Appendix B

RF Test Data for 2.4G WiFi (Conducted Measurement)

Product Name: Remote ID

Trade Mark: RemoteID-RCxx

Test Model: N/A

Environmental Conditions

Temperature:	25.2℃
Relative Humidity:	51.2%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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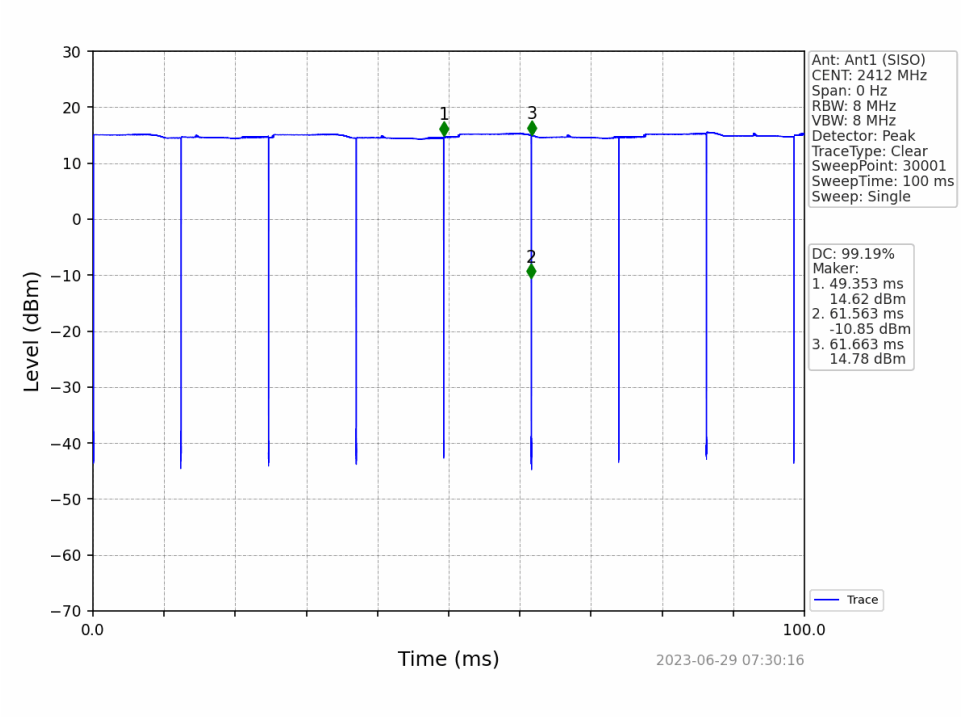
1 Duty Cycle

1.1 Test Result

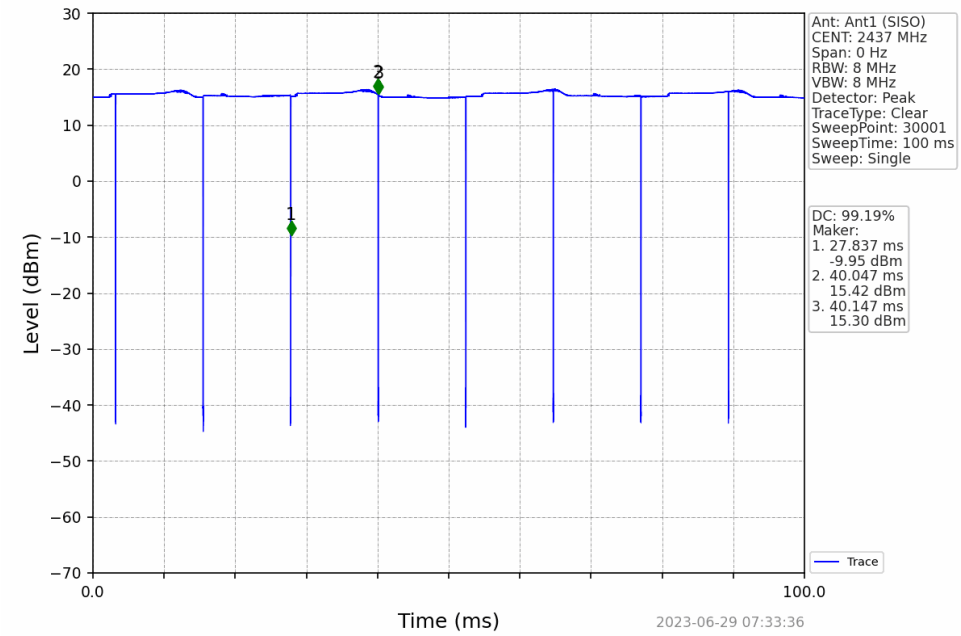
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	12.210	12.310	99.19	0.04	0.05
		2437	12.210	12.310	99.19	0.04	0.05
		2462	12.210	12.313	99.16	0.04	0.08
802.11g	SISO	2412	2.030	2.065	98.31	0.07	0.04
		2437	2.030	2.065	98.31	0.07	0.04
		2462	2.030	2.065	98.31	0.07	0.04
802.11n (HT20)	SISO	2412	1.890	1.925	98.18	0.08	0.03
		2437	1.890	1.925	98.18	0.08	0.03
		2462	1.890	1.926	98.13	0.08	0.03
802.11n (HT40)	SISO	2422	0.929	0.979	94.89	0.23	0.03
		2437	0.929	0.979	94.89	0.23	0.03
		2452	0.930	0.979	94.99	0.22	0.00

1.2 Test Graphs

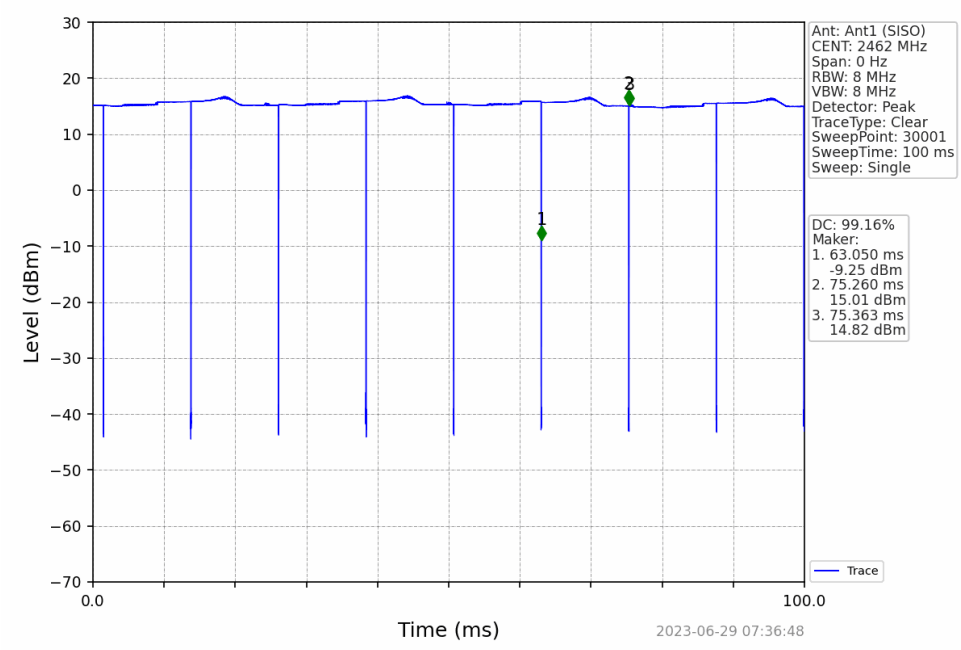
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



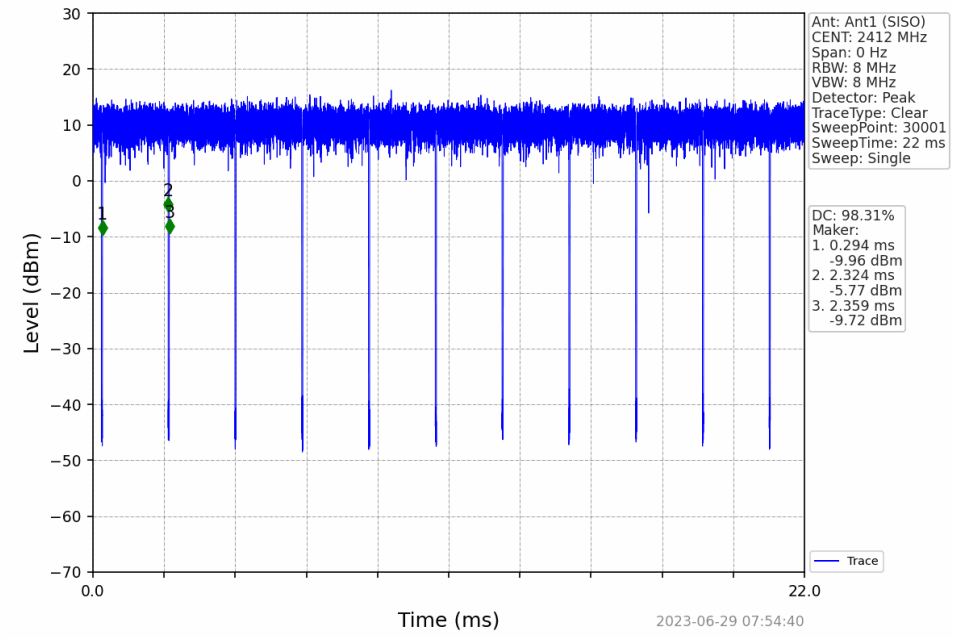
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



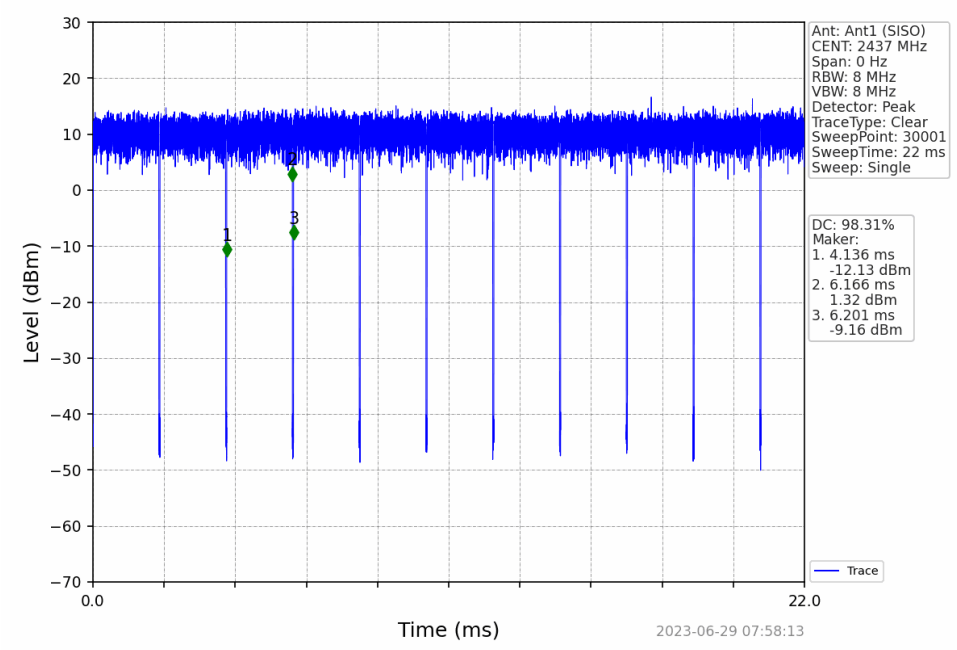
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



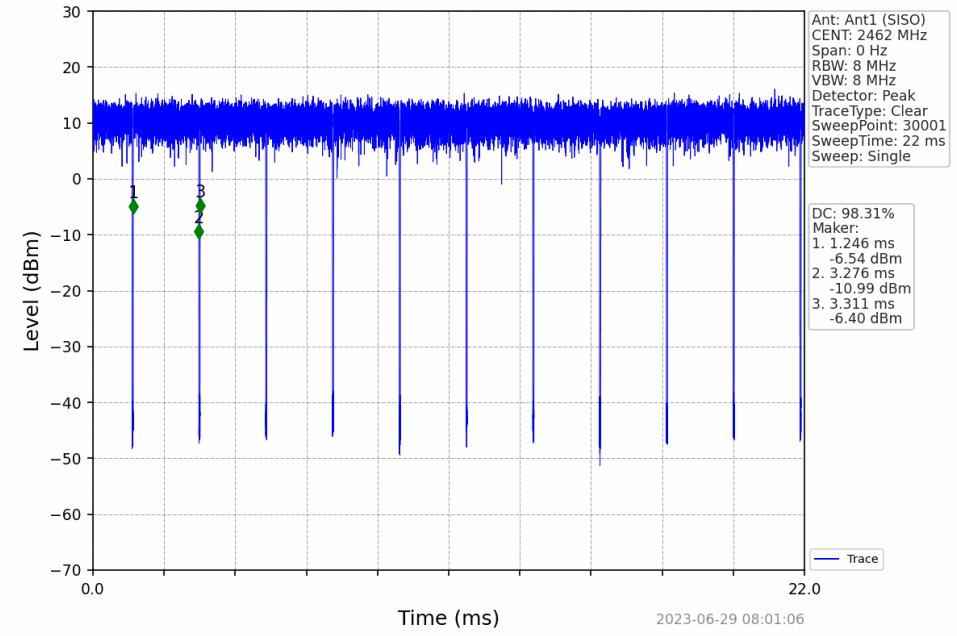
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



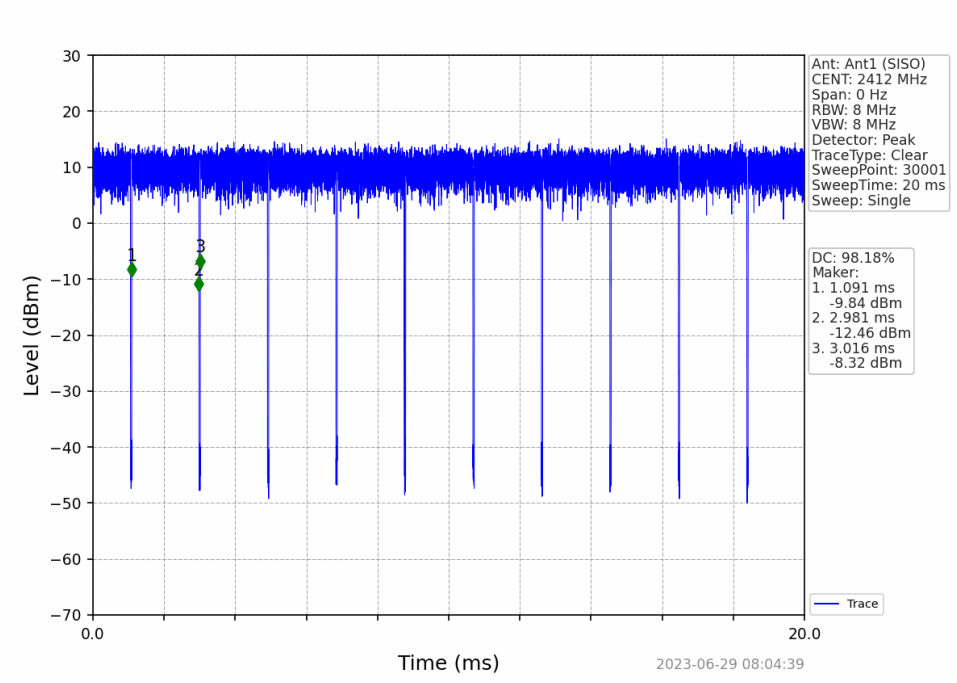
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



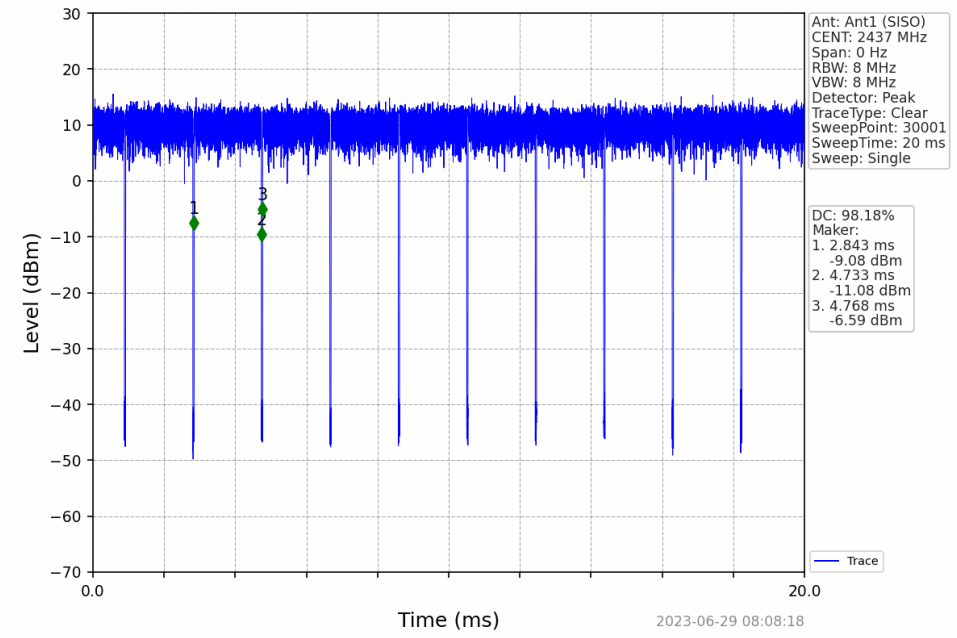
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



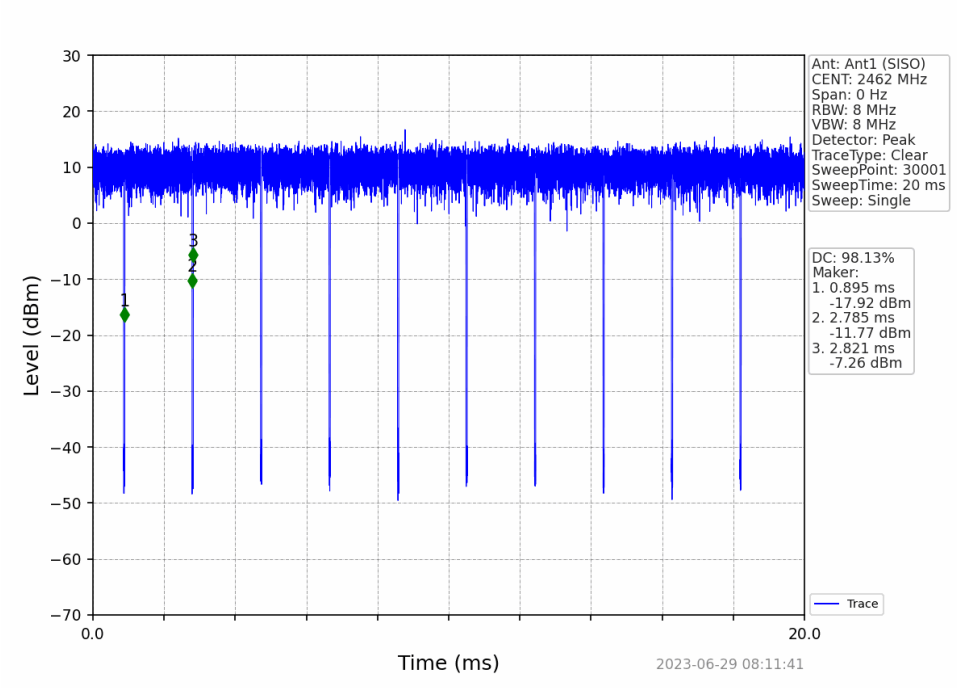
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



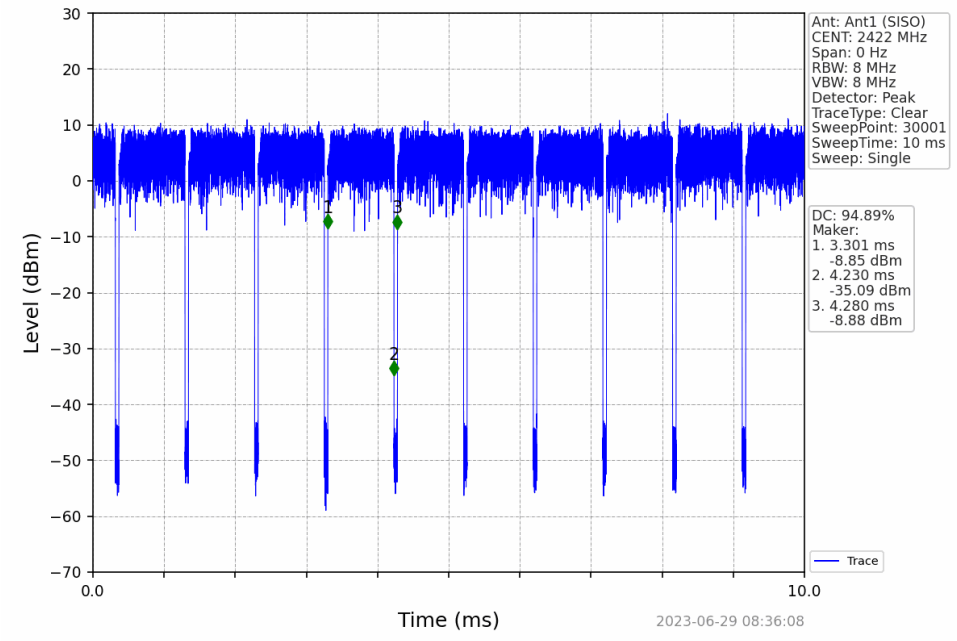
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



