

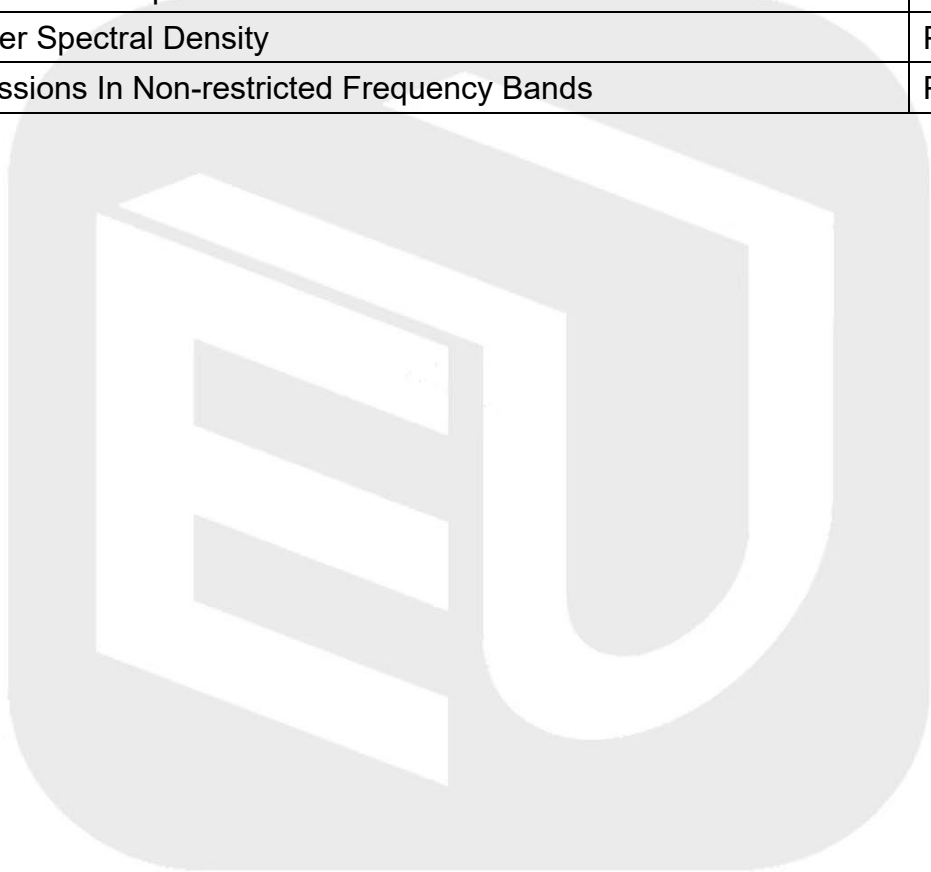
ANNEX E TEST DATA

For

Project No.:	8134EU010302W
Client:	Autel Intelligent Technology Corp., Ltd.
Product Description:	ADAS Calibration Frame
Model No.:	IA700
FCC ID:	WQ8-DA2211
Technology:	WiFi 2.4G
Test Engineer:	<i>Mikoy zhu</i>
Test Date:	2023-11-17

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

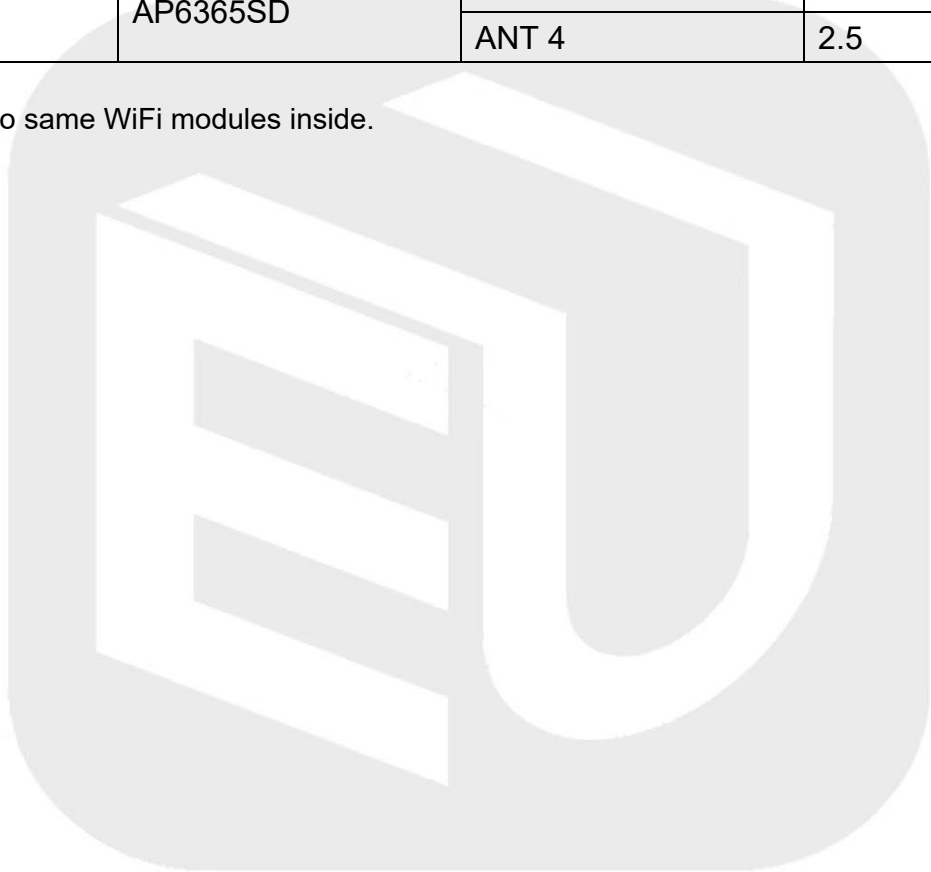


Description of Module

WiFi Module	Module No.	ANT No.	Antenna Gain
WiFi Module 1	AP6365SD	ANT 1	3.4
		ANT 2	2.5
WiFi Module 2	AP6365SD	ANT 3	2.5
		ANT 4	2.5

Note:

The EUT has two same WiFi modules inside.



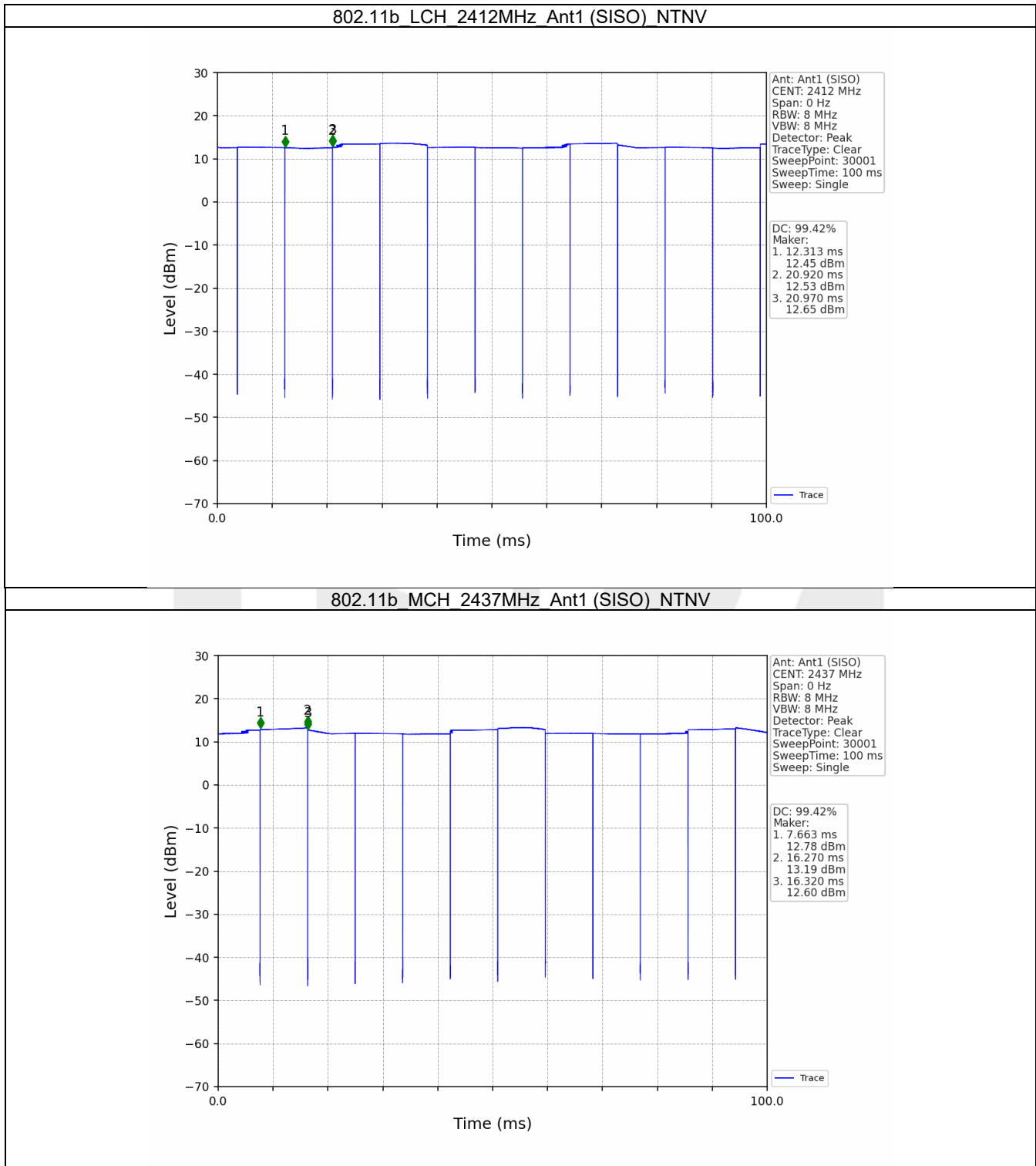
1. Duty Cycle

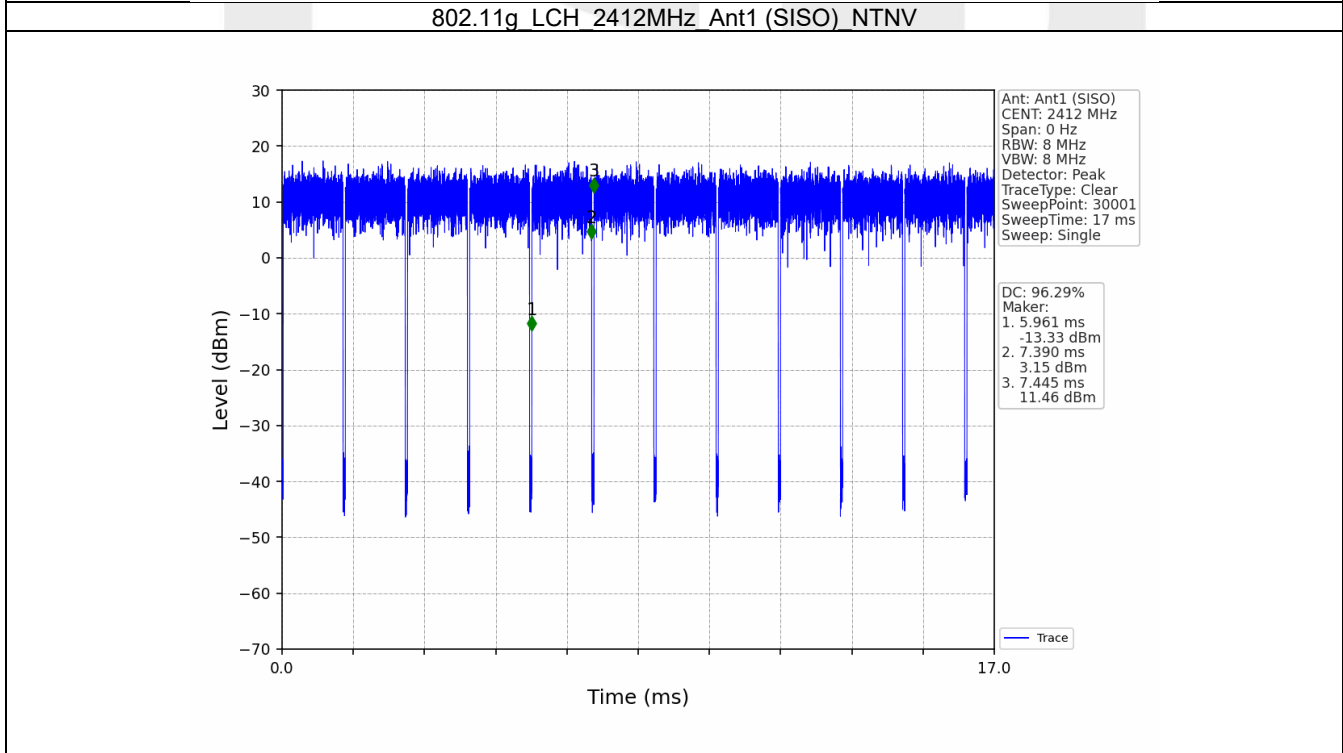
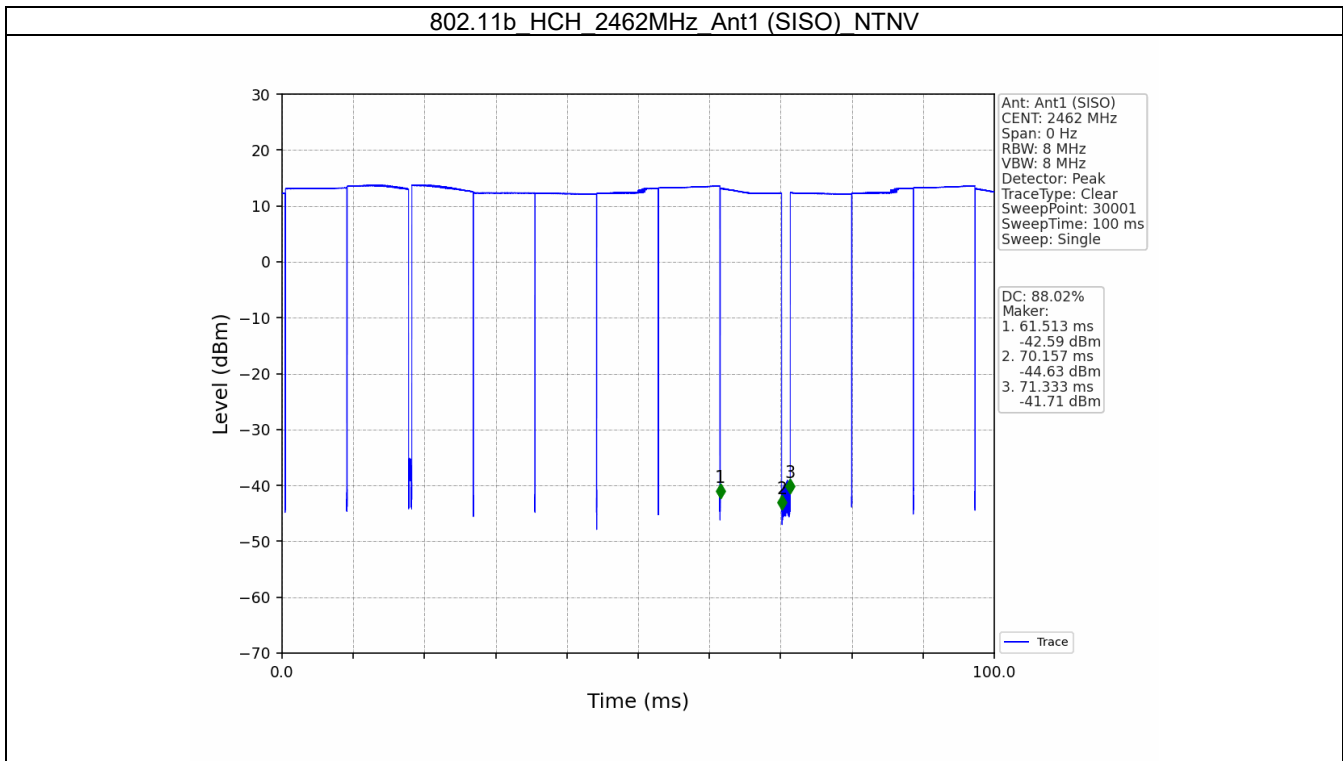
1.1 WiFi Module 1

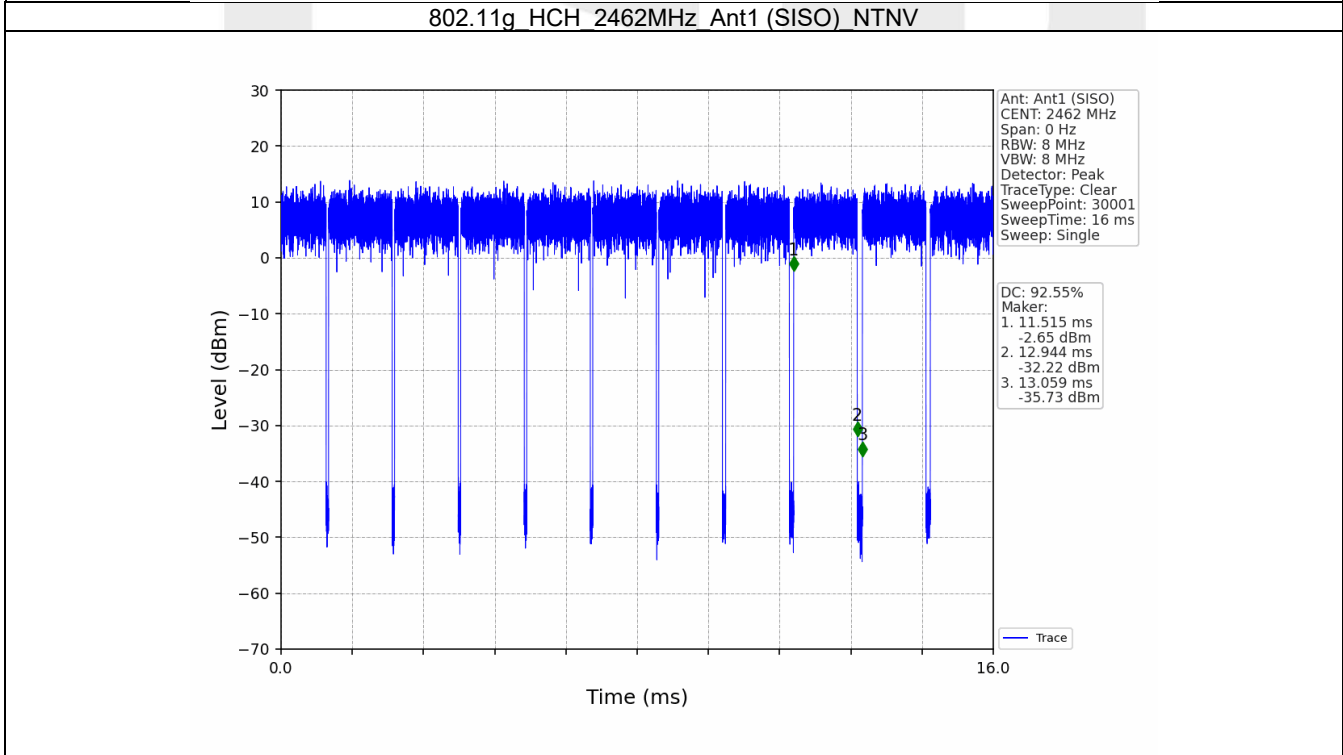
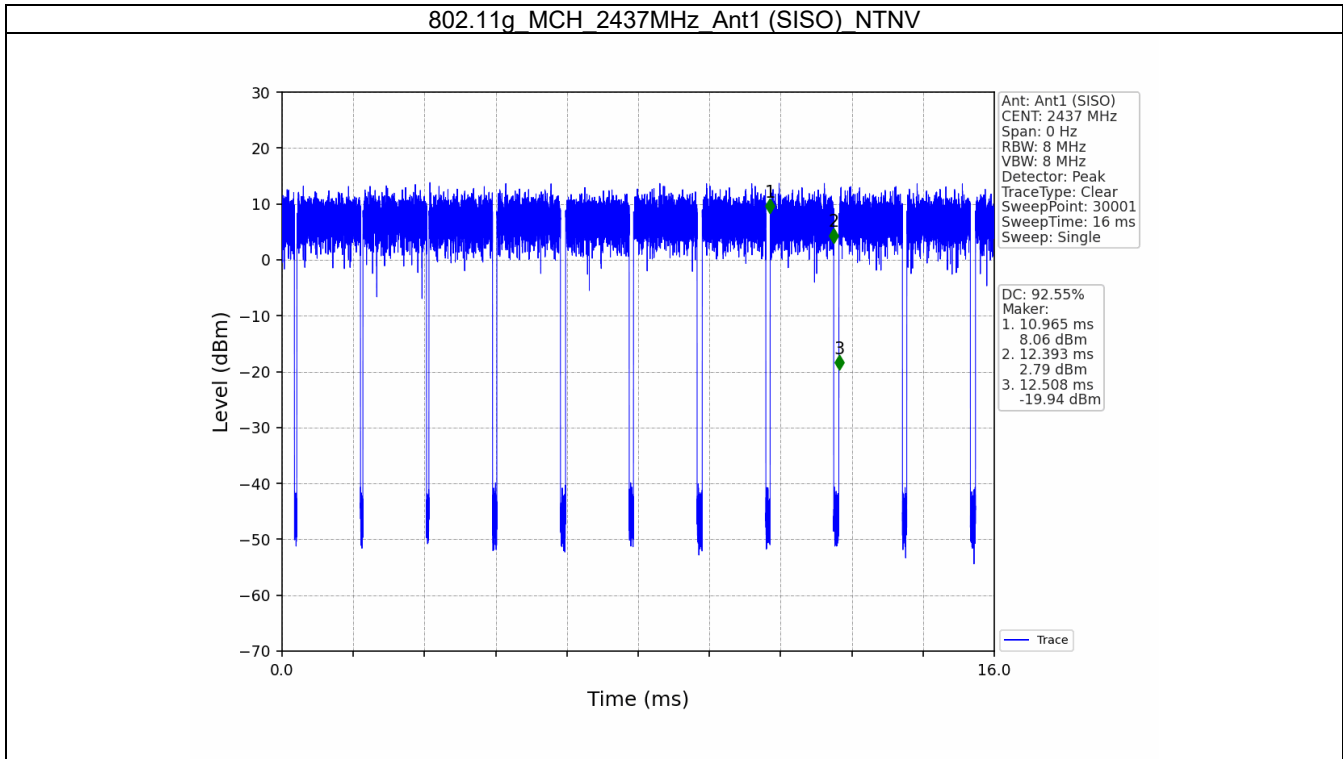
1.1.1 Test Result

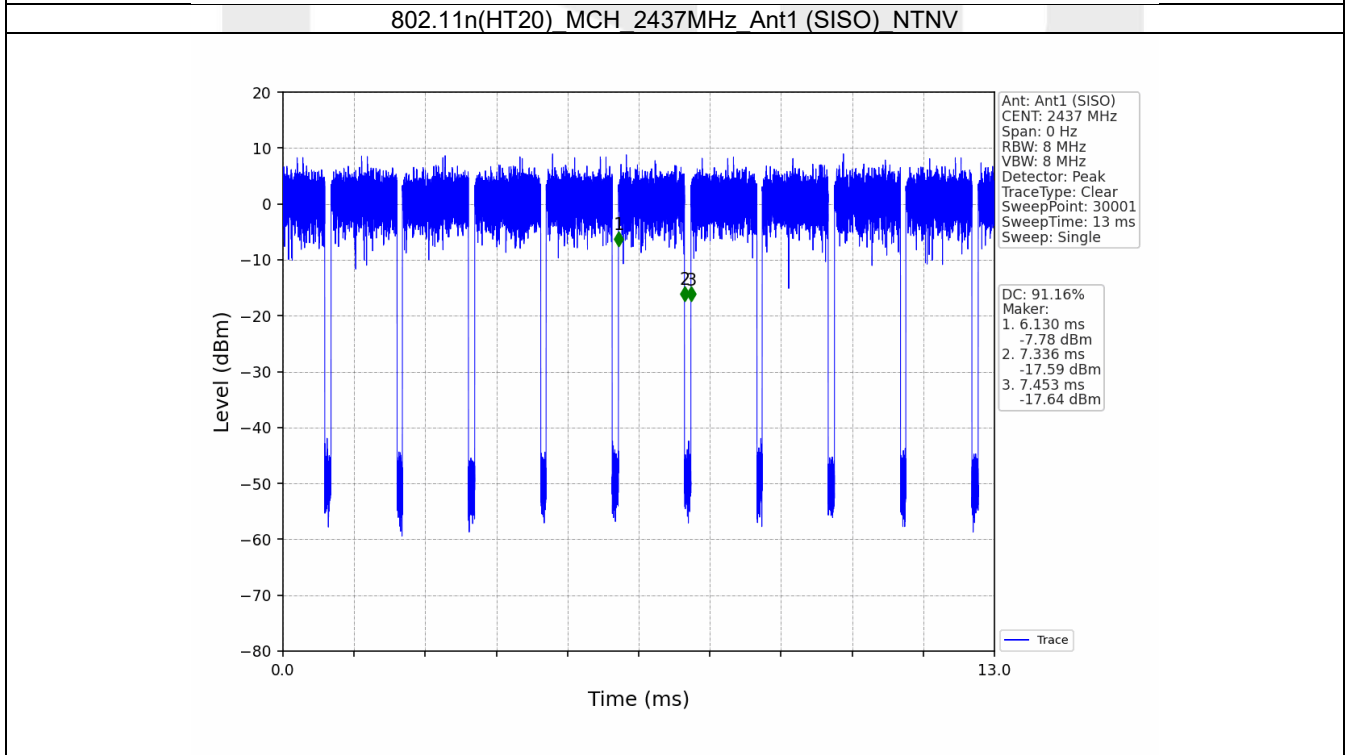
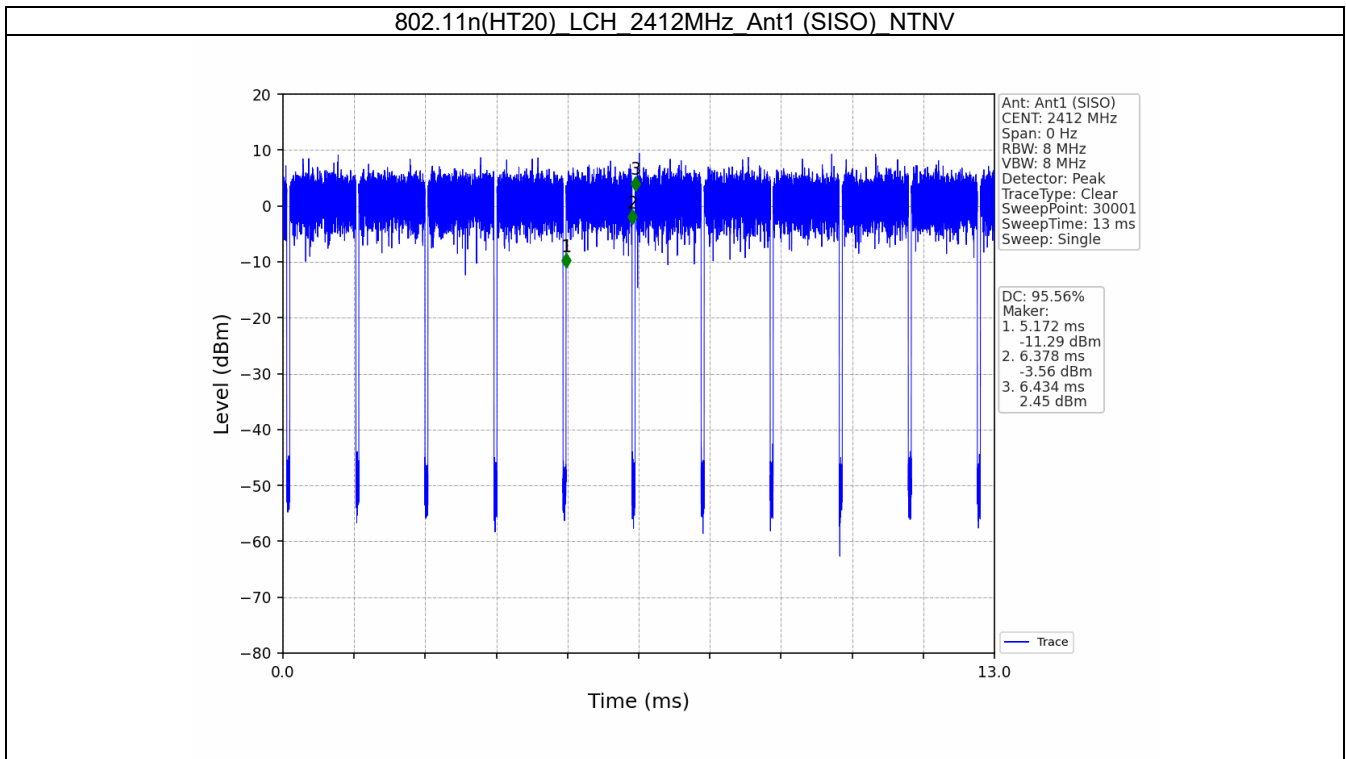
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	8.607	8.657	99.42	0.03	0.04
		2437	8.607	8.657	99.42	0.03	0.04
		2462	8.644	9.820	88.02	0.55	11.87
802.11g	SISO	2412	1.429	1.484	96.29	0.16	0.04
		2437	1.428	1.543	92.55	0.34	3.76
		2462	1.429	1.544	92.55	0.34	3.73
802.11n (HT20)	SISO	2412	1.206	1.262	95.56	0.20	0.03
		2437	1.207	1.324	91.16	0.40	1.58
		2462	1.207	1.308	92.28	0.35	3.38
802.11n (HT40)	SISO	2422	0.602	0.717	83.96	0.76	2.45
		2437	0.602	0.717	83.96	0.76	2.45
		2452	0.602	0.717	83.96	0.76	2.45

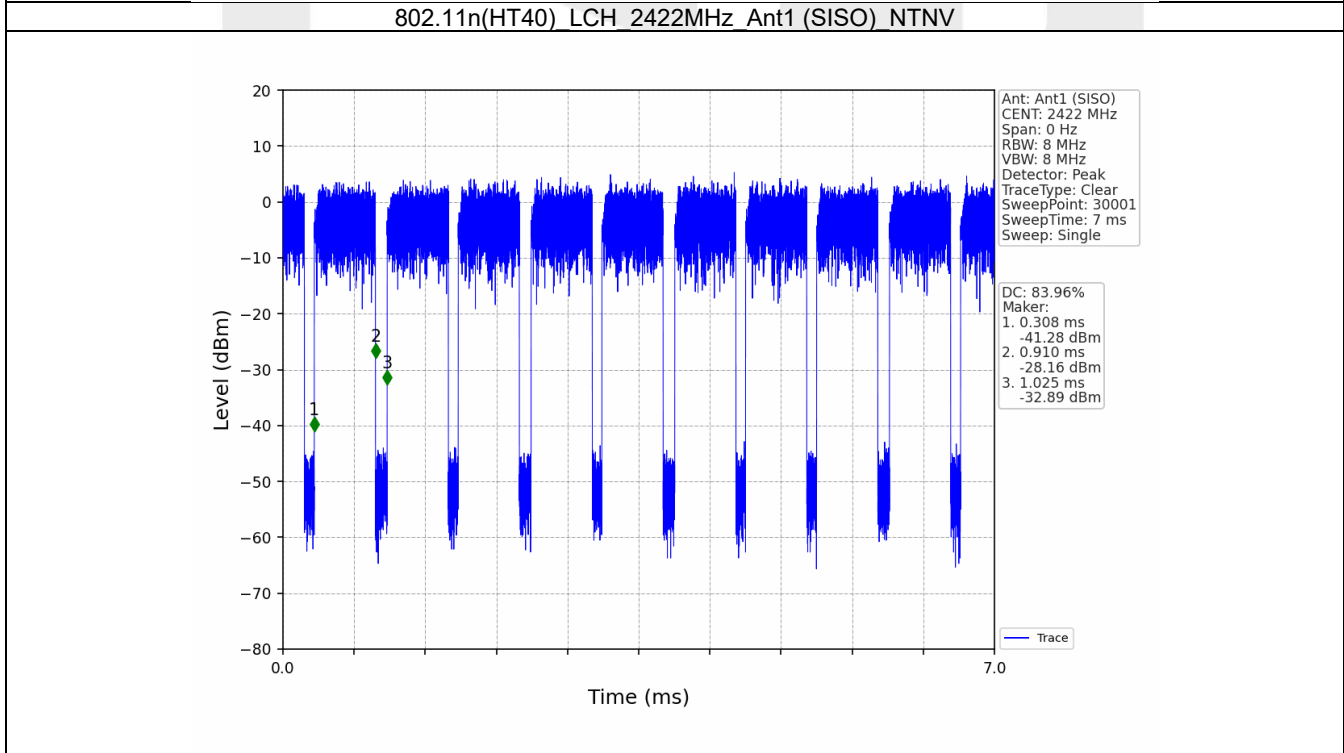
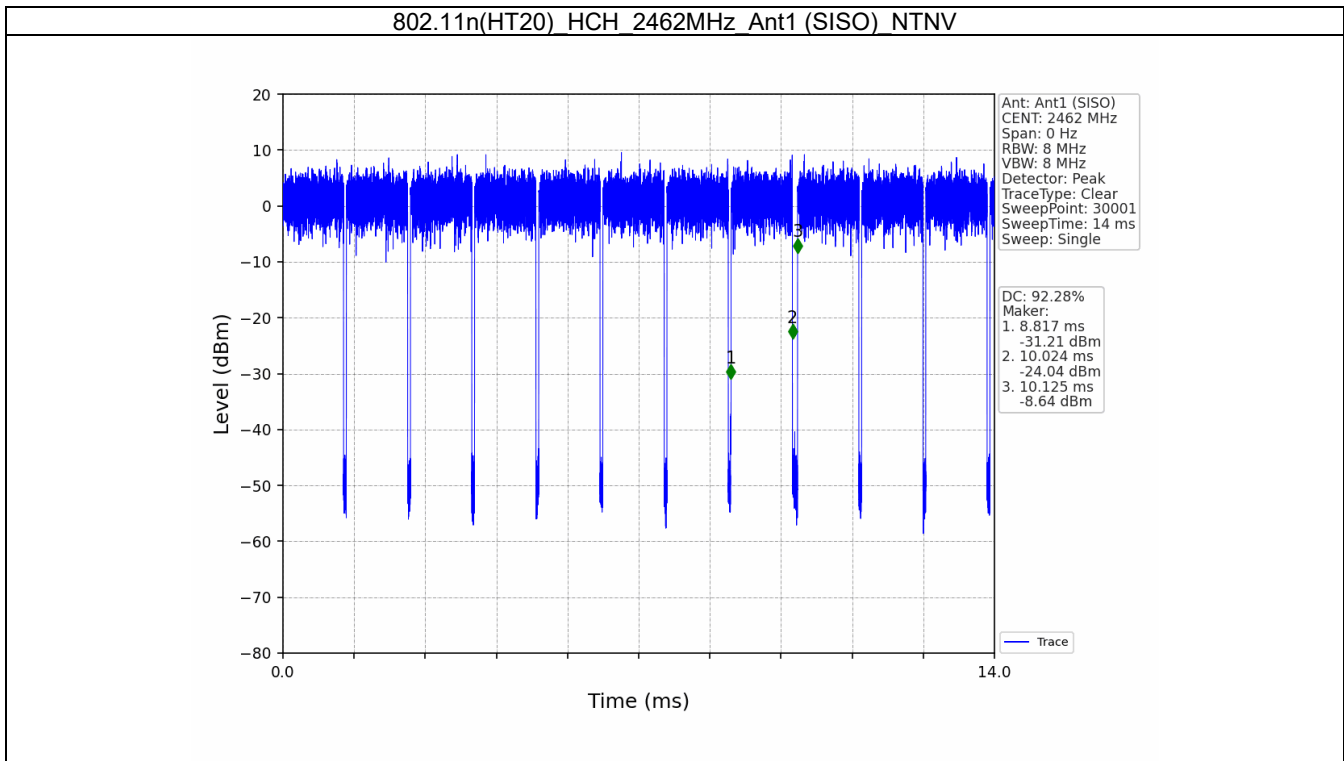
1.1.2 Test Graph

