ANNEX E TEST DATA

For

Project No.:	8236EU122303W
Client:	CyberTronics Limited
Product Name:	AI chatting peanut box
Model No.:	AiSpea-nut-001
FCC ID:	2BM6H-AISPEANUT001
Technology:	WiFi 2.4G
Test Engineer:	Mikey zhu
Test Date:	2024-03-03

Test Summary

Item	Result
Duty Cycle	Pass
Bandwidth	Pass
Maximum Conducted Output Power	Pass
Maximum Power Spectral Density	Pass
Unwanted Emissions In Non-restricted Frequency Bands	Pass

1. Duty Cycle

1.1 Test Result

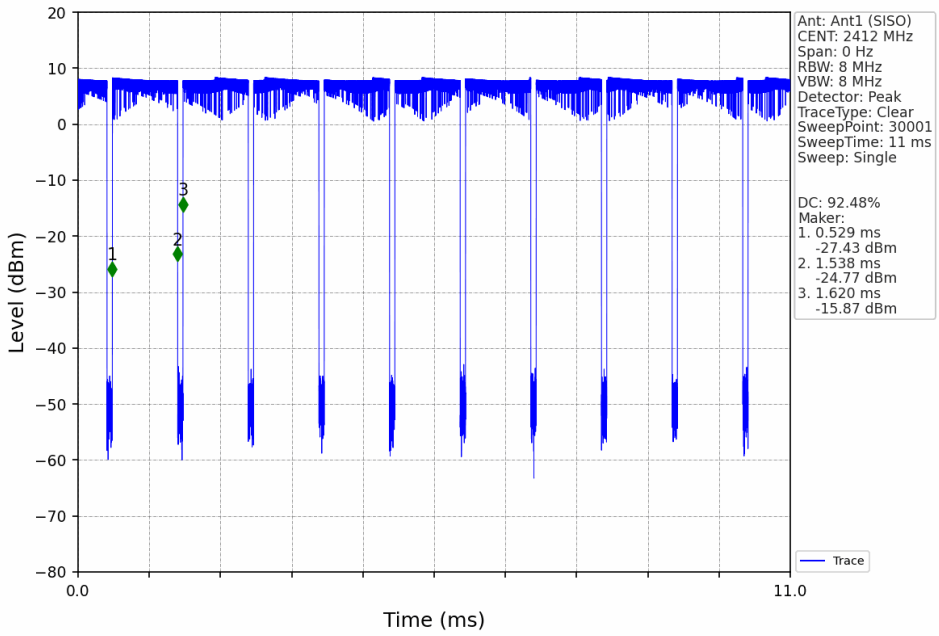
1.1.1 Ant1

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	1.009	1.091	92.48	0.34	0.03
		2437	1.008	1.091	92.39	0.34	0.03
		2462	1.009	1.092	92.40	0.34	0.03
802.11g	SISO	2412	0.617	0.669	92.23	0.35	0.03
		2437	0.616	0.668	92.22	0.35	0.03
		2462	0.617	0.669	92.23	0.35	0.07
802.11n (HT20)	SISO	2412	0.613	0.665	92.18	0.35	0.03
		2437	0.612	0.665	92.03	0.36	0.04
		2462	0.612	0.665	92.03	0.36	0.03
802.11n (HT40)	SISO	2422	0.613	0.665	92.18	0.35	0.04
		2437	0.613	0.665	92.18	0.35	0.04
		2452	0.613	0.665	92.18	0.35	0.04

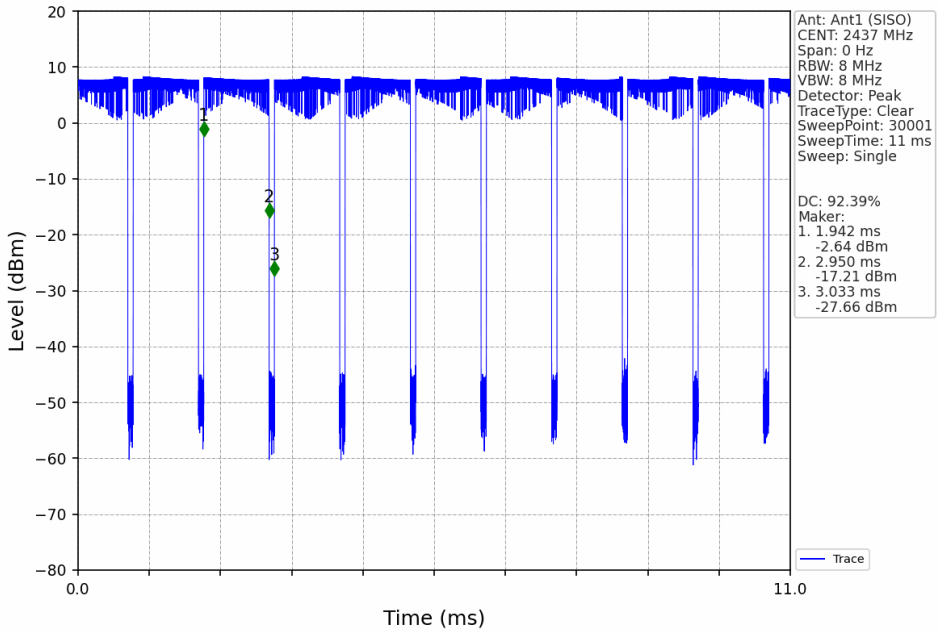
1.2 Test Graph

1.2.1 Ant1

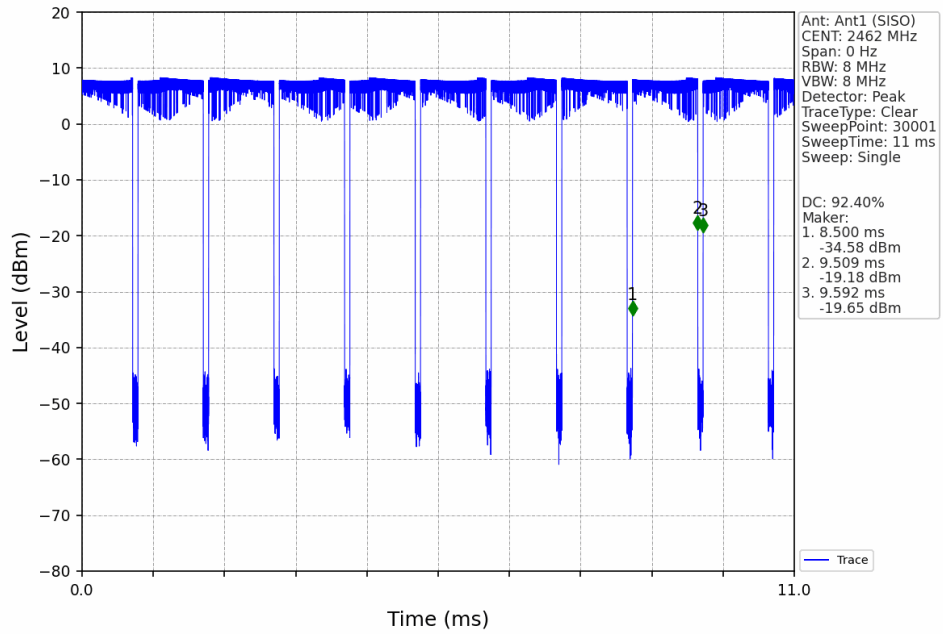
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



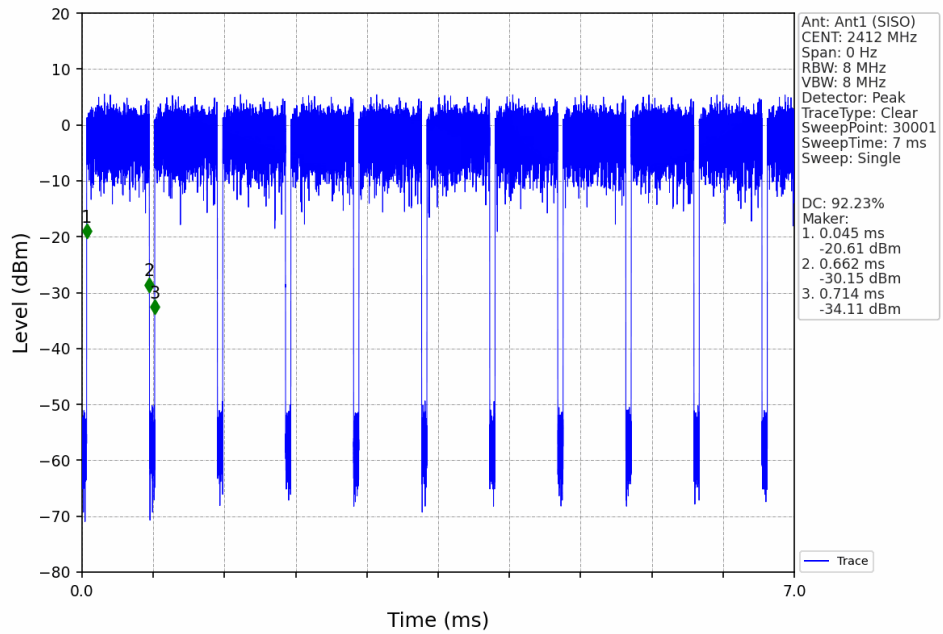
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



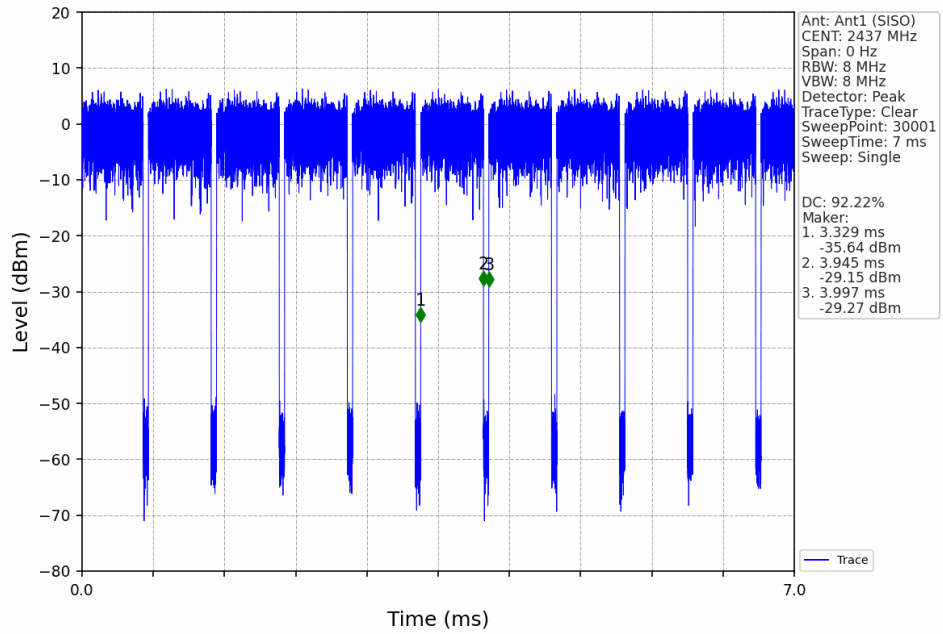
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



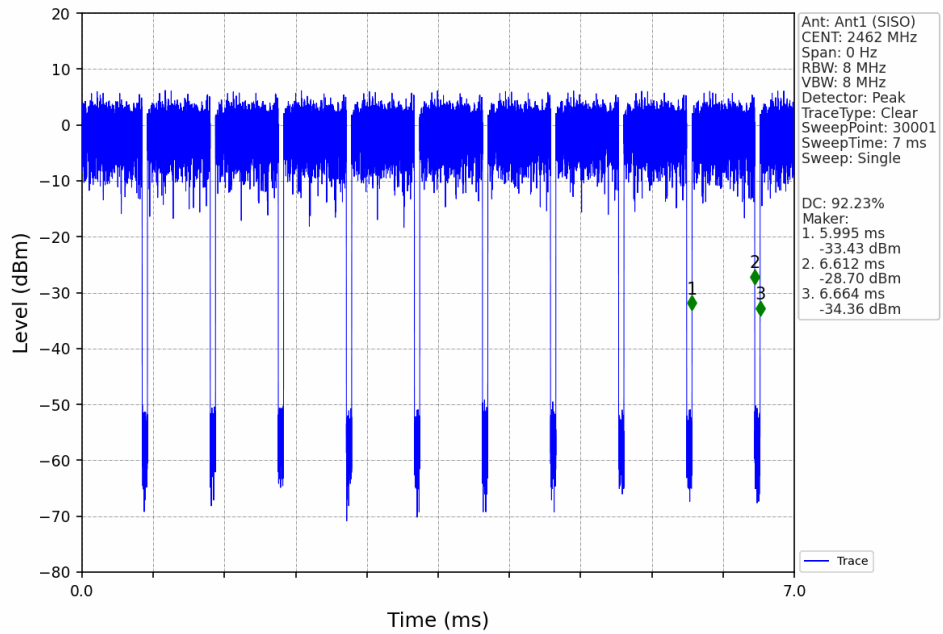
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



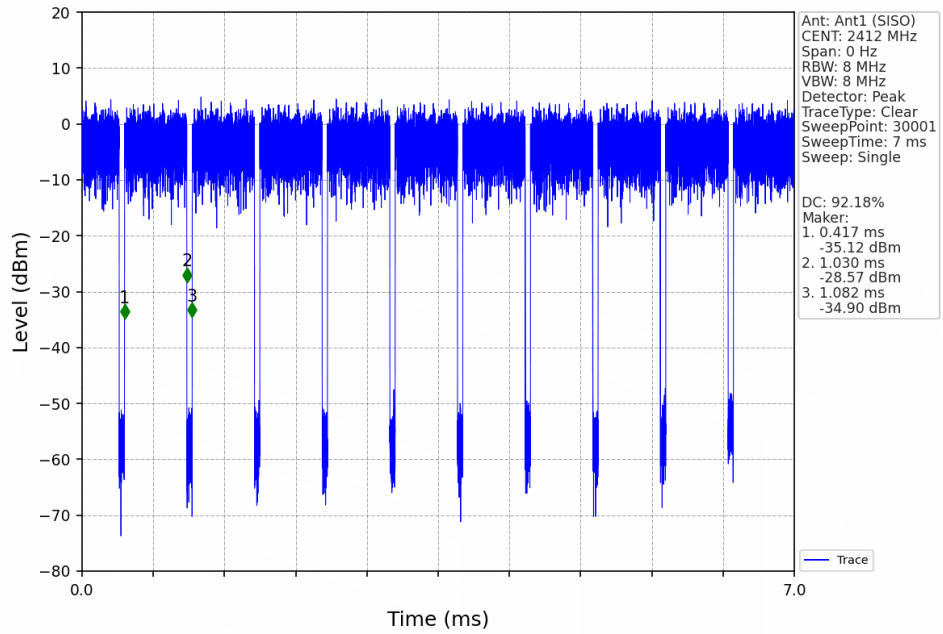
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



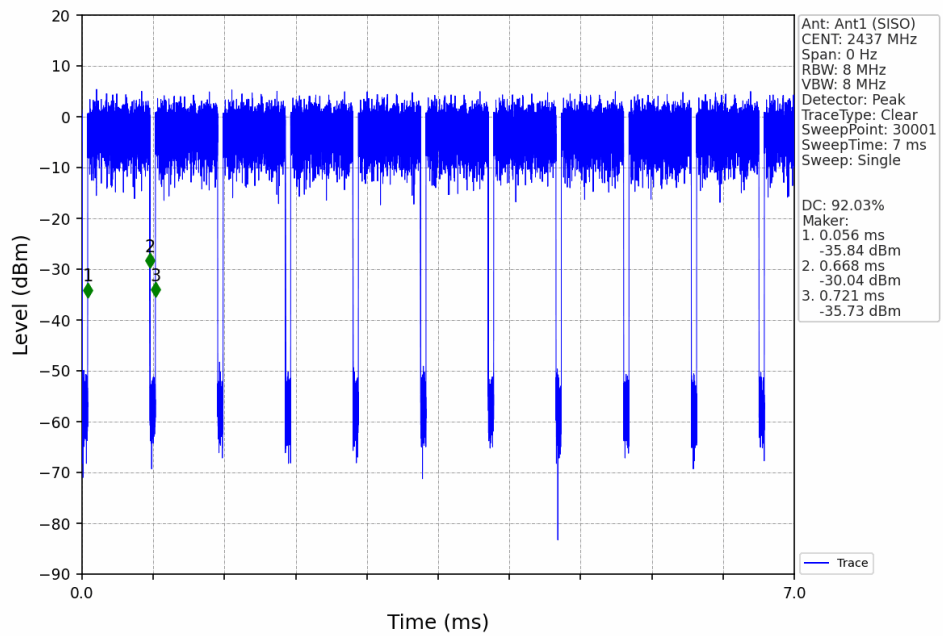
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



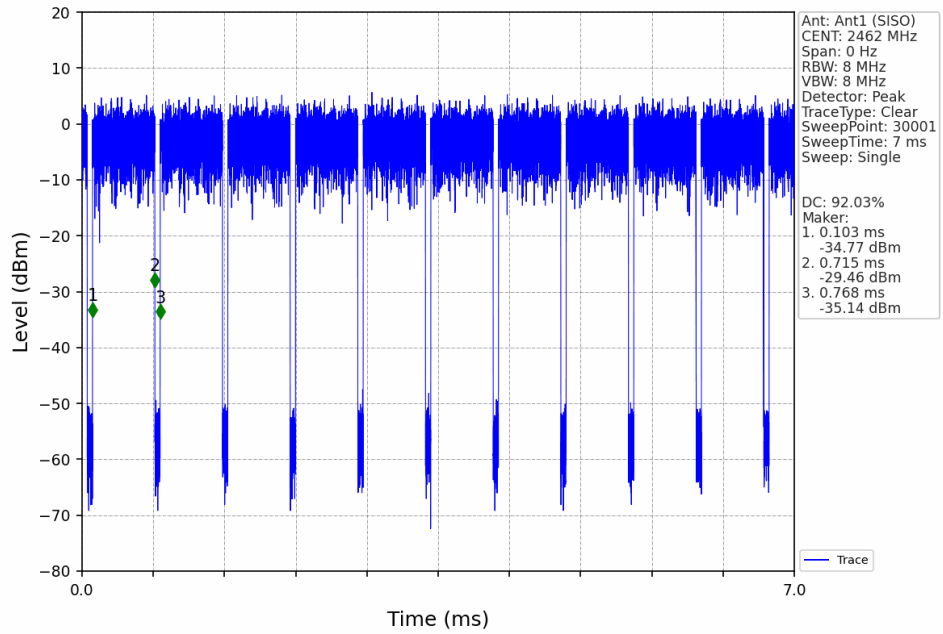
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



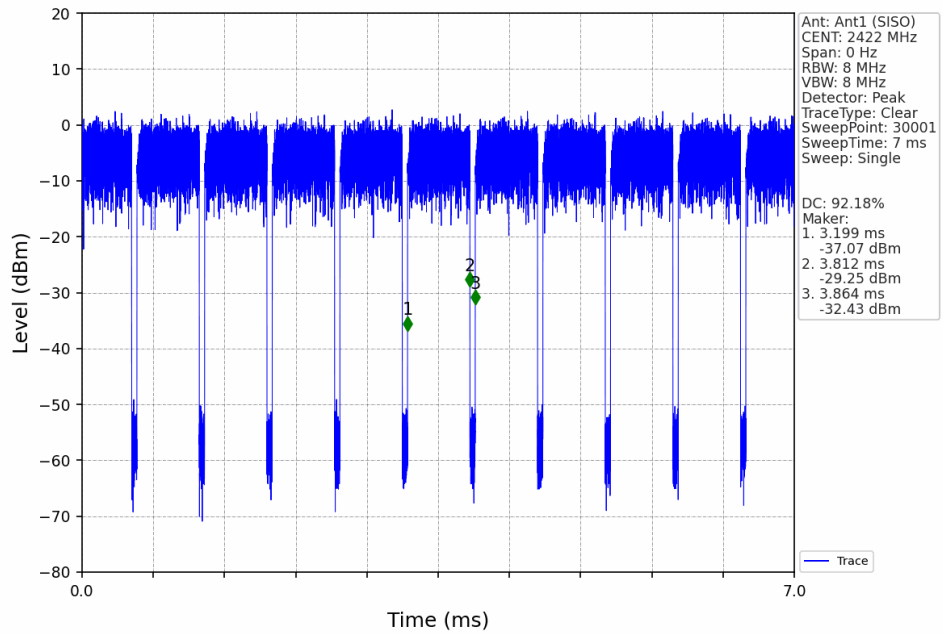
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



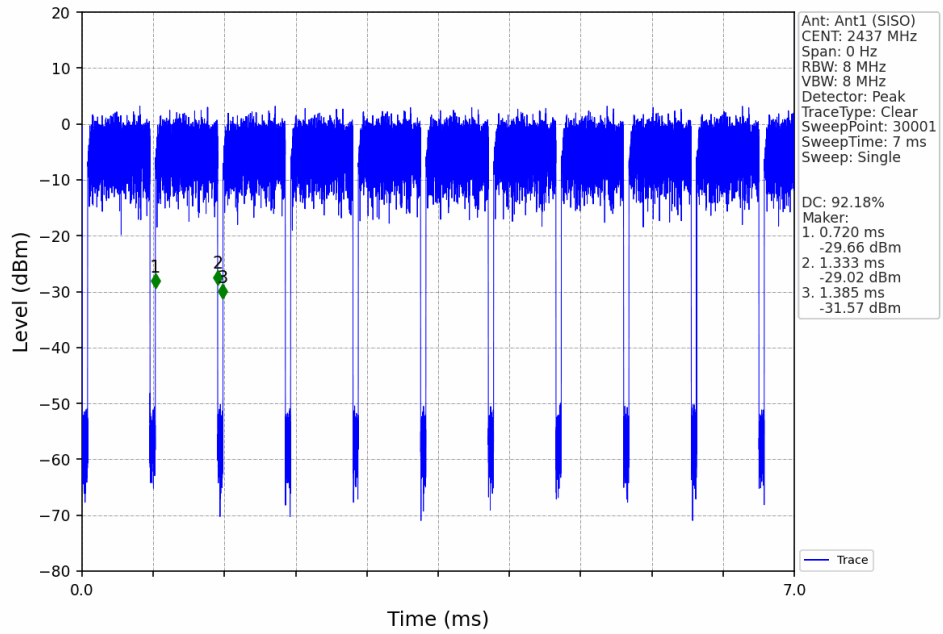
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



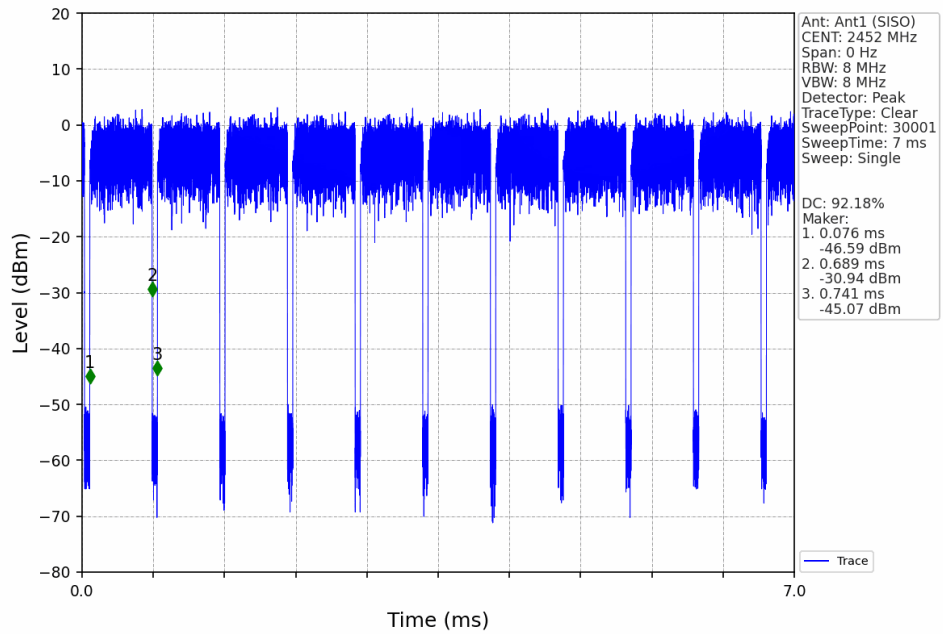
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



2. Bandwidth

2.1 Test Result

2.1.1 OBW

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	13.079	/	Pass
		2437	1	13.111	/	Pass
		2462	1	13.126	/	Pass
802.11g	SISO	2412	1	17.923	/	Pass
		2437	1	17.963	/	Pass
		2462	1	18.019	/	Pass
802.11n (HT20)	SISO	2412	1	18.724	/	Pass
		2437	1	18.768	/	Pass
		2462	1	18.788	/	Pass
802.11n (HT40)	SISO	2422	1	36.826	/	Pass
		2437	1	36.862	/	Pass
		2452	1	36.897	/	Pass

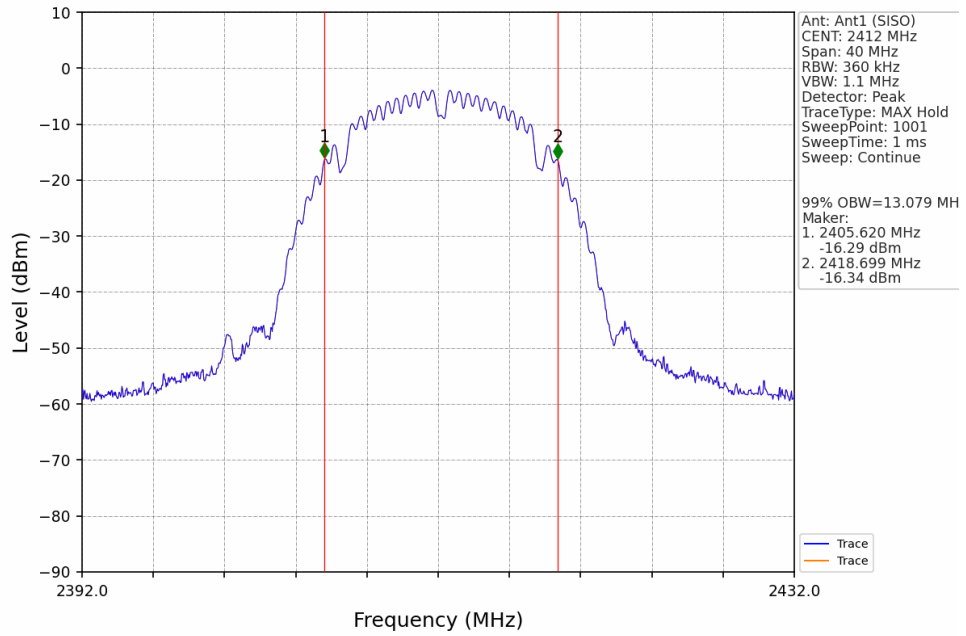
2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	9.671	>=0.5	Pass
		2437	1	9.318	>=0.5	Pass
		2462	1	10.088	>=0.5	Pass
802.11g	SISO	2412	1	16.825	>=0.5	Pass
		2437	1	16.878	>=0.5	Pass
		2462	1	16.923	>=0.5	Pass
802.11n (HT20)	SISO	2412	1	17.717	>=0.5	Pass
		2437	1	17.741	>=0.5	Pass
		2462	1	17.797	>=0.5	Pass
802.11n (HT40)	SISO	2422	1	36.060	>=0.5	Pass
		2437	1	36.043	>=0.5	Pass
		2452	1	36.104	>=0.5	Pass

