



Annex for 2.4G Wi-Fi
Test Report No.: CTL2512053031-WF01

TABLE OF CONTENTS

1. Bandwidth	3
1.1 Test Result	3
1.1.1 OBW	3
1.1.2 6dB BW	3
1.2 Test Graph	4
1.2.1 OBW	4
1.2.2 6dB BW	13
2. Maximum Conducted Output Power	22
2.1 Test Result	22
2.1.1 Power	22
3. Maximum Power Spectral Density	23
3.1 Test Result	23
3.1.1 PSD	23
3.2 Test Graph	24
3.2.1 PSD	24
4. Unwanted Emissions In Non-restricted Frequency Bands	33
4.1 Test Result	33
4.1.1 Ref	33
4.1.2 CSE	33
4.2 Test Graph	35
4.2.1 Ref	35
4.2.2 CSE	44

5. Form731	59
5.1 Test Result	59
5.1.1 Form731	59

1. Bandwidth

1.1 Test Result

1.1.1 OBW

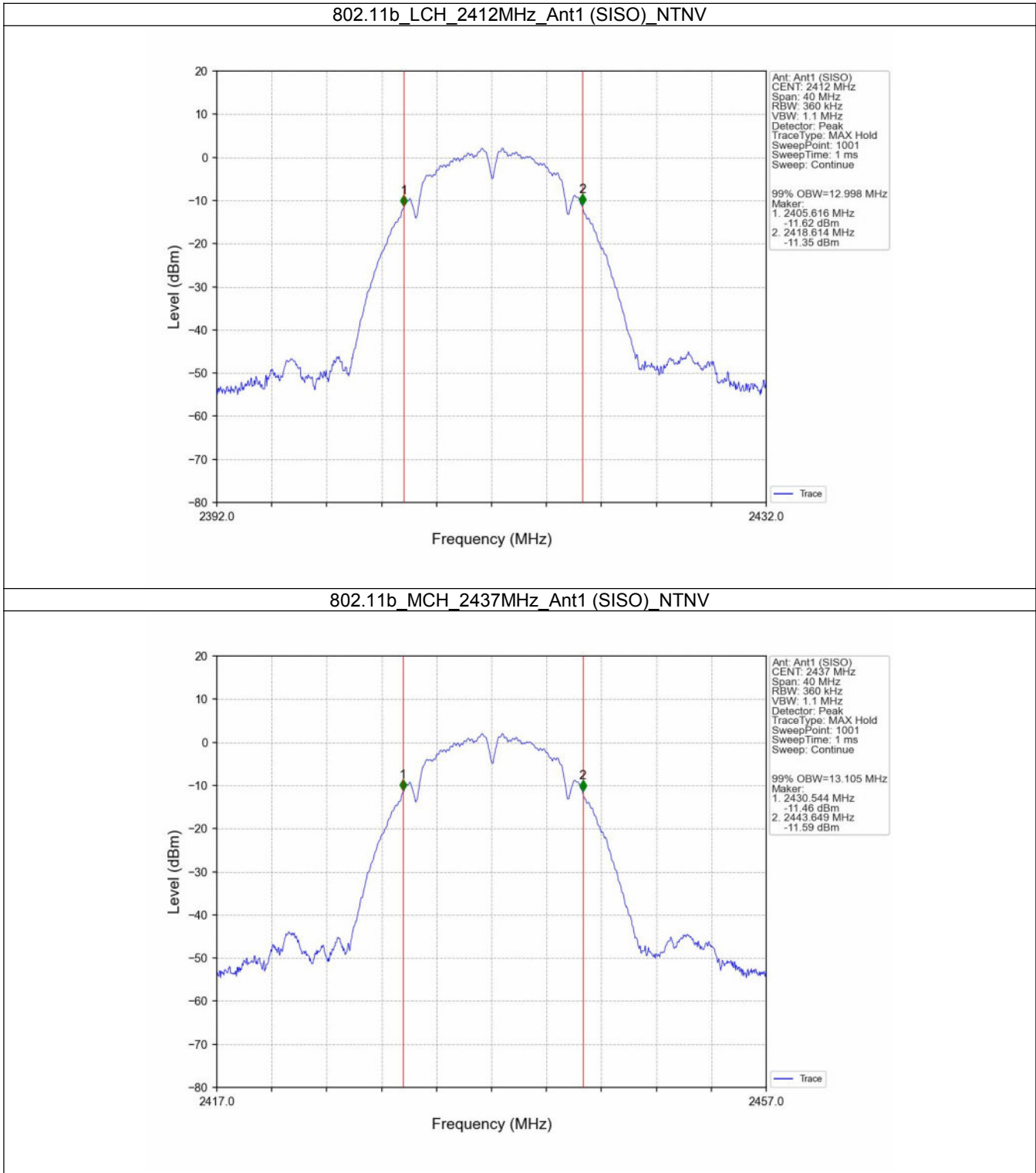
Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	99% Occupied Bandwidth (MHz)		Verdict
						Result	Limit	
802.11b	SISO	2412	/	/	1	12.998	/	Pass
		2437	/	/	1	13.105	/	Pass
		2462	/	/	1	13.055	/	Pass
802.11g	SISO	2412	/	/	1	17.946	/	Pass
		2437	/	/	1	18.014	/	Pass
		2462	/	/	1	17.995	/	Pass
802.11n (HT20)	SISO	2412	/	/	1	19.350	/	Pass
		2437	/	/	1	19.619	/	Pass
		2462	/	/	1	19.551	/	Pass
802.11n (HT40)	SISO	2422	/	/	1	37.863	/	Pass
		2437	/	/	1	37.893	/	Pass
		2452	/	/	1	37.801	/	Pass
802.11ax (HEW20)	SISO	2412	SU	/	1	19.906	/	Pass
		2437	SU	/	1	19.987	/	Pass
		2462	SU	/	1	19.976	/	Pass
802.11ax (HEW40)	SISO	2422	SU	/	1	38.757	/	Pass
		2437	SU	/	1	38.822	/	Pass
		2452	SU	/	1	38.716	/	Pass

1.1.2 6dB BW

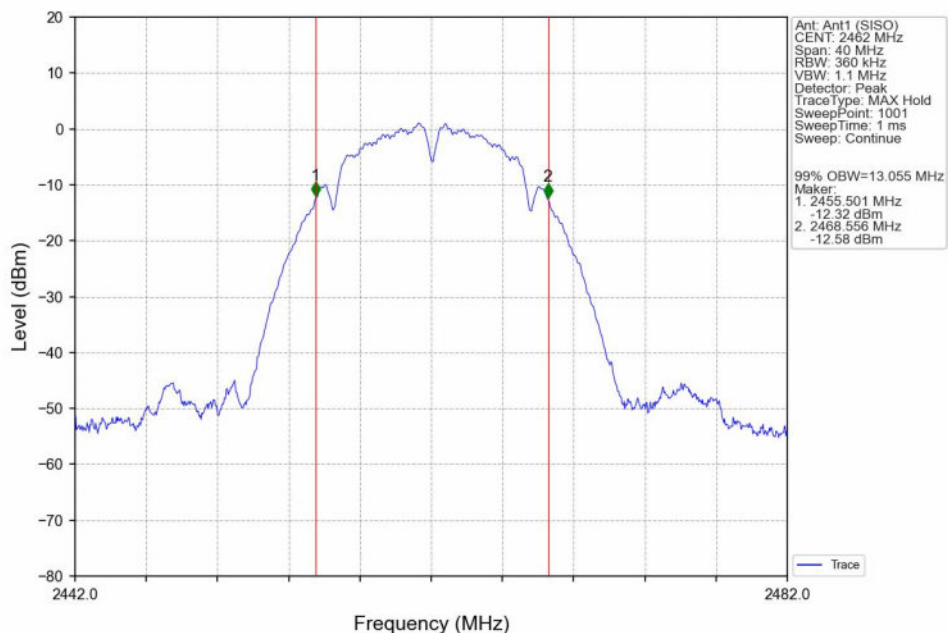
Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	6dB Bandwidth (MHz)		Verdict
						Result	Limit	
802.11b	SISO	2412	/	/	1	8.956	>=0.5	Pass
		2437	/	/	1	9.619	>=0.5	Pass
		2462	/	/	1	9.061	>=0.5	Pass
802.11g	SISO	2412	/	/	1	16.430	>=0.5	Pass
		2437	/	/	1	16.196	>=0.5	Pass
		2462	/	/	1	16.113	>=0.5	Pass
802.11n (HT20)	SISO	2412	/	/	1	17.527	>=0.5	Pass
		2437	/	/	1	17.668	>=0.5	Pass
		2462	/	/	1	17.703	>=0.5	Pass
802.11n (HT40)	SISO	2422	/	/	1	36.324	>=0.5	Pass
		2437	/	/	1	36.429	>=0.5	Pass
		2452	/	/	1	36.001	>=0.5	Pass
802.11ax (HEW20)	SISO	2412	SU	/	1	18.753	>=0.5	Pass
		2437	SU	/	1	18.878	>=0.5	Pass
		2462	SU	/	1	18.887	>=0.5	Pass
802.11ax (HEW40)	SISO	2422	SU	/	1	37.627	>=0.5	Pass
		2437	SU	/	1	37.365	>=0.5	Pass
		2452	SU	/	1	37.109	>=0.5	Pass

1.2 Test Graph

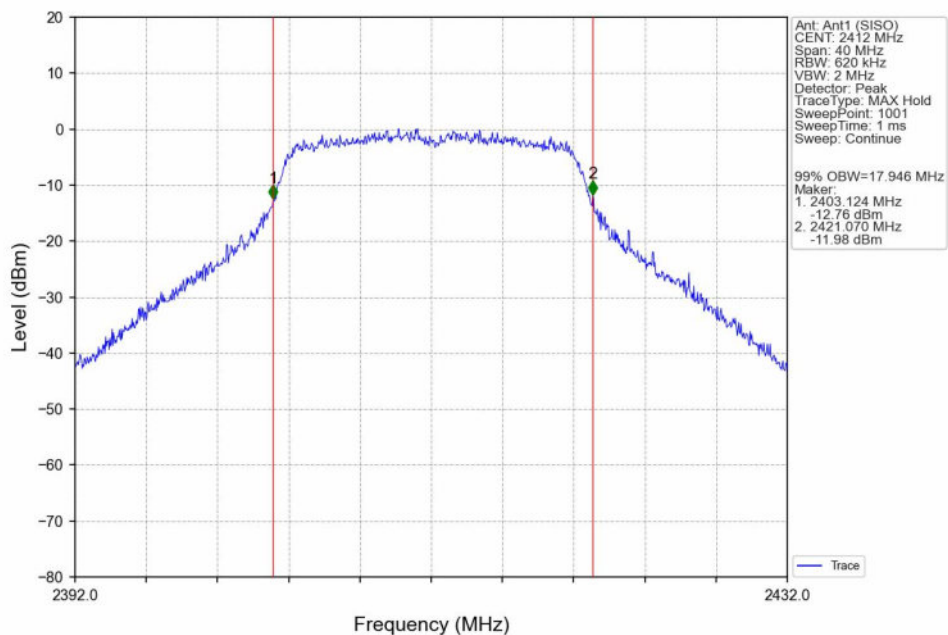
1.2.1 OBW



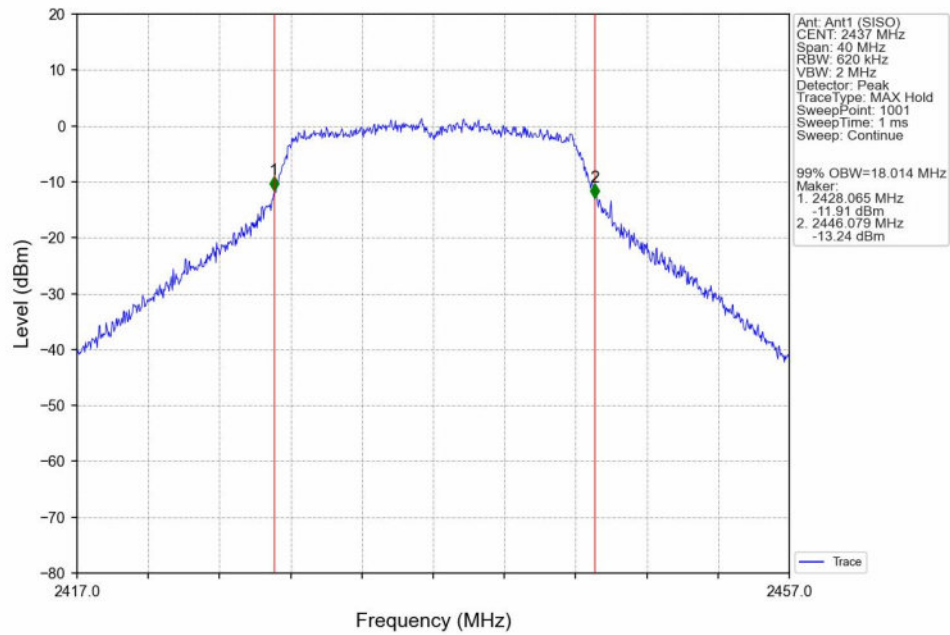
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



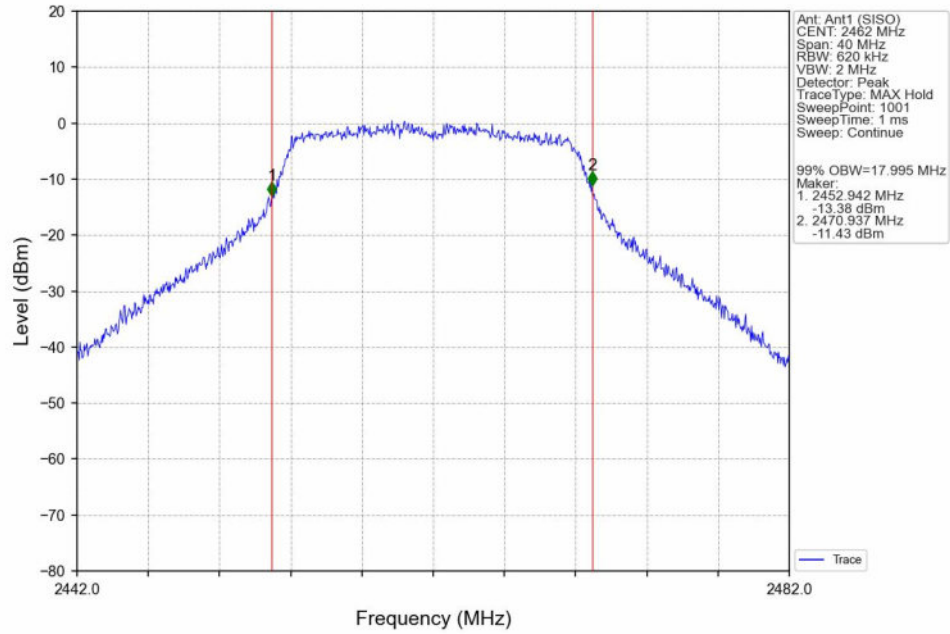
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



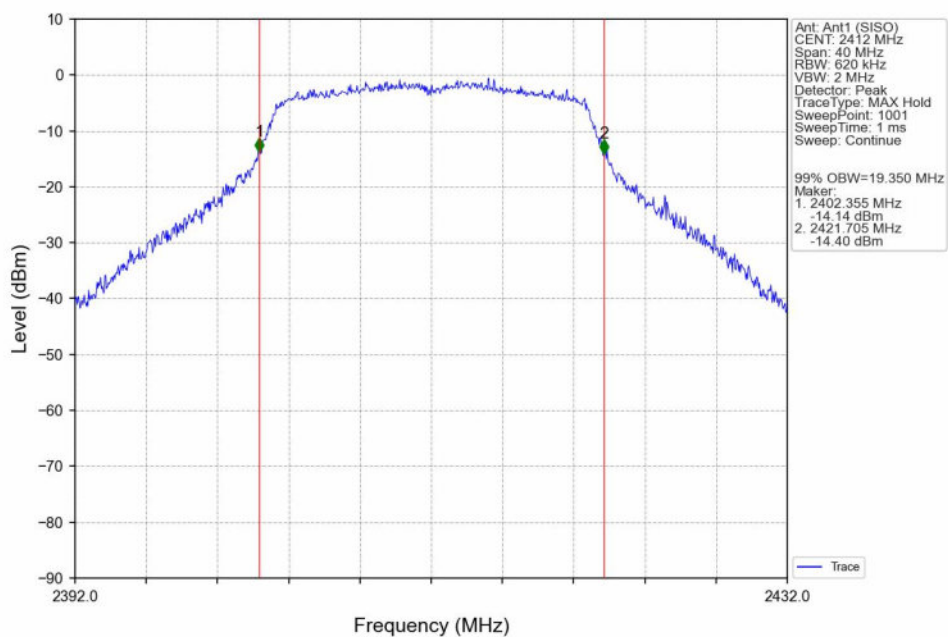
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



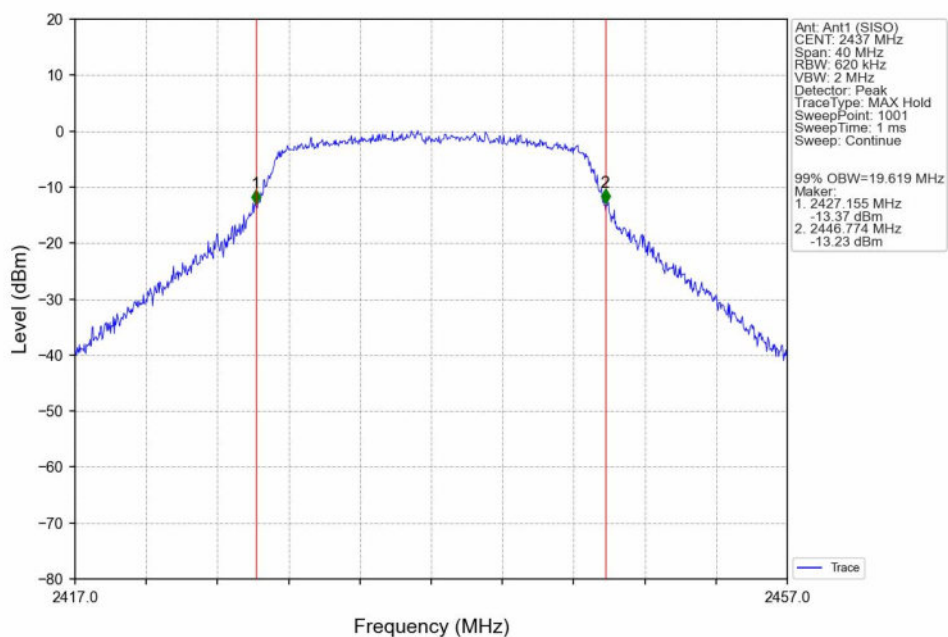
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

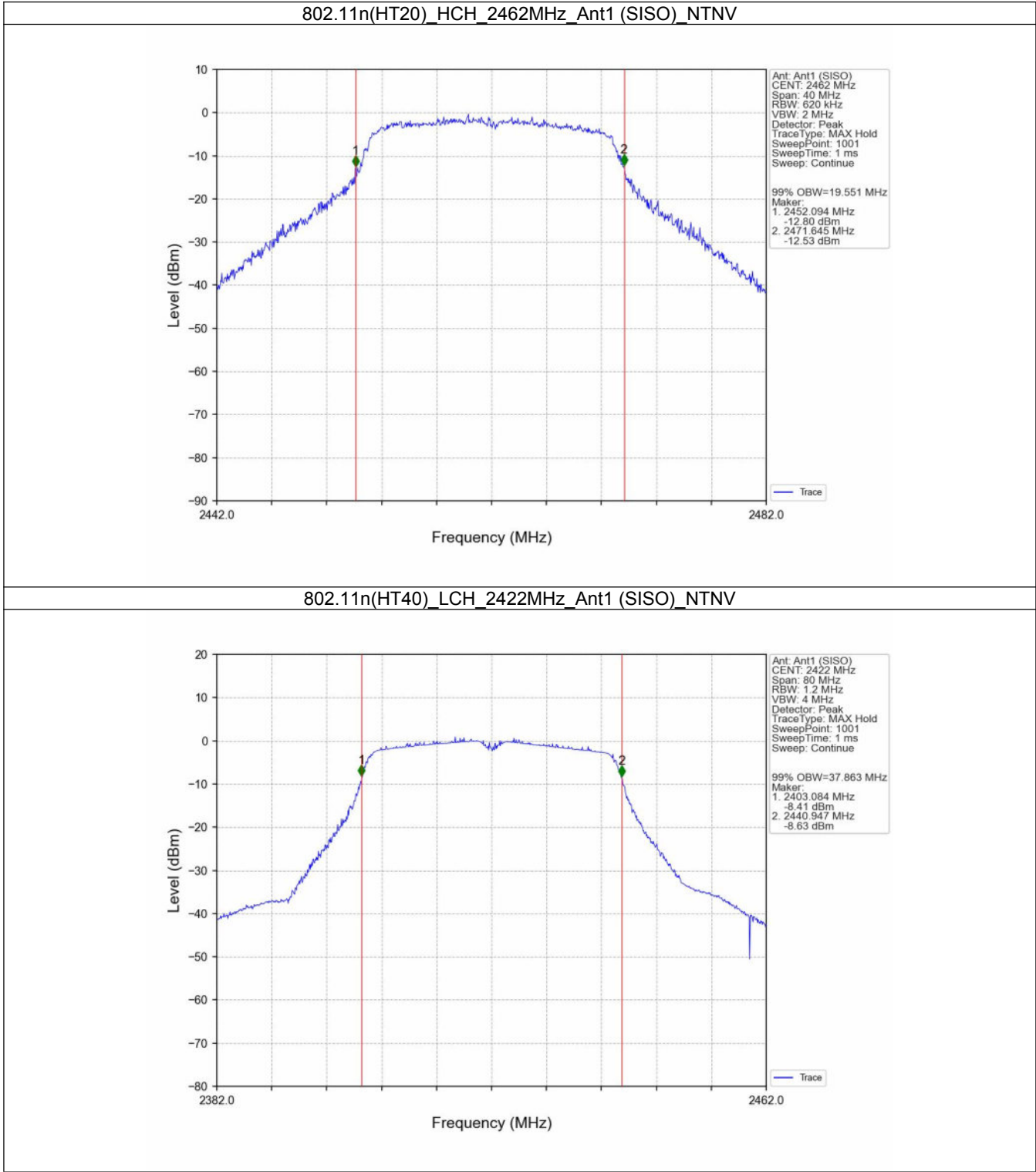


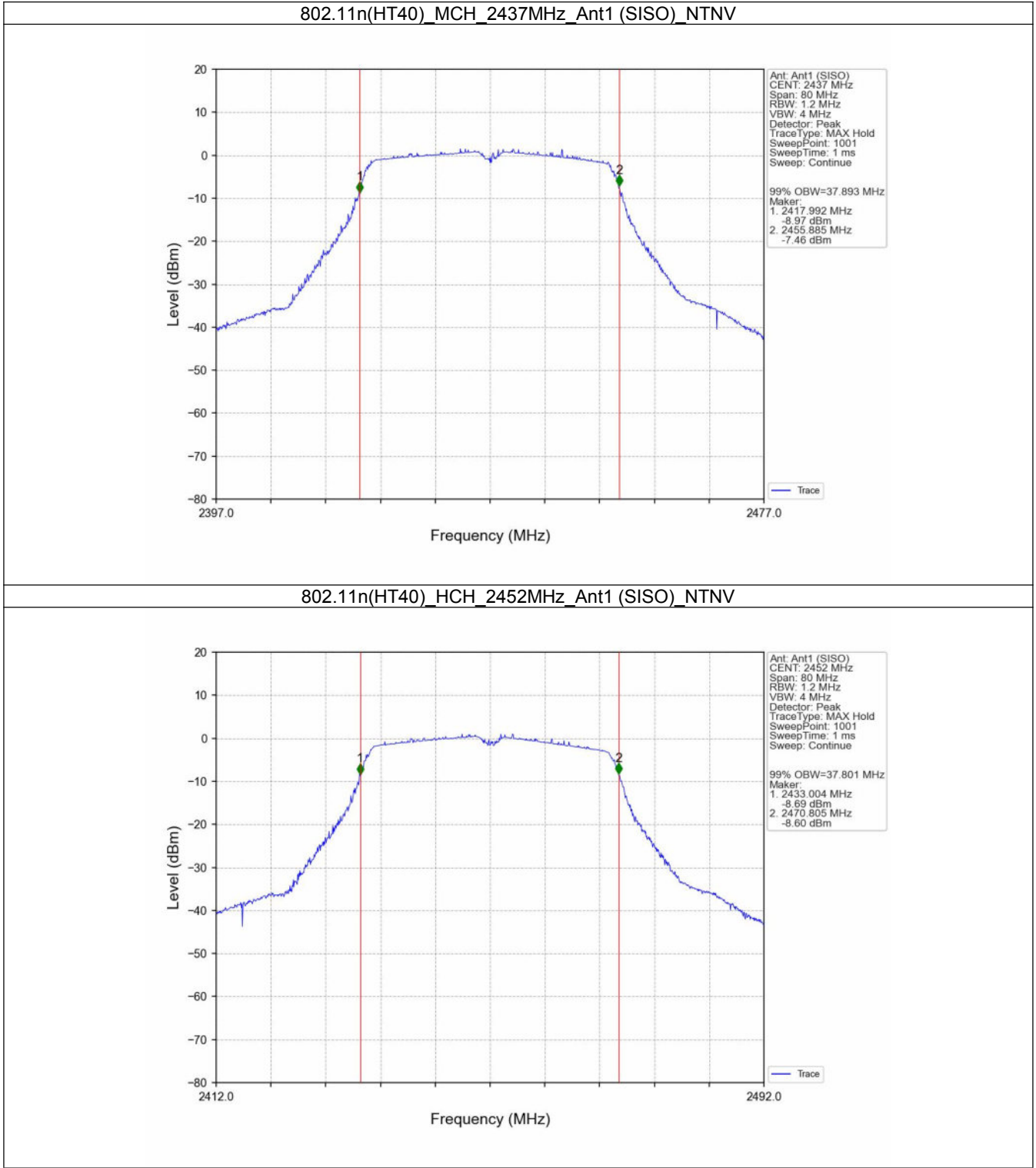
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



