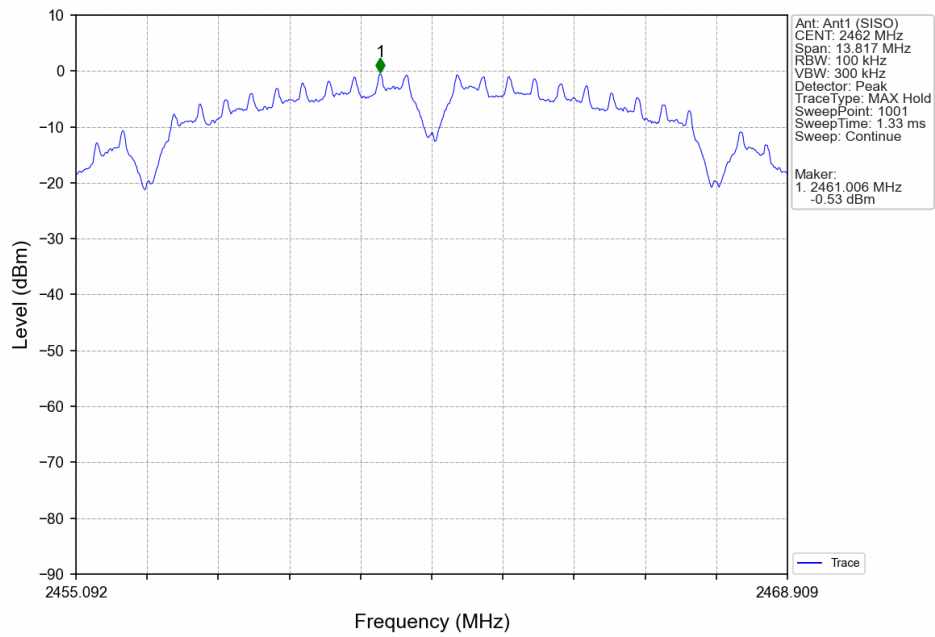
802.11b MCH 2437MHz Ant1 (SISO) NTN



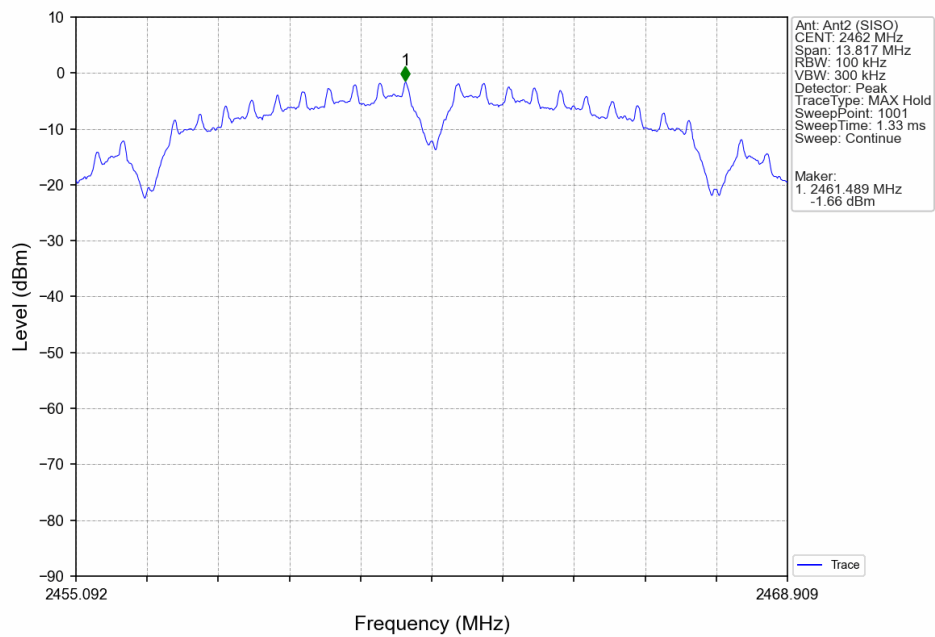
802.11b MCH 2437MHz Ant2 (SISO) NTN



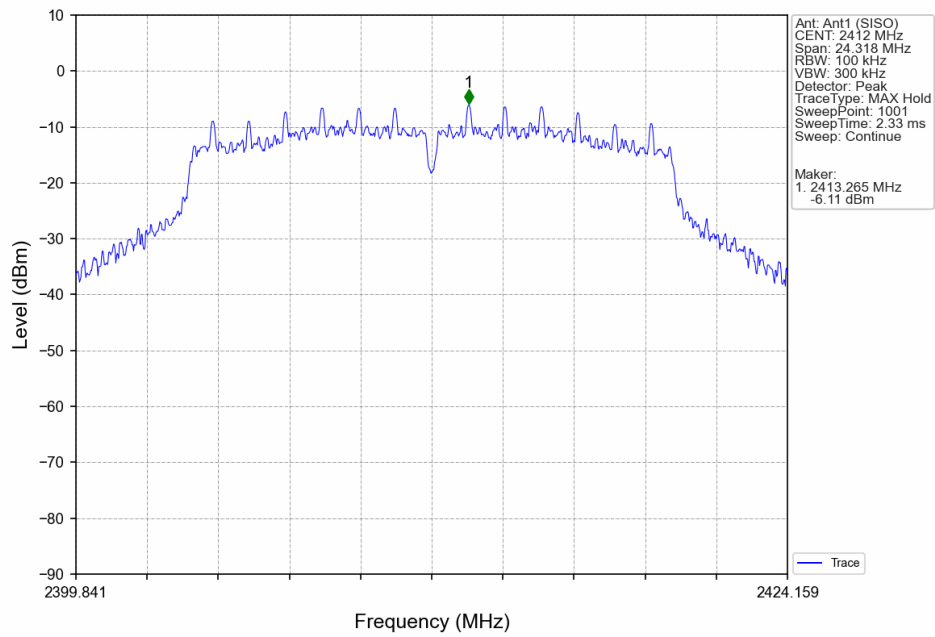
802.11b HCH 2462MHz Ant1 (SISO) NTN



