



Appendix A for SHEM210600648401

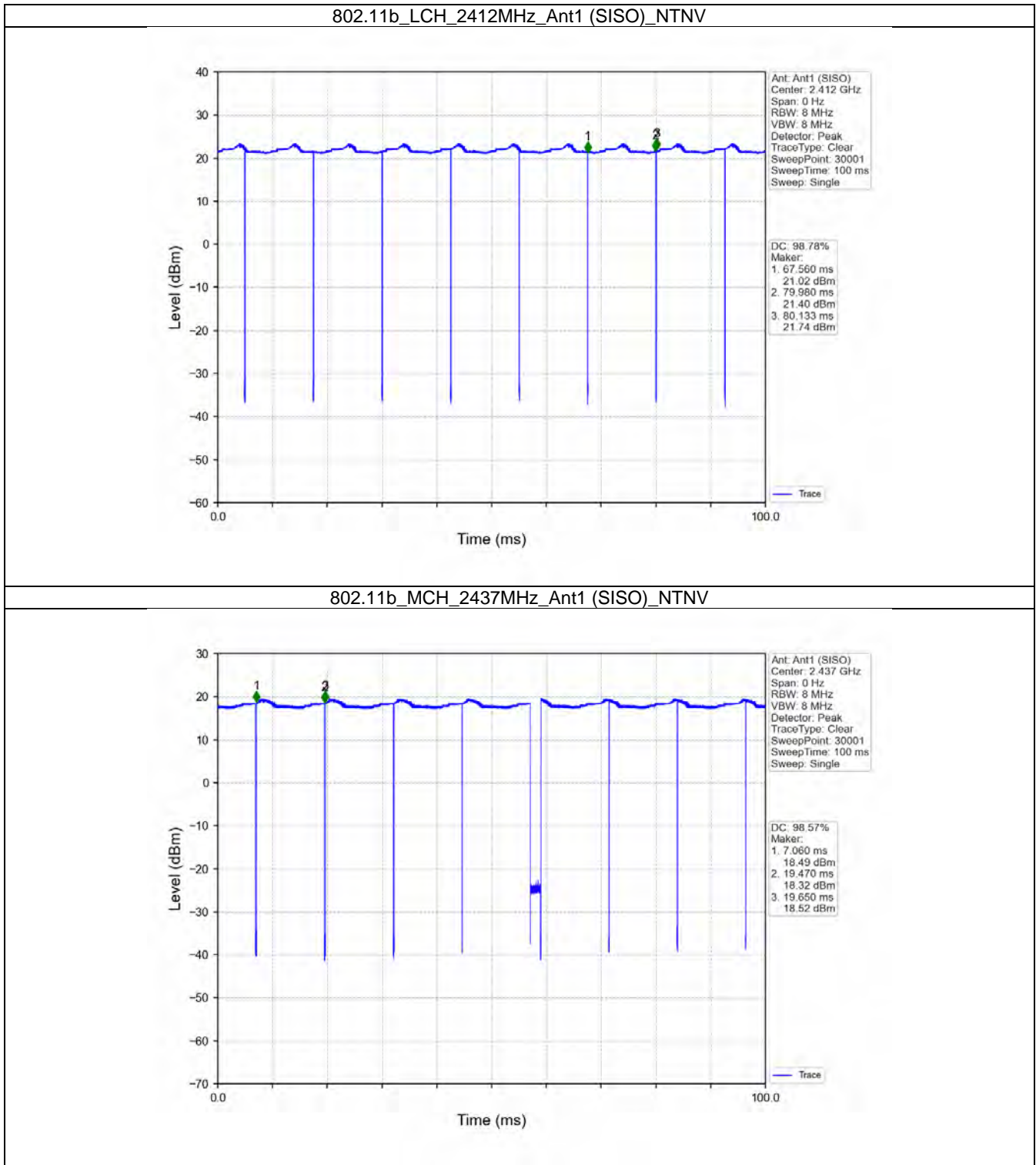
1. Duty Cycle

1.1 Ant1

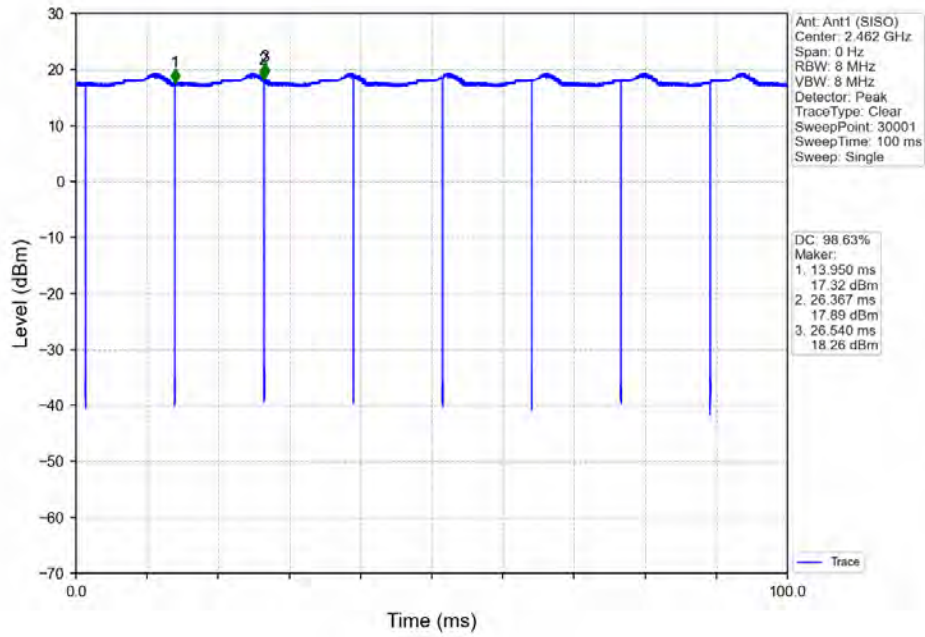
1.1.1 Test Result

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	12.420	12.573	98.78	0.05	0.79
		2437	12.410	12.590	98.57	0.06	1.00
		2462	12.417	12.590	98.63	0.06	0.82
802.11g	SISO	2412	12.416	12.563	98.83	0.05	0.87
		2437	12.413	14.327	86.64	0.62	12.88
		2462	12.417	12.544	98.99	0.04	0.58
802.11n (HT20)	MIMO	2412	12.414	12.590	98.60	0.06	1.06
		2437	12.410	12.564	98.77	0.05	0.71
		2462	12.413	12.583	98.65	0.06	0.79
802.11n (HT40)	MIMO	2422	0.931	6.465	14.40	8.42	64.28
		2437	0.930	1.184	78.55	1.05	0.02
		2452	0.931	6.464	14.40	8.42	64.28

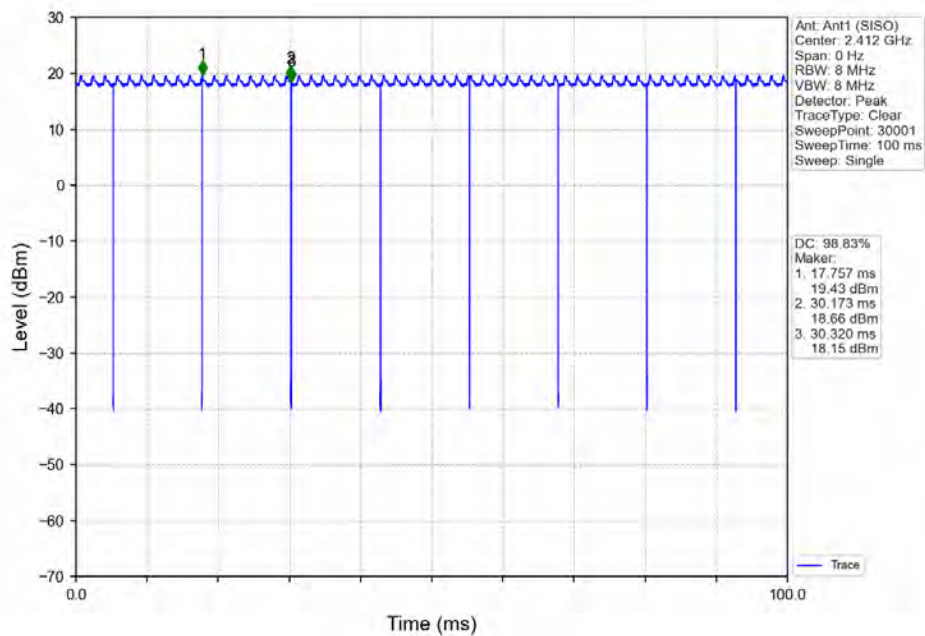
1.1.2 Test Graph

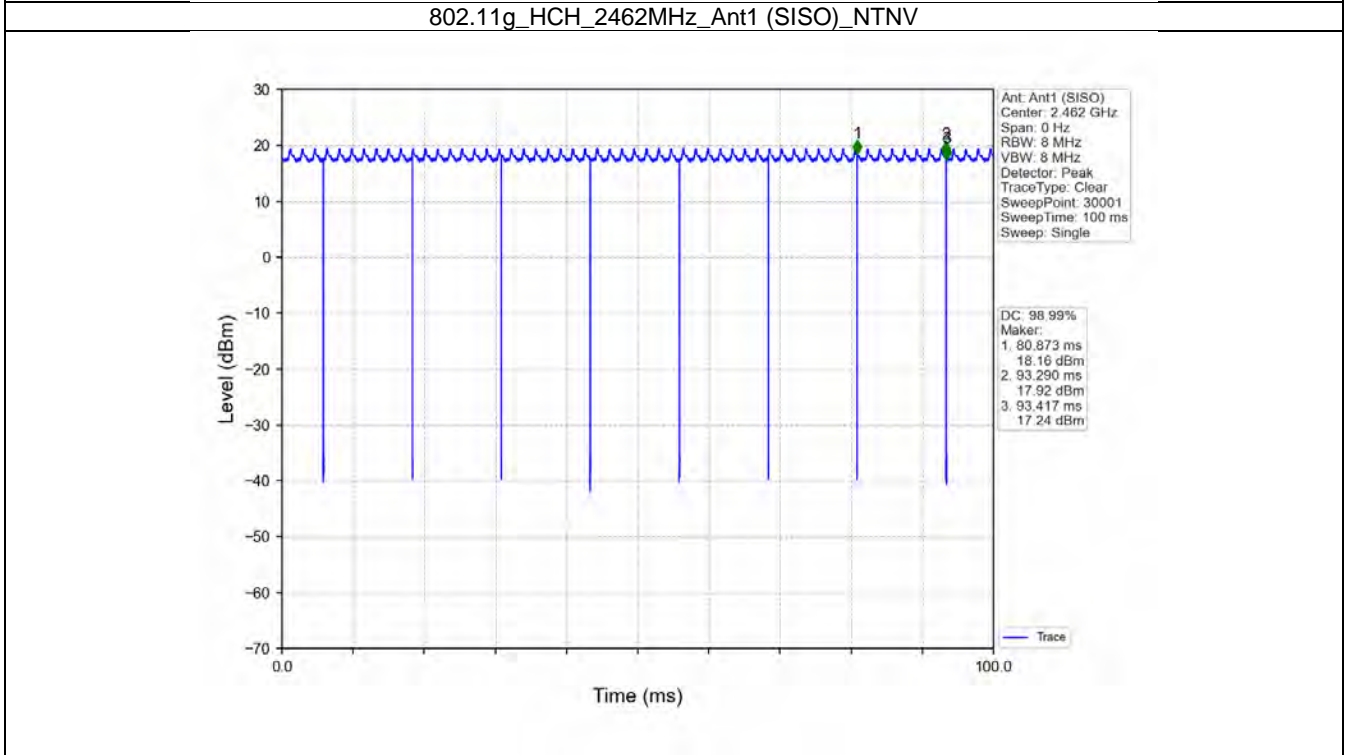
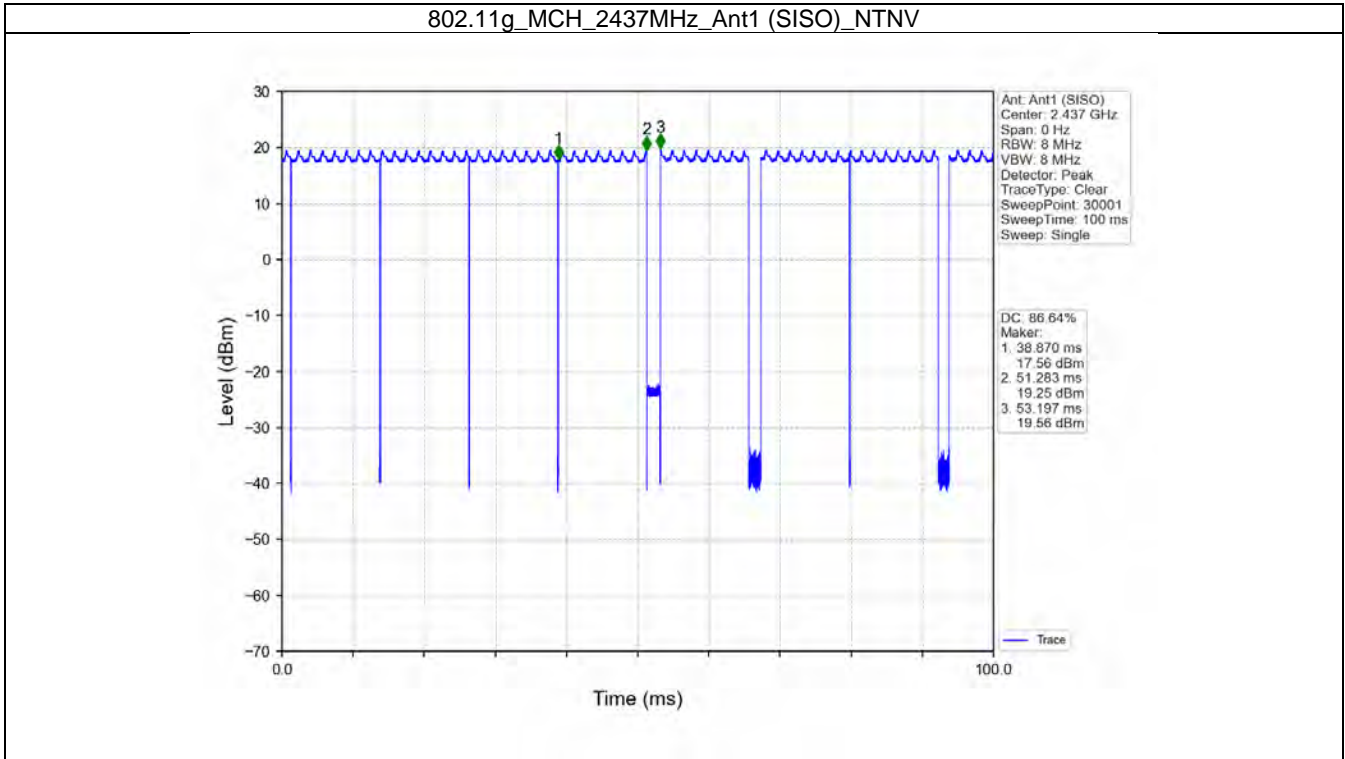


802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

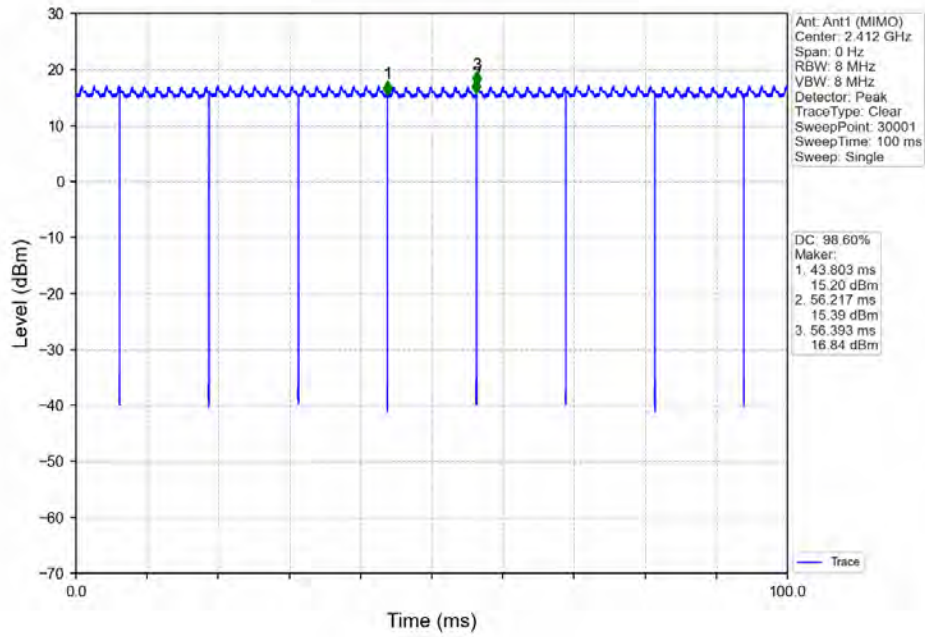


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

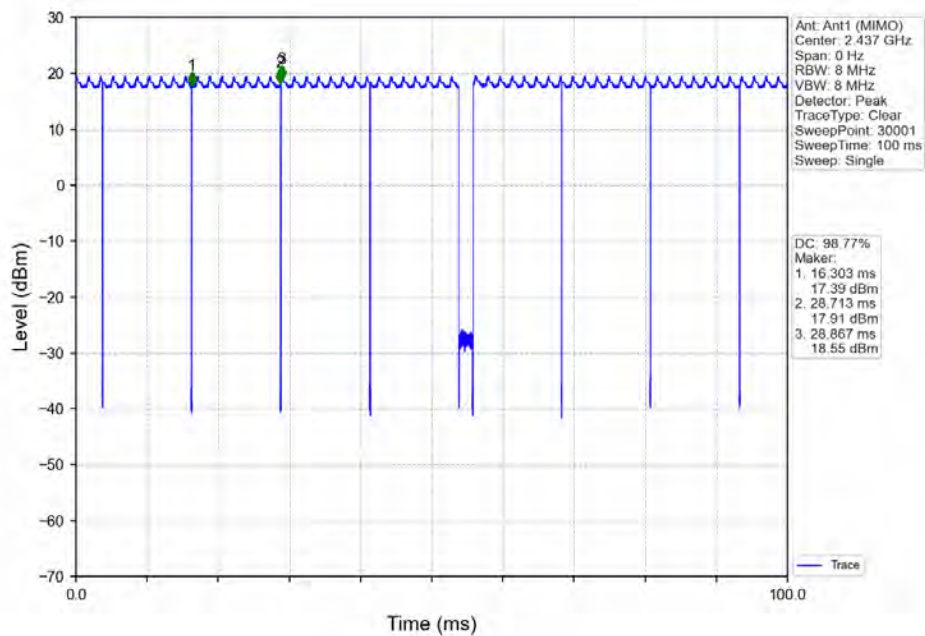




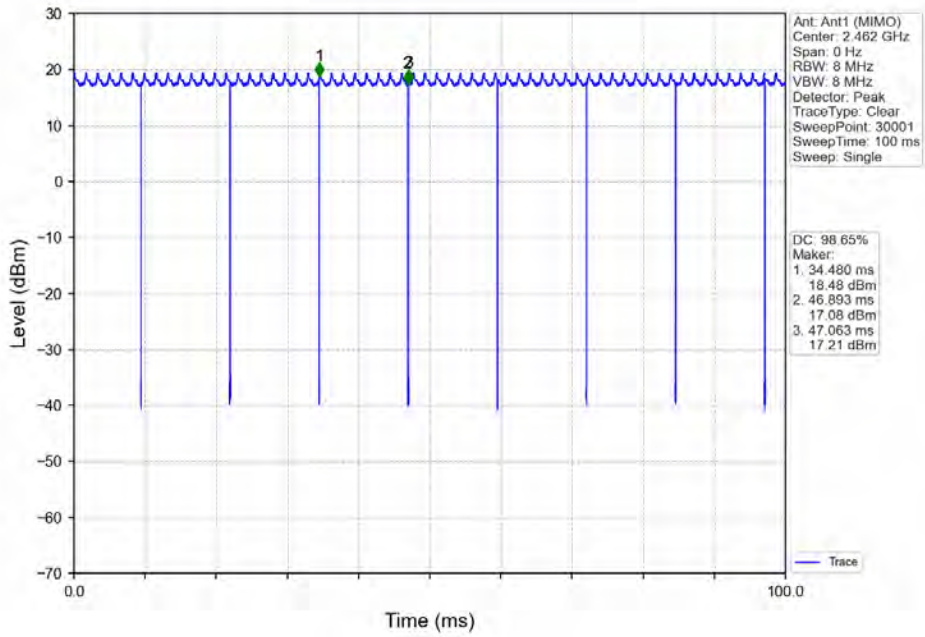
802.11n(HT20)_LCH_2412MHz_Ant1 (MIMO)_NTNV



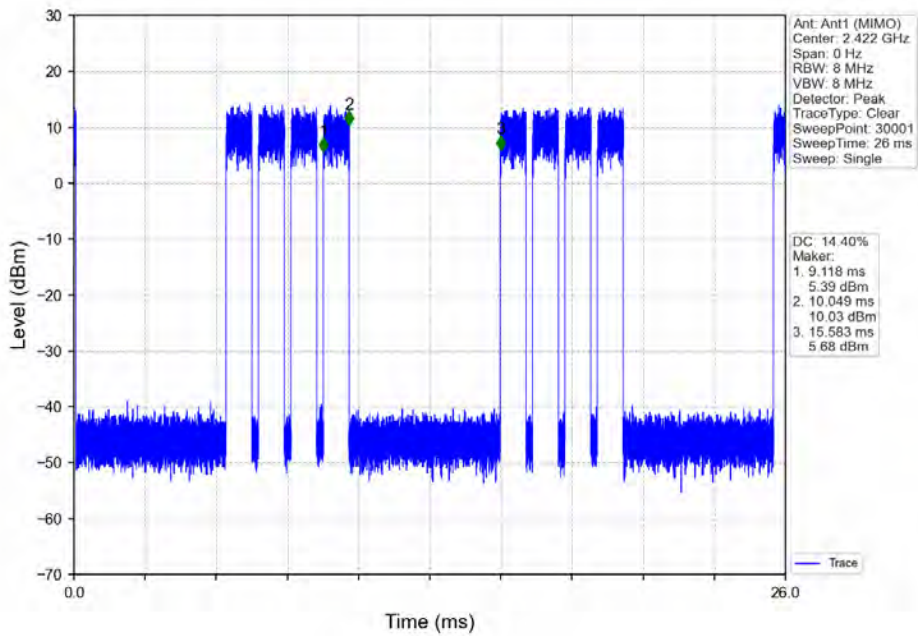
802.11n(HT20)_MCH_2437MHz_Ant1 (MIMO)_NTNV



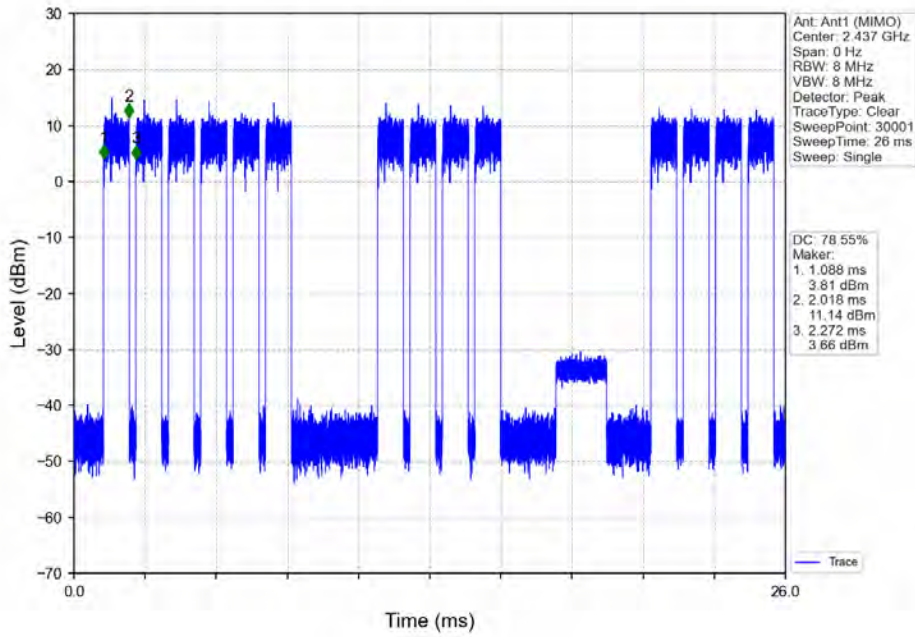
802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV



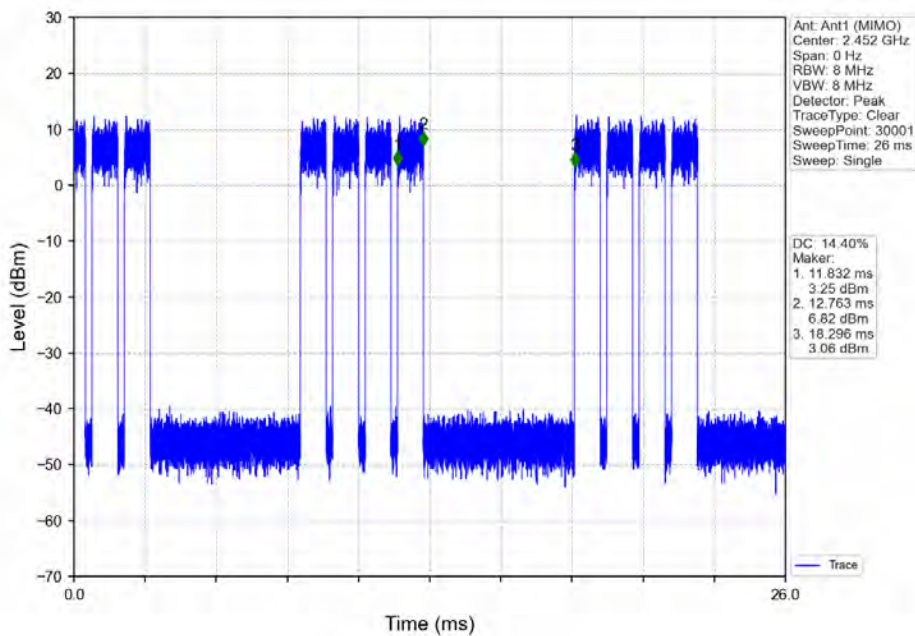
802.11n(HT40)_LCH_2422MHz_Ant1 (MIMO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (MIMO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (MIMO)_NTNV

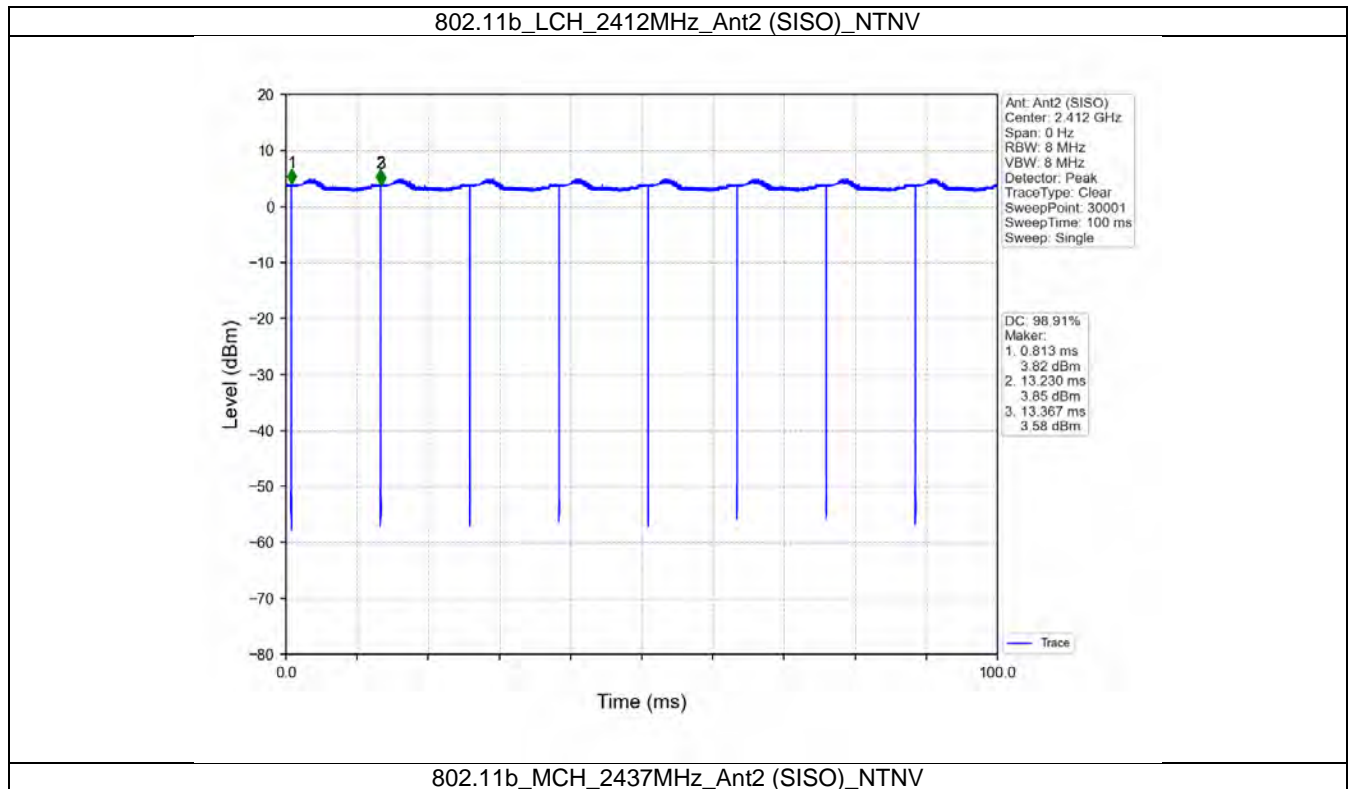


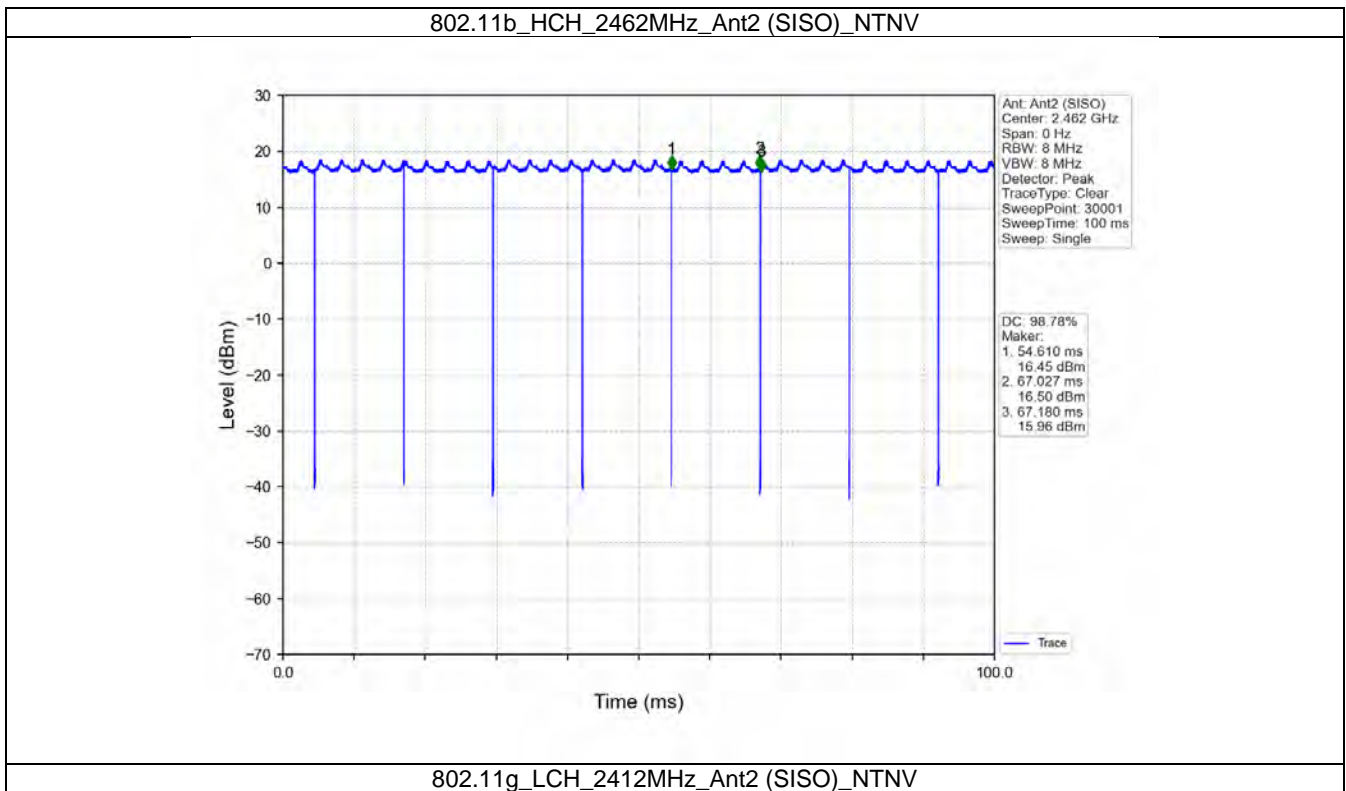
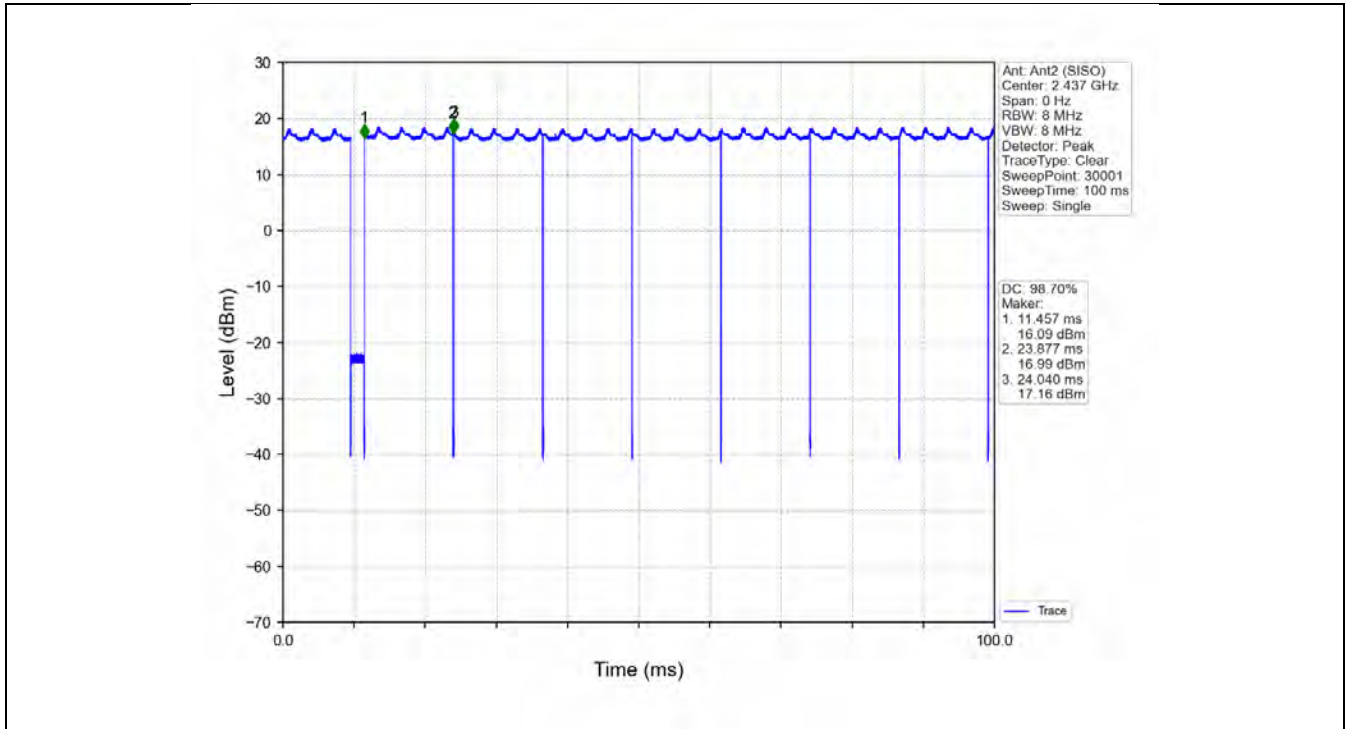
1.2 Ant2

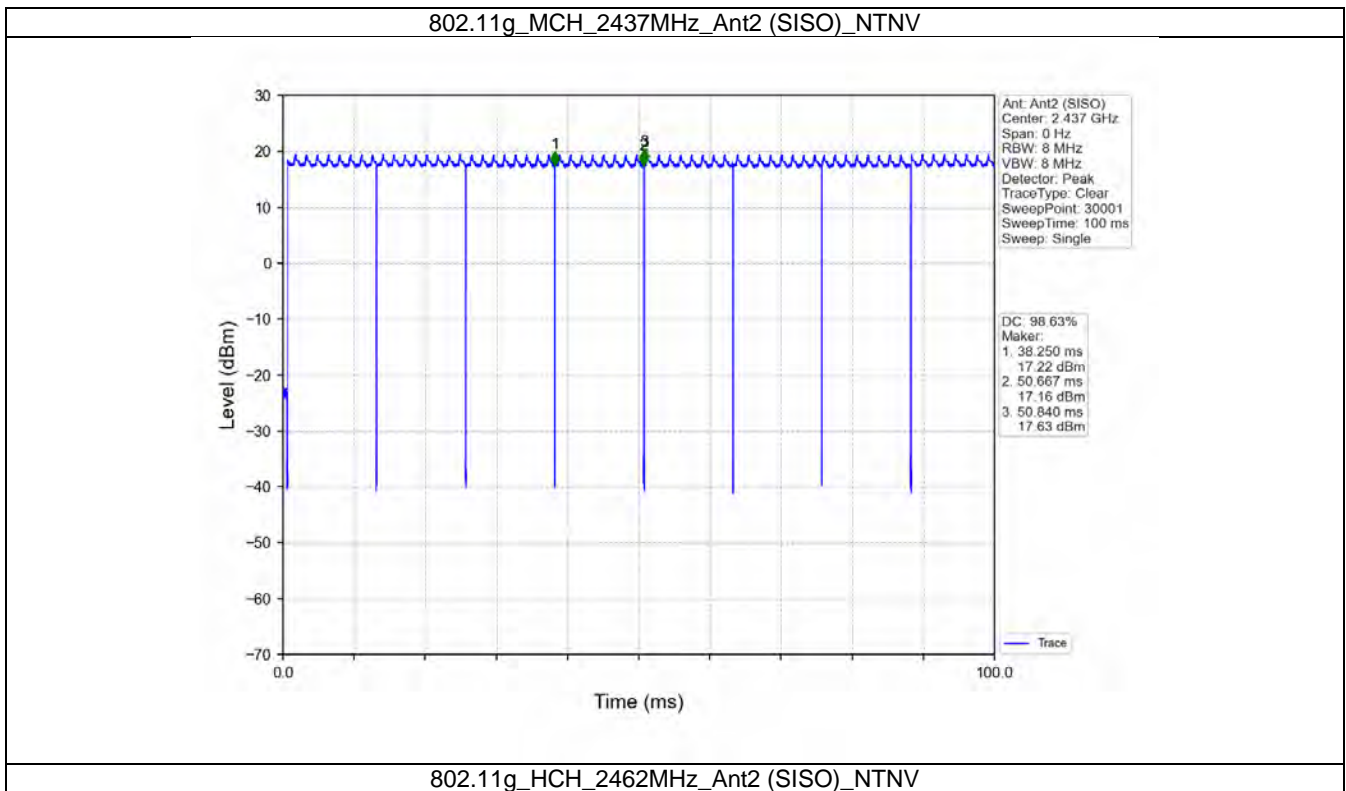
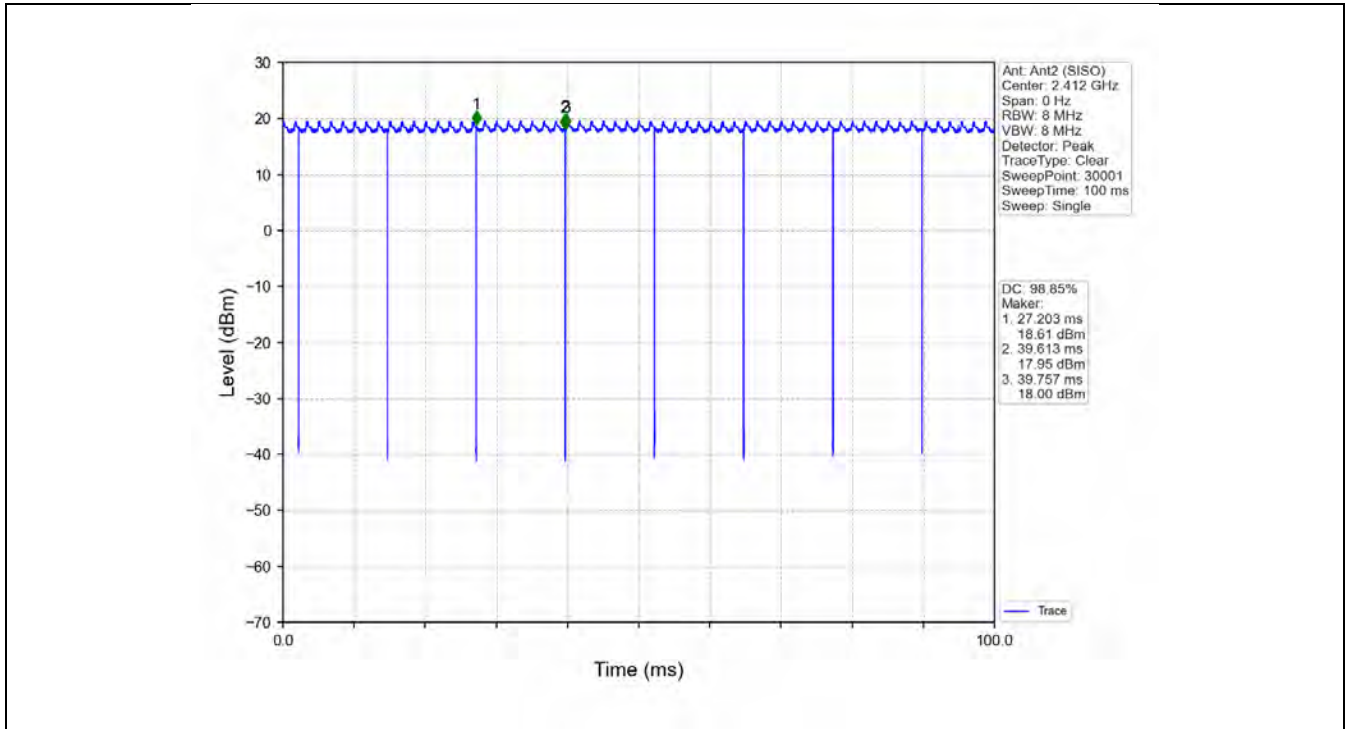
1.2.1 Test Result

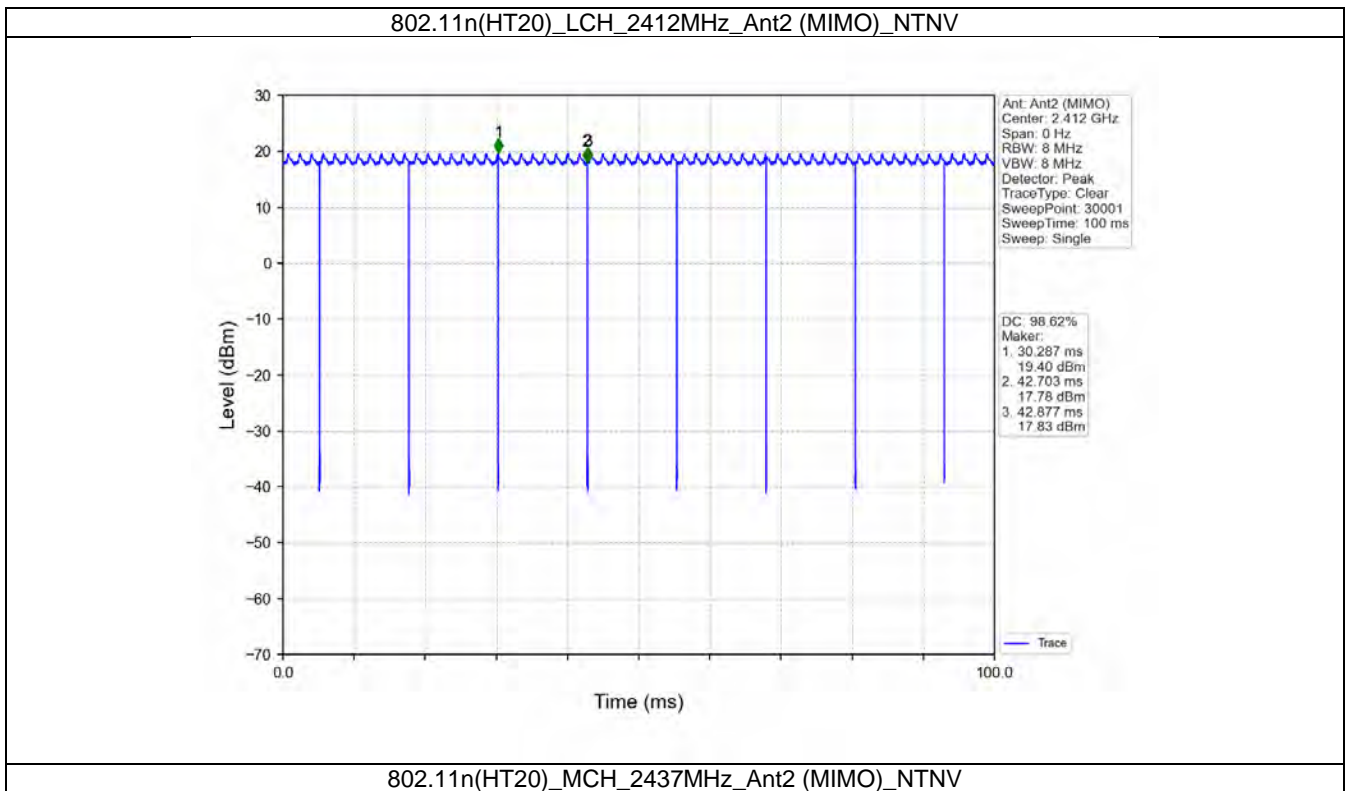
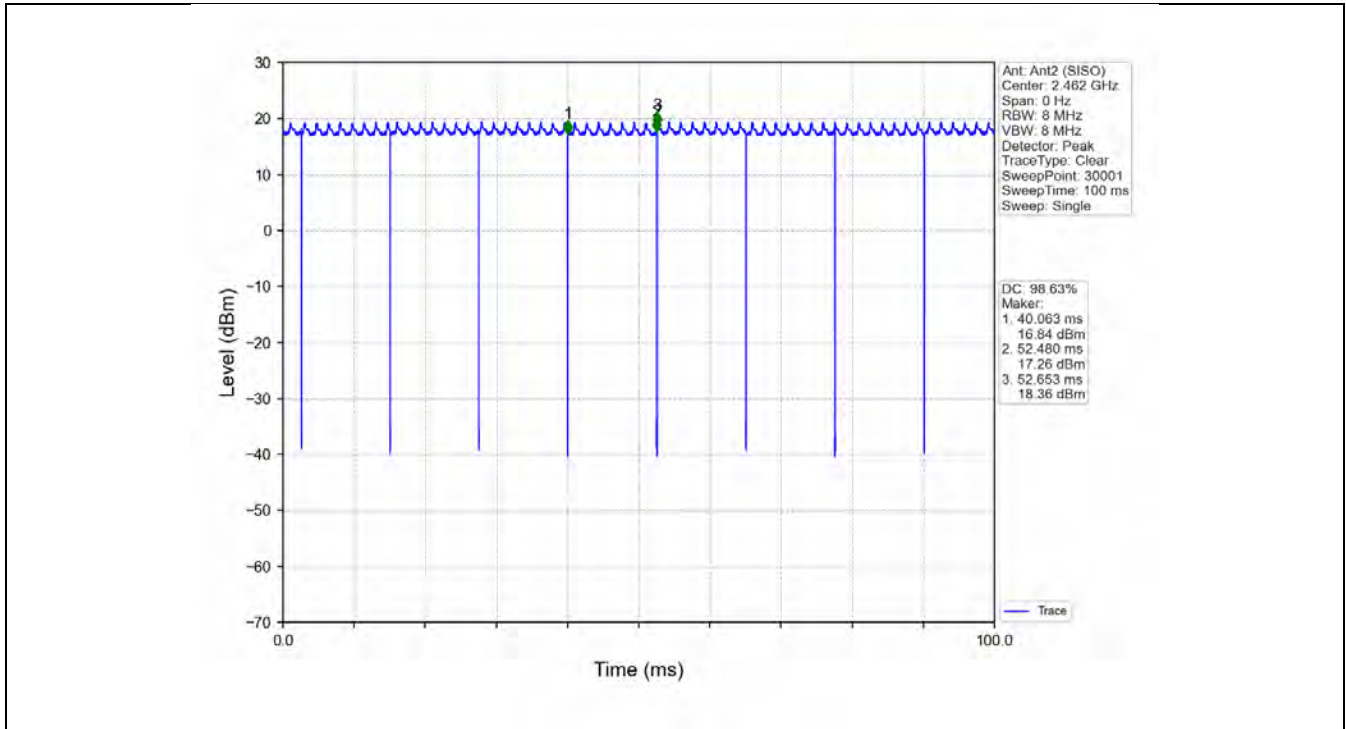
Ant2							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	12.417	12.554	98.91	0.05	0.42
		2437	12.420	12.583	98.70	0.06	0.87
		2462	12.417	12.570	98.78	0.05	0.93
802.11g	SISO	2412	12.410	12.554	98.85	0.05	0.79
		2437	12.417	12.590	98.63	0.06	1.08
		2462	12.417	12.590	98.63	0.06	1.08
802.11n (HT20)	MIMO	2412	12.416	12.590	98.62	0.06	1.03
		2437	12.417	12.580	98.70	0.06	1.00
		2462	12.416	12.590	98.62	0.06	1.03
802.11n (HT40)	MIMO	2422	0.930	1.183	78.61	1.05	0.00
		2437	0.931	1.184	78.63	1.04	0.07
		2452	0.930	1.184	78.55	1.05	0.07

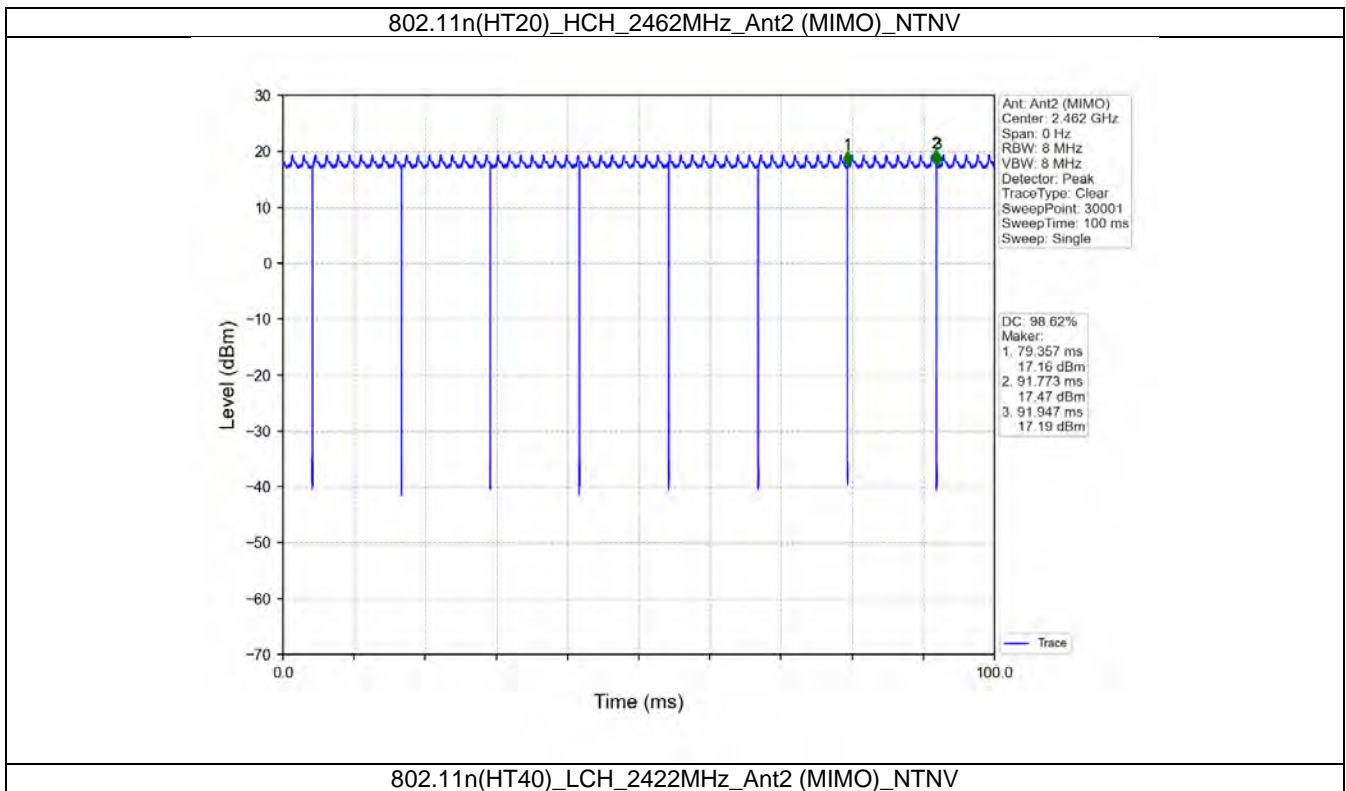
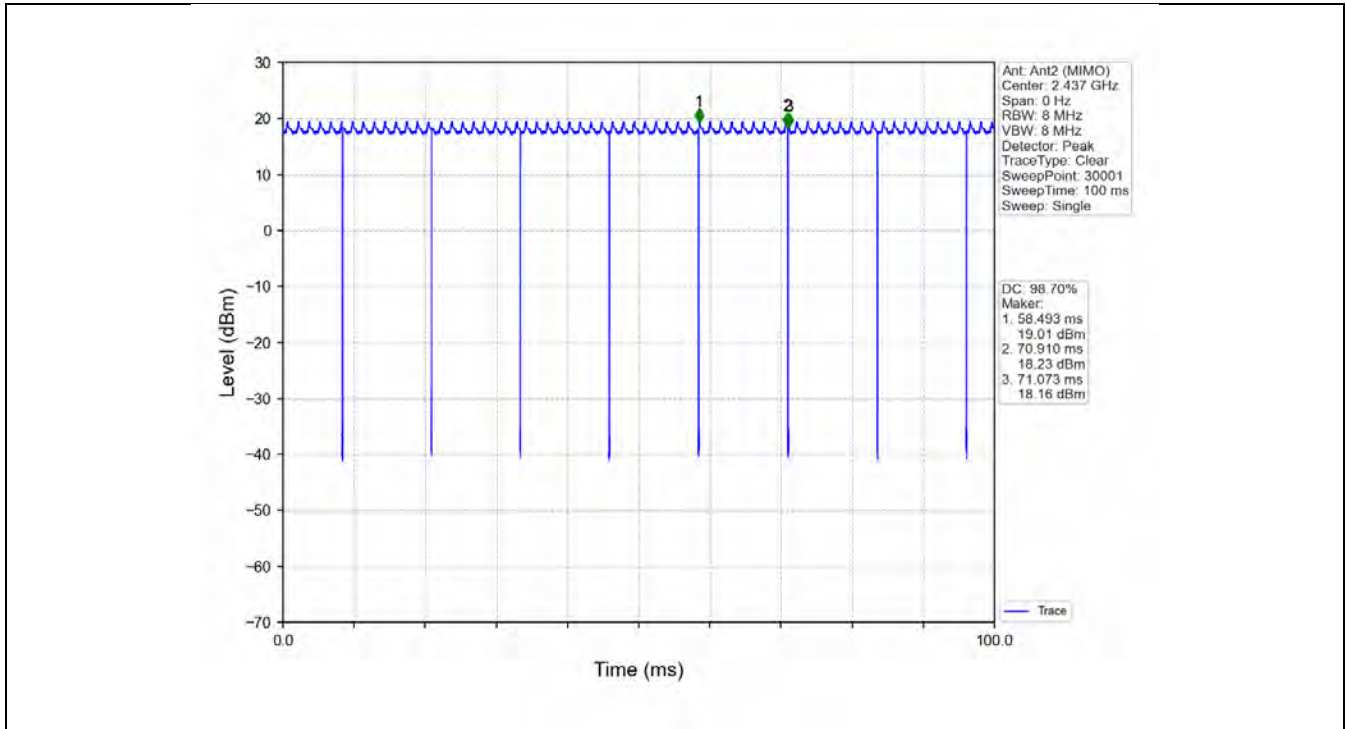
1.2.2 Test Graph

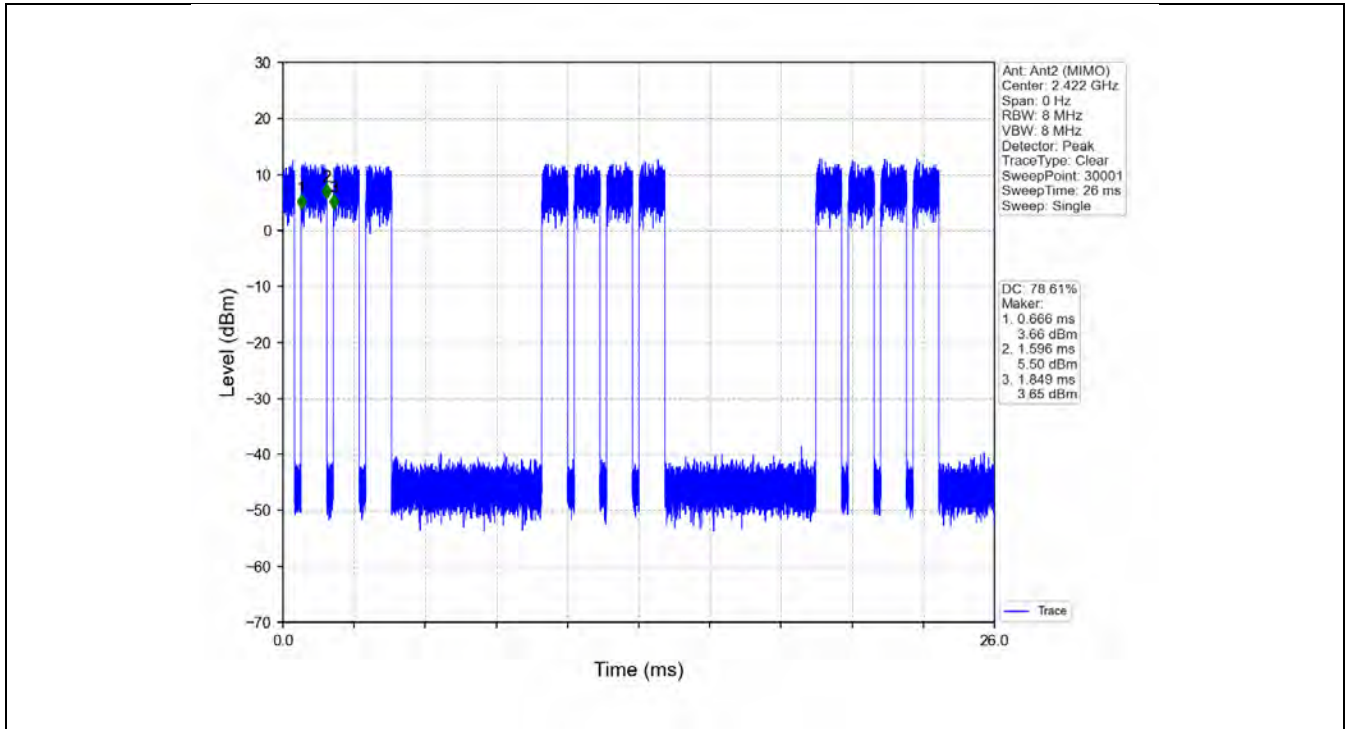




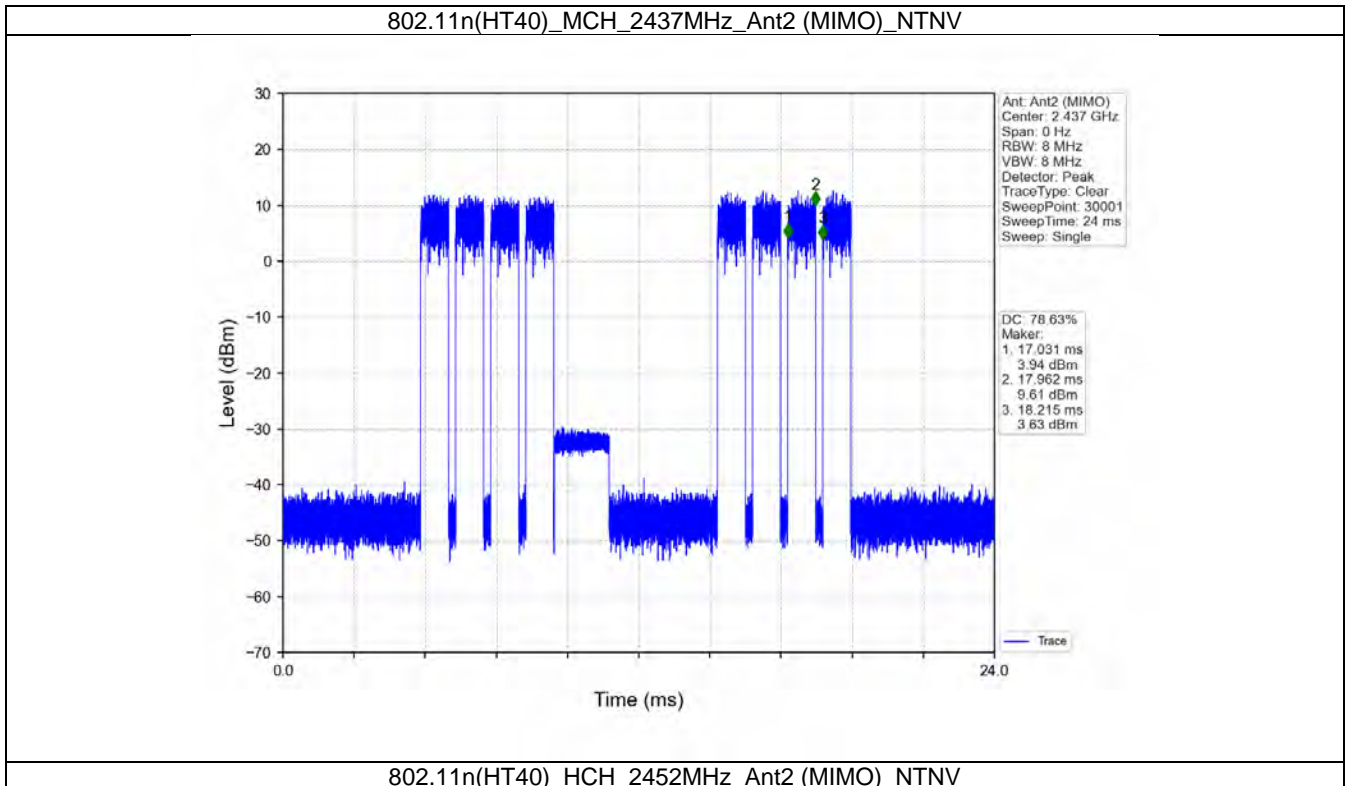




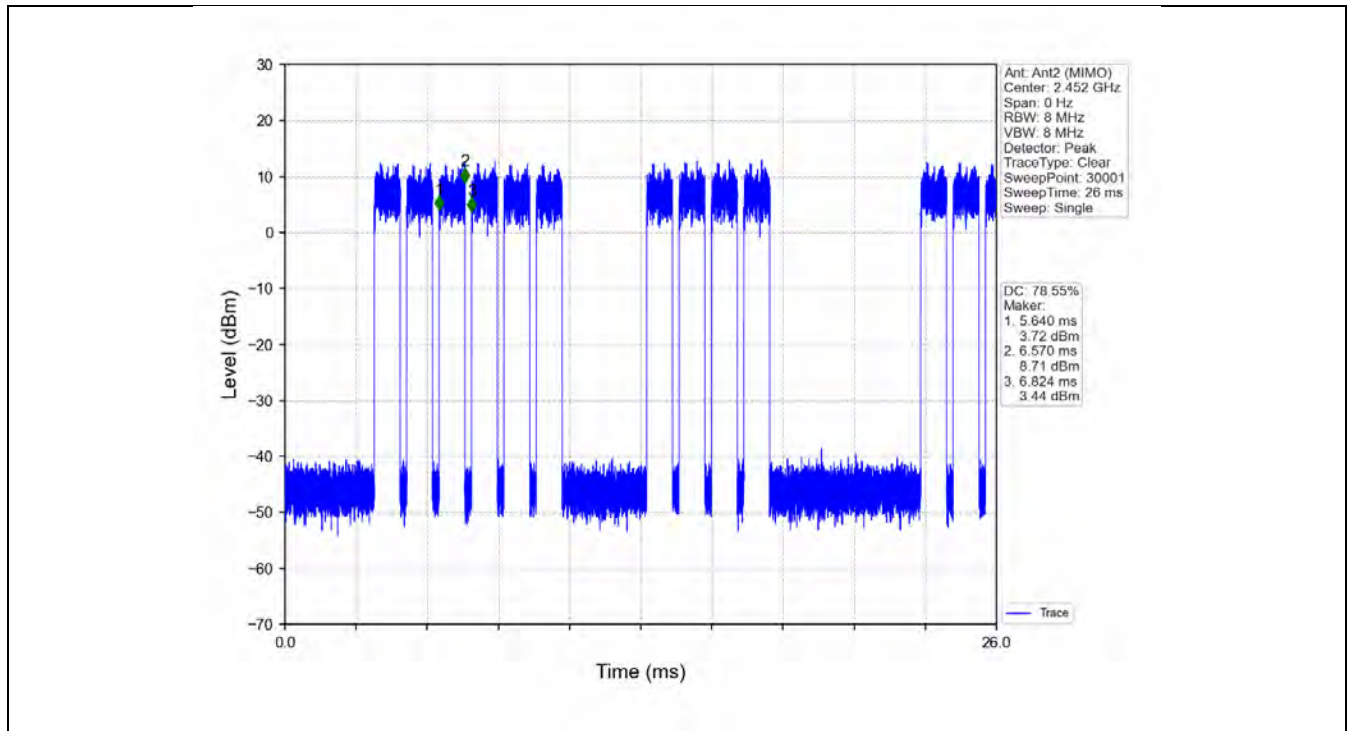




802.11n(HT40)_MCH_2437MHz_Ant2 (MIMO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant2 (MIMO)_NTNV



