

Appendix - 2.4G WIFI

1. Duty Cycle

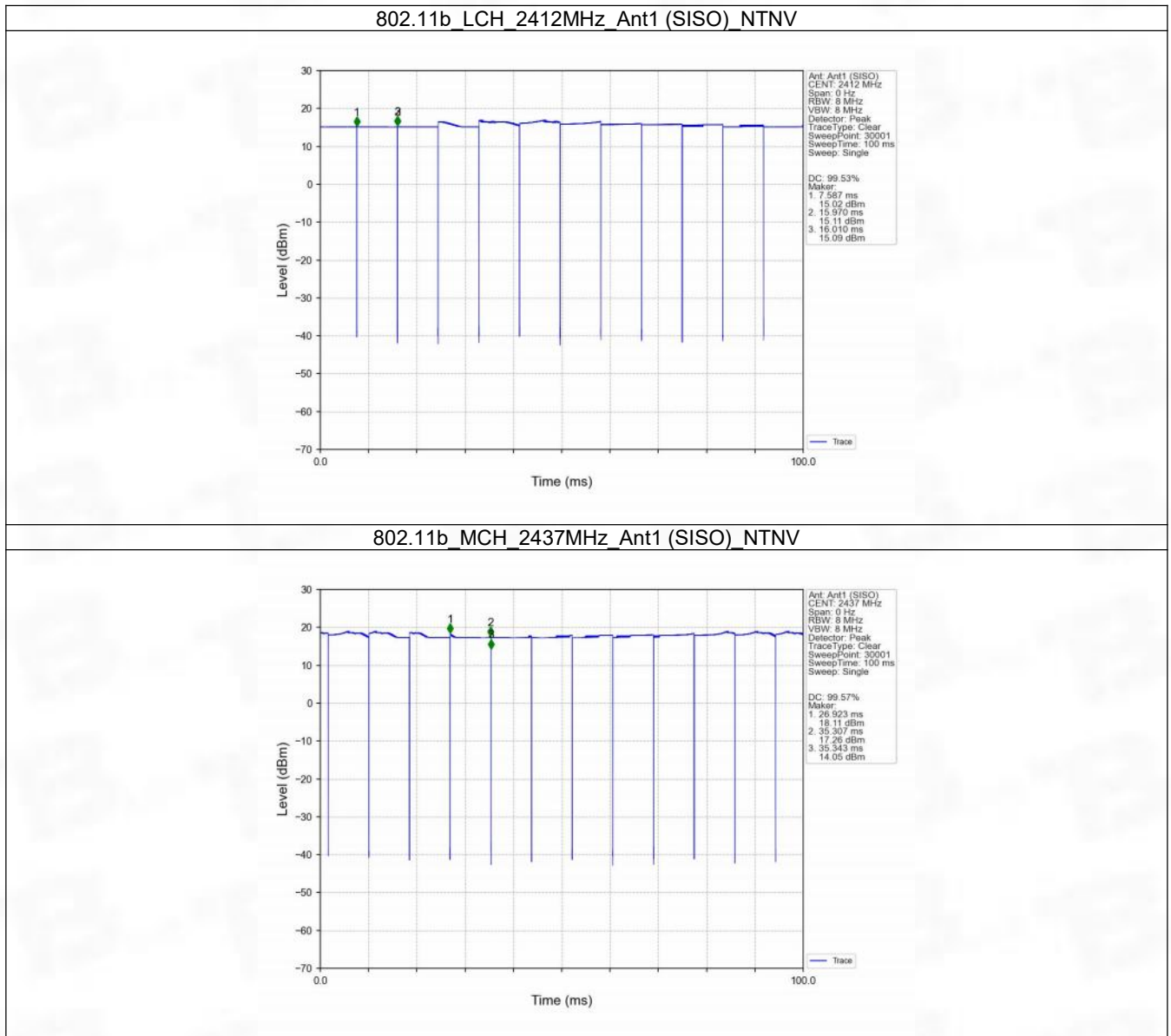
1.1 Test Result

1.1.1 Ant1

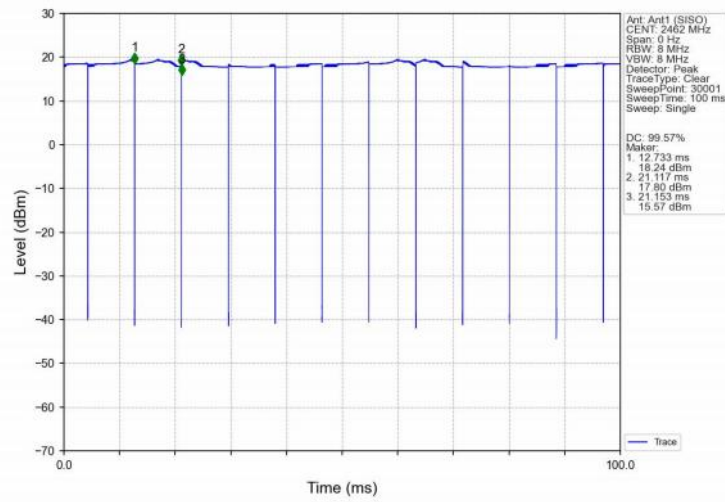
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	8.383	8.423	99.53	0.02	0.04
		2437	8.384	8.420	99.57	0.02	0.04
		2462	8.384	8.420	99.57	0.02	0.04
802.11g	SISO	2412	1.392	1.436	96.94	0.14	0.04
		2437	1.394	1.437	97.01	0.13	0.03
		2462	1.394	1.436	97.08	0.13	0.03
802.11n (HT20)	SISO	2412	1.300	1.344	96.73	0.14	0.07
		2437	1.302	1.345	96.80	0.14	0.03
		2462	1.302	1.345	96.80	0.14	0.03
802.11n (HT40)	SISO	2422	0.650	0.693	93.80	0.28	0.03
		2437	0.649	0.692	93.79	0.28	0.03
		2452	0.650	0.692	93.93	0.27	0.04

1.2 Test Graph

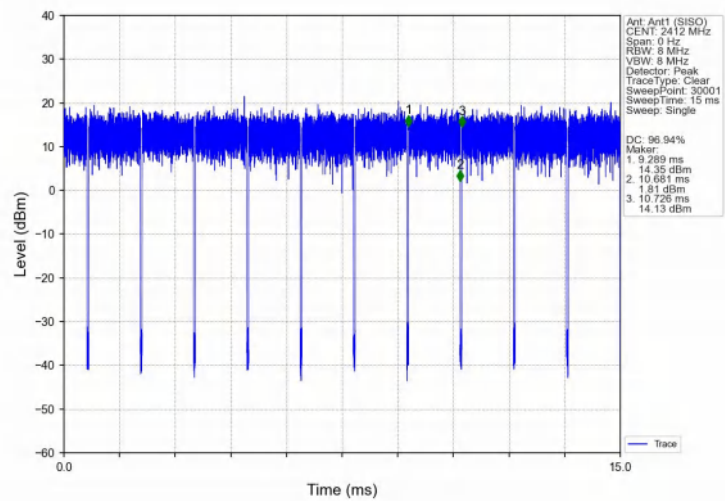
1.2.1 Ant1



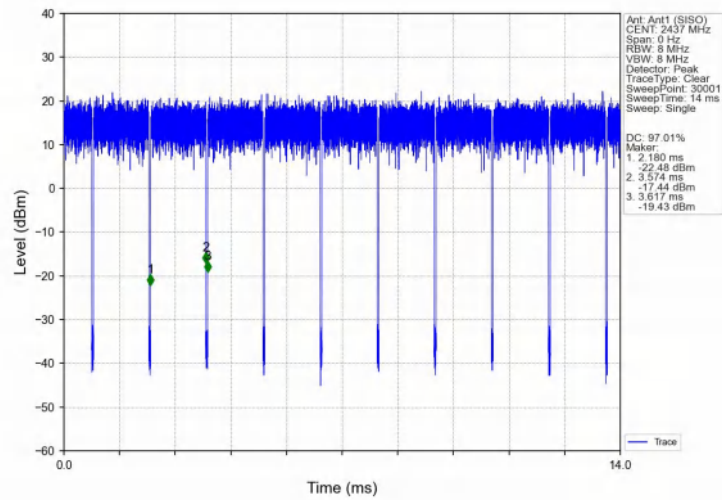
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



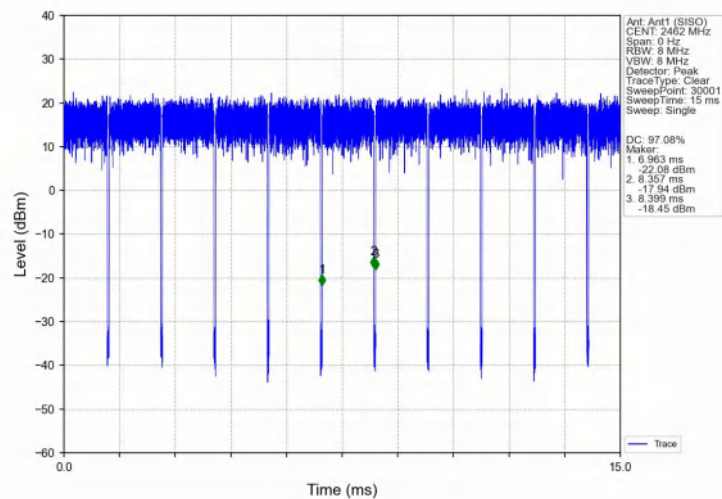
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



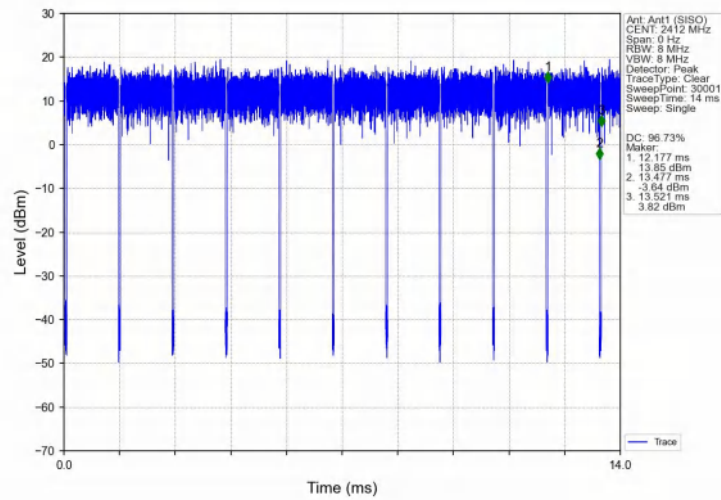
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



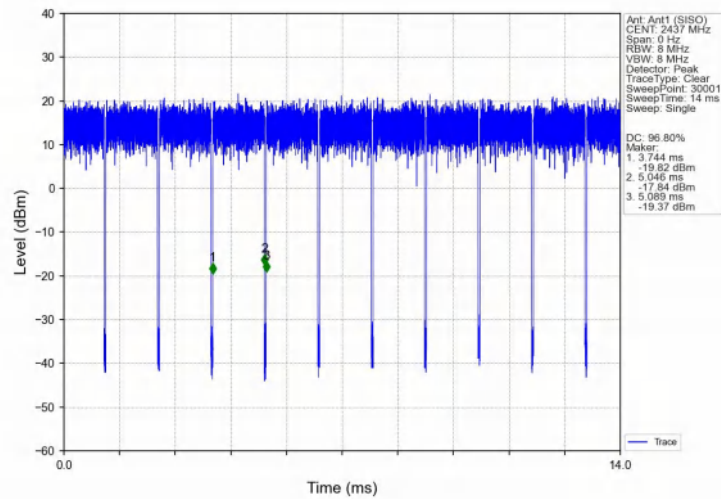
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



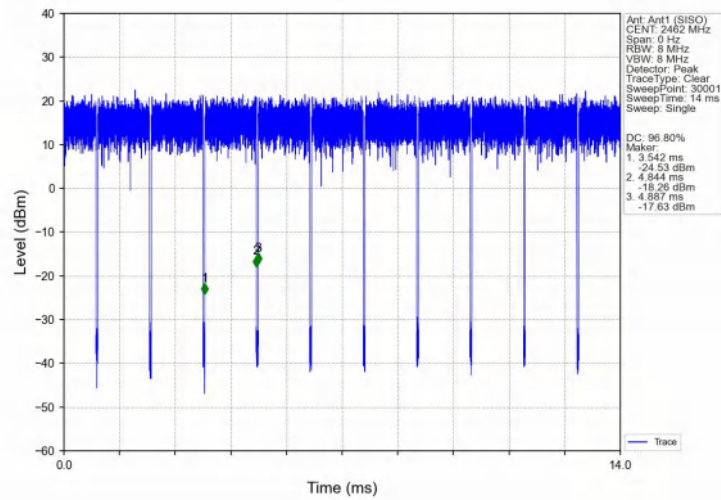
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



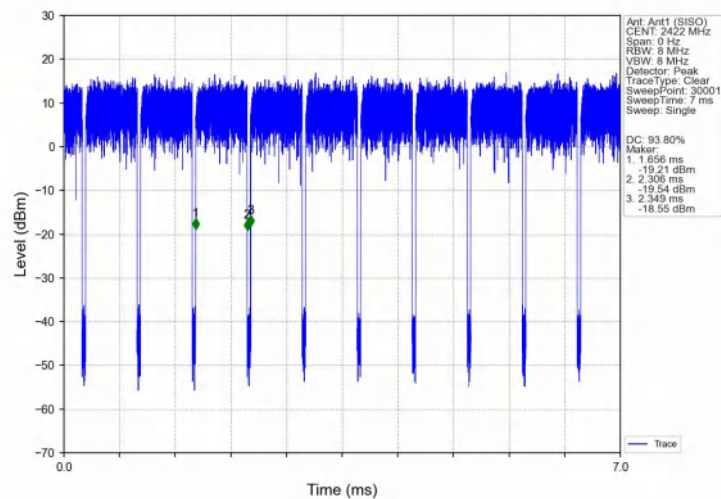
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



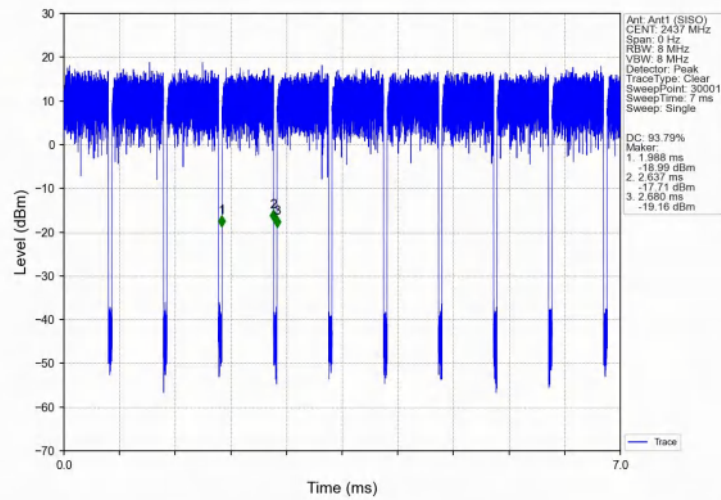
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



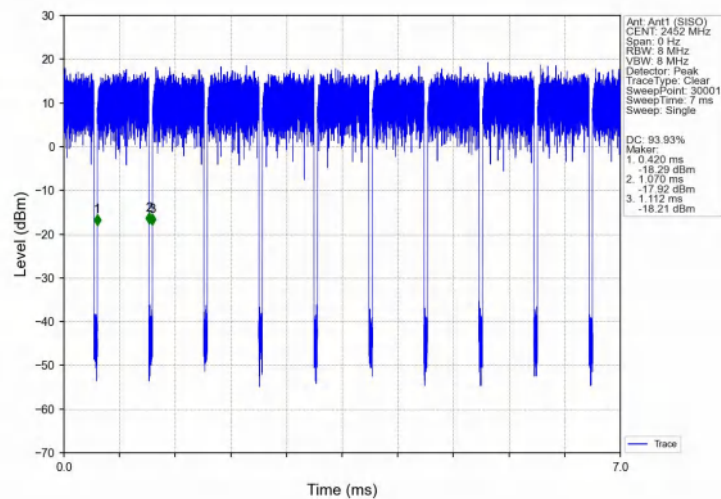
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



2. Bandwidth

2.1 Test Result

2.1.1 OBW

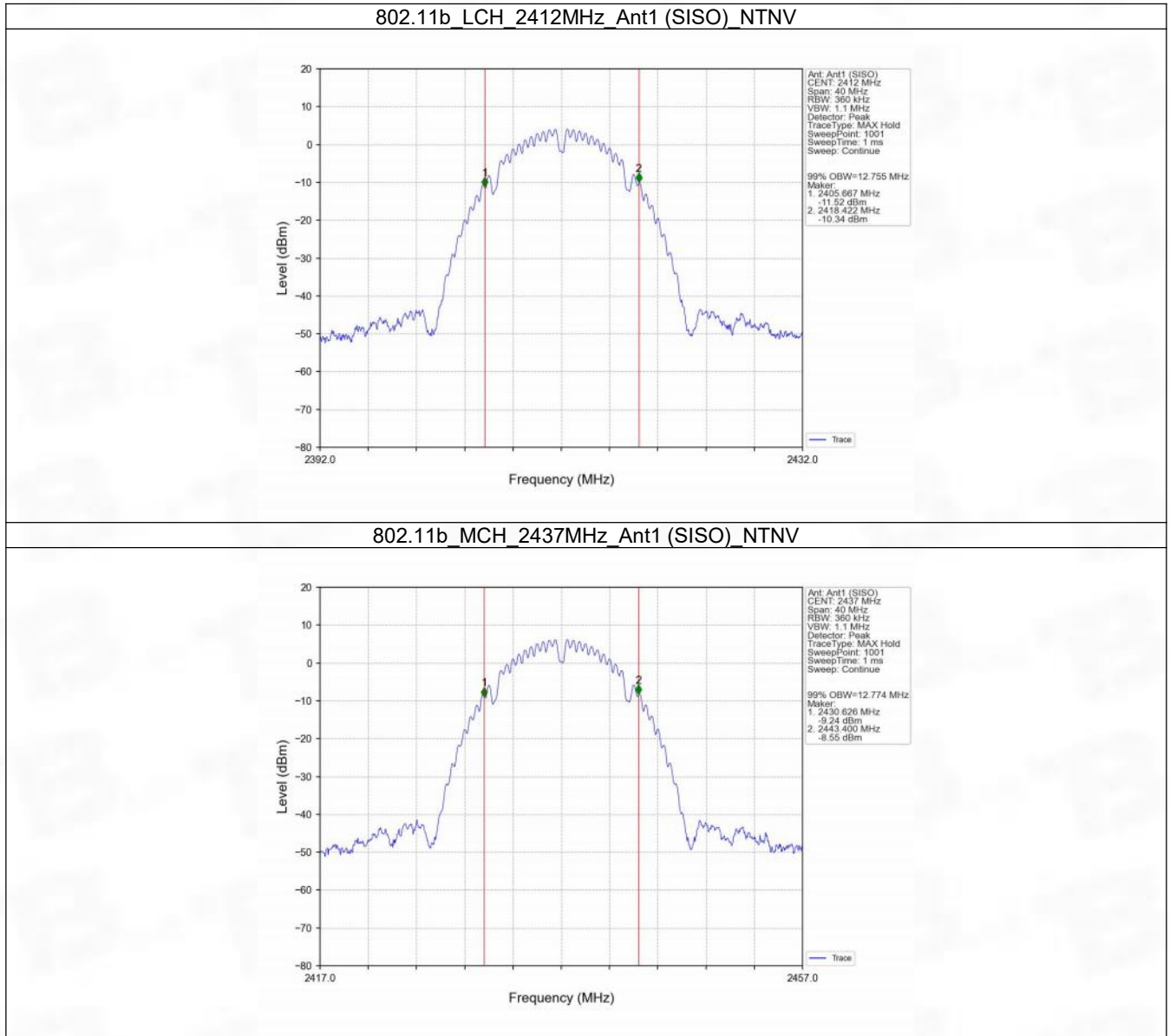
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	12.755	/	Pass
		2437	1	12.774	/	Pass
		2462	1	12.802	/	Pass
802.11g	SISO	2412	1	17.376	/	Pass
		2437	1	17.494	/	Pass
		2462	1	17.582	/	Pass
802.11n (HT20)	SISO	2412	1	18.249	/	Pass
		2437	1	18.301	/	Pass
		2462	1	18.380	/	Pass
802.11n (HT40)	SISO	2422	1	36.430	/	Pass
		2437	1	36.627	/	Pass
		2452	1	36.582	/	Pass

