



RF Test Report

For

Project No.:	ZKT-241209L17899E-3
Client:	SHENZHEN FCAR TECHNOLOGY CO.,LTD
Manufacturer:	SHENZHEN FCAR TECHNOLOGY CO.,LTD
Product Description:	VCI
Model No.	FV500
Test Engineer:	Jim Liu
Test Date:	2024-12-07

Test Summary

Item	Result
Duty Cycle	Pass
Bandwidth	Pass
Maximum Conducted Output Power	Pass
Maximum Power Spectral Density	Pass
Unwanted Emissions In Non-restricted Frequency Bands	Pass
Frequency Error	Pass
Form731	Pass



1. Duty Cycle

1.1 Test Result

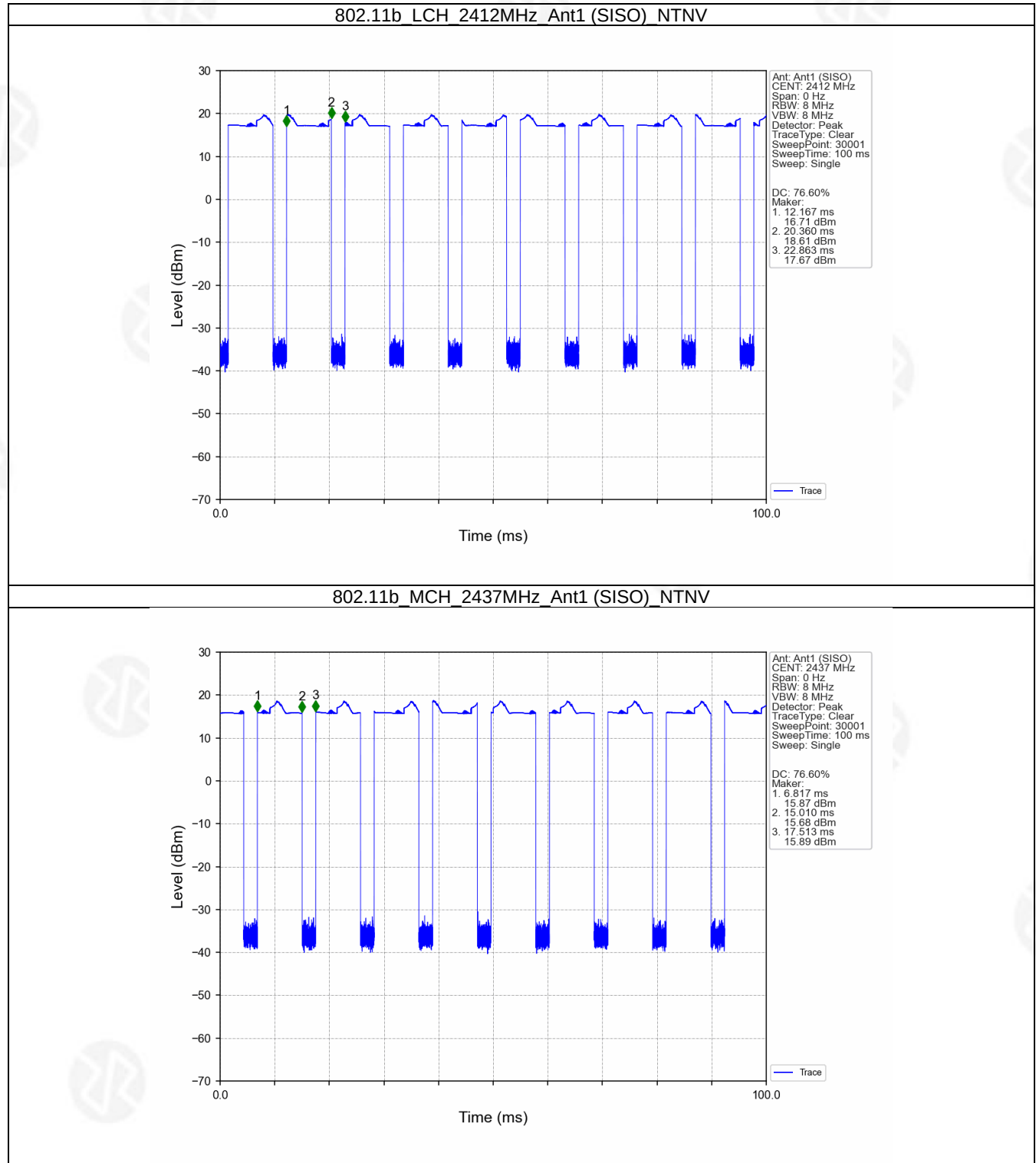
1.1.1 Ant1

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	8.193	10.696	76.60	1.16	0.02
		2437	8.193	10.696	76.60	1.16	0.02
		2462	8.194	10.697	76.60	1.16	0.02
802.11g	SISO	2412	1.361	3.862	35.24	4.53	0.00
		2437	1.360	3.863	35.21	4.53	0.00
		2462	1.360	3.863	35.21	4.53	0.00
802.11n (HT20)	SISO	2412	1.149	3.650	31.48	5.02	0.02
		2437	1.149	3.651	31.47	5.02	0.02
		2462	1.149	3.650	31.48	5.02	0.03
802.11n (HT40)	SISO	2422	0.573	3.075	18.63	7.30	0.03
		2437	0.573	3.076	18.63	7.30	0.03
		2452	0.572	3.075	18.60	7.30	0.03



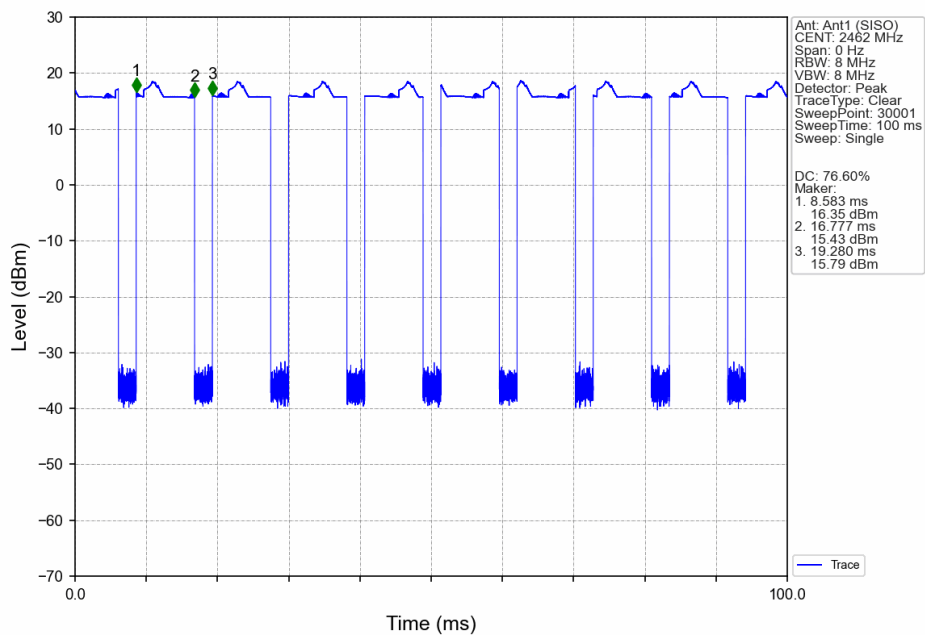
1.2 Test Graph

1.2.1 Ant1

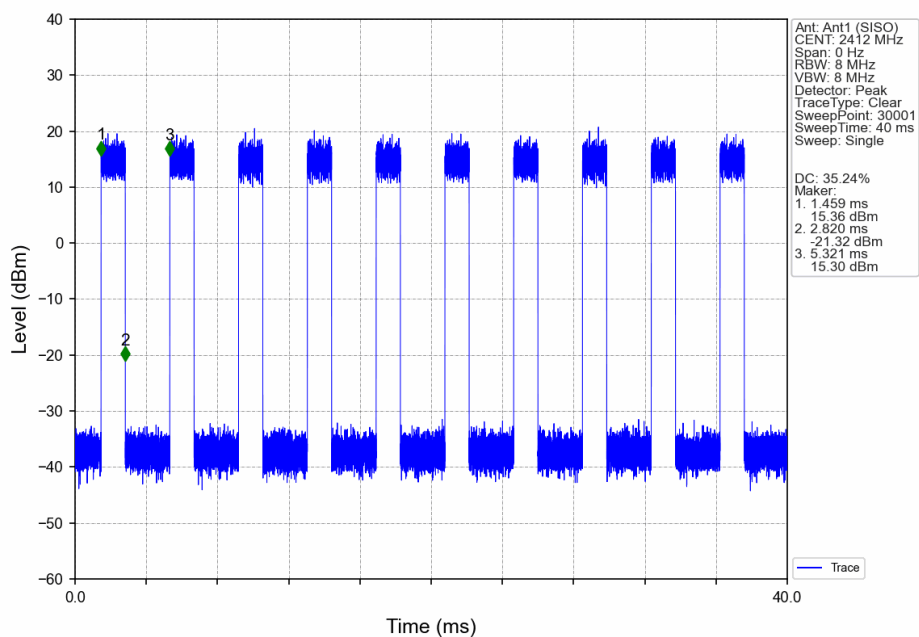




802.11b HCH 2462MHz Ant1 (SISO) NTN

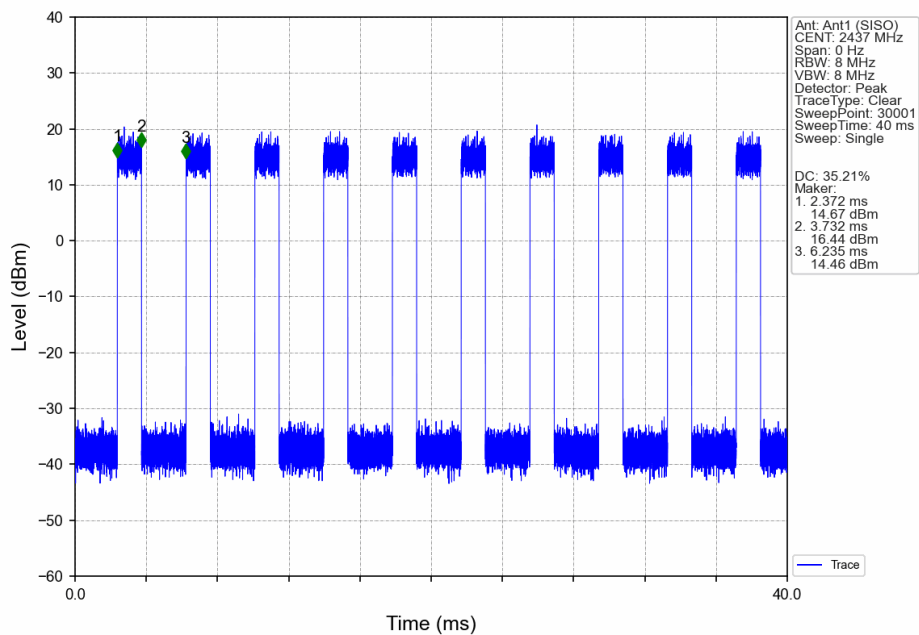


802.11g LCH 2412MHz Ant1 (SISO) NTN

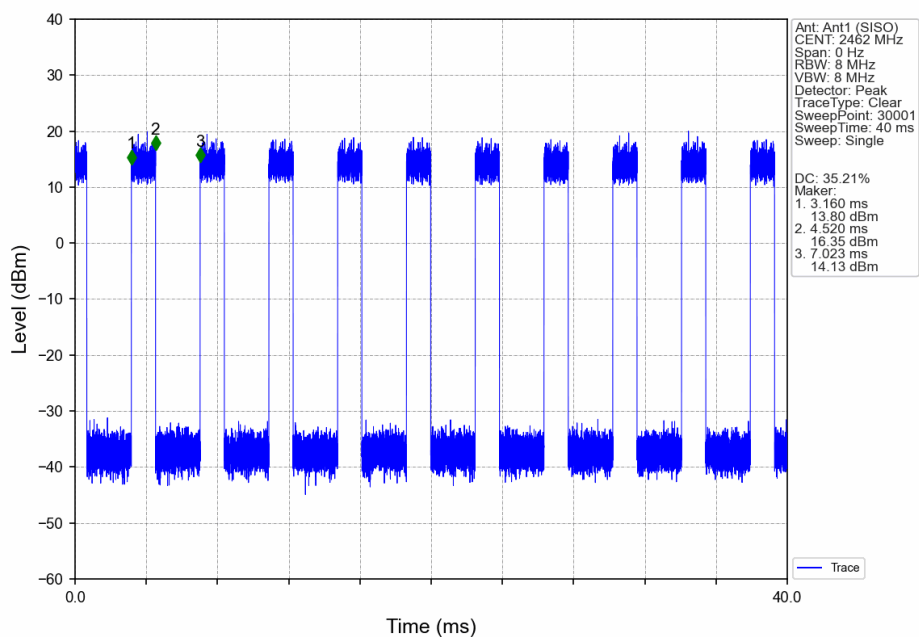




802.11g_MCH_2437MHz_Ant1 (SISO) NTN

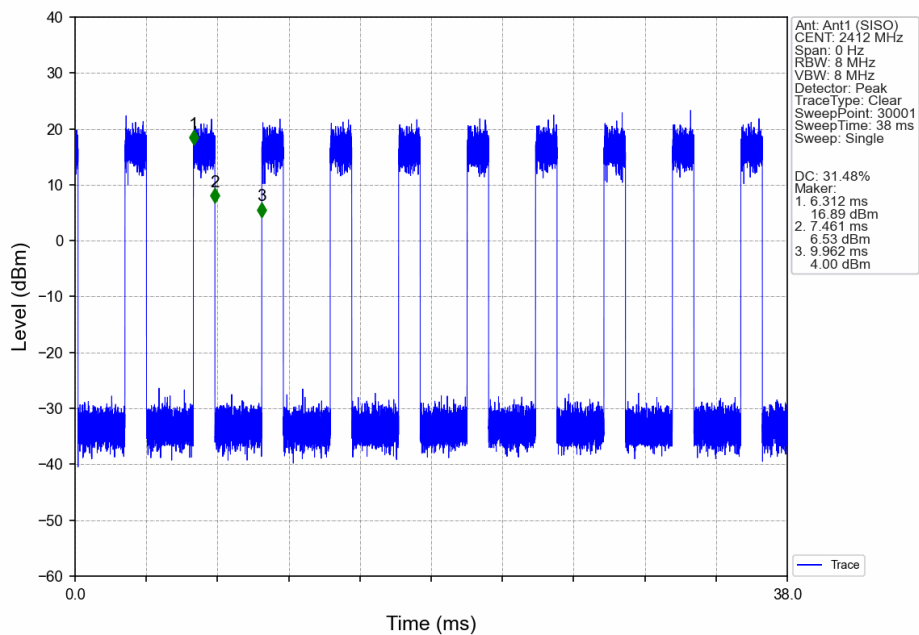


802.11g_HCH_2462MHz_Ant1 (SISO) NTN

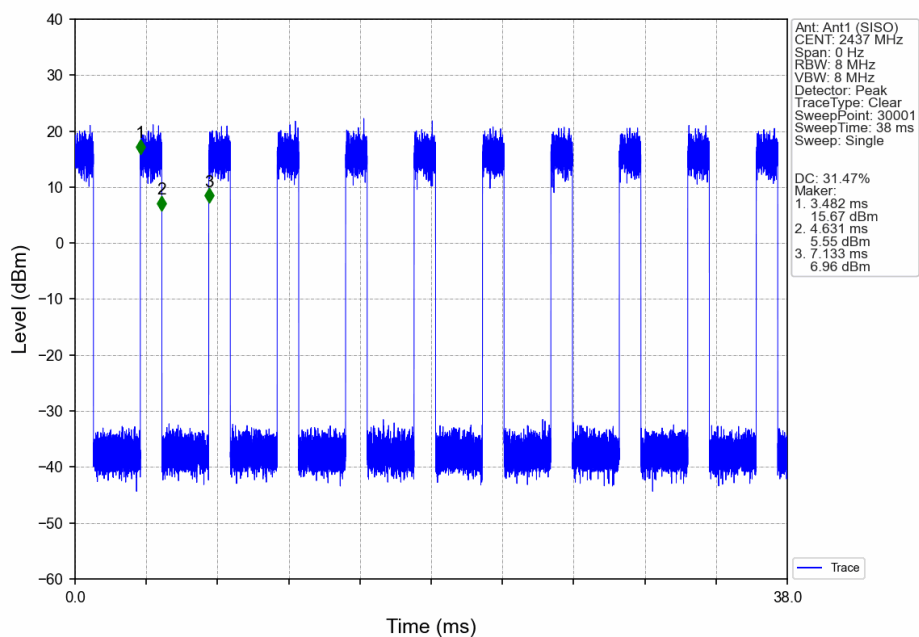




802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTNV

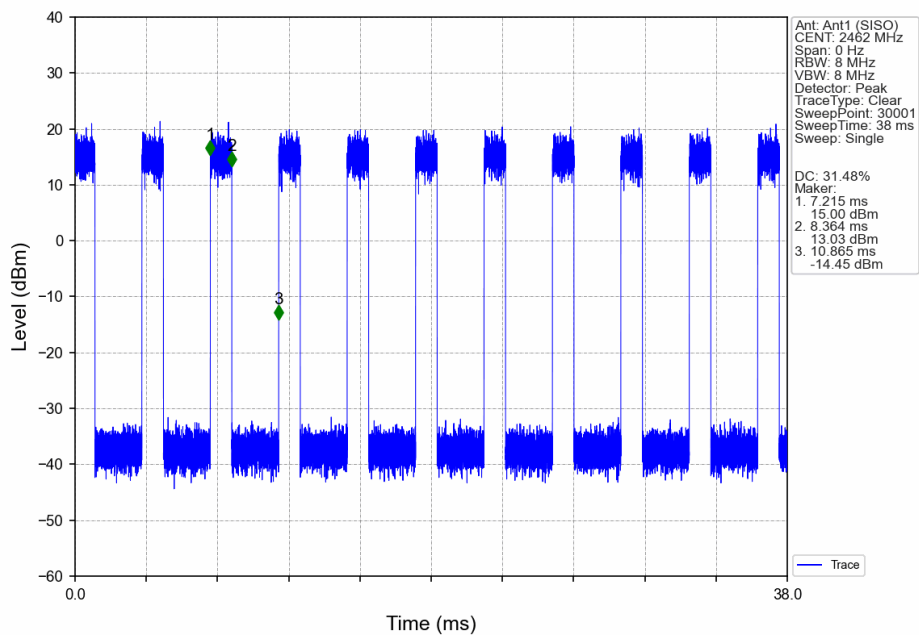


802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTNV

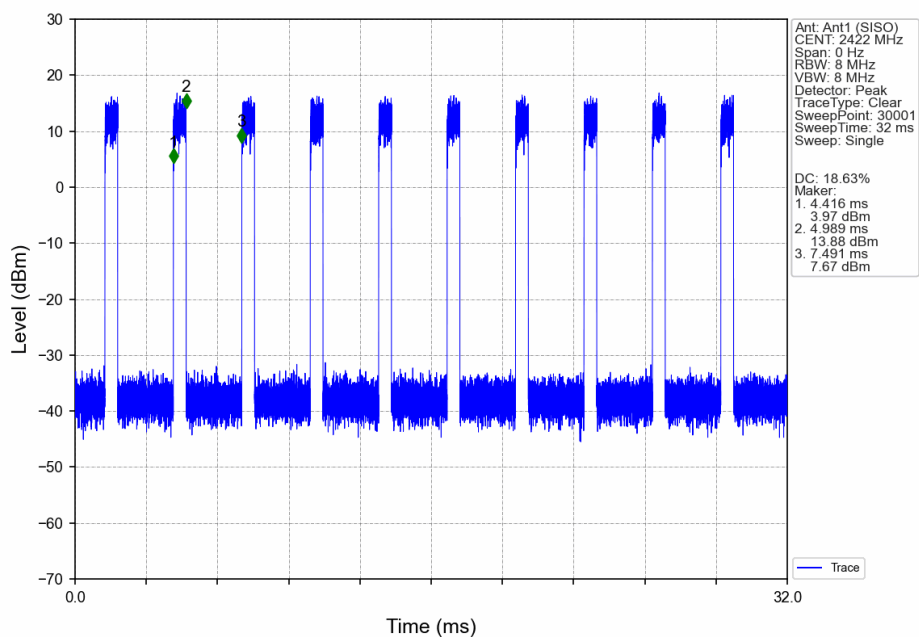




802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV

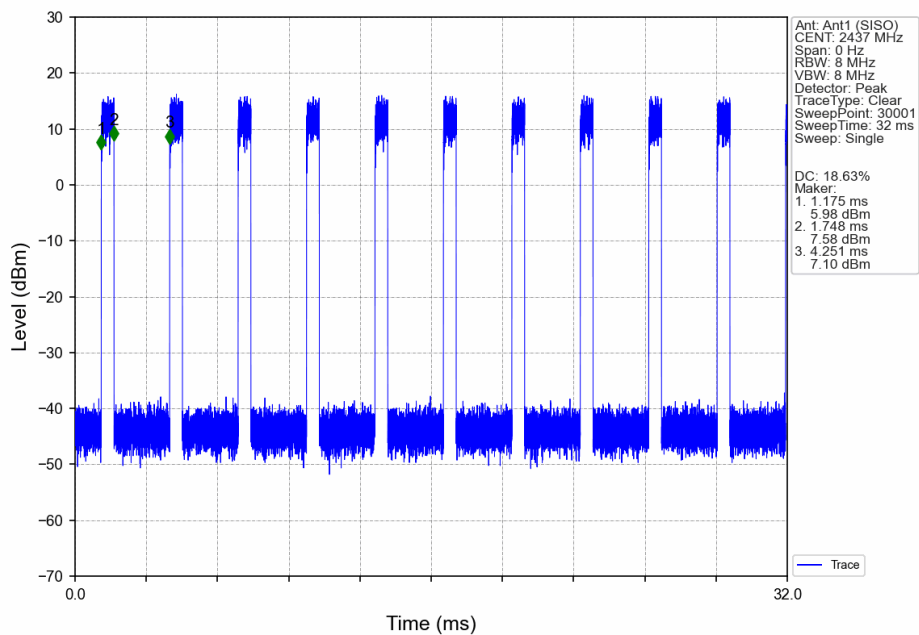


802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV

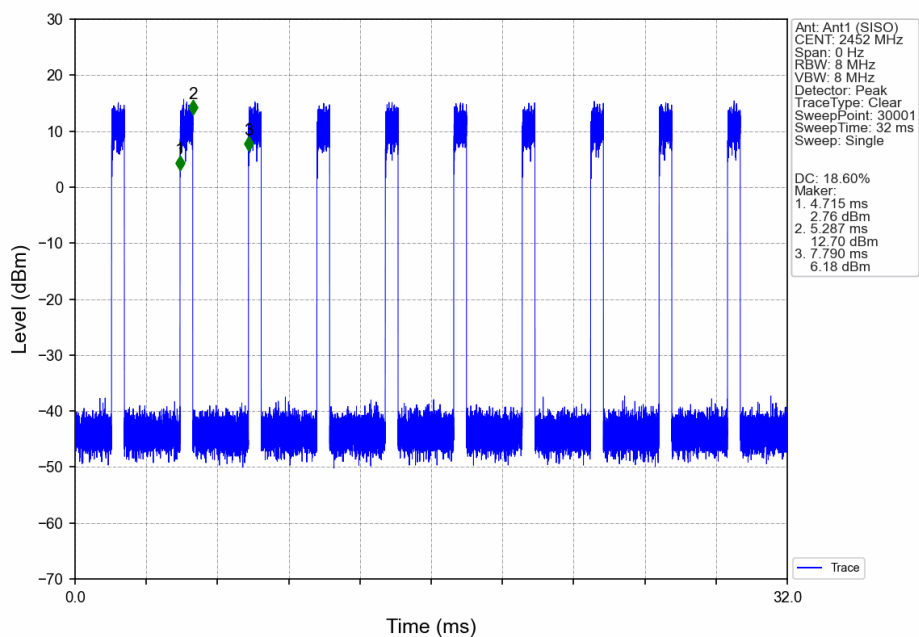




802.11n(HT40) MCH_2437MHz_Ant1 (SISO) NTN



802.11n(HT40) HCH_2452MHz_Ant1 (SISO) NTN





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	14.950	/	Pass
		2437	1	14.963	/	Pass
		2462	1	14.968	/	Pass
802.11g	SISO	2412	1	16.712	/	Pass
		2437	1	16.693	/	Pass
		2462	1	16.716	/	Pass
802.11n (HT20)	SISO	2412	1	17.618	/	Pass
		2437	1	17.613	/	Pass
		2462	1	17.612	/	Pass
802.11n (HT40)	SISO	2422	1	36.238	/	Pass
		2437	1	36.290	/	Pass
		2452	1	36.250	/	Pass

