

## Appendix A for SHCR211100079301

### 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	12.413	12.440	99.78	0.01	0.03
		2437	12.413	12.440	99.78	0.01	0.03
		2462	12.413	12.440	99.78	0.01	0.03
802.11g	SISO	2412	2.063	2.093	98.57	0.06	0.04
		2437	2.063	2.093	98.57	0.06	0.04
		2462	2.063	2.093	98.57	0.06	0.04
802.11n (HT20)	MIMO	2412	1.919	1.950	98.41	0.07	0.03
		2437	1.919	1.950	98.41	0.07	0.07
		2462	1.919	1.950	98.41	0.07	0.03

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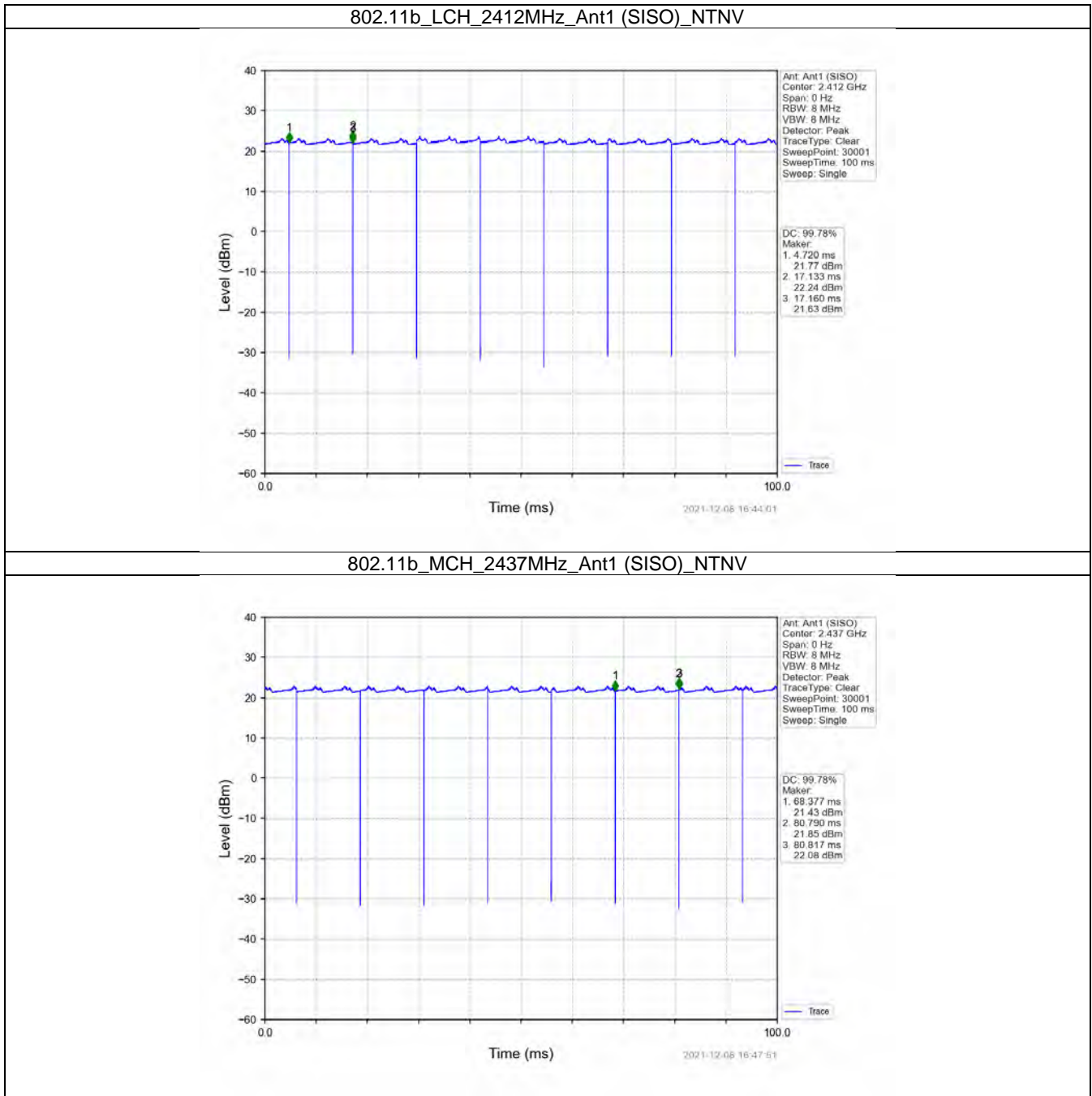
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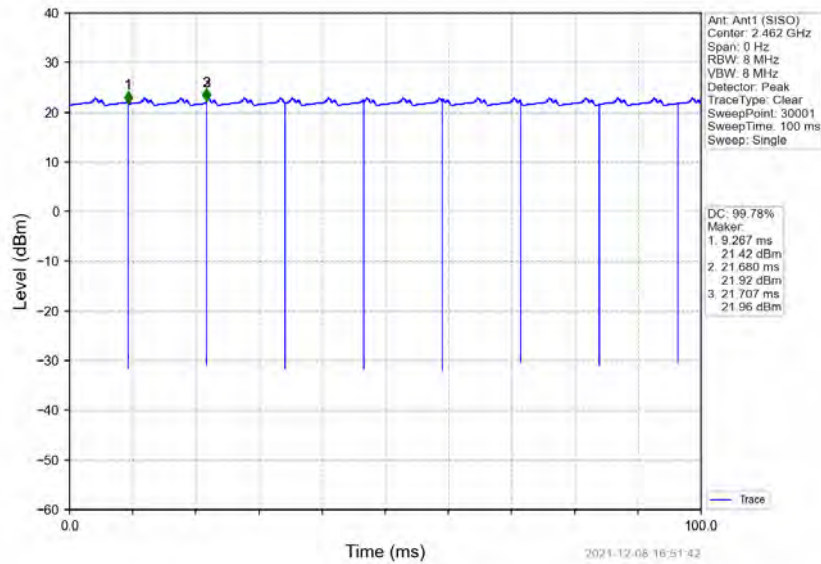
1.1.2 Test Graph



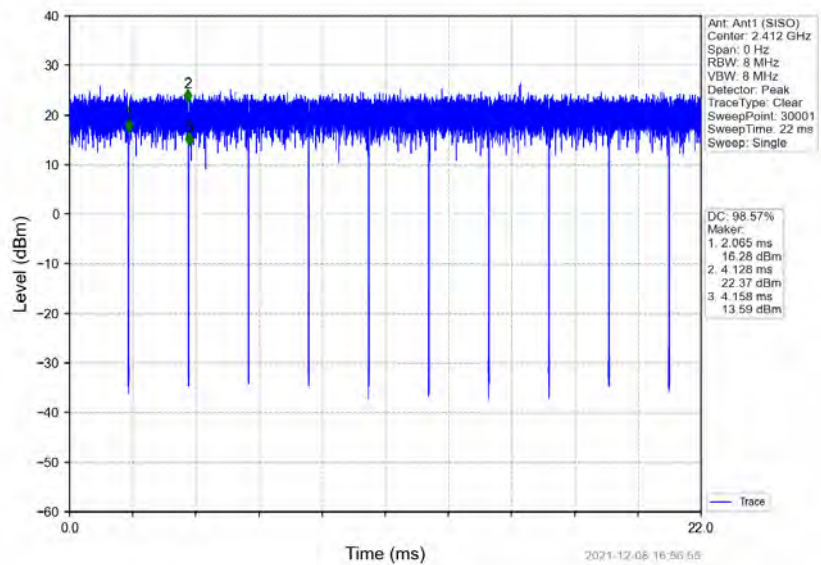
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802.11b\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



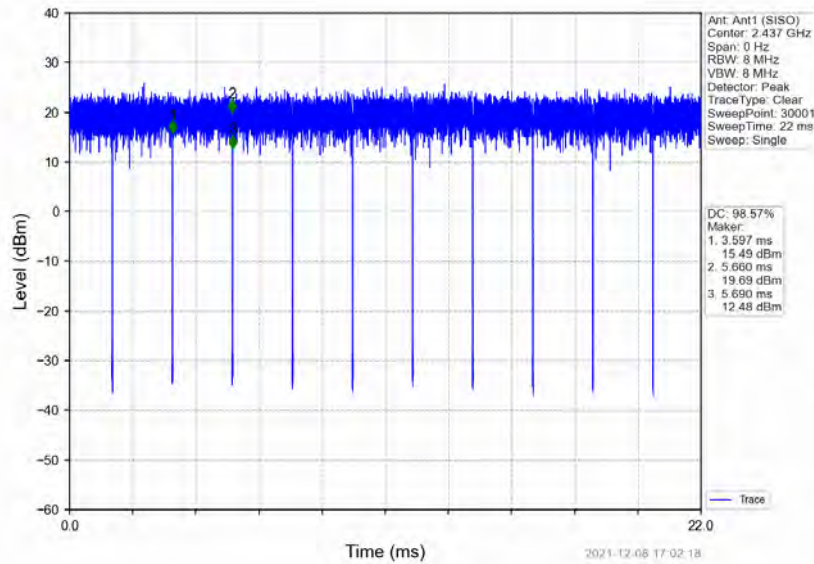
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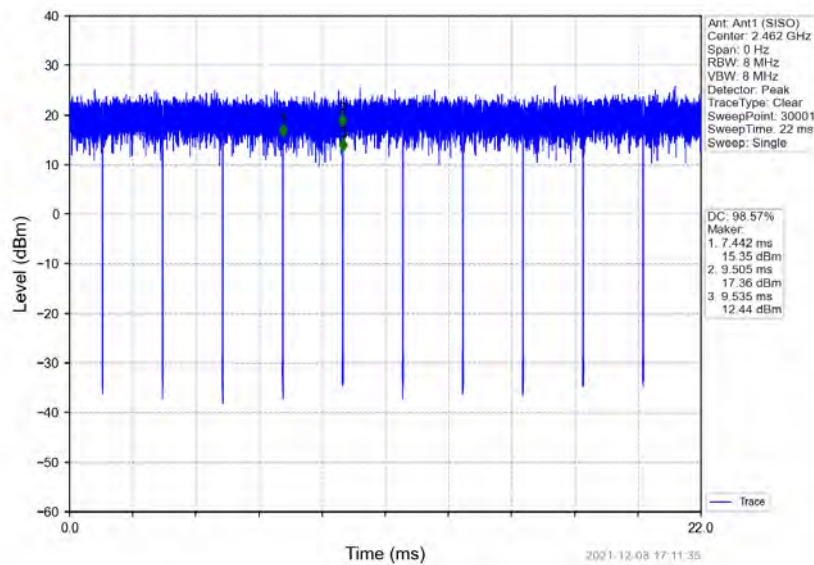
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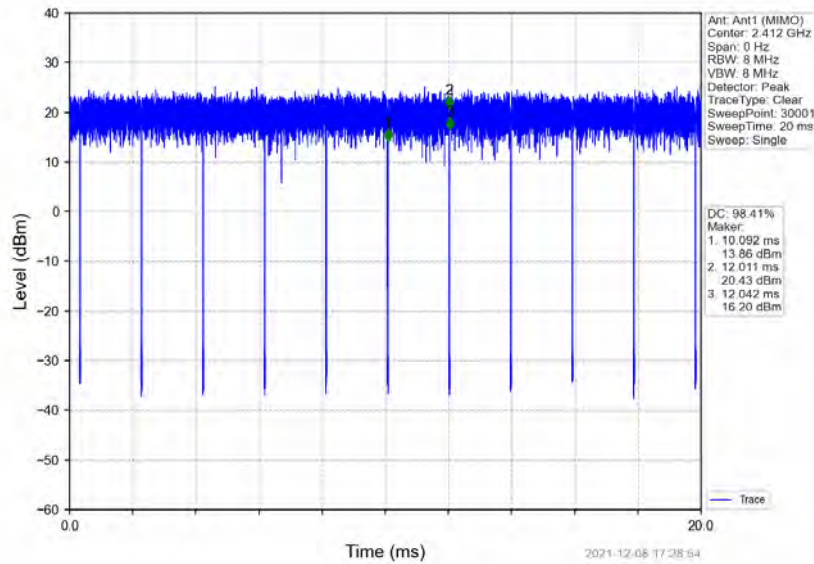
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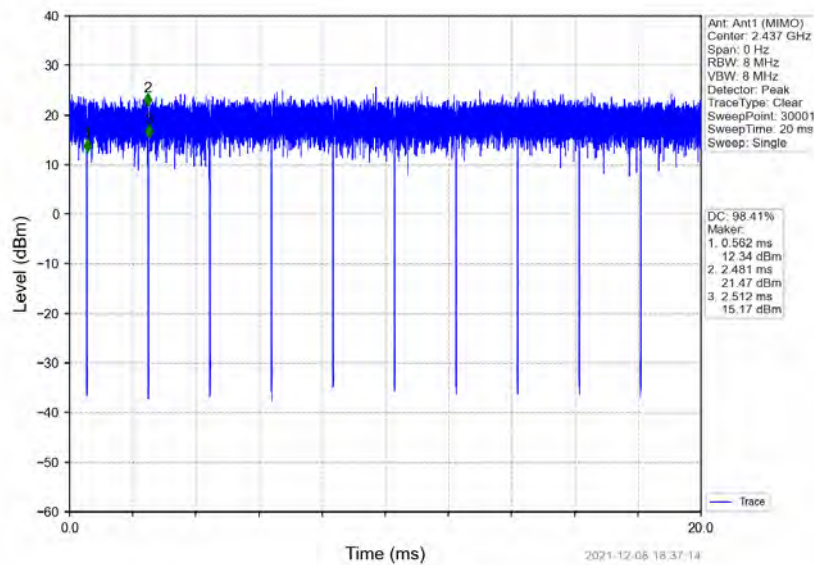
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802.11n(HT20)\_LCH\_2412MHz\_Ant1 (MIMO)\_NTNV



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



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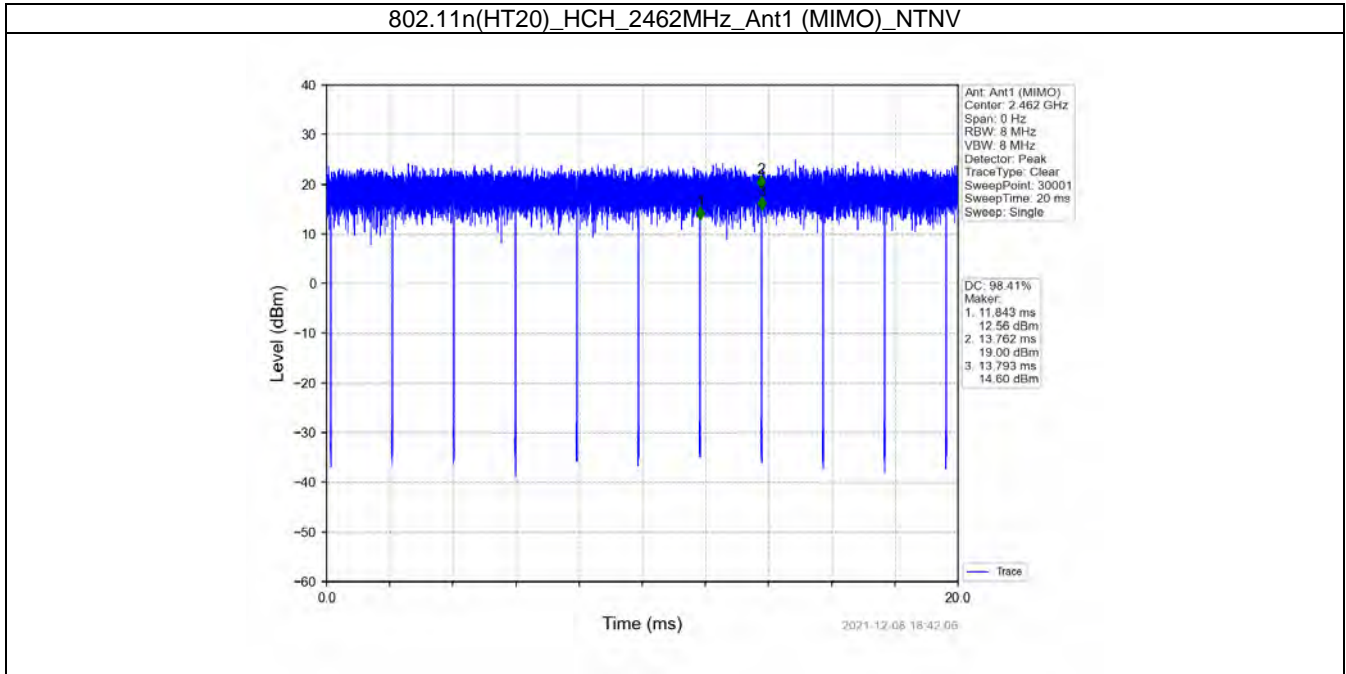
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## 2. Bandwidth

### 2.1 OBW

#### 2.1.1 Test Result

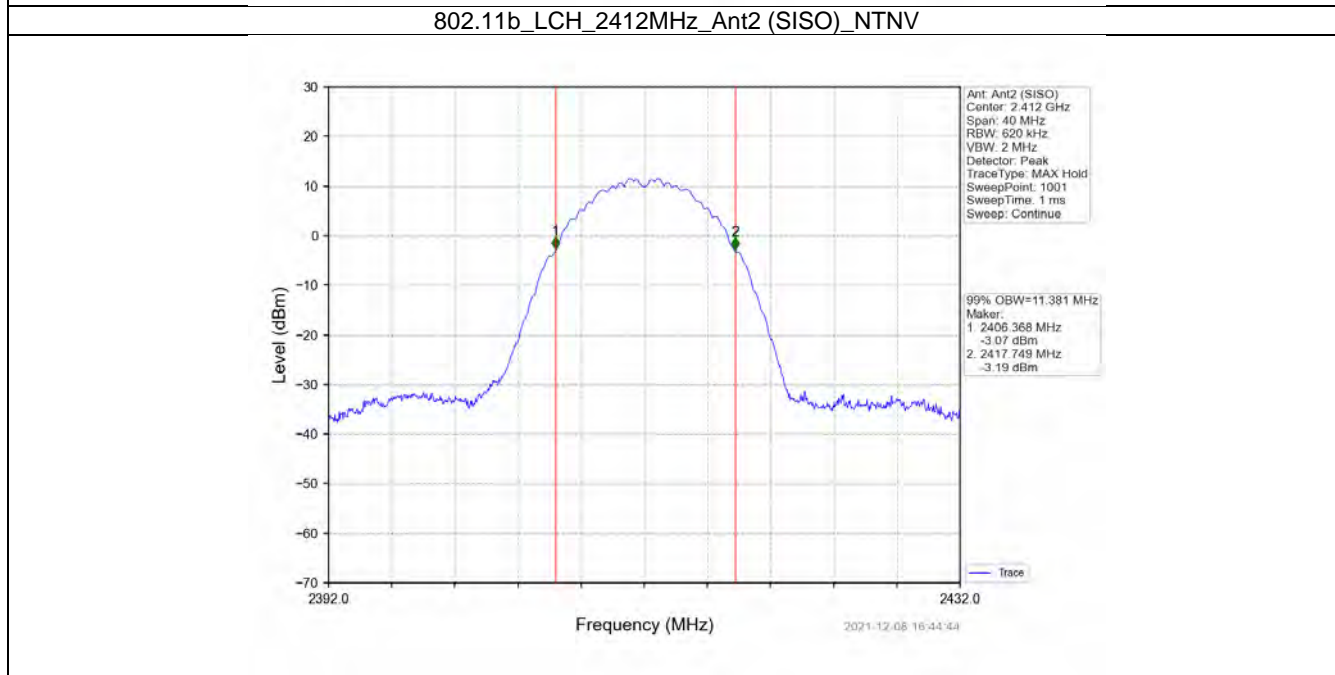
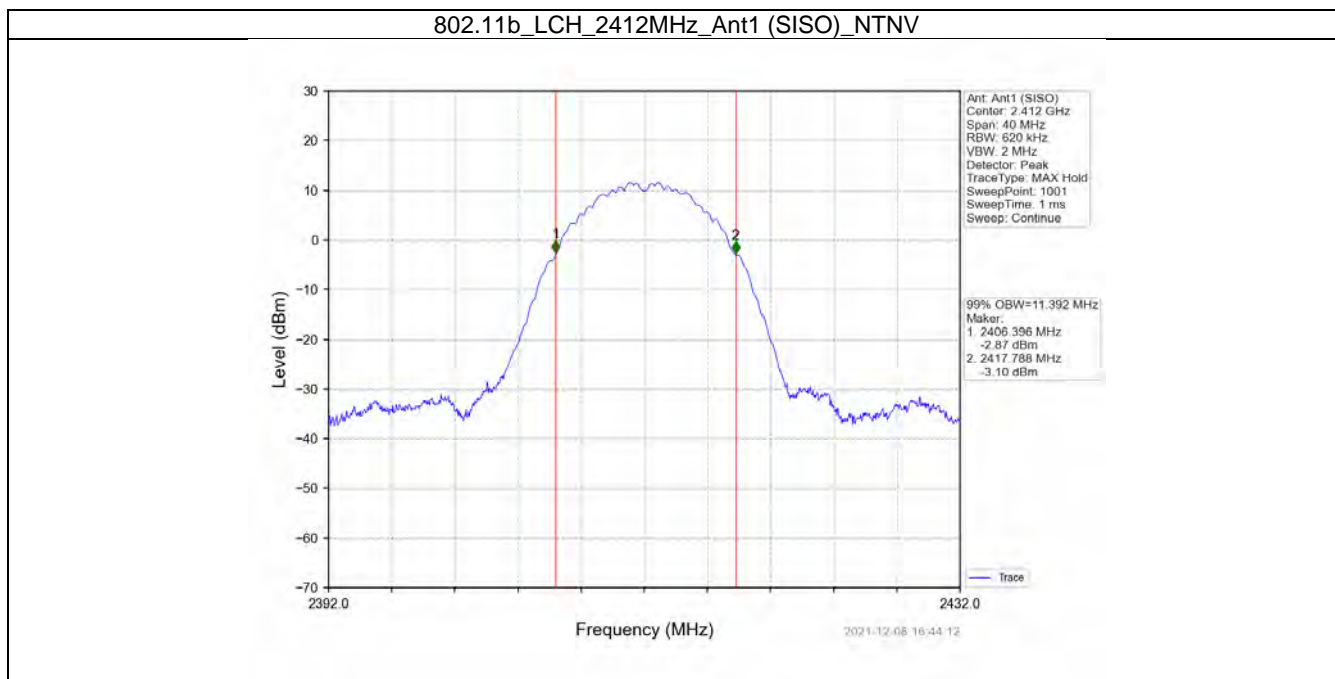
Mode	TX Type	Frequency (MHz)	Ant	99% Occupied Bandwidth (MHz)	Verdict
				Result	
802.11b	SISO	2412	1	11.392	Pass
			2	11.381	Pass
		2437	1	11.329	Pass
			2	11.342	Pass
		2462	1	11.299	Pass
			2	11.437	Pass
802.11g	SISO	2412	1	18.153	Pass
			2	18.048	Pass
		2437	1	18.390	Pass
			2	18.433	Pass
		2462	1	18.389	Pass
			2	18.358	Pass
802.11n (HT20)	MIMO	2412	1	19.094	Pass
			2	19.076	Pass
		2437	1	19.247	Pass
			2	19.362	Pass
		2462	1	19.342	Pass
			2	19.318	Pass



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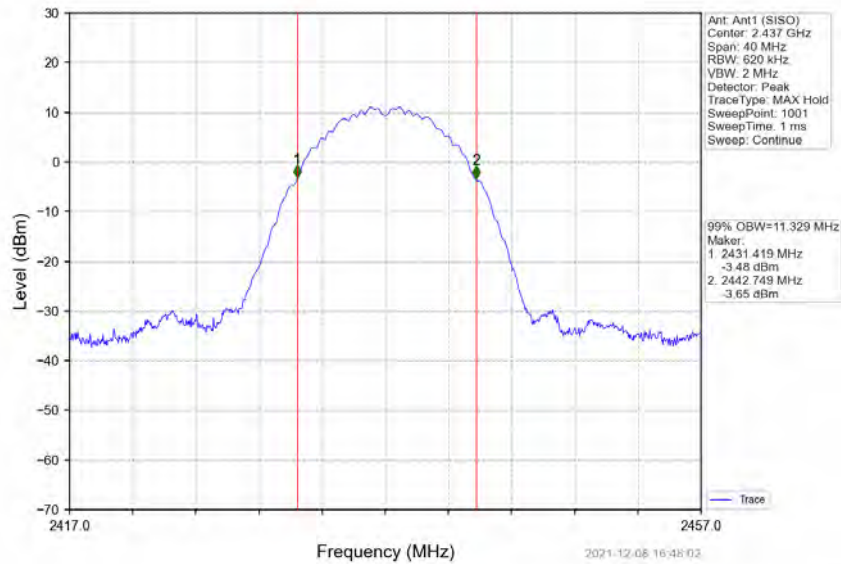
2.1.2 Test Graph



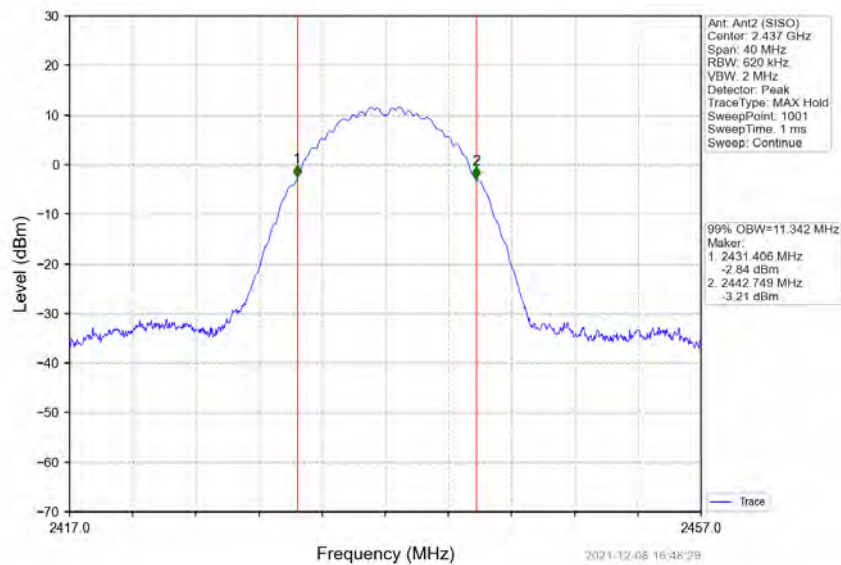
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802.11b\_MCH\_2437MHz\_Ant2 (SISO)\_NTNV

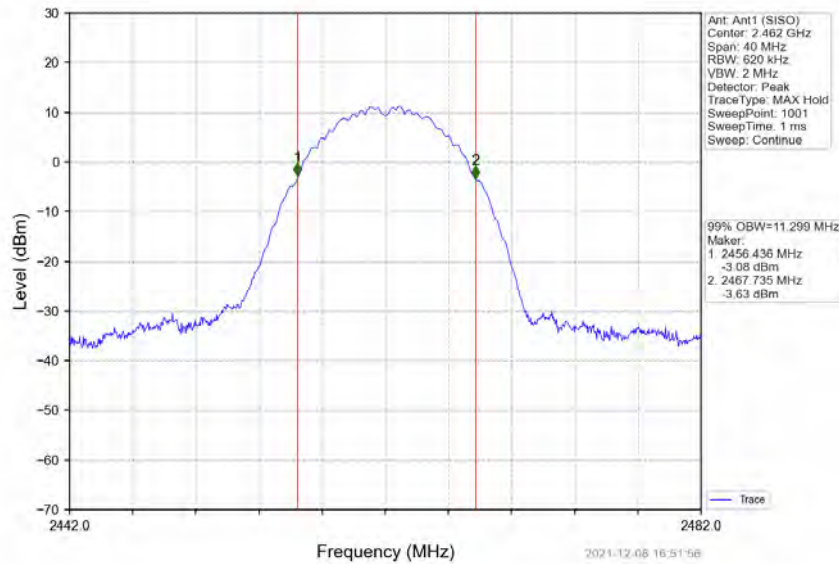


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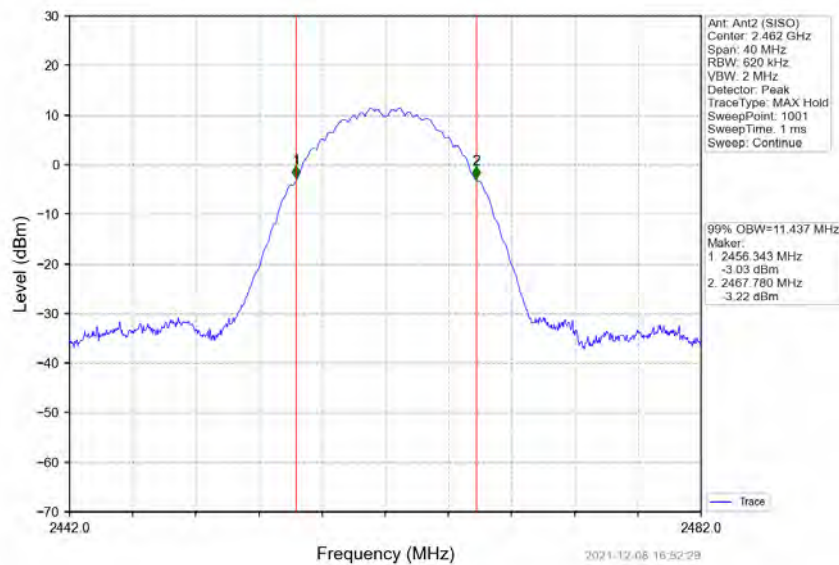
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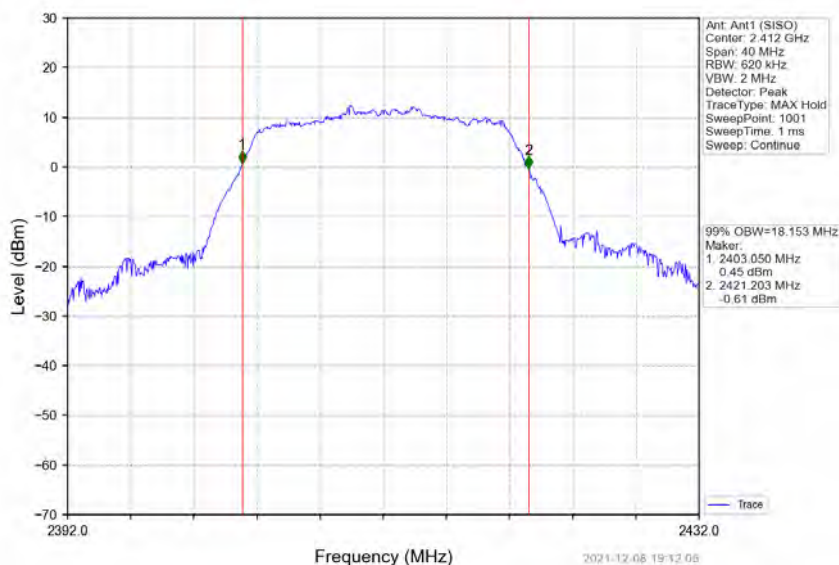
802.11b\_HCH\_2462MHz\_Ant2 (SISO)\_NTNV



