

Appendix RF Test Data for 2.4G WiFi

Company: : Shenzhen Speediance Living Technology Co., Ltd

EUT : Interactive Multi-Media DigitalFitness Equipment

FCC ID: : 2A4WP-GMUA1120A1

Model Number : GMUA1120A1

Report No. : HTT202606664F01

Reviewed By : Heber He

1. Duty Cycle

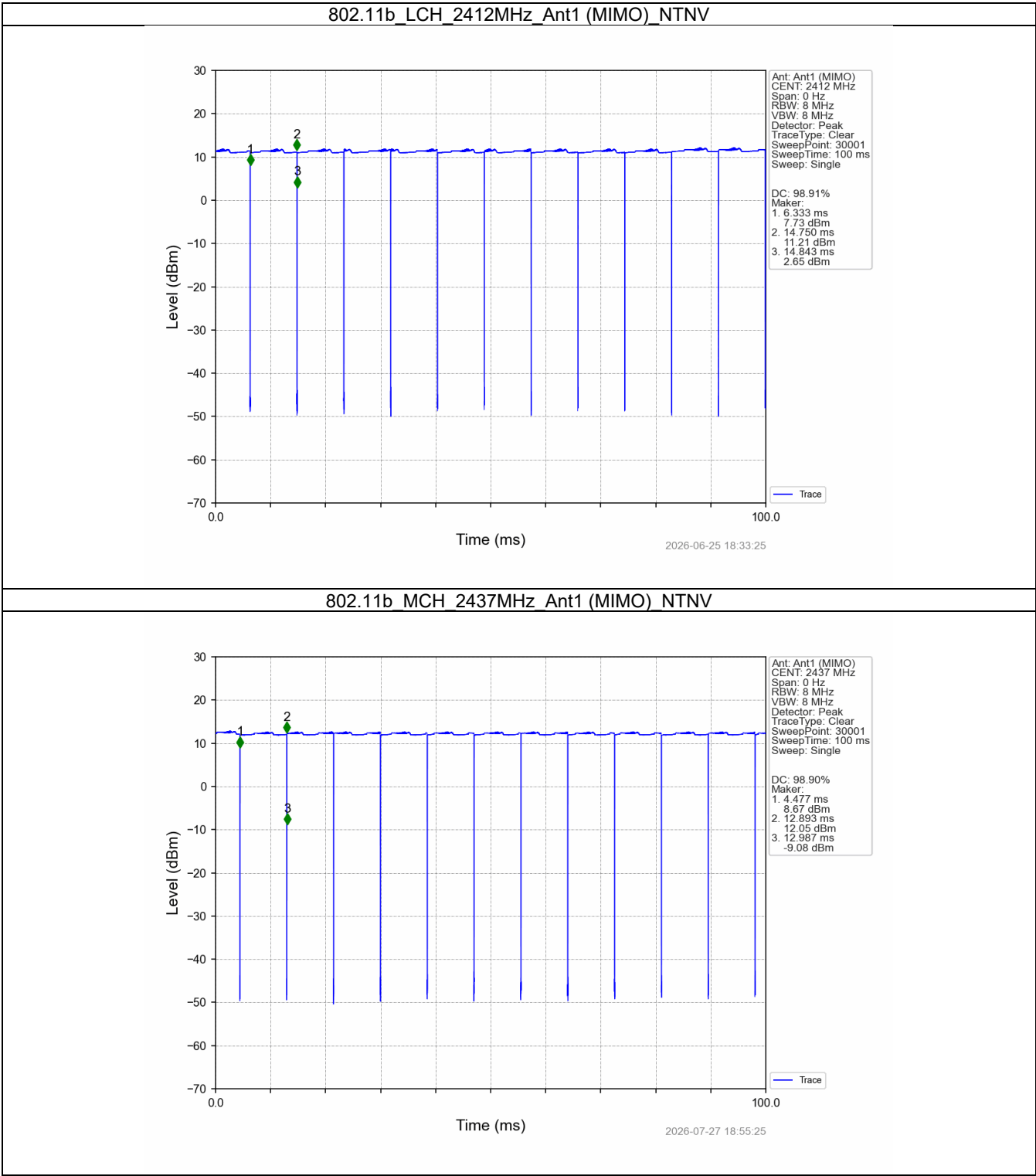
1.1 Test Result

1.1.1 Ant1

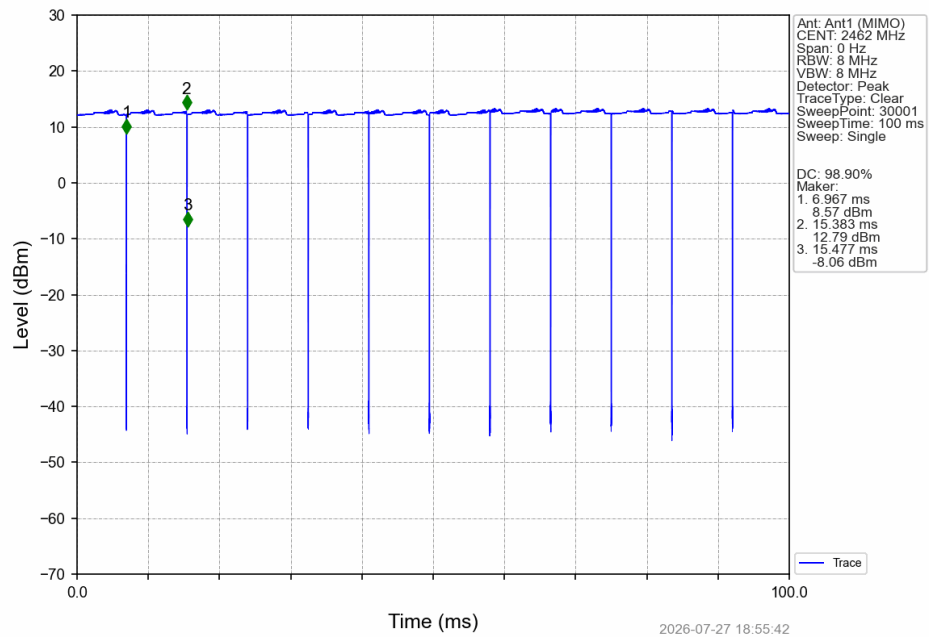
Ant1									
Mode	TX Type	Frequency (MHz)	RU	RU Pos	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	MIMO	2412	/	/	8.417	8.510	98.91	0.05	0.04
		2437	/	/	8.416	8.510	98.90	0.05	0.00
		2462	/	/	8.416	8.510	98.90	0.05	0.00
802.11g	MIMO	2412	/	/	1.397	1.495	93.44	0.29	0.03
		2437	/	/	1.397	1.496	93.38	0.30	0.04
		2462	/	/	1.397	1.495	93.44	0.29	0.03
802.11n (HT20)	MIMO	2412	/	/	1.309	1.408	92.97	0.32	0.03
		2437	/	/	1.309	1.408	92.97	0.32	0.03
		2462	/	/	1.309	1.408	92.97	0.32	0.03
802.11ax (HEW20)	MIMO	2412	SU	/	1.021	1.121	91.08	0.41	0.10
		2437	SU	/	1.021	1.120	91.16	0.40	0.04
		2462	SU	/	1.021	1.121	91.08	0.41	0.03

1.2 Test Graph

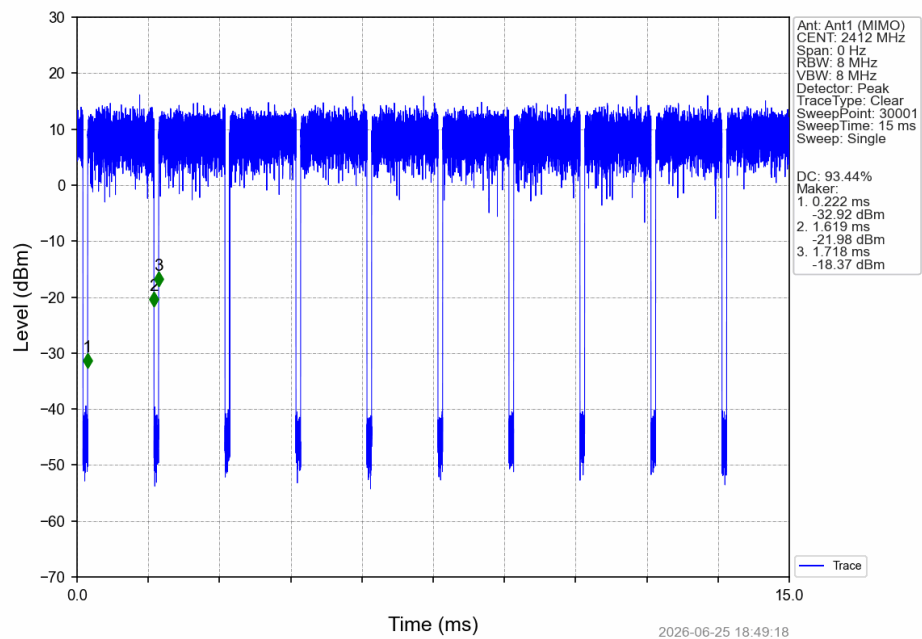
1.2.1 Ant1



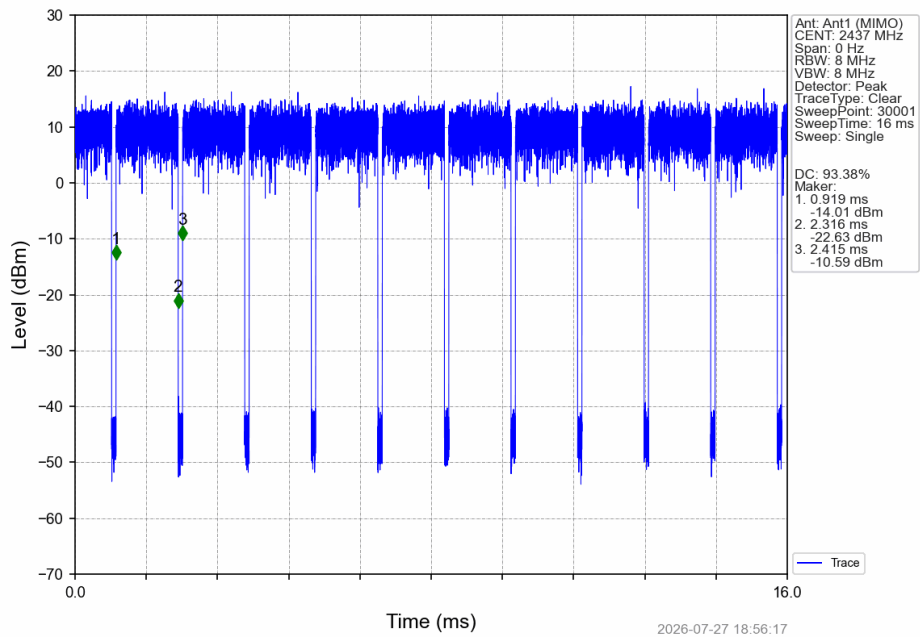
802.11b_HCH_2462MHz_Ant1 (MIMO)_NTNV



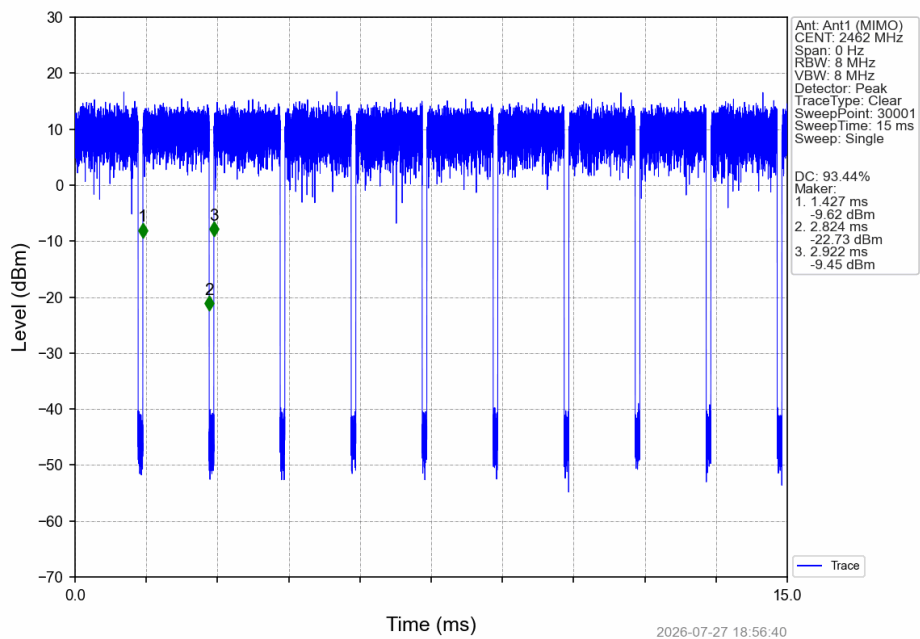
802.11g_LCH_2412MHz_Ant1 (MIMO)_NTNV



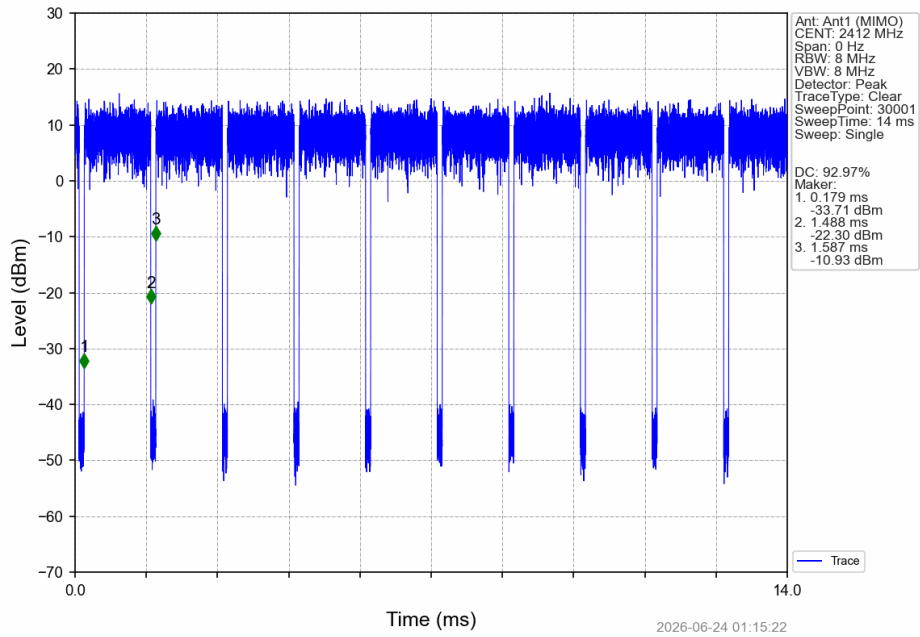
802.11g_MCH_2437MHz_Ant1 (MIMO)_NTNV



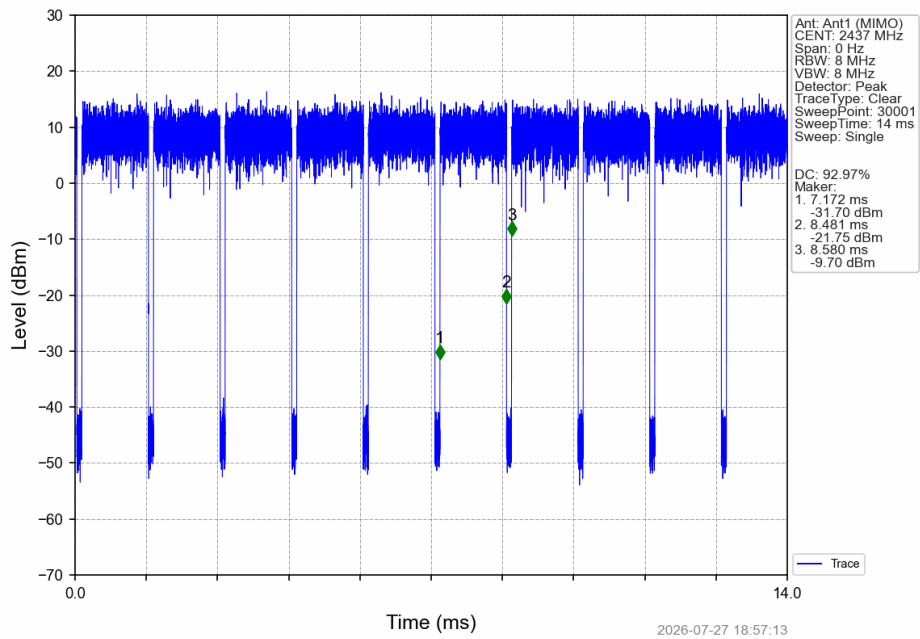
802.11g_HCH_2462MHz_Ant1 (MIMO)_NTNV



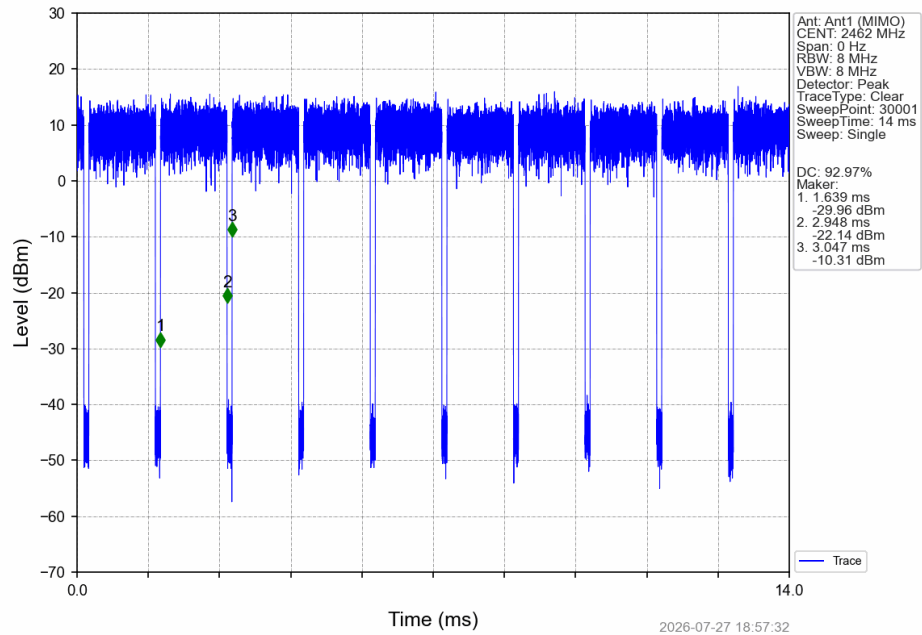
802.11n(HT20)_LCH_2412MHz_Ant1 (MIMO)_NTNV



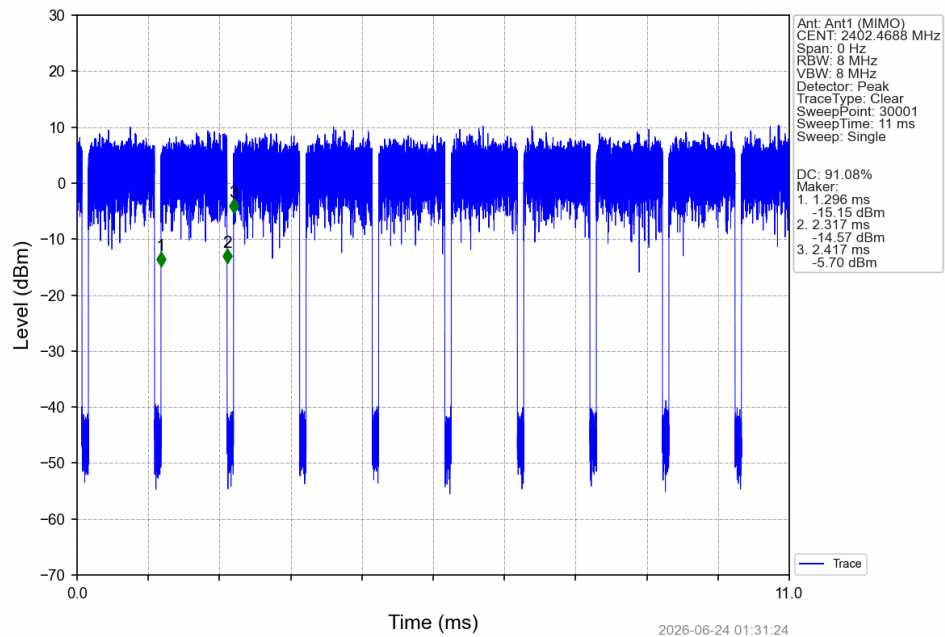
802.11n(HT20)_MCH_2437MHz_Ant1 (MIMO)_NTNV



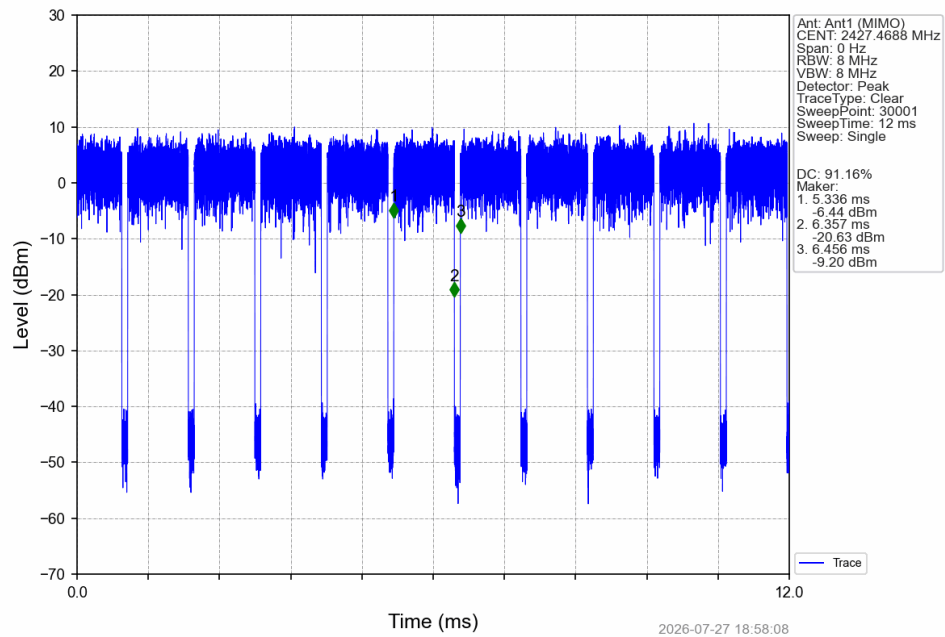
802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV



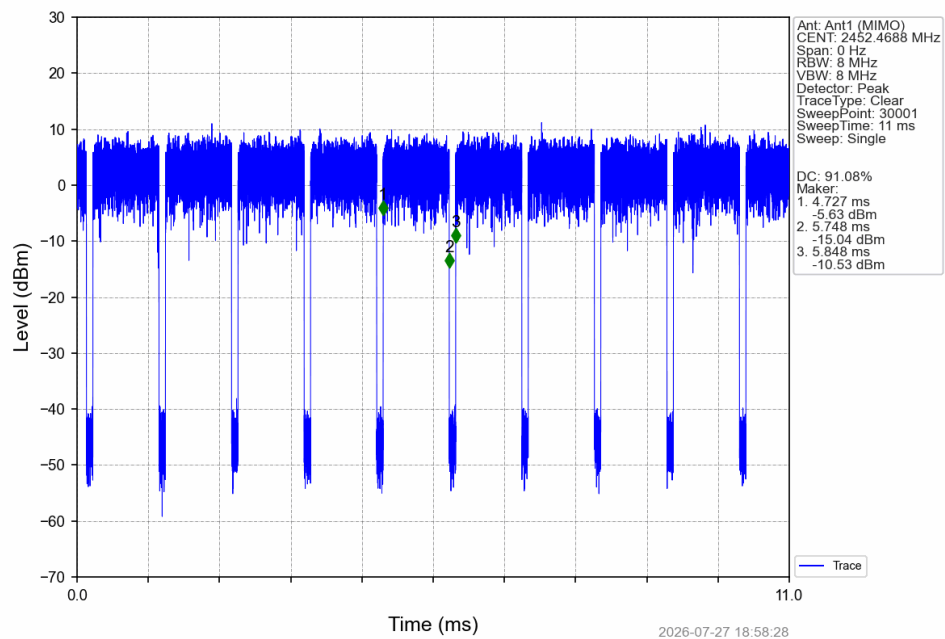
802.11ax(HEW20)_LCH_2412MHz_SU / _Ant1 (MIMO)_NTNV