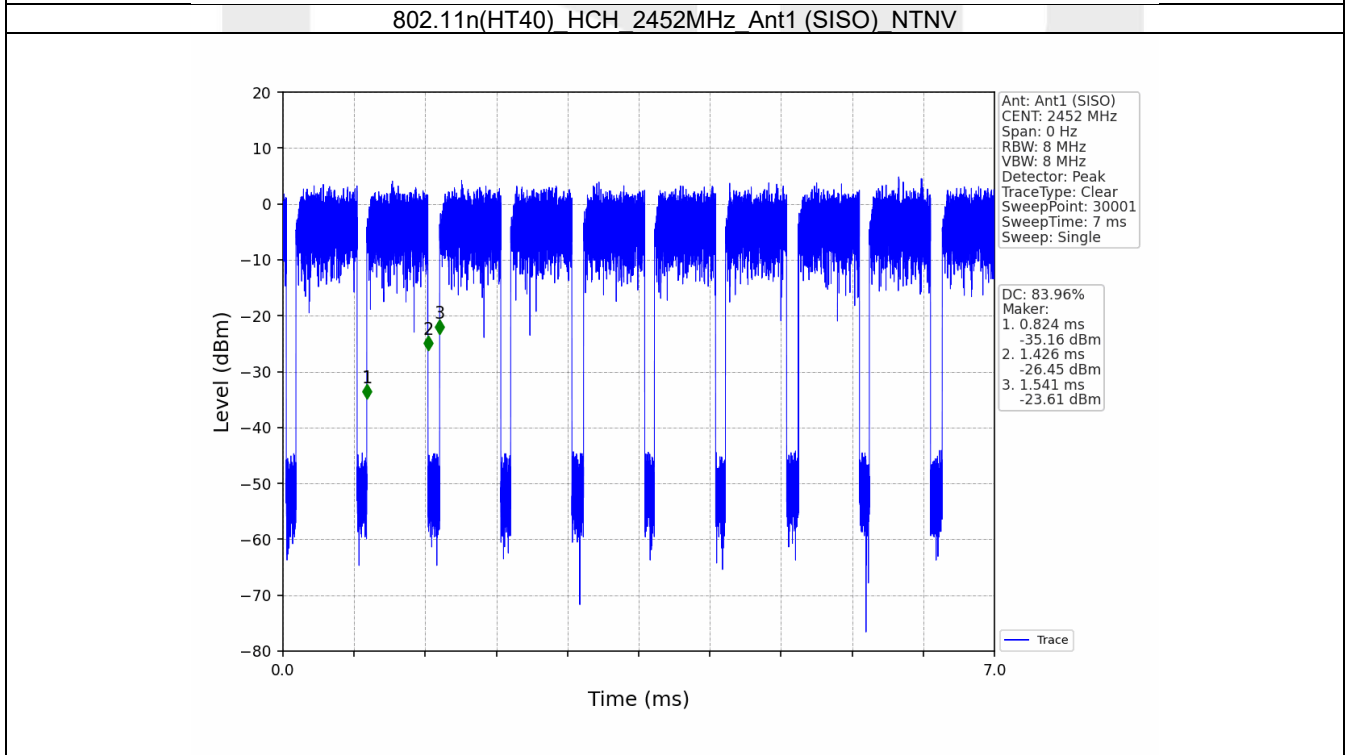
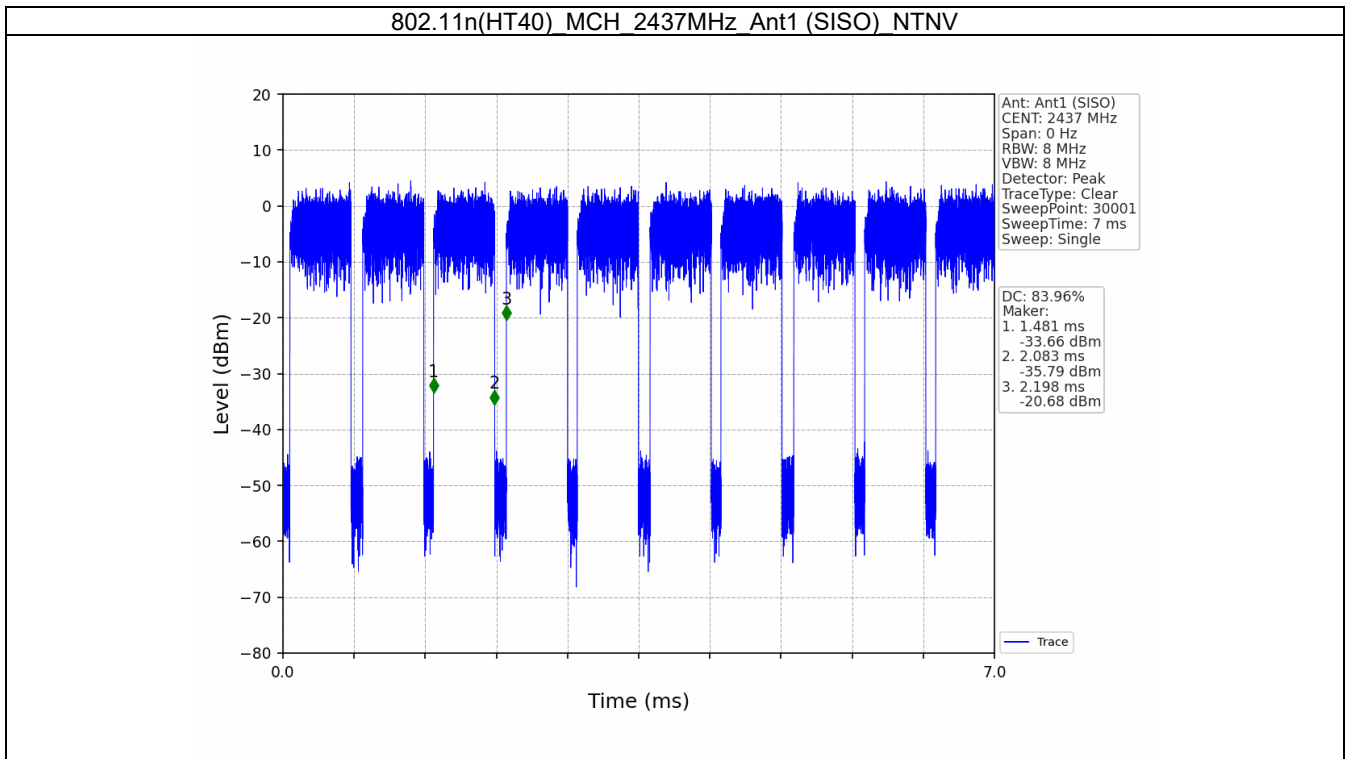










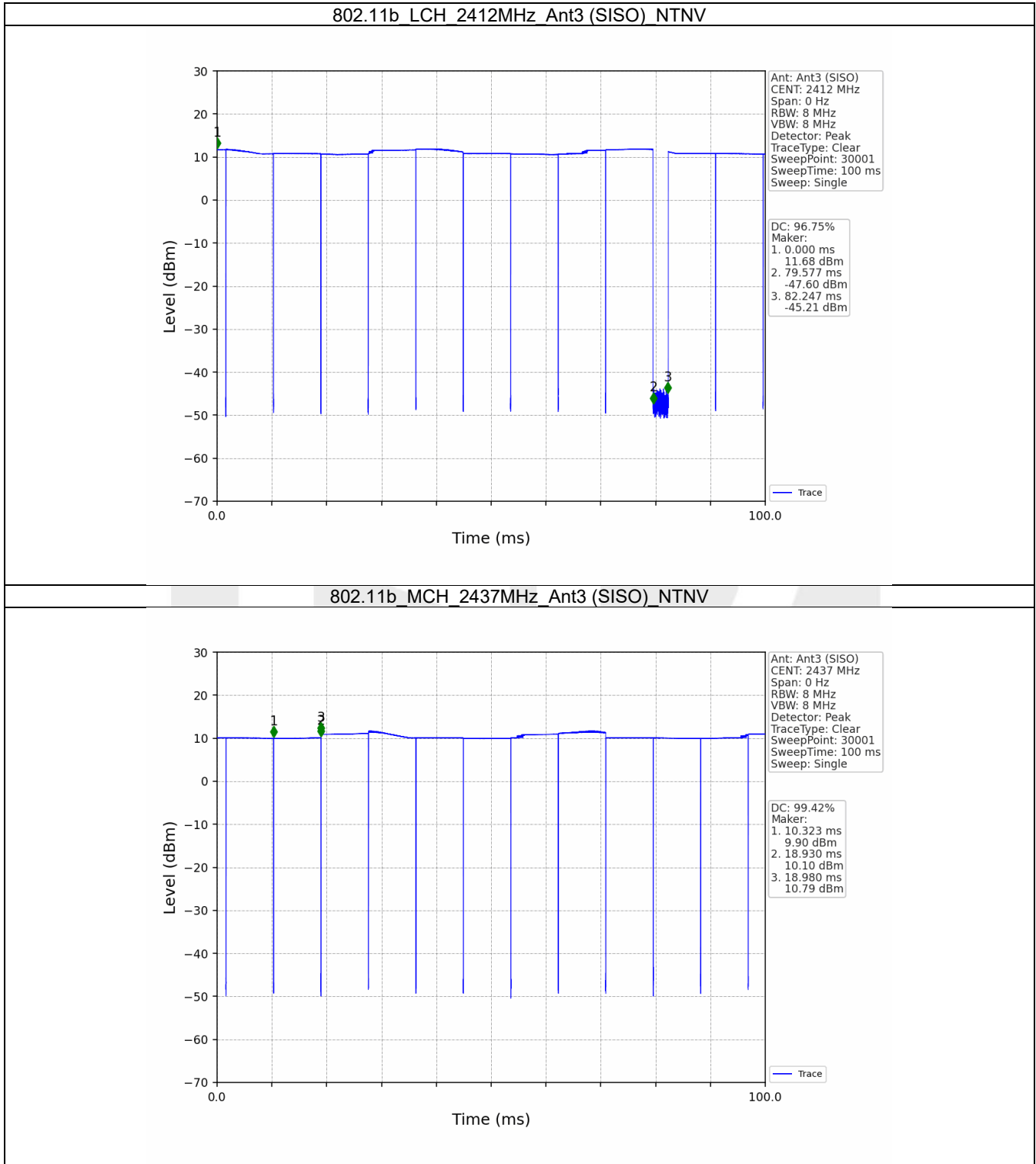


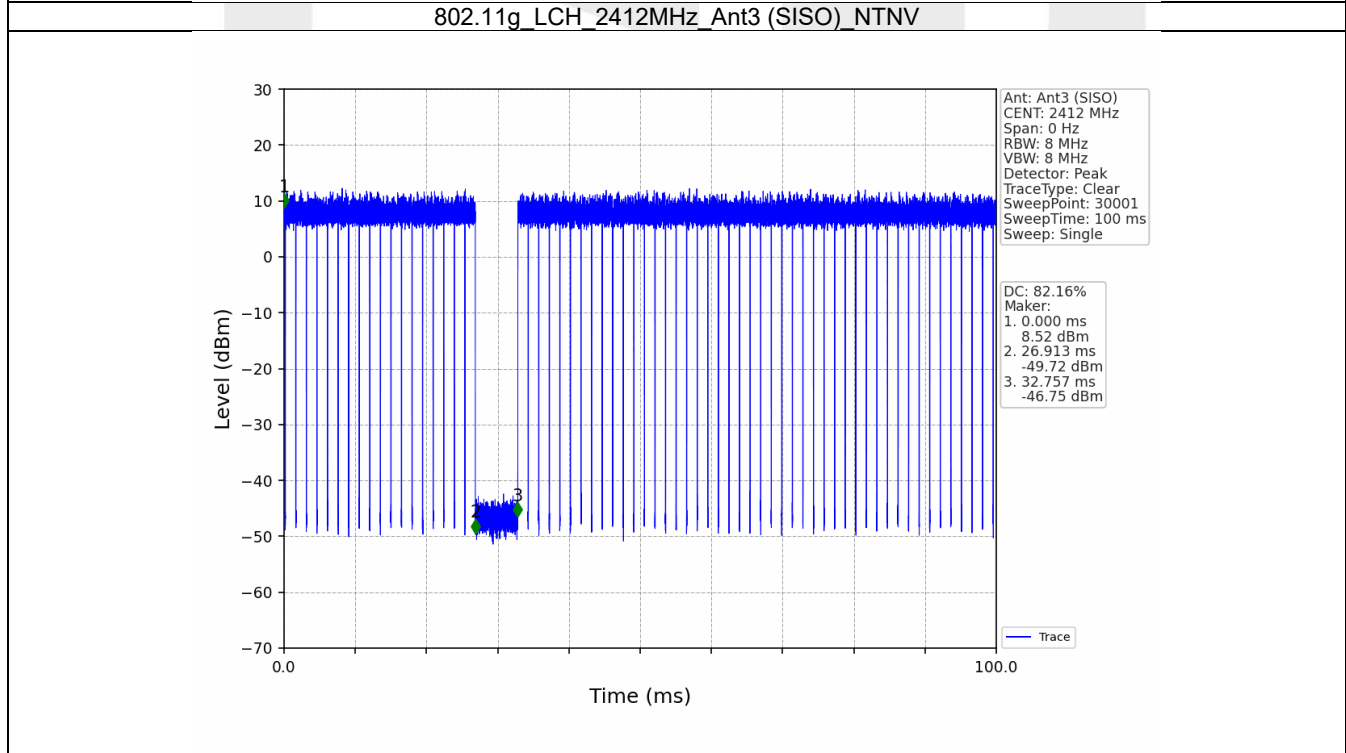
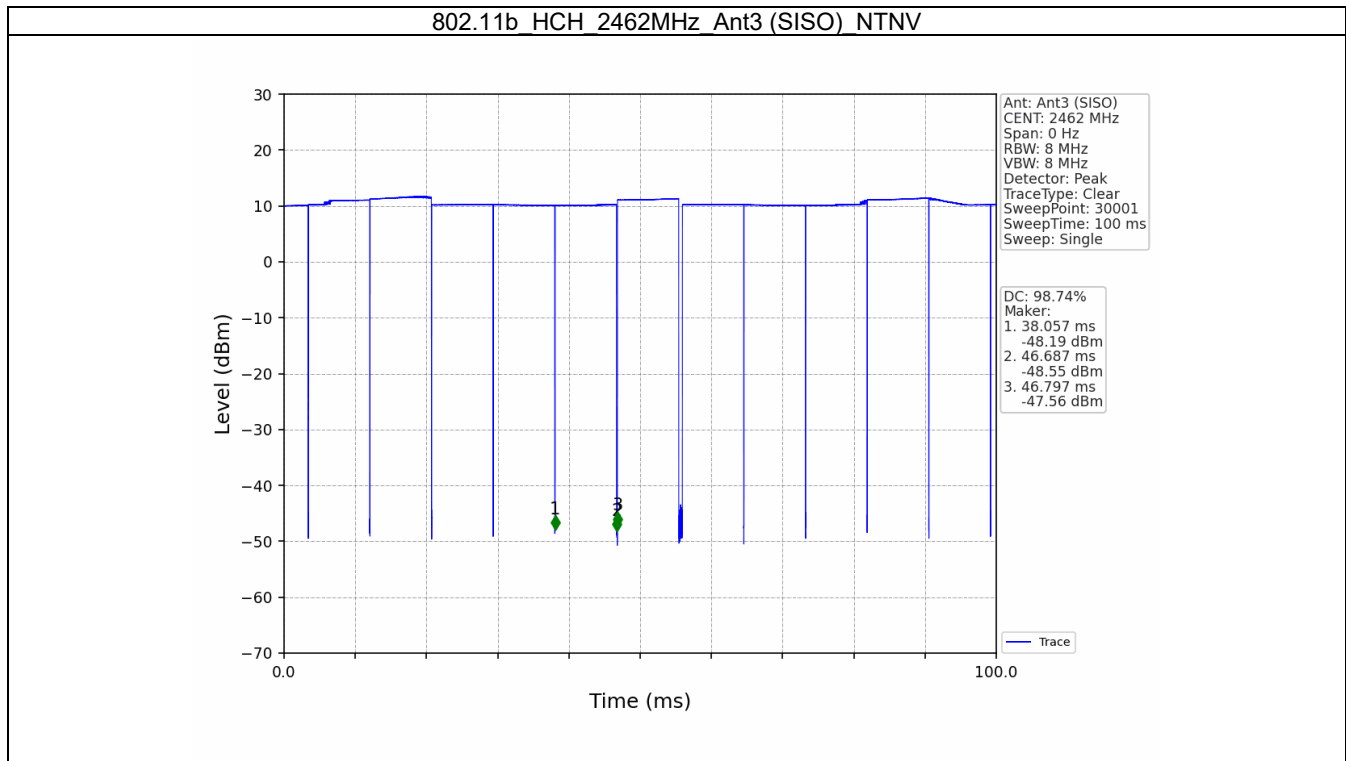
1.2 WiFi Module 2

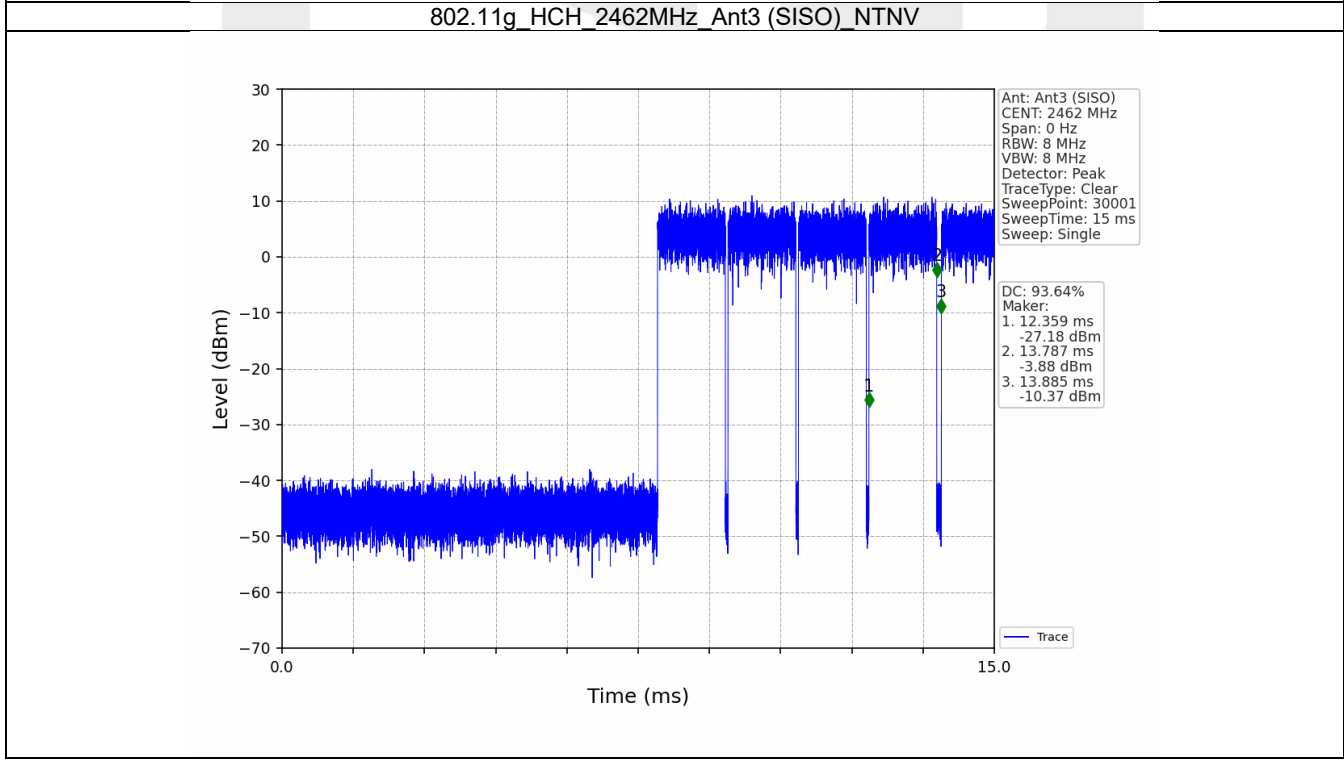
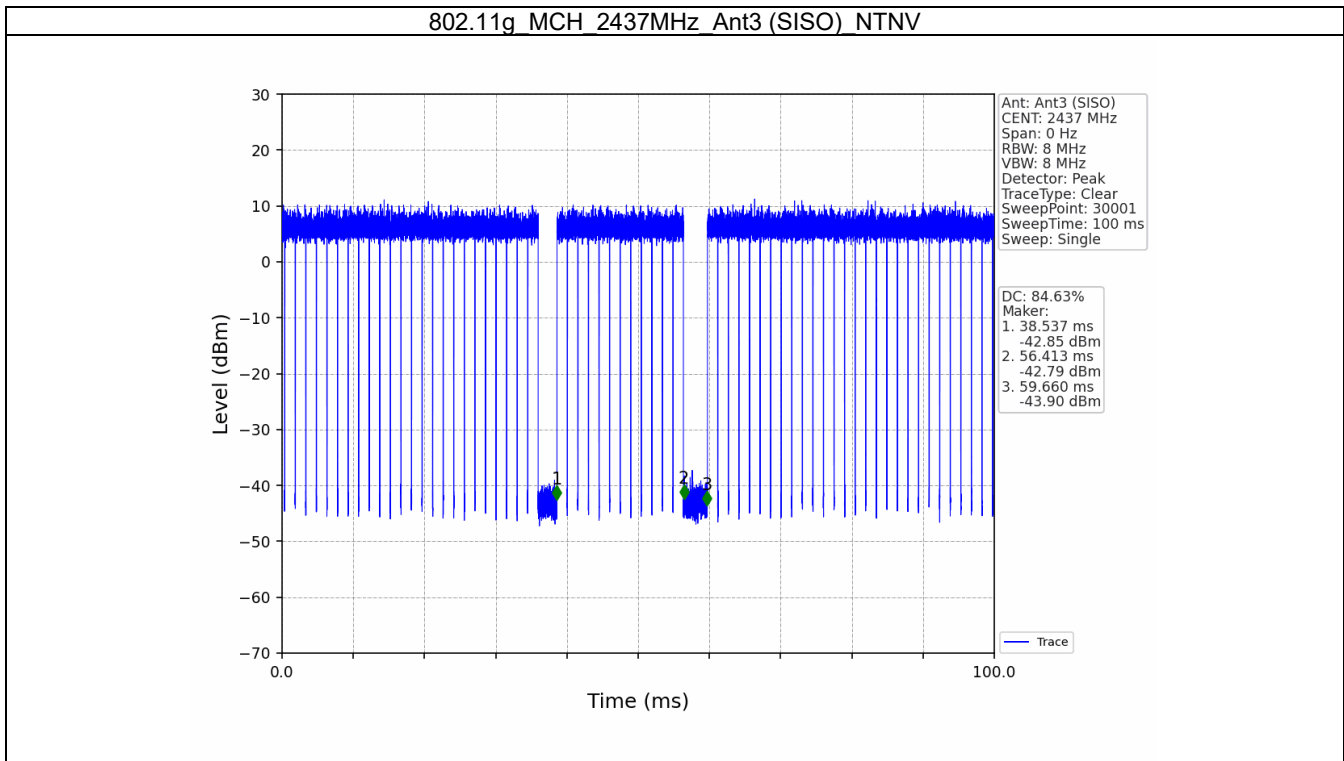
1.2.1 Test Result

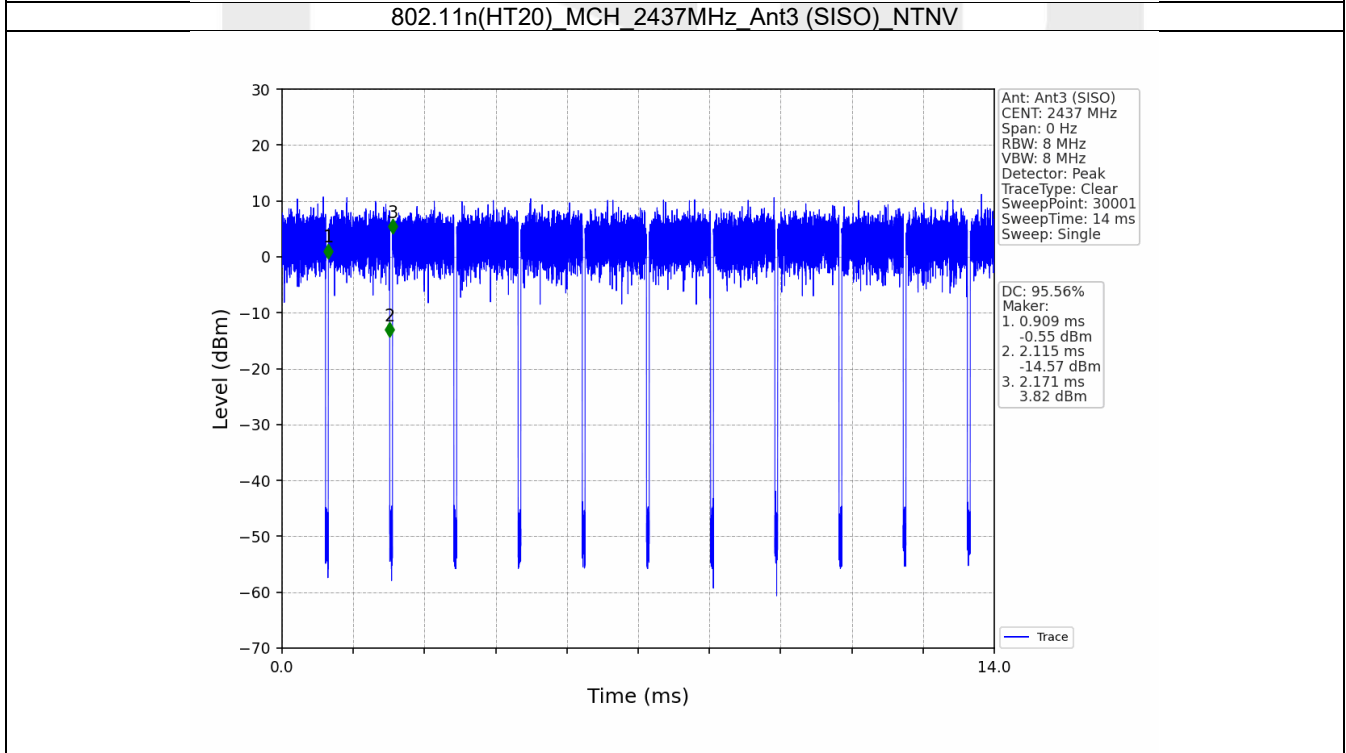
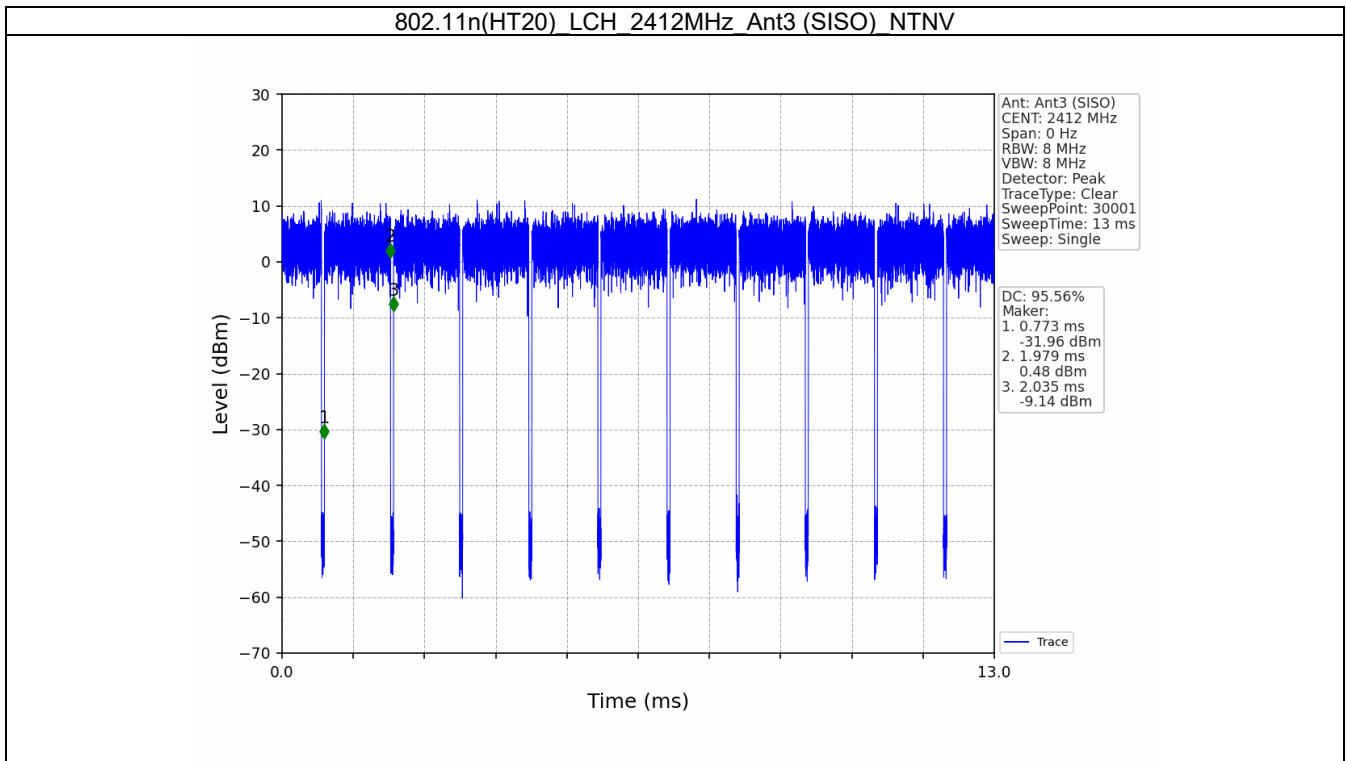
Ant3							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	79.577	82.247	96.75	0.14	0.00
		2437	8.607	8.657	99.42	0.03	0.04
		2462	8.630	8.740	98.74	0.06	0.95
802.11g	SISO	2412	26.913	32.757	82.16	0.85	0.00
		2437	17.876	21.123	84.63	0.72	0.00
		2462	1.429	1.526	93.64	0.29	2.68
802.11n (HT20)	SISO	2412	1.206	1.262	95.56	0.20	0.03
		2437	1.206	1.262	95.56	0.20	0.04
		2462	1.206	1.322	91.23	0.40	1.43
802.11n (HT40)	SISO	2422	0.602	0.891	67.56	1.70	24.07
		2437	0.602	0.717	83.96	0.76	2.42
		2452	0.602	0.717	83.96	0.76	2.45

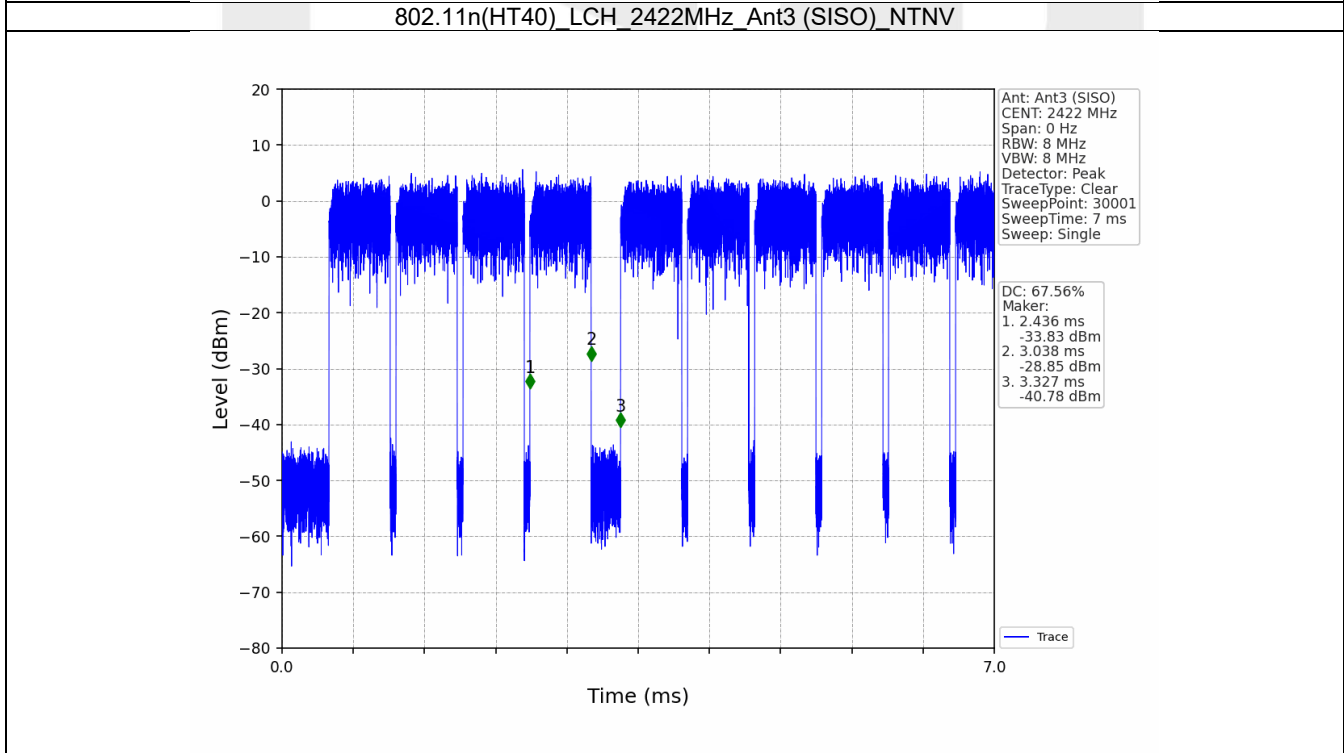
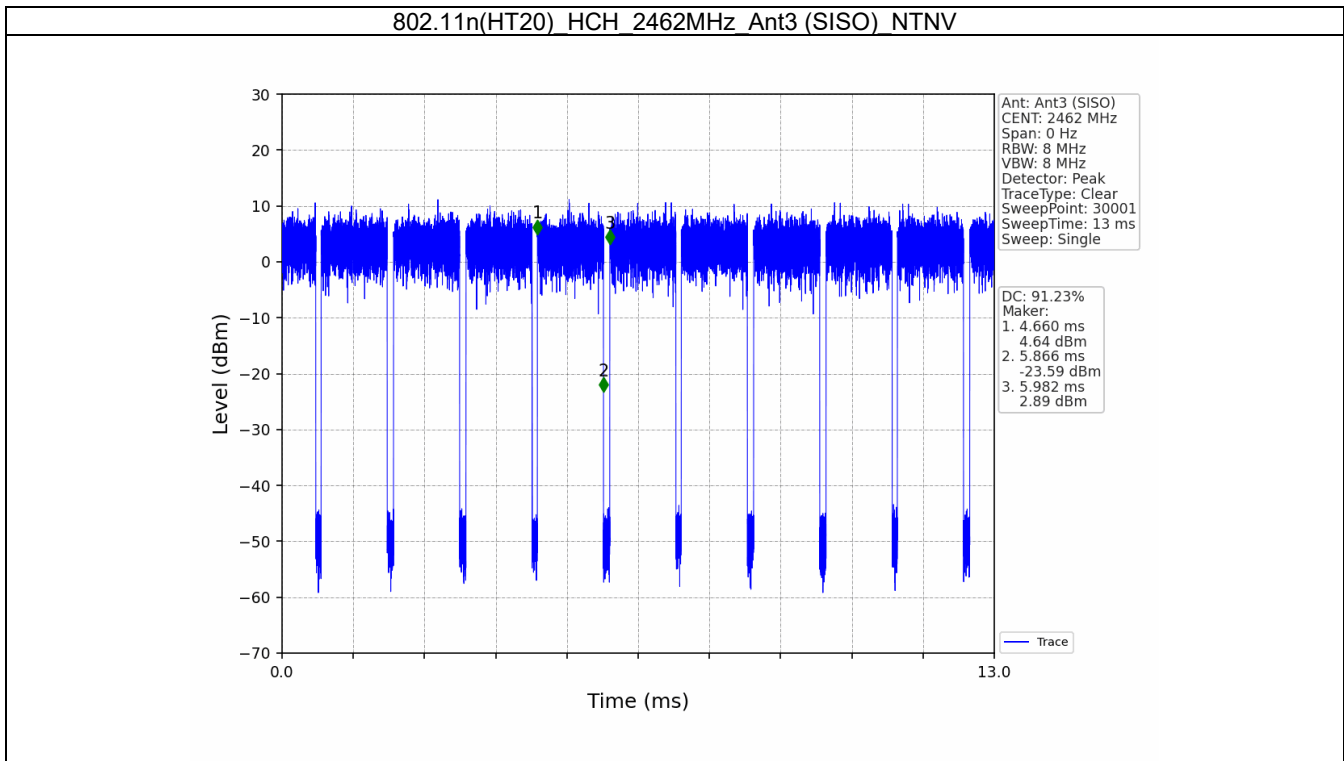
1.2.2 Test Graph