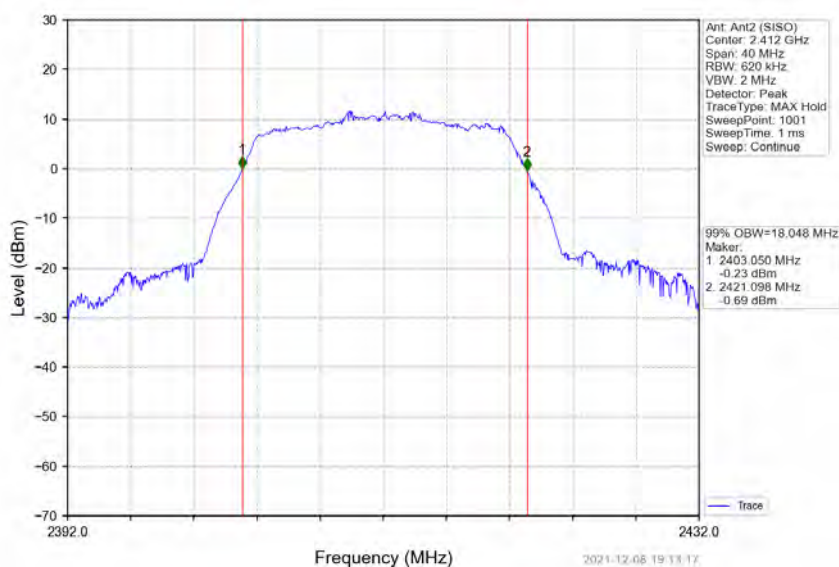
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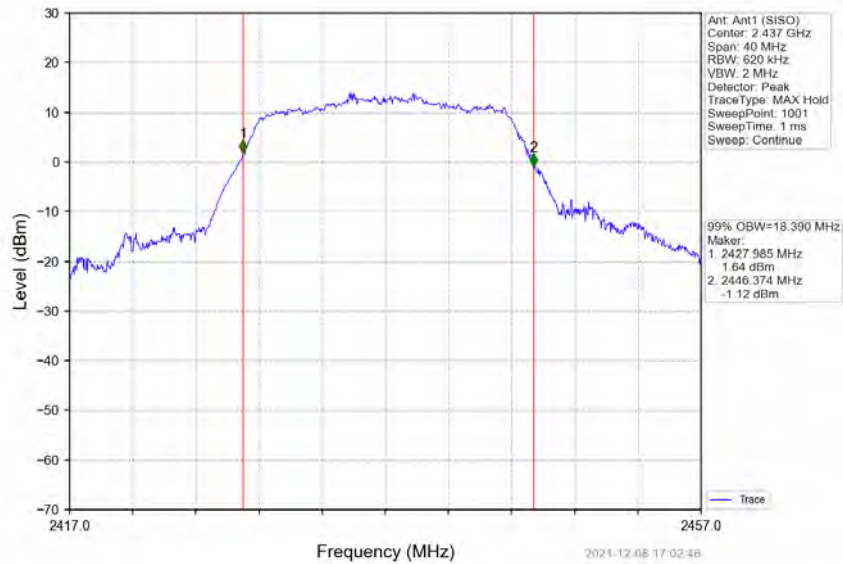
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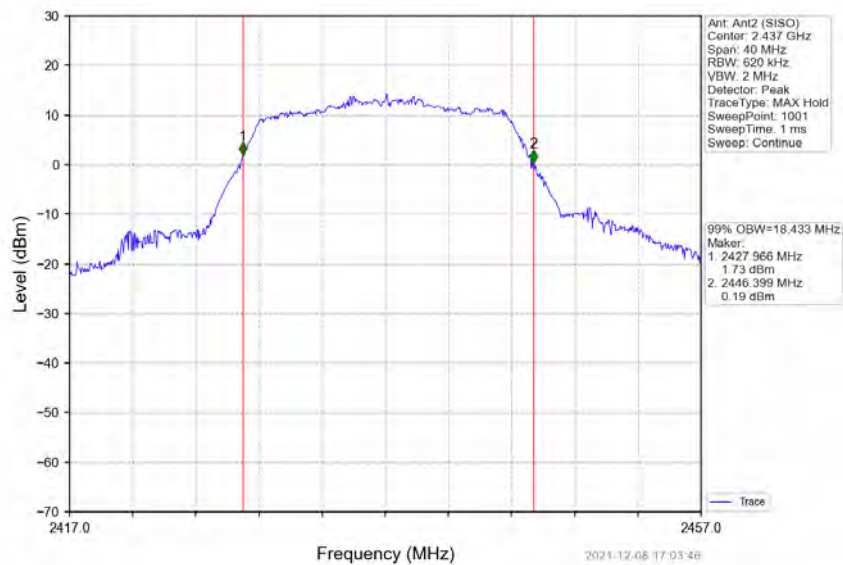
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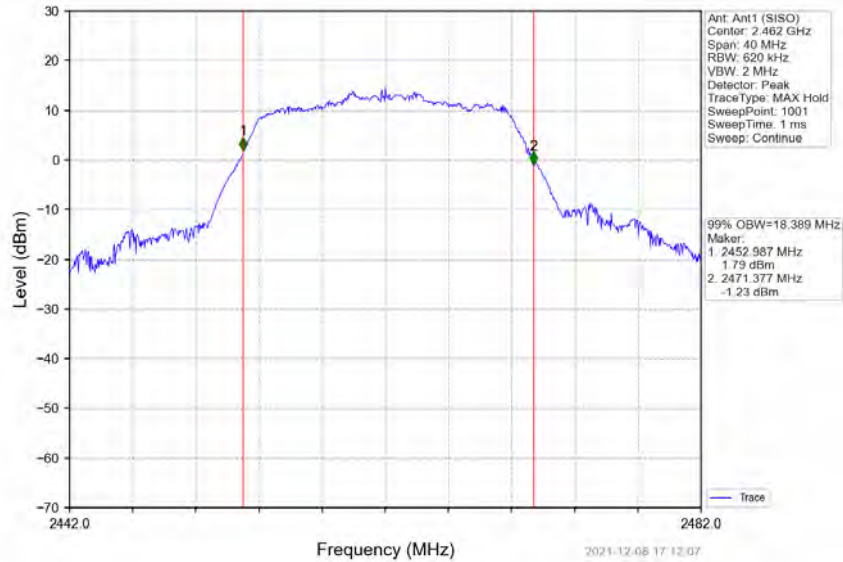
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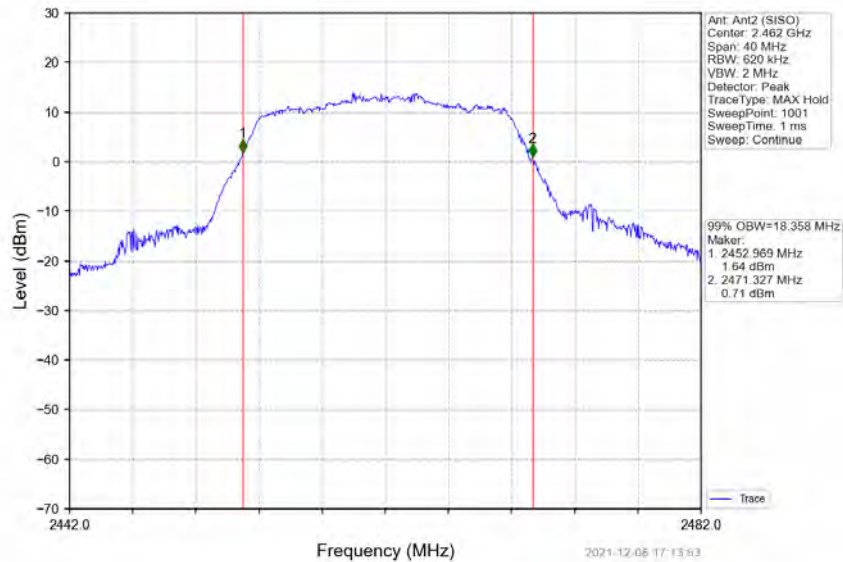
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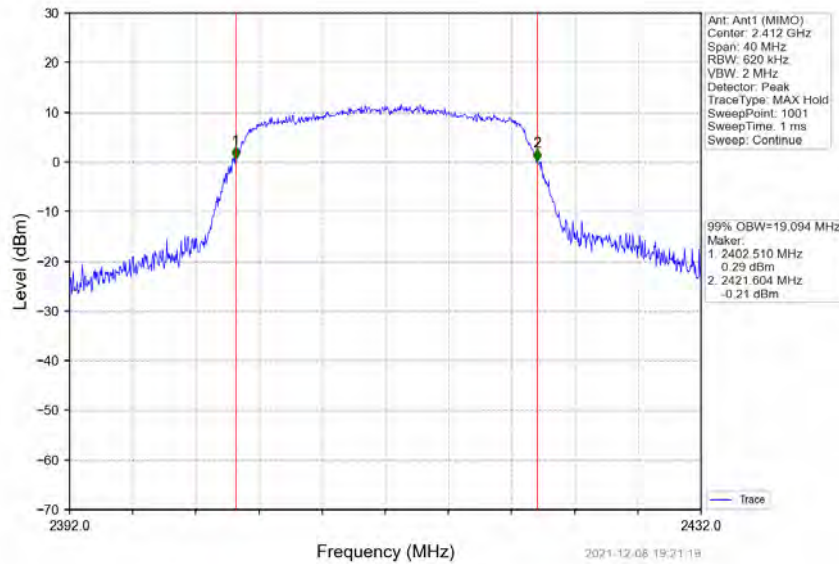
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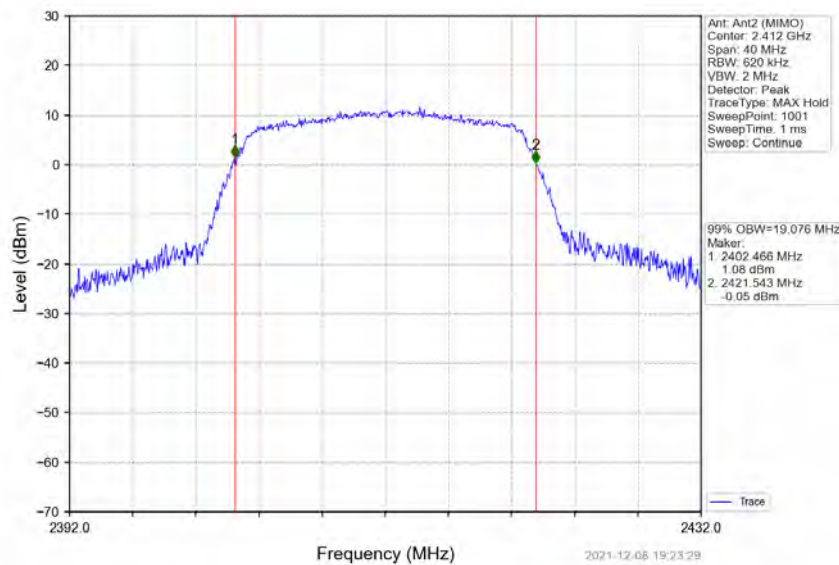
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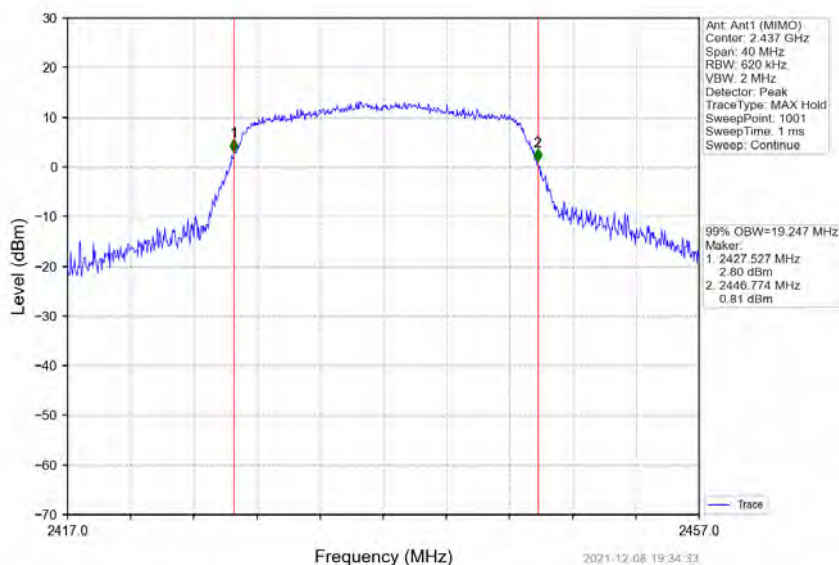
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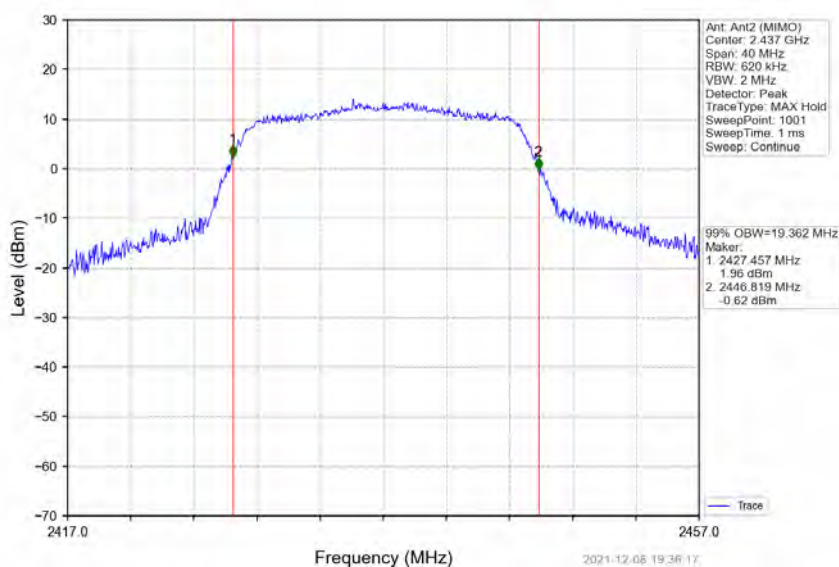
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802.11n(HT20)\_MCH\_2437MHz\_Ant1 (MIMO)\_NTNV



802.11n(HT20)\_MCH\_2437MHz\_Ant2 (MIMO)\_NTNV



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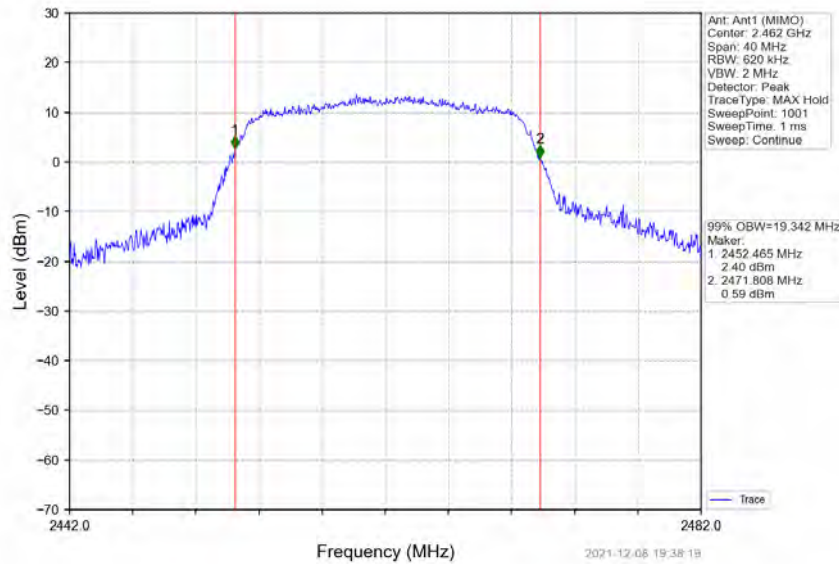
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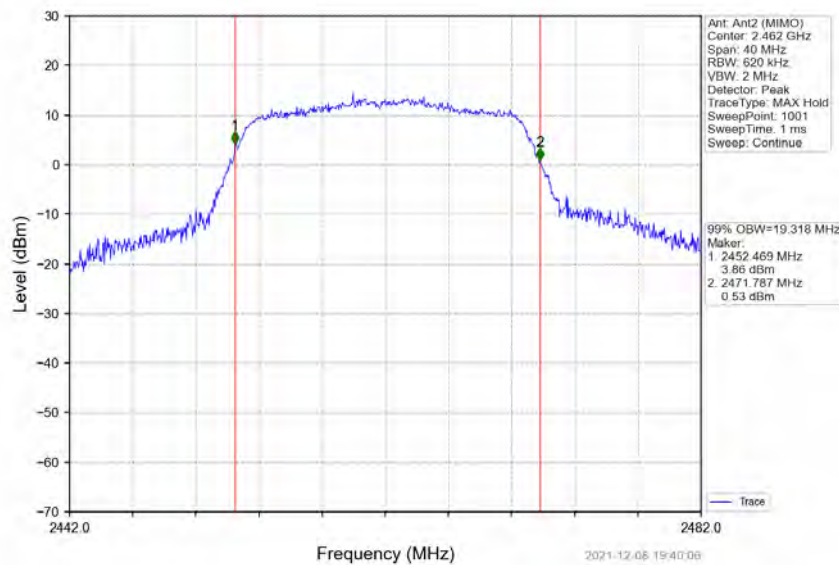
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802.11n(HT20)\_HCH\_2462MHz\_Ant1 (MIMO)\_NTNV



802.11n(HT20)\_HCH\_2462MHz\_Ant2 (MIMO)\_NTNV



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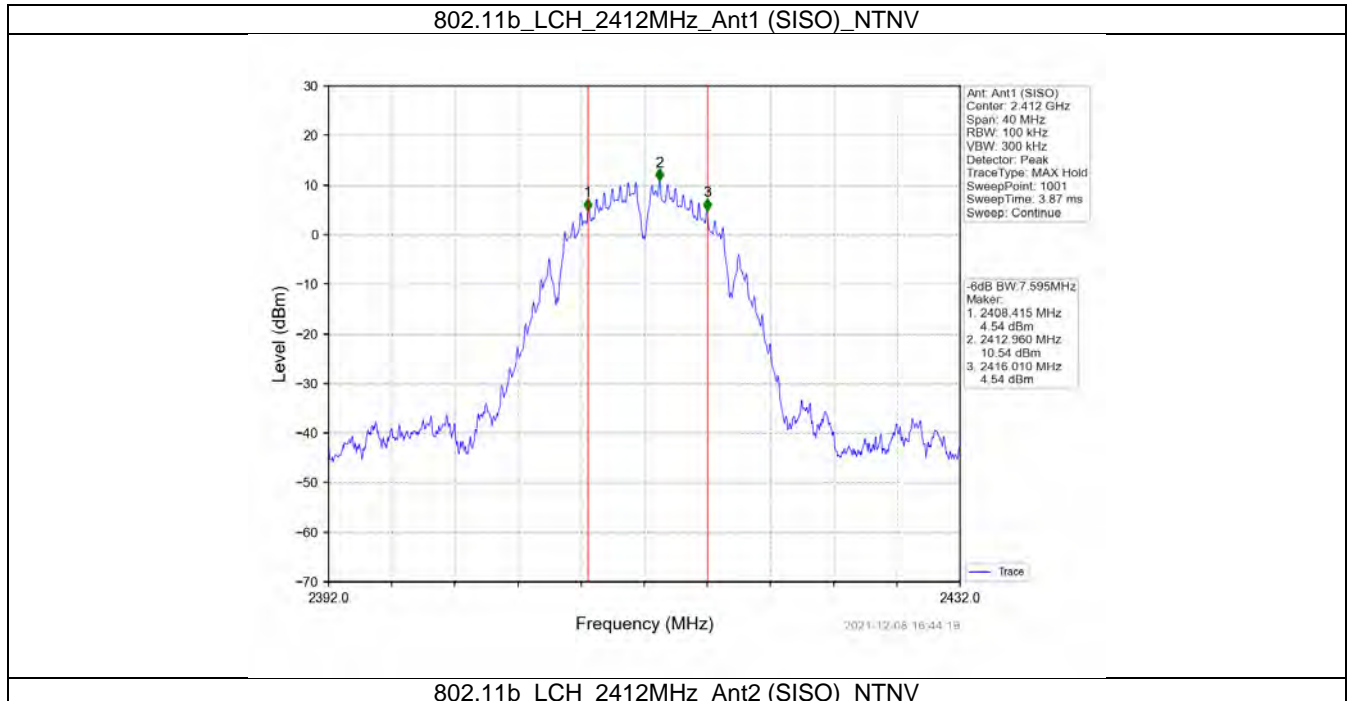


## 2.2 6dB BW

### 2.2.1 Test Result

Mode	TX Type	Frequency (MHz)	Ant	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	7.595	>=0.5	Pass
			2	7.132	>=0.5	Pass
		2437	1	8.066	>=0.5	Pass
			2	7.589	>=0.5	Pass
		2462	1	7.591	>=0.5	Pass
			2	8.029	>=0.5	Pass
802.11g	SISO	2412	1	16.377	>=0.5	Pass
			2	16.393	>=0.5	Pass
		2437	1	16.390	>=0.5	Pass
			2	16.360	>=0.5	Pass
		2462	1	16.391	>=0.5	Pass
			2	16.360	>=0.5	Pass
802.11n (HT20)	MIMO	2412	1	17.598	>=0.5	Pass
			2	17.614	>=0.5	Pass
		2437	1	17.597	>=0.5	Pass
			2	17.621	>=0.5	Pass
		2462	1	17.592	>=0.5	Pass
			2	17.623	>=0.5	Pass

### 2.2.2 Test Graph



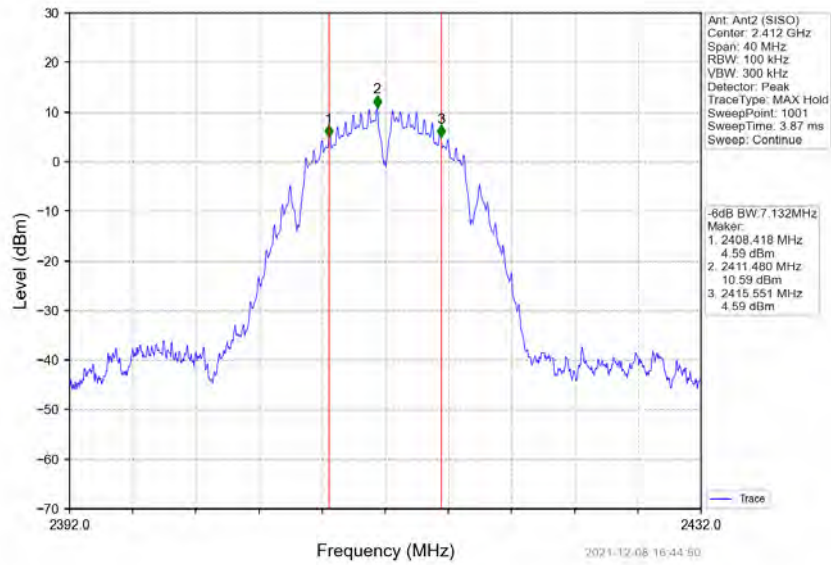
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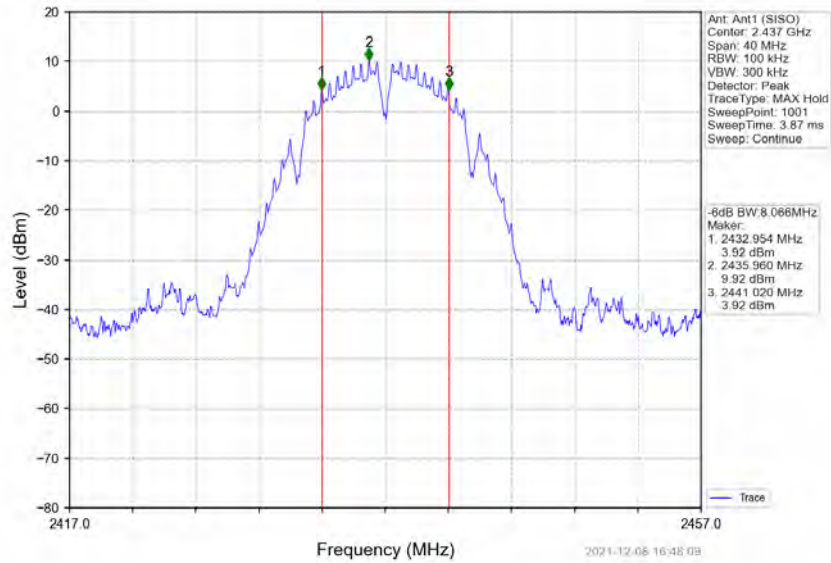
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802.11b\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV

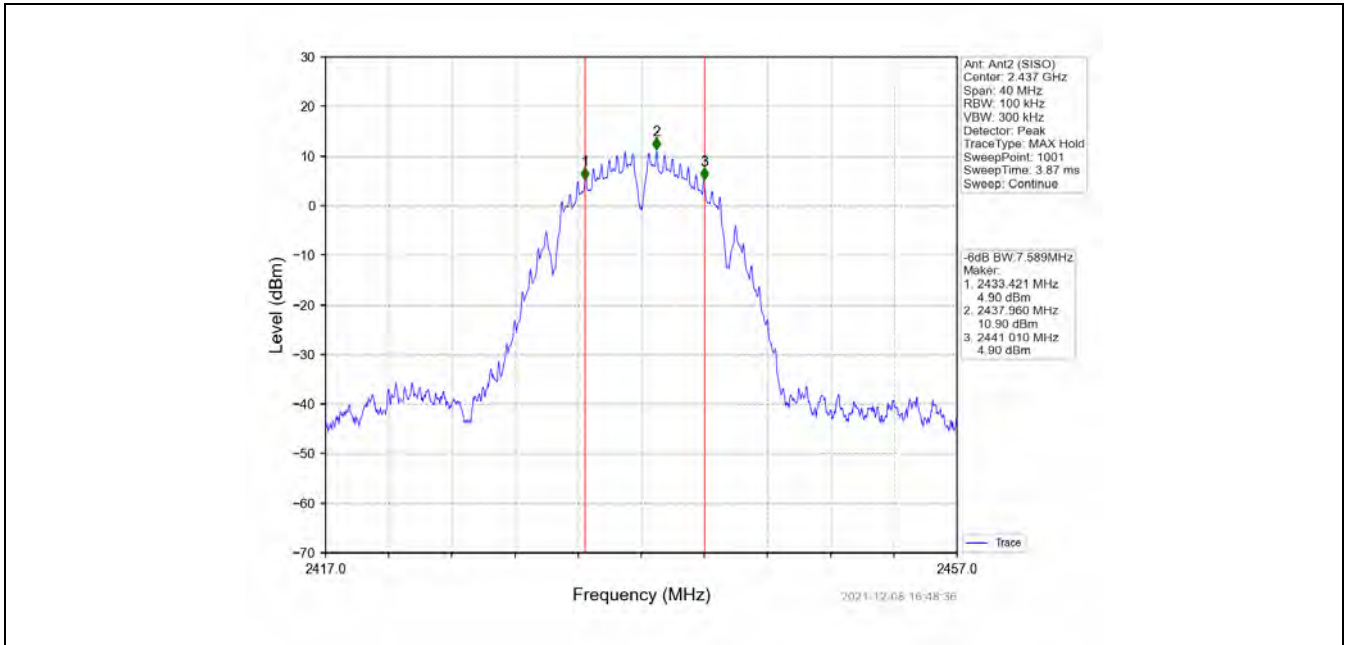


802.11b\_MCH\_2437MHz\_Ant2 (SISO)\_NTNV

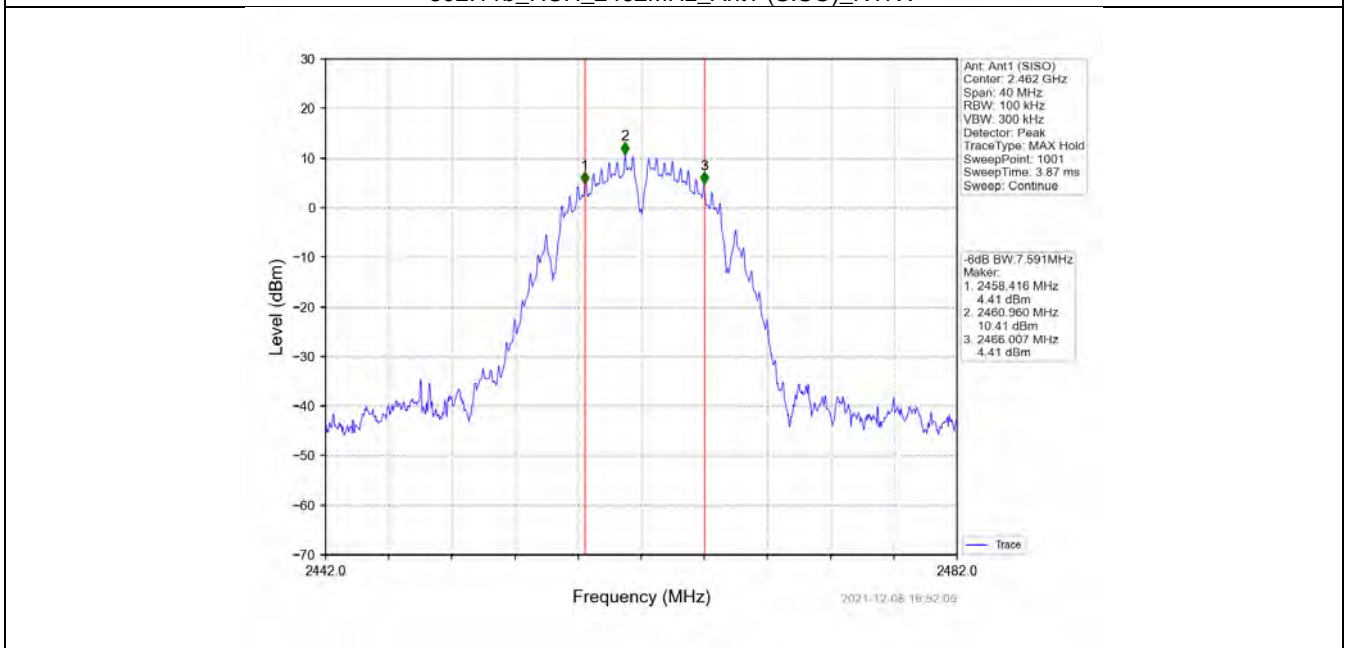


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802.11b\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV

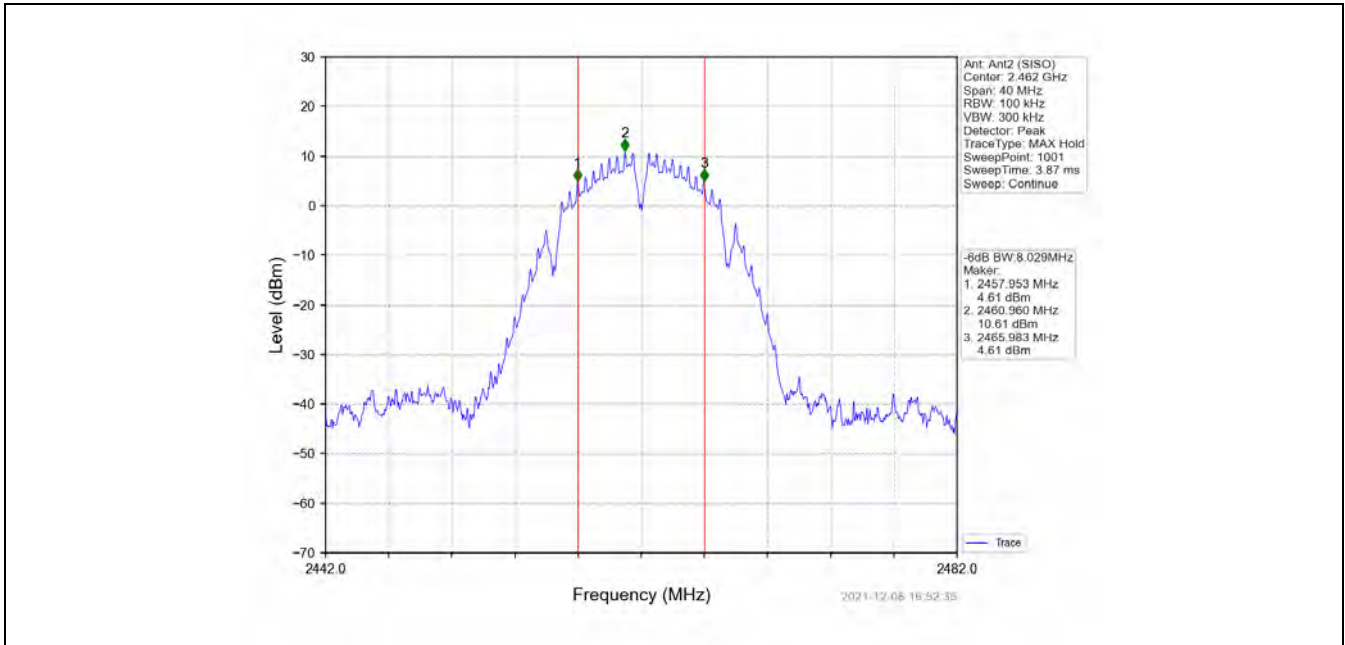


802.11b\_HCH\_2462MHz\_Ant2 (SISO)\_NTNV

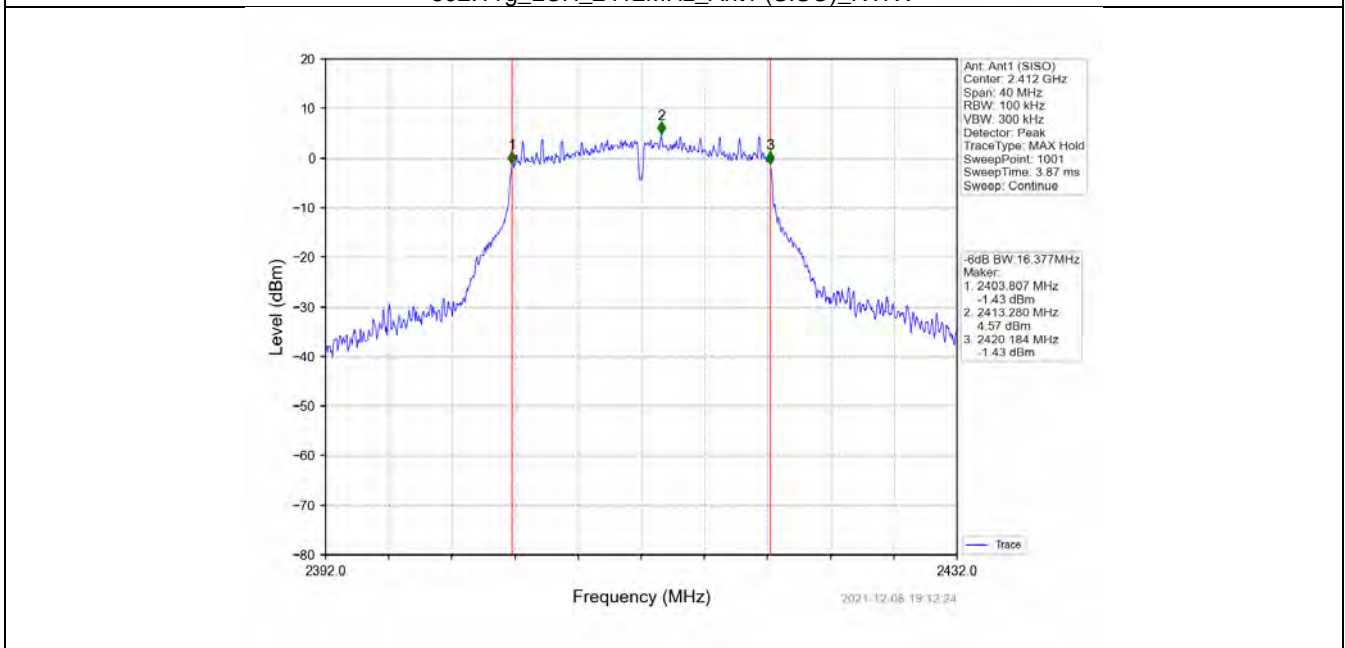


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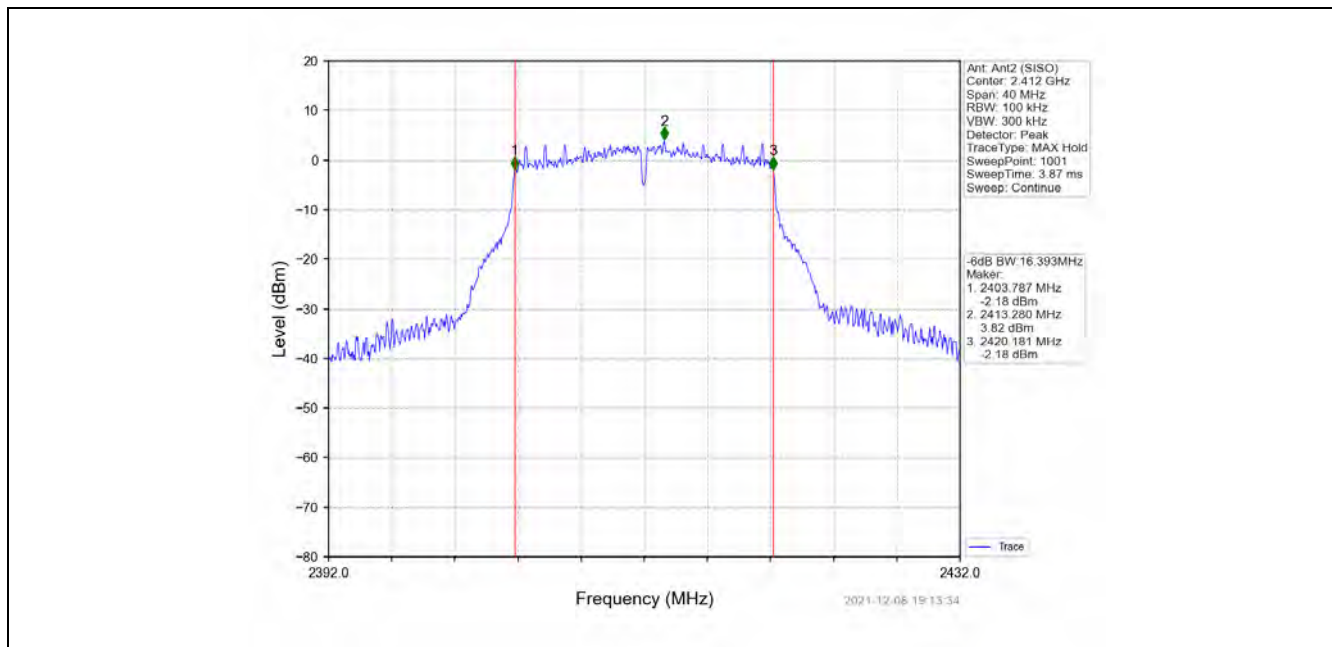