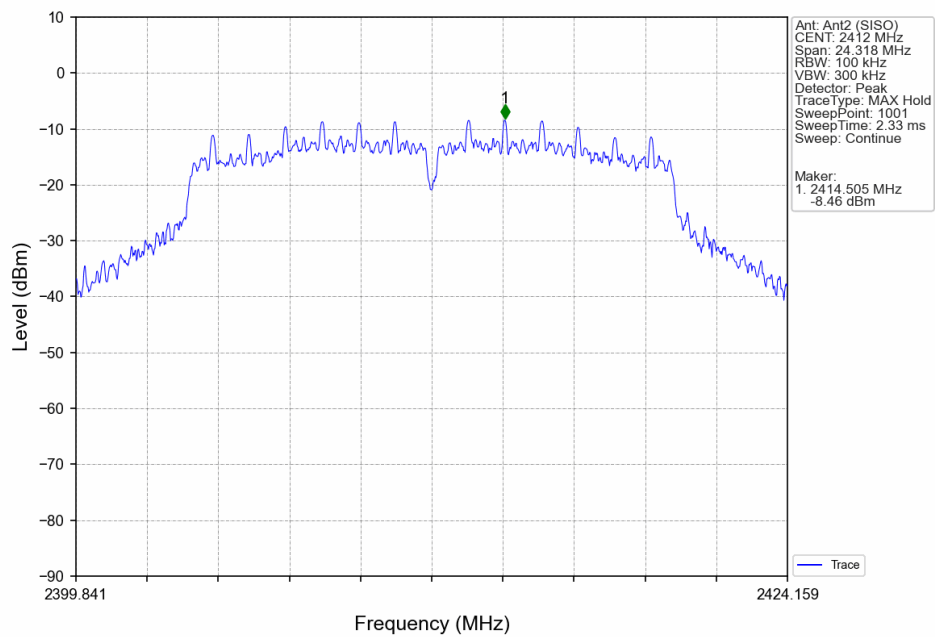
802.11b HCH 2462MHz Ant2 (SISO) NTN



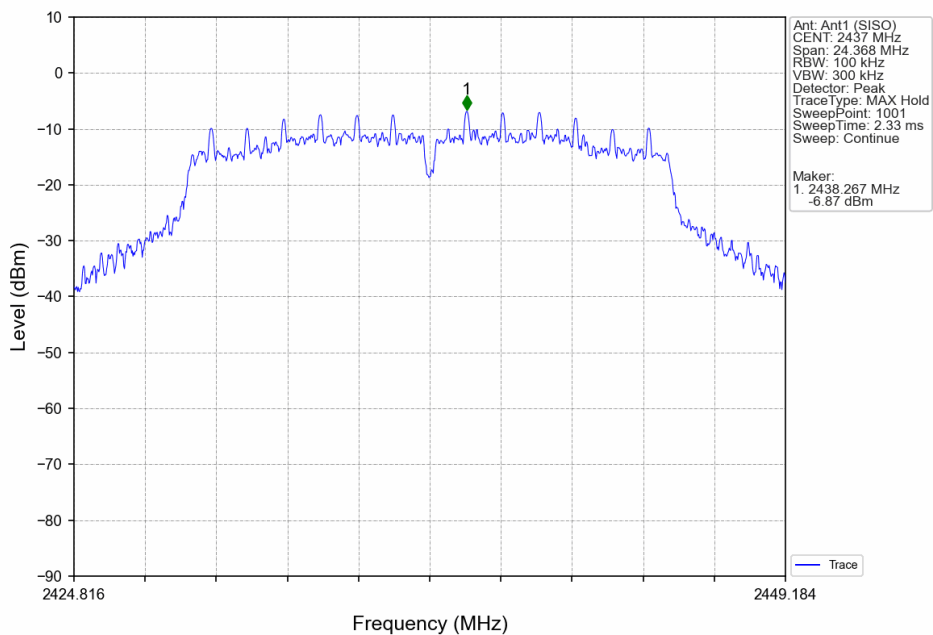
802.11g LCH 2412MHz Ant1 (SISO) NTN



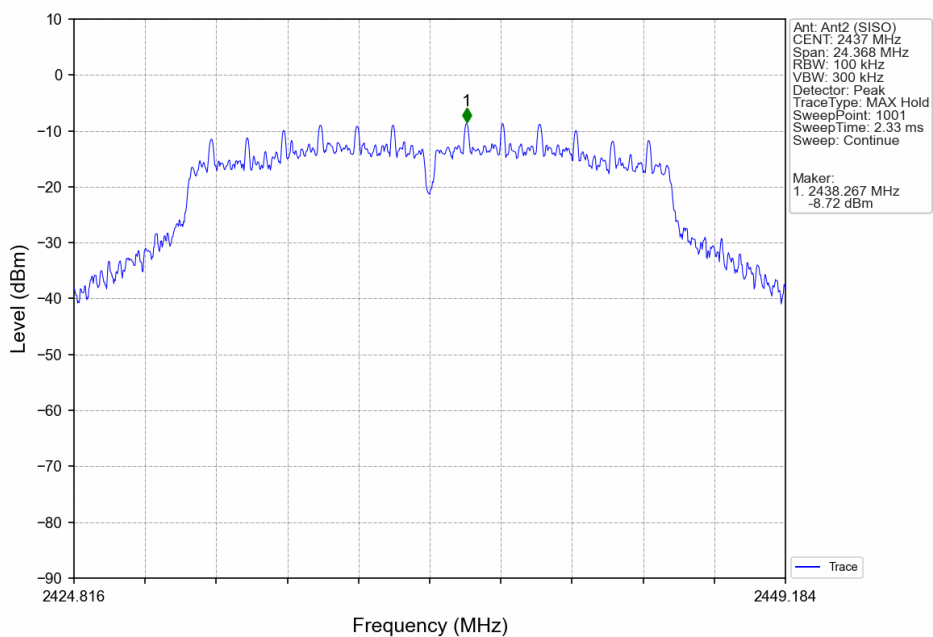
802.11g LCH 2412MHz Ant2 (SISO) NTN