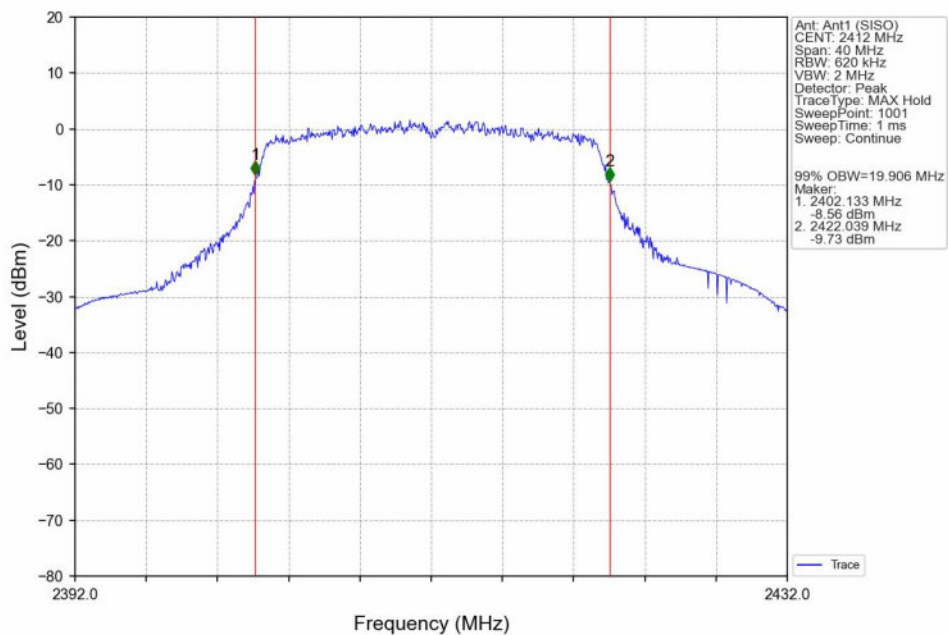
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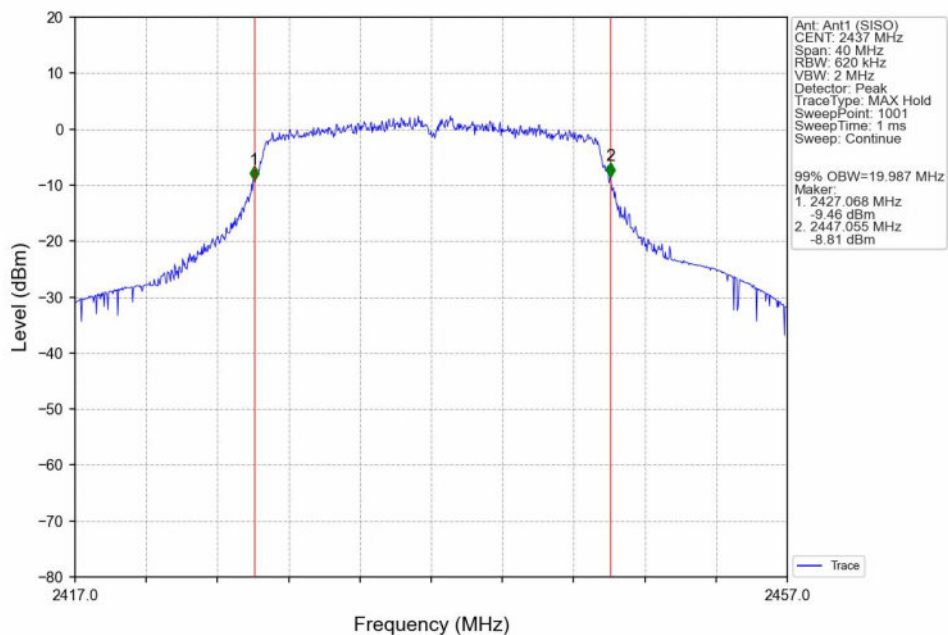




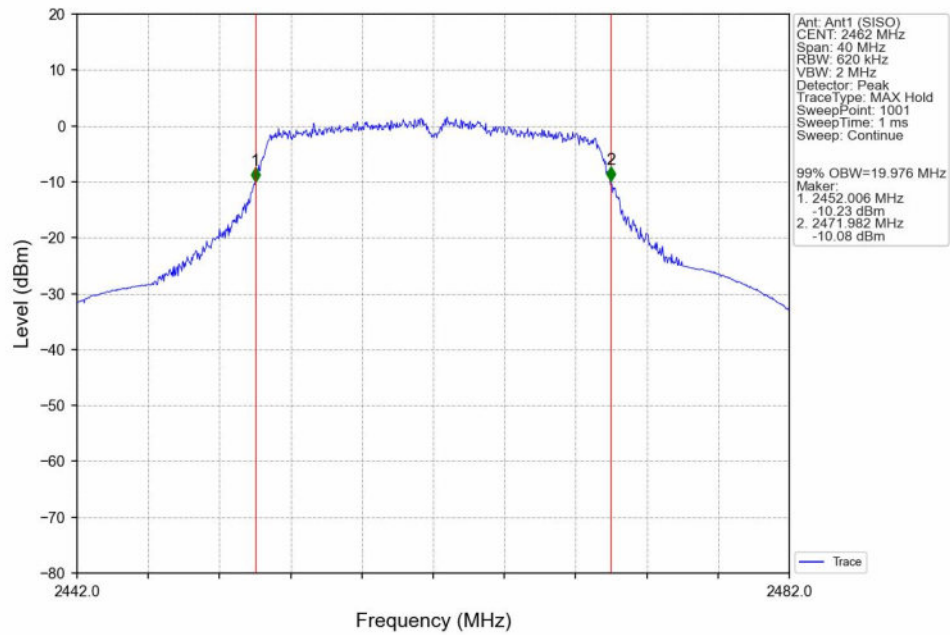
802.11ax(HEW20)_LCH_2412MHz_SU_/_Ant1 (SISO)_NTNV



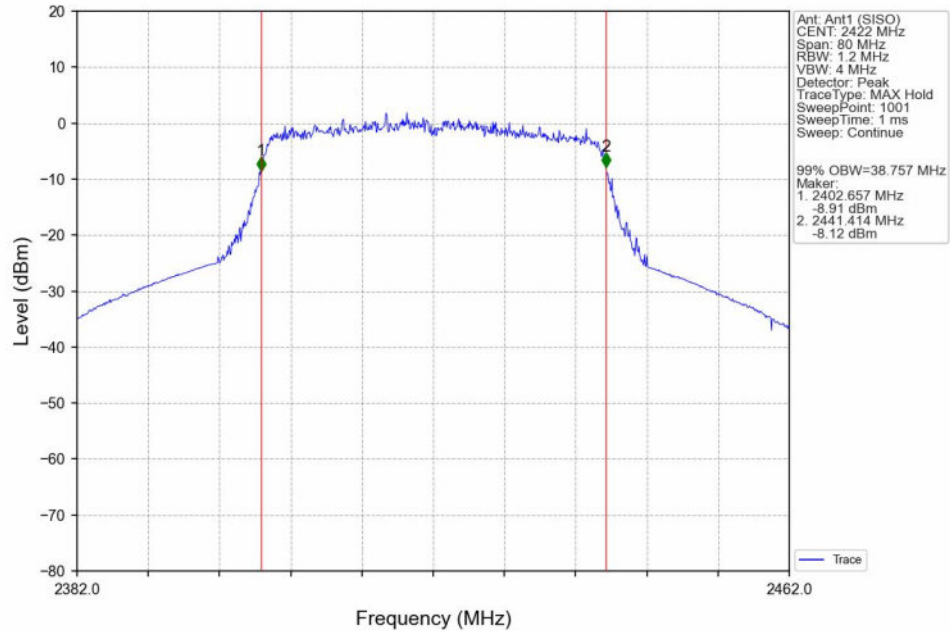
802.11ax(HEW20)_MCH_2437MHz_SU_/_Ant1 (SISO)_NTNV

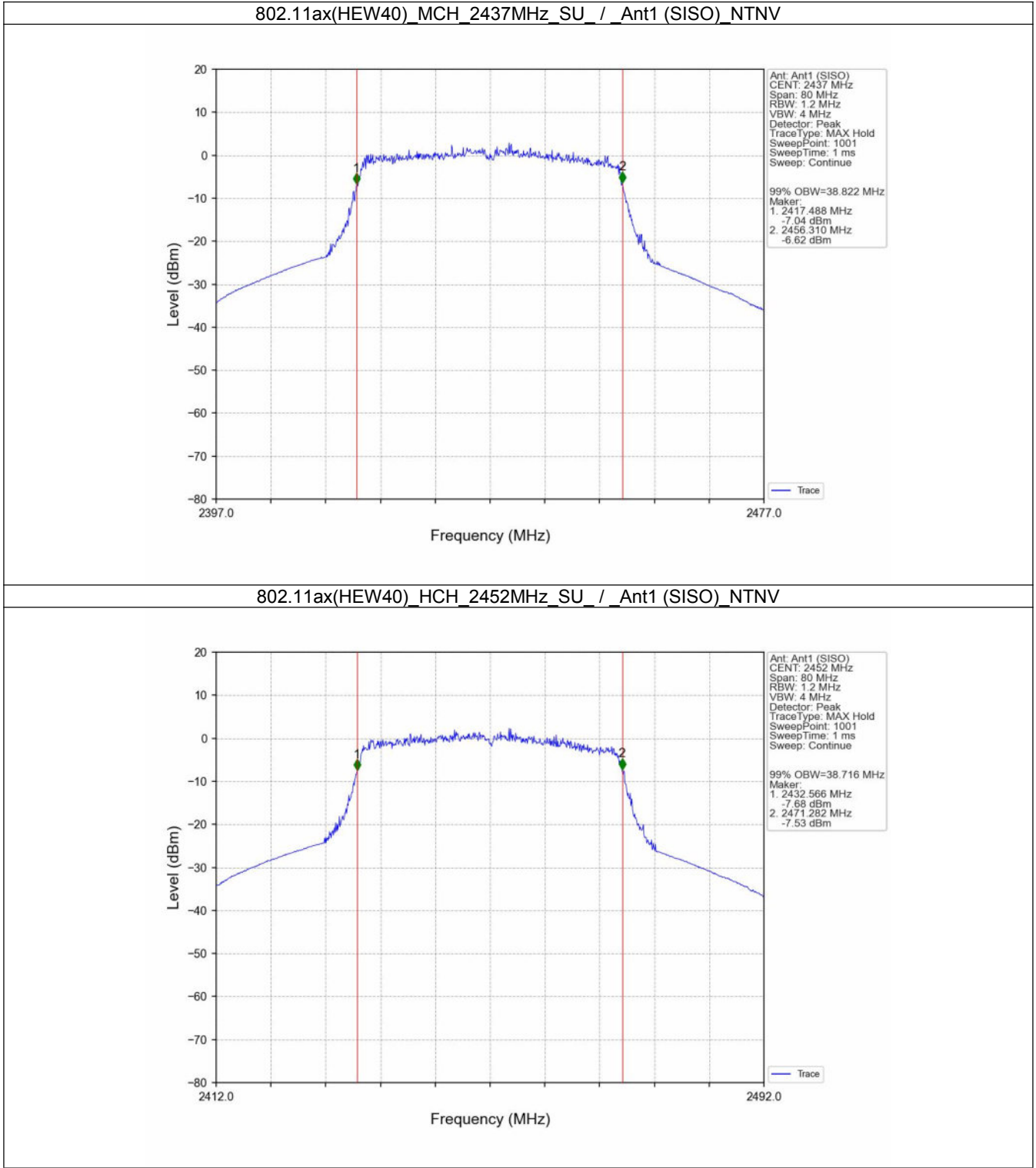


802.11ax(HEW20) HCH 2462MHz_SU / Ant1 (SISO) NTNv

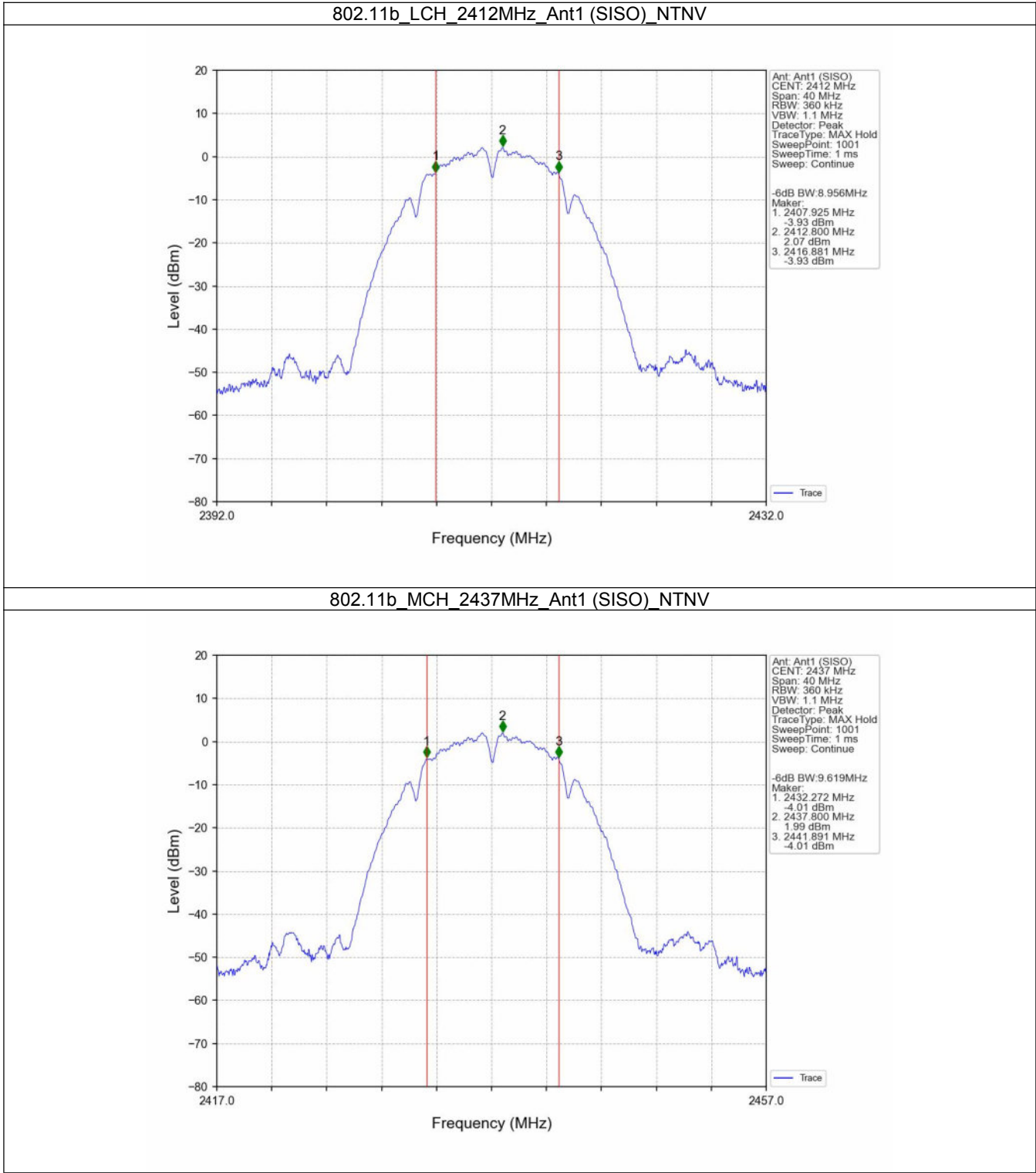


802.11ax(HEW40) LCH 2422MHz_SU / Ant1 (SISO) NTNv

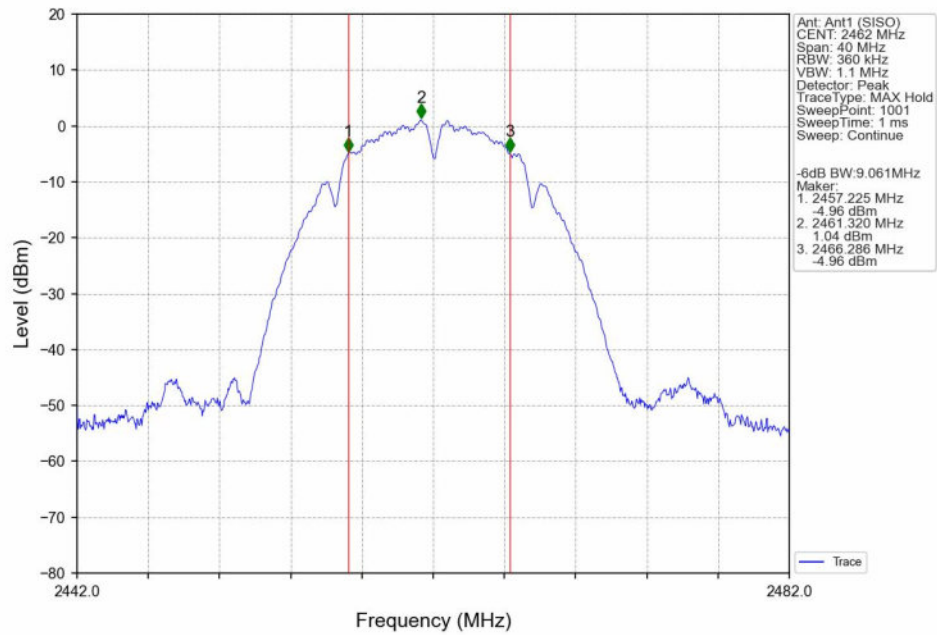




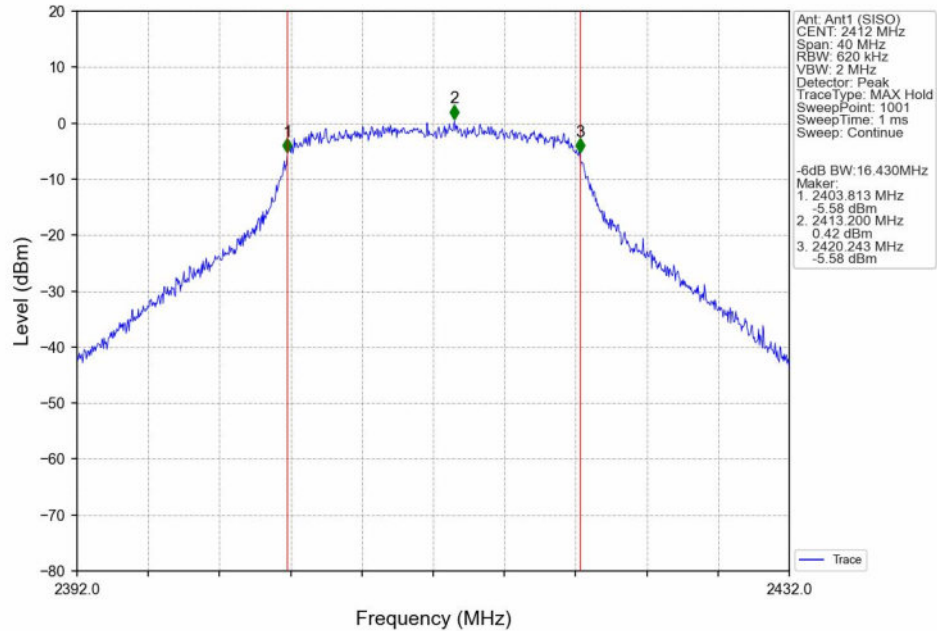
1.2.2 6dB BW



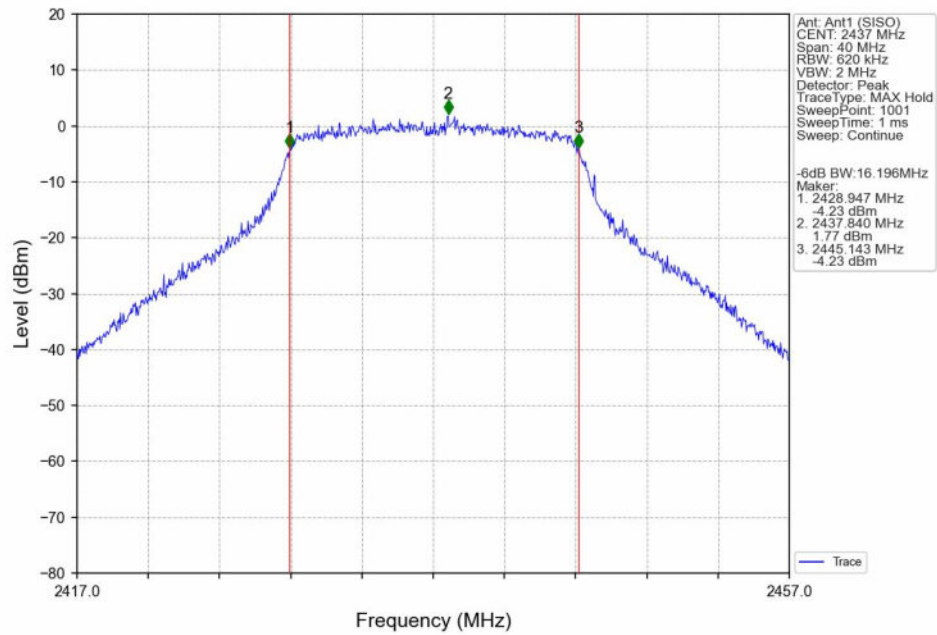
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



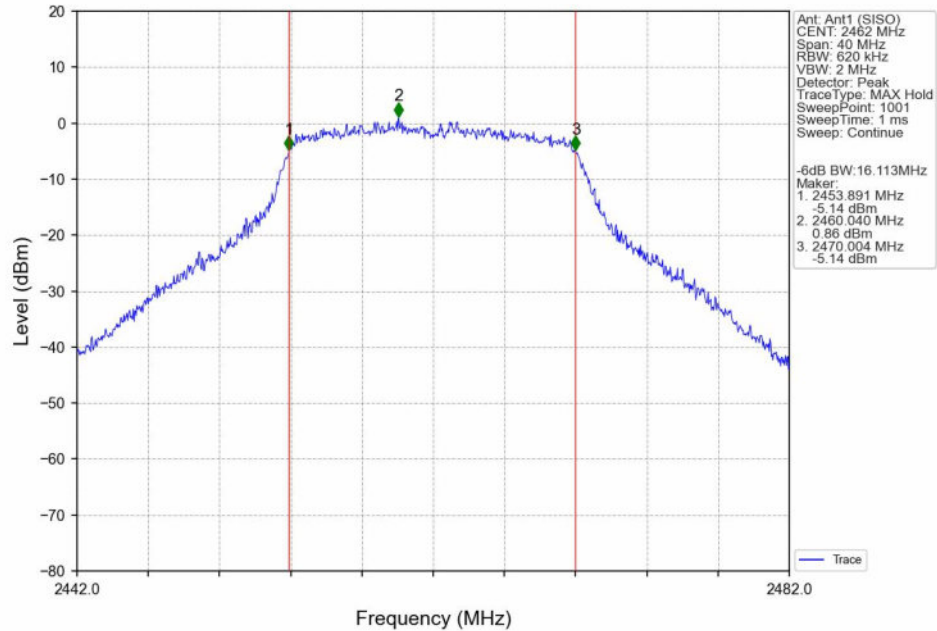
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



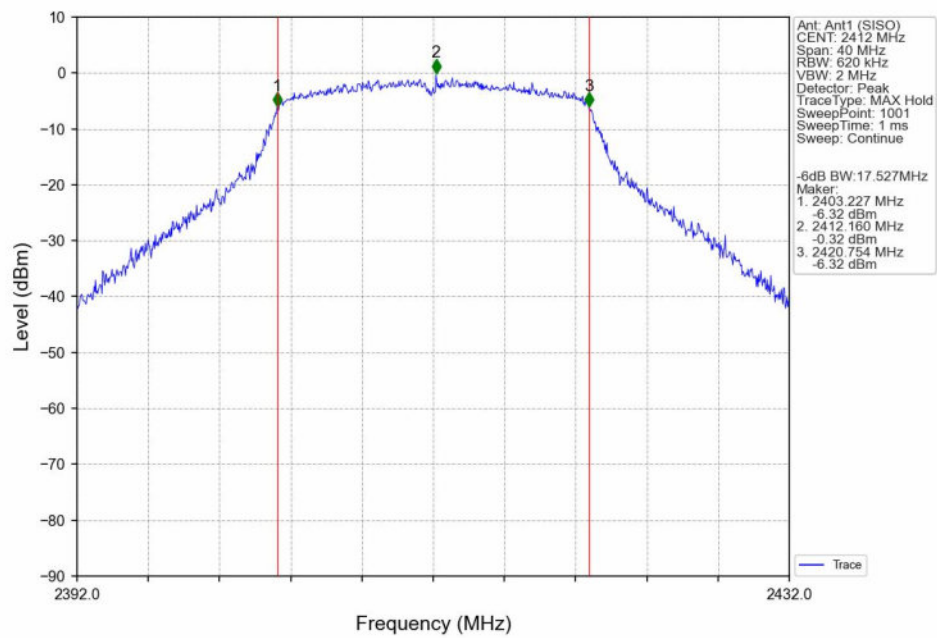
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