802.11g\_LCH\_2412MHz\_Ant2 (SISO)\_NTNV

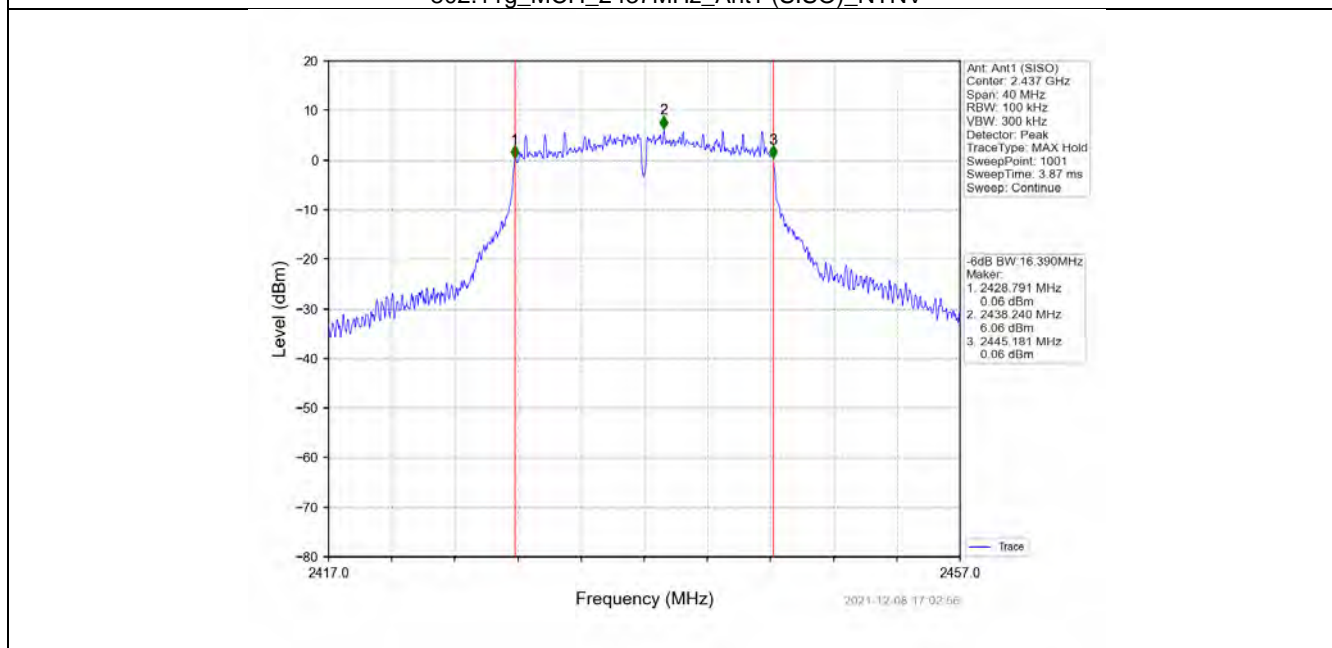


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802.11g\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV



802.11g\_MCH\_2437MHz\_Ant2 (SISO)\_NTNV

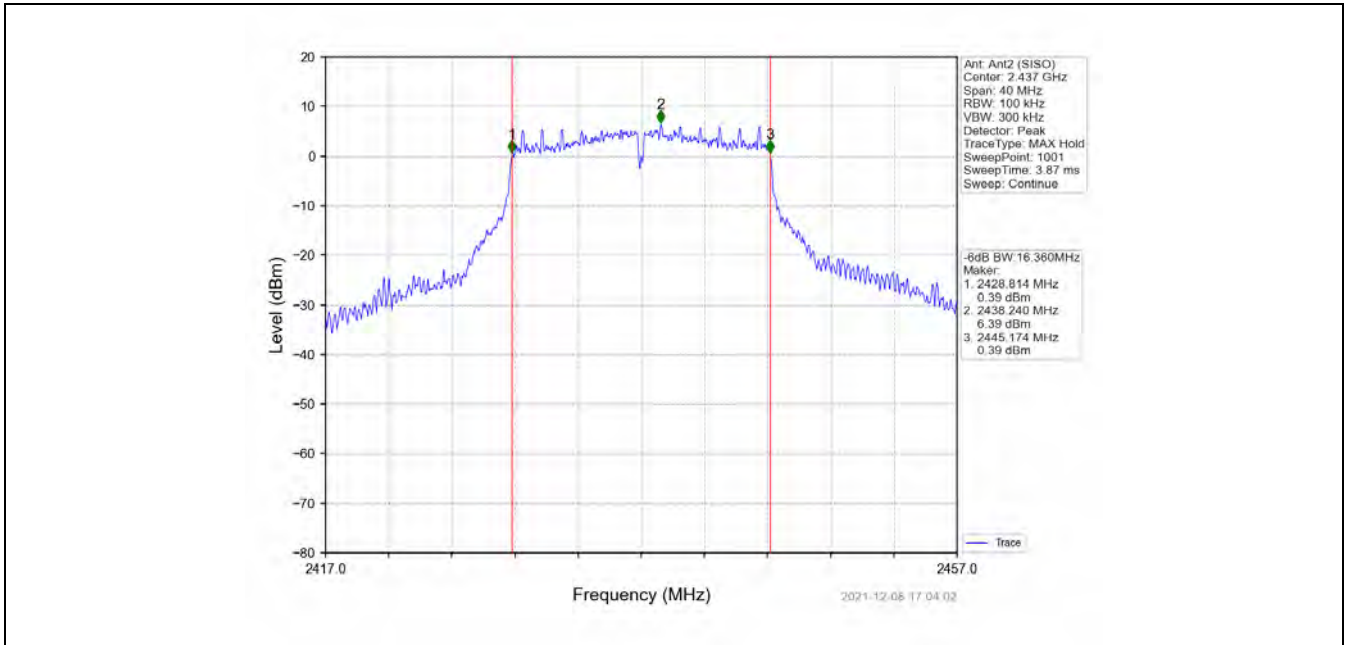


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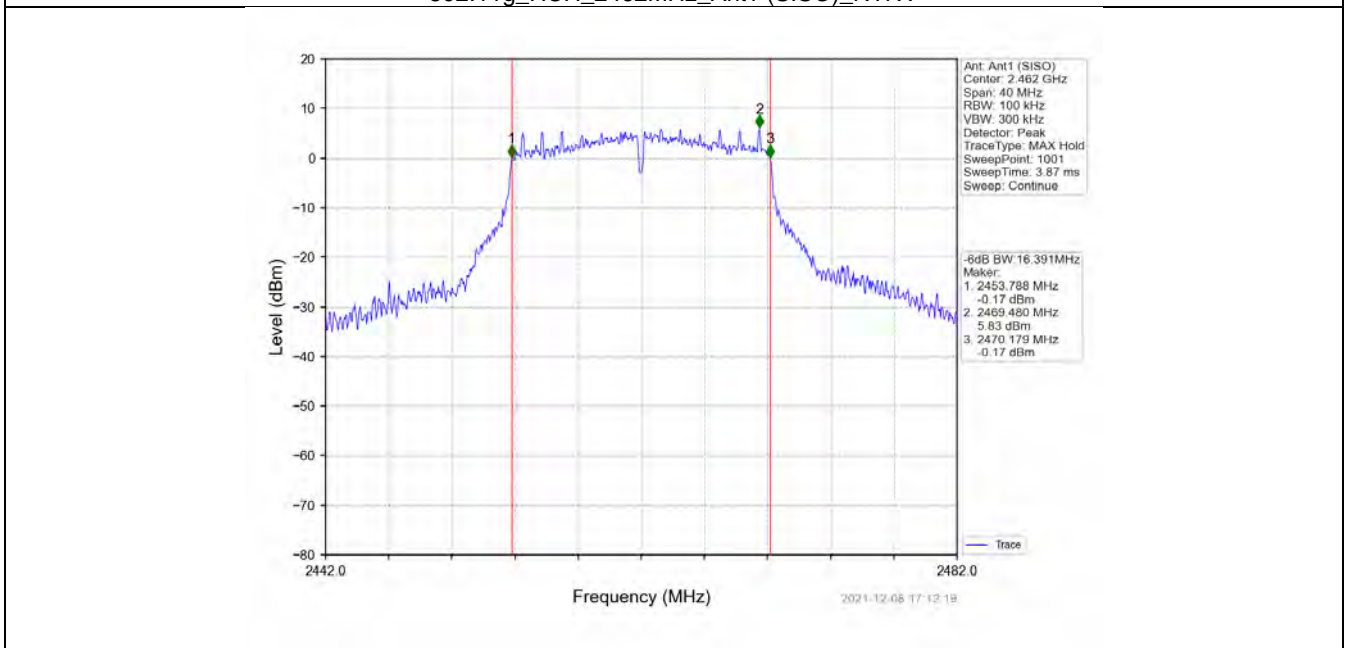
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802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



802.11g\_HCH\_2462MHz\_Ant2 (SISO)\_NTNV

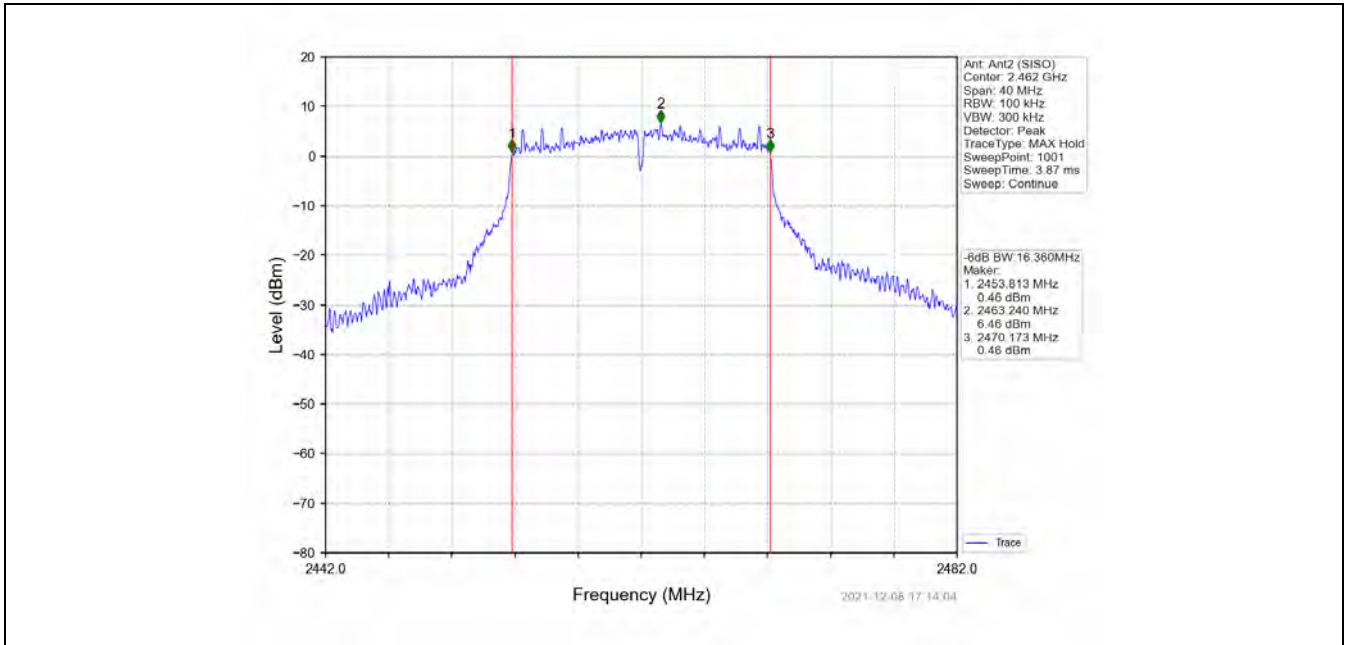
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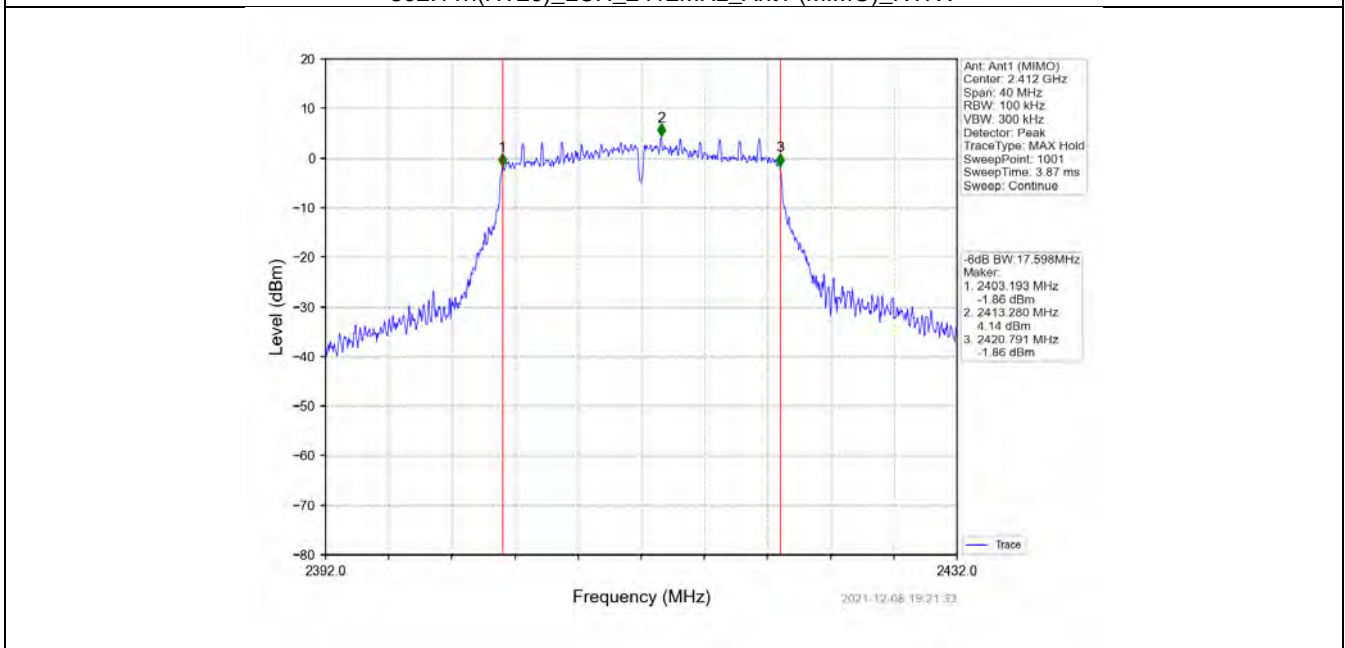
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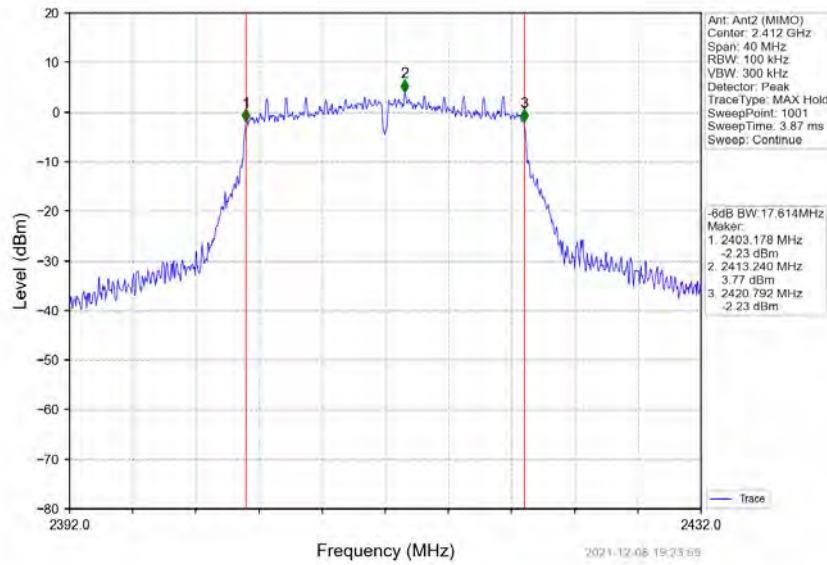


802.11n(HT20)\_LCH\_2412MHz\_Ant2 (MIMO)\_NTNV

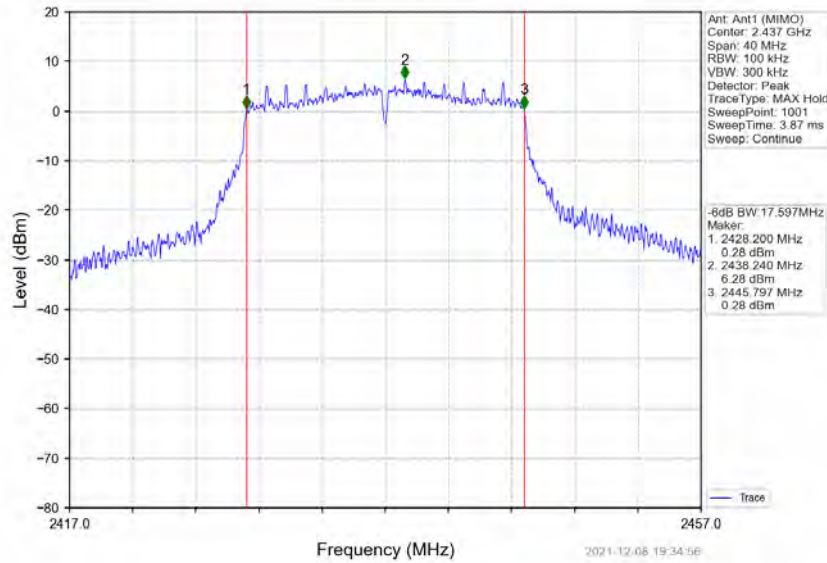


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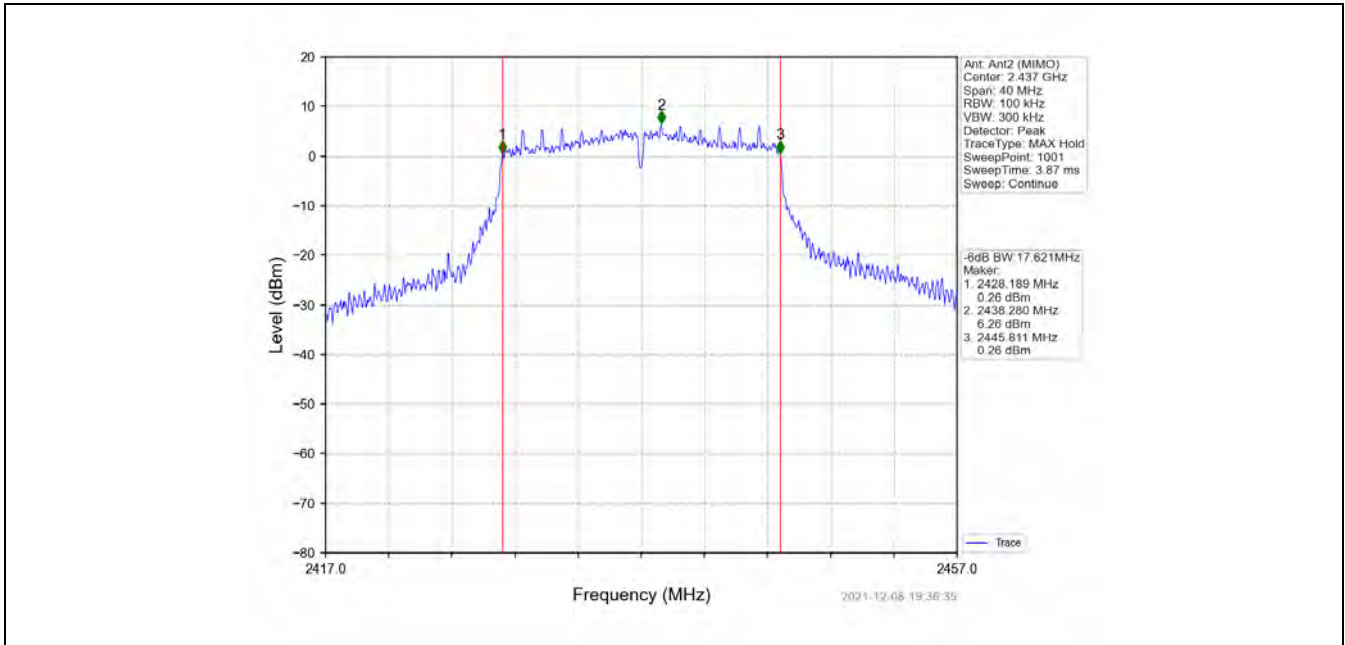


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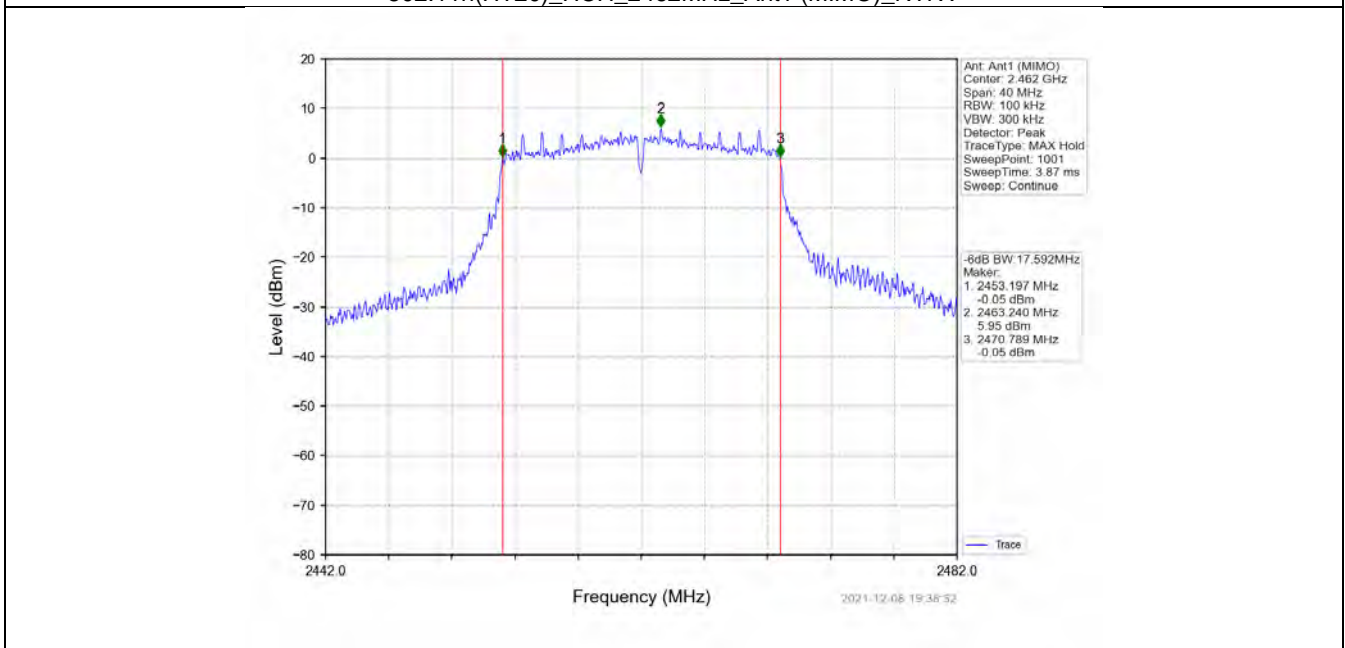


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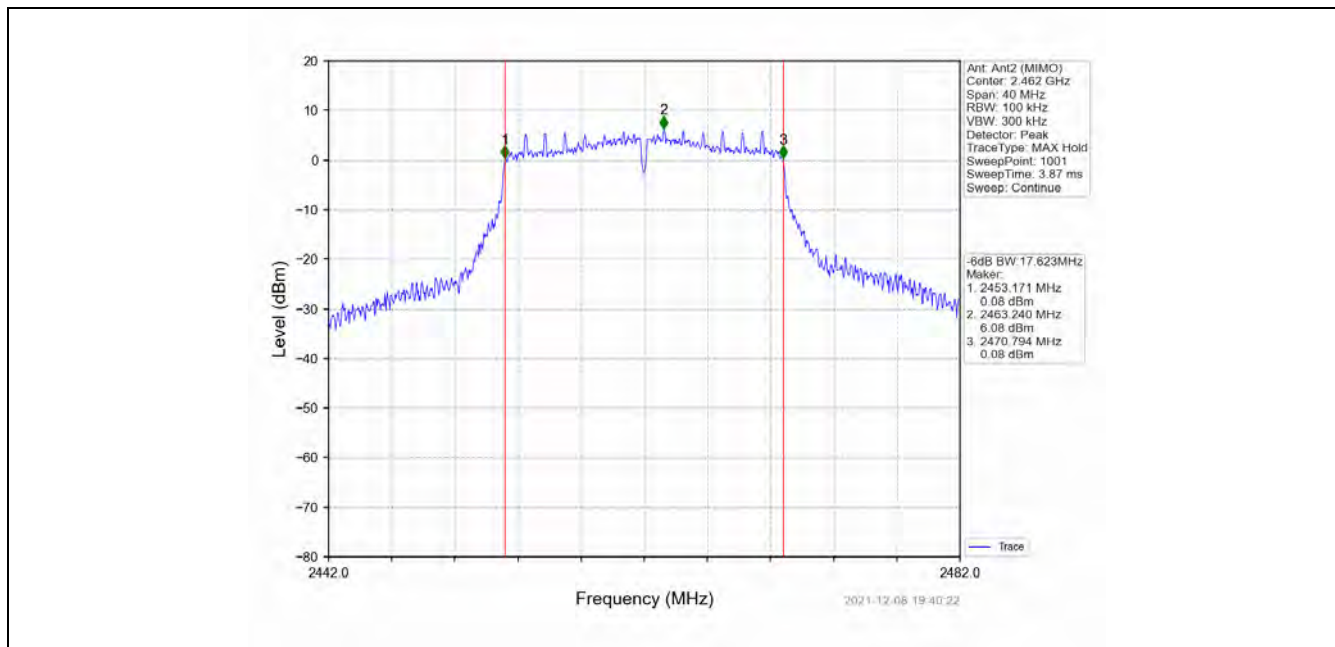
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### 3. Maximum Conducted Output Power

#### 3.1 Power

##### 3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)				Verdict
			Ant1	Ant2	MIMO	Limit	
802.11b	SISO	2412	18.17	18.33	/	<=30.00	Pass
		2437	17.91	18.34	/	<=30.00	Pass
		2462	17.87	18.35	/	<=30.00	Pass
802.11g	SISO	2412	15.87	15.57	/	<=30.00	Pass
		2437	17.71	17.89	/	<=30.00	Pass
		2462	17.62	17.85	/	<=30.00	Pass
802.11n (HT20)	MIMO	2412	15.70	15.34	18.53	<=28.48	Pass
		2437	10.79	15.97	17.12	<=28.48	Pass
		2462	17.41	16.79	20.12	<=28.48	Pass

Note1: Antenna Gain: Ant1: 4.35dBi; Ant2: 4.67dBi;  
Note2: Directional Gain: 7.52dBi.



