

Test Data for Wi-Fi 2.4G

Product Name: Grace Link Internet Radio Device

Test Model: GDI-WHAL01

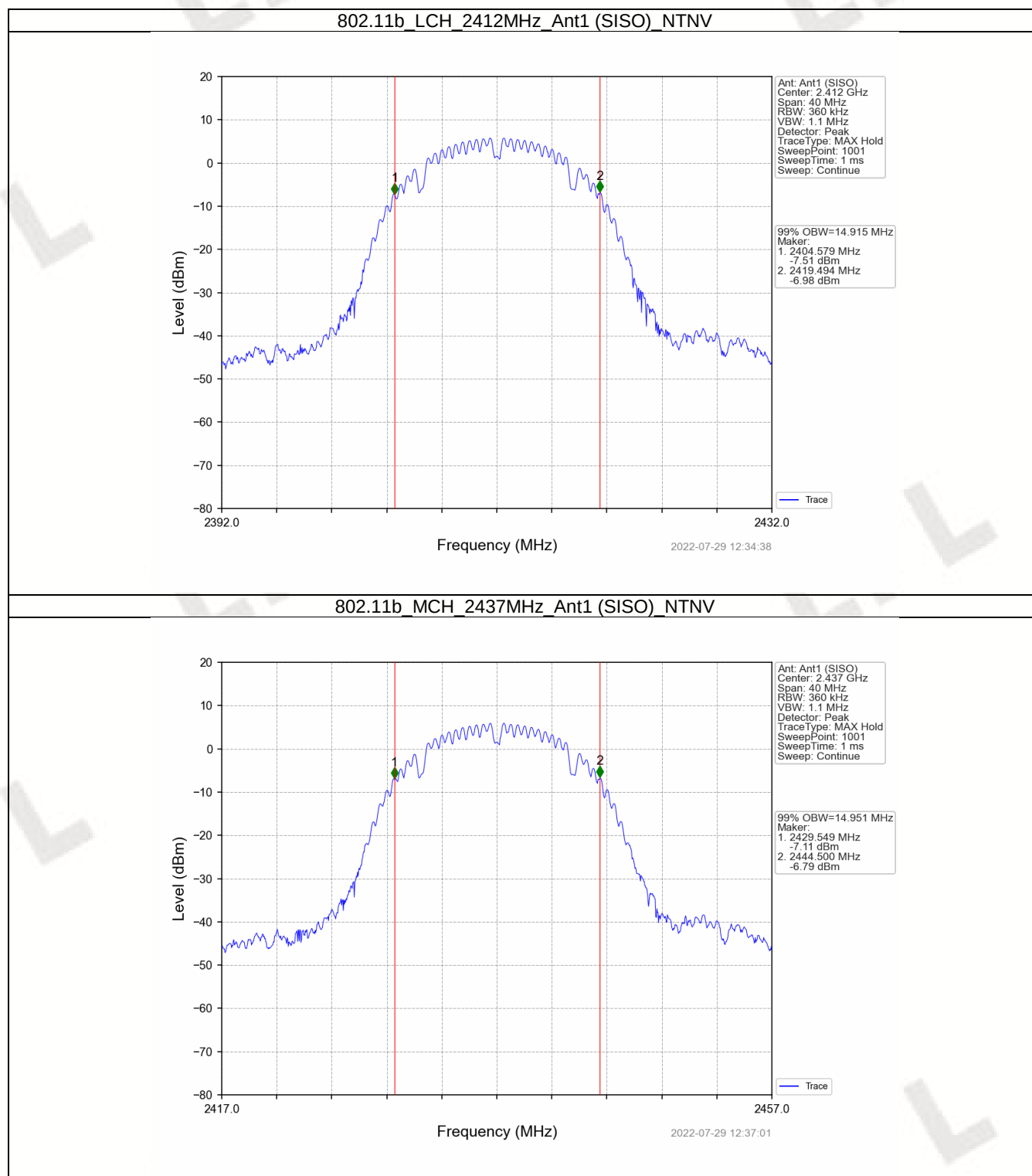
1. Bandwidth

1.1 OBW

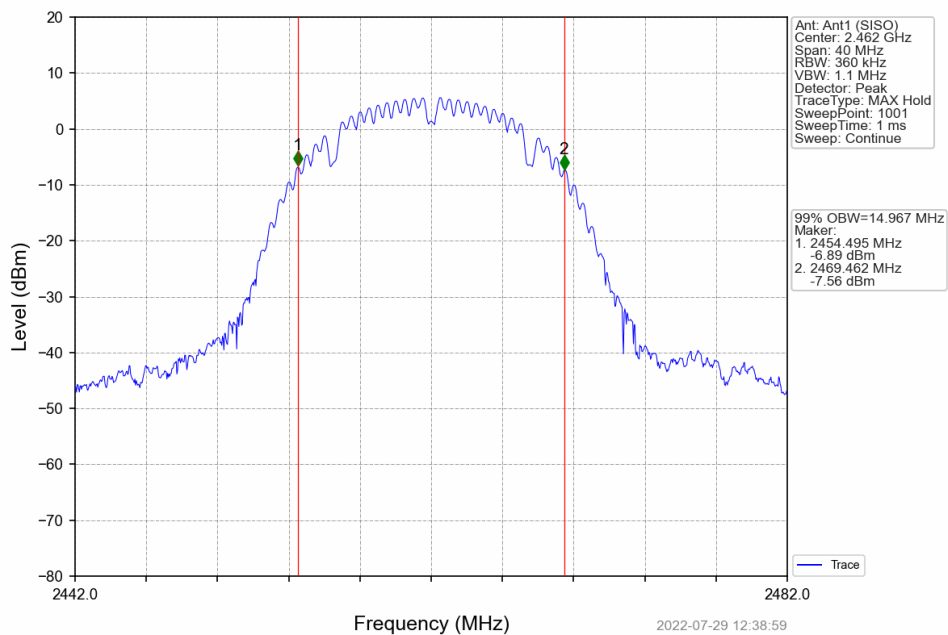
1.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)	Verdict
				Result	
802.11b	SISO	2412	1	14.915	Pass
		2437	1	14.951	Pass
		2462	1	14.967	Pass
802.11g	SISO	2412	1	17.426	Pass
		2437	1	17.482	Pass
		2462	1	17.416	Pass
802.11n (HT20)	SISO	2412	1	18.364	Pass
		2437	1	18.395	Pass
		2462	1	18.322	Pass
802.11n (HT40)	SISO	2422	1	36.624	Pass
		2437	1	36.709	Pass
		2452	1	36.629	Pass

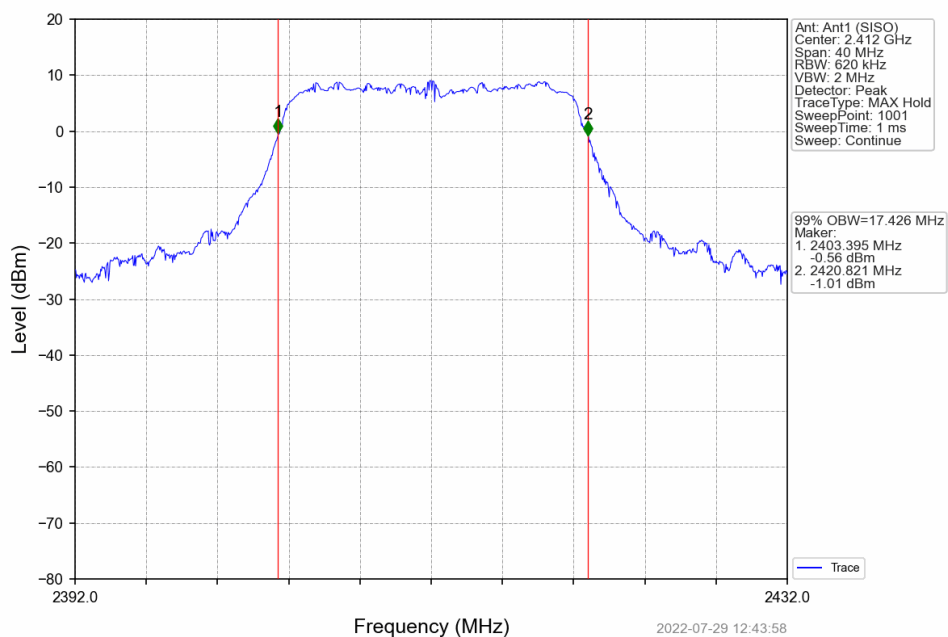
1.1.2 Test Graph



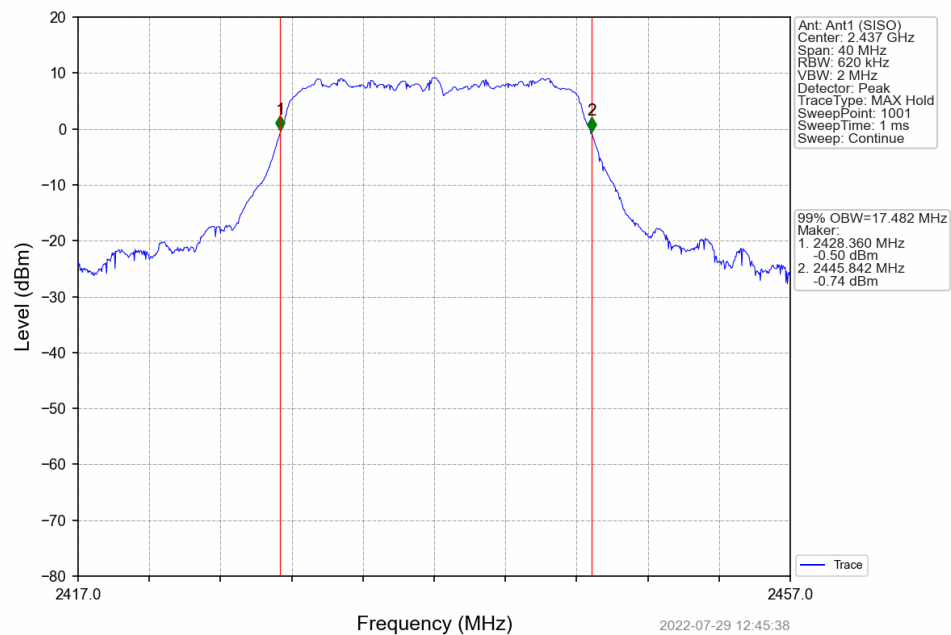
802.11b HCH 2462MHz Ant1 (SISO) NTN



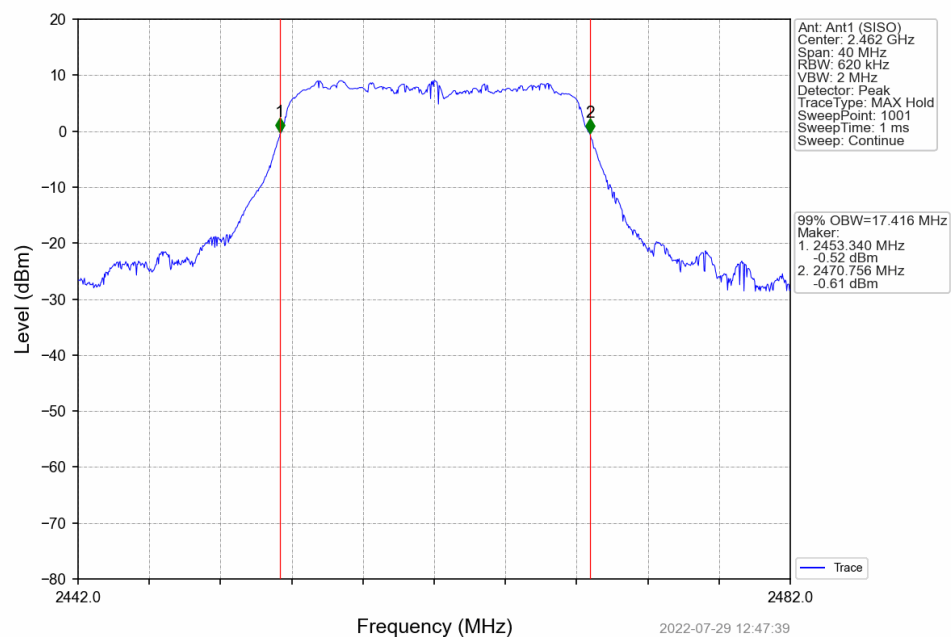
802.11g LCH 2412MHz Ant1 (SISO) NTN



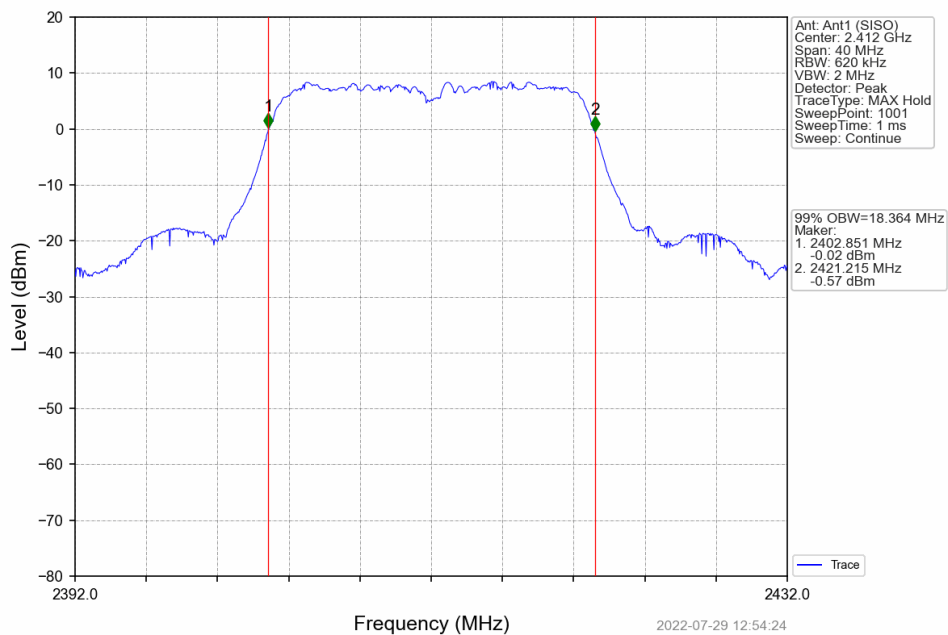
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



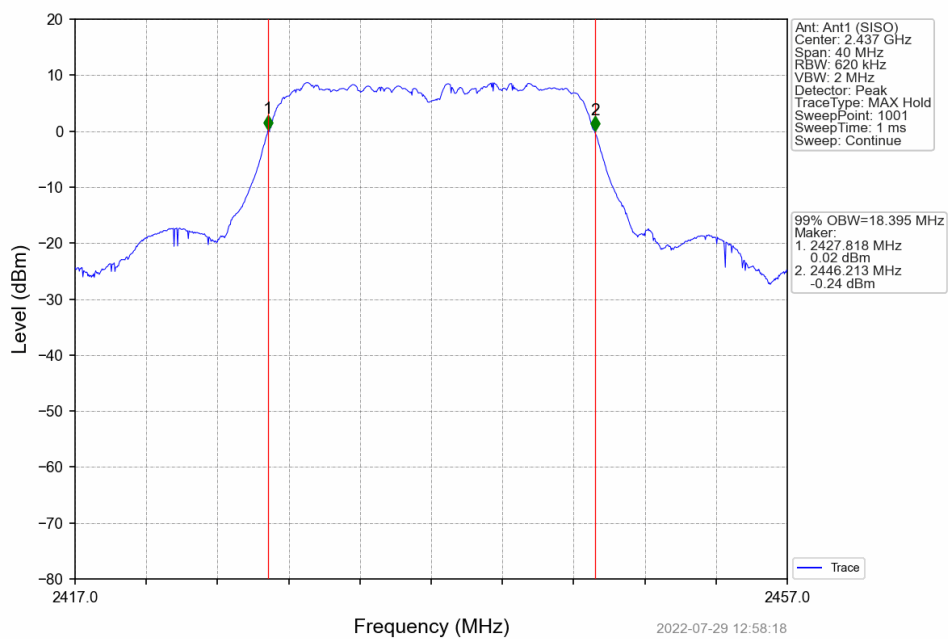
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