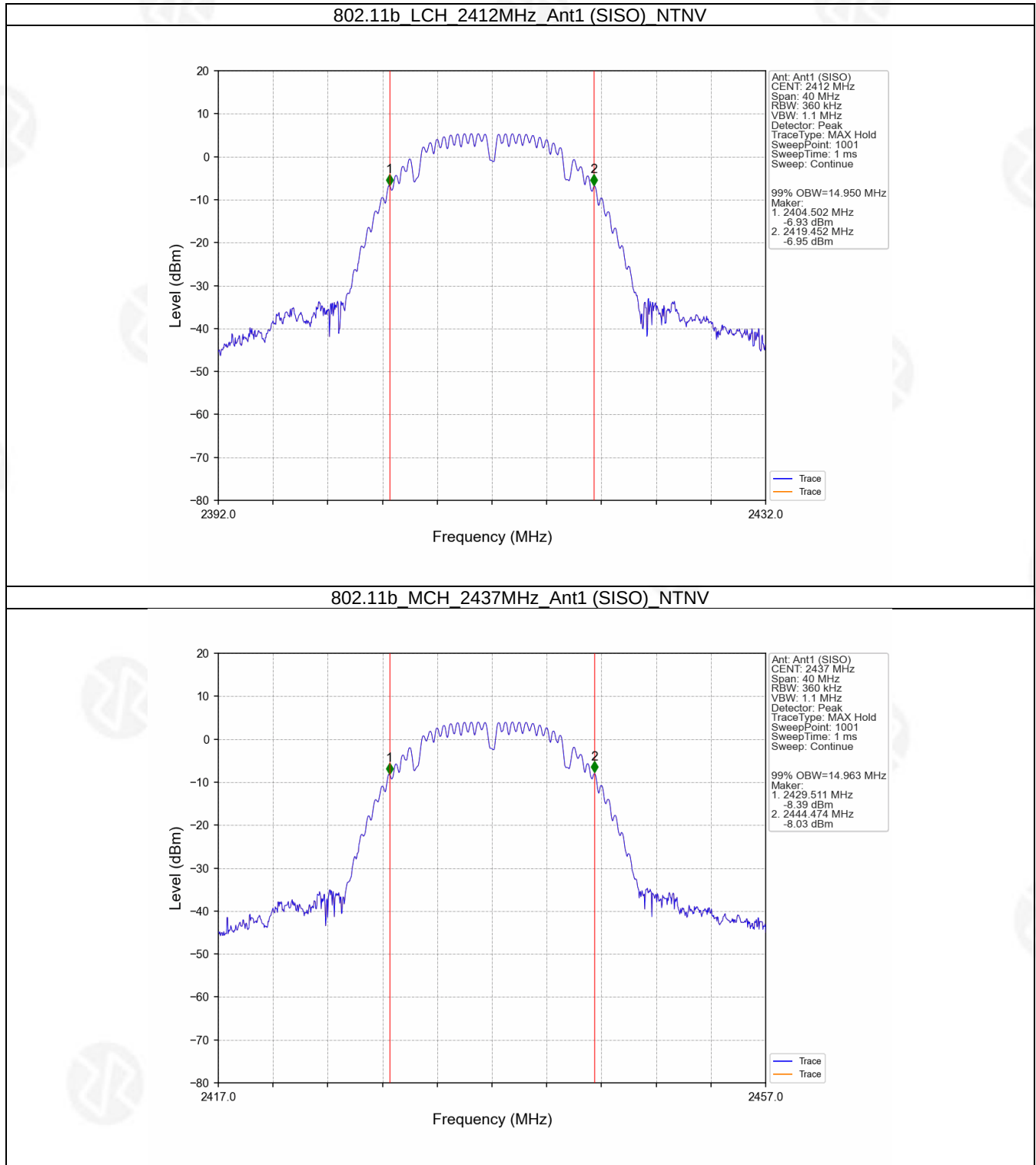
2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	10.178	≥ 0.5	Pass
		2437	1	11.109	≥ 0.5	Pass
		2462	1	11.107	≥ 0.5	Pass
802.11g	SISO	2412	1	16.342	≥ 0.5	Pass
		2437	1	16.329	≥ 0.5	Pass
		2462	1	16.323	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	16.986	≥ 0.5	Pass
		2437	1	17.287	≥ 0.5	Pass
		2462	1	17.252	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	35.959	≥ 0.5	Pass
		2437	1	35.877	≥ 0.5	Pass
		2452	1	36.203	≥ 0.5	Pass



