

Appendix RF Test Data for 2.4G WIFI

Company: : Guangzhou Bems Electronics Co., Ltd.

EUT : Advertising Player

FCC ID: : 2BYI4-BSAD-001

Model Number : BSAD-001

Report No. : HTT202609419F01

Reviewed By : Heber He

1. Duty Cycle

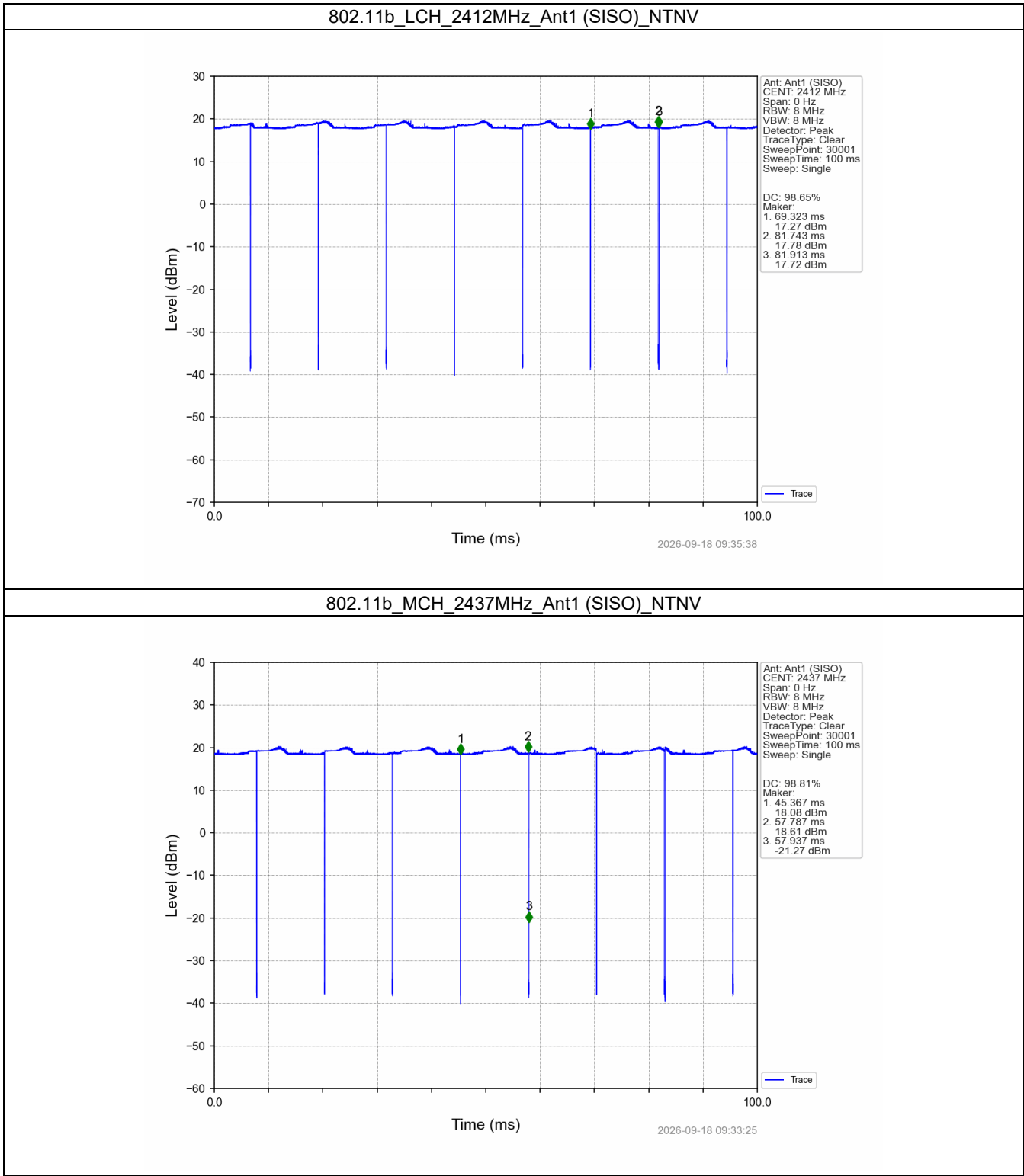
1.1 Test Result

1.1.1 Ant1

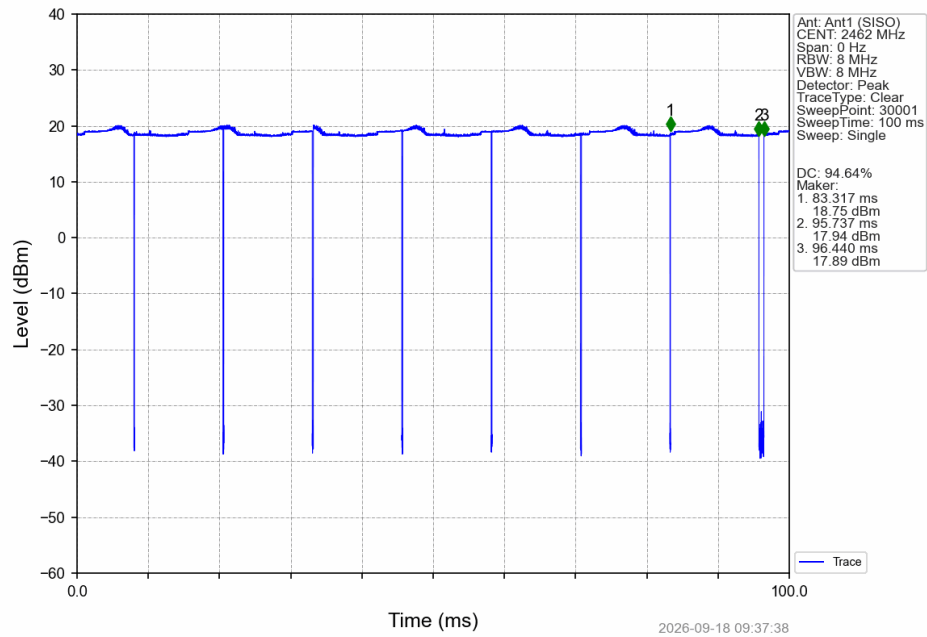
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	12.420	12.590	98.65	0.06	0.76
		2437	12.420	12.570	98.81	0.05	0.77
		2462	12.420	13.123	94.64	0.24	4.80
802.11g	SISO	2412	2.066	2.235	92.44	0.34	3.86
		2437	2.065	2.218	93.10	0.31	5.20
		2462	2.071	2.225	93.08	0.31	5.12
802.11n (HT20)	SISO	2412	1.927	2.091	92.16	0.35	6.32
		2437	1.927	2.064	93.36	0.30	5.15
		2462	1.928	3.914	49.26	3.08	49.34
802.11n (HT40)	SISO	2422	0.948	1.071	88.52	0.53	8.12
		2437	0.945	1.088	86.86	0.61	6.96
		2452	0.945	1.106	85.44	0.68	10.11

1.2 Test Graph

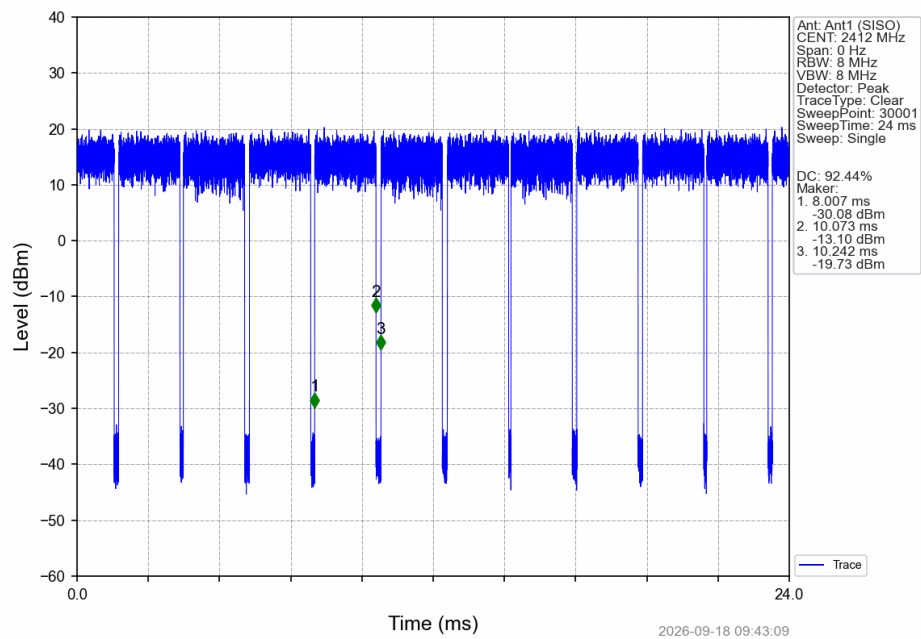
1.2.1 Ant1



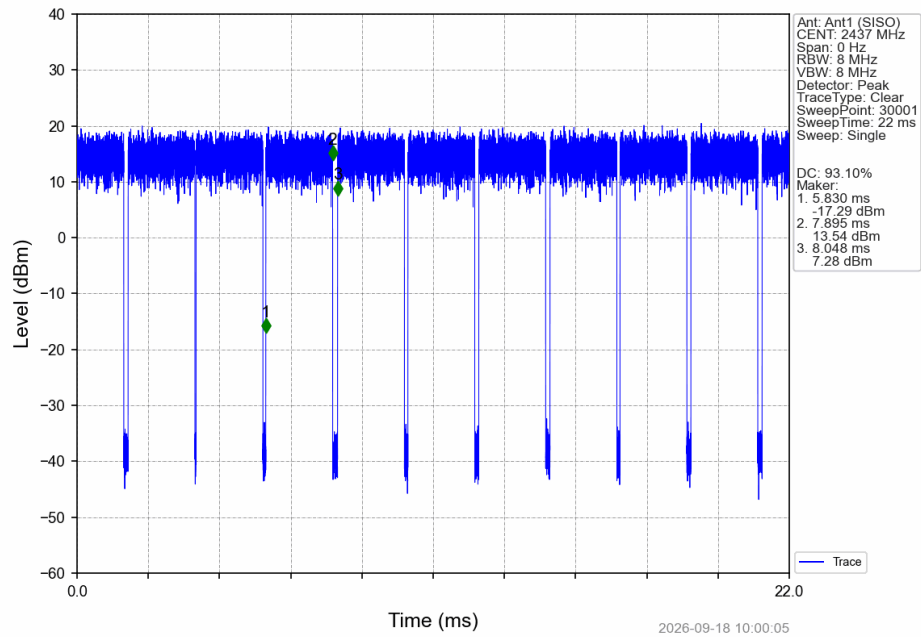
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



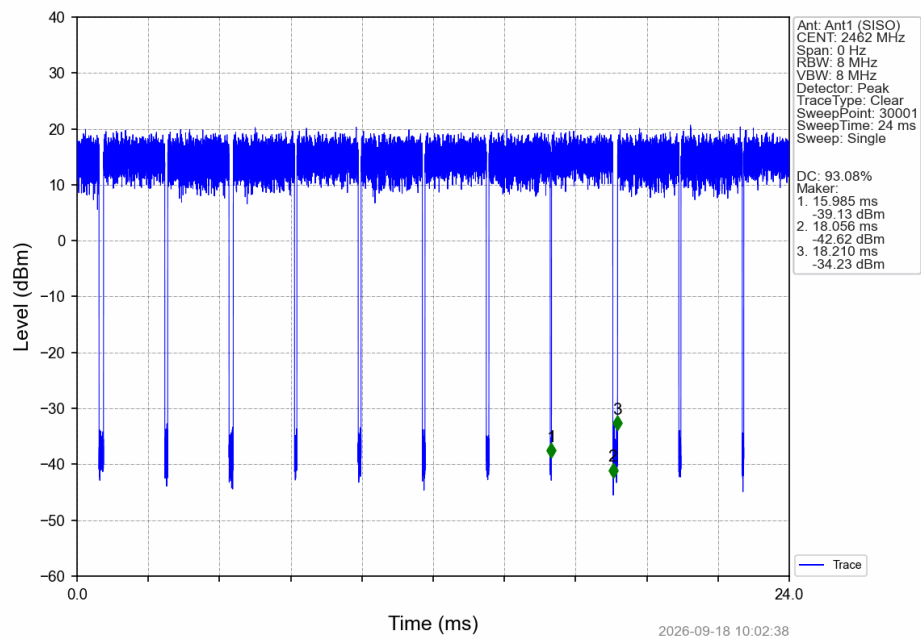
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



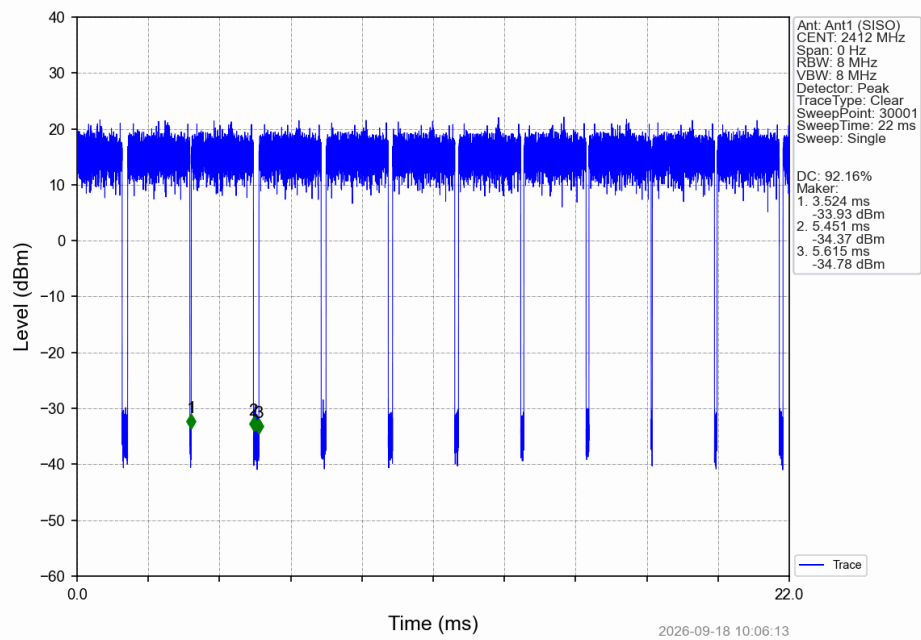
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



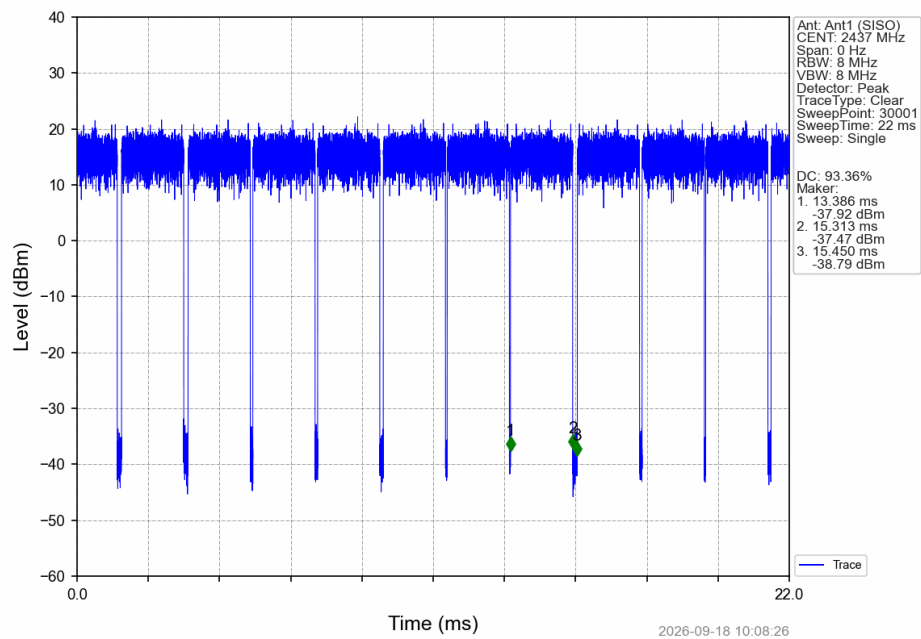
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



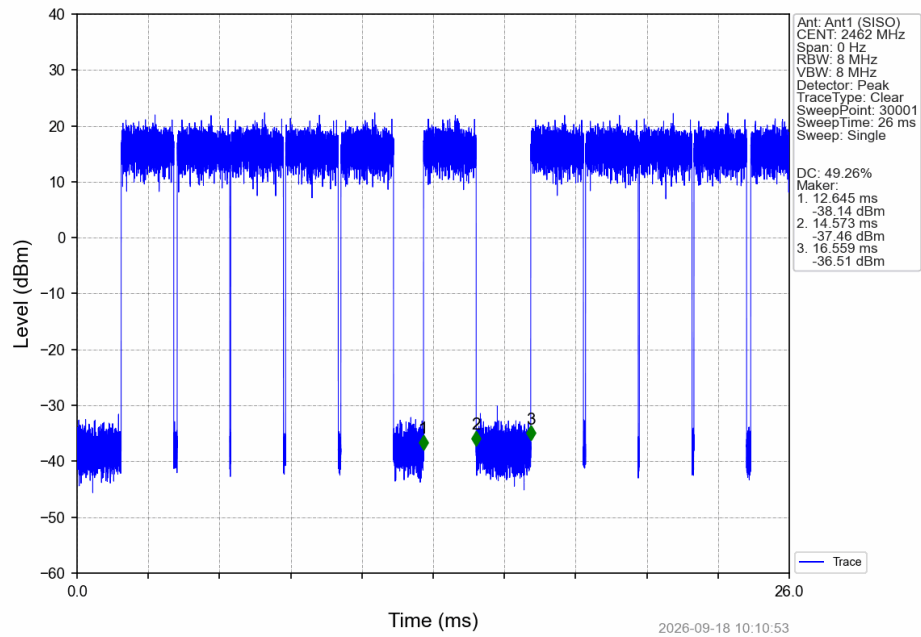
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



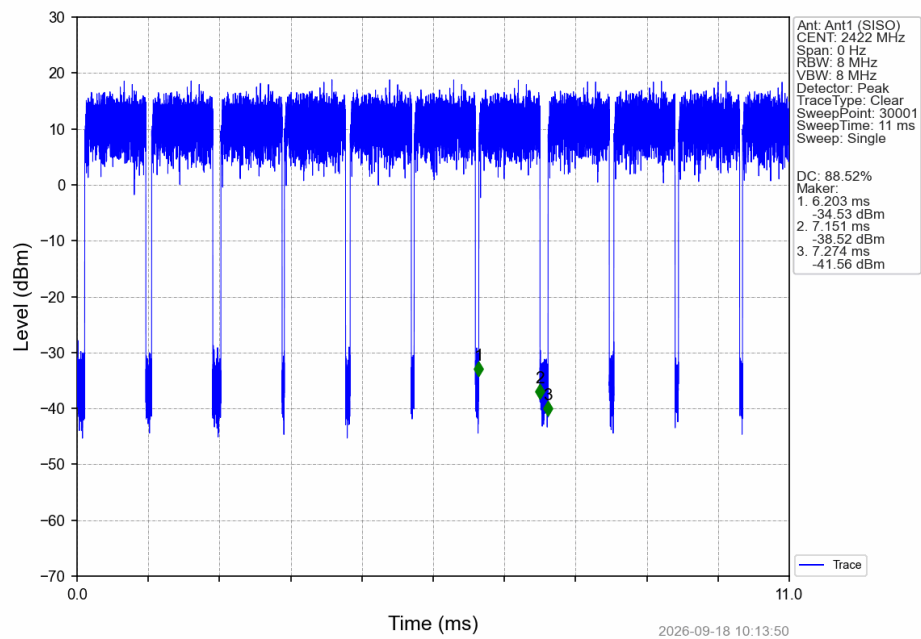
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



