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Annex for 2.4G Wi-Fi
Test Report No.: CTL2411257011-WF03

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1. Duty Cycle

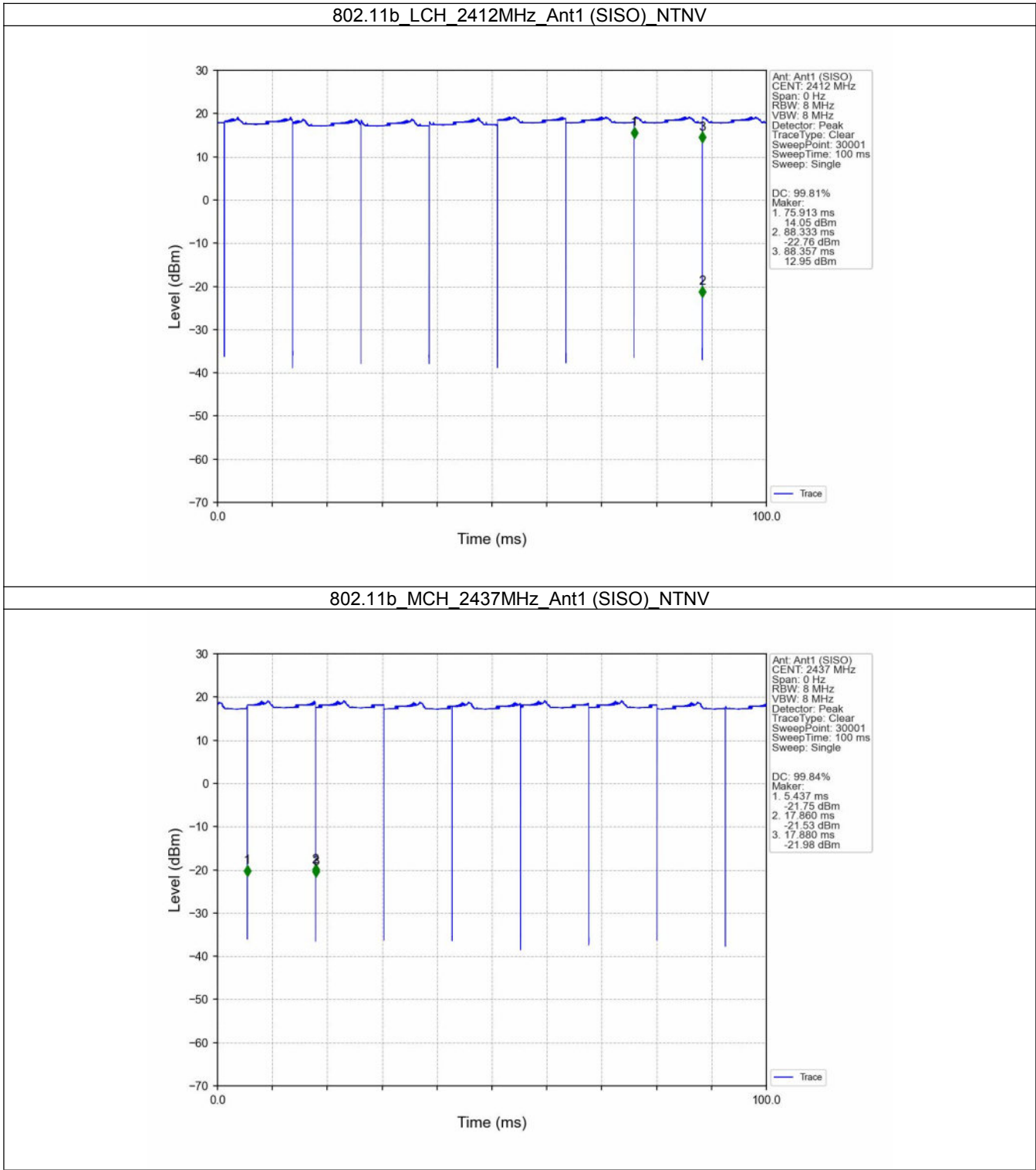
1.1 Test Result

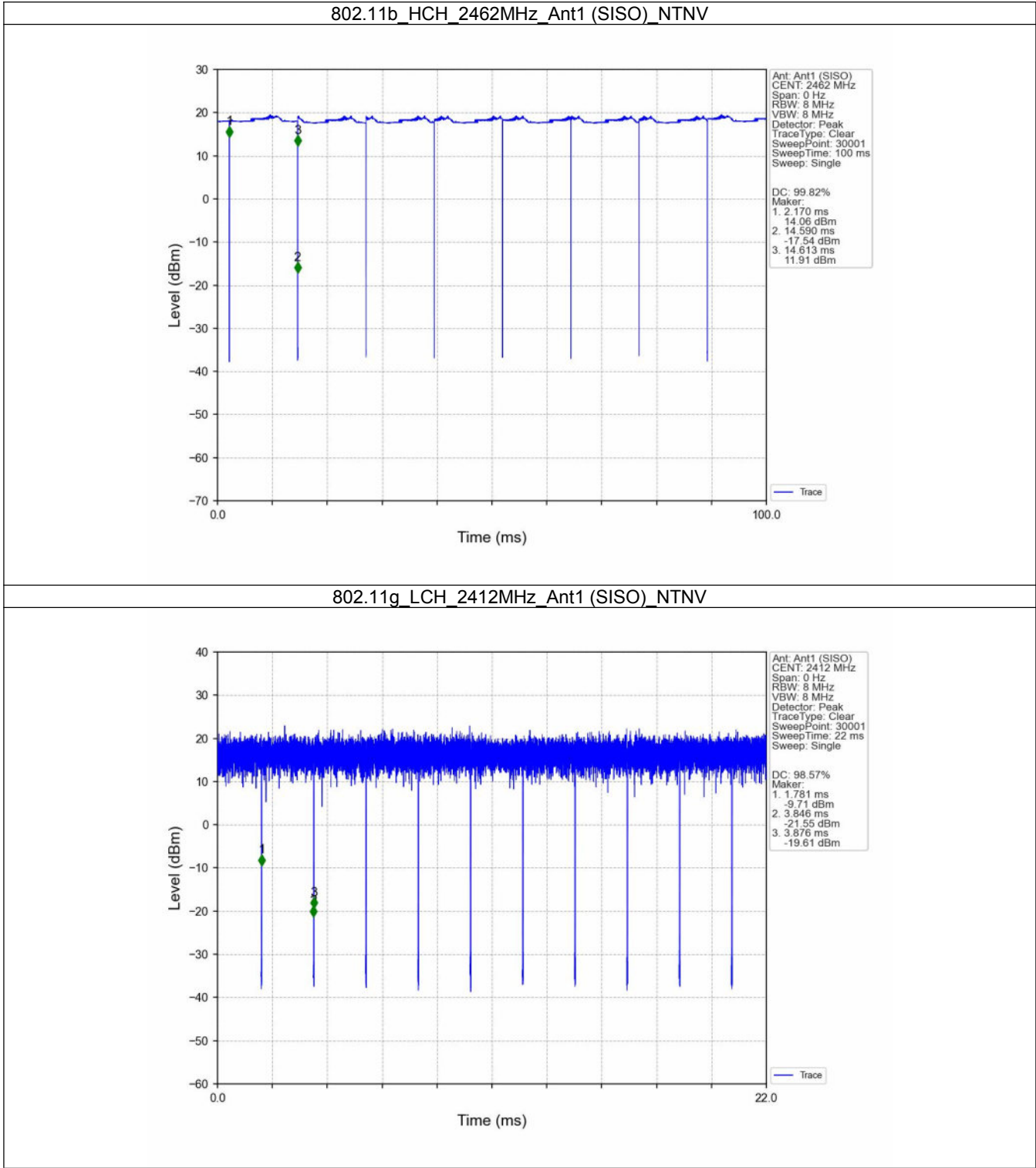
1.1.1 Ant1

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	12.420	12.444	99.81	0.01	0.03
		2437	12.423	12.443	99.84	0.01	0.00
		2462	12.420	12.443	99.82	0.01	0.00
802.11g	SISO	2412	2.065	2.095	98.57	0.06	0.07
		2437	2.066	2.096	98.57	0.06	0.10
		2462	2.065	2.095	98.57	0.06	0.07
802.11n (HT20)	SISO	2412	0.230	0.259	88.80	0.52	0.11
		2437	0.229	0.259	88.42	0.53	0.11
		2462	0.230	0.259	88.80	0.52	0.21

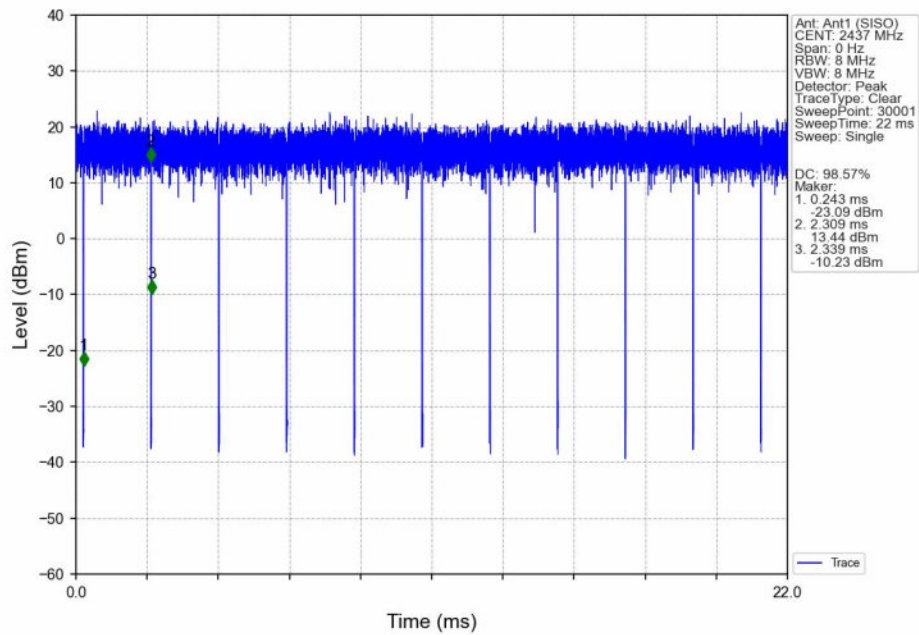
1.2 Test Graph

1.2.1 Ant1

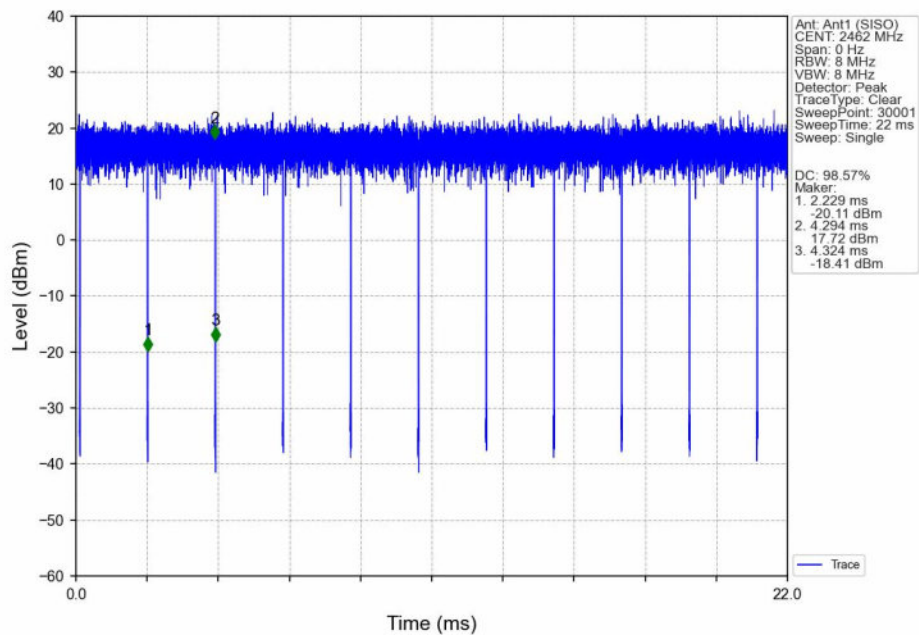


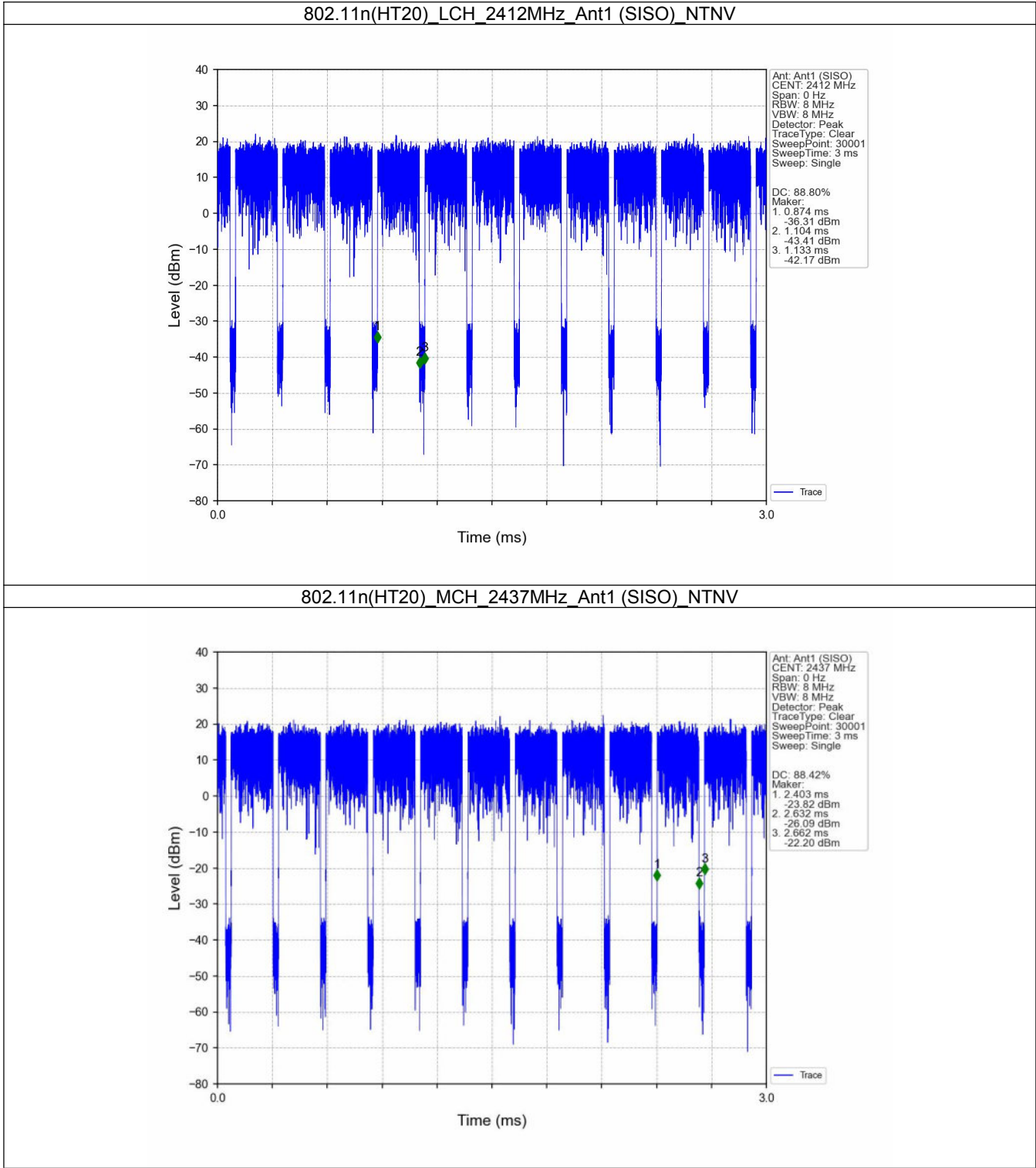


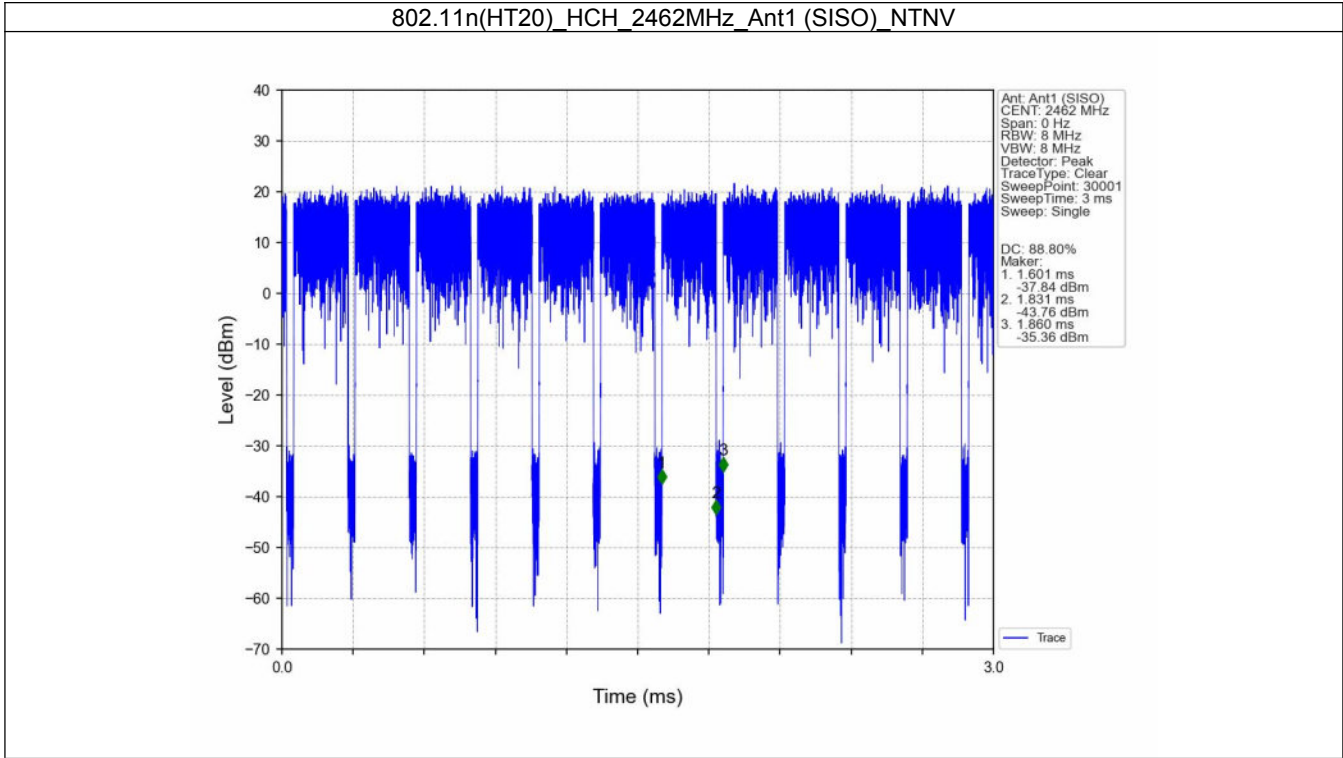
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV