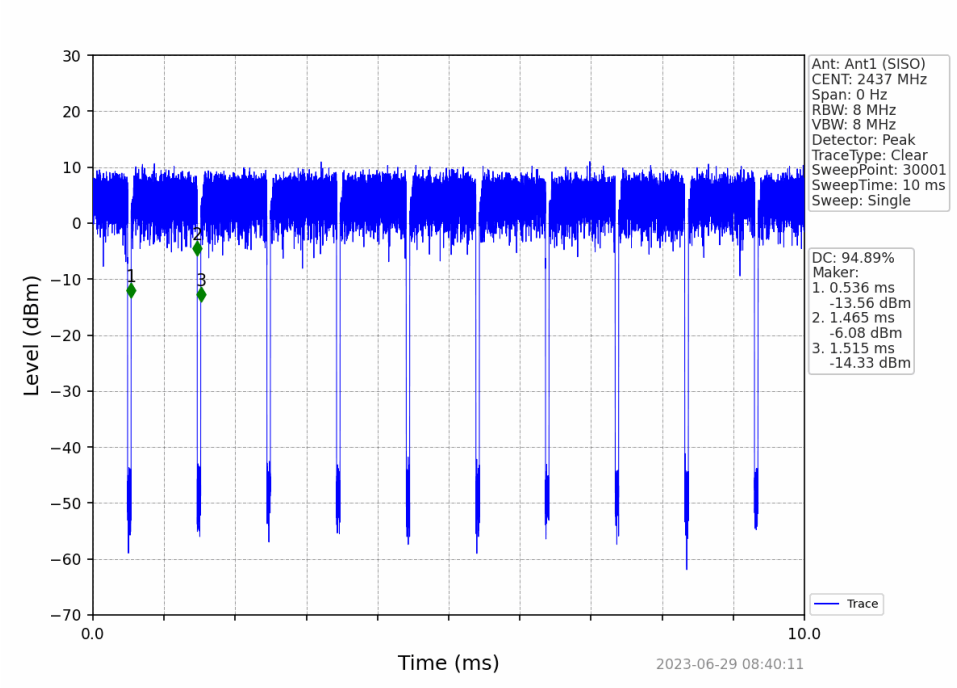
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



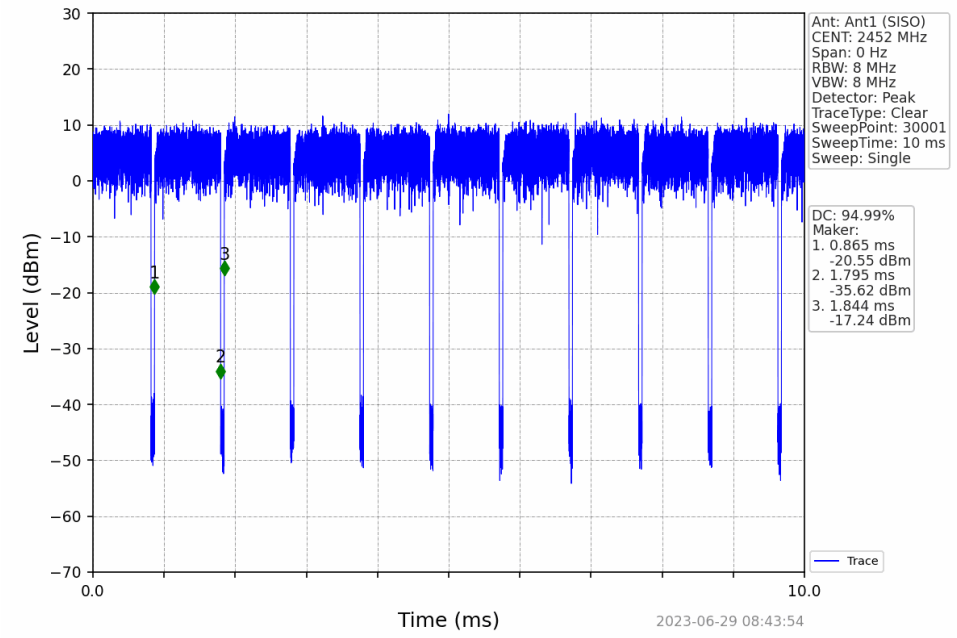
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



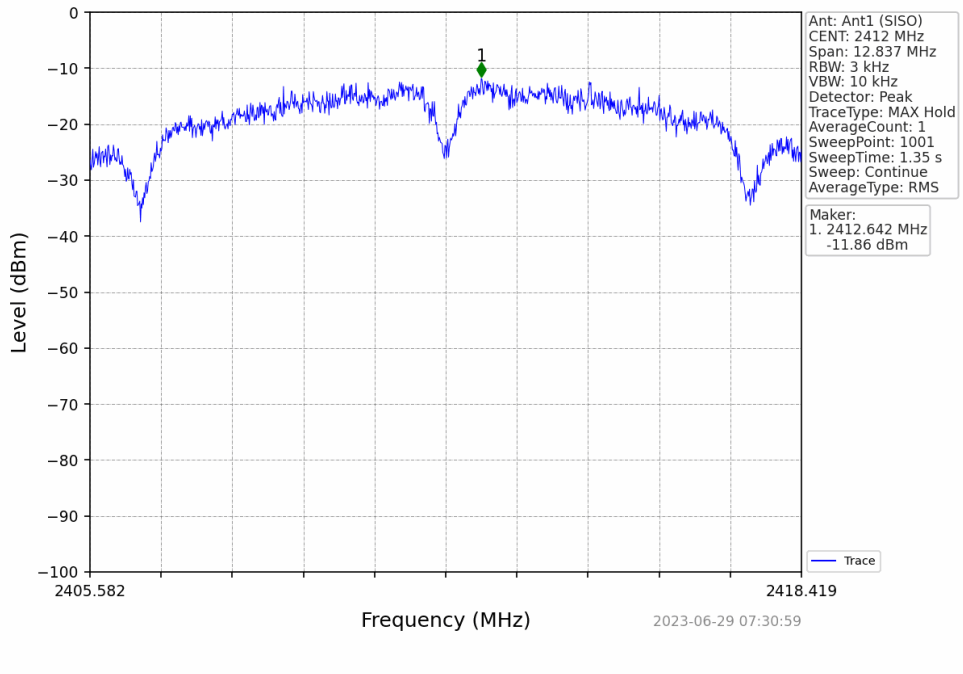
2 Maximum Conducted Peak Output Power

2.1 Test Result

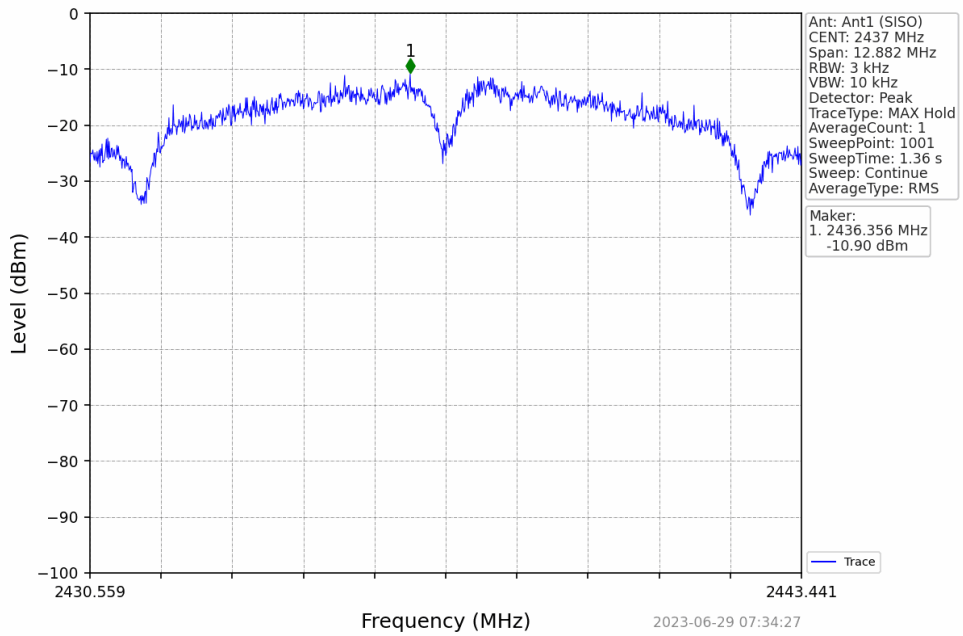
Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	13.99	<=30	Pass
		2437	14.17	<=30	Pass
		2462	14.41	<=30	Pass
802.11g	SISO	2412	17.18	<=30	Pass
		2437	17.25	<=30	Pass
		2462	17.38	<=30	Pass
802.11n (HT20)	SISO	2412	16.87	<=30	Pass
		2437	16.89	<=30	Pass
		2462	17.04	<=30	Pass
802.11n (HT40)	SISO	2422	16.12	<=30	Pass
		2437	16.17	<=30	Pass
		2452	16.45	<=30	Pass

2.2 Test Graphs

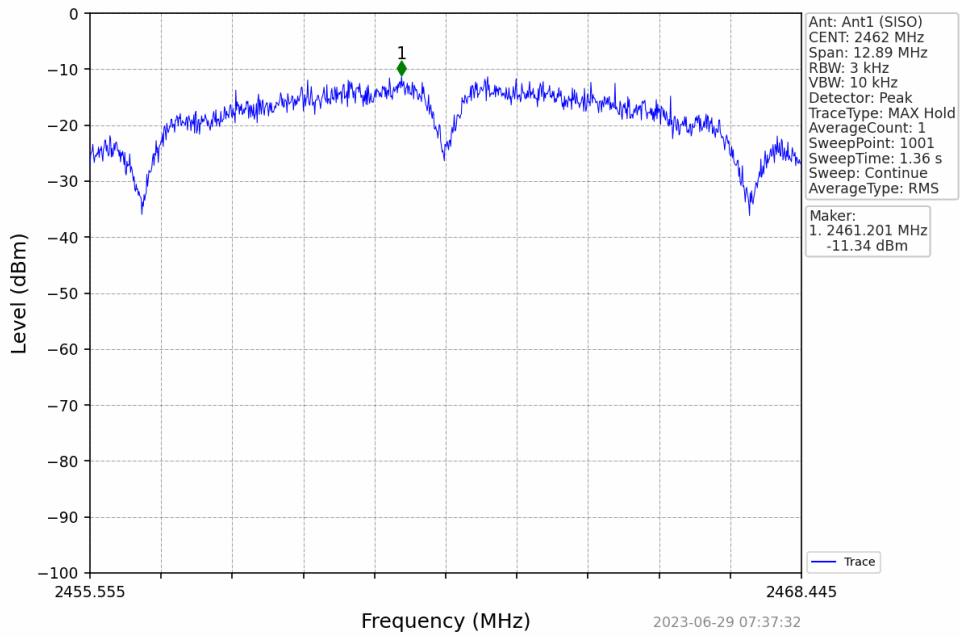
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



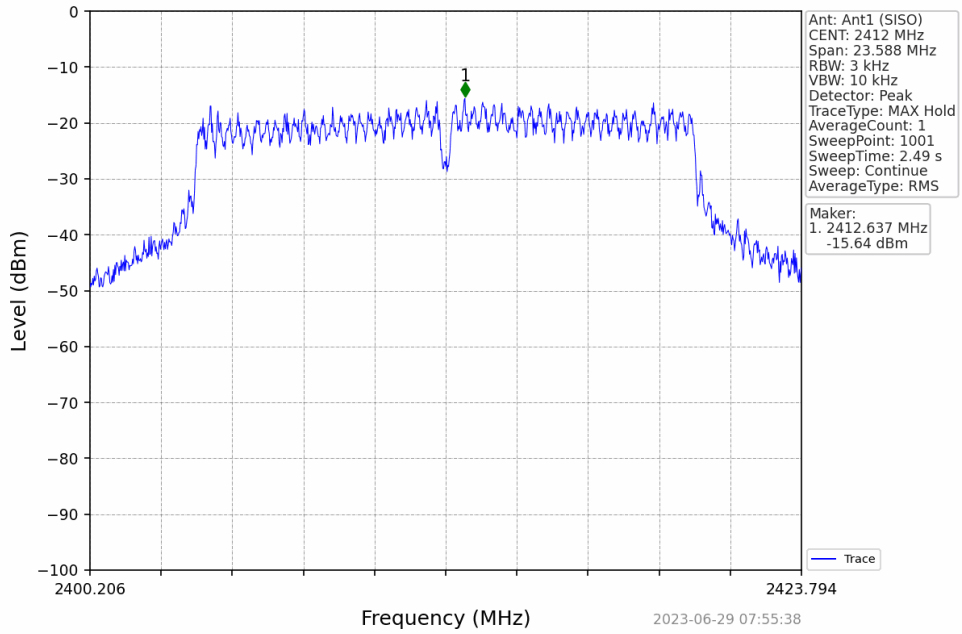
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



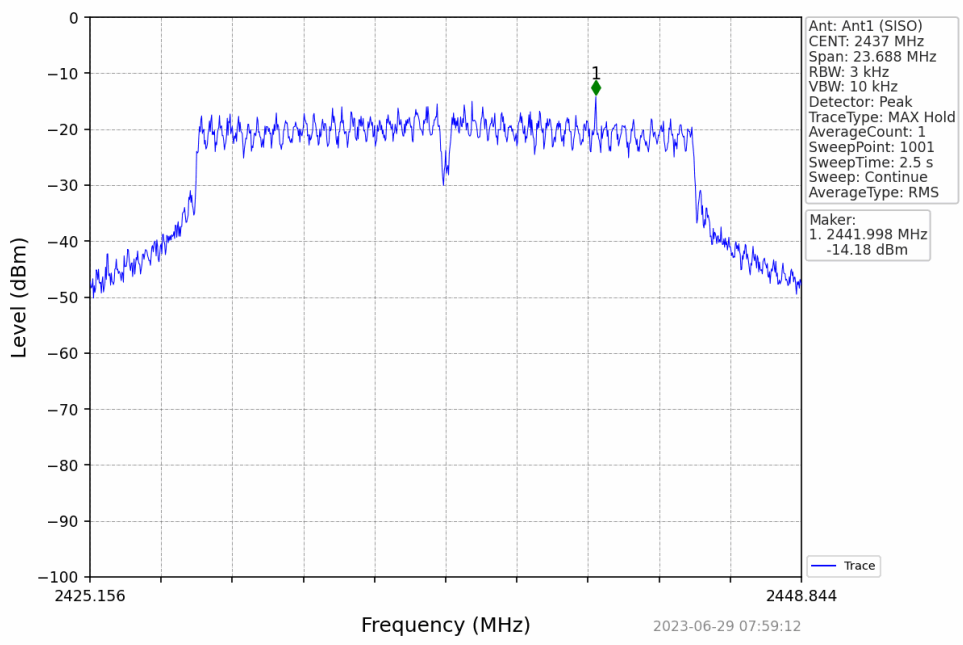
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



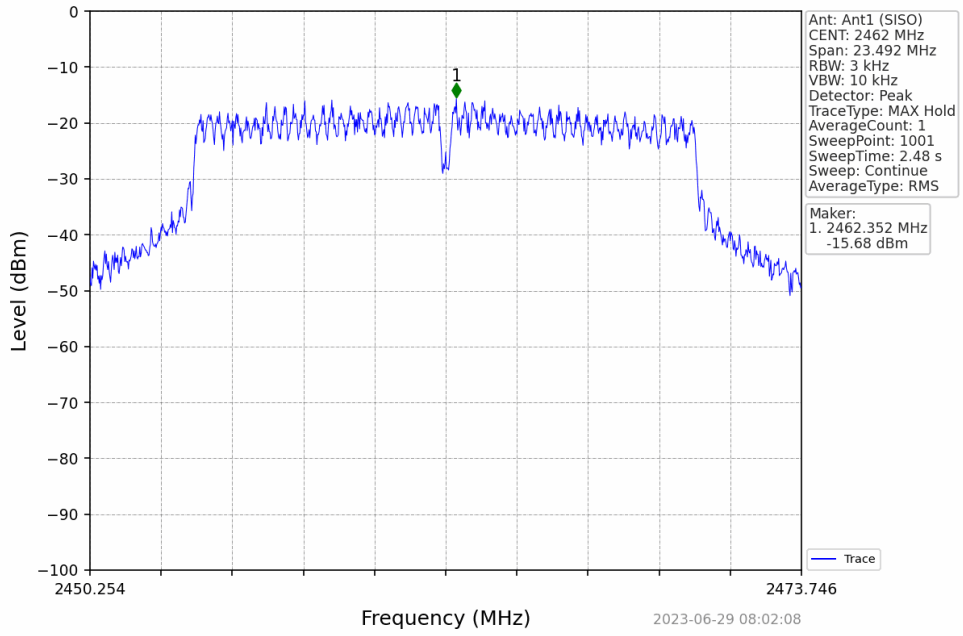
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



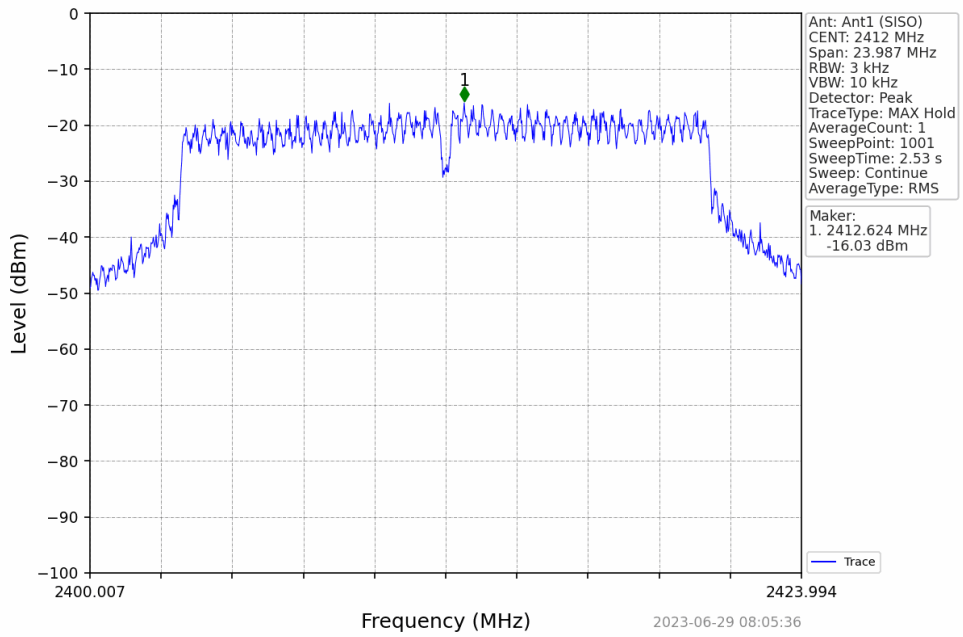
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



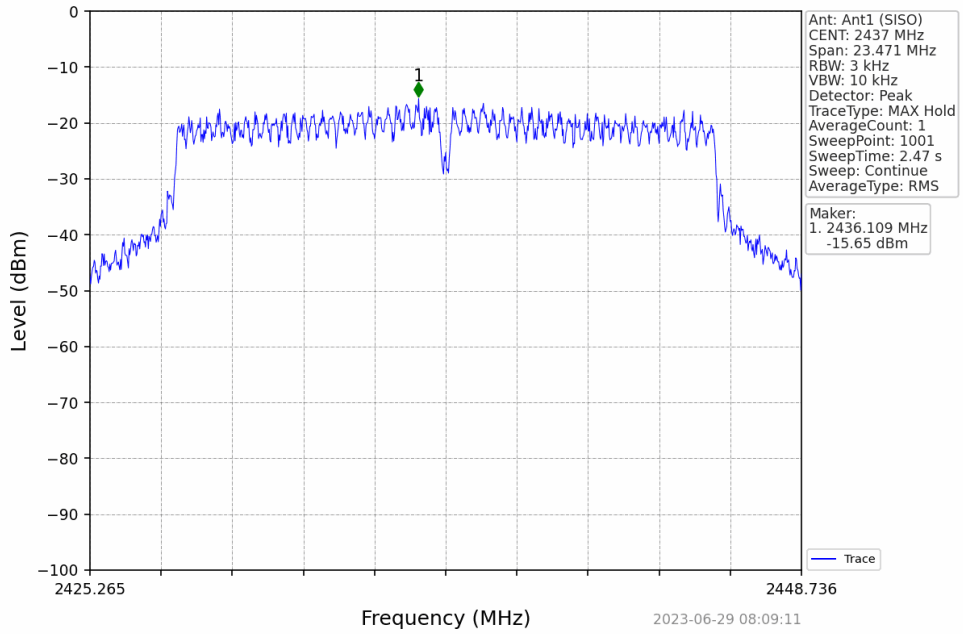
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



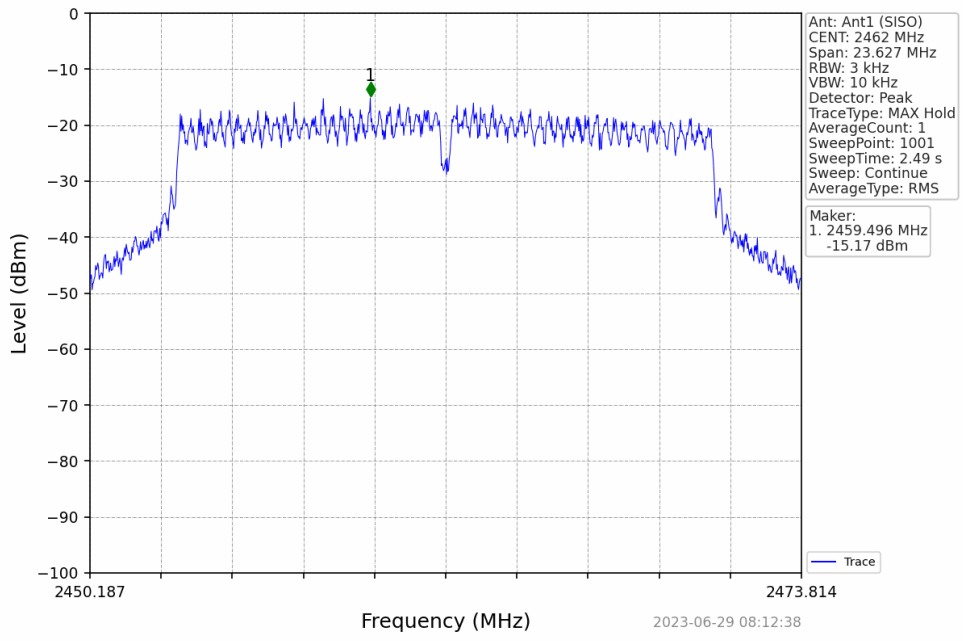
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



