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Annex for 2.4G WIFI

Test Report No.: CTL2402263011-WF

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1. Bandwidth

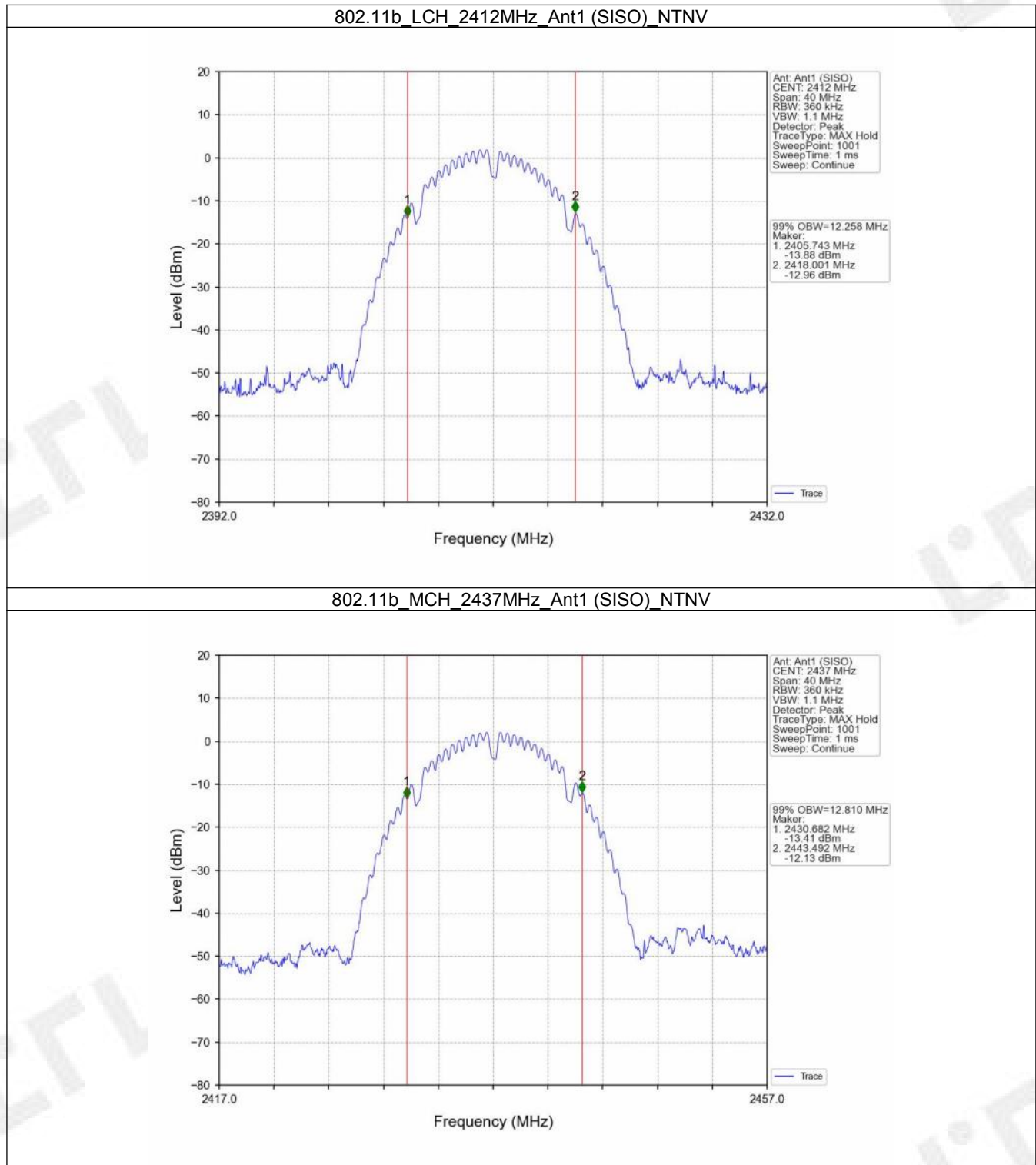
1.1 OBW

1.1.1 Test Result

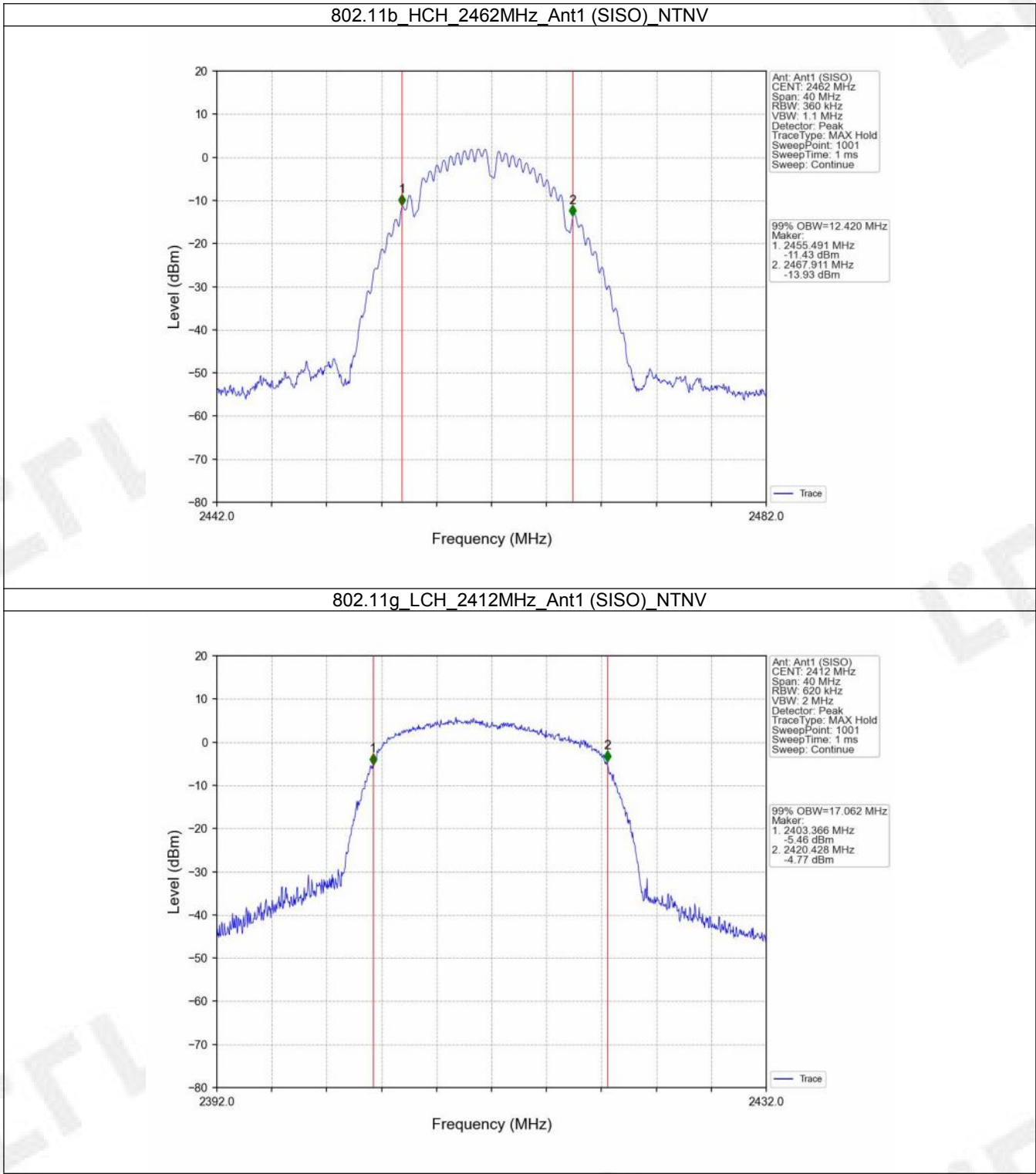
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	12.258	/	Pass
		2437	1	12.810	/	Pass
		2462	1	12.420	/	Pass
802.11g	SISO	2412	1	17.062	/	Pass
		2437	1	17.422	/	Pass
		2462	1	17.035	/	Pass
802.11n (HT20)	SISO	2412	1	17.862	/	Pass
		2437	1	18.331	/	Pass
		2462	1	17.860	/	Pass
802.11n (HT40)	SISO	2422	1	36.648	/	Pass
		2437	1	37.260	/	Pass
		2452	1	35.534	/	Pass