2. Bandwidth

2.1 Test Result

2.1.1 OBW

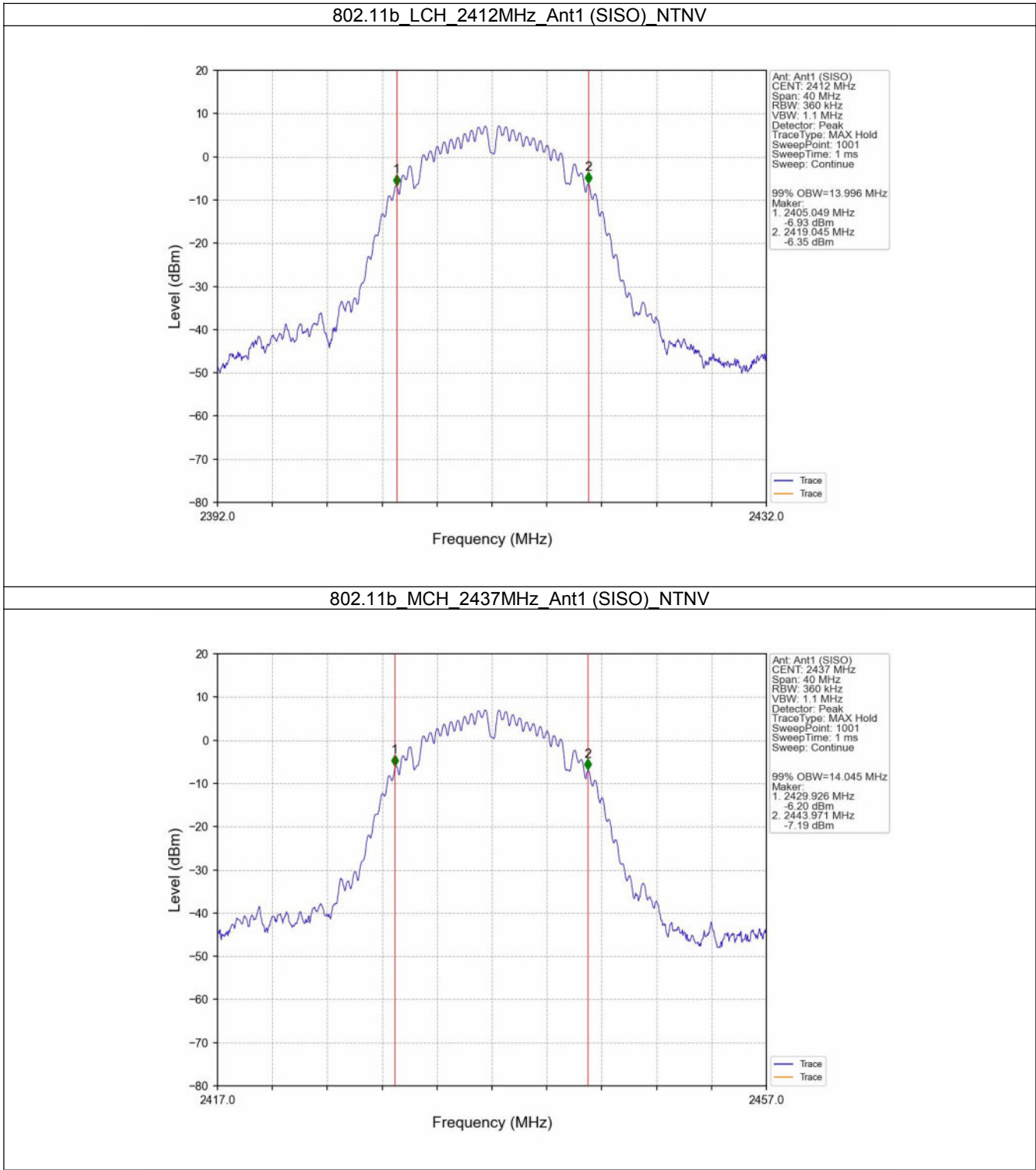
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	13.996	/	Pass
		2437	1	14.045	/	Pass
		2462	1	13.900	/	Pass
802.11g	SISO	2412	1	17.427	/	Pass
		2437	1	17.472	/	Pass
		2462	1	17.223	/	Pass
802.11n (HT20)	SISO	2412	1	17.965	/	Pass
		2437	1	18.029	/	Pass
		2462	1	17.863	/	Pass

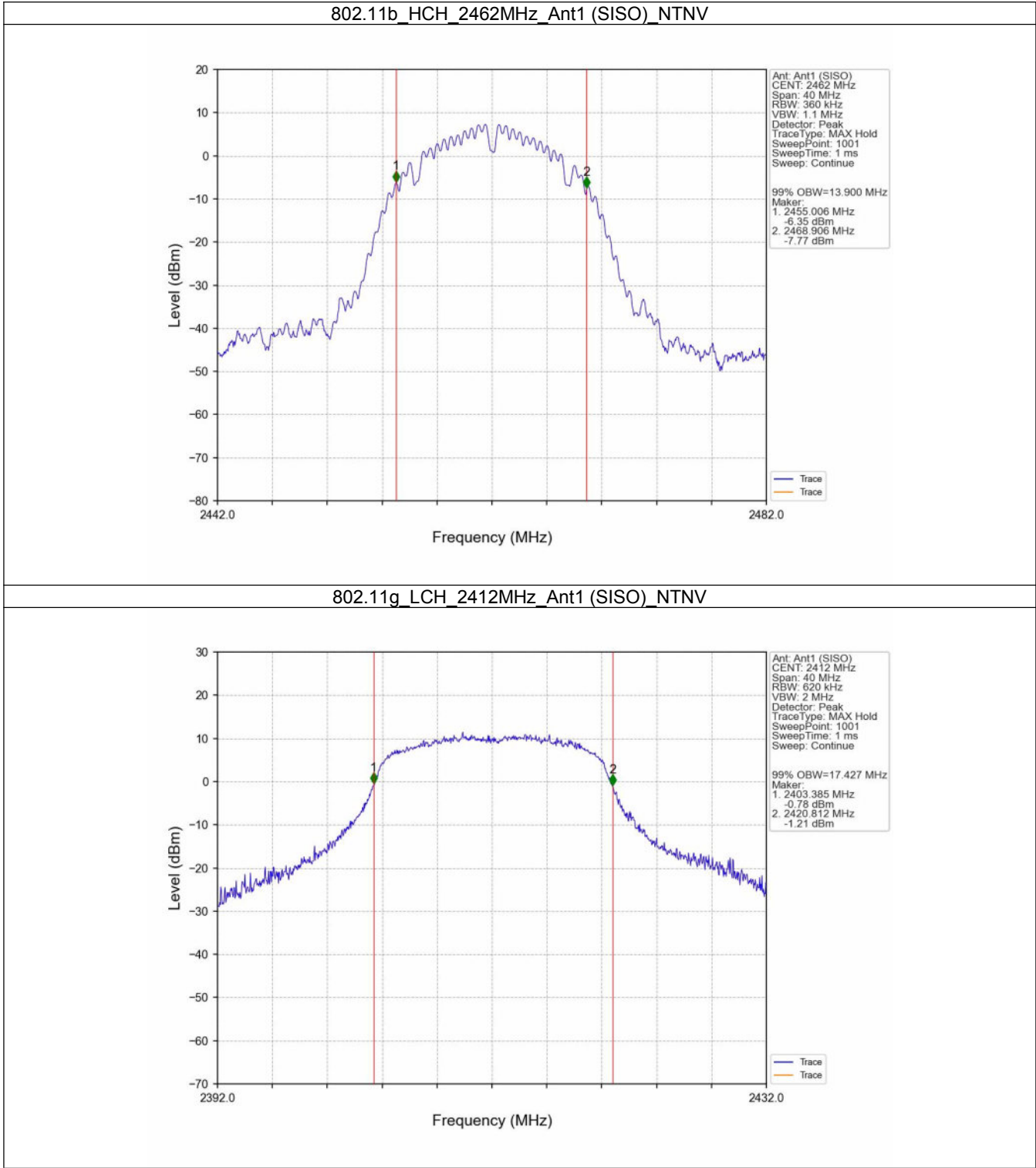
2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	9.063	≥ 0.5	Pass
		2437	1	9.095	≥ 0.5	Pass
		2462	1	8.087	≥ 0.5	Pass
802.11g	SISO	2412	1	15.127	≥ 0.5	Pass
		2437	1	15.363	≥ 0.5	Pass
		2462	1	15.148	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	15.721	≥ 0.5	Pass
		2437	1	16.048	≥ 0.5	Pass
		2462	1	16.095	≥ 0.5	Pass

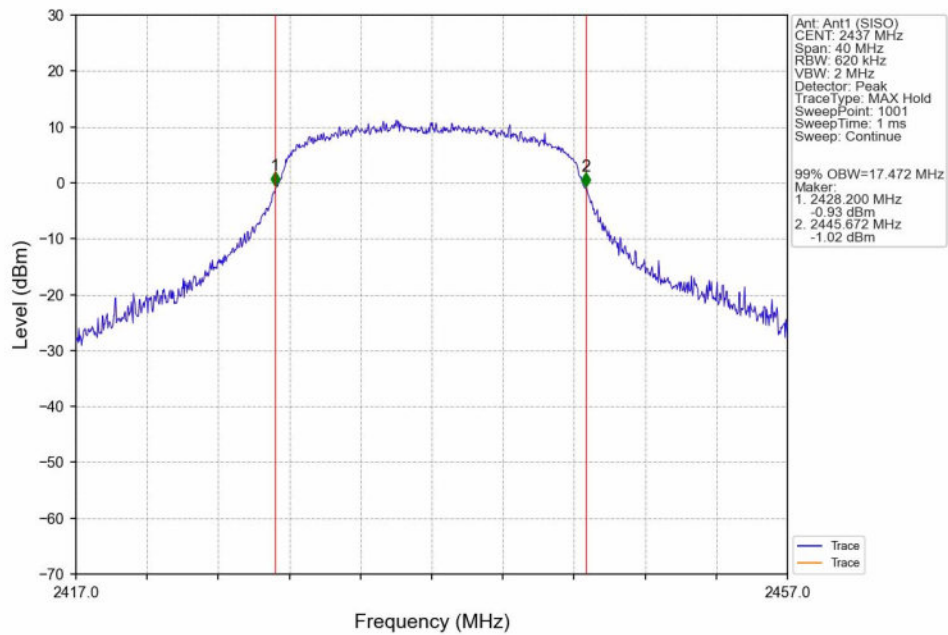
2.2 Test Graph

2.2.1 OBW

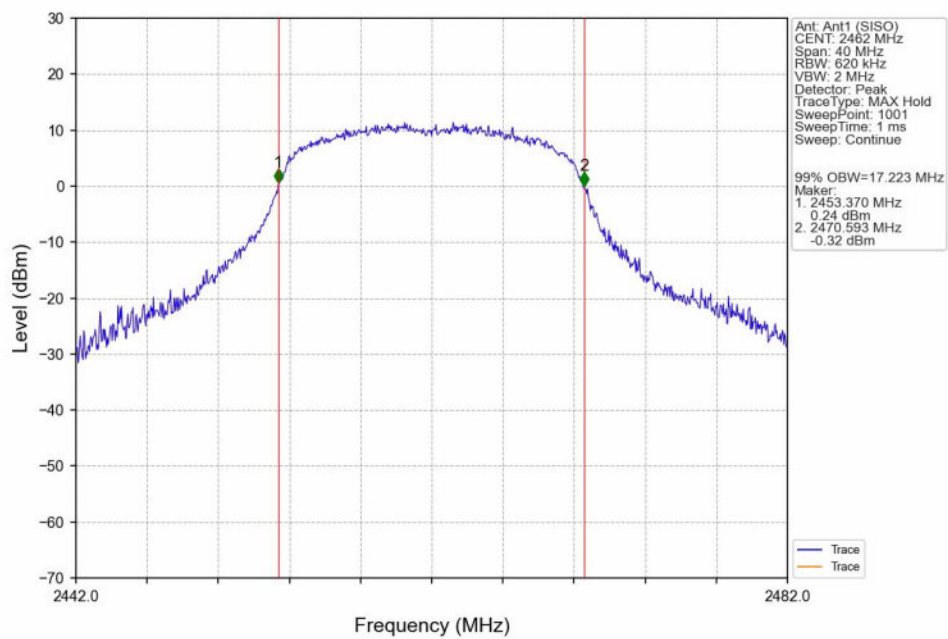




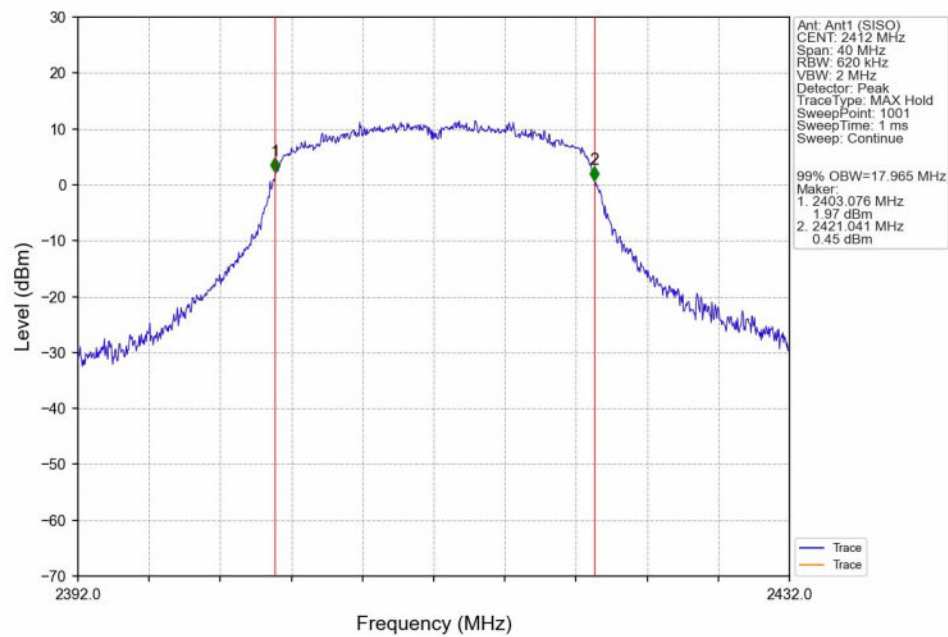
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



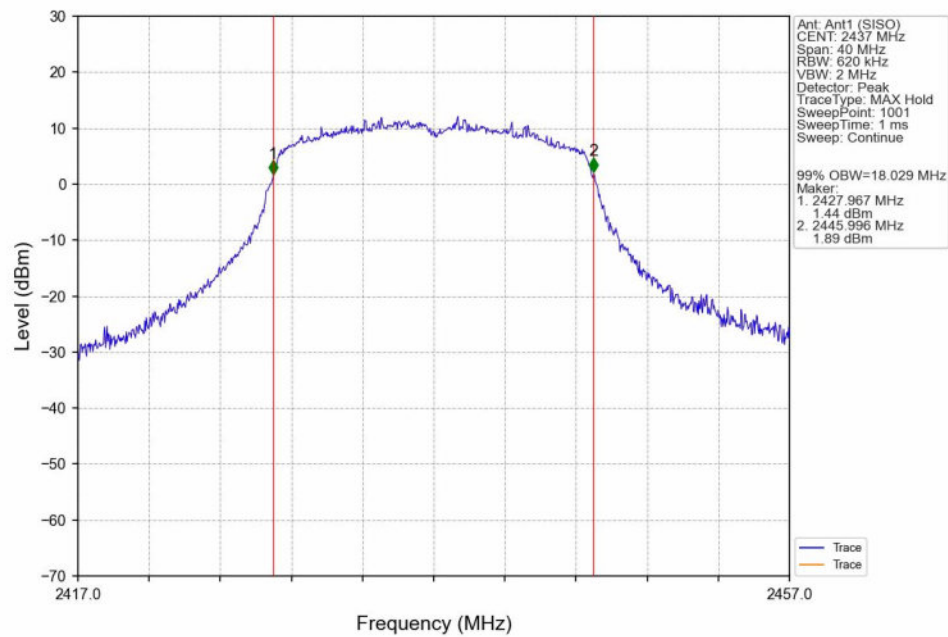
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