2.1.2 6dB BW

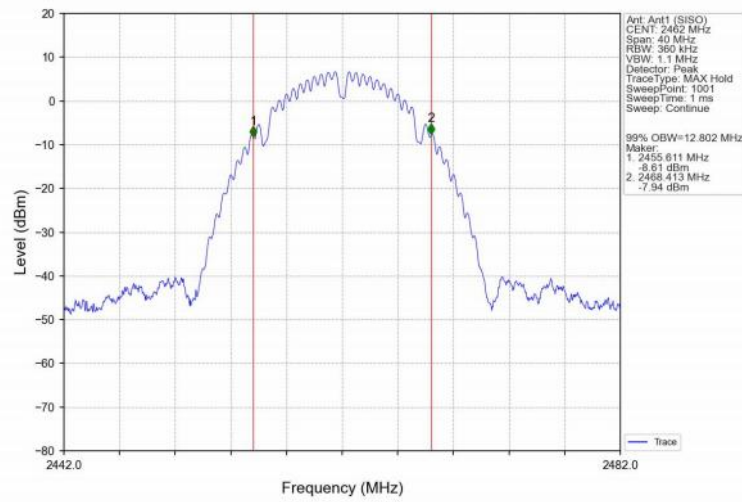
Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	8.235	≥ 0.5	Pass
		2437	1	8.236	≥ 0.5	Pass
		2462	1	8.241	≥ 0.5	Pass
802.11g	SISO	2412	1	16.224	≥ 0.5	Pass
		2437	1	16.252	≥ 0.5	Pass
		2462	1	16.280	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	17.192	≥ 0.5	Pass
		2437	1	17.292	≥ 0.5	Pass
		2462	1	17.237	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	35.709	≥ 0.5	Pass
		2437	1	35.630	≥ 0.5	Pass
		2452	1	35.234	≥ 0.5	Pass

2.2 Test Graph

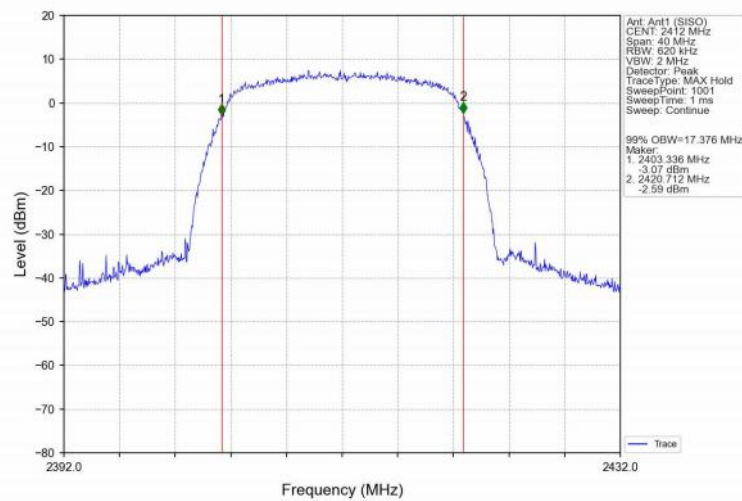
2.2.1 OBW



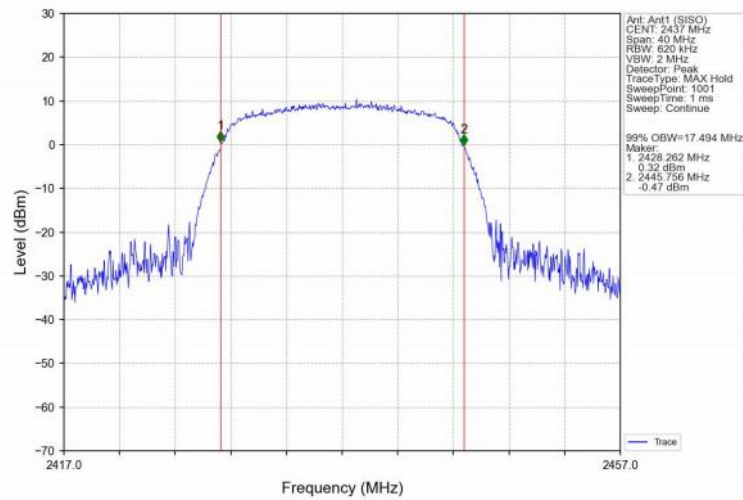
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



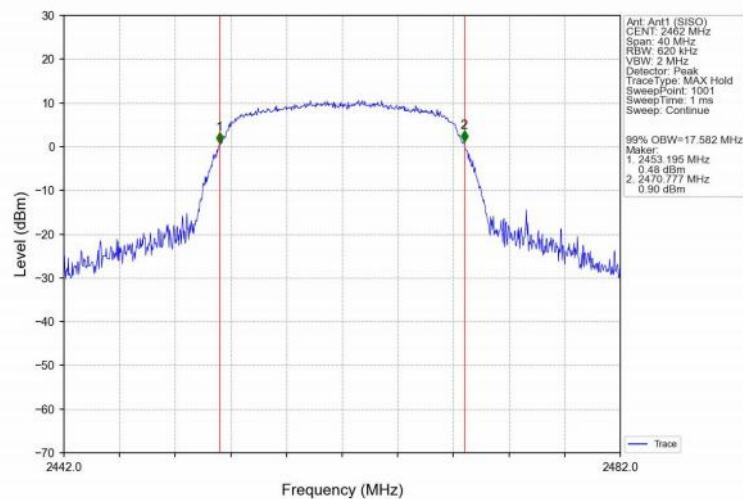
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



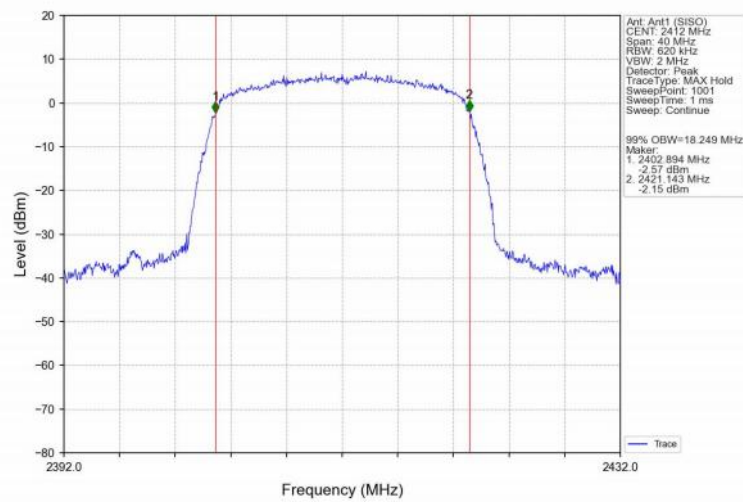
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



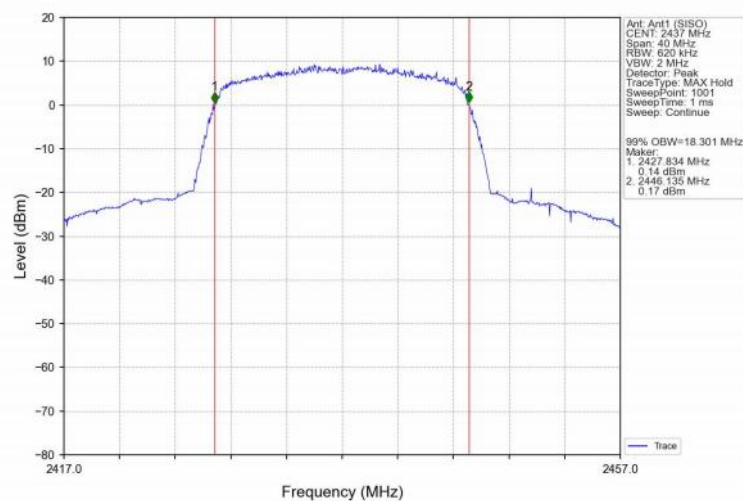
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



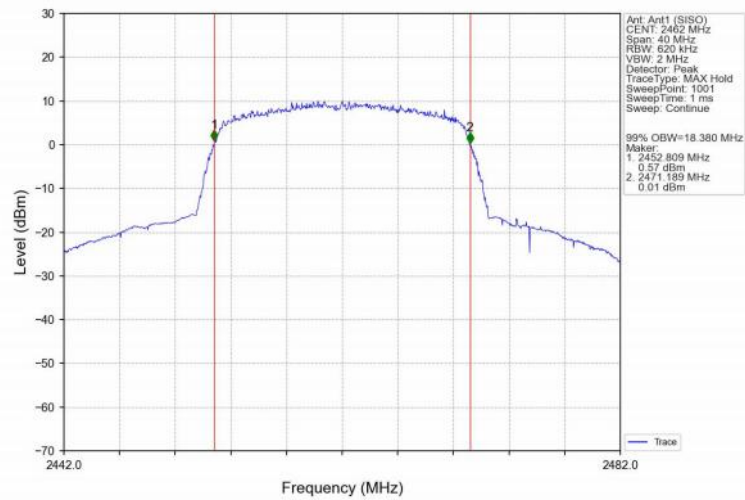
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



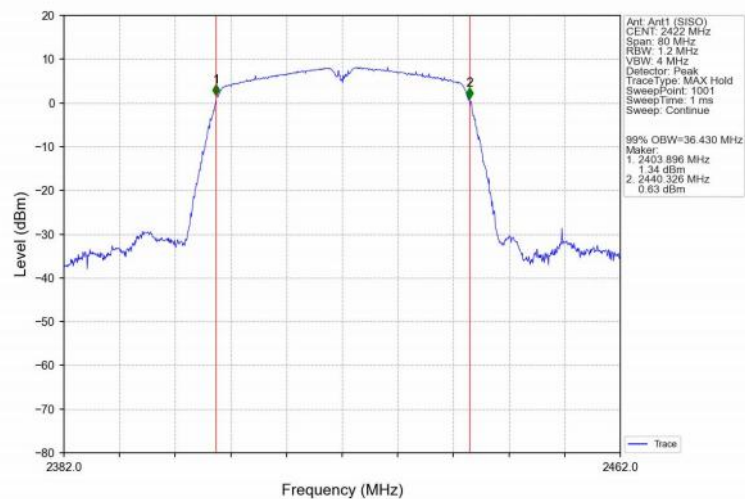
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



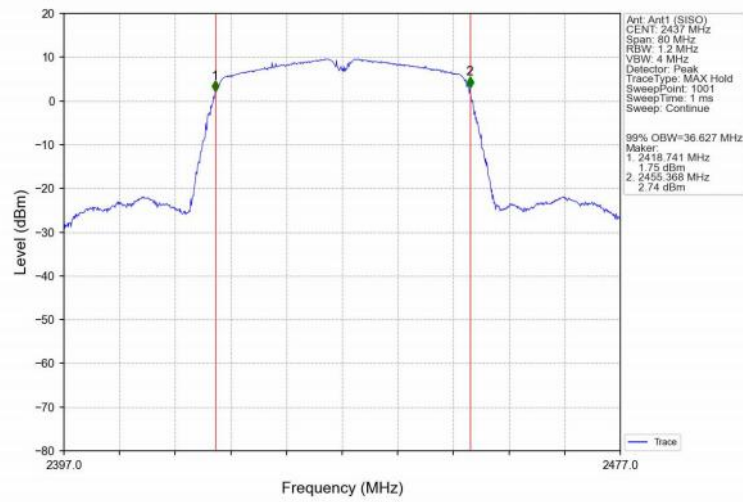
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



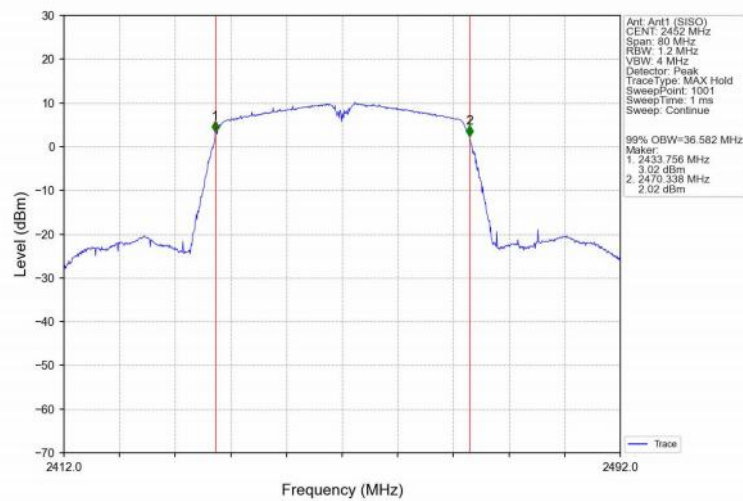
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV

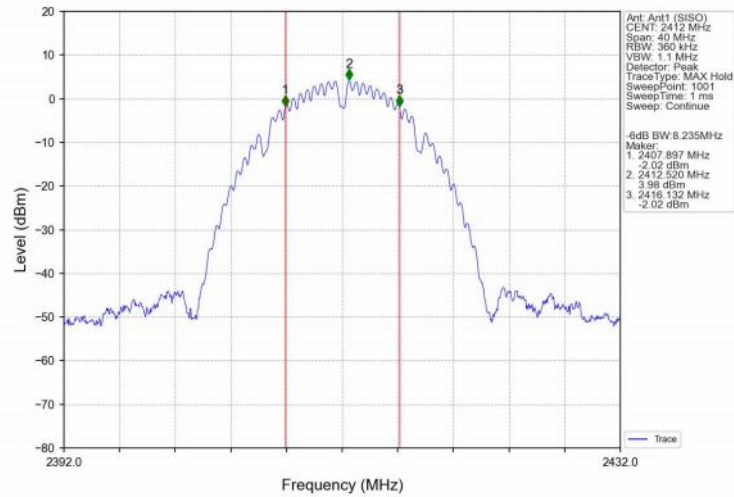


802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV

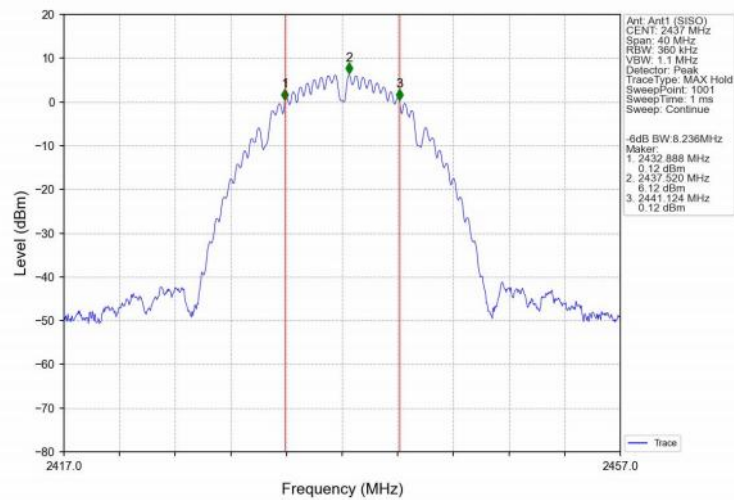


2.2.2 6dB BW

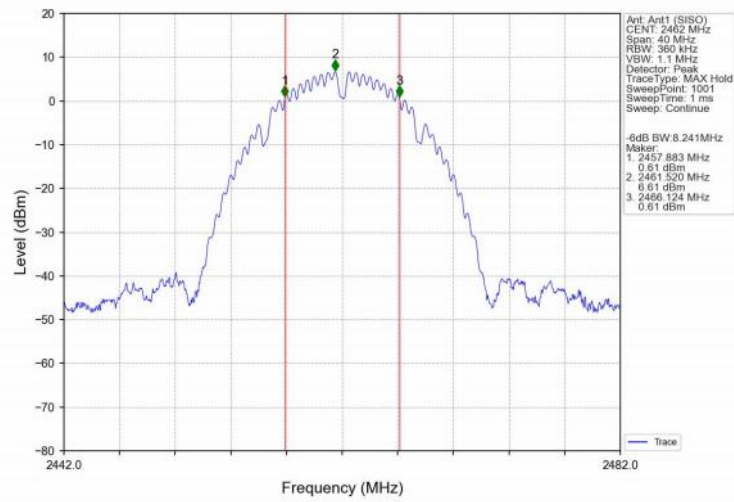
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