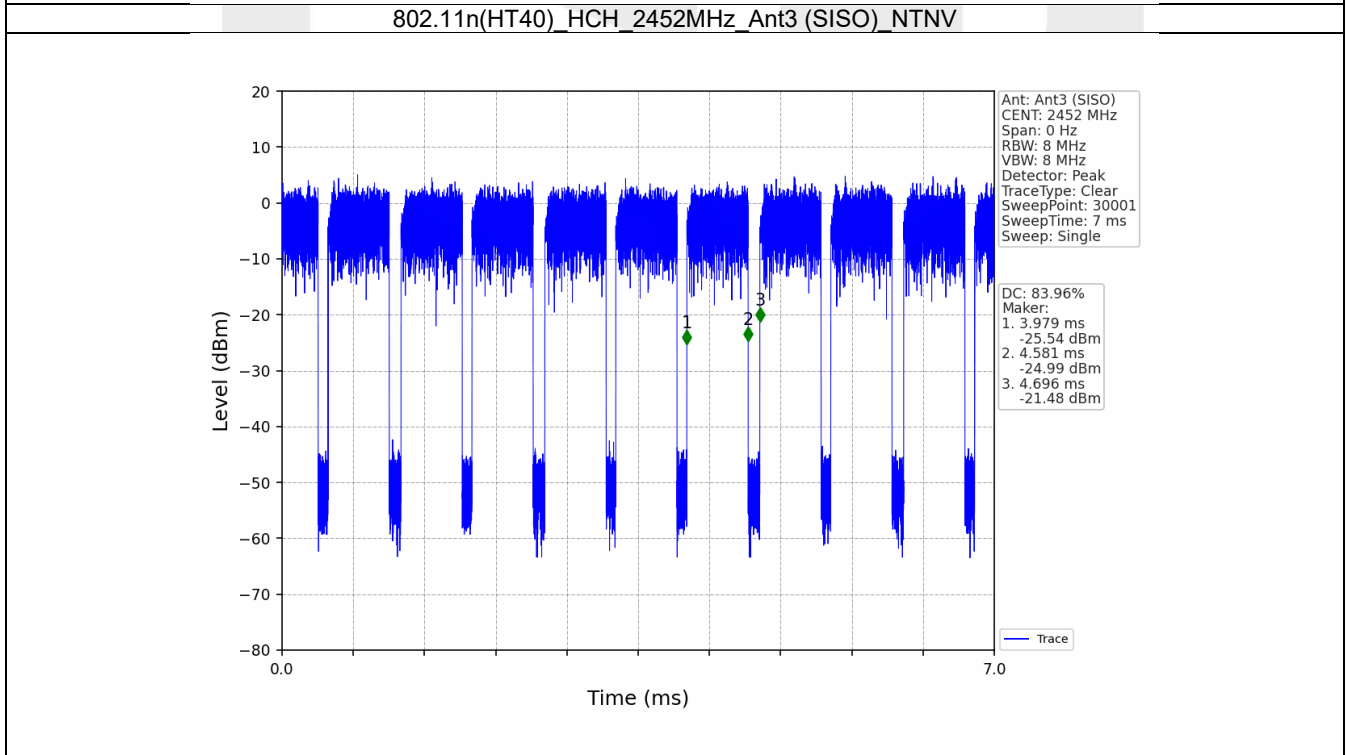
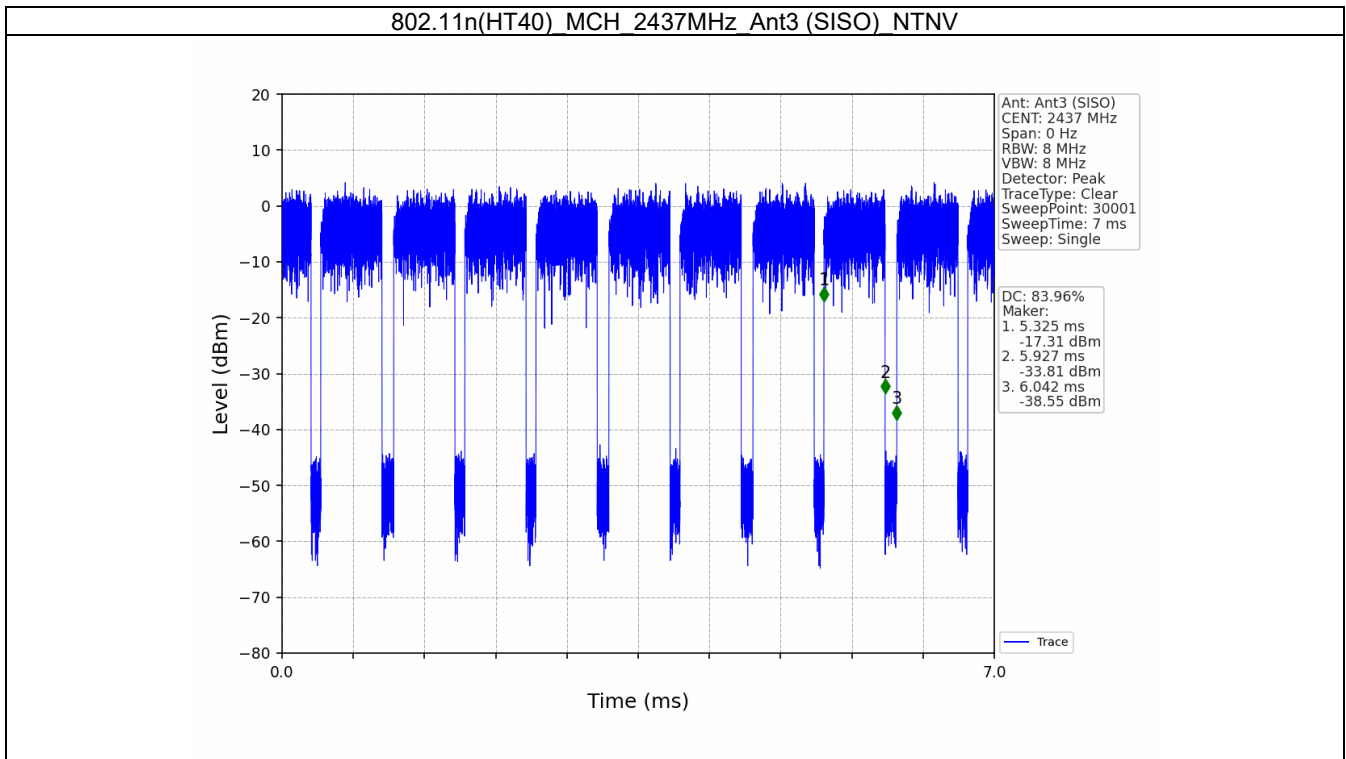












2. Bandwidth

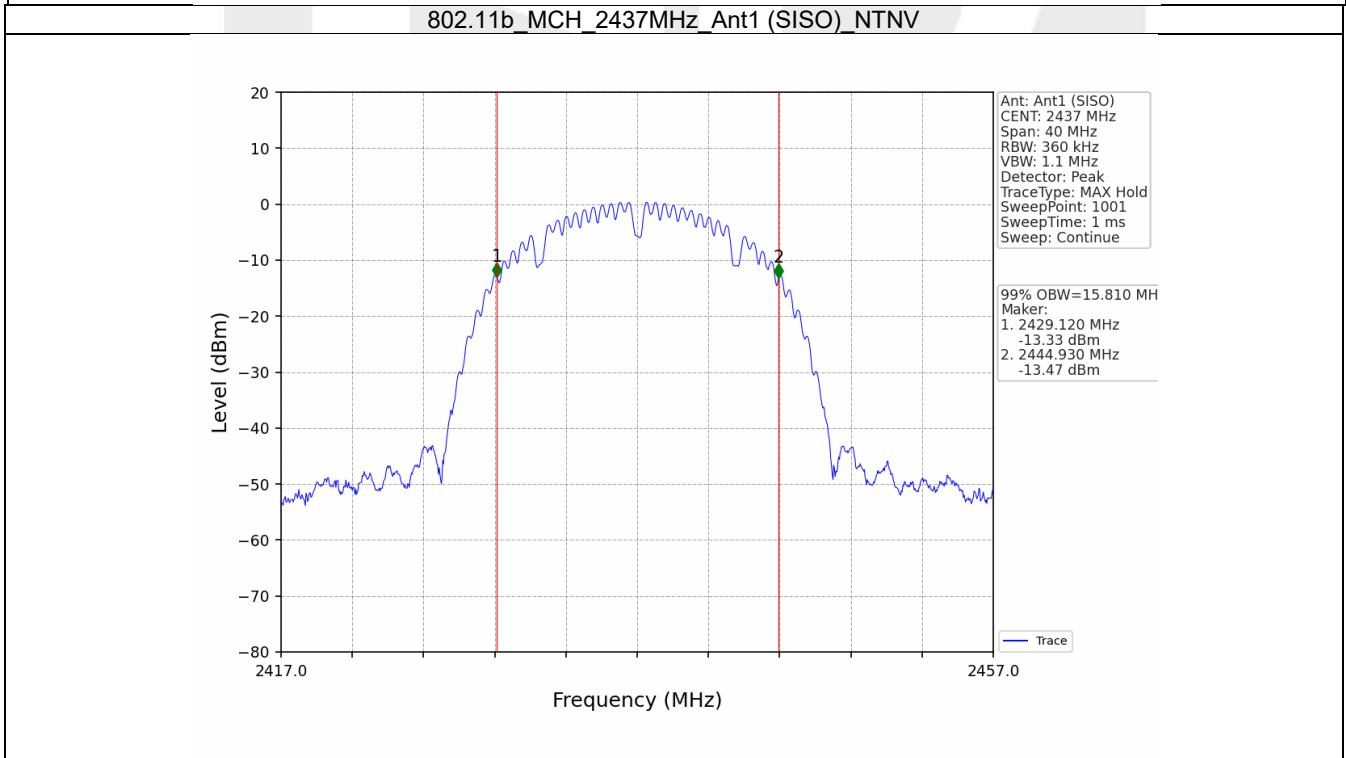
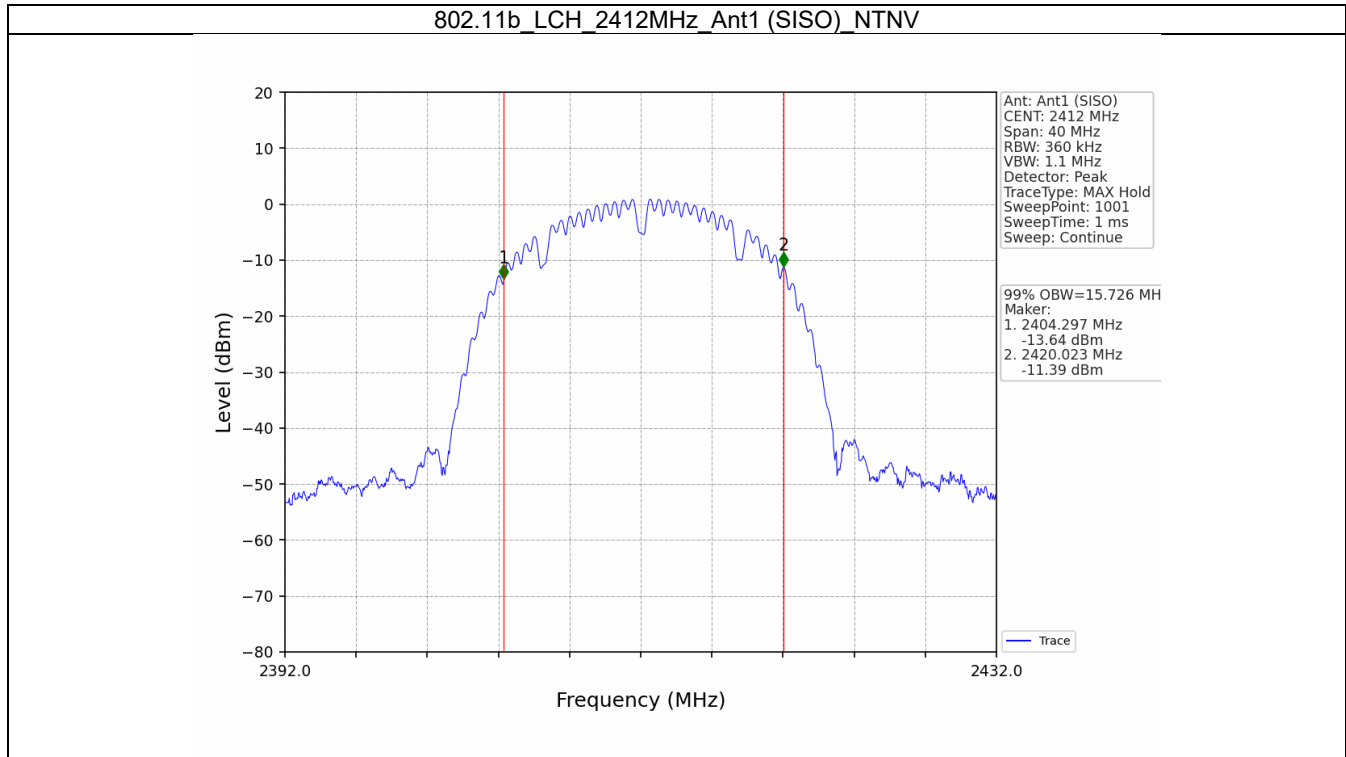
Note: For multiple-input multiple-output (MIMO) systems, if the measured channel bandwidth on testing the middle channel exceeds the minimum permitted bandwidth by more than 50% on one transmit chain, then it is not necessary to repeat testing on the other chains.

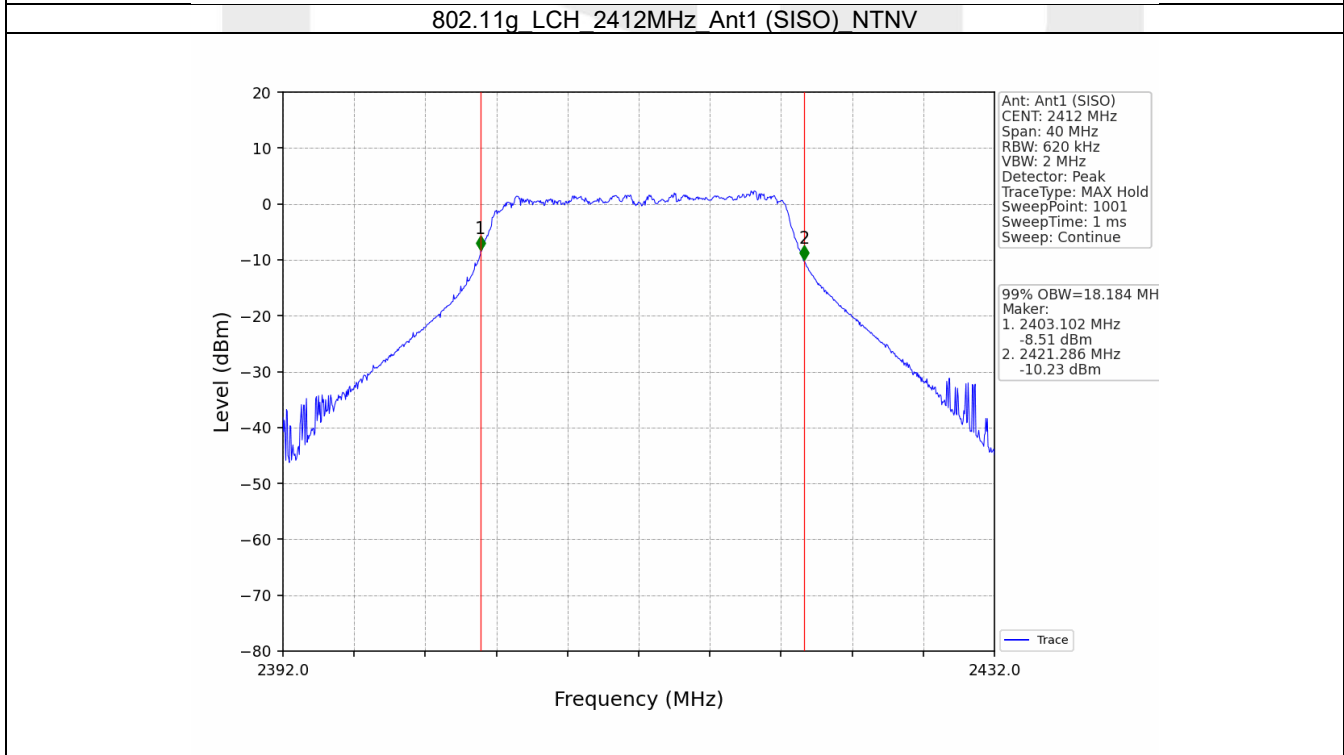
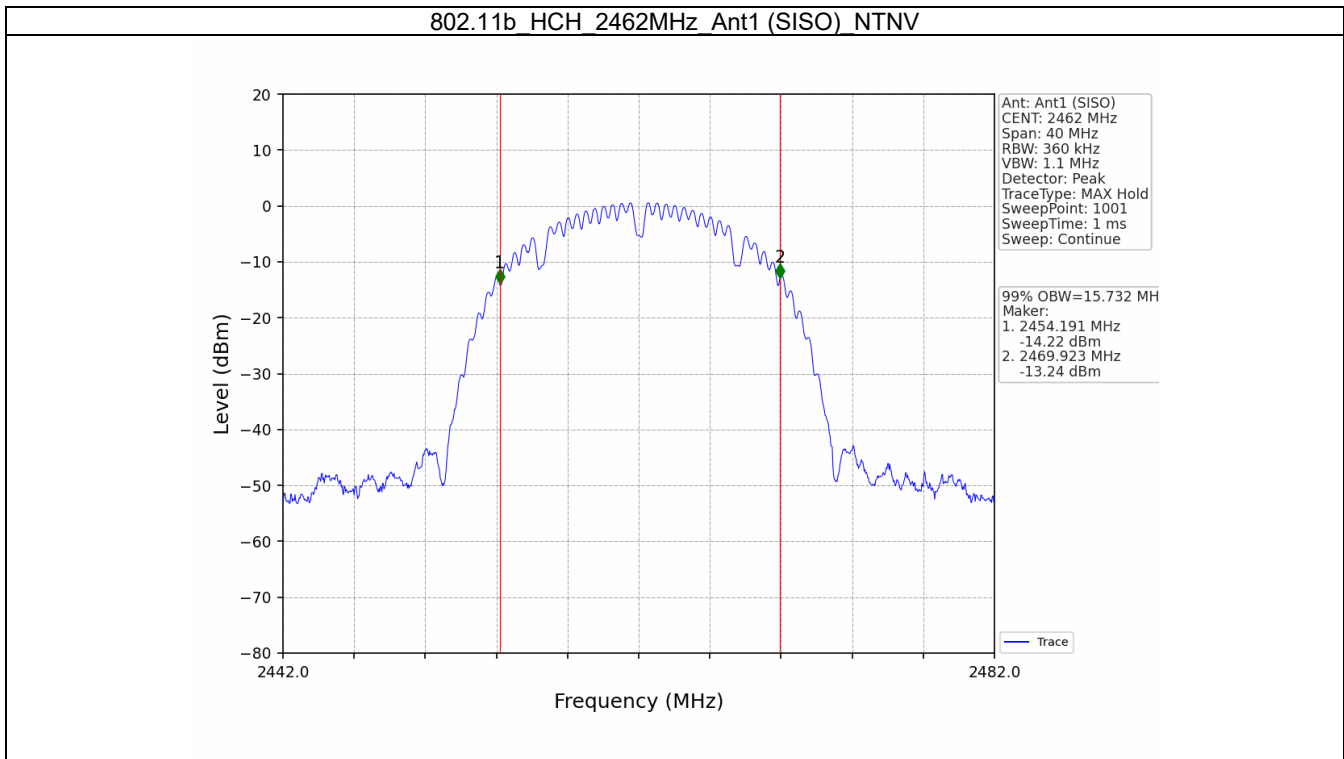
2.1.1. OBW (WiFi Module 1)

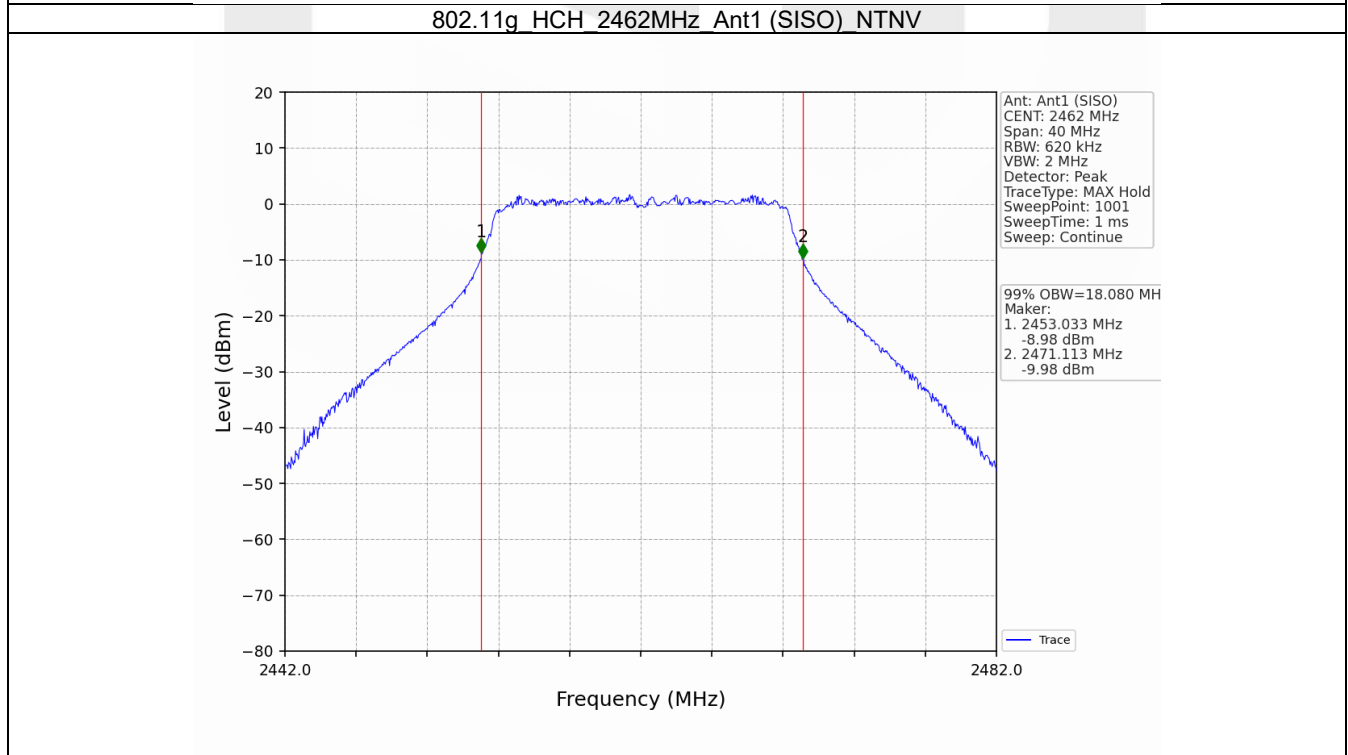
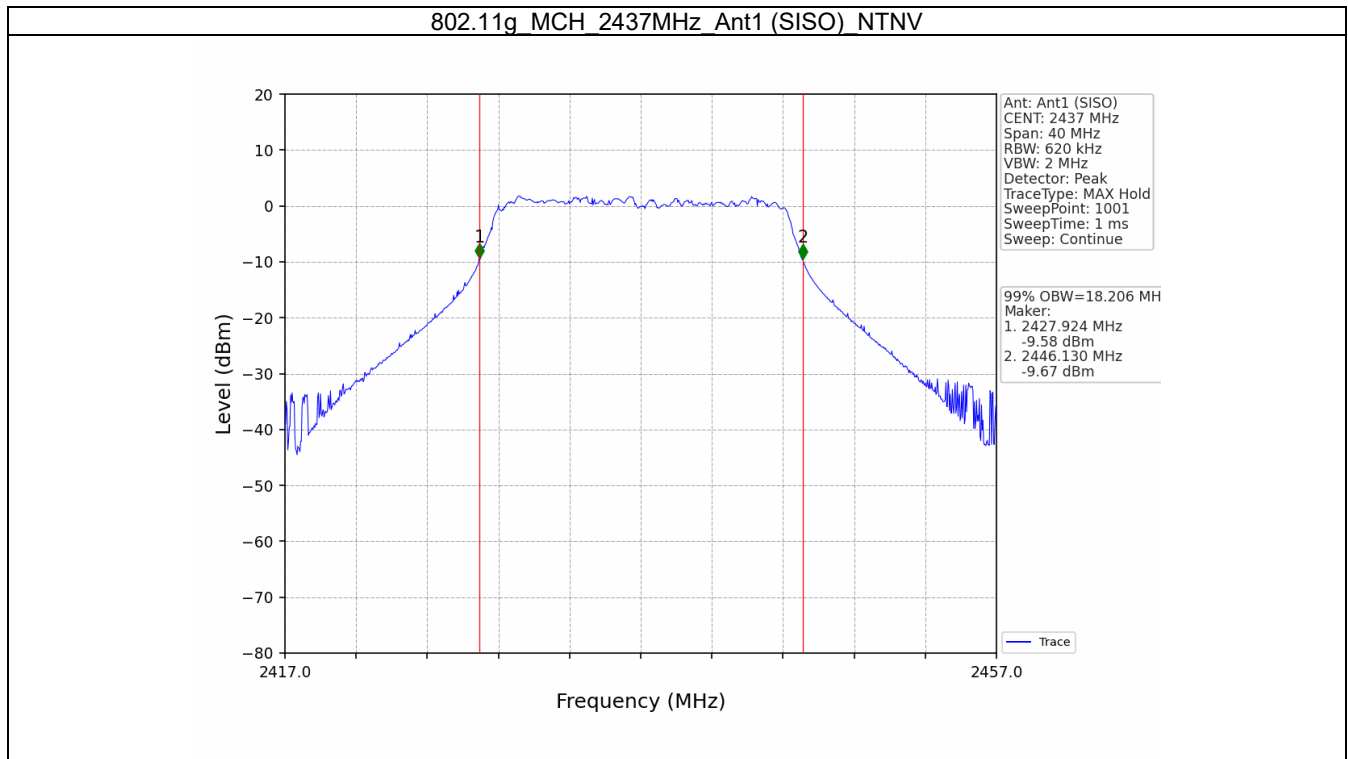
2.1.1.1. Test Result

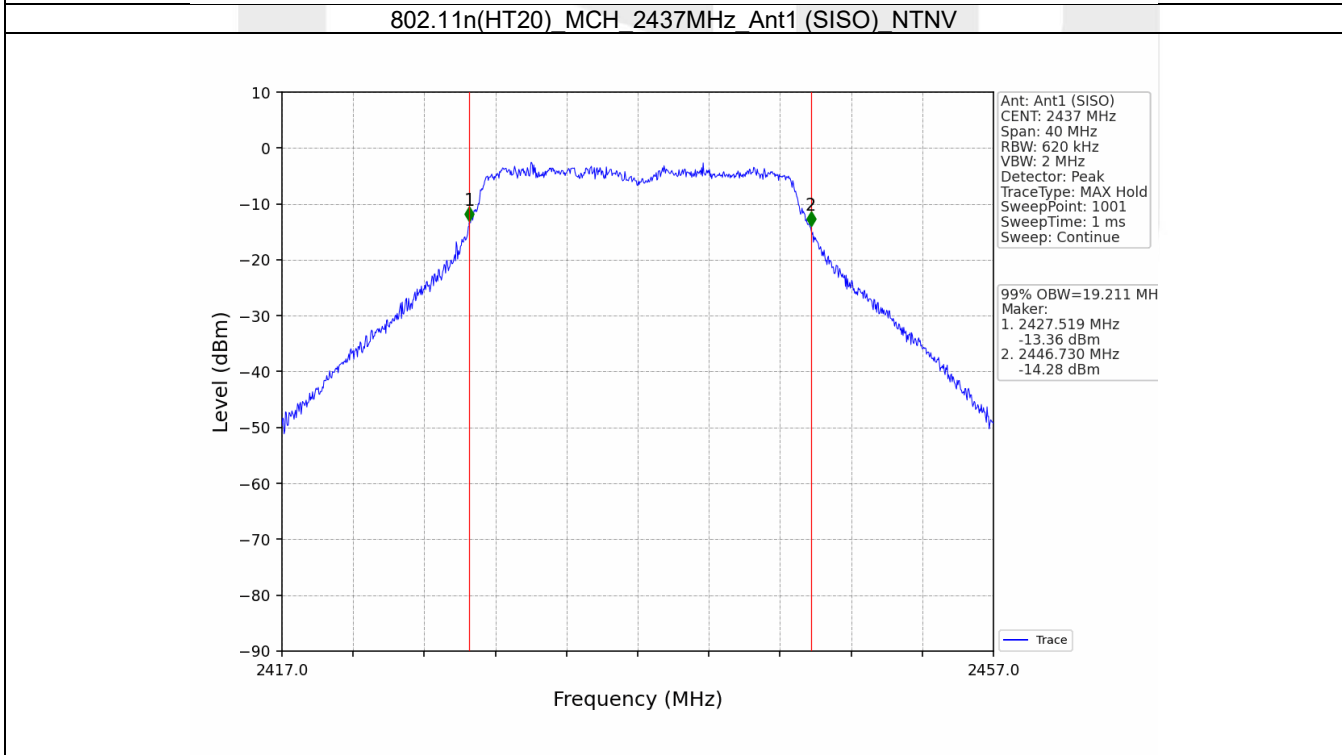
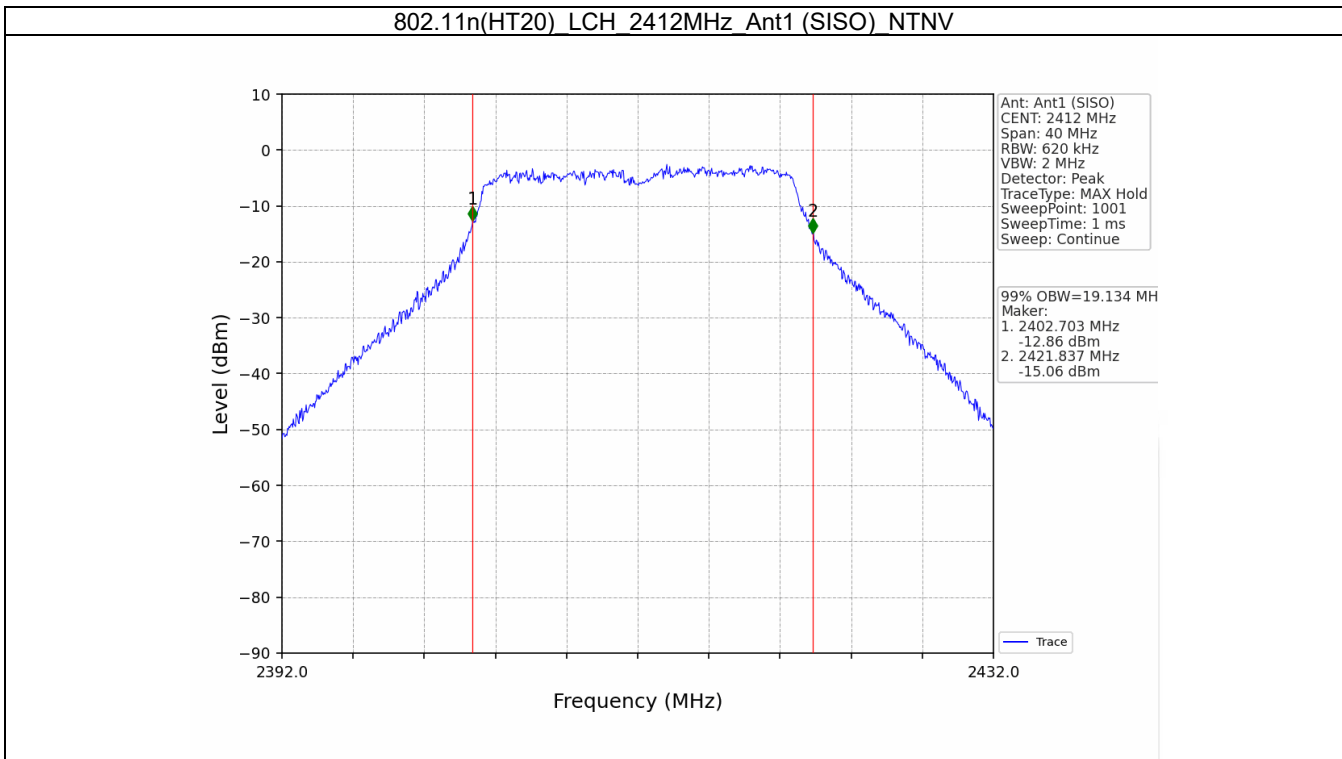
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)	Verdict
				Result	
802.11b	SISO	2412	1	15.726	Pass
		2437	1	15.810	Pass
		2462	1	15.732	Pass
802.11g	SISO	2412	1	18.184	Pass
		2437	1	18.206	Pass
		2462	1	18.080	Pass
802.11n (HT20)	SISO	2412	1	19.134	Pass
		2437	1	19.211	Pass
		2462	1	19.080	Pass
802.11n (HT40)	SISO	2422	1	37.760	Pass
		2437	1	38.167	Pass
		2452	1	37.964	Pass