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1.1.2 Test Graph

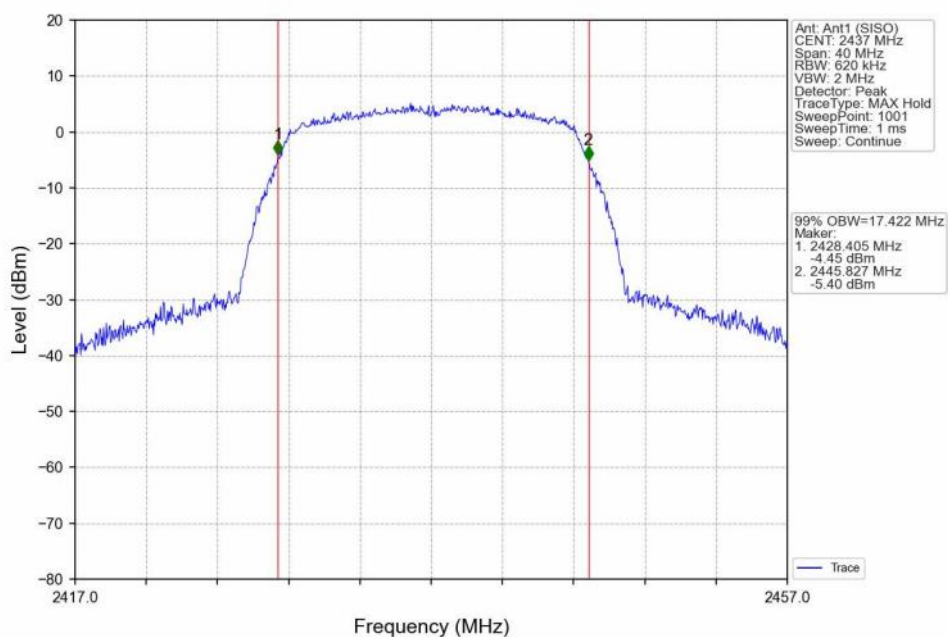


FCCID:2BFSD-M10VSA2

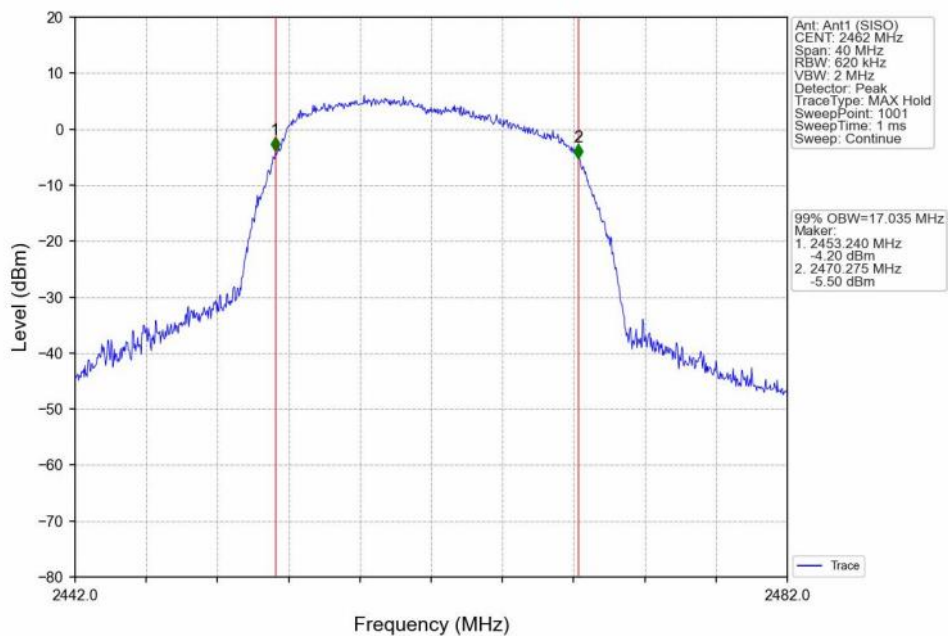


FCCID:2BFSD-M10VSA2

802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

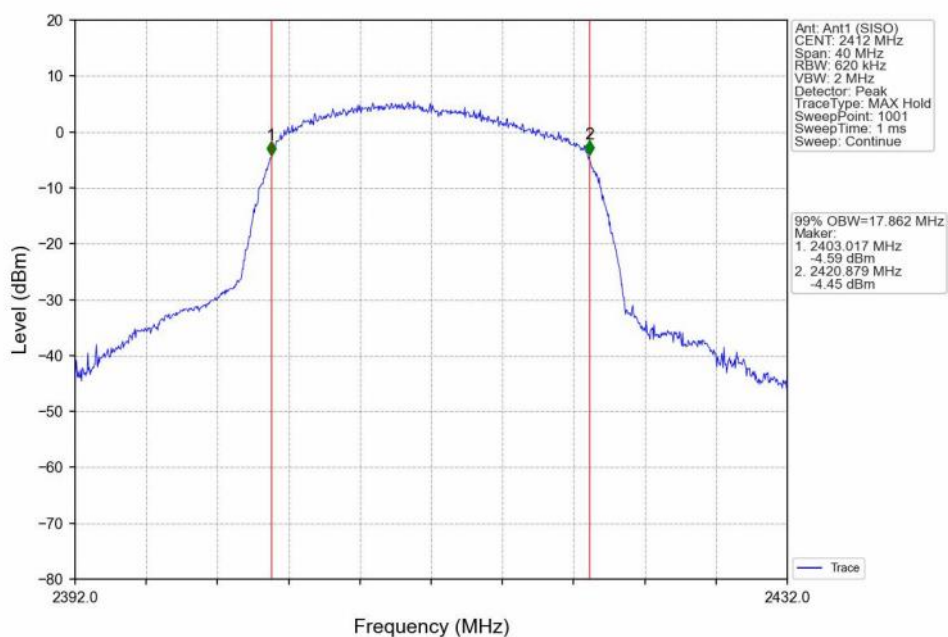


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

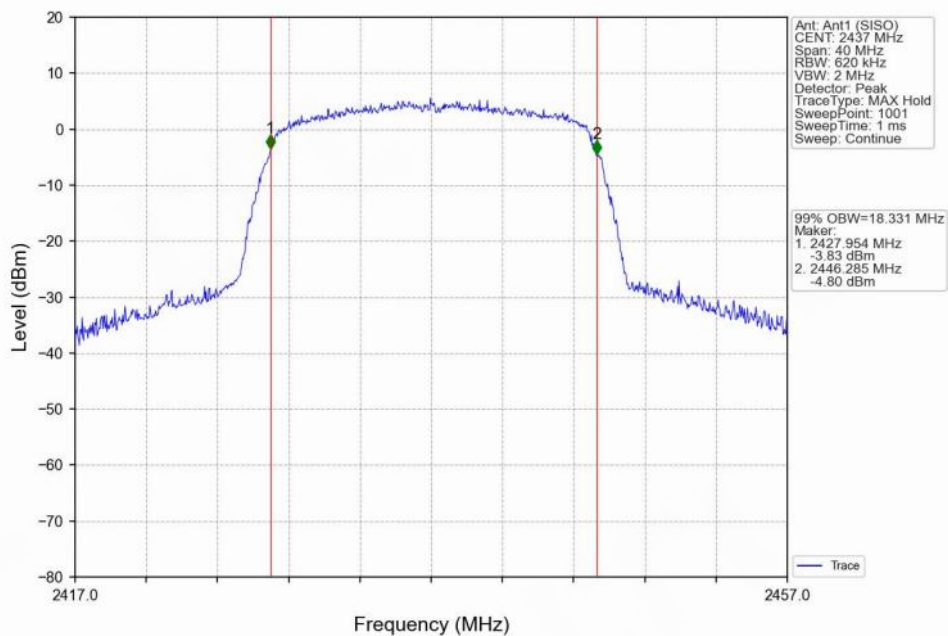


FCCID:2BFSD-M10VSA2

802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

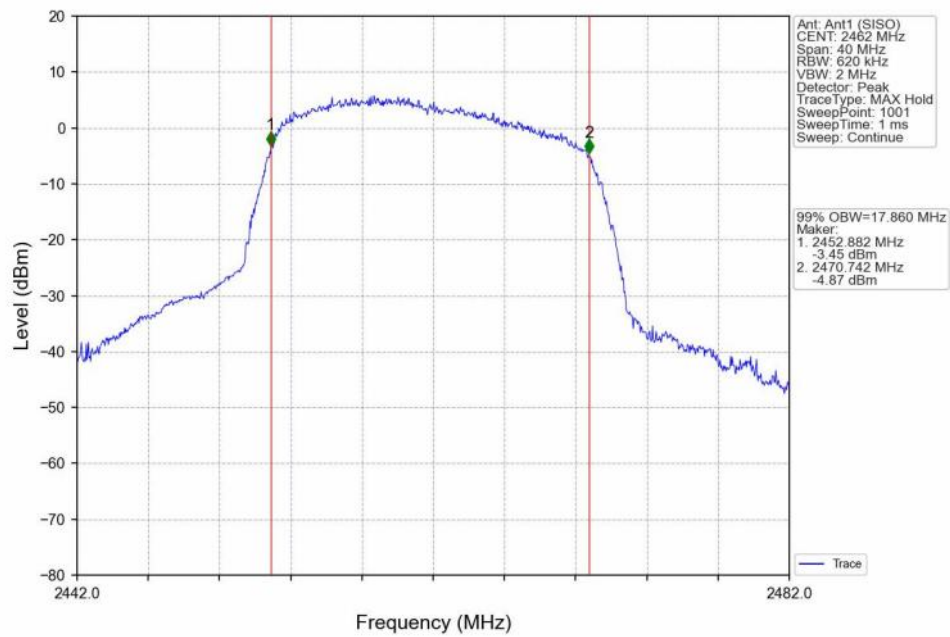


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

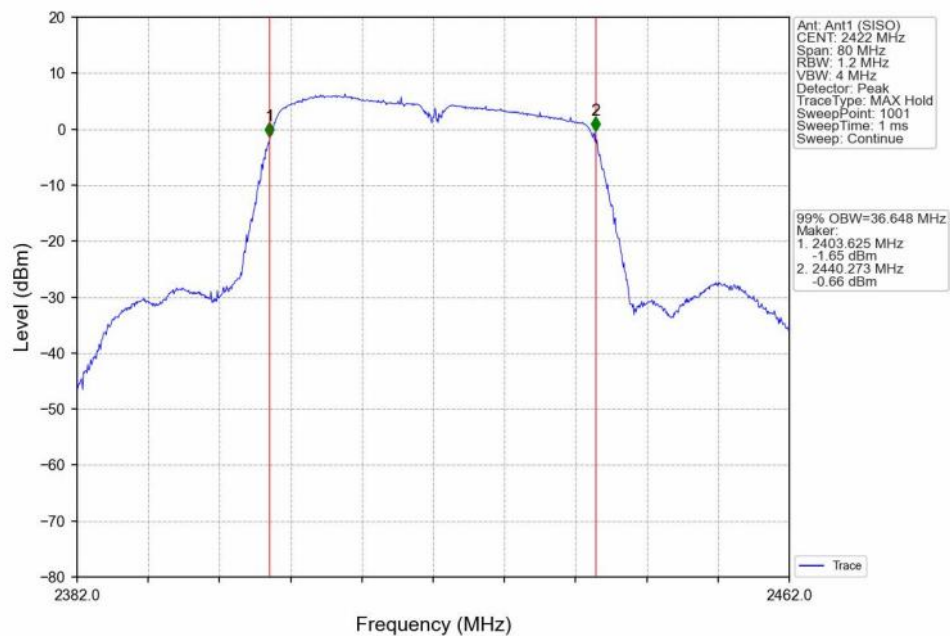


FCCID:2BFSD-M10VSA2

802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

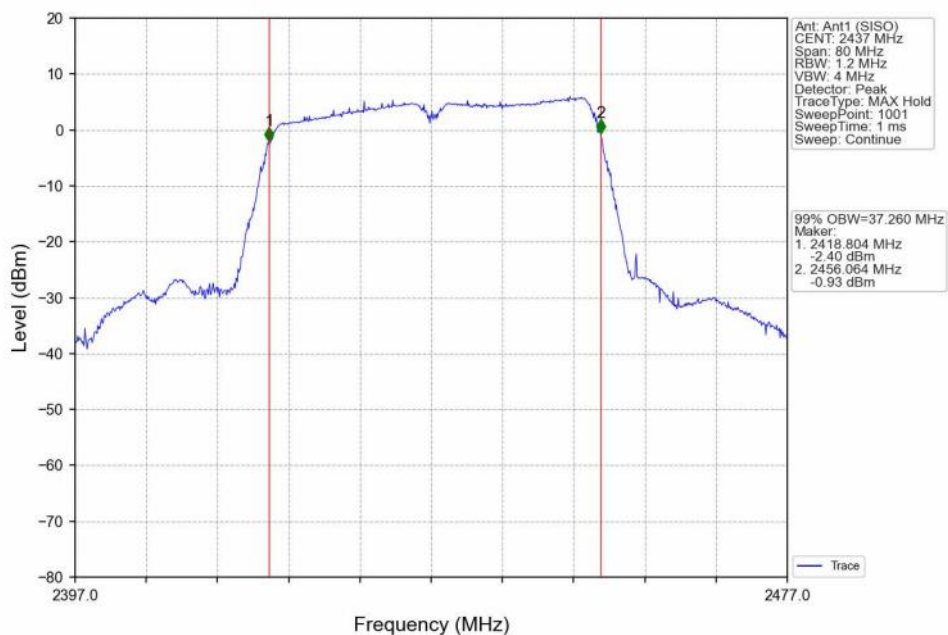


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

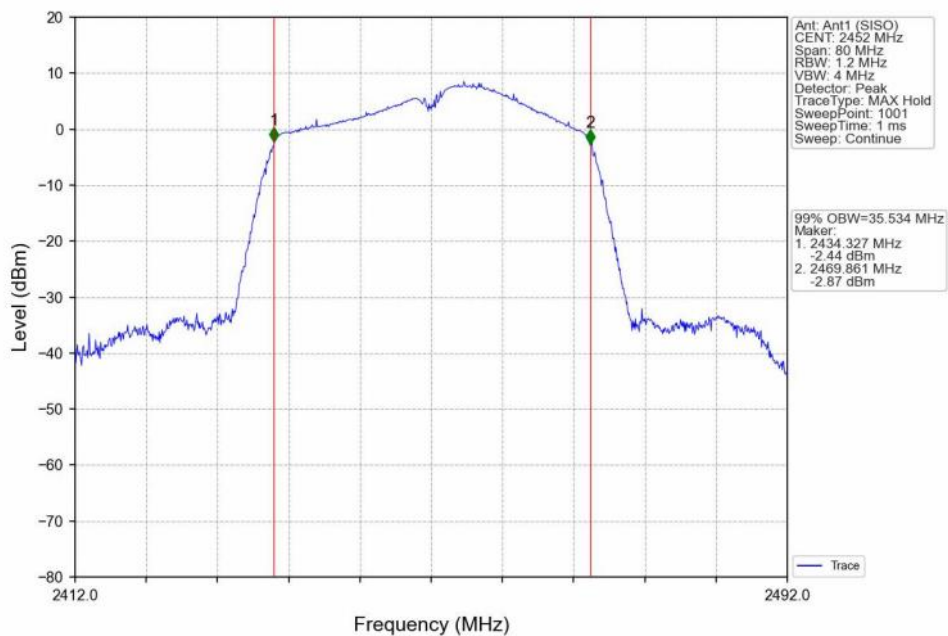


FCCID:2BFSD-M10VSA2

802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



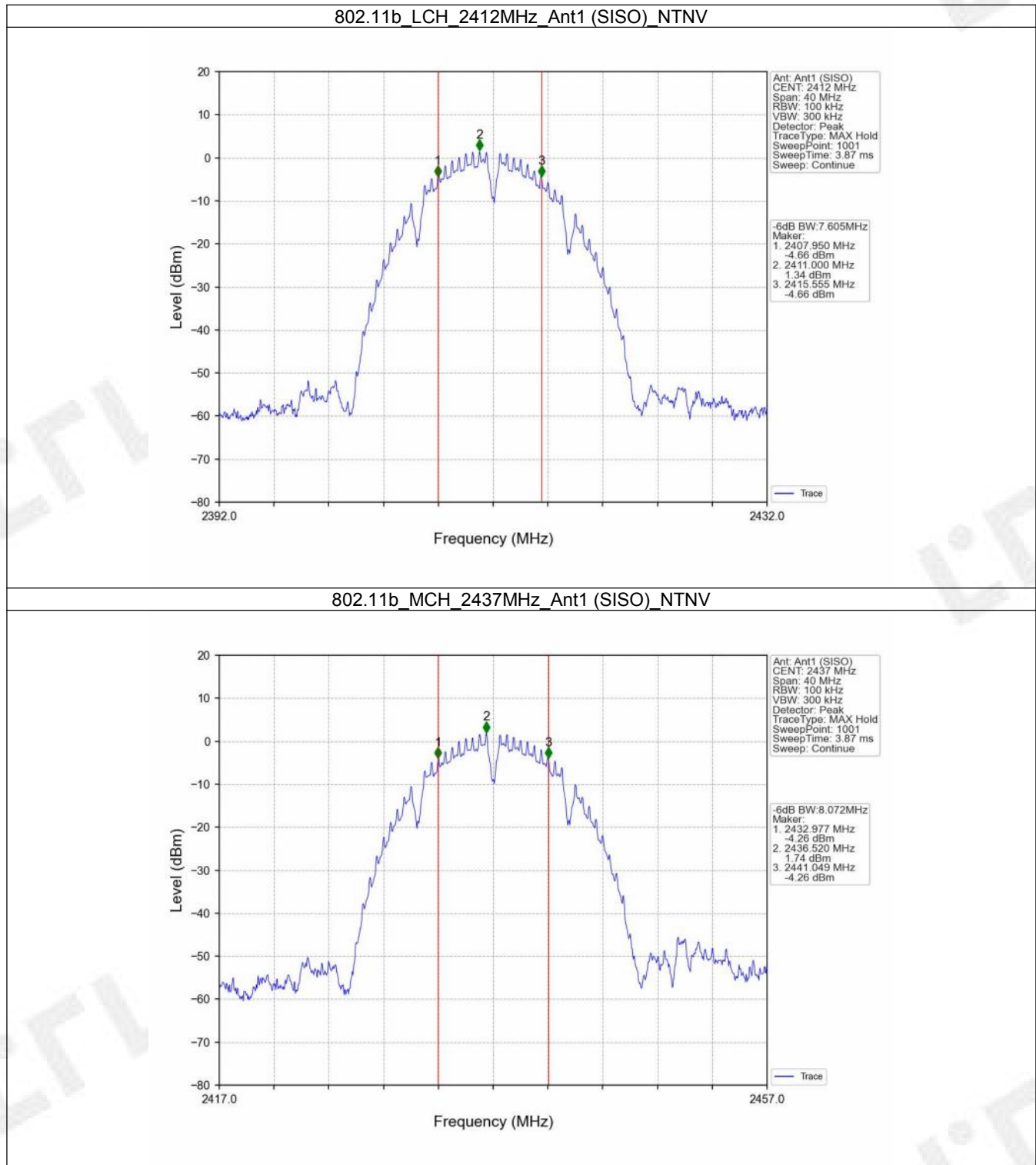
FCCID:2BFSD-M10VSA2

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	7.605	≥ 0.5	Pass
		2437	1	8.072	≥ 0.5	Pass
		2462	1	8.054	≥ 0.5	Pass
802.11g	SISO	2412	1	15.101	≥ 0.5	Pass
		2437	1	15.155	≥ 0.5	Pass
		2462	1	14.112	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	15.100	≥ 0.5	Pass
		2437	1	15.171	≥ 0.5	Pass
		2462	1	12.935	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	35.158	≥ 0.5	Pass
		2437	1	35.759	≥ 0.5	Pass
		2452	1	21.320	≥ 0.5	Pass