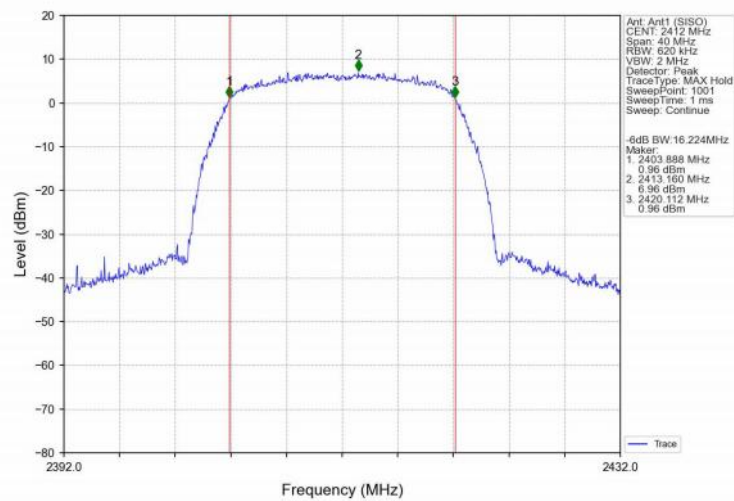
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



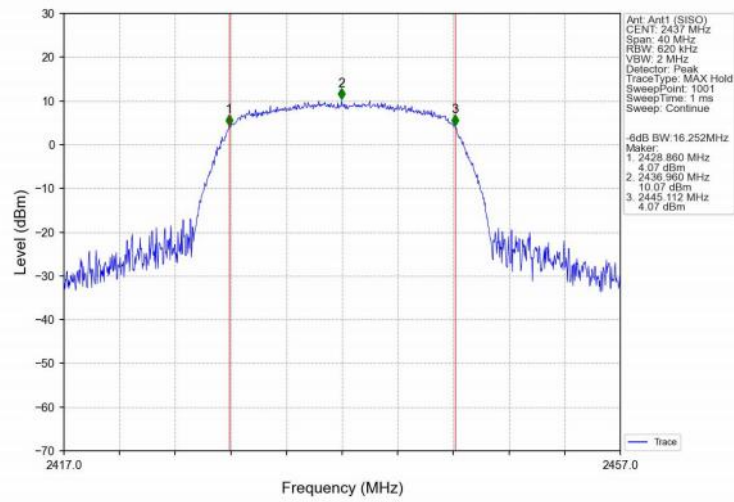
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



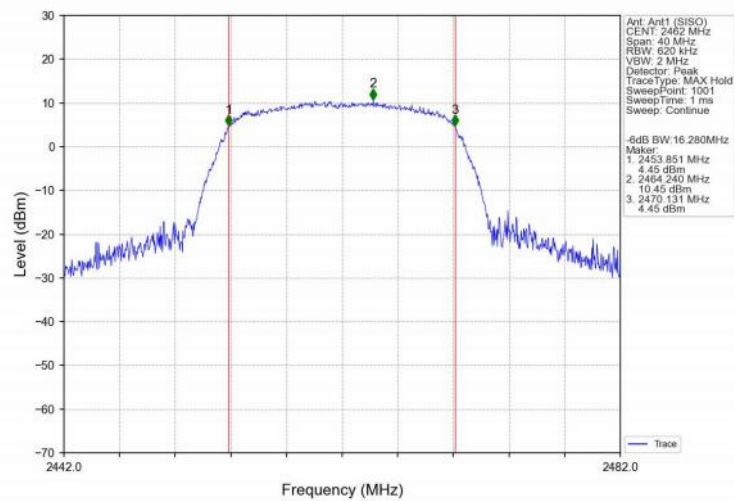
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



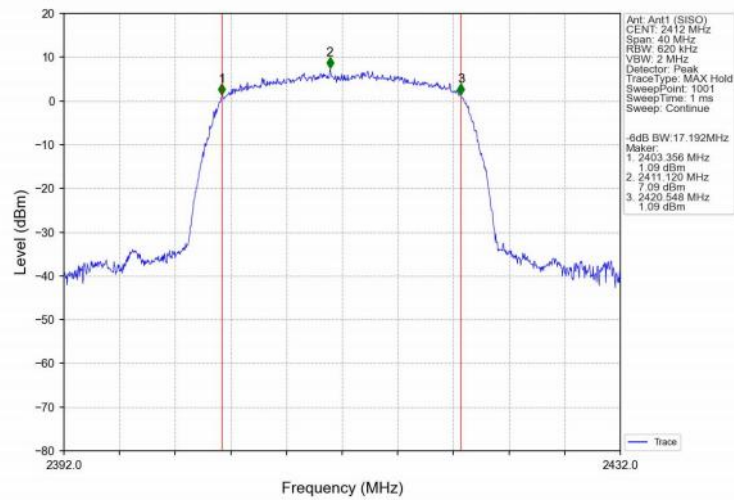
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



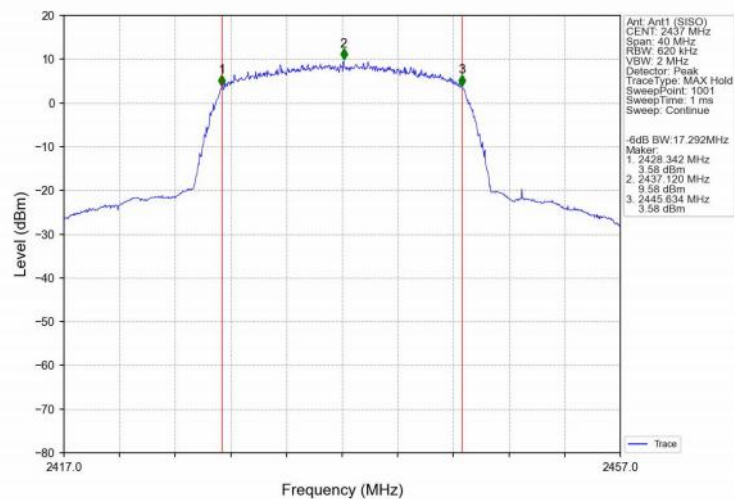
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



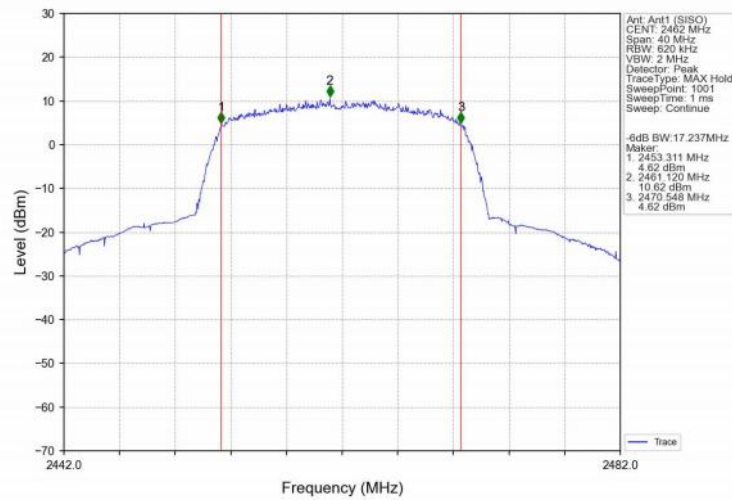
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



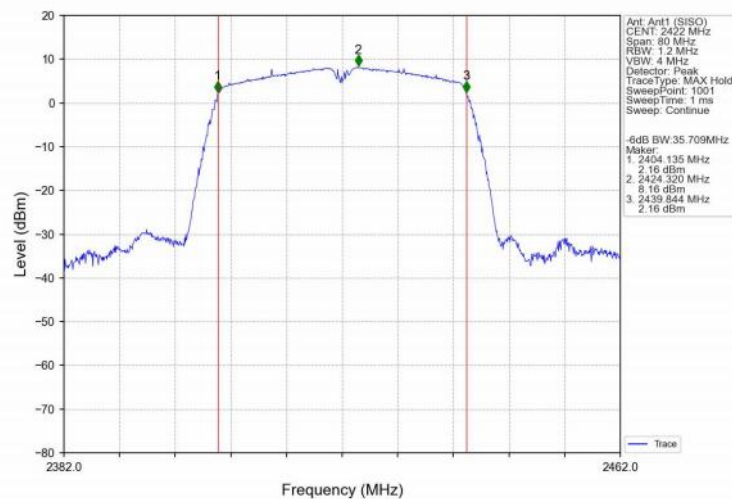
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



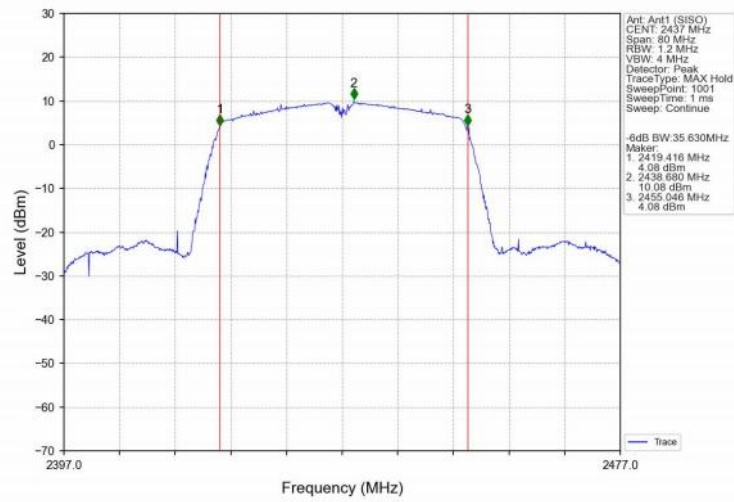
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



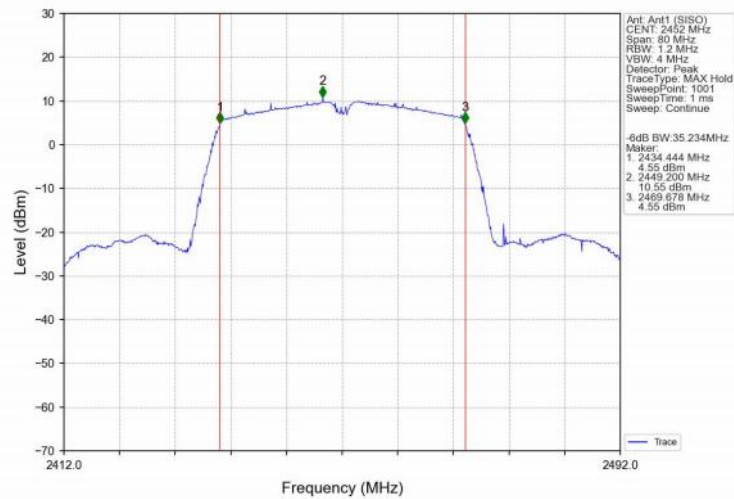
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



3. Maximum Conducted Output Power

3.1 Test Result

3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	11.63	<=30	Pass
		2437	13.77	<=30	Pass
		2462	14.30	<=30	Pass
802.11g	SISO	2412	11.60	<=30	Pass
		2437	13.90	<=30	Pass
		2462	14.64	<=30	Pass
802.11n (HT20)	SISO	2412	11.28	<=30	Pass
		2437	13.71	<=30	Pass
		2462	14.52	<=30	Pass
802.11n (HT40)	SISO	2422	12.14	<=30	Pass
		2437	13.63	<=30	Pass
		2452	13.82	<=30	Pass

Note1: Antenna Gain: Ant1: 2.00dBi;

4. Maximum Power Spectral Density

4.1 Test Result

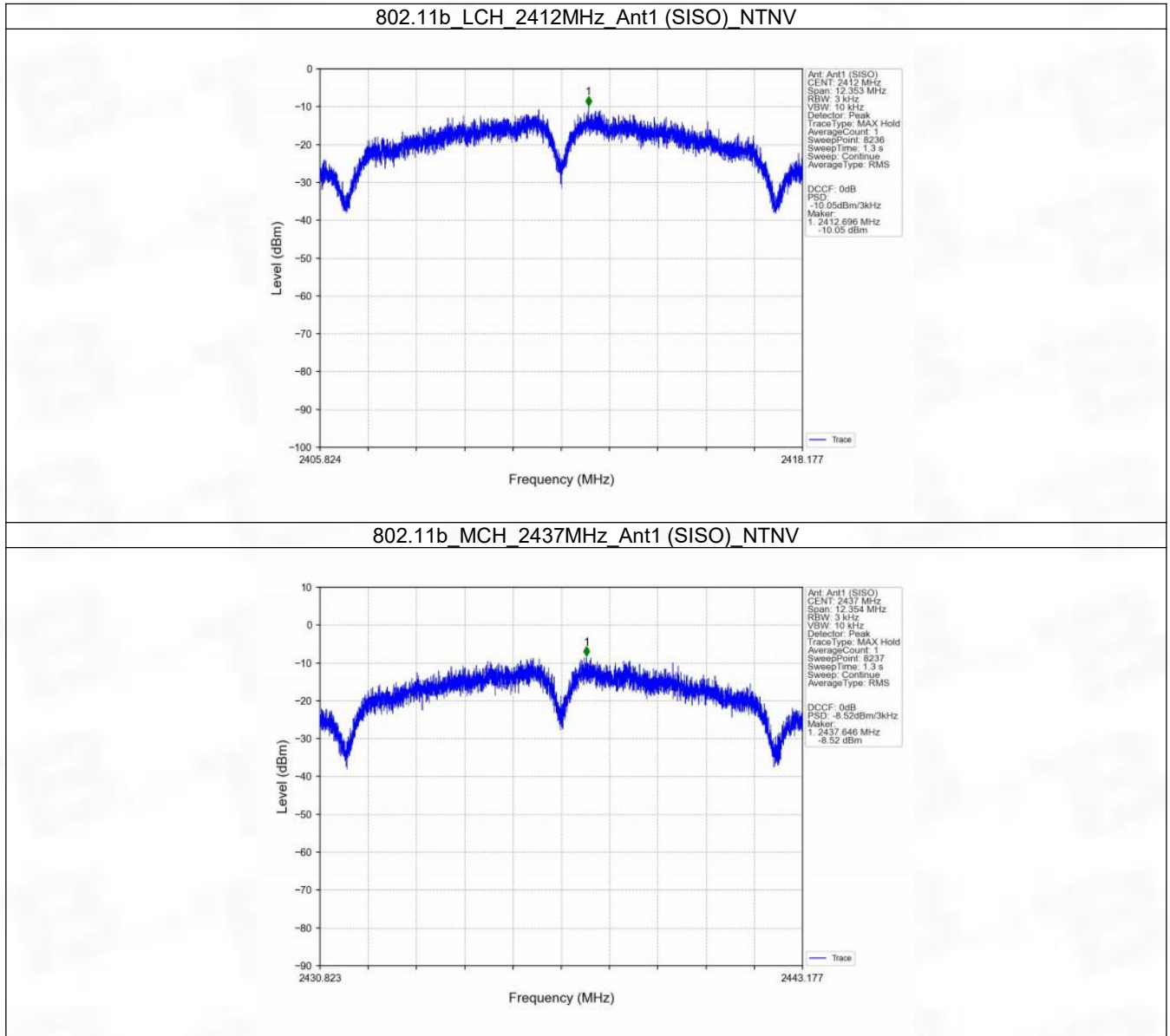
4.1.1 PSD

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-10.05	<=8	Pass
		2437	-8.52	<=8	Pass
		2462	-7.10	<=8	Pass
802.11g	SISO	2412	-12.99	<=8	Pass
		2437	-9.05	<=8	Pass
		2462	-9.65	<=8	Pass
802.11n (HT20)	SISO	2412	-12.91	<=8	Pass
		2437	-11.20	<=8	Pass
		2462	-10.13	<=8	Pass
802.11n (HT40)	SISO	2422	-15.37	<=8	Pass
		2437	-13.70	<=8	Pass
		2452	-12.97	<=8	Pass

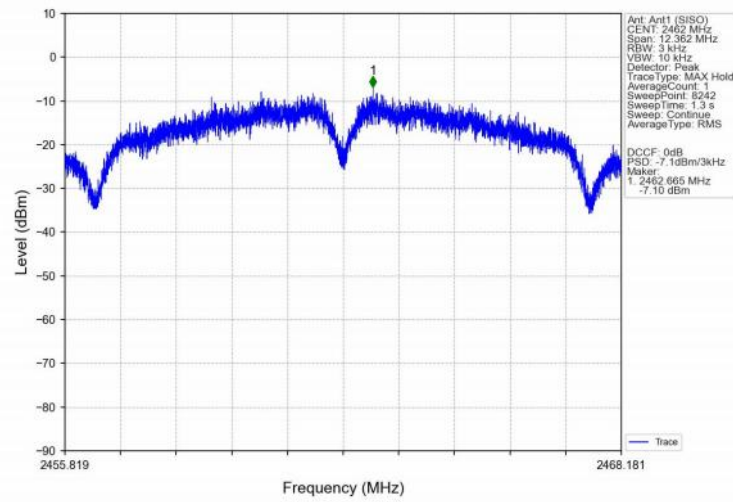
Note1: Antenna Gain: Ant1: 2.00dBi;

4.2 Test Graph

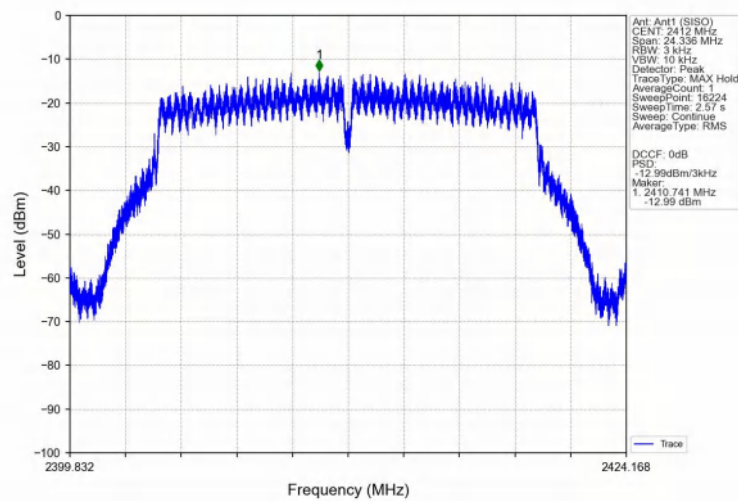
4.2.1 PSD



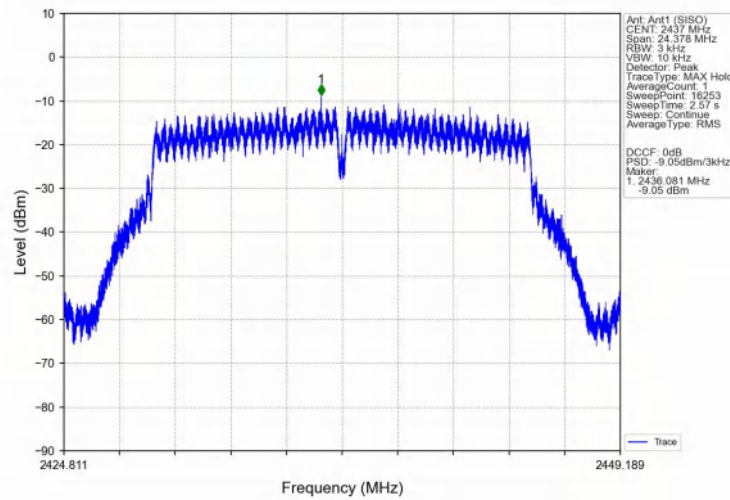
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