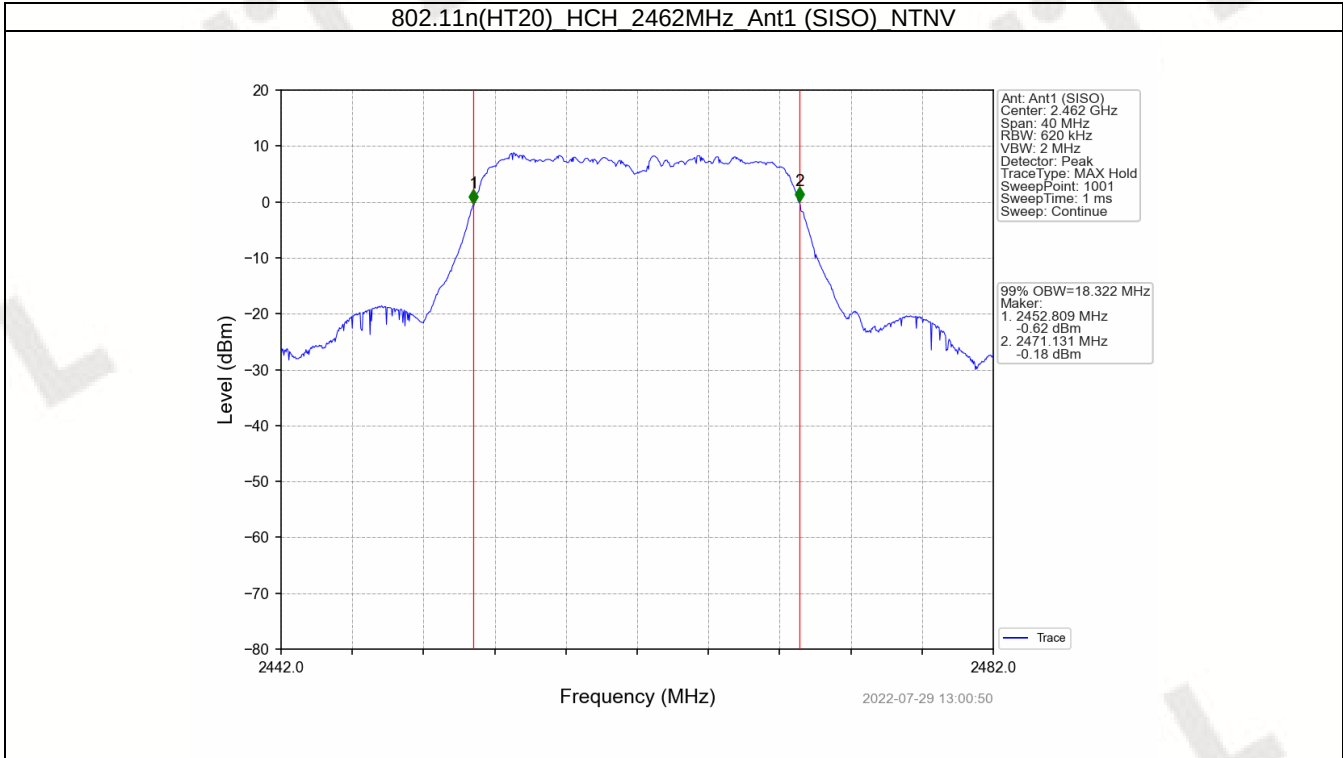


802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTNV

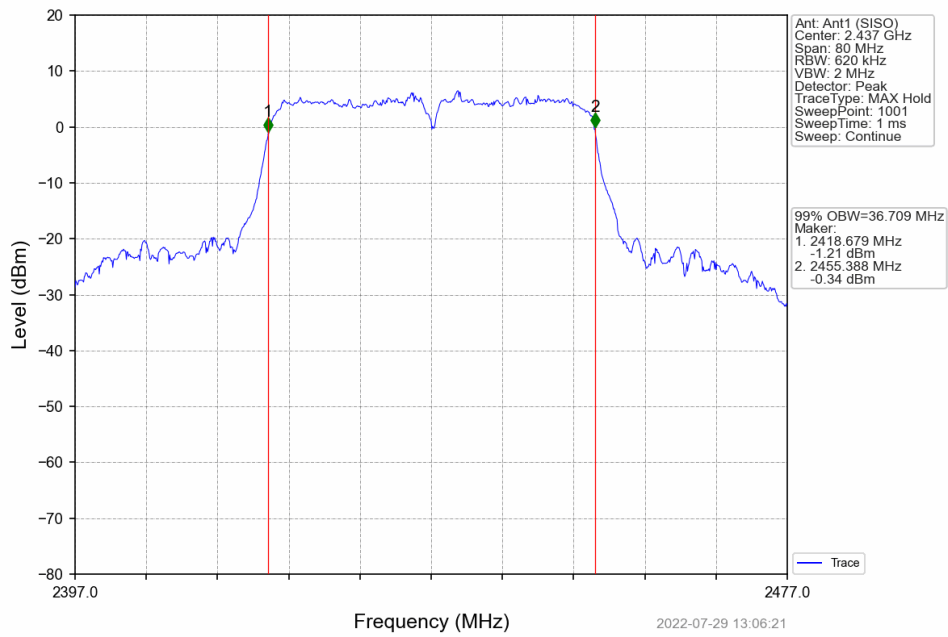


802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTNV

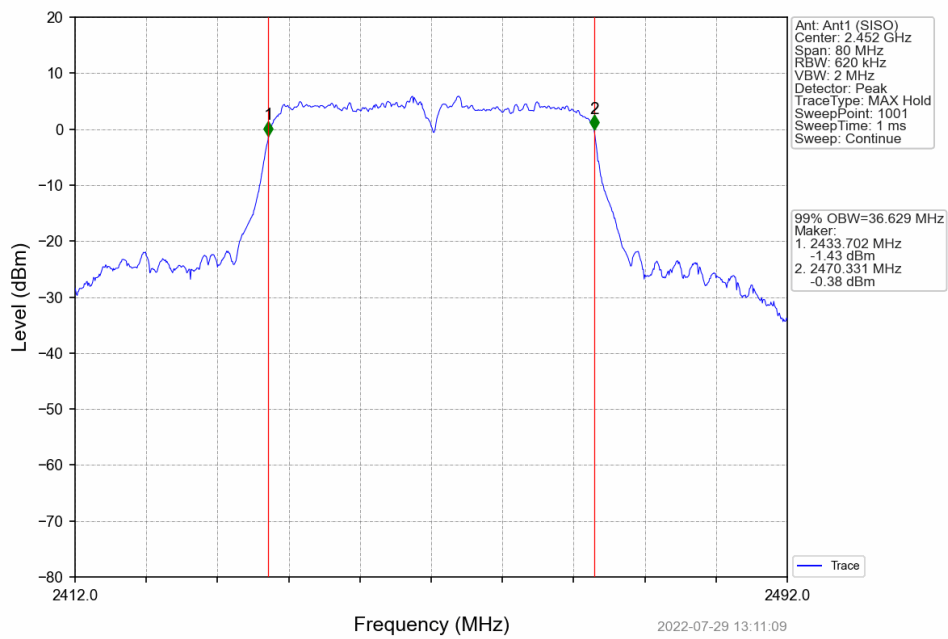




802.11n(HT40) MCH_2437MHz_Ant1 (SISO) NTN



802.11n(HT40) HCH_2452MHz_Ant1 (SISO) NTN

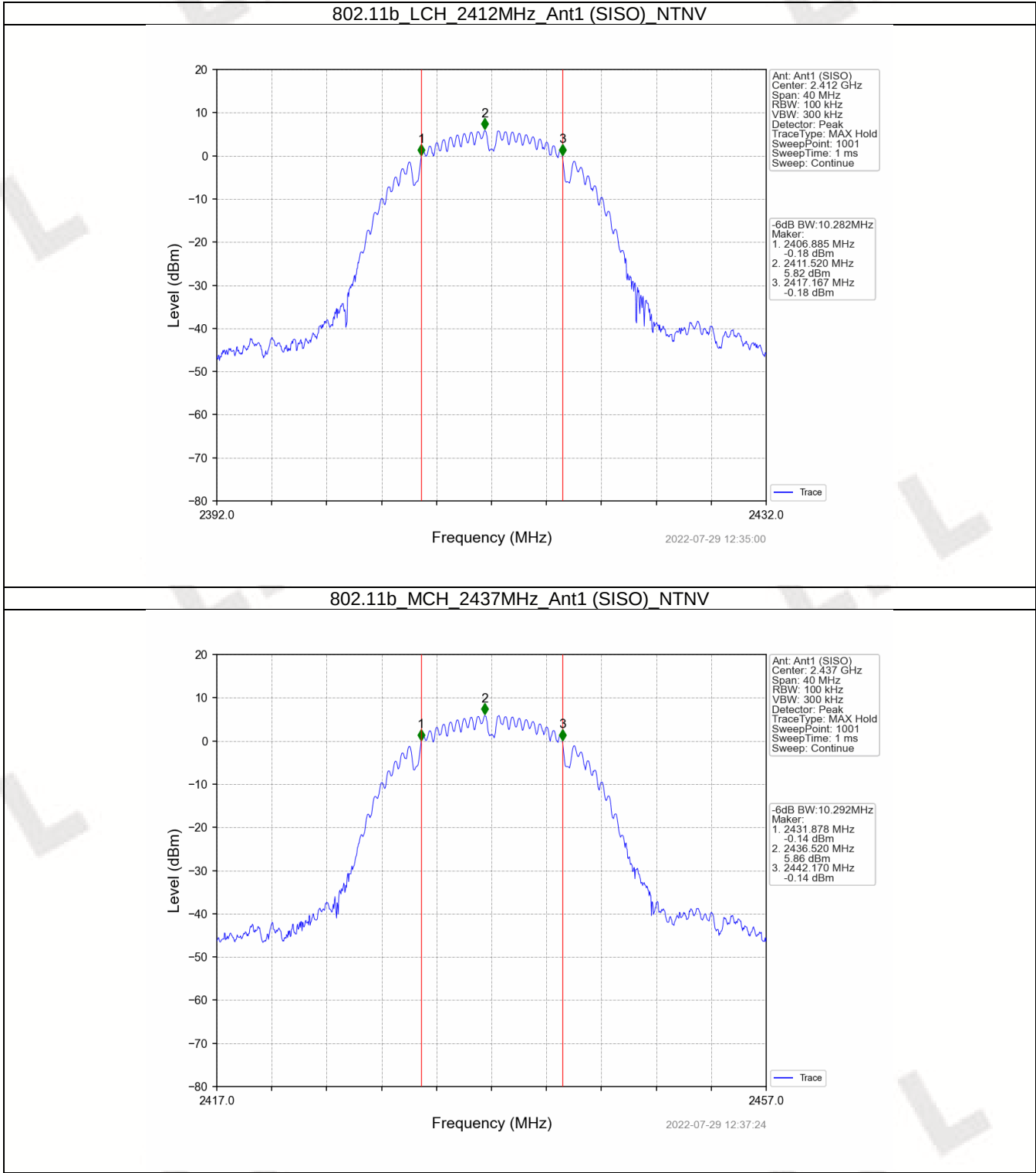


1.2 6dB BW

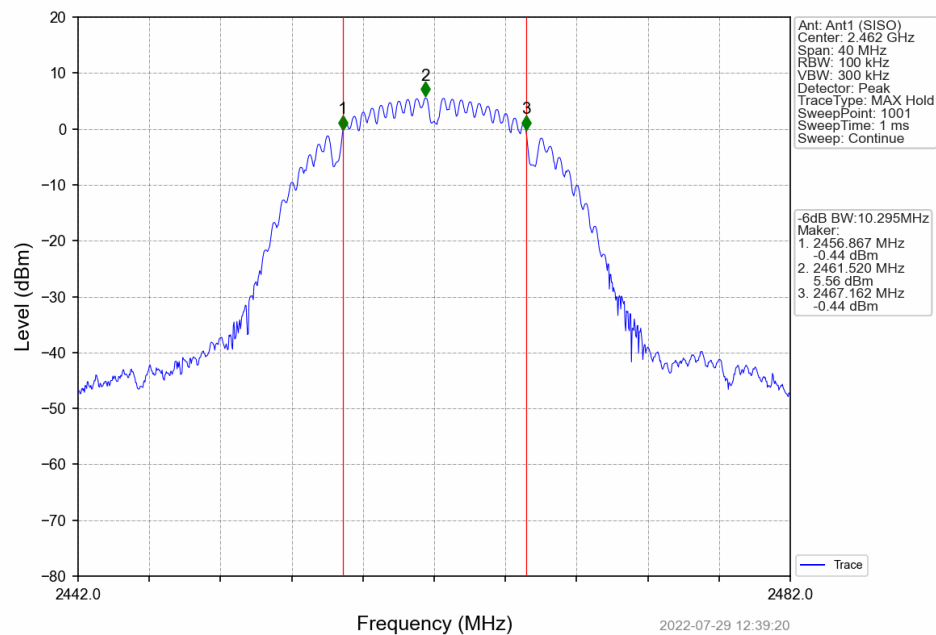
1.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	10.282	≥ 0.5	Pass
		2437	1	10.292	≥ 0.5	Pass
		2462	1	10.295	≥ 0.5	Pass
802.11g	SISO	2412	1	16.604	≥ 0.5	Pass
		2437	1	16.641	≥ 0.5	Pass
		2462	1	16.633	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	17.667	≥ 0.5	Pass
		2437	1	17.715	≥ 0.5	Pass
		2462	1	17.625	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	36.284	≥ 0.5	Pass
		2437	1	36.288	≥ 0.5	Pass
		2452	1	36.362	≥ 0.5	Pass

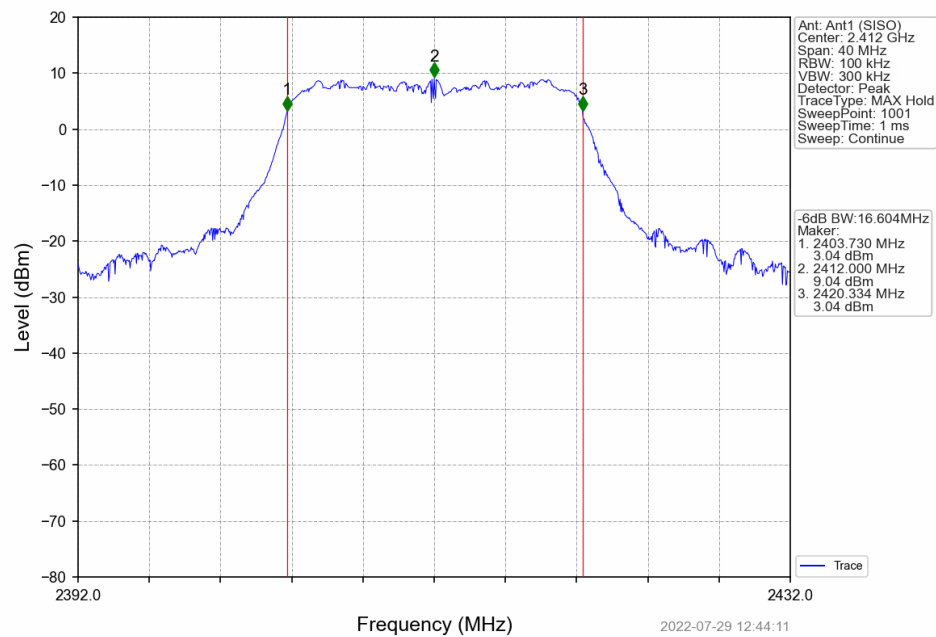
1.2.2 Test Graph



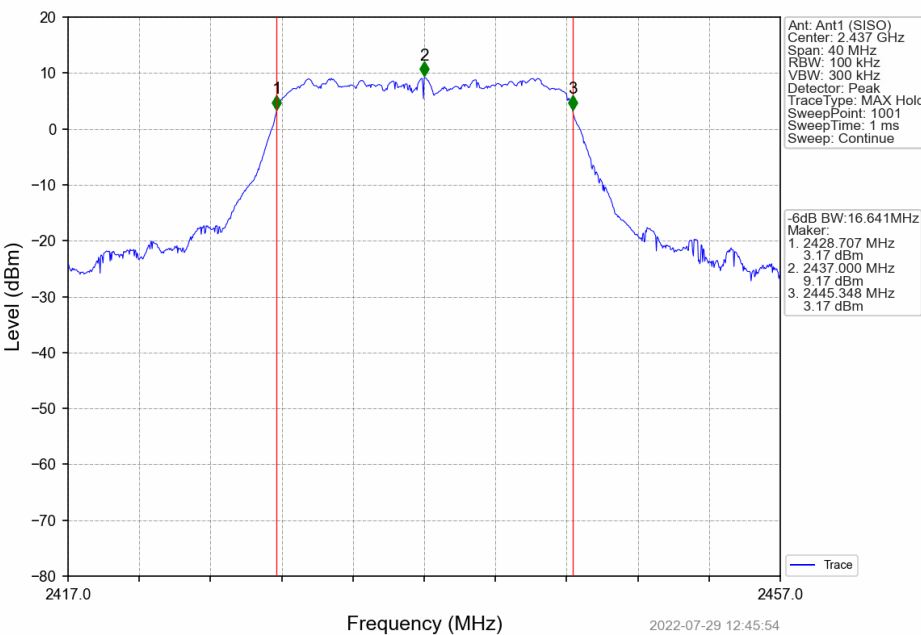
802.11b HCH 2462MHz Ant1 (SISO) NTN



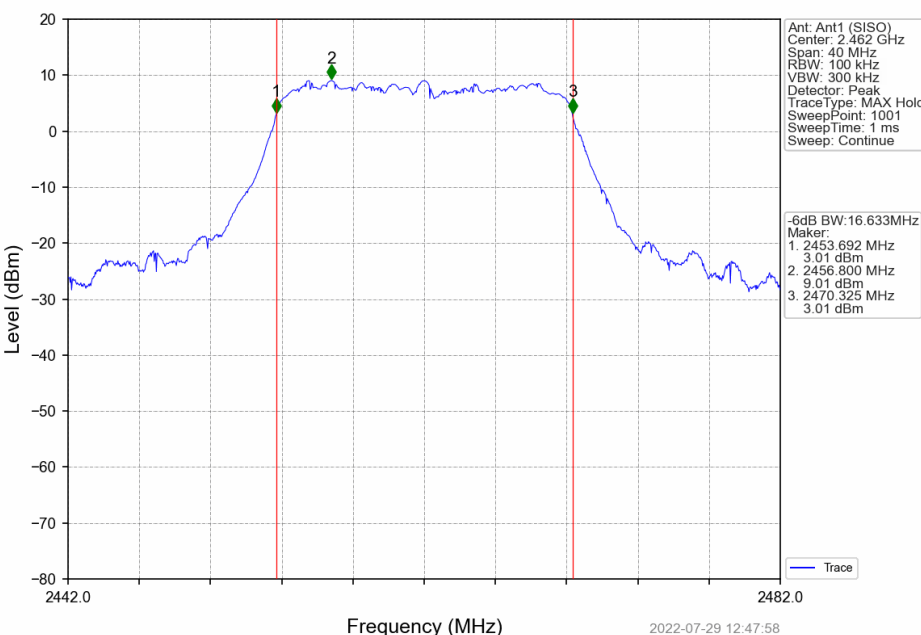
802.11g LCH 2412MHz Ant1 (SISO) NTN



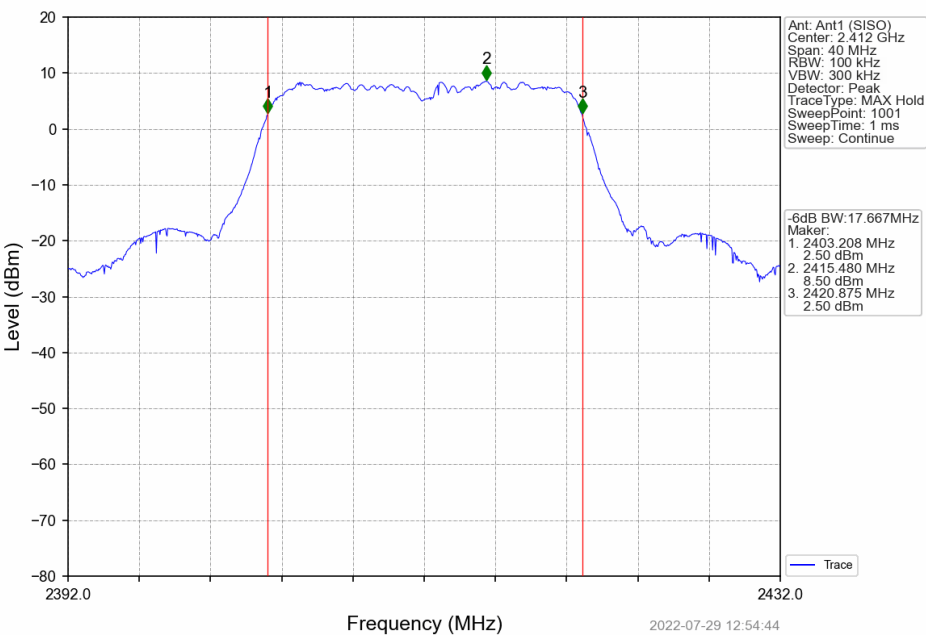
802.11g MCH 2437MHz Ant1 (SISO) NTN



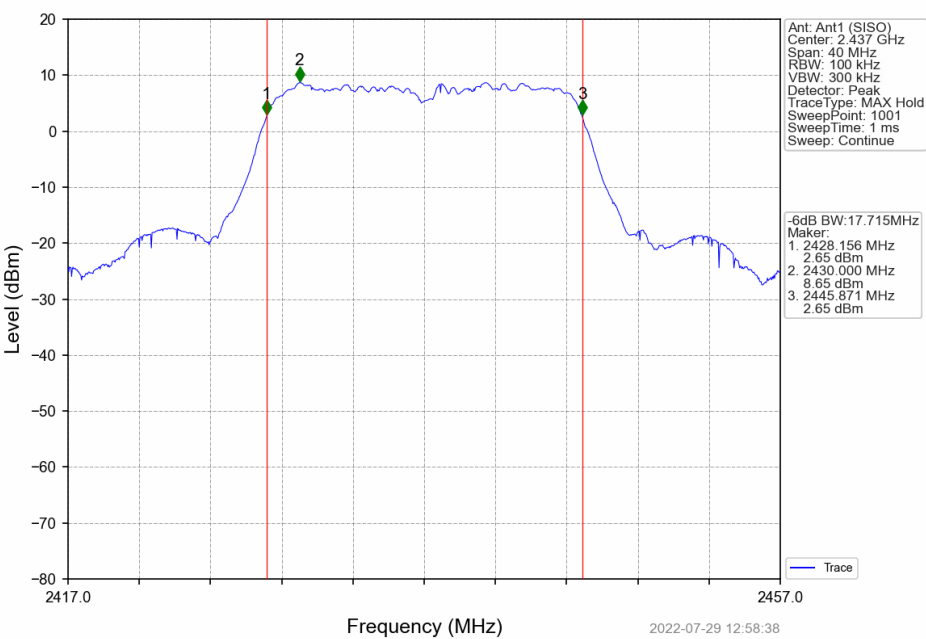
802.11g HCH 2462MHz Ant1 (SISO) NTN



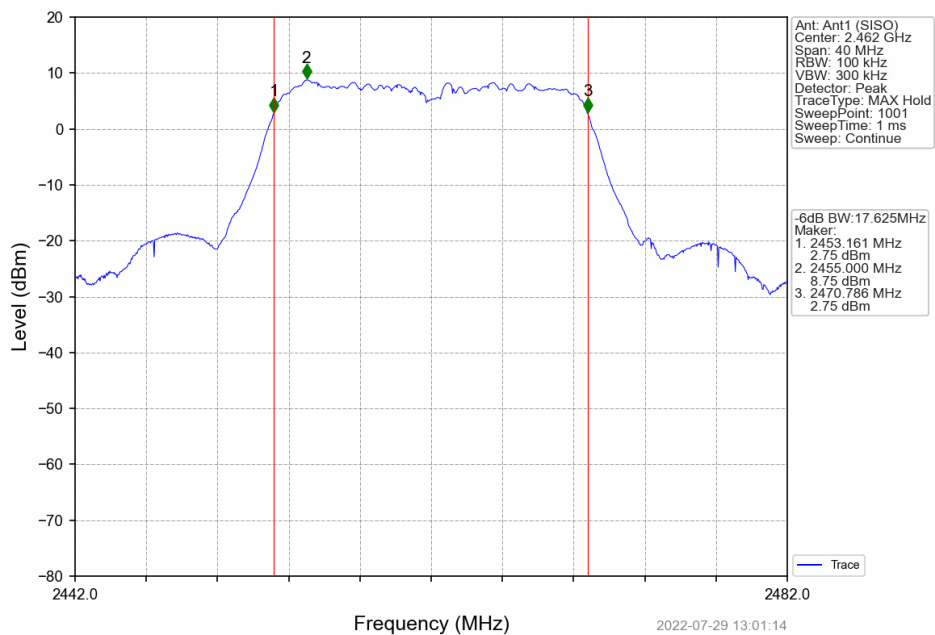
802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTN