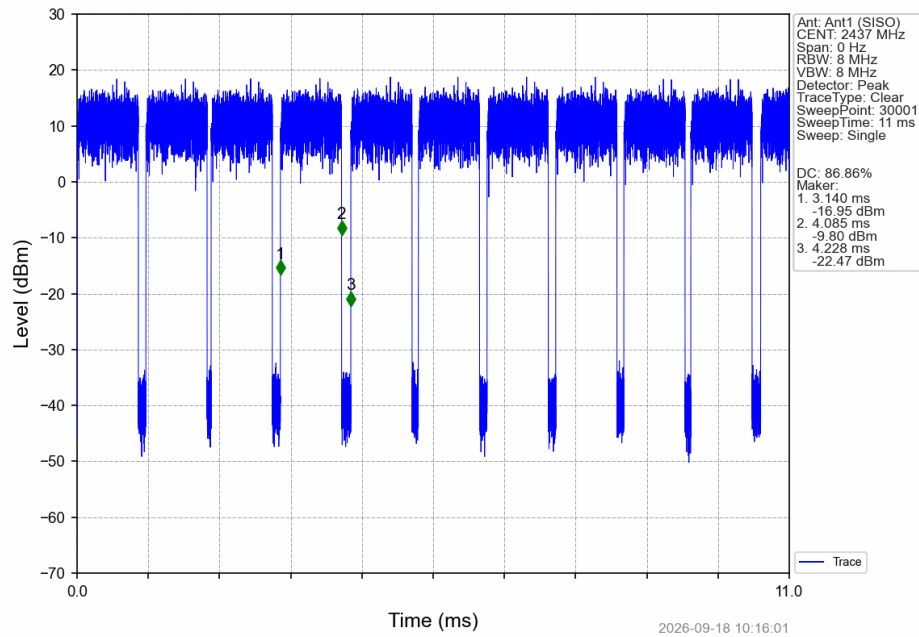
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



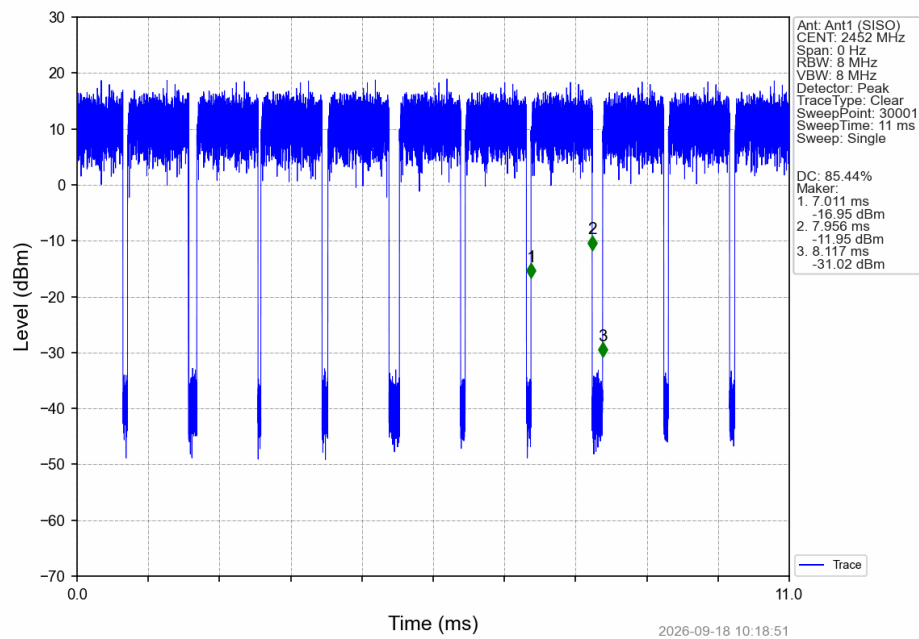
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



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

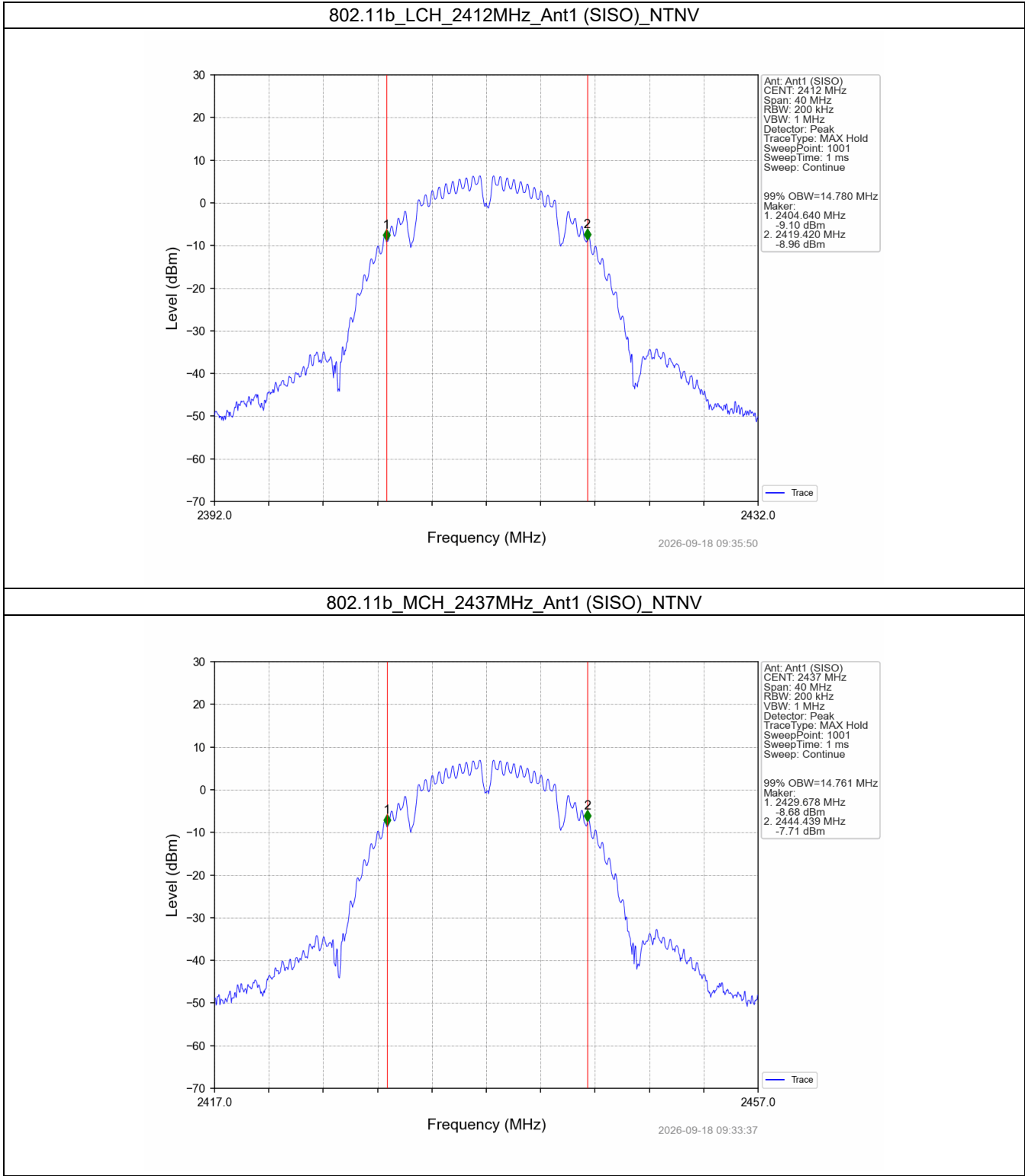
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	14.780	/	Pass
		2437	1	14.761	/	Pass
		2462	1	14.811	/	Pass
802.11g	SISO	2412	1	16.581	/	Pass
		2437	1	16.563	/	Pass
		2462	1	16.566	/	Pass
802.11n (HT20)	SISO	2412	1	17.730	/	Pass
		2437	1	17.746	/	Pass
		2462	1	17.756	/	Pass
802.11n (HT40)	SISO	2422	1	35.995	/	Pass
		2437	1	35.949	/	Pass
		2452	1	35.965	/	Pass

2.1.2 6dB BW

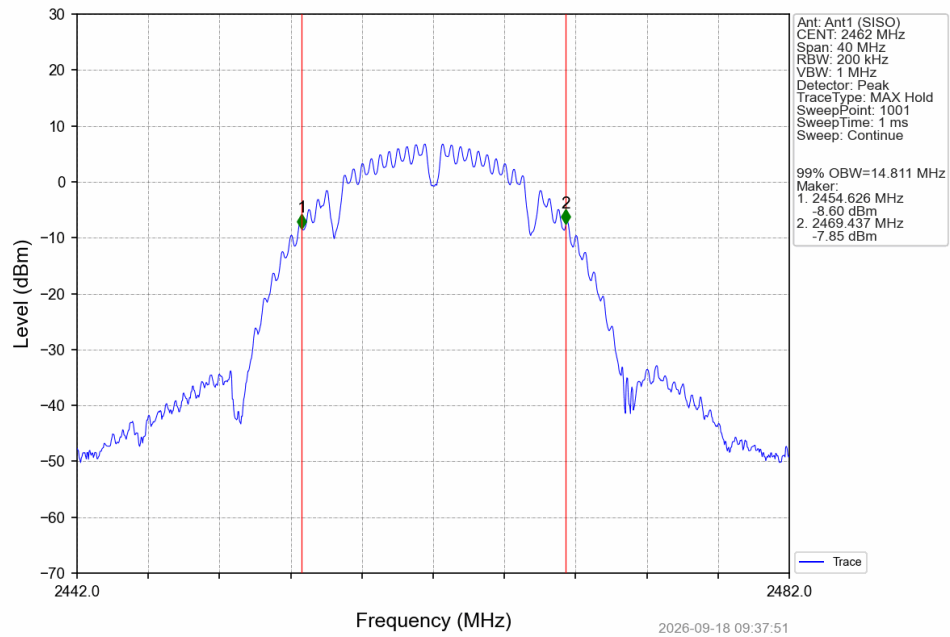
Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	10.104	≥ 0.5	Pass
		2437	1	10.104	≥ 0.5	Pass
		2462	1	10.112	≥ 0.5	Pass
802.11g	SISO	2412	1	16.450	≥ 0.5	Pass
		2437	1	16.433	≥ 0.5	Pass
		2462	1	16.436	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	17.609	≥ 0.5	Pass
		2437	1	17.624	≥ 0.5	Pass
		2462	1	17.629	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	35.844	≥ 0.5	Pass
		2437	1	35.757	≥ 0.5	Pass
		2452	1	35.709	≥ 0.5	Pass

2.2 Test Graph

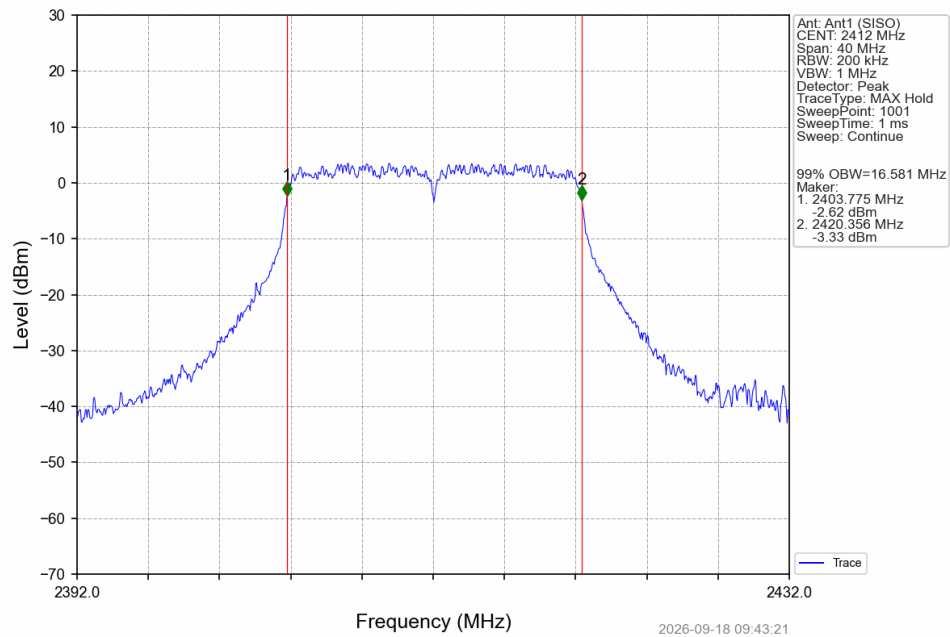
2.2.1 OBW



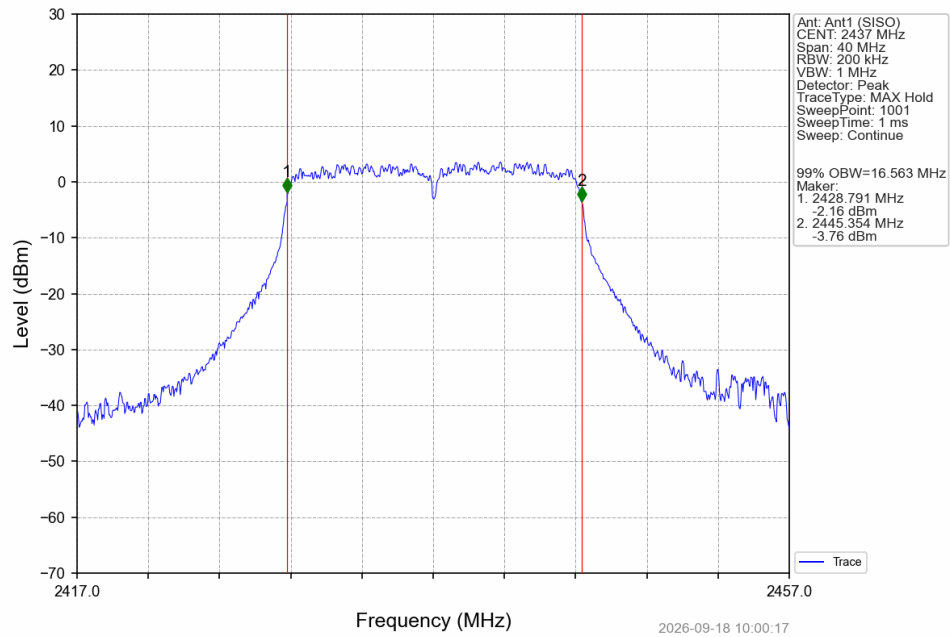
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



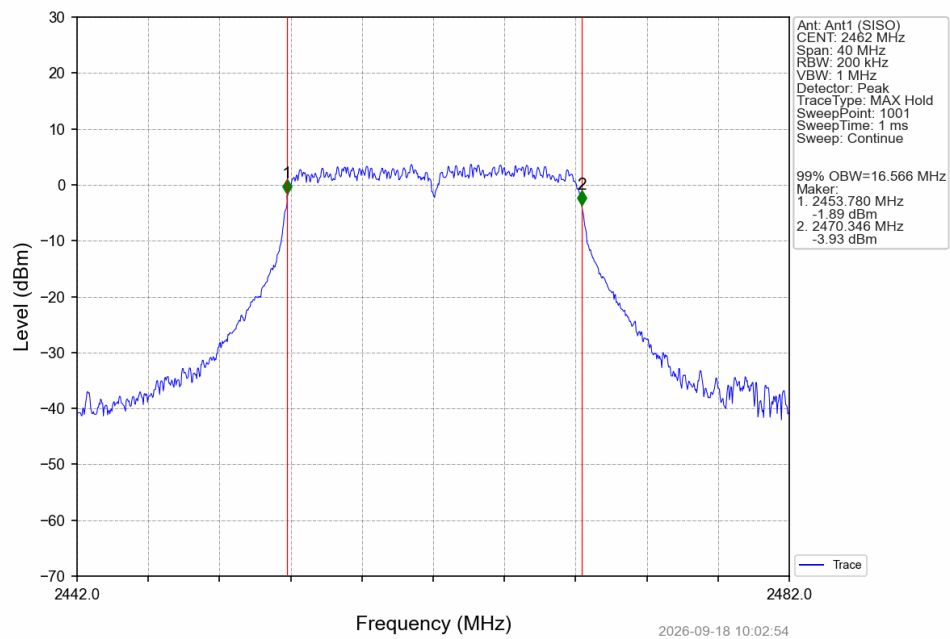
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



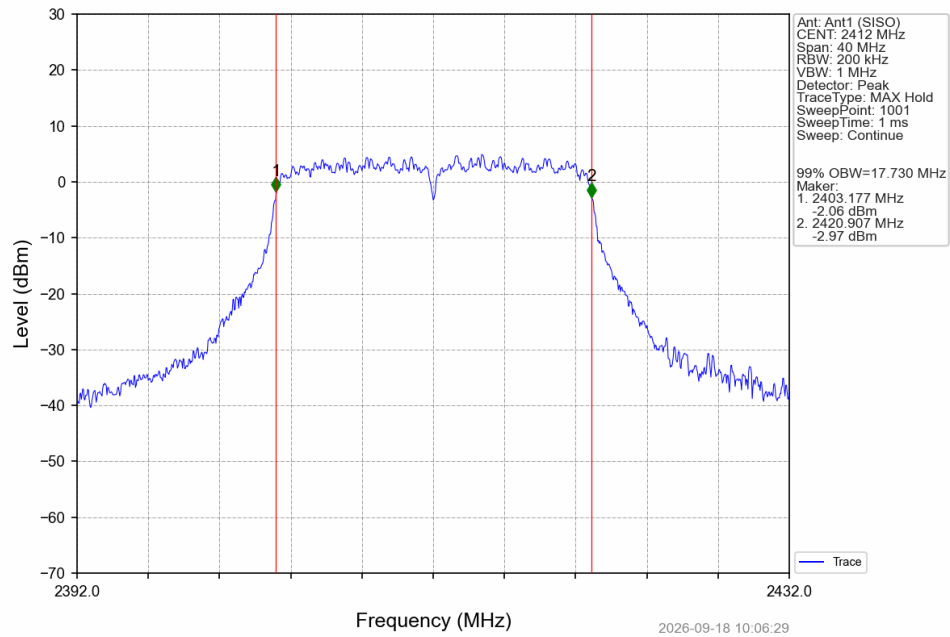
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



