



# RF Test Report

## For

Project No.:	ZKT-240715I8200E-3
Client:	SHENZHEN FCAR TECHNOLOGY CO., LTD
Address:	8th floor, Chuangyi Building, No. 3025 Nanhai Ave., Nanshan, Shenzhen, Guangdong, China 518060
Product Description:	Auto Diagnostic Tool
Test Model	CW700
Test Engineer:	Franco
Test Date:	2024-07-16

## 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

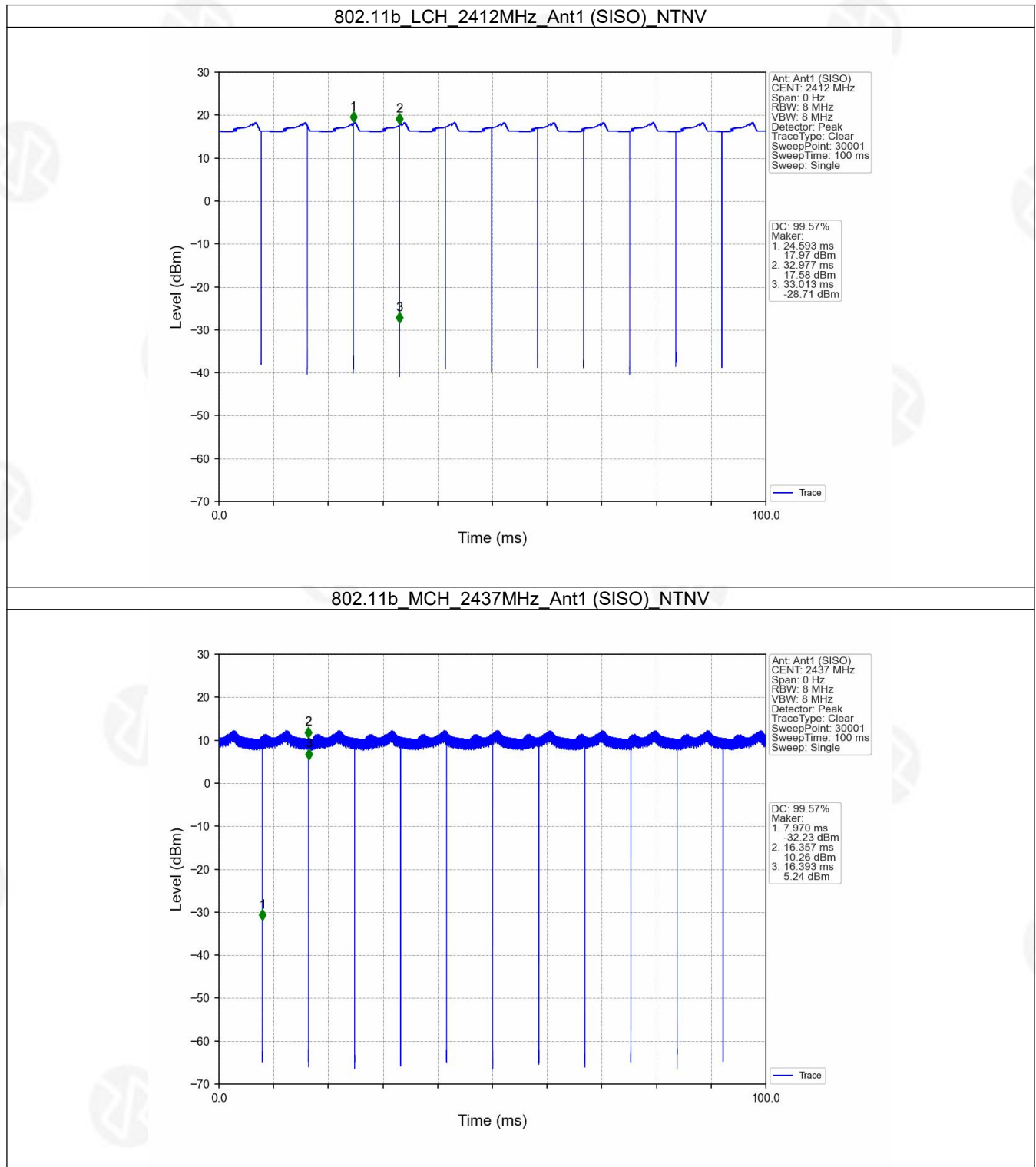
## 1.1 Ant1

### 1.1.1 Test Result

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	8.384	8.420	99.57	0.02	0.04
		2437	8.387	8.423	99.57	0.02	0.04
		2462	8.383	8.420	99.56	0.02	0.04
802.11g	SISO	2412	1.395	1.437	97.08	0.13	0.03
		2437	1.396	1.437	97.15	0.13	0.03
		2462	1.395	1.437	97.08	0.13	0.00
802.11n (HT20)	SISO	2412	1.300	1.345	96.65	0.15	0.03
		2437	1.303	1.345	96.88	0.14	0.03
		2462	1.303	1.345	96.88	0.14	0.03
802.11n (HT40)	SISO	2422	0.648	0.692	93.64	0.29	0.07
		2437	0.649	0.692	93.79	0.28	0.03
		2452	0.650	0.692	93.93	0.27	0.03