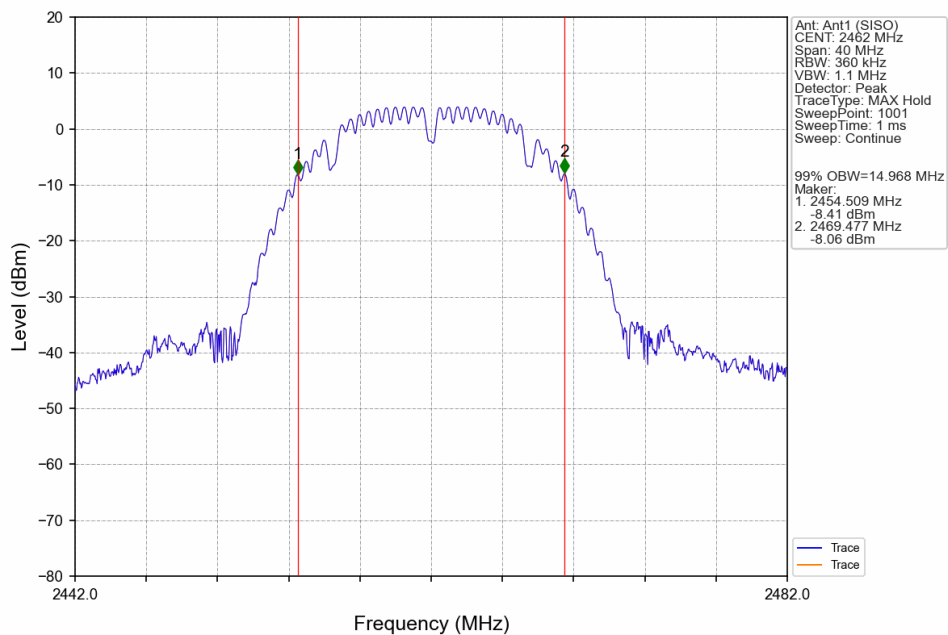
2.2 Test Graph

2.2.1 OBW

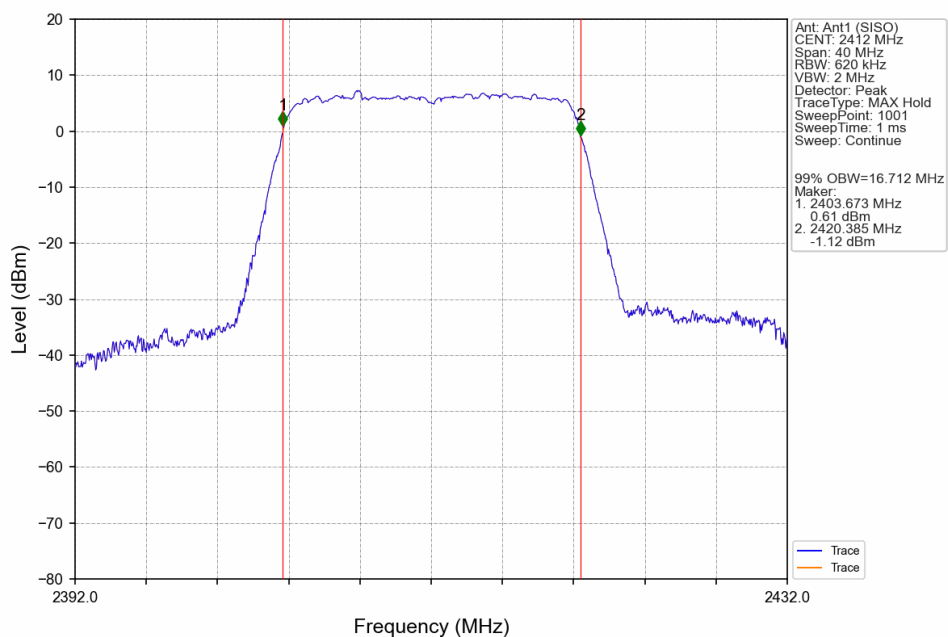




802.11b HCH 2462MHz Ant1 (SISO) NTN

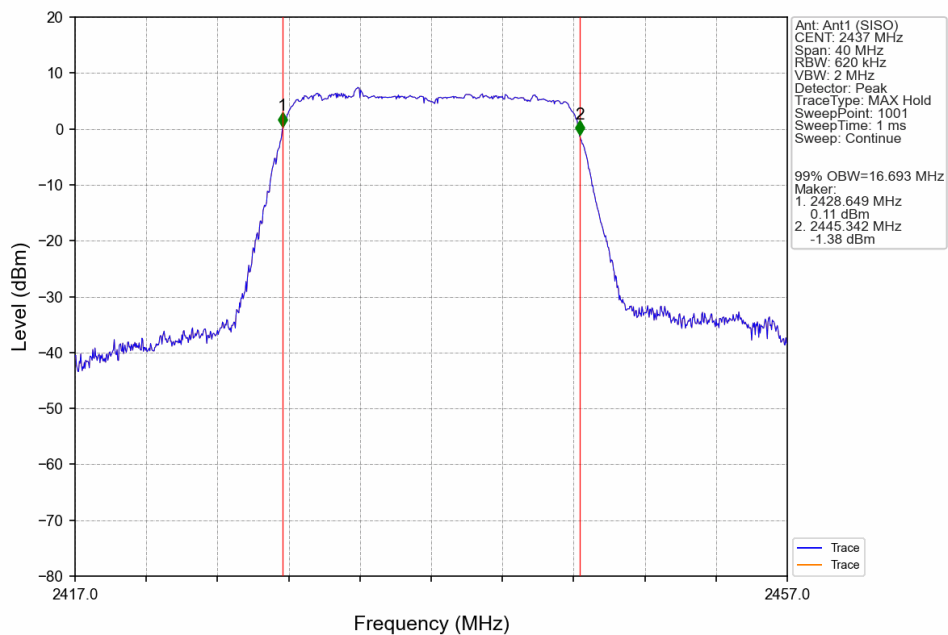


802.11g LCH 2412MHz Ant1 (SISO) NTN

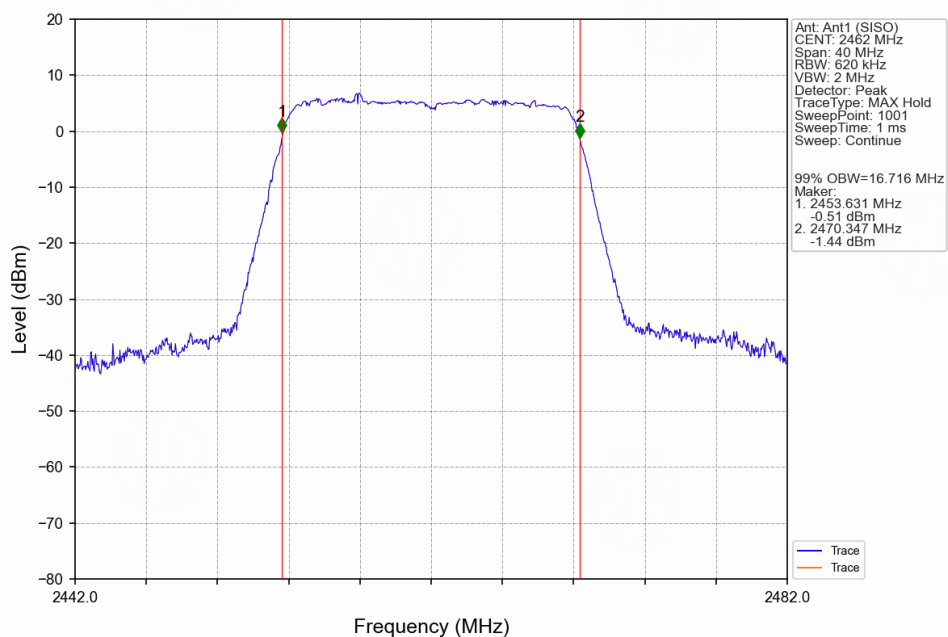




802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

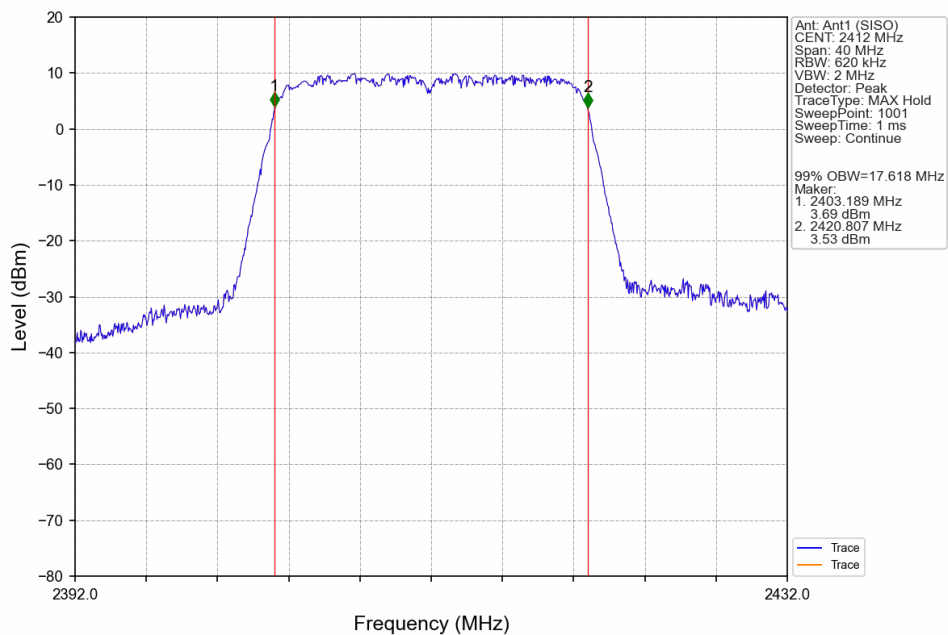


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

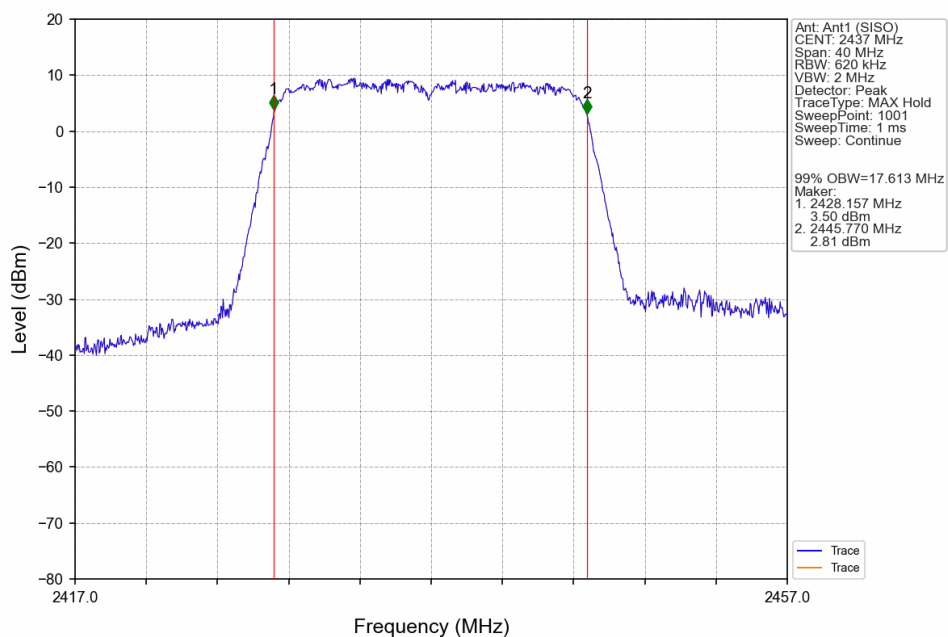




802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTNV

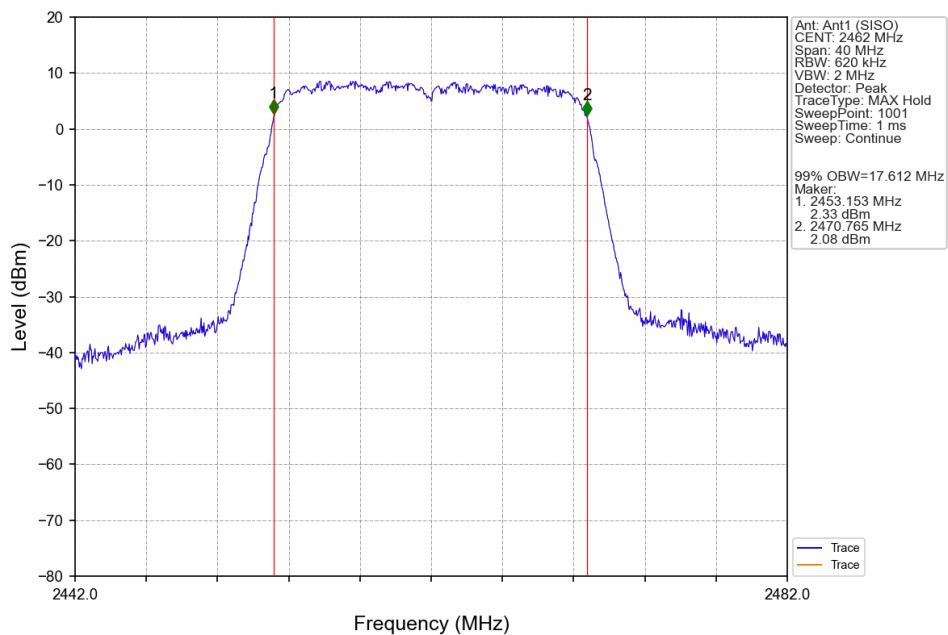


802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTNV

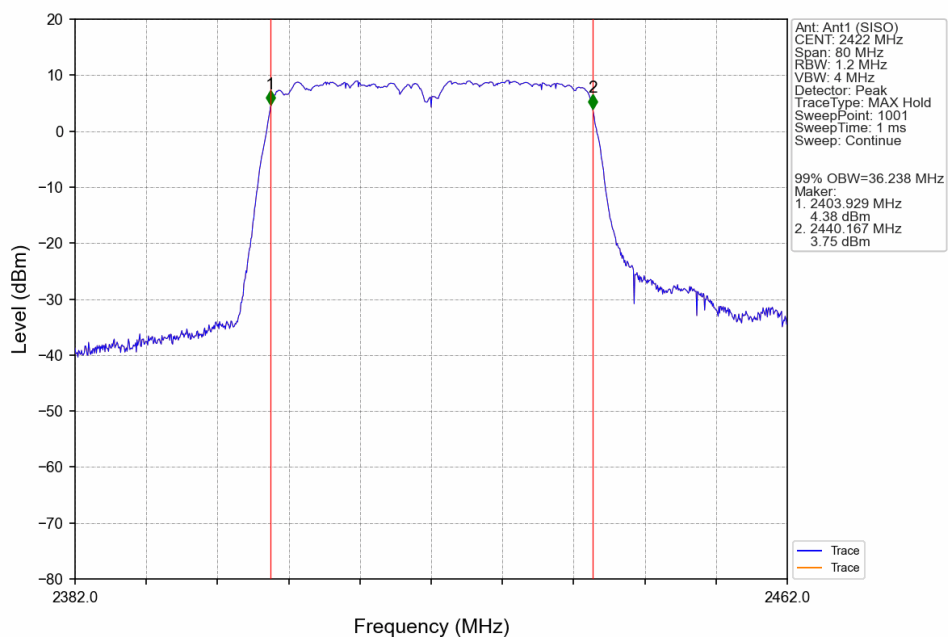




802.11n(HT20) HCH_2462MHz_Ant1 (SISO) NTNV

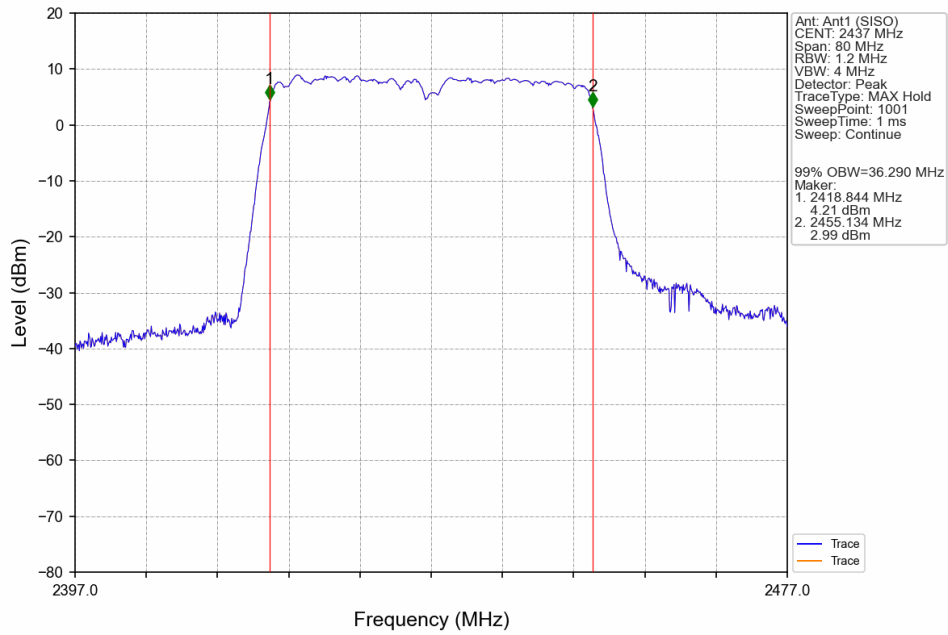


802.11n(HT40) LCH_2422MHz_Ant1 (SISO) NTNV

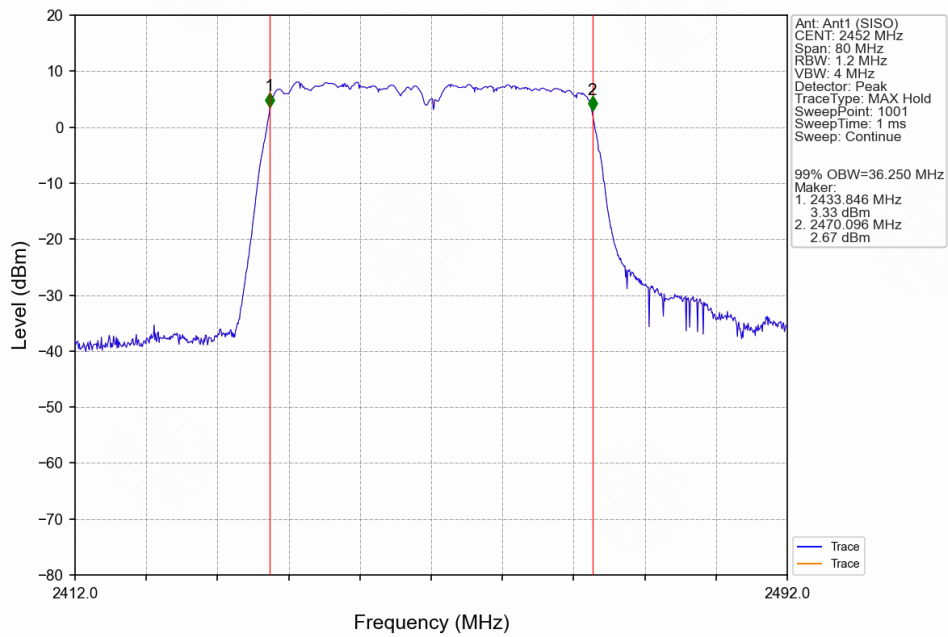




802.11n(HT40) MCH_2437MHz_Ant1 (SISO) NTN

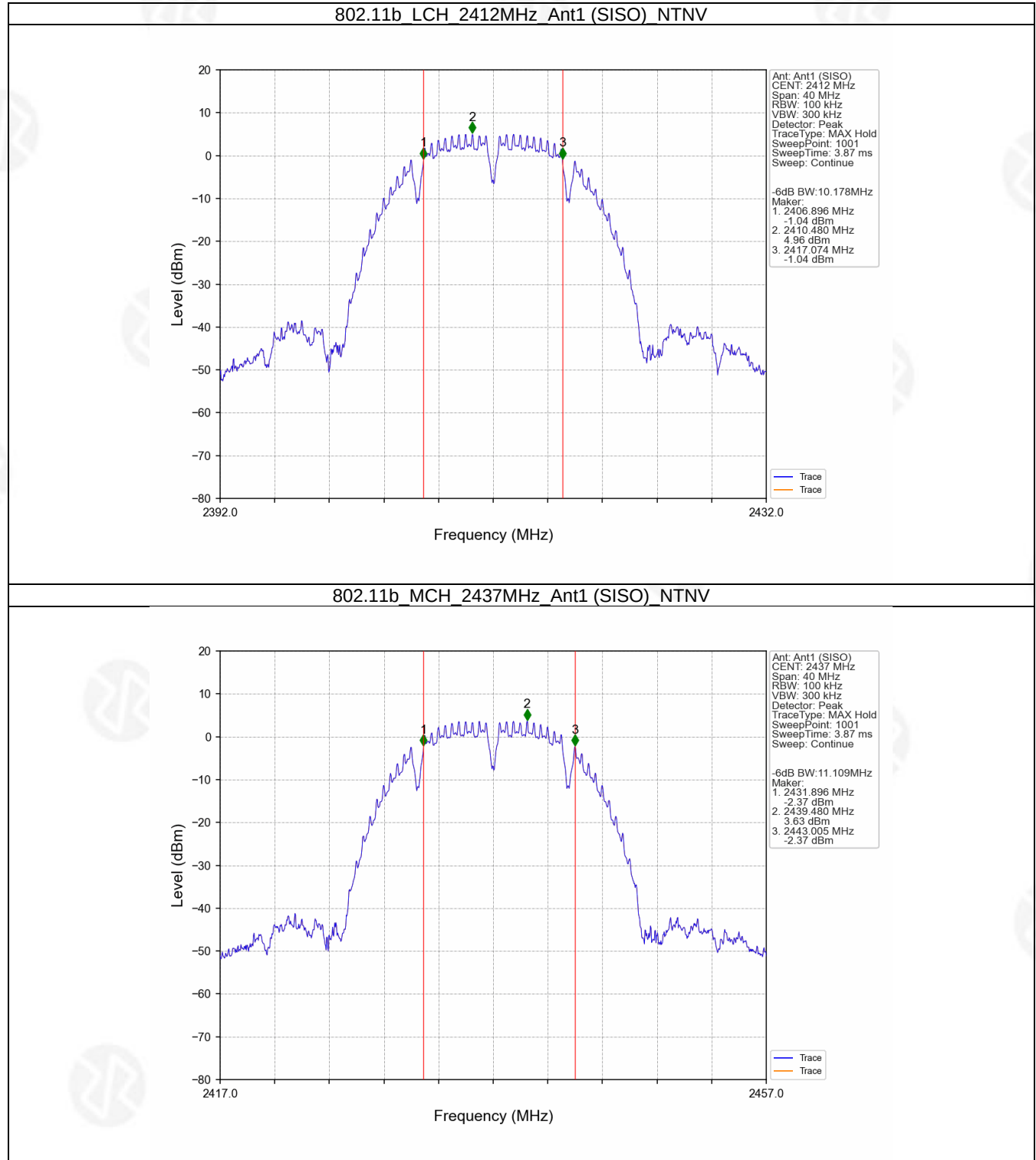


802.11n(HT40) HCH_2452MHz_Ant1 (SISO) NTN



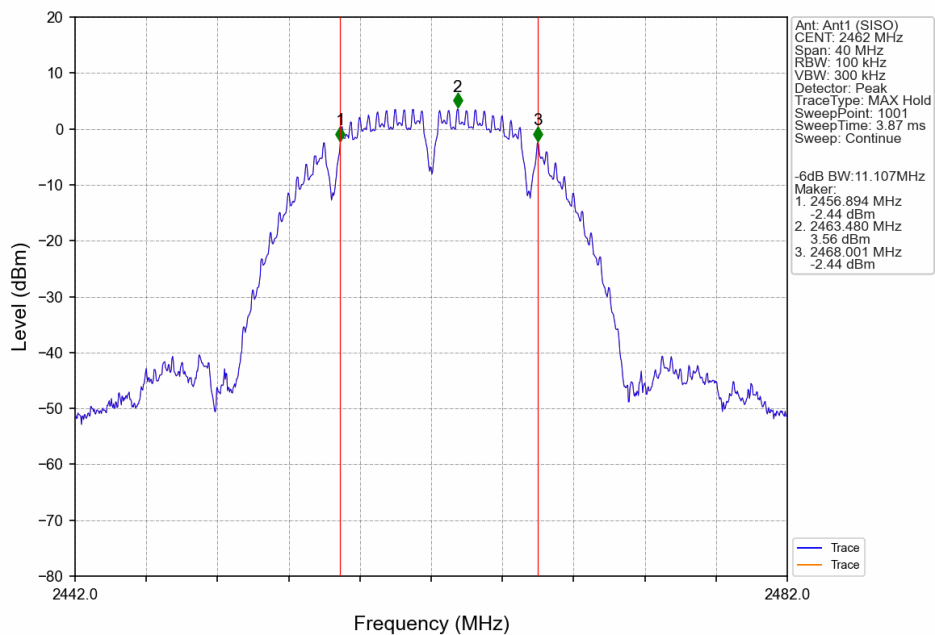


2.2.2 6dB BW

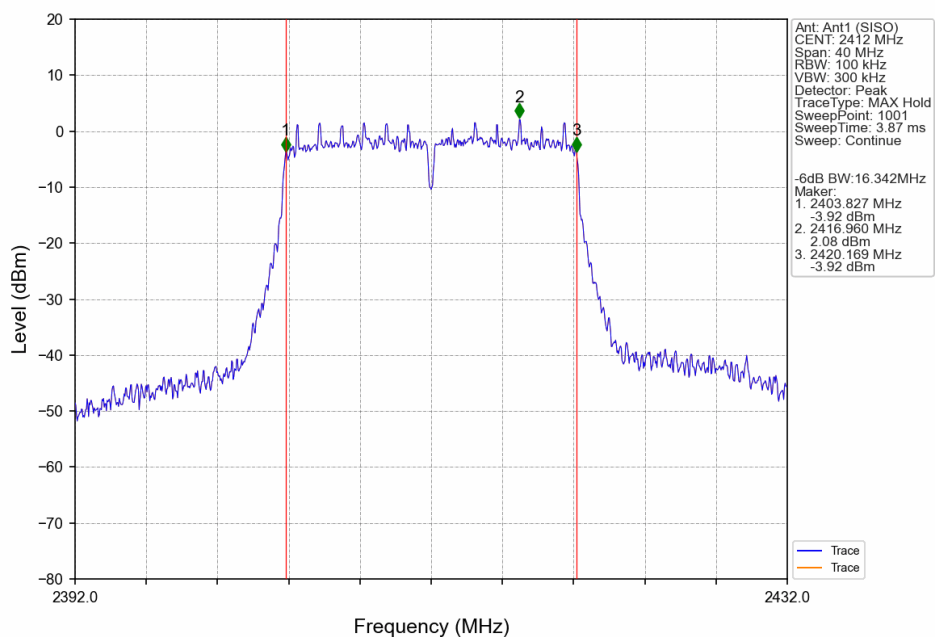




802.11b HCH 2462MHz Ant1 (SISO) NTN

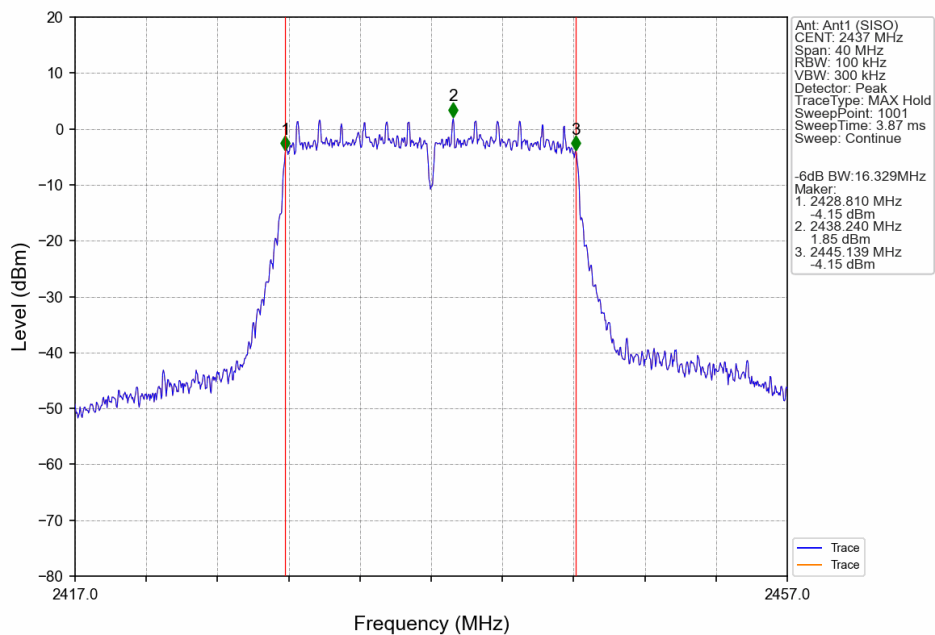