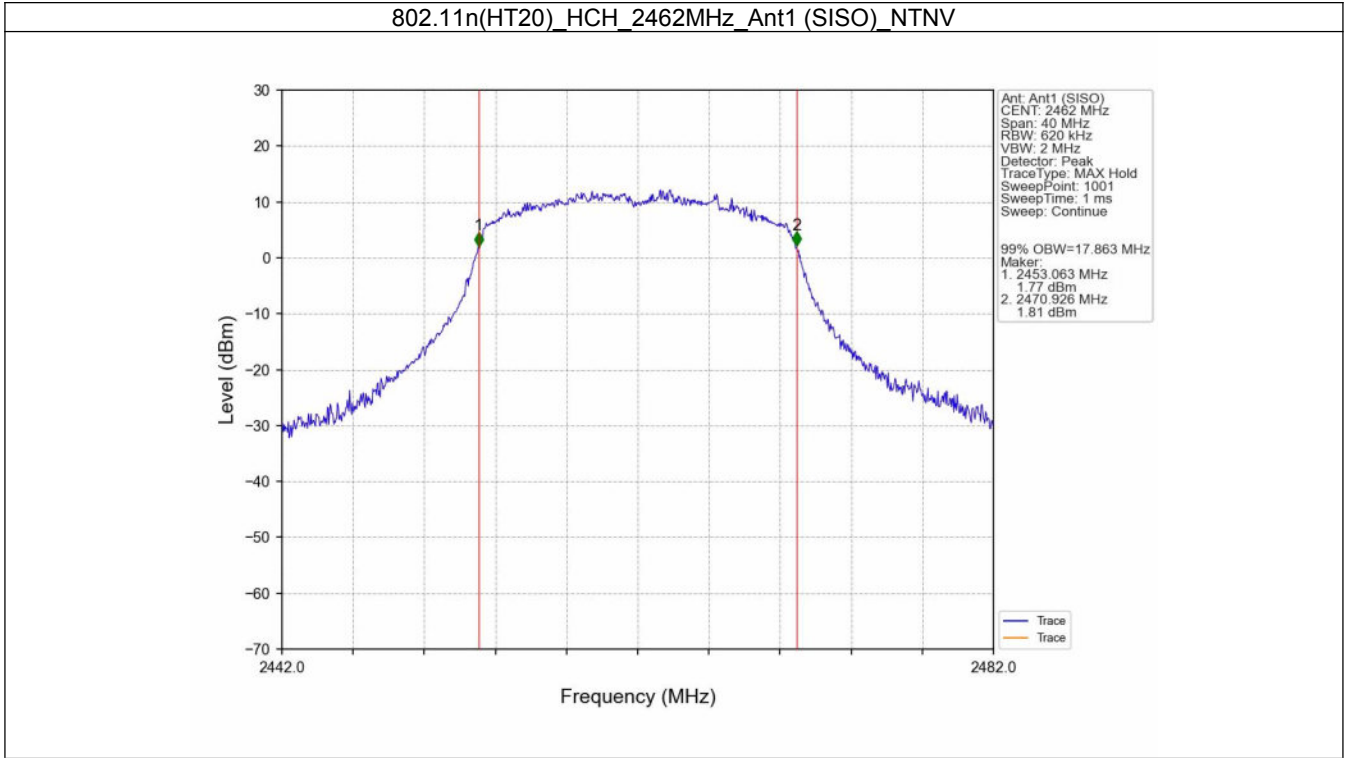


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

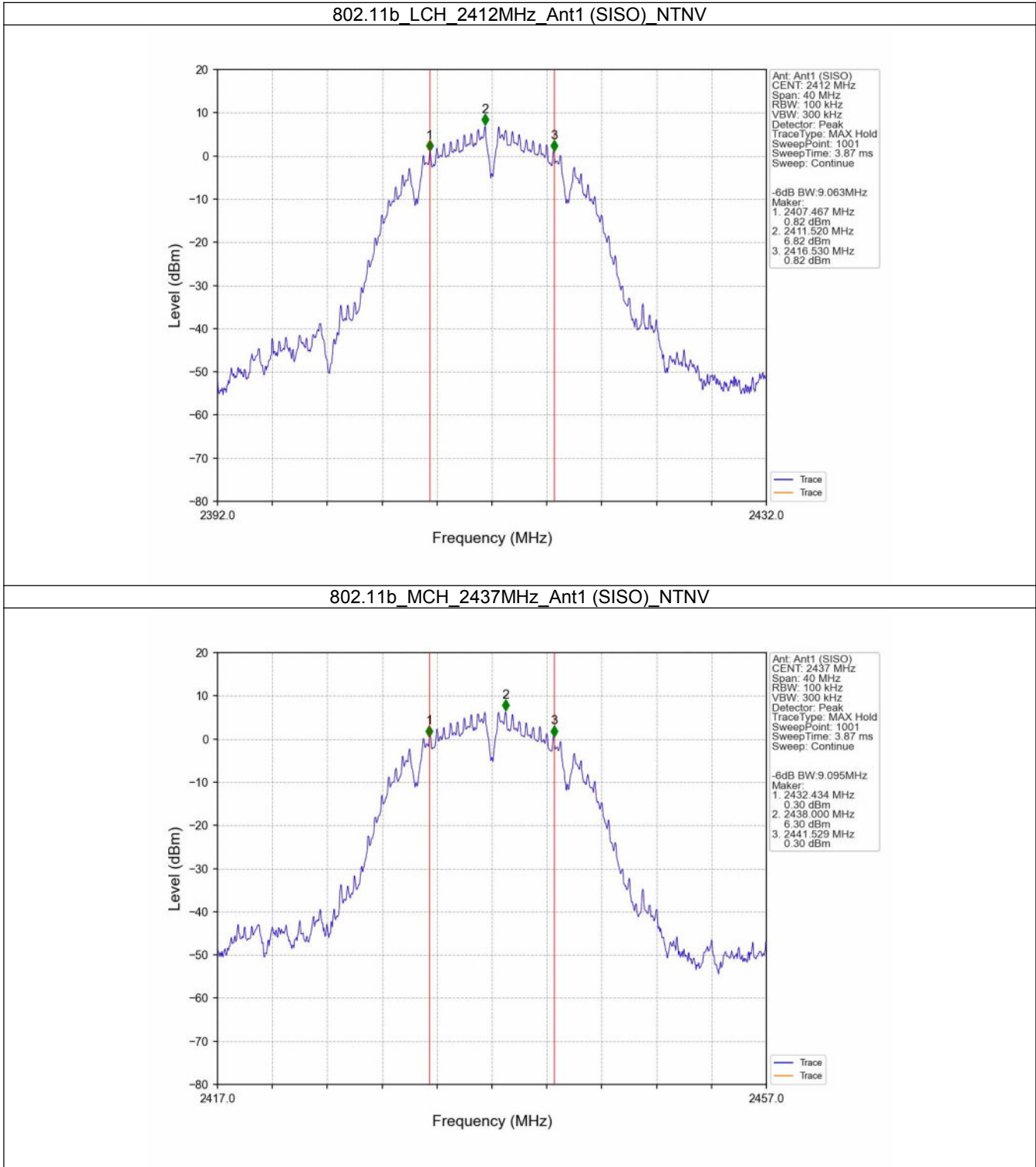


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

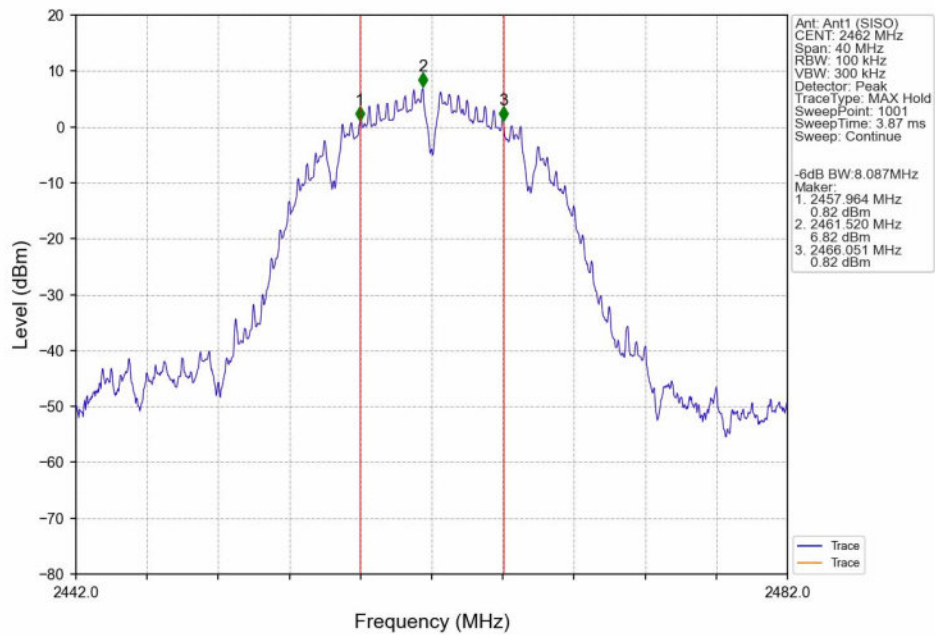




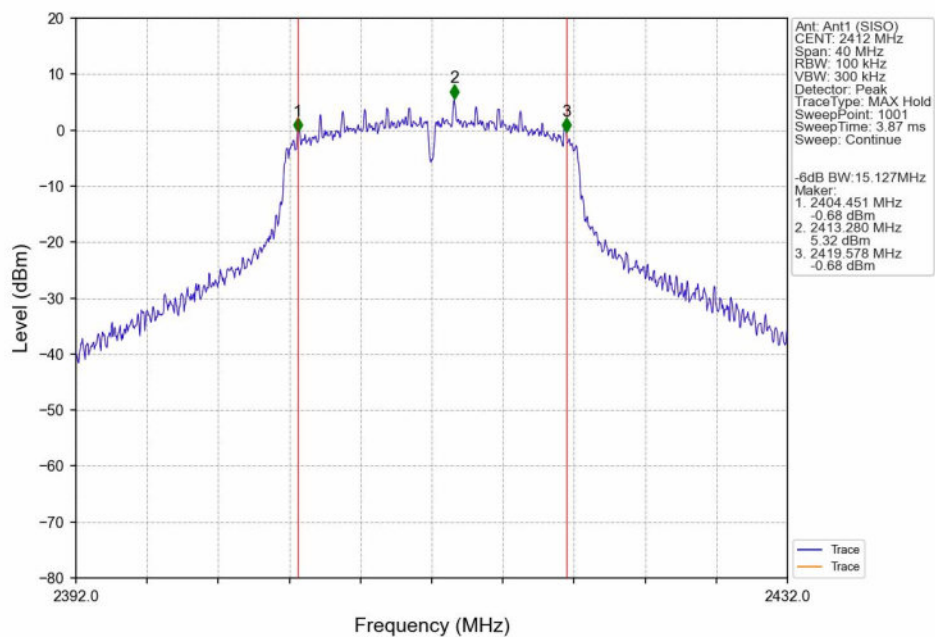
2.2.2 6dB BW



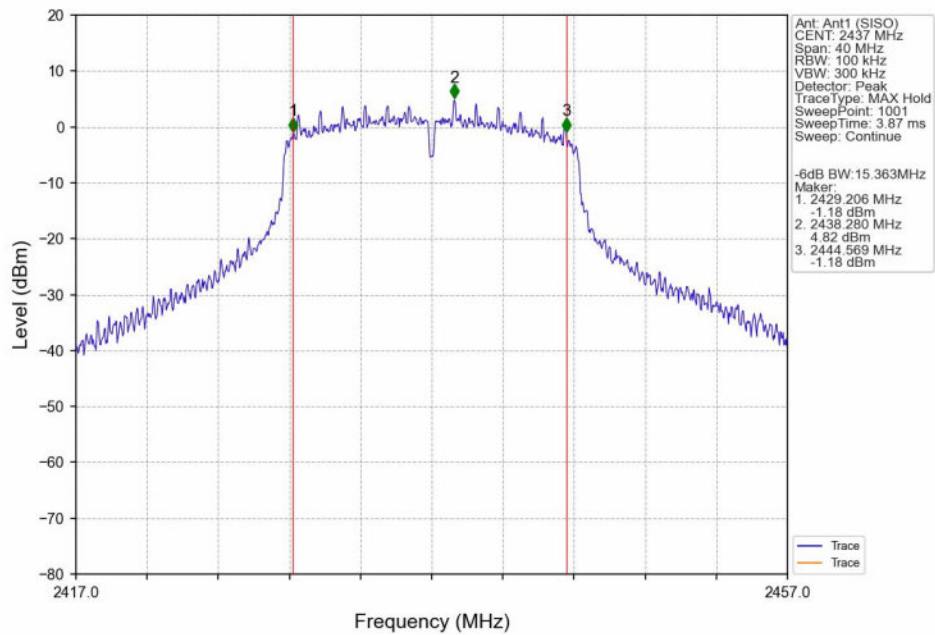
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



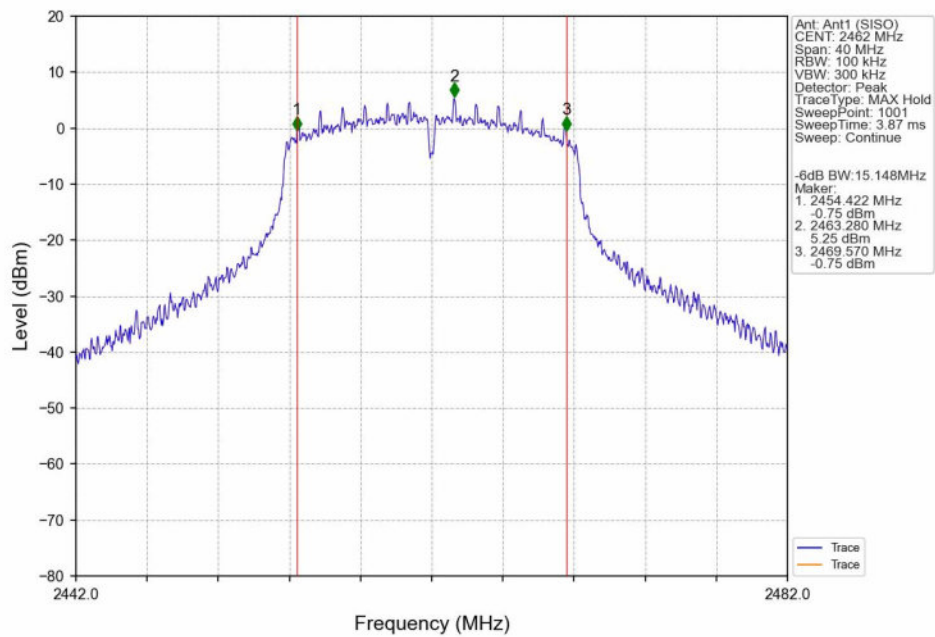
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