2. Bandwidth

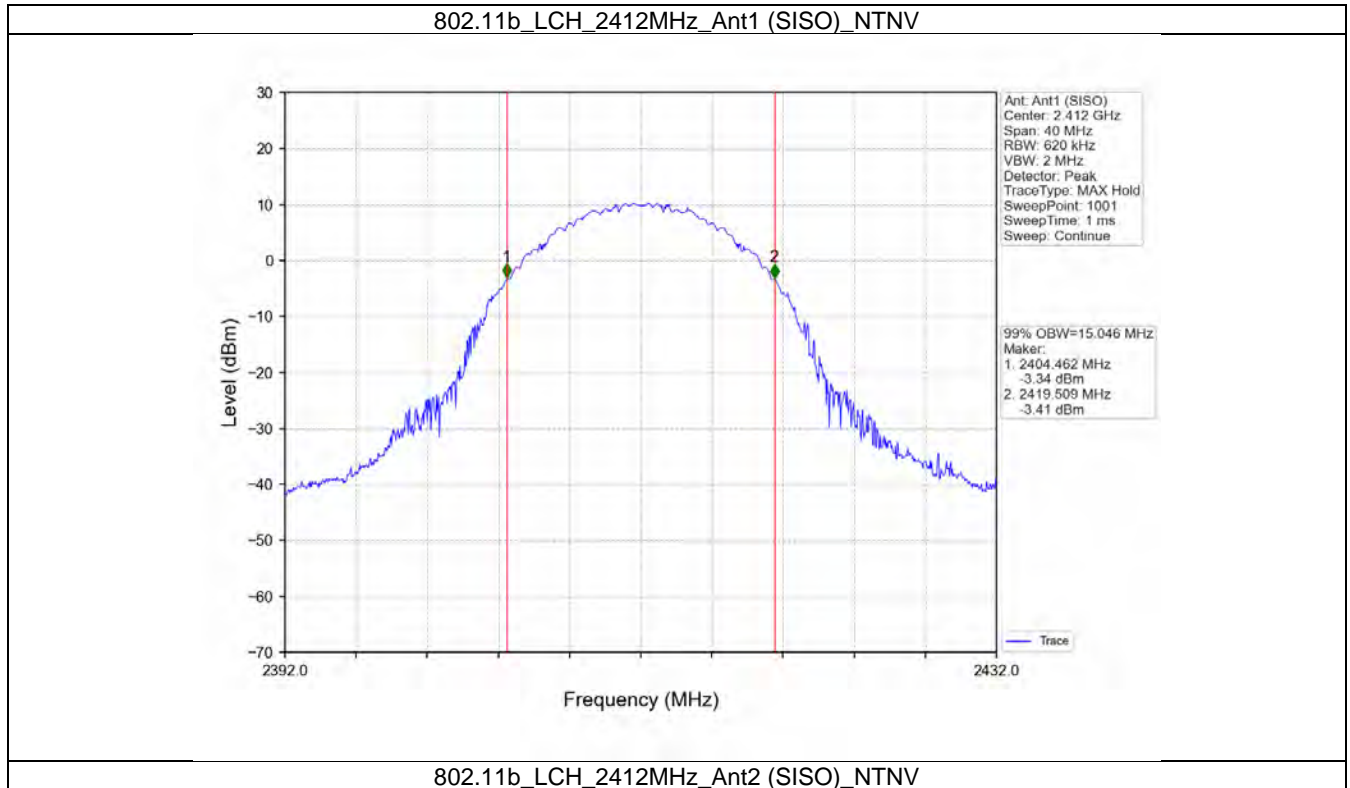
2.1 OBW

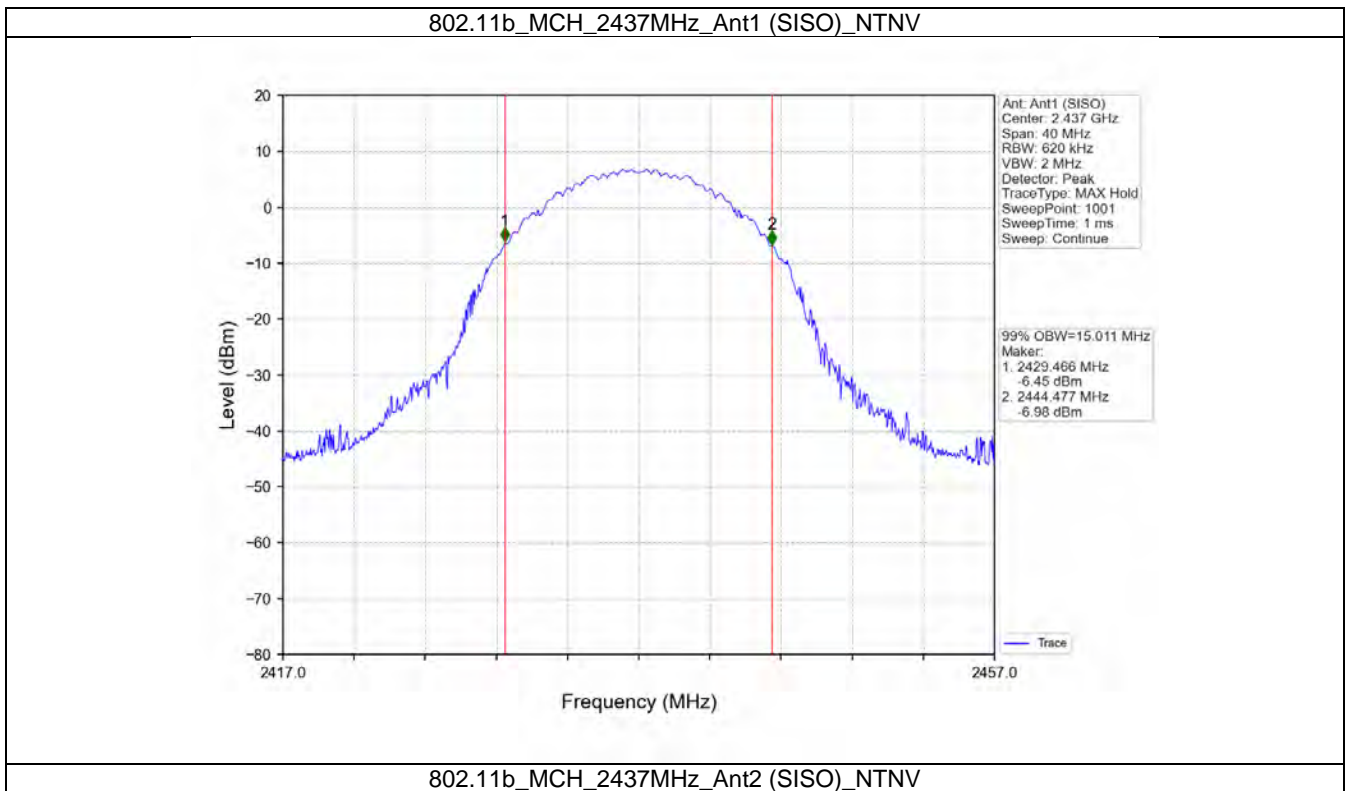
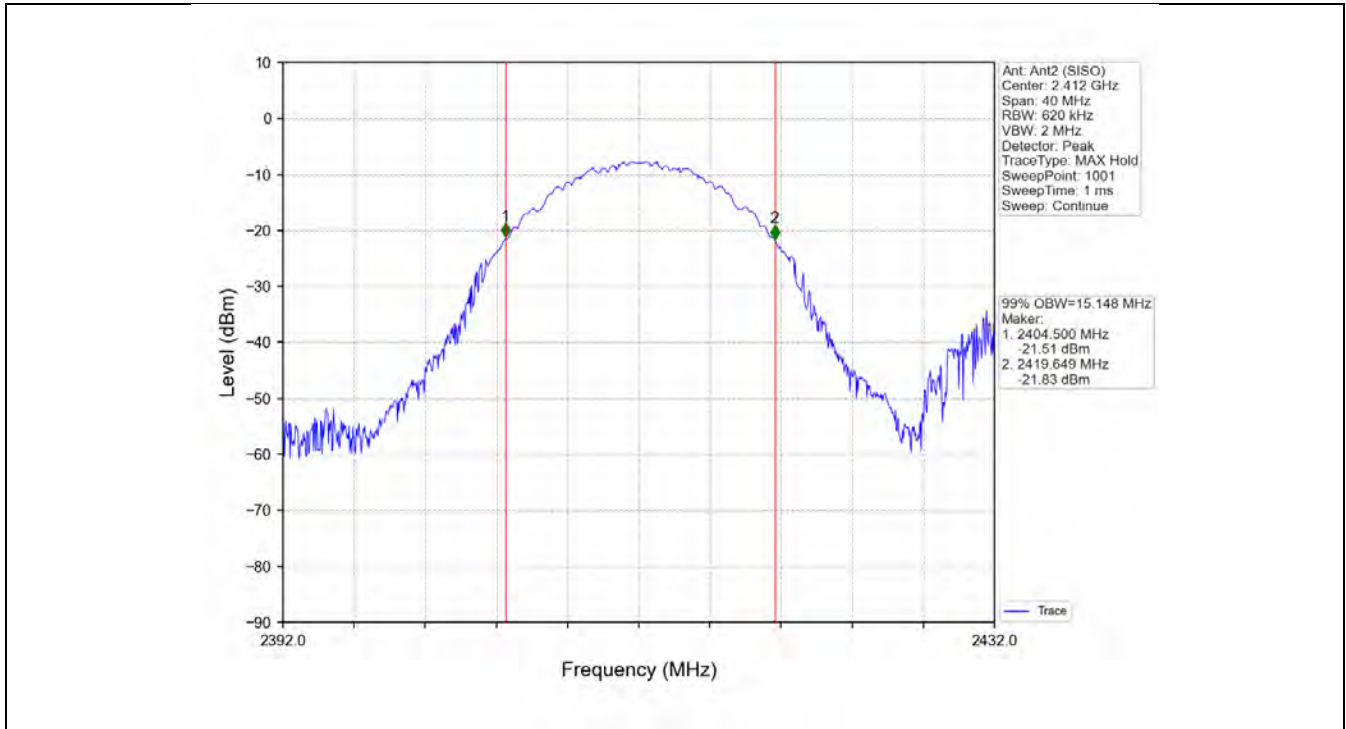
2.1.1 Test Result

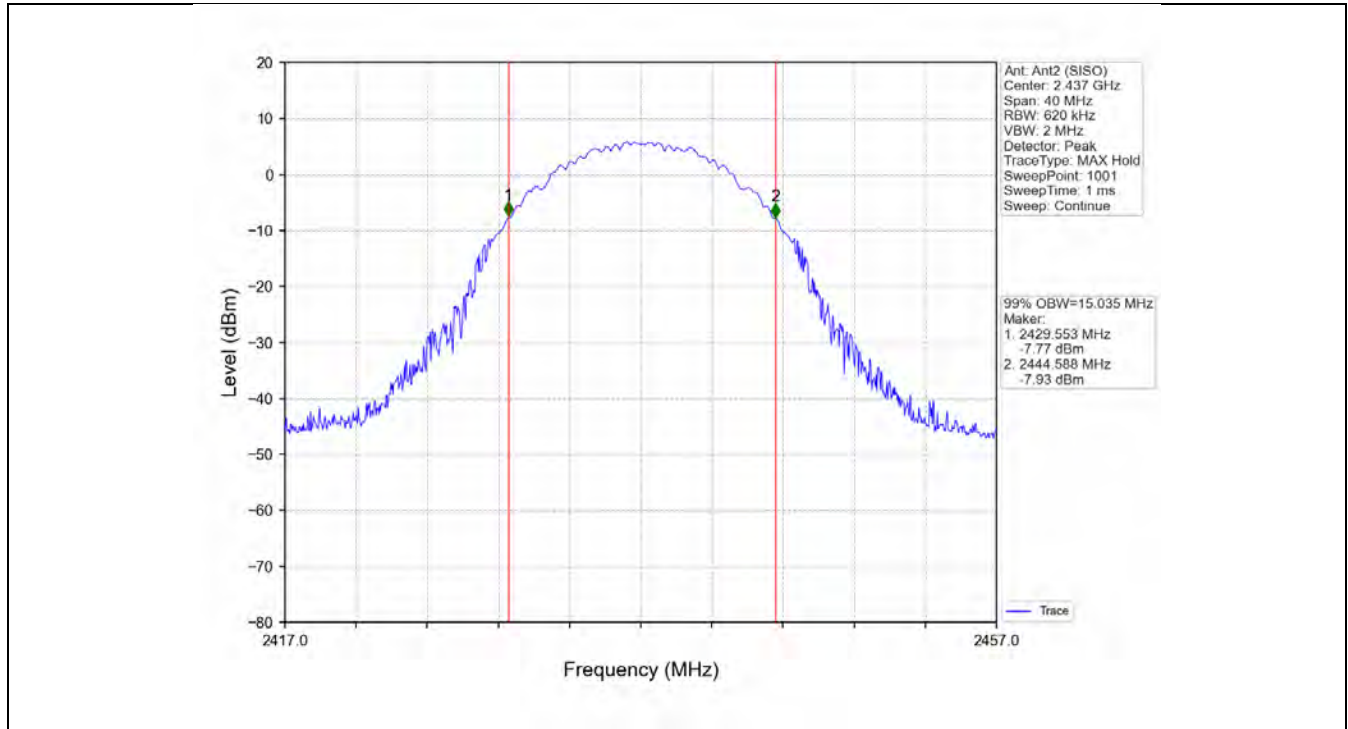
Mode	TX Type	Frequency (MHz)	Ant	99% Occupied Bandwidth (MHz)	Limit (MHz)	Verdict
802.11b	SISO	2412	1	15.046	/	Pass
			2	15.148	/	Pass
		2437	1	15.011	/	Pass
			2	15.035	/	Pass
		2462	1	15.072	/	Pass
			2	15.186	/	Pass
802.11g	SISO	2412	1	15.047	/	Pass
			2	15.057	/	Pass
		2437	1	15.056	/	Pass
			2	15.057	/	Pass
		2462	1	15.077	/	Pass
			2	14.989	/	Pass
802.11n (HT20)	MIMO	2412	1	18.398	/	Pass
			2	18.421	/	Pass
		2437	1	18.422	/	Pass
			2	18.401	/	Pass
		2462	1	18.418	/	Pass
			2	18.415	/	Pass
802.11n (HT40)	MIMO	2422	1	36.058	/	Pass
			2	36.101	/	Pass

	2437	1	36.055	/	Pass
		2	36.103	/	Pass
	2452	1	36.087	/	Pass
		2	36.141	/	Pass

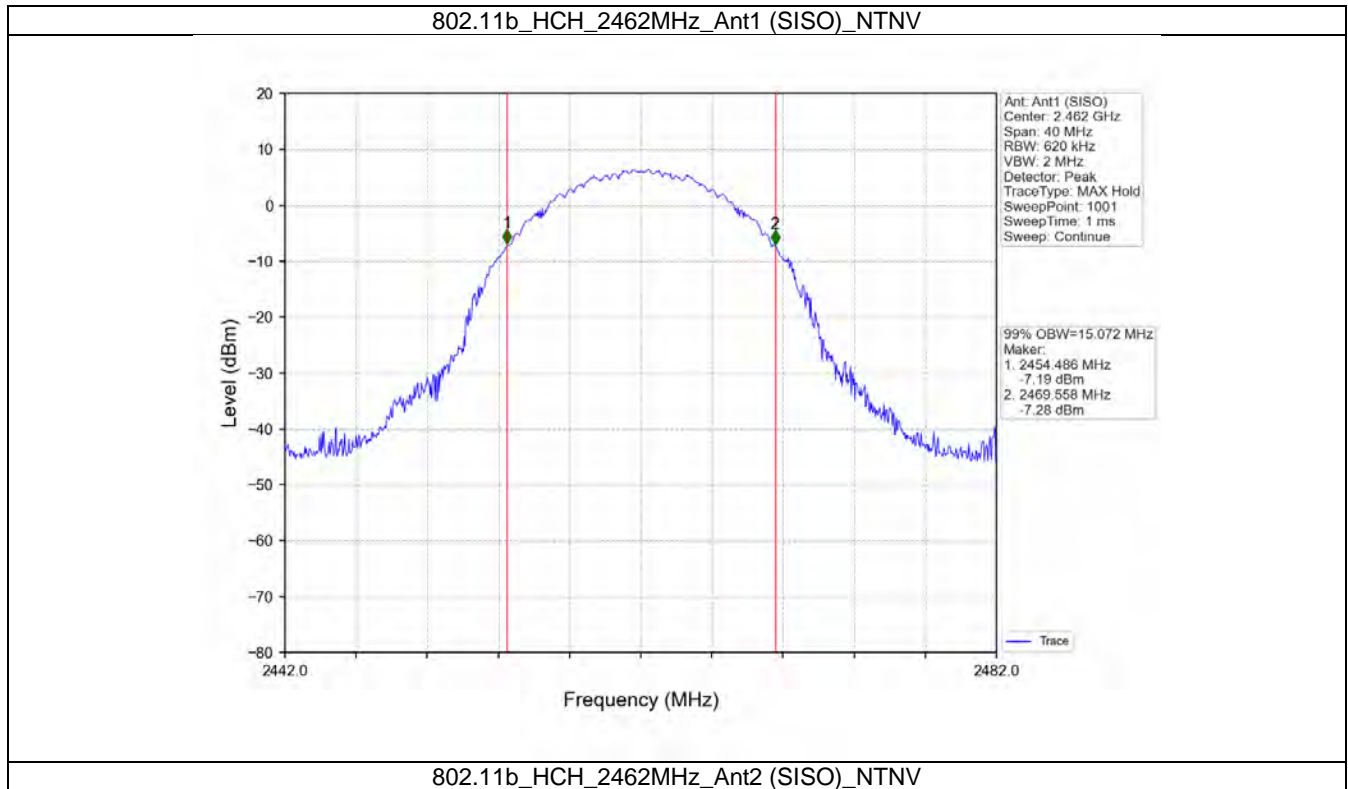
2.1.2 Test Graph



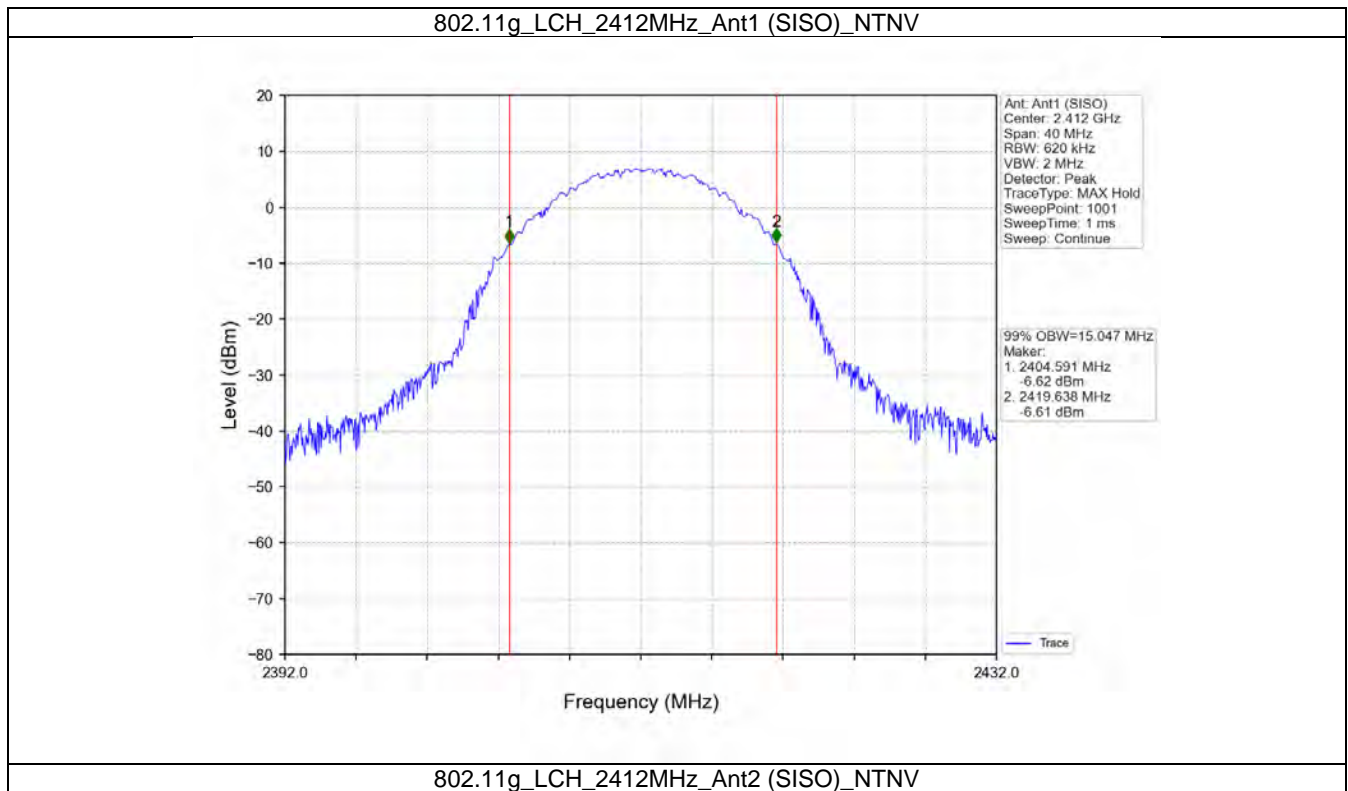
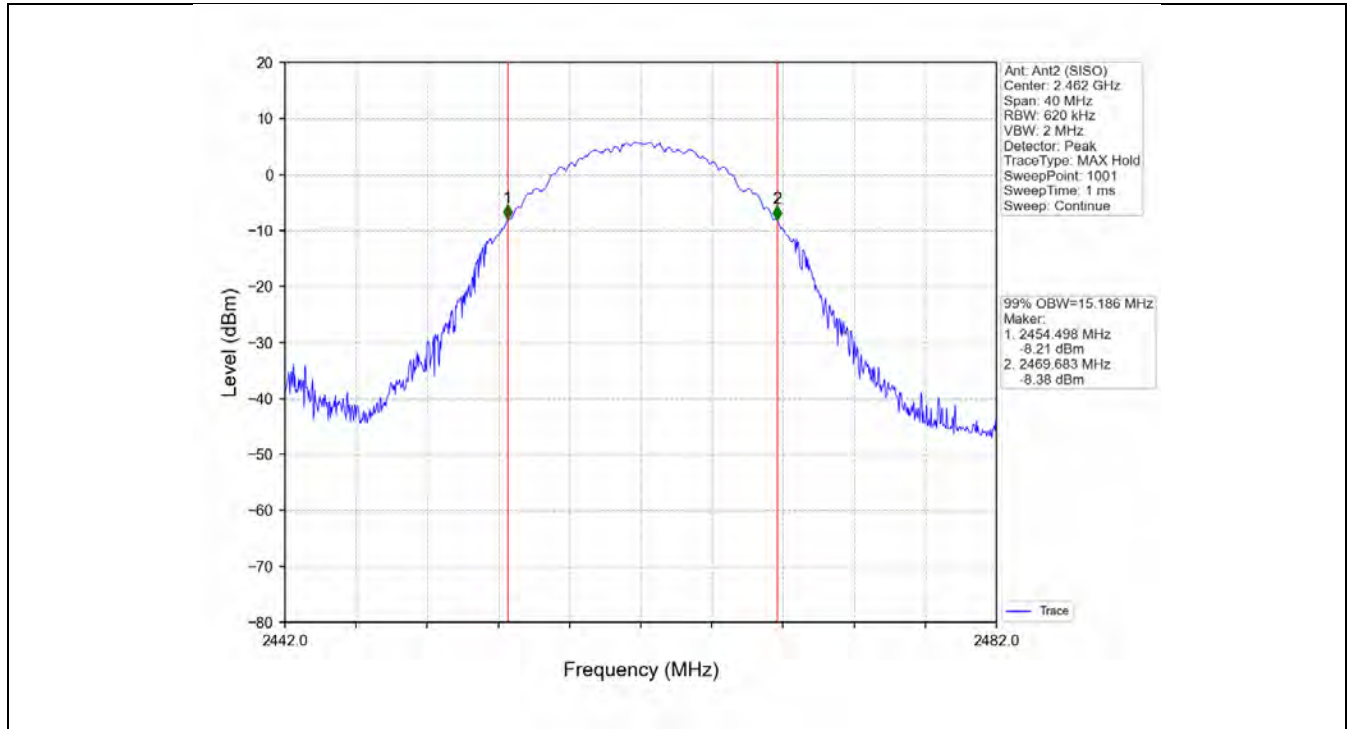


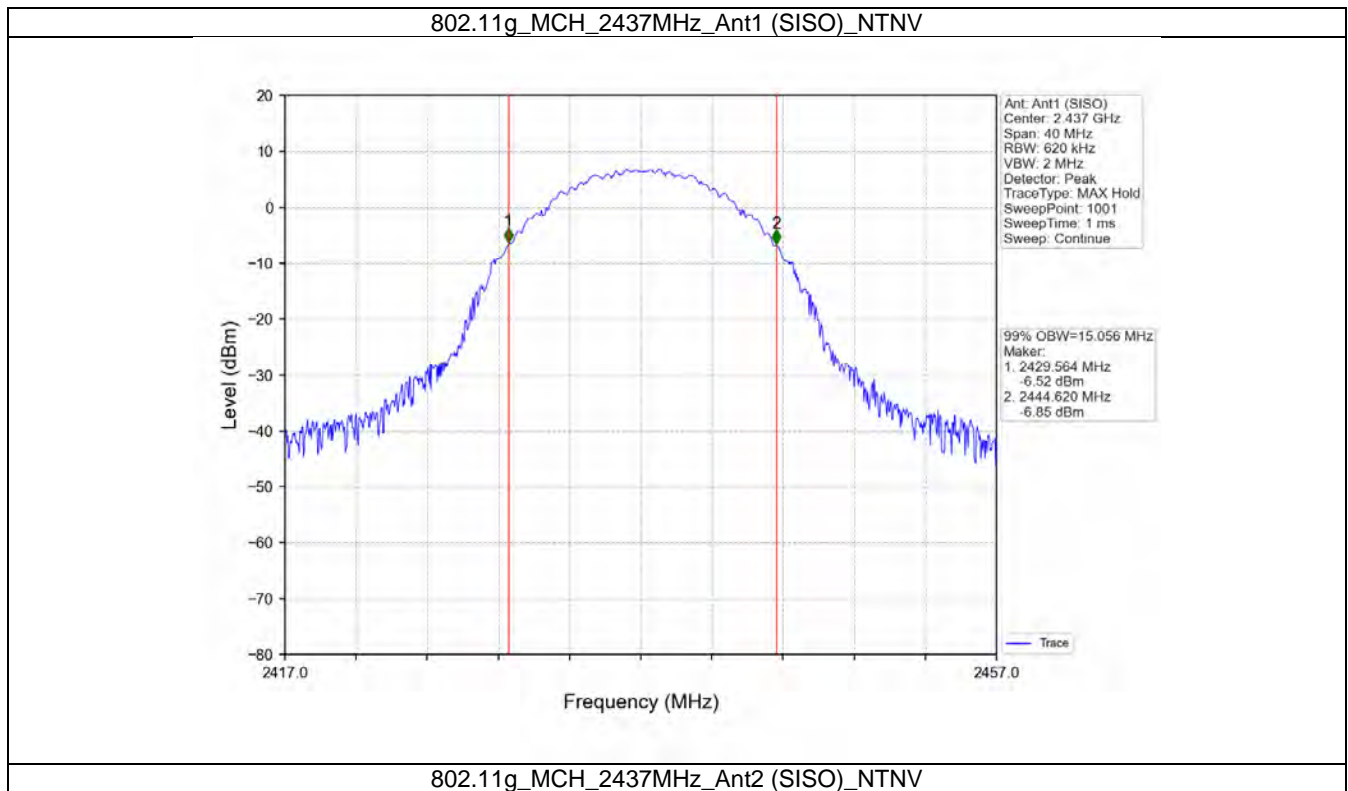
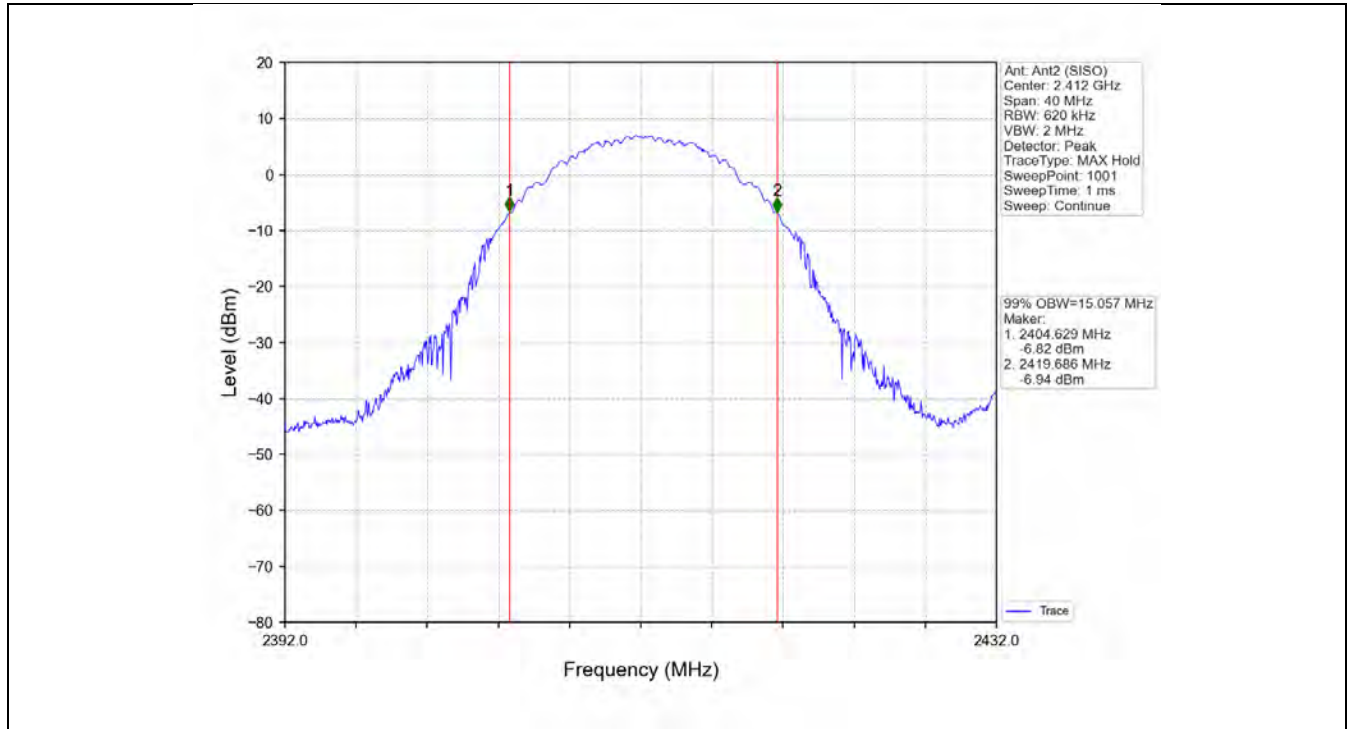


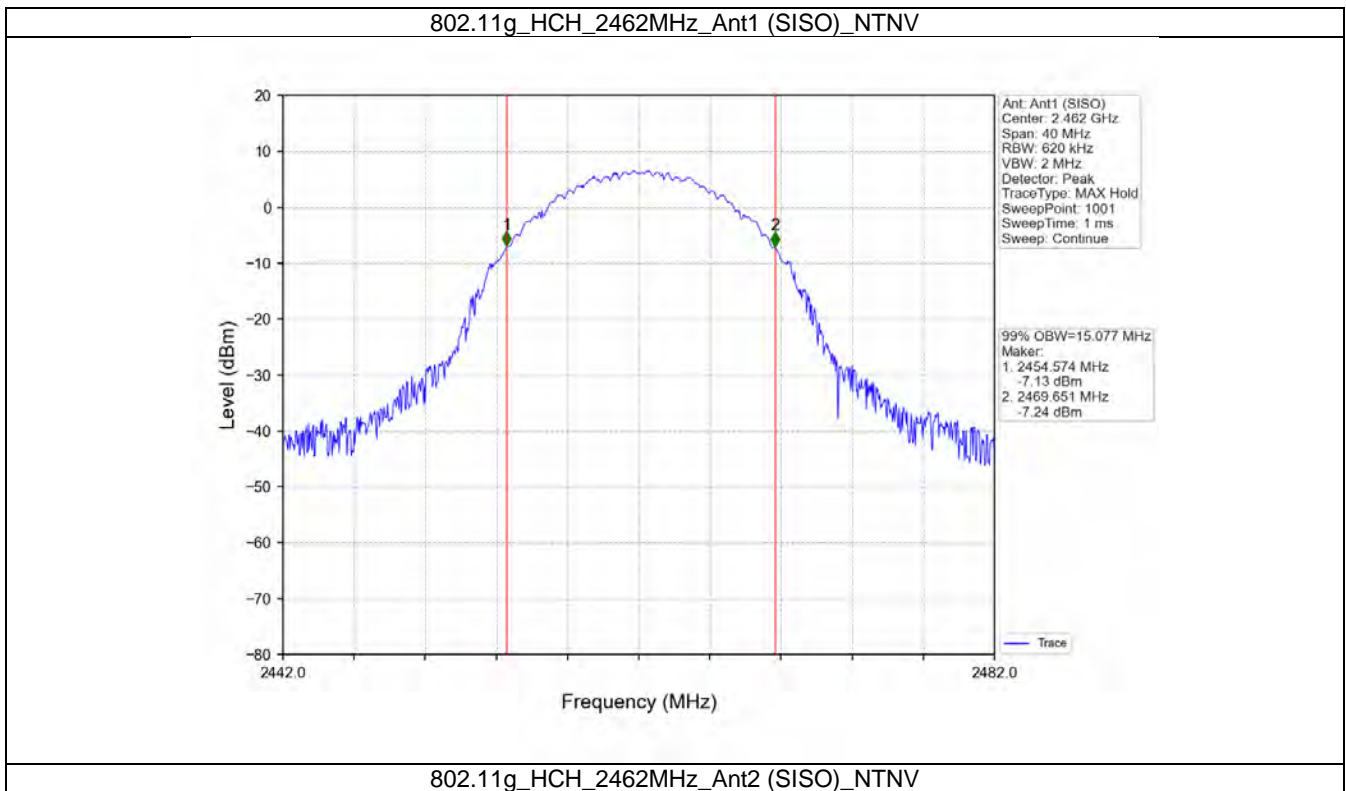
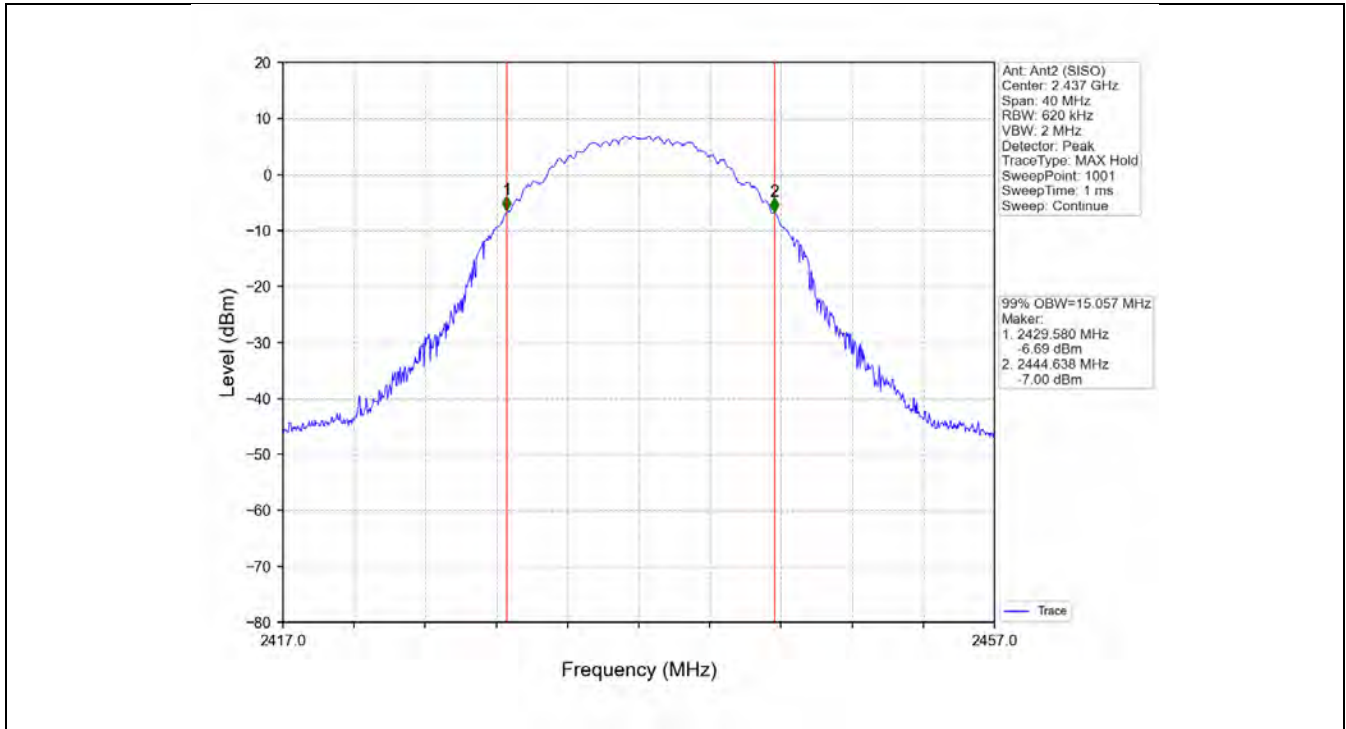
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

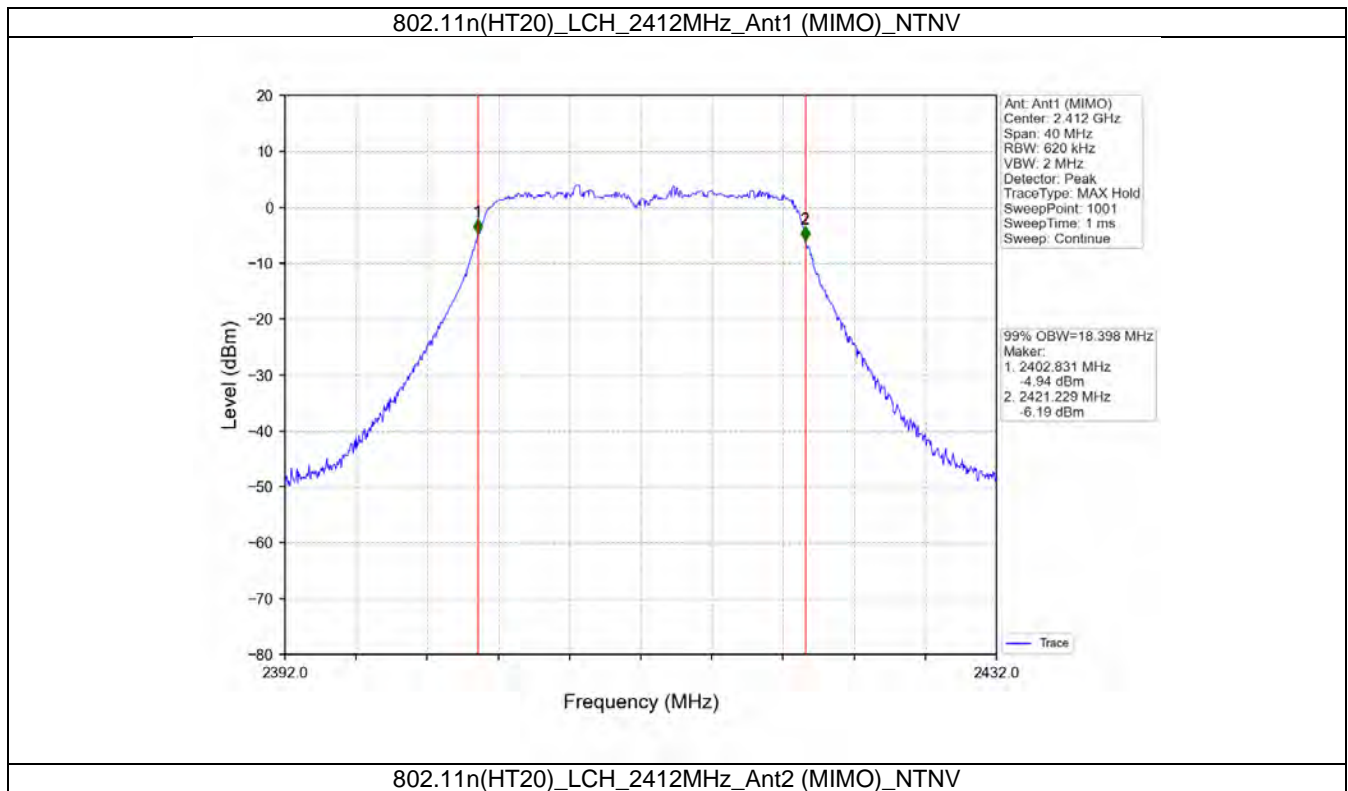
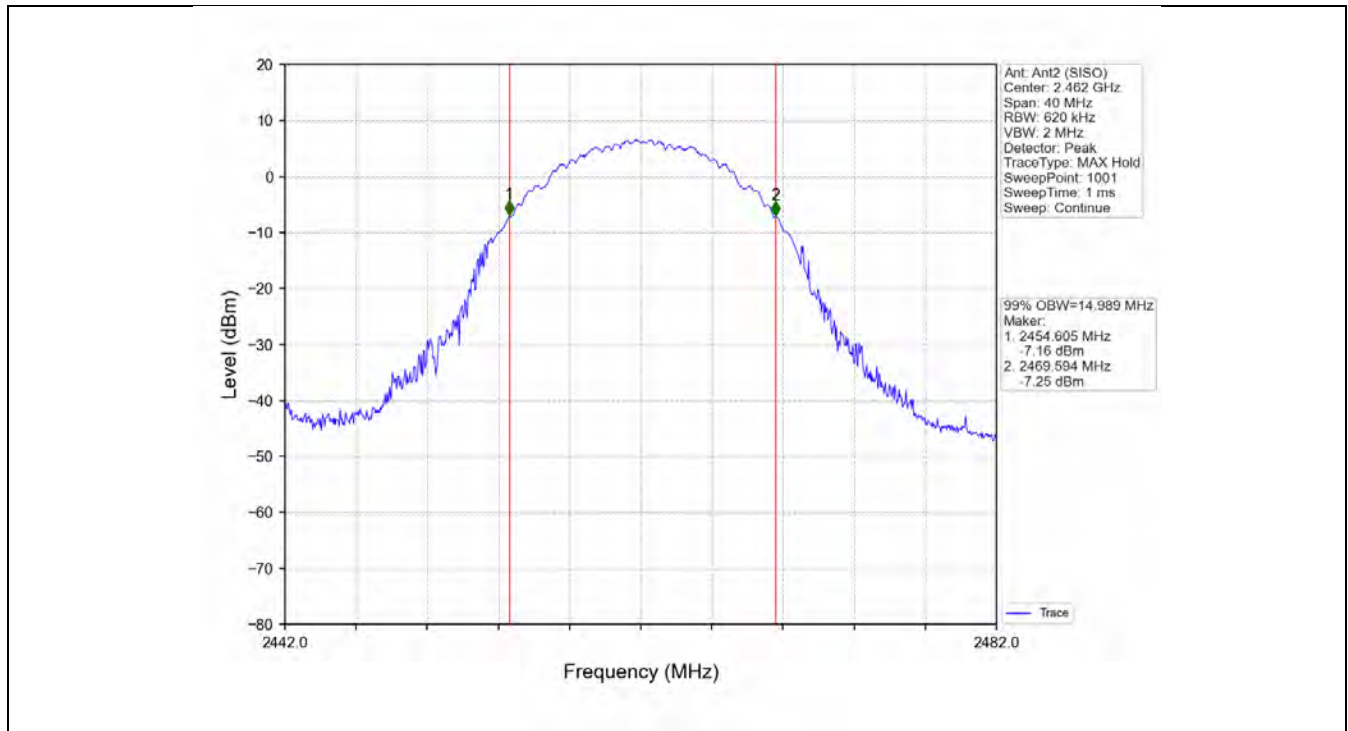


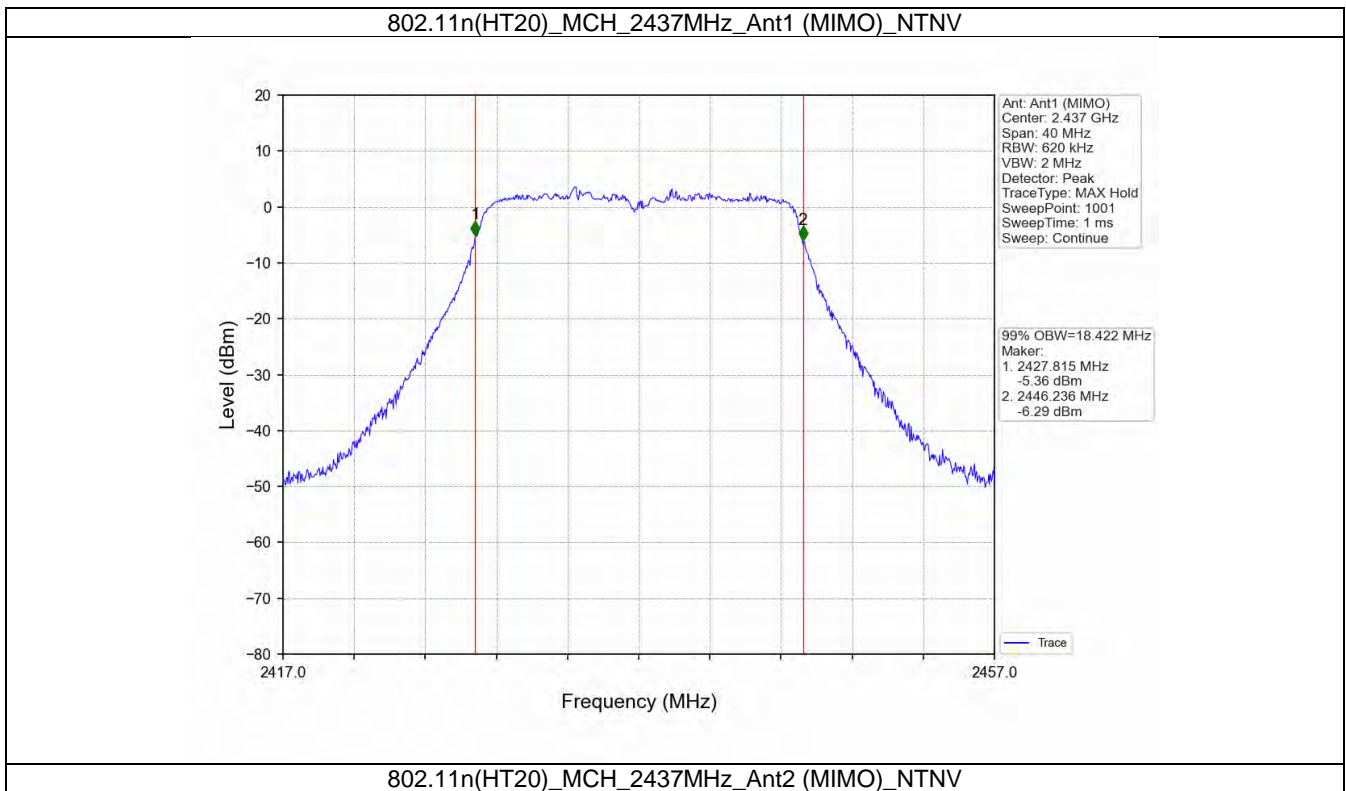
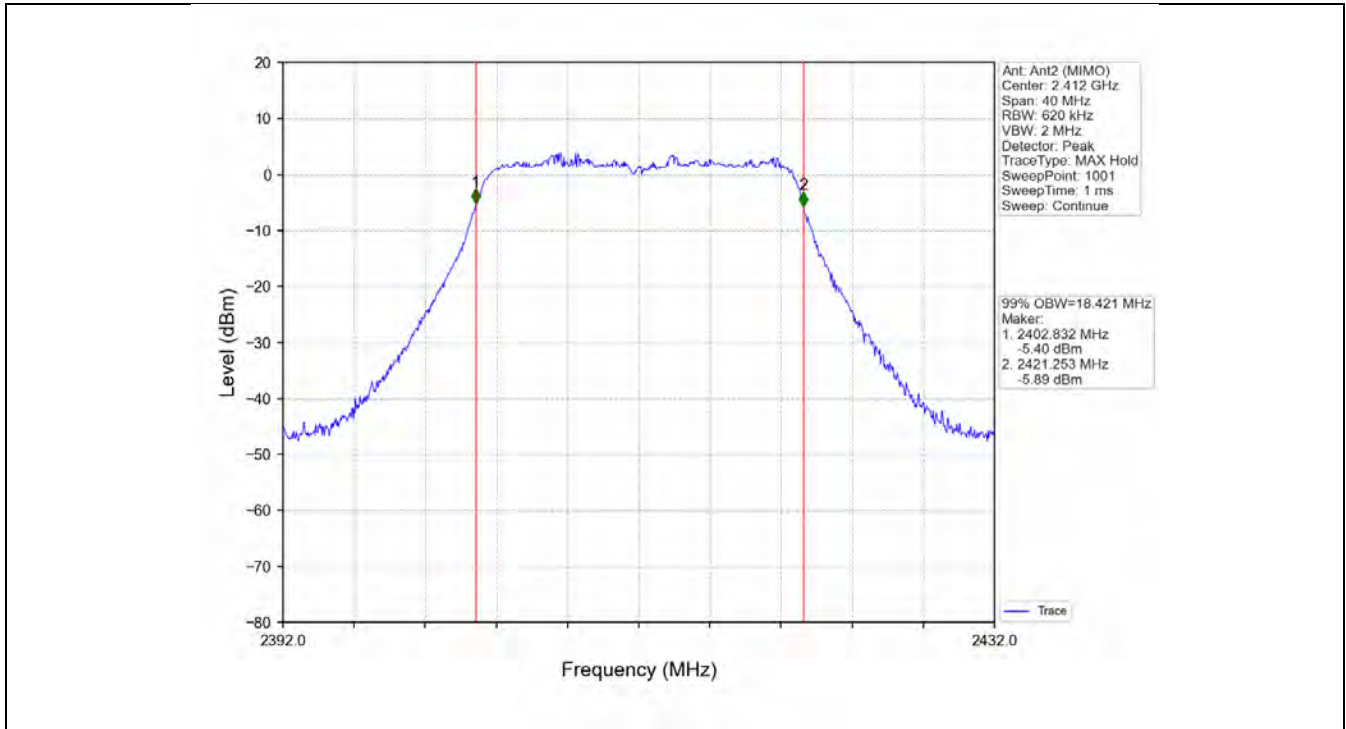
802.11b_HCH_2462MHz_Ant2 (SISO)_NTNV

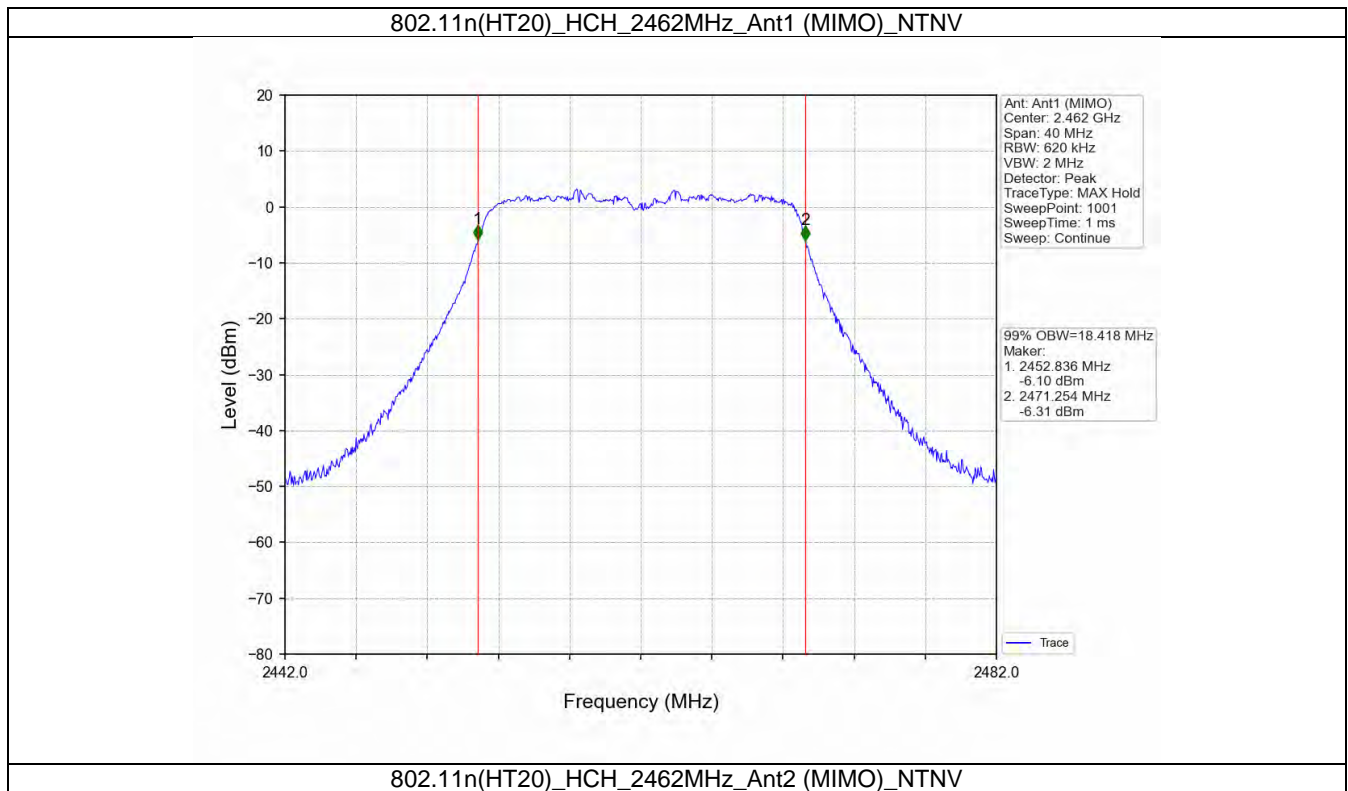
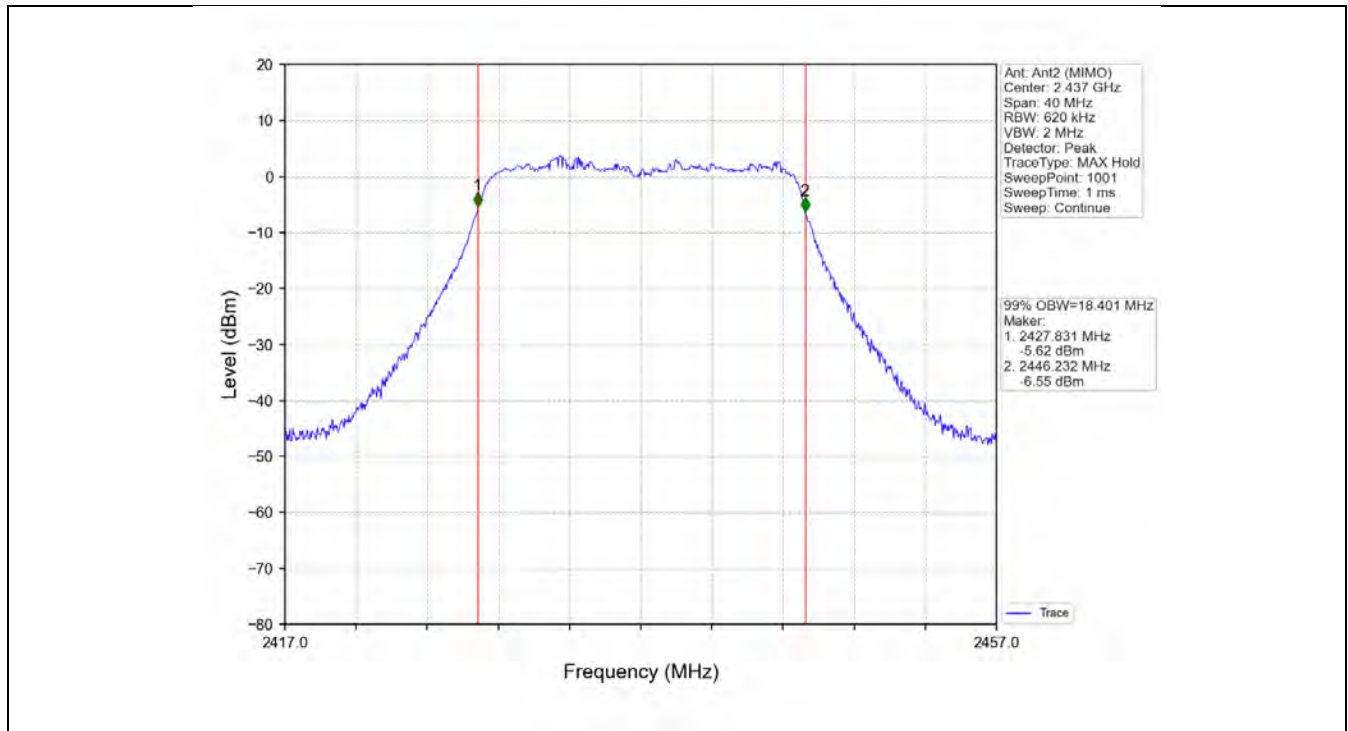


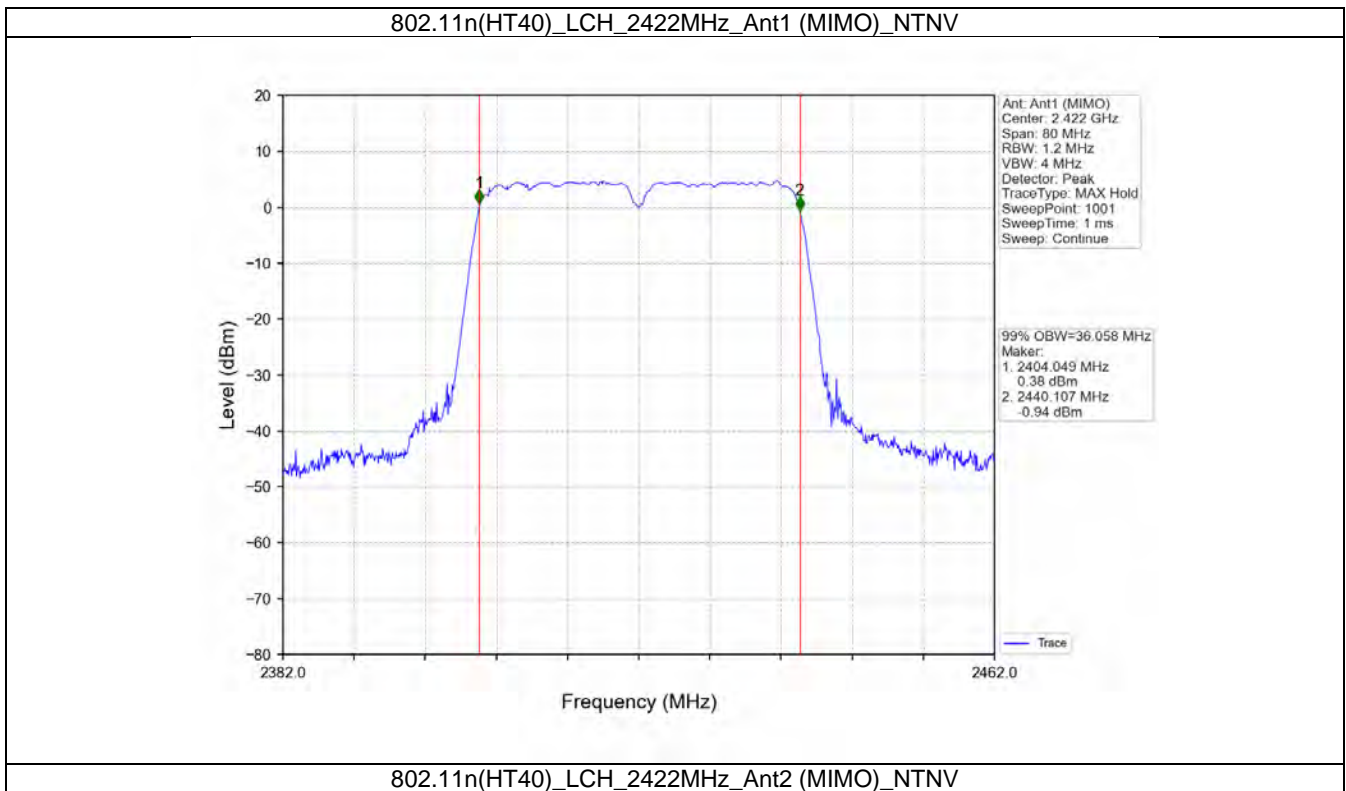
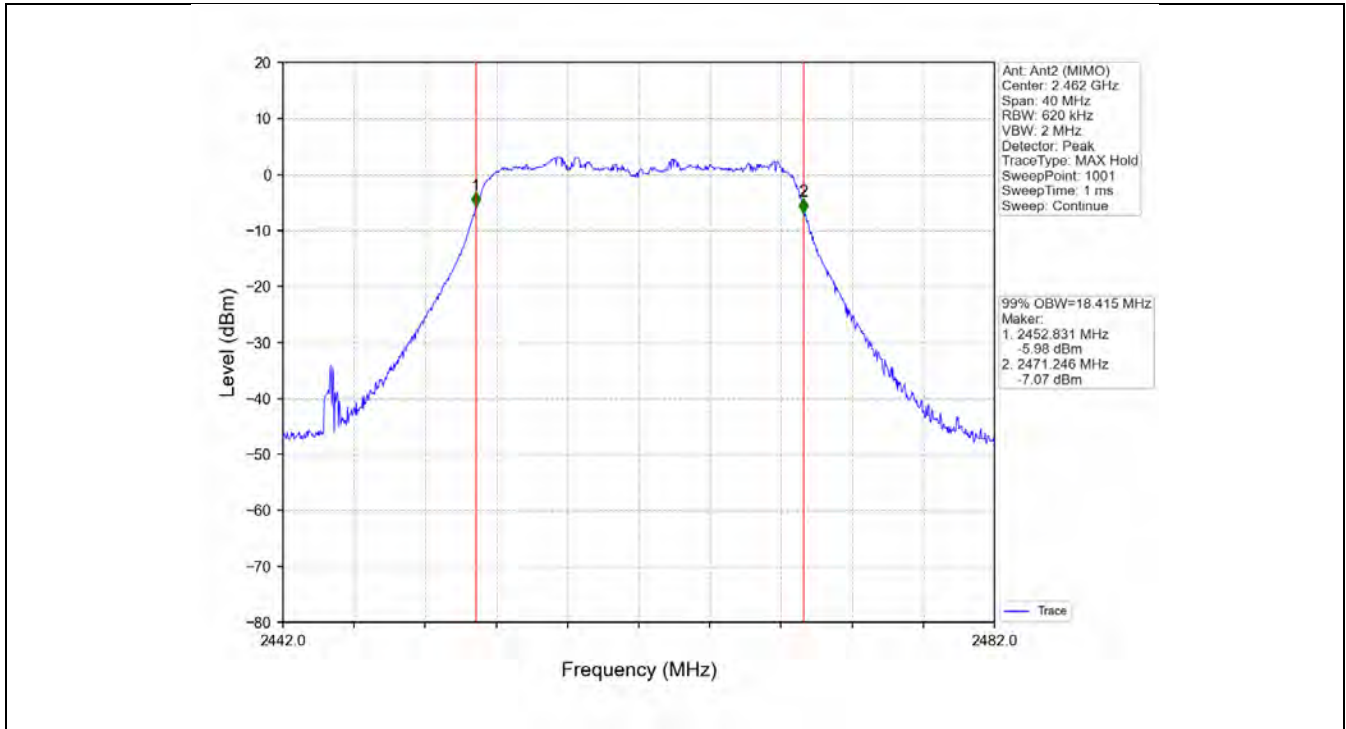