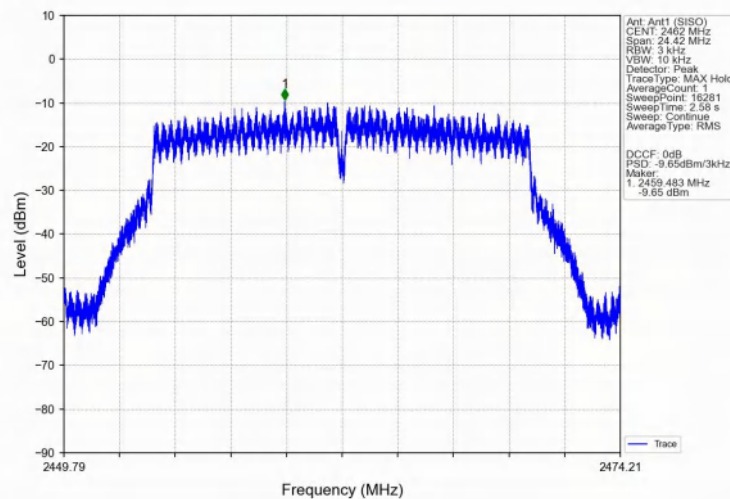
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



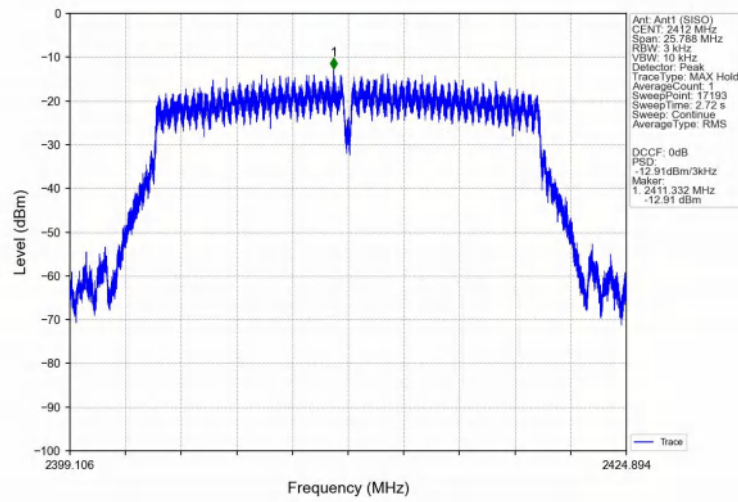
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



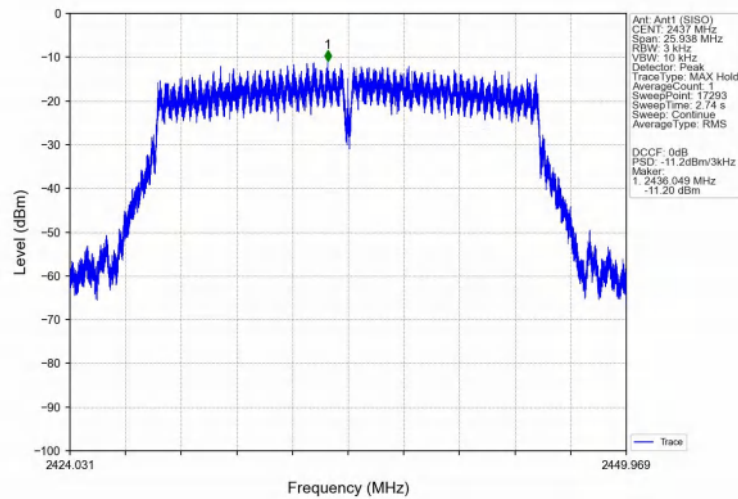
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



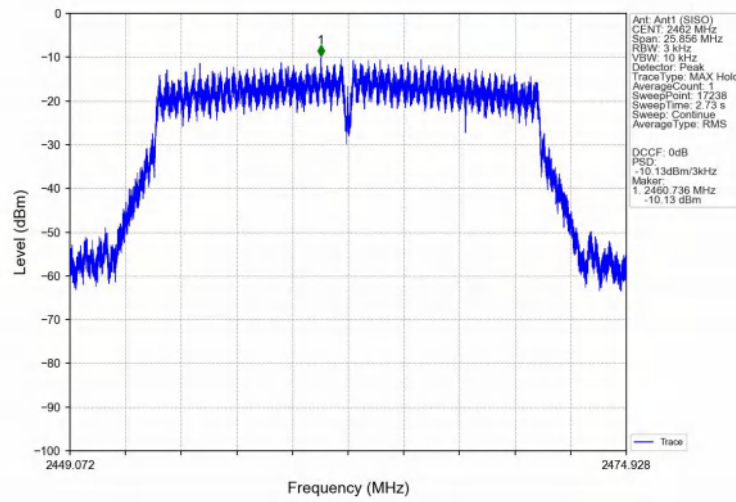
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



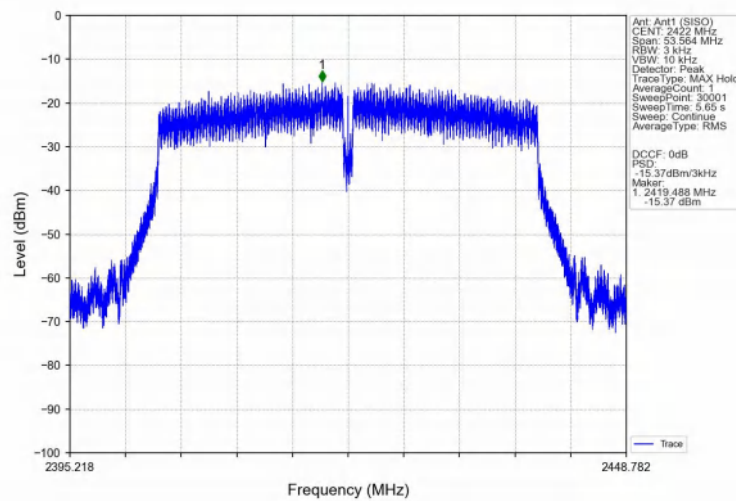
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



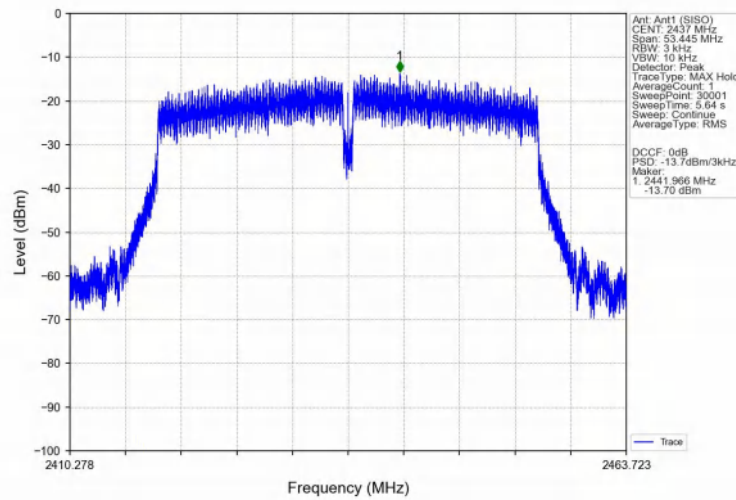
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



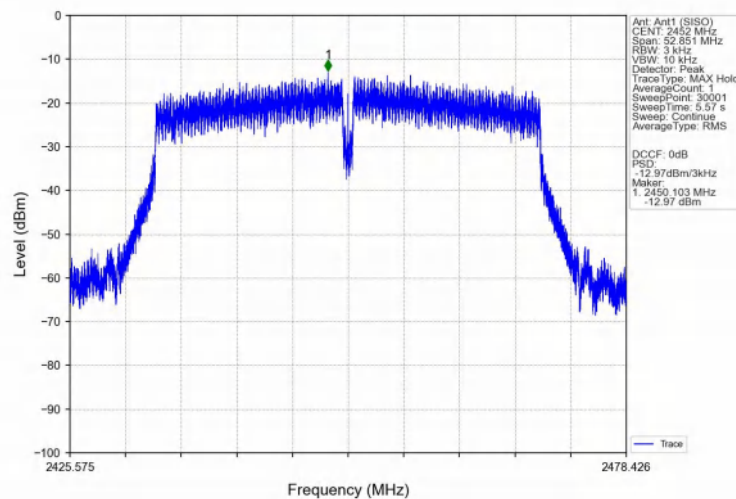
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Test Result

5.1.1 Ref

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
802.11b	SISO	2412	1	3.57
		2437	1	5.69
		2462	1	6.29
802.11g	SISO	2412	1	0.54
		2437	1	3.71
		2462	1	3.86
802.11n (HT20)	SISO	2412	1	1.14
		2437	1	3.65
		2462	1	4.40
802.11n (HT40)	SISO	2422	1	-0.98
		2437	1	0.50
		2452	1	0.70

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.

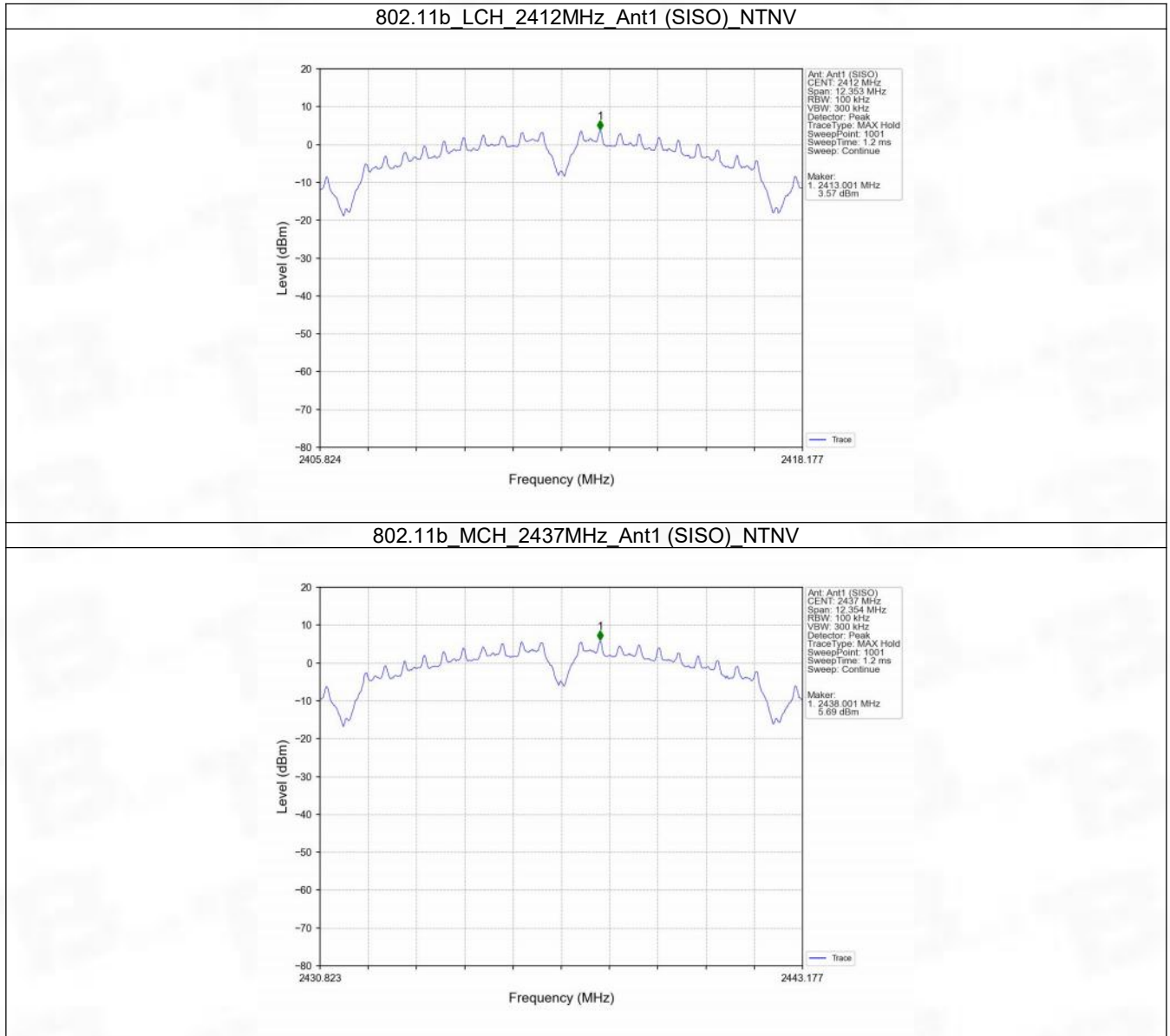
5.1.2 CSE

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	6.29	-23.71	Pass
		2437	1	6.29	-23.71	Pass
		2462	1	6.29	-23.71	Pass
802.11g	SISO	2412	1	3.86	-26.14	Pass
		2437	1	3.86	-26.14	Pass
		2462	1	3.86	-26.14	Pass
802.11n (HT20)	SISO	2412	1	4.40	-25.60	Pass
		2437	1	4.40	-25.60	Pass
		2462	1	4.40	-25.60	Pass
802.11n (HT40)	SISO	2422	1	0.70	-29.30	Pass
		2437	1	0.70	-29.30	Pass
		2452	1	0.70	-29.30	Pass

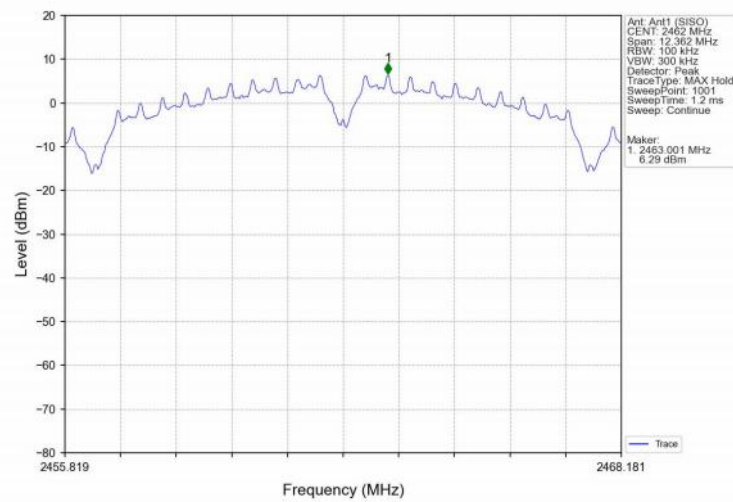
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

5.2 Test Graph

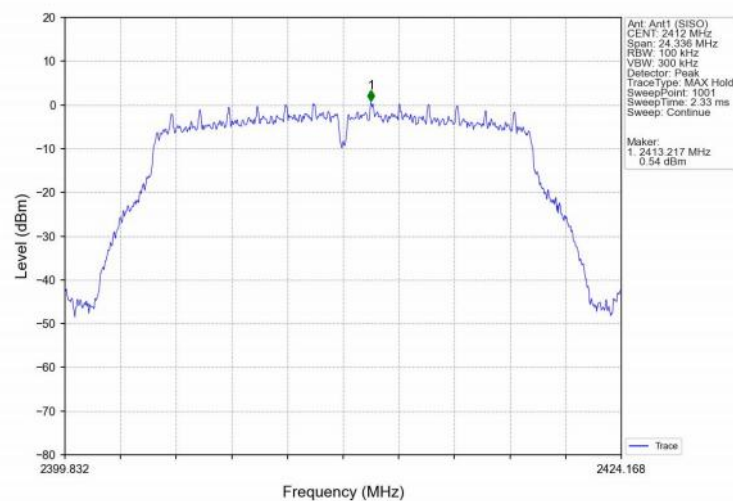
5.2.1 Ref



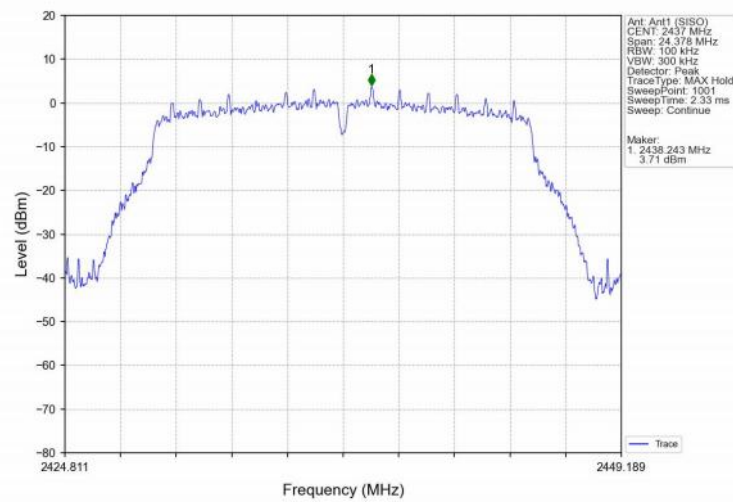
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



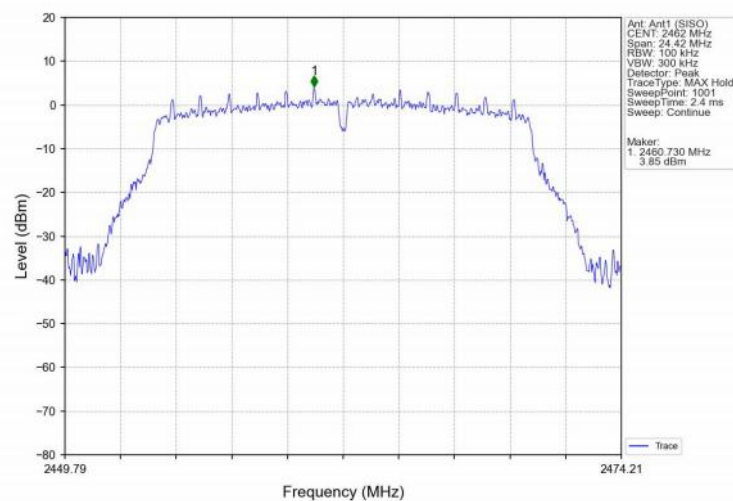
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