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### 3.2 EIRP

#### 3.2.1 Test Result

Mode	TX Type	Frequency (MHz)	E.I.R.P (dBm)				Verdict
			Ant1	Ant2	MIMO	Limit	
802.11b	SISO	2412	22.52	23.00	/	<=36.00	Pass
		2437	22.26	23.01	/	<=36.00	Pass
		2462	22.22	23.02	/	<=36.00	Pass
802.11g	SISO	2412	20.22	20.24	/	<=36.00	Pass
		2437	22.06	22.56	/	<=36.00	Pass
		2462	21.97	22.52	/	<=36.00	Pass
802.11n (HT20)	MIMO	2412	20.05	20.01	26.05	<=36.00	Pass
		2437	15.14	20.64	24.64	<=36.00	Pass
		2462	21.76	21.46	27.64	<=36.00	Pass

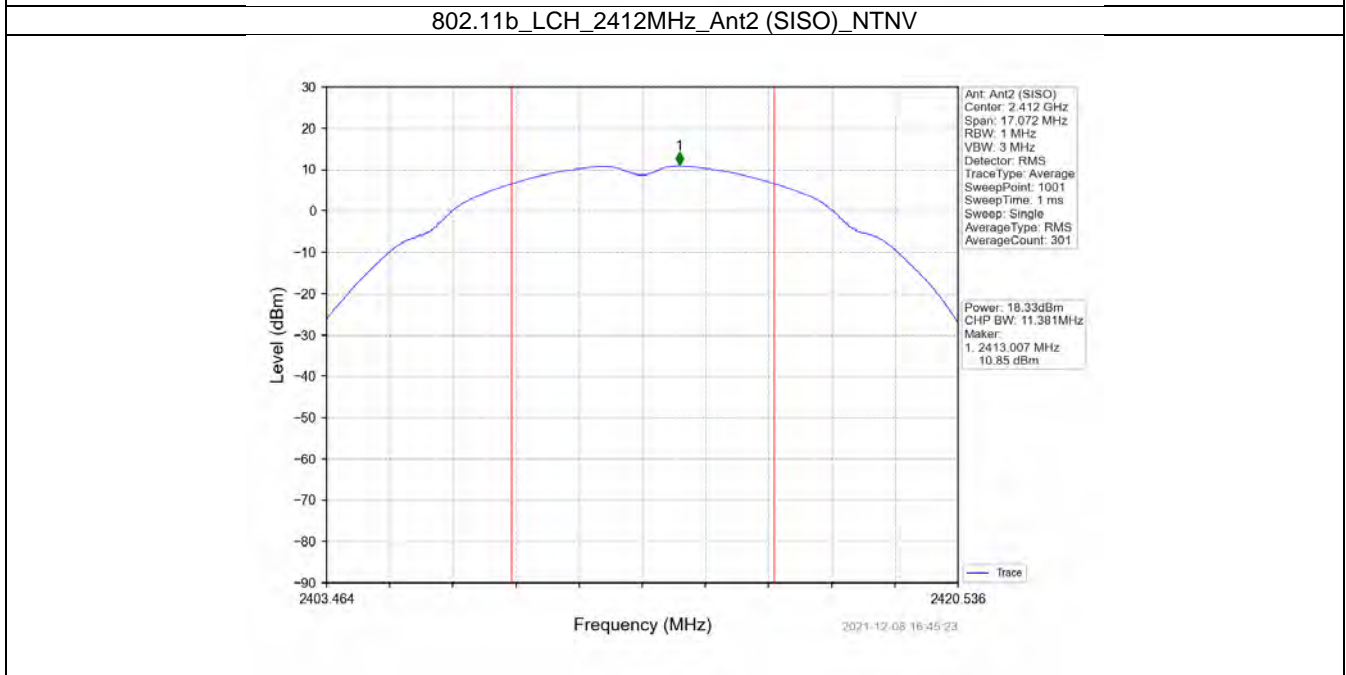
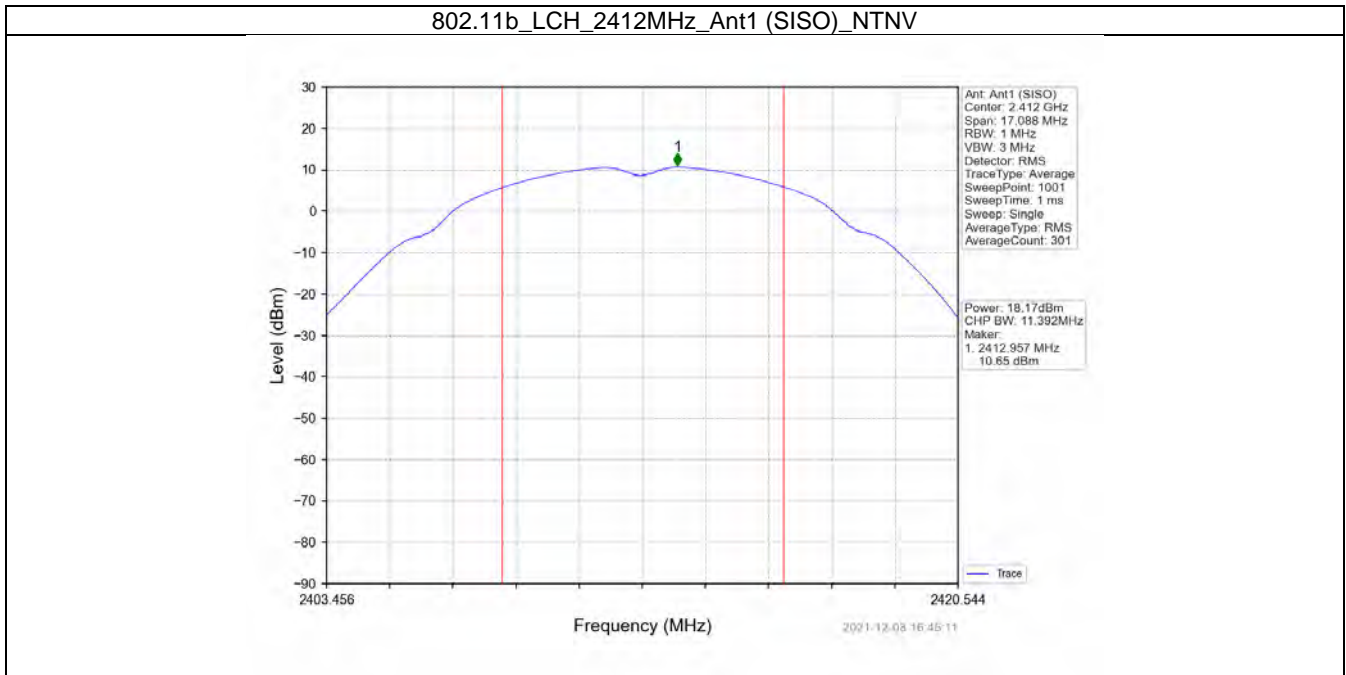
Note1: Antenna Gain: Ant1: 4.35dBi; Ant2: 4.67dBi;  
 Note2: Directional Gain: 7.52dBi.



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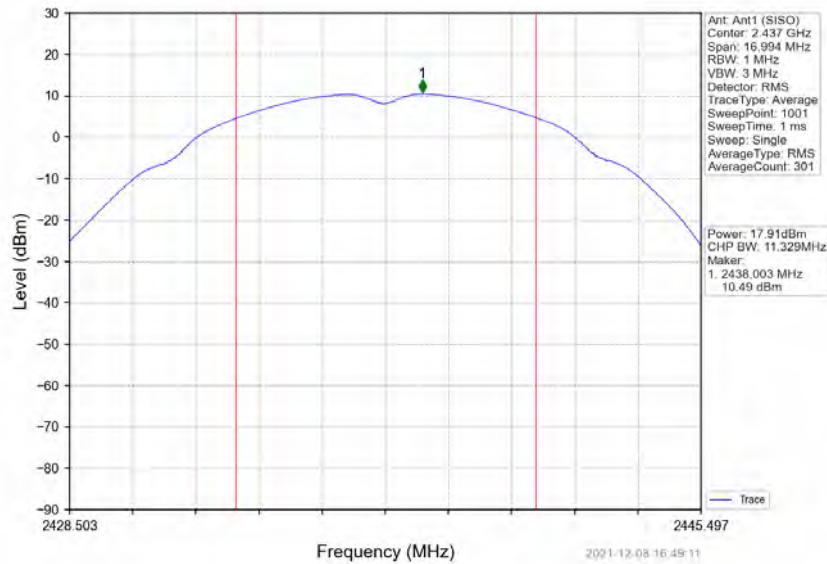
3.1.2 Test Graph



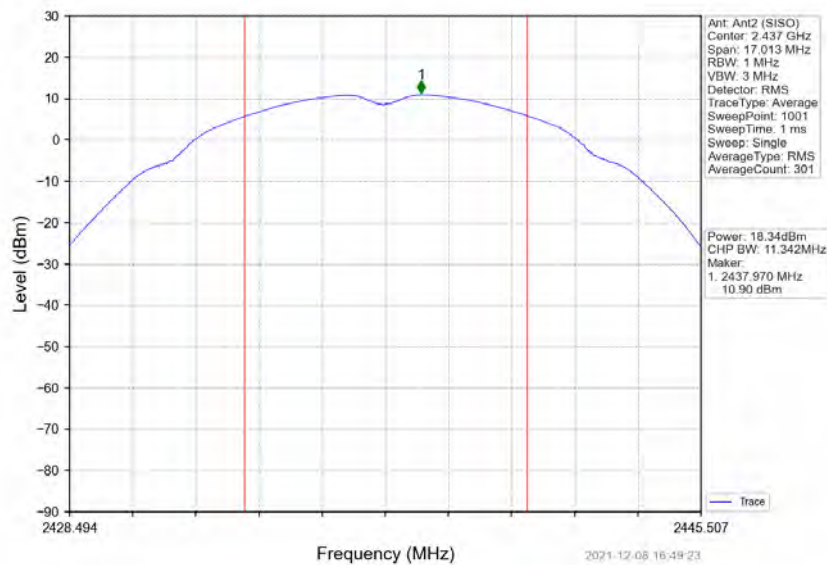
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802.11b\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV



802.11b\_MCH\_2437MHz\_Ant2 (SISO)\_NTNV



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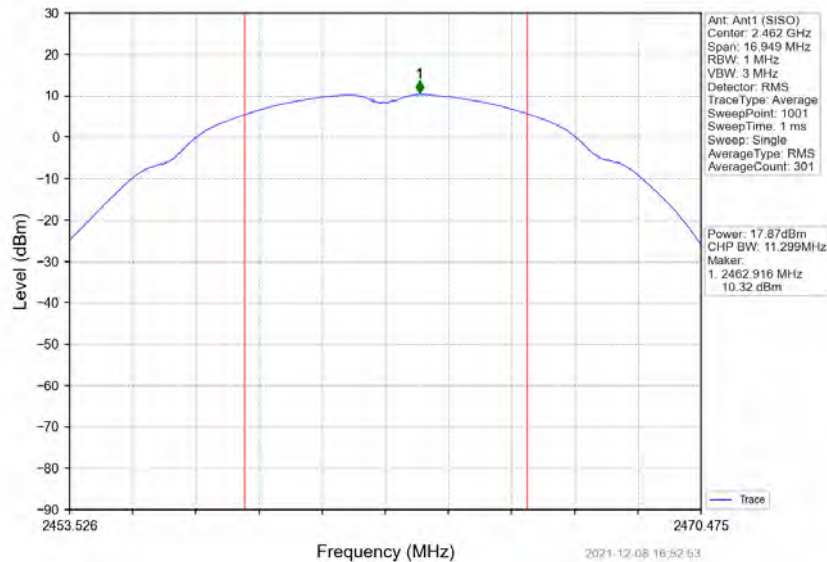
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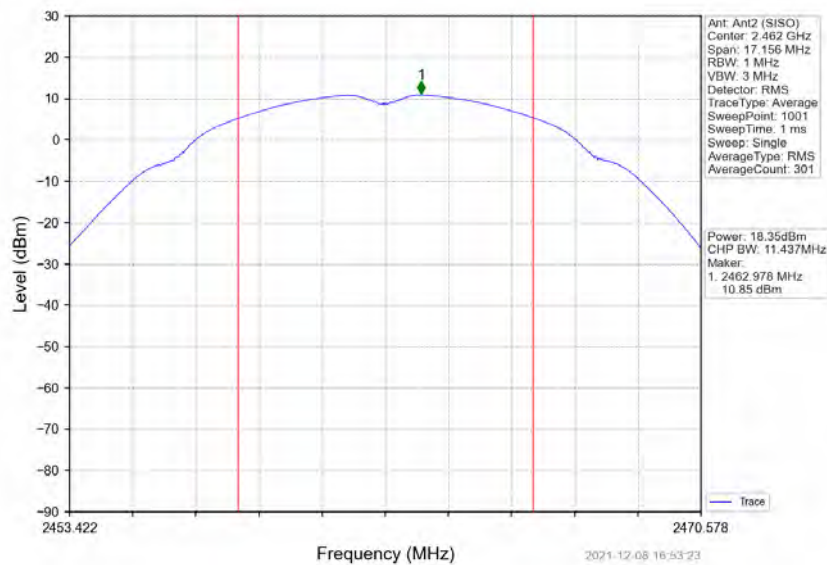
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802.11b\_HCH\_2462MHz\_Ant2 (SISO)\_NTNV



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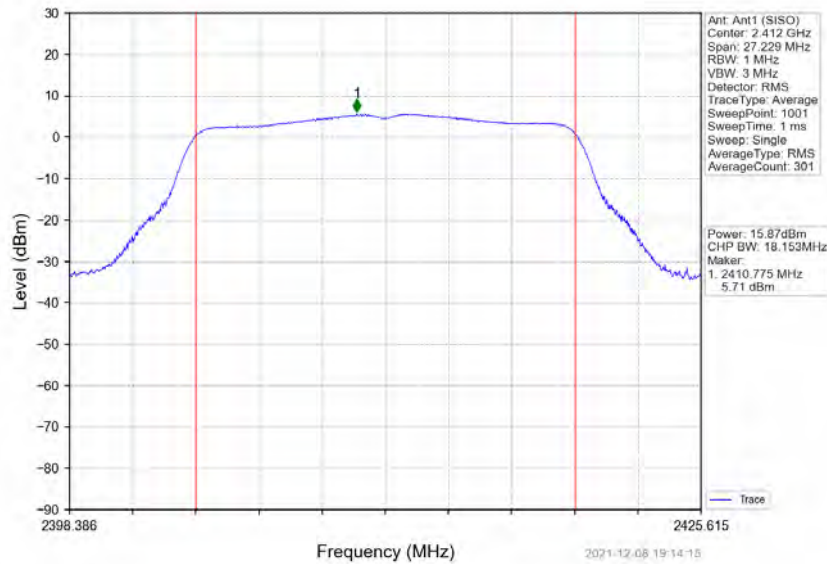
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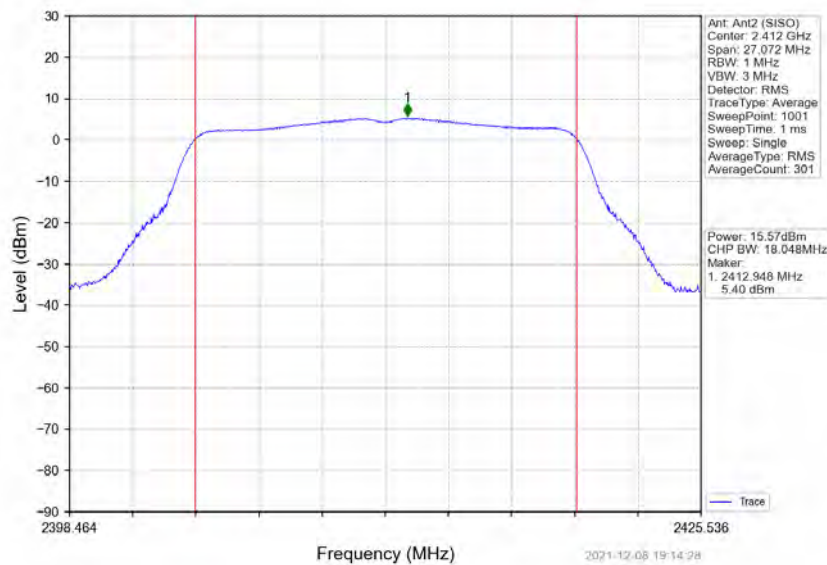
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802.11g\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV



802.11g\_LCH\_2412MHz\_Ant2 (SISO)\_NTNV



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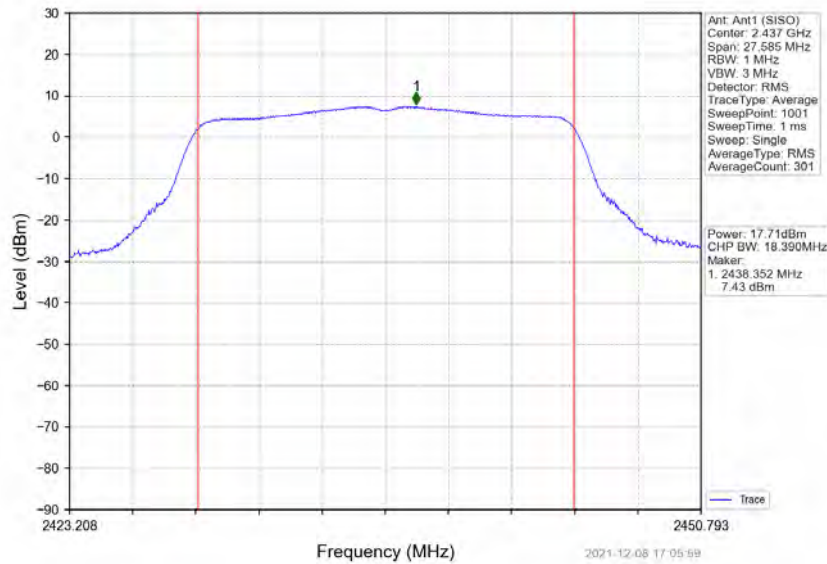
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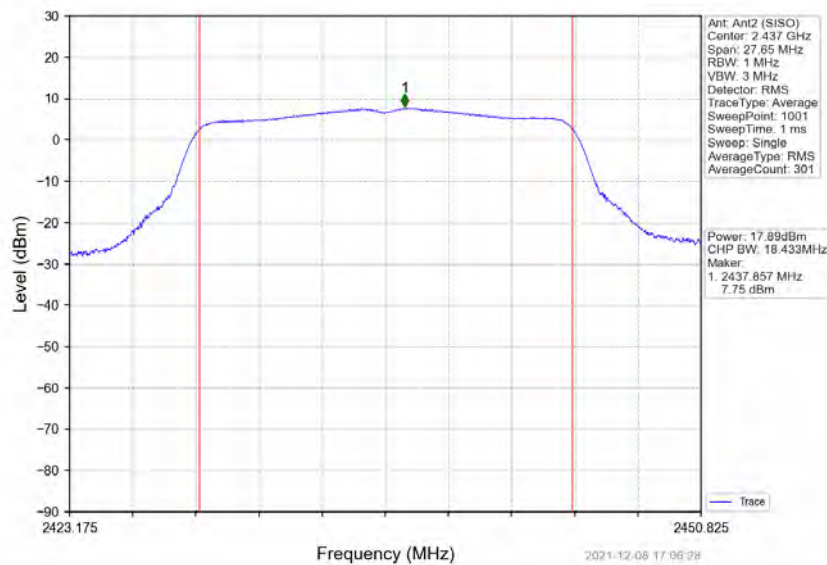
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802.11g\_MCH\_2437MHz\_Ant2 (SISO)\_NTNV



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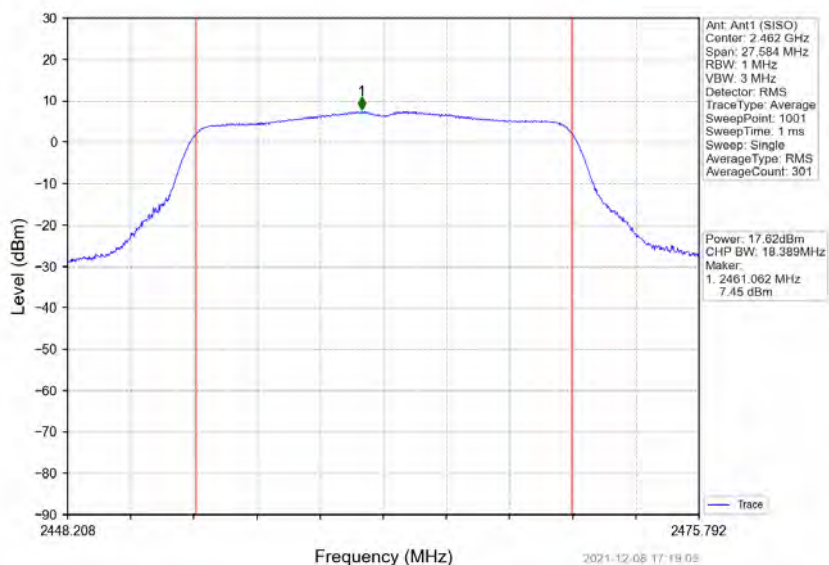
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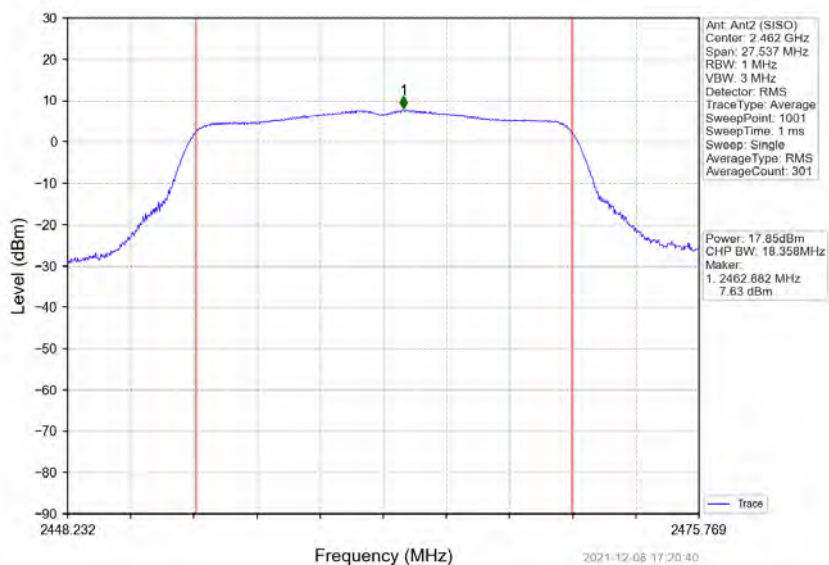
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802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



802.11g\_HCH\_2462MHz\_Ant2 (SISO)\_NTNV

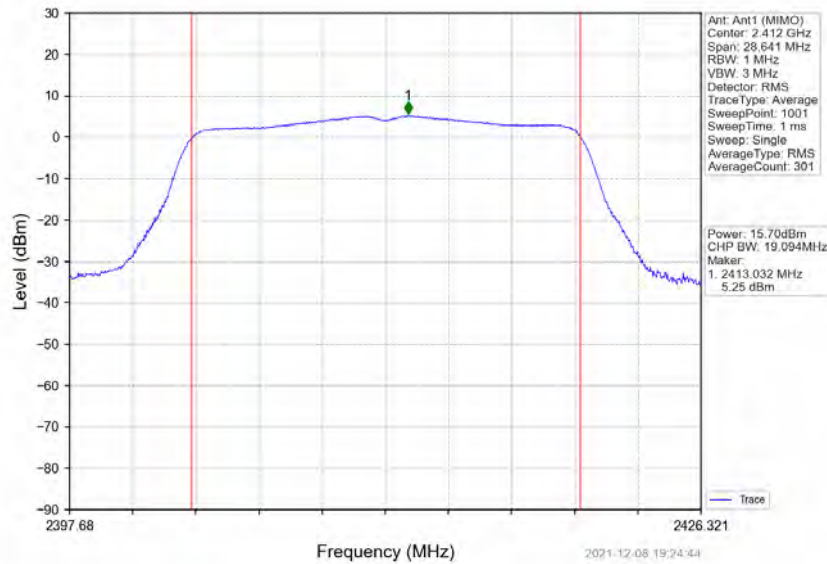


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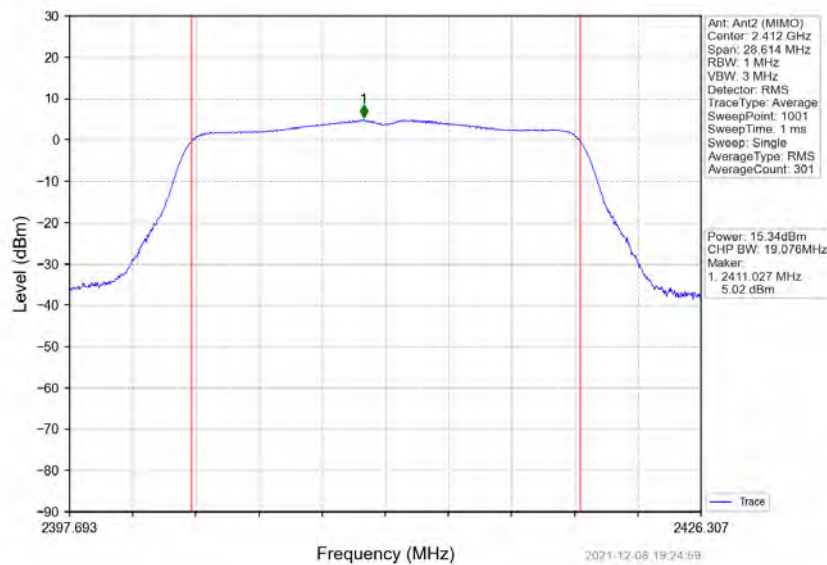
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802.11n(HT20)\_LCH\_2412MHz\_Ant2 (MIMO)\_NTNV



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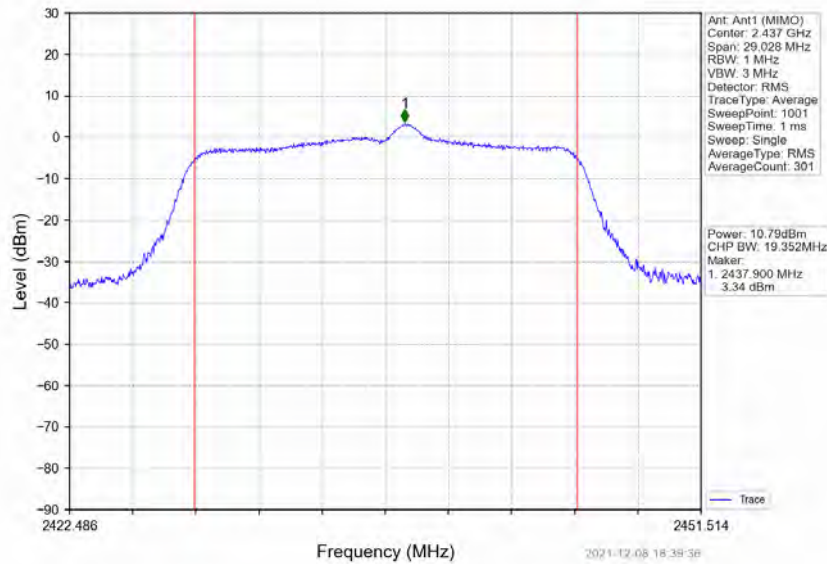
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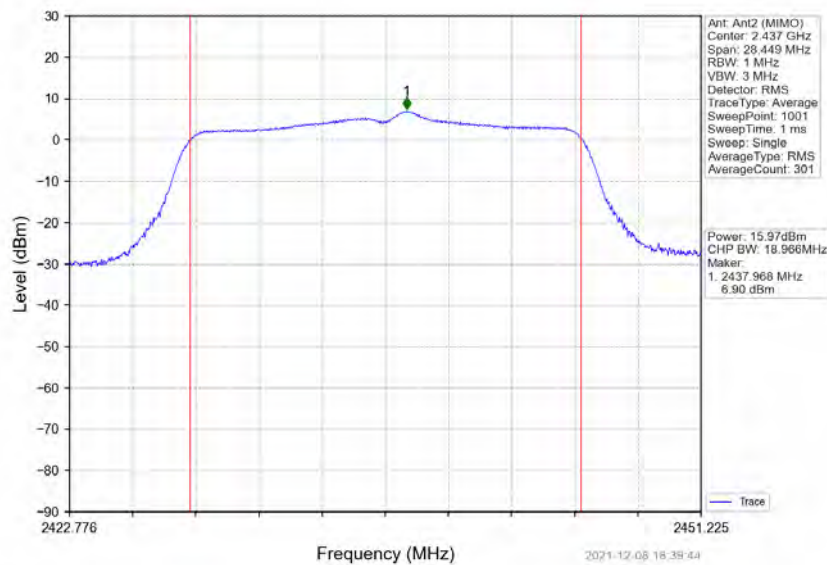
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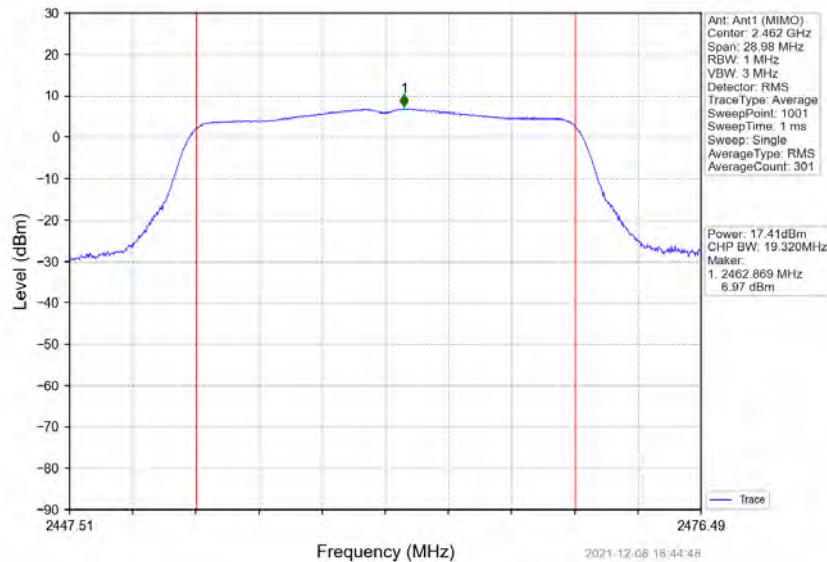
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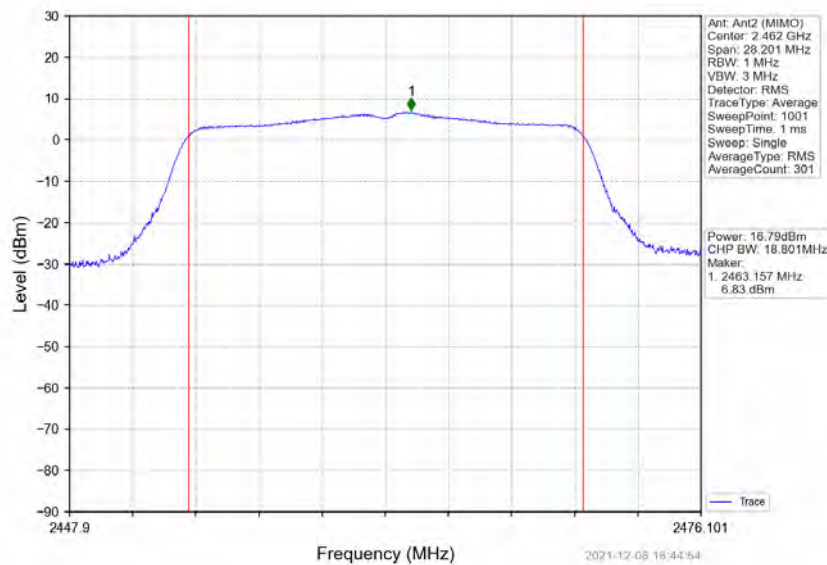
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## 4. Maximum Power Spectral Density

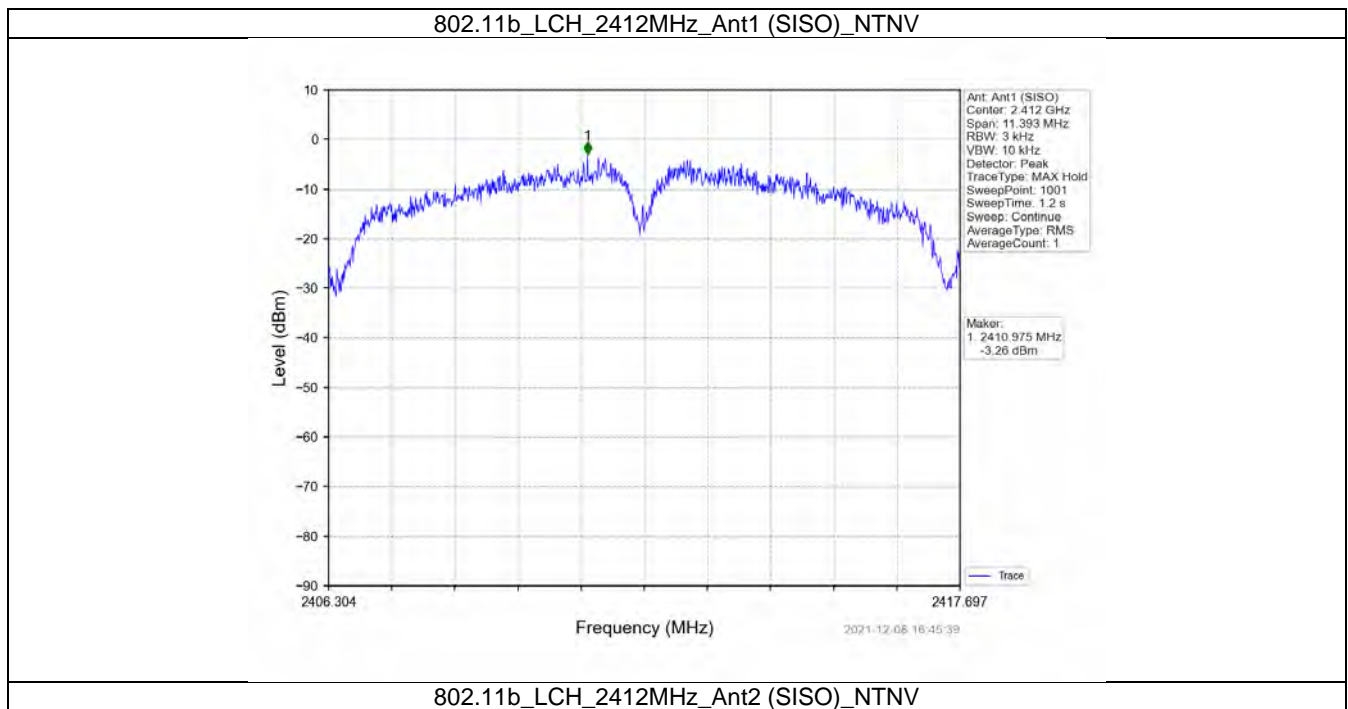
### 4.1 PSD

#### 4.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)				Verdict
			Ant1	Ant2	MIMO	Limit	
802.11b	SISO	2412	-3.26	-3.84	/	<=8.00	Pass
		2437	-3.96	-2.40	/	<=8.00	Pass
		2462	-4.03	-2.98	/	<=8.00	Pass
802.11g	SISO	2412	-8.71	-9.52	/	<=8.00	Pass
		2437	-5.76	-6.79	/	<=8.00	Pass
		2462	-6.56	-6.03	/	<=8.00	Pass
802.11n (HT20)	MIMO	2412	-8.32	-8.95	-5.84	<=6.48	Pass
		2437	-5.85	-6.16	-3.81	<=6.48	Pass
		2462	-7.31	-7.24	-3.89	<=6.48	Pass

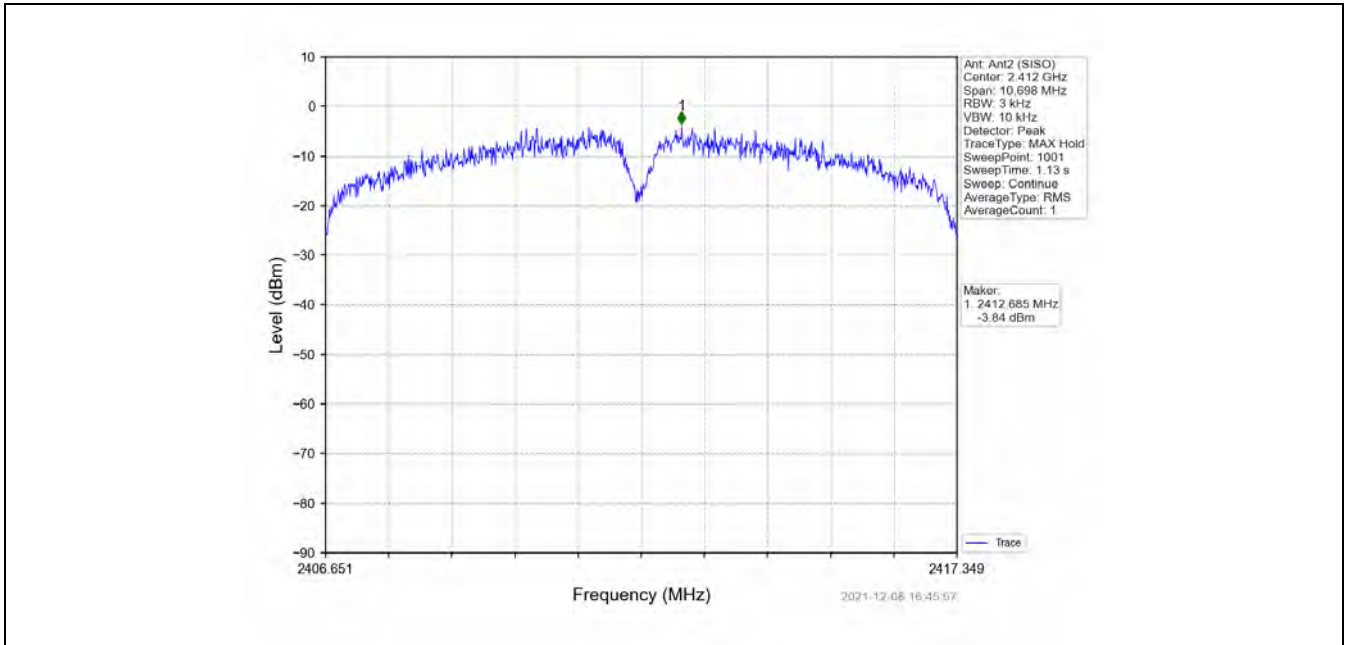
Note1: Antenna Gain: Ant1: 4.35dBi; Ant2: 4.67dBi;  
 Note2: Directional Gain: 7.52dBi.

