

Appendix A for SHEM210700795101

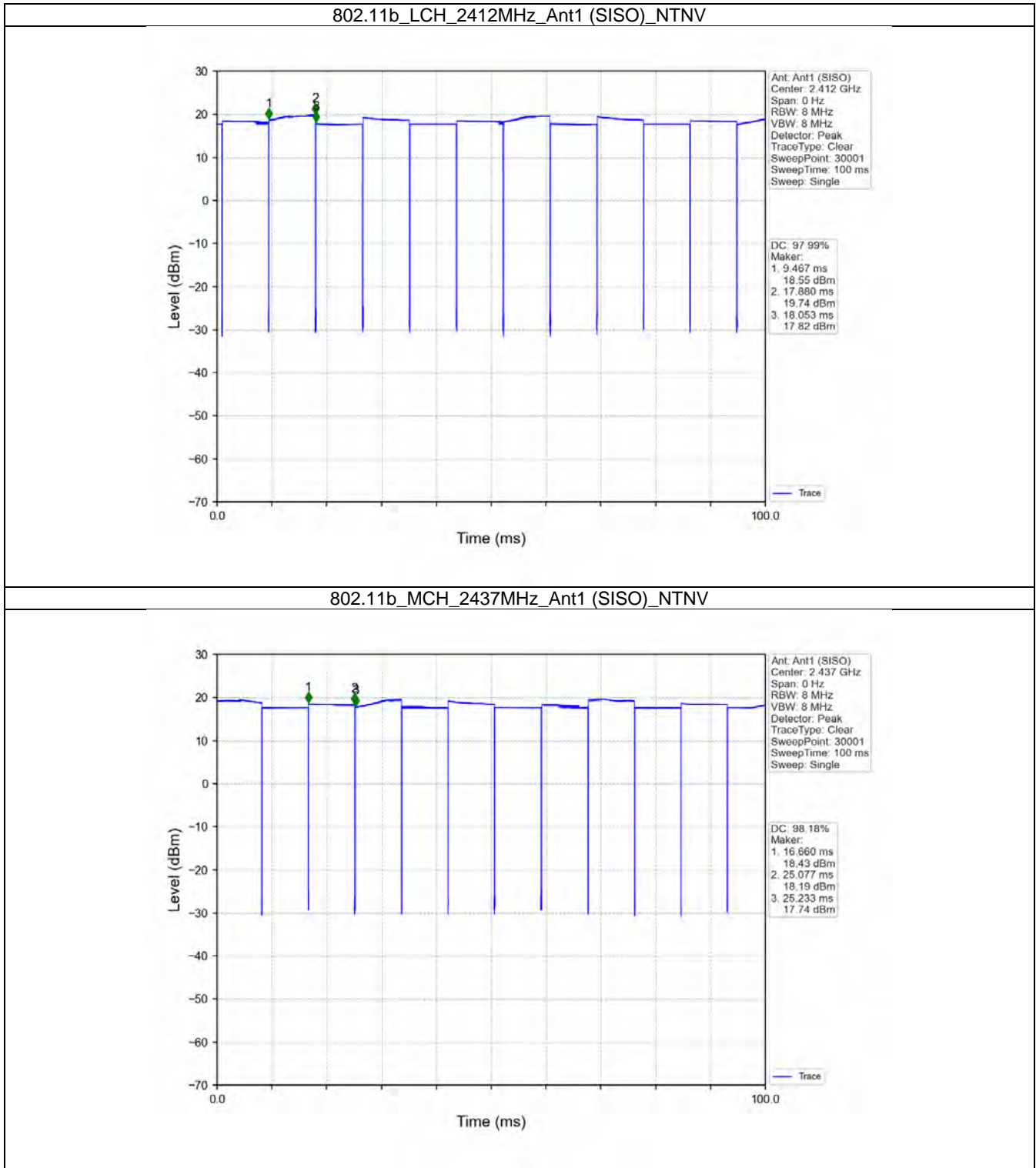
1. Duty Cycle

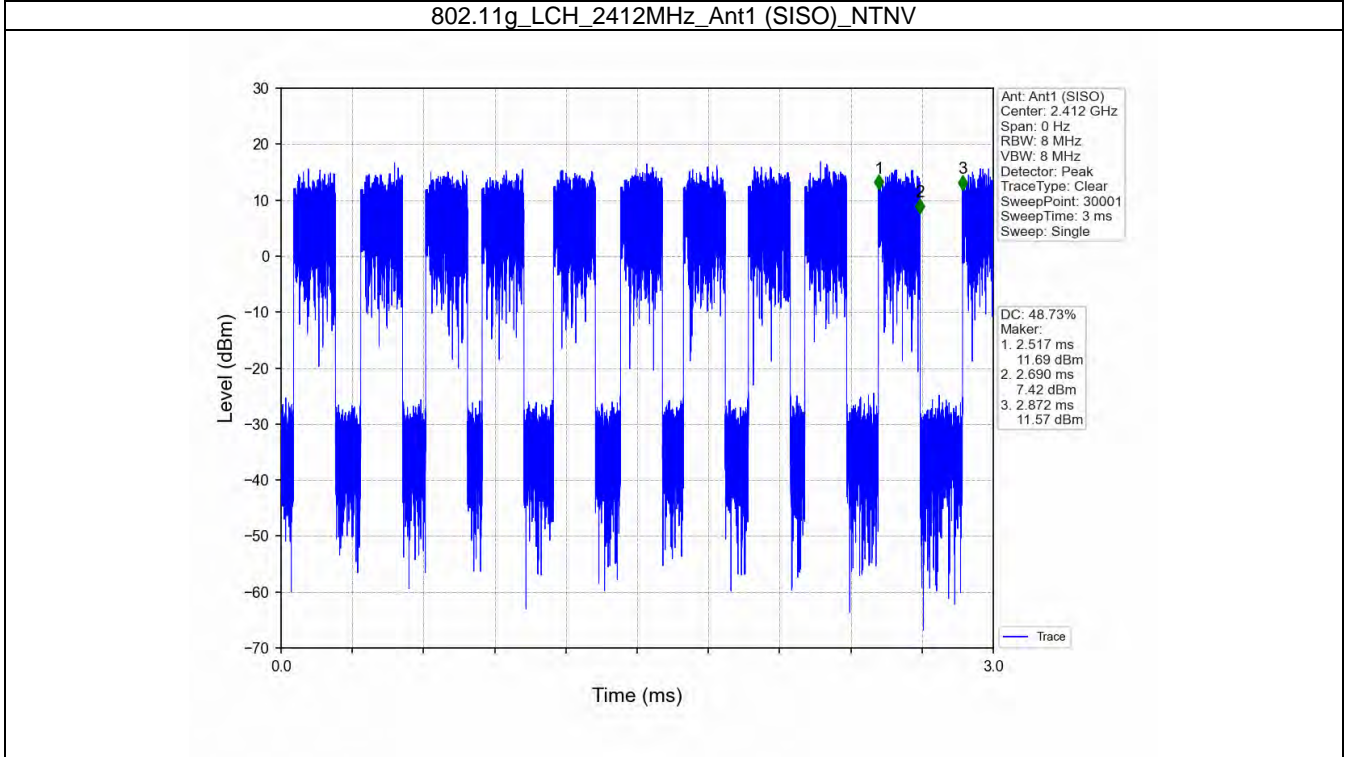
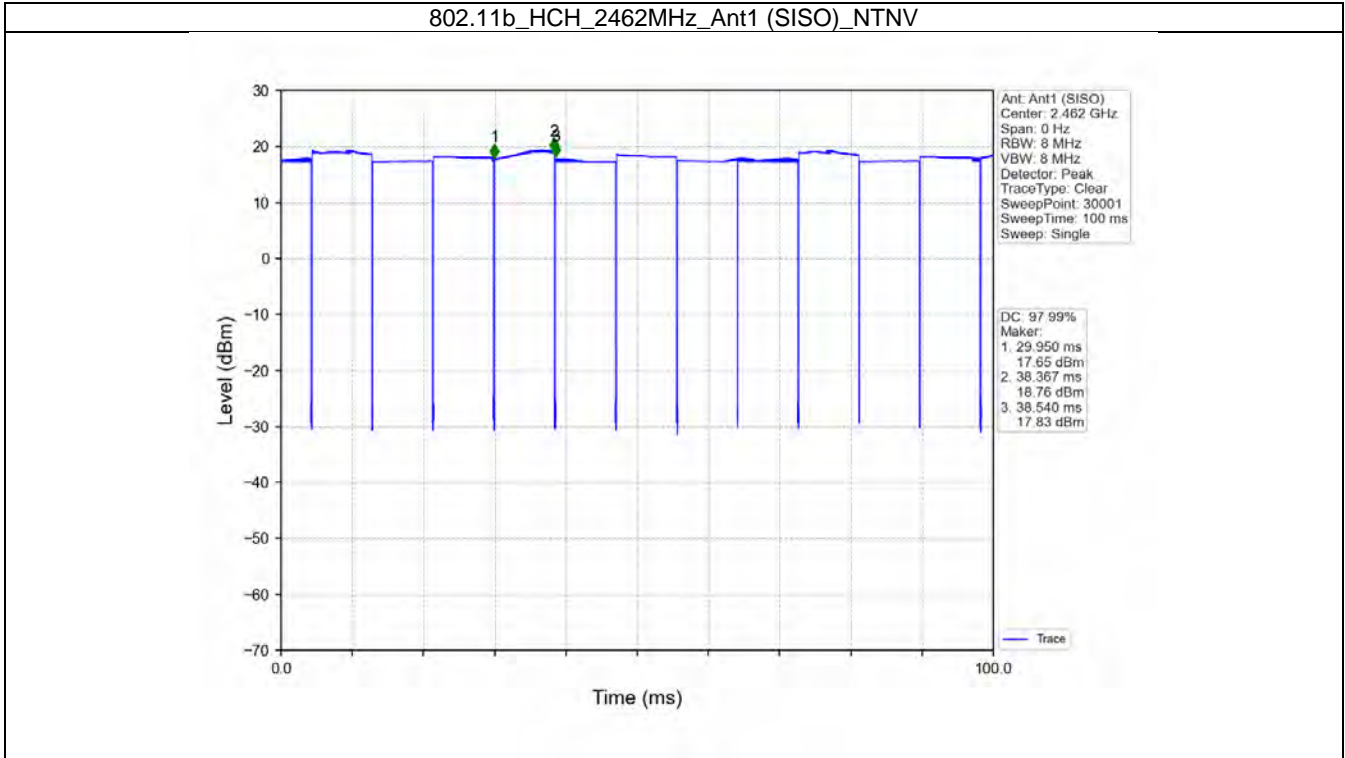
1.1 Ant1

1.1.1 Test Result

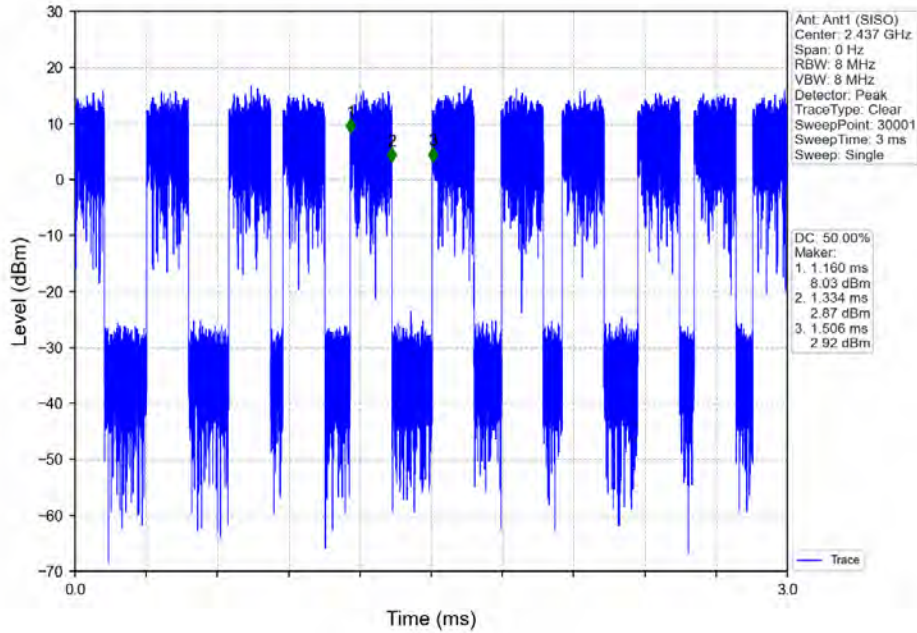
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	8.413	8.586	97.99	0.09	1.59
		2437	8.417	8.573	98.18	0.08	1.39
		2462	8.417	8.590	97.99	0.09	1.47
802.11g	SISO	2412	0.173	0.355	48.73	3.12	24.09
		2437	0.173	0.346	50.00	3.01	25.69
		2462	0.177	0.337	52.52	2.80	21.92
802.11n (HT20)	MIMO	2412	0.160	0.342	46.78	3.30	21.54
		2437	0.162	0.298	54.36	2.65	23.66
		2462	0.162	0.343	47.23	3.26	24.52

1.1.2 Test Graph

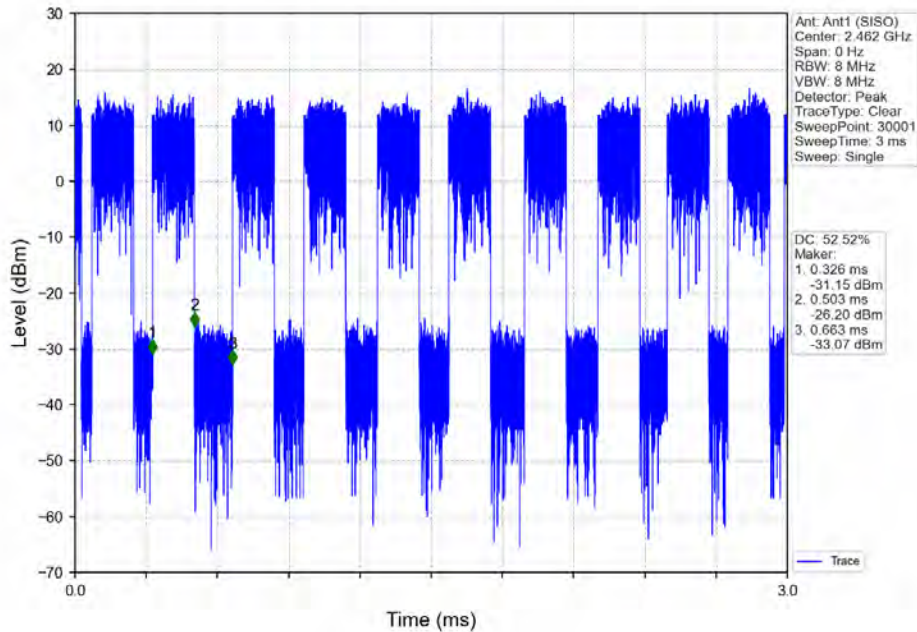




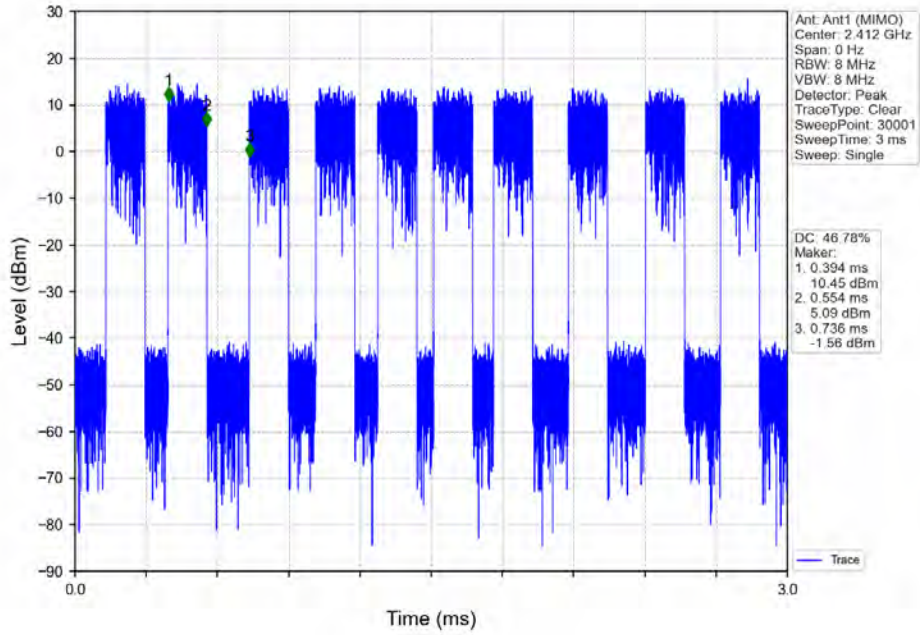
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



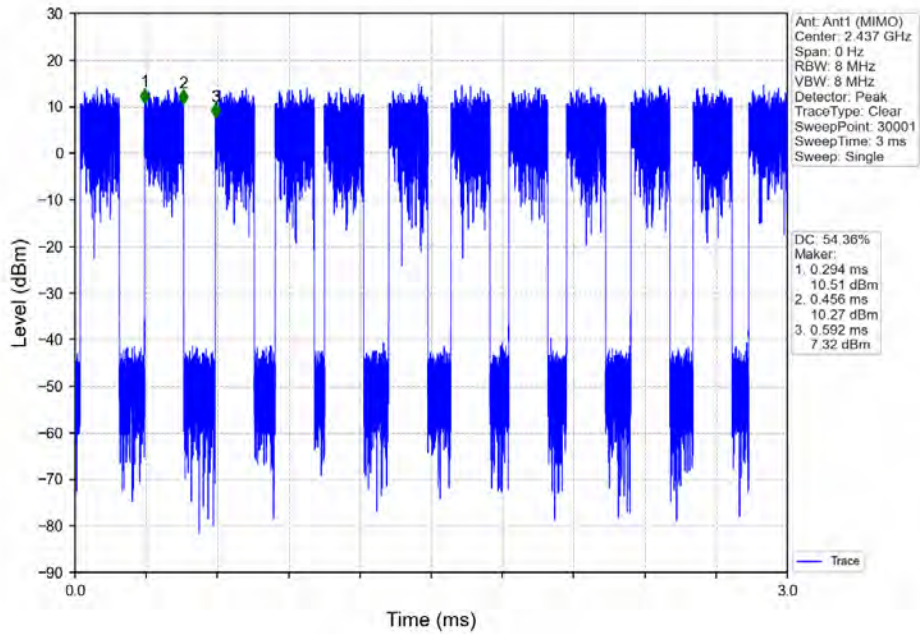
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

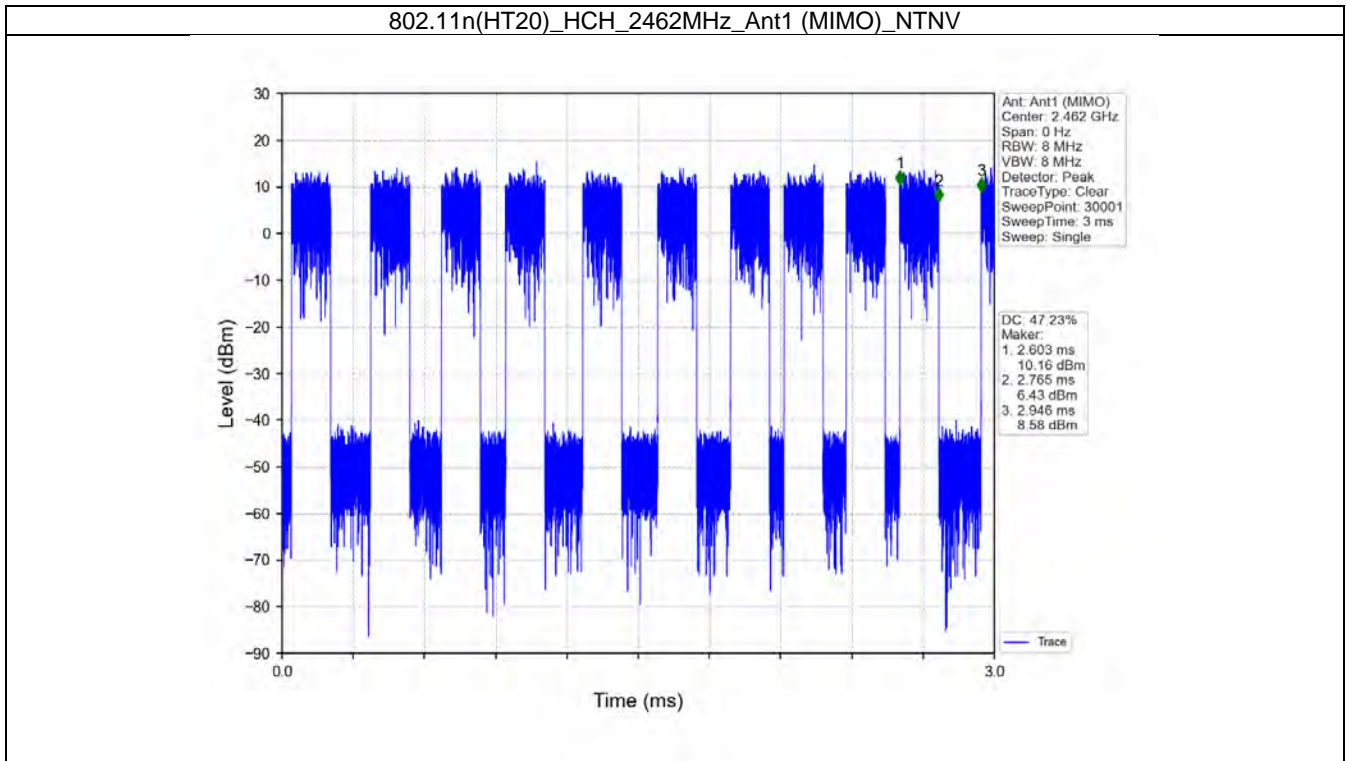


802.11n(HT20)_LCH_2412MHz_Ant1 (MIMO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (MIMO)_NTNV



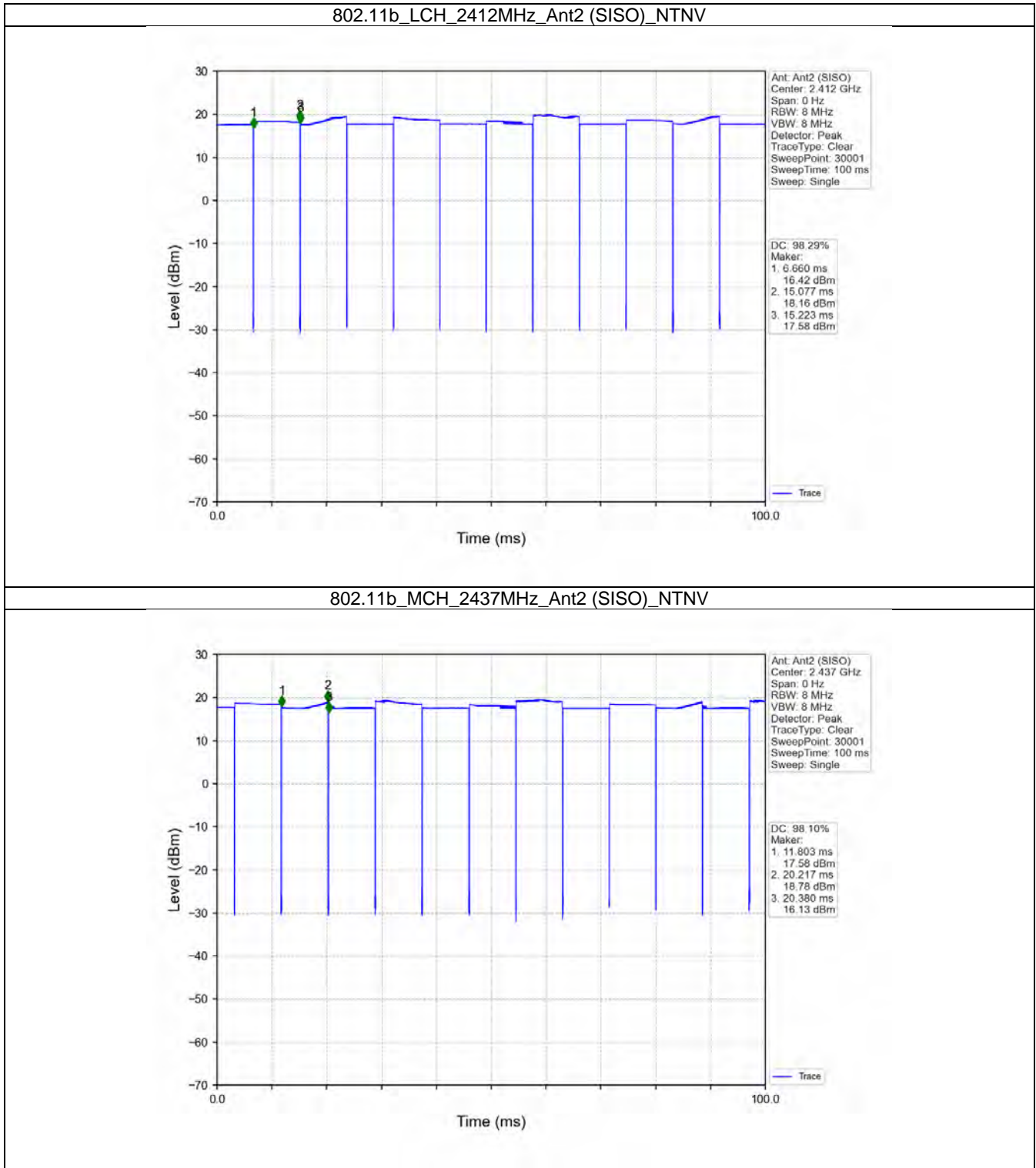


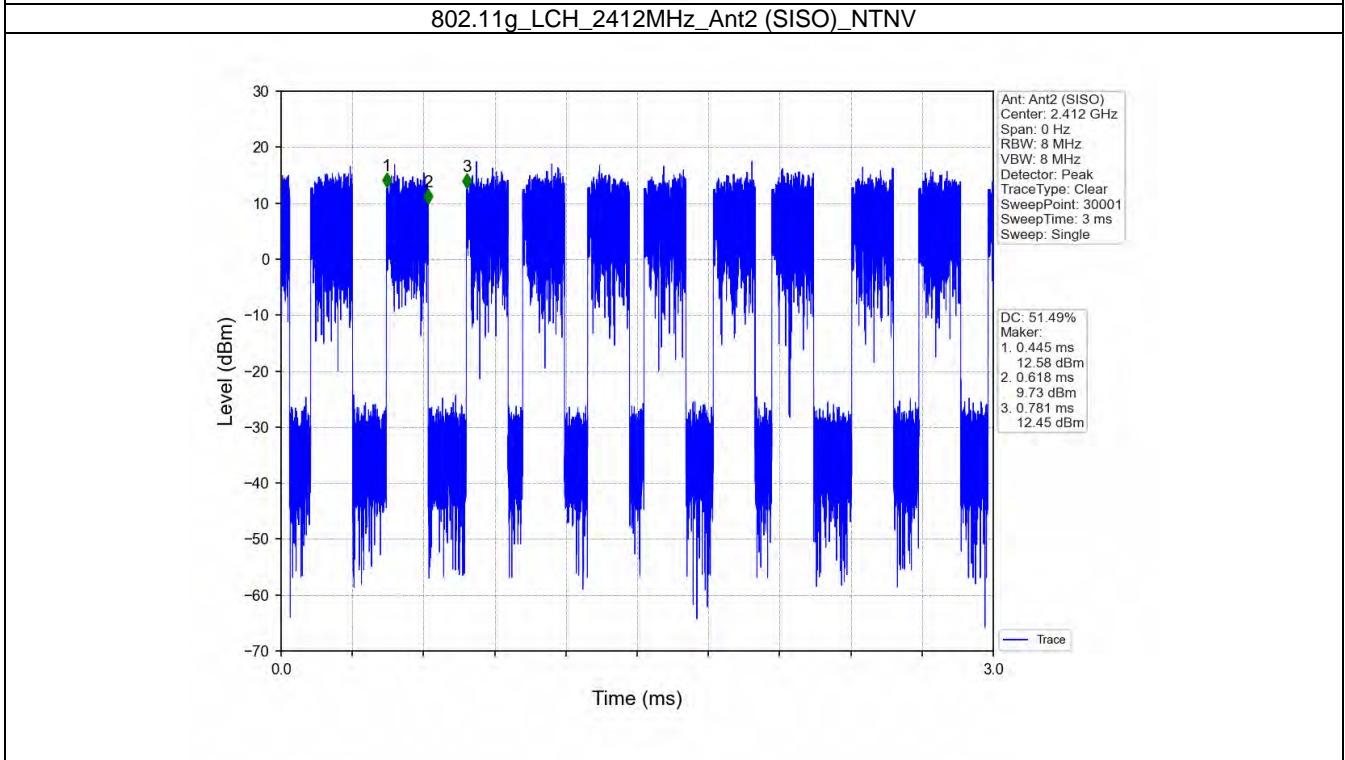
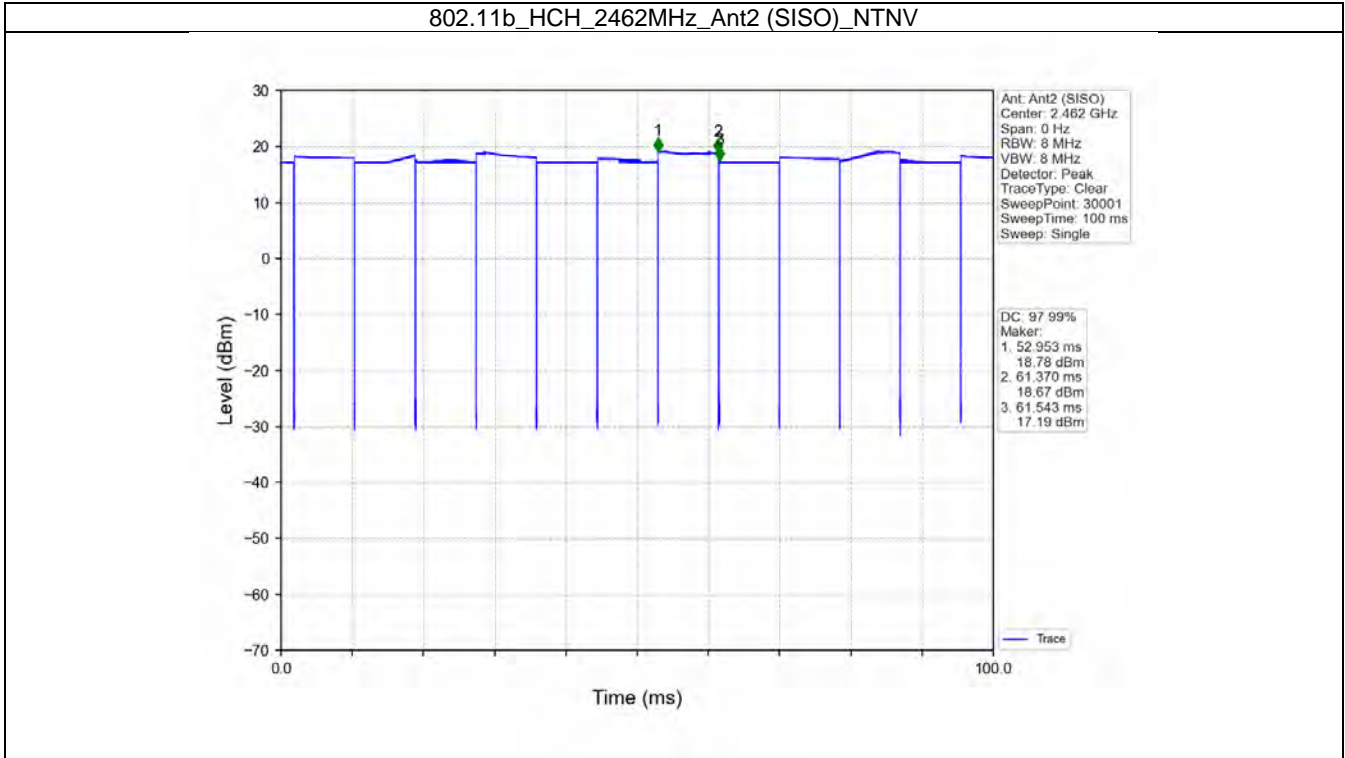
1.2 Ant2

1.2.1 Test Result

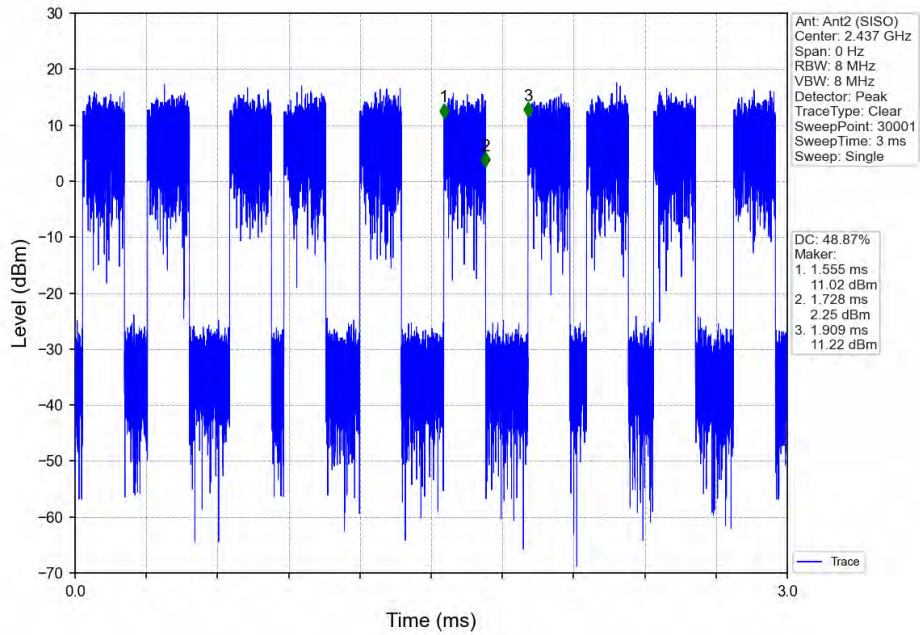
Ant2							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	8.417	8.563	98.29	0.07	1.24
		2437	8.414	8.577	98.10	0.08	1.35
		2462	8.417	8.590	97.99	0.09	1.55
802.11g	SISO	2412	0.173	0.336	51.49	2.88	21.57
		2437	0.173	0.354	48.87	3.11	27.01
		2462	0.174	0.354	49.15	3.08	30.19
802.11n (HT20)	MIMO	2412	0.162	0.343	47.23	3.26	30.79
		2437	0.162	0.325	49.85	3.02	24.73
		2462	0.162	0.271	59.78	2.23	18.21

1.2.2 Test Graph

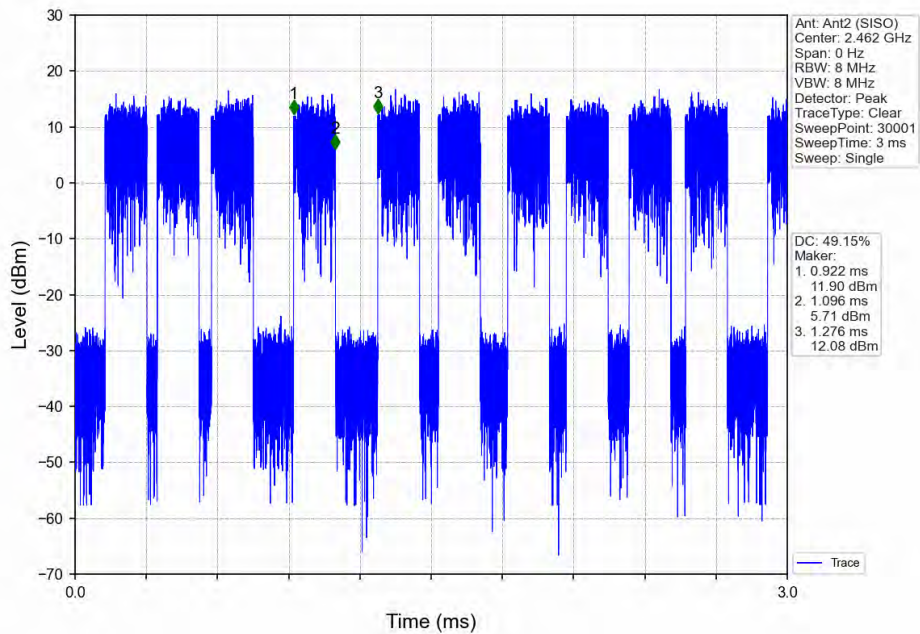




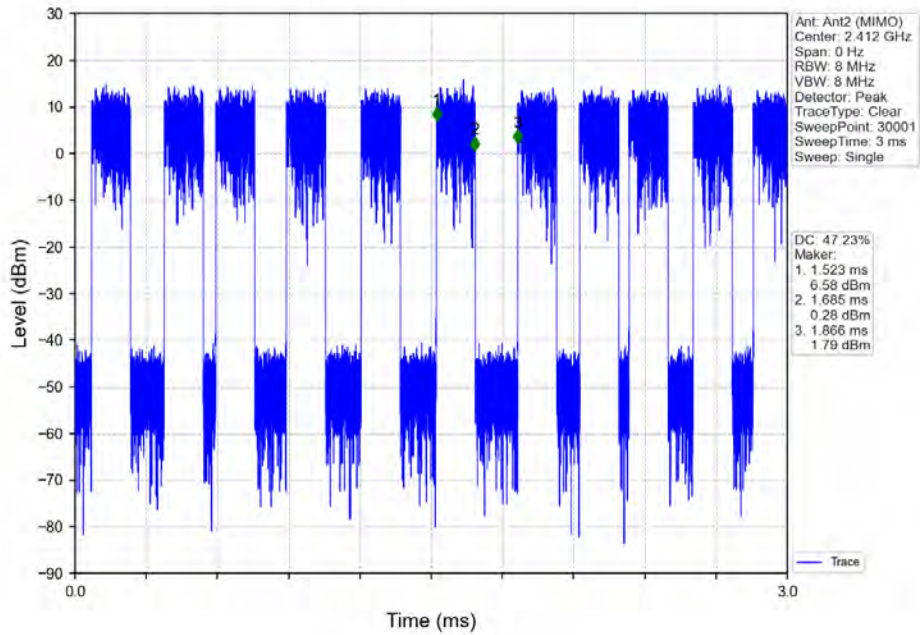
802.11g_MCH_2437MHz_Ant2 (SISO)_NTNV



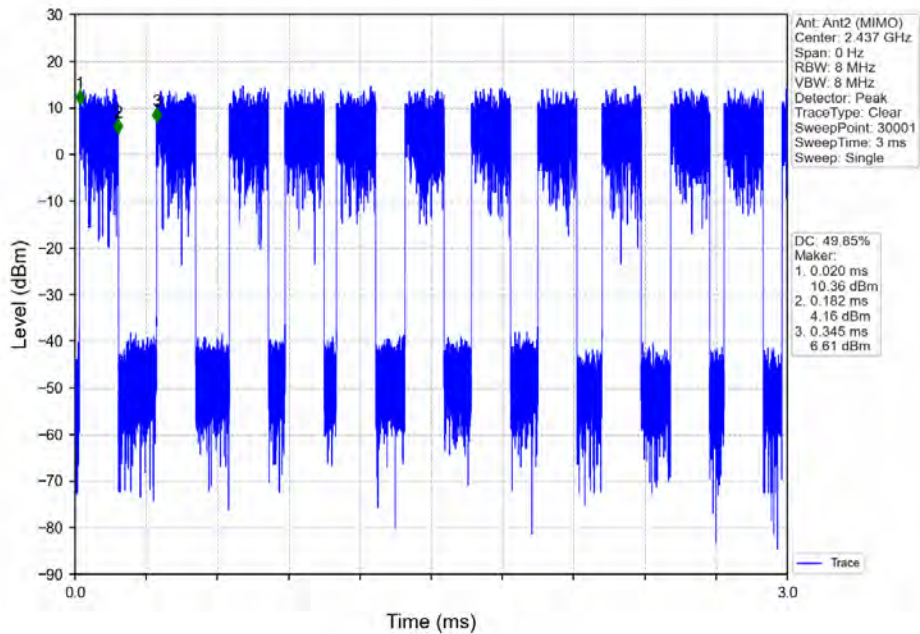
802.11g_HCH_2462MHz_Ant2 (SISO)_NTNV

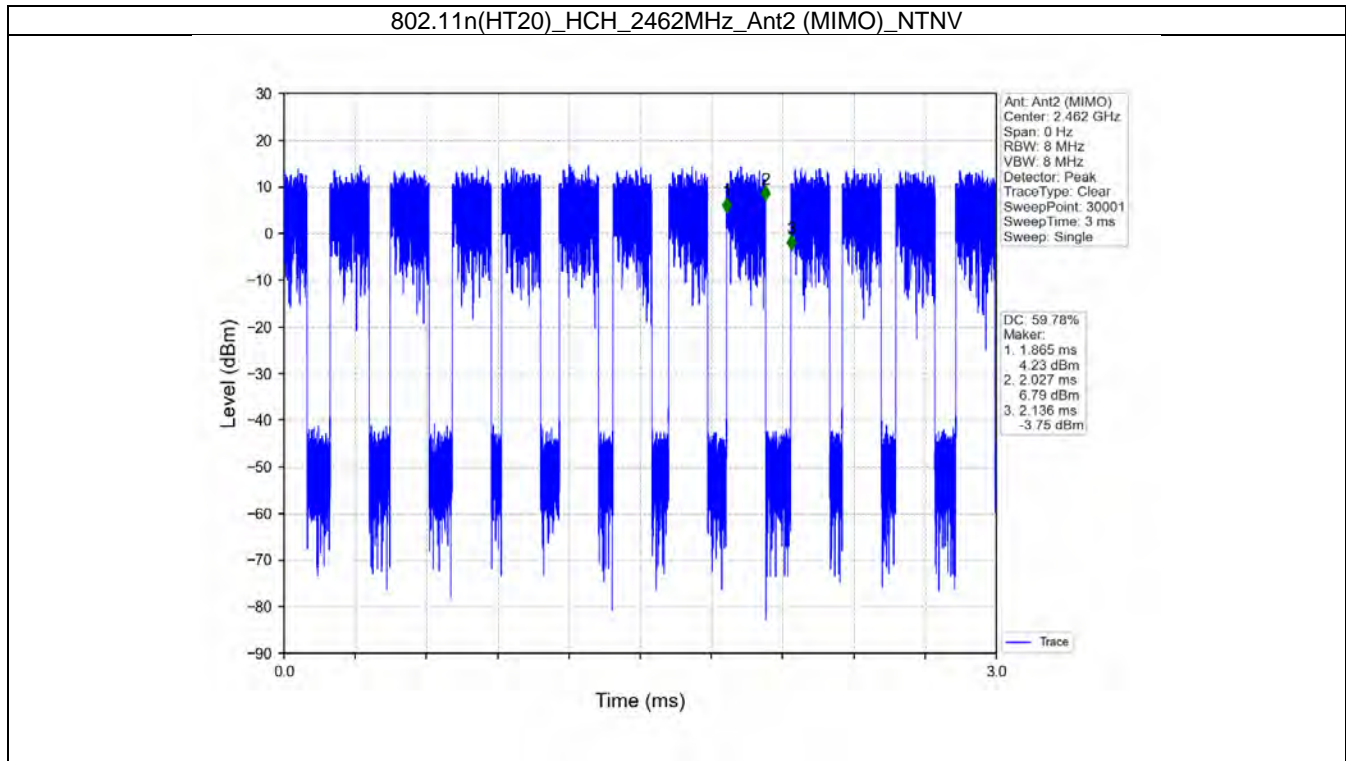


802.11n(HT20)_LCH_2412MHz_Ant2 (MIMO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant2 (MIMO)_NTNV