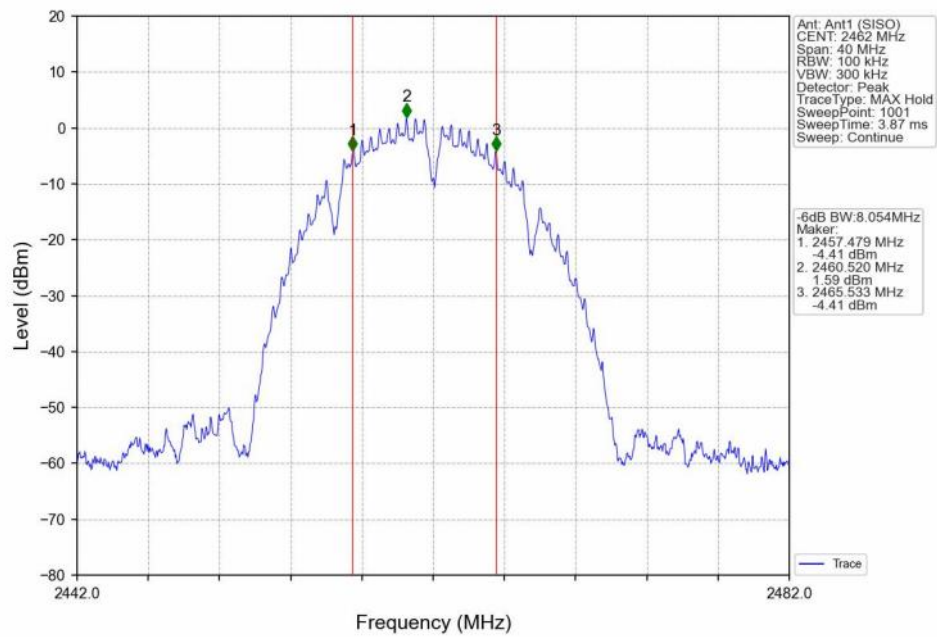
FCCID:2BFSD-M10VSA2

1.2.2 Test Graph

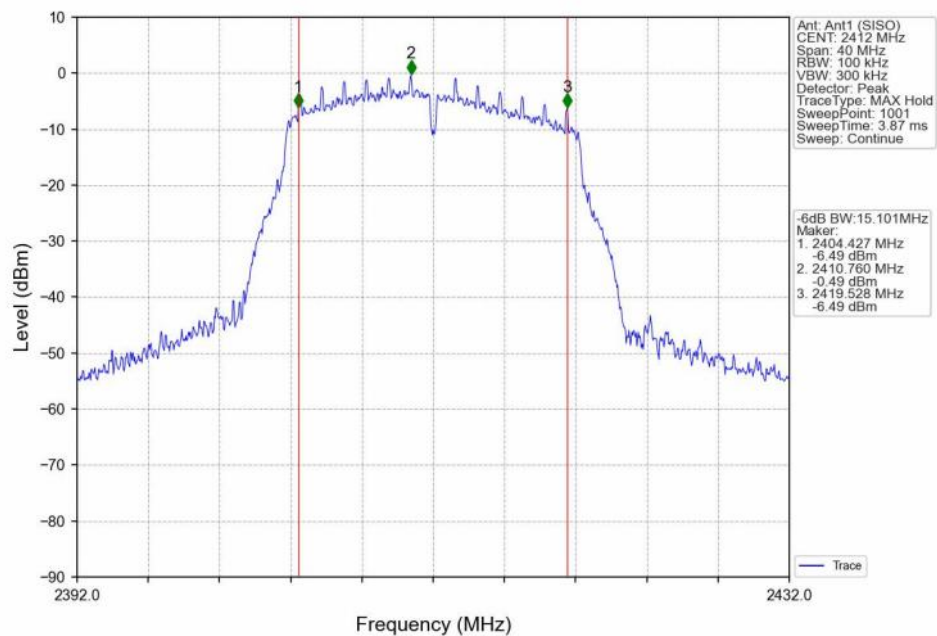


FCCID:2BFSD-M10VSA2

802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

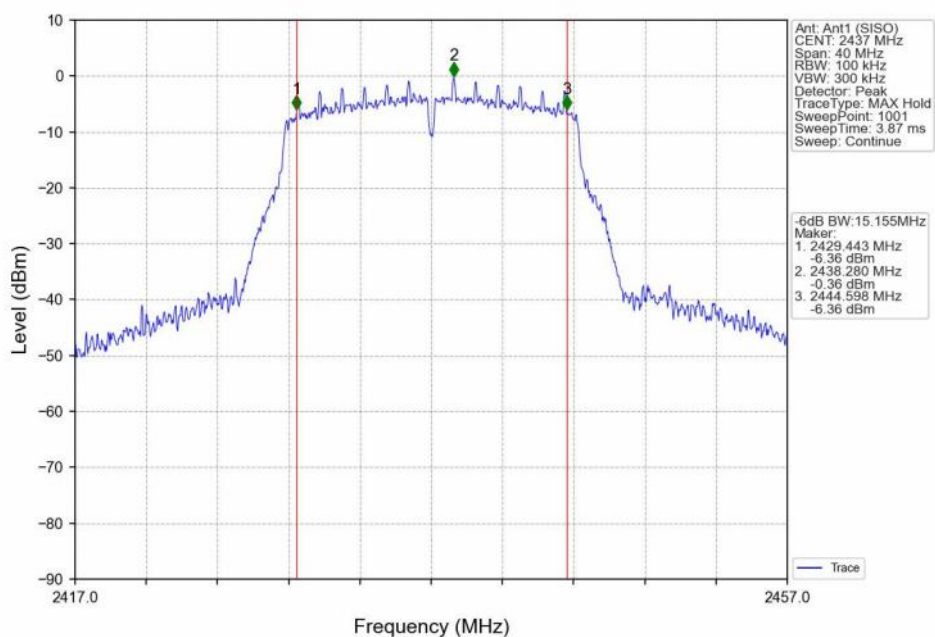


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

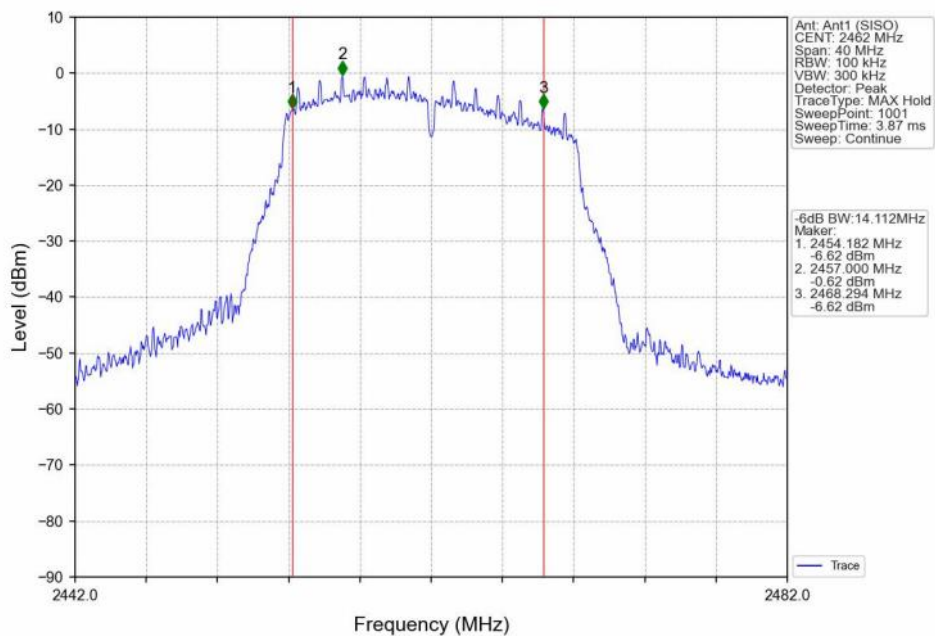


FCCID:2BFSD-M10VSA2

802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

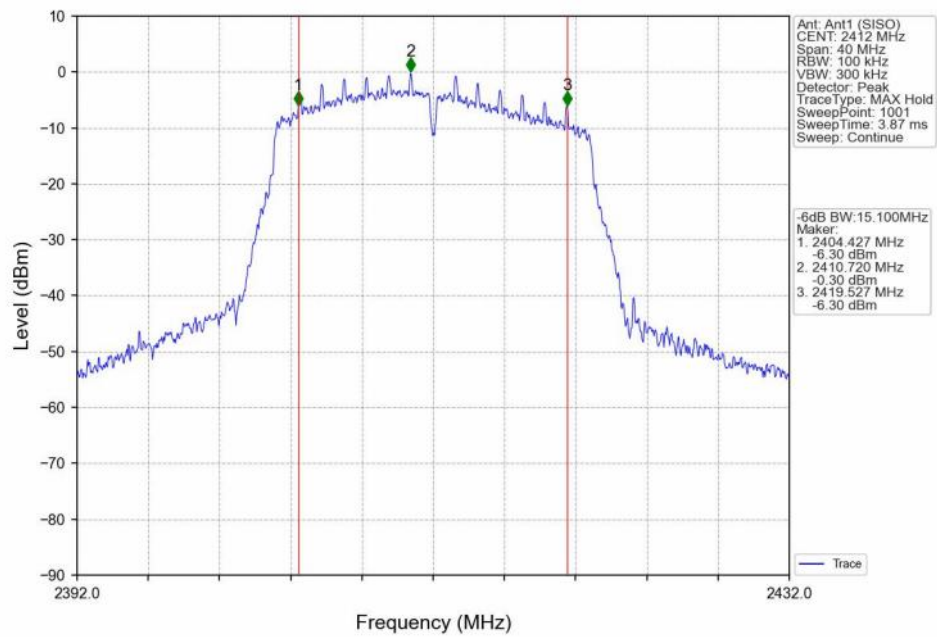


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

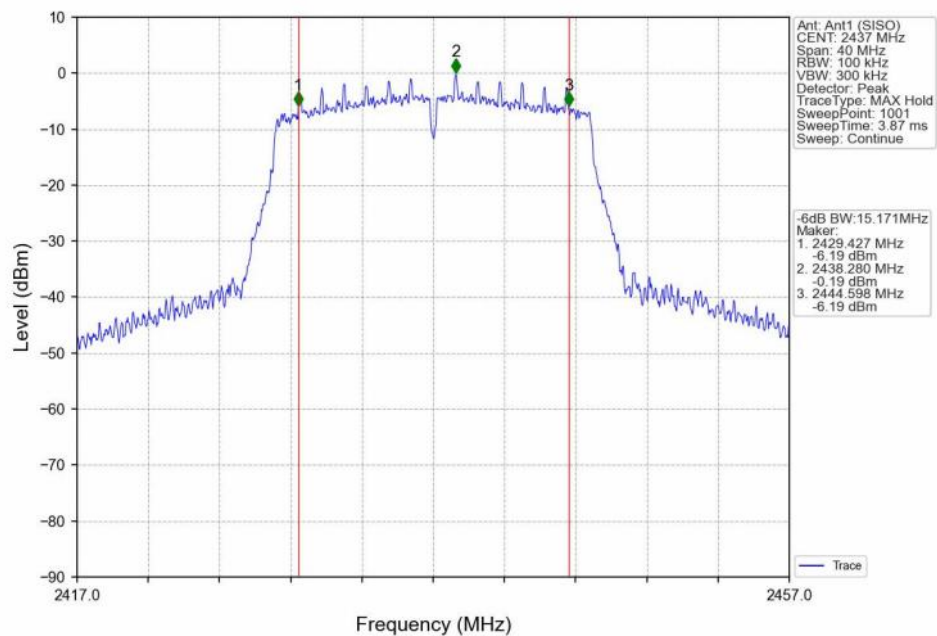


FCCID:2BFSD-M10VSA2

802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

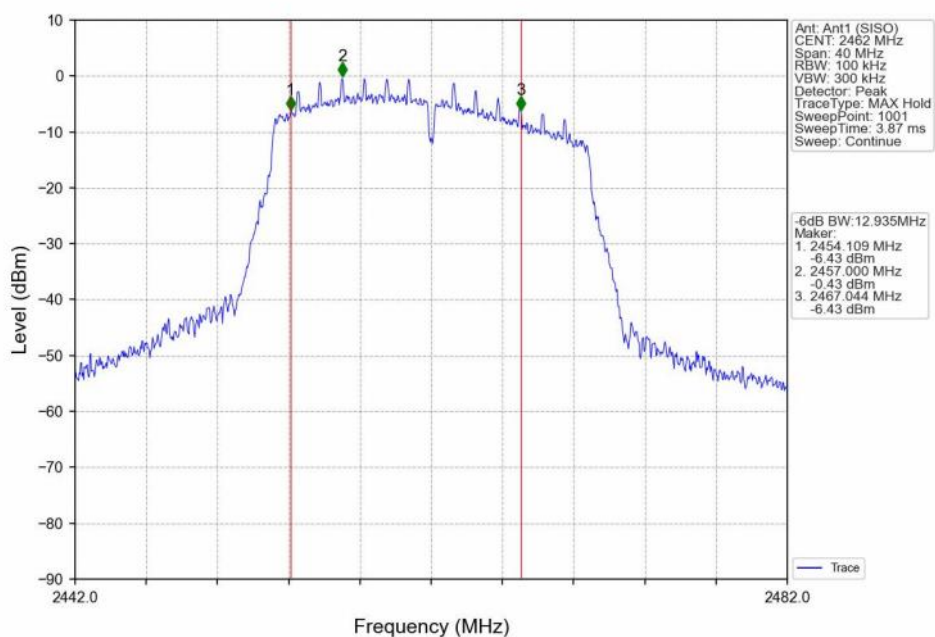


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

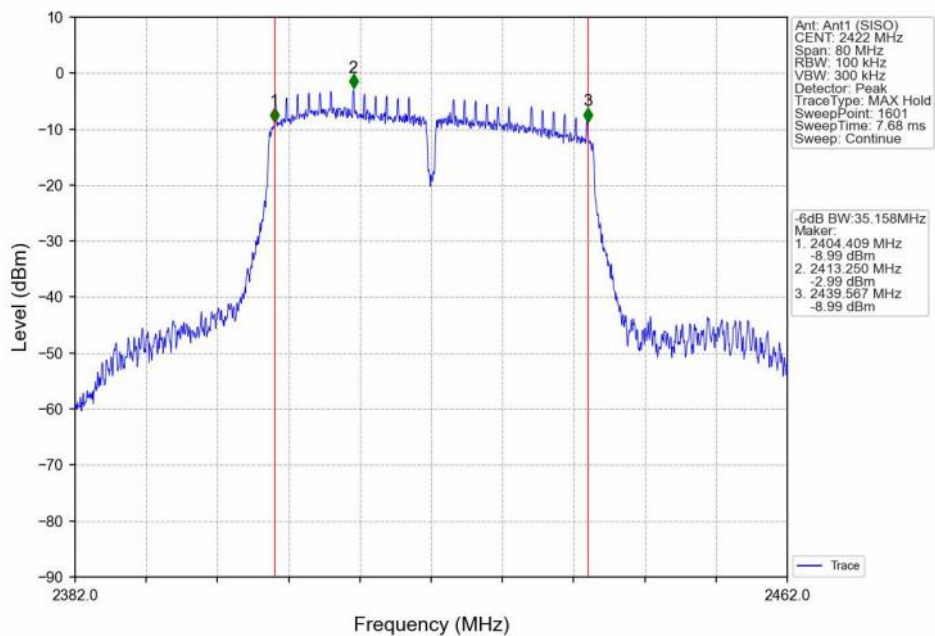


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802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

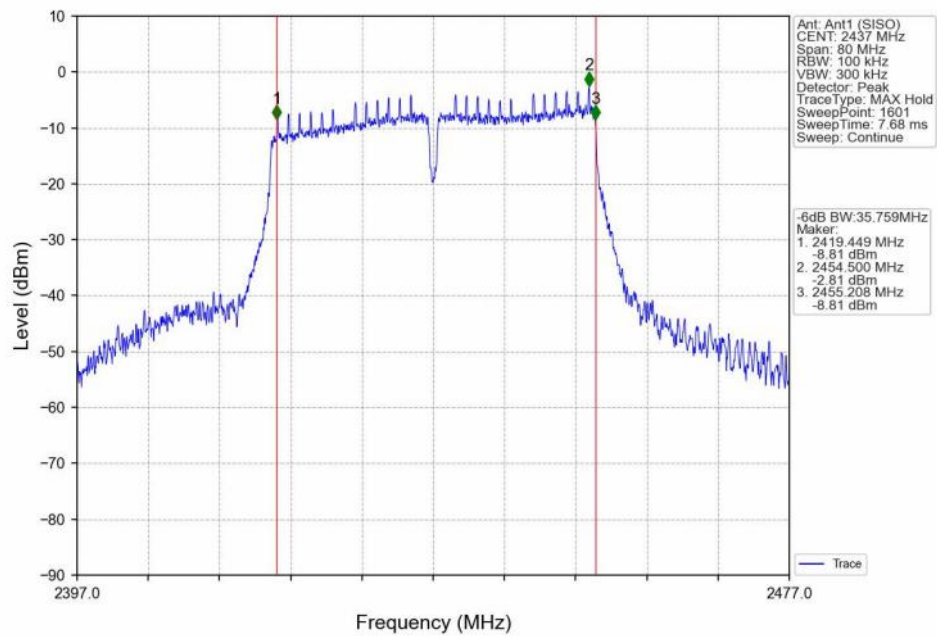


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

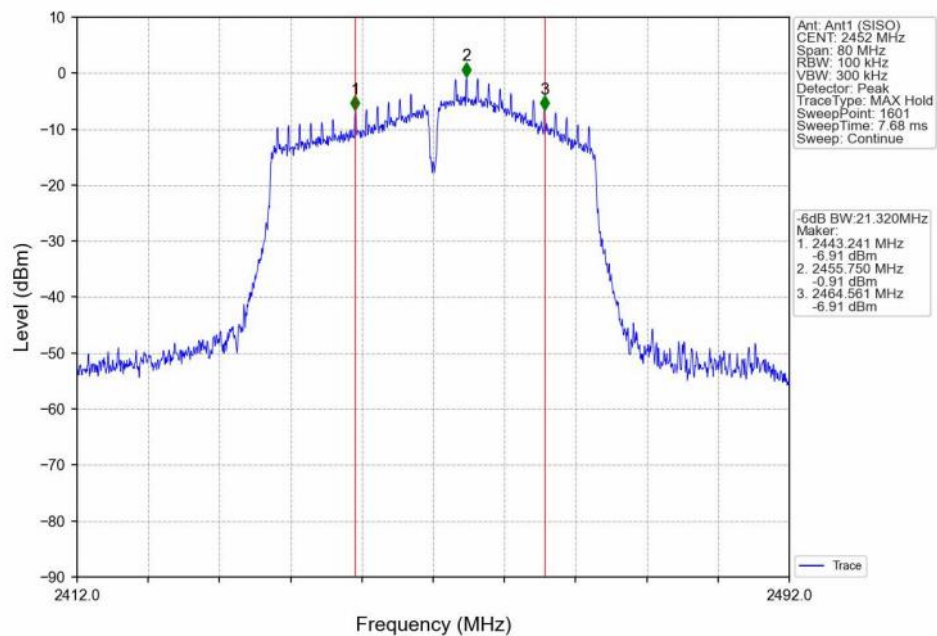


FCCID:2BFSD-M10VSA2

802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



FCCID:2BFSD-M10VSA2

2. Maximum Conducted Output Power

2.1 Power

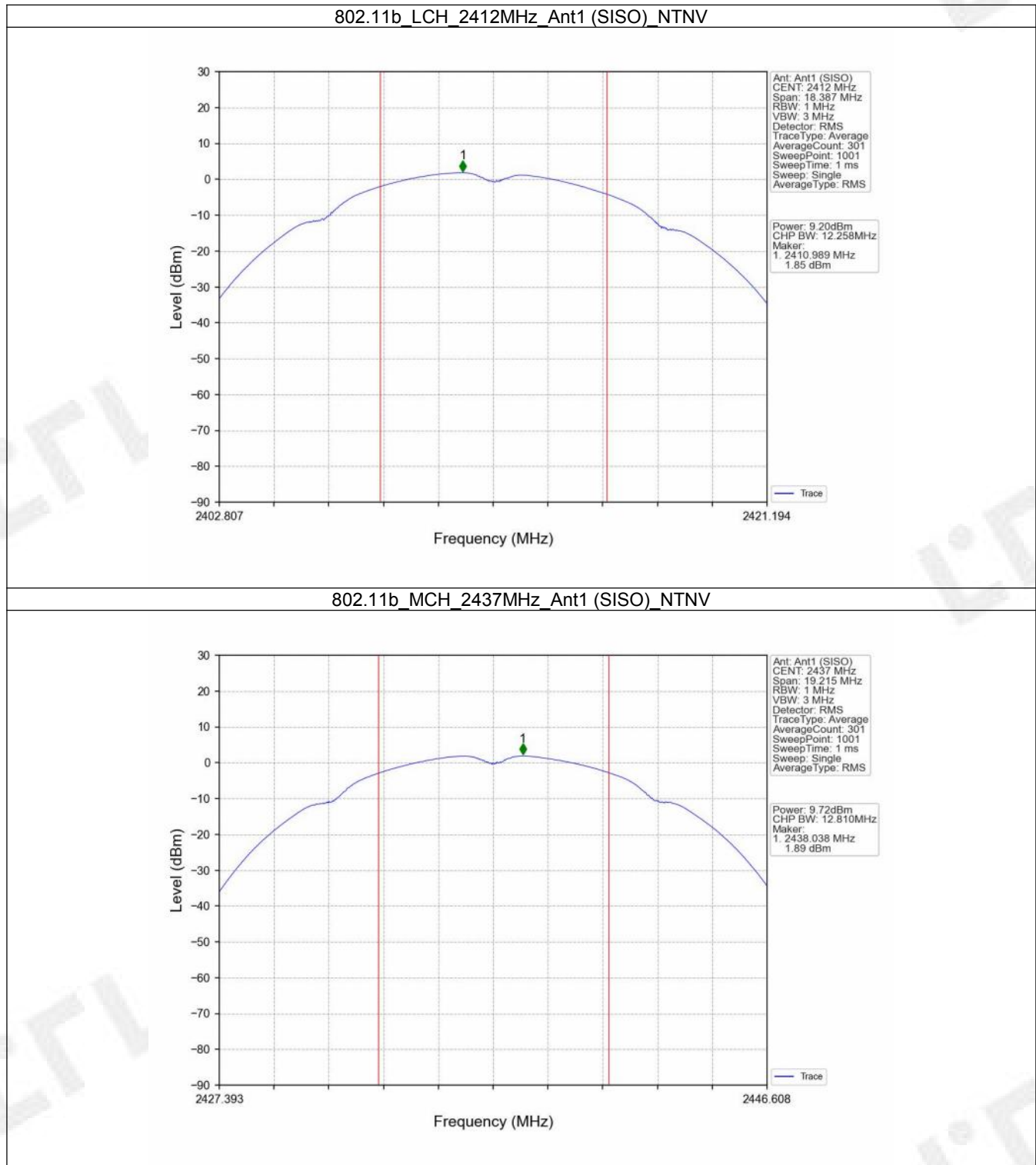
2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	9.20	<=30	Pass
		2437	9.72	<=30	Pass
		2462	9.29	<=30	Pass
802.11g	SISO	2412	9.25	<=30	Pass
		2437	9.67	<=30	Pass
		2462	9.29	<=30	Pass
802.11n (HT20)	SISO	2412	9.23	<=30	Pass
		2437	9.73	<=30	Pass
		2462	9.24	<=30	Pass
802.11n (HT40)	SISO	2422	9.72	<=30	Pass
		2437	9.73	<=30	Pass
		2452	9.74	<=30	Pass

Note1: Antenna Gain: Ant1: 2.50dBi;