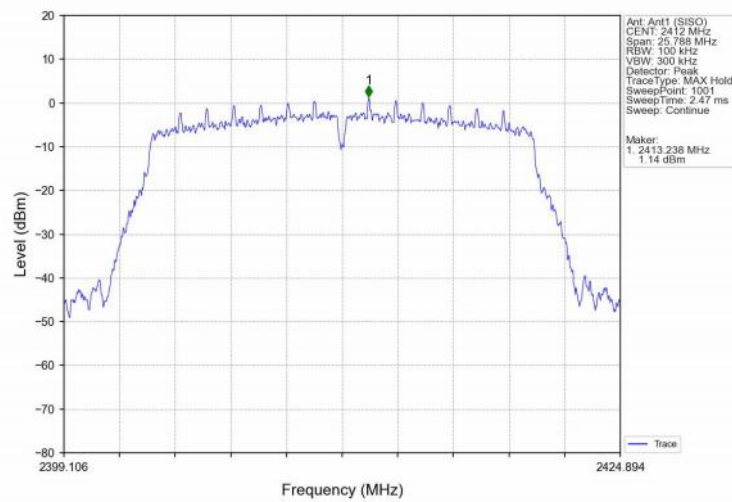
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



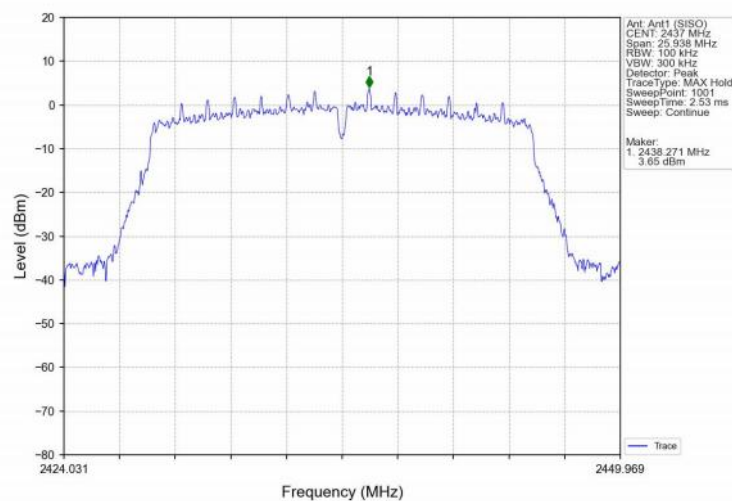
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



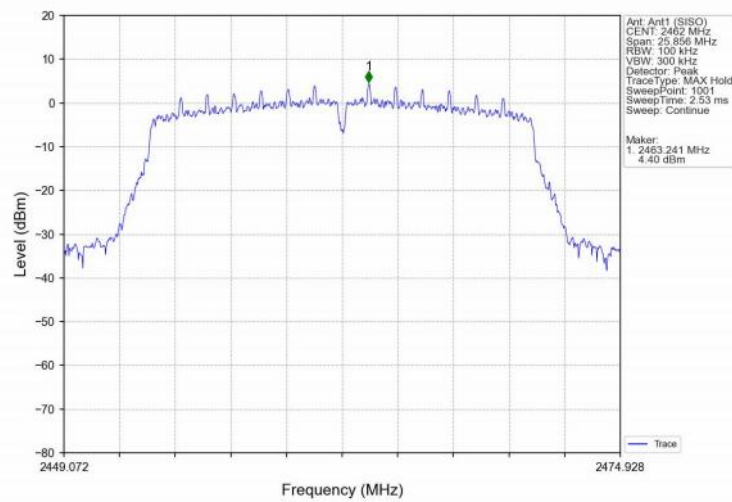
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



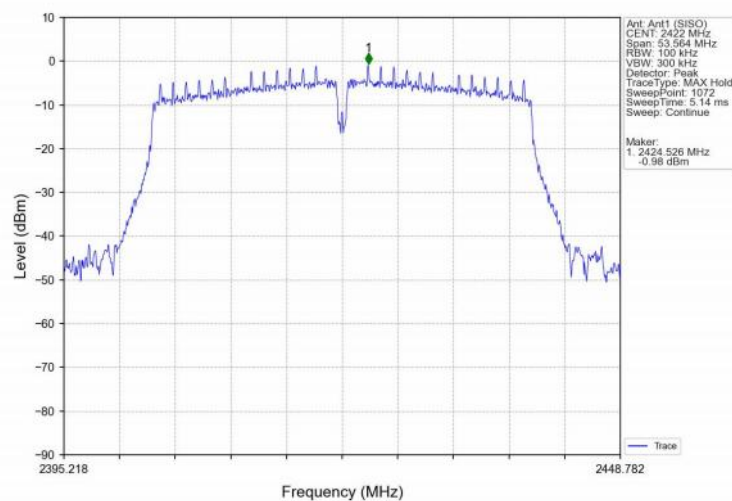
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



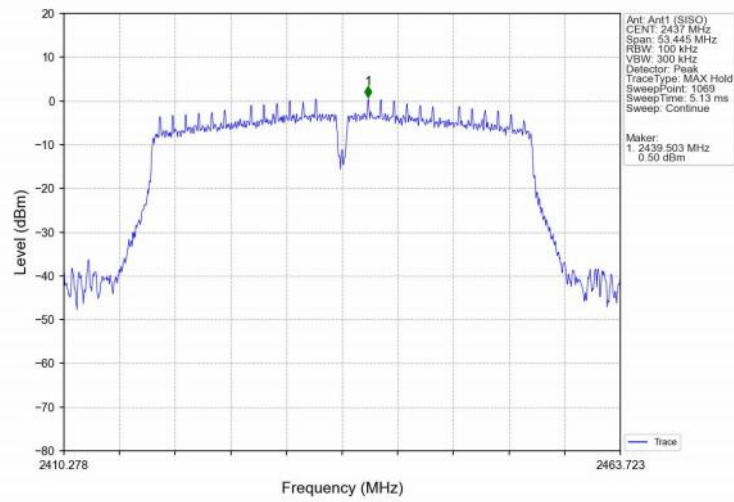
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



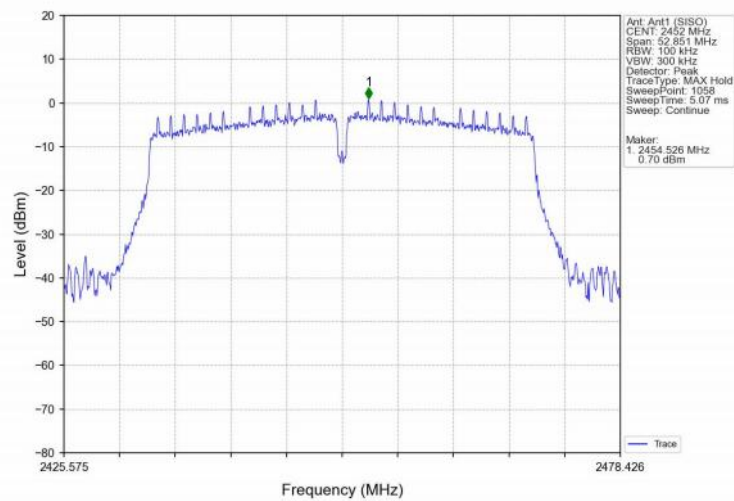
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV

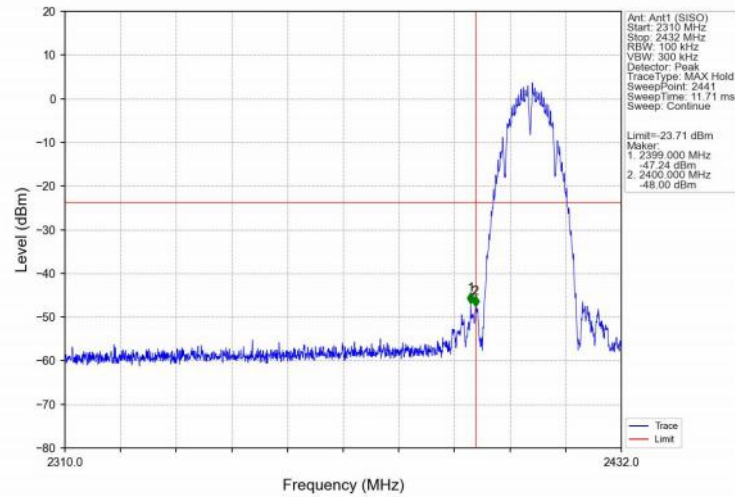


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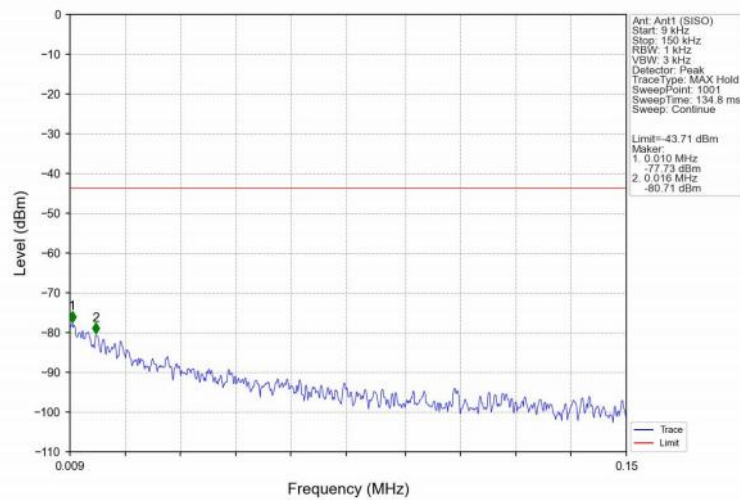


5.2.2 CSE

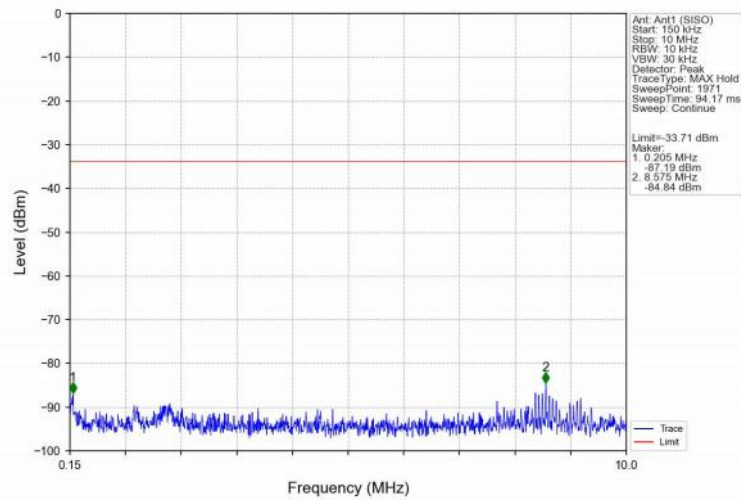
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