802.11ax(HEW20)_MCH_2437MHz_SU_/_Ant1 (MIMO)_NTNV



802.11ax(HEW20)_HCH_2462MHz_SU_/_Ant1 (MIMO)_NTNV



2. Bandwidth

2.1 Test Result

2.1.1 OBW

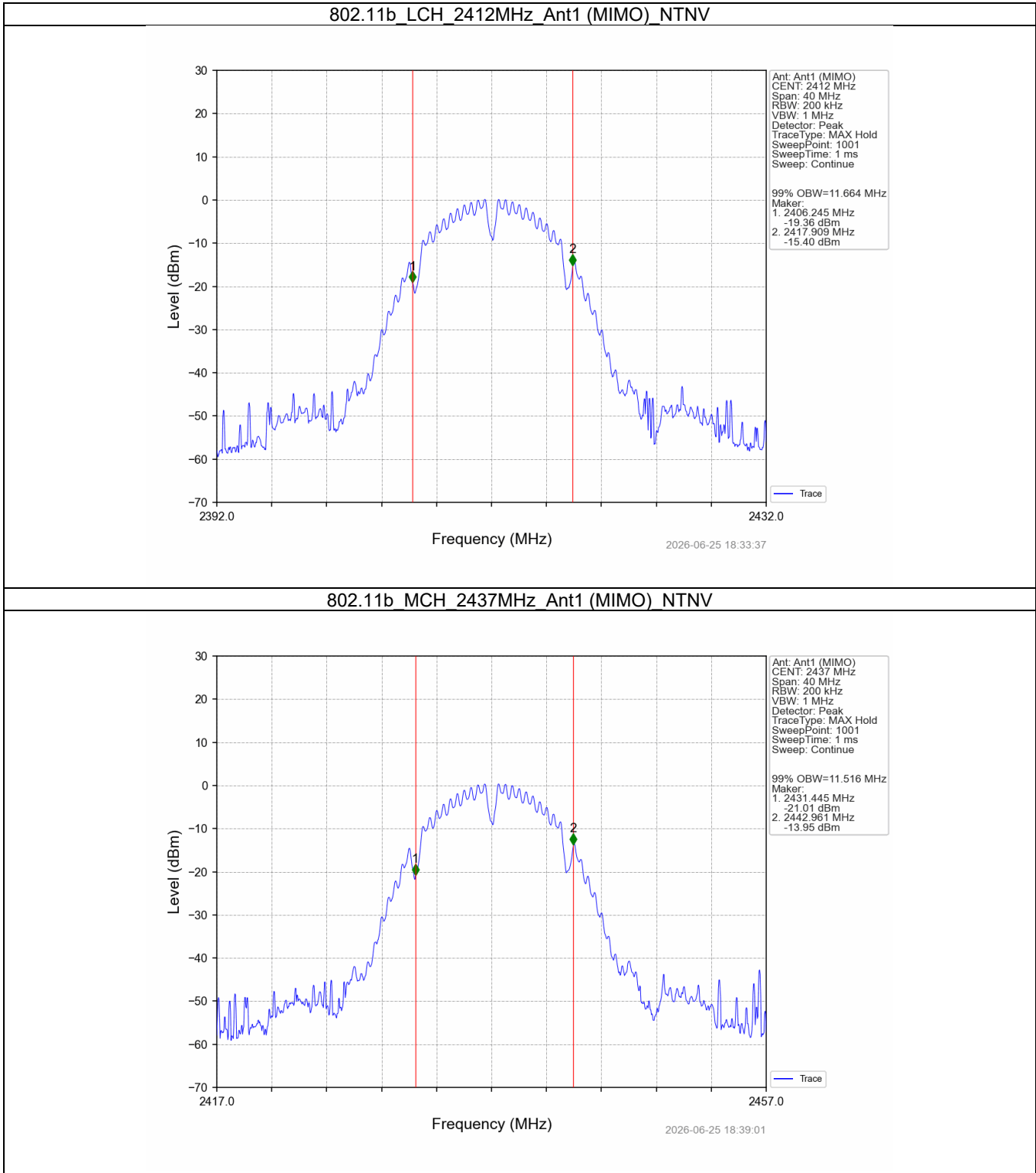
Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	99% Occupied Bandwidth (MHz)		Verdict
						Result	Limit	
802.11b	MIMO	2412	/	/	1	11.664	/	Pass
		2437	/	/	1	11.516	/	Pass
		2462	/	/	1	11.658	/	Pass
802.11g	MIMO	2412	/	/	1	16.636	/	Pass
		2437	/	/	1	16.672	/	Pass
		2462	/	/	1	16.698	/	Pass
802.11n (HT20)	MIMO	2412	/	/	1	17.804	/	Pass
		2437	/	/	1	17.813	/	Pass
		2462	/	/	1	17.798	/	Pass
802.11ax (HEW20)	MIMO	2412	SU	/	1	18.911	/	Pass
		2437	SU	/	1	18.911	/	Pass
		2462	SU	/	1	18.920	/	Pass

2.1.2 6dB BW

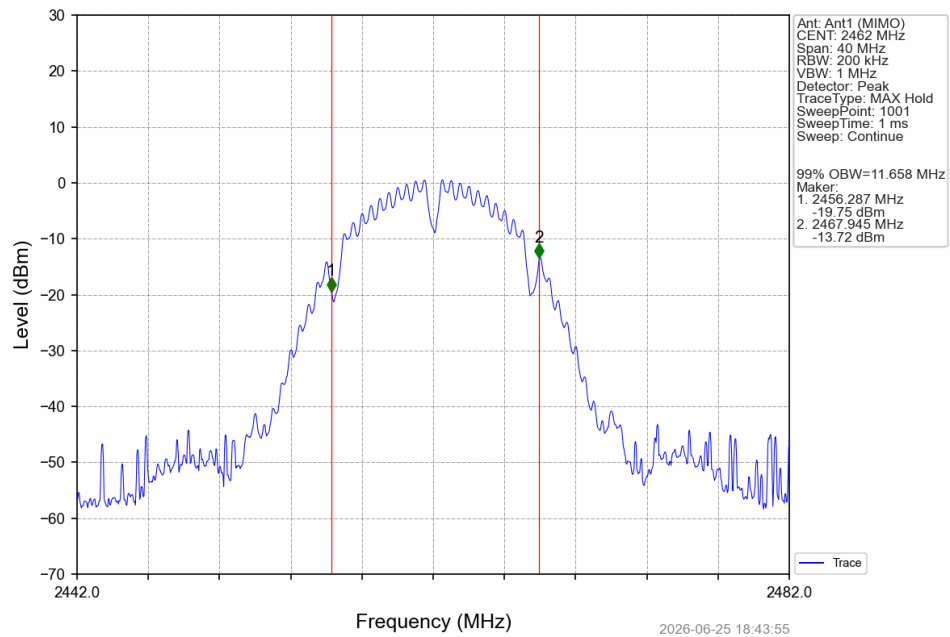
Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	6dB Bandwidth (MHz)		Verdict
						Result	Limit	
802.11b	MIMO	2412	/	/	1	8.079	>=0.5	Pass
		2437	/	/	1	7.673	>=0.5	Pass
		2462	/	/	1	7.660	>=0.5	Pass
802.11g	MIMO	2412	/	/	1	16.367	>=0.5	Pass
		2437	/	/	1	16.370	>=0.5	Pass
		2462	/	/	1	16.342	>=0.5	Pass
802.11n (HT20)	MIMO	2412	/	/	1	17.528	>=0.5	Pass
		2437	/	/	1	17.460	>=0.5	Pass
		2462	/	/	1	17.454	>=0.5	Pass
802.11ax (HEW20)	MIMO	2412	SU	/	1	18.471	>=0.5	Pass
		2437	SU	/	1	17.442	>=0.5	Pass
		2462	SU	/	1	18.770	>=0.5	Pass

2.2 Test Graph

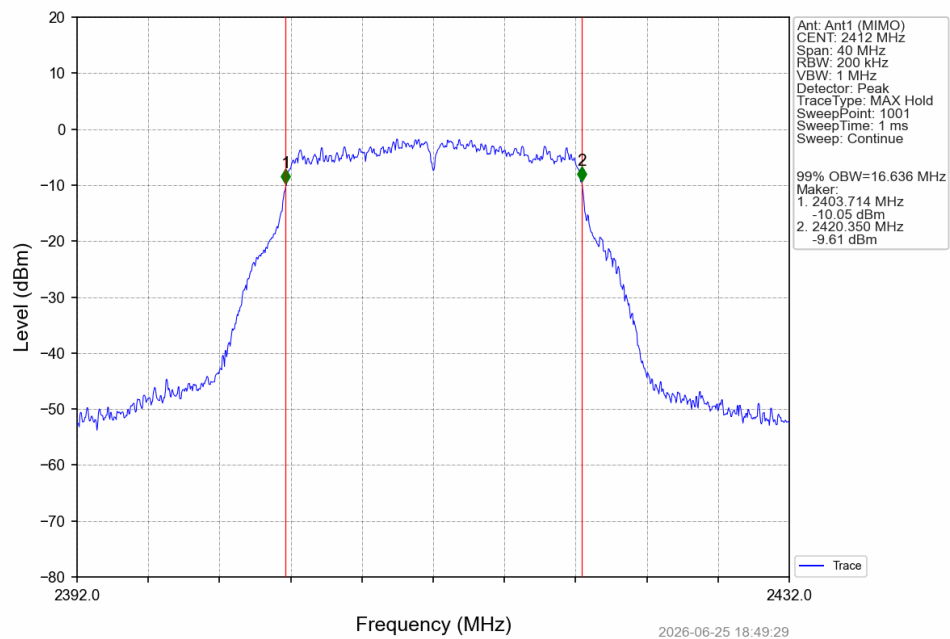
2.2.1 OBW



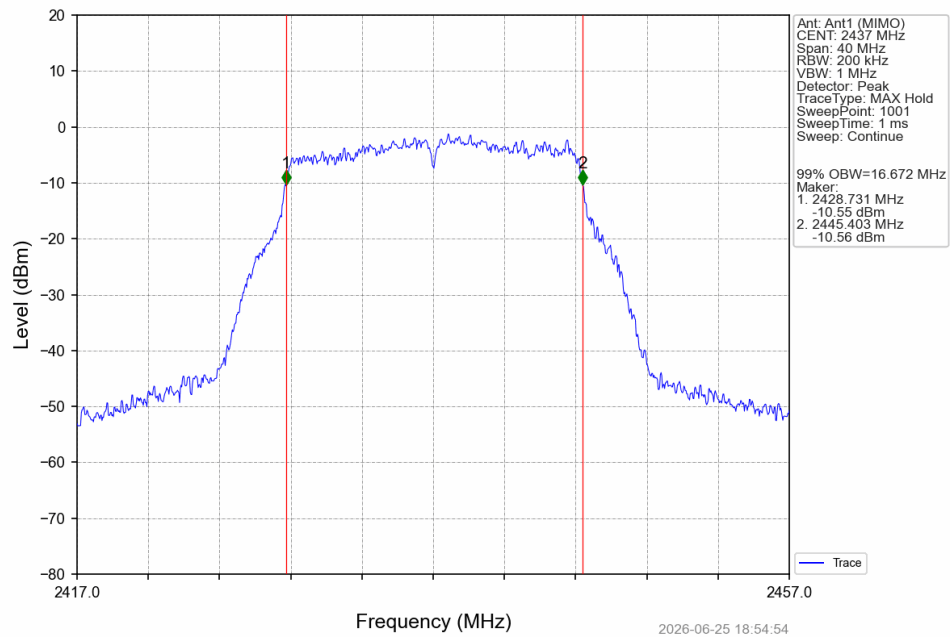
802.11b_HCH_2462MHz_Ant1 (MIMO)_NTNV



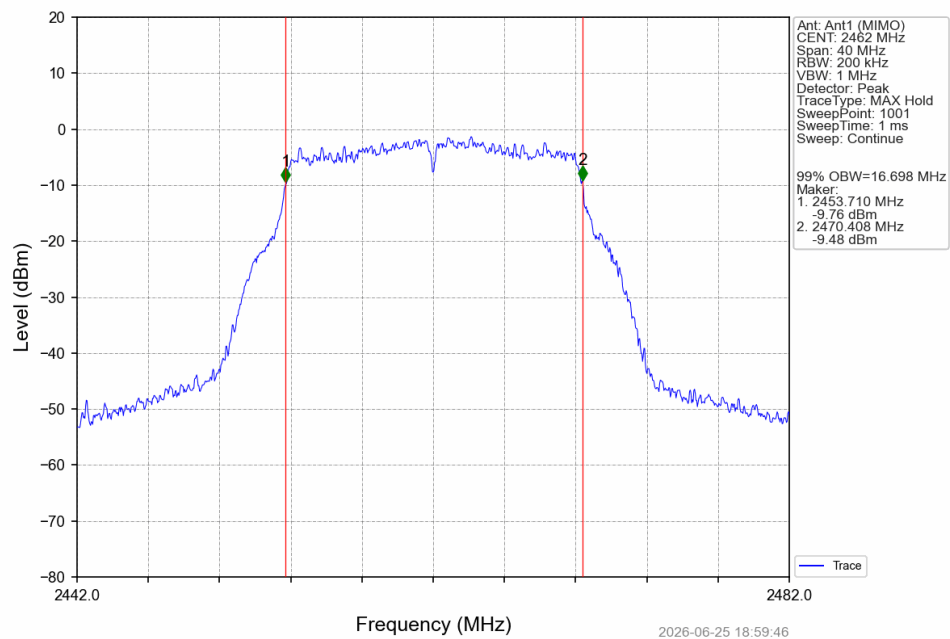
802.11g_LCH_2412MHz_Ant1 (MIMO)_NTNV



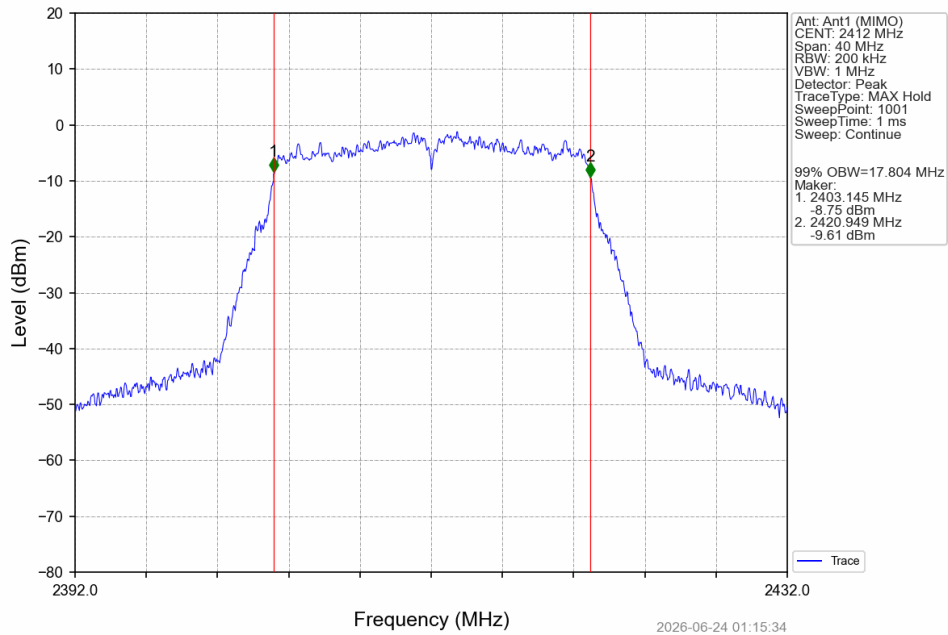
802.11g_MCH_2437MHz_Ant1 (MIMO)_NTNV



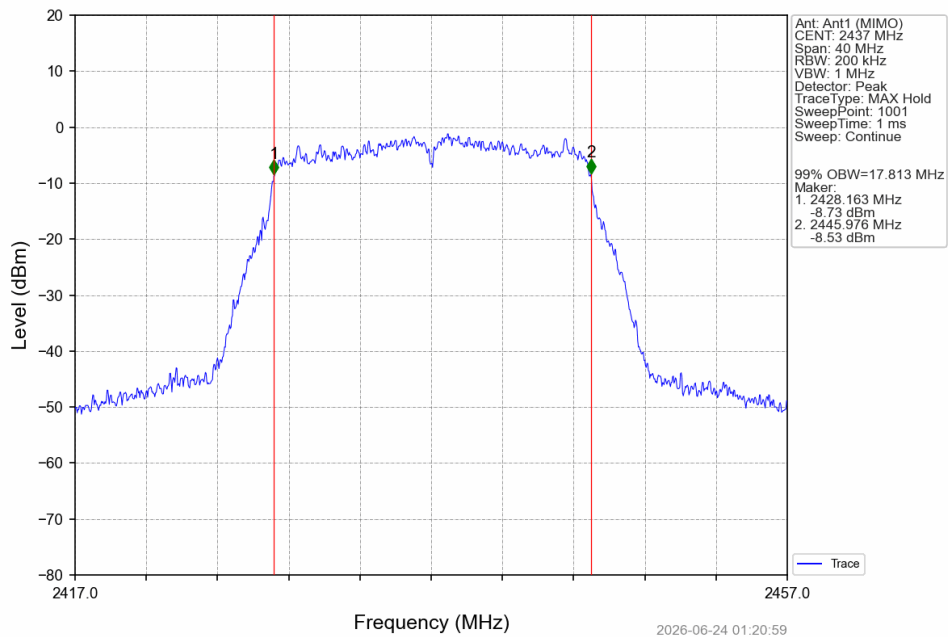
802.11g_HCH_2462MHz_Ant1 (MIMO)_NTNV



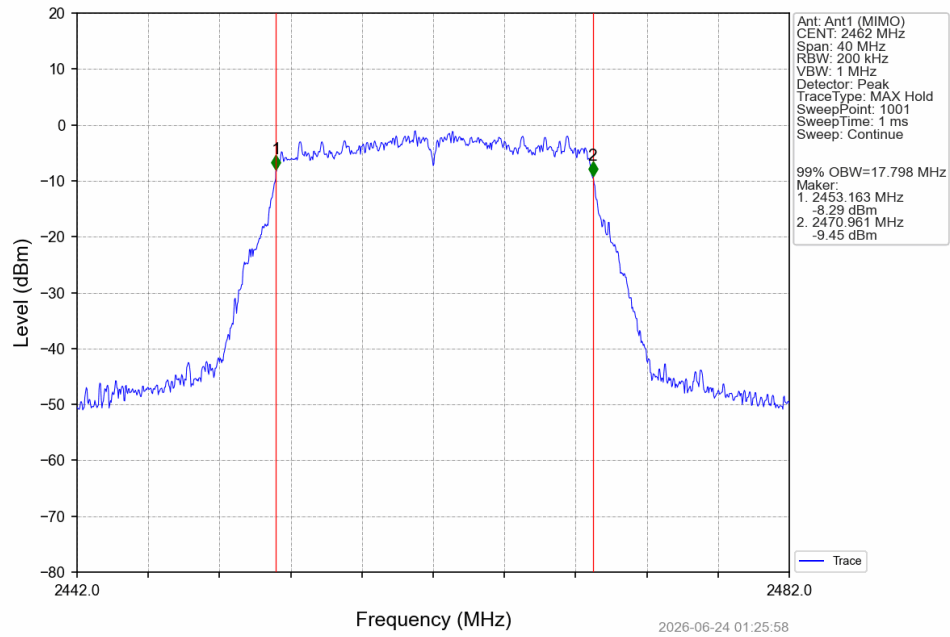
802.11n(HT20)_LCH_2412MHz_Ant1 (MIMO)_NTNV



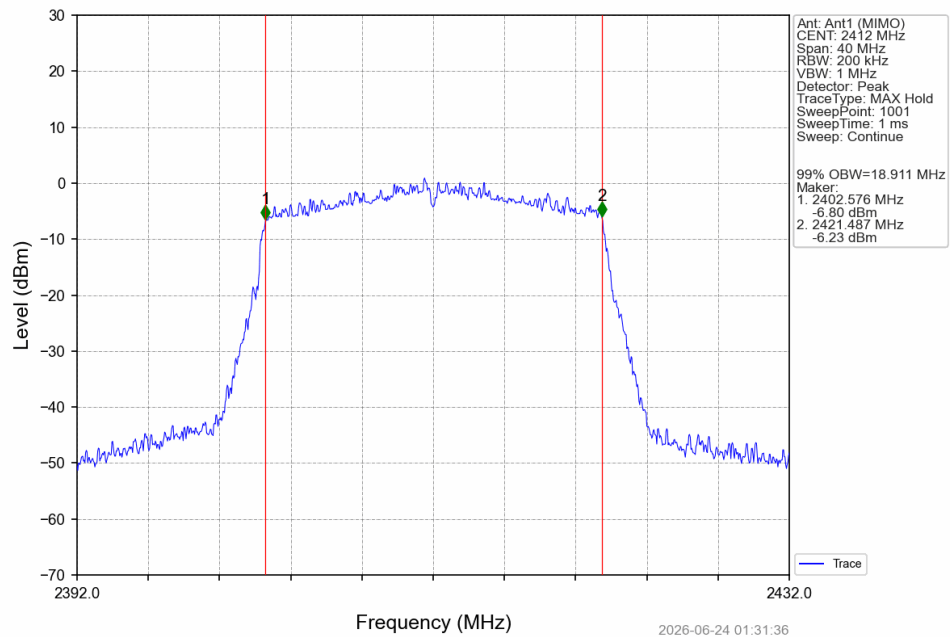
802.11n(HT20)_MCH_2437MHz_Ant1 (MIMO)_NTNV



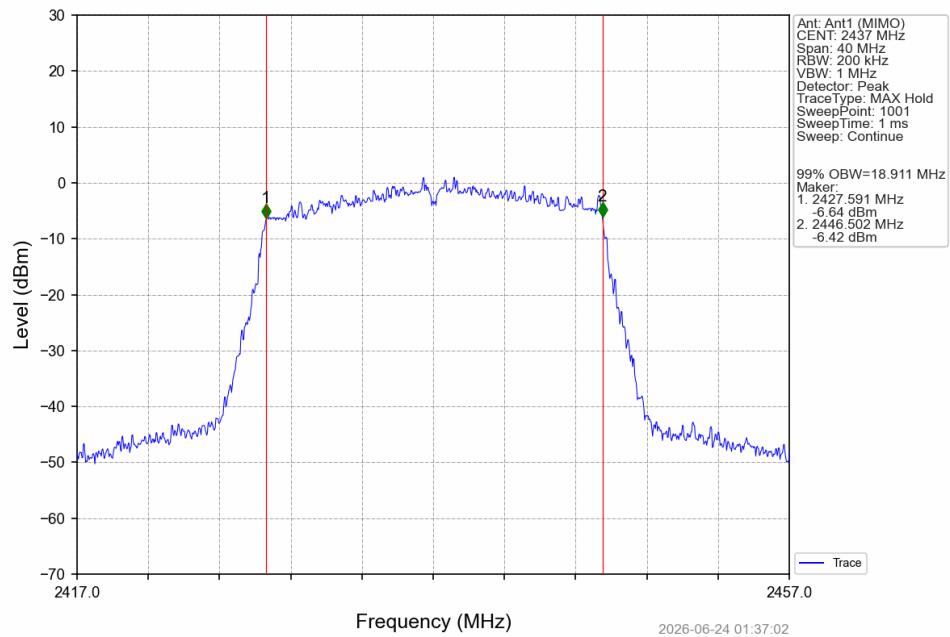
802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV



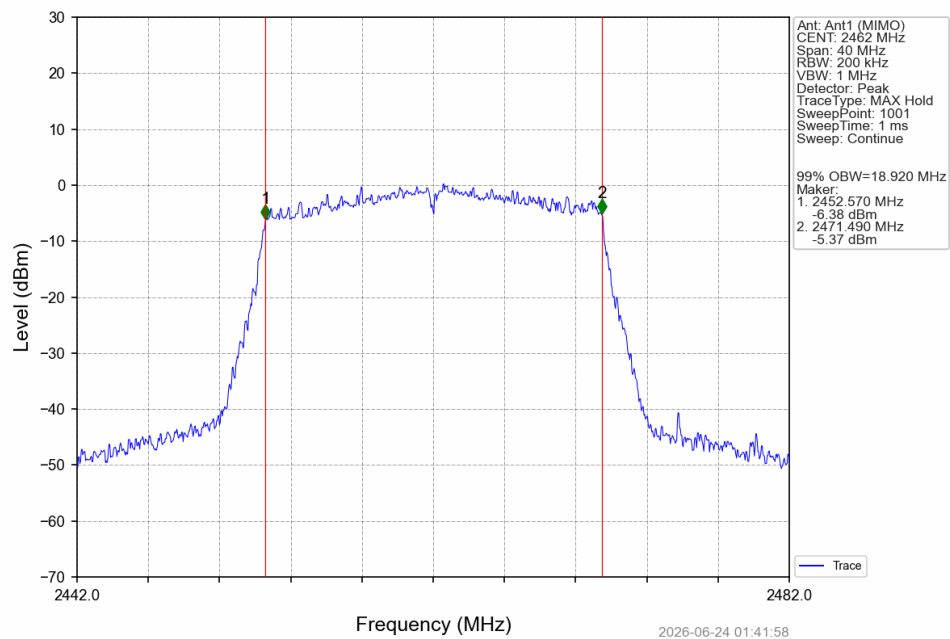
802.11ax(HEW20)_LCH_2412MHz_SU / _Ant1 (MIMO)_NTNV



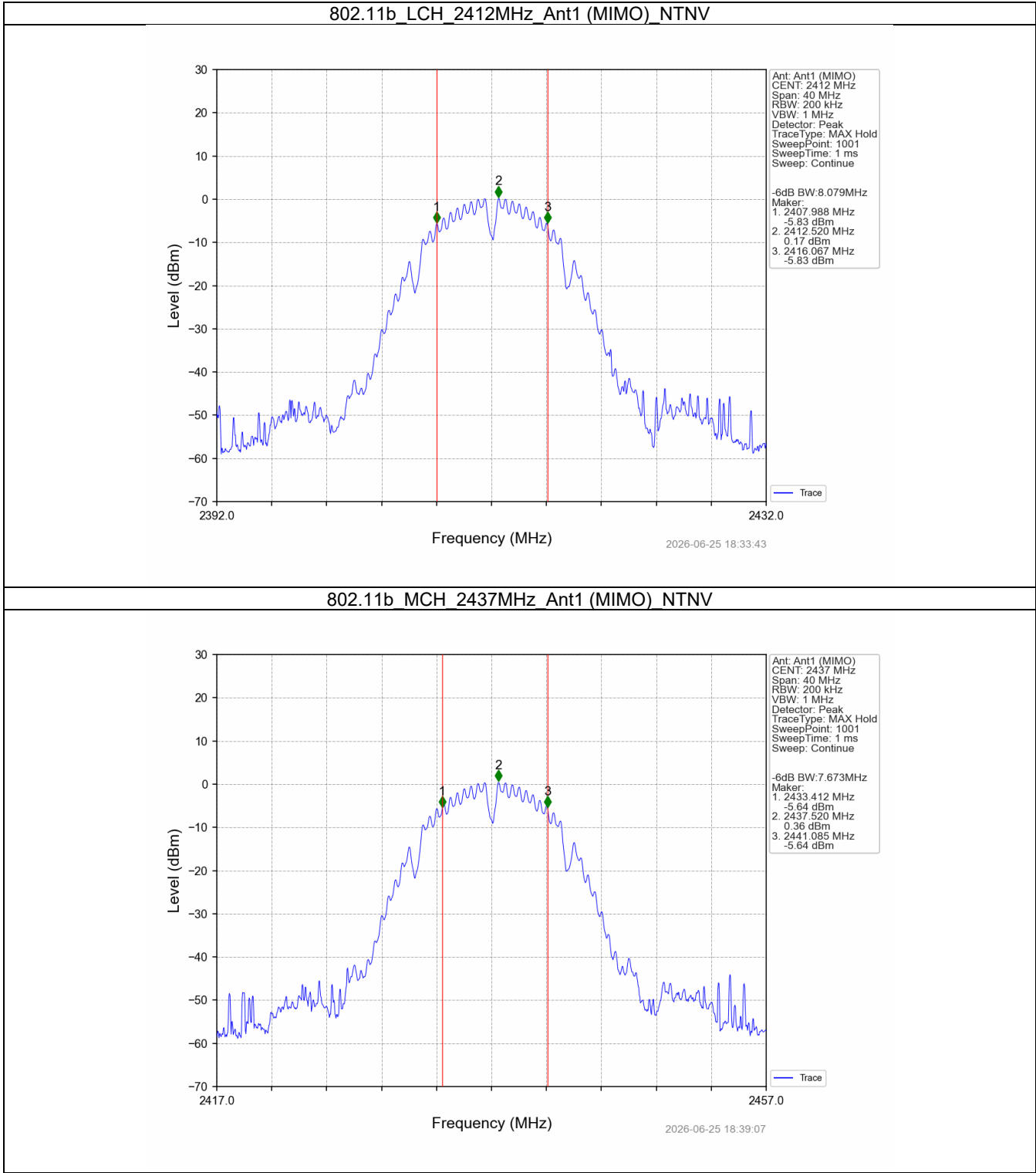
802.11ax(HEW20)_MCH_2437MHz_SU / _Ant1 (MIMO)_NTNV