802.11g LCH 2412MHz Ant1 (SISO) NTN

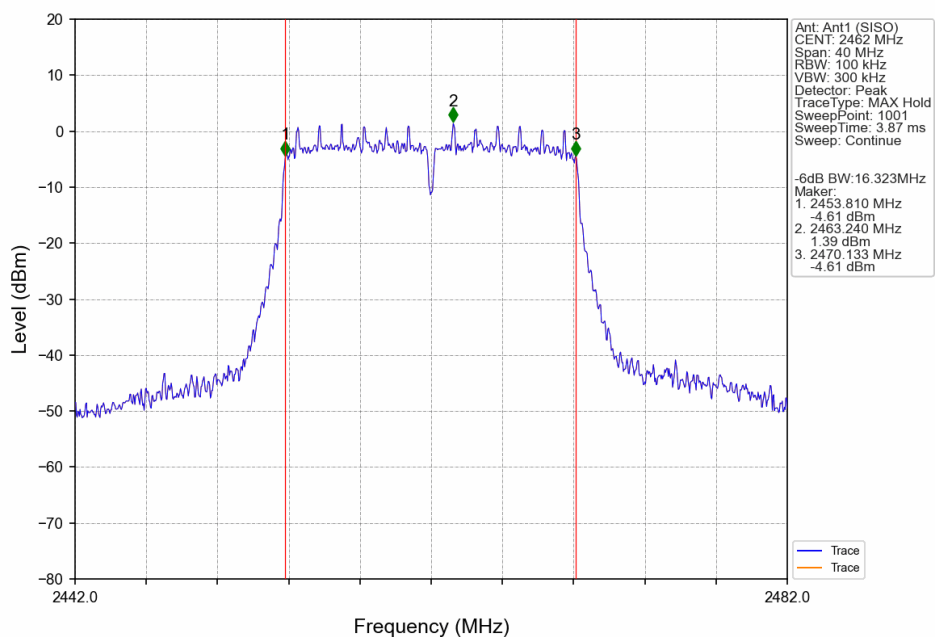




802.11g_MCH_2437MHz_Ant1 (SISO) NTN

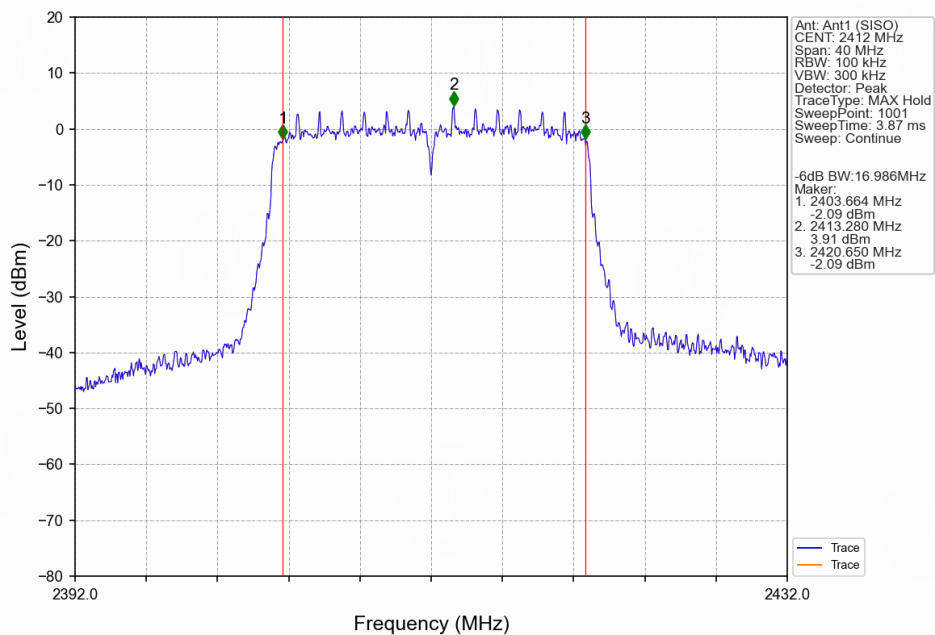


802.11g_HCH_2462MHz_Ant1 (SISO) NTN

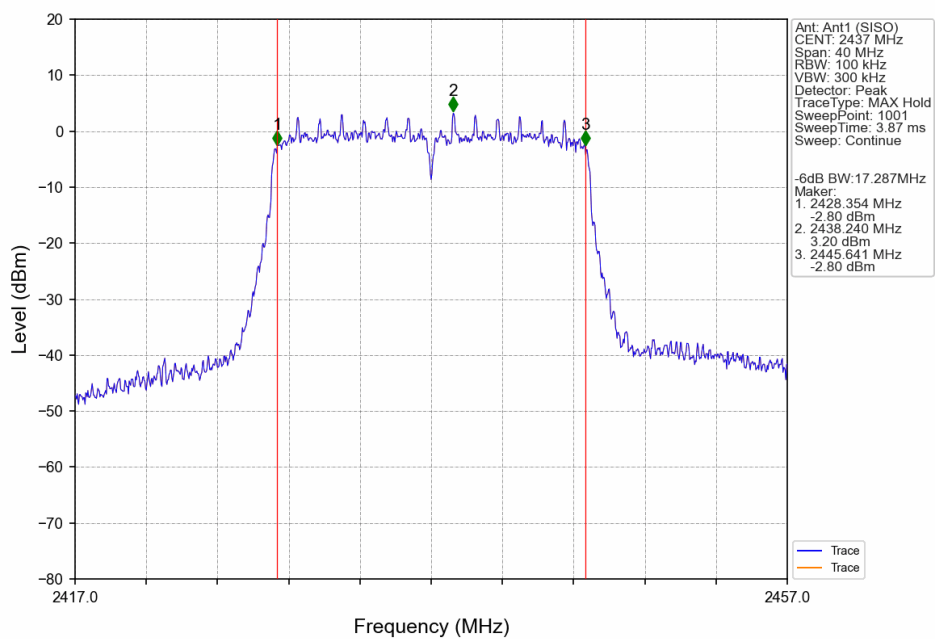




802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

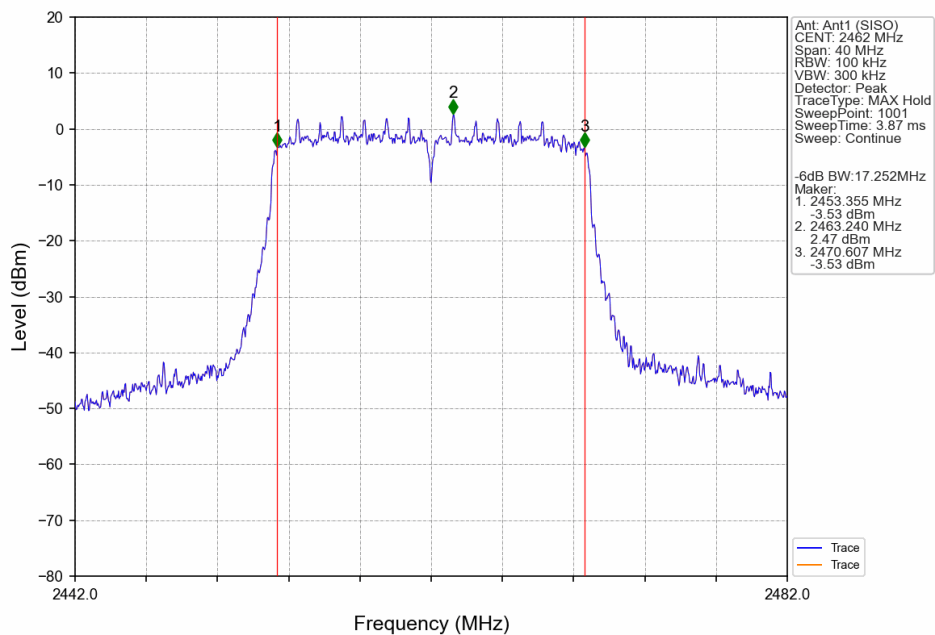


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

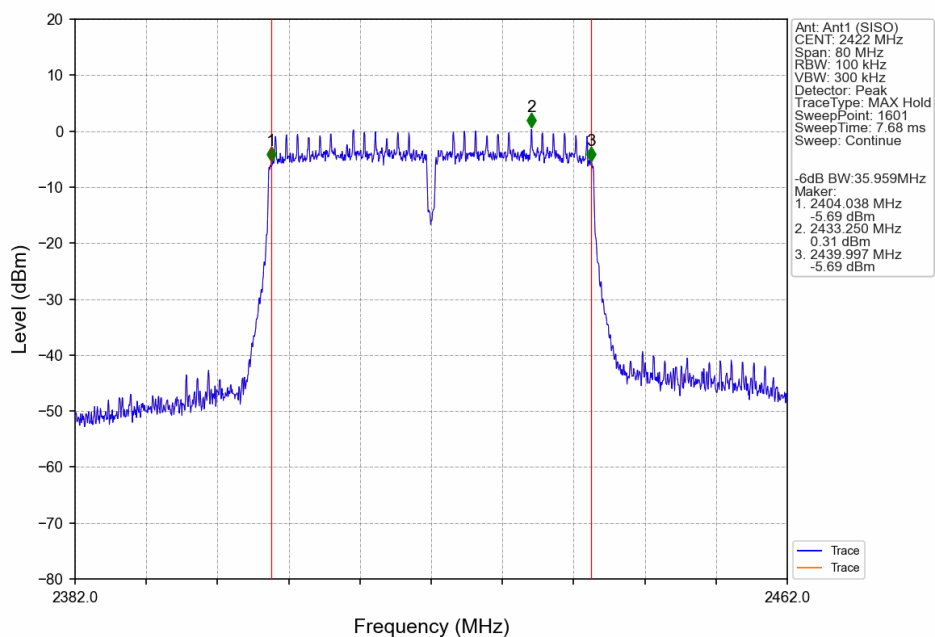




802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV

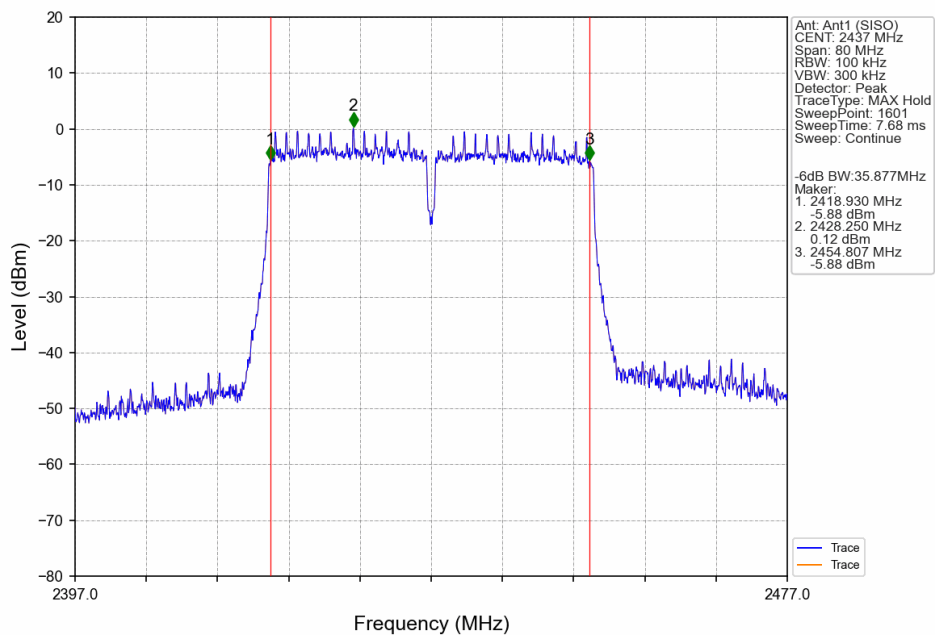


802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV

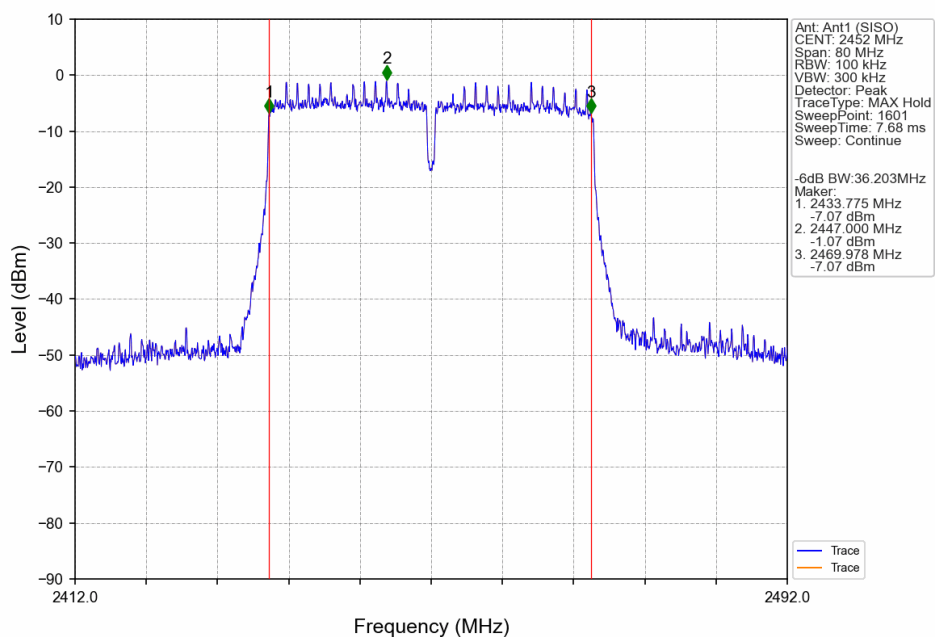




802.11n(HT40) MCH_2437MHz_Ant1 (SISO) NTN



802.11n(HT40) HCH_2452MHz_Ant1 (SISO) NTN





3. Maximum Conducted Output Power

3.1 Test Result

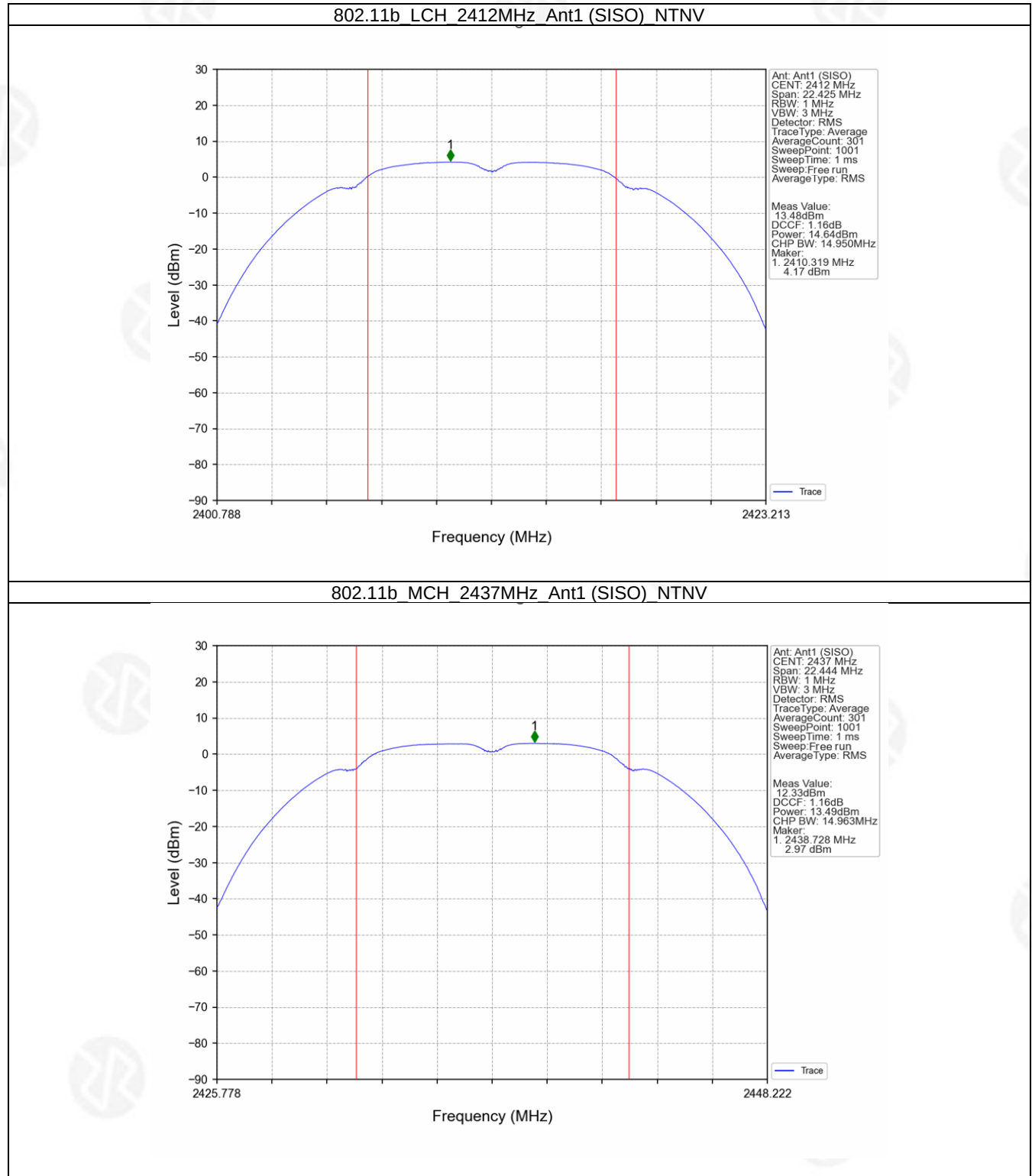
3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	14.64	<=30	Pass
		2437	13.49	<=30	Pass
		2462	13.27	<=30	Pass
802.11g	SISO	2412	14.50	<=30	Pass
		2437	14.02	<=30	Pass
		2462	13.35	<=30	Pass
802.11n (HT20)	SISO	2412	14.68	<=30	Pass
		2437	13.87	<=30	Pass
		2462	13.14	<=30	Pass
802.11n (HT40)	SISO	2422	14.09	<=30	Pass
		2437	13.23	<=30	Pass
		2452	12.46	<=30	Pass



