

Appendix RF Test Data for WIFI 2.4G

Company: : YEAHER INC.

EUT : Portable Computer

FCC ID: : 2BEMH-N15AB

Model Number : N15AB

Report No. : HTT202508371F02

Reviewed By : Heber He

1. Duty Cycle

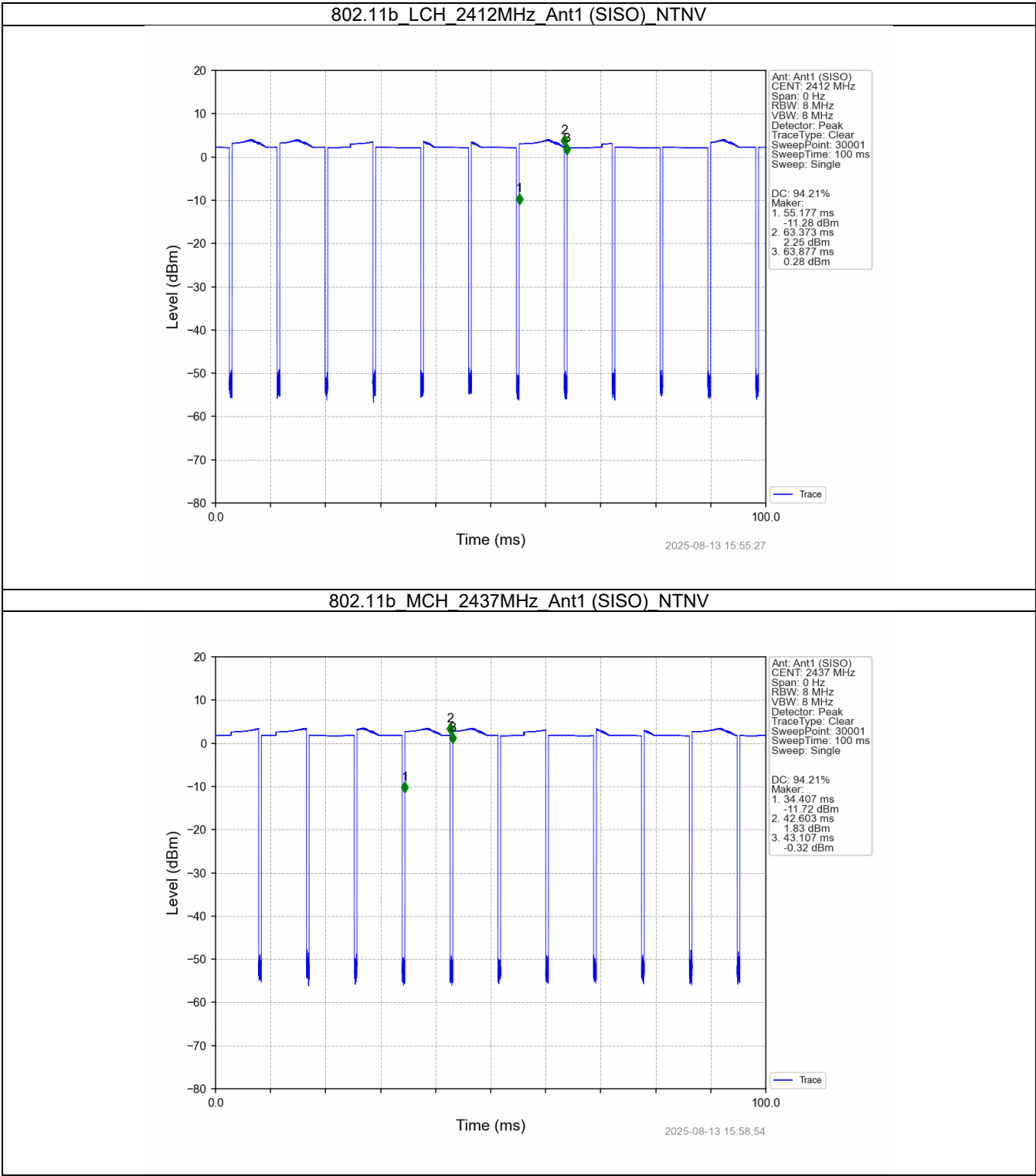
1.1 Test Result

1.1.1 Ant1

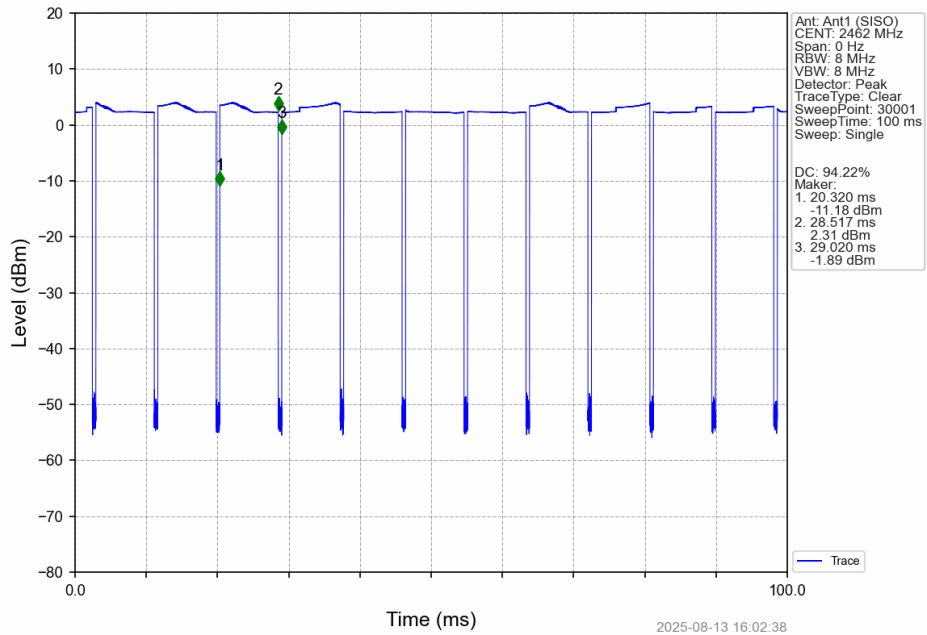
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	8.196	8.700	94.21	0.26	0.04
		2437	8.196	8.700	94.21	0.26	0.04
		2462	8.197	8.700	94.22	0.26	0.04
802.11g	SISO	2412	1.362	1.863	73.11	1.36	0.03
		2437	1.362	1.863	73.11	1.36	0.03
		2462	1.362	1.863	73.11	1.36	0.03
802.11n (HT20)	MIMO	2412	1.274	1.775	71.77	1.44	0.02
		2437	1.274	1.775	71.77	1.44	0.02
		2462	1.274	1.775	71.77	1.44	0.02
802.11n (HT40)	MIMO	2422	0.634	1.134	55.91	2.53	0.03
		2437	0.634	1.135	55.86	2.53	0.03
		2452	0.634	1.134	55.91	2.53	0.03

1.2 Test Graph

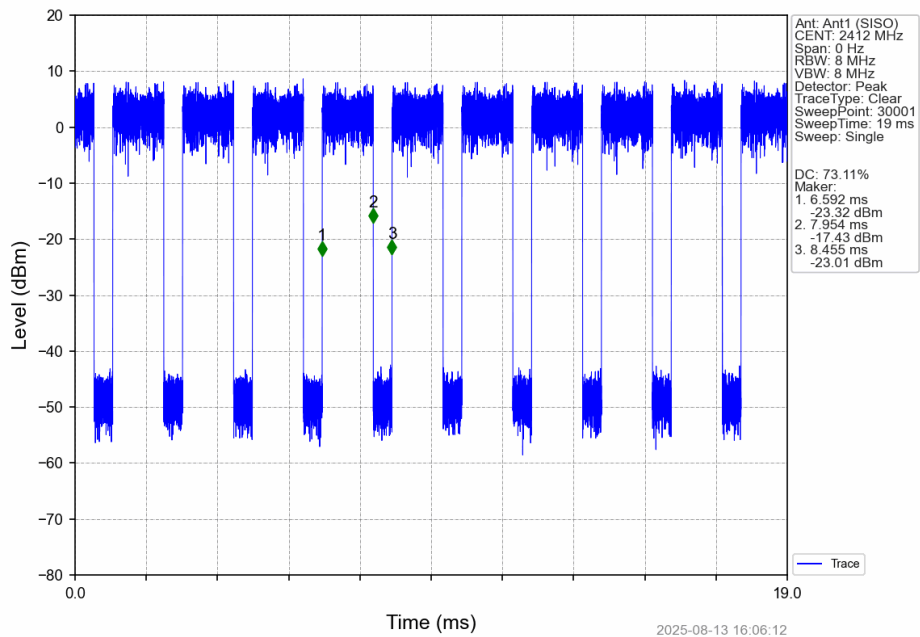
1.2.1 Ant1



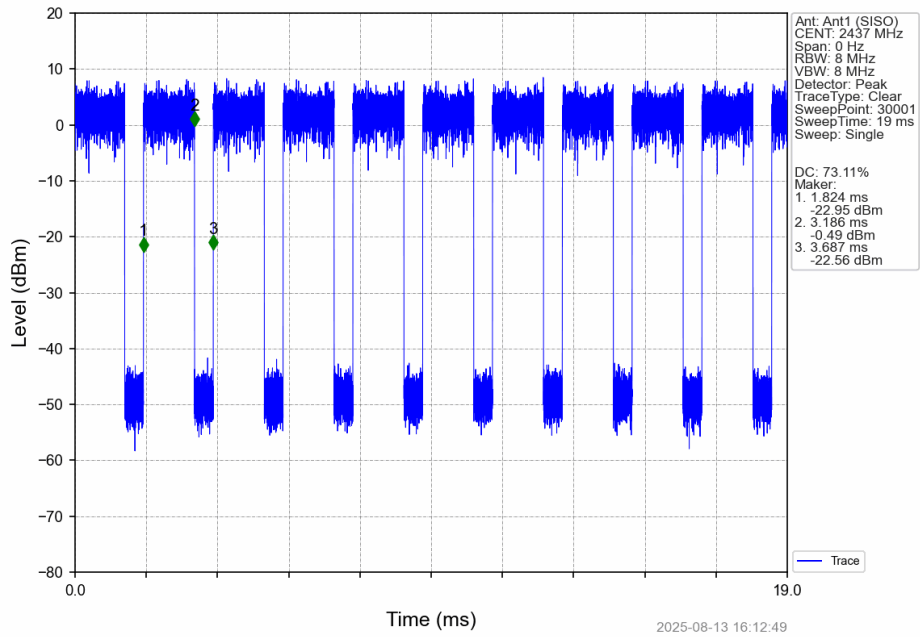
802.11b HCH 2462MHz Ant1 (SISO) NTN



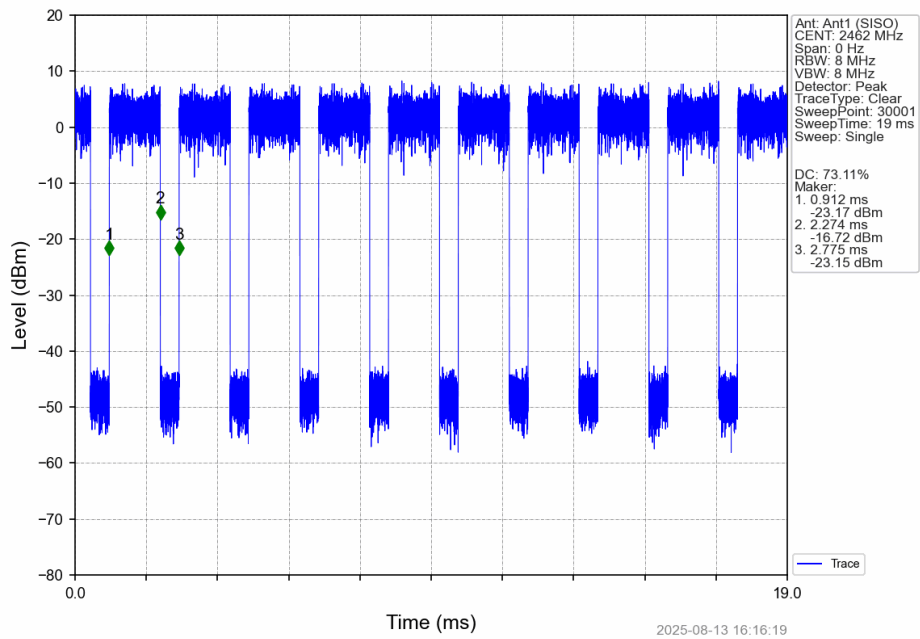
802.11g LCH 2412MHz Ant1 (SISO) NTN



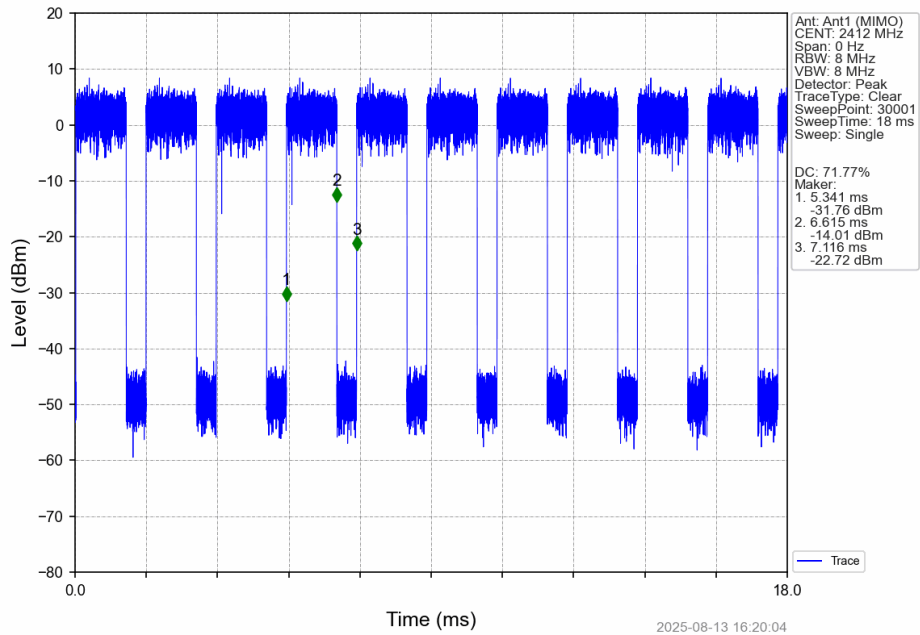
802.11g_MCH_2437MHz_Ant1 (SISO) NTN



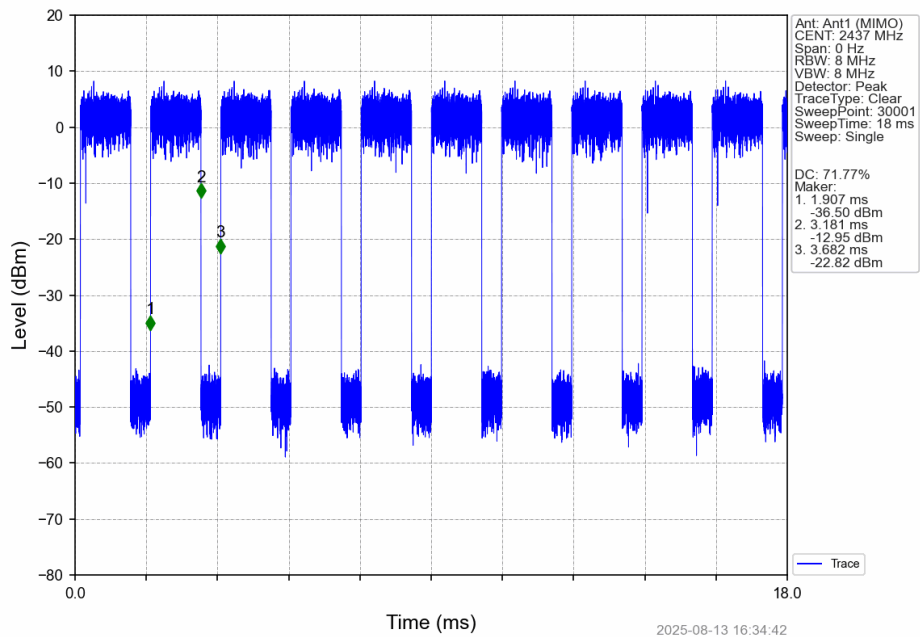
802.11g_HCH_2462MHz_Ant1 (SISO) NTN



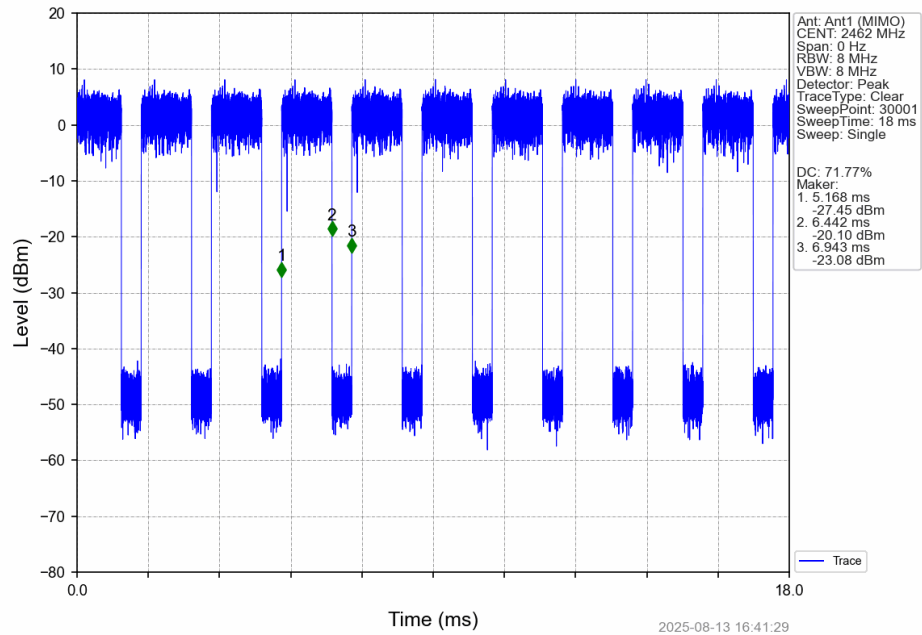
802.11n(HT20) LCH 2412MHz Ant1 (MIMO) NTNV



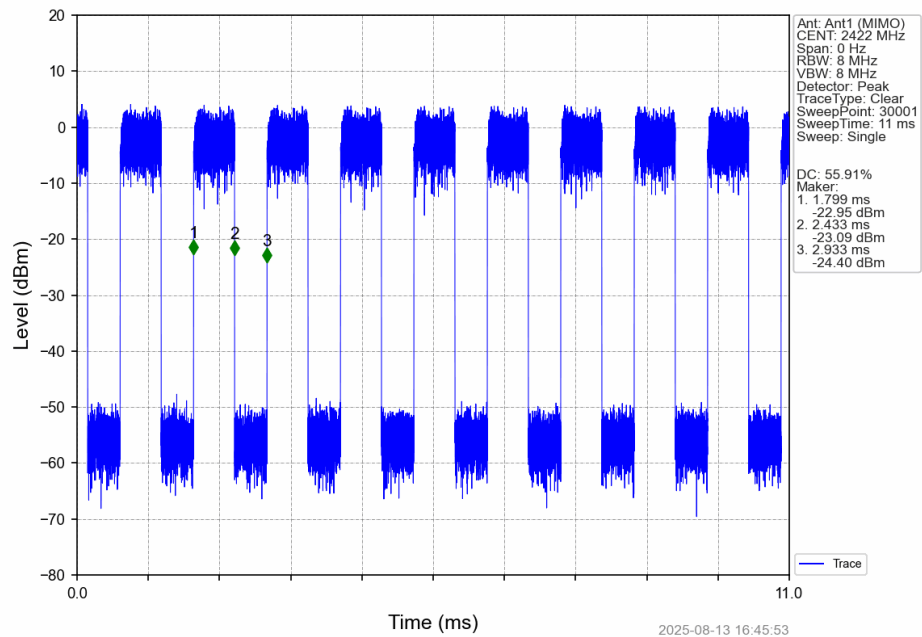
802.11n(HT20) MCH 2437MHz Ant1 (MIMO) NTNV



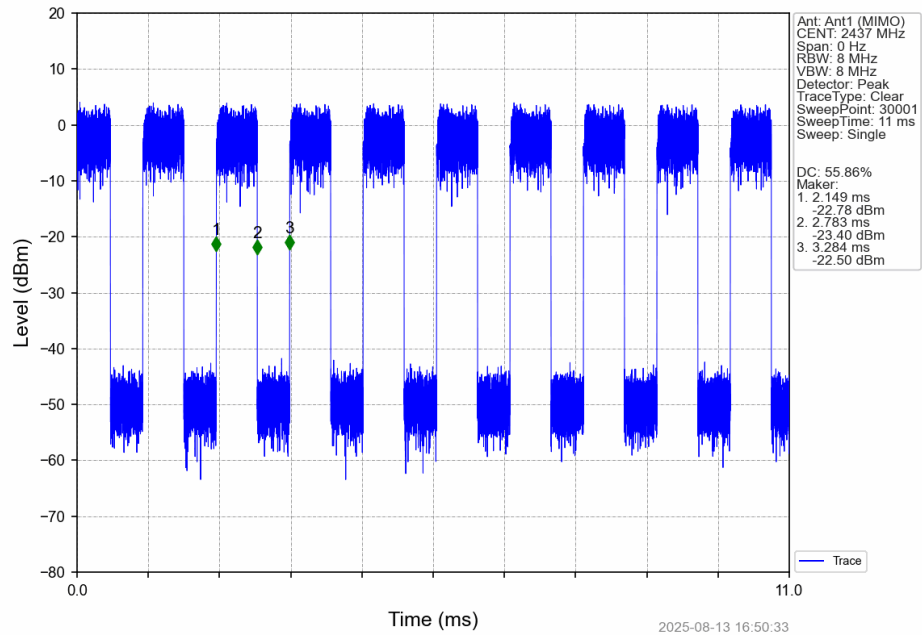
802.11n(HT20) HCH 2462MHz Ant1 (MIMO) NTN