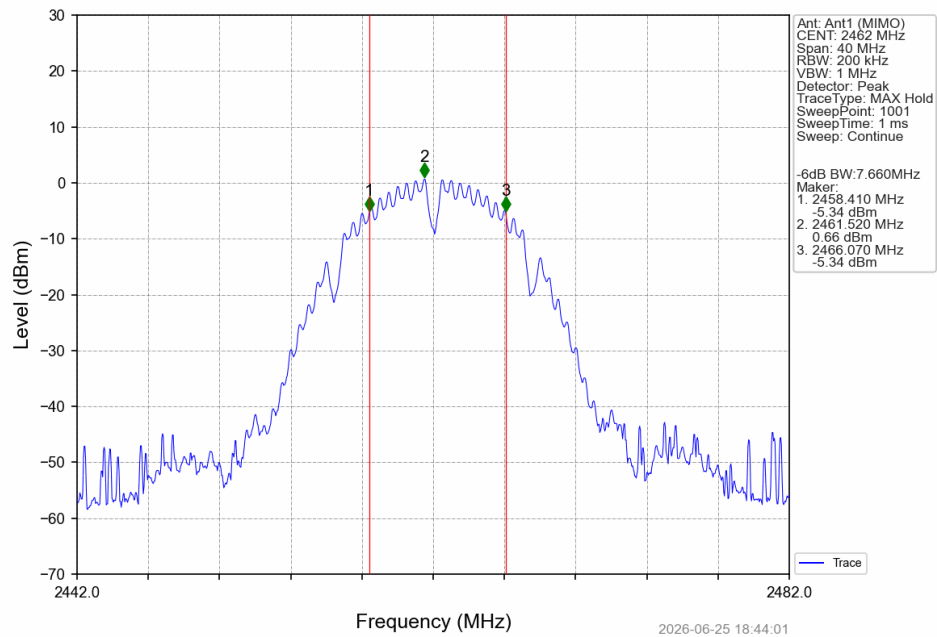
802.11ax(HEW20)_HCH_2462MHz_SU / _Ant1 (MIMO)_NTNV



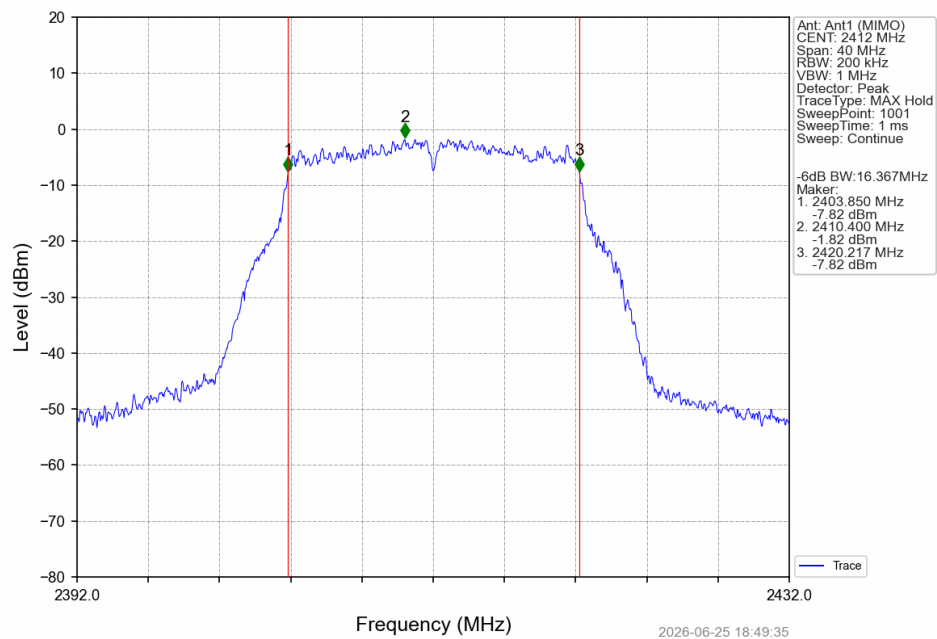
2.2.2 6dB BW



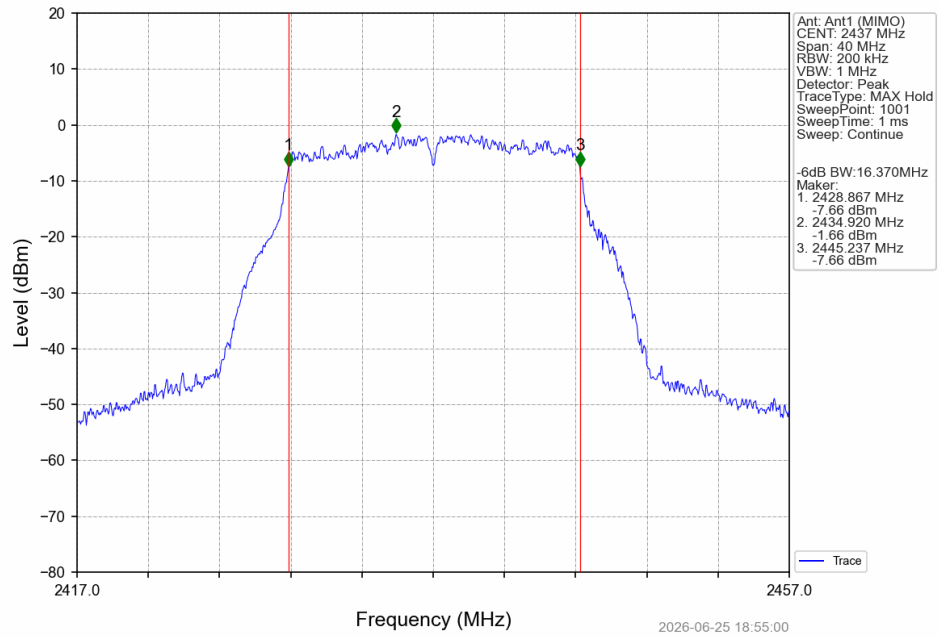
802.11b_HCH_2462MHz_Ant1 (MIMO)_NTNV



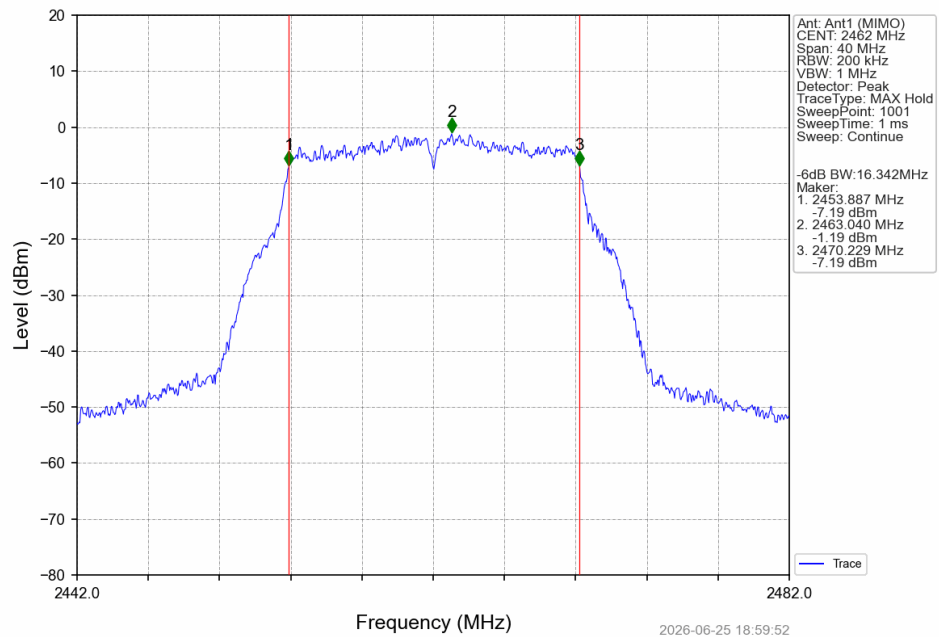
802.11g_LCH_2412MHz_Ant1 (MIMO)_NTNV



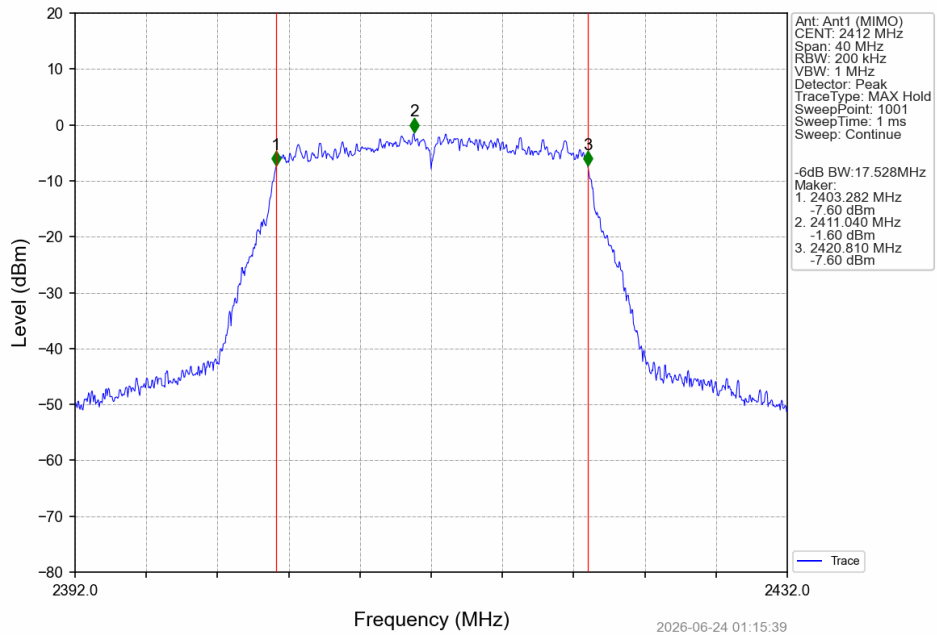
802.11g_MCH_2437MHz_Ant1 (MIMO)_NTNV



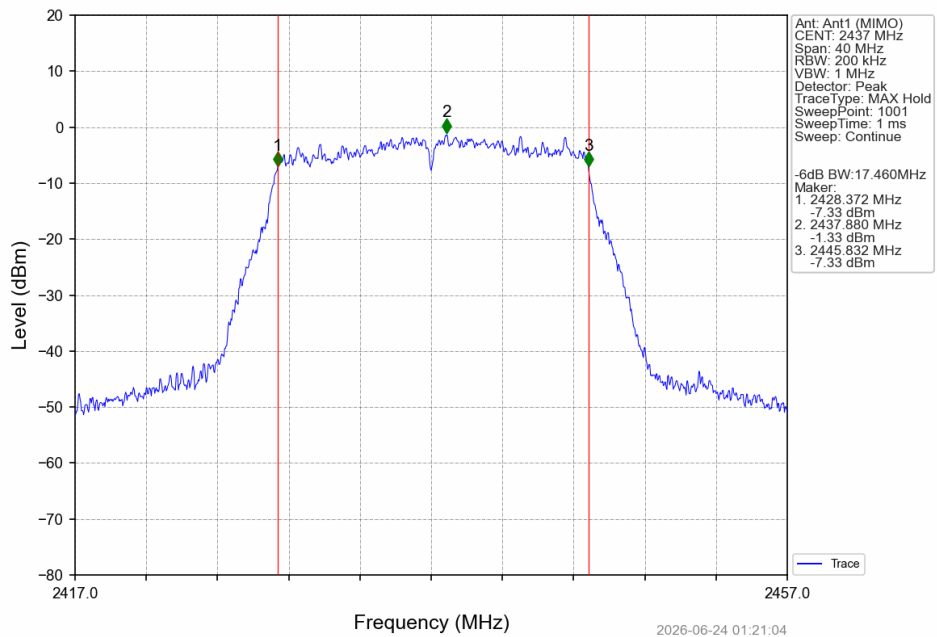
802.11g_HCH_2462MHz_Ant1 (MIMO)_NTNV



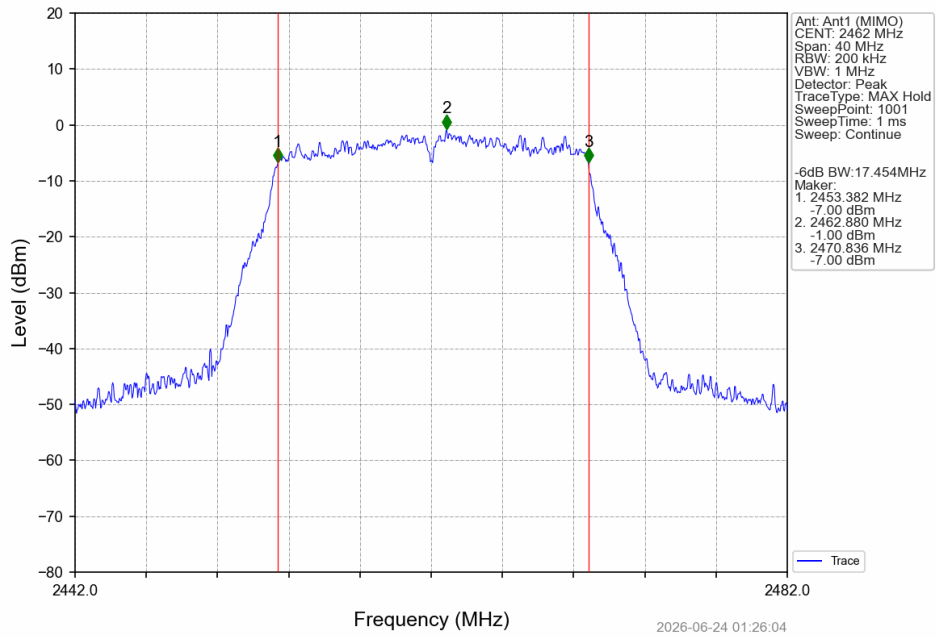
802.11n(HT20)_LCH_2412MHz_Ant1 (MIMO)_NTNV



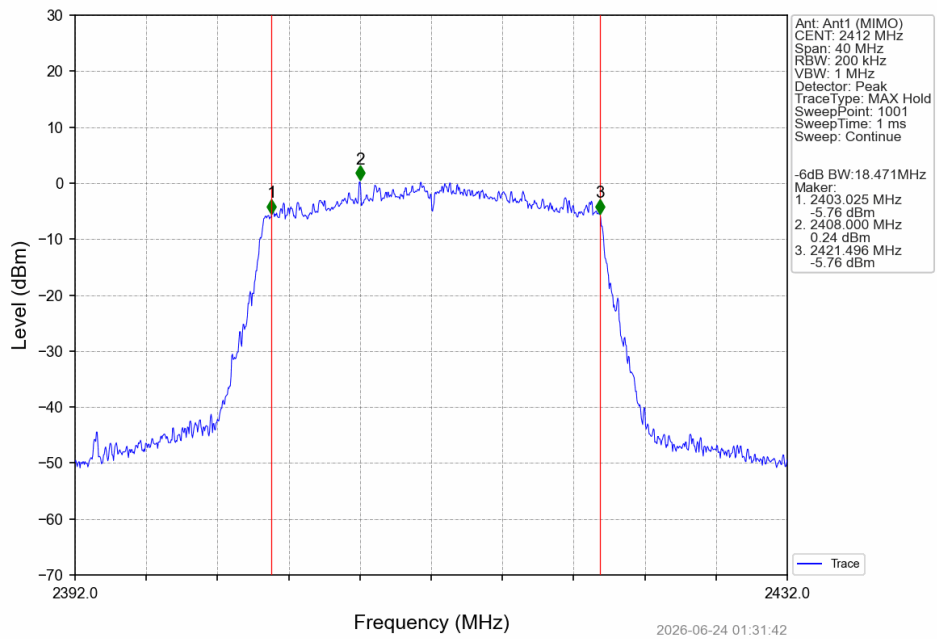
802.11n(HT20)_MCH_2437MHz_Ant1 (MIMO)_NTNV



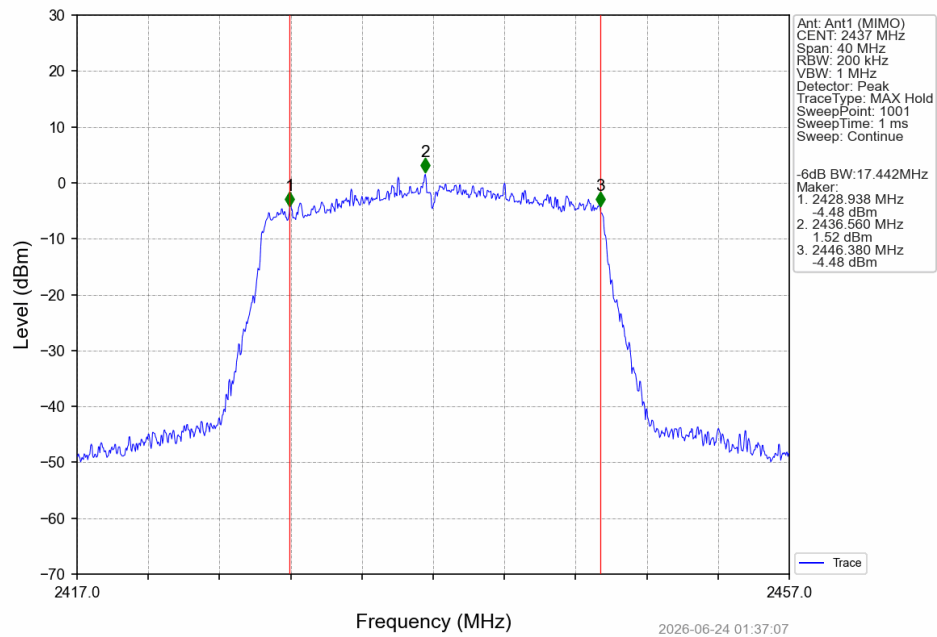
802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV



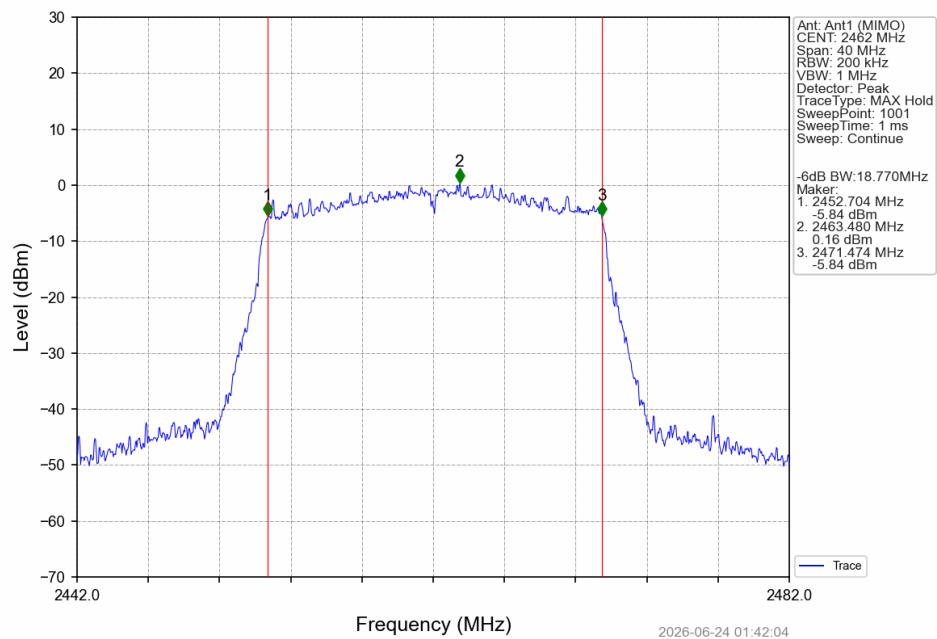
802.11ax(HEW20)_LCH_2412MHz_SU / _Ant1 (MIMO)_NTNV



802.11ax(HEW20)_MCH_2437MHz_SU / _Ant1 (MIMO)_NTNV



802.11ax(HEW20)_HCH_2462MHz_SU / _Ant1 (MIMO)_NTNV



3. Maximum Conducted Output Power

3.1 Test Result

3.1.1 Power

Mode	TX Type	Frequency (MHz)	RU	RU Pos	Maximum Peak Conducted Output Power (dBm)				Verdict
					ANT1	ANT2	MIMO	Limit	
802.11b	MIMO	2412	/	/	10.08	10.81	13.47	<=29.9	Pass
		2437	/	/	12.68	13.19	15.95	<=29.9	Pass
		2462	/	/	12.83	13.45	16.16	<=29.9	Pass
802.11g	MIMO	2412	/	/	15.56	16.64	19.14	<=29.9	Pass
		2437	/	/	15.78	16.56	19.20	<=29.9	Pass
		2462	/	/	15.82	16.92	19.42	<=29.9	Pass
802.11n (HT20)	MIMO	2412	/	/	15.80	16.98	19.44	<=29.9	Pass
		2437	/	/	16.01	16.94	19.51	<=29.9	Pass
		2462	/	/	16.12	17.11	19.65	<=29.9	Pass
802.11ax (HEW20)	MIMO	2412	SU	/	17.30	18.17	20.77	<=29.9	Pass
		2437	SU	/	17.35	17.98	20.69	<=29.9	Pass
		2462	SU	/	17.69	18.45	21.10	<=29.9	Pass