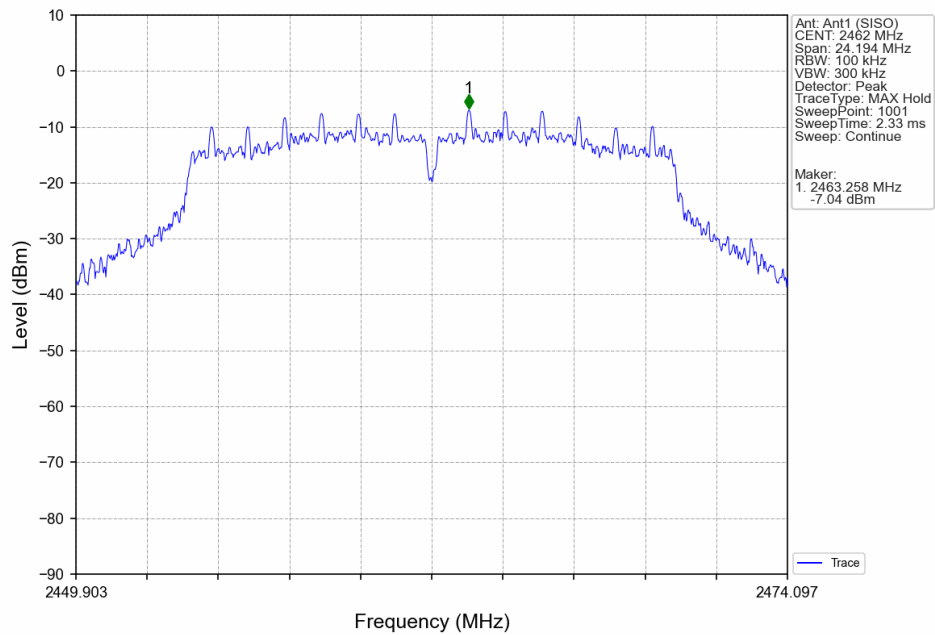
802.11g MCH 2437MHz Ant1 (SISO) NTN



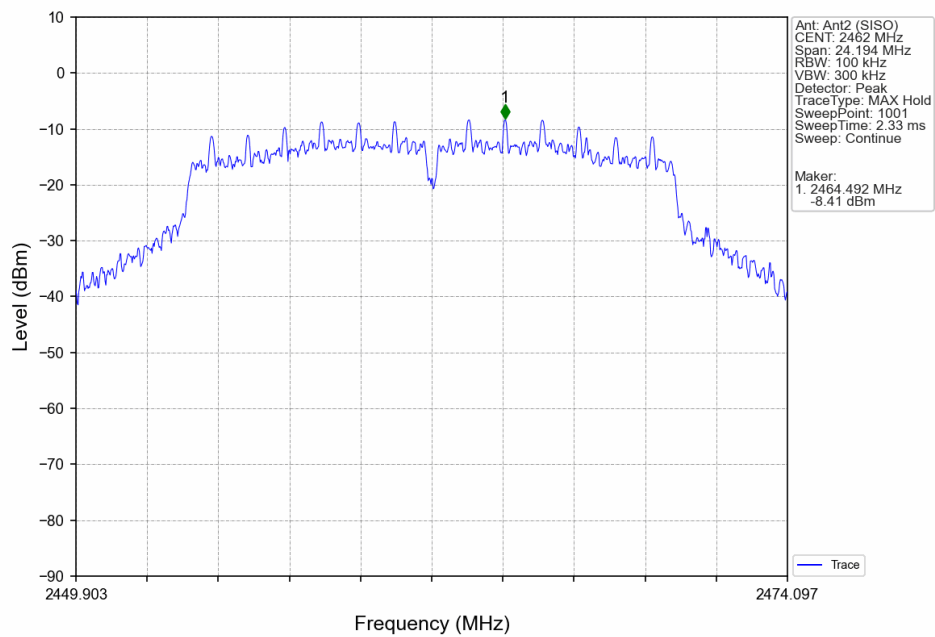
802.11g MCH 2437MHz Ant2 (SISO) NTN



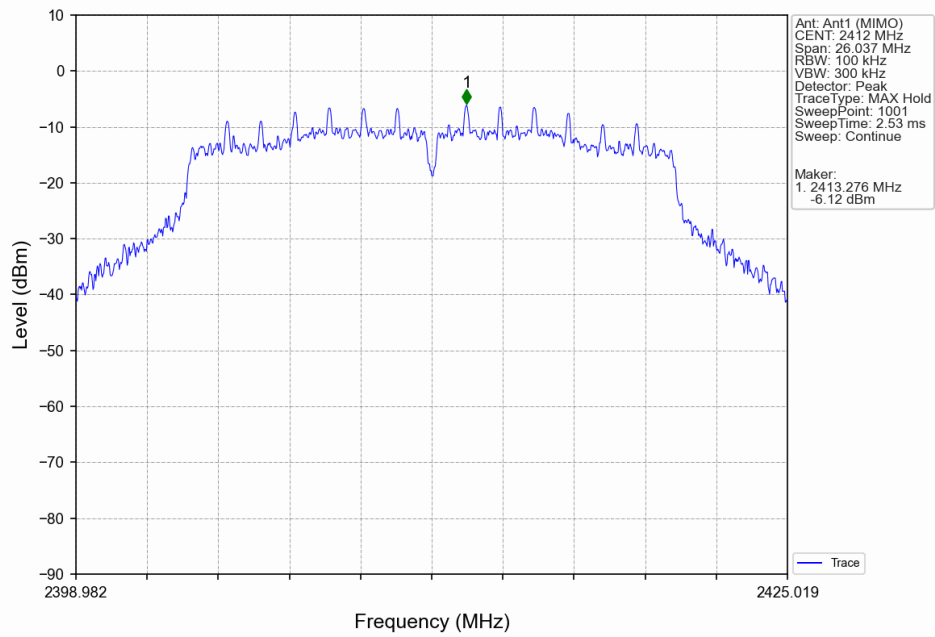
802.11g HCH 2462MHz Ant1 (SISO) NTN