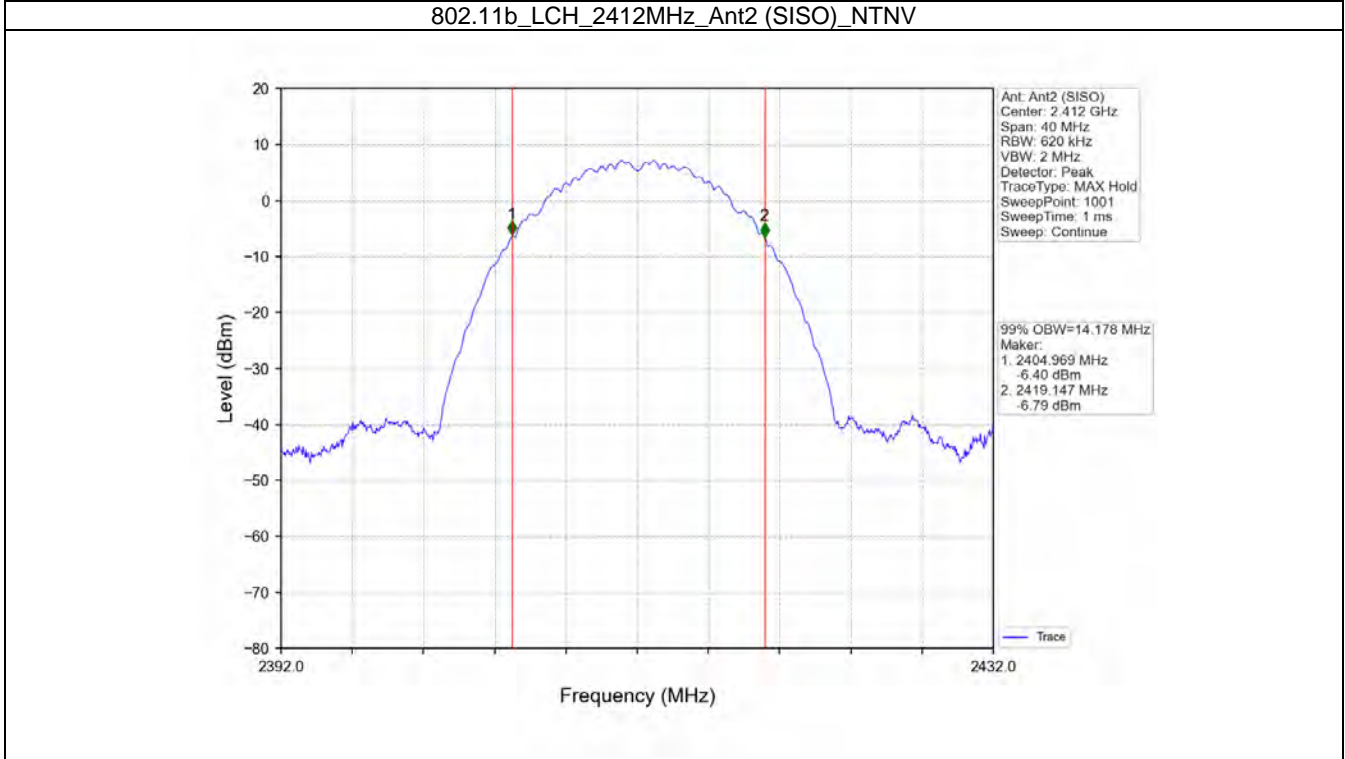
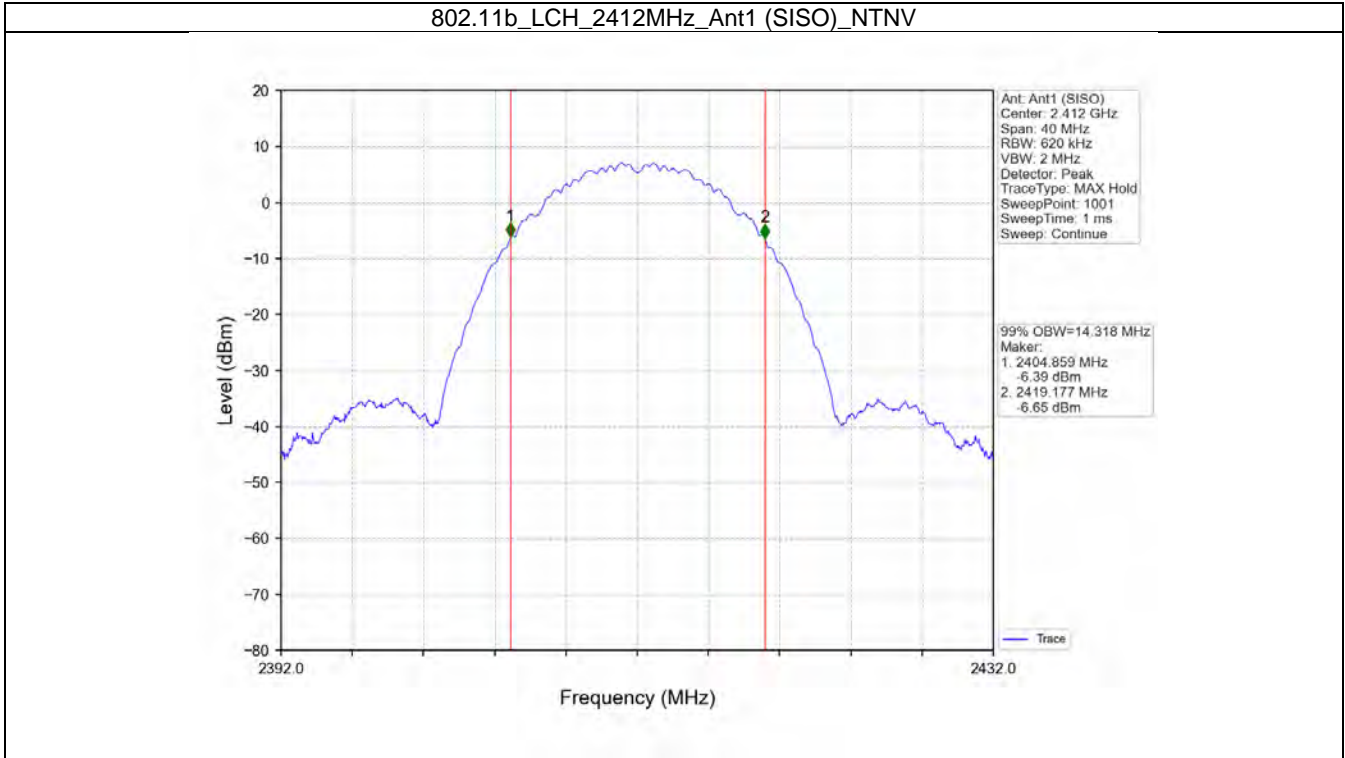
2. Bandwidth

2.1 OBW

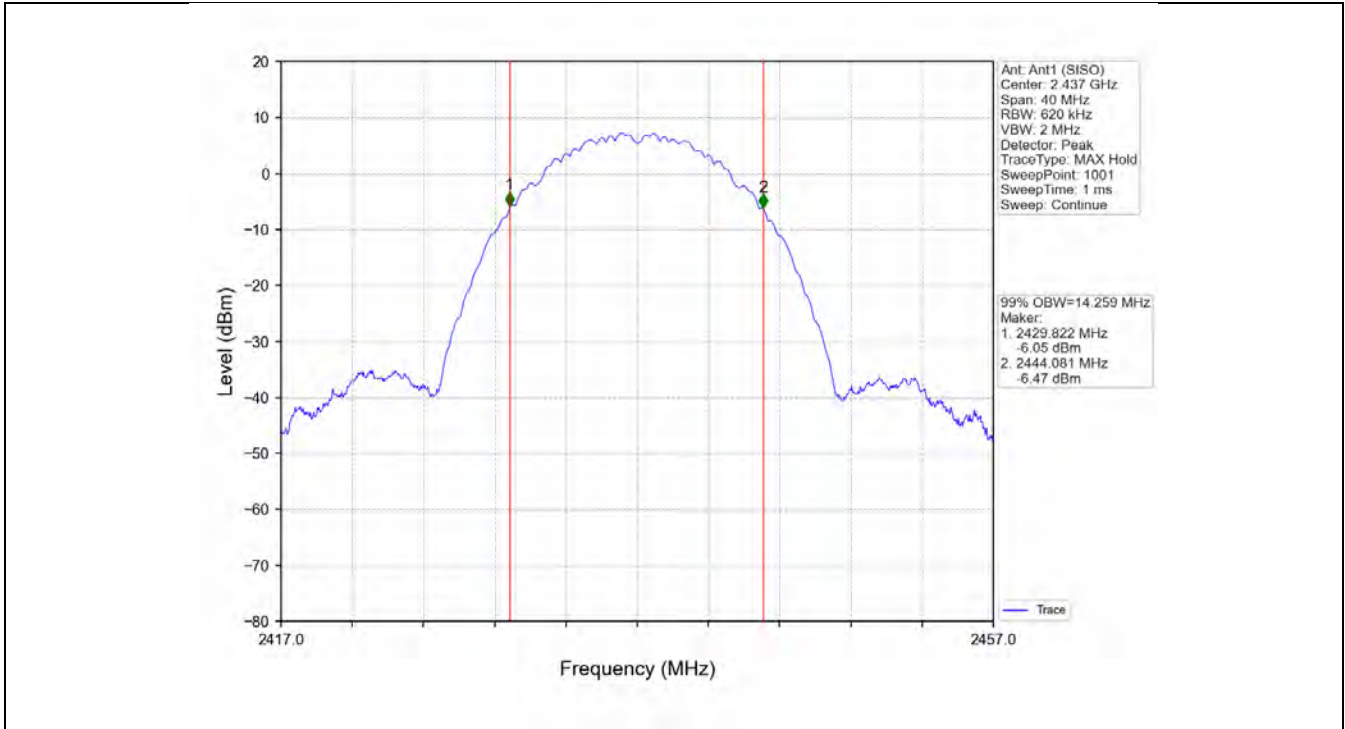
2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Ant	99% Occupied Bandwidth (MHz)	Limit (MHz)	Verdict
802.11b	SISO	2412	1	14.318	/	Pass
			2	14.178	/	Pass
		2437	1	14.259	/	Pass
			2	14.092	/	Pass
		2462	1	14.348	/	Pass
			2	14.178	/	Pass
802.11g	SISO	2412	1	16.951	/	Pass
			2	16.905	/	Pass
		2437	1	16.887	/	Pass
			2	16.841	/	Pass
		2462	1	16.902	/	Pass
			2	16.915	/	Pass
802.11n (HT20)	MIMO	2412	1	17.736	/	Pass
			2	17.756	/	Pass
		2437	1	17.726	/	Pass
			2	17.726	/	Pass
		2462	1	17.764	/	Pass
			2	17.802	/	Pass

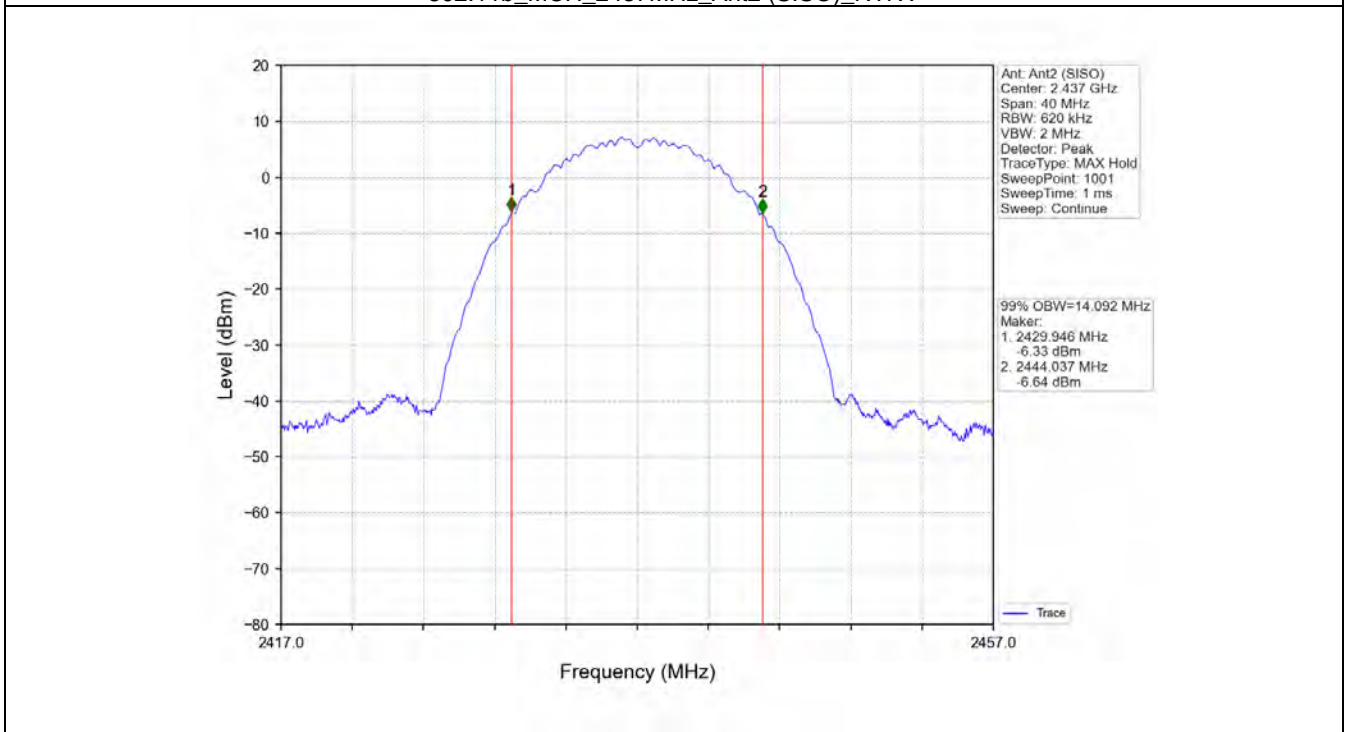
2.1.2 Test Graph



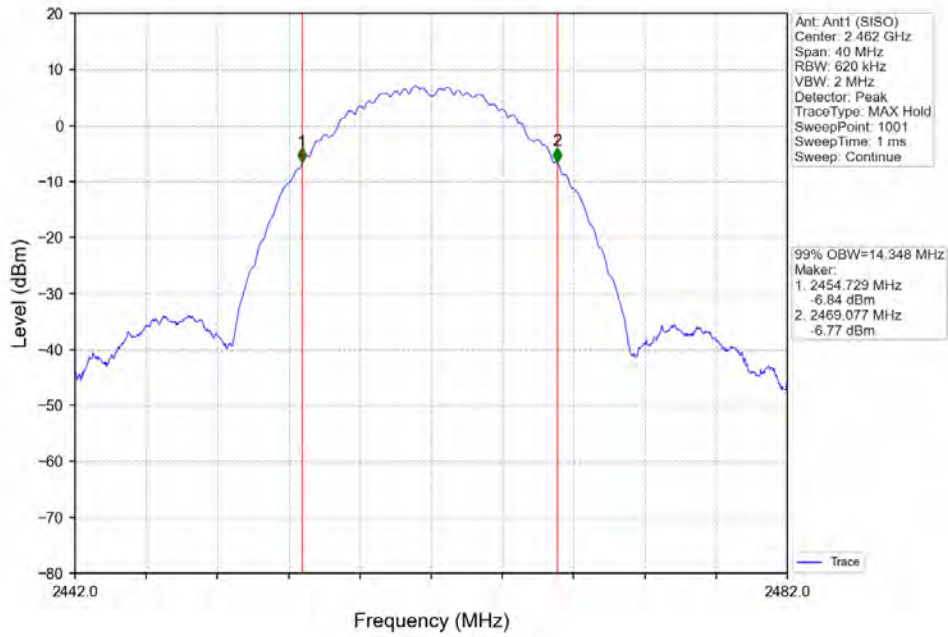
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



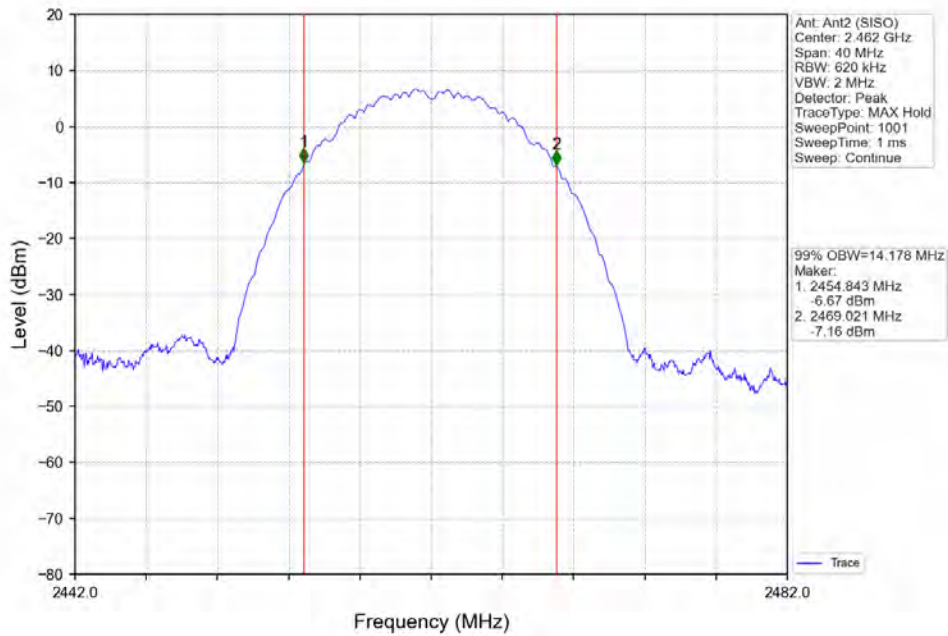
802.11b_MCH_2437MHz_Ant2 (SISO)_NTNV



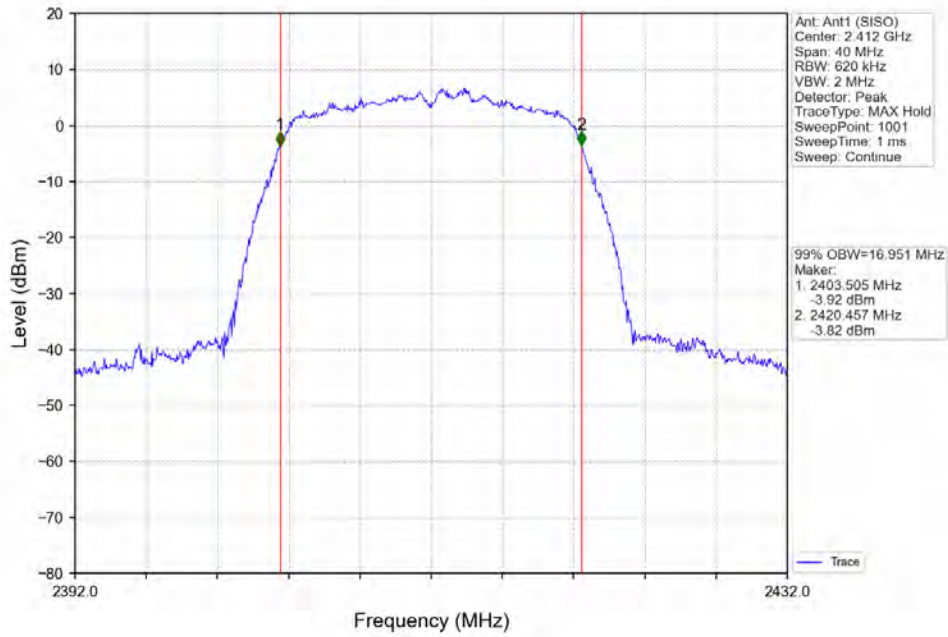
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



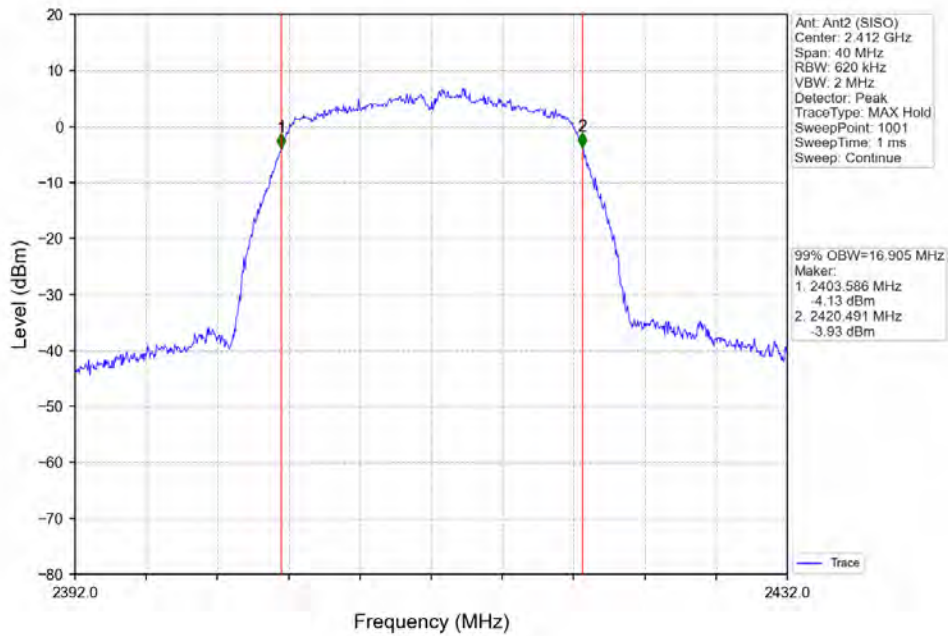
802.11b_HCH_2462MHz_Ant2 (SISO)_NTNV



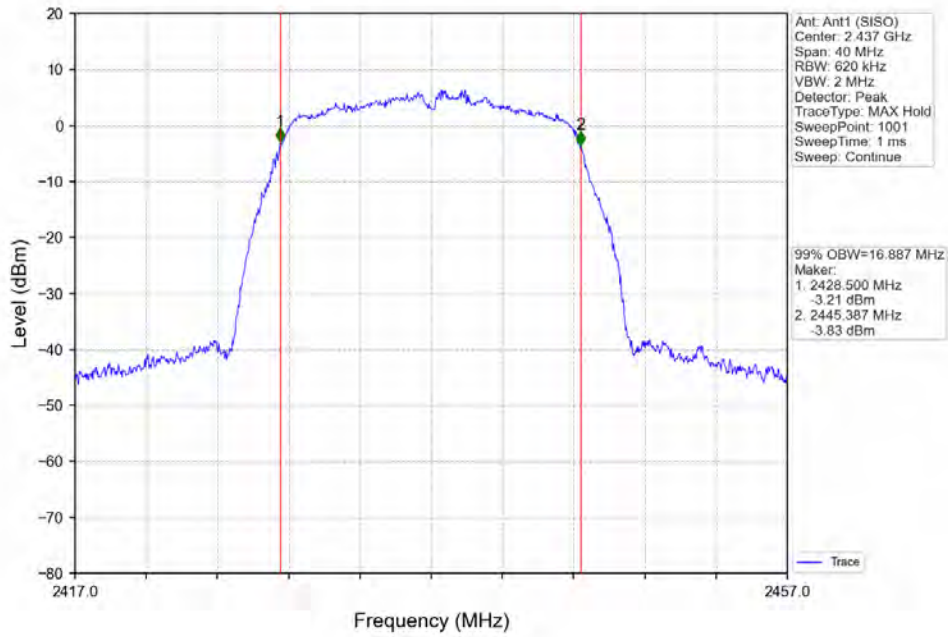
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



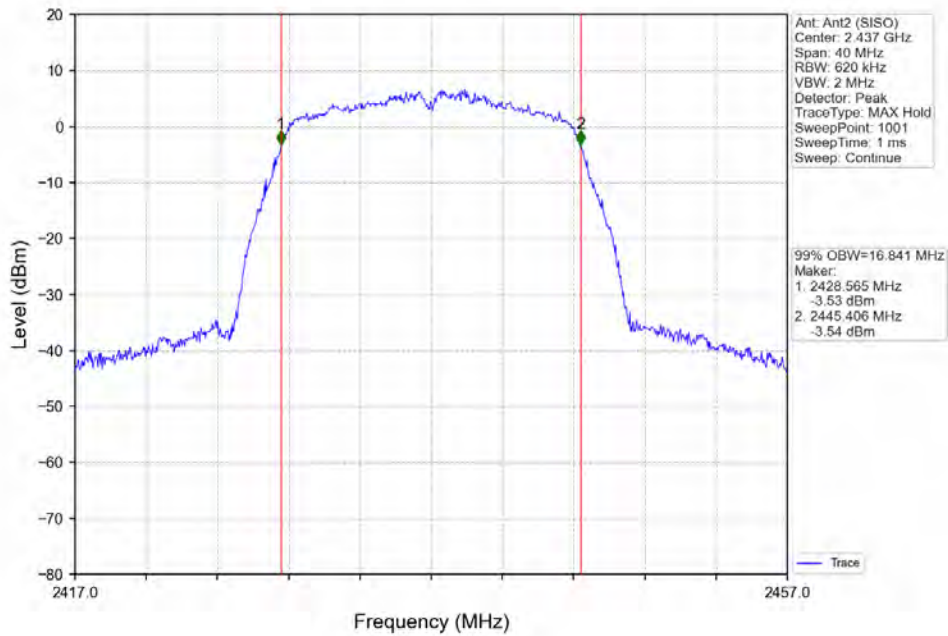
802.11g_LCH_2412MHz_Ant2 (SISO)_NTNV



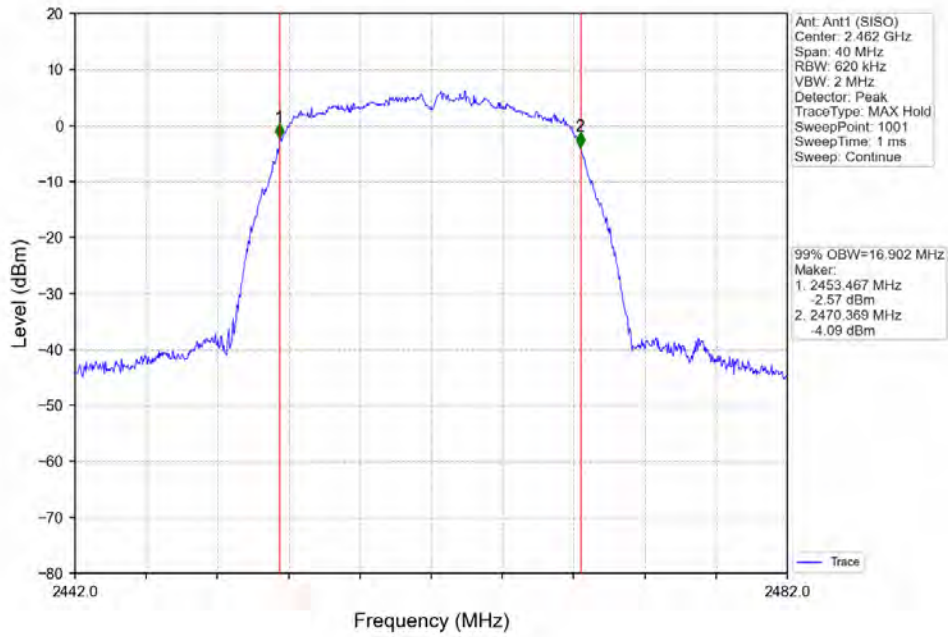
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



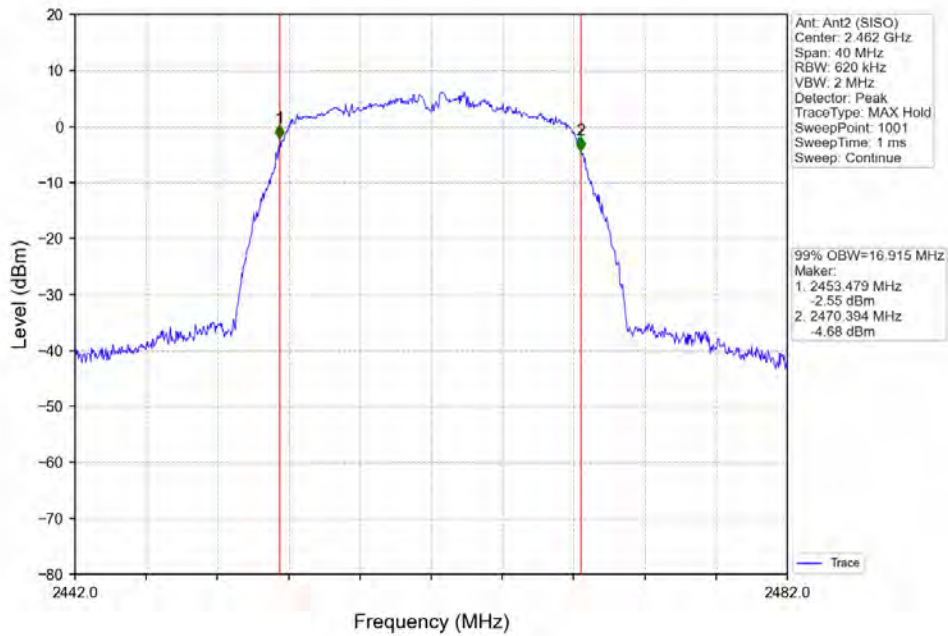
802.11g_MCH_2437MHz_Ant2 (SISO)_NTNV



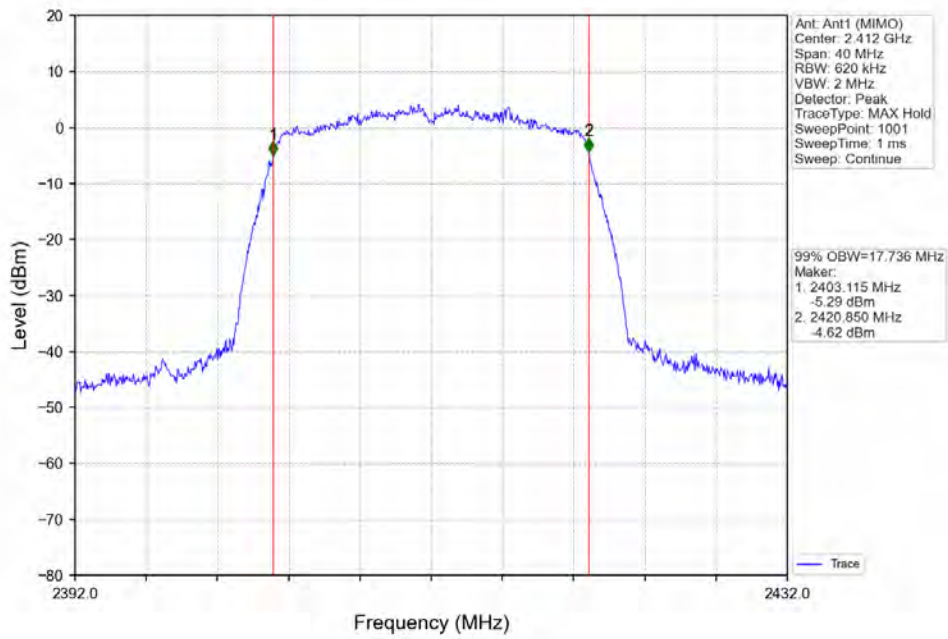
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



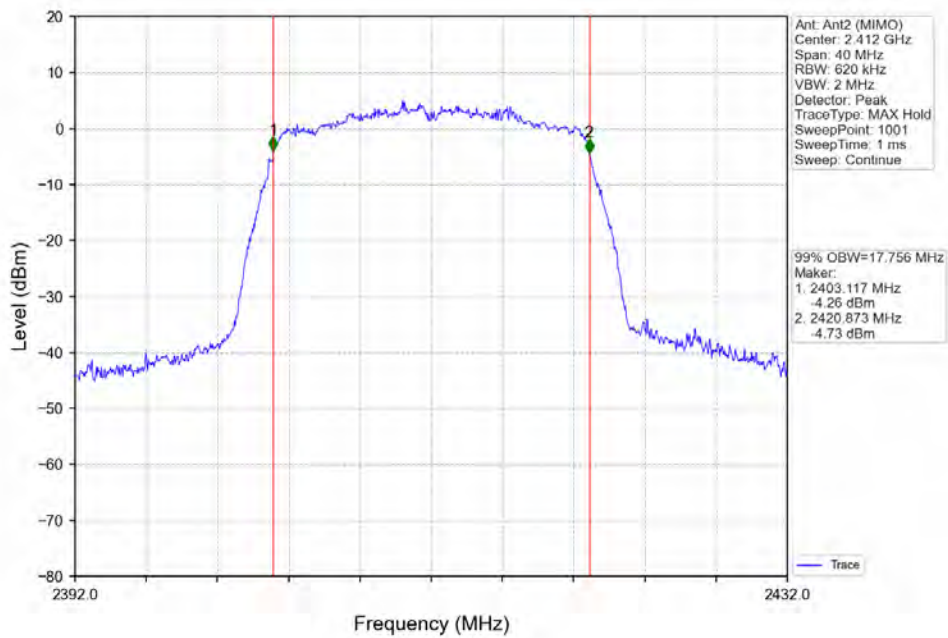
802.11g_HCH_2462MHz_Ant2 (SISO)_NTNV



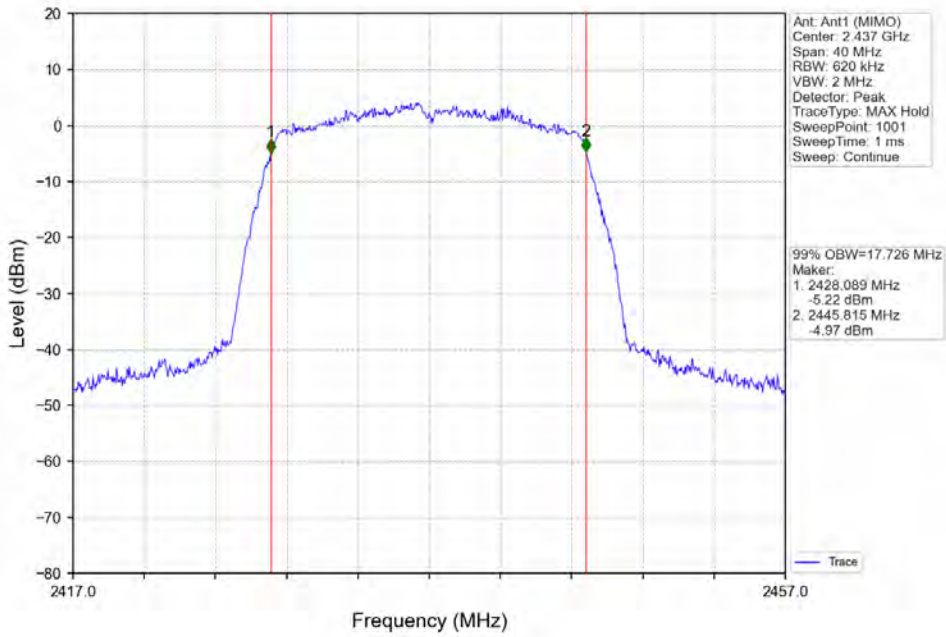
802.11n(HT20)_LCH_2412MHz_Ant1 (MIMO)_NTNV



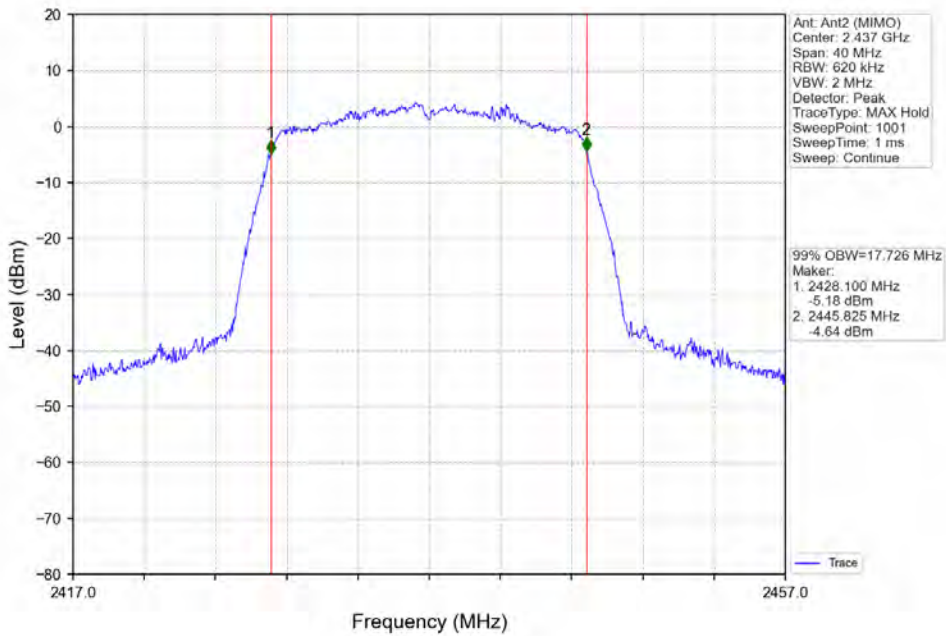
802.11n(HT20)_LCH_2412MHz_Ant2 (MIMO)_NTNV



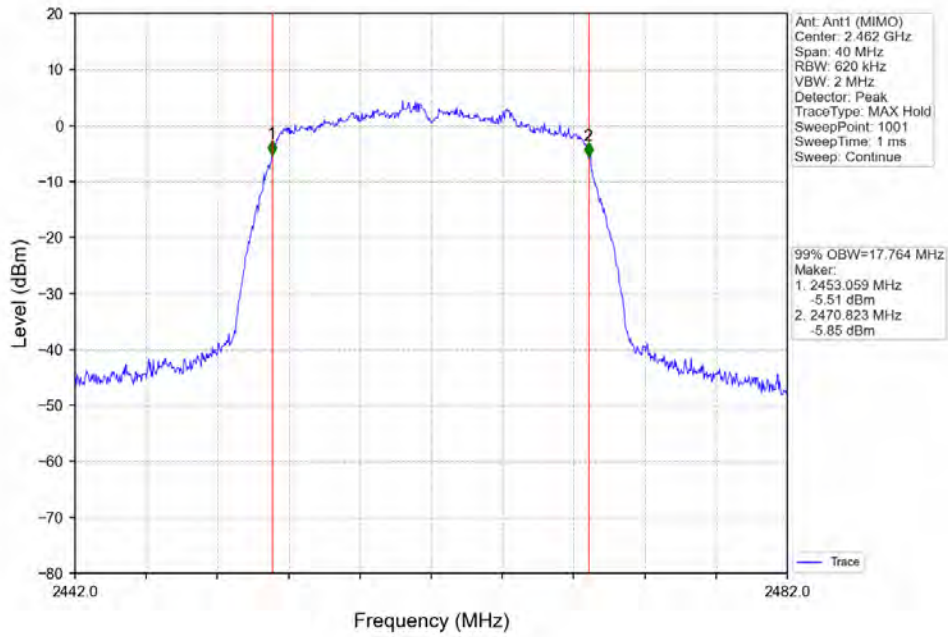
802.11n(HT20)_MCH_2437MHz_Ant1 (MIMO)_NTNV



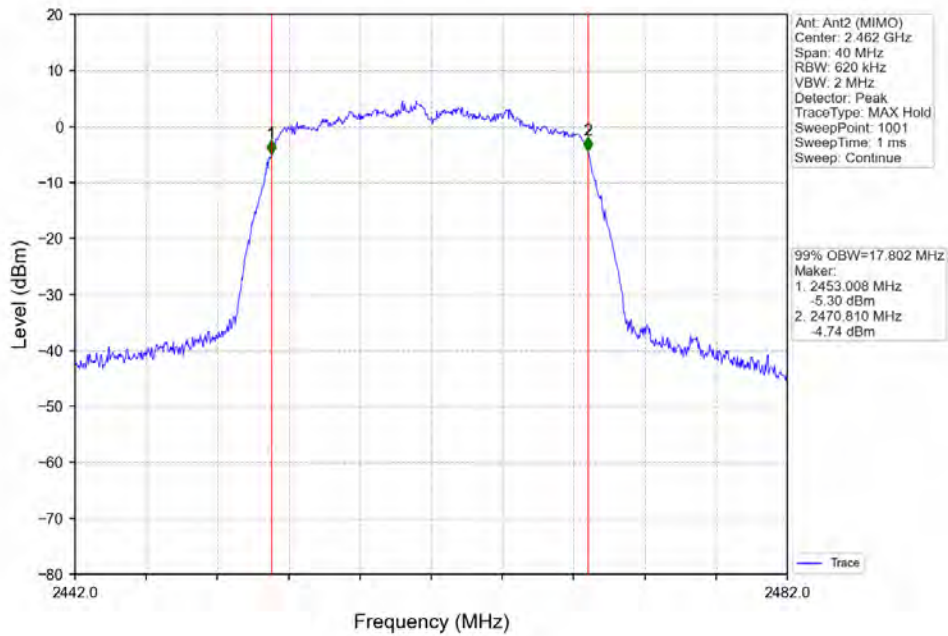
802.11n(HT20)_MCH_2437MHz_Ant2 (MIMO)_NTNV