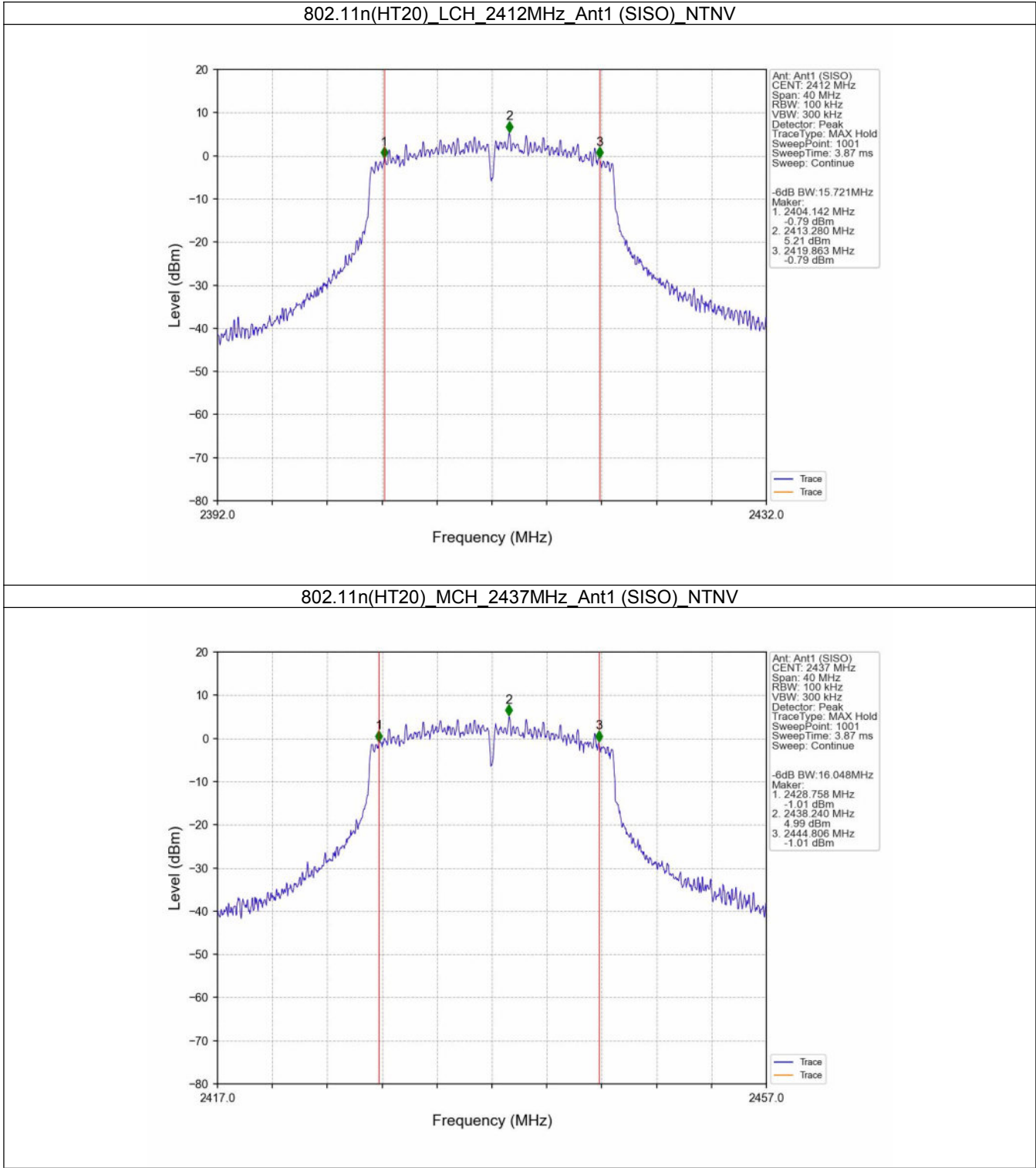


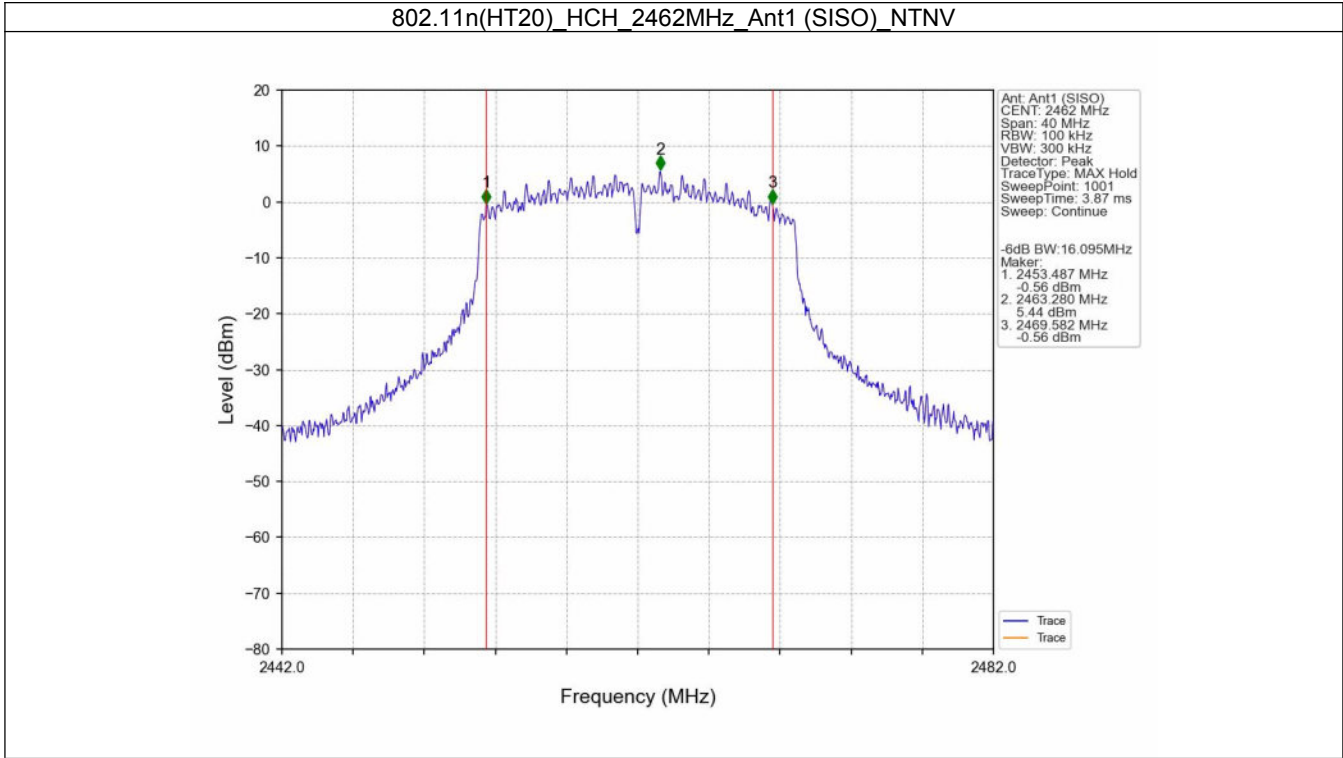
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV







3. Maximum Conducted Output Power

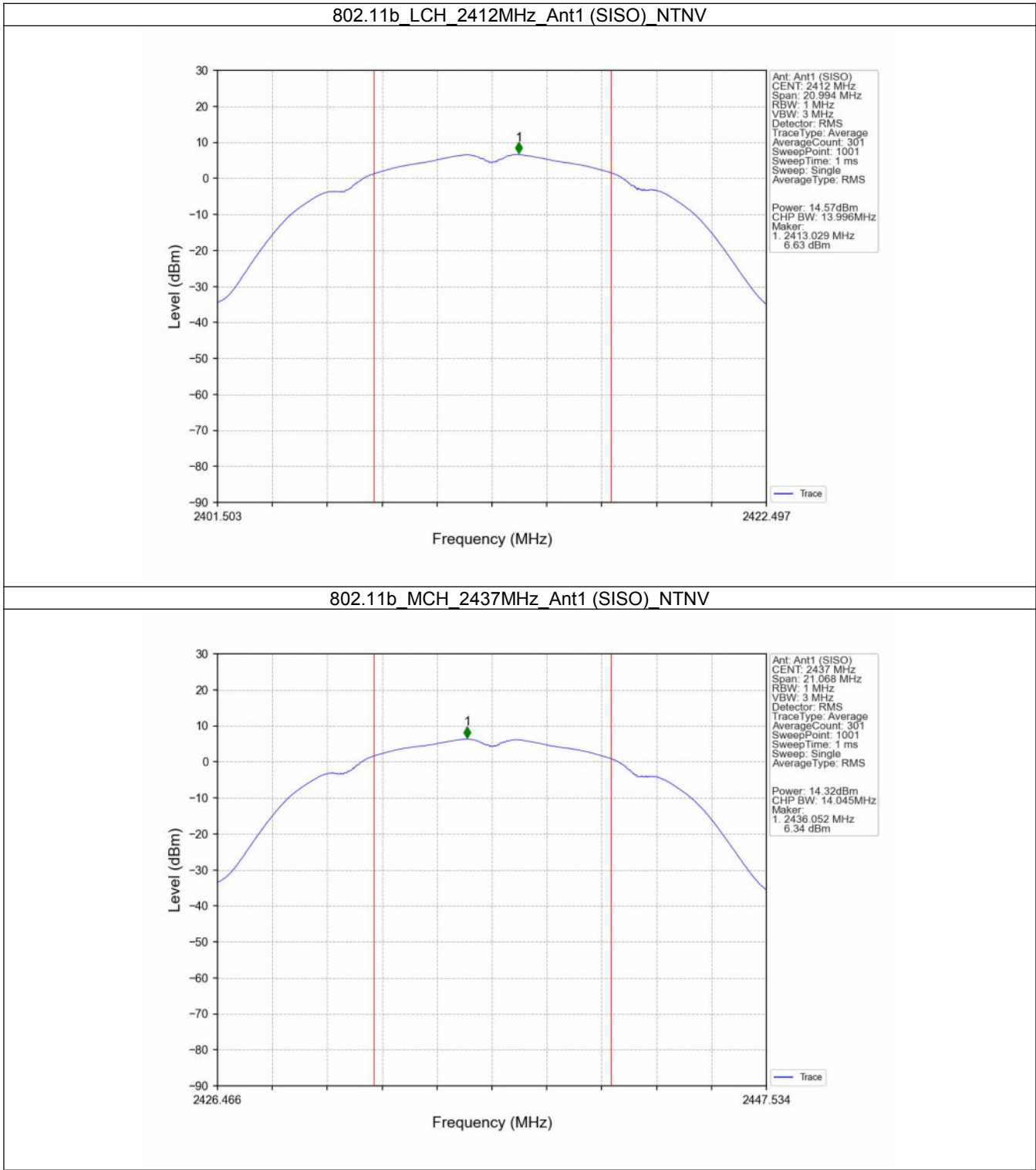
3.1 Test Result

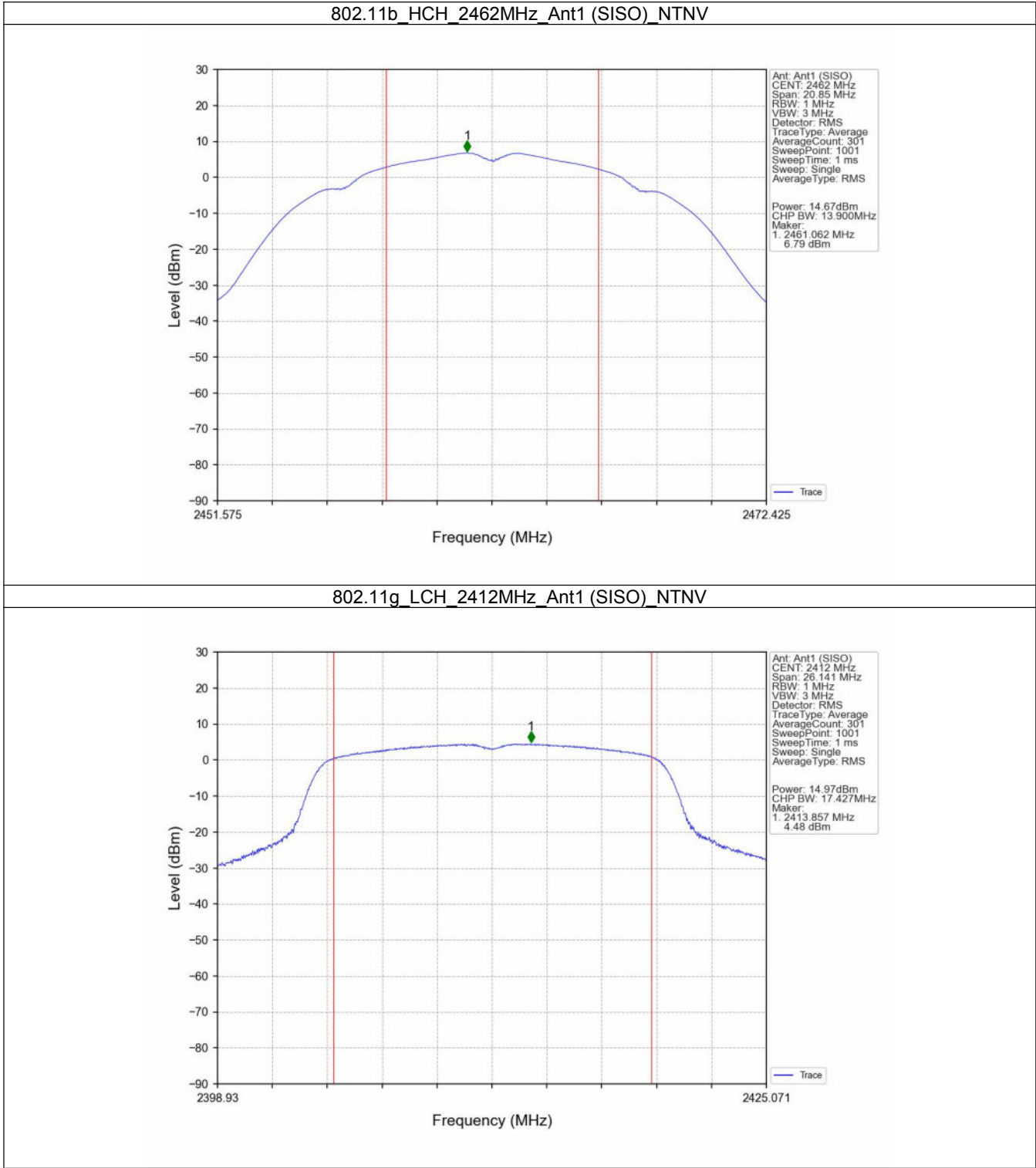
3.1.1 Power

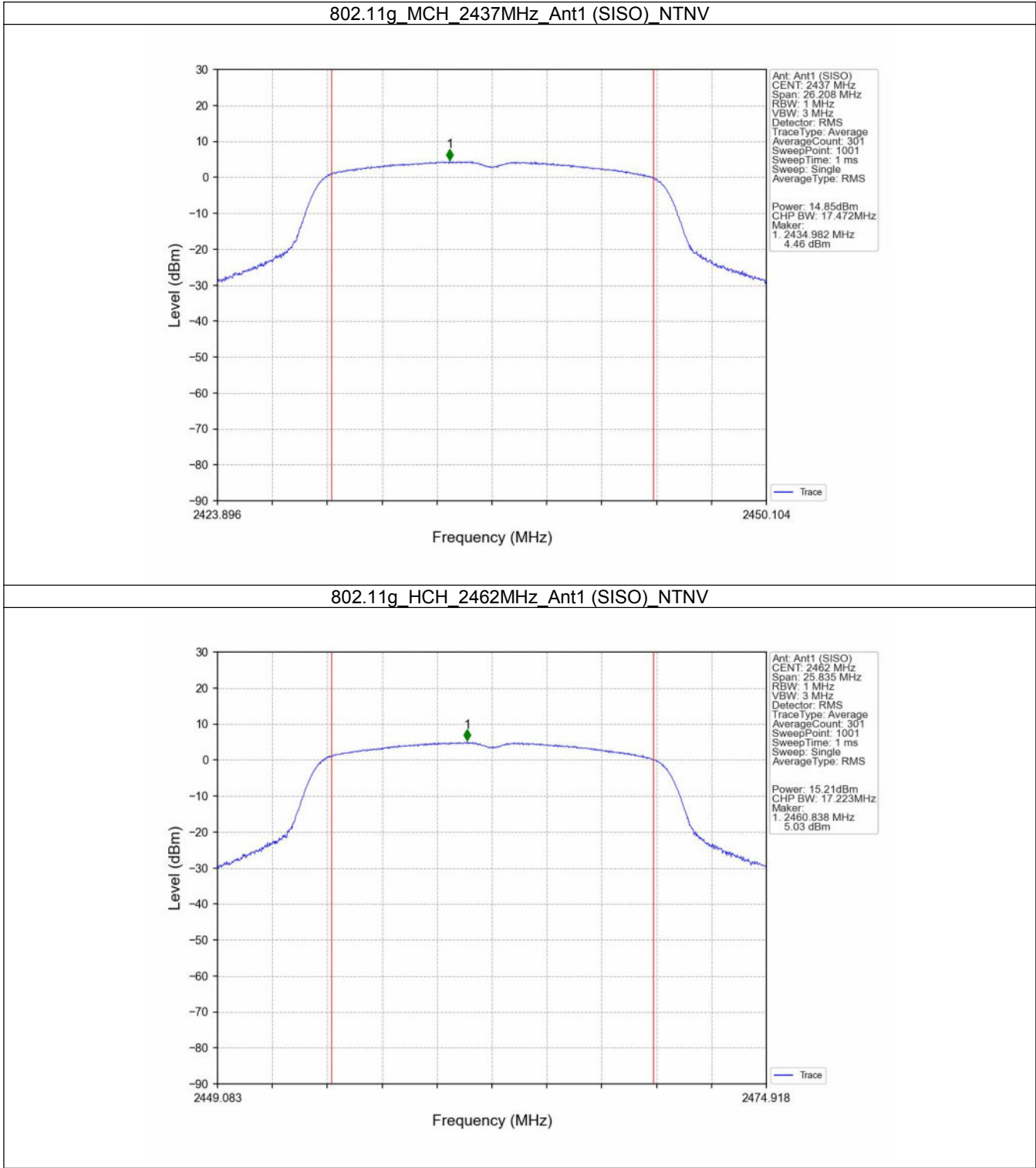
Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	14.57	<=30	Pass
		2437	14.32	<=30	Pass
		2462	14.67	<=30	Pass
802.11g	SISO	2412	14.97	<=30	Pass
		2437	14.85	<=30	Pass
		2462	15.21	<=30	Pass
802.11n (HT20)	SISO	2412	14.90	<=30	Pass
		2437	14.95	<=30	Pass
		2462	15.02	<=30	Pass
Note1: Antenna Gain: Ant1: -1.12dBi;					