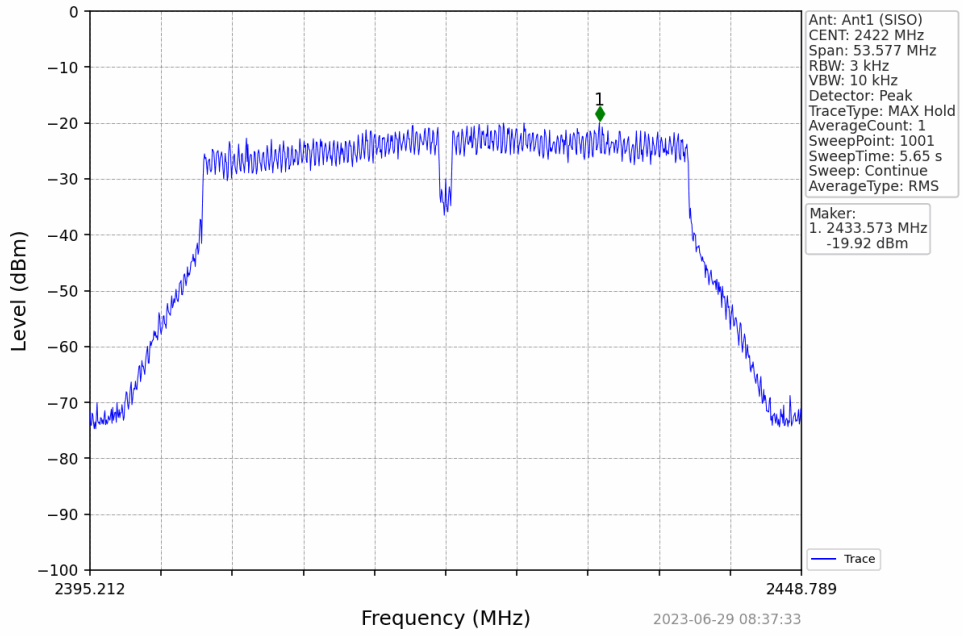
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



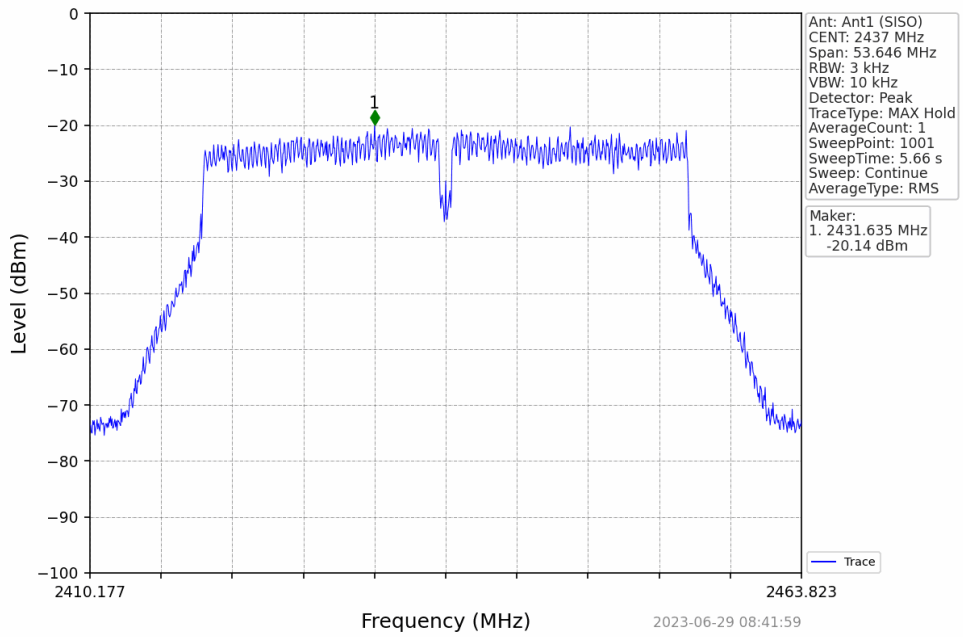
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



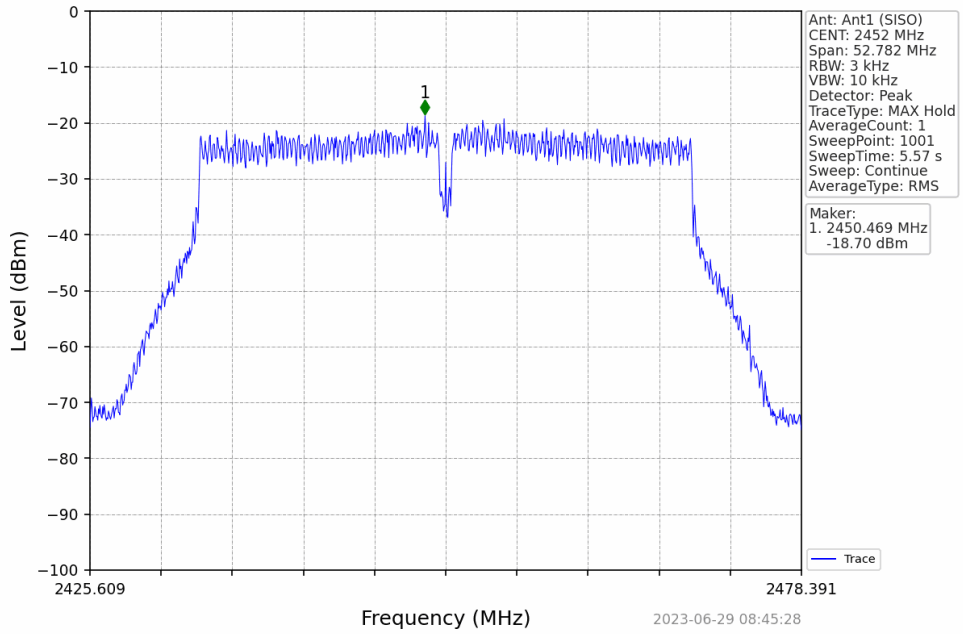
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



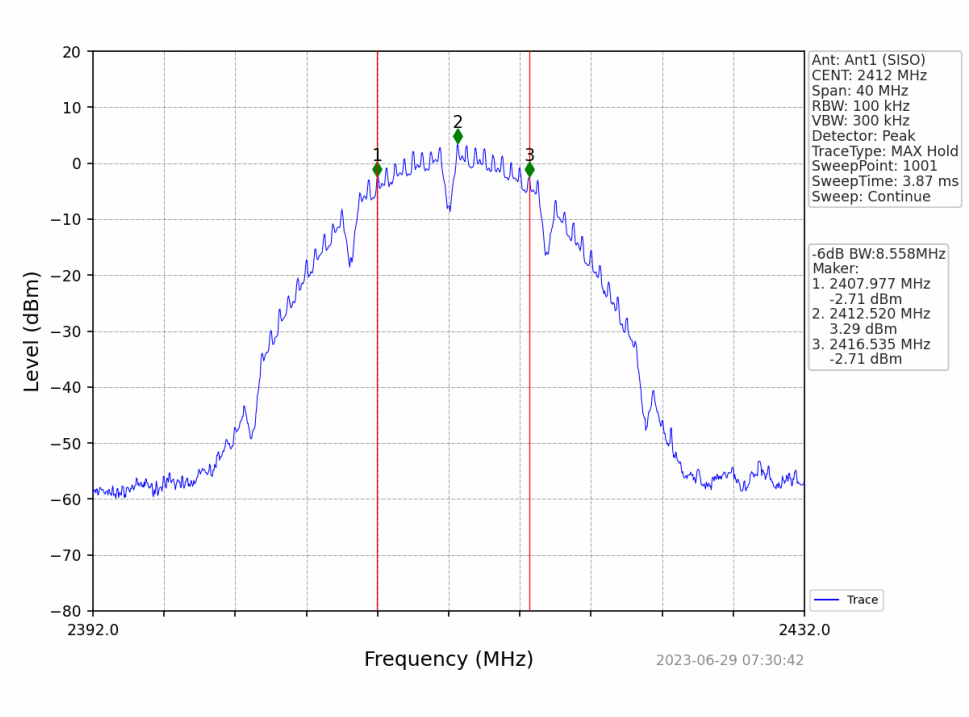
3 6dB BW

3.1 Test Result

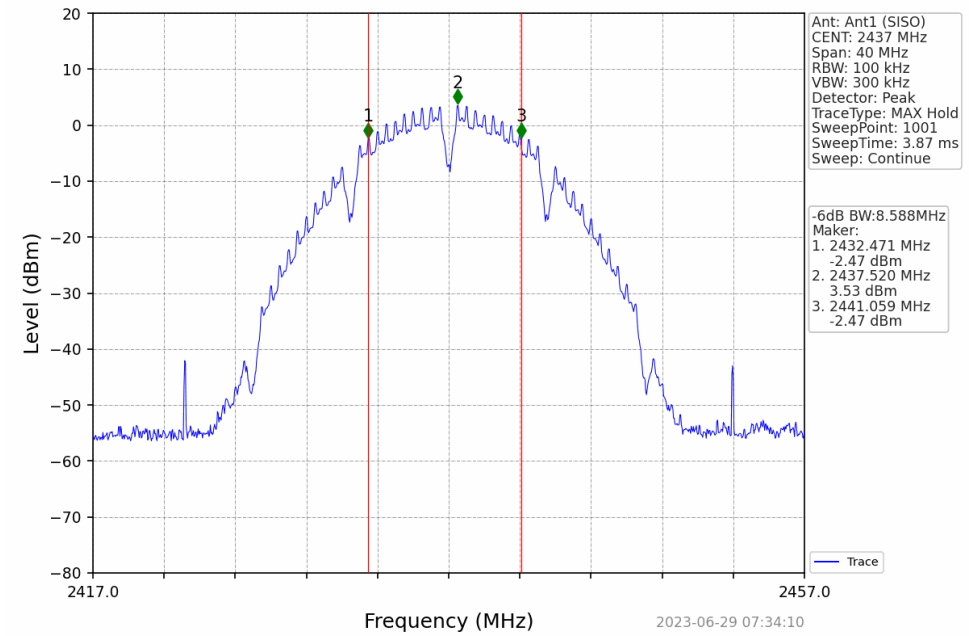
Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	8.558	>=0.5	Pass
		2437	1	8.588	>=0.5	Pass
		2462	1	8.593	>=0.5	Pass
802.11g	SISO	2412	1	15.725	>=0.5	Pass
		2437	1	15.792	>=0.5	Pass
		2462	1	15.661	>=0.5	Pass
802.11n (HT20)	SISO	2412	1	15.991	>=0.5	Pass
		2437	1	15.647	>=0.5	Pass
		2462	1	15.751	>=0.5	Pass
802.11n (HT40)	SISO	2422	1	35.718	>=0.5	Pass
		2437	1	35.764	>=0.5	Pass
		2452	1	35.188	>=0.5	Pass

3.2 Test Graphs

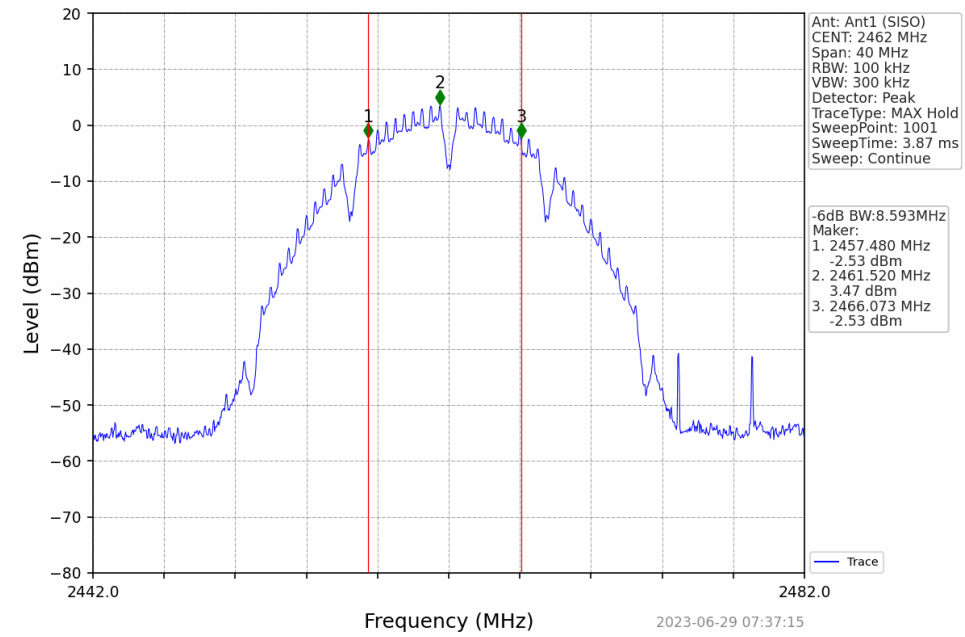
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



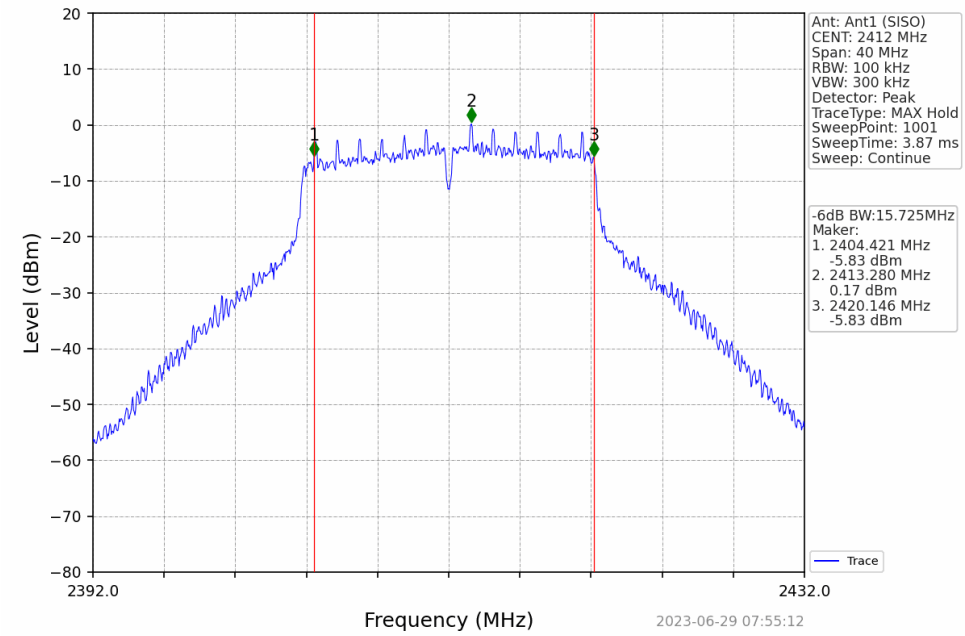
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



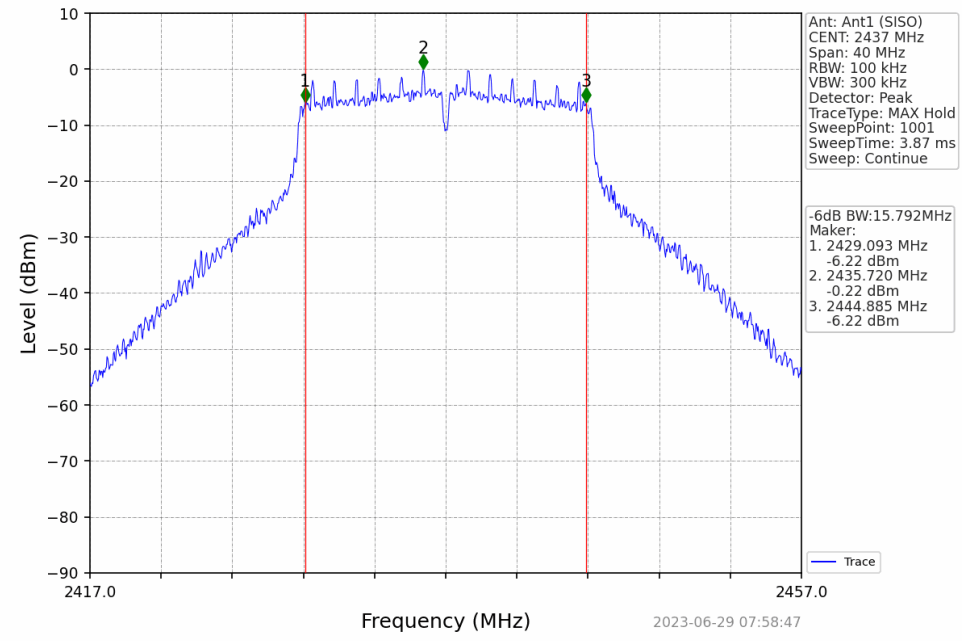
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



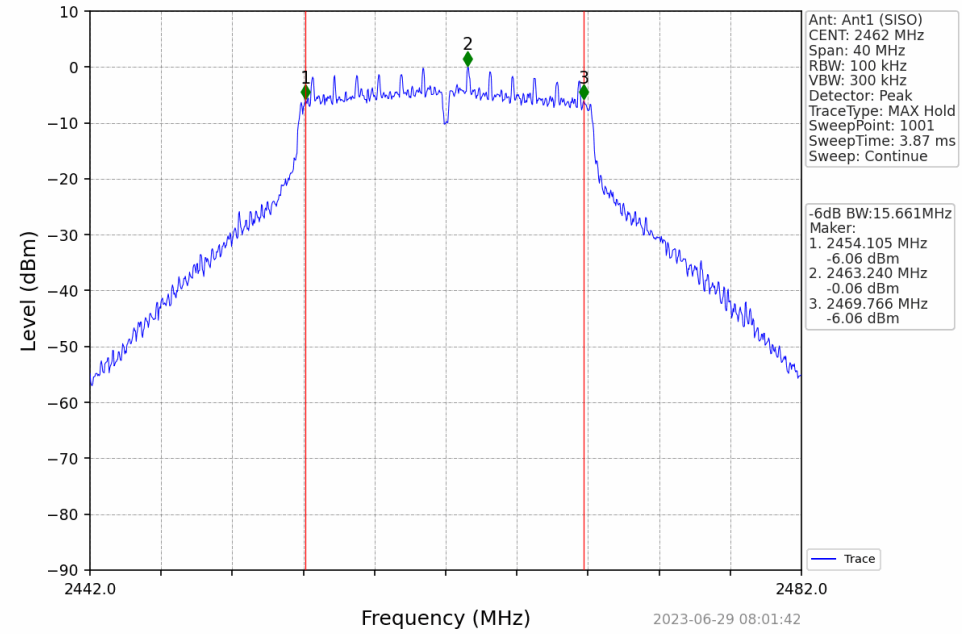
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



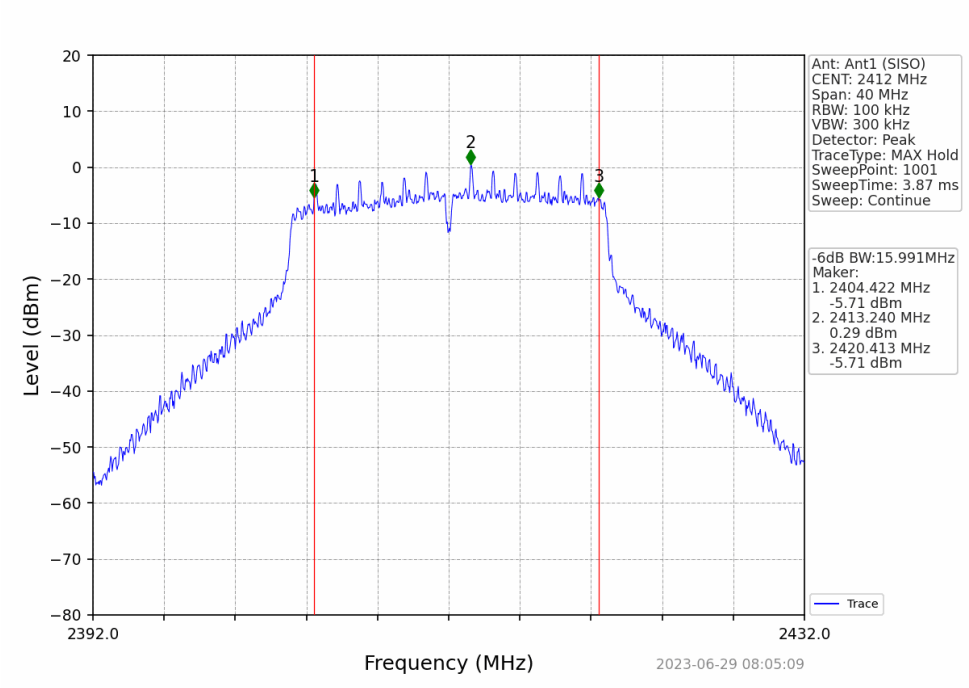
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



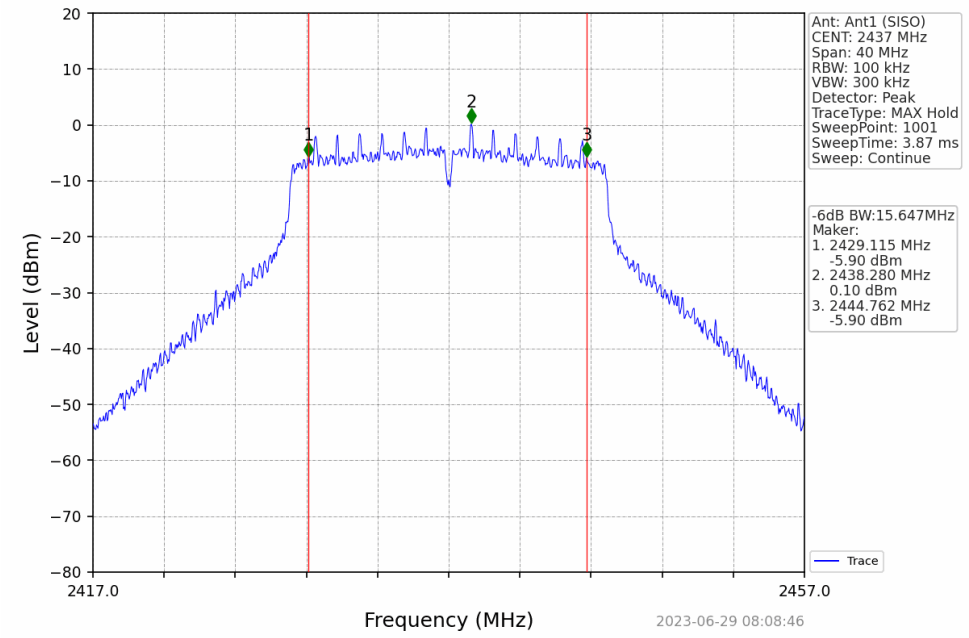
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