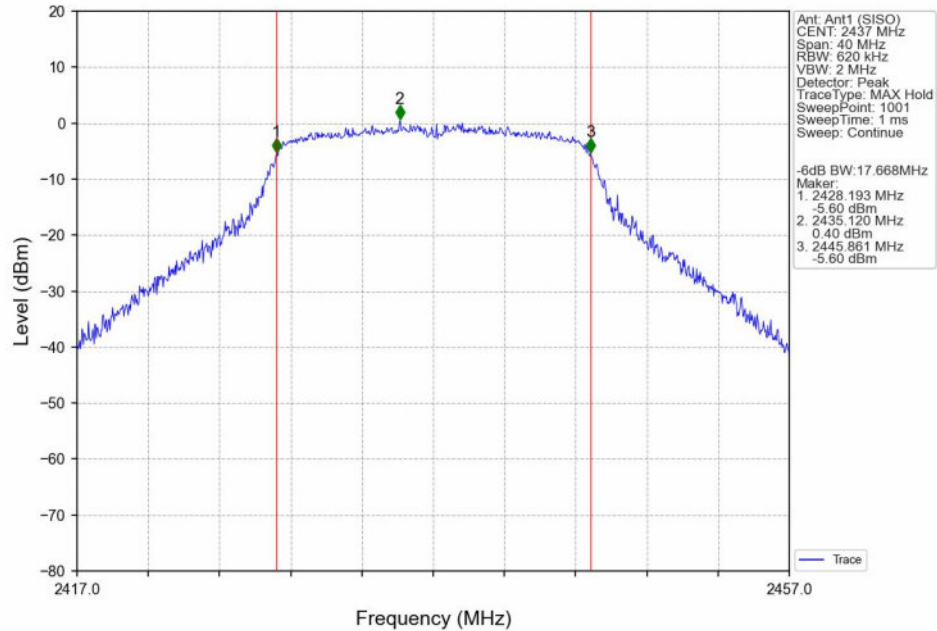
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

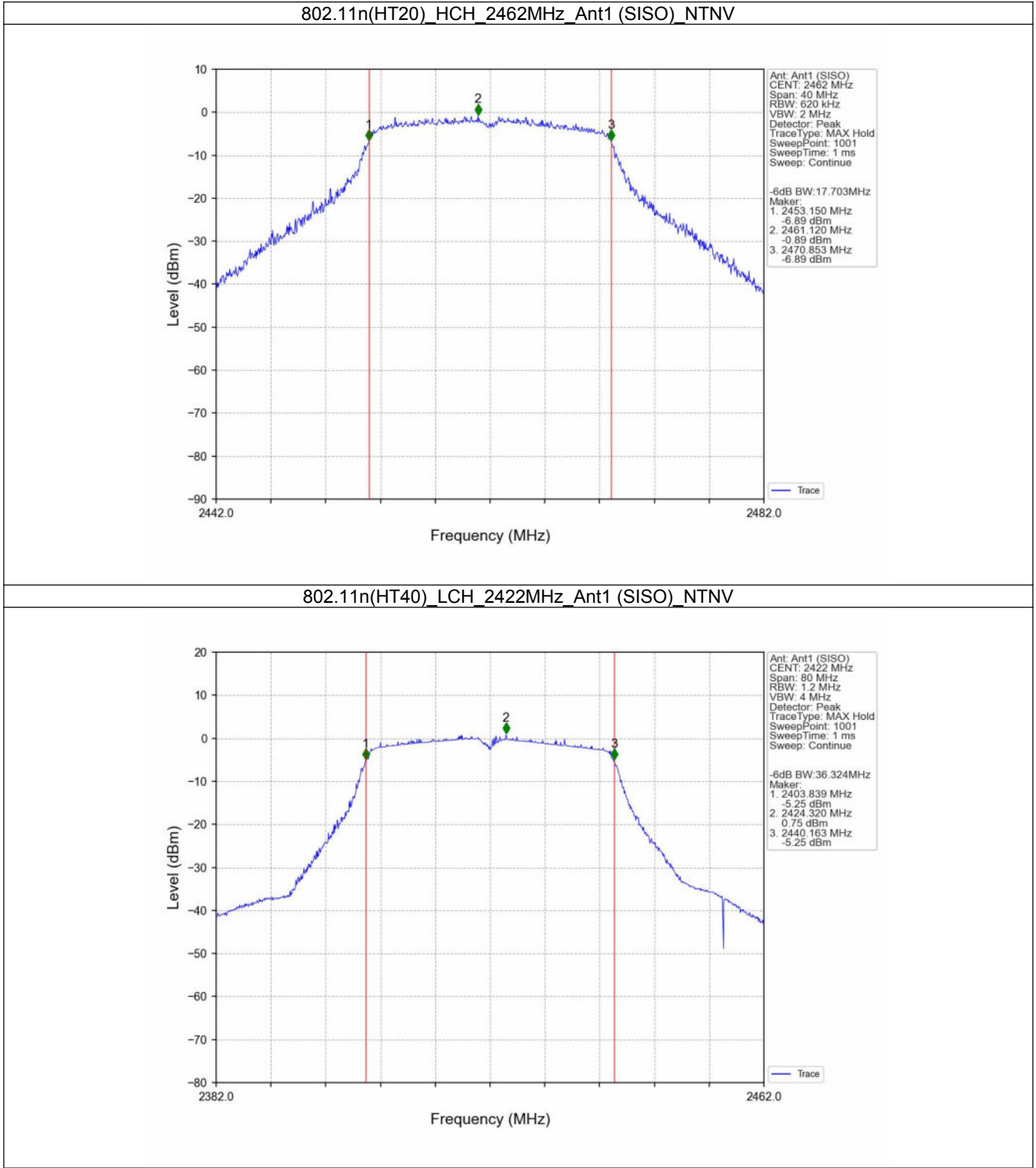


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

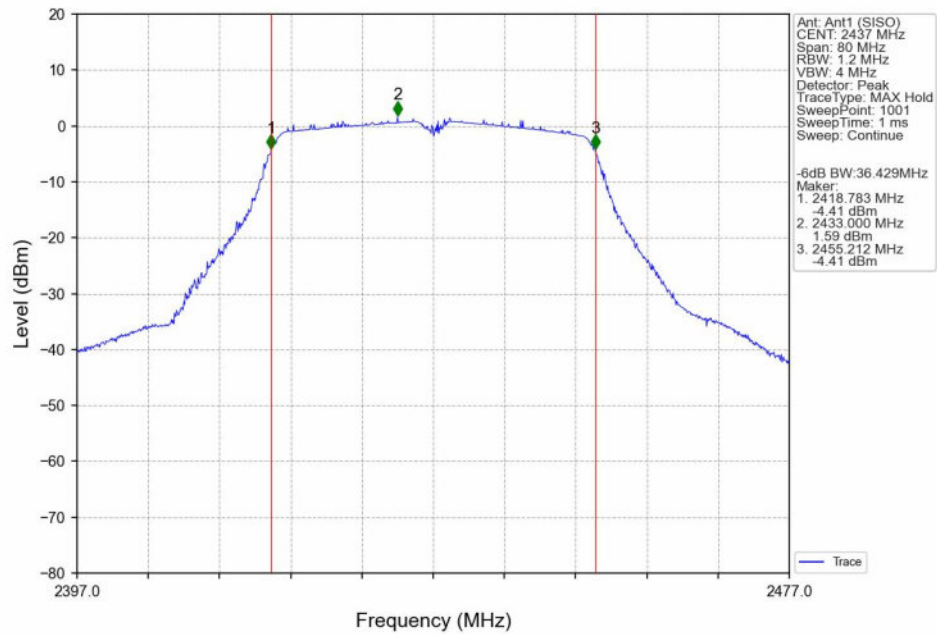


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

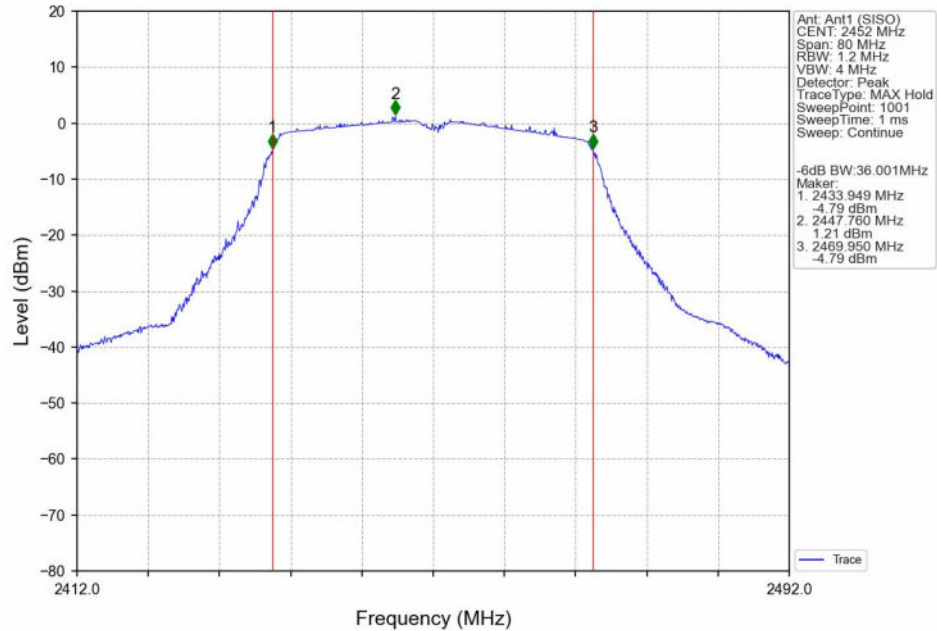




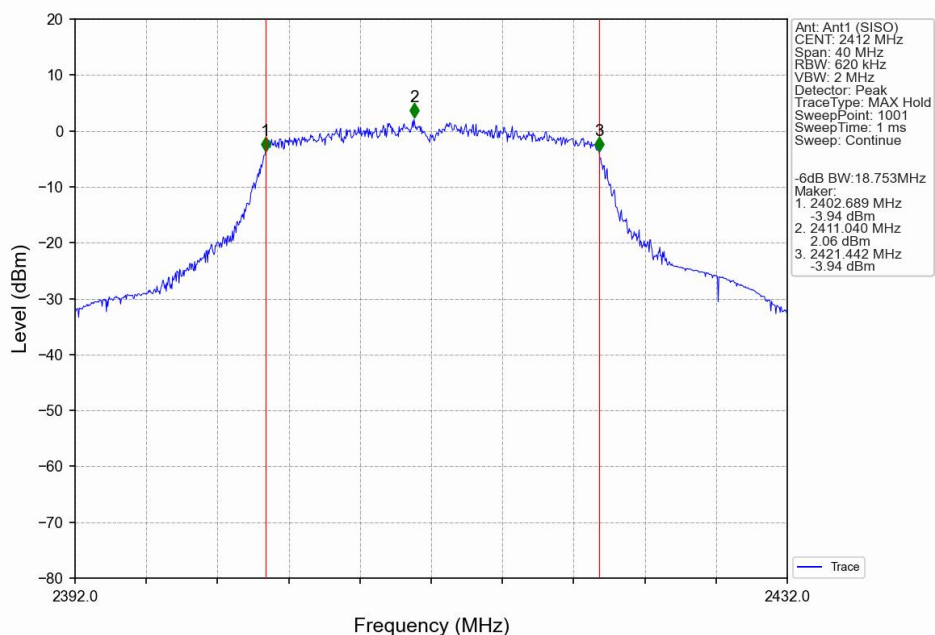
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



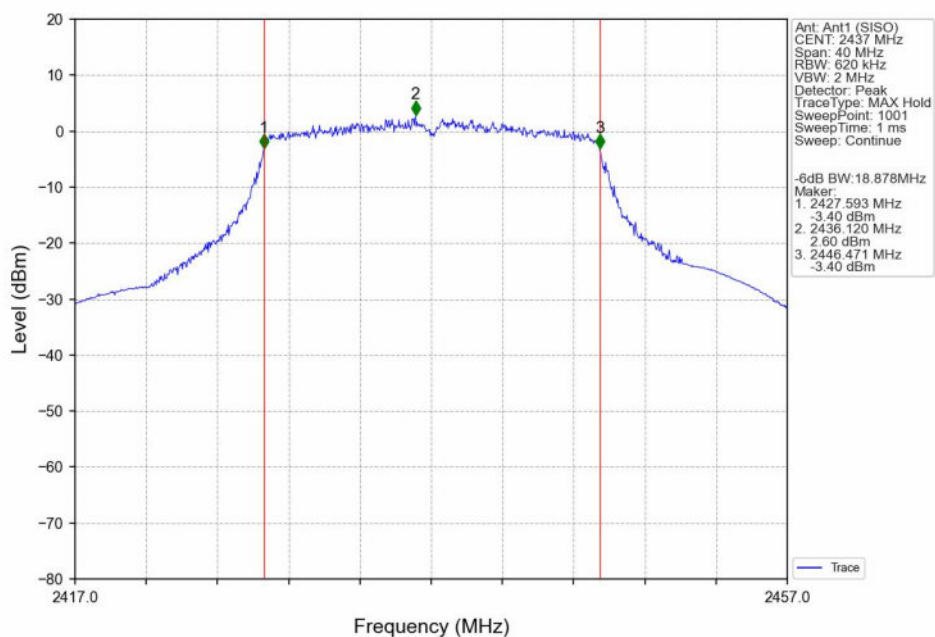
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



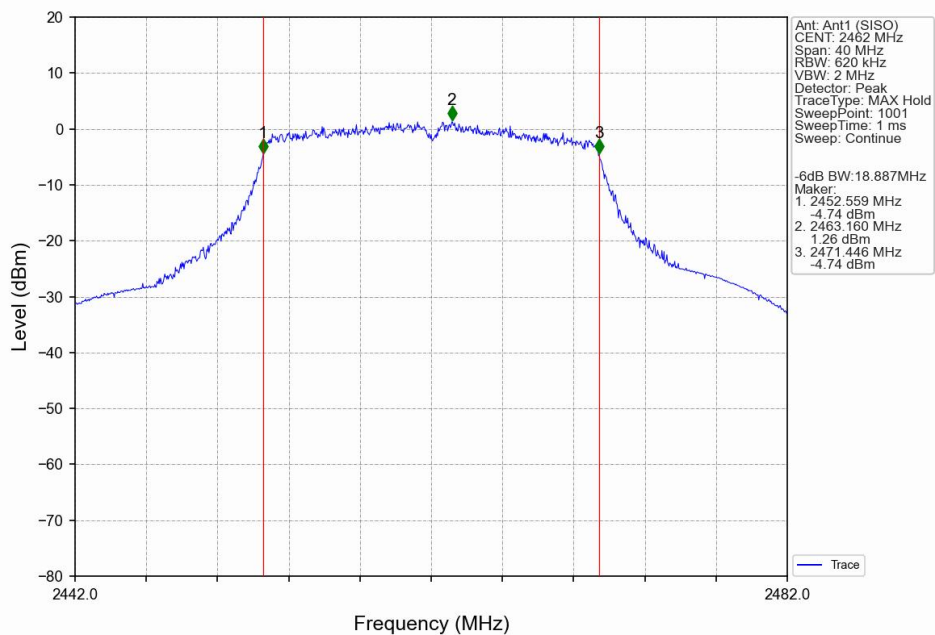
802.11ax(HEW20) LCH 2412MHz_SU / Ant1 (SISO) NTNv



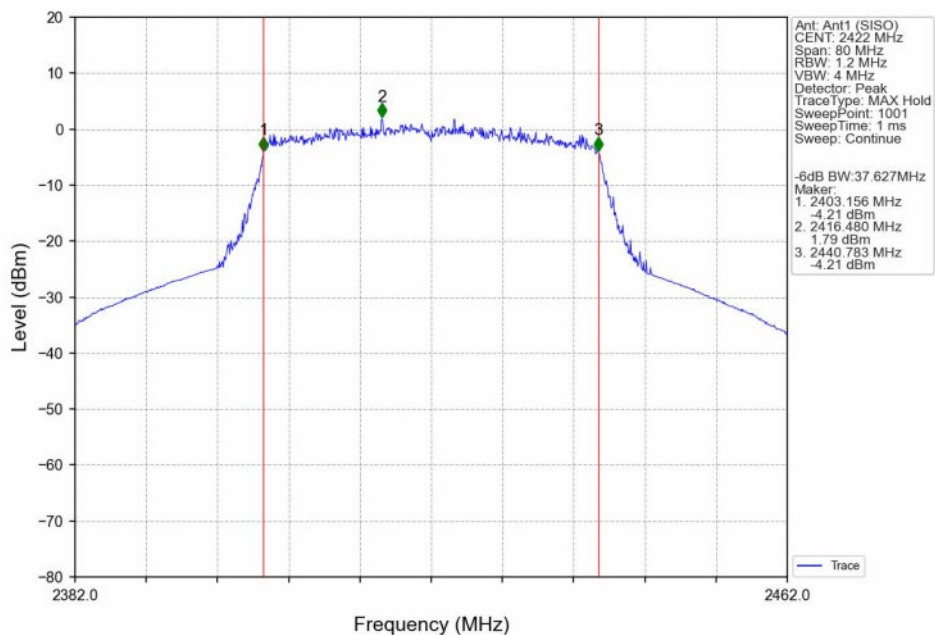
802.11ax(HEW20) MCH 2437MHz_SU / Ant1 (SISO) NTNv



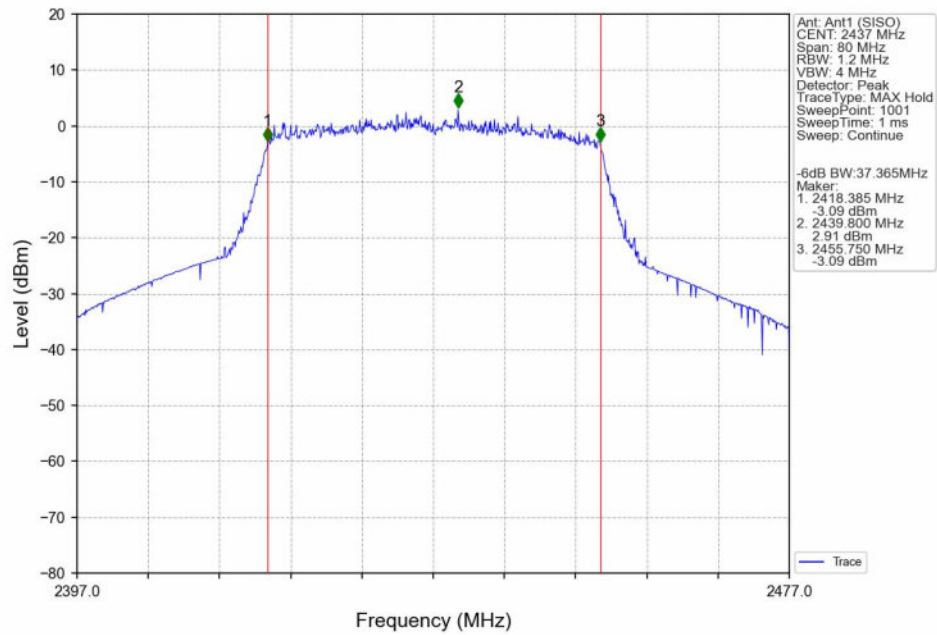
802.11ax(HEW20) HCH 2462MHz_SU / Ant1 (SISO) NTNv



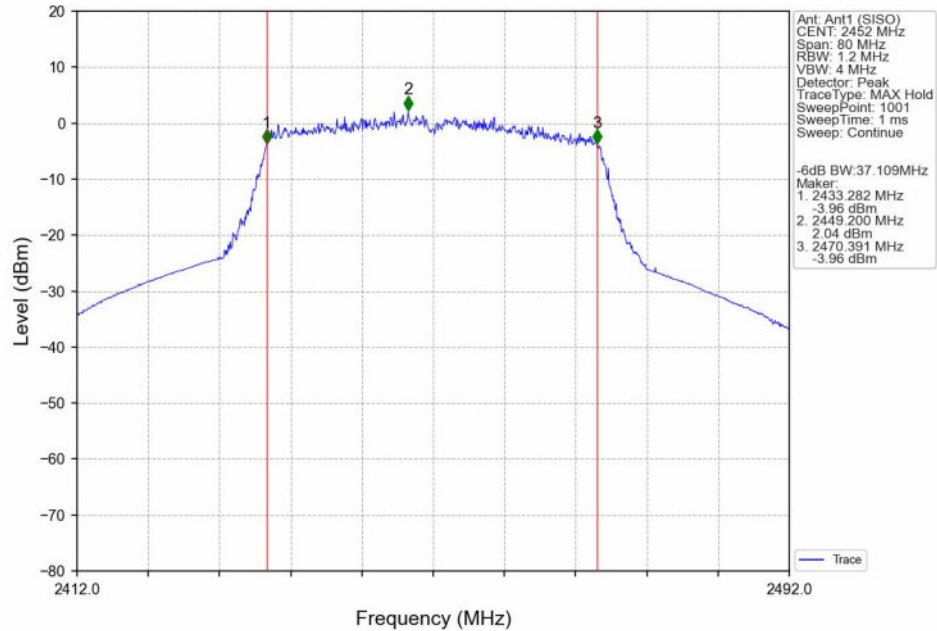
802.11ax(HEW40) LCH 2422MHz_SU / Ant1 (SISO) NTNv



802.11ax(HEW40)_MCH_2437MHz_SU / _Ant1 (SISO)_NTNV



802.11ax(HEW40)_HCH_2452MHz_SU / _Ant1 (SISO)_NTNV



2. Maximum Conducted Output Power

2.1 Test Result

2.1.1 Power

Mode	TX Type	Frequency (MHz)	RU	RU Pos	Maximum Peak Conducted Output Power (dBm)		Verdict
					ANT1	Limit	
802.11b	SISO	2412	/	/	12.33	<=30	Pass
		2437	/	/	12.41	<=30	Pass
		2462	/	/	11.27	<=30	Pass
802.11g	SISO	2412	/	/	12.06	<=30	Pass
		2437	/	/	13.17	<=30	Pass
		2462	/	/	12.16	<=30	Pass
802.11n (HT20)	SISO	2412	/	/	12.18	<=30	Pass
		2437	/	/	13.20	<=30	Pass
		2462	/	/	12.28	<=30	Pass
802.11n (HT40)	SISO	2422	/	/	12.32	<=30	Pass
		2437	/	/	13.33	<=30	Pass
		2452	/	/	12.69	<=30	Pass
802.11ax (HEW20)	SISO	2412	SU	/	12.74	<=30	Pass
		2437	SU	/	13.32	<=30	Pass
		2462	SU	/	12.39	<=30	Pass
802.11ax (HEW40)	SISO	2422	SU	/	12.76	<=30	Pass
		2437	SU	/	13.66	<=30	Pass
		2452	SU	/	13.11	<=30	Pass

Note1: Antenna Gain: Ant1: 3.00dBi;

3. Maximum Power Spectral Density

3.1 Test Result

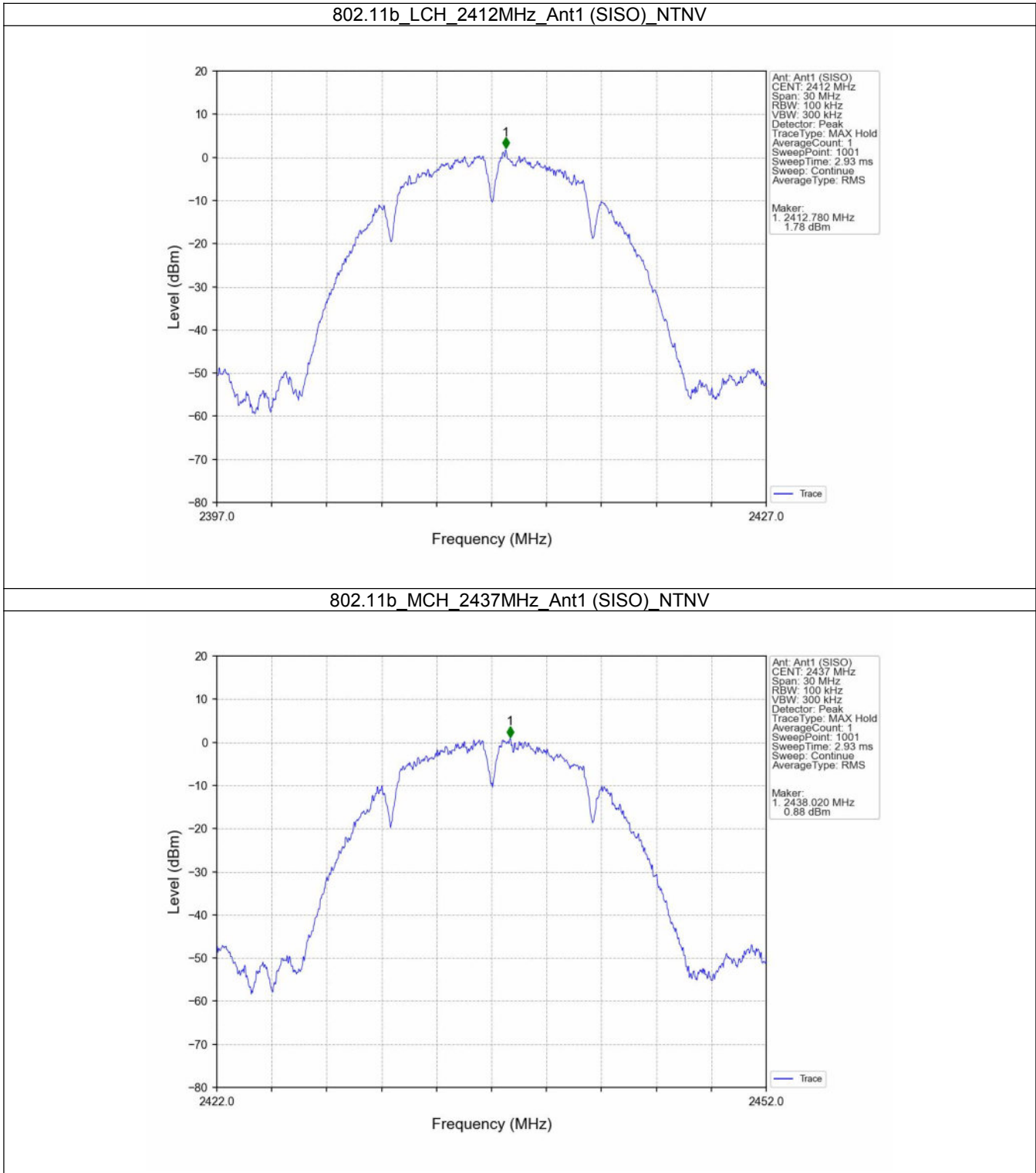
3.1.1 PSD

Mode	TX Type	Frequency (MHz)	RU	RU Pos	Maximum PSD		Verdict
					ANT1 (dBm/100kHz)	Limit (dBm/3kHz)	
802.11b	SISO	2412	/	/	1.78	<=8	Pass
		2437	/	/	0.88	<=8	Pass
		2462	/	/	-0.33	<=8	Pass
802.11g	SISO	2412	/	/	-6.80	<=8	Pass
		2437	/	/	-5.34	<=8	Pass
		2462	/	/	-6.57	<=8	Pass
802.11n (HT20)	SISO	2412	/	/	-6.33	<=8	Pass
		2437	/	/	-5.72	<=8	Pass
		2462	/	/	-6.85	<=8	Pass
802.11n (HT40)	SISO	2422	/	/	-9.26	<=8	Pass
		2437	/	/	-8.55	<=8	Pass
		2452	/	/	-8.75	<=8	Pass
802.11ax (HEW20)	SISO	2412	SU	/	-7.38	<=8	Pass
		2437	SU	/	-7.15	<=8	Pass
		2462	SU	/	-7.80	<=8	Pass
802.11ax (HEW40)	SISO	2422	SU	/	-10.58	<=8	Pass
		2437	SU	/	-9.98	<=8	Pass
		2452	SU	/	-10.43	<=8	Pass