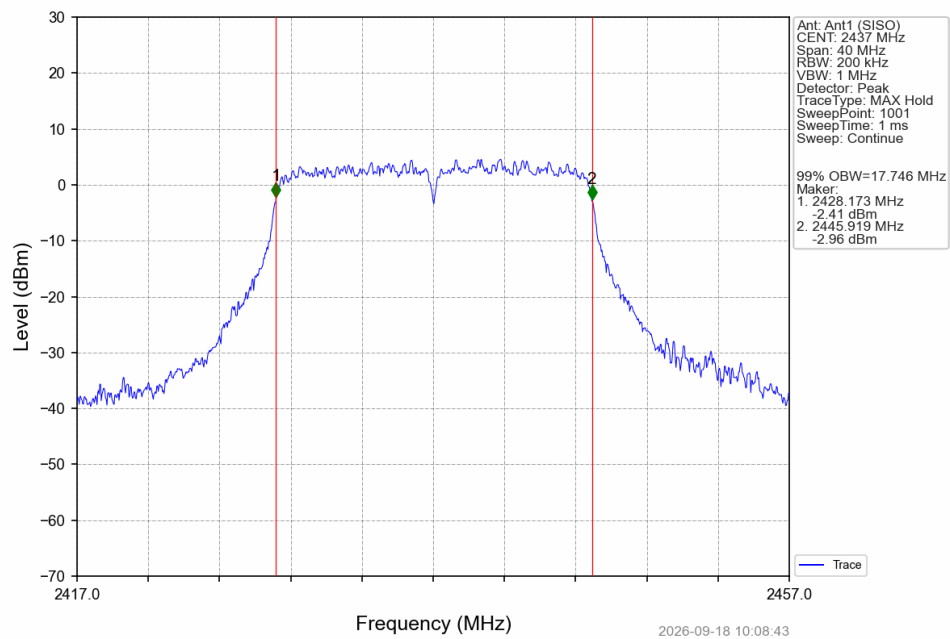
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



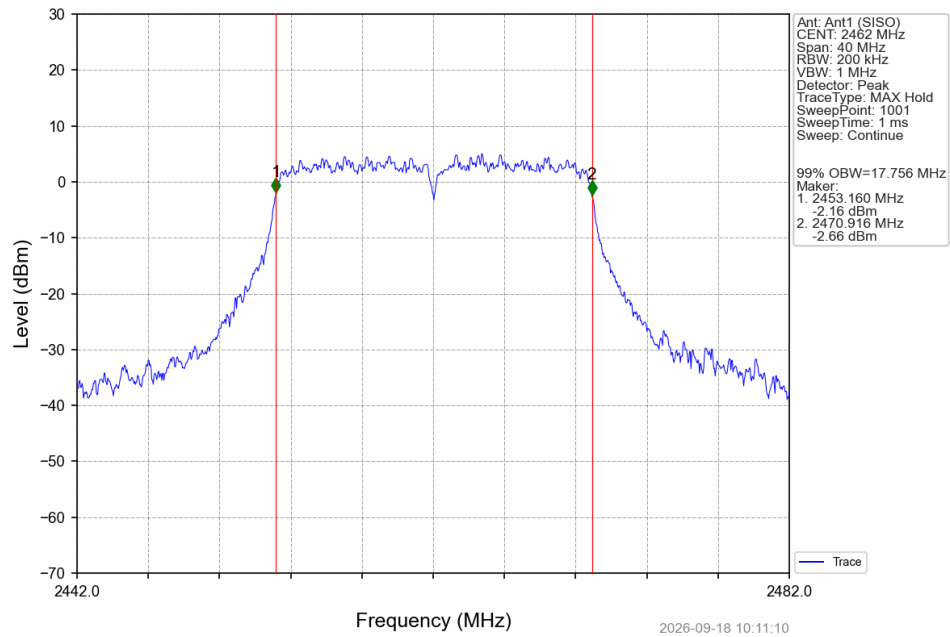
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



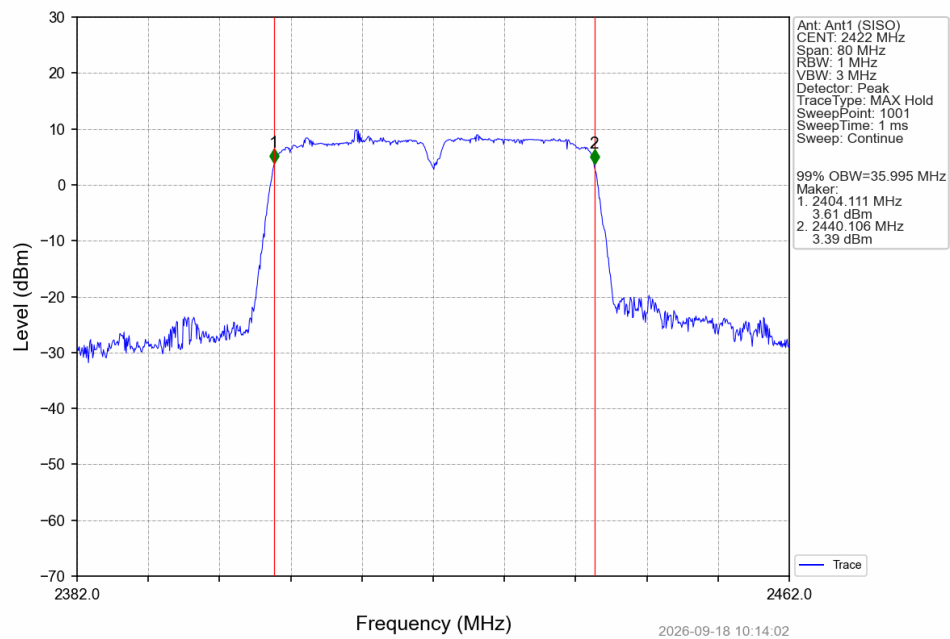
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



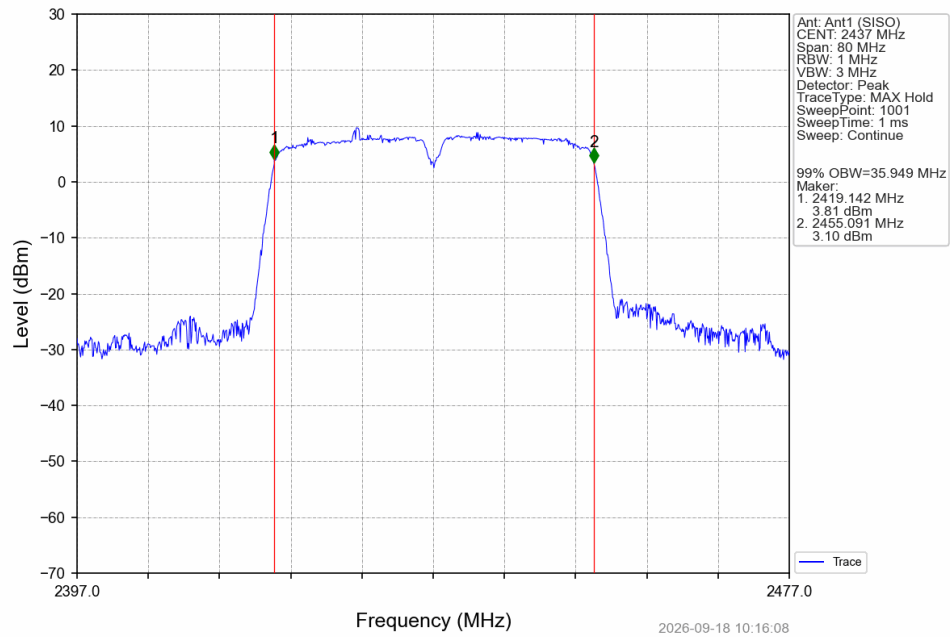
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



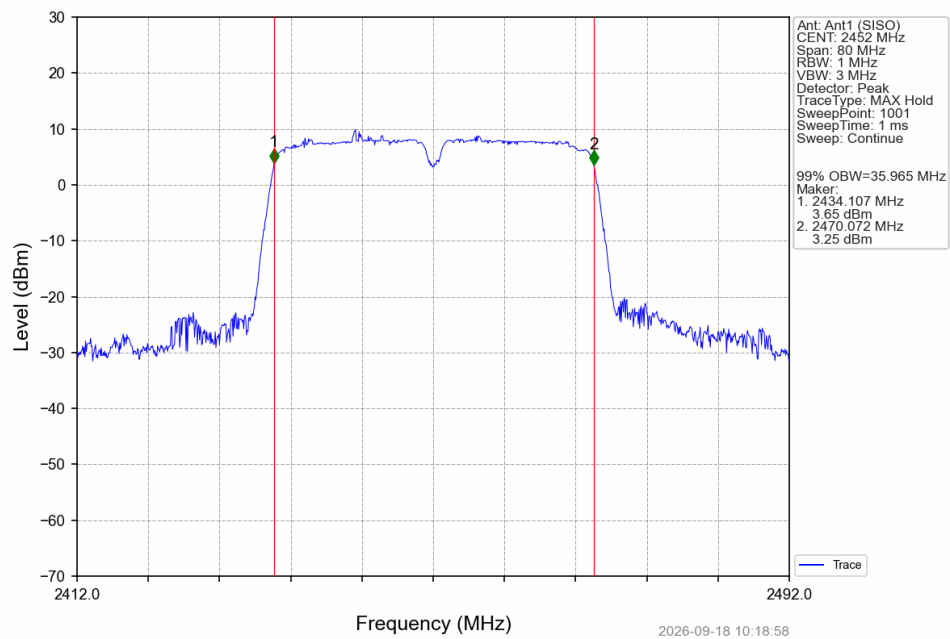
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



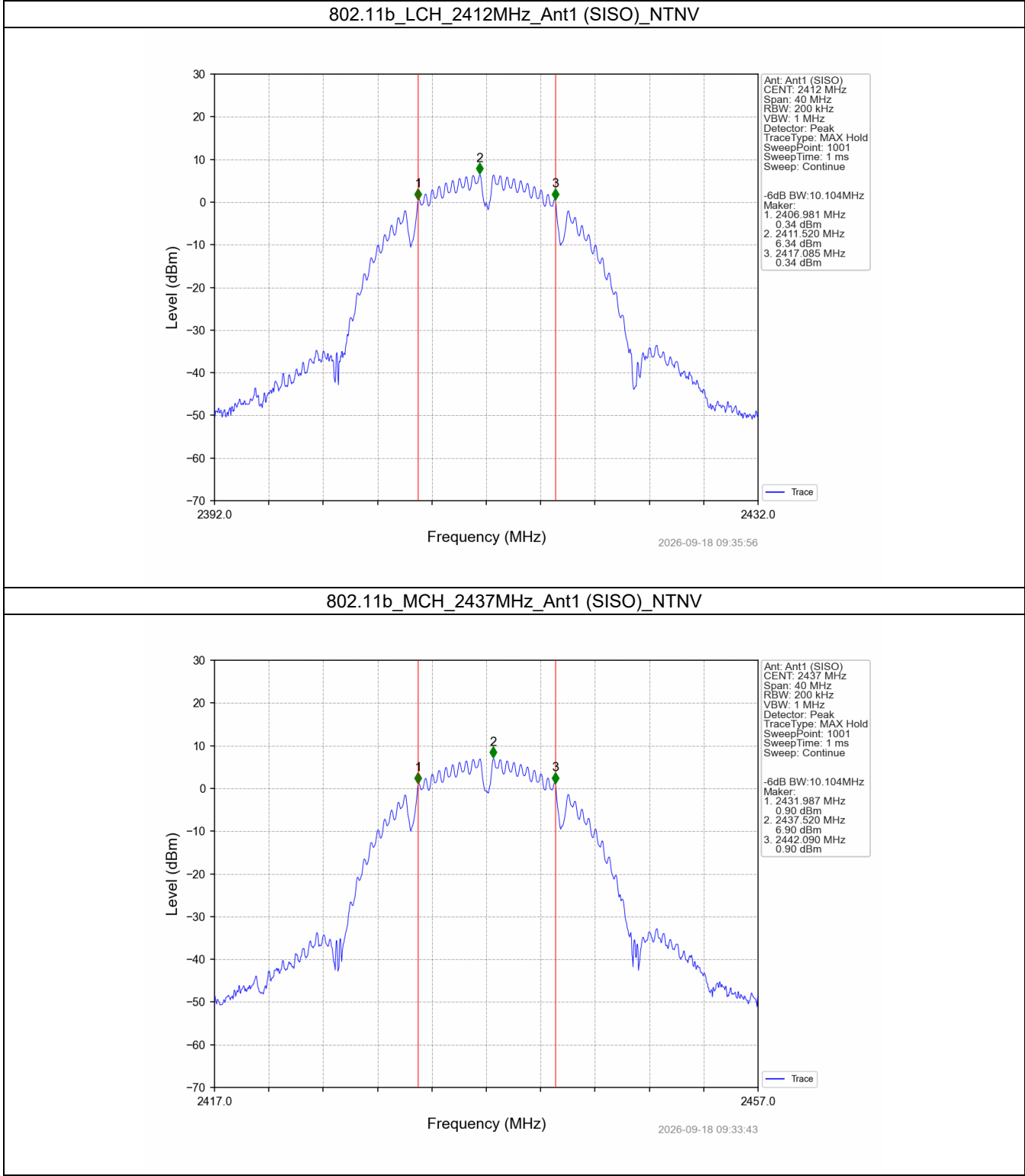
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



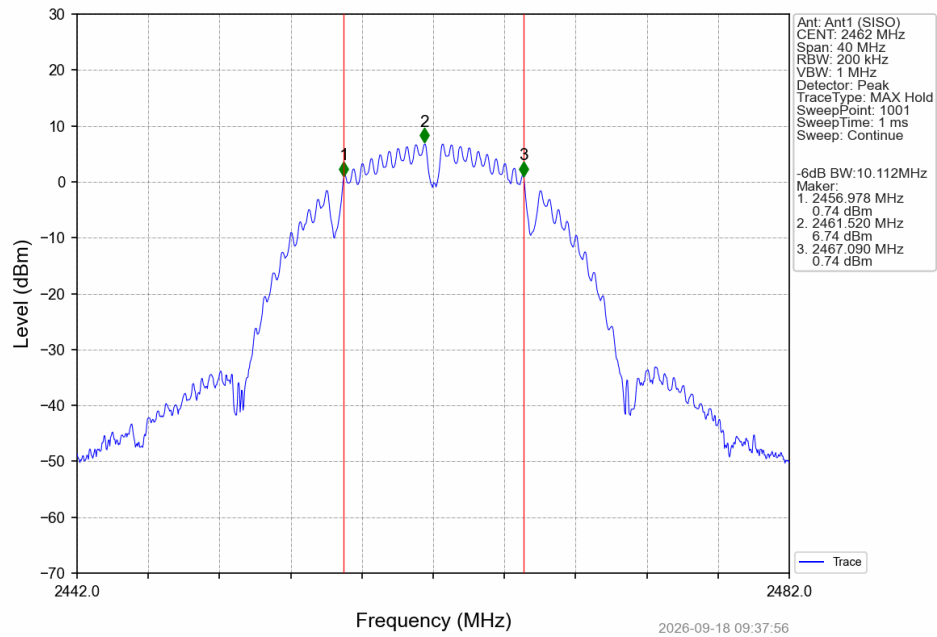
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



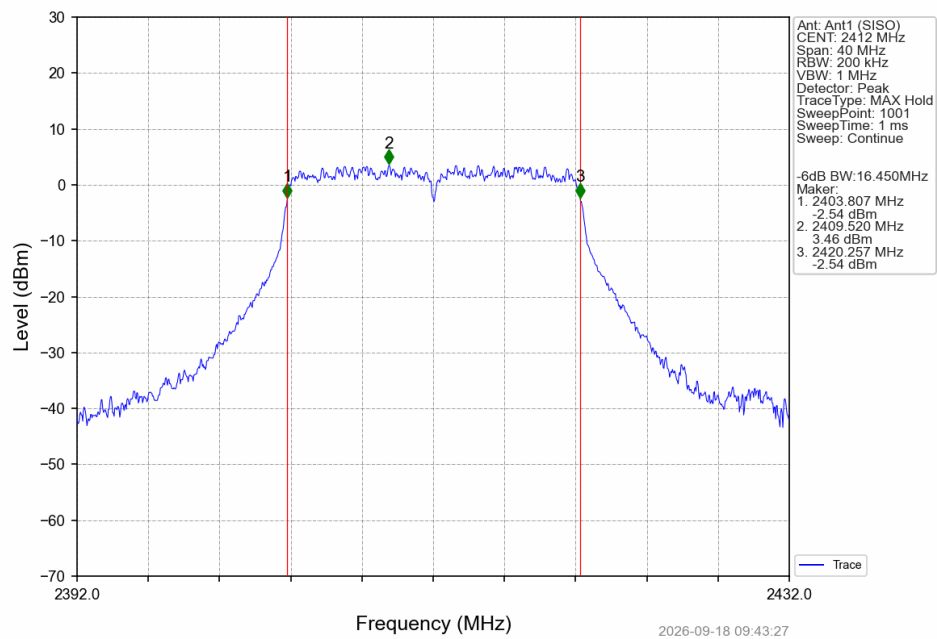
2.2.2 6dB BW



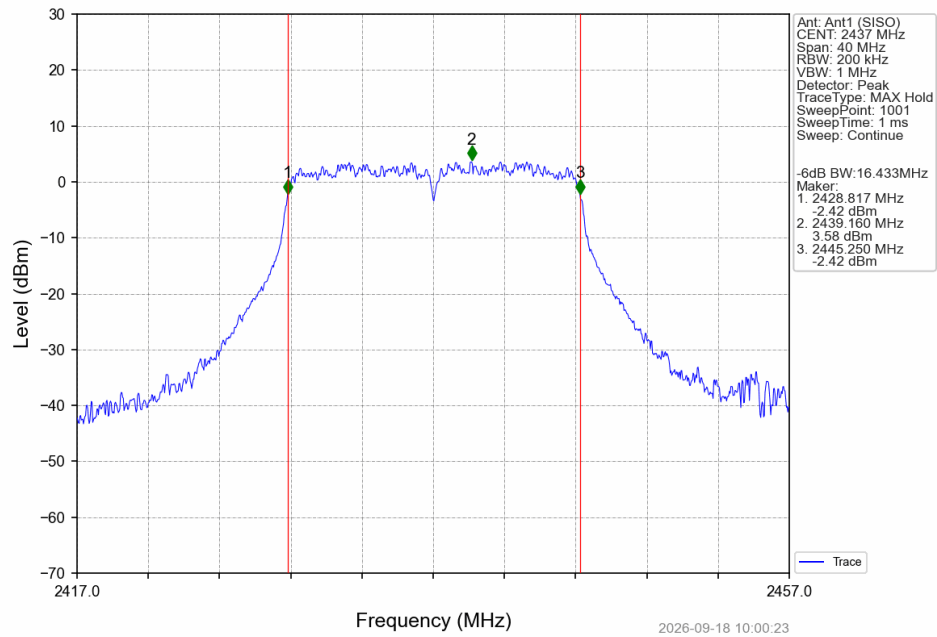
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



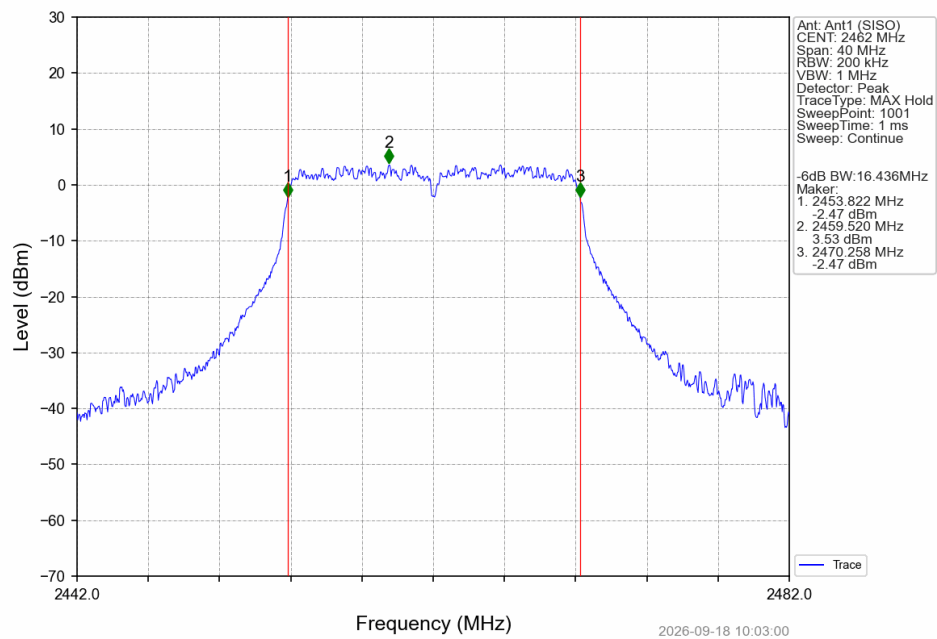
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