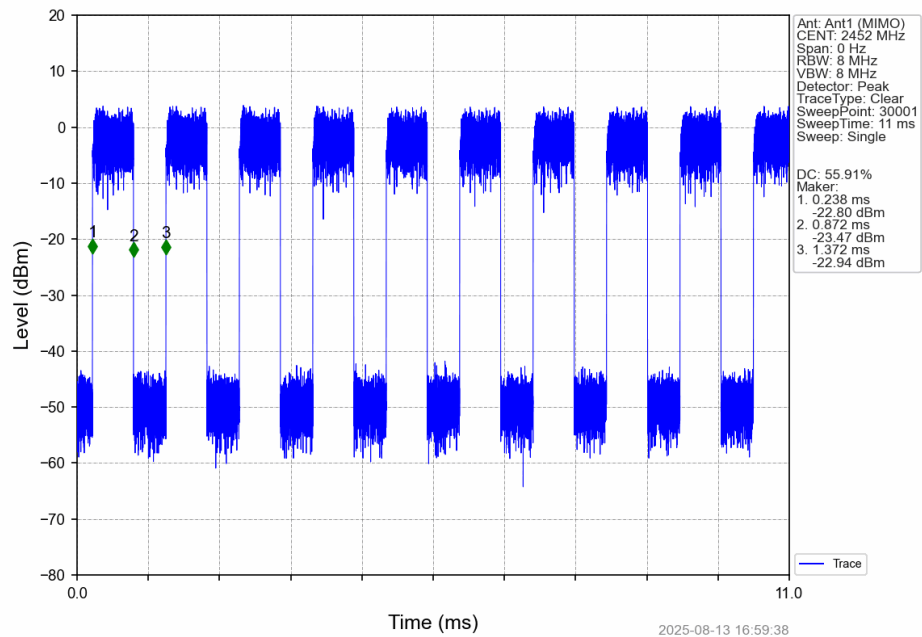
802.11n(HT40) LCH 2422MHz Ant1 (MIMO) NTN



802.11n(HT40) MCH 2437MHz Ant1 (MIMO) NTN



802.11n(HT40) HCH 2452MHz Ant1 (MIMO) NTN



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	14.620	/	Pass
			2	14.582	/	Pass
		2437	1	14.600	/	Pass
			2	14.652	/	Pass
		2462	1	14.649	/	Pass
			2	14.629	/	Pass
802.11g	SISO	2412	1	17.170	/	Pass
			2	16.812	/	Pass
		2437	1	17.171	/	Pass
			2	16.855	/	Pass
		2462	1	17.188	/	Pass
			2	16.870	/	Pass
802.11n (HT20)	MIMO	2412	1	18.258	/	Pass
			2	18.243	/	Pass
		2437	1	18.290	/	Pass
			2	18.309	/	Pass
		2462	1	18.307	/	Pass
			2	18.258	/	Pass
802.11n (HT40)	MIMO	2422	1	36.475	/	Pass
			2	36.362	/	Pass
		2437	1	36.434	/	Pass
			2	36.370	/	Pass
		2452	1	36.422	/	Pass
			2	36.453	/	Pass

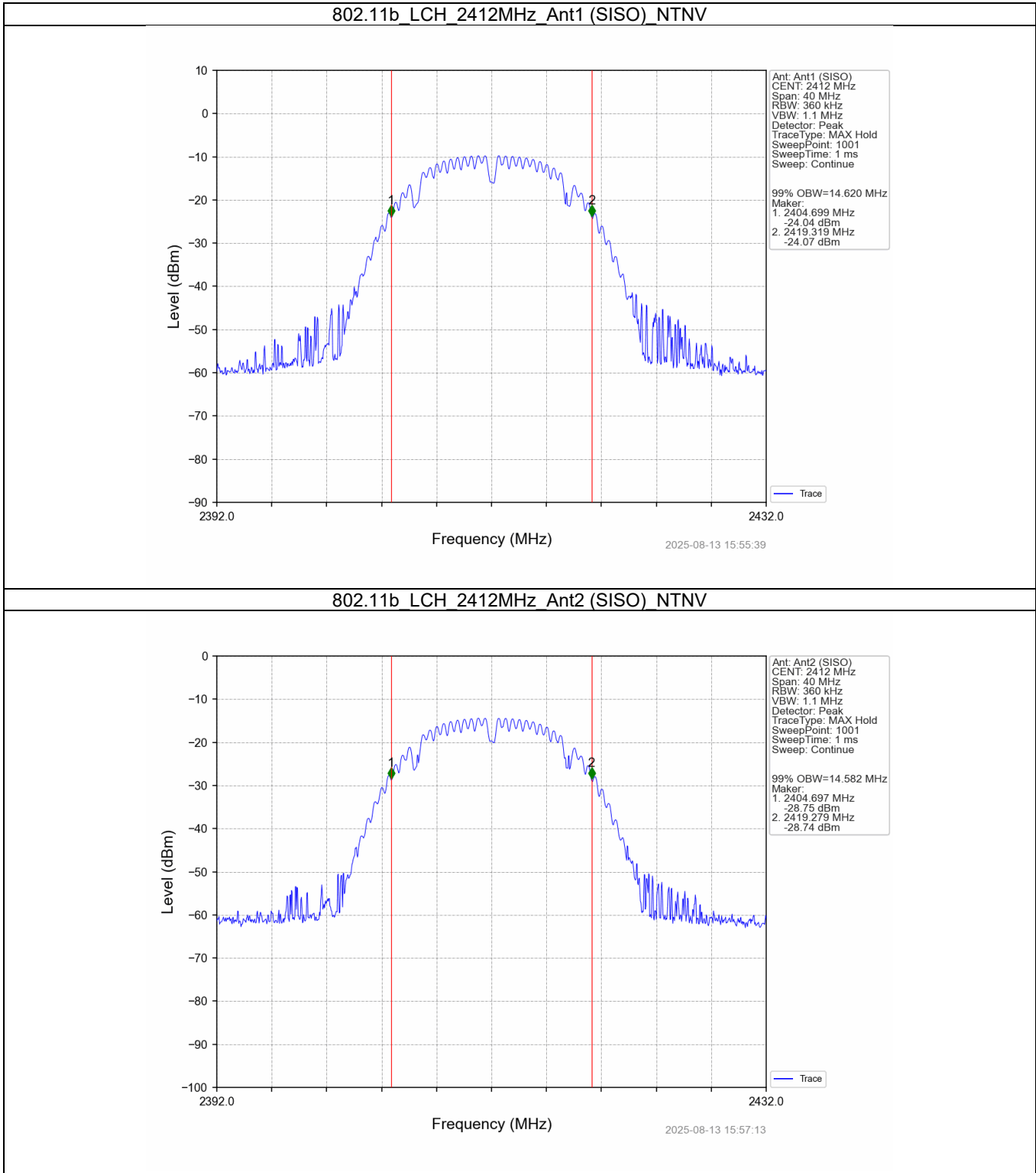
2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	10.122	≥ 0.5	Pass
			2	10.139	≥ 0.5	Pass
		2437	1	10.128	≥ 0.5	Pass
			2	10.142	≥ 0.5	Pass
		2462	1	10.129	≥ 0.5	Pass
			2	10.133	≥ 0.5	Pass
802.11g	SISO	2412	1	15.483	≥ 0.5	Pass
			2	15.928	≥ 0.5	Pass
		2437	1	15.359	≥ 0.5	Pass
			2	15.978	≥ 0.5	Pass
		2462	1	15.730	≥ 0.5	Pass
			2	15.897	≥ 0.5	Pass
802.11n (HT20)	MIMO	2412	1	16.259	≥ 0.5	Pass
			2	15.578	≥ 0.5	Pass
		2437	1	15.999	≥ 0.5	Pass
			2	15.845	≥ 0.5	Pass
		2462	1	16.997	≥ 0.5	Pass
			1	16.997	≥ 0.5	Pass

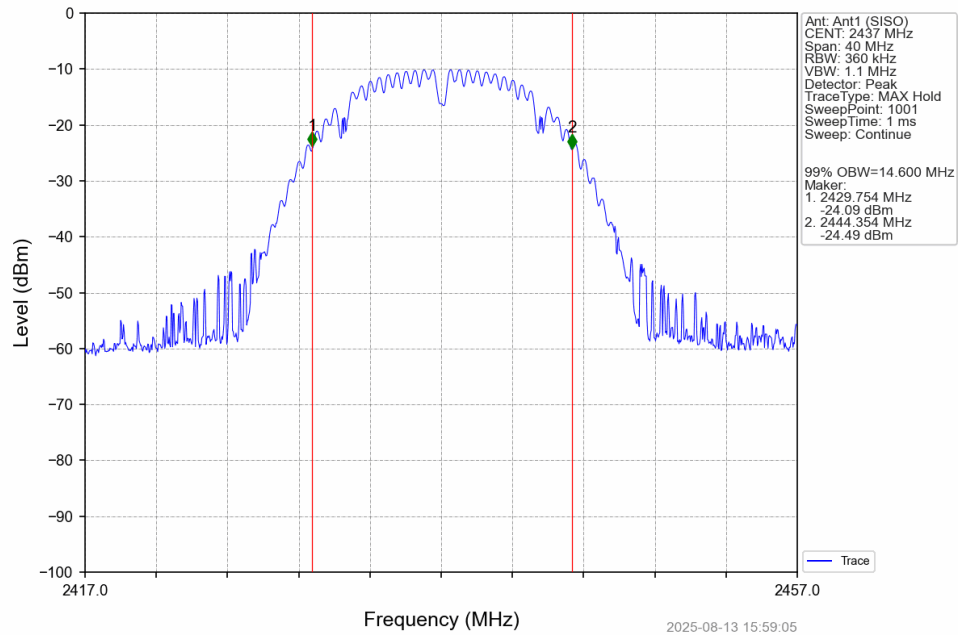
			2	16.984	≥ 0.5	Pass
802.11n (HT40)	MIMO	2422	1	35.293	≥ 0.5	Pass
			2	35.194	≥ 0.5	Pass
		2437	1	35.167	≥ 0.5	Pass
			2	35.191	≥ 0.5	Pass
		2452	1	35.124	≥ 0.5	Pass
			2	35.110	≥ 0.5	Pass