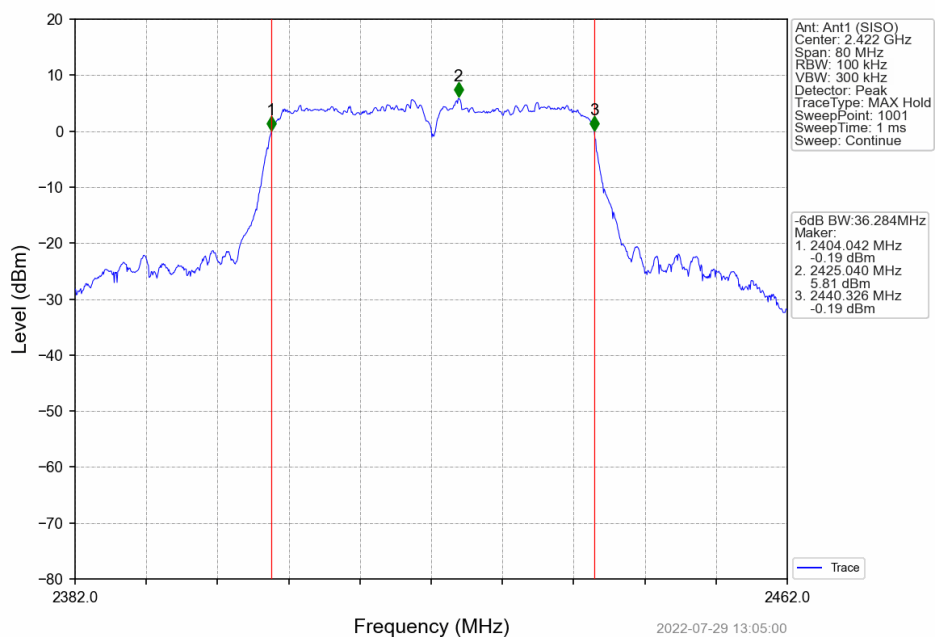
802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTN



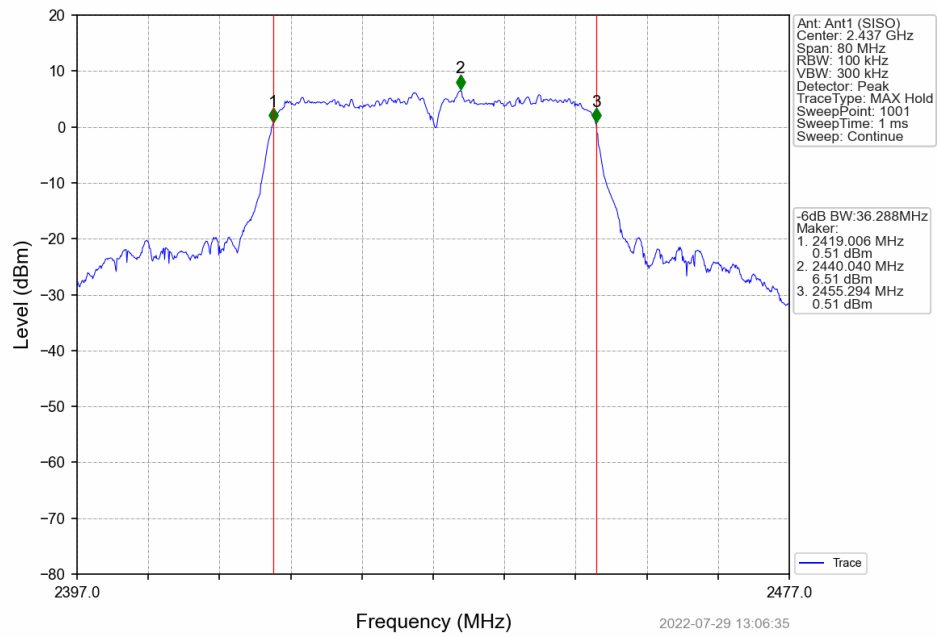
802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV



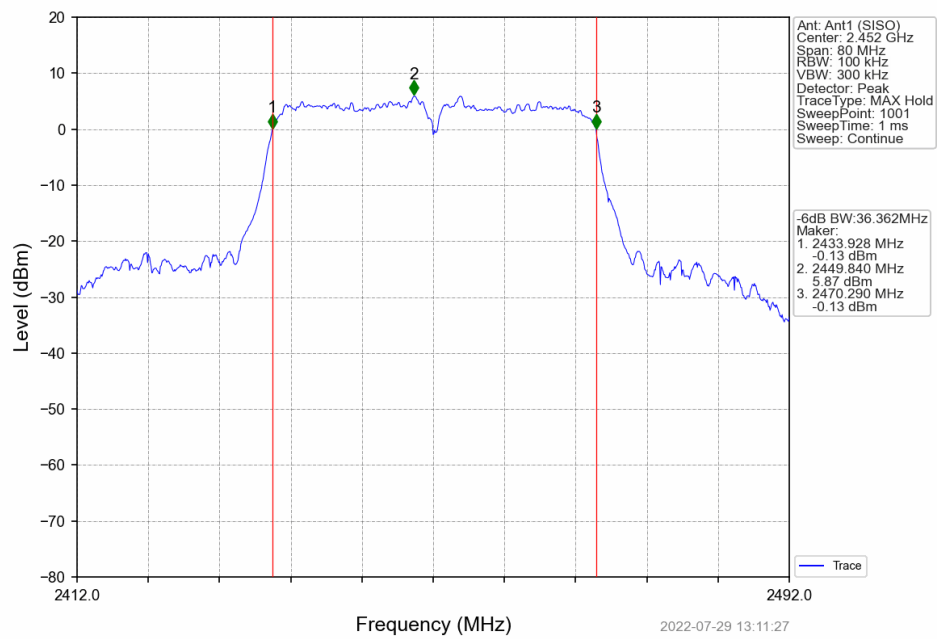
802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV



802.11n(HT40) MCH_2437MHz_Ant1(SISO)_NTNV



802.11n(HT40) HCH_2452MHz_Ant1(SISO)_NTNV



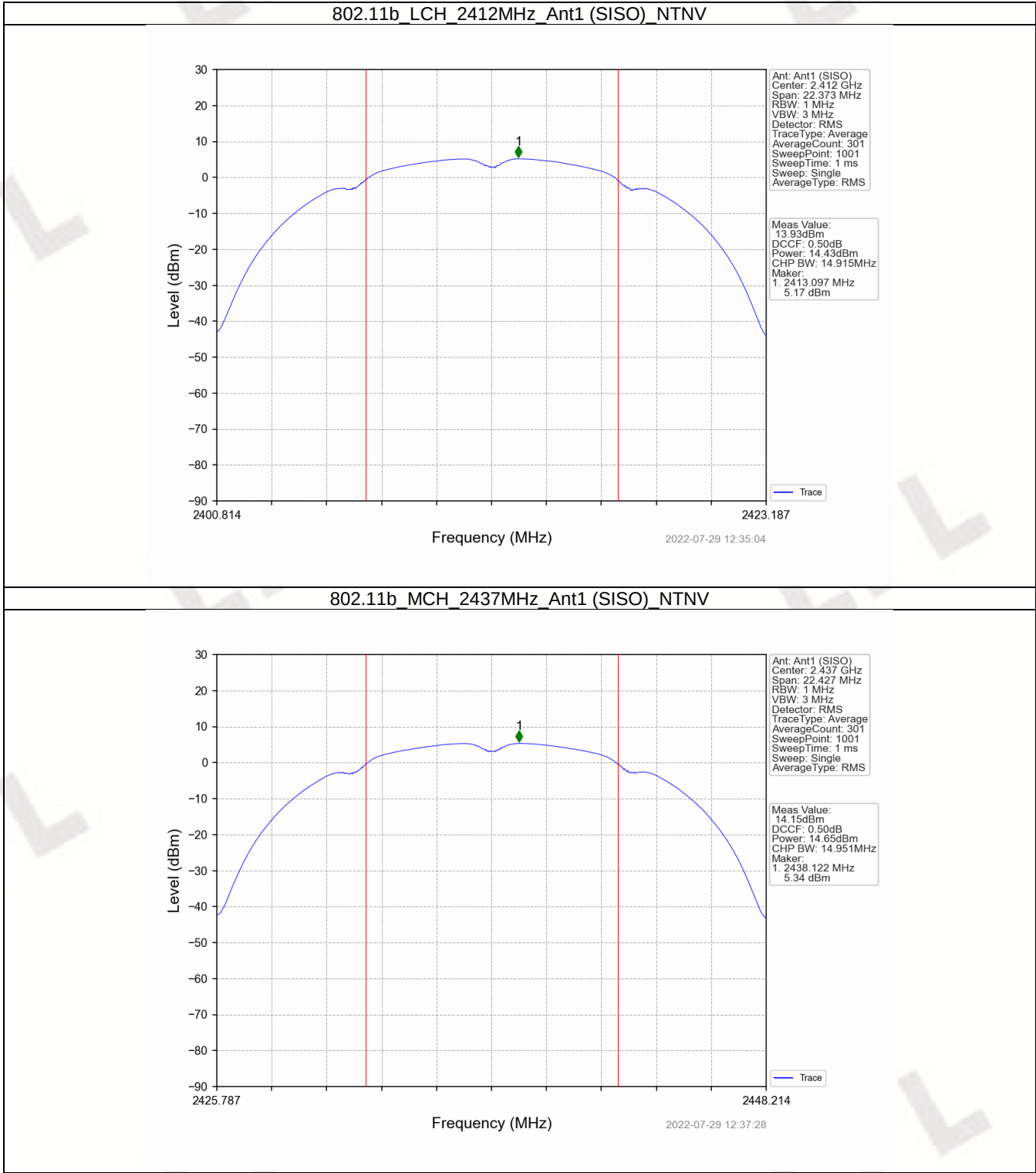
2. Maximum Conducted Output Power

2.1 Power

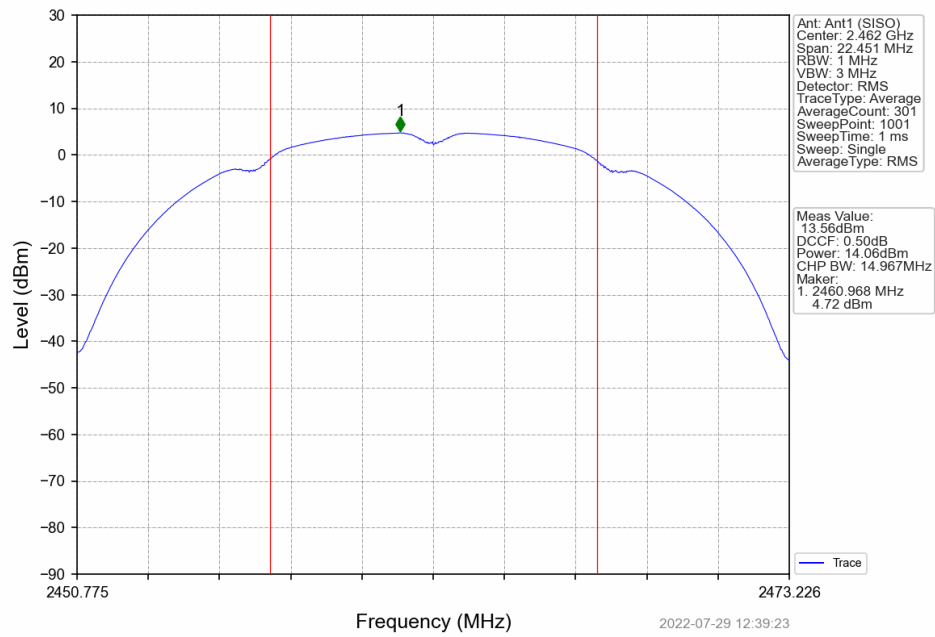
2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	14.43	<=30	Pass
		2437	14.65	<=30	Pass
		2462	14.06	<=30	Pass
802.11g	SISO	2412	14.40	<=30	Pass
		2437	14.54	<=30	Pass
		2462	14.37	<=30	Pass
802.11n (HT20)	SISO	2412	14.39	<=30	Pass
		2437	14.62	<=30	Pass
		2462	14.44	<=30	Pass
802.11n (HT40)	SISO	2422	14.12	<=30	Pass
		2437	14.81	<=30	Pass
		2452	14.14	<=30	Pass
Note1: Antenna Gain: Ant1: 2.00dBi;					