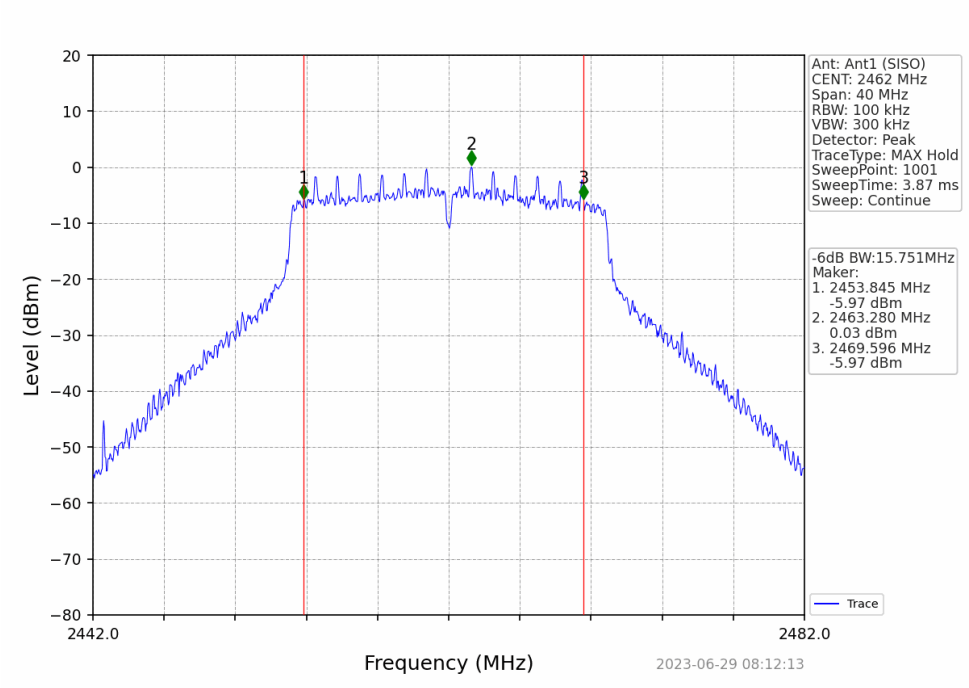
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



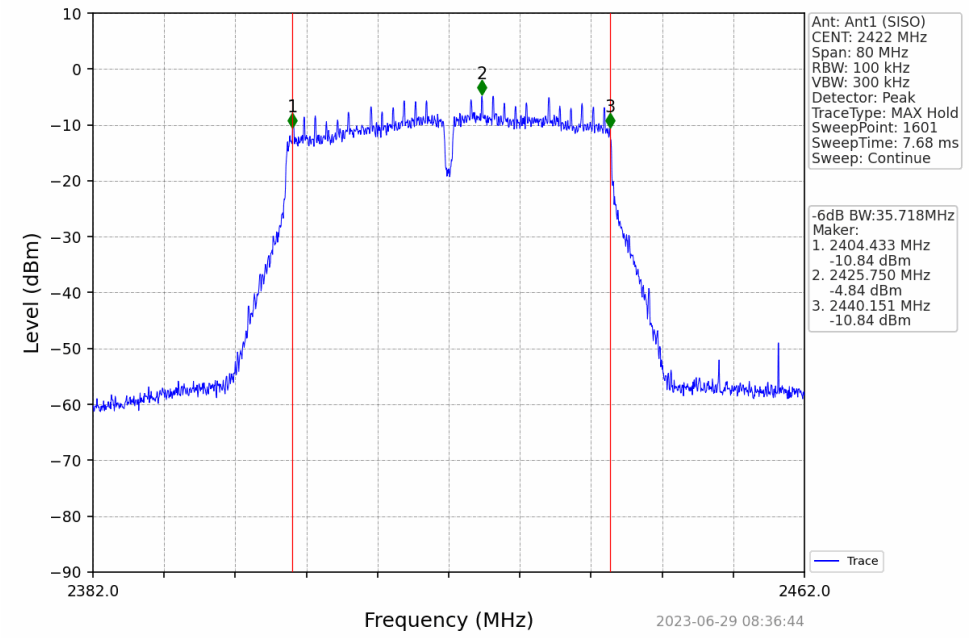
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



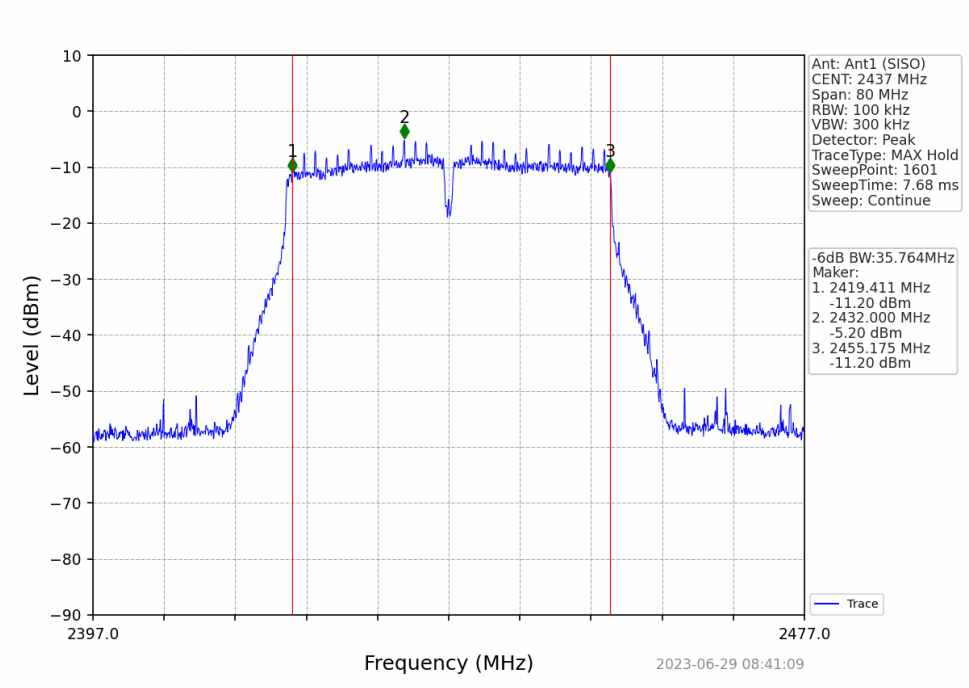
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



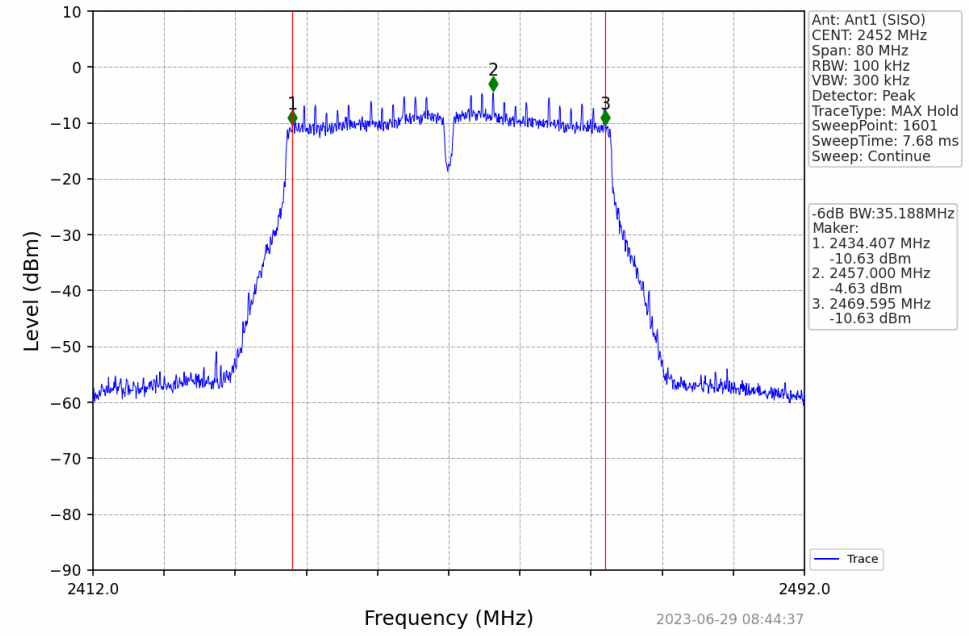
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



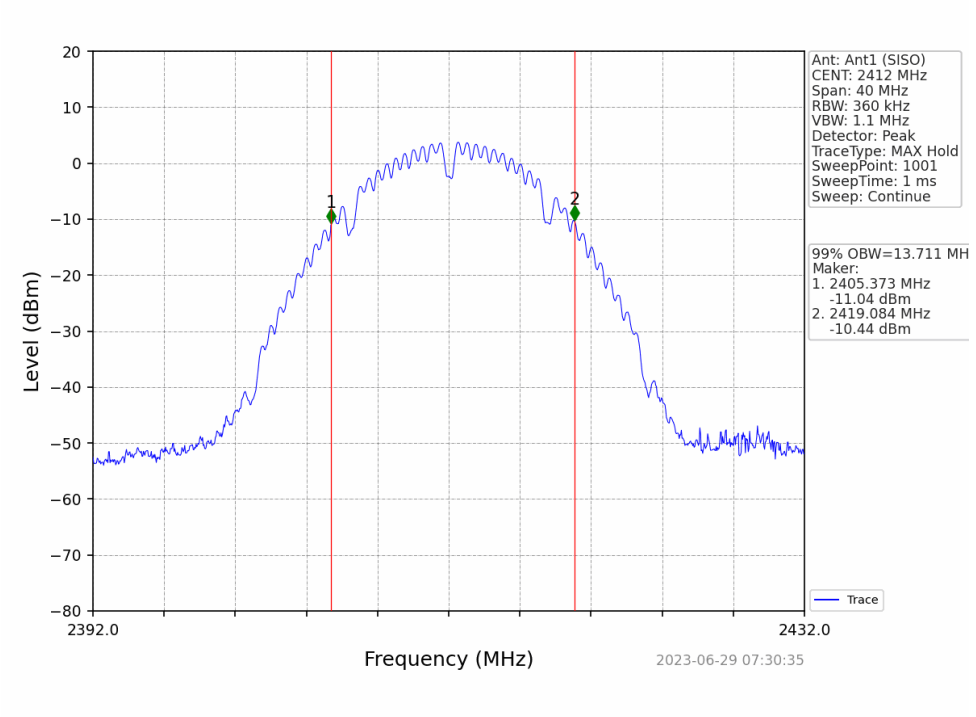
4 99% Occupy Bandwidth

4.1 Test Result

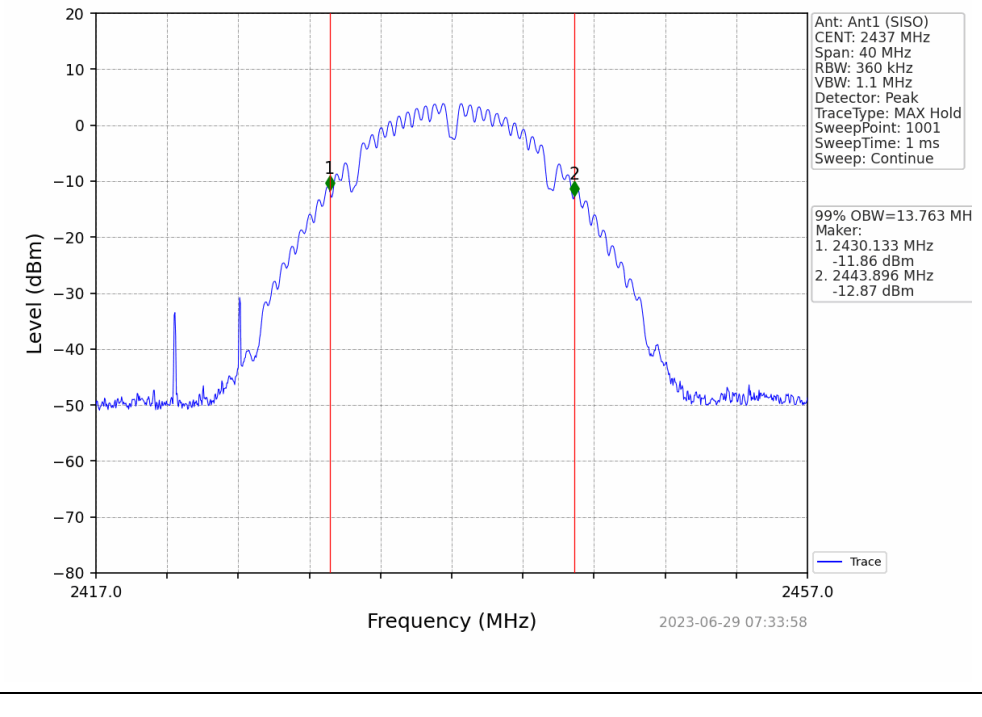
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz) Result	Verdict
802.11b	SISO	2412	1	13.711	Pass
		2437	1	13.763	Pass
		2462	1	13.778	Pass
802.11g	SISO	2412	1	17.565	Pass
		2437	1	17.532	Pass
		2462	1	17.446	Pass
802.11n (HT20)	SISO	2412	1	18.597	Pass
		2437	1	18.560	Pass
		2462	1	18.544	Pass
802.11n (HT40)	SISO	2422	1	36.480	Pass
		2437	1	36.682	Pass
		2452	1	36.666	Pass

4.2 Test Graphs

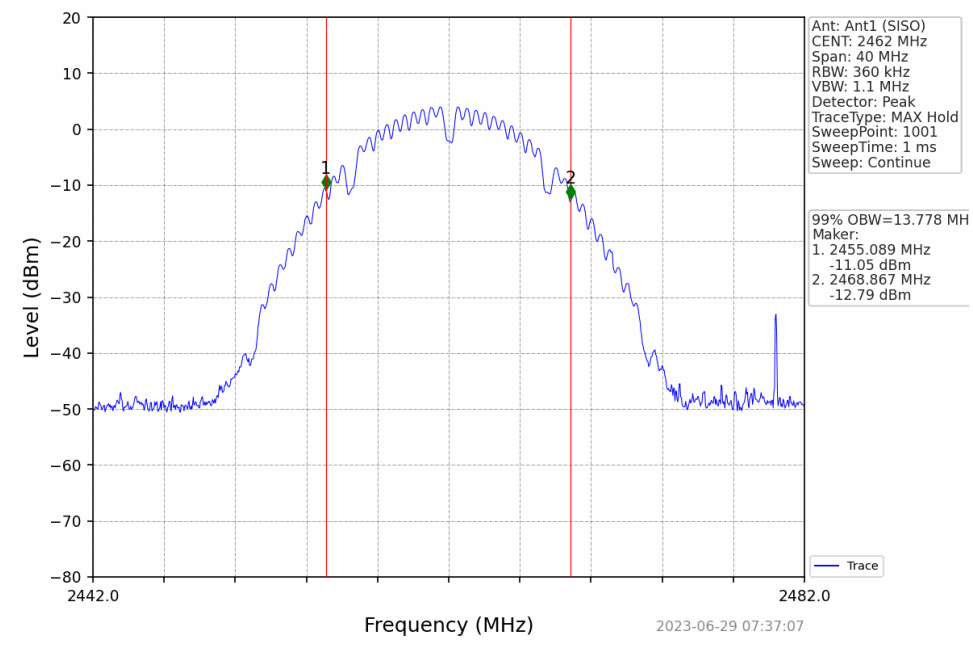
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



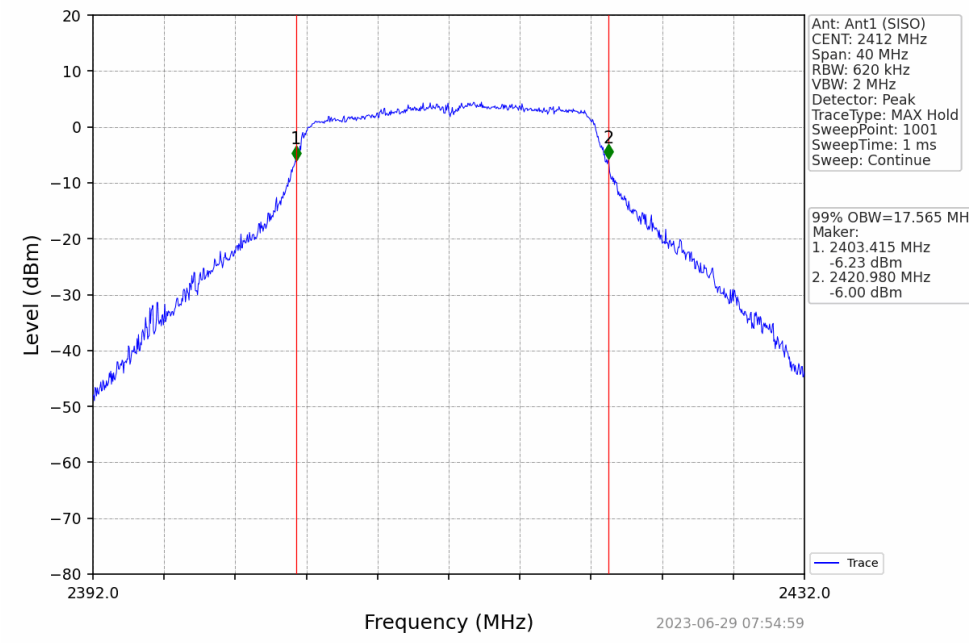
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



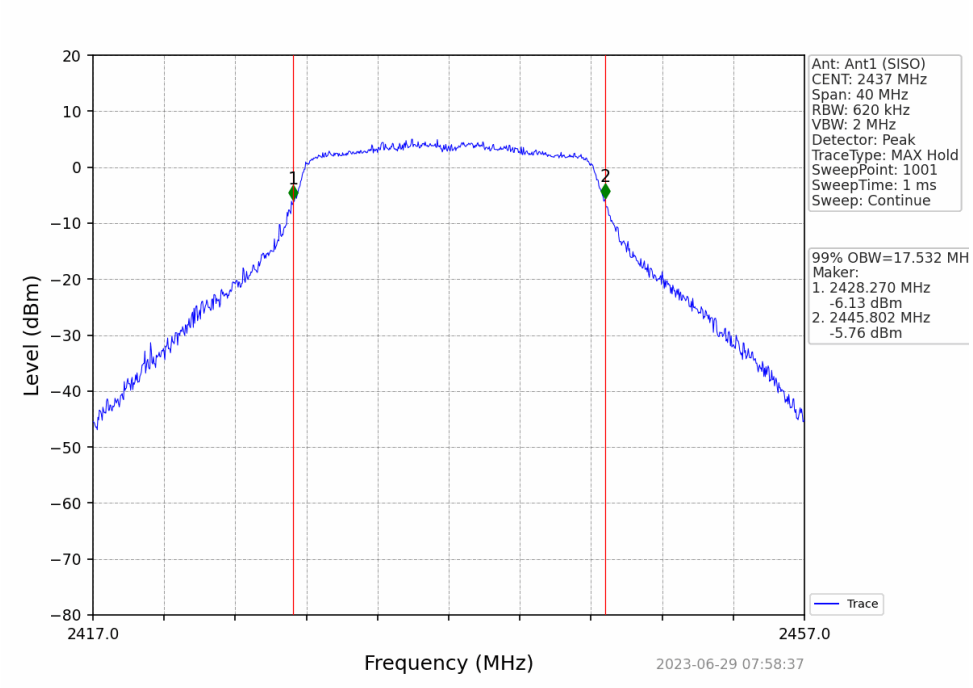
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



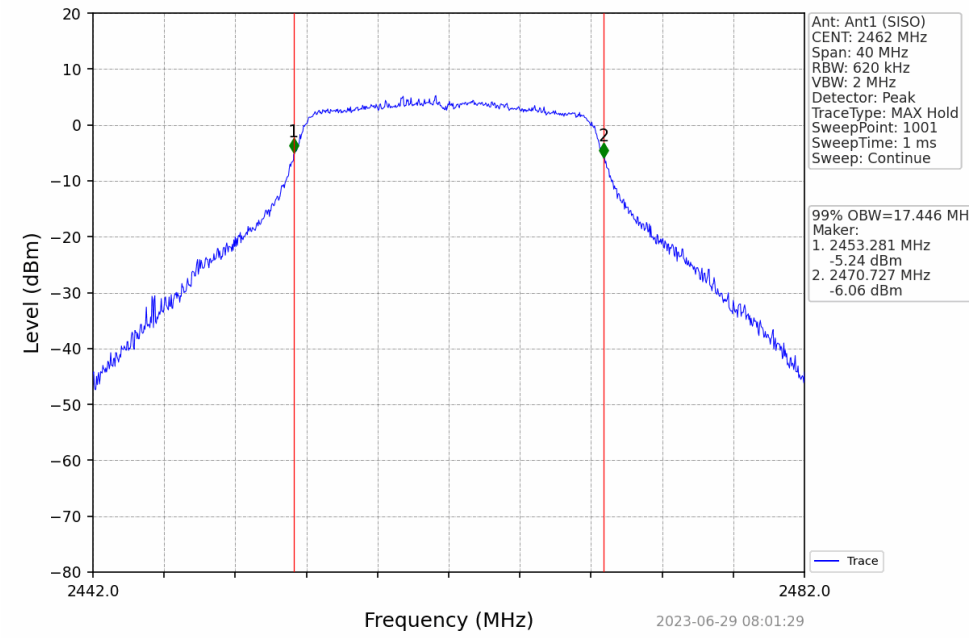
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