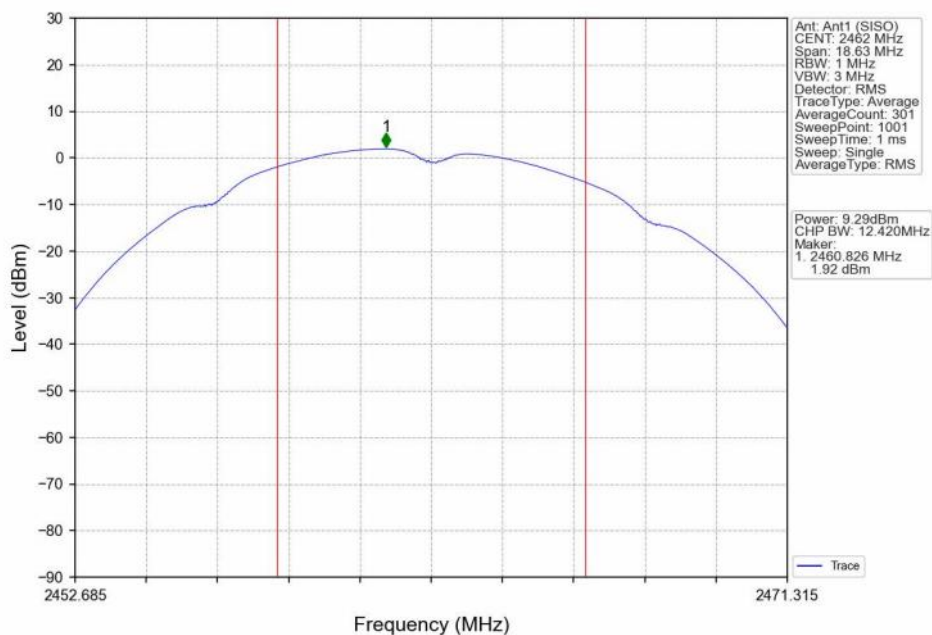
FCCID:2BFSD-M10VSA2

2.1.2 Test Graph

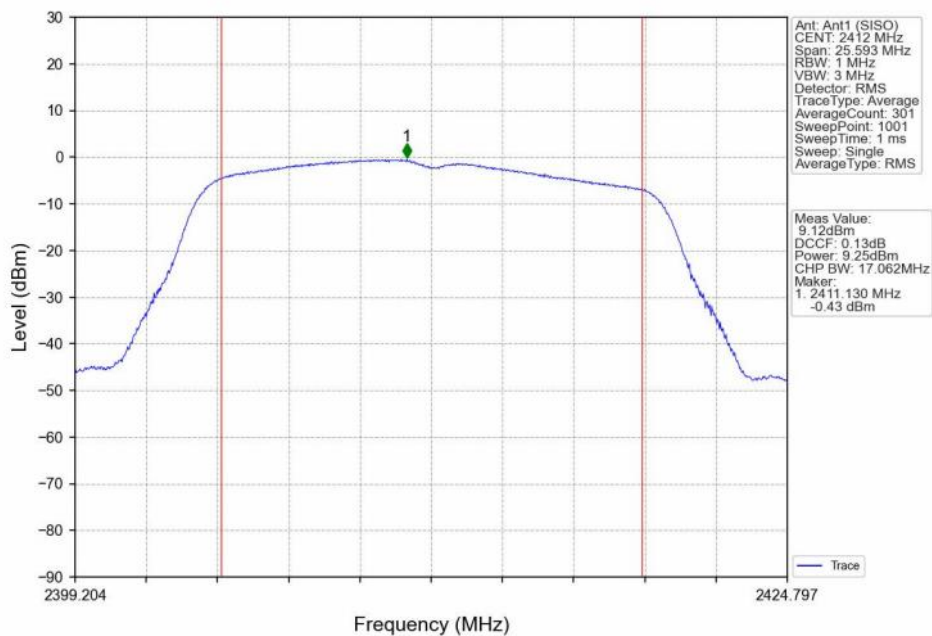


FCCID:2BFSD-M10VSA2

802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

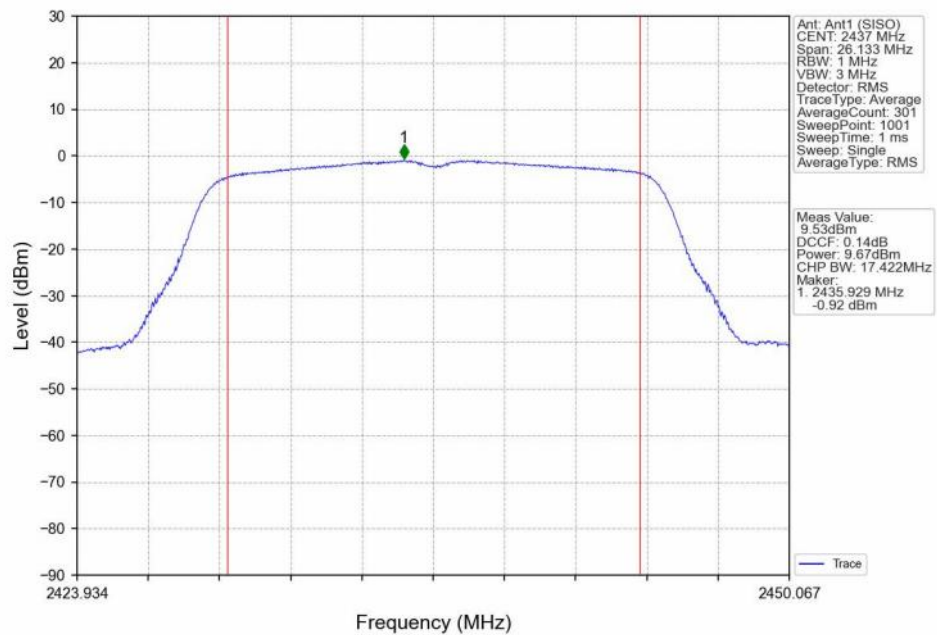


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

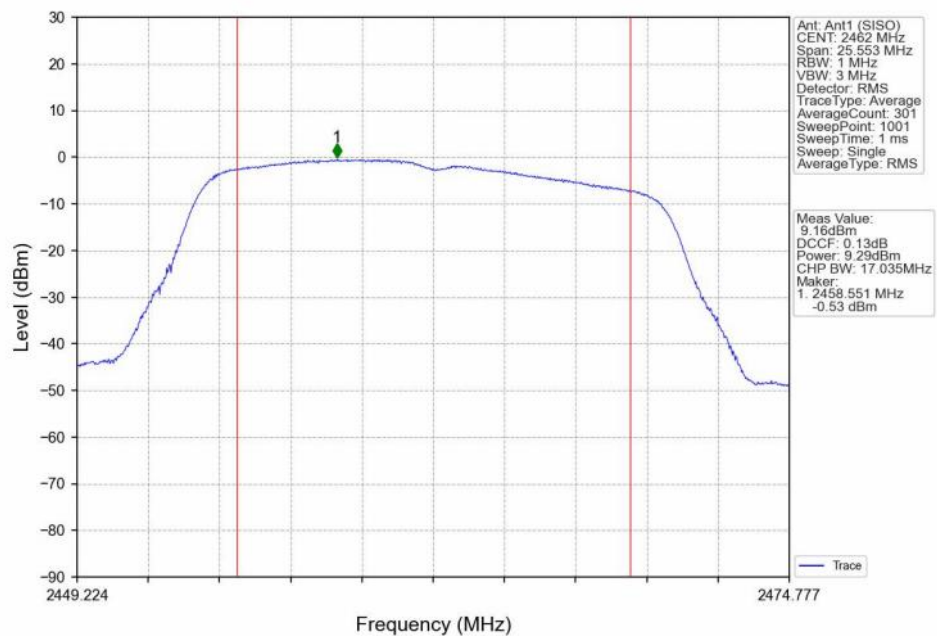


FCCID:2BFSD-M10VSA2

802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

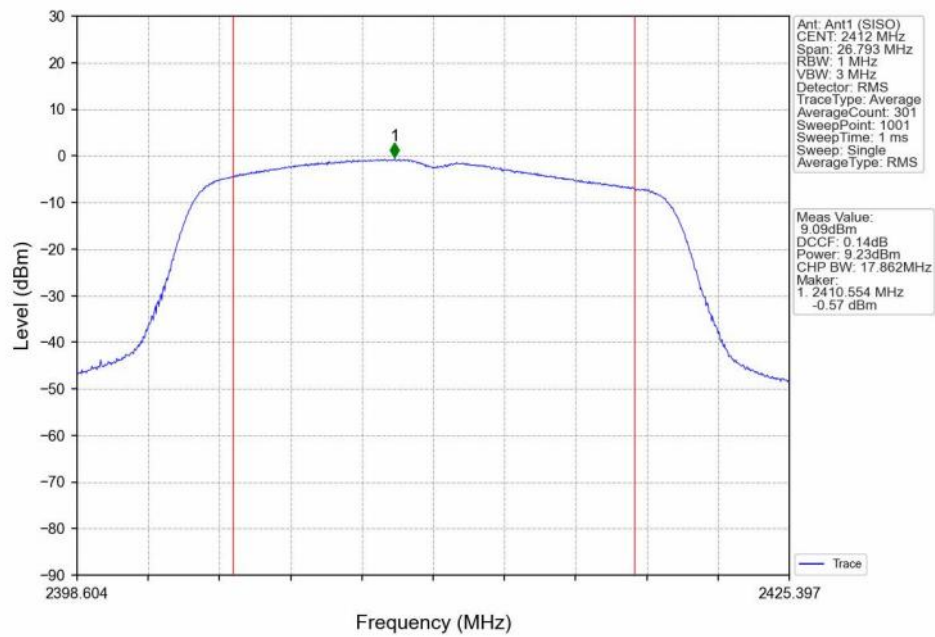


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

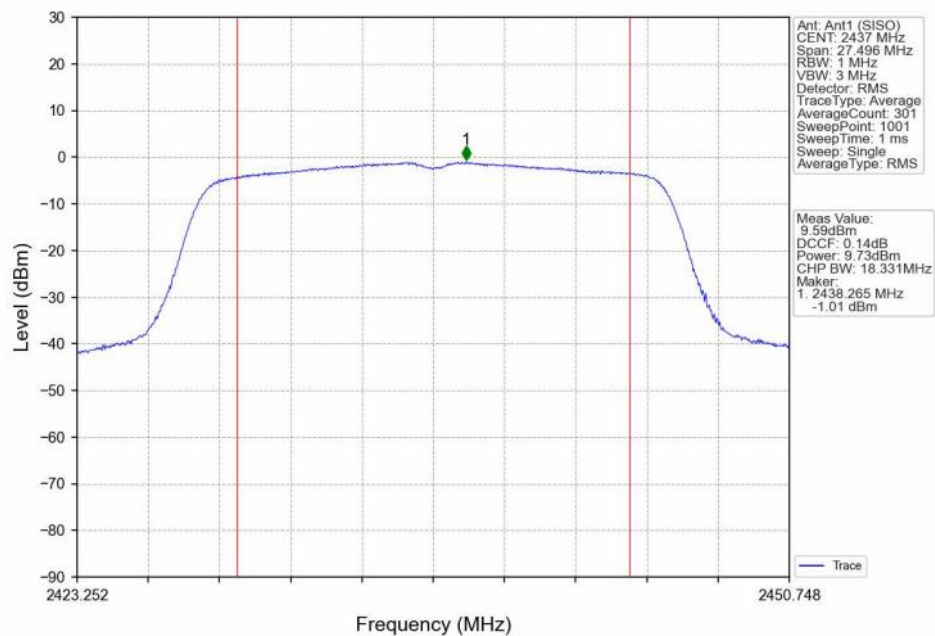


FCCID:2BFSD-M10VSA2

802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

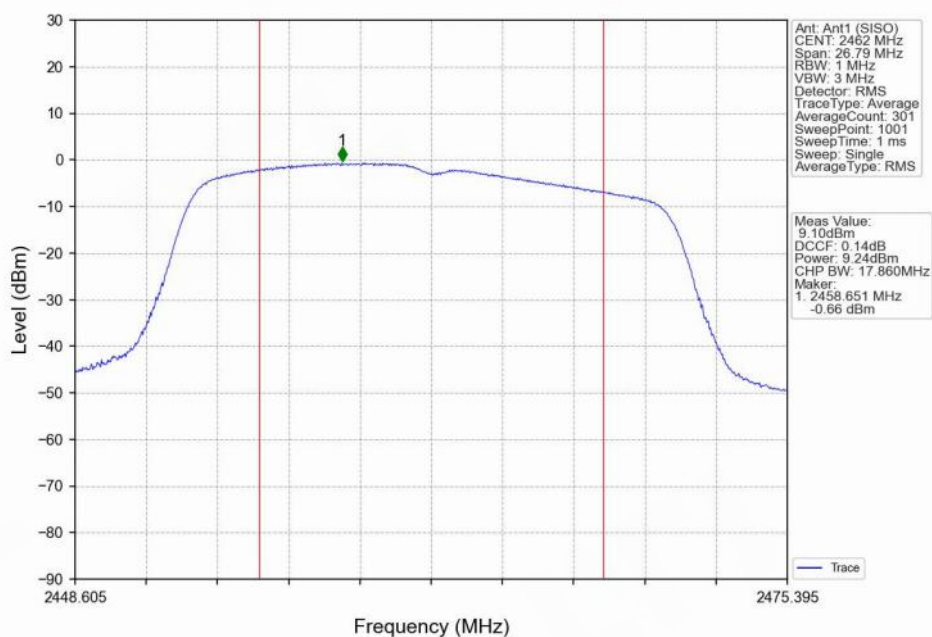


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

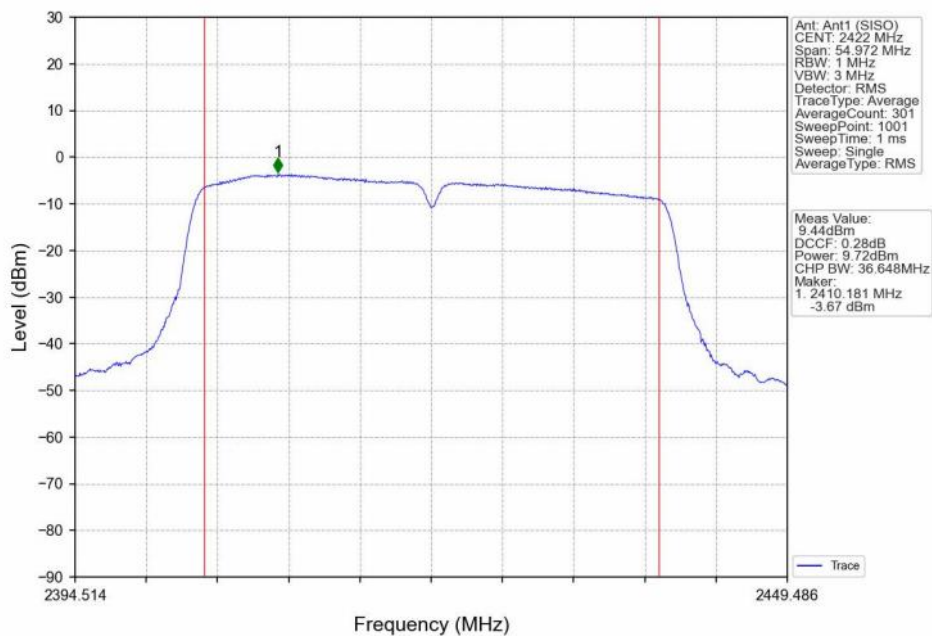


FCCID:2BFSD-M10VSA2

802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

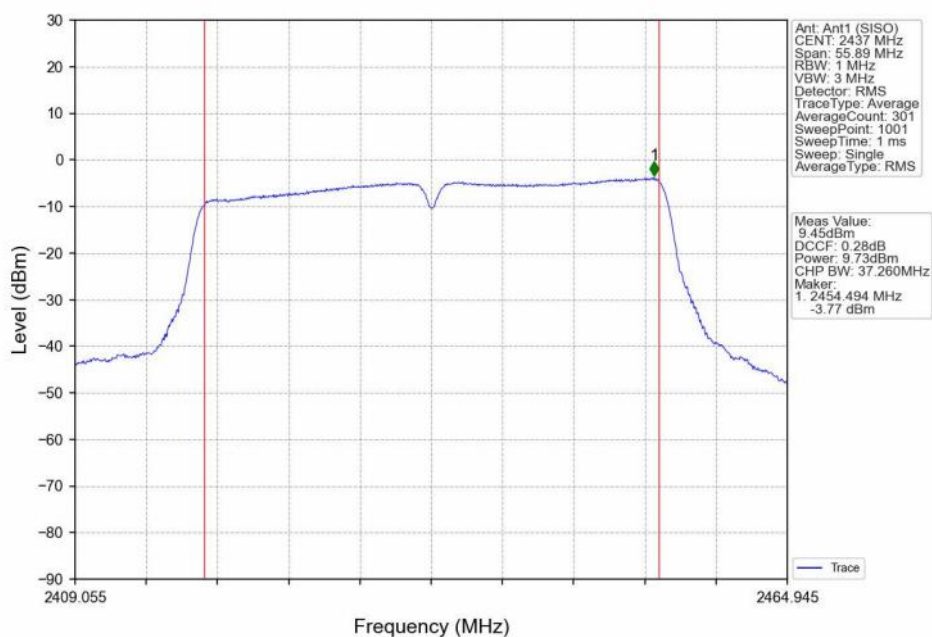


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

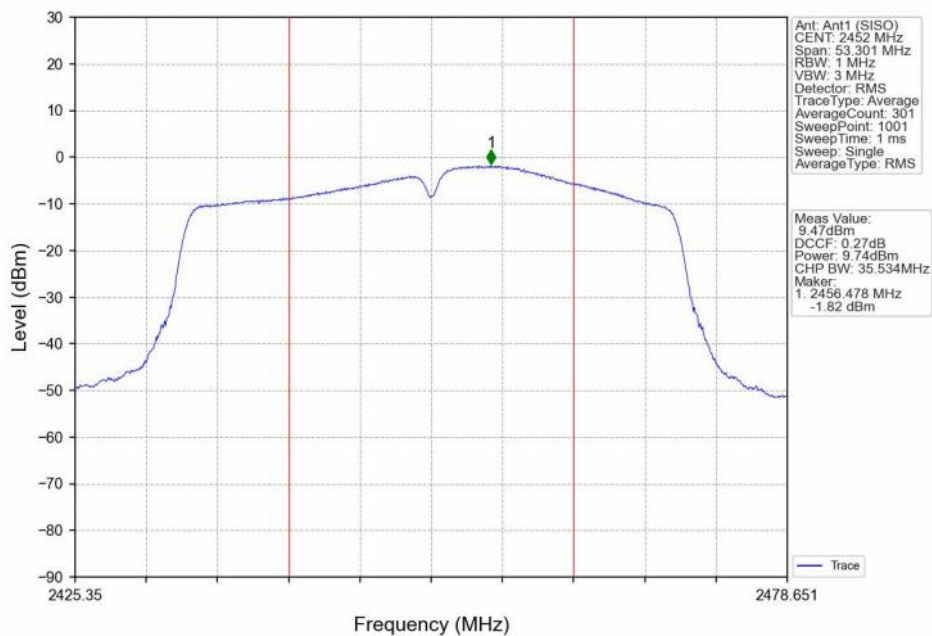


FCCID:2BFSD-M10VSA2

802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



3. Maximum Power Spectral Density

3.1 PSD

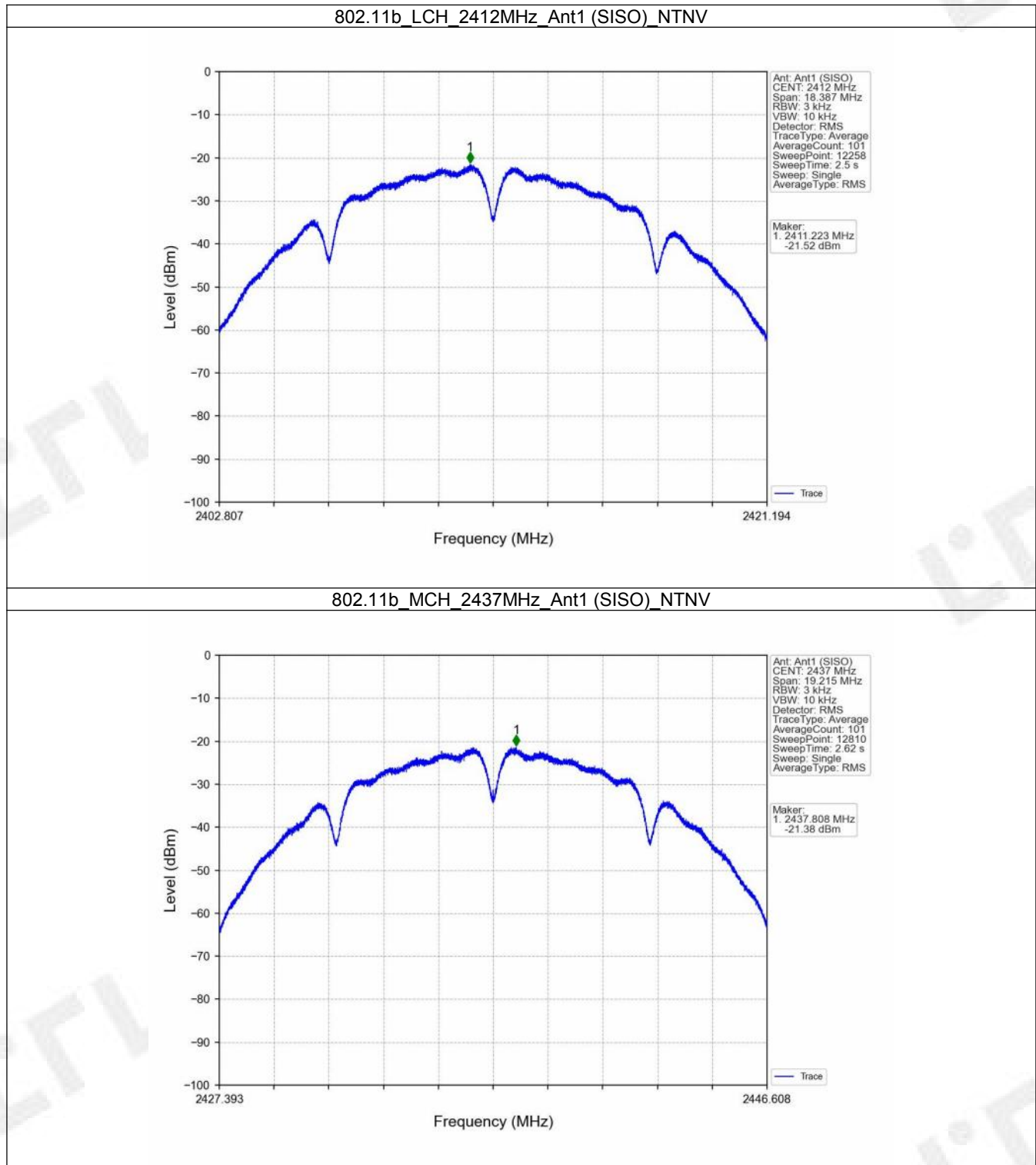
3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-21.52	<=8	Pass
		2437	-21.38	<=8	Pass
		2462	-21.68	<=8	Pass
802.11g	SISO	2412	-23.24	<=8	Pass
		2437	-23.87	<=8	Pass
		2462	-23.53	<=8	Pass
802.11n (HT20)	SISO	2412	-23.07	<=8	Pass
		2437	-23.19	<=8	Pass
		2462	-23.26	<=8	Pass
802.11n (HT40)	SISO	2422	-24.96	<=8	Pass
		2437	-24.60	<=8	Pass
		2452	-22.20	<=8	Pass

Note1: Antenna Gain: Ant1: 2.50dBi;