#### 4.1.2 Test Graph

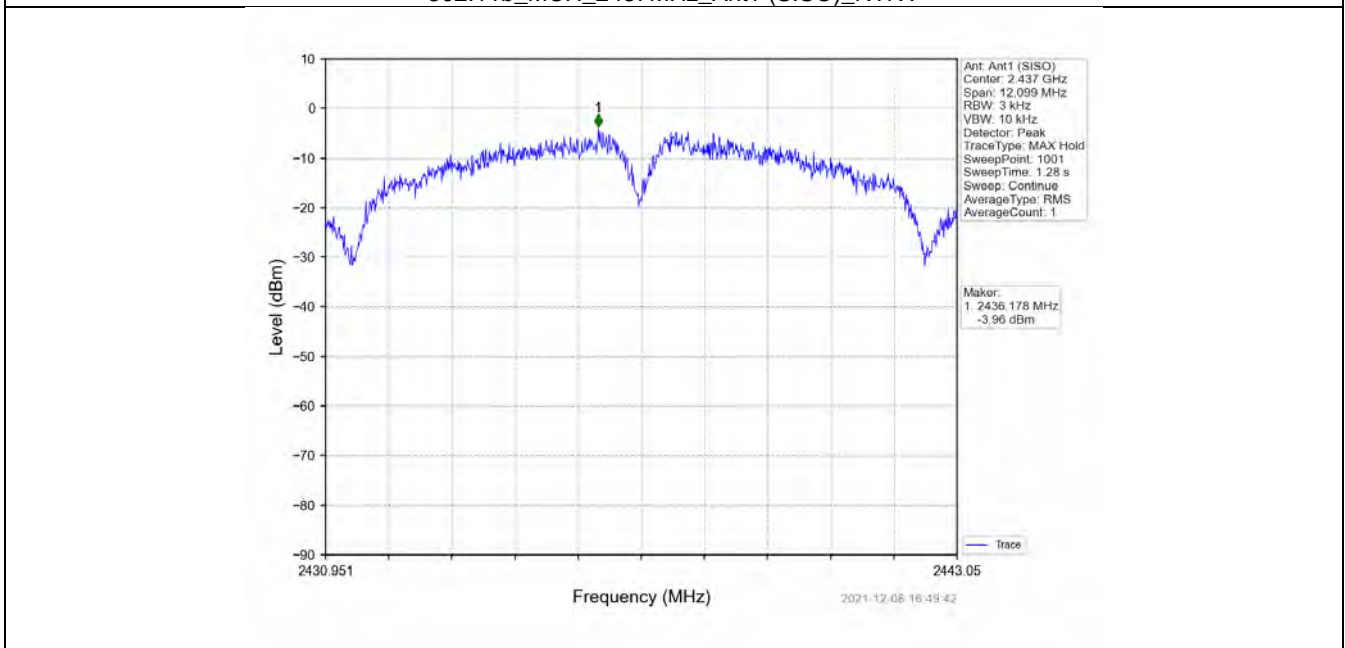


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802.11b\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV

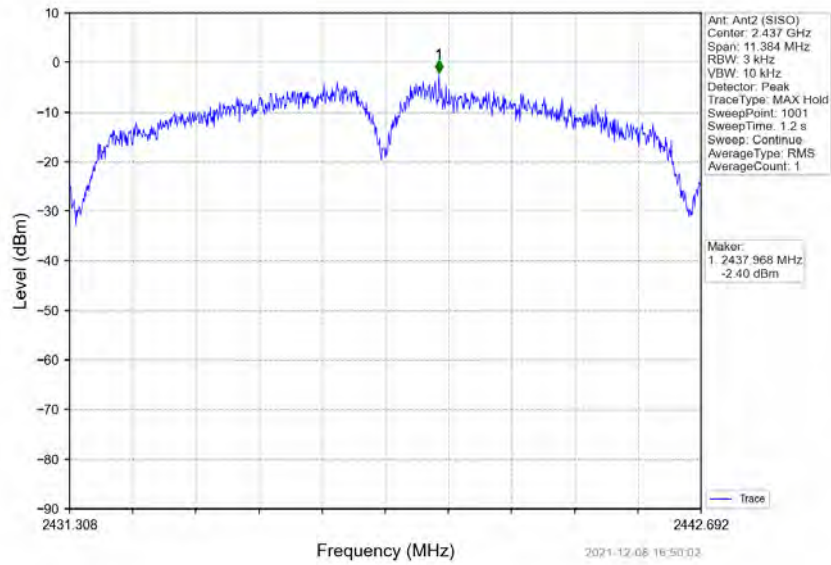


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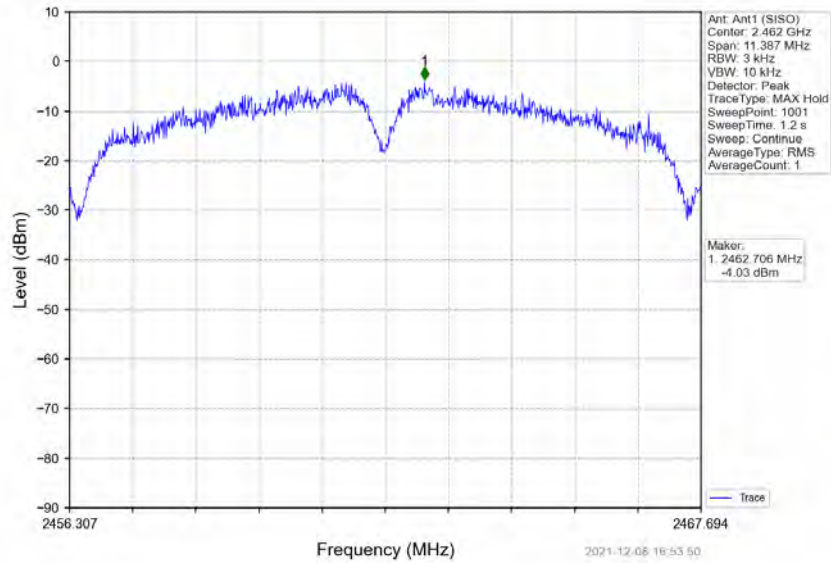


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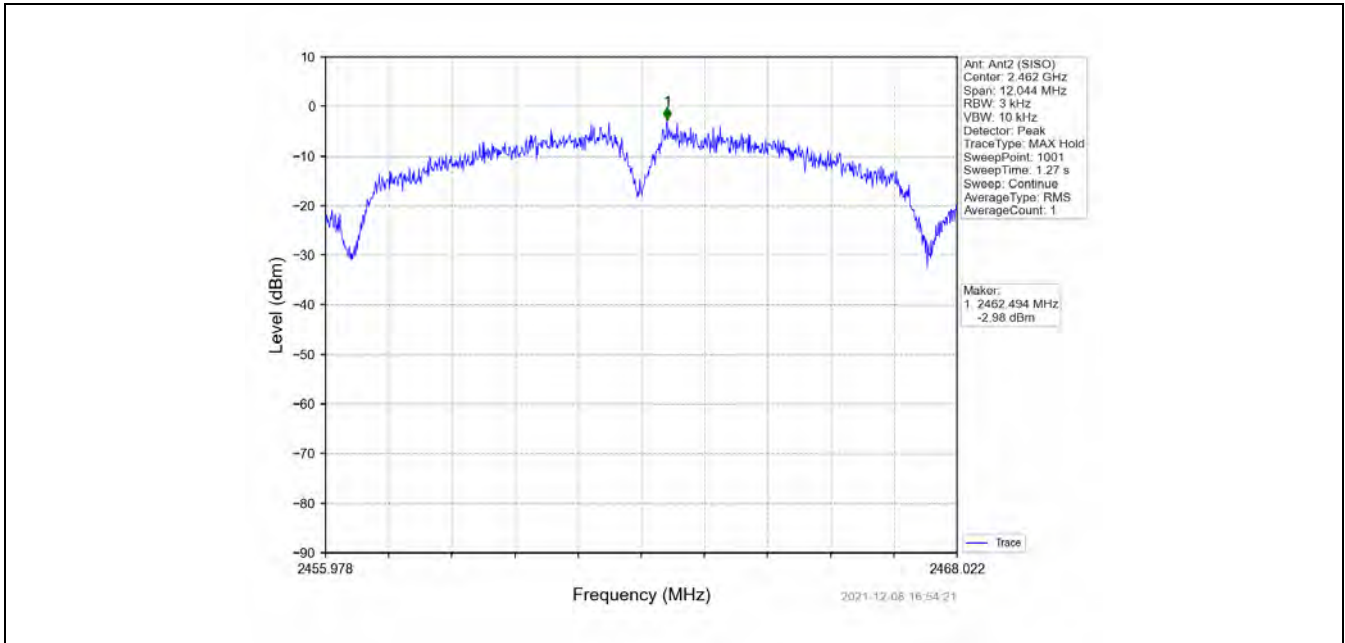


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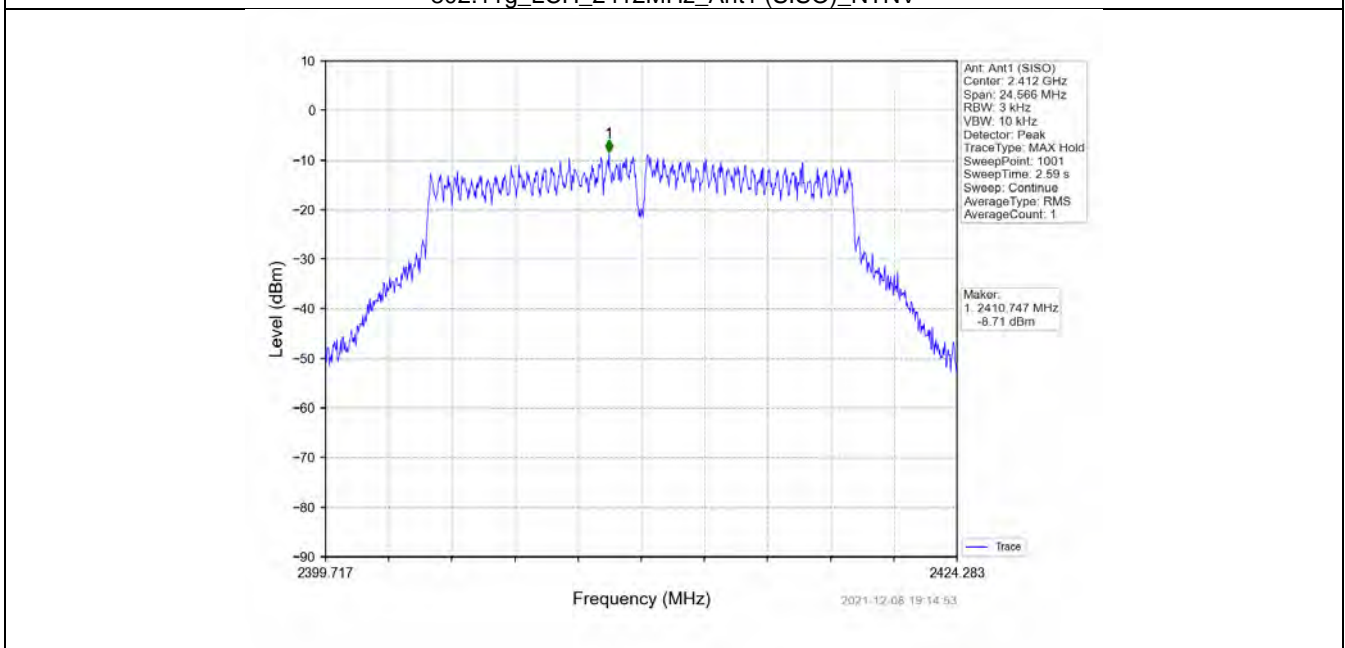


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802.11g\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV

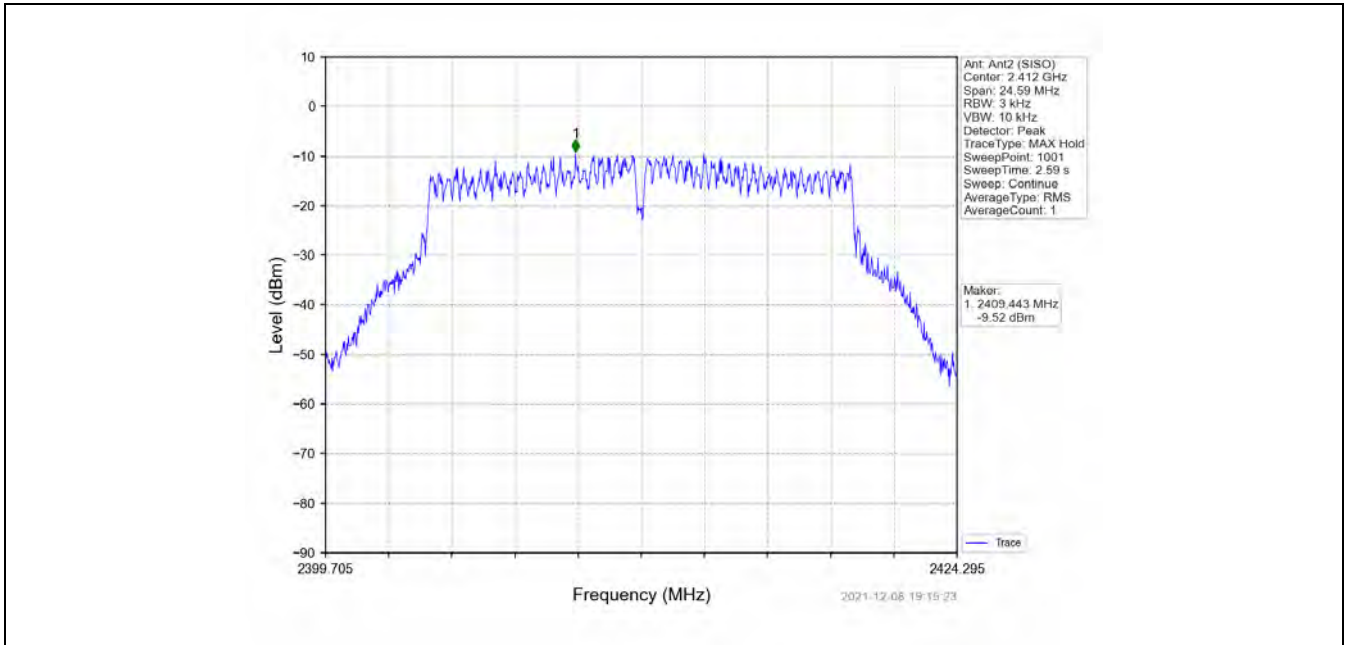


802.11g\_LCH\_2412MHz\_Ant2 (SISO)\_NTNV

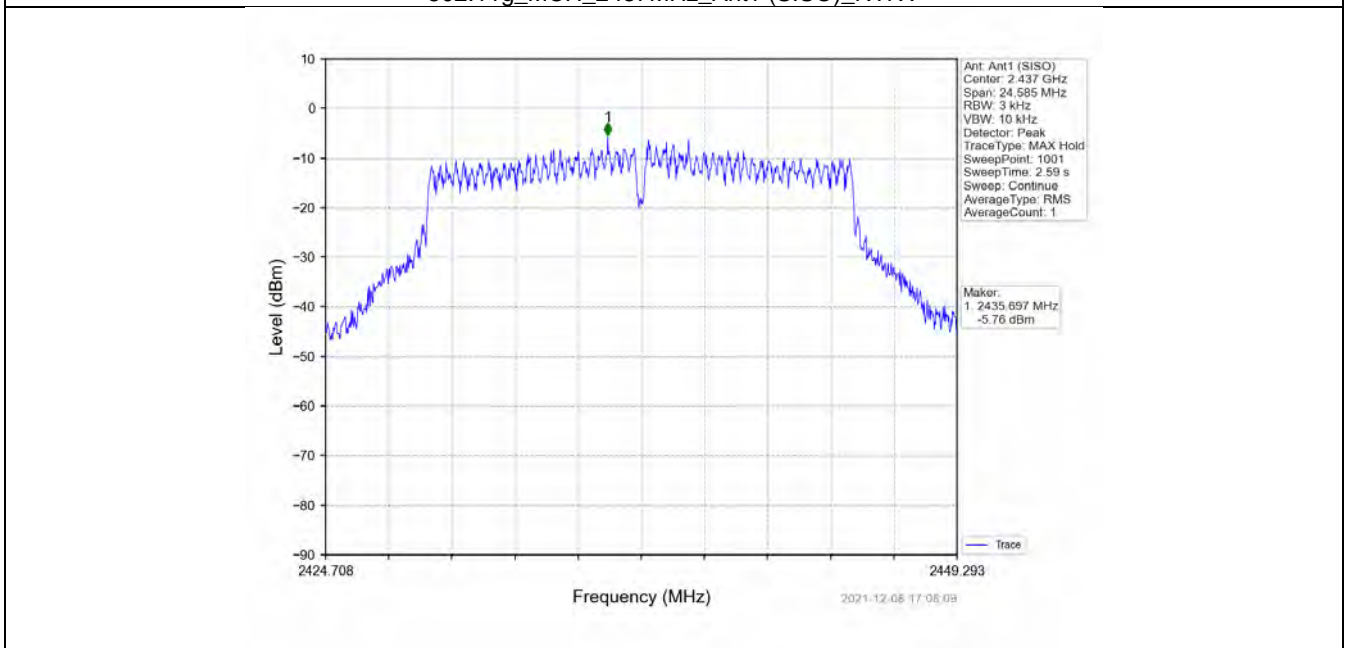


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802.11g\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV



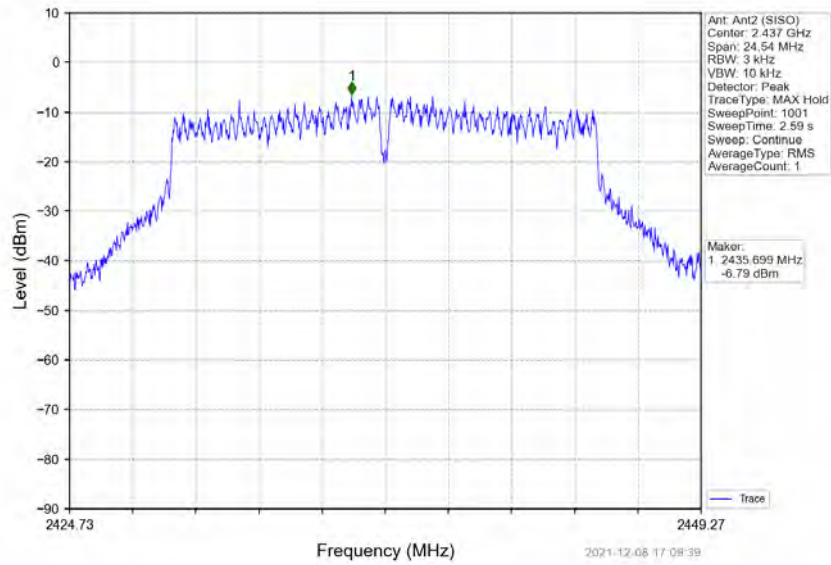
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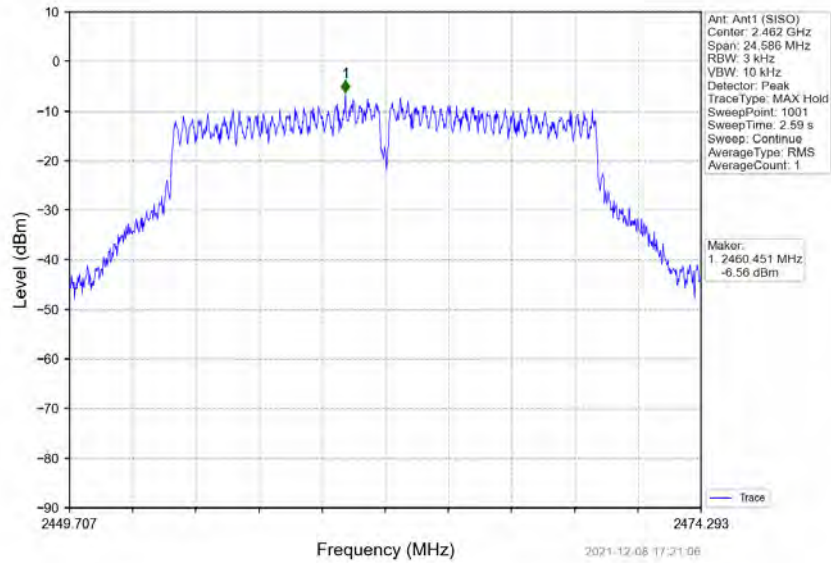
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802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV

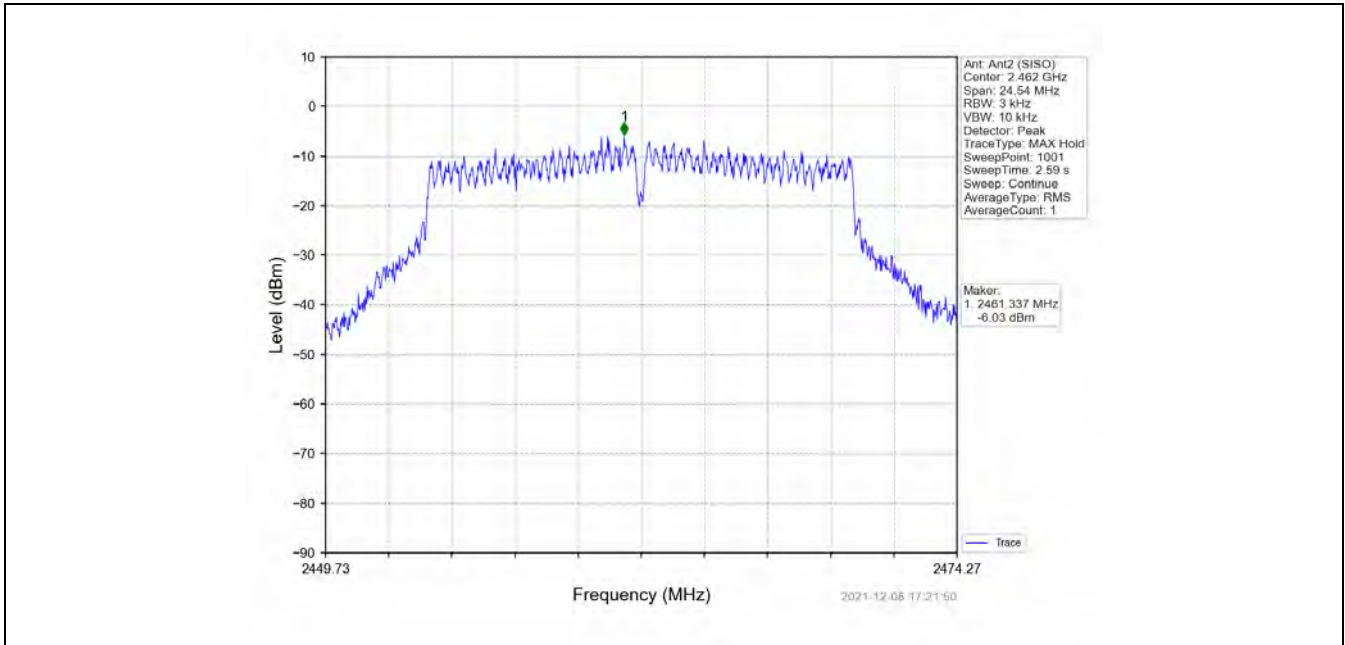


802.11g\_HCH\_2462MHz\_Ant2 (SISO)\_NTNV

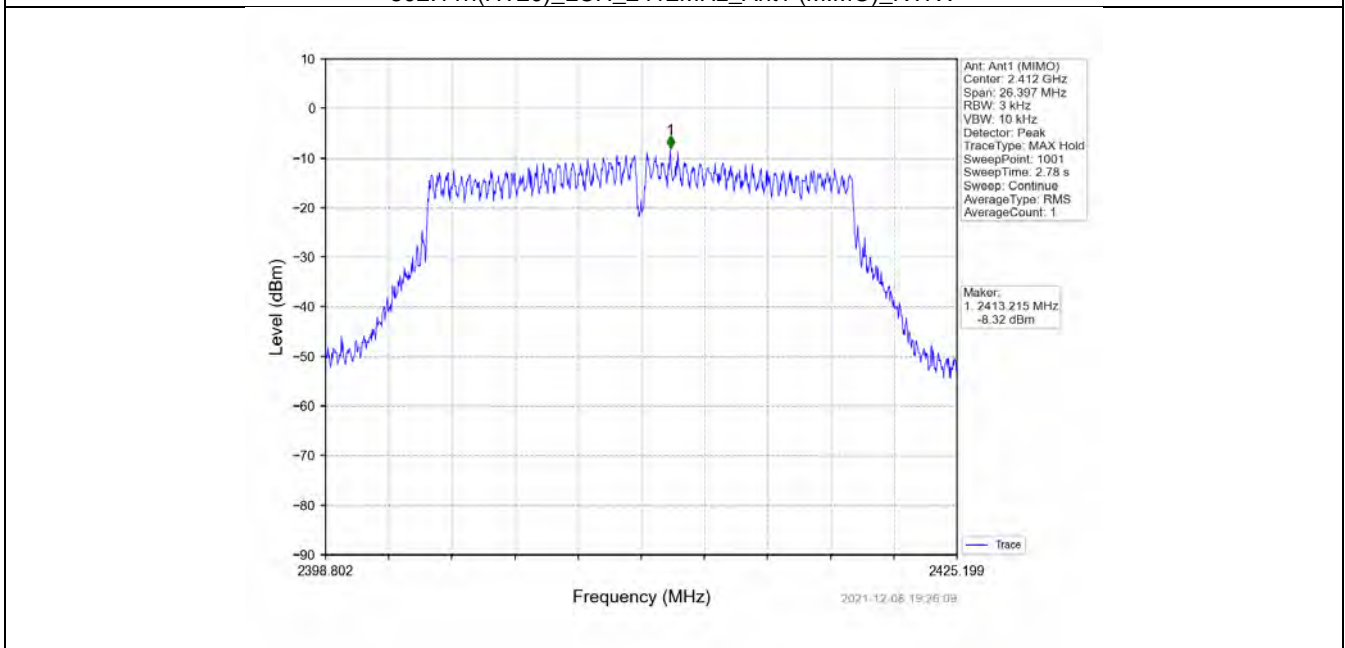


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802.11n(HT20)\_LCH\_2412MHz\_Ant1 (MIMO)\_NTNV

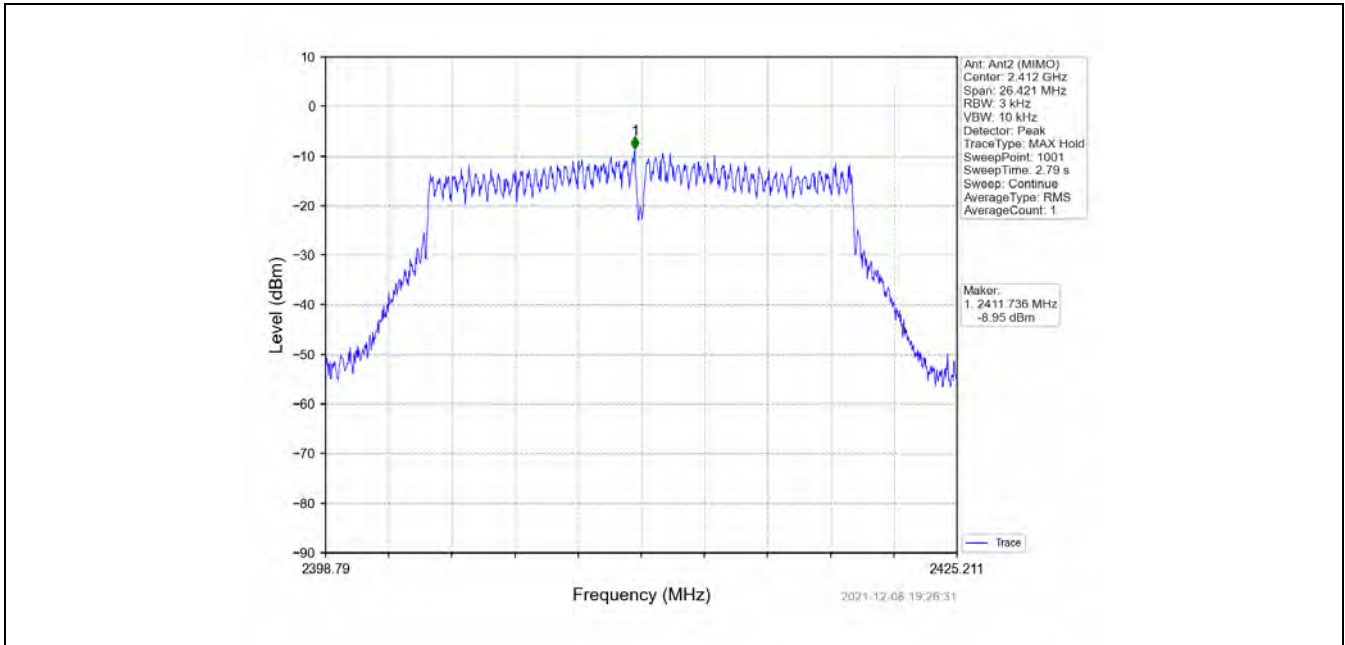


802.11n(HT20)\_LCH\_2412MHz\_Ant2 (MIMO)\_NTNV

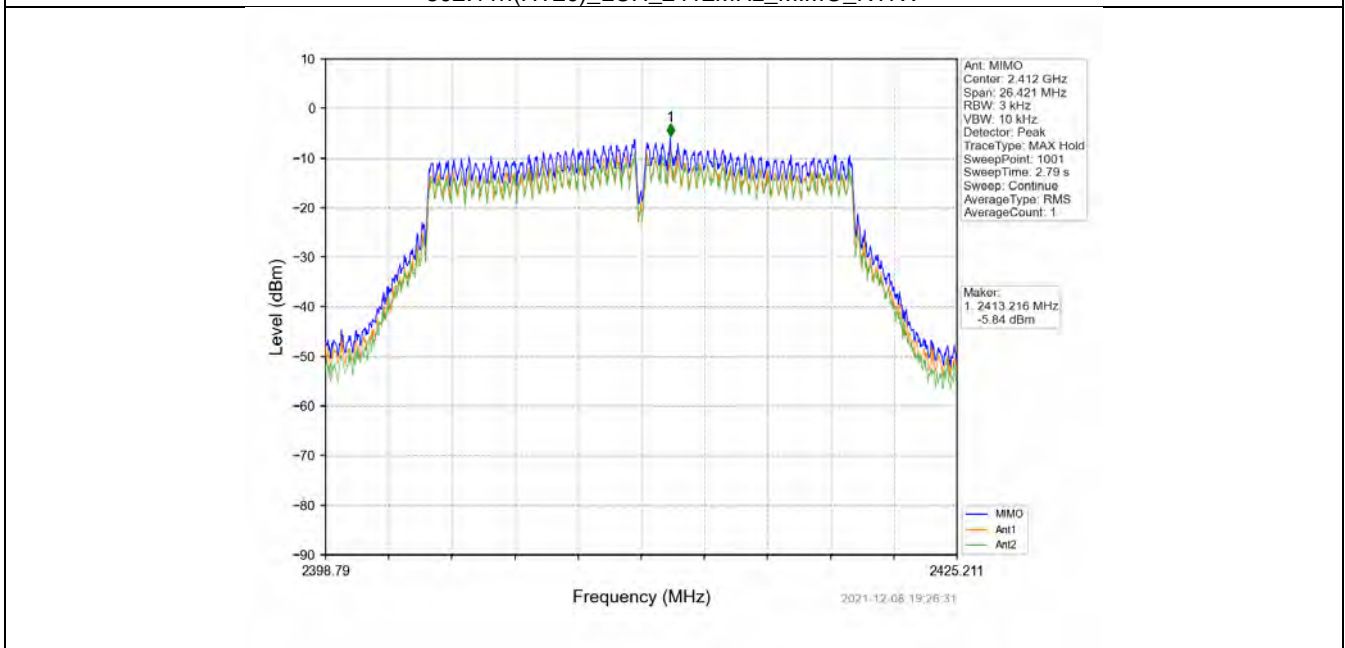


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802.11n(HT20)\_LCH\_2412MHz\_MIMO\_NTNV