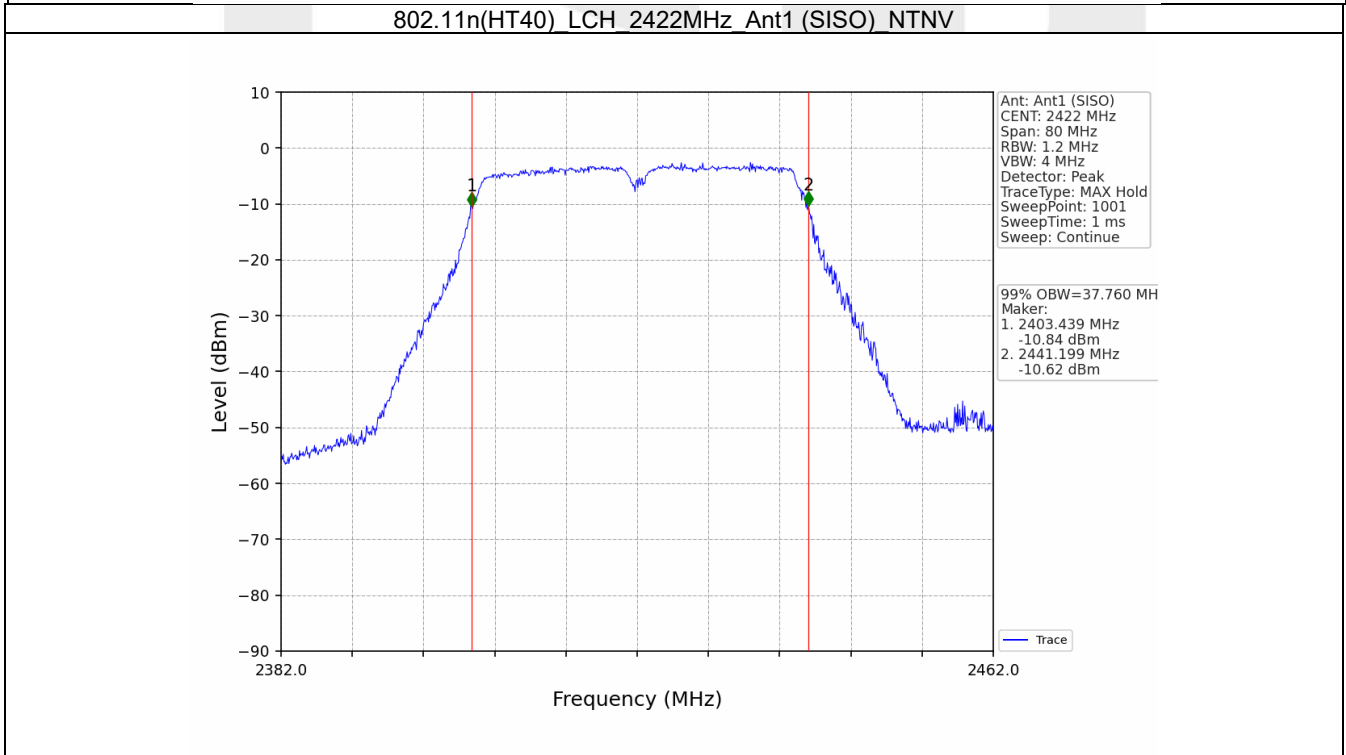
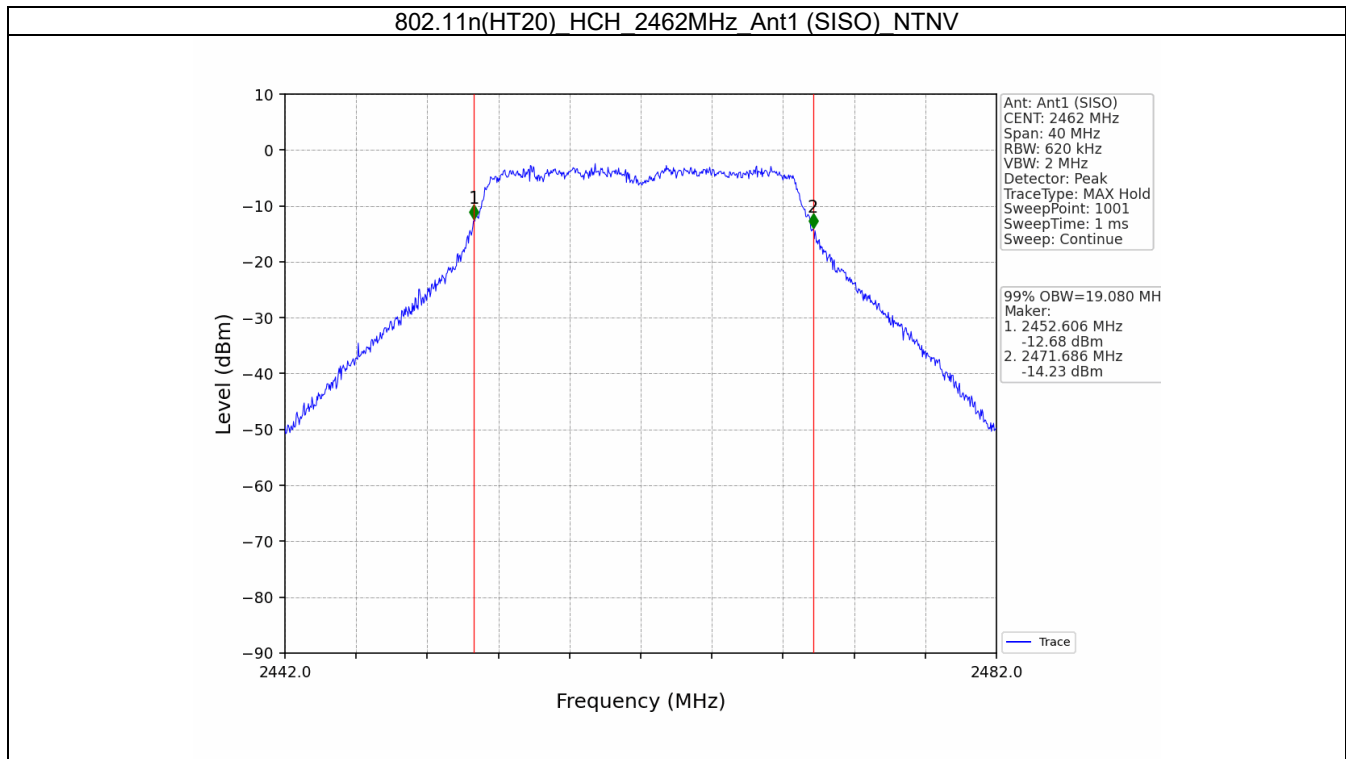
2.1.1.2. Test Graph

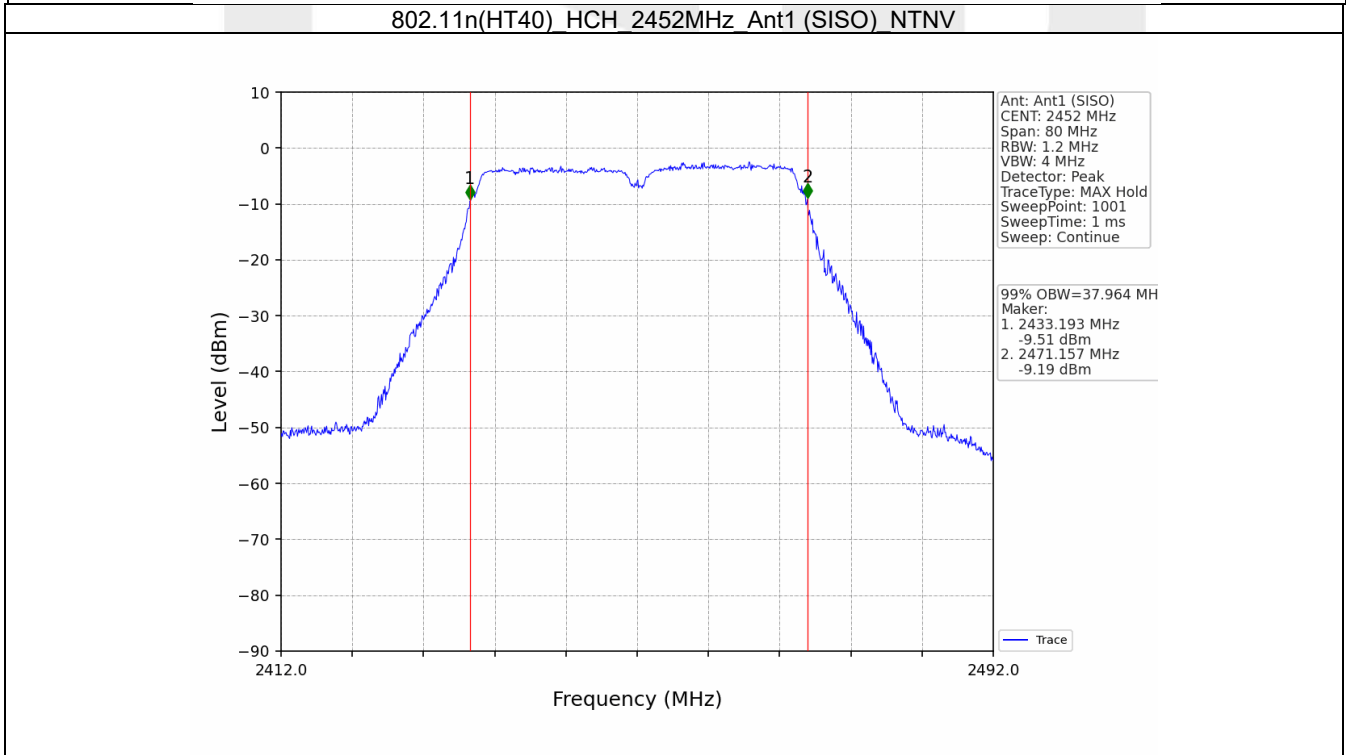
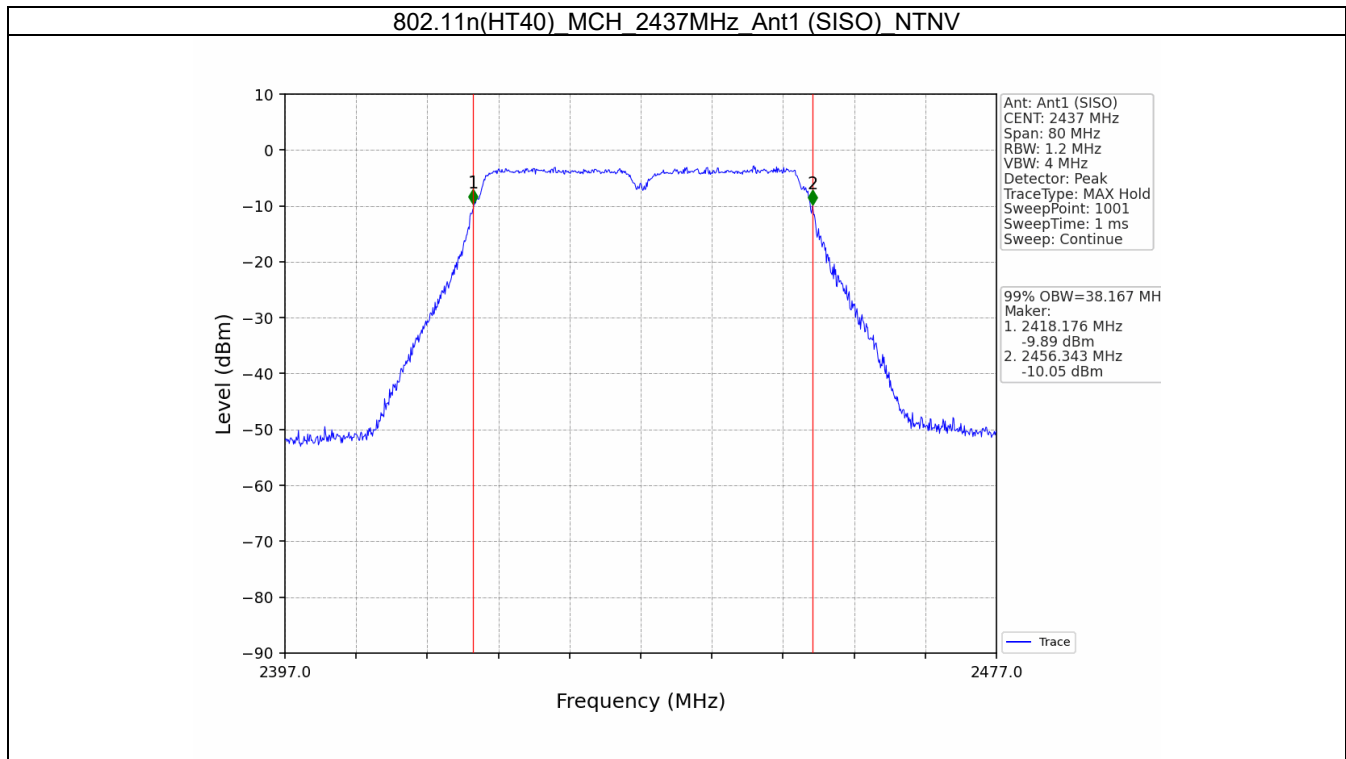










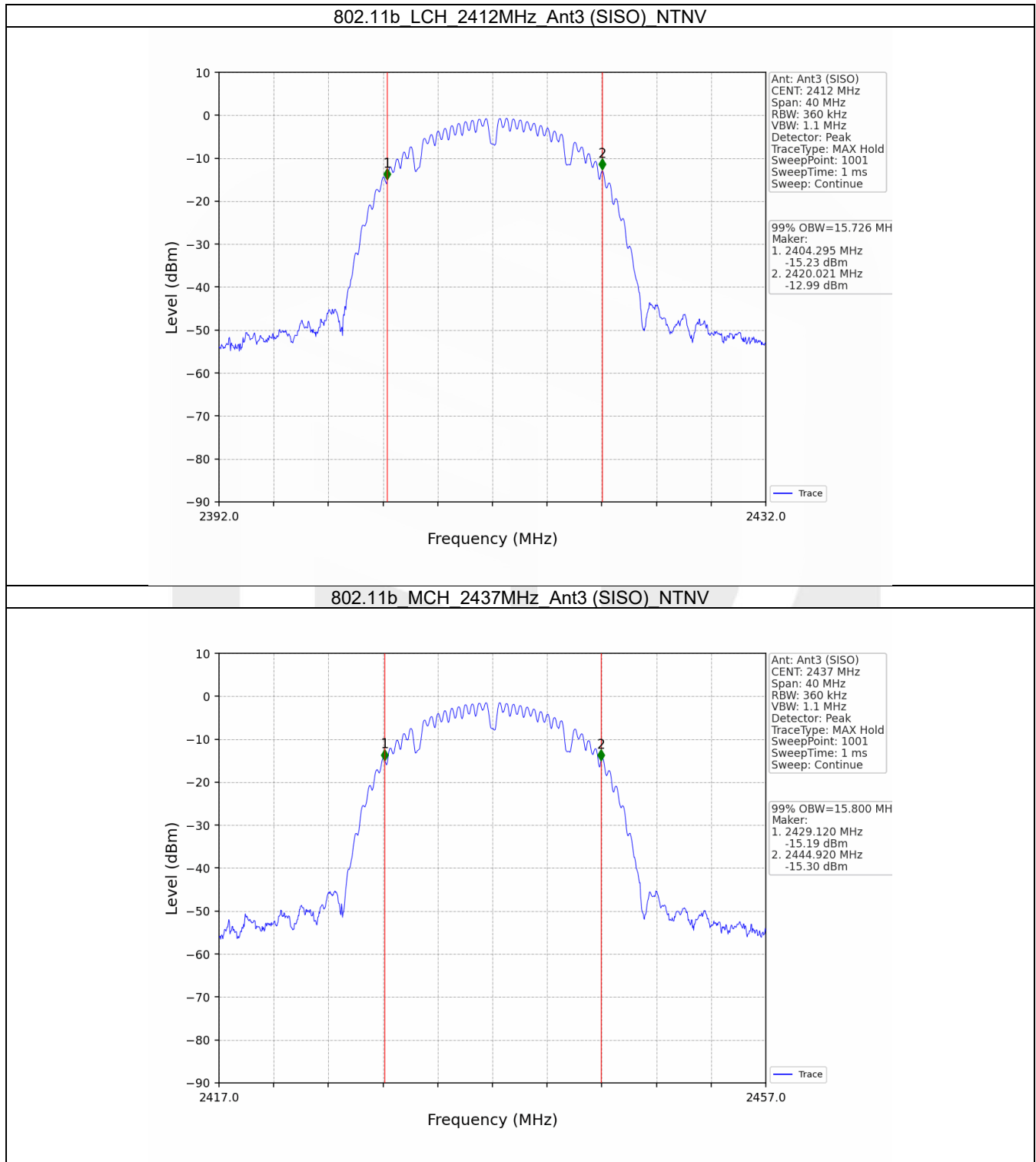


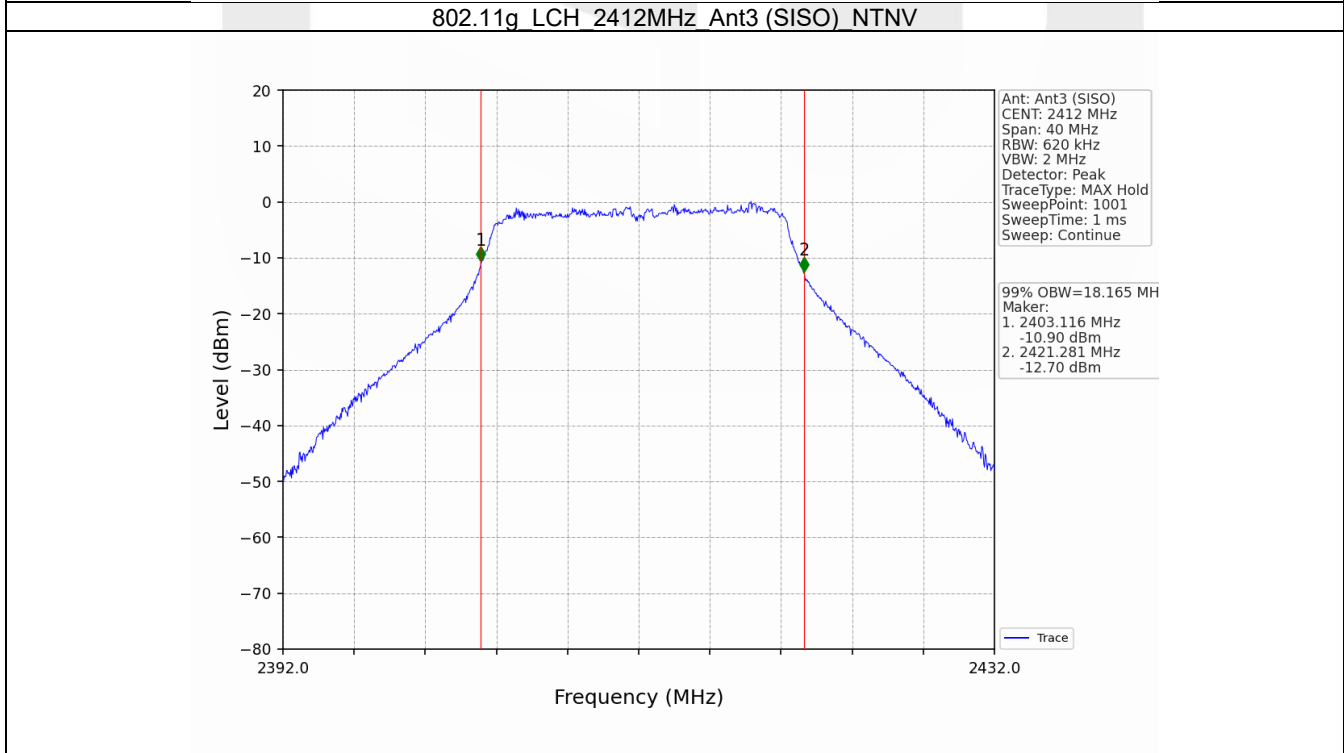
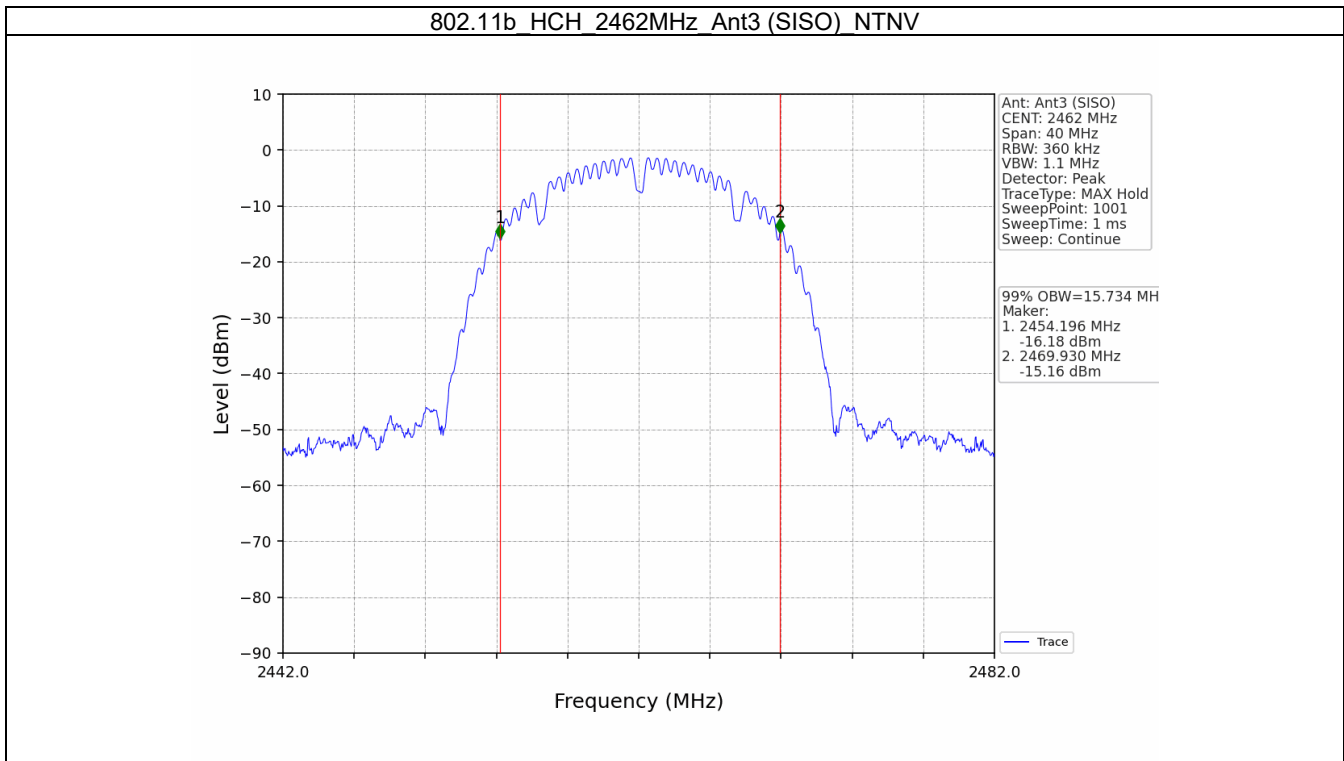
2.1.2 OBW (WiFi Module 2)

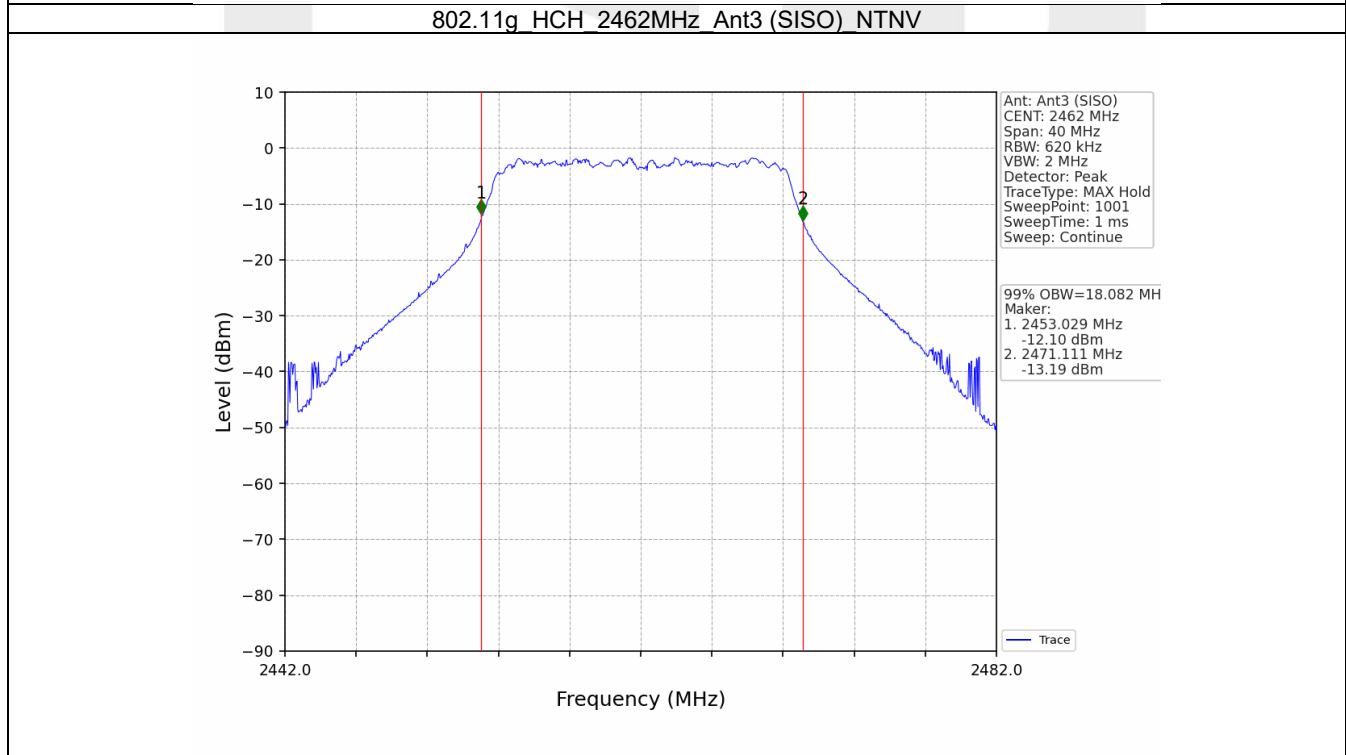
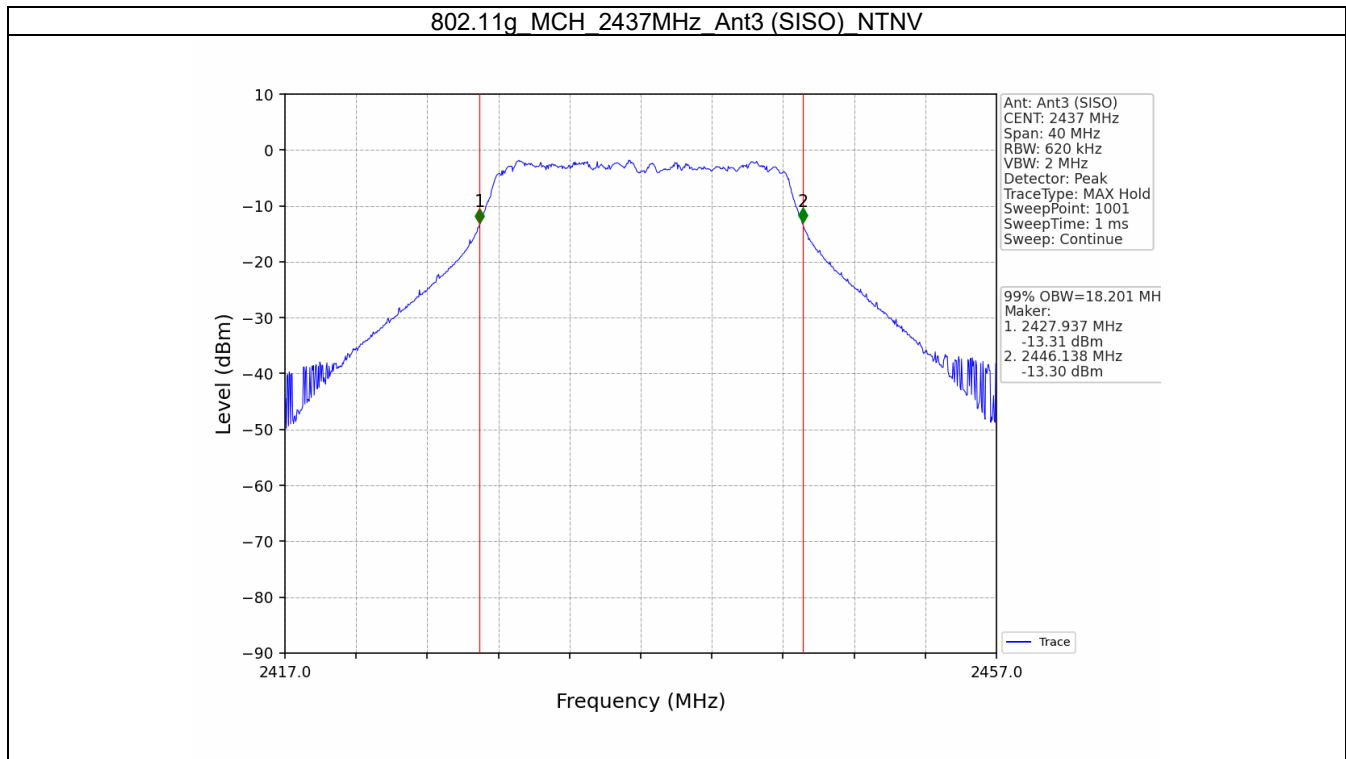
2.1.2.1 Test Result

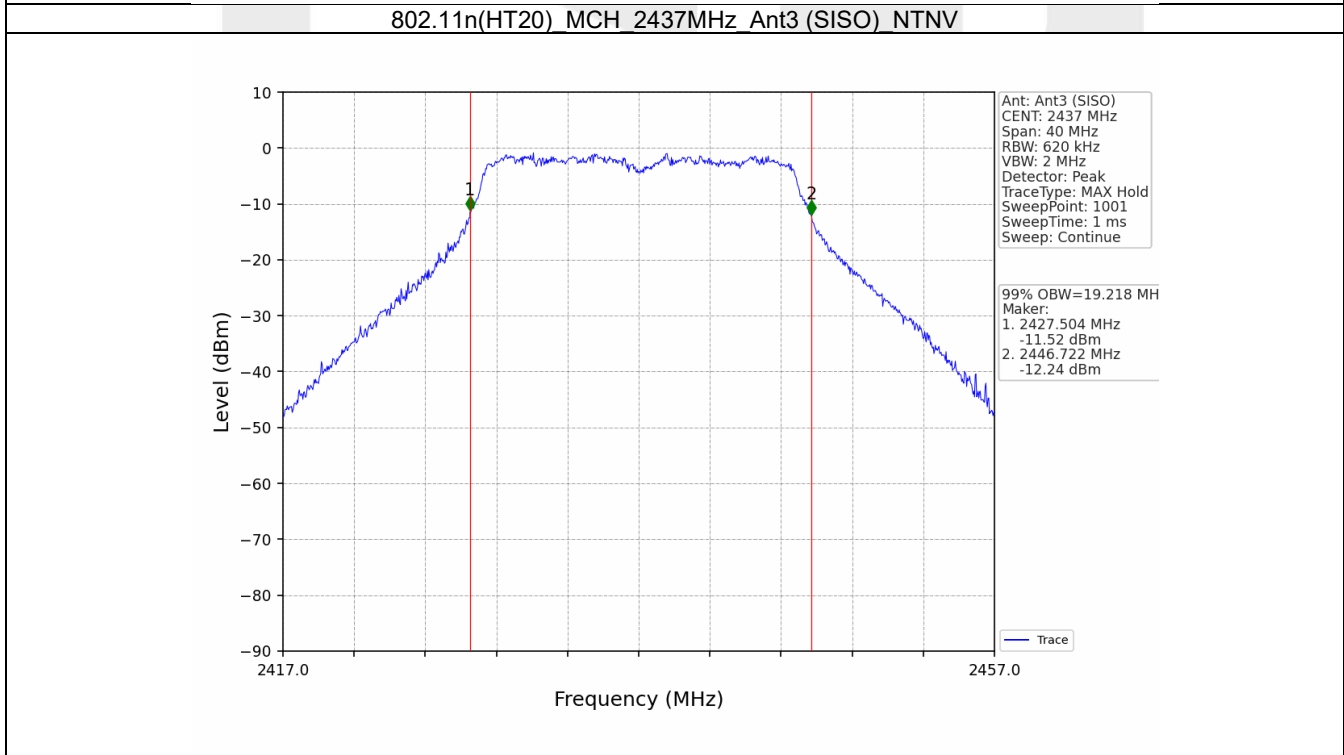
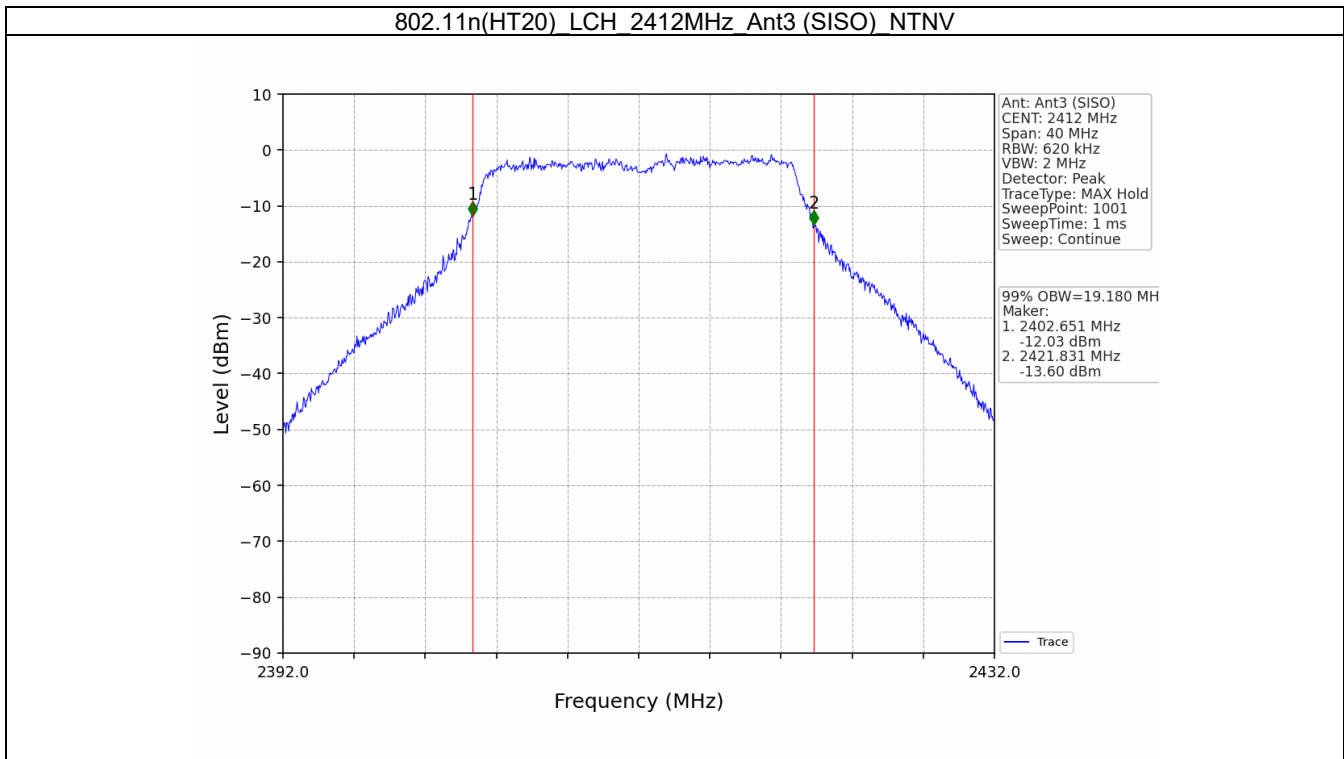
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)	Verdict
				Result	
802.11b	SISO	2412	3	15.726	Pass
		2437	3	15.800	Pass
		2462	3	15.734	Pass
802.11g	SISO	2412	3	18.165	Pass
		2437	3	18.201	Pass
		2462	3	18.082	Pass
802.11n (HT20)	SISO	2412	3	19.180	Pass
		2437	3	19.218	Pass
		2462	3	19.081	Pass
802.11n (HT40)	SISO	2422	3	37.706	Pass
		2437	3	38.046	Pass
		2452	3	37.996	Pass