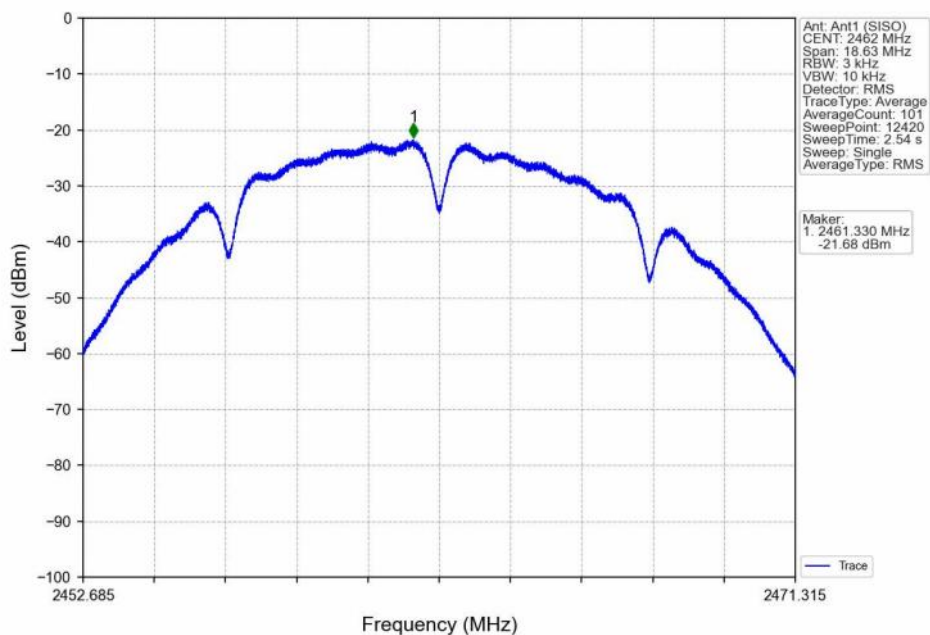
FCCID:2BFSD-M10VSA2

3.1.2 Test Graph

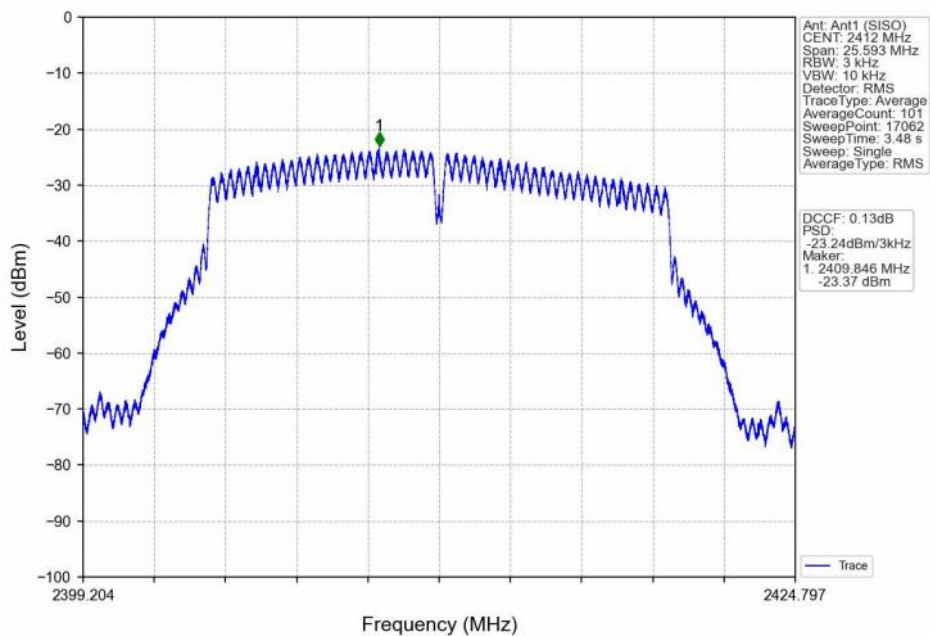


FCCID:2BFSD-M10VSA2

802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

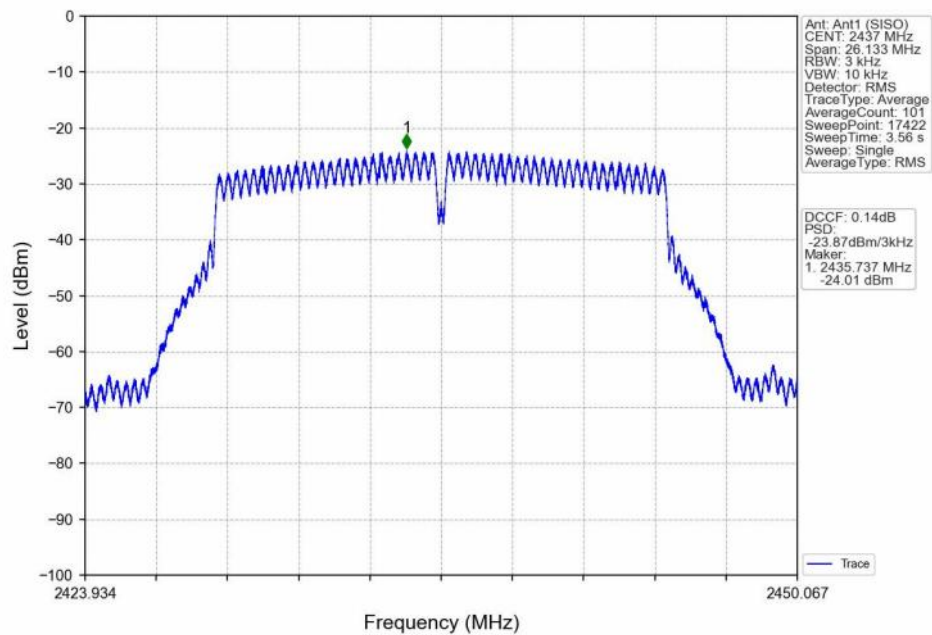


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

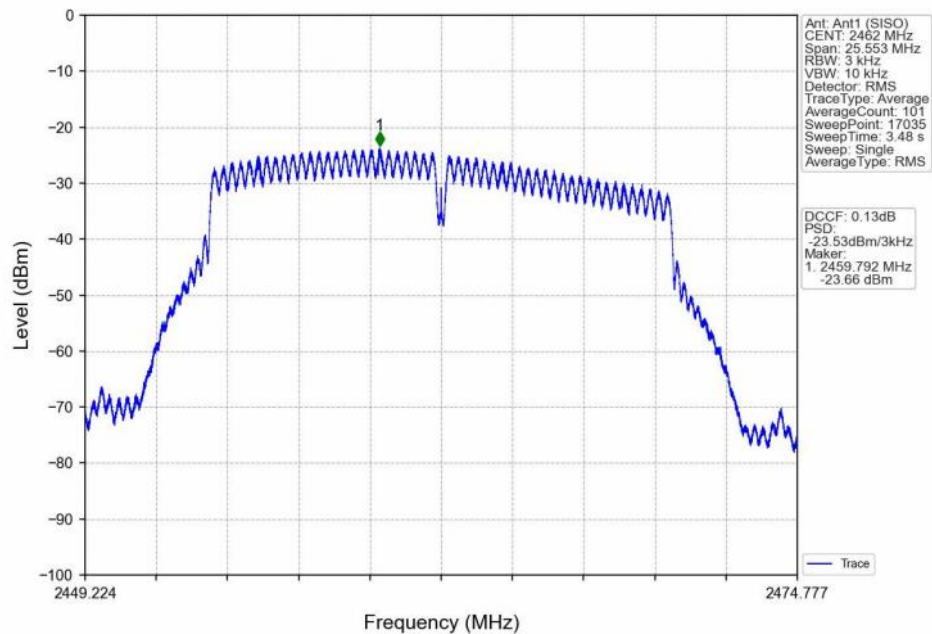


FCCID:2BFSD-M10VSA2

802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

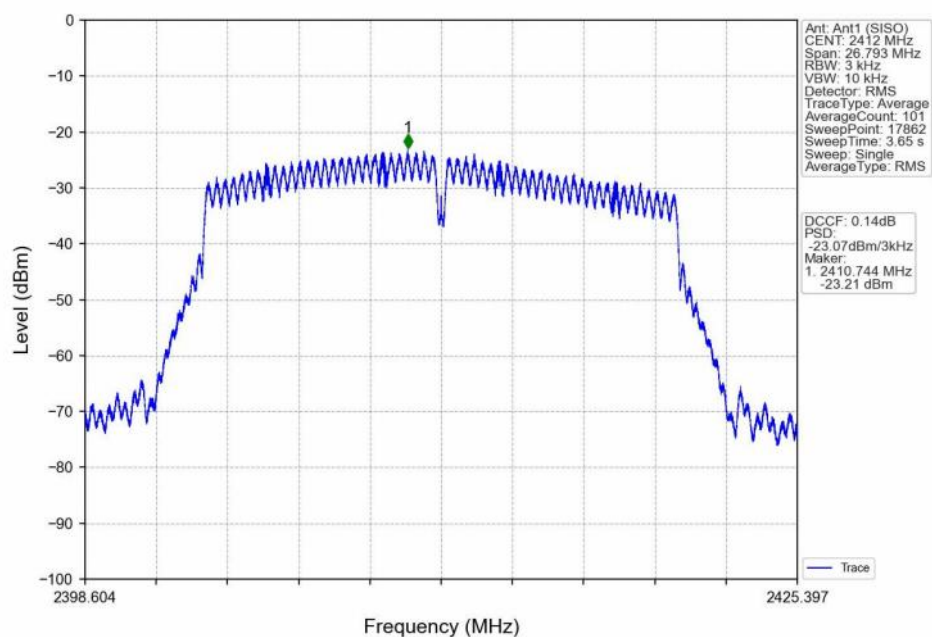


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

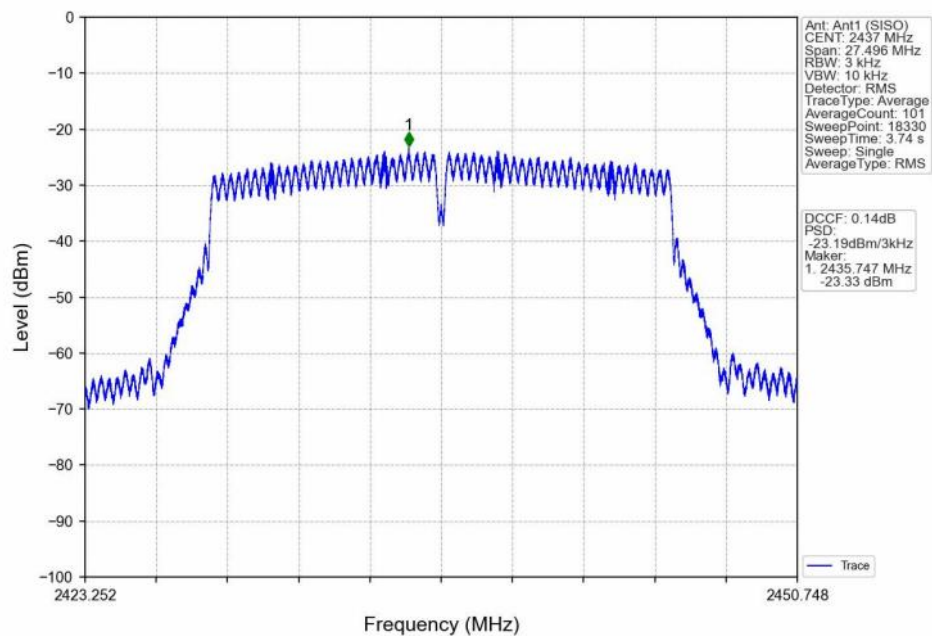


FCCID:2BFSD-M10VSA2

802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

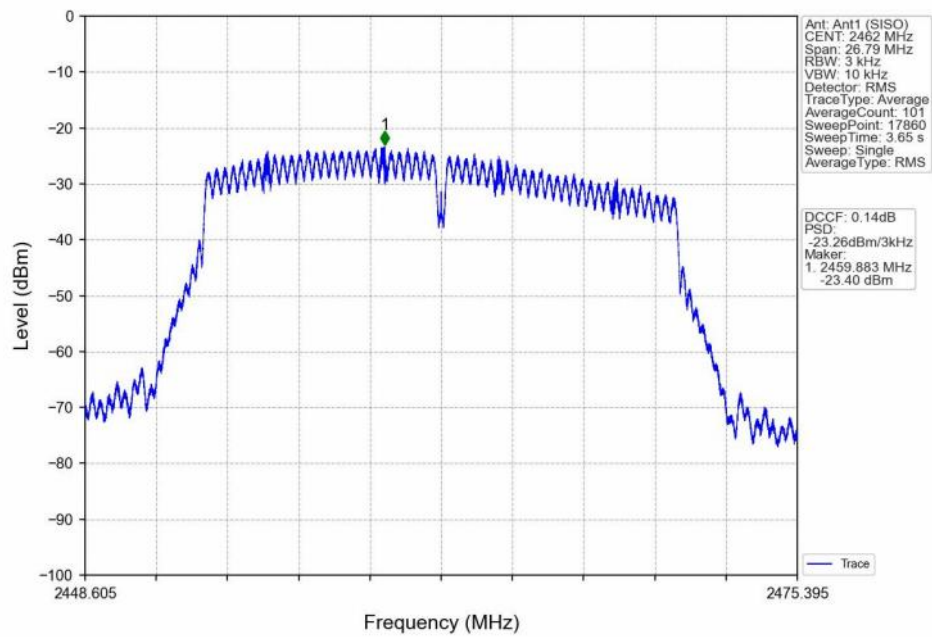


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

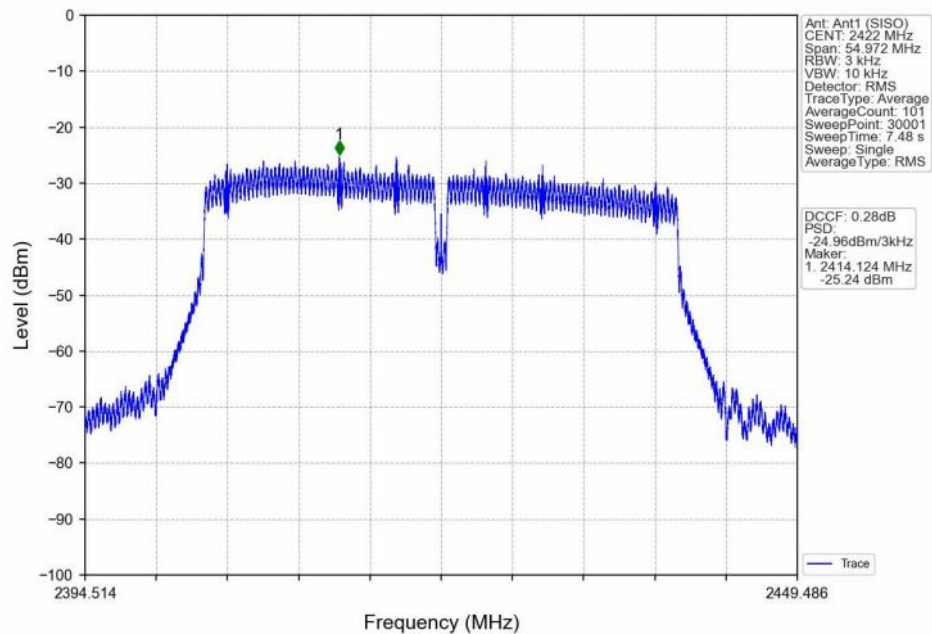


FCCID:2BFSD-M10VSA2

802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

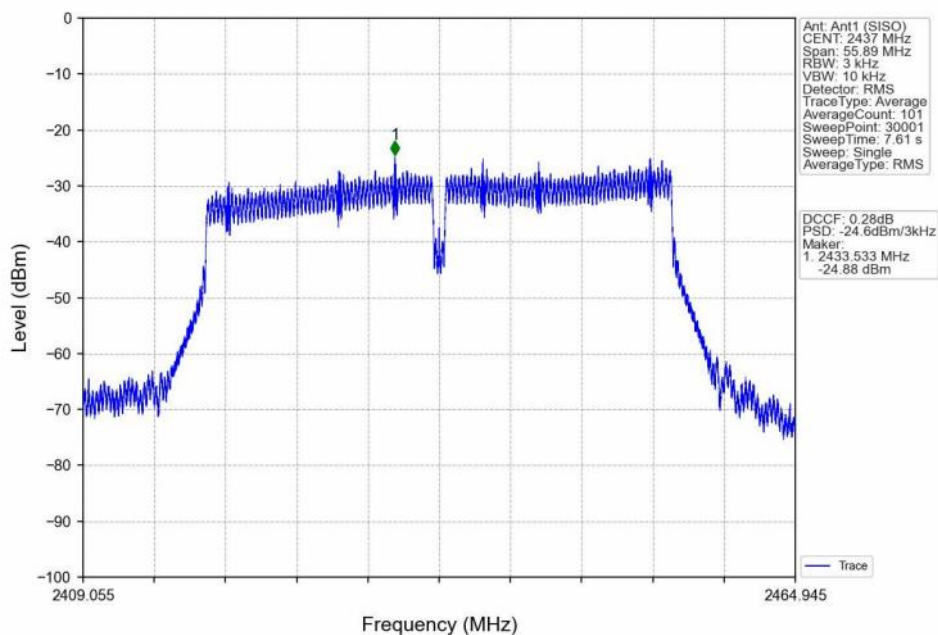


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

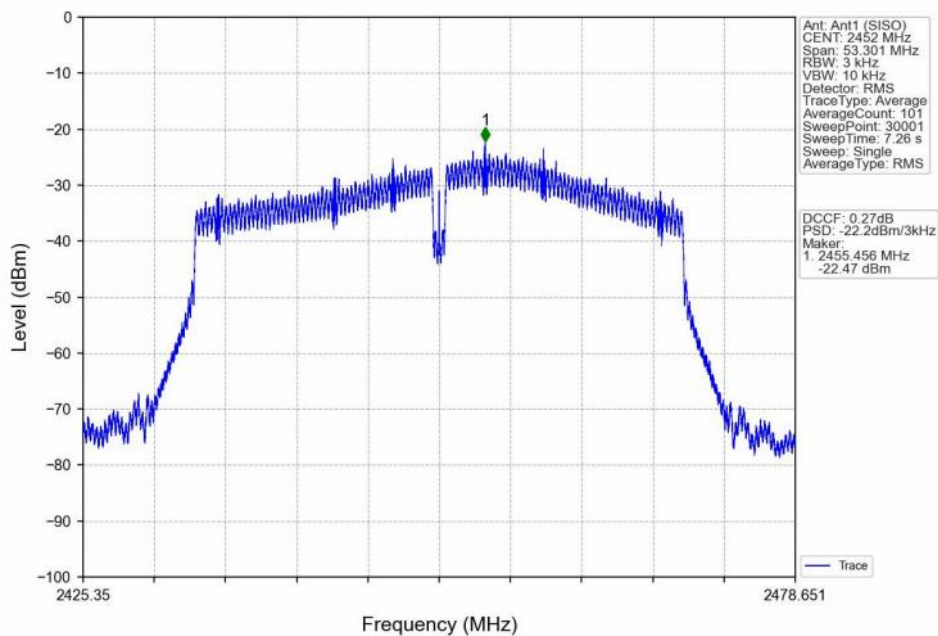


FCCID:2BFSD-M10VSA2

802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



FCCID:2BFSD-M10VSA2

4. Unwanted Emissions In Non-restricted Frequency Bands

4.1 Ref

4.1.1 Test Result

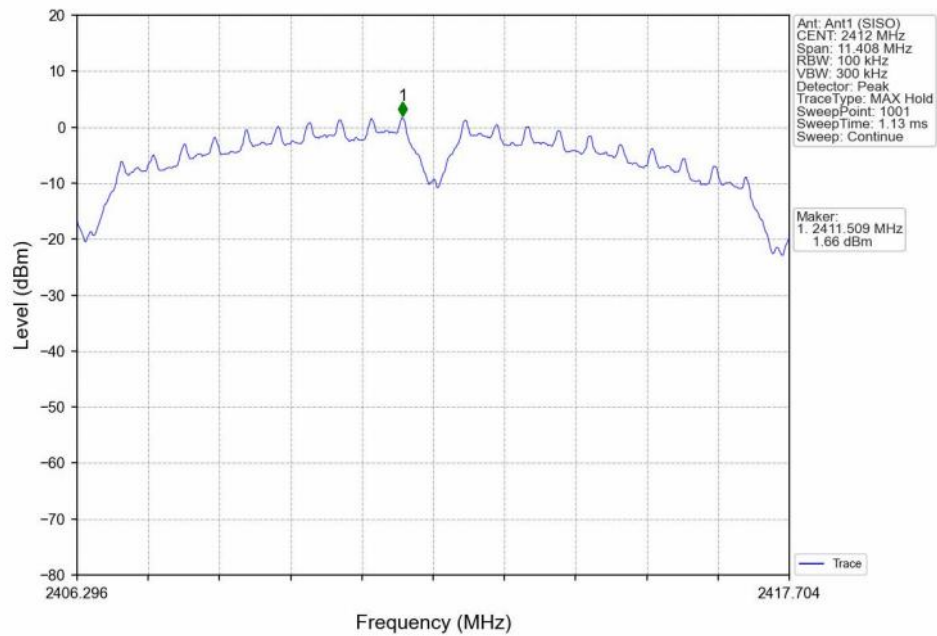
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
802.11b	SISO	2412	1	1.66
		2437	1	1.70
		2462	1	1.77
802.11g	SISO	2412	1	-0.55
		2437	1	-0.62
		2462	1	-0.91
802.11n (HT20)	SISO	2412	1	-0.34
		2437	1	-0.20
		2462	1	-0.38
802.11n (HT40)	SISO	2422	1	-3.04
		2437	1	-2.61
		2452	1	-0.90

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.