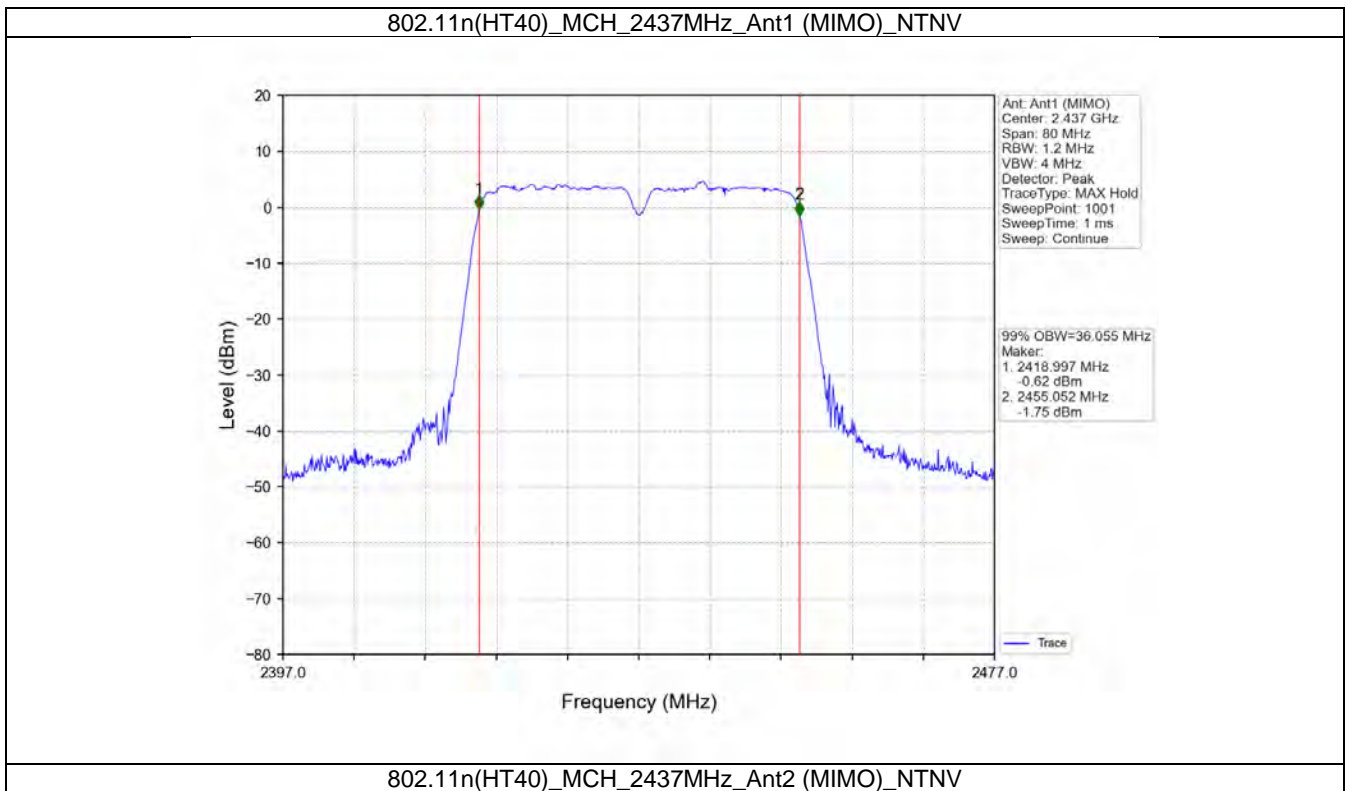
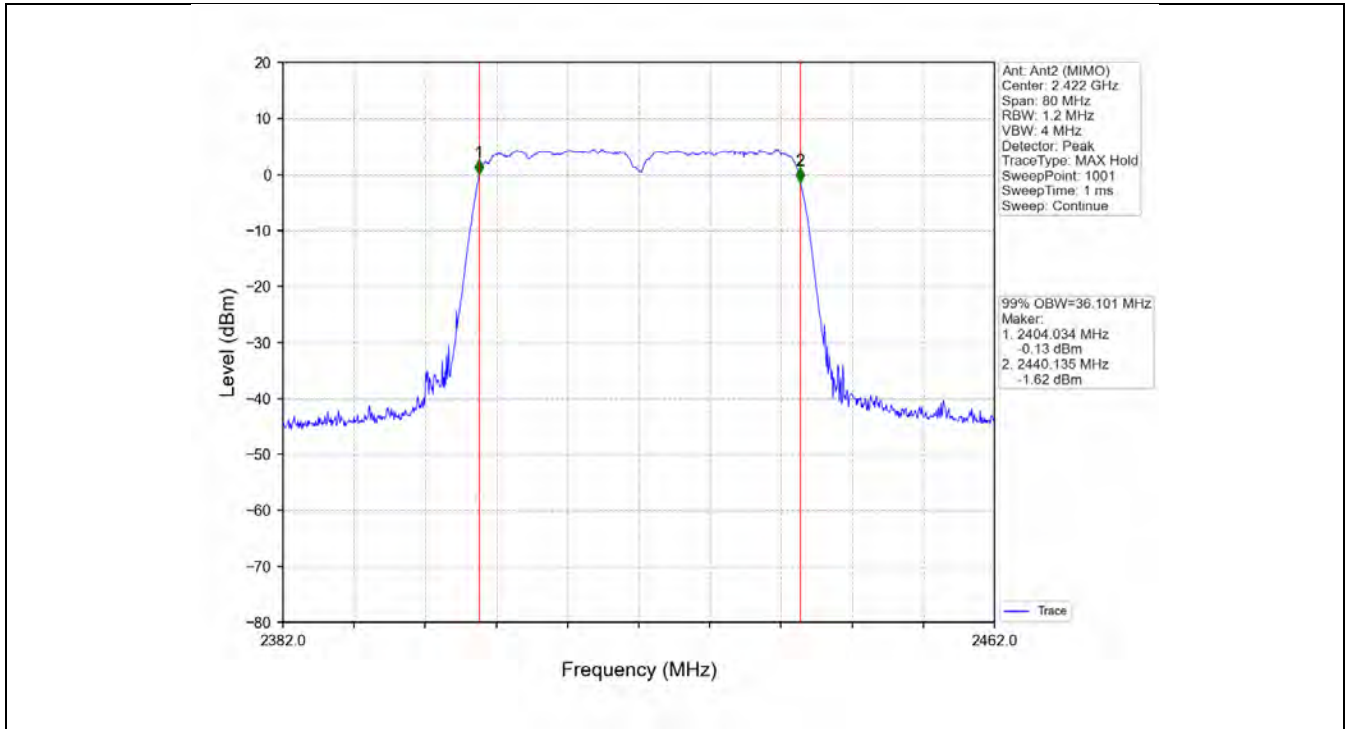


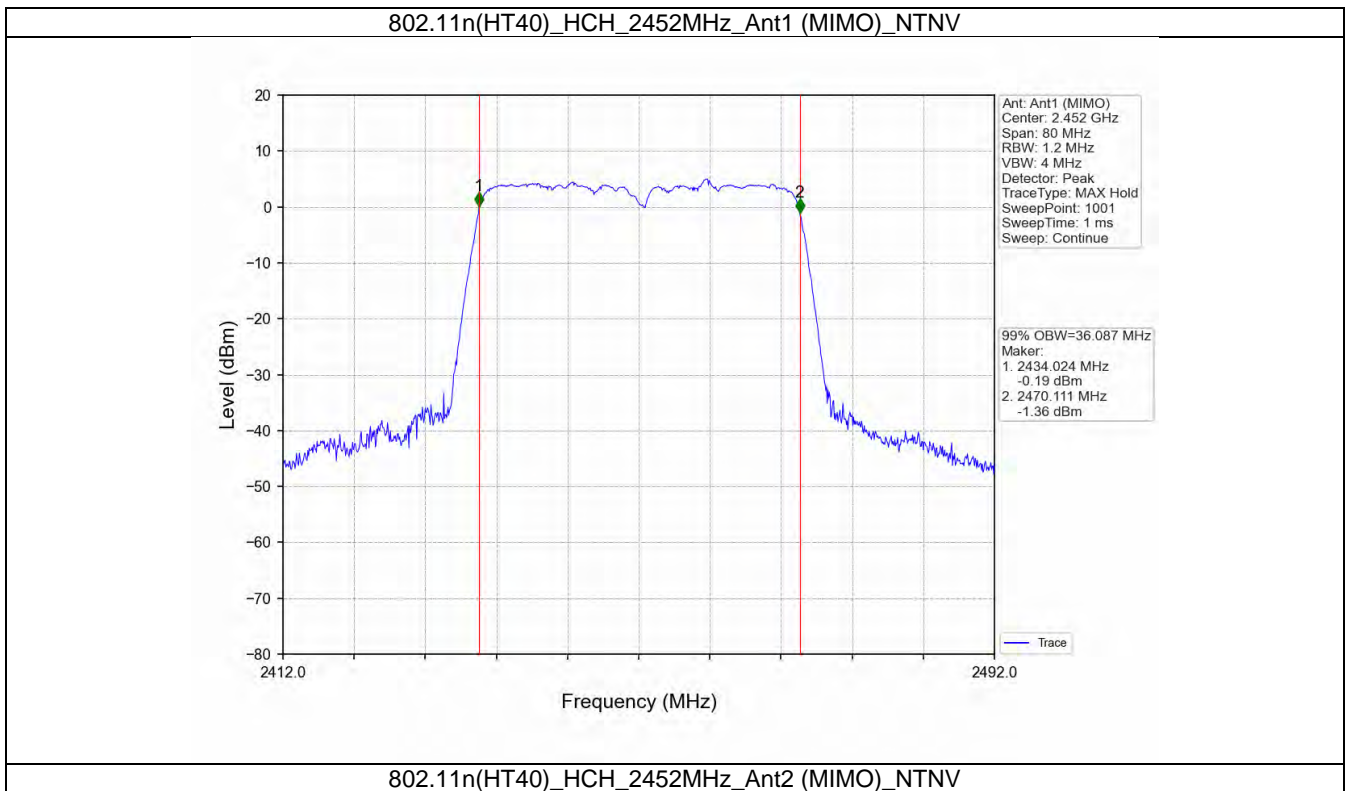
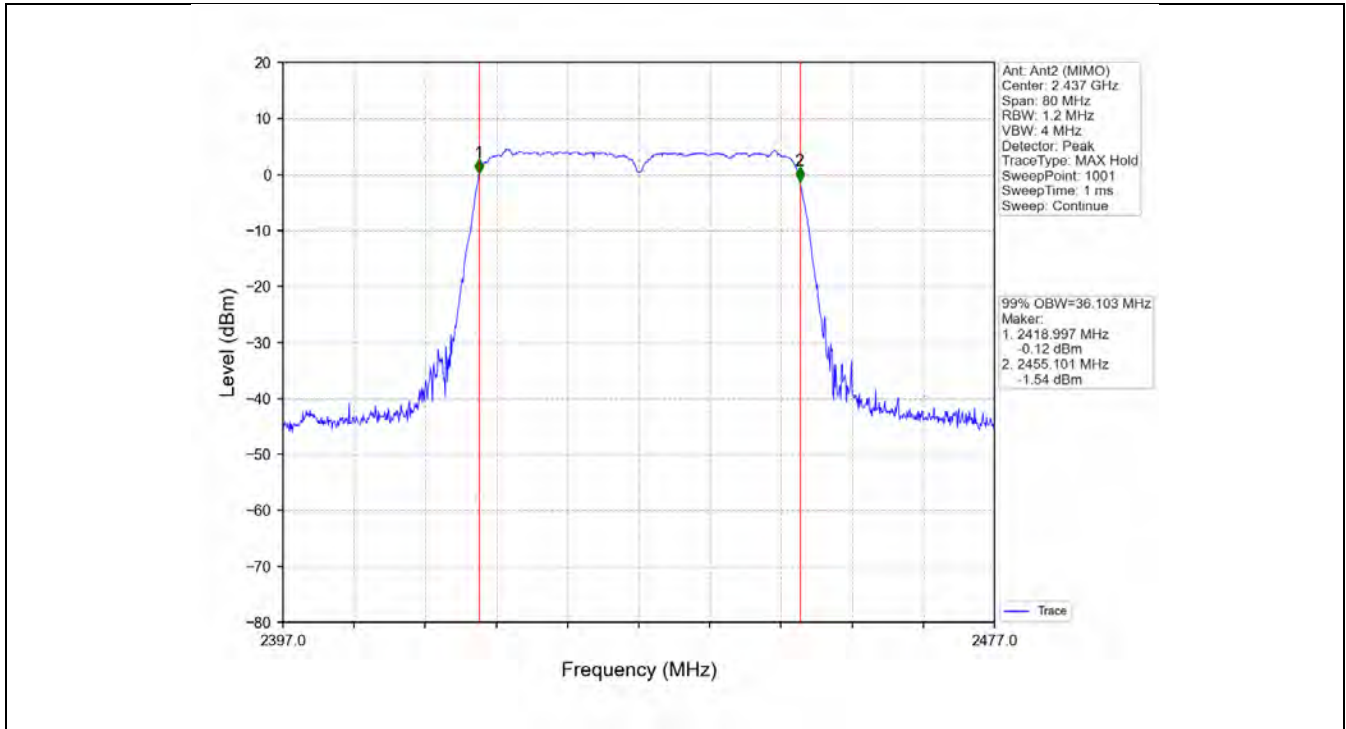


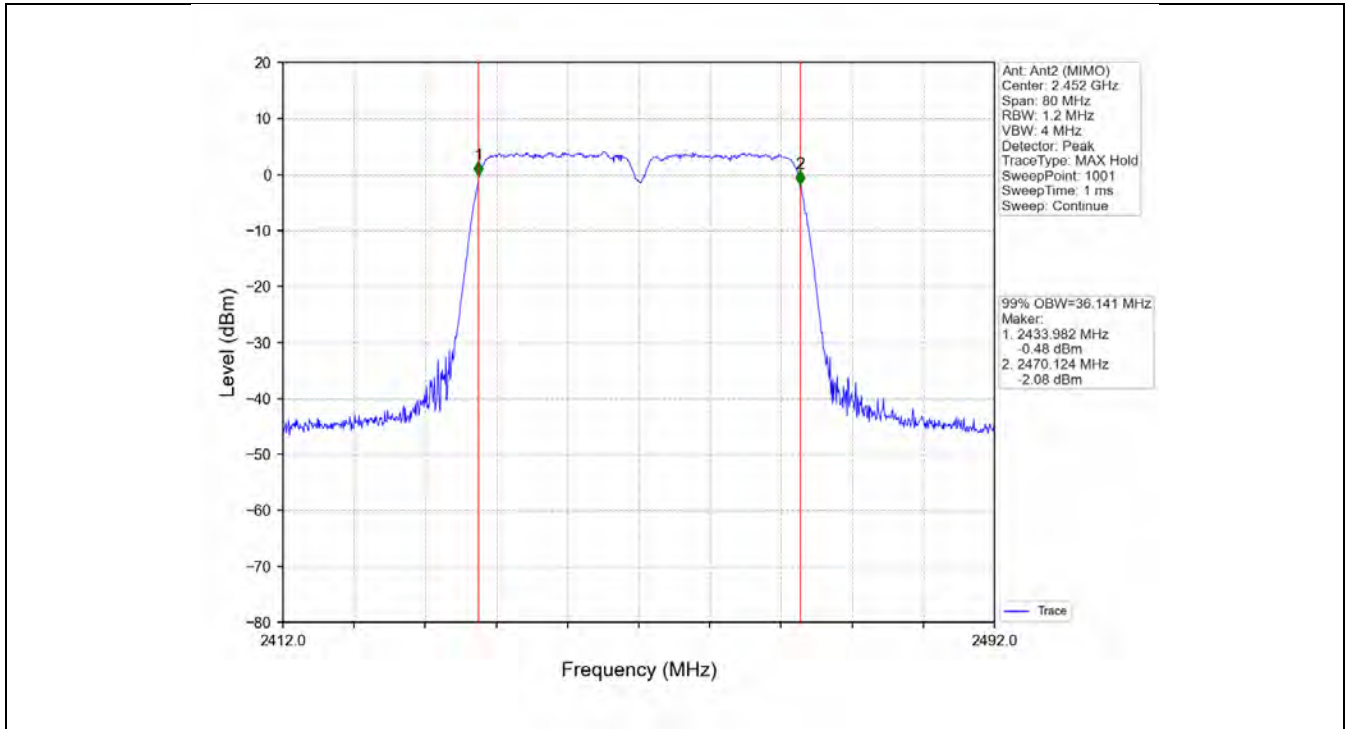












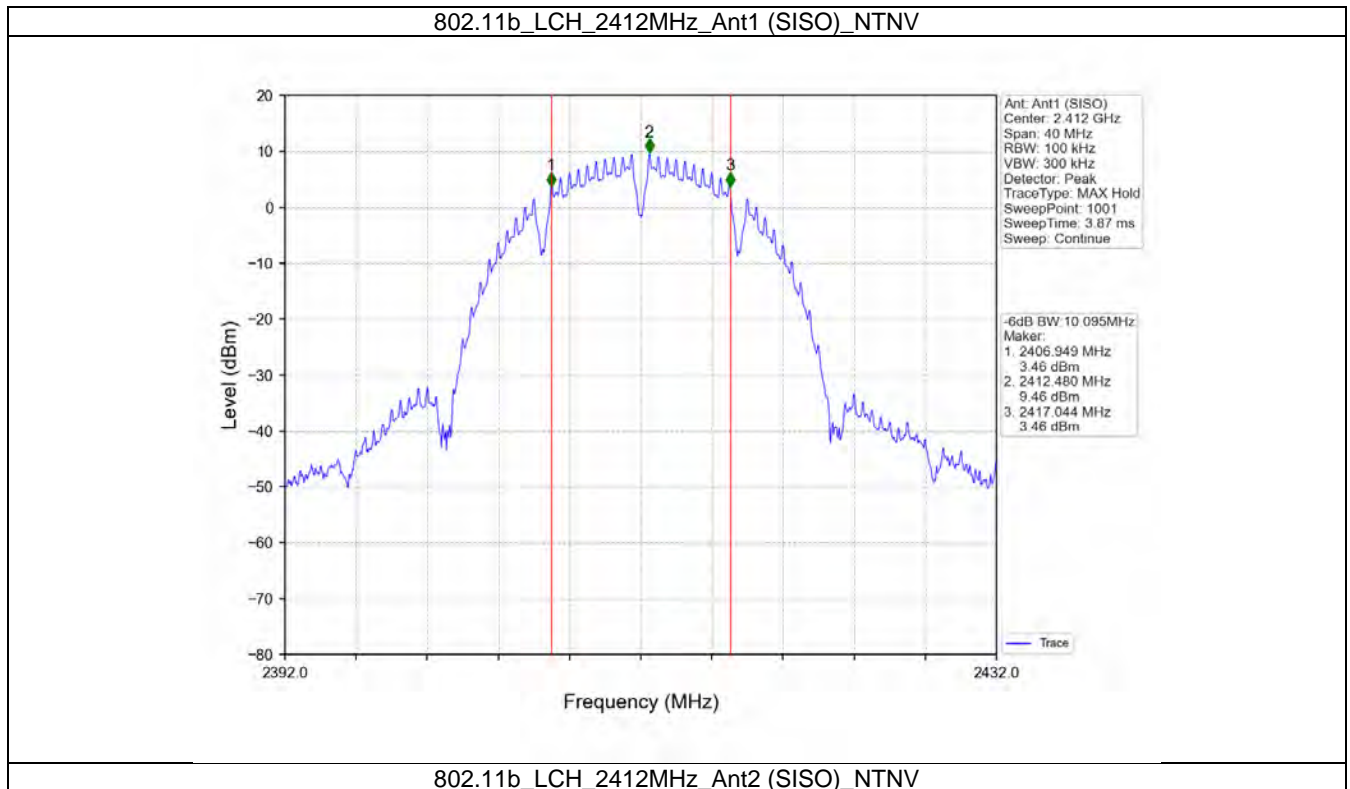
2.2 6dB BW

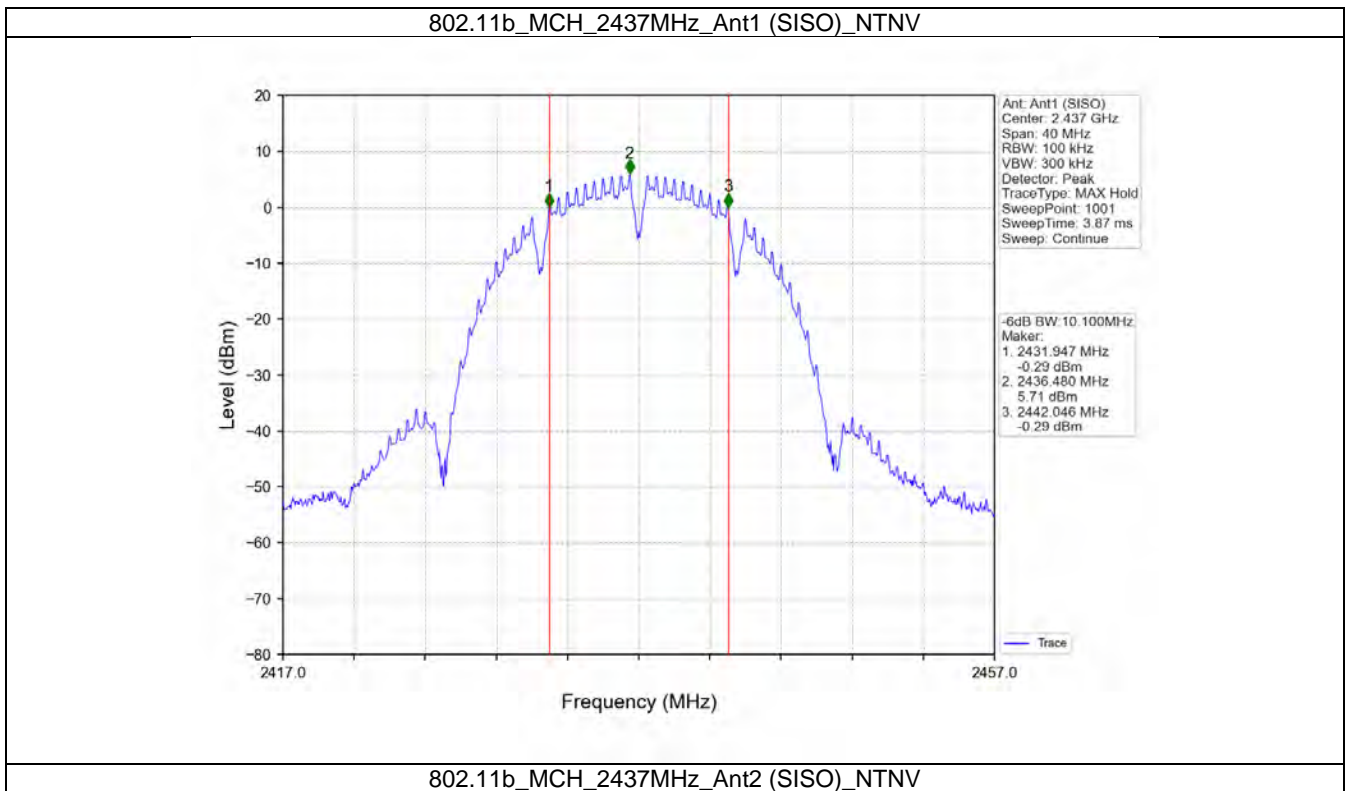
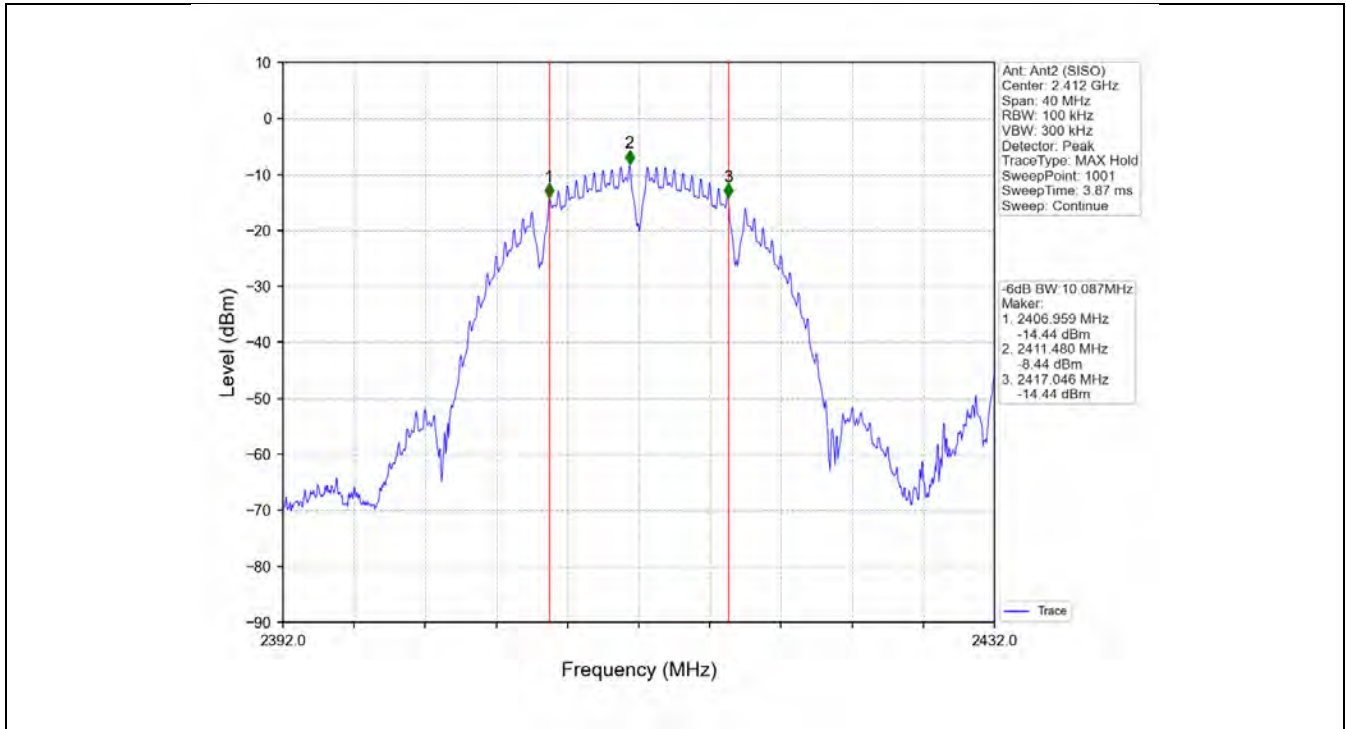
2.2.1 Test Result

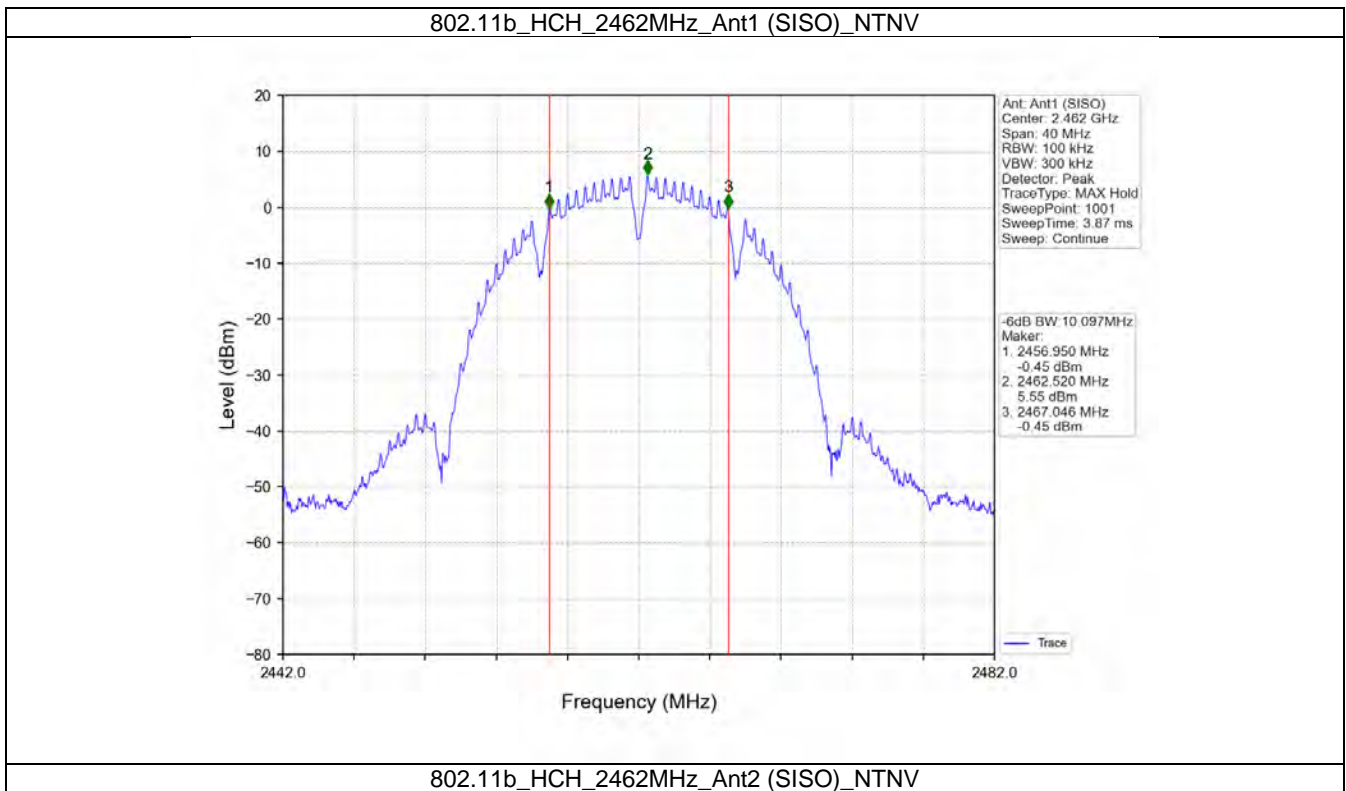
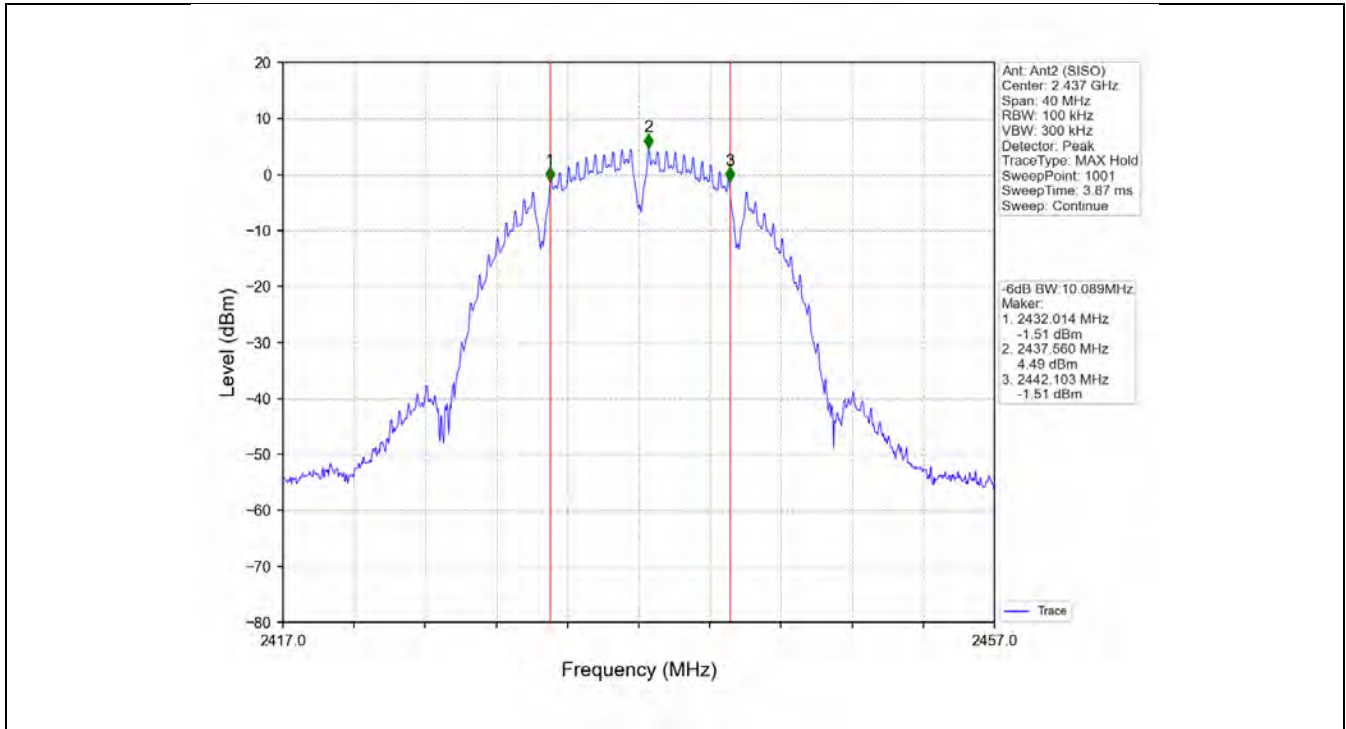
Mode	TX Type	Frequency (MHz)	Ant	6dB Bandwidth (MHz)	Limit (MHz)	Verdict
802.11b	SISO	2412	1	10.095	≥ 0.5	Pass
			2	10.087	≥ 0.5	Pass
		2437	1	10.100	≥ 0.5	Pass
			2	10.089	≥ 0.5	Pass
		2462	1	10.097	≥ 0.5	Pass
			2	10.103	≥ 0.5	Pass
802.11g	SISO	2412	1	10.076	≥ 0.5	Pass
			2	10.093	≥ 0.5	Pass
		2437	1	10.090	≥ 0.5	Pass
			2	10.083	≥ 0.5	Pass
		2462	1	10.093	≥ 0.5	Pass
			2	10.092	≥ 0.5	Pass
802.11n (HT20)	MIMO	2412	1	17.584	≥ 0.5	Pass
			2	17.544	≥ 0.5	Pass
		2437	1	17.582	≥ 0.5	Pass
			2	17.556	≥ 0.5	Pass
		2462	1	17.577	≥ 0.5	Pass
			2	17.581	≥ 0.5	Pass
802.11n (HT40)	MIMO	2422	1	35.584	≥ 0.5	Pass
			2	35.598	≥ 0.5	Pass
		2437	1	35.539	≥ 0.5	Pass

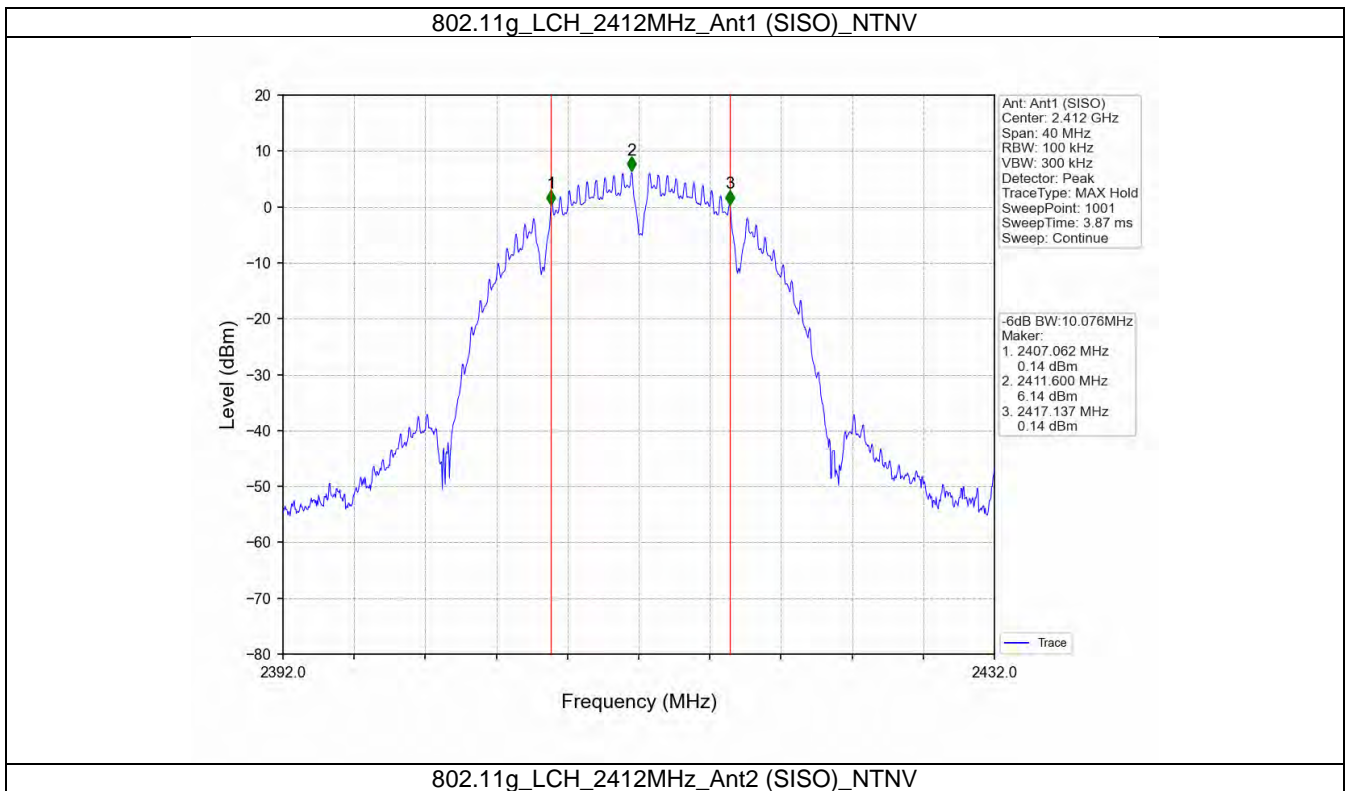
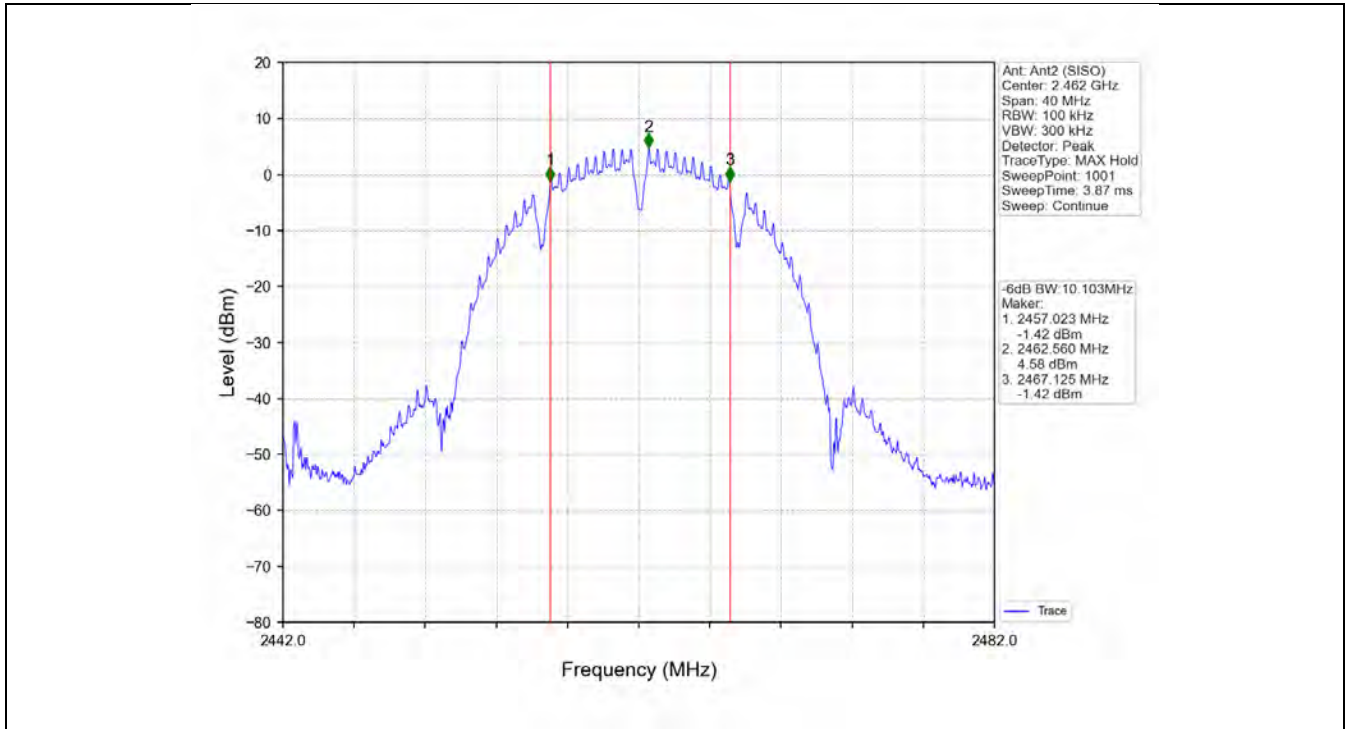
	2452	2	35.627	≥ 0.5	Pass
		1	35.664	≥ 0.5	Pass
		2	35.470	≥ 0.5	Pass

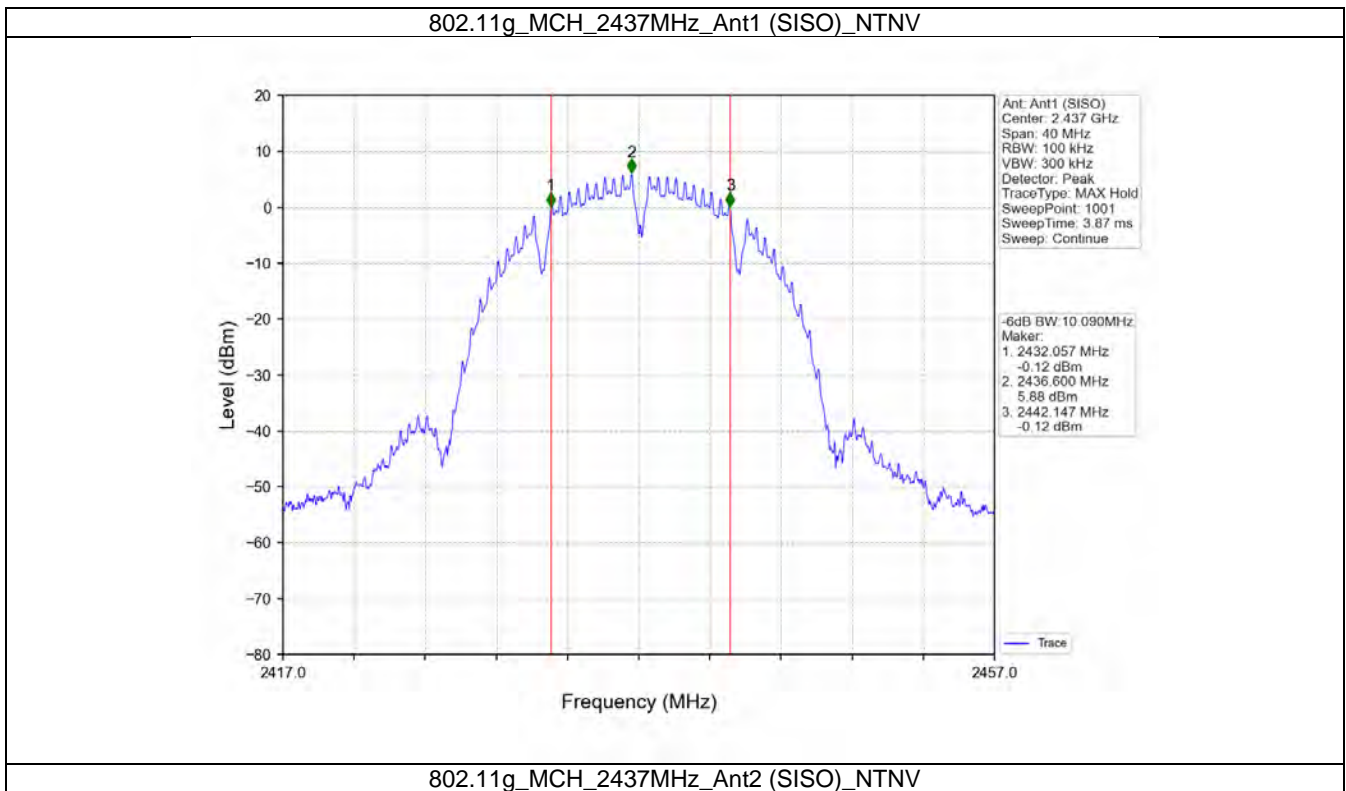
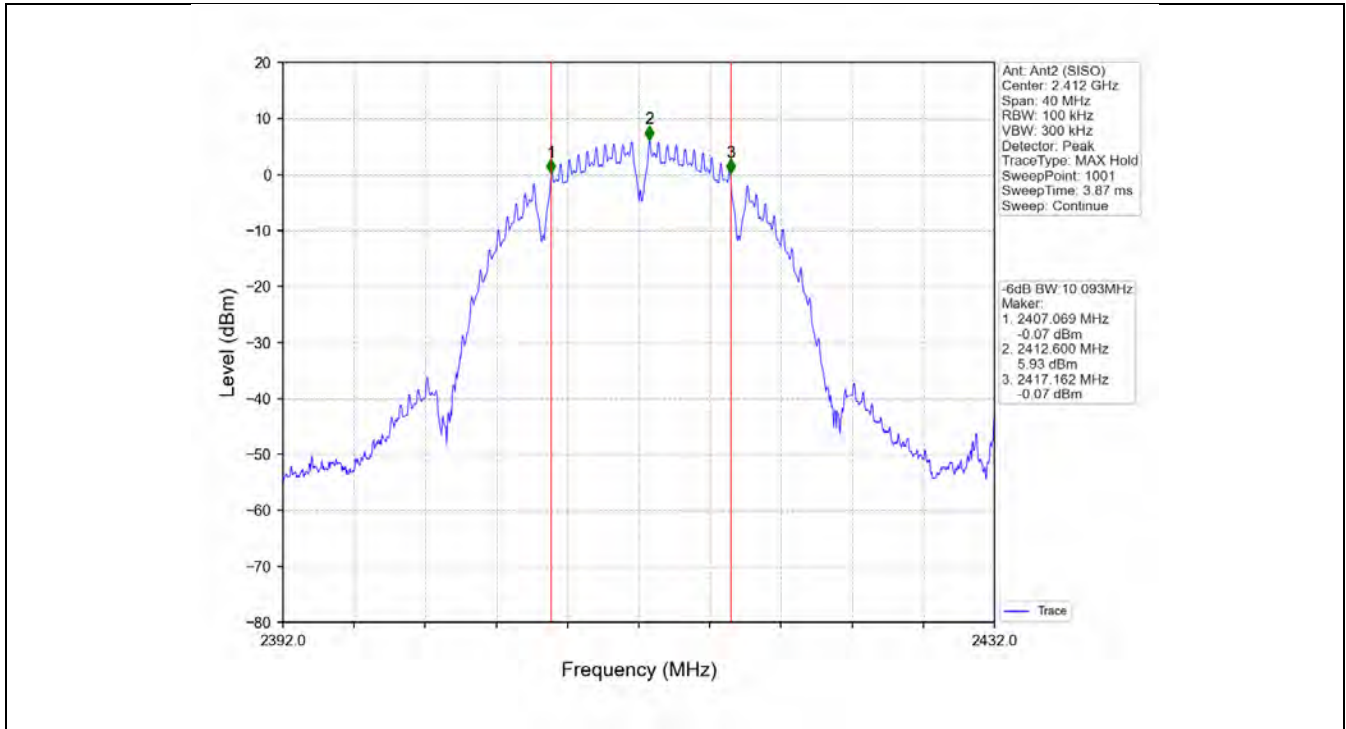
2.2.2 Test Graph

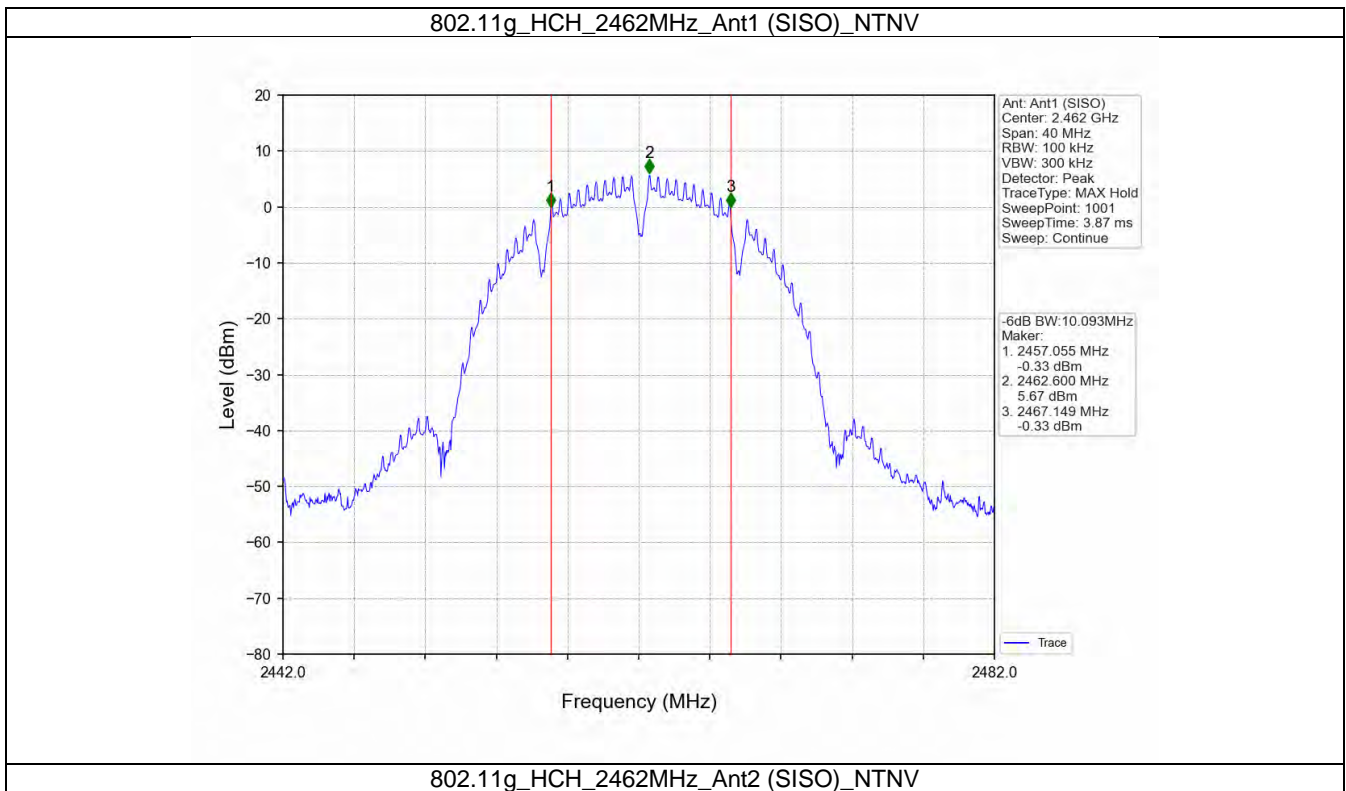
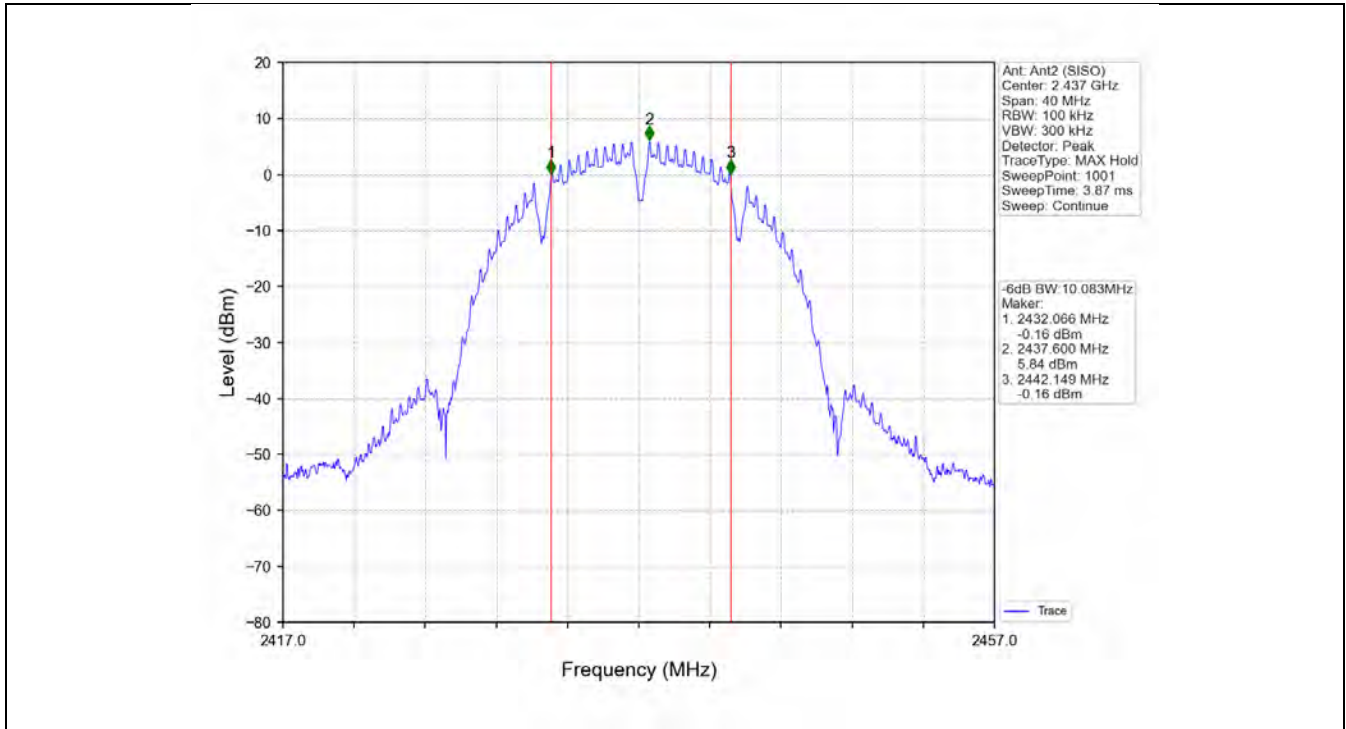


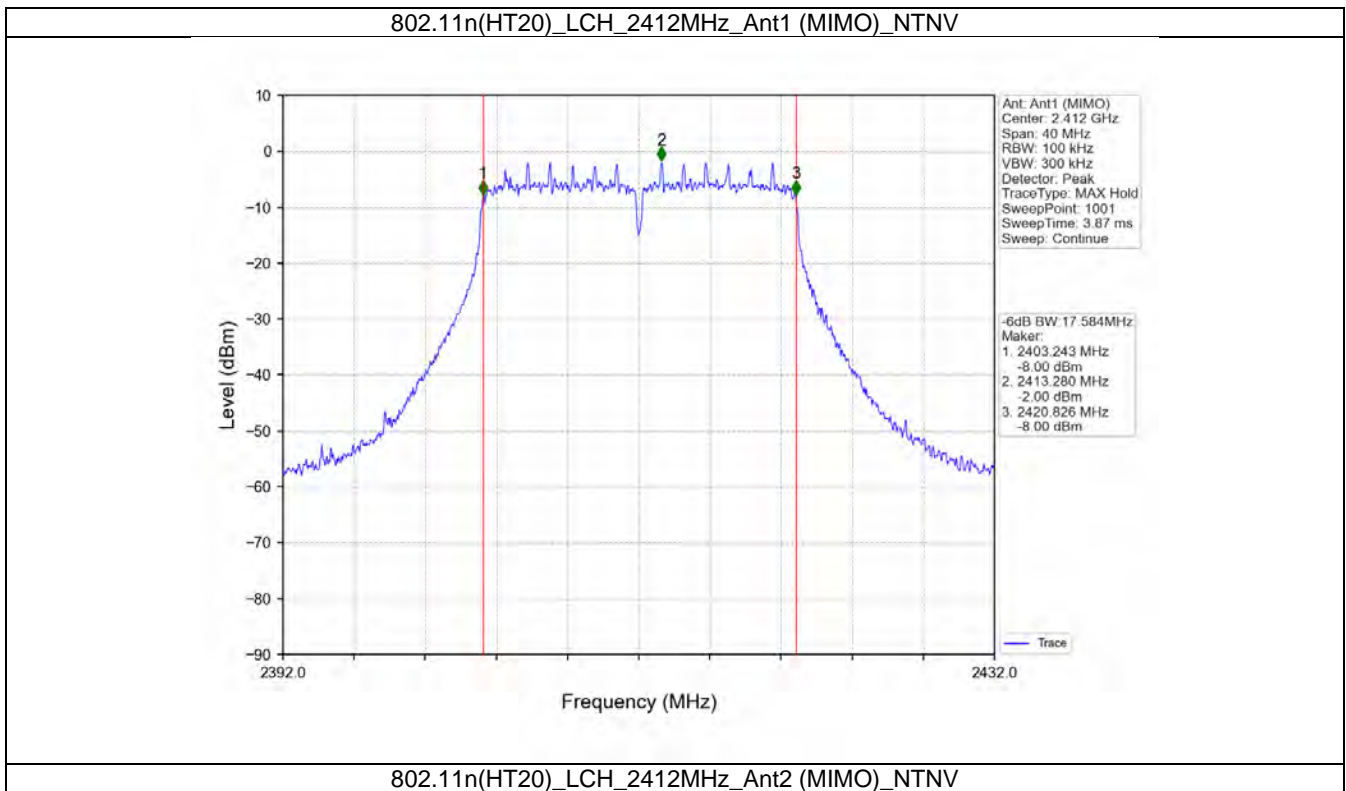
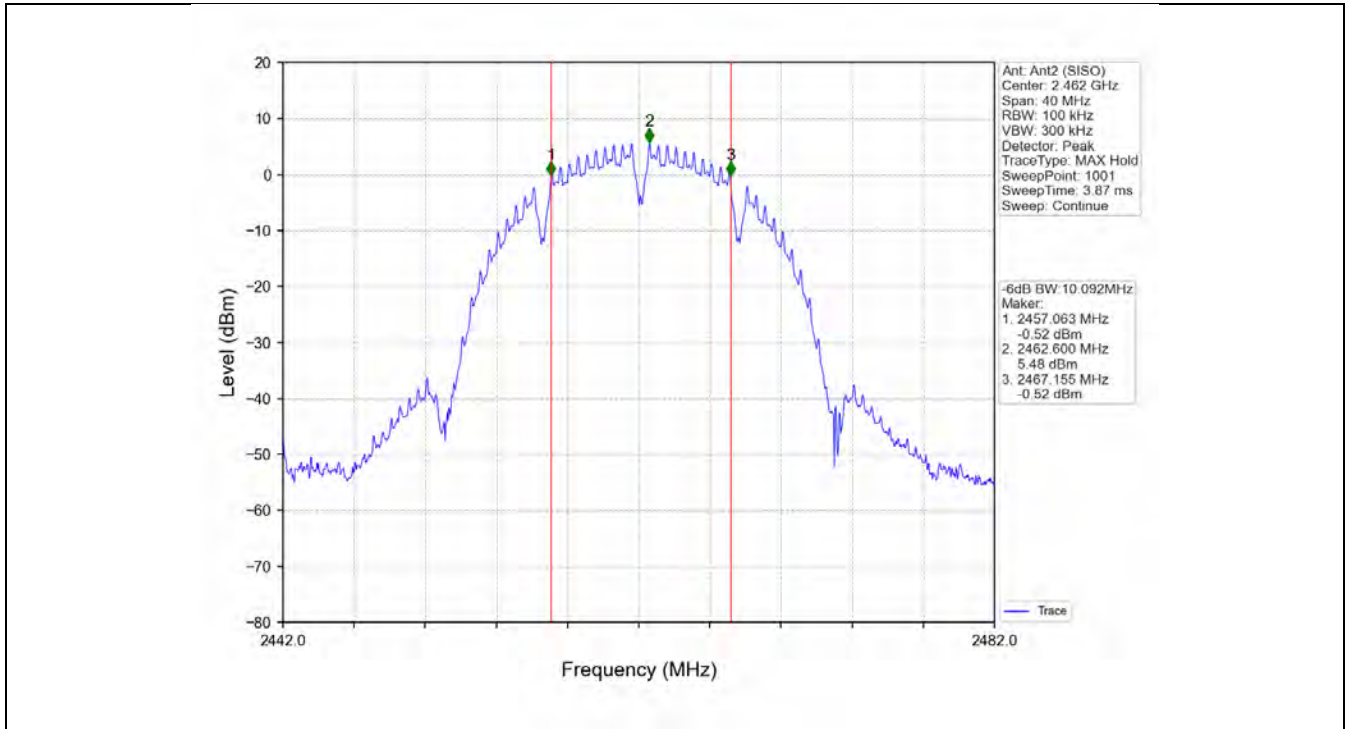


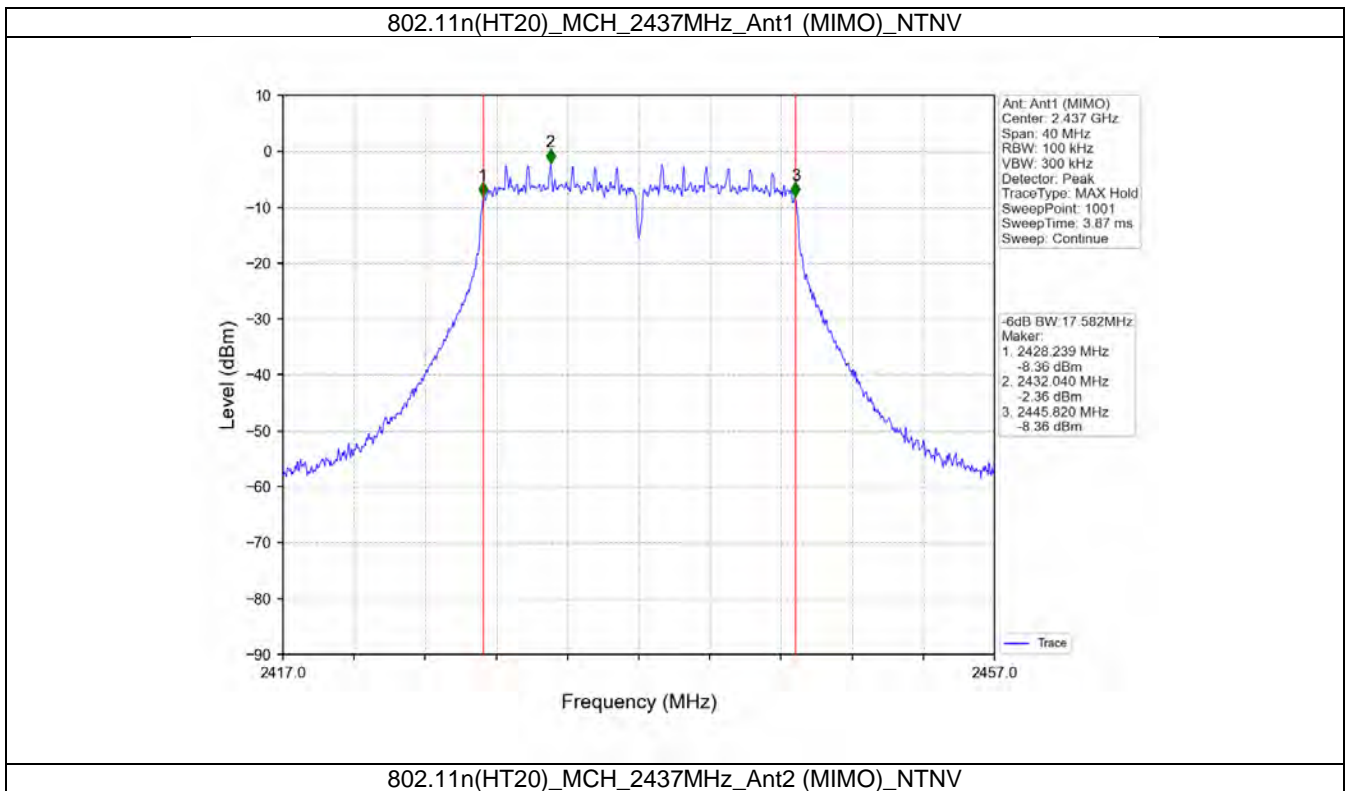
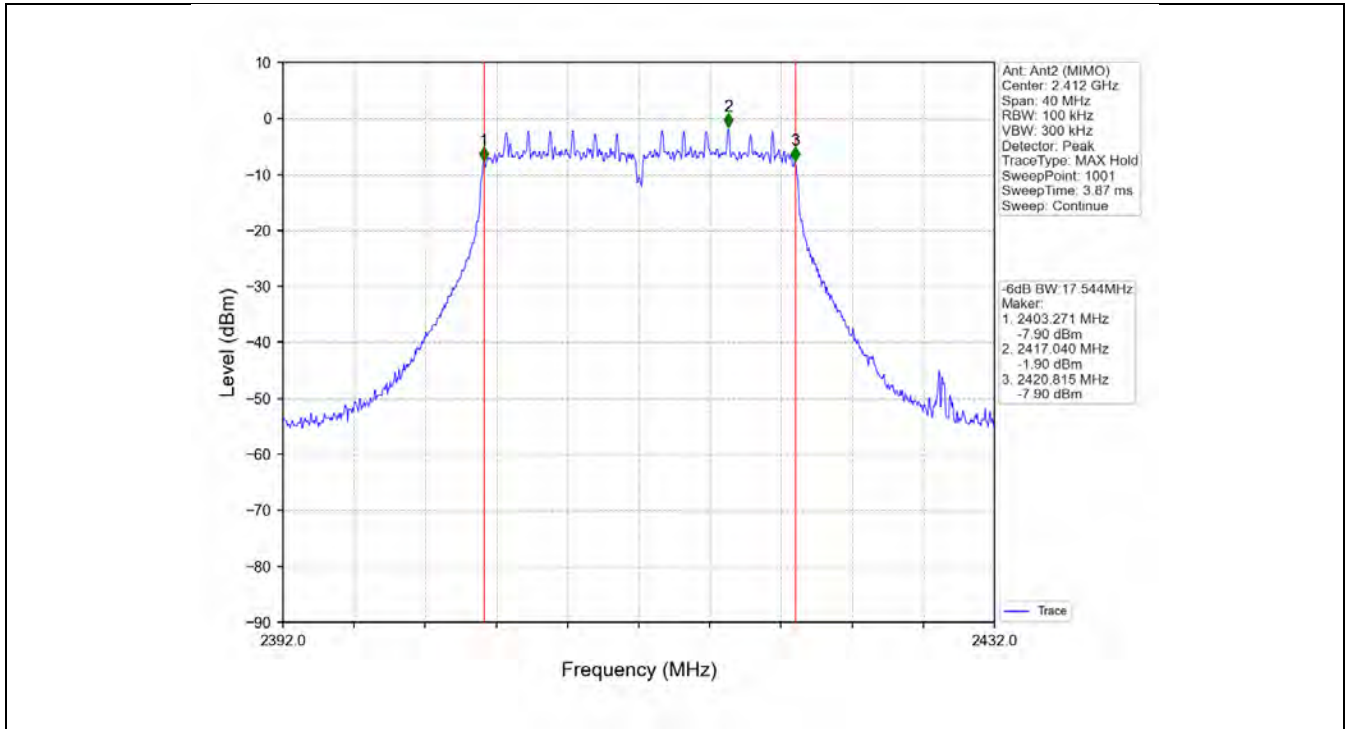