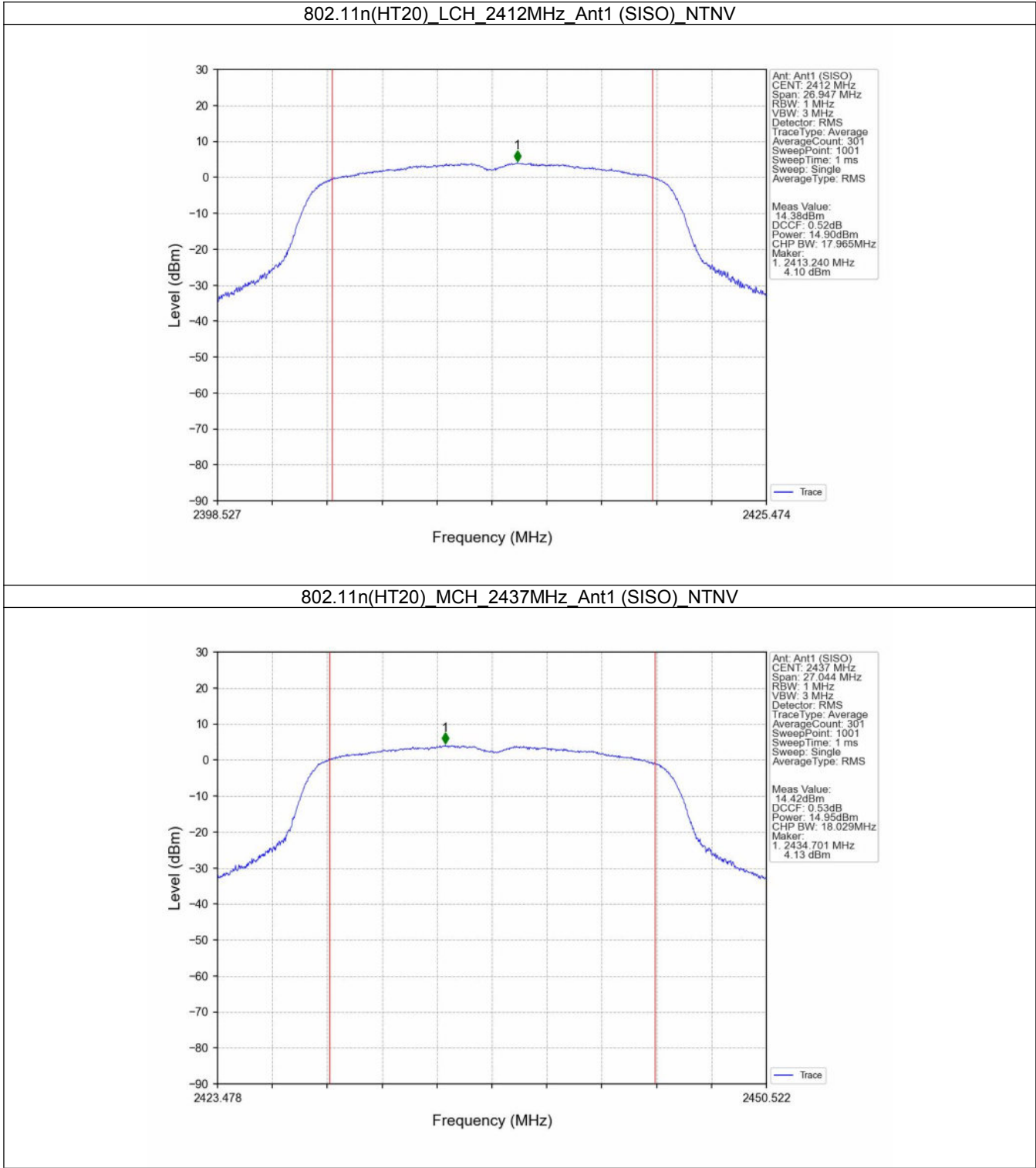
3.2 Test Graph

3.2.1 Power











4. Maximum Power Spectral Density

4.1 Test Result

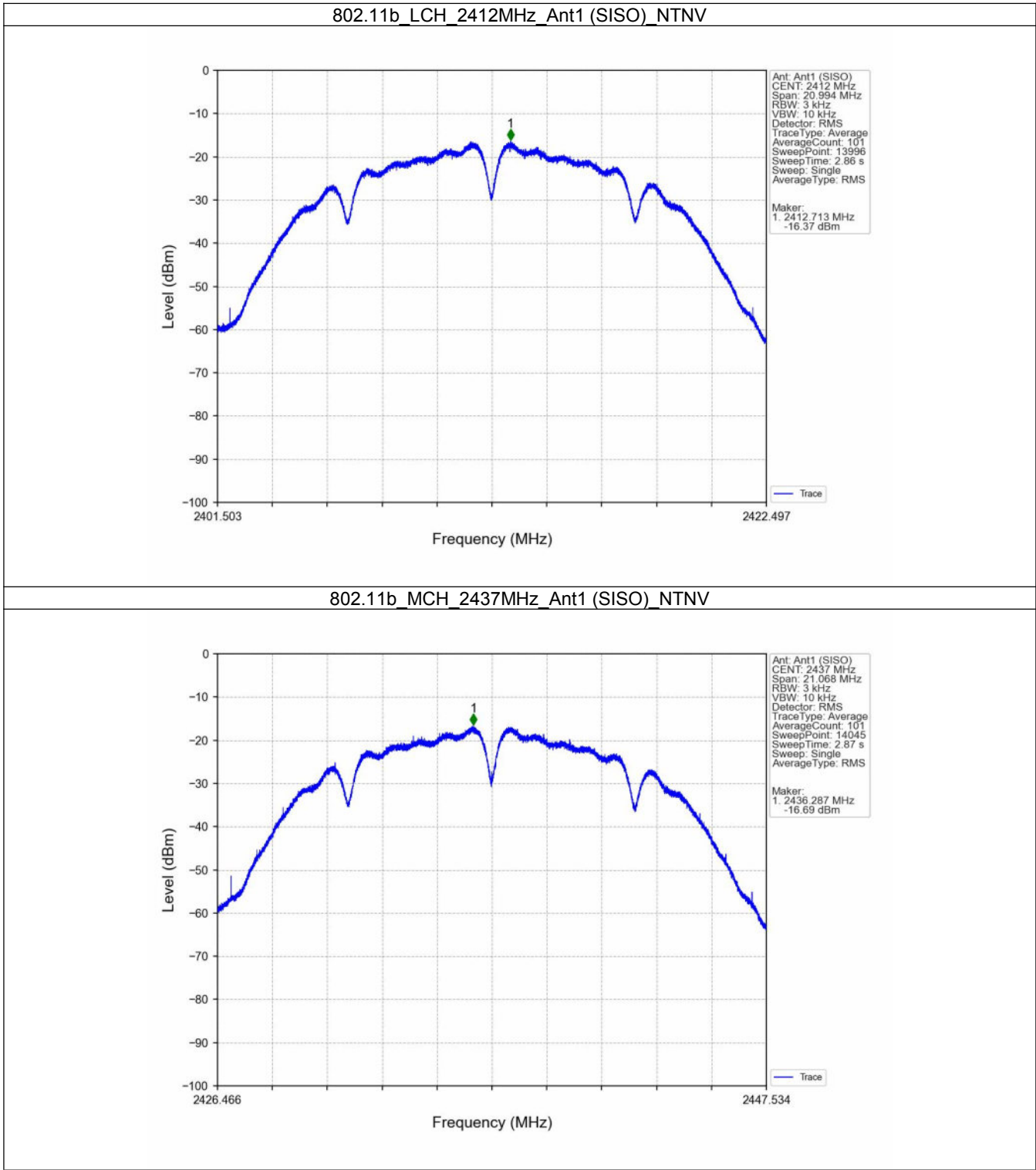
4.1.1 PSD

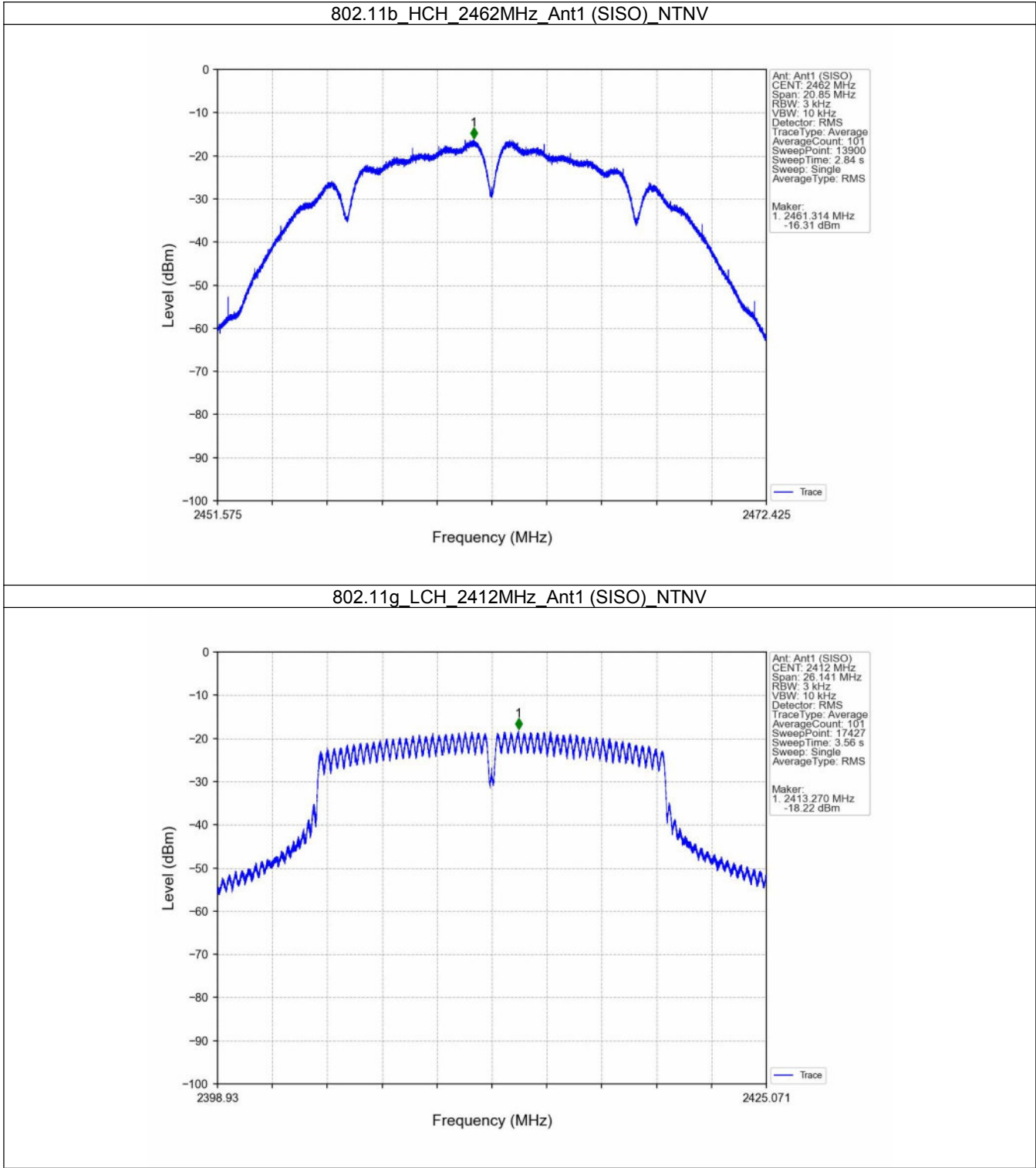
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-16.37	<=8	Pass
		2437	-16.69	<=8	Pass
		2462	-16.31	<=8	Pass
802.11g	SISO	2412	-18.22	<=8	Pass
		2437	-18.62	<=8	Pass
		2462	-17.95	<=8	Pass
802.11n (HT20)	SISO	2412	-14.95	<=8	Pass
		2437	-14.00	<=8	Pass
		2462	-14.39	<=8	Pass

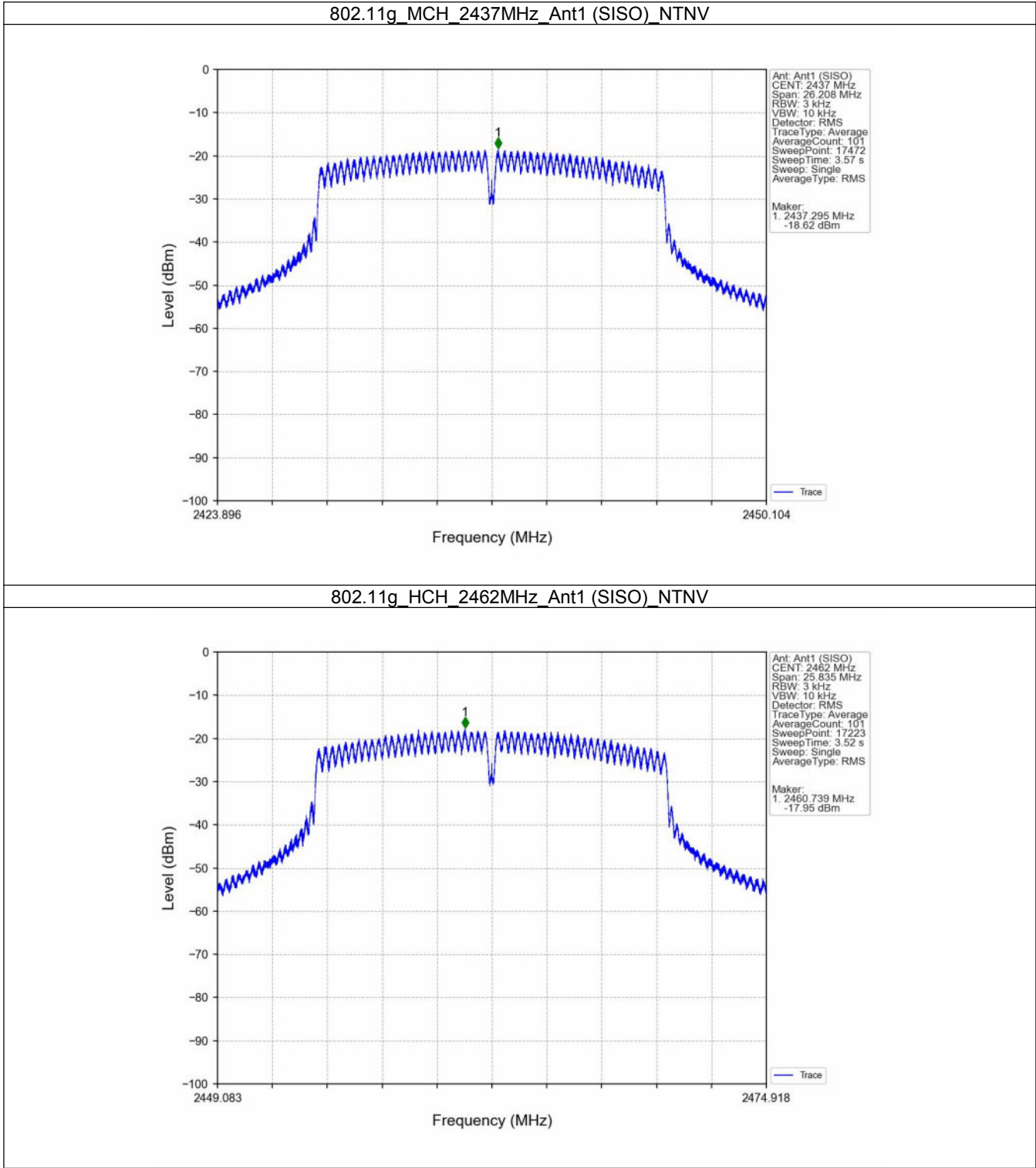
Note1: Antenna Gain: Ant1: -1.12dBi;