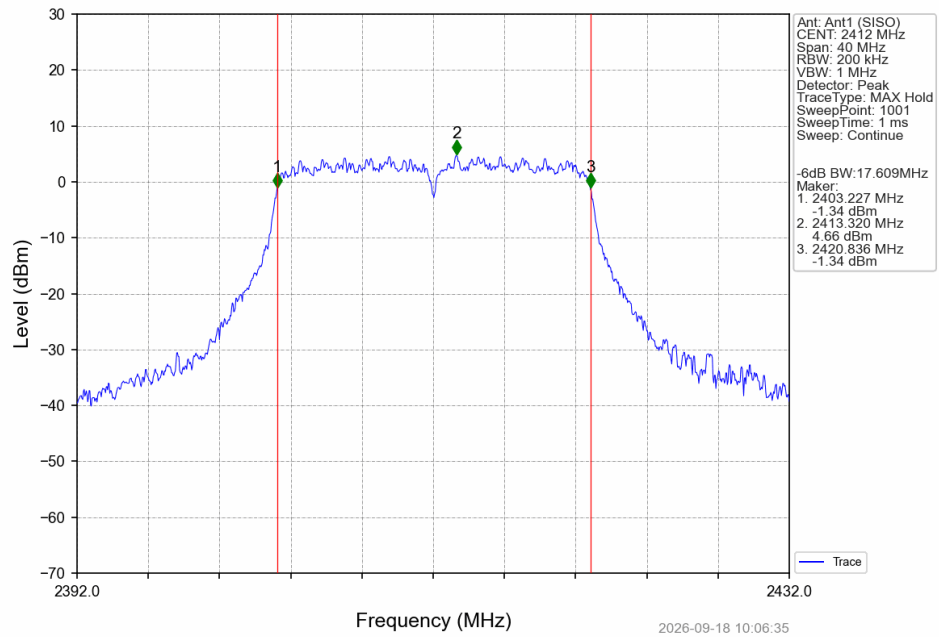
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



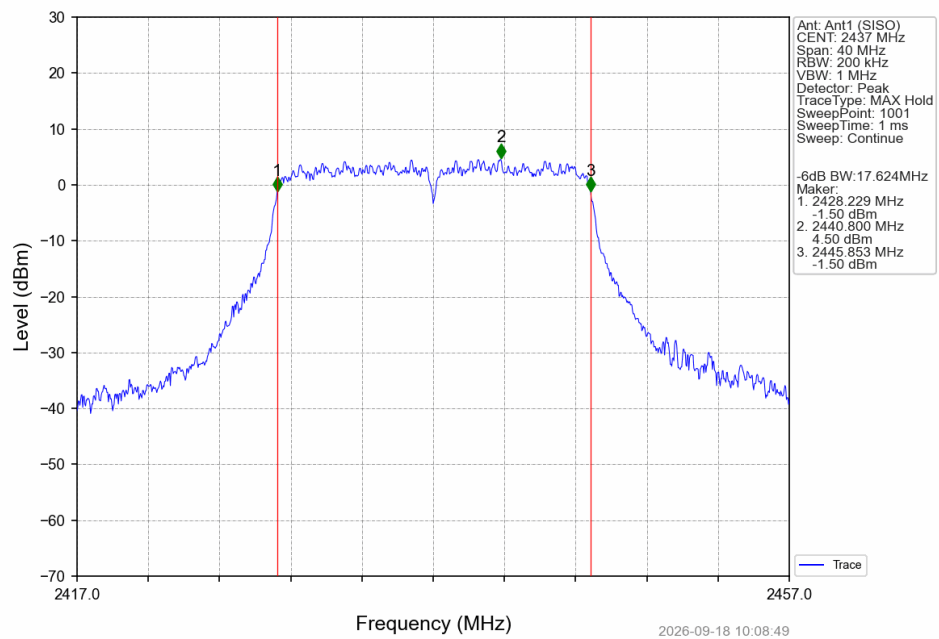
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



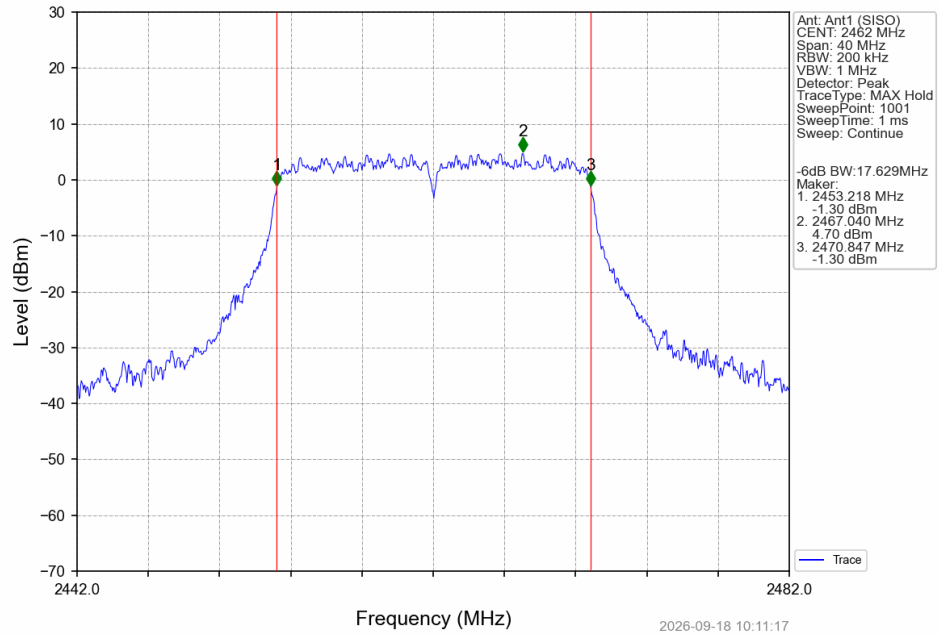
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



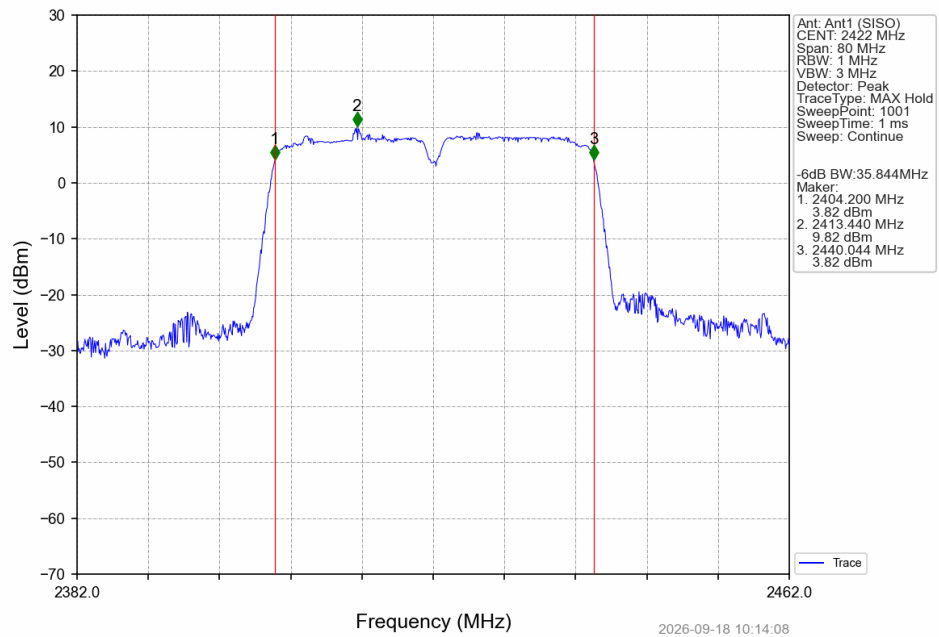
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



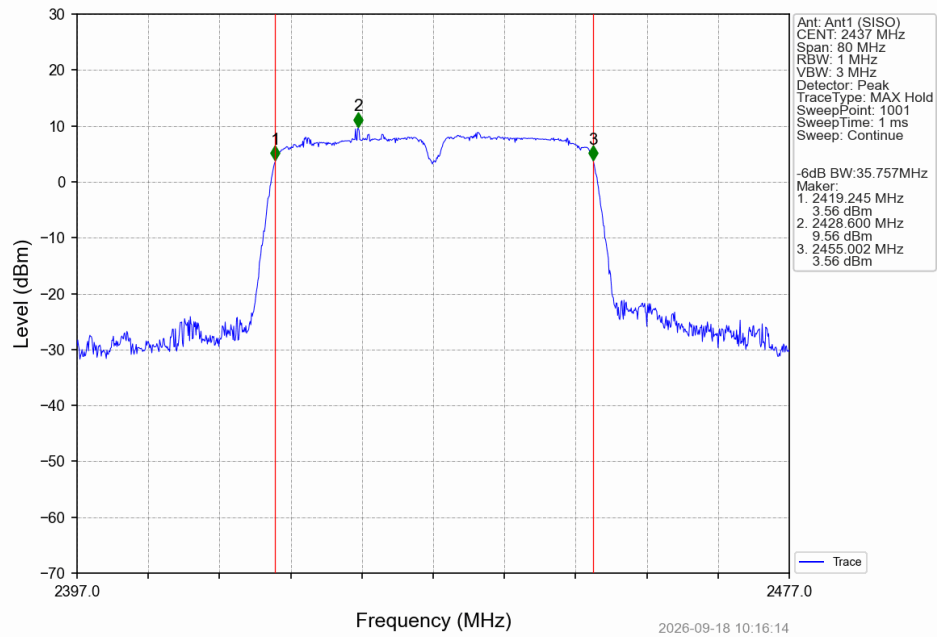
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



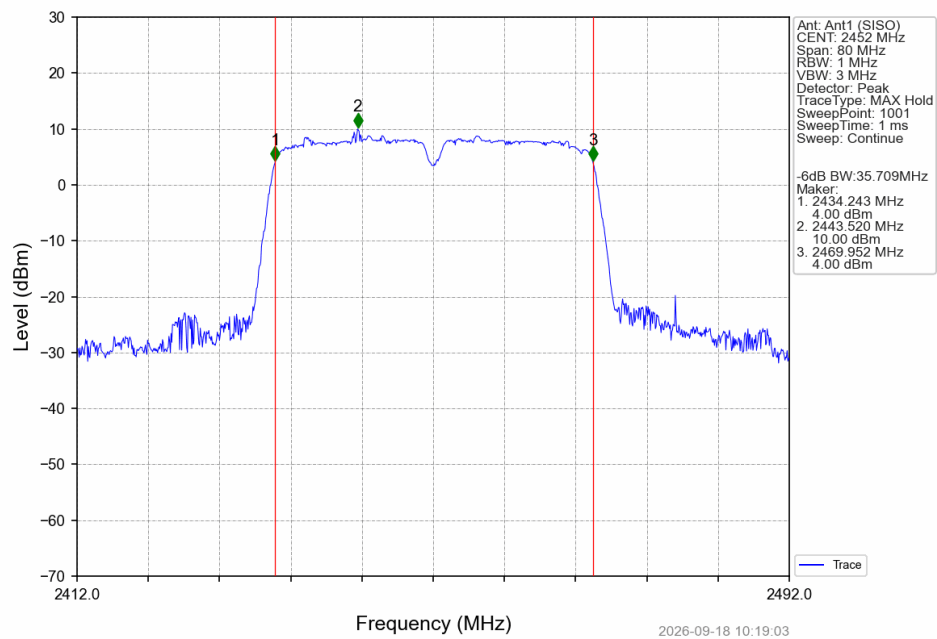
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



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	17.45	<=30	Pass
		2437	17.99	<=30	Pass
		2462	18.08	<=30	Pass
802.11g	SISO	2412	21.48	<=30	Pass
		2437	21.41	<=30	Pass
		2462	21.54	<=30	Pass
802.11n (HT20)	SISO	2412	22.44	<=30	Pass
		2437	22.42	<=30	Pass
		2462	22.89	<=30	Pass
802.11n (HT40)	SISO	2422	22.77	<=30	Pass
		2437	22.56	<=30	Pass
		2452	22.69	<=30	Pass

4. Maximum Power Spectral Density

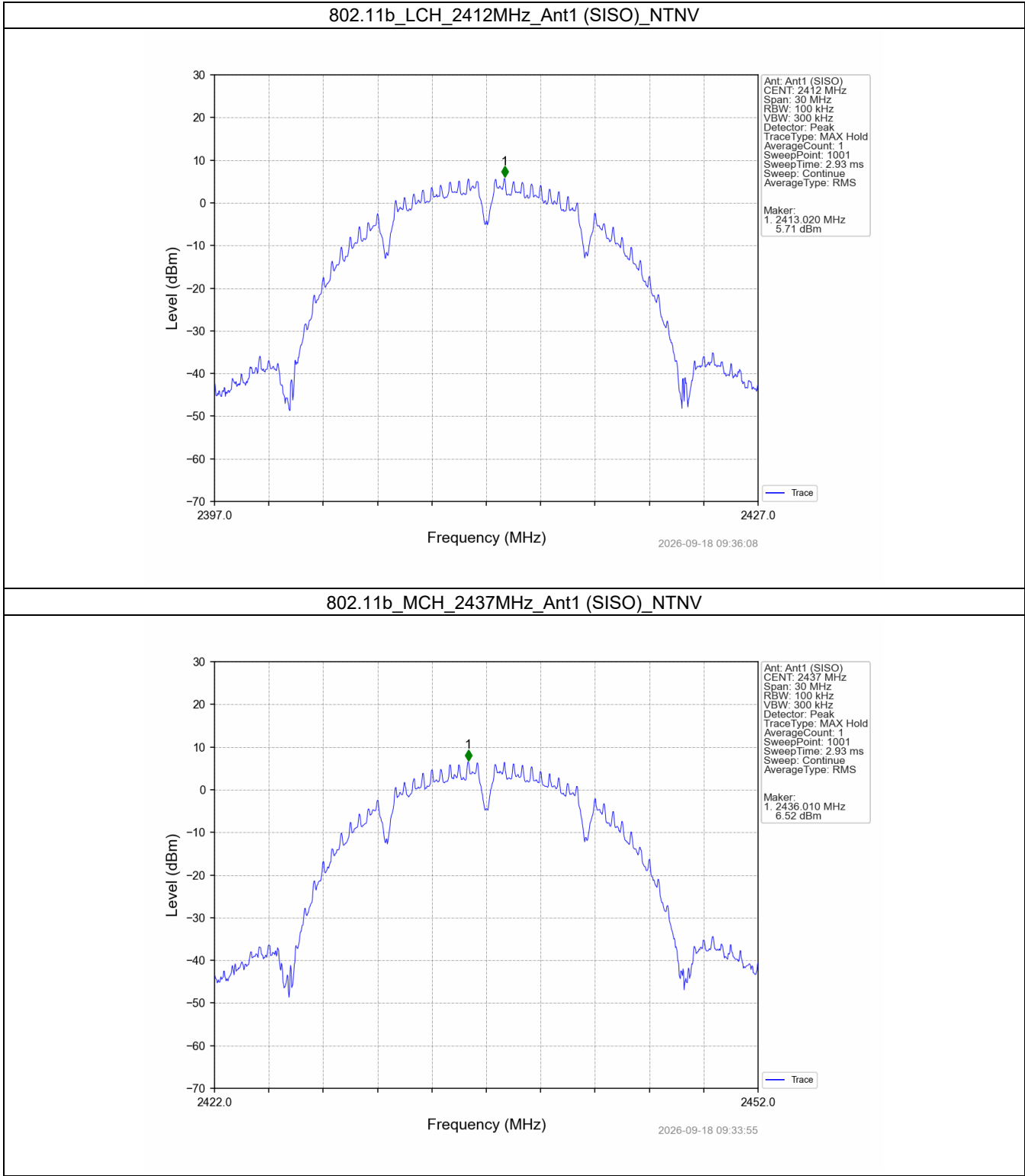
4.1 Test Result

4.1.1 PSD

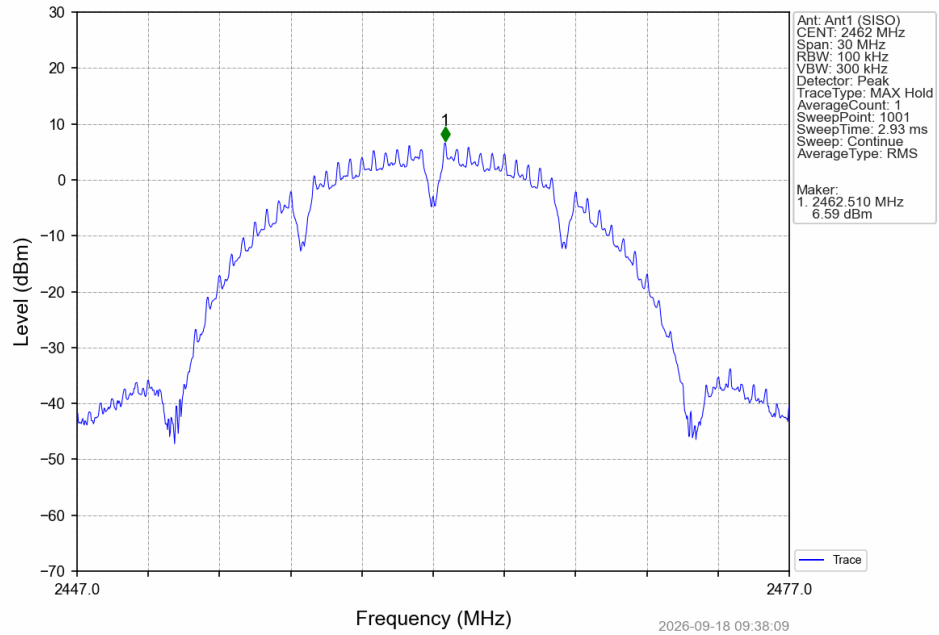
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)		Verdict
			ANT1	Limit(dBm/3kHz)	
802.11b	SISO	2412	5.71dBm/100kHz	<=8	Pass
		2437	6.52dBm/100kHz	<=8	Pass
		2462	6.59dBm/100kHz	<=8	Pass
802.11g	SISO	2412	2.72dBm/100kHz	<=8	Pass
		2437	2.81dBm/100kHz	<=8	Pass
		2462	2.87dBm/100kHz	<=8	Pass
802.11n (HT20)	SISO	2412	3.72dBm/100kHz	<=8	Pass
		2437	3.70dBm/100kHz	<=8	Pass
		2462	3.65dBm/100kHz	<=8	Pass
802.11n (HT40)	SISO	2422	0.89dBm/100kHz	<=8	Pass
		2437	0.78dBm/100kHz	<=8	Pass
		2452	0.75dBm/100kHz	<=8	Pass