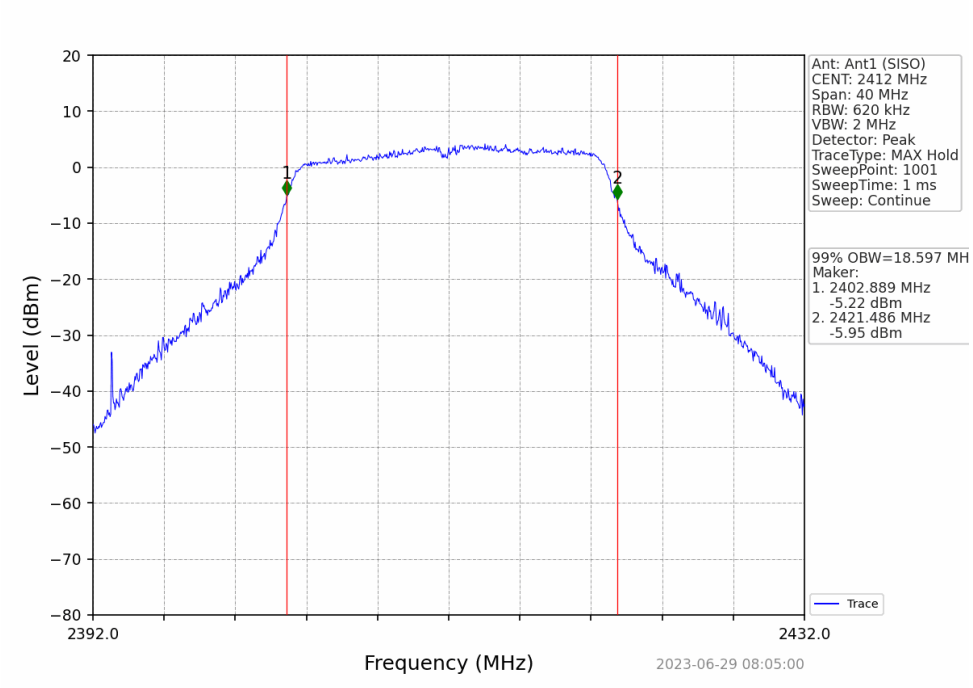
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



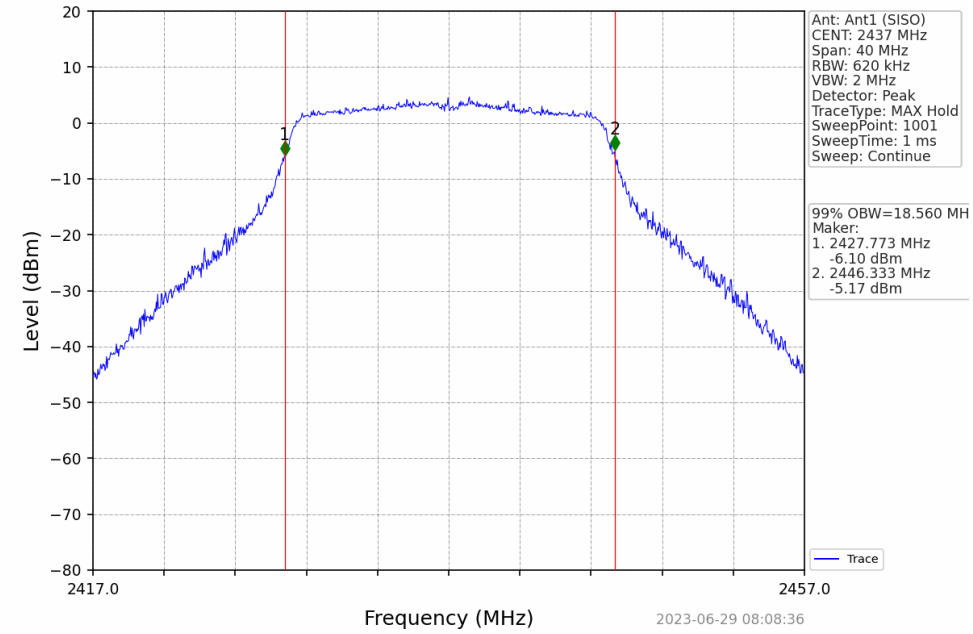
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



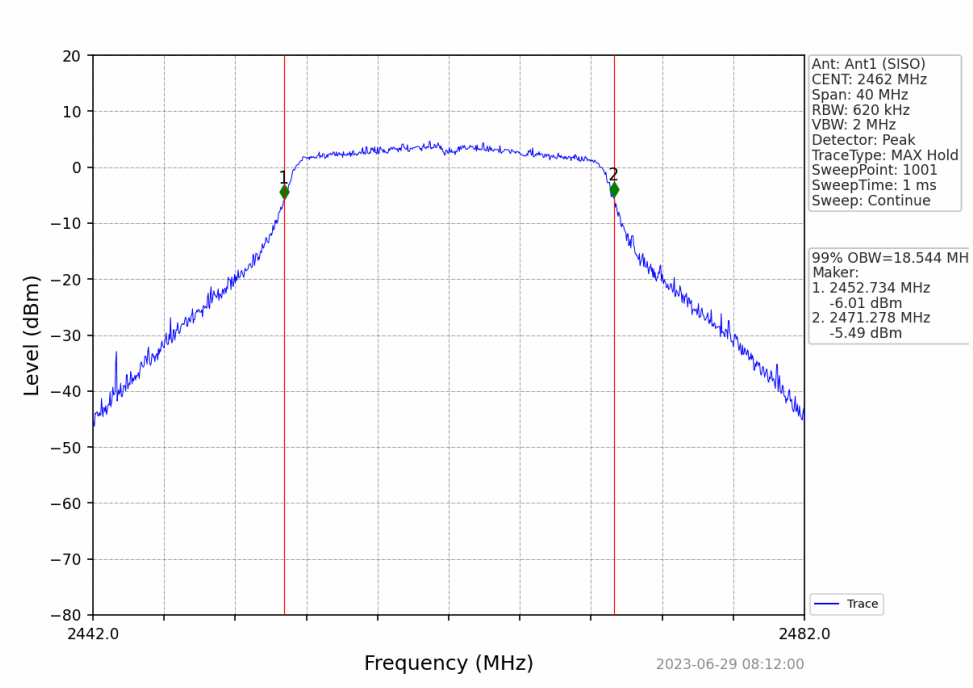
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



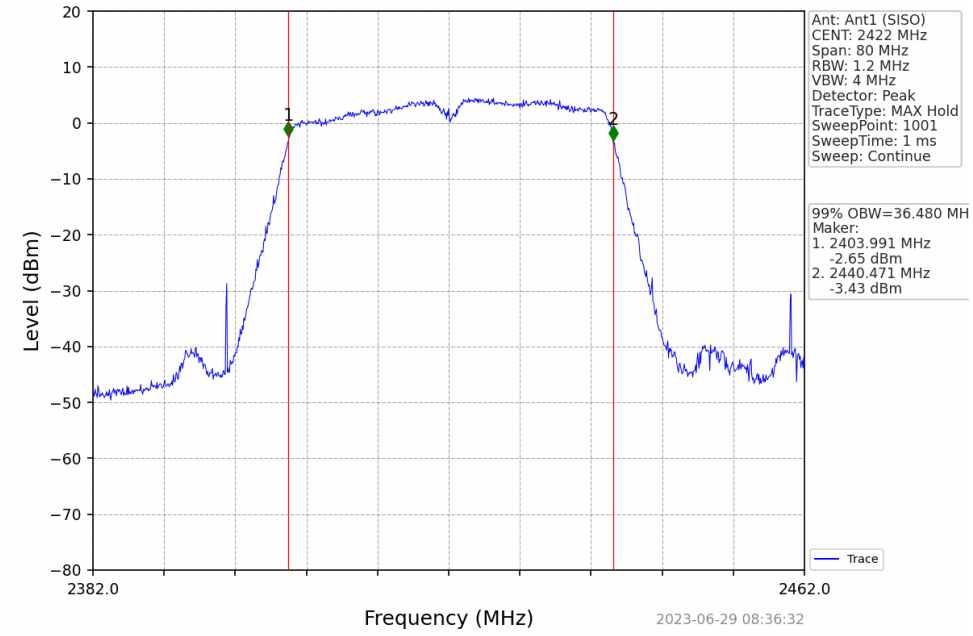
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



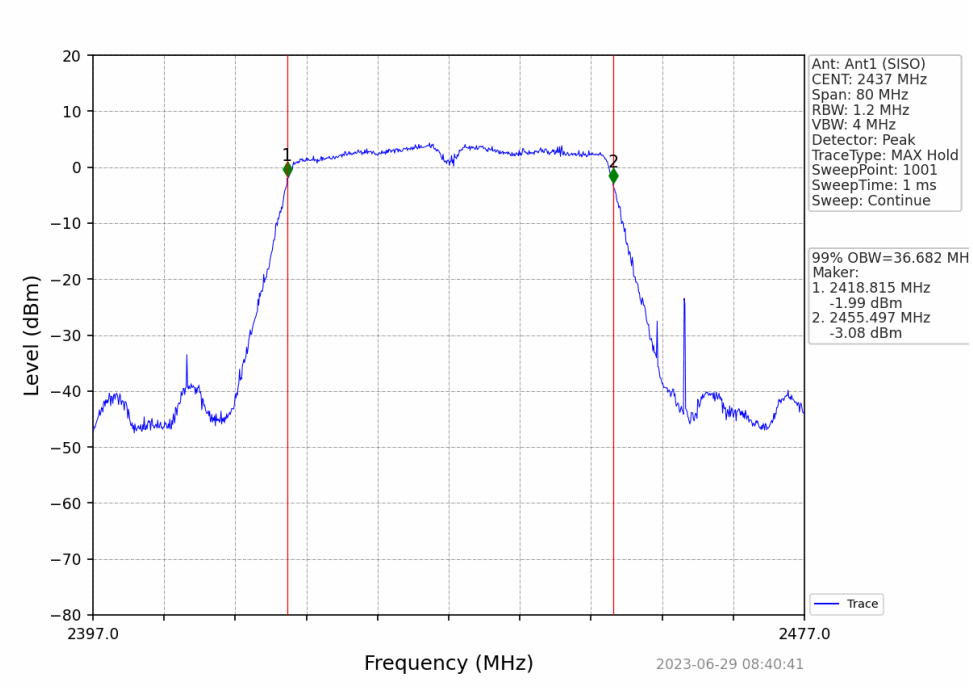
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



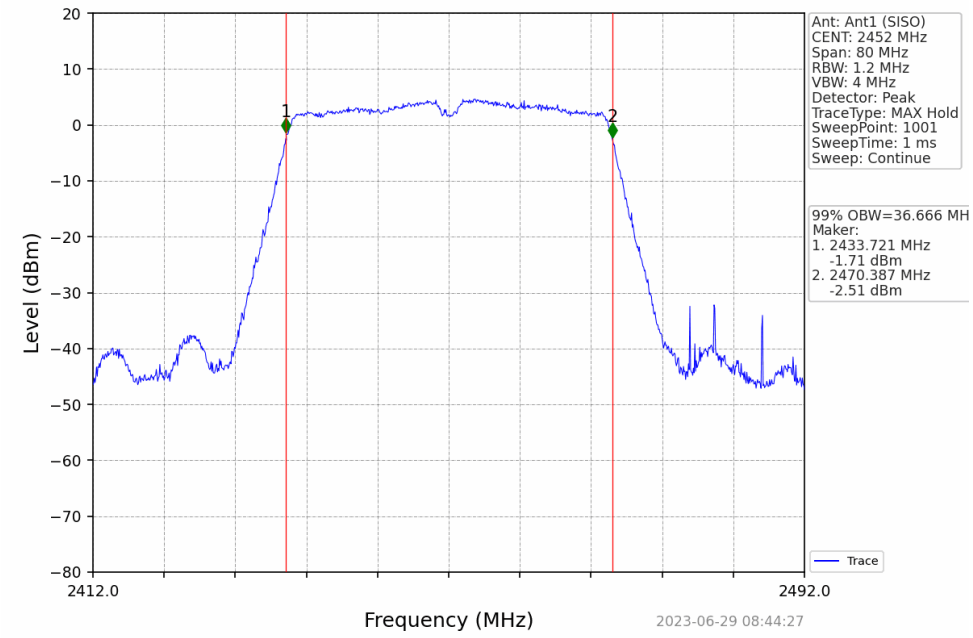
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



5 Maximum Power Spectral Density

5.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-11.86	<=8	Pass
		2437	-10.90	<=8	Pass
		2462	-11.34	<=8	Pass
802.11g	SISO	2412	-15.64	<=8	Pass
		2437	-14.18	<=8	Pass
		2462	-15.68	<=8	Pass
802.11n (HT20)	SISO	2412	-16.03	<=8	Pass
		2437	-15.65	<=8	Pass
		2462	-15.17	<=8	Pass
802.11n (HT40)	SISO	2422	-19.92	<=8	Pass
		2437	-20.14	<=8	Pass
		2452	-18.70	<=8	Pass

6 Conducted Spurious Emissions and Band Edges Test

6.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
802.11b	SISO	2412	1	3.31
		2437	1	3.58
		2462	1	3.81
802.11g	SISO	2412	1	-0.69
		2437	1	1.87
		2462	1	-0.61
802.11n (HT20)	SISO	2412	1	-0.23
		2437	1	-0.74
		2462	1	0.05
802.11n (HT40)	SISO	2422	1	-4.74
		2437	1	-5.23
		2452	1	-4.71
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.				

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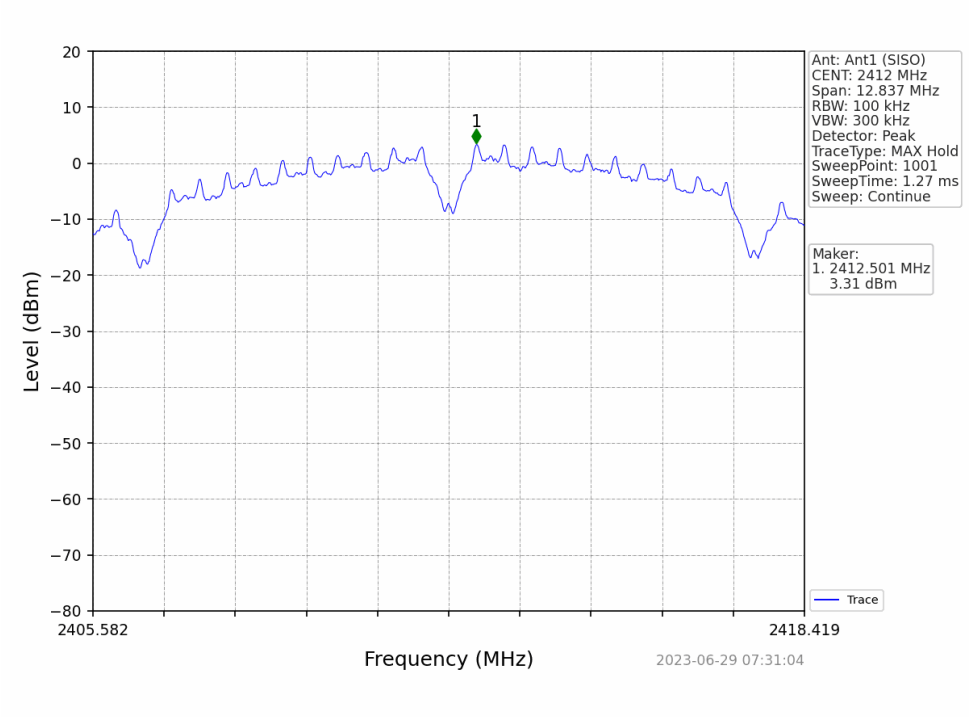
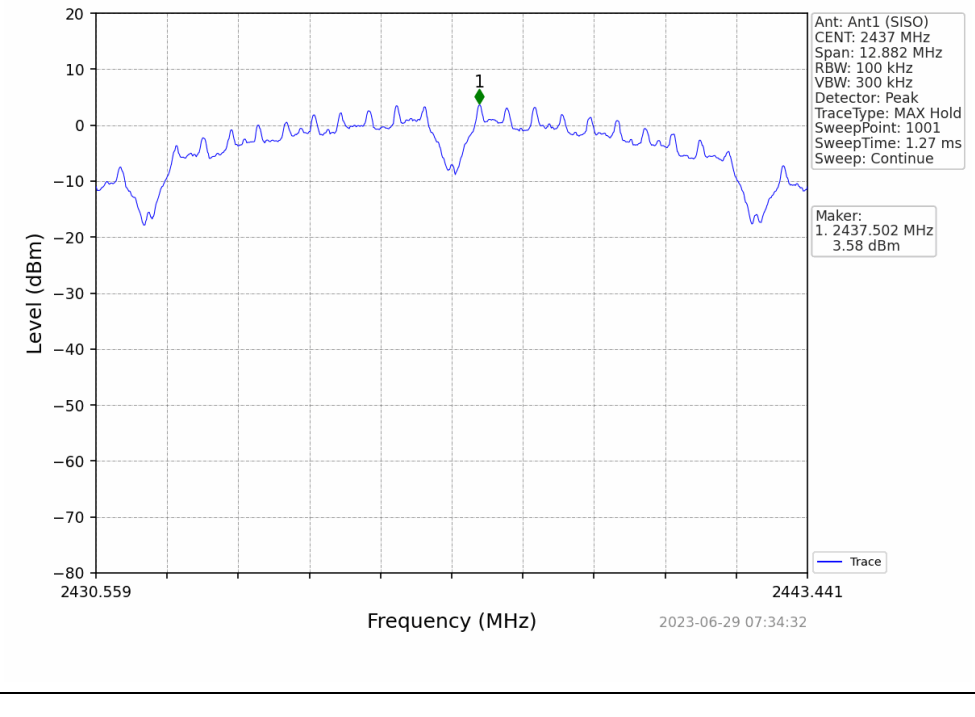
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	3.81	-26.19	Pass
		2437	1	3.81	-26.19	Pass
		2462	1	3.81	-26.19	Pass
802.11g	SISO	2412	1	1.87	-28.13	Pass
		2437	1	1.87	-28.13	Pass
		2462	1	1.87	-28.13	Pass
802.11n (HT20)	SISO	2412	1	0.05	-29.95	Pass
		2437	1	0.05	-29.95	Pass
		2462	1	0.05	-29.95	Pass
802.11n (HT40)	SISO	2422	1	-4.71	-24.71	Pass
		2437	1	-4.71	-24.71	Pass
		2452	1	-4.71	-24.71	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.						

6.2 Test Graphs

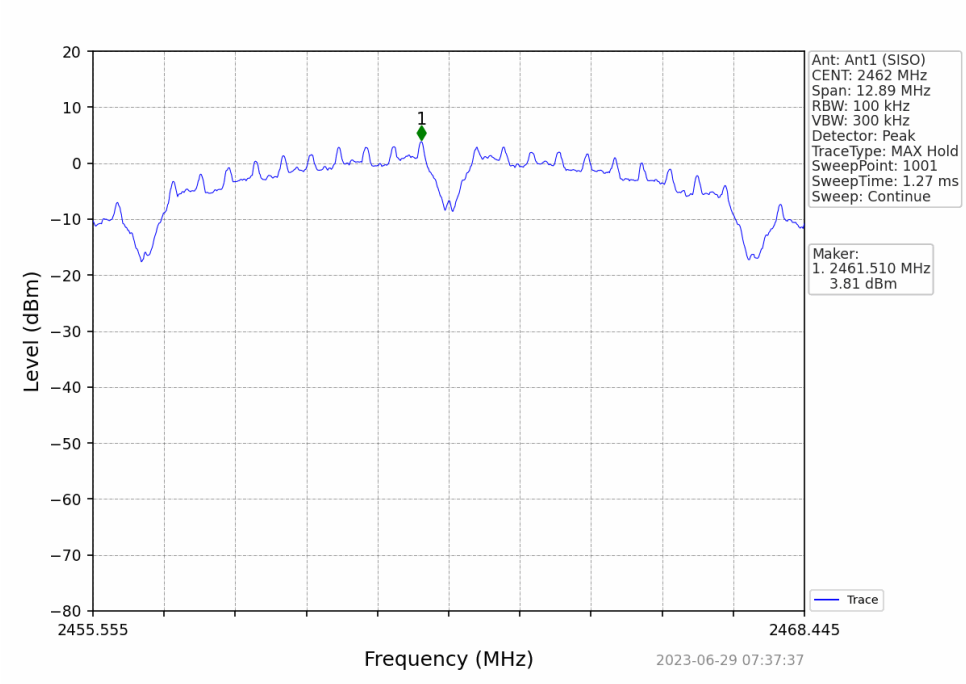
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



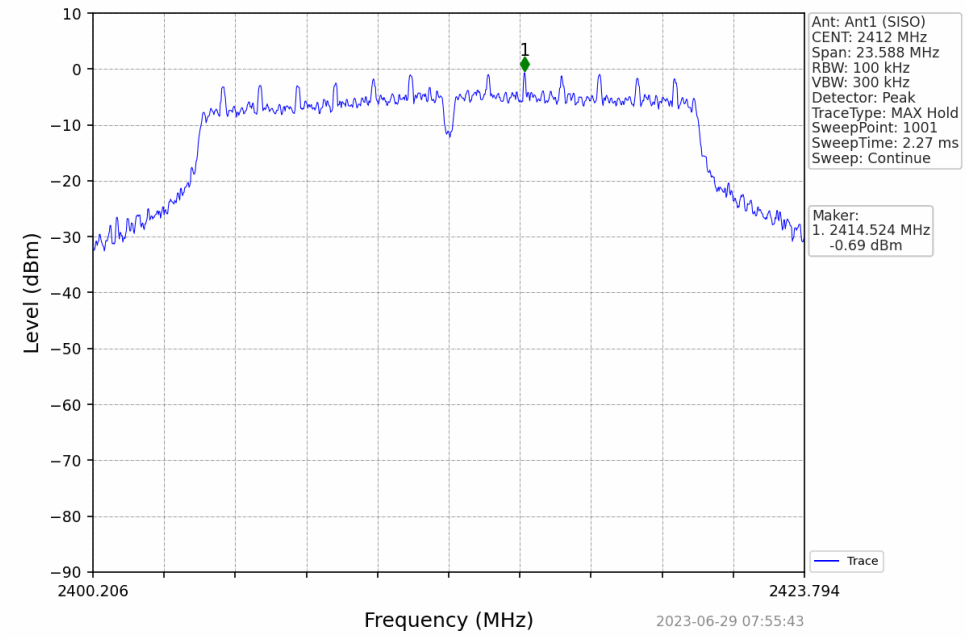
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