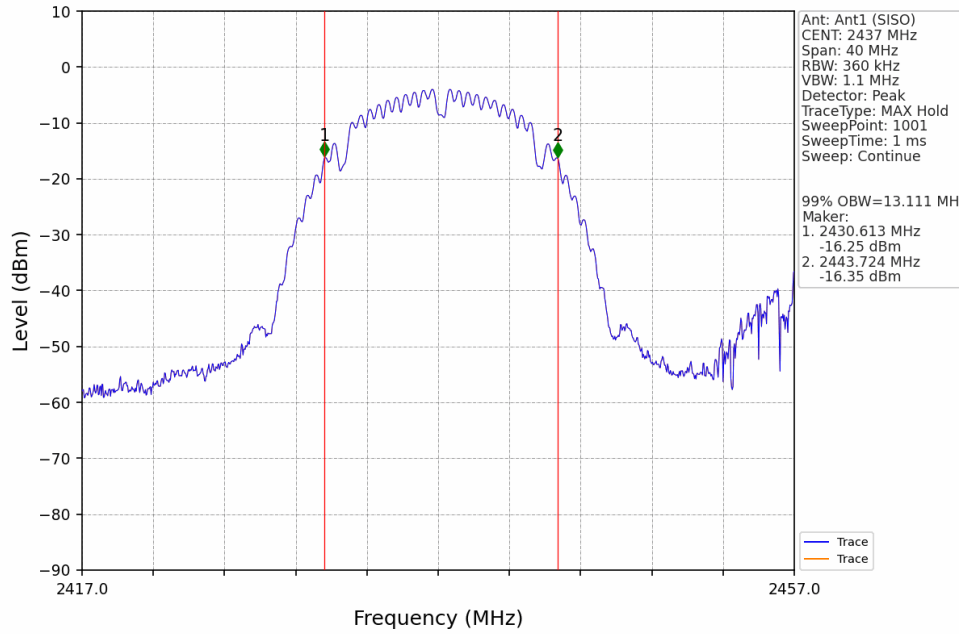
2.2 Test Graph

2.2.1 OBW

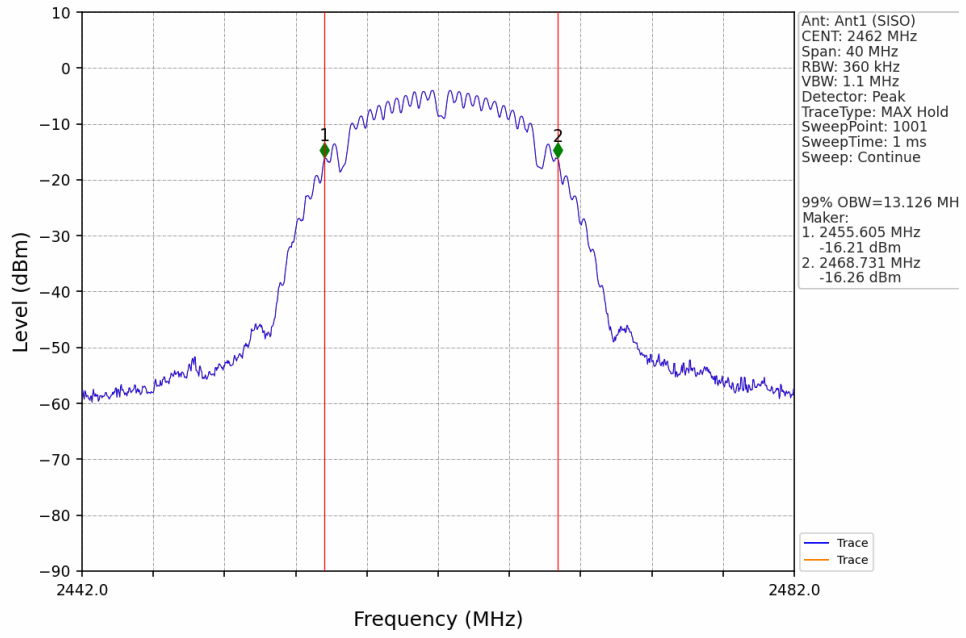
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



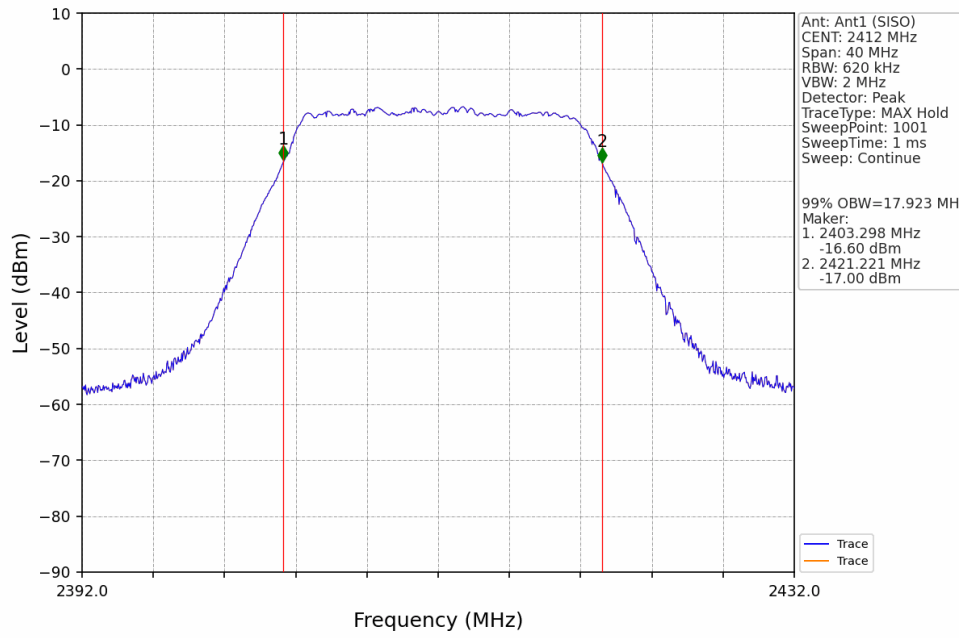
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



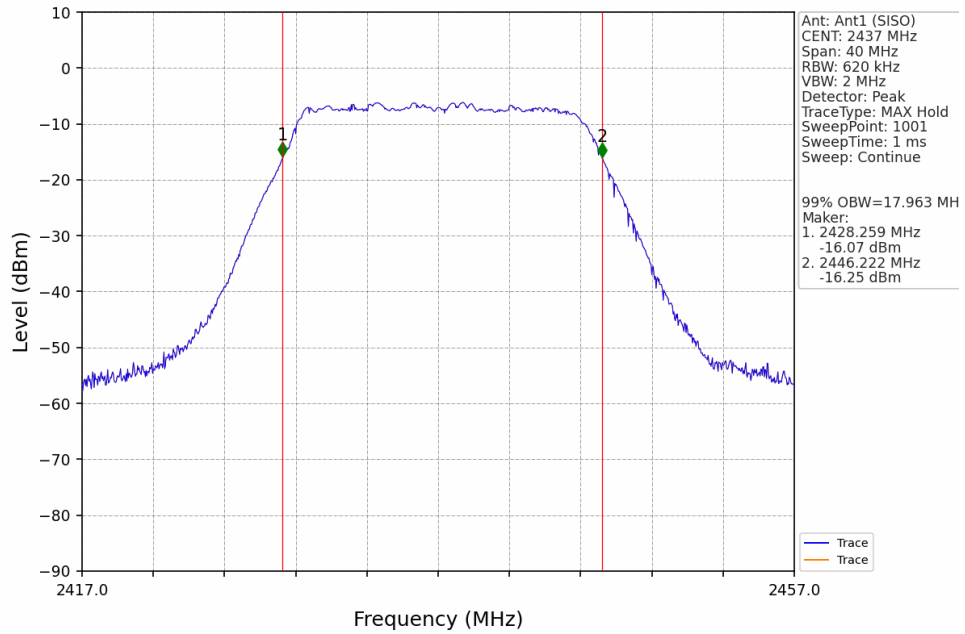
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



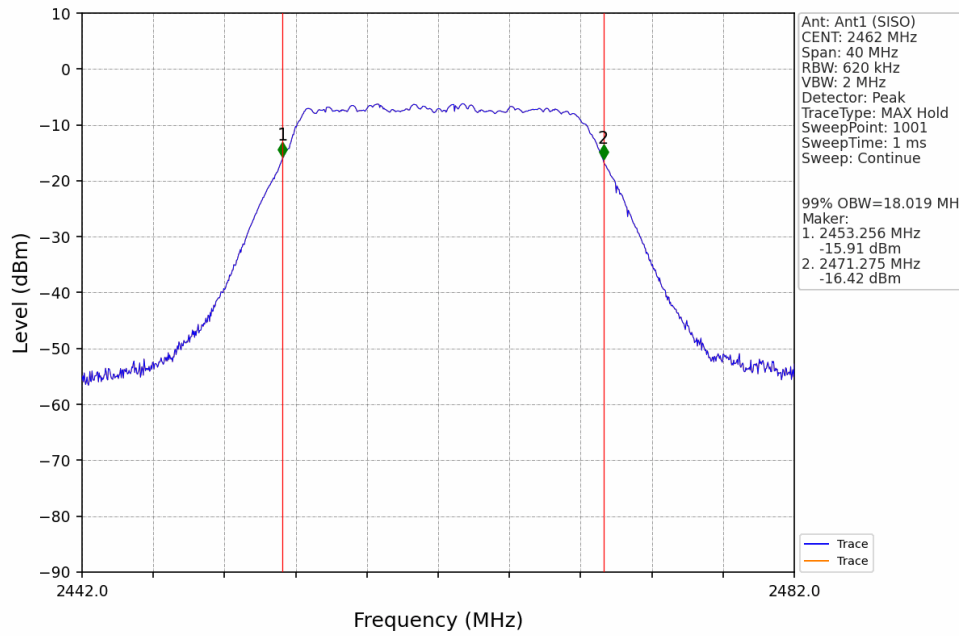
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



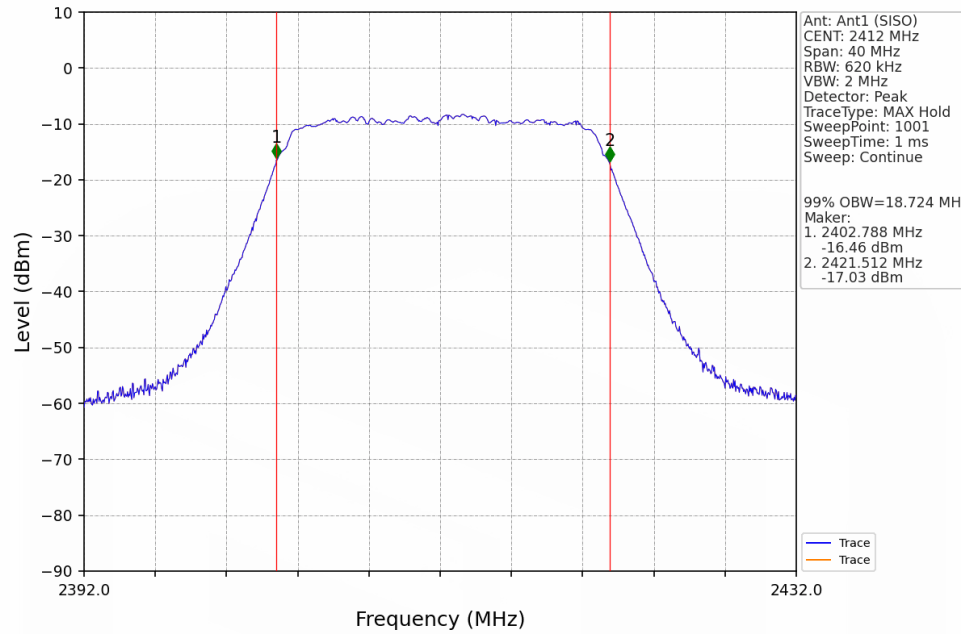
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



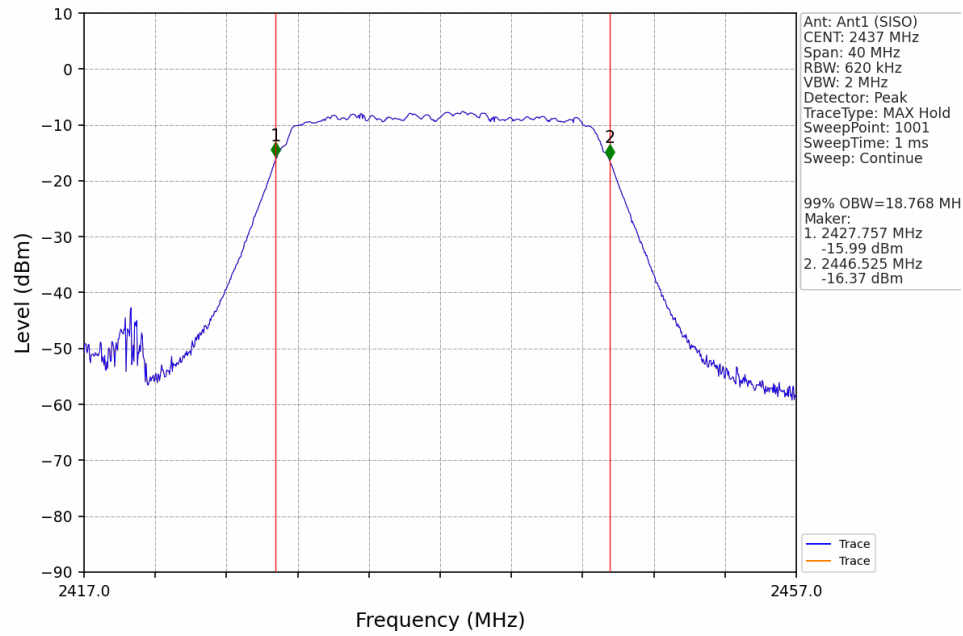
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



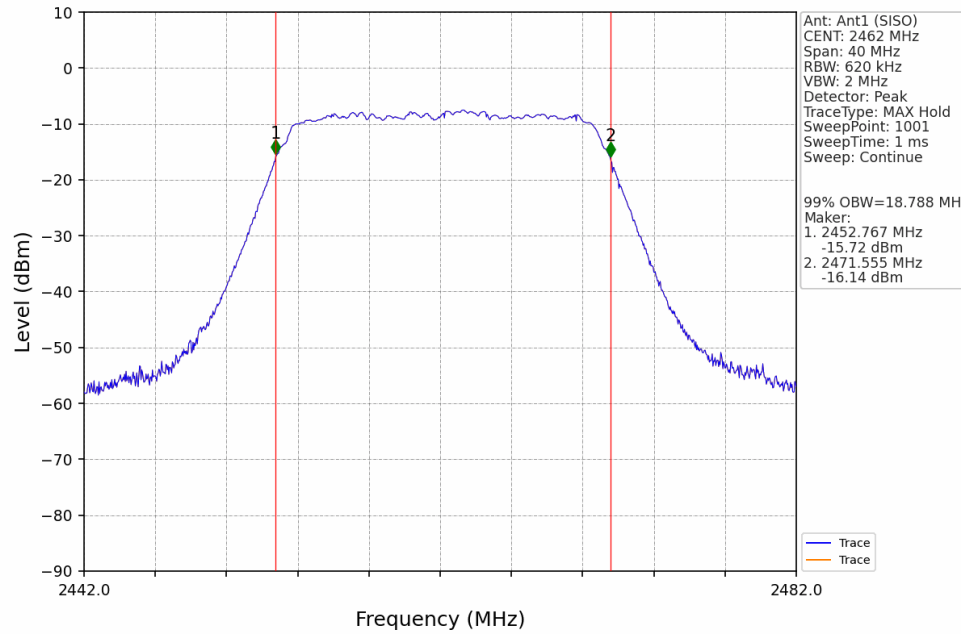
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



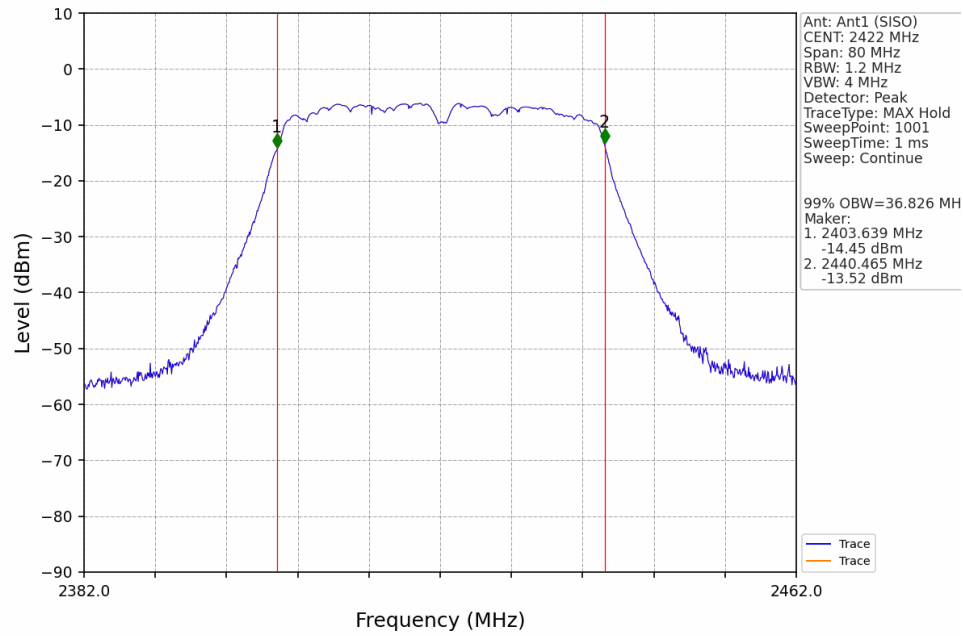
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



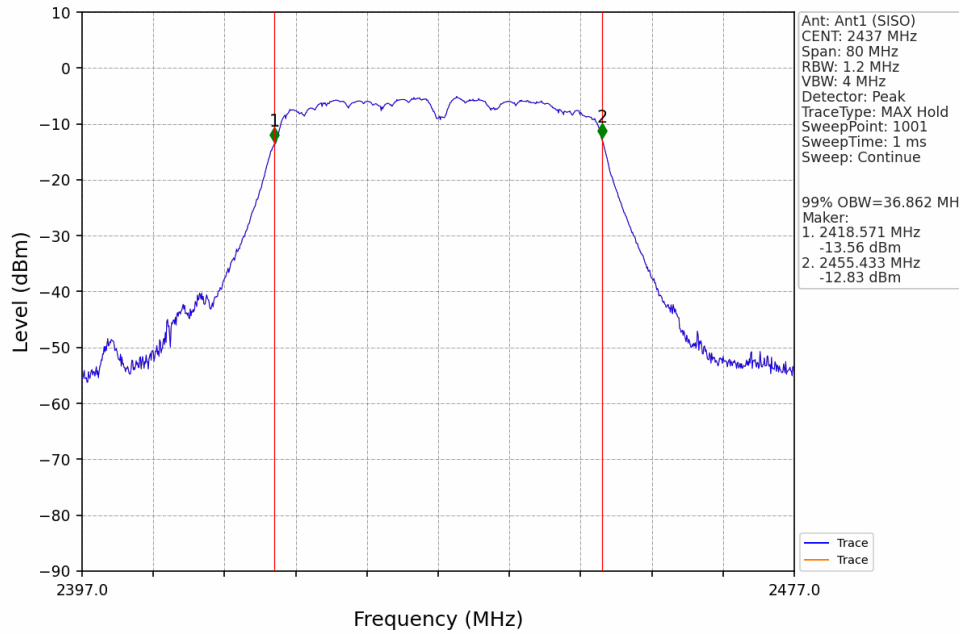
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



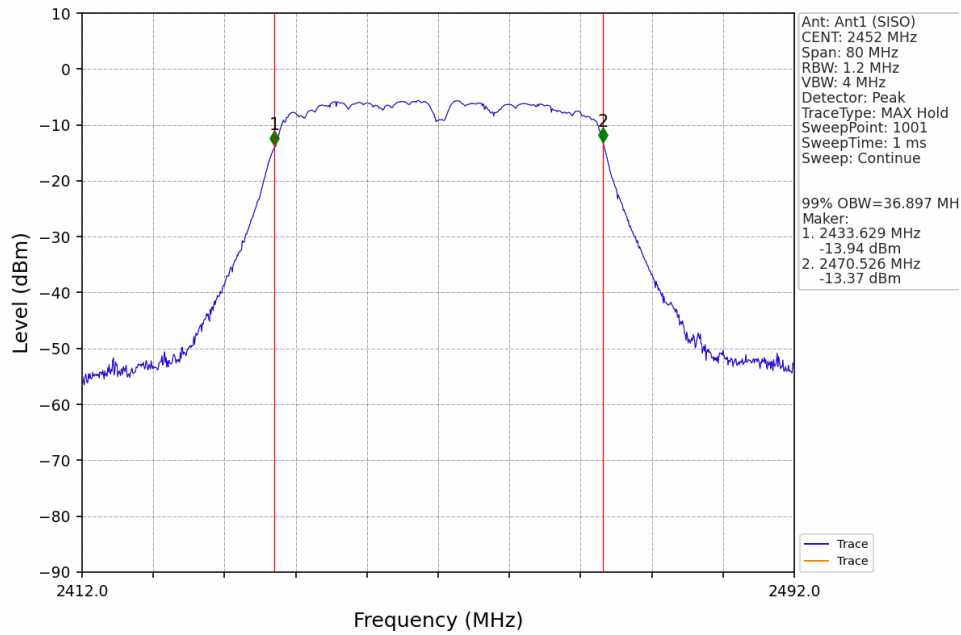
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV

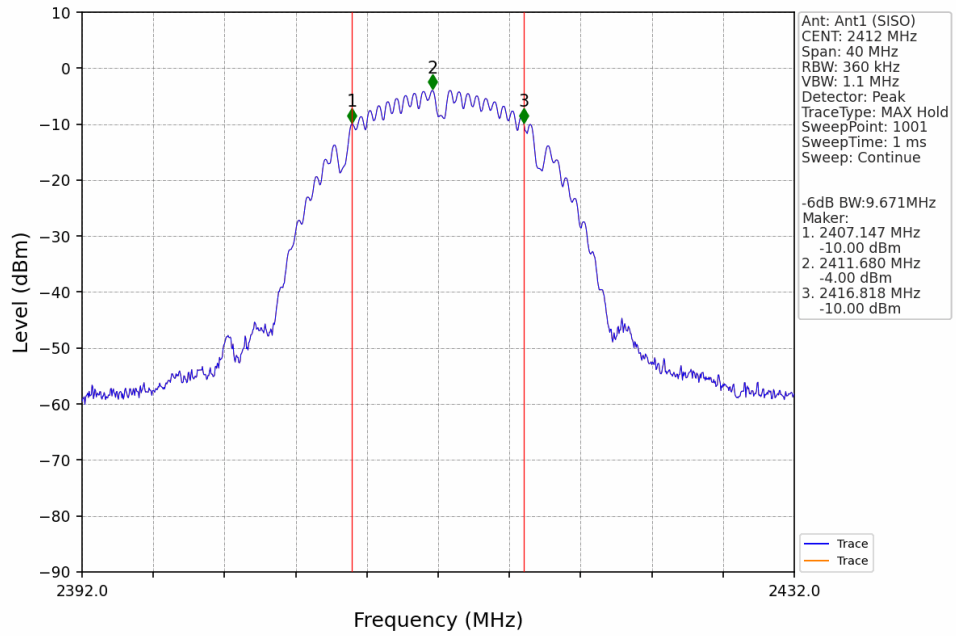


802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV

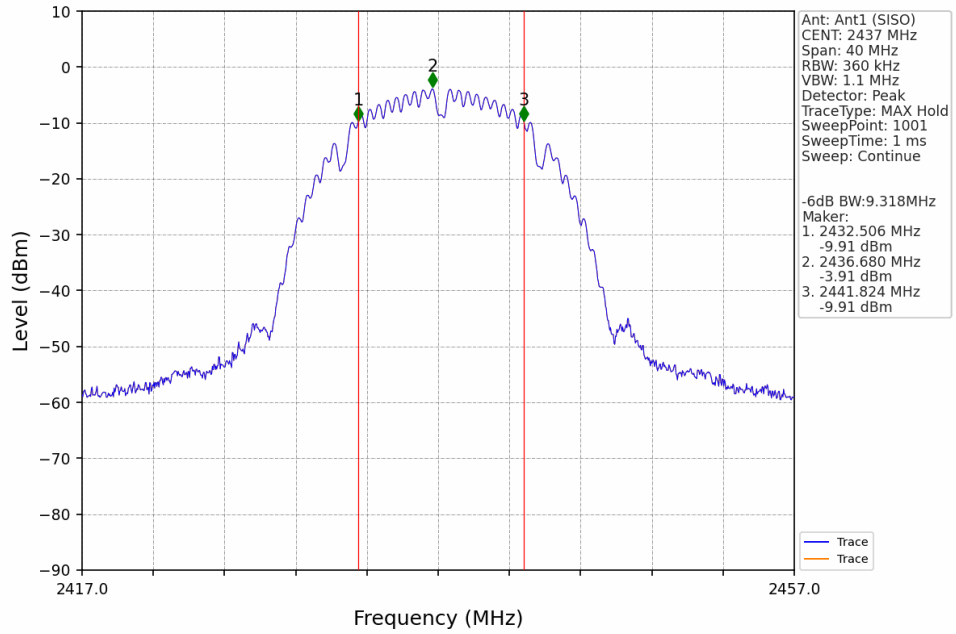


2.2.2 6dB BW

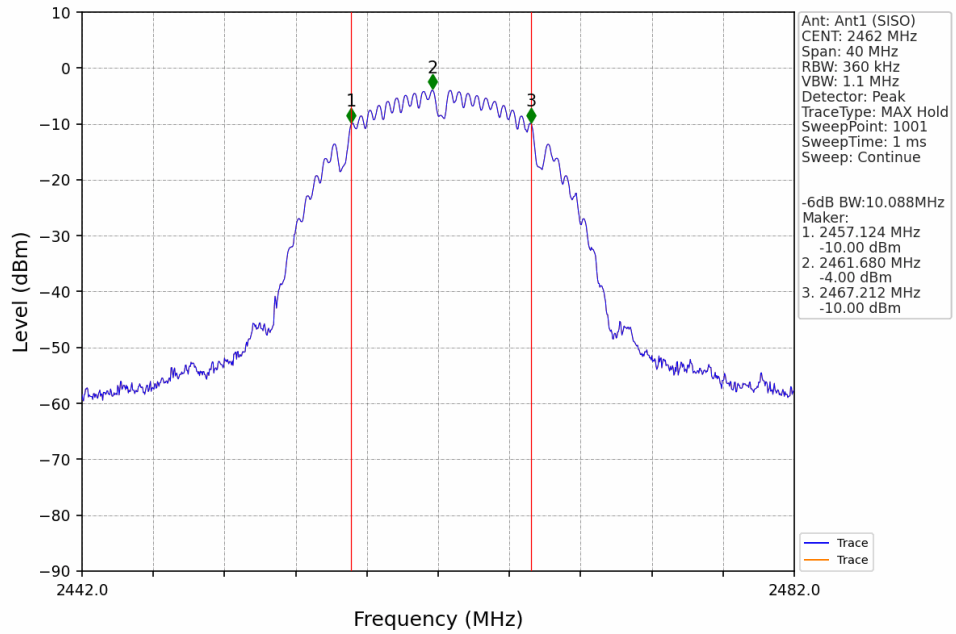
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



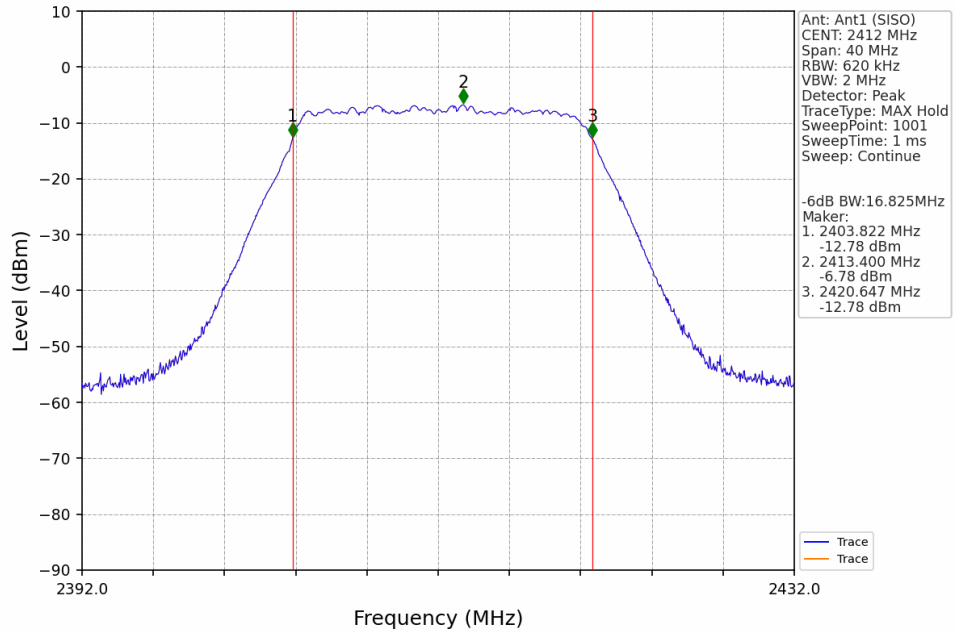
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