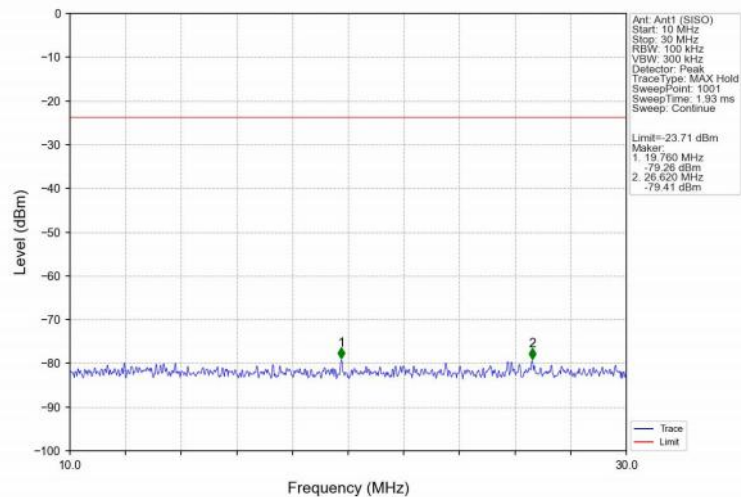
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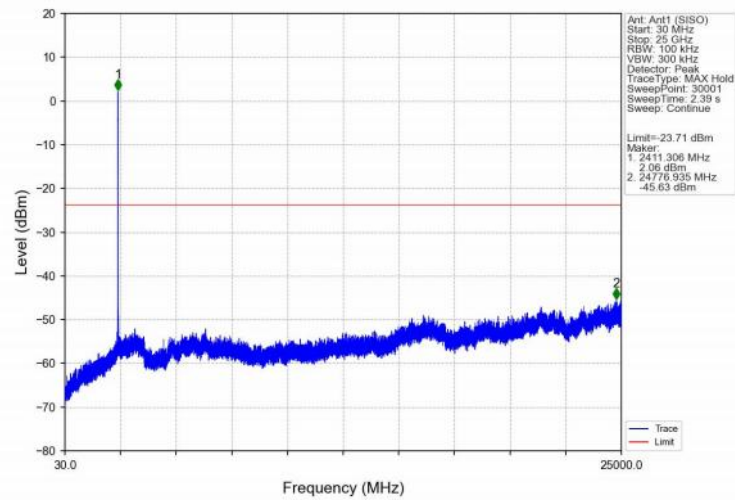
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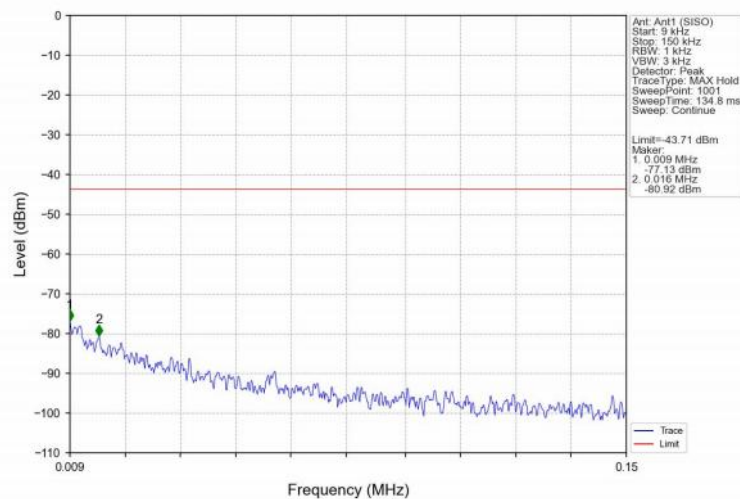
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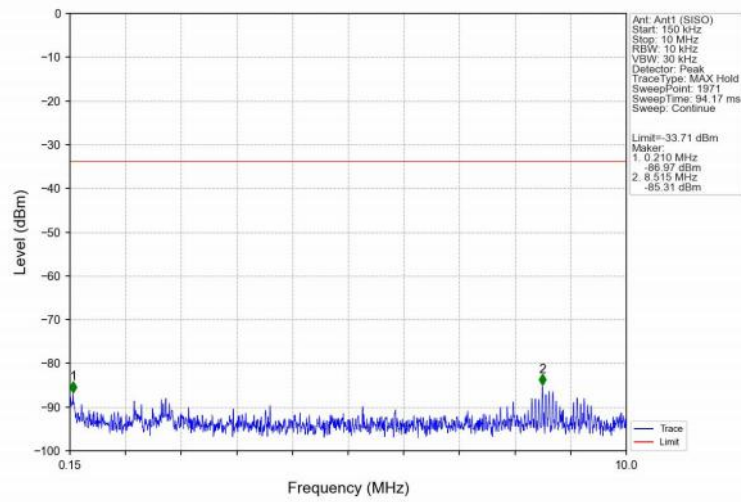
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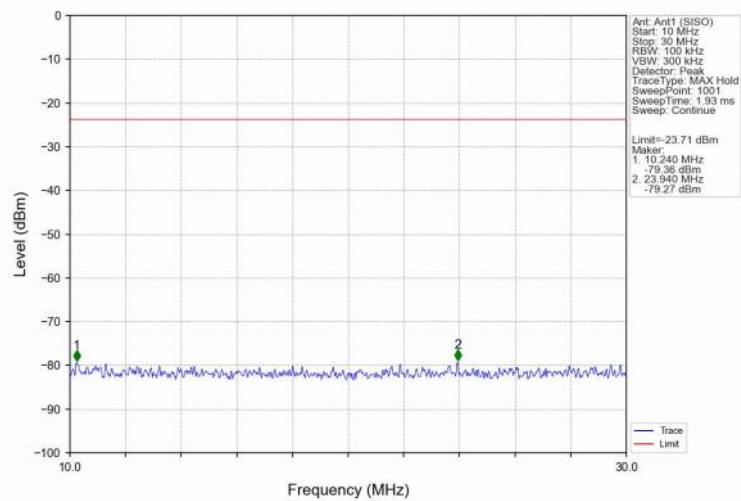
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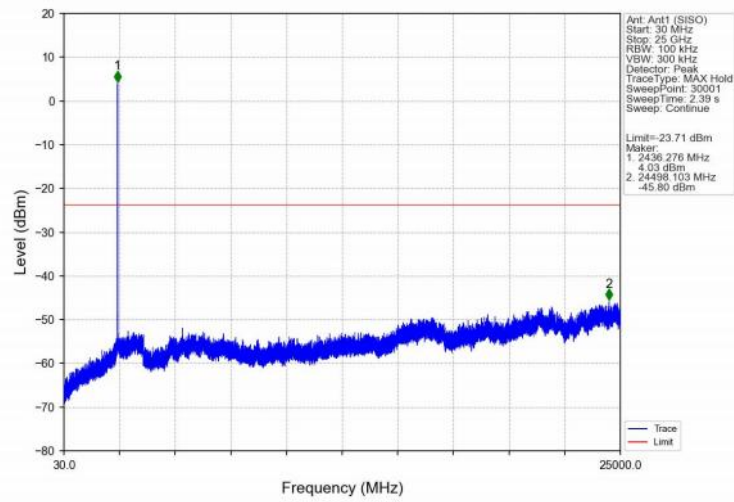
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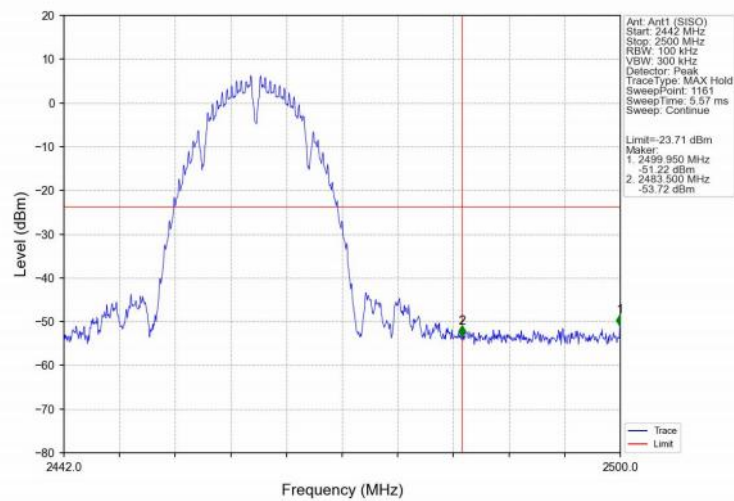
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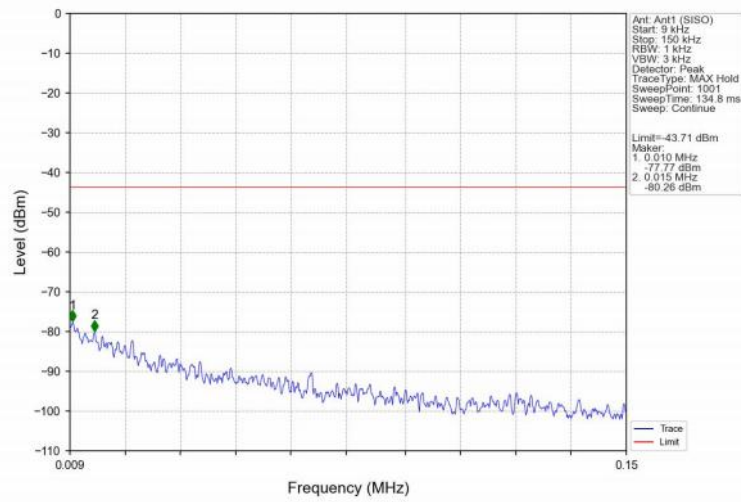
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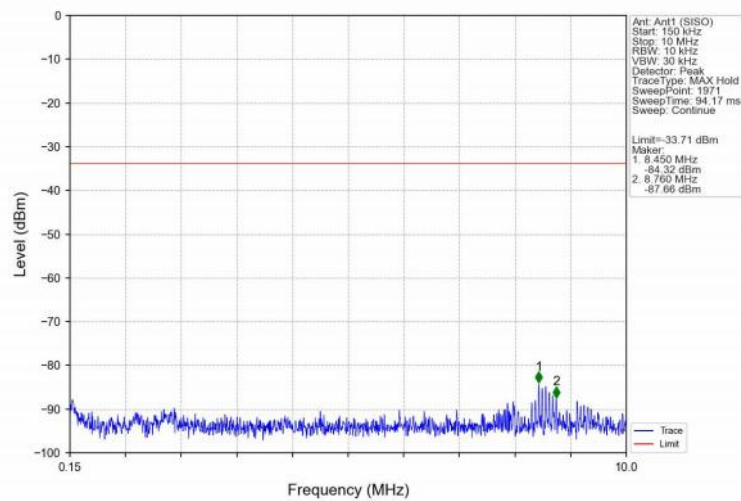
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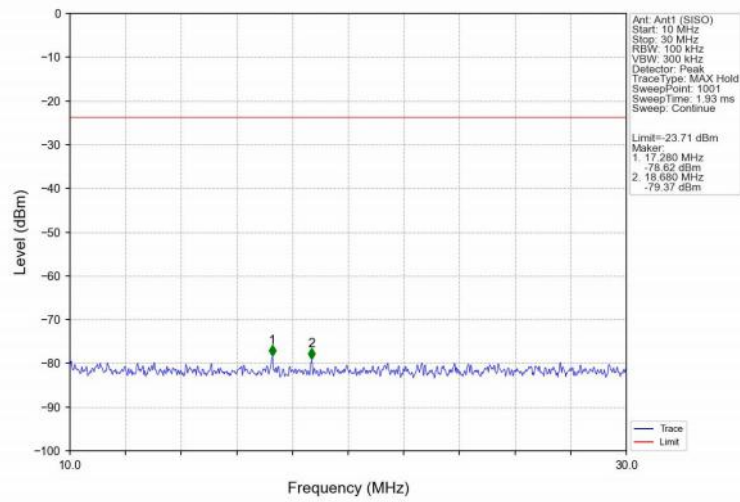
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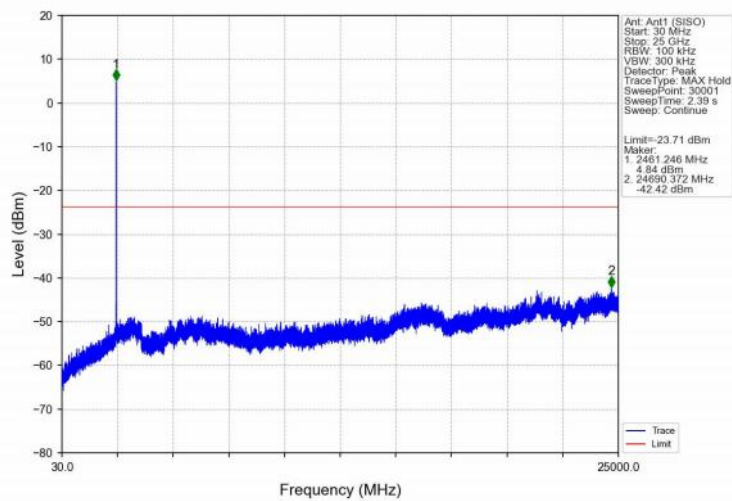
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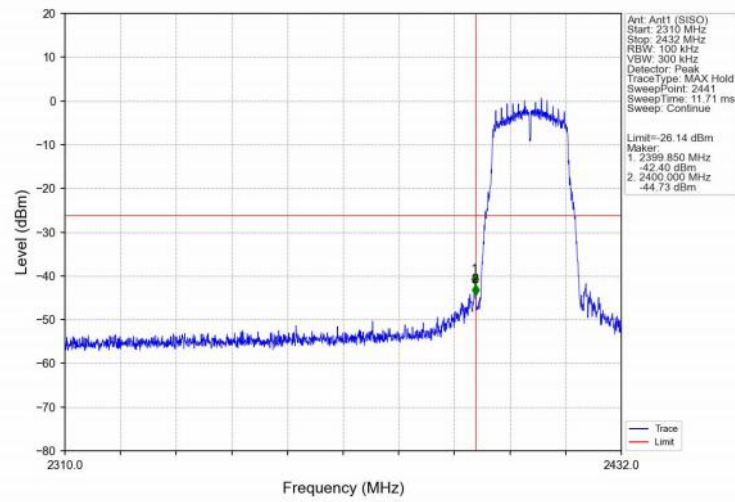
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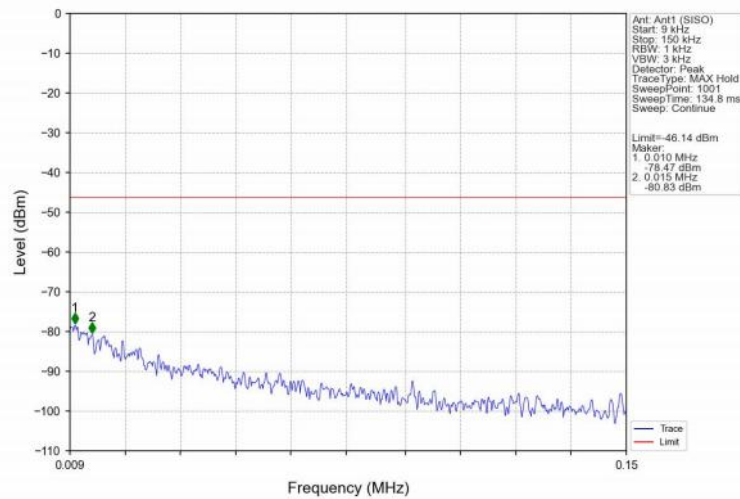
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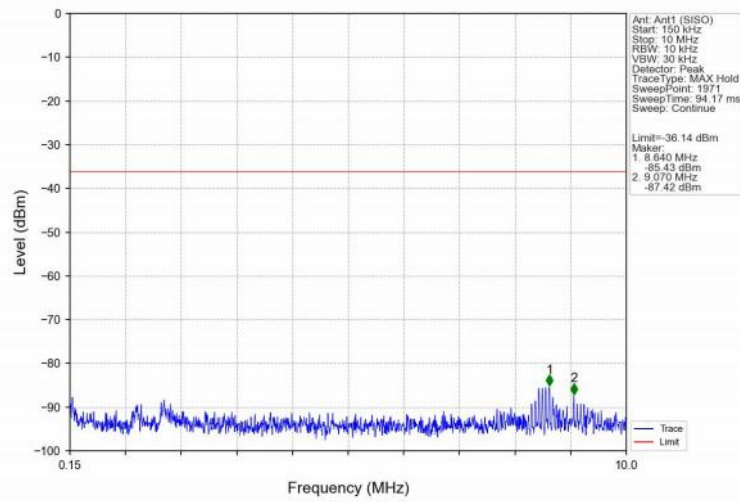
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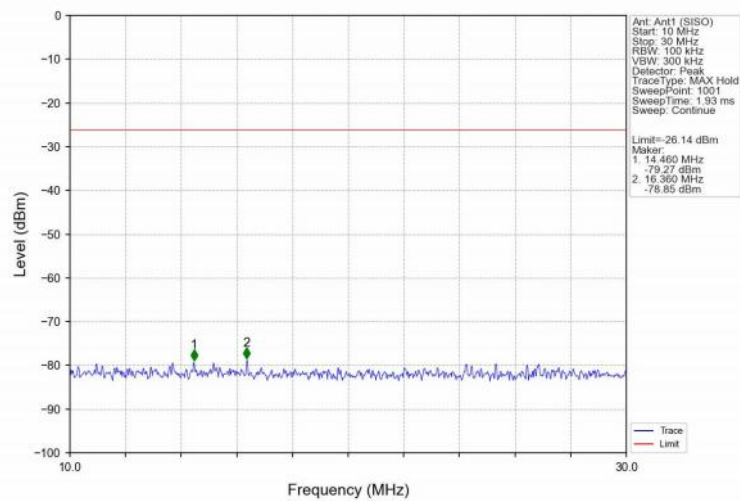
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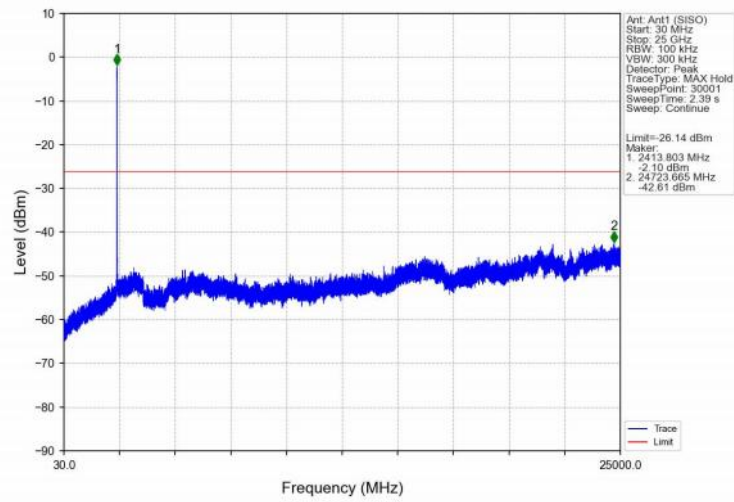
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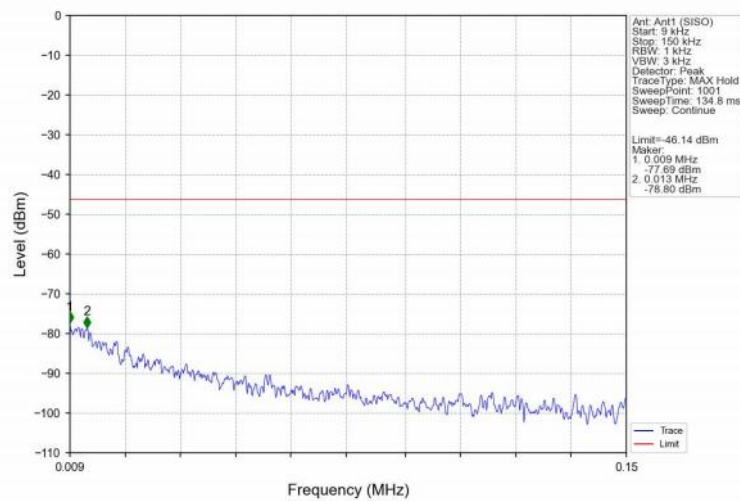
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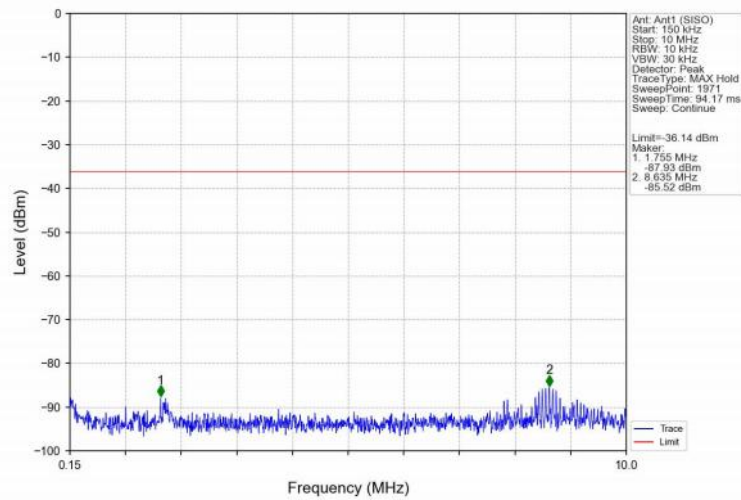
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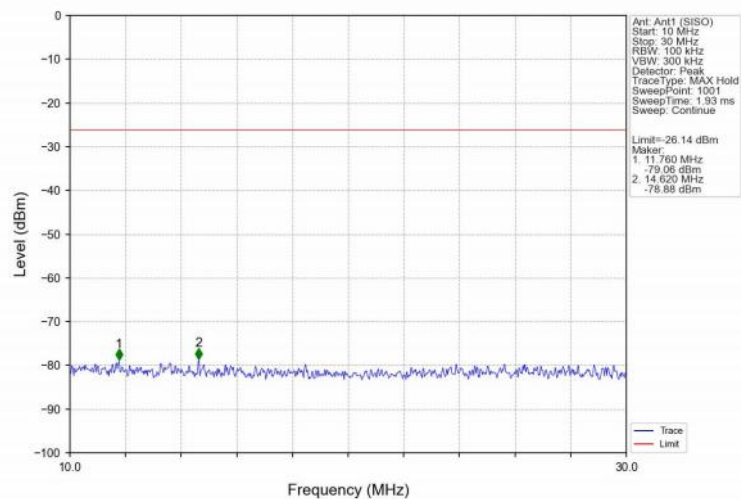