4.2 Test Graph

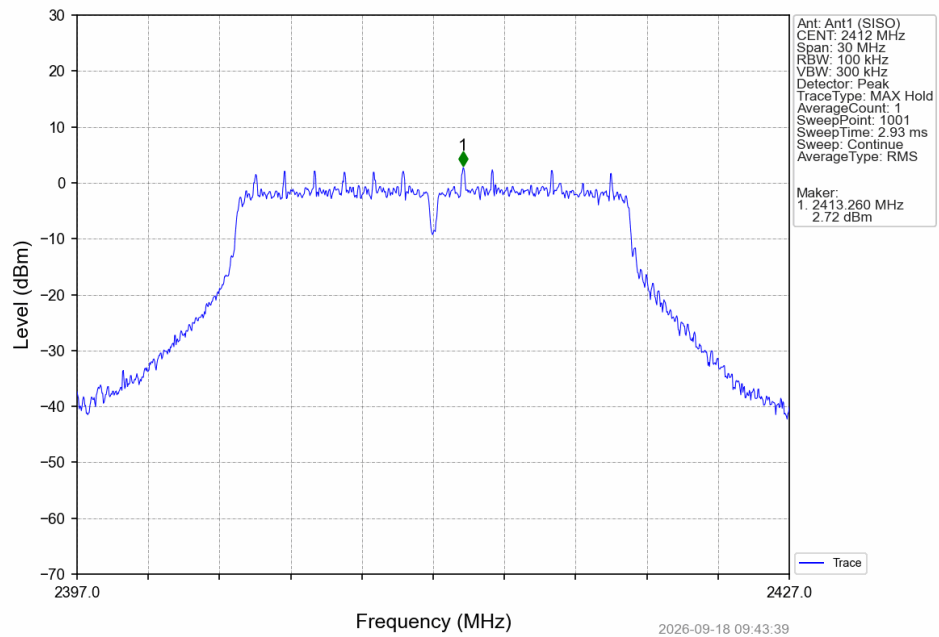
4.2.1 PSD



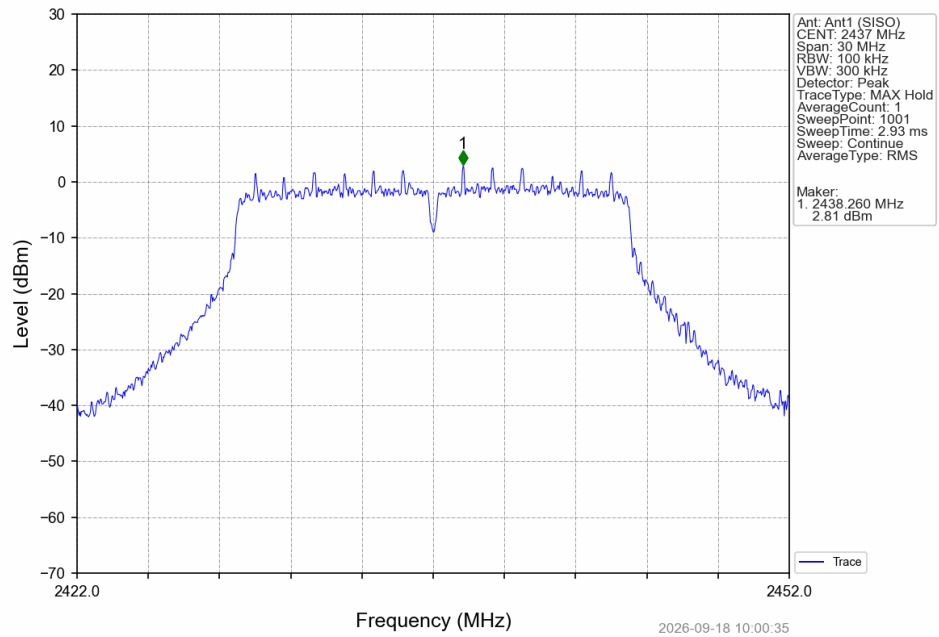
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



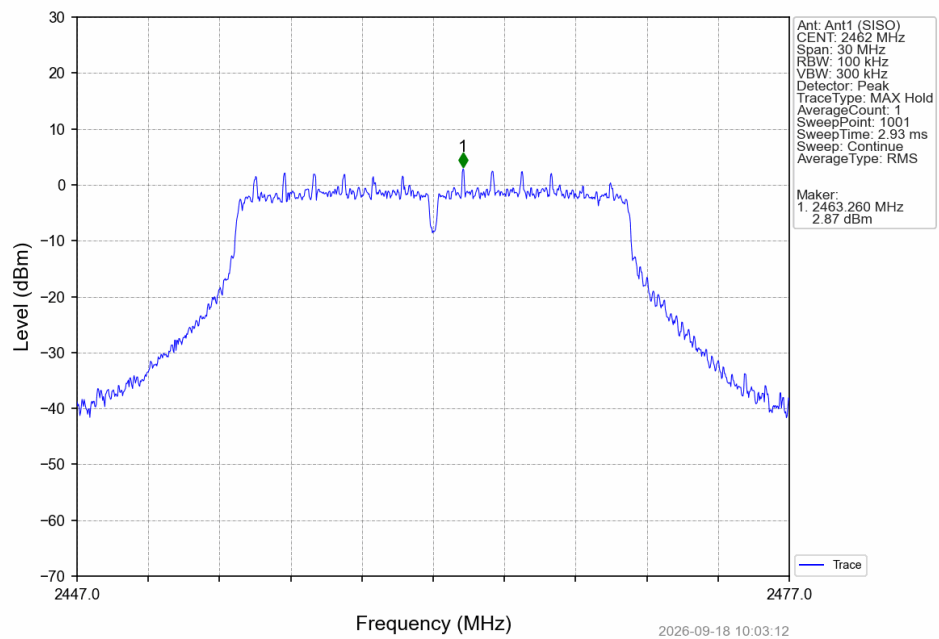
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



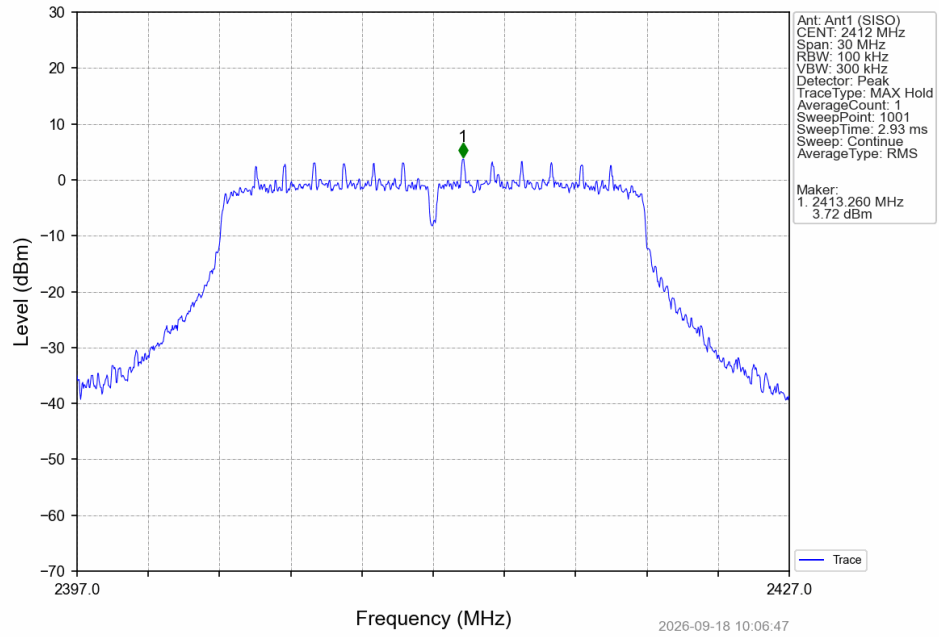
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



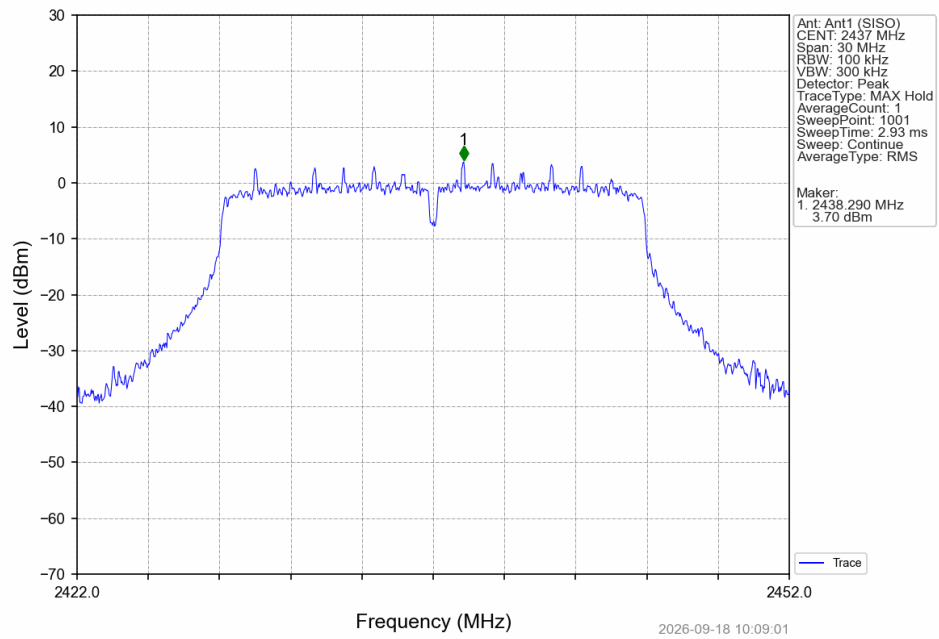
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



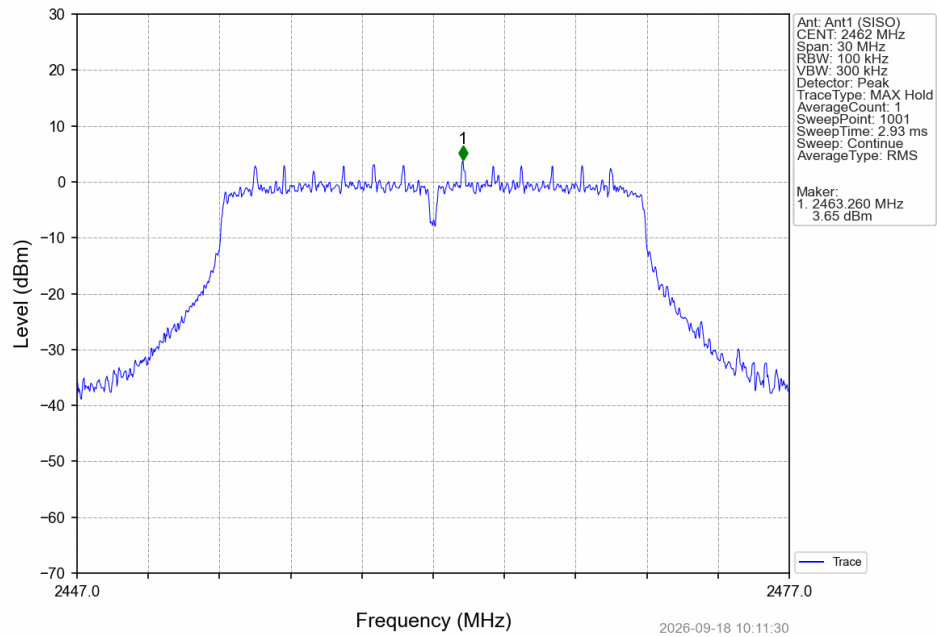
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



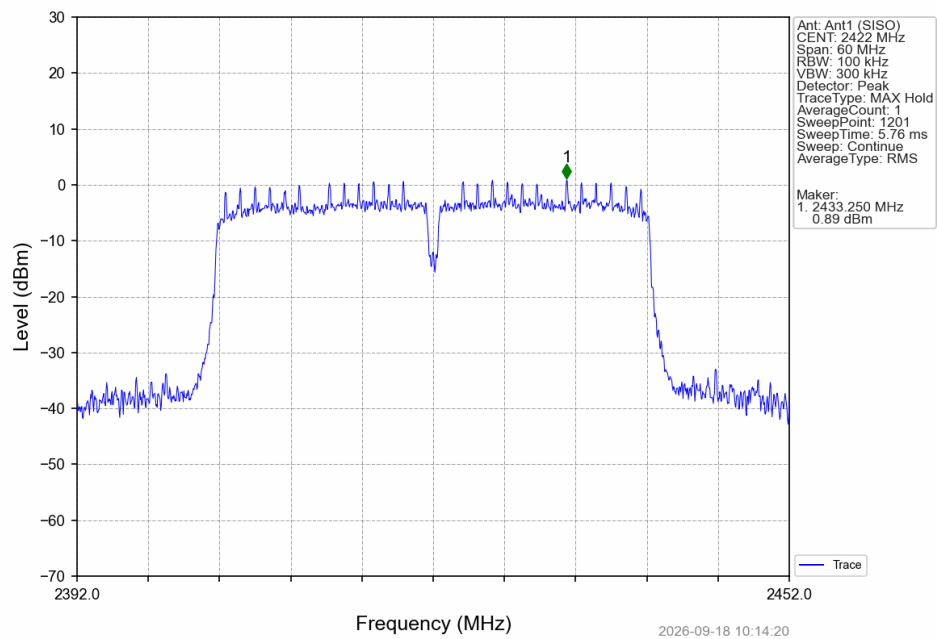
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



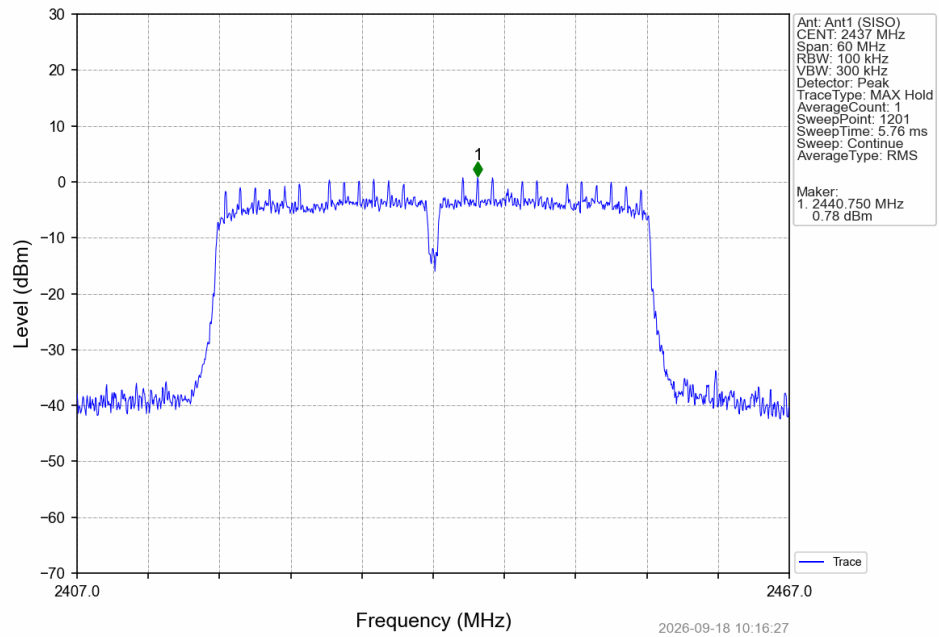
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



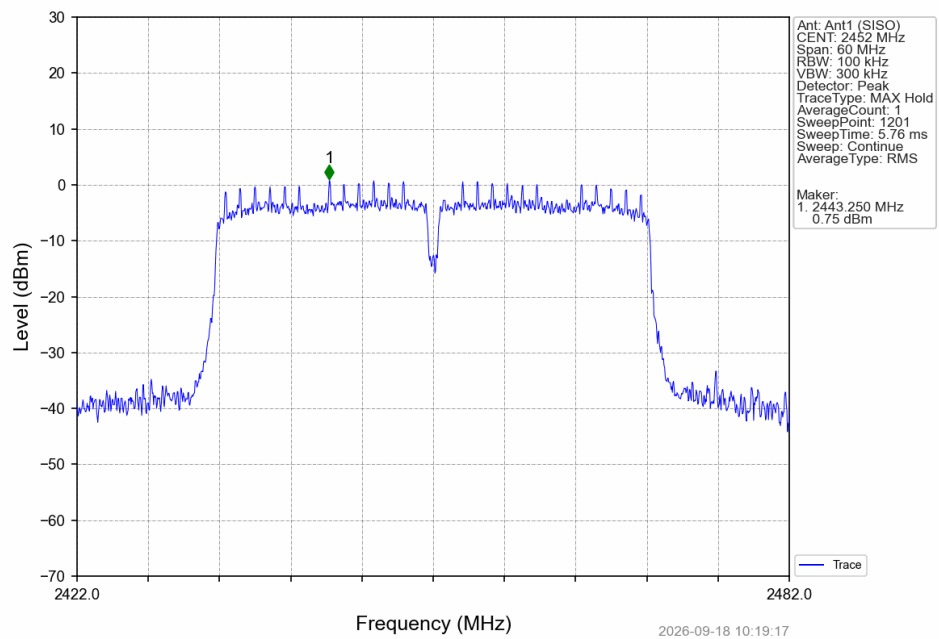
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