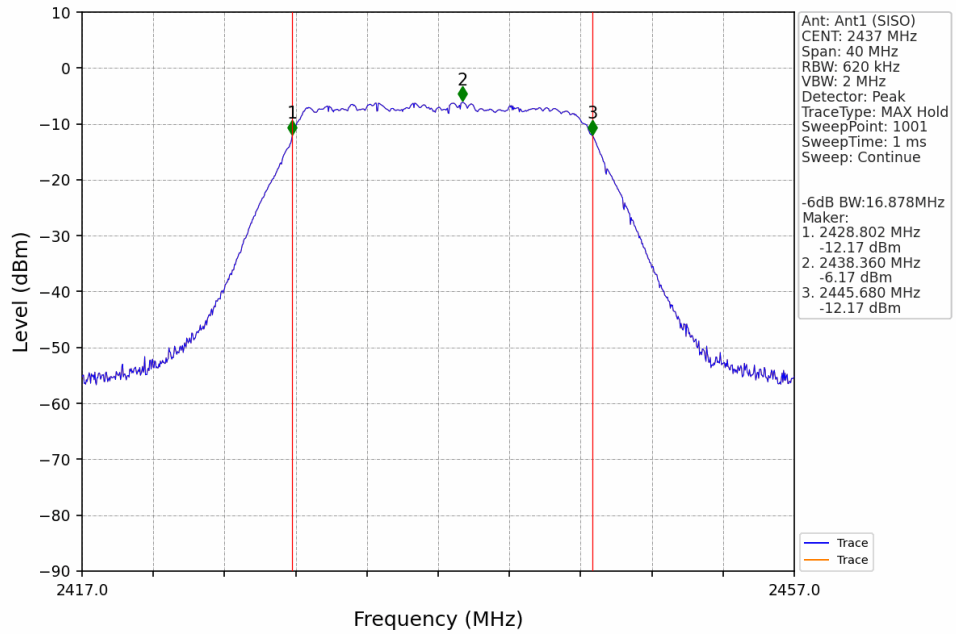
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



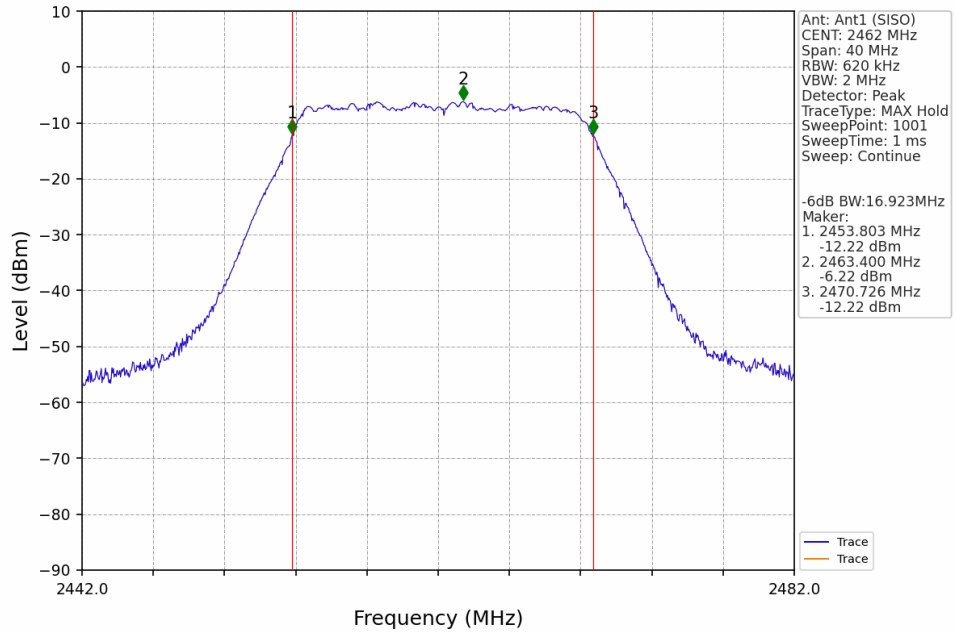
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



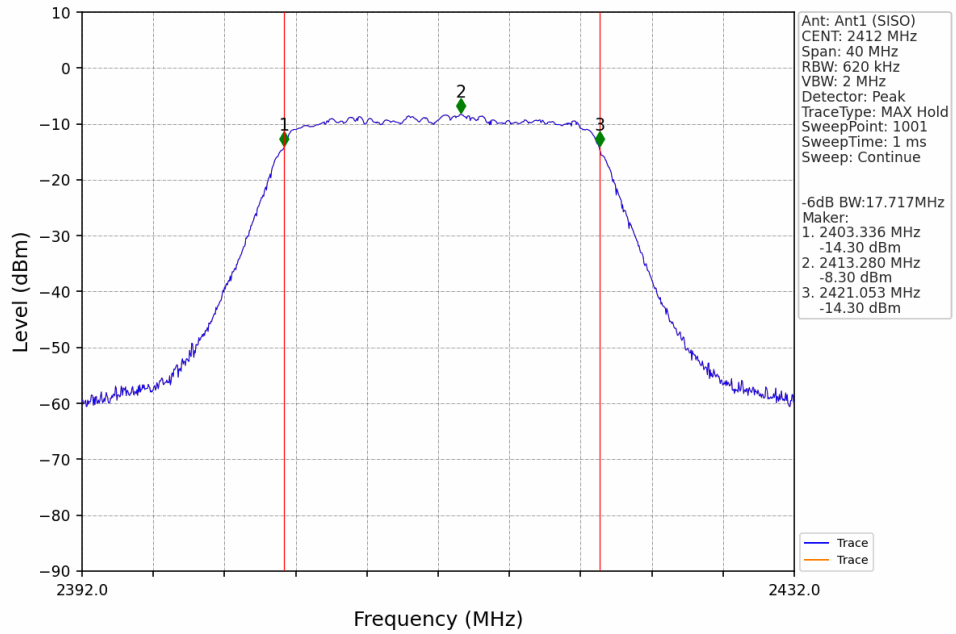
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



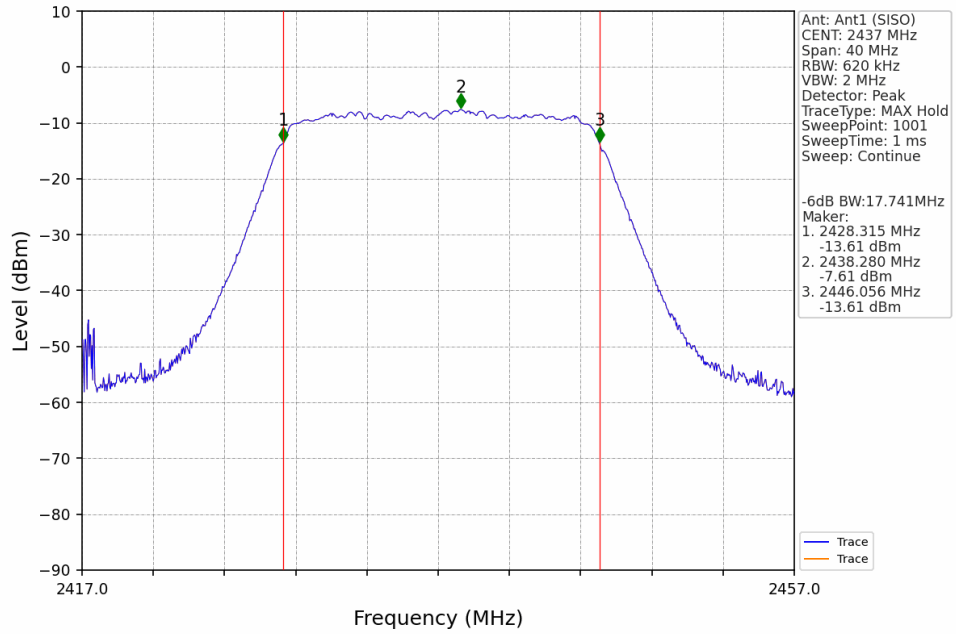
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



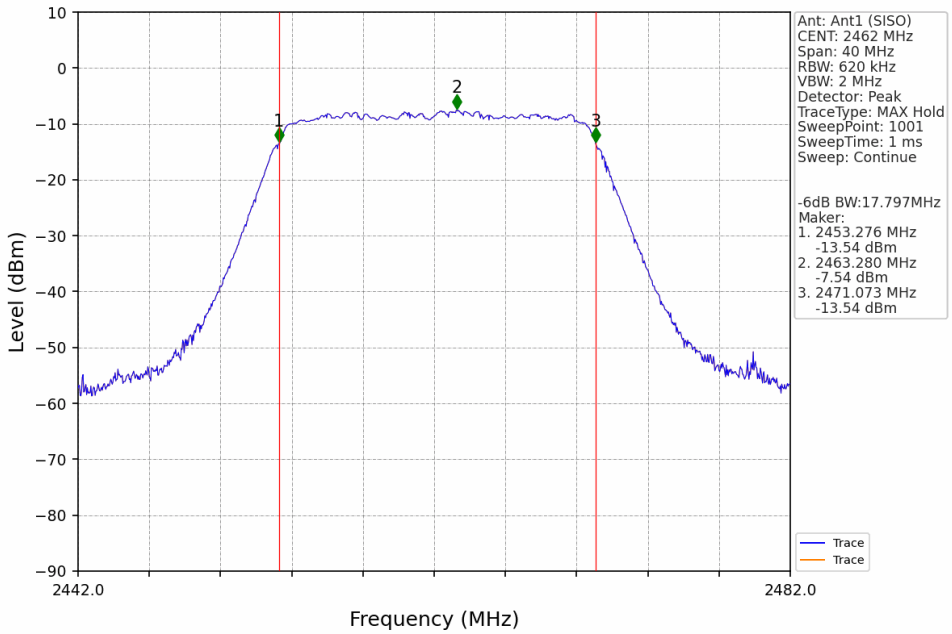
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



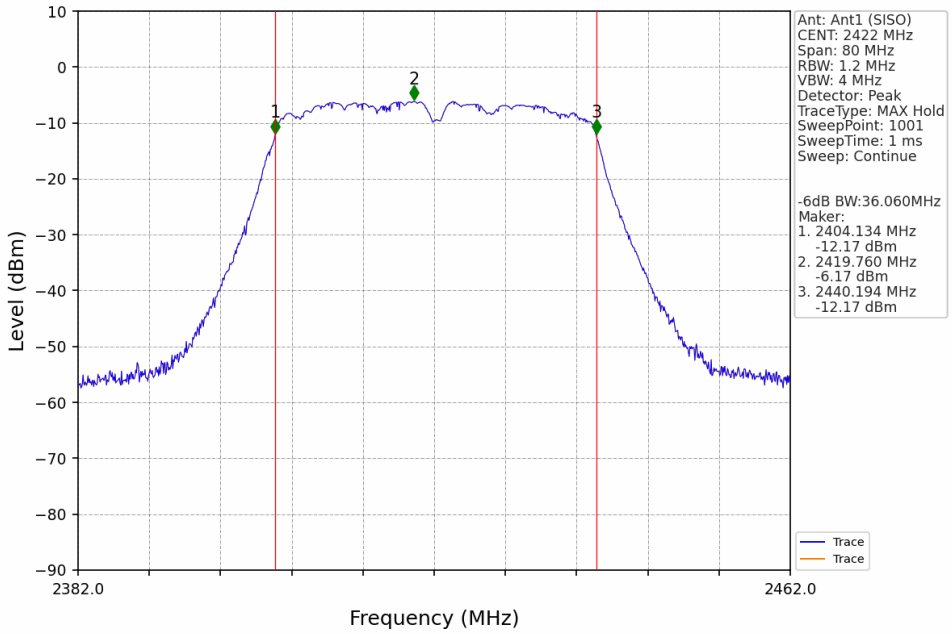
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



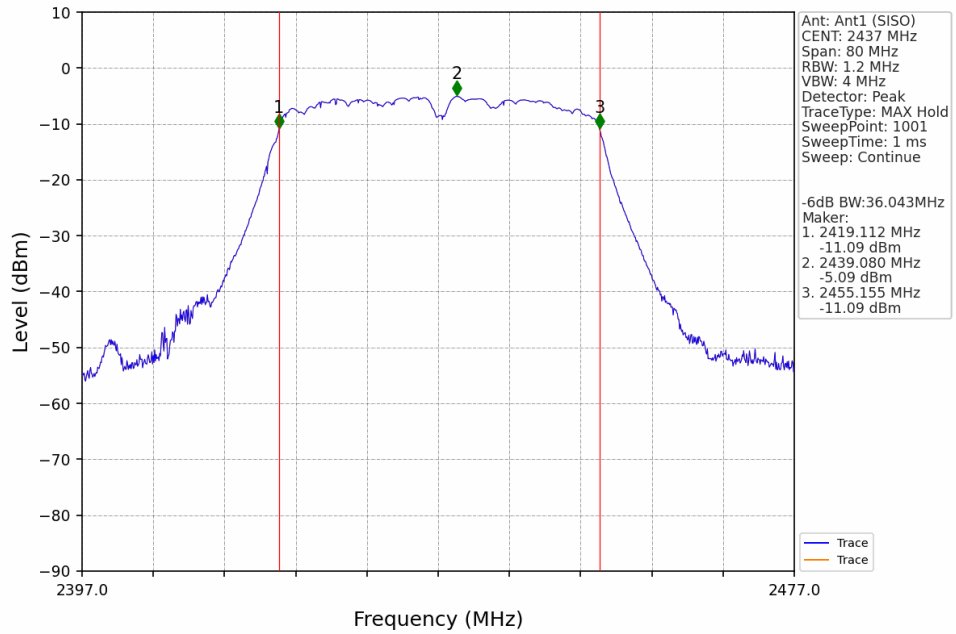
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



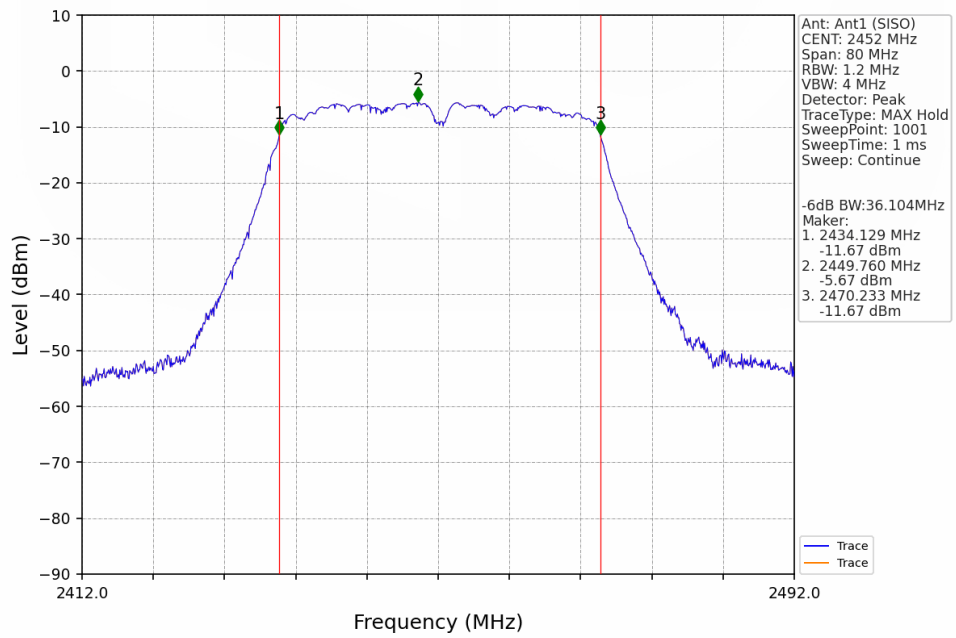
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



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 Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	6.87	<=30	Pass
		2437	6.82	<=30	Pass
		2462	6.96	<=30	Pass
802.11g	SISO	2412	6.95	<=30	Pass
		2437	7.65	<=30	Pass
		2462	7.63	<=30	Pass
802.11n (HT20)	SISO	2412	5.73	<=30	Pass
		2437	6.44	<=30	Pass
		2462	6.59	<=30	Pass
802.11n (HT40)	SISO	2422	6.50	<=30	Pass
		2437	7.44	<=30	Pass
		2452	7.04	<=30	Pass

4. Maximum Power Spectral Density

4.1 Test Result

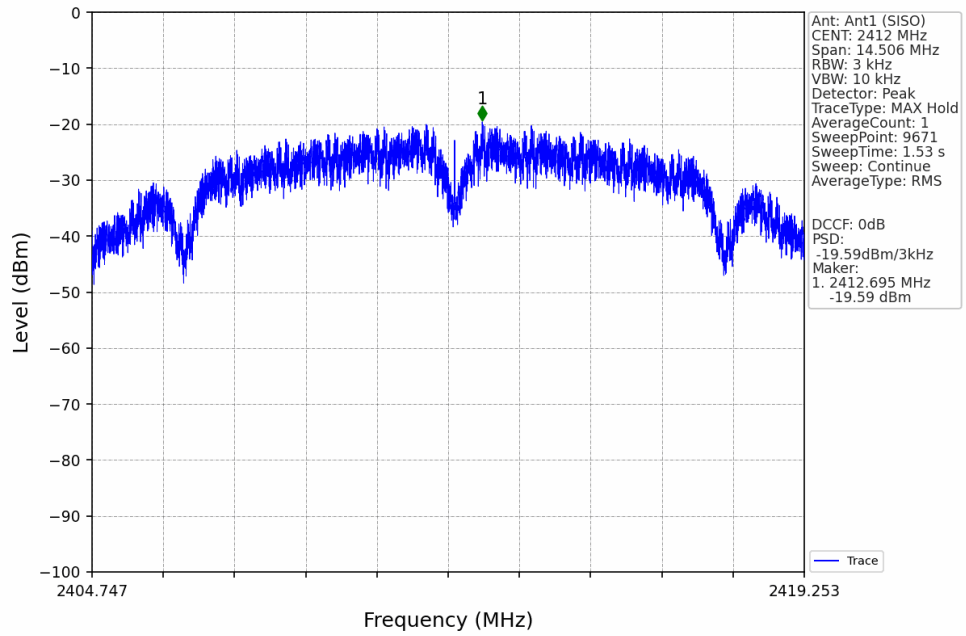
4.1.1 PSD

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-19.59	<=8	Pass
		2437	-19.40	<=8	Pass
		2462	-19.99	<=8	Pass
802.11g	SISO	2412	-26.48	<=8	Pass
		2437	-25.82	<=8	Pass
		2462	-25.84	<=8	Pass
802.11n (HT20)	SISO	2412	-27.04	<=8	Pass
		2437	-26.77	<=8	Pass
		2462	-26.95	<=8	Pass
802.11n (HT40)	SISO	2422	-26.69	<=8	Pass
		2437	-26.51	<=8	Pass
		2452	-27.05	<=8	Pass

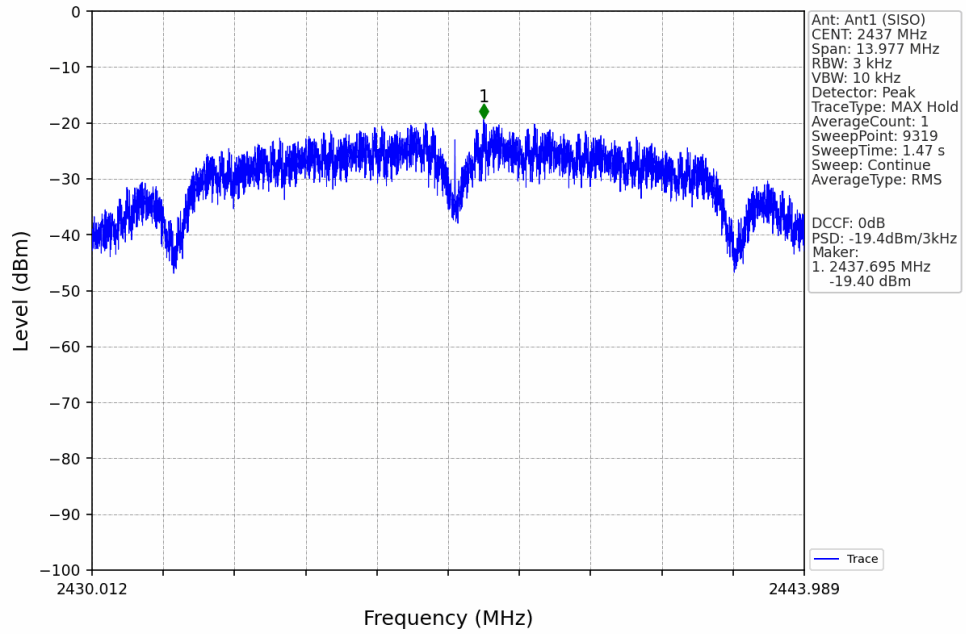
4.2 Test Graph

4.2.1 PSD

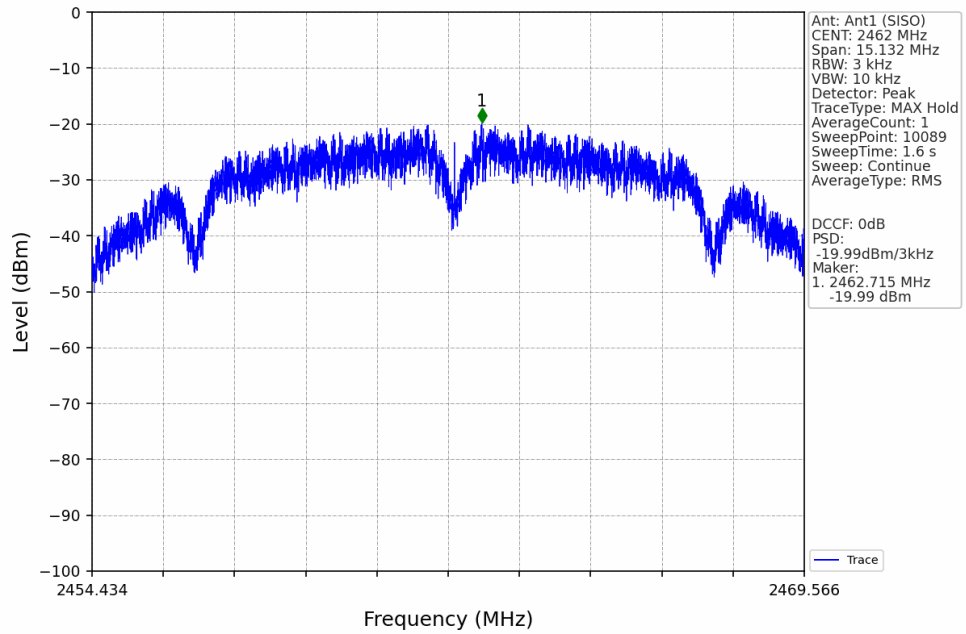
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



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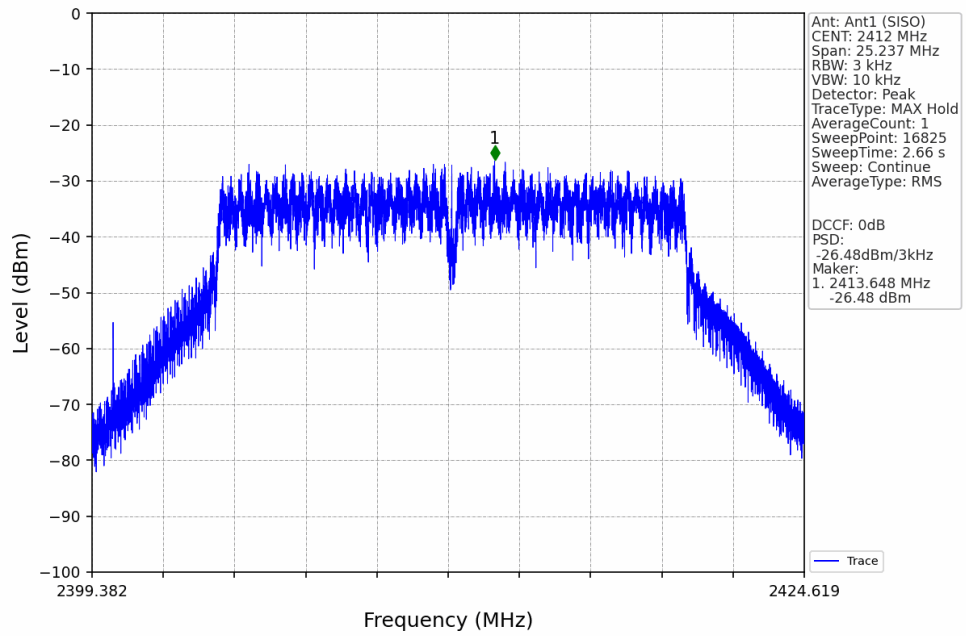
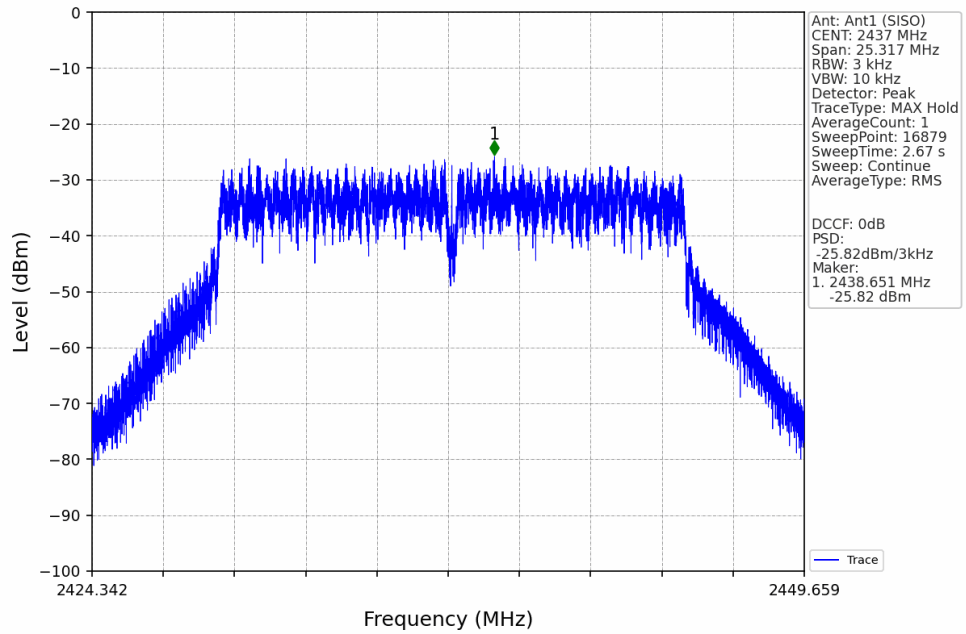


802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



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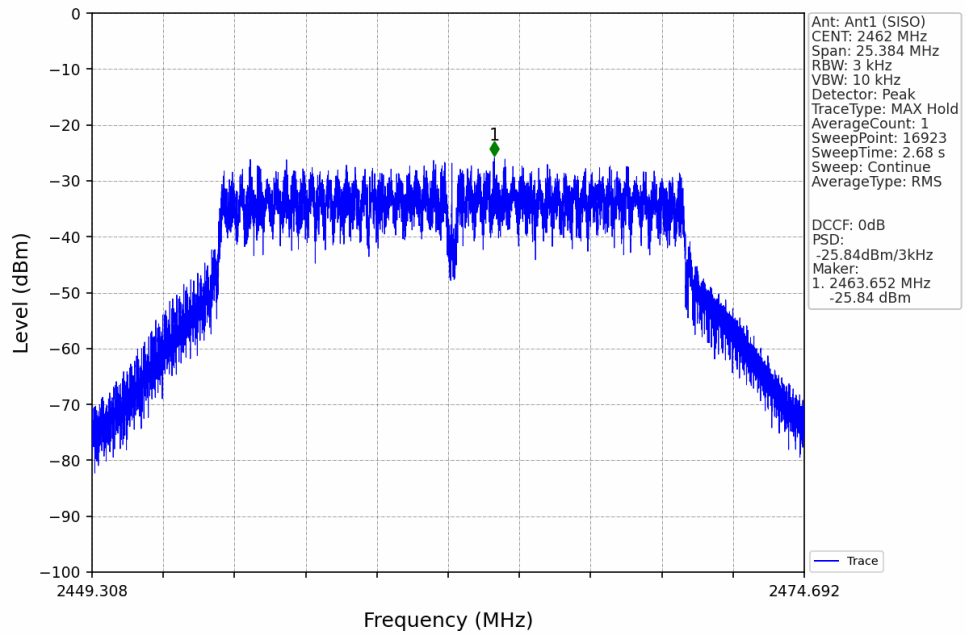
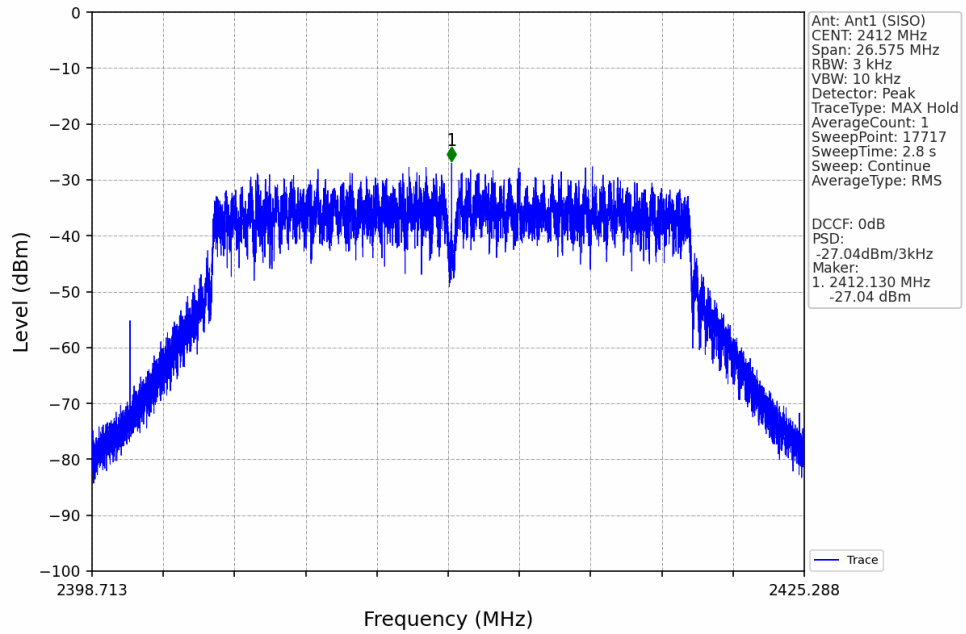