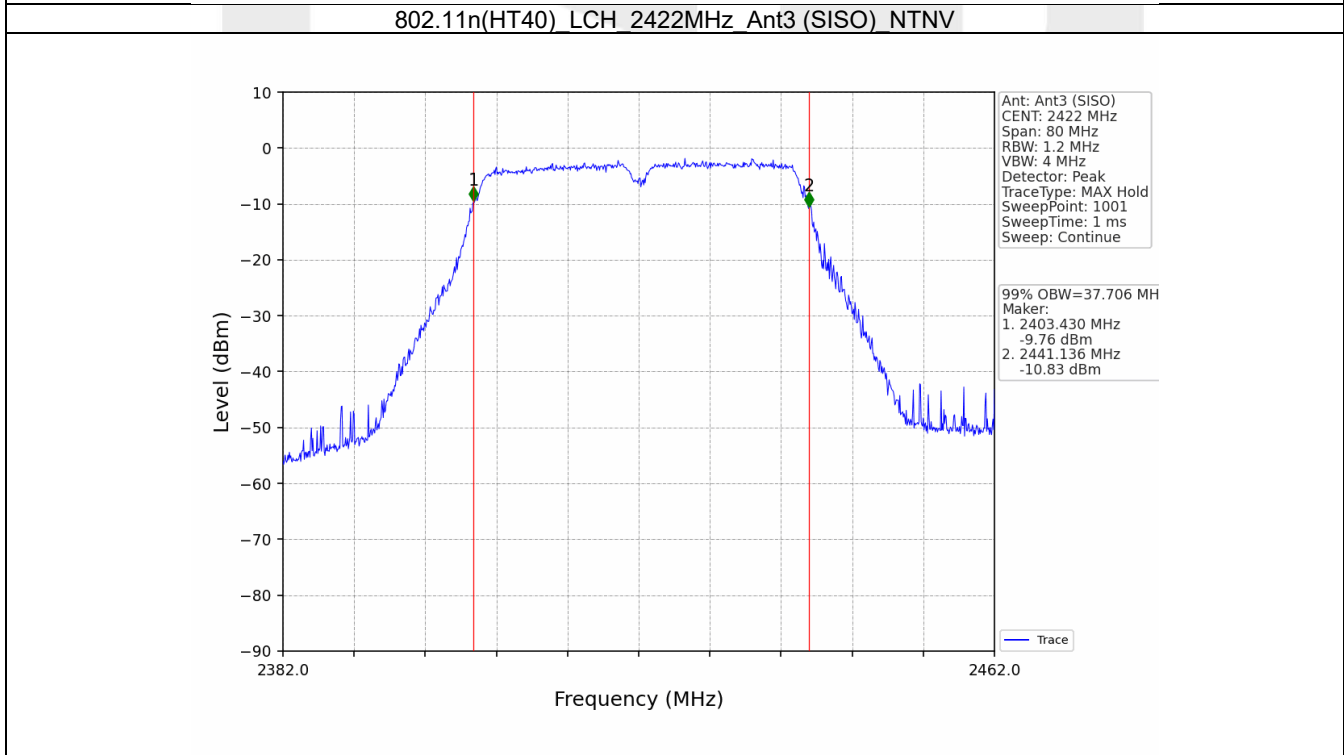
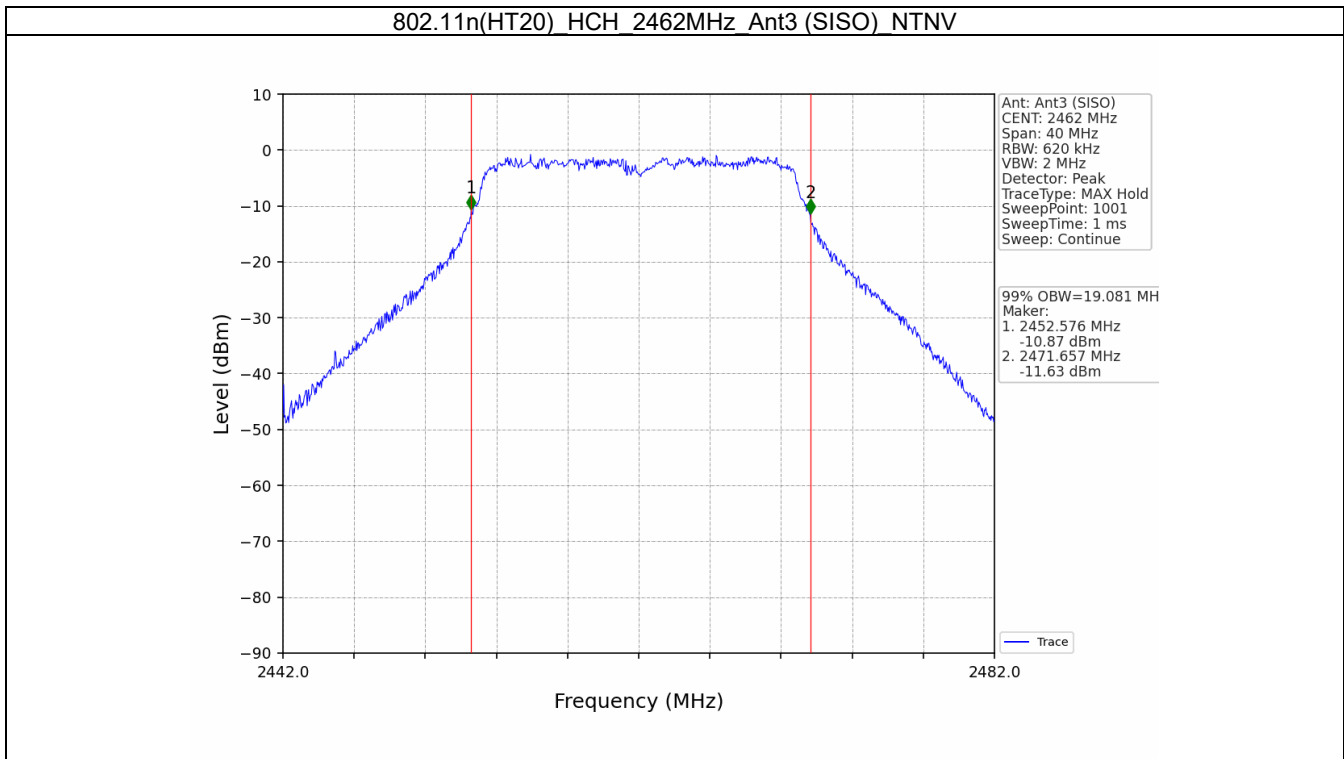
2.1.2.2 Test Graph

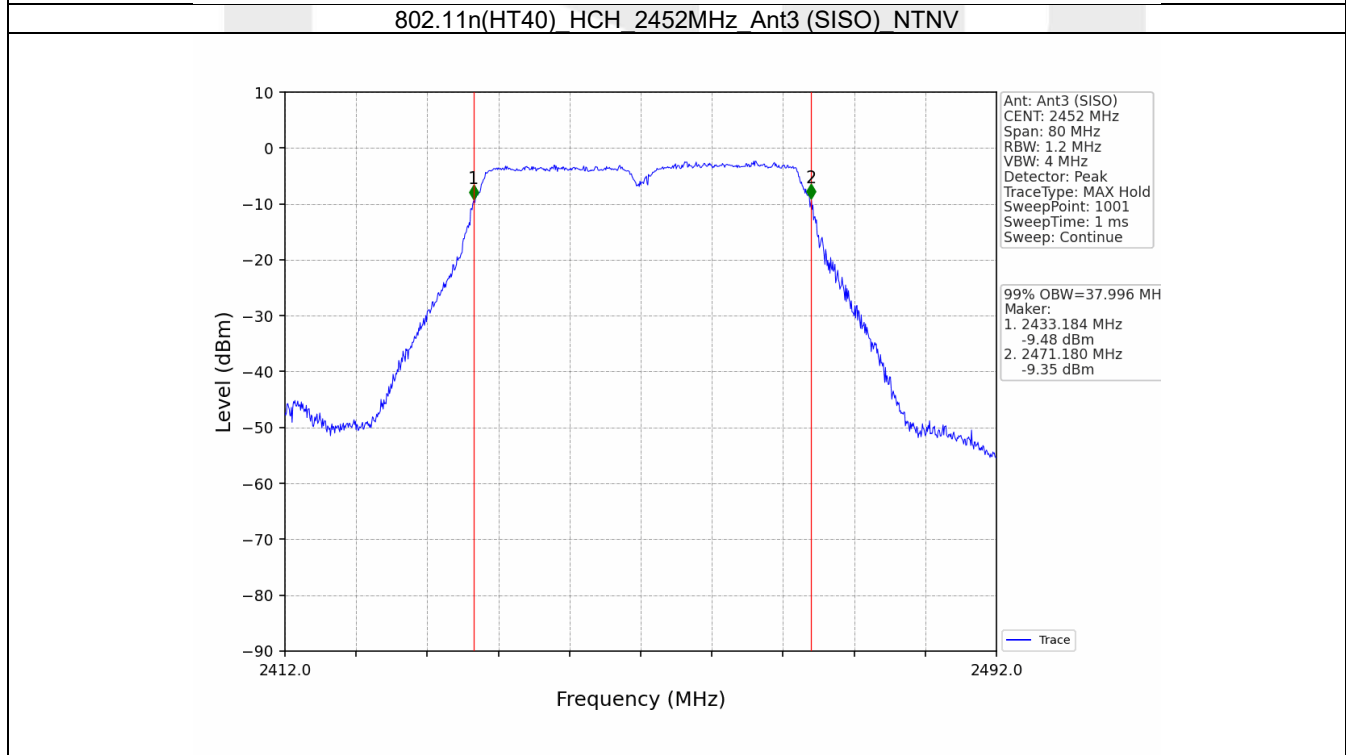
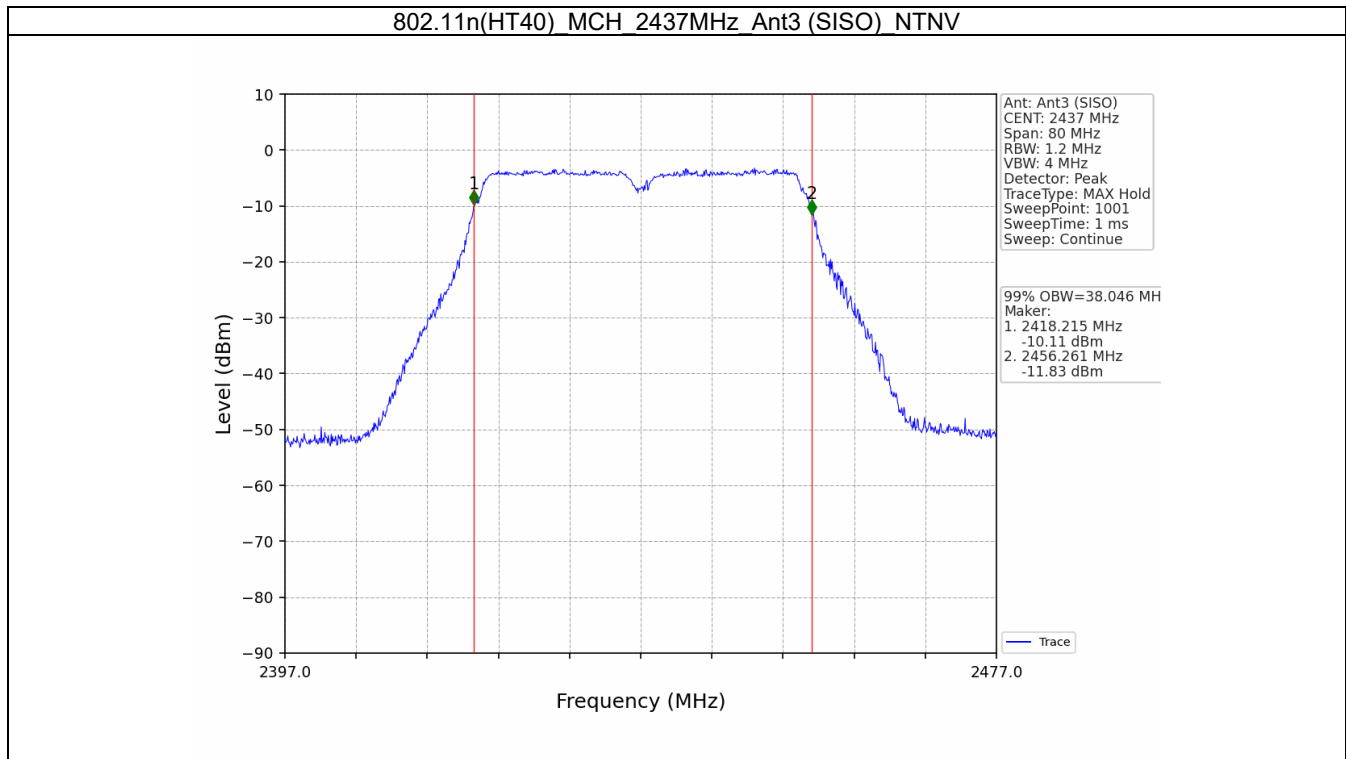










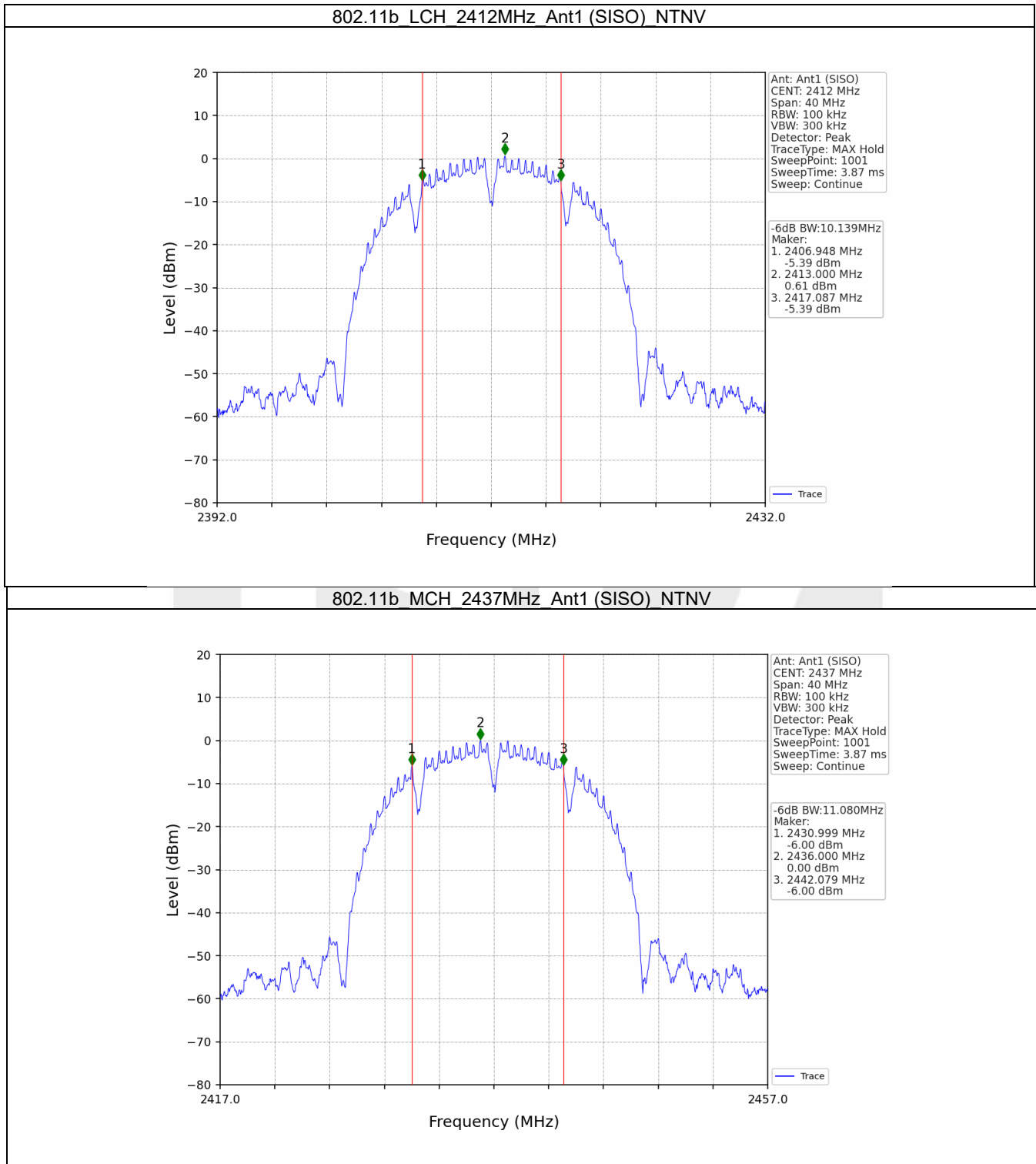


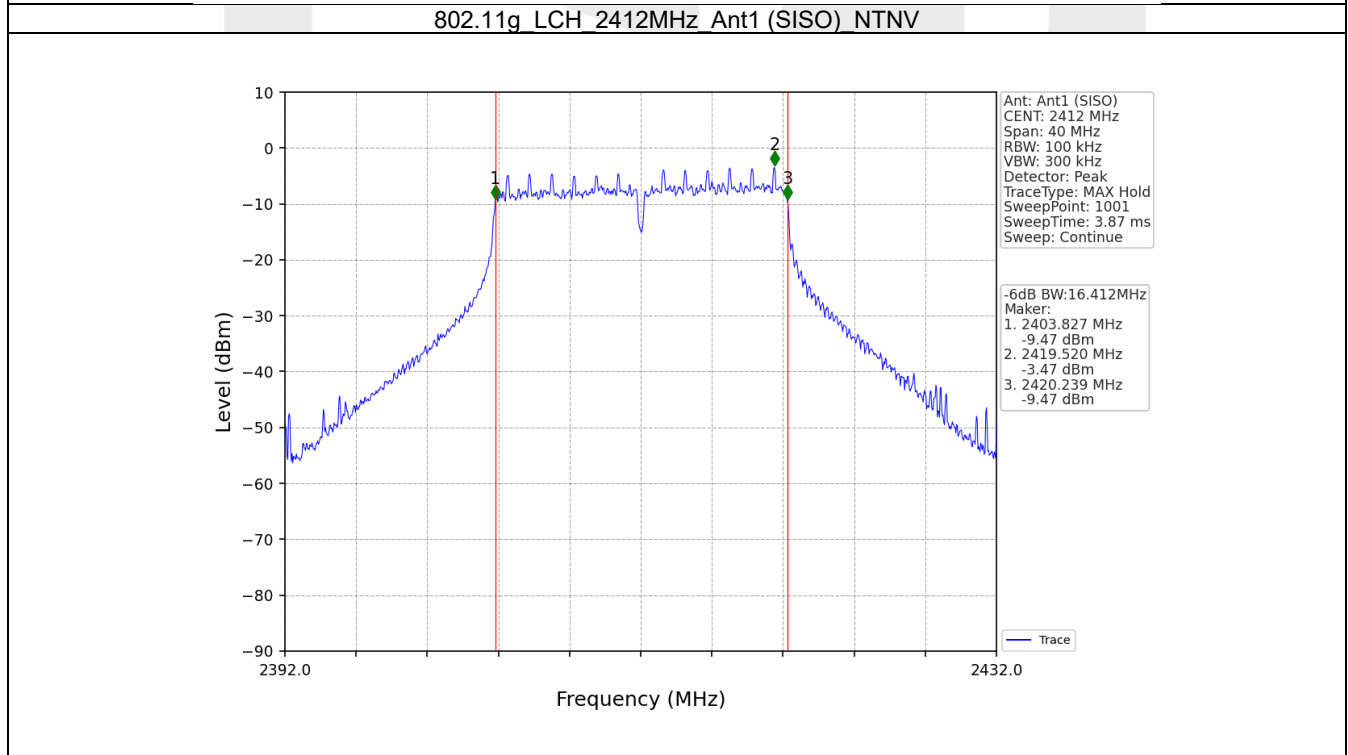
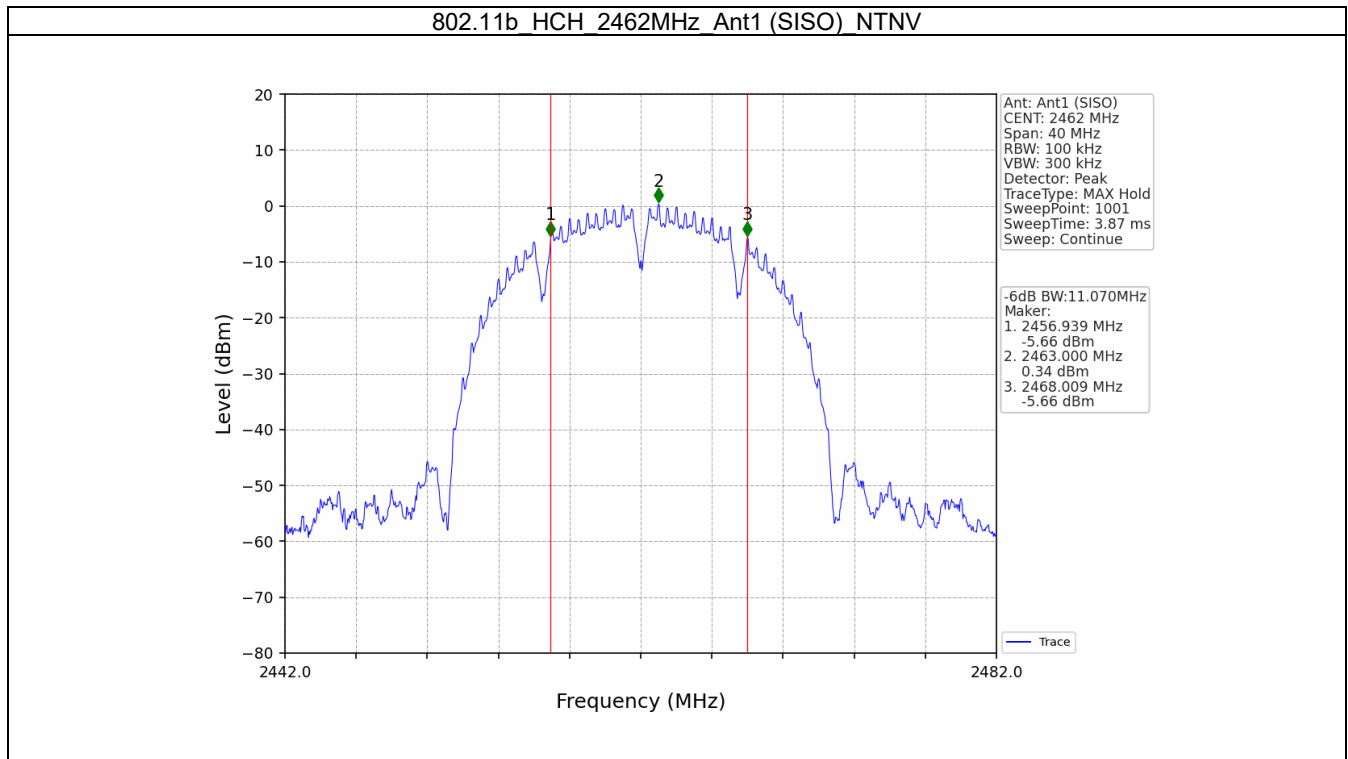
2.2.1. 6dB BW (WiFi Module 1)

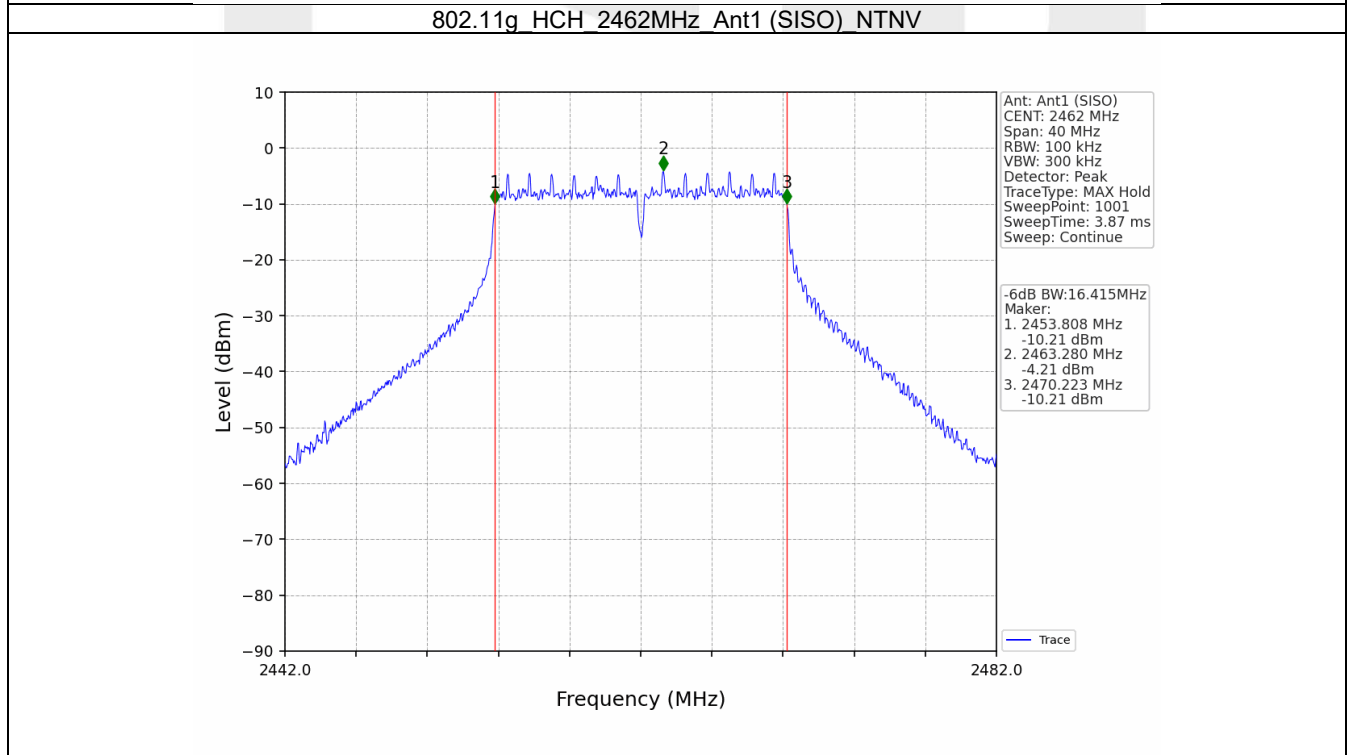
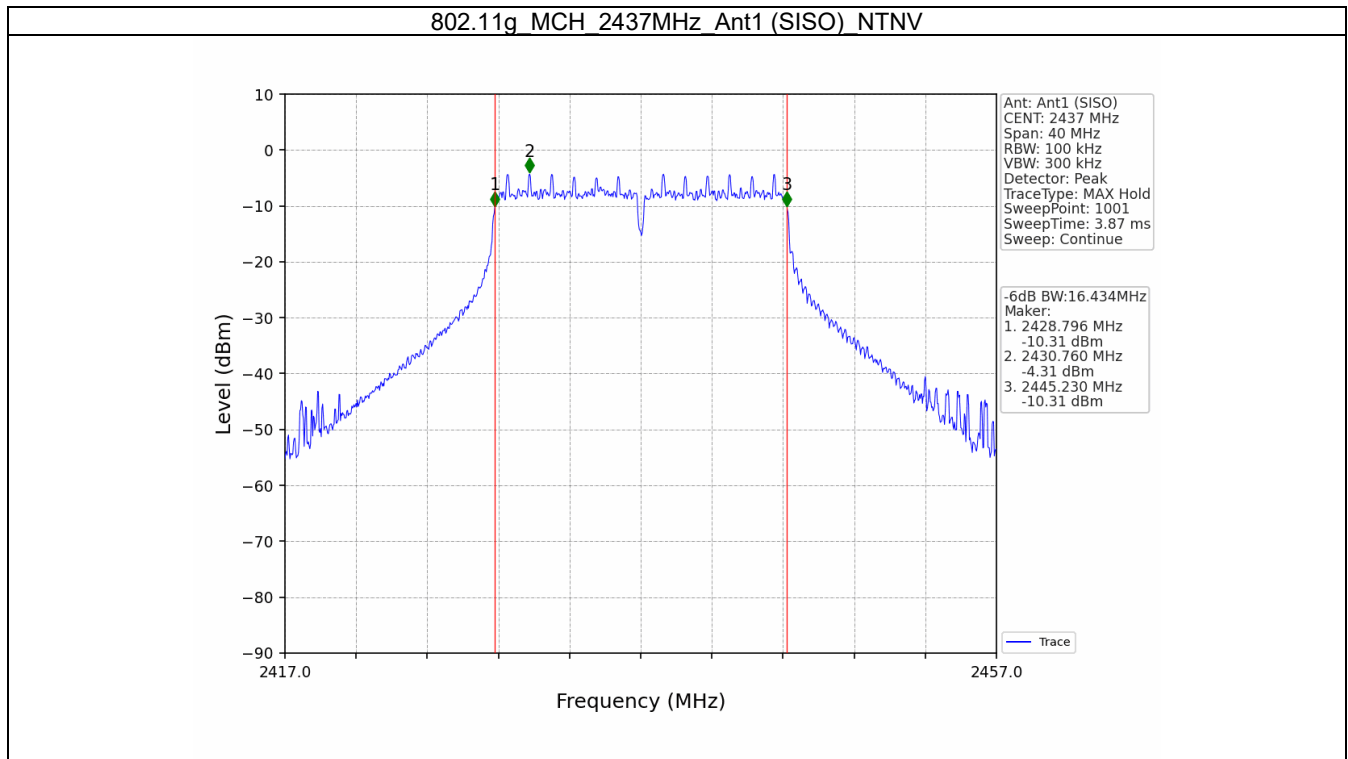
2.2.1.1 Test Result

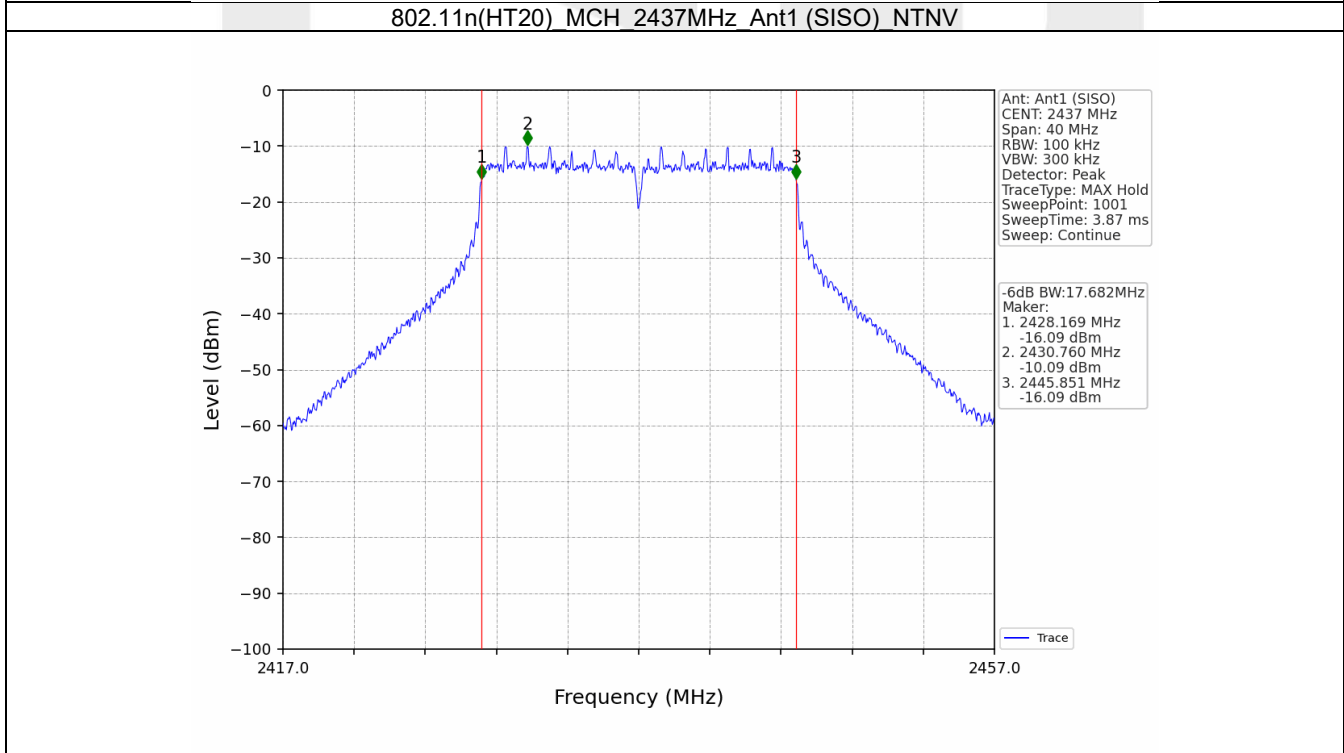
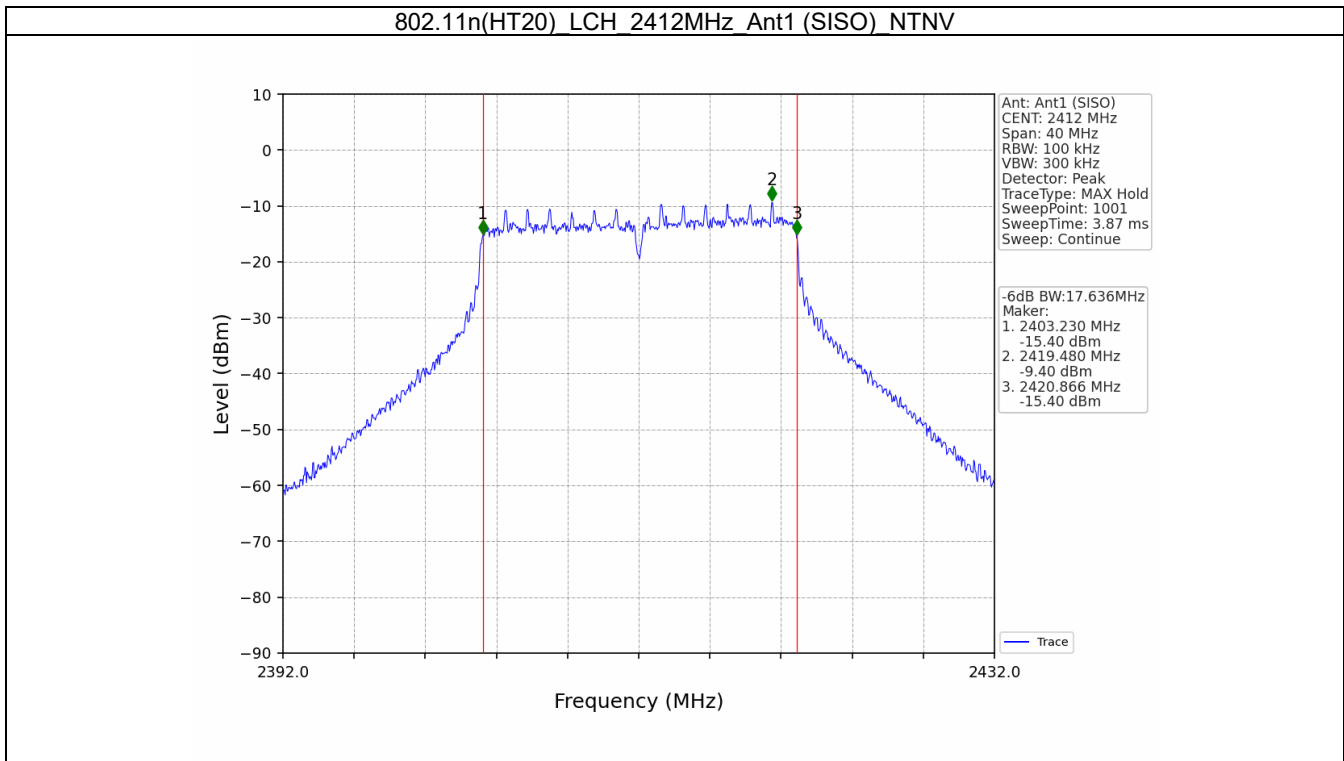
Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	10.139	>=0.5	Pass
		2437	1	11.080	>=0.5	Pass
		2462	1	11.070	>=0.5	Pass
802.11g	SISO	2412	1	16.412	>=0.5	Pass
		2437	1	16.434	>=0.5	Pass
		2462	1	16.415	>=0.5	Pass
802.11n (HT20)	SISO	2412	1	17.636	>=0.5	Pass
		2437	1	17.682	>=0.5	Pass
		2462	1	17.632	>=0.5	Pass
802.11n (HT40)	SISO	2422	1	36.469	>=0.5	Pass
		2437	1	36.528	>=0.5	Pass
		2452	1	36.511	>=0.5	Pass