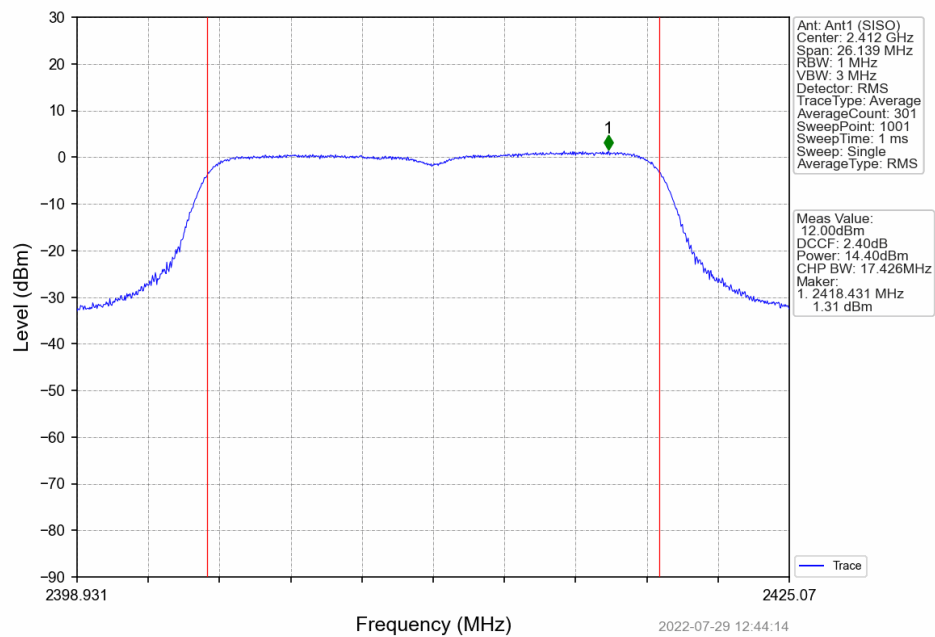
2.1.2 Test Graph



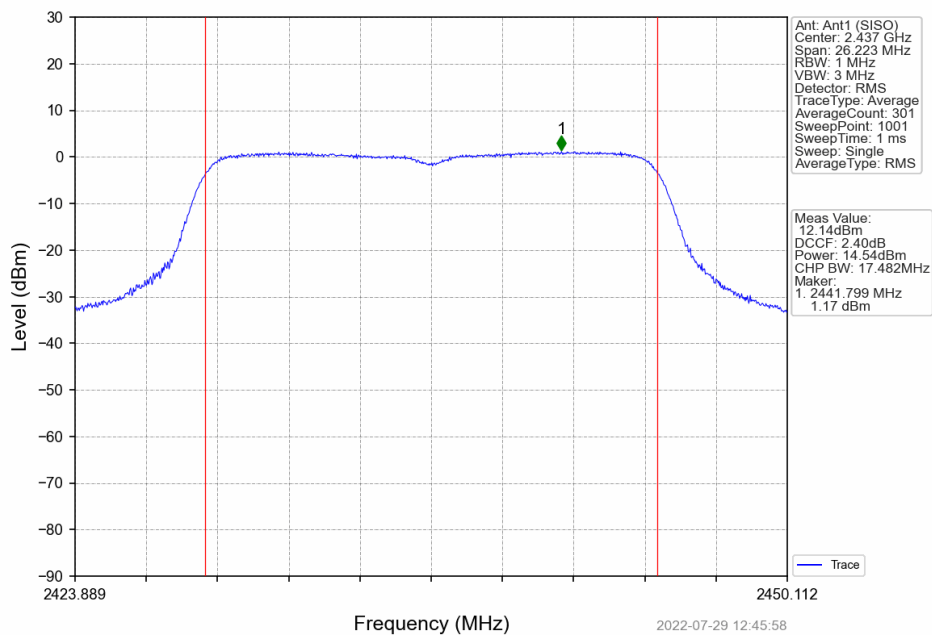
802.11b HCH 2462MHz Ant1 (SISO) NTN



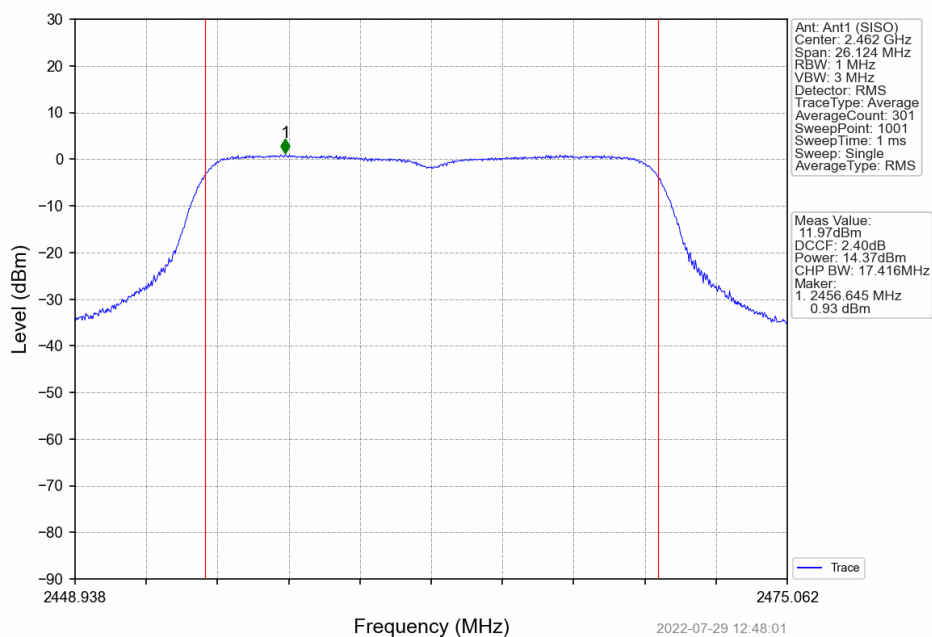
802.11g LCH 2412MHz Ant1 (SISO) NTN



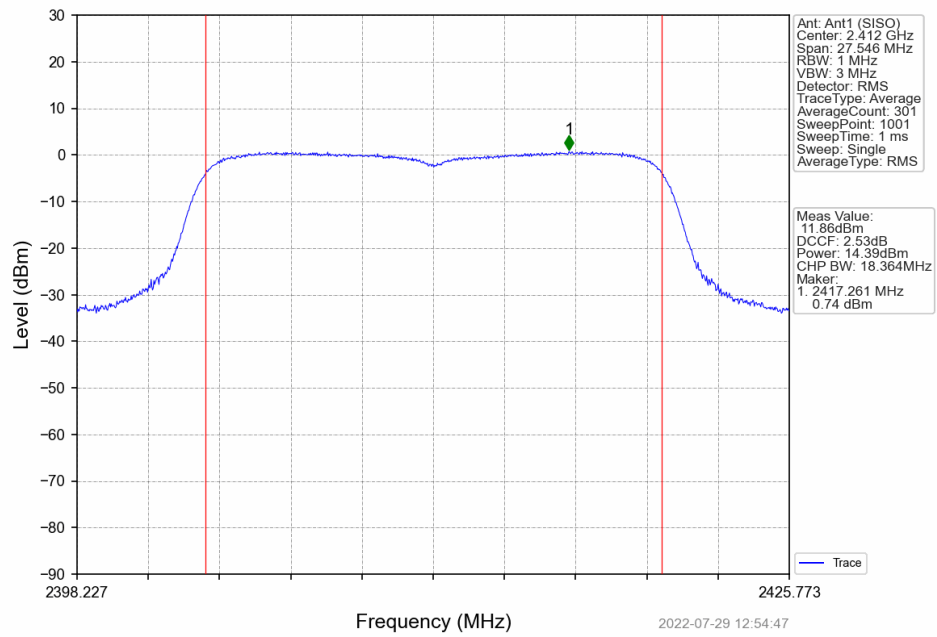
802.11g MCH 2437MHz Ant1 (SISO) NTN



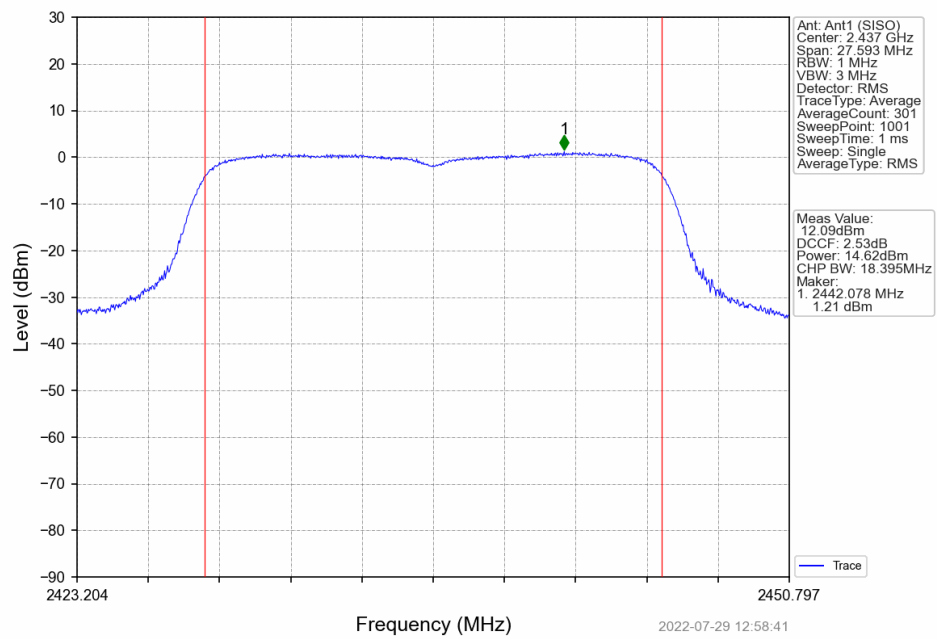
802.11g HCH 2462MHz Ant1 (SISO) NTN



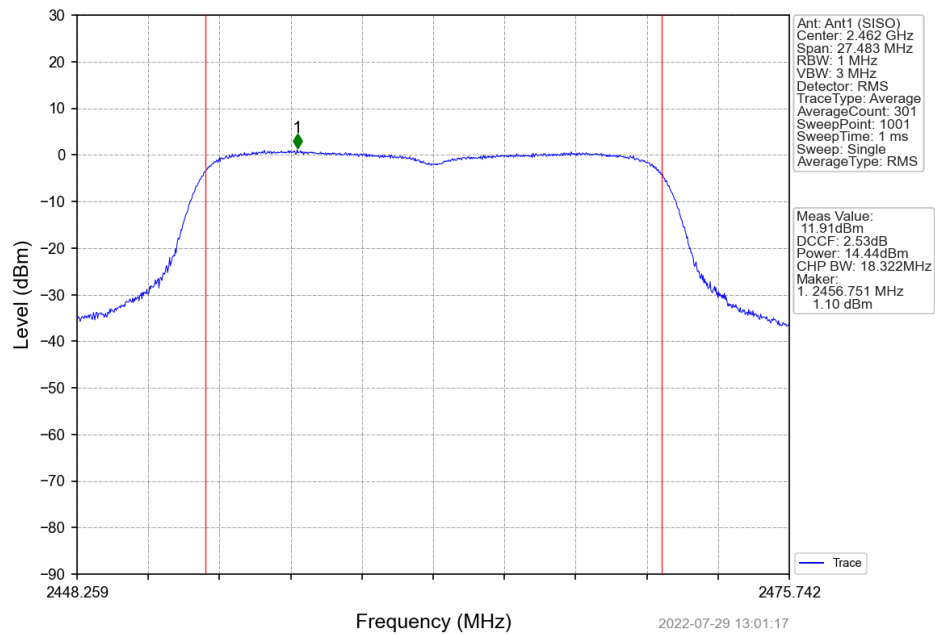
802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTNV



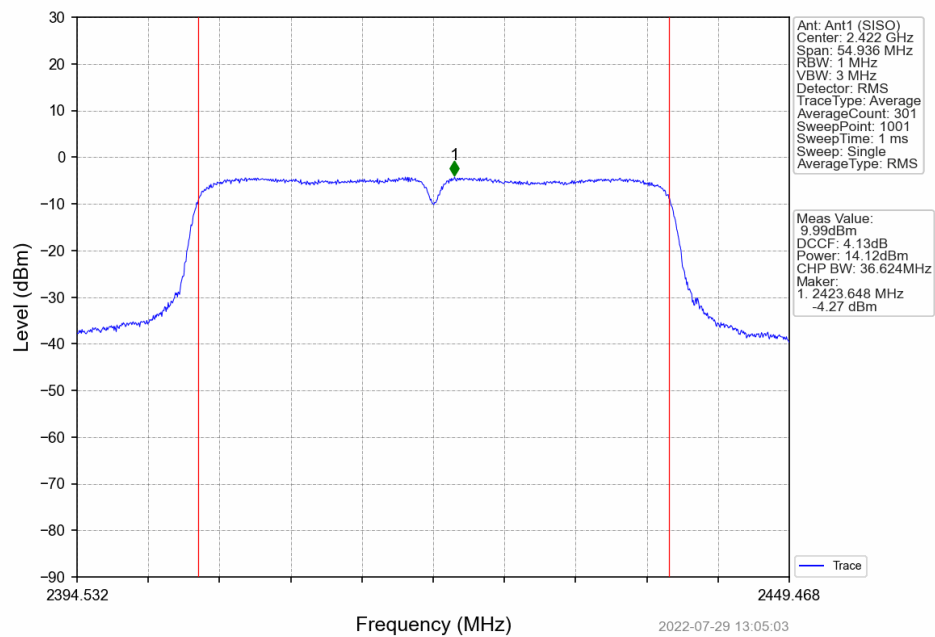
802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTNV



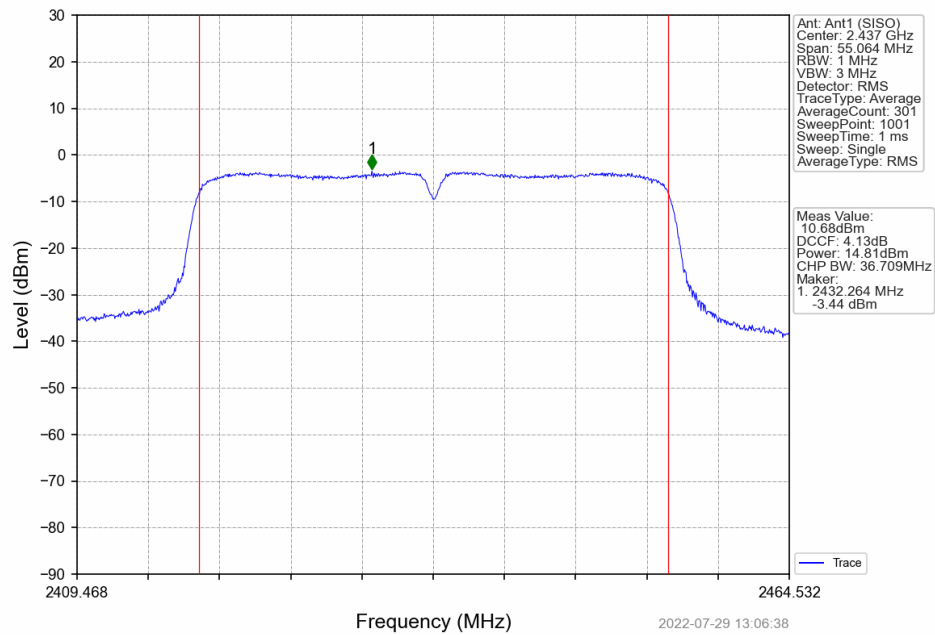
802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV



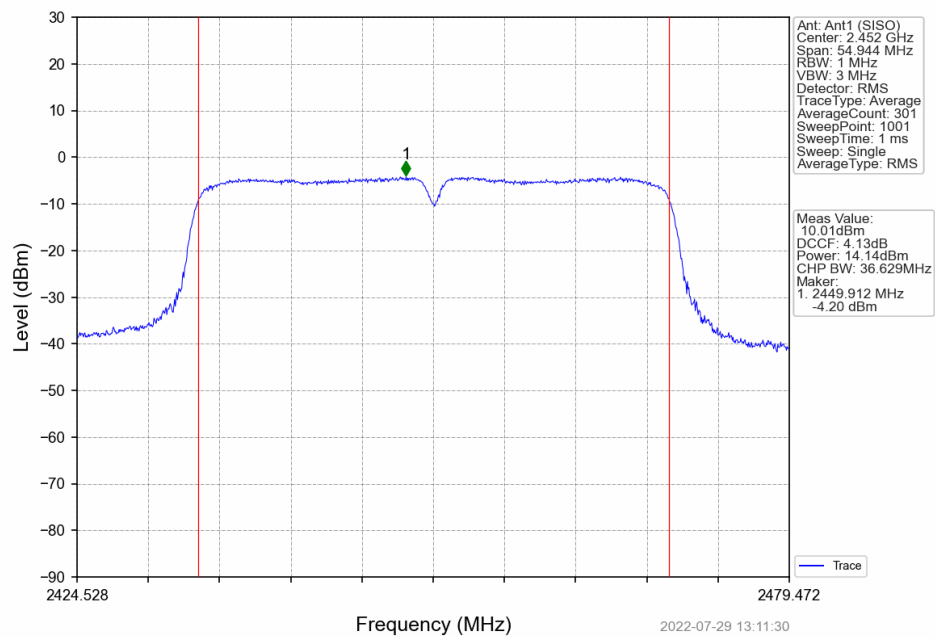
802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV



802.11n(HT40) MCH 2437MHz Ant1 (SISO) NTNV



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



3. Maximum Power Spectral Density

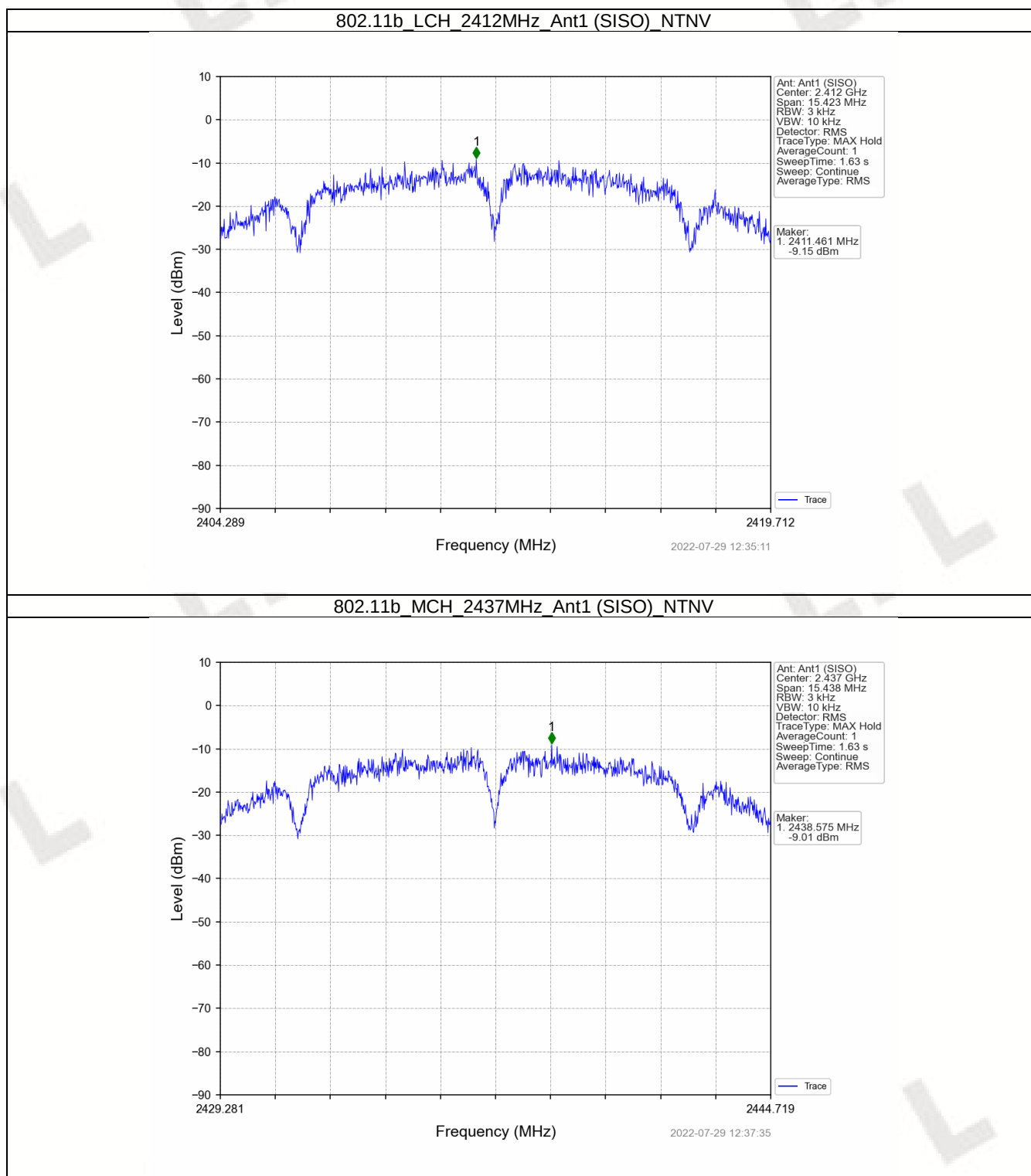
3.1 PSD

3.1.1 Test Result

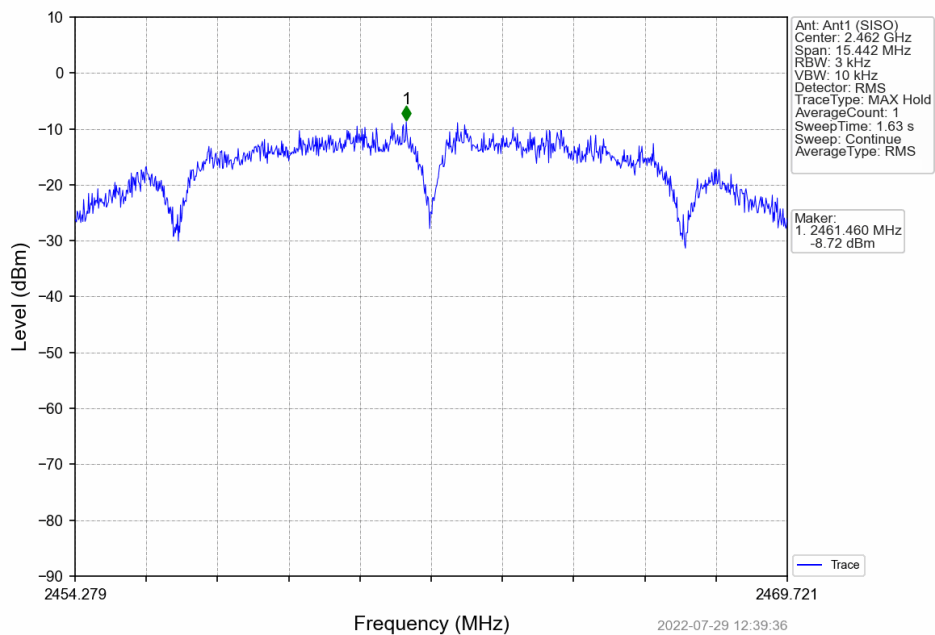
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-9.15	<=8	Pass
		2437	-9.01	<=8	Pass
		2462	-8.72	<=8	Pass
802.11g	SISO	2412	-11.25	<=8	Pass
		2437	-11.03	<=8	Pass
		2462	-10.32	<=8	Pass
802.11n (HT20)	SISO	2412	-11.40	<=8	Pass
		2437	-11.08	<=8	Pass
		2462	-10.87	<=8	Pass
802.11n (HT40)	SISO	2422	-14.10	<=8	Pass
		2437	-13.29	<=8	Pass
		2452	-14.18	<=8	Pass

Note1: Antenna Gain: Ant1: 2.00dBi;