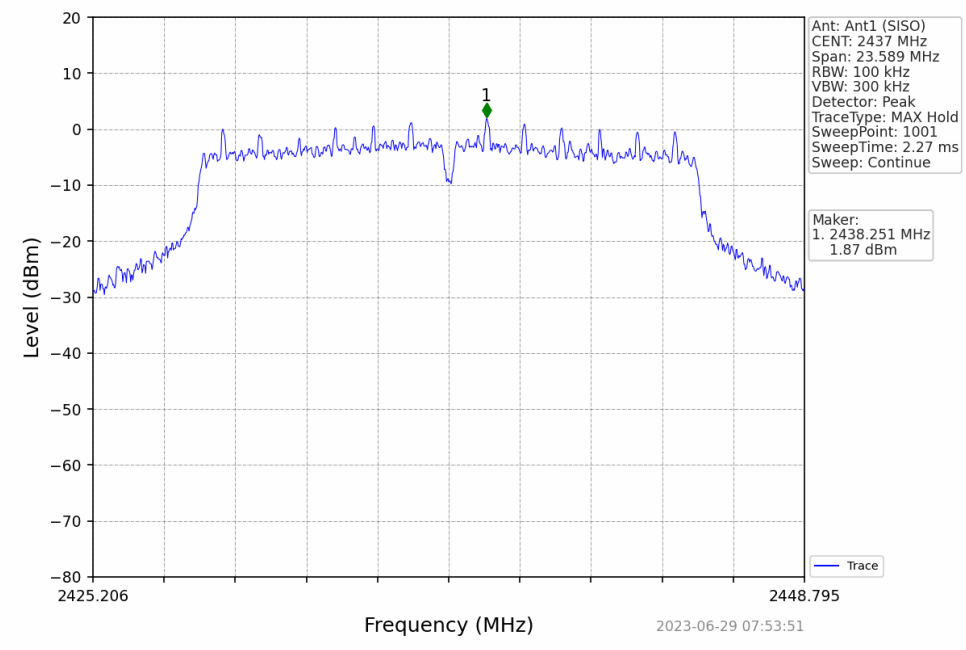
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



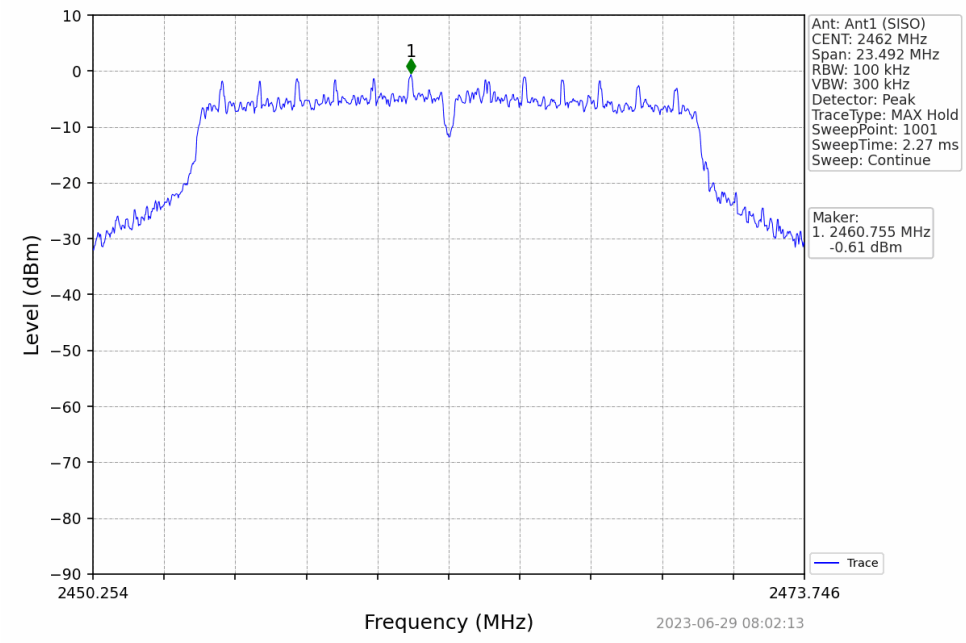
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



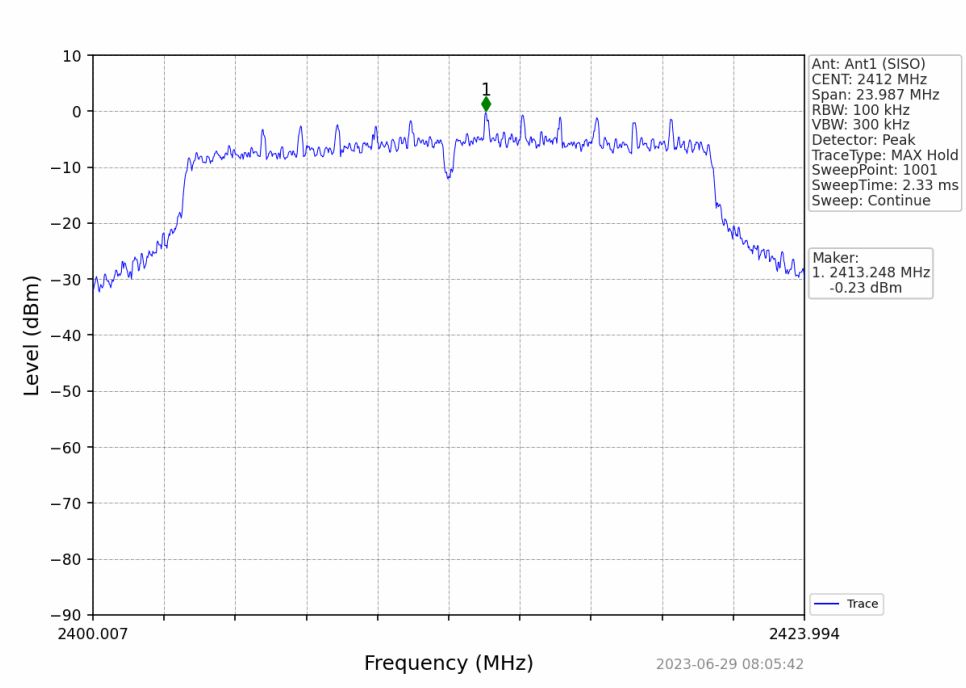
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



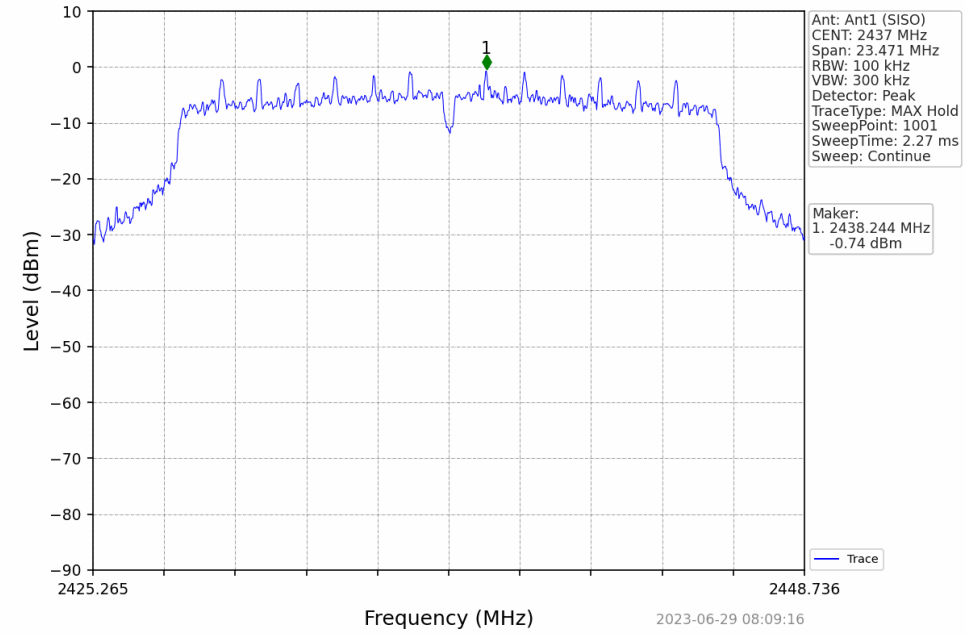
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



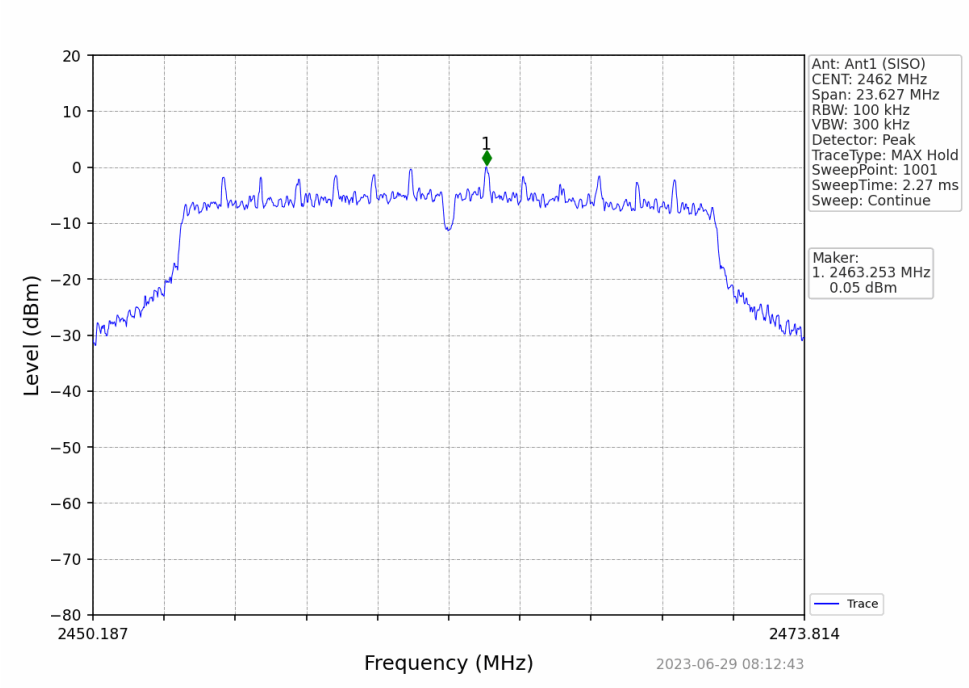
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



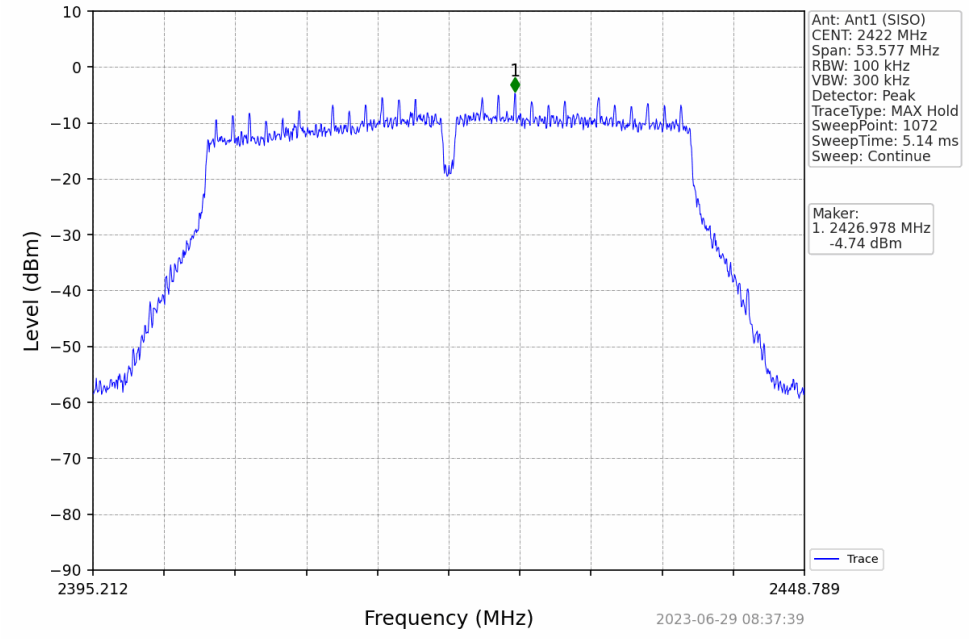
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



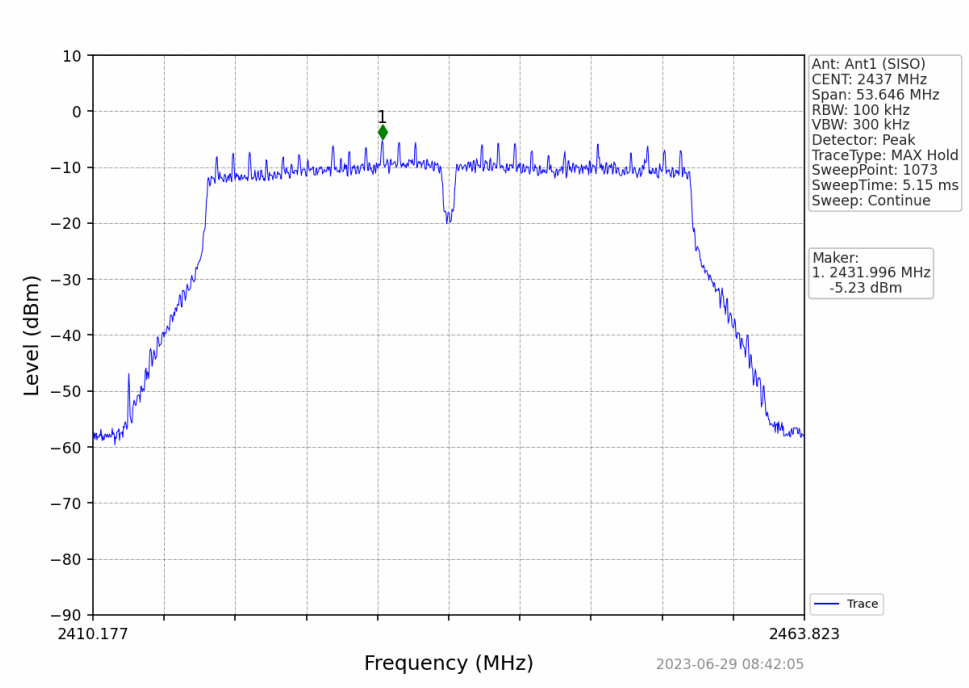
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



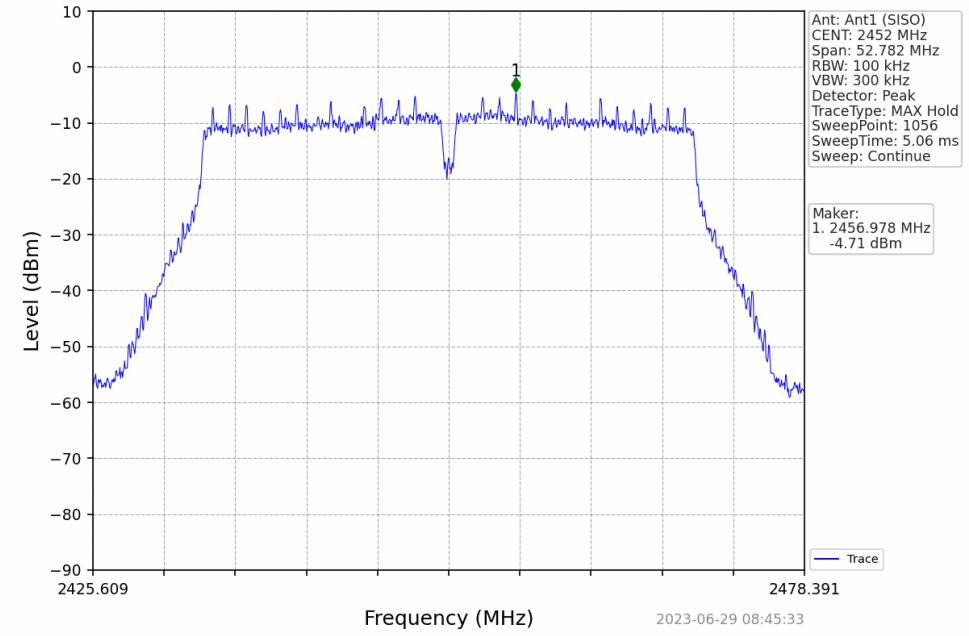
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



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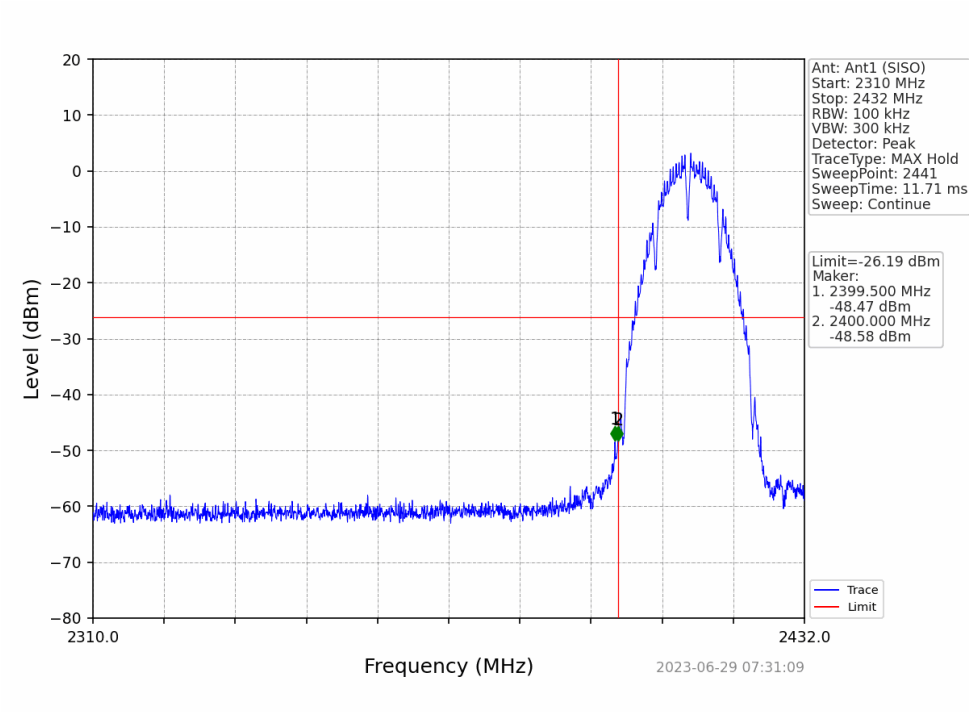
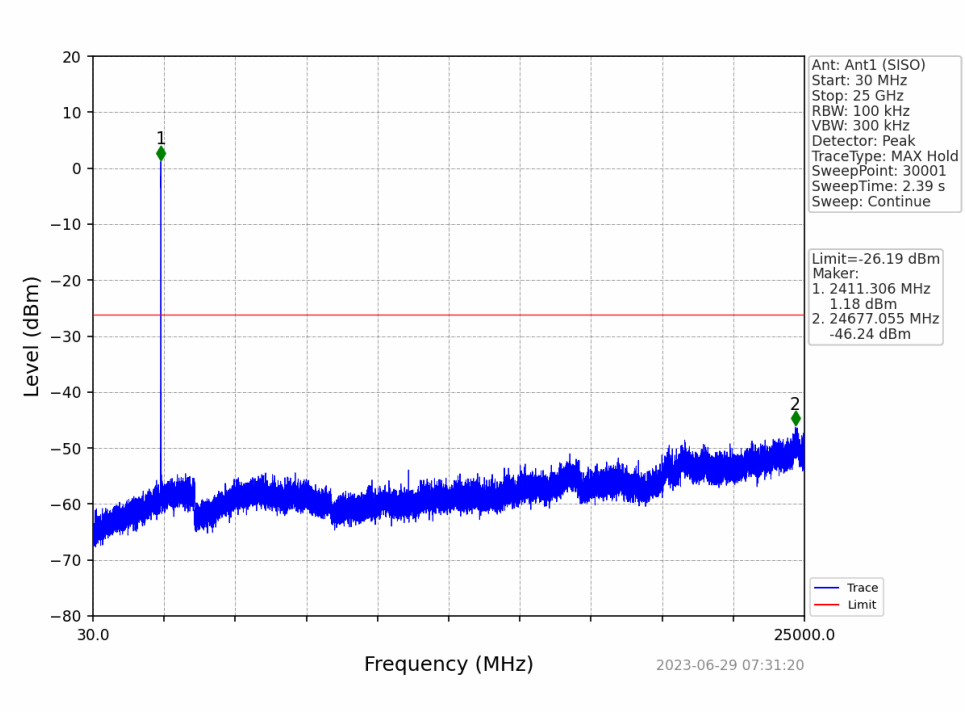
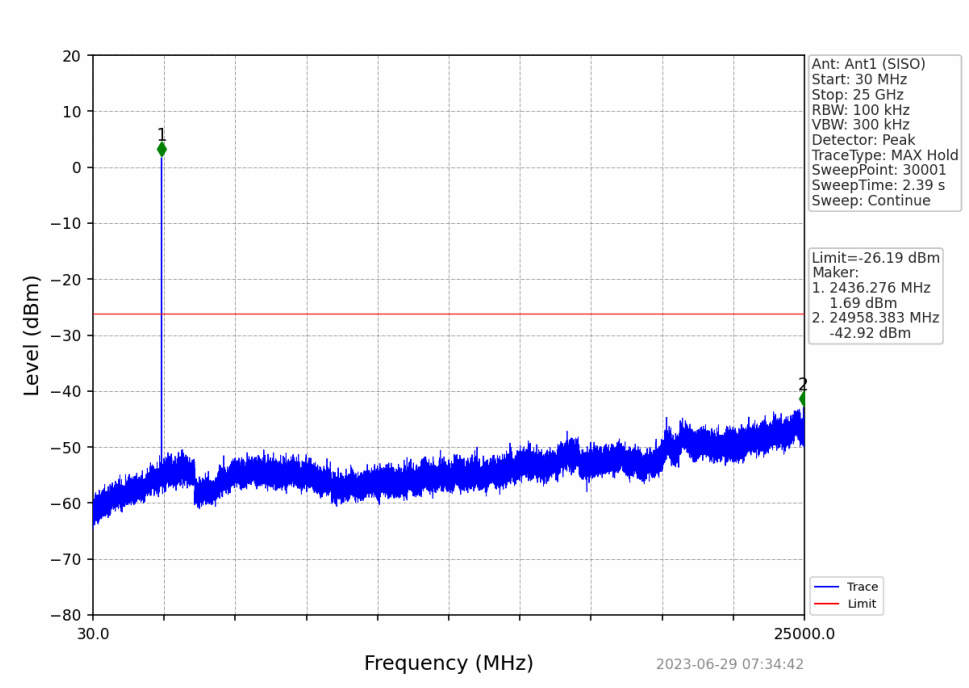
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