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

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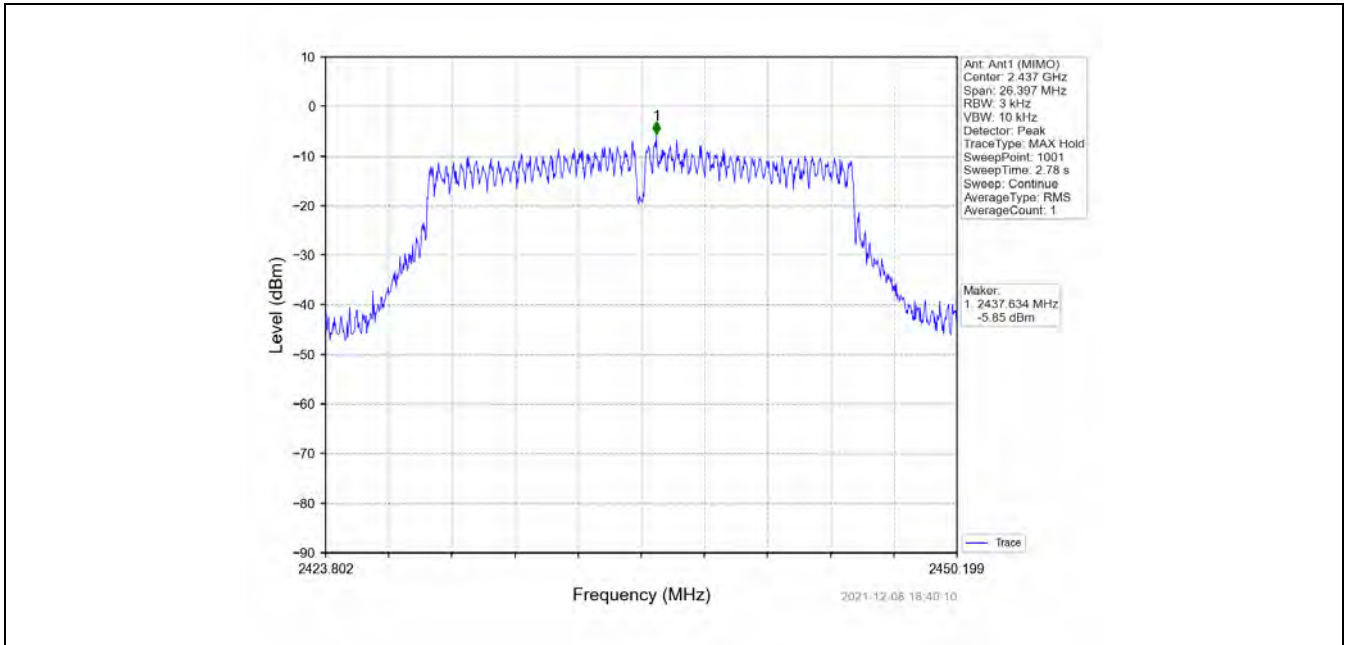
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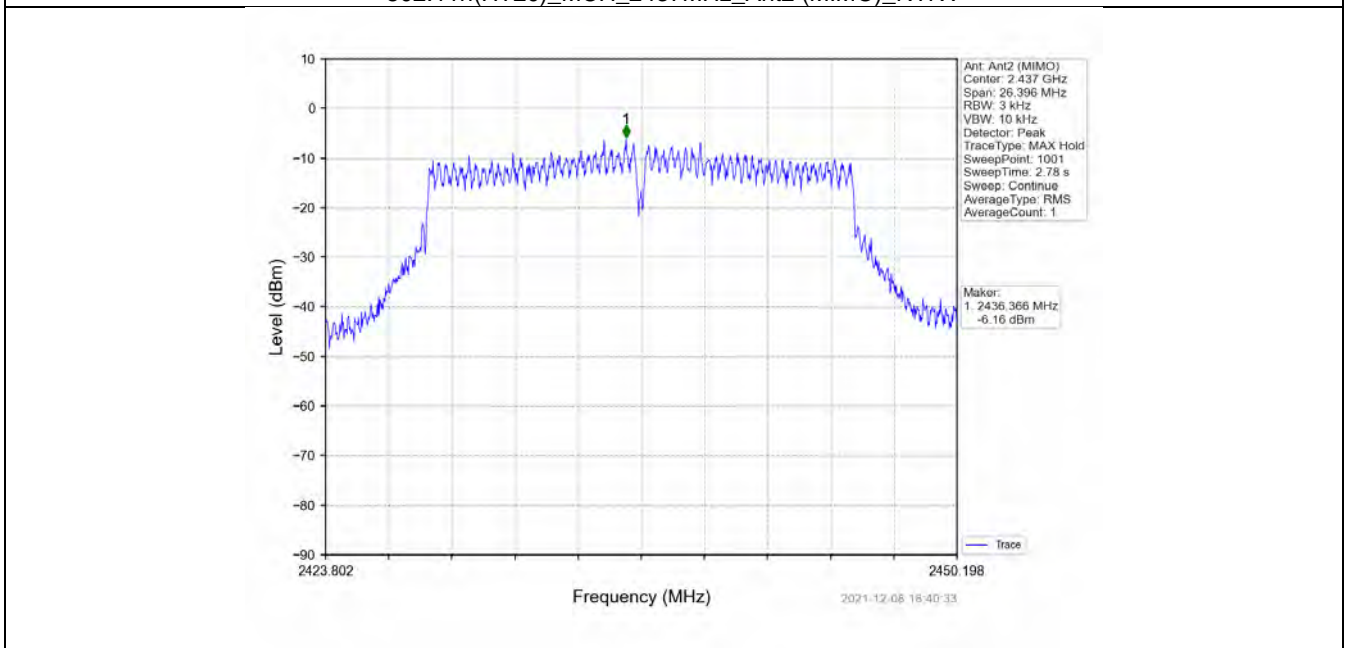
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802.11n(HT20)\_MCH\_2437MHz\_Ant2 (MIMO)\_NTNV

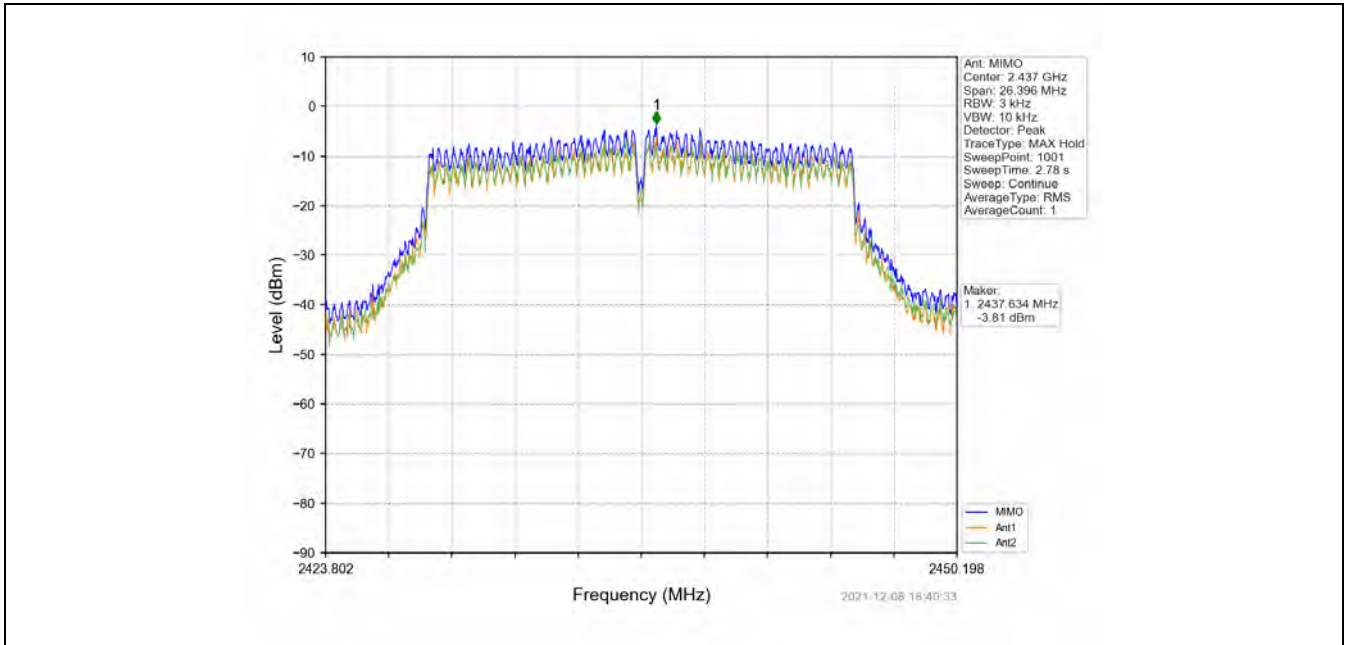


802.11n(HT20)\_MCH\_2437MHz\_MIMO\_NTNV

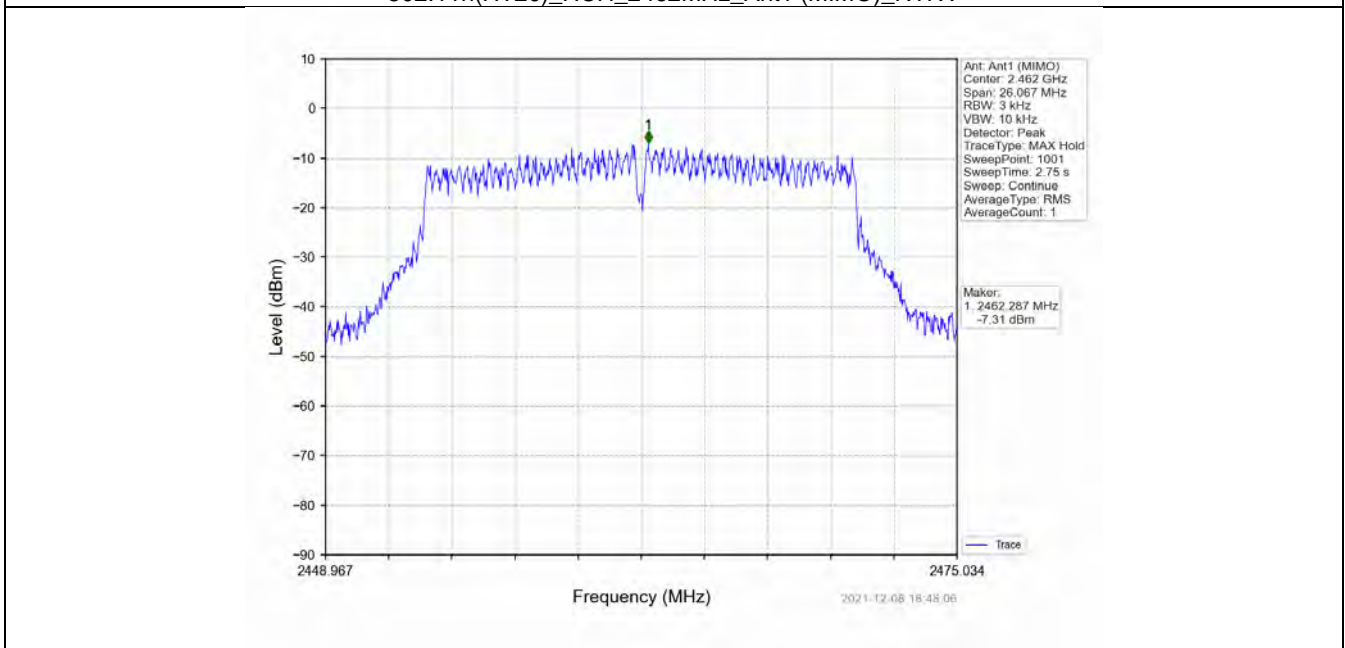


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802.11n(HT20)\_HCH\_2462MHz\_Ant1 (MIMO)\_NTNV

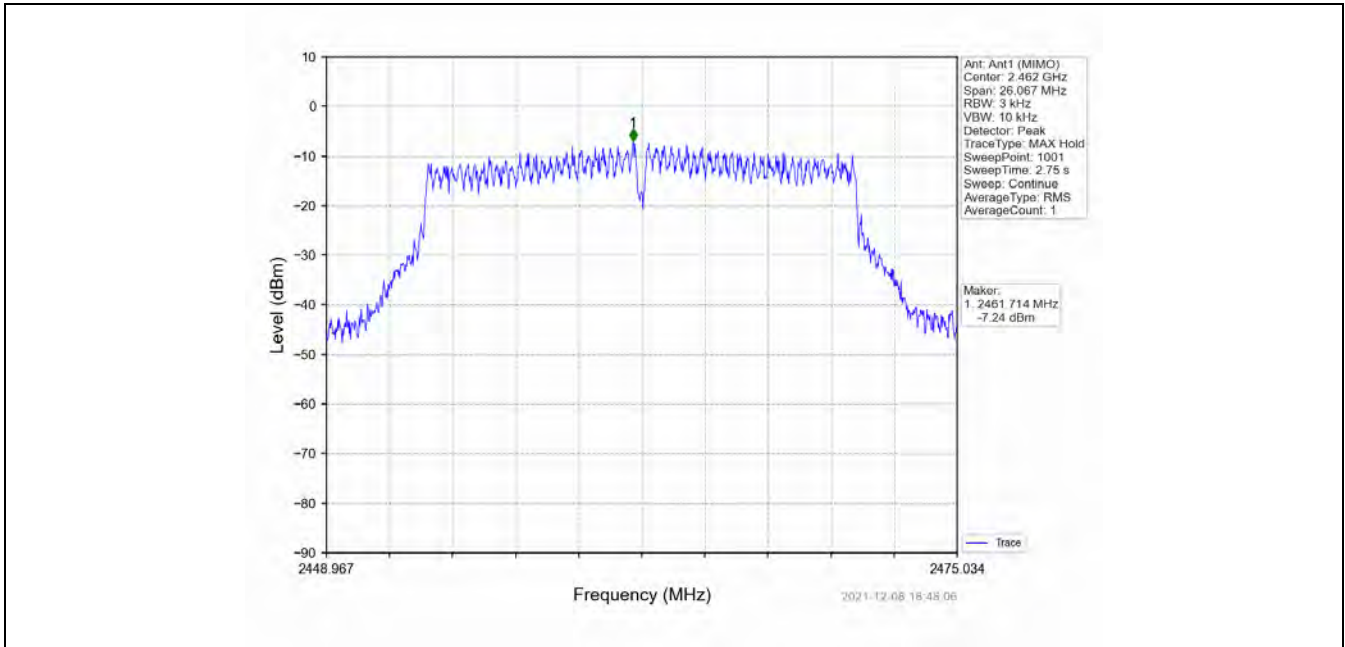


802.11n(HT20)\_HCH\_2462MHz\_Ant2 (MIMO)\_NTNV

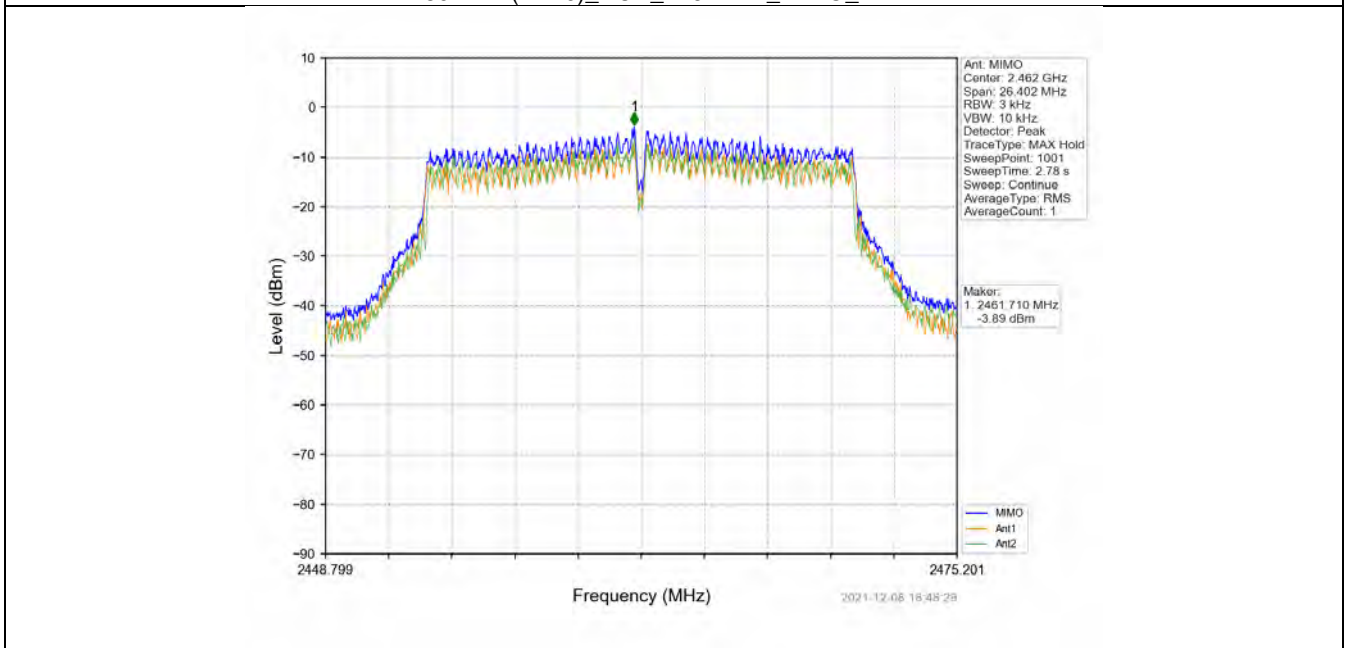


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## 5. Unwanted Emissions In Non-restricted Frequency Bands

### 5.1 Ref

#### 5.1.1 Test Result



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Testing Center (China)

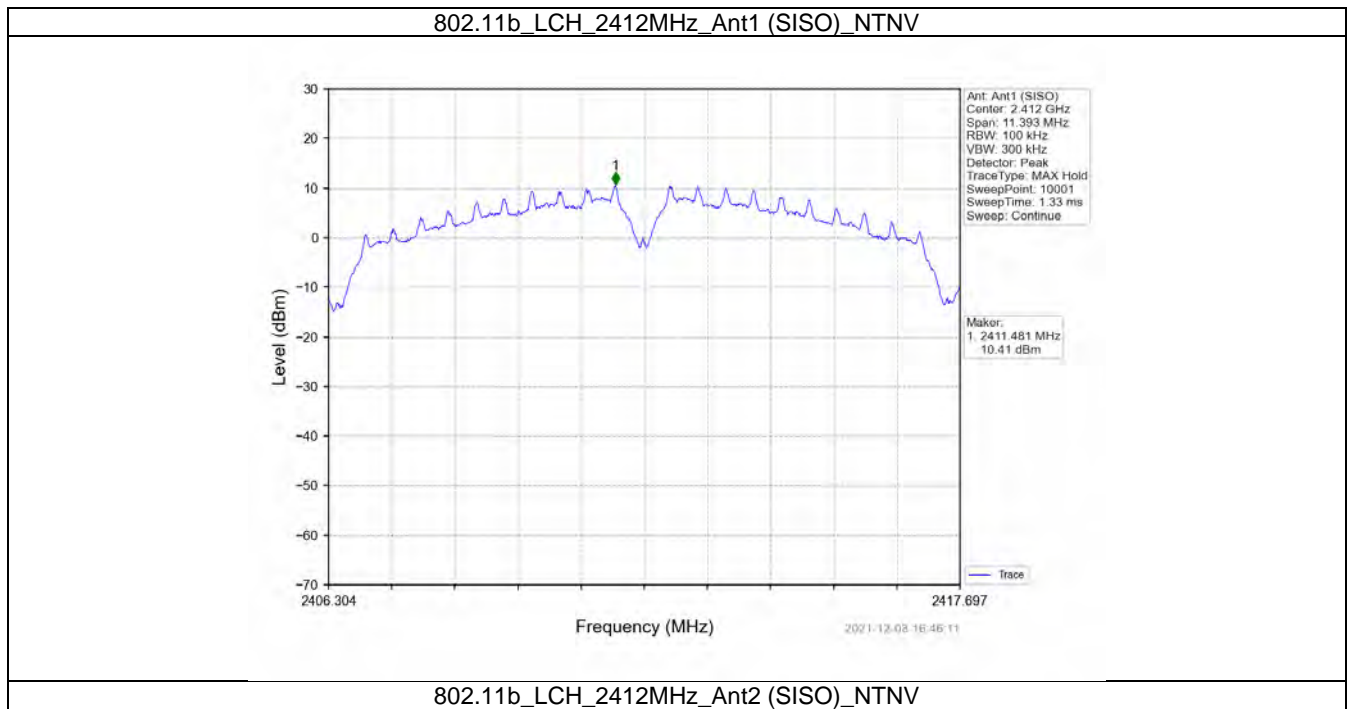
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Mode	TX Type	Frequency (MHz)	Ant	Level of Reference (dBm)
802.11b	SISO	2412	1	10.41
			2	10.52
		2437	1	10.37
			2	10.38
		2462	1	10.33
			2	10.93
802.11g	SISO	2412	1	3.82
			2	3.54
		2437	1	5.74
			2	6.23
		2462	1	6.00
			2	5.82
802.11n (HT20)	MIMO	2412	1	3.70
			2	3.22
		2437	1	5.86
			2	5.99
		2462	1	5.65
			2	6.17

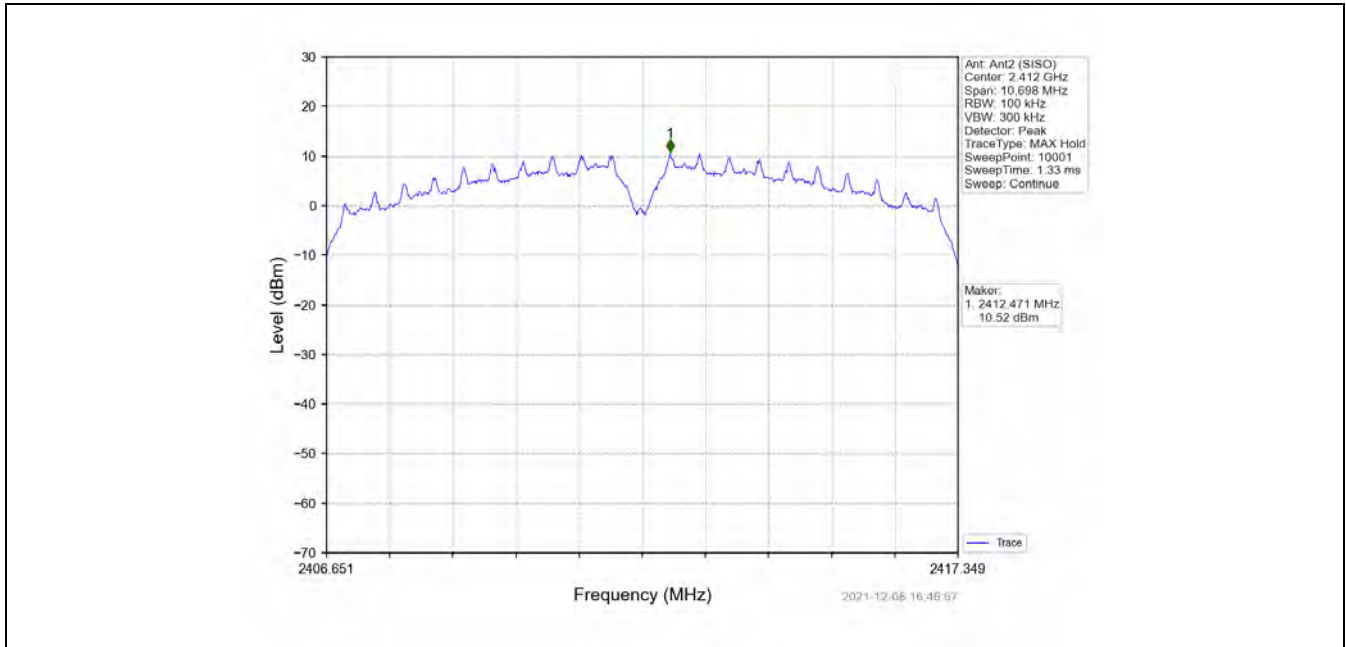
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.  
 Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.

5.1.2 Test Graph



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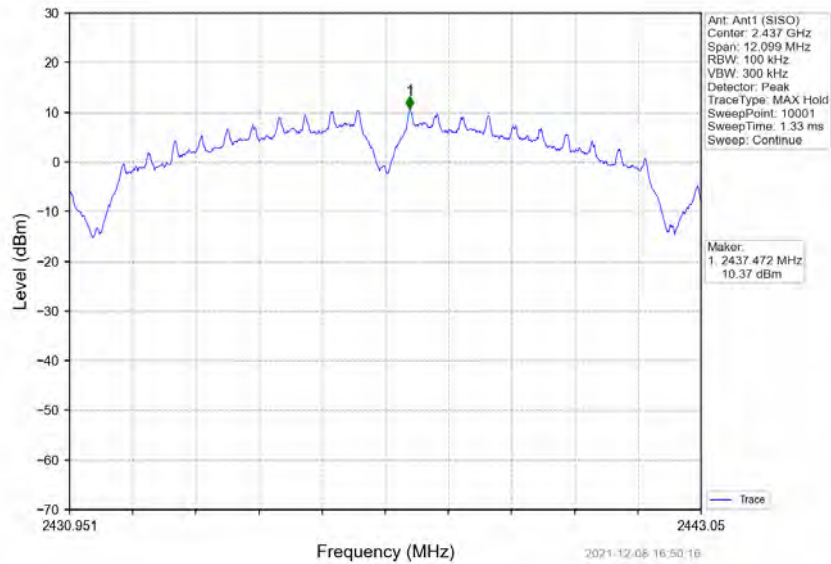


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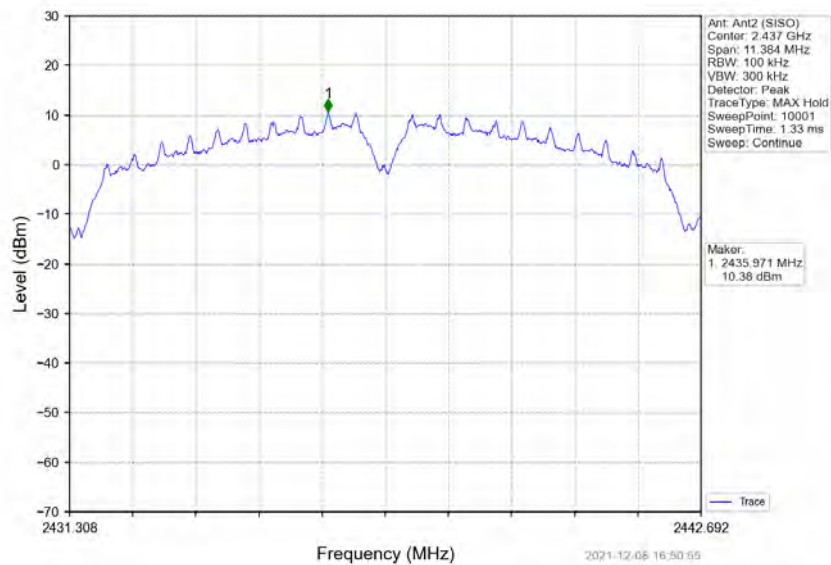
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802.11b\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV



802.11b\_MCH\_2437MHz\_Ant2 (SISO)\_NTNV



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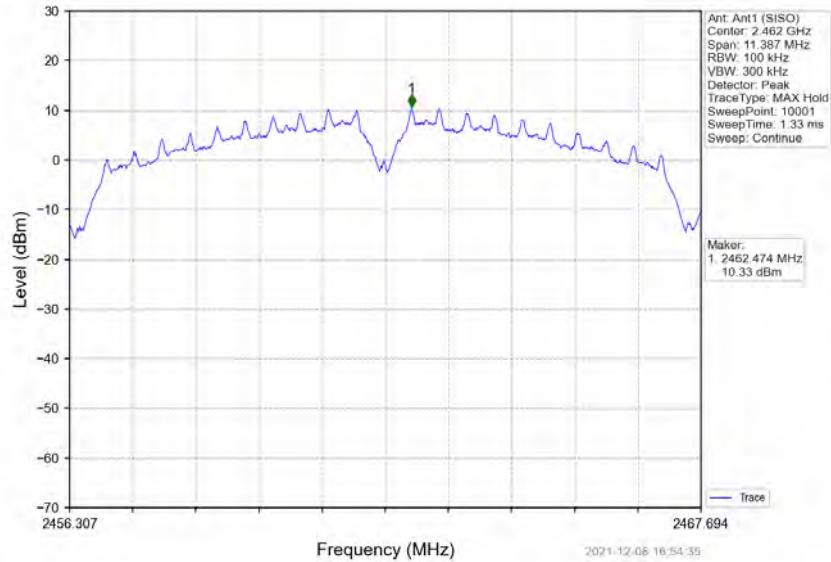
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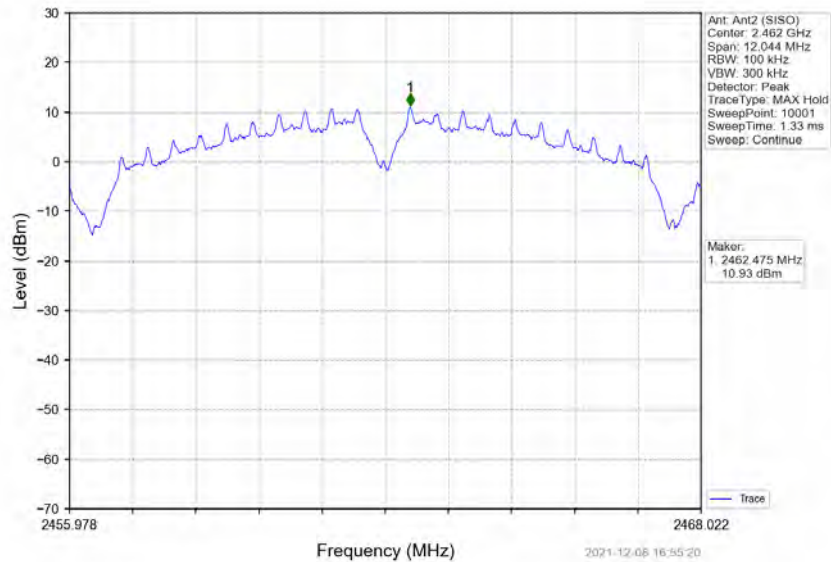
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802.11b\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