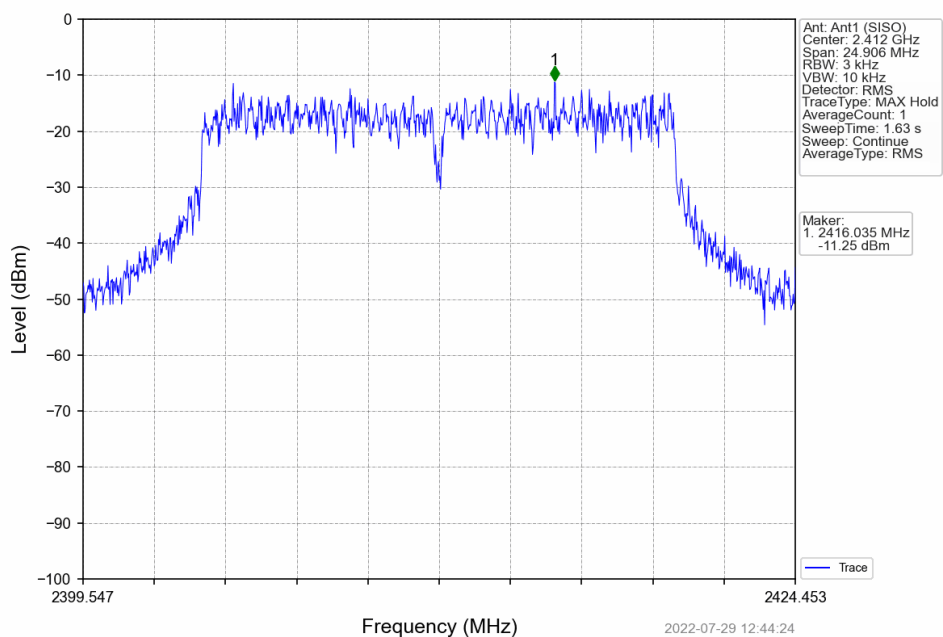
3.1.2 Test Graph



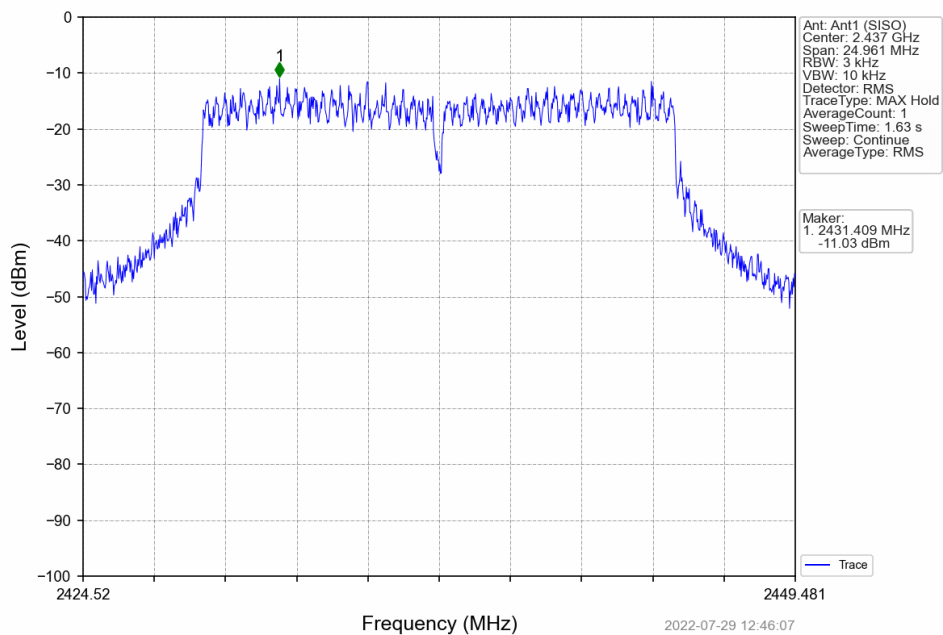
802.11b HCH 2462MHz Ant1 (SISO) NTN



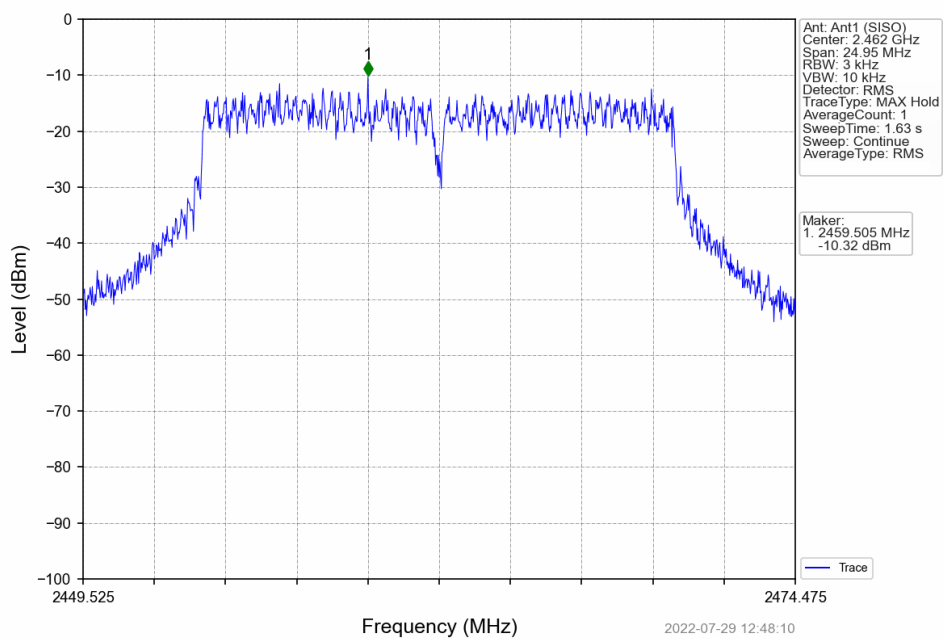
802.11g LCH 2412MHz Ant1 (SISO) NTN



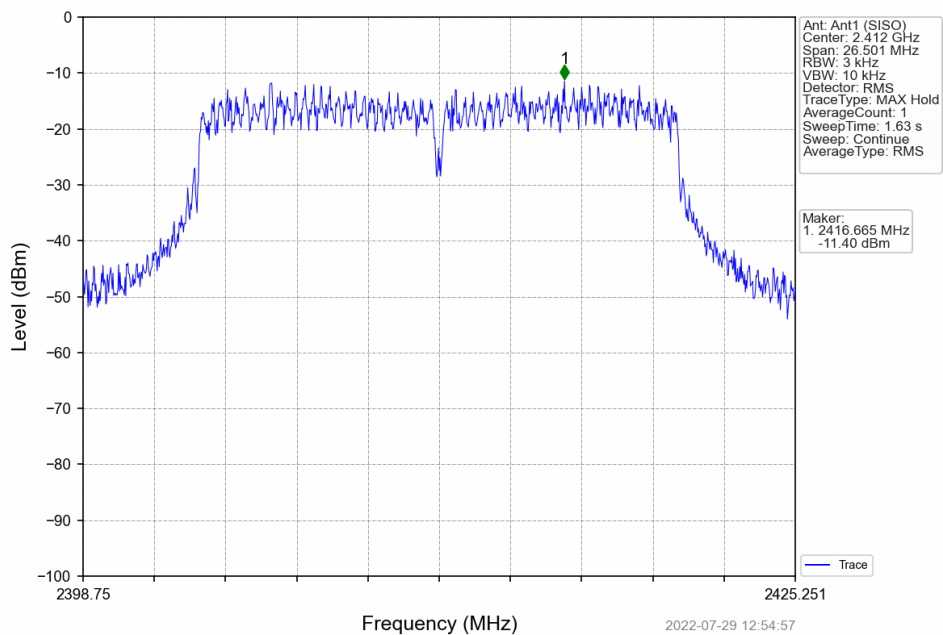
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



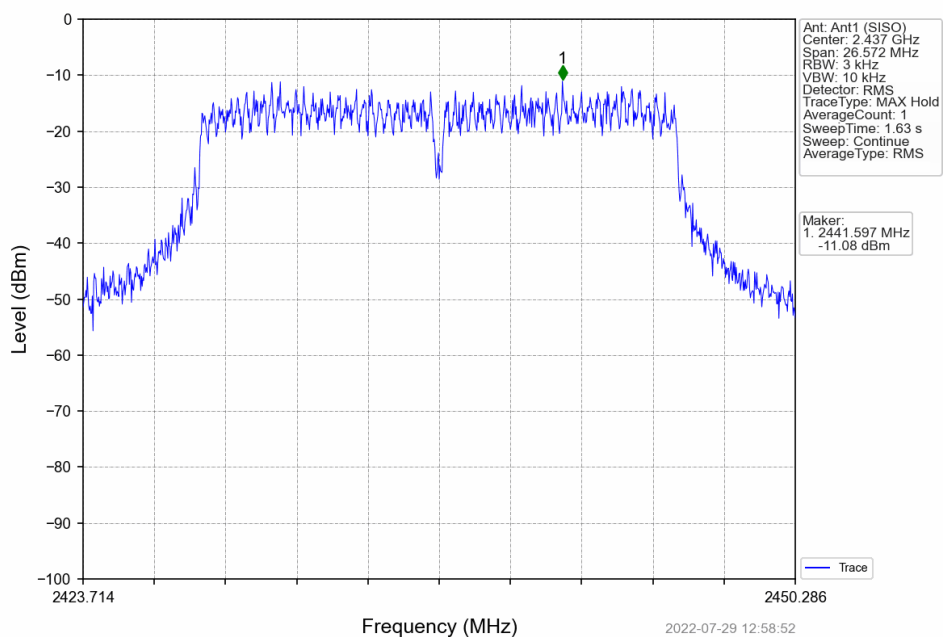
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



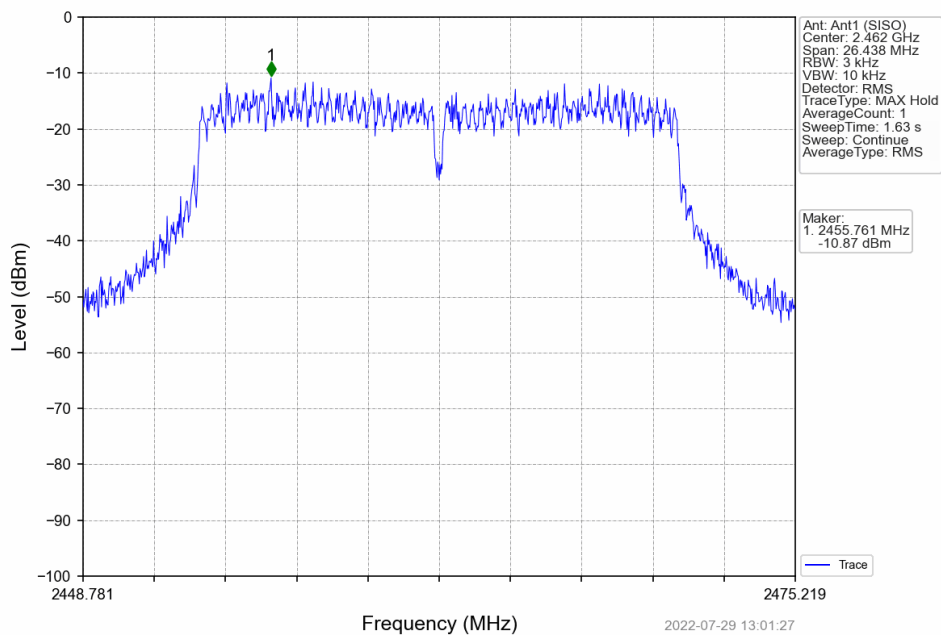
802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTNV



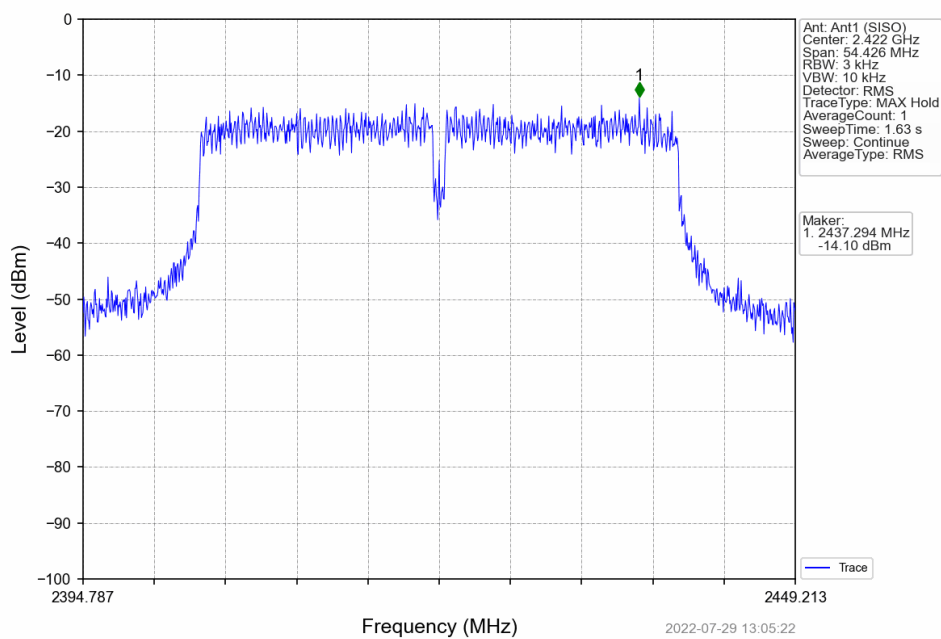
802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTNV



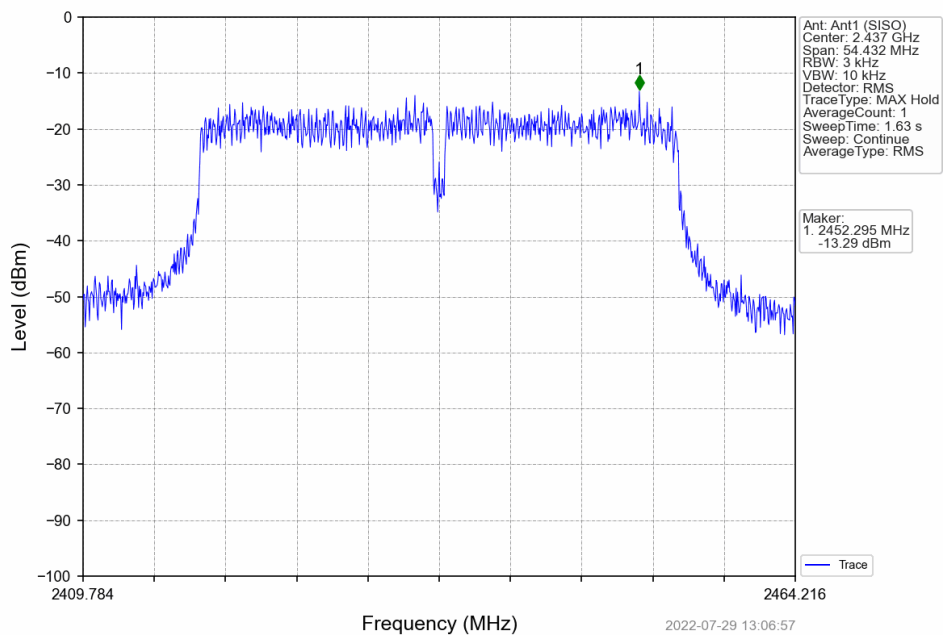
802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV



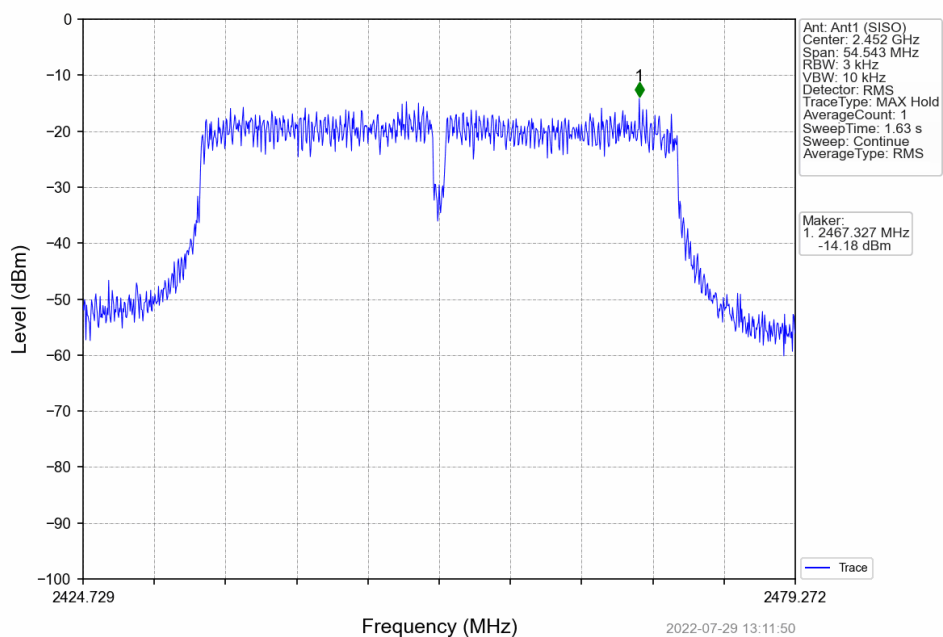
802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV



802.11n(HT40) MCH_2437MHz_Ant1 (SISO) NTN



802.11n(HT40) HCH_2452MHz_Ant1 (SISO) NTN



4. Unwanted Emissions InStandard Non-restricted Frequency Bands

4.1 Ref

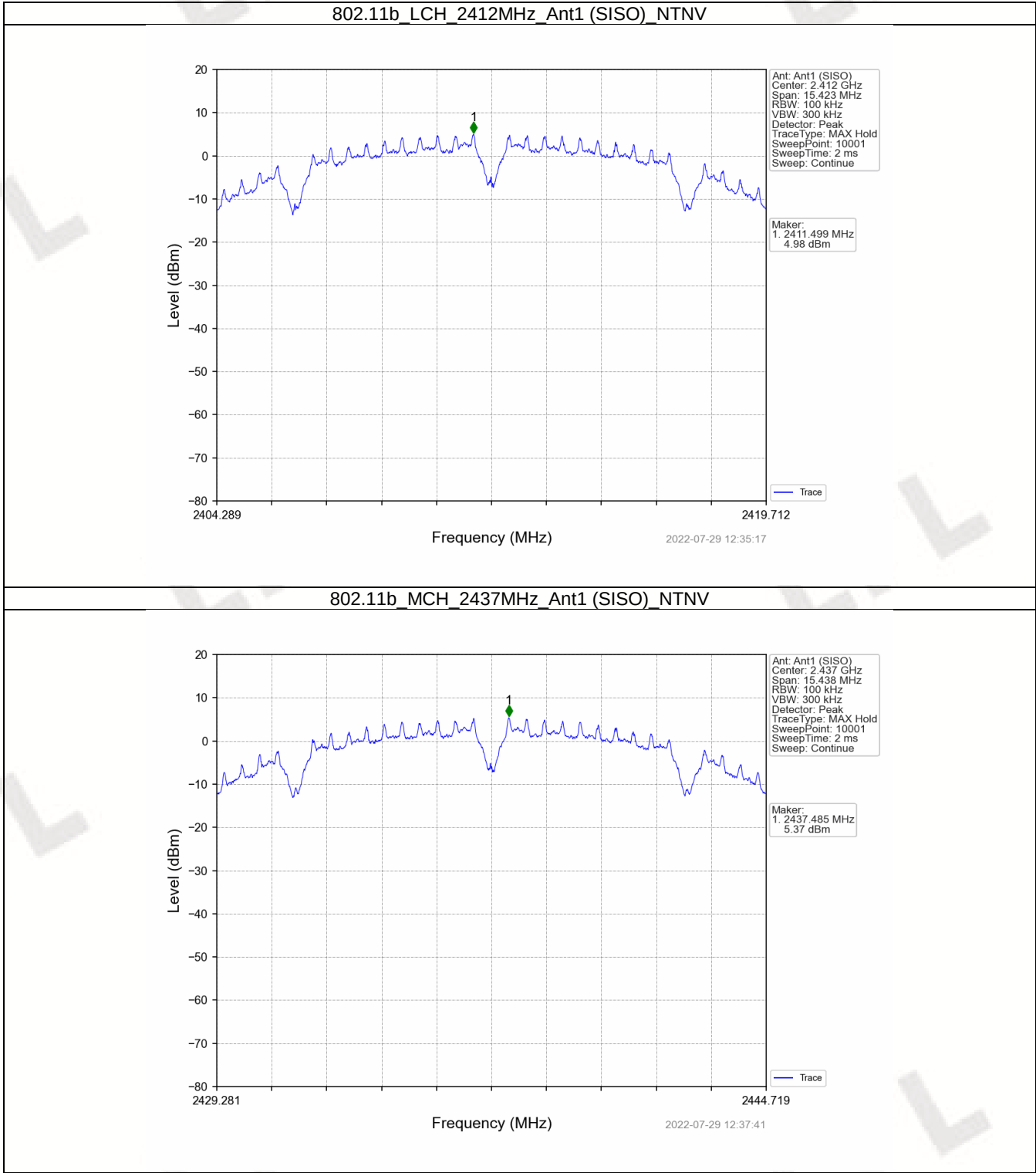
4.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
802.11b	SISO	2412	1	4.98
		2437	1	5.37
		2462	1	4.88
802.11g	SISO	2412	1	3.70
		2437	1	3.85
		2462	1	3.33
802.11n (HT20)	SISO	2412	1	3.52
		2437	1	3.80
		2462	1	3.72
802.11n (HT40)	SISO	2422	1	0.42
		2437	1	1.04
		2452	1	0.56