802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV



802.11n(HT20)_HCH_2462MHz_Ant2 (MIMO)_NTNV

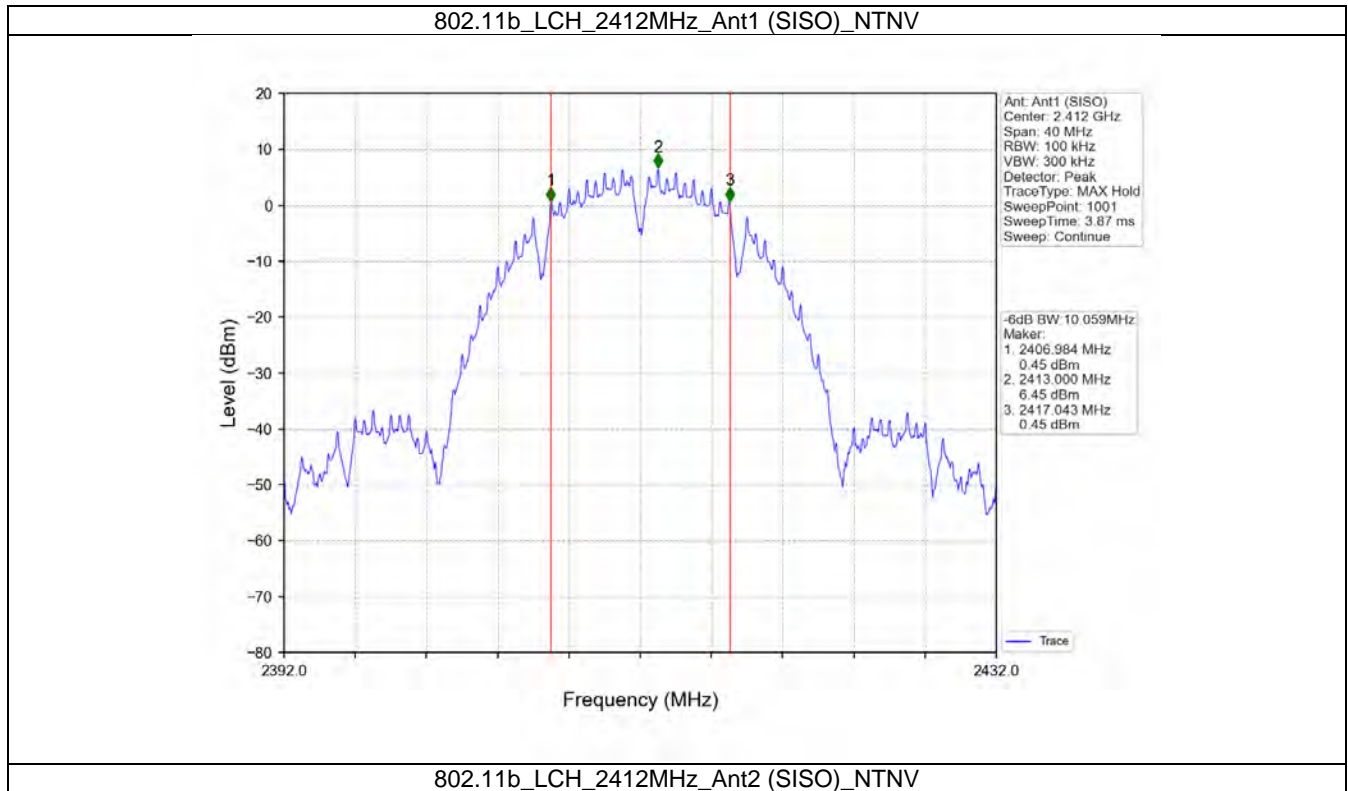


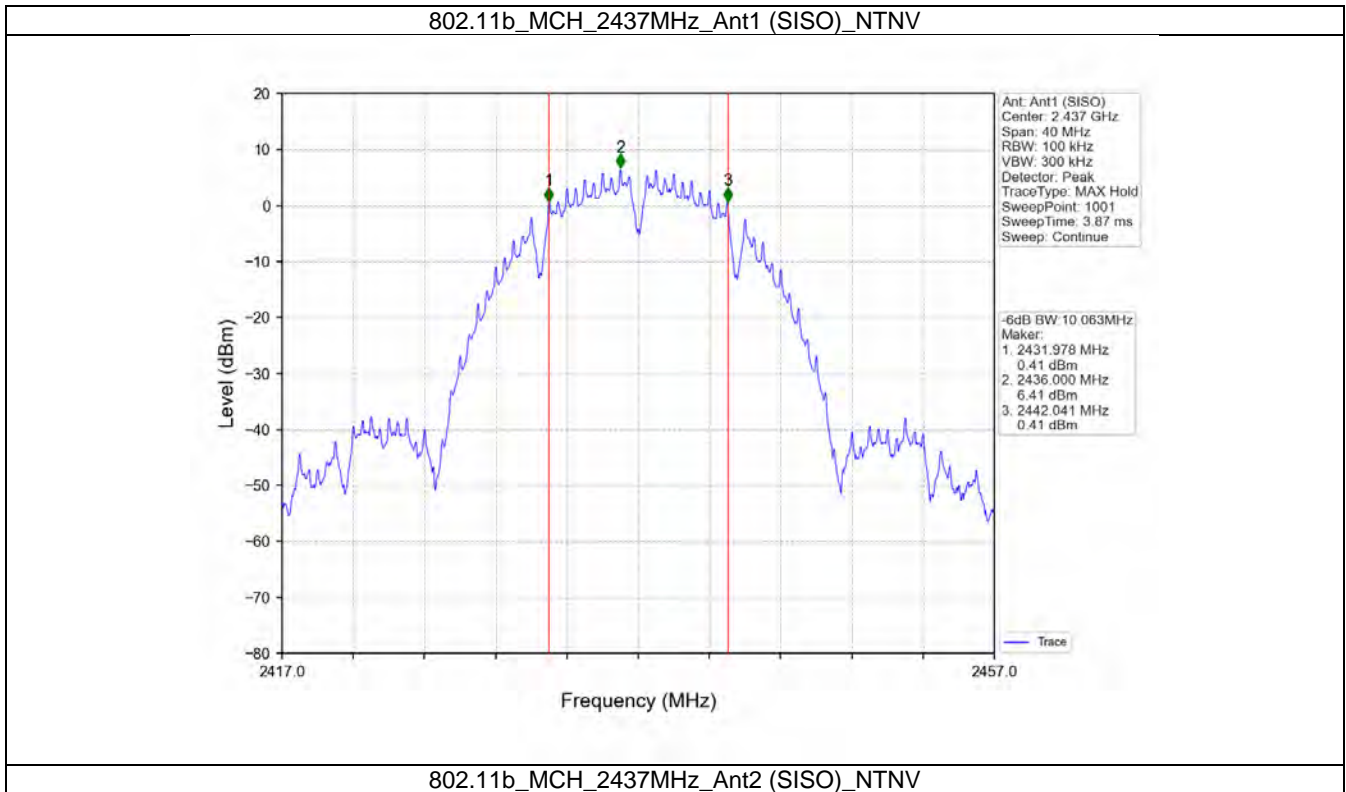
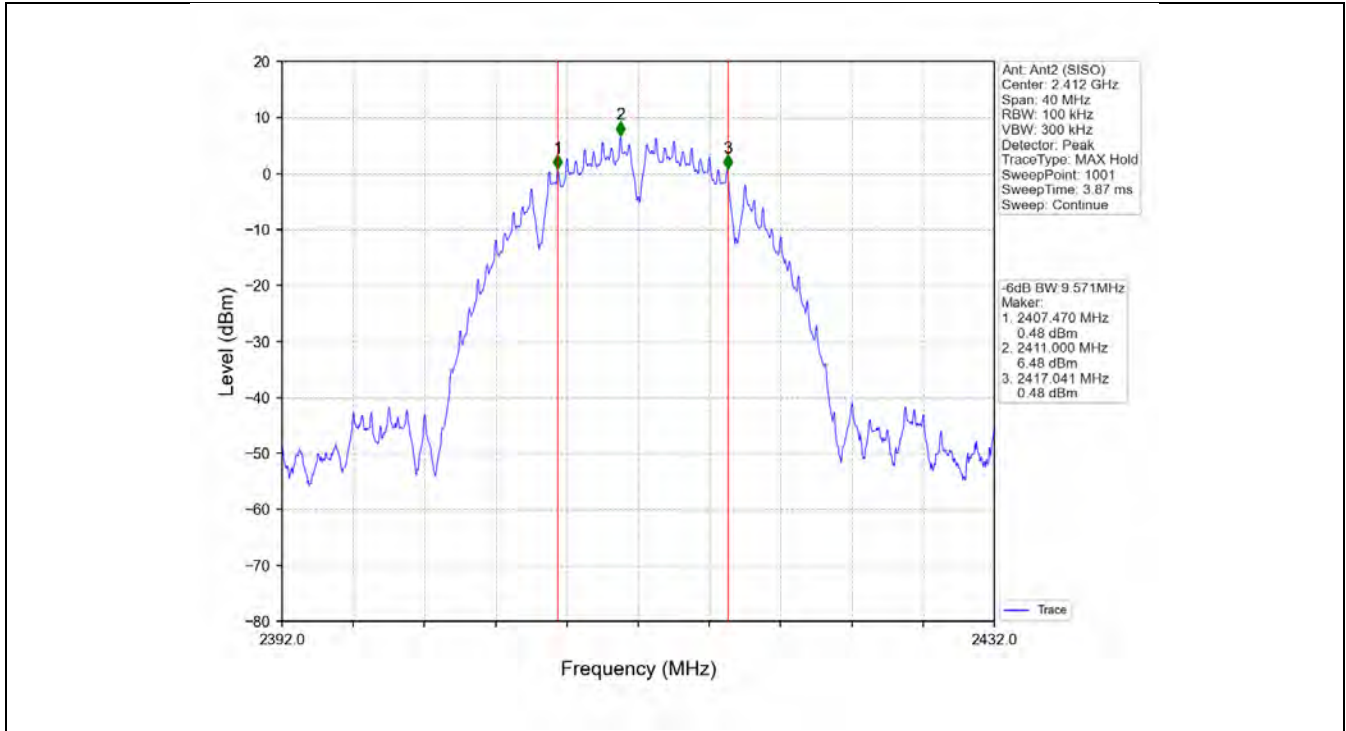
2.2 6dB BW

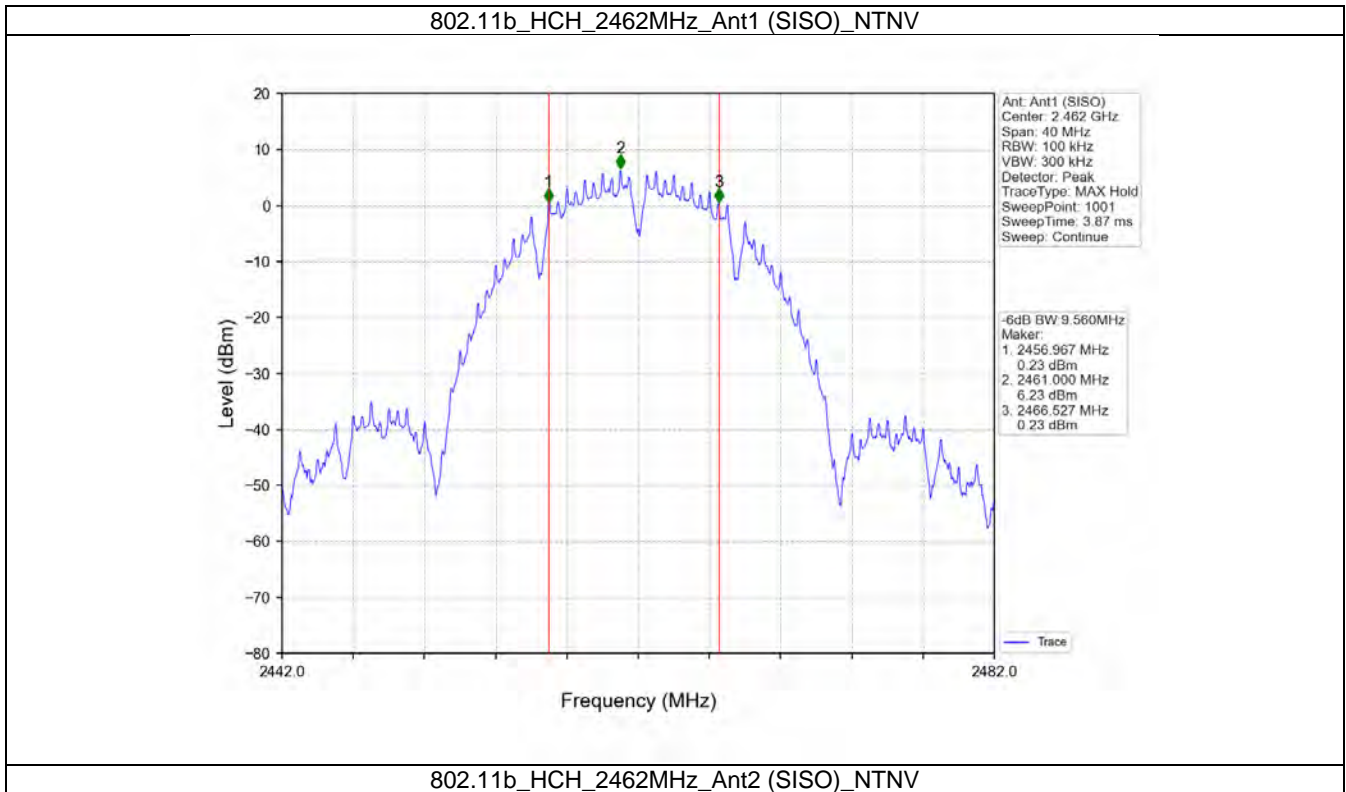
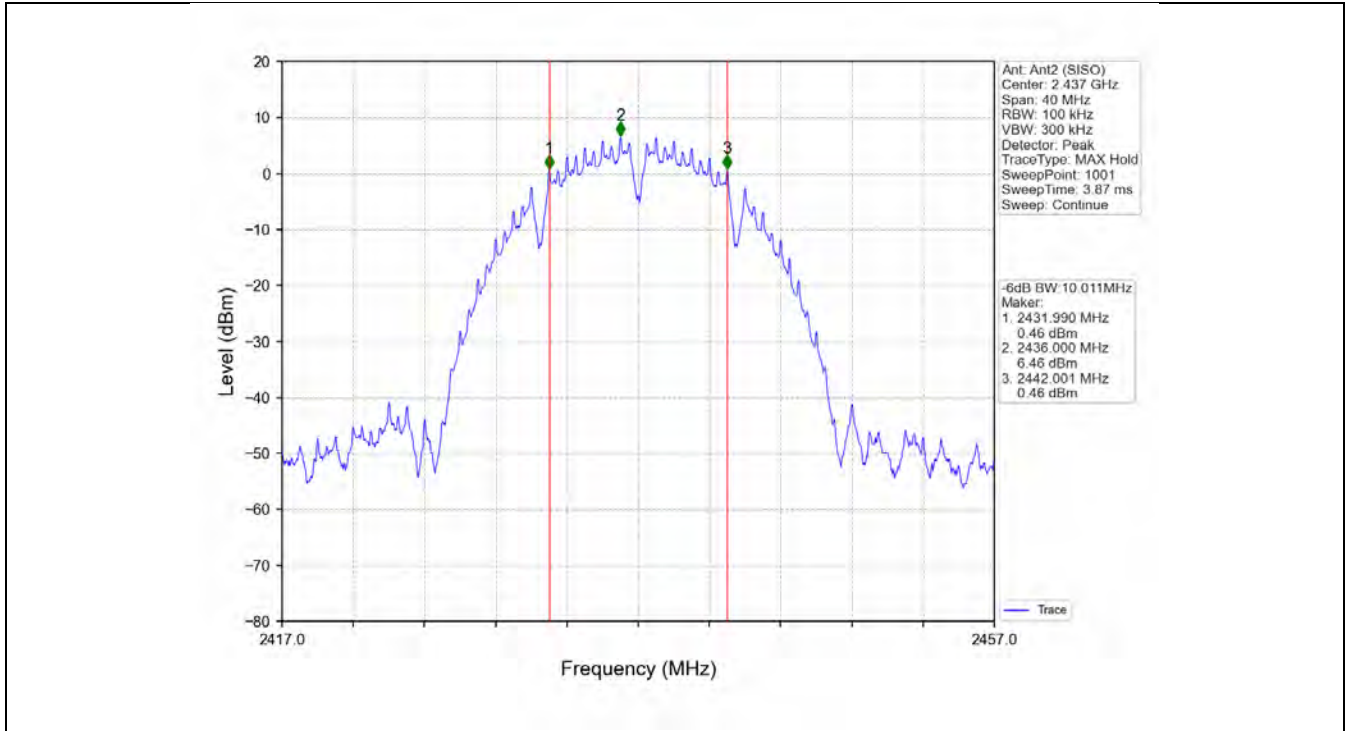
2.2.1 Test Result

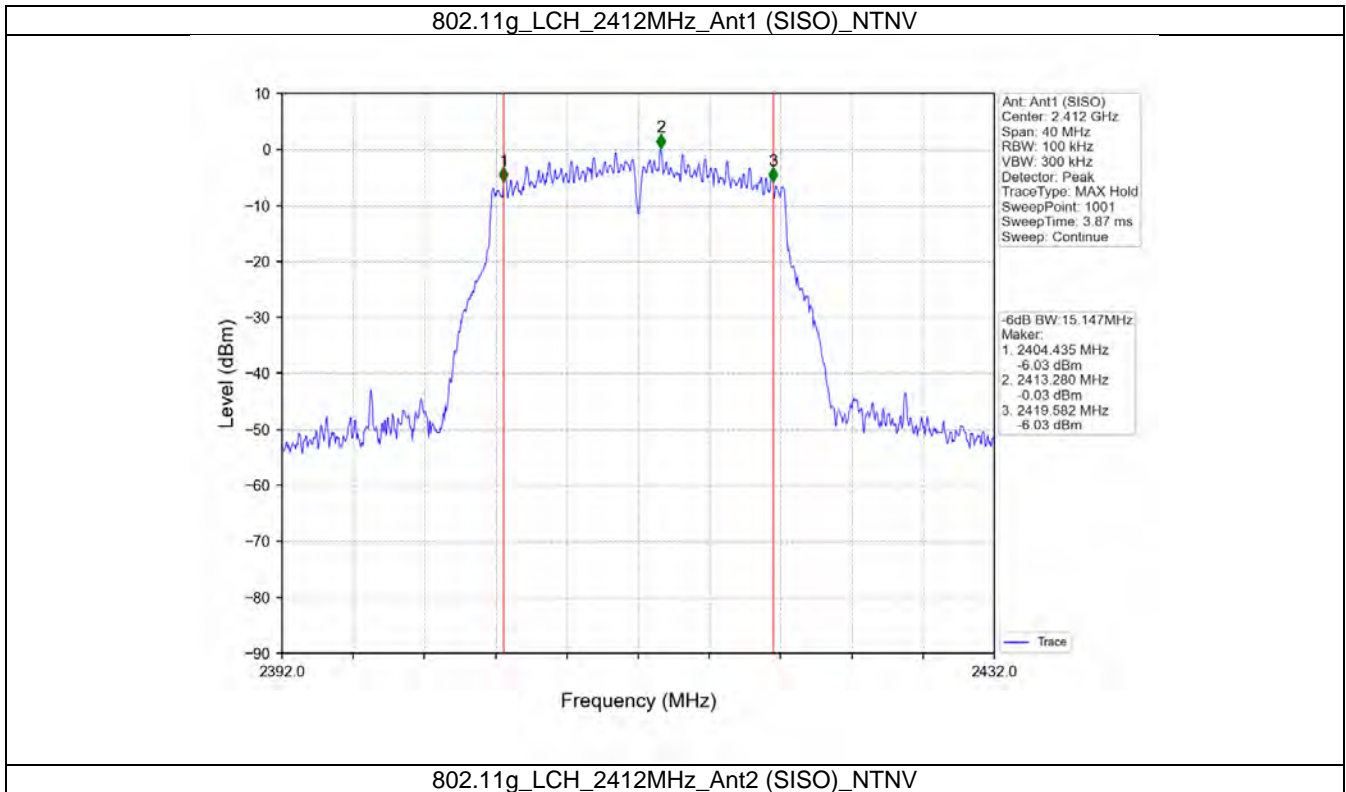
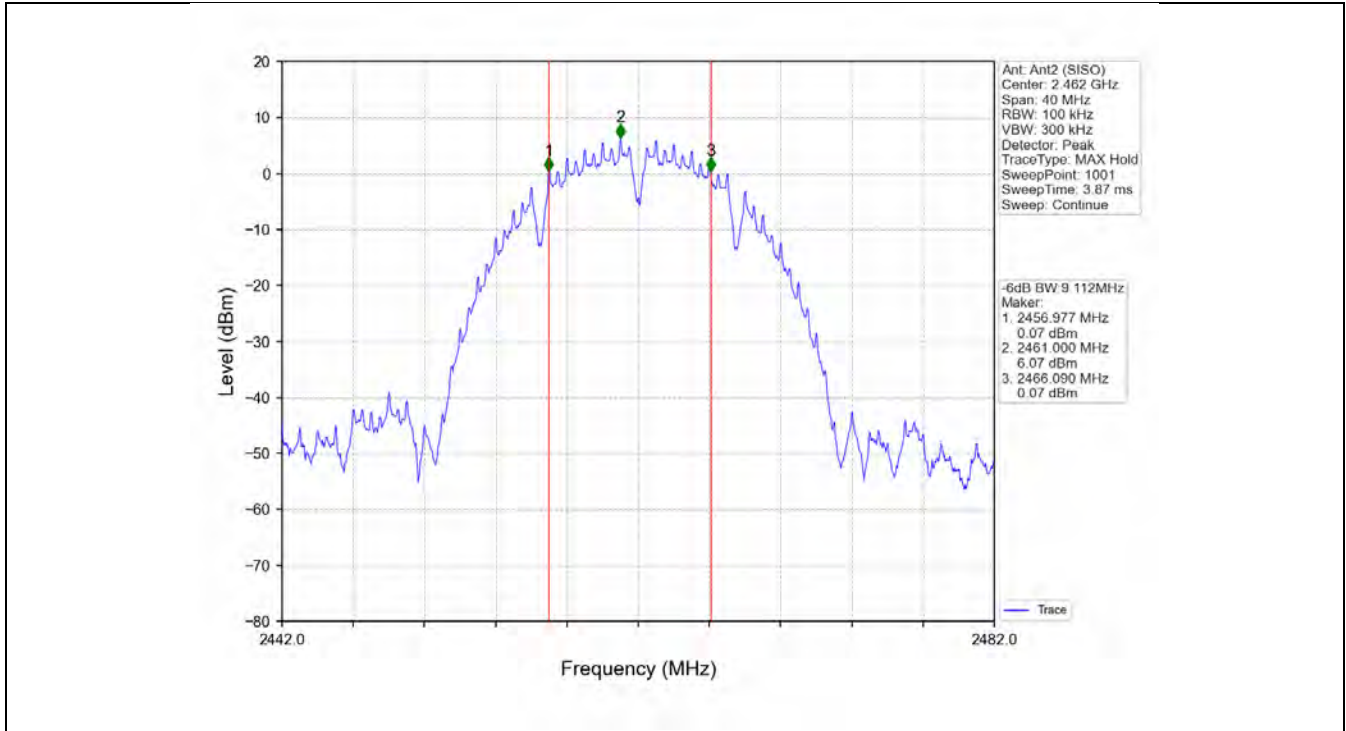
Mode	TX Type	Frequency (MHz)	Ant	6dB Bandwidth (MHz)	Limit (MHz)	Verdict
802.11b	SISO	2412	1	10.059	≥ 0.5	Pass
			2	9.571	≥ 0.5	Pass
		2437	1	10.063	≥ 0.5	Pass
			2	10.011	≥ 0.5	Pass
		2462	1	9.560	≥ 0.5	Pass
			2	9.112	≥ 0.5	Pass
802.11g	SISO	2412	1	15.147	≥ 0.5	Pass
			2	15.143	≥ 0.5	Pass
		2437	1	15.144	≥ 0.5	Pass
			2	15.143	≥ 0.5	Pass
		2462	1	15.152	≥ 0.5	Pass
			2	15.161	≥ 0.5	Pass
802.11n (HT20)	MIMO	2412	1	15.145	≥ 0.5	Pass
			2	15.146	≥ 0.5	Pass
		2437	1	15.160	≥ 0.5	Pass
			2	15.129	≥ 0.5	Pass
		2462	1	15.977	≥ 0.5	Pass
			2	15.977	≥ 0.5	Pass

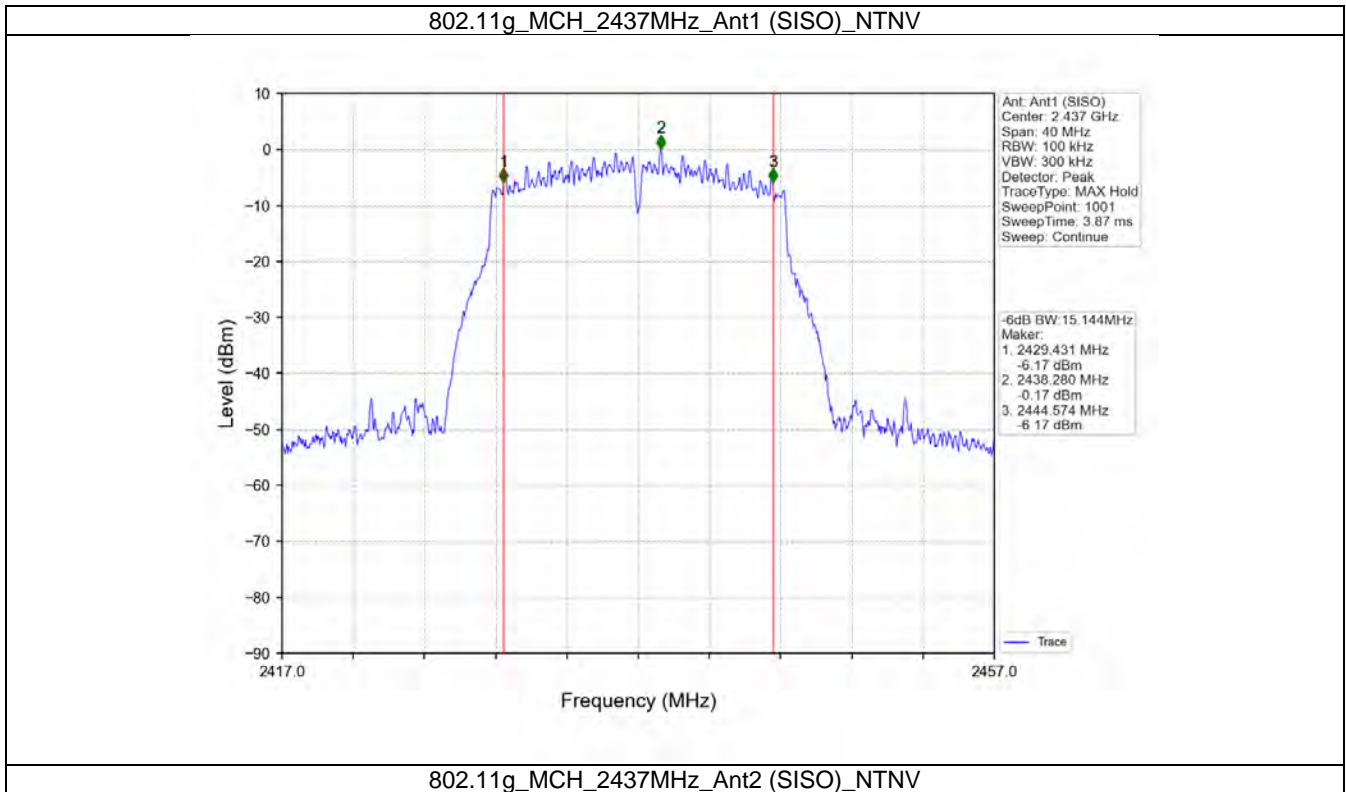
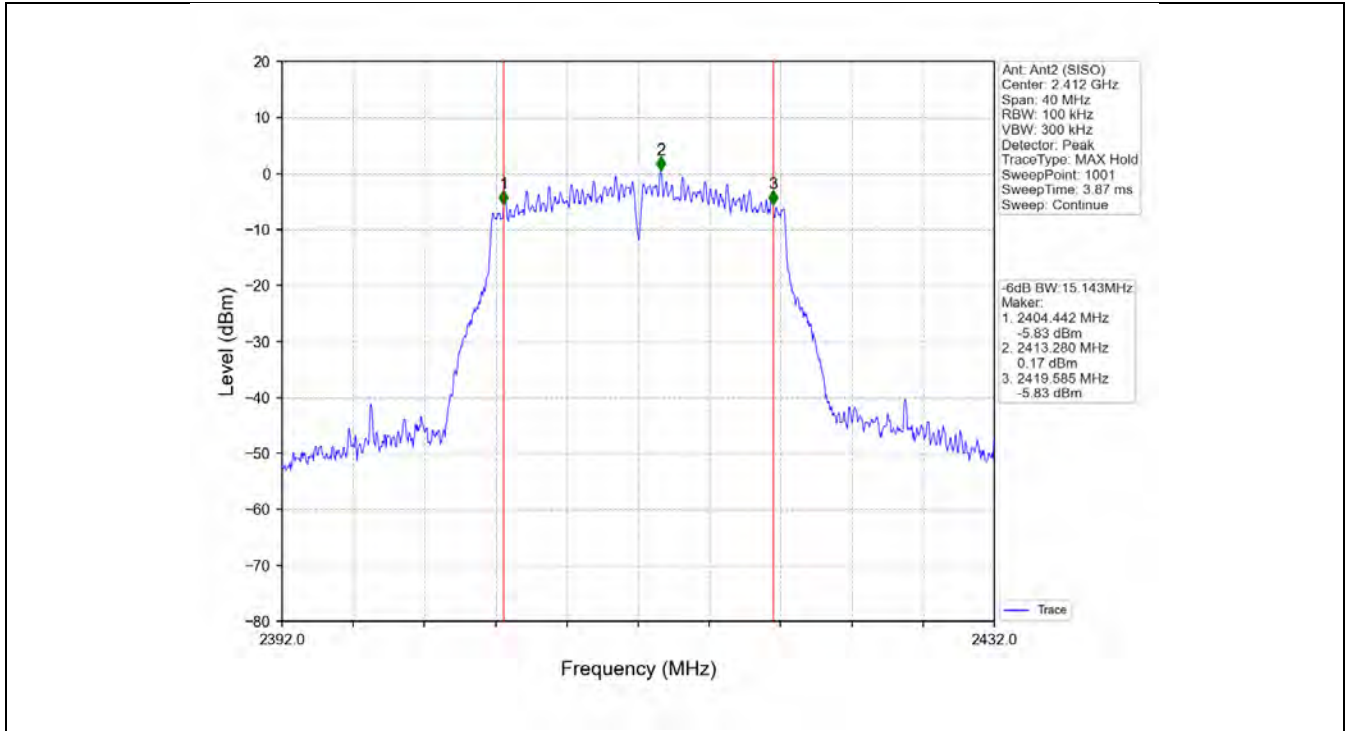
2.2.2 Test Graph

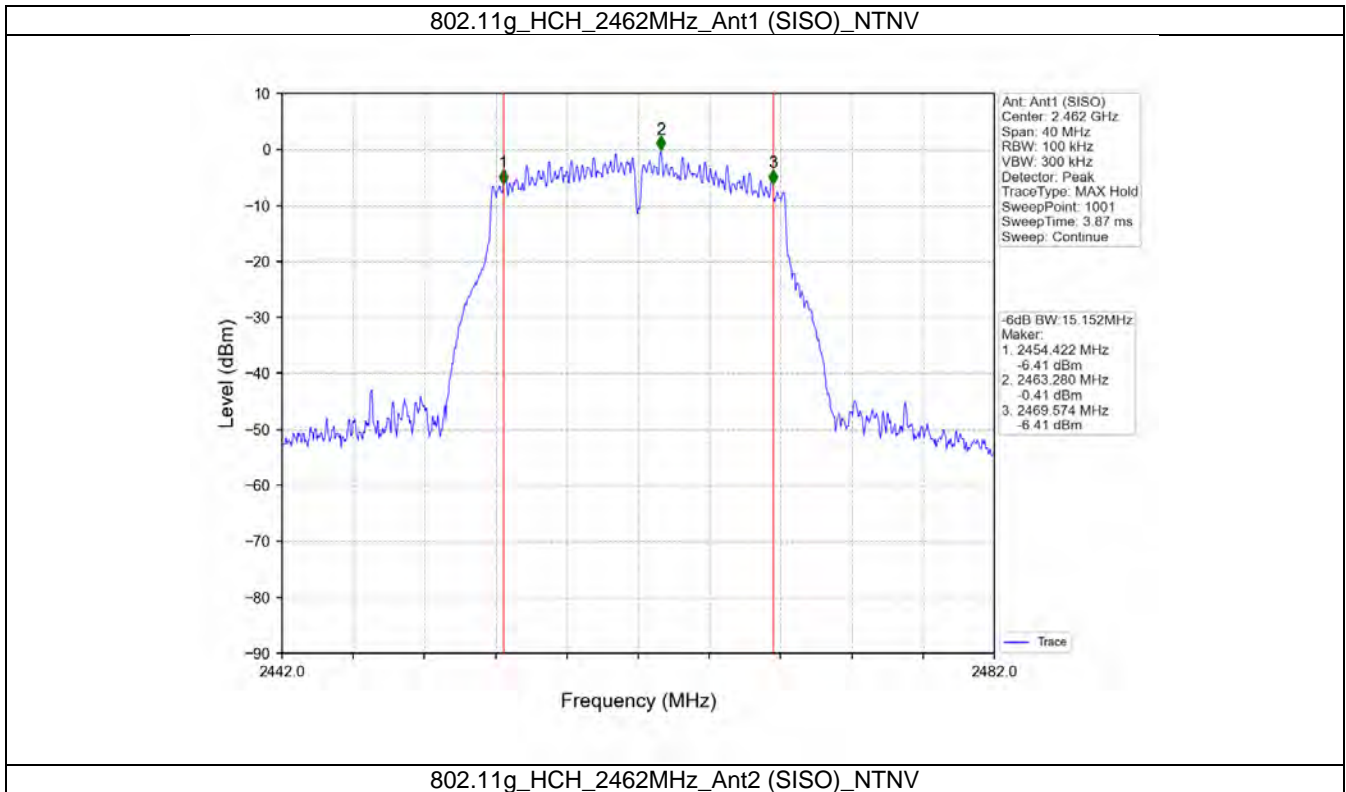
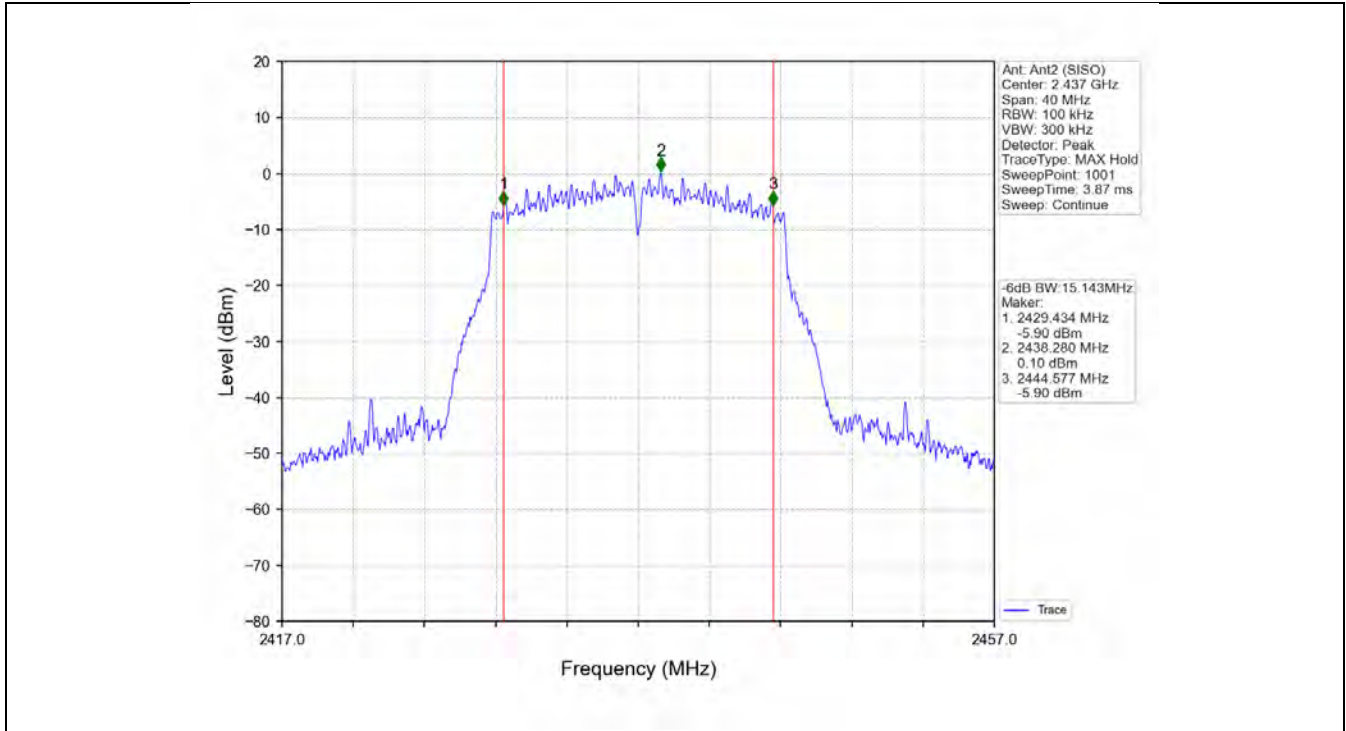


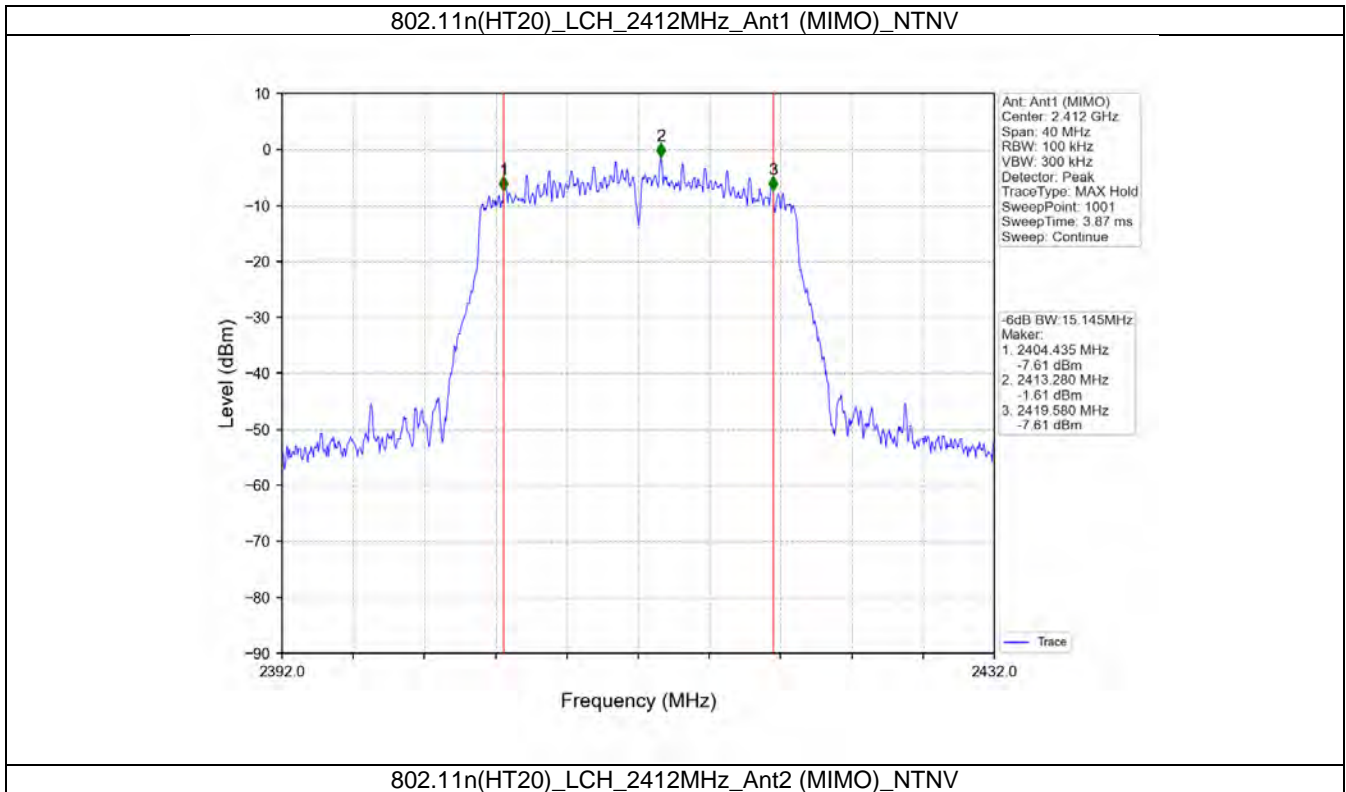
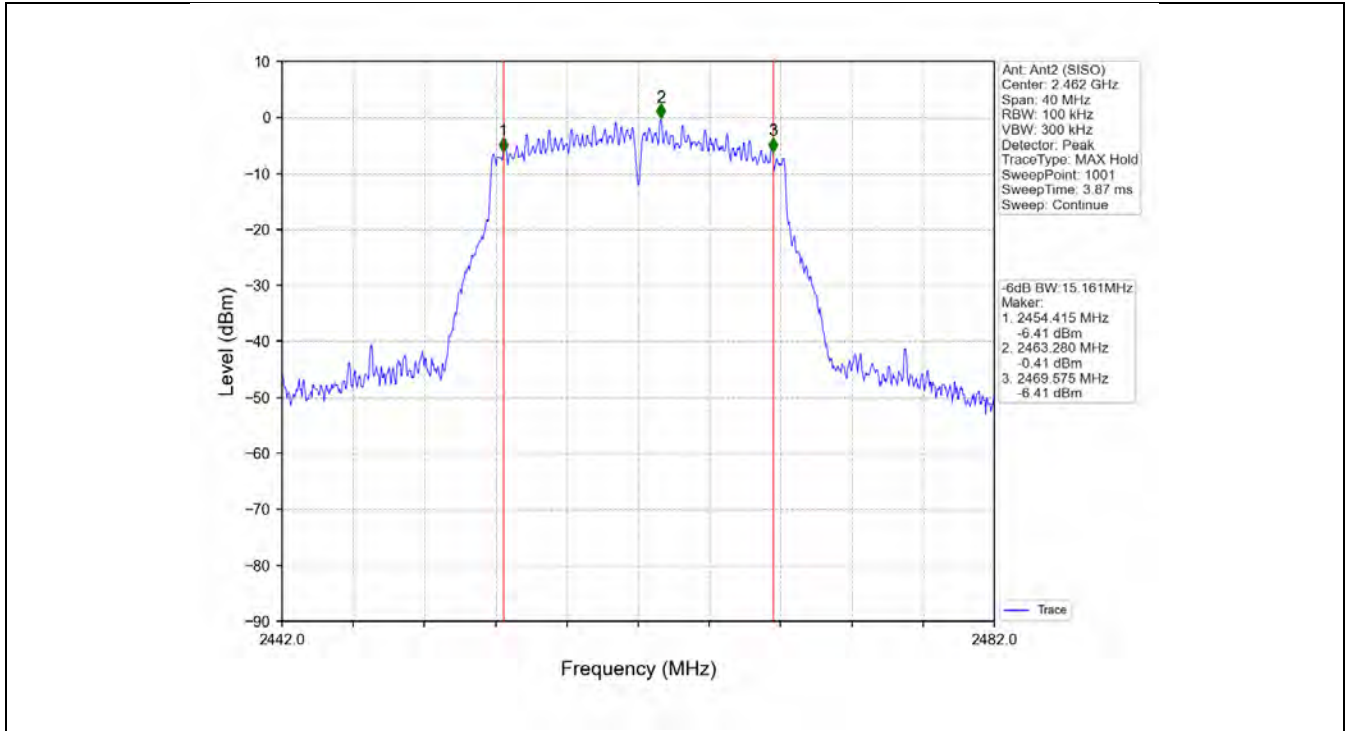