2.2 Test Graph

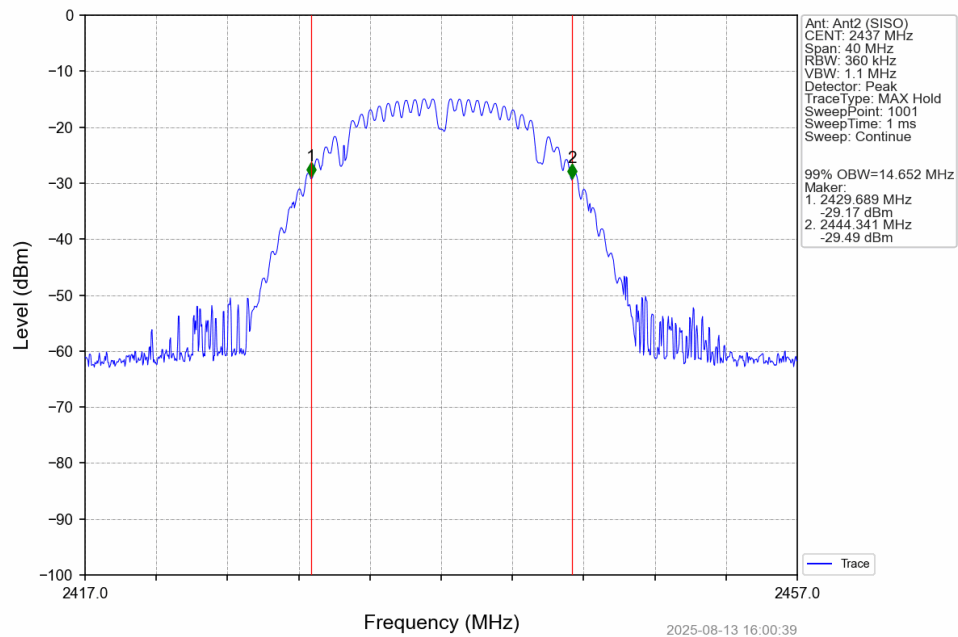
2.2.1 OBW



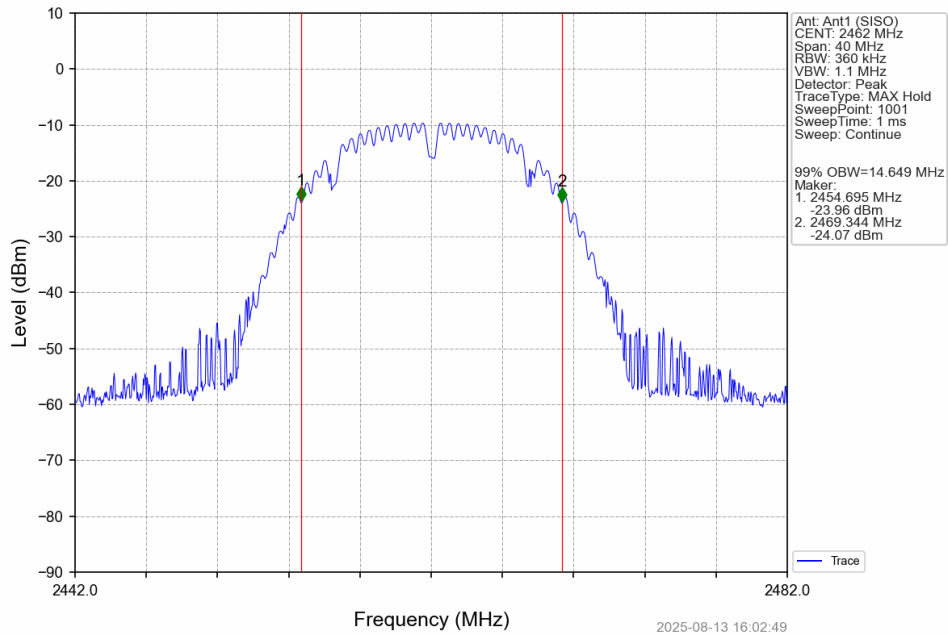
802.11b MCH 2437MHz Ant1 (SISO) NTN



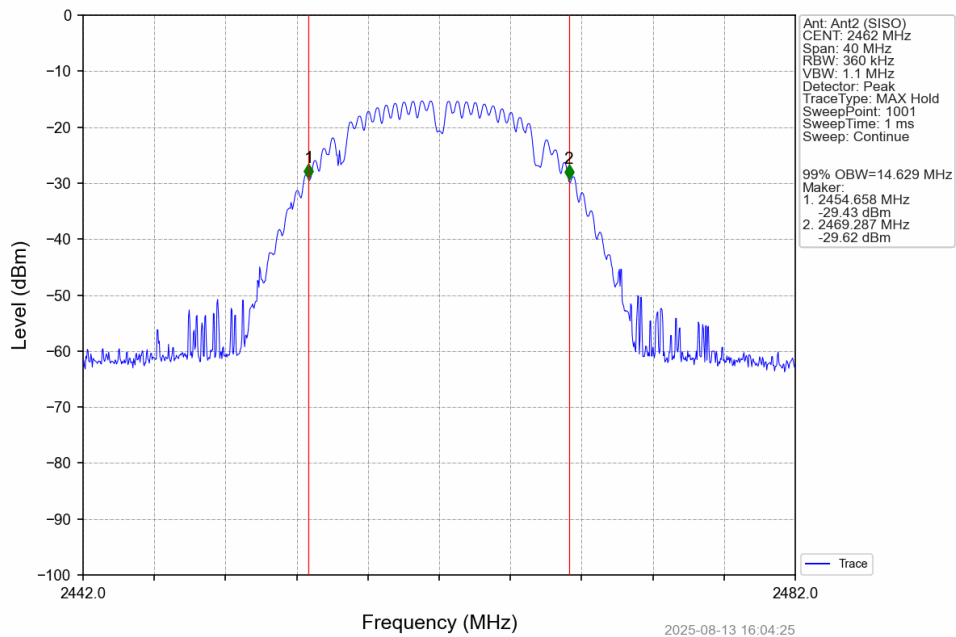
802.11b_MCH_2437MHz_Ant2 (SISO)_NTN



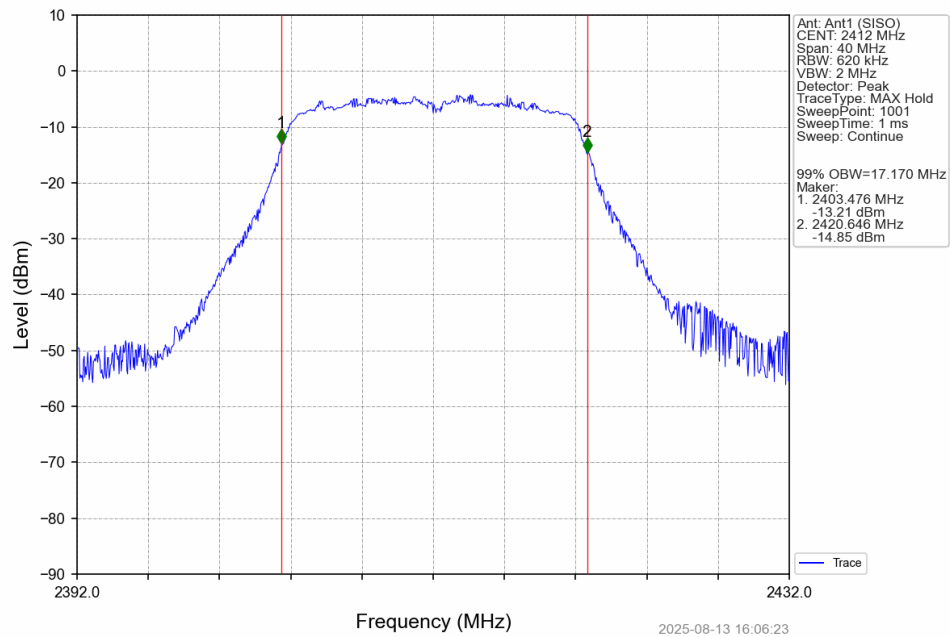
802.11b HCH 2462MHz Ant1 (SISO) NTN



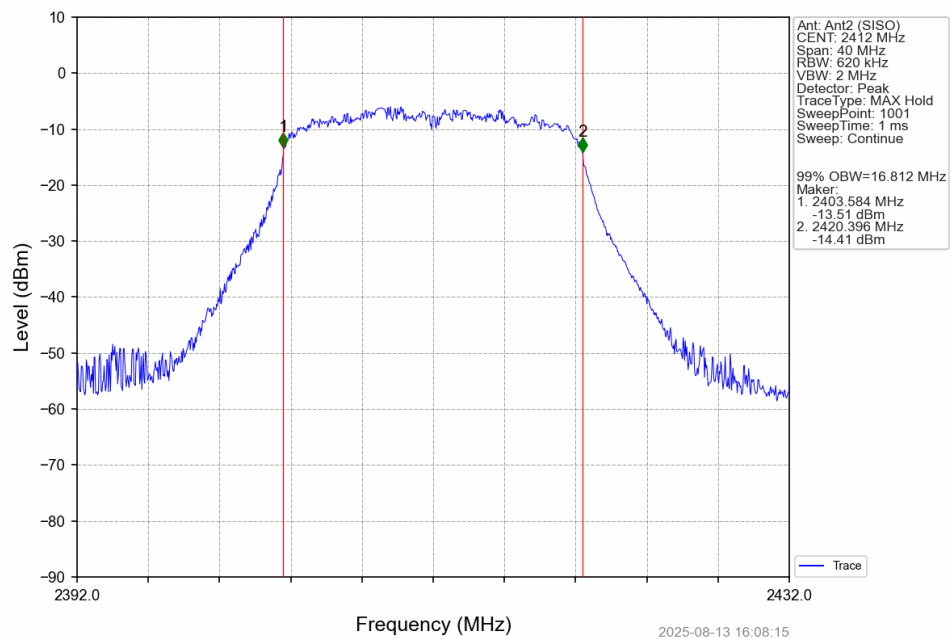
802.11b_HCH_2462MHz_Ant2 (SISO)_NTNV



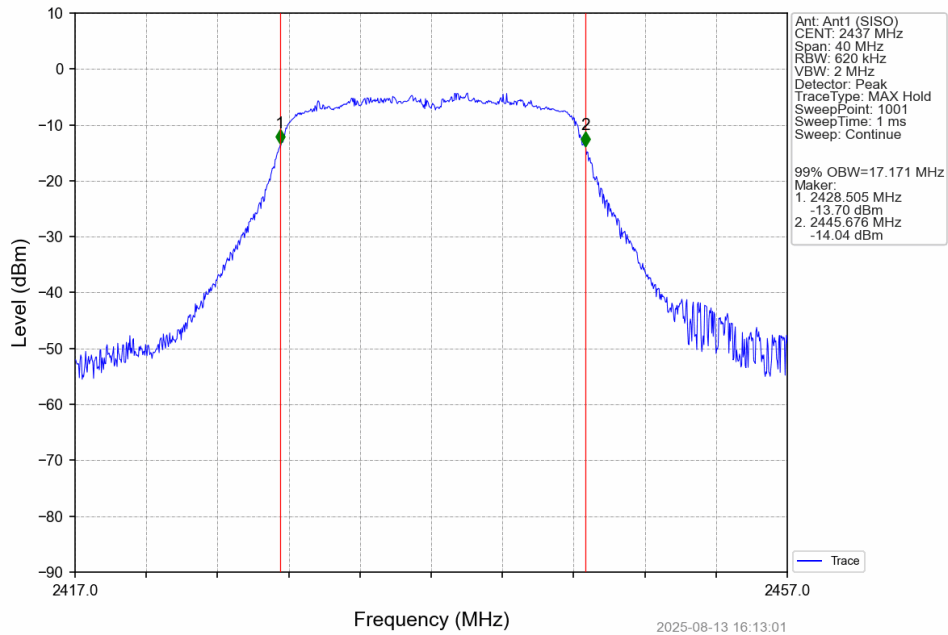
802.11g LCH 2412MHz Ant1 (SISO) NTN



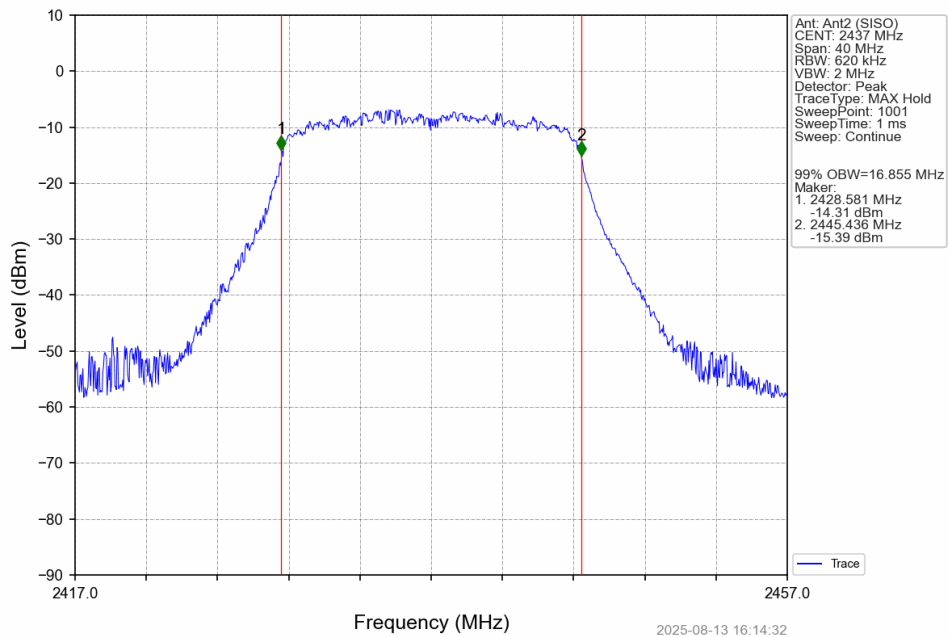
802.11g LCH 2412MHz Ant2 (SISO) NTN



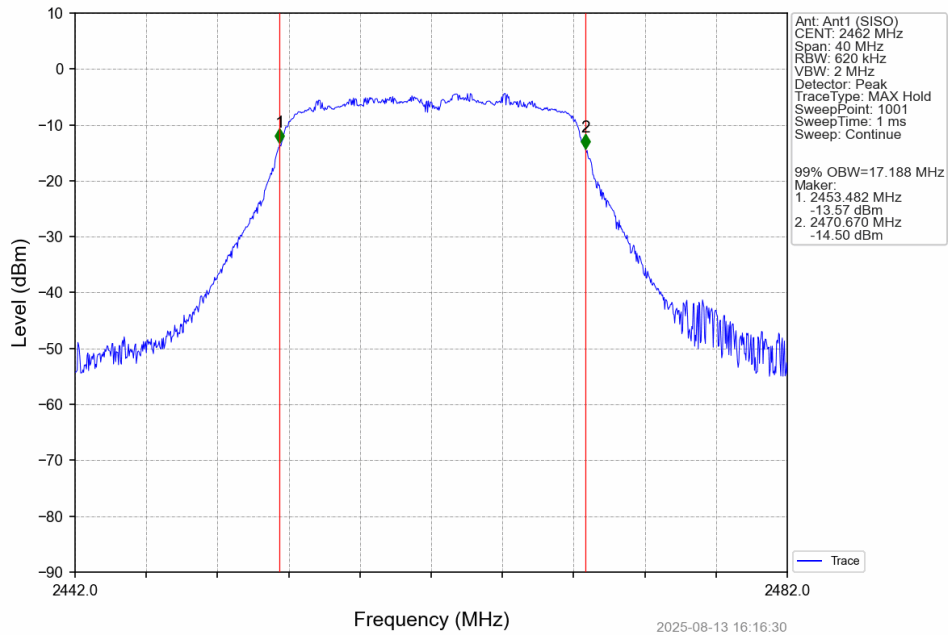
802.11g MCH 2437MHz Ant1 (SISO) NTN



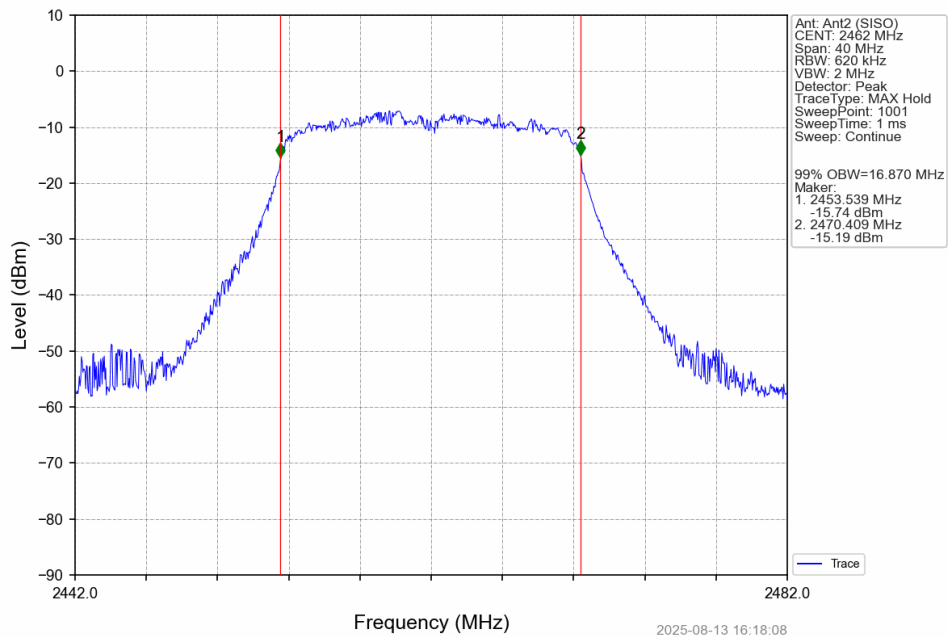
802.11g MCH 2437MHz Ant2 (SISO) NTN



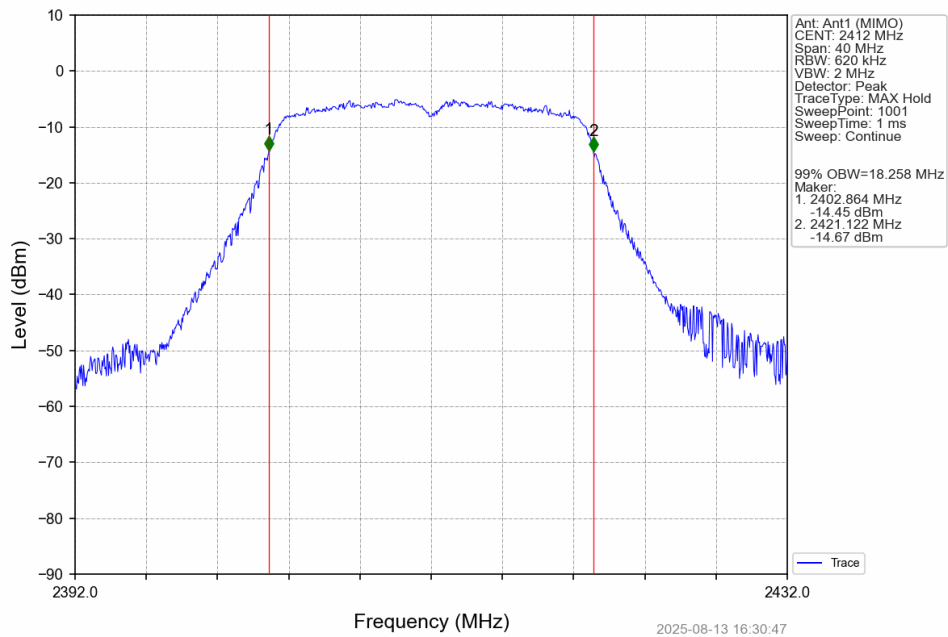
802.11g HCH 2462MHz Ant1 (SISO) NTN



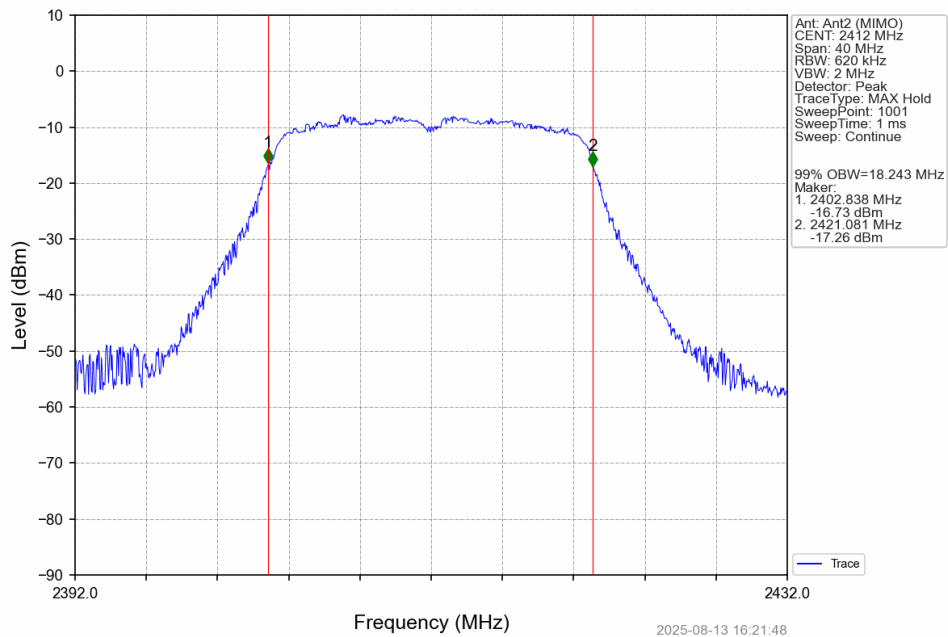
802.11g HCH 2462MHz Ant2 (SISO) NTN



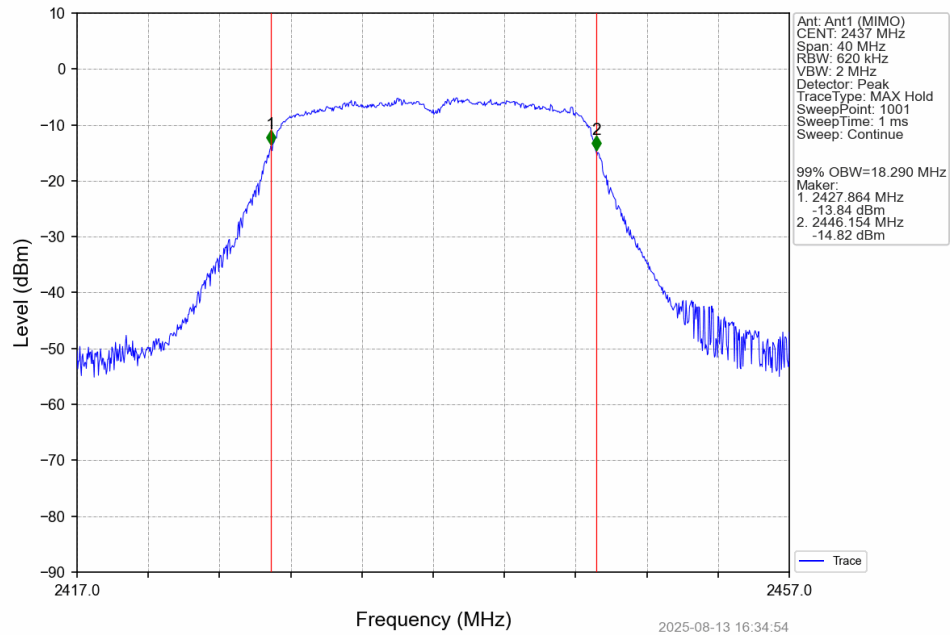
802.11n(HT20)_LCH_2412MHz_Ant1 (MIMO)_NTNV



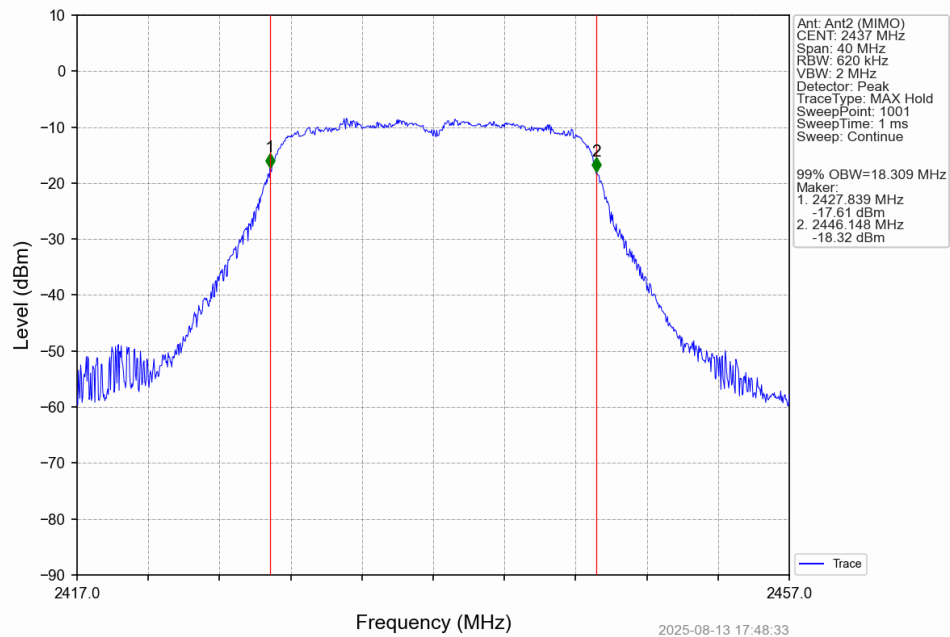
802.11n(HT20)_LCH_2412MHz_Ant2 (MIMO)_NTNV



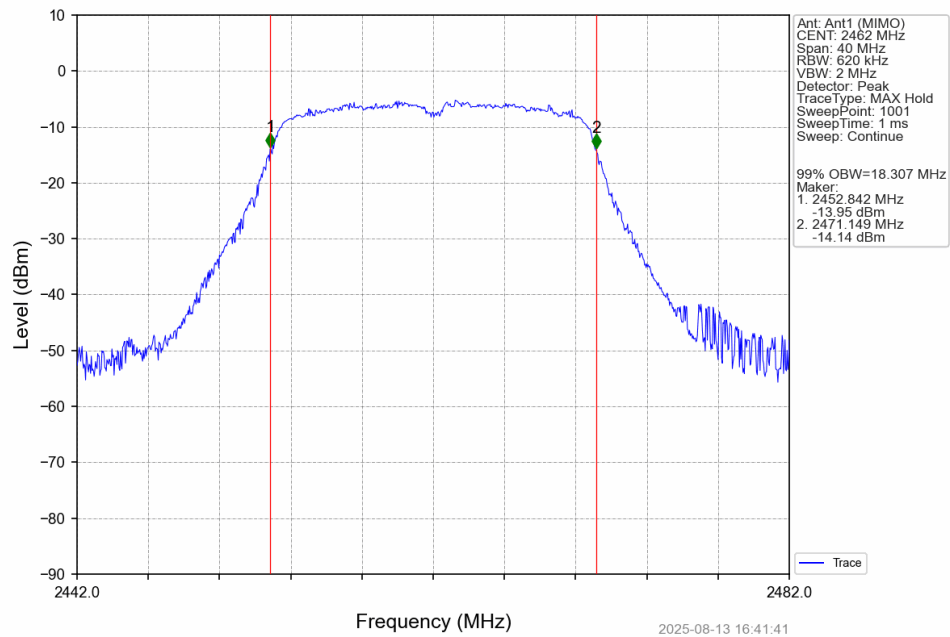
802.11n(HT20) MCH 2437MHz Ant1 (MIMO) NTN



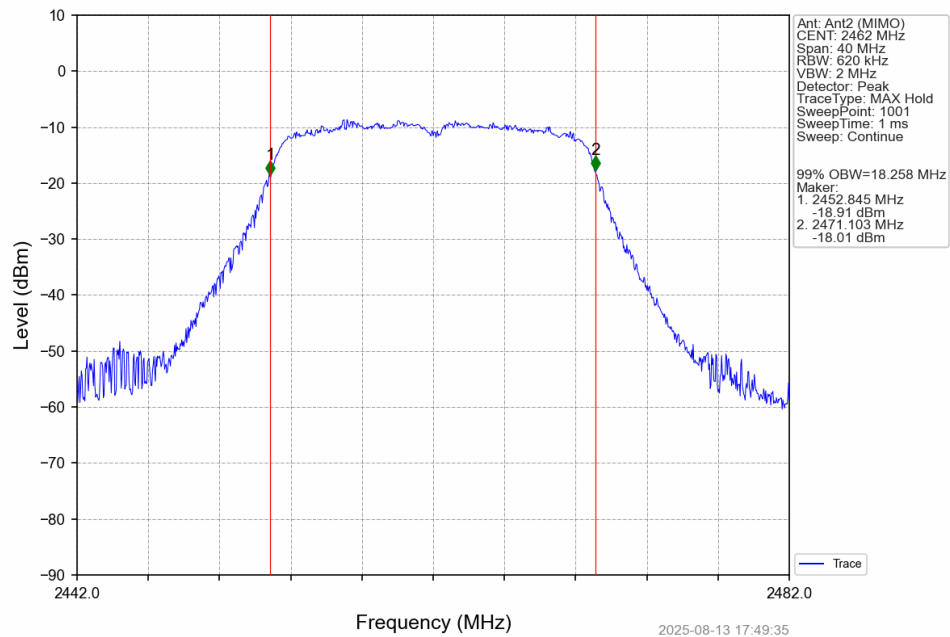
802.11n(HT20) MCH 2437MHz Ant2 (MIMO) NTN



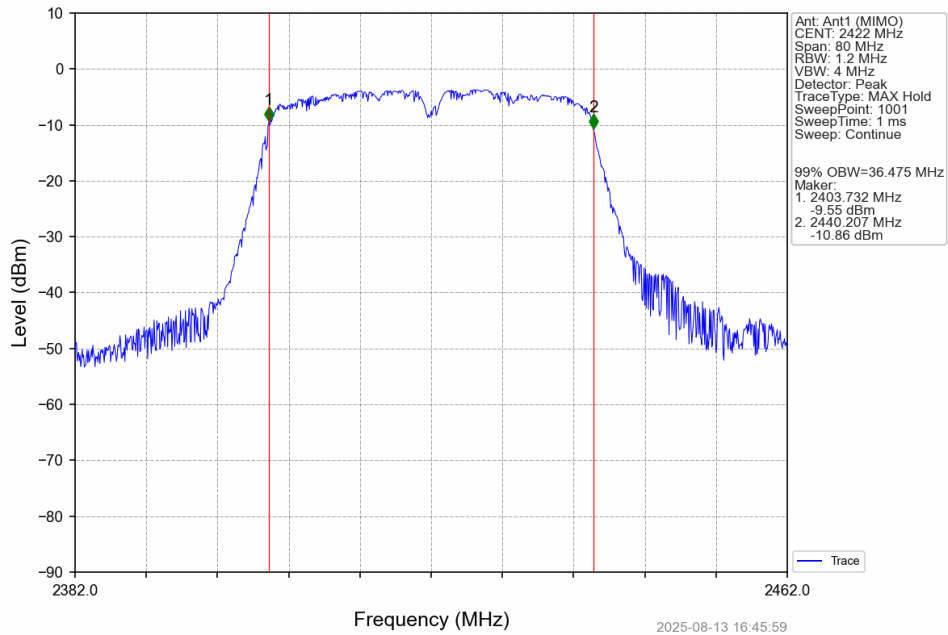
802.11n(HT20) HCH 2462MHz Ant1 (MIMO) NTN



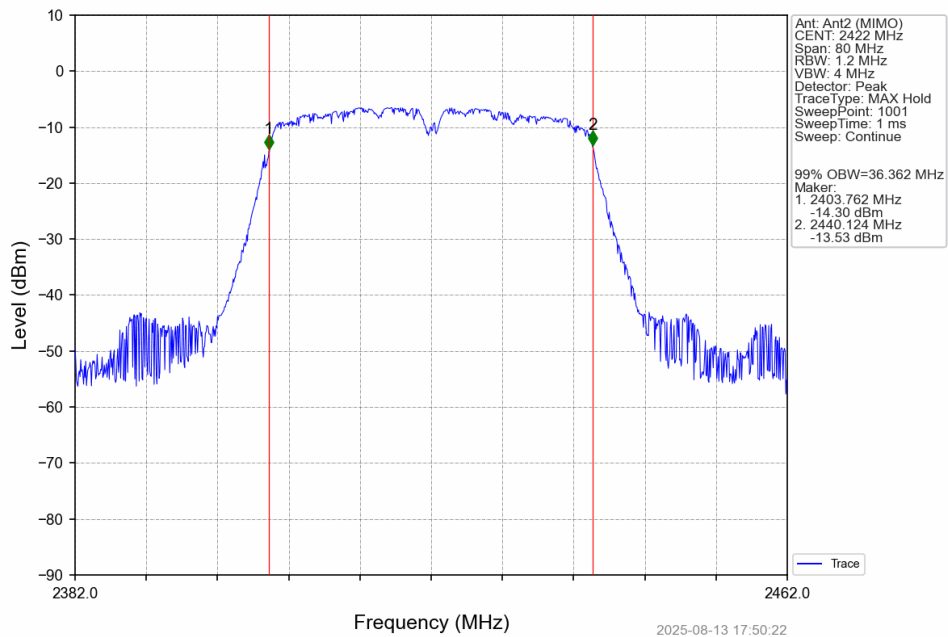
802.11n(HT20) HCH 2462MHz Ant2 (MIMO) NTN



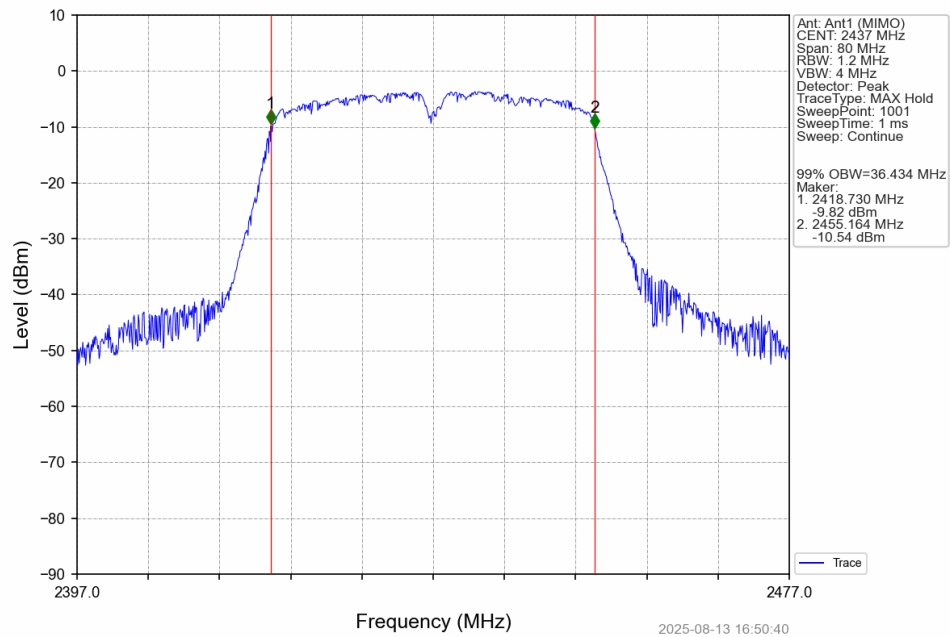
802.11n(HT40) LCH 2422MHz Ant1 (MIMO) NTN



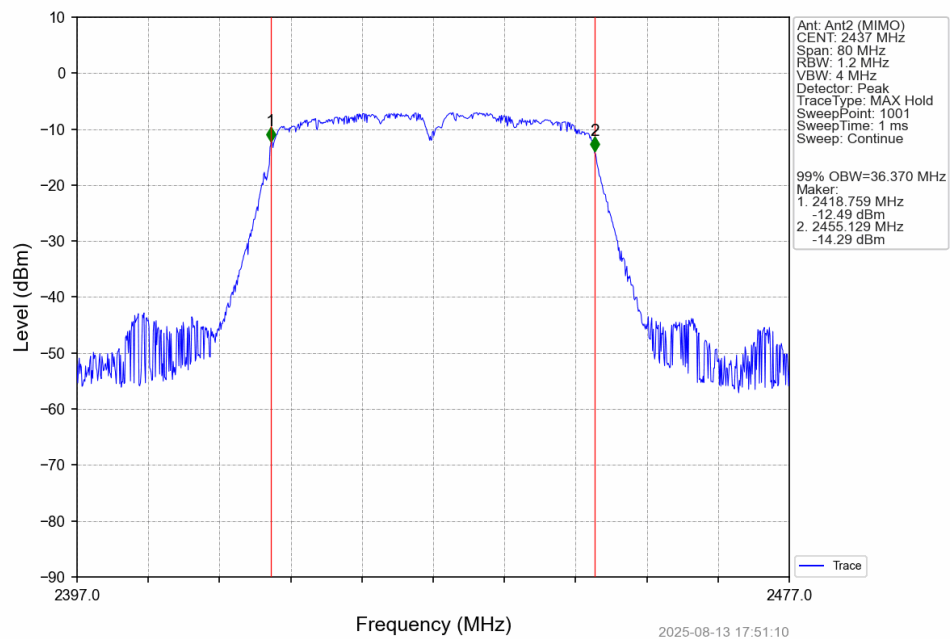
802.11n(HT40) LCH 2422MHz Ant2 (MIMO) NTN