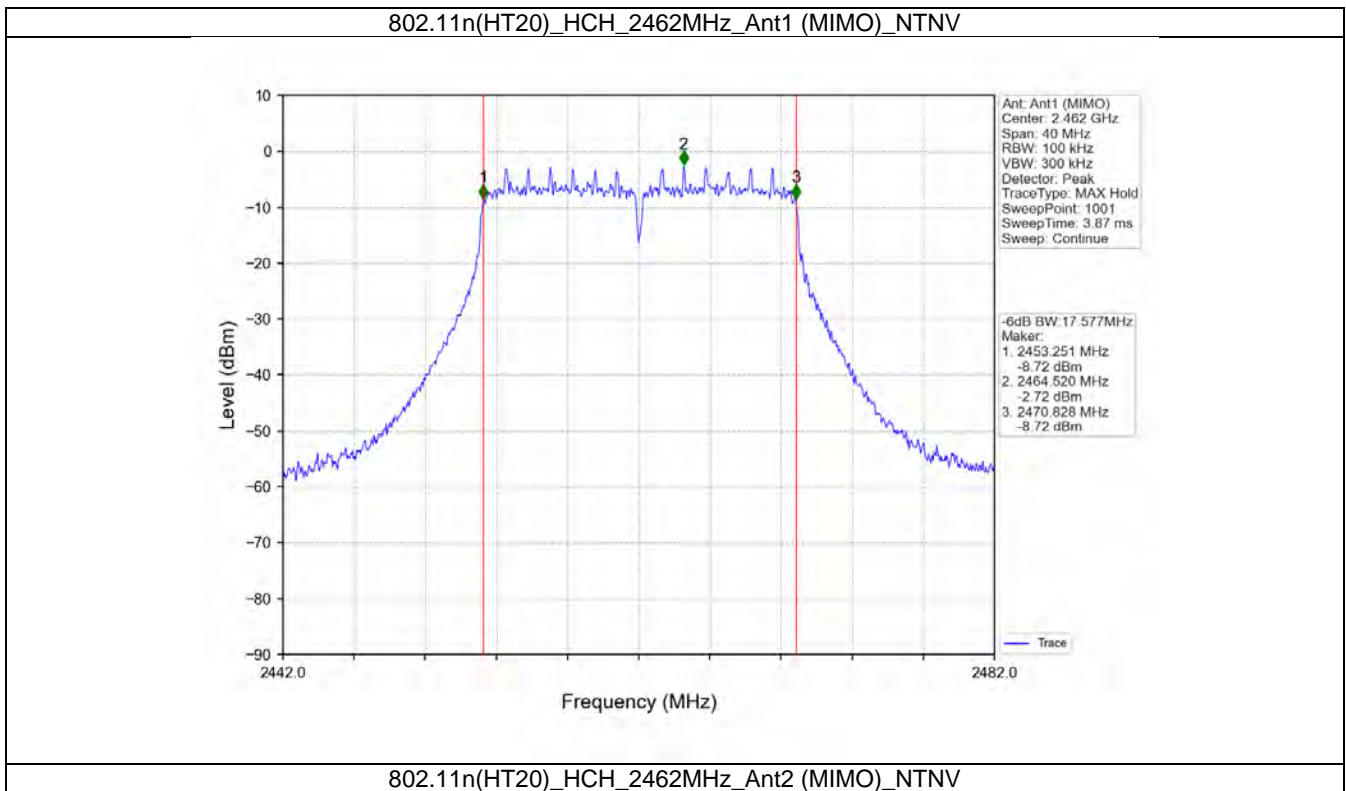
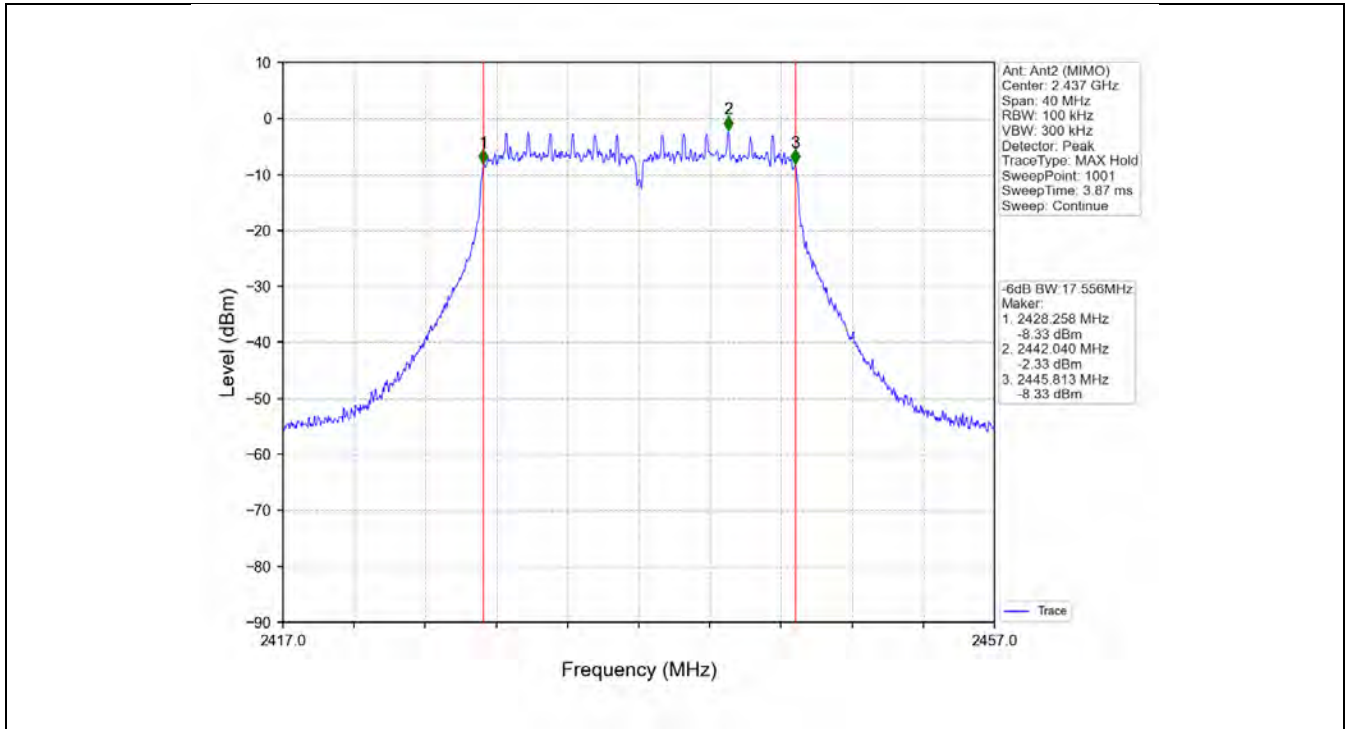


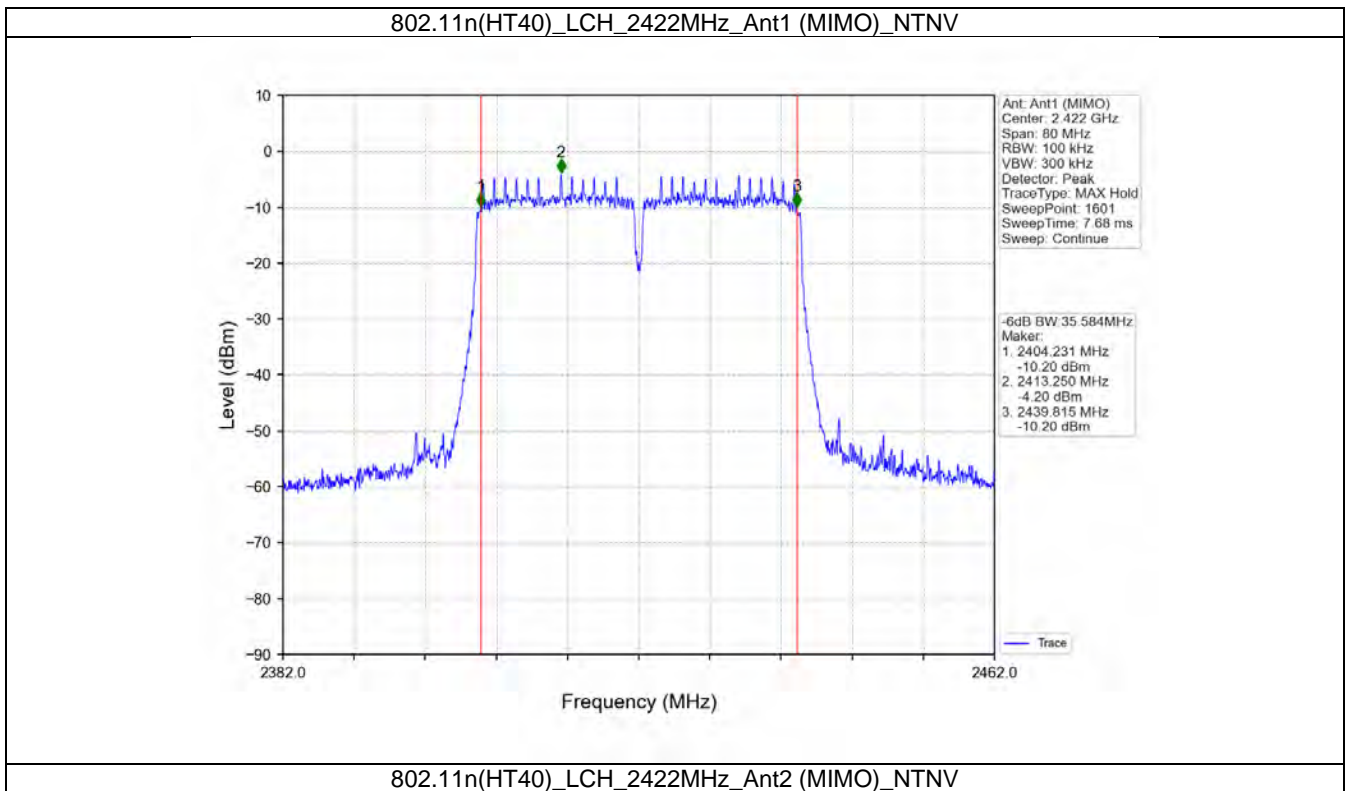
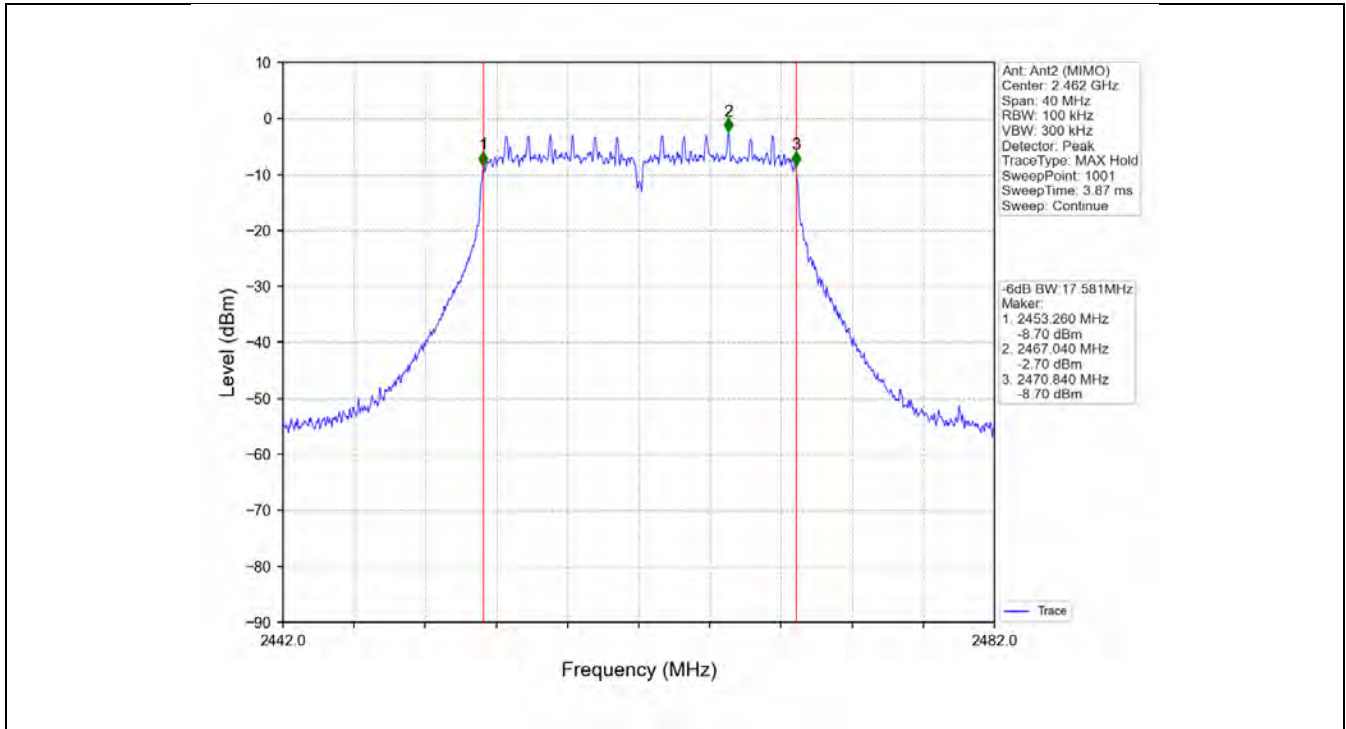


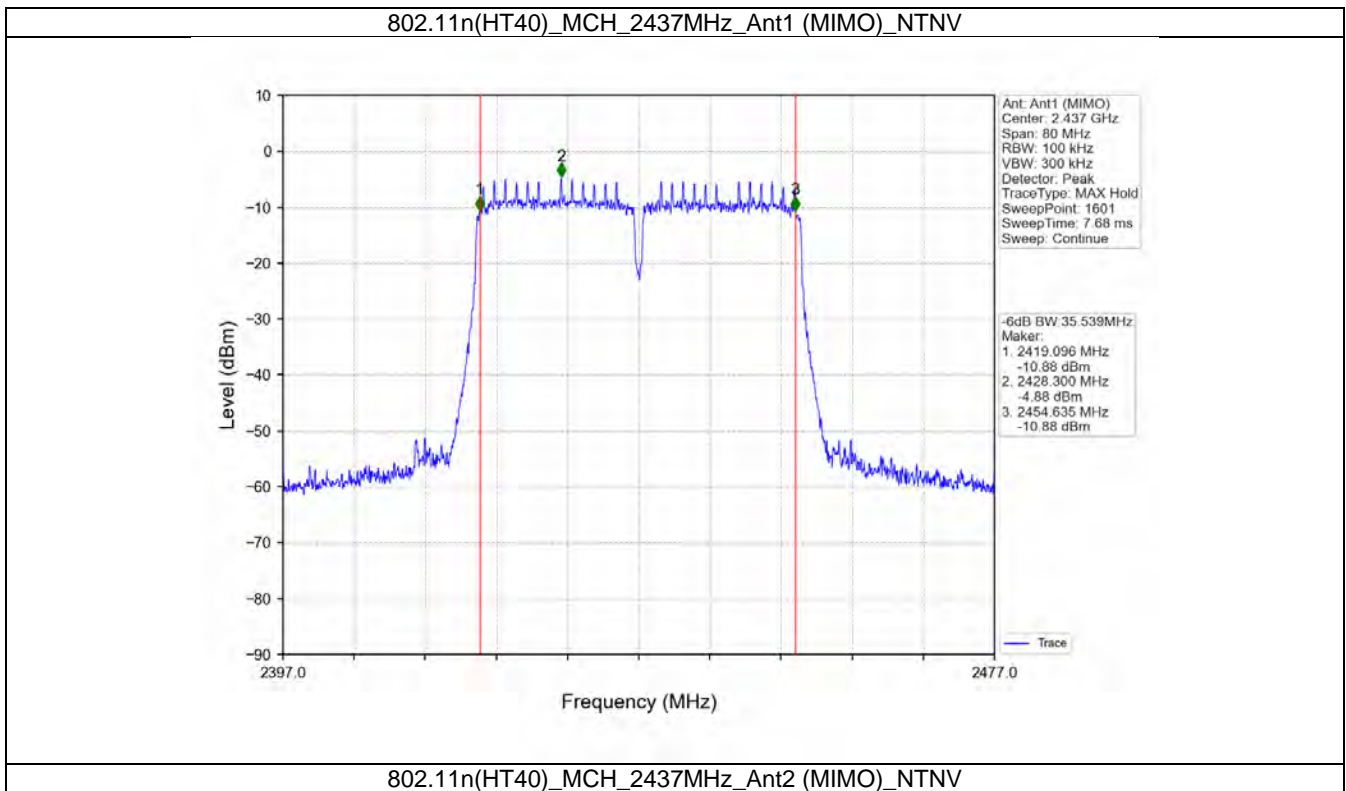
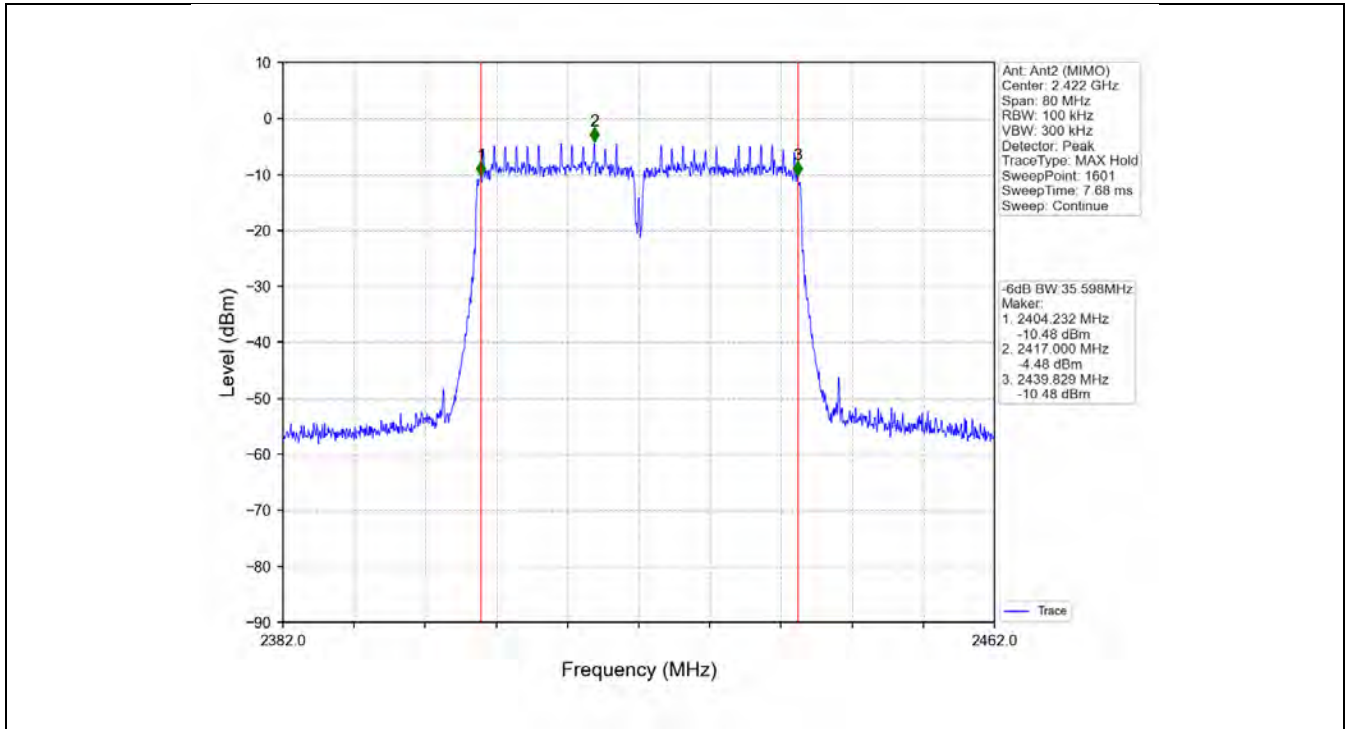


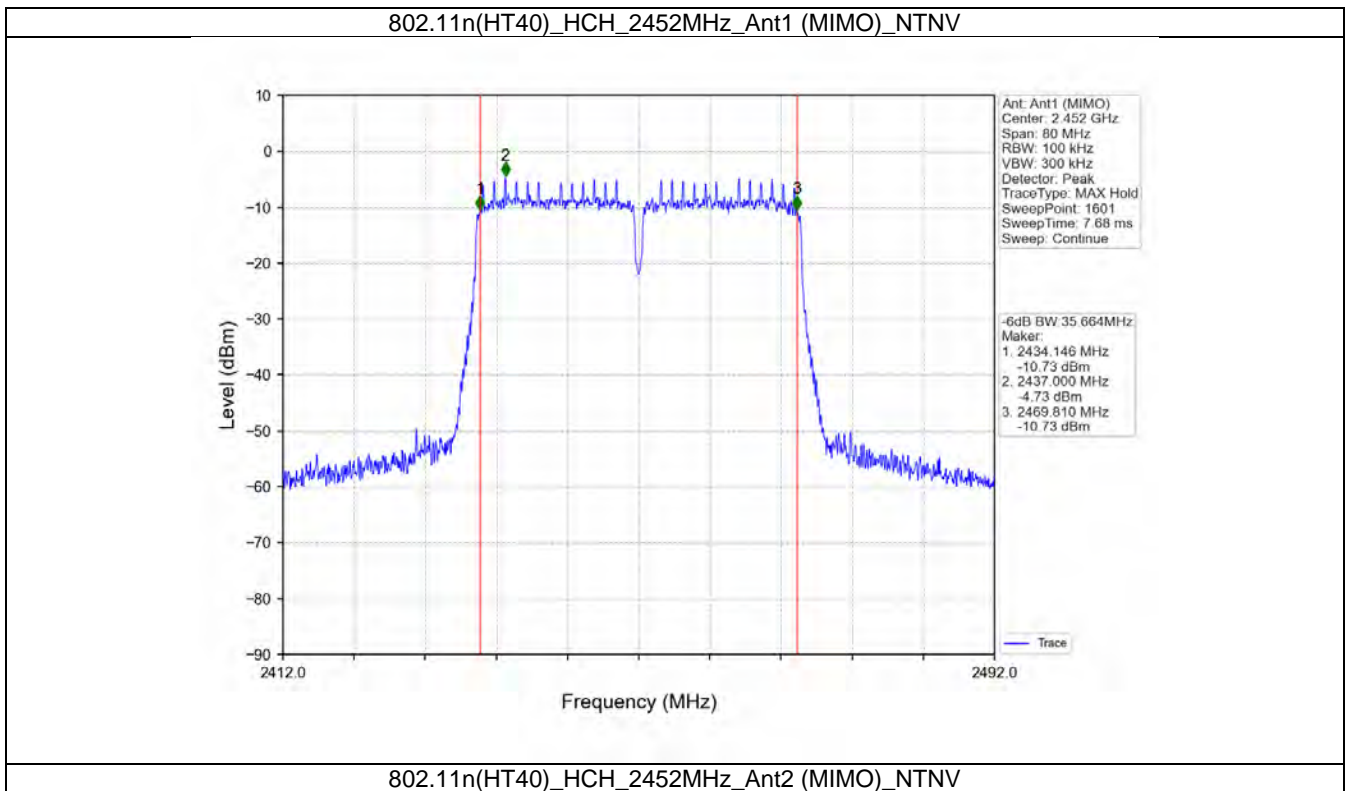
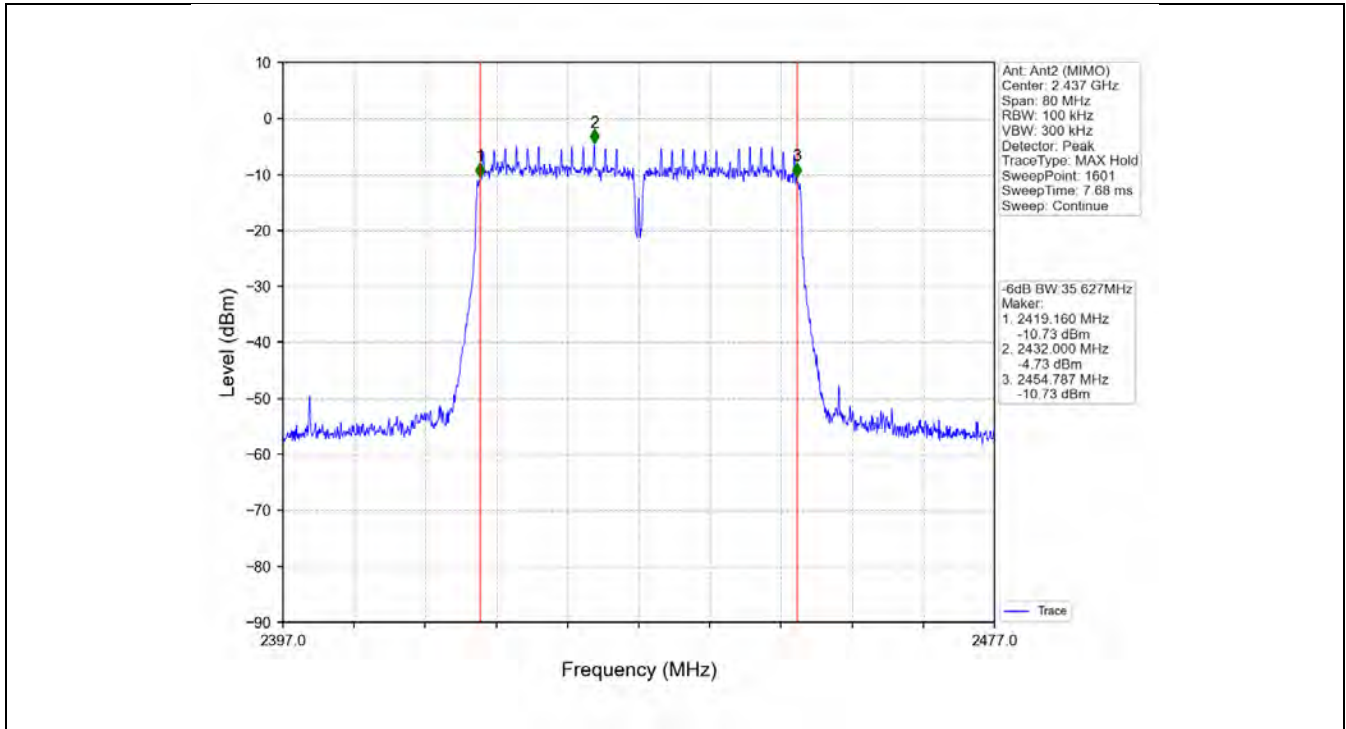


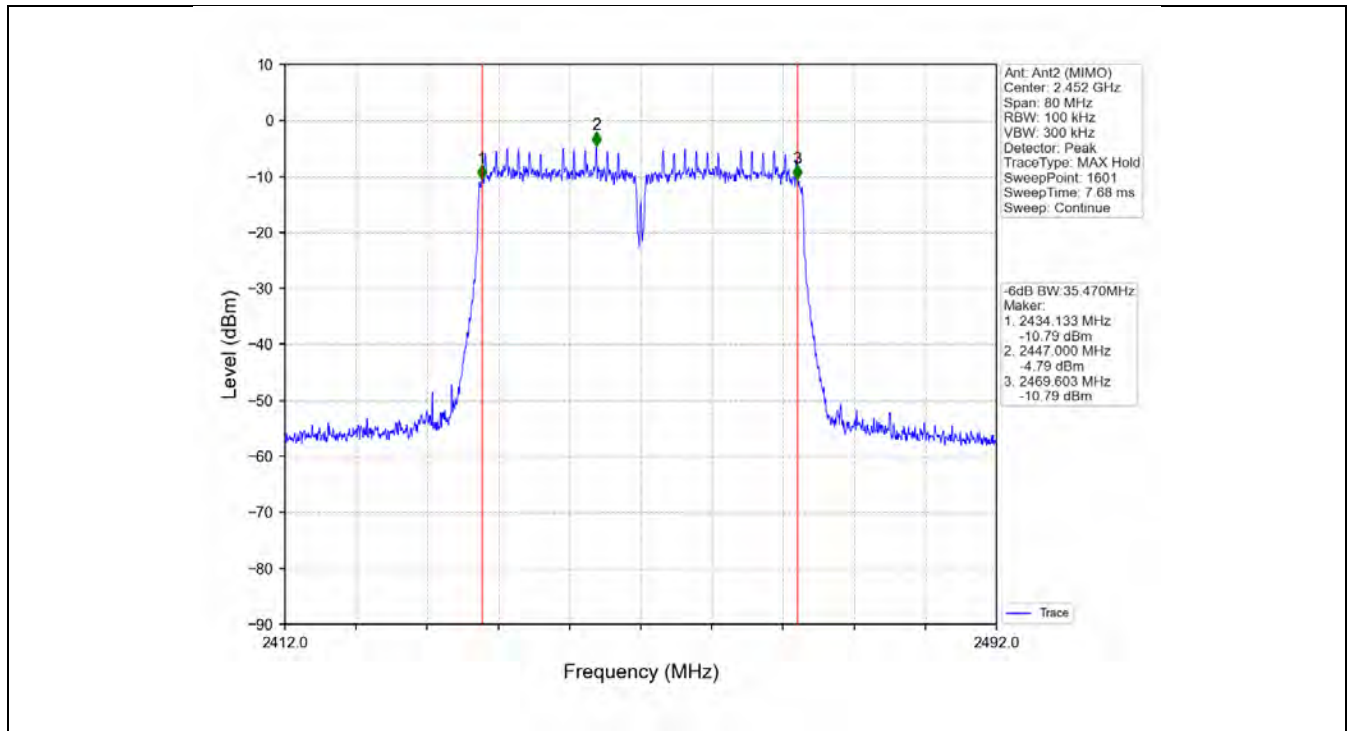












3. Maximum Conducted Output Power

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	17.18	17.10	/	<=30	Pass
		2437	17.48	16.38	/	<=30	Pass
		2462	16.95	16.28	/	<=30	Pass
802.11g	SISO	2412	17.60	17.50	/	<=30	Pass
		2437	17.52	17.59	/	<=30	Pass
		2462	17.12	17.10	/	<=30	Pass
802.11n (HT20)	MIMO	2412	17.05	16.92	20.00	<=30	Pass
		2437	16.63	16.59	19.62	<=30	Pass
		2462	16.36	16.30	19.34	<=30	Pass
802.11n (HT40)	MIMO	2422	18.06	17.51	20.80	<=30	Pass
		2437	17.01	17.28	20.16	<=30	Pass
		2452	17.14	17.05	20.11	<=30	Pass

Note1: Antenna Gain: Ant1: 1.43dBi; Ant2: 1.43dBi;

Note2: Directional Gain: 4.44dBi

4. Maximum Power Spectral Density

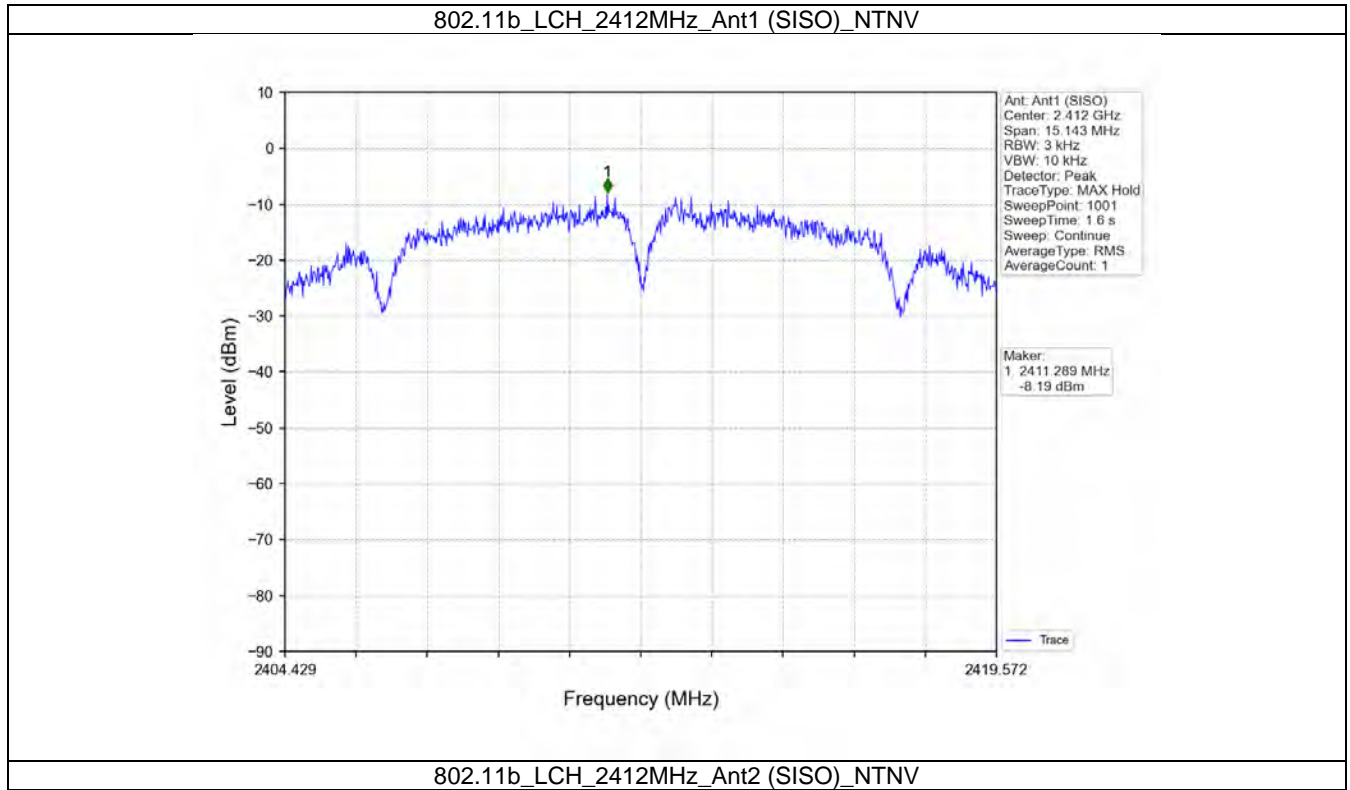
4.1 PSD

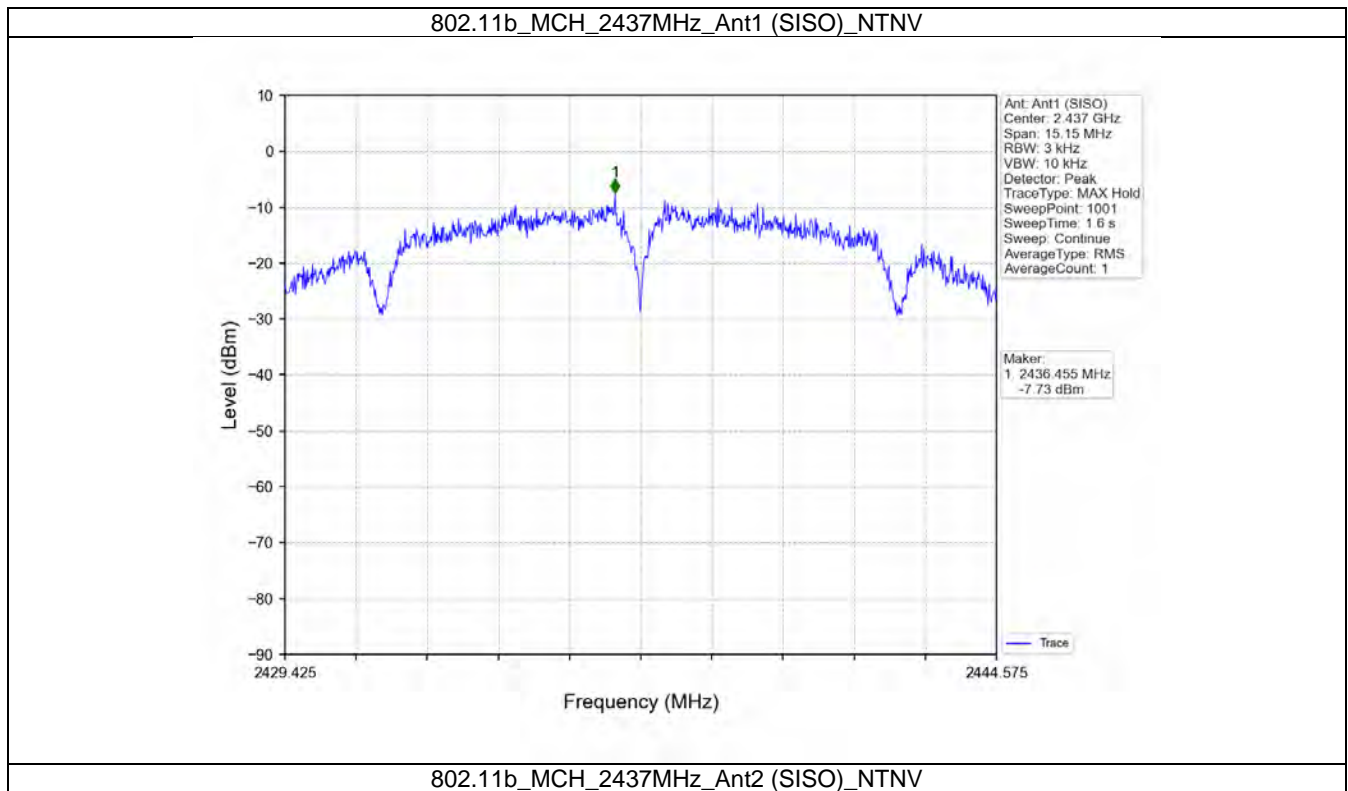
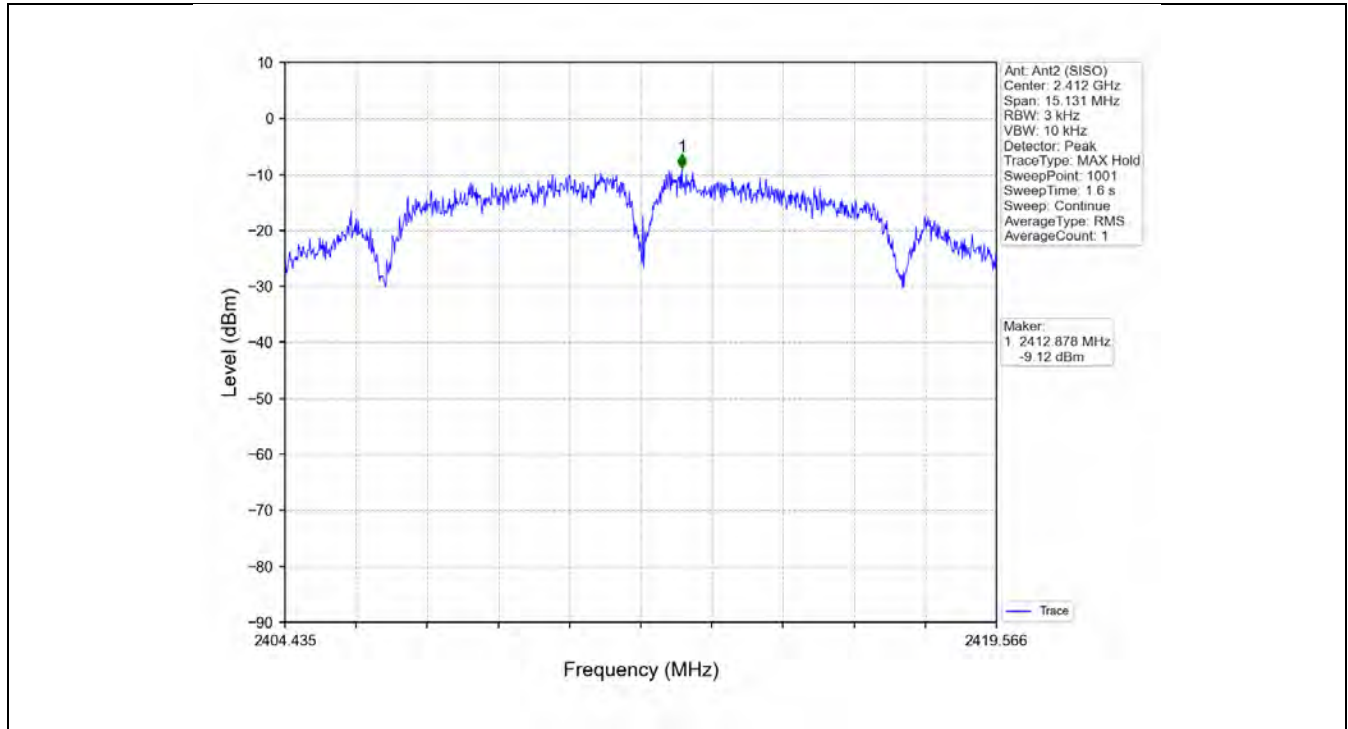
4.1.1 Test Result

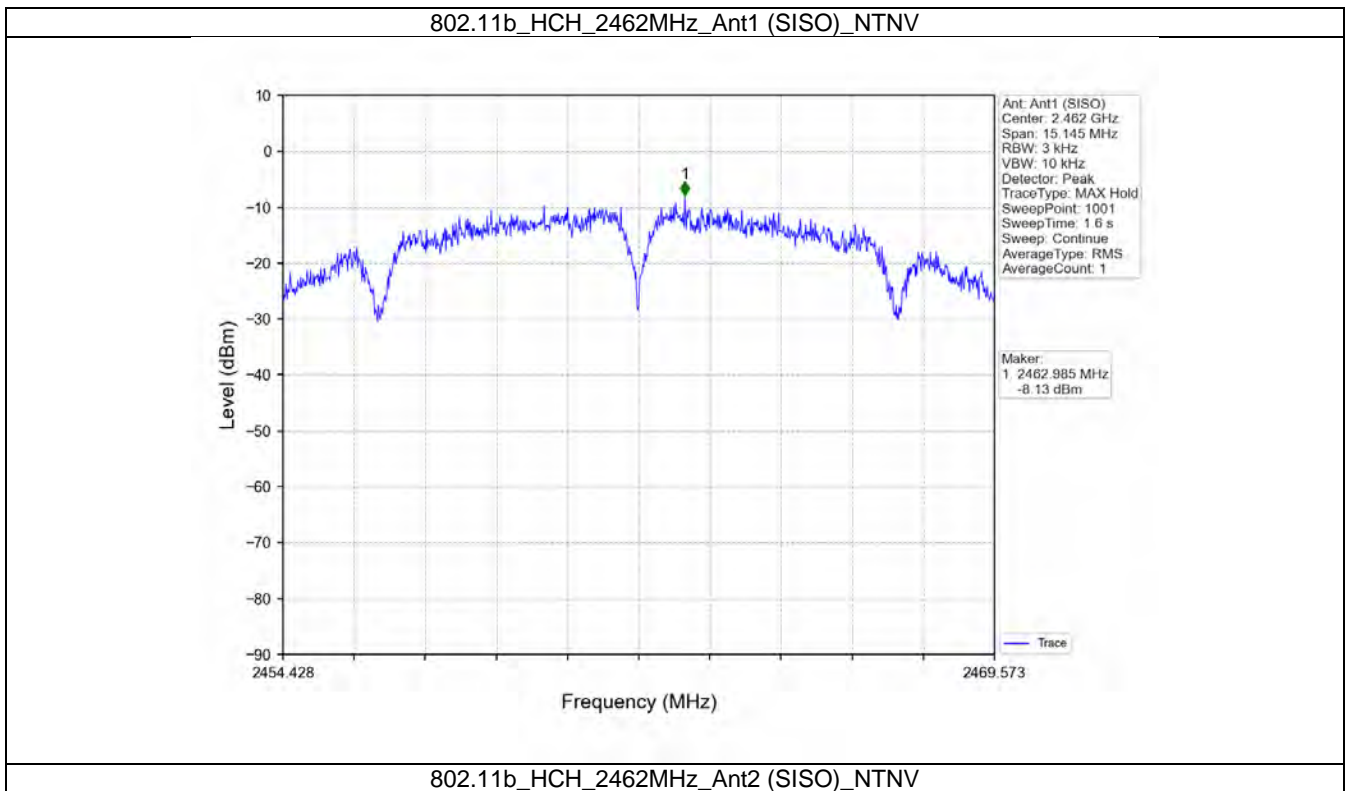
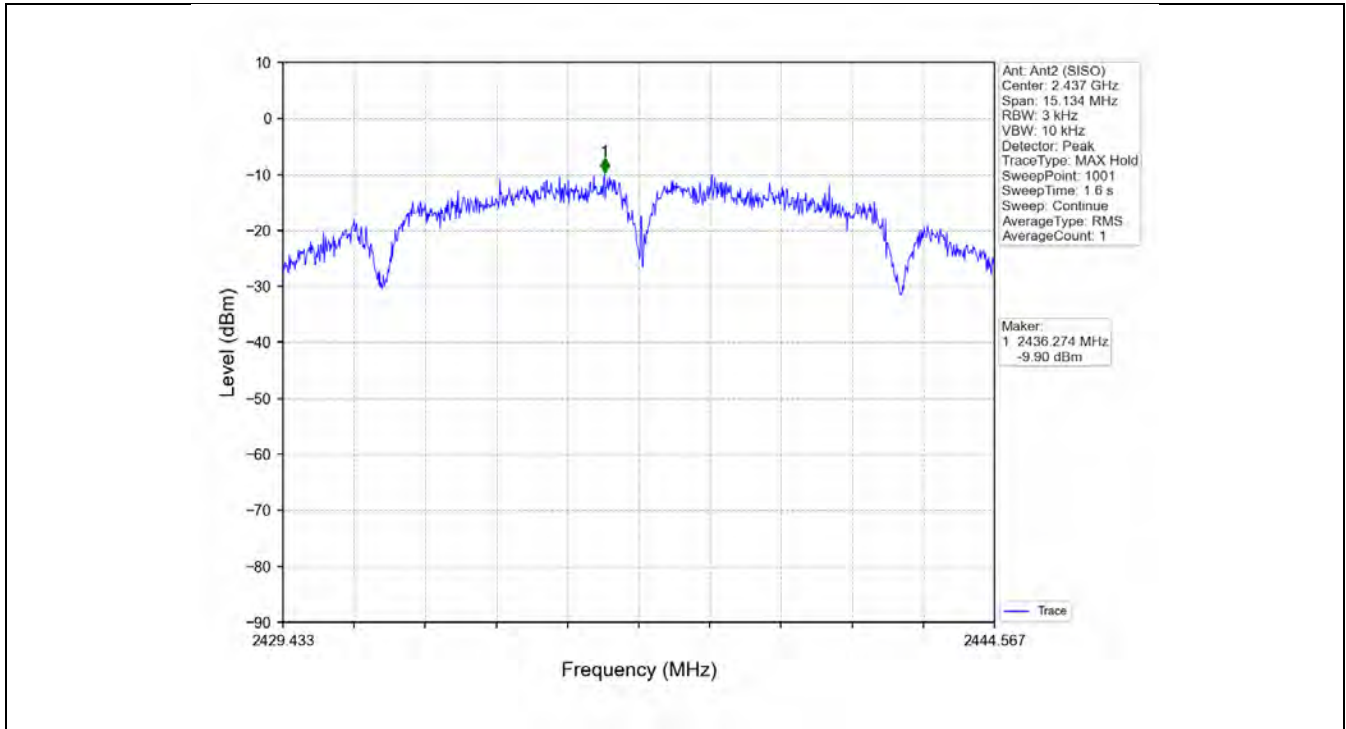
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)				Verdict
			Ant1	Ant2	Sum	Limit	
802.11b	SISO	2412	-8.19	-9.12	/	<=8	Pass
		2437	-7.73	-9.90	/	<=8	Pass
		2462	-8.13	-9.20	/	<=8	Pass
802.11g	SISO	2412	-7.35	-8.70	/	<=8	Pass
		2437	-8.87	-8.14	/	<=8	Pass
		2462	-7.68	-9.13	/	<=8	Pass
802.11n (HT20)	MIMO	2412	-16.30	-14.56	-14.24	<=8	Pass
		2437	-17.31	-14.76	-14.34	<=8	Pass
		2462	-17.34	-14.91	-14.43	<=8	Pass
802.11n (HT40)	MIMO	2422	-18.44	-16.87	-16.47	<=8	Pass
		2437	-19.83	-17.41	-17.21	<=8	Pass
		2452	-19.44	-17.35	-17.18	<=8	Pass

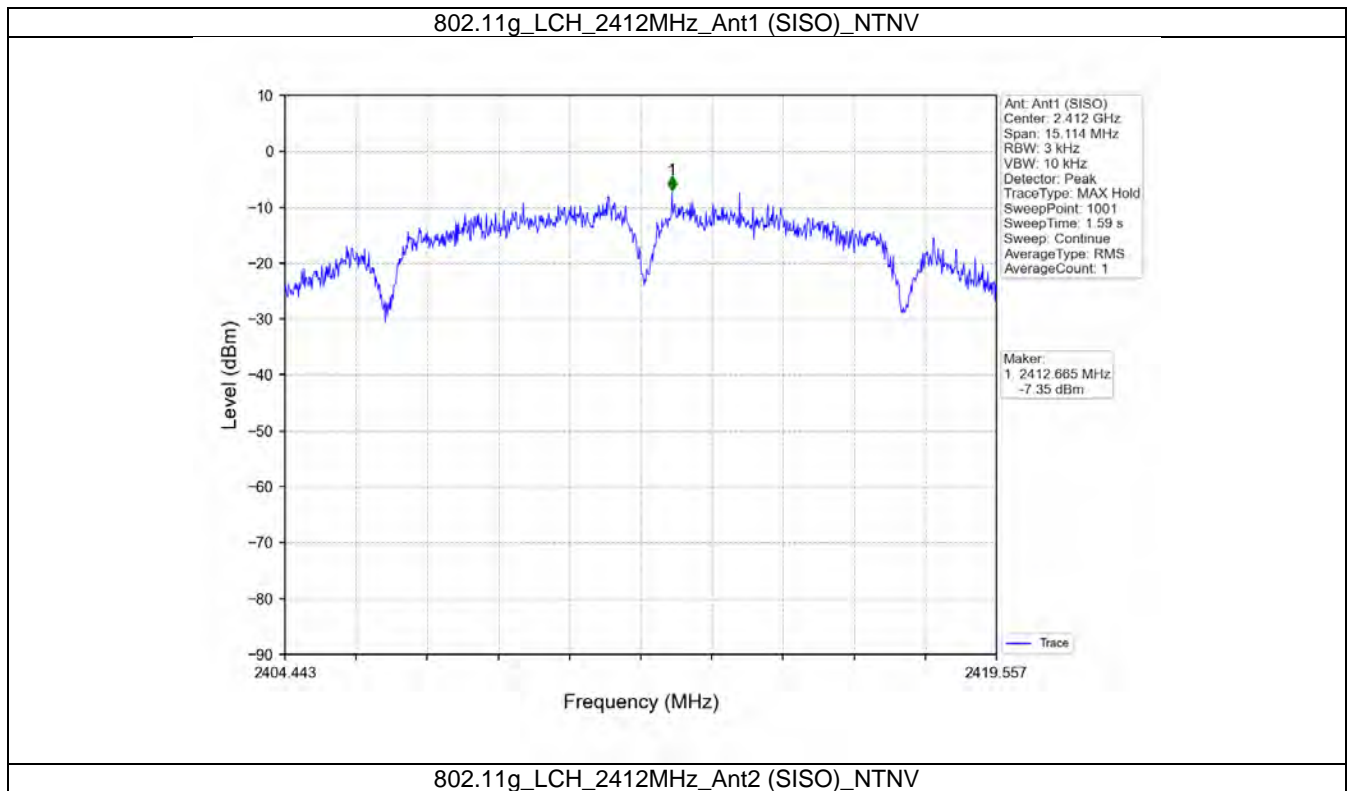
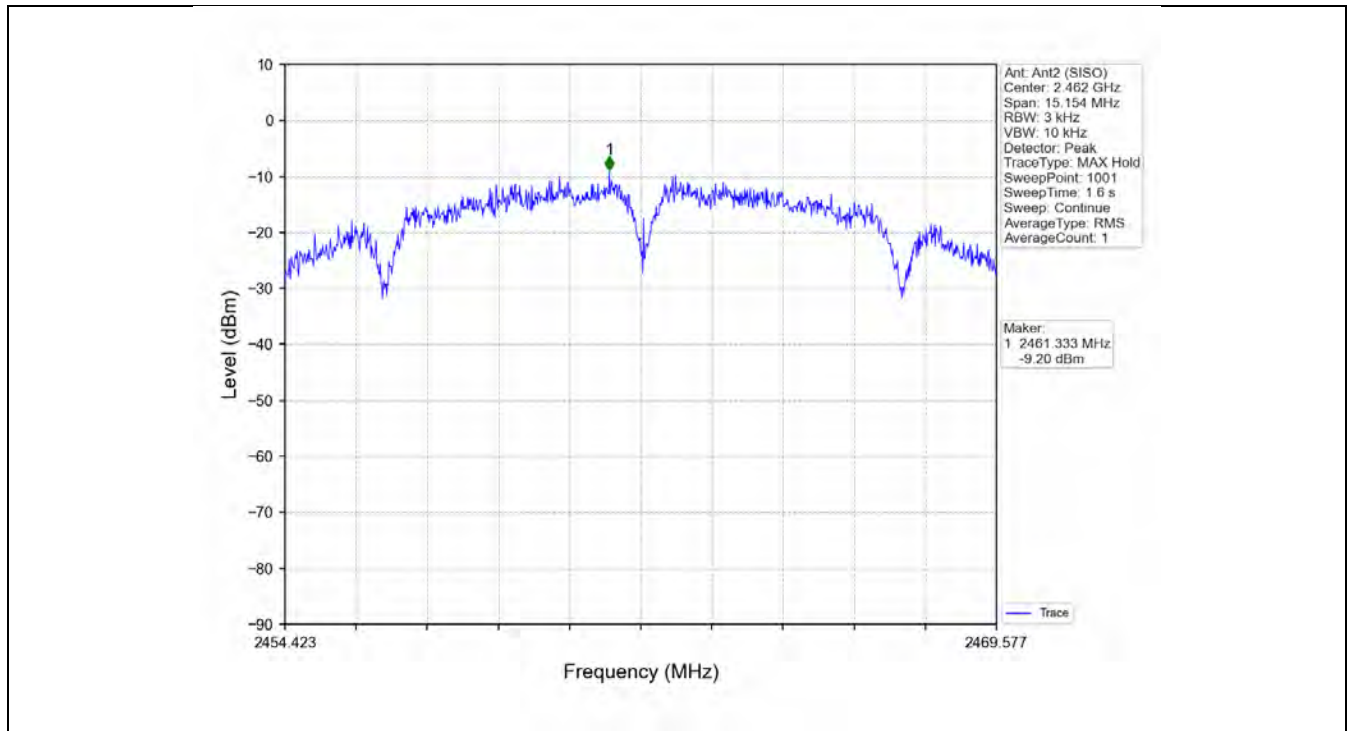
Note1: Antenna Gain: Ant1: 1.43dBi; Ant2: 1.43dBi;

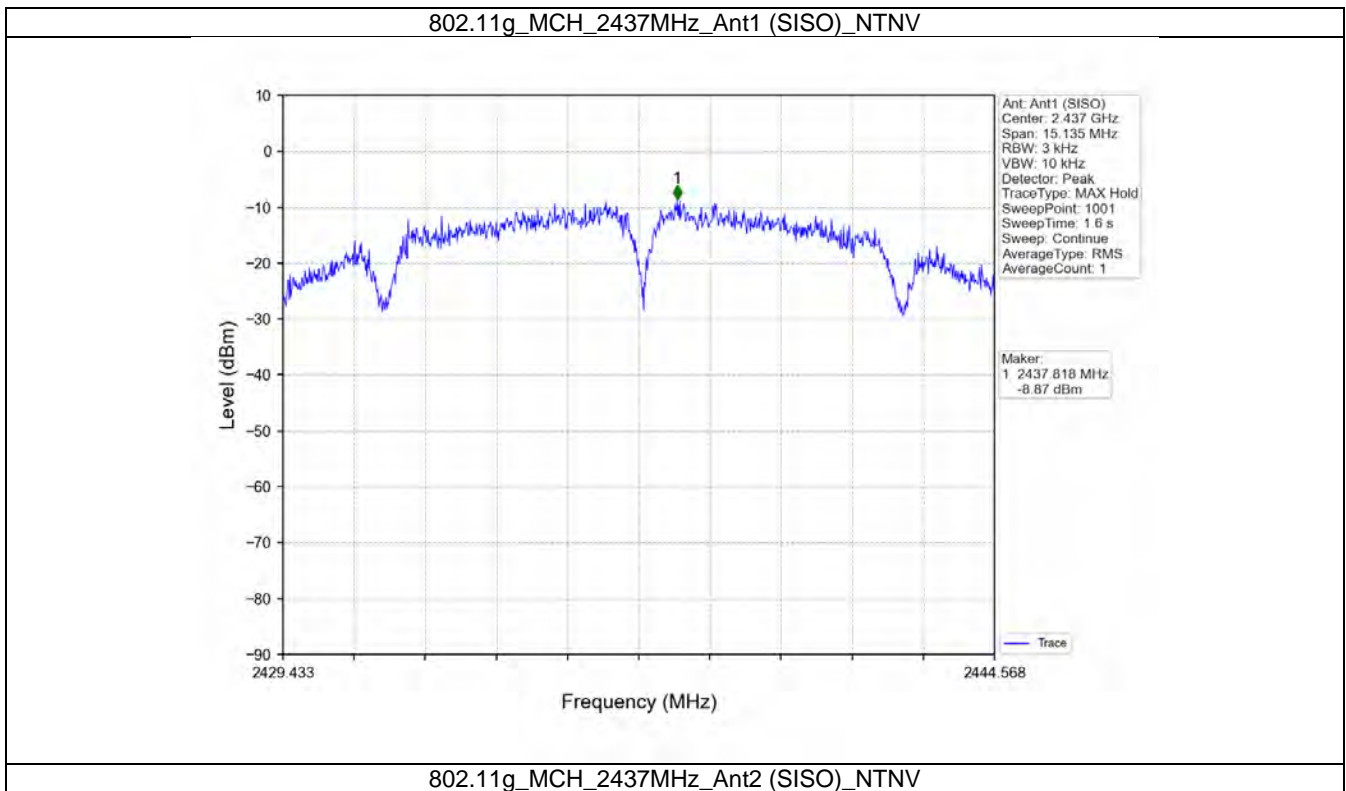
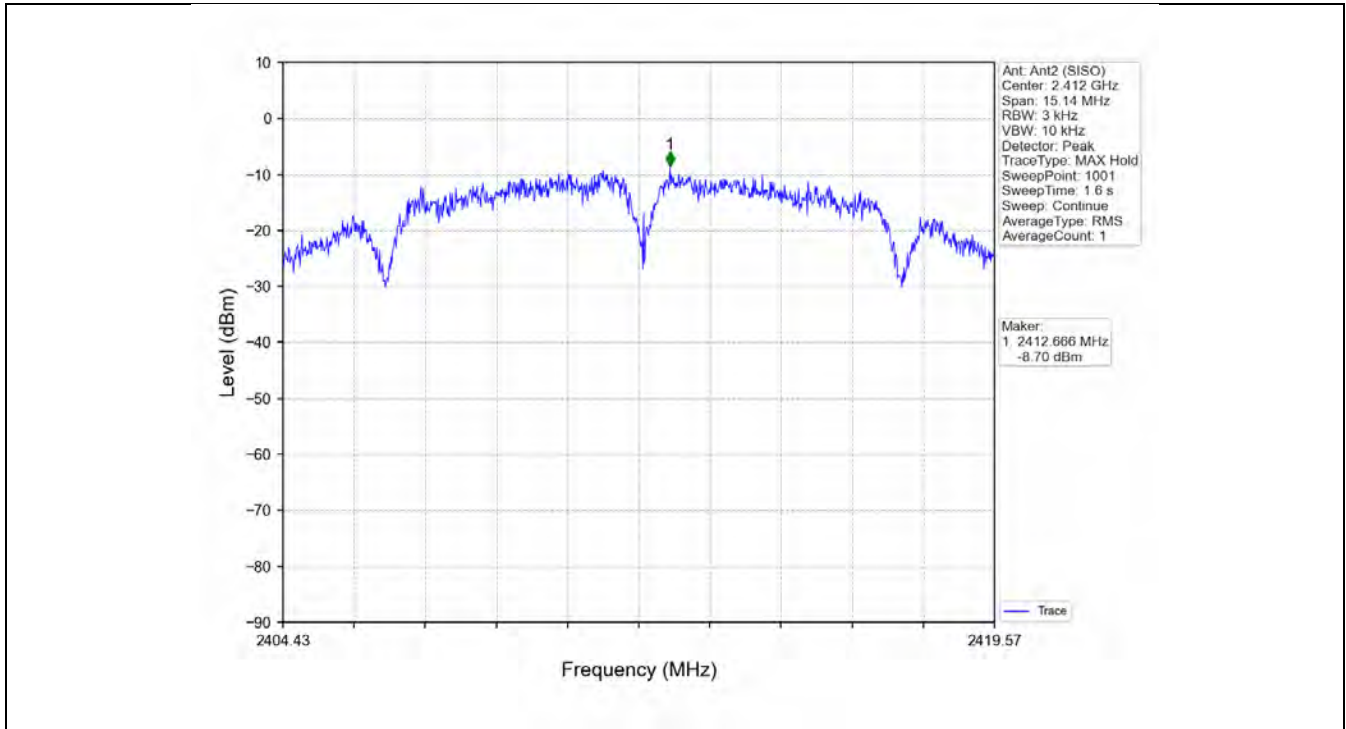
4.1.2 Test Graph

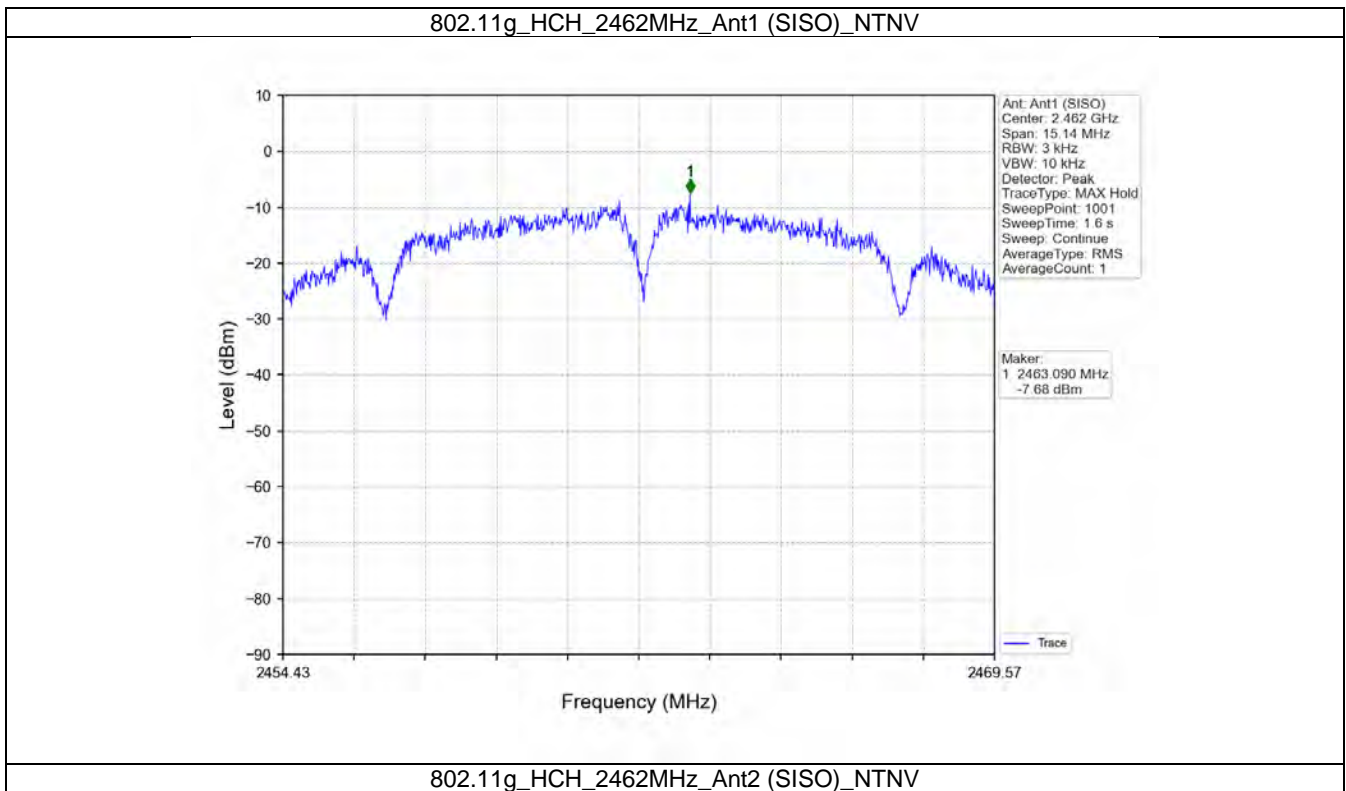
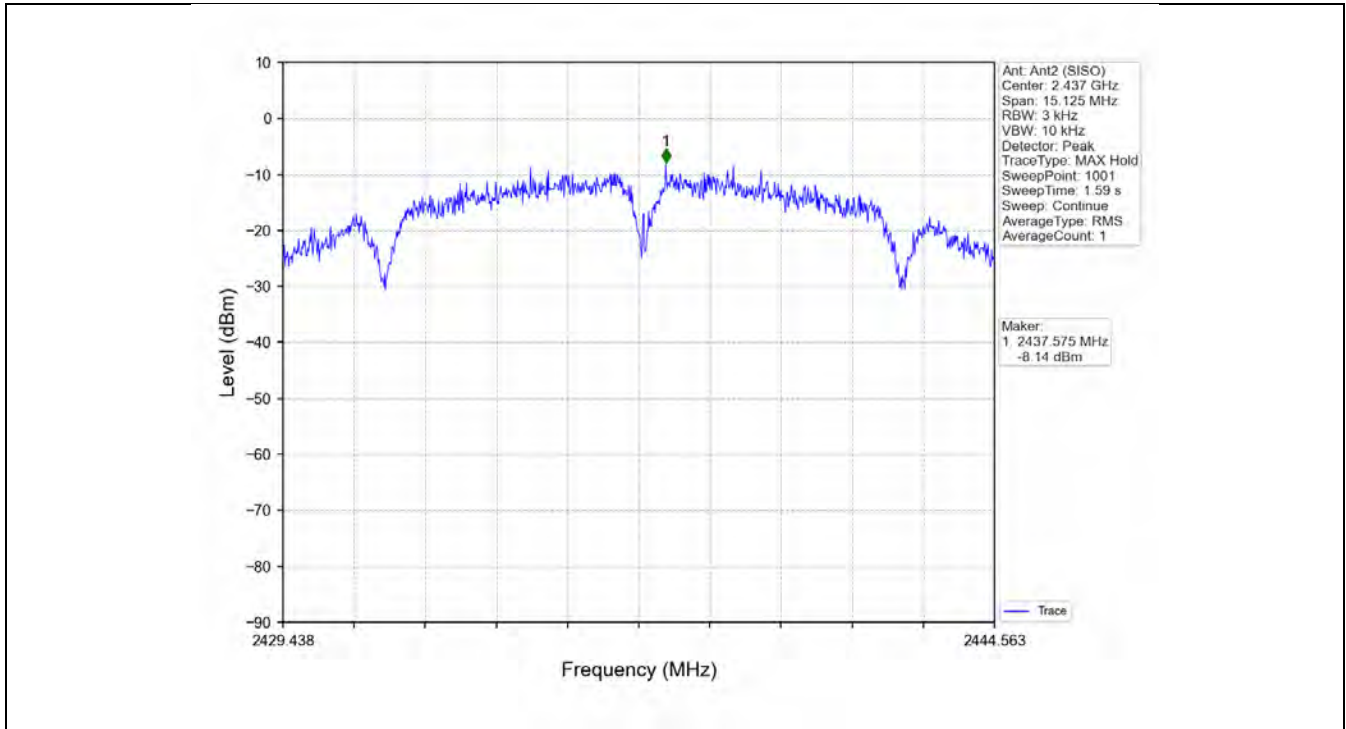