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

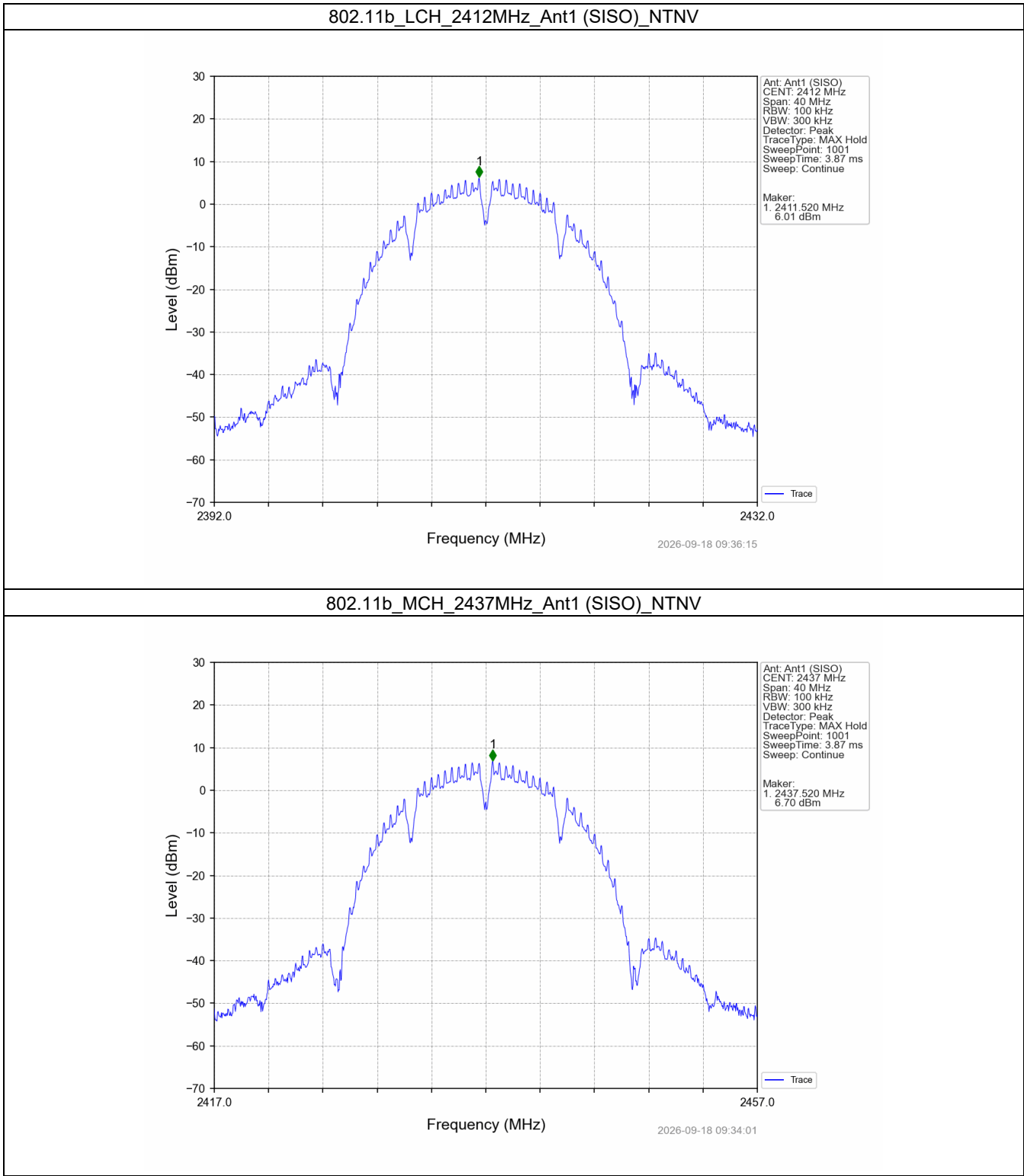
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
802.11b	SISO	2412	1	6.01
		2437	1	6.70
		2462	1	6.25
802.11g	SISO	2412	1	2.37
		2437	1	2.49
		2462	1	2.82
802.11n (HT20)	SISO	2412	1	3.64
		2437	1	3.81
		2462	1	3.41
802.11n (HT40)	SISO	2422	1	0.90
		2437	1	0.59
		2452	1	0.77

5.1.2 CSE

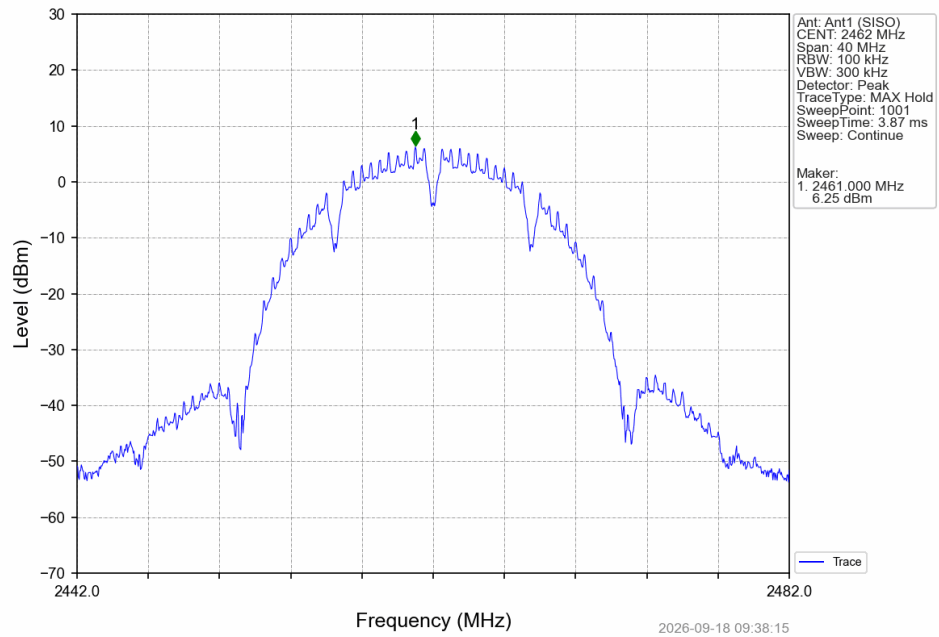
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	6.01	-13.99	Pass
		2437	1	6.70	-13.30	Pass
		2462	1	6.25	-13.75	Pass
802.11g	SISO	2412	1	2.37	-17.63	Pass
		2437	1	2.49	-17.51	Pass
		2462	1	2.82	-17.18	Pass
802.11n (HT20)	SISO	2412	1	3.64	-16.36	Pass
		2437	1	3.81	-16.19	Pass
		2462	1	3.41	-16.59	Pass
802.11n (HT40)	SISO	2422	1	0.90	-19.10	Pass
		2437	1	0.59	-19.41	Pass
		2452	1	0.77	-19.23	Pass

5.2 Test Graph

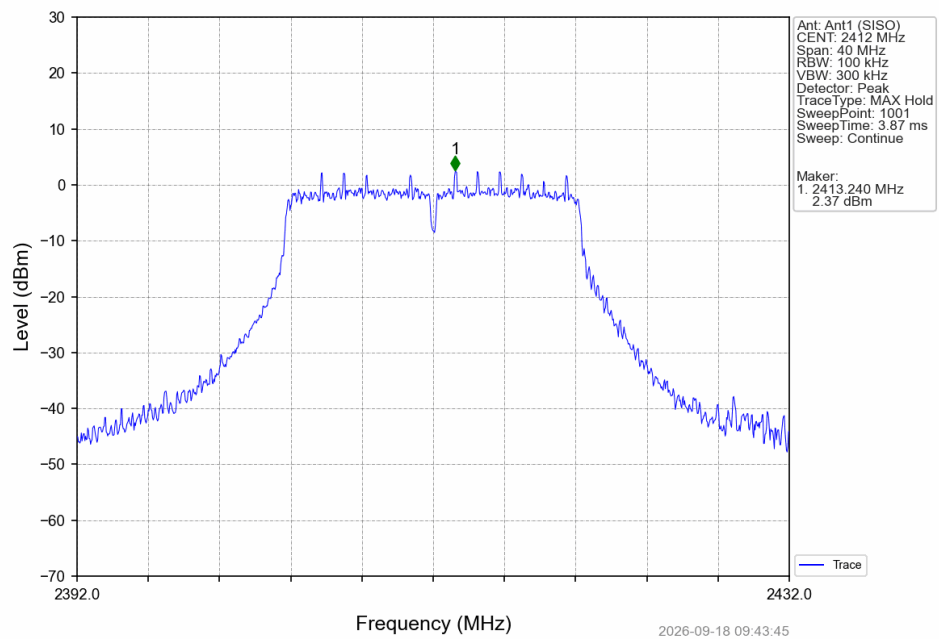
5.2.1 Ref



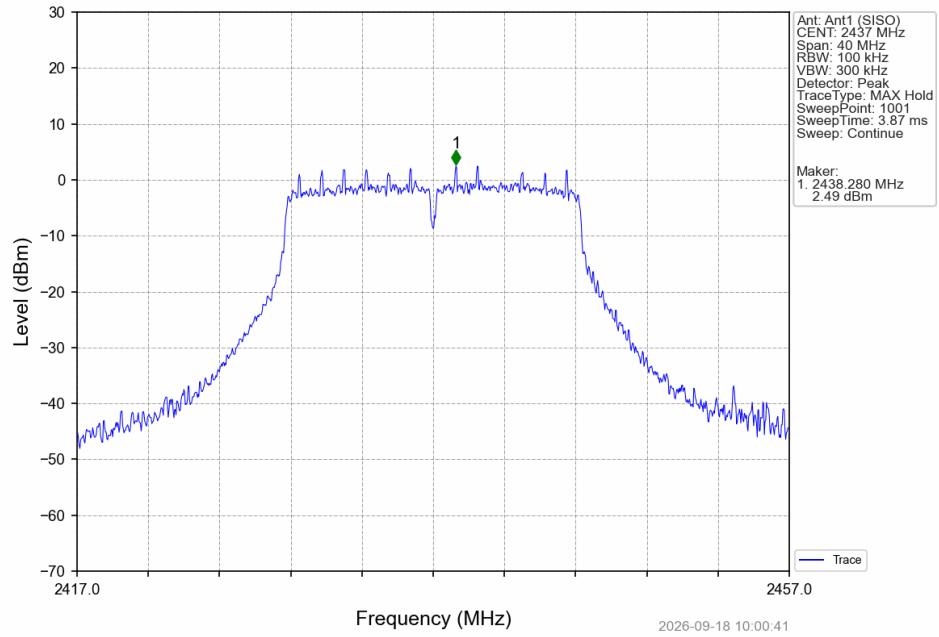
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



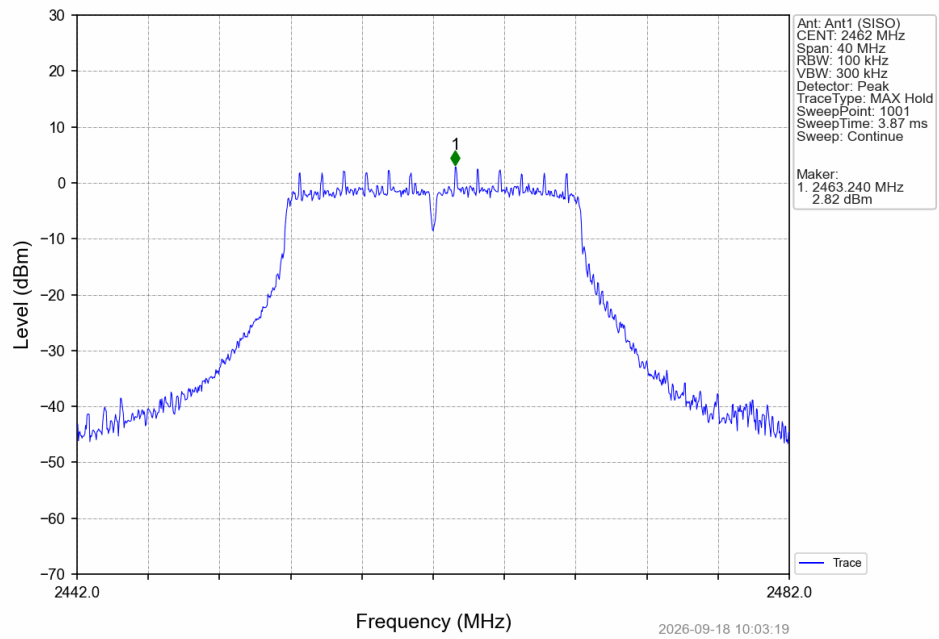
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



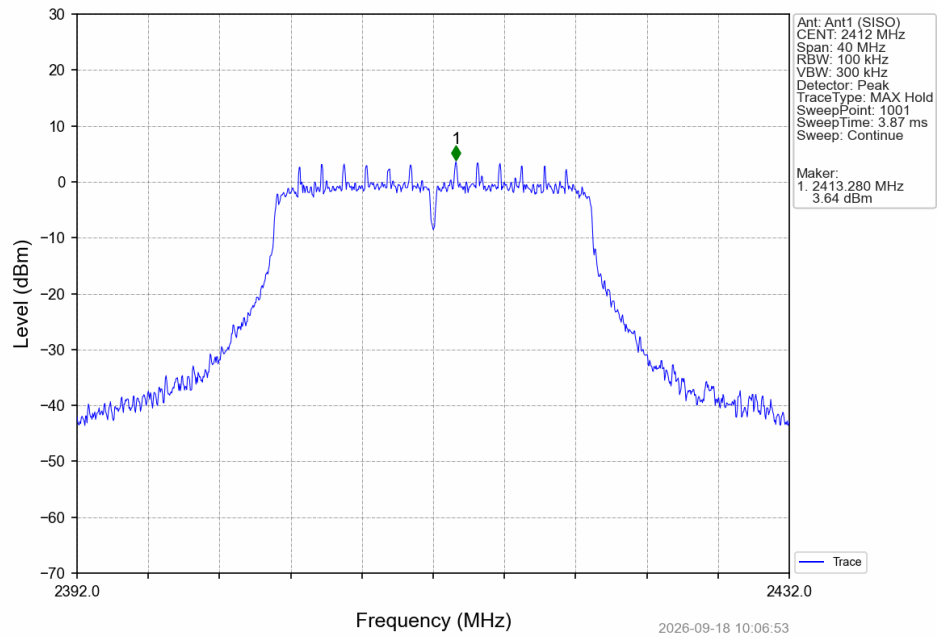
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



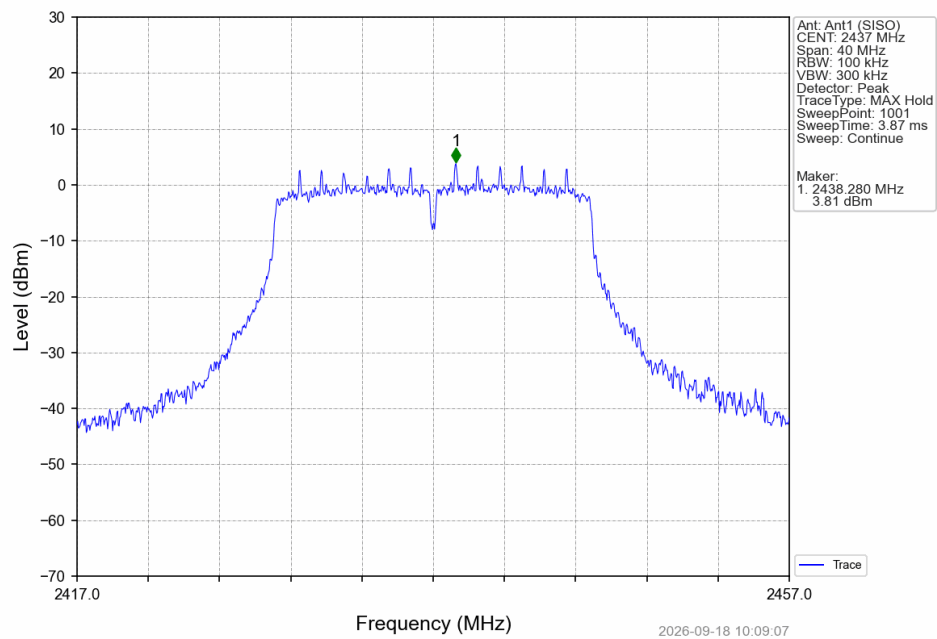
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



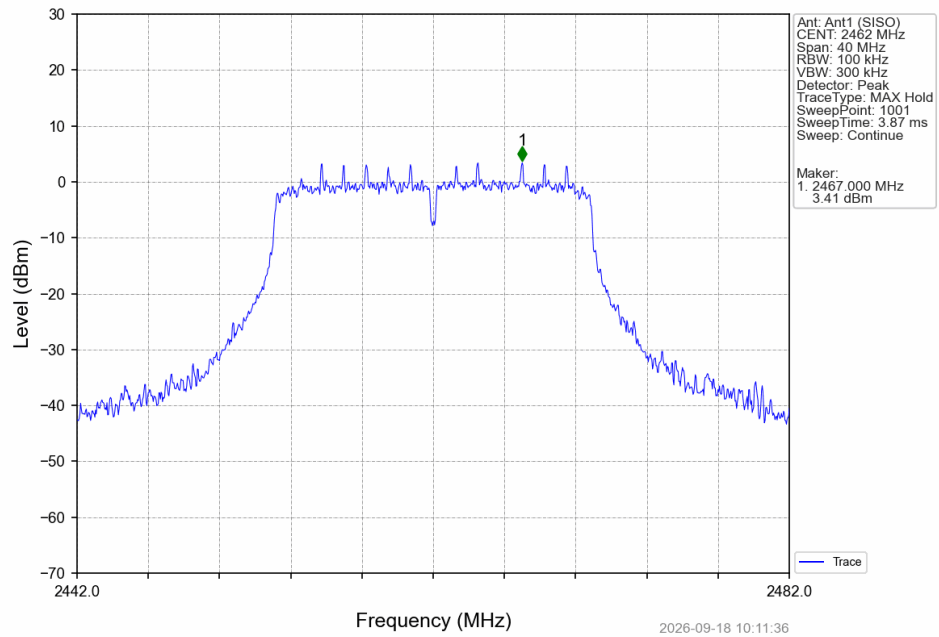
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



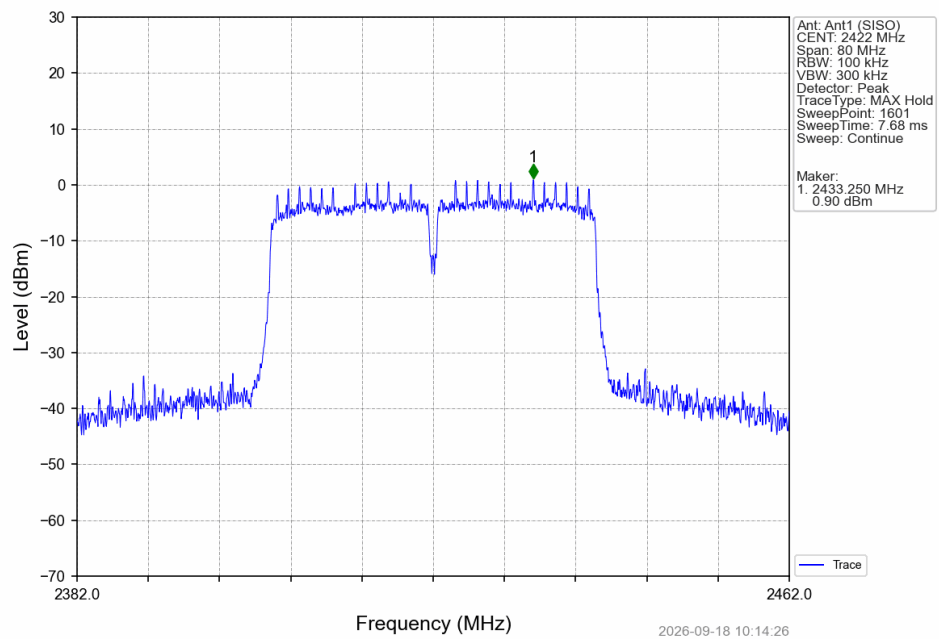
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



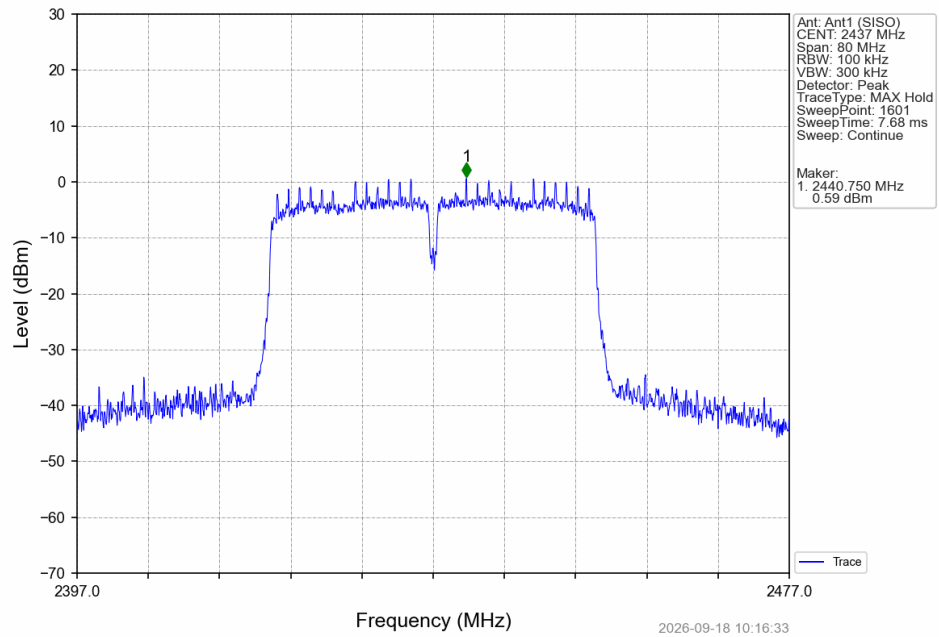
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