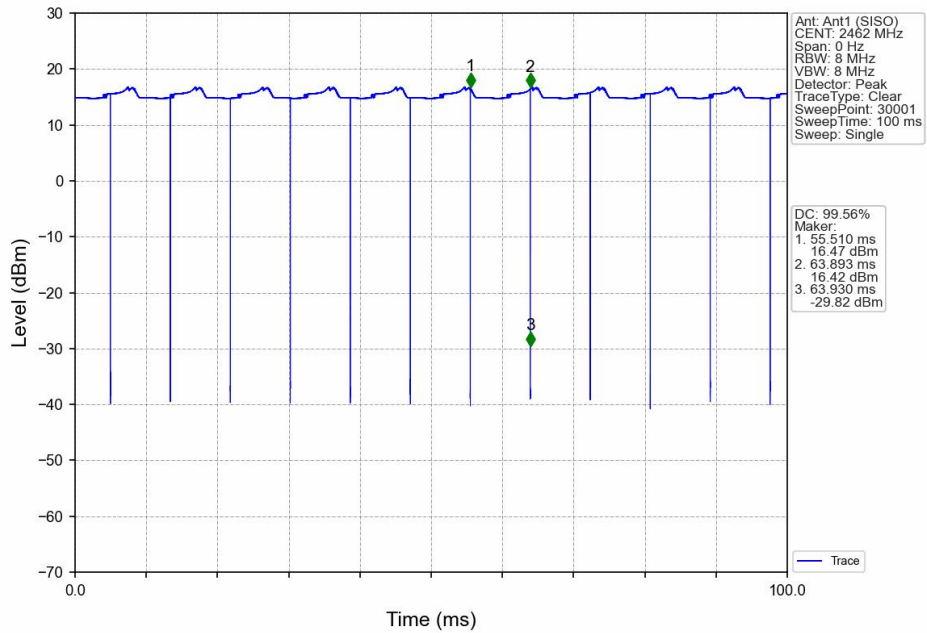


## 1.1.2 Test Graph

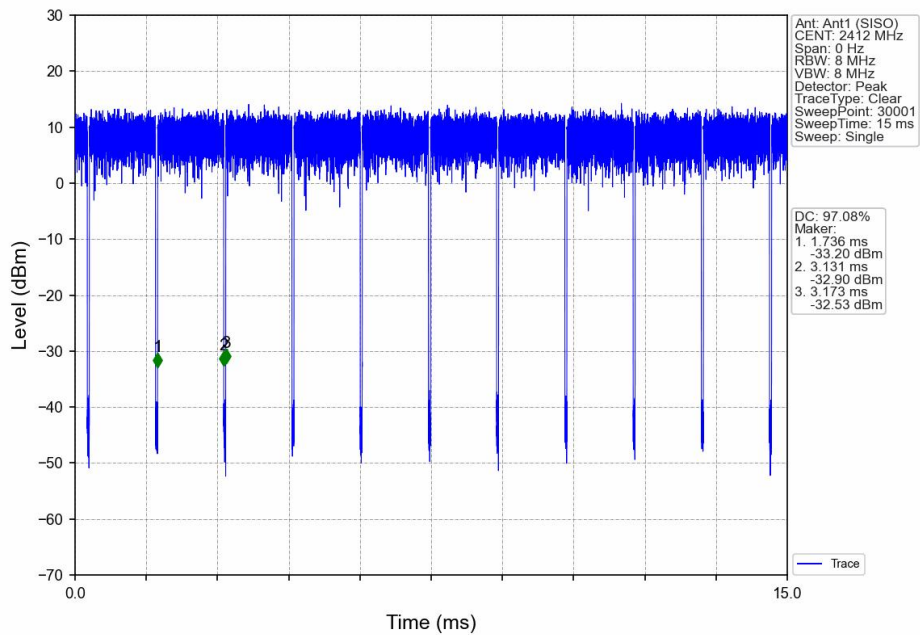




### 802.11b\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV

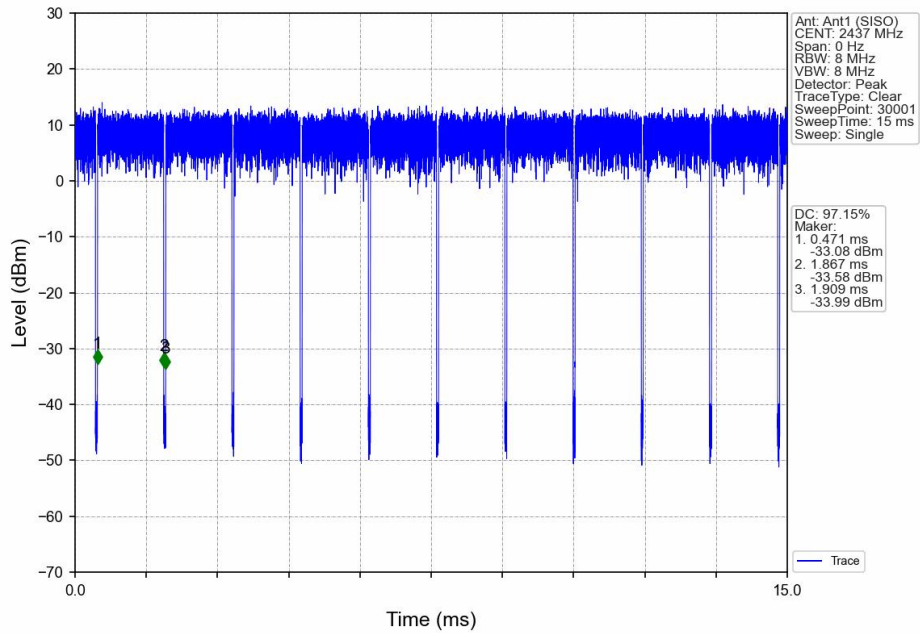


### 802.11g\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV

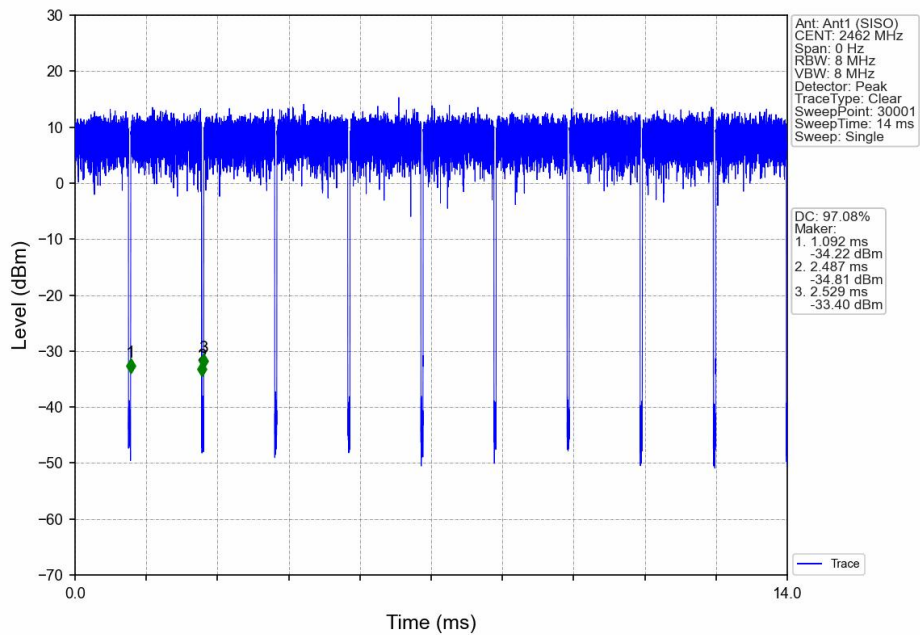




802.11g\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV

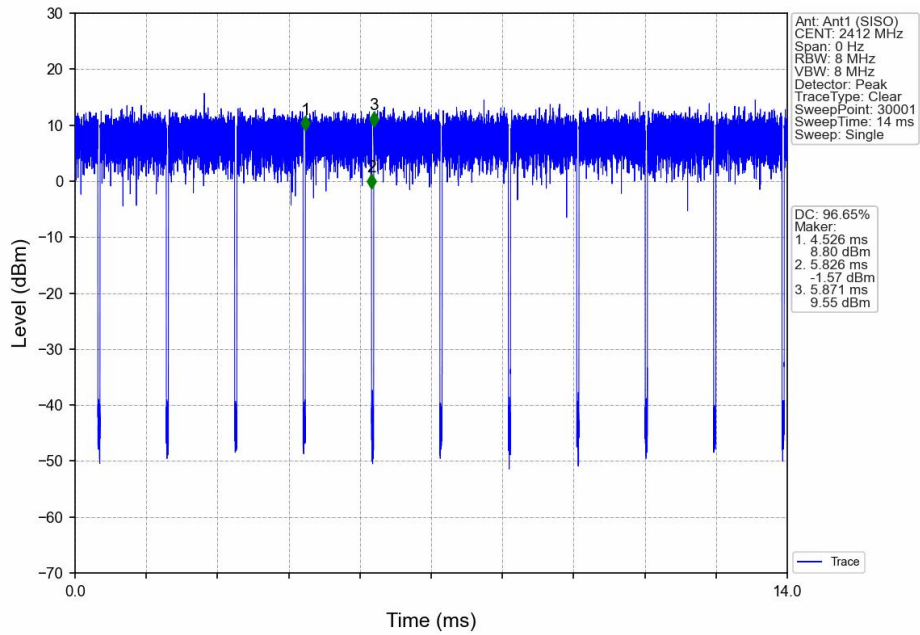


802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV

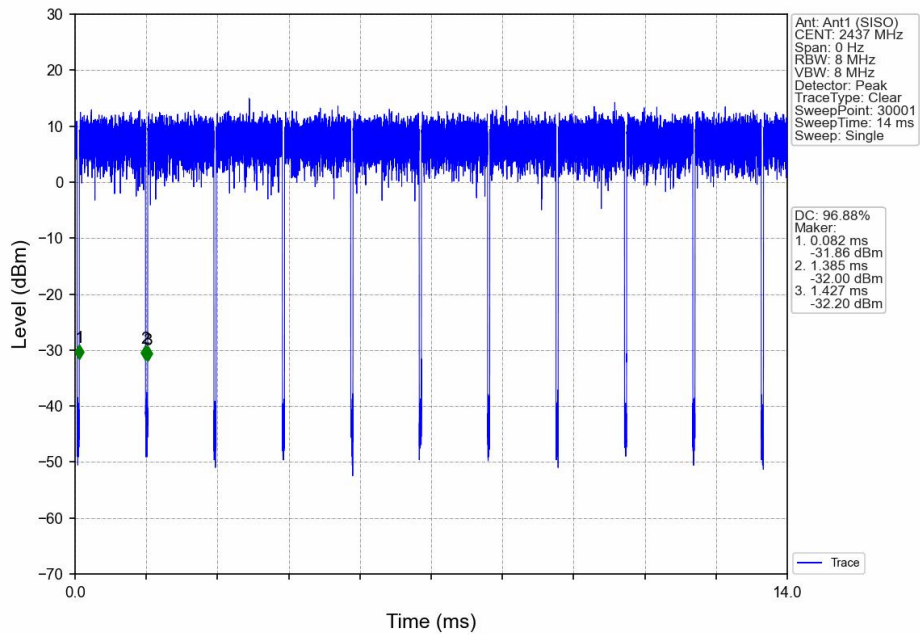




### 802.11n(HT20)\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV



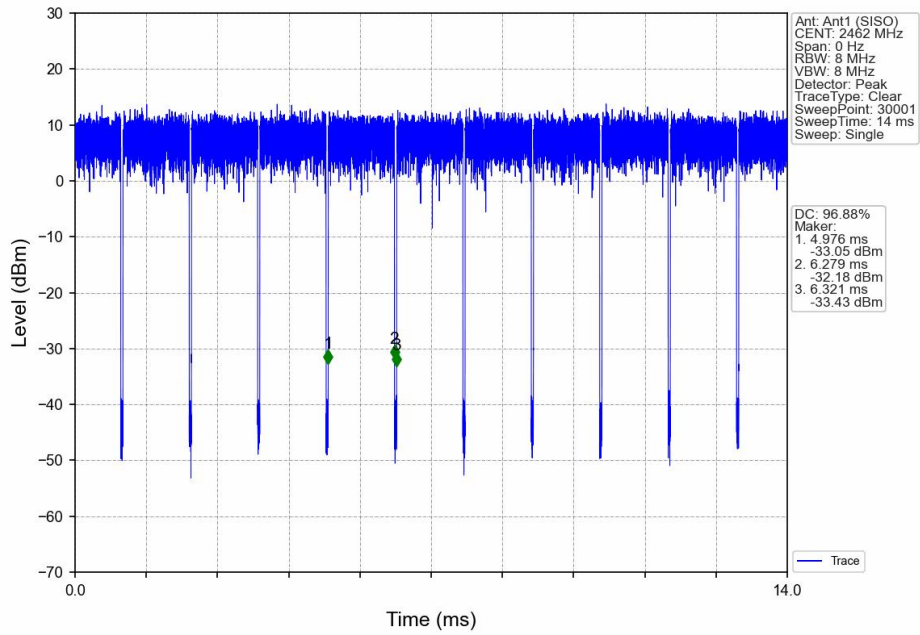
### 802.11n(HT20)\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV



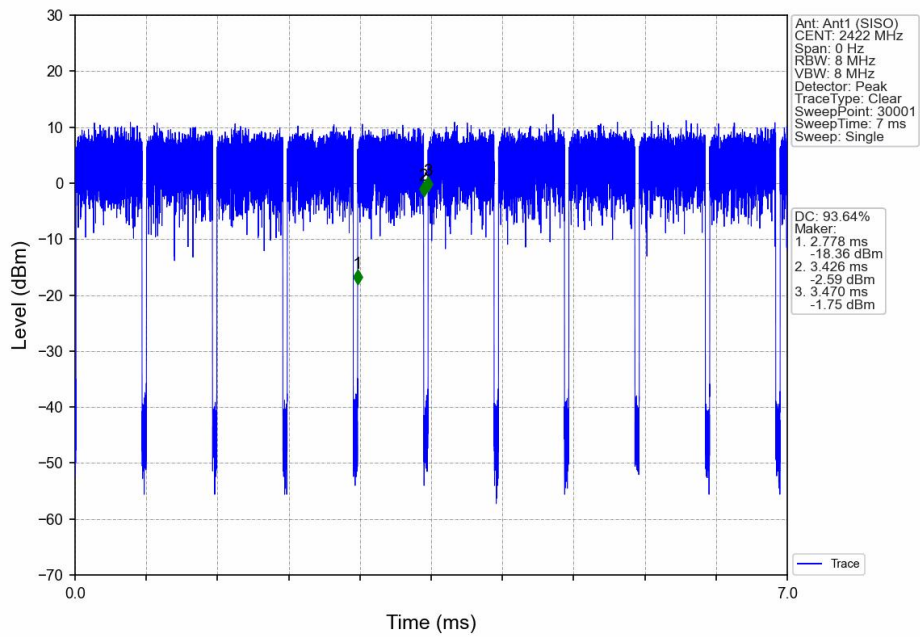




802.11n(HT20)\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV

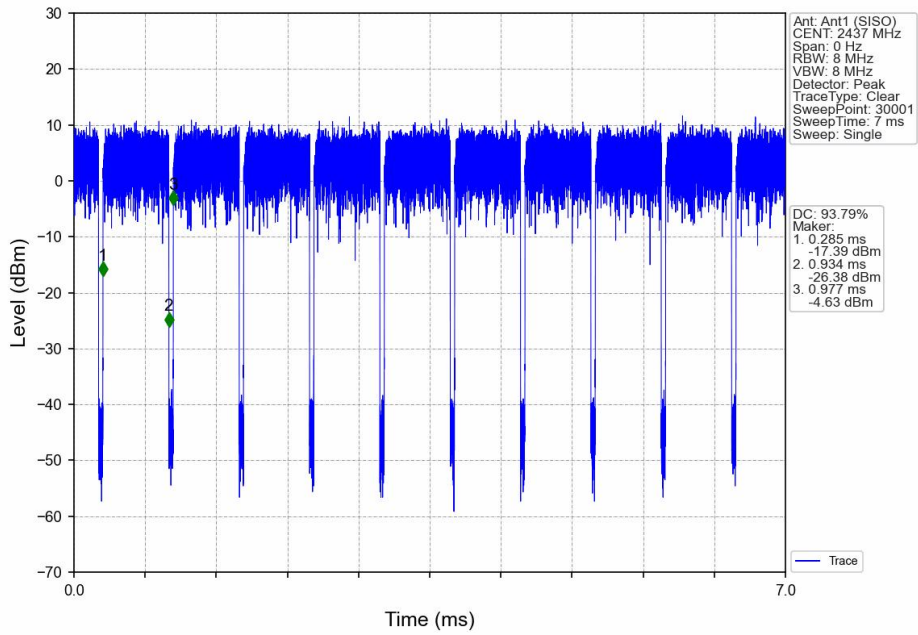


802.11n(HT40)\_LCH\_2422MHz\_Ant1 (SISO)\_NTNV

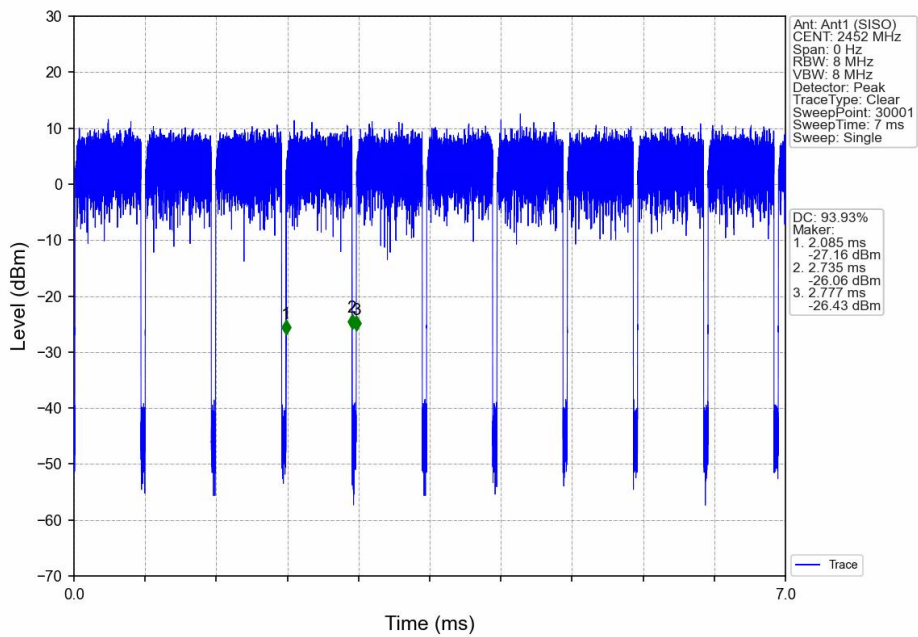




### 802.11n(HT40)\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV



### 802.11n(HT40)\_HCH\_2452MHz\_Ant1 (SISO)\_NTNV







## 2. Bandwidth

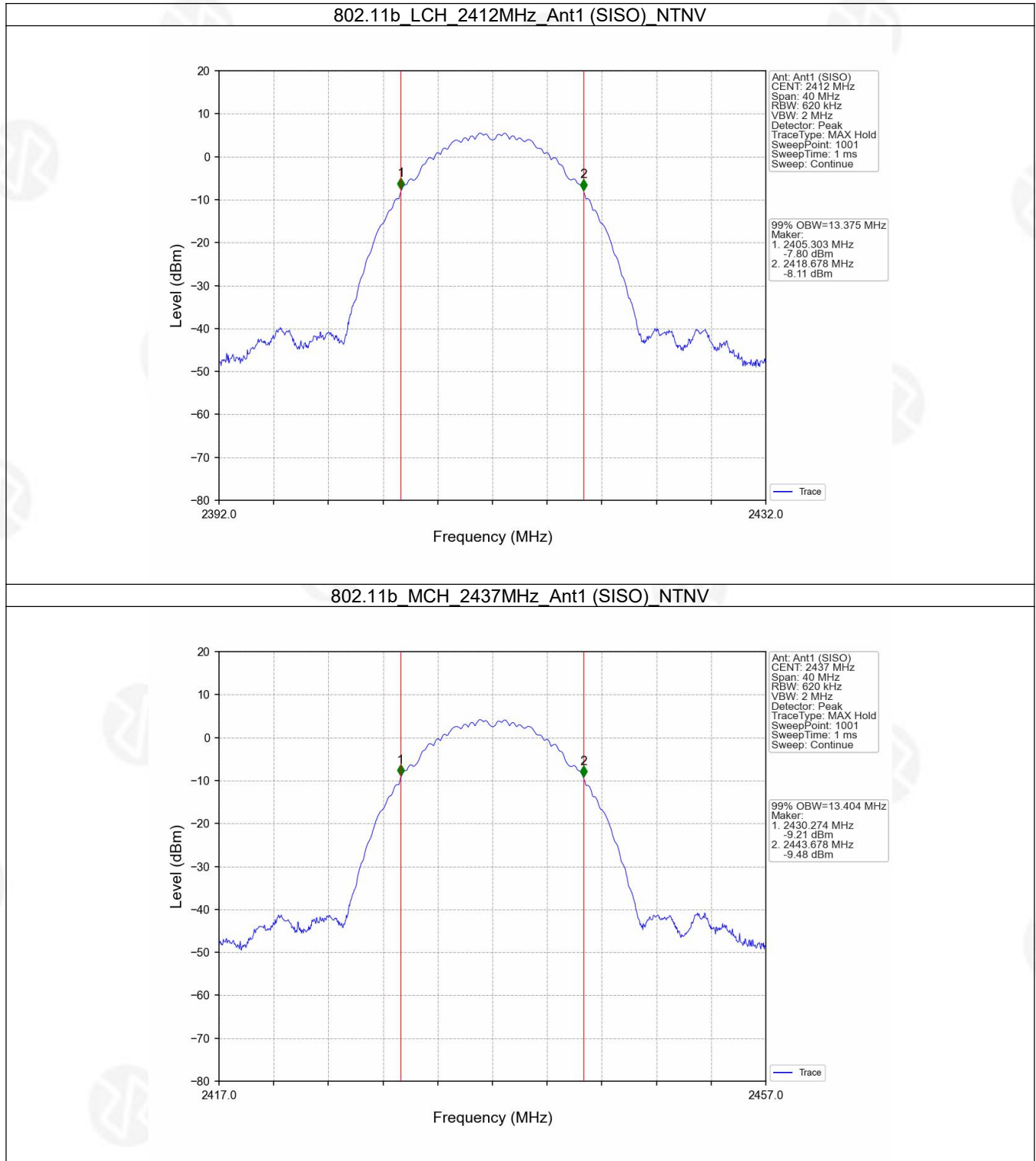
### 2.1 OBW

#### 2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	13.375	/	Pass
		2437	1	13.404	/	Pass
		2462	1	13.372	/	Pass
802.11g	SISO	2412	1	17.299	/	Pass
		2437	1	17.357	/	Pass
		2462	1	17.356	/	Pass
802.11n (HT20)	SISO	2412	1	18.157	/	Pass
		2437	1	18.150	/	Pass
		2462	1	18.120	/	Pass
802.11n (HT40)	SISO	2422	1	36.465	/	Pass
		2437	1	36.356	/	Pass
		2452	1	36.420	/	Pass