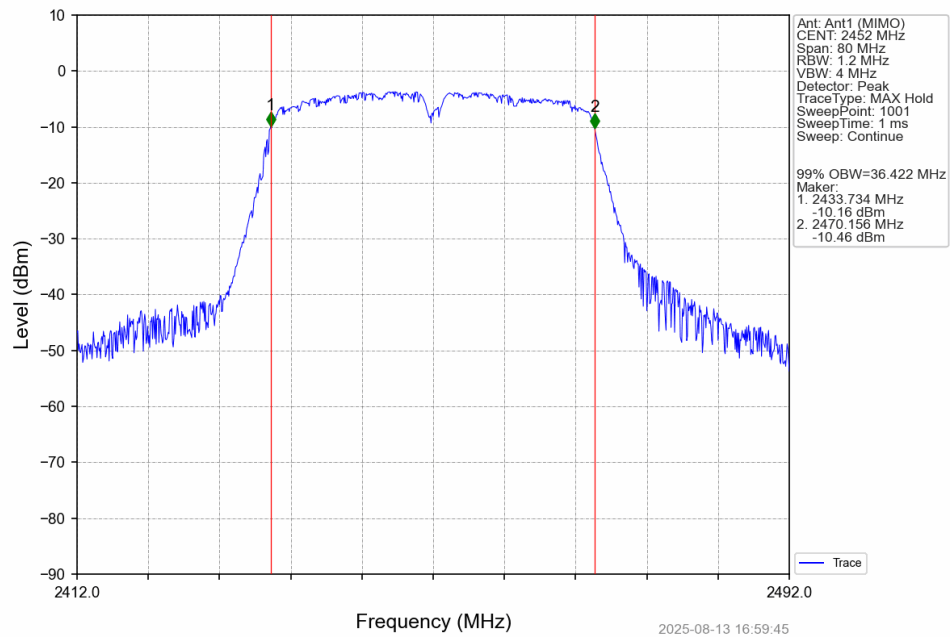
802.11n(HT40) MCH 2437MHz Ant1 (MIMO) NTN



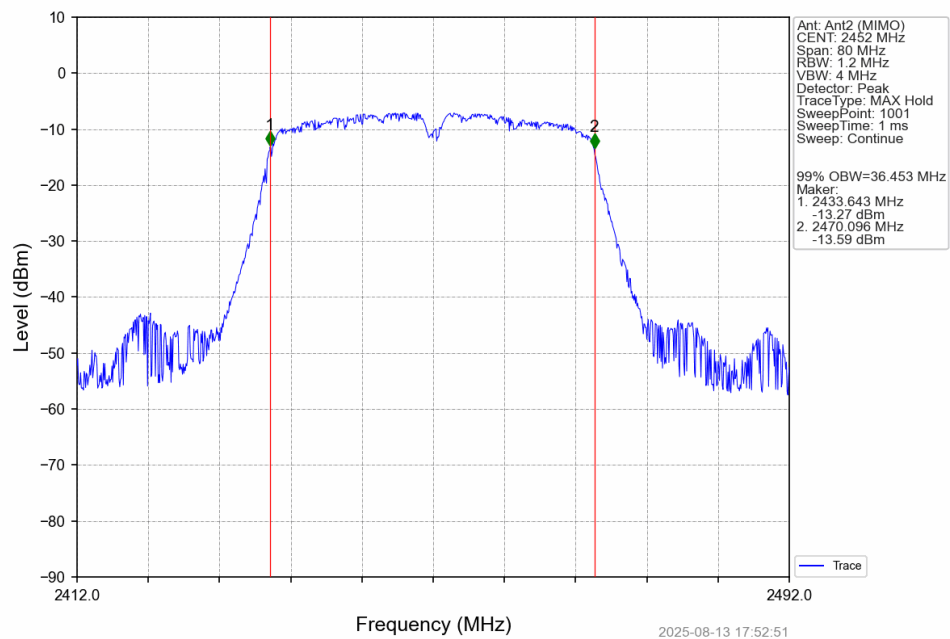
802.11n(HT40) MCH 2437MHz Ant2 (MIMO) NTN



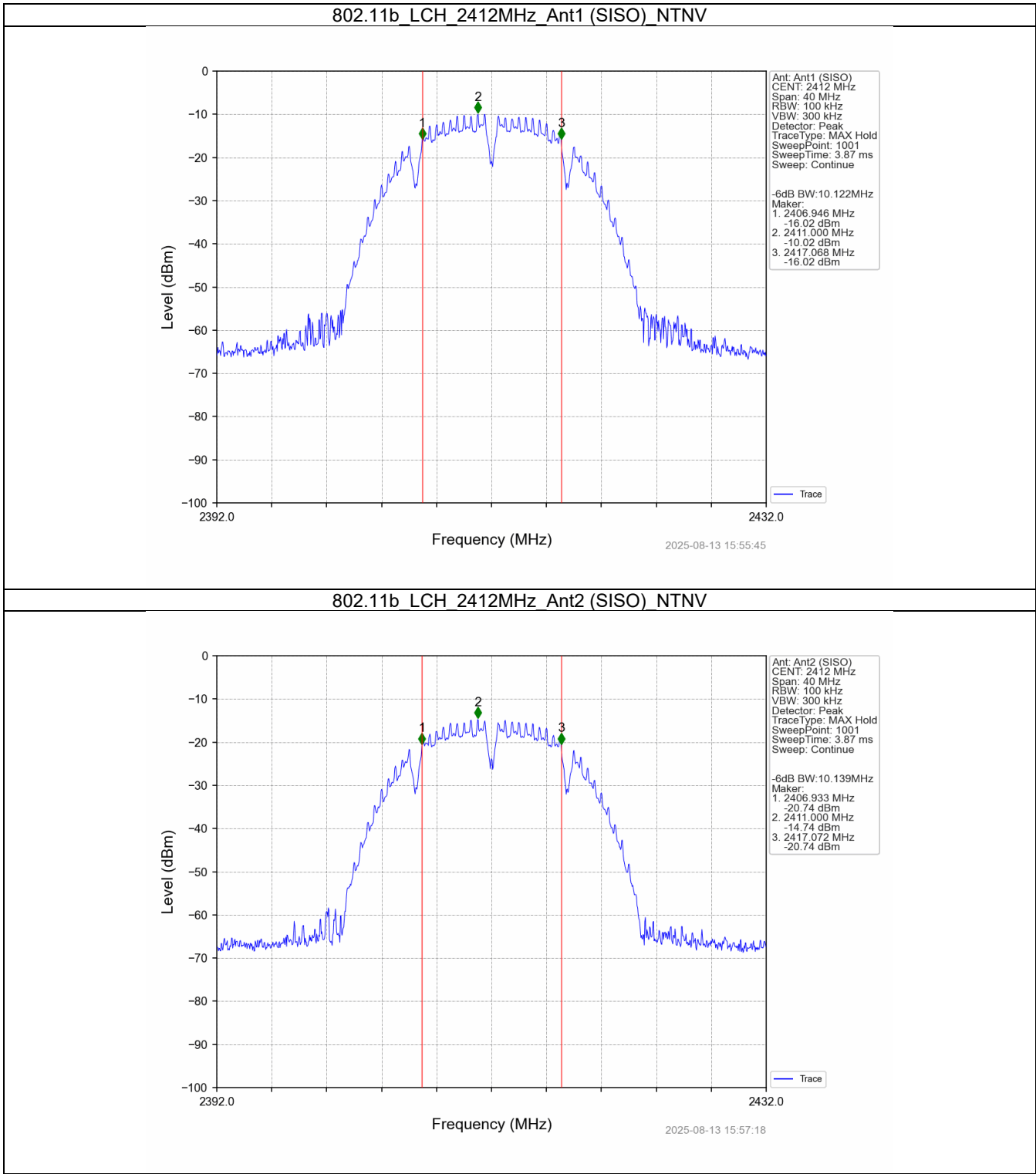
802.11n(HT40) HCH 2452MHz Ant1 (MIMO) NTNV



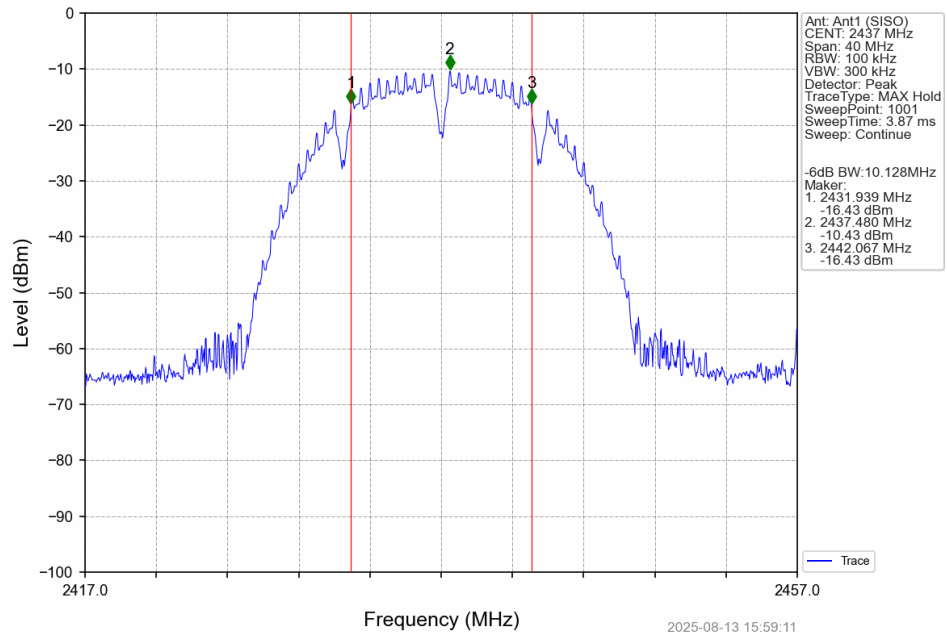
802.11n(HT40) HCH 2452MHz Ant2 (MIMO) NTNV



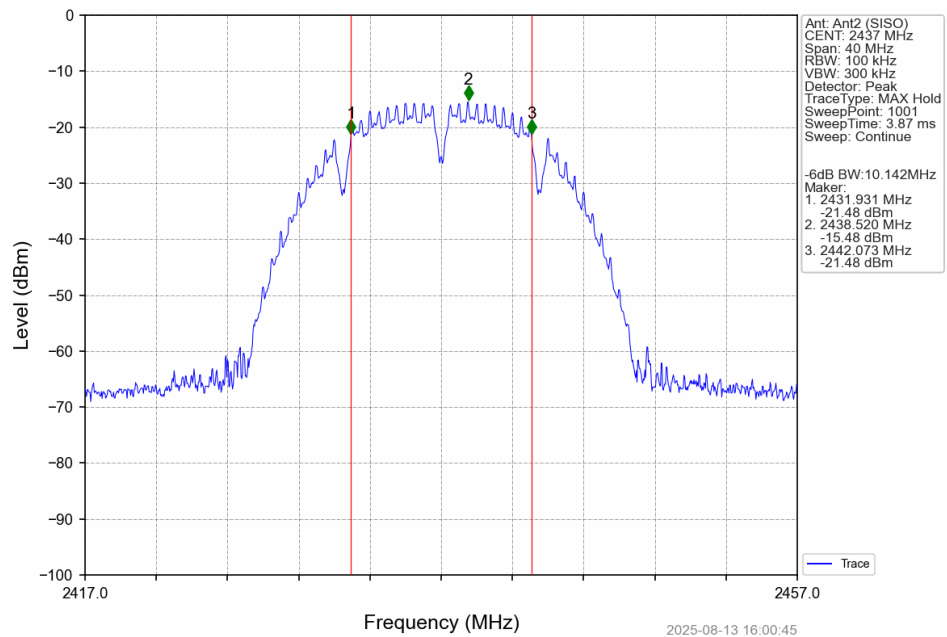
2.2.2 6dB BW



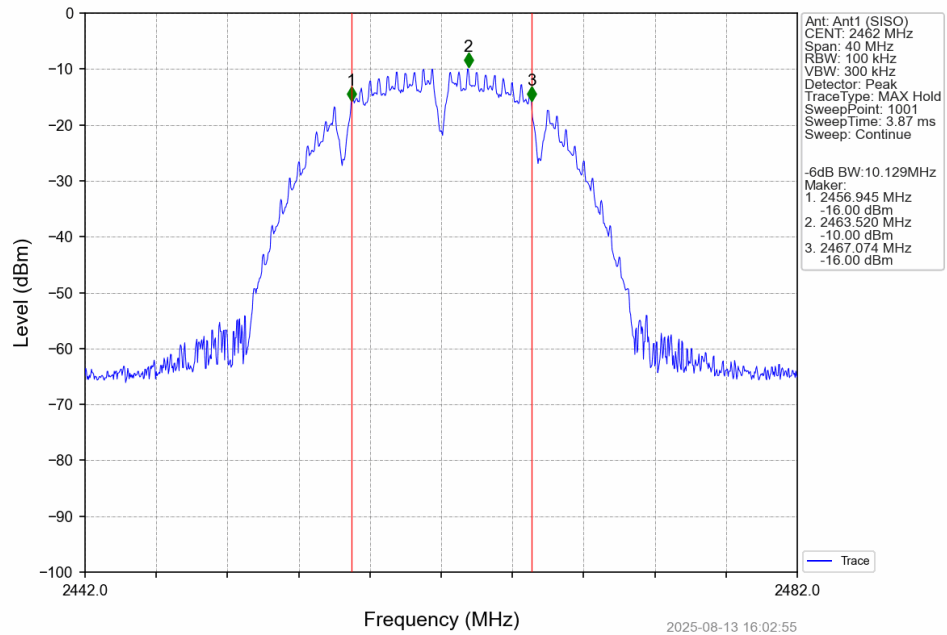
802.11b MCH 2437MHz Ant1 (SISO) NTN



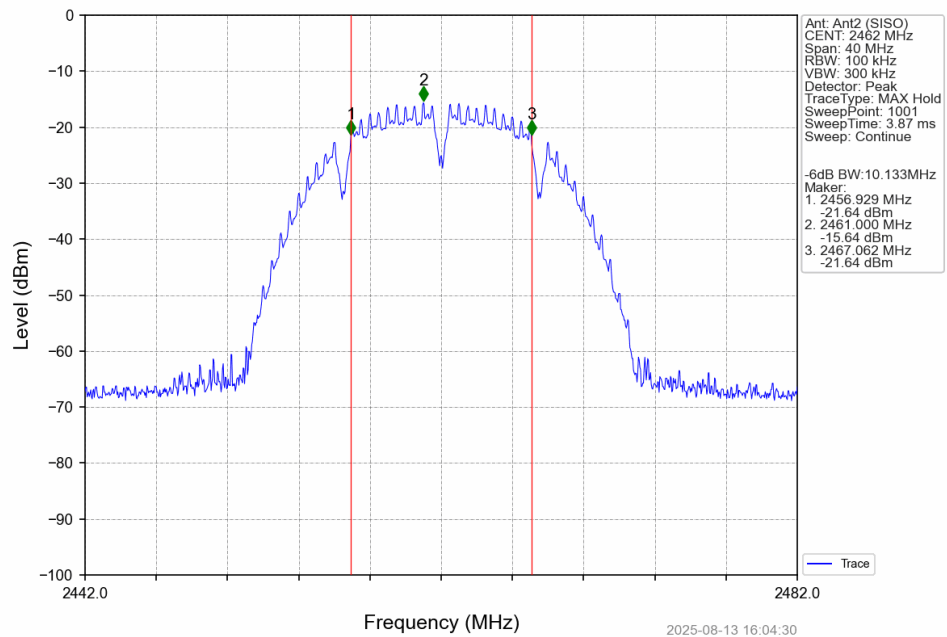
802.11b_MCH_2437MHz_Ant2 (SISO)_NTNV



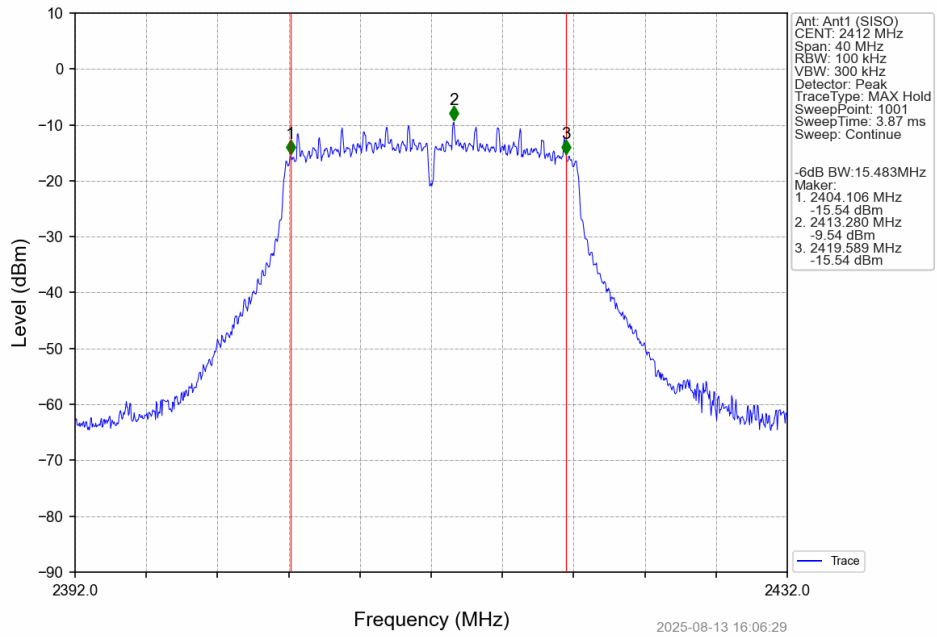
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