4. Maximum Power Spectral Density

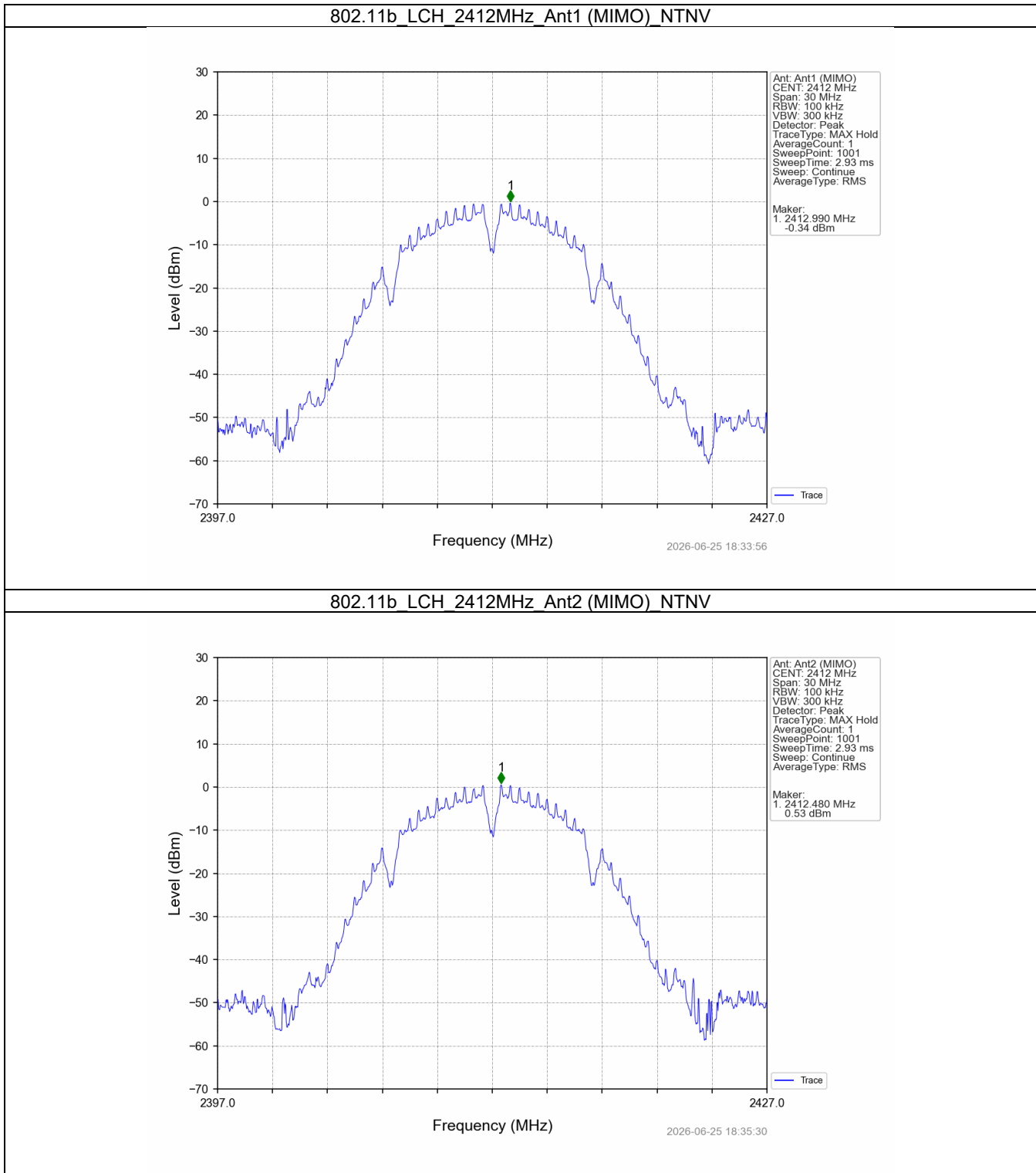
4.1 Test Result

4.1.1 PSD

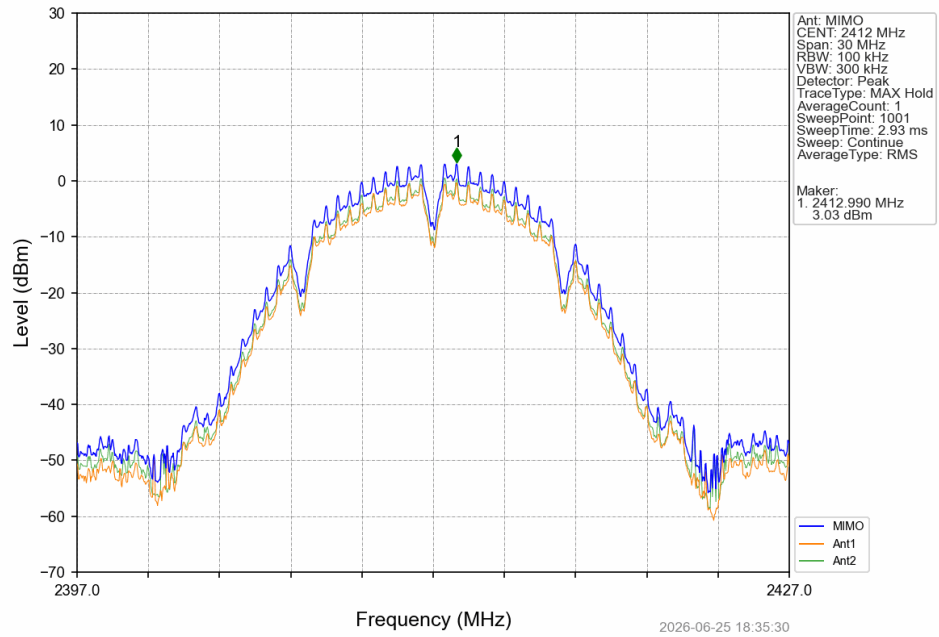
Mode	TX Type	Frequency (MHz)	RU	RU Pos	Maximum PSD (dBm)				Verdict
					ANT1	ANT2	MIMO	Limit(dBm/3kHz)	
802.11b	MIMO	2412	/	/	-0.34dBm/100kHz	0.53dBm/100kHz	3.03dBm/100kHz	<=7.99	Pass
		2437	/	/	-0.03dBm/100kHz	0.73dBm/100kHz	3.37dBm/100kHz	<=7.99	Pass
		2462	/	/	-0.06dBm/100kHz	0.79dBm/100kHz	3.26dBm/100kHz	<=7.99	Pass
802.11g	MIMO	2412	/	/	-4.12dBm/100kHz	-3.53dBm/100kHz	-1.04dBm/100kHz	<=7.99	Pass
		2437	/	/	-3.95dBm/100kHz	-3.69dBm/100kHz	-0.84dBm/100kHz	<=7.99	Pass
		2462	/	/	-3.59dBm/100kHz	-3.45dBm/100kHz	-0.53dBm/100kHz	<=7.99	Pass
802.11n (HT20)	MIMO	2412	/	/	-4.20dBm/100kHz	-3.11dBm/100kHz	-0.77dBm/100kHz	<=7.99	Pass
		2437	/	/	-3.75dBm/100kHz	-3.16dBm/100kHz	-0.53dBm/100kHz	<=7.99	Pass
		2462	/	/	-3.67dBm/100kHz	-2.91dBm/100kHz	-0.38dBm/100kHz	<=7.99	Pass
802.11ax (HEW20)	MIMO	2412	SU	/	-3.54dBm/100kHz	-3.14dBm/100kHz	-0.54dBm/100kHz	<=7.99	Pass
		2437	SU	/	-3.57dBm/100kHz	-3.08dBm/100kHz	-0.39dBm/100kHz	<=7.99	Pass
		2462	SU	/	-3.13dBm/100kHz	-2.85dBm/100kHz	-0.02dBm/100kHz	<=7.99	Pass