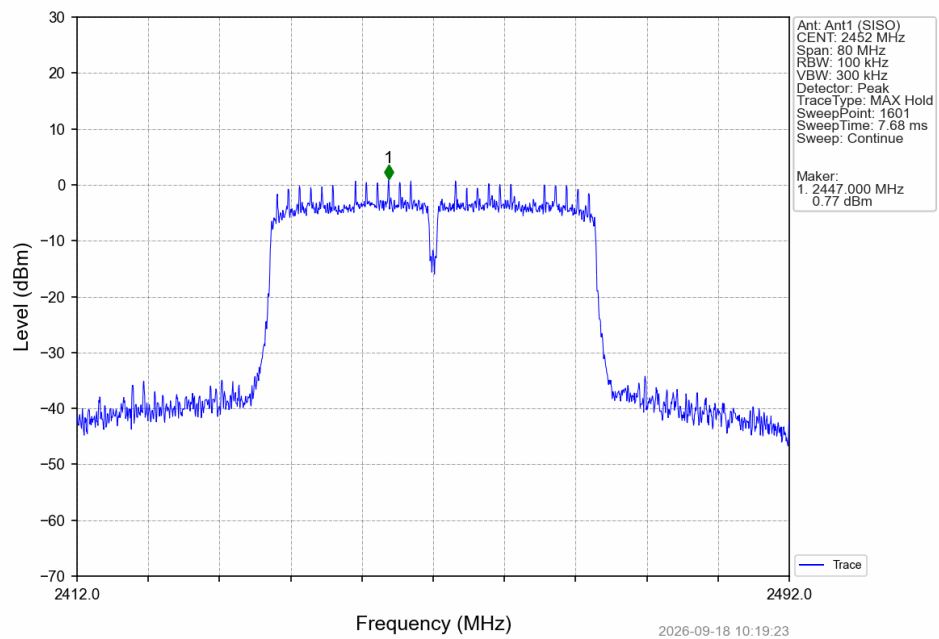
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



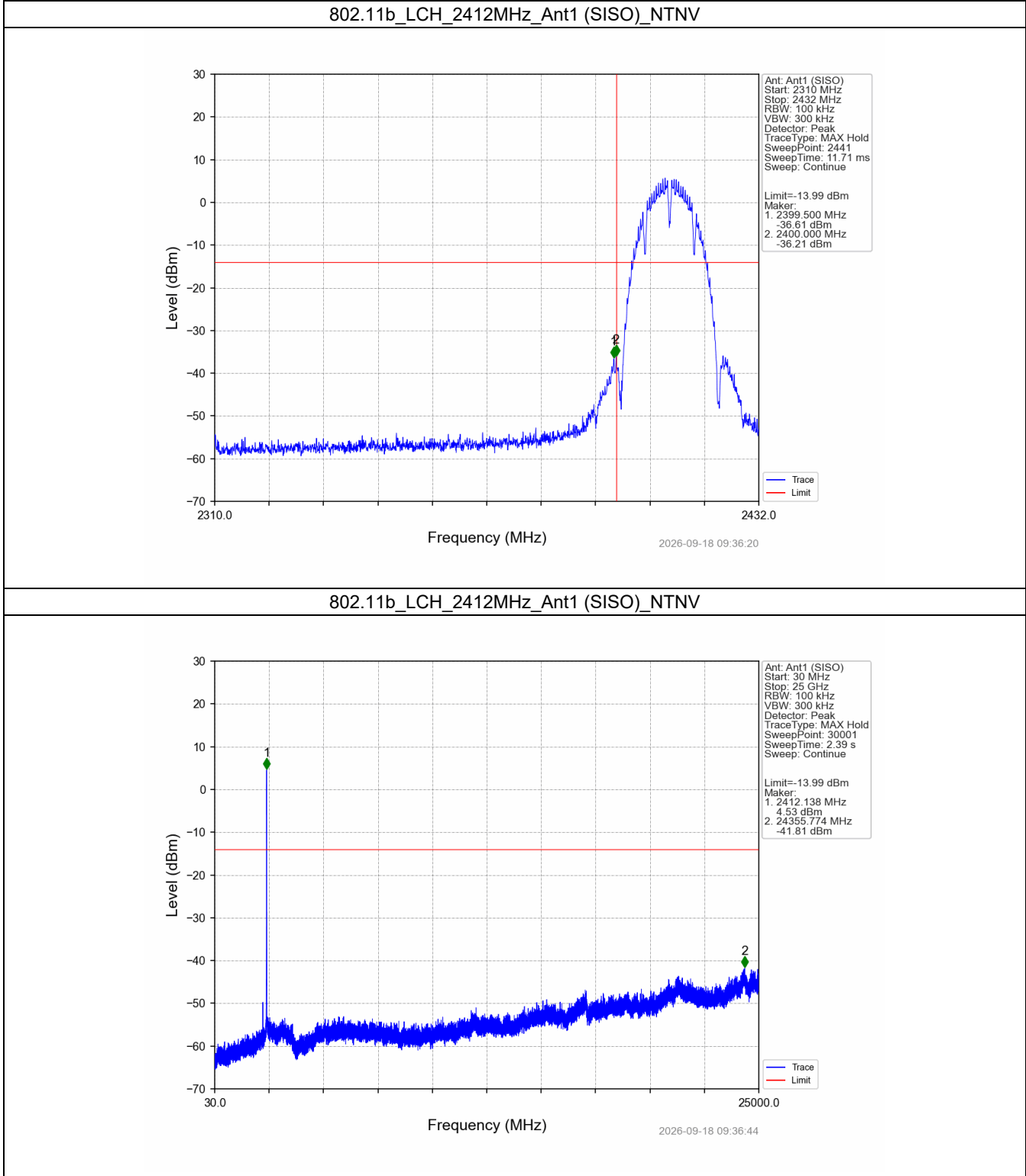
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



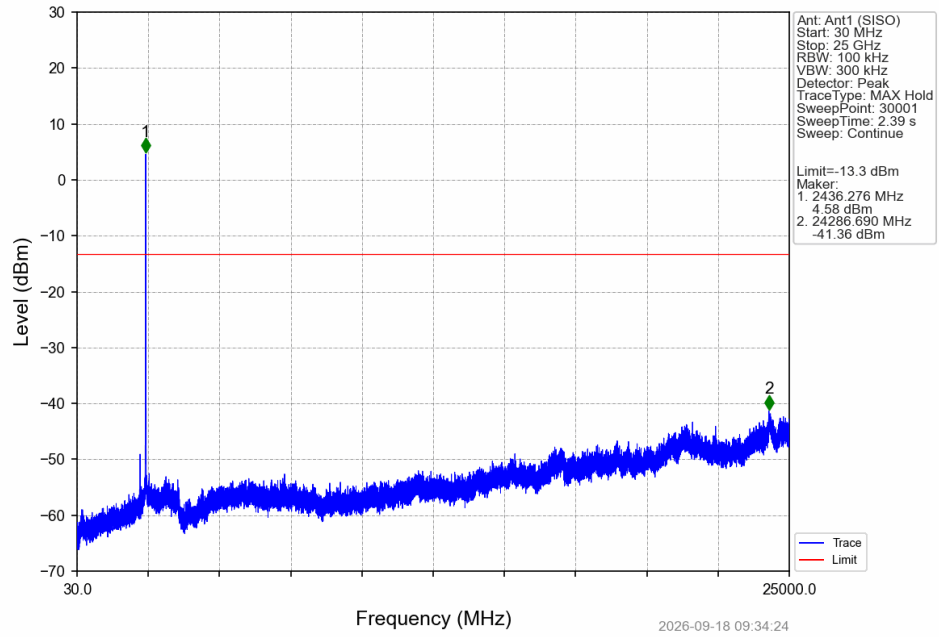
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



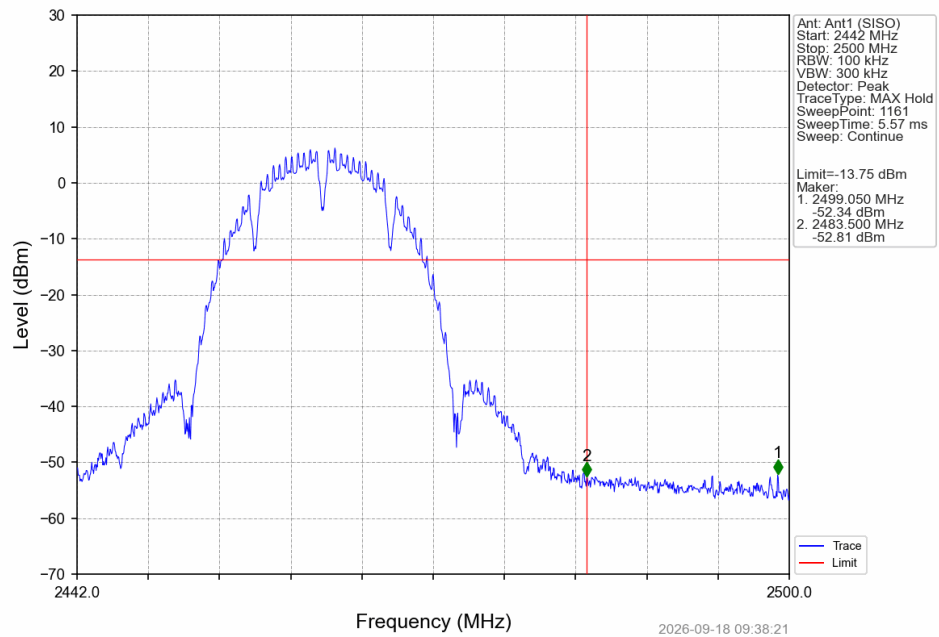
5.2.2 CSE



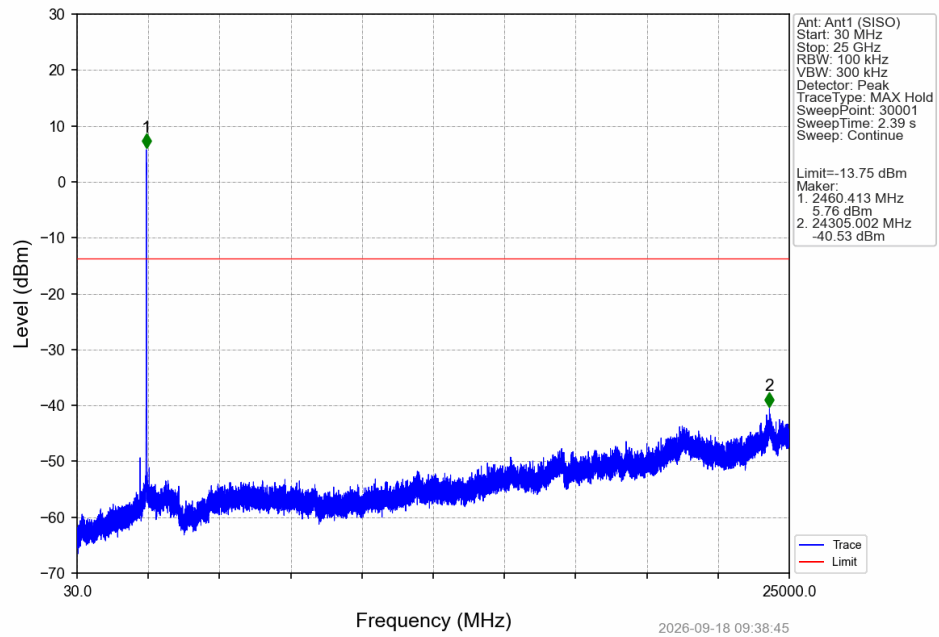
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



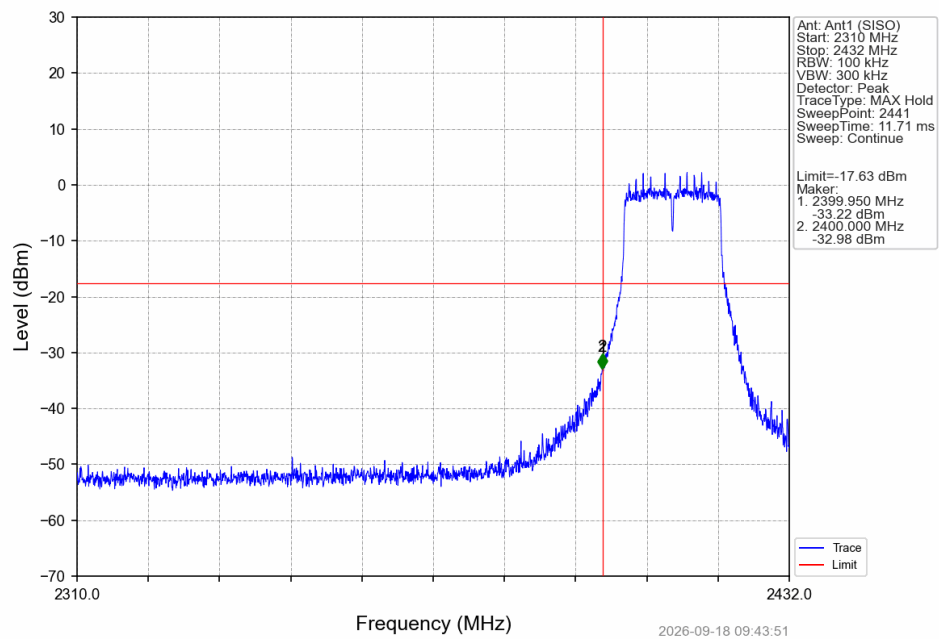
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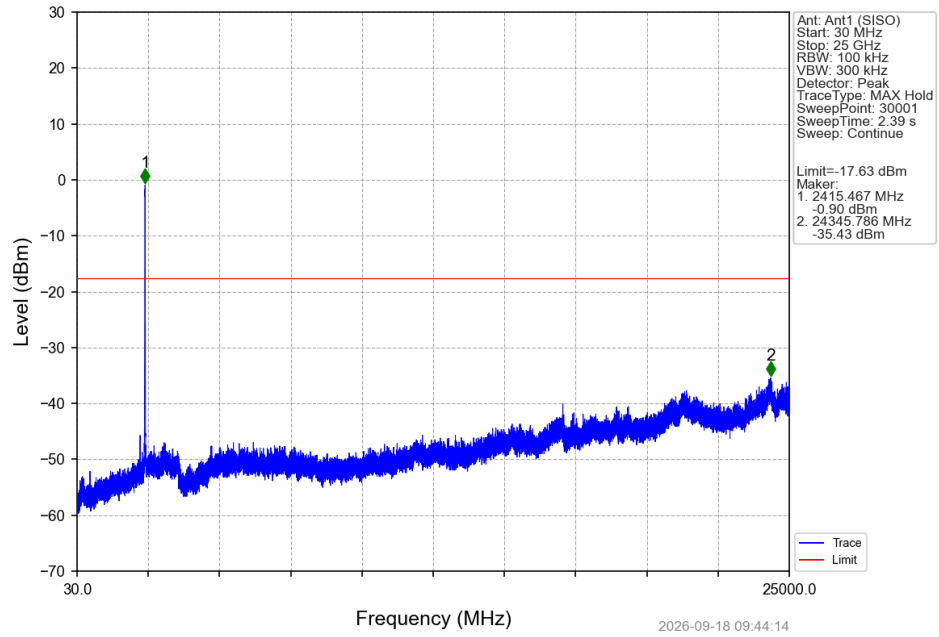
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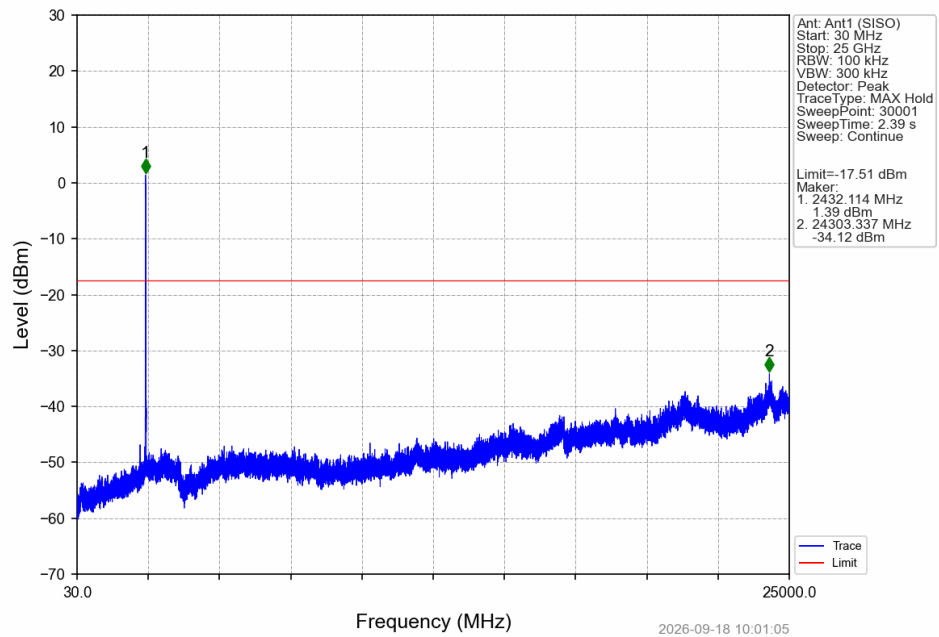
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