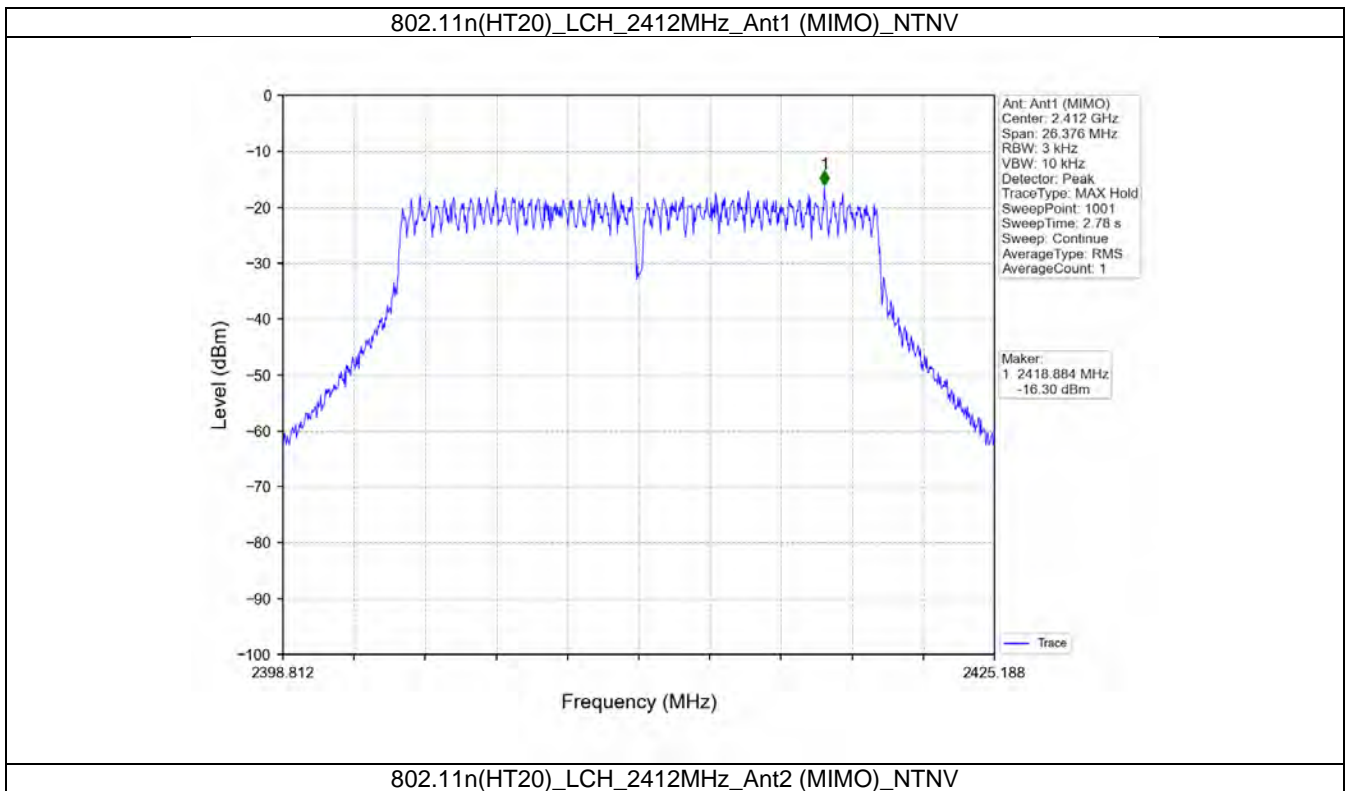
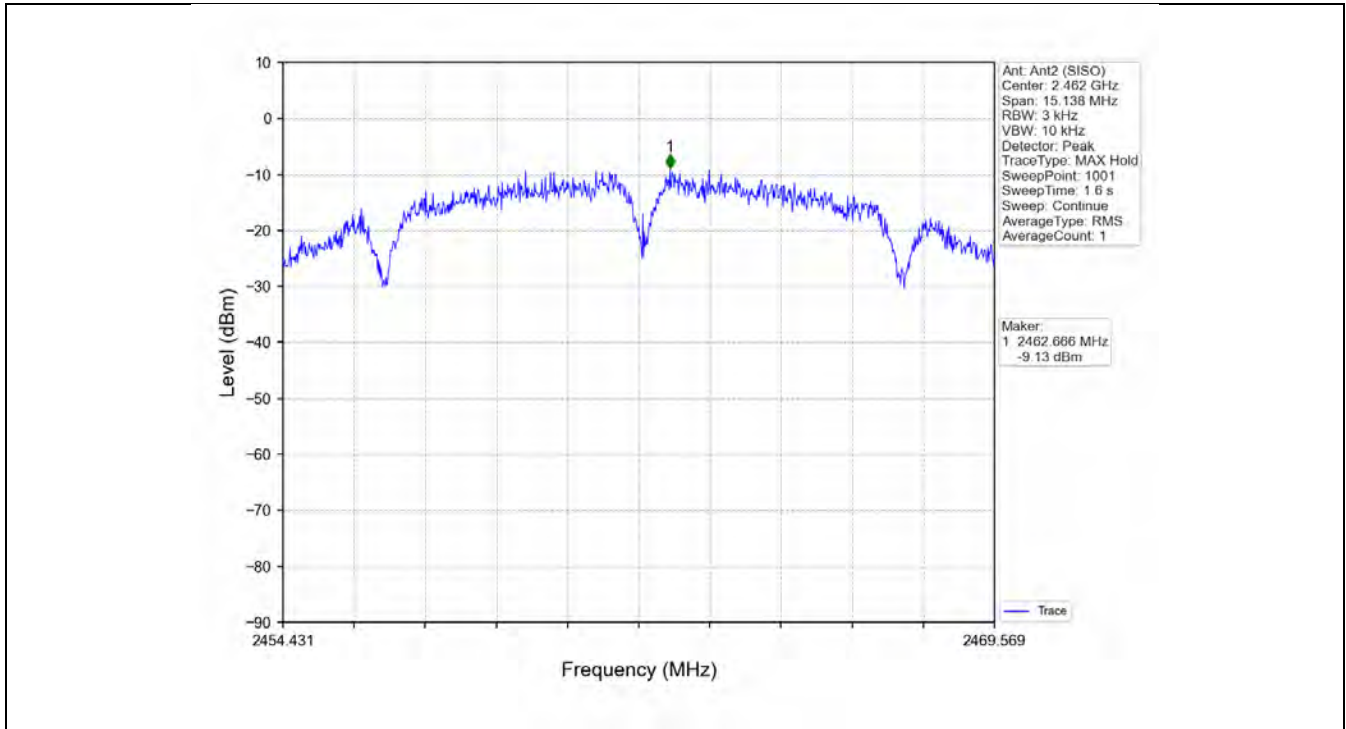


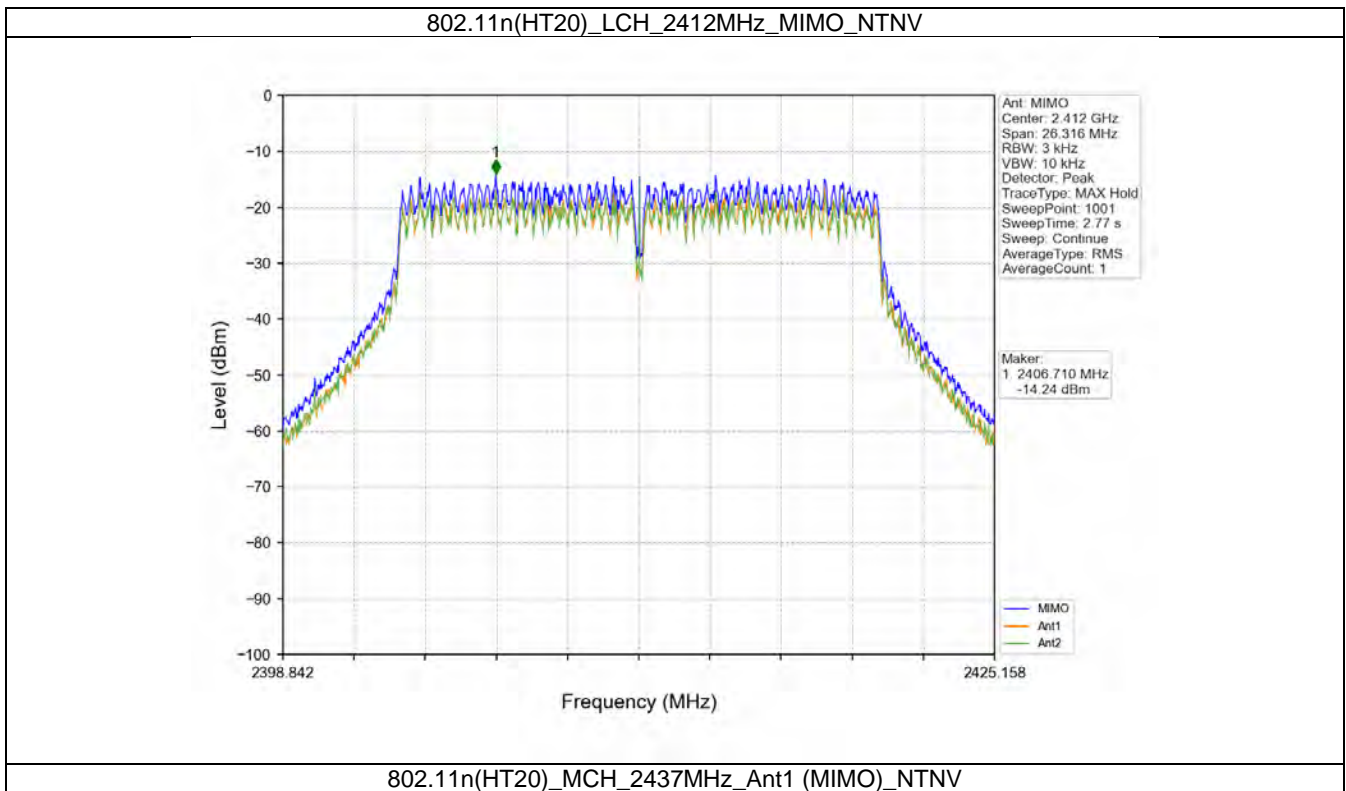
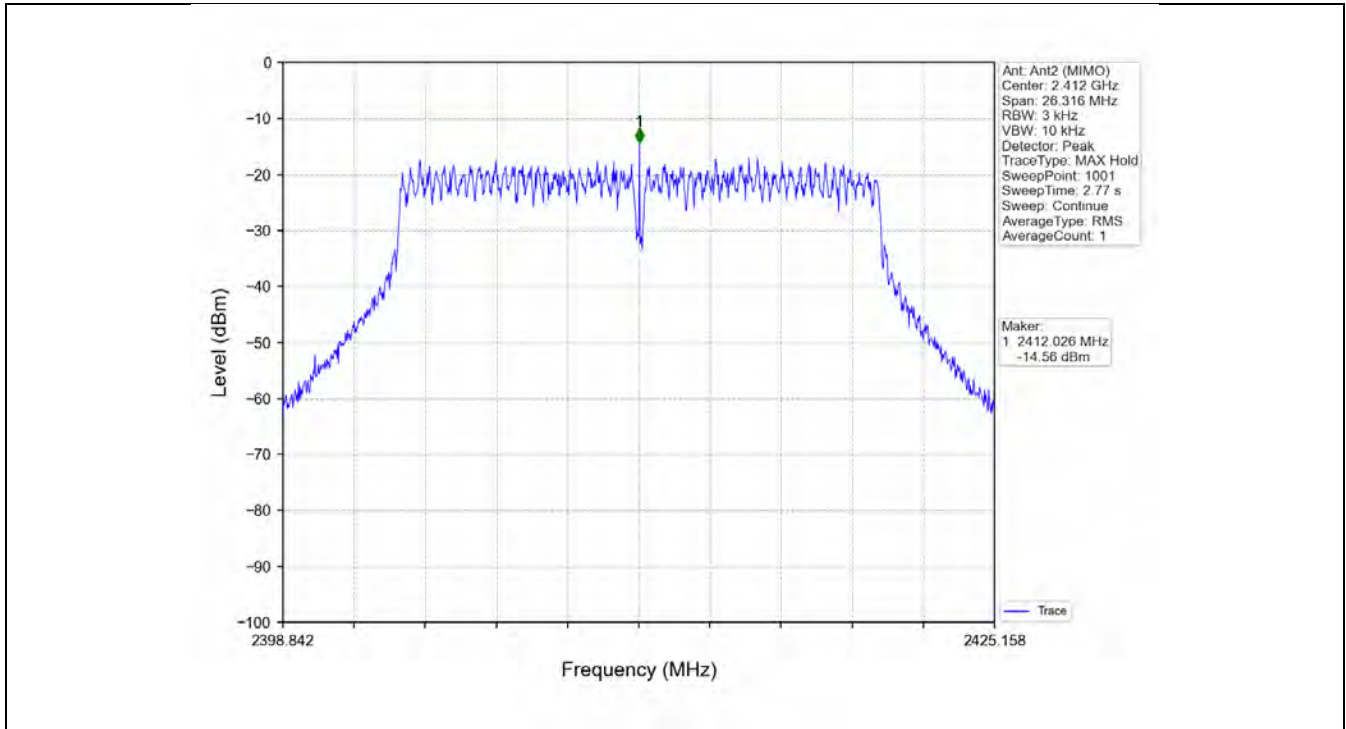


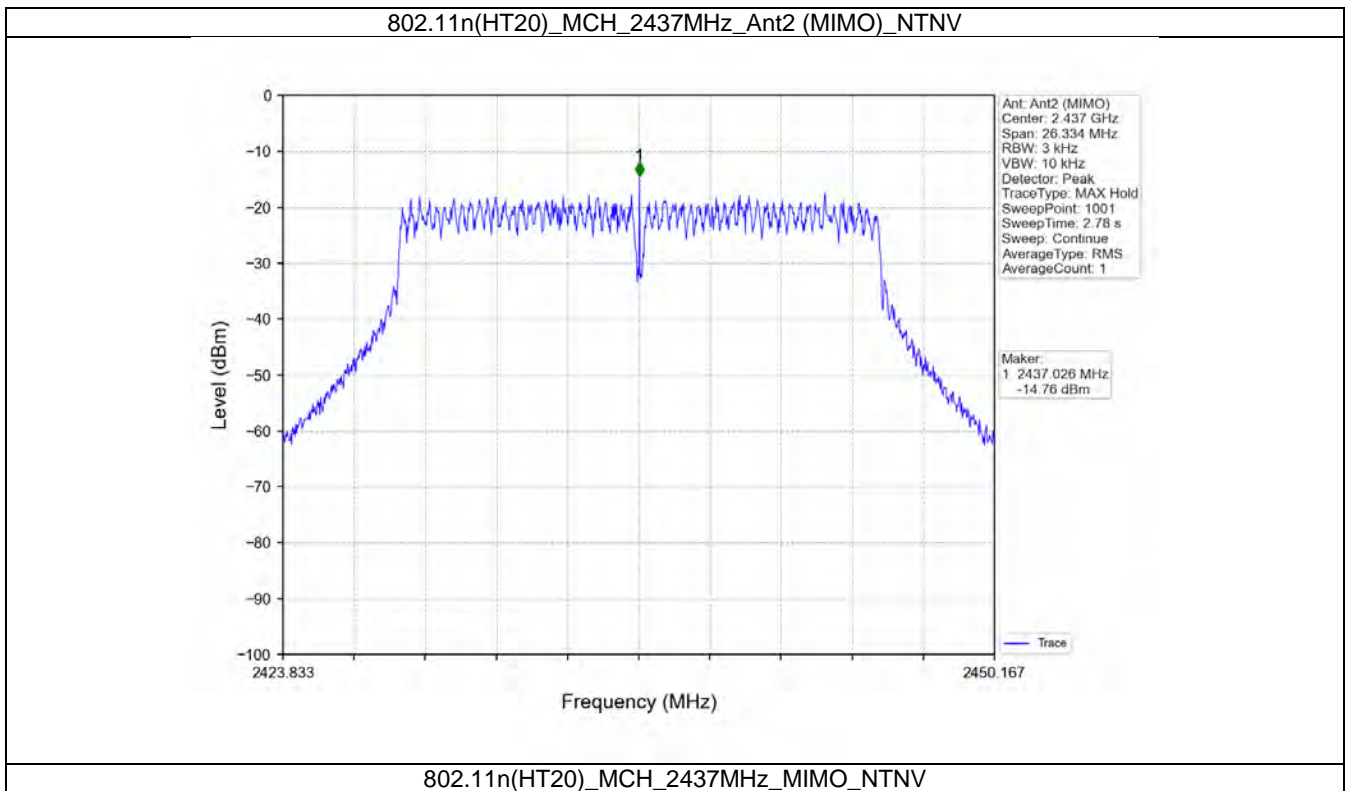
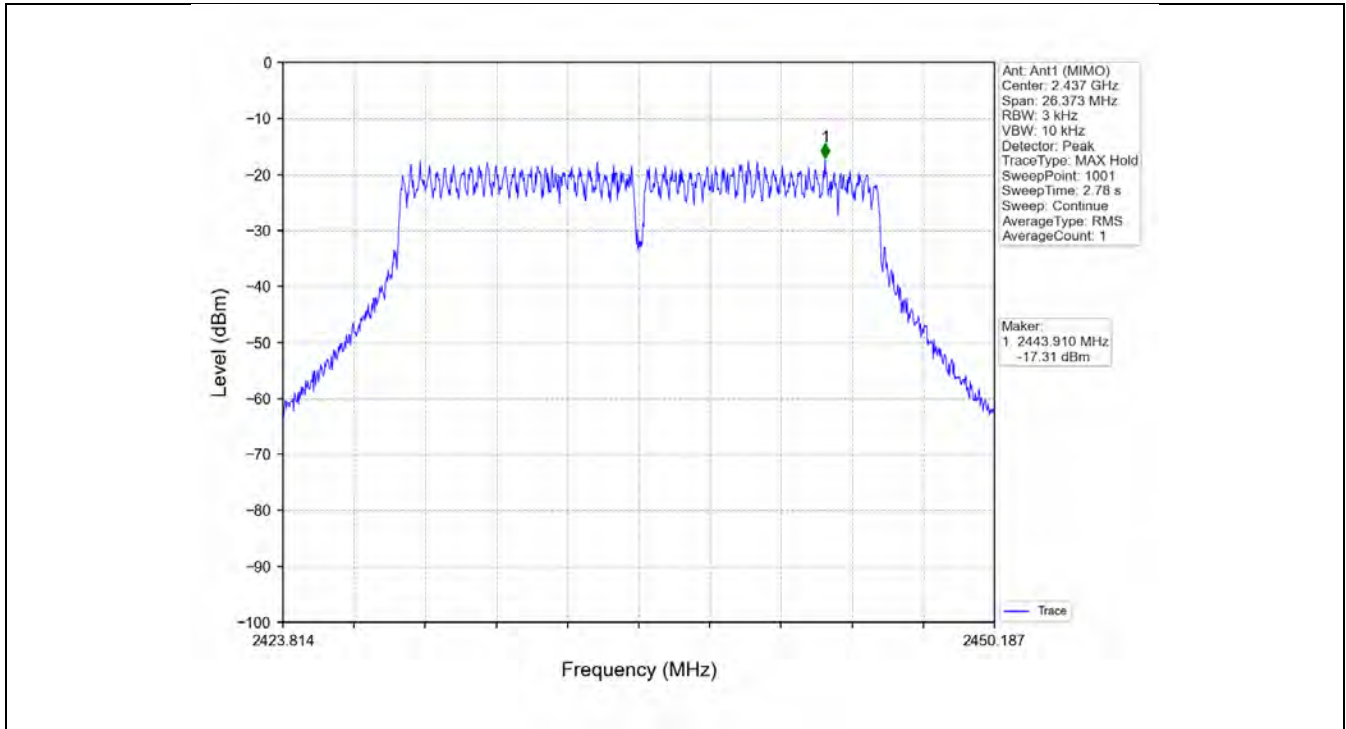


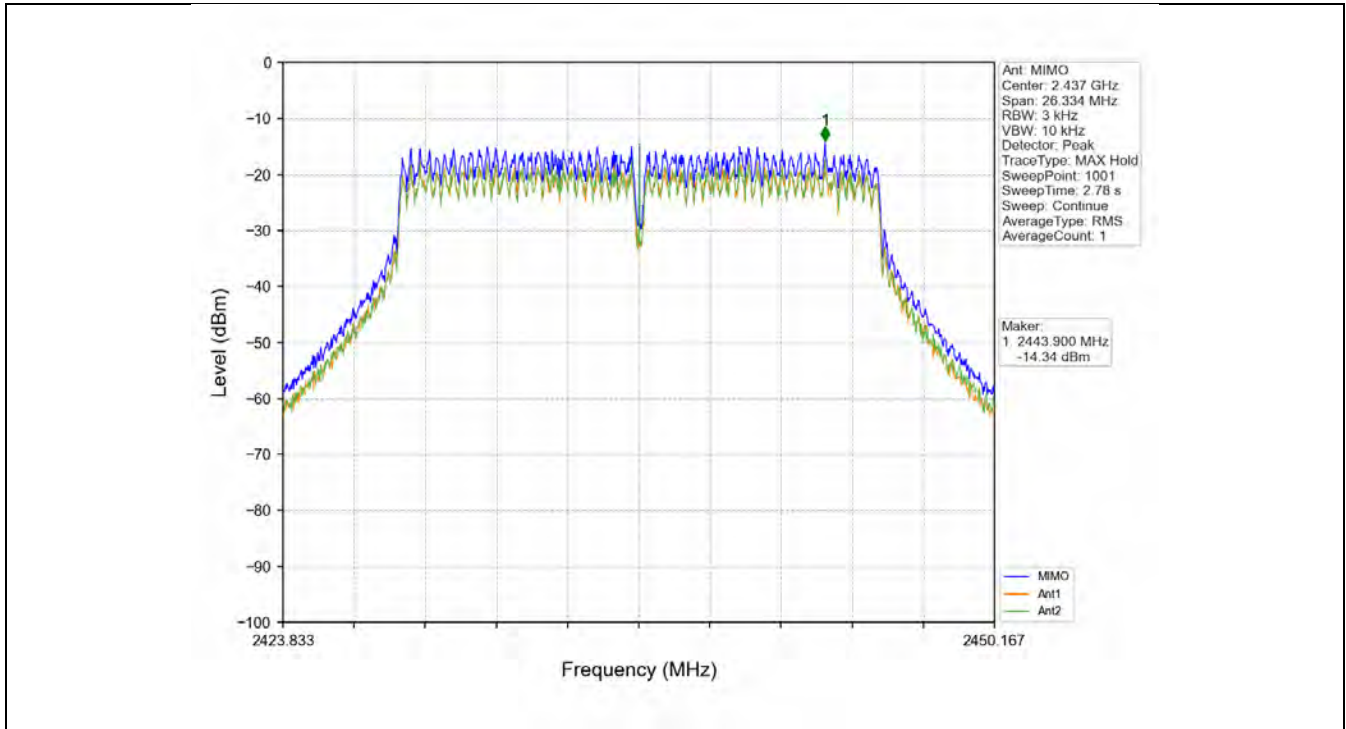




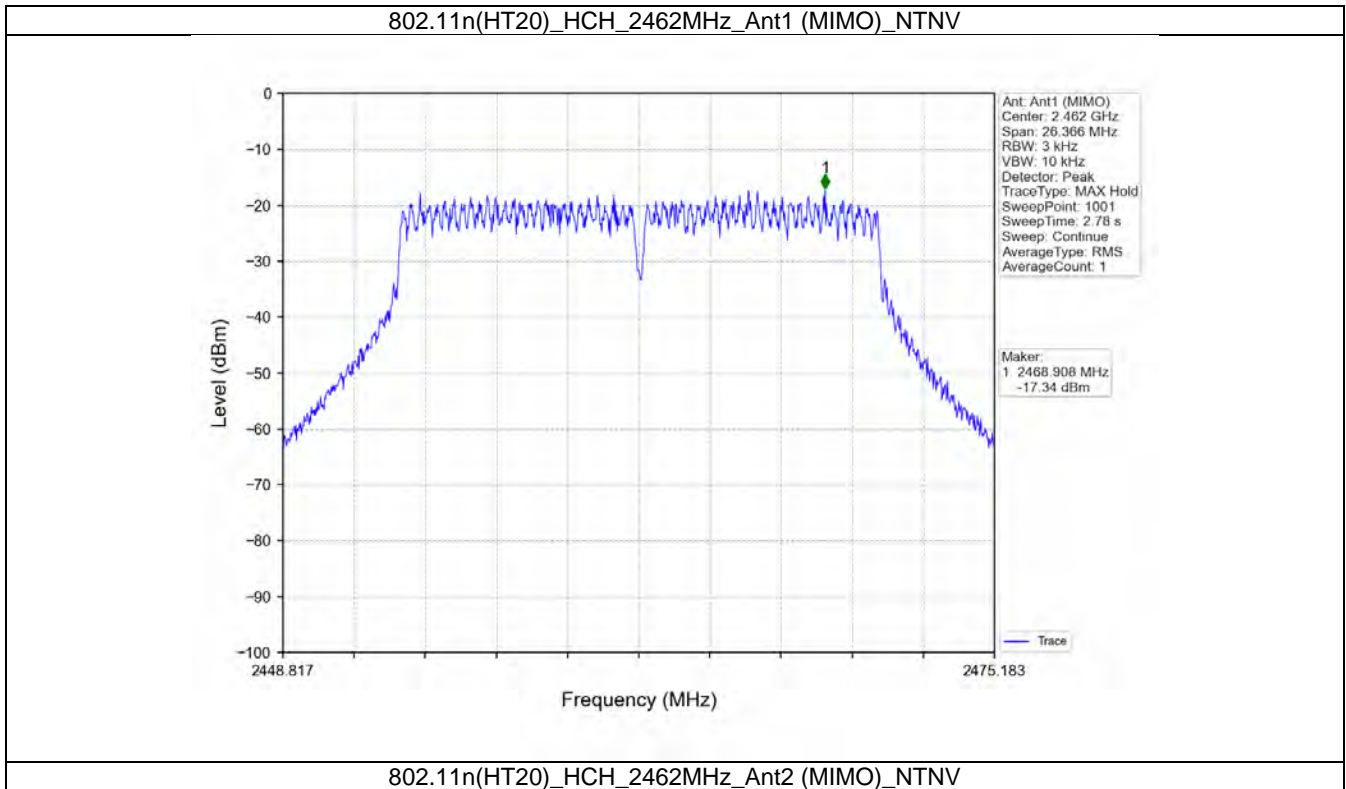




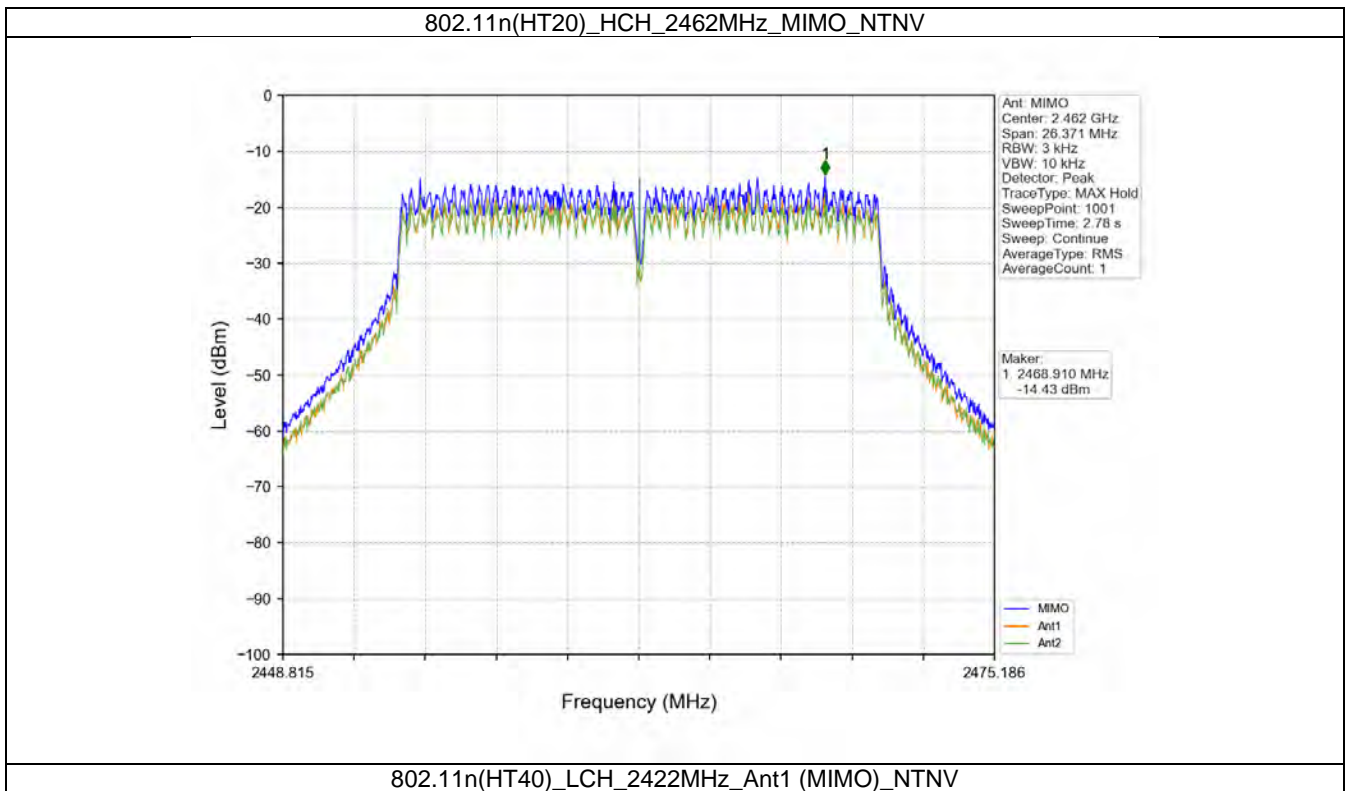
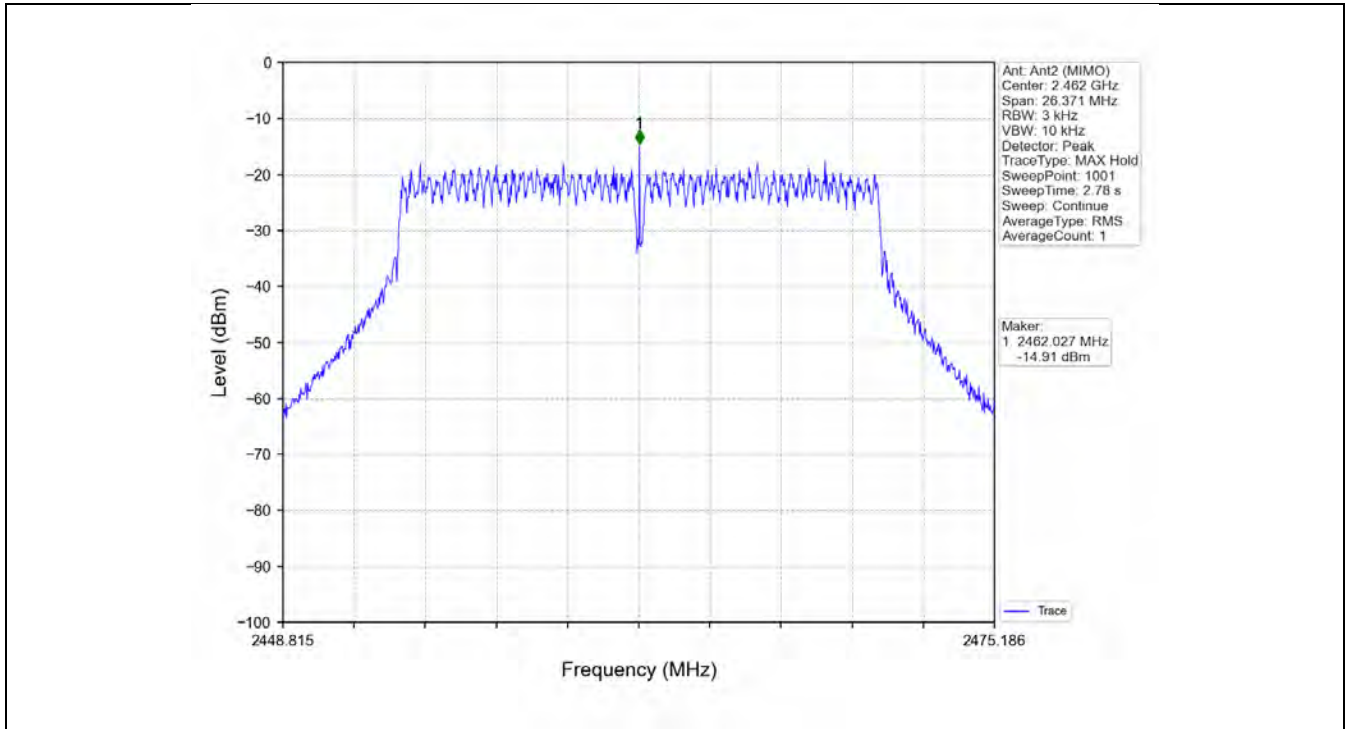


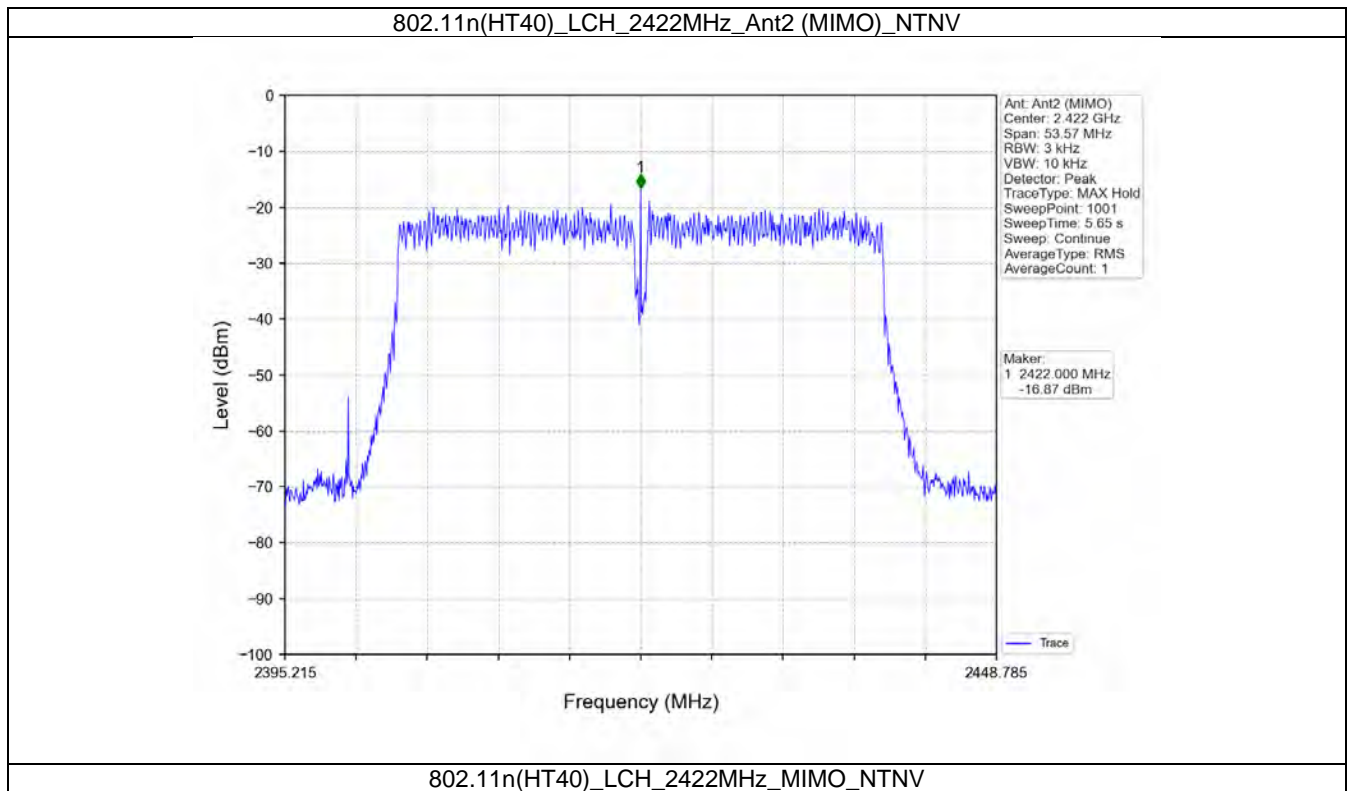
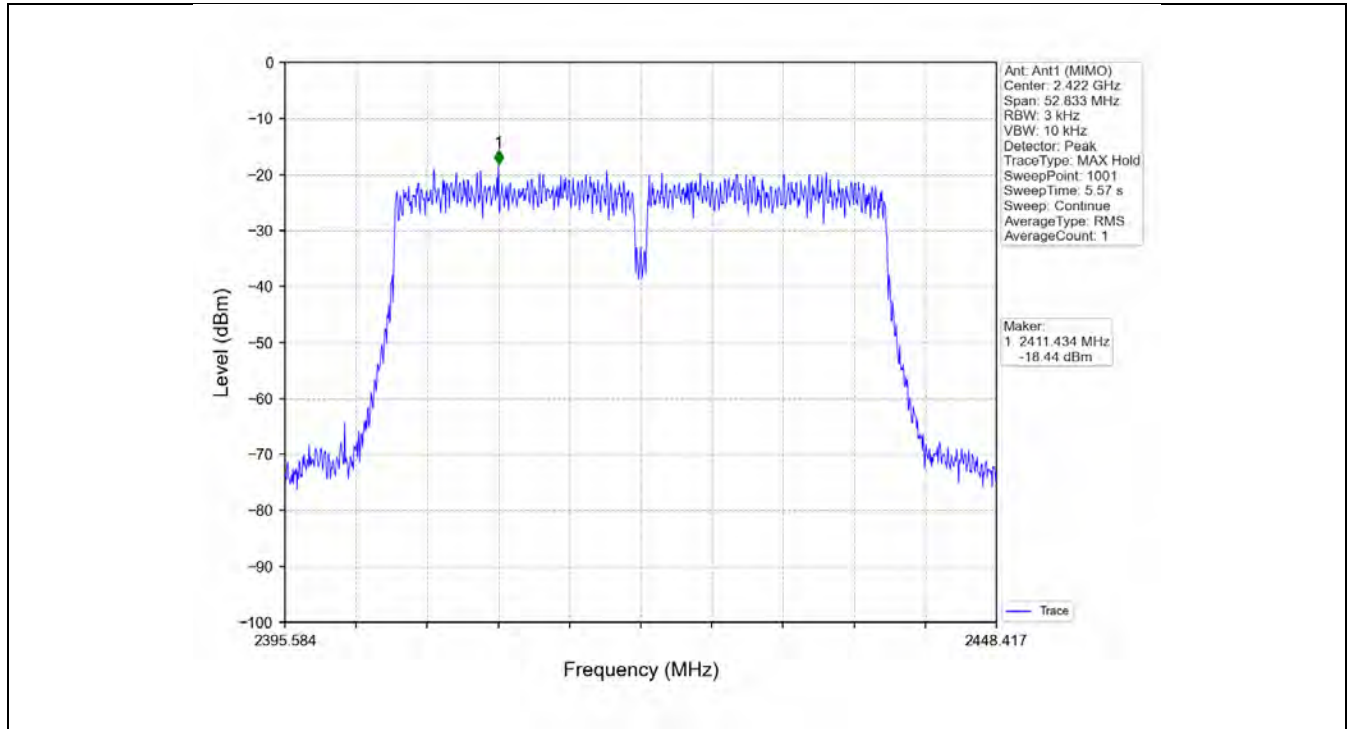


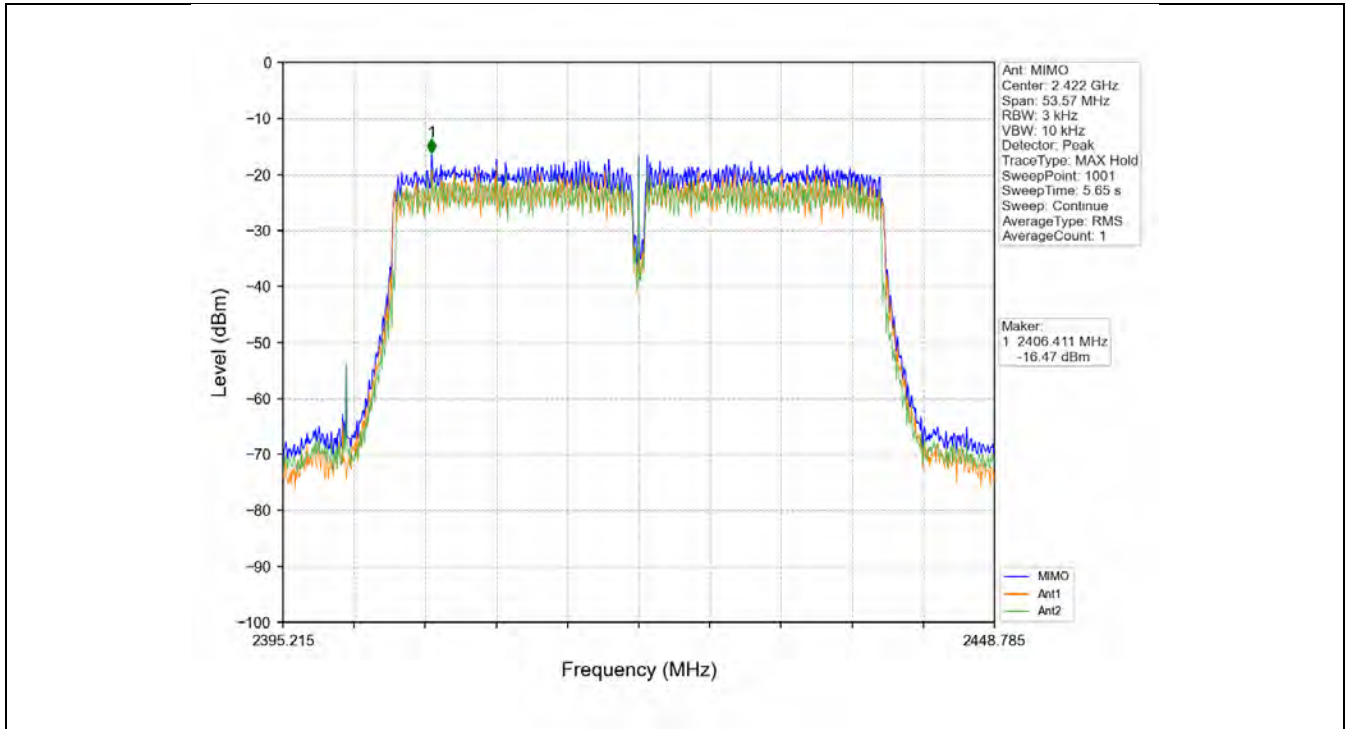
802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV



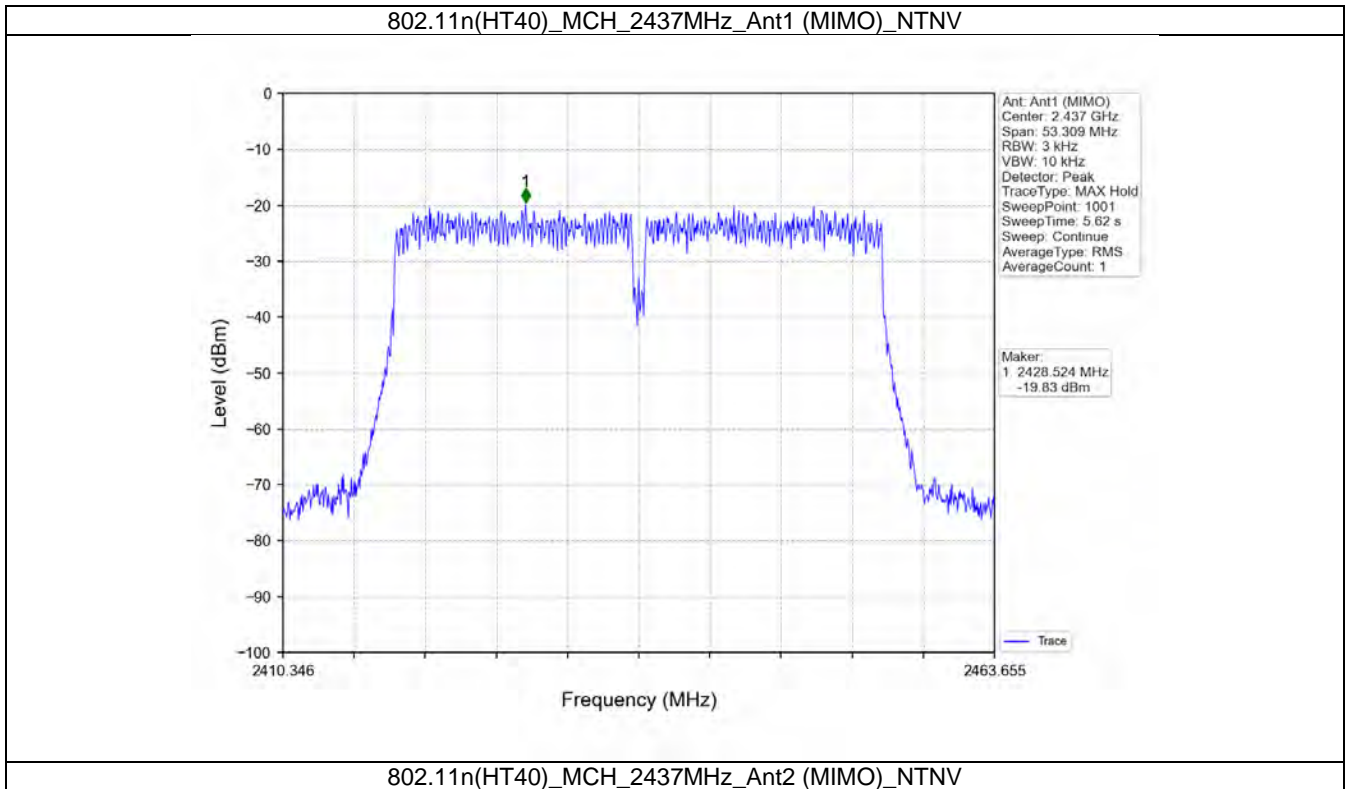
802.11n(HT20)_HCH_2462MHz_Ant2 (MIMO)_NTNV



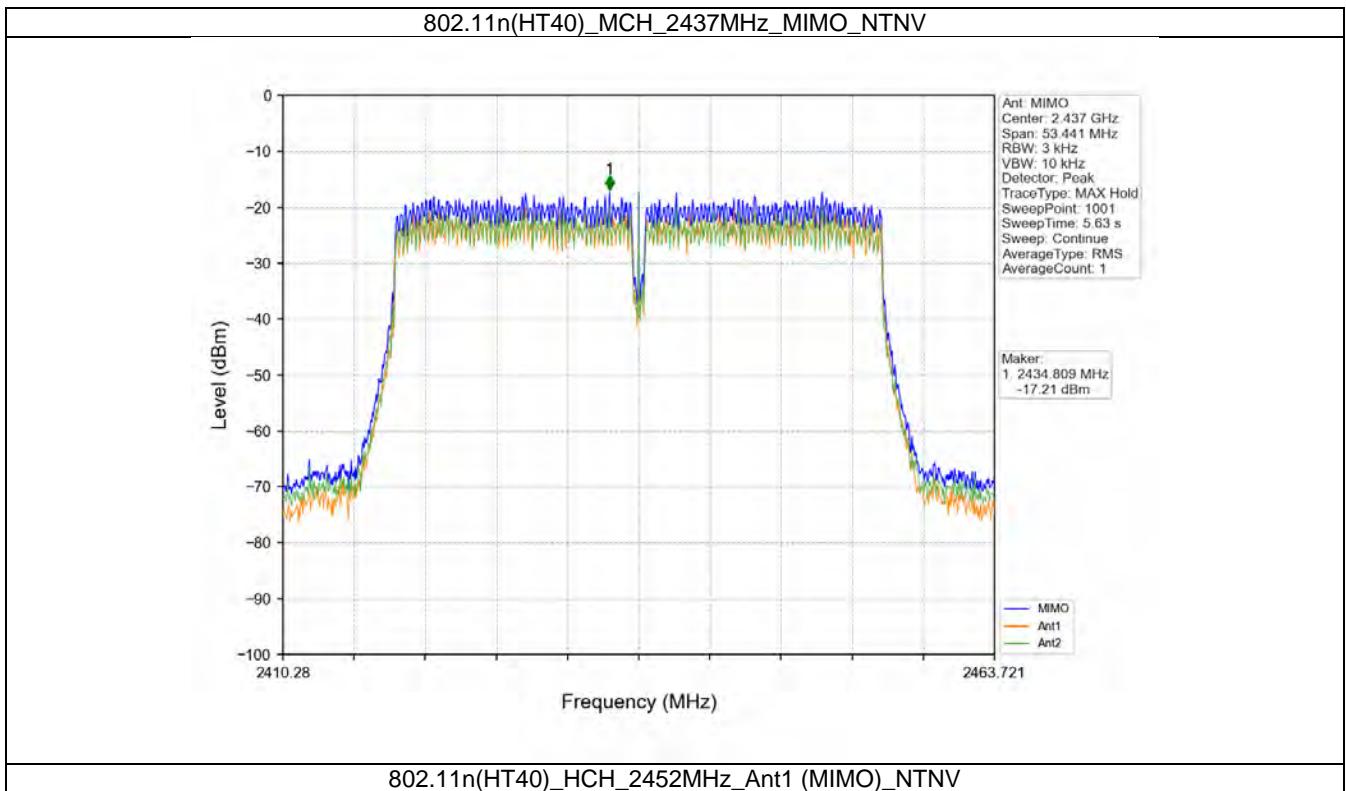
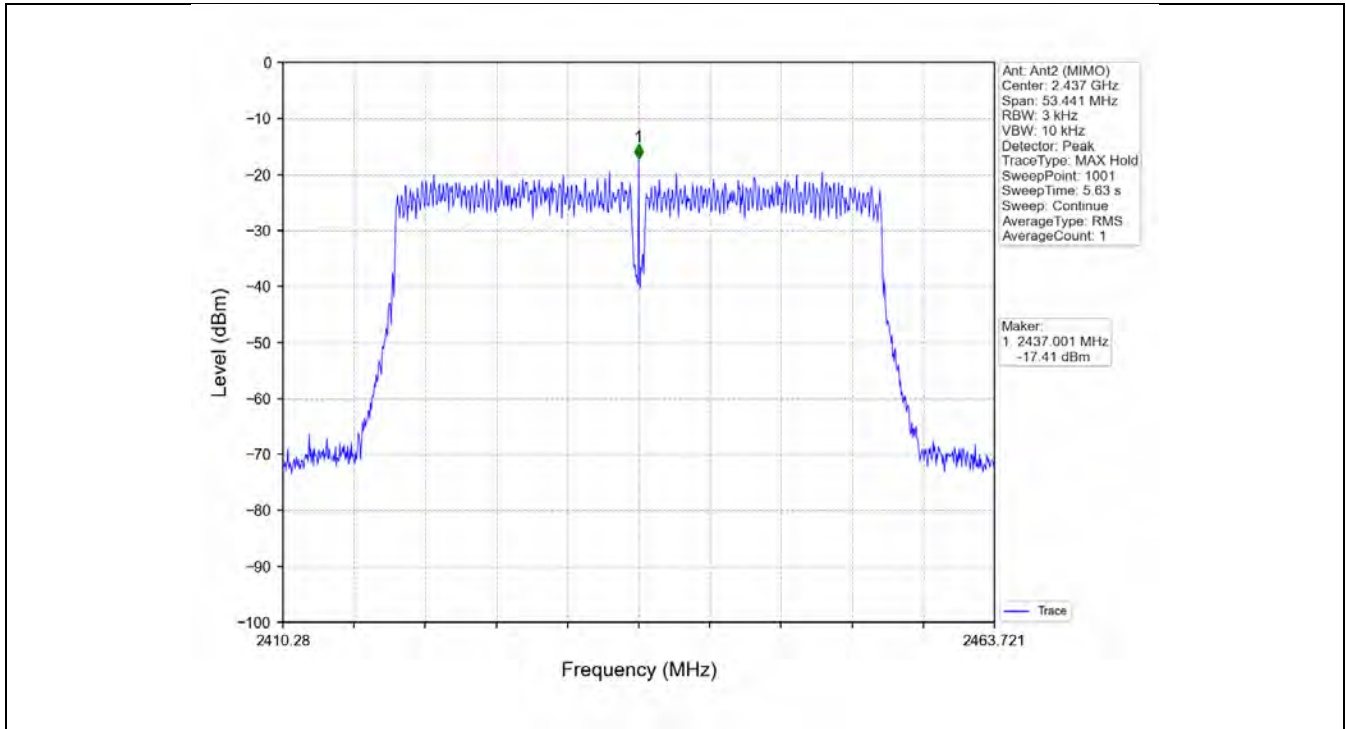


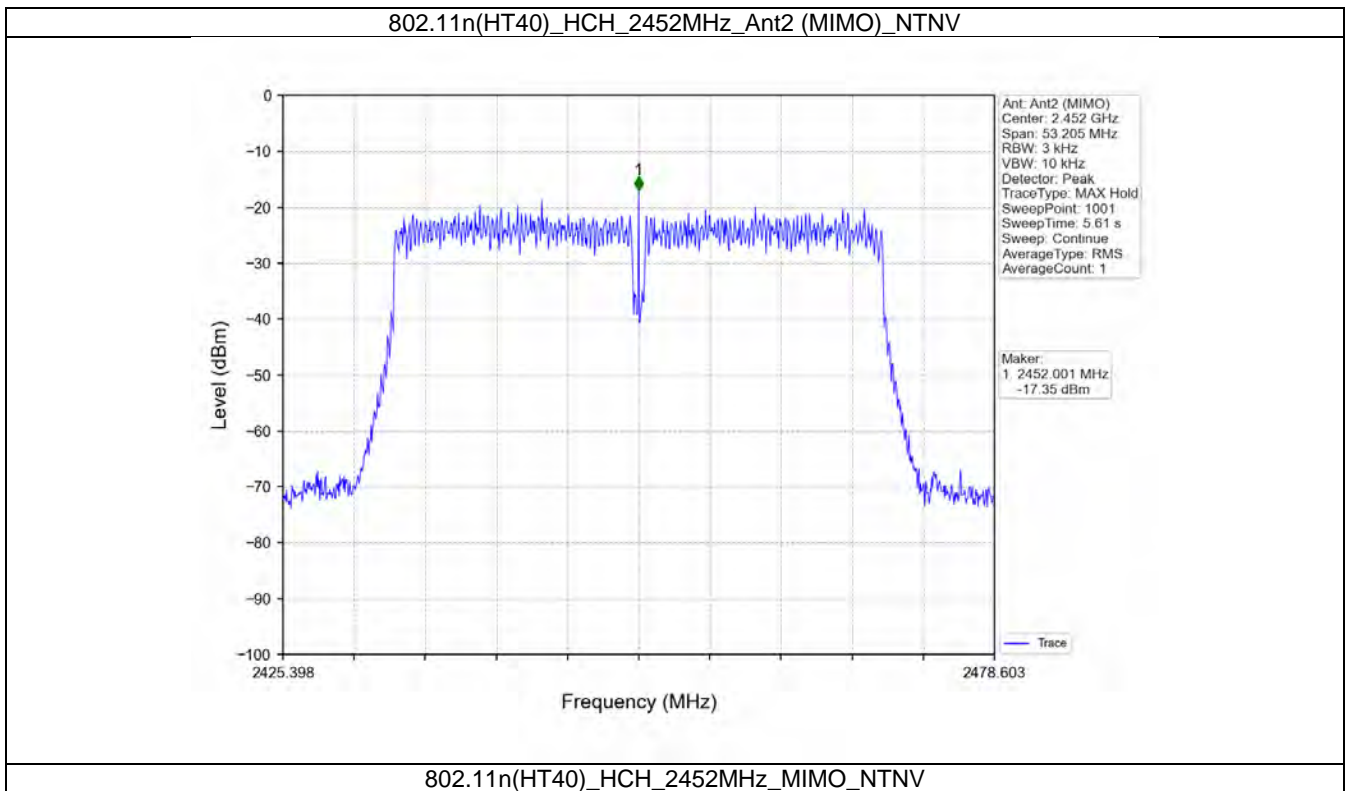
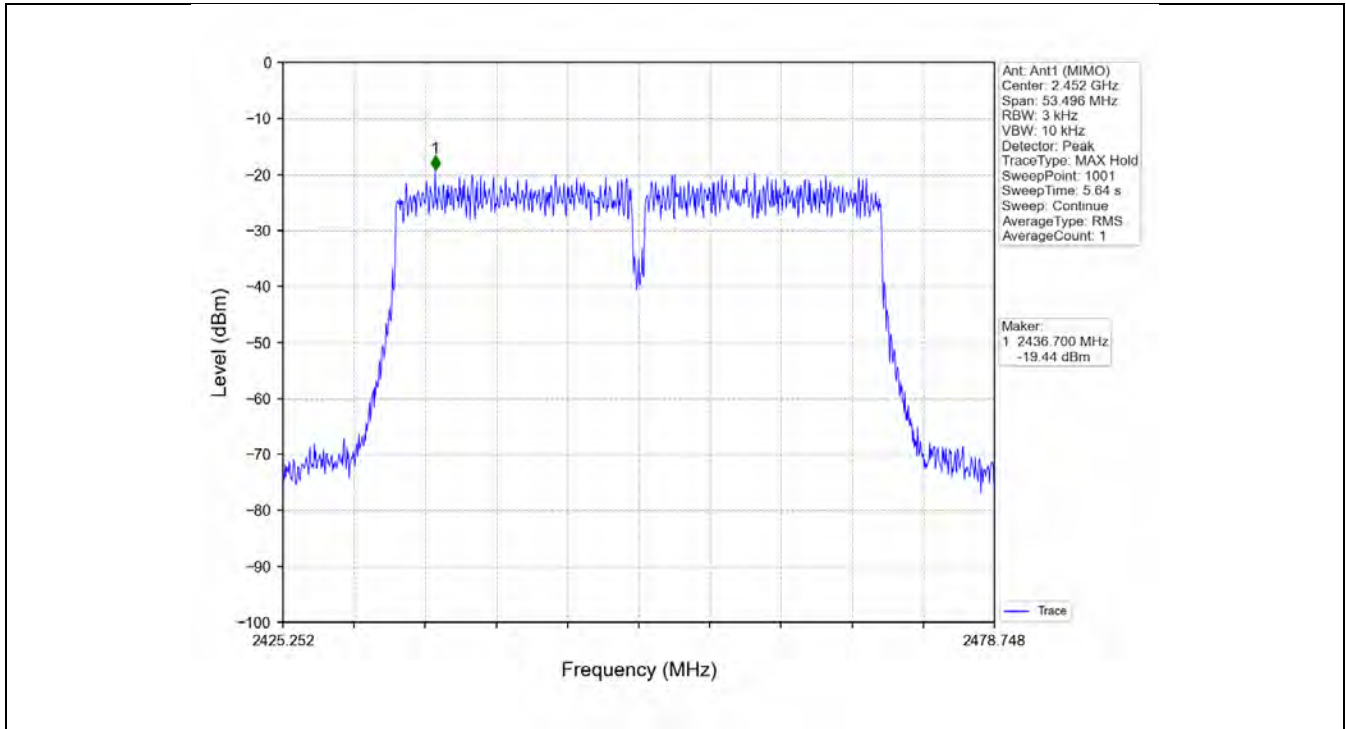


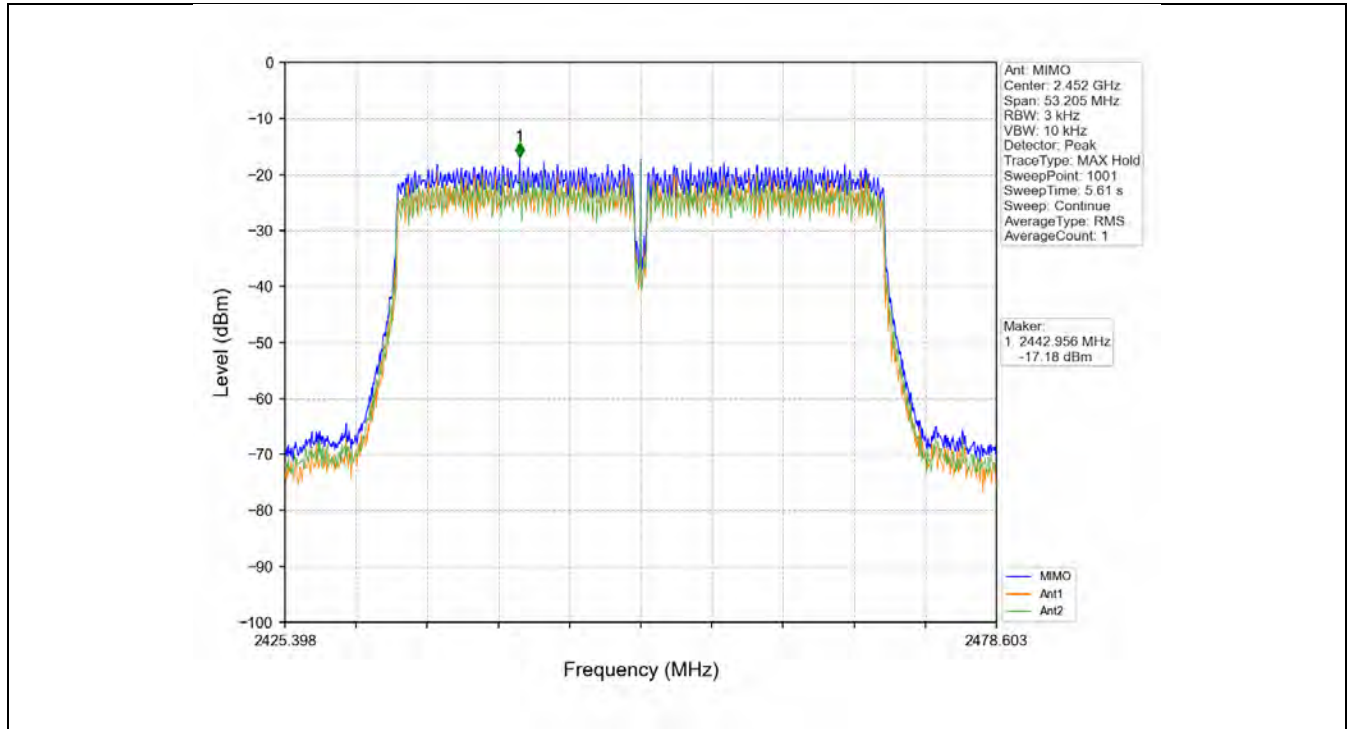
802.11n(HT40)_MCH_2437MHz_Ant1 (MIMO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant2 (MIMO)_NTNV







5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Ref

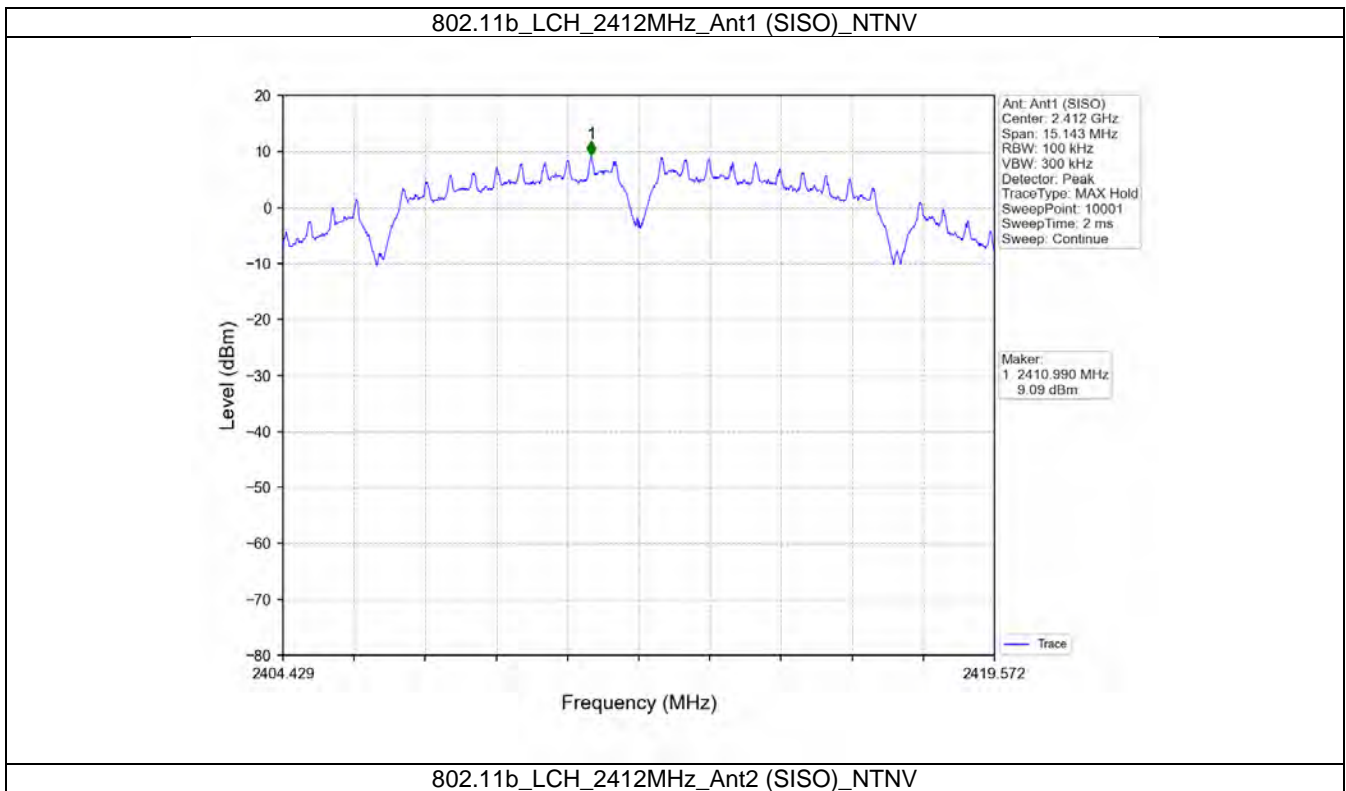
5.1.1 Test Result

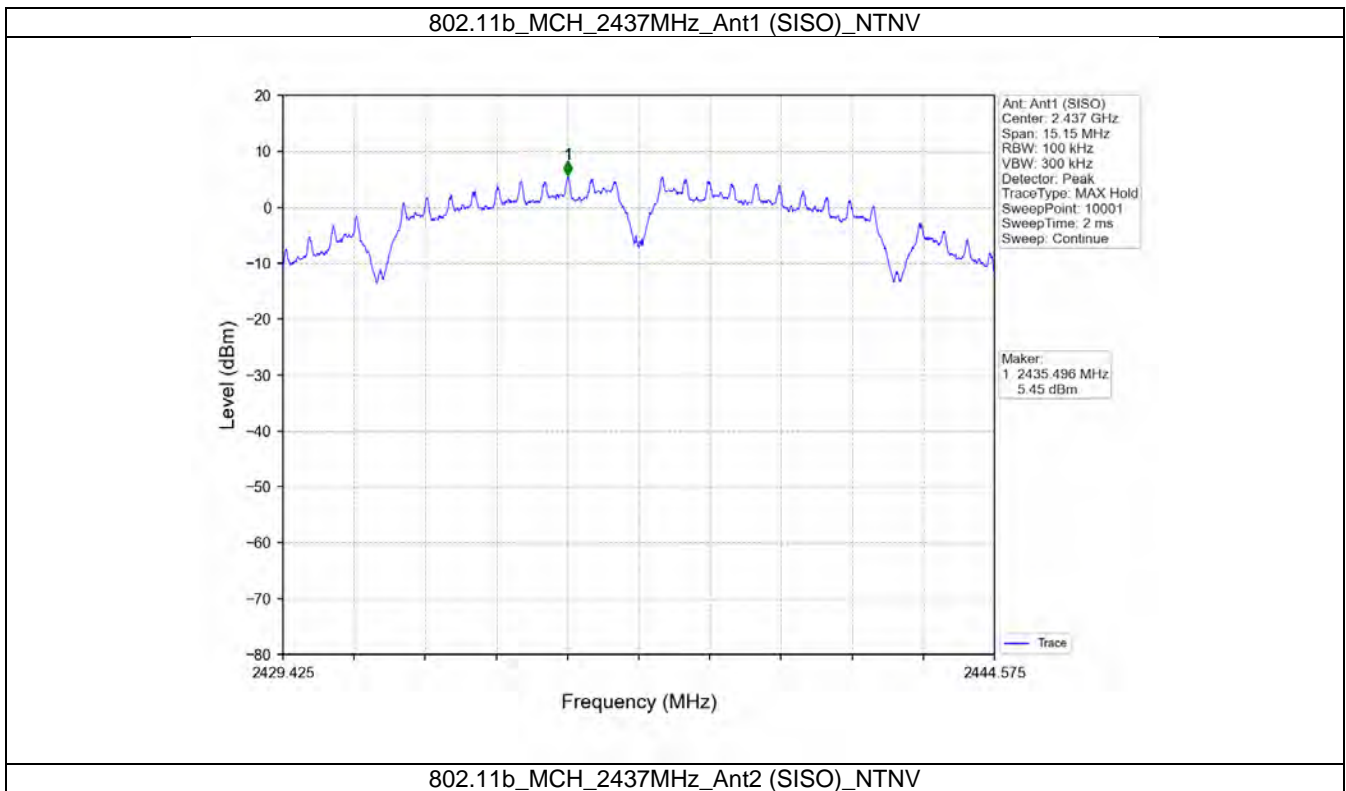
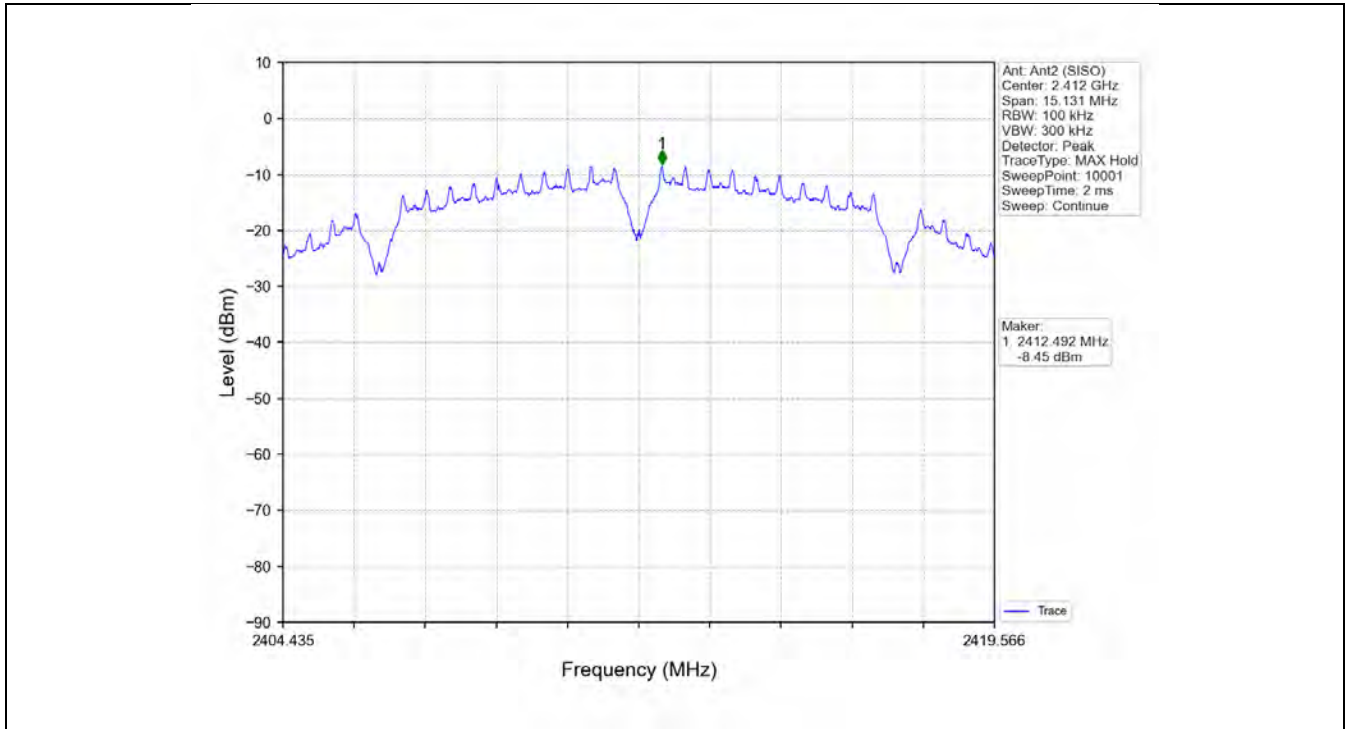
Mode	TX Type	Frequency (MHz)	Ant	Level of Reference (dBm)
802.11b	SISO	2412	1	9.09
			2	-8.45
		2437	1	5.45
			2	4.53
		2462	1	5.43
			2	4.61
802.11g	SISO	2412	1	5.77
			2	5.70
		2437	1	5.62
			2	5.33
		2462	1	5.58
			2	5.46
802.11n (HT20)	MIMO	2412	1	3.42
			2	6.06
		2437	1	5.73
			2	5.97
		2462	1	5.50
			2	5.42
802.11n (HT40)	MIMO	2422	1	-2.49
			2	-3.73