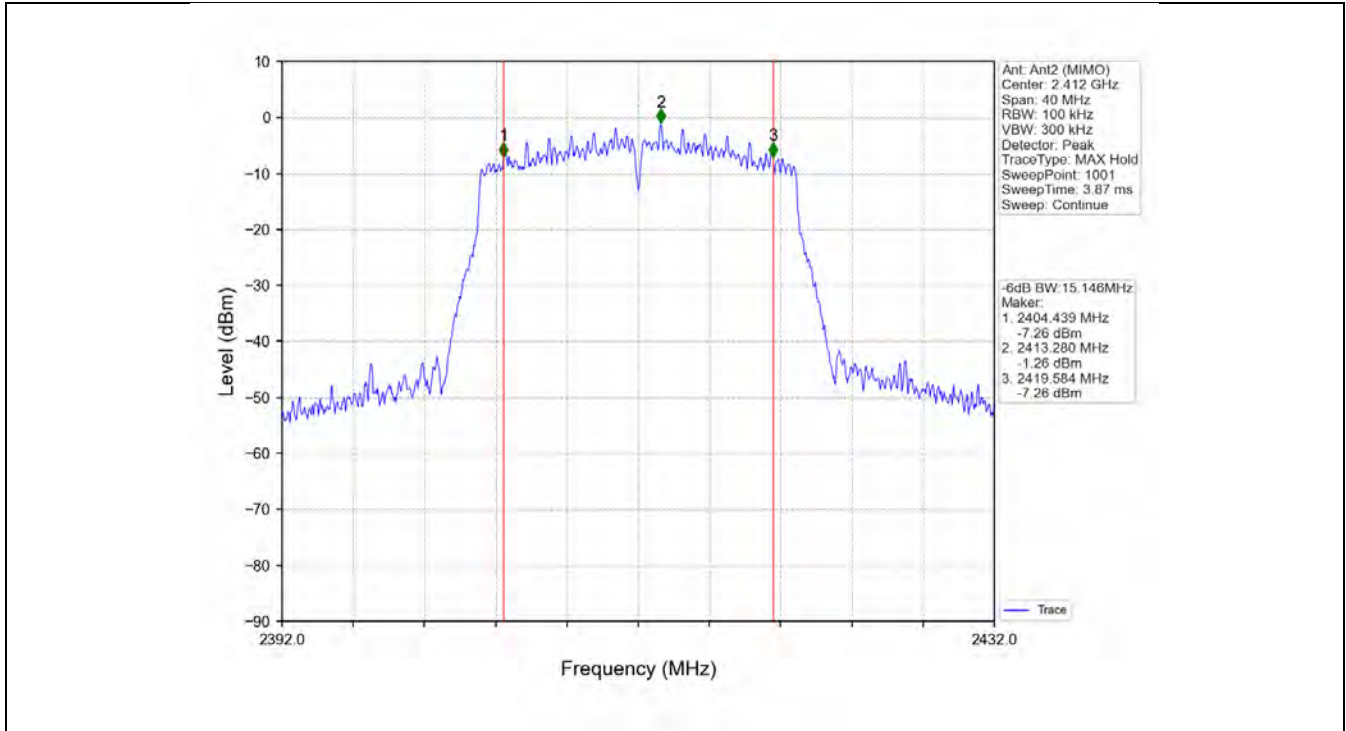




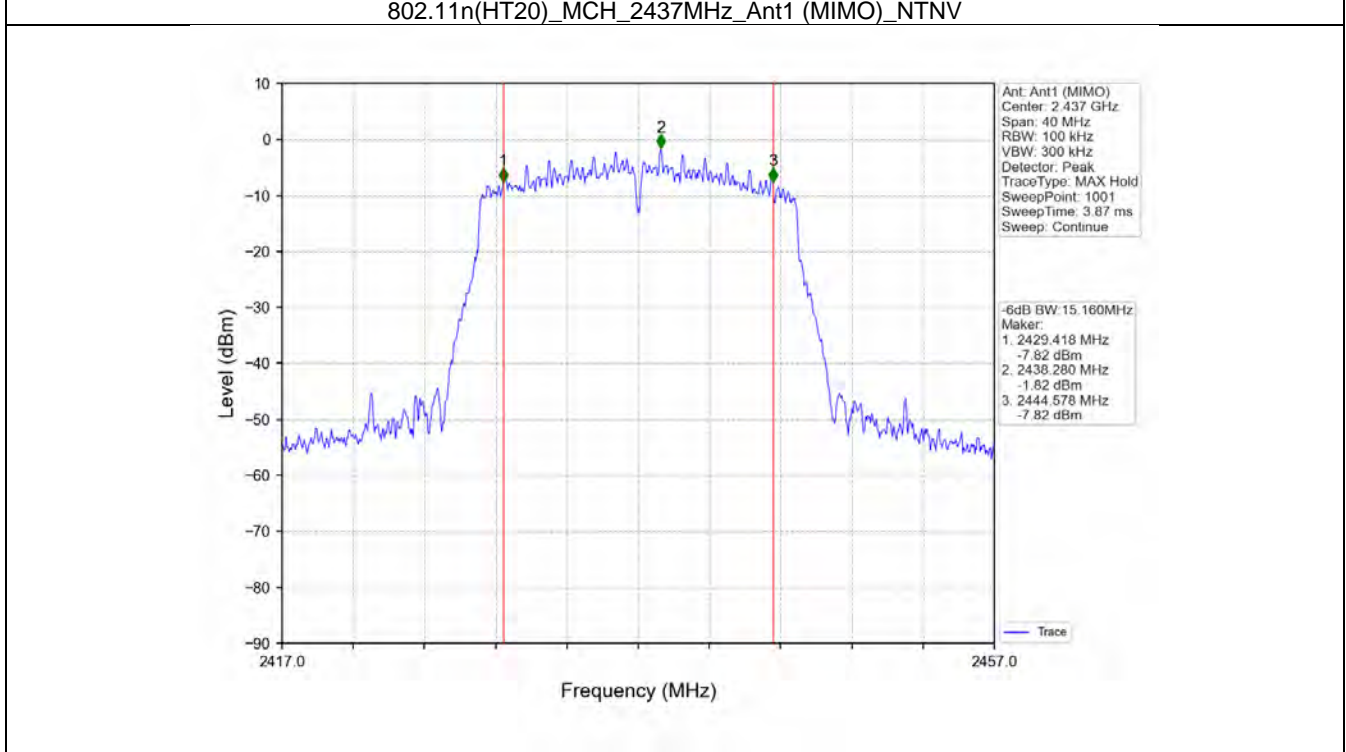




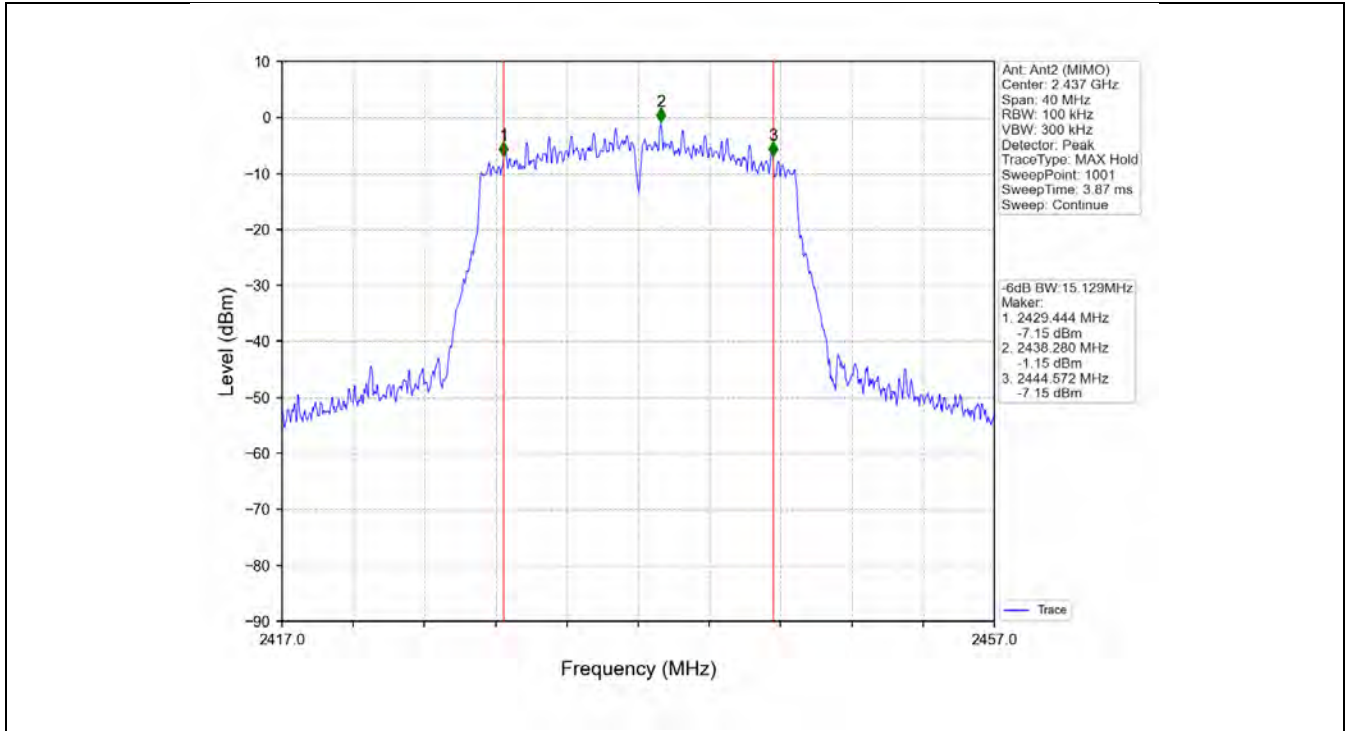




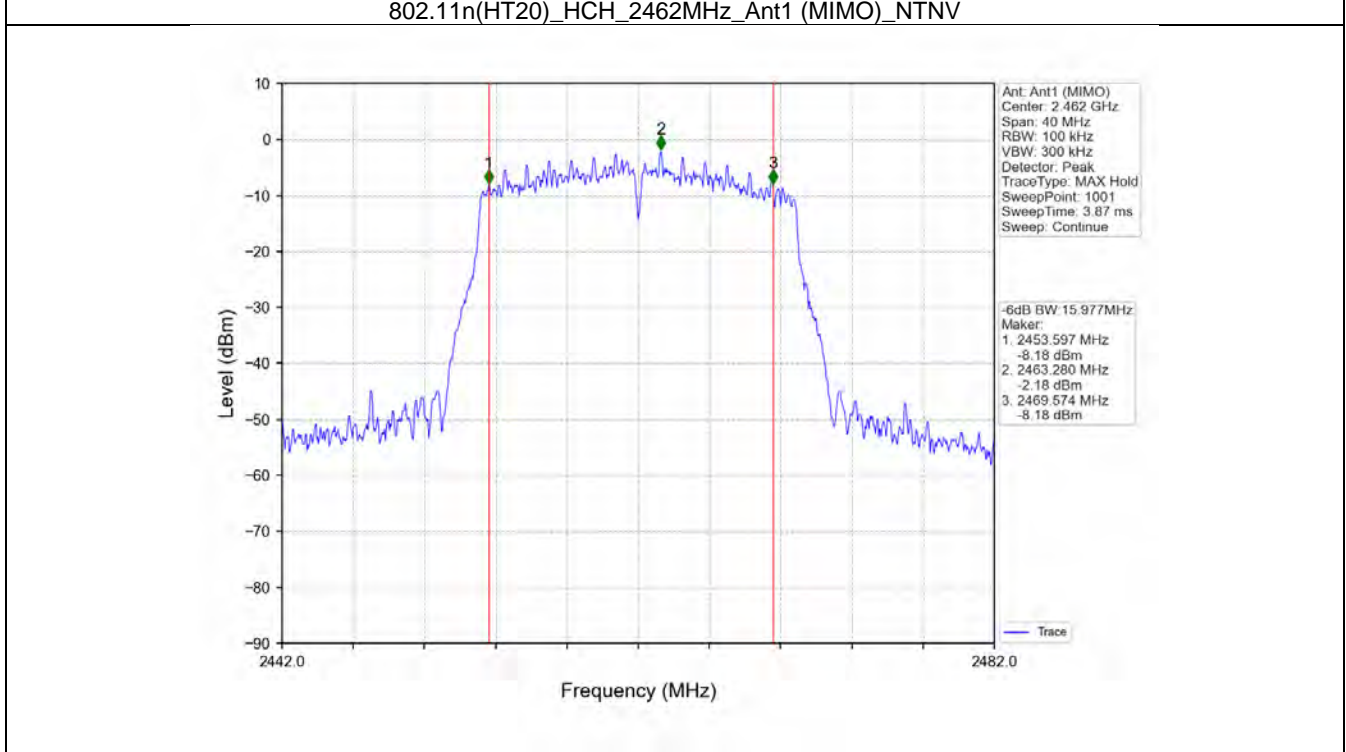
802.11n(HT20)_MCH_2437MHz_Ant1 (MIMO)_NTNV



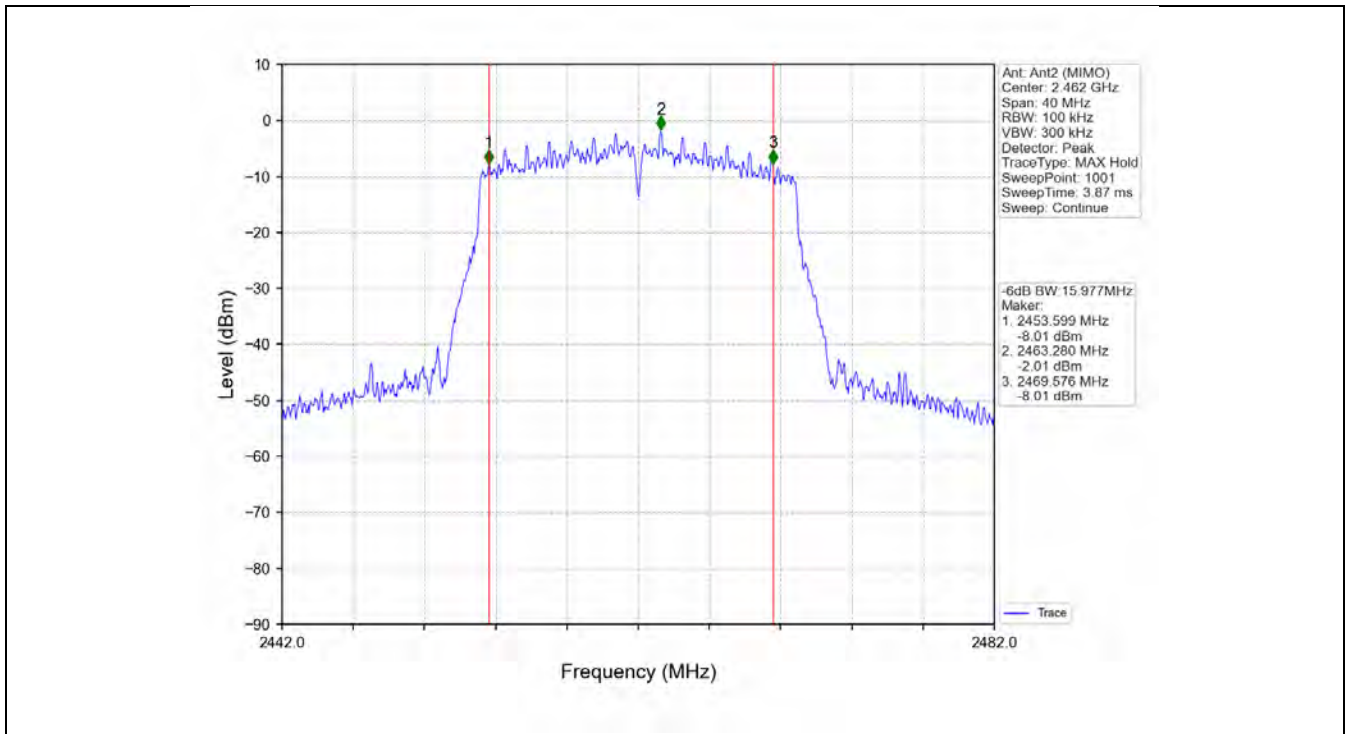
802.11n(HT20)_MCH_2437MHz_Ant2 (MIMO)_NTNV



802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV



802.11n(HT20)_HCH_2462MHz_Ant2 (MIMO)_NTNV



3. Maximum Conducted Output Power

3.1 Power

3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Measured Peak Output Power (dBm)			Limit	Verdict
			Ant1	Ant2	Sum		
802.11b	SISO	2412	17.56	17.35	/	<=30	Pass
		2437	17.70	17.55	/	<=30	Pass
		2462	17.23	16.94	/	<=30	Pass
802.11g	SISO	2412	17.89	18.04	/	<=30	Pass
		2437	17.76	17.95	/	<=30	Pass
		2462	17.57	17.58	/	<=30	Pass
802.11n (HT20)	MIMO	2412	15.56	15.98	18.79	<=30	Pass
		2437	15.52	15.89	18.72	<=30	Pass
		2462	15.40	15.57	18.50	<=30	Pass

4. Maximum Power Spectral Density

4.1 PSD

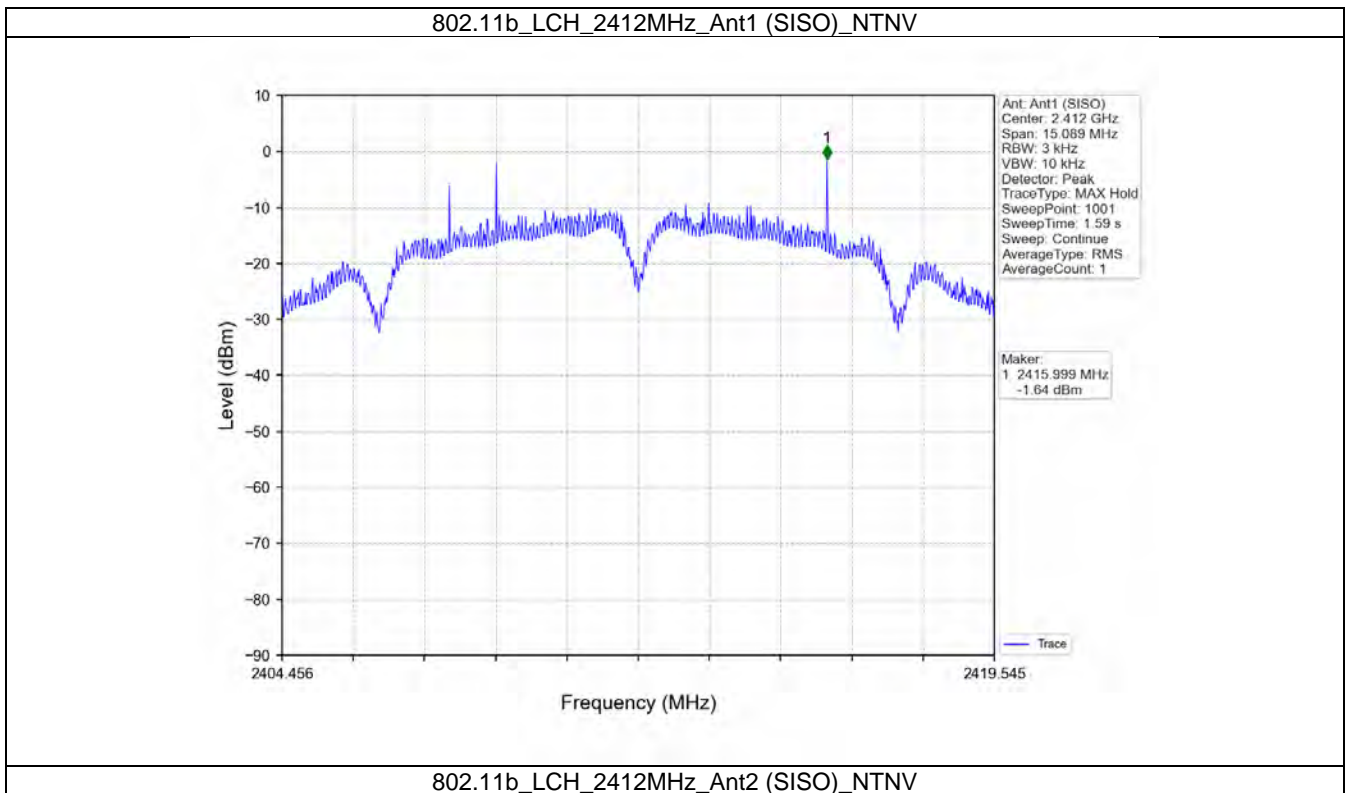
4.1.1 Test Result

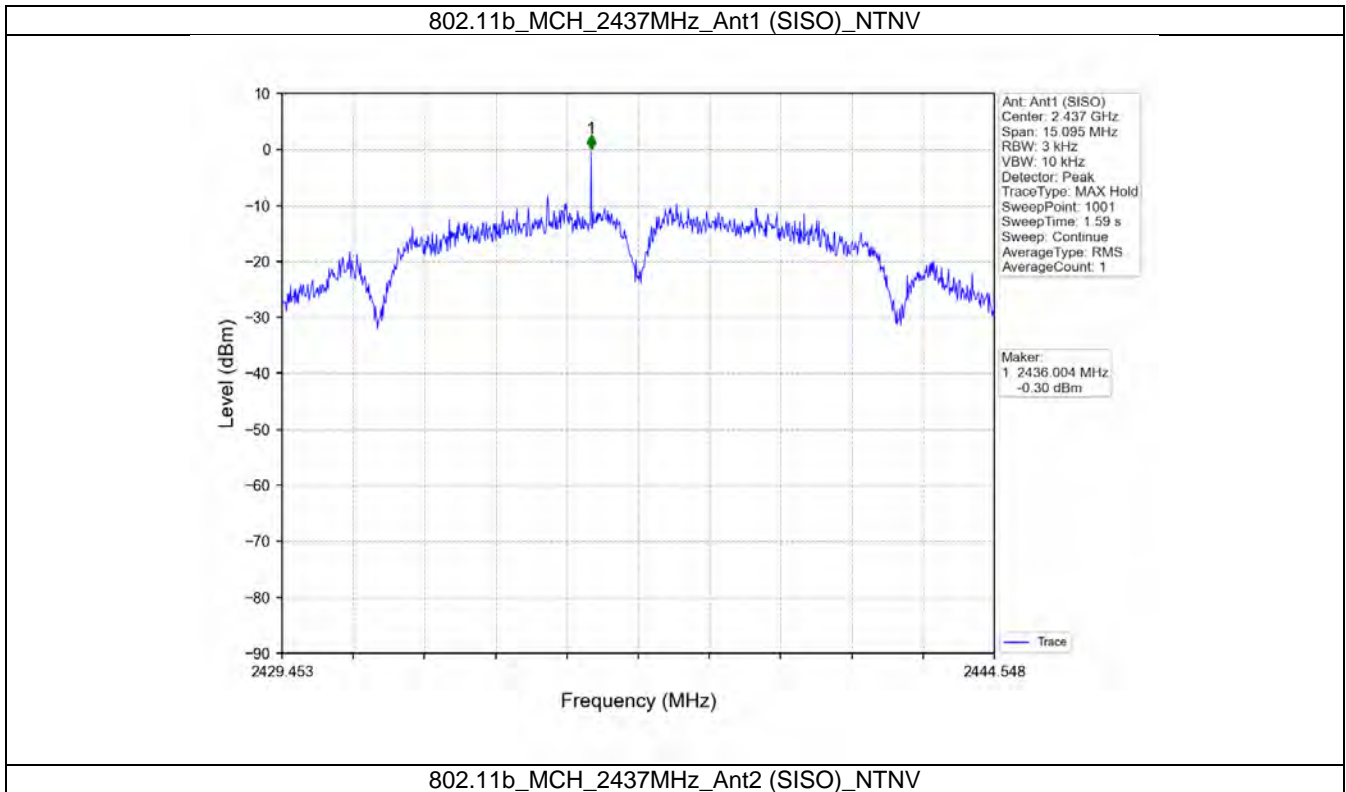
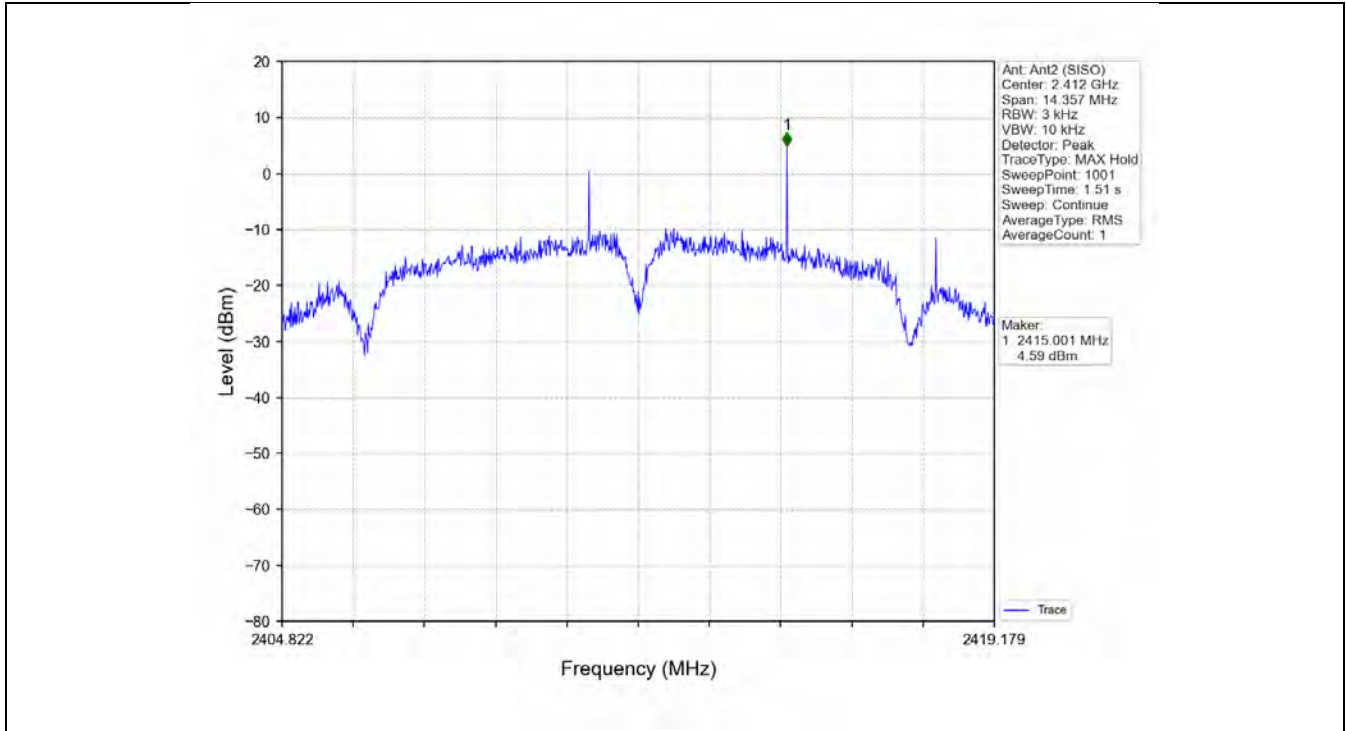
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)	Verdict
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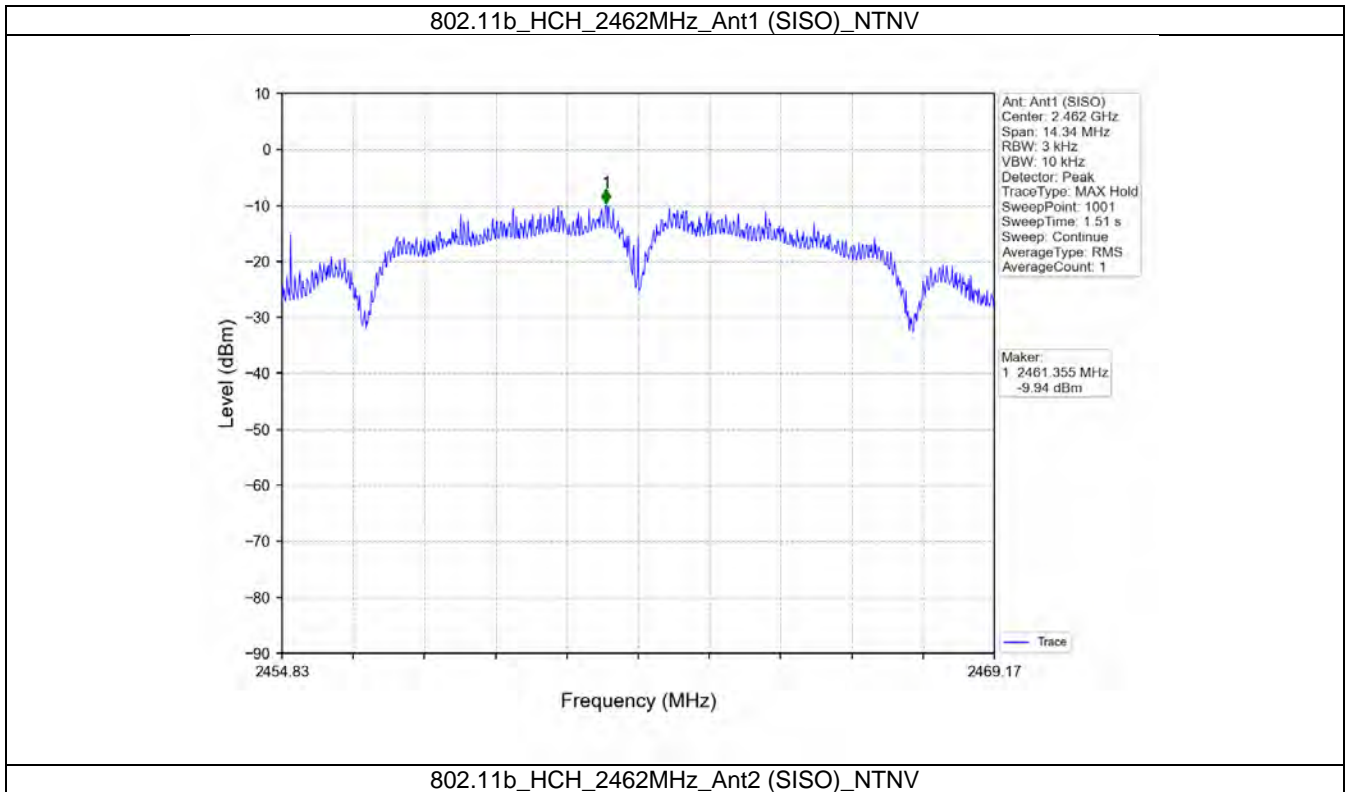
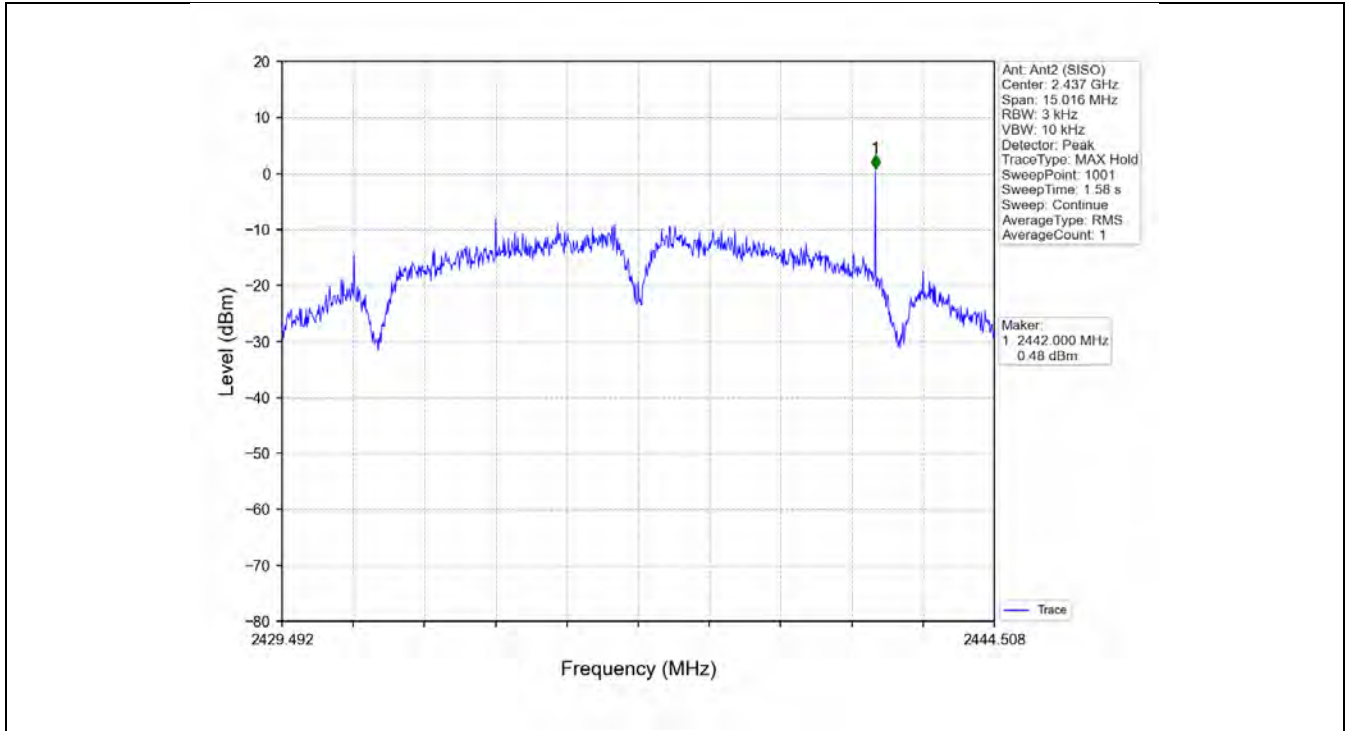
			Ant1	Ant2	Sum	Limit	
802.11b	SISO	2412	-1.64	4.59	/	<=8	Pass
		2437	-0.30	0.48	/	<=8	Pass
		2462	-9.94	2.28	/	<=8	Pass
802.11g	SISO	2412	-16.26	-15.79	/	<=8	Pass
		2437	-16.15	-16.09	/	<=8	Pass
		2462	-16.97	-16.75	/	<=8	Pass
802.11n (HT20)	MIMO	2412	-17.19	-17.94	-15.01	<=8	Pass
		2437	-18.04	-17.53	-15.08	<=8	Pass
		2462	-18.43	-18.20	-15.84	<=8	Pass

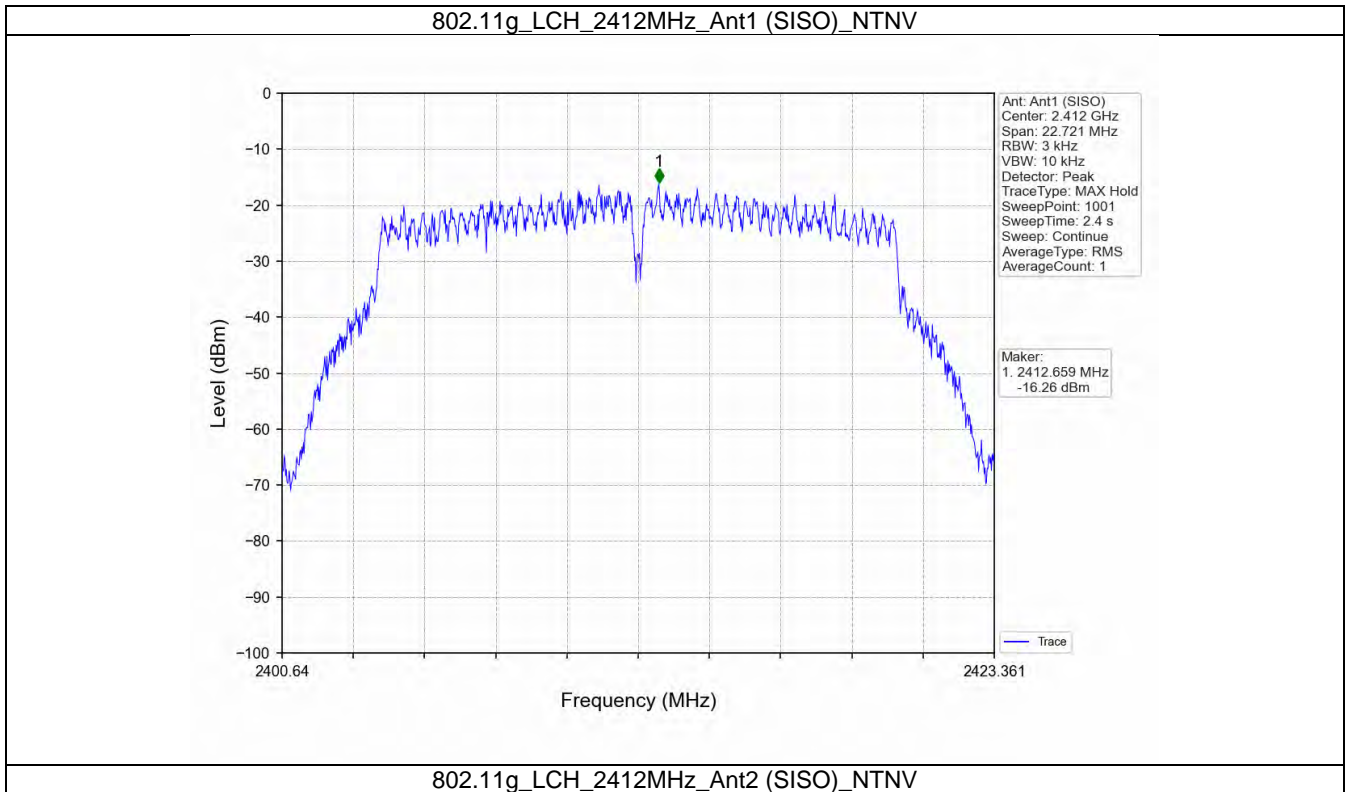
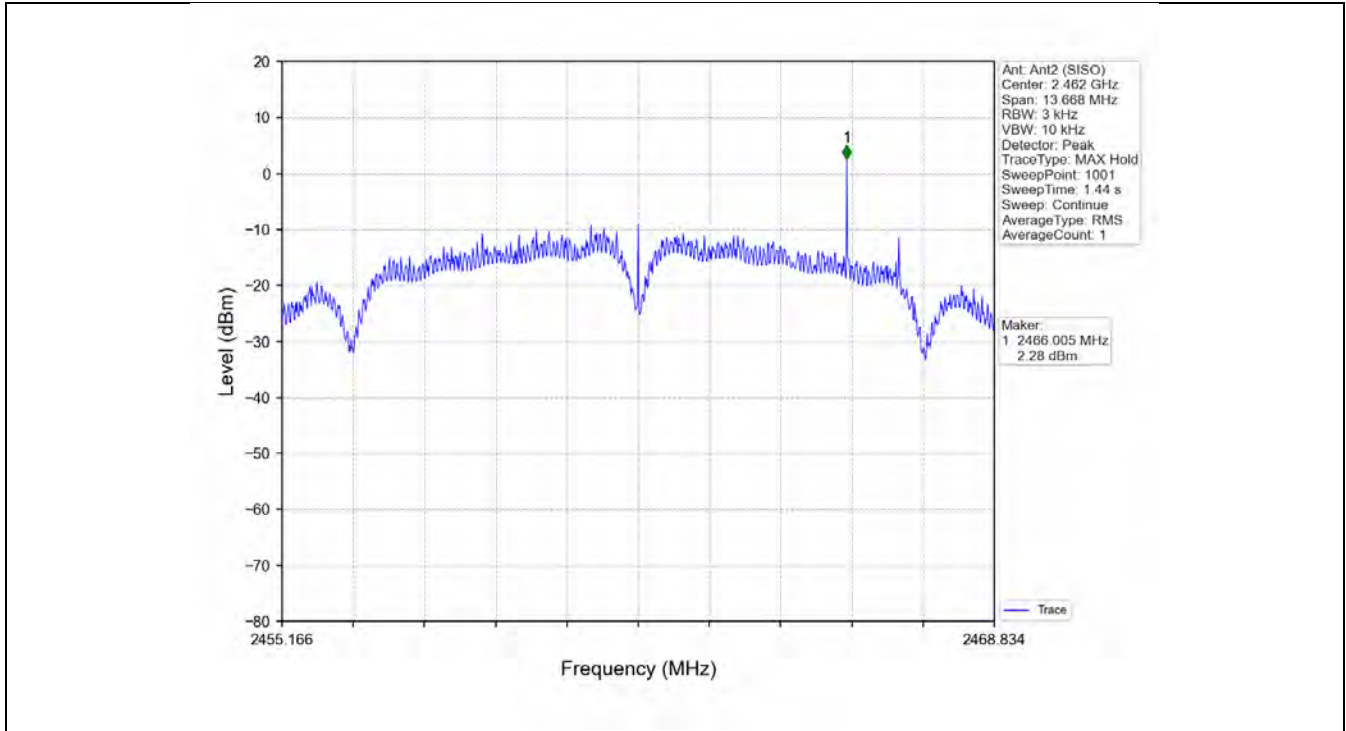
Note1: Antenna Gain: Ant1: 2.30dBi; Ant2: 2.30dBi;

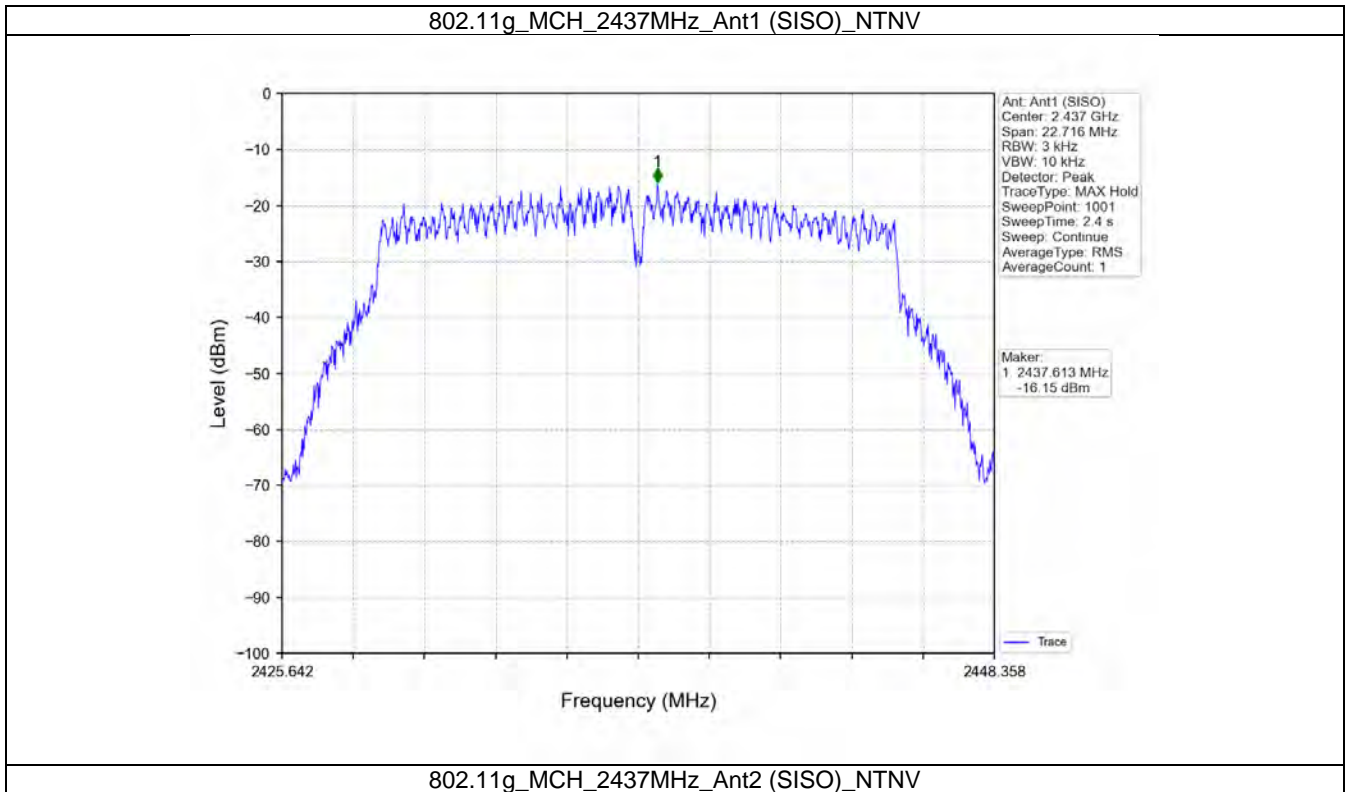
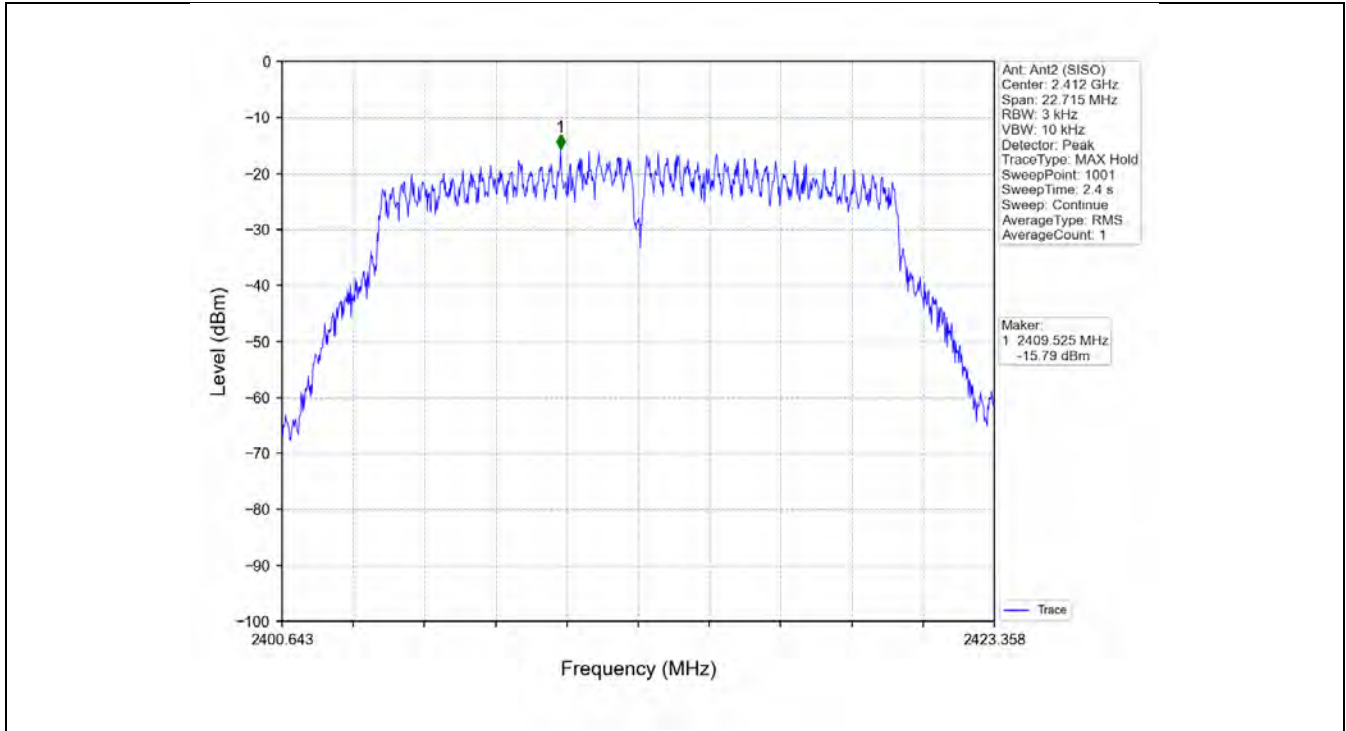
4.1.2 Test Graph