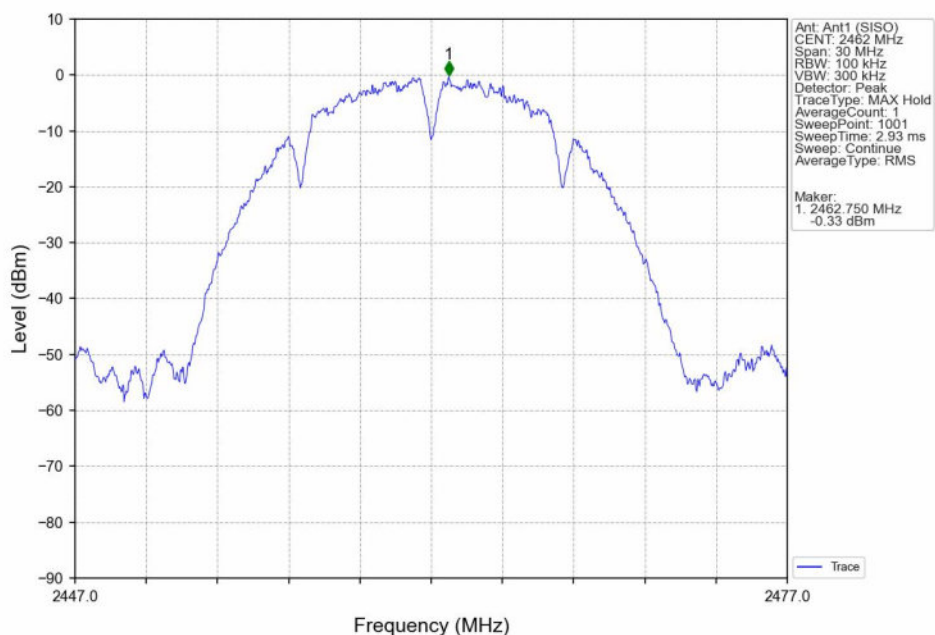
Note1: Antenna Gain: Ant1: 3.00dBi;

3.2 Test Graph

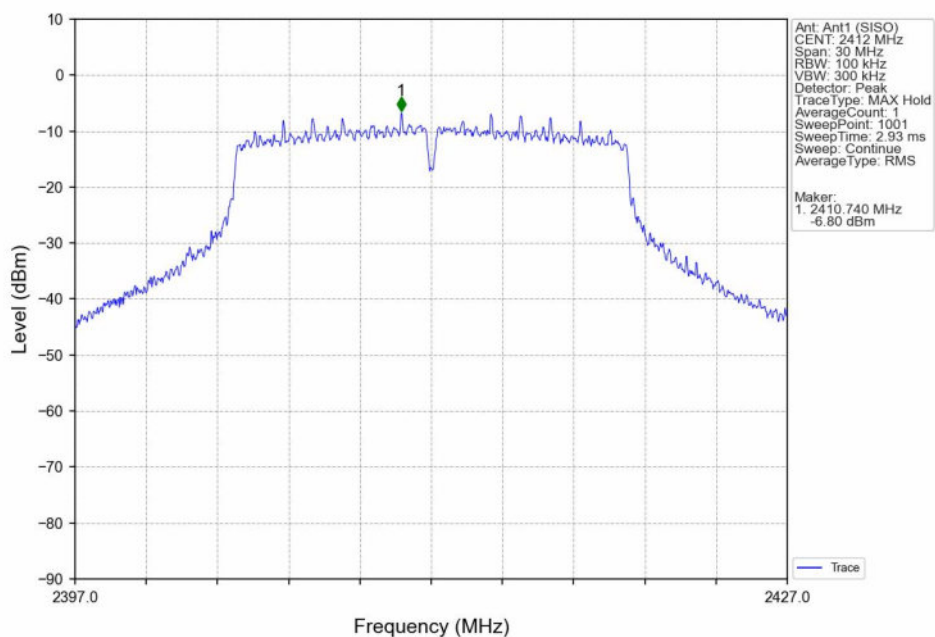
3.2.1 PSD



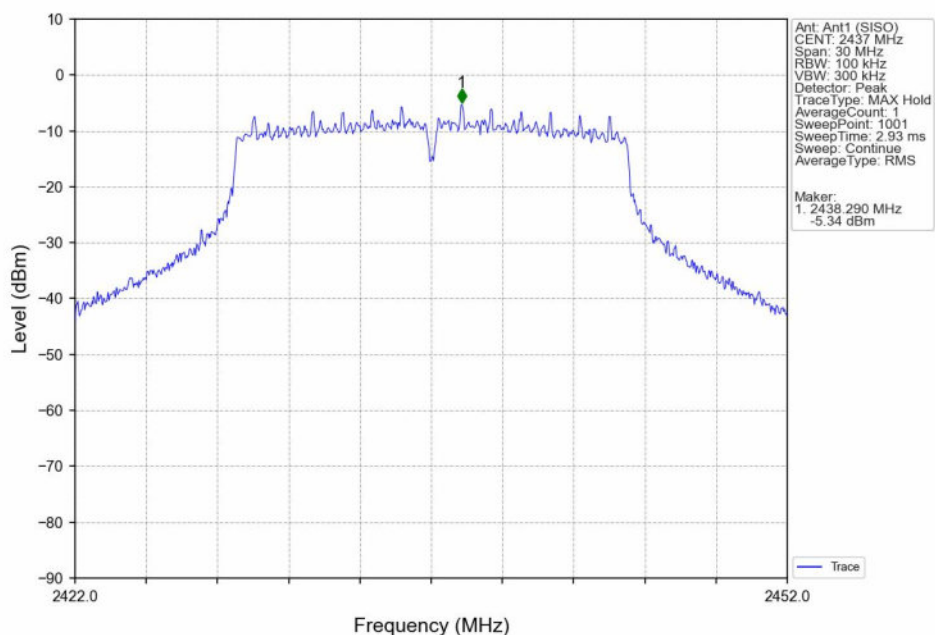
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



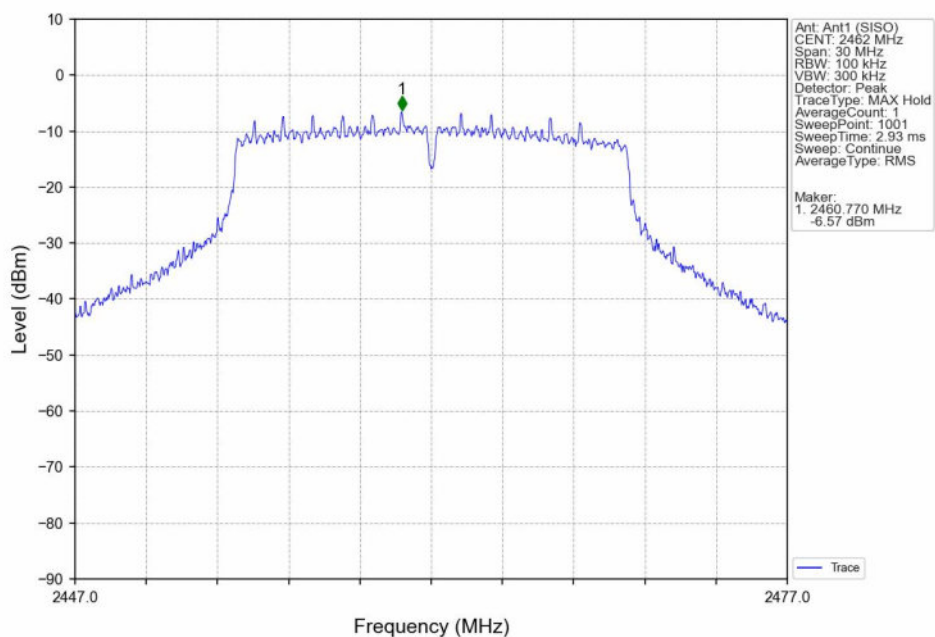
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



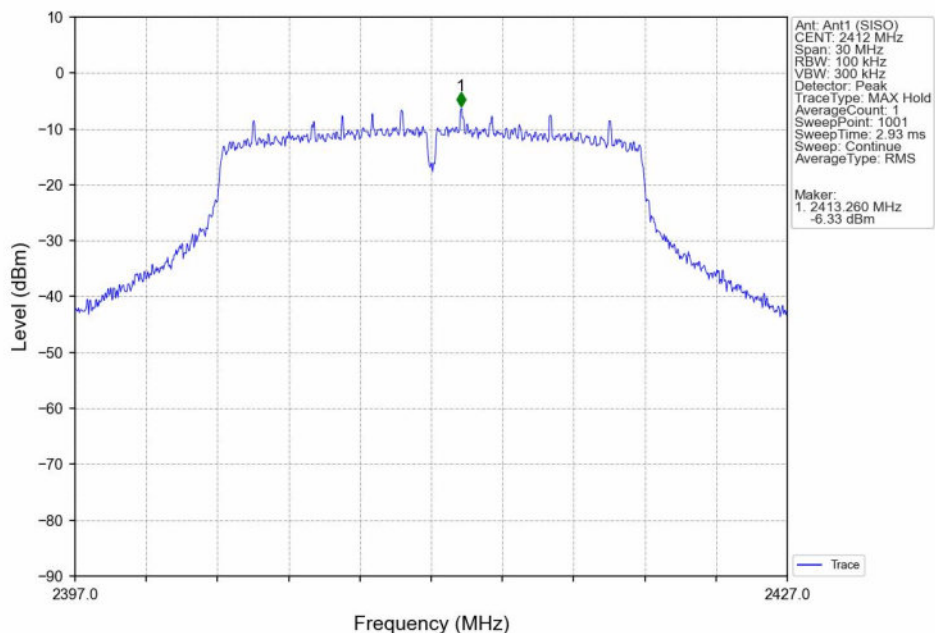
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



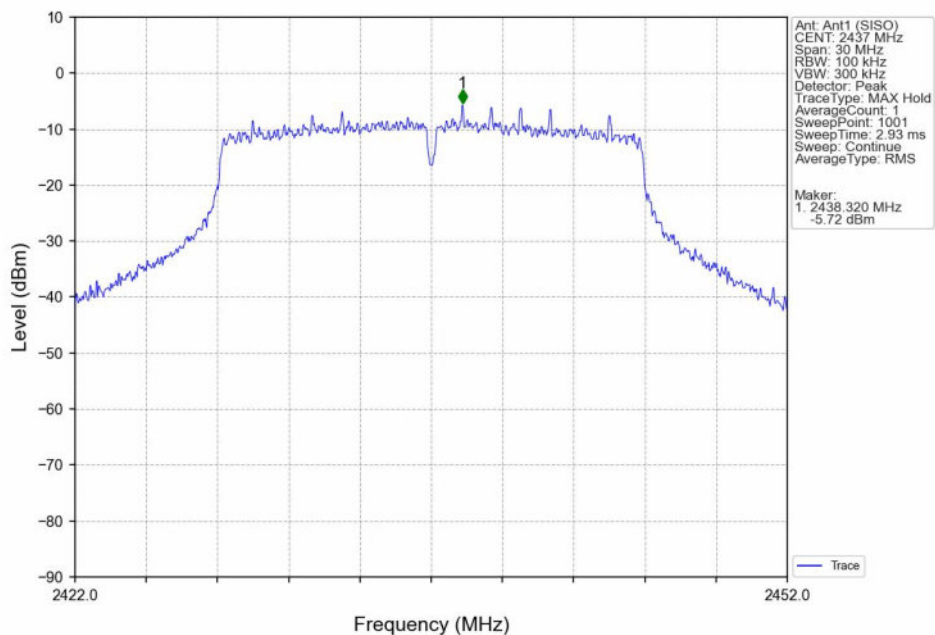
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



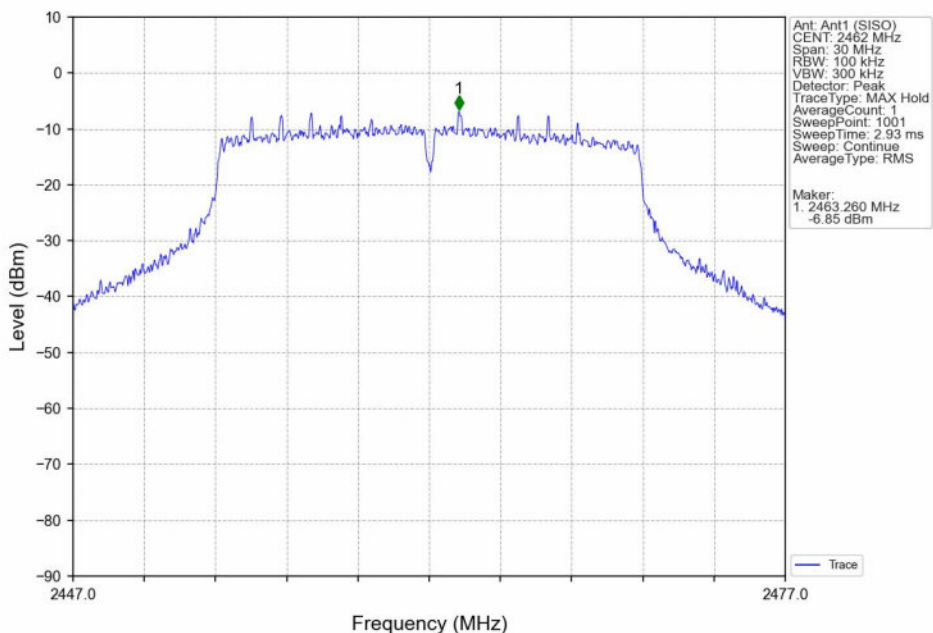
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



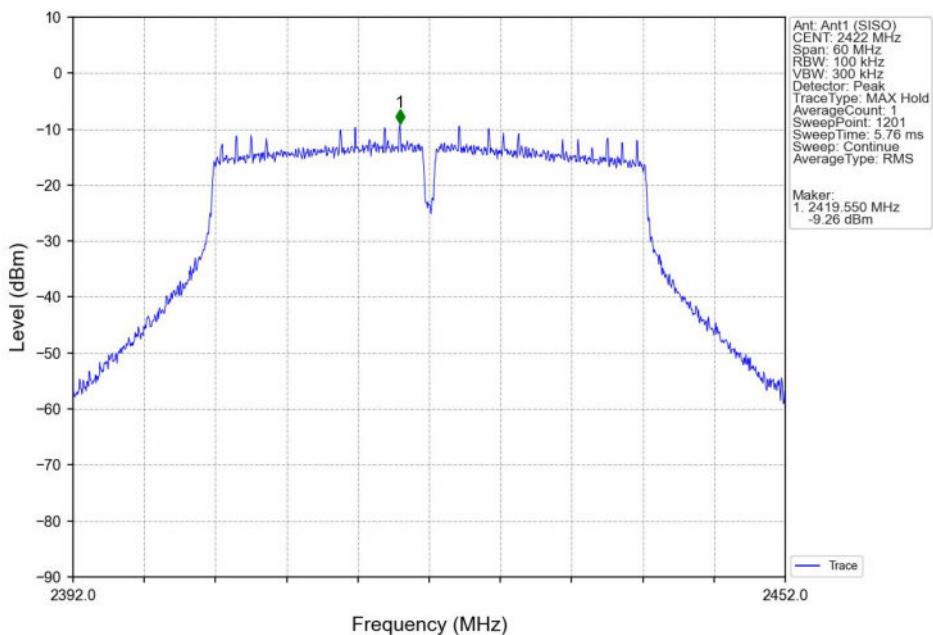
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



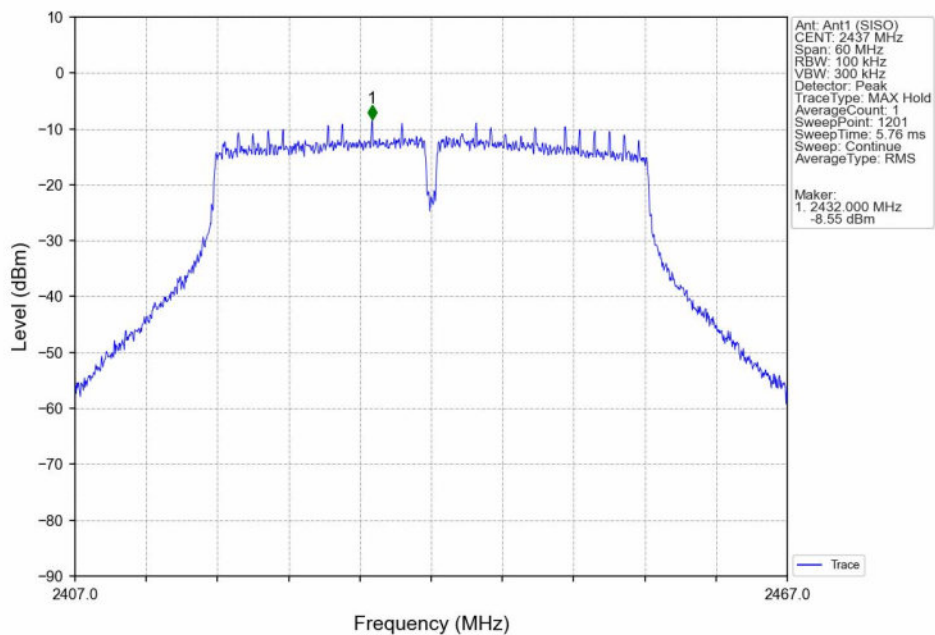
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



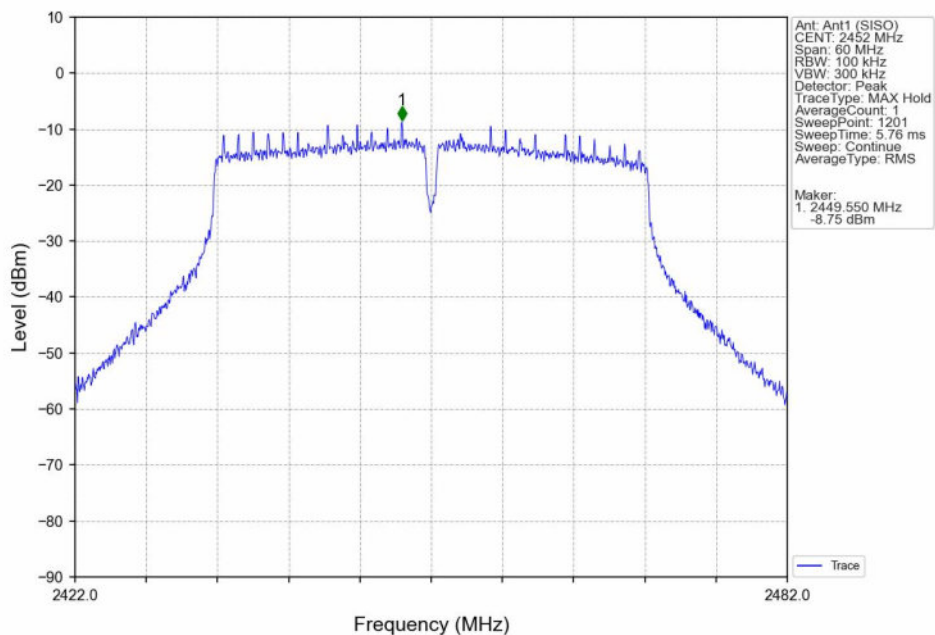
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



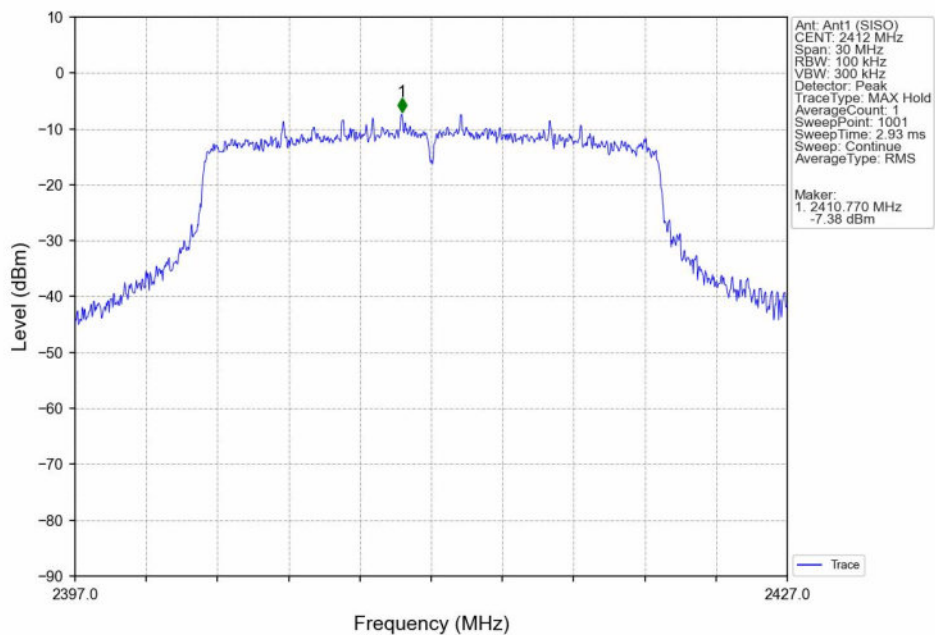
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



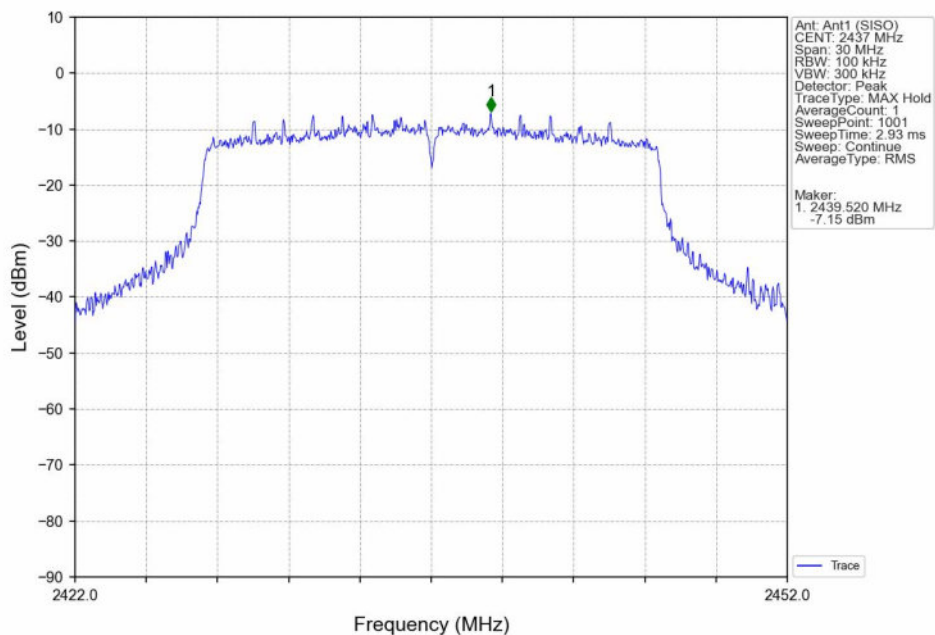
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