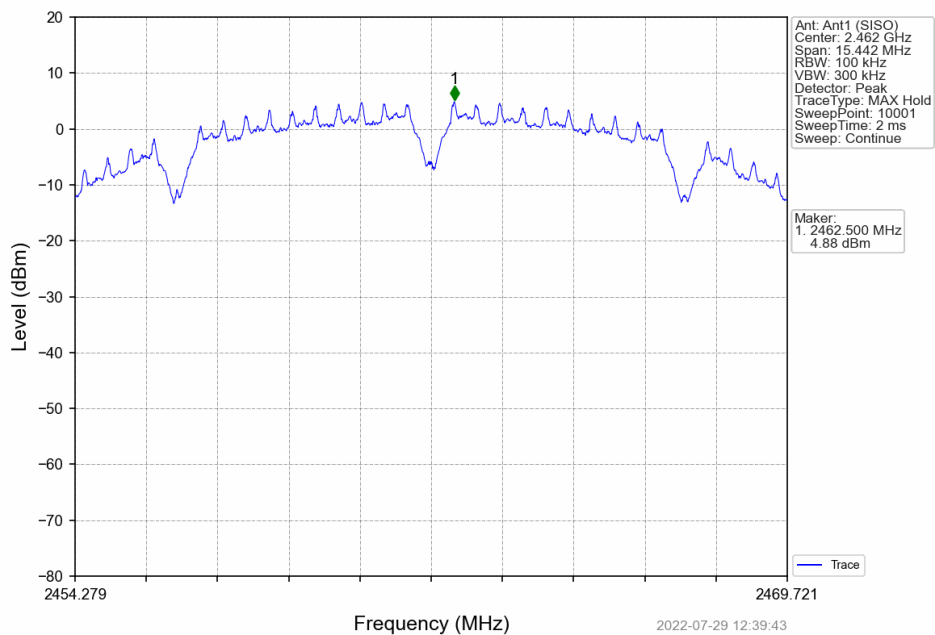
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.

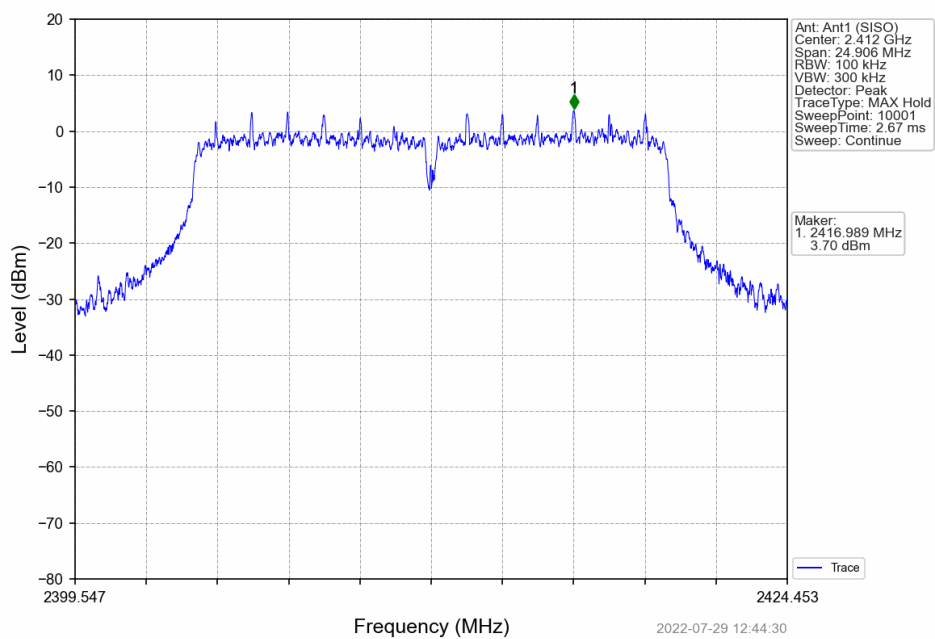
4.1.2 Test Graph



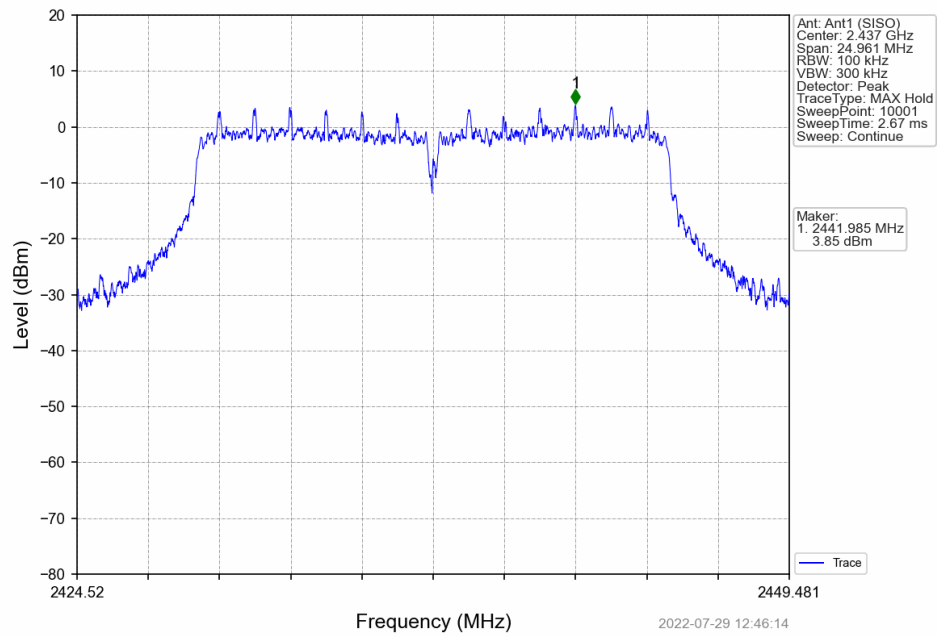
802.11b HCH 2462MHz Ant1 (SISO) NTN



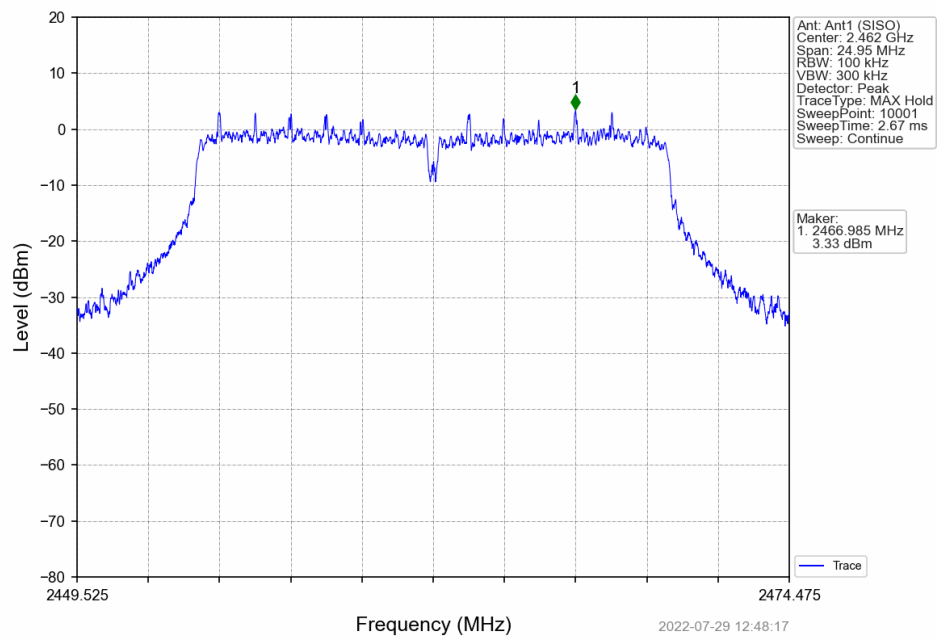
802.11g LCH 2412MHz Ant1 (SISO) NTN



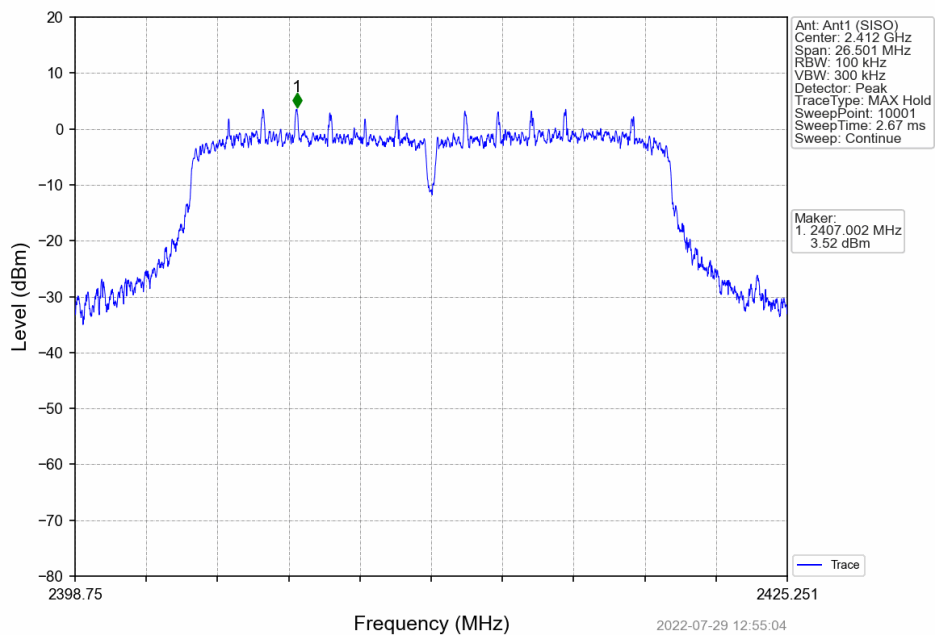
802.11g MCH 2437MHz Ant1 (SISO) NTN



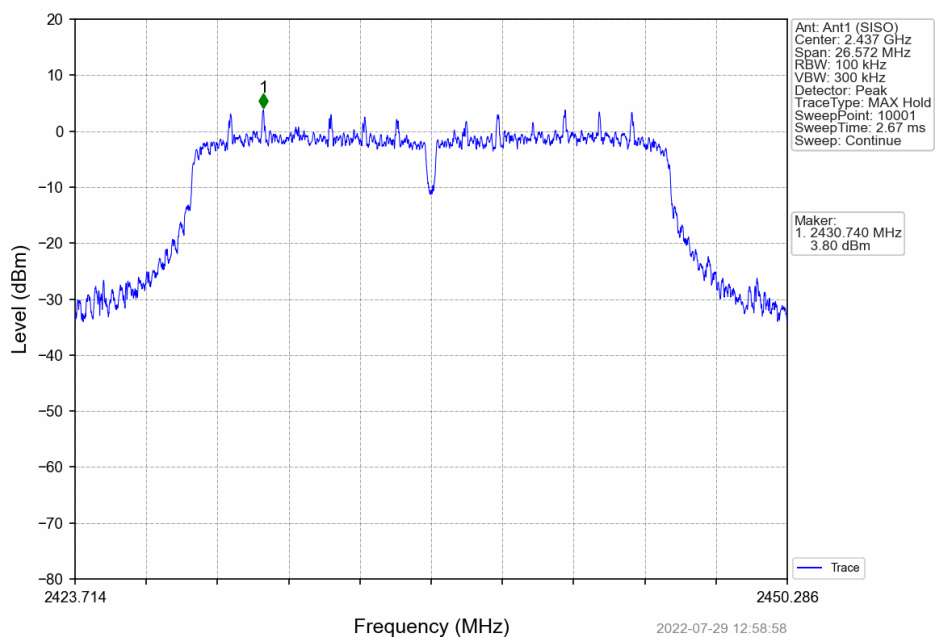
802.11g HCH 2462MHz Ant1 (SISO) NTN



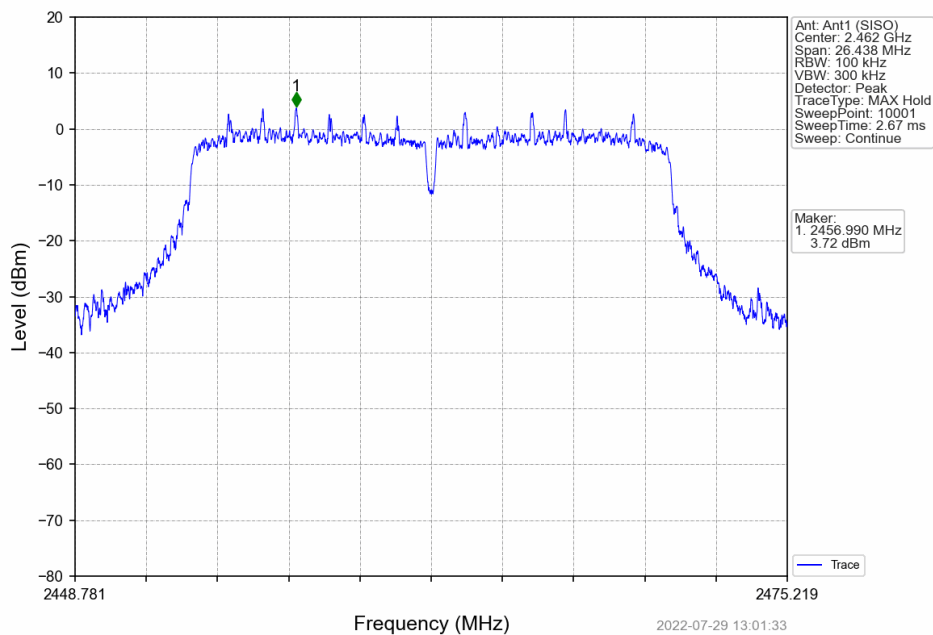
802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTN



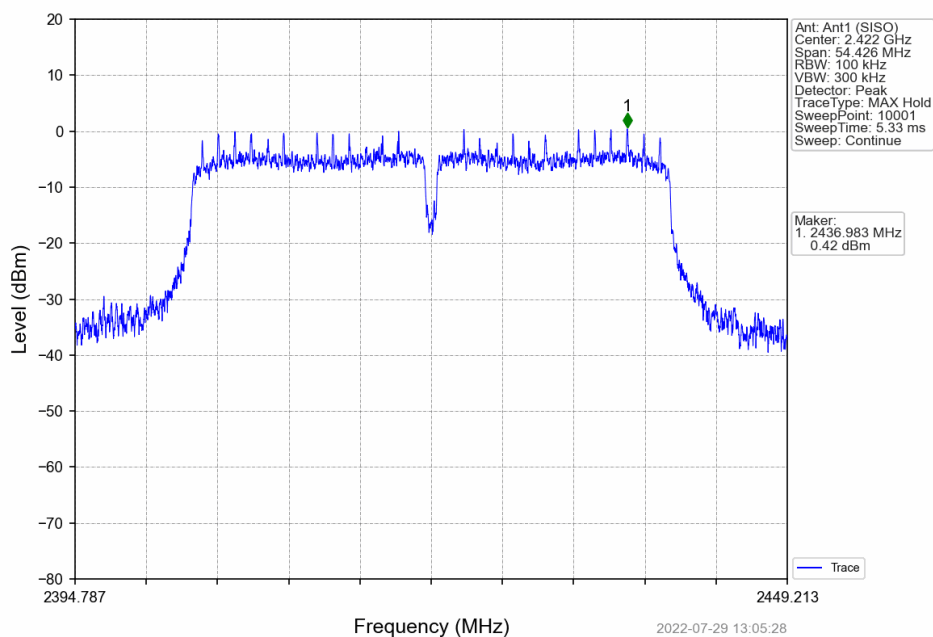
802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTN



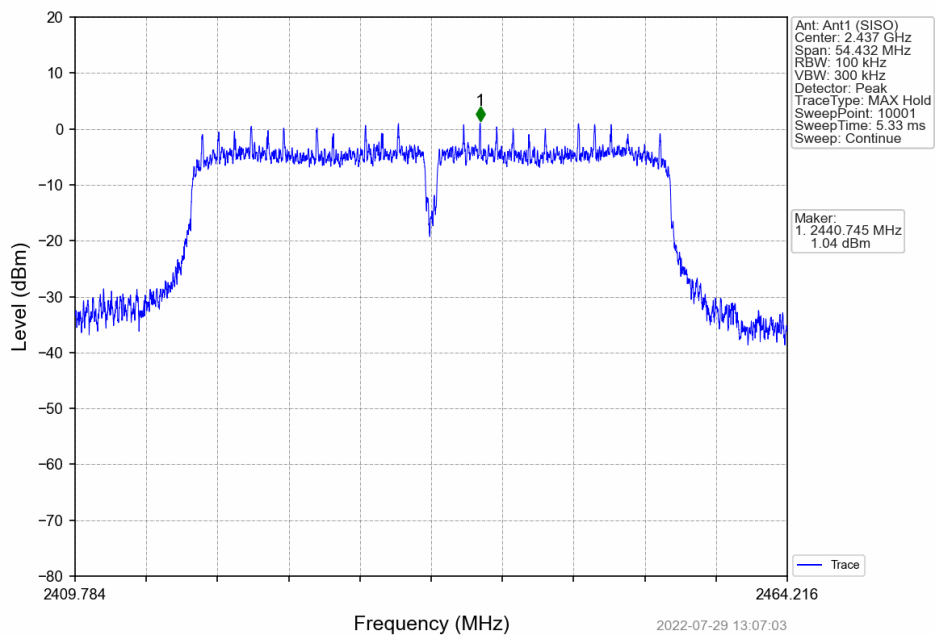
802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV