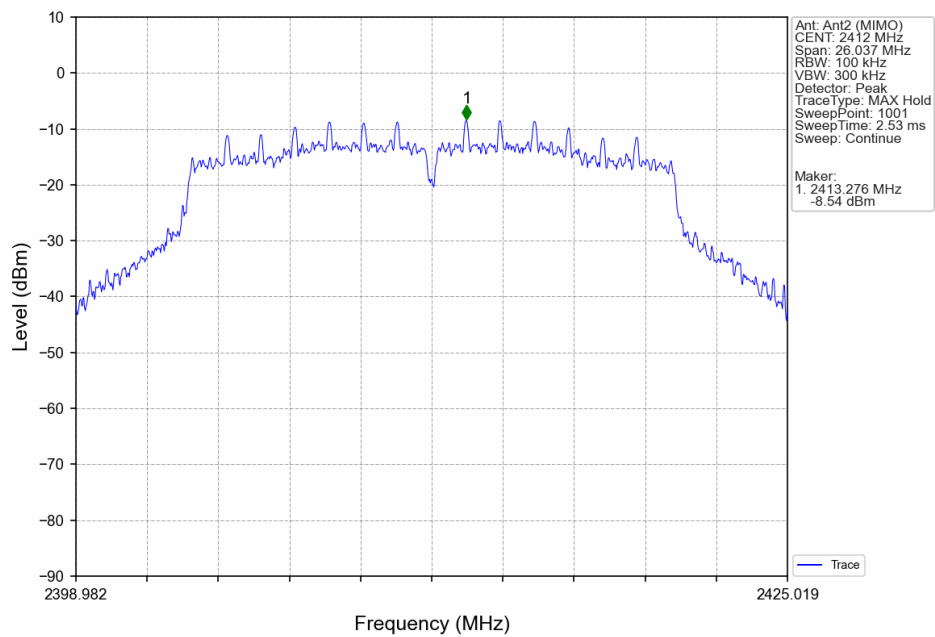
802.11g HCH 2462MHz Ant2 (SISO) NTN



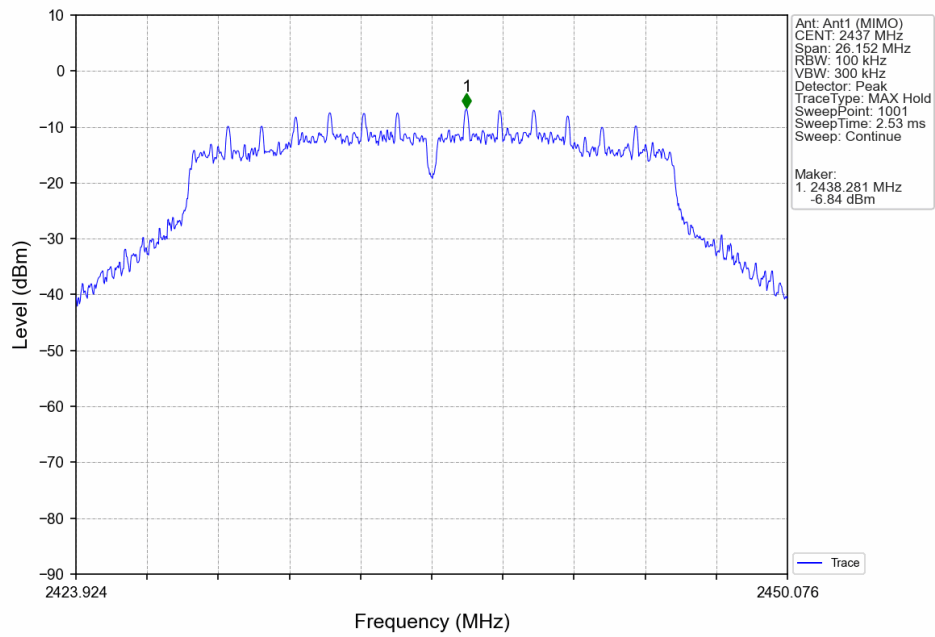
802.11n(HT20) LCH 2412MHz Ant1 (MIMO) NTNV



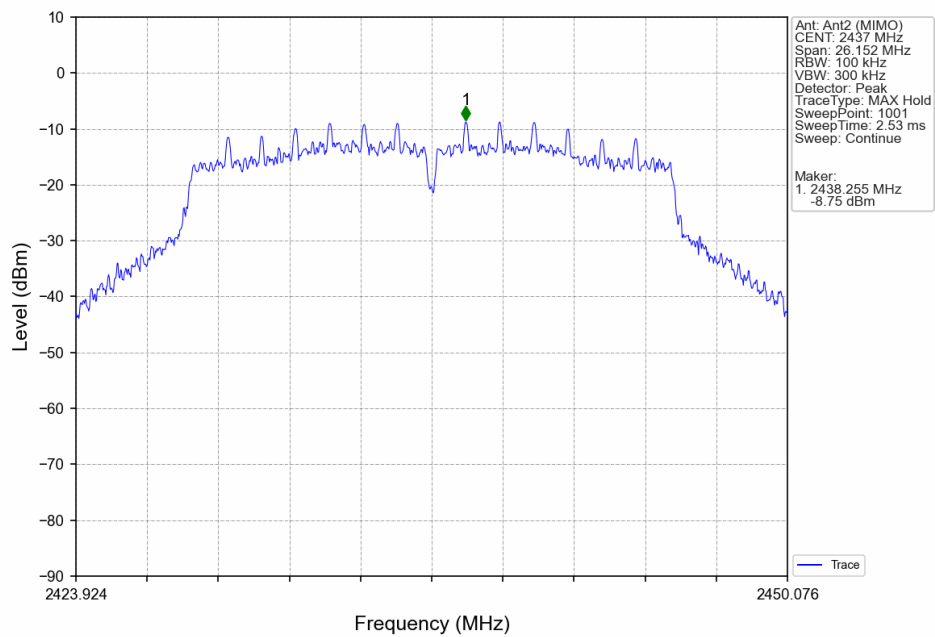
802.11n(HT20) LCH 2412MHz Ant2 (MIMO) NTNV