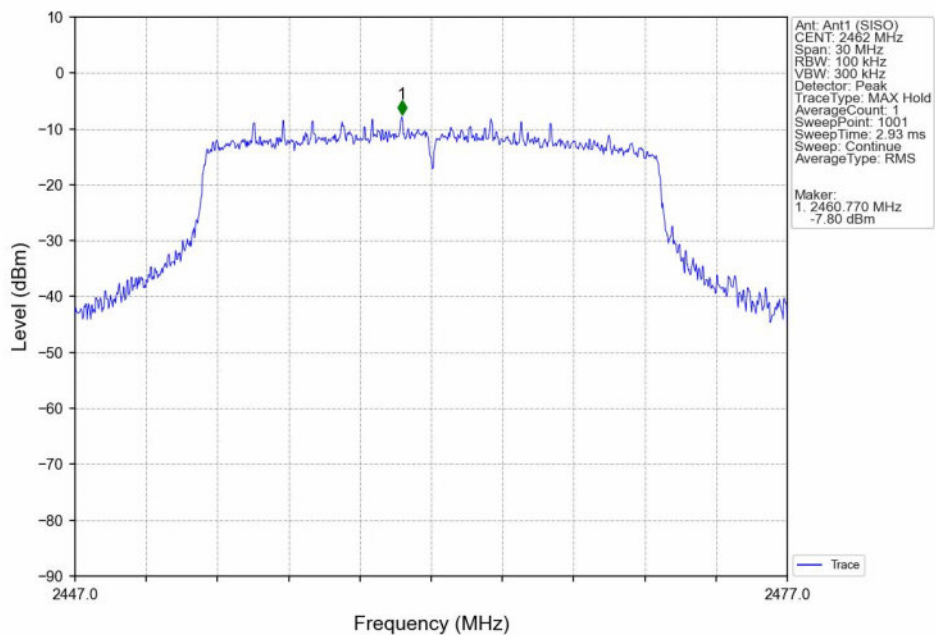
802.11ax(HEW20) LCH 2412MHz_SU / _Ant1 (SISO) NTNv



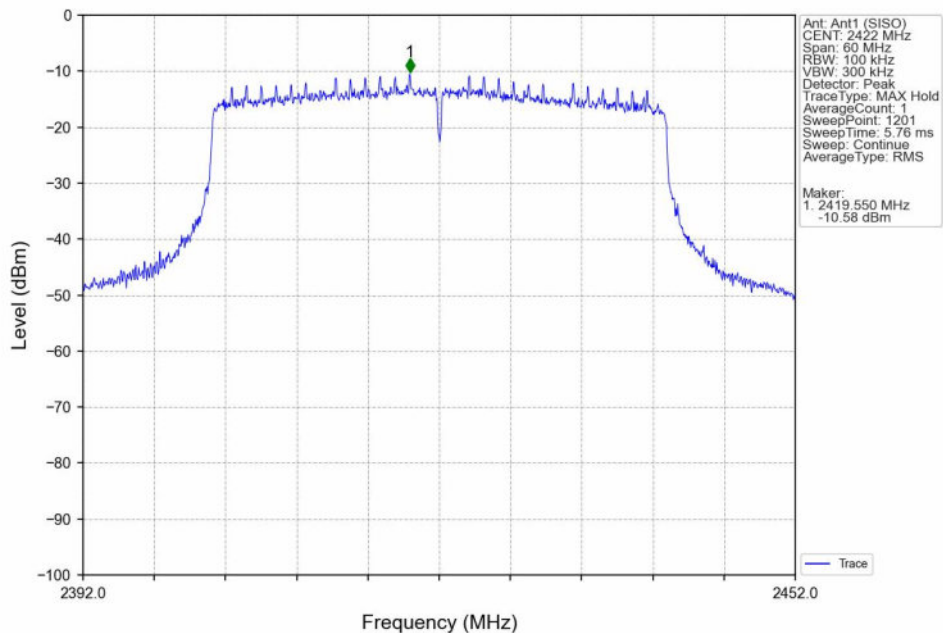
802.11ax(HEW20) MCH 2437MHz_SU / _Ant1 (SISO) NTNv



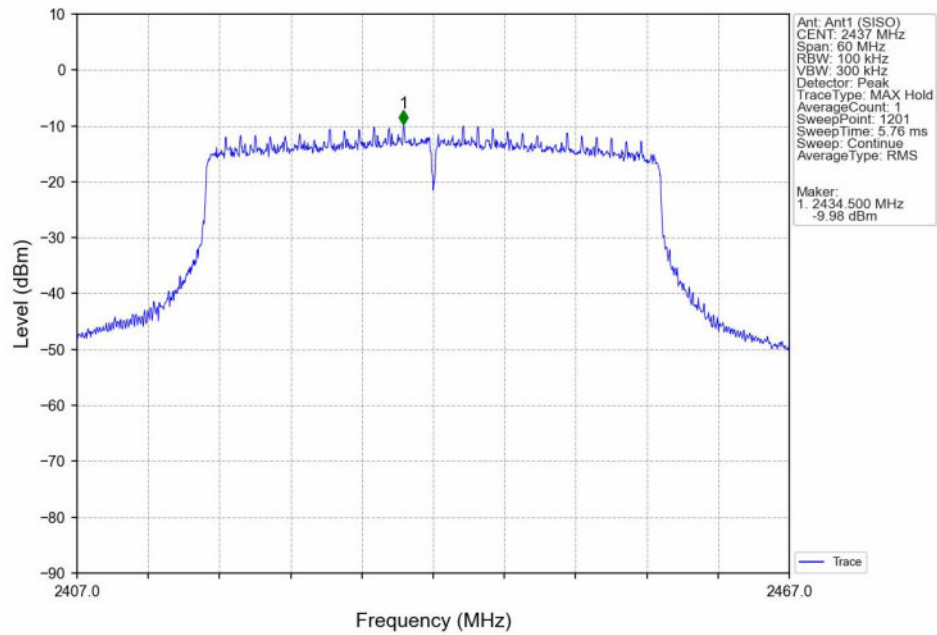
802.11ax(HEW20) HCH 2462MHz_SU / Ant1 (SISO) NTNv



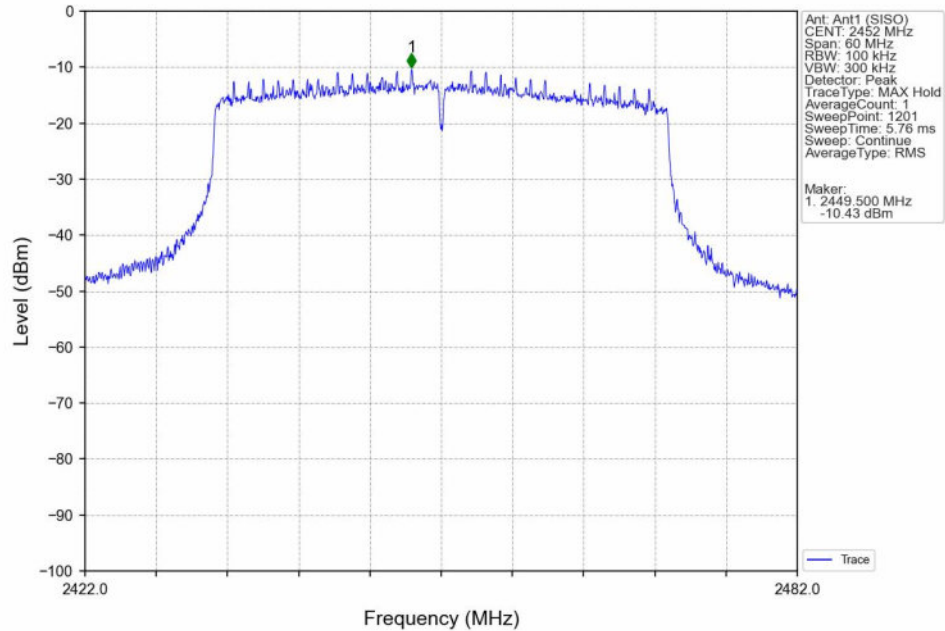
802.11ax(HEW40) LCH 2422MHz_SU / Ant1 (SISO) NTNv



802.11ax(HEW40)_MCH_2437MHz_SU / _Ant1 (SISO)_NTNV



802.11ax(HEW40)_HCH_2452MHz_SU / _Ant1 (SISO)_NTNV



4. Unwanted Emissions In Non-restricted Frequency Bands

4.1 Test Result

4.1.1 Ref

Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	Level of Reference (dBm)
802.11b	SISO	2412	/	/	1	1.00
		2437	/	/	1	0.63
		2462	/	/	1	-0.24
802.11g	SISO	2412	/	/	1	-6.22
		2437	/	/	1	-5.30
		2462	/	/	1	-6.75
802.11n (HT20)	SISO	2412	/	/	1	-6.63
		2437	/	/	1	-5.74
		2462	/	/	1	-7.06
802.11n (HT40)	SISO	2422	/	/	1	-9.10
		2437	/	/	1	-8.44
		2452	/	/	1	-8.60
802.11ax (HEW20)	SISO	2412	SU	/	1	-7.58
		2437	SU	/	1	-6.34
		2462	SU	/	1	-8.18
802.11ax (HEW40)	SISO	2422	SU	/	1	-10.61
		2437	SU	/	1	-10.33
		2452	SU	/	1	-10.80

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

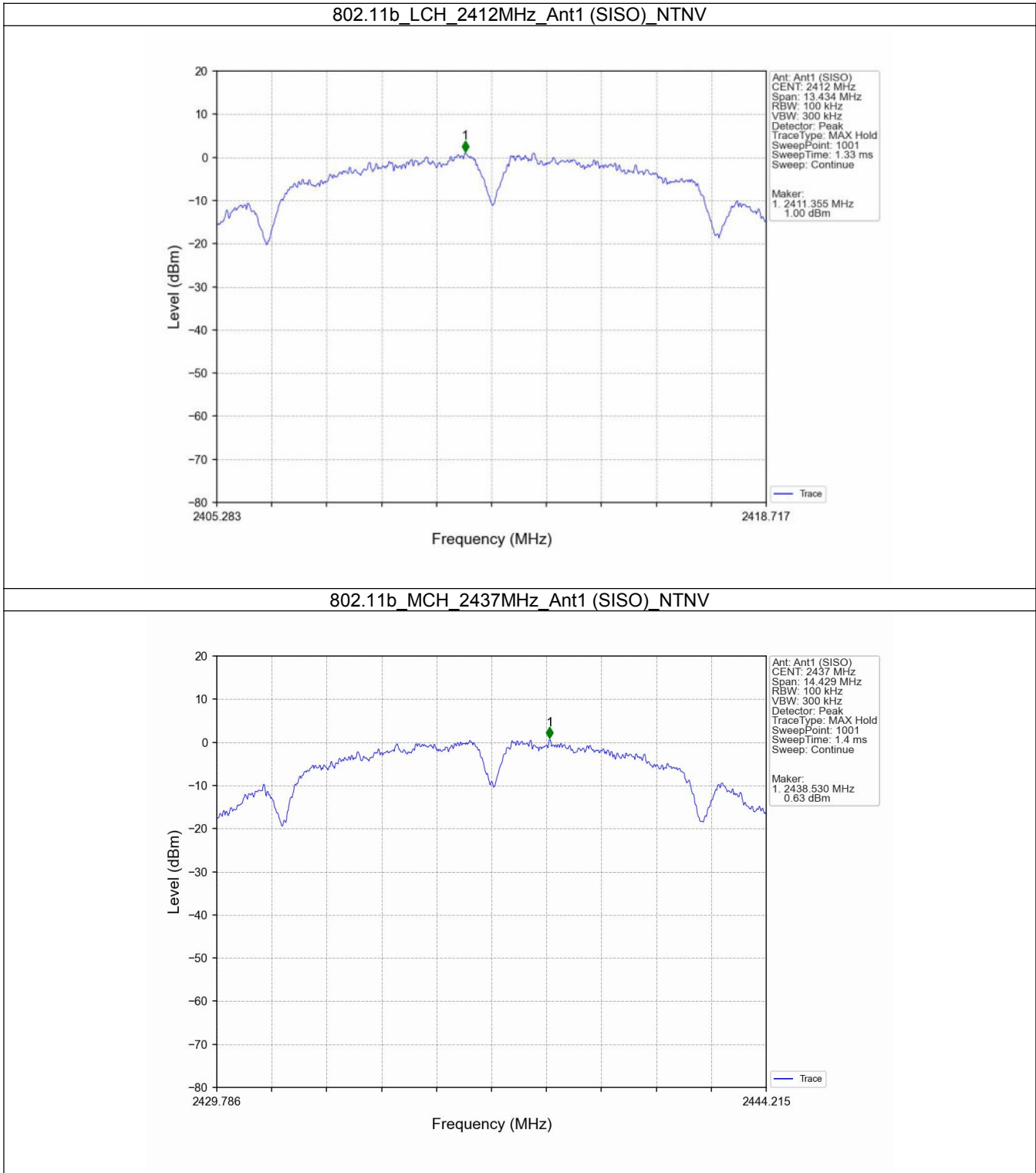
4.1.2 CSE

Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	/	/	1	1.00	-19.00	Pass
		2437	/	/	1	1.00	-19.00	Pass
		2462	/	/	1	1.00	-19.00	Pass
802.11g	SISO	2412	/	/	1	-5.30	-25.30	Pass
		2437	/	/	1	-5.30	-25.30	Pass
		2462	/	/	1	-5.30	-25.30	Pass
802.11n (HT20)	SISO	2412	/	/	1	-5.74	-25.74	Pass
		2437	/	/	1	-5.74	-25.74	Pass
		2462	/	/	1	-5.74	-25.74	Pass
802.11n (HT40)	SISO	2422	/	/	1	-8.44	-28.44	Pass
		2437	/	/	1	-8.44	-28.44	Pass
		2452	/	/	1	-8.44	-28.44	Pass
802.11ax (HEW20)	SISO	2412	SU	/	1	-6.34	-26.34	Pass
		2437	SU	/	1	-6.34	-26.34	Pass
		2462	SU	/	1	-6.34	-26.34	Pass
802.11ax (HEW40)	SISO	2422	SU	/	1	-10.33	-30.33	Pass
		2437	SU	/	1	-10.33	-30.33	Pass
		2452	SU	/	1	-10.33	-30.33	Pass

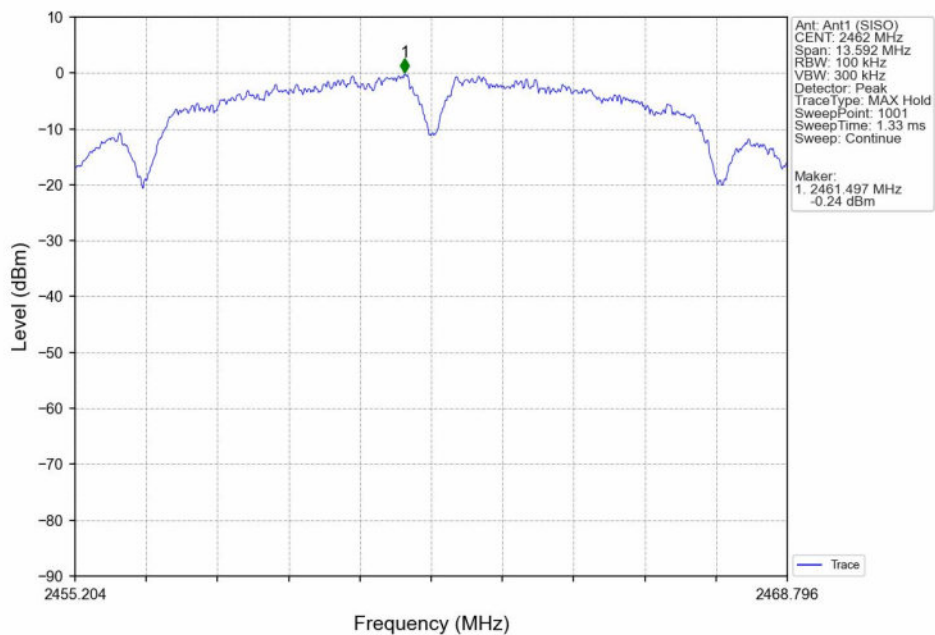
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

4.2 Test Graph

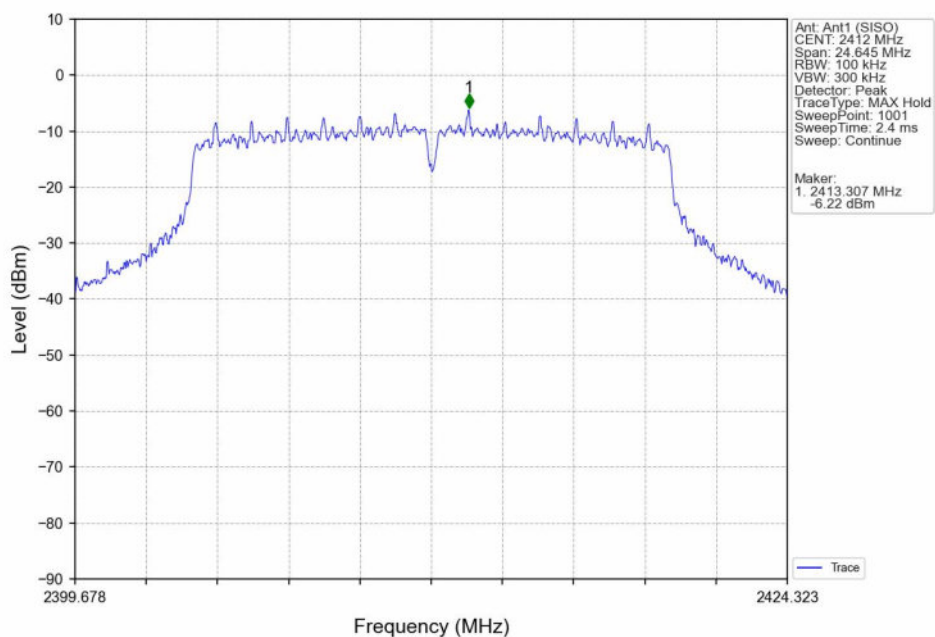
4.2.1 Ref



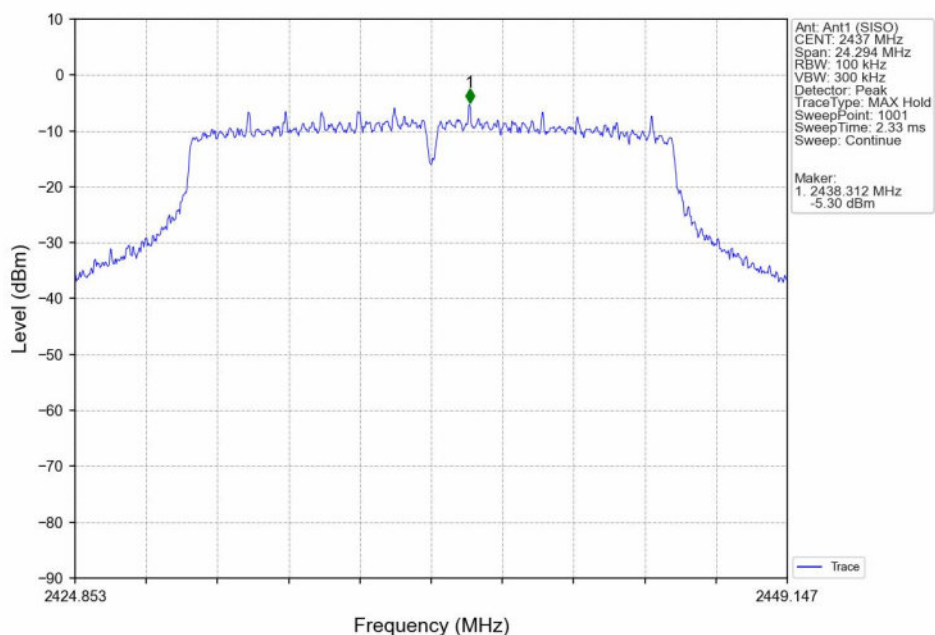
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



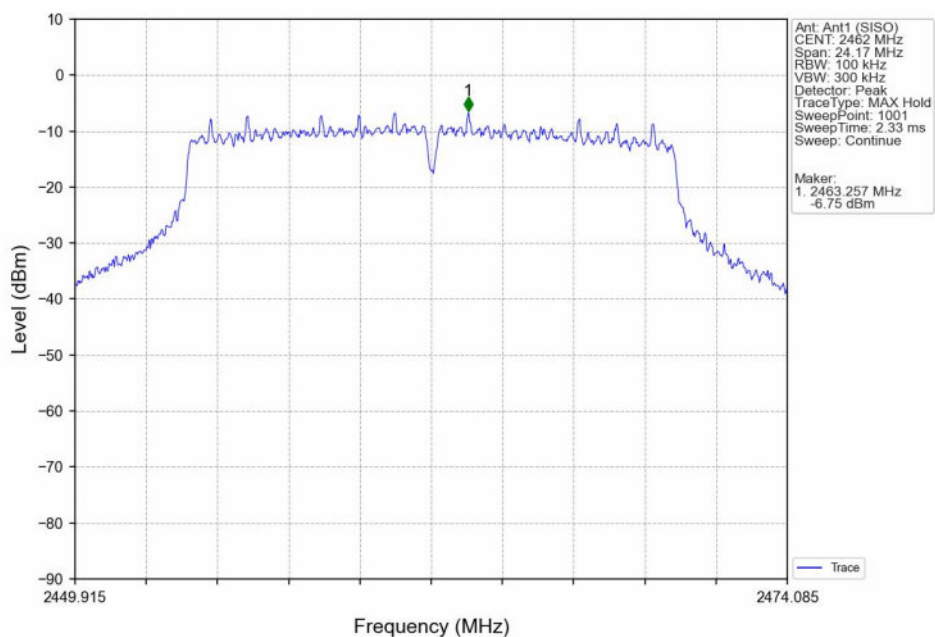
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



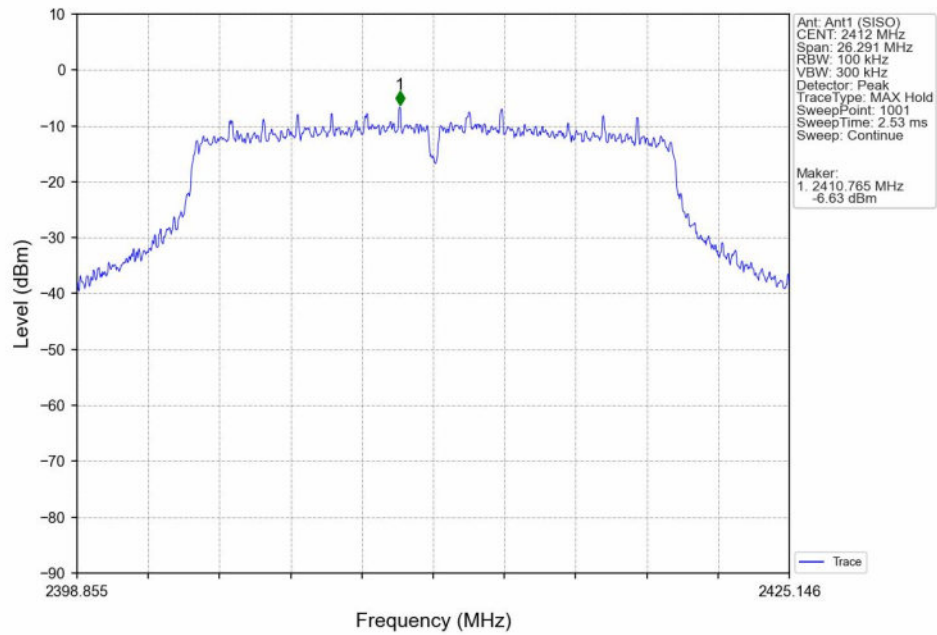
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



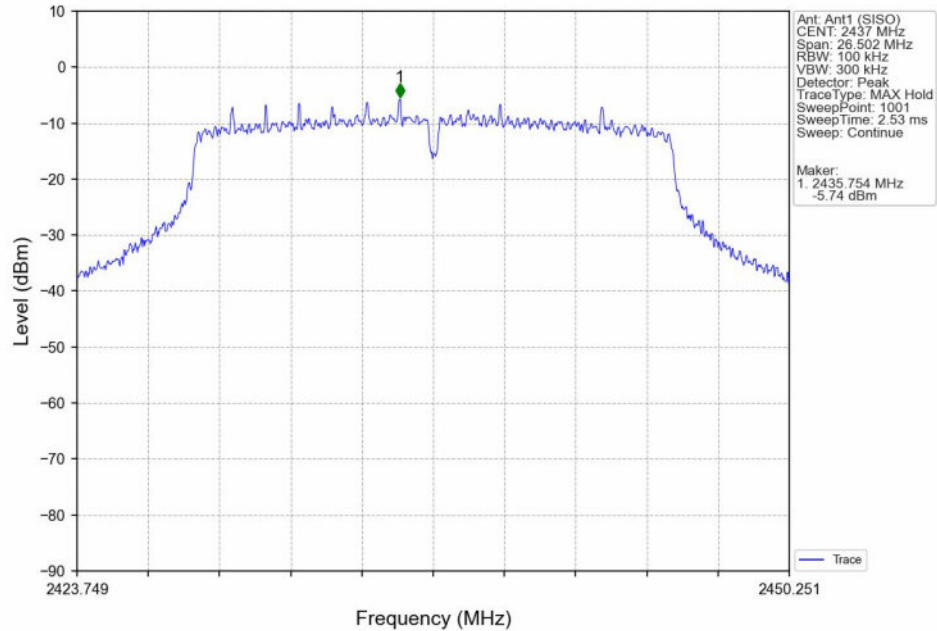
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