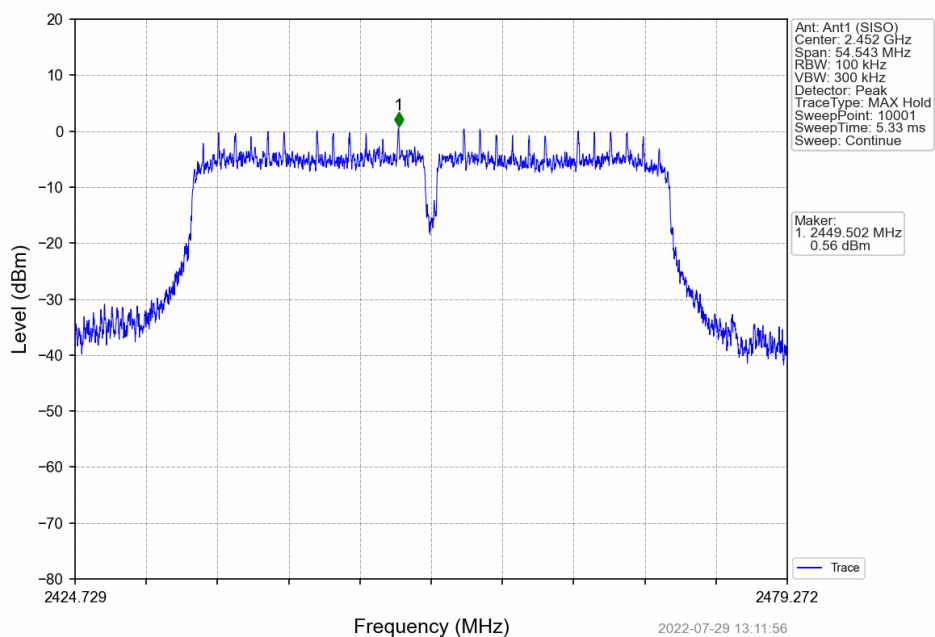
802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV



802.11n(HT40) MCH_2437MHz_Ant1 (SISO) NTN



802.11n(HT40) HCH_2452MHz_Ant1 (SISO) NTN



4.2 CSE

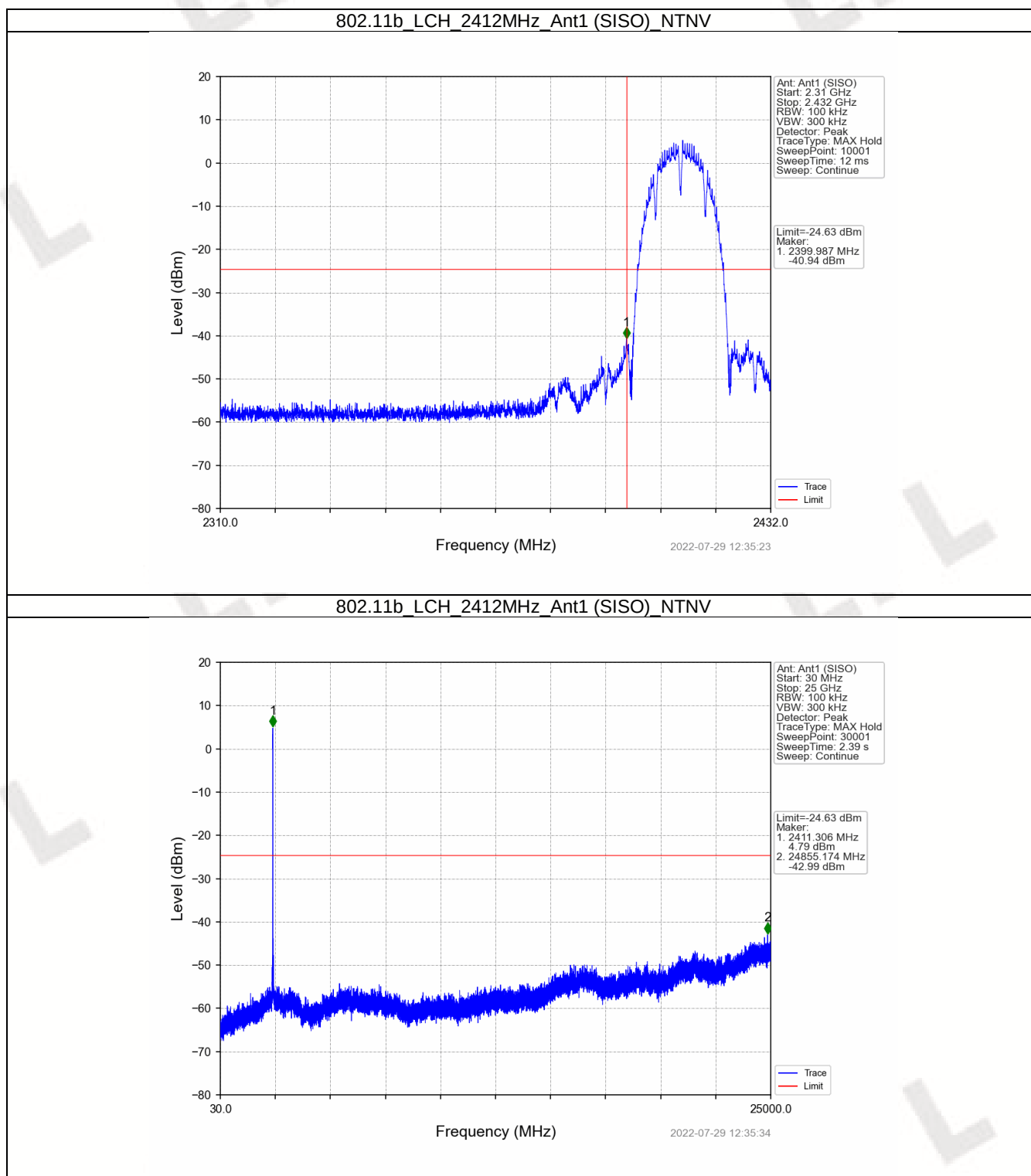
4.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	5.37	-24.63	Pass
		2437	1	5.37	-24.63	Pass
		2462	1	5.37	-24.63	Pass
802.11g	SISO	2412	1	3.85	-26.15	Pass
		2437	1	3.85	-26.15	Pass
		2462	1	3.85	-26.15	Pass
802.11n (HT20)	SISO	2412	1	3.80	-26.20	Pass
		2437	1	3.80	-26.20	Pass
		2462	1	3.80	-26.20	Pass
802.11n (HT40)	SISO	2422	1	1.04	-28.96	Pass
		2437	1	1.04	-28.96	Pass
		2452	1	1.04	-28.96	Pass

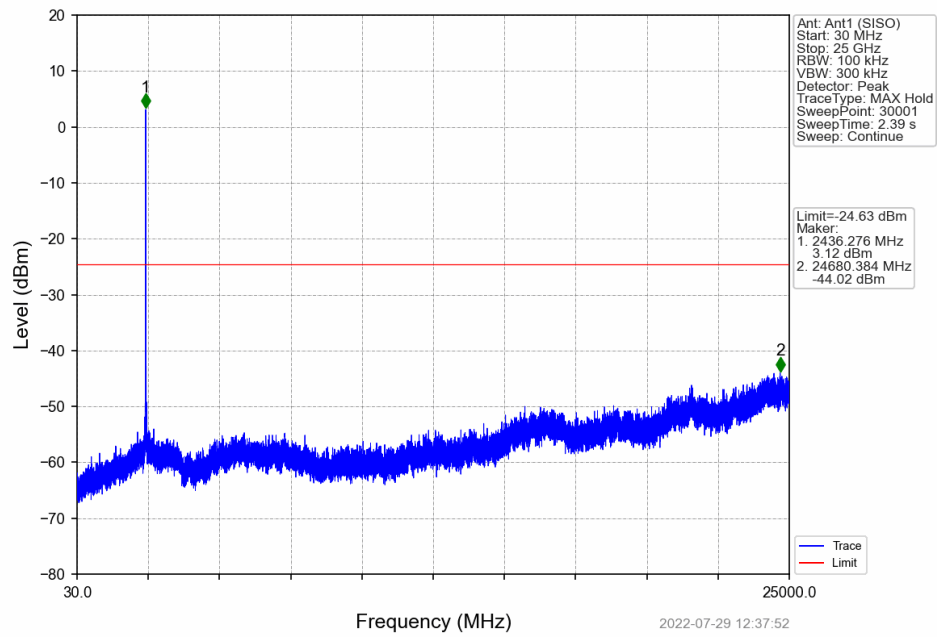
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.