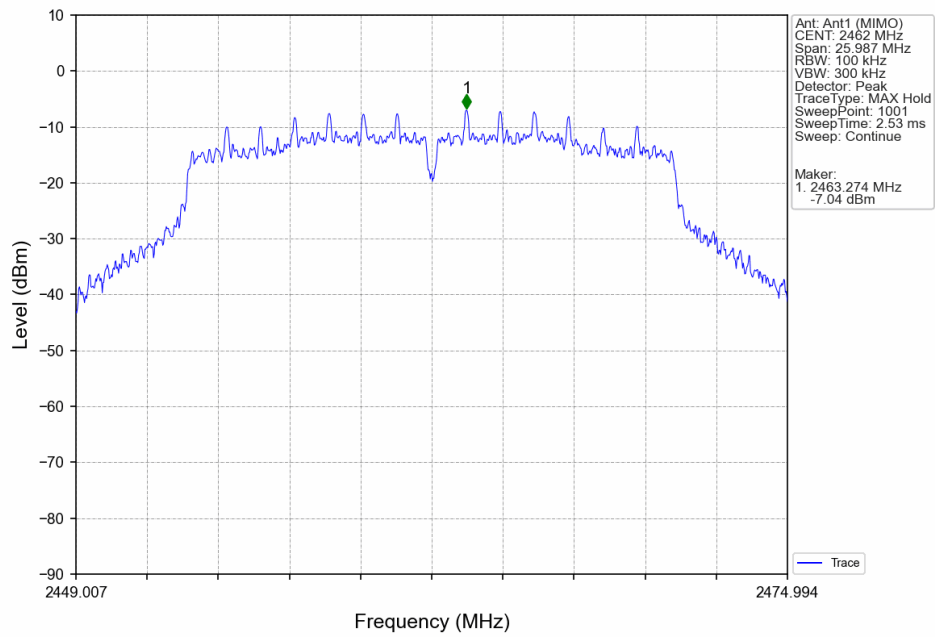
802.11n(HT20) MCH 2437MHz Ant1 (MIMO) NTNV



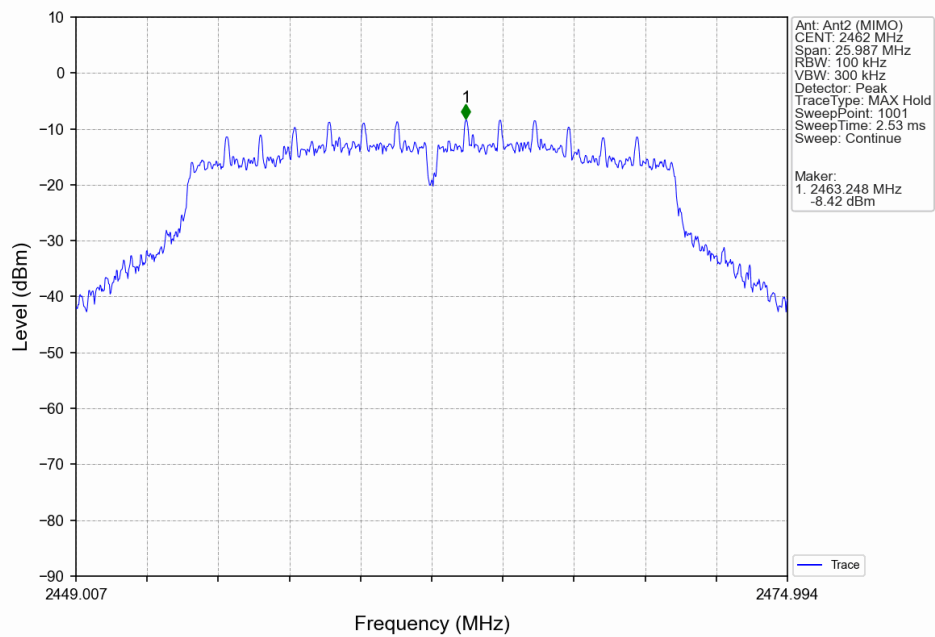
802.11n(HT20) MCH 2437MHz Ant2 (MIMO) NTNV