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



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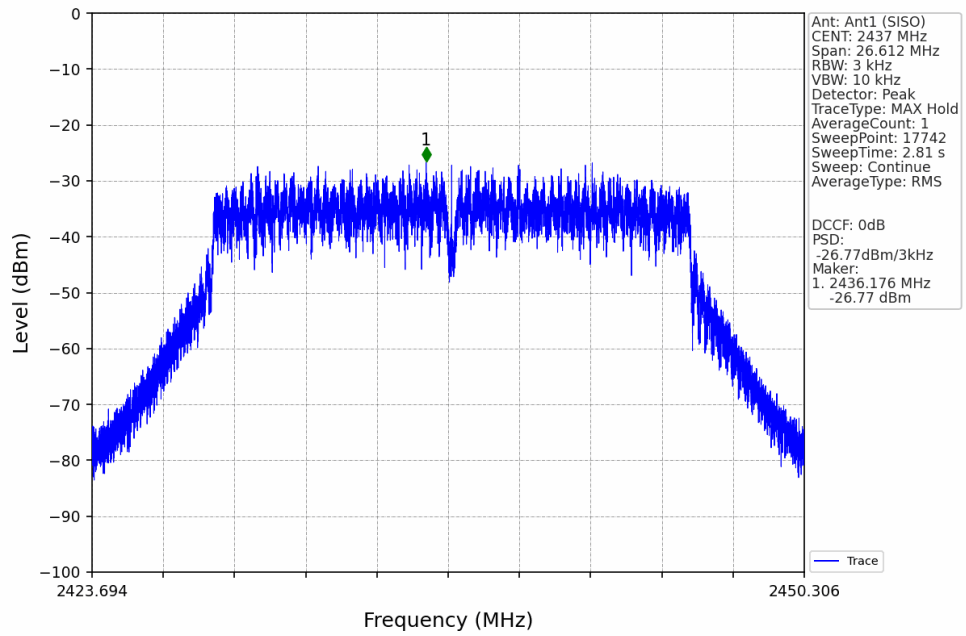

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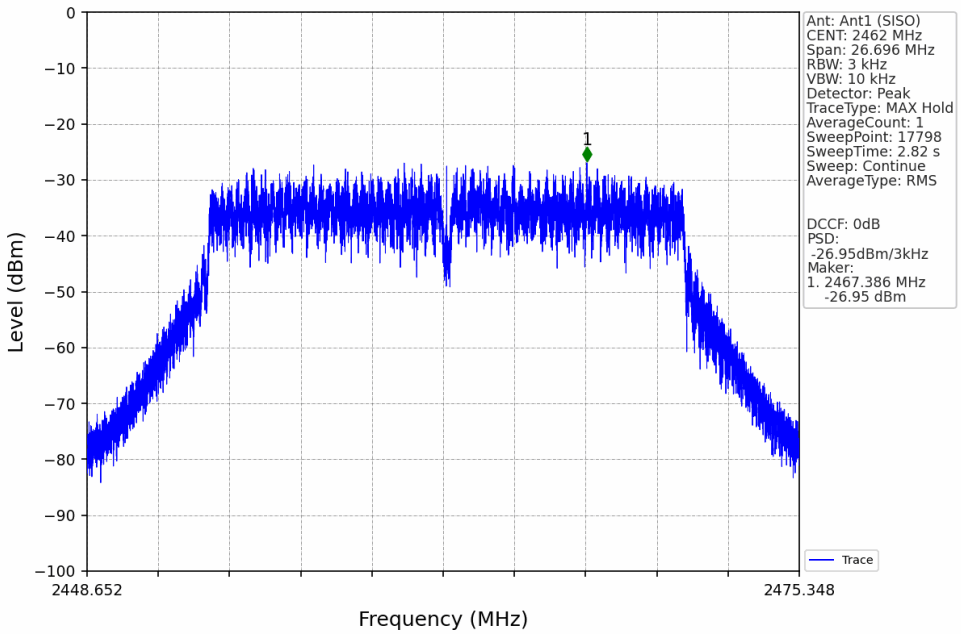
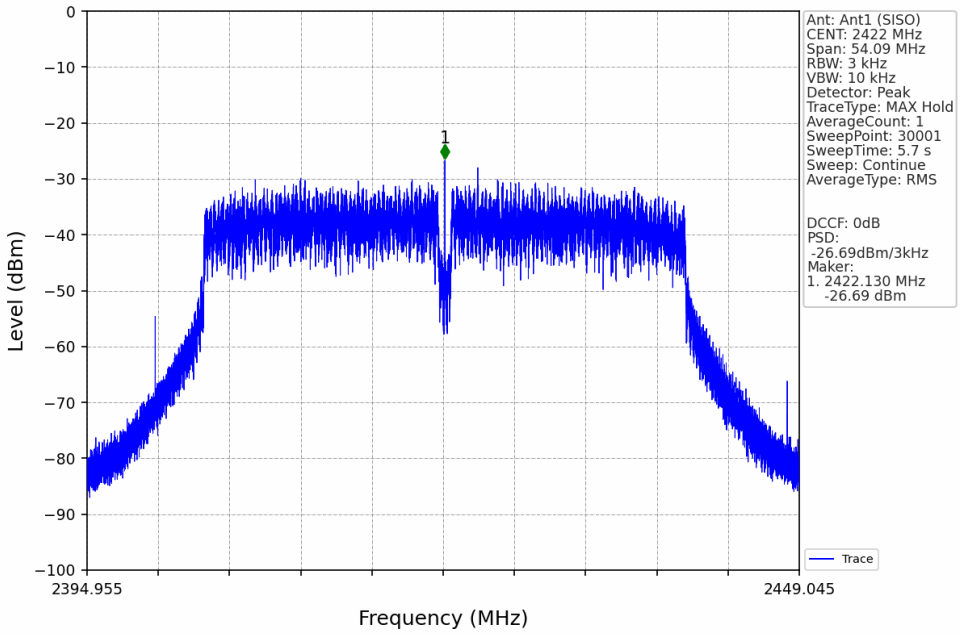
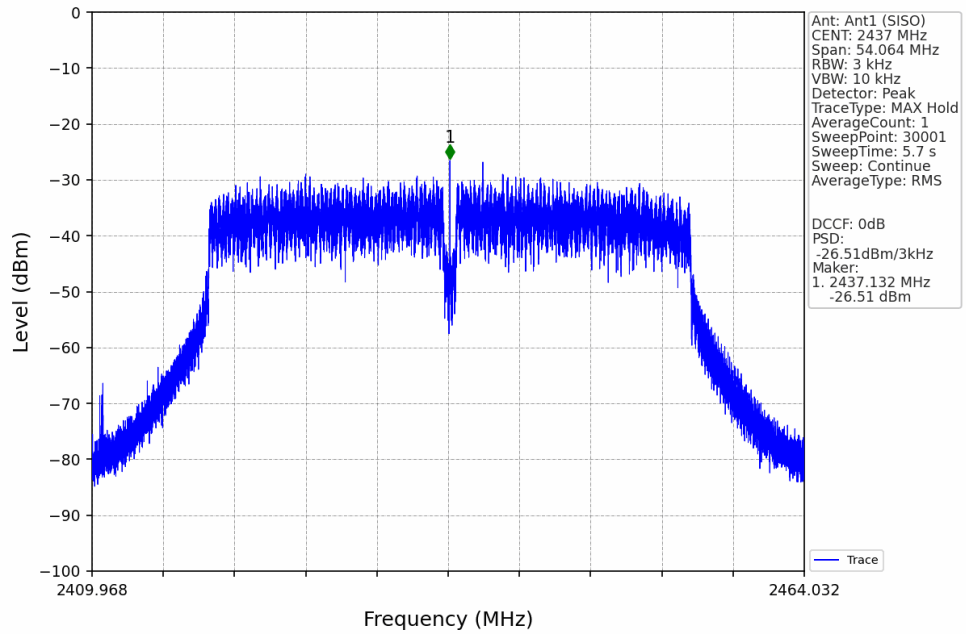


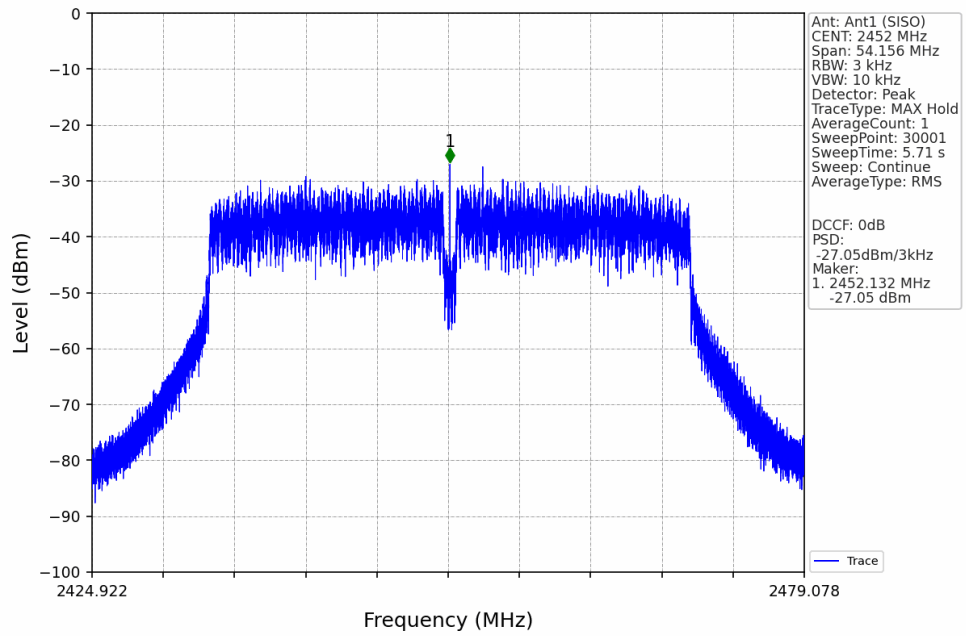
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



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	-4.66
		2437	1	-4.59
		2462	1	-4.64
802.11g	SISO	2412	1	-11.82
		2437	1	-11.09
		2462	1	-11.19
802.11n (HT20)	SISO	2412	1	-12.96
		2437	1	-12.30
		2462	1	-12.11
802.11n (HT40)	SISO	2422	1	-15.16
		2437	1	-14.28
		2452	1	-14.81
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.				

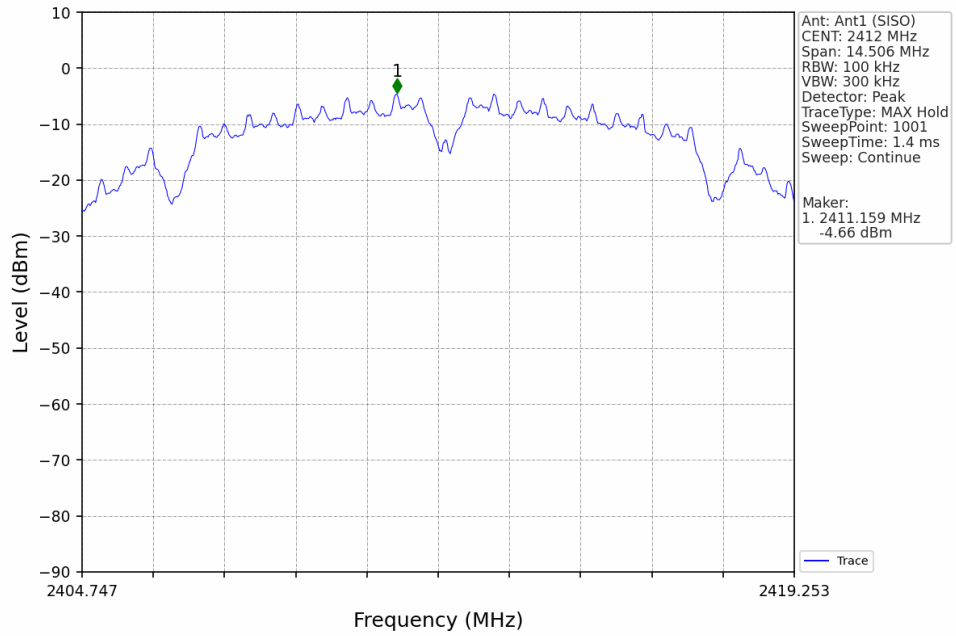
5.1.2 CSE

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	-4.66	-24.66	Pass
		2437	1	-4.59	-24.59	Pass
		2462	1	-4.64	-24.64	Pass
802.11g	SISO	2412	1	-11.82	-31.82	Pass
		2437	1	-11.09	-31.09	Pass
		2462	1	-11.19	-31.19	Pass
802.11n (HT20)	SISO	2412	1	-12.96	-32.96	Pass
		2437	1	-12.30	-32.30	Pass
		2462	1	-12.11	-32.11	Pass
802.11n (HT40)	SISO	2422	1	-15.16	-35.16	Pass
		2437	1	-14.28	-34.28	Pass
		2452	1	-14.81	-34.81	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.						

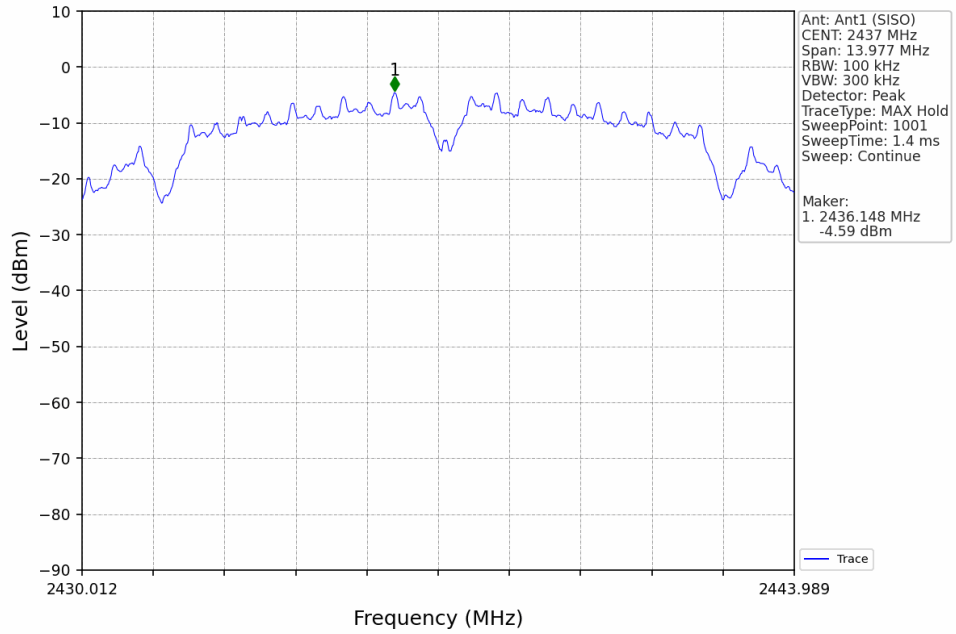
5.2 Test Graph

5.2.1 Ref

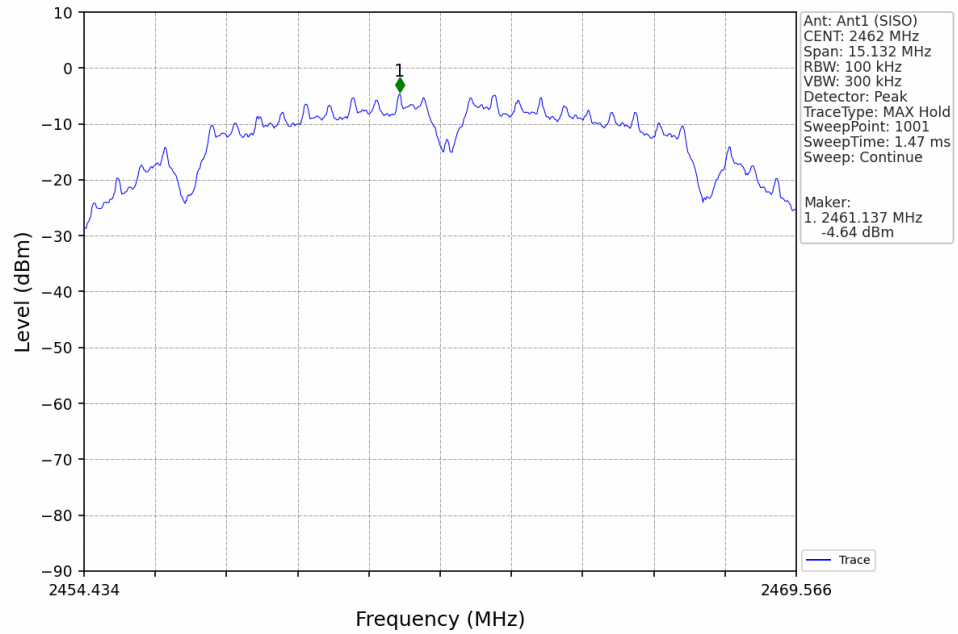
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



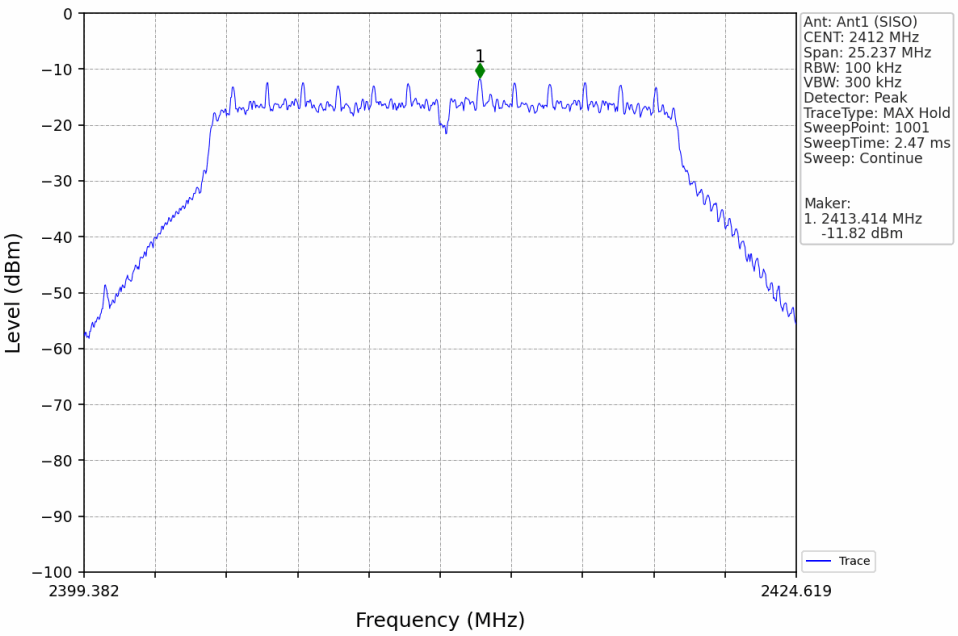
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



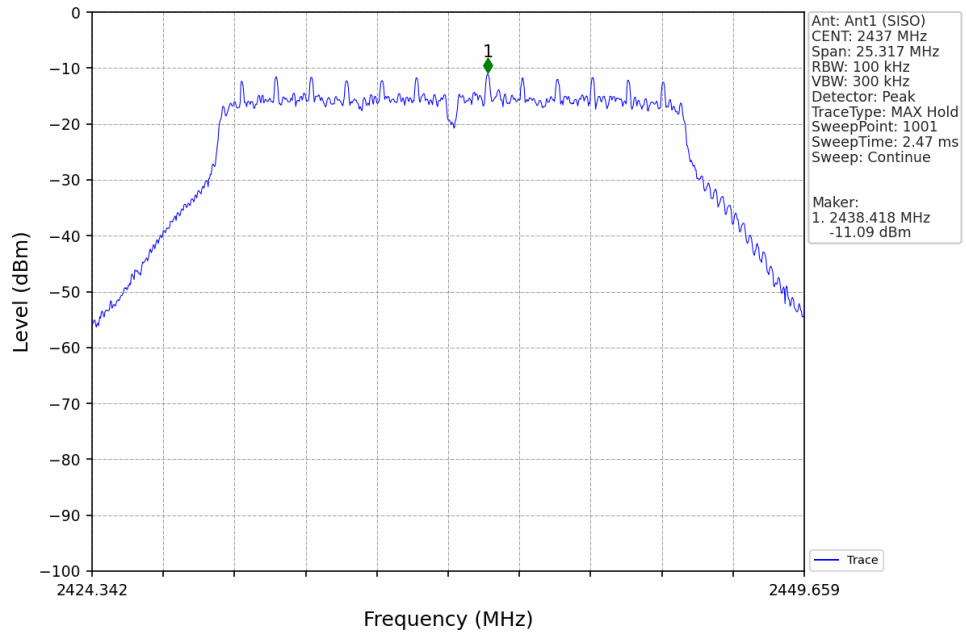
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



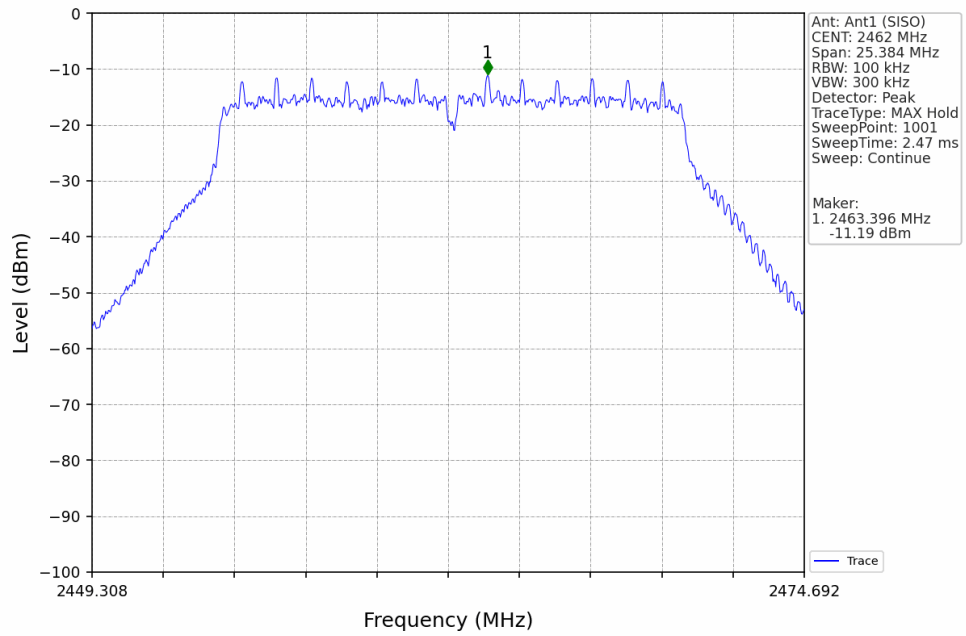
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



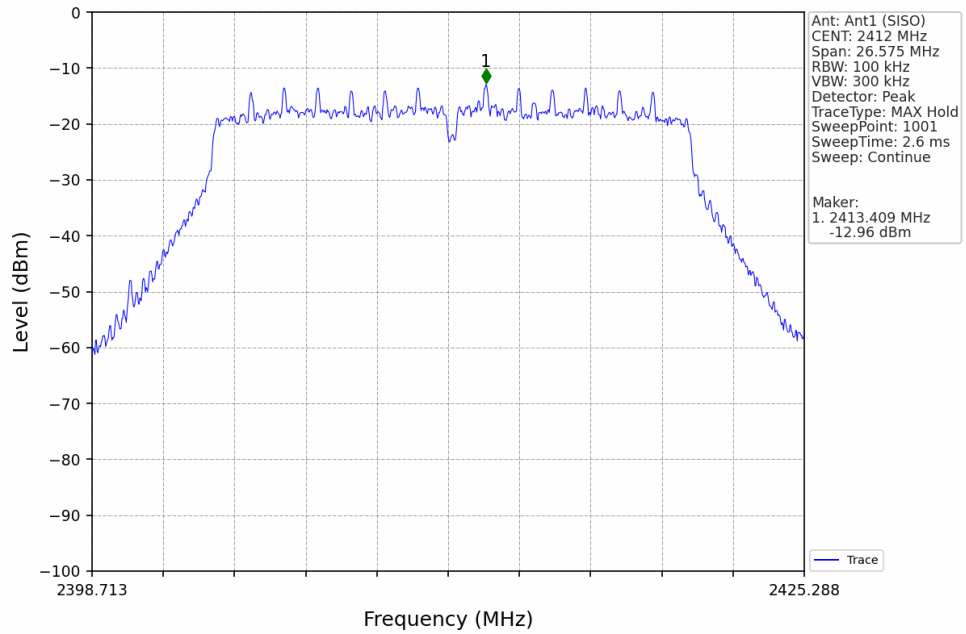
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



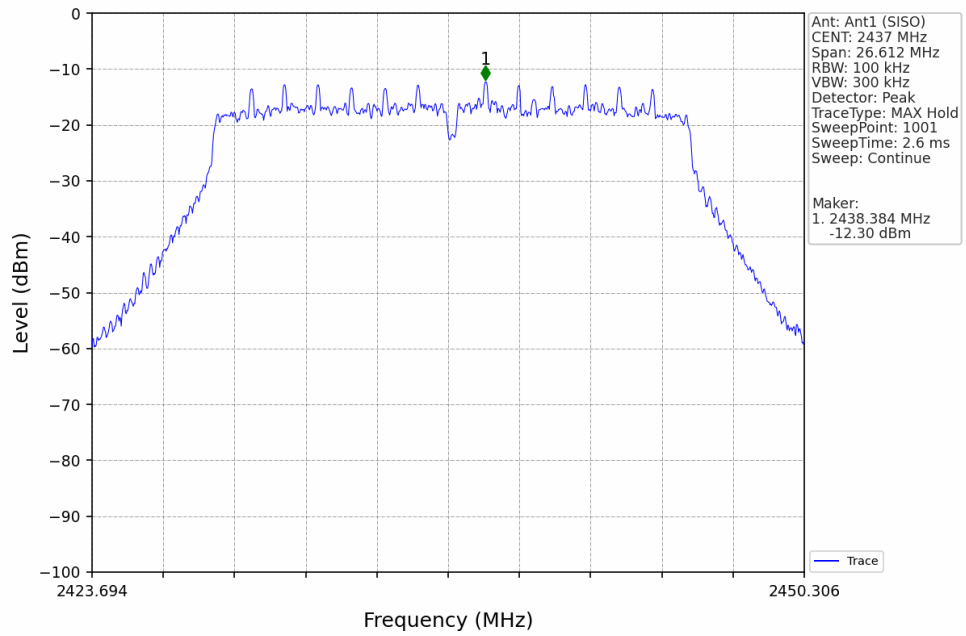
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



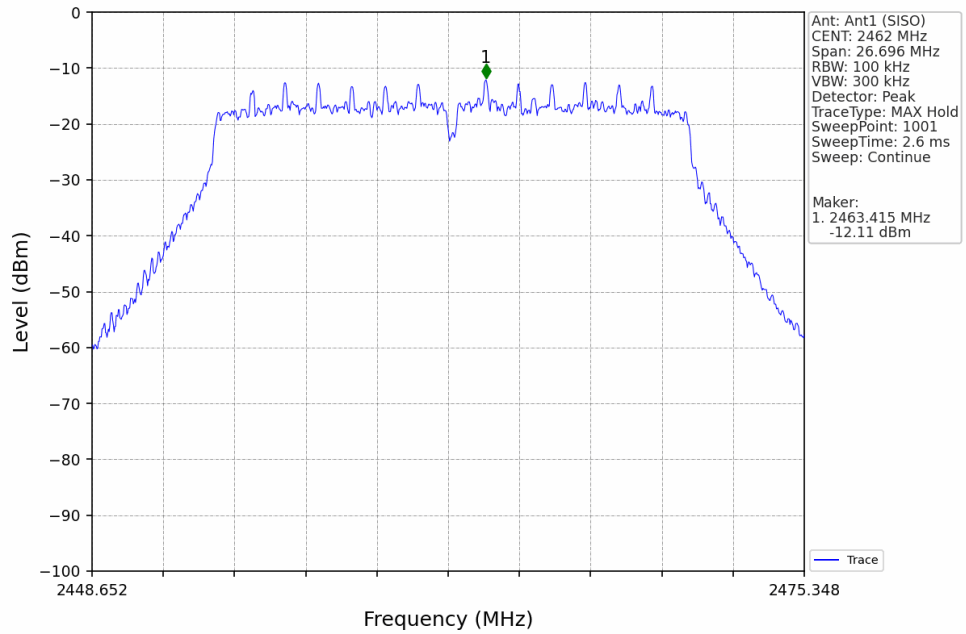
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