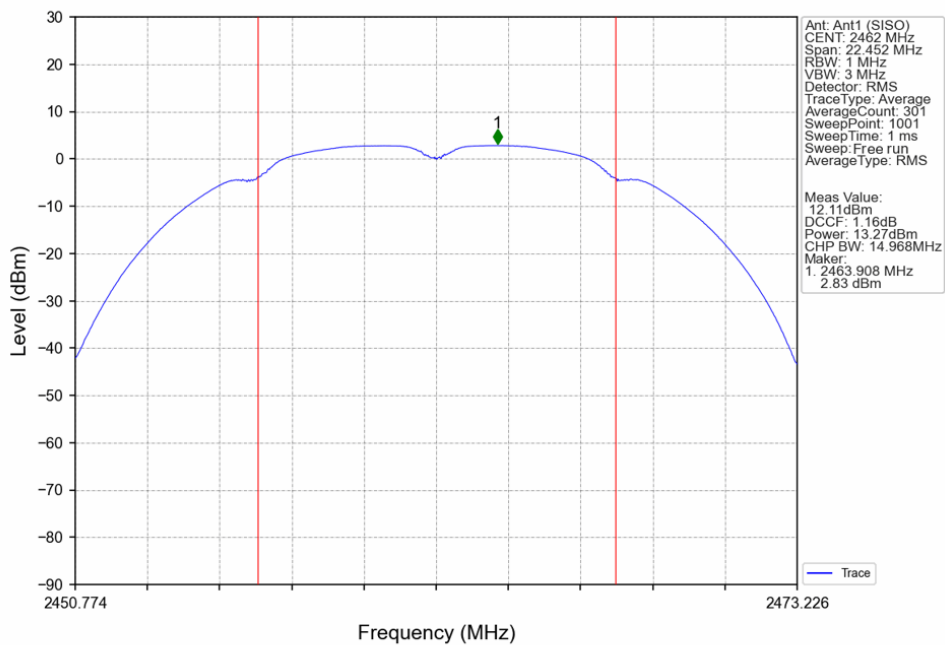
3.2 Test Graph

3.2.1 Power

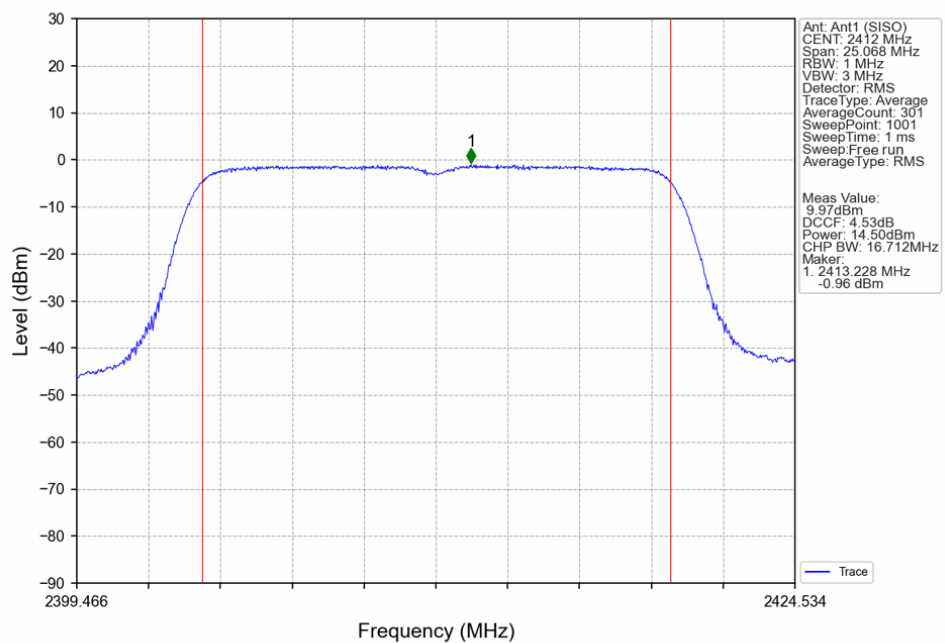




802.11b HCH 2462MHz Ant1 (SISO) NTN

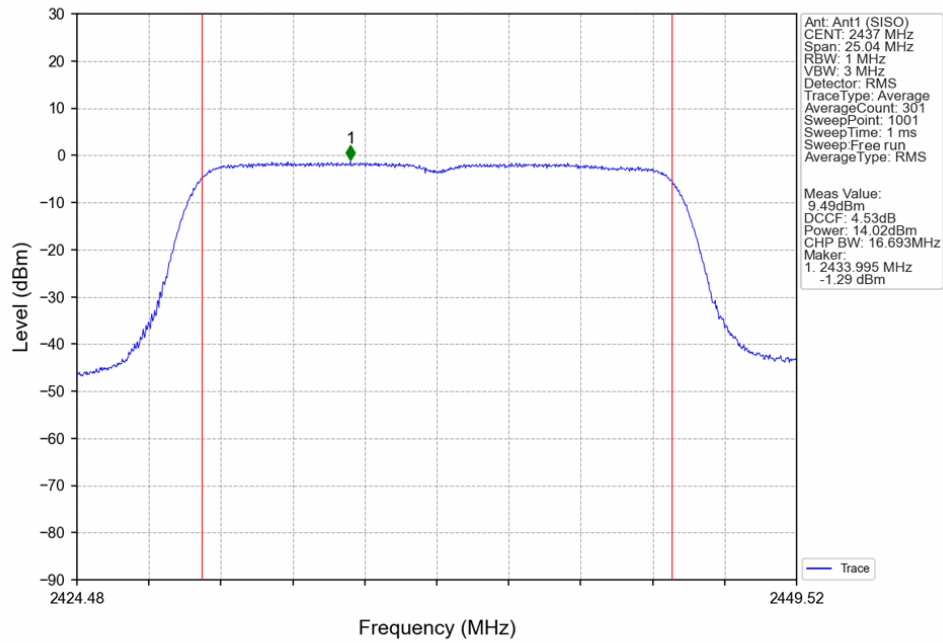


802.11g LCH 2412MHz Ant1 (SISO) NTN

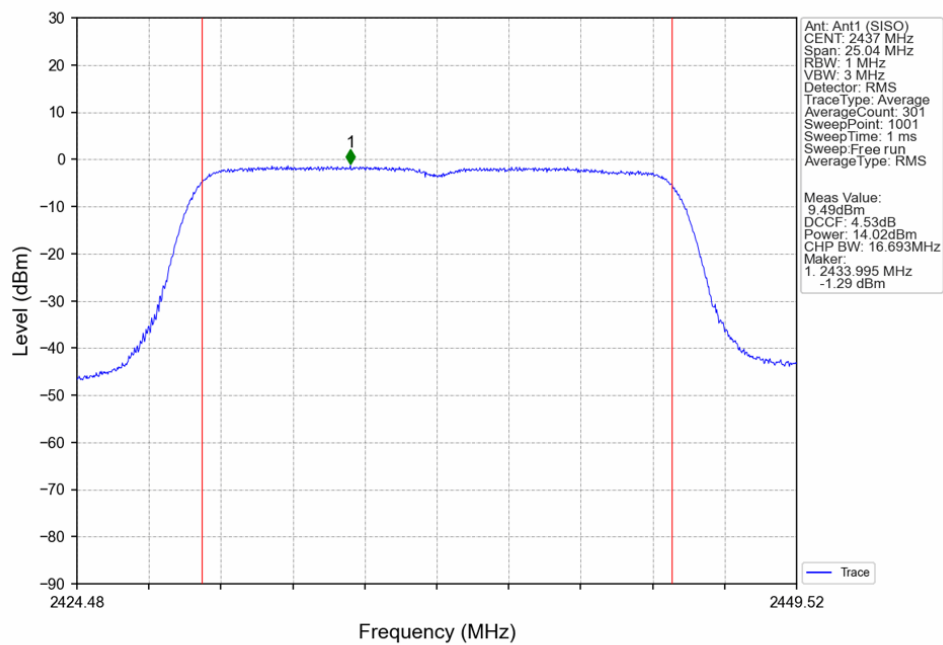




802.11g MCH 2437MHz Ant1 (SISO) NTN

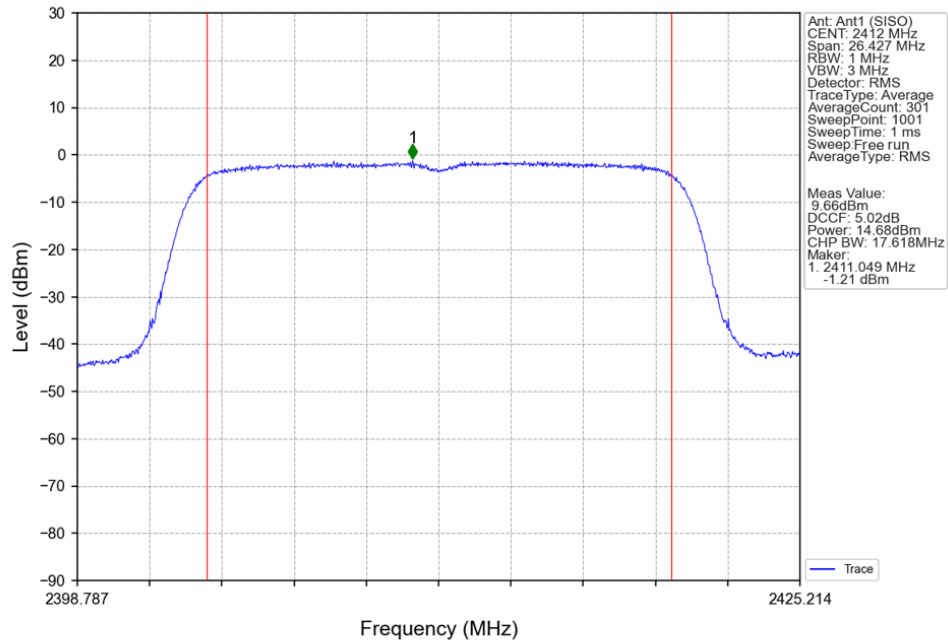


802.11g HCH 2462MHz Ant1 (SISO) NTN

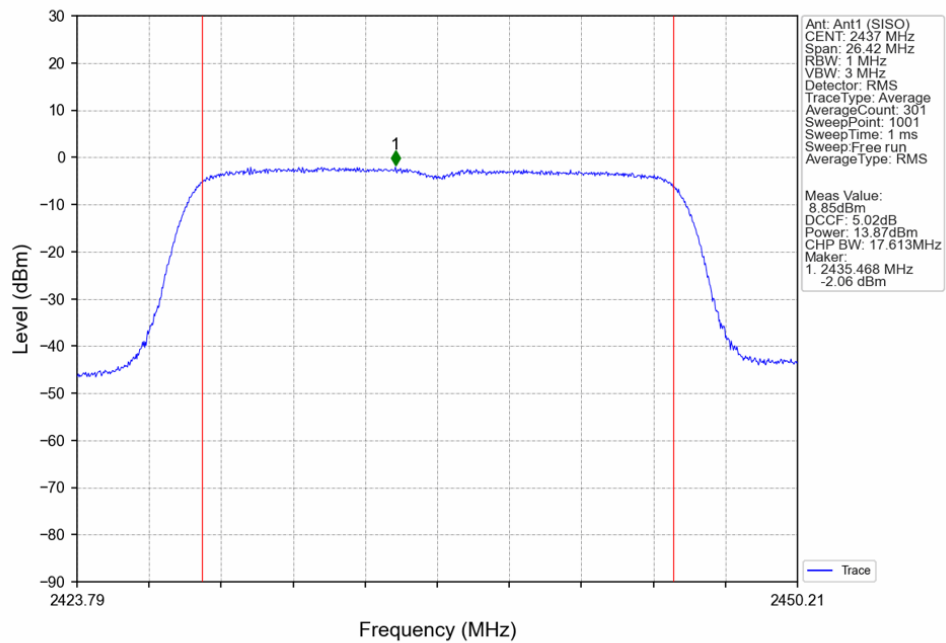




802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTNV

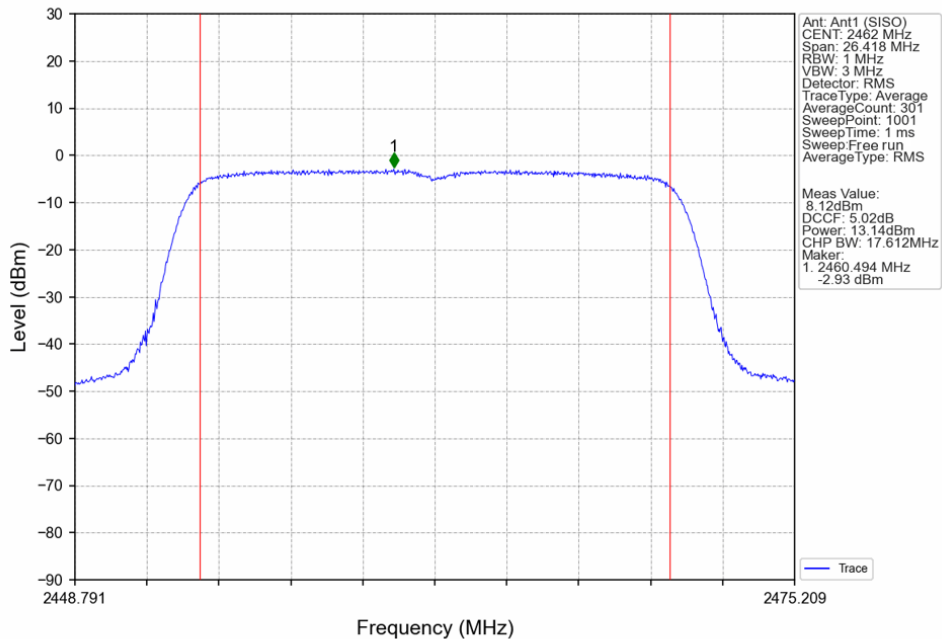


802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTNV

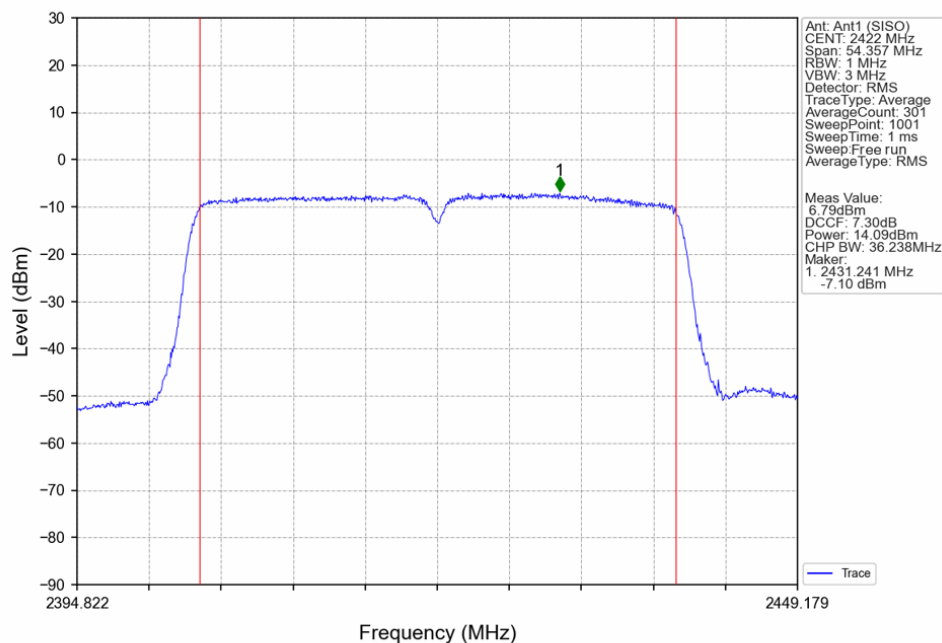




802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV

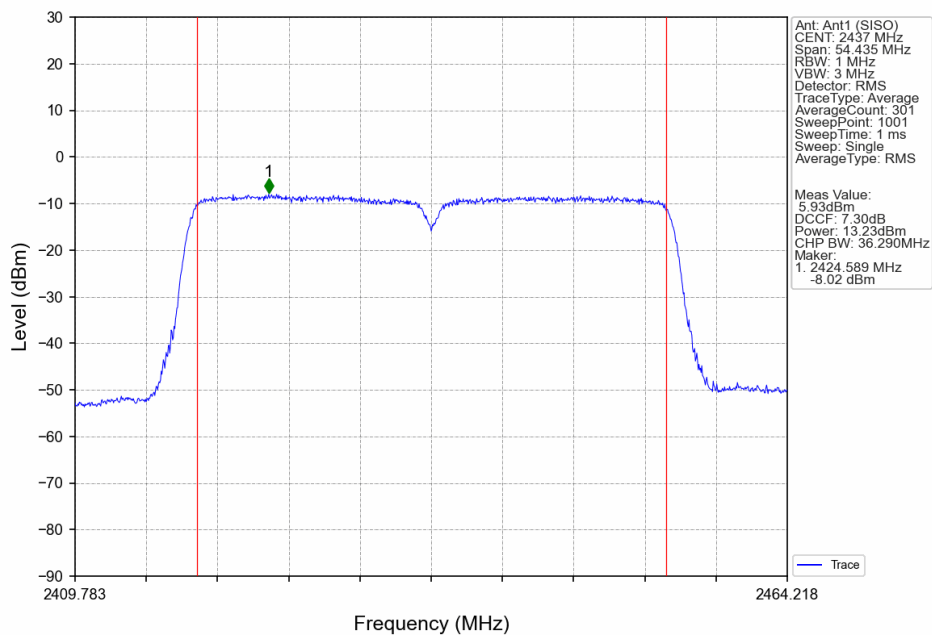


802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV

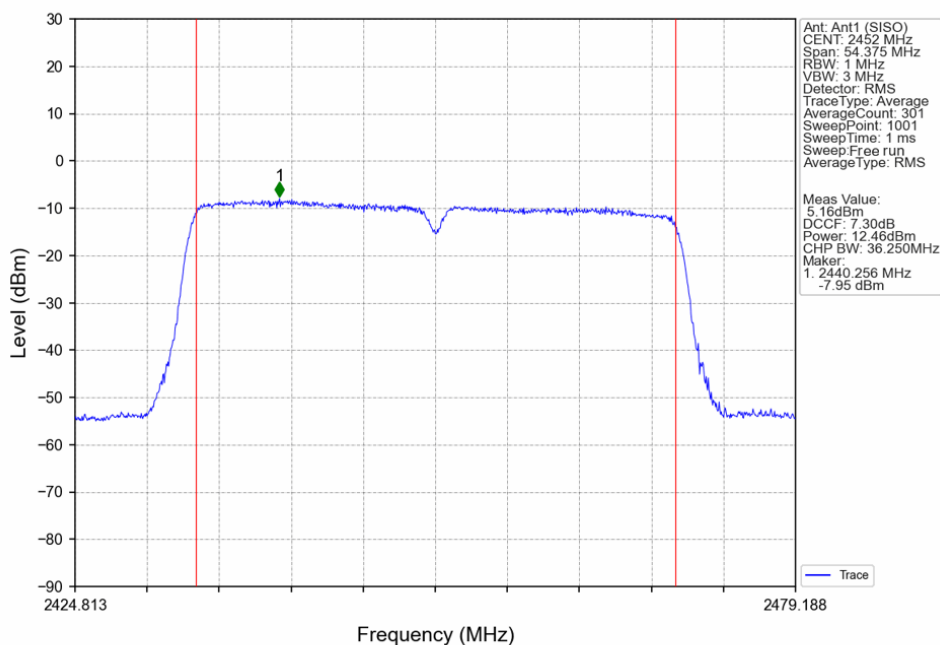




802.11n(HT40) MCH 2437MHz Ant1 (SISO) NTNV



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





4. Maximum Power Spectral Density

4.1 Test Result

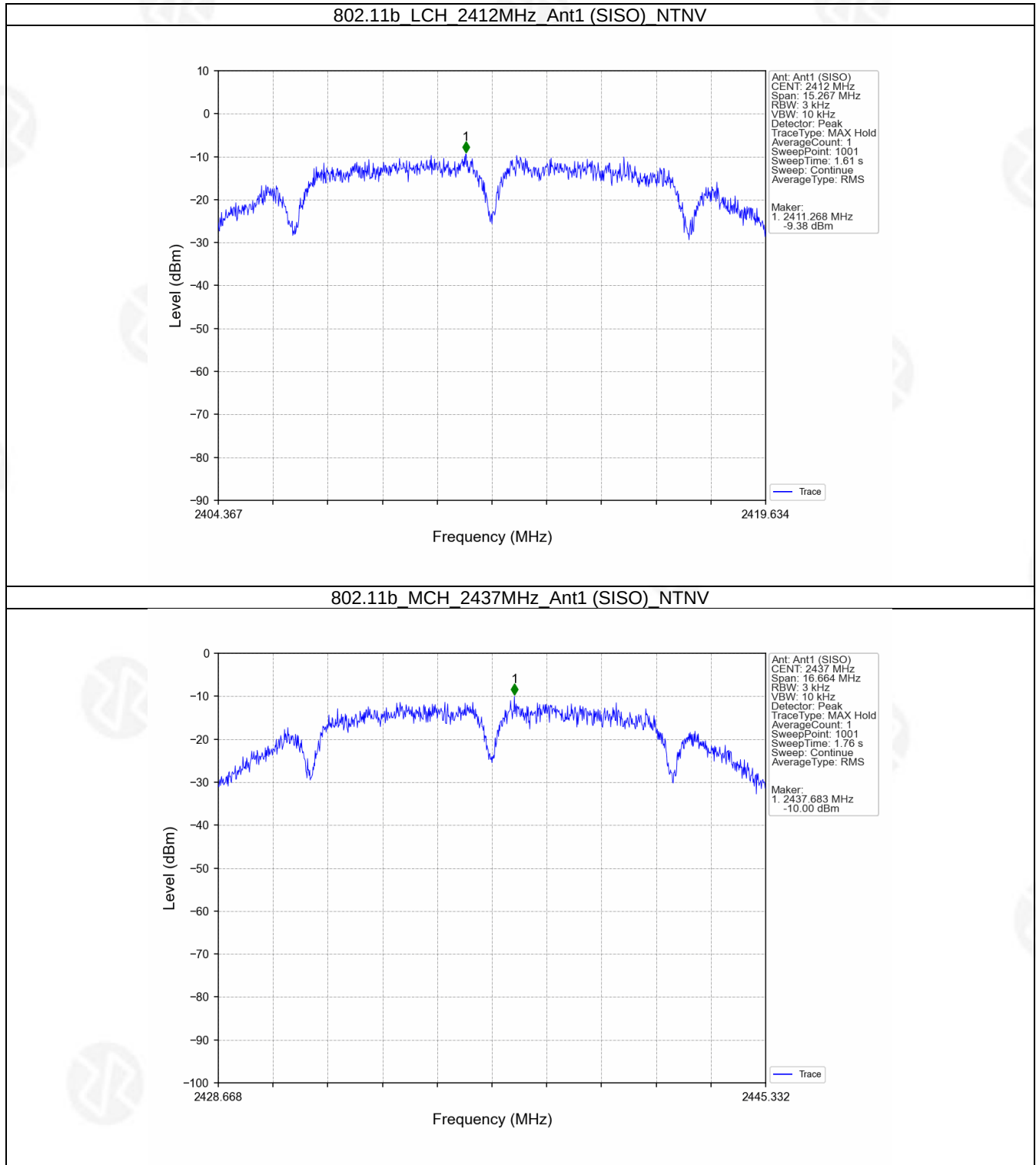
4.1.1 PSD

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-9.38	<=8	Pass
		2437	-10.00	<=8	Pass
		2462	-10.62	<=8	Pass
802.11g	SISO	2412	-14.14	<=8	Pass
		2437	-14.68	<=8	Pass
		2462	-15.09	<=8	Pass
802.11n (HT20)	SISO	2412	-13.60	<=8	Pass
		2437	-13.90	<=8	Pass
		2462	-14.50	<=8	Pass
802.11n (HT40)	SISO	2422	-17.48	<=8	Pass
		2437	-17.06	<=8	Pass
		2452	-17.91	<=8	Pass