4.2 Test Graph

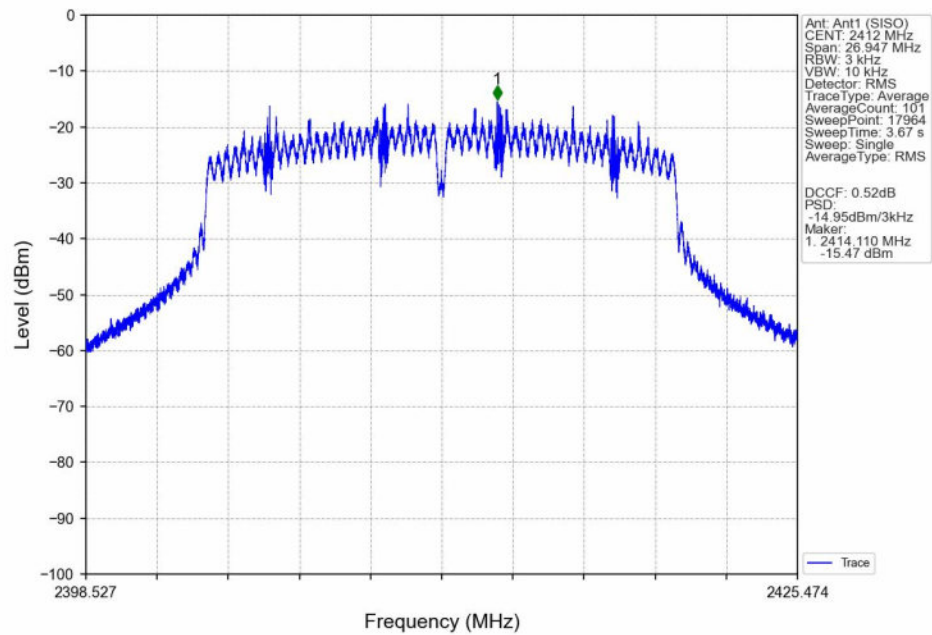
4.2.1 PSD



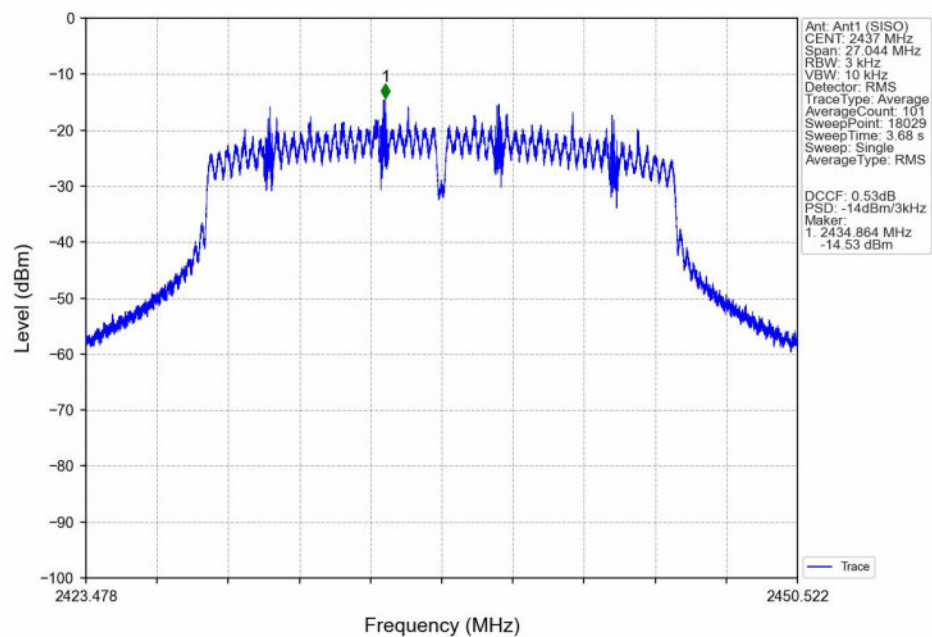


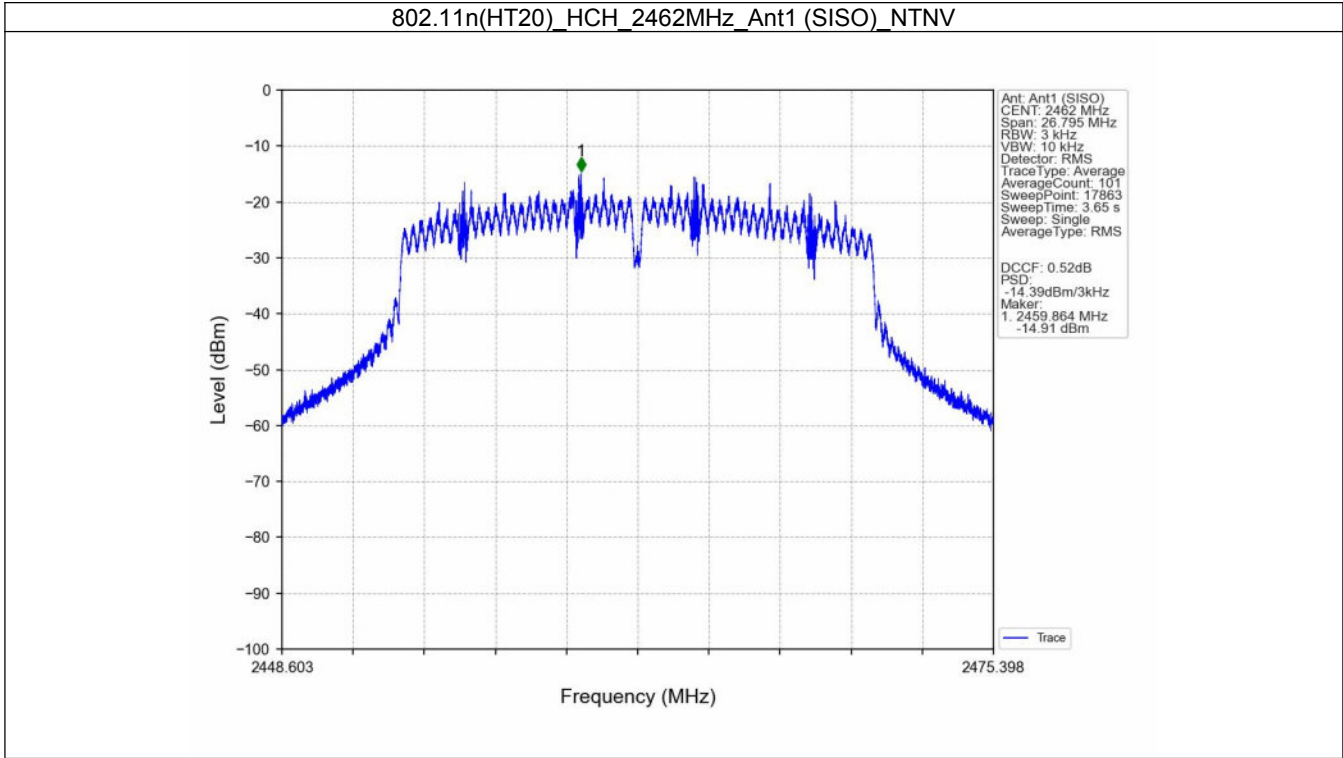


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV





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	7.02
		2437	1	6.57
		2462	1	7.12
802.11g	SISO	2412	1	5.10
		2437	1	4.23
		2462	1	4.47
802.11n (HT20)	SISO	2412	1	5.19
		2437	1	4.98
		2462	1	5.41

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.

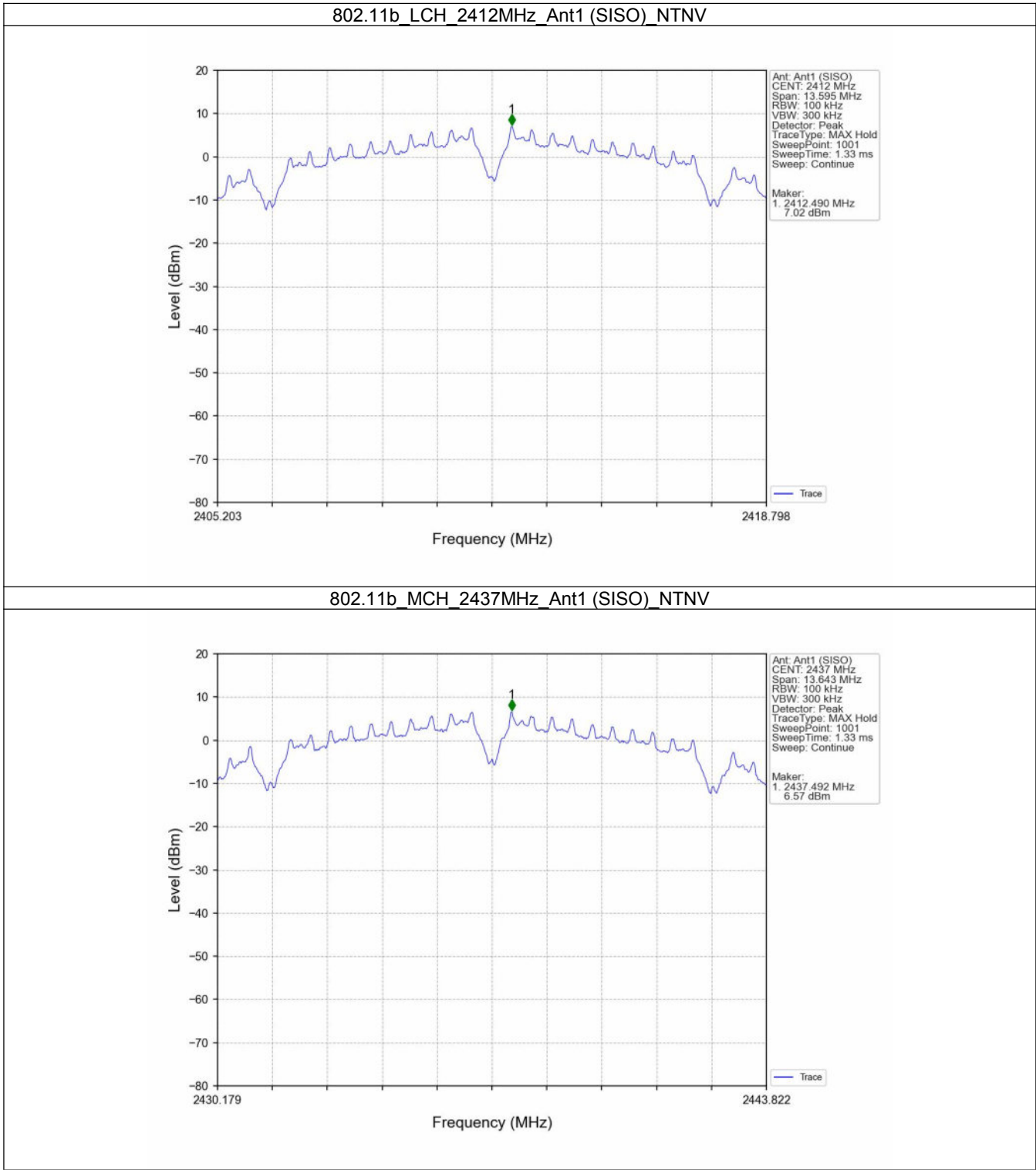
5.1.2 CSE

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	7.12	-22.88	Pass
		2437	1	7.12	-22.88	Pass
		2462	1	7.12	-22.88	Pass
802.11g	SISO	2412	1	5.10	-24.90	Pass
		2437	1	5.10	-24.90	Pass
		2462	1	5.10	-24.90	Pass
802.11n (HT20)	SISO	2412	1	5.41	-24.59	Pass
		2437	1	5.41	-24.59	Pass
		2462	1	5.41	-24.59	Pass

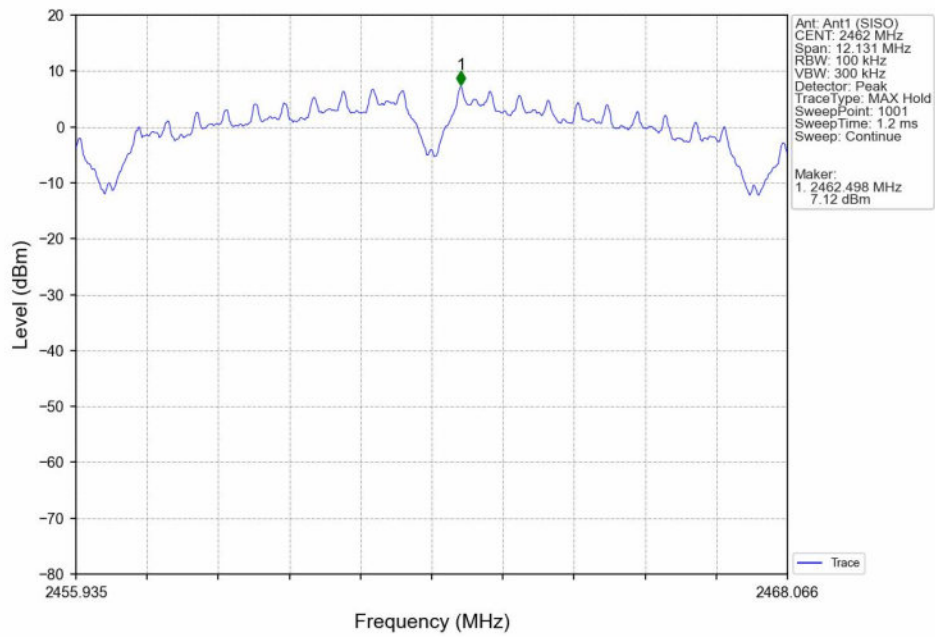
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

5.2 Test Graph

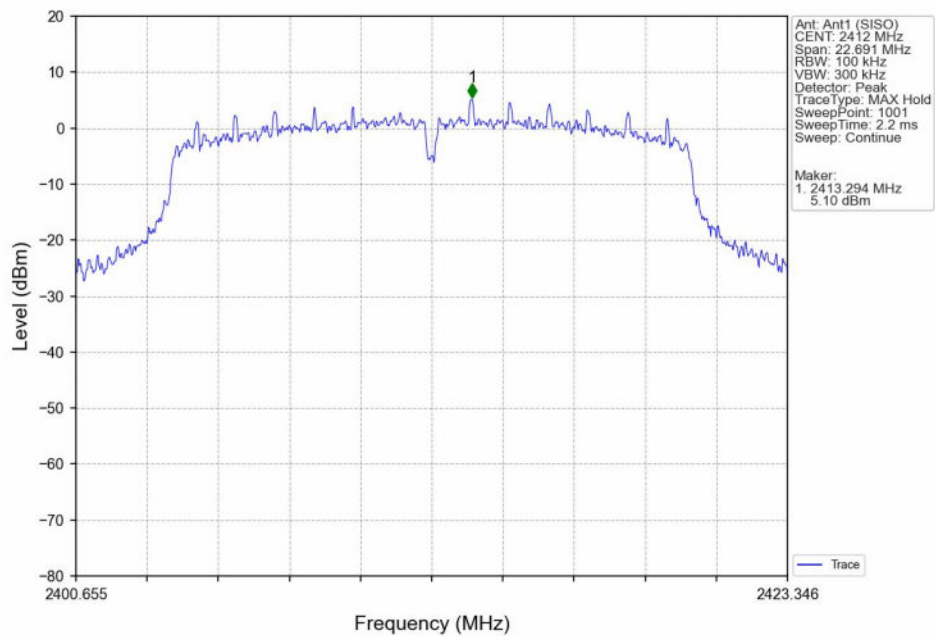
5.2.1 Ref



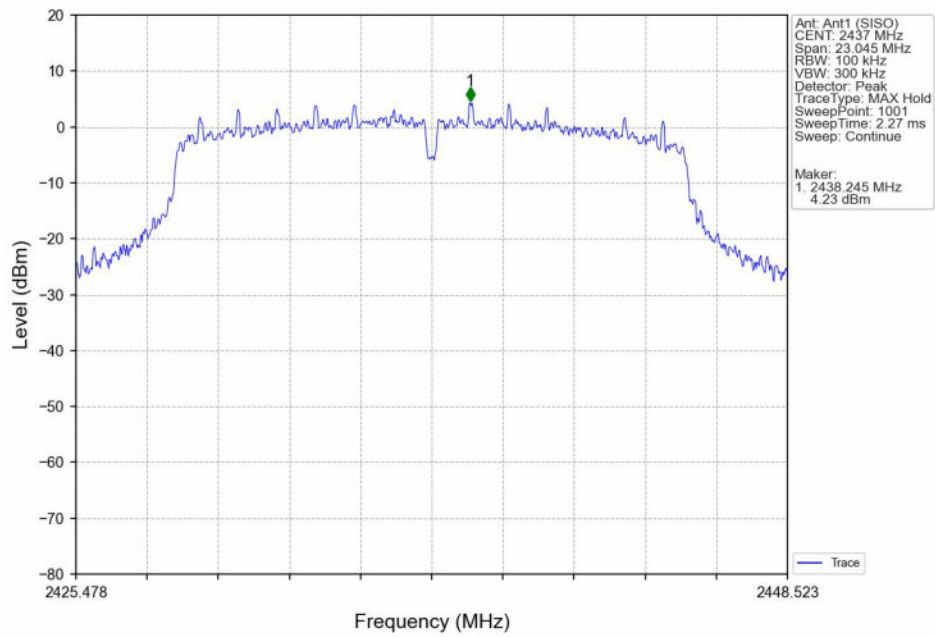
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



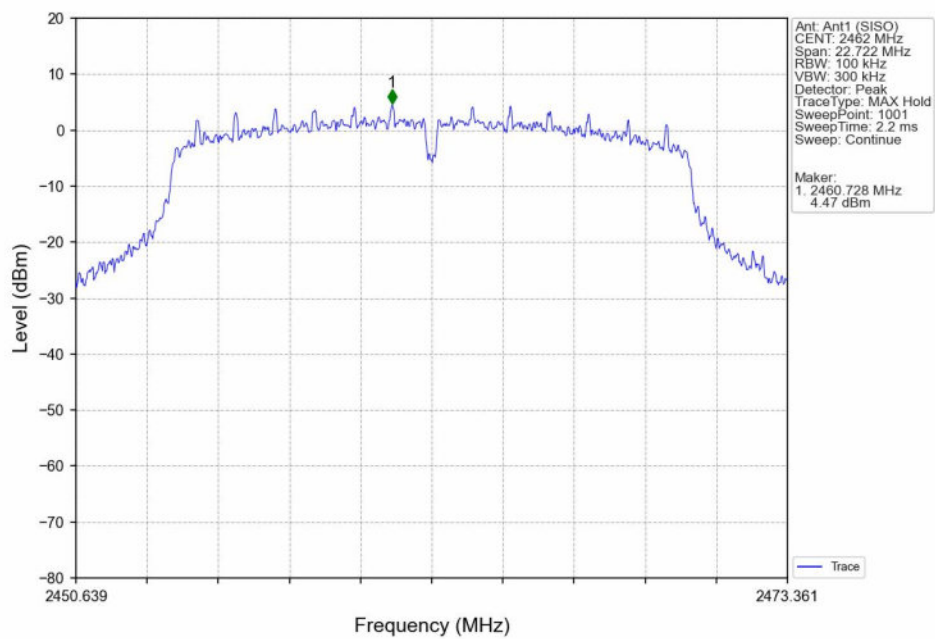
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