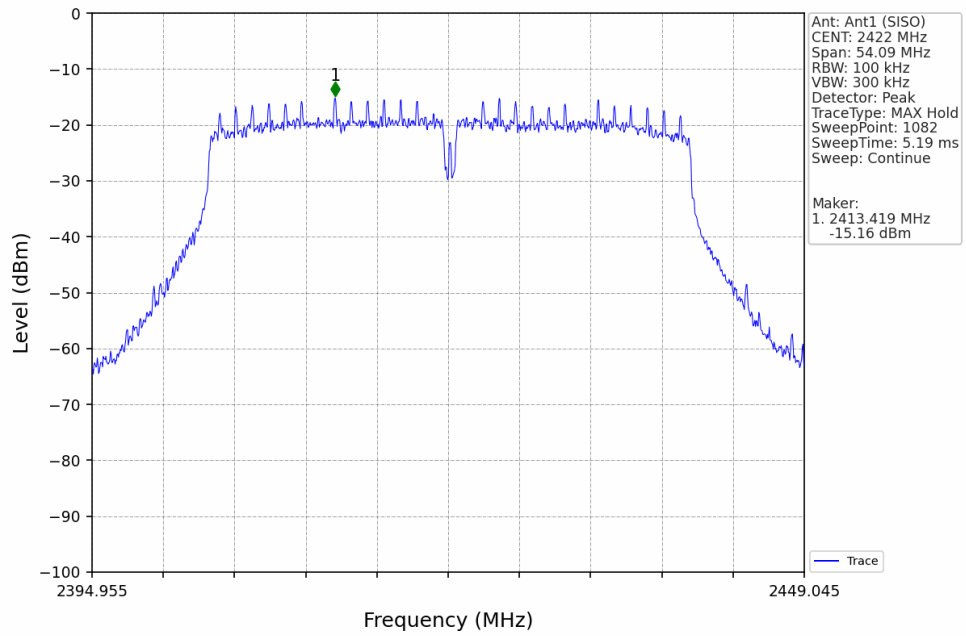
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



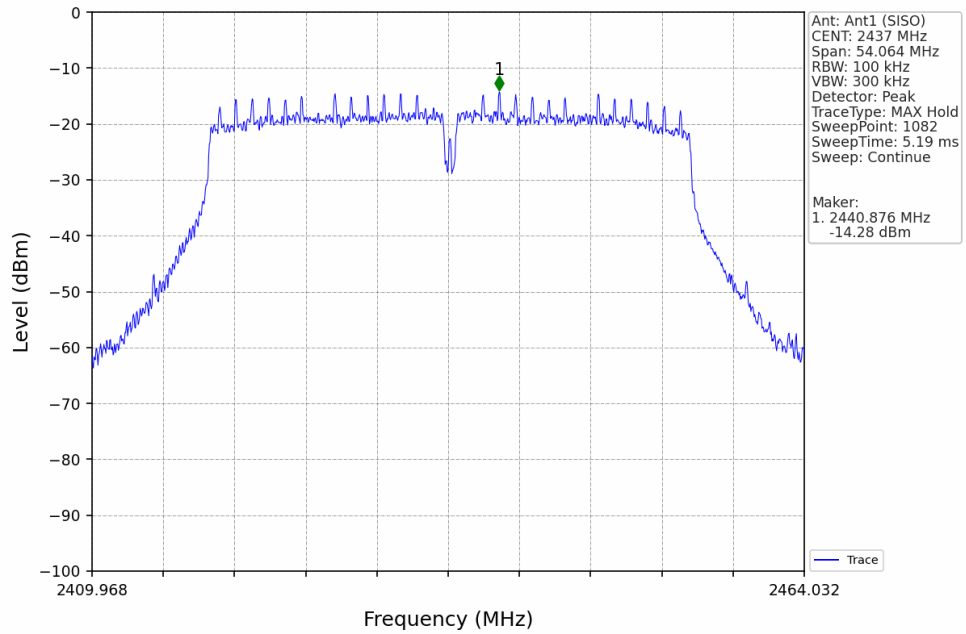
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



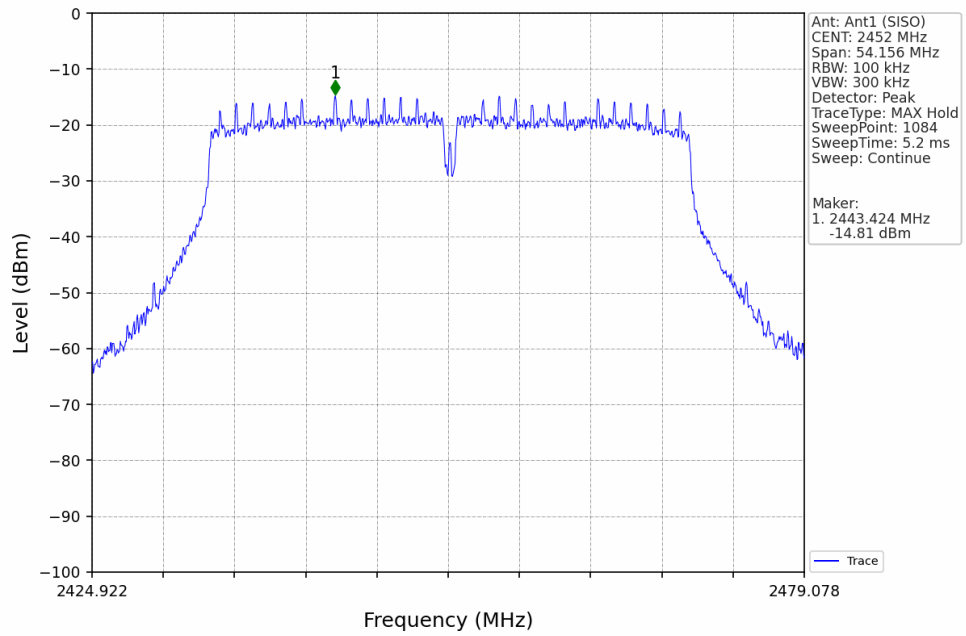
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV

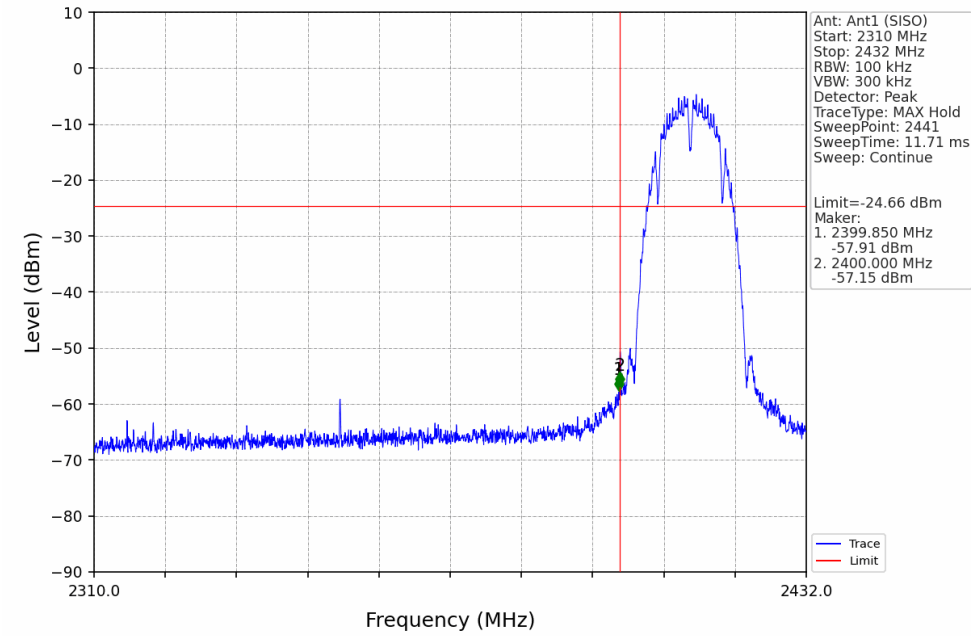


802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



5.2.2 CSE

802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



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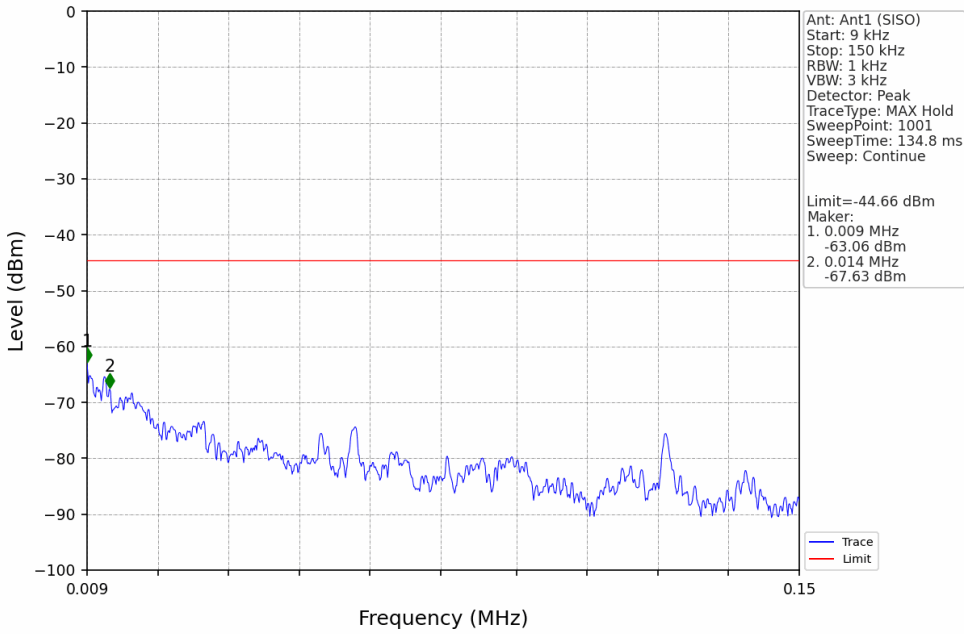

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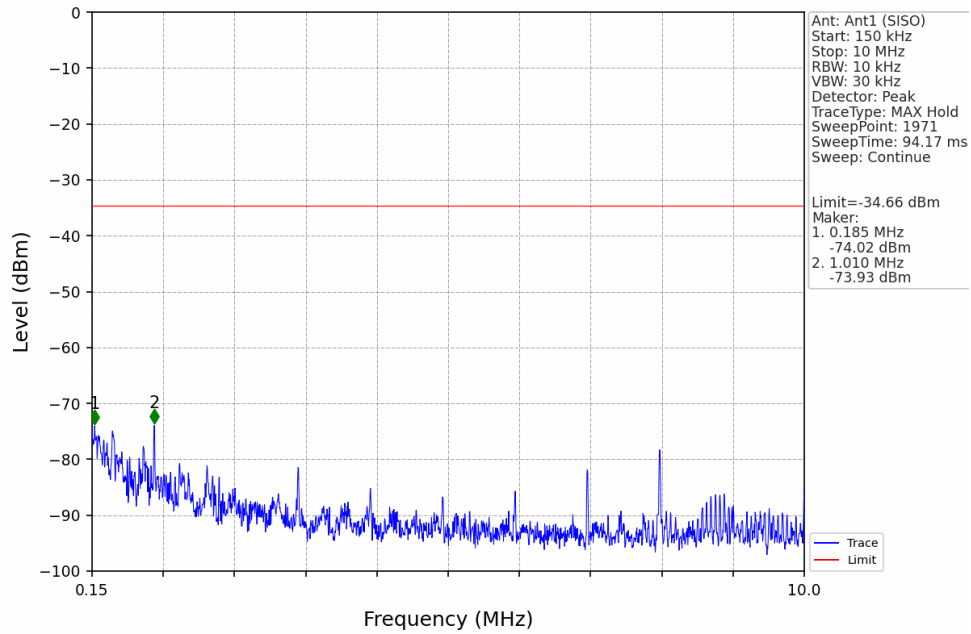

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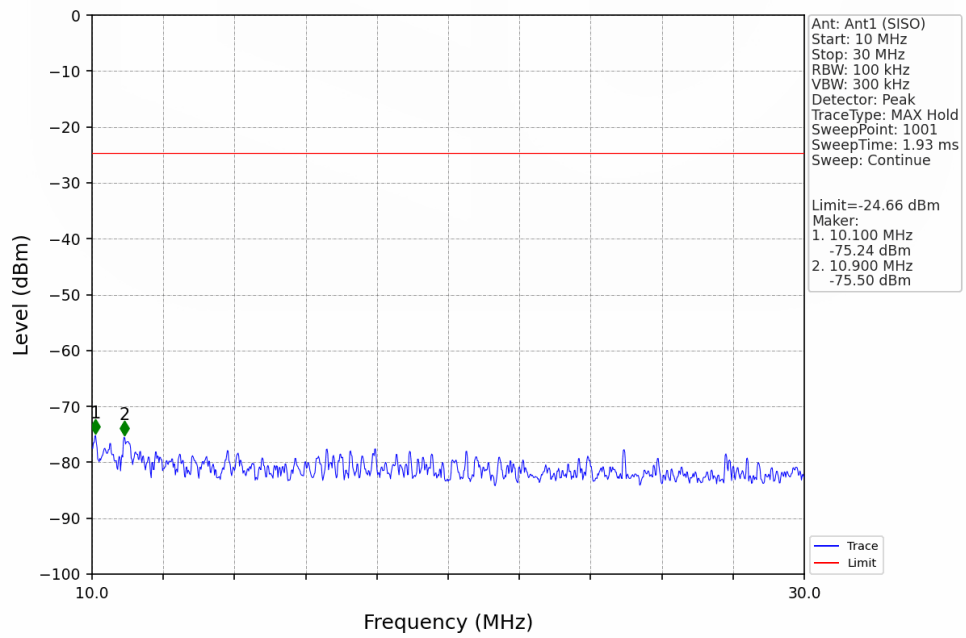

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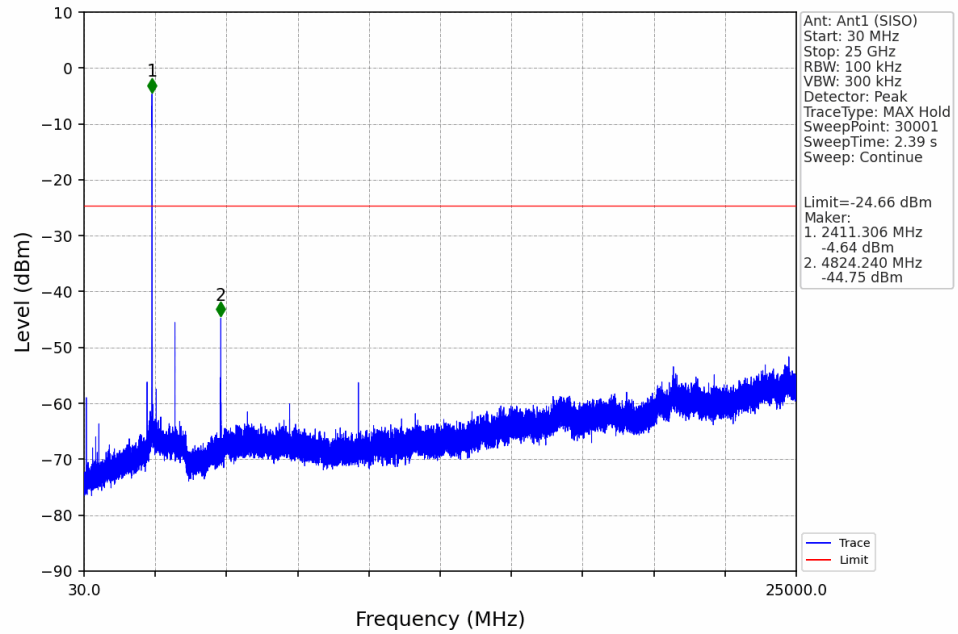
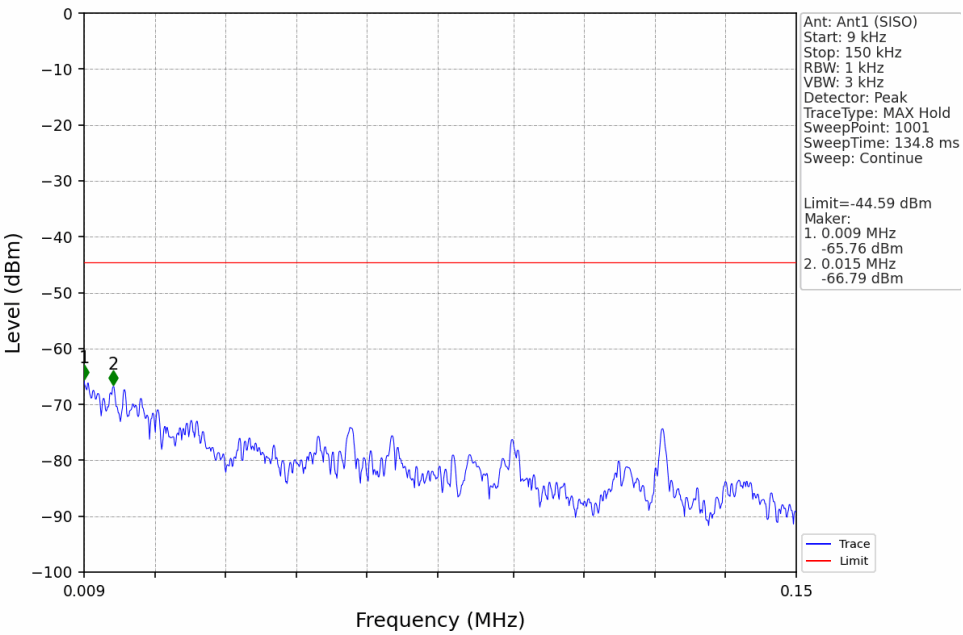


802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



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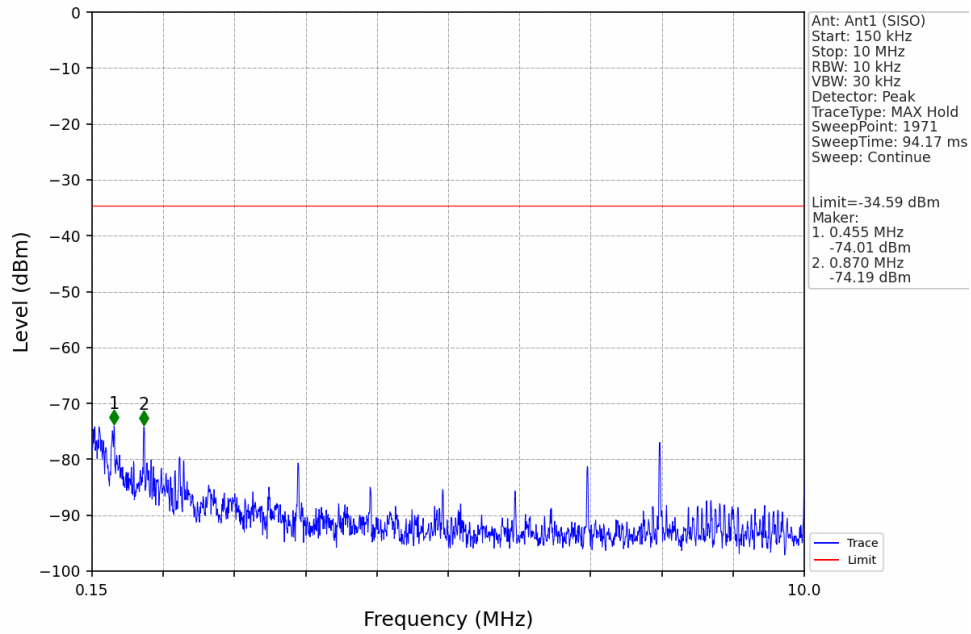
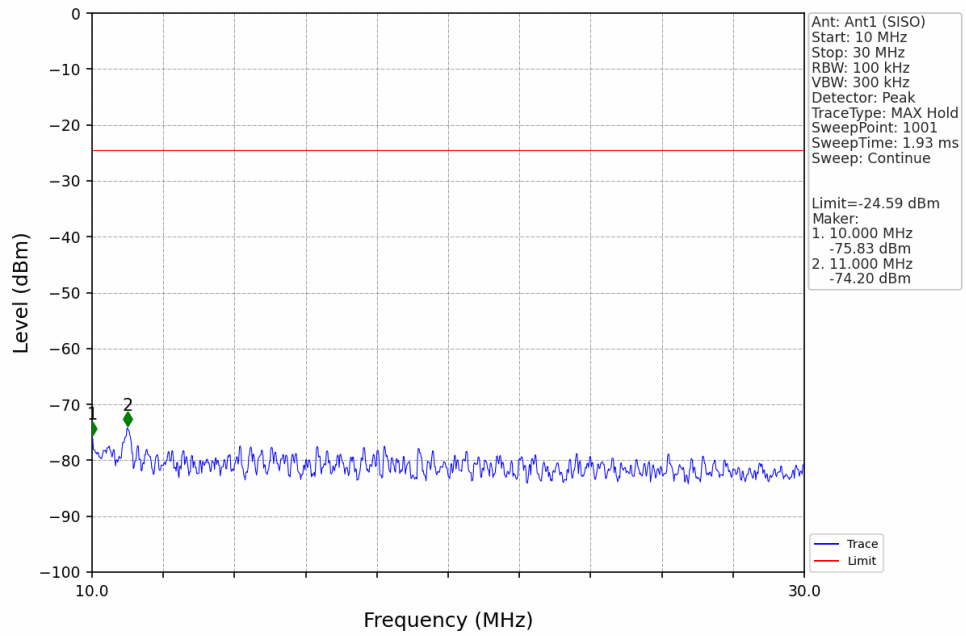


802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



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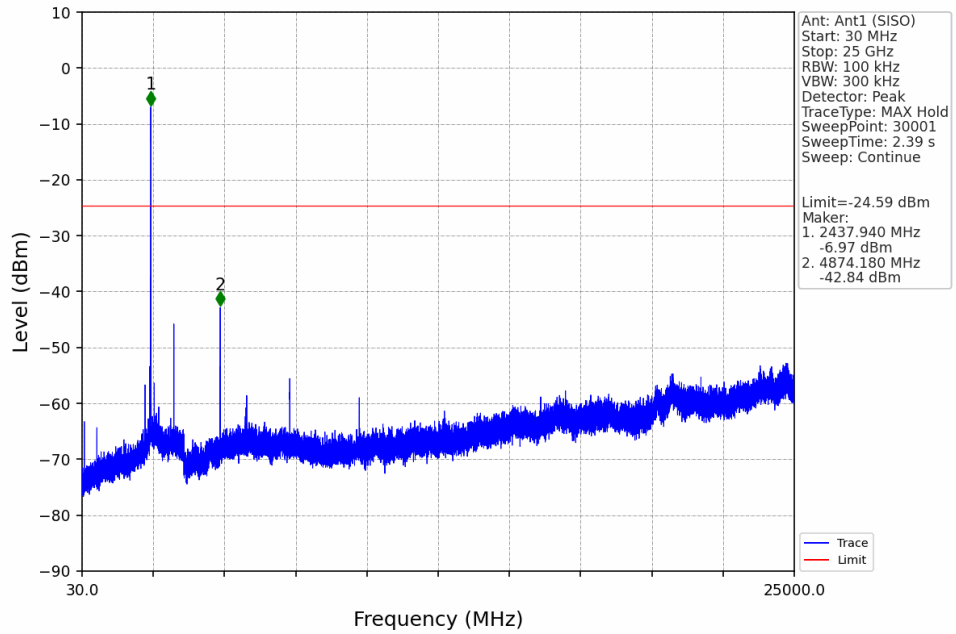

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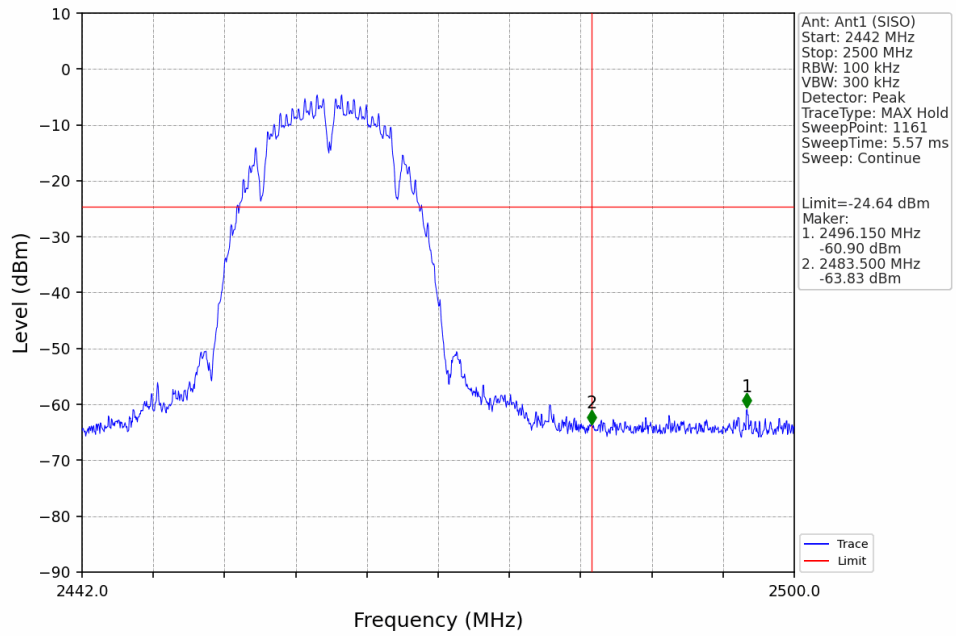

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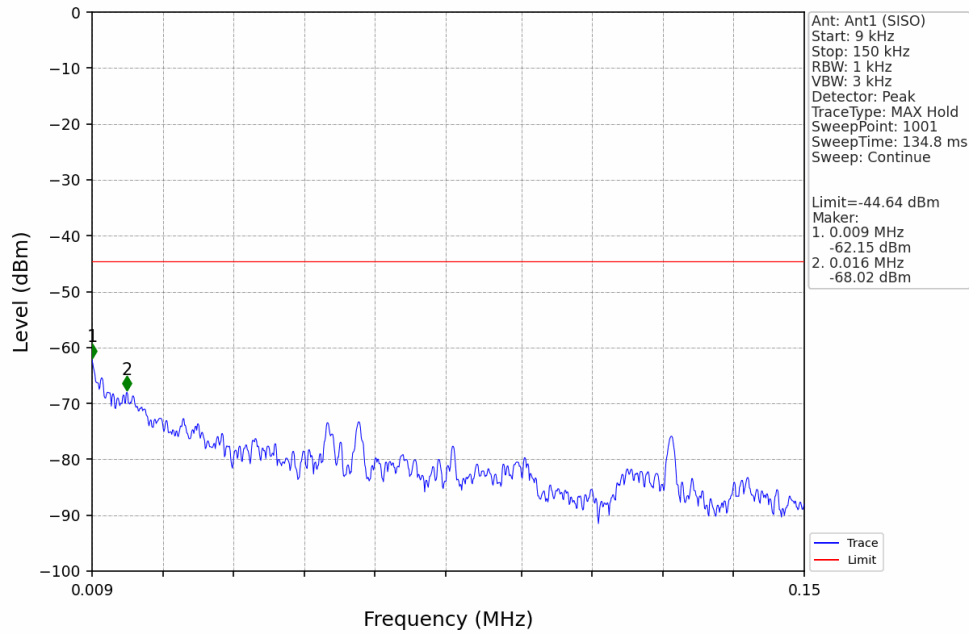

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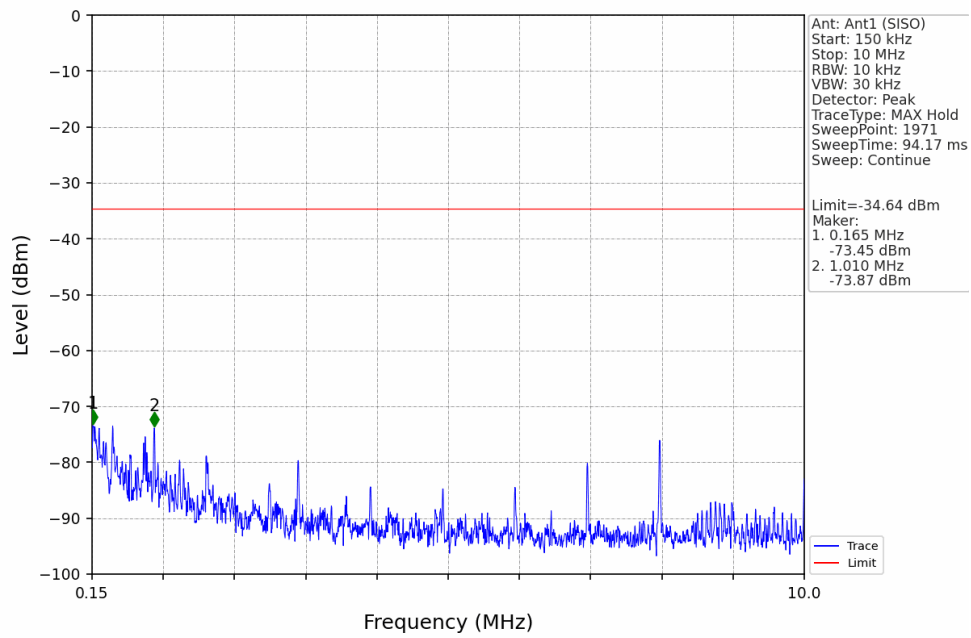