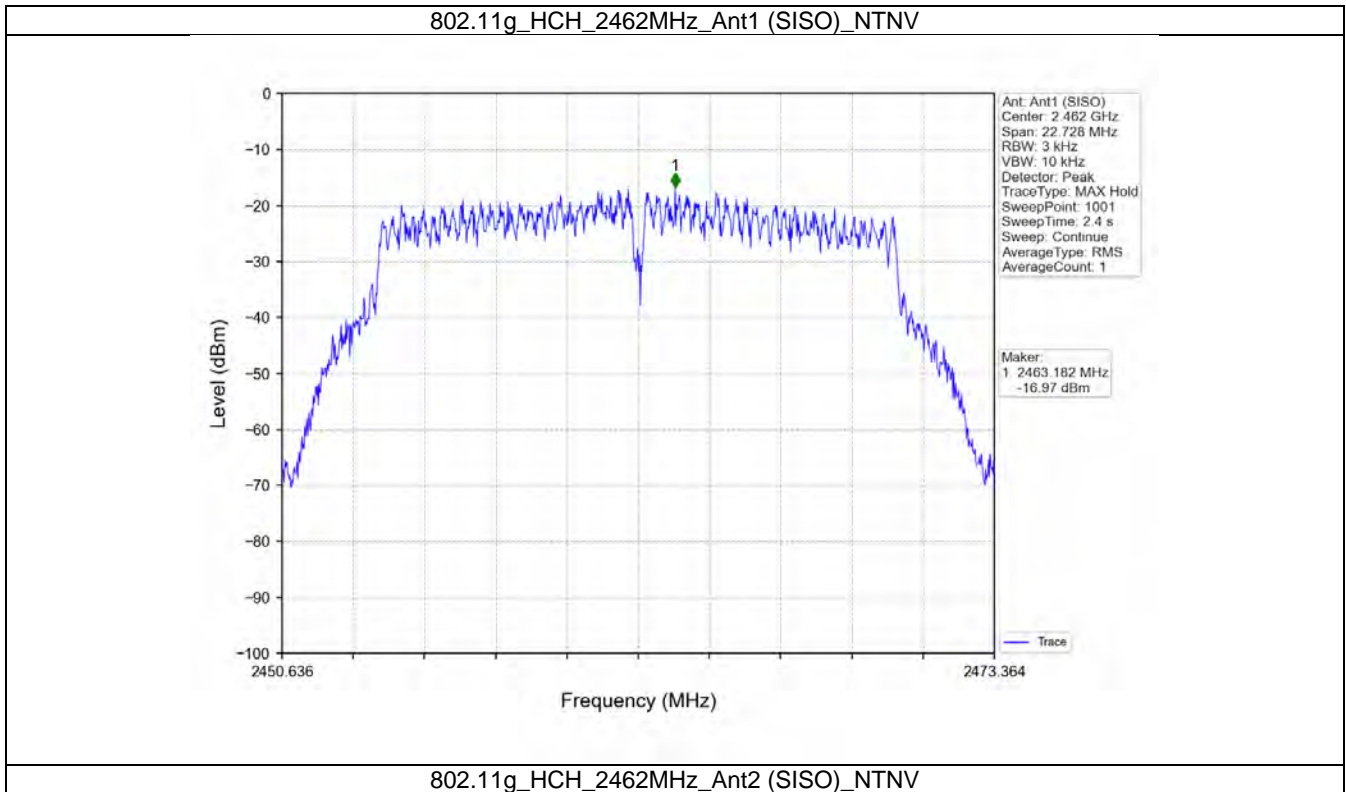
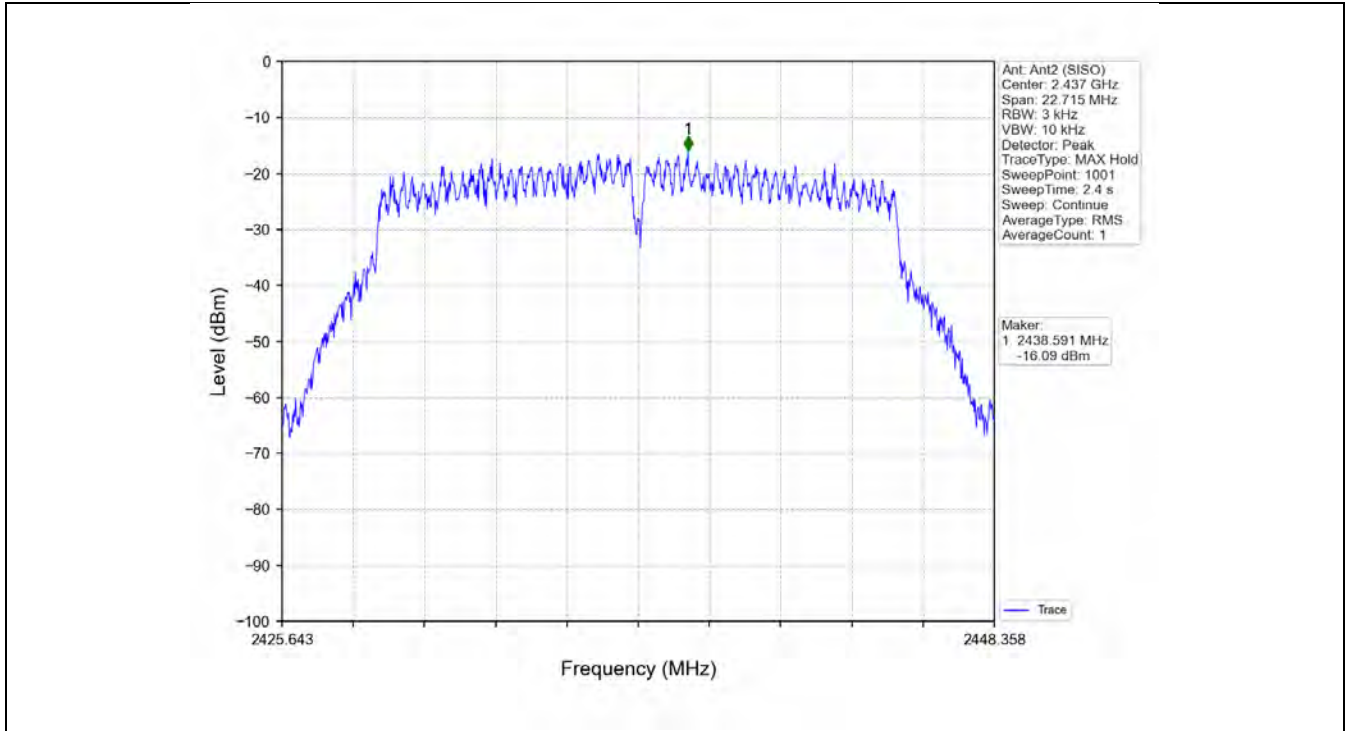


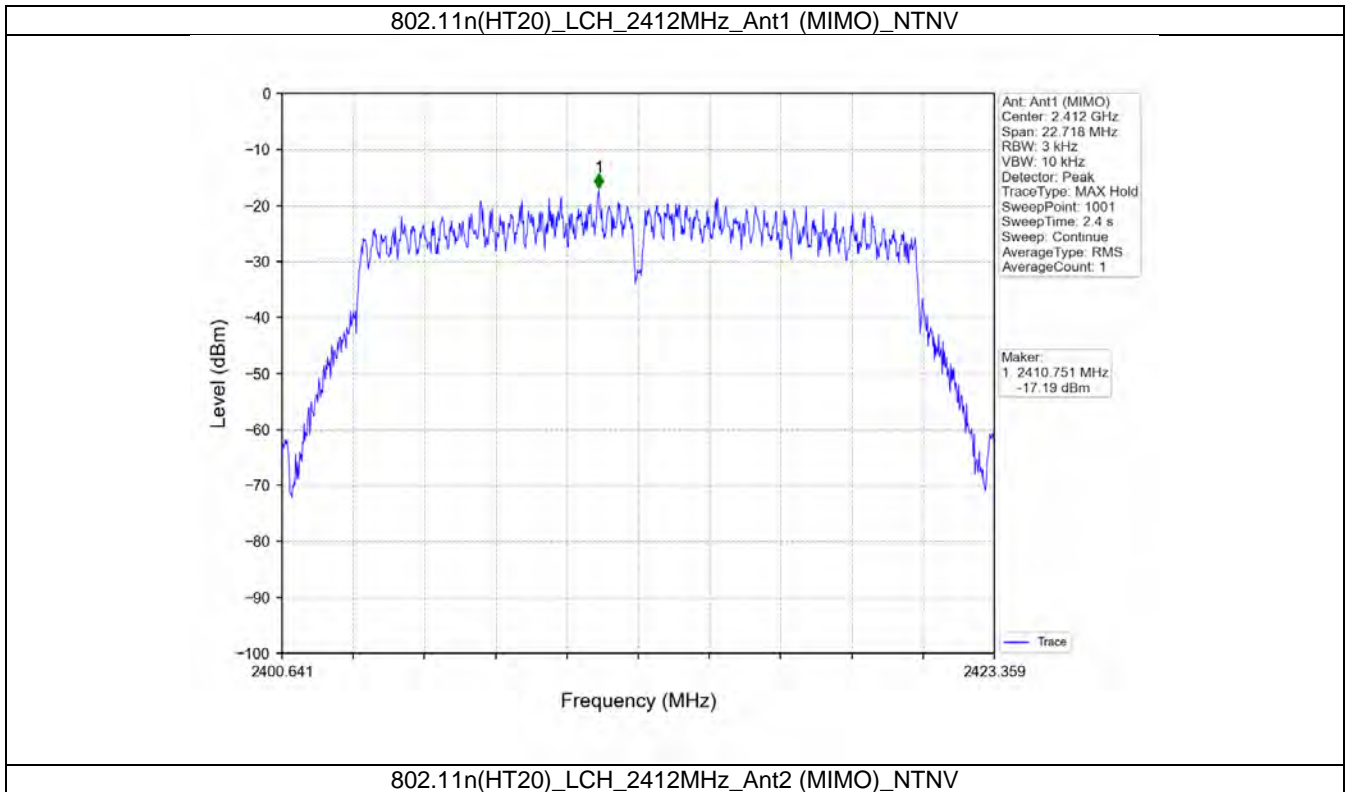
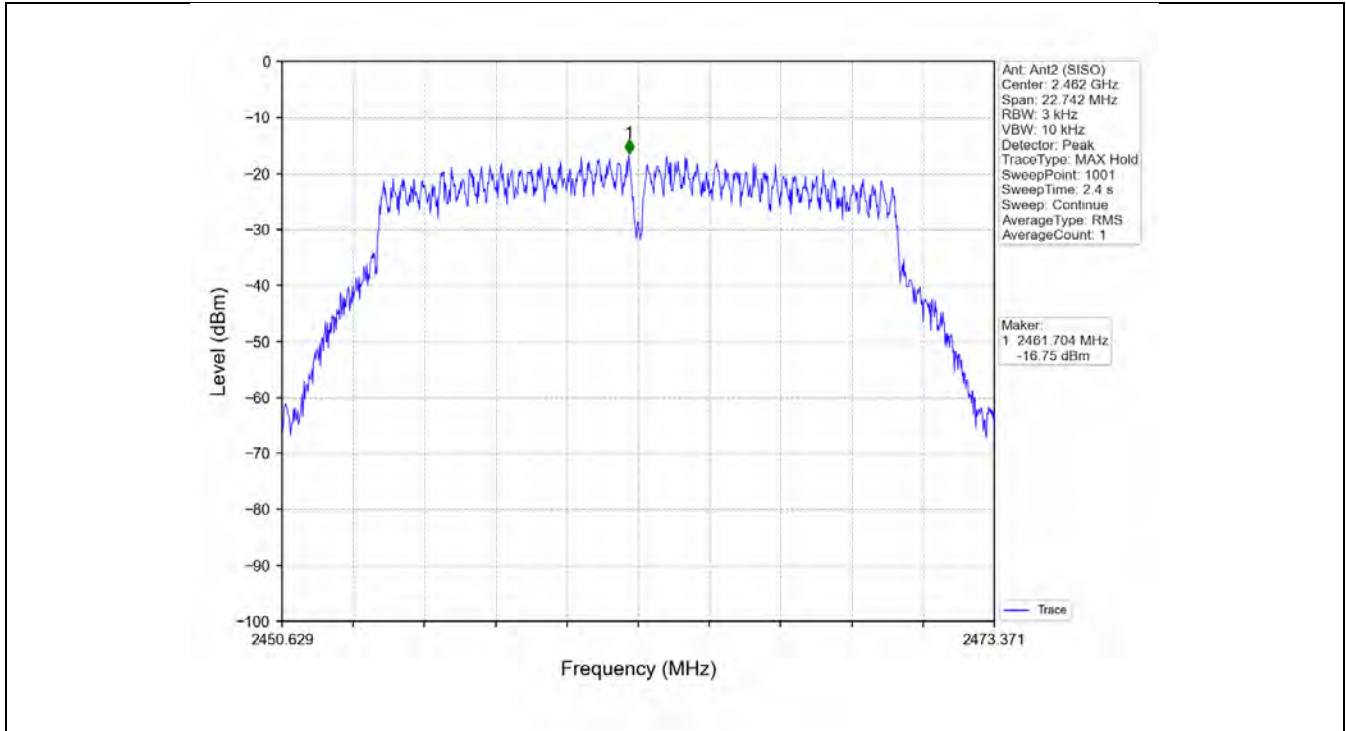


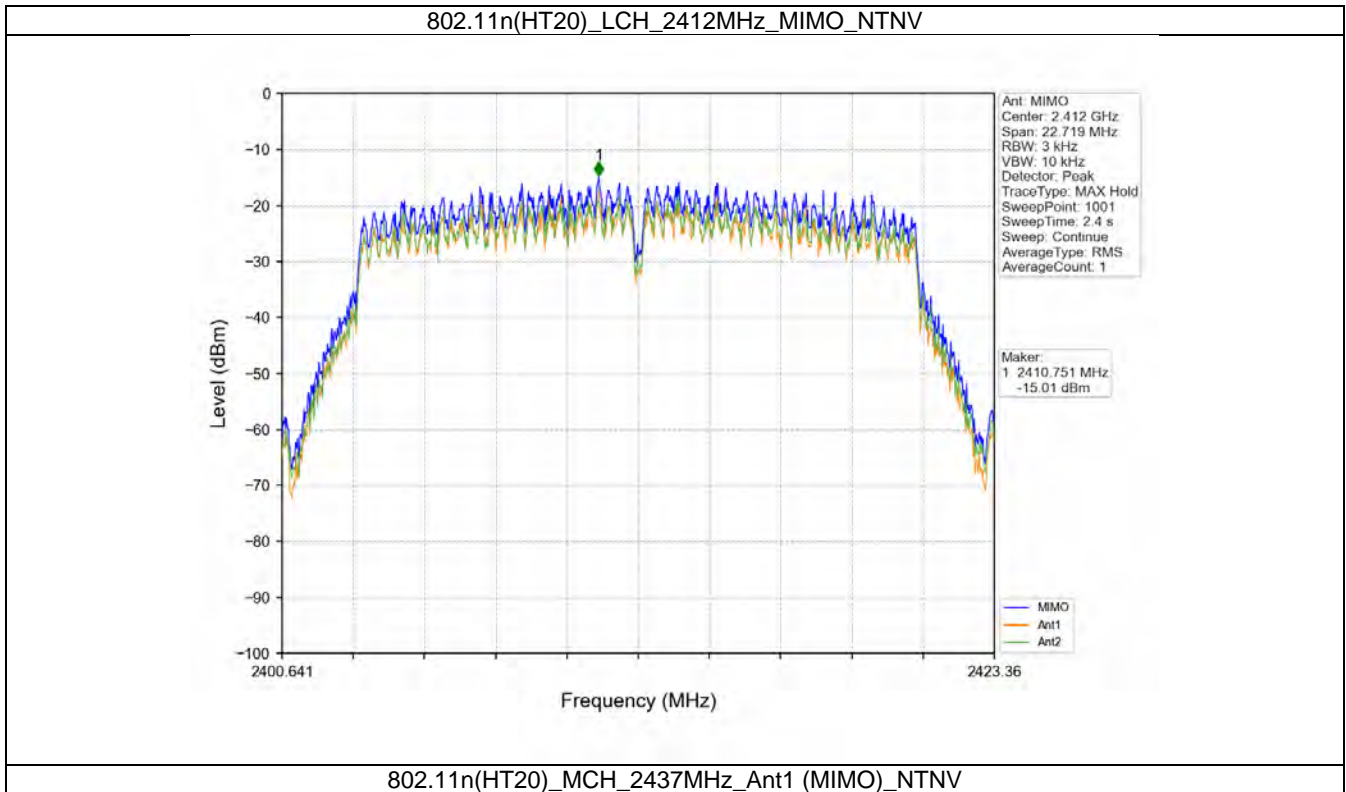
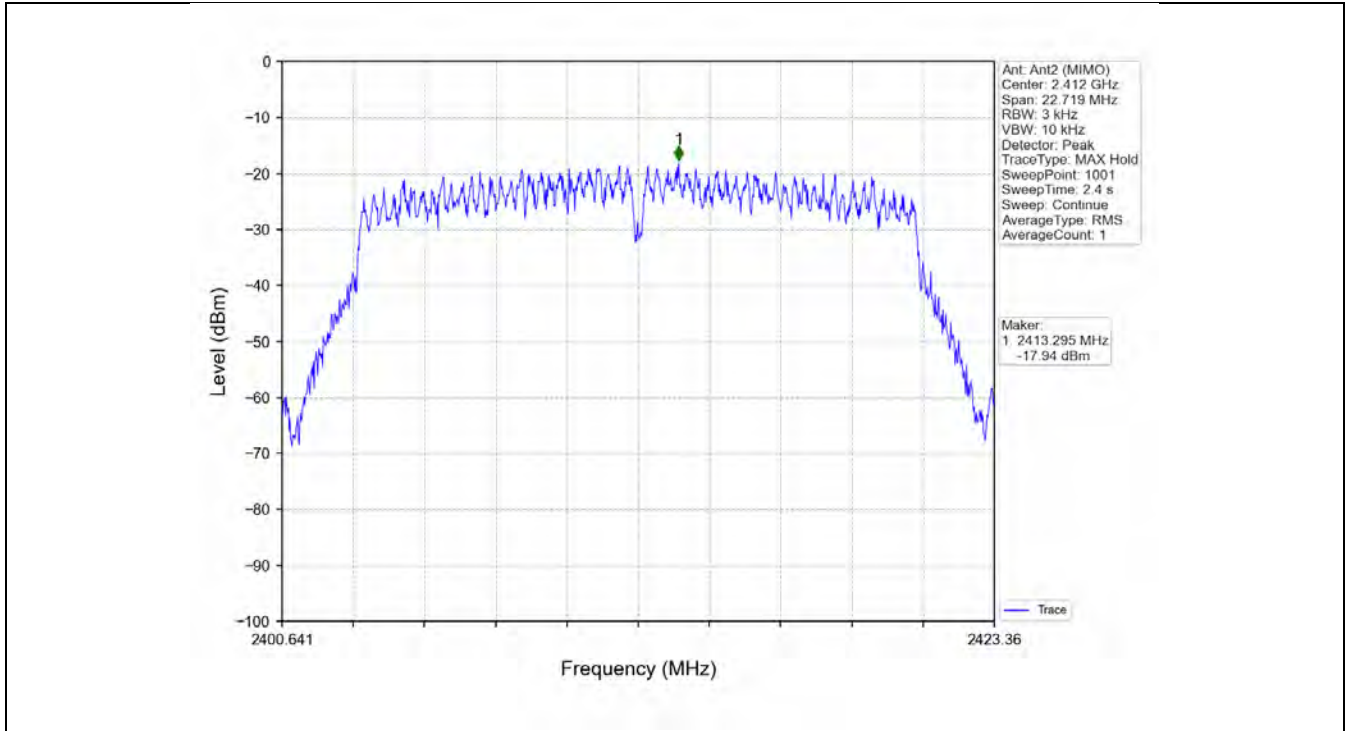


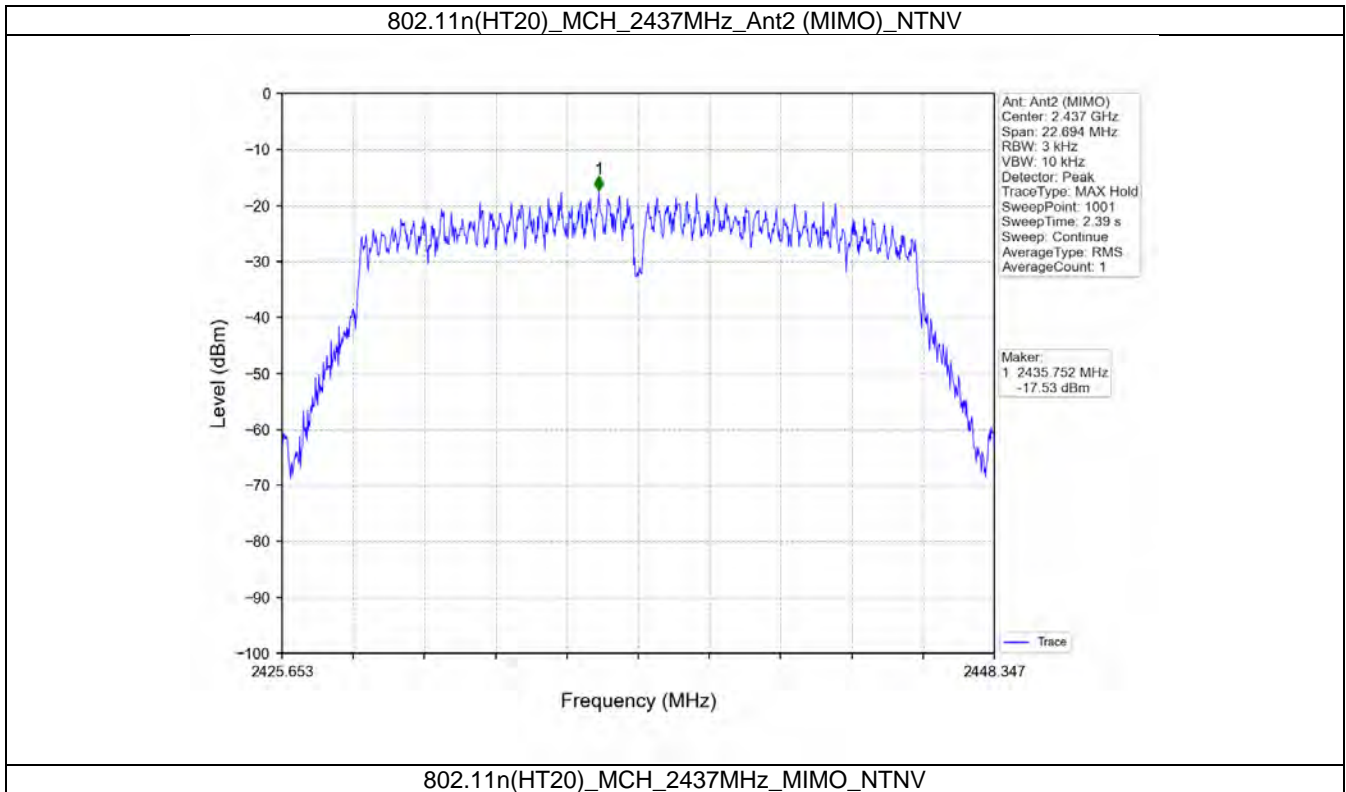
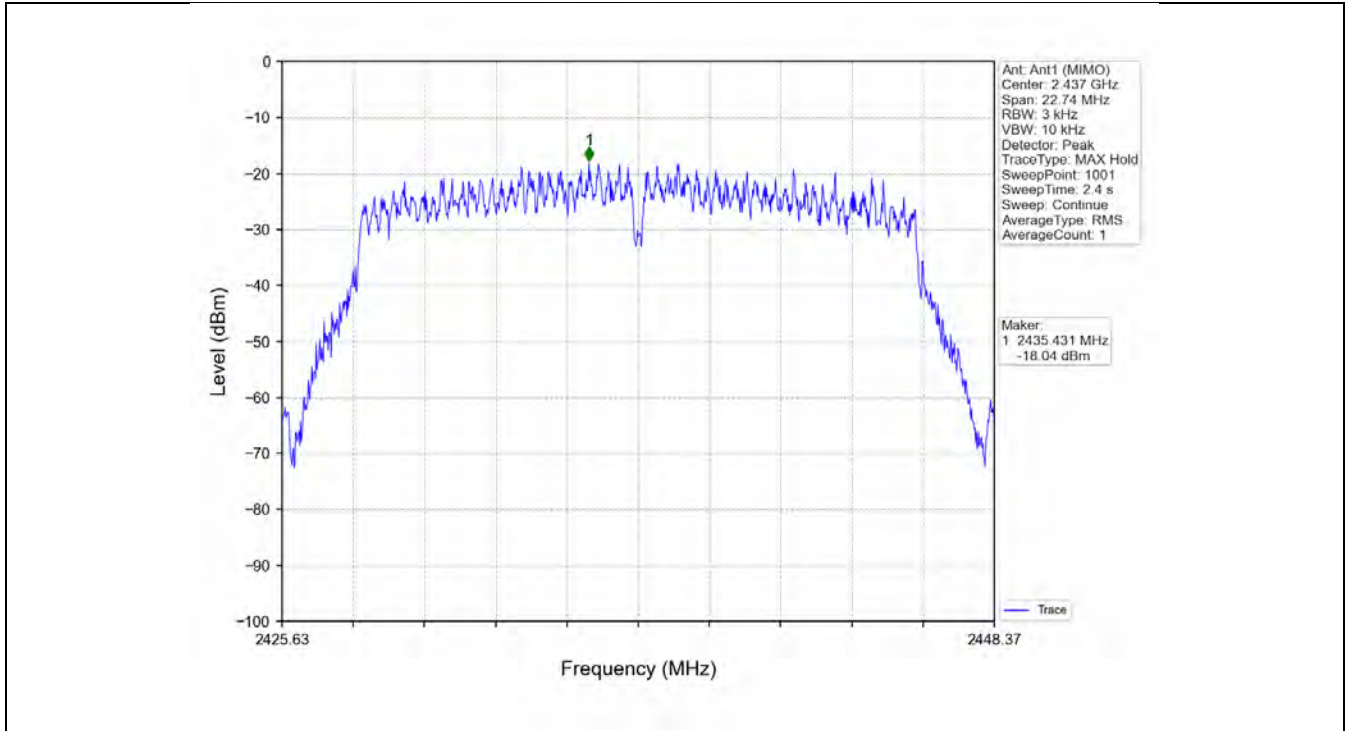


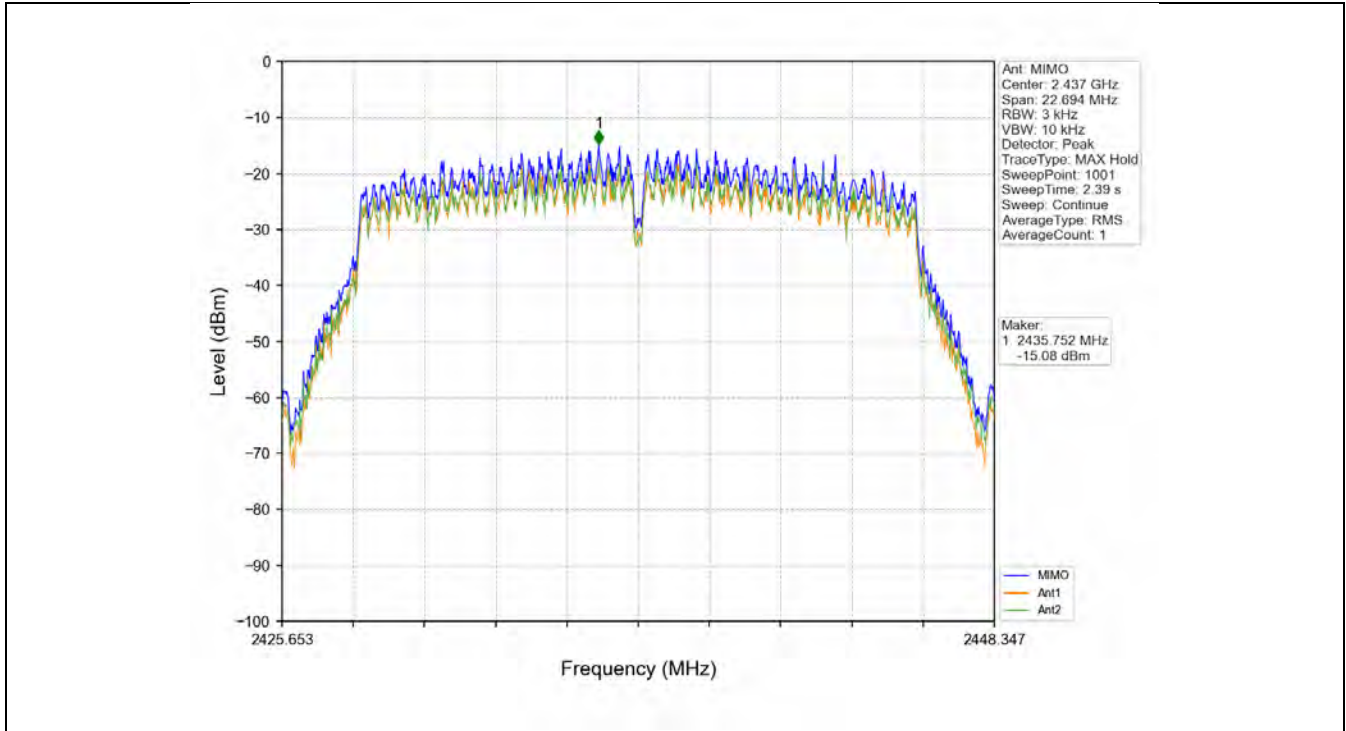




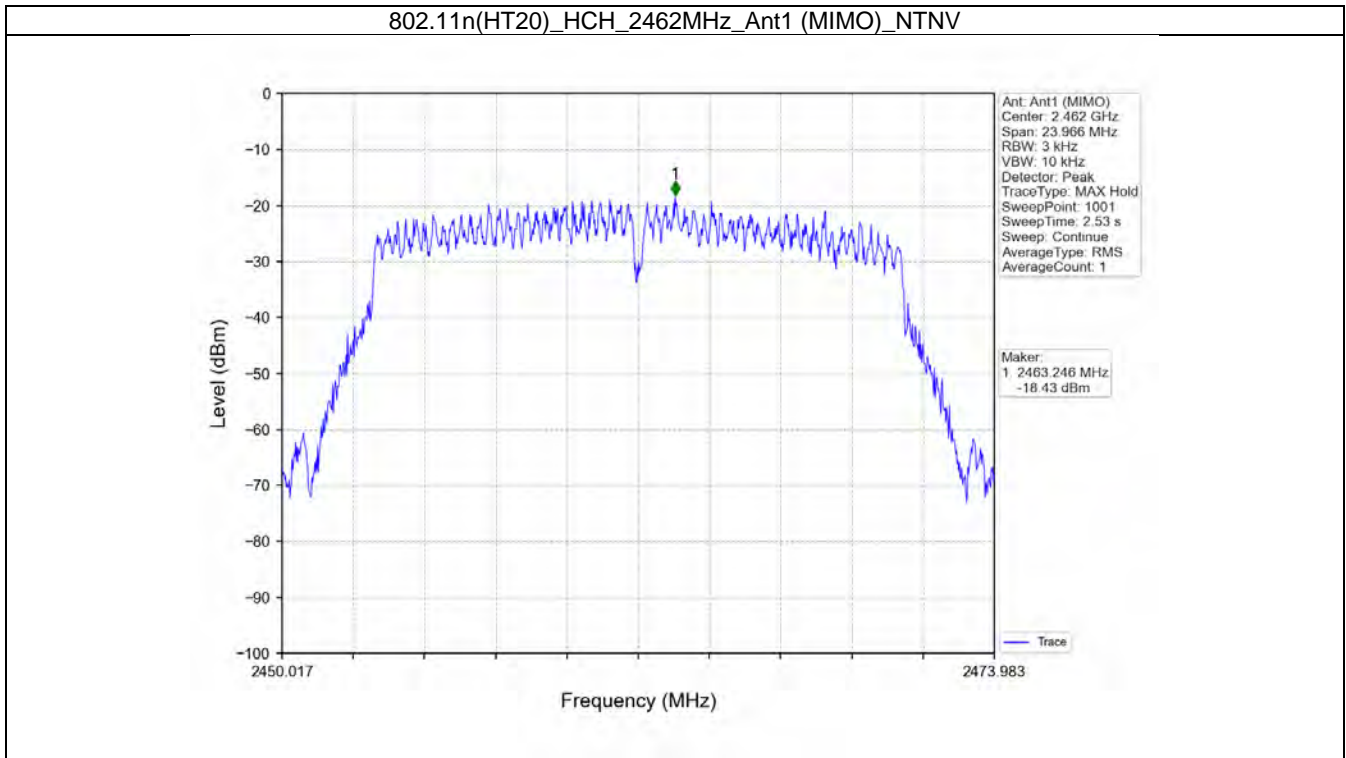




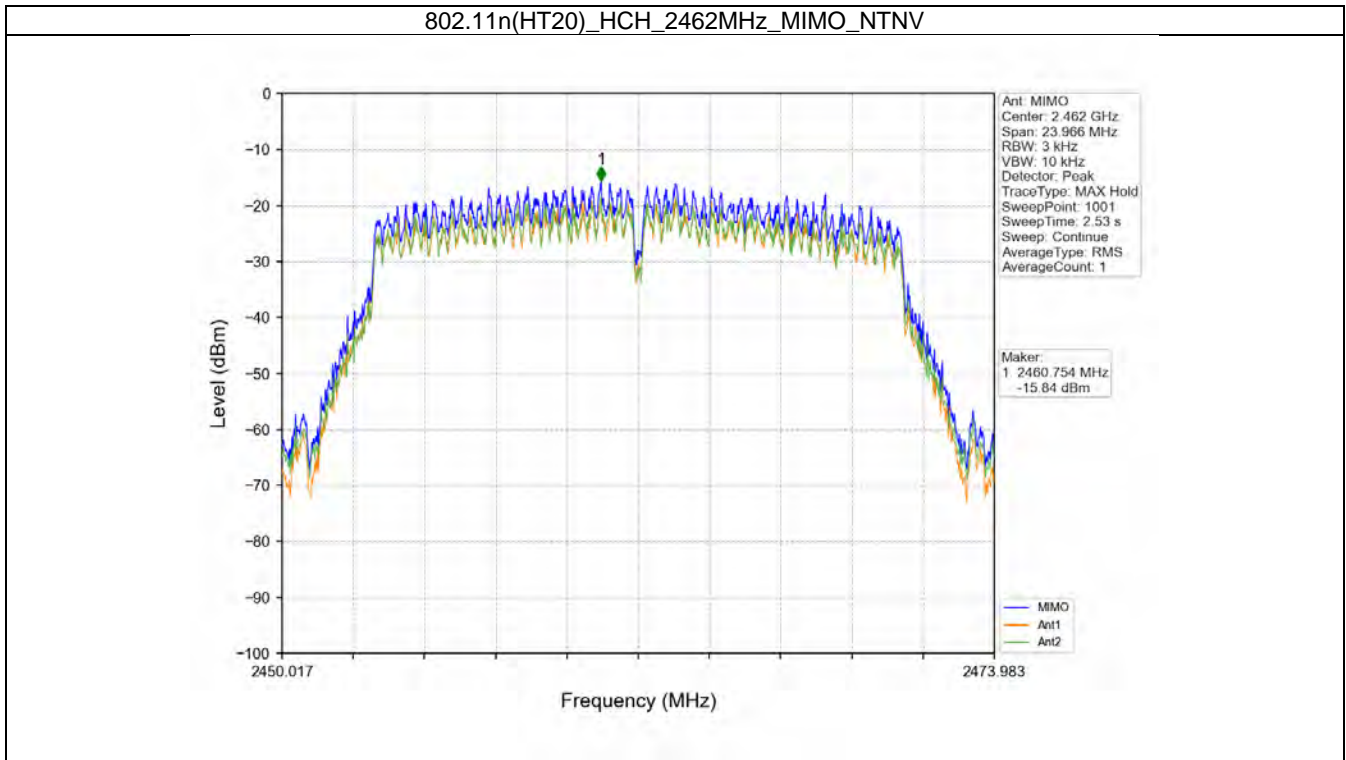
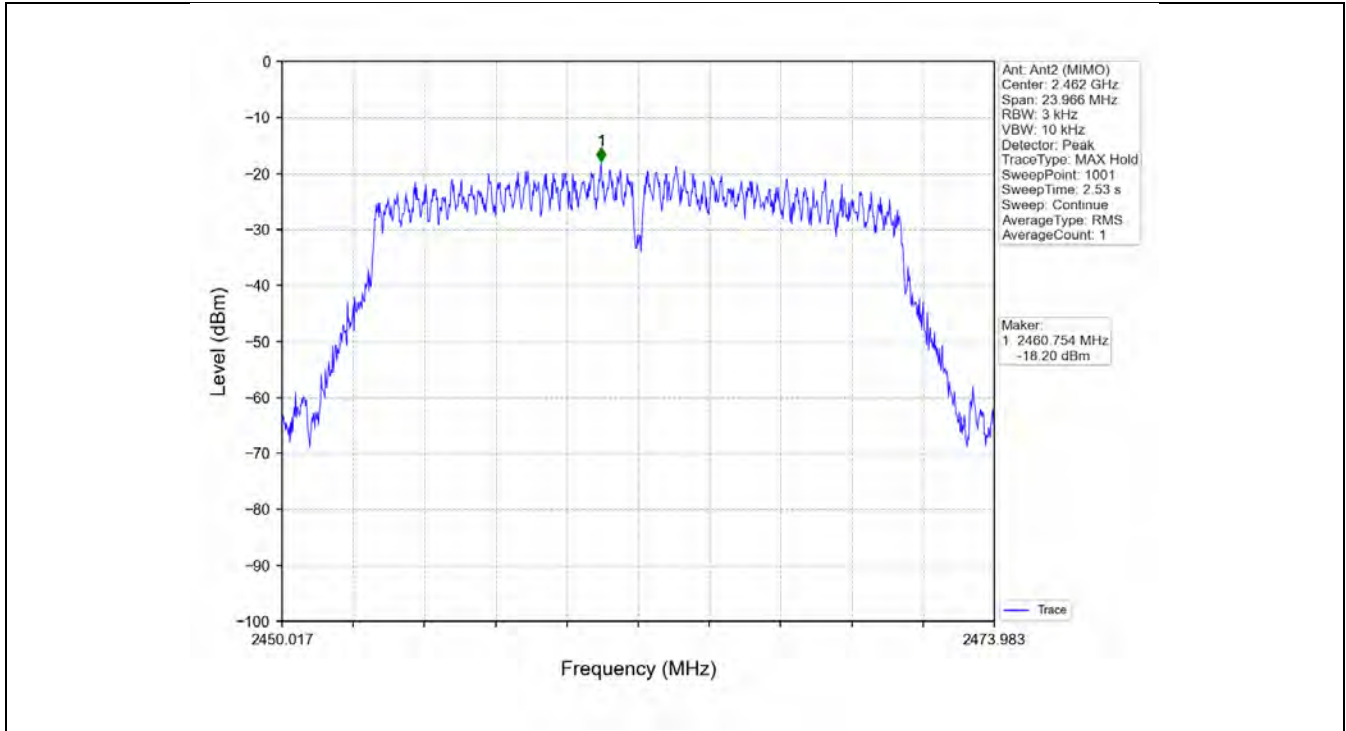




802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV



802.11n(HT20)_HCH_2462MHz_Ant2 (MIMO)_NTNV



5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Ref

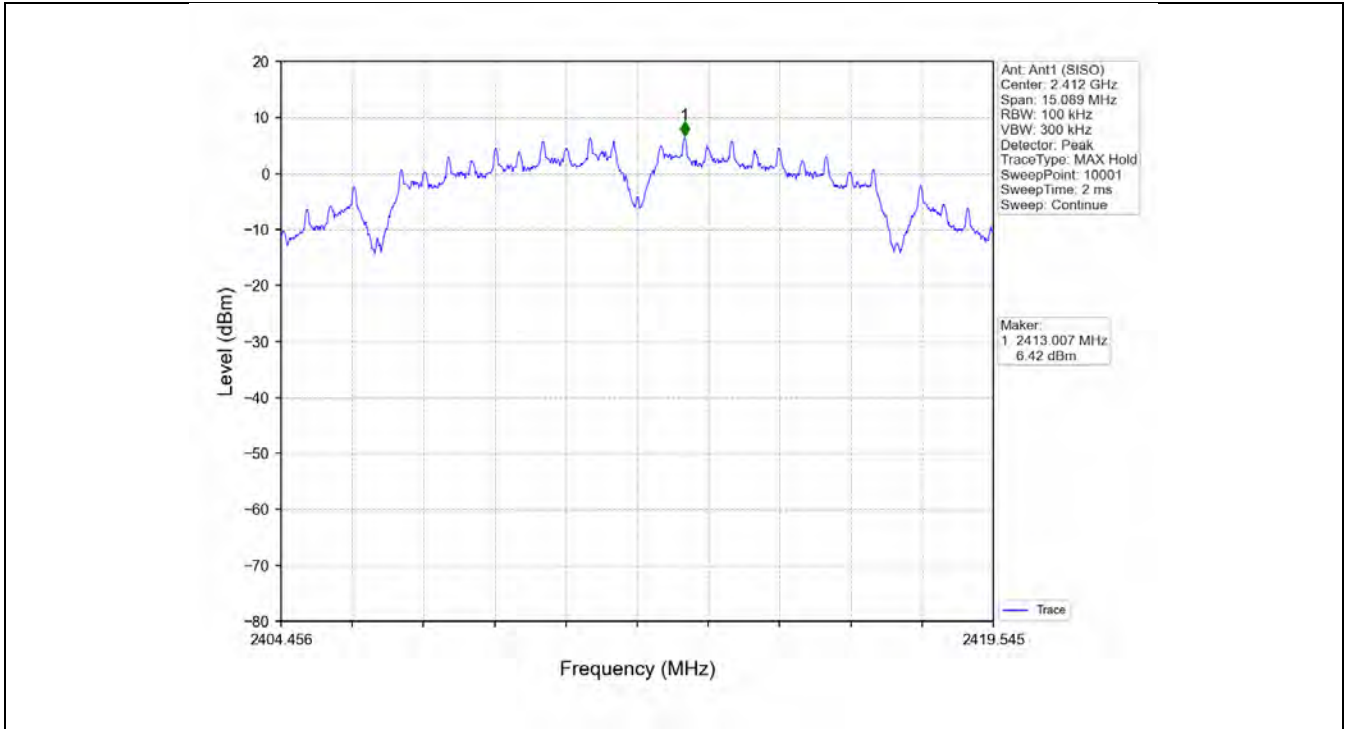
5.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Ant	Level of Reference (dBm)
802.11b	SISO	2412	1	6.42
			2	6.35
		2437	1	6.65
			2	6.46
		2462	1	6.22
			2	6.06
802.11g	SISO	2412	1	-0.17
			2	-0.02
		2437	1	-0.34
			2	-0.19
		2462	1	-0.58
			2	-0.59
802.11n (HT20)	MIMO	2412	1	-1.88
			2	-1.43
		2437	1	-1.99
			2	-1.60
		2462	1	-2.32
			2	-2.09