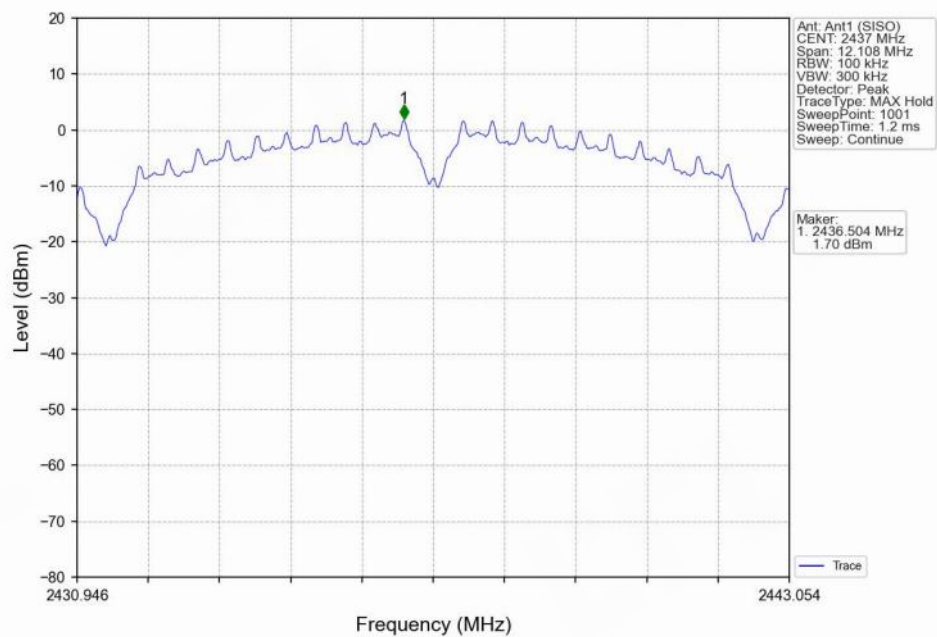
FCCID:2BFSD-M10VSA2

4.1.2 Test Graph

802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV

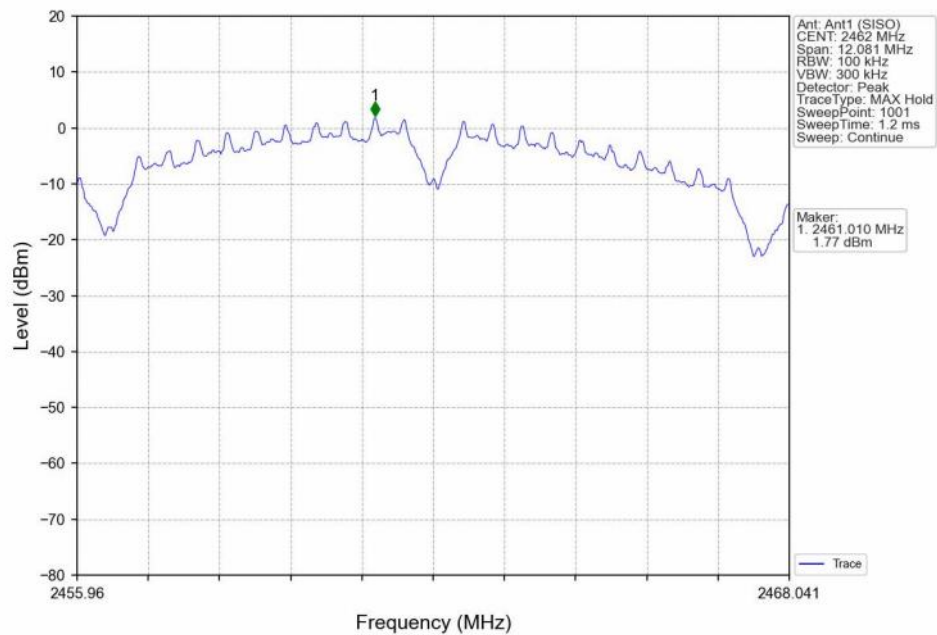


802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV

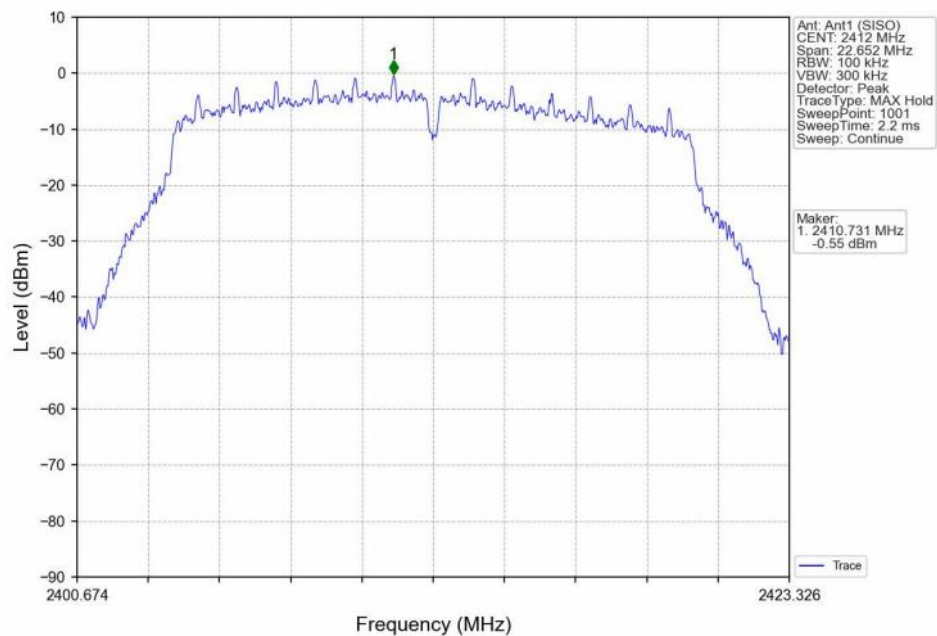


FCCID:2BFSD-M10VSA2

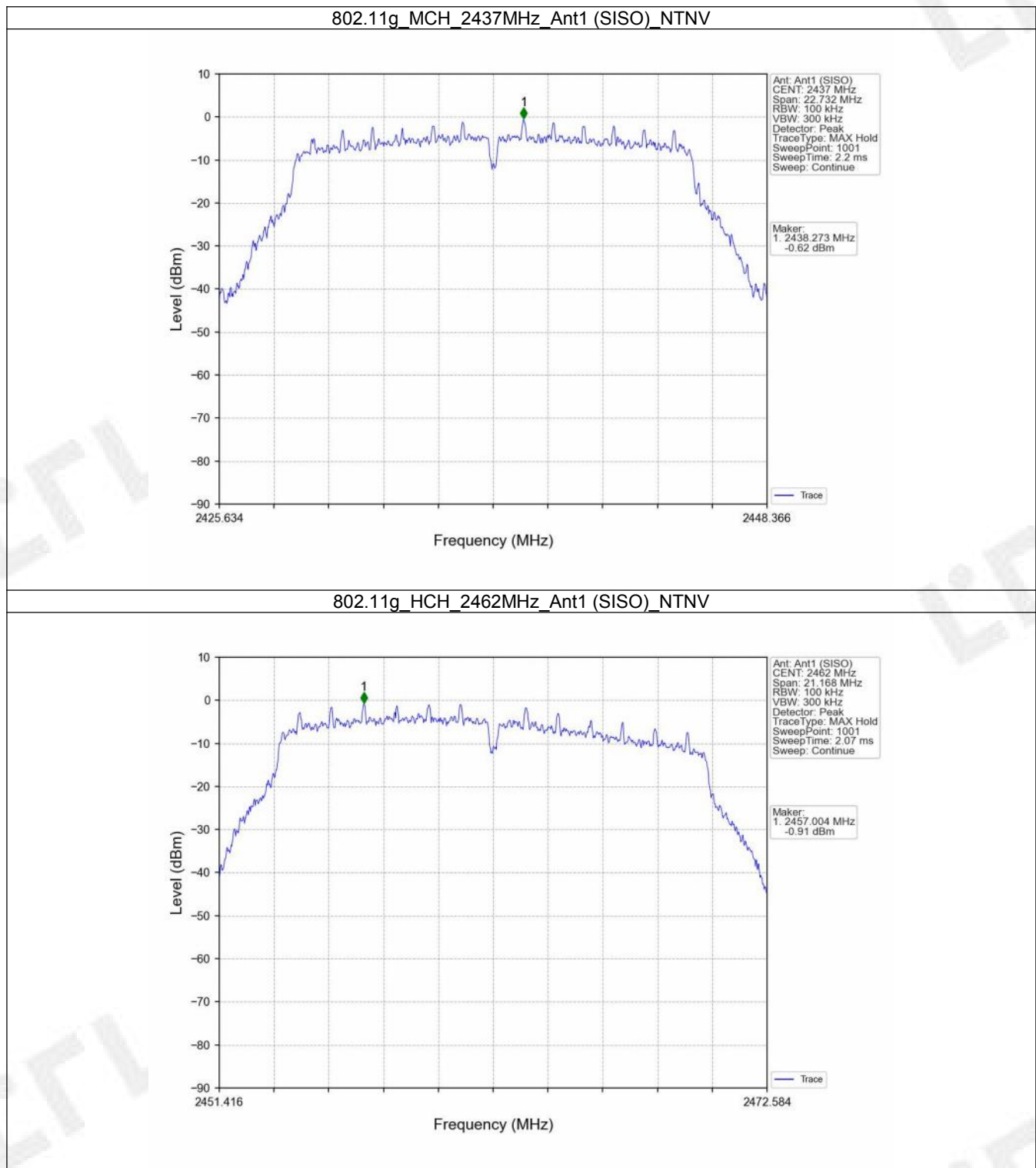
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

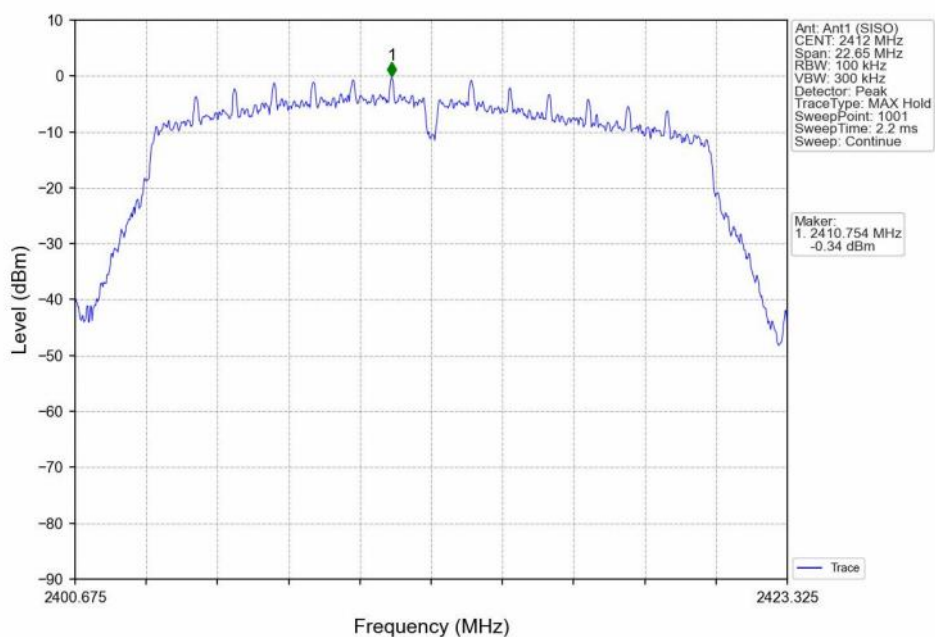


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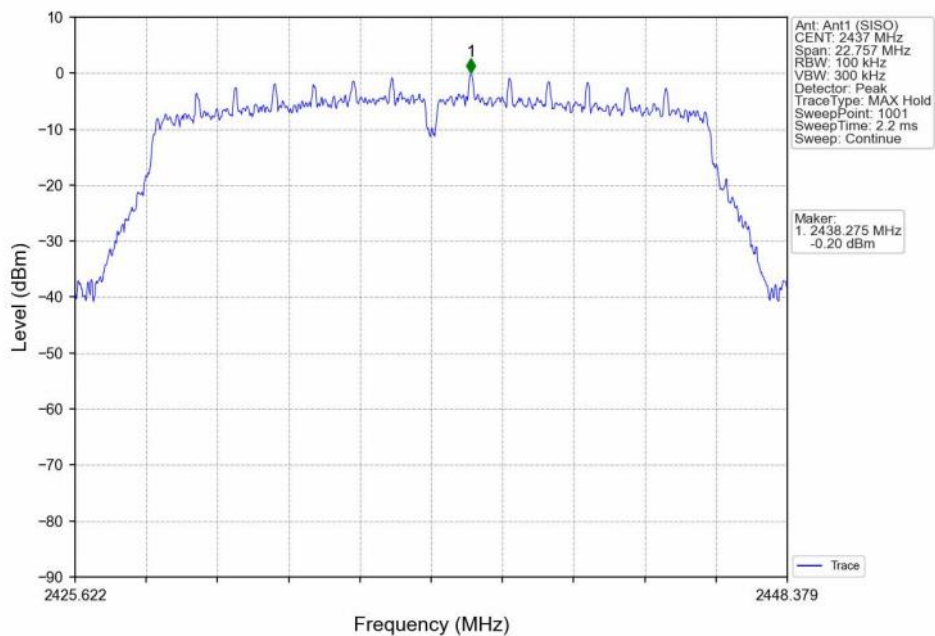