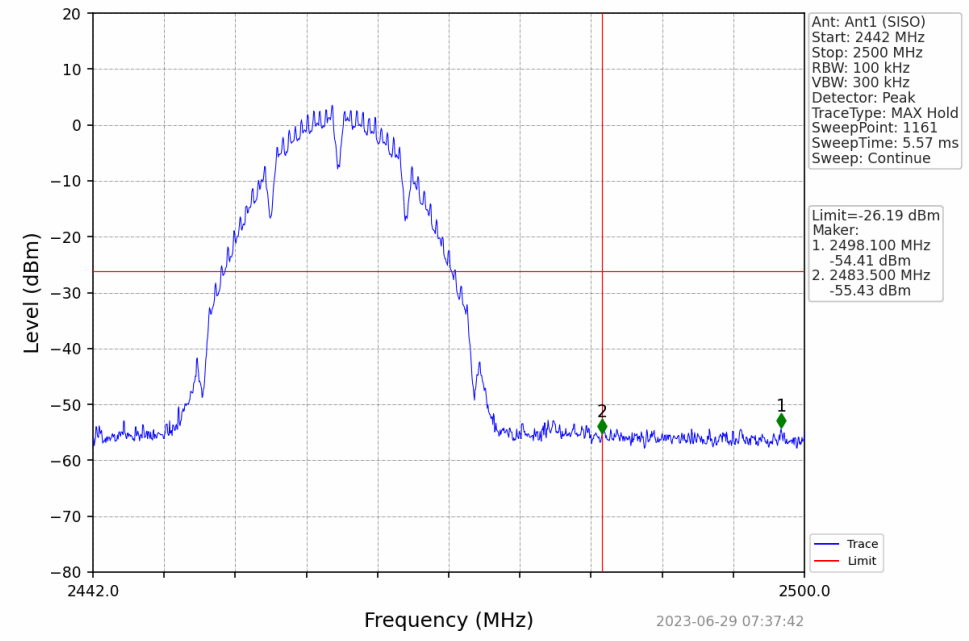
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



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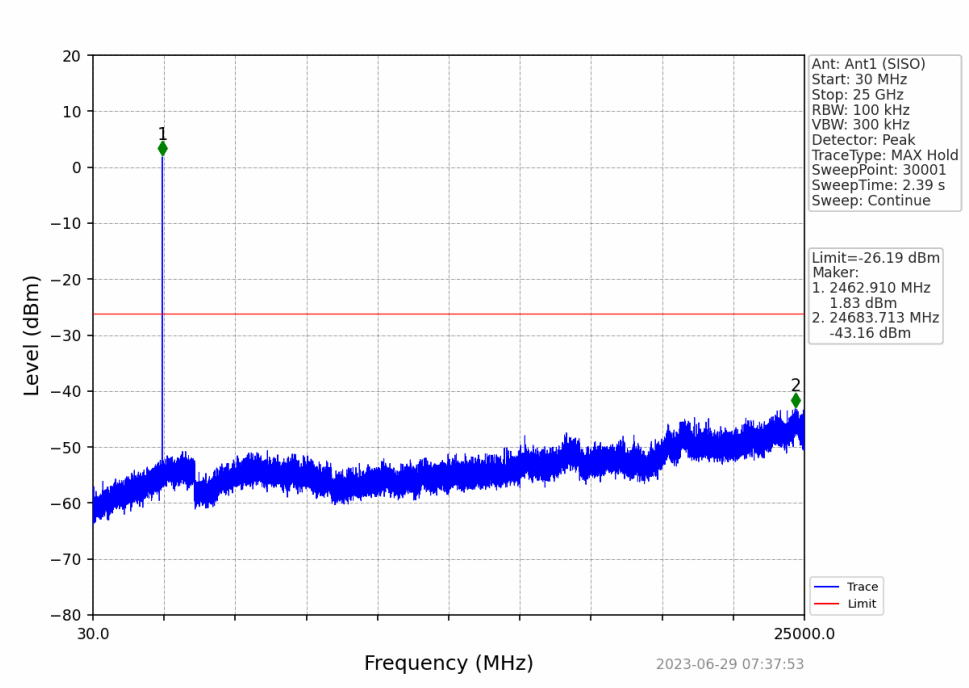

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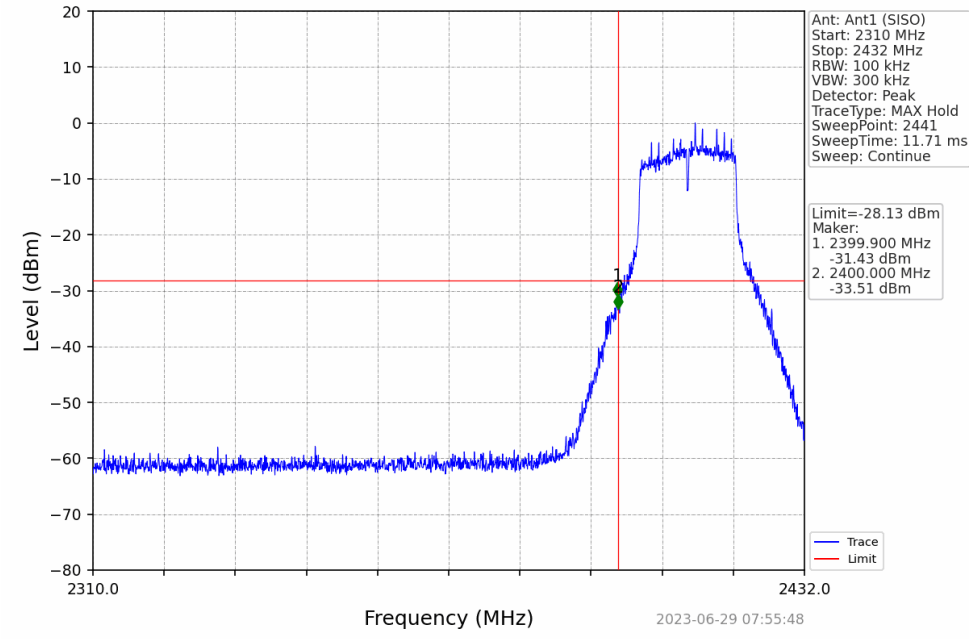

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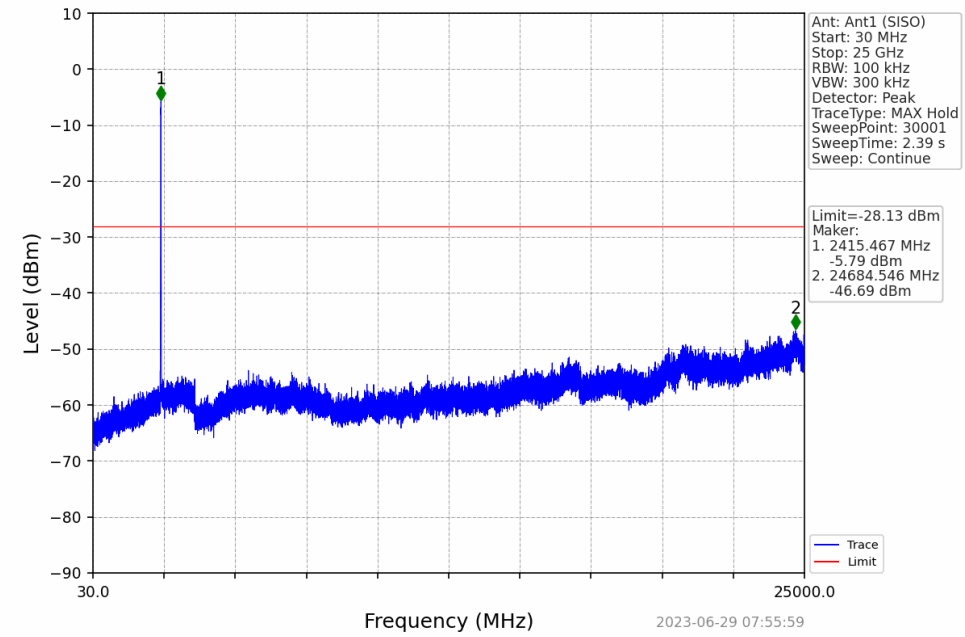

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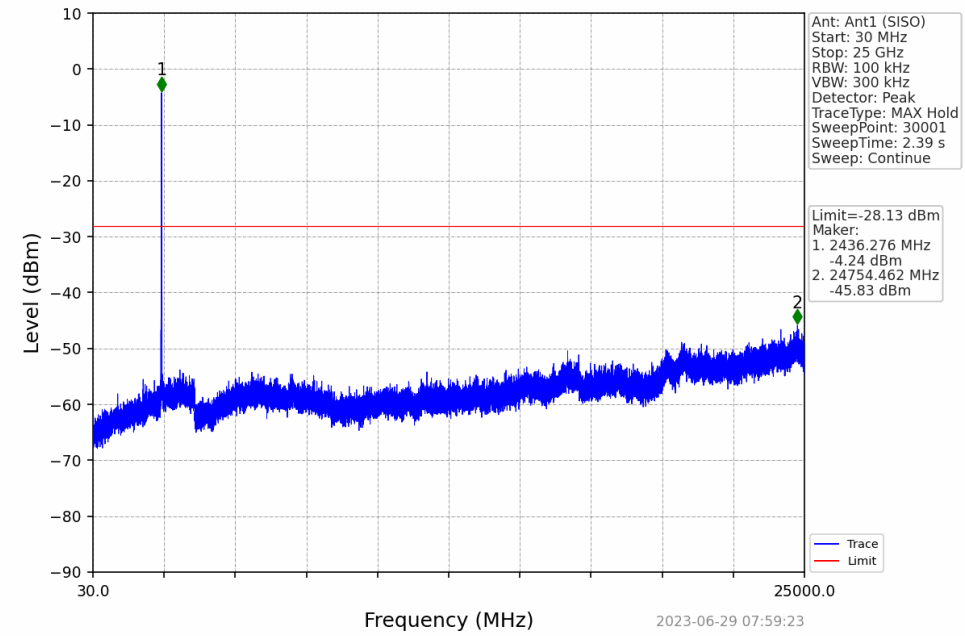

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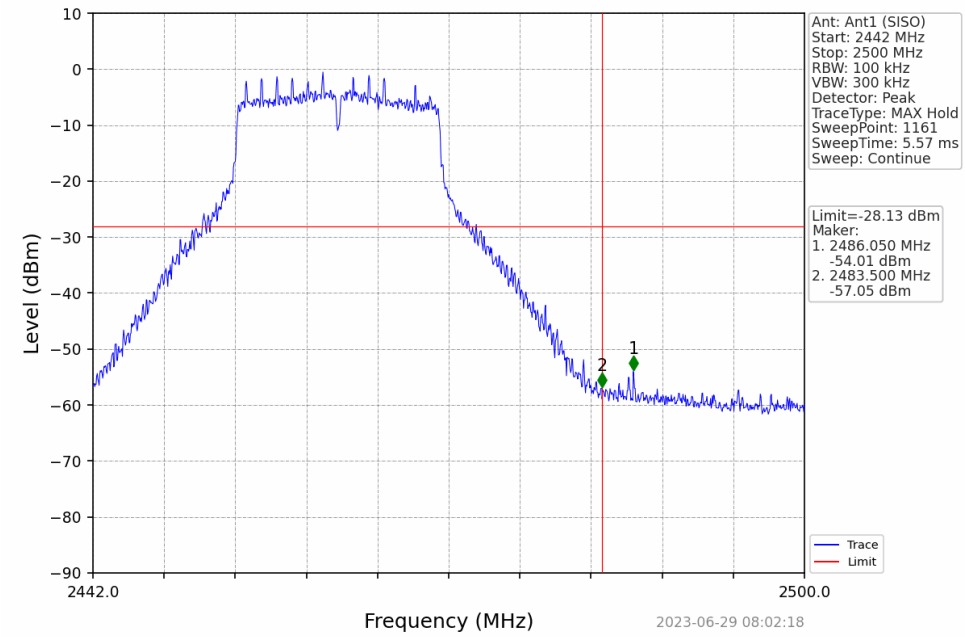

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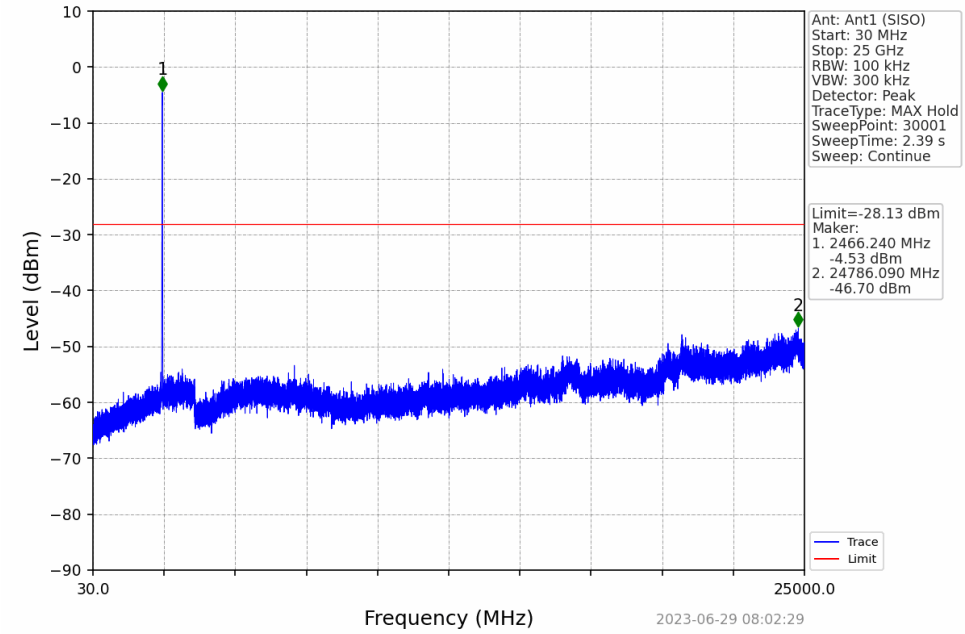
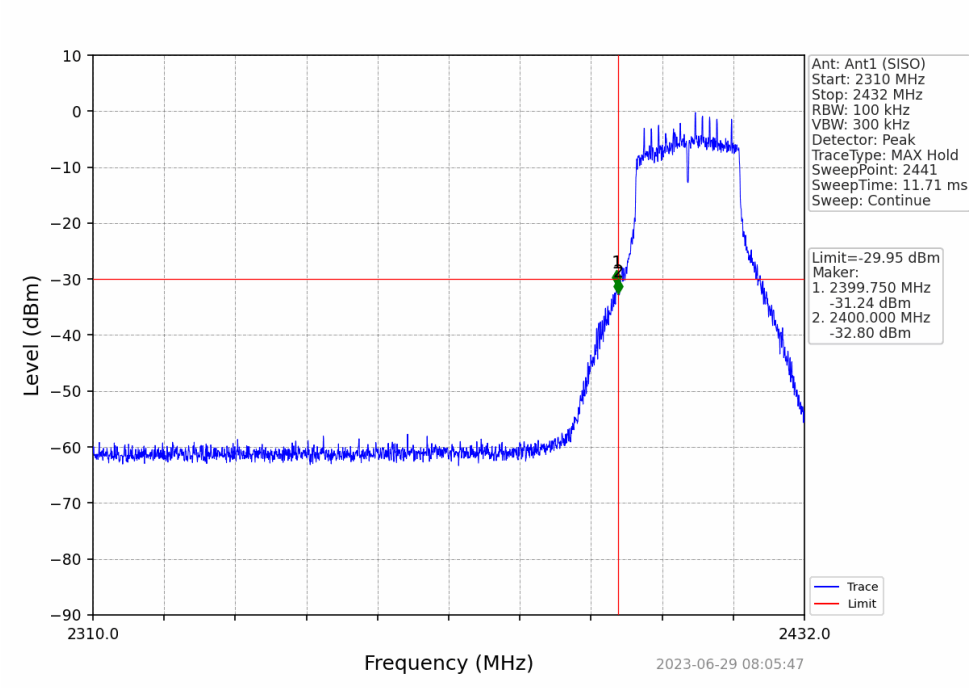


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



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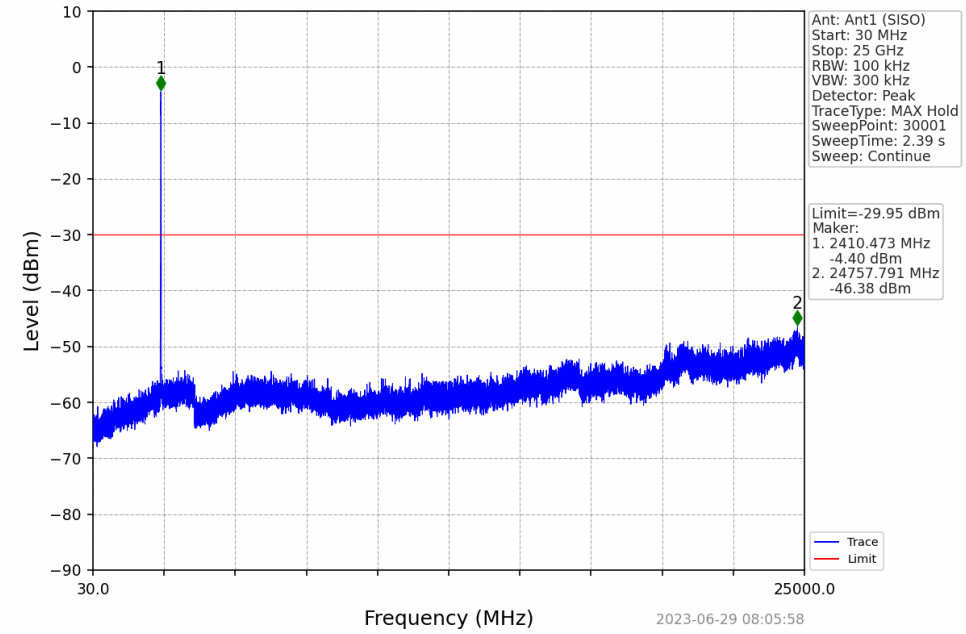
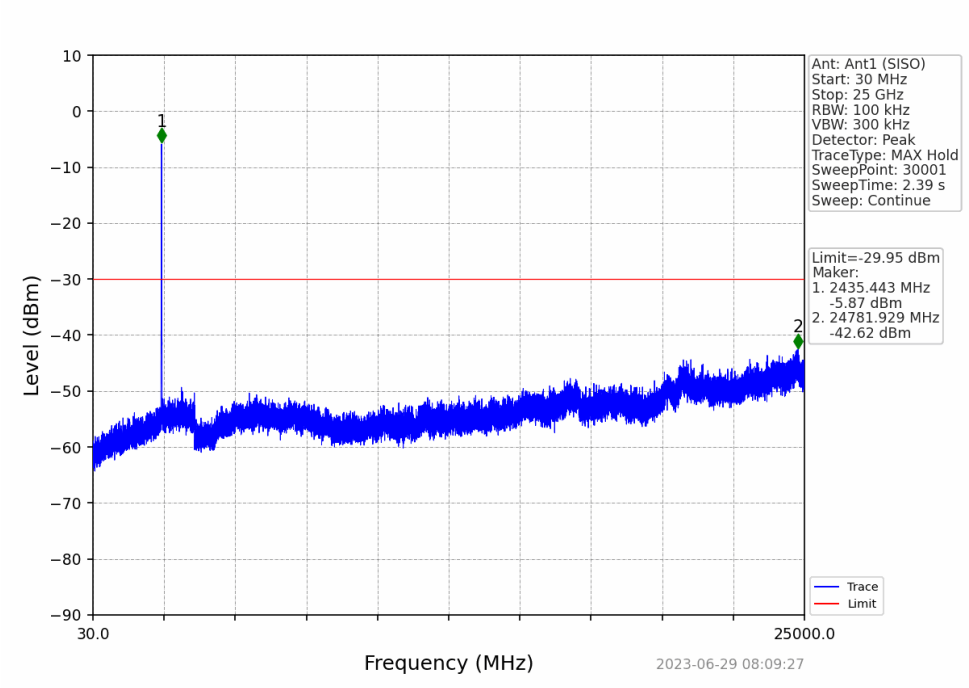
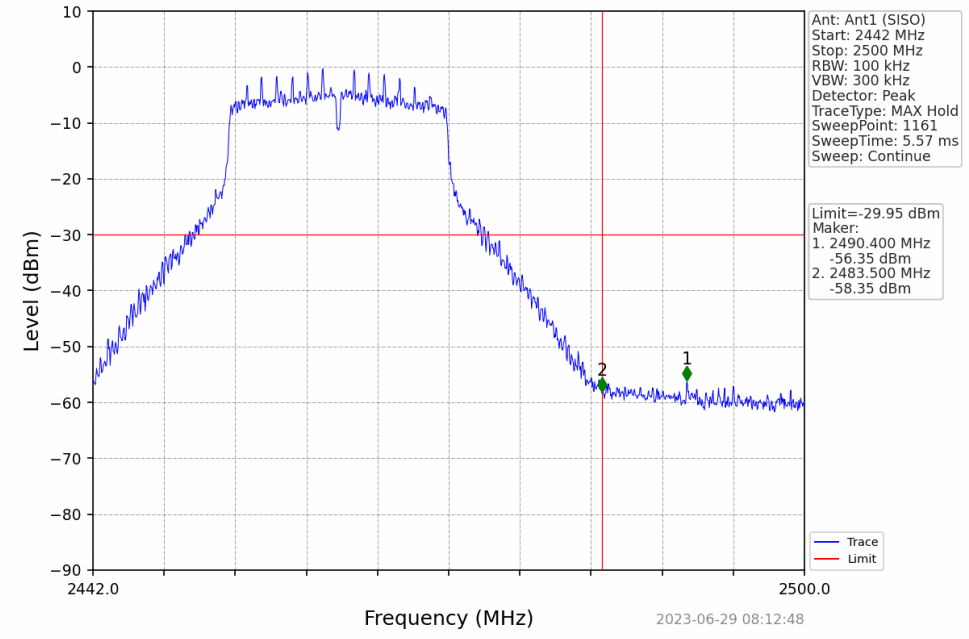