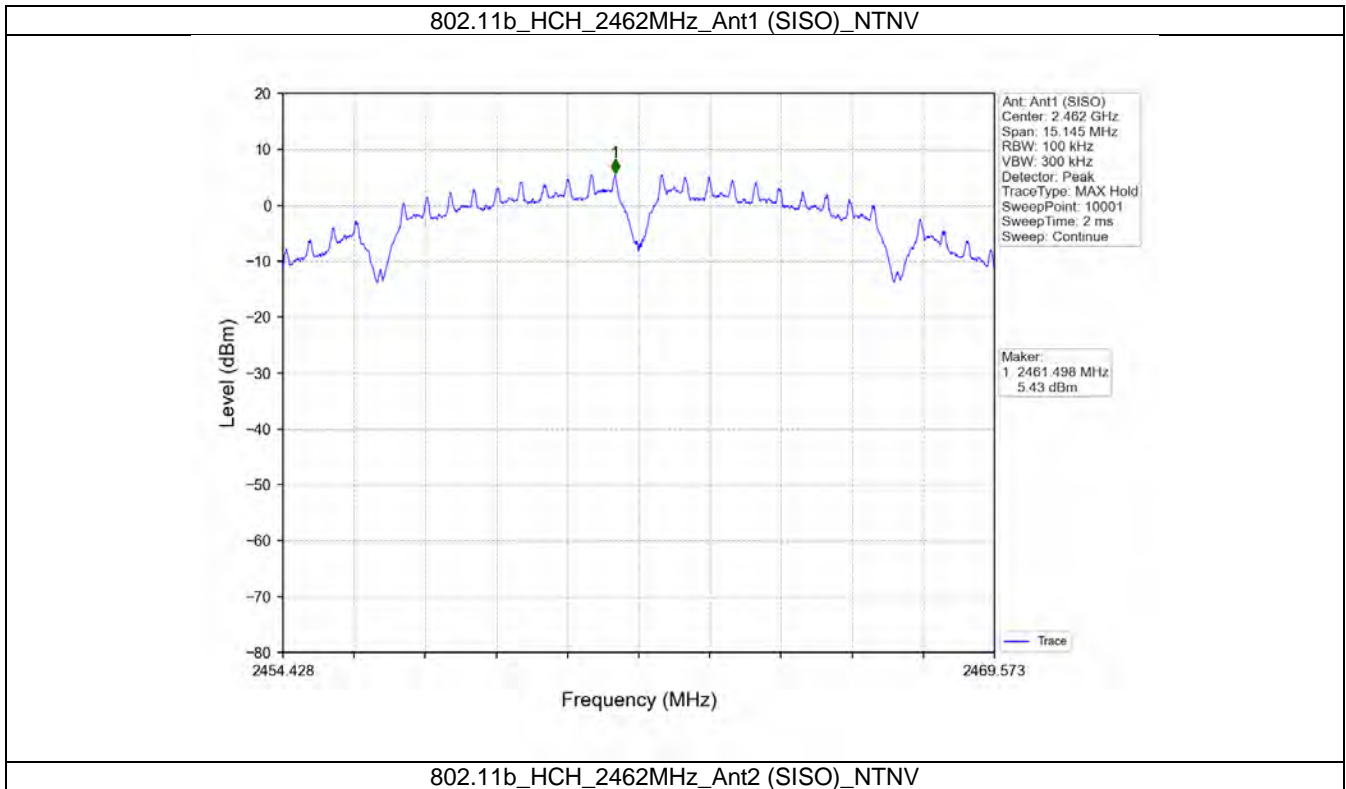
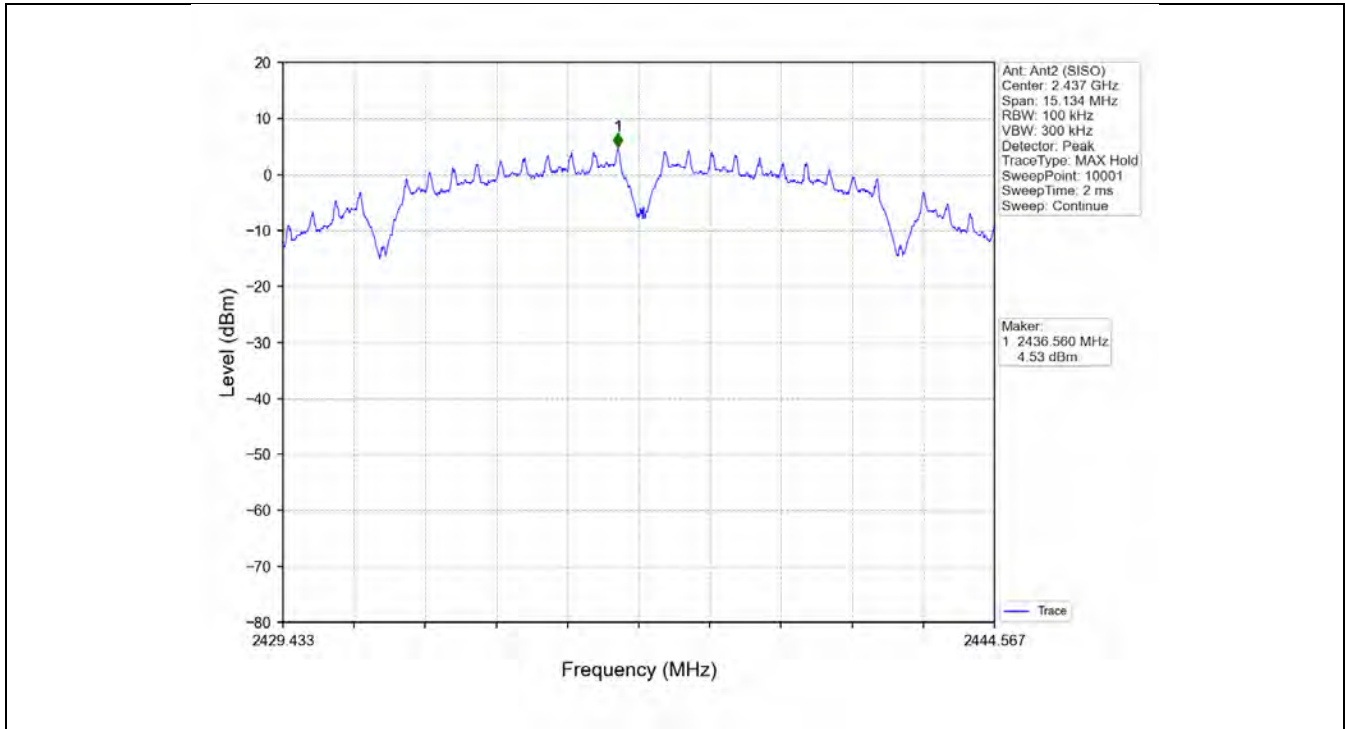
		2437	1	-3.68
			2	6.08
		2452	1	-4.48
			2	-4.40

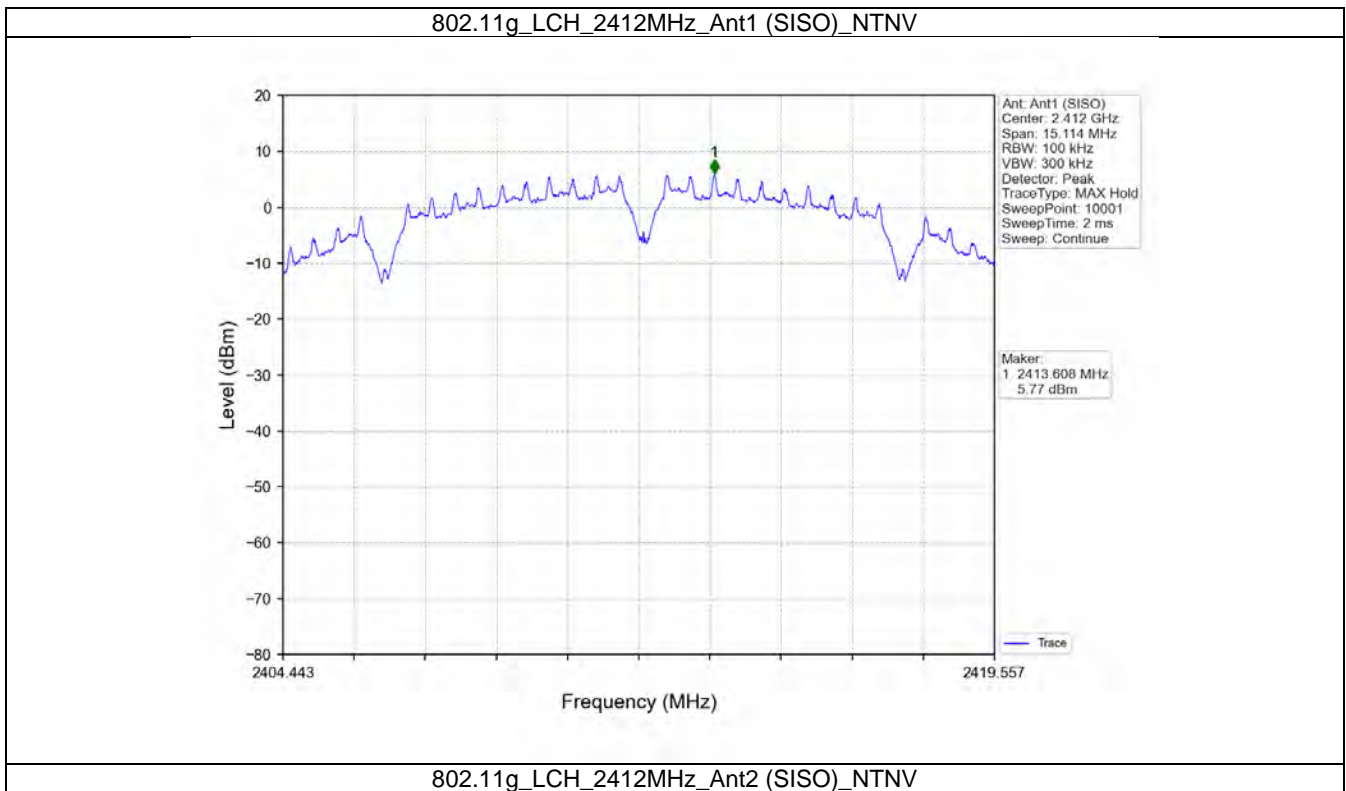
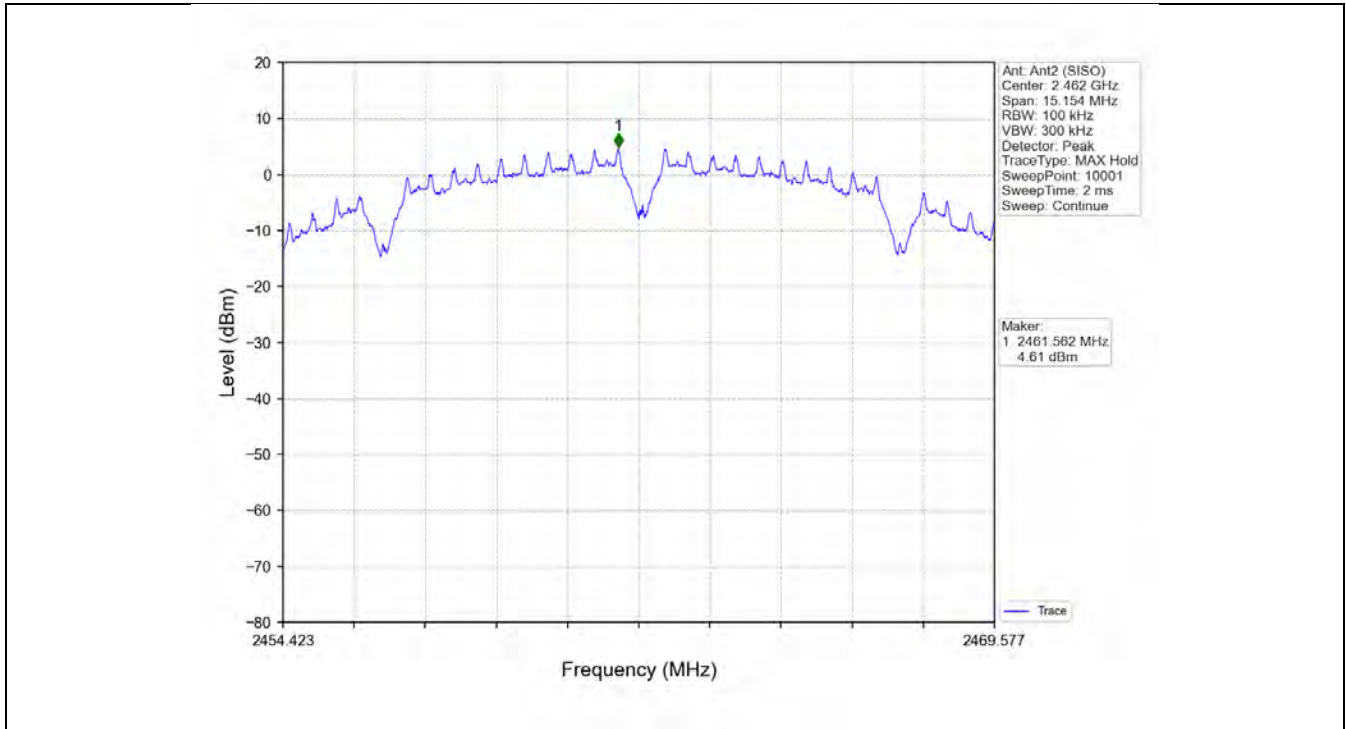
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

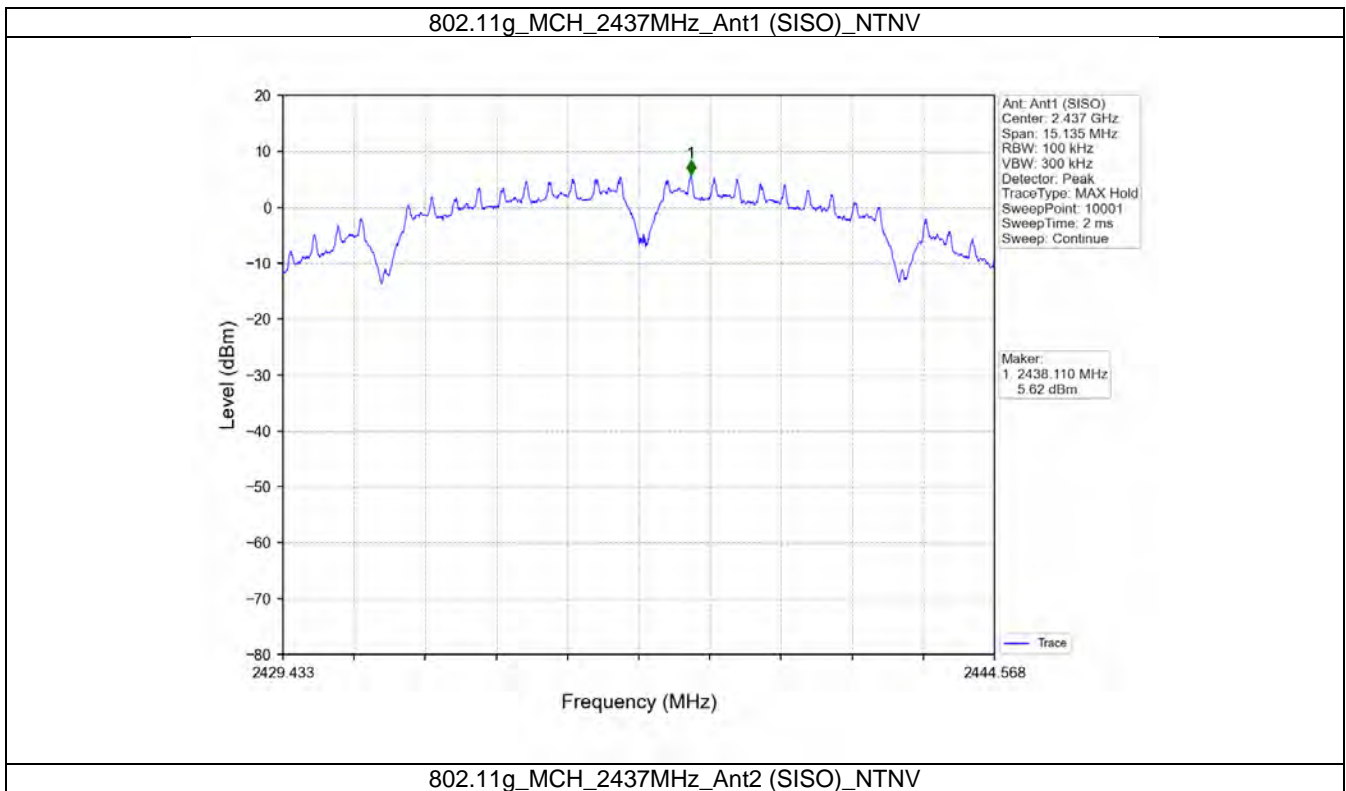
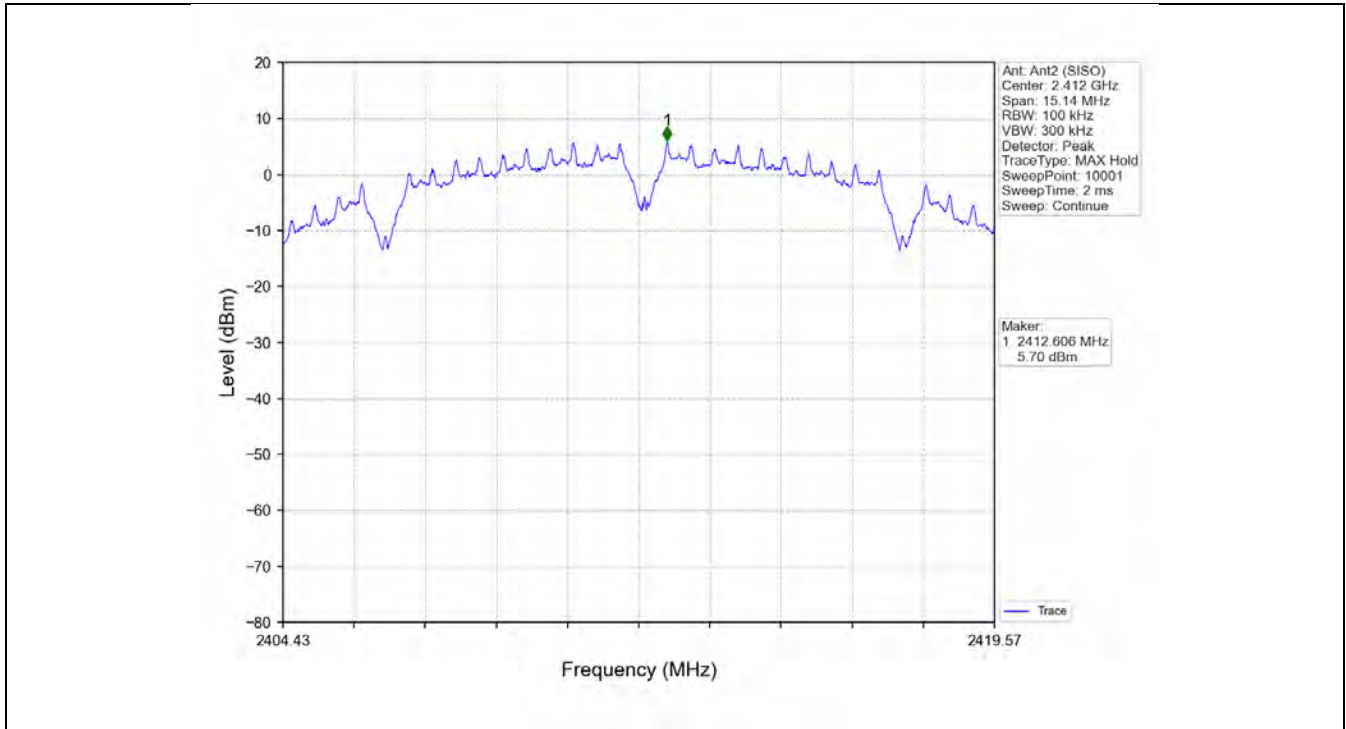
5.1.2 Test Graph

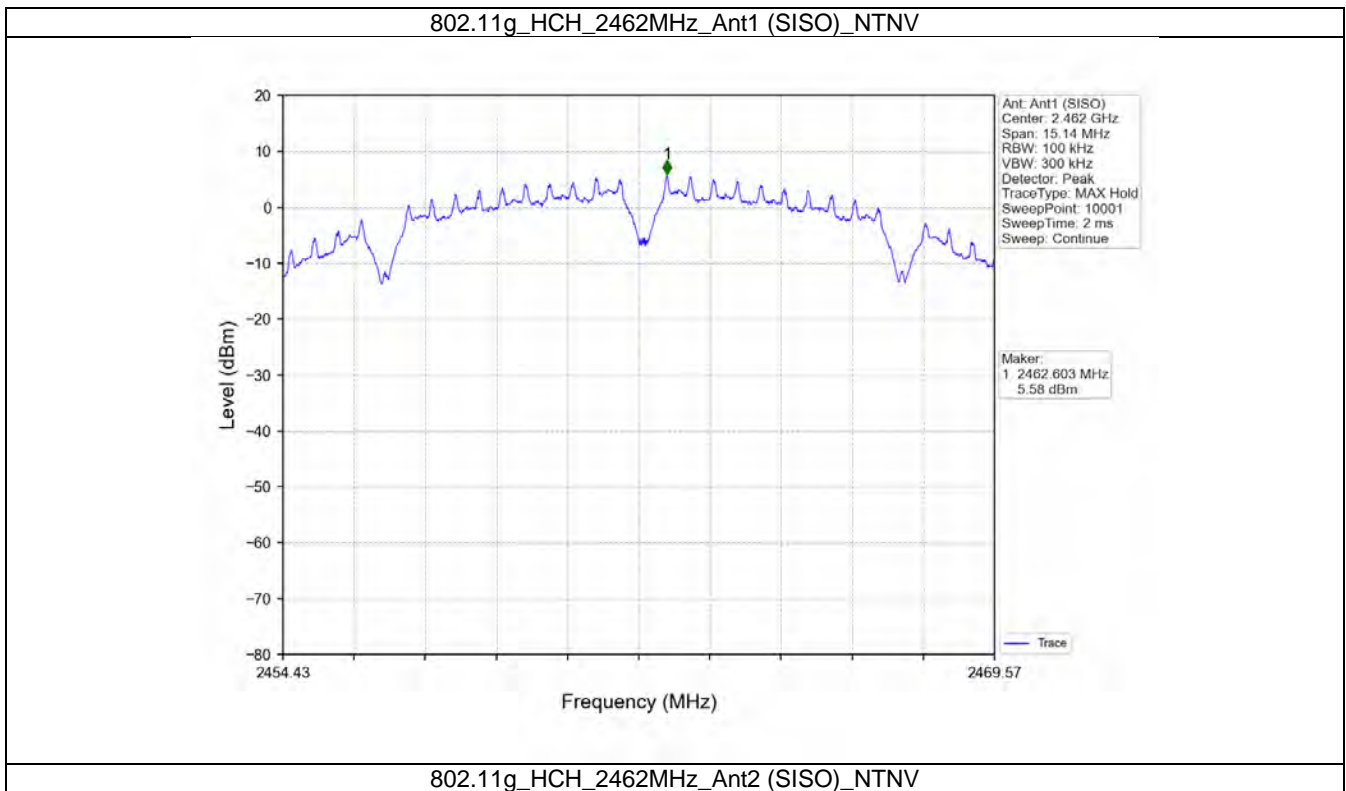
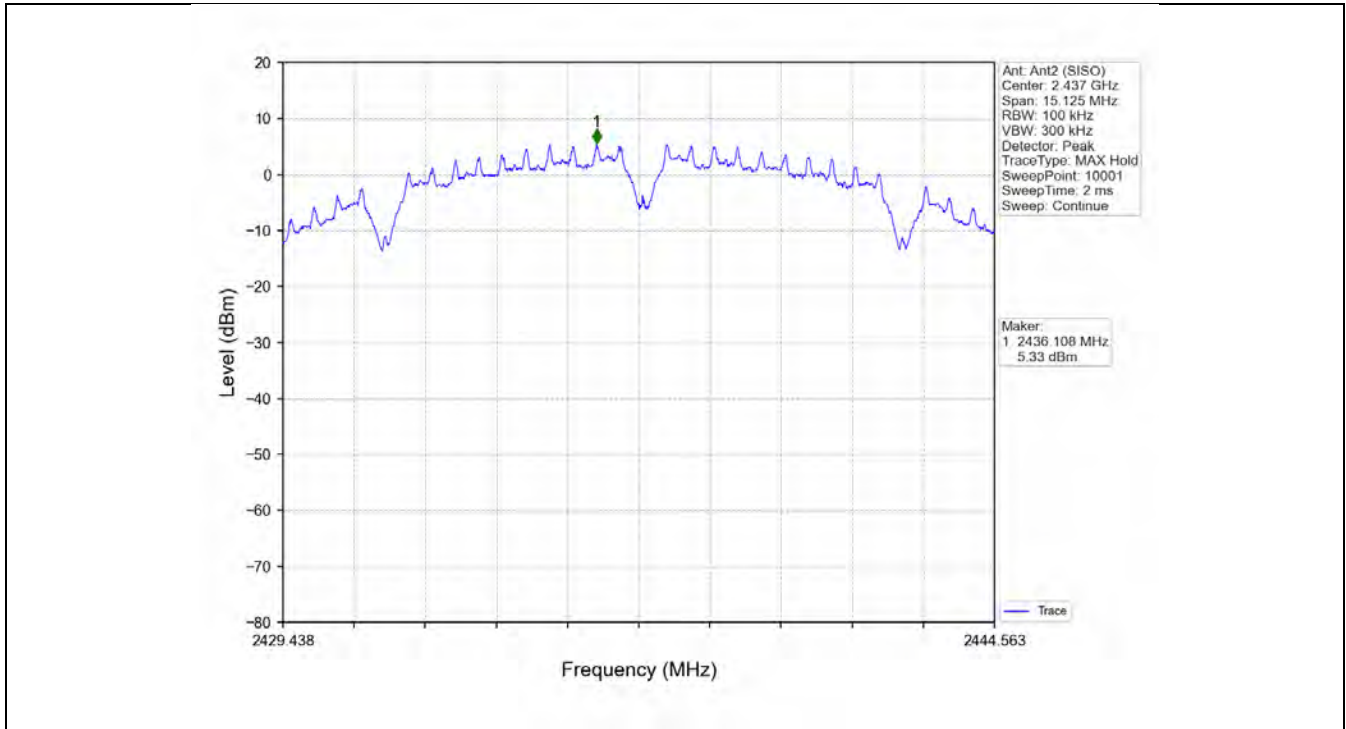


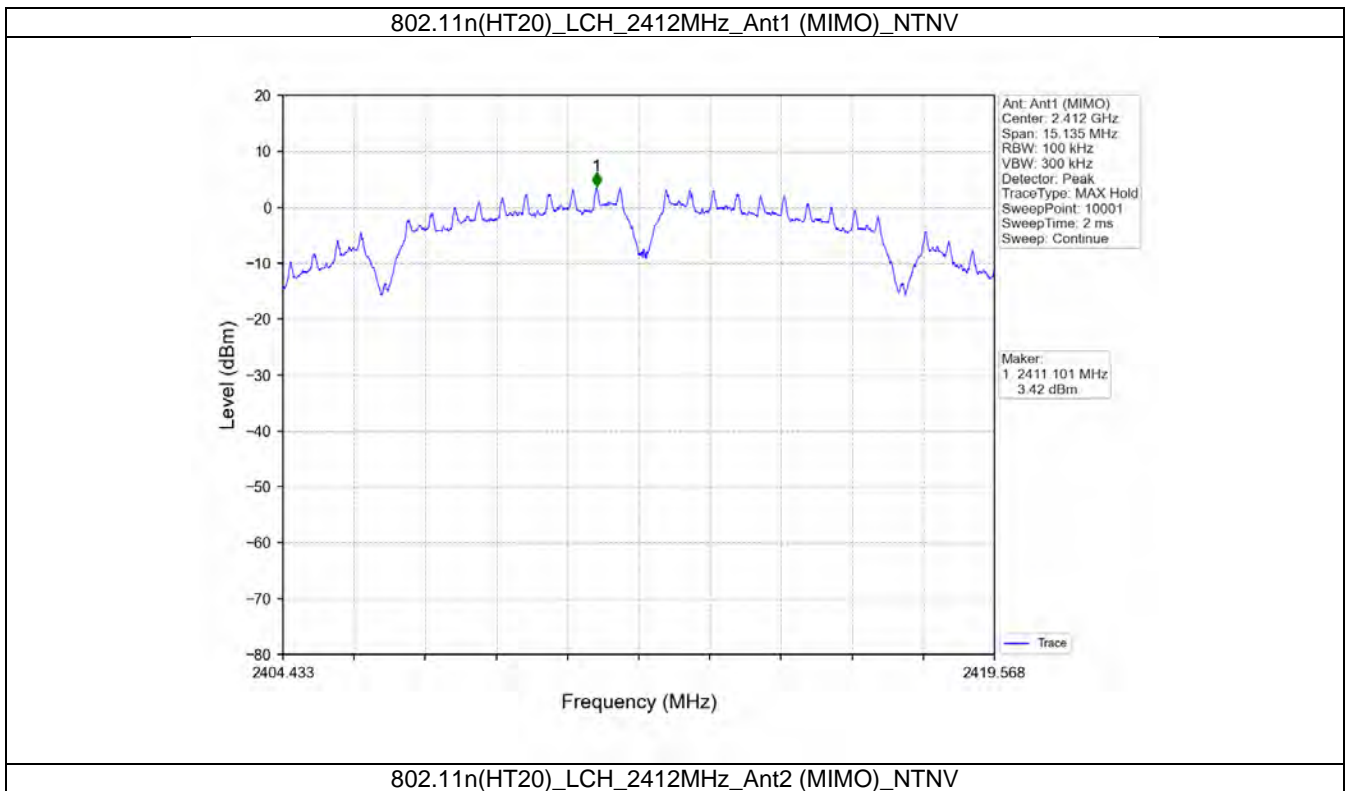
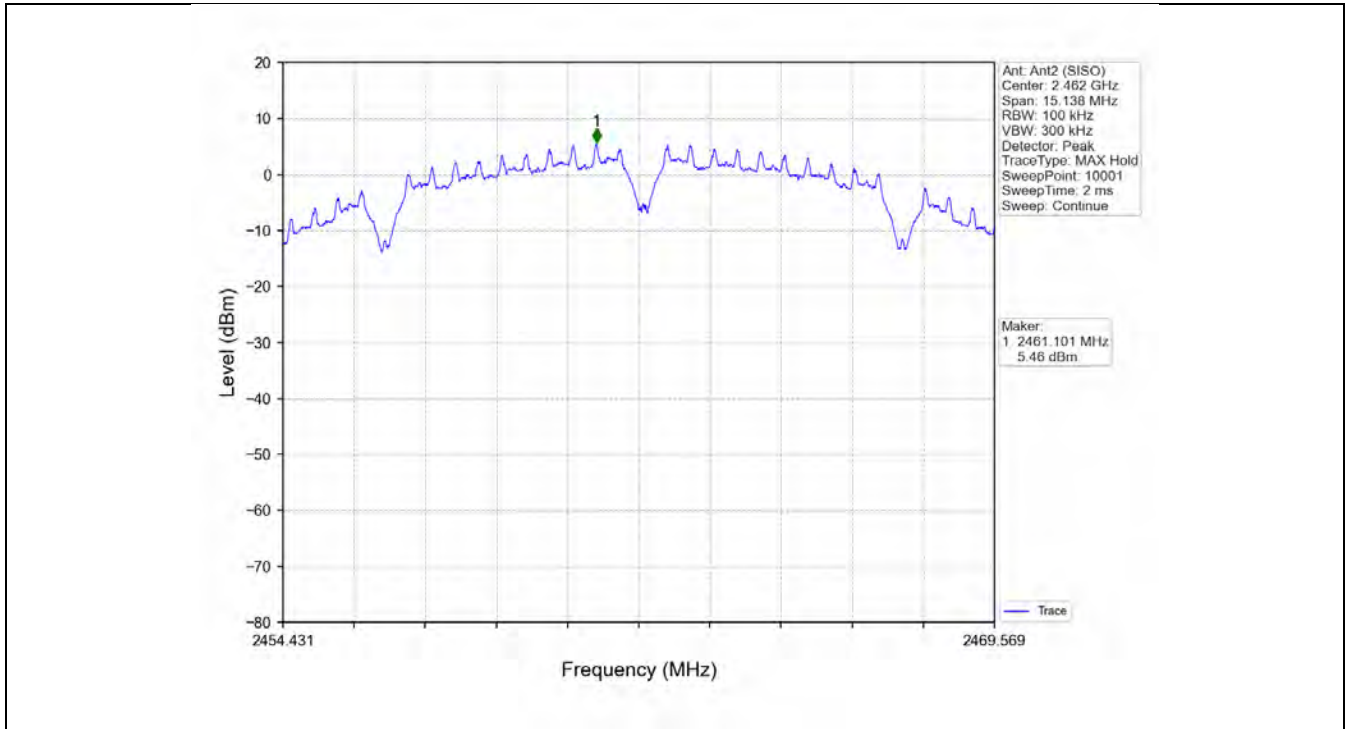


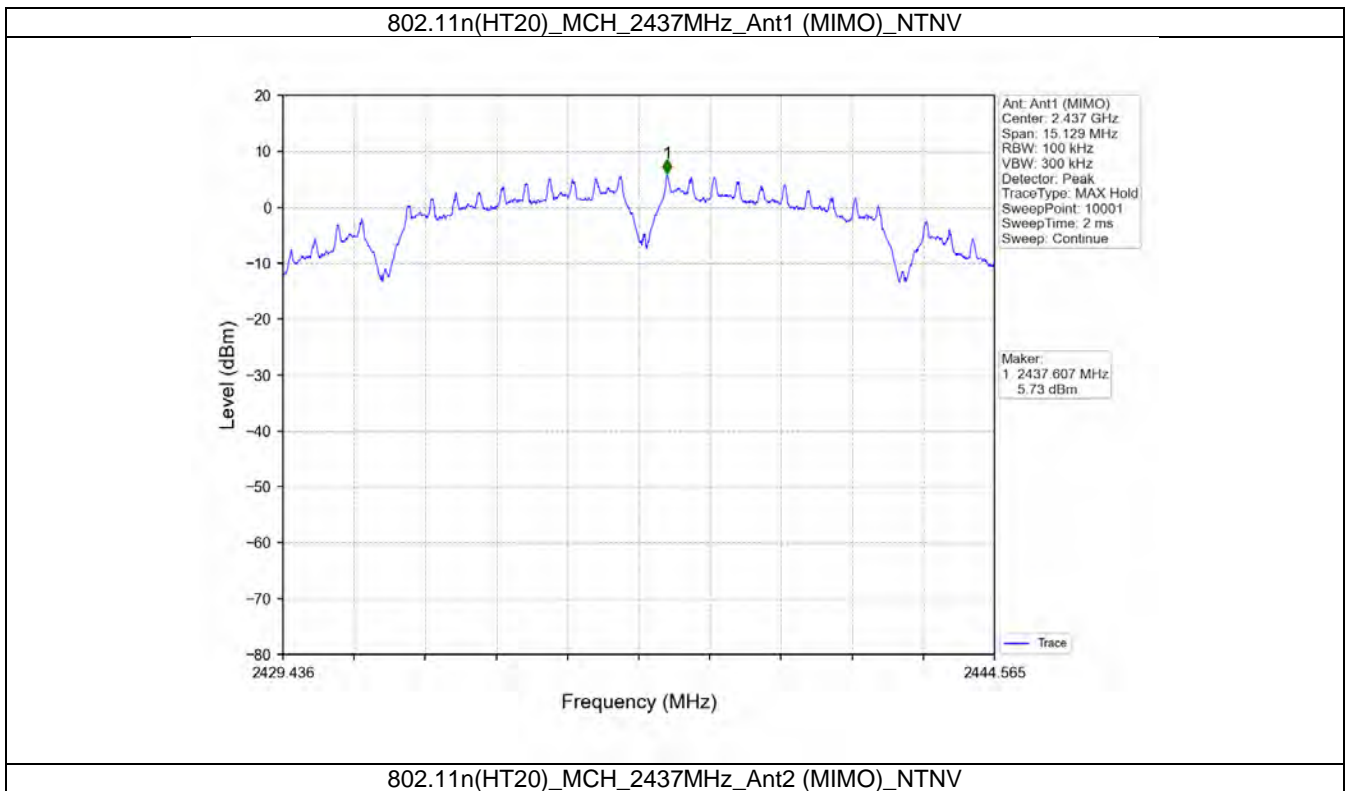
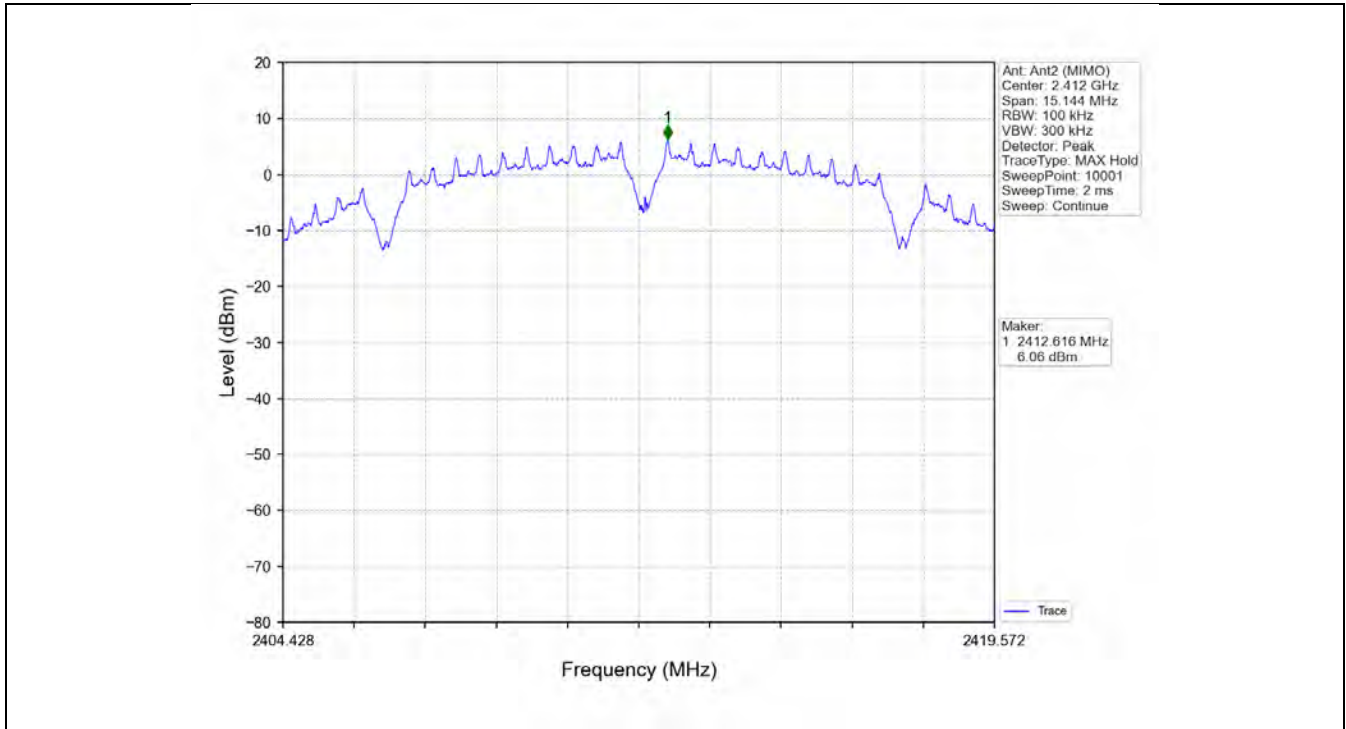


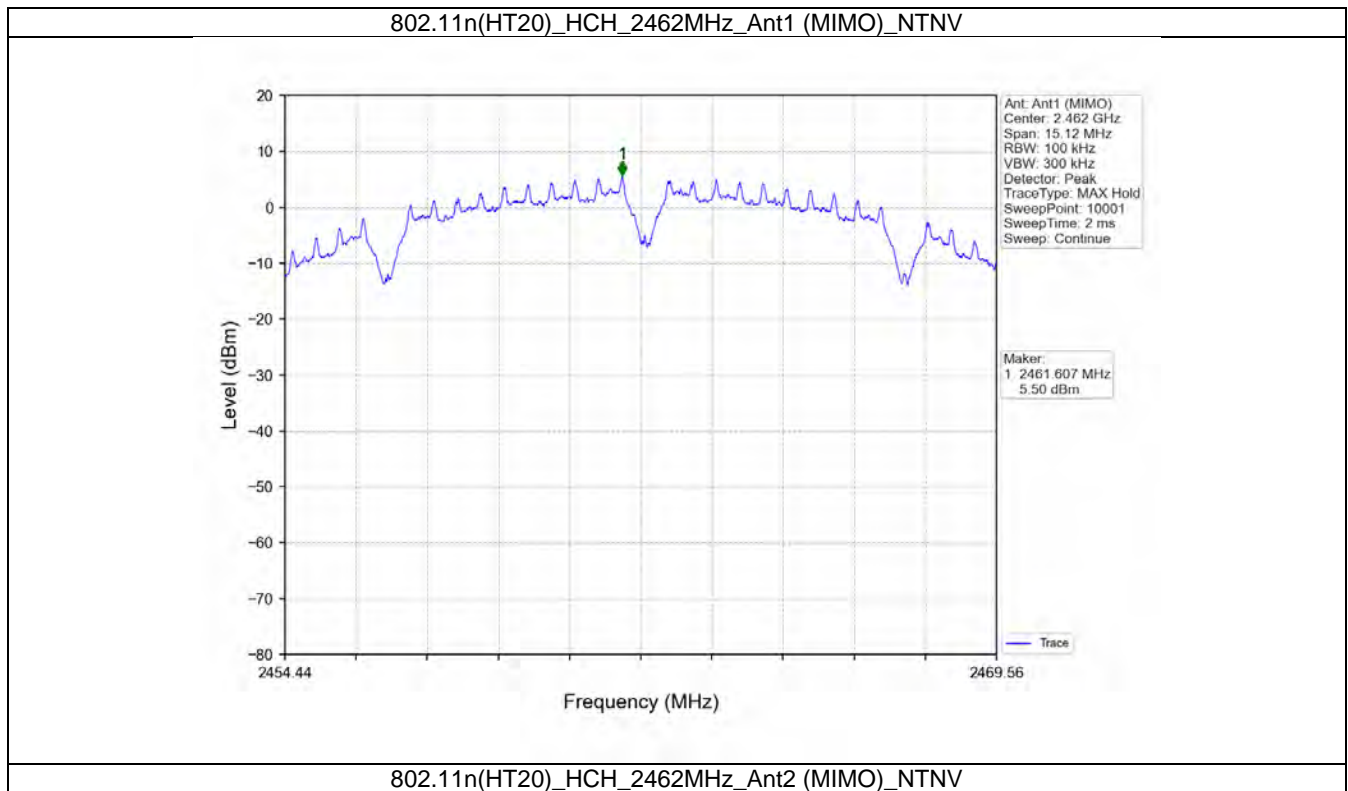
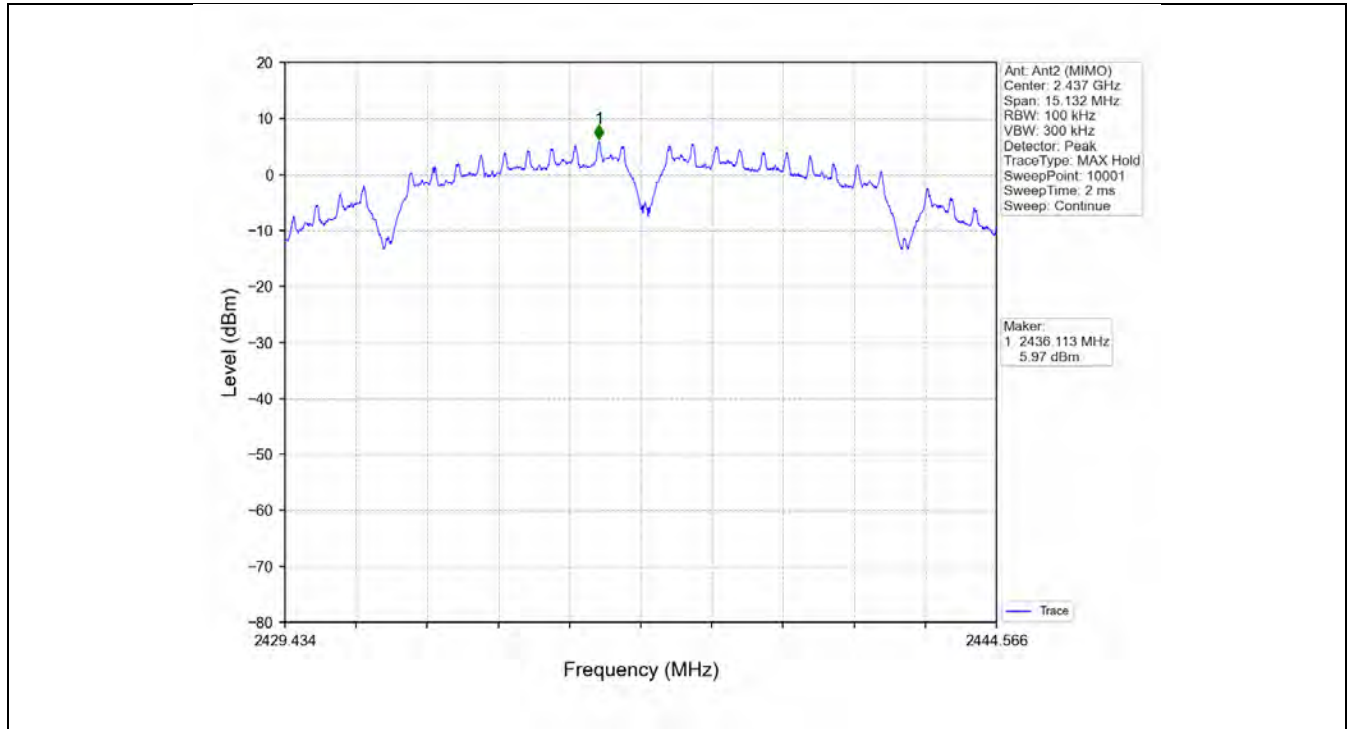


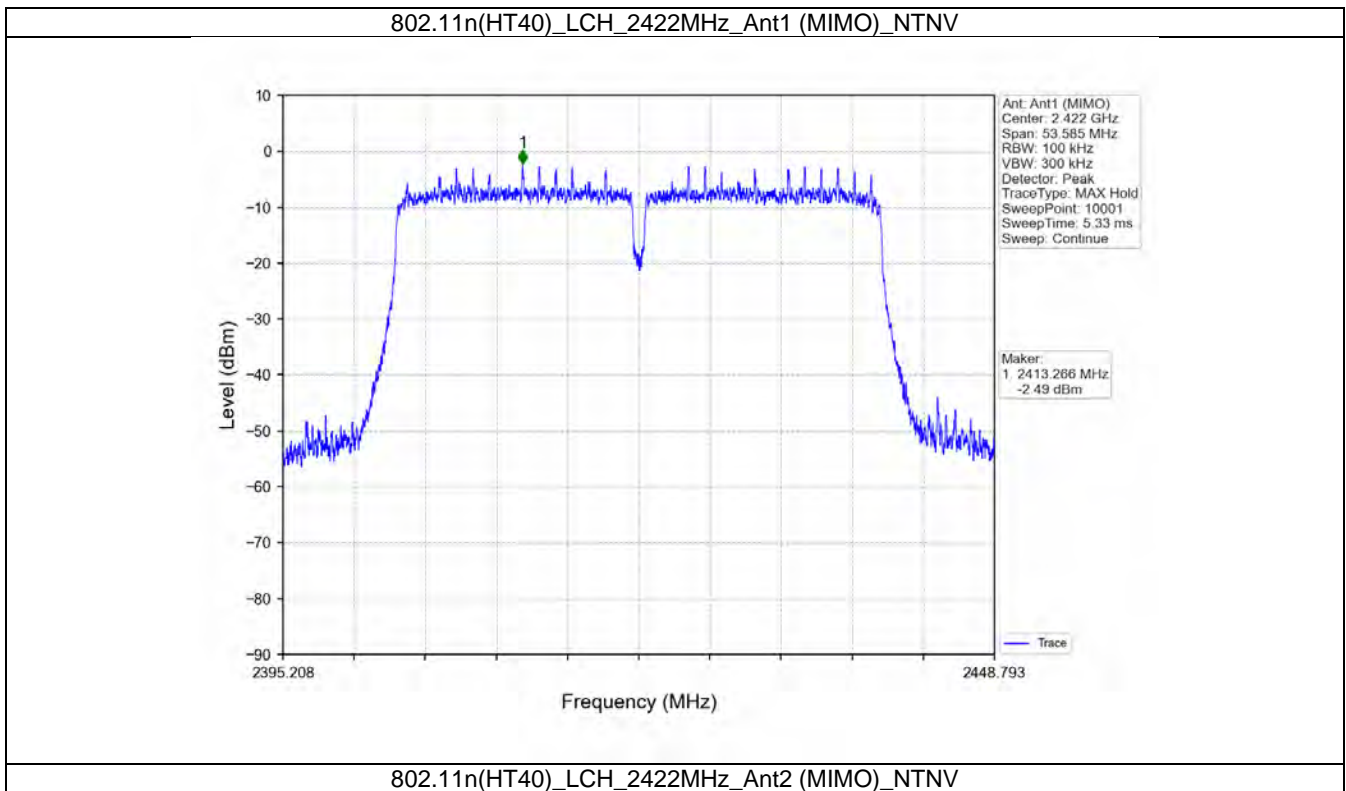
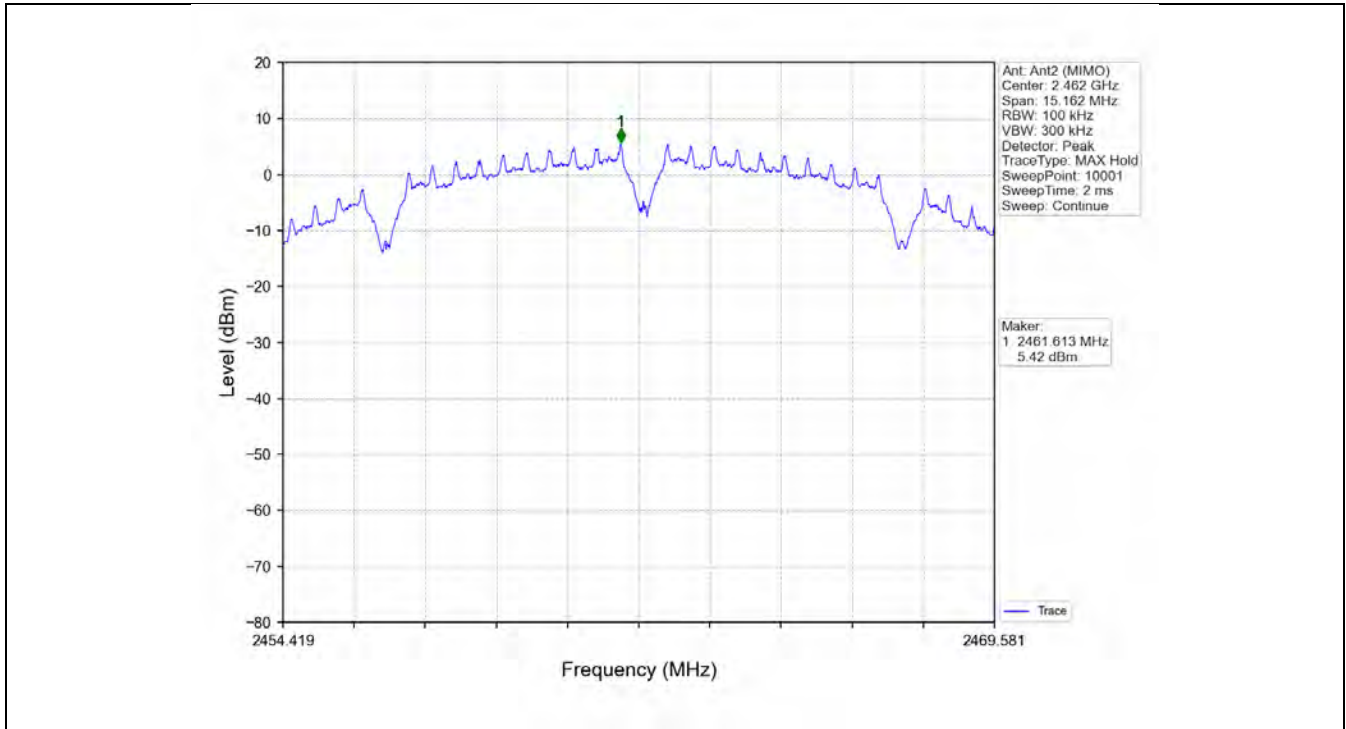


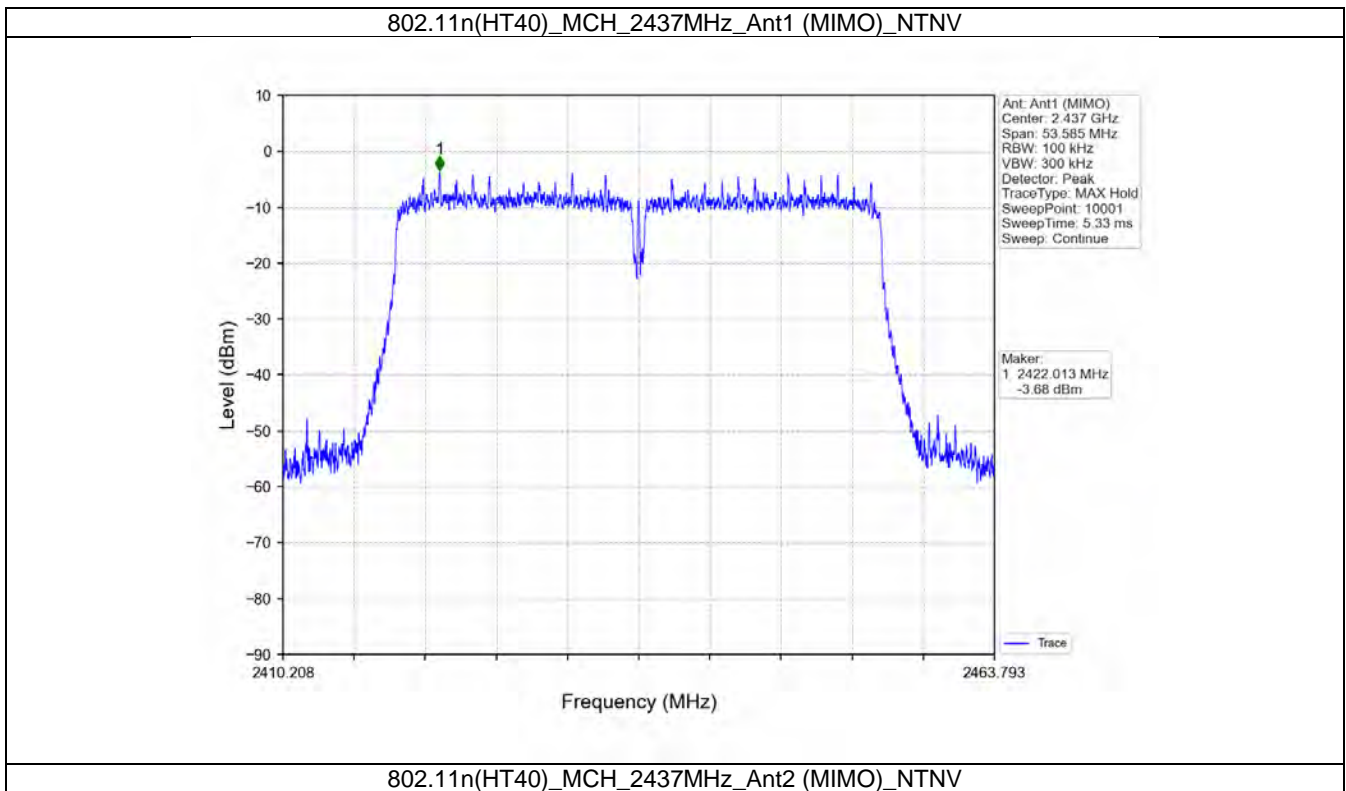
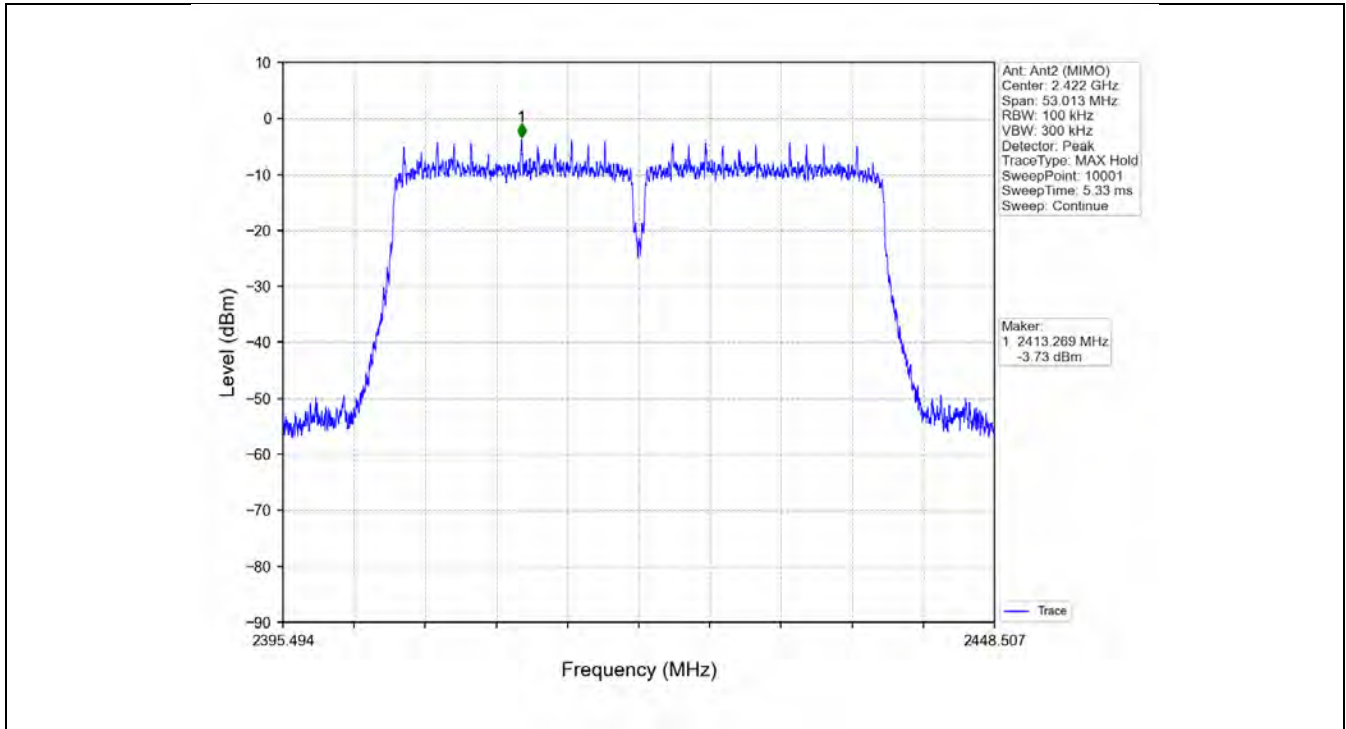