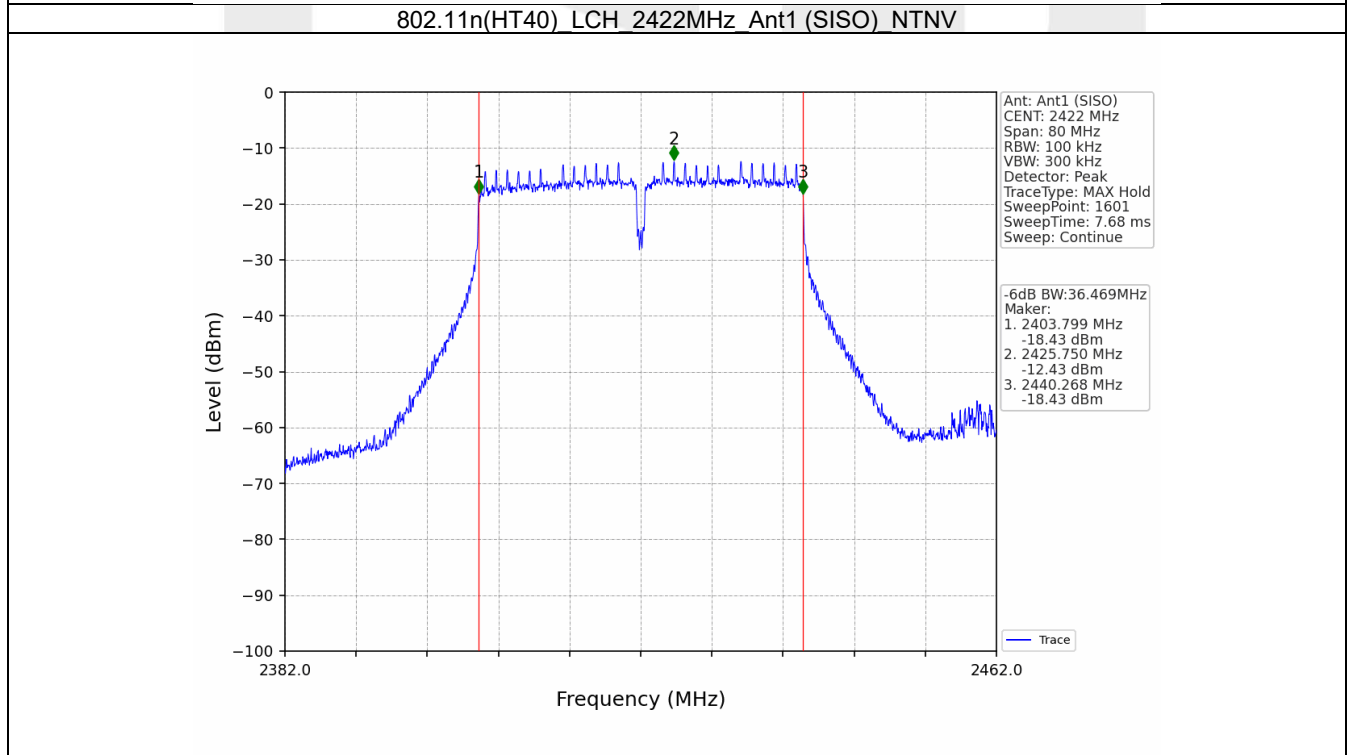
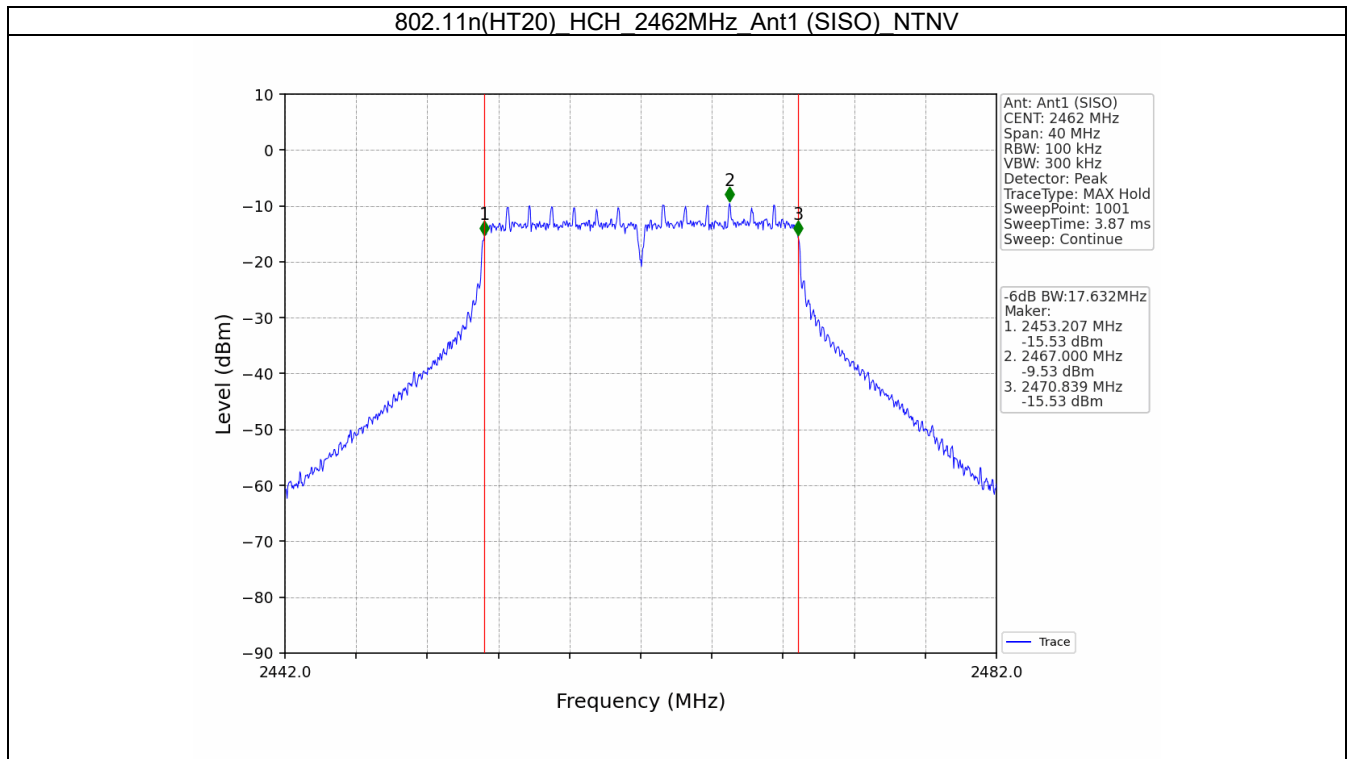
2.2.1.2 Test Graph

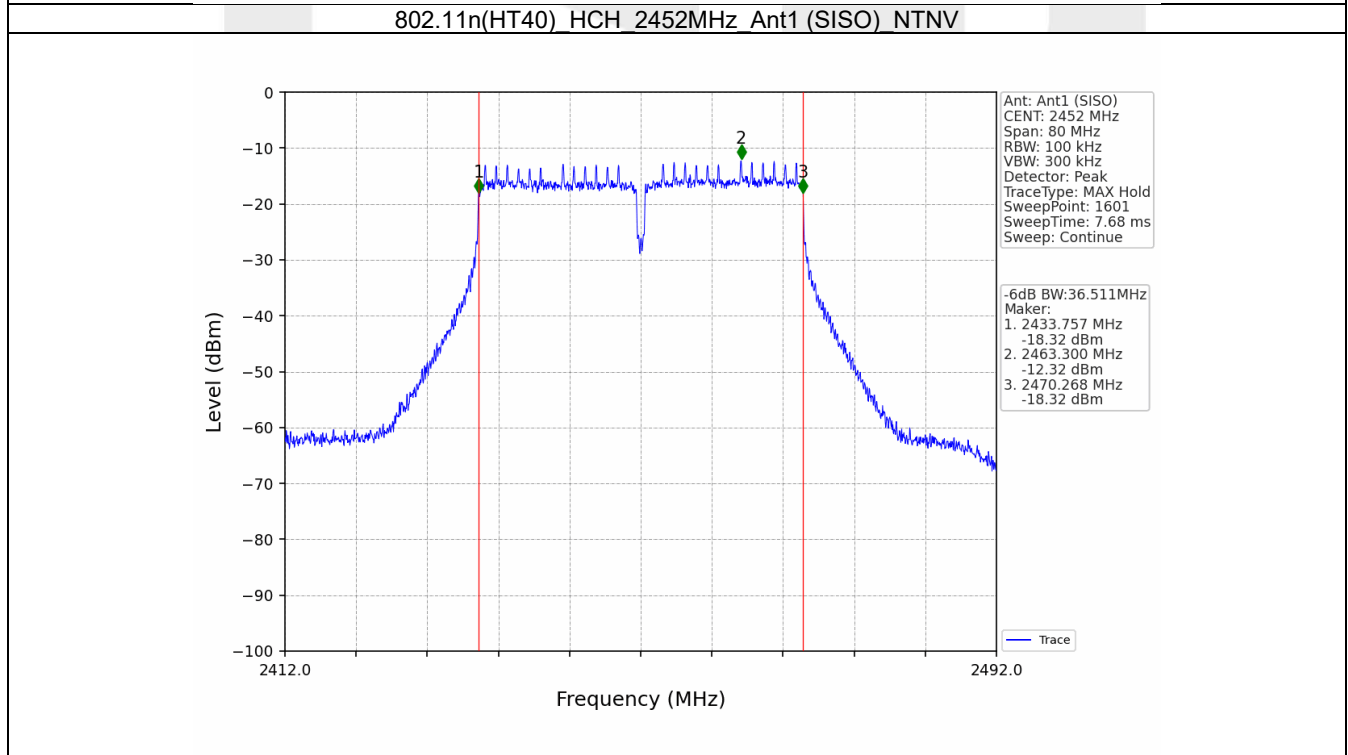
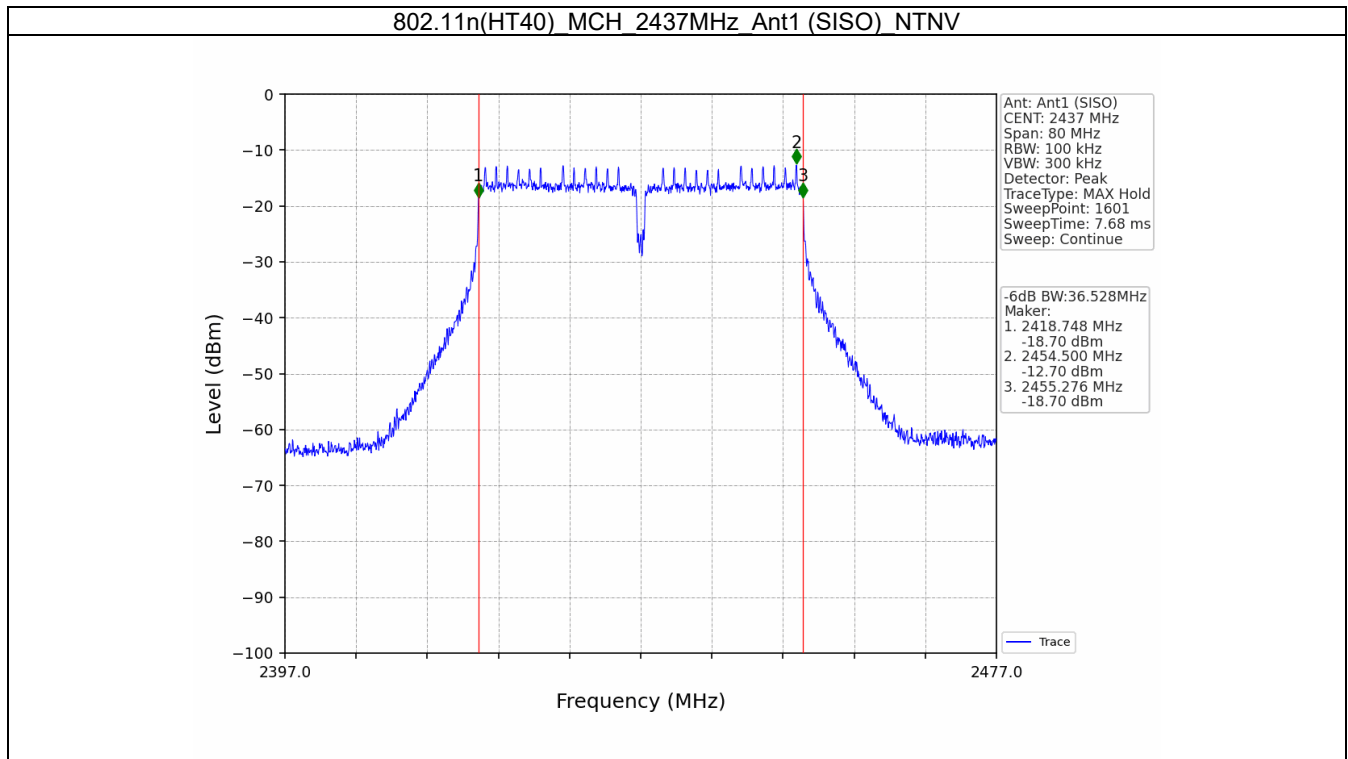










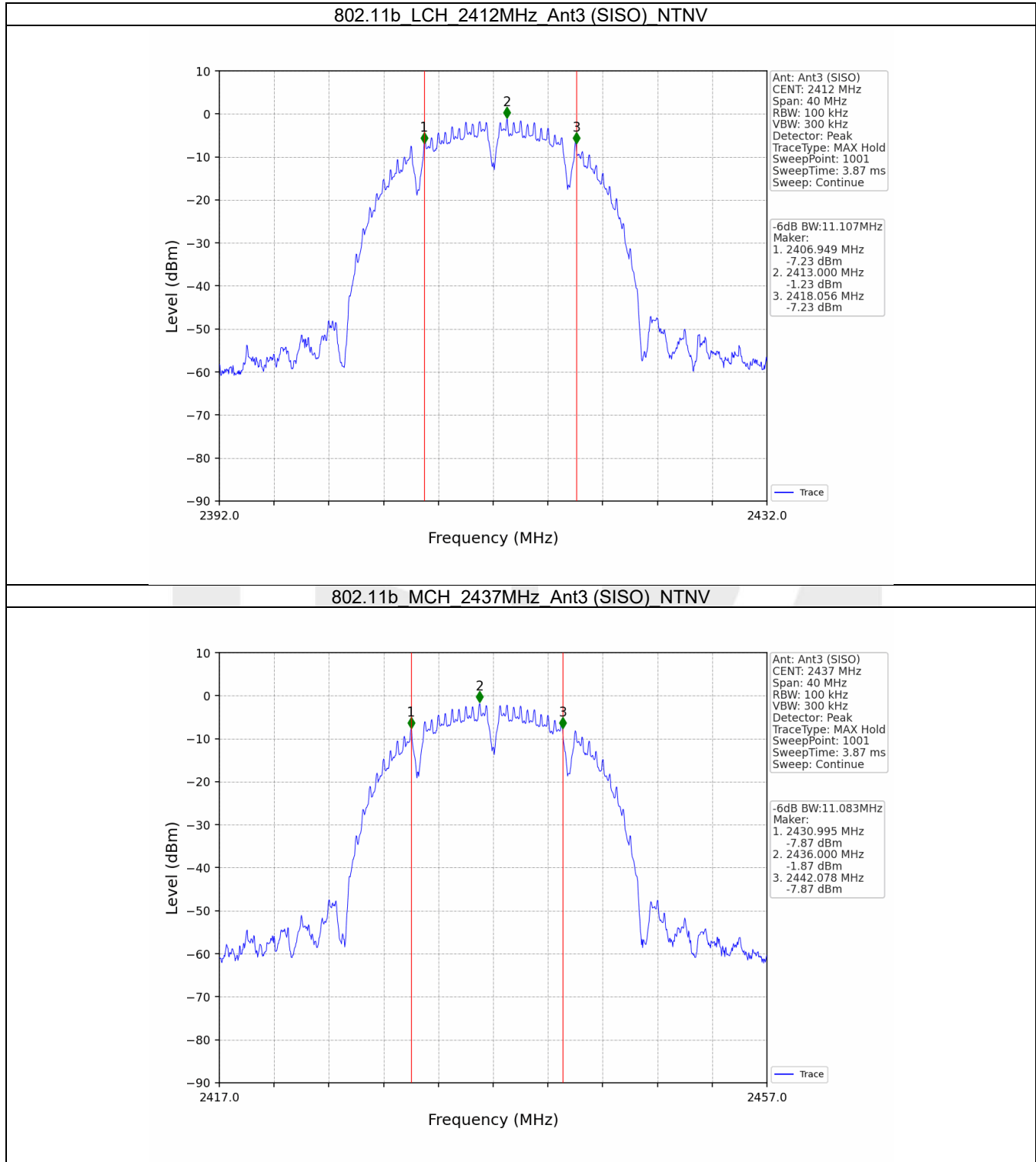


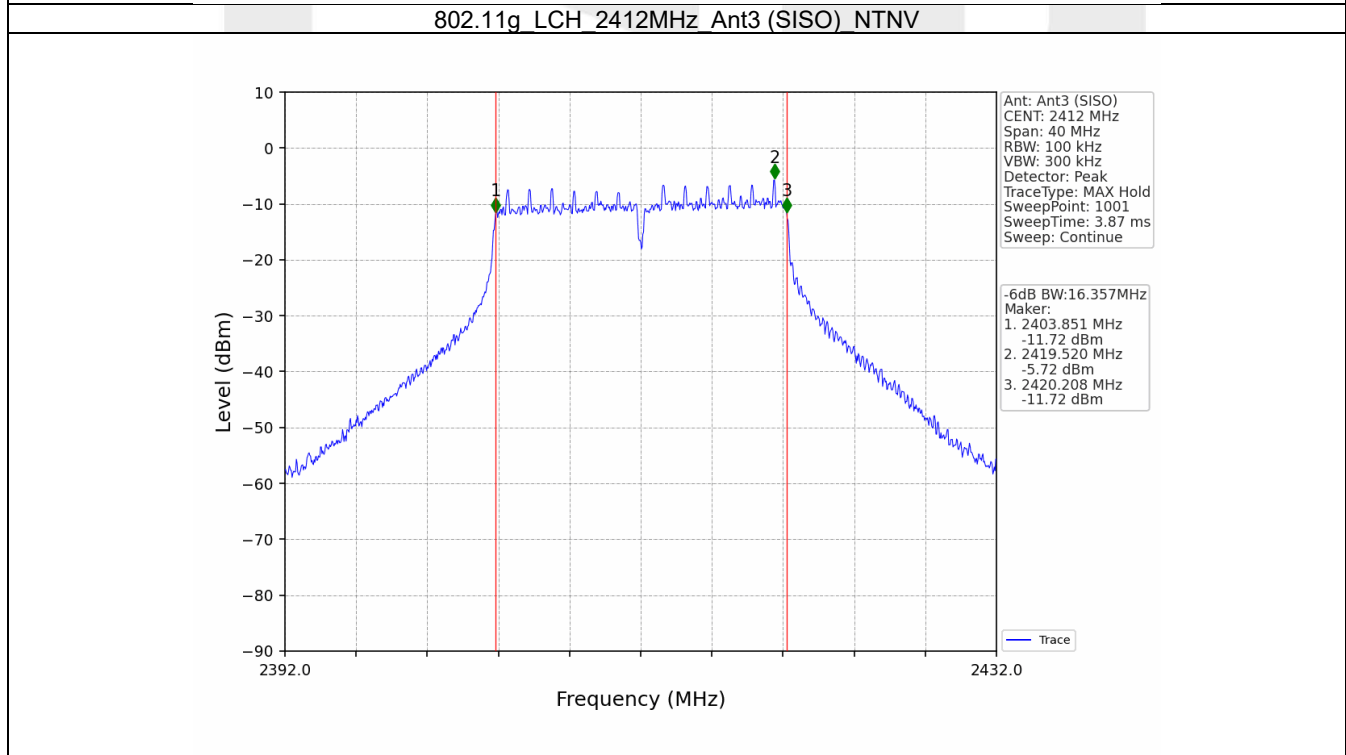
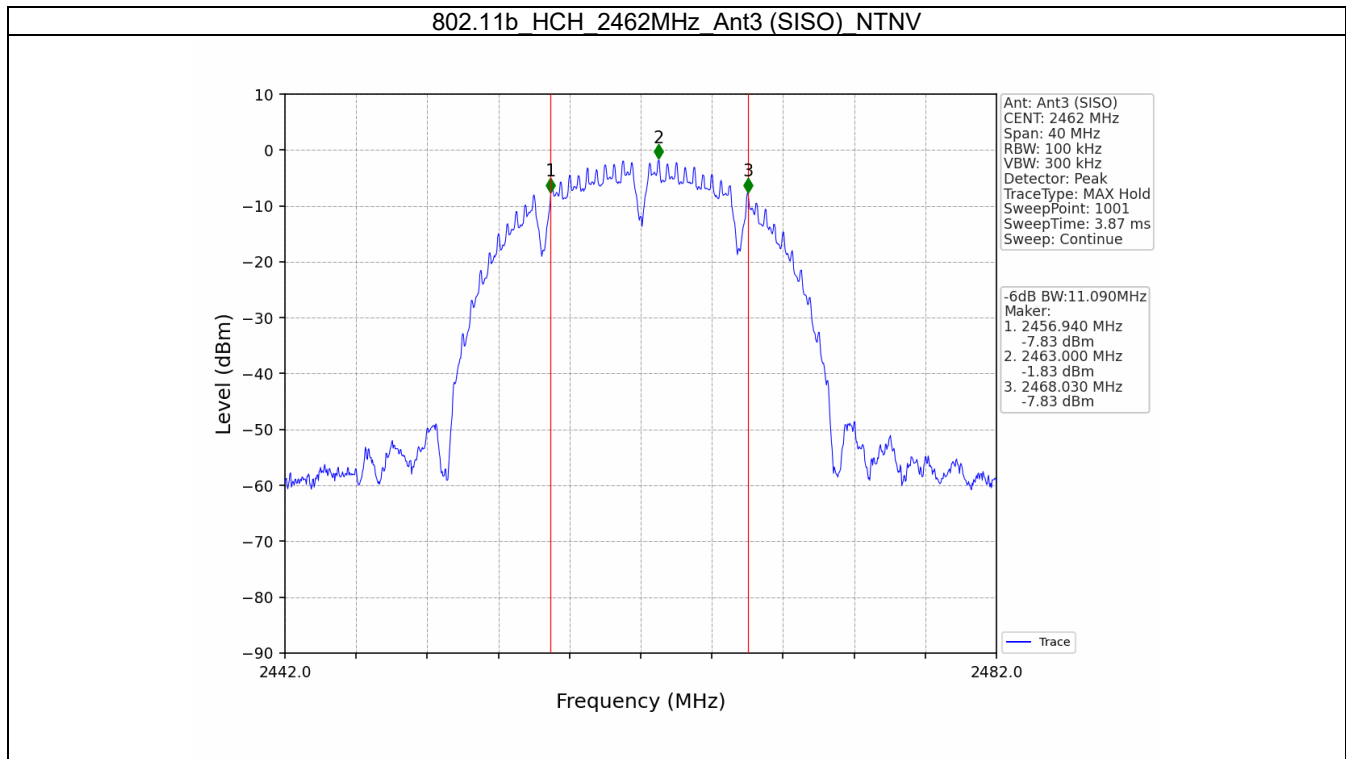
2.2.2. 6dB BW (WiFi Module 2)

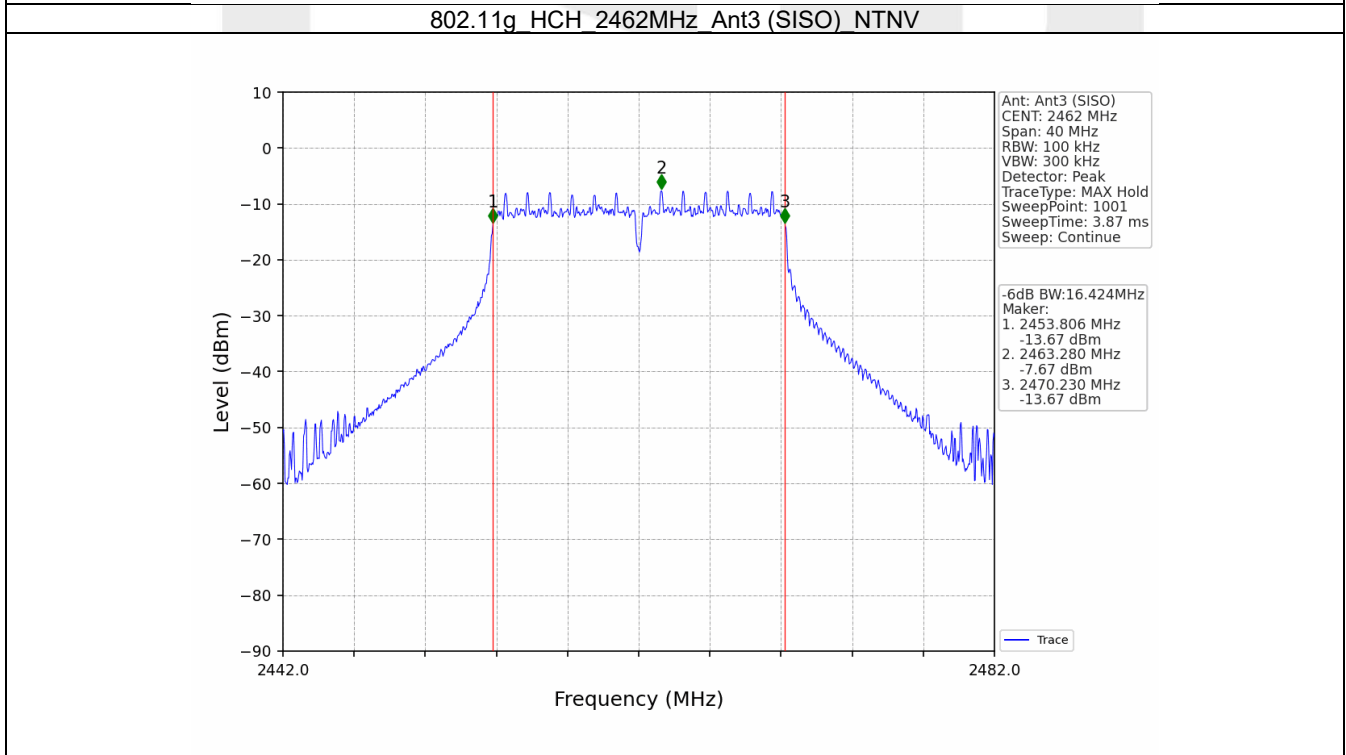
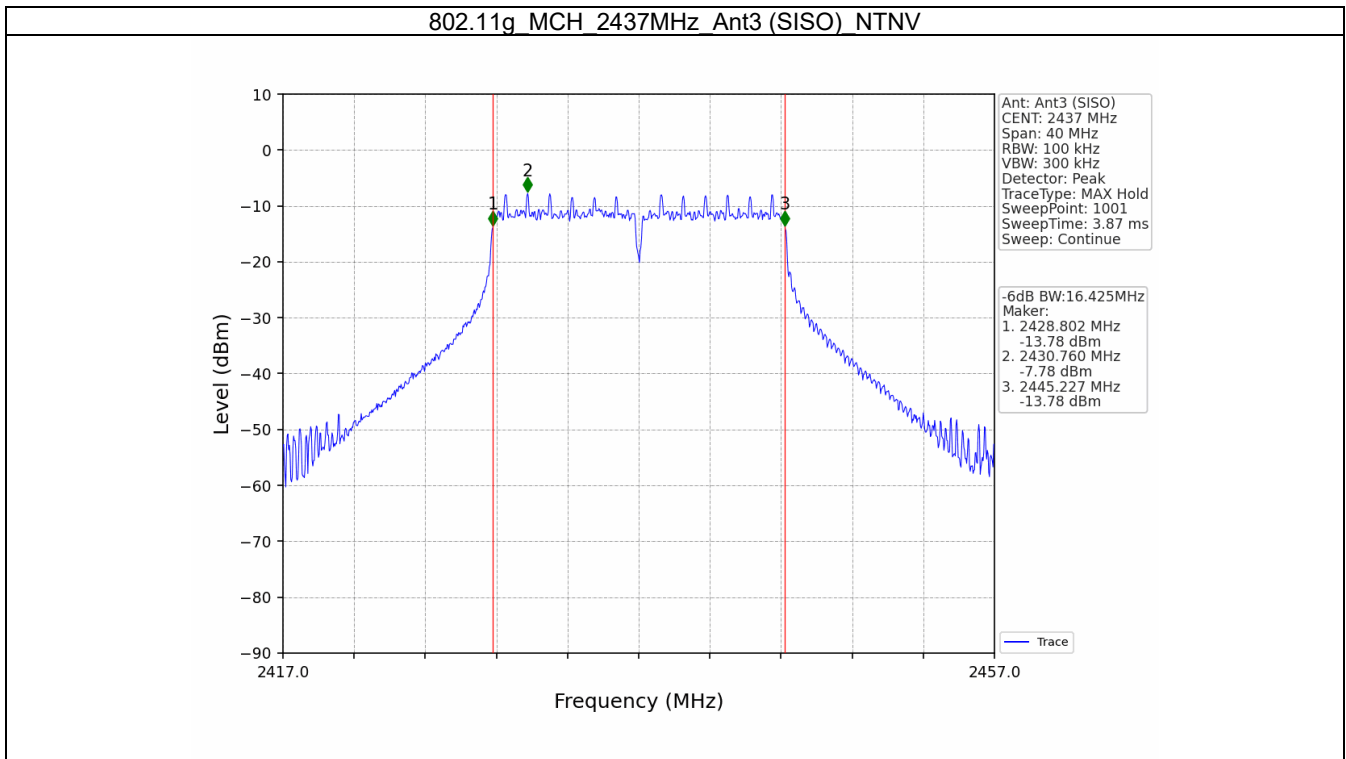
2.2.2.1 Test Result

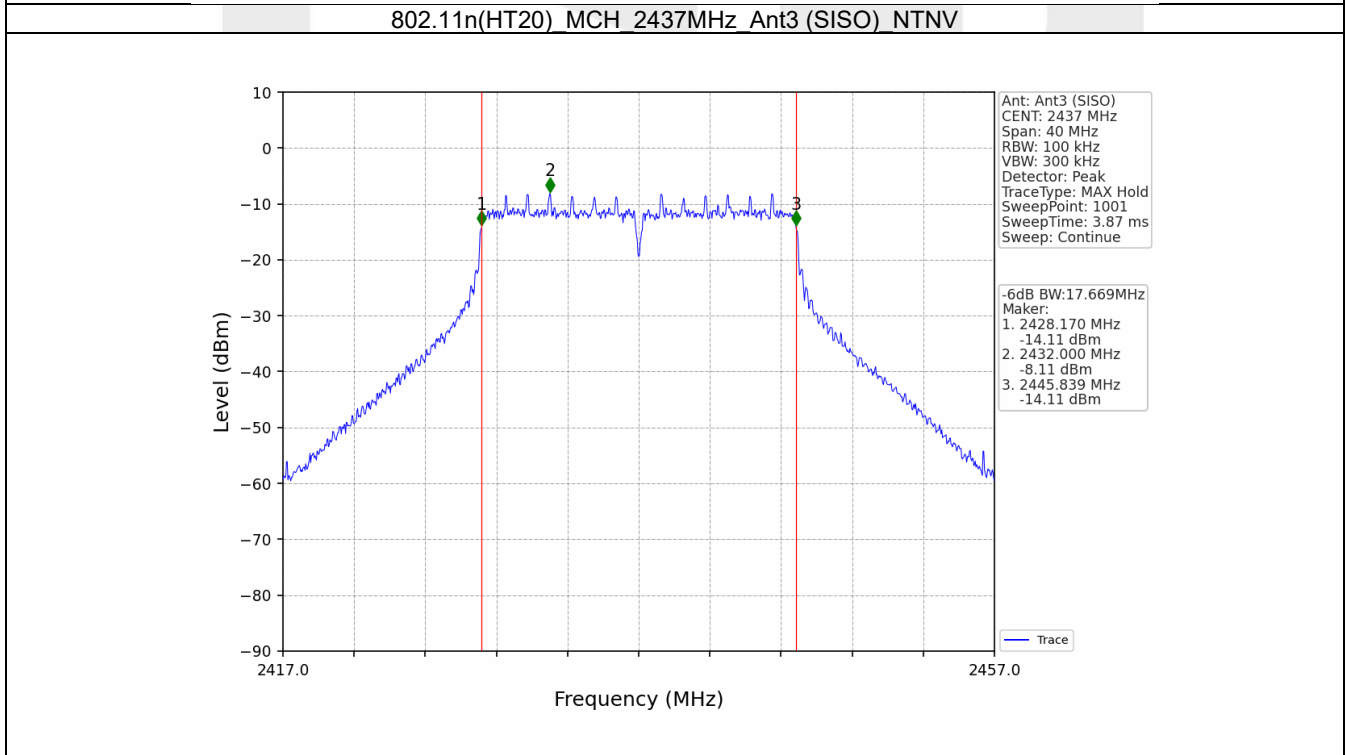
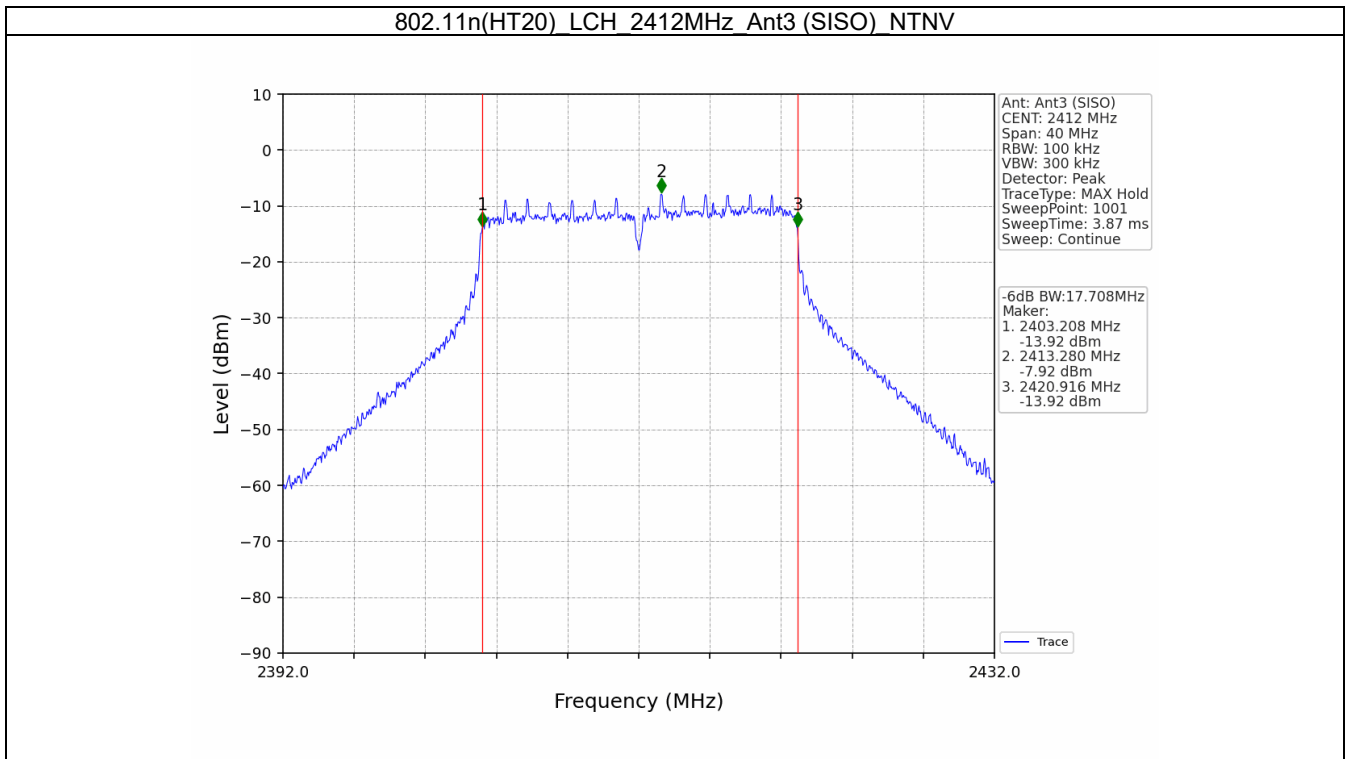
Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	3	11.107	>=0.5	Pass
		2437	3	11.083	>=0.5	Pass
		2462	3	11.090	>=0.5	Pass
802.11g	SISO	2412	3	16.357	>=0.5	Pass
		2437	3	16.425	>=0.5	Pass
		2462	3	16.424	>=0.5	Pass
802.11n (HT20)	SISO	2412	3	17.708	>=0.5	Pass
		2437	3	17.669	>=0.5	Pass
		2462	3	17.651	>=0.5	Pass
802.11n (HT40)	SISO	2422	3	36.226	>=0.5	Pass
		2437	3	36.515	>=0.5	Pass
		2452	3	36.496	>=0.5	Pass