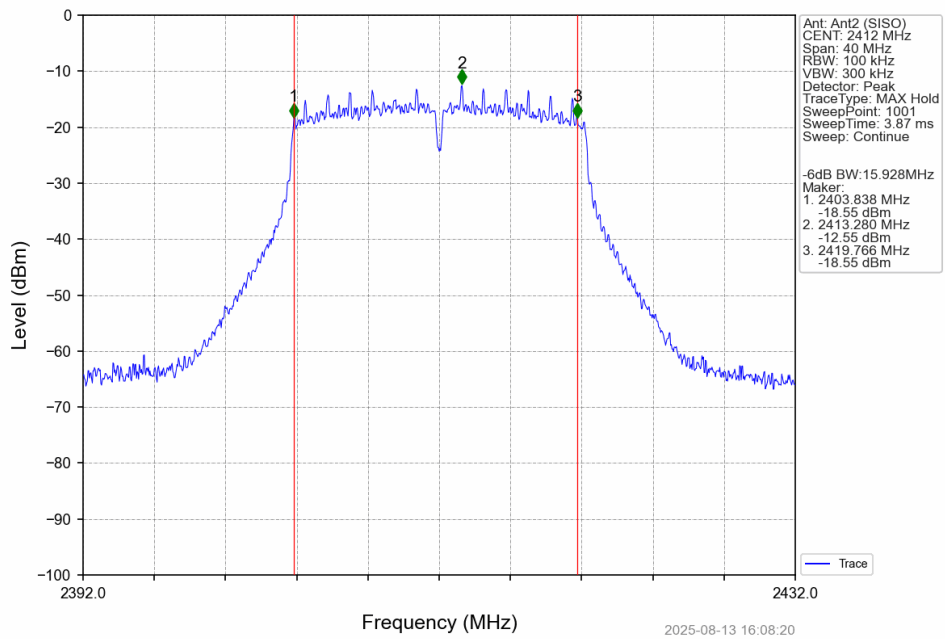
802.11b_HCH_2462MHz_Ant2 (SISO)_NTNV



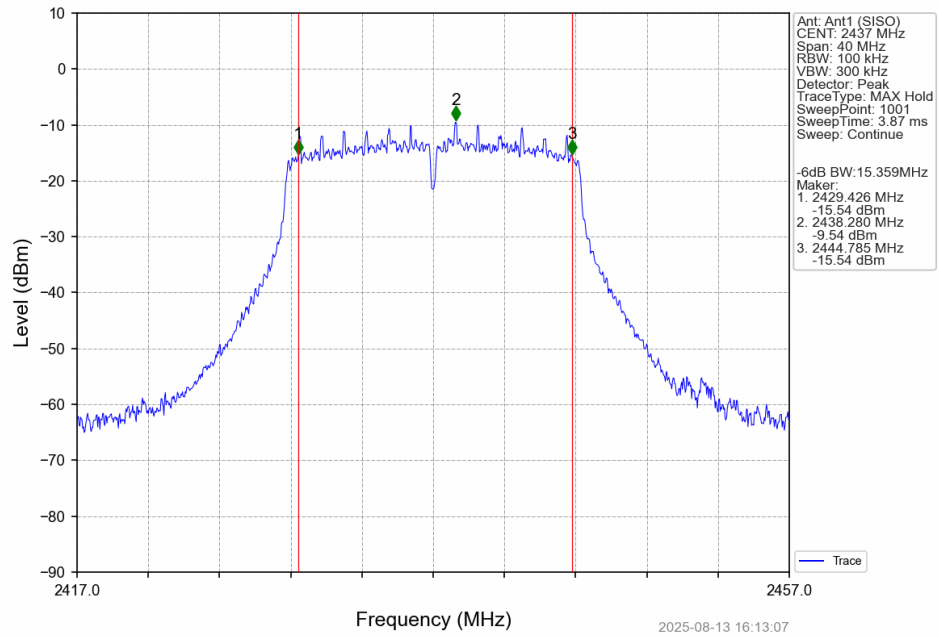
802.11g LCH 2412MHz Ant1 (SISO) NTN



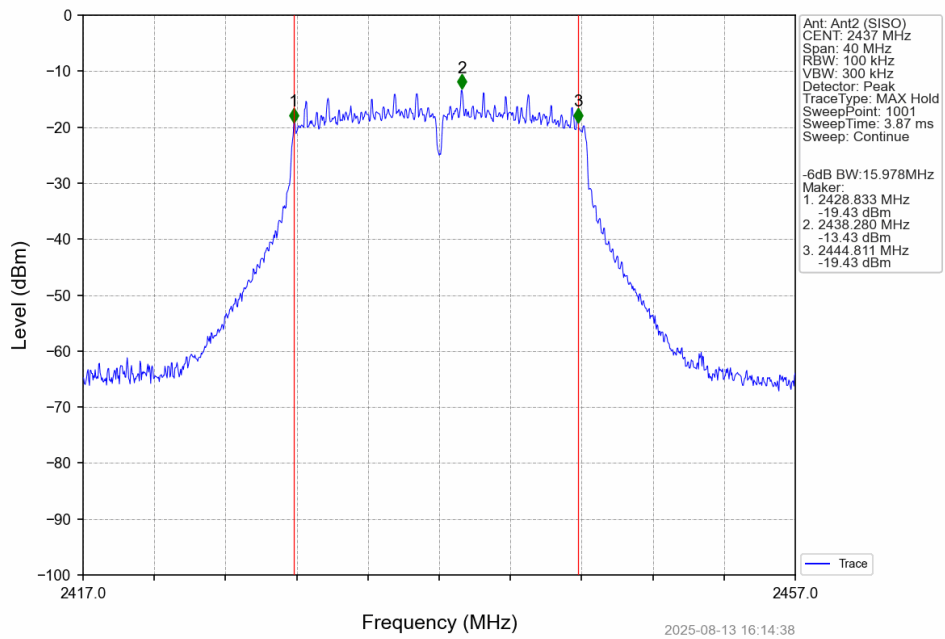
802.11g LCH 2412MHz Ant2 (SISO) NTN



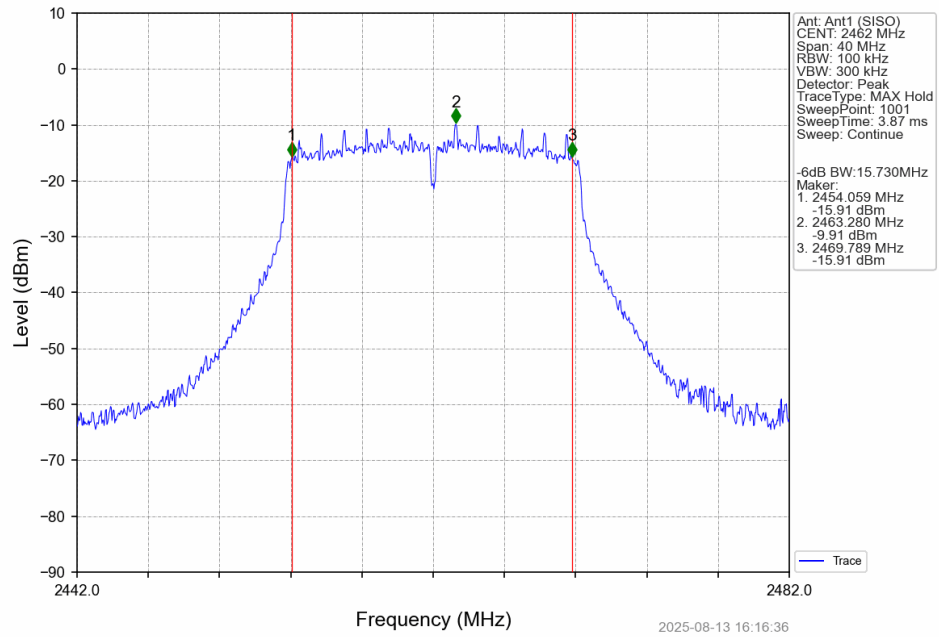
802.11g MCH 2437MHz Ant1 (SISO) NTN



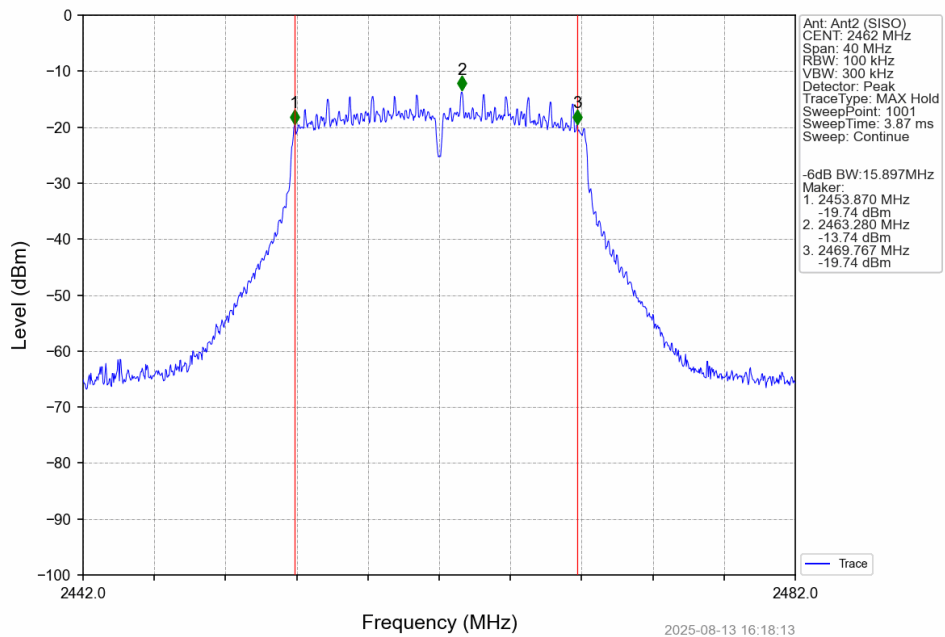
802.11g MCH 2437MHz Ant2 (SISO) NTN



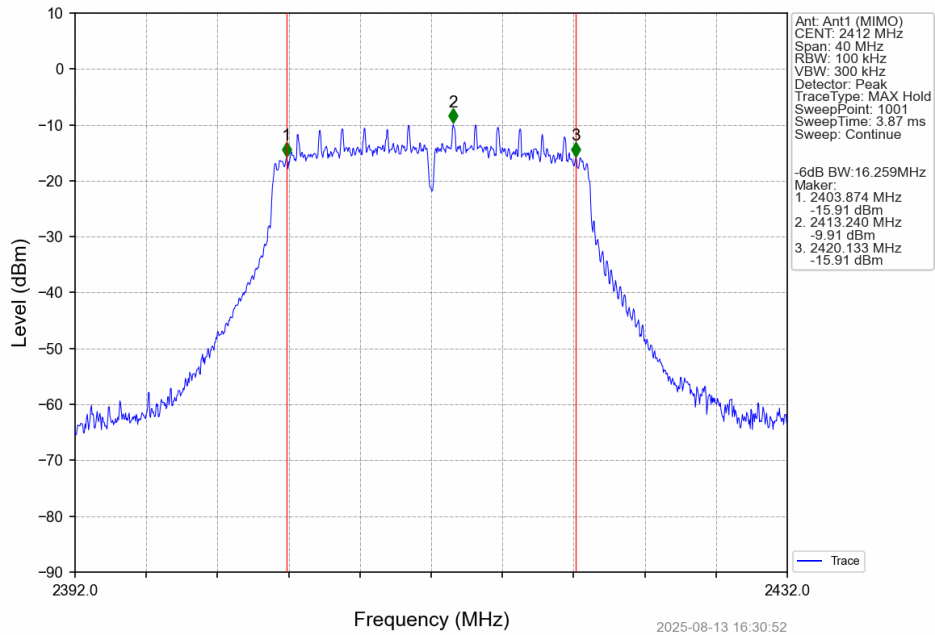
802.11g HCH 2462MHz Ant1 (SISO) NTN



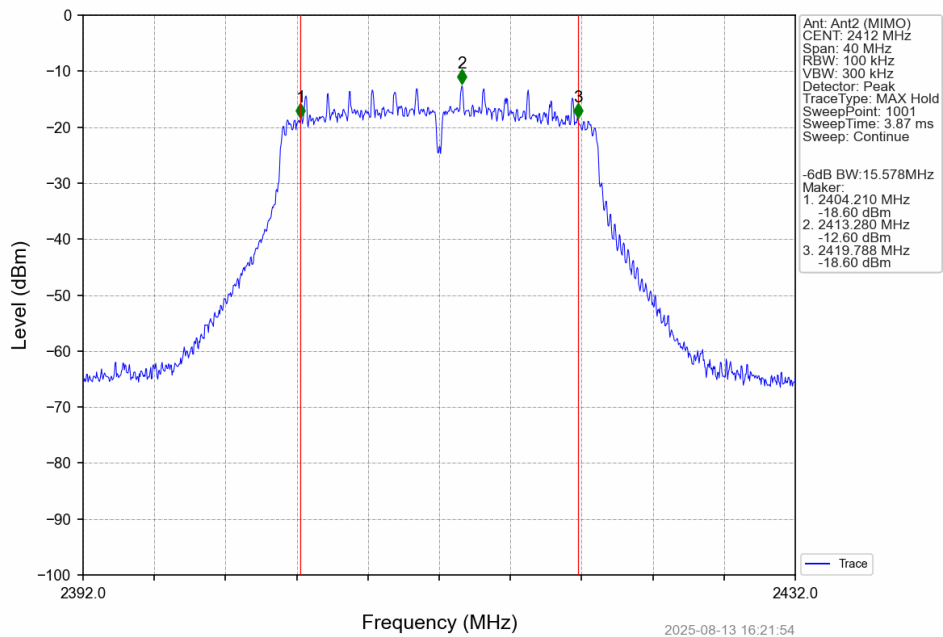
802.11g HCH 2462MHz Ant2 (SISO) NTN



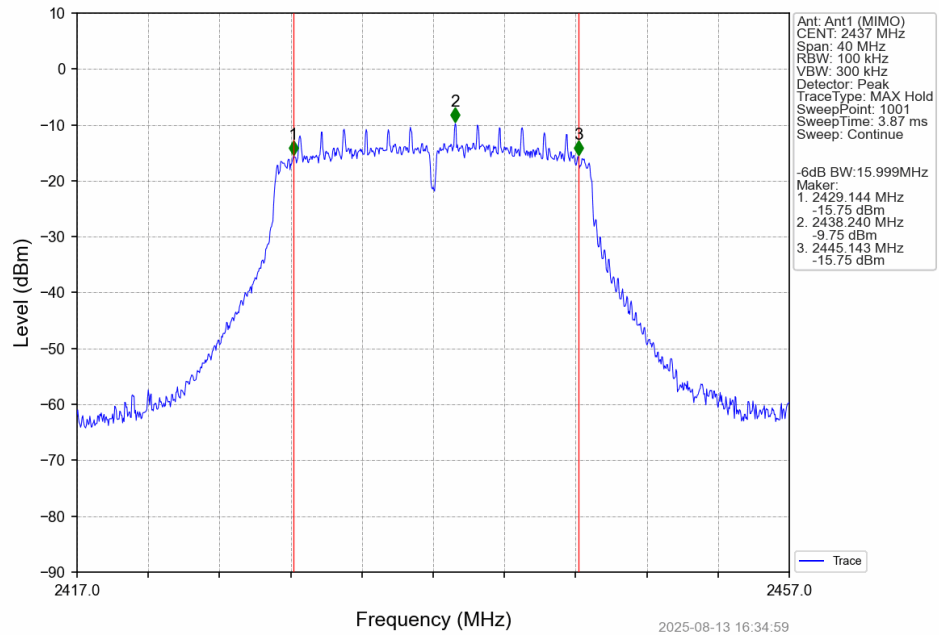
802.11n(HT20) LCH 2412MHz Ant1 (MIMO) NTN



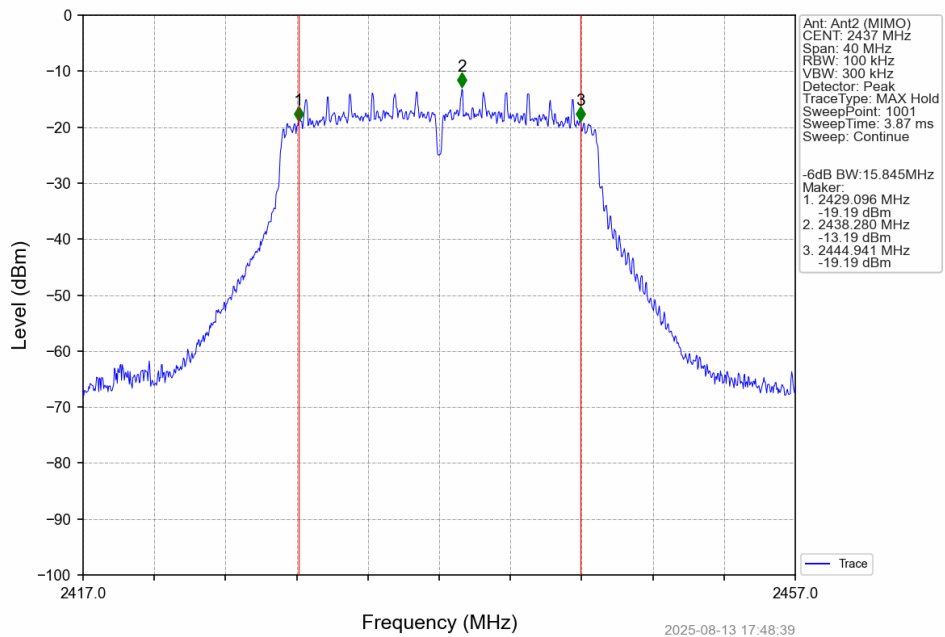
802.11n(HT20) LCH 2412MHz Ant2 (MIMO) NTN



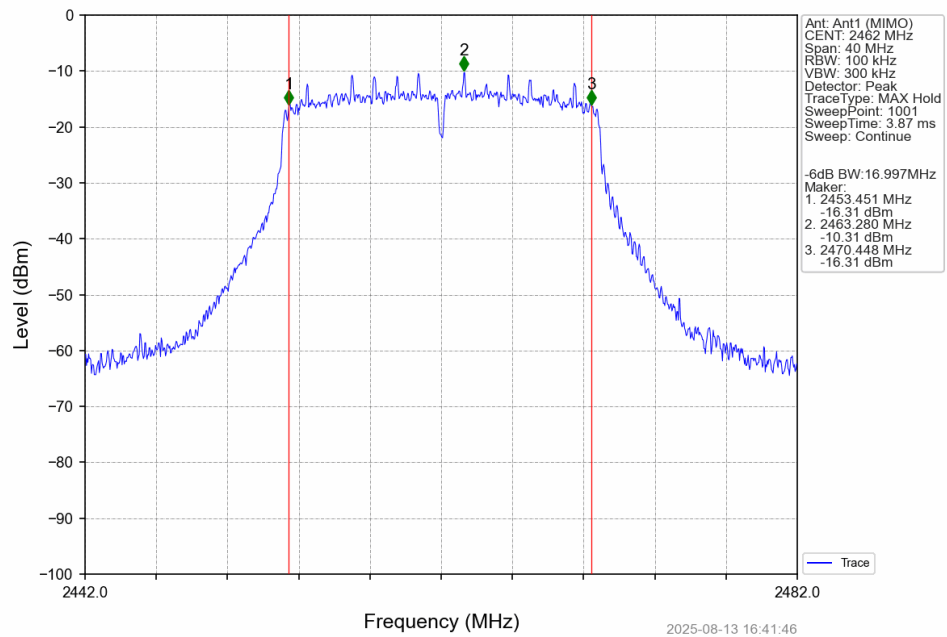
802.11n(HT20) MCH 2437MHz Ant1 (MIMO) NTNV



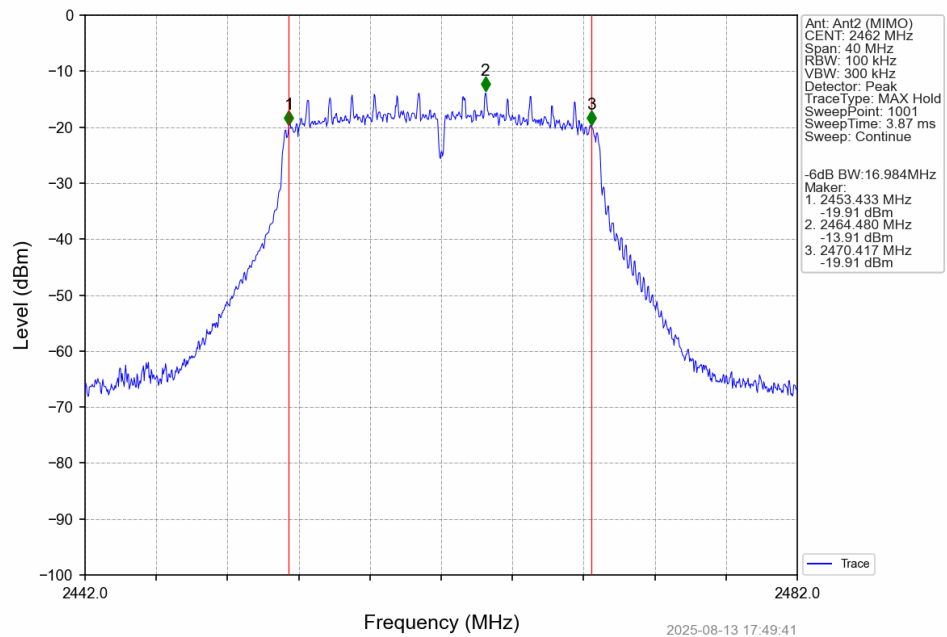
802.11n(HT20) MCH 2437MHz Ant2 (MIMO) NTNV



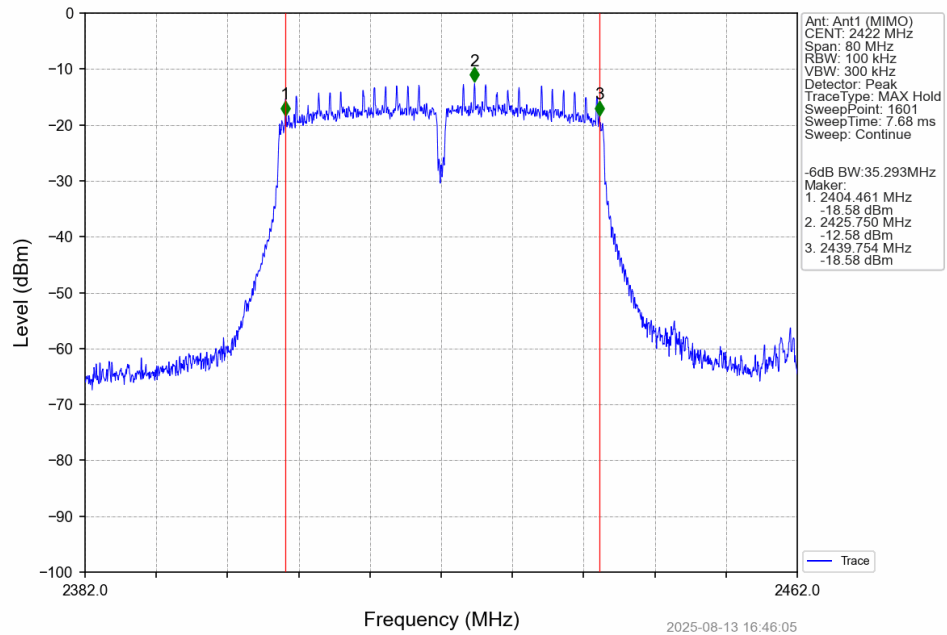
802.11n(HT20) HCH 2462MHz Ant1 (MIMO) NTN



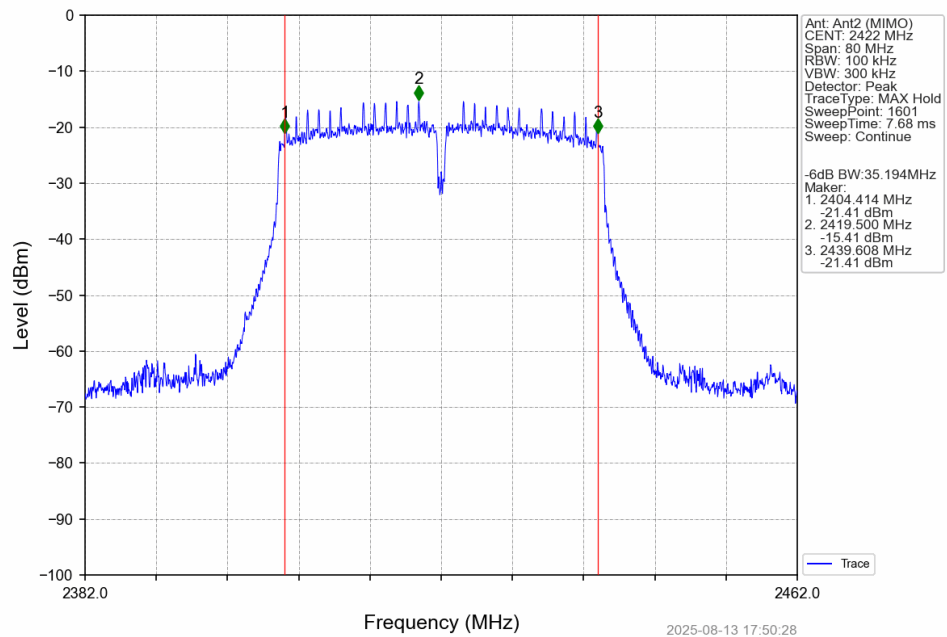
802.11n(HT20) HCH 2462MHz Ant2 (MIMO) NTN



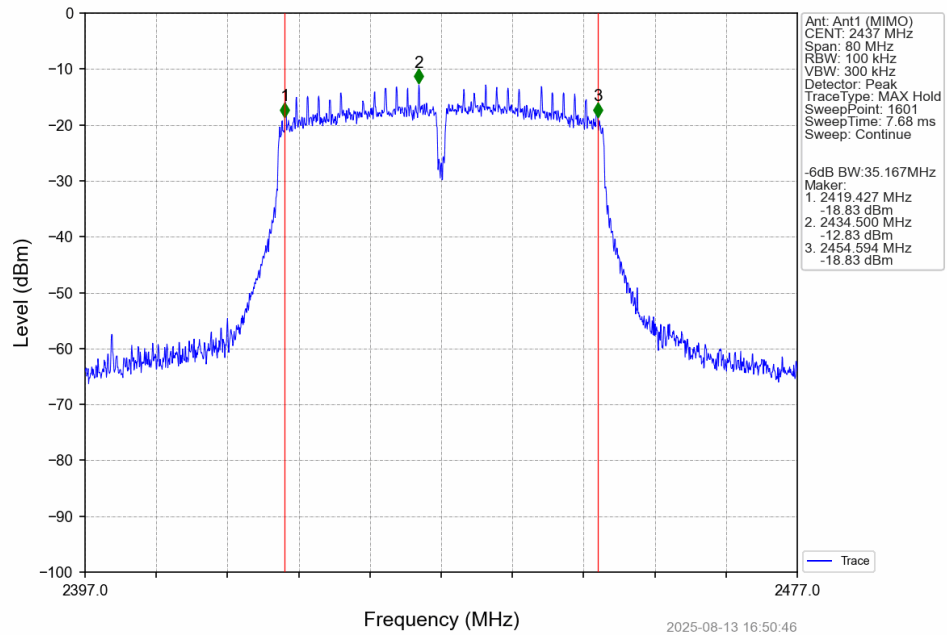
802.11n(HT40) LCH 2422MHz Ant1 (MIMO) NTN