FCCID:2BFSD-M10VSA2

802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

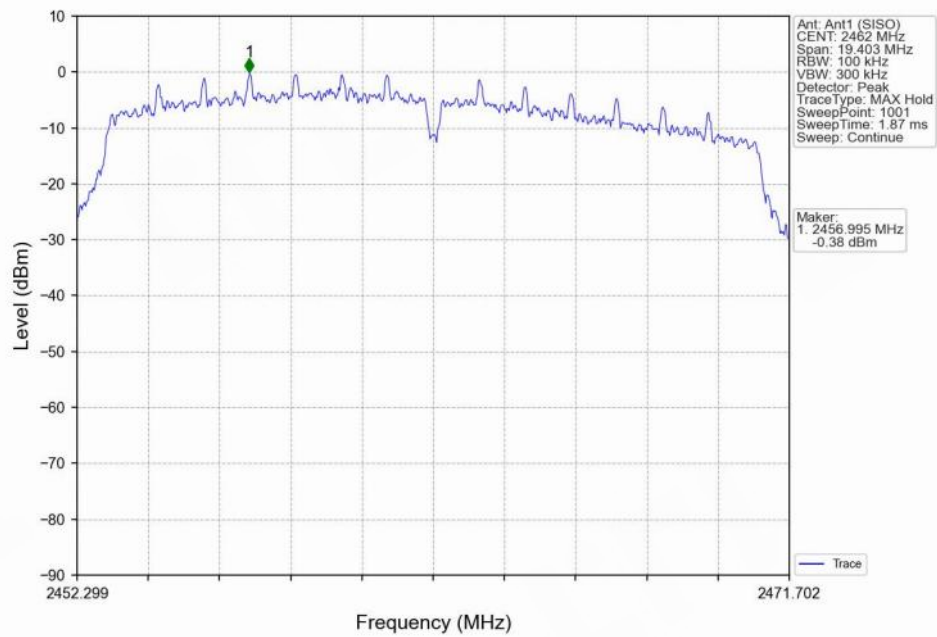


802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

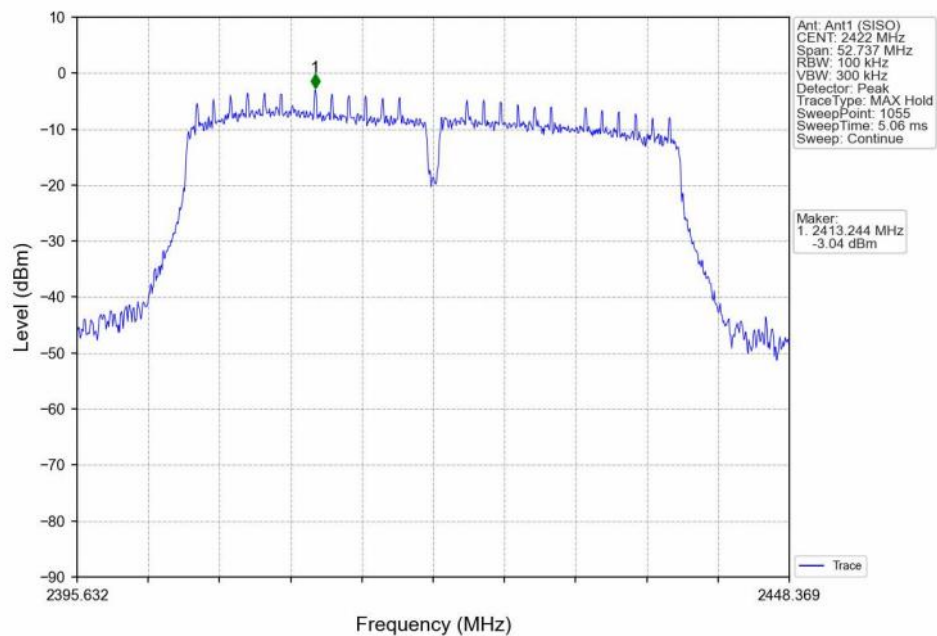


FCCID:2BFSD-M10VSA2

802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

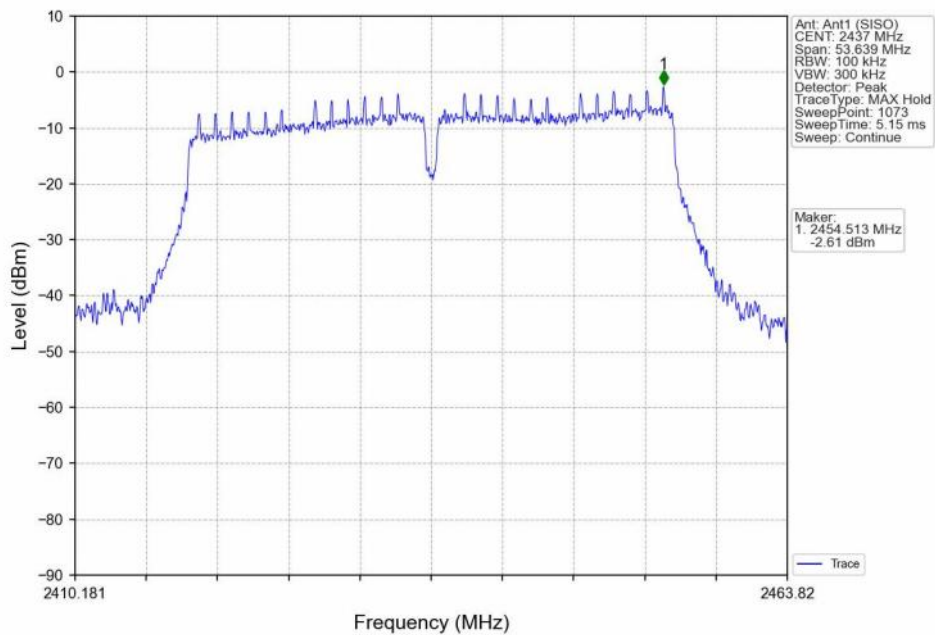


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

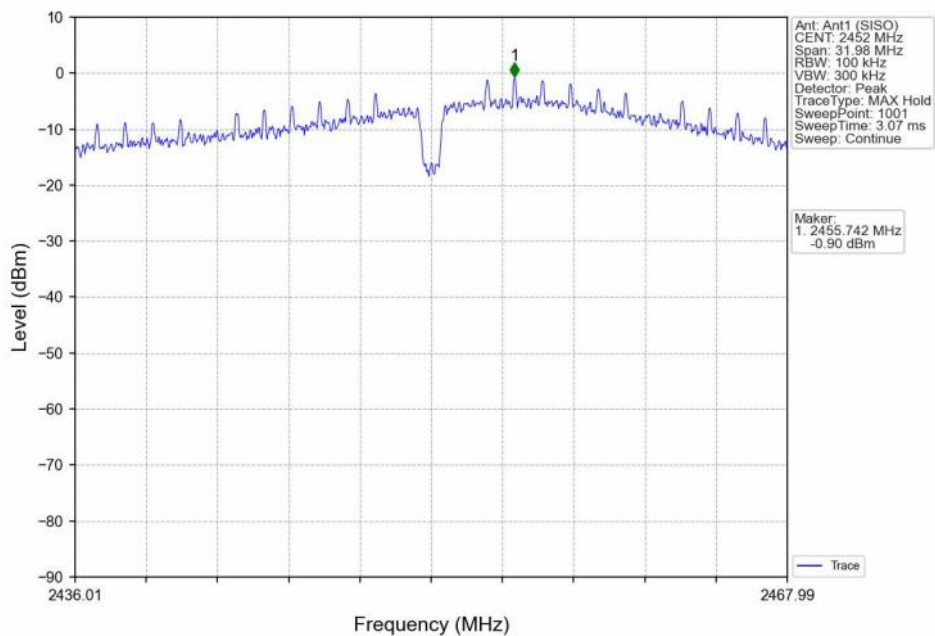


FCCID:2BFSD-M10VSA2

802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



FCCID:2BFSD-M10VSA2

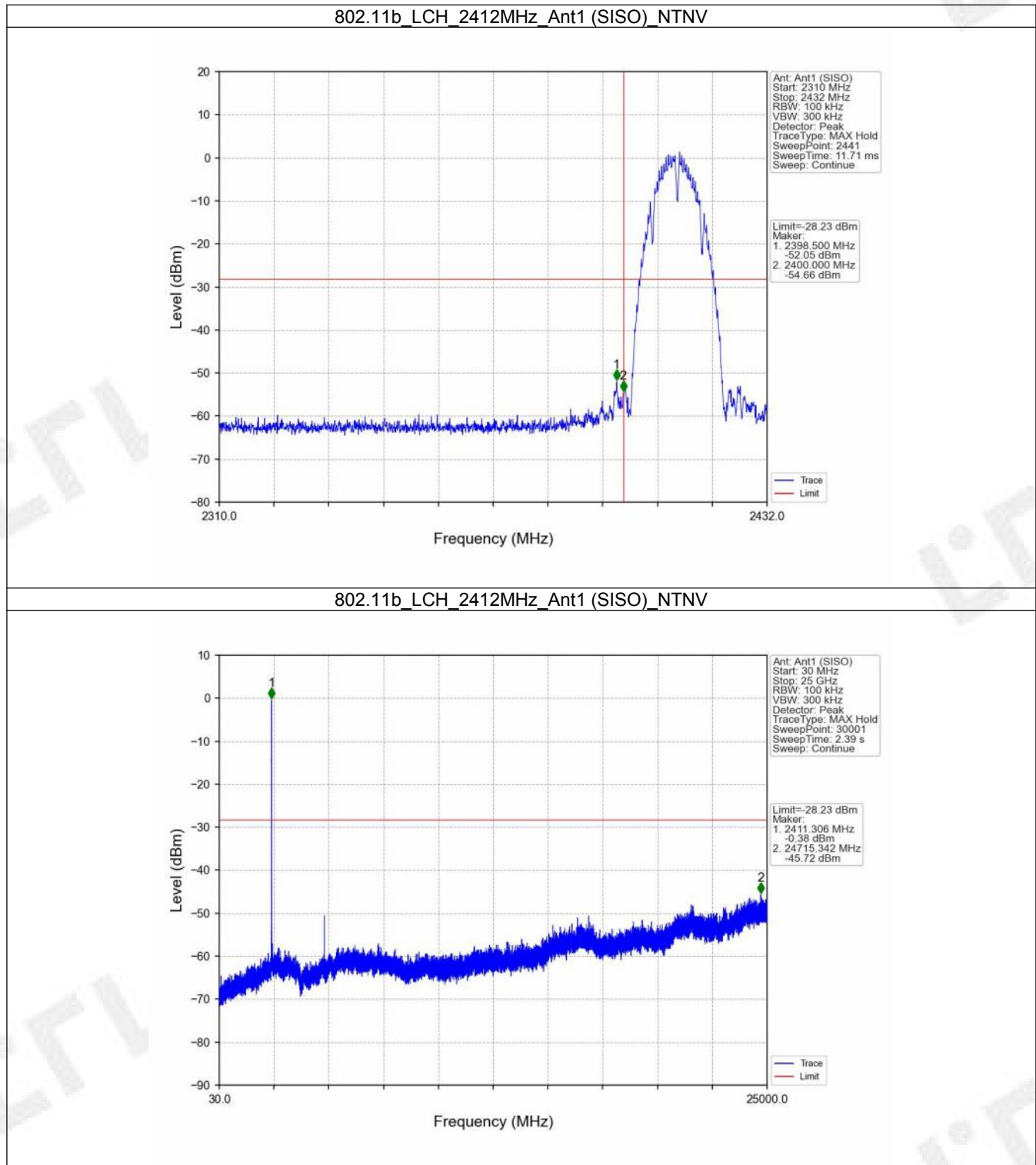
4.2 CSE**4.2.1 Test Result**

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	1.77	-28.23	Pass
		2437	1	1.77	-28.23	Pass
		2462	1	1.77	-28.23	Pass
802.11g	SISO	2412	1	-0.55	-30.55	Pass
		2437	1	-0.55	-30.55	Pass
		2462	1	-0.55	-30.55	Pass
802.11n (HT20)	SISO	2412	1	-0.20	-30.20	Pass
		2437	1	-0.20	-30.20	Pass
		2462	1	-0.20	-30.20	Pass
802.11n (HT40)	SISO	2422	1	-0.90	-30.90	Pass
		2437	1	-0.90	-30.90	Pass
		2452	1	-0.90	-30.90	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.

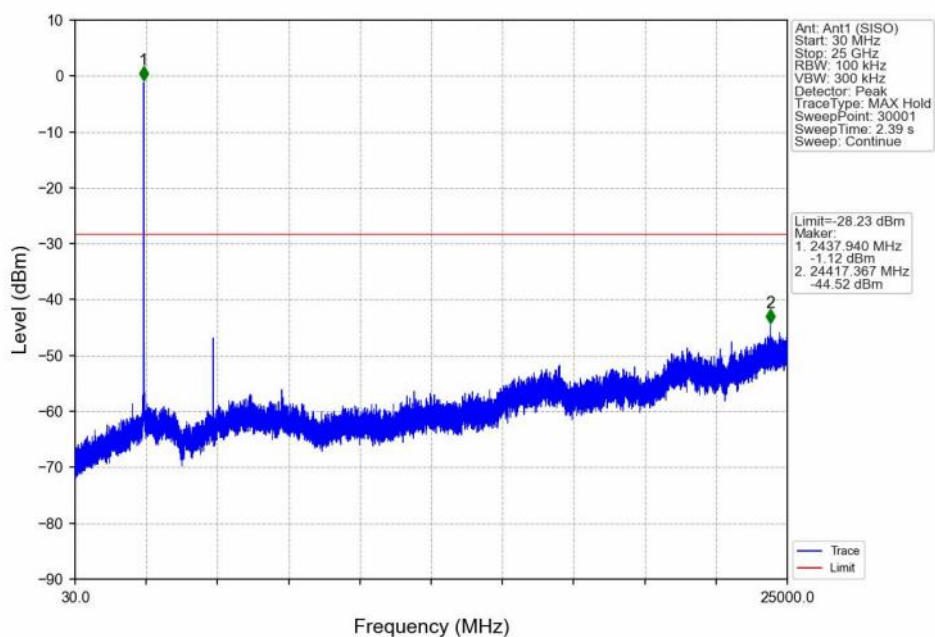
FCCID:2BFSD-M10VSA2

4.2.2 Test Graph

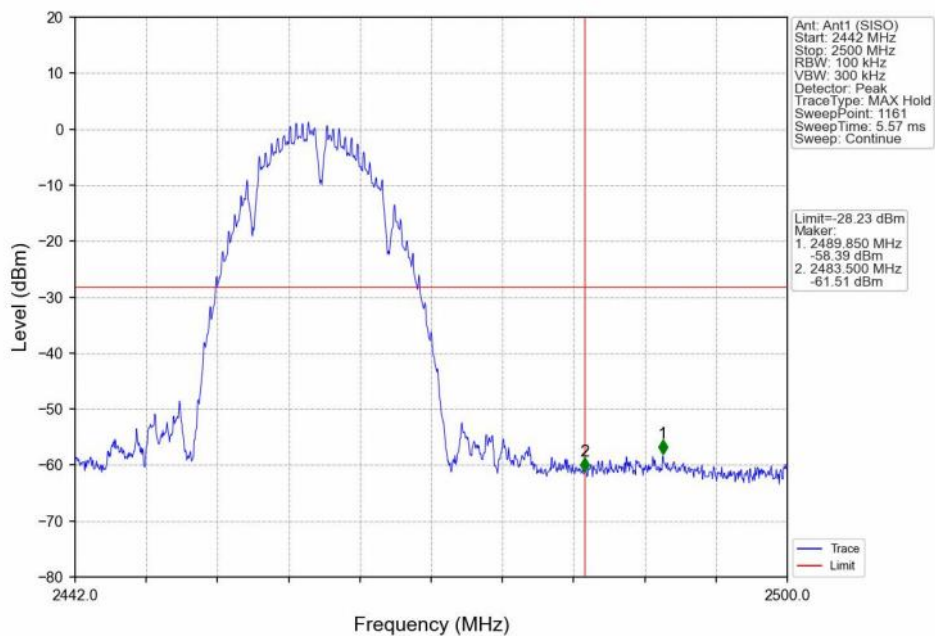


FCCID:2BFSD-M10VSA2

802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV

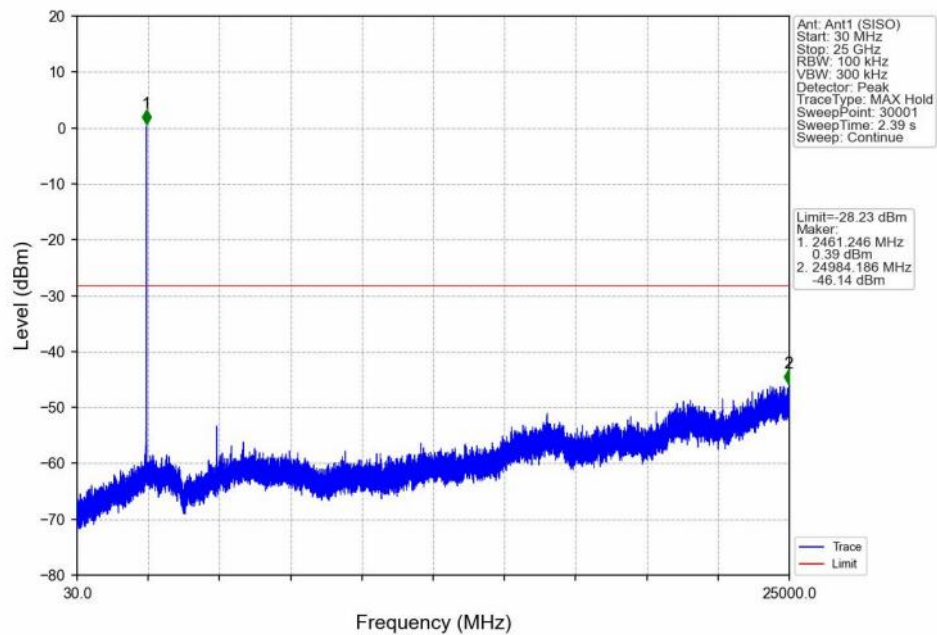


802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

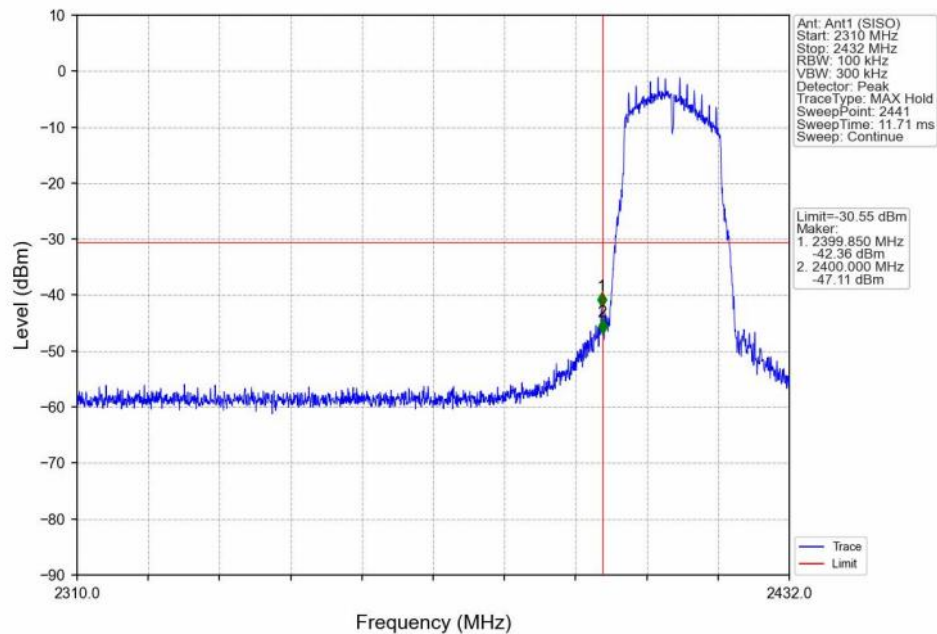


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802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV