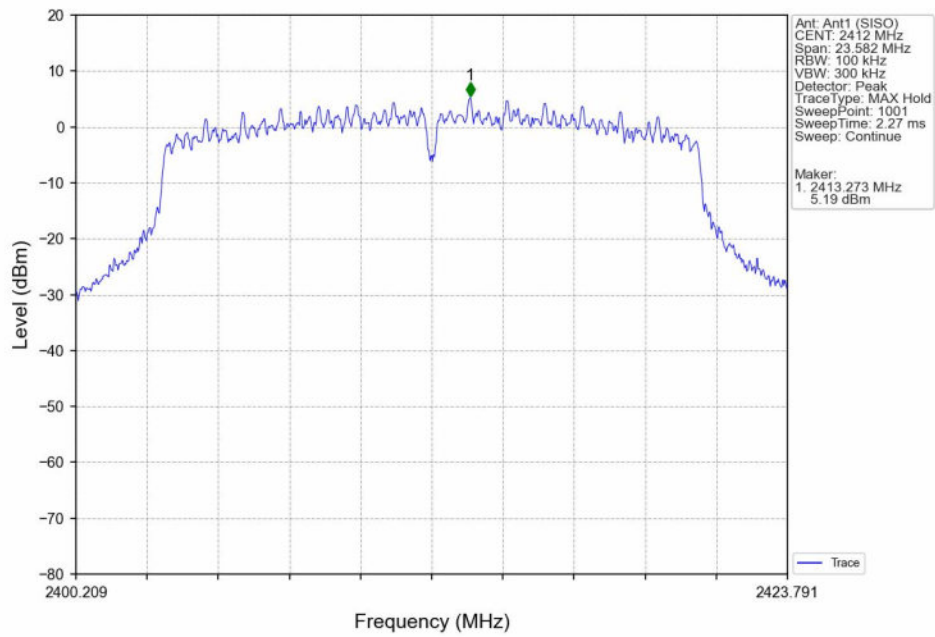
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



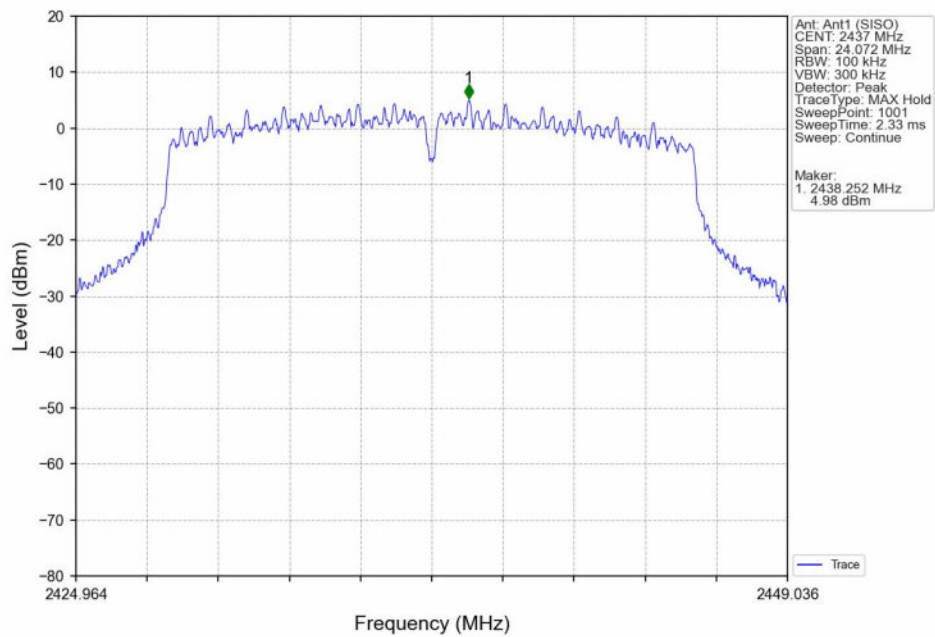
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

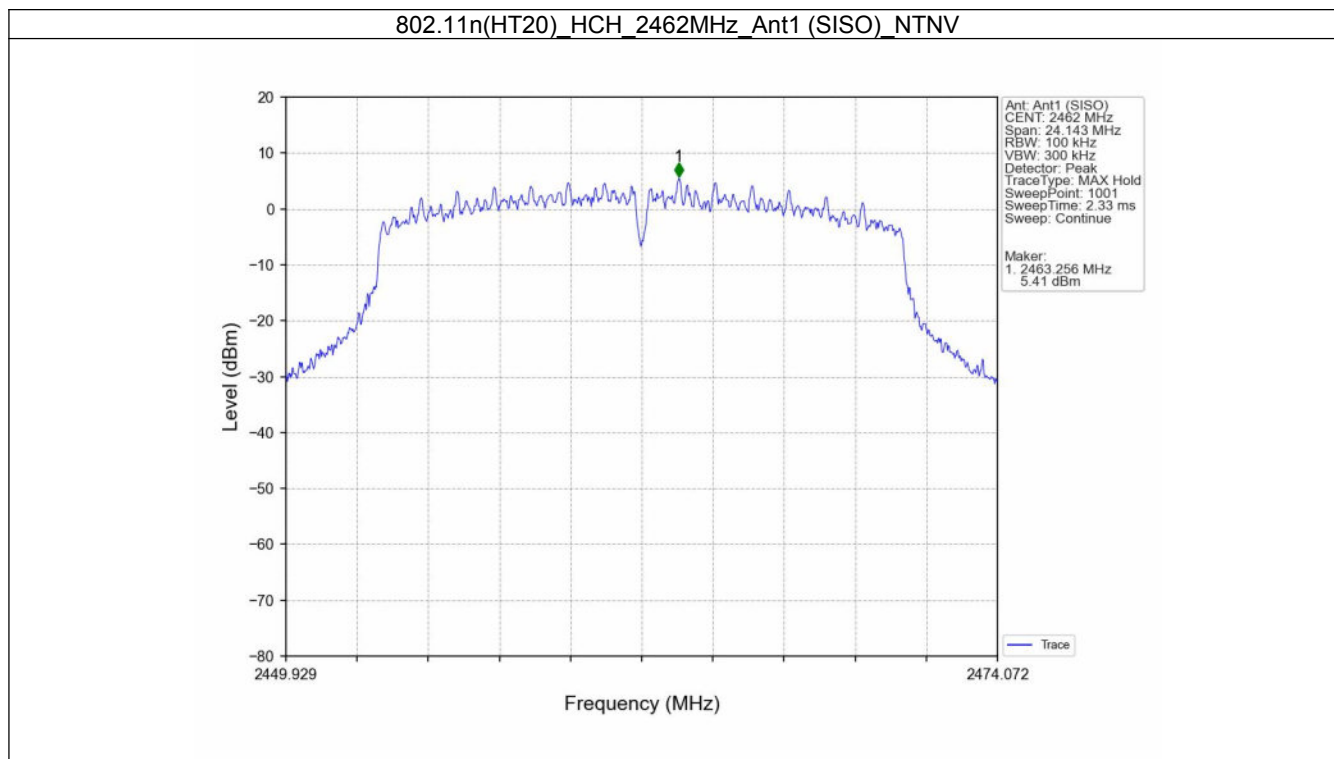


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

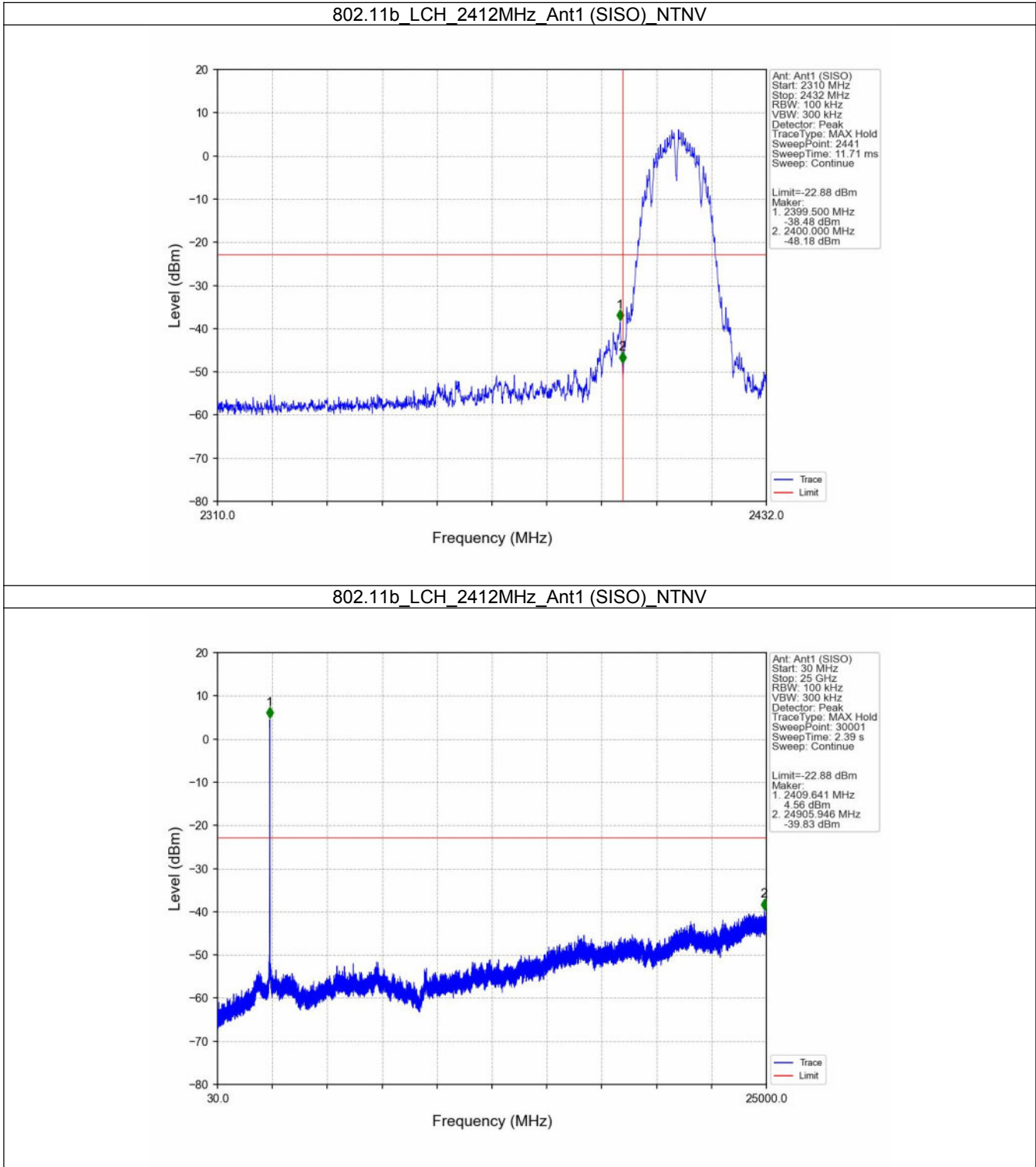


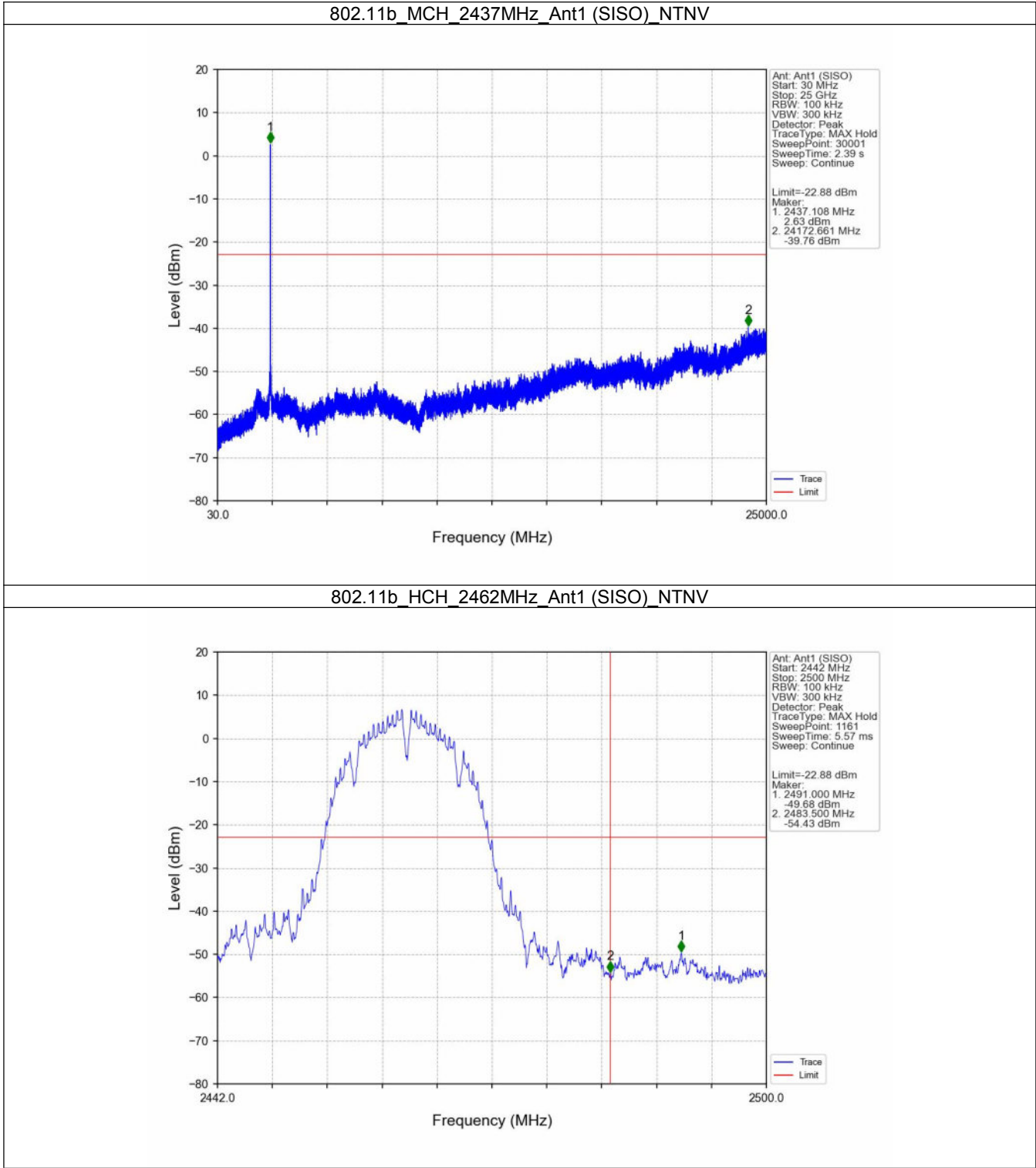
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