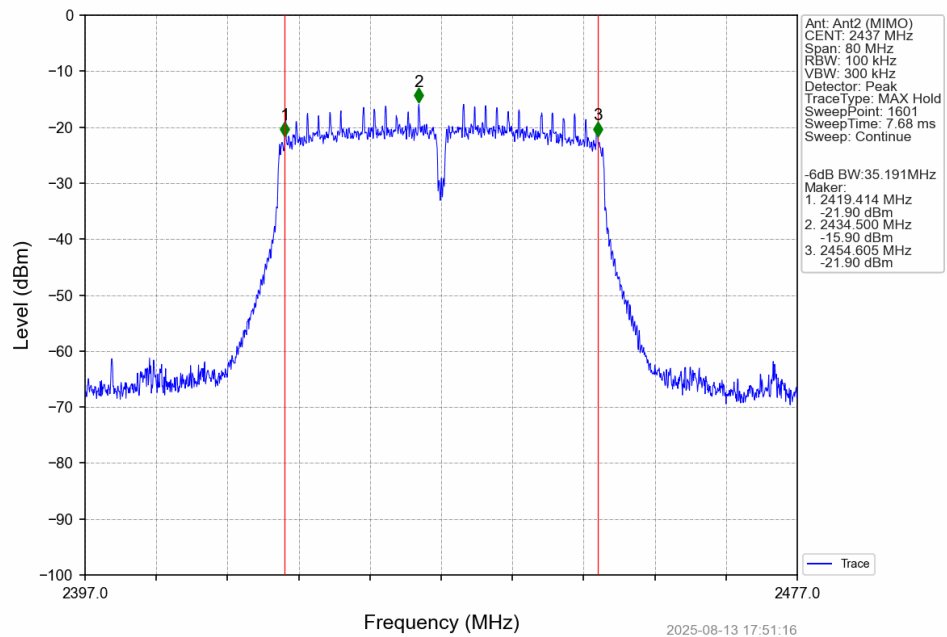
802.11n(HT40) LCH 2422MHz Ant2 (MIMO) NTN



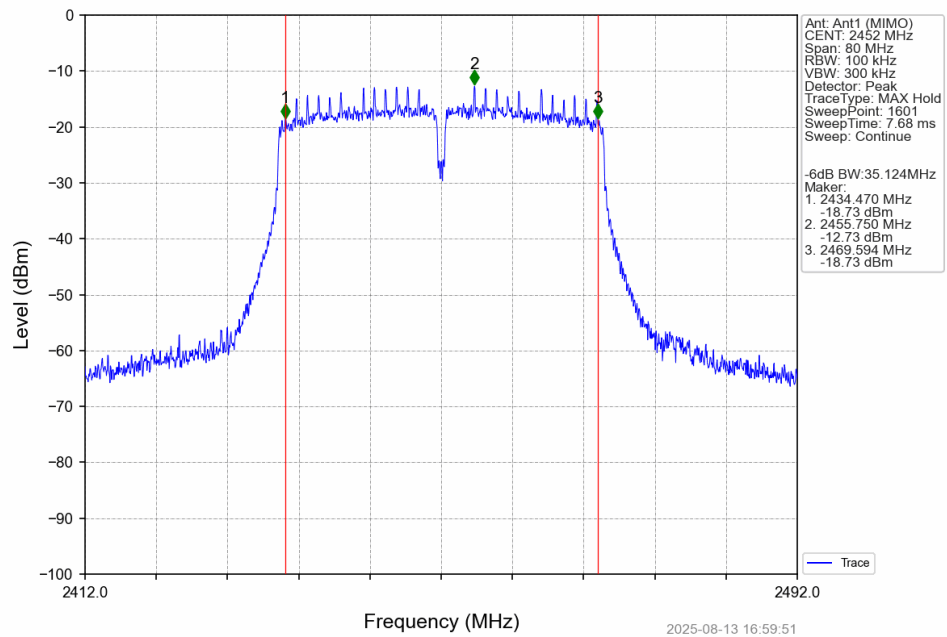
802.11n(HT40) MCH 2437MHz Ant1 (MIMO) NTN



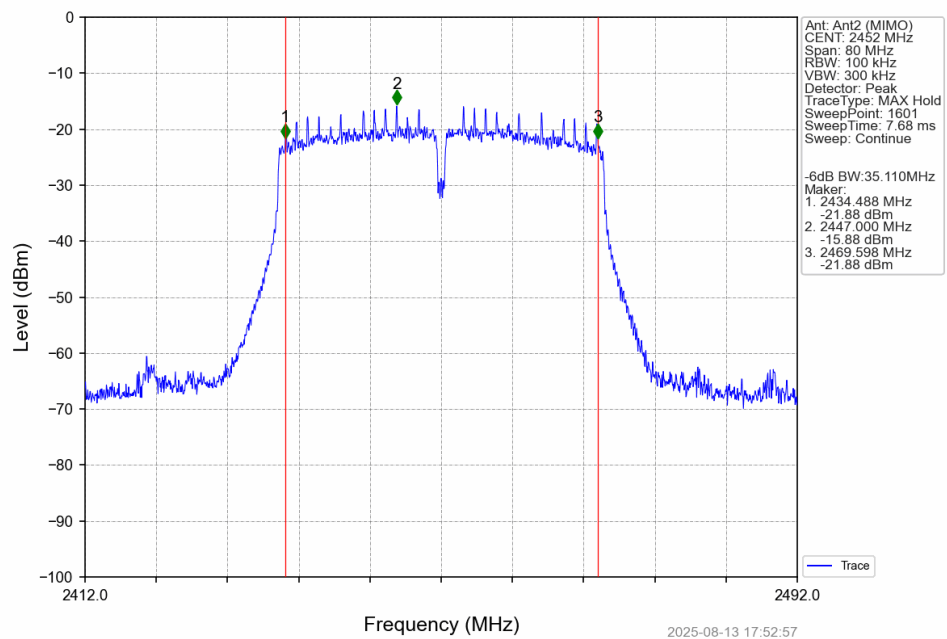
802.11n(HT40) MCH 2437MHz Ant2 (MIMO) NTN



802.11n(HT40) HCH 2452MHz Ant1 (MIMO) NTN



802.11n(HT40) HCH 2452MHz Ant2 (MIMO) NTN



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	ANT2	MIMO	Limit	
802.11b	SISO	2412	4.83	4.76	/	<=30	Pass
		2437	4.47	4.29	/	<=30	Pass
		2462	4.96	4.67	/	<=30	Pass
802.11g	SISO	2412	3.73	3.16	/	<=30	Pass
		2437	3.59	3.44	/	<=30	Pass
		2462	3.60	3.13	/	<=30	Pass
802.11n (HT20)	MIMO	2412	3.48	3.41	6.46	<=29.16	Pass
		2437	3.35	3.68	6.53	<=29.16	Pass
		2462	3.45	3.55	6.51	<=29.16	Pass
802.11n (HT40)	MIMO	2422	2.86	2.68	5.78	<=29.16	Pass
		2437	2.67	2.20	5.45	<=29.16	Pass
		2452	2.80	2.06	5.46	<=29.16	Pass
Note1: Antenna Gain: Ant1: 4.27dBi; Ant2: 3.33dBi; Note2: Directional Gain: 6.84dBi							

4. Maximum Power Spectral Density

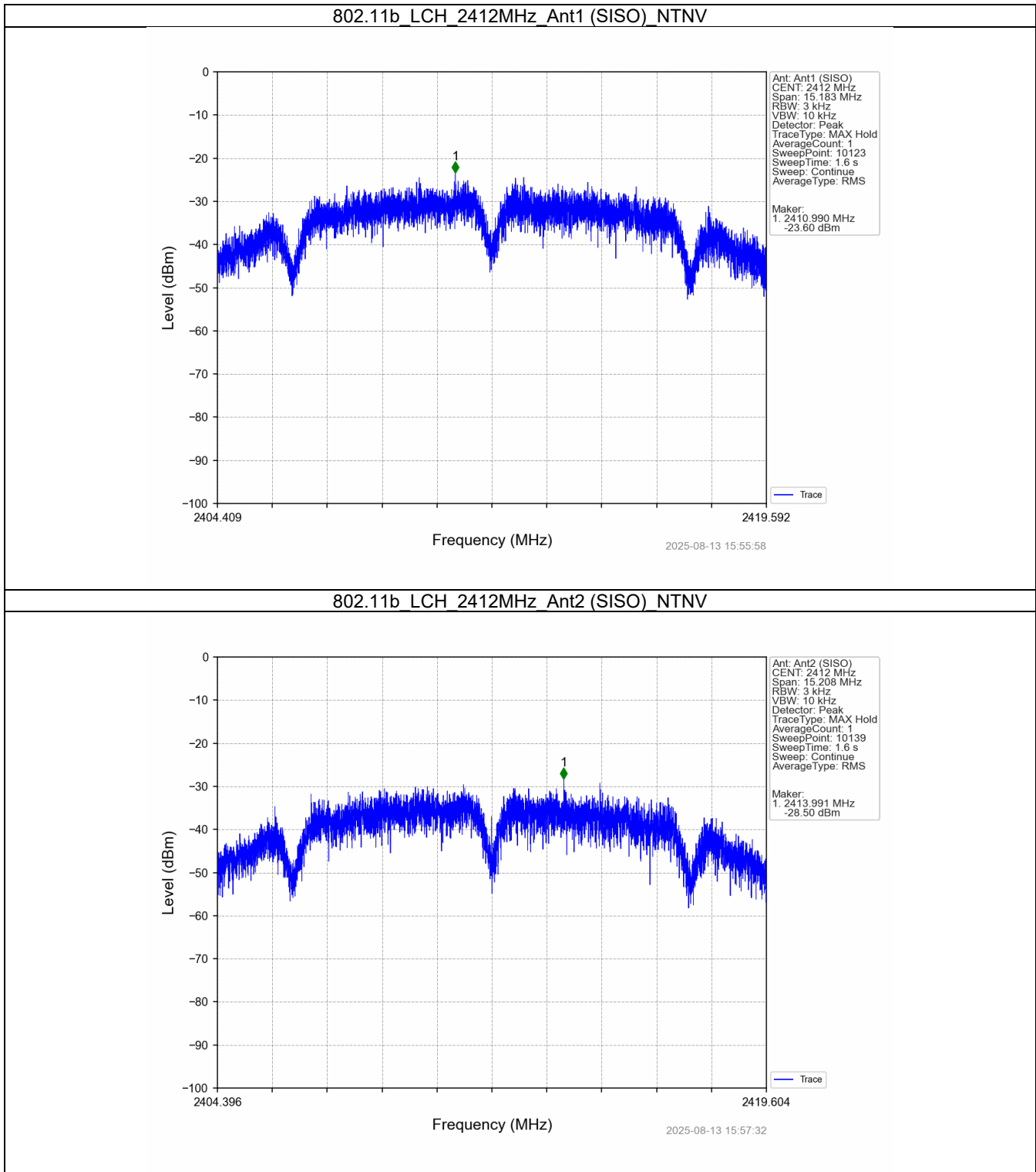
4.1 Test Result

4.1.1 PSD

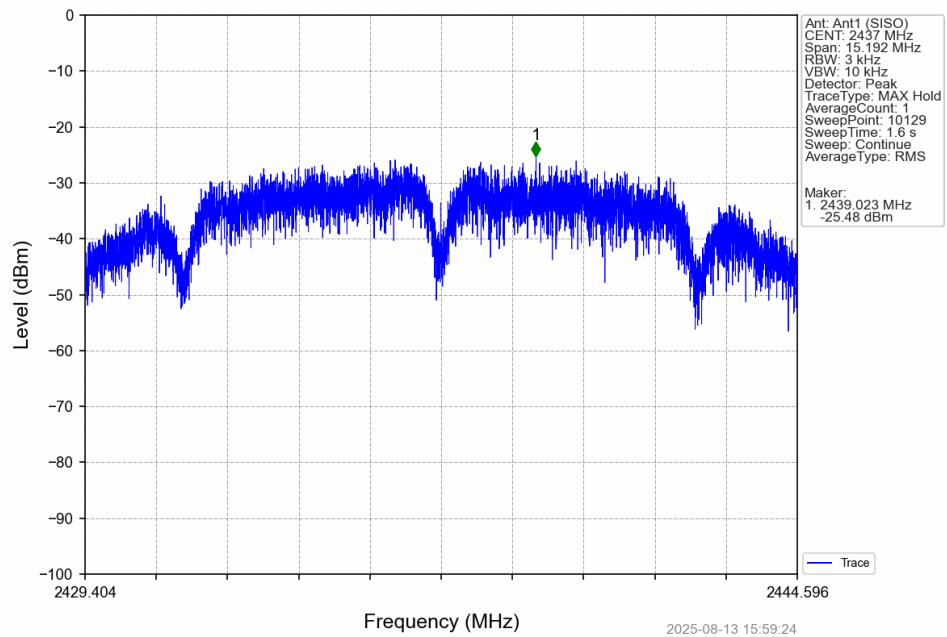
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)				Verdict
			ANT1	ANT2	MIMO	Limit	
802.11b	SISO	2412	-23.60	-28.50	/	<=8	Pass
		2437	-25.48	-28.61	/	<=8	Pass
		2462	-23.61	-30.36	/	<=8	Pass
802.11g	SISO	2412	-24.68	-26.91	/	<=8	Pass
		2437	-24.58	-27.80	/	<=8	Pass
		2462	-24.65	-29.29	/	<=8	Pass
802.11n (HT20)	MIMO	2412	-24.83	-26.72	-23.70	<=7.16	Pass
		2437	-24.37	-28.11	-23.66	<=7.16	Pass
		2462	-24.72	-28.17	-23.23	<=7.16	Pass
802.11n (HT40)	MIMO	2422	-26.72	-29.65	-25.39	<=7.16	Pass
		2437	-26.62	-30.02	-24.98	<=7.16	Pass
		2452	-27.21	-30.67	-25.59	<=7.16	Pass
Note1: Antenna Gain: Ant1: 4.27dBi; Ant2: 3.33dBi; Note2: Directional Gain: 6.84dBi							