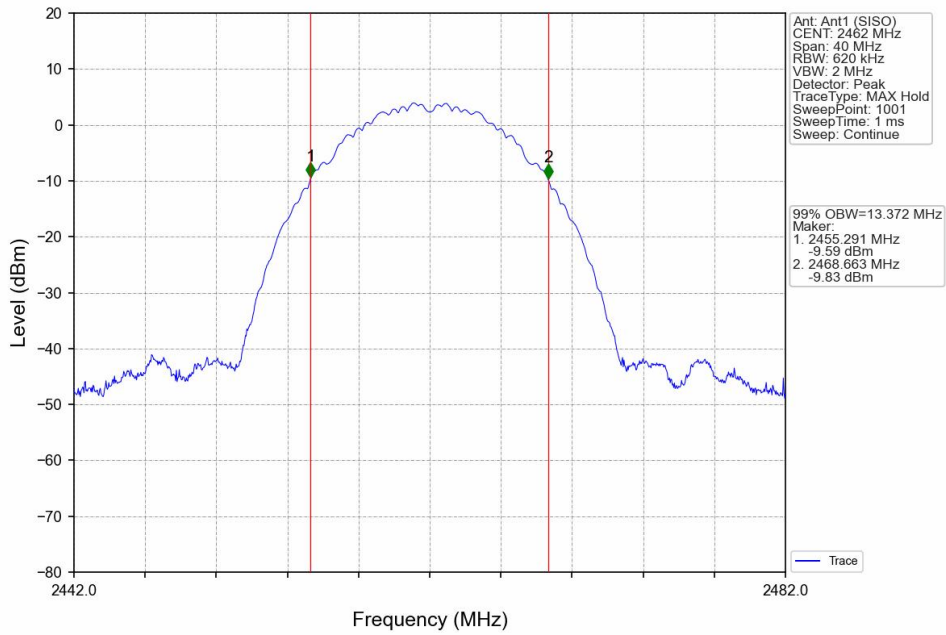


## 2.1.2 Test Graph

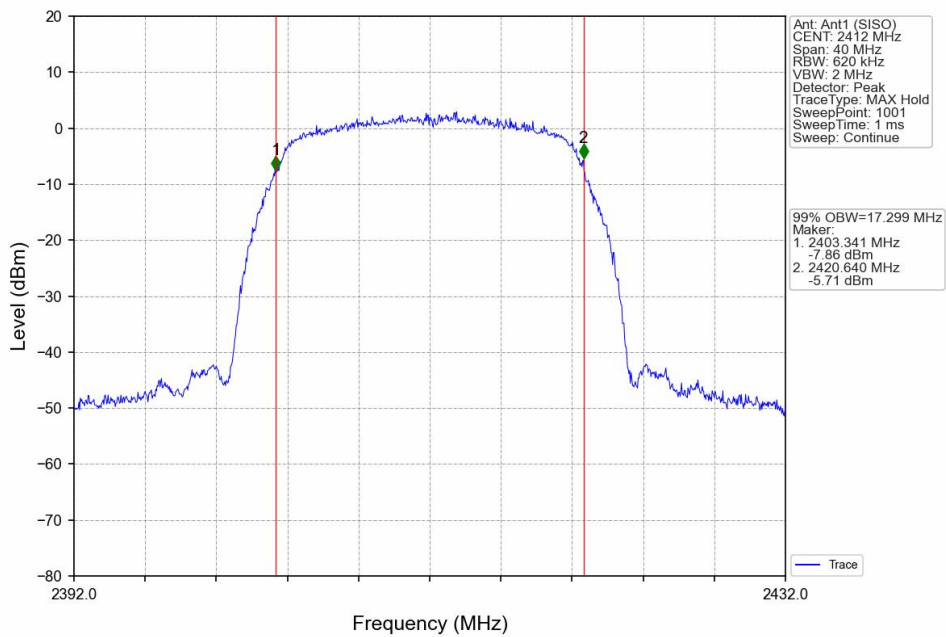




### 802.11b\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV

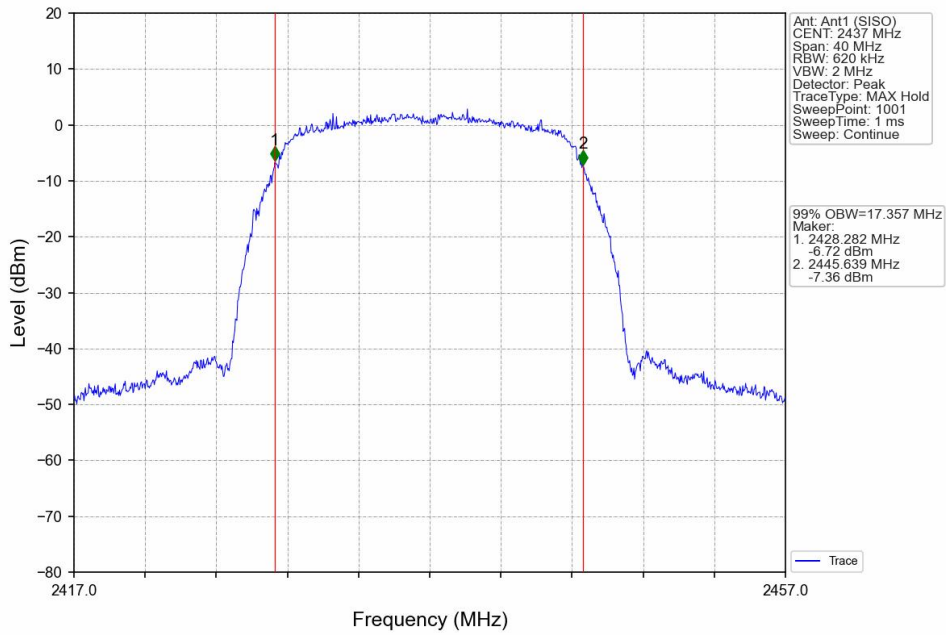


### 802.11g\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV

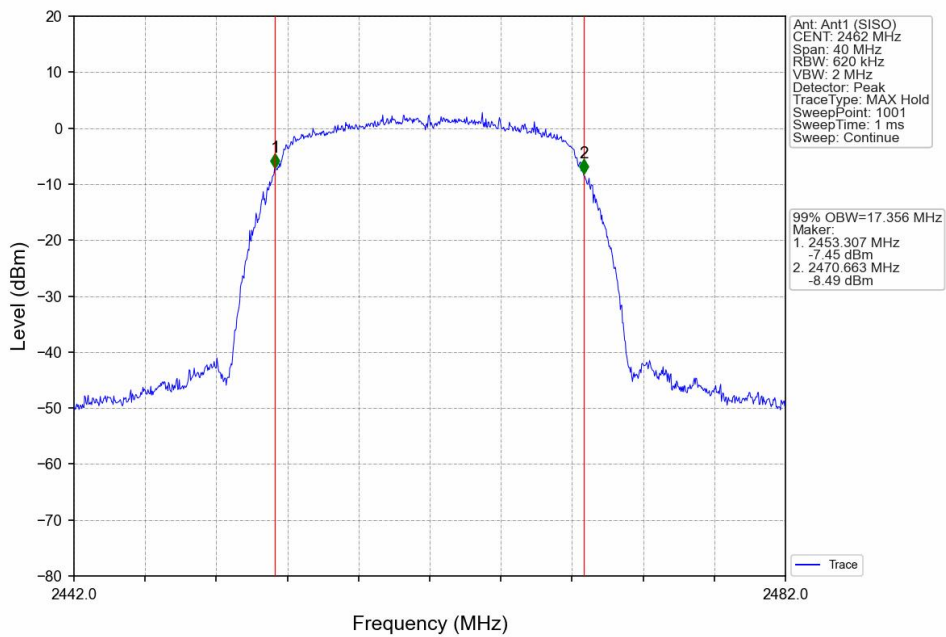




802.11g\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV

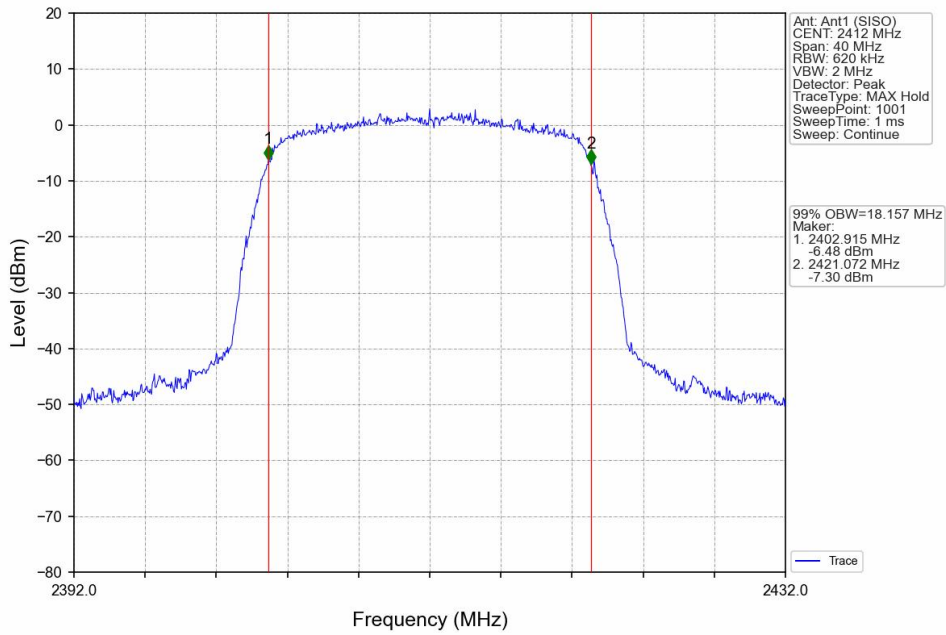


802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV

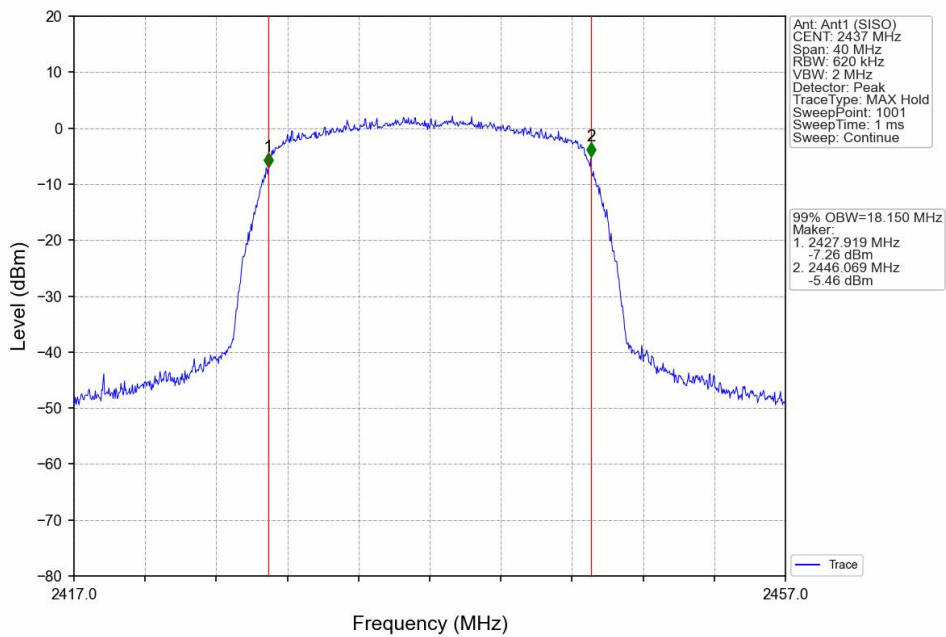




802.11n(HT20)\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV

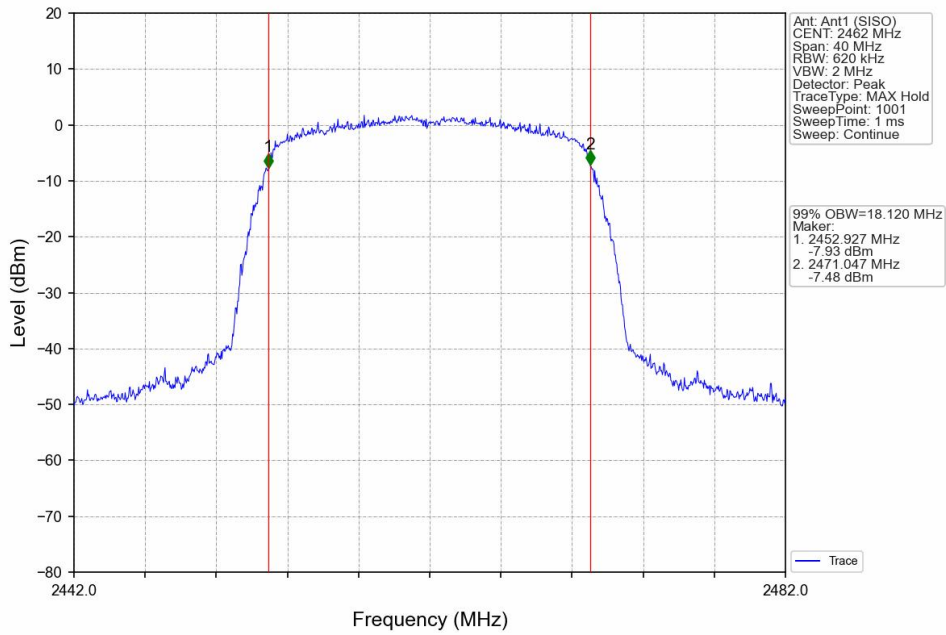


802.11n(HT20)\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV

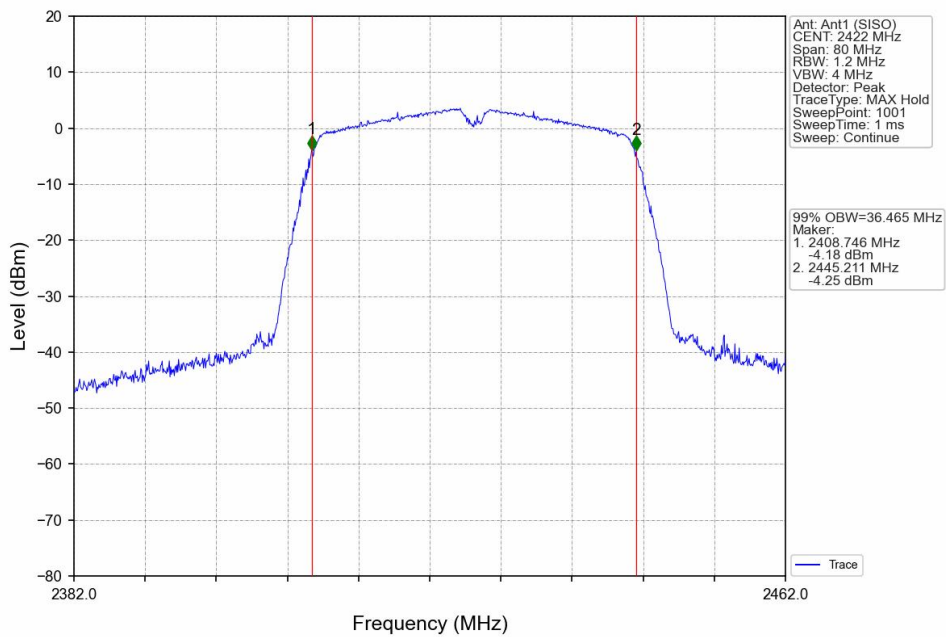




802.11n(HT20)\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



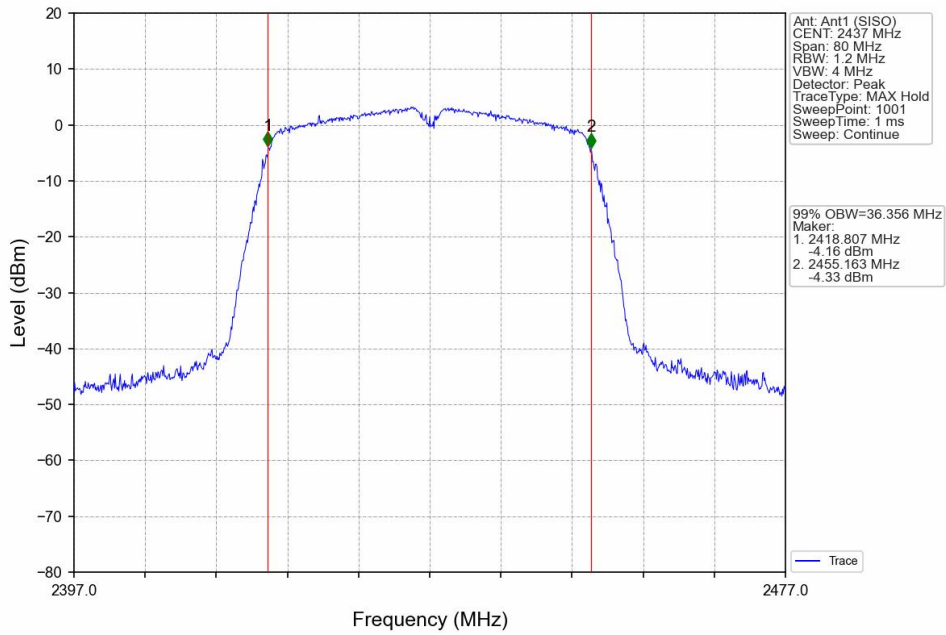
802.11n(HT40)\_LCH\_2422MHz\_Ant1 (SISO)\_NTNV