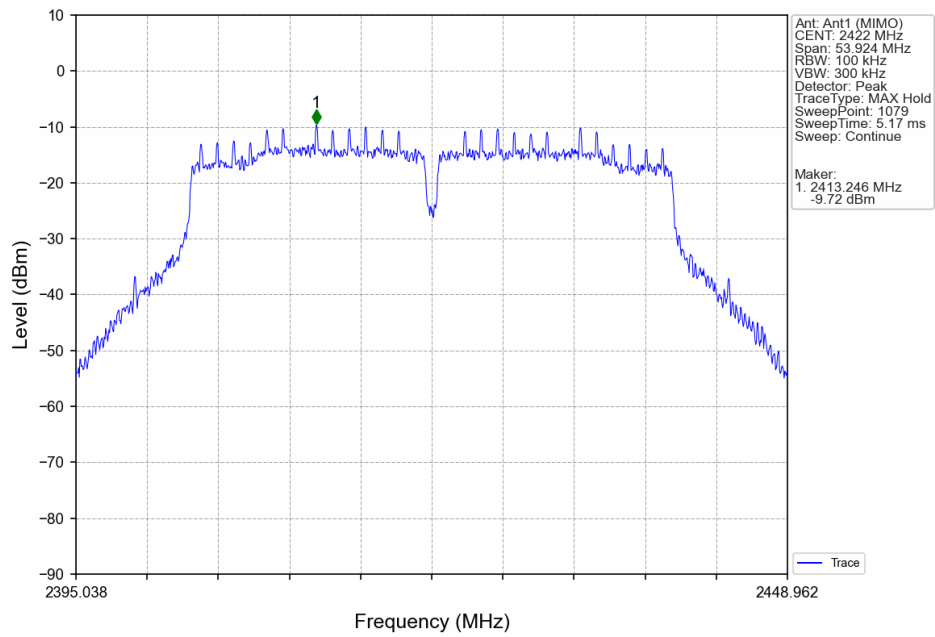
802.11n(HT20) HCH 2462MHz Ant1 (MIMO) NTNV



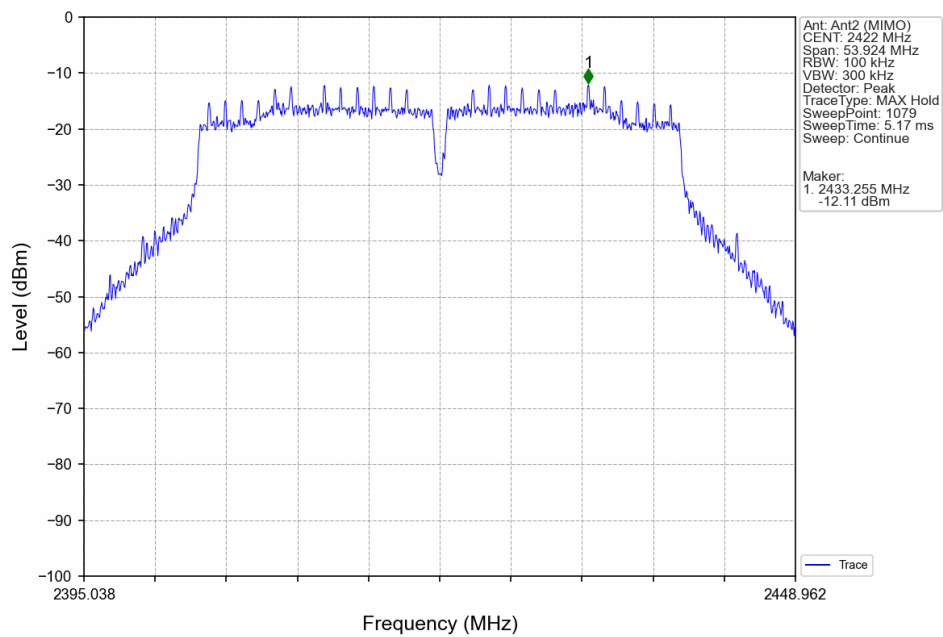
802.11n(HT20) HCH 2462MHz Ant2 (MIMO) NTNV



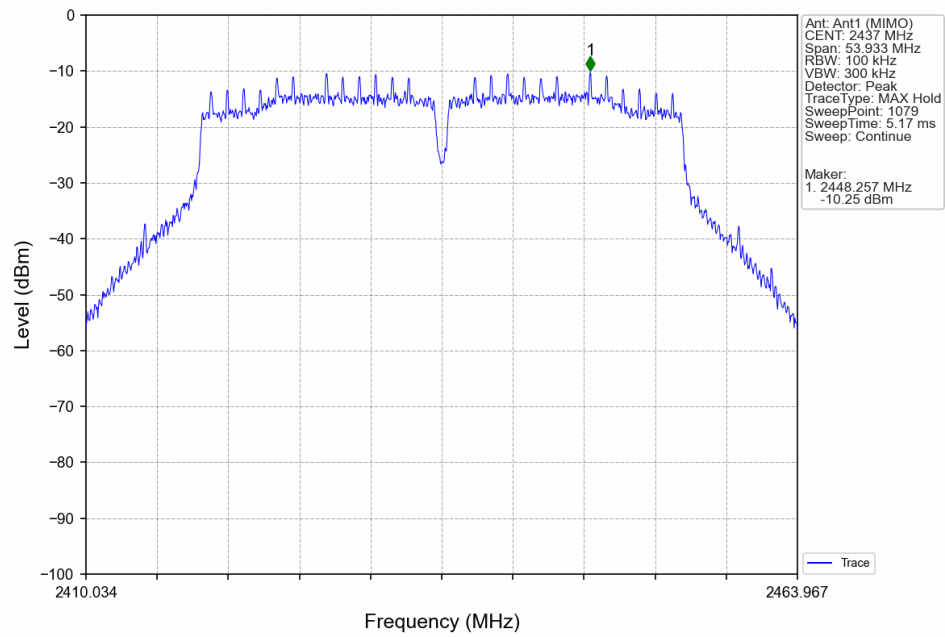
802.11n(HT40) LCH 2422MHz Ant1 (MIMO) NTNV