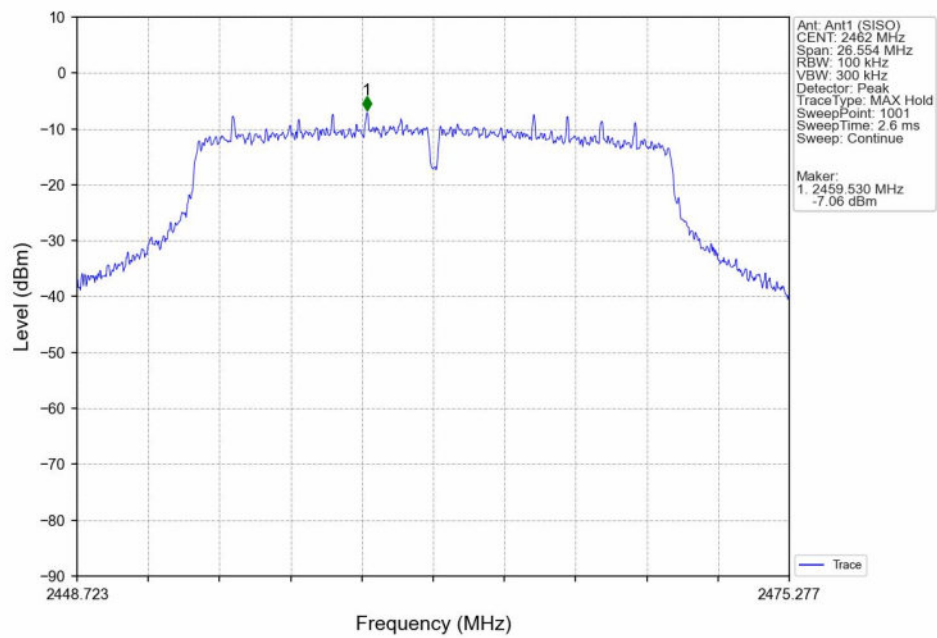
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



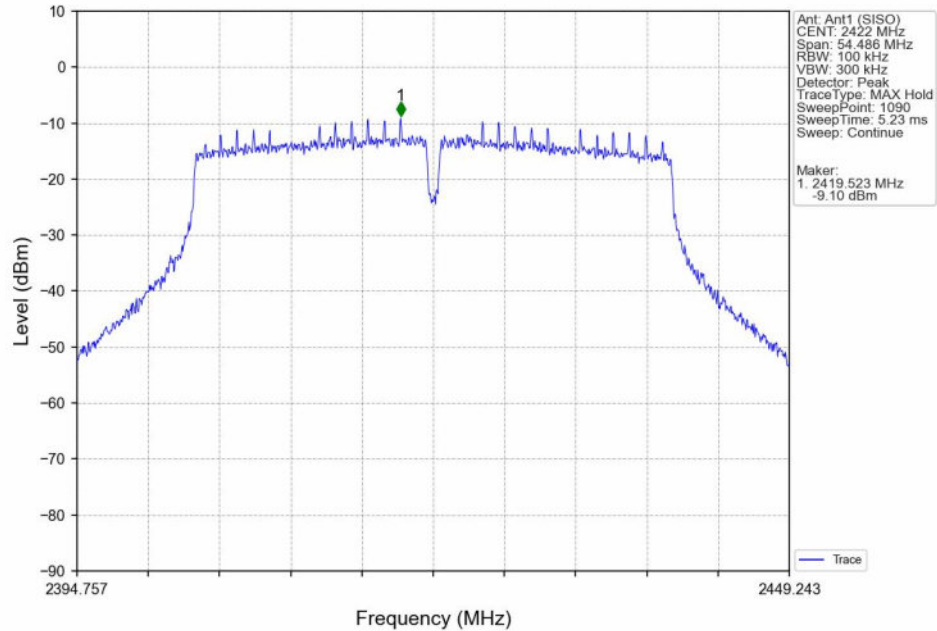
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



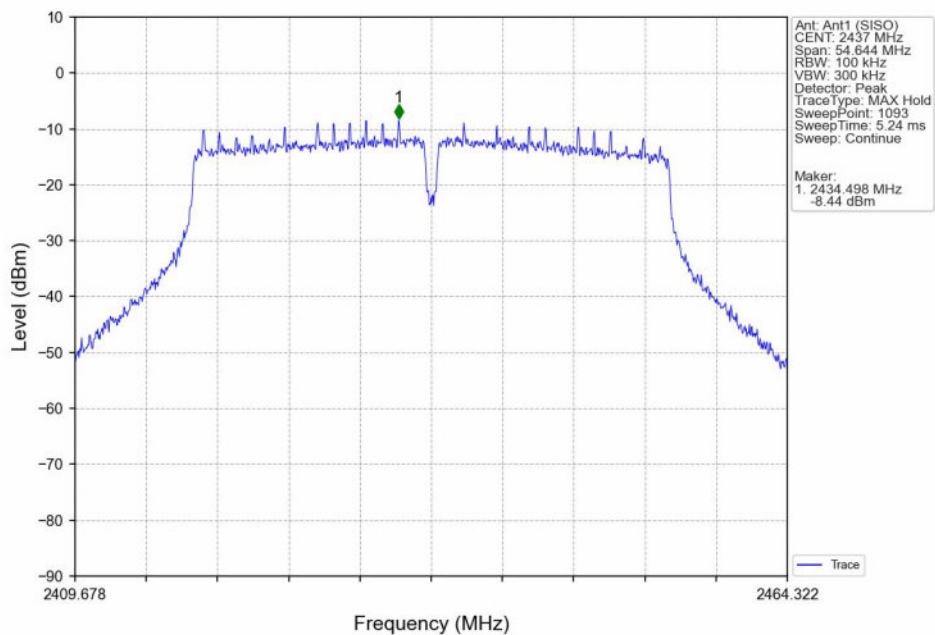
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



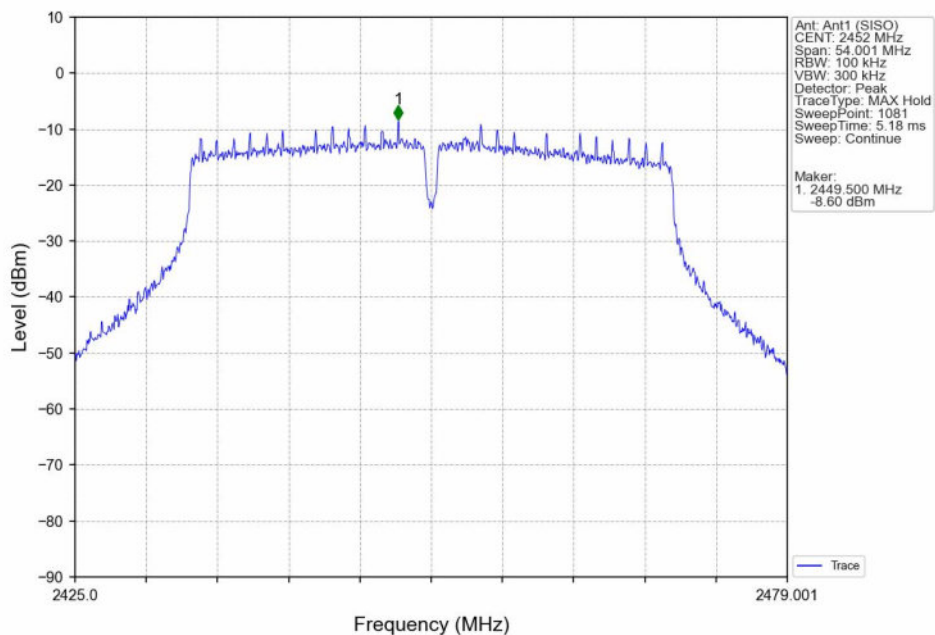
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



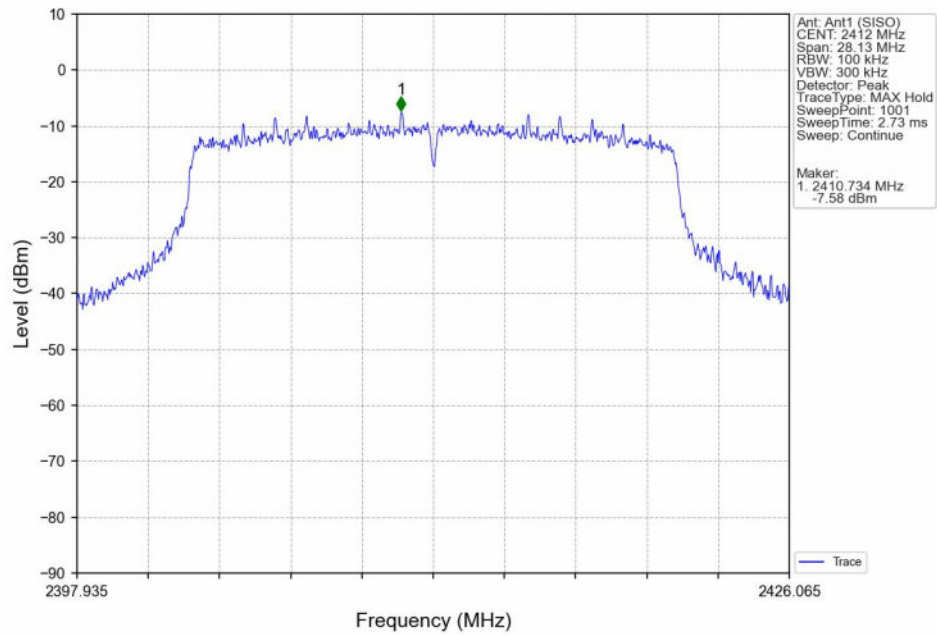
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



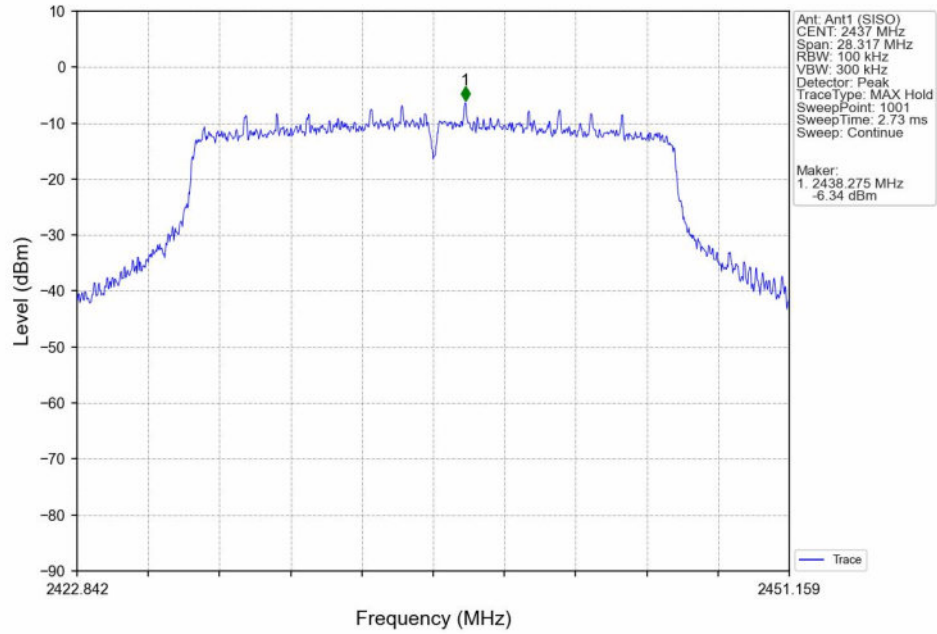
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



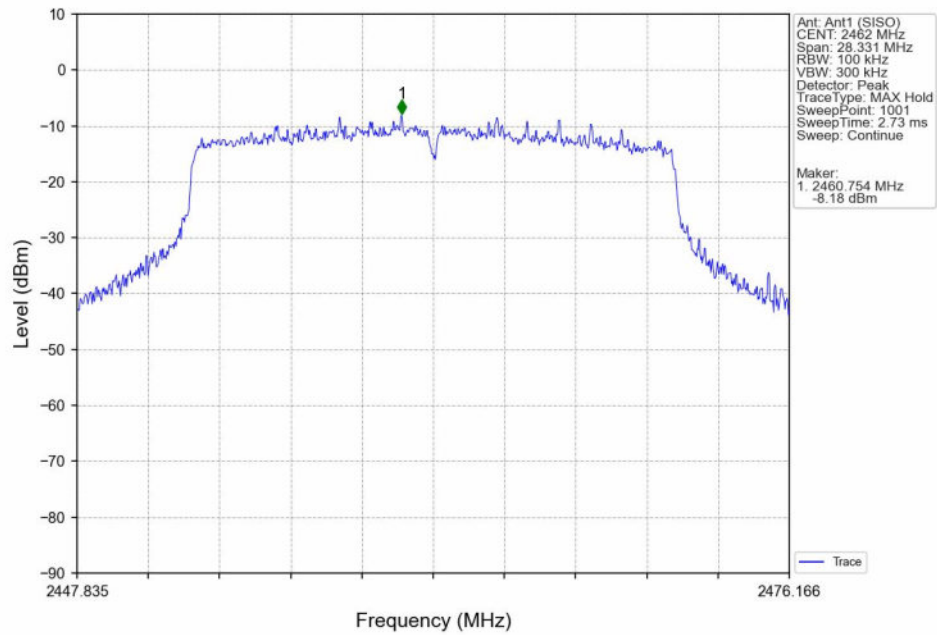
802.11ax(HEW20)_LCH_2412MHz_SU_/_Ant1 (SISO)_NTNV



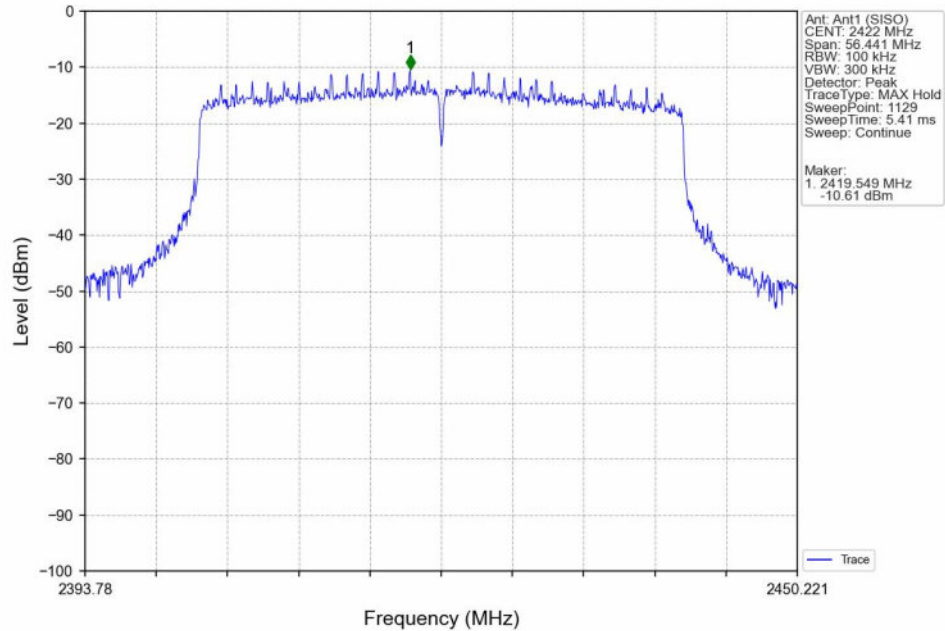
802.11ax(HEW20)_MCH_2437MHz_SU_/_Ant1 (SISO)_NTNV



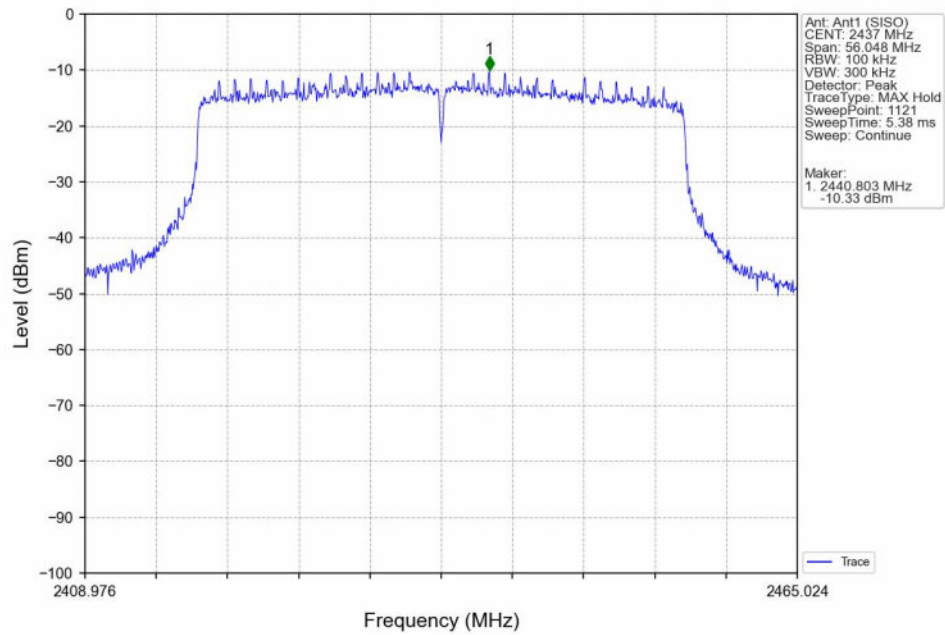
802.11ax(HEW20) HCH 2462MHz_SU / Ant1 (SISO) NTNv



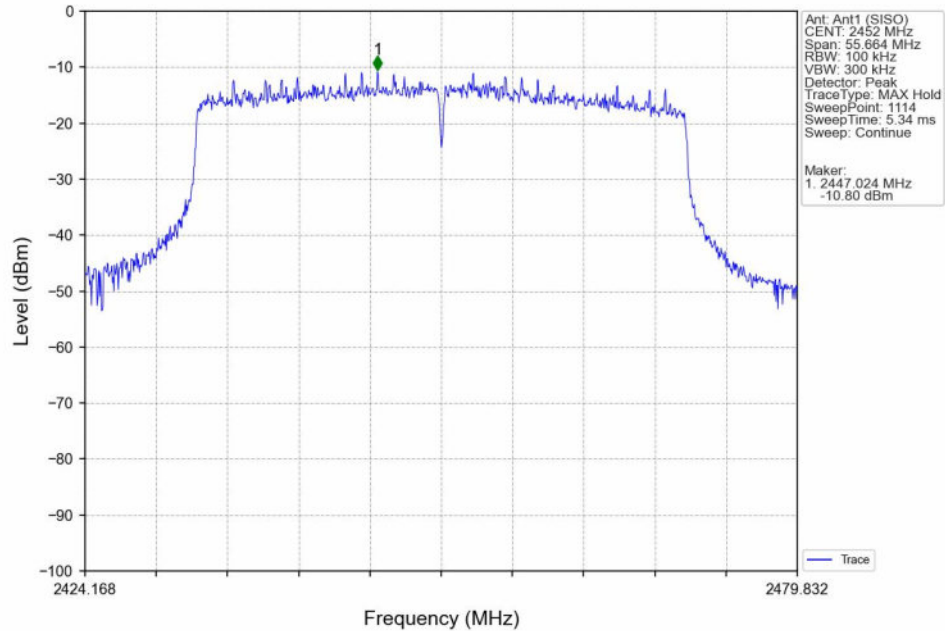
802.11ax(HEW40) LCH 2422MHz_SU / Ant1 (SISO) NTNv



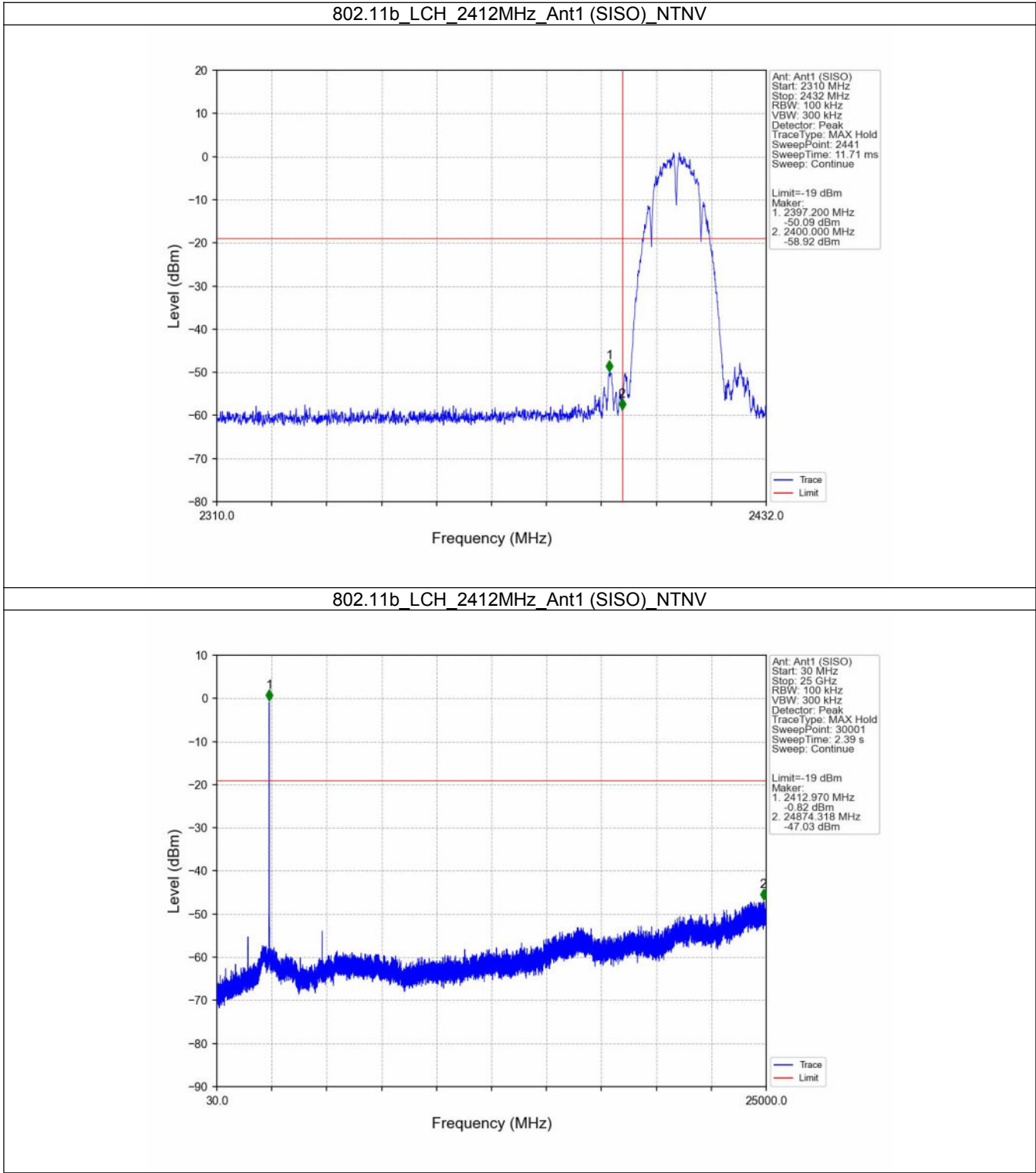
802.11ax(HEW40)_MCH_2437MHz_SU / _Ant1 (SISO)_NTNV