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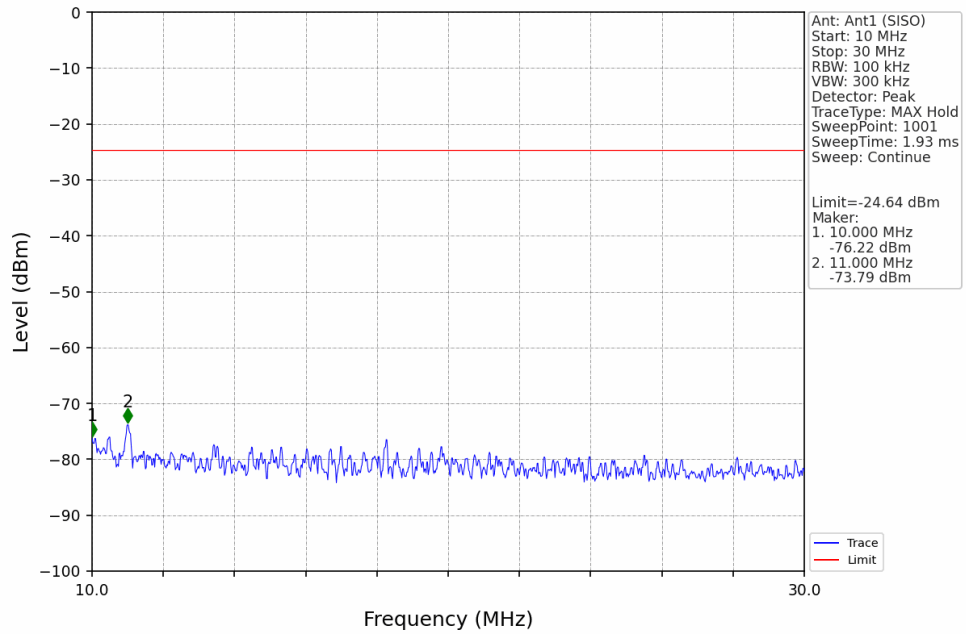

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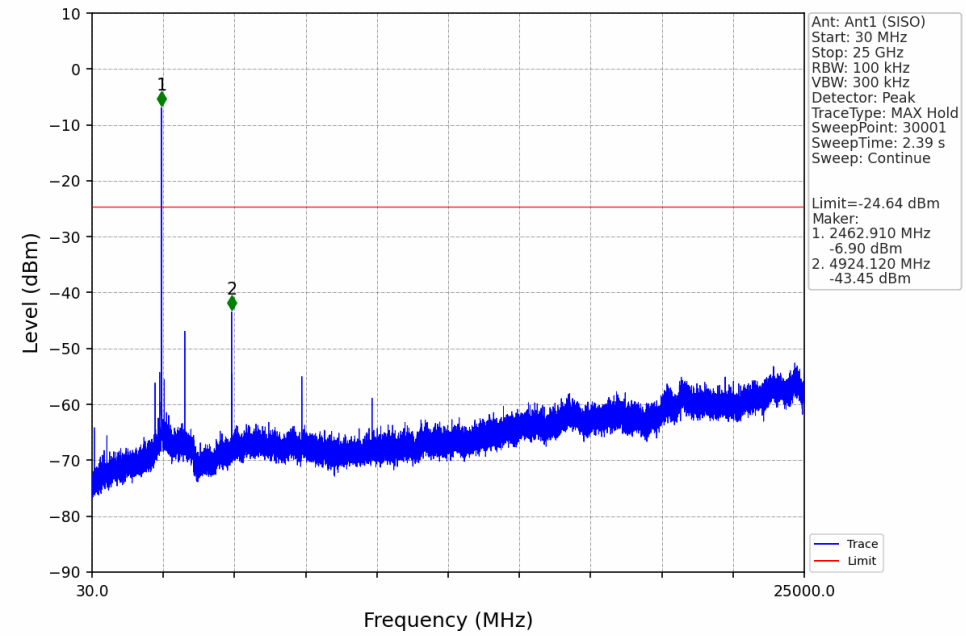

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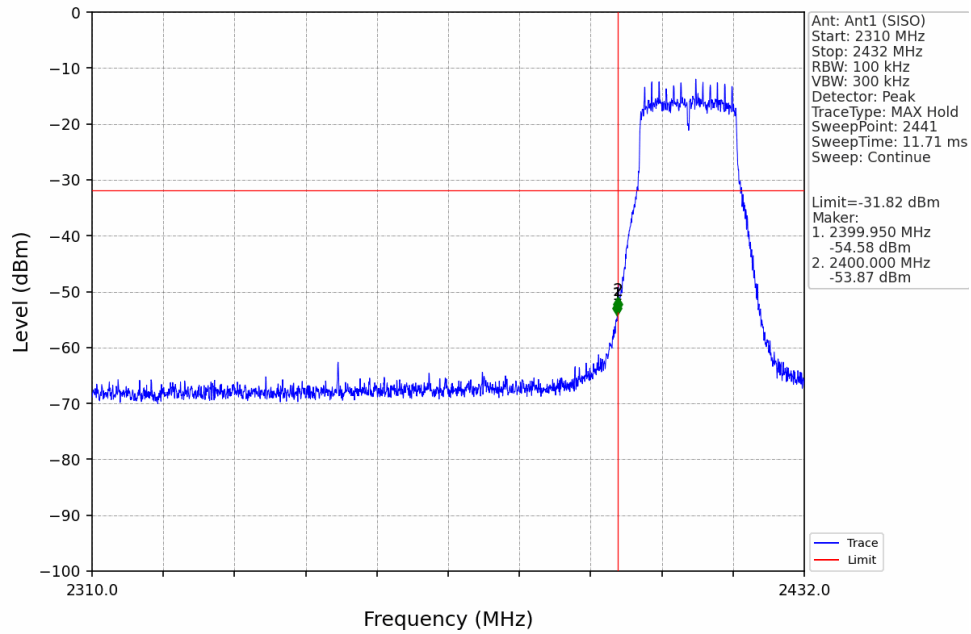

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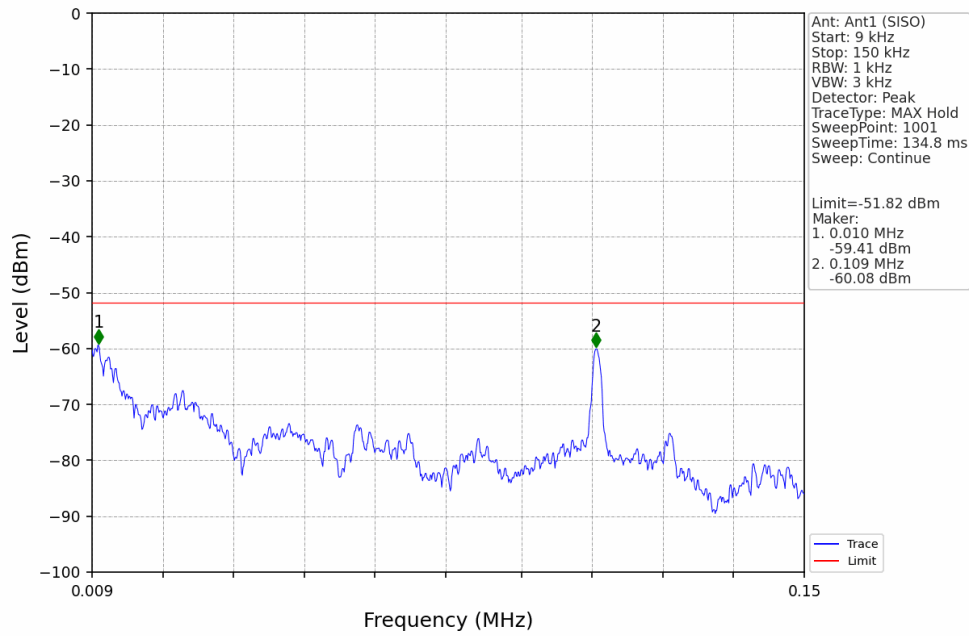

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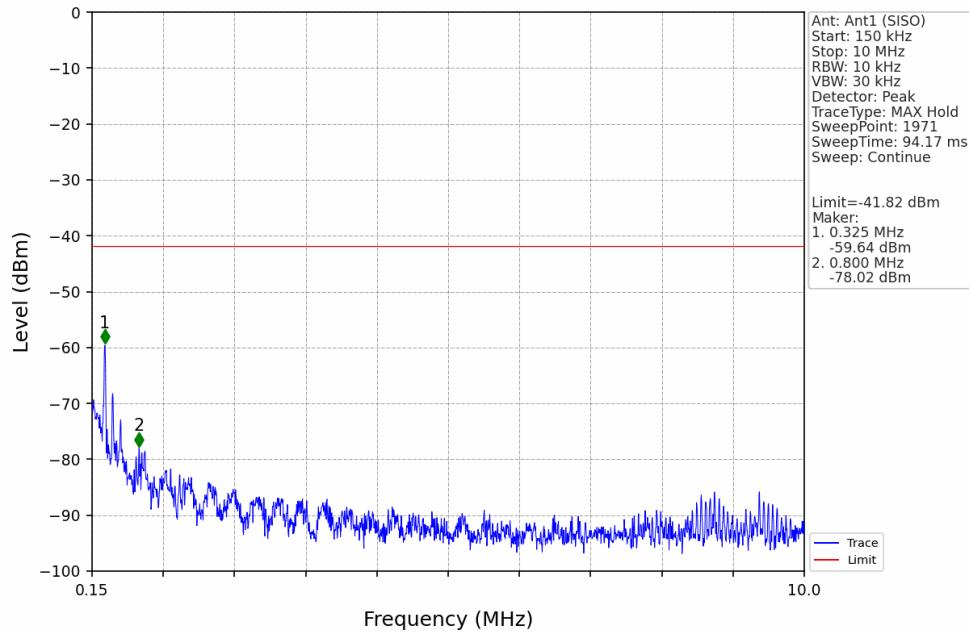

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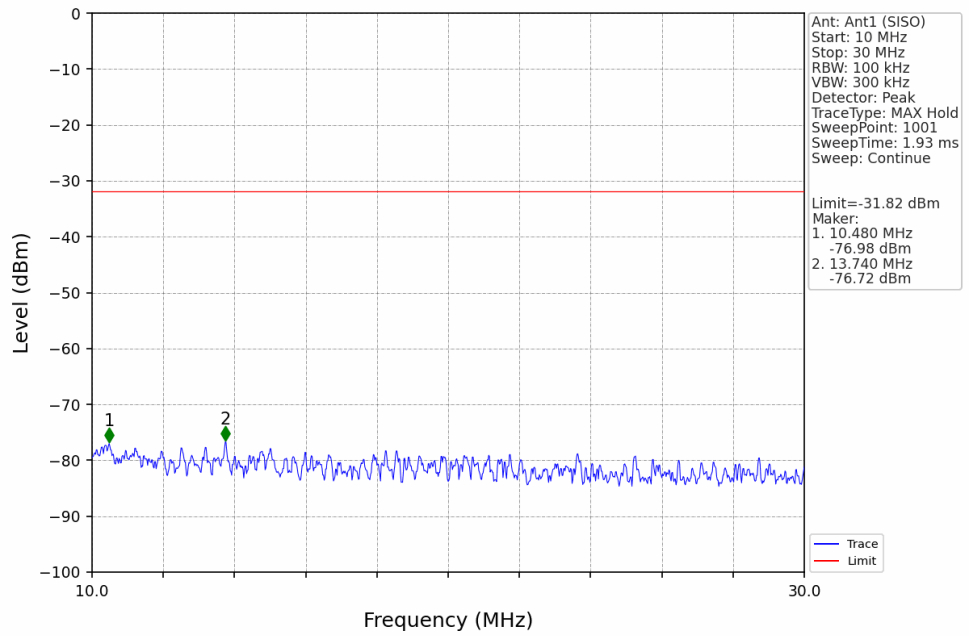

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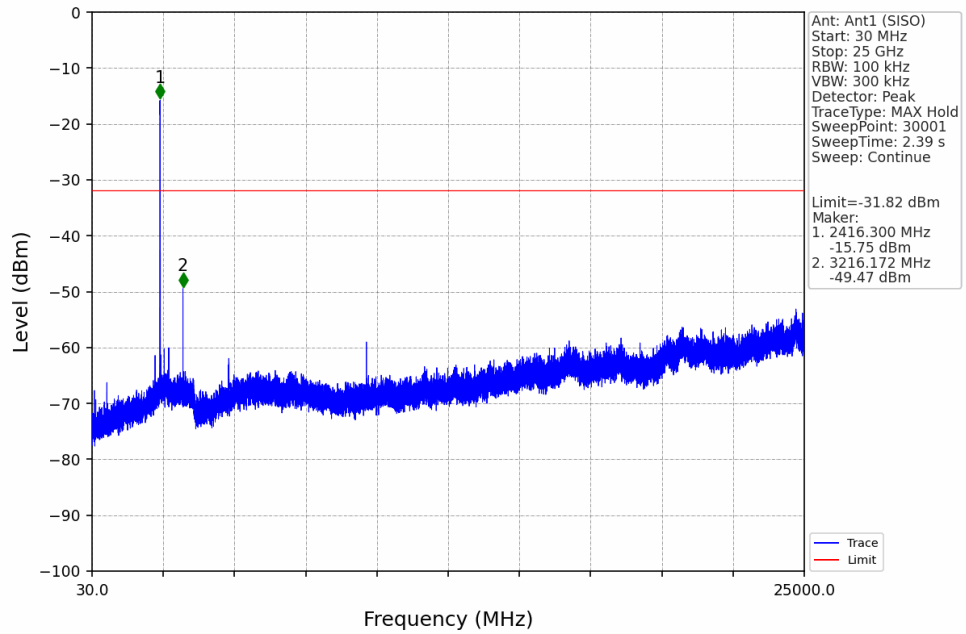
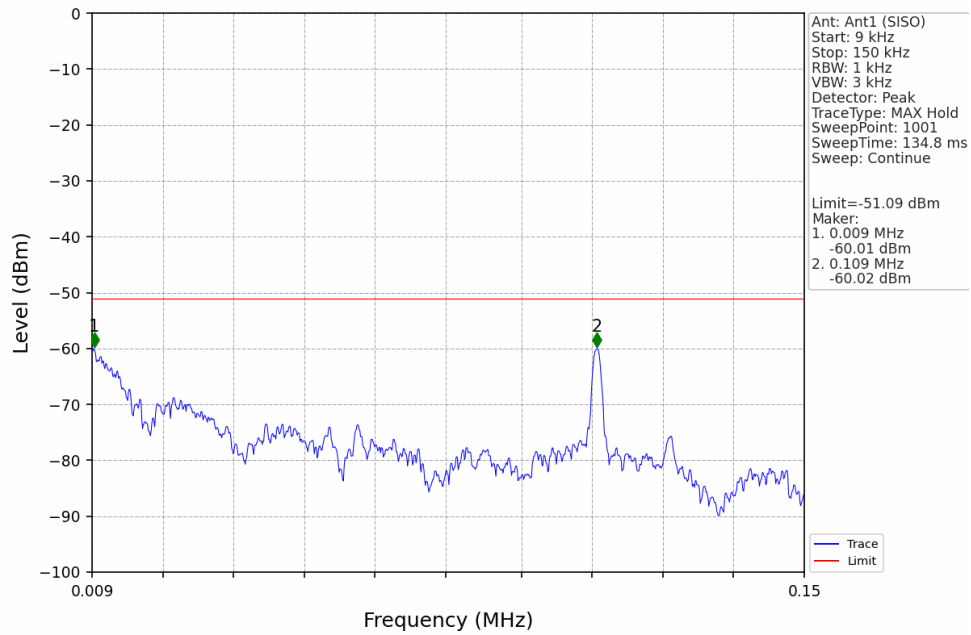
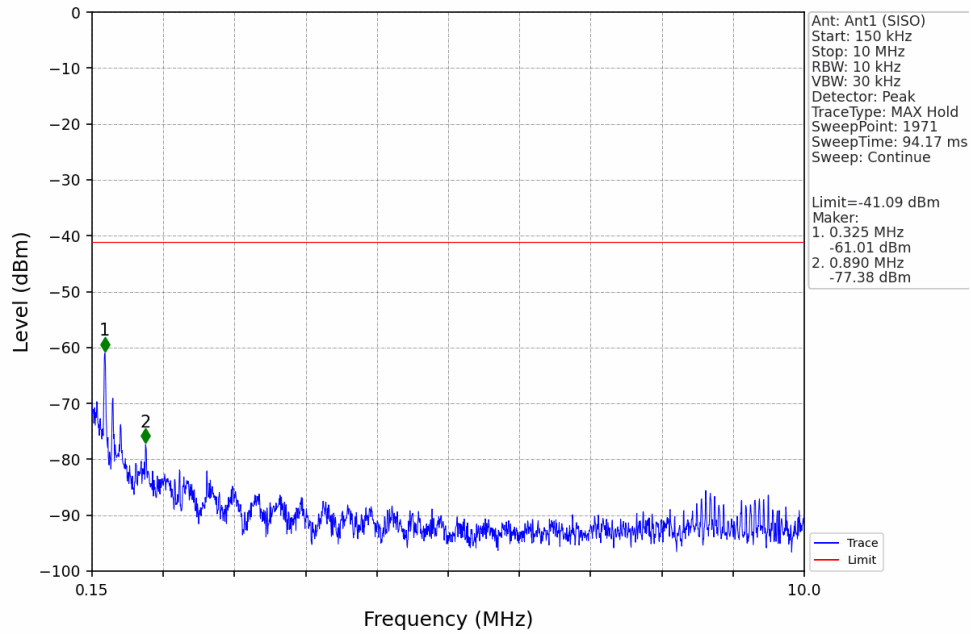


802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



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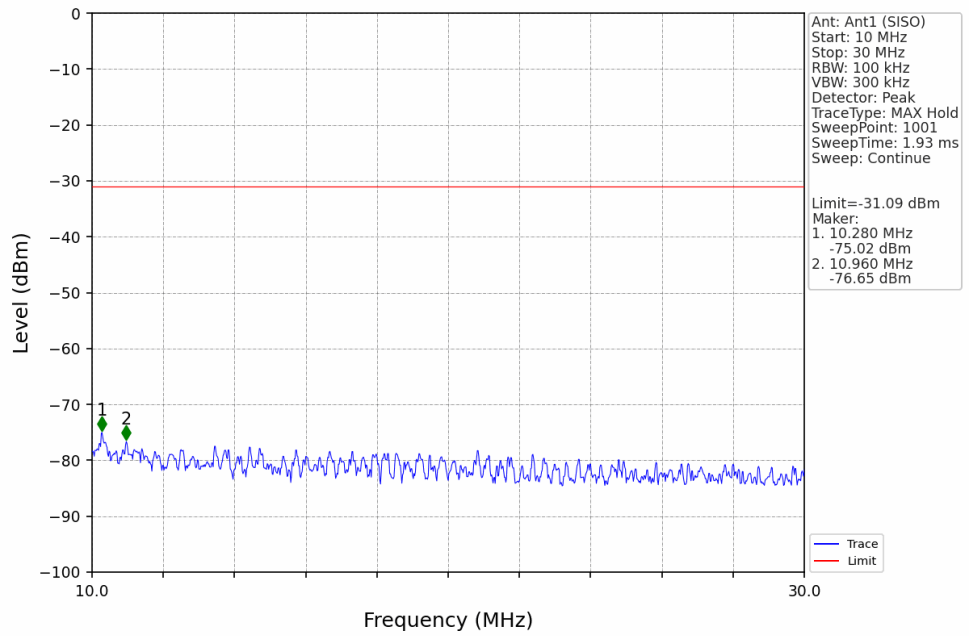
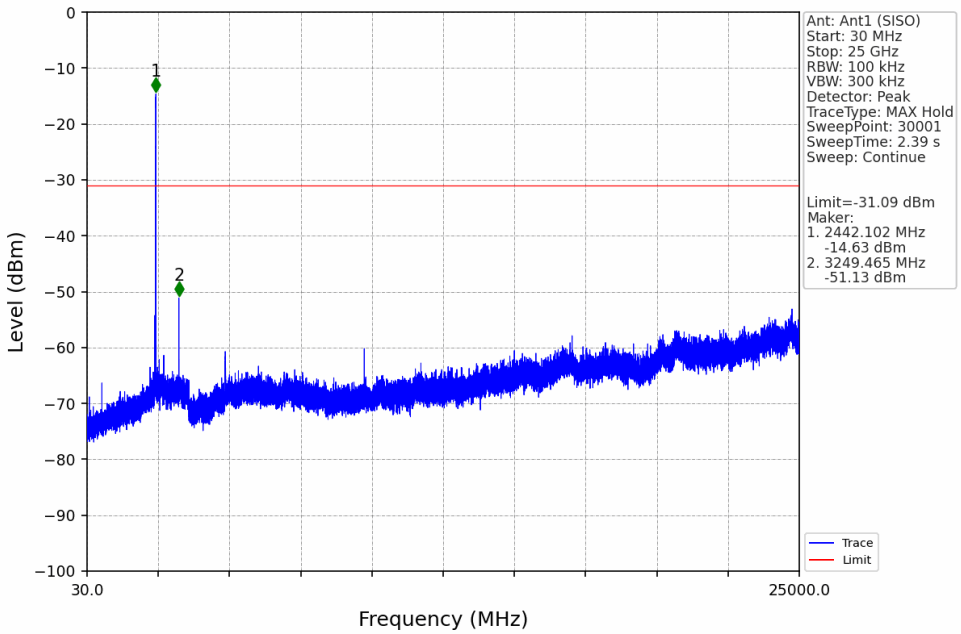
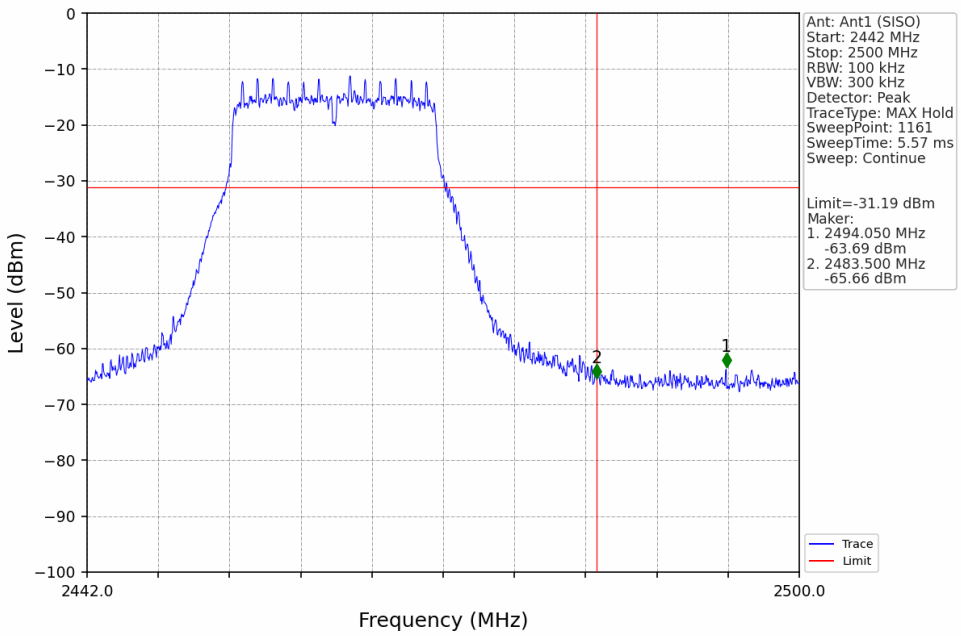


802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



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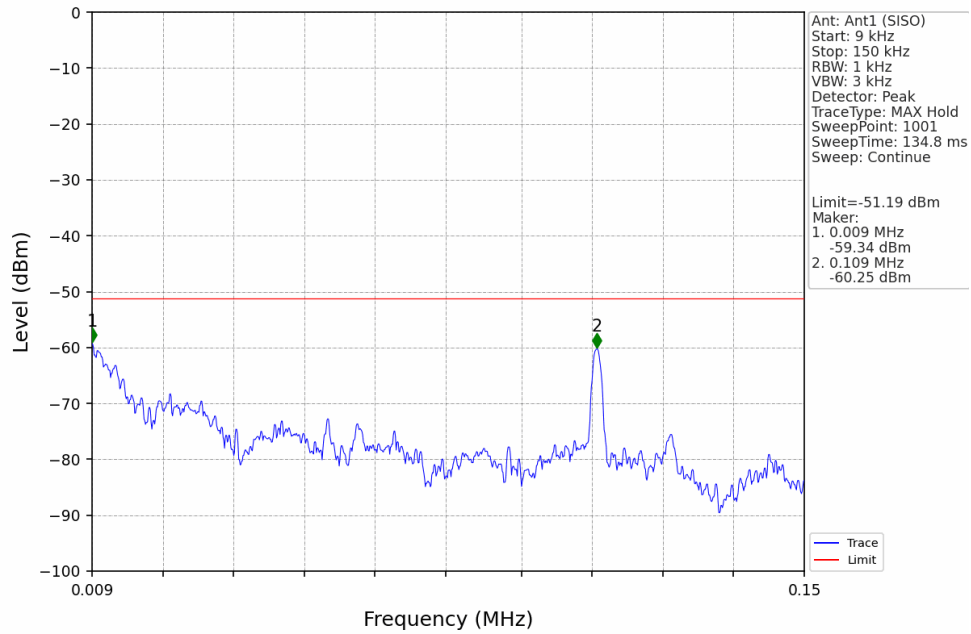

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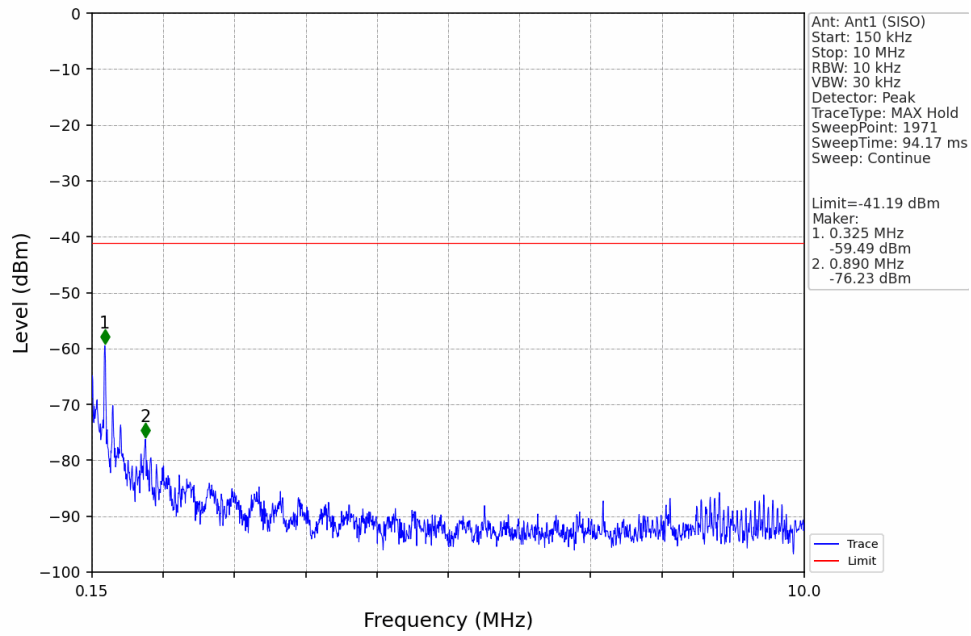