802.11b\_HCH\_2462MHz\_Ant2 (SISO)\_NTNV



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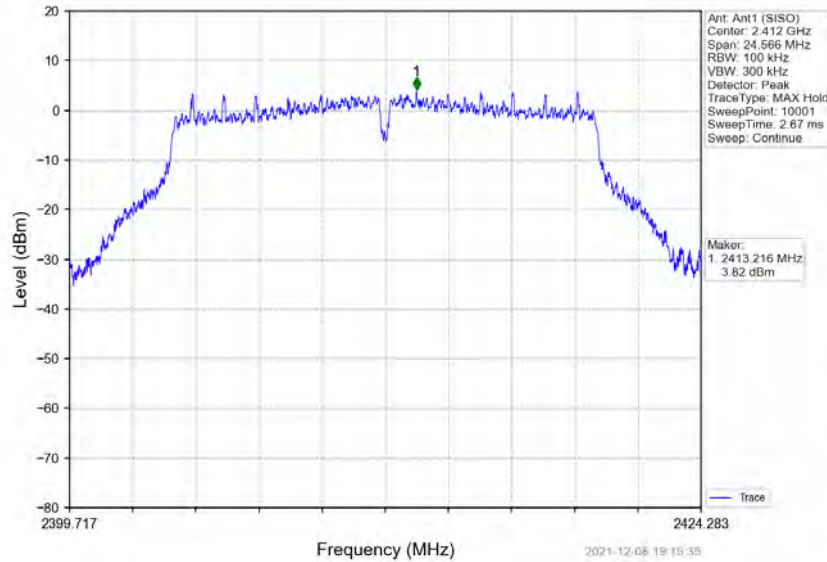
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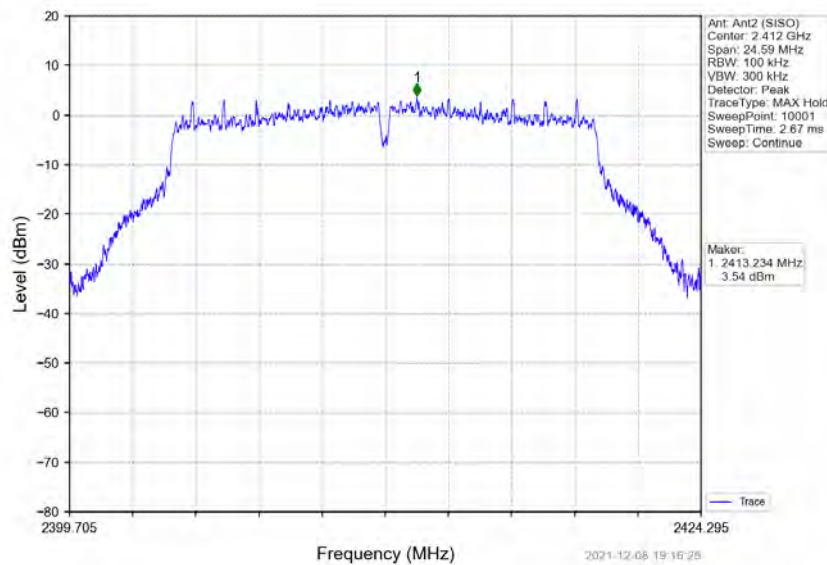
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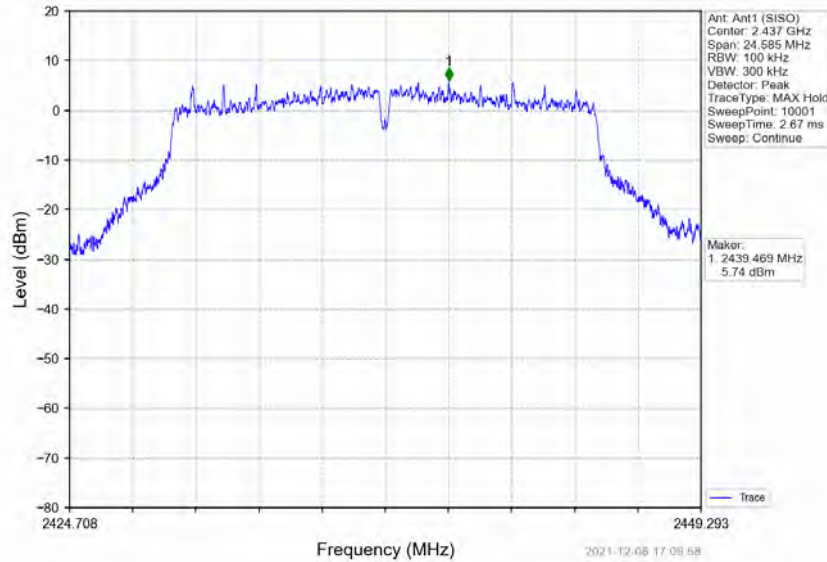
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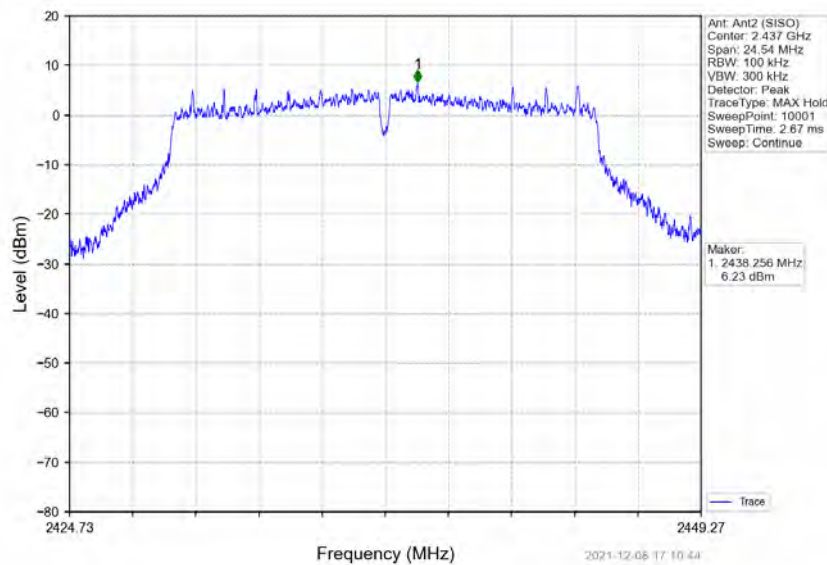
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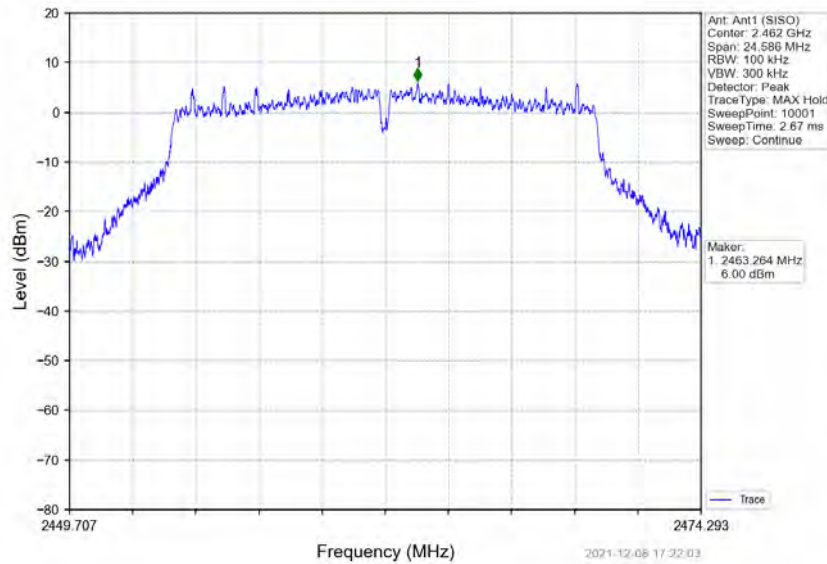
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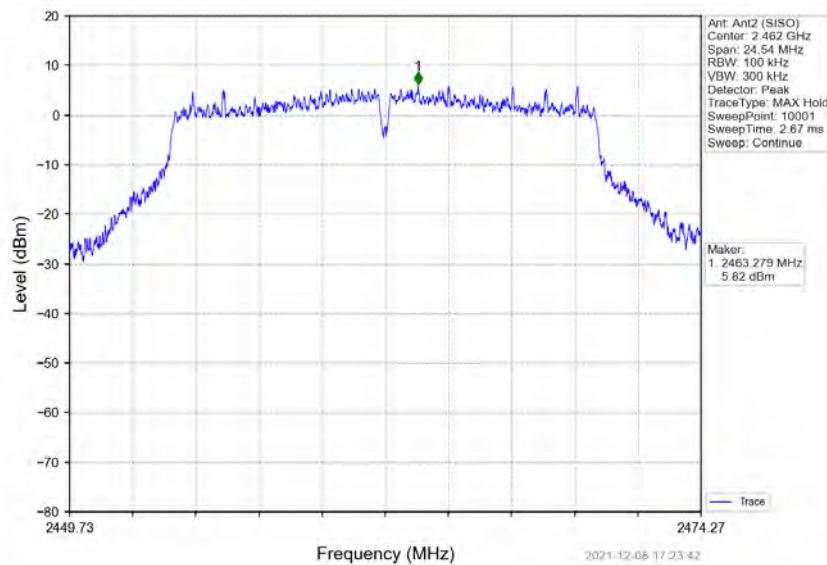
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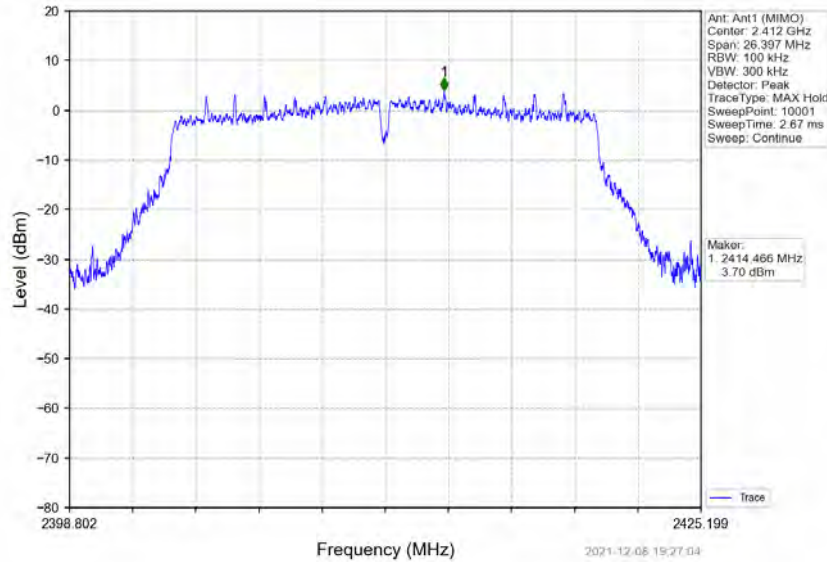
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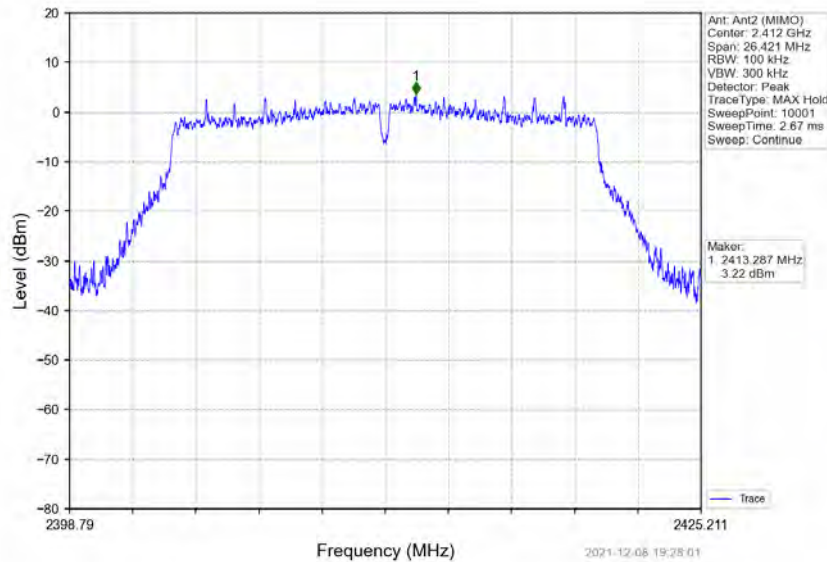
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802.11n(HT20)\_LCH\_2412MHz\_Ant1 (MIMO)\_NTNV



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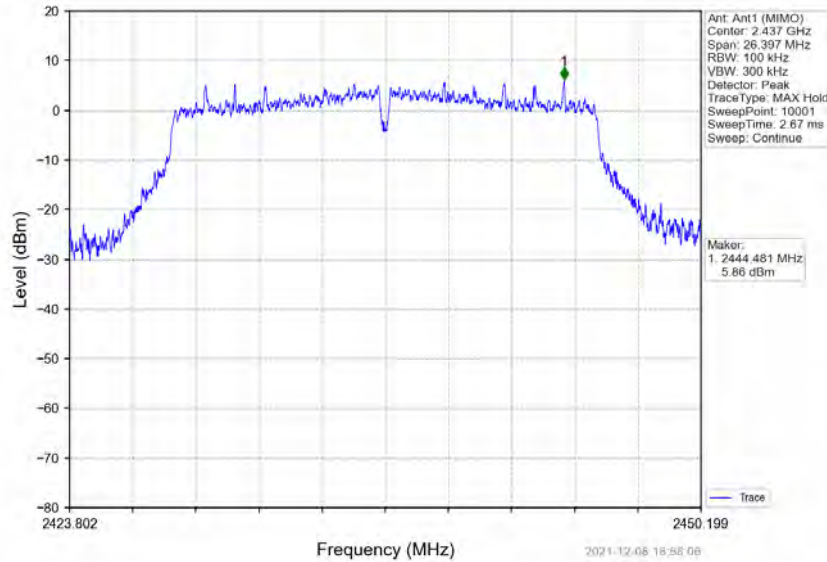
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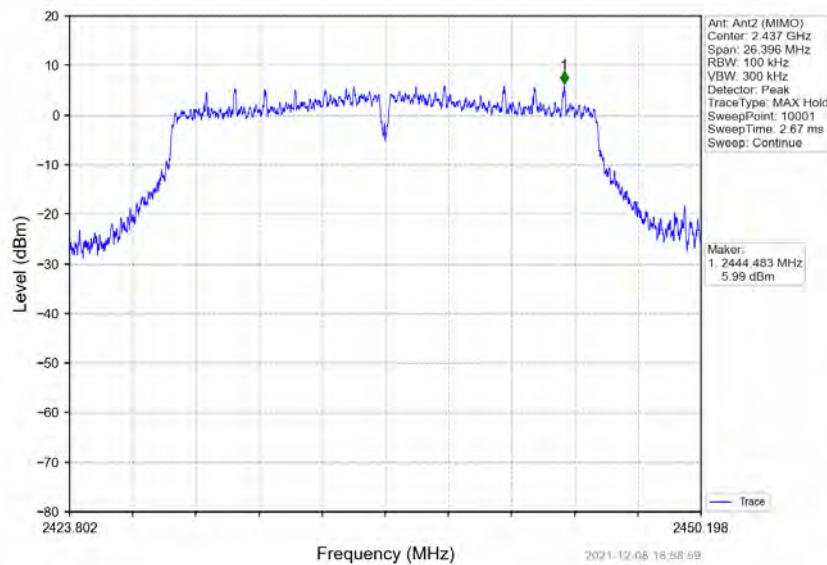
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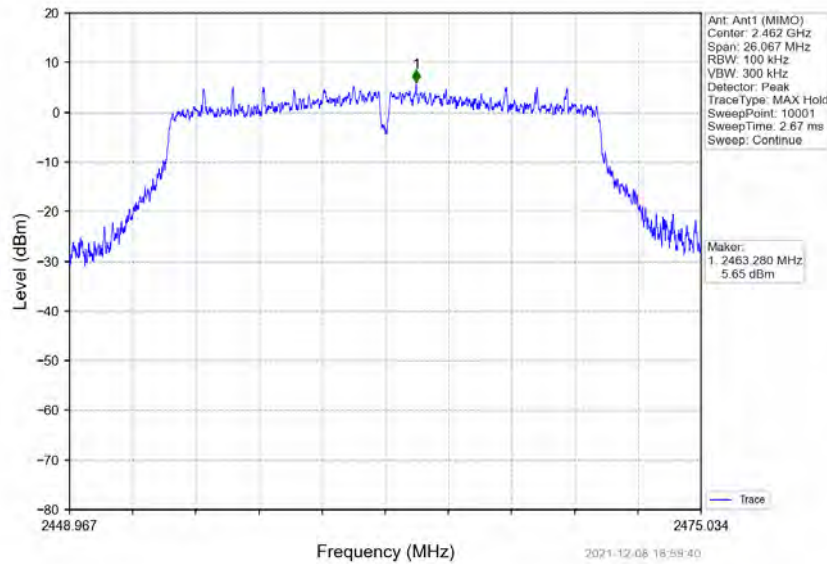
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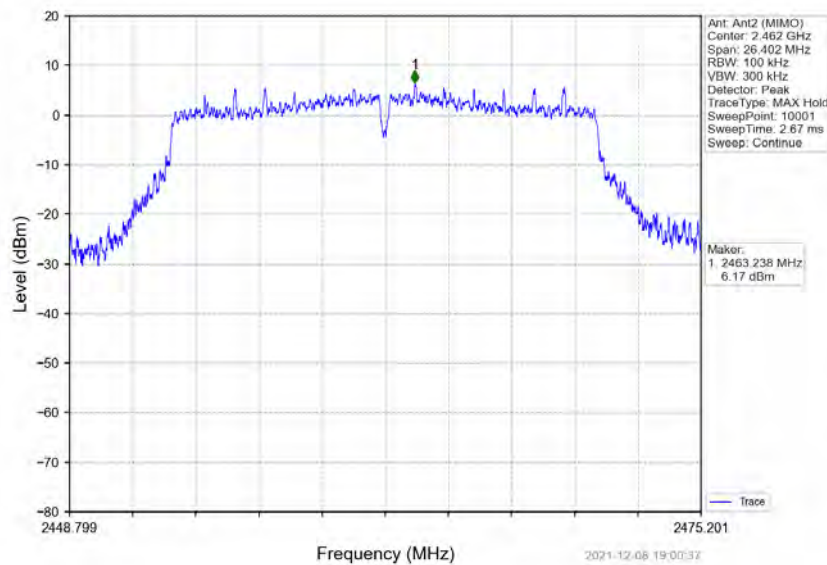
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5.2 CSE

5.2.1 Test Result

Mode	TX Type	Frequency (MHz)	Ant	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	10.41	-19.59	Pass
			2	10.93	-19.07	Pass
		2437	1	10.41	-19.59	Pass
			2	10.93	-19.07	Pass
		2462	1	10.41	-19.59	Pass
			2	10.93	-19.07	Pass
802.11g	SISO	2412	1	6.00	-24.00	Pass
			2	6.23	-23.77	Pass
		2437	1	6.00	-24.00	Pass
			2	6.23	-23.77	Pass
		2462	1	6.00	-24.00	Pass
			2	6.23	-23.77	Pass
802.11n (HT20)	MIMO	2412	1	5.86	-24.14	Pass
			2	6.17	-23.83	Pass
		2437	1	5.86	-24.14	Pass
			2	6.17	-23.83	Pass
		2462	1	5.86	-24.14	Pass
			2	6.17	-23.83	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.

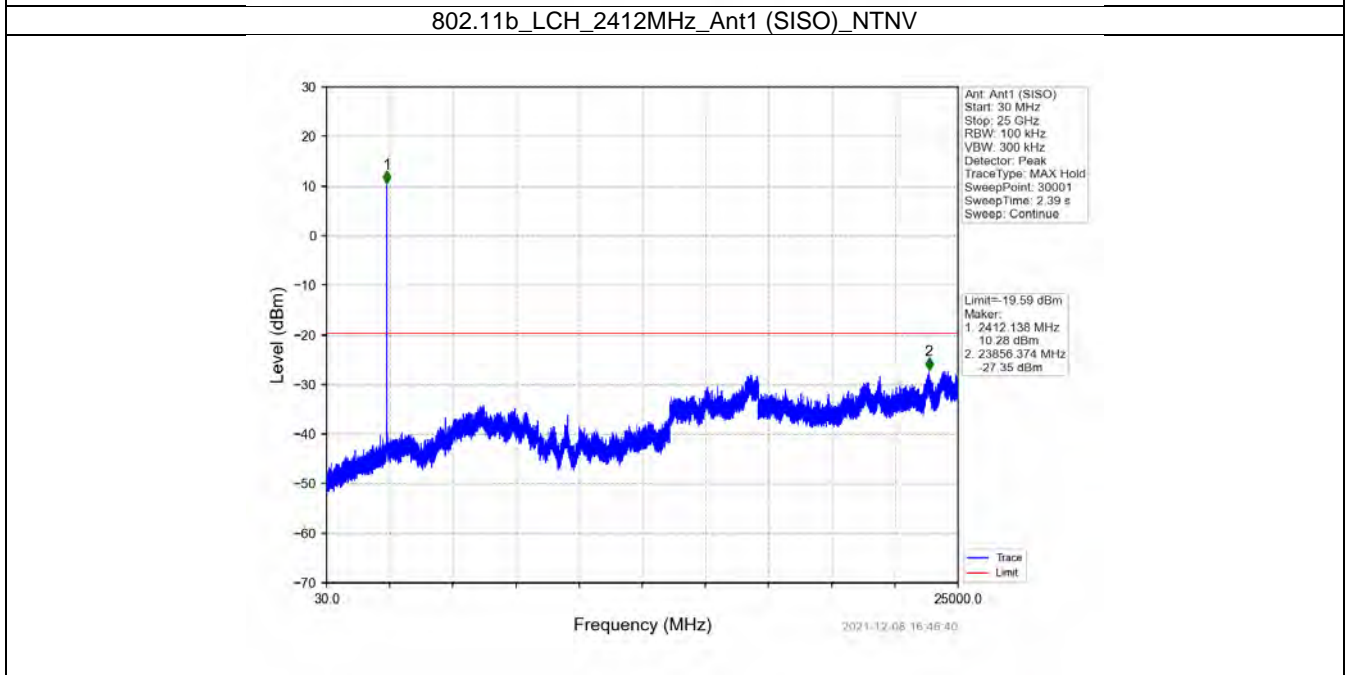
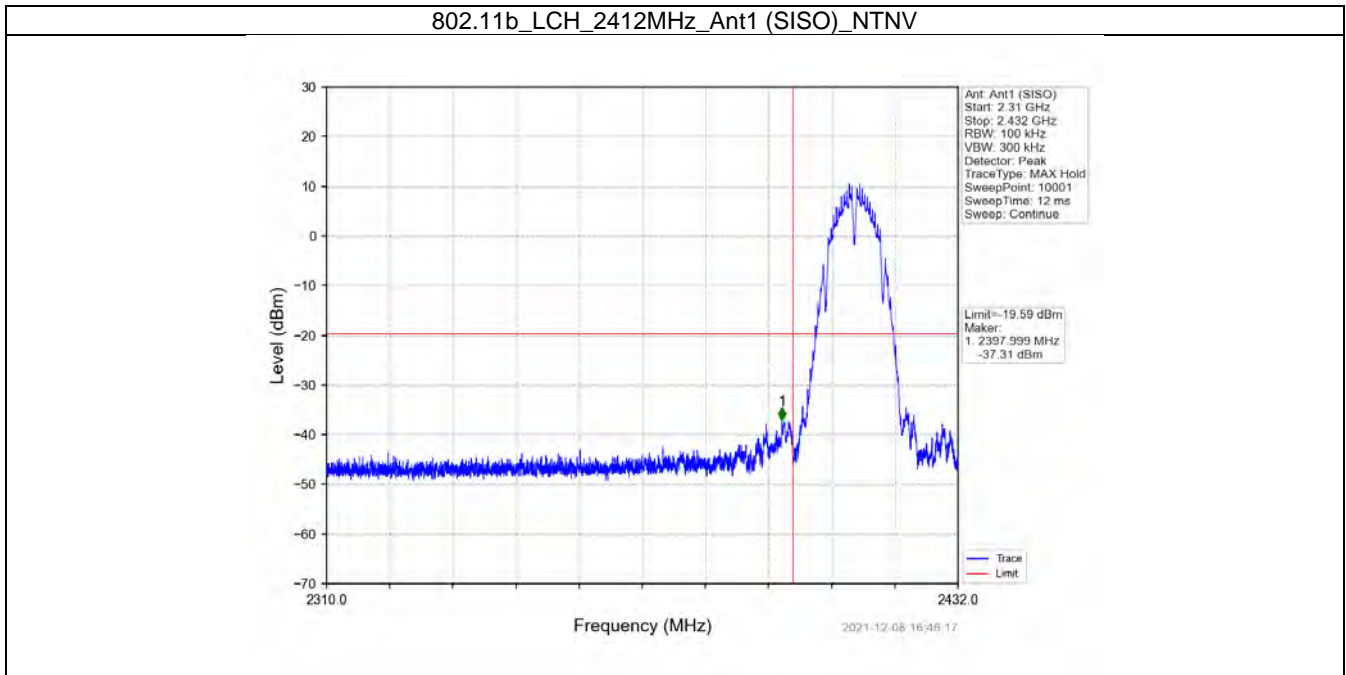
Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.