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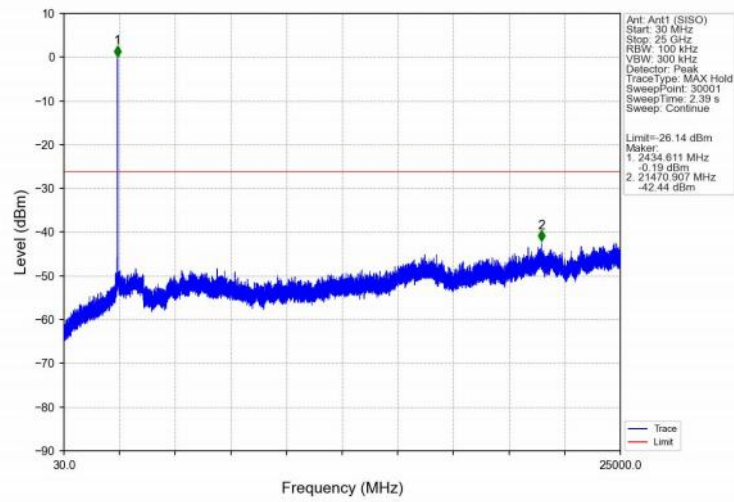
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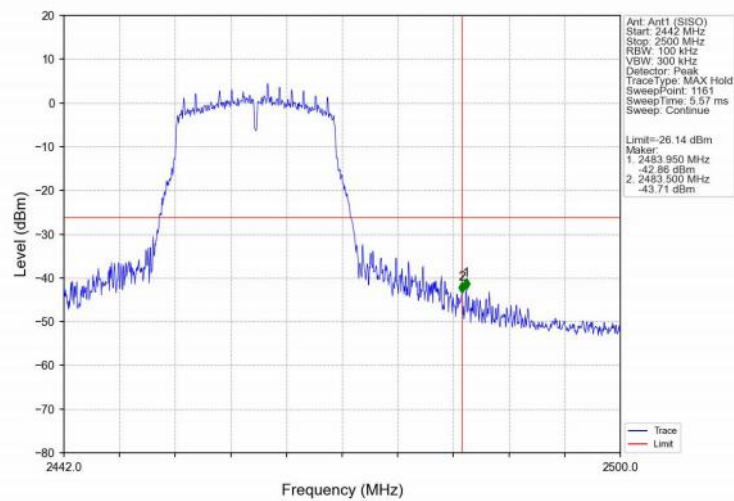
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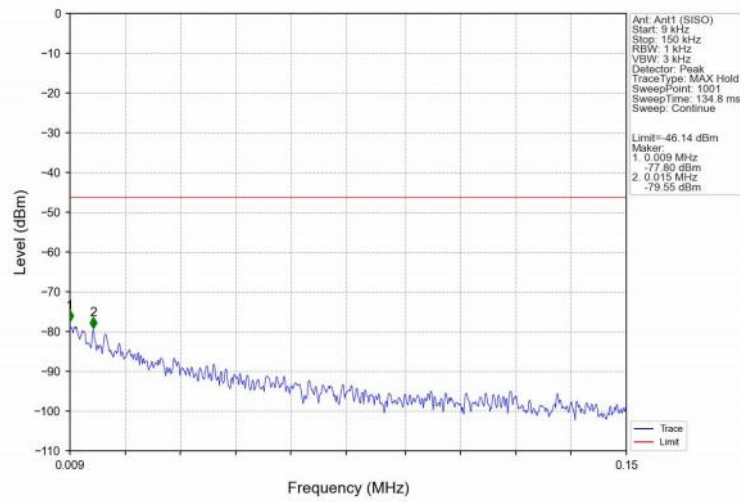
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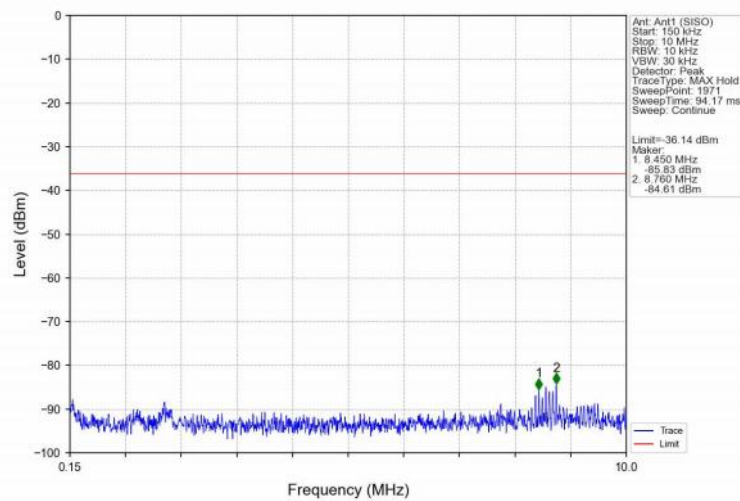
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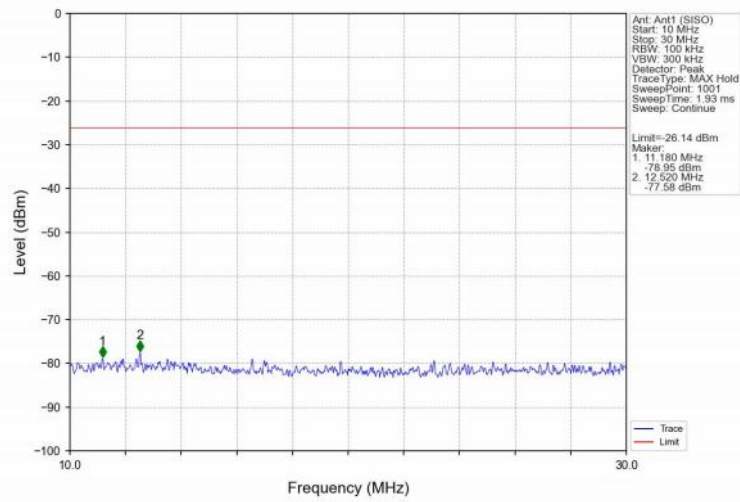
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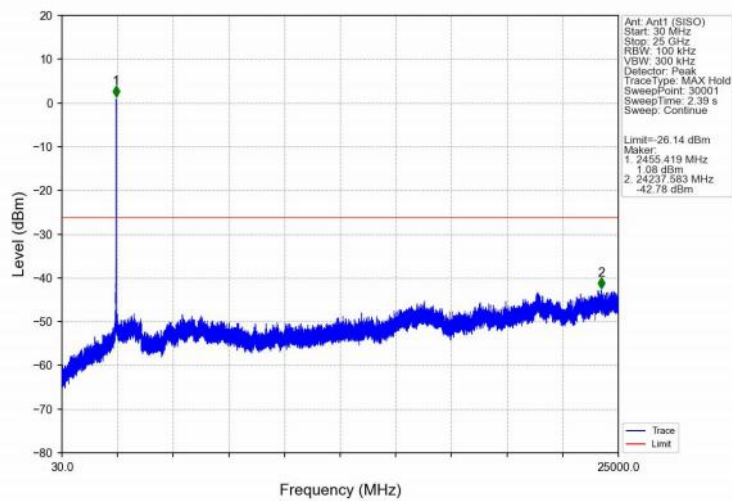
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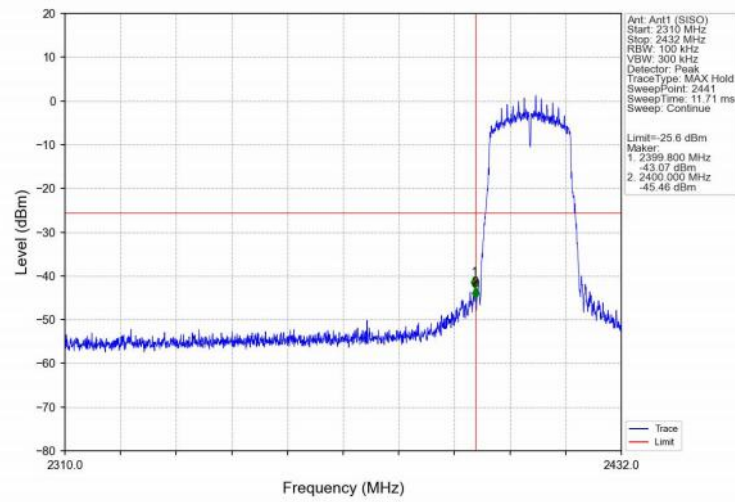
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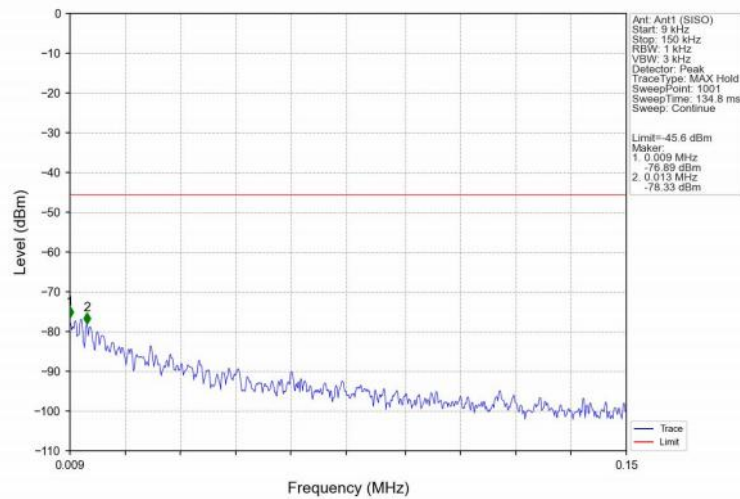
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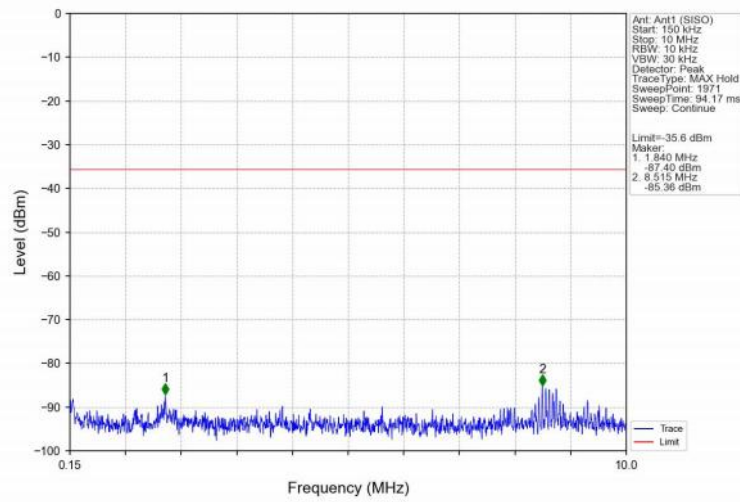
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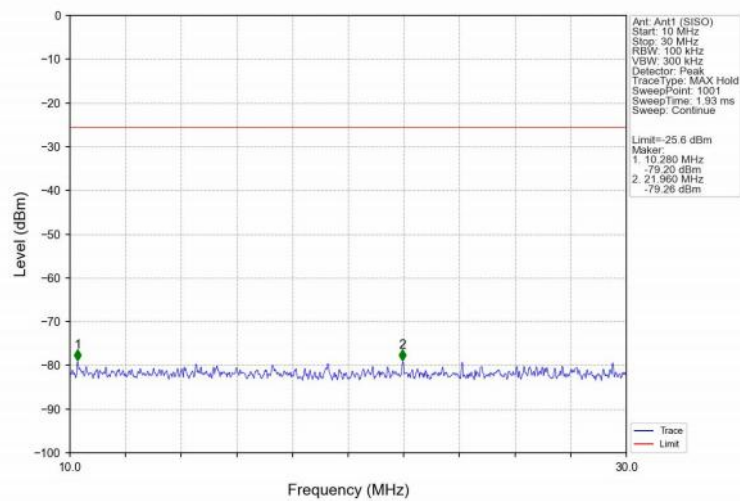
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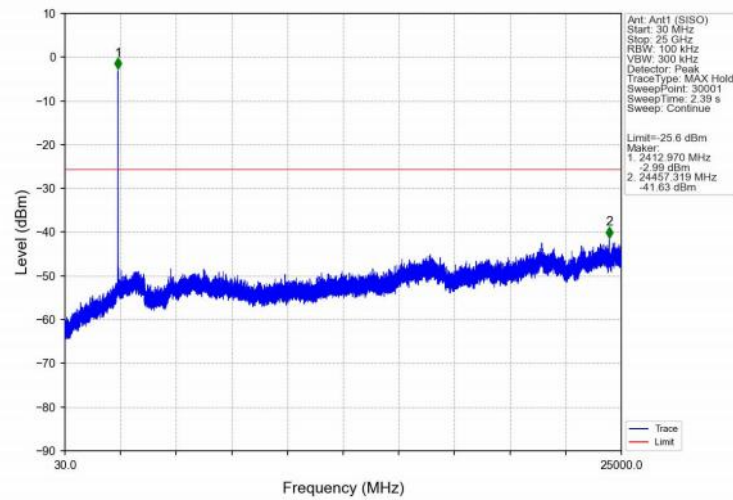
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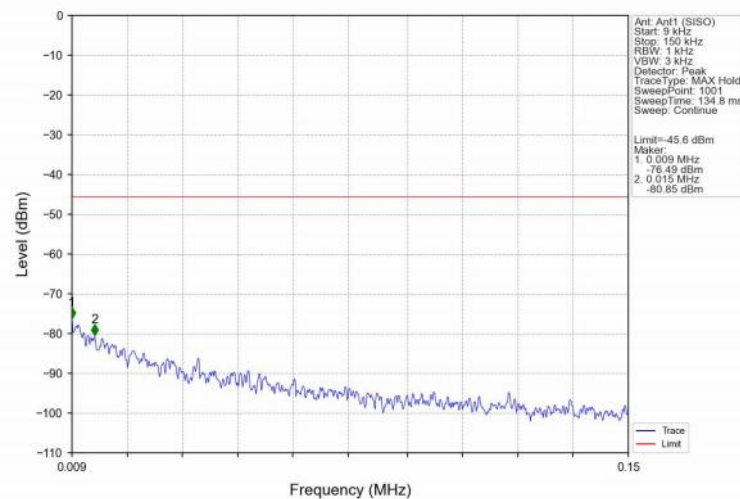
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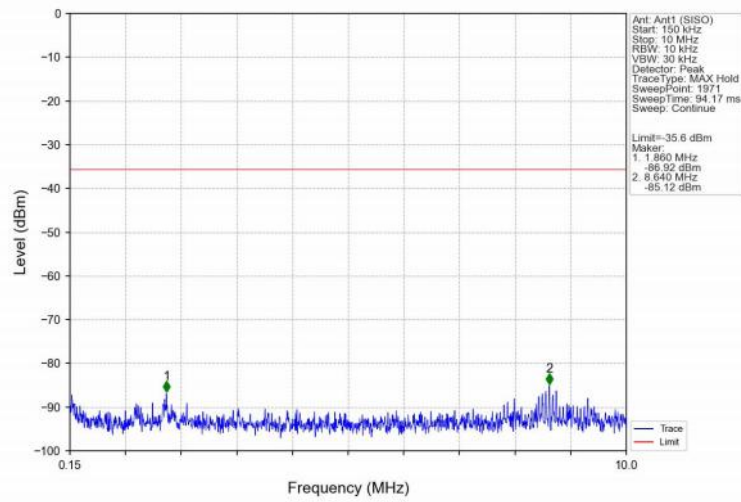
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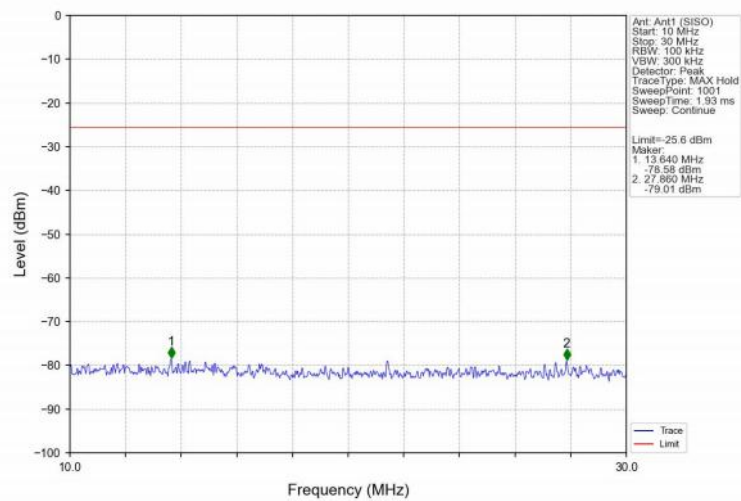
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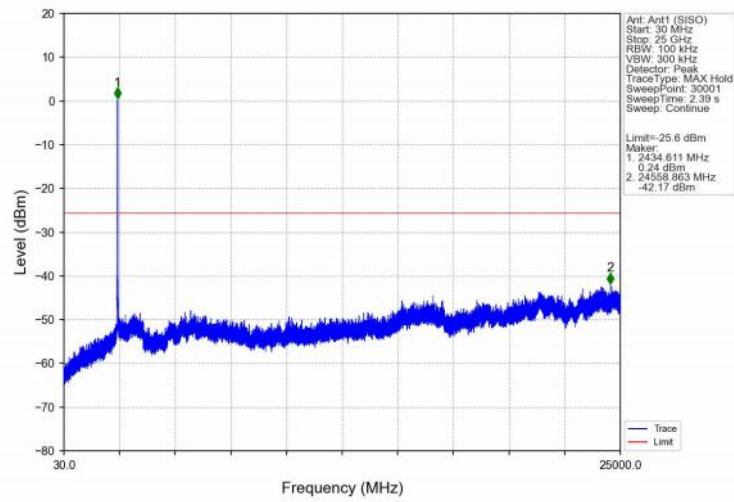
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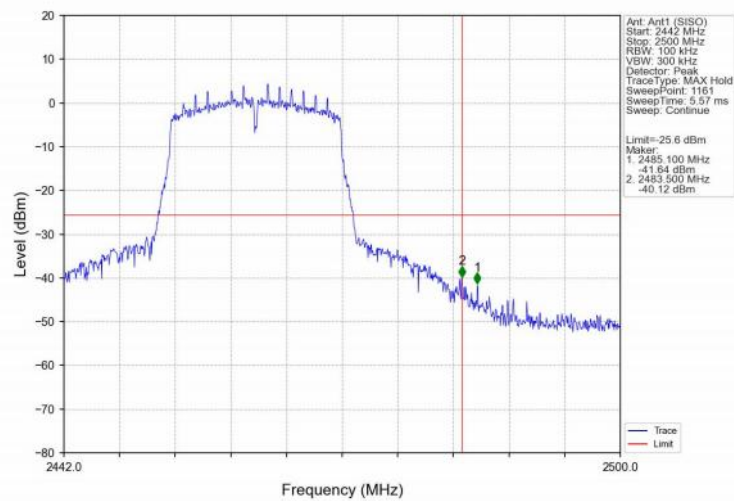
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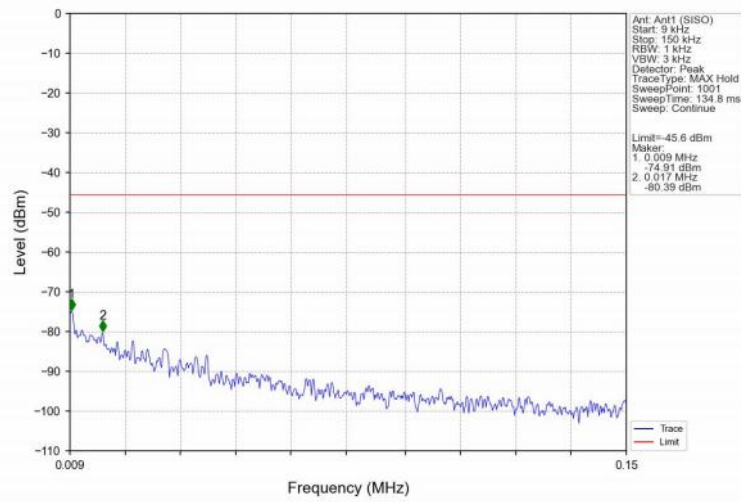
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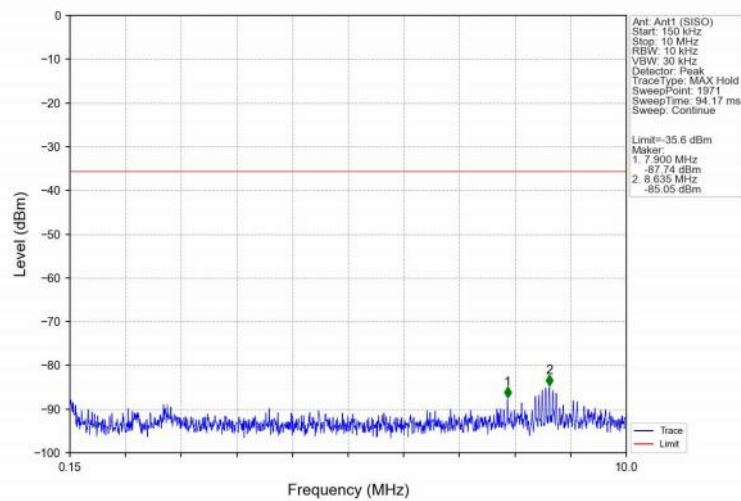