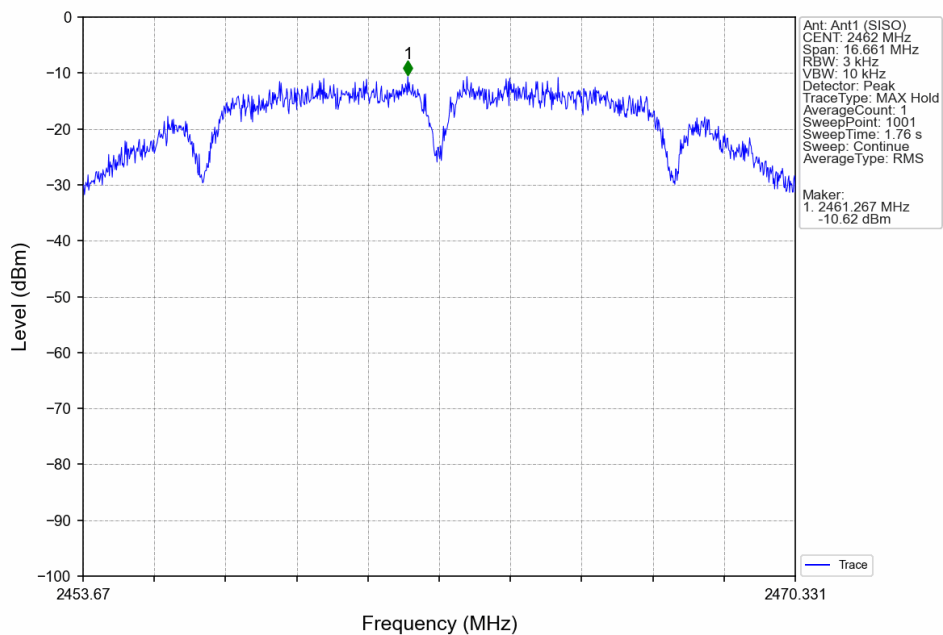
4.2 Test Graph

4.2.1 PSD

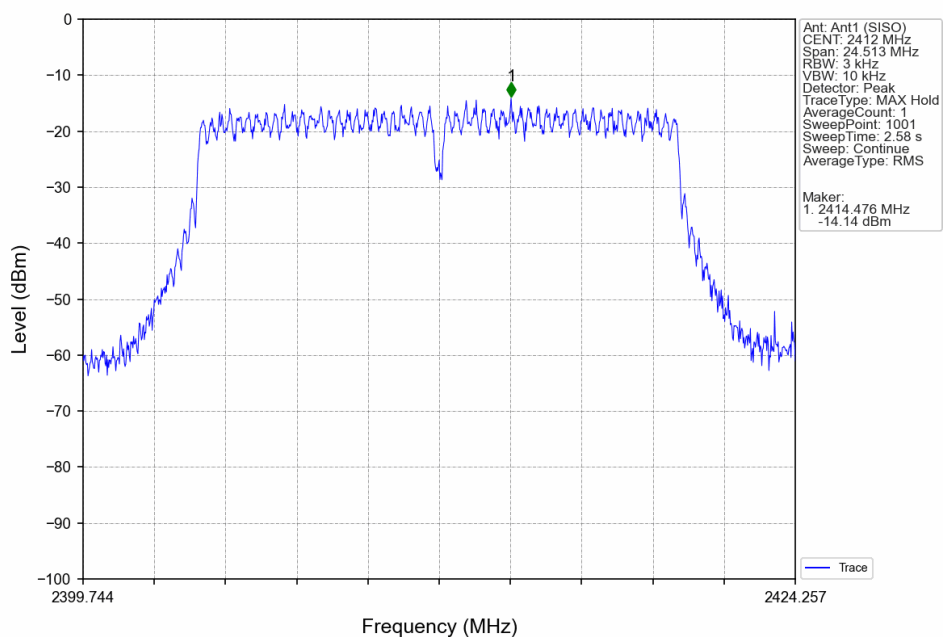




802.11b HCH 2462MHz Ant1 (SISO) NTN

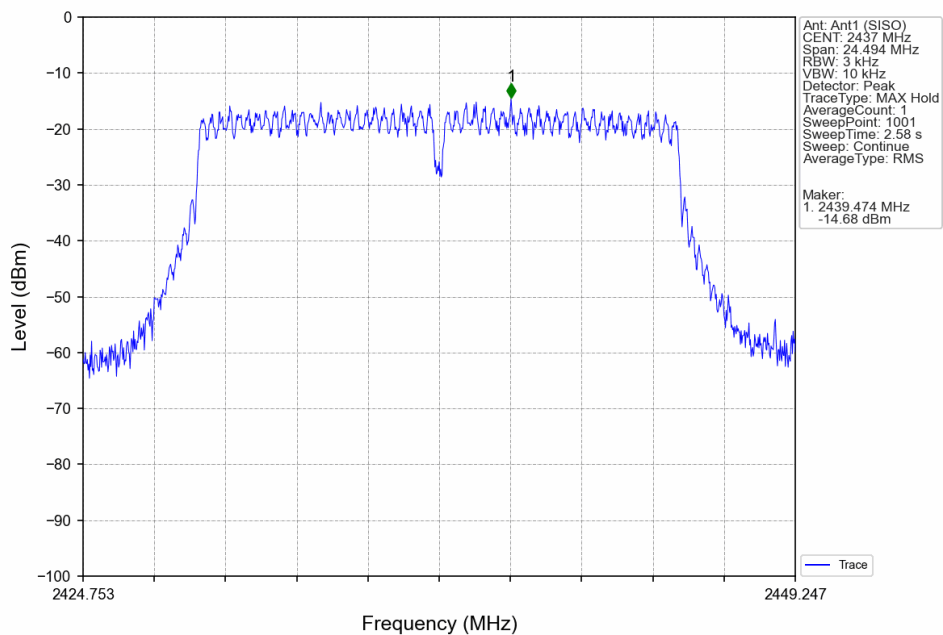


802.11g LCH 2412MHz Ant1 (SISO) NTN

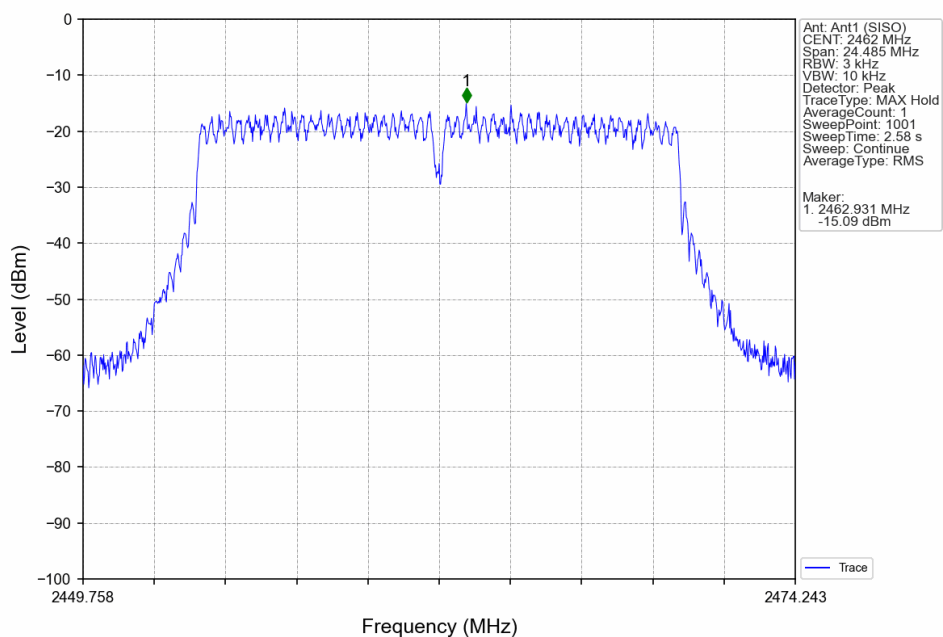




802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

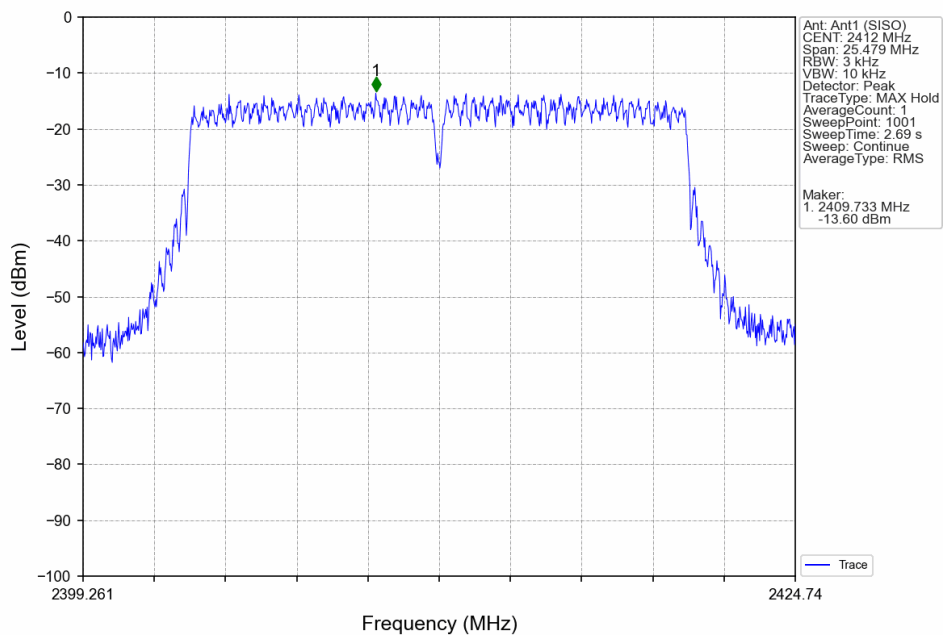


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

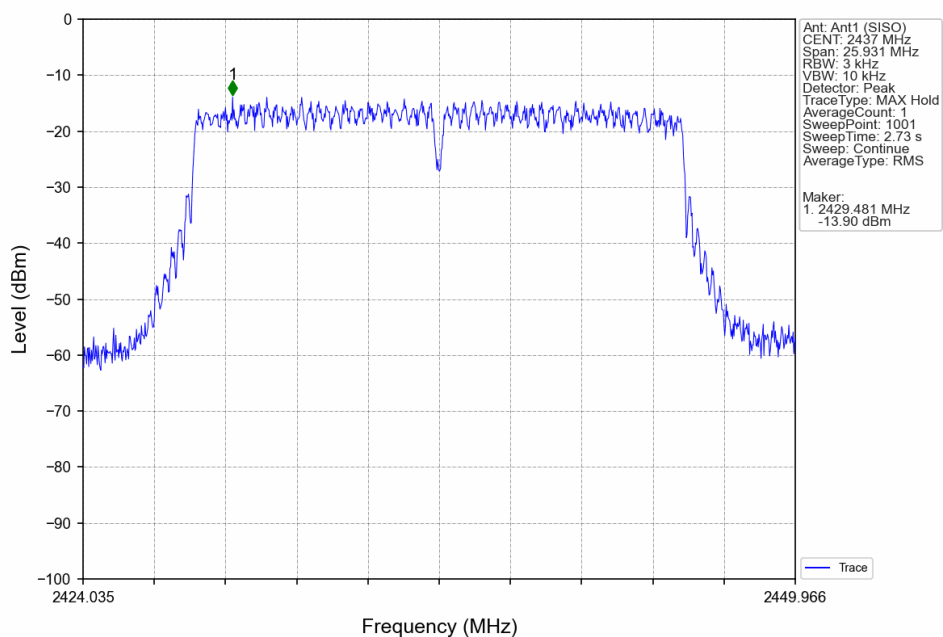




802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

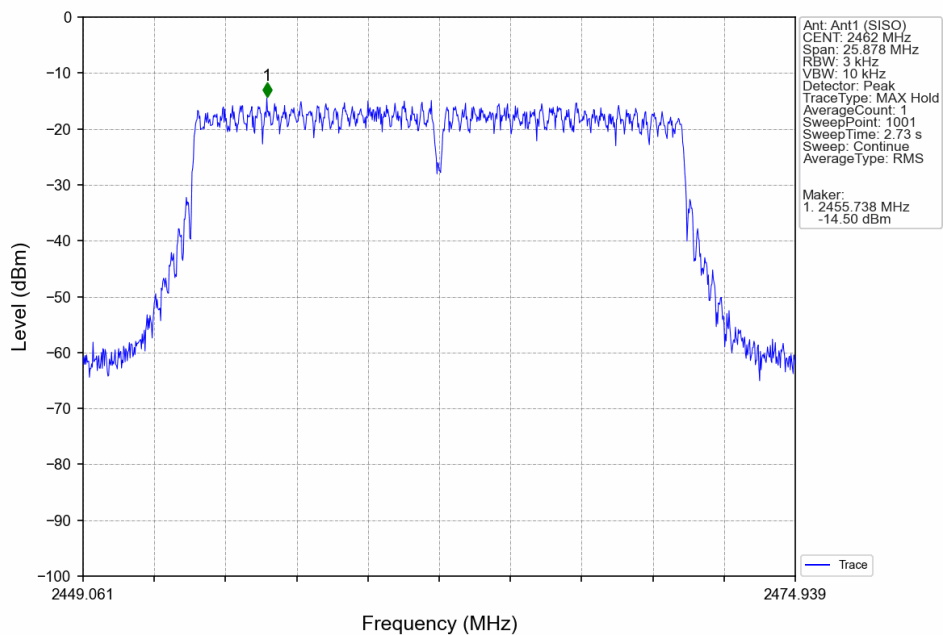


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

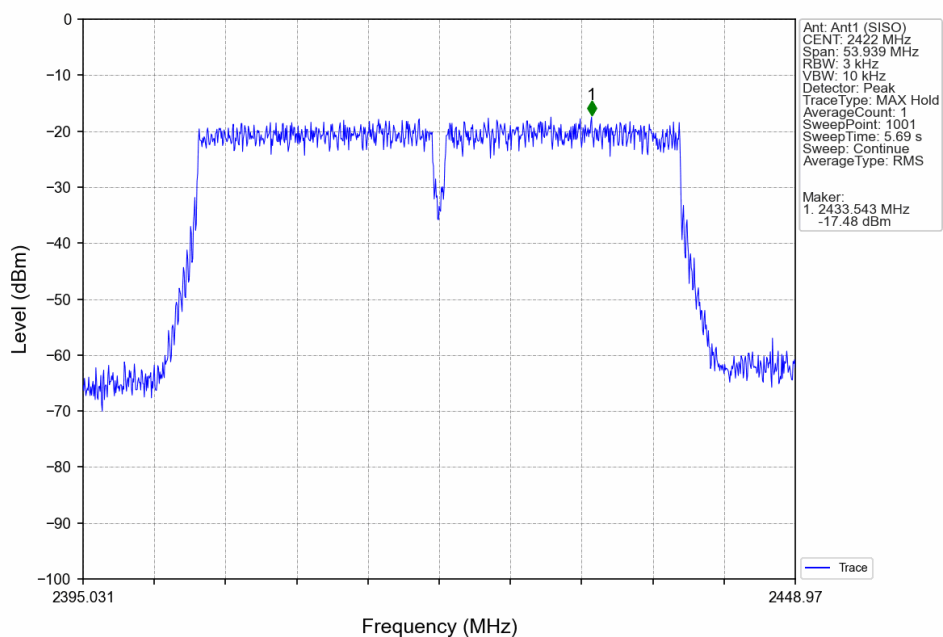




802.11n(HT20) HCH_2462MHz_Ant1 (SISO) NTN

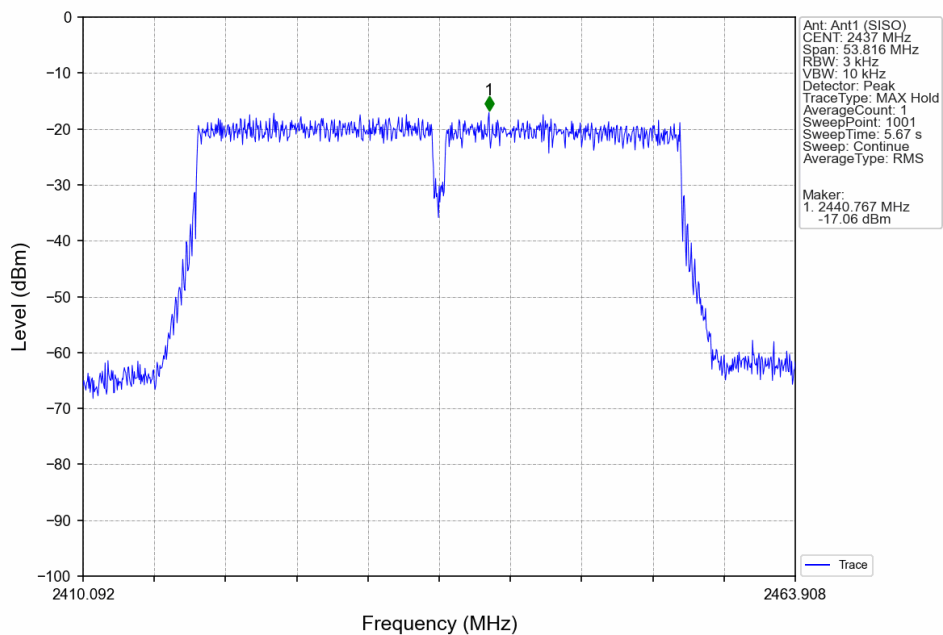


802.11n(HT40) LCH_2422MHz_Ant1 (SISO) NTN

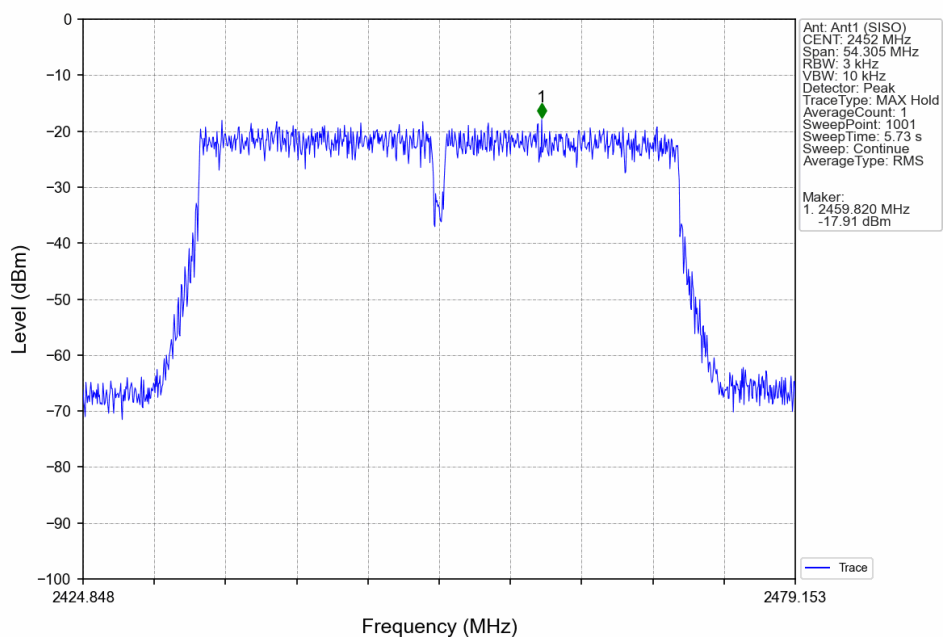




802.11n(HT40) MCH_2437MHz_Ant1 (SISO) NTN



802.11n(HT40) HCH_2452MHz_Ant1 (SISO) 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	4.85
		2437	1	3.65
		2462	1	3.54
802.11g	SISO	2412	1	2.50
		2437	1	1.79
		2462	1	1.42
802.11n (HT20)	SISO	2412	1	3.55
		2437	1	3.17
		2462	1	1.92
802.11n (HT40)	SISO	2422	1	-0.17
		2437	1	-0.39
		2452	1	-0.68

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

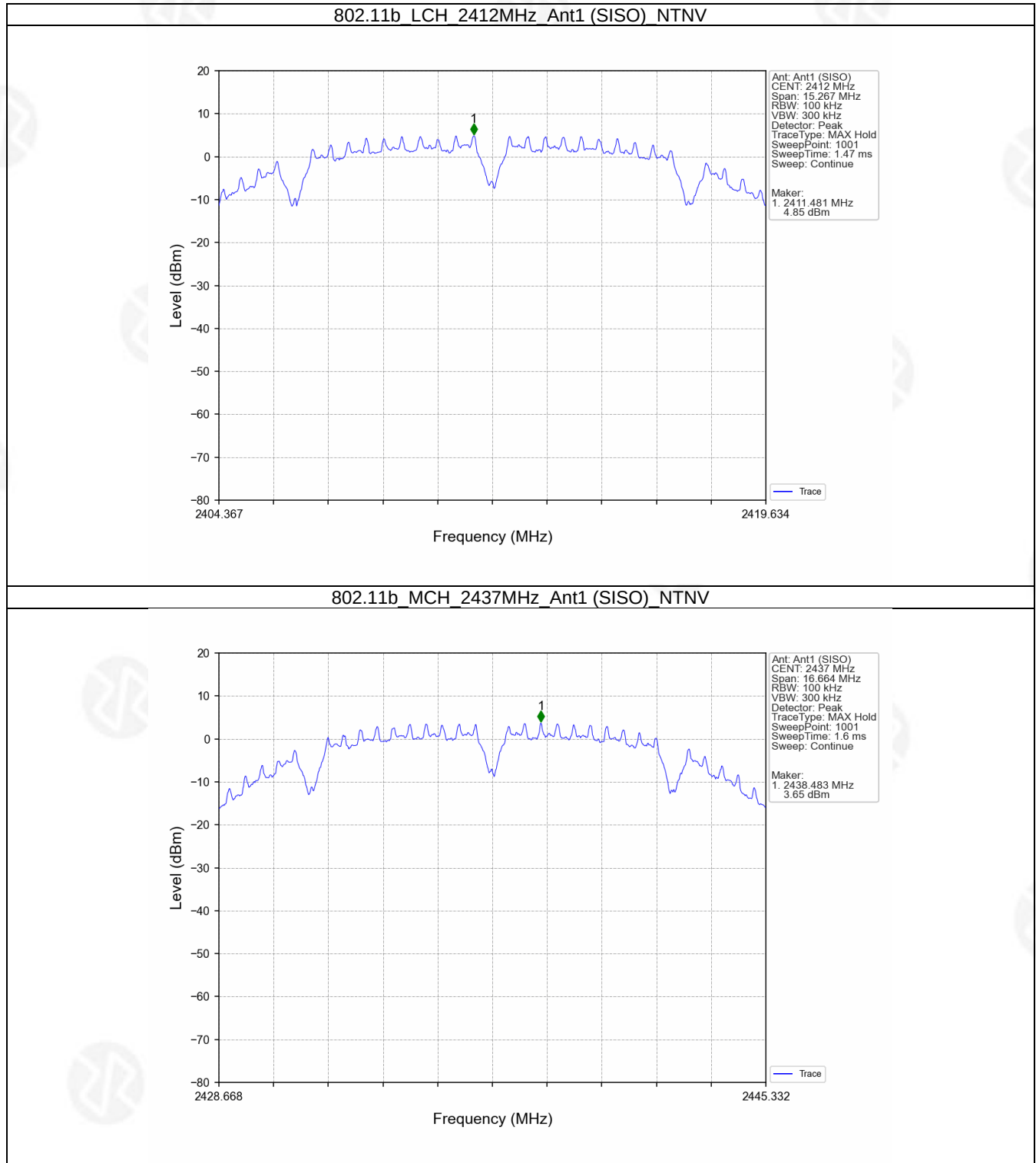
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	4.85	-25.15	Pass
		2437	1	3.65	-26.35	Pass
		2462	1	3.54	-26.46	Pass
802.11g	SISO	2412	1	2.50	-27.50	Pass
		2437	1	1.79	-28.21	Pass
		2462	1	1.42	-28.58	Pass
802.11n (HT20)	SISO	2412	1	3.55	-26.45	Pass
		2437	1	3.17	-26.83	Pass
		2462	1	1.92	-28.08	Pass
802.11n (HT40)	SISO	2422	1	-0.17	-30.17	Pass
		2437	1	-0.39	-30.39	Pass
		2452	1	-0.68	-30.68	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.