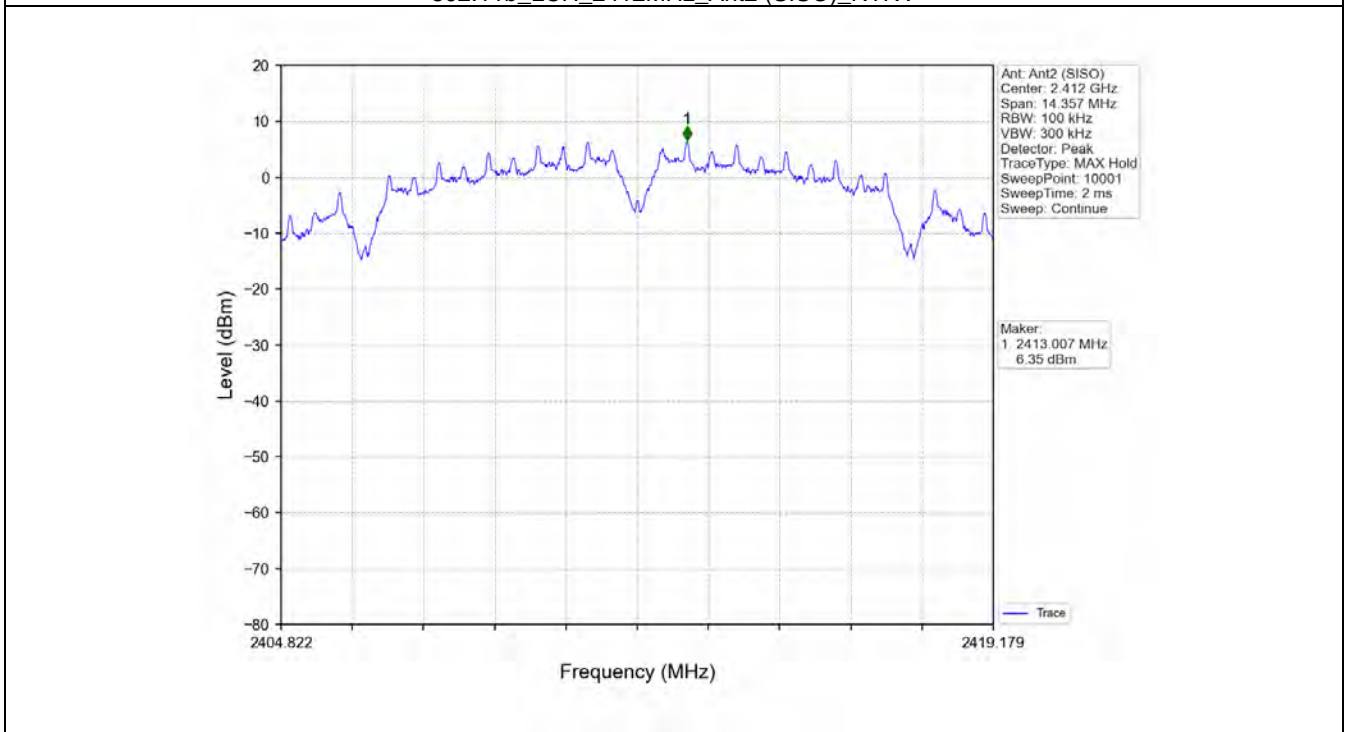
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

5.1.2 Test Graph

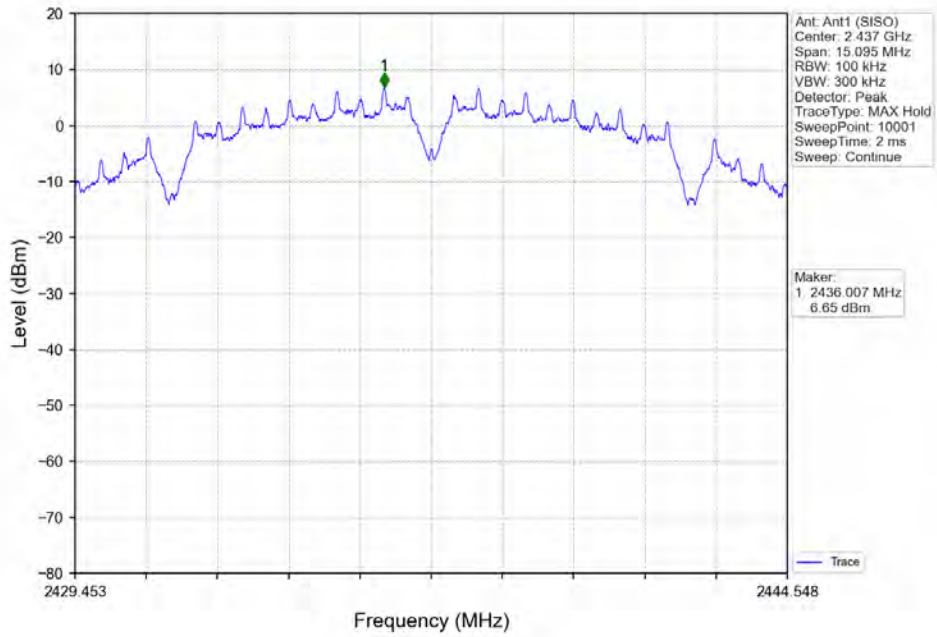
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



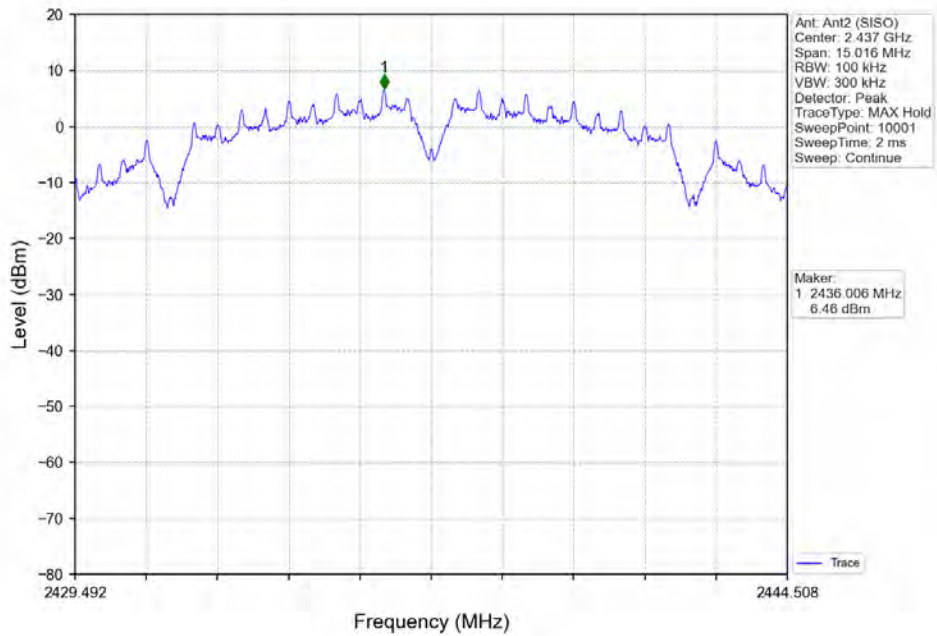
802.11b_LCH_2412MHz_Ant2 (SISO)_NTNV



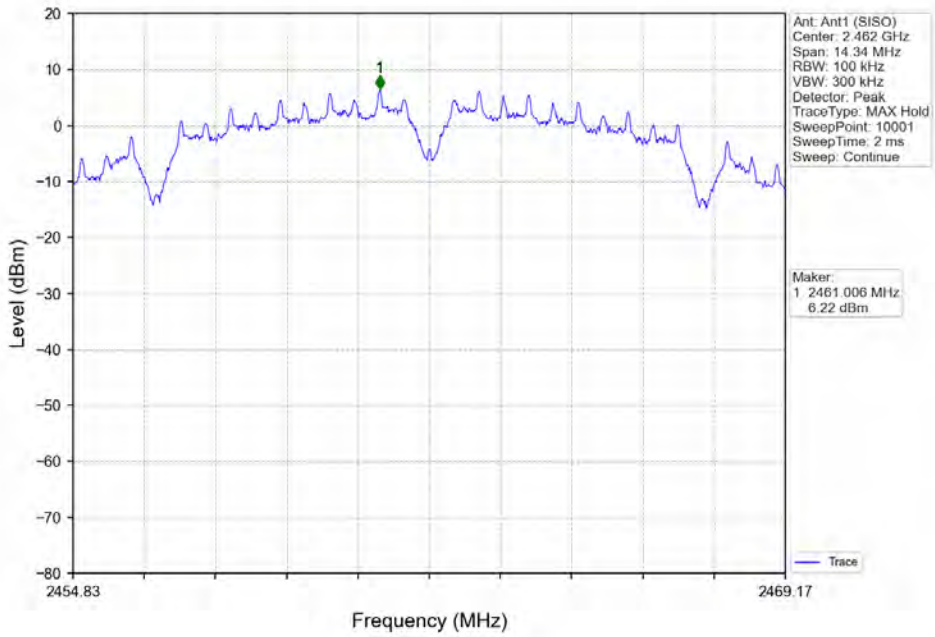
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



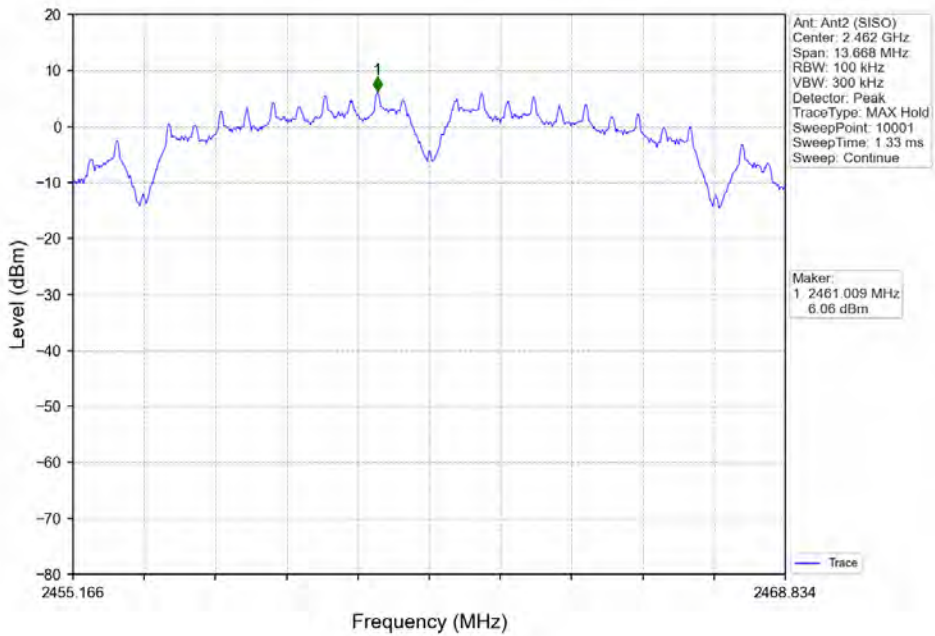
802.11b_MCH_2437MHz_Ant2 (SISO)_NTNV



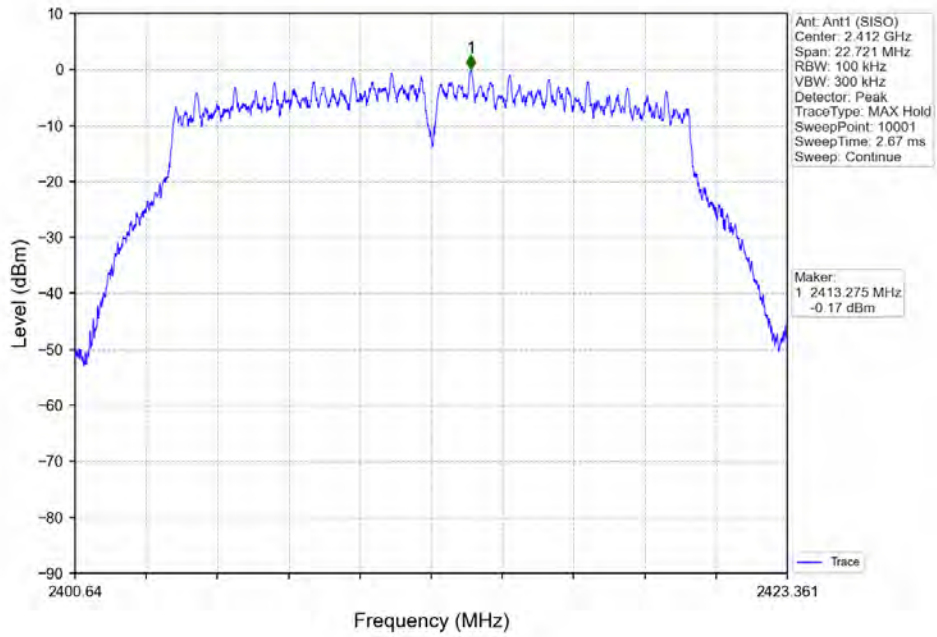
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



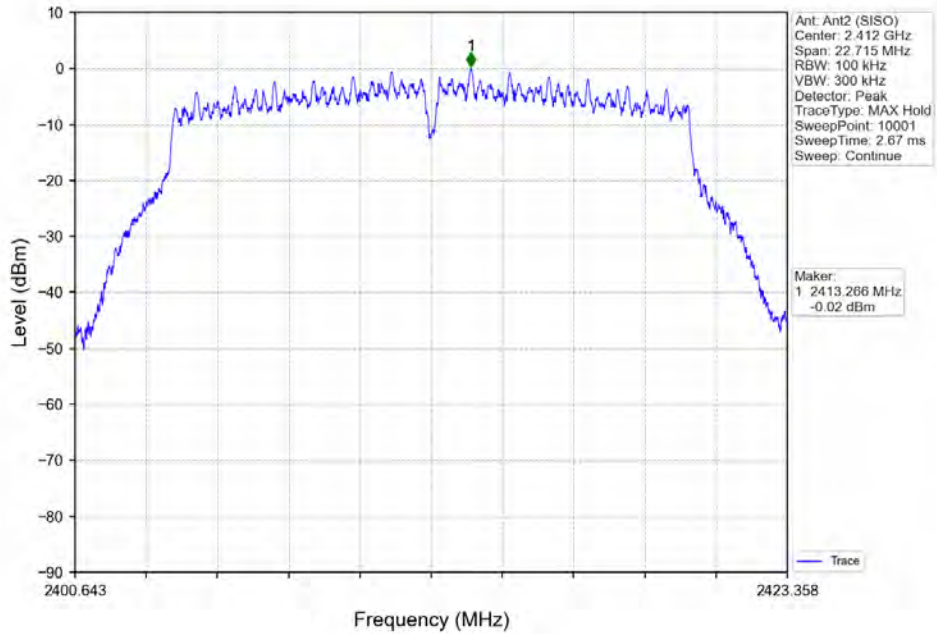
802.11b_HCH_2462MHz_Ant2 (SISO)_NTNV



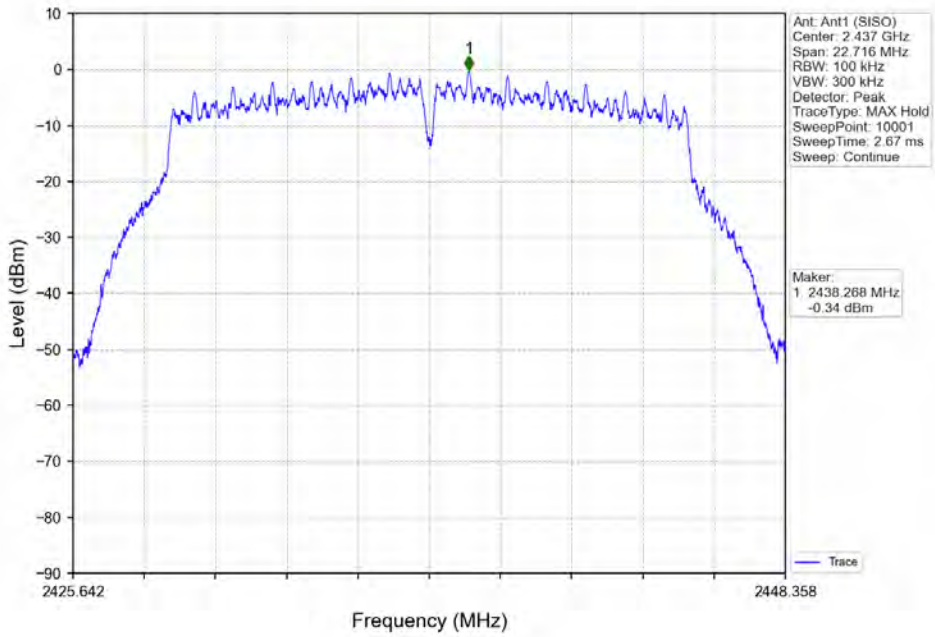
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



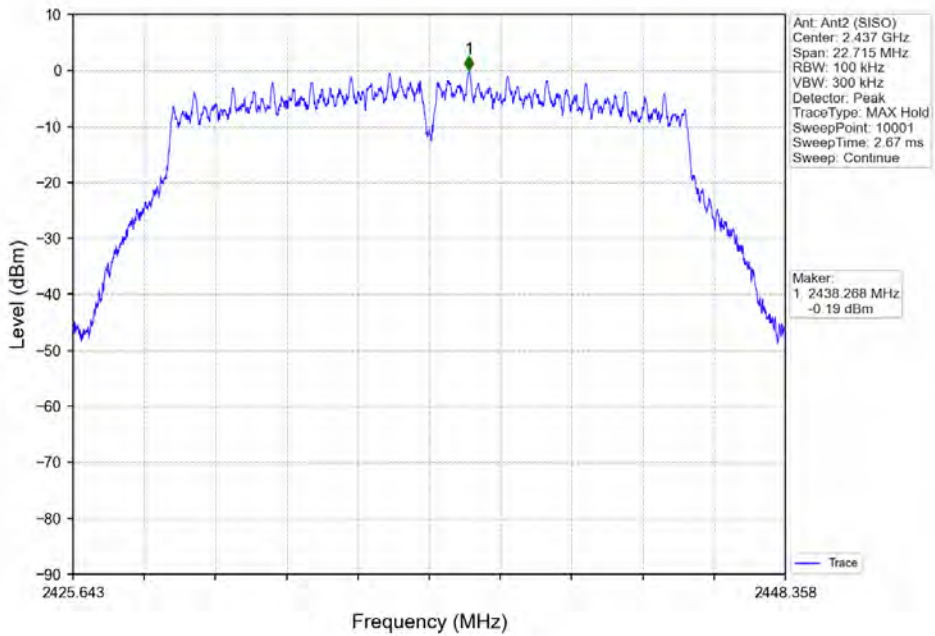
802.11g_LCH_2412MHz_Ant2 (SISO)_NTNV



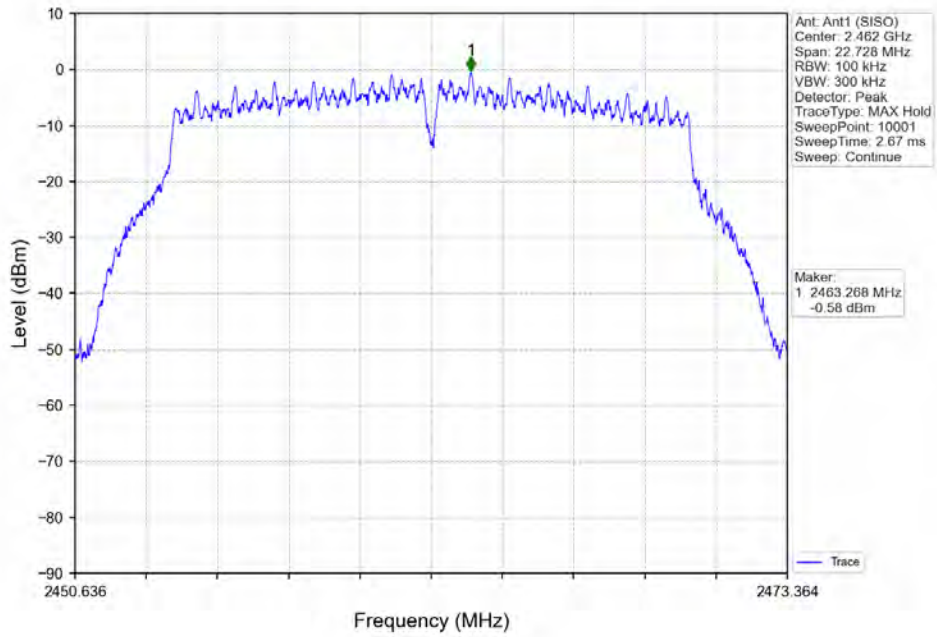
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



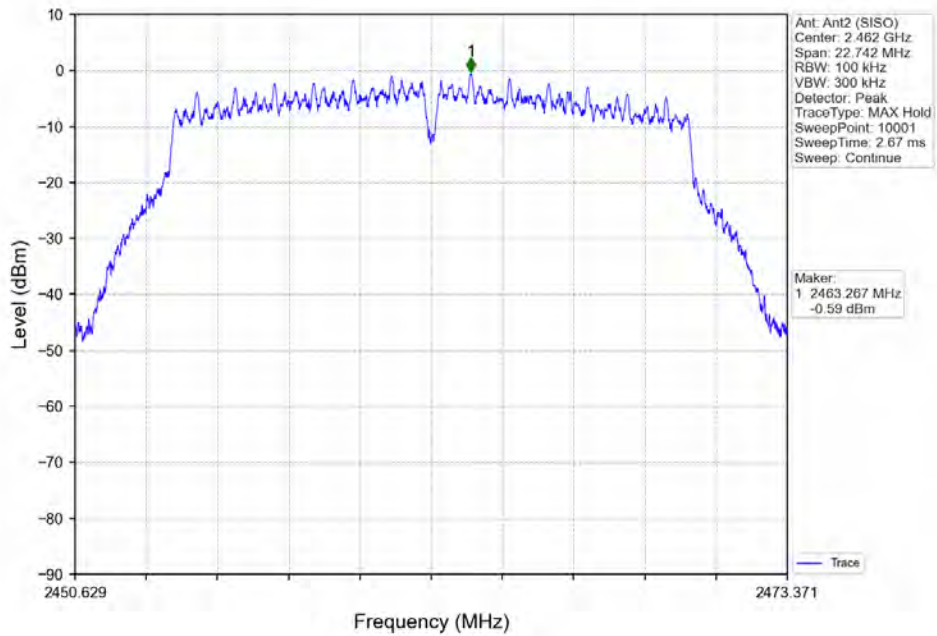
802.11g_MCH_2437MHz_Ant2 (SISO)_NTNV



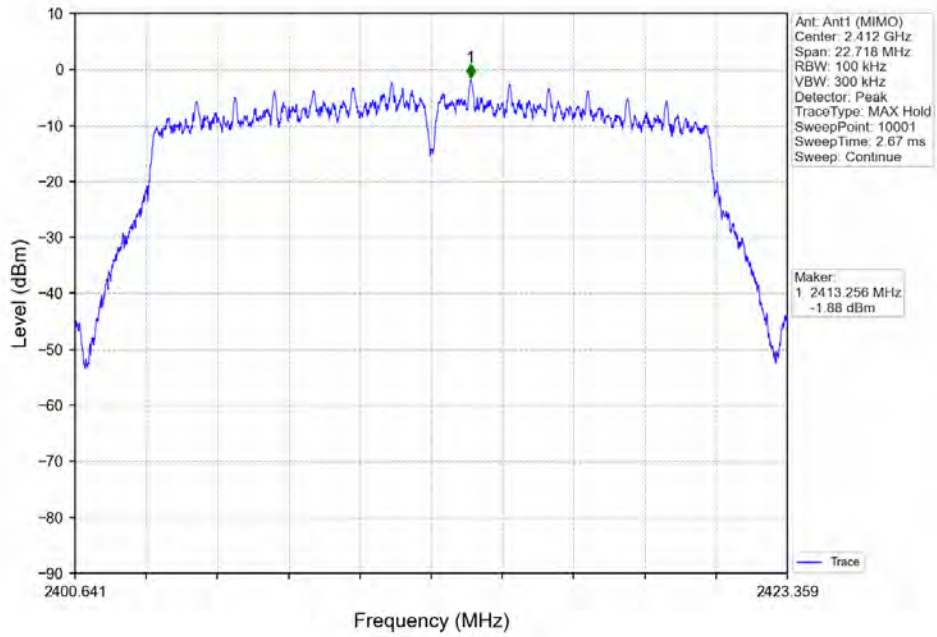
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



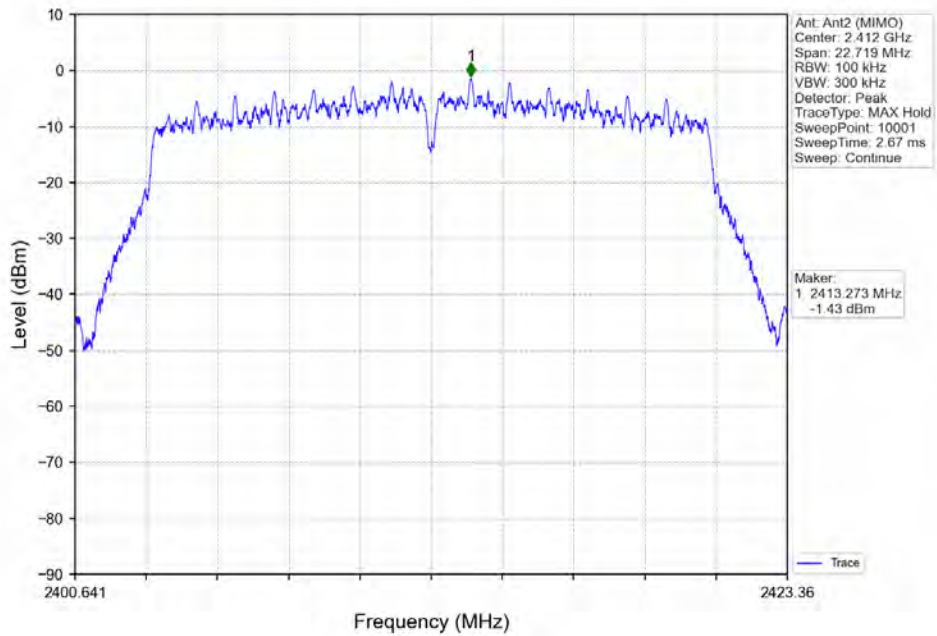
802.11g_HCH_2462MHz_Ant2 (SISO)_NTNV



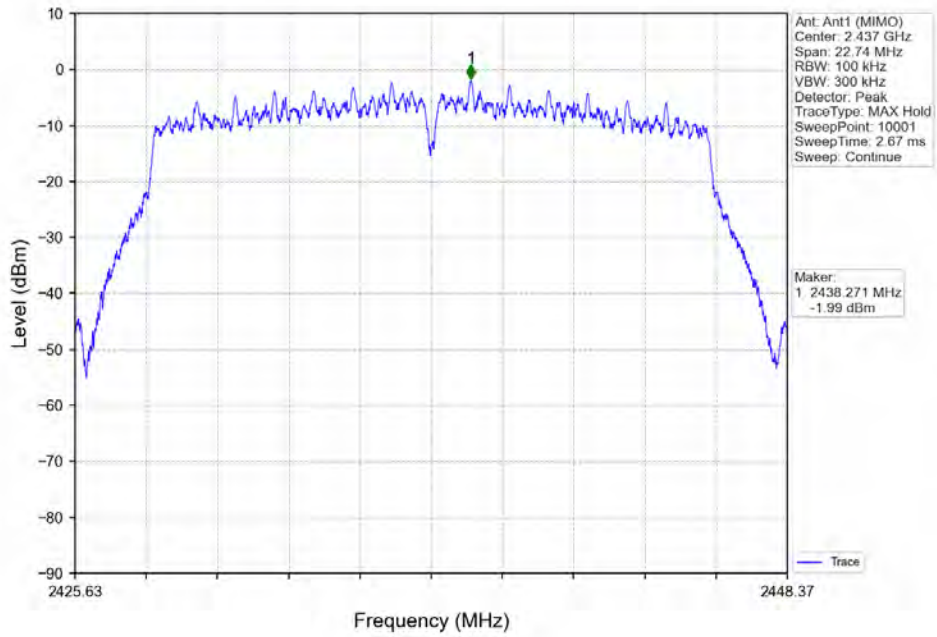
802.11n(HT20)_LCH_2412MHz_Ant1 (MIMO)_NTNV



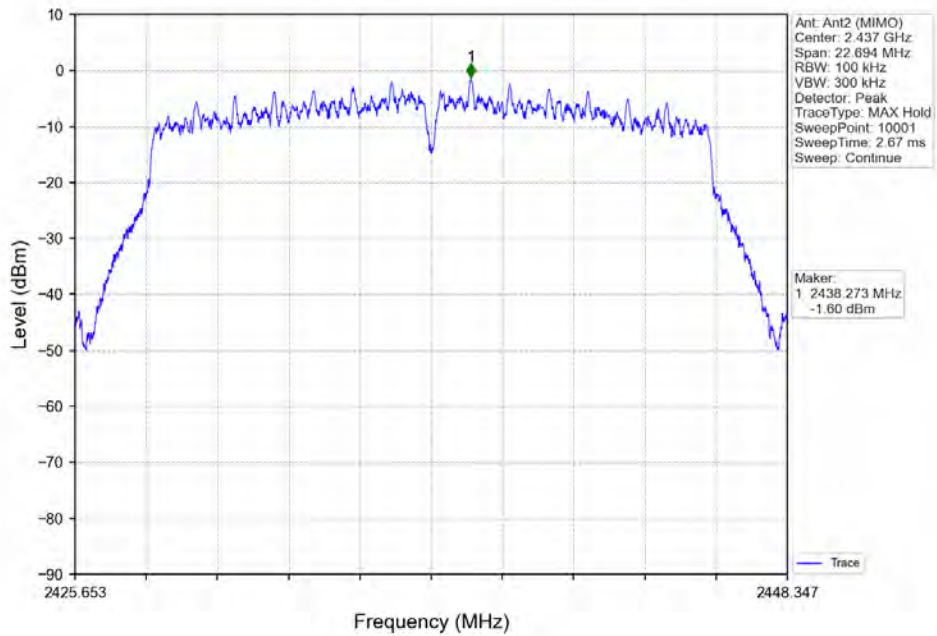
802.11n(HT20)_LCH_2412MHz_Ant2 (MIMO)_NTNV



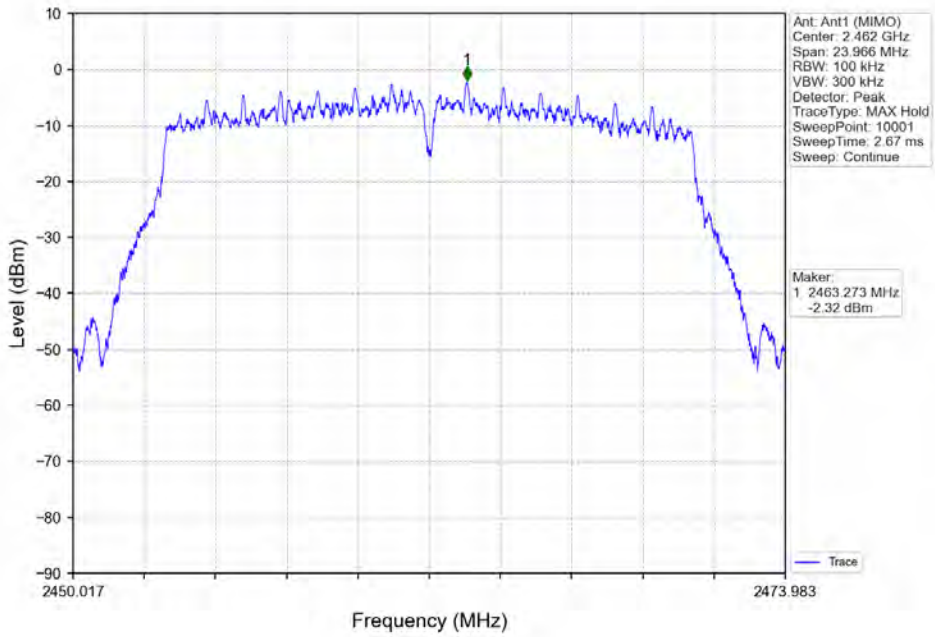
802.11n(HT20)_MCH_2437MHz_Ant1 (MIMO)_NTNV



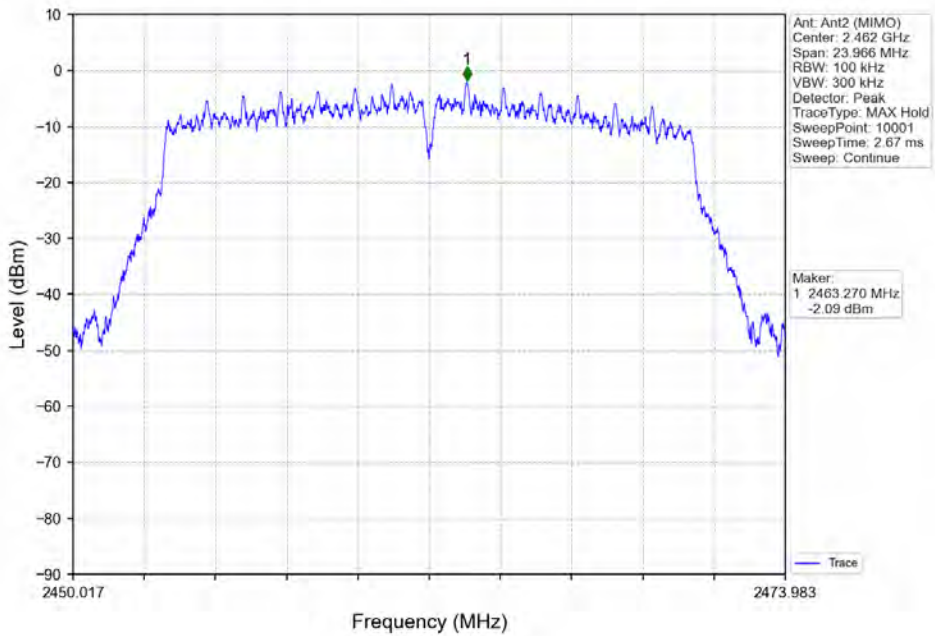
802.11n(HT20)_MCH_2437MHz_Ant2 (MIMO)_NTNV



802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV



802.11n(HT20)_HCH_2462MHz_Ant2 (MIMO)_NTNV



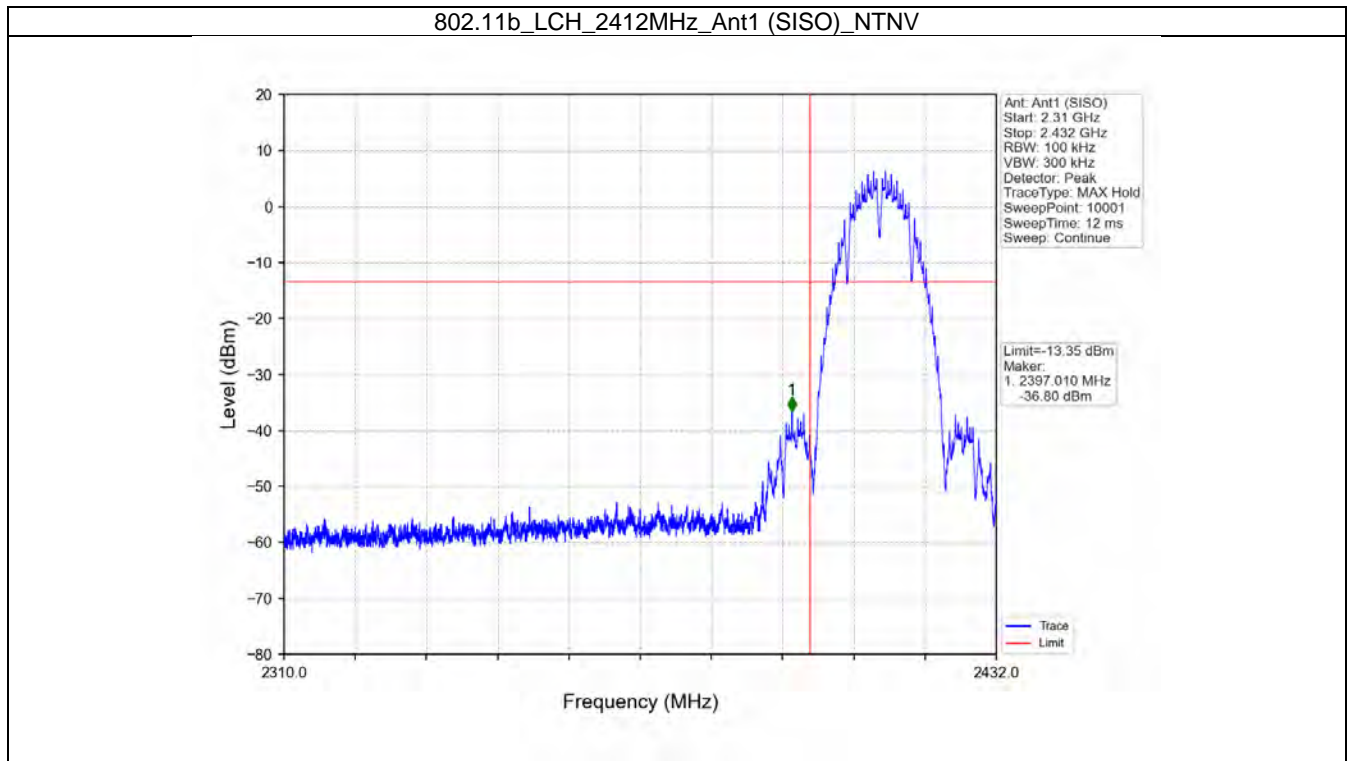
5.2 CSE

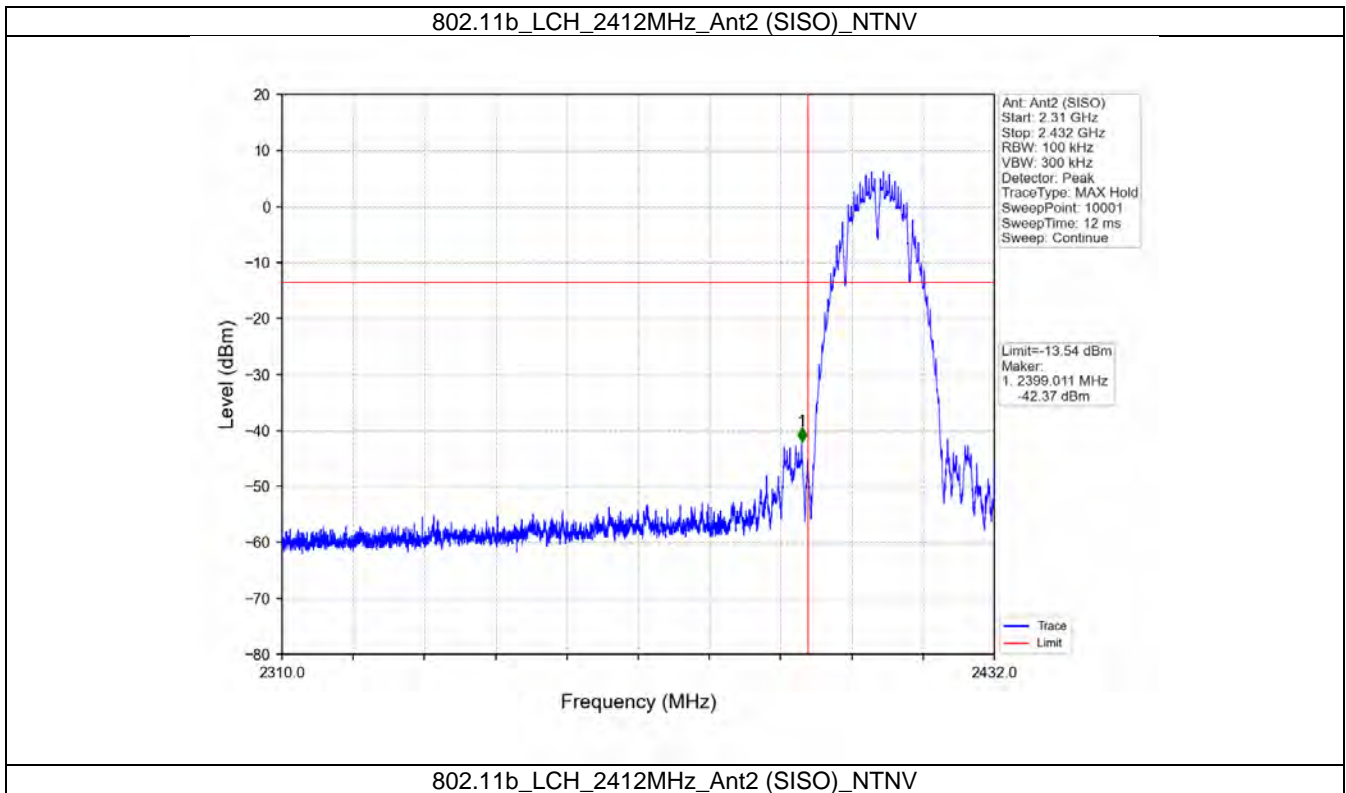
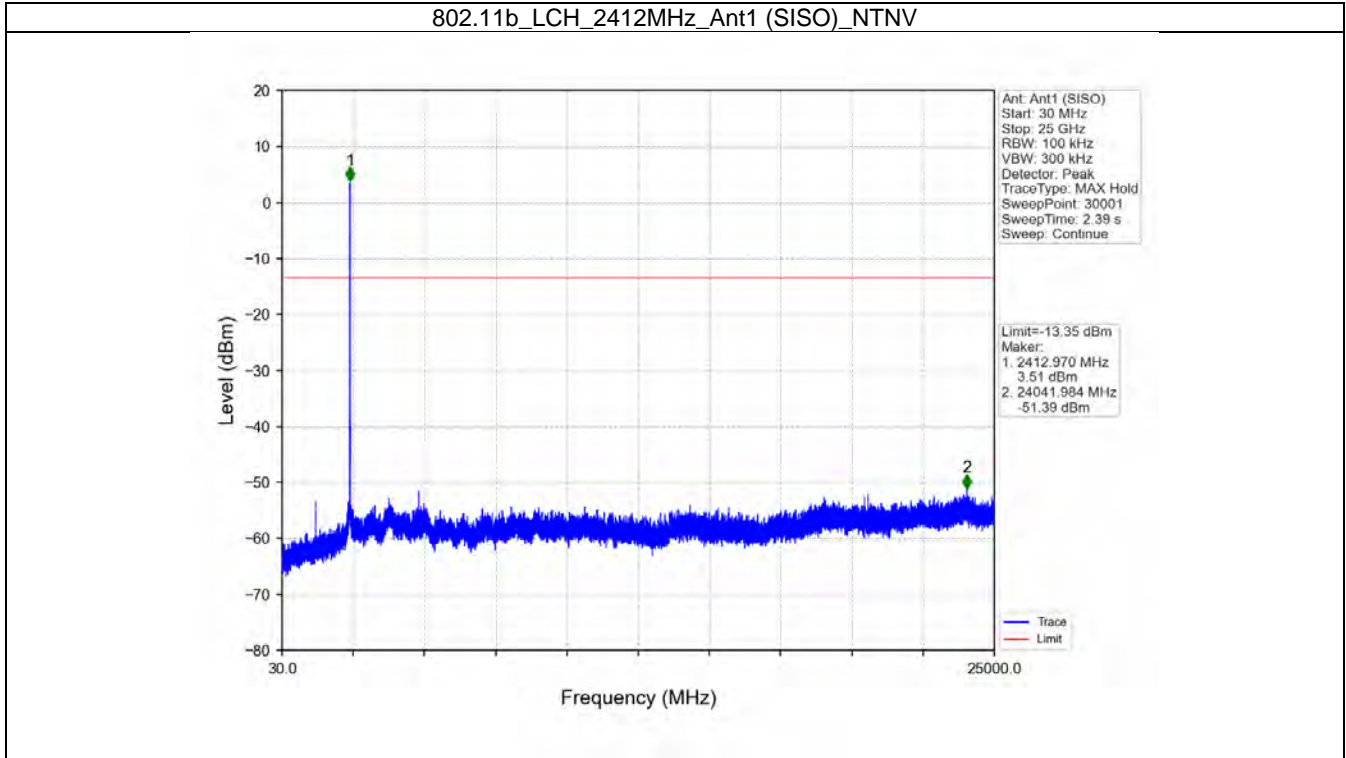
5.2.1 Test Result

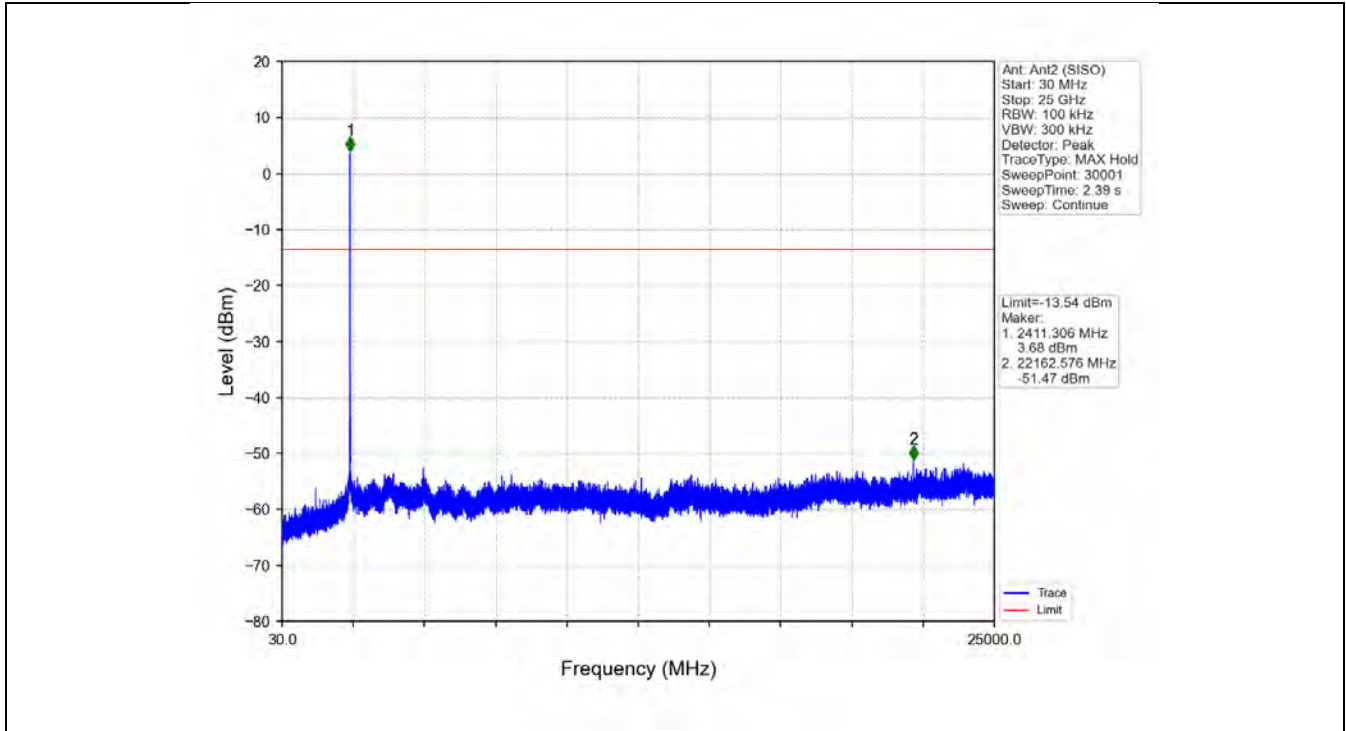
Mode	TX Type	Frequency (MHz)	Ant	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	6.65	-13.35	Pass
			2	6.46	-13.54	Pass
		2437	1	6.65	-13.35	Pass
			2	6.46	-13.54	Pass
		2462	1	6.65	-13.35	Pass
			2	6.46	-13.54	Pass
802.11g	SISO	2412	1	-0.17	-20.17	Pass
			2	-0.02	-20.02	Pass
		2437	1	-0.17	-20.17	Pass
			2	-0.02	-20.02	Pass
		2462	1	-0.17	-20.17	Pass
			2	-0.02	-20.02	Pass
802.11n (HT20)	MIMO	2412	1	-1.88	-21.88	Pass
			2	-1.43	-21.43	Pass
		2437	1	-1.88	-21.88	Pass
			2	-1.43	-21.43	Pass
		2462	1	-1.88	-21.88	Pass
			2	-1.43	-21.43	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.