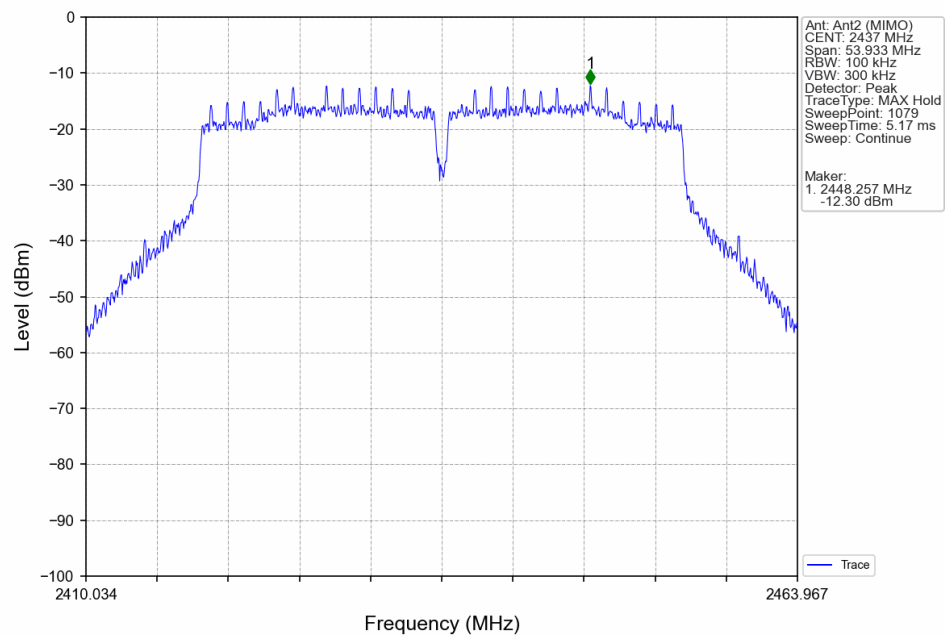
802.11n(HT40) LCH 2422MHz Ant2 (MIMO) NTNV



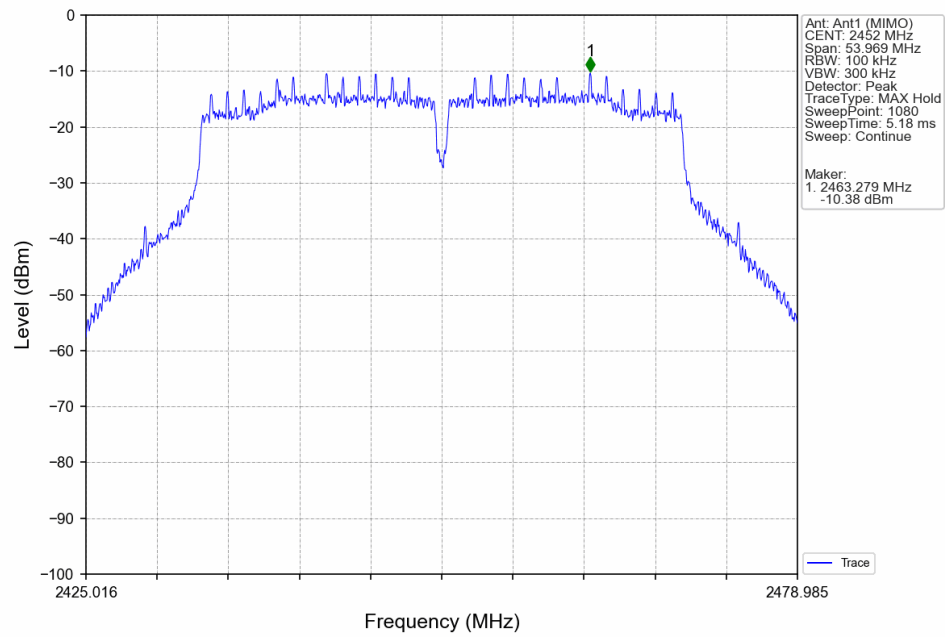
802.11n(HT40) MCH 2437MHz Ant1 (MIMO) NTNV



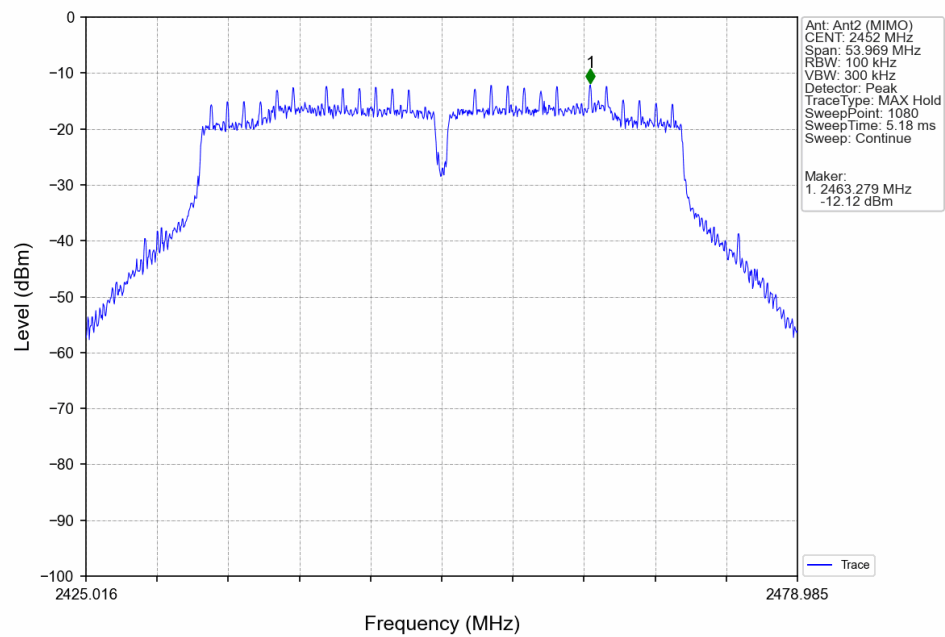
802.11n(HT40) MCH 2437MHz Ant2 (MIMO) NTNV