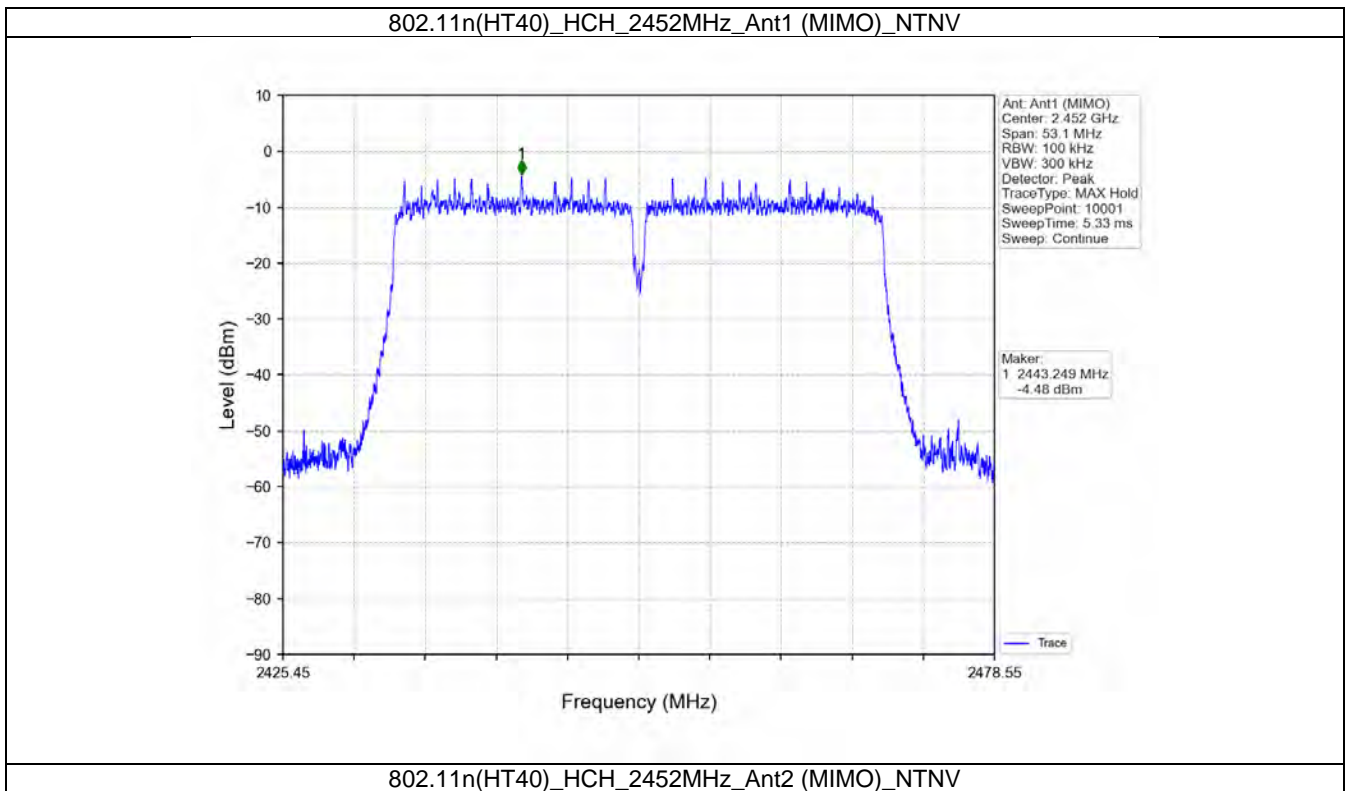
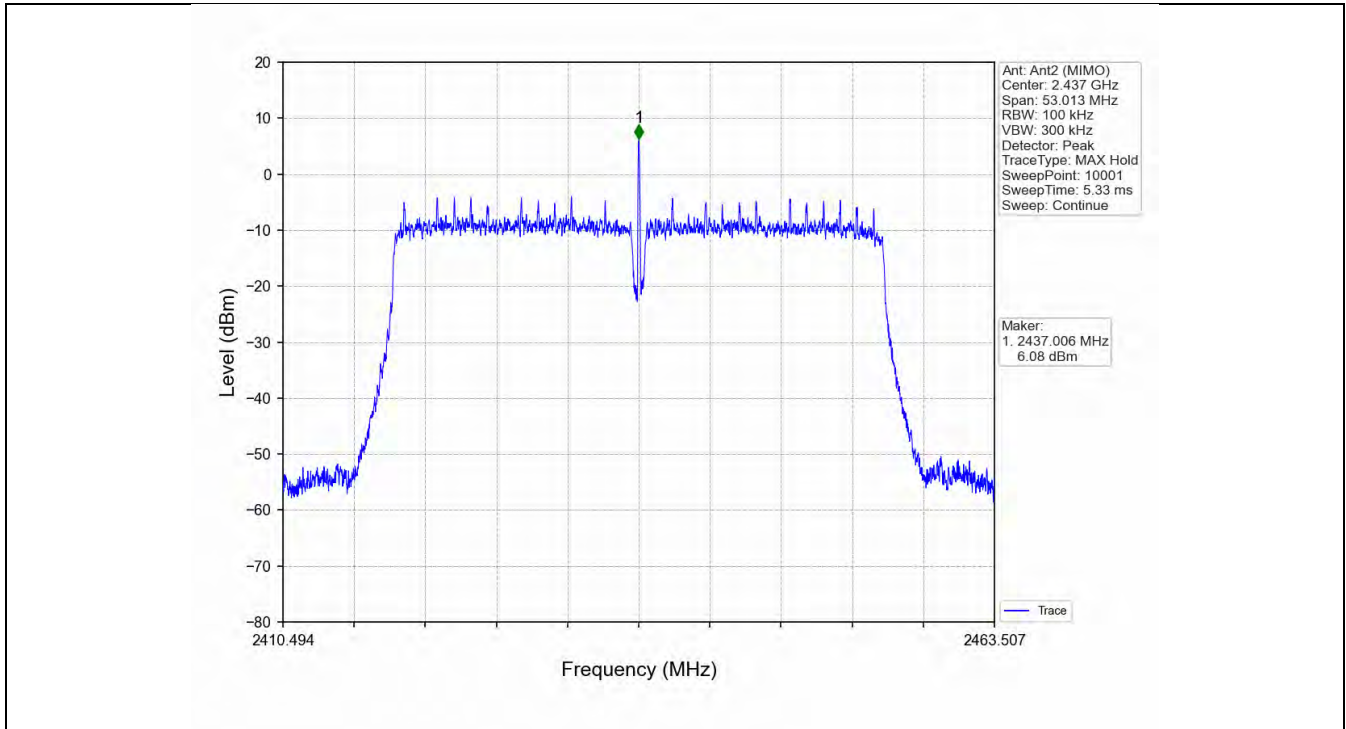


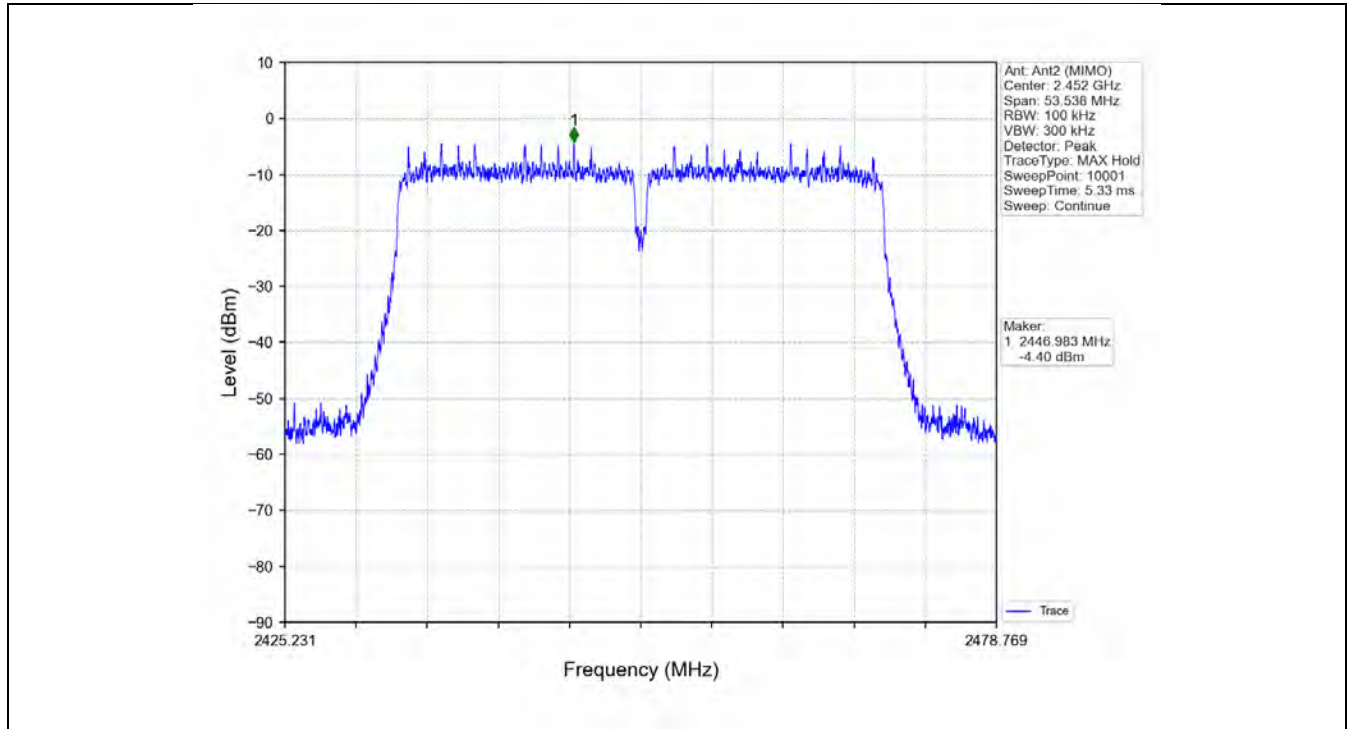












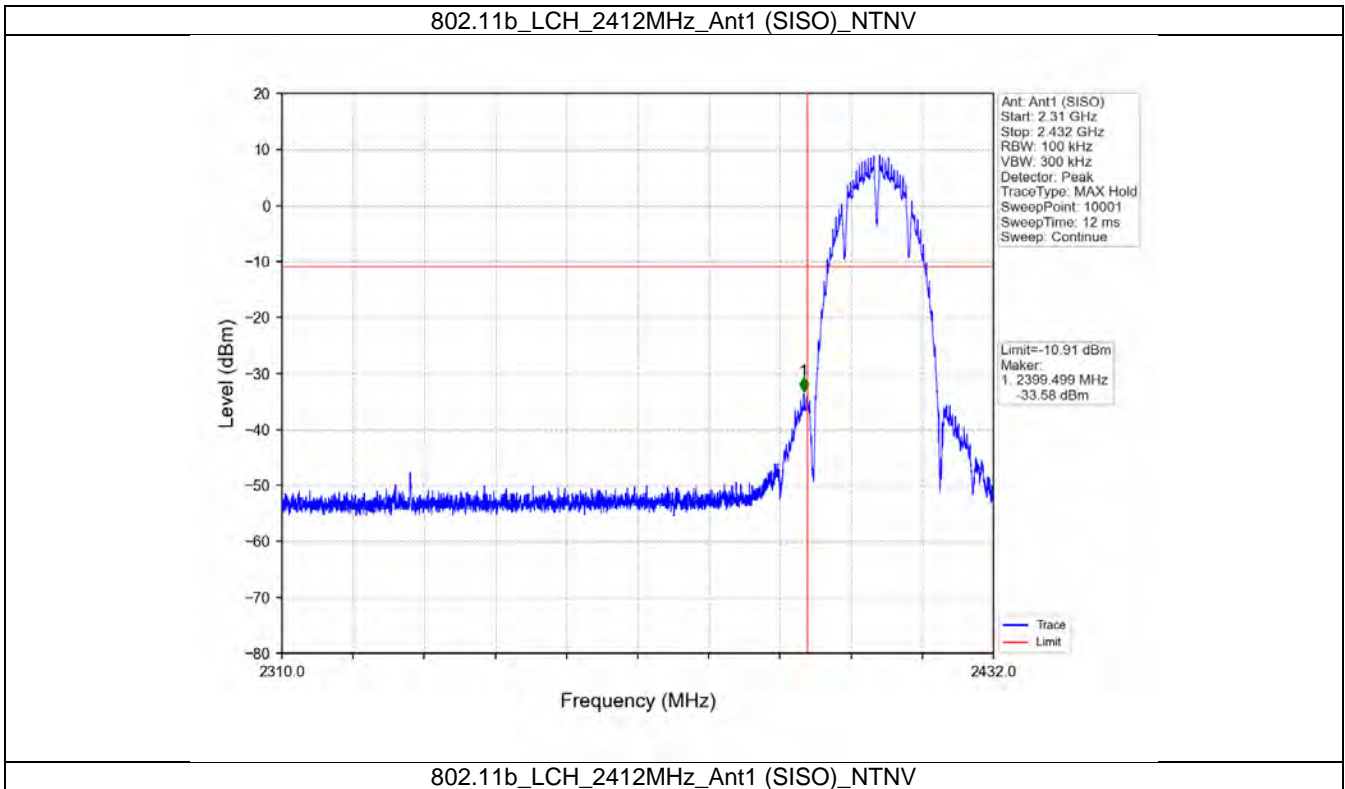
5.2 CSE

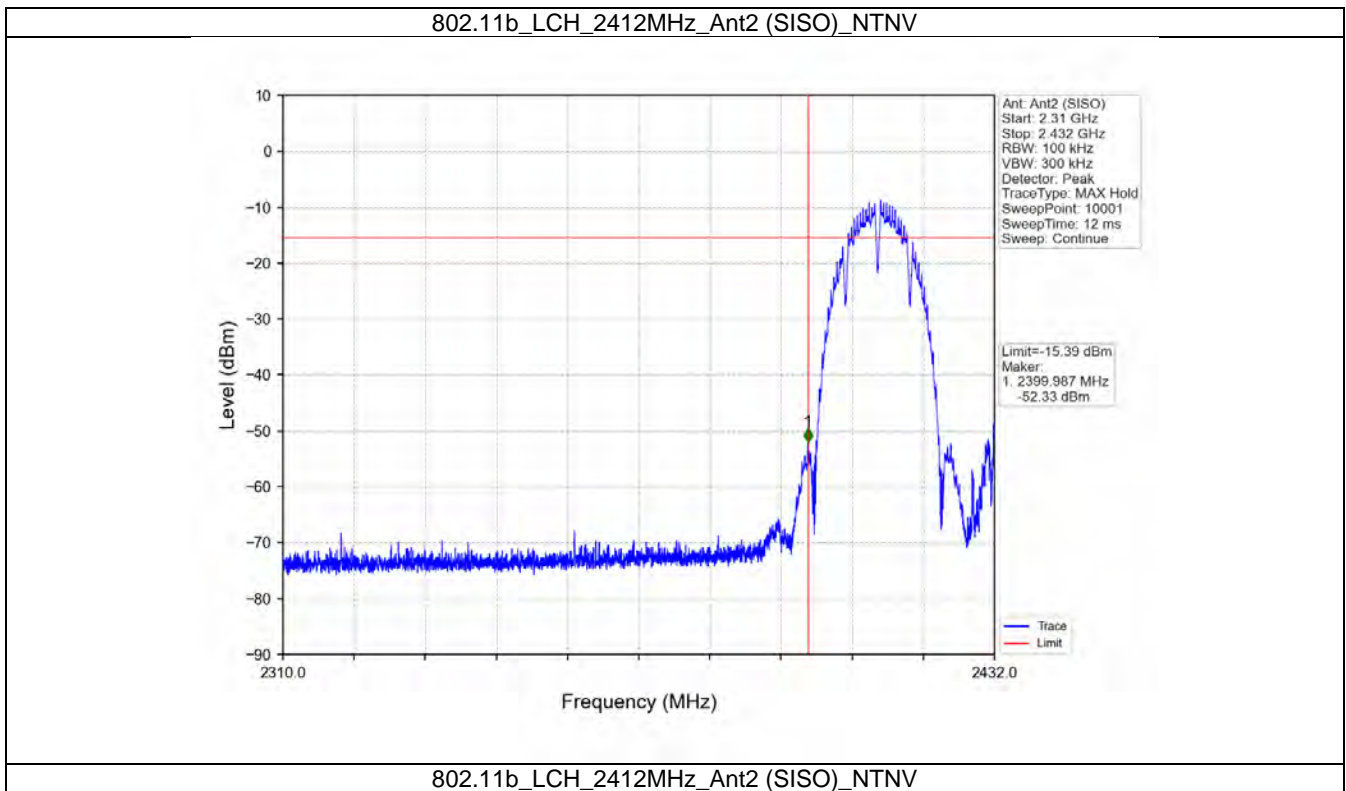
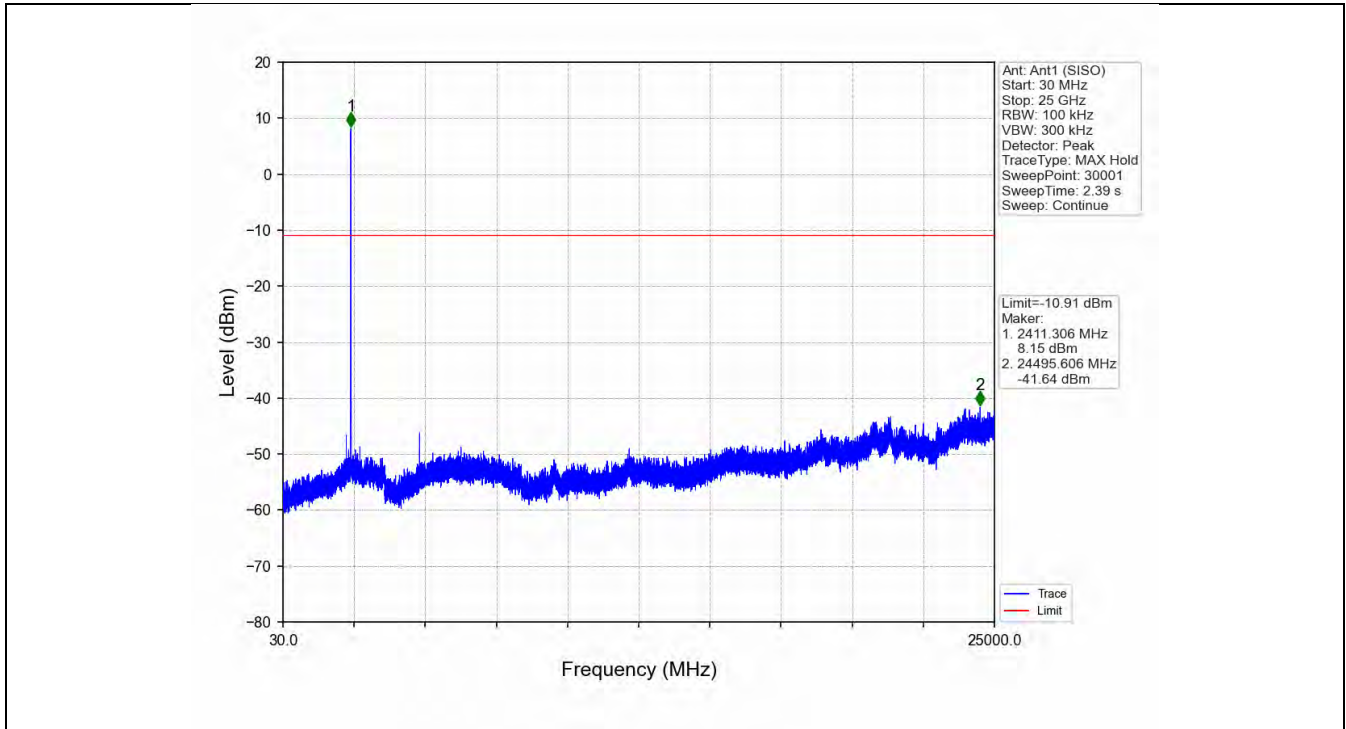
5.2.1 Test Result

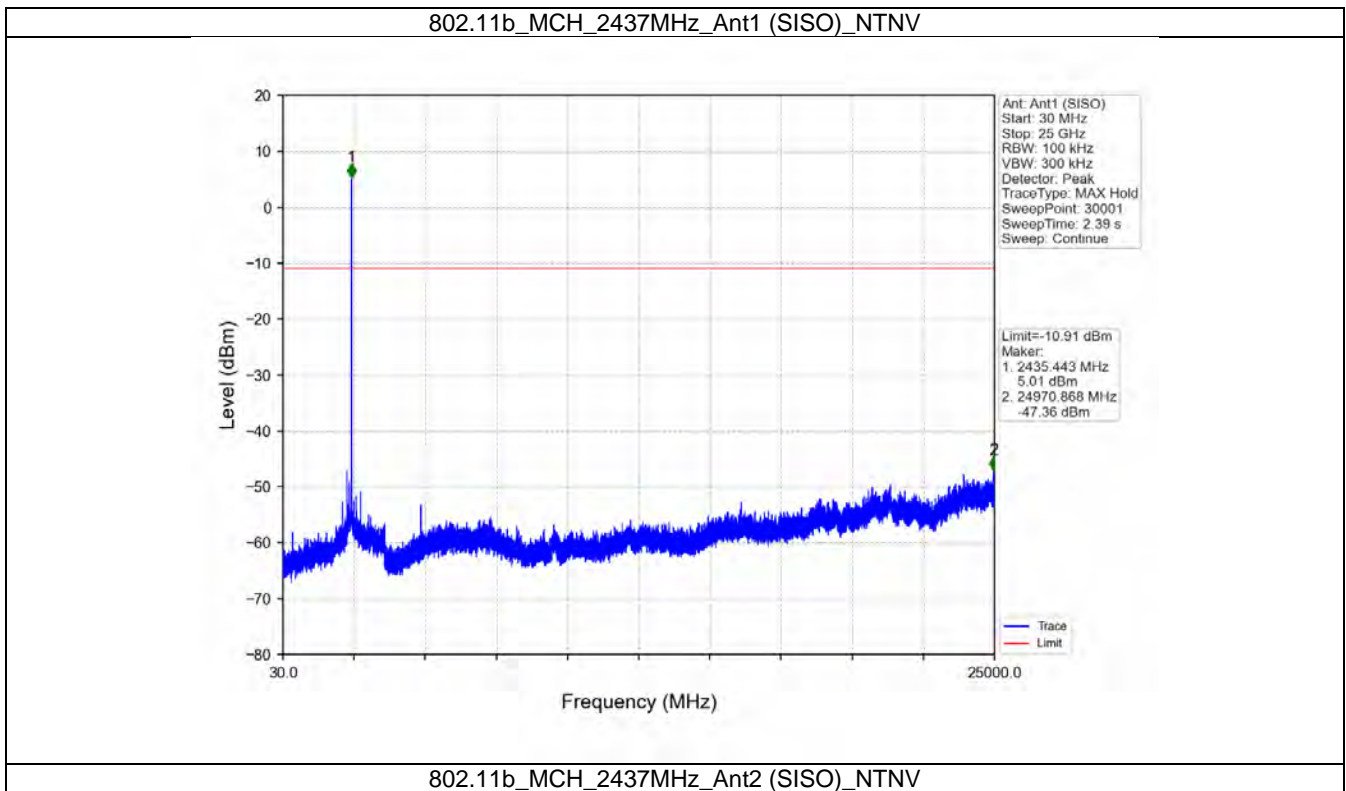
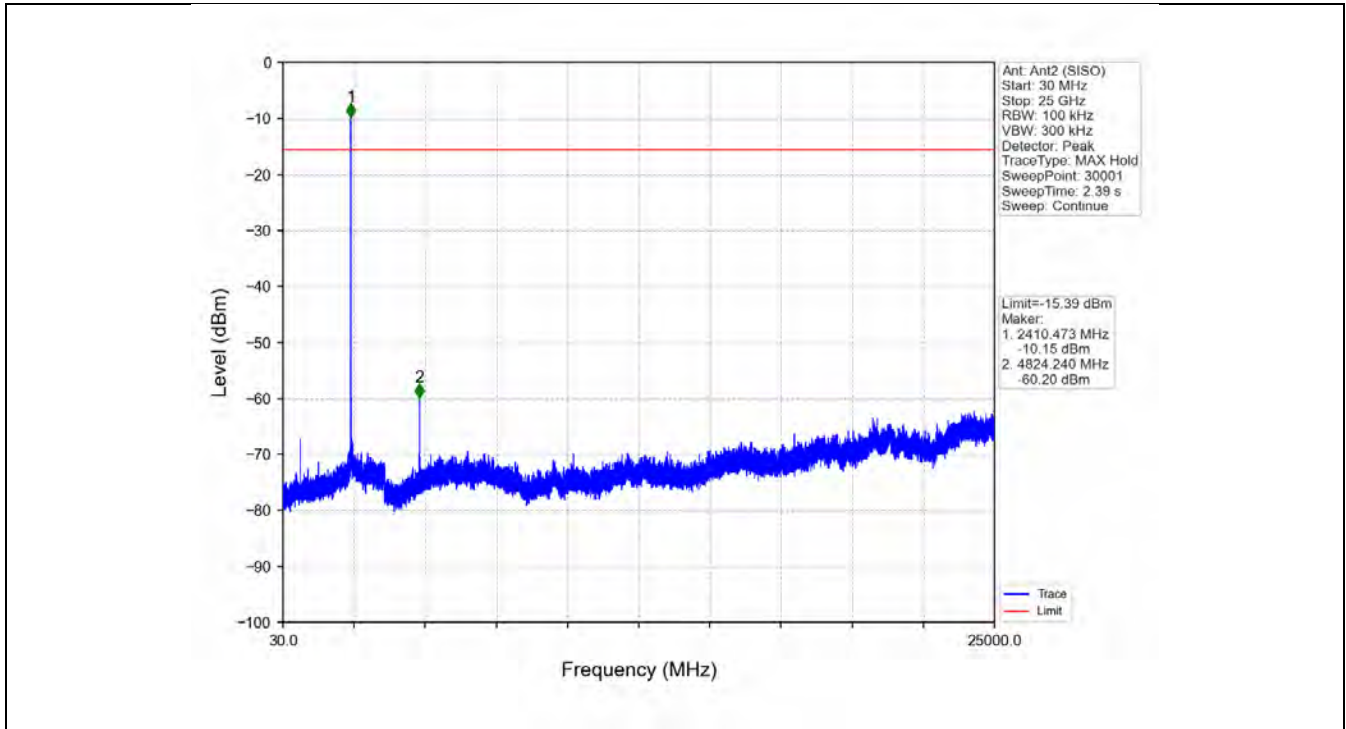
Mode	TX Type	Frequency (MHz)	Ant	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	9.09	-10.91	Pass
			2	4.61	-15.39	Pass
		2437	1	9.09	-10.91	Pass
			2	4.61	-15.39	Pass
		2462	1	9.09	-10.91	Pass
			2	4.61	-15.39	Pass
802.11g	SISO	2412	1	5.77	-14.23	Pass
			2	5.70	-14.30	Pass
		2437	1	5.77	-14.23	Pass
			2	5.70	-14.30	Pass
		2462	1	5.77	-14.23	Pass
			2	5.70	-14.30	Pass
802.11n (HT20)	MIMO	2412	1	5.73	-14.27	Pass
			2	6.06	-13.94	Pass
		2437	1	5.73	-14.27	Pass
			2	6.06	-13.94	Pass
		2462	1	5.73	-14.27	Pass
			2	6.06	-13.94	Pass
802.11n (HT40)	MIMO	2422	1	-2.49	-22.49	Pass
			2	6.08	-13.92	Pass
		2437	1	-2.49	-22.49	Pass
			2	6.08	-13.92	Pass
		2452	1	-2.49	-22.49	Pass

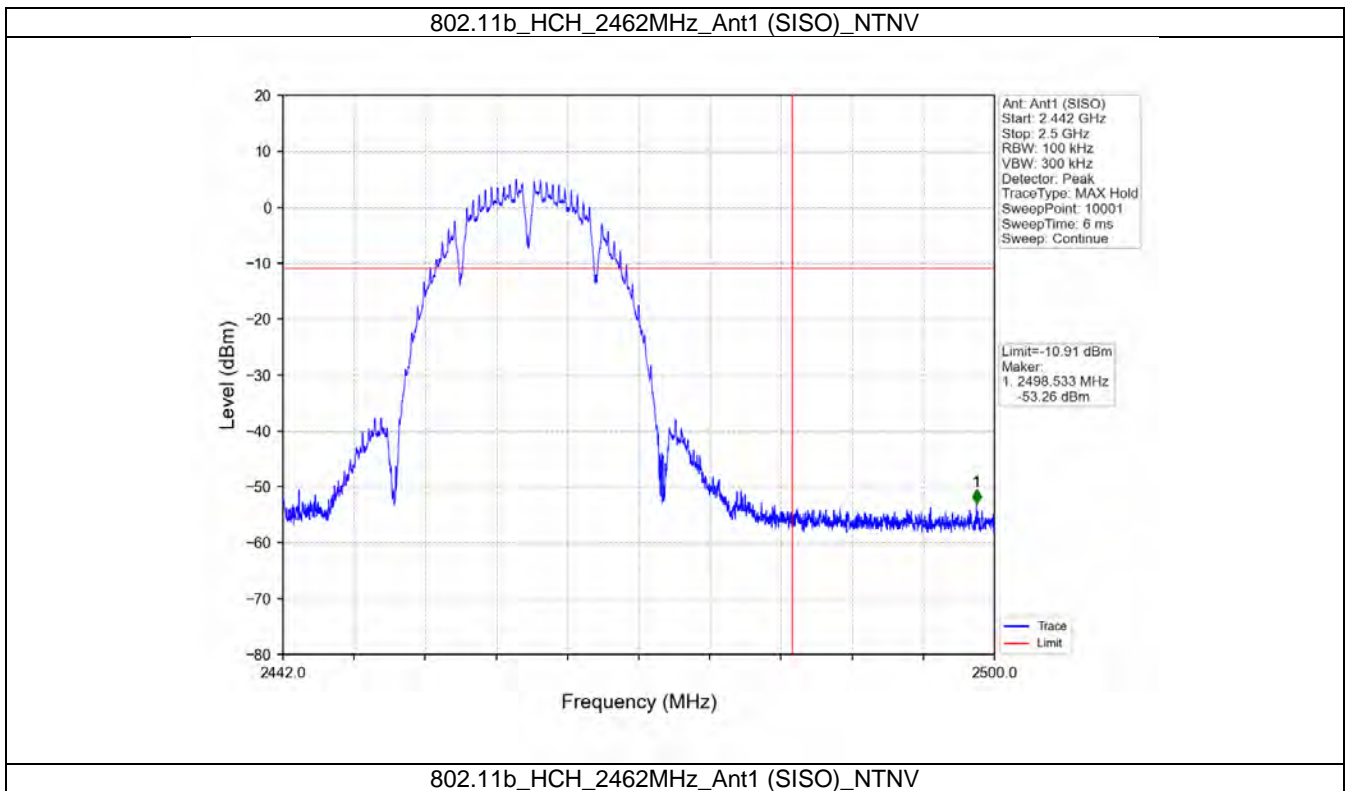
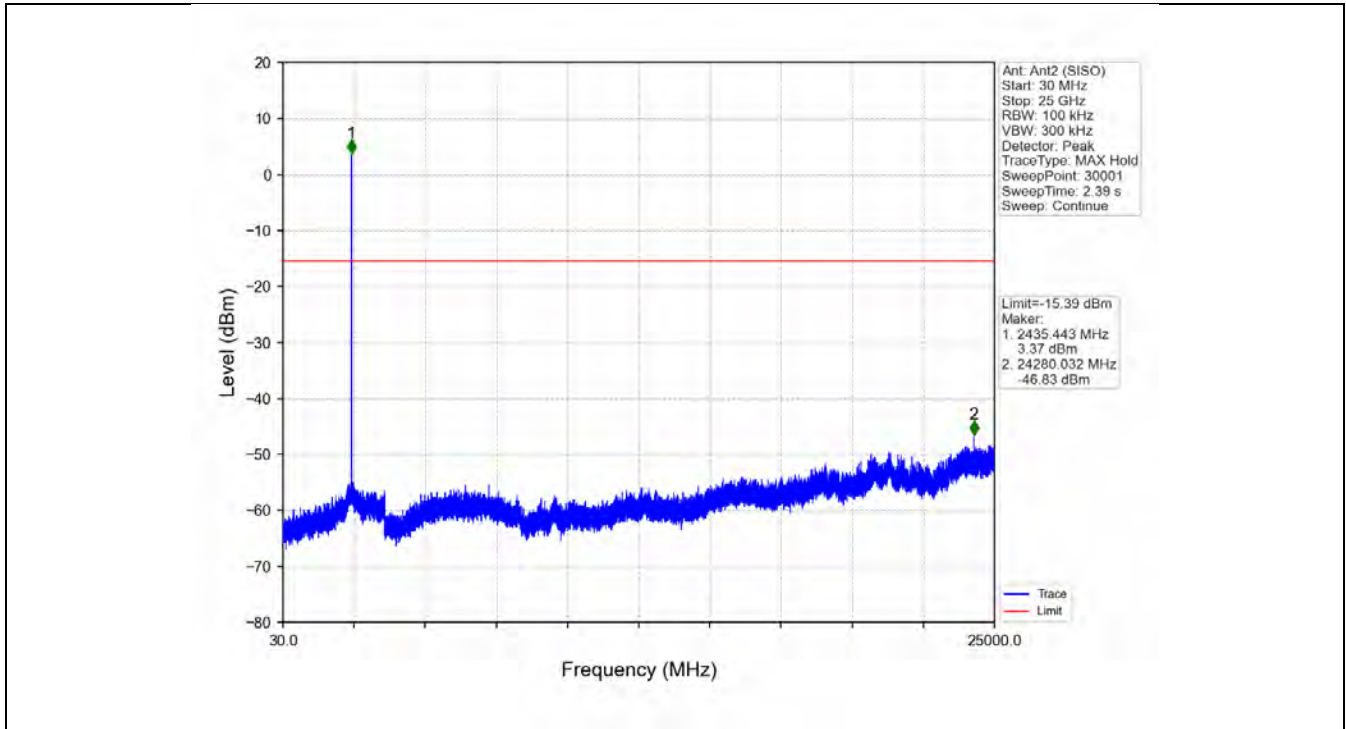
		2	6.08	-13.92	Pass
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.					

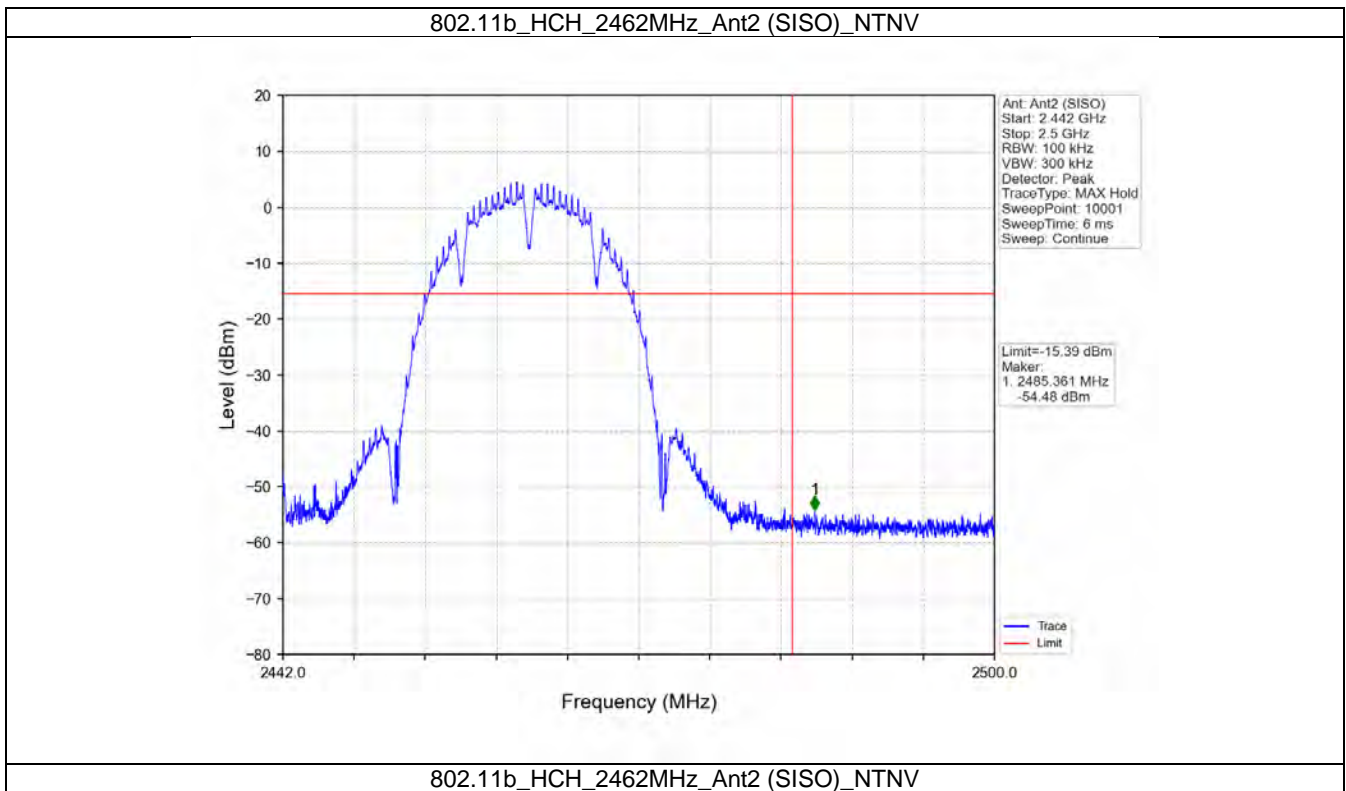
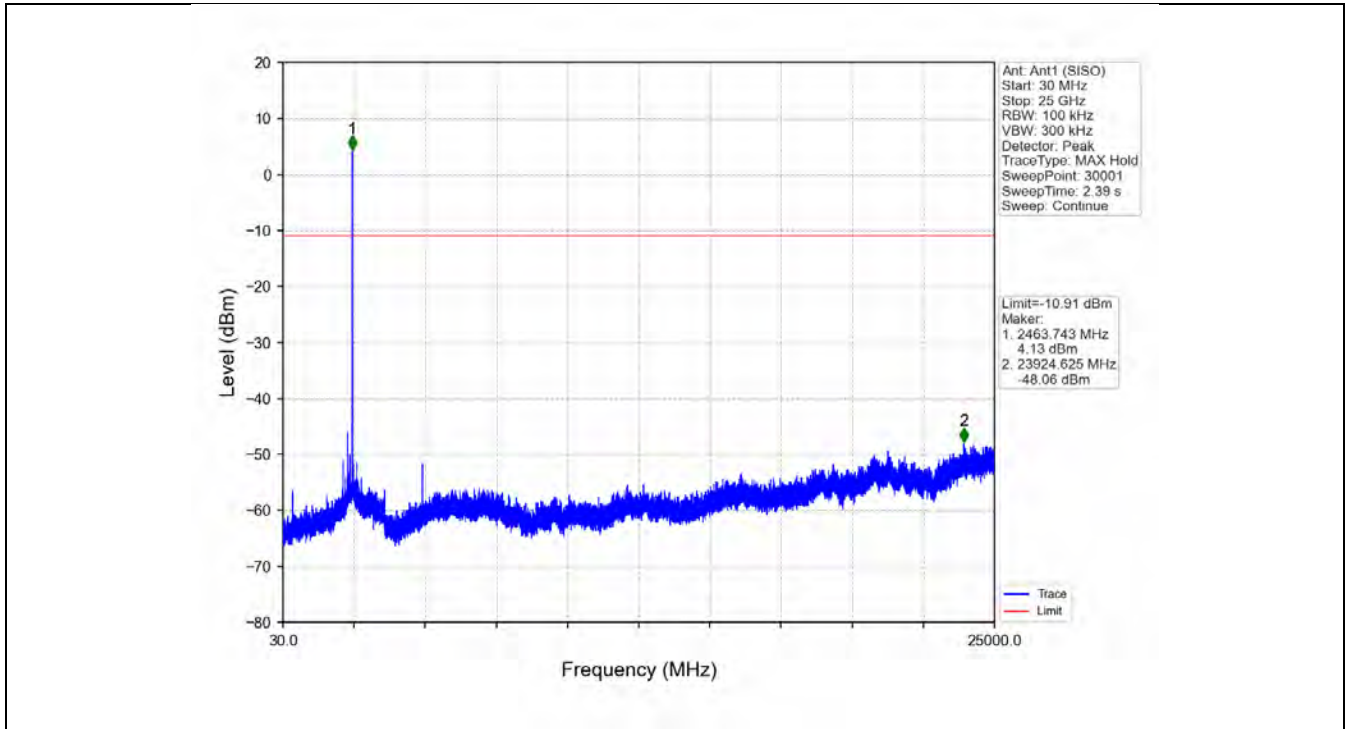
5.2.2 Test Graph

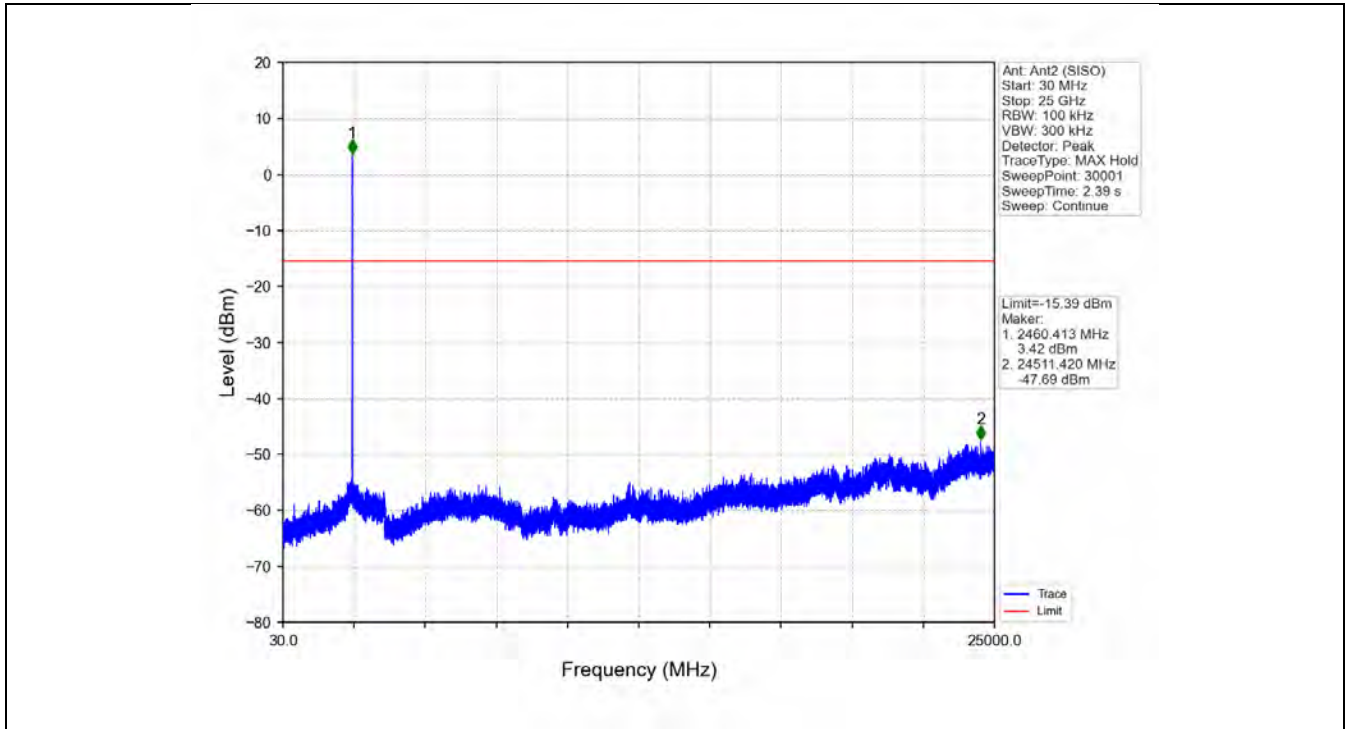




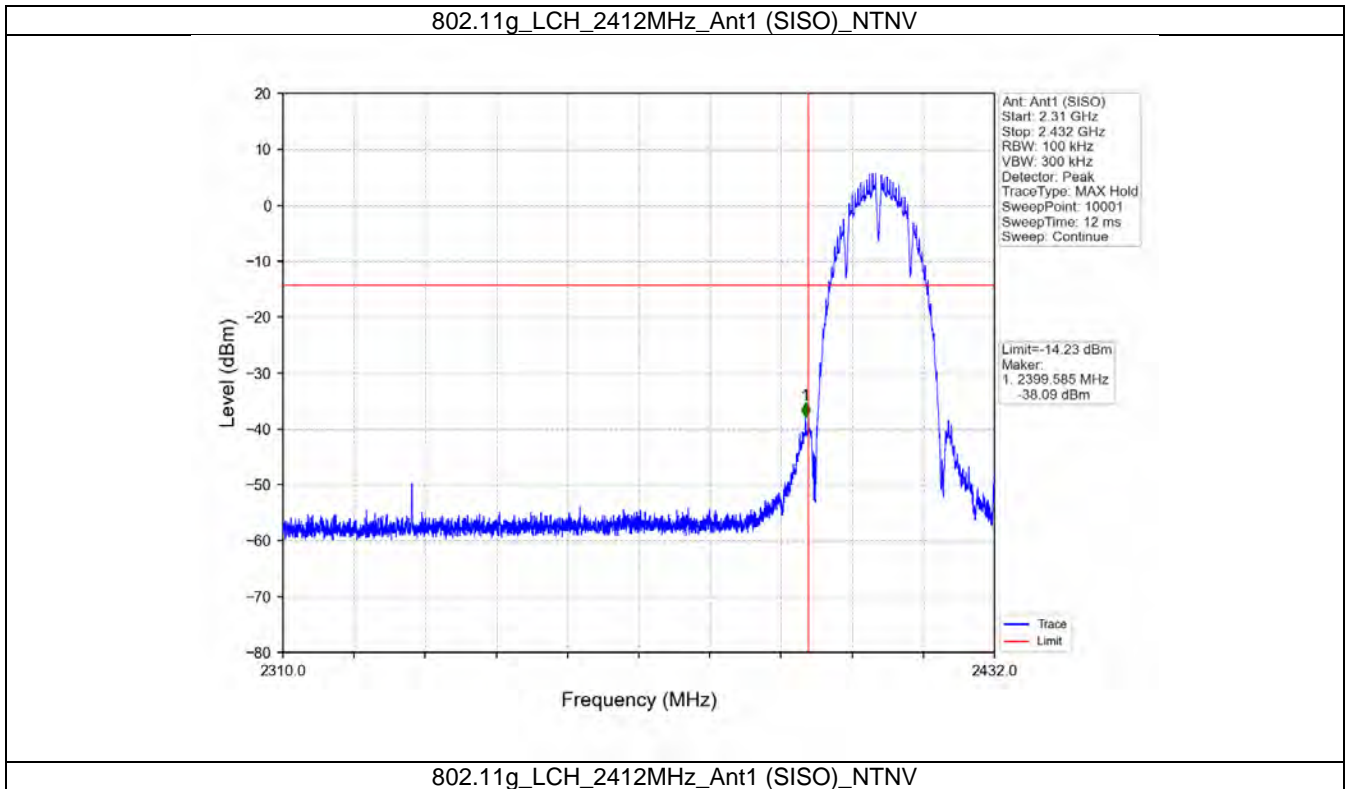


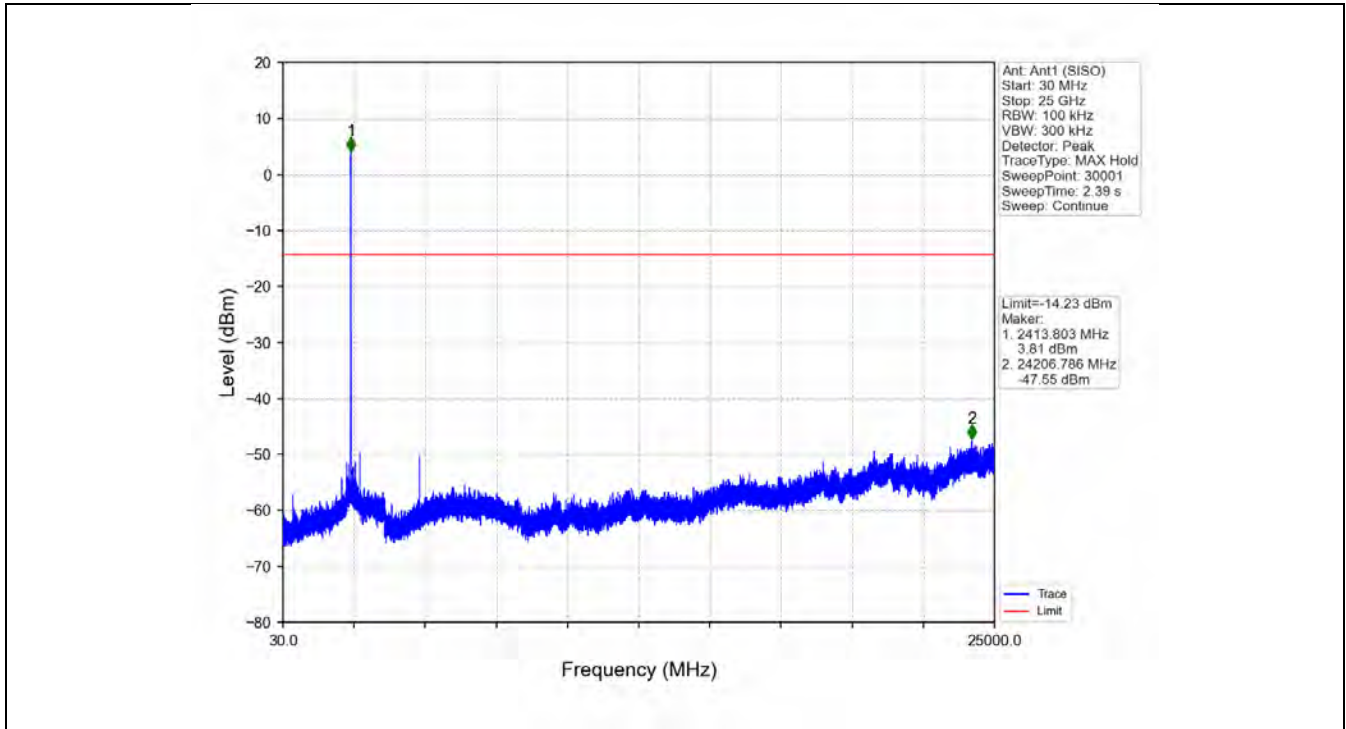




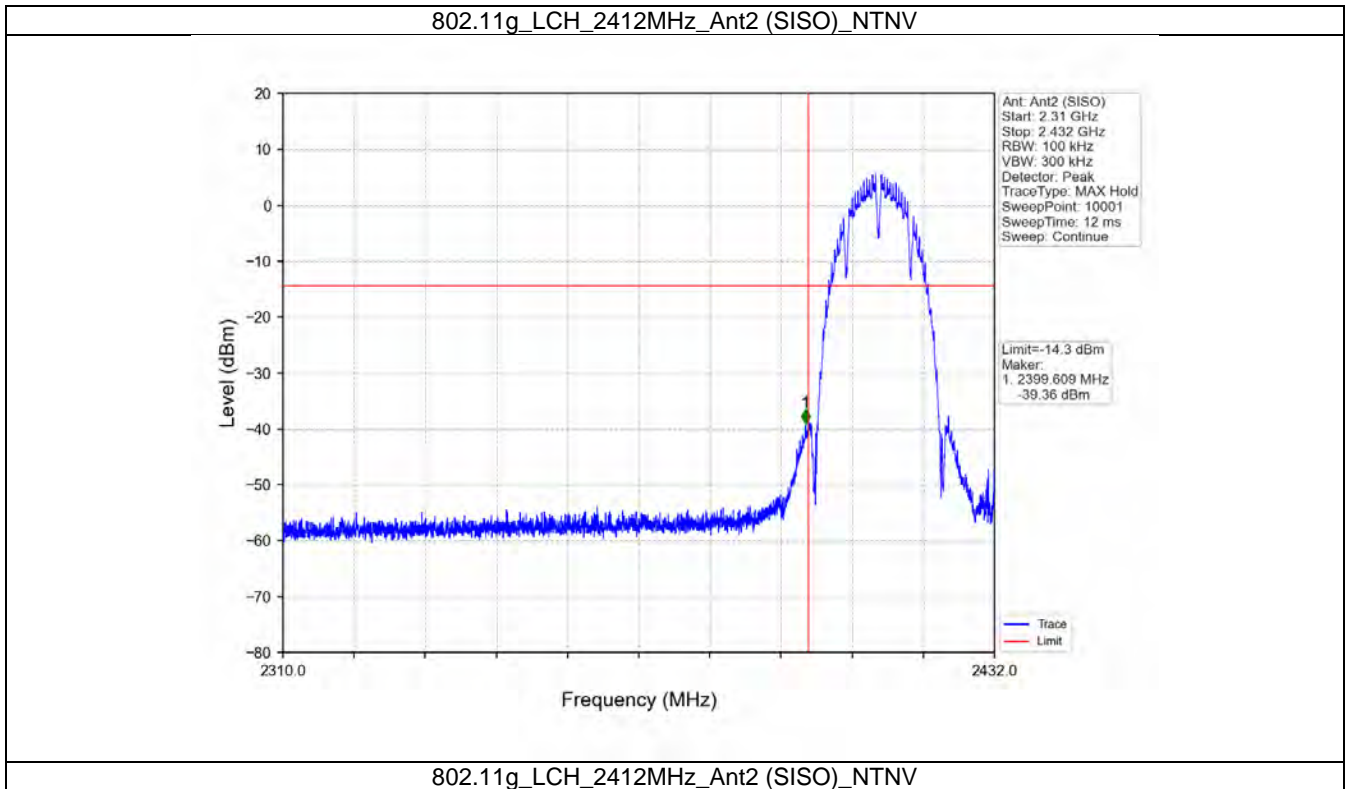


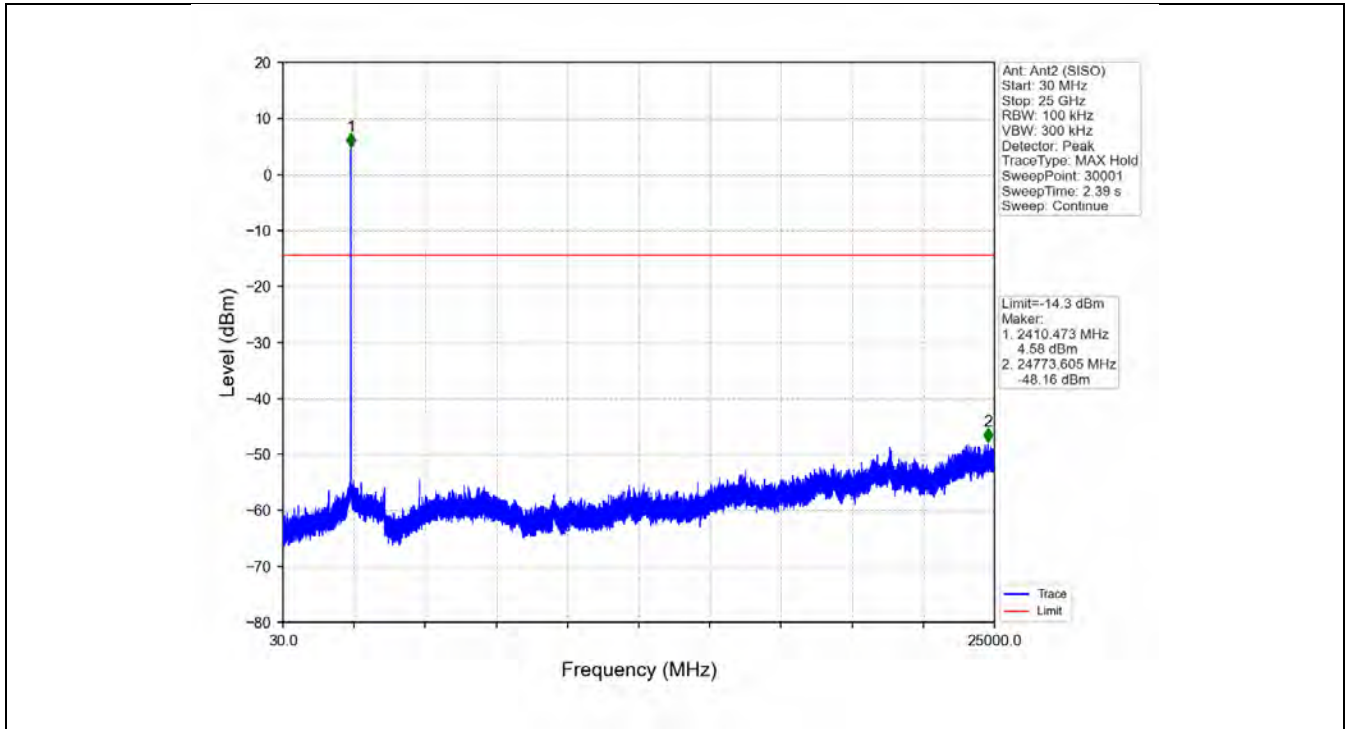
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



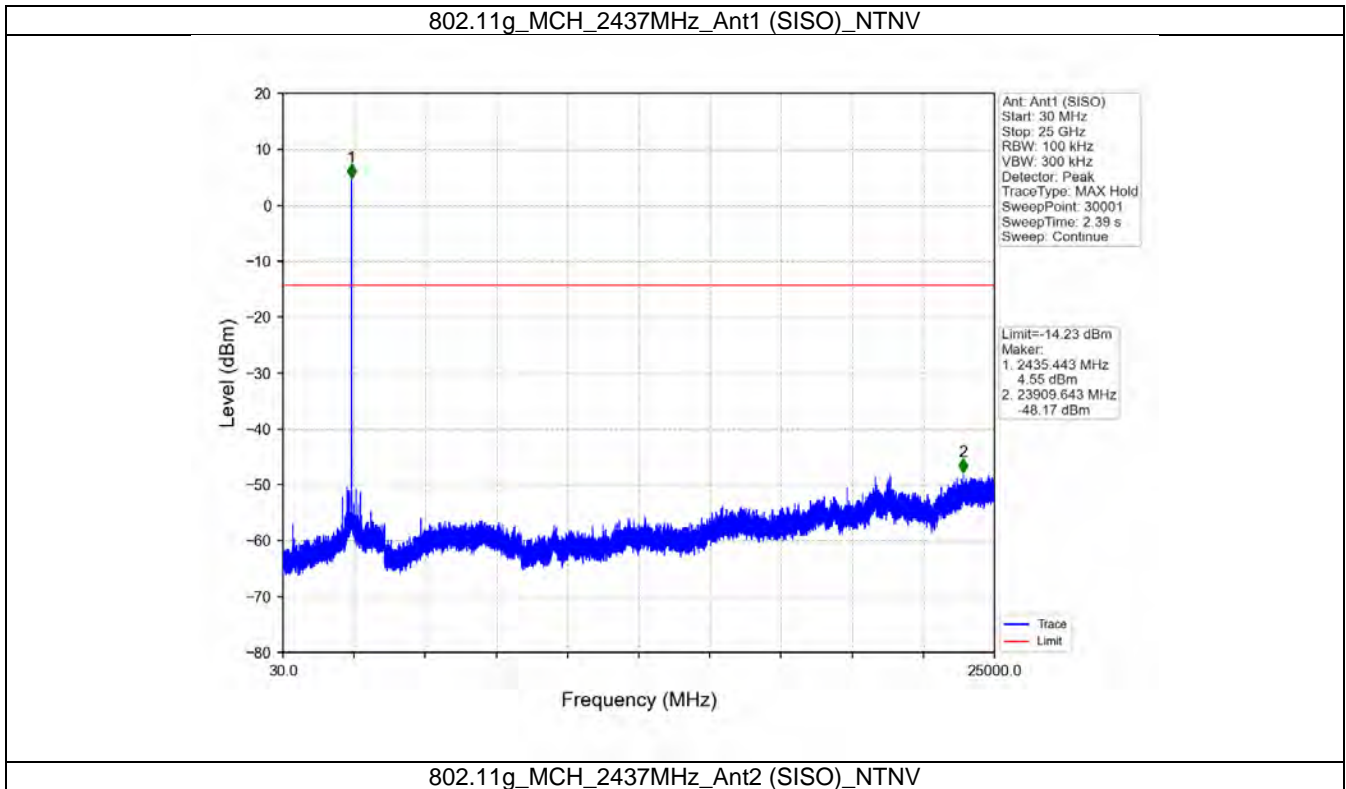


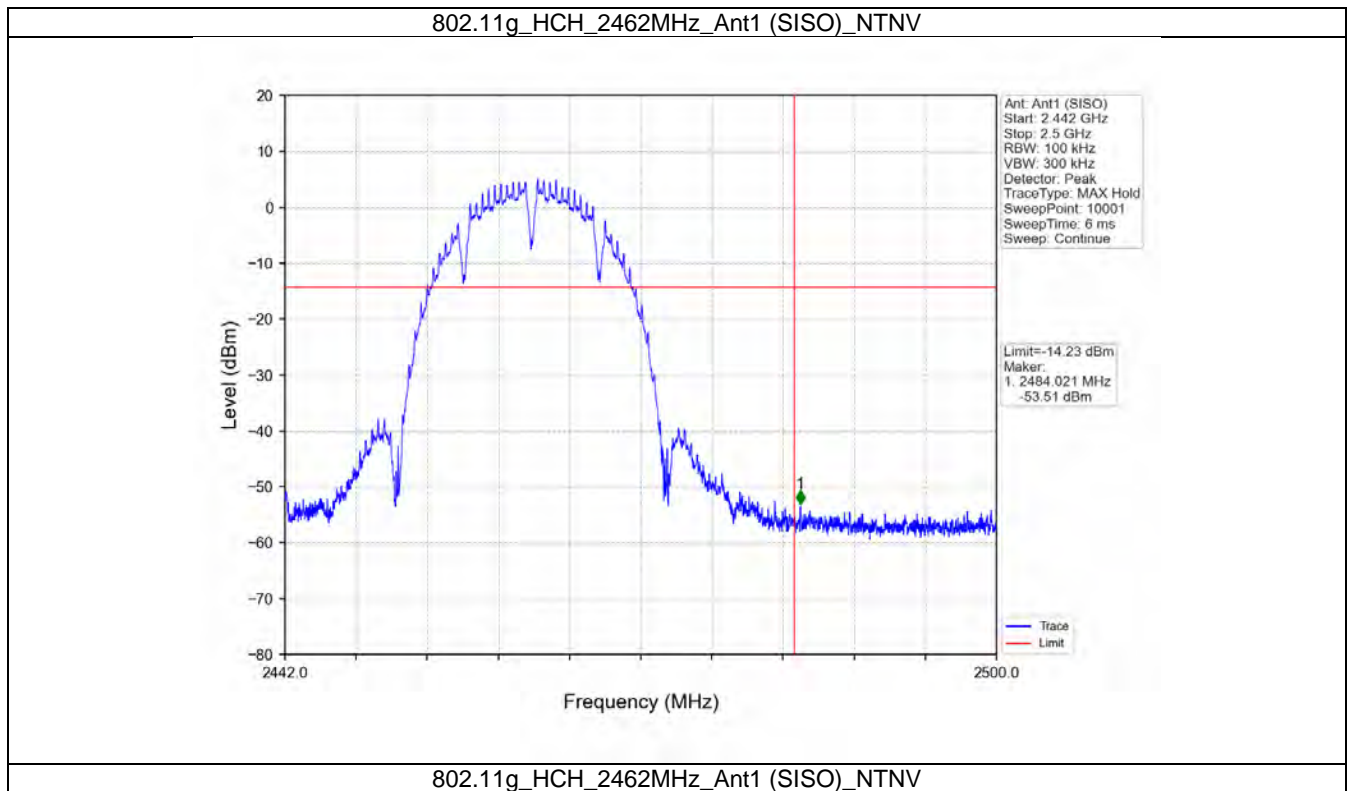
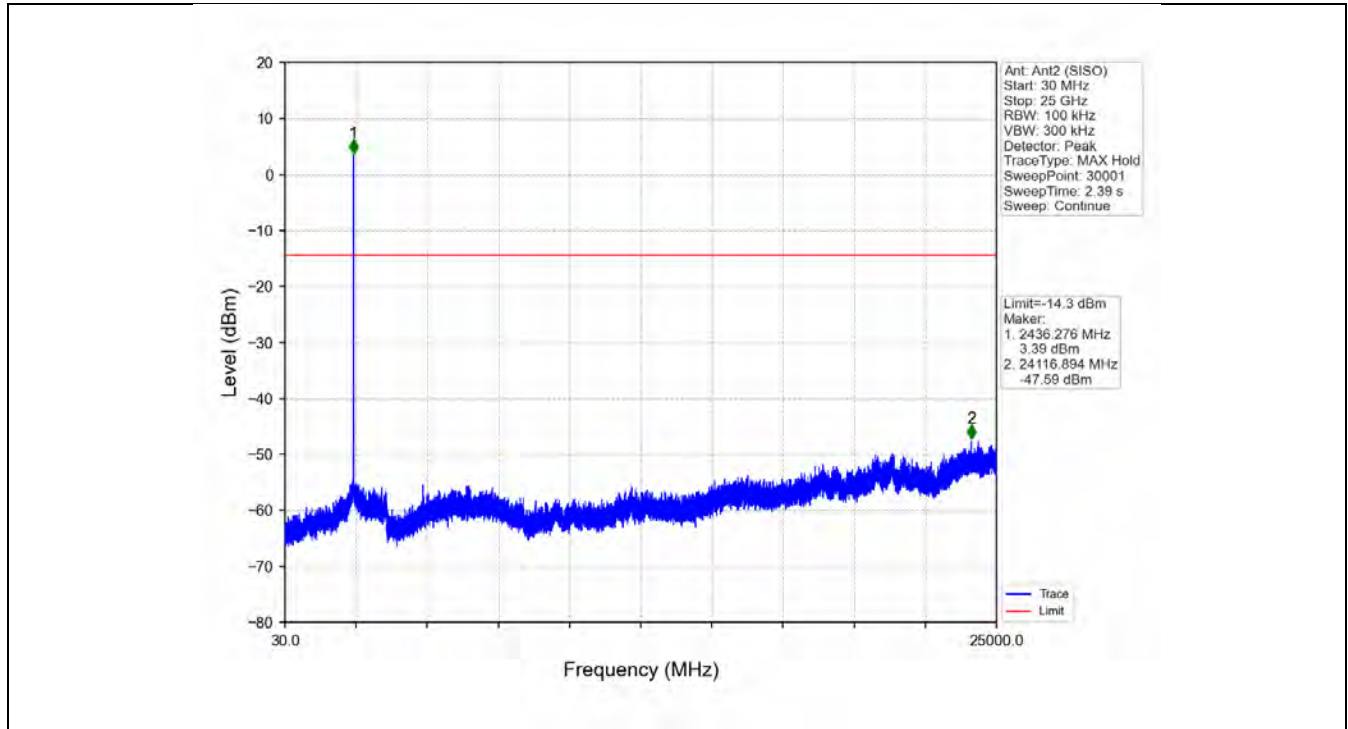
802.11g_LCH_2412MHz_Ant2 (SISO)_NTNV