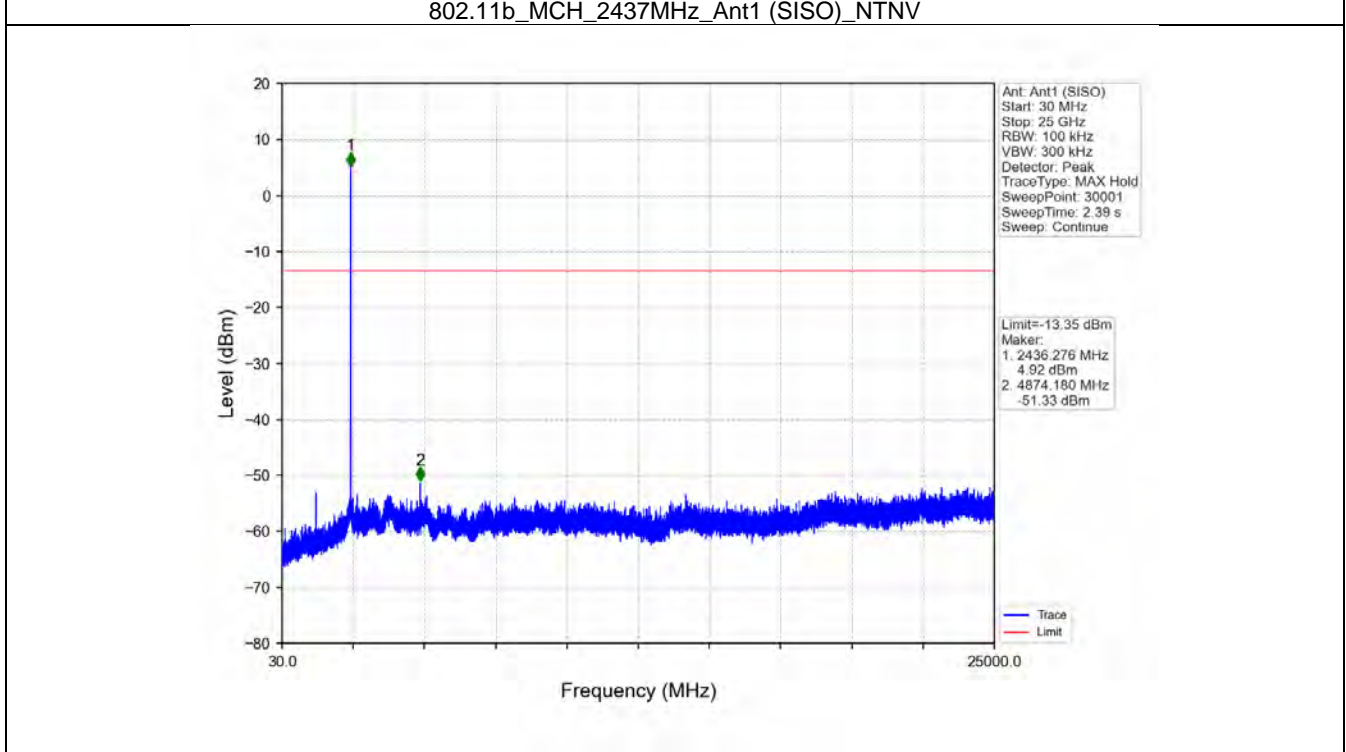
5.2.2 Test Graph



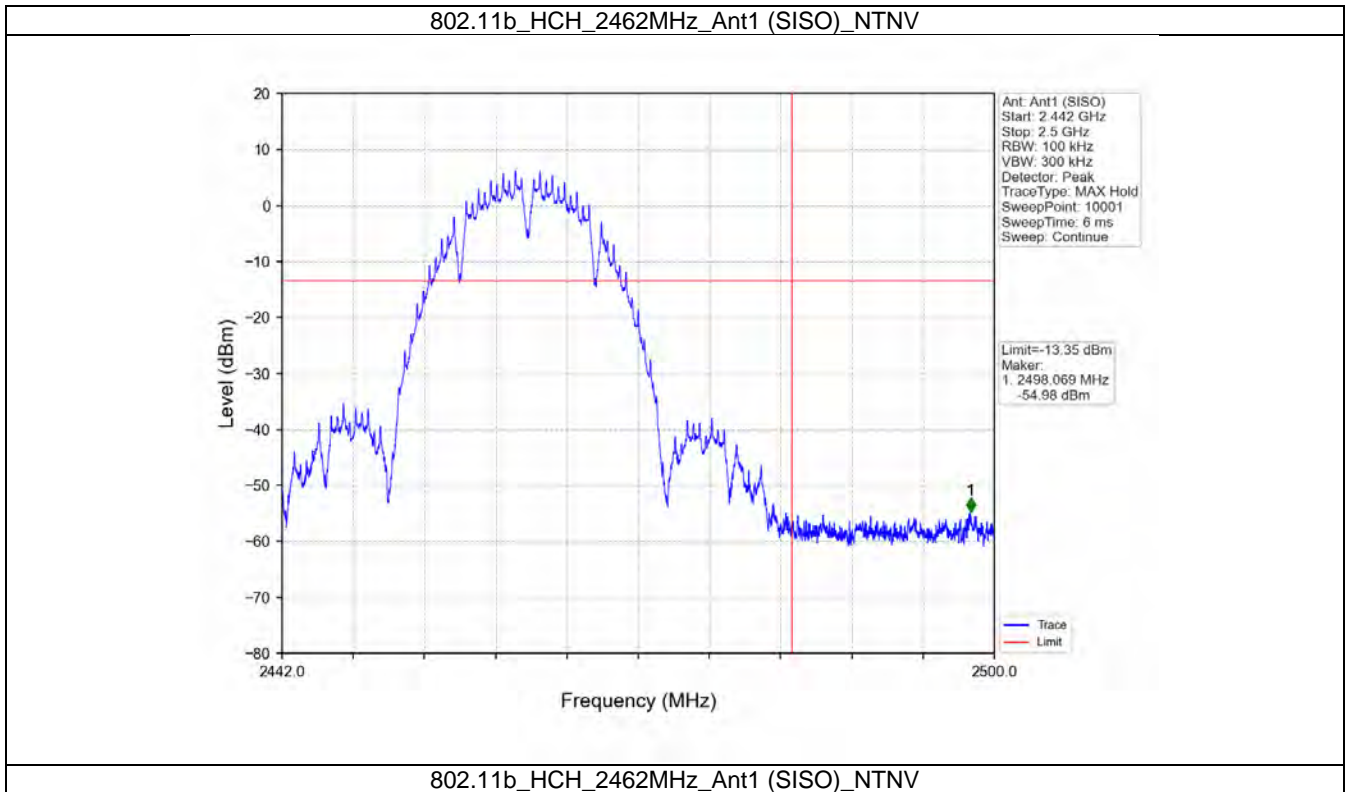
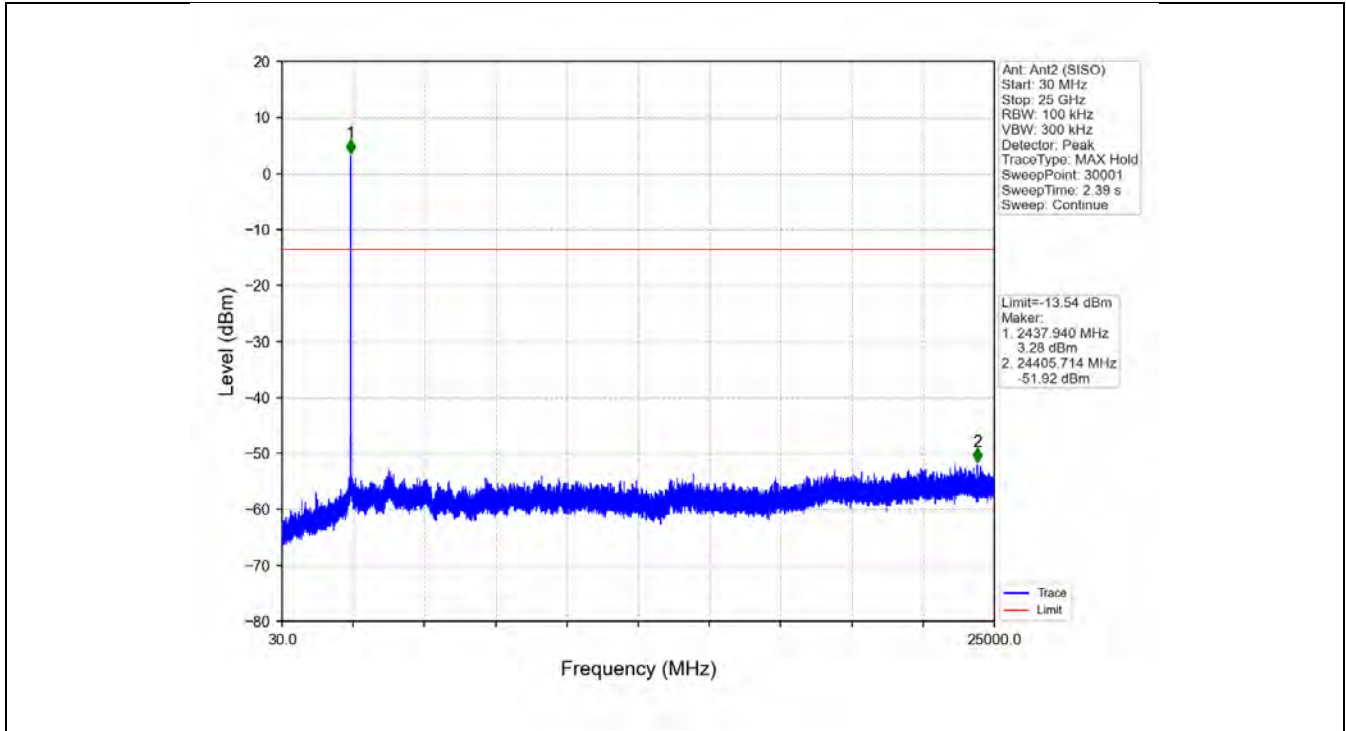


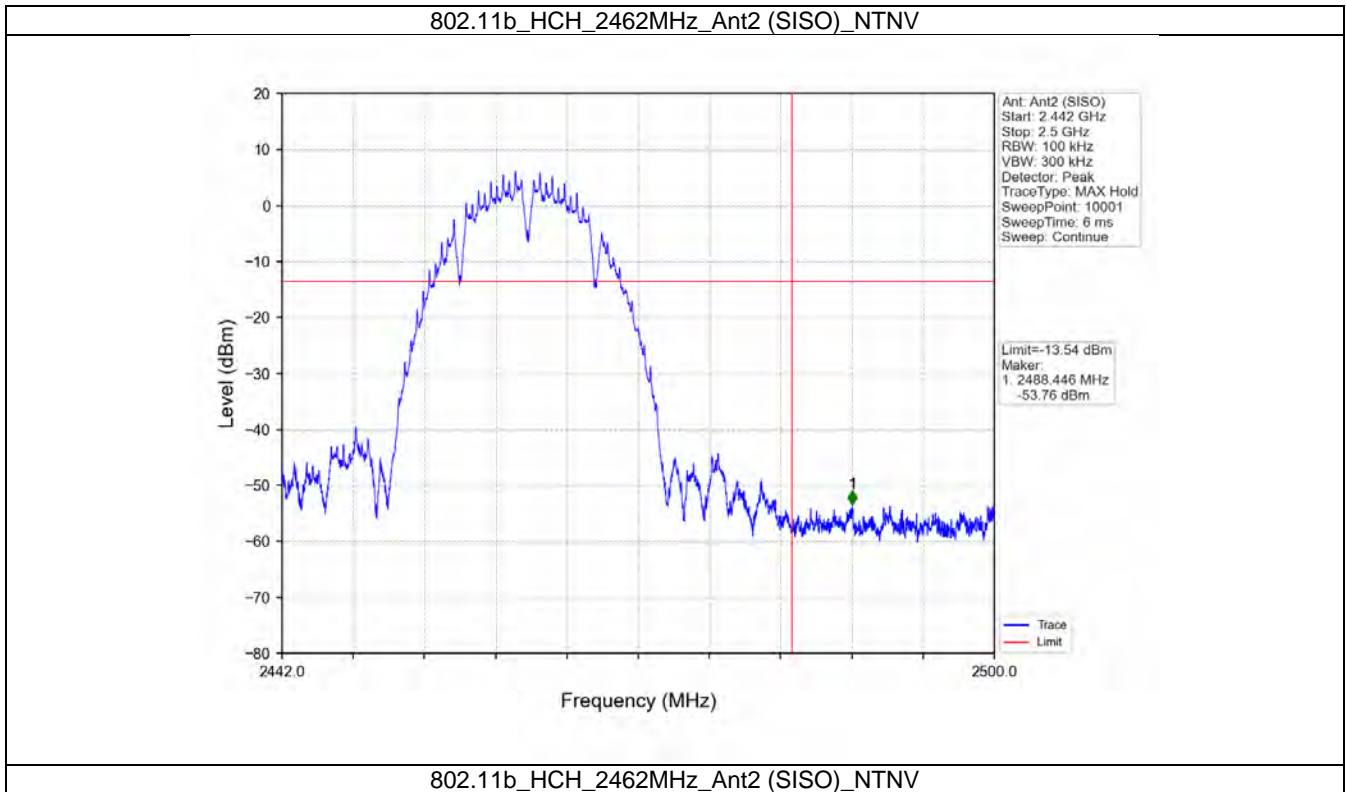
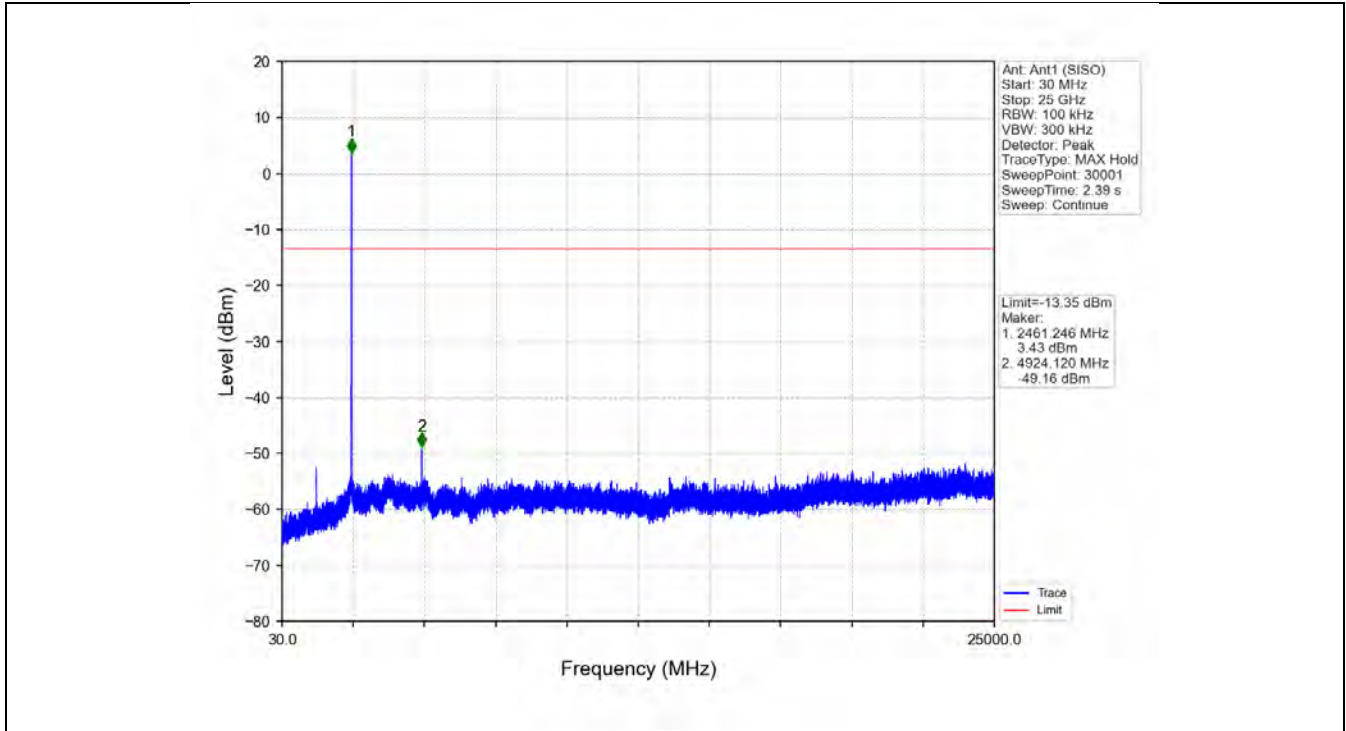


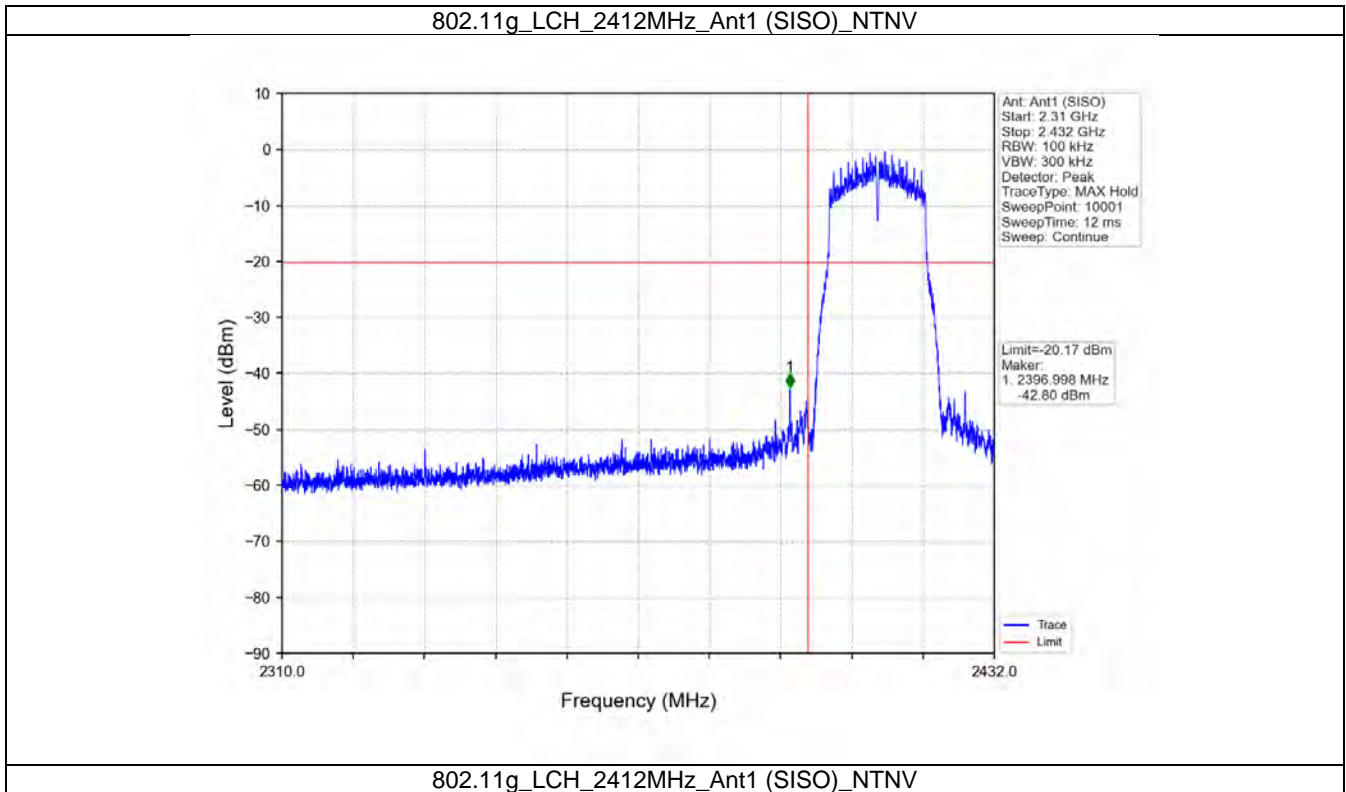
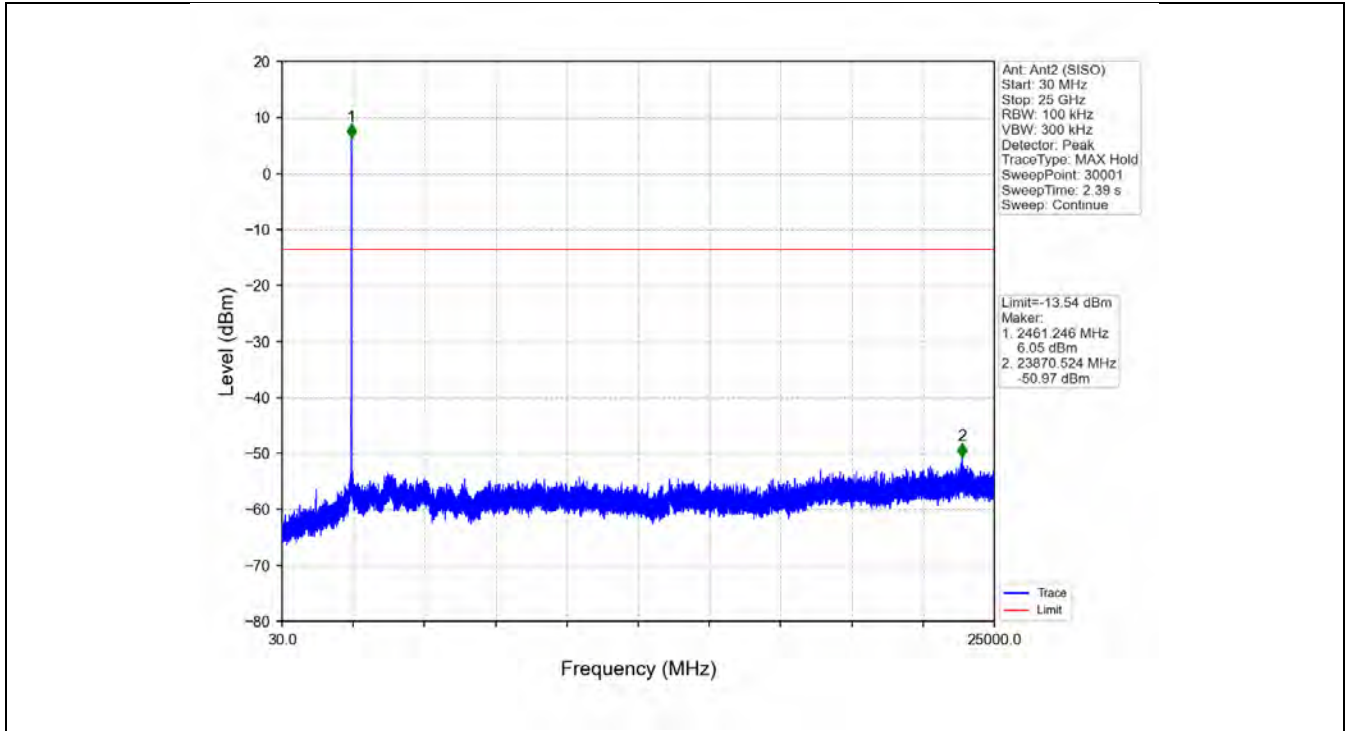
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV

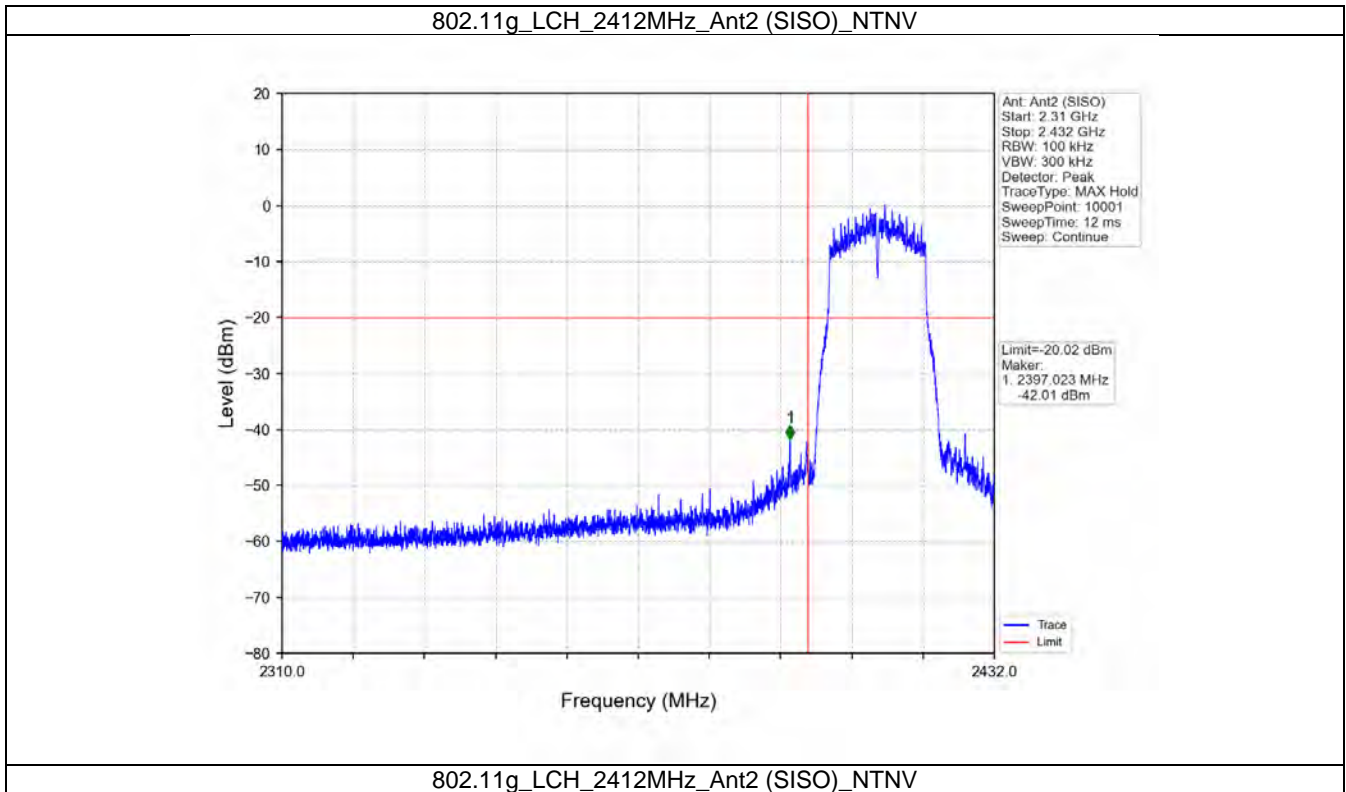
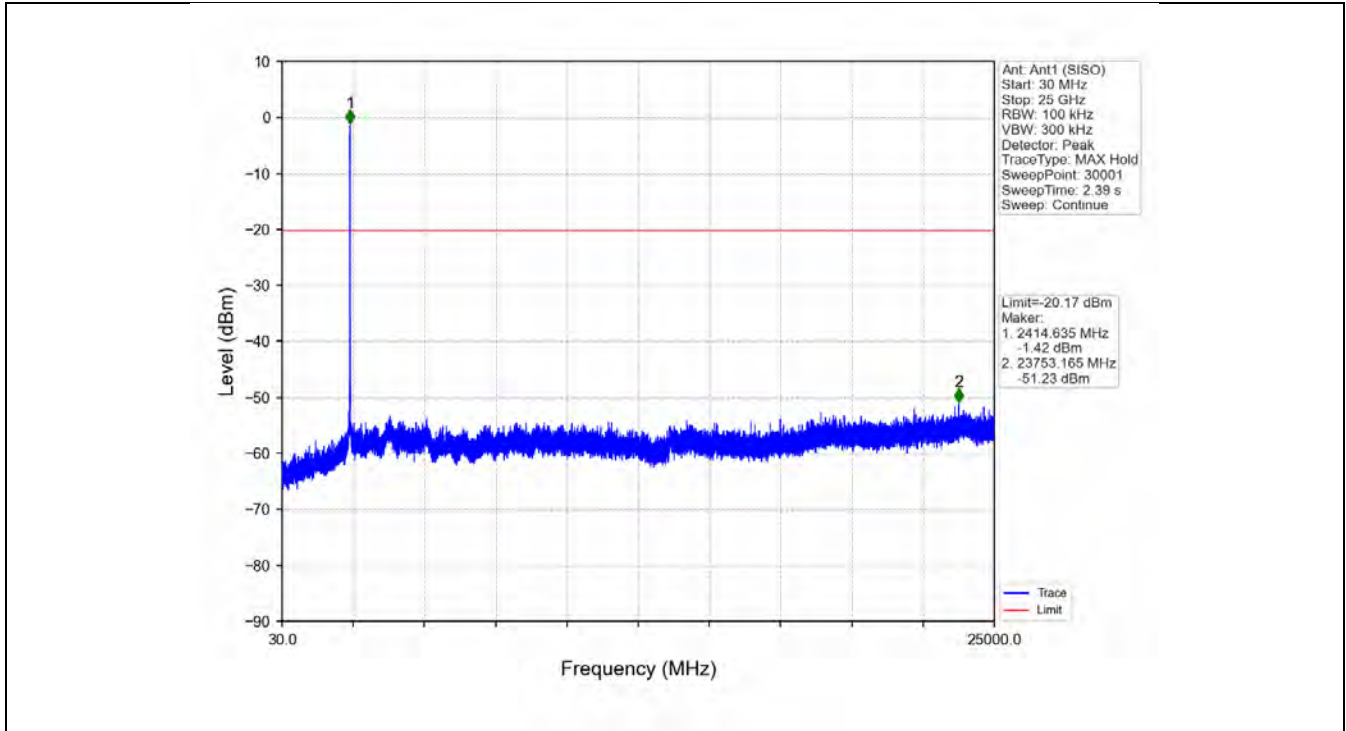


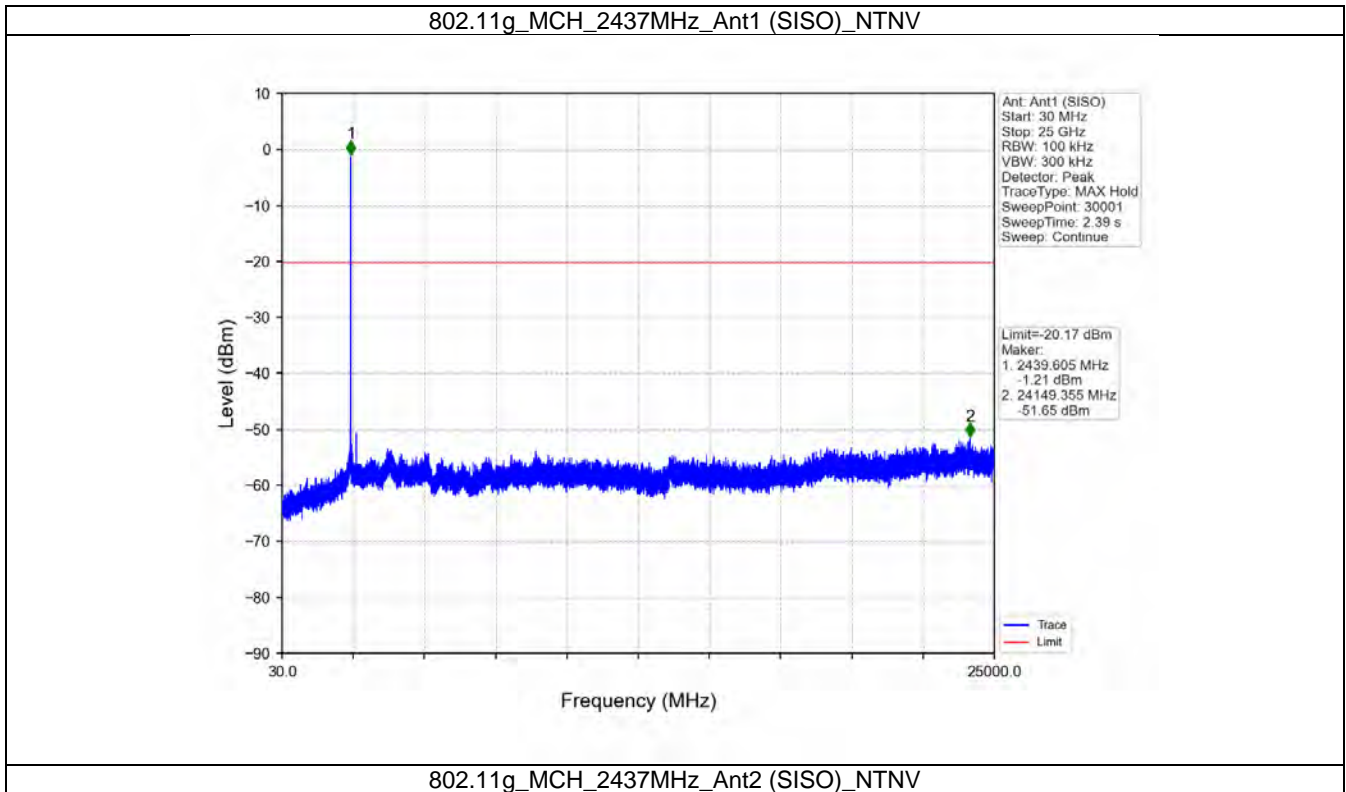
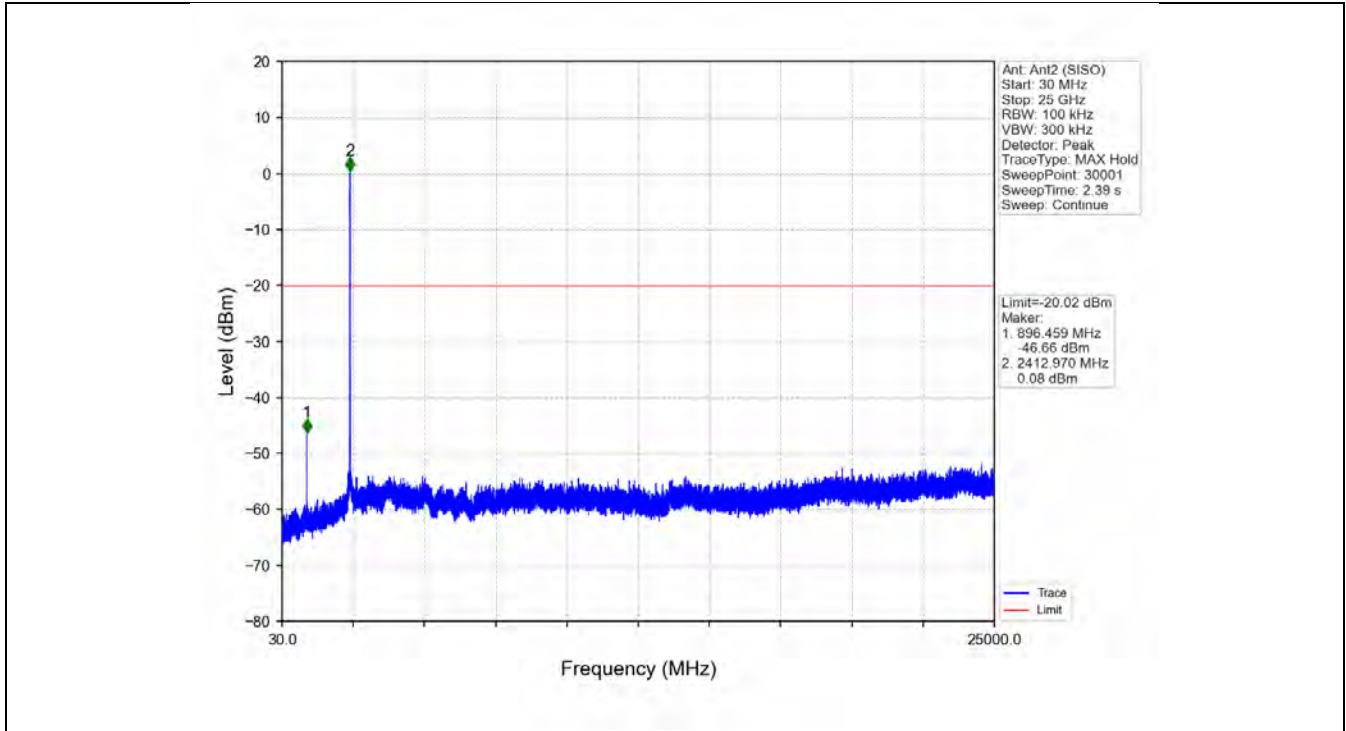
802.11b_MCH_2437MHz_Ant2 (SISO)_NTNV