4.2 Test Graph

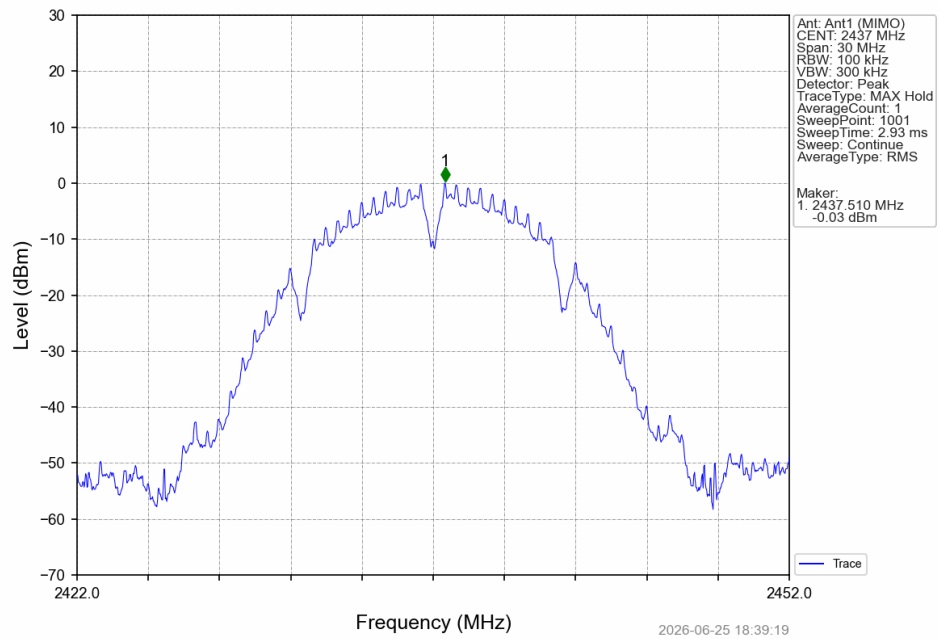
4.2.1 PSD



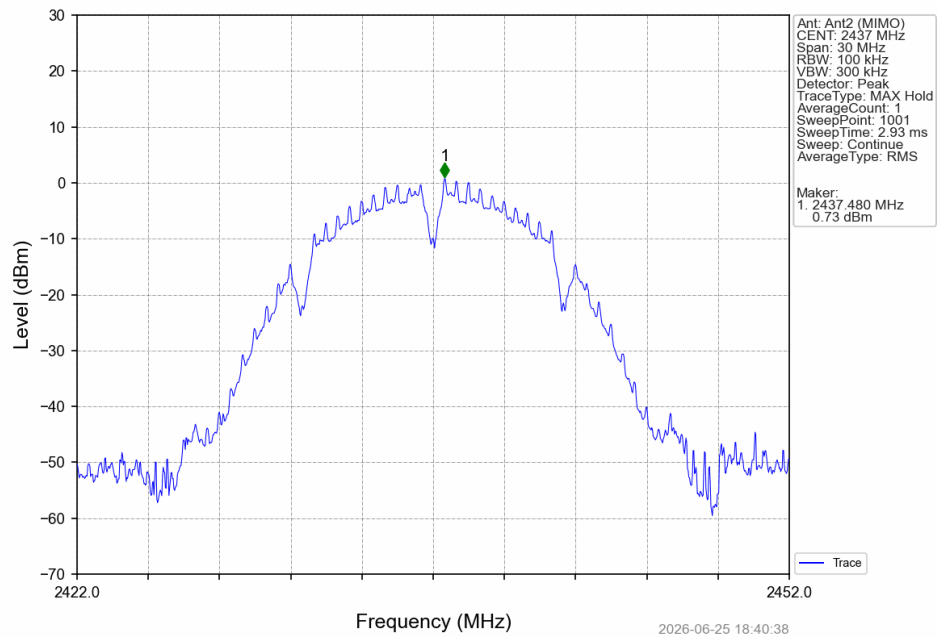
802.11b_LCH_2412MHz_MIMO_NTNV



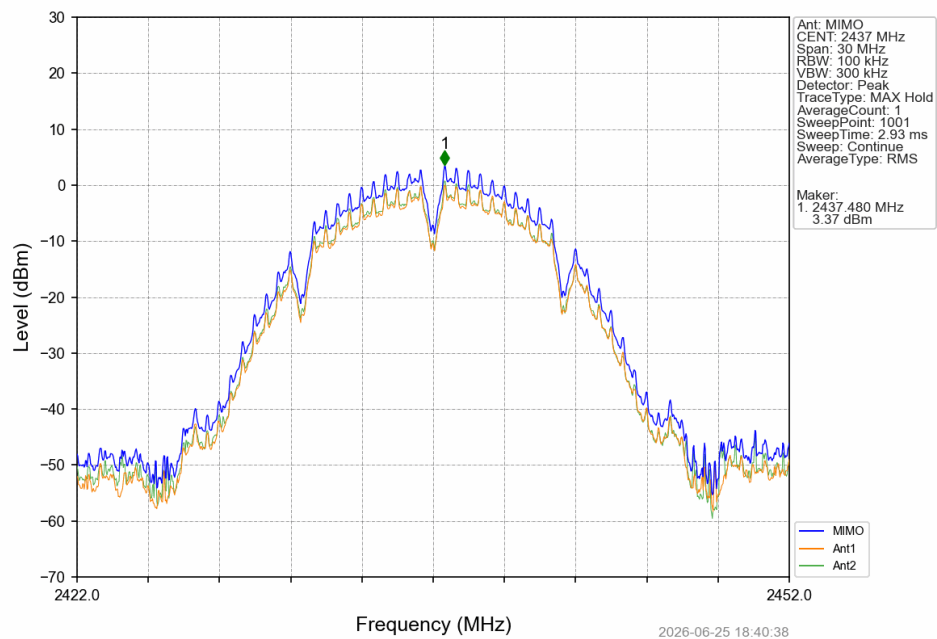
802.11b_MCH_2437MHz_Ant1 (MIMO)_NTNV



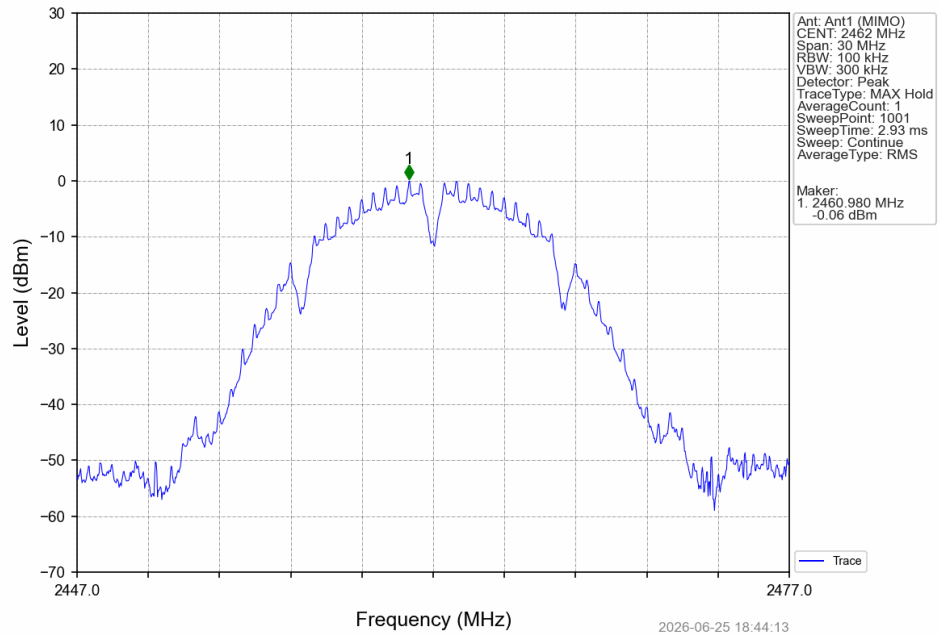
802.11b_MCH_2437MHz_Ant2 (MIMO)_NTNV



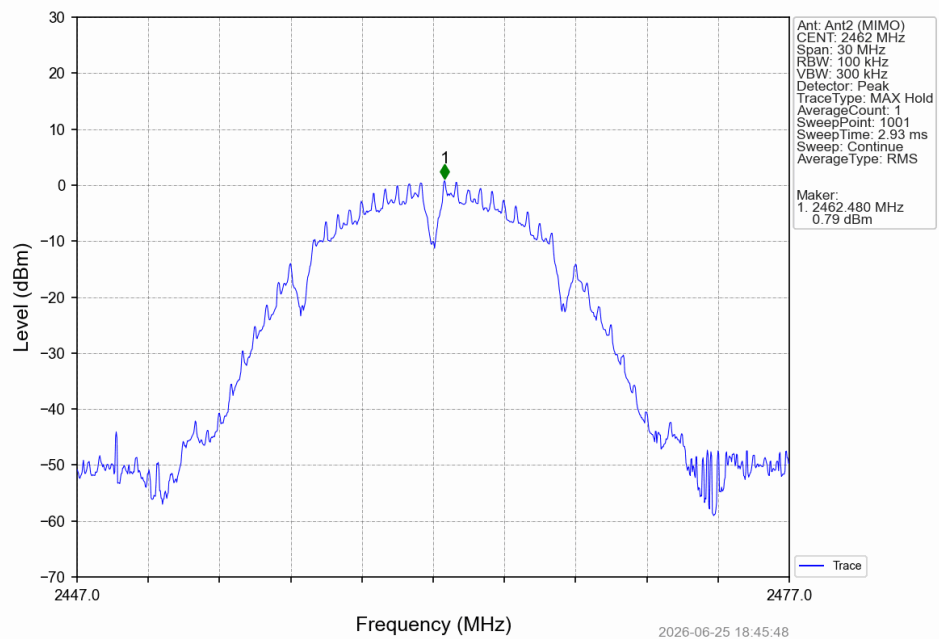
802.11b_MCH_2437MHz_MIMO_NTNV



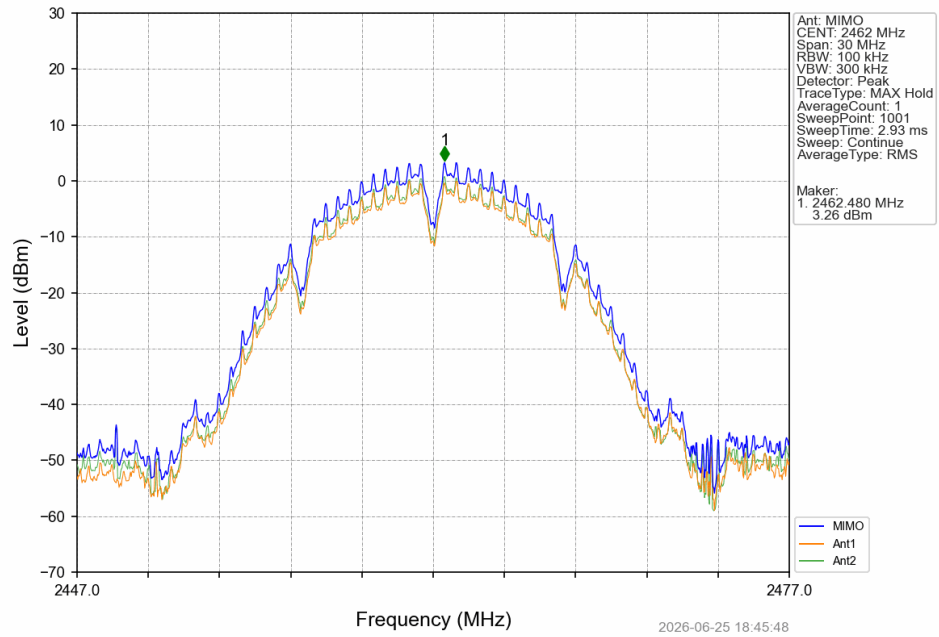
802.11b_HCH_2462MHz_Ant1 (MIMO)_NTNV



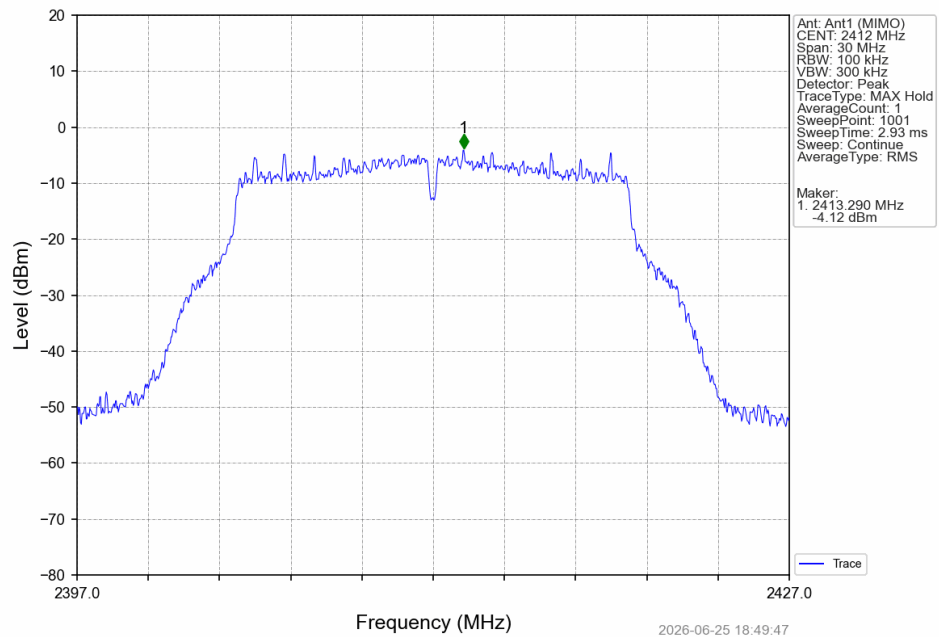
802.11b_HCH_2462MHz_Ant2 (MIMO)_NTNV



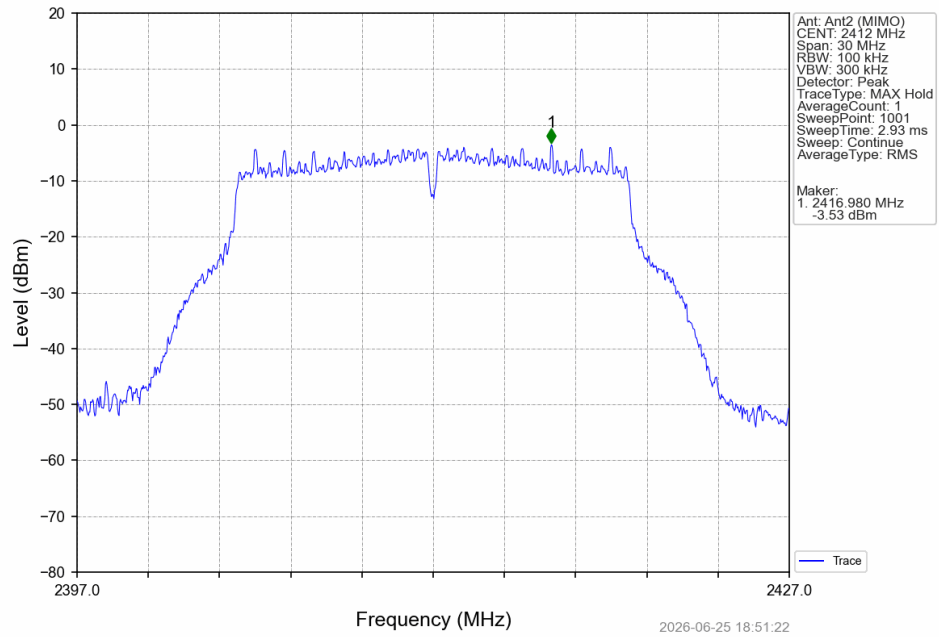
802.11b_HCH_2462MHz_MIMO_NTNV



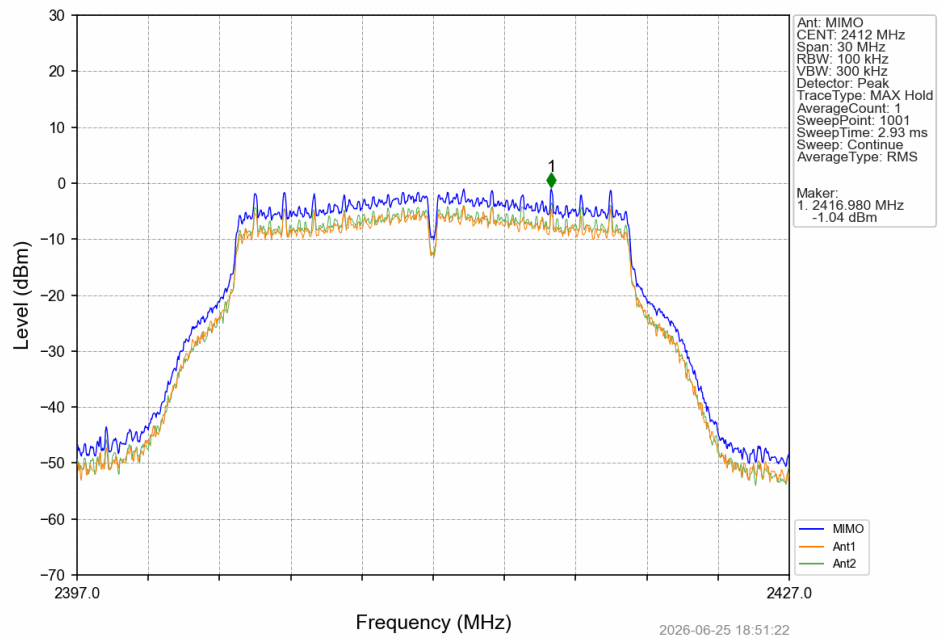
802.11g_LCH_2412MHz_Ant1 (MIMO)_NTNV



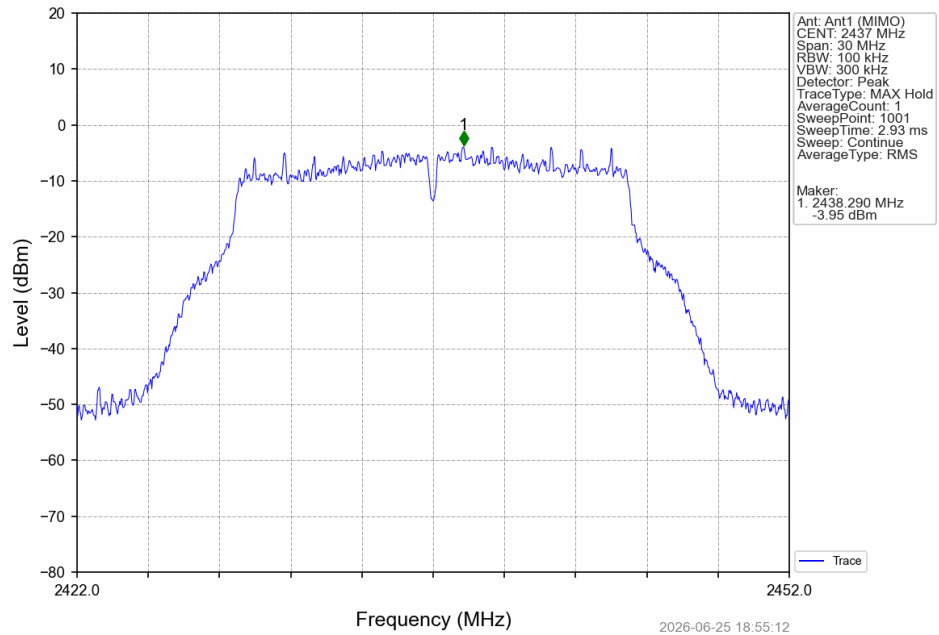
802.11g_LCH_2412MHz_Ant2 (MIMO)_NTNV



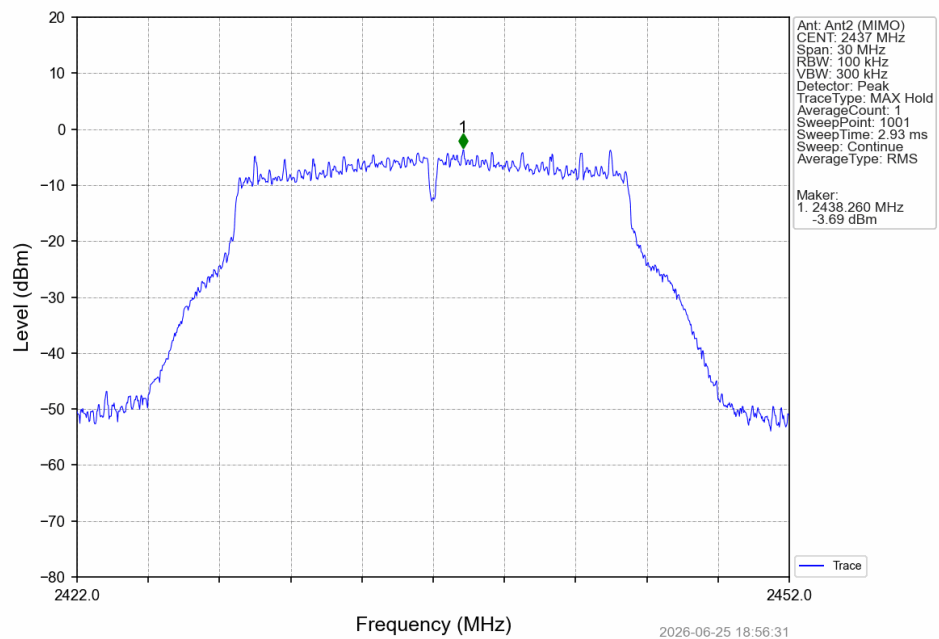
802.11g_LCH_2412MHz_MIMO_NTNV



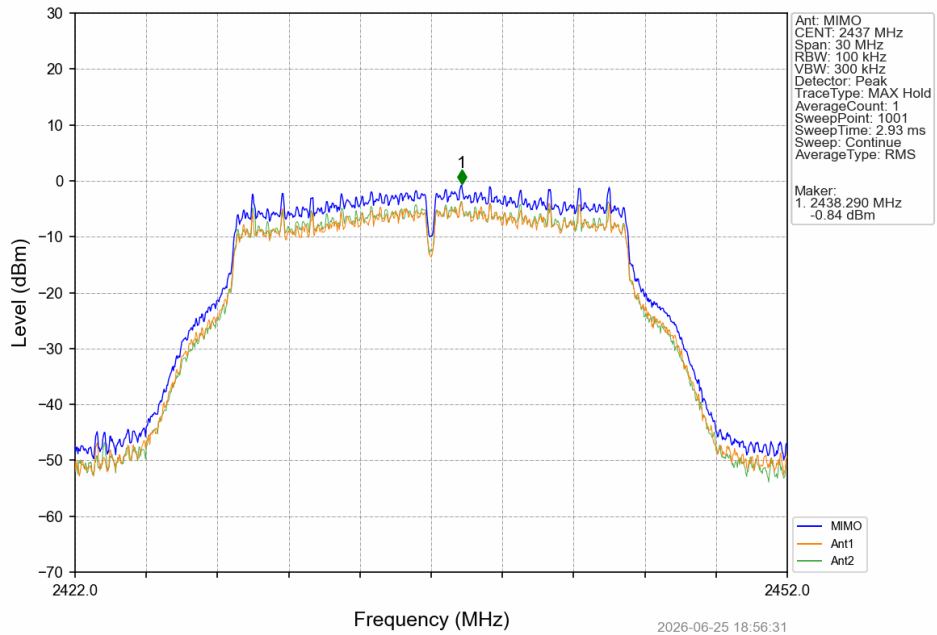
802.11g_MCH_2437MHz_Ant1 (MIMO)_NTNV



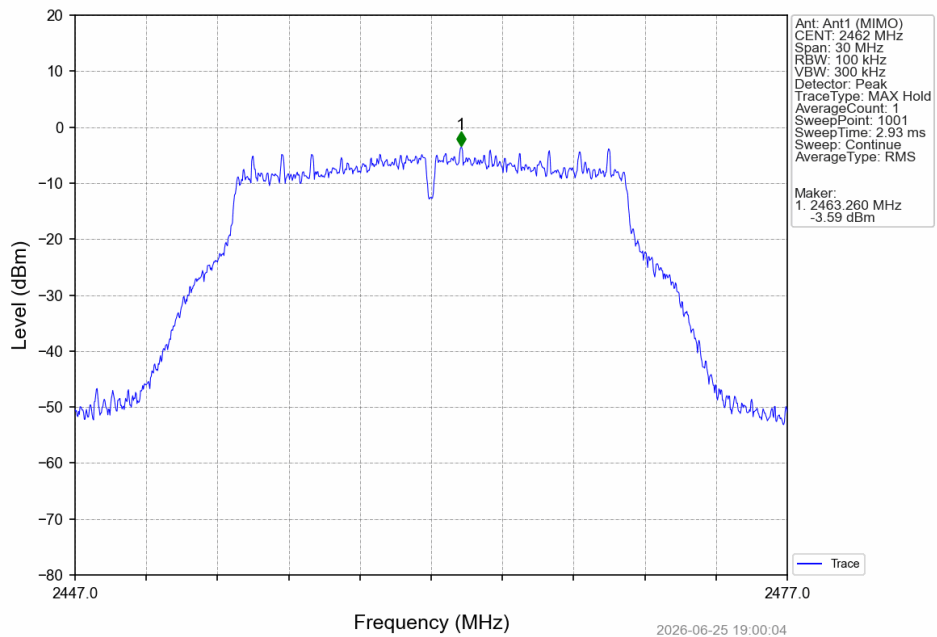
802.11g_MCH_2437MHz_Ant2 (MIMO)_NTNV



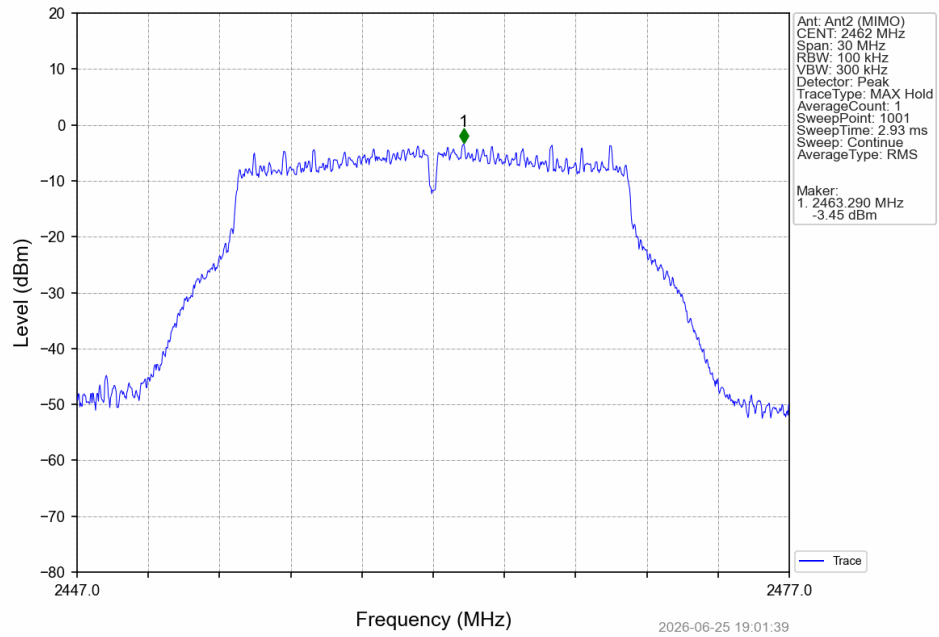
802.11g_MCH_2437MHz_MIMO_NTNV



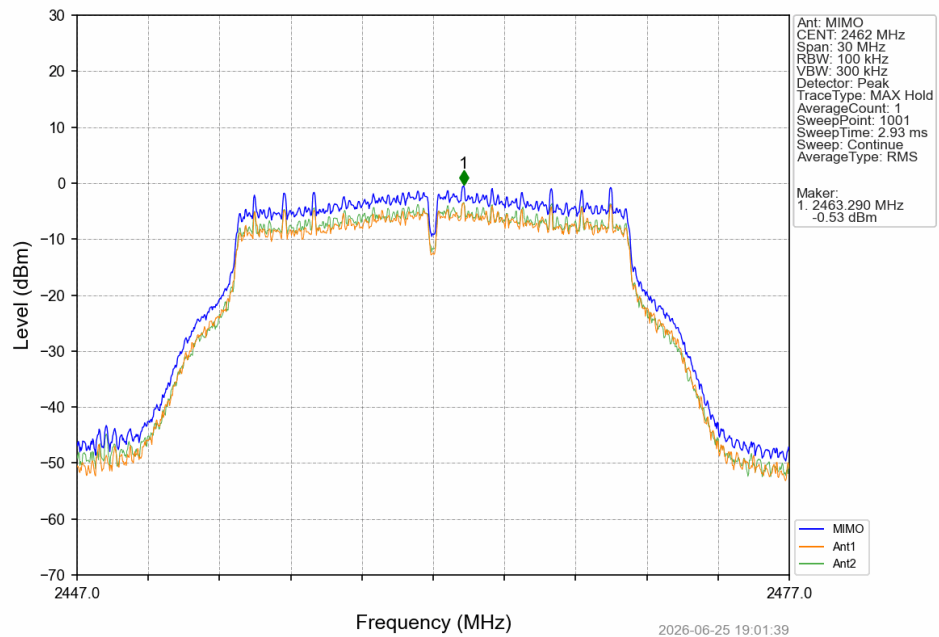
802.11g_HCH_2462MHz_Ant1 (MIMO)_NTNV



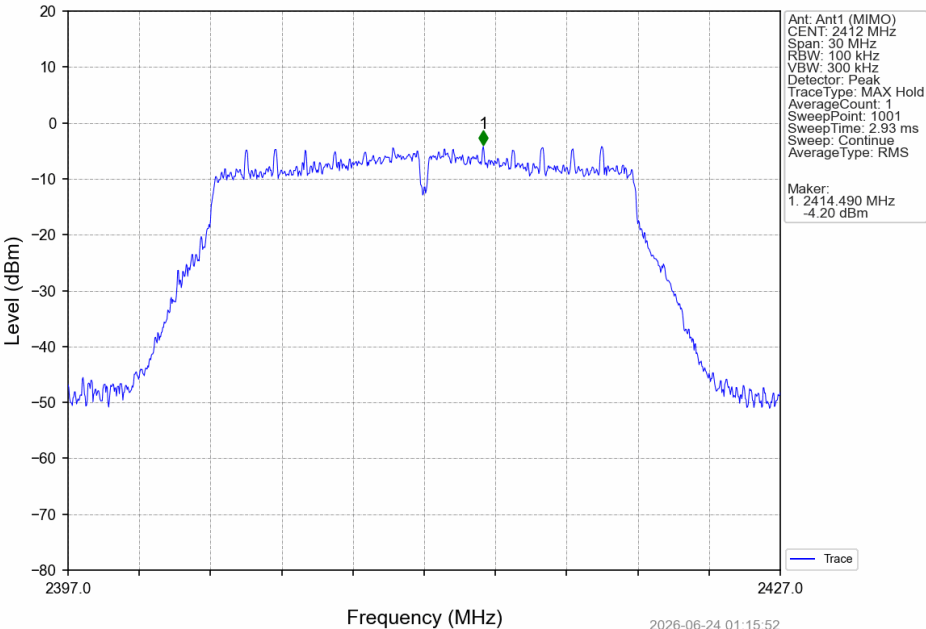
802.11g_HCH_2462MHz_Ant2 (MIMO)_NTNV



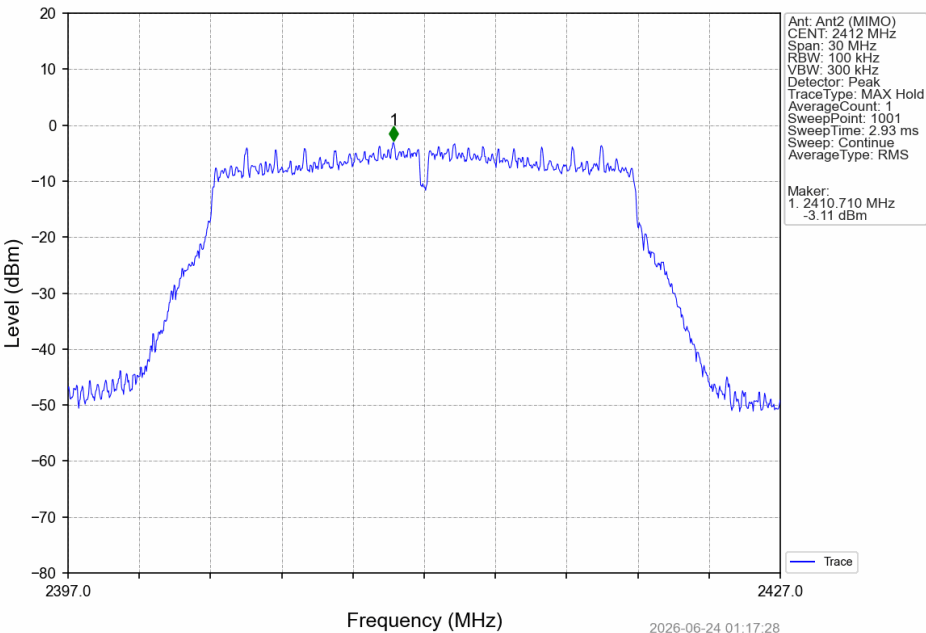
802.11g_HCH_2462MHz_MIMO_NTNV



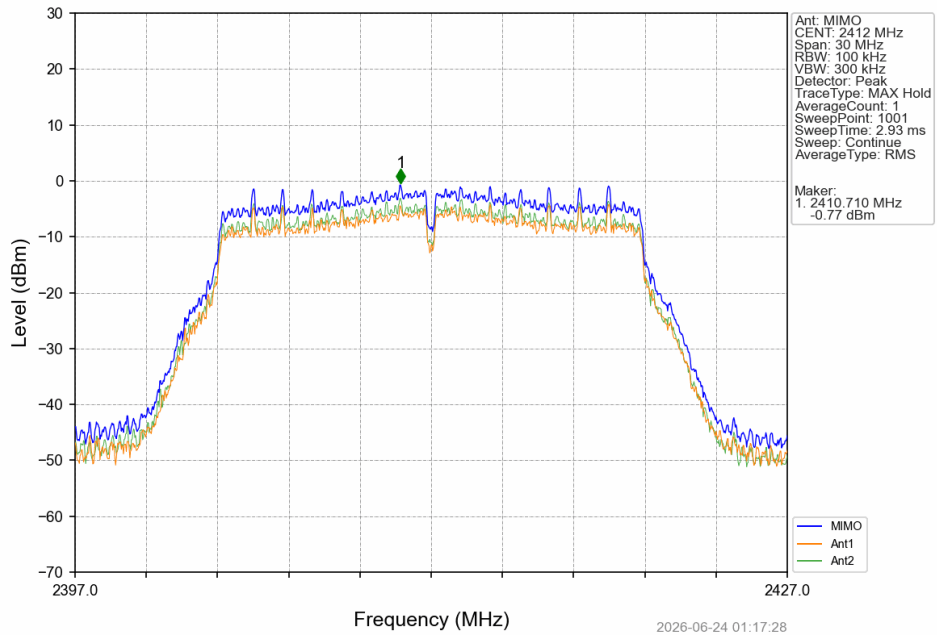
802.11n(HT20)_LCH_2412MHz_Ant1 (MIMO)_NTNV



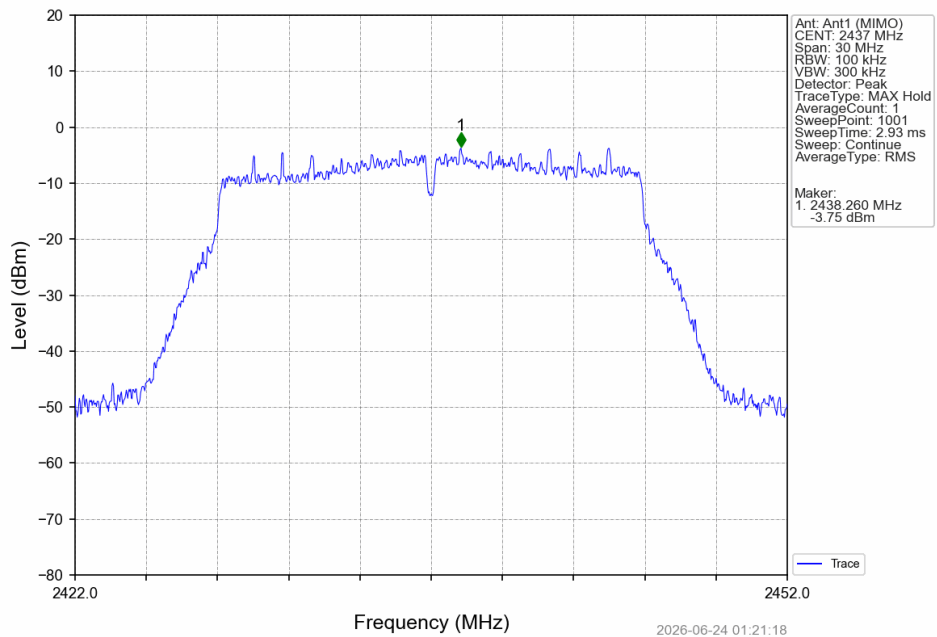
802.11n(HT20)_LCH_2412MHz_Ant2 (MIMO)_NTNV



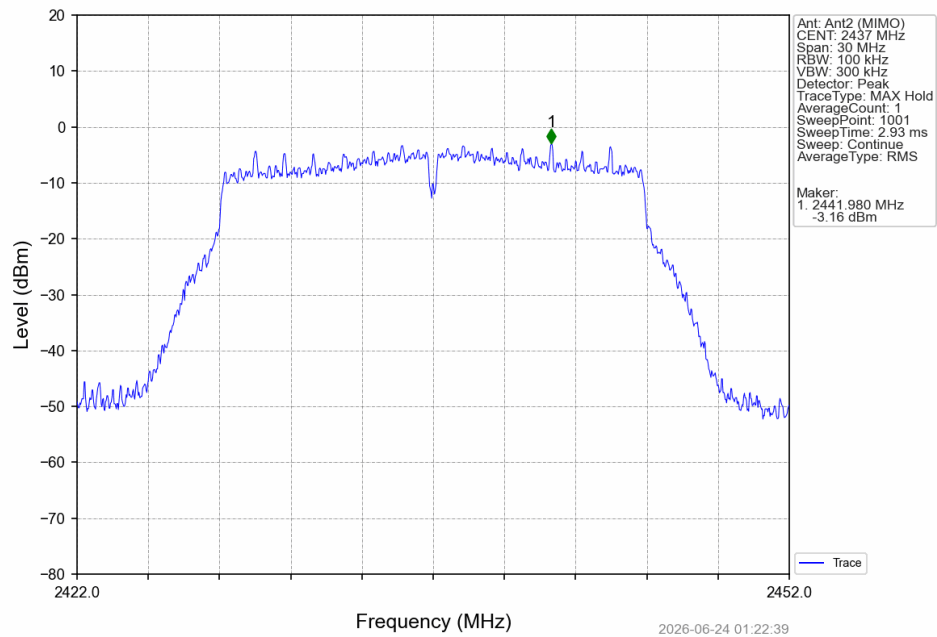
802.11n(HT20)_LCH_2412MHz_MIMO_NTNV



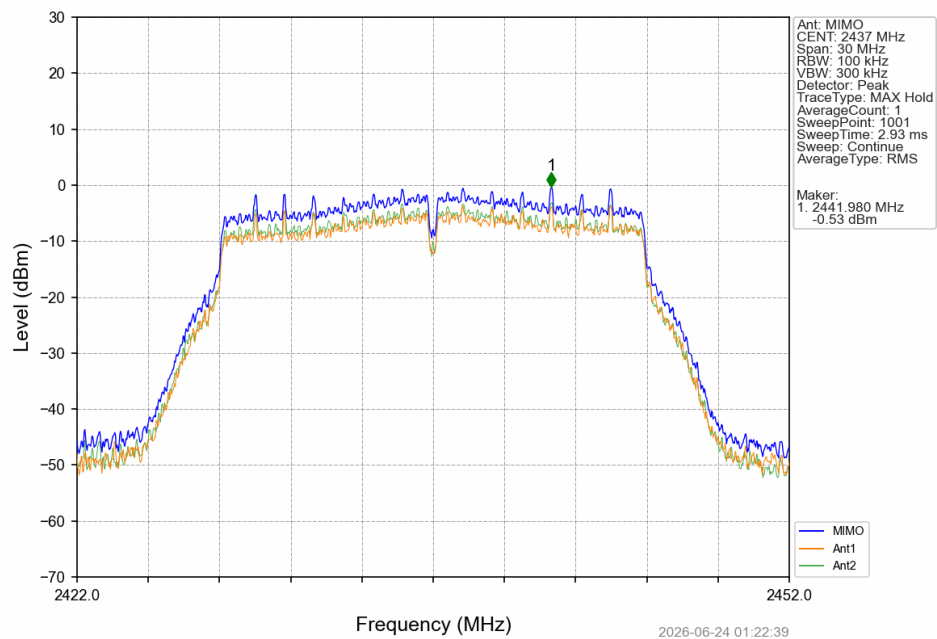
802.11n(HT20)_MCH_2437MHz_Ant1 (MIMO)_NTNV



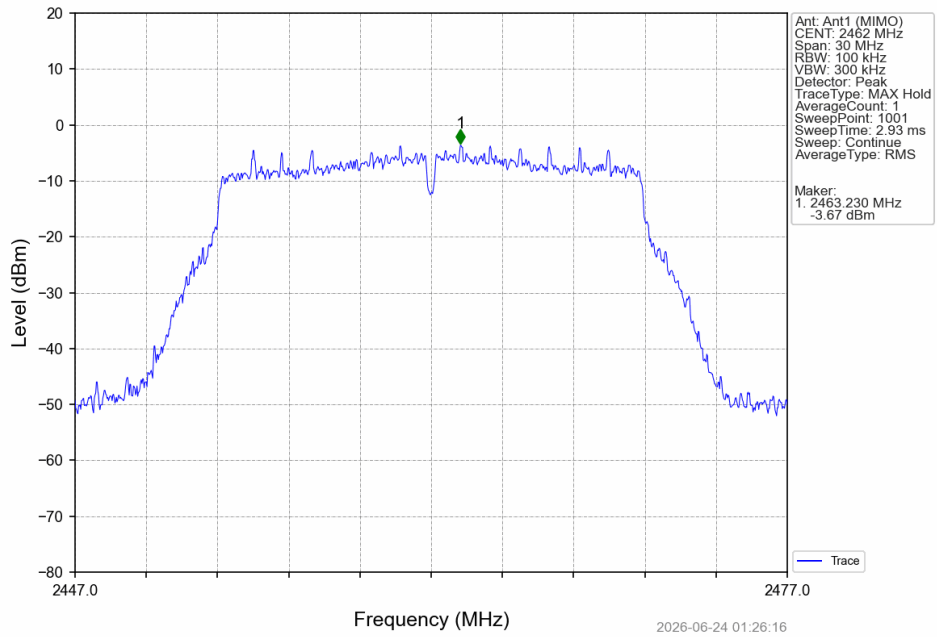
802.11n(HT20)_MCH_2437MHz_Ant2 (MIMO)_NTNV



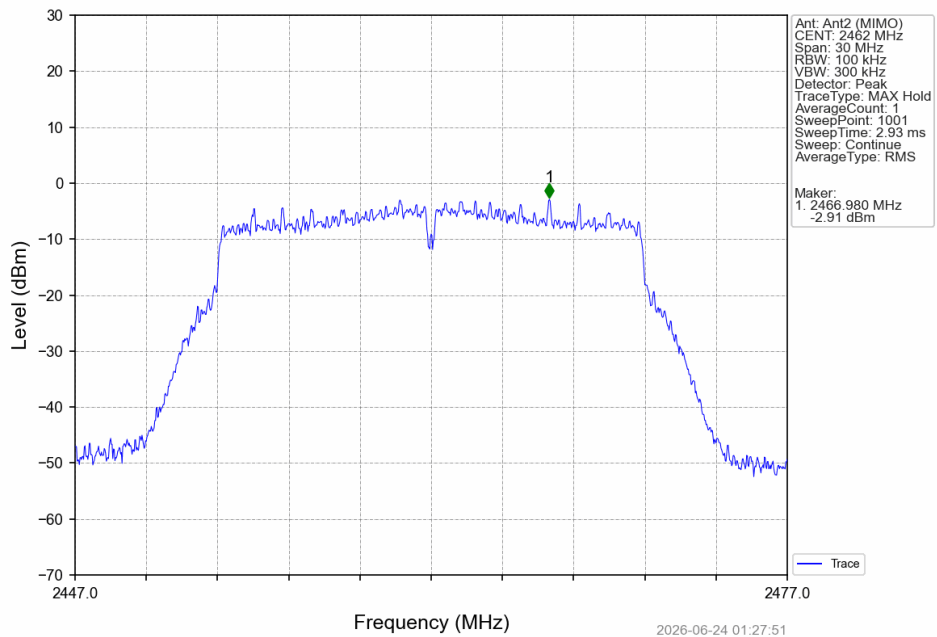
802.11n(HT20)_MCH_2437MHz_MIMO_NTNV



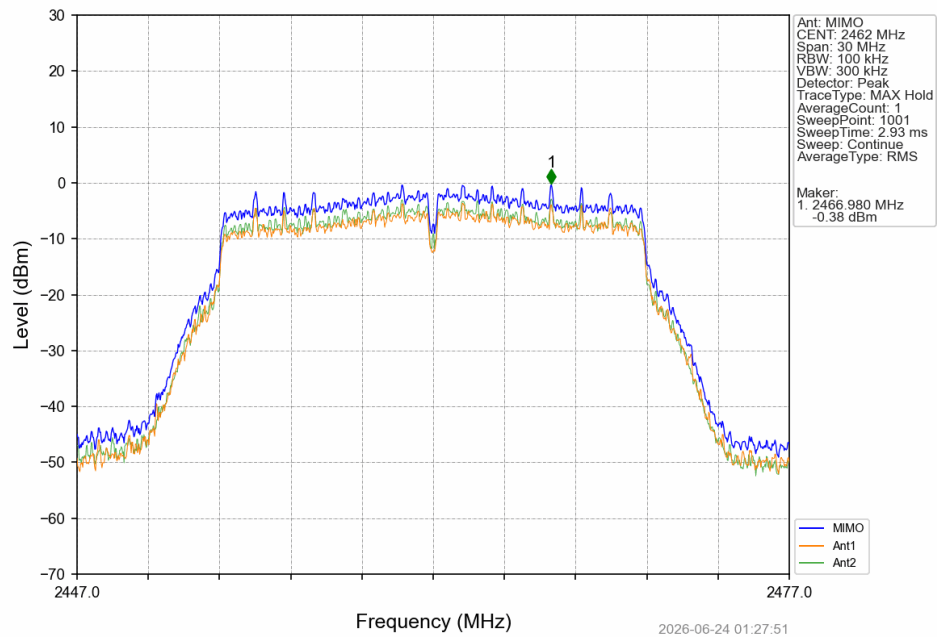
802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV



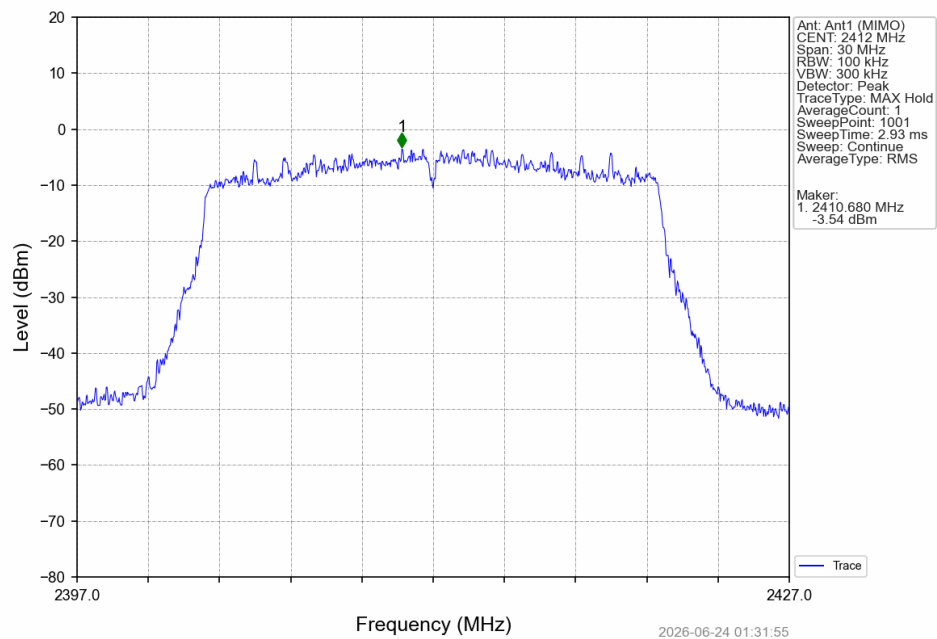
802.11n(HT20)_HCH_2462MHz_Ant2 (MIMO)_NTNV



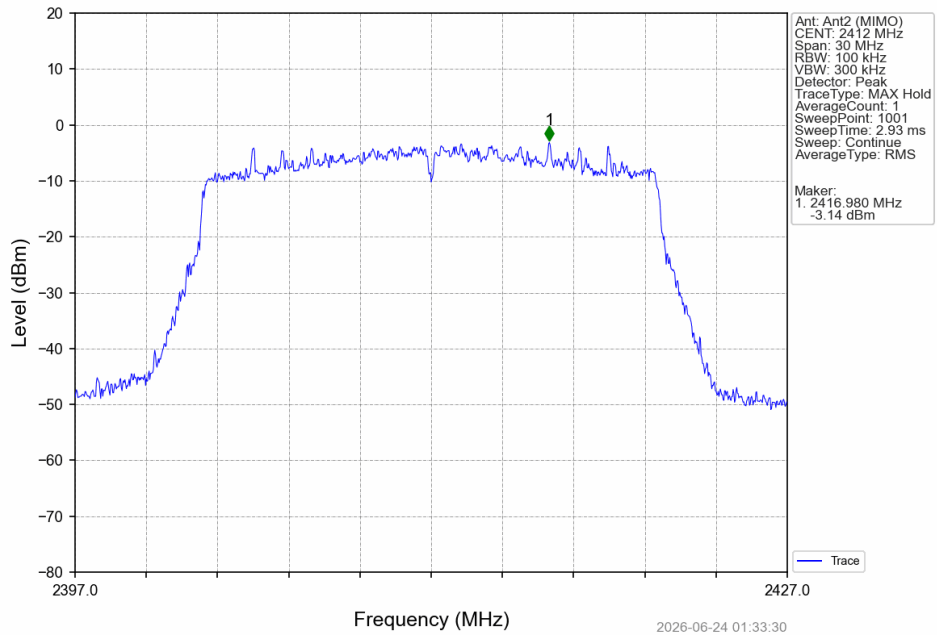
802.11n(HT20)_HCH_2462MHz_MIMO_NTNV



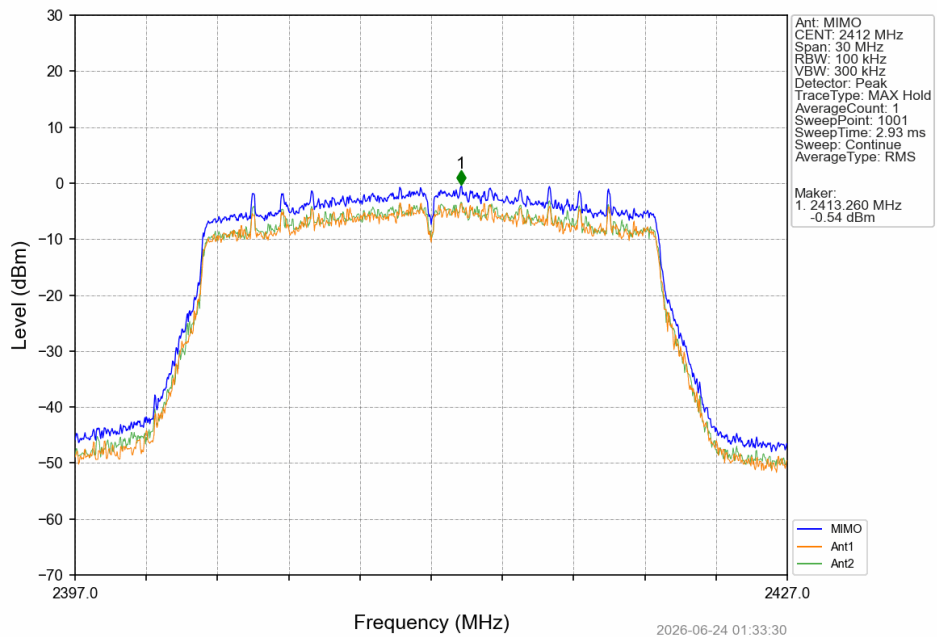
802.11ax(HEW20)_LCH_2412MHz_SU / _Ant1 (MIMO)_NTNV



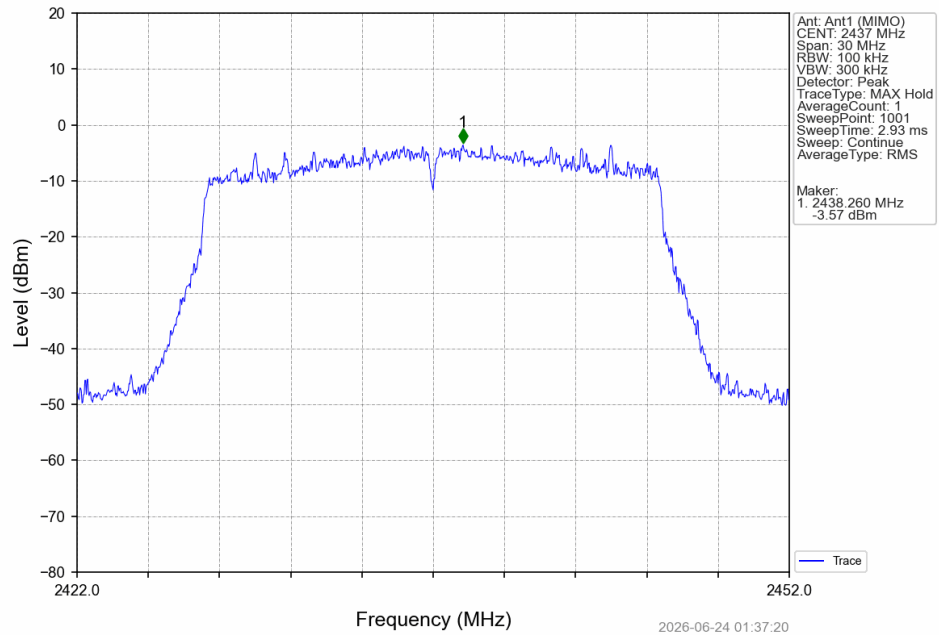
802.11ax(HEW20)_LCH_2412MHz_SU / Ant2 (MIMO)_NTNV



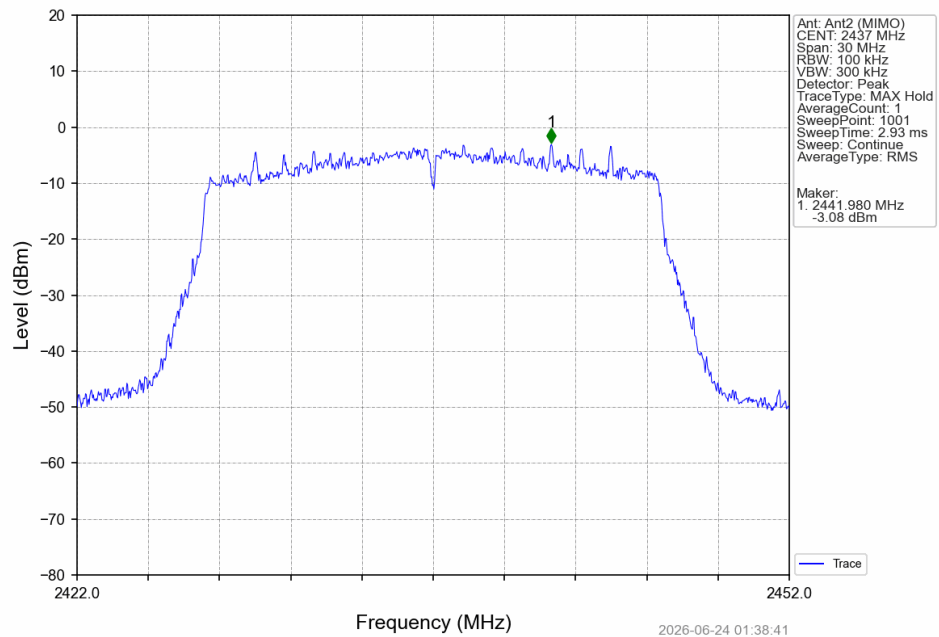
802.11ax(HEW20)_LCH_2412MHz_SU / MIMO_NTNV



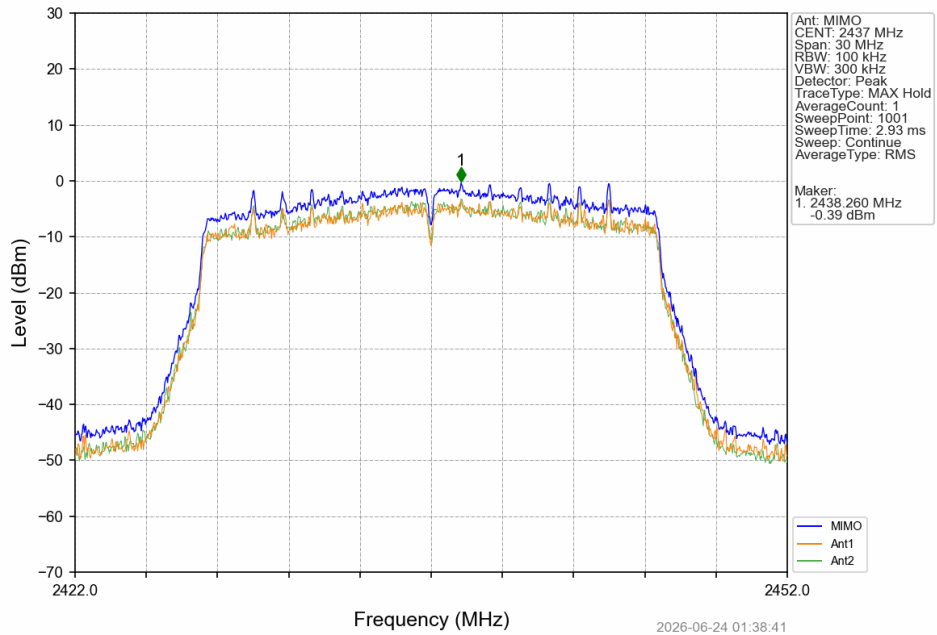
802.11ax(HEW20)_MCH_2437MHz_SU_/_Ant1 (MIMO)_NTNV



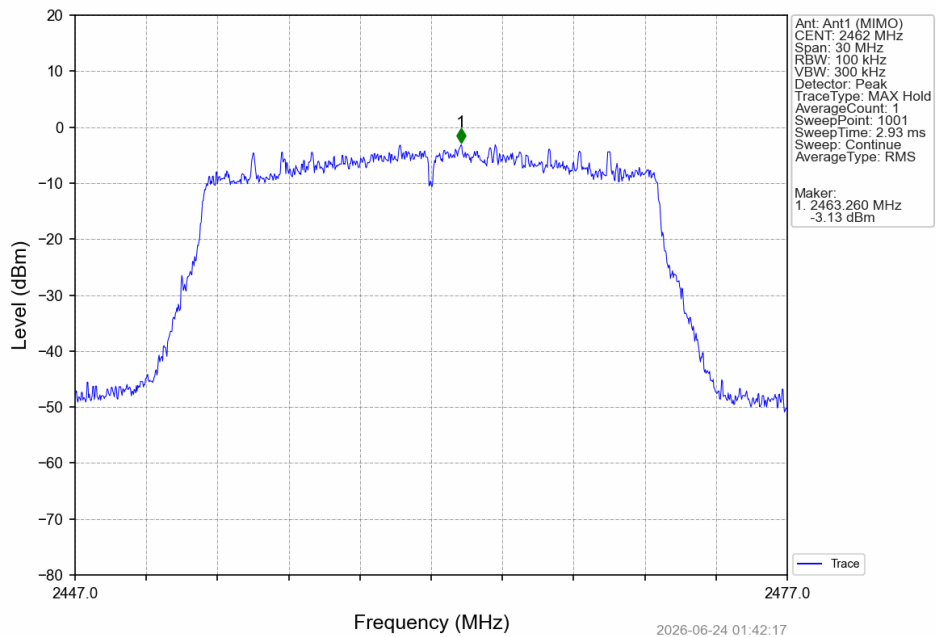
802.11ax(HEW20)_MCH_2437MHz_SU_/_Ant2 (MIMO)_NTNV



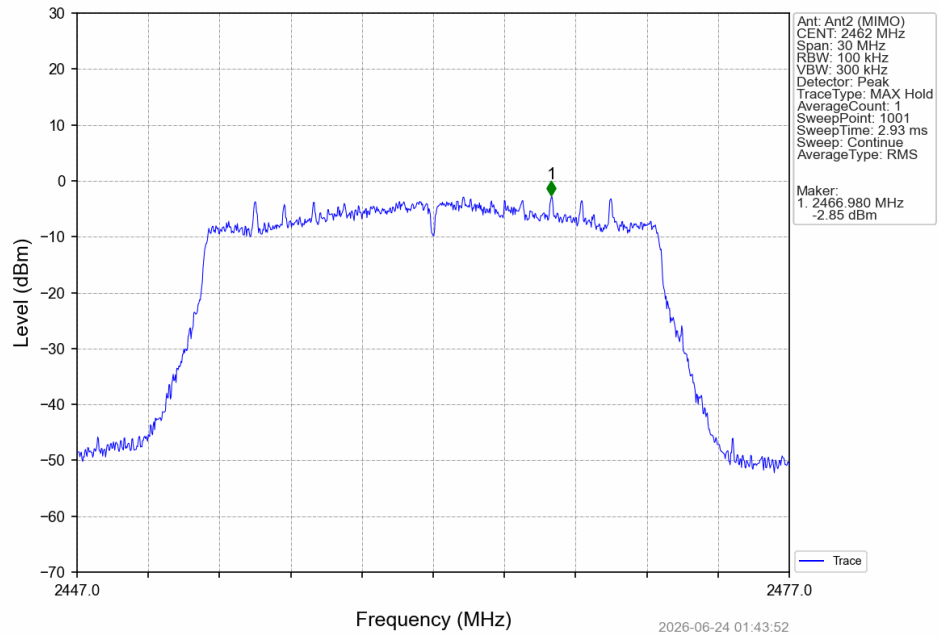
802.11ax(HEW20)_MCH_2437MHz_SU_/_MIMO_NTNV



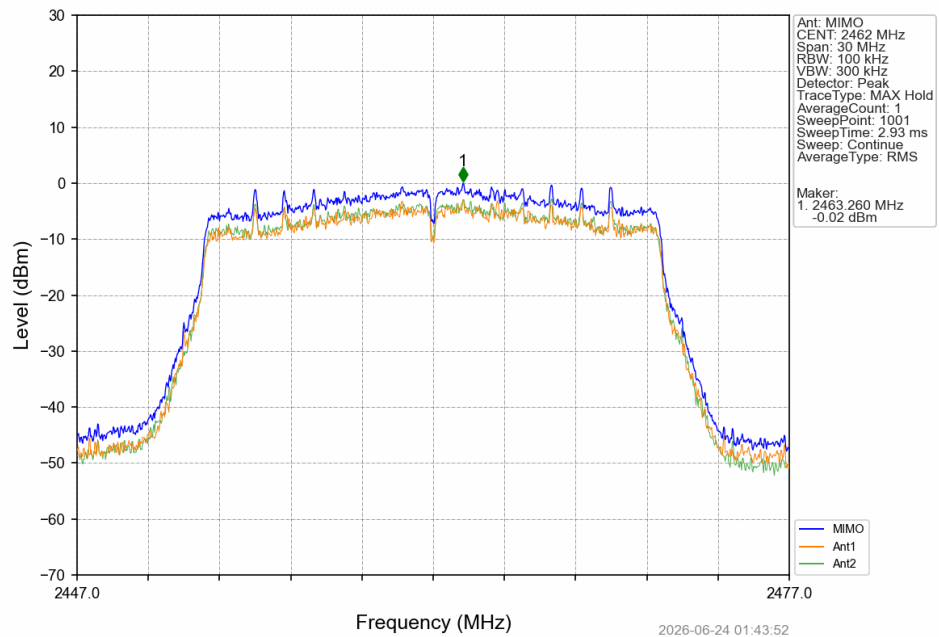
802.11ax(HEW20)_HCH_2462MHz_SU_/_Ant1 (MIMO)_NTNV



802.11ax(HEW20)_HCH_2462MHz_SU / _Ant2 (MIMO)_NTNV



802.11ax(HEW20)_HCH_2462MHz_SU / _MIMO_NTNV



5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Test Result

5.1.1 Ref

Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	Level of Reference (dBm)
802.11b	MIMO	2412	/	/	1	-0.47
					2	0.03
		2437	/	/	1	0.12
					2	0.40
		2462	/	/	1	0.32
					2	0.85
802.11g	MIMO	2412	/	/	1	-4.43
					2	-3.52
		2437	/	/	1	-3.44
					2	-3.60
		2462	/	/	1	-3.71
					2	-3.18
802.11n (HT20)	MIMO	2412	/	/	1	-3.63
					2	-3.23
		2437	/	/	1	-3.17
					2	-3.15
		2462	/	/	1	-3.32
					2	-2.90
802.11ax (HEW20)	MIMO	2412	SU	/	1	-3.40
					2	-3.22
		2437	SU	/	1	-2.85
					2	-2.99
		2462	SU	/	1	-3.22
					2	-2.72

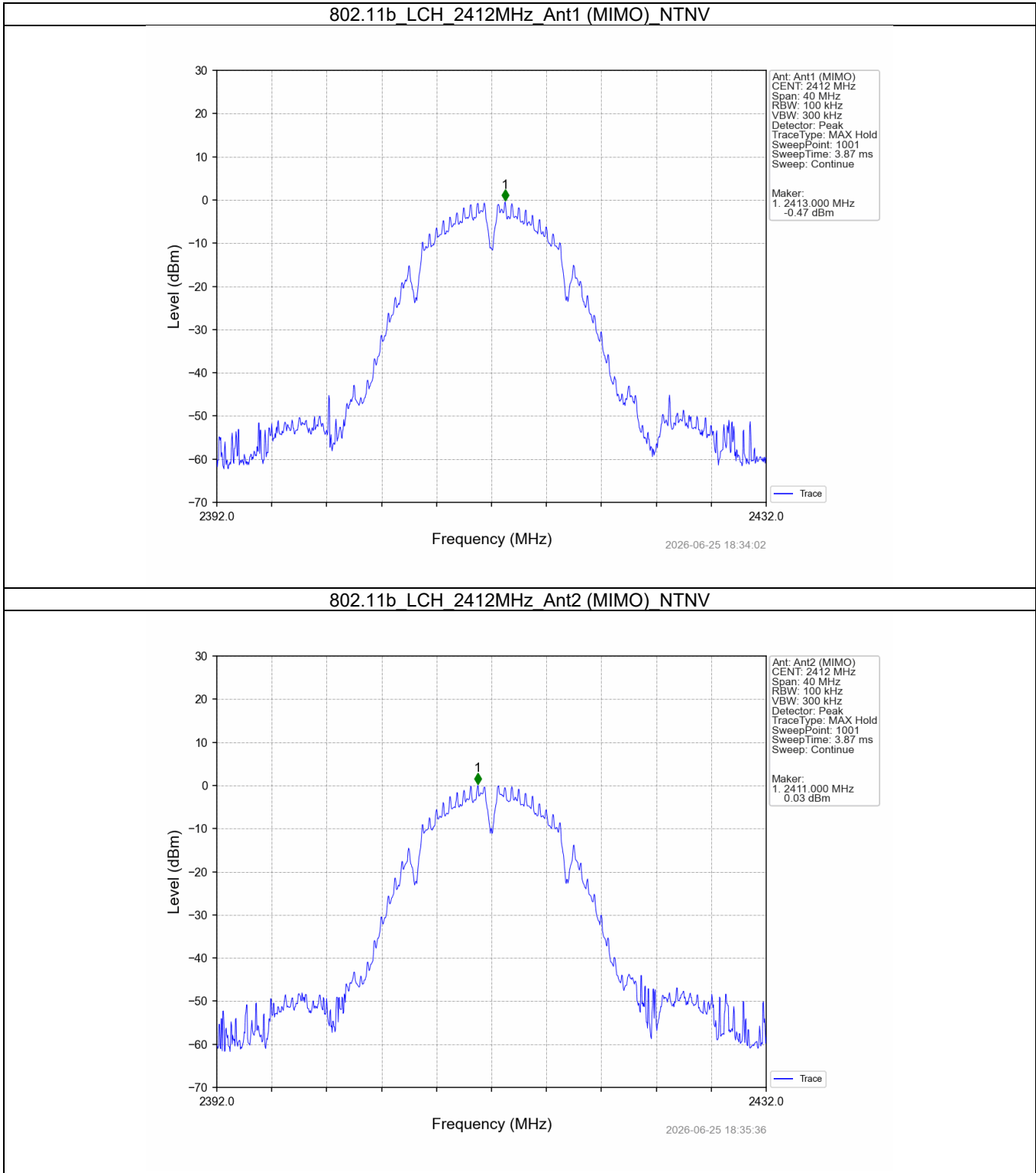
5.1.2 CSE

Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	MIMO	2412	/	/	1	-0.47	-20.47	Pass
					2	0.03	-19.97	Pass
		2437	/	/	1	0.12	-19.88	Pass
					2	0.40	-19.60	Pass
		2462	/	/	1	0.32	-19.68	Pass
					2	0.85	-19.15	Pass
802.11g	MIMO	2412	/	/	1	-4.43	-24.43	Pass
					2	-3.52	-23.52	Pass
		2437	/	/	1	-3.44	-23.44	Pass
					2	-3.60	-23.60	Pass
		2462	/	/	1	-3.71	-23.71	Pass
					2	-3.18	-23.18	Pass
802.11n (HT20)	MIMO	2412	/	/	1	-3.63	-23.63	Pass
					2	-3.23	-23.23	Pass
		2437	/	/	1	-3.17	-23.17	Pass
					2	-3.15	-23.15	Pass
		2462	/	/	1	-3.32	-23.32	Pass
					1	-3.32	-23.32	Pass

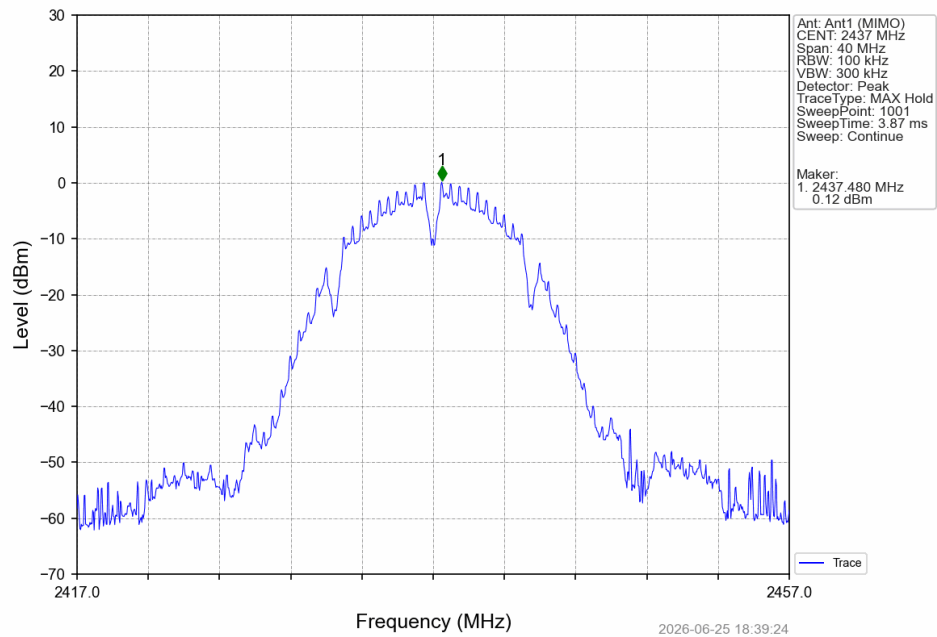
					2	-2.90	-22.90	Pass
802.11ax (HEW20)	MIMO	2412	SU	/	1	-3.40	-23.40	Pass
					2	-3.22	-23.22	Pass
					1	-2.85	-22.85	Pass
		2437	SU	/	2	-2.99	-22.99	Pass
					1	-3.22	-23.22	Pass
					2	-2.72	-22.72	Pass
					2	-2.90	-22.90	Pass