802.11n(HT40) HCH 2452MHz Ant1 (MIMO) NTN

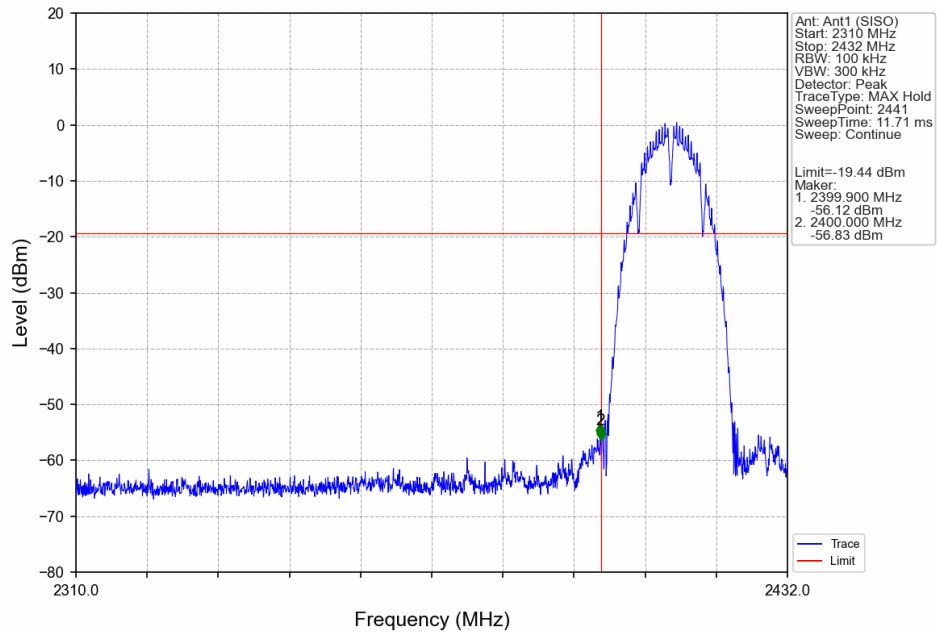


802.11n(HT40) HCH 2452MHz Ant2 (MIMO) NTN

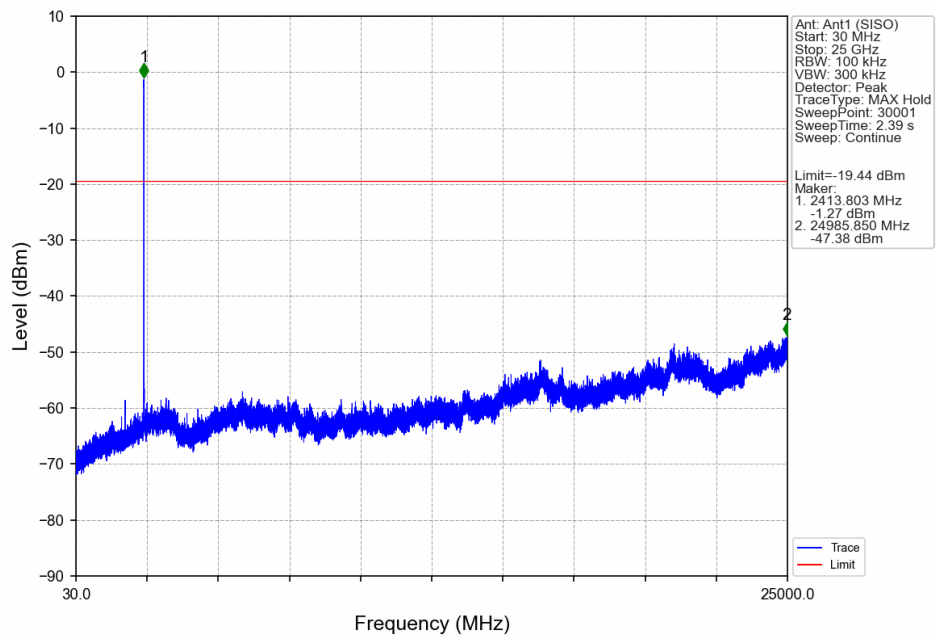


5.2.2 CSE

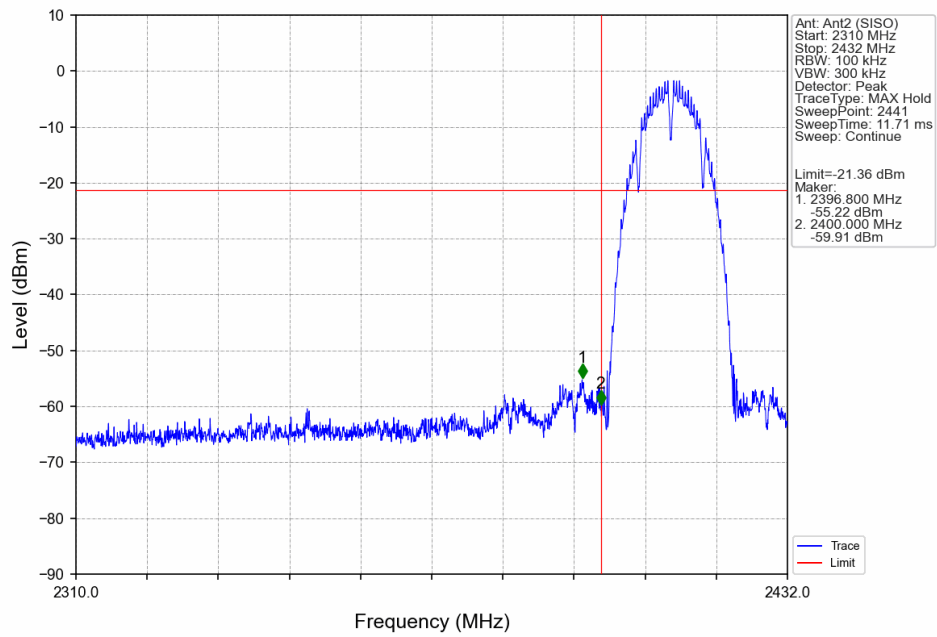
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11b LCH 2412MHz Ant2 (SISO) NTNV



802.11b LCH 2412MHz Ant2 (SISO) NTNV