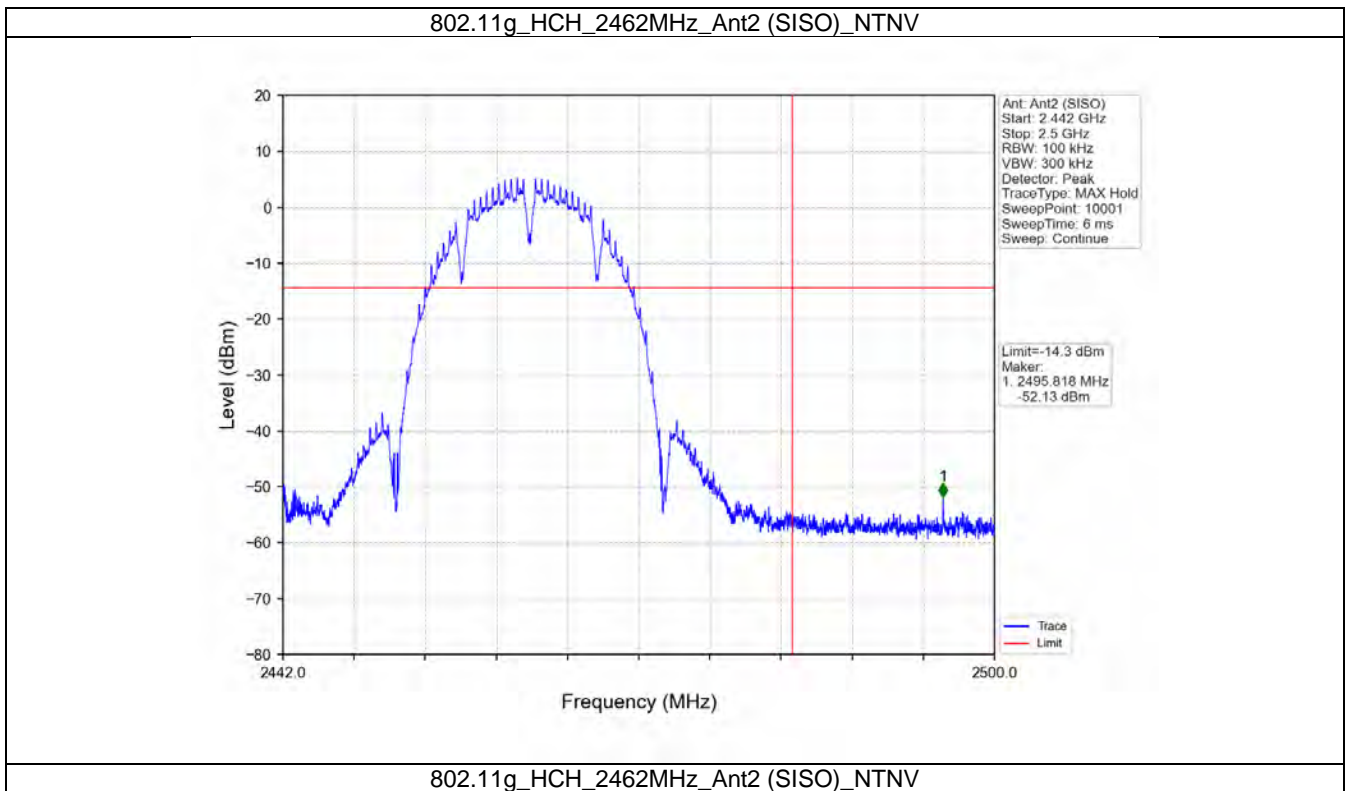
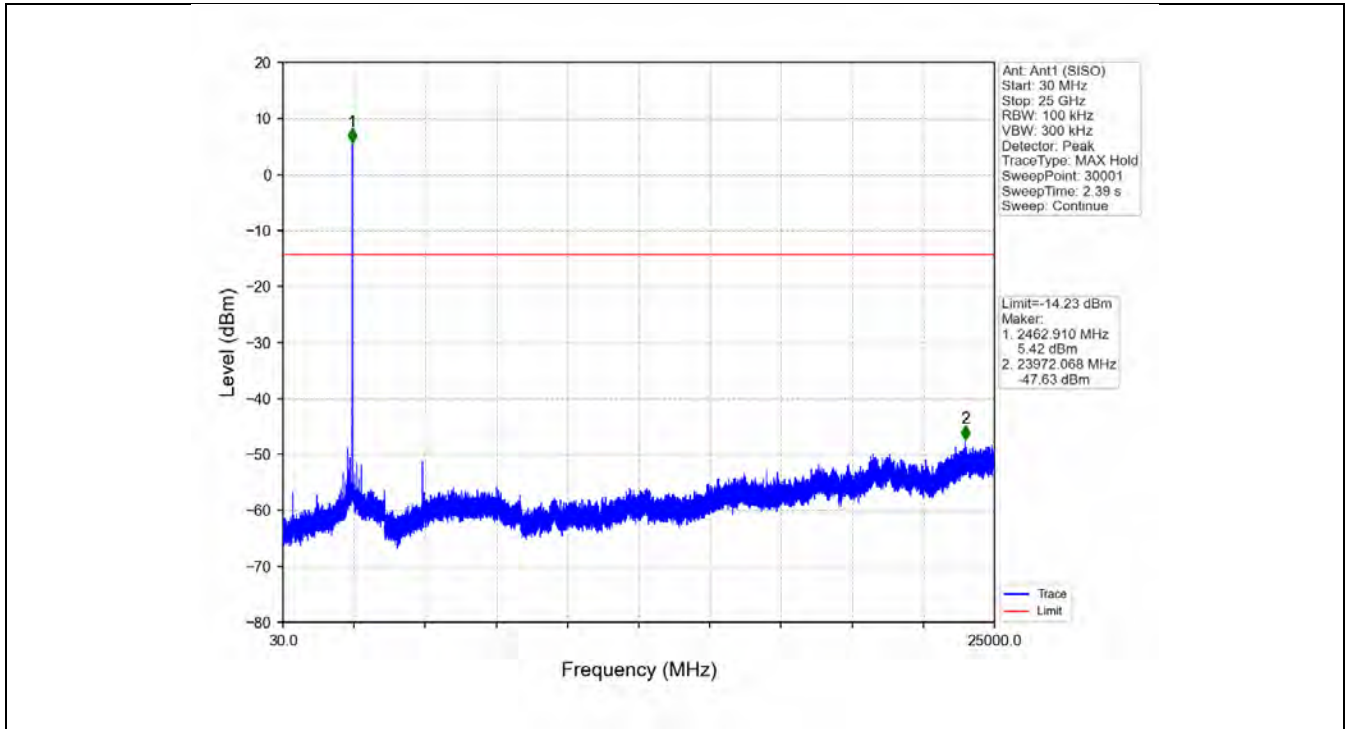


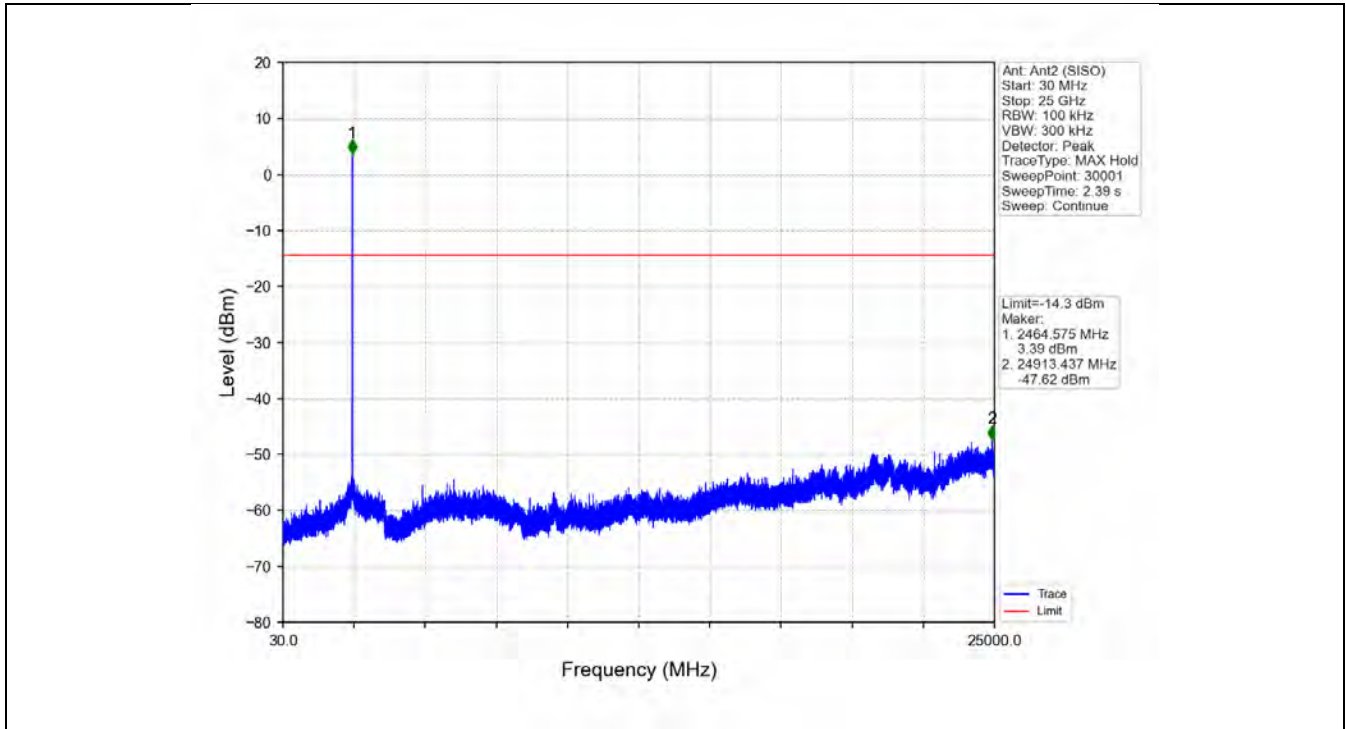


802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

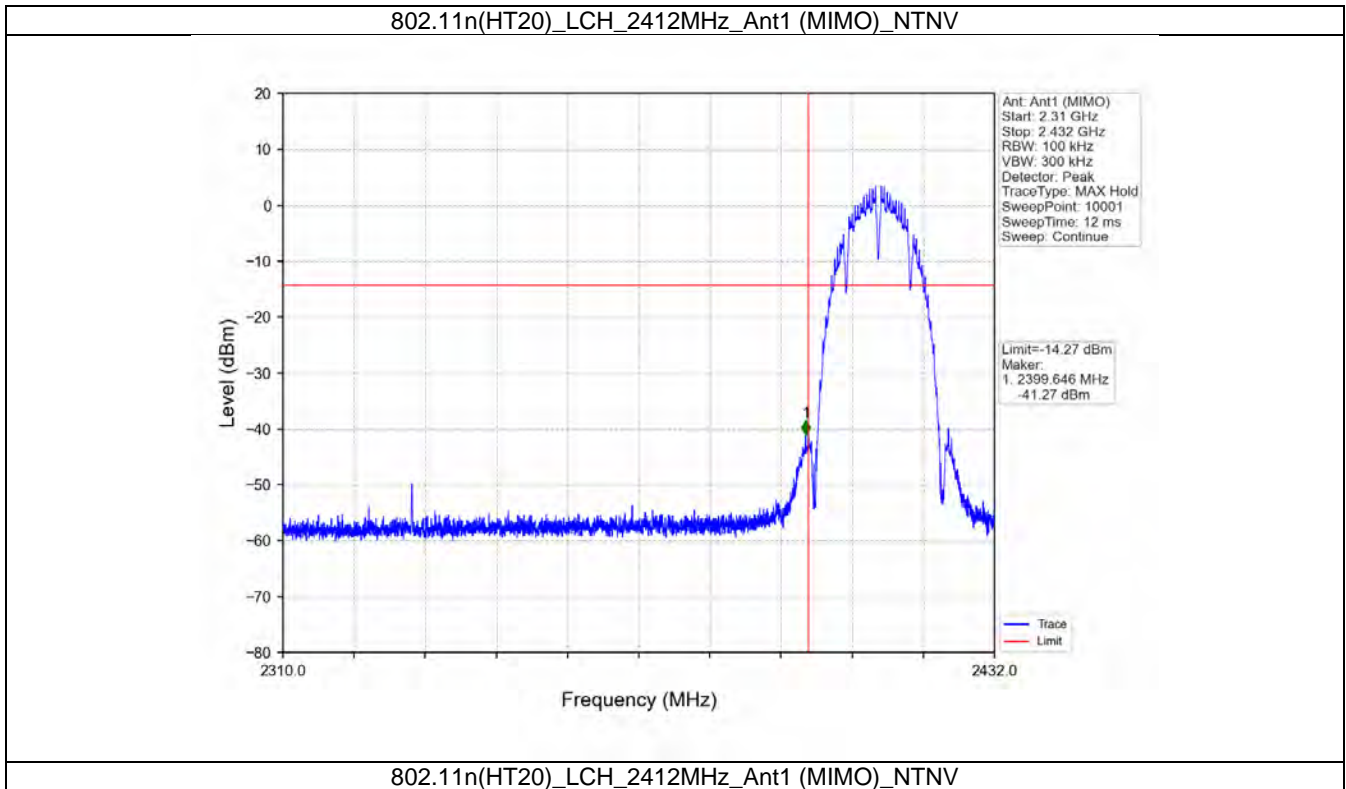


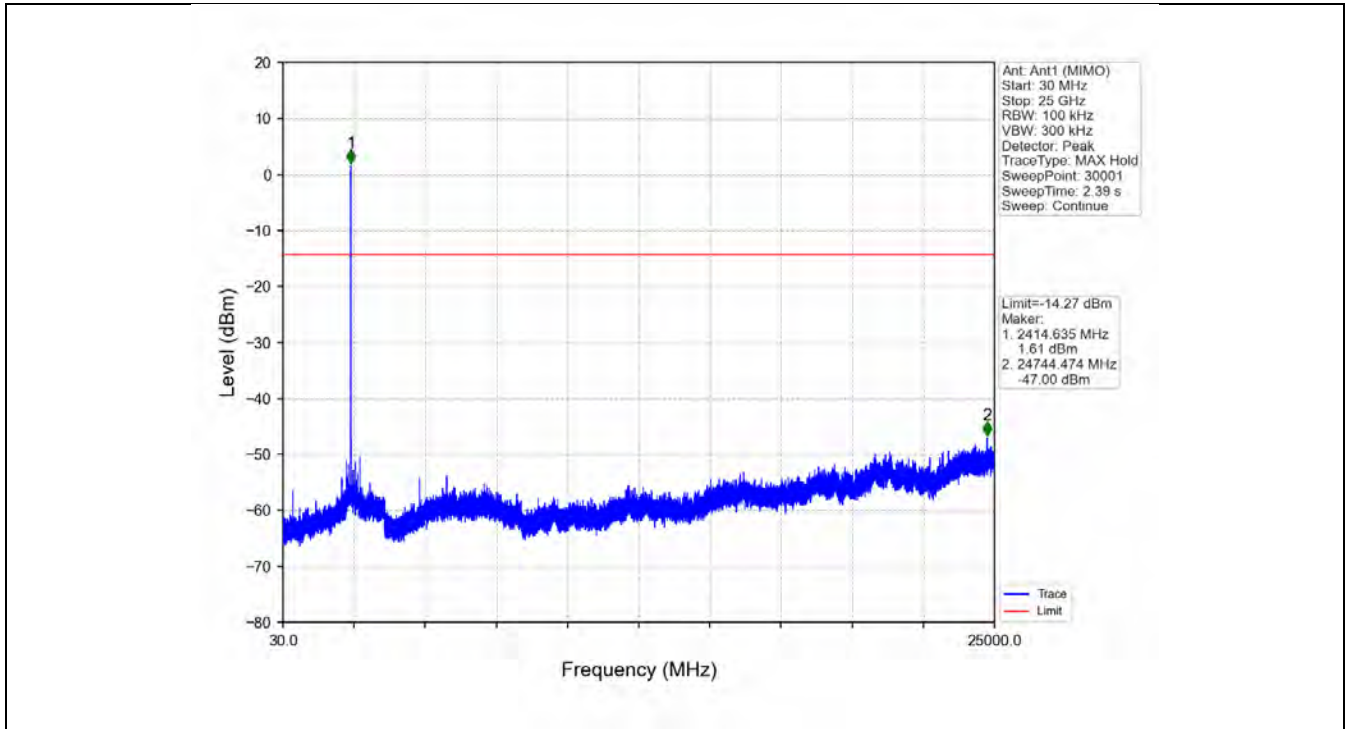




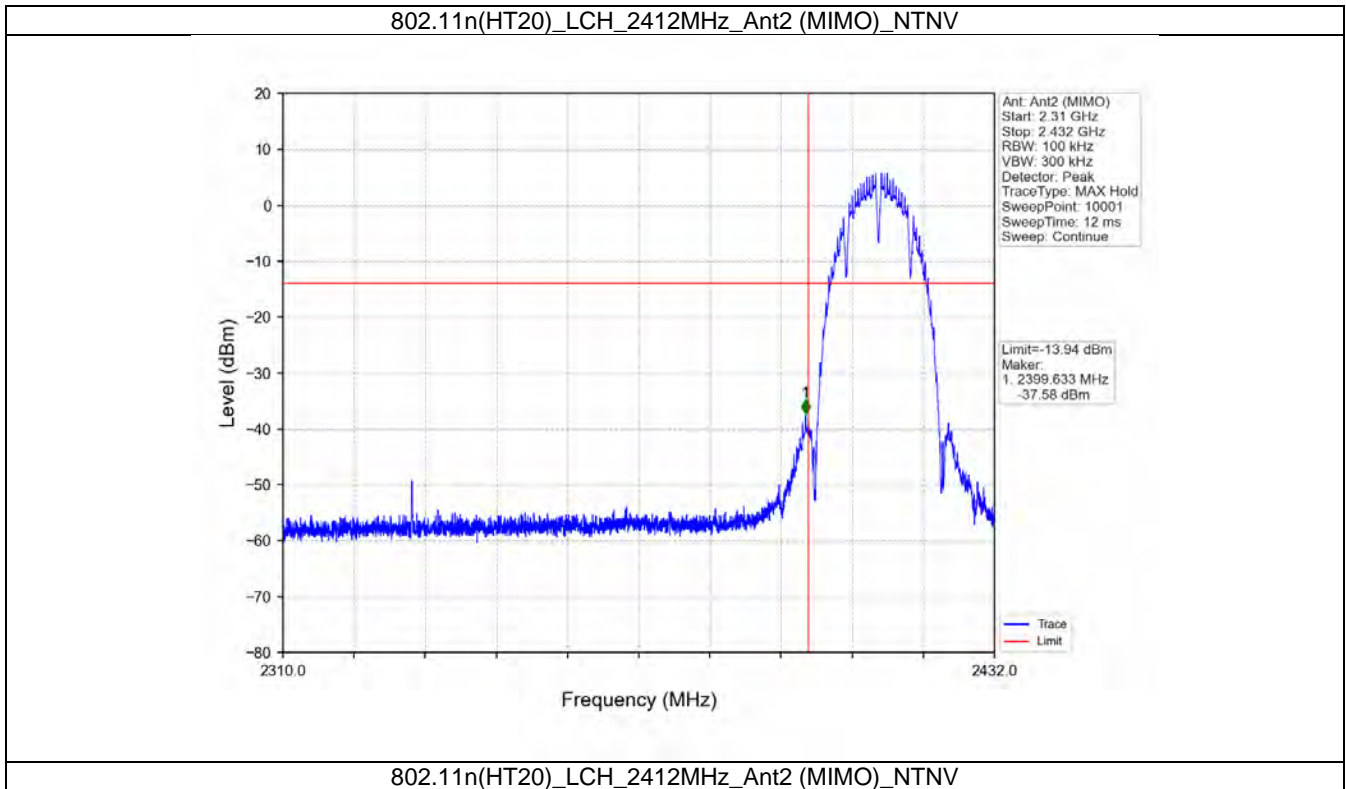


802.11n(HT20)_LCH_2412MHz_Ant1 (MIMO)_NTNV

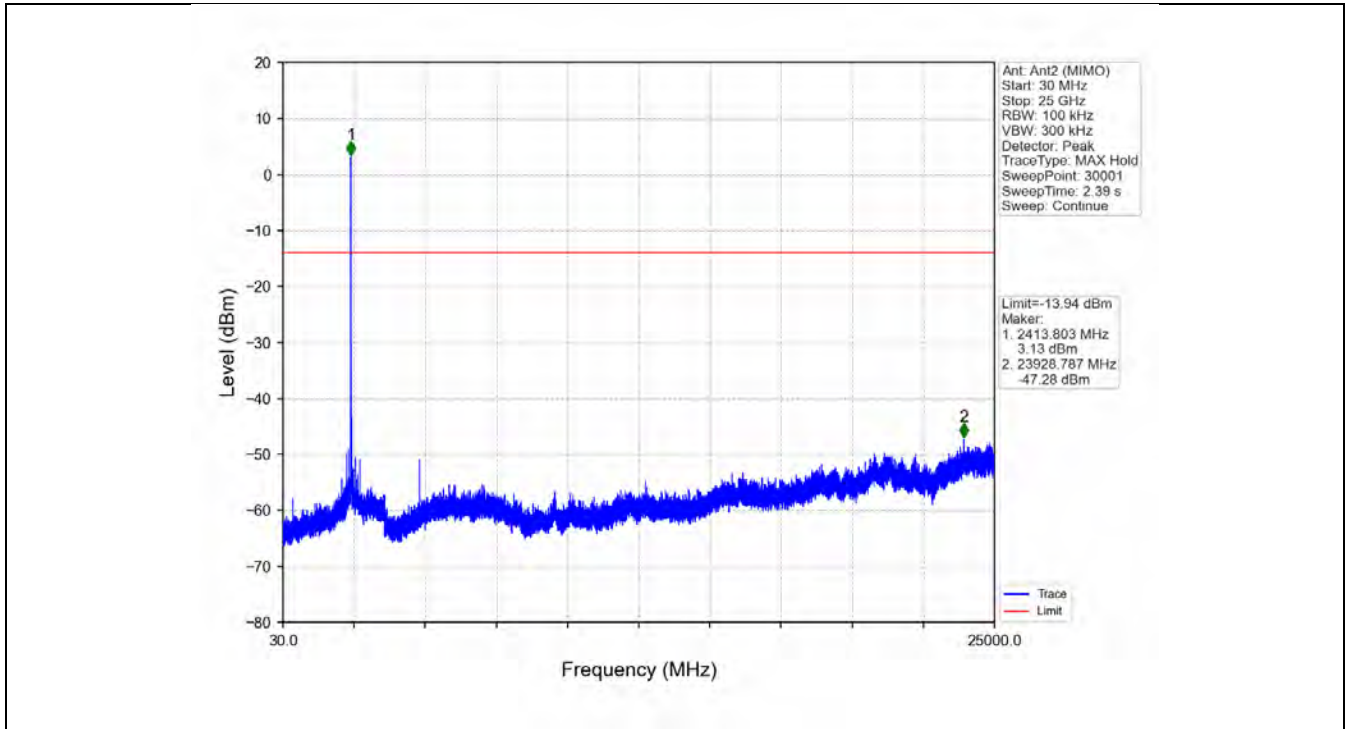




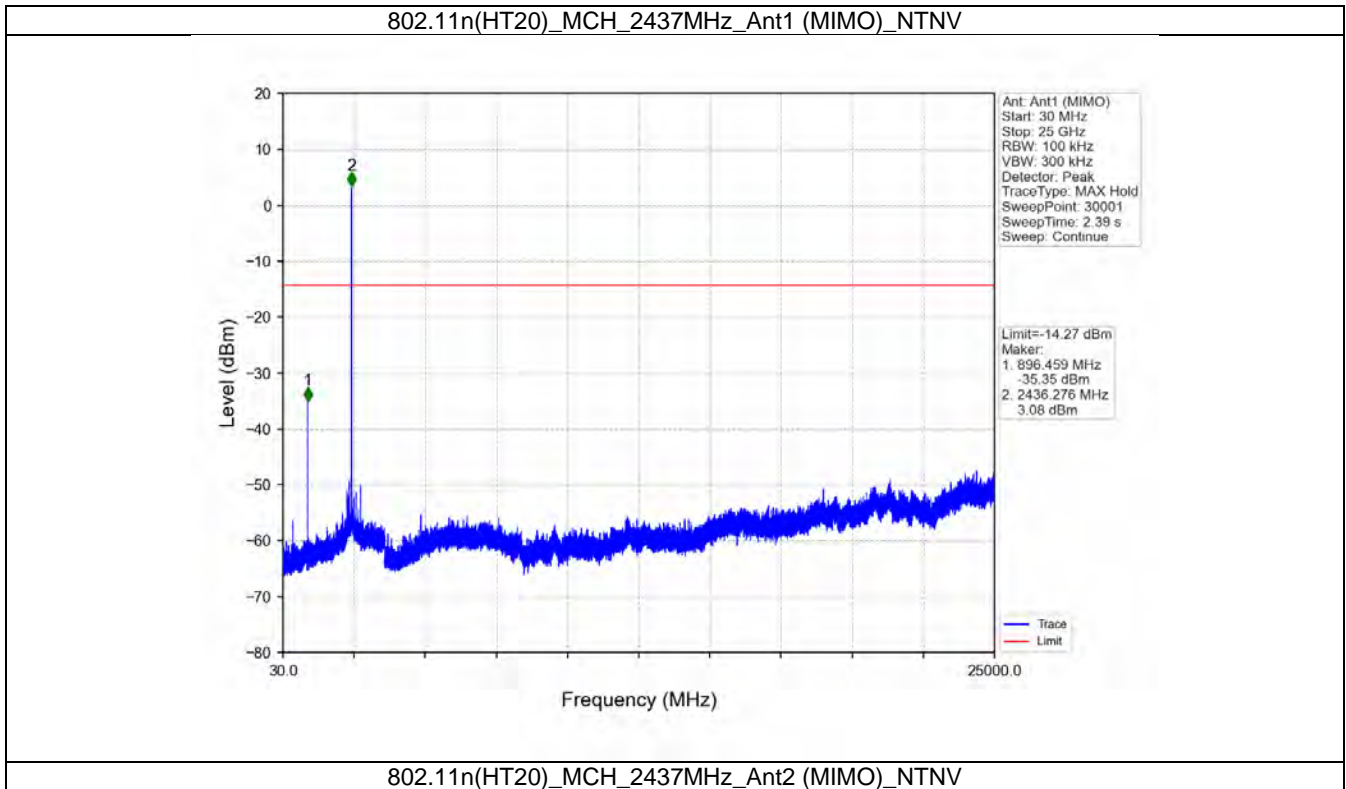
802.11n(HT20)_LCH_2412MHz_Ant2 (MIMO)_NTNV



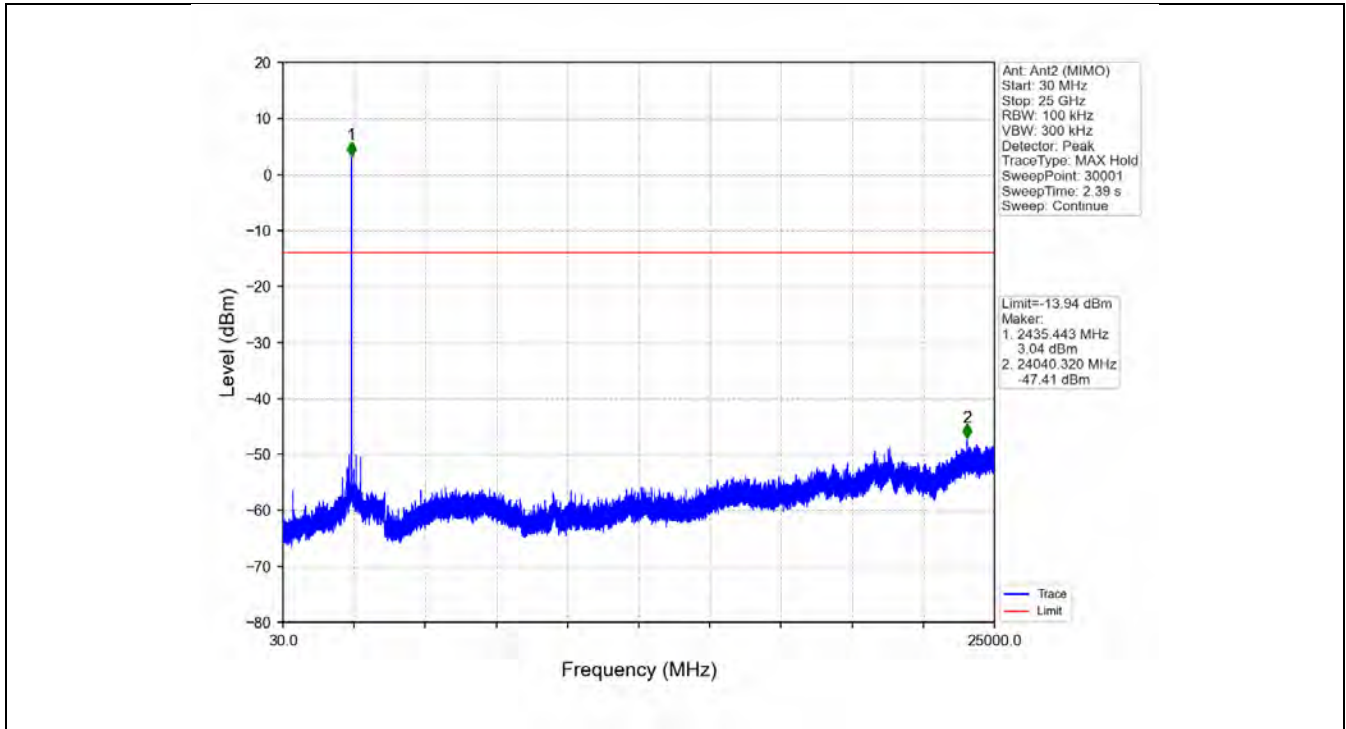
802.11n(HT20)_LCH_2412MHz_Ant2 (MIMO)_NTNV



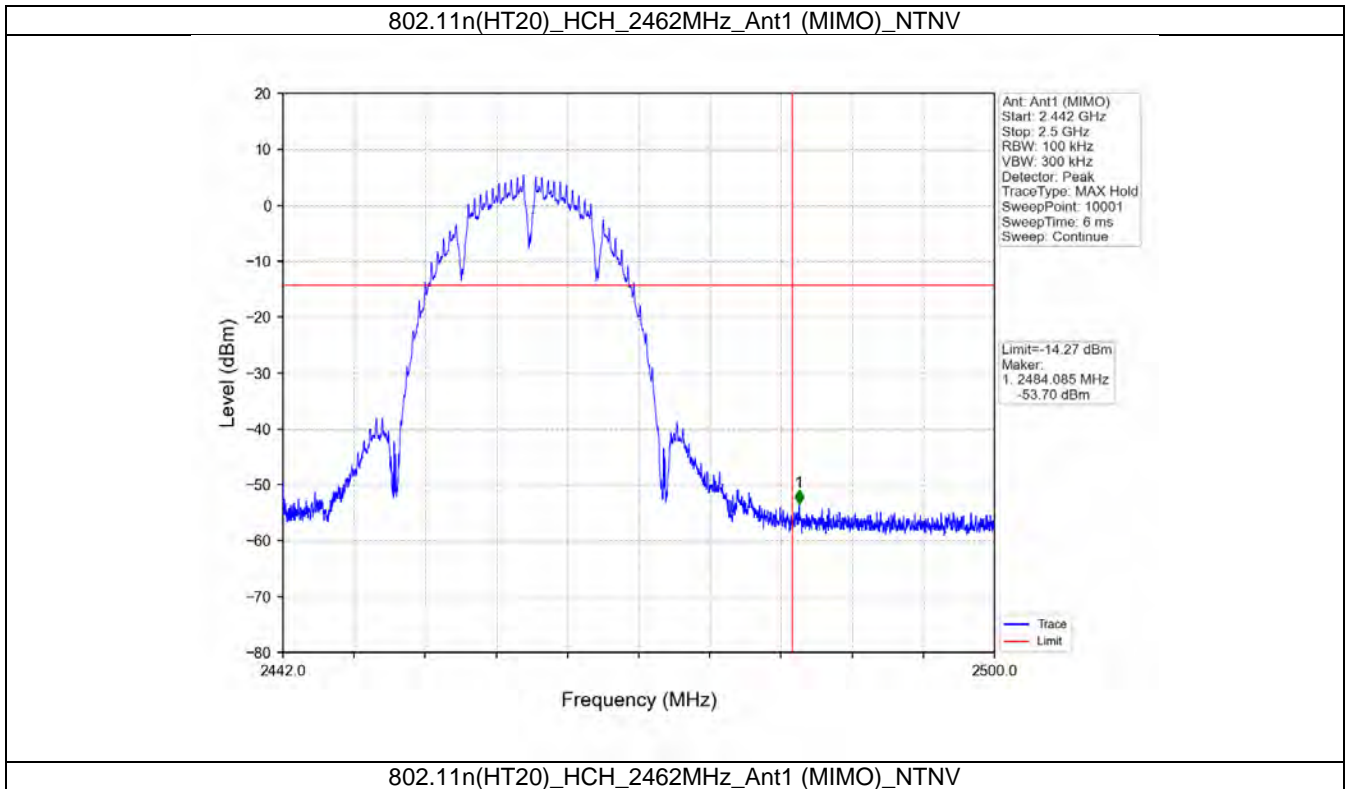
802.11n(HT20)_MCH_2437MHz_Ant1 (MIMO)_NTNV

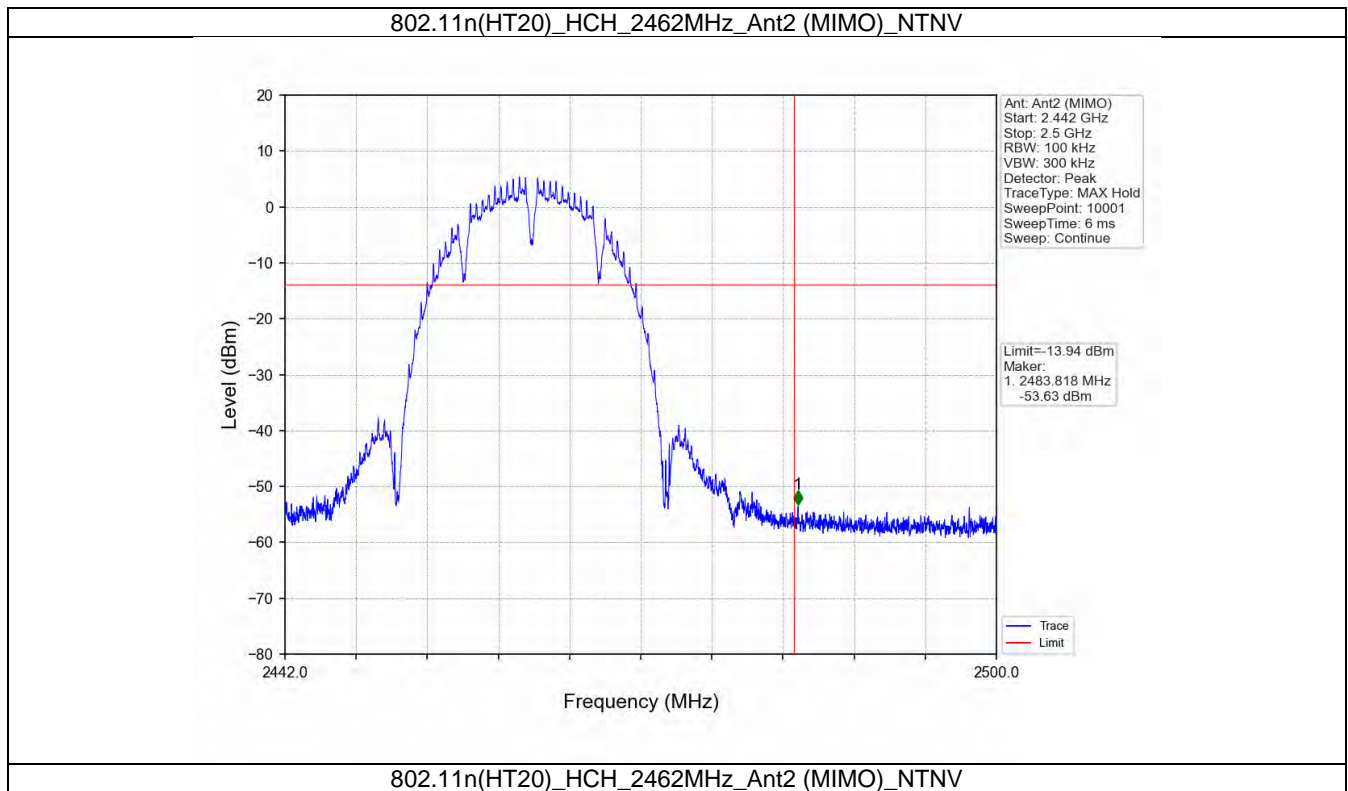
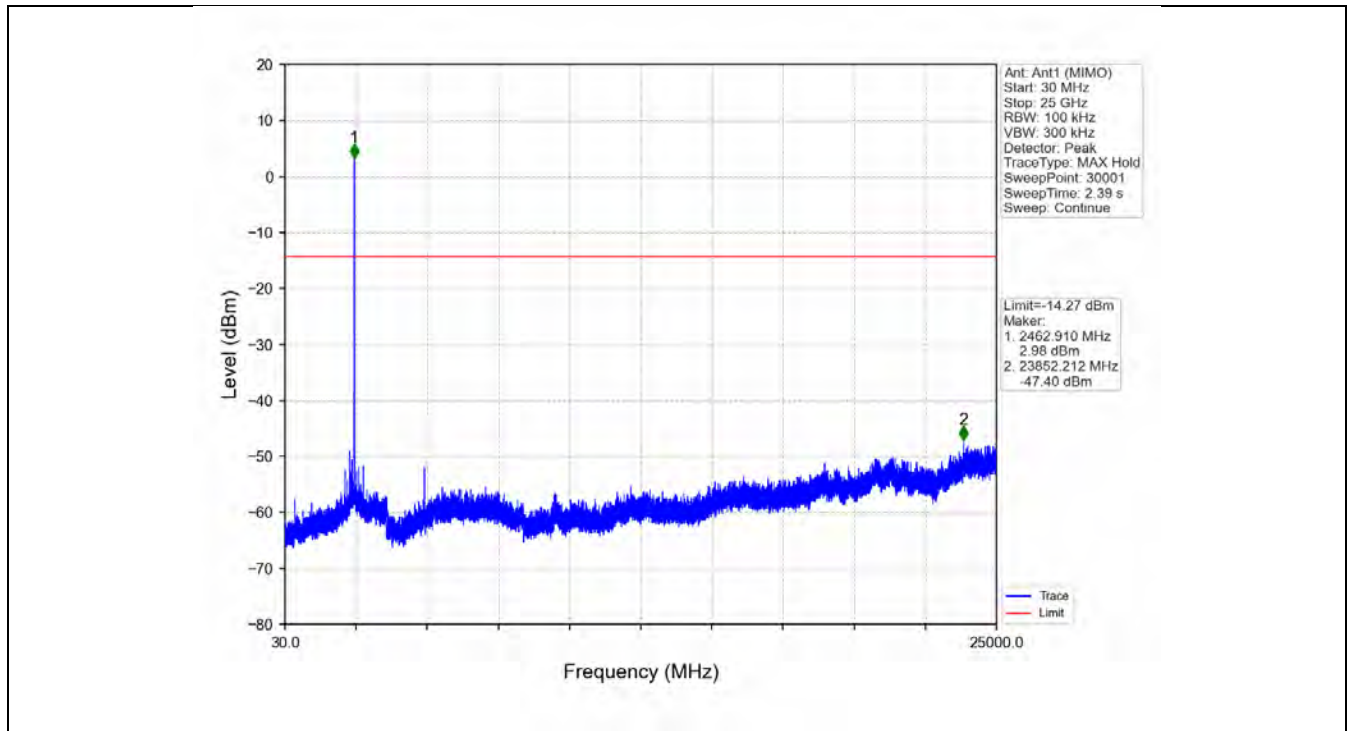


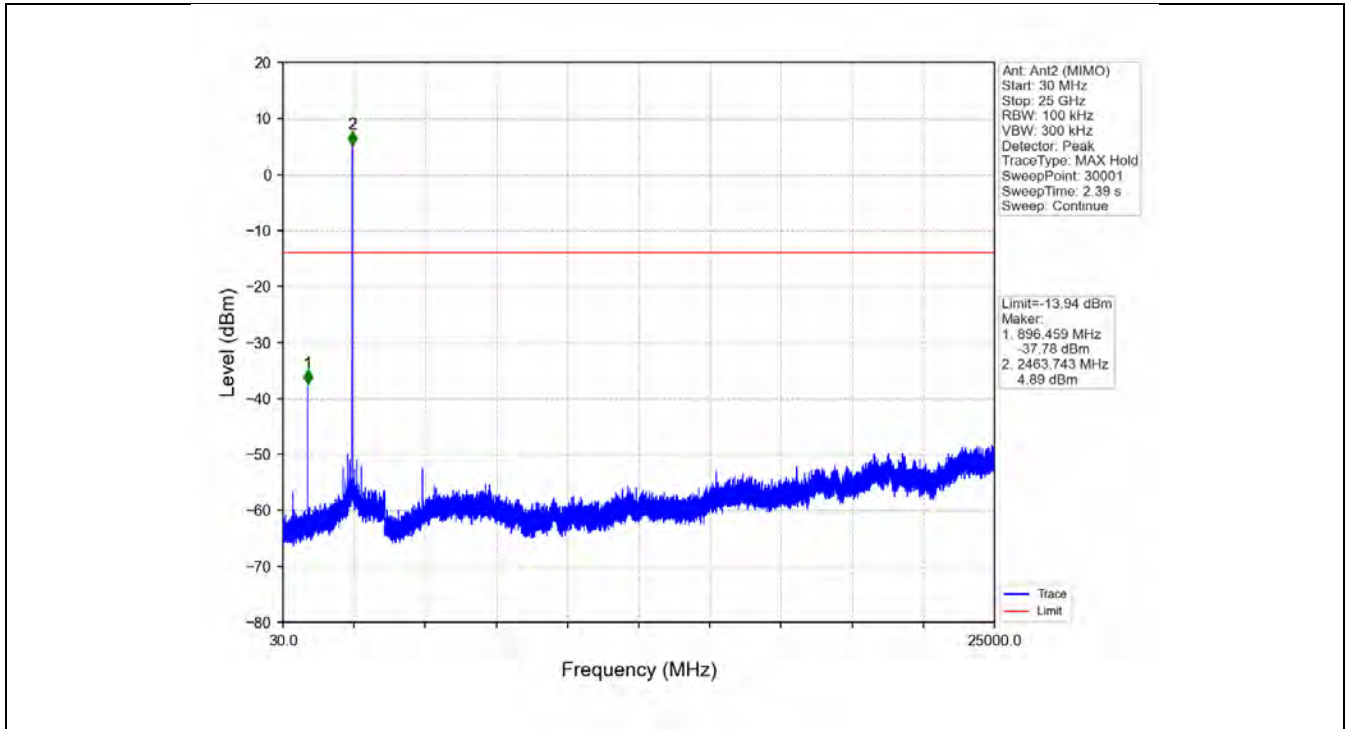
802.11n(HT20)_MCH_2437MHz_Ant2 (MIMO)_NTNV



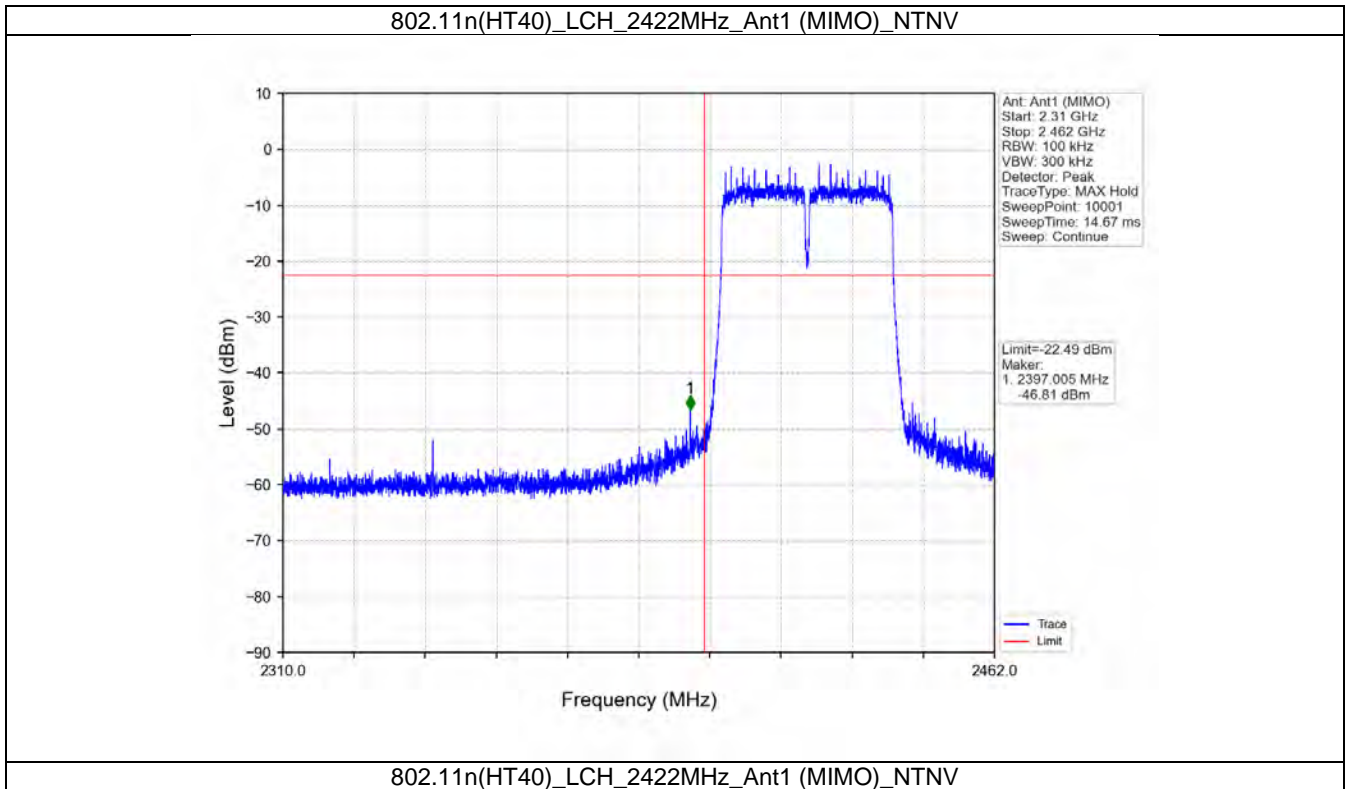
802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV

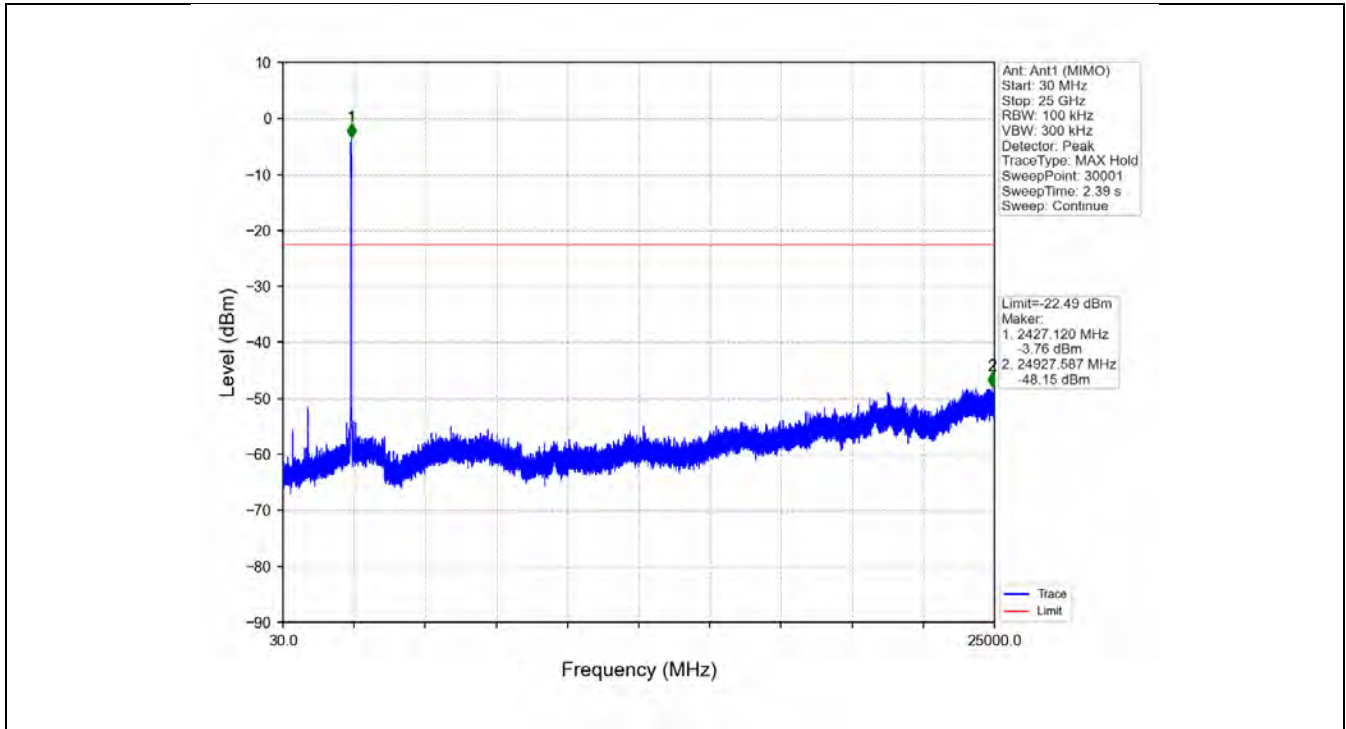




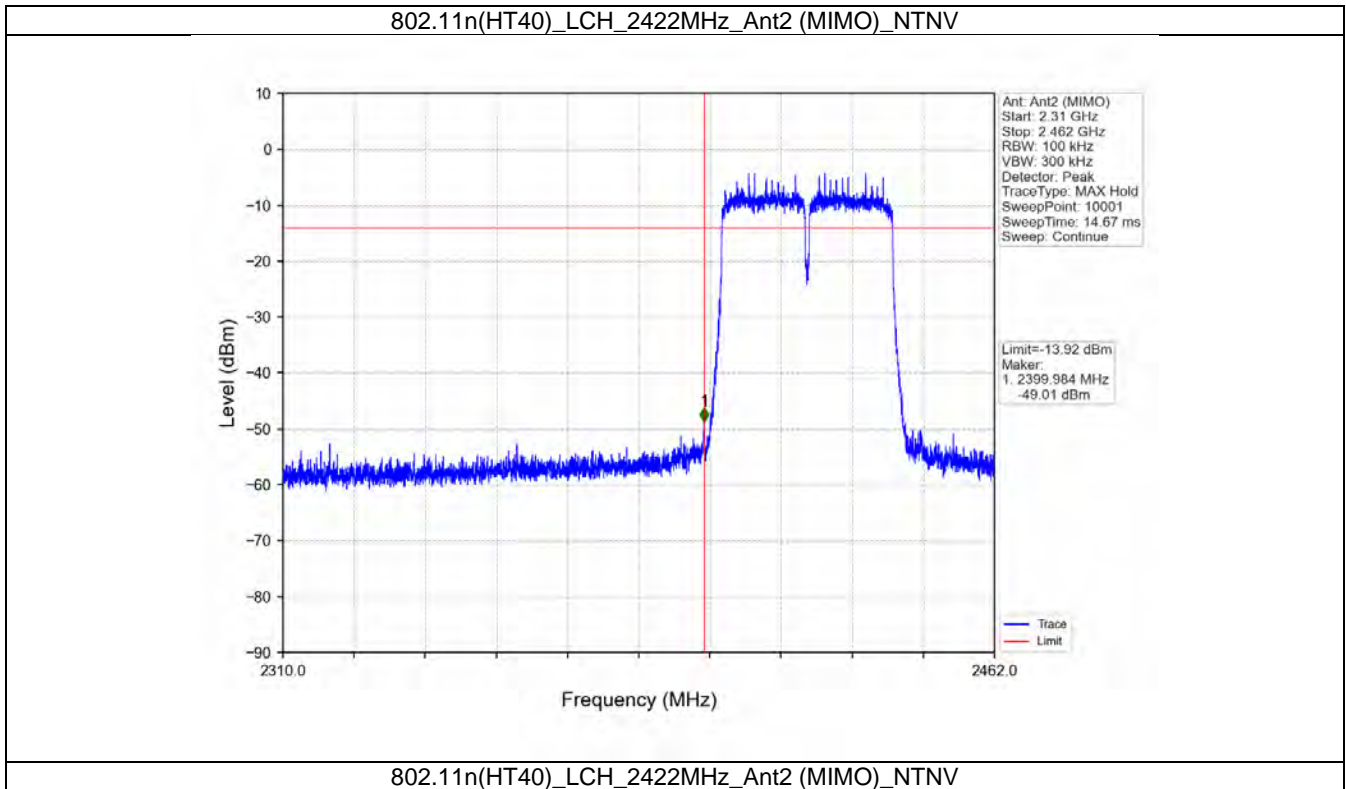


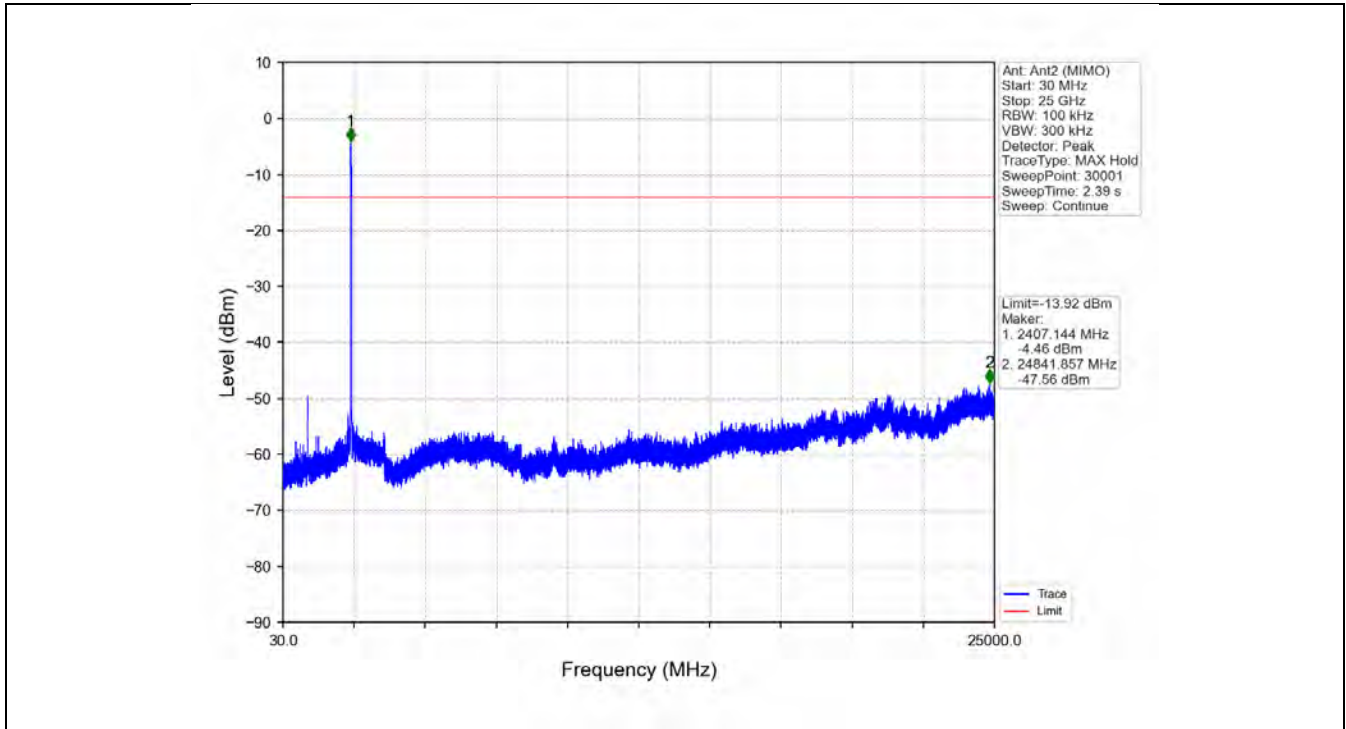
802.11n(HT40)_LCH_2422MHz_Ant1 (MIMO)_NTNV



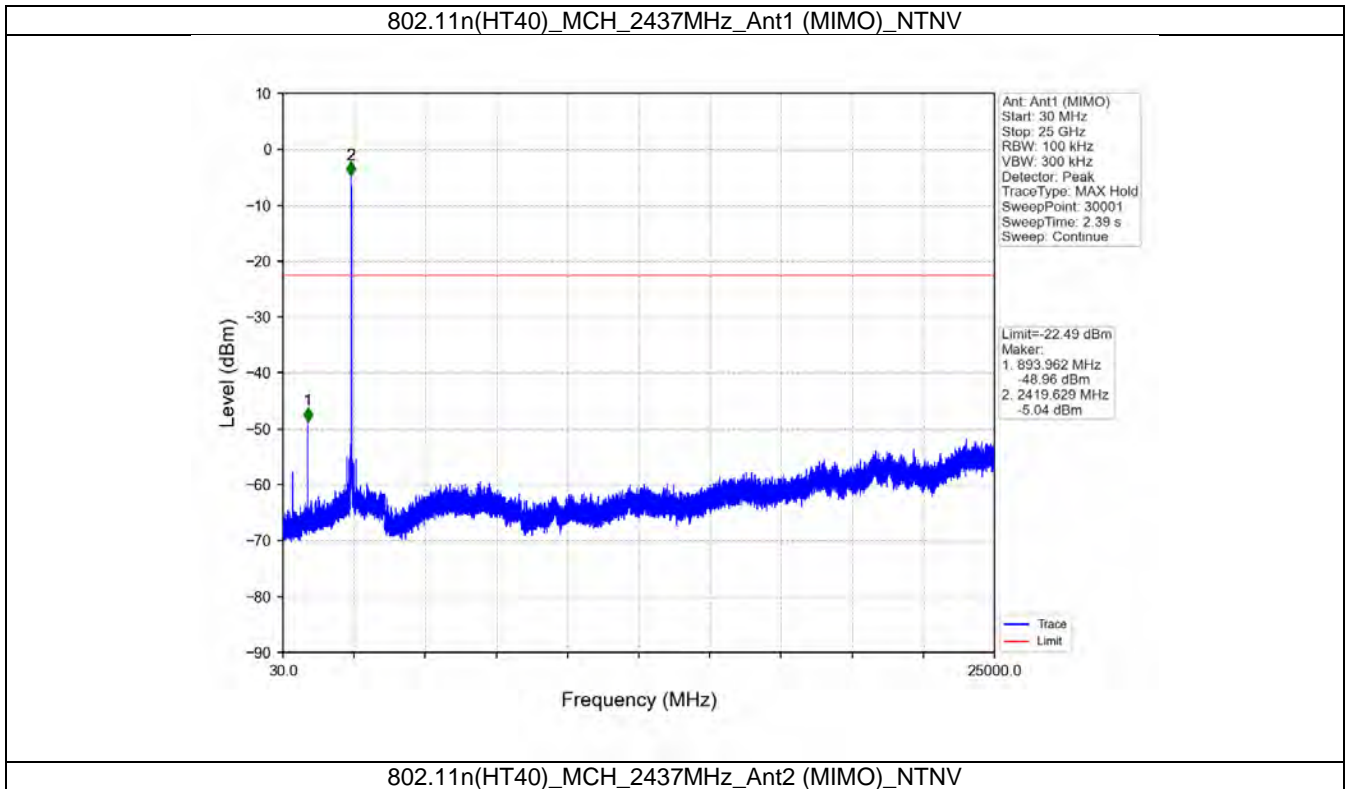


802.11n(HT40)_LCH_2422MHz_Ant2 (MIMO)_NTNV

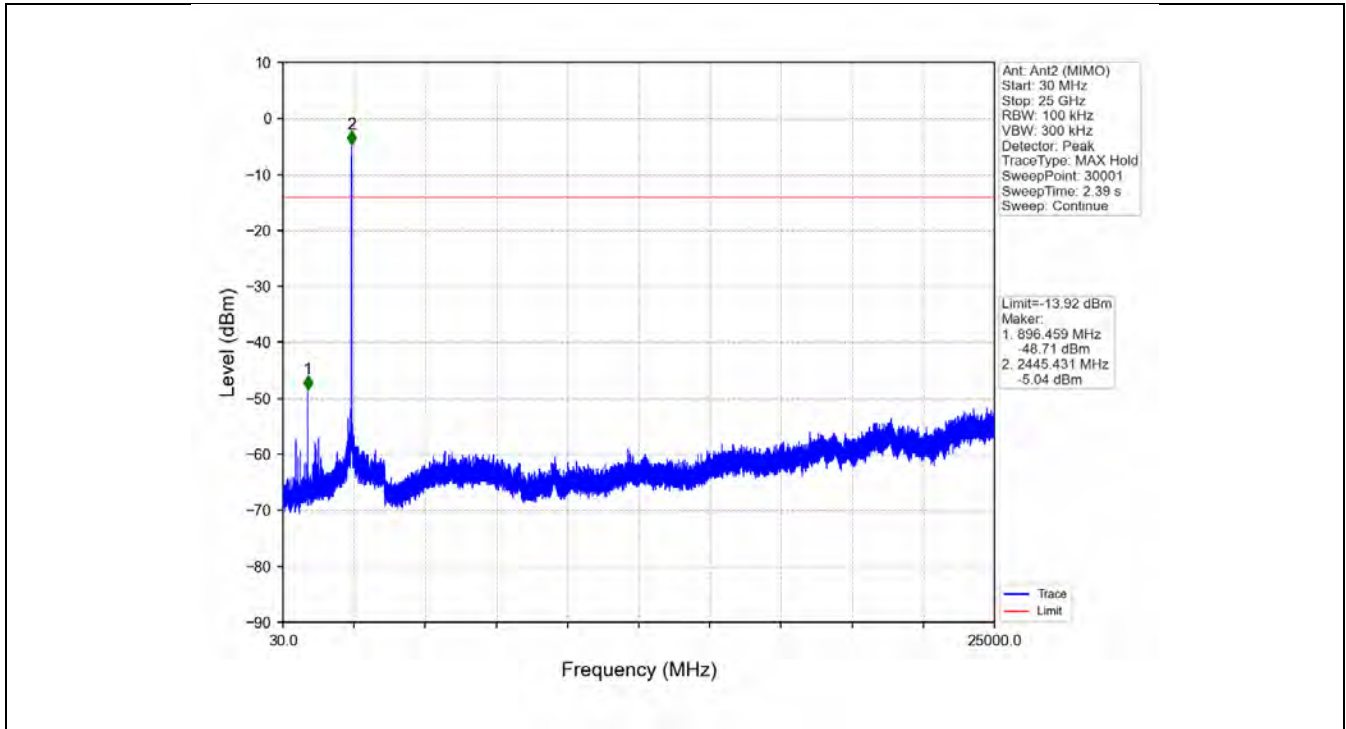




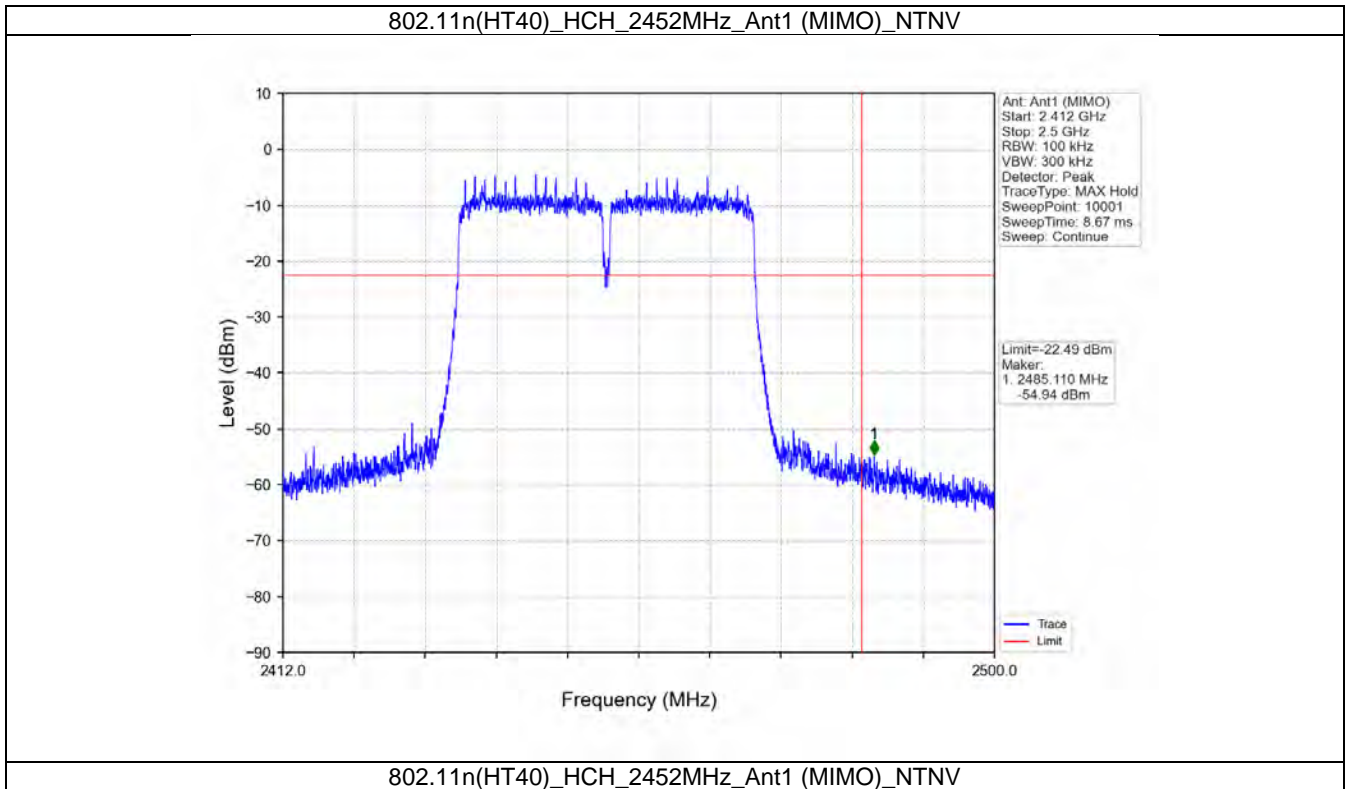
802.11n(HT40)_MCH_2437MHz_Ant1 (MIMO)_NTNV

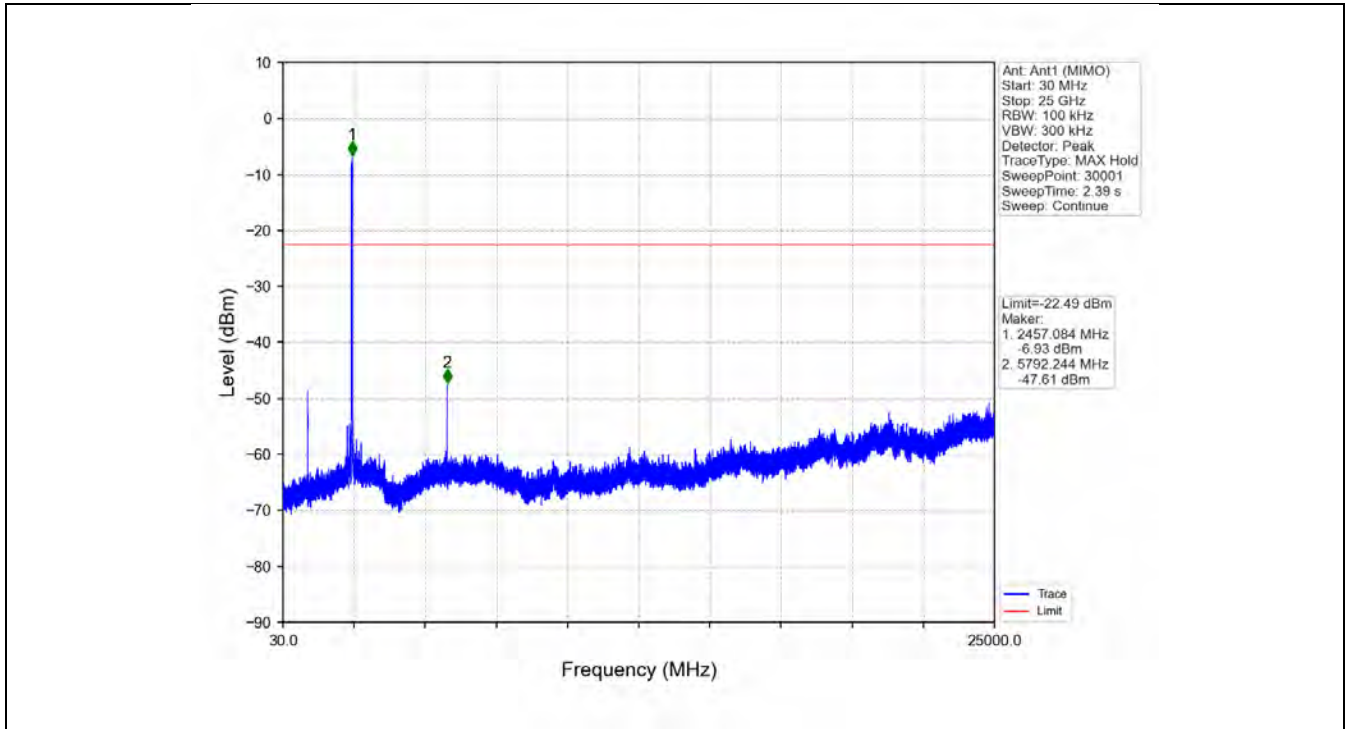


802.11n(HT40)_MCH_2437MHz_Ant2 (MIMO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (MIMO)_NTNV





802.11n(HT40)_HCH_2452MHz_Ant2 (MIMO)_NTNV