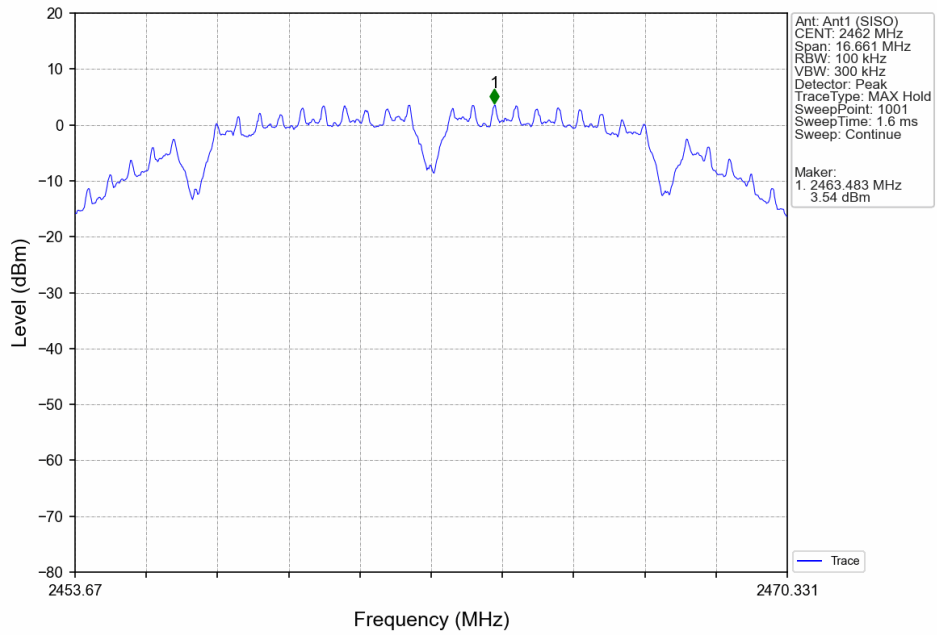
5.2 Test Graph

5.2.1 Ref

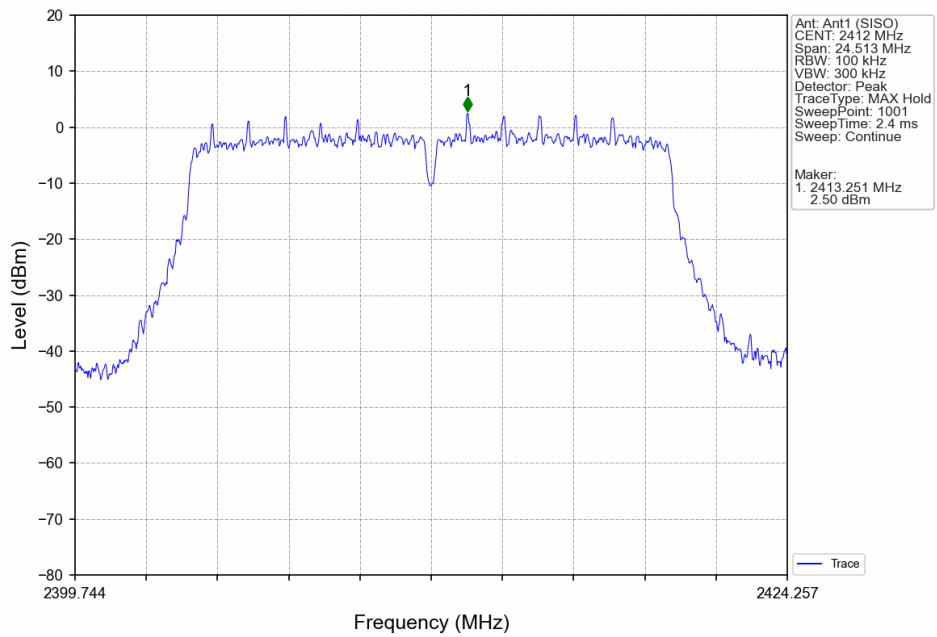




802.11b HCH 2462MHz Ant1 (SISO) NTNV

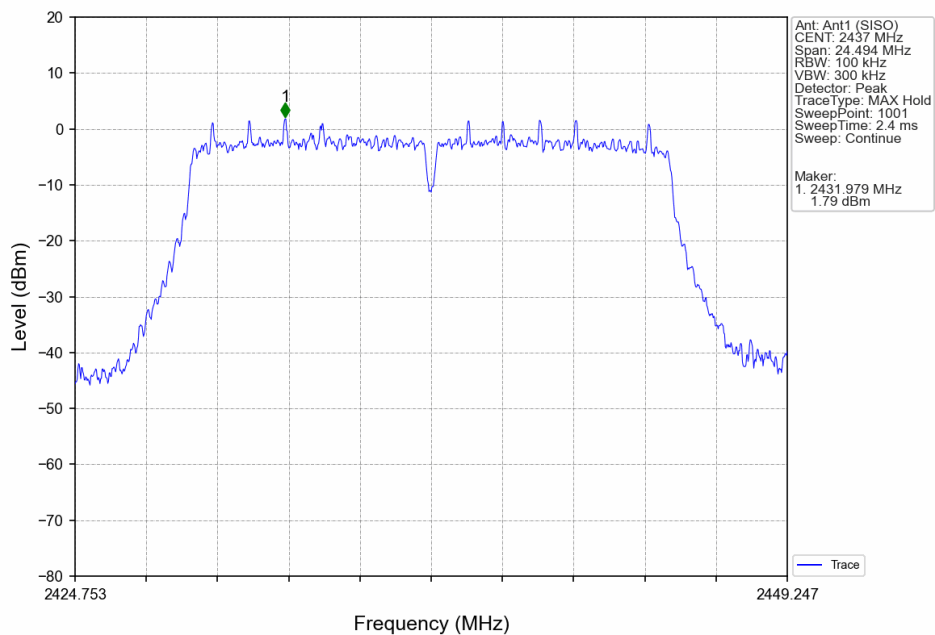


802.11g LCH 2412MHz Ant1 (SISO) NTNV

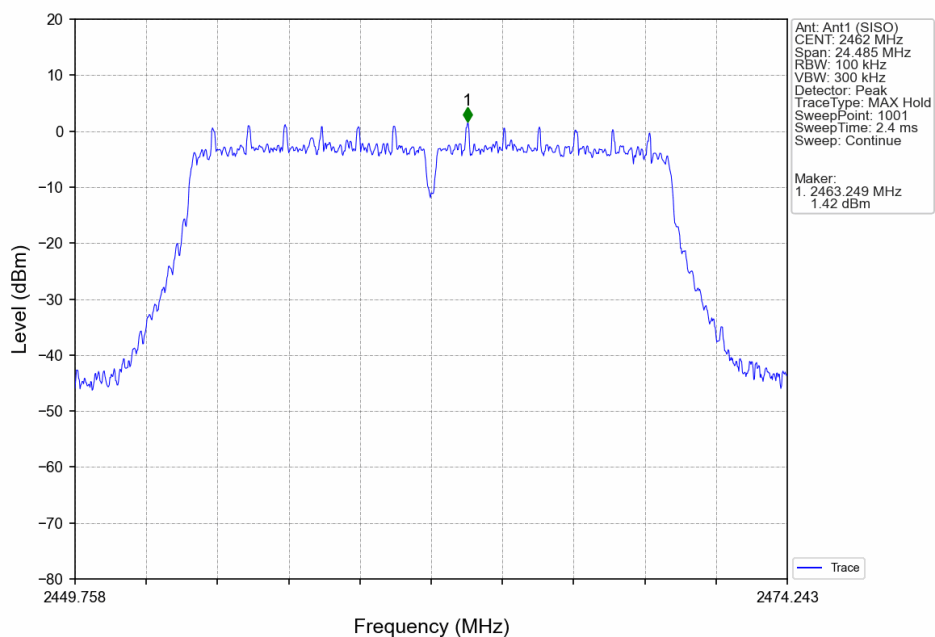




802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

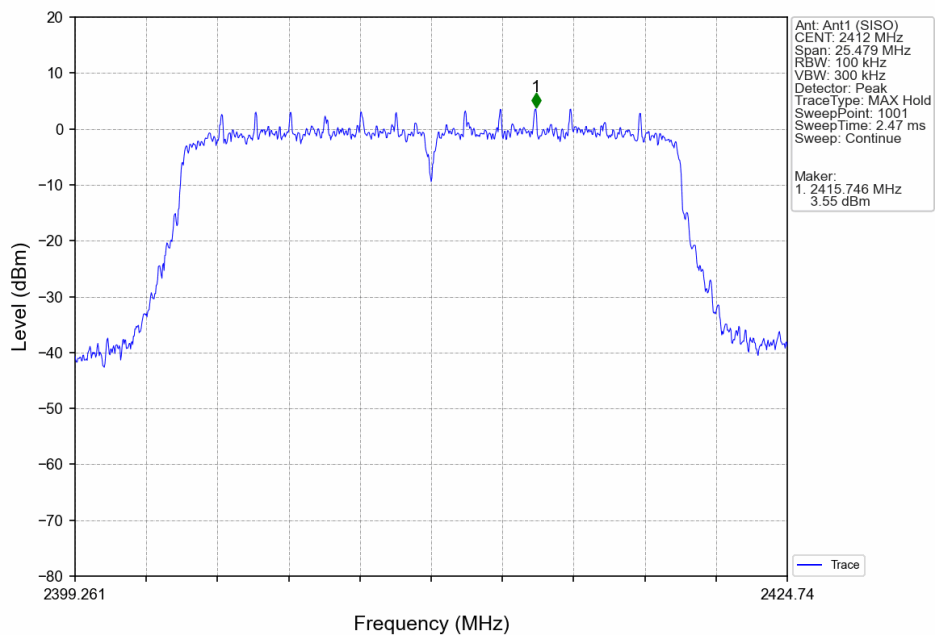


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

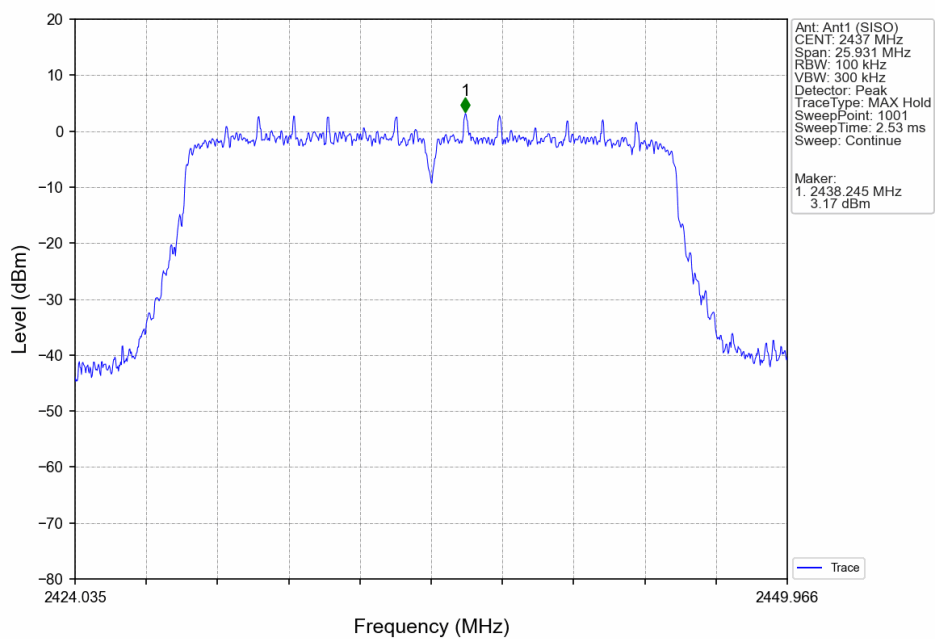




802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTNV

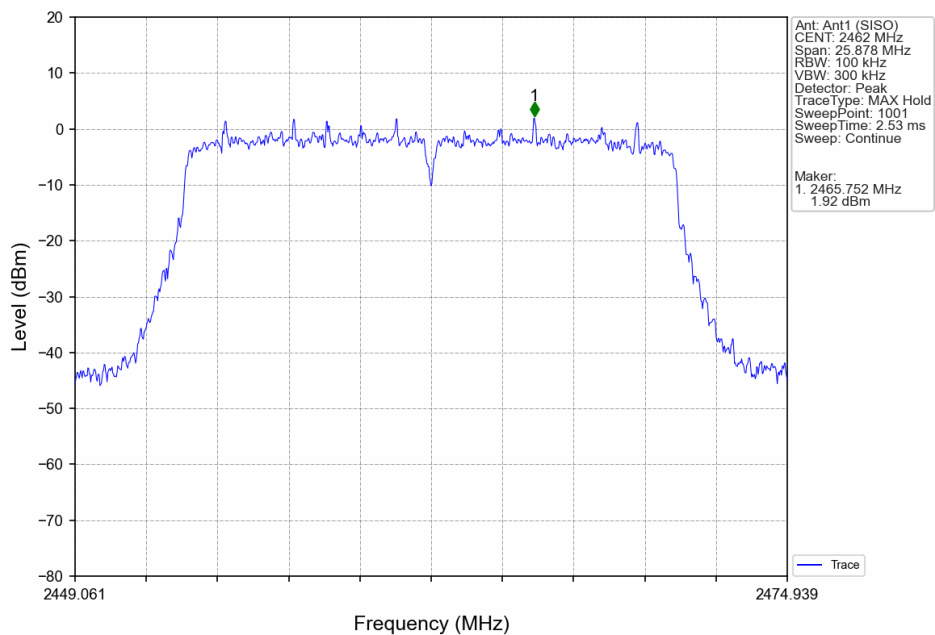


802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTNV

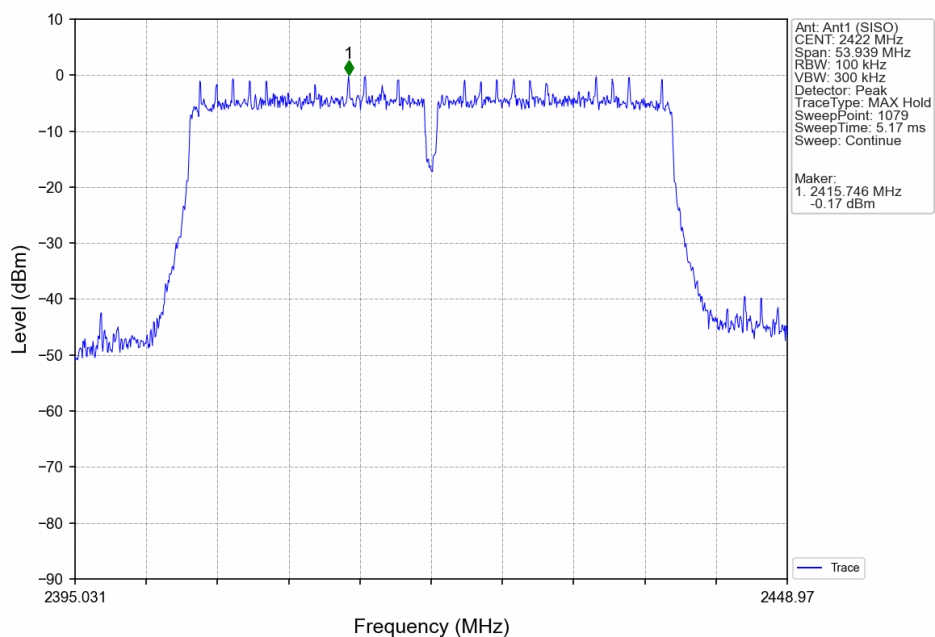




802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV

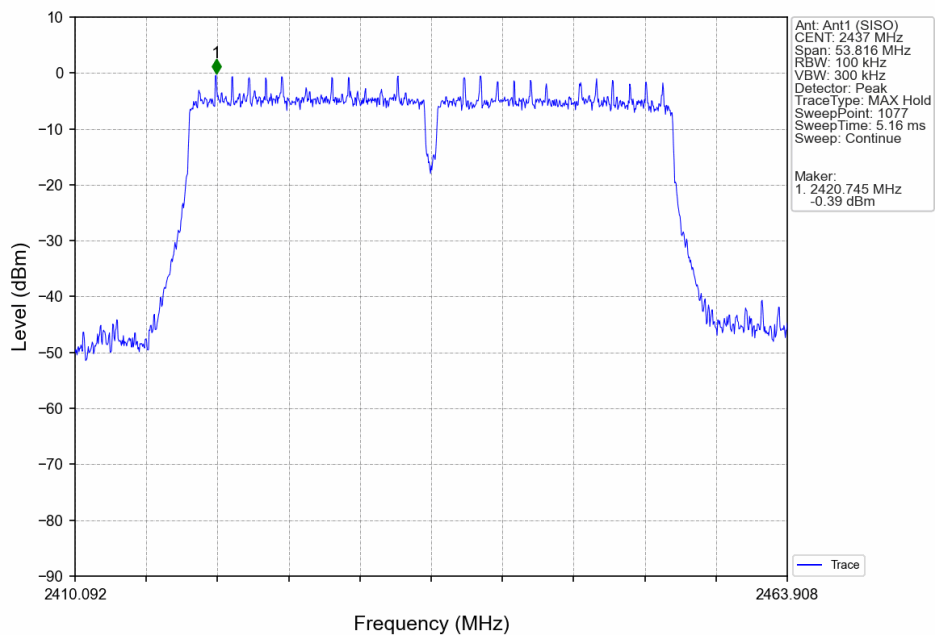


802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV

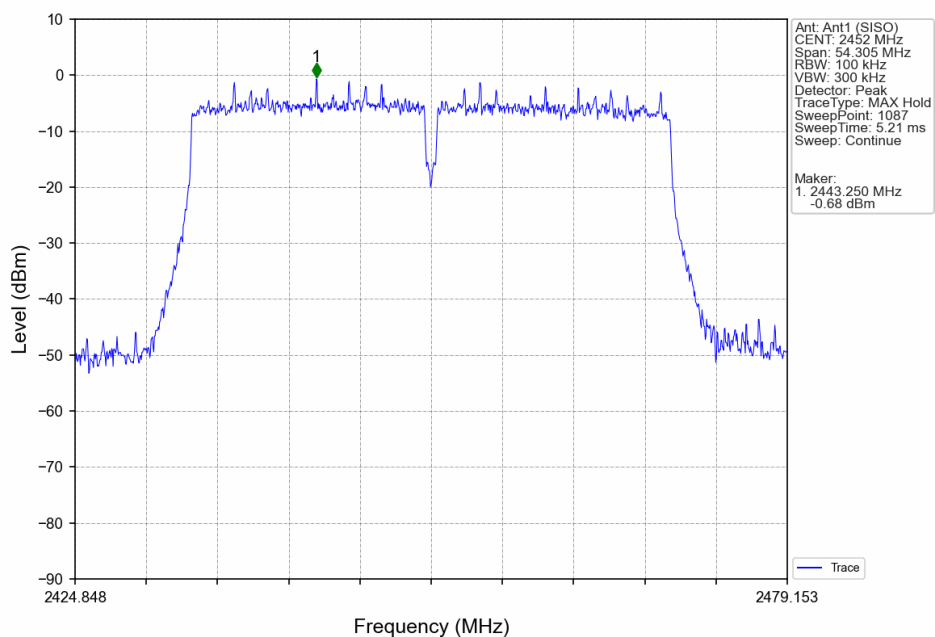




802.11n(HT40) MCH_2437MHz_Ant1 (SISO) NTNV

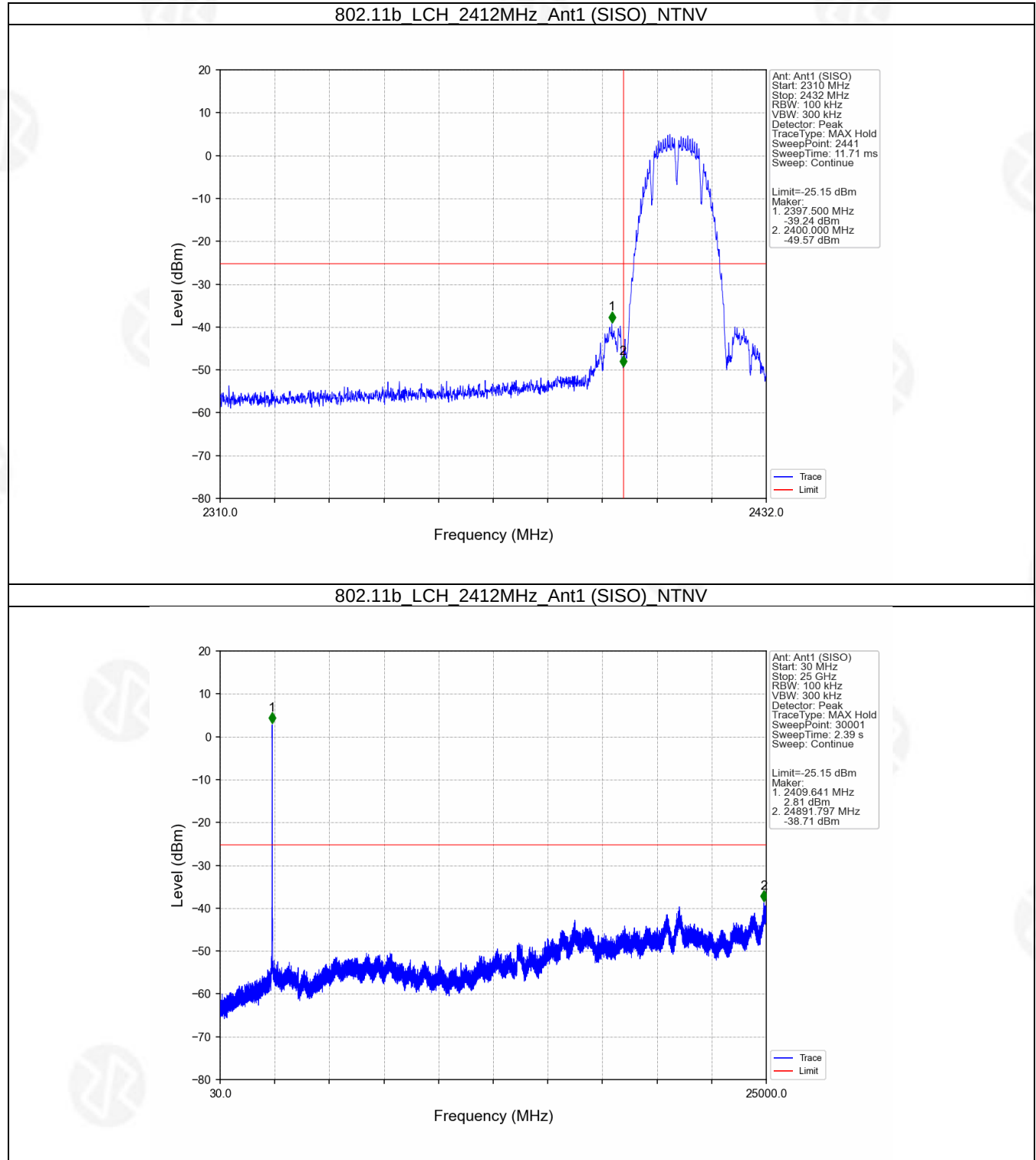


802.11n(HT40) HCH_2452MHz_Ant1 (SISO) NTNV



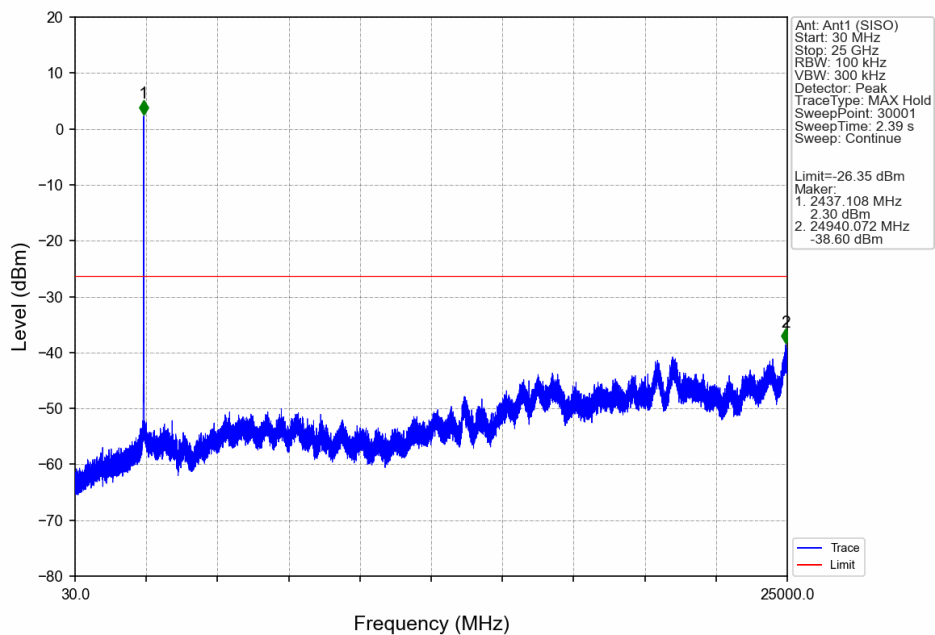


5.2.2 CSE

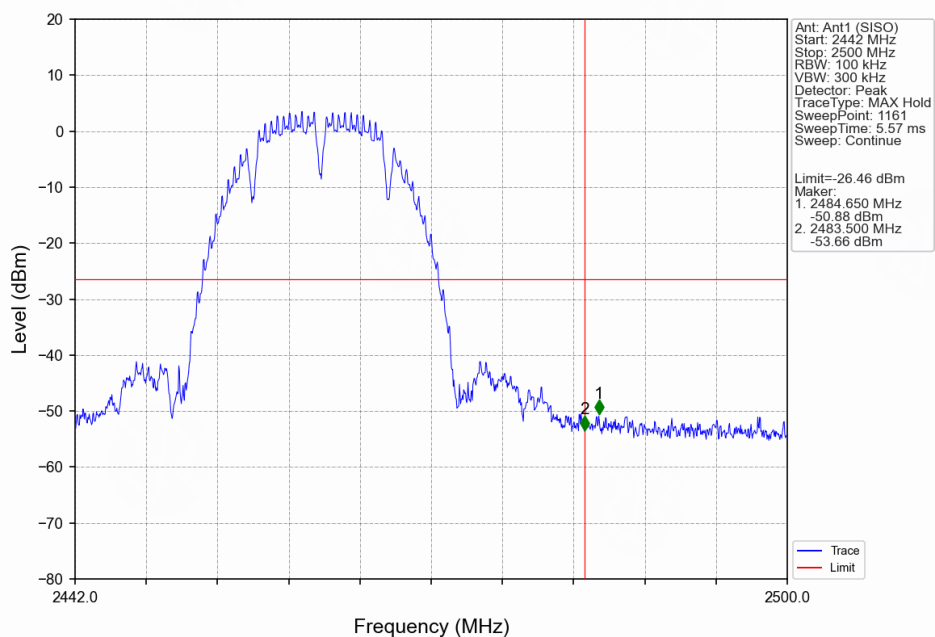




802.11b MCH 2437MHz Ant1 (SISO) NTN

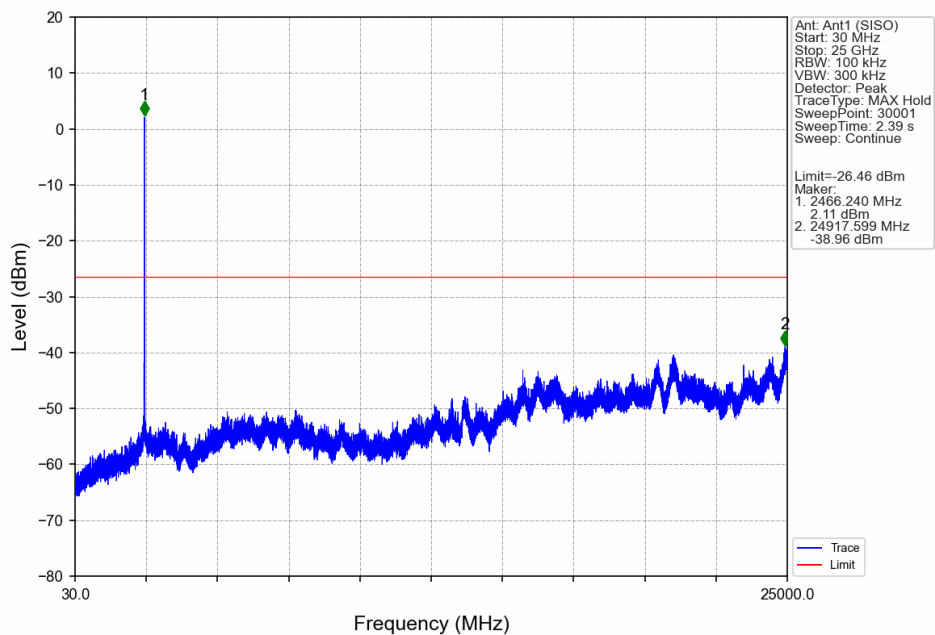


802.11b_HCH_2462MHz_Ant1 (SISO) NTN

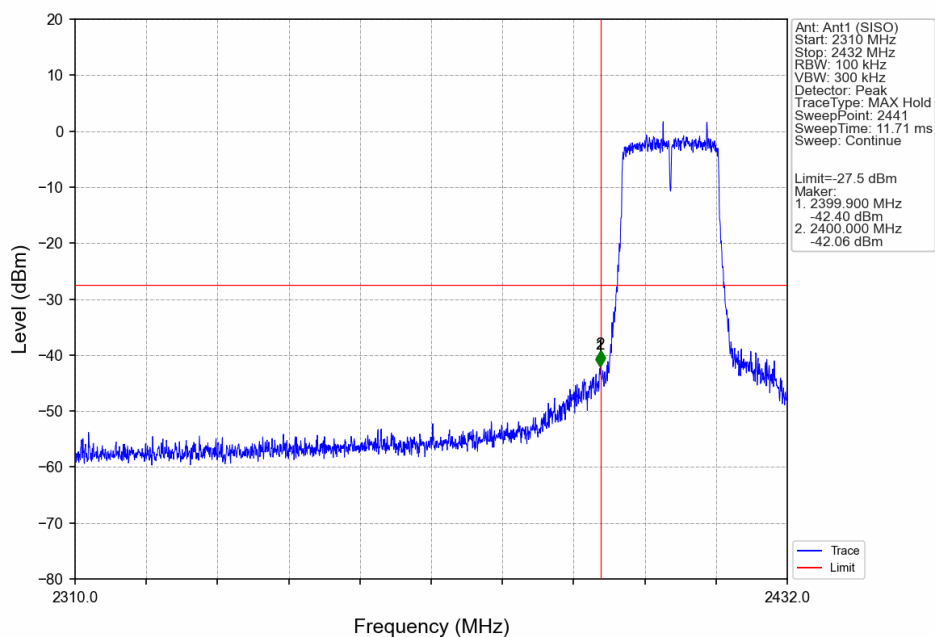




802.11b HCH 2462MHz Ant1 (SISO) NTN

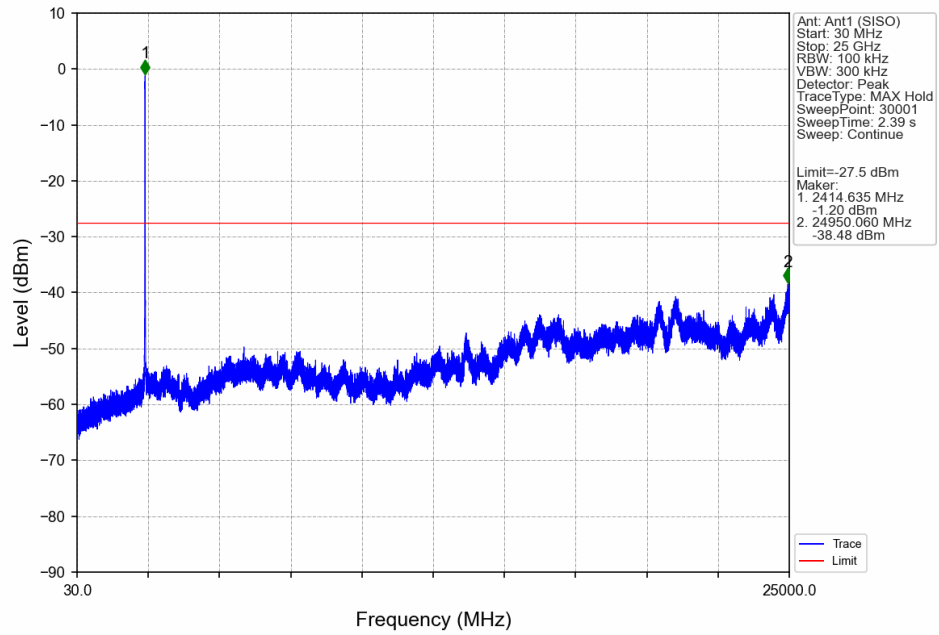


802.11g LCH 2412MHz Ant1 (SISO) NTN