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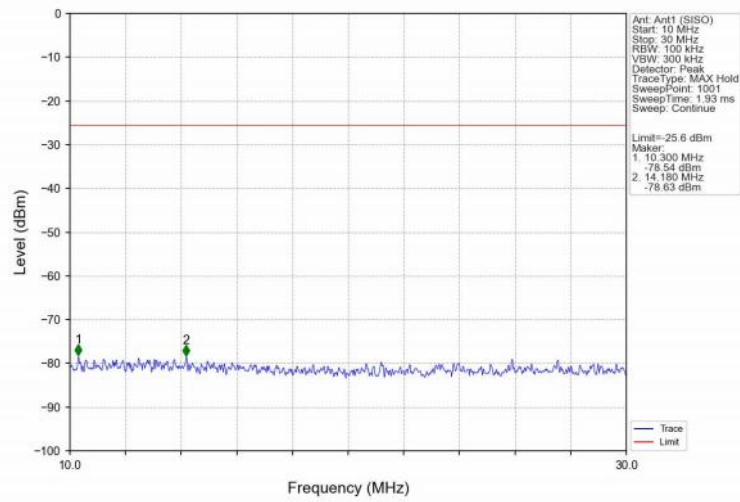
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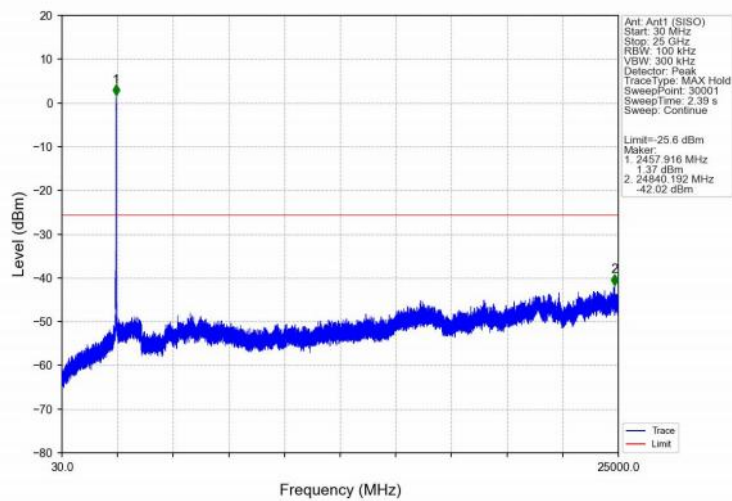
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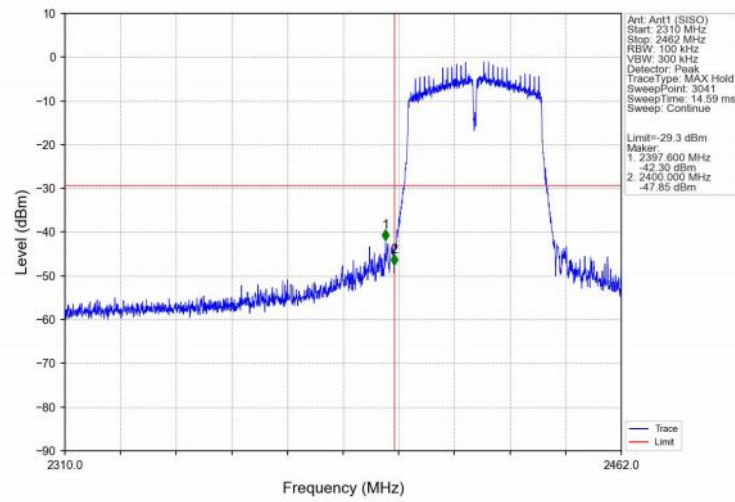
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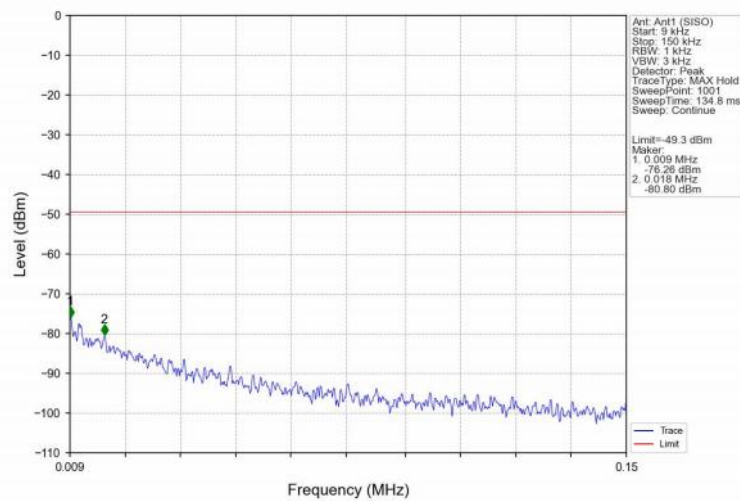
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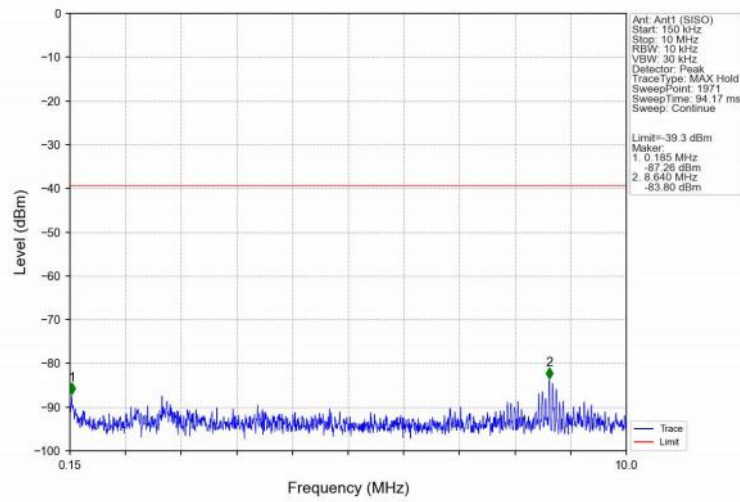
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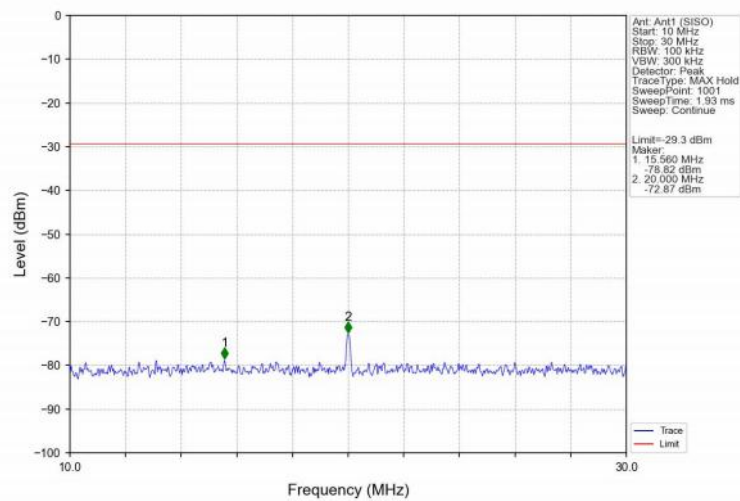
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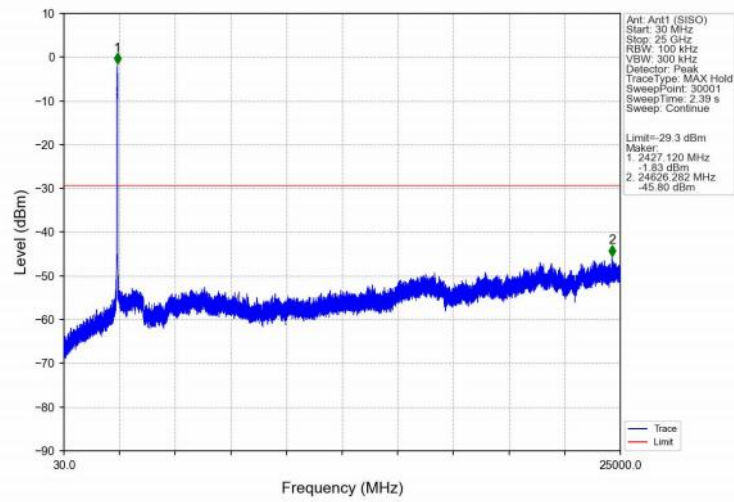
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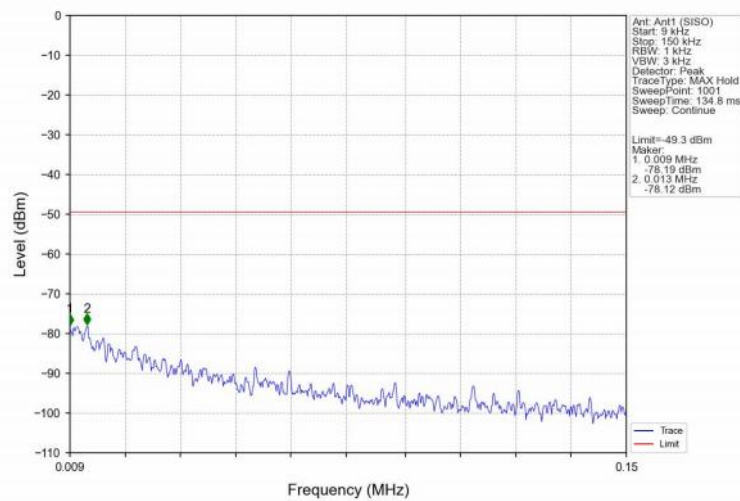
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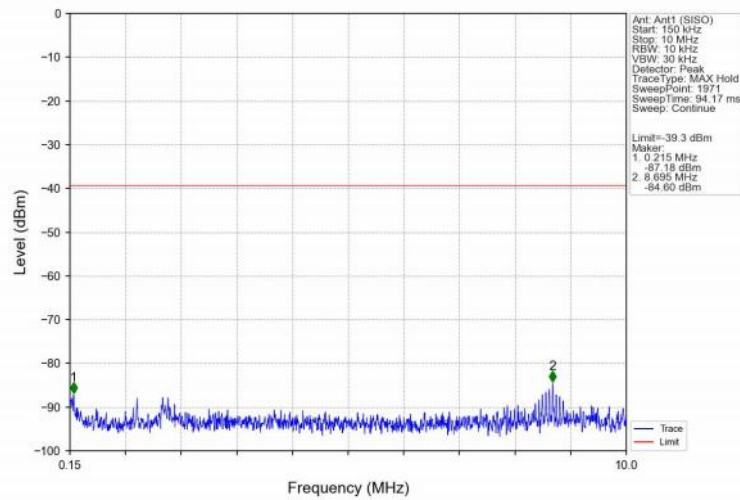
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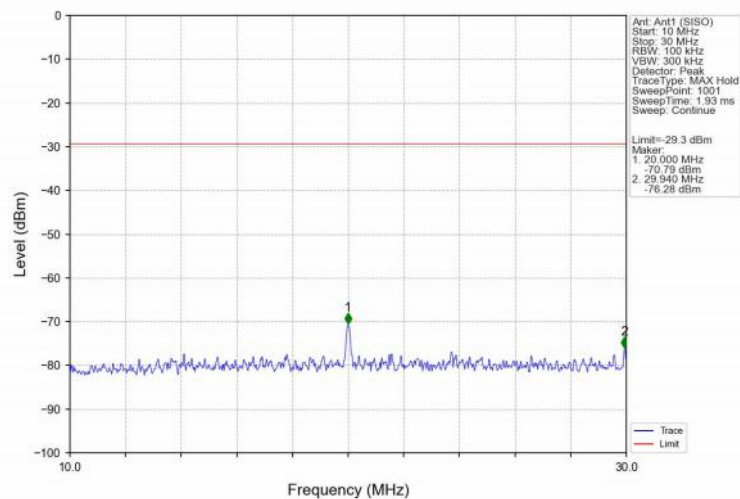
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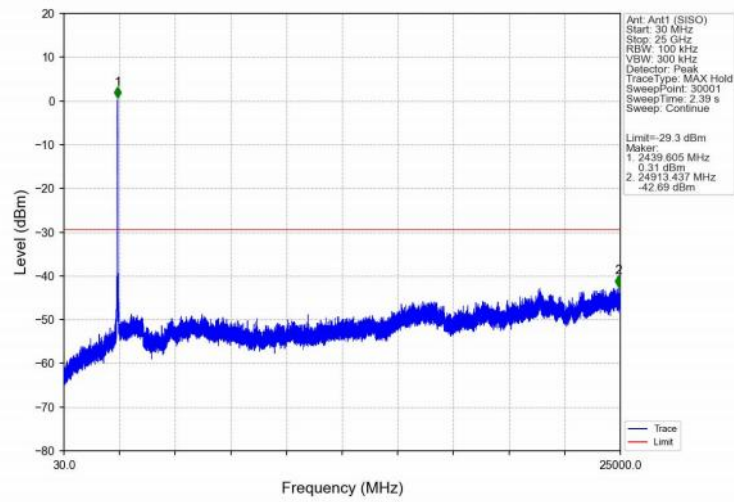
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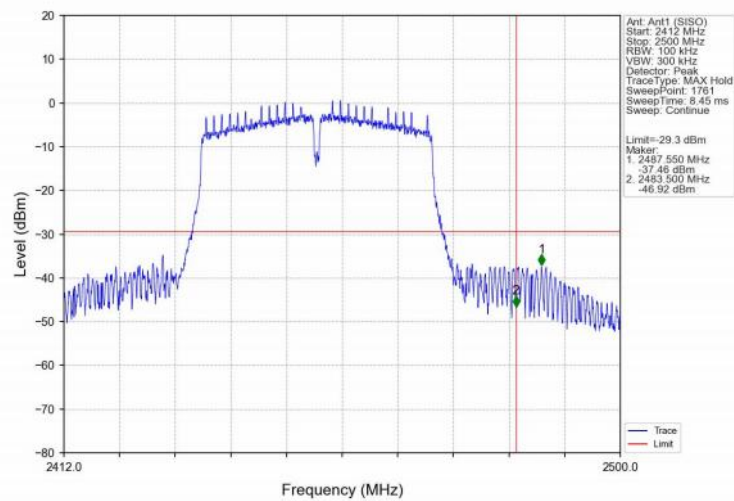
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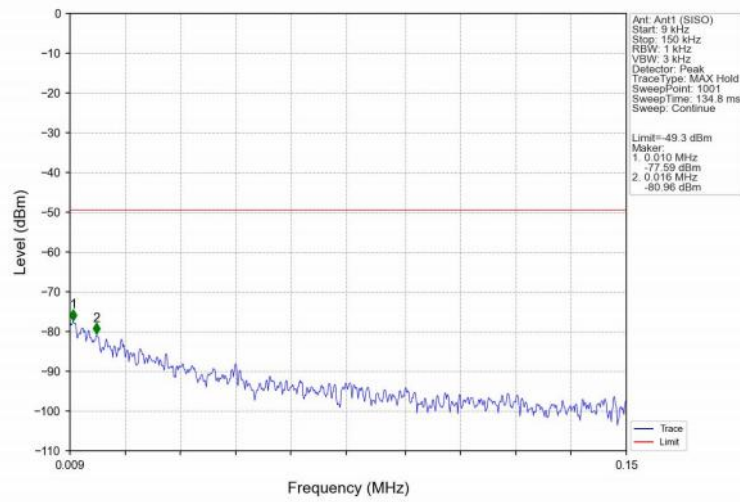
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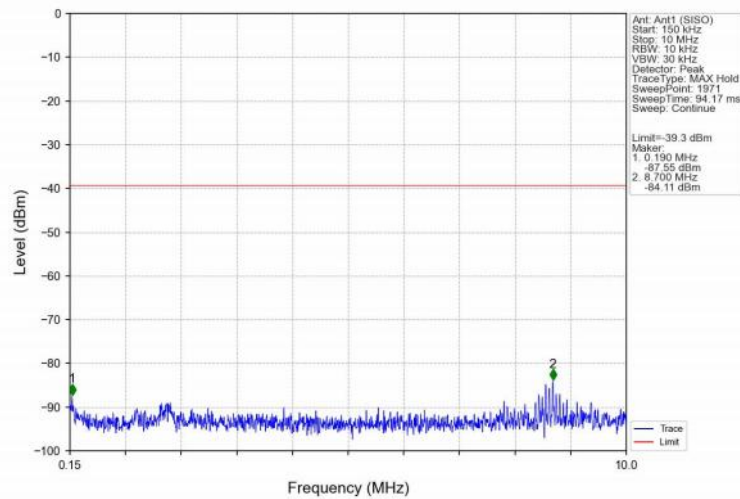
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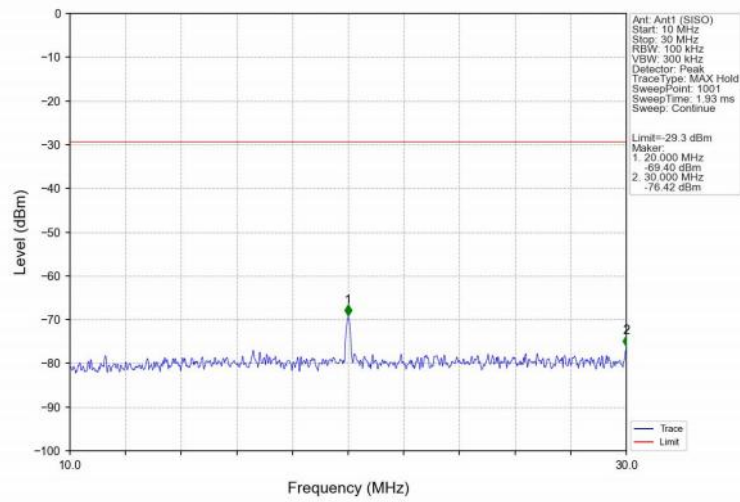
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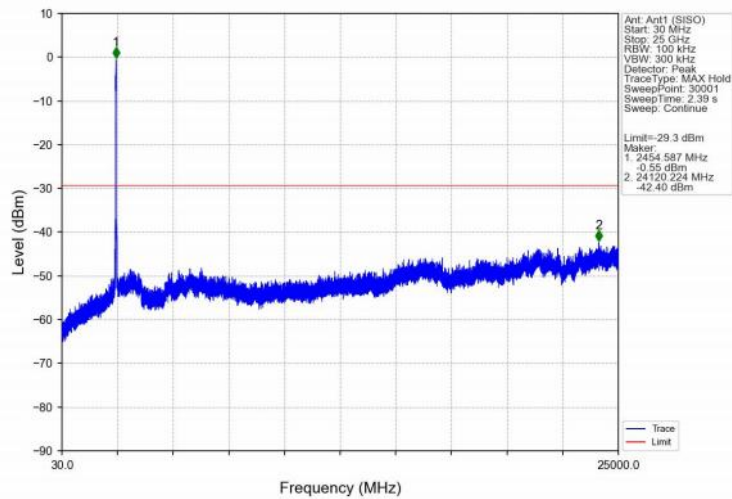
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



6. Form731

6.1 Test Result

6.1.1 Form731

Lower Freq (MHz)	High Freq (MHz)	MAX Power (W)	MAX Power (dBm)
2412	2462	0.0291	14.64
2422	2452	0.0241	13.82