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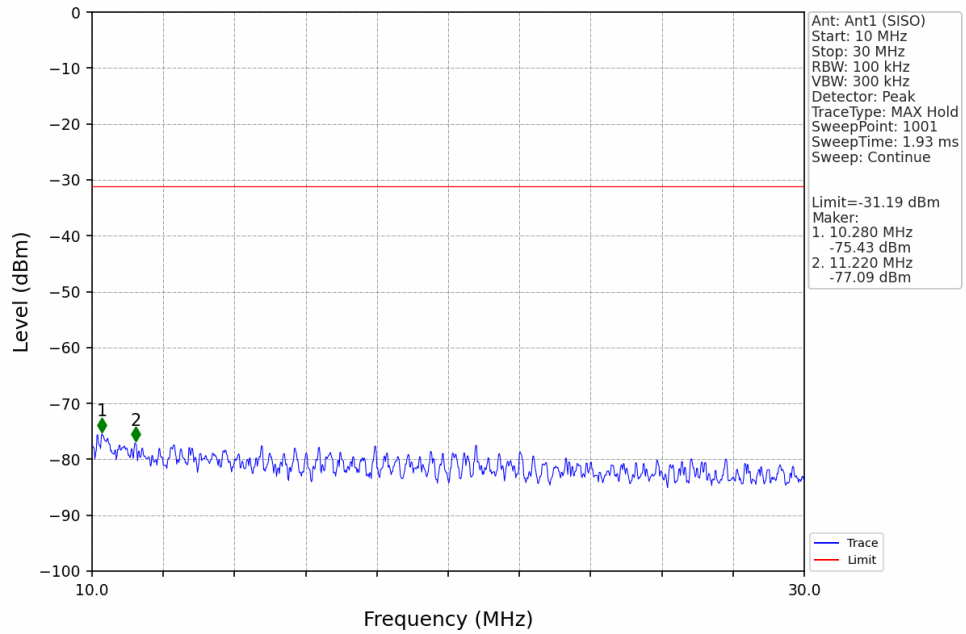

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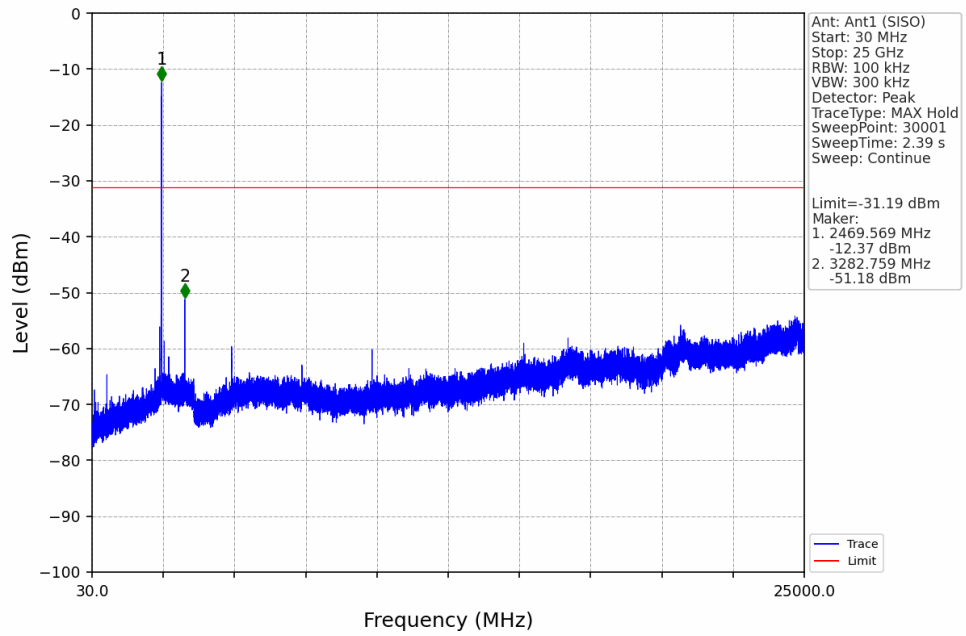

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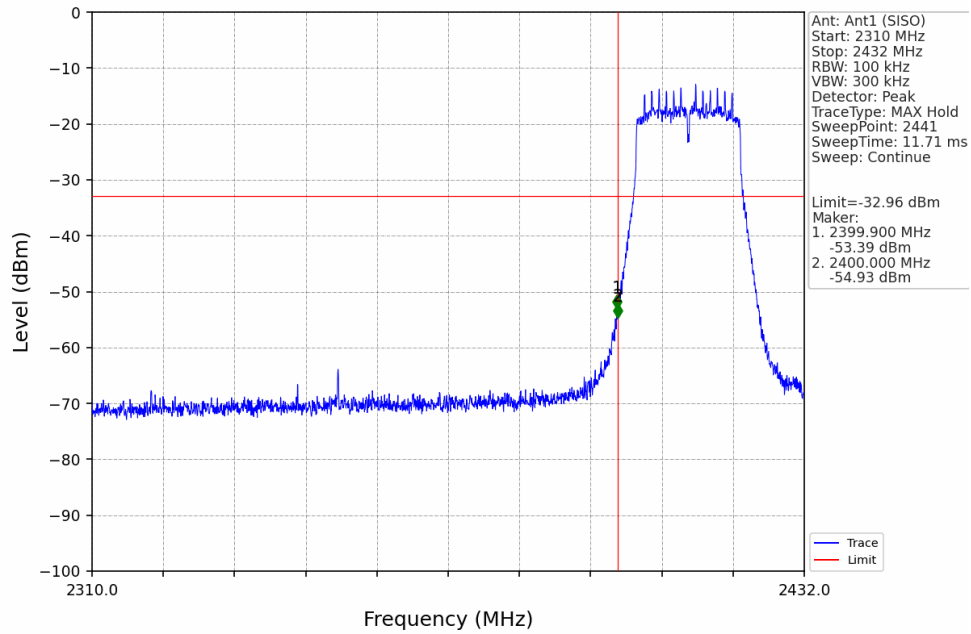

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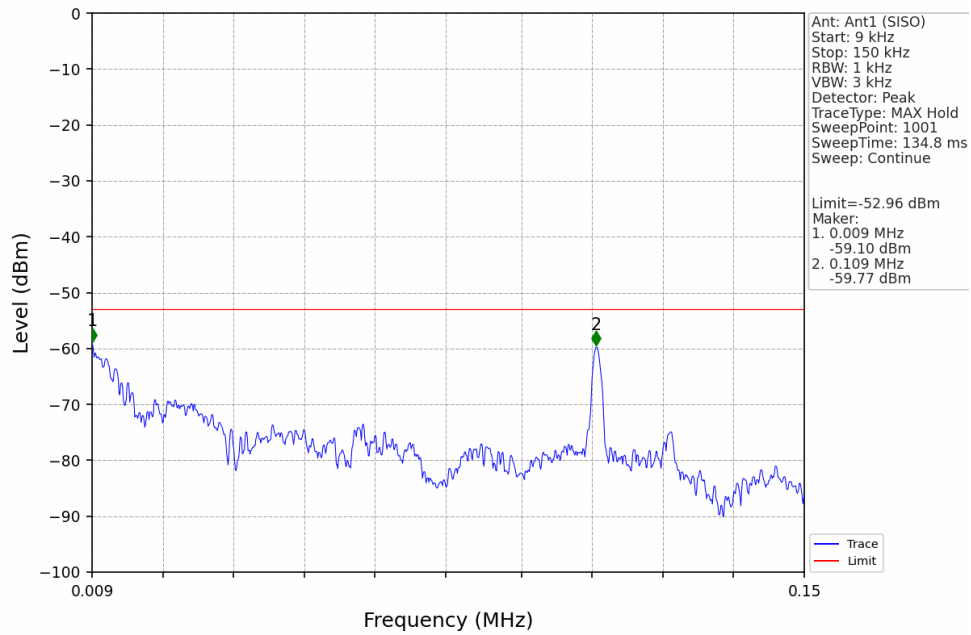

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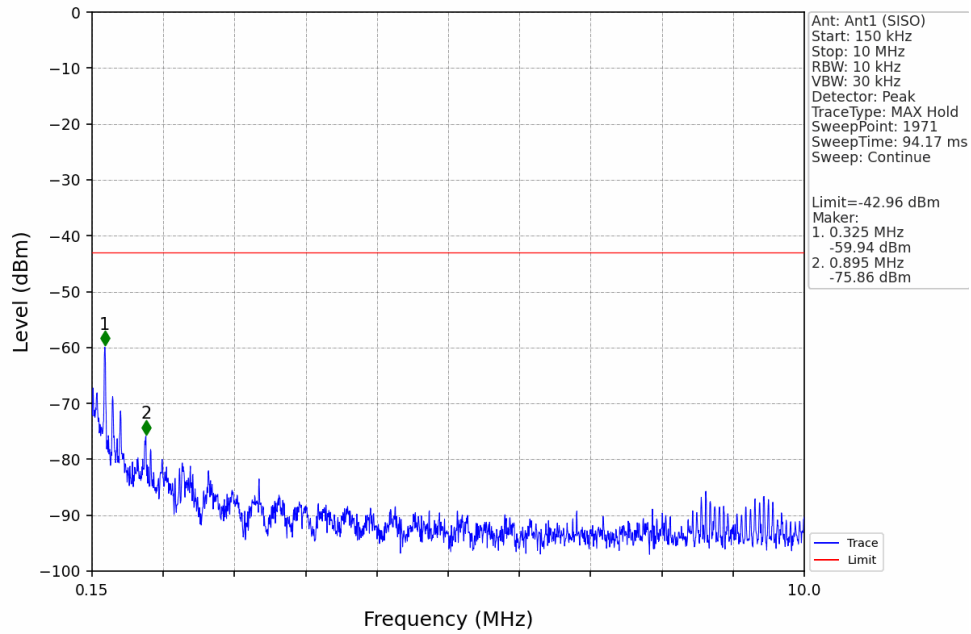

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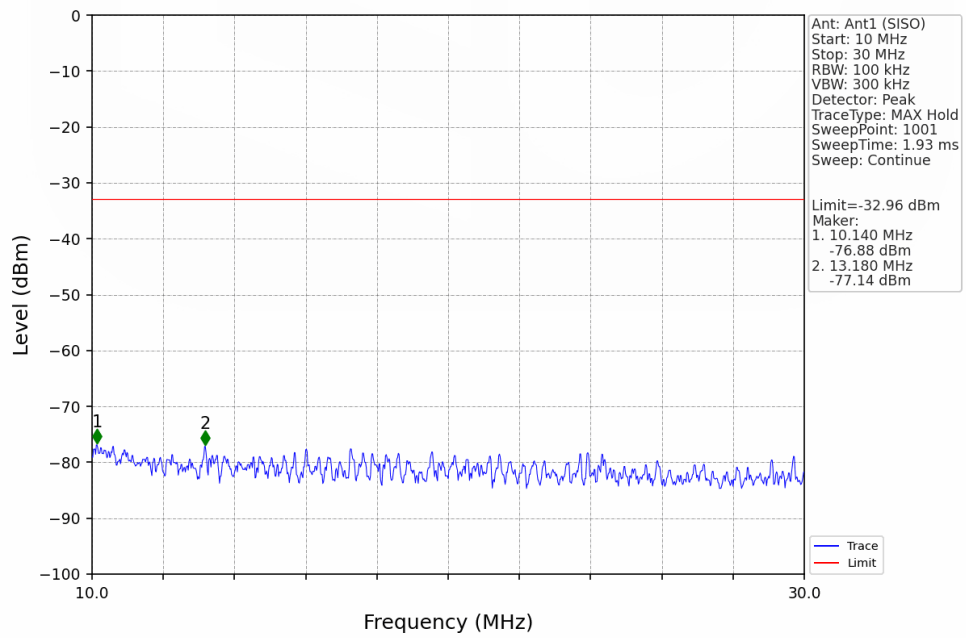

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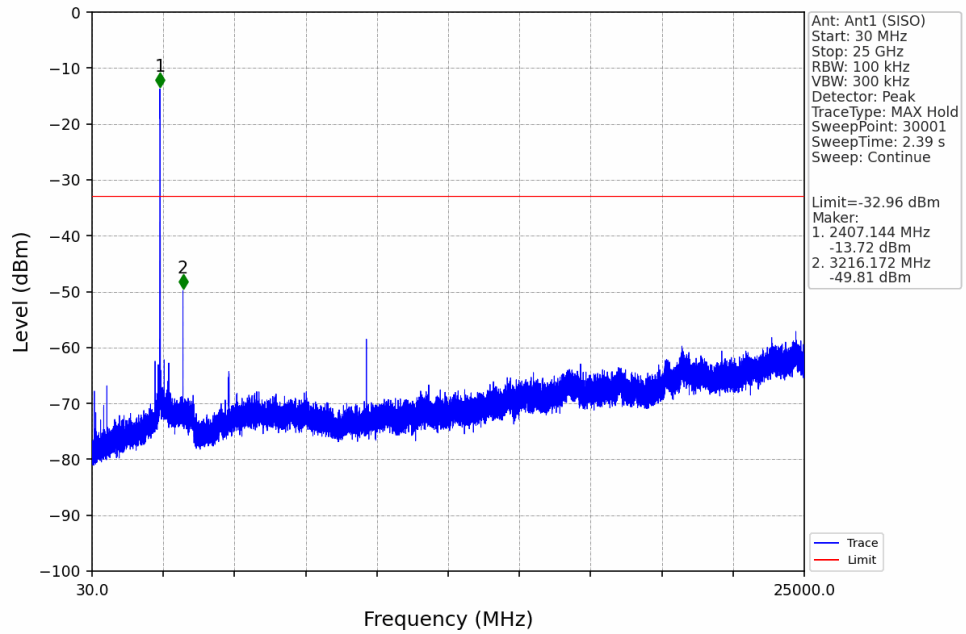
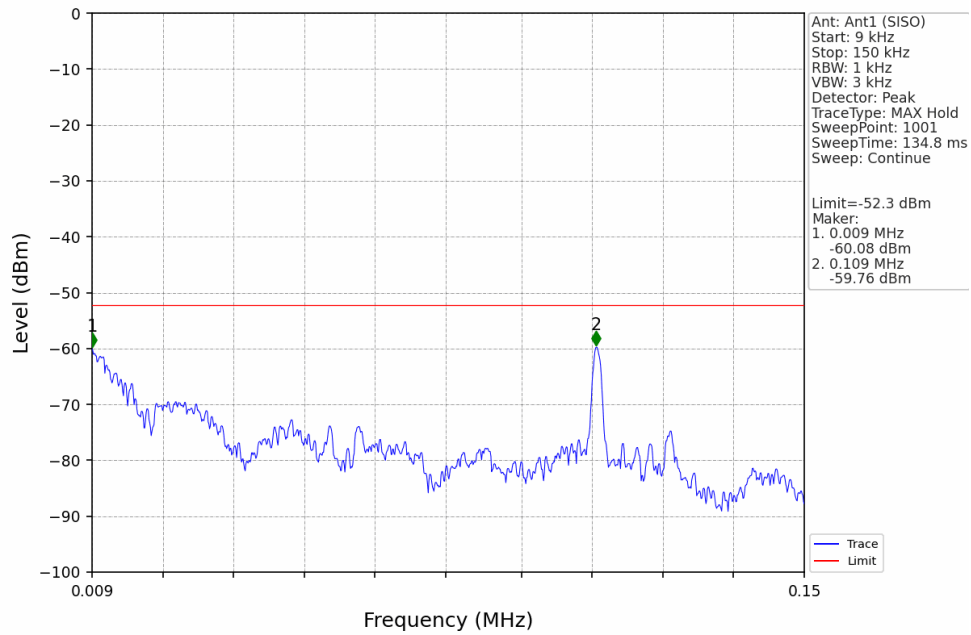


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



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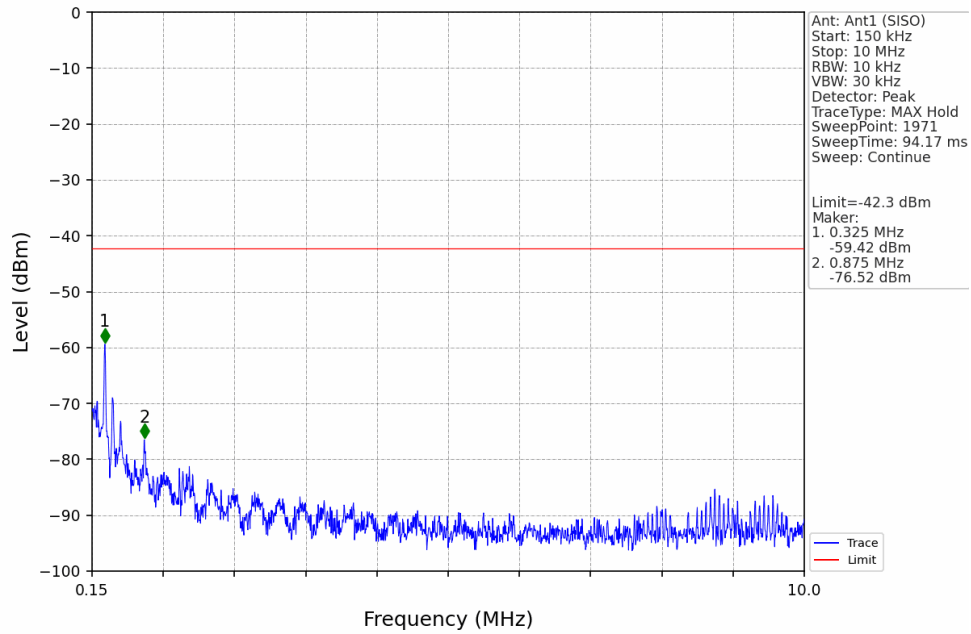

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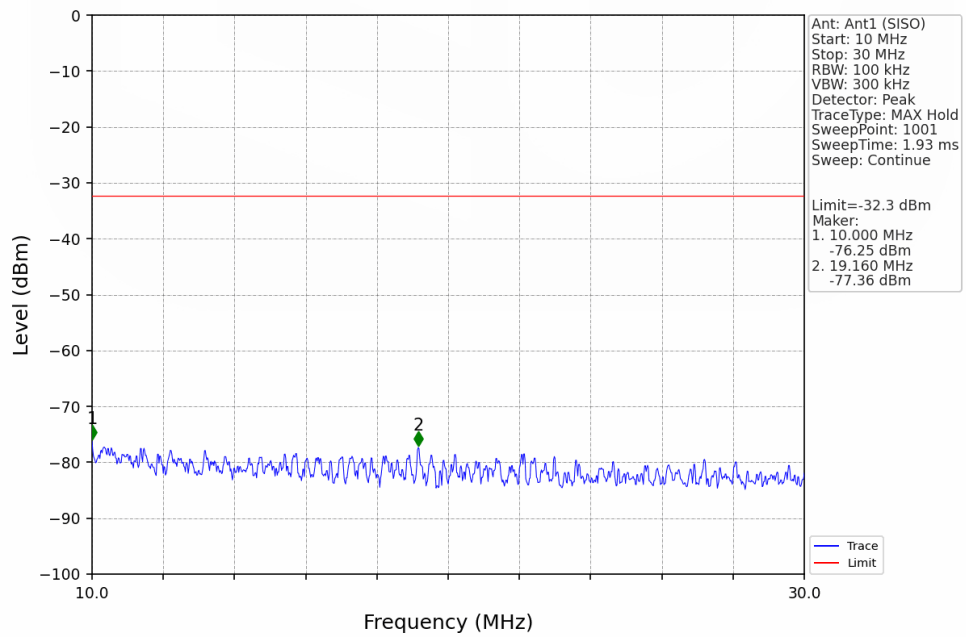

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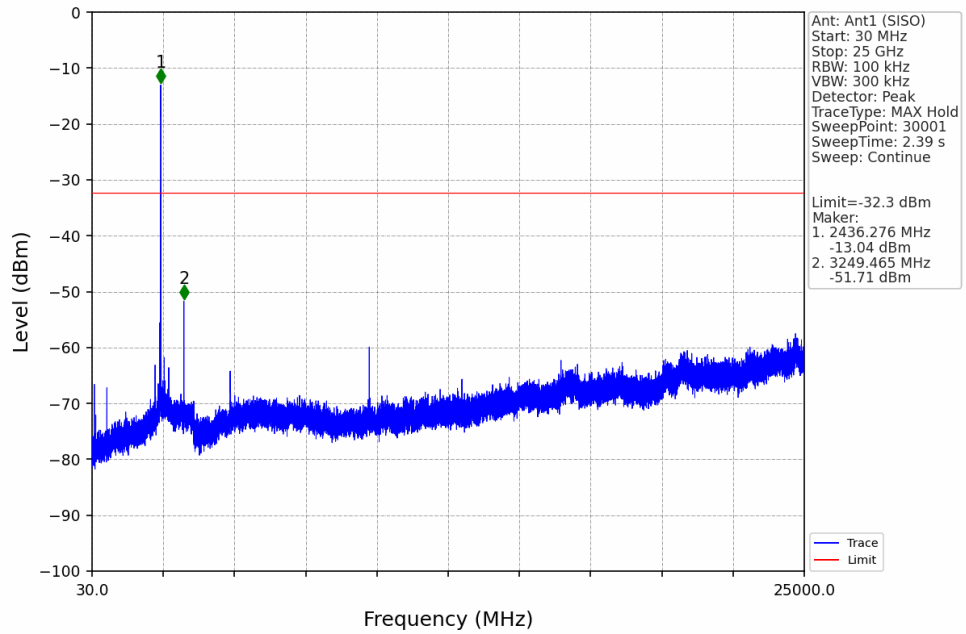

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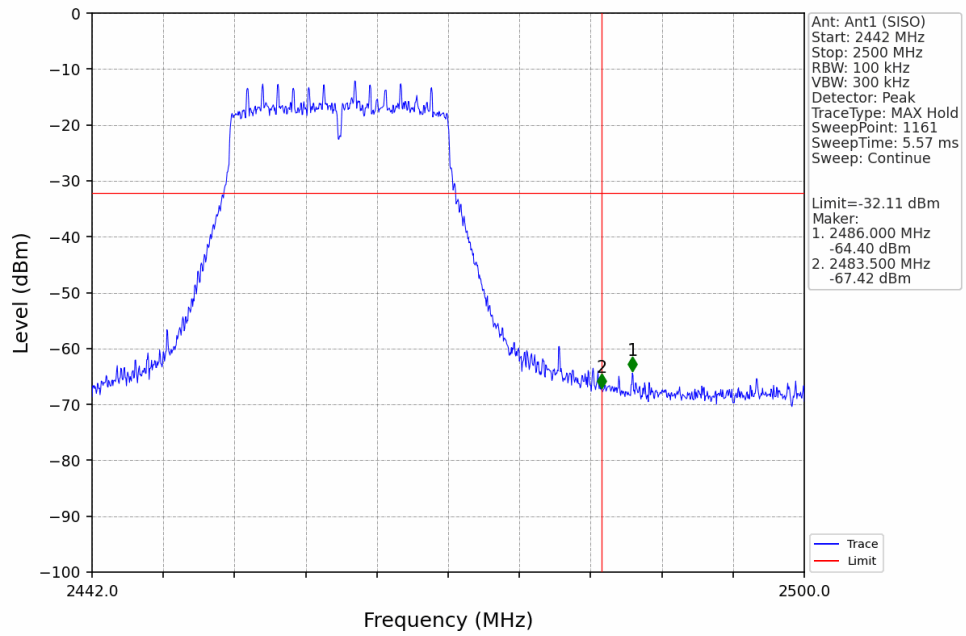

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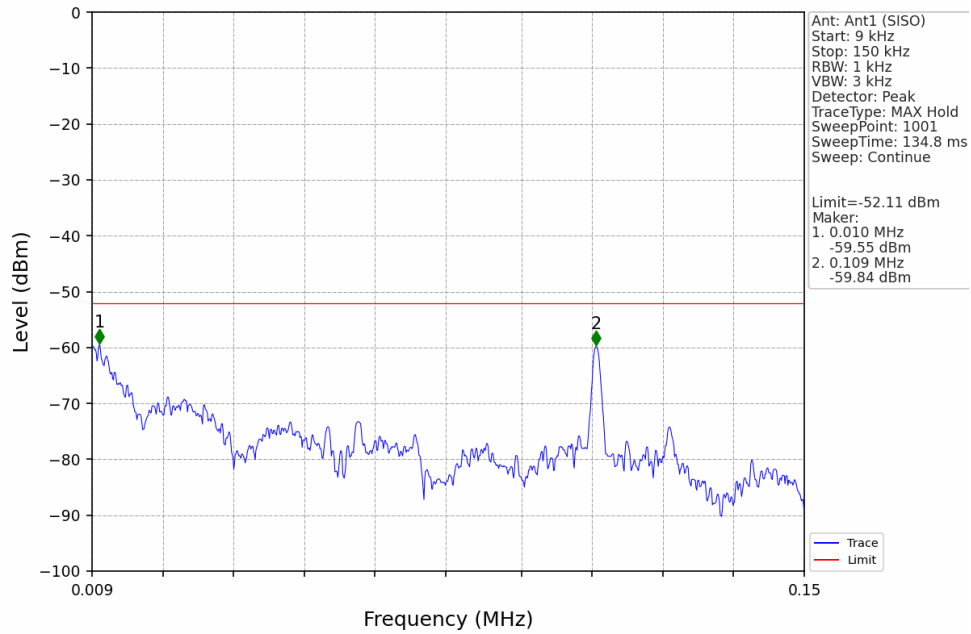

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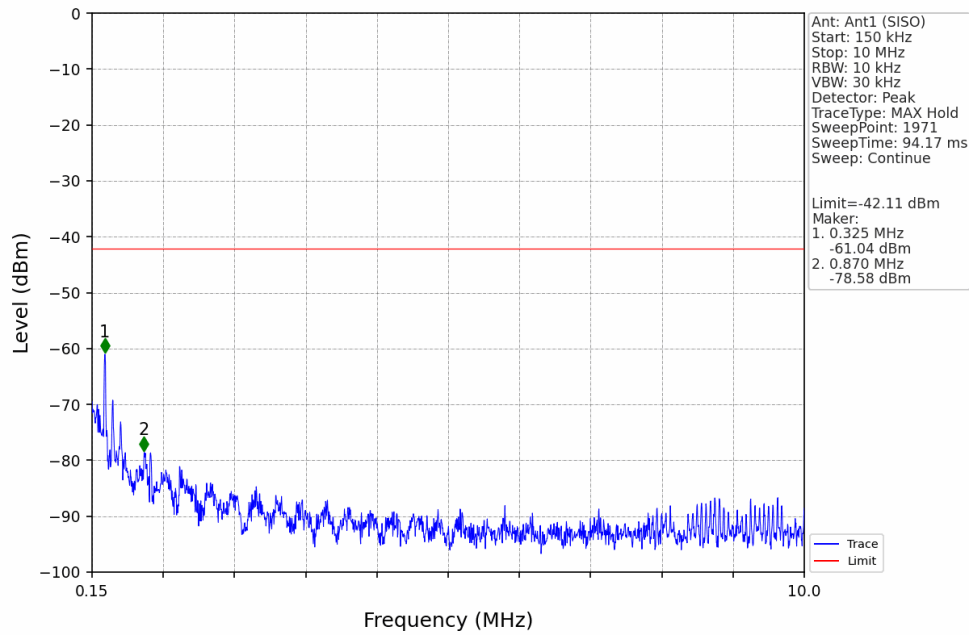

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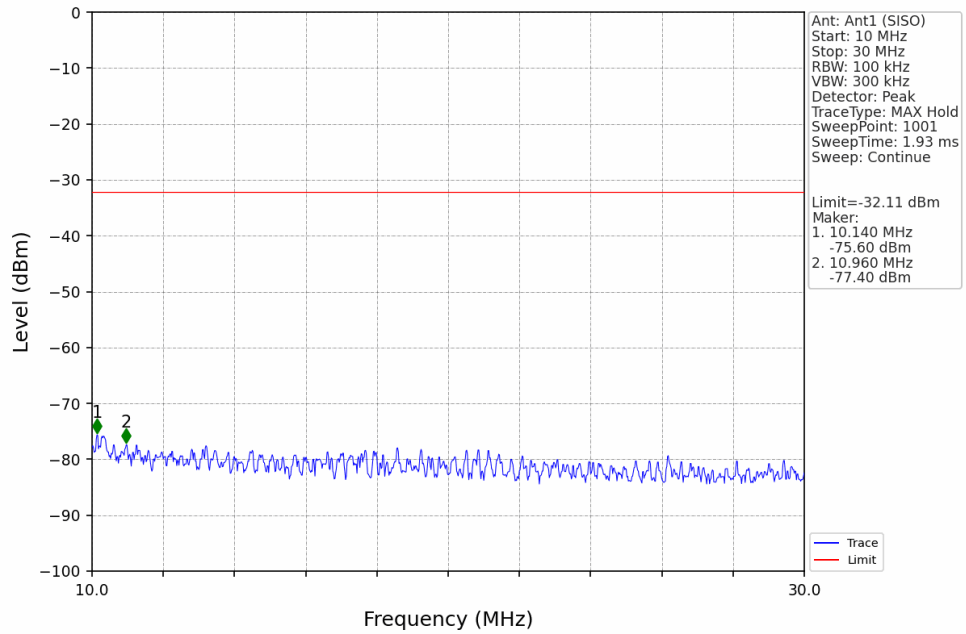