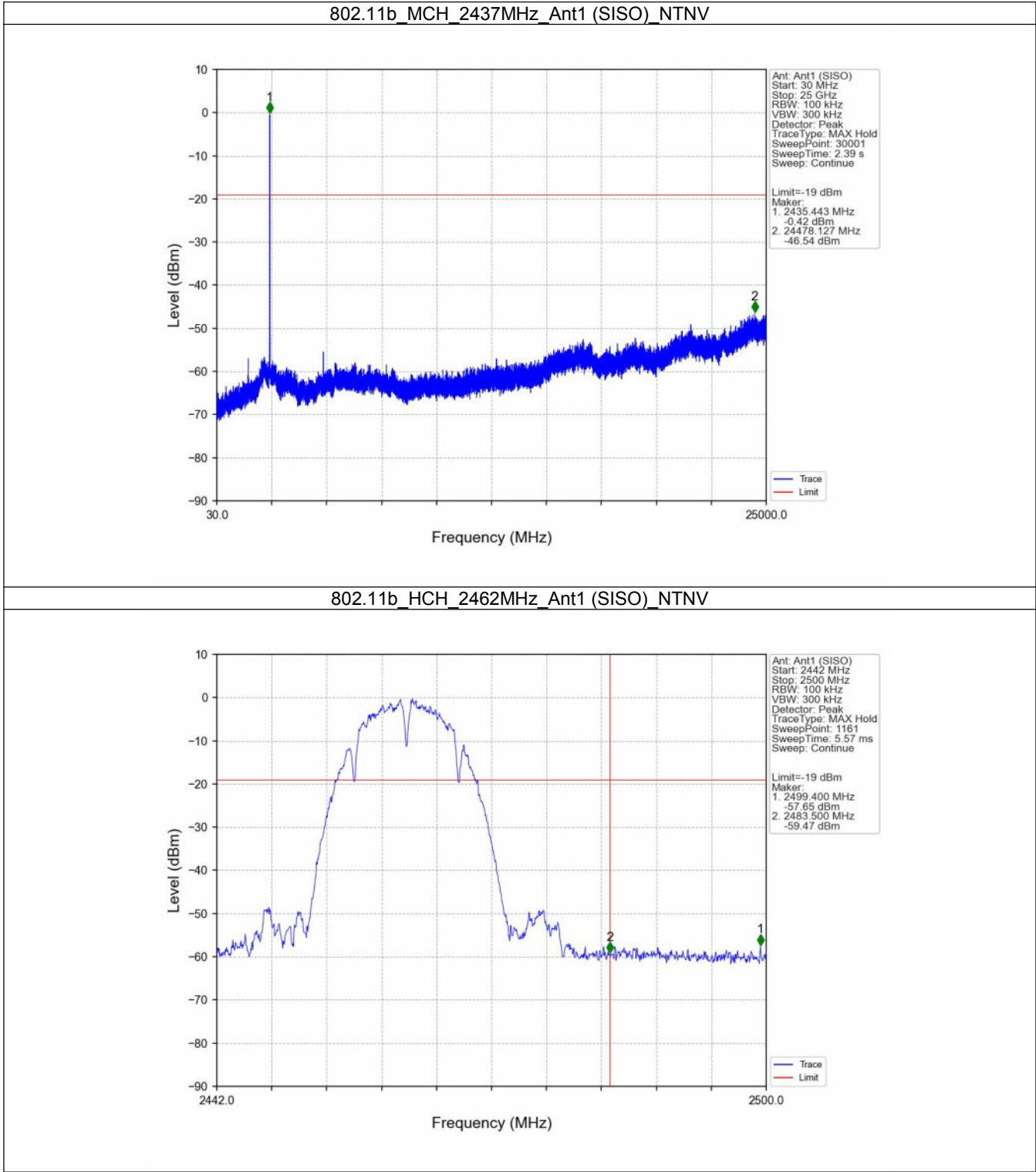


802.11ax(HEW40)_HCH_2452MHz_SU / _Ant1 (SISO)_NTNV

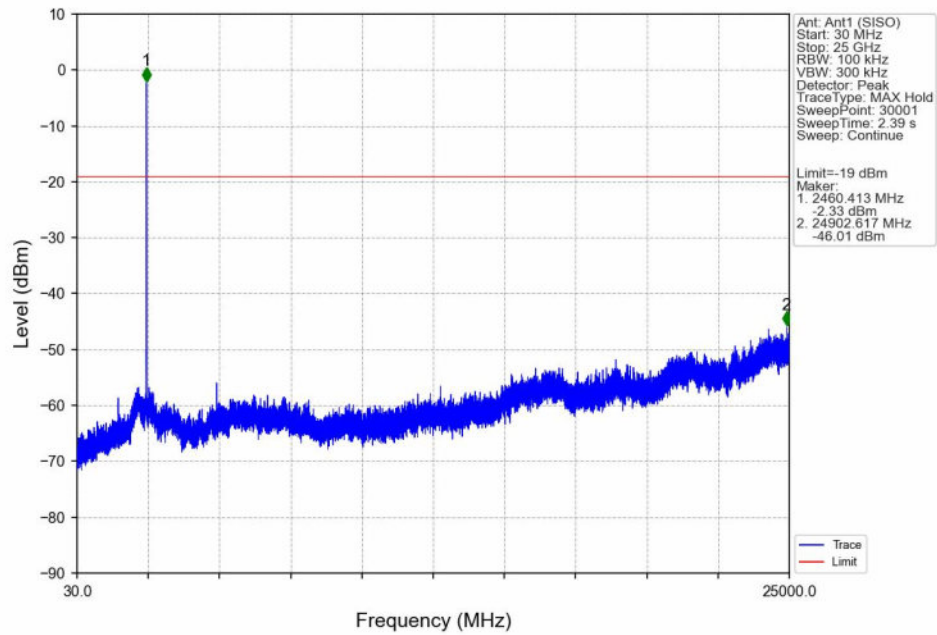


4.2.2 CSE

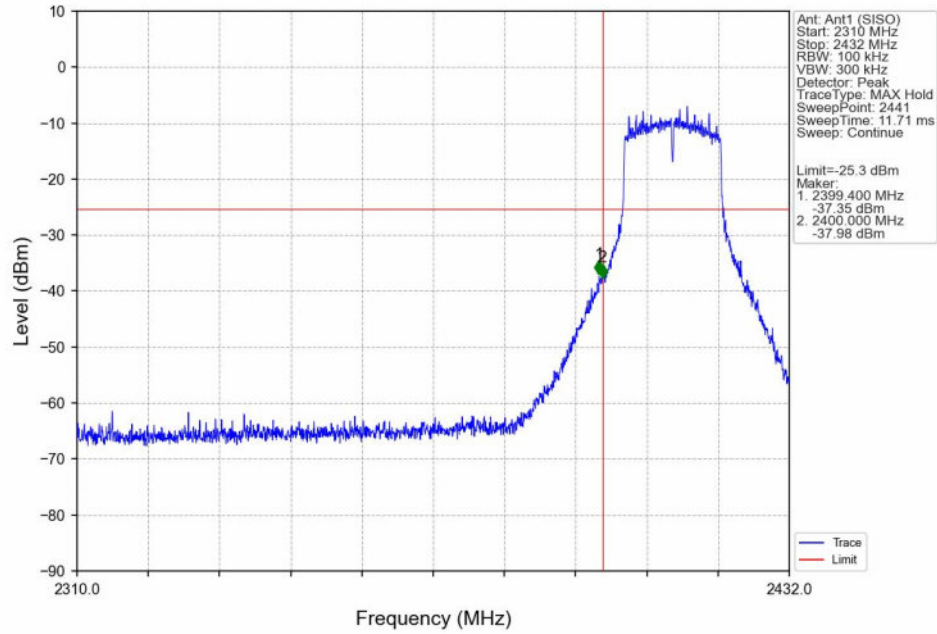




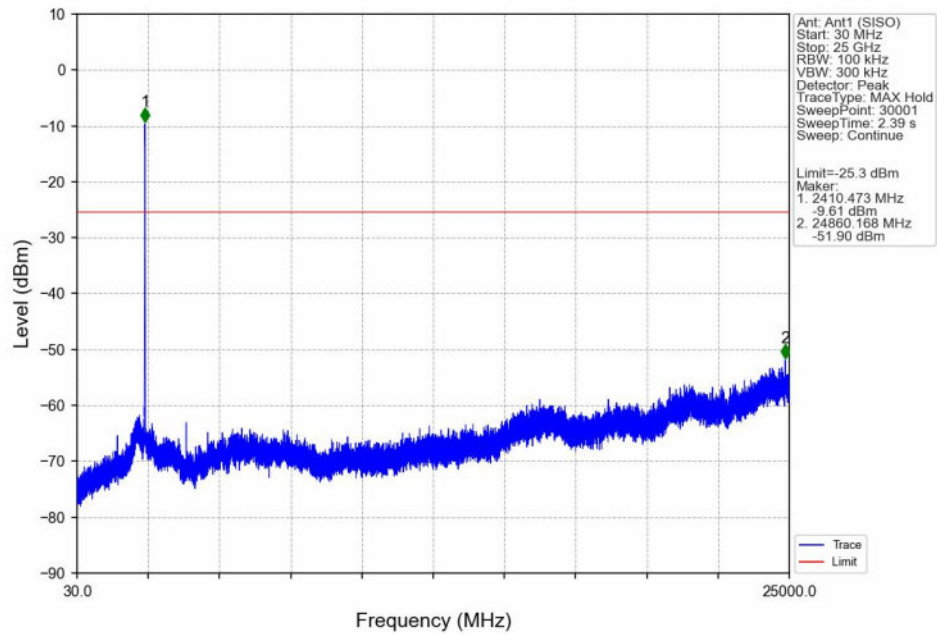
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



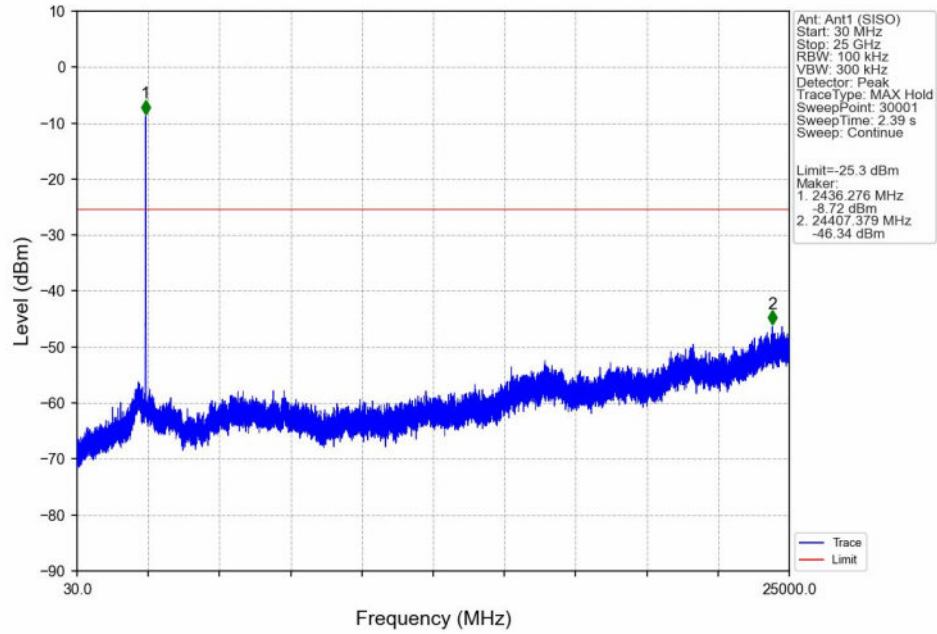
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



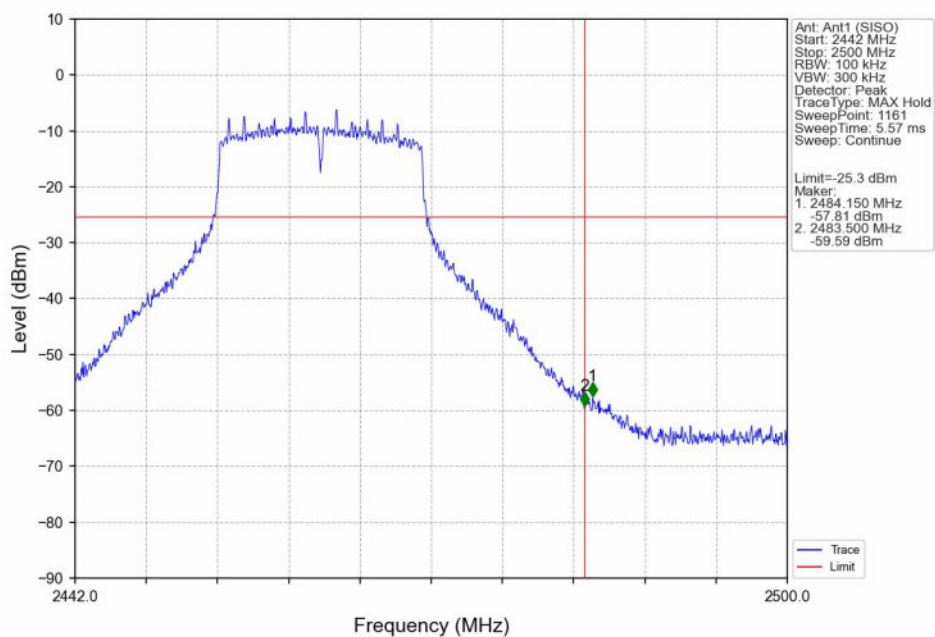
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



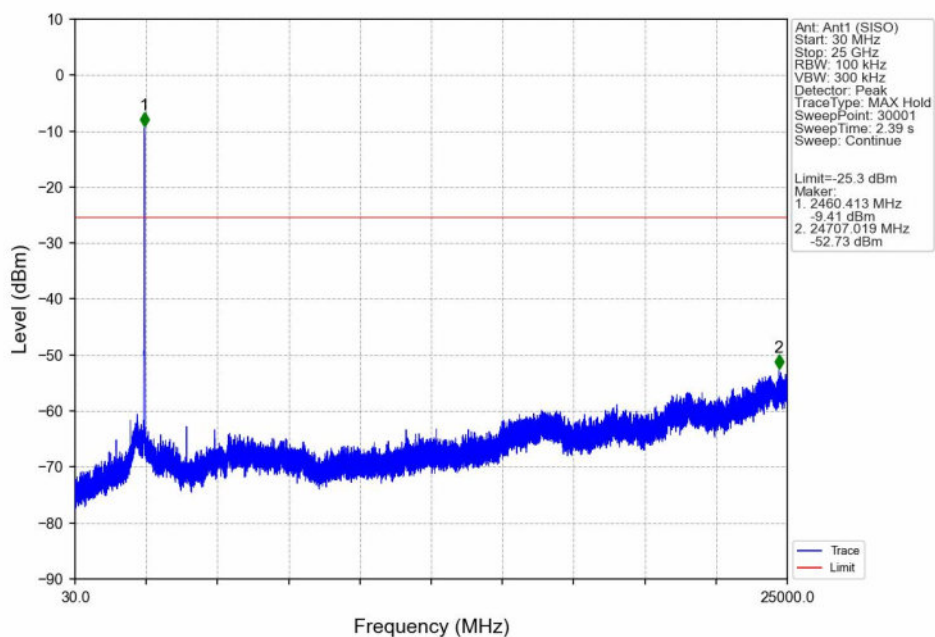
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



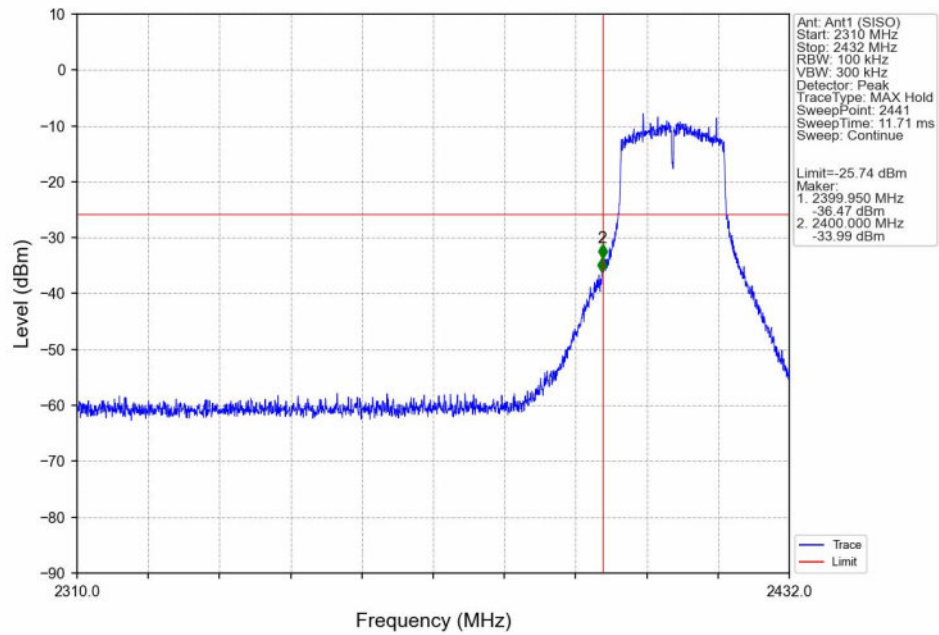
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



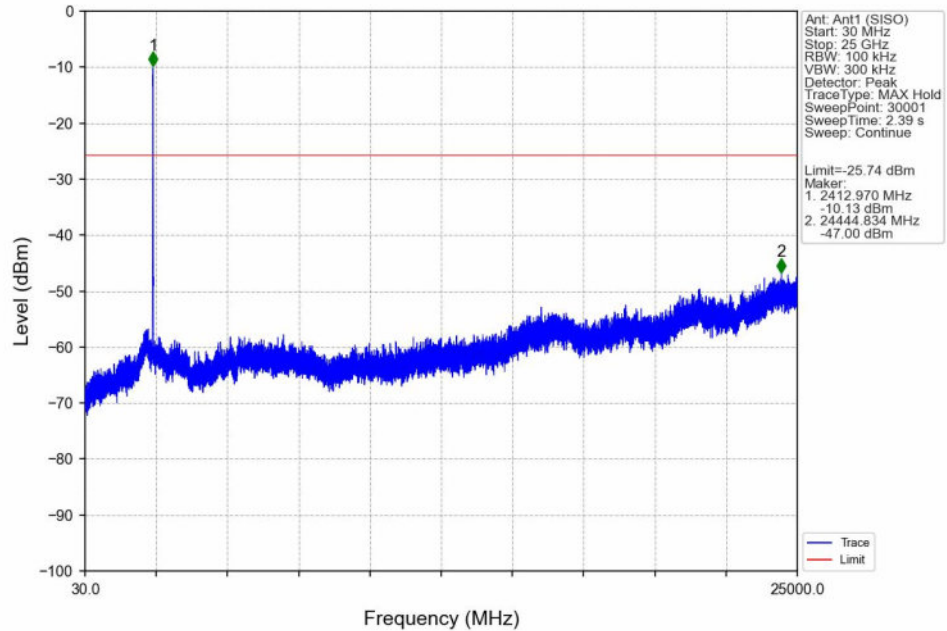
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