4.2 Test Graph

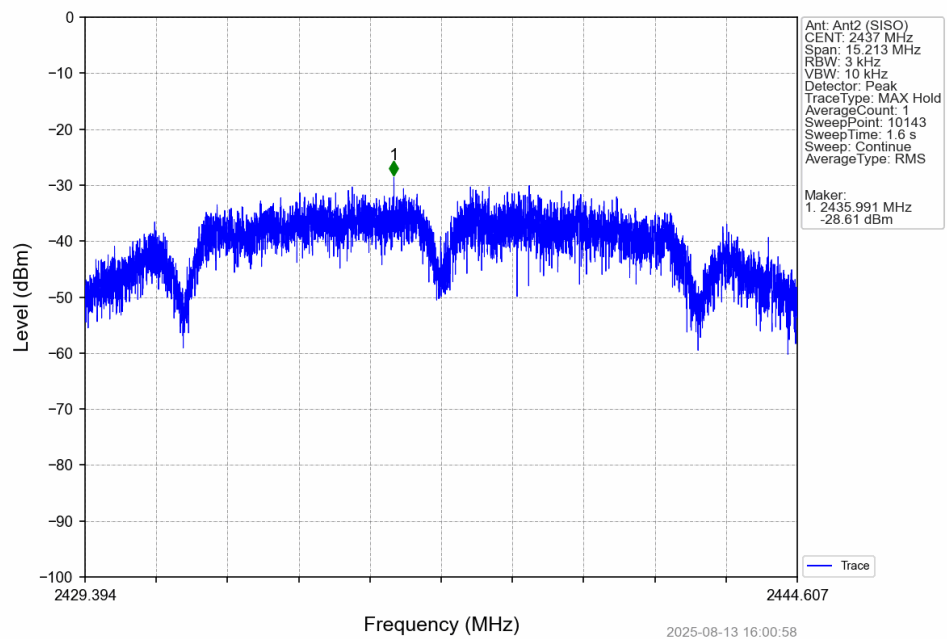
4.2.1 PSD



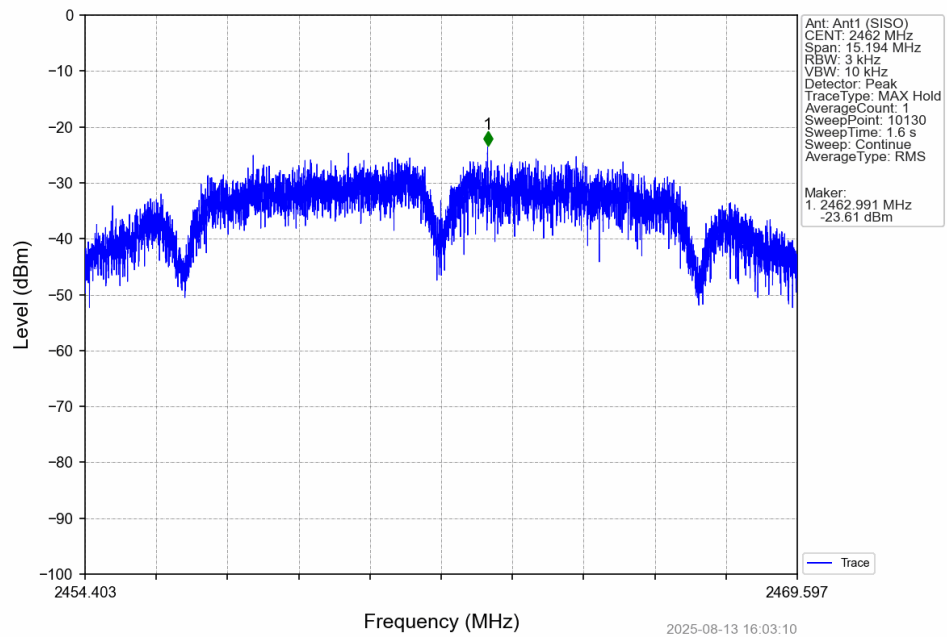
802.11b MCH 2437MHz Ant1 (SISO) NTN



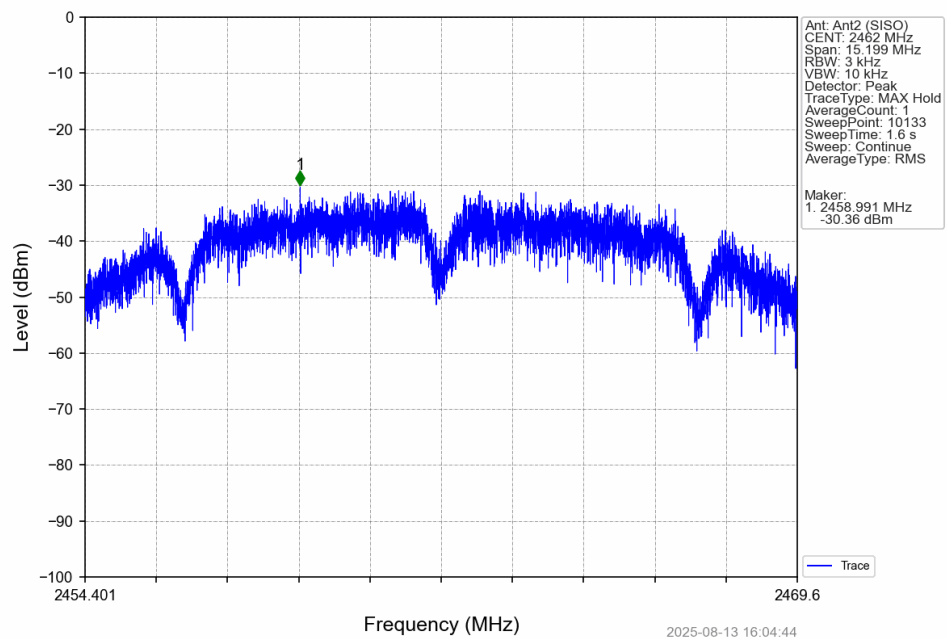
802.11b MCH 2437MHz Ant2 (SISO) NTN



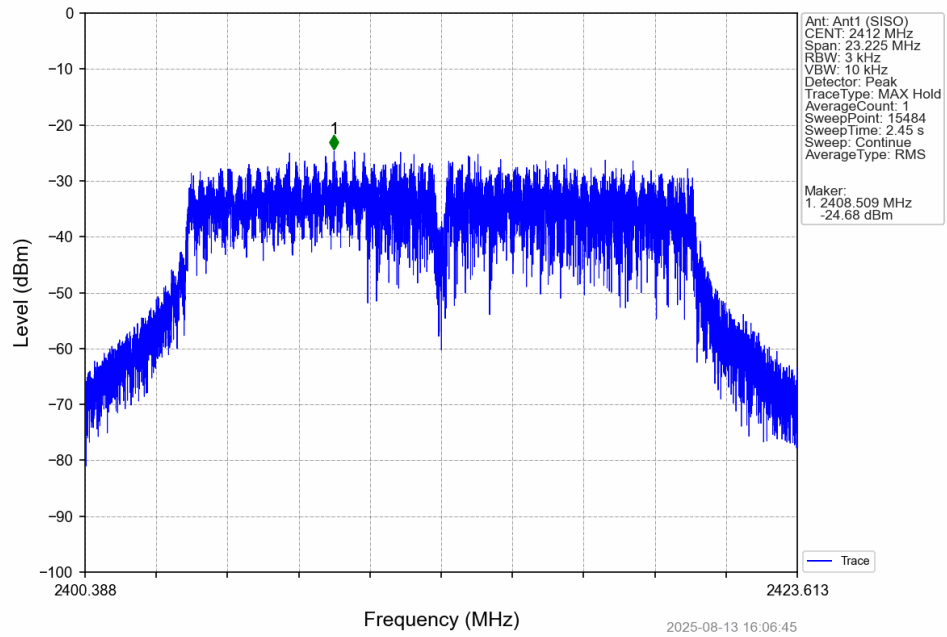
802.11b HCH 2462MHz Ant1 (SISO) NTN



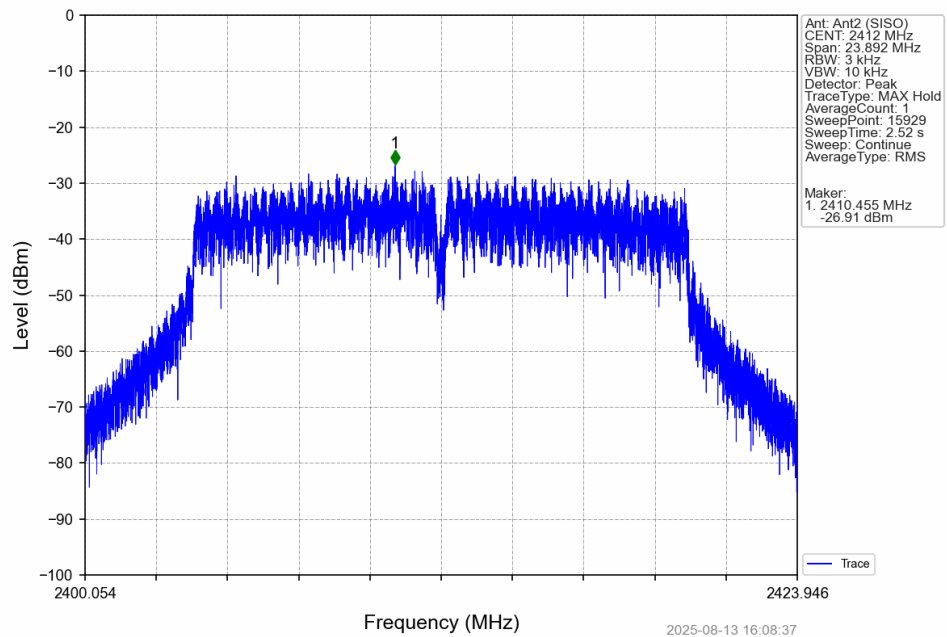
802.11b_HCH_2462MHz_Ant2 (SISO) NTN



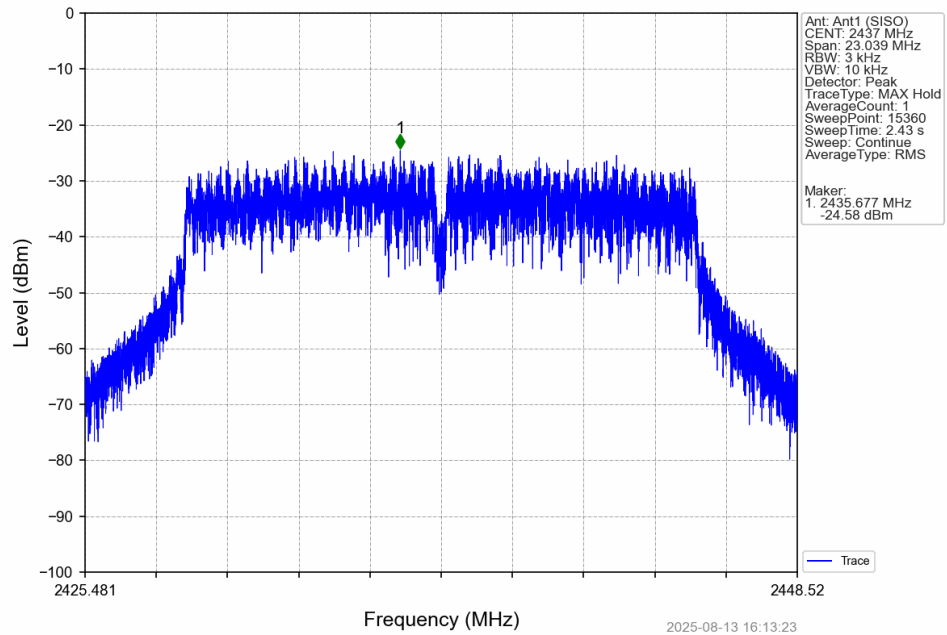
802.11g LCH 2412MHz Ant1 (SISO) NTN



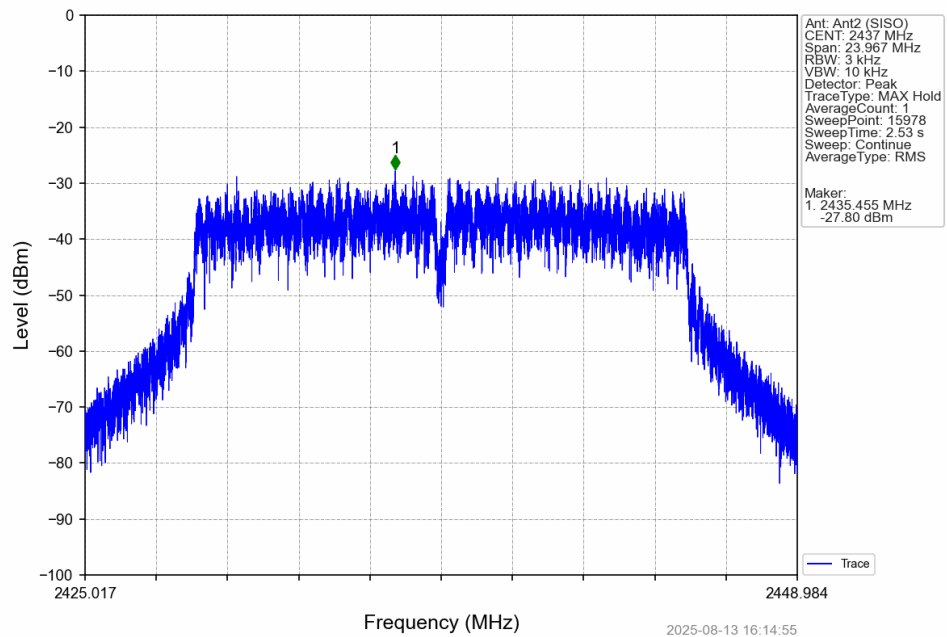
802.11g LCH 2412MHz Ant2 (SISO) NTN



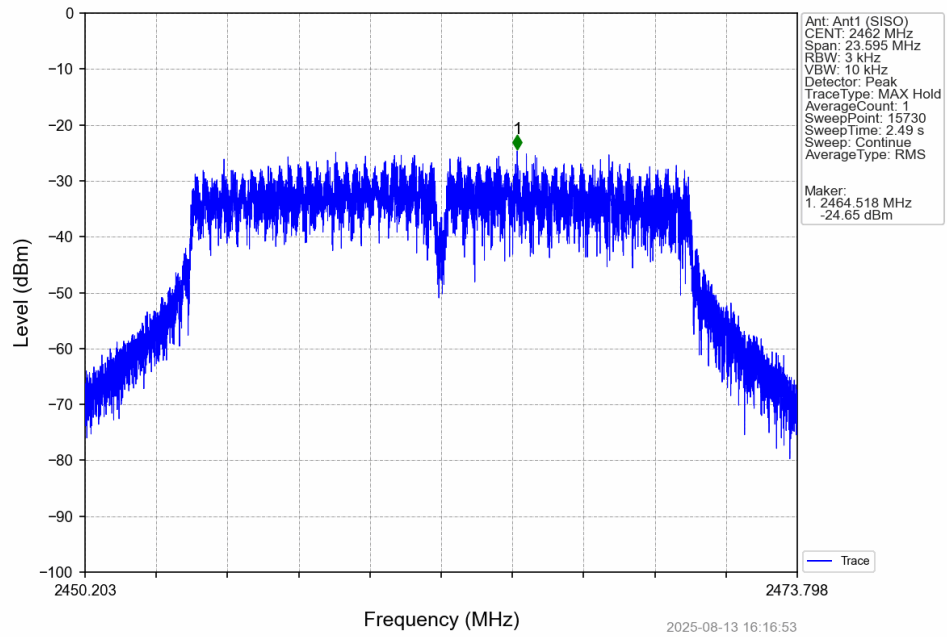
802.11g MCH 2437MHz Ant1 (SISO) NTN



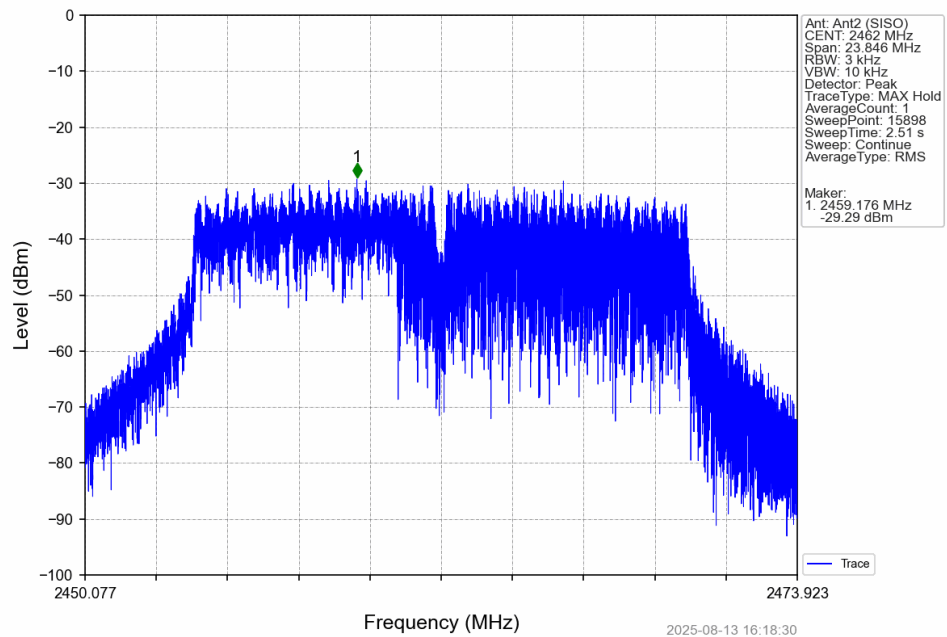
802.11g MCH 2437MHz Ant2 (SISO) NTN



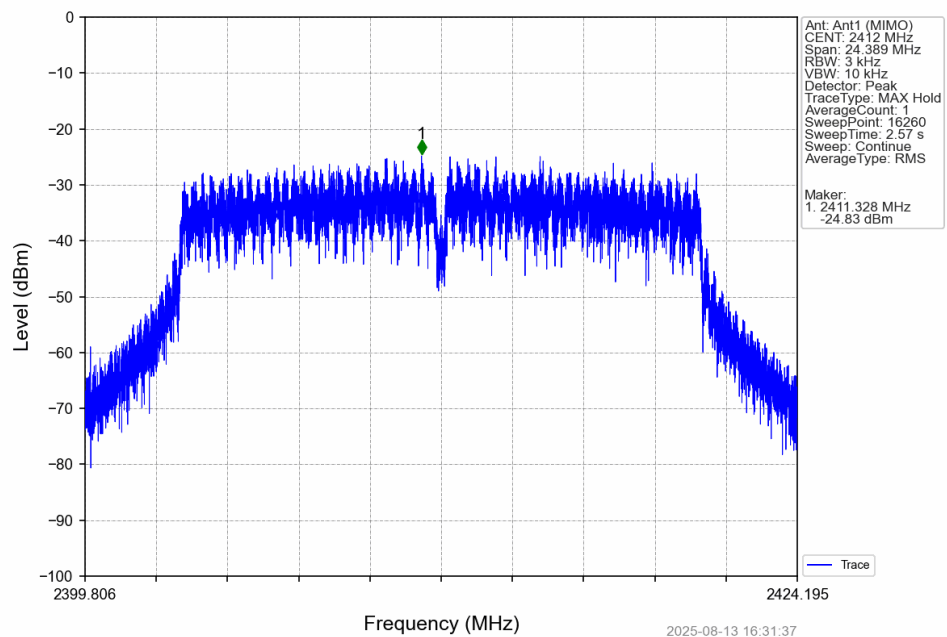
802.11g HCH 2462MHz Ant1 (SISO) NTN



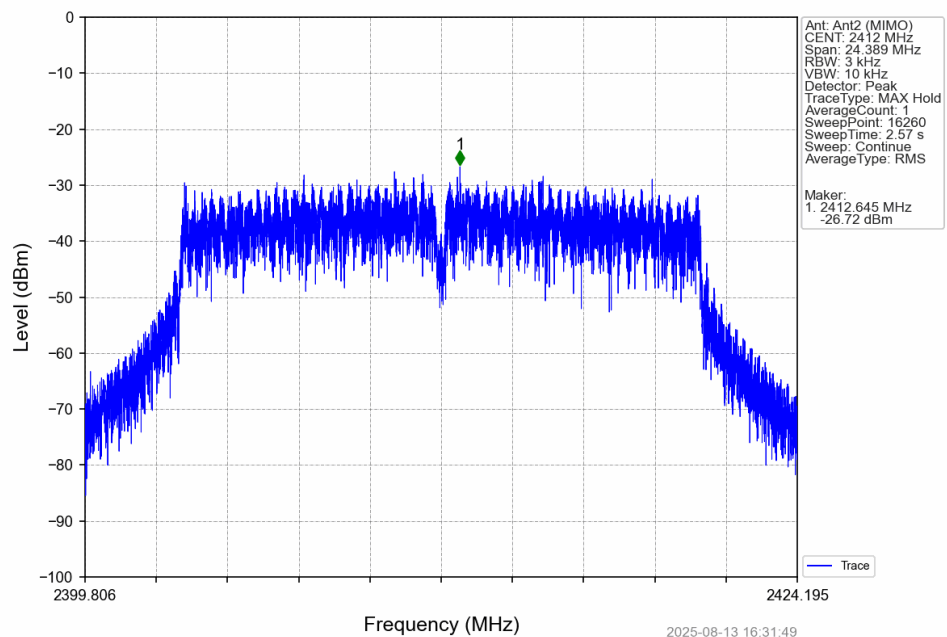
802.11g_HCH_2462MHz_Ant2 (SISO)_NTN



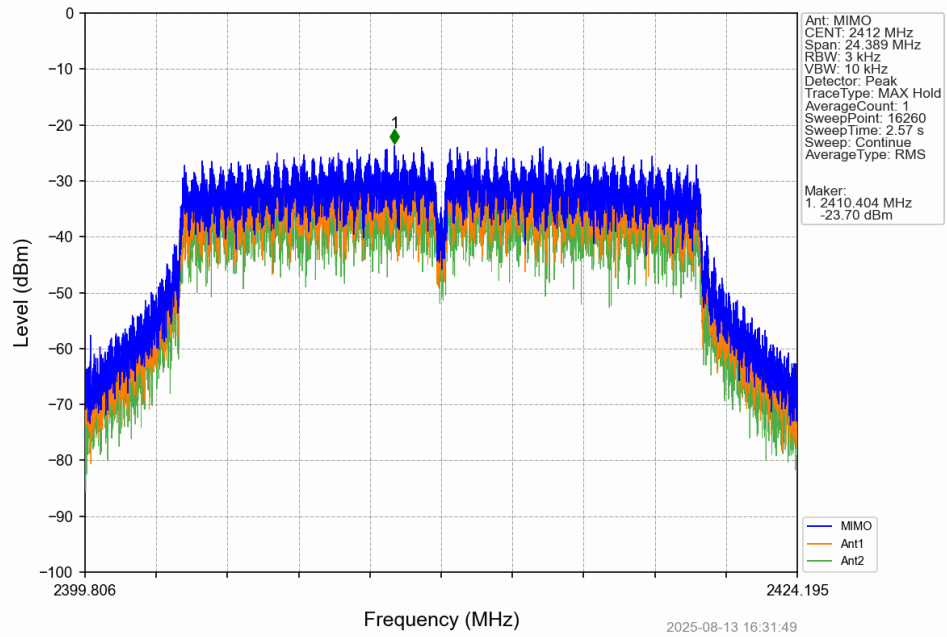
802.11n(HT20) LCH 2412MHz Ant1 (MIMO) NTNV



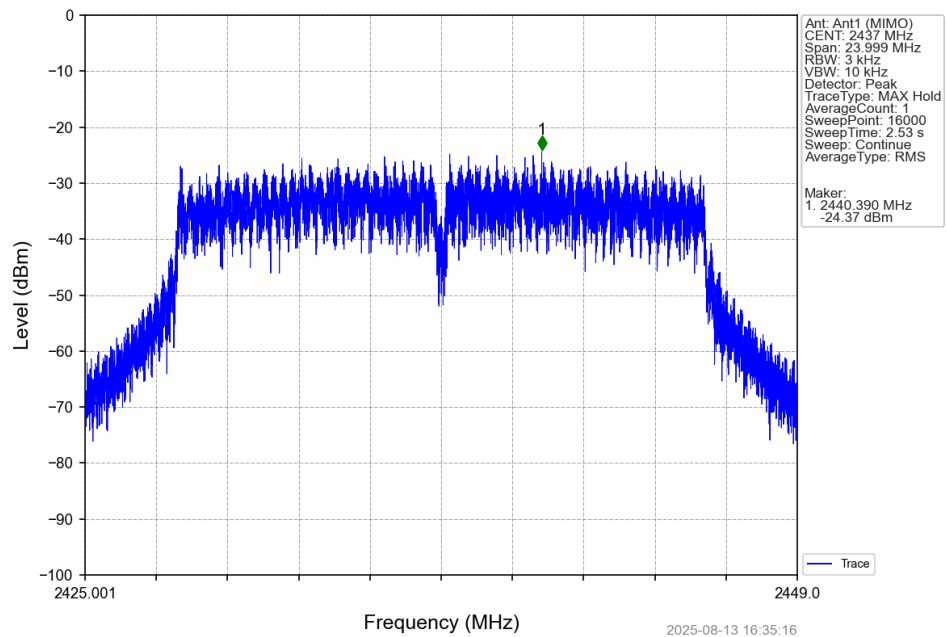
802.11n(HT20) LCH 2412MHz Ant2 (MIMO) NTNV



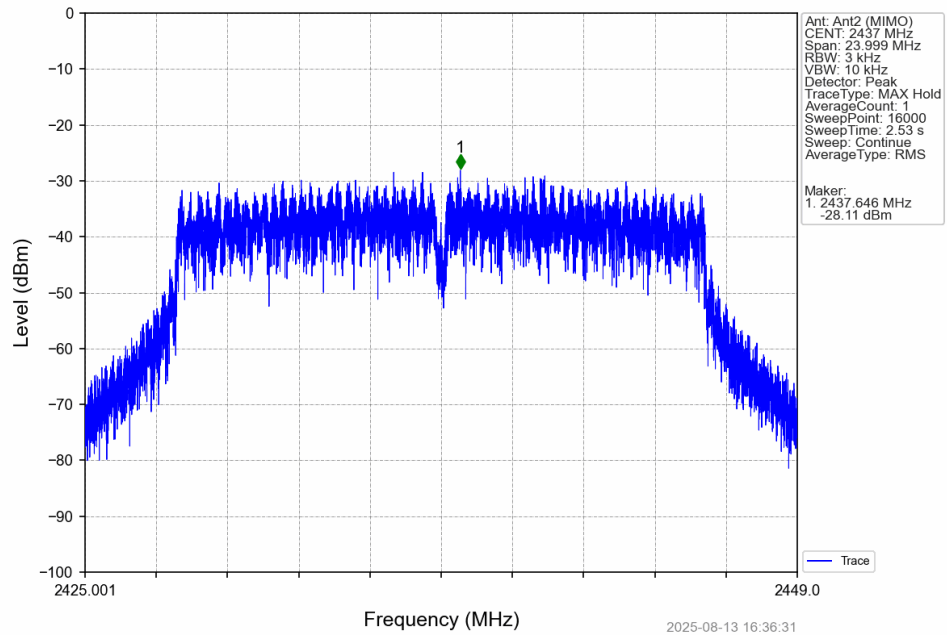
802.11n(HT20) LCH 2412MHz MIMO NTNV



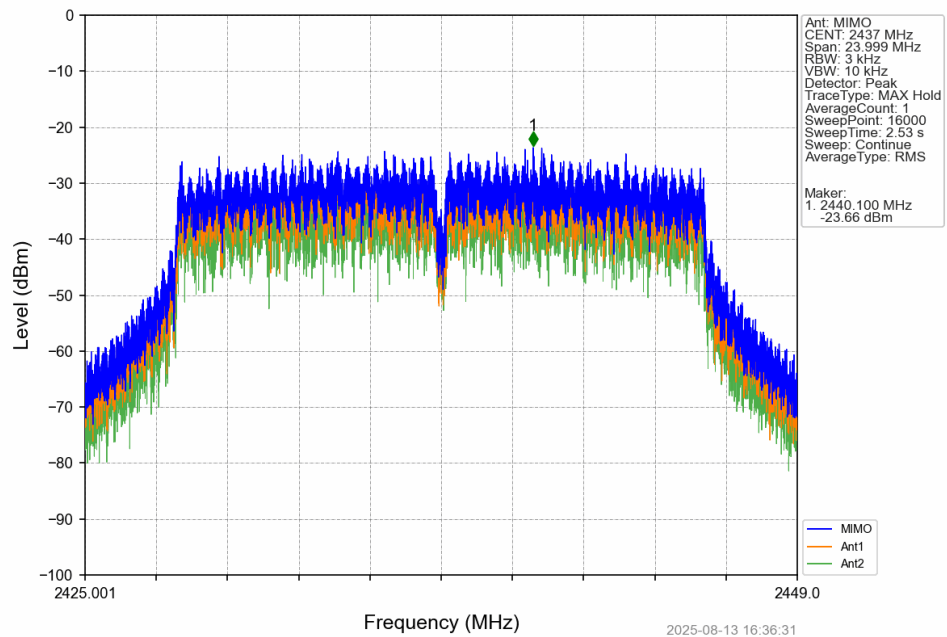
802.11n(HT20) MCH 2437MHz_Ant1 (MIMO)_NTNV



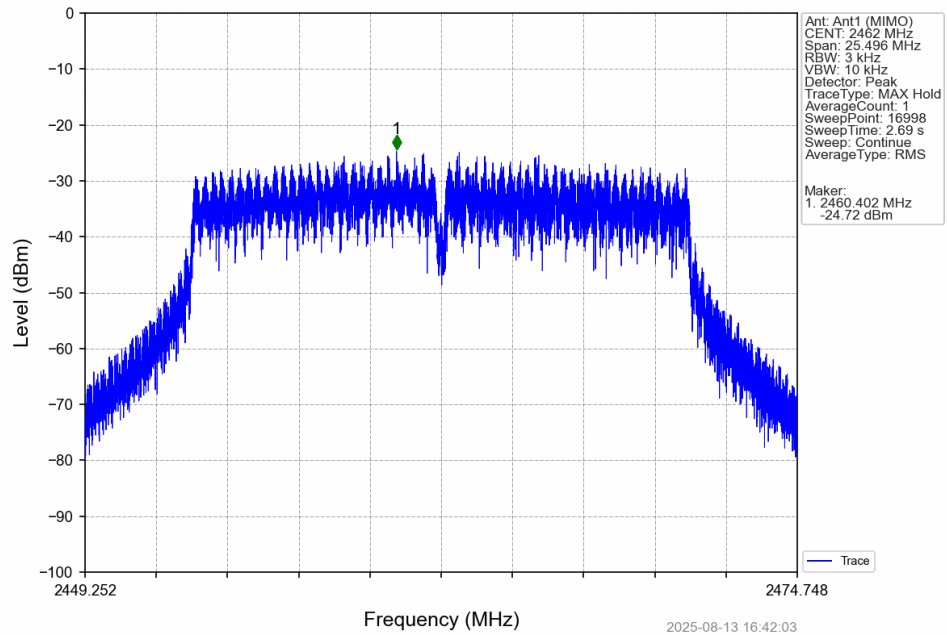
802.11n(HT20) MCH 2437MHz Ant2 (MIMO) NTN