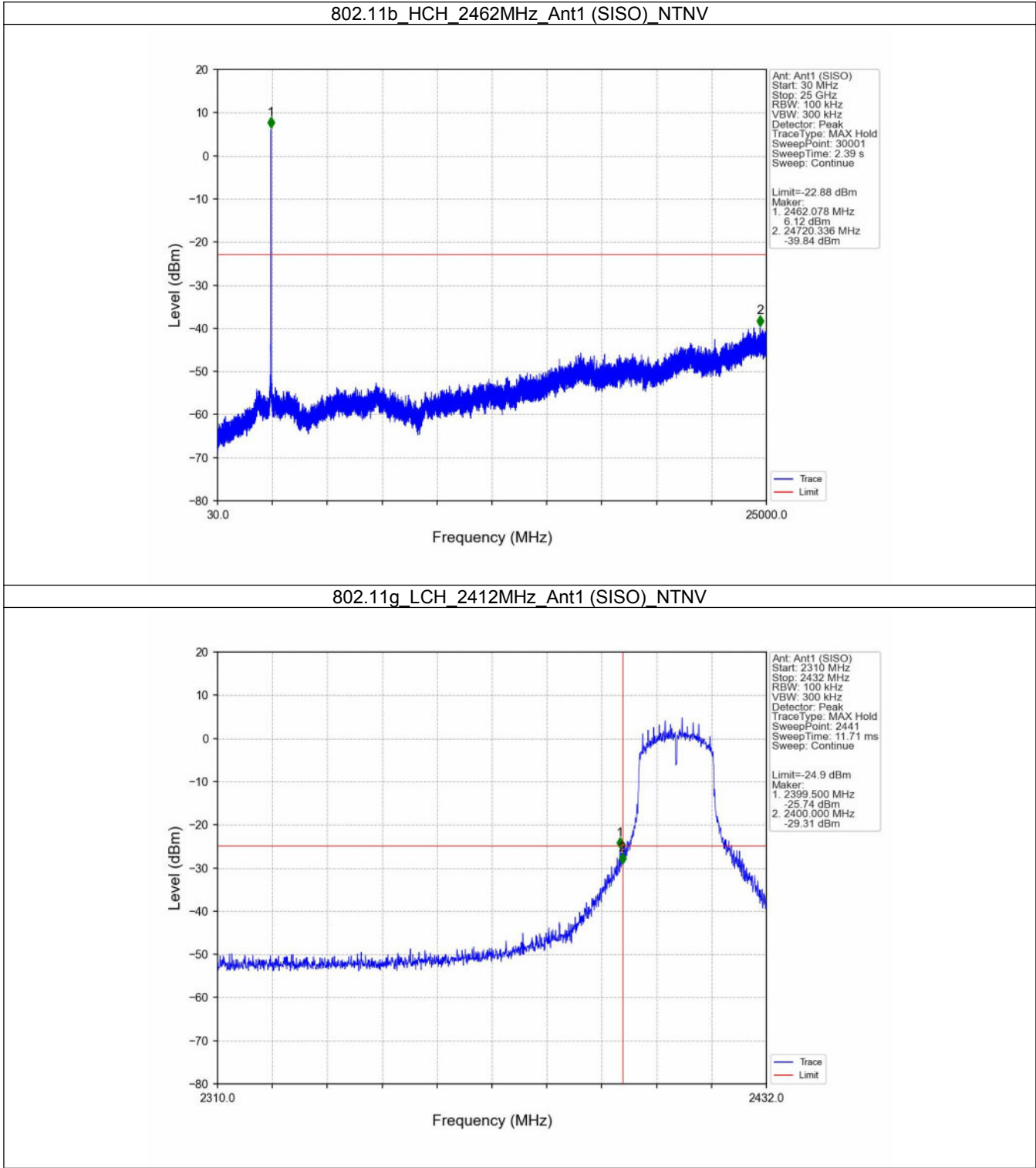


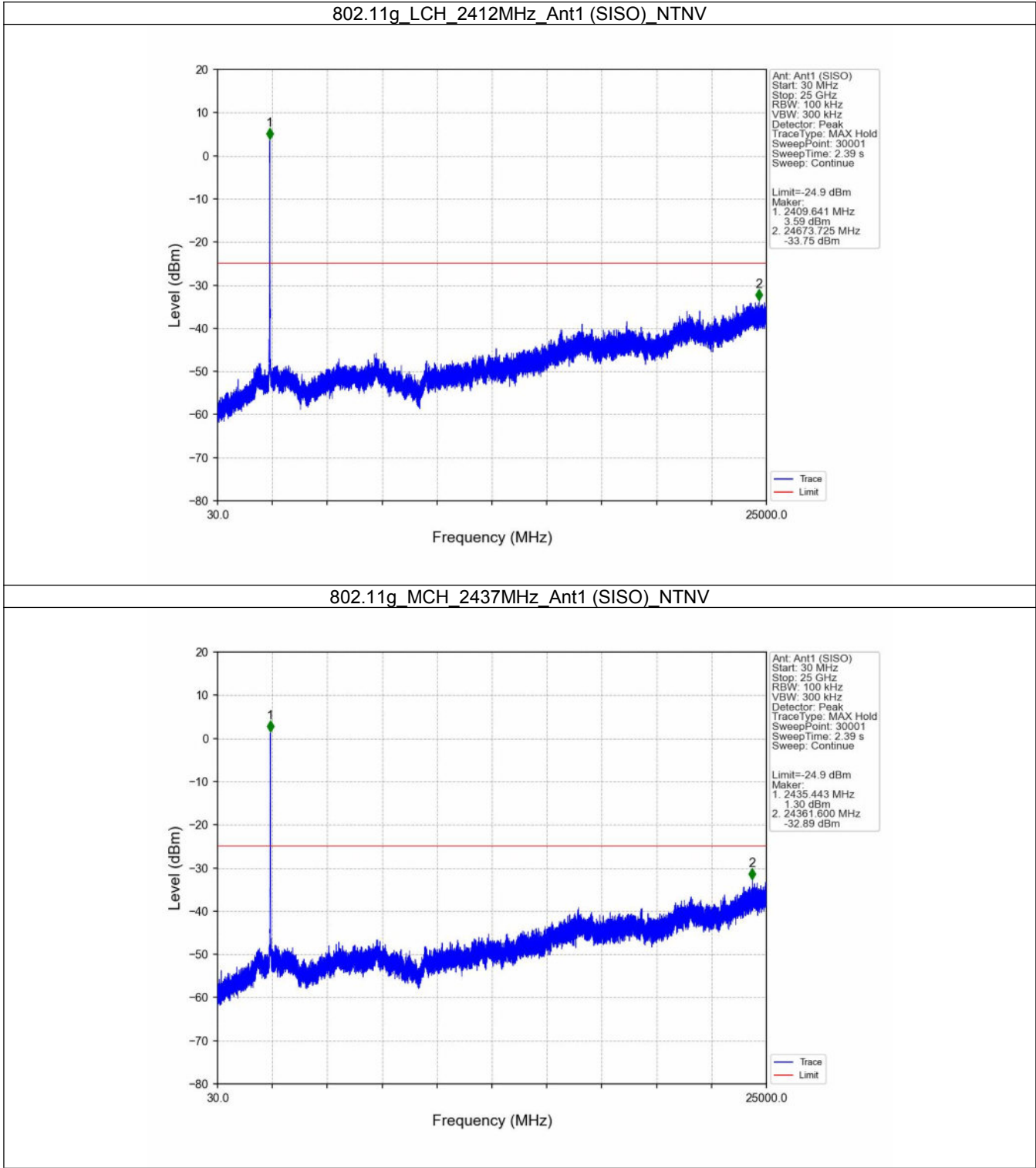


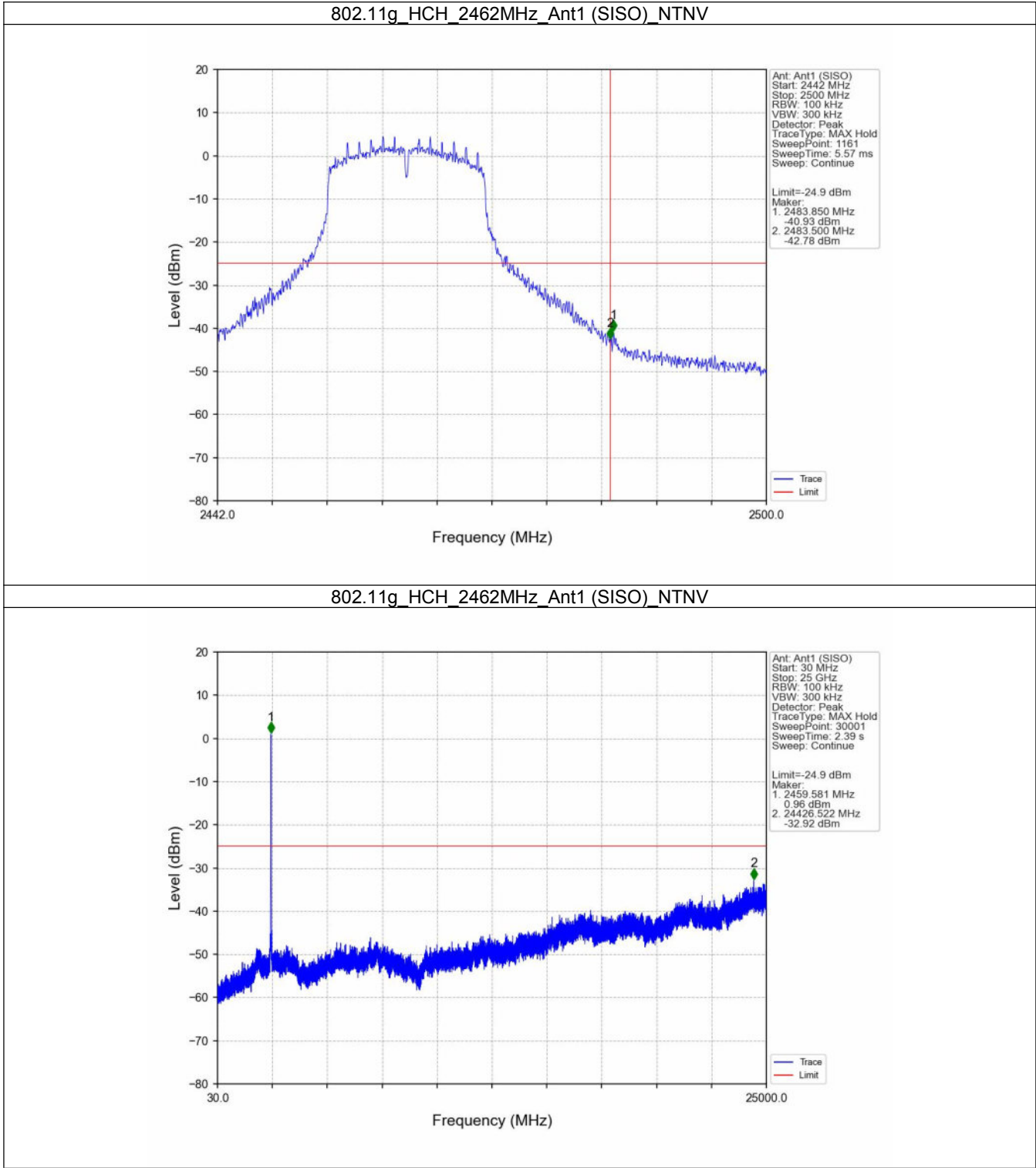
5.2.2 CSE



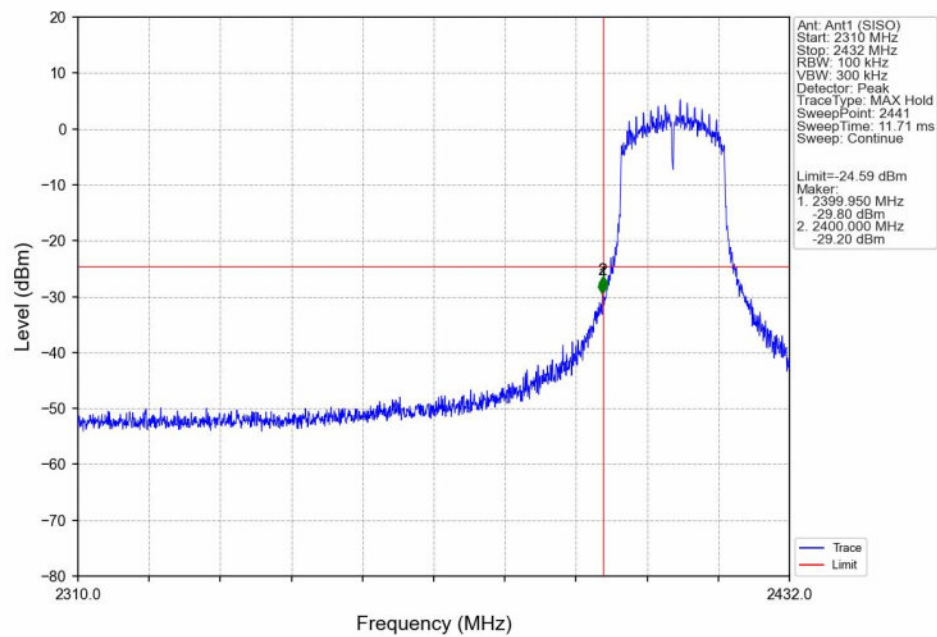




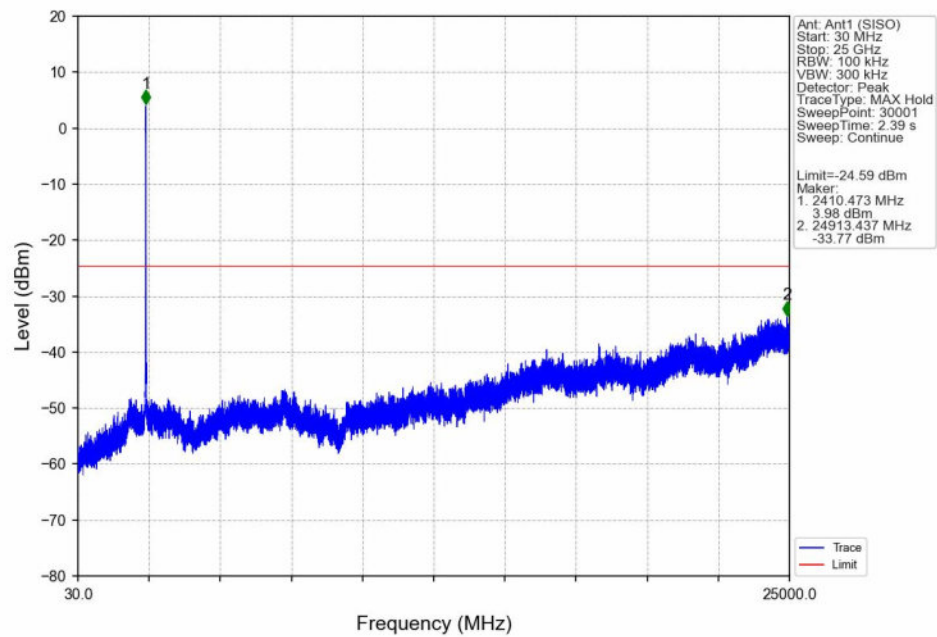


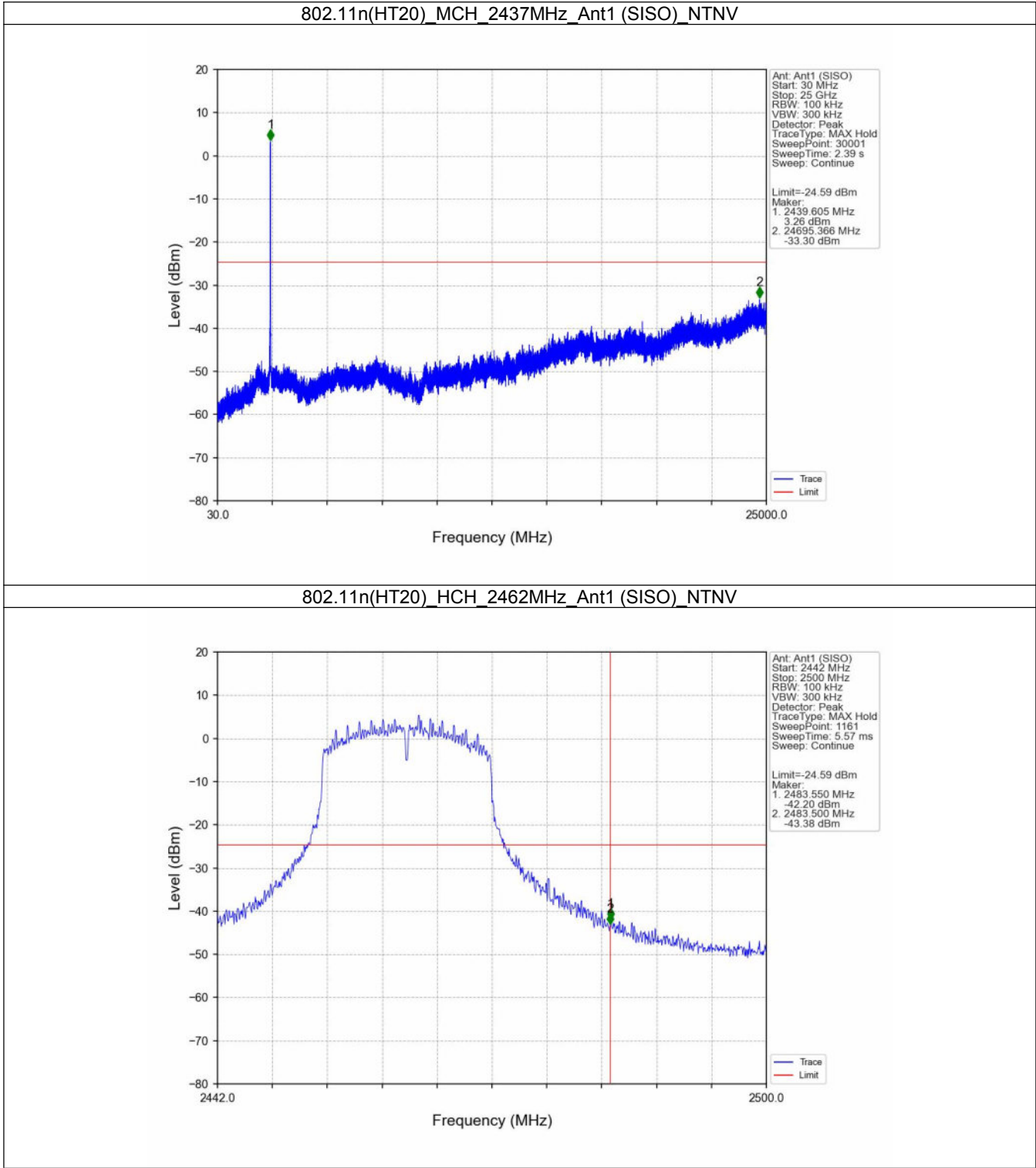


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV





802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

Ant: Ant1 (SISO)
Start: 2442 MHz
Stop: 2500 MHz
RBW: 100 kHz
VBW: 300 kHz
Detector: Peak
TraceType: MAX Hold
SweepPoint: 1161
SweepTime: 5.57 ms
Sweep: ContinueLimit=-24.59 dBm
Maker:
1. 2483.550 MHz
-42.20 dBm
2. 2483.550 MHz
-43.38 dBm

Level (dBm)

Frequency (MHz)

Trace

Limit

1

2

2442.0

2500.0