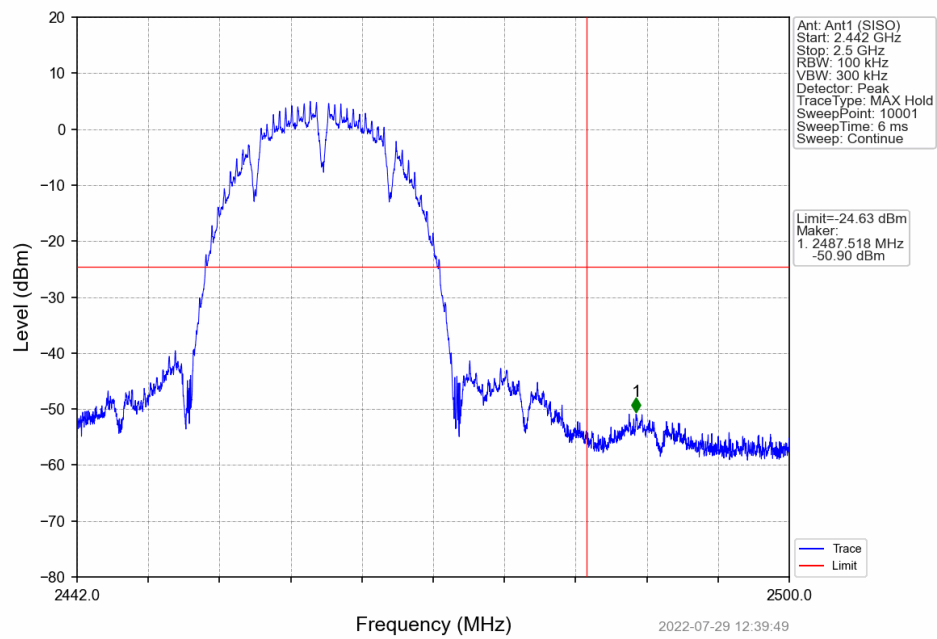
4.2.2 Test Graph



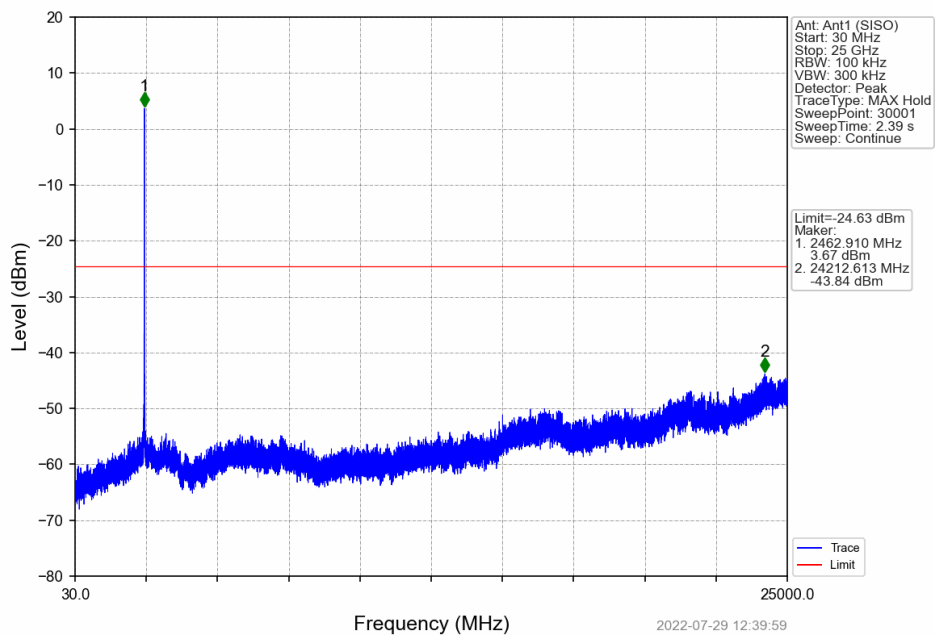
802.11b MCH 2437MHz Ant1 (SISO) NTN



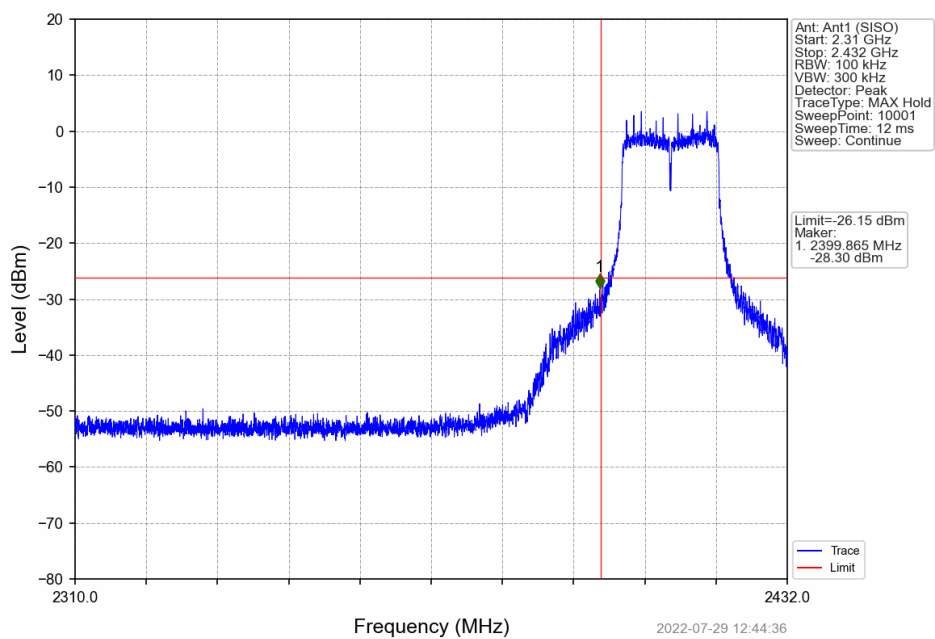
802.11b_HCH_2462MHz_Ant1 (SISO) NTN



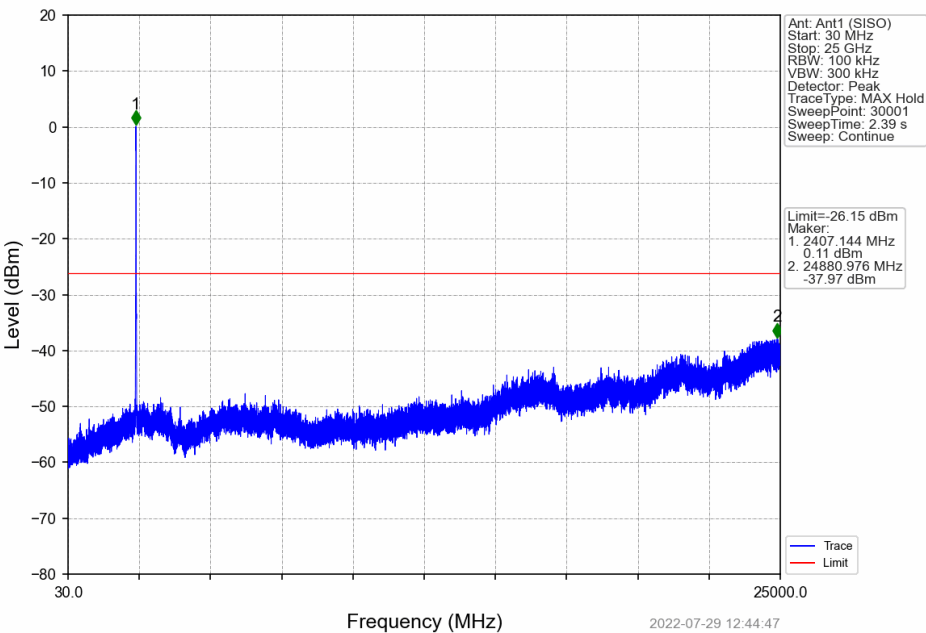
802.11b HCH 2462MHz Ant1 (SISO) NTN



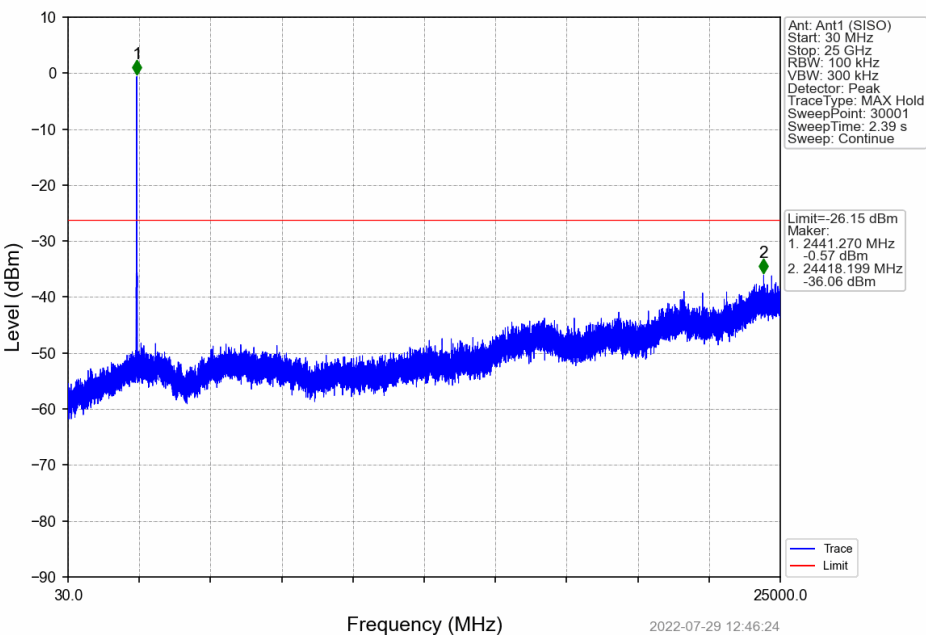
802.11g LCH 2412MHz Ant1 (SISO) NTN



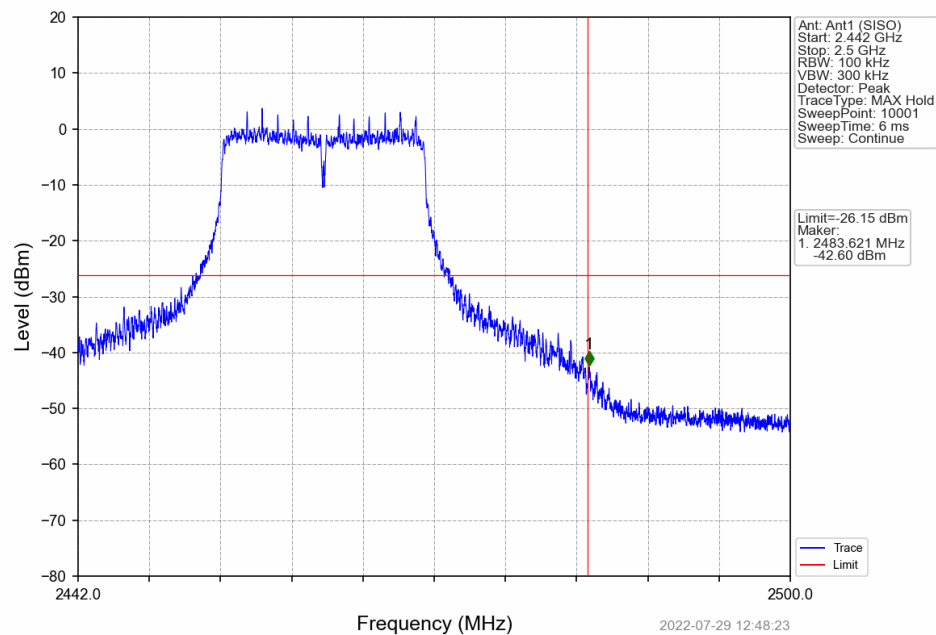
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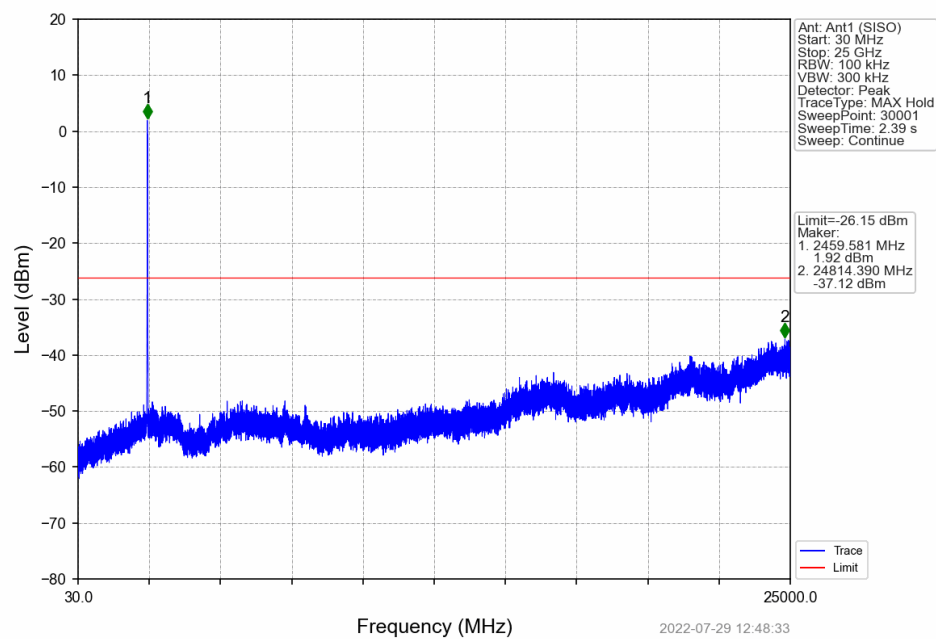
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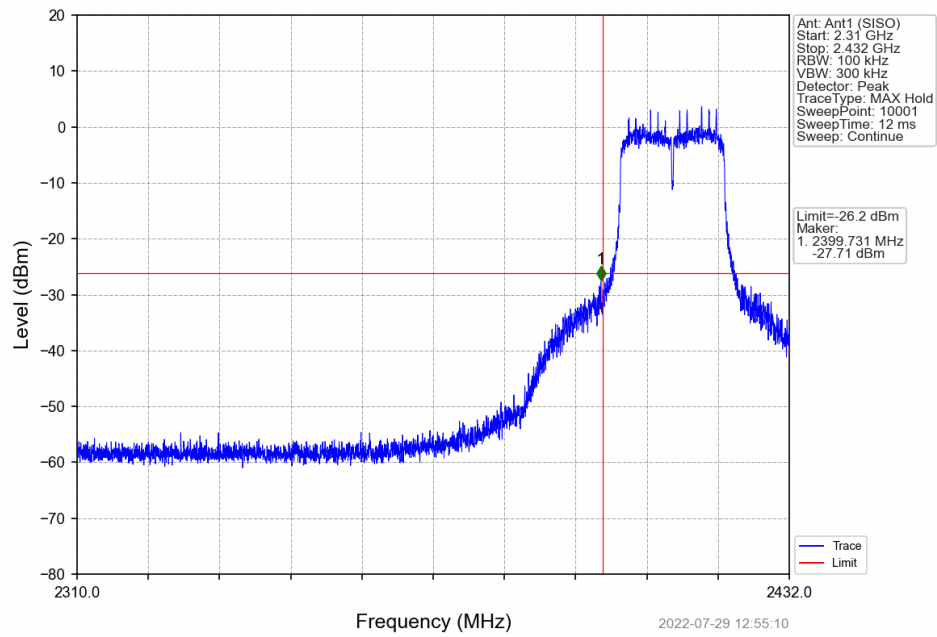
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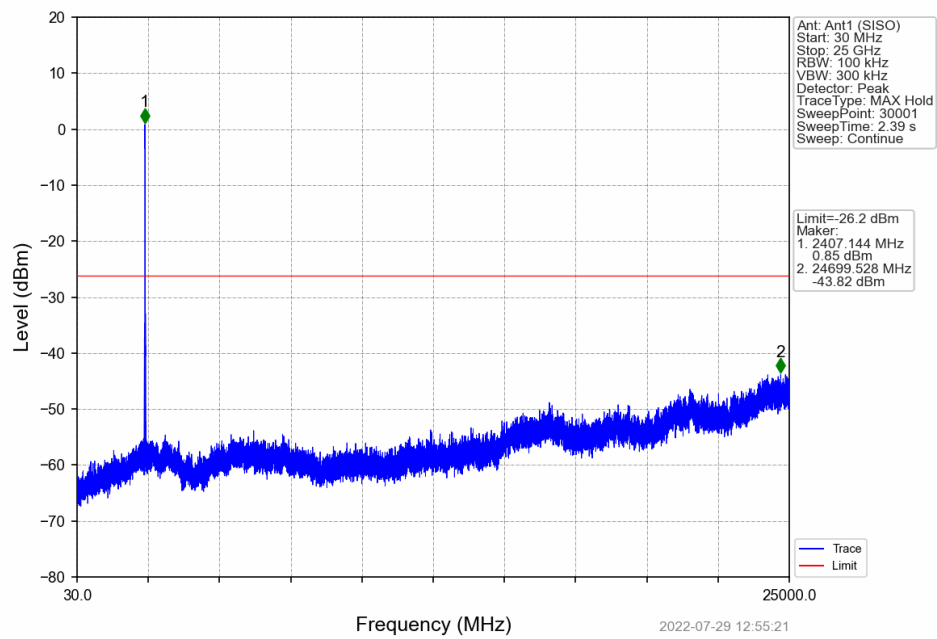
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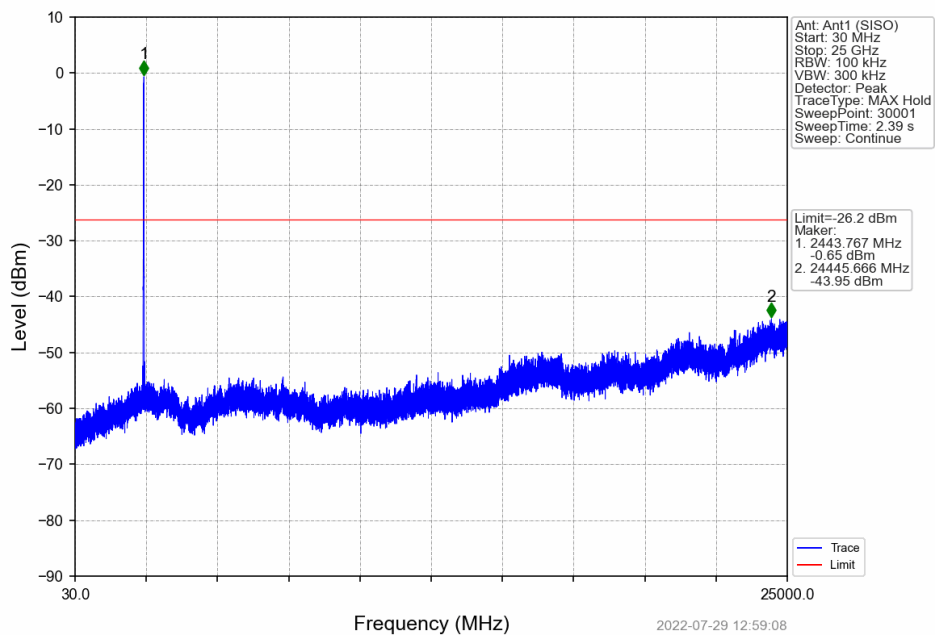
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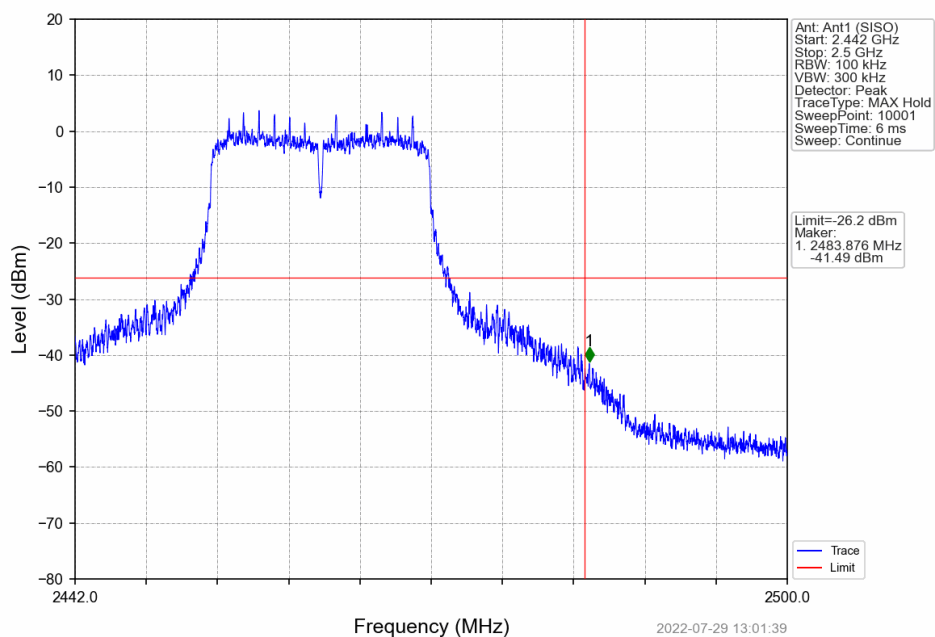
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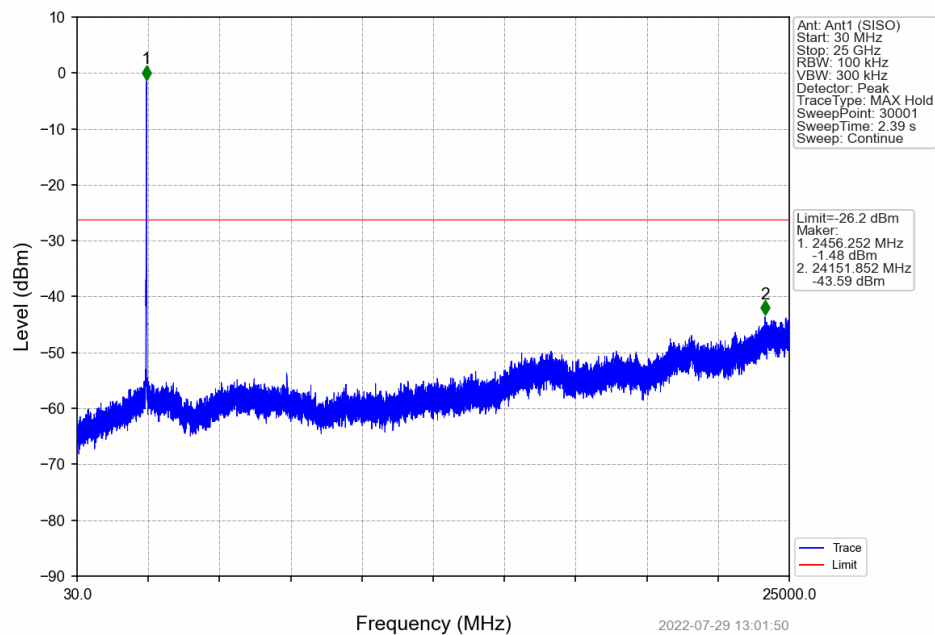
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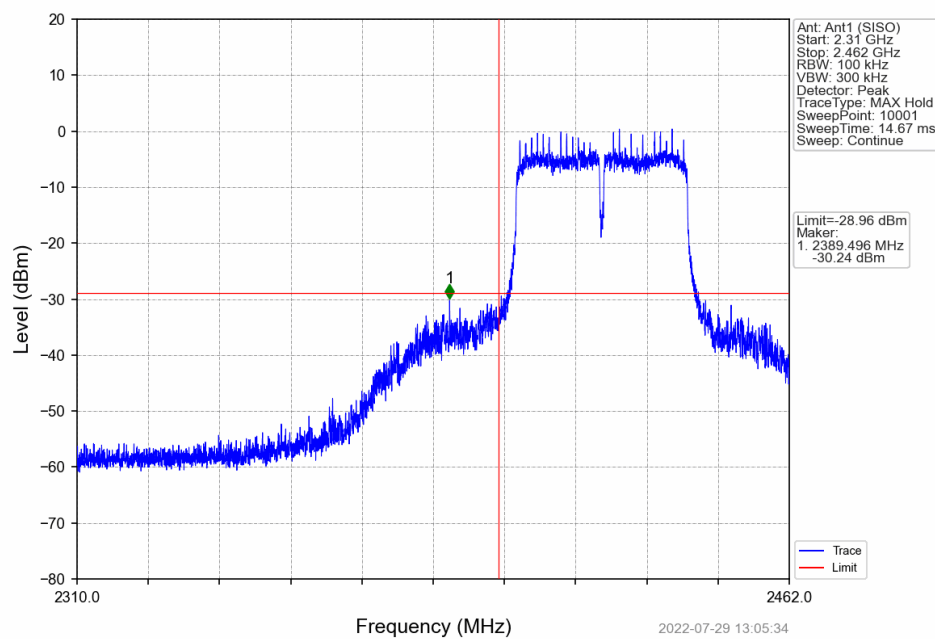
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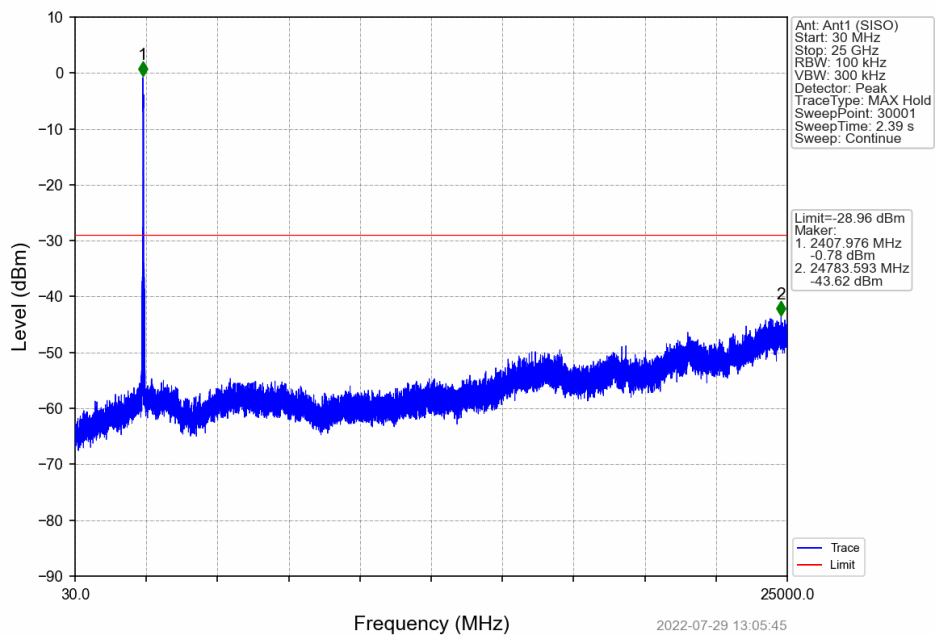
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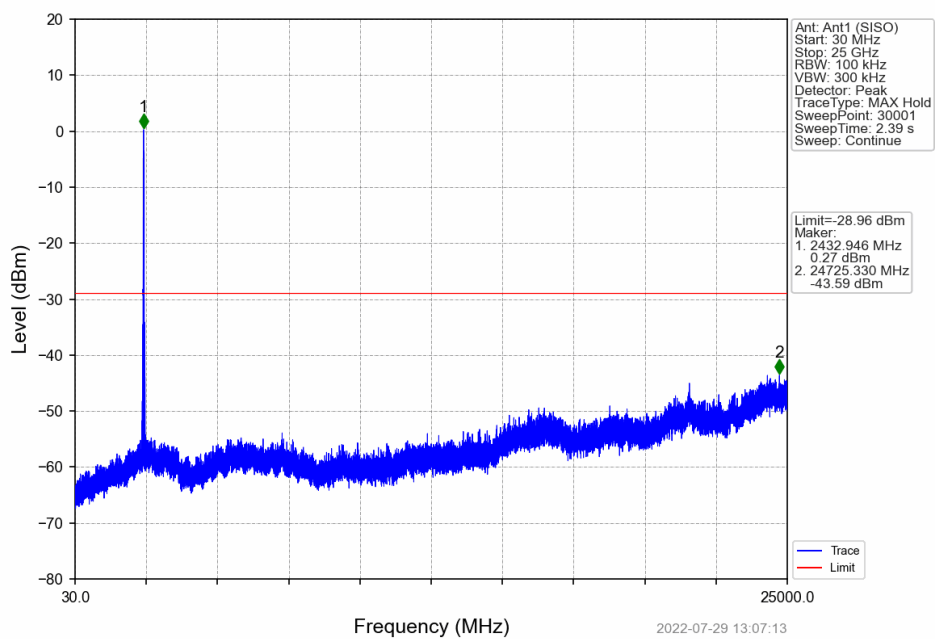
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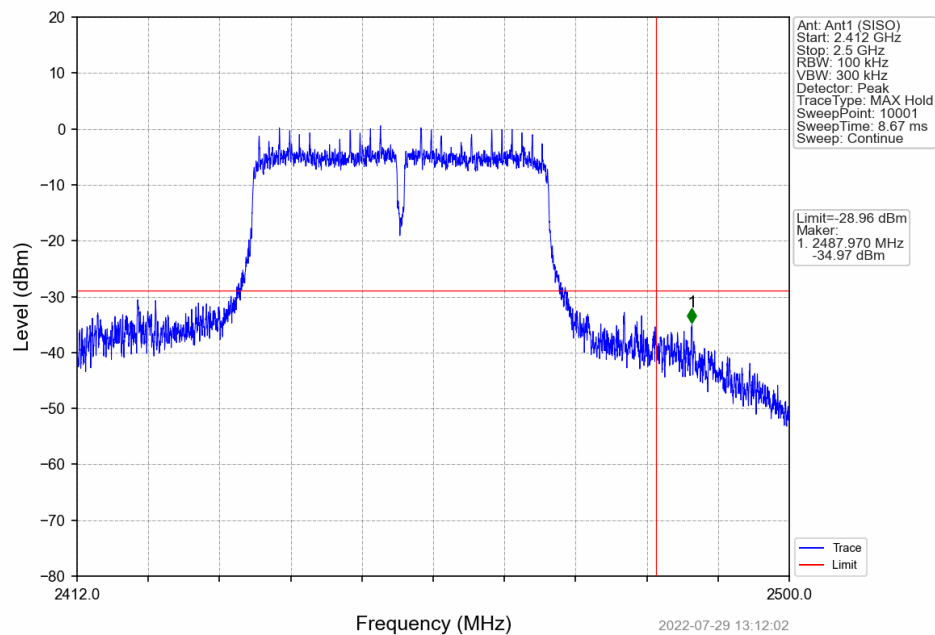
802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV



802.11n(HT40) MCH 2437MHz Ant1 (SISO) NTNV



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



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