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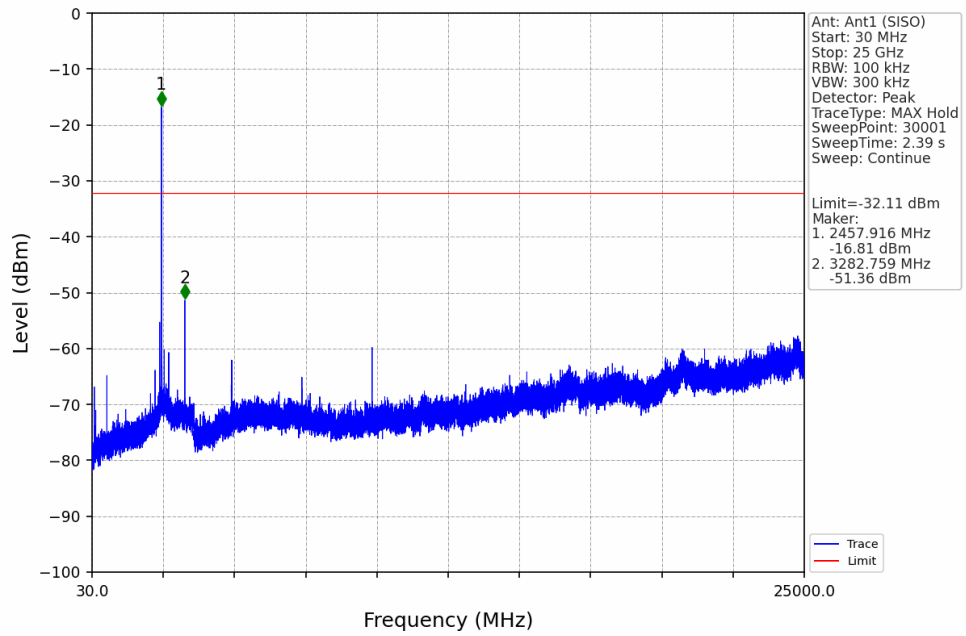
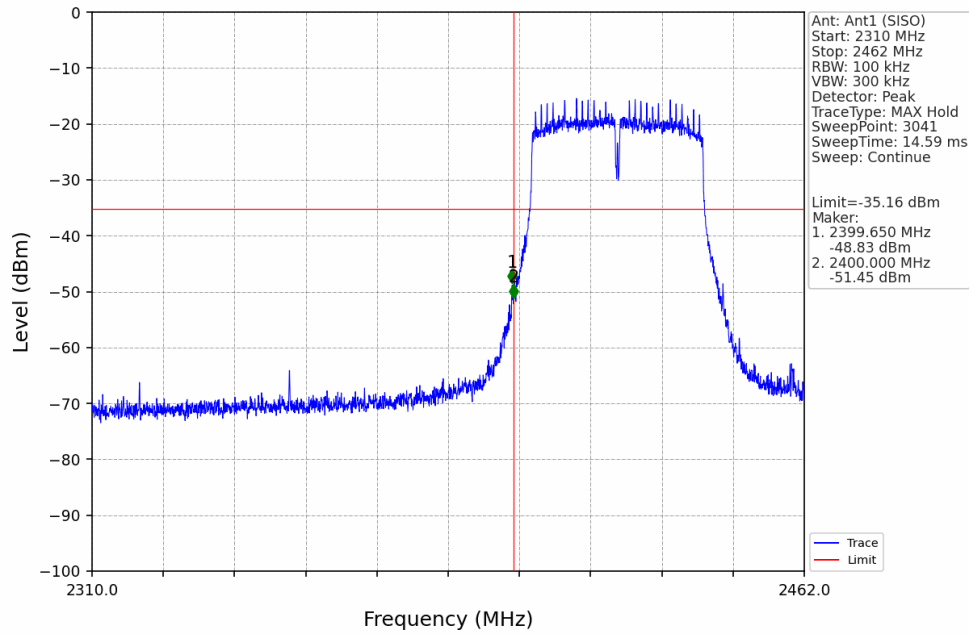
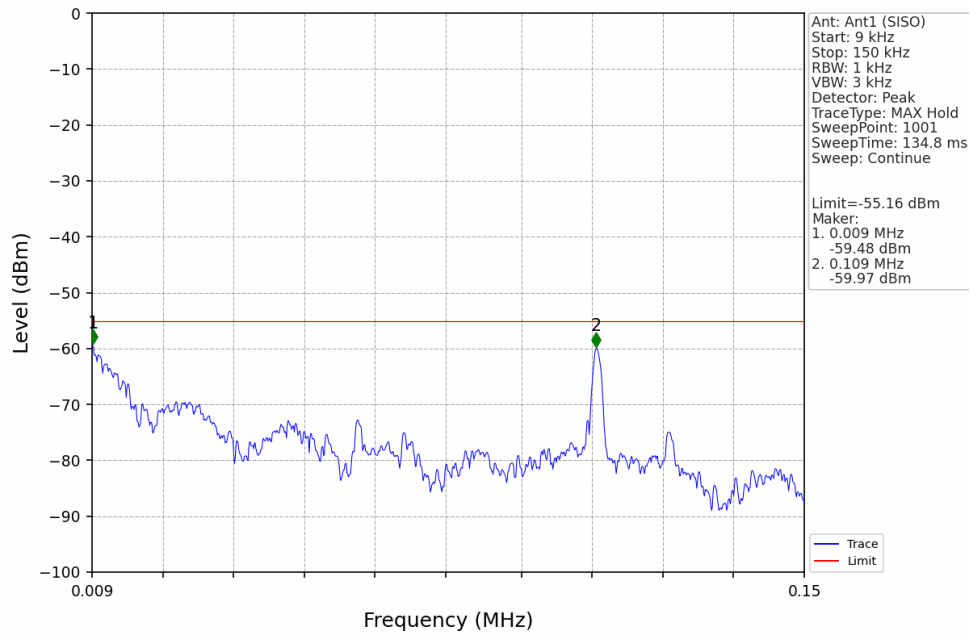


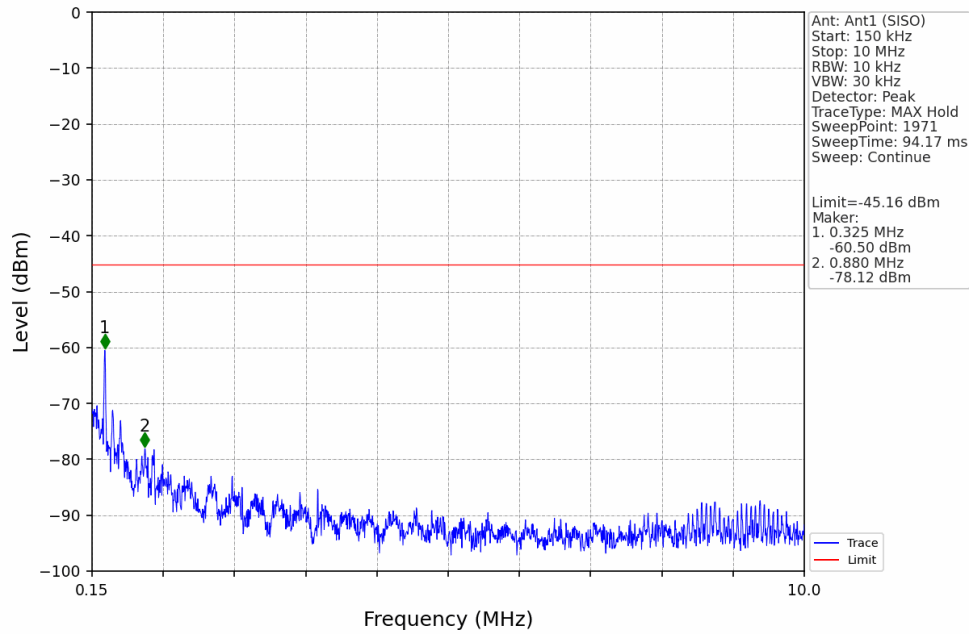
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



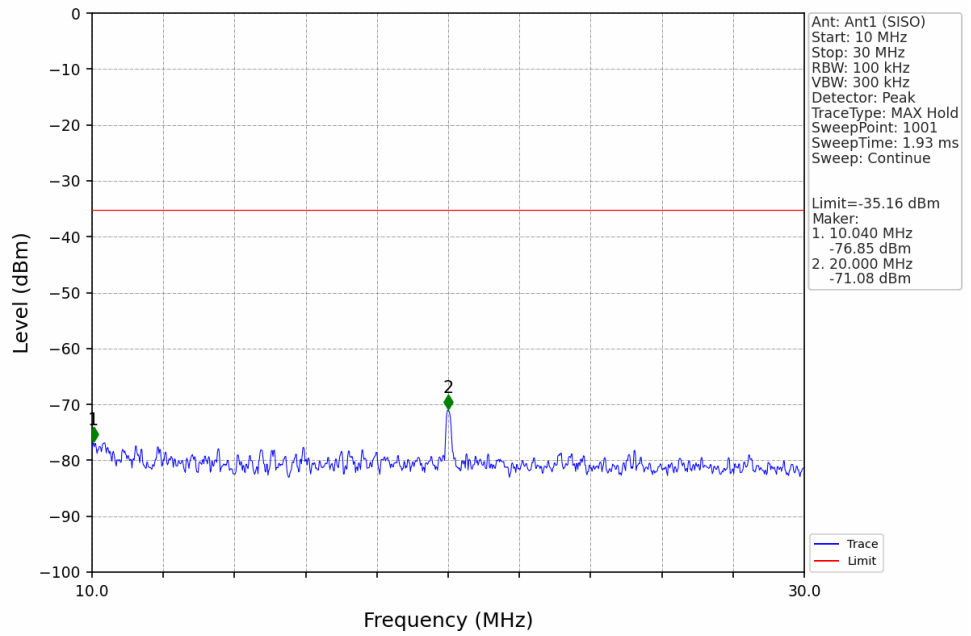
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



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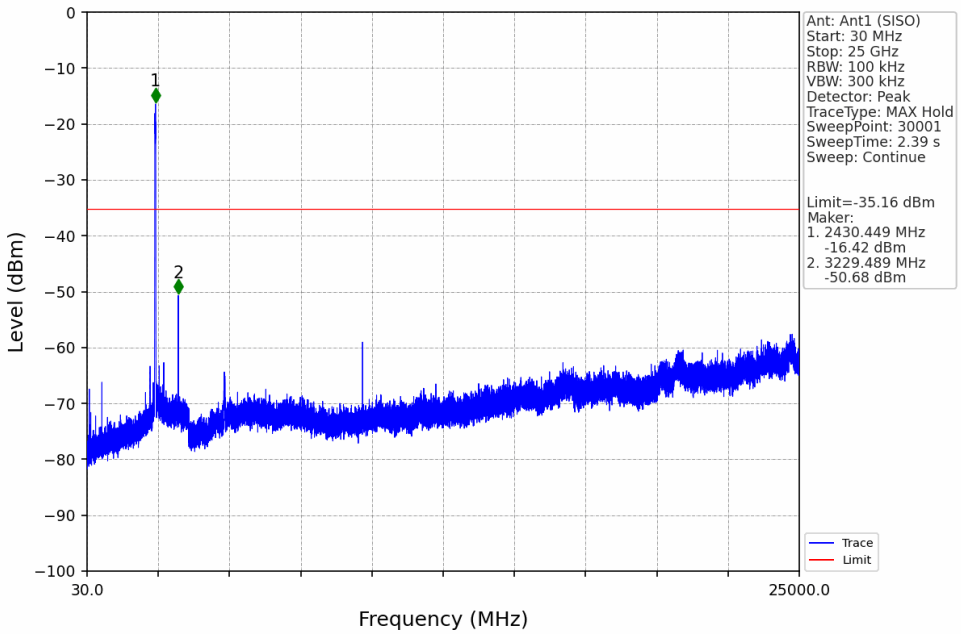
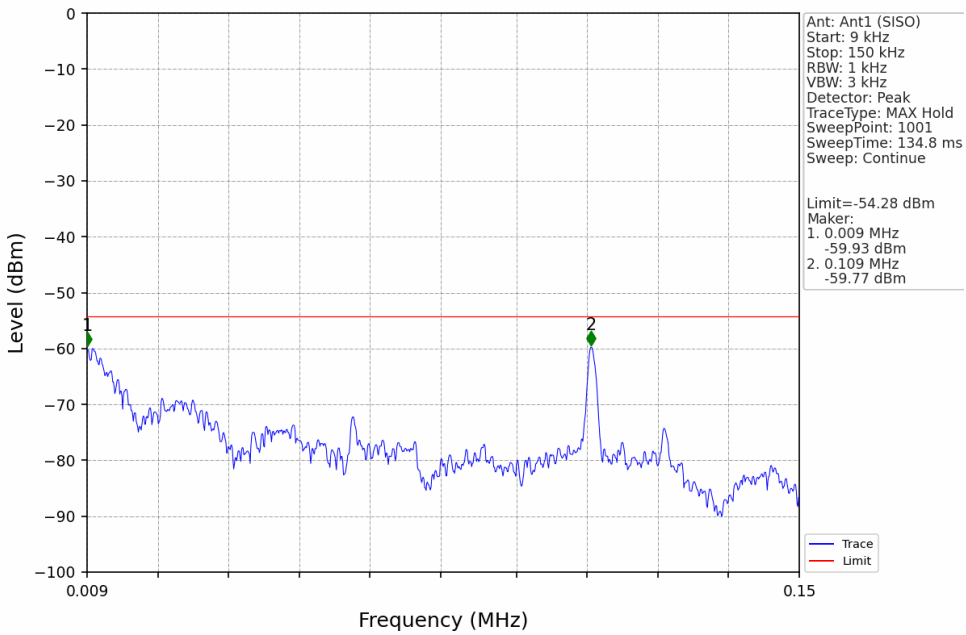
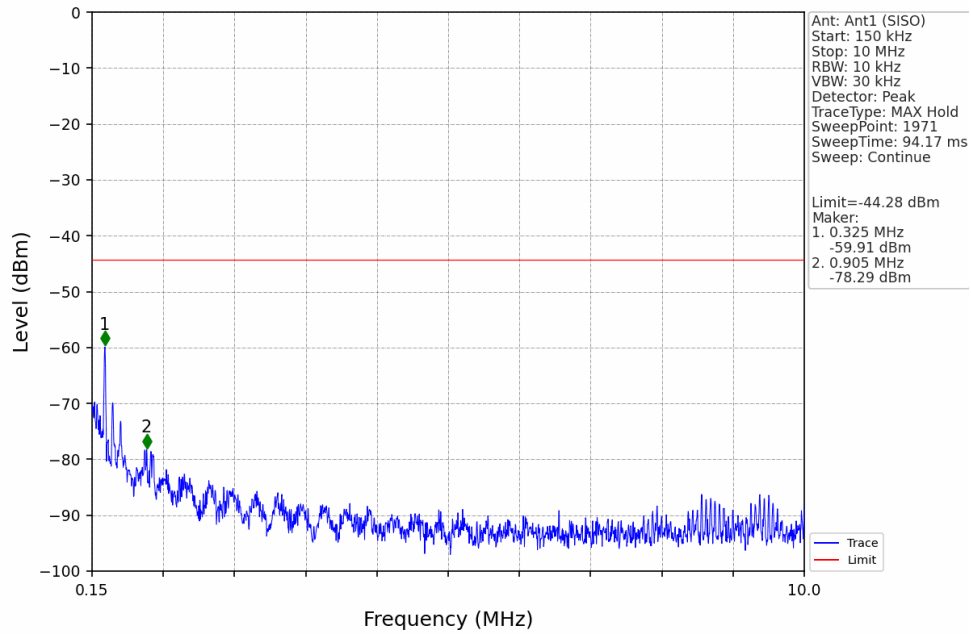


802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



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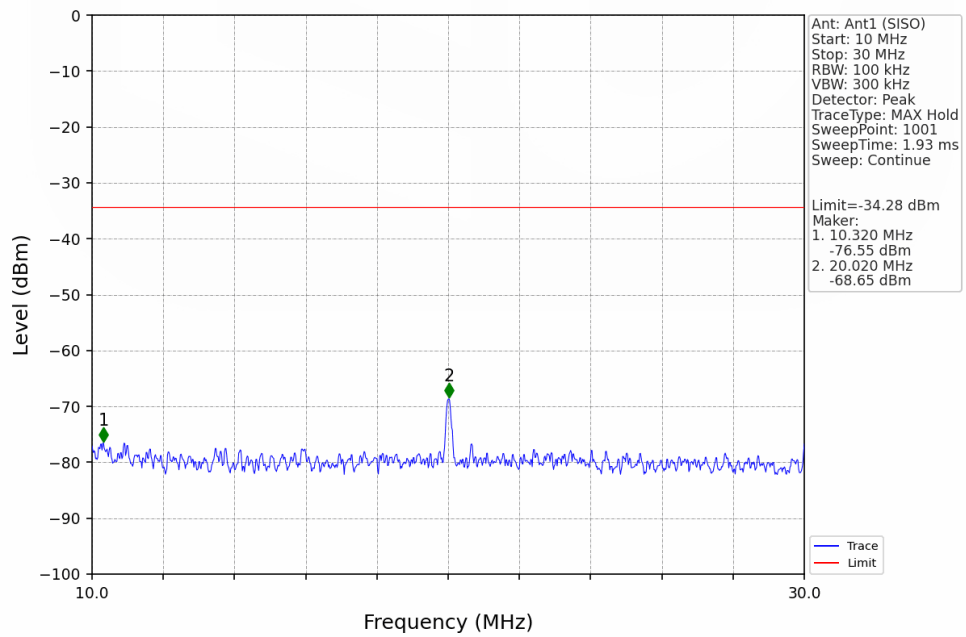
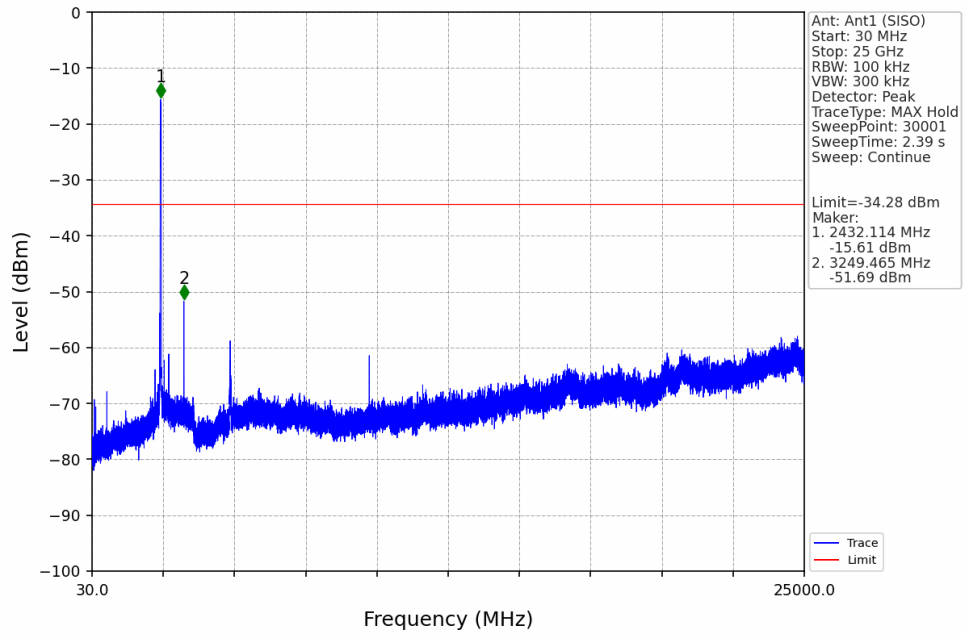
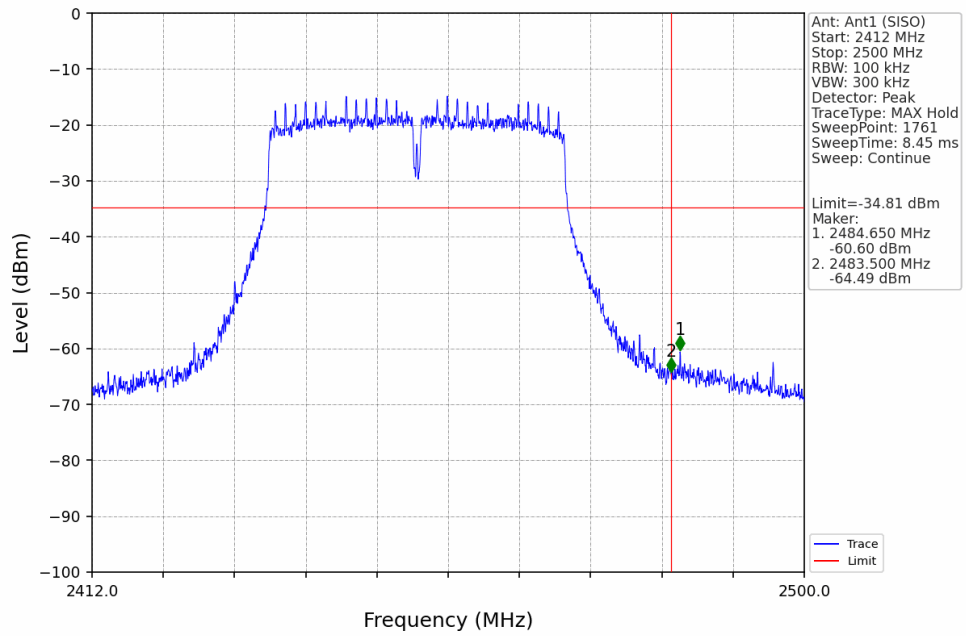


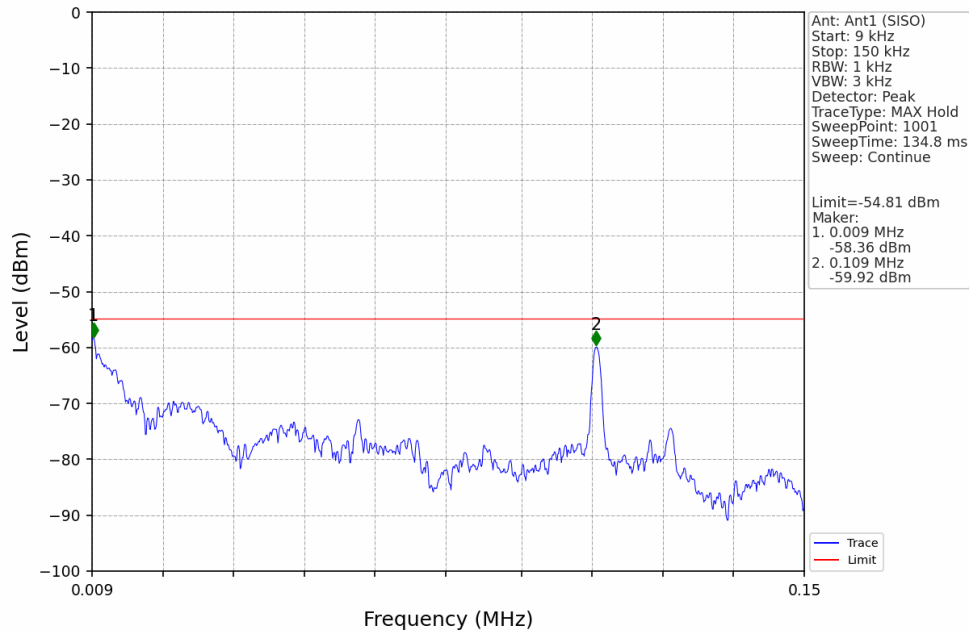
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



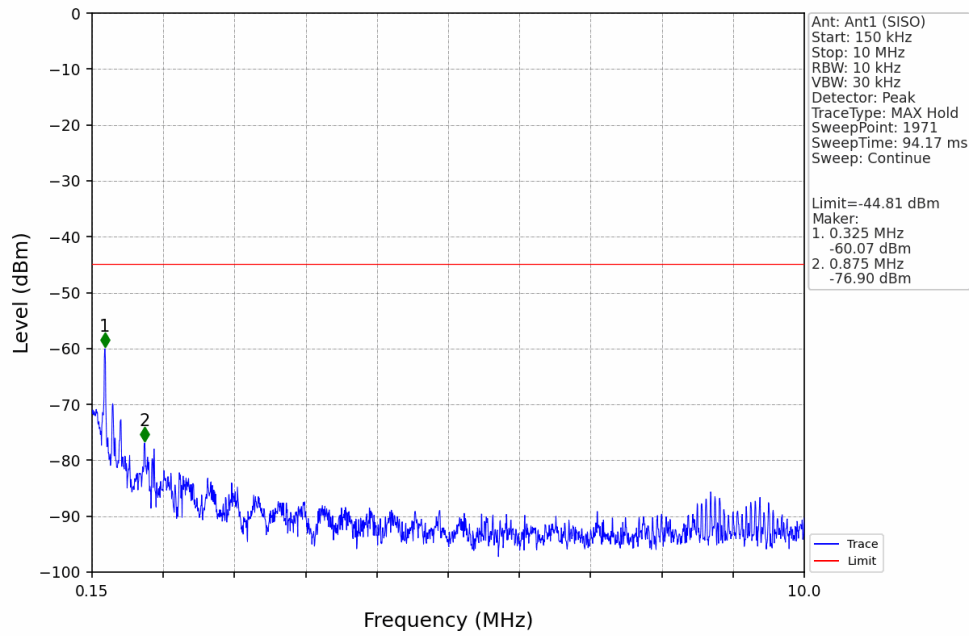
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



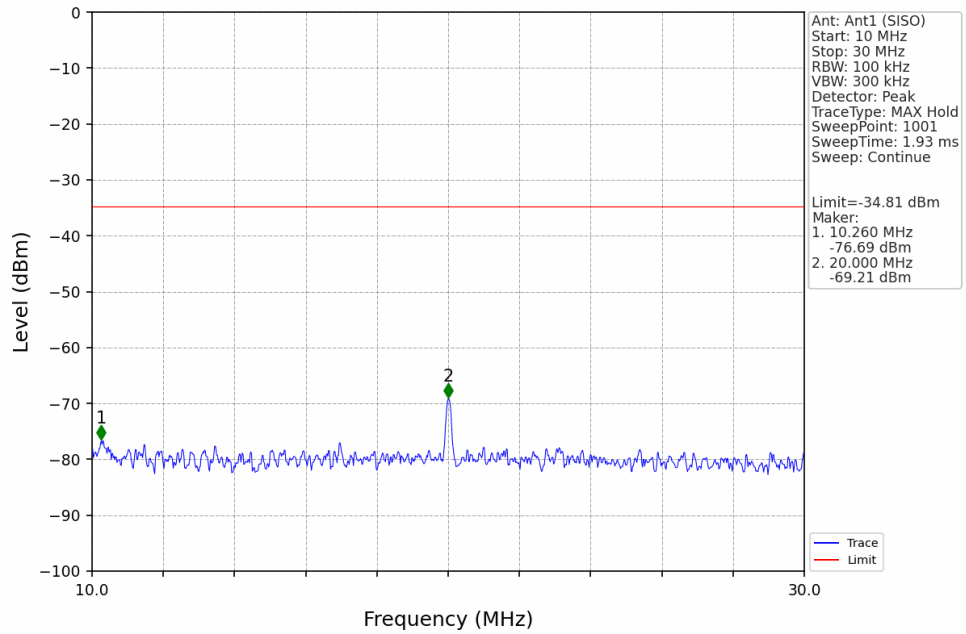
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



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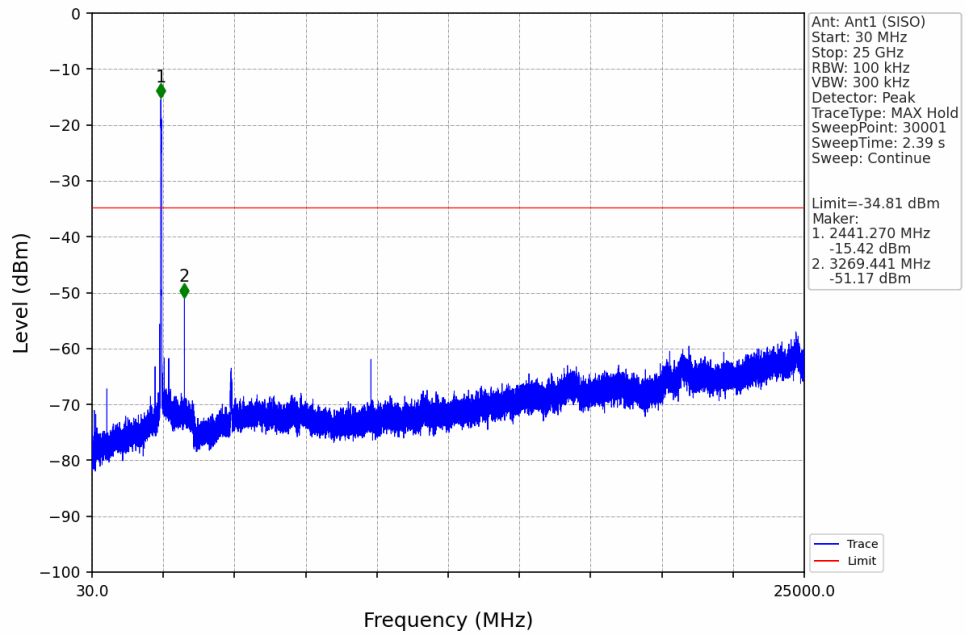

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