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5.2.2 Test Graph



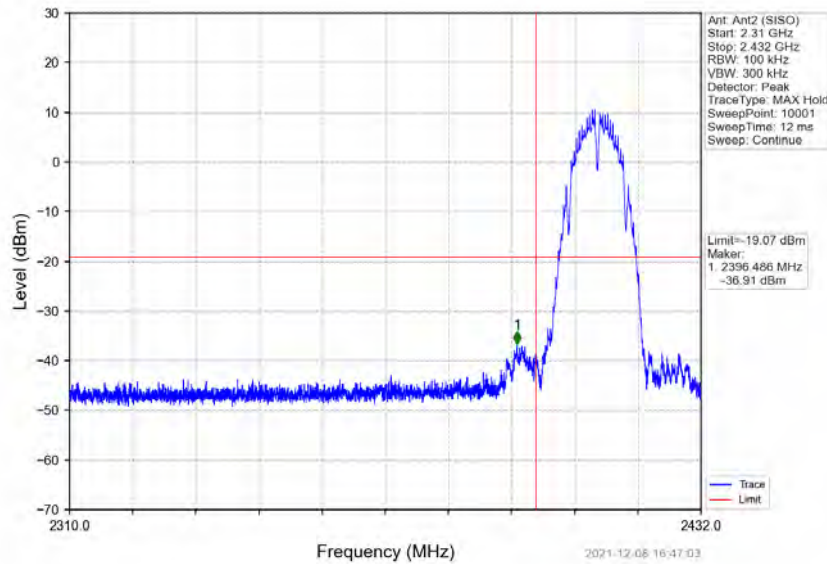
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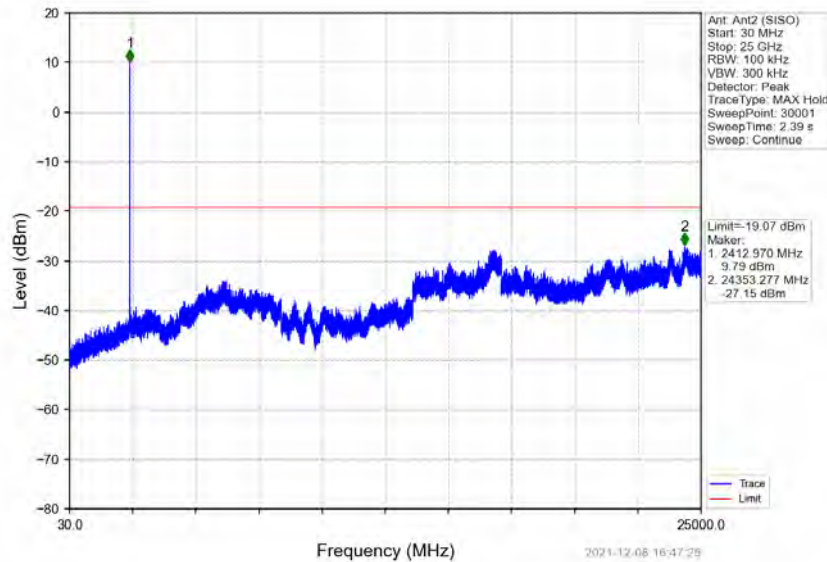
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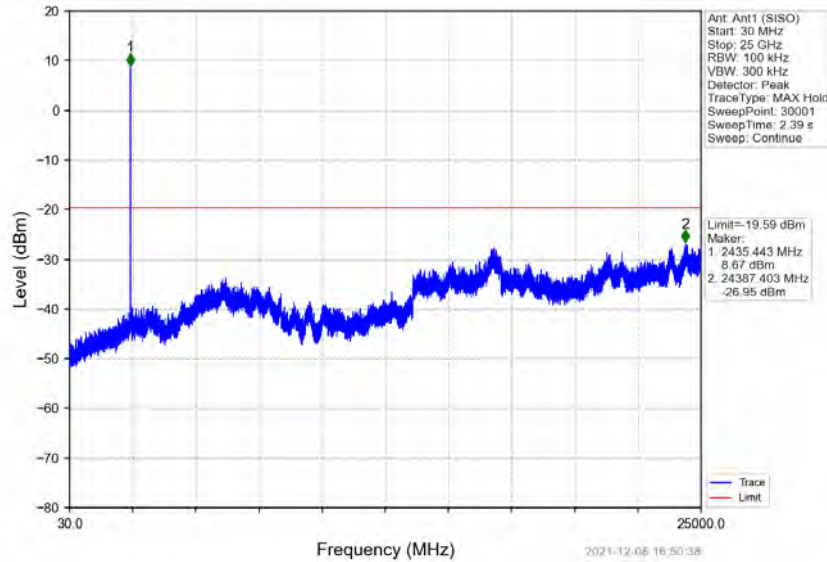
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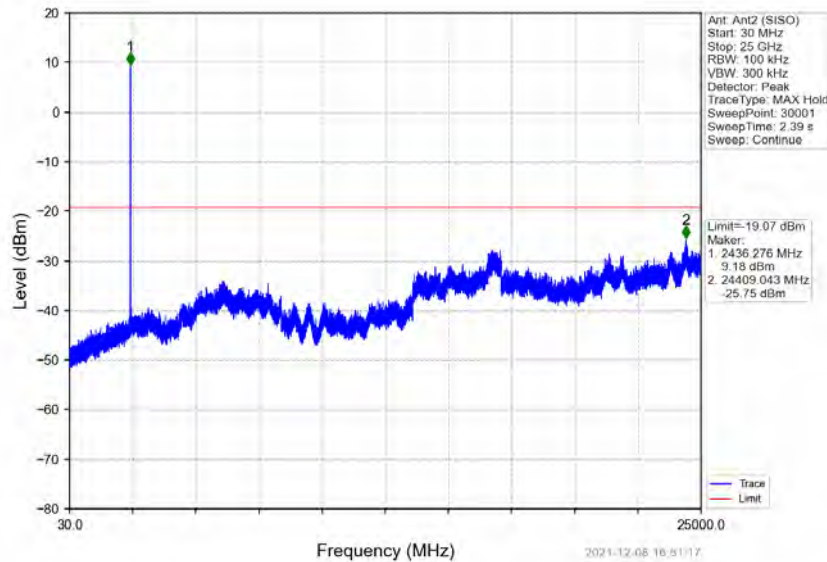
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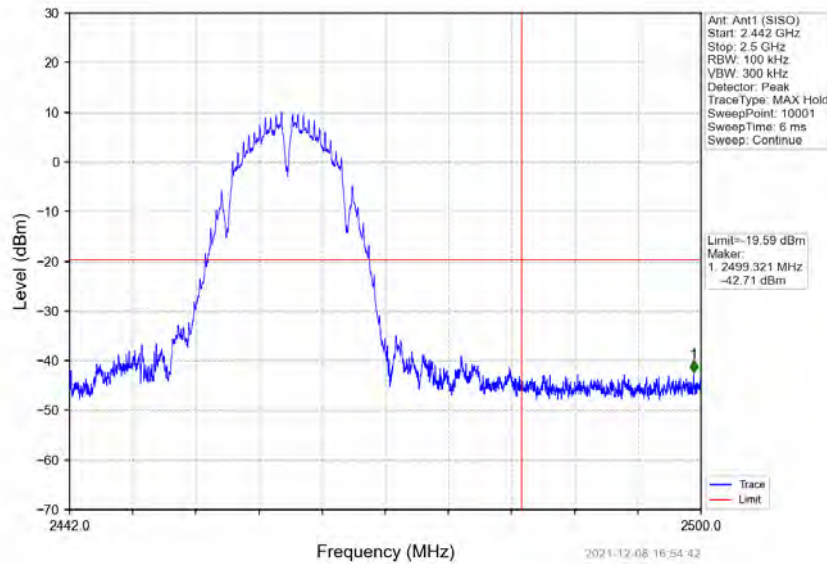
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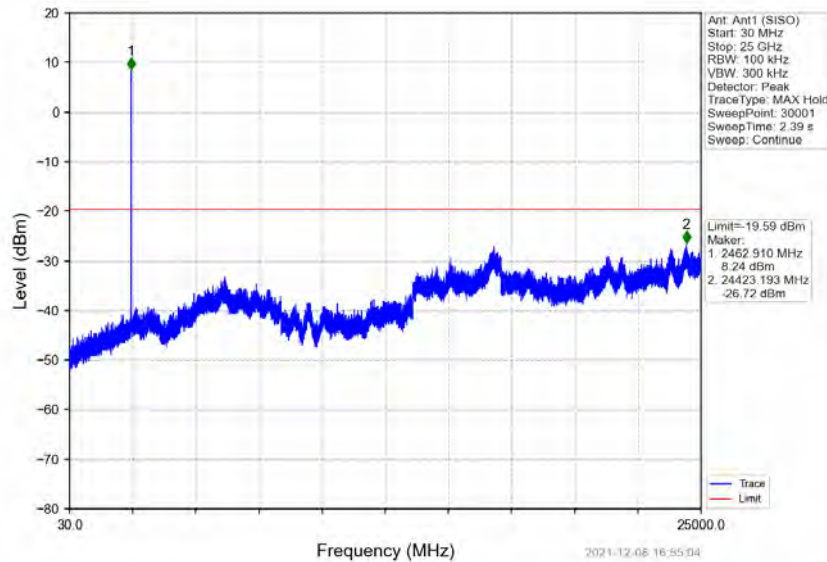
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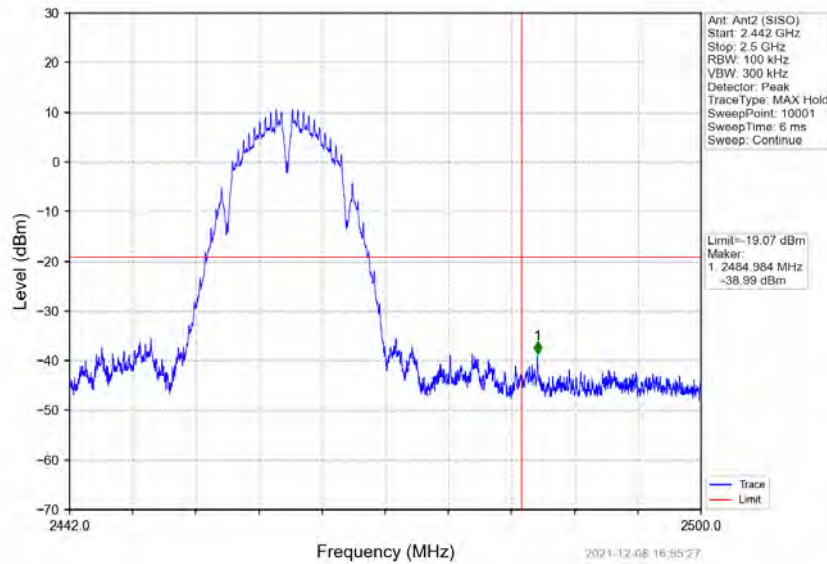
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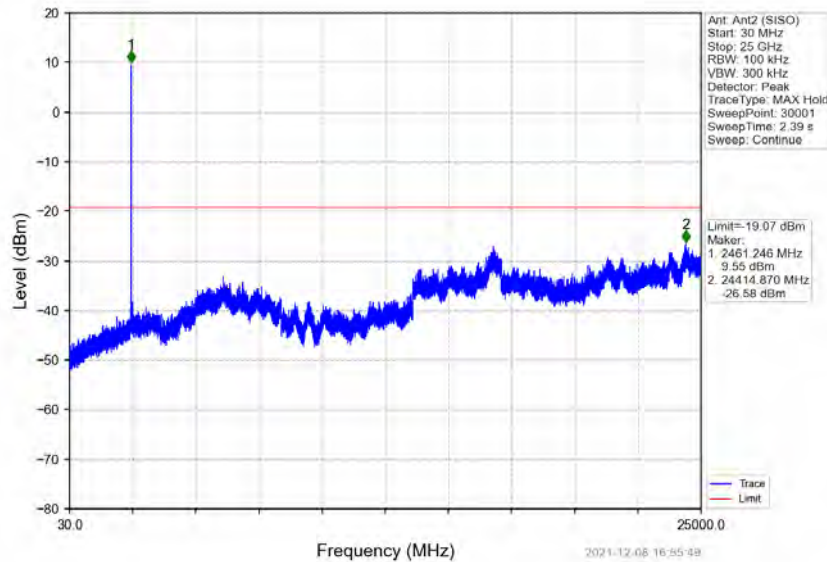
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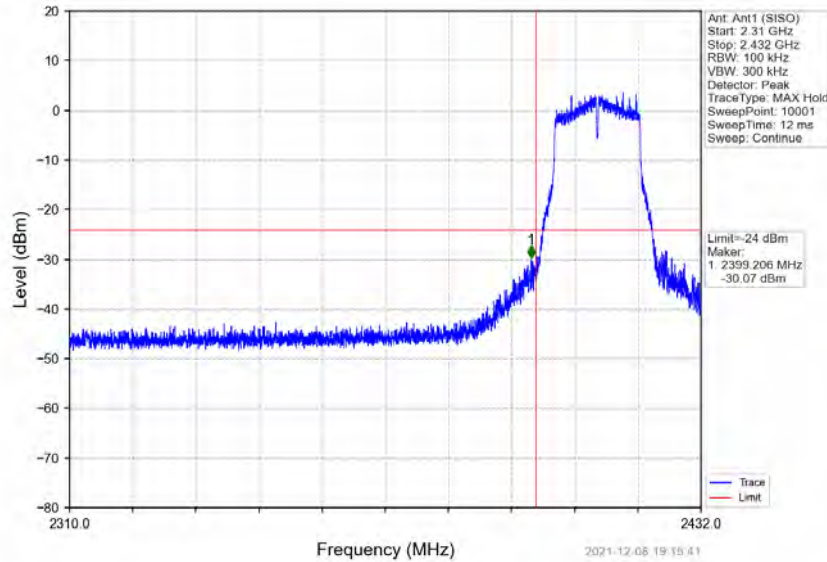
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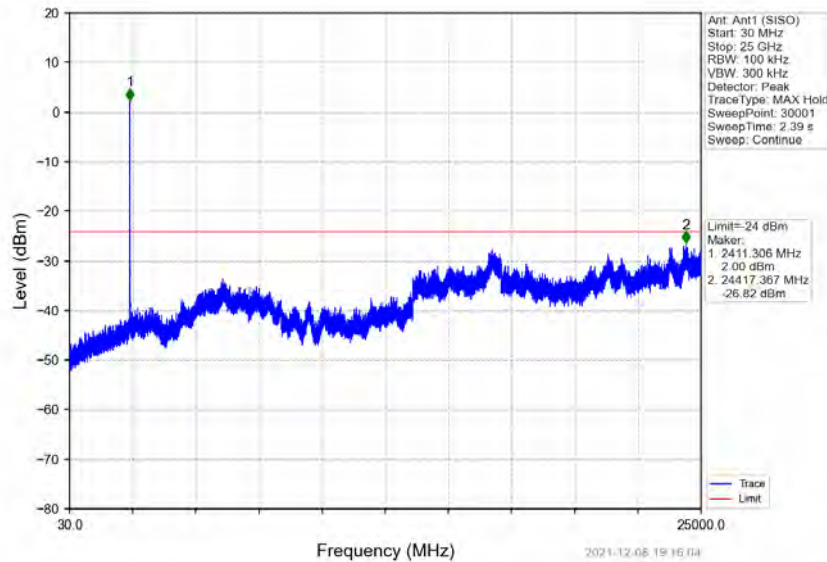
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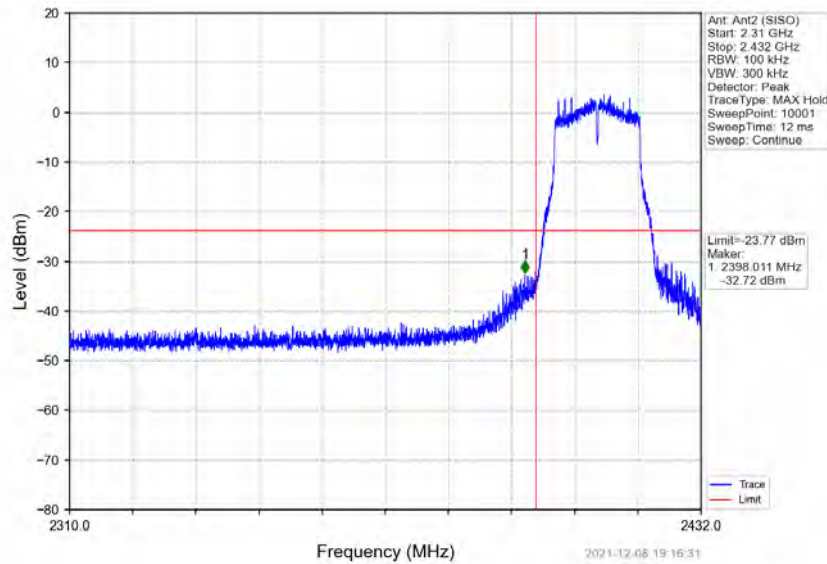
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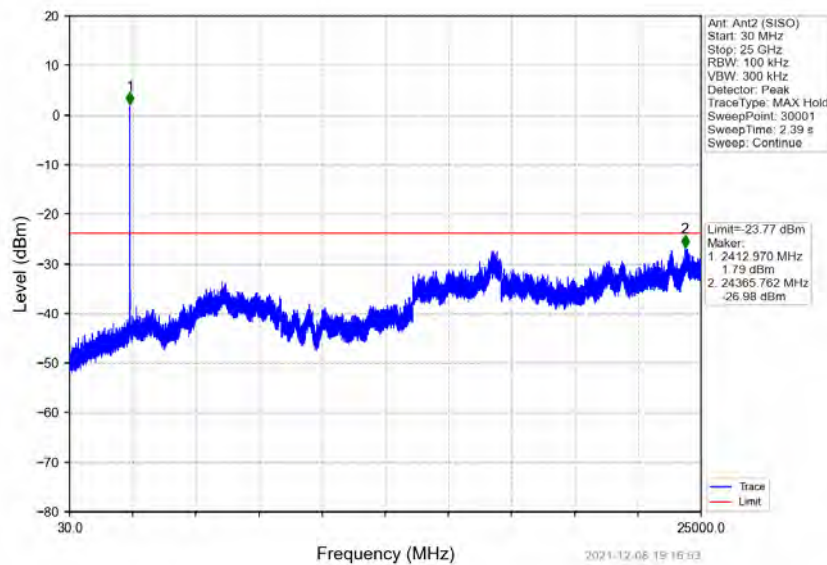
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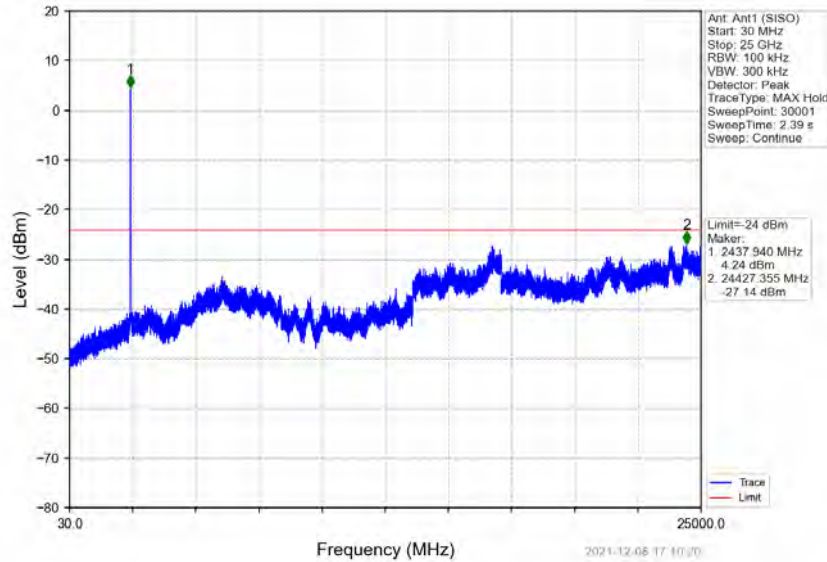
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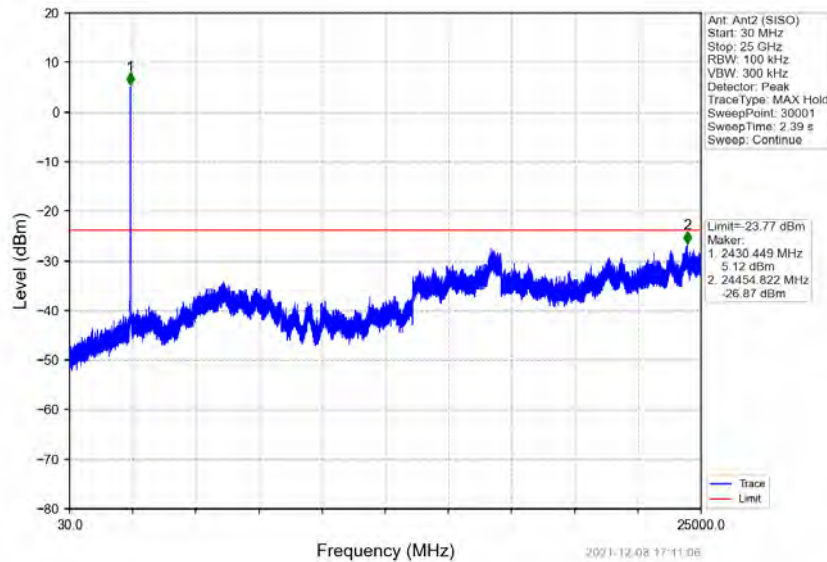




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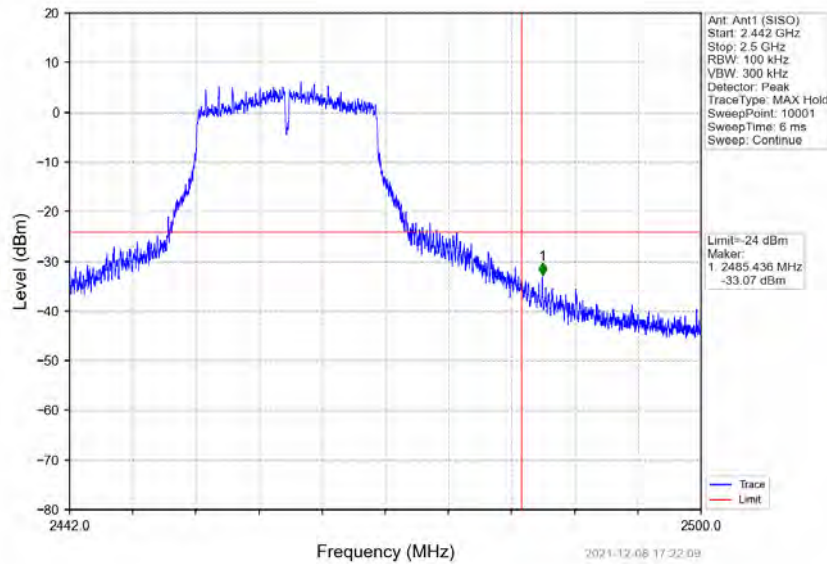
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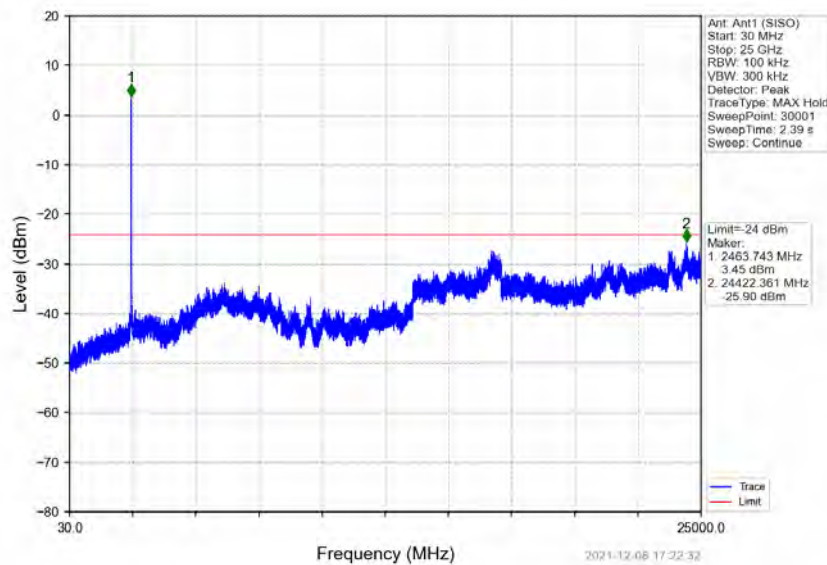
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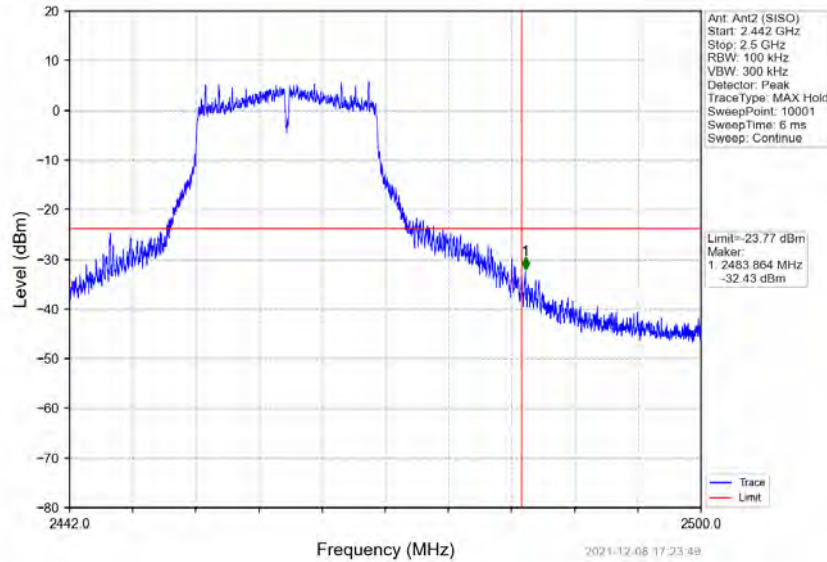
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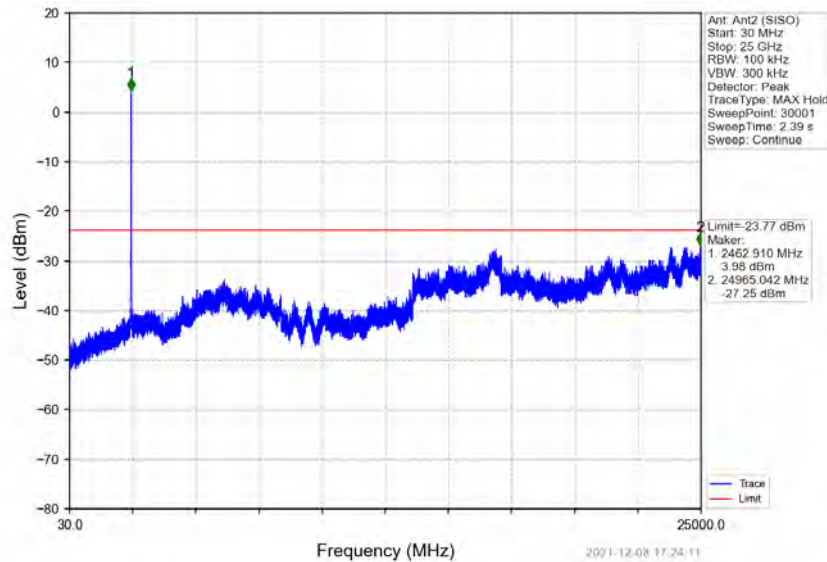
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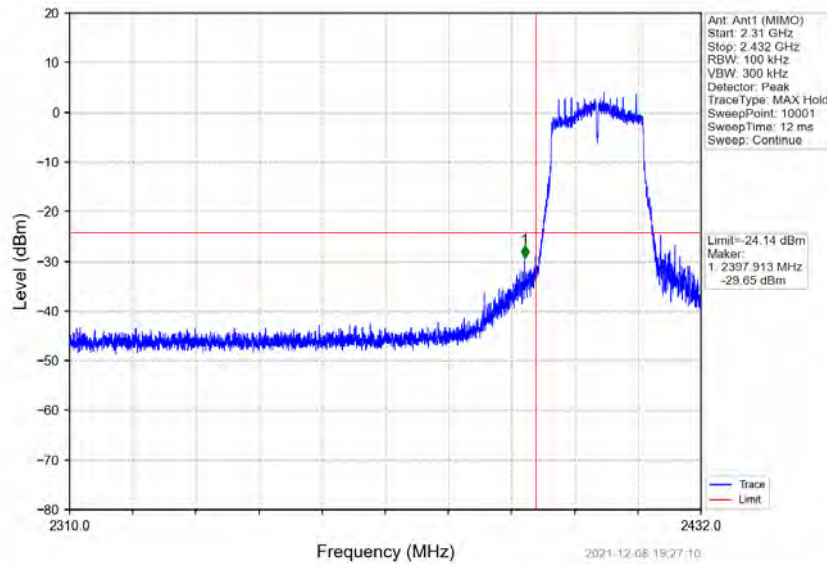
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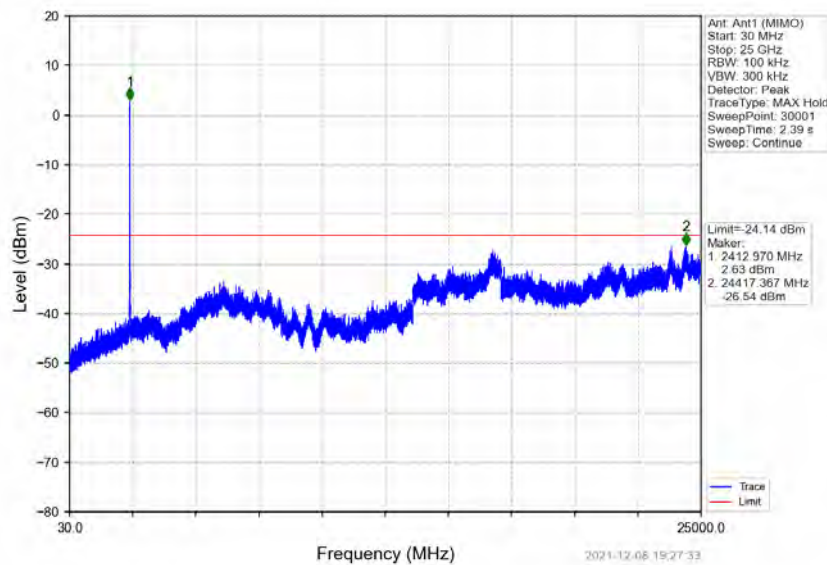
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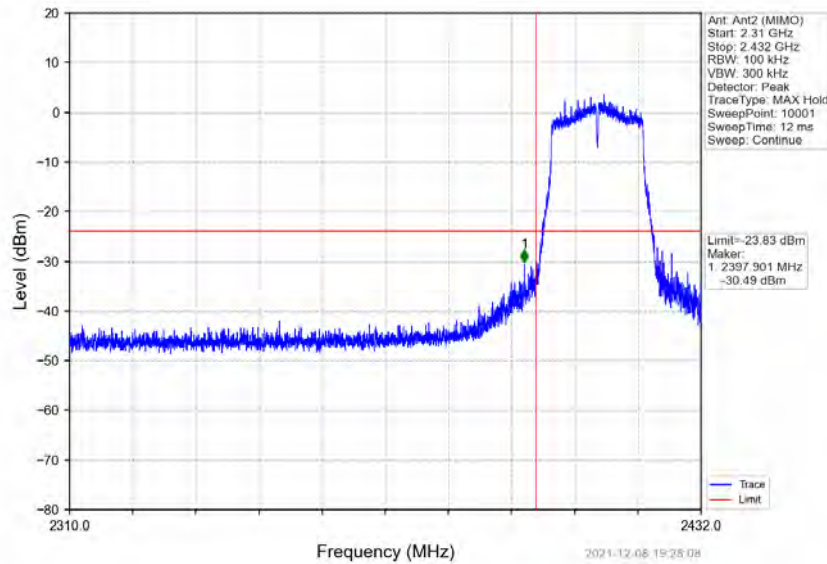
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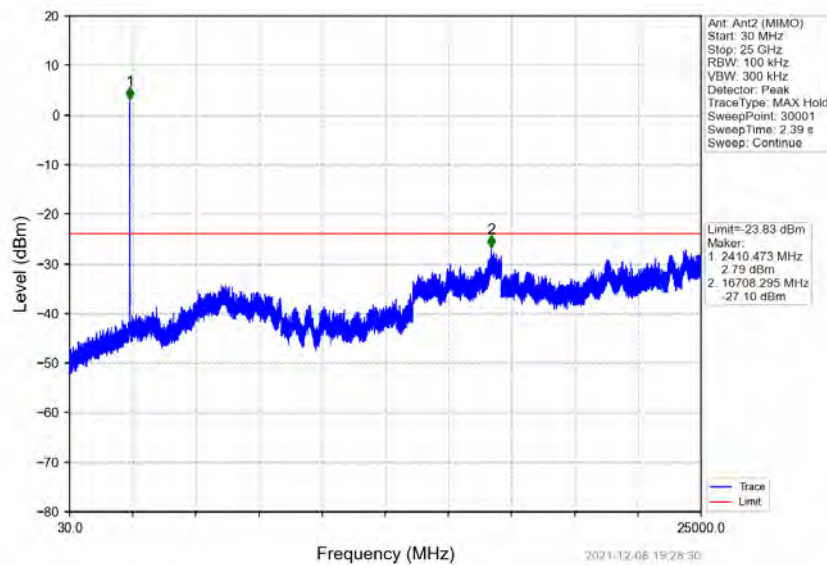
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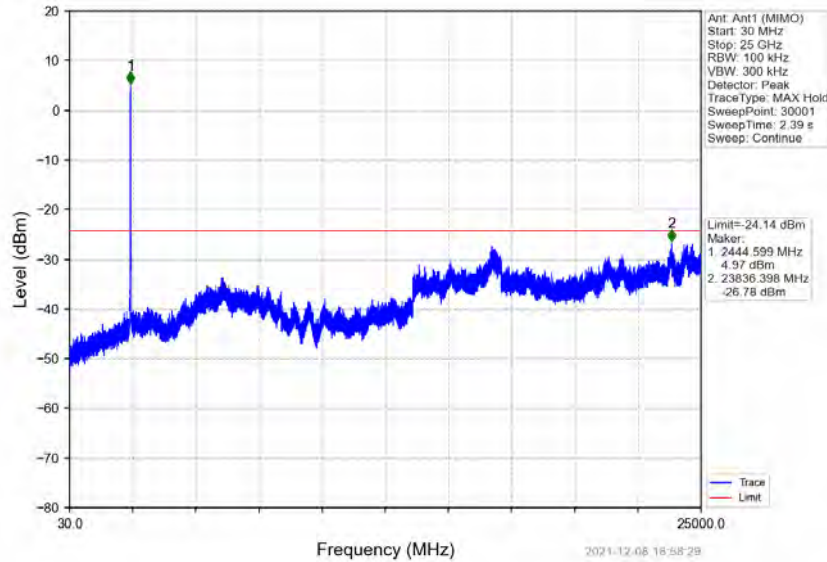
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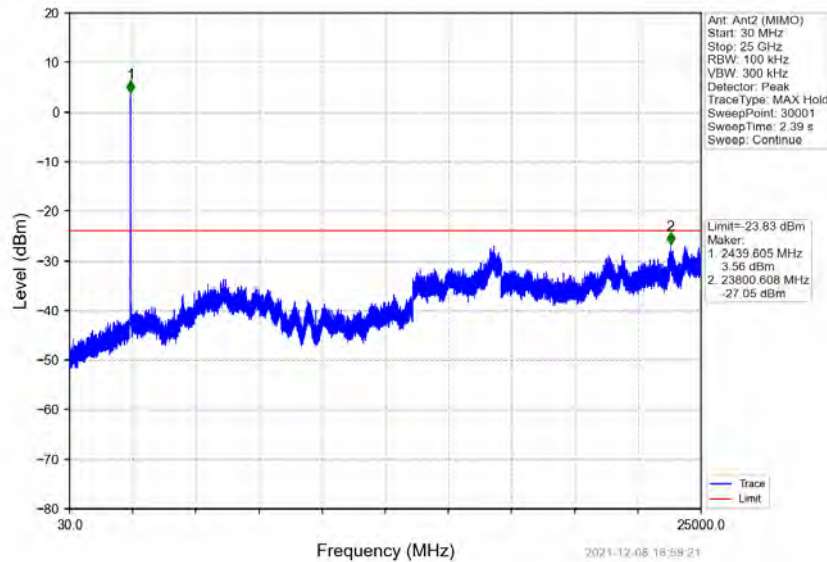
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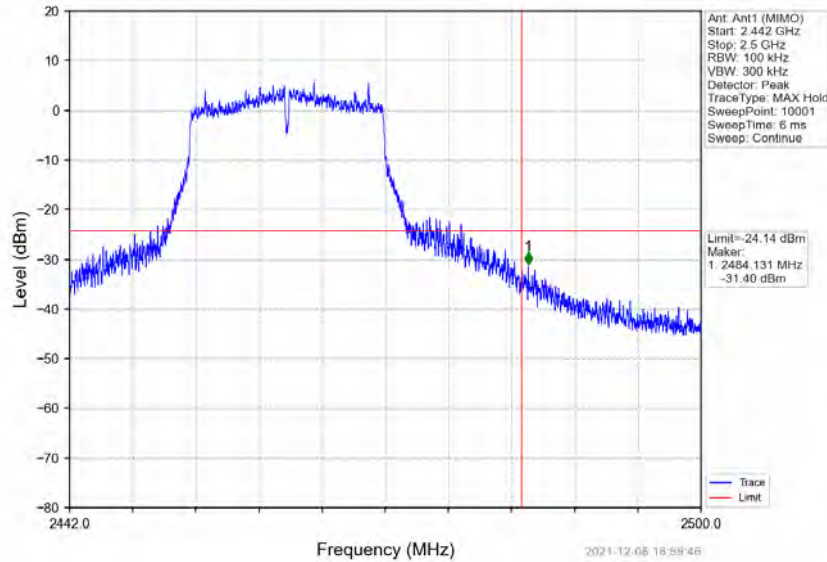


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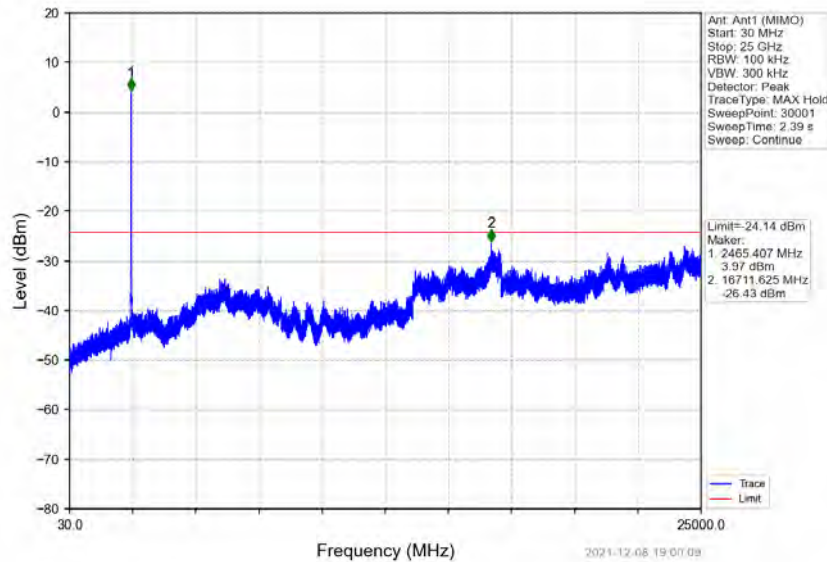
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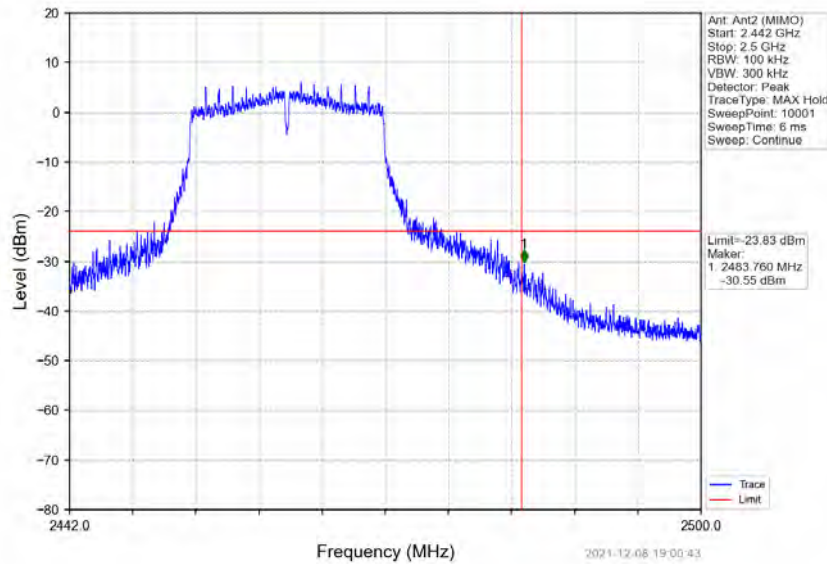
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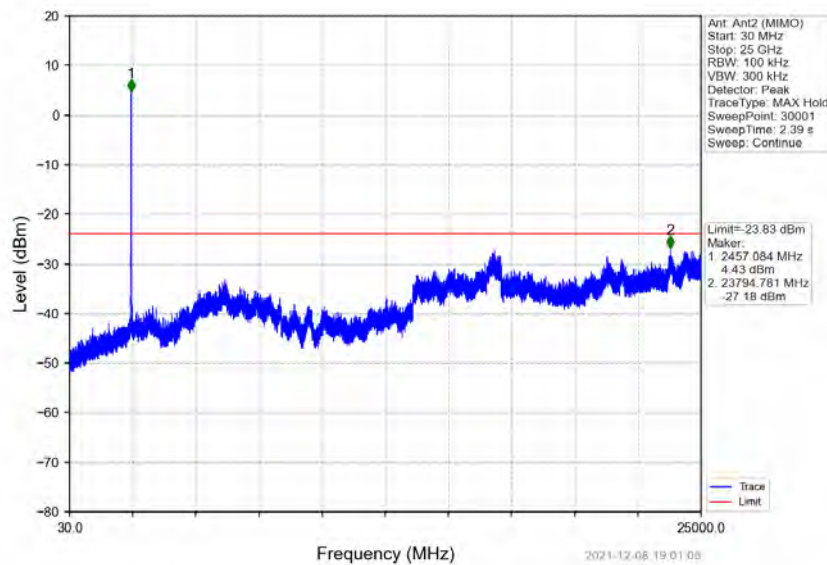
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