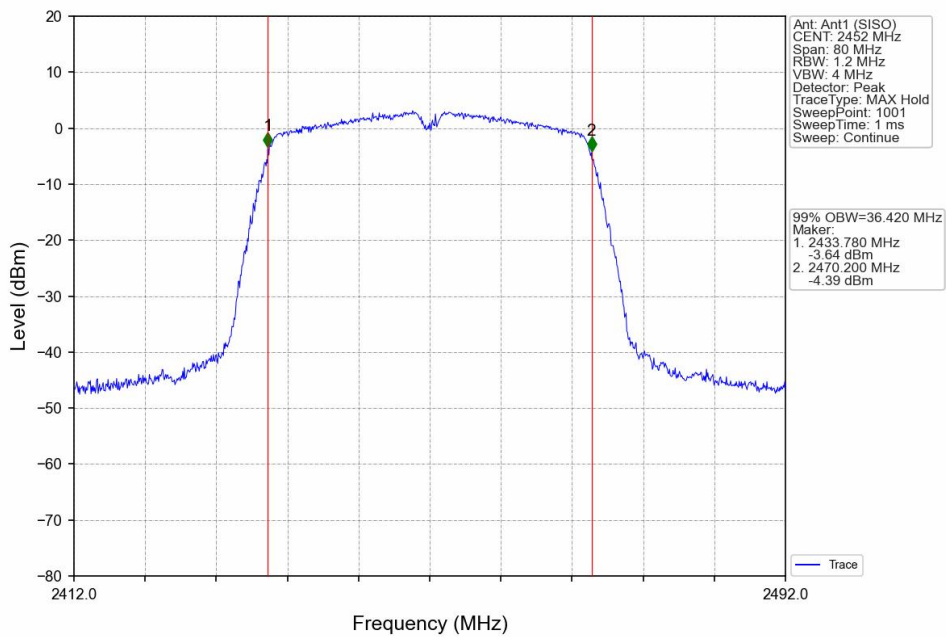




802.11n(HT40)\_MCH\_2437MHz\_Ant1(SISO)\_NTNV



802.11n(HT40)\_HCH\_2452MHz\_Ant1(SISO)\_NTNV





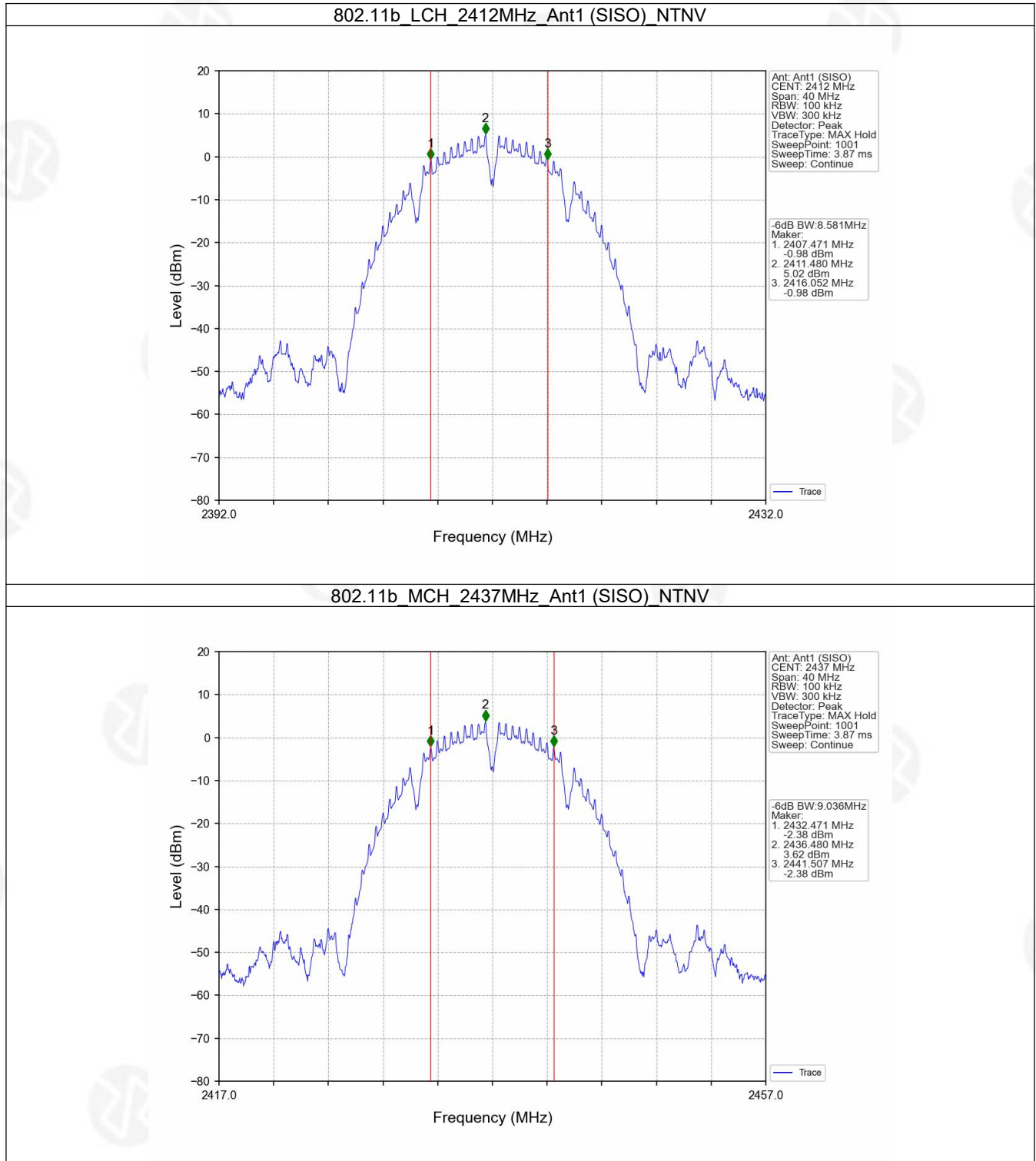
## 2.2 6dB BW

### 2.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	8.581	$\geq 0.5$	Pass
		2437	1	9.036	$\geq 0.5$	Pass
		2462	1	8.593	$\geq 0.5$	Pass
802.11g	SISO	2412	1	15.156	$\geq 0.5$	Pass
		2437	1	15.159	$\geq 0.5$	Pass
		2462	1	15.164	$\geq 0.5$	Pass
802.11n (HT20)	SISO	2412	1	15.154	$\geq 0.5$	Pass
		2437	1	15.183	$\geq 0.5$	Pass
		2462	1	15.159	$\geq 0.5$	Pass
802.11n (HT40)	SISO	2422	1	35.136	$\geq 0.5$	Pass
		2437	1	35.145	$\geq 0.5$	Pass
		2452	1	35.155	$\geq 0.5$	Pass