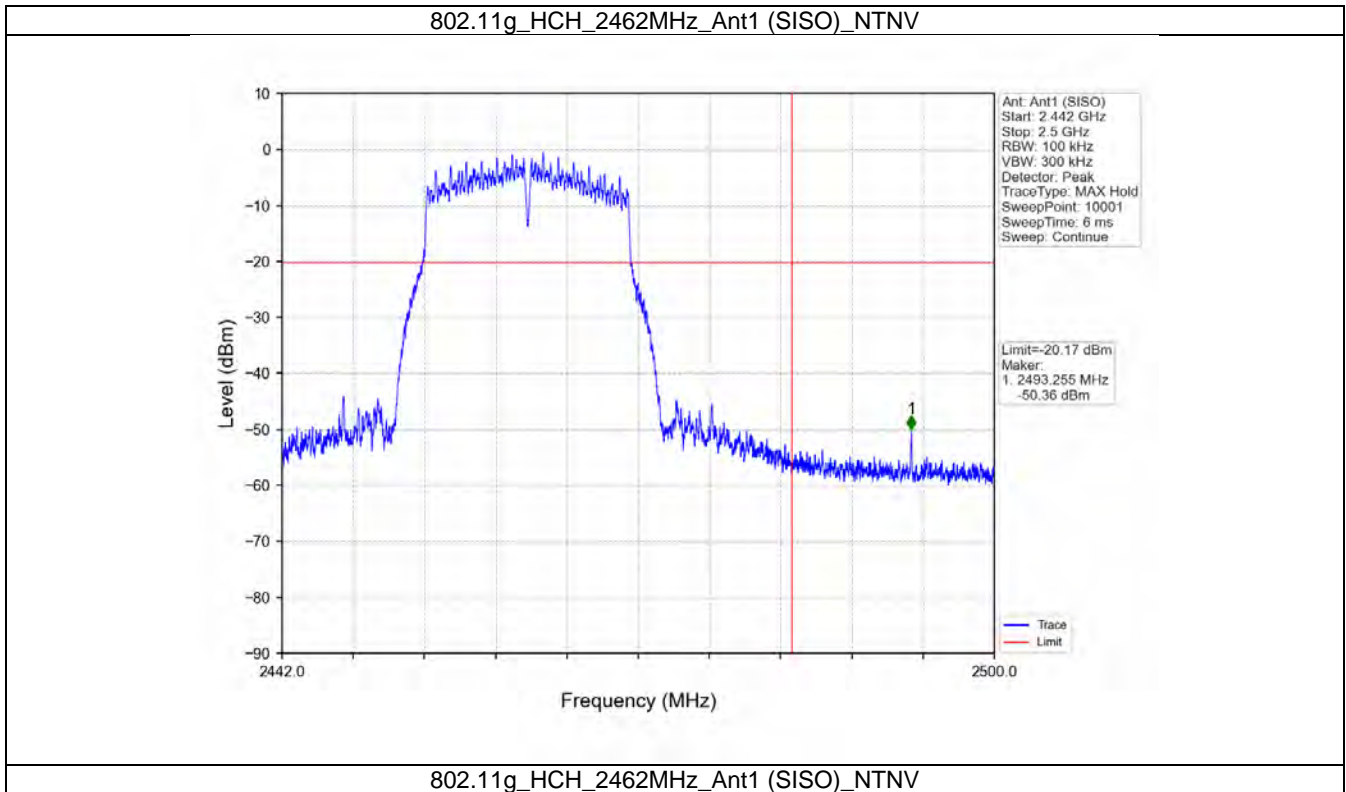
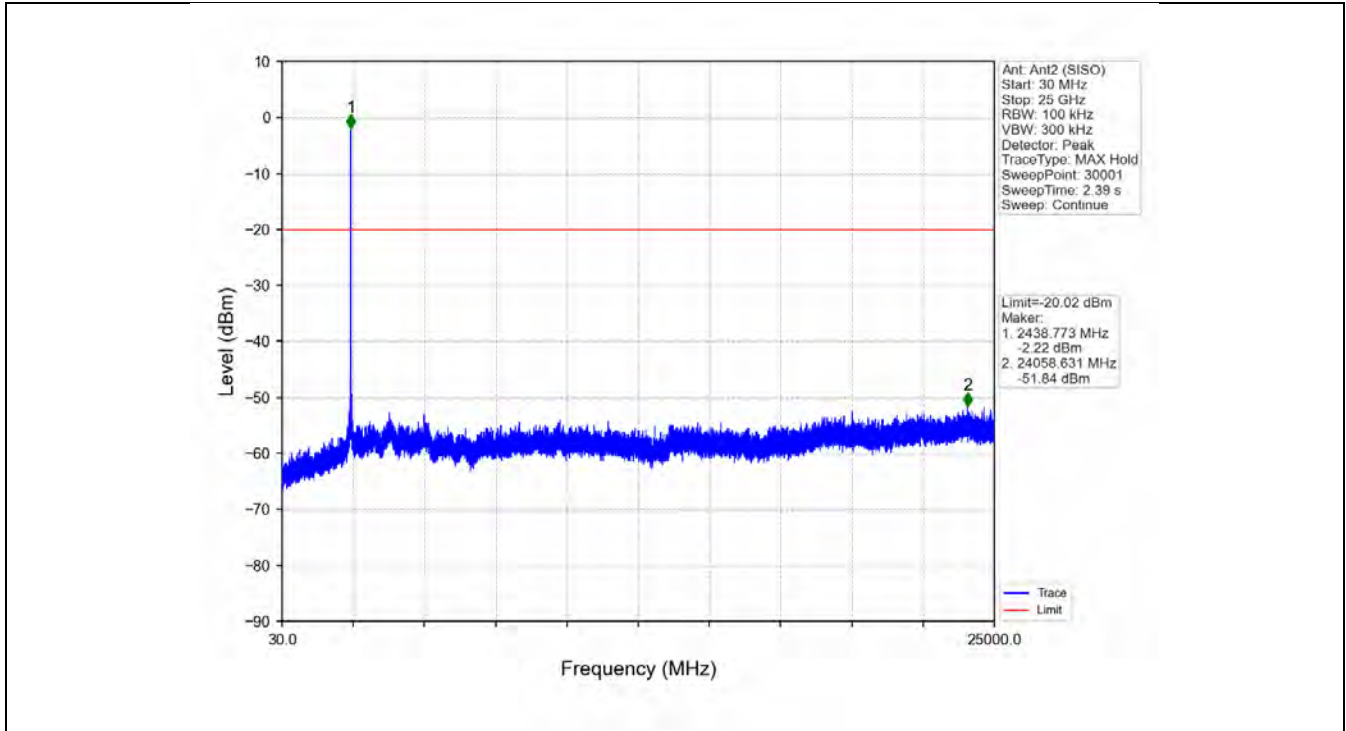


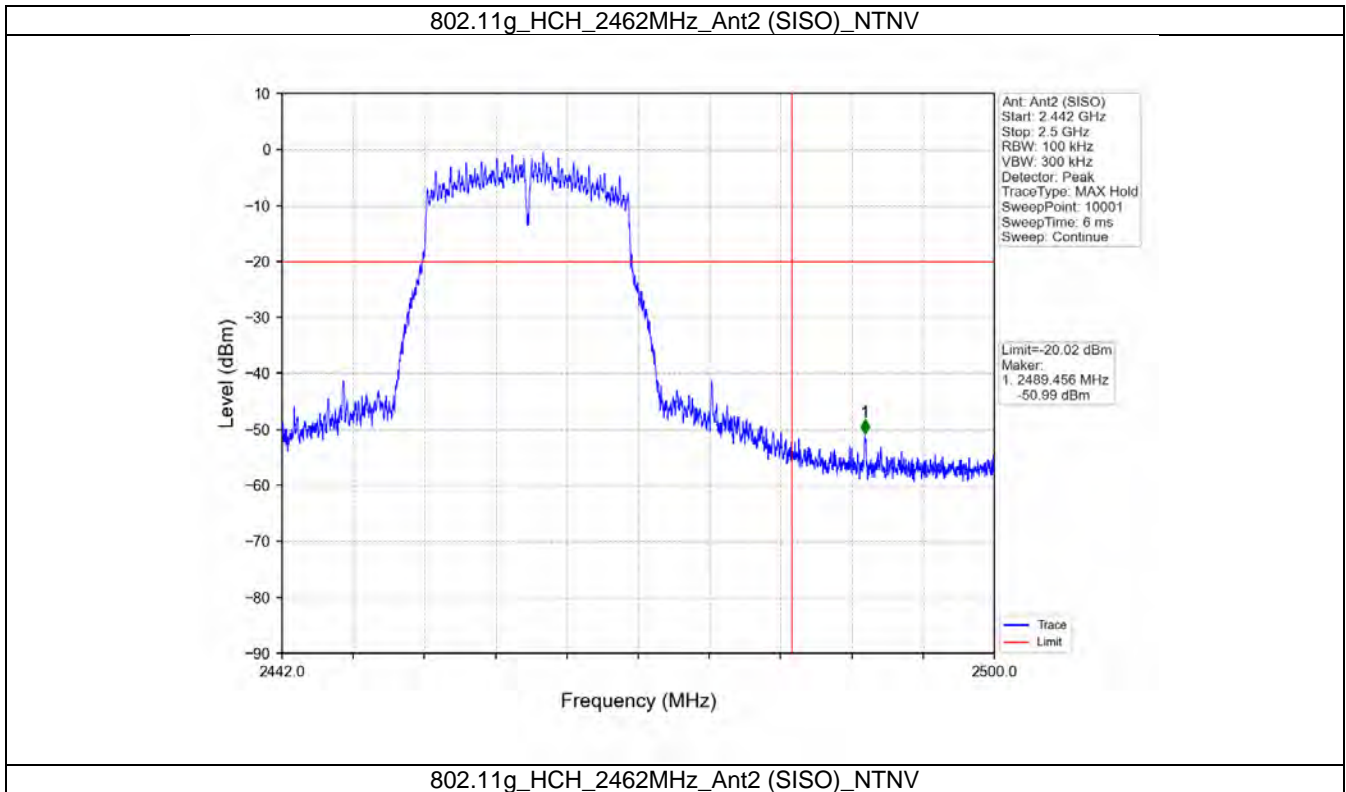
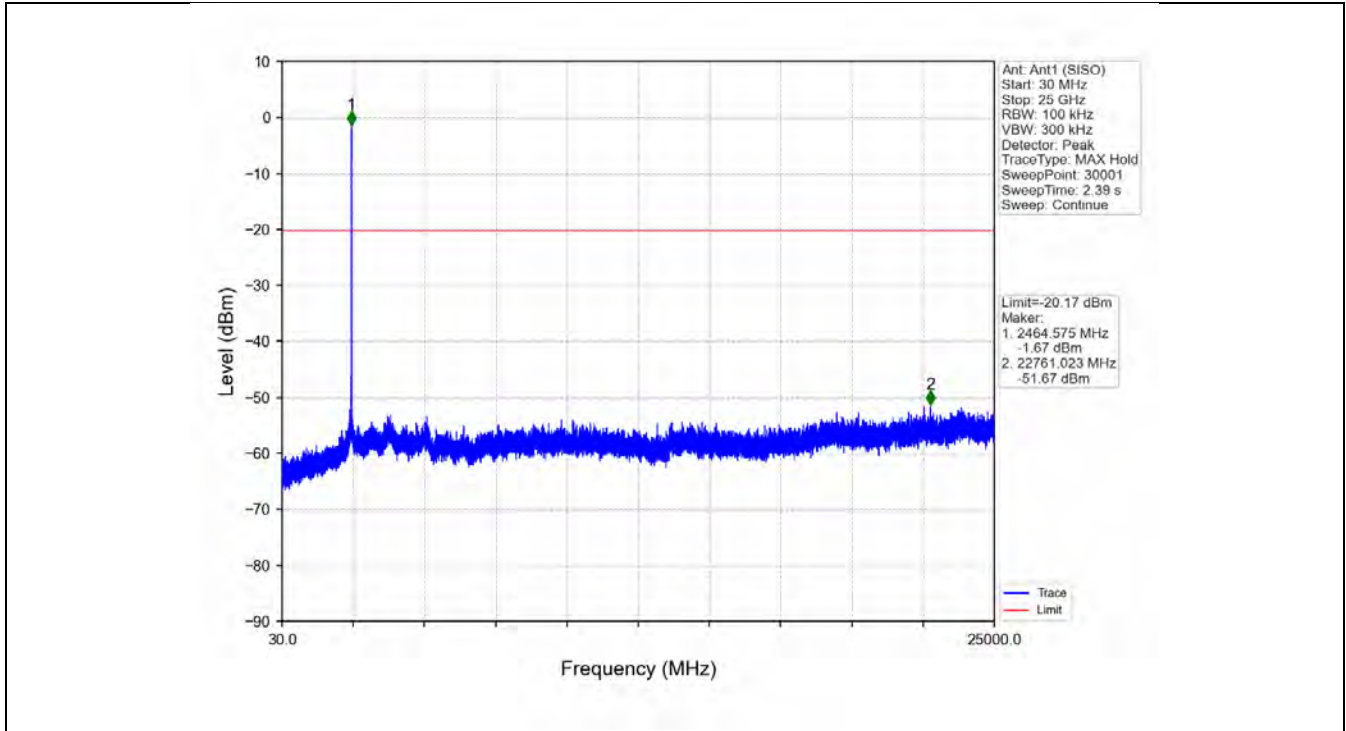


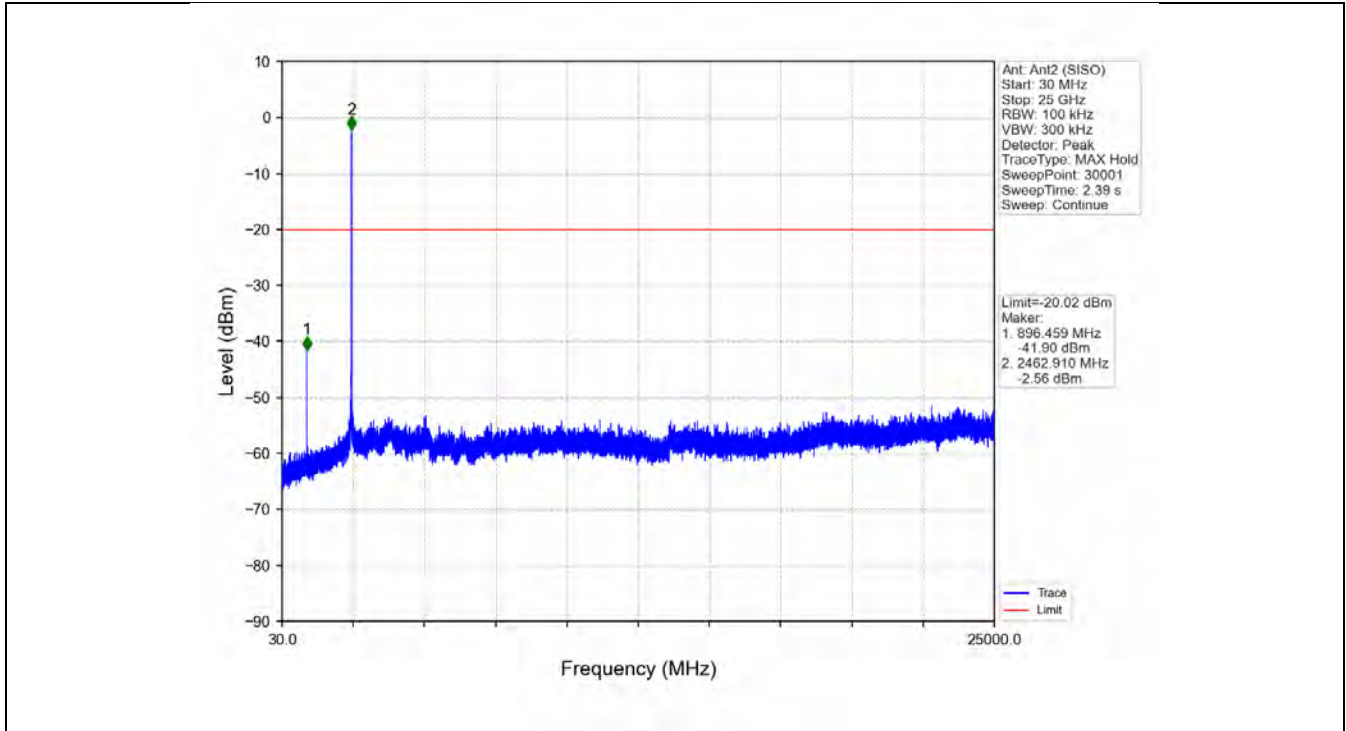




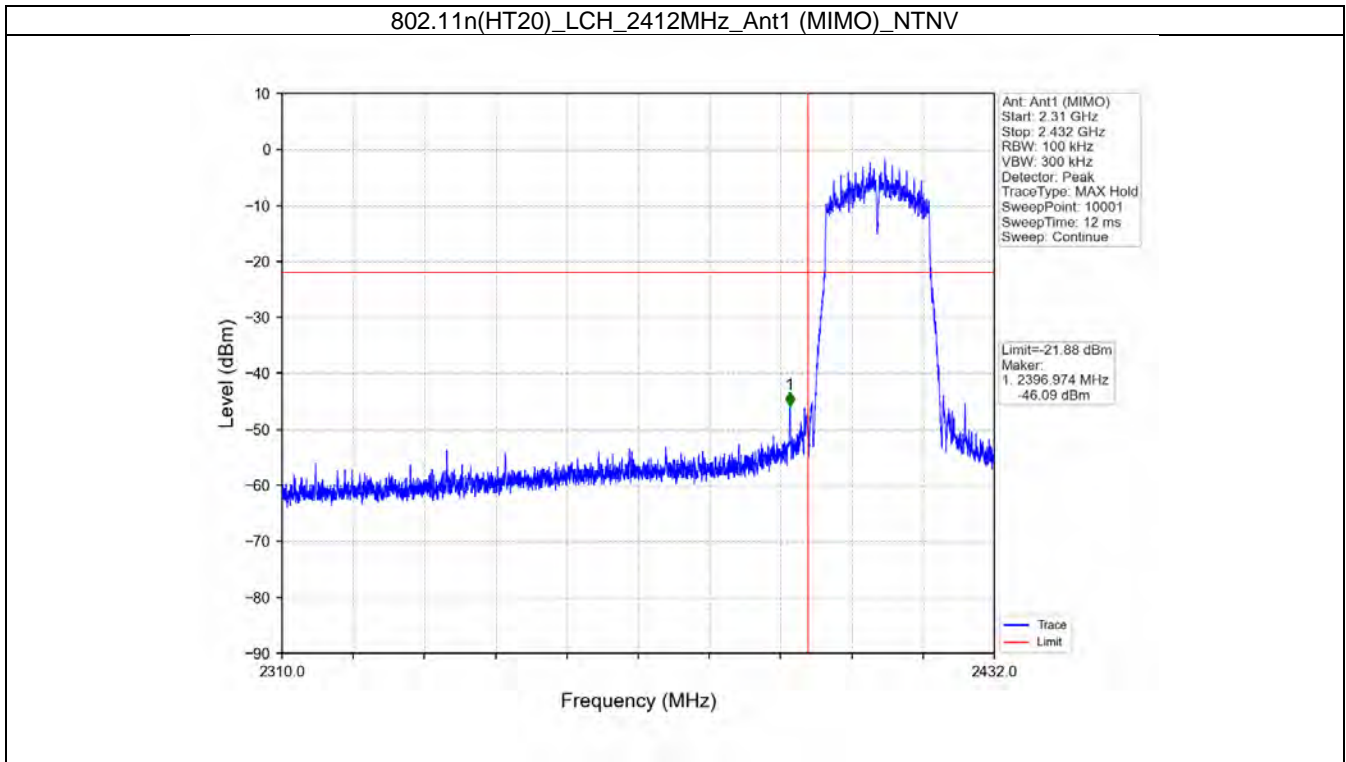




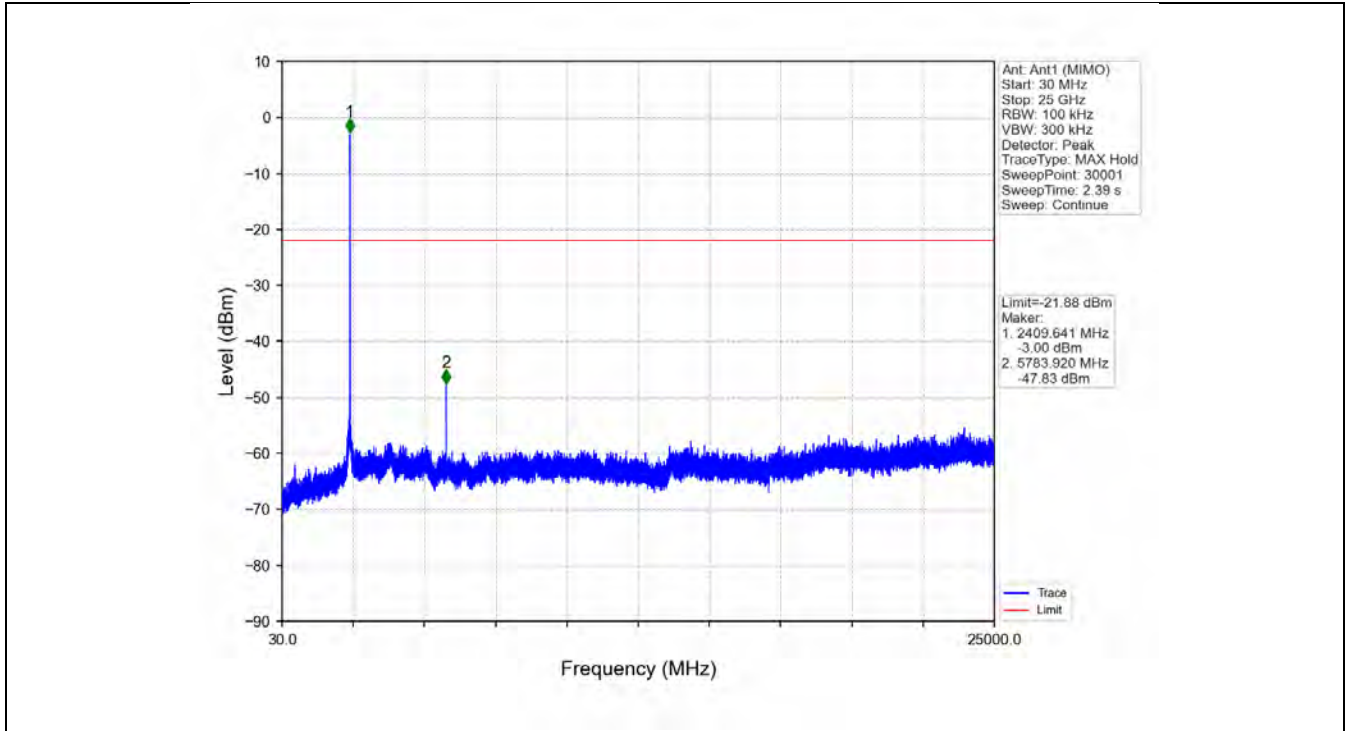




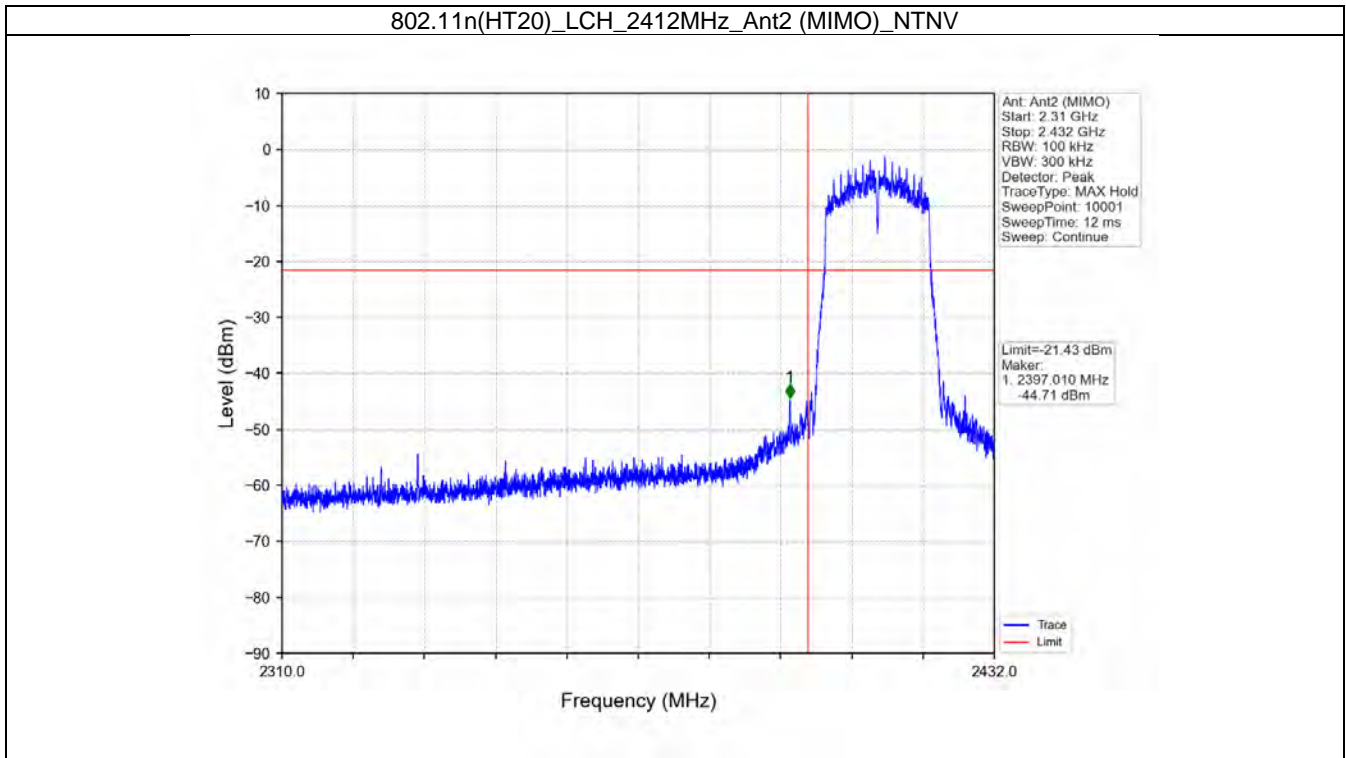
802.11n(HT20)_LCH_2412MHz_Ant1 (MIMO)_NTNV



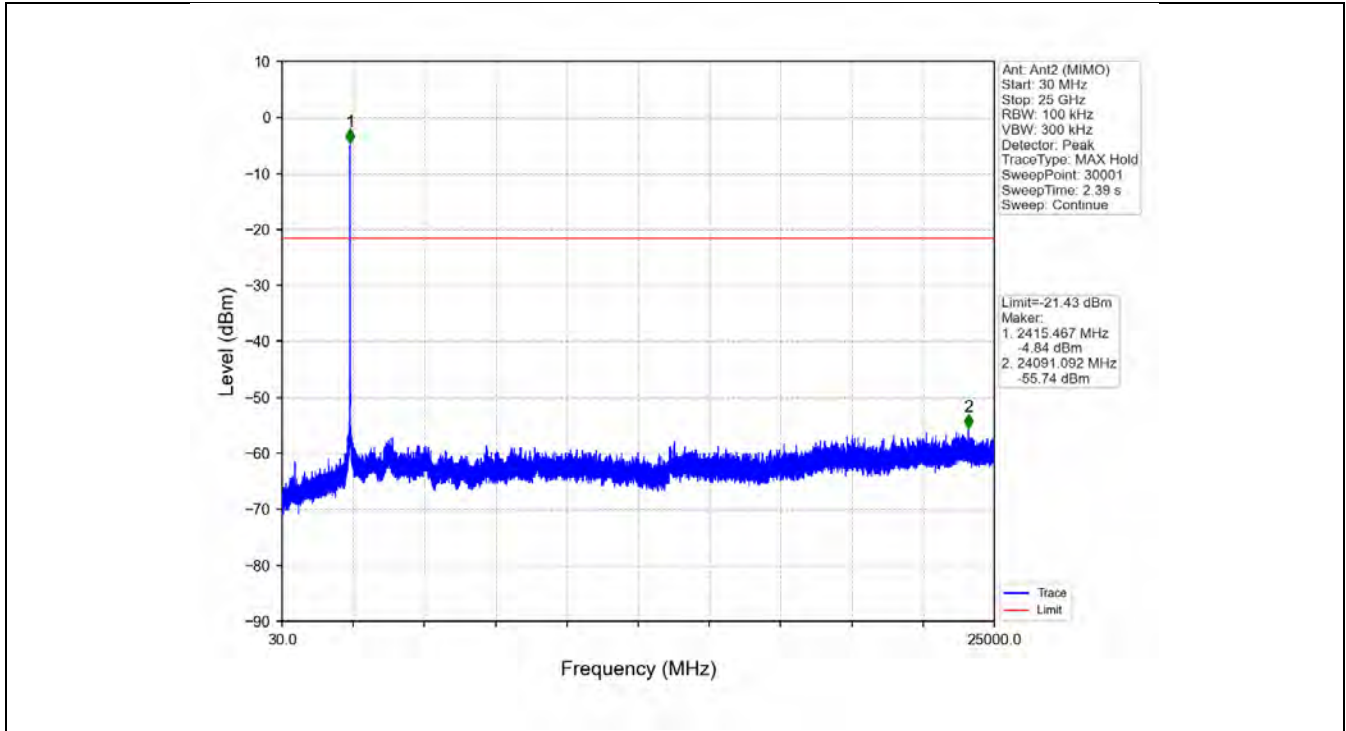
802.11n(HT20)_LCH_2412MHz_Ant1 (MIMO)_NTNV



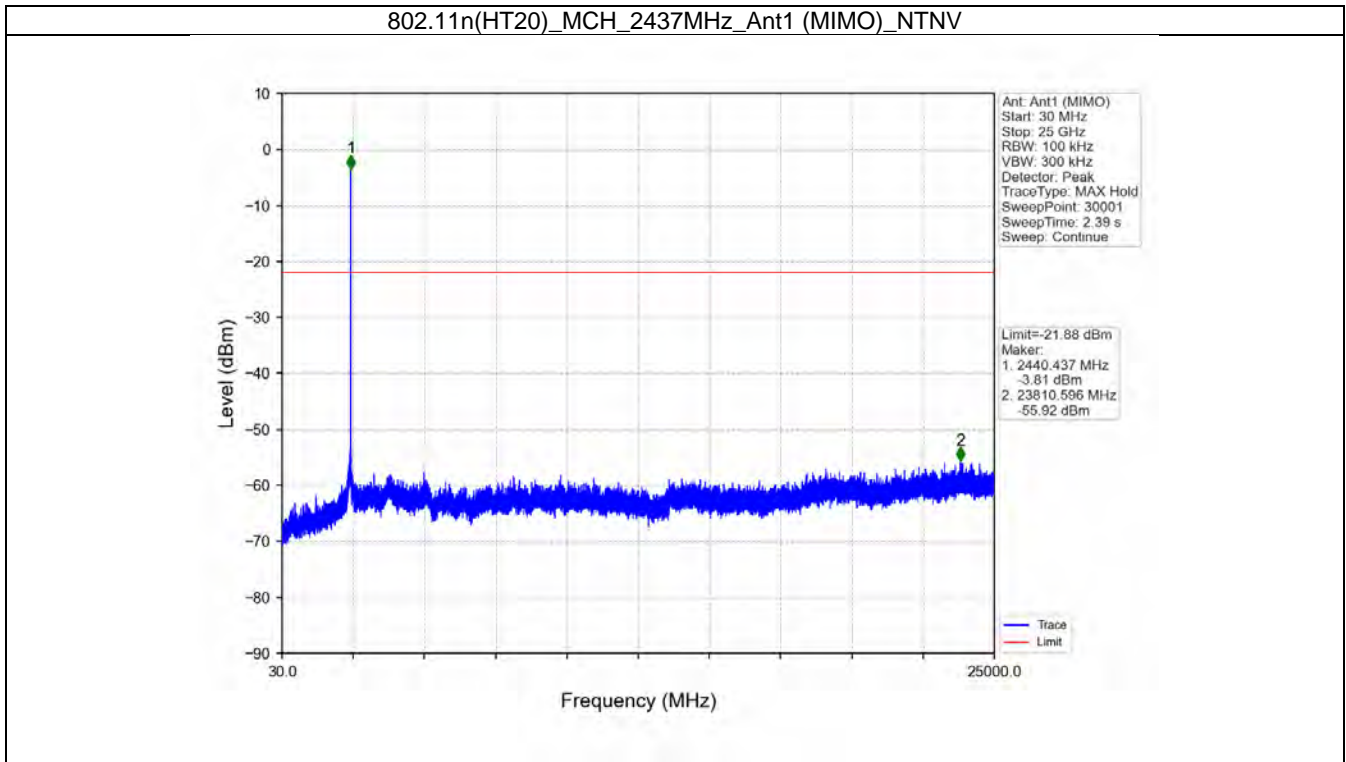
802.11n(HT20)_LCH_2412MHz_Ant2 (MIMO)_NTNV



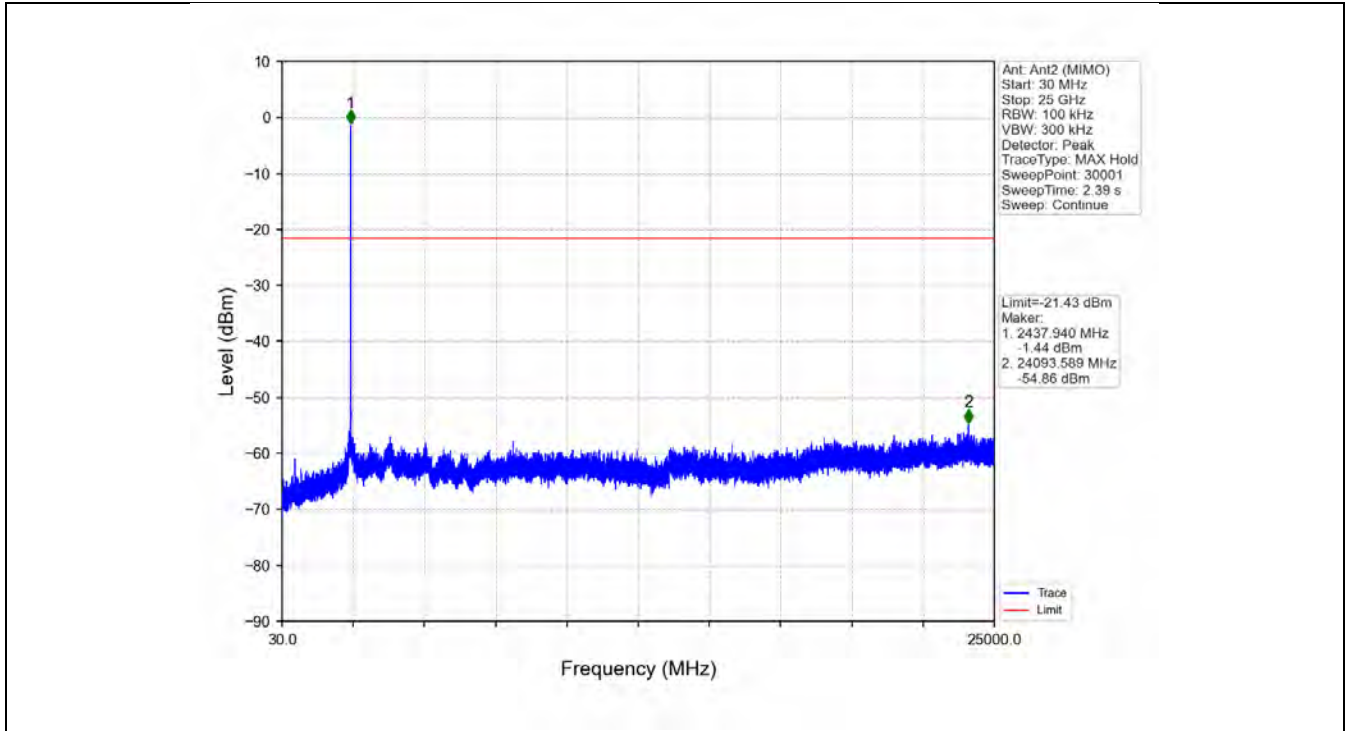
802.11n(HT20)_LCH_2412MHz_Ant2 (MIMO)_NTNV



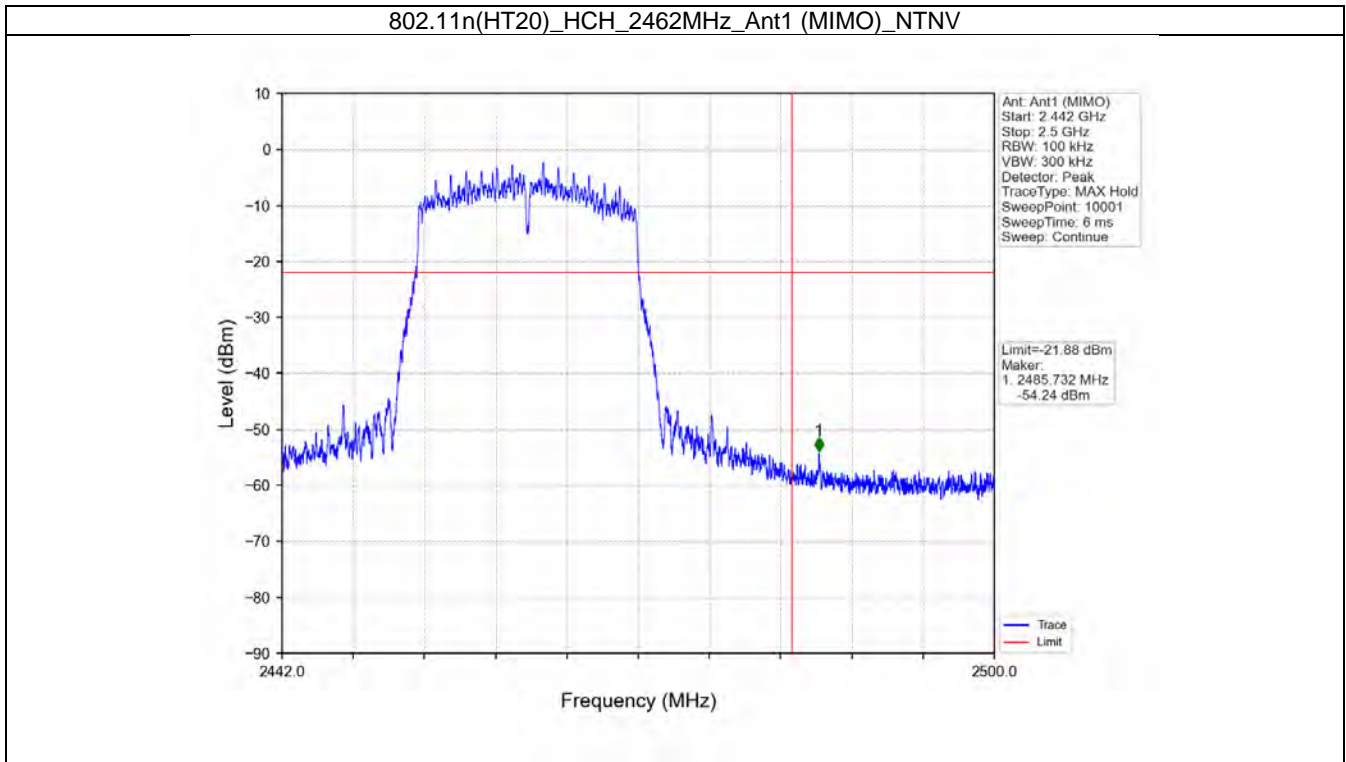
802.11n(HT20)_MCH_2437MHz_Ant1 (MIMO)_NTNV



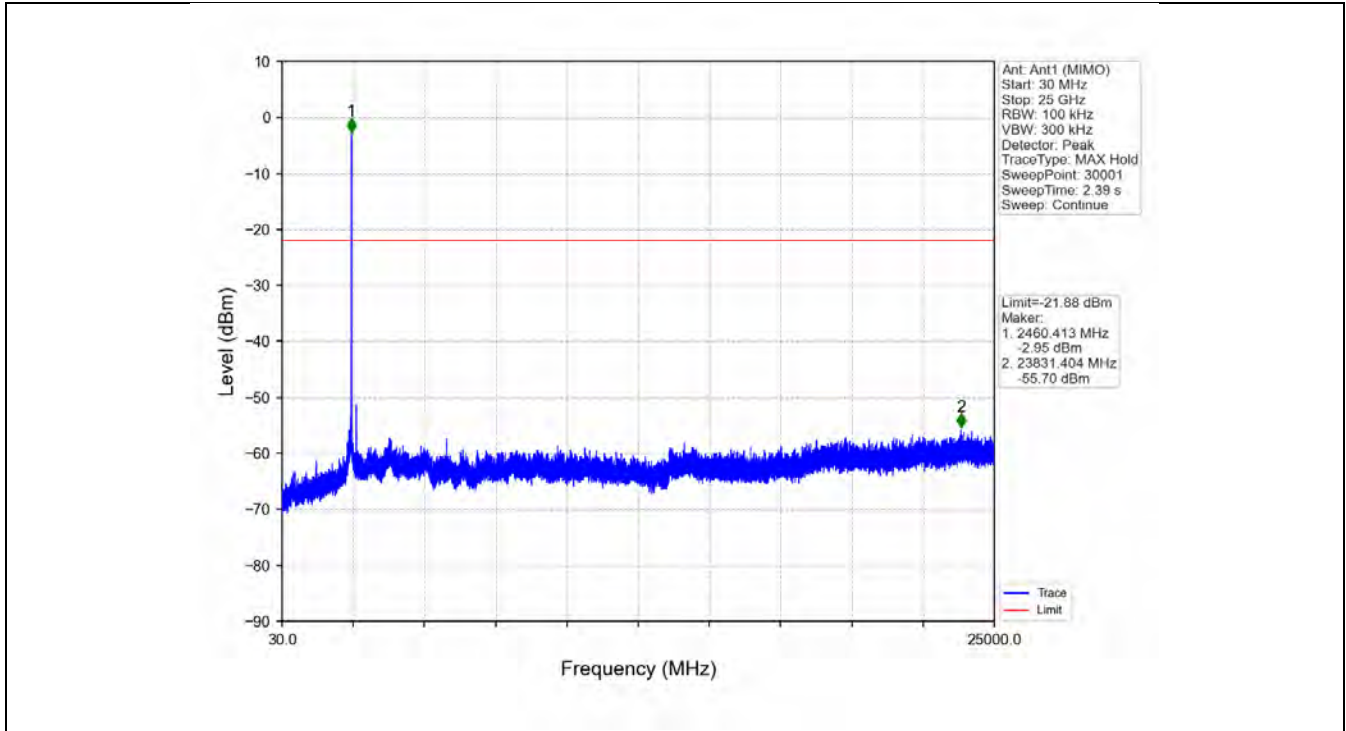
802.11n(HT20)_MCH_2437MHz_Ant2 (MIMO)_NTNV



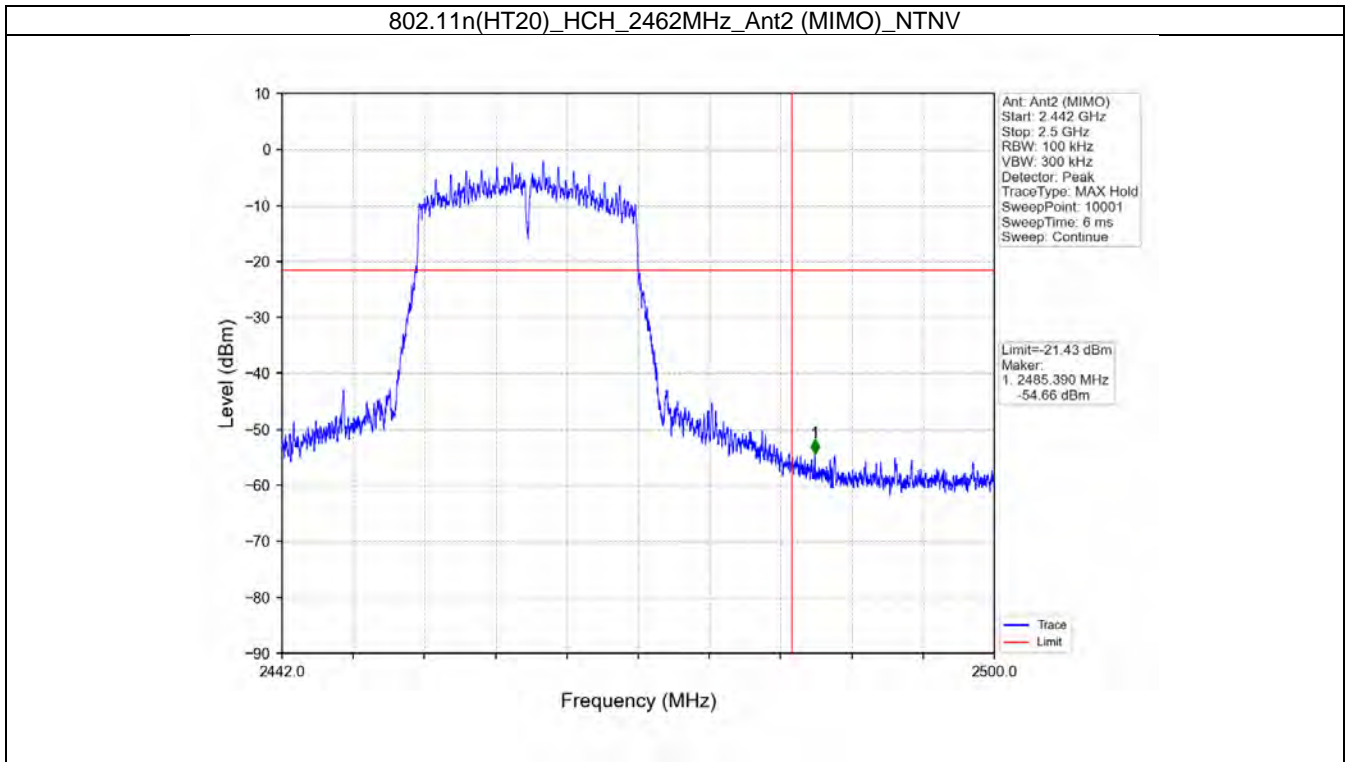
802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV



802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV



802.11n(HT20)_HCH_2462MHz_Ant2 (MIMO)_NTNV



802.11n(HT20)_HCH_2462MHz_Ant2 (MIMO)_NTNV