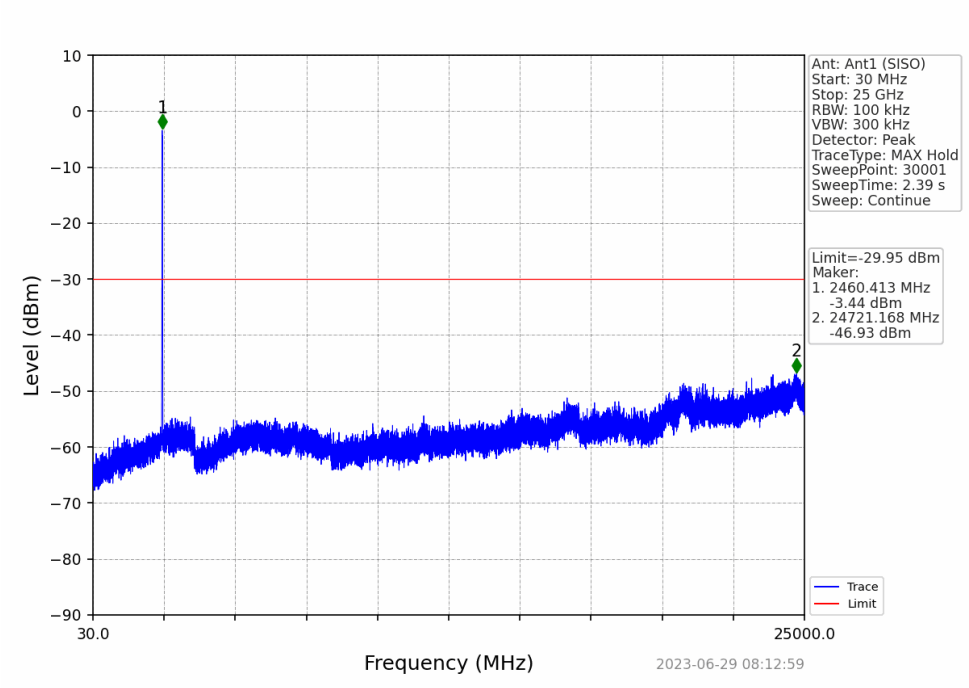
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



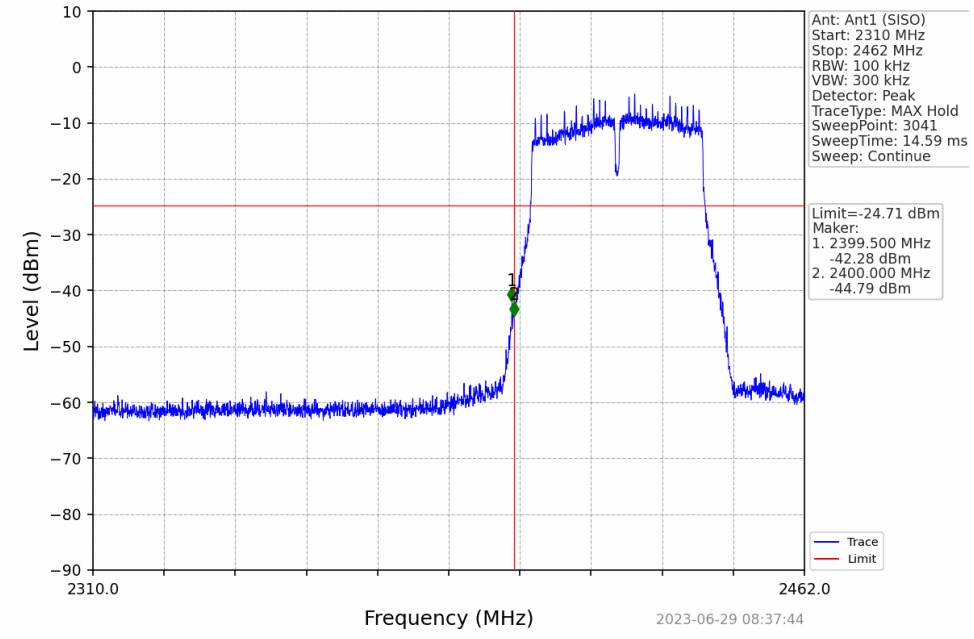
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



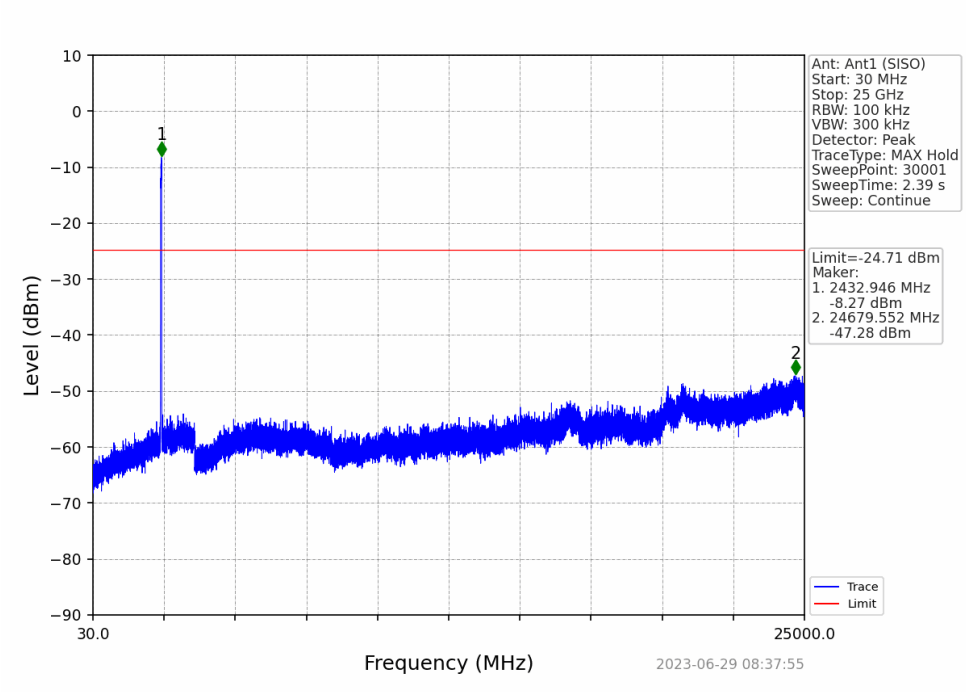
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



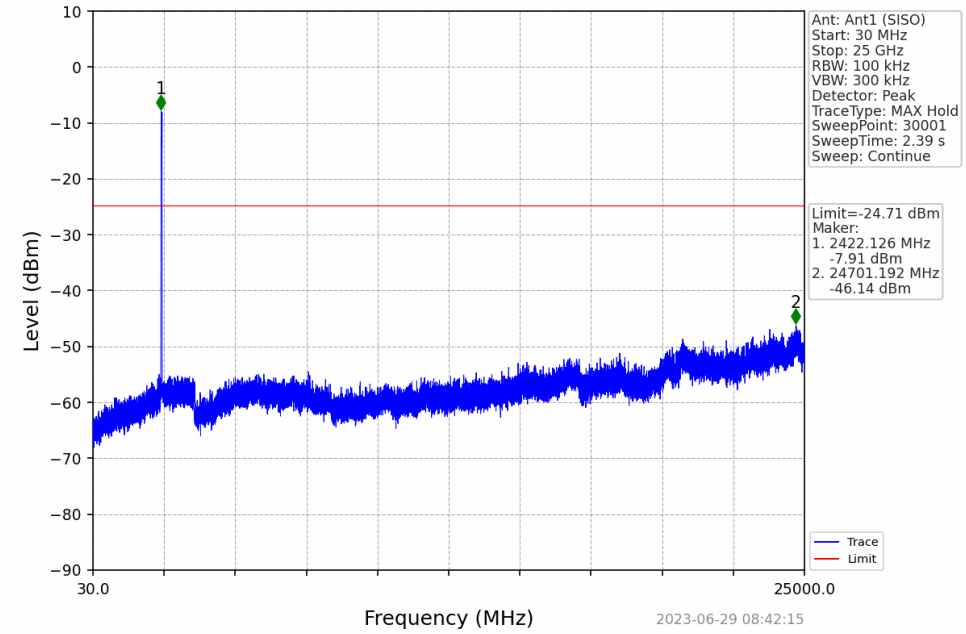
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



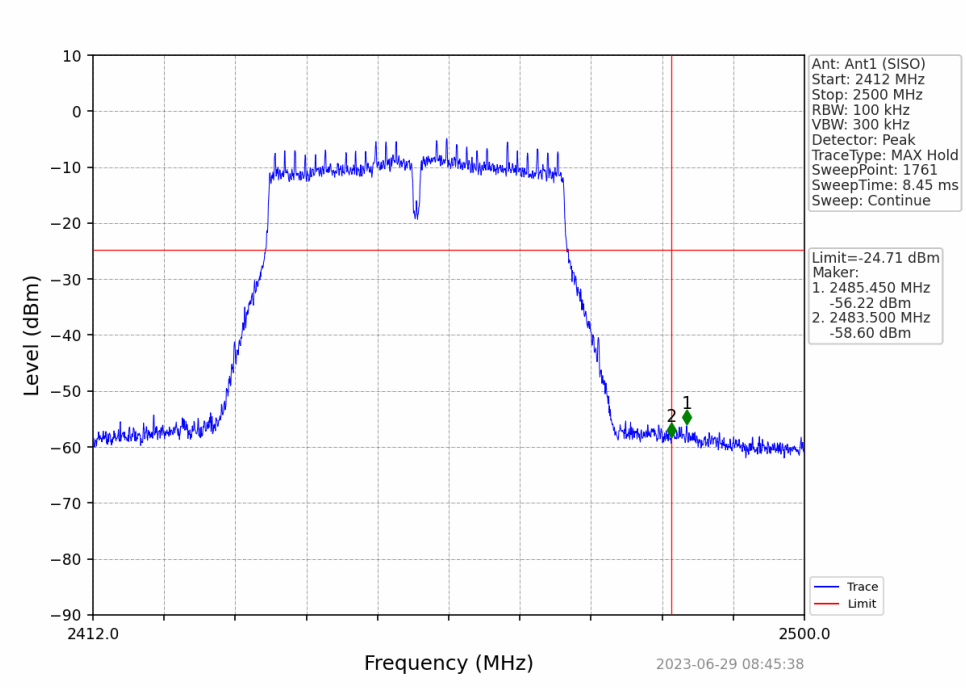
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



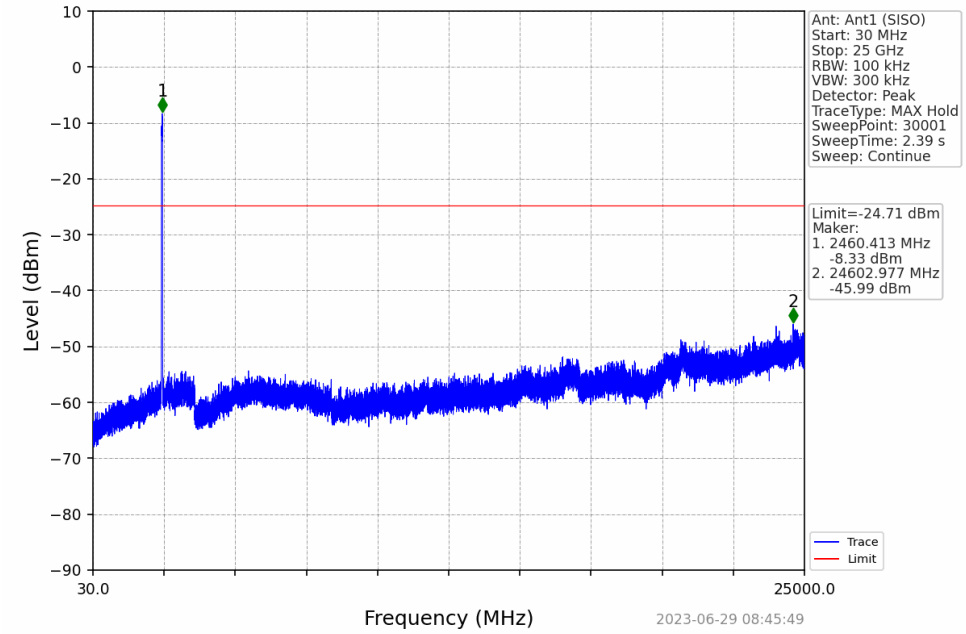
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



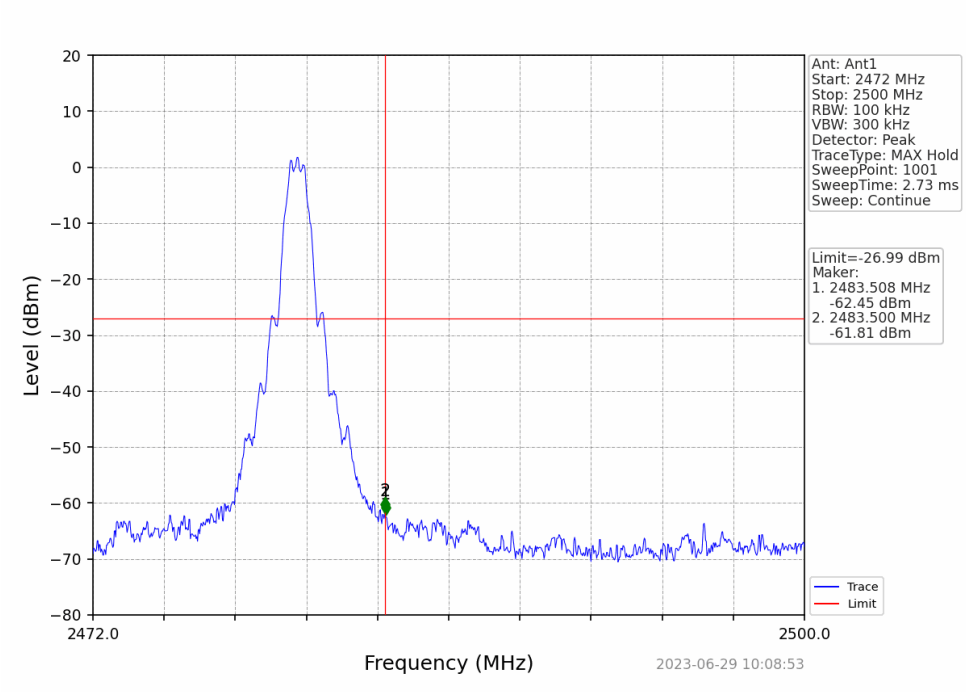
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



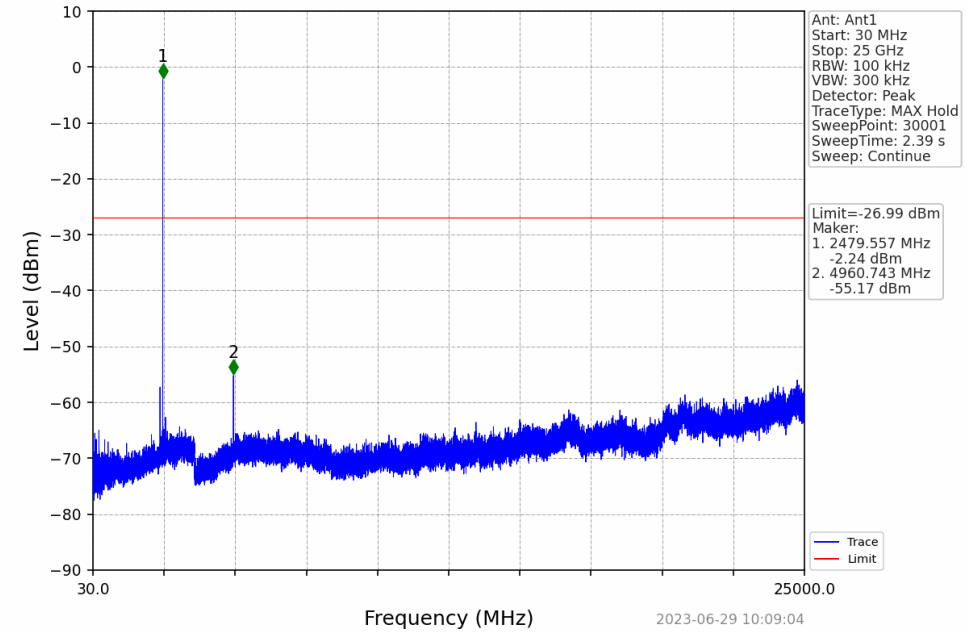
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



1M_HCH_2480MHz_Ant1_NTNV



1M_HCH_2480MHz_Ant1_NTNV



7 Restrict-band Band-edge Measurements

7.1 Test Result

Radiated Band Edge:

Test Mode: 802.11b Mode					Test channel: Lowest			
Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2390.00	52.71	29.15	3.41	34.01	51.26	74.00	-22.74	H
2400.00	62.08	29.16	3.43	34.01	60.66	74.00	-13.34	H
2390.00	54.47	29.15	3.41	34.01	53.02	74.00	-20.98	V
2400.00	64.16	29.16	3.43	34.01	62.74	74.00	-11.26	V
Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2390.00	39.17	29.15	3.41	34.01	37.72	54.00	-16.28	H
2400.00	47.58	29.16	3.43	34.01	46.16	54.00	-7.84	H
2390.00	41.07	29.15	3.41	34.01	39.62	54.00	-14.38	V
2400.00	48.78	29.16	3.43	34.01	47.36	54.00	-6.64	V

Test Mode: 802.11b Mode					Test channel: Highest			
Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2483.50	53.83	29.28	3.53	34.03	52.61	74.00	-21.39	H
2500.00	49.31	29.30	3.56	34.03	48.14	74.00	-25.86	H
2483.50	56.30	29.28	3.53	34.03	55.08	74.00	-18.92	V
2500.00	52.02	29.30	3.56	34.03	50.85	74.00	-23.15	V
Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2483.50	39.69	29.28	3.53	34.03	38.47	54.00	-15.53	H
2500.00	35.59	29.30	3.56	34.03	34.42	54.00	-19.58	H
2483.50	41.74	29.28	3.53	34.03	40.52	54.00	-13.48	V
2500.00	37.51	29.30	3.56	34.03	36.34	54.00	-17.66	V

Remark:

1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

Radiated Band Edge:

Test Mode: 802.11g Mode					Test channel: Lowest			
Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2390.00	51.52	27.53	5.47	33.92	50.60	74.00	-23.40	H
2400.00	60.49	27.55	5.49	29.93	63.60	74.00	-10.40	H
2390.00	53.19	27.53	5.47	33.92	52.27	74.00	-21.73	V
2400.00	62.25	27.55	5.49	29.93	65.36	74.00	-8.64	V
Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2390.00	38.32	27.53	5.47	33.92	37.40	54.00	-16.60	H
2400.00	46.60	27.55	5.49	29.93	49.71	54.00	-4.29	H
2390.00	40.13	27.53	5.47	33.92	39.21	54.00	-14.79	V
2400.00	47.71	27.55	5.49	29.93	50.82	54.00	-3.18	V

Test Mode: 802.11g Mode					Test channel: Highest			
Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2483.50	52.12	29.28	3.53	34.03	50.90	74.00	-23.10	H
2500.00	47.99	29.30	3.56	34.03	46.82	74.00	-27.18	H
2483.50	54.35	29.28	3.53	34.03	53.13	74.00	-20.87	V
2500.00	50.47	29.30	3.56	34.03	49.30	74.00	-24.70	V
Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2483.50	38.66	29.28	3.53	34.03	37.44	54.00	-16.56	H
2500.00	34.79	29.30	3.56	34.03	33.62	54.00	-20.38	H
2483.50	40.60	29.28	3.53	34.03	39.38	54.00	-14.62	V
2500.00	36.66	29.30	3.56	34.03	35.49	54.00	-18.51	V

Remark:

1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

Radiated Band Edge:

Test Mode: 802.11n20 Mode					Test channel: Lowest			
Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2390.00	50.97	27.53	5.47	33.92	50.05	74.00	-23.95	H
2400.00	59.76	27.55	5.49	29.93	62.87	74.00	-11.13	H
2390.00	52.60	27.53	5.47	33.92	51.68	74.00	-22.32	V
2400.00	61.37	27.55	5.49	29.93	64.48	74.00	-9.52	V
Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2390.00	37.93	27.53	5.47	33.92	37.01	54.00	-16.99	H
2400.00	46.15	27.55	5.49	29.93	49.26	54.00	-4.74	H
2390.00	39.69	27.53	5.47	33.92	38.77	54.00	-15.23	V
2400.00	47.22	27.55	5.49	29.93	50.33	54.00	-3.67	V

Test Mode: 802.11n20 Mode					Test channel: Highest			
Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2483.50	51.34	29.28	3.53	34.03	50.12	74.00	-23.88	H
2500.00	47.38	29.30	3.56	34.03	46.21	74.00	-27.79	H
2483.50	53.46	29.28	3.53	34.03	52.24	74.00	-21.76	V
2500.00	49.76	29.30	3.56	34.03	48.59	74.00	-25.41	V
Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2483.50	38.19	29.28	3.53	34.03	36.97	54.00	-17.03	H
2500.00	34.42	29.30	3.56	34.03	33.25	54.00	-20.75	H
2483.50	40.08	29.28	3.53	34.03	38.86	54.00	-15.14	V
2500.00	36.27	29.30	3.56	34.03	35.10	54.00	-18.90	V

Remark:

1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

Radiated Band Edge:

Test Mode: 802.11n40 Mode					Test channel: Lowest			
Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2390.00	50.25	27.53	5.47	33.92	49.33	74.00	-24.67	H
2400.00	58.80	27.55	5.49	29.93	61.91	74.00	-12.09	H
2390.00	51.84	27.53	5.47	33.92	50.92	74.00	-23.08	V
2400.00	60.22	27.55	5.49	29.93	63.33	74.00	-10.67	V
Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2390.00	37.42	27.53	5.47	33.92	36.50	54.00	-17.50	H
2400.00	45.56	27.55	5.49	29.93	48.67	54.00	-5.33	H
2390.00	39.12	27.53	5.47	33.92	38.20	54.00	-15.80	V
2400.00	46.58	27.55	5.49	29.93	49.69	54.00	-4.31	V

Test Mode: 802.11n40 Mode					Test channel: Highest			
Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2483.50	50.31	29.28	3.53	34.03	49.09	74.00	-24.91	H
2500.00	46.58	29.30	3.56	34.03	45.41	74.00	-28.59	H
2483.50	52.28	29.28	3.53	34.03	51.06	74.00	-22.94	V
2500.00	48.83	29.30	3.56	34.03	47.66	74.00	-26.34	V
Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2483.50	37.57	29.28	3.53	34.03	36.35	54.00	-17.65	H
2500.00	33.94	29.30	3.56	34.03	32.77	54.00	-21.23	H
2483.50	39.39	29.28	3.53	34.03	38.17	54.00	-15.83	V
2500.00	35.76	29.30	3.56	34.03	34.59	54.00	-19.41	V

Remark:

1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

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