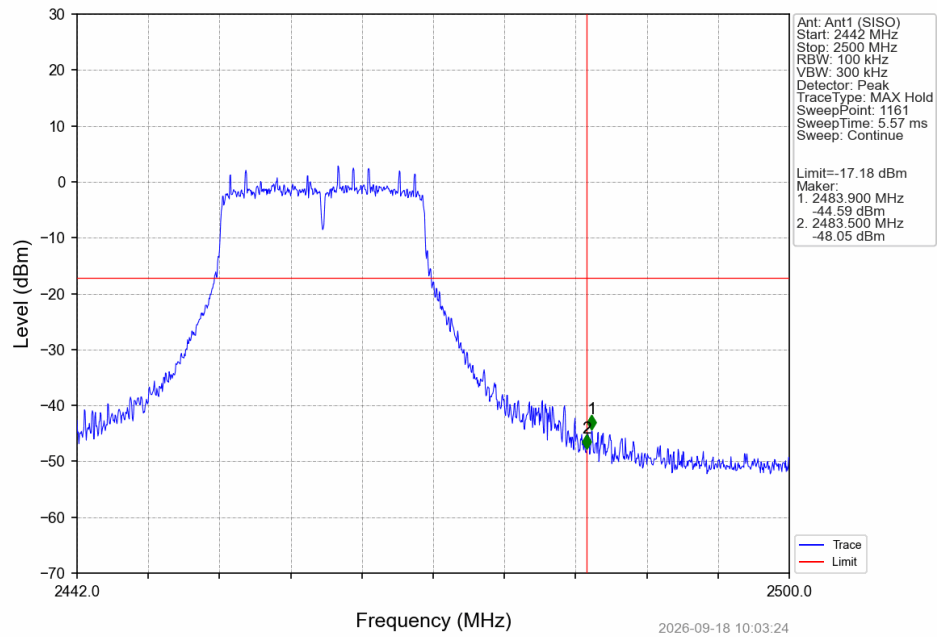
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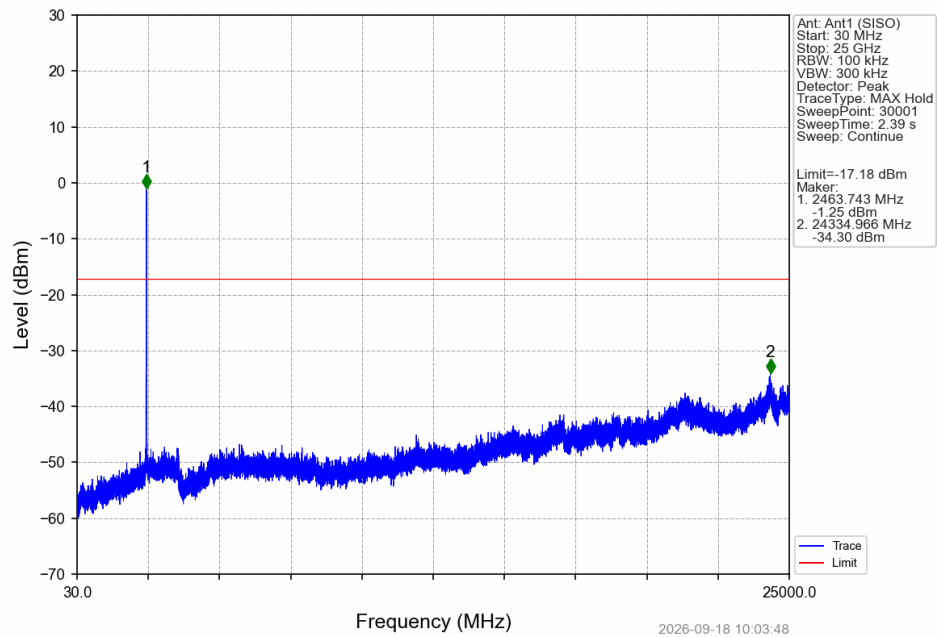
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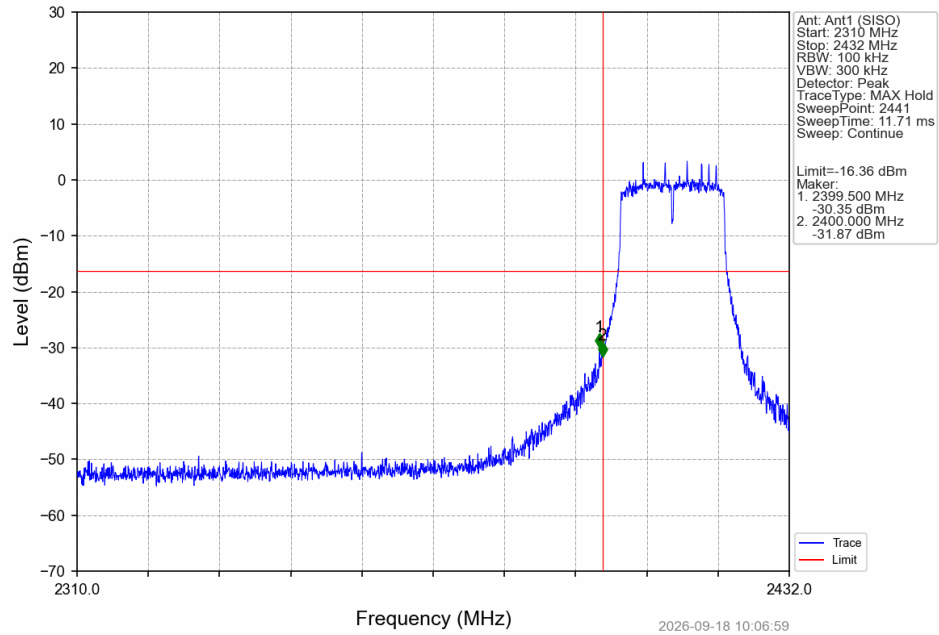
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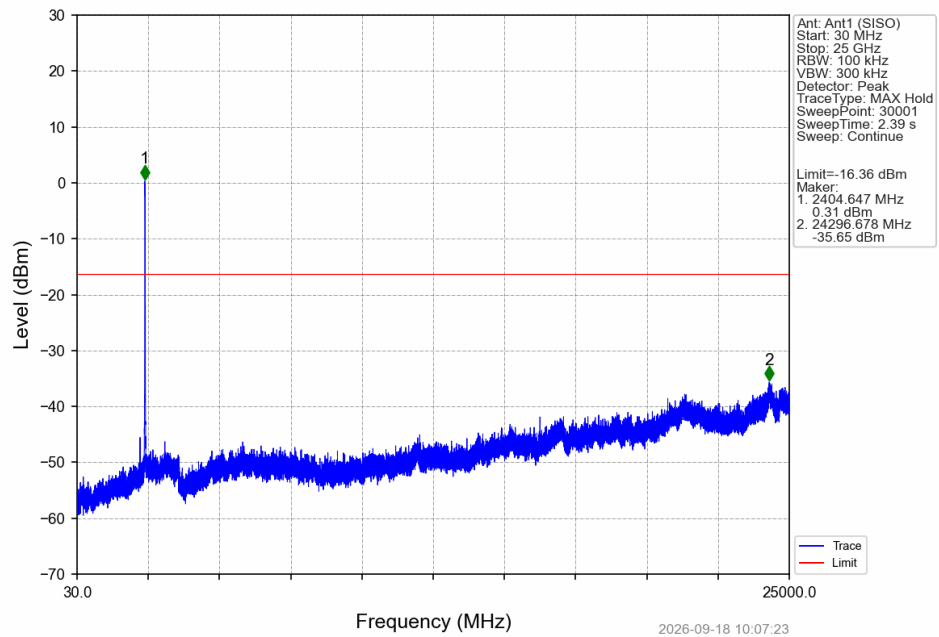
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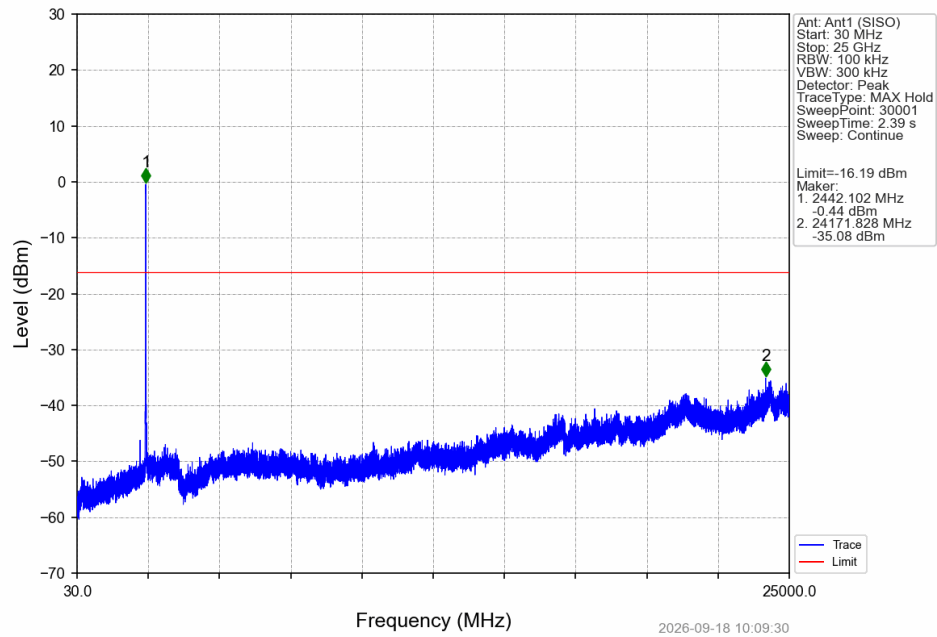
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



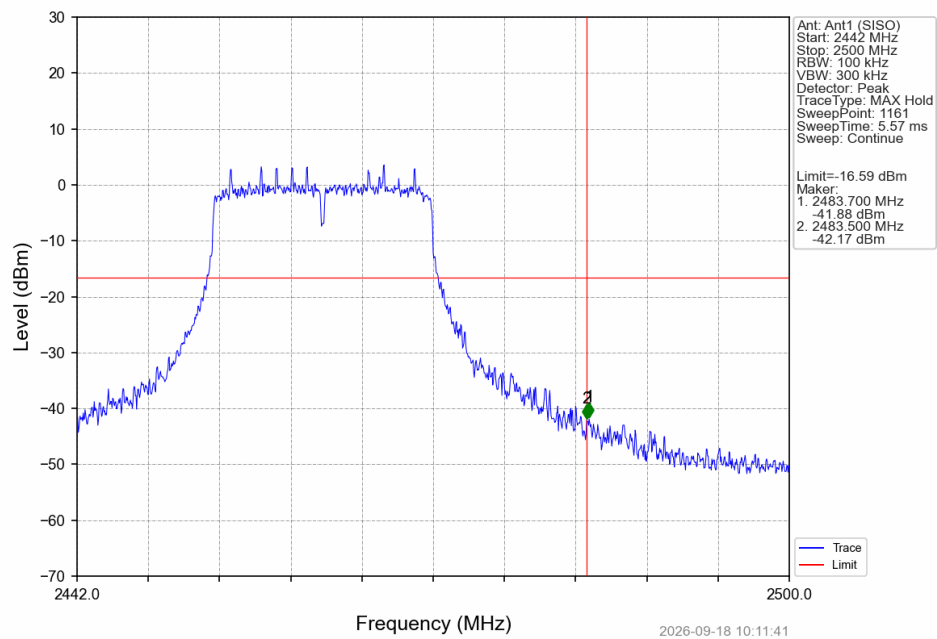
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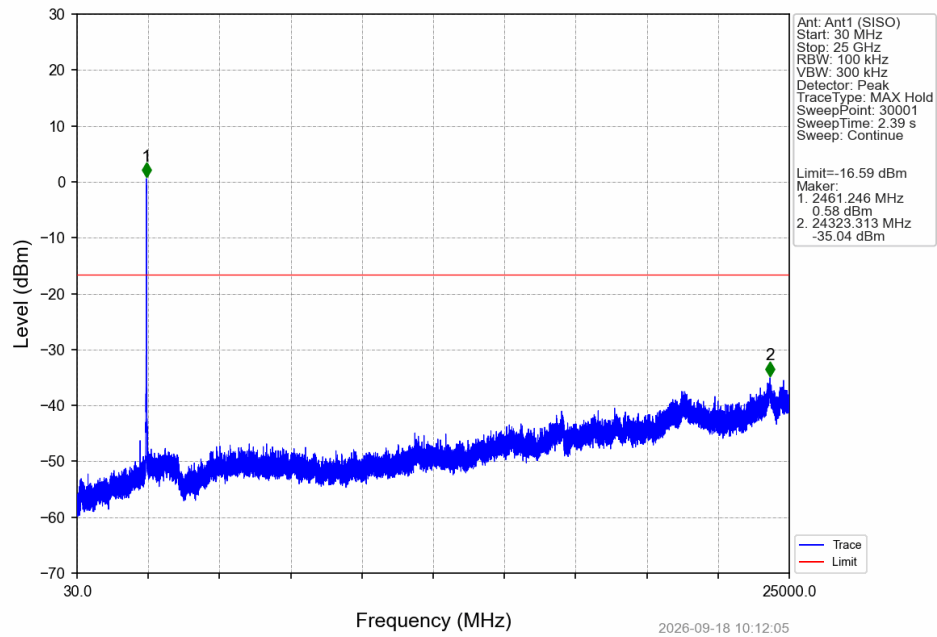
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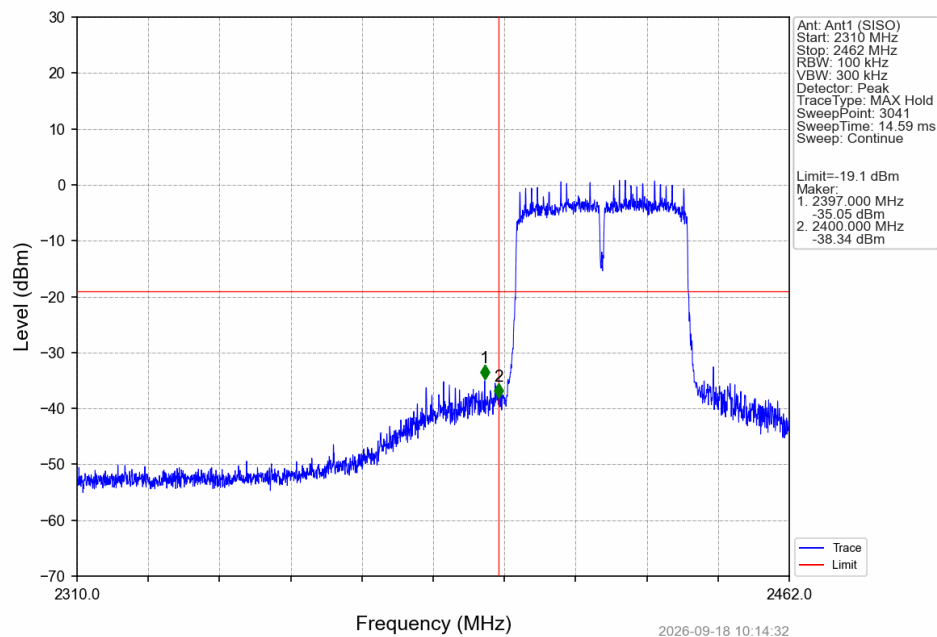
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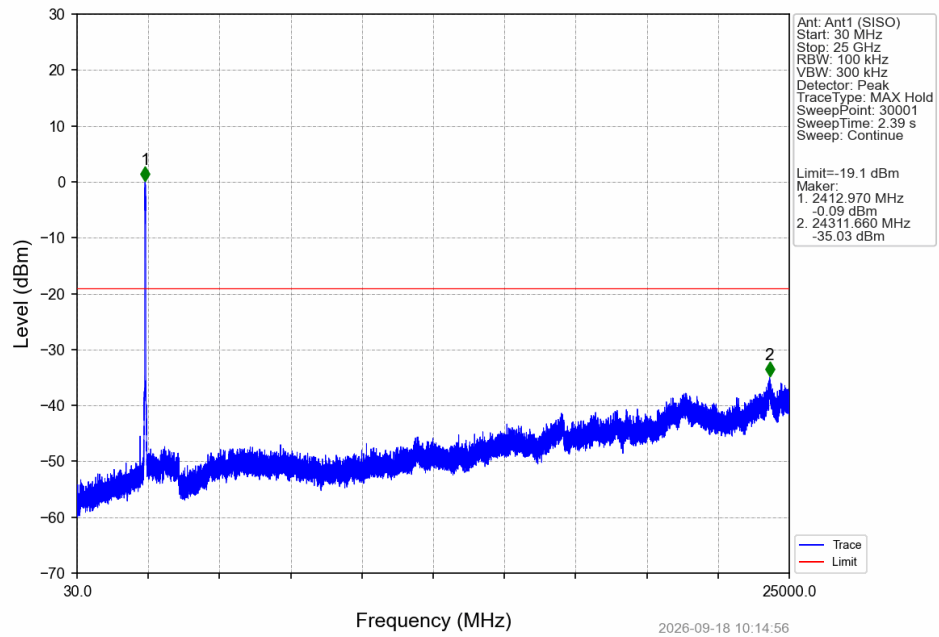
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



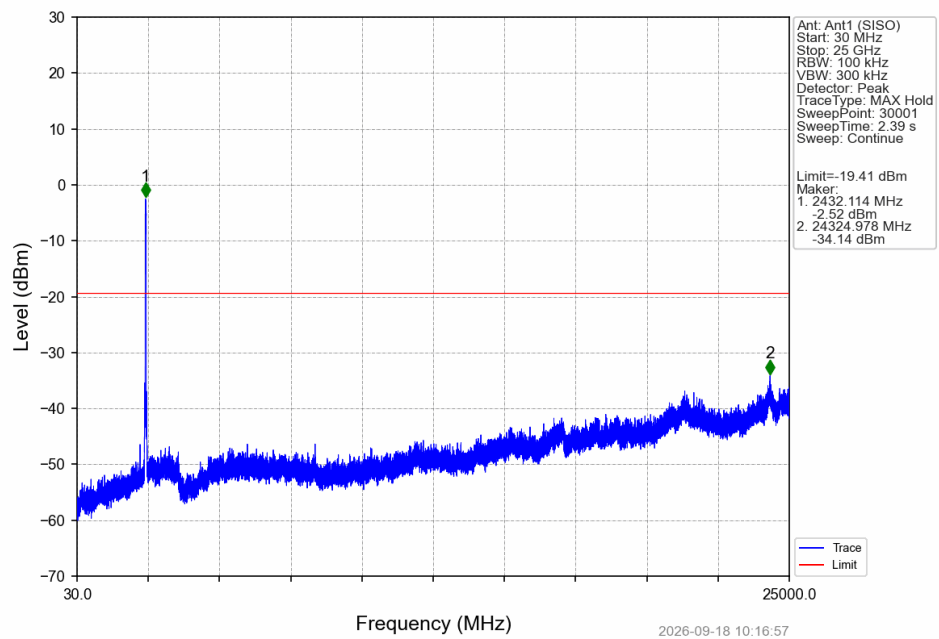
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



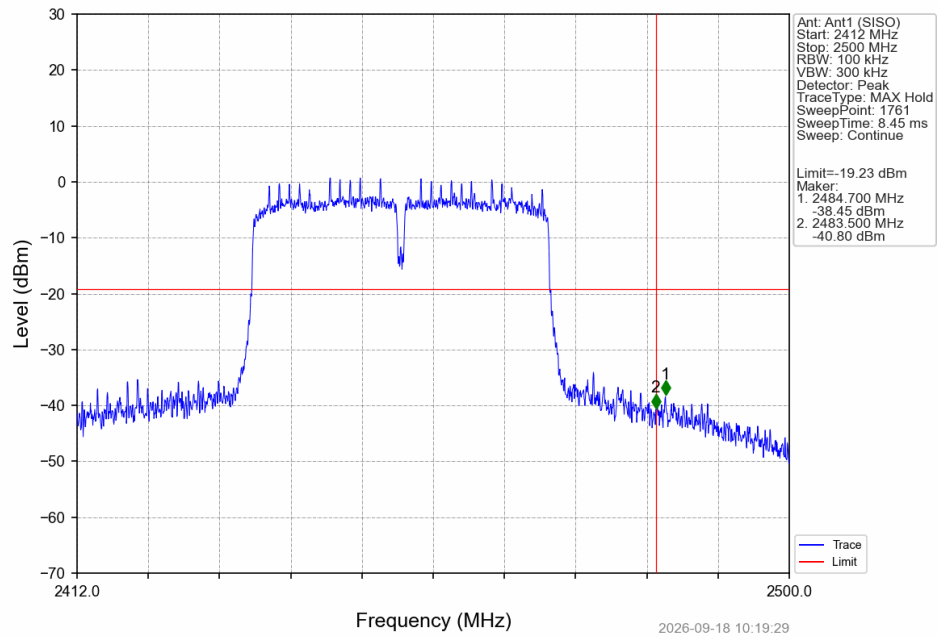
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV