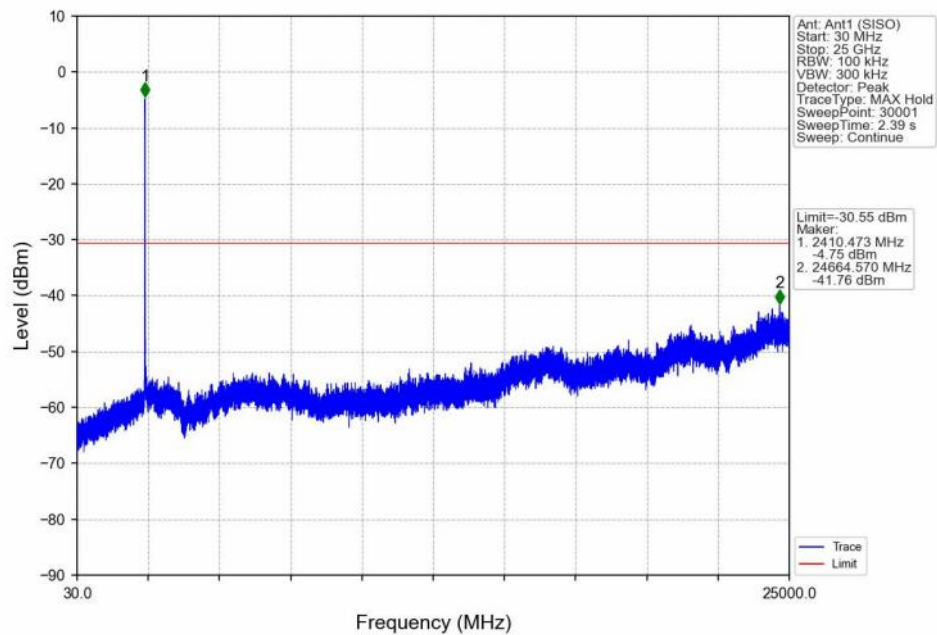


802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

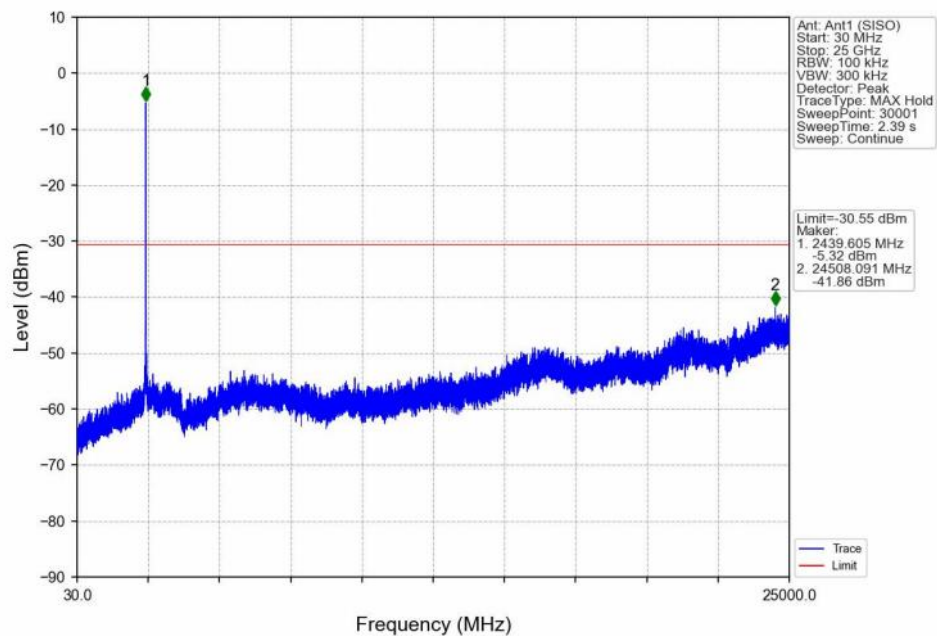


FCCID:2BFSD-M10VSA2

802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV

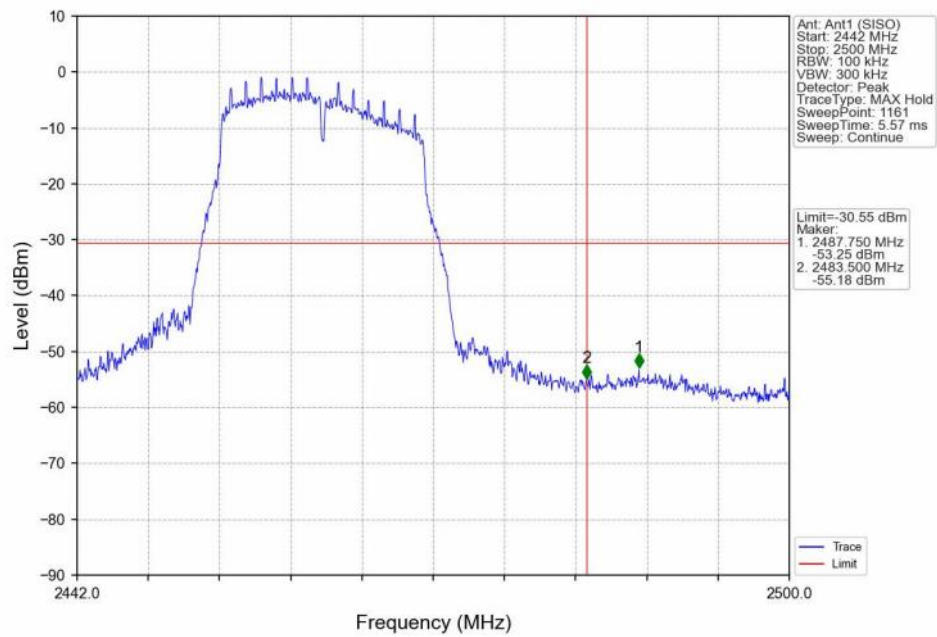


802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

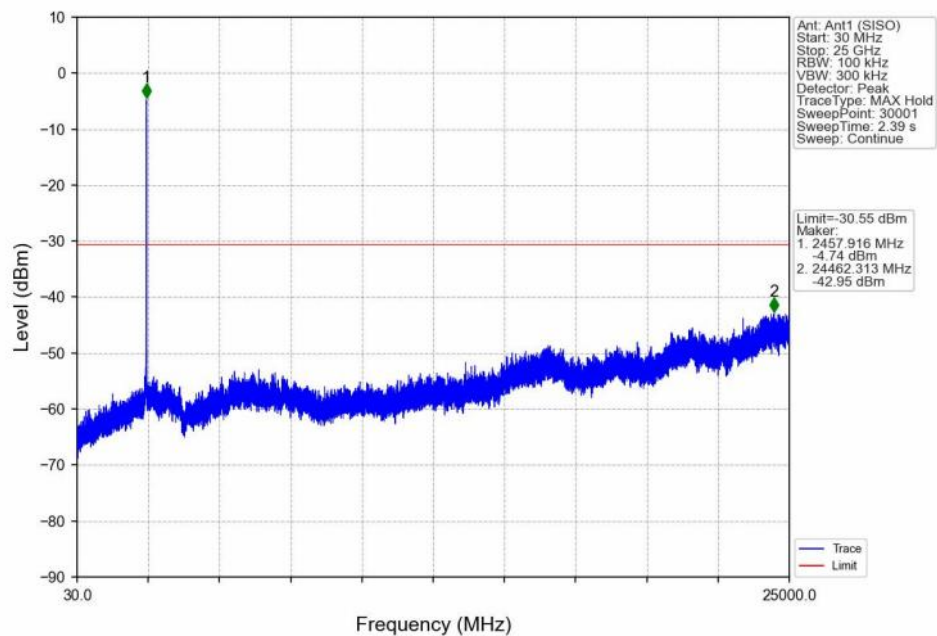


FCCID:2BFSD-M10VSA2

802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

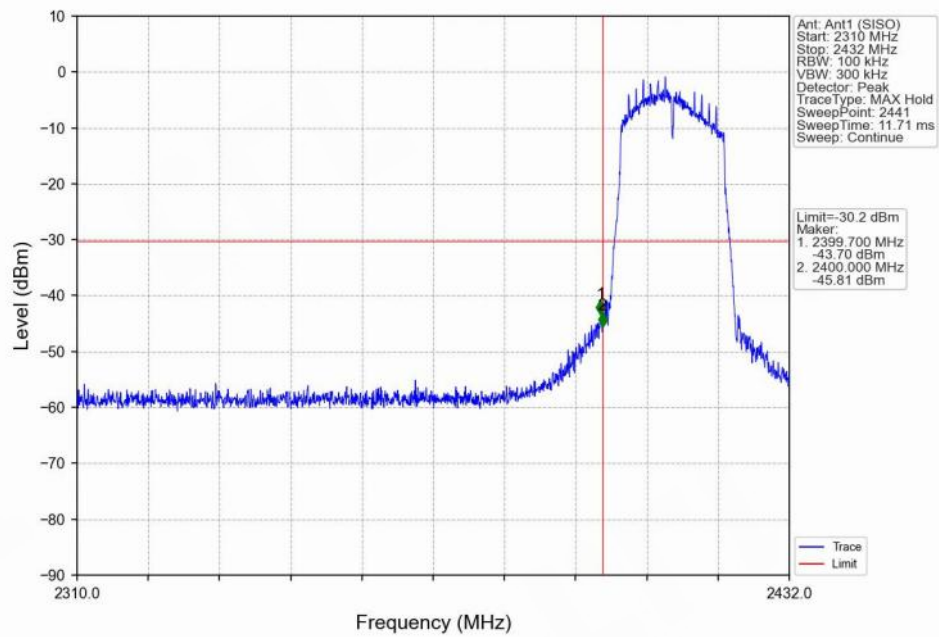


802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV

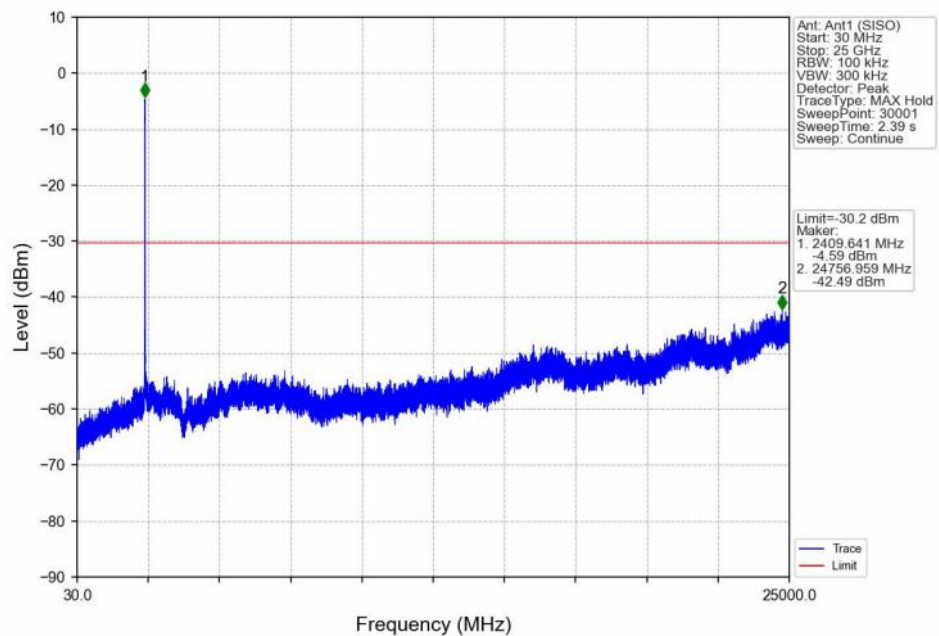


FCCID:2BFSD-M10VSA2

802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

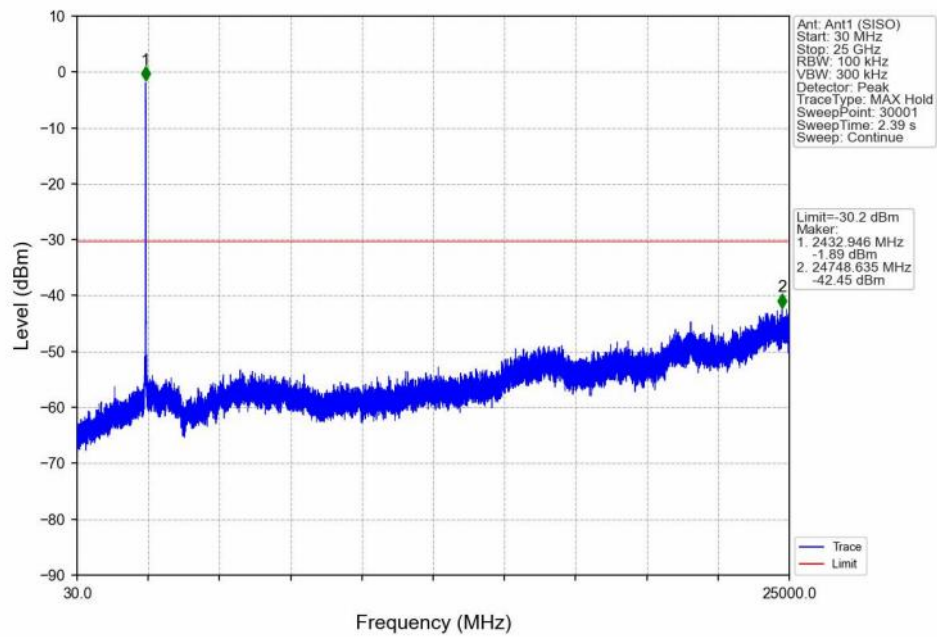


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

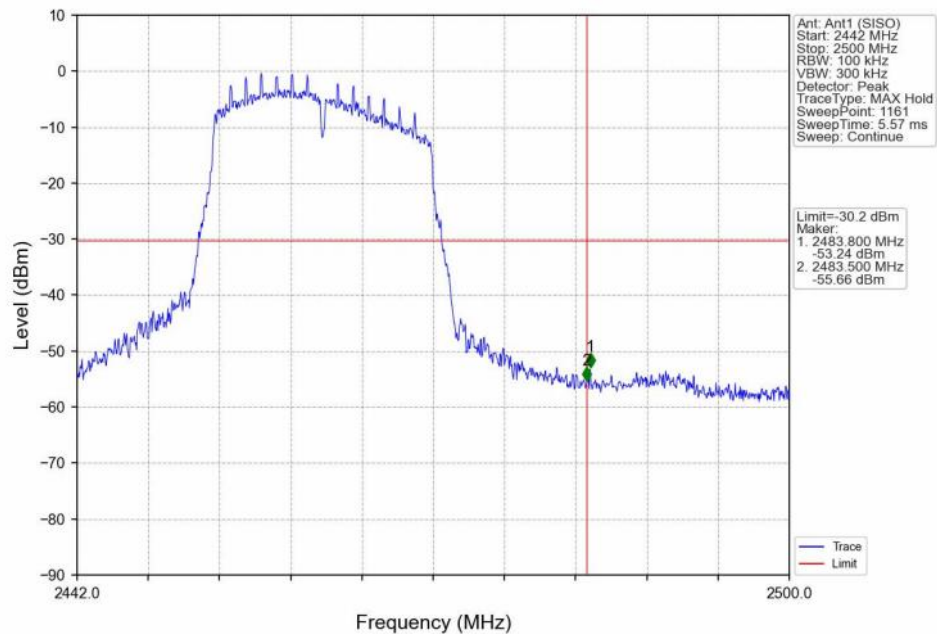


FCCID:2BFSD-M10VSA2

802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV

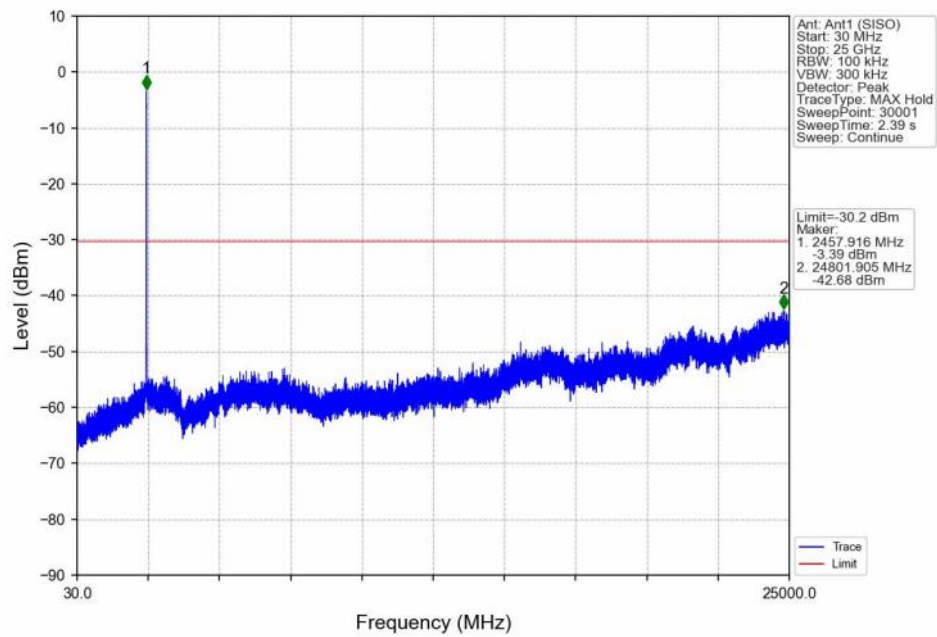


802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

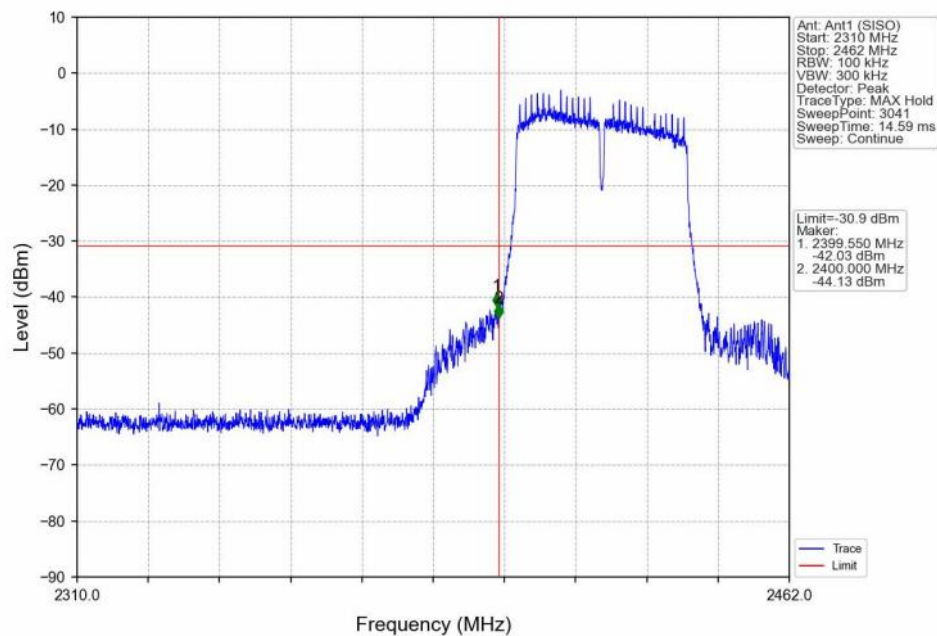


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802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV

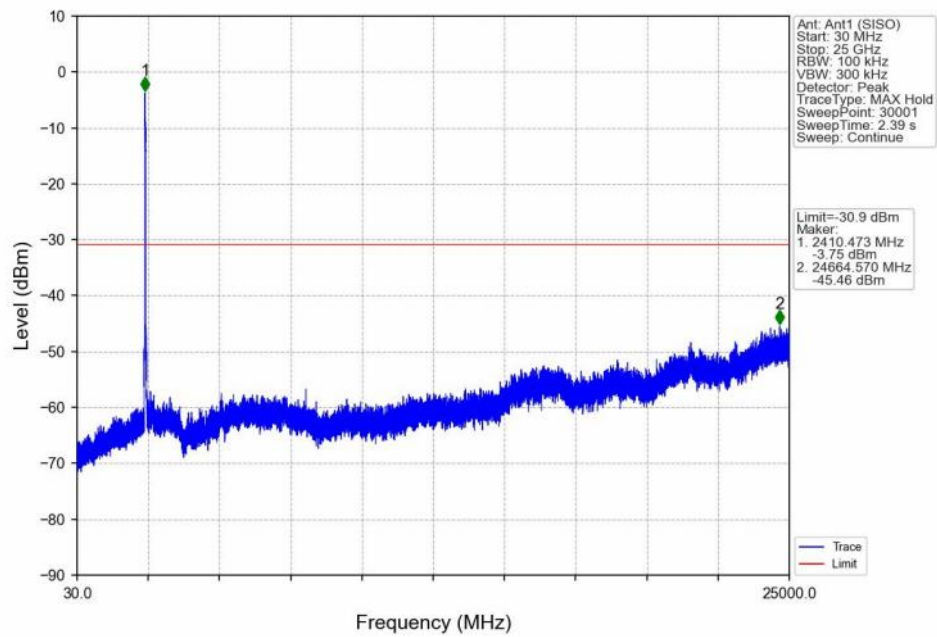


802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

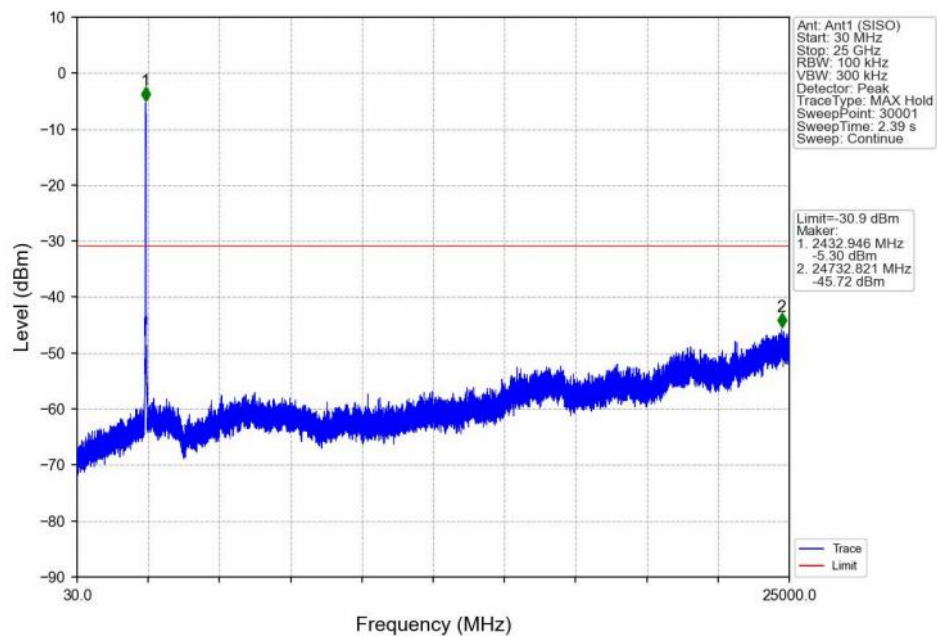


FCCID:2BFSD-M10VSA2

802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV

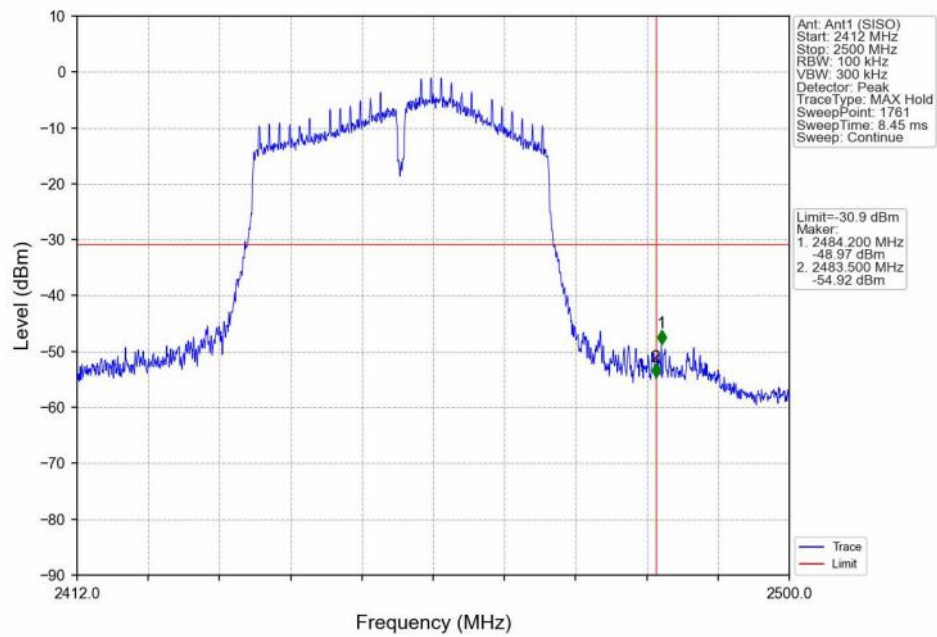


802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



FCCID:2BFSD-M10VSA2

802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV