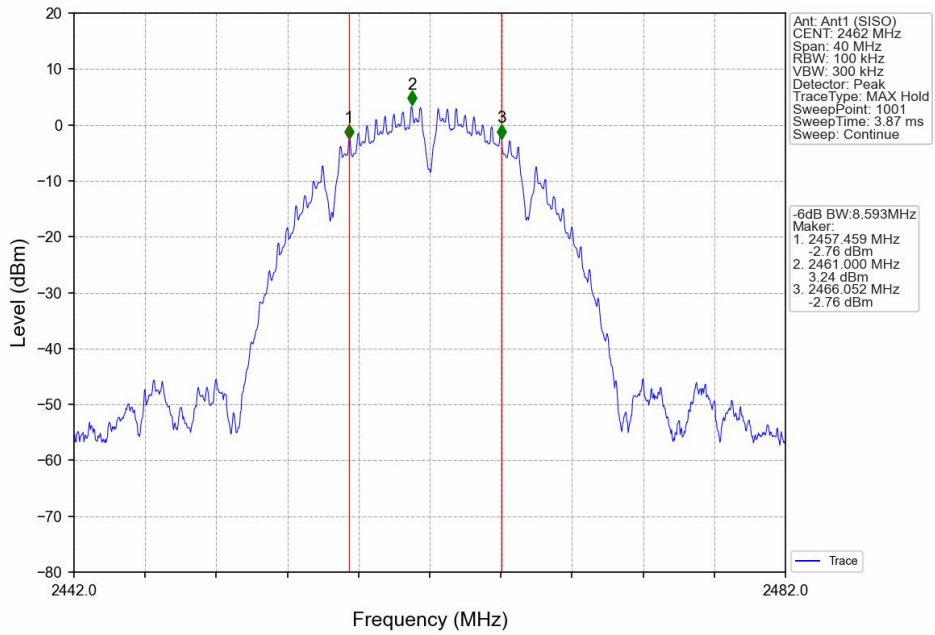


## 2.2.2 Test Graph

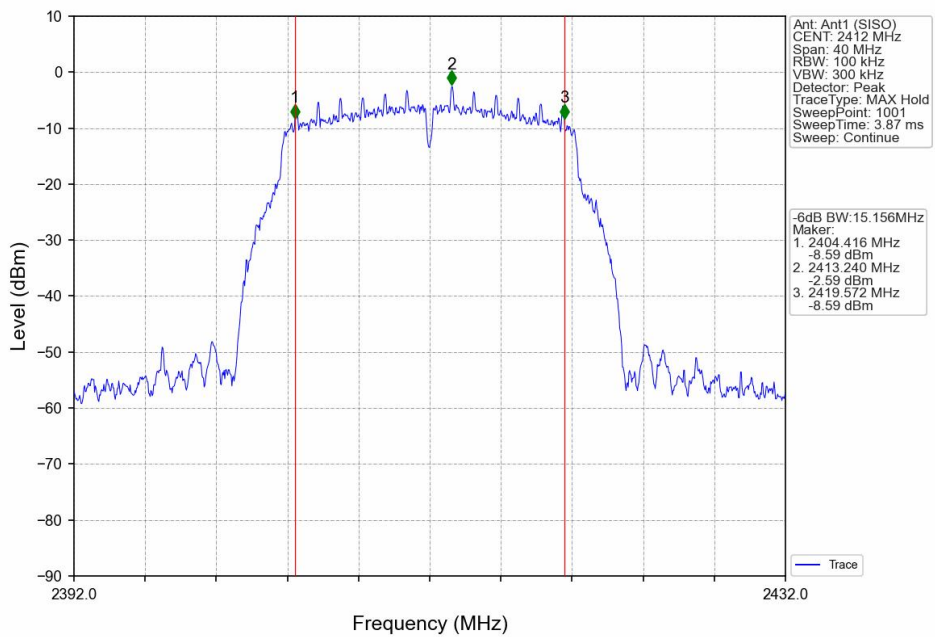




### 802.11b\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV

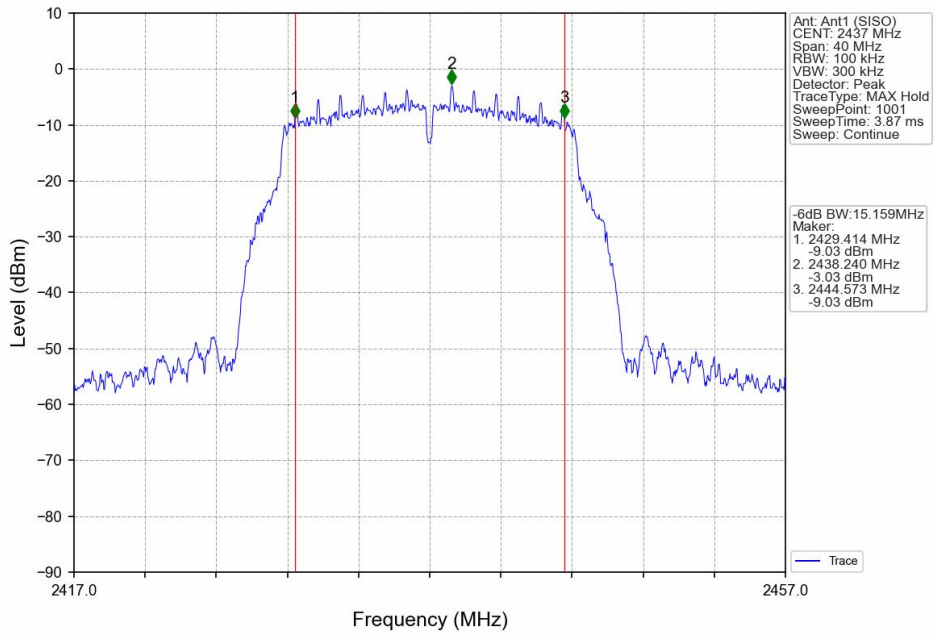


### 802.11g\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV

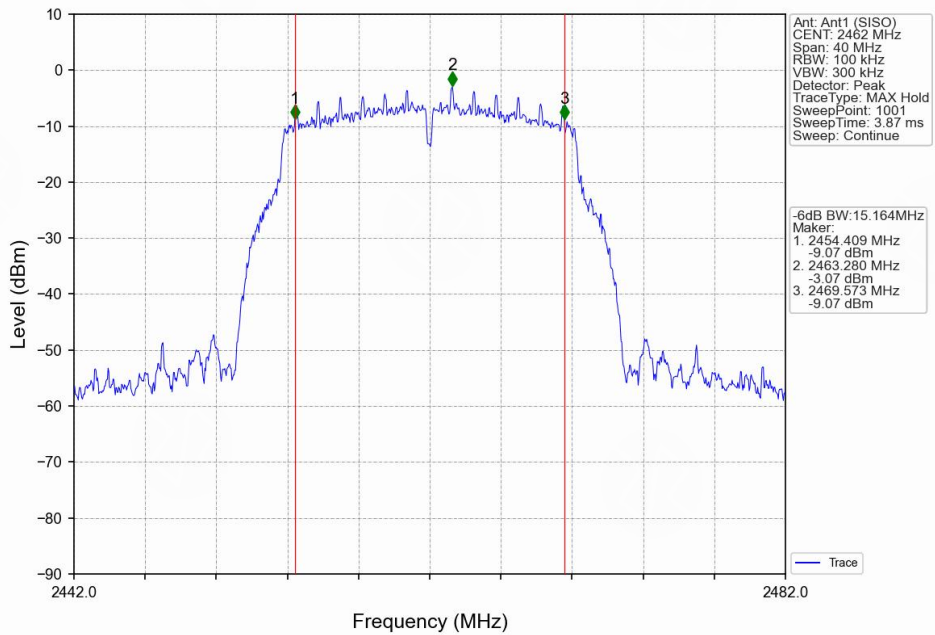




### 802.11g\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV

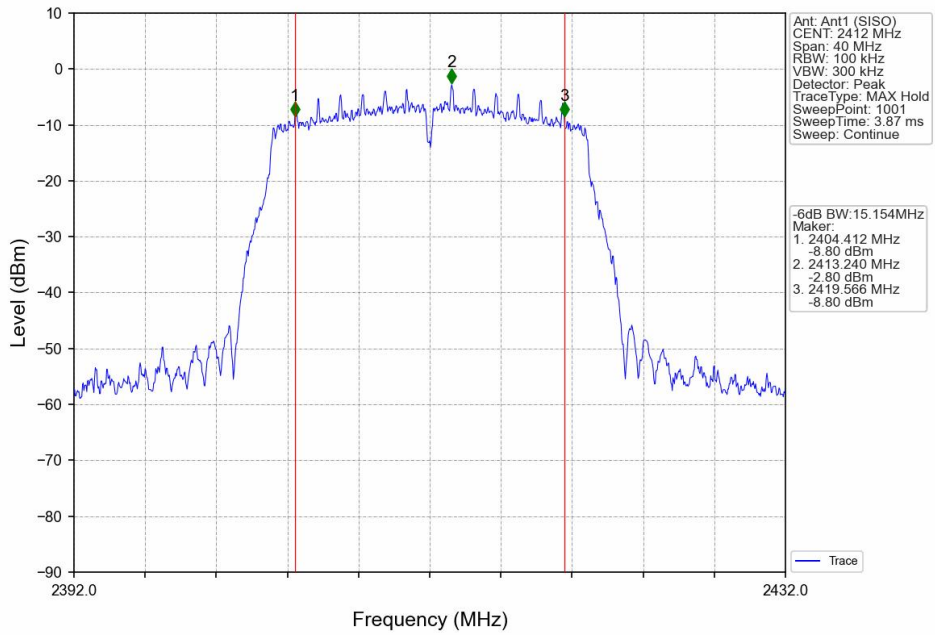


### 802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV

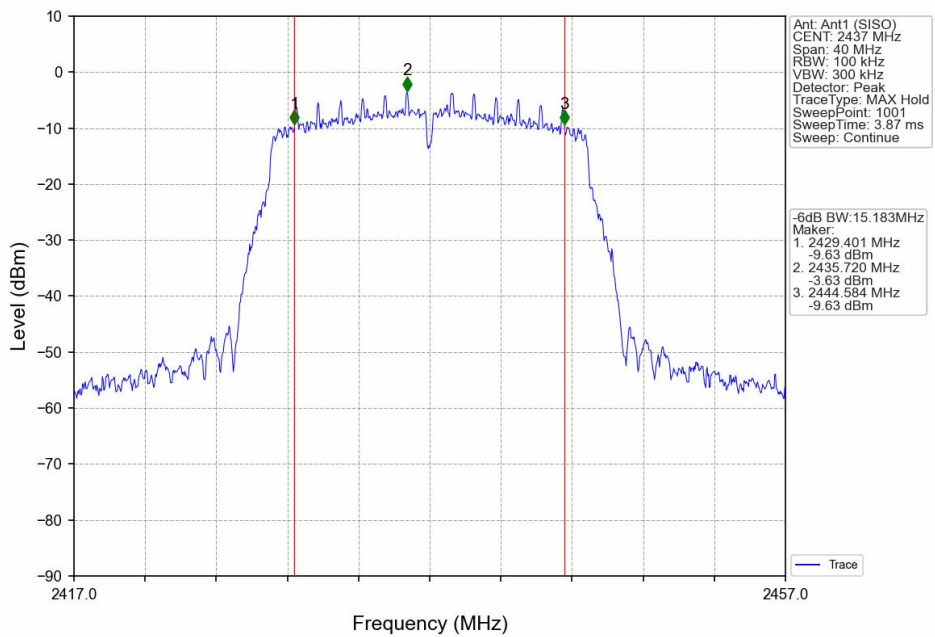




802.11n(HT20)\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV



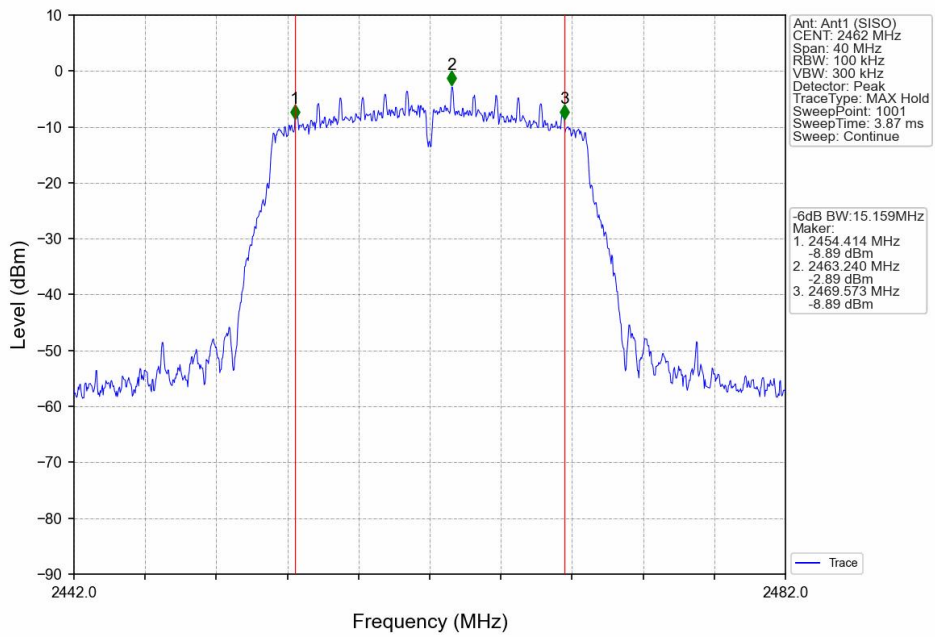
802.11n(HT20)\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV



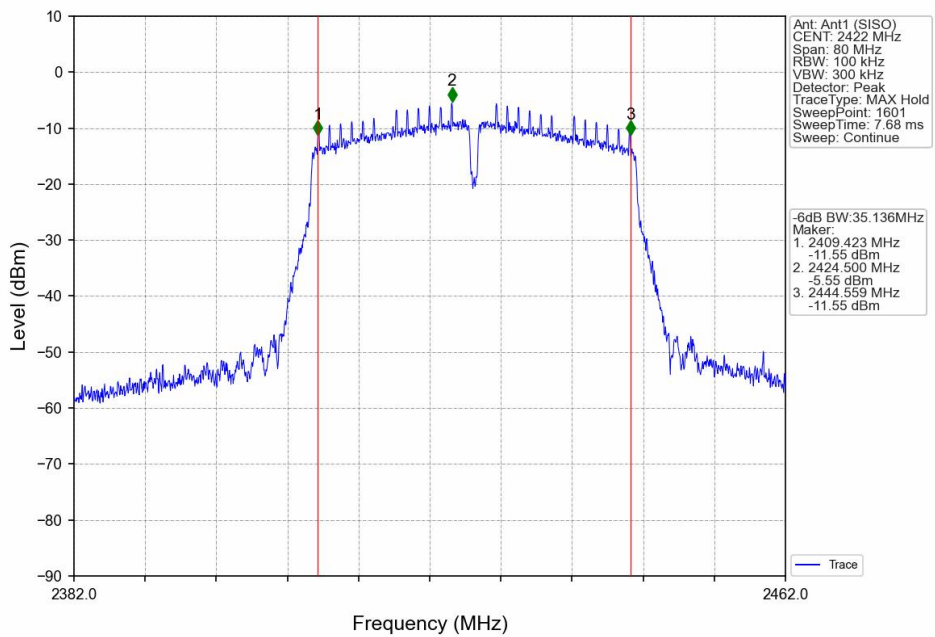




802.11n(HT20)\_HCH\_2462MHz\_Ant1(SISO)\_NTNV

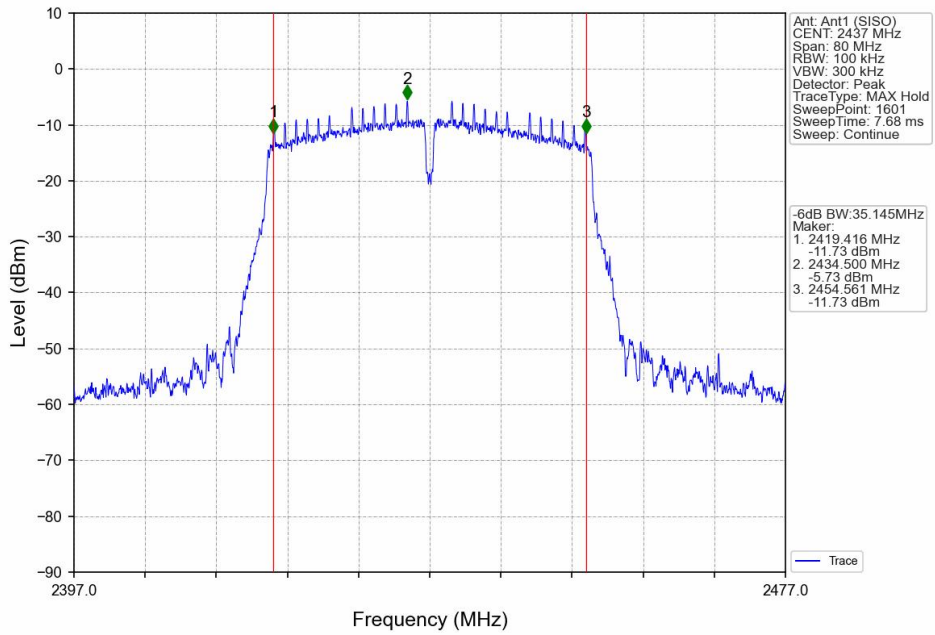


802.11n(HT40)\_LCH\_2422MHz\_Ant1(SISO)\_NTNV

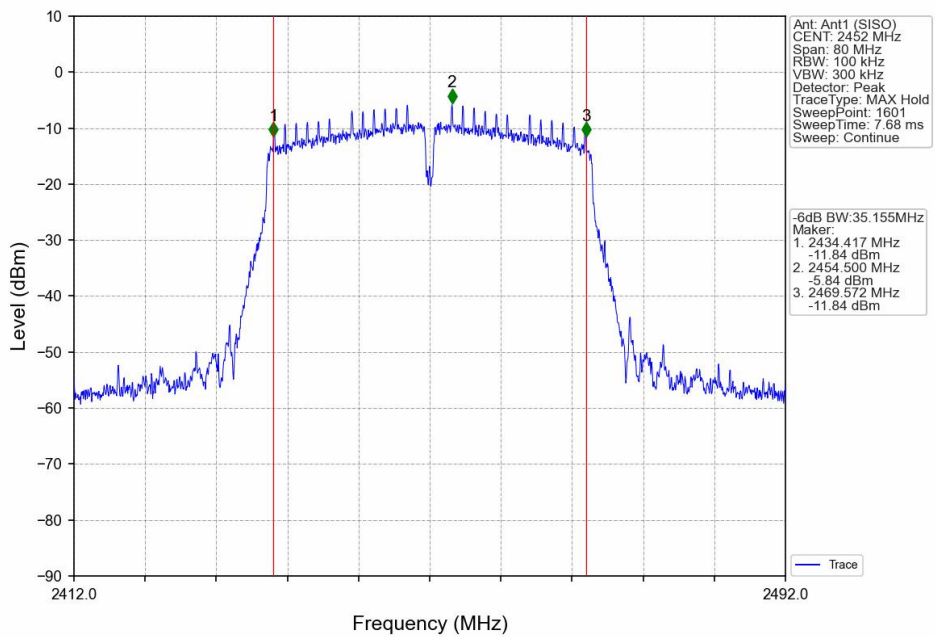




### 802.11n(HT40)\_MCH\_2437MHz\_Ant1(SISO)\_NTNV



### 802.11n(HT40)\_HCH\_2452MHz\_Ant1(SISO)\_NTNV





### 3. Maximum Conducted Output Power

#### 3.1 Power

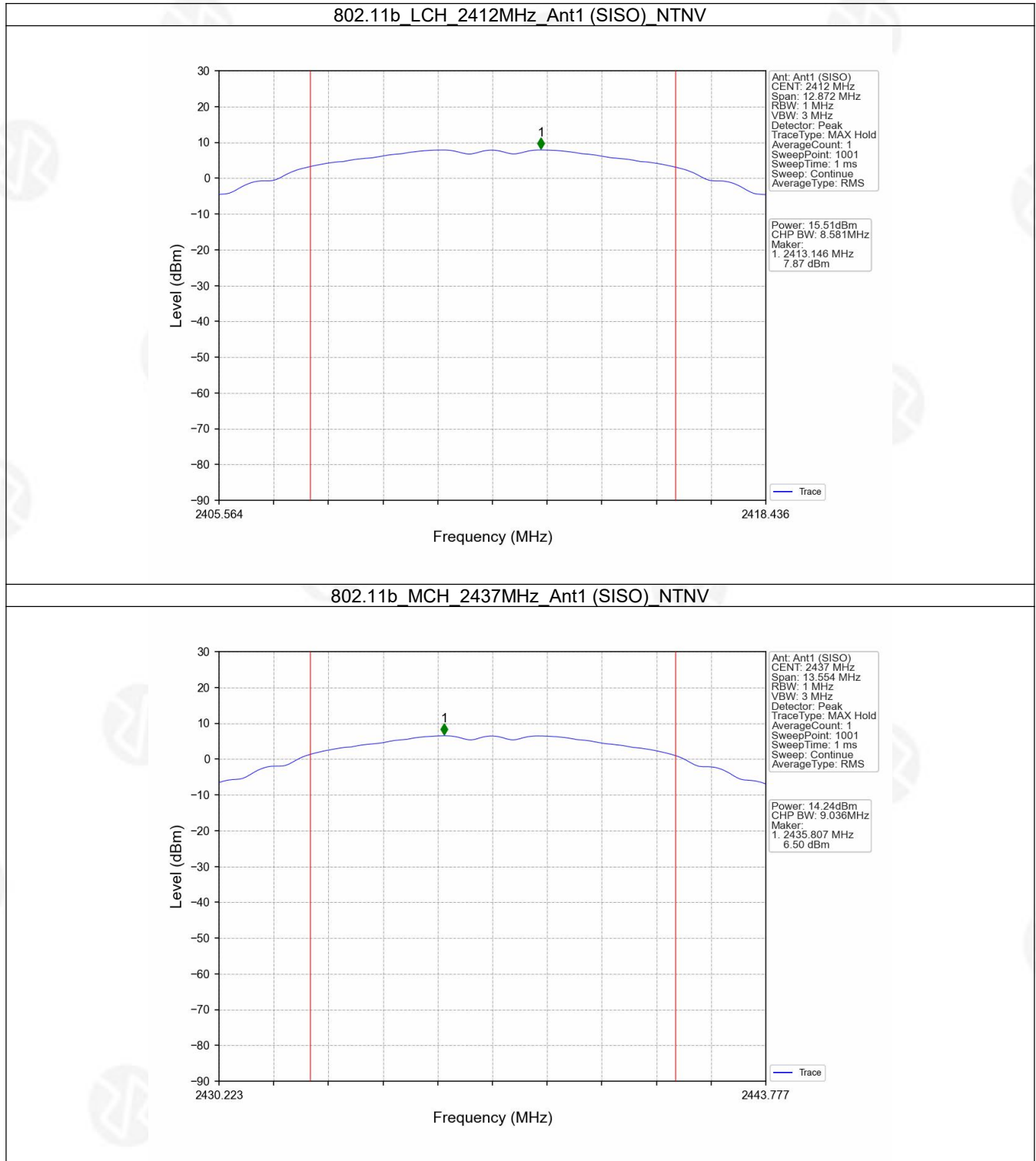
##### 3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	15.51	<=30	Pass
		2437	14.24	<=30	Pass
		2462	13.89	<=30	Pass
802.11g	SISO	2412	14.88	<=30	Pass
		2437	14.56	<=30	Pass
		2462	14.60	<=30	Pass
802.11n (HT20)	SISO	2412	14.58	<=30	Pass
		2437	14.34	<=30	Pass
		2462	14.40	<=30	Pass
802.11n (HT40)	SISO	2422	14.73	<=30	Pass
		2437	14.98	<=30	Pass
		2452	14.98	<=30	Pass

Note1: Antenna Gain: Ant1: 1.17dBi;

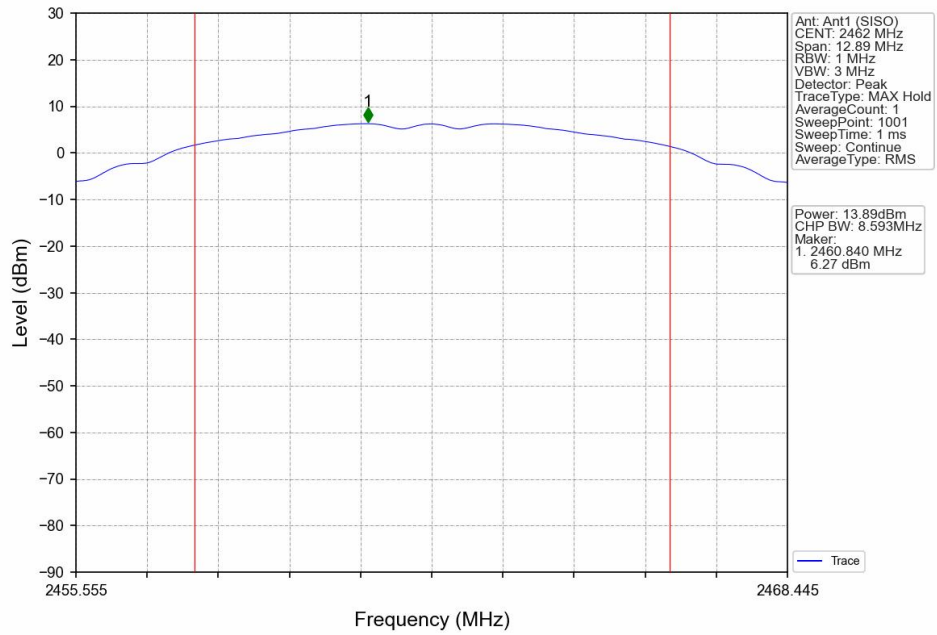


### 3.1.2 Test Graph

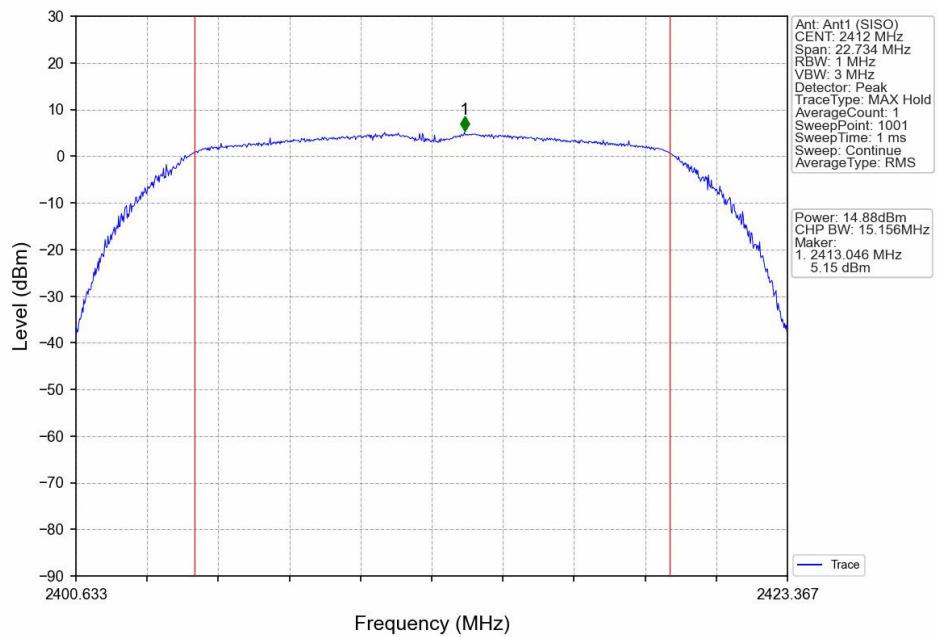




### 802.11b\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV

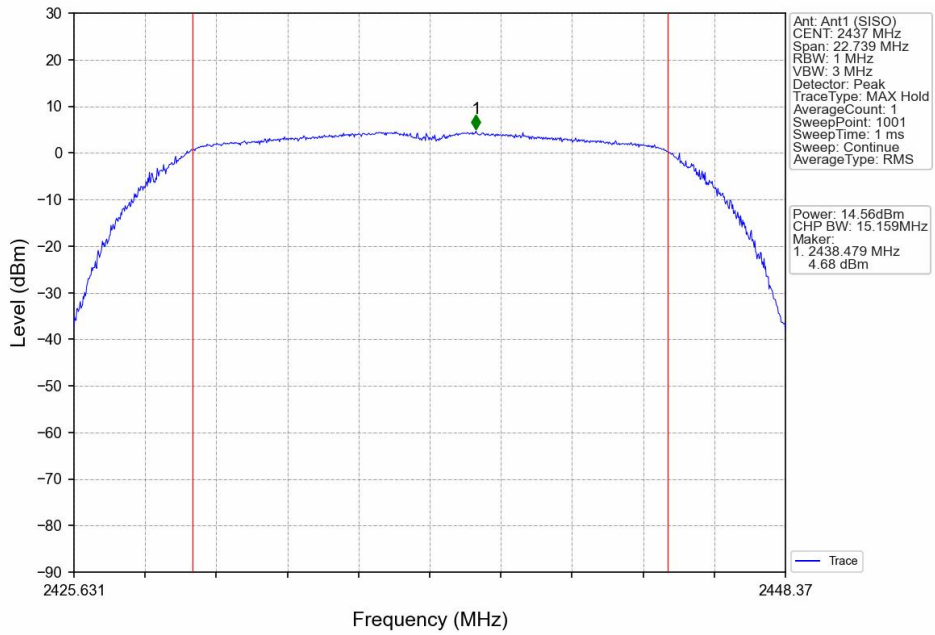


### 802.11g\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV

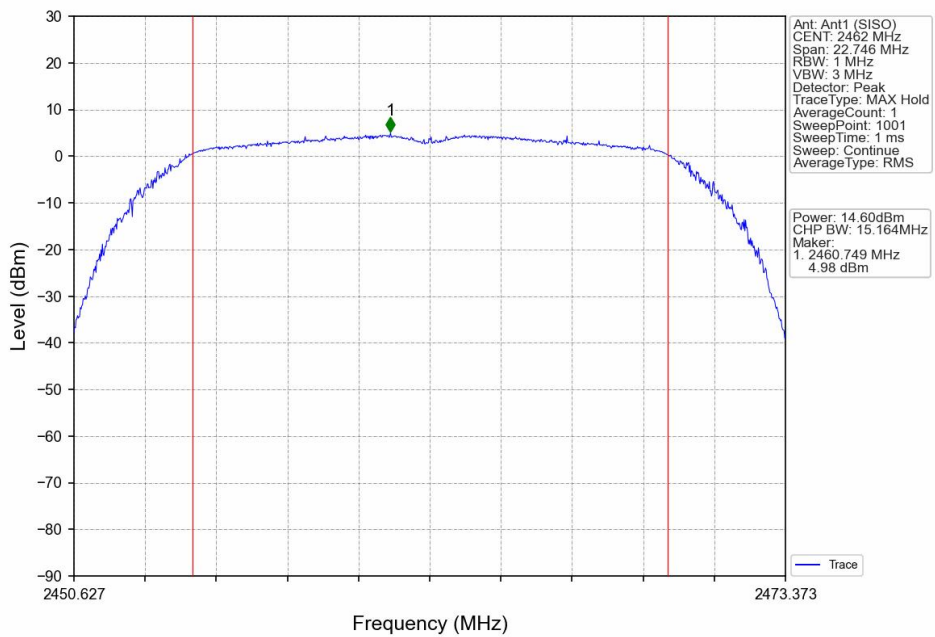




802.11g\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV



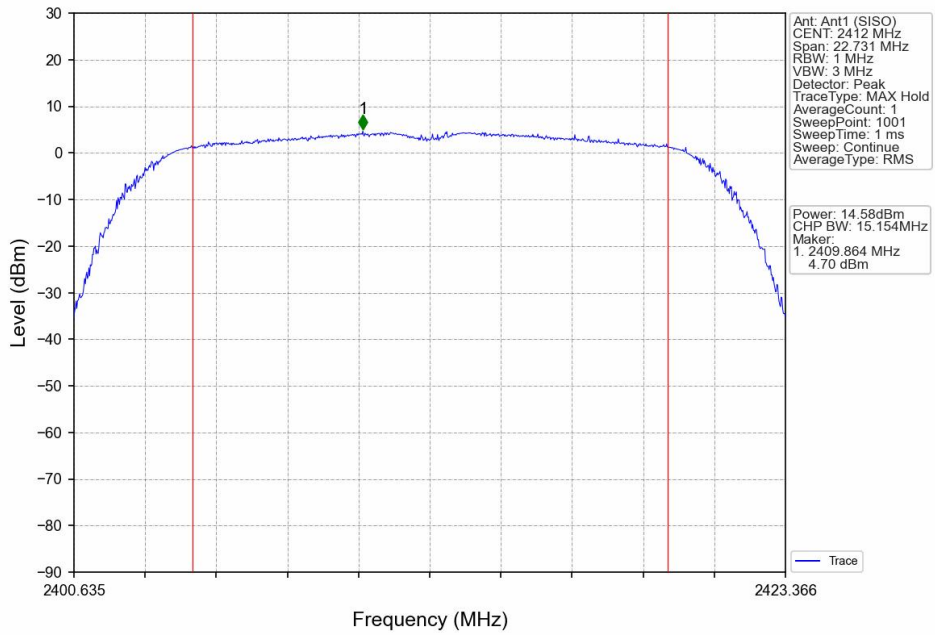
802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