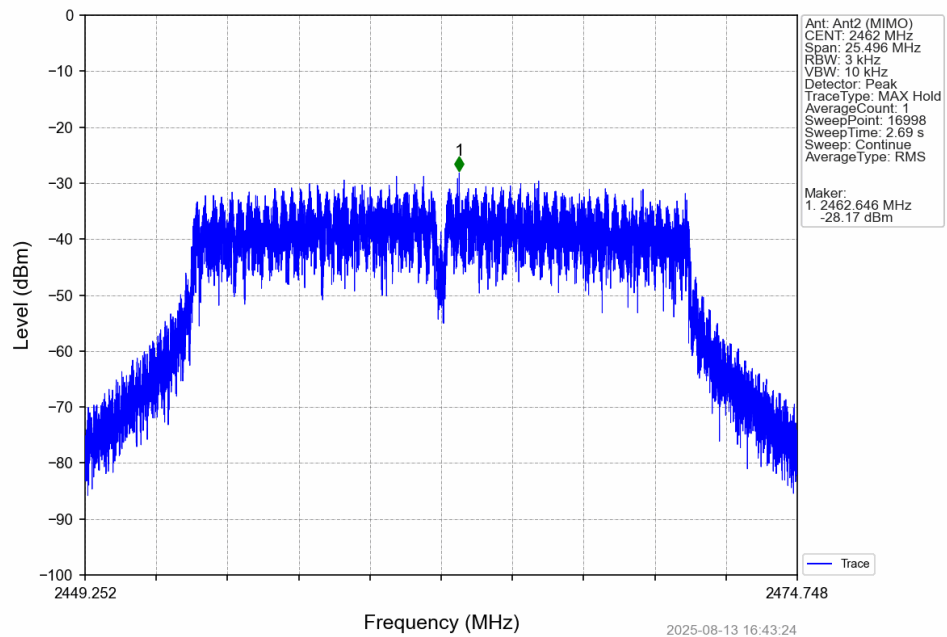
802.11n(HT20) MCH 2437MHz MIMO NTN



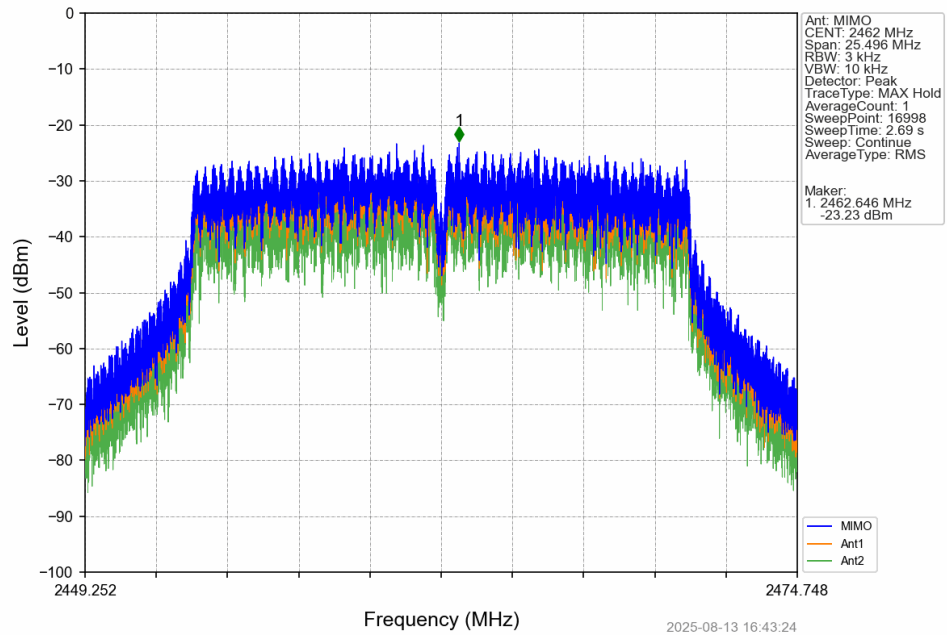
802.11n(HT20) HCH 2462MHz Ant1 (MIMO) NTN



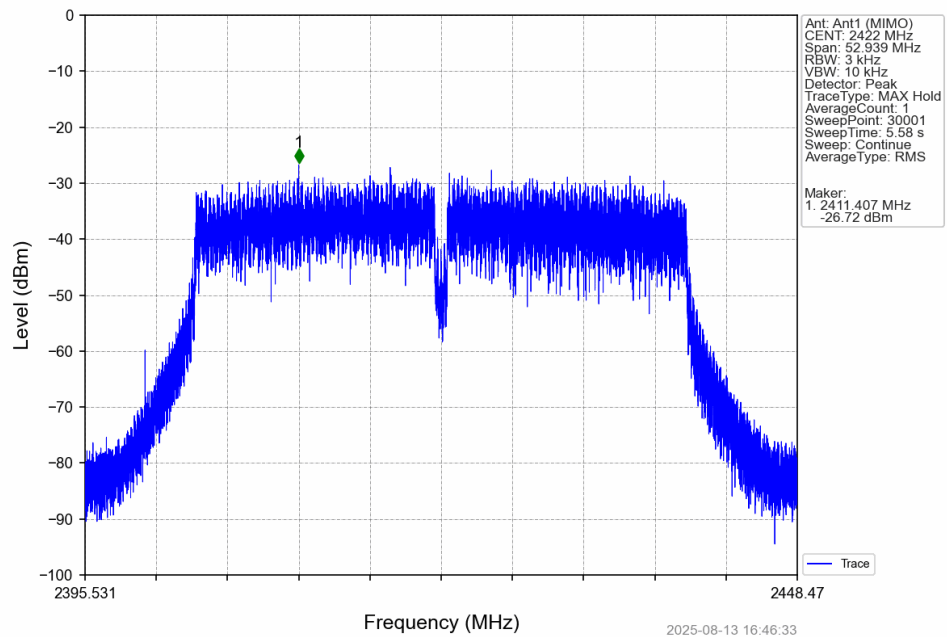
802.11n(HT20) HCH 2462MHz Ant2 (MIMO) NTN



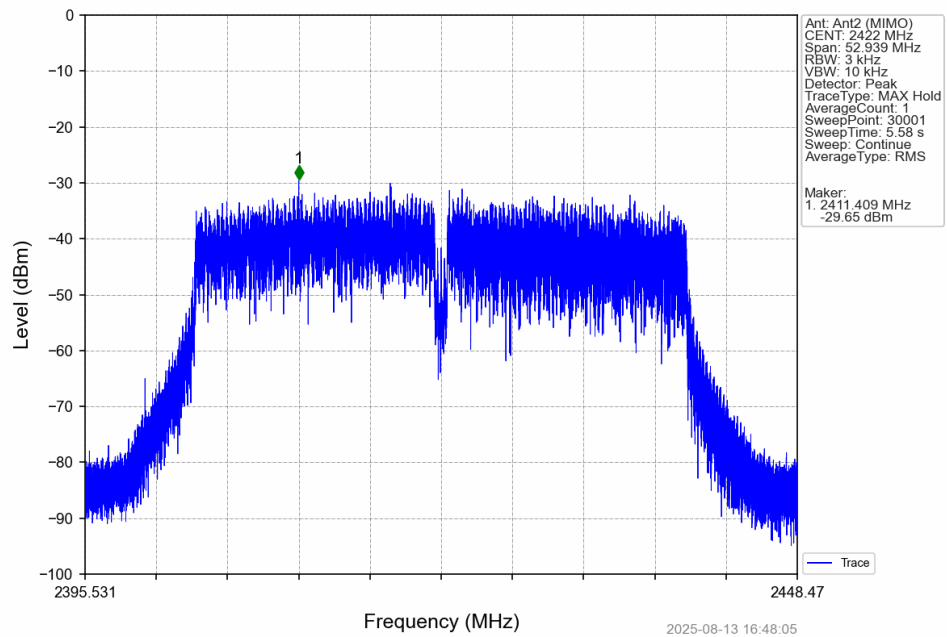
802.11n(HT20) HCH 2462MHz MIMO NTN



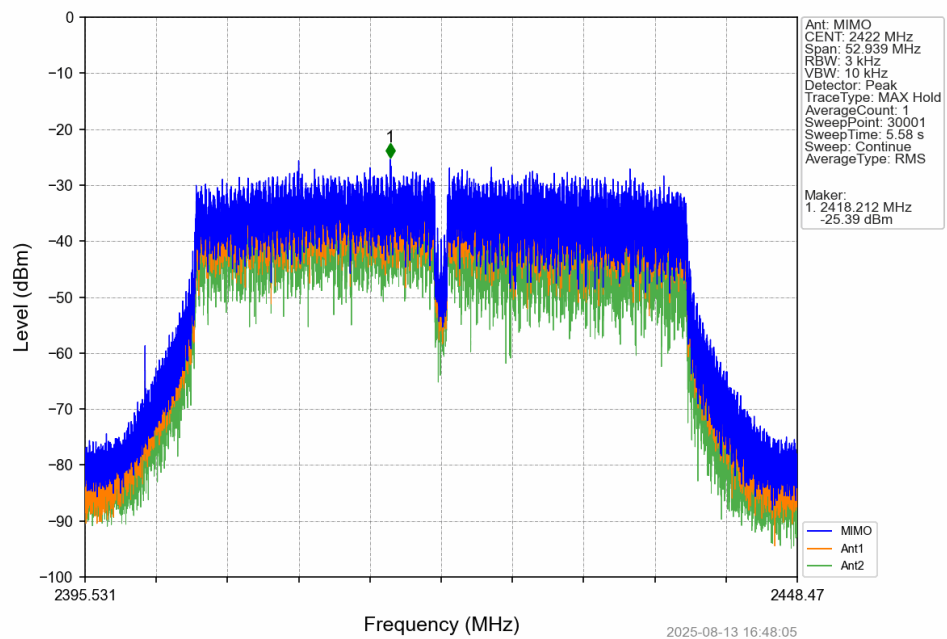
802.11n(HT40) LCH 2422MHz_Ant1 (MIMO)_NTN



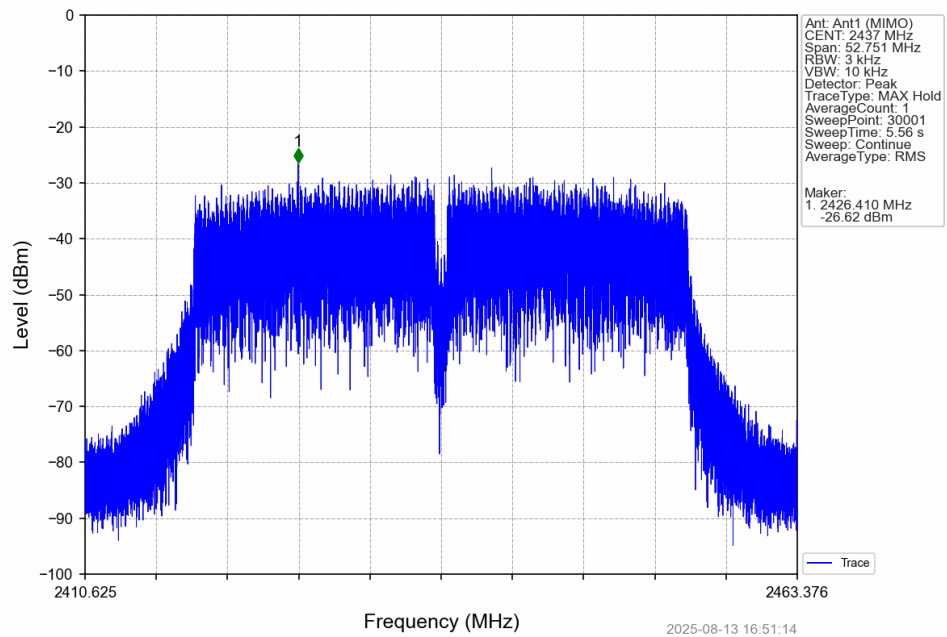
802.11n(HT40) LCH 2422MHz Ant2 (MIMO) NTNV



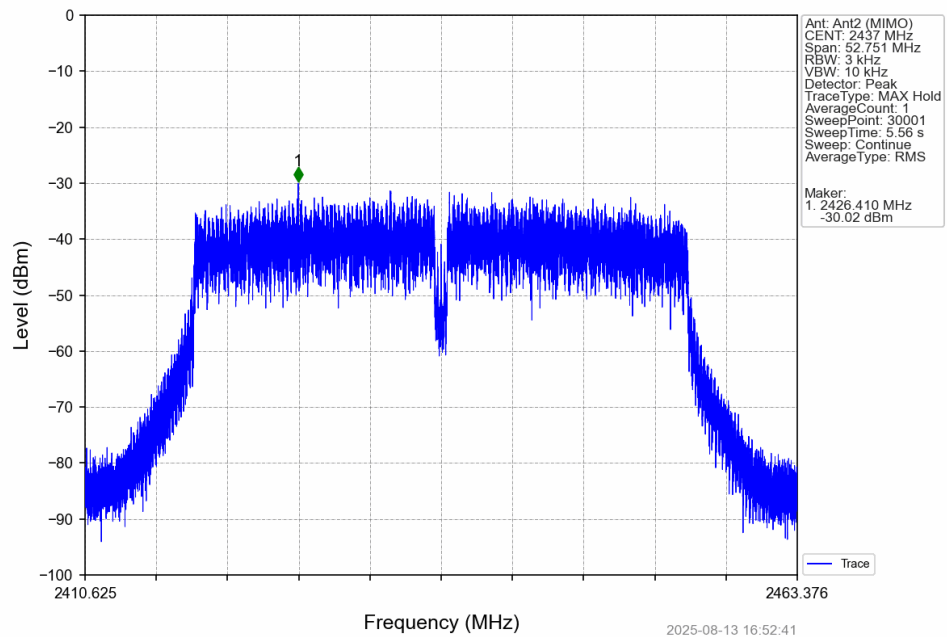
802.11n(HT40) LCH 2422MHz MIMO NTNV



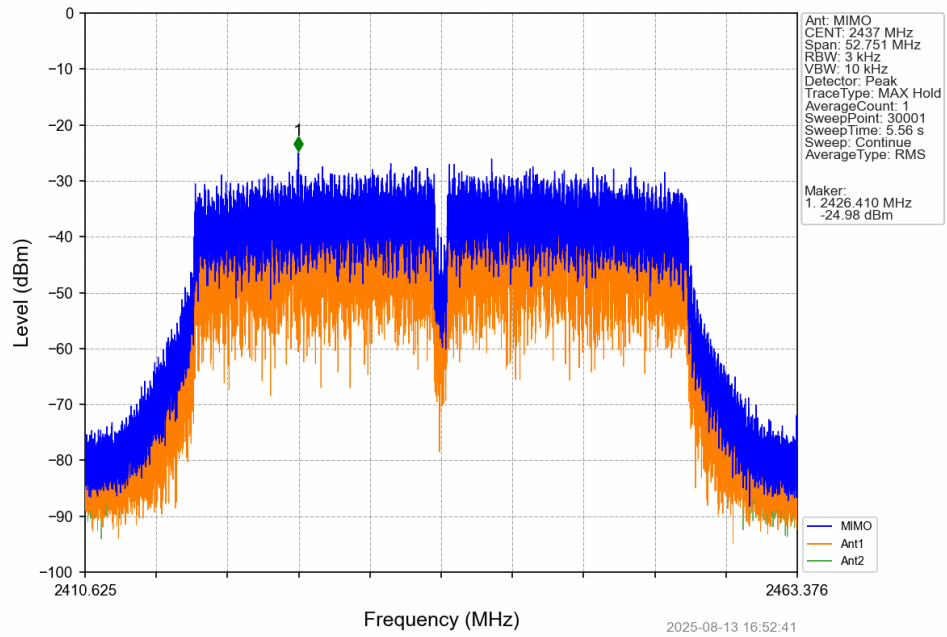
802.11n(HT40) MCH_2437MHz_Ant1 (MIMO) NTN



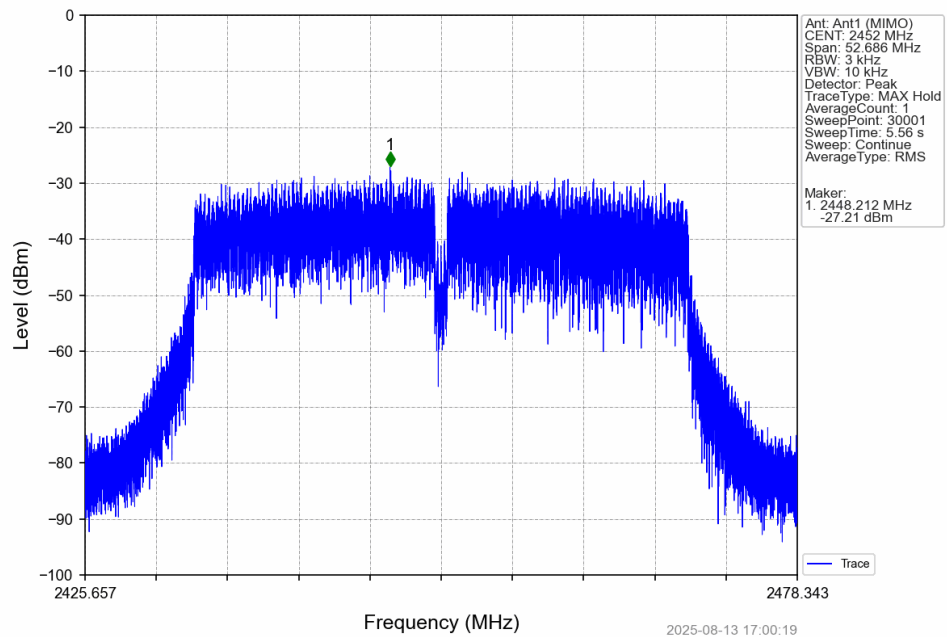
802.11n(HT40) MCH_2437MHz_Ant2 (MIMO) NTN



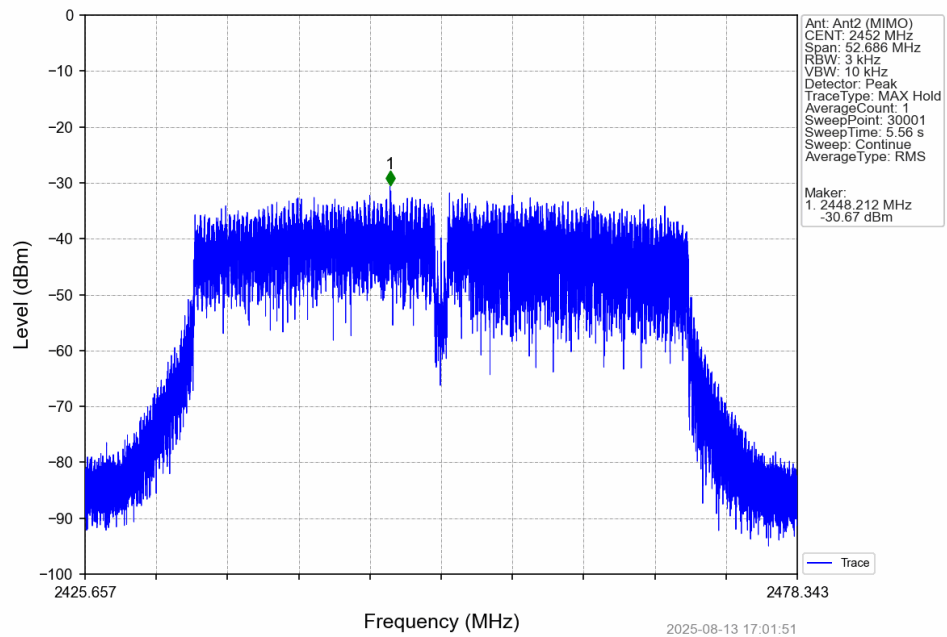
802.11n(HT40) MCH_2437MHz MIMO NTN



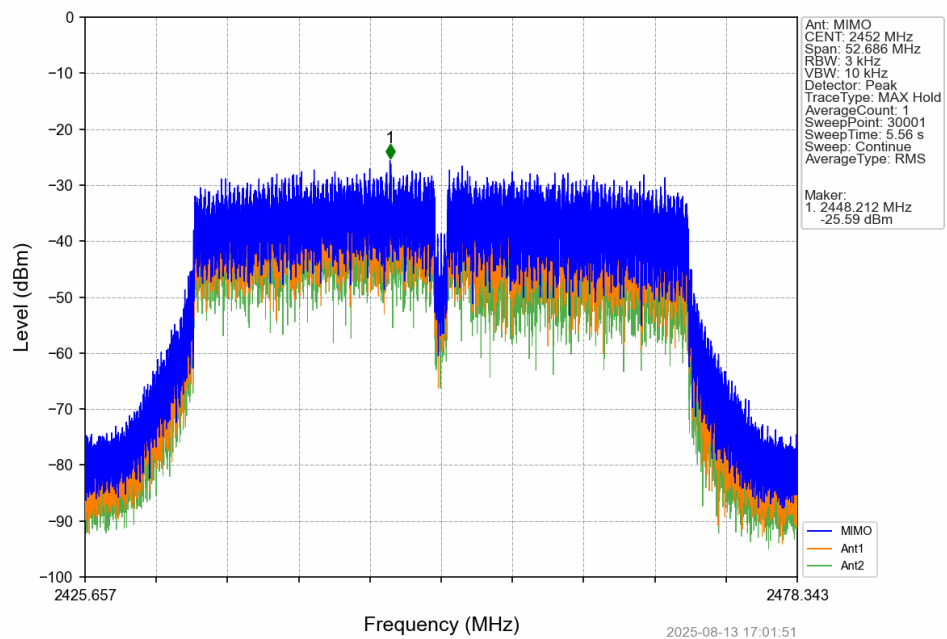
802.11n(HT40) HCH_2452MHz_Ant1 (MIMO)_NTN



802.11n(HT40) HCH 2452MHz Ant2 (MIMO) NTN



802.11n(HT40) HCH 2452MHz MIMO NTN



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	-10.10
			2	-14.89
		2437	1	-10.37
			2	-15.22
		2462	1	-10.12
			2	-15.79
802.11g	SISO	2412	1	-9.68
			2	-12.57
		2437	1	-9.56
			2	-13.82
		2462	1	-9.68
			2	-13.72
802.11n (HT20)	MIMO	2412	1	-9.85
			2	-12.72
		2437	1	-9.67
			2	-13.61
		2462	1	-10.13
			2	-13.81
802.11n (HT40)	MIMO	2422	1	-12.62
			2	-15.65
		2437	1	-12.76
			2	-16.20
		2452	1	-12.67
			2	-16.11

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

5.1.2 CSE

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	-10.10	-30.10	Pass
			2	-14.89	-34.89	Pass
		2437	1	-10.10	-30.10	Pass
			2	-14.89	-34.89	Pass
		2462	1	-10.10	-30.10	Pass
			2	-14.89	-34.89	Pass
802.11g	SISO	2412	1	-9.56	-29.56	Pass
			2	-12.57	-32.57	Pass
		2437	1	-9.56	-29.56	Pass
			2	-12.57	-32.57	Pass
		2462	1	-9.56	-29.56	Pass
			2	-12.57	-32.57	Pass
802.11n (HT20)	MIMO	2412	1	-9.67	-29.67	Pass
			2	-12.72	-32.72	Pass
		2437	1	-9.67	-29.67	Pass

			2	-12.72	-32.72	Pass
		2462	1	-9.67	-29.67	Pass
			2	-12.72	-32.72	Pass
802.11n (HT40)	MIMO	2422	1	-12.62	-32.62	Pass
			2	-15.65	-35.65	Pass
		2437	1	-12.62	-32.62	Pass
			2	-15.65	-35.65	Pass
		2452	1	-12.62	-32.62	Pass
			2	-15.65	-35.65	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.						