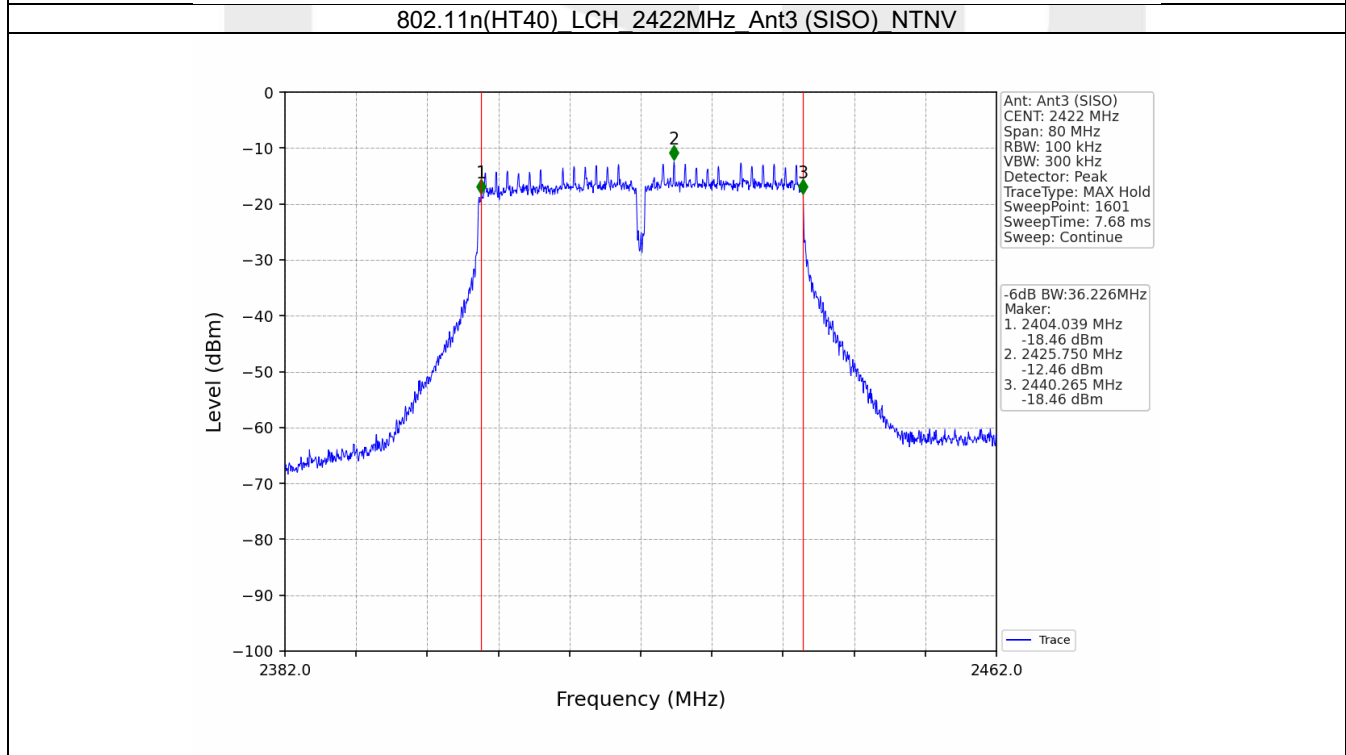
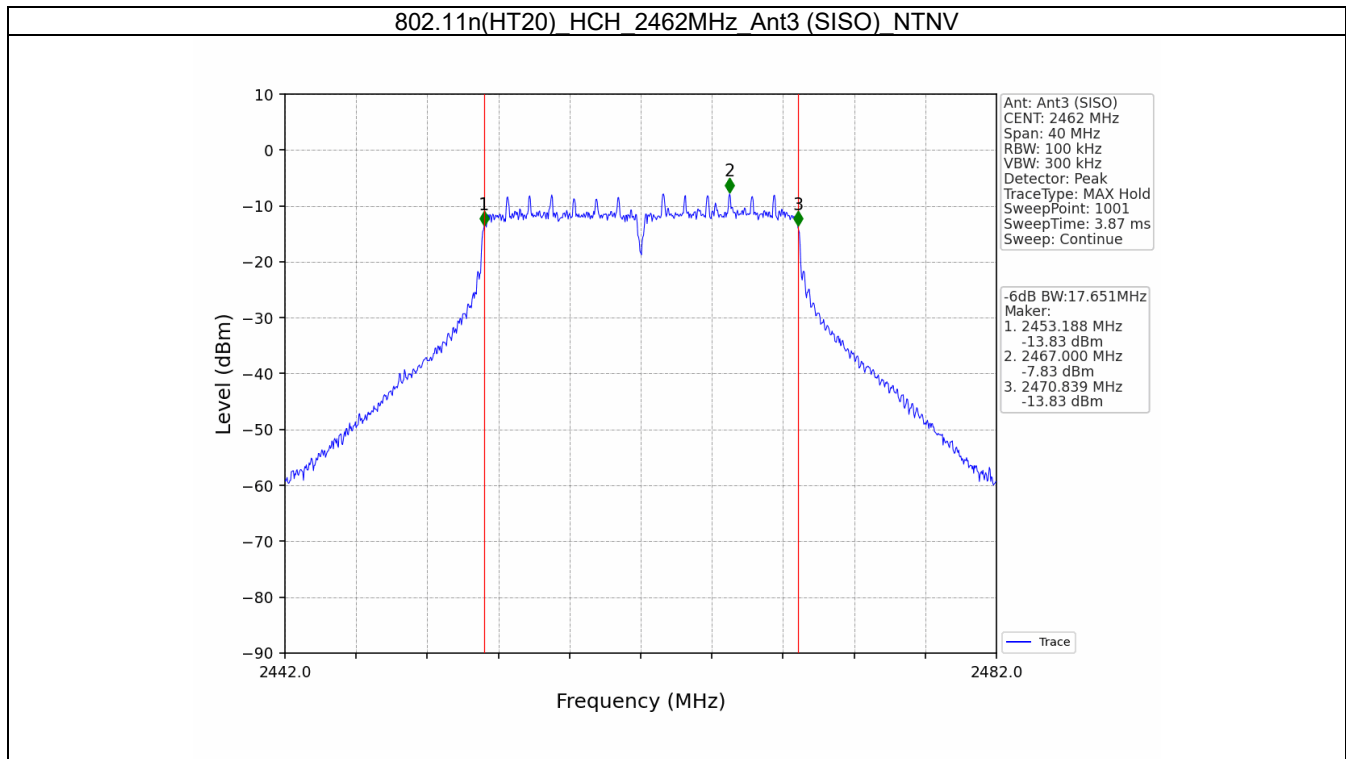
2.2.2.2 Test Graph

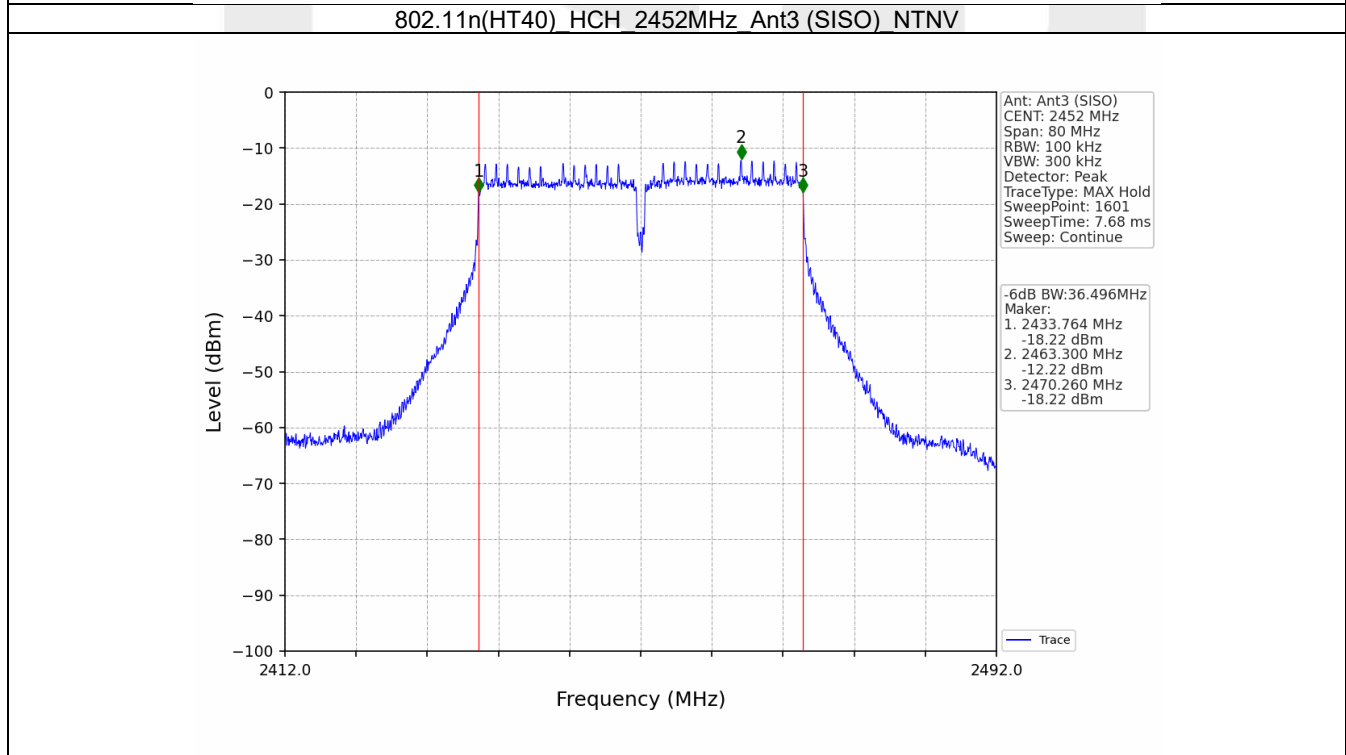
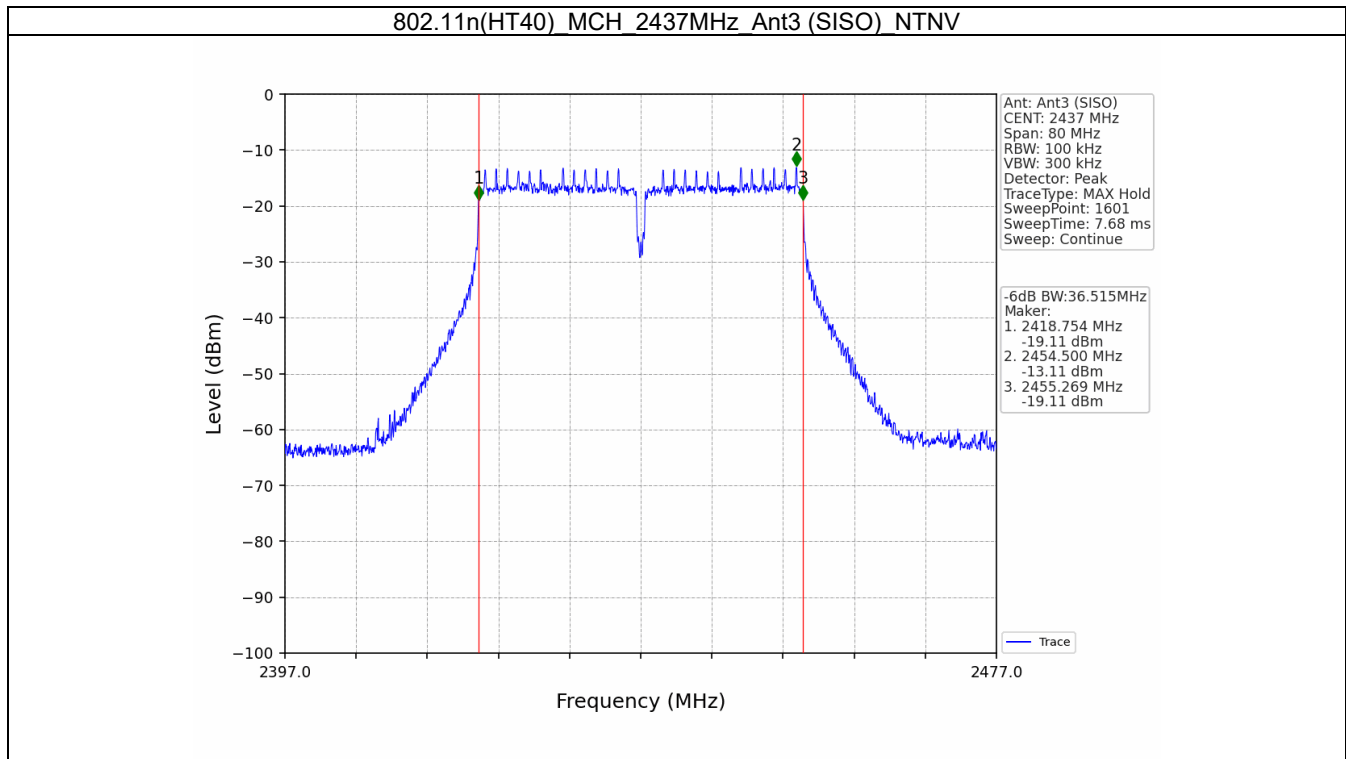












3. Maximum Conducted Output Power

3.1. Power (WiFi Module 1)

3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)			Verdict
			ANT1	ANT2	Limit	
802.11b	SISO	2412	12.12	10.62	<=30	Pass
		2437	11.73	11.27	<=30	Pass
		2462	12.03	11.51	<=30	Pass
802.11g	SISO	2412	11.44	12.90	<=30	Pass
		2437	11.16	12.25	<=30	Pass
		2462	11.39	12.37	<=30	Pass
802.11n (HT20)	SISO	2412	10.01	11.57	<=30	Pass
		2437	9.87	11.97	<=30	Pass
		2462	10.18	12.05	<=30	Pass
802.11n (HT40)	SISO	2422	9.90	10.87	<=30	Pass
		2437	9.87	11.19	<=30	Pass
		2452	10.03	10.96	<=30	Pass

Note1: Antenna Gain: Ant1: 3.40dBi; Ant2: 2.50dBi;

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)				Verdict
			ANT1	ANT2	MIMO	Limit	
802.11g	MIMO	2412	11.44	12.90	15.24	<=30	Pass
		2437	11.16	12.25	14.75	<=30	Pass
		2462	11.39	12.37	14.92	<=30	Pass
802.11n (HT20)	MIMO	2412	10.01	11.57	13.87	<=30	Pass
		2437	9.87	11.97	14.06	<=30	Pass
		2462	10.18	12.05	14.23	<=30	Pass
802.11n (HT40)	MIMO	2422	9.90	10.87	13.42	<=30	Pass
		2437	9.87	11.19	13.59	<=30	Pass
		2452	10.03	10.96	13.53	<=30	Pass

Note1: Antenna Gain: Ant1: 3.40dBi; Ant2: 2.50dBi;
 Note2: Directional Gain: Uncorrelated(Directional Gain = Ant Gain=2.97dBi)

3.2. Power (WiFi Module 2)

3.2.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)			Verdict
			ANT3	ANT4	Limit	
802.11b	SISO	2412	10.62	11.77	<=30	Pass
		2437	10.05	11.66	<=30	Pass
		2462	10.04	9.24	<=30	Pass
802.11g	SISO	2412	9.25	10.63	<=30	Pass
		2437	11.31	10.62	<=30	Pass
		2462	11.51	11.10	<=30	Pass
802.11n (HT20)	SISO	2412	11.96	11.28	<=30	Pass
		2437	11.76	11.28	<=30	Pass
		2462	11.90	11.77	<=30	Pass
802.11n (HT40)	SISO	2422	9.65	10.42	<=30	Pass
		2437	9.52	10.43	<=30	Pass
		2452	10.22	10.39	<=30	Pass

Note1: Antenna Gain: Ant3: 2.50dBi; Ant4: 2.50dBi;

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)				Verdict
			ANT3	ANT4	MIMO	Limit	
802.11g	MIMO	2412	9.25	10.63	13.00	<=30	Pass
		2437	11.31	10.62	13.99	<=30	Pass
		2462	11.51	11.10	14.32	<=30	Pass
802.11n (HT20)	MIMO	2412	11.96	11.28	14.64	<=30	Pass
		2437	11.76	11.28	14.54	<=30	Pass
		2462	11.90	11.77	14.85	<=30	Pass
802.11n (HT40)	MIMO	2422	9.65	10.42	13.06	<=30	Pass
		2437	9.52	10.43	13.01	<=30	Pass
		2452	10.22	10.39	13.32	<=30	Pass

Note1: Antenna Gain: Ant3: 2.50dBi; Ant4: 2.50dBi;

Note2: Directional Gain: Uncorrelated(Directional Gain = Ant Gain=2.50dBi)

3.3. Power (WiFi Module 1+ WiFi Module 2)

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)				Verdict
			Module 1	Module 2	MIMO	Limit	
802.11g	MIMO	2412	15.24	13.00	17.27	<=30	Pass
		2437	14.75	13.99	17.40	<=30	Pass
		2462	14.92	14.32	17.64	<=30	Pass
802.11n (HT20)	MIMO	2412	13.87	14.64	17.28	<=30	Pass
		2437	14.06	14.54	17.32	<=30	Pass
		2462	14.23	14.85	17.56	<=30	Pass
802.11n (HT40)	MIMO	2422	13.42	13.06	16.25	<=30	Pass
		2437	13.59	13.01	16.32	<=30	Pass
		2452	13.53	13.32	16.44	<=30	Pass
Note1: Antenna Gain:WiFi Module 1: 2.97dBi; WiFi Module 2: 2.50dBi; Note2: Directional Gain: Uncorrelated(Directional Gain = Ant Gain=2.74dBi)							

4. Maximum Power Spectral Density

4.1 PSD (WiFi Module 1)

4.1.1 Test Result

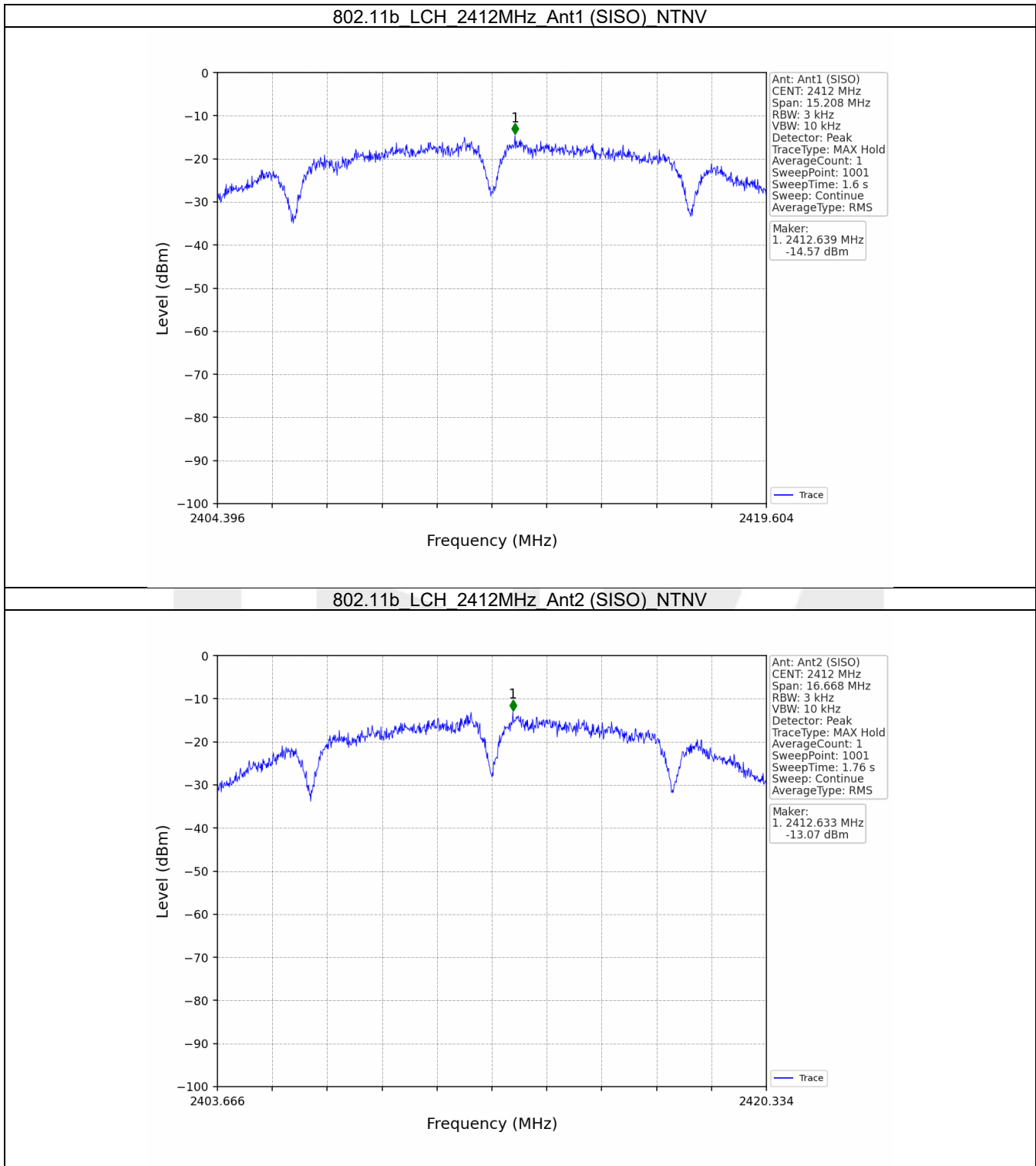
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)			Verdict
			ANT1	ANT2	Limit	
802.11b	SISO	2412	-14.57	-13.07	<=8	Pass
		2437	-15.44	-12.83	<=8	Pass
		2462	-14.82	-12.42	<=8	Pass
802.11g	SISO	2412	-19.07	-21.24	<=8	Pass
		2437	-19.52	-20.46	<=8	Pass
		2462	-19.56	-22.78	<=8	Pass
802.11n (HT20)	SISO	2412	-23.48	-22.57	<=8	Pass
		2437	-24.24	-22.23	<=8	Pass
		2462	-24.28	-21.48	<=8	Pass
802.11n (HT40)	SISO	2422	-27.76	-25.86	<=8	Pass
		2437	-27.43	-26.28	<=8	Pass
		2452	-27.14	-26.27	<=8	Pass

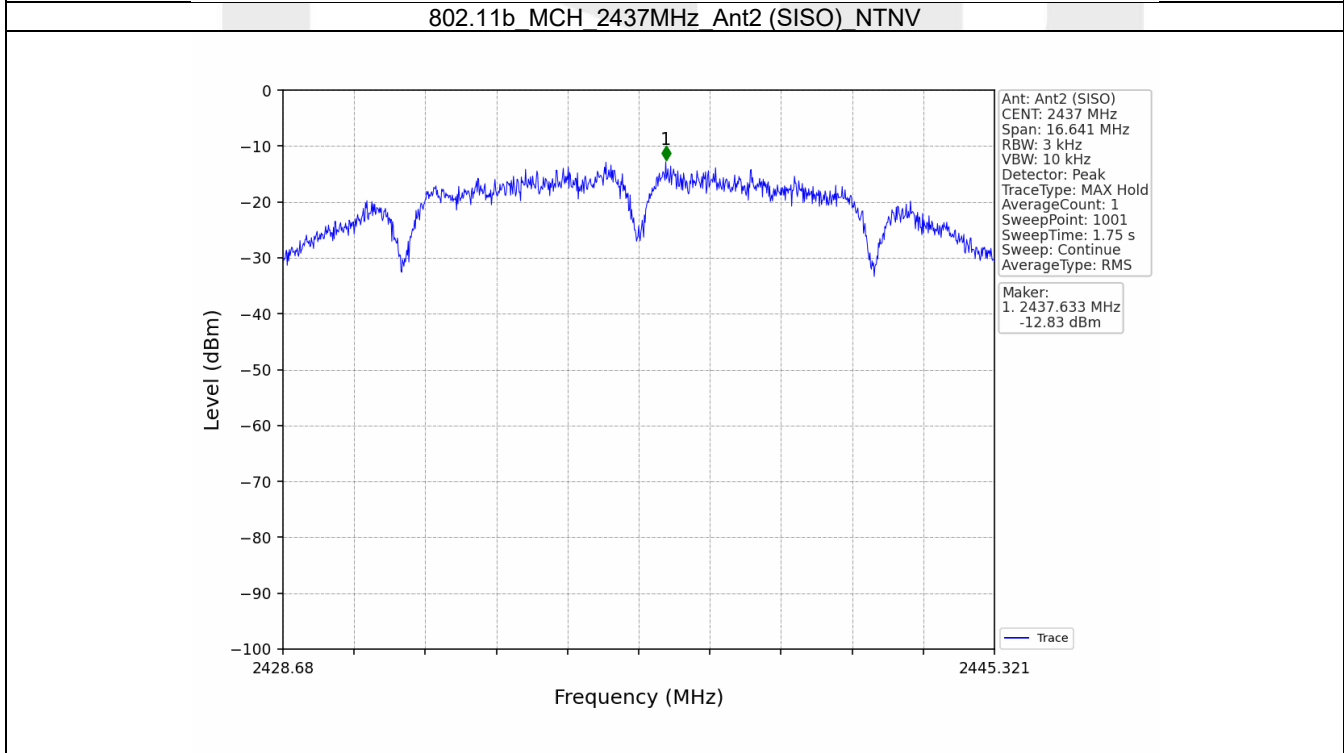
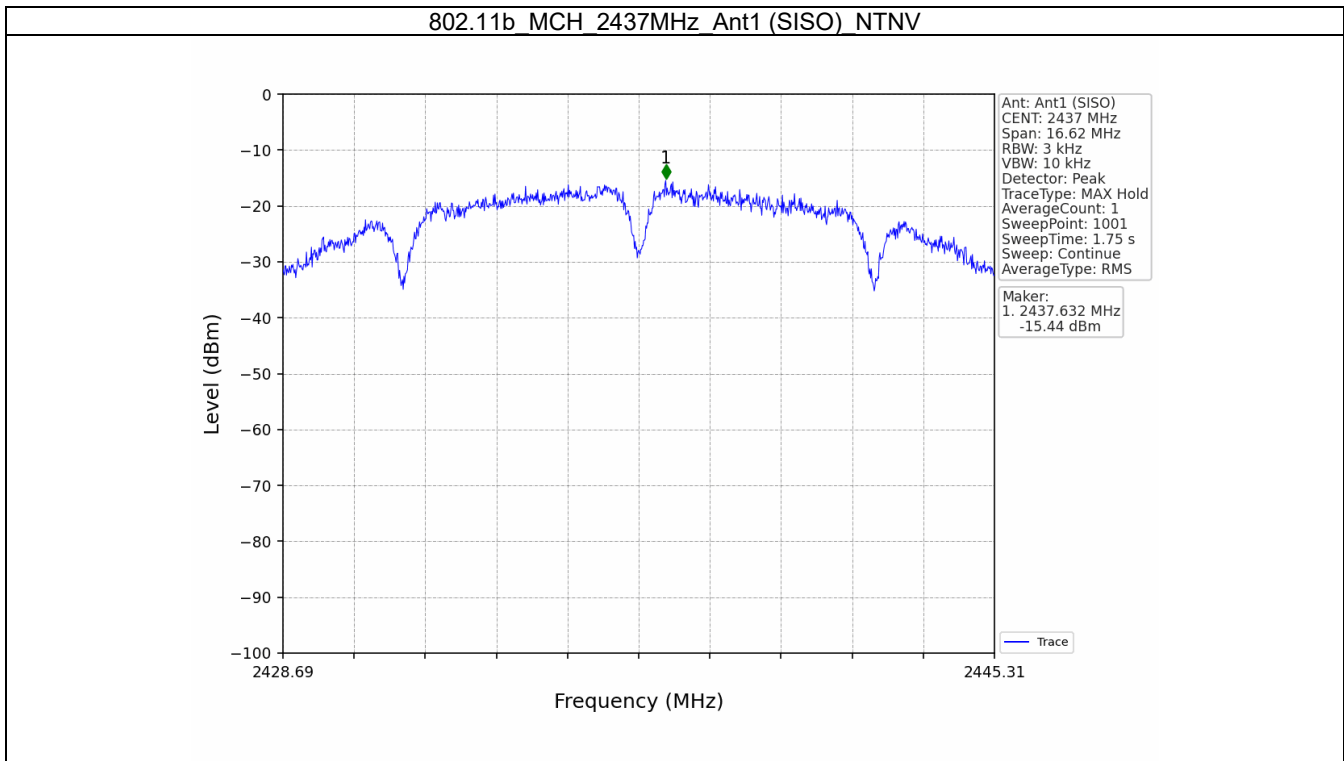
Note1: Antenna Gain: Ant1: 3.40dBi; Ant2: 2.50dBi;

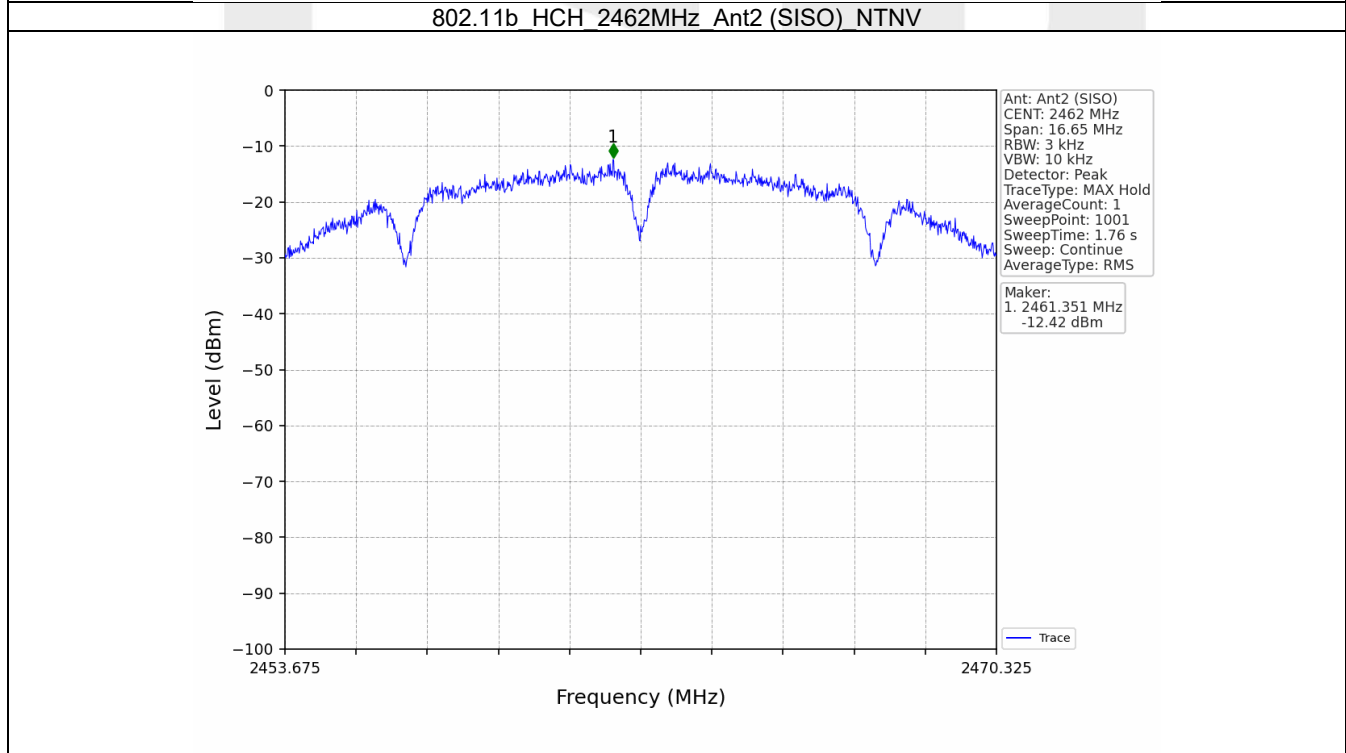
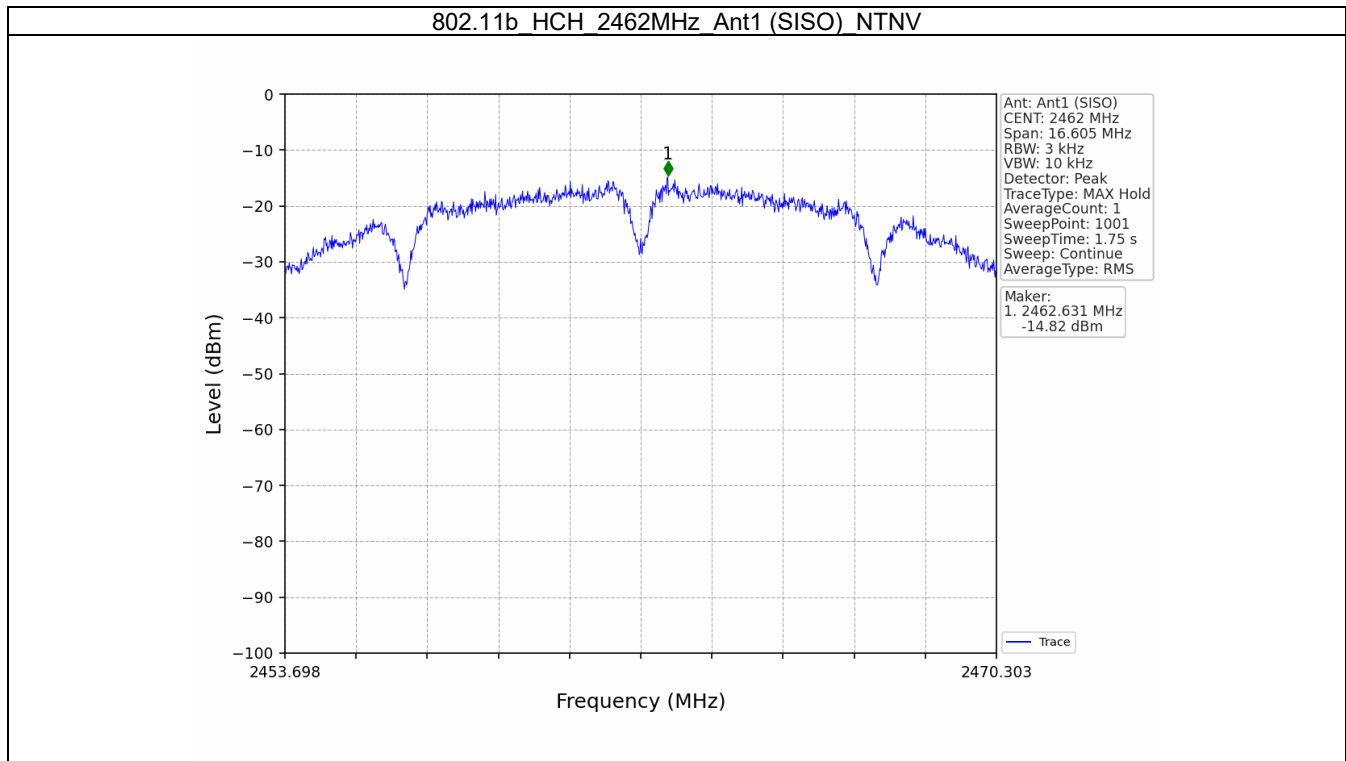
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)			Verdict	
			ANT1	ANT2	MIMO		
802.11g	MIMO	2412	-19.07	-21.24	-17.01	<=8	Pass
		2437	-19.52	-20.46	-16.95	<=8	Pass
		2462	-19.56	-22.78	-17.87	<=8	Pass
802.11n (HT20)	MIMO	2412	-23.48	-22.57	-19.99	<=8	Pass
		2437	-24.24	-22.23	-20.11	<=8	Pass
		2462	-24.28	-21.48	-19.65	<=8	Pass
802.11n (HT40)	MIMO	2422	-27.76	-25.86	-23.70	<=8	Pass
		2437	-27.43	-26.28	-23.81	<=8	Pass
		2452	-27.14	-26.27	-23.67	<=8	Pass