5.2 Test Graph

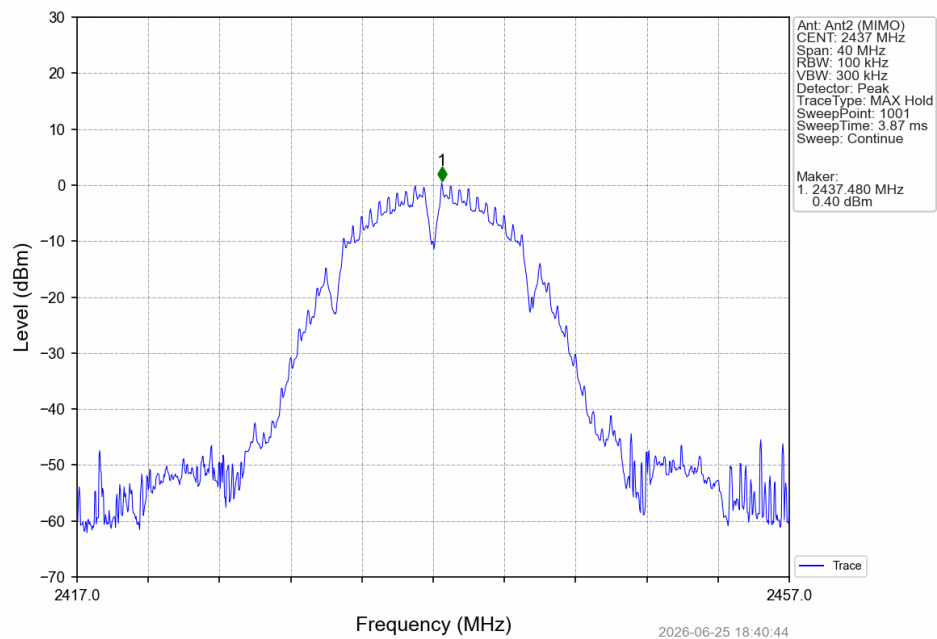
5.2.1 Ref



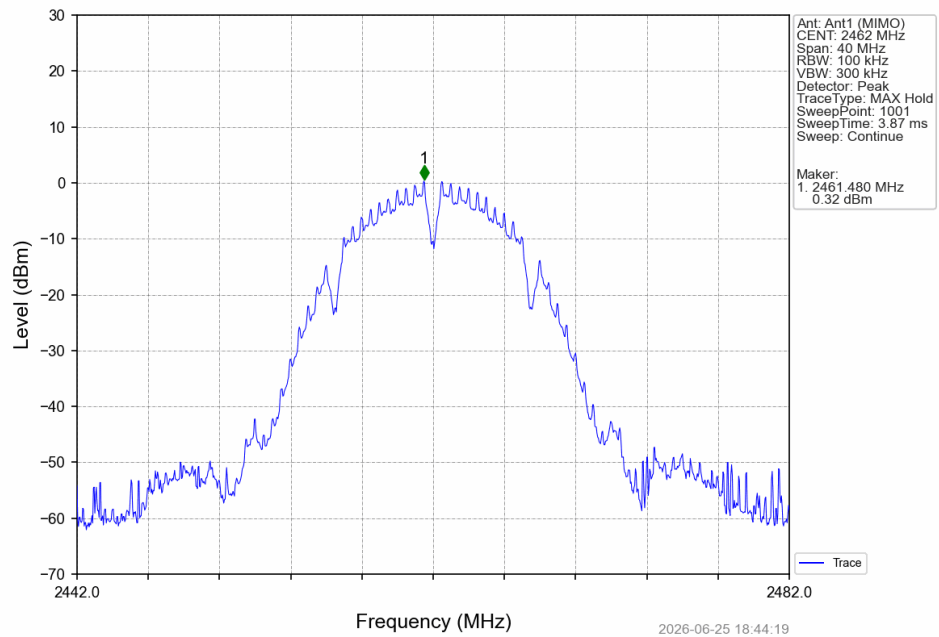
802.11b_MCH_2437MHz_Ant1 (MIMO)_NTNV



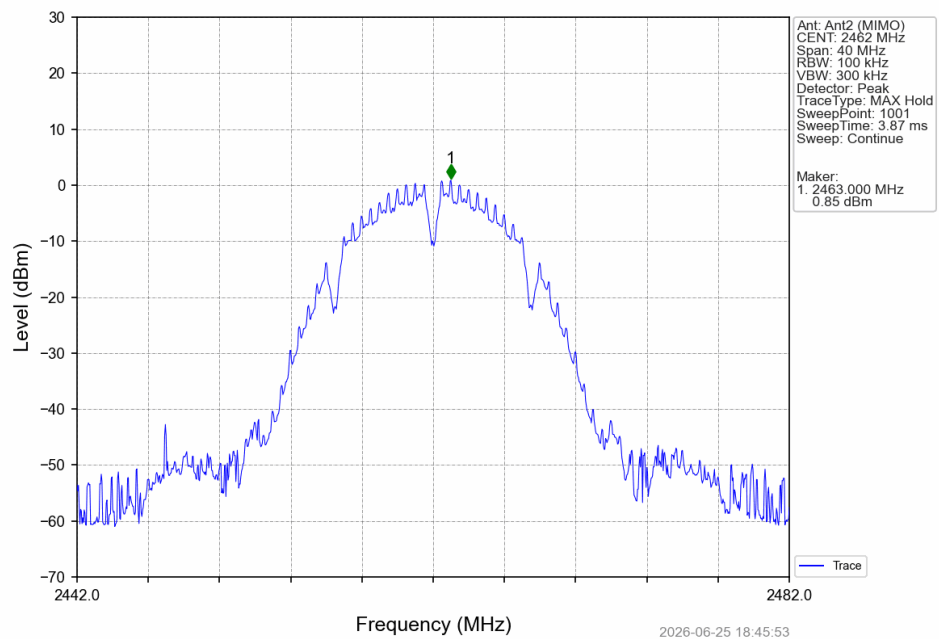
802.11b_MCH_2437MHz_Ant2 (MIMO)_NTNV



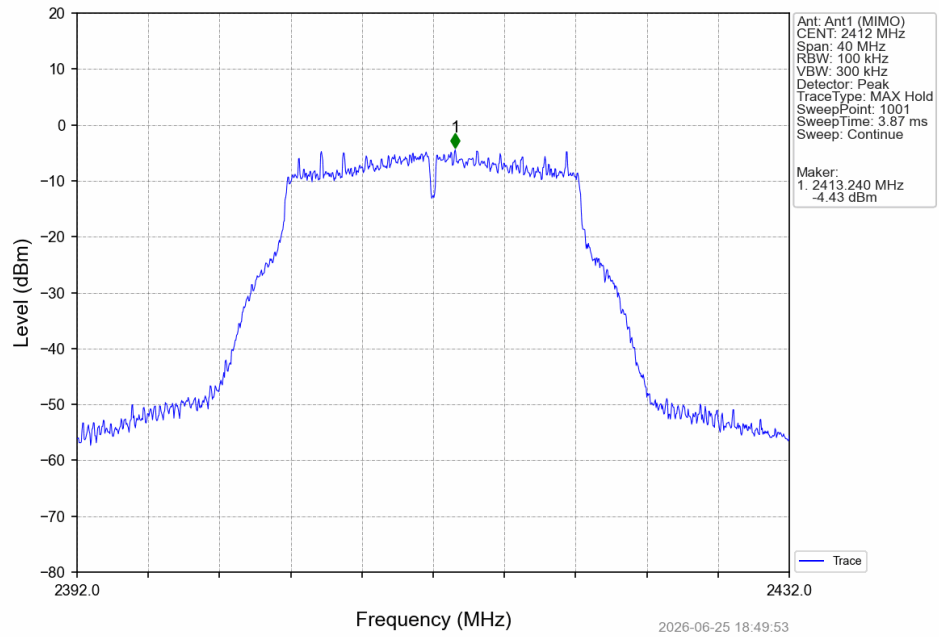
802.11b_HCH_2462MHz_Ant1 (MIMO)_NTNV



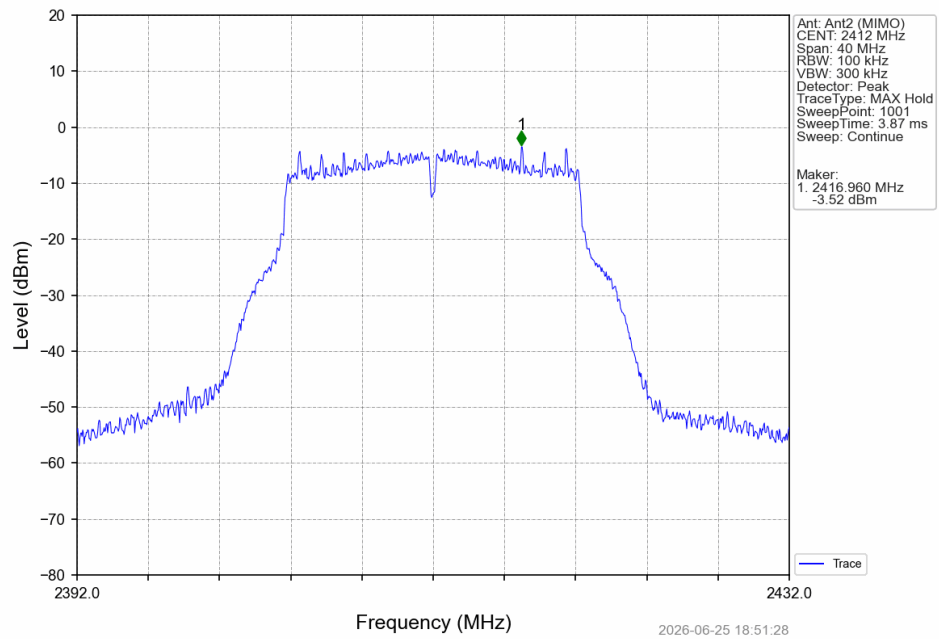
802.11b_HCH_2462MHz_Ant2 (MIMO)_NTNV



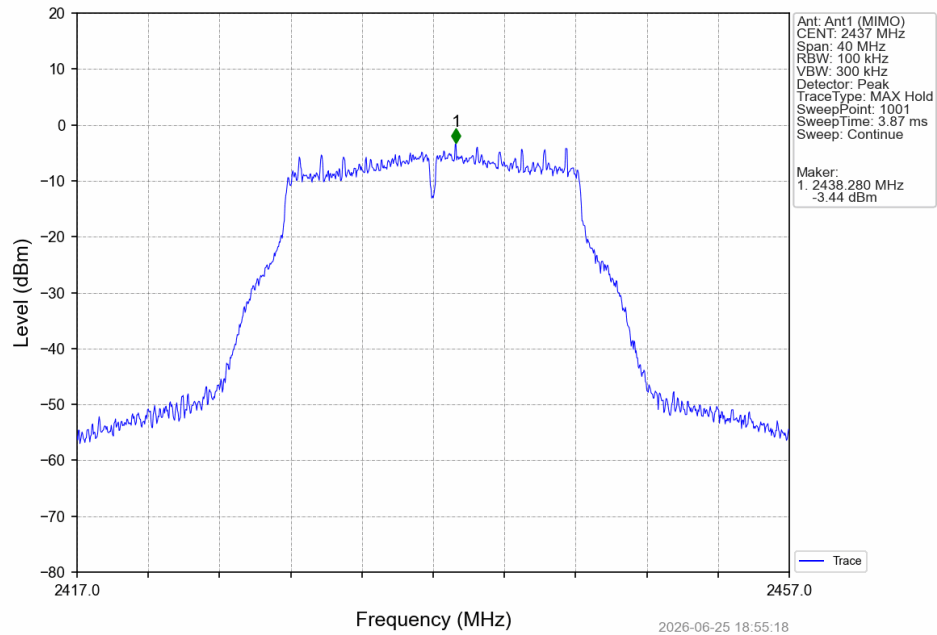
802.11g_LCH_2412MHz_Ant1 (MIMO)_NTNV



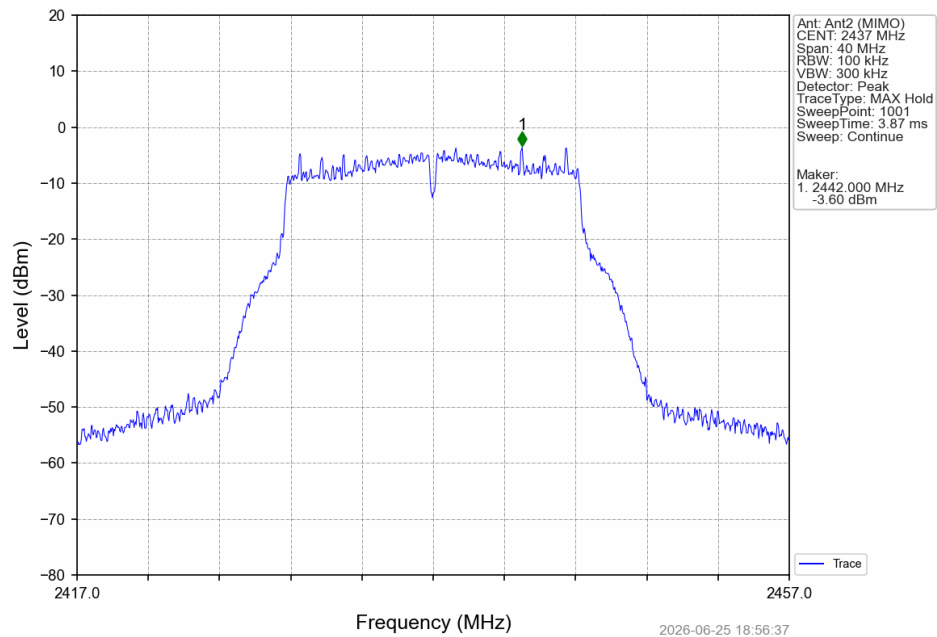
802.11g_LCH_2412MHz_Ant2 (MIMO)_NTNV



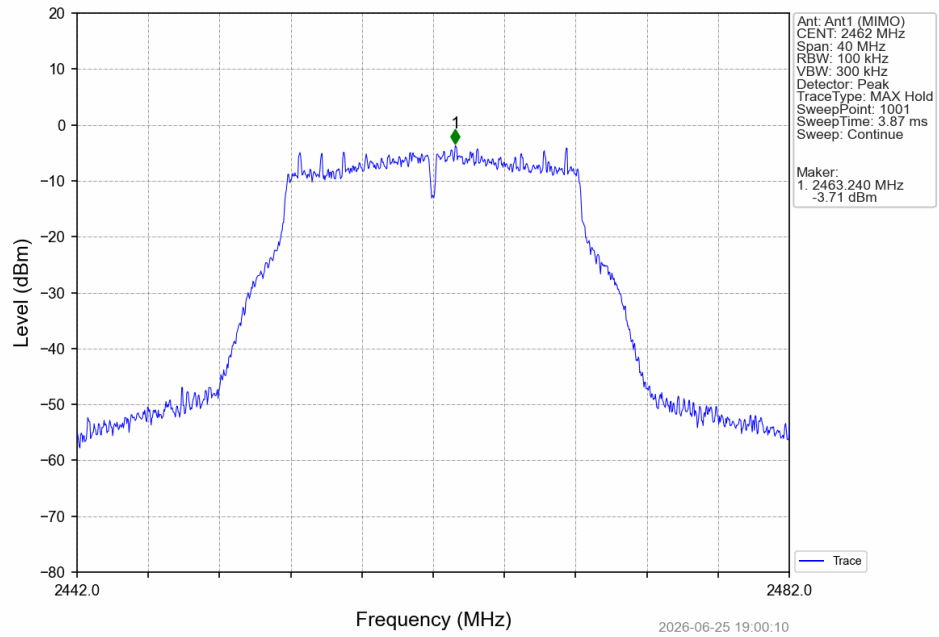
802.11g_MCH_2437MHz_Ant1 (MIMO)_NTNV



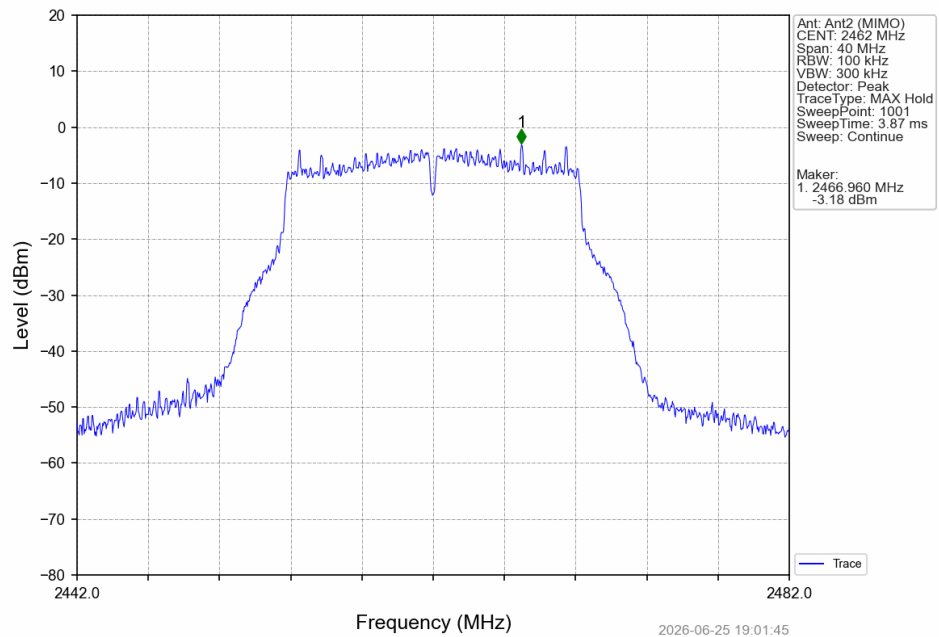
802.11g_MCH_2437MHz_Ant2 (MIMO)_NTNV



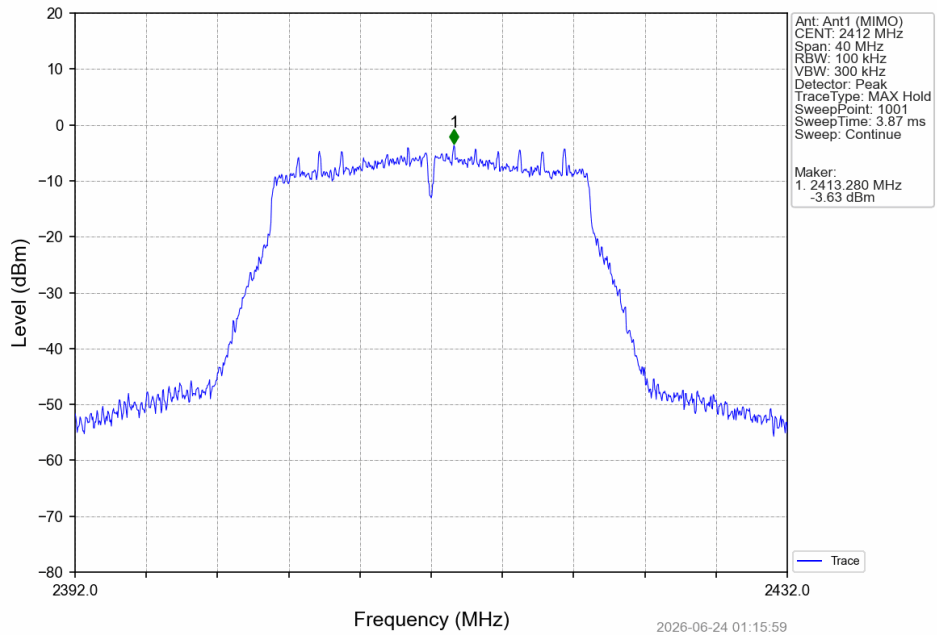
802.11g_HCH_2462MHz_Ant1 (MIMO)_NTNV



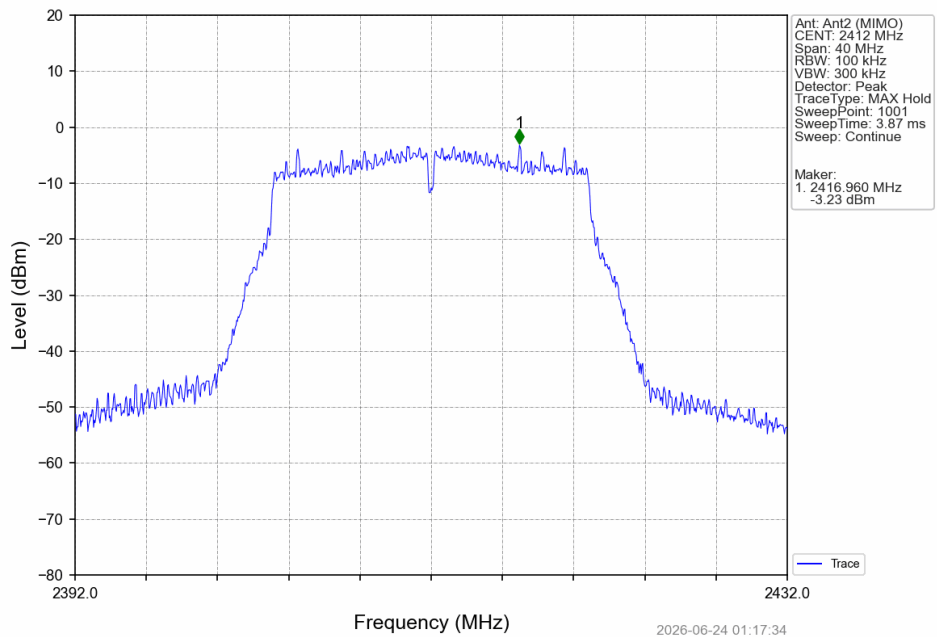
802.11g_HCH_2462MHz_Ant2 (MIMO)_NTNV



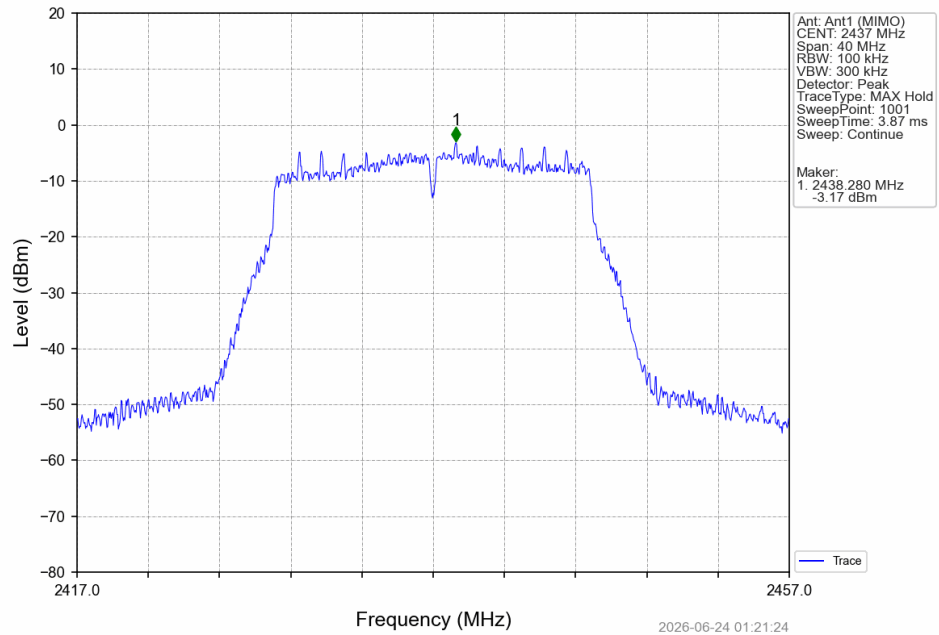
802.11n(HT20)_LCH_2412MHz_Ant1 (MIMO)_NTNV



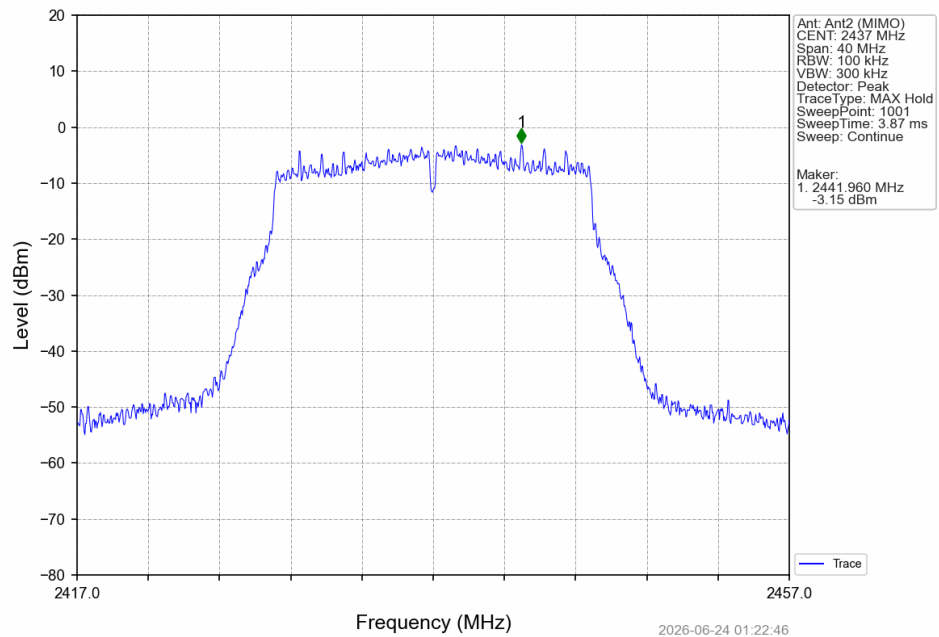
802.11n(HT20)_LCH_2412MHz_Ant2 (MIMO)_NTNV