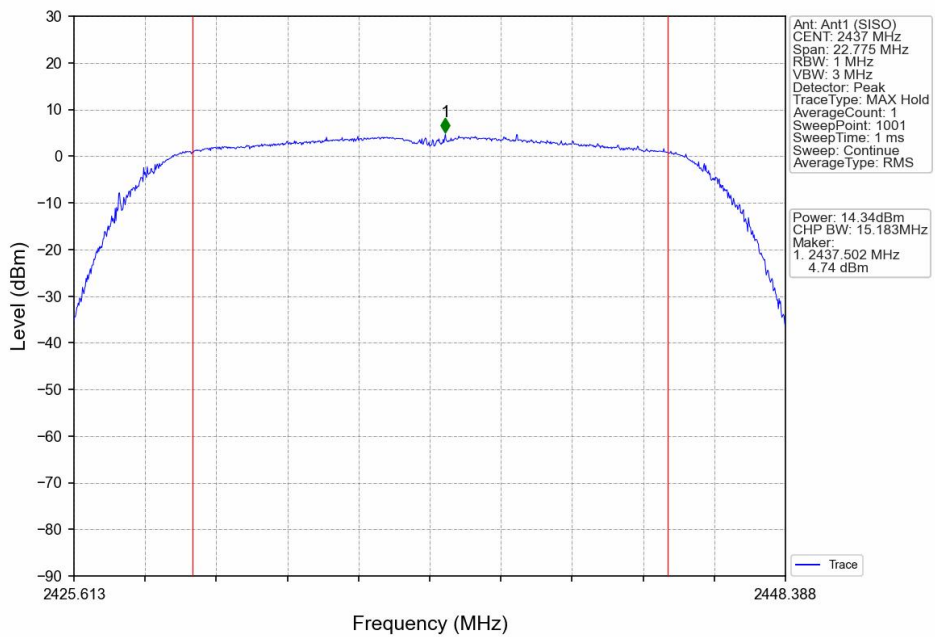




802.11n(HT20)\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV

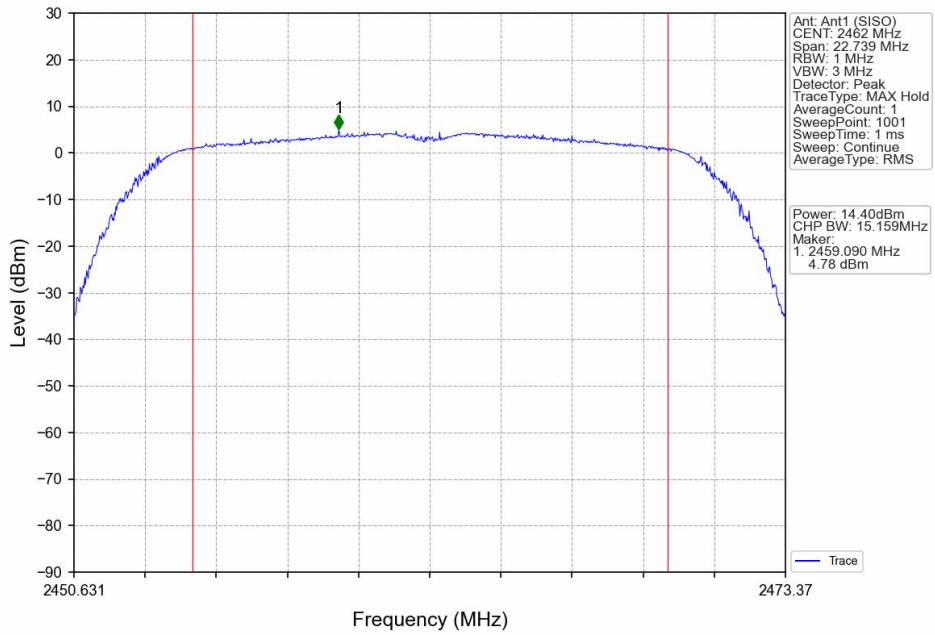


802.11n(HT20)\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV

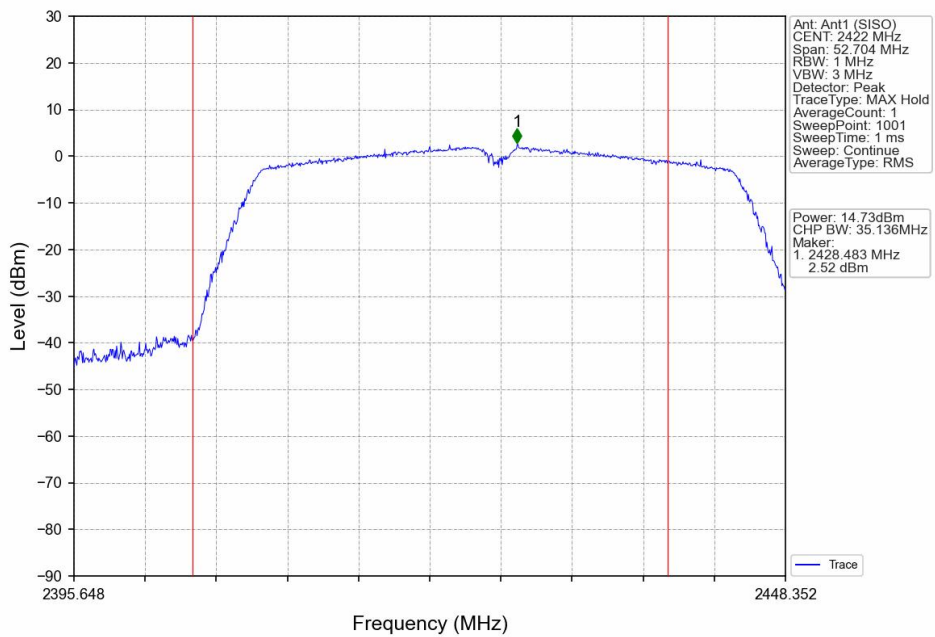




802.11n(HT20)\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV

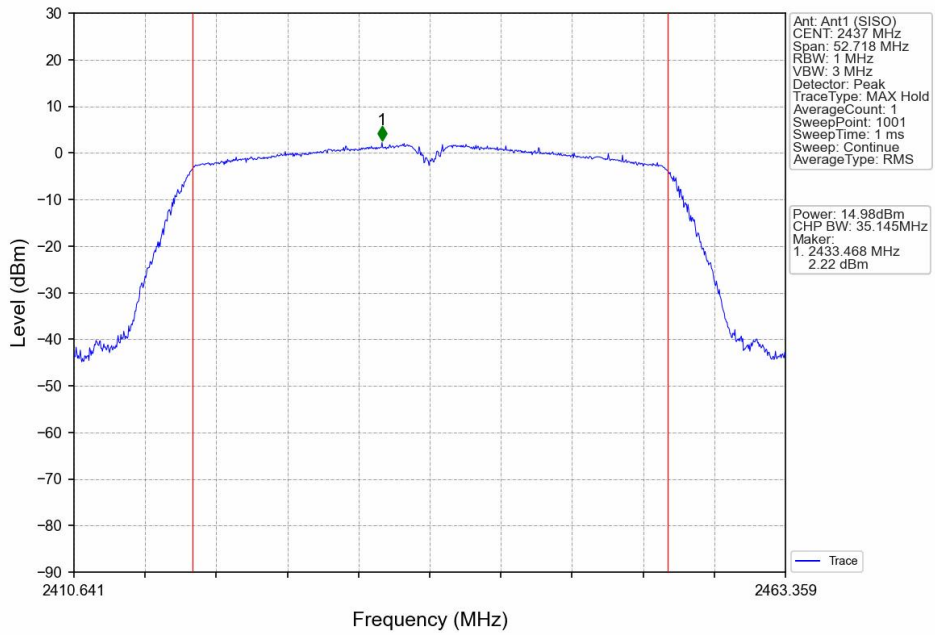


802.11n(HT40)\_LCH\_2422MHz\_Ant1 (SISO)\_NTNV

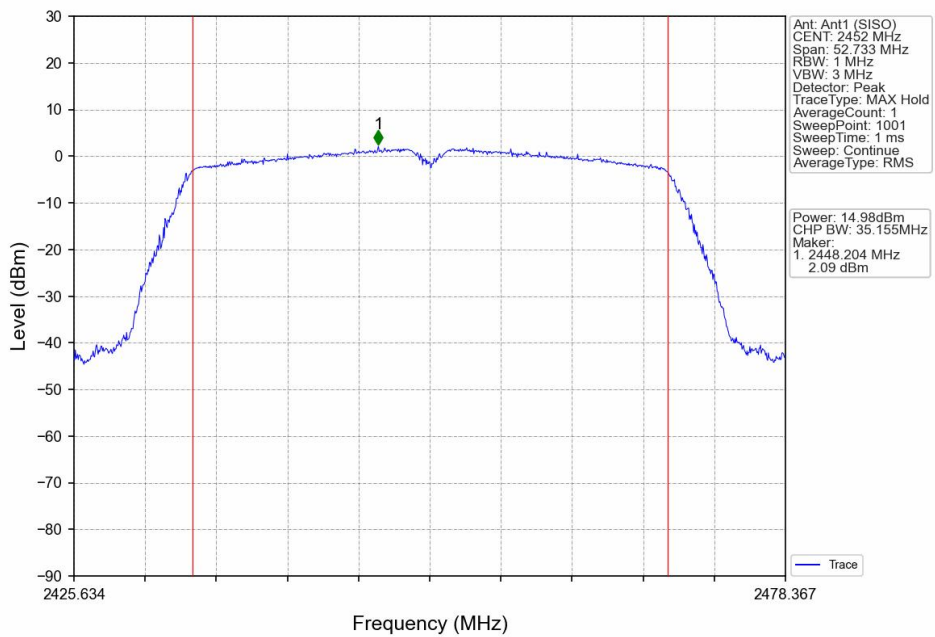




802.11n(HT40)\_MCH\_2437MHz\_Ant1(SISO)\_NTNV



802.11n(HT40)\_HCH\_2452MHz\_Ant1(SISO)\_NTNV





## 4. Maximum Power Spectral Density

### 4.1 PSD

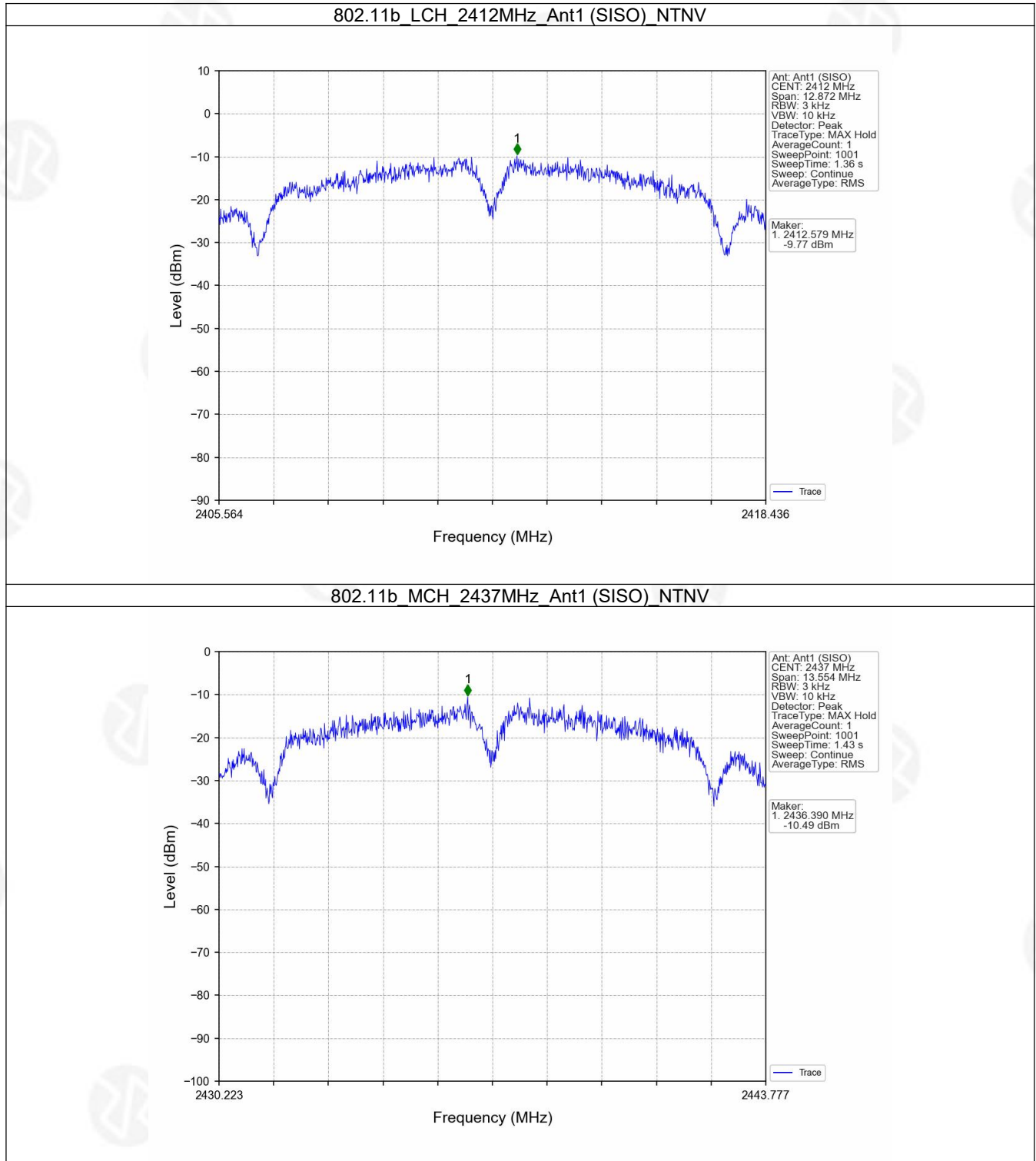
#### 4.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-9.77	<=8	Pass
		2437	-10.49	<=8	Pass
		2462	-10.27	<=8	Pass
802.11g	SISO	2412	-15.73	<=8	Pass
		2437	-18.43	<=8	Pass
		2462	-18.01	<=8	Pass
802.11n (HT20)	SISO	2412	-16.54	<=8	Pass
		2437	-18.70	<=8	Pass
		2462	-18.34	<=8	Pass
802.11n (HT40)	SISO	2422	-20.86	<=8	Pass
		2437	-20.91	<=8	Pass
		2452	-20.05	<=8	Pass

Note1: Antenna Gain: Ant1: 1.17dBi;

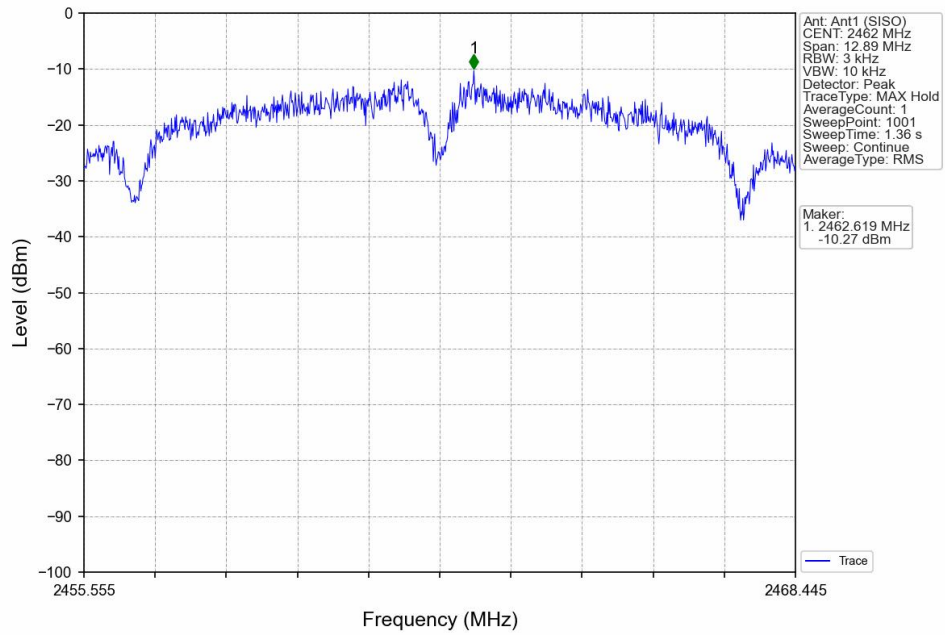


## 4.1.2 Test Graph

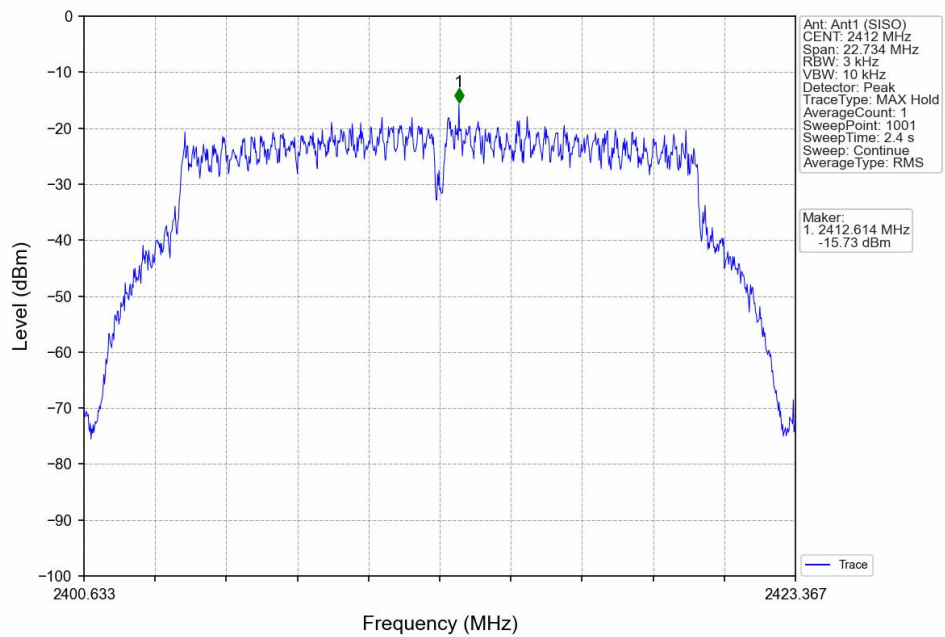




802.11b\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



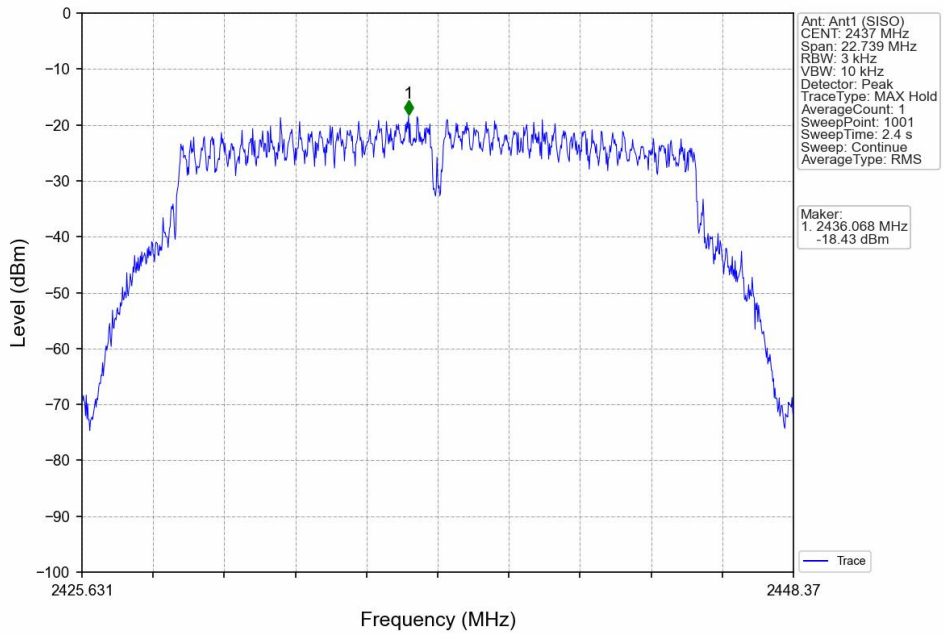
802.11g\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV