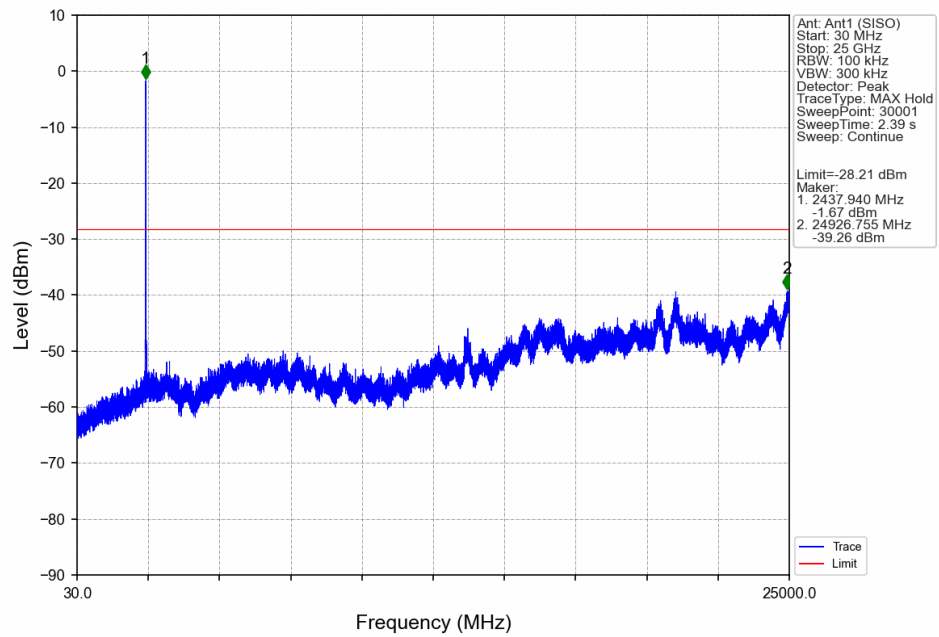




802.11g_LCH_2412MHz_Ant1 (SISO) NTN

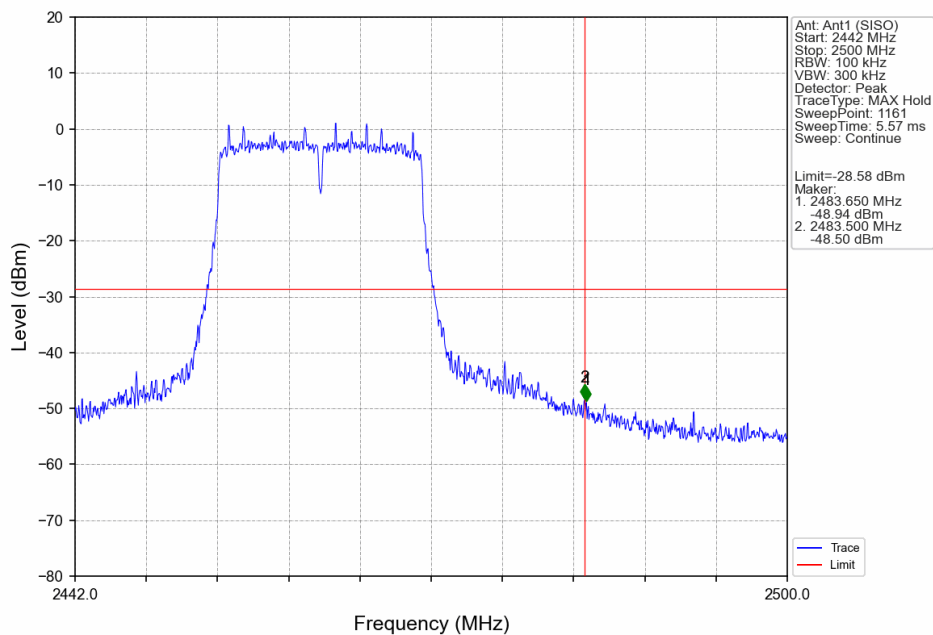


802.11g_MCH_2437MHz_Ant1 (SISO) NTN

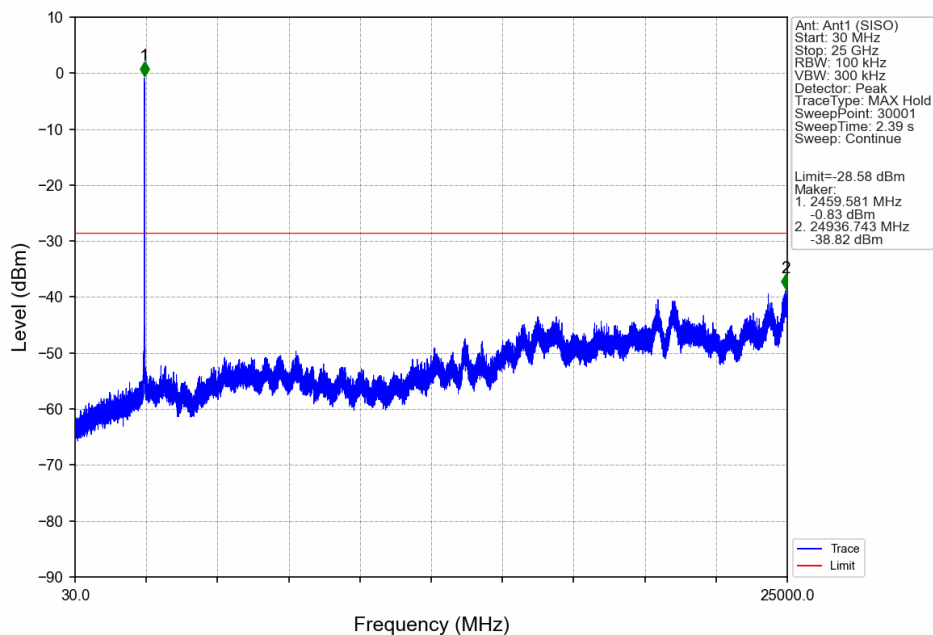




802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

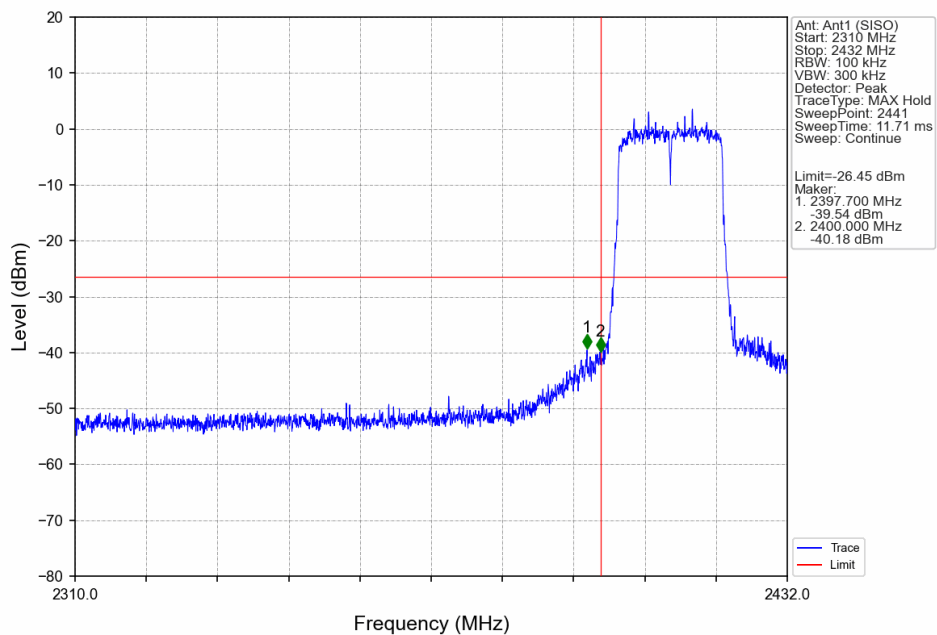


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

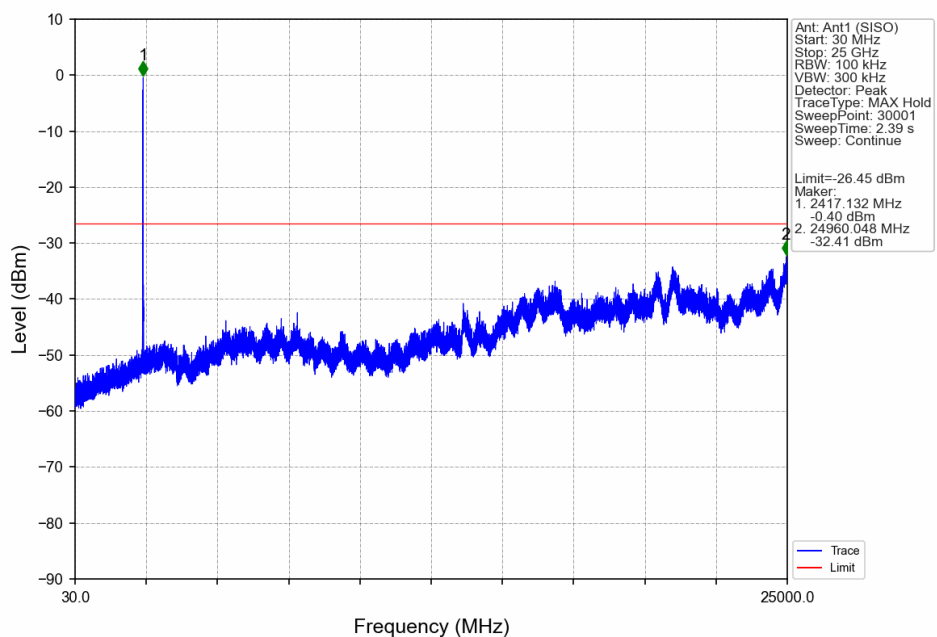




802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

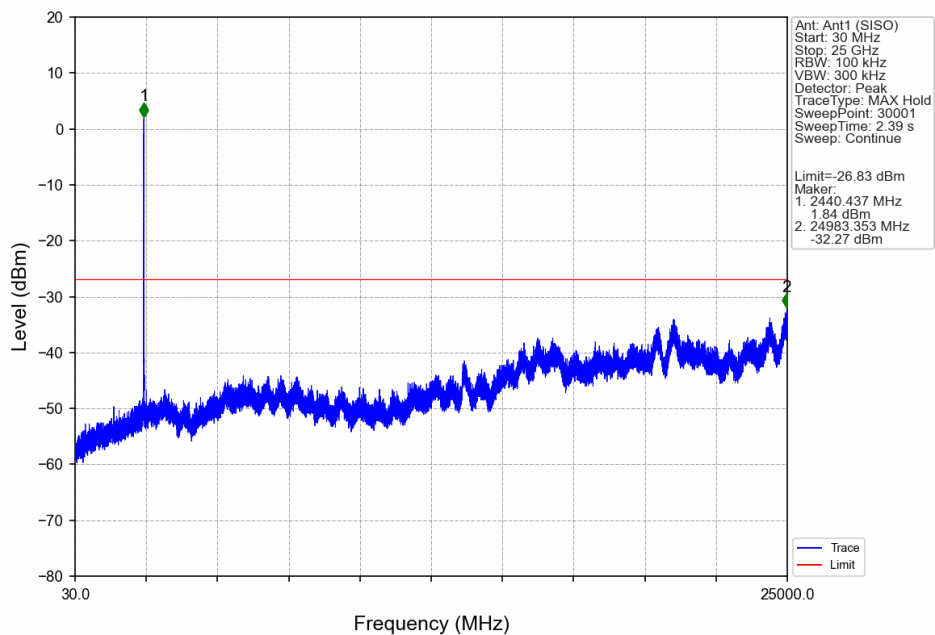


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

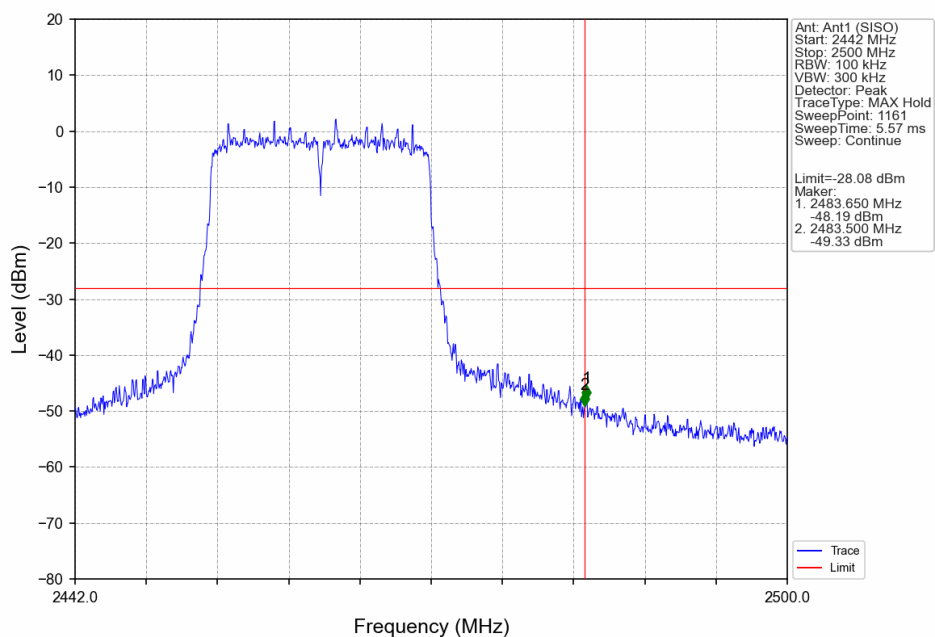




802.11n(HT20)_MCH_2437MHz_Ant1 (SISO) NTN

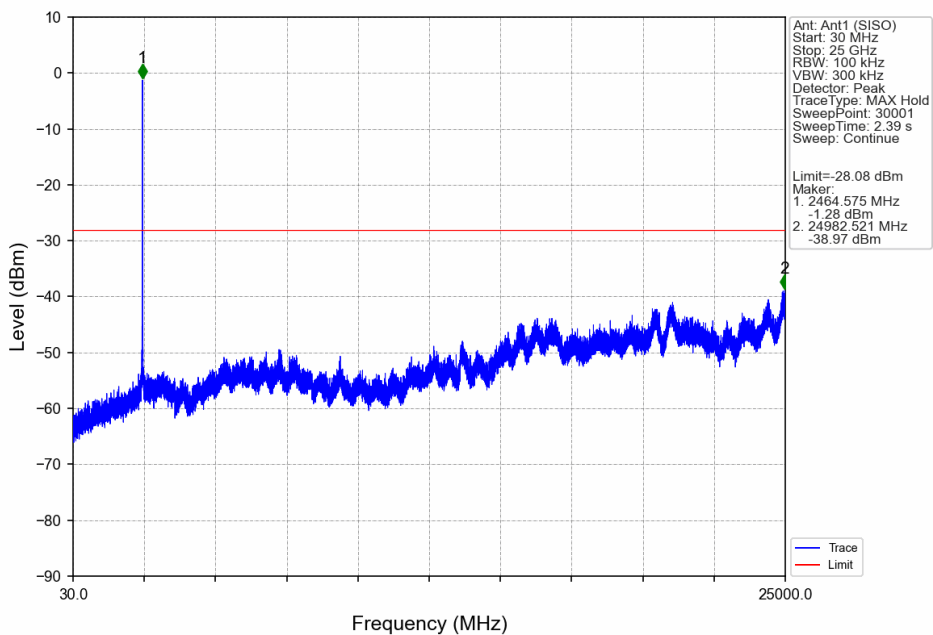


802.11n(HT20)_HCH_2462MHz_Ant1 (SISO) NTN

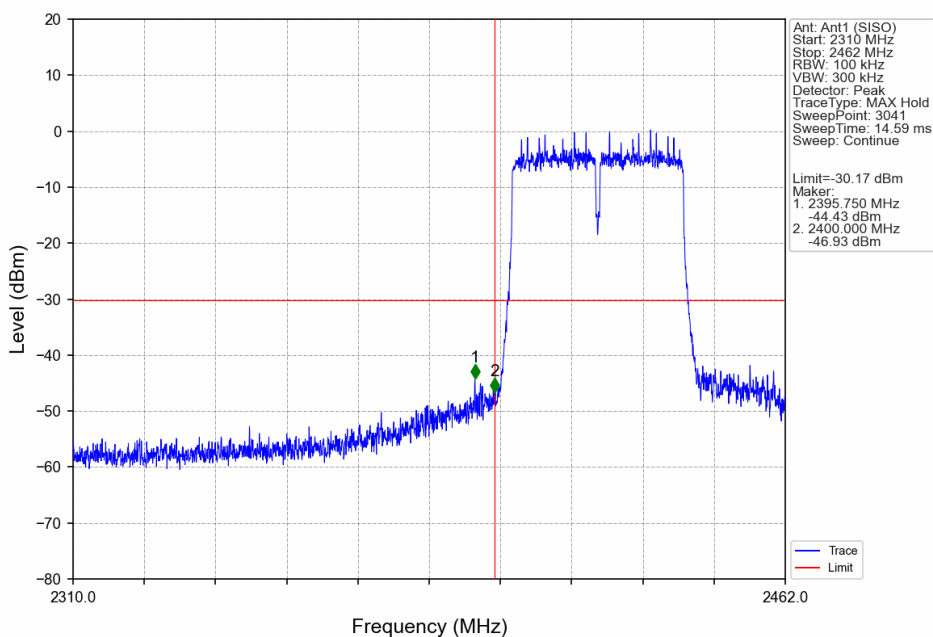




802.11n(HT20) HCH_2462MHz_Ant1 (SISO) NTNV

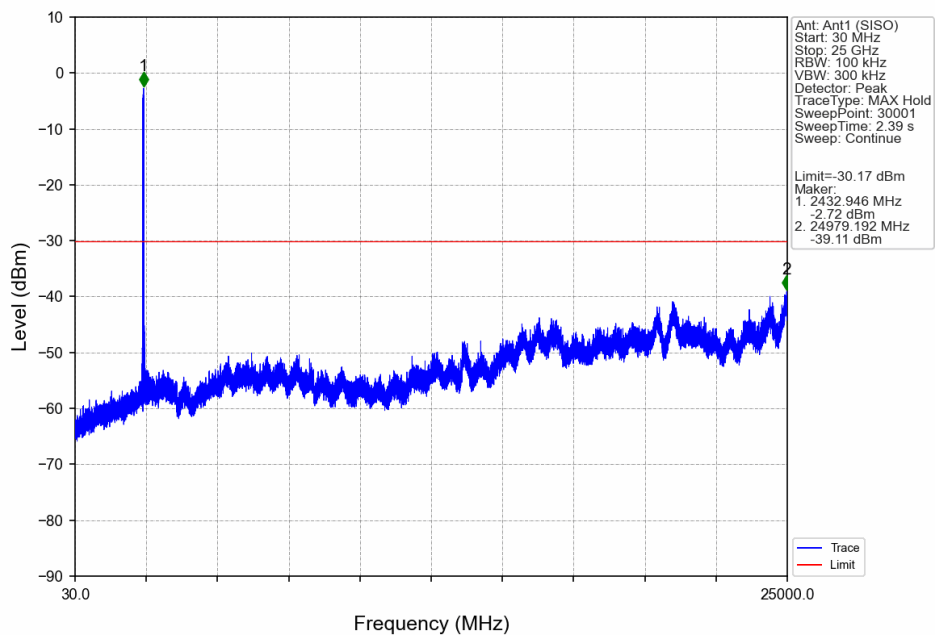


802.11n(HT40) LCH_2422MHz_Ant1 (SISO) NTNV

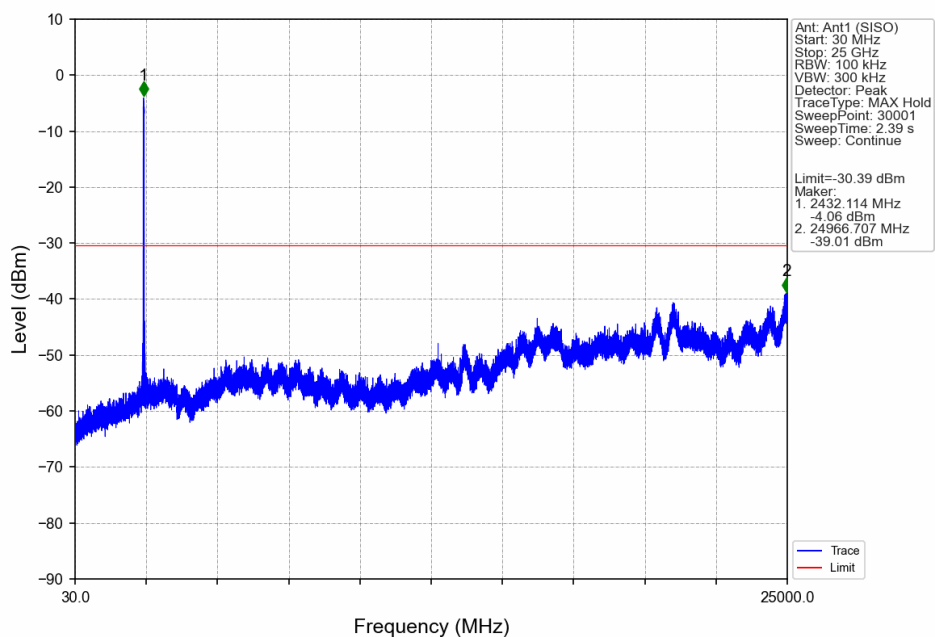




802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV

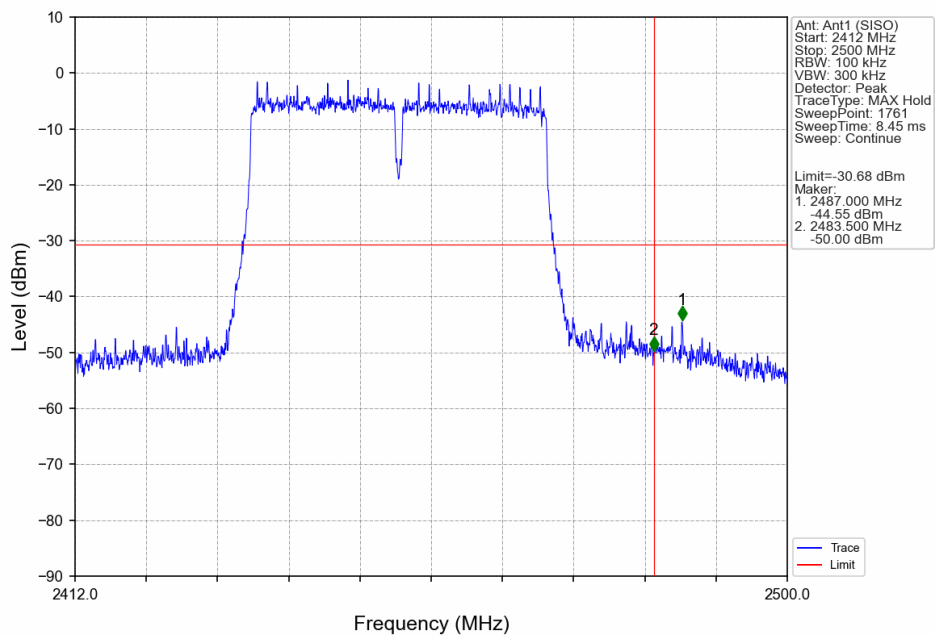


802.11n(HT40) MCH 2437MHz Ant1 (SISO) NTNV

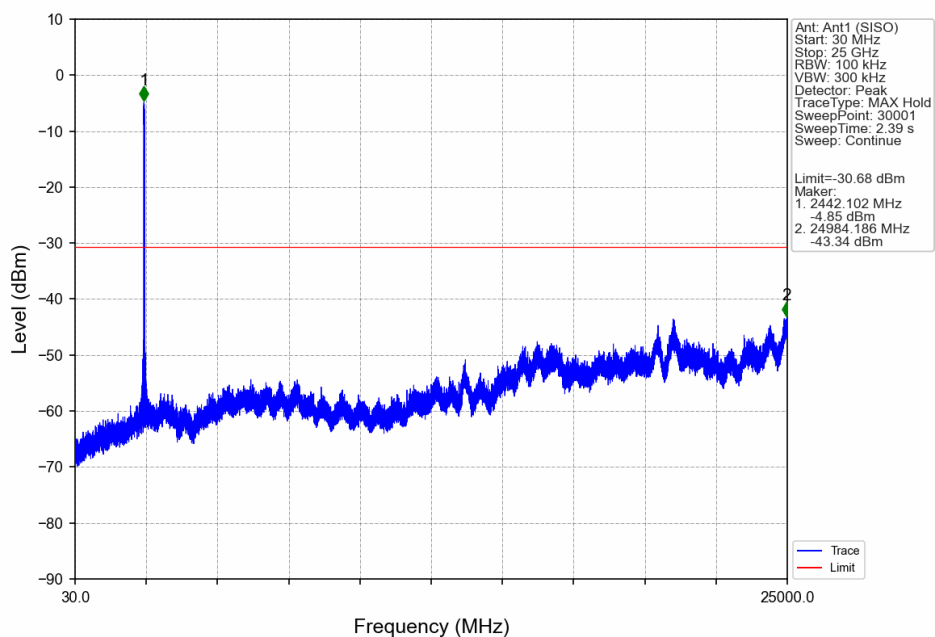




802.11n(HT40) HCH_2452MHz_Ant1 (SISO) NTNV



802.11n(HT40) HCH_2452MHz_Ant1 (SISO) NTNV





6. Form731

6.1 Test Result

6.1.1 Form731

Lower Freq (MHz)	High Freq (MHz)	MAX Power (W)	MAX Power (dBm)
2412	2462	0.0294	14.68
2422	2452	0.0256	14.09