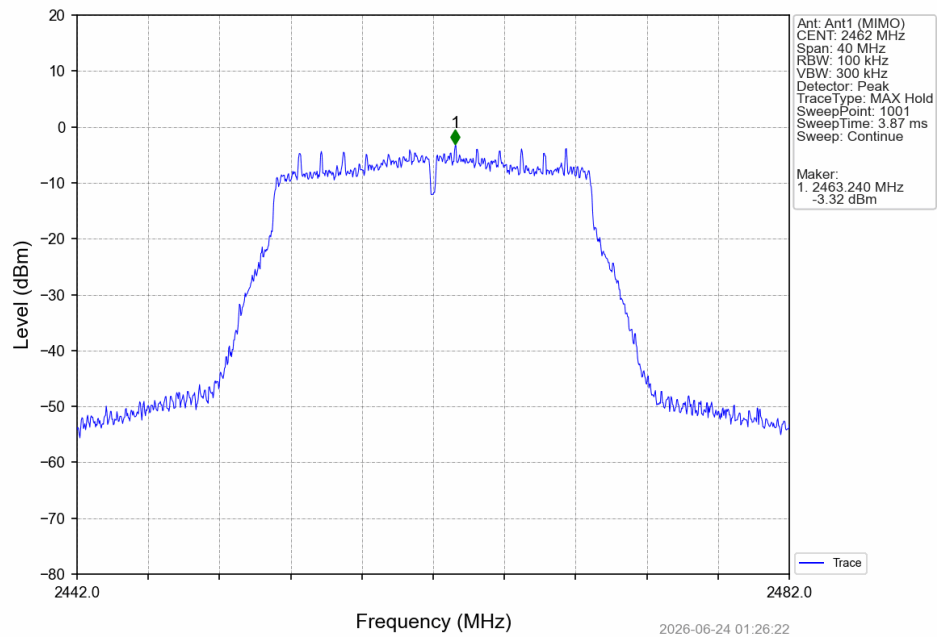
802.11n(HT20)_MCH_2437MHz_Ant1 (MIMO)_NTNV



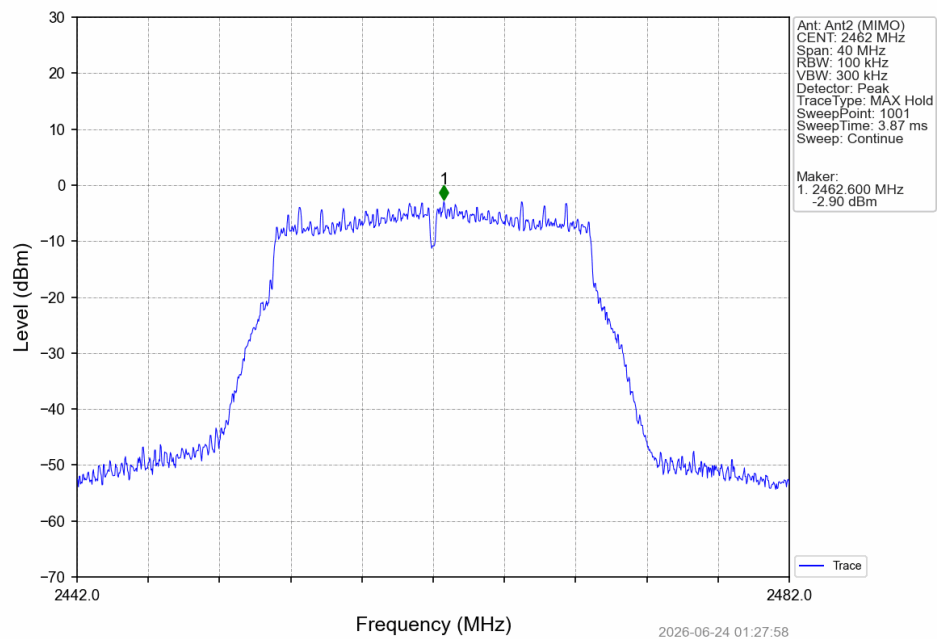
802.11n(HT20)_MCH_2437MHz_Ant2 (MIMO)_NTNV



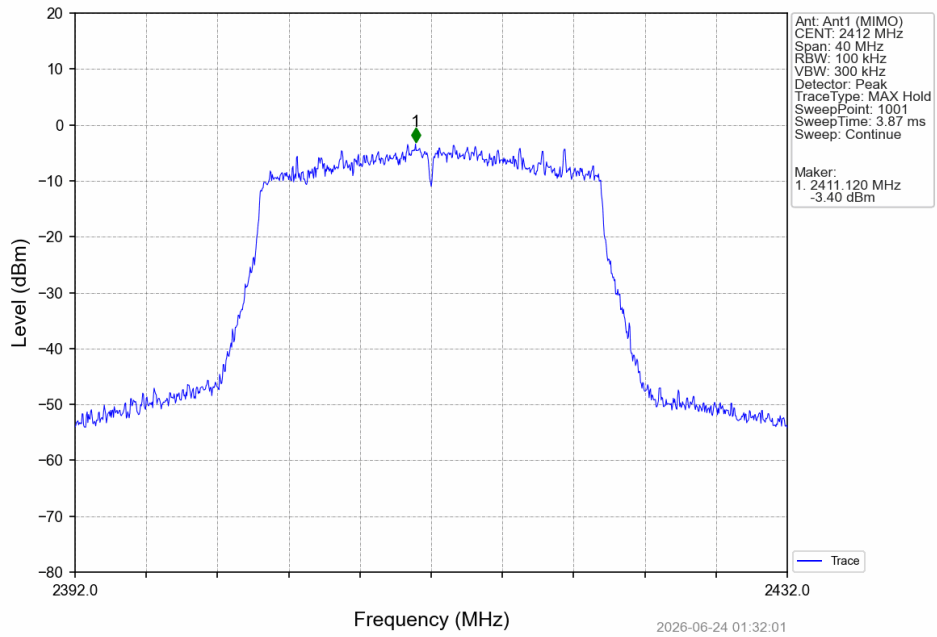
802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV



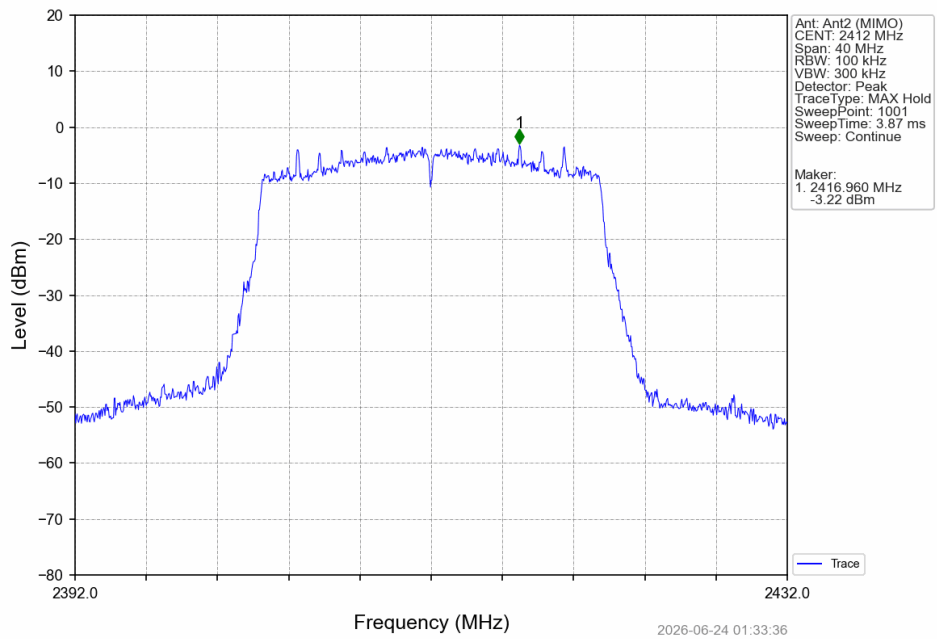
802.11n(HT20)_HCH_2462MHz_Ant2 (MIMO)_NTNV



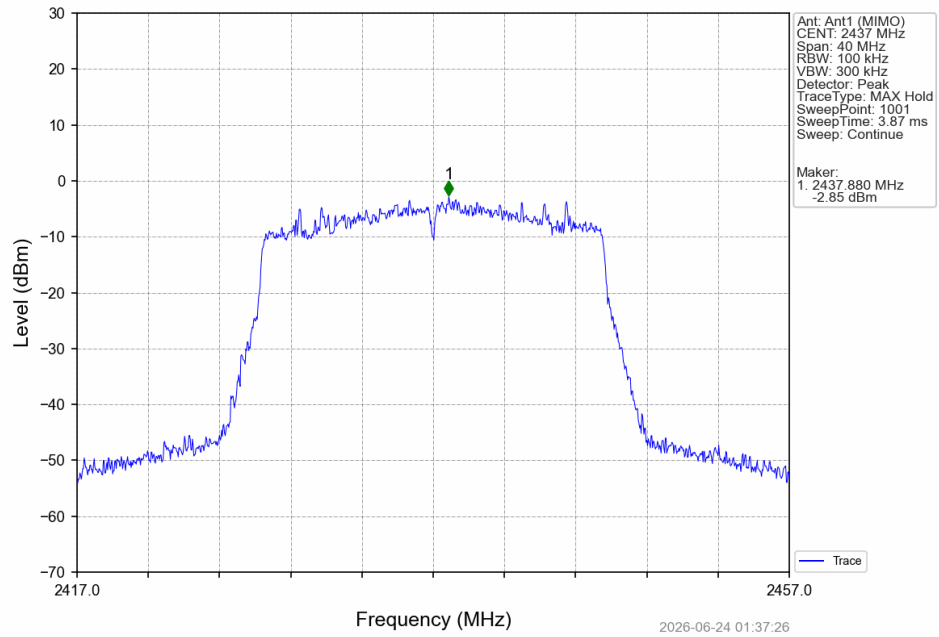
802.11ax(HEW20)_LCH_2412MHz_SU_ / _Ant1 (MIMO)_NTNV



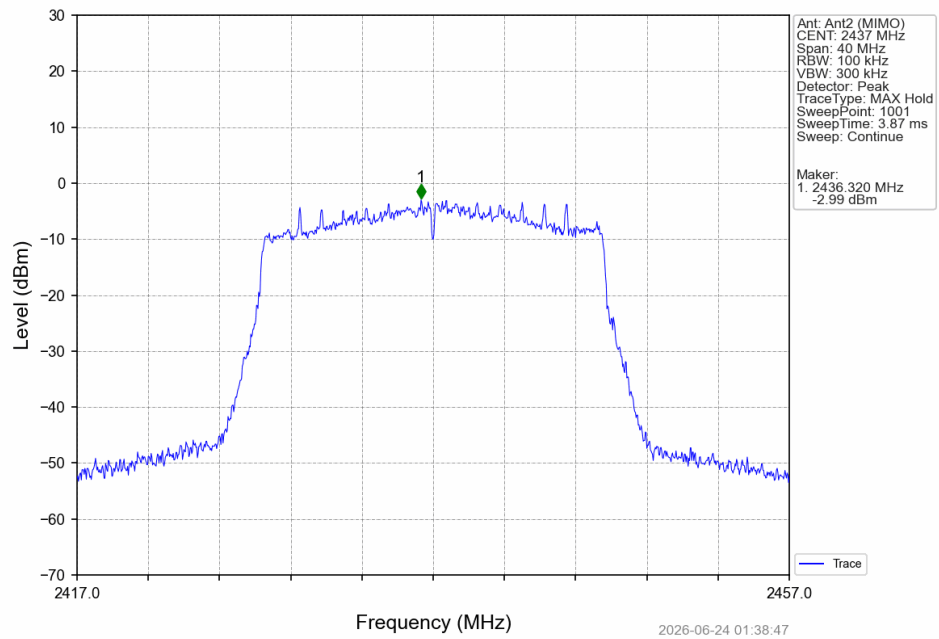
802.11ax(HEW20)_LCH_2412MHz_SU_ / _Ant2 (MIMO)_NTNV



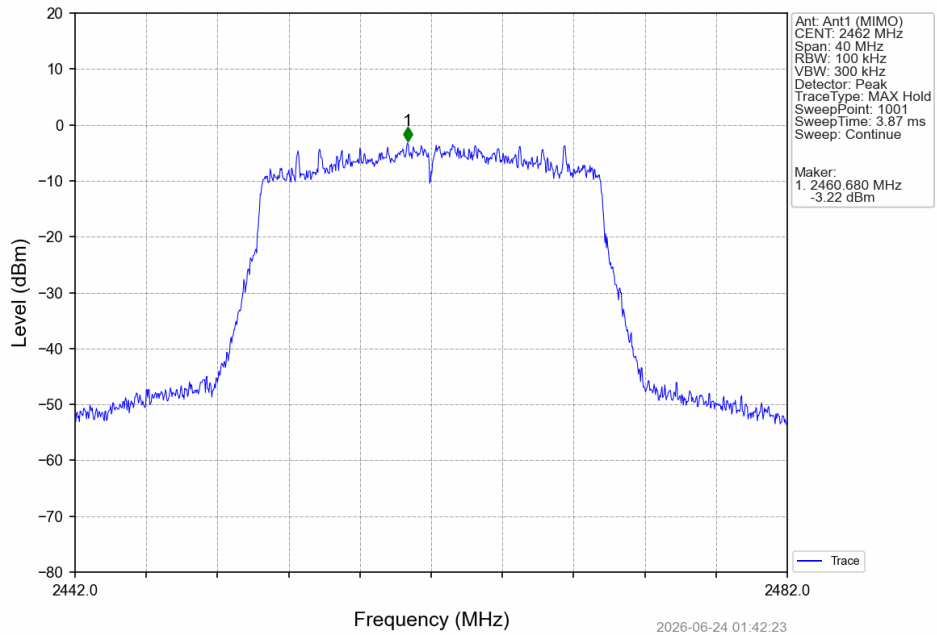
802.11ax(HEW20)_MCH_2437MHz_SU_/_Ant1 (MIMO)_NTNV



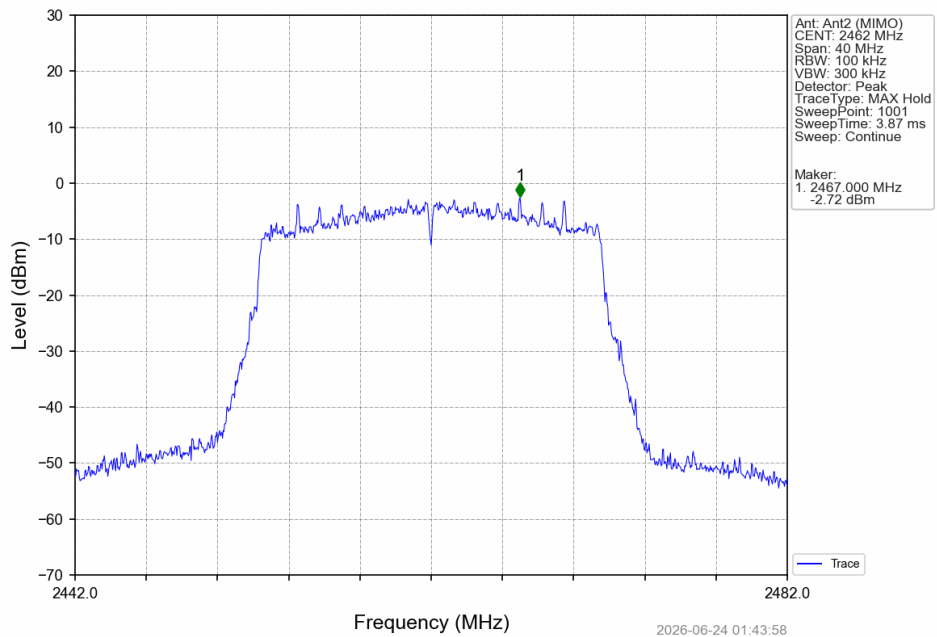
802.11ax(HEW20)_MCH_2437MHz_SU_/_Ant2 (MIMO)_NTNV



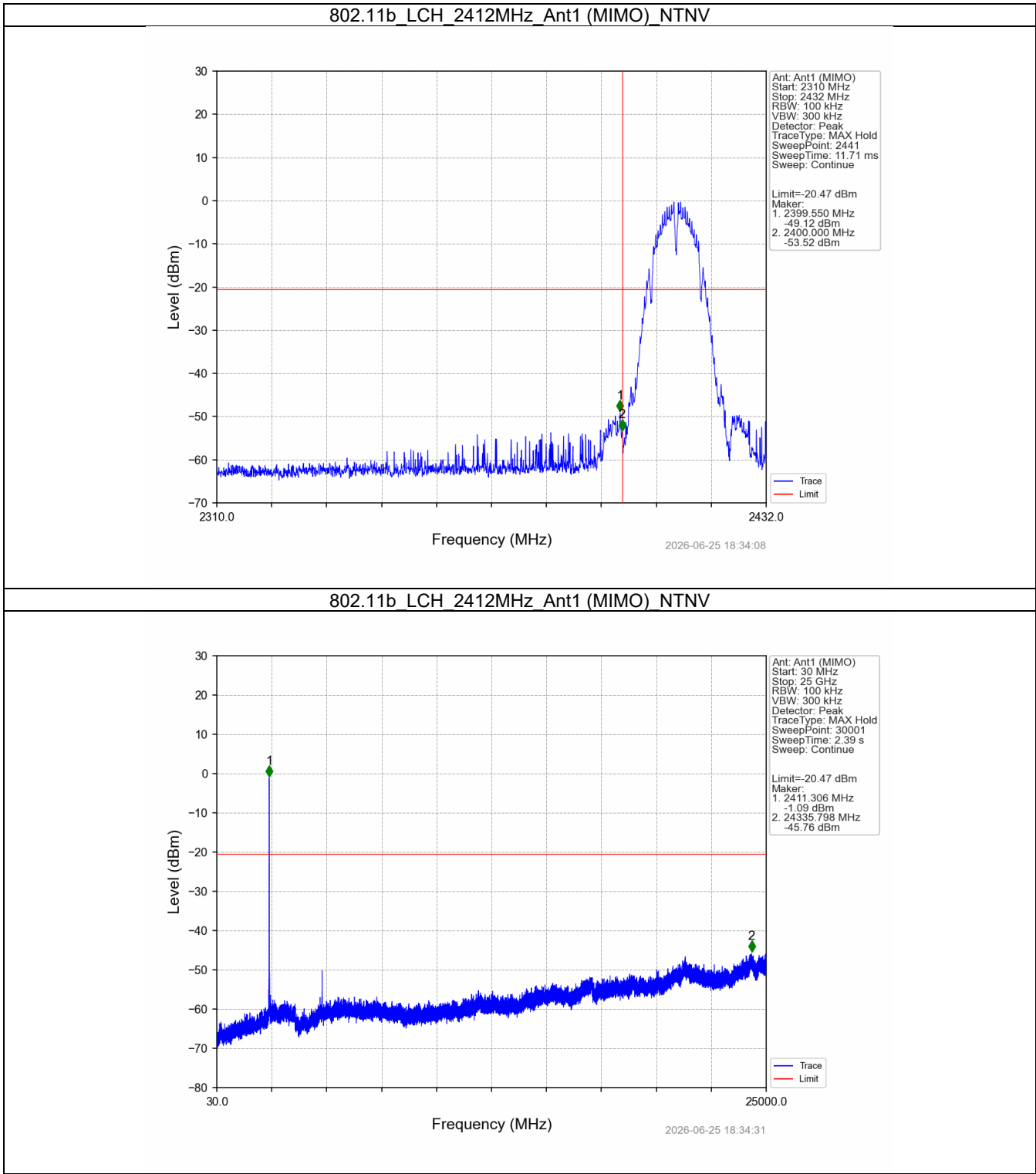
802.11ax(HEW20)_HCH_2462MHz_SU_/_Ant1 (MIMO)_NTNV



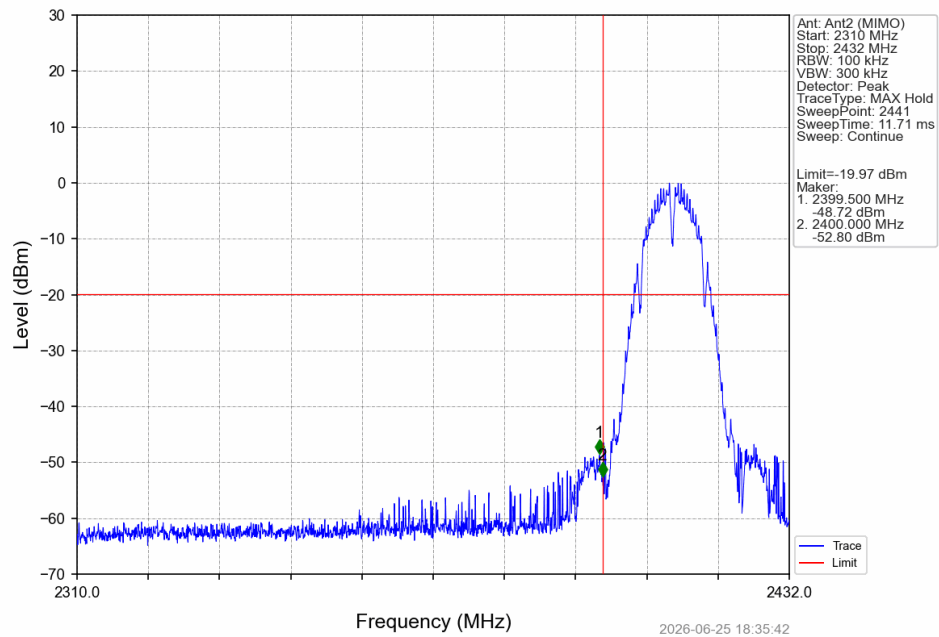
802.11ax(HEW20)_HCH_2462MHz_SU_/_Ant2 (MIMO)_NTNV



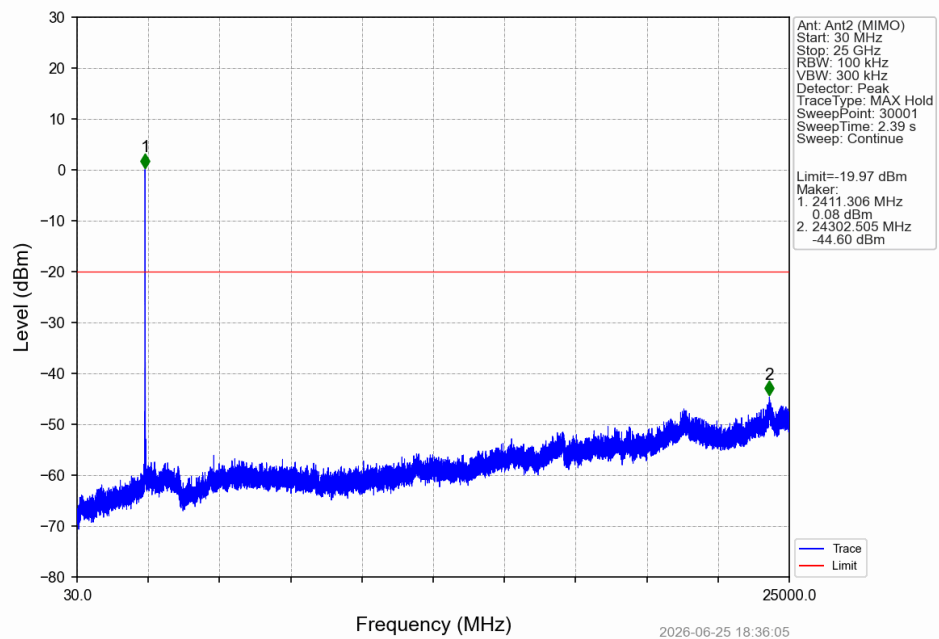
5.2.2 CSE



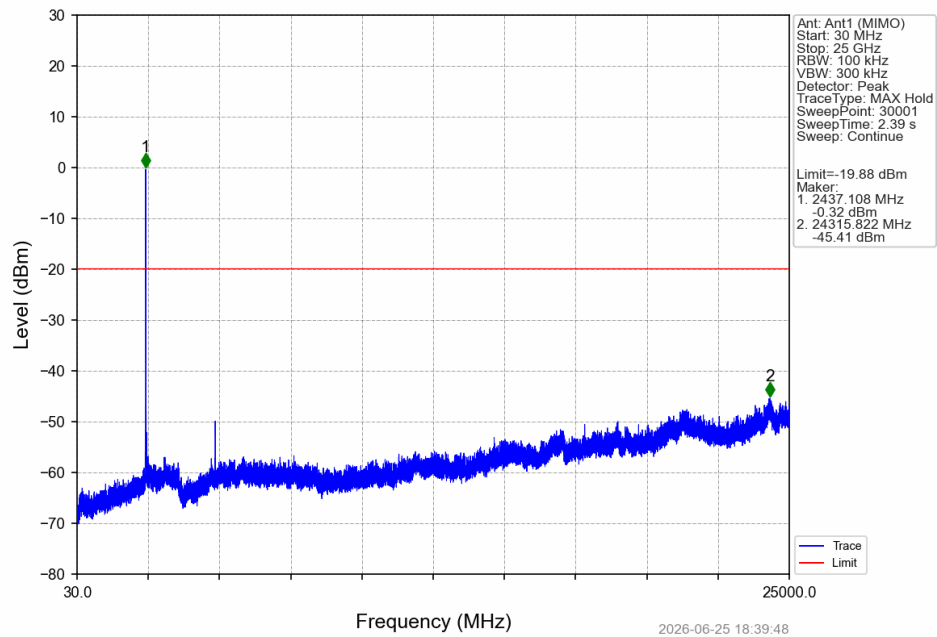
802.11b_LCH_2412MHz_Ant2 (MIMO)_NTNV



802.11b_LCH_2412MHz_Ant2 (MIMO)_NTNV



802.11b_MCH_2437MHz_Ant1 (MIMO)_NTNV



802.11b_MCH_2437MHz_Ant2 (MIMO)_NTNV