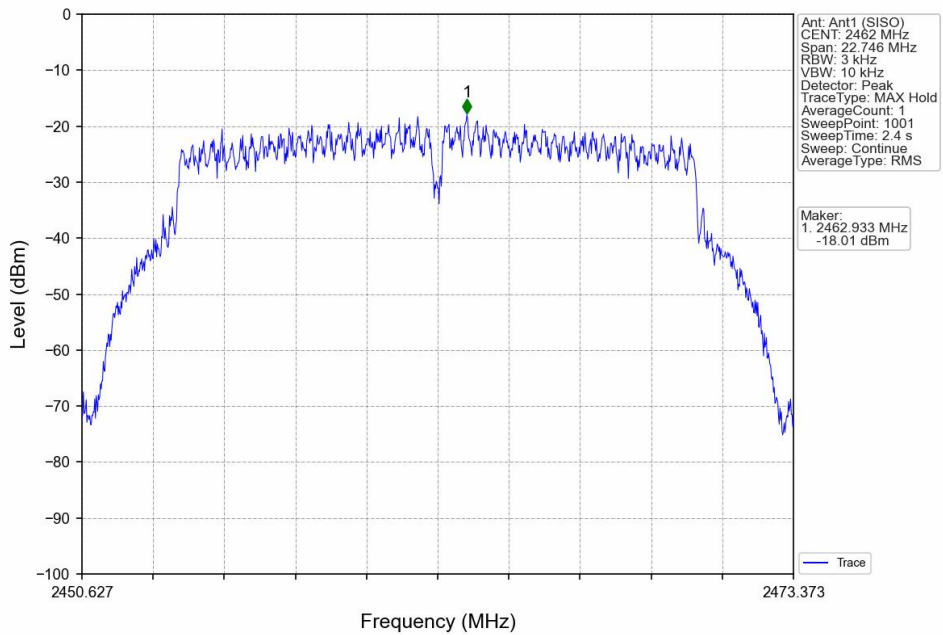




802.11g\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV

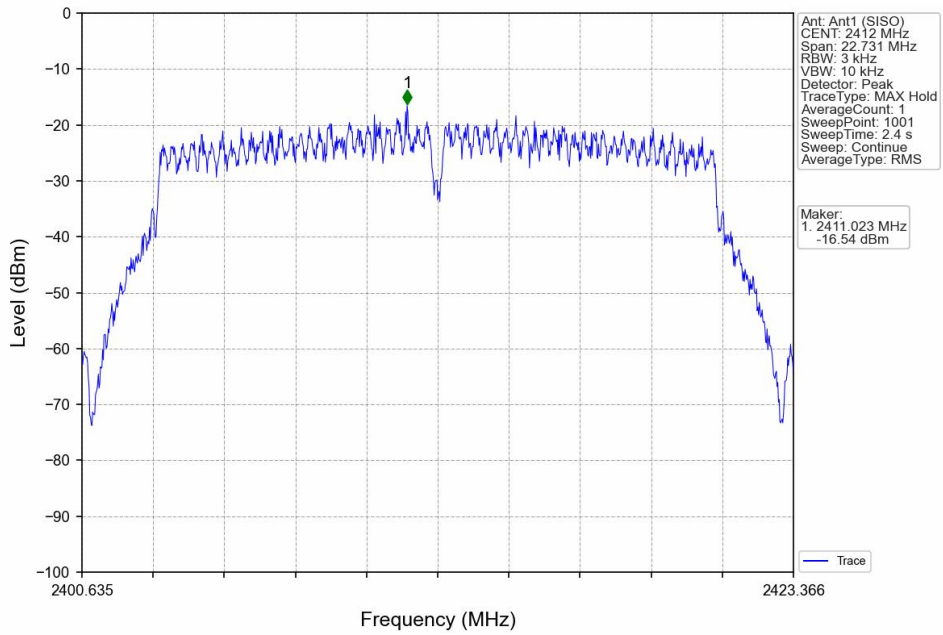


802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV

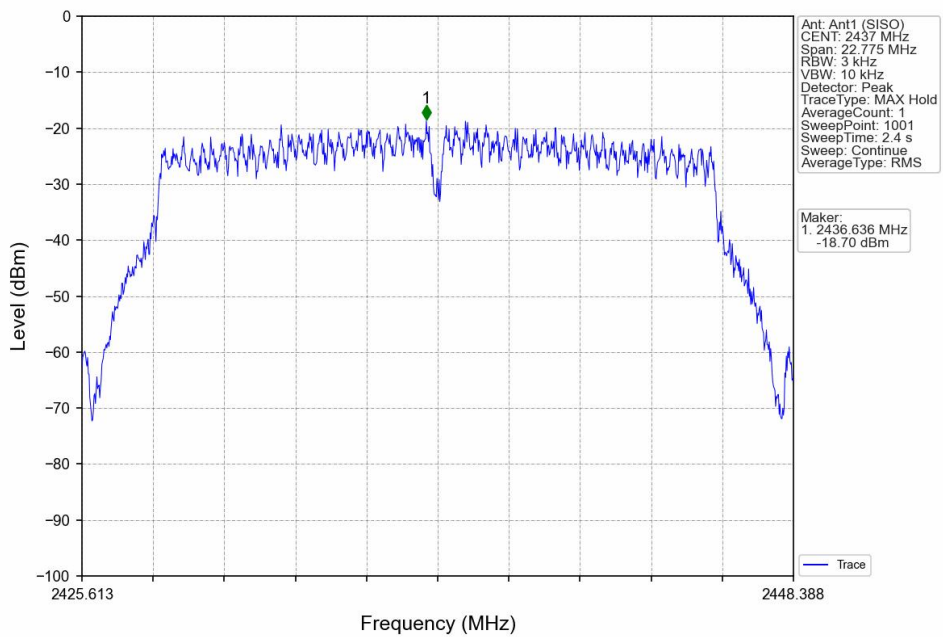




802.11n(HT20)\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV

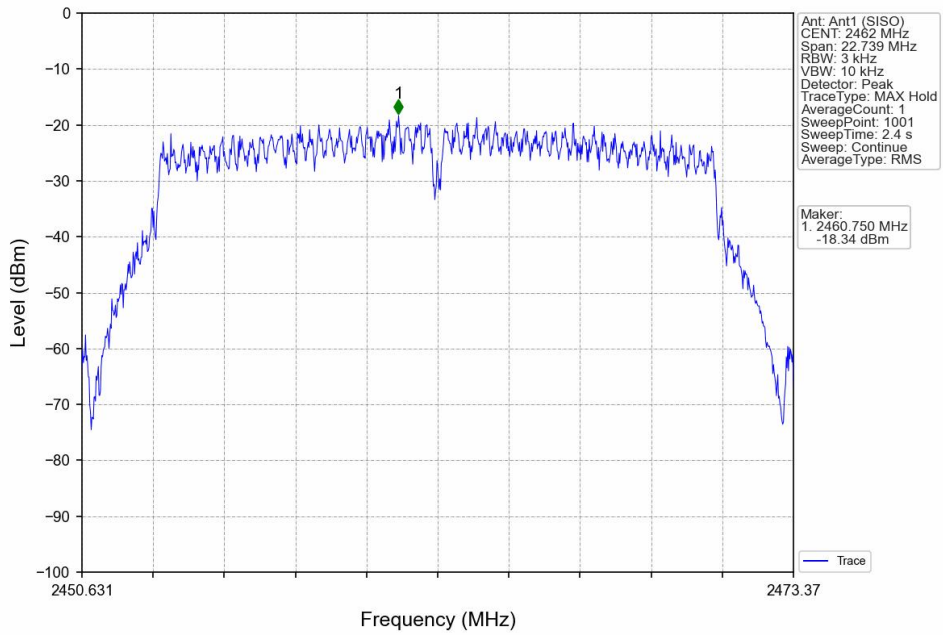


802.11n(HT20)\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV

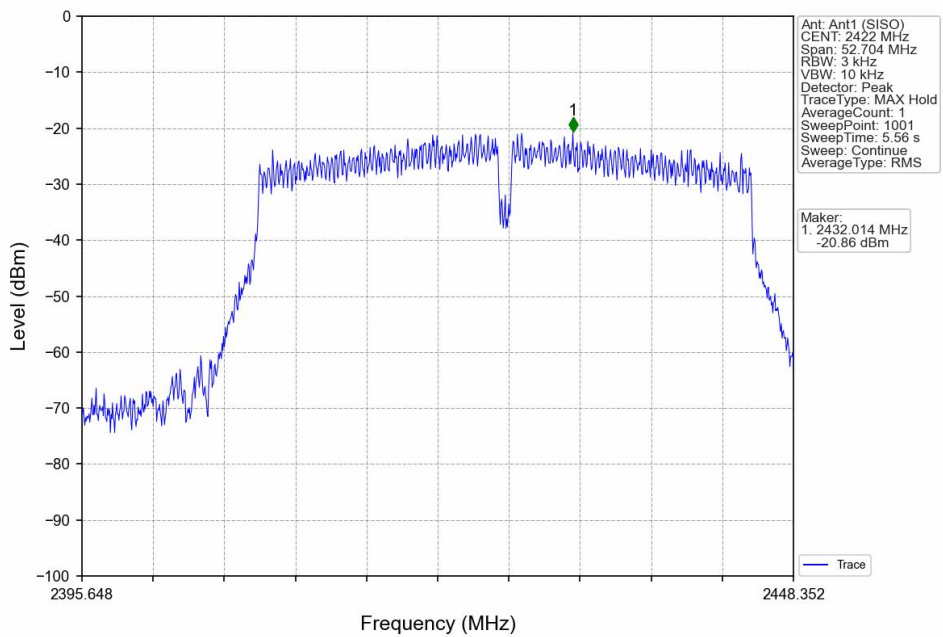




802.11n(HT20)\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV

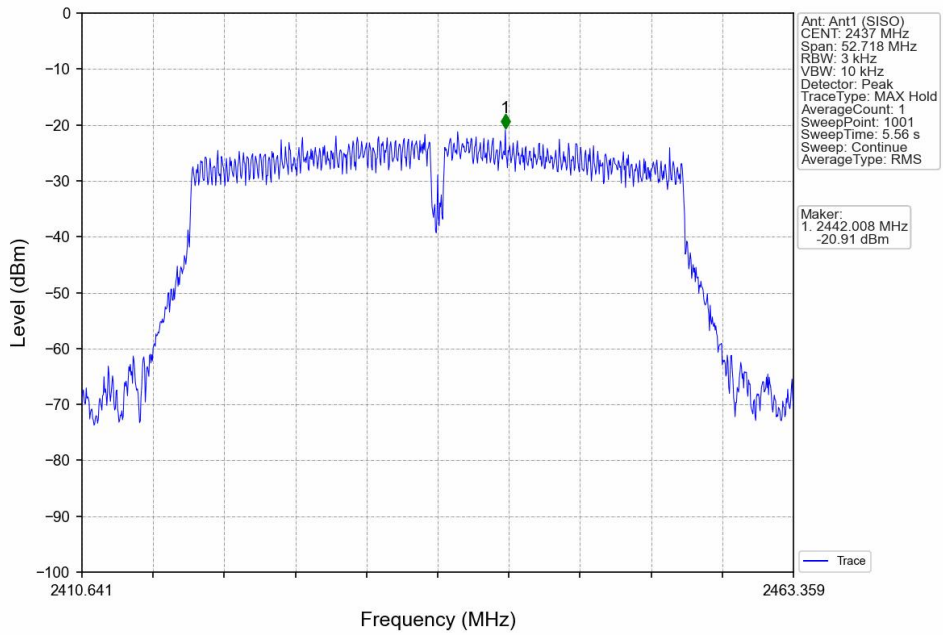


802.11n(HT40)\_LCH\_2422MHz\_Ant1 (SISO)\_NTNV

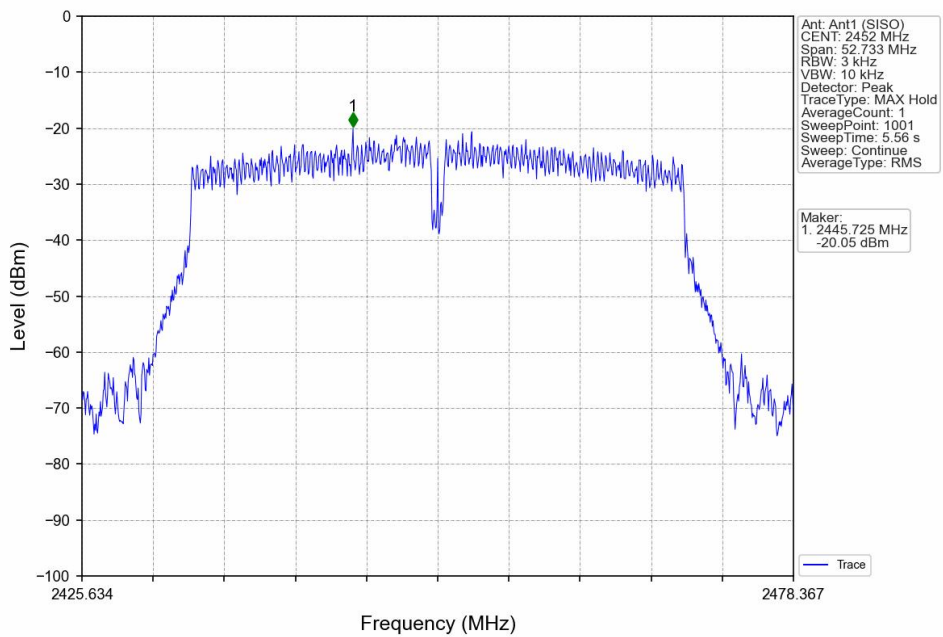




802.11n(HT40)\_MCH\_2437MHz\_Ant1(SISO)\_NTNV



802.11n(HT40)\_HCH\_2452MHz\_Ant1(SISO)\_NTNV





## 5. Unwanted Emissions In Non-restricted Frequency Bands

### 5.1 Ref

#### 5.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
802.11b	SISO	2412	1	4.38
		2437	1	3.31
		2462	1	3.15
802.11g	SISO	2412	1	-2.82
		2437	1	-3.22
		2462	1	-3.25
802.11n (HT20)	SISO	2412	1	-2.88
		2437	1	-3.95
		2462	1	-3.16
802.11n (HT40)	SISO	2422	1	-5.62
		2437	1	-5.83
		2452	1	-5.94

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.