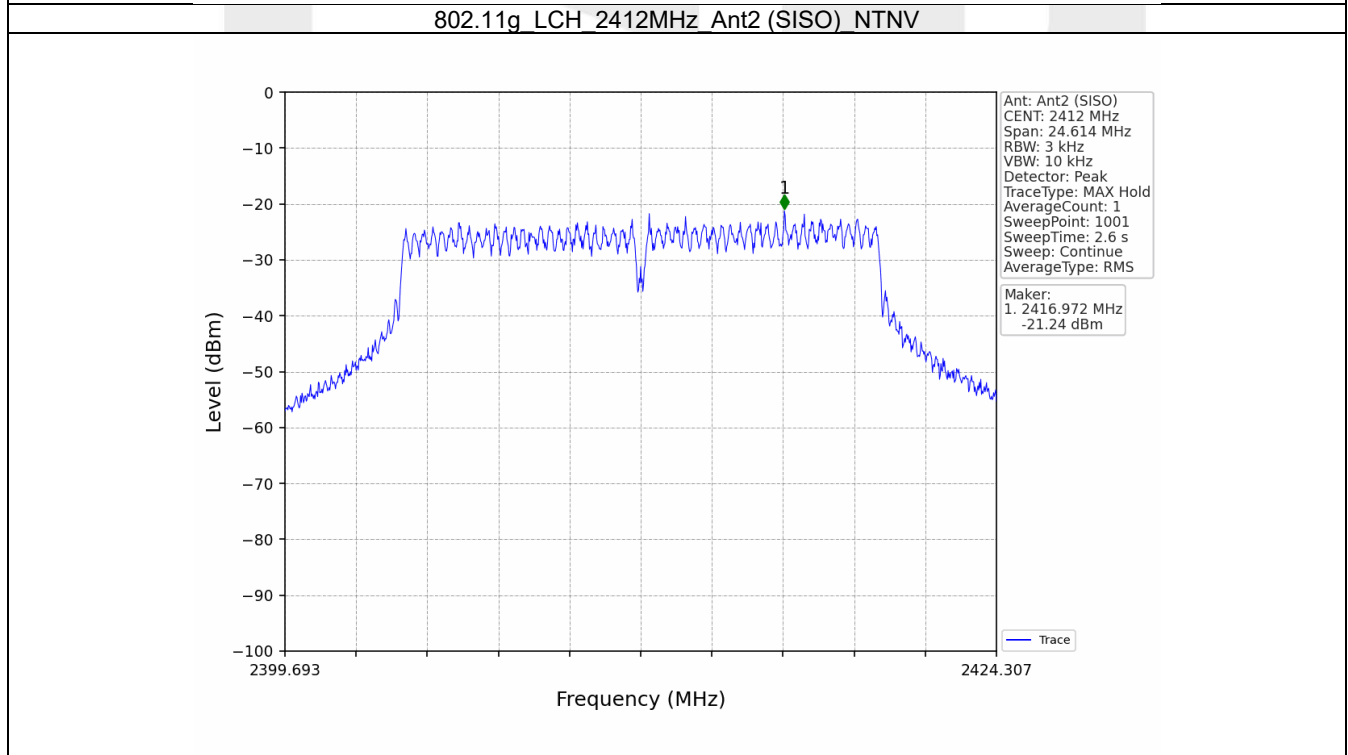
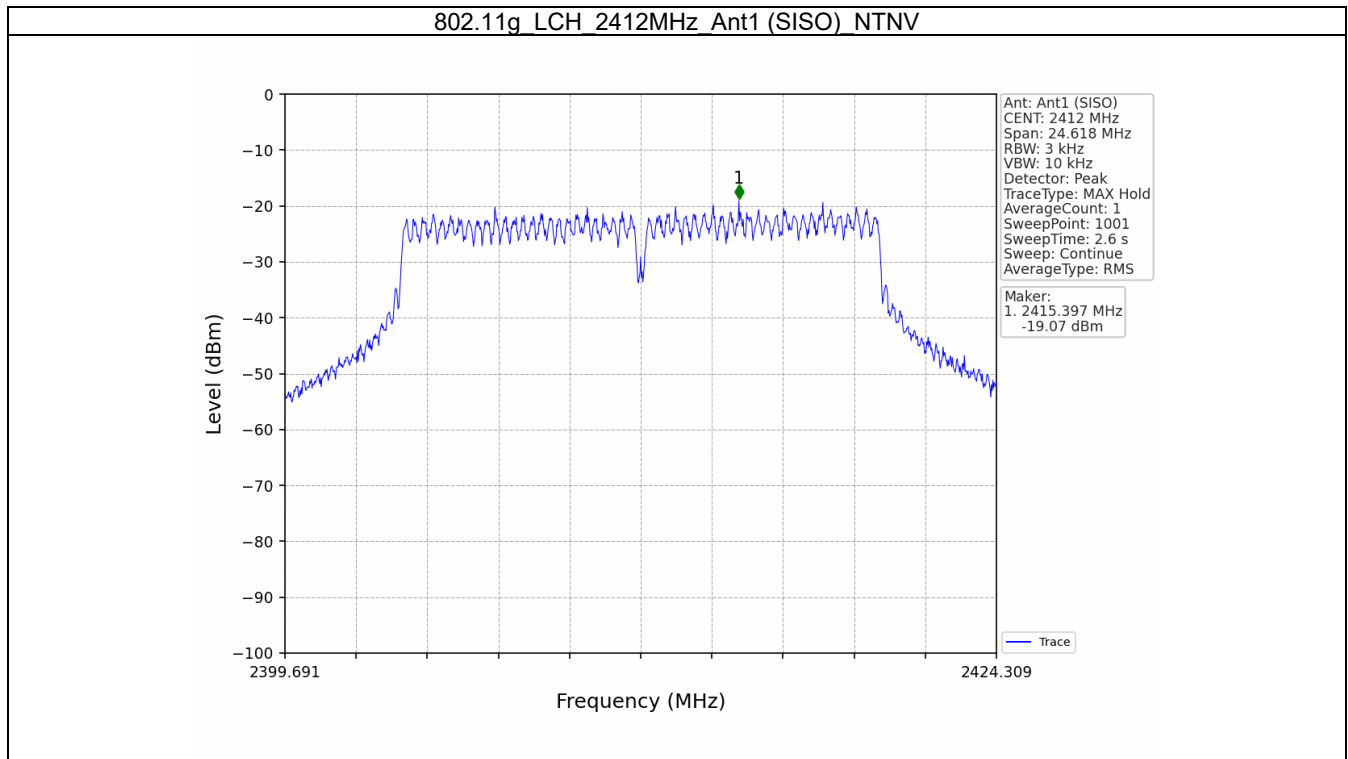
Note1: Antenna Gain: Ant1: 3.40dBi; Ant2: 2.50dBi;
 Note2: Directional Gain: Uncorrelated(Directional Gain = Ant Gain=2.97dBi)

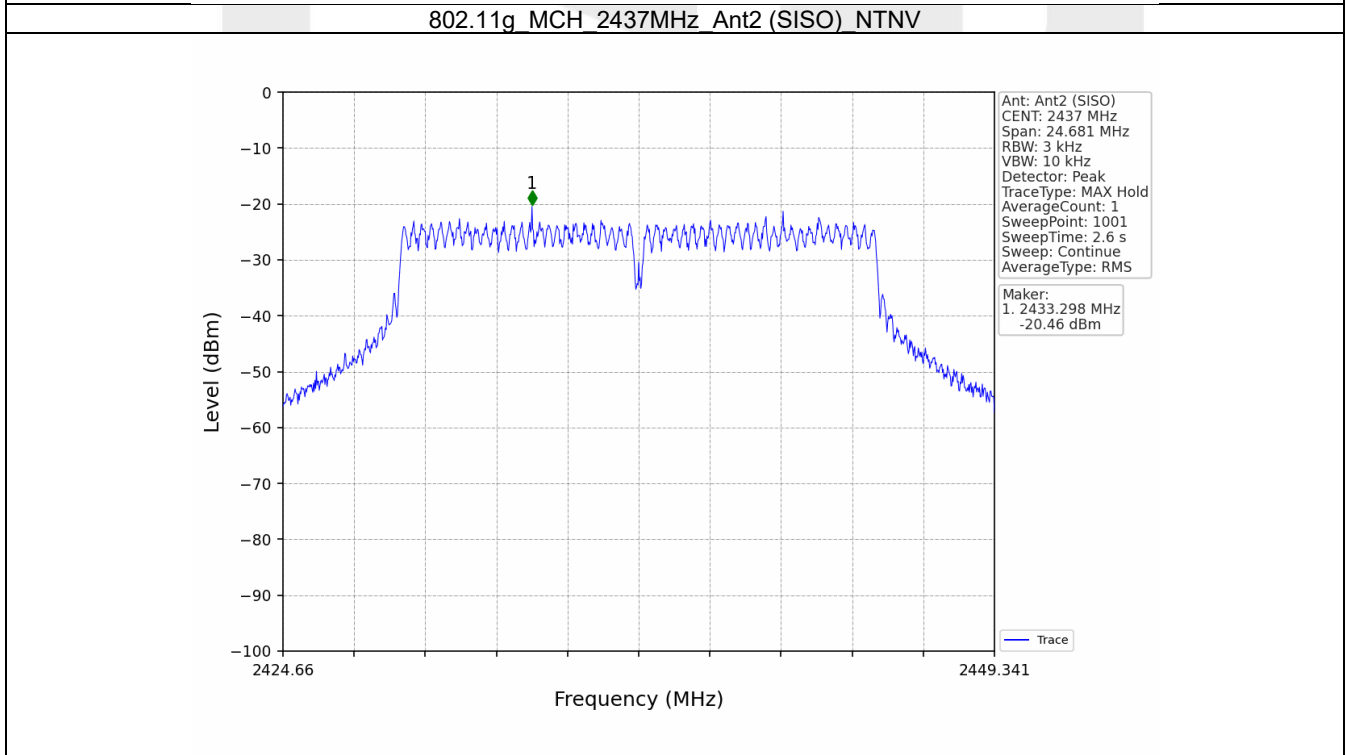
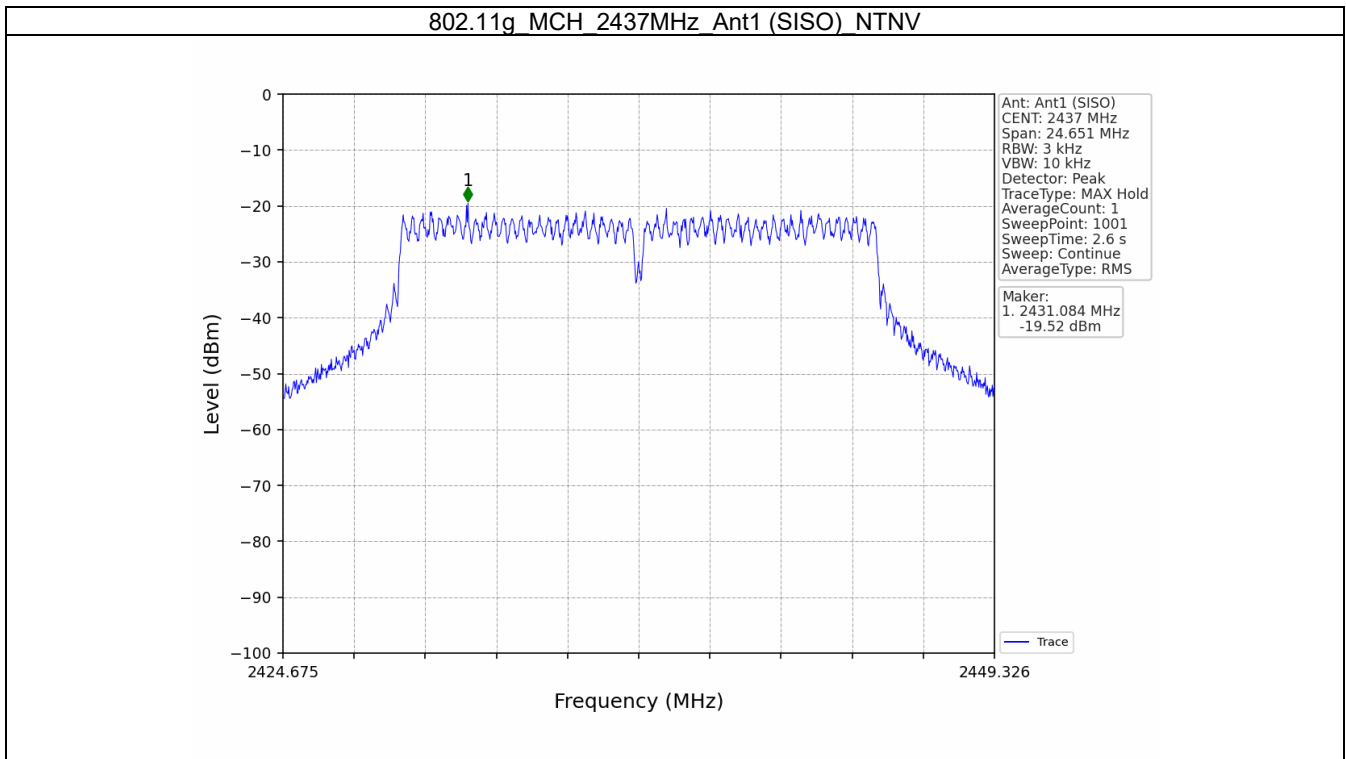
4.1.2 Test Graph

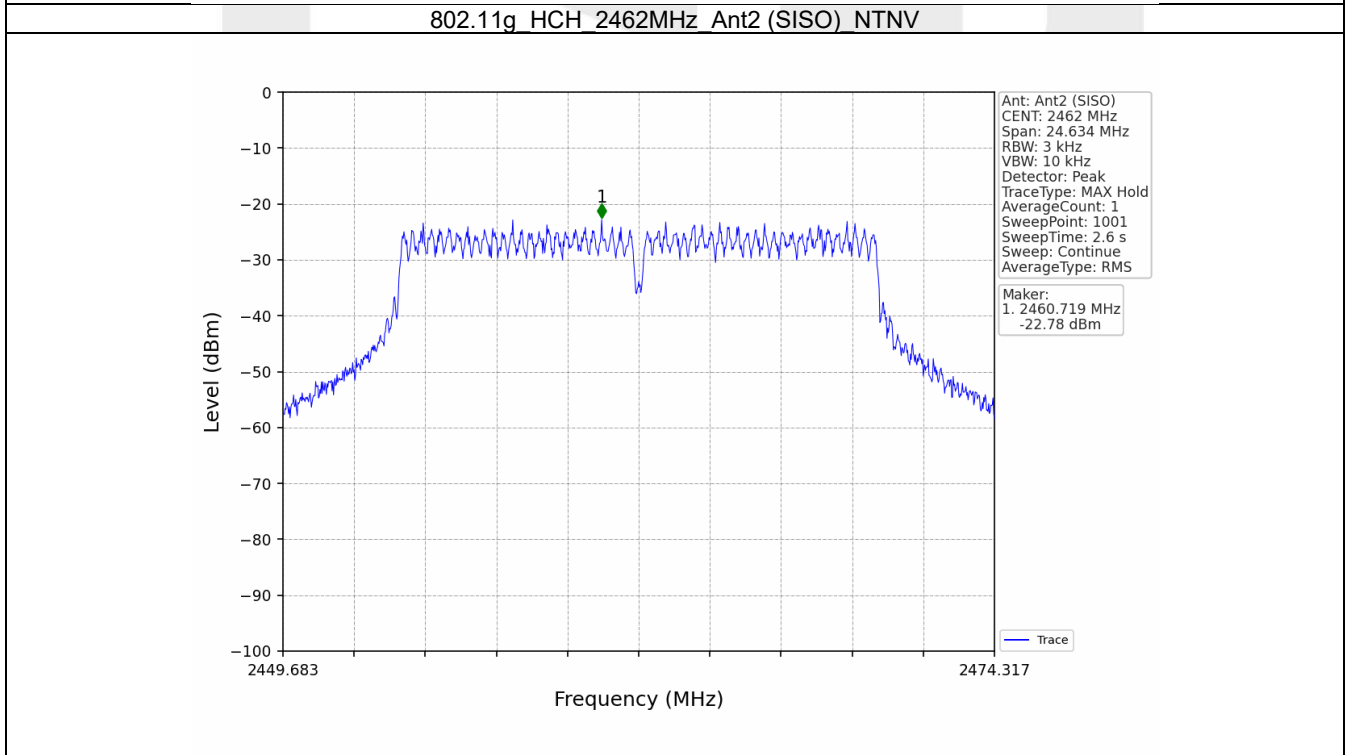
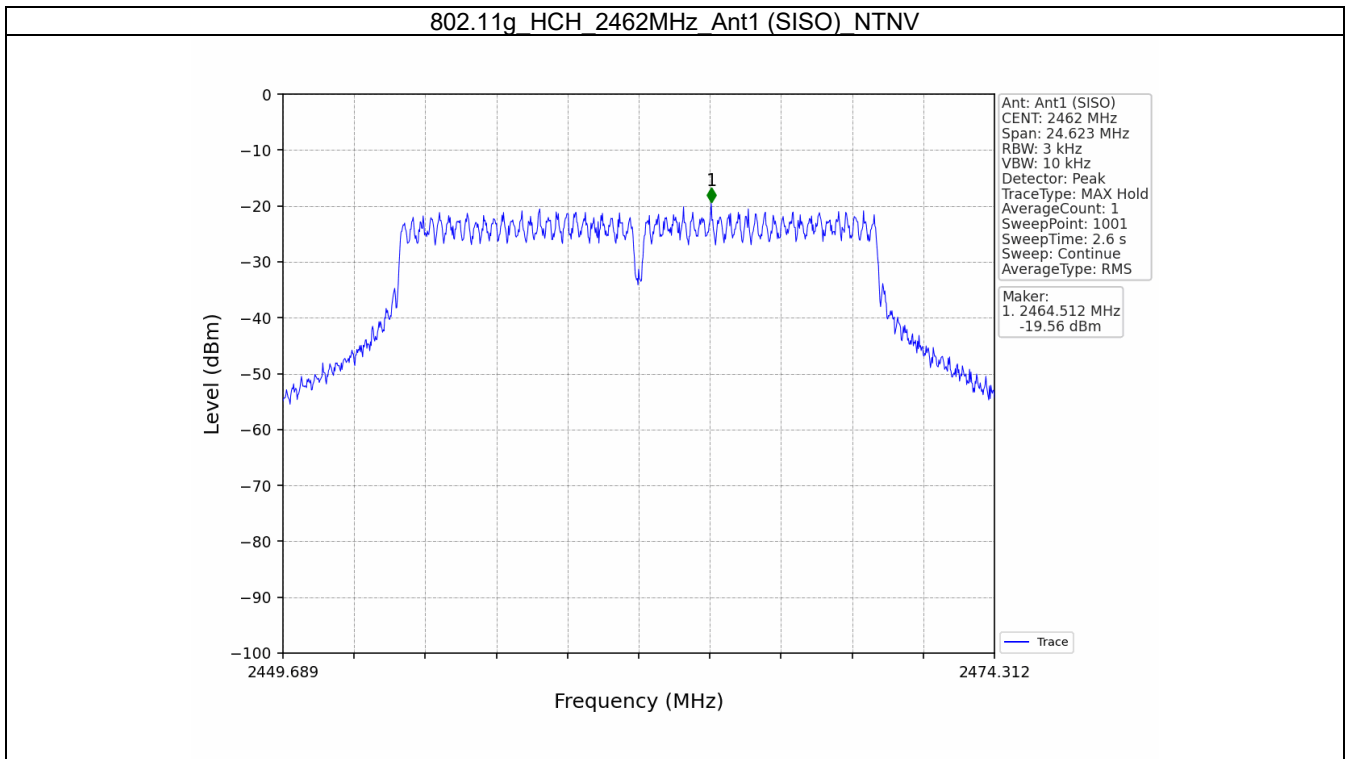


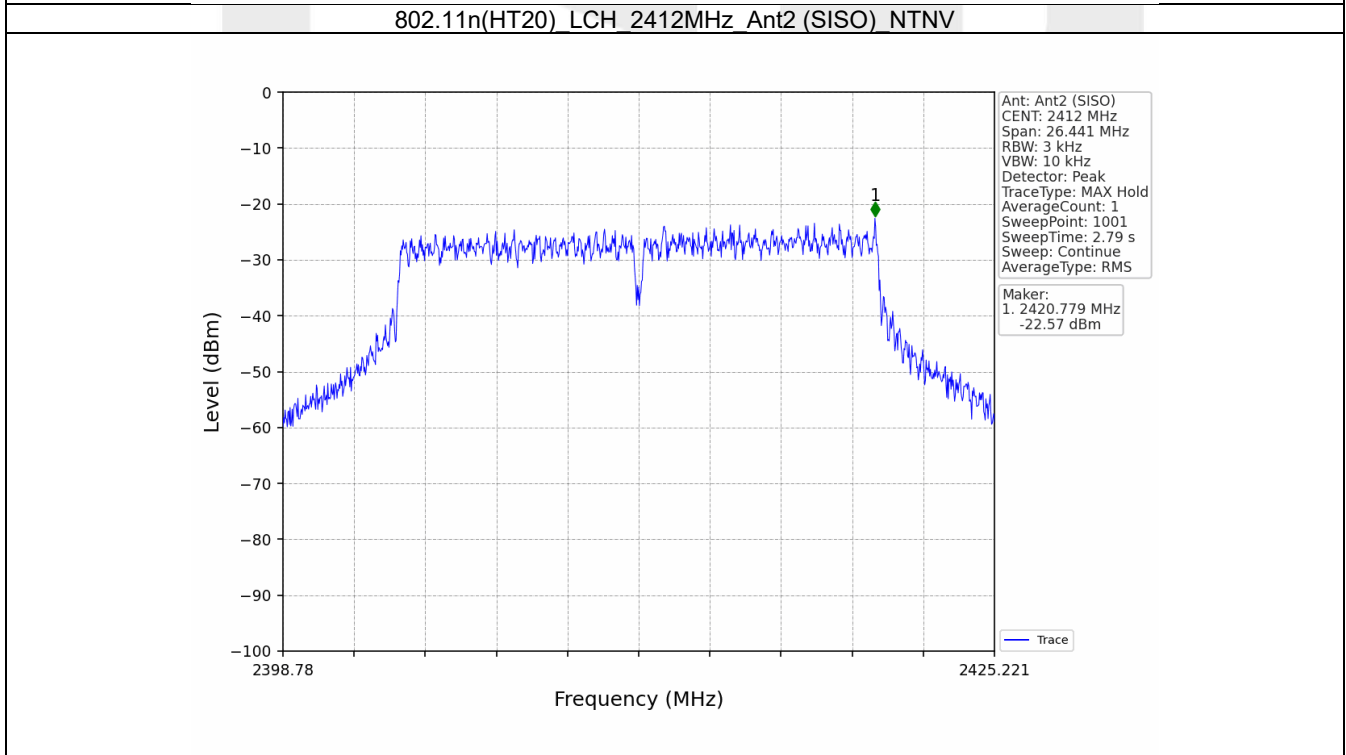
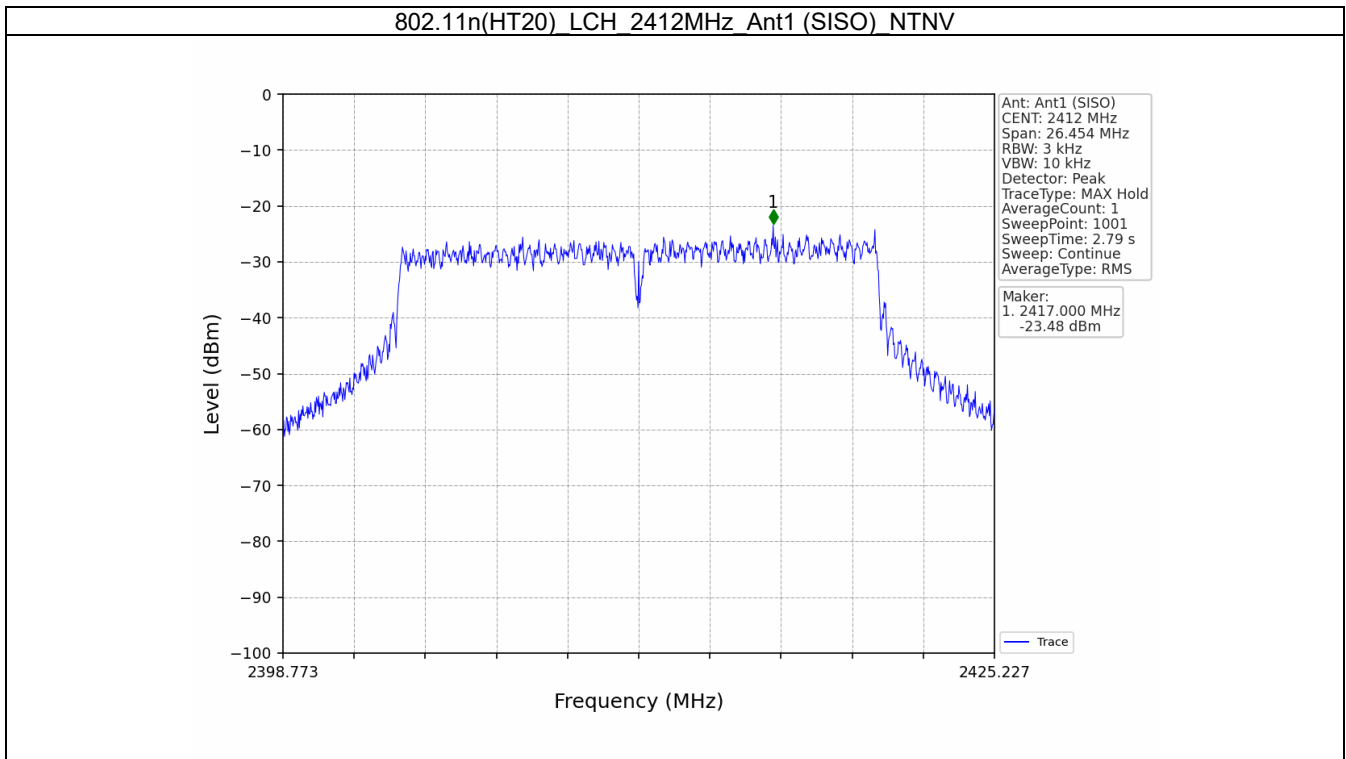


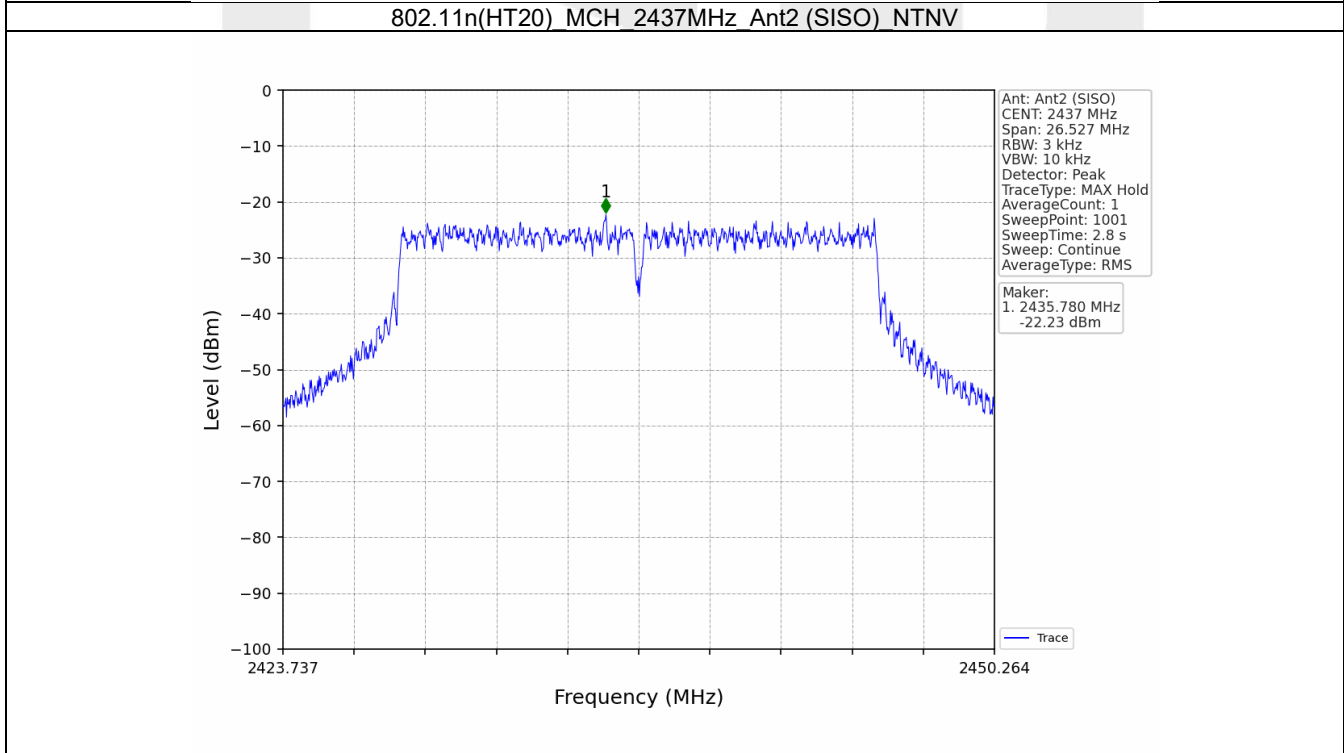
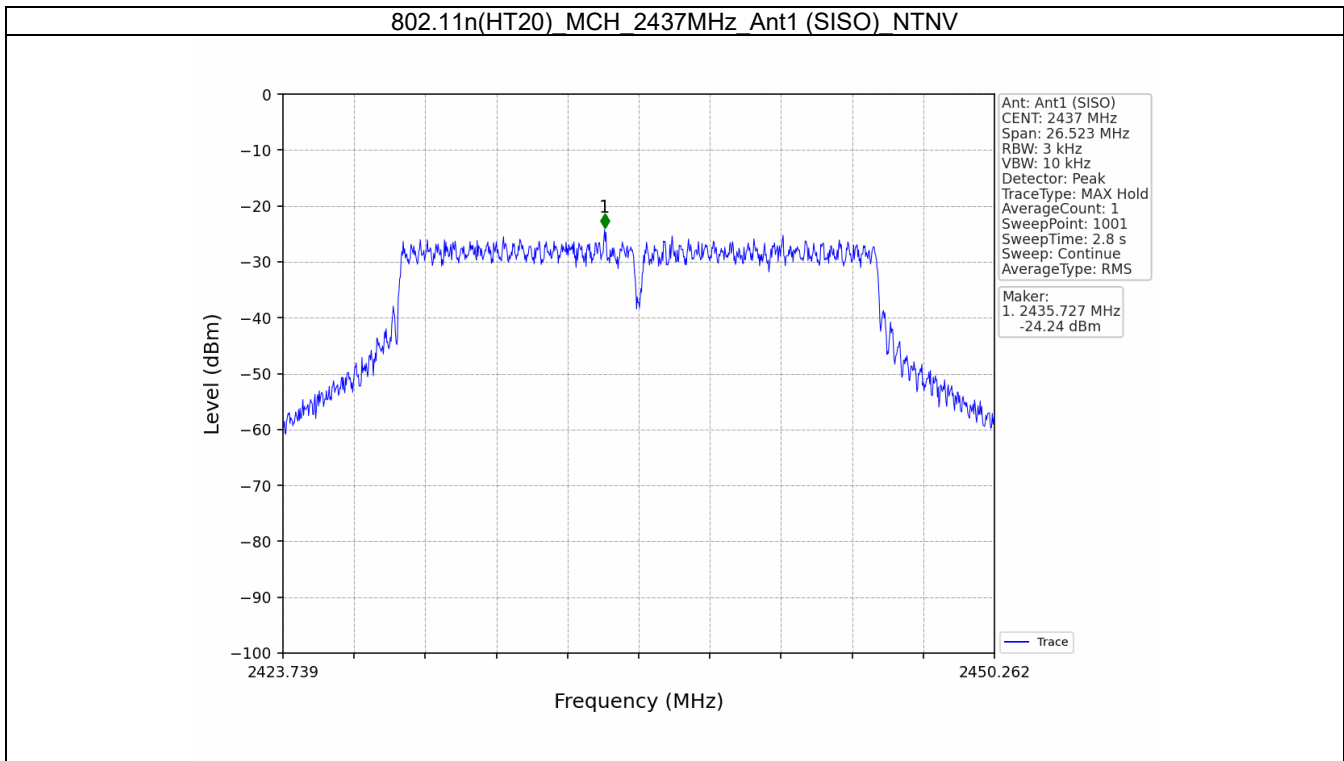