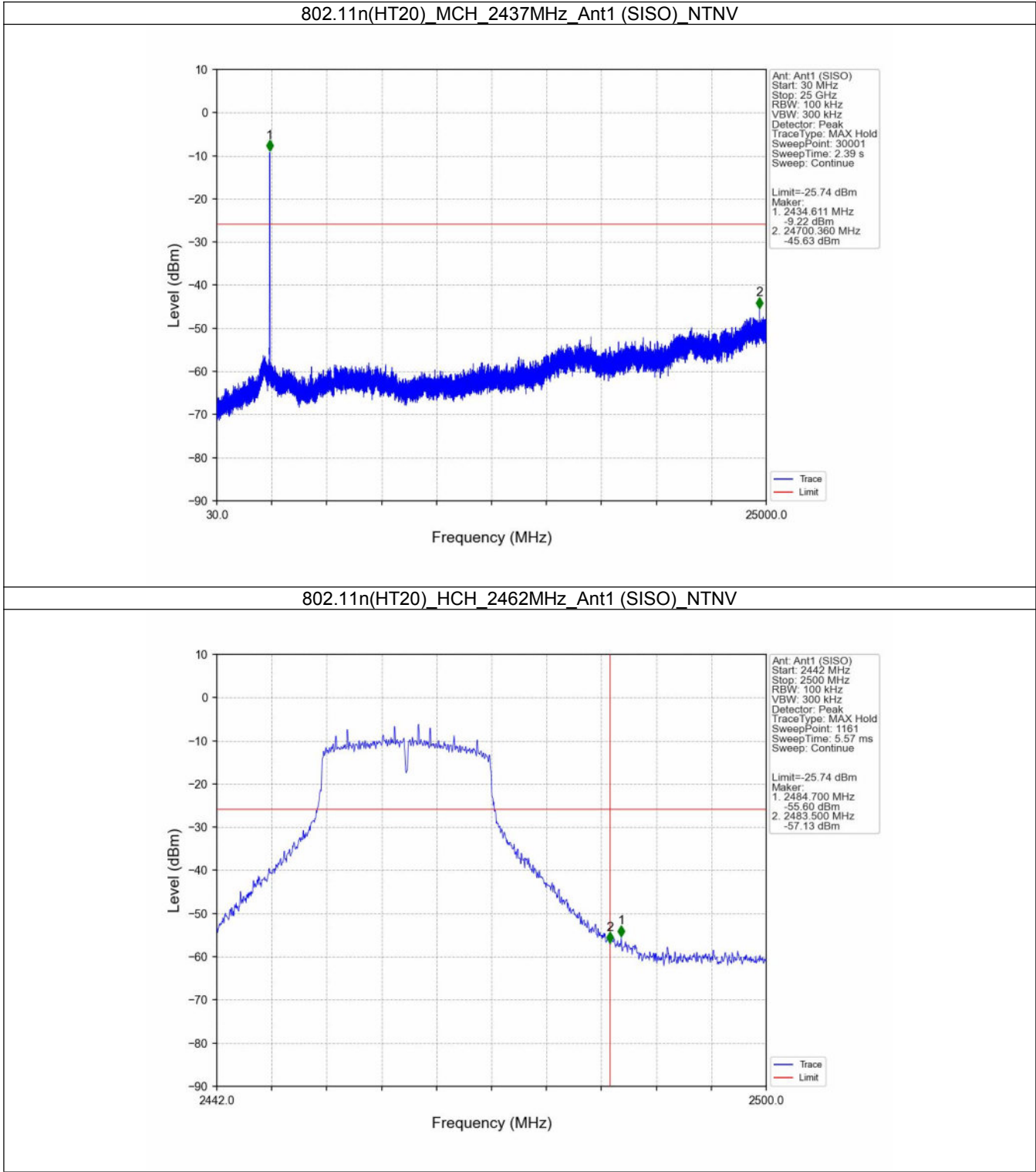


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

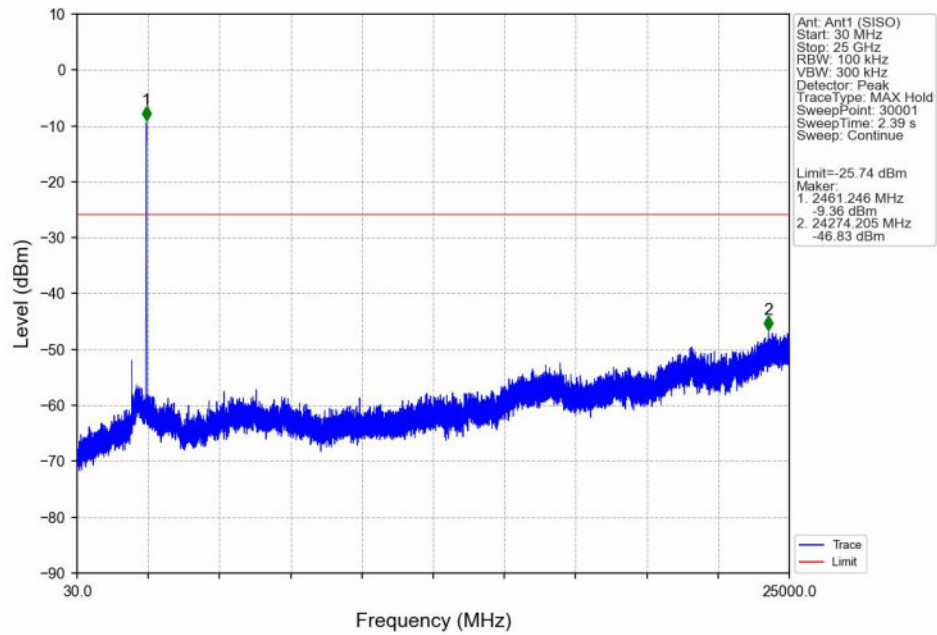


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

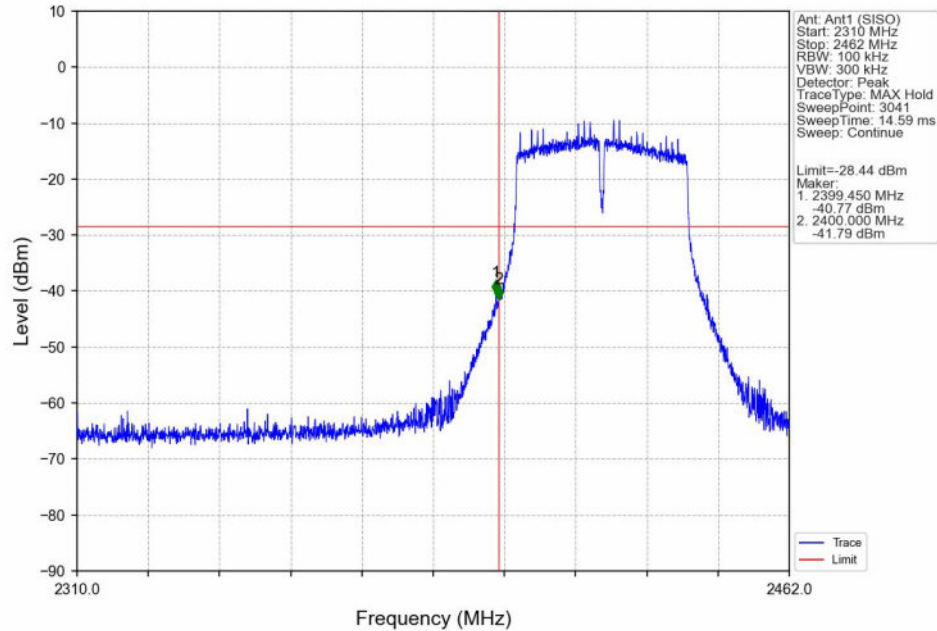


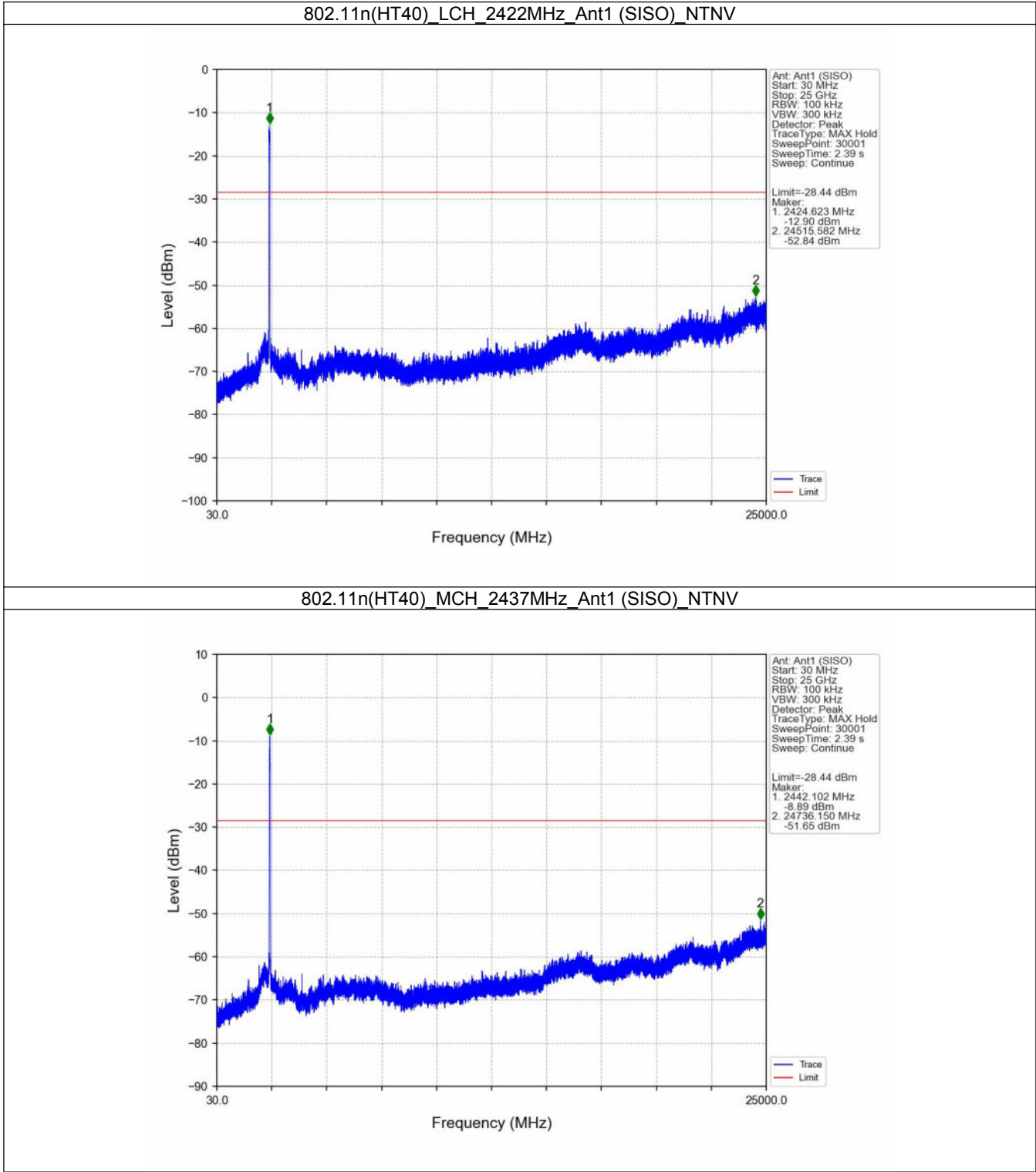


802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

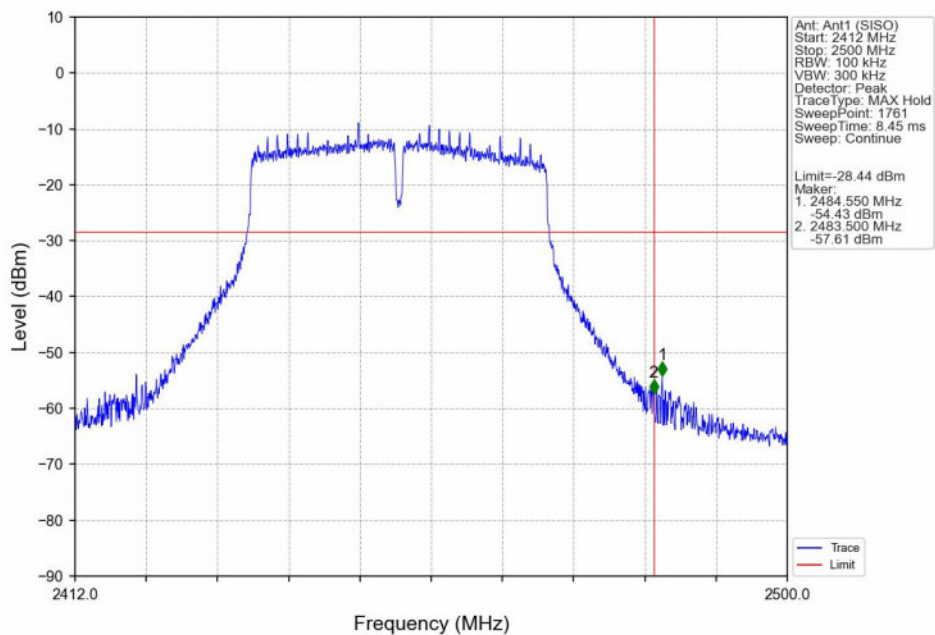


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

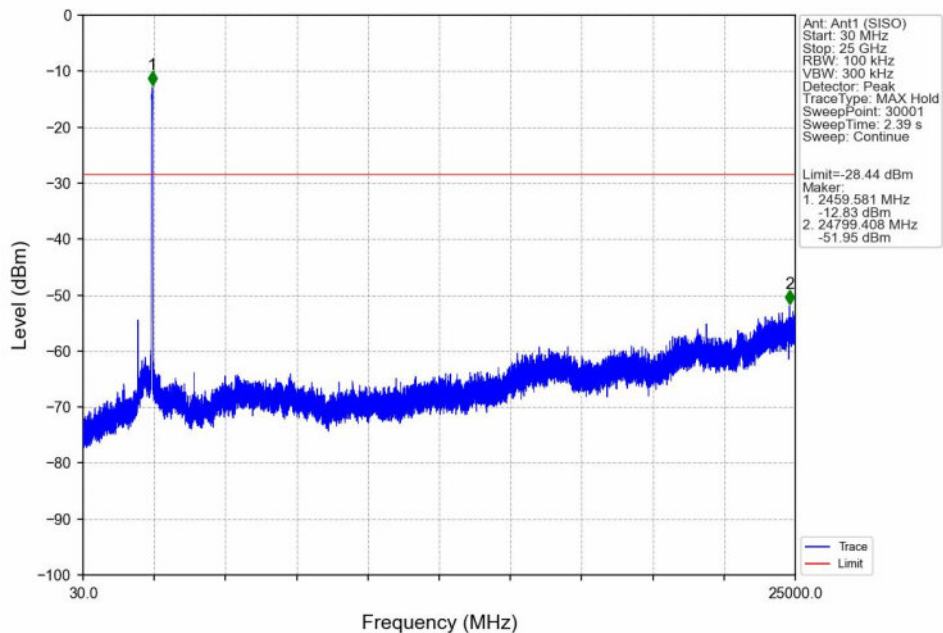




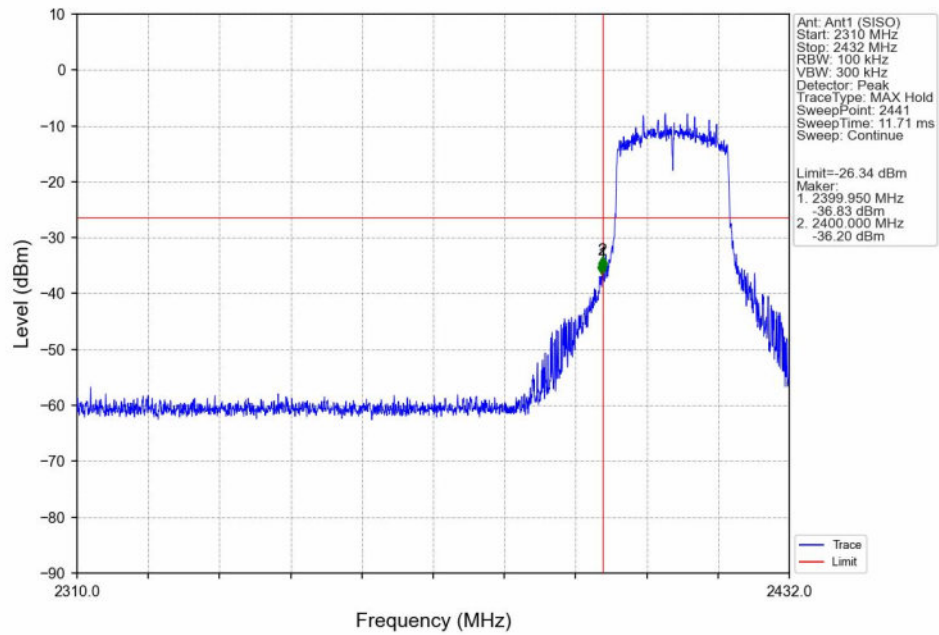
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



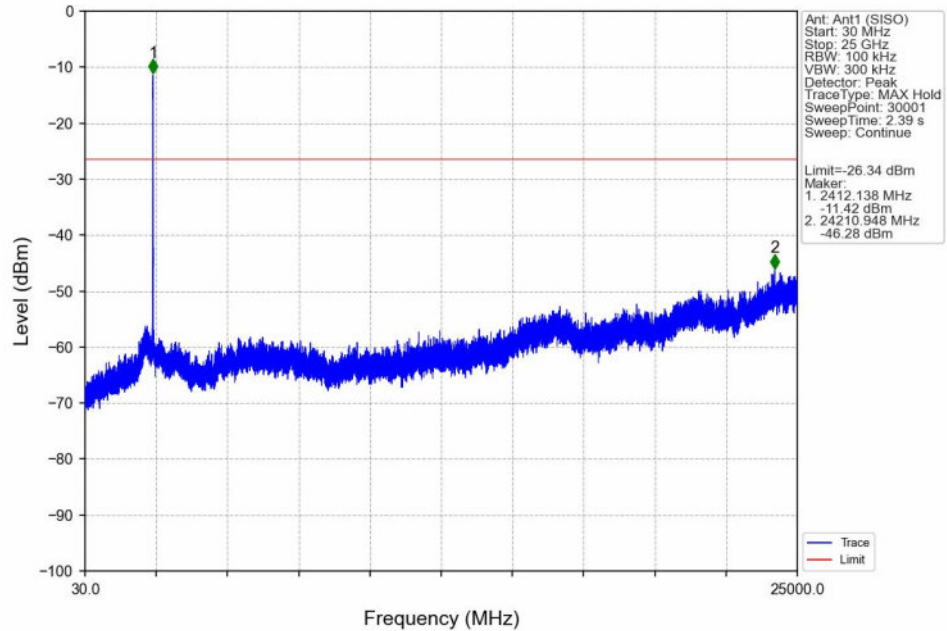
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV

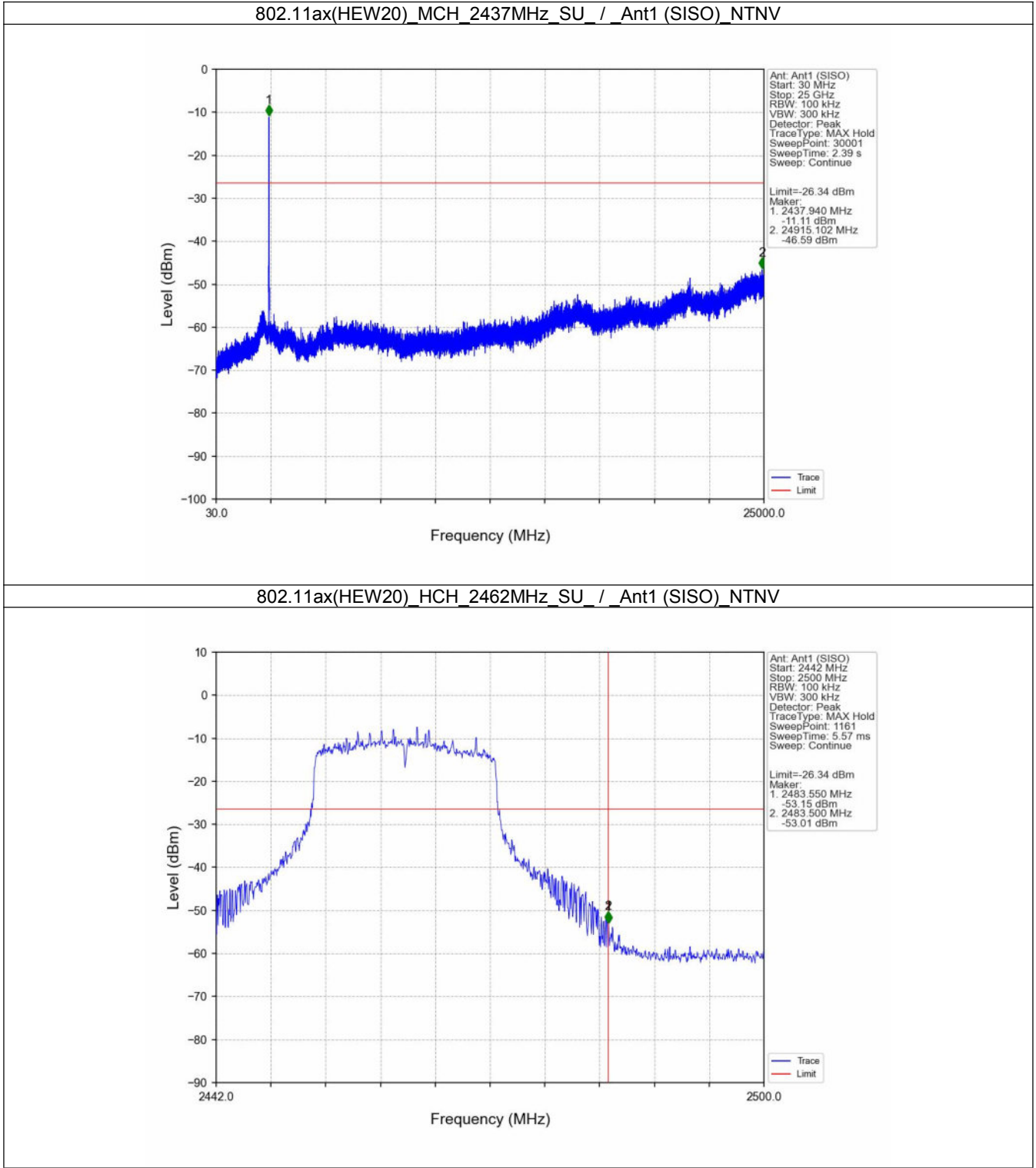


802.11ax(HEW20) LCH_2412MHz_SU / _Ant1 (SISO) NTNv

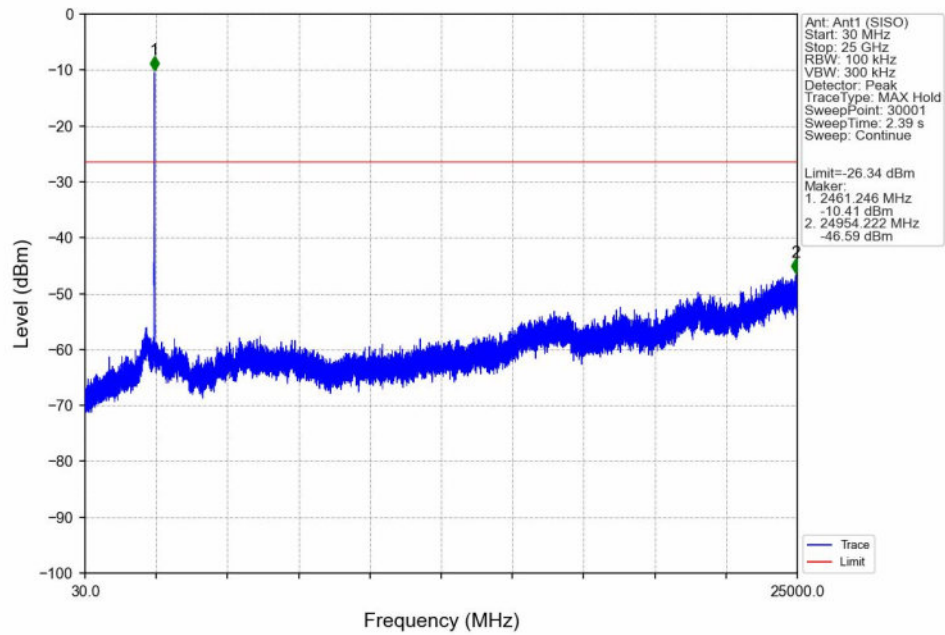


802.11ax(HEW20) LCH_2412MHz_SU / _Ant1 (SISO) NTNv

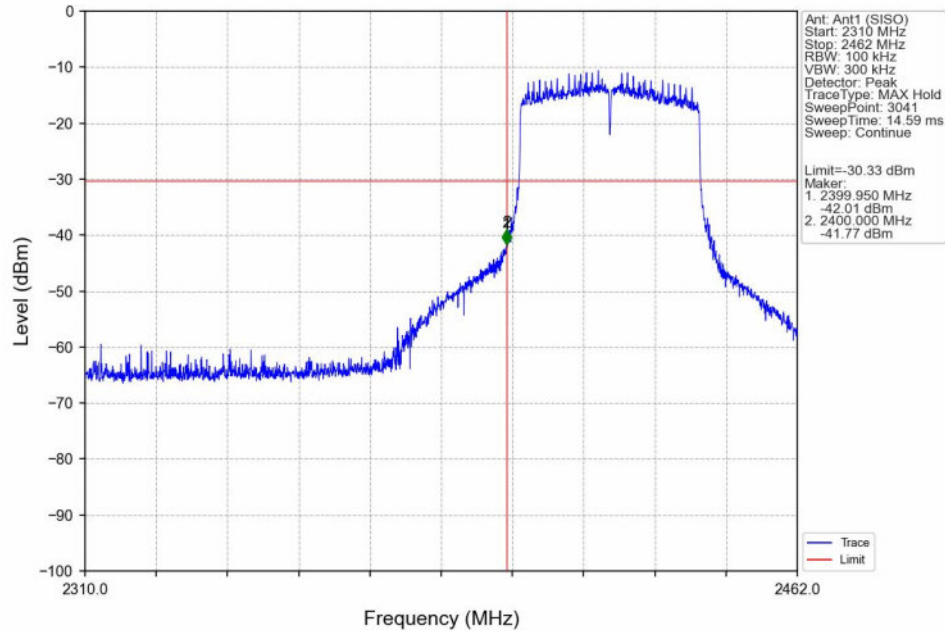




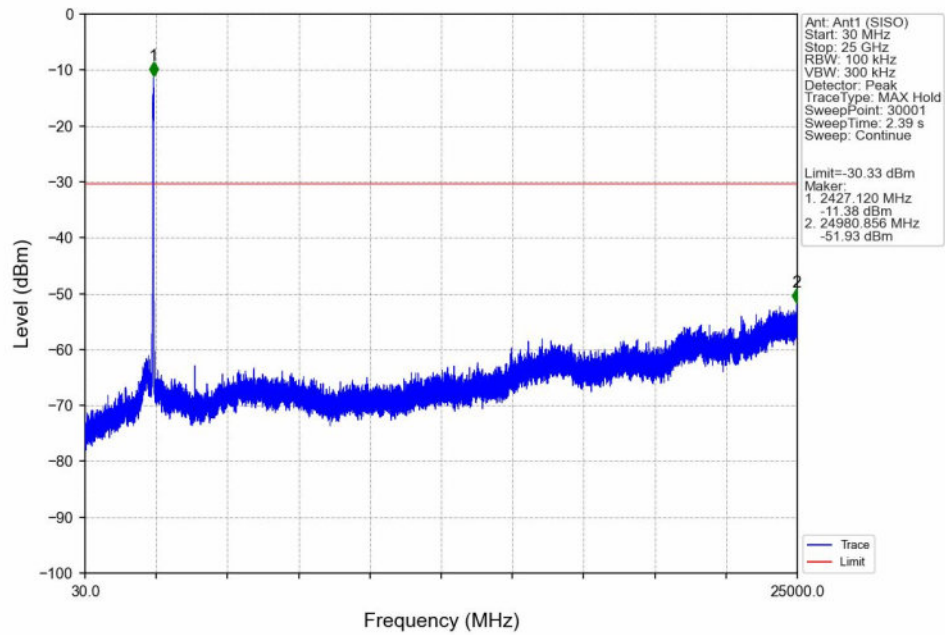
802.11ax(HEW20) HCH 2462MHz_SU / Ant1 (SISO) NTNv



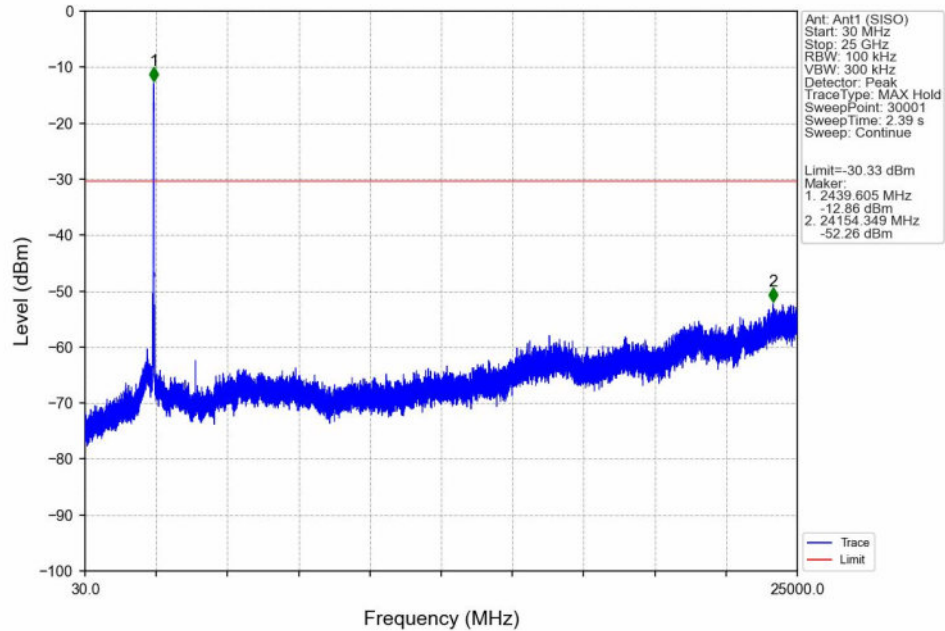
802.11ax(HEW40) LCH 2422MHz_SU / Ant1 (SISO) NTNv

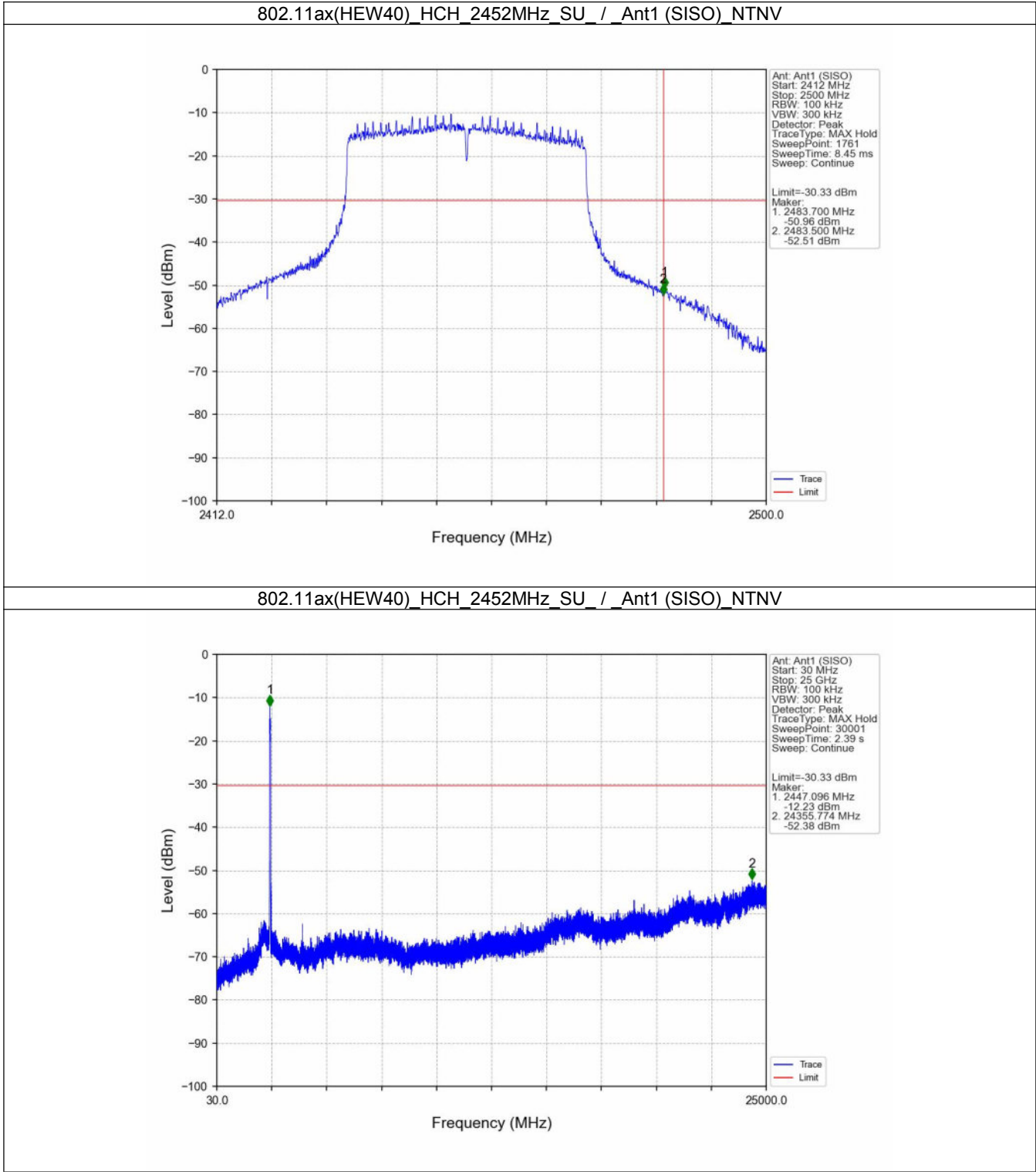


802.11ax(HEW40)_LCH_2422MHz_SU_/_Ant1 (SISO)_NTNV



802.11ax(HEW40)_MCH_2437MHz_SU_/_Ant1 (SISO)_NTNV





5. Form731

5.1 Test Result

5.1.1 Form731

Lower Freq (MHz)	High Freq (MHz)	MAX Power (W)	MAX Power (dBm)
2412	2462	0.0215	13.32
2422	2452	0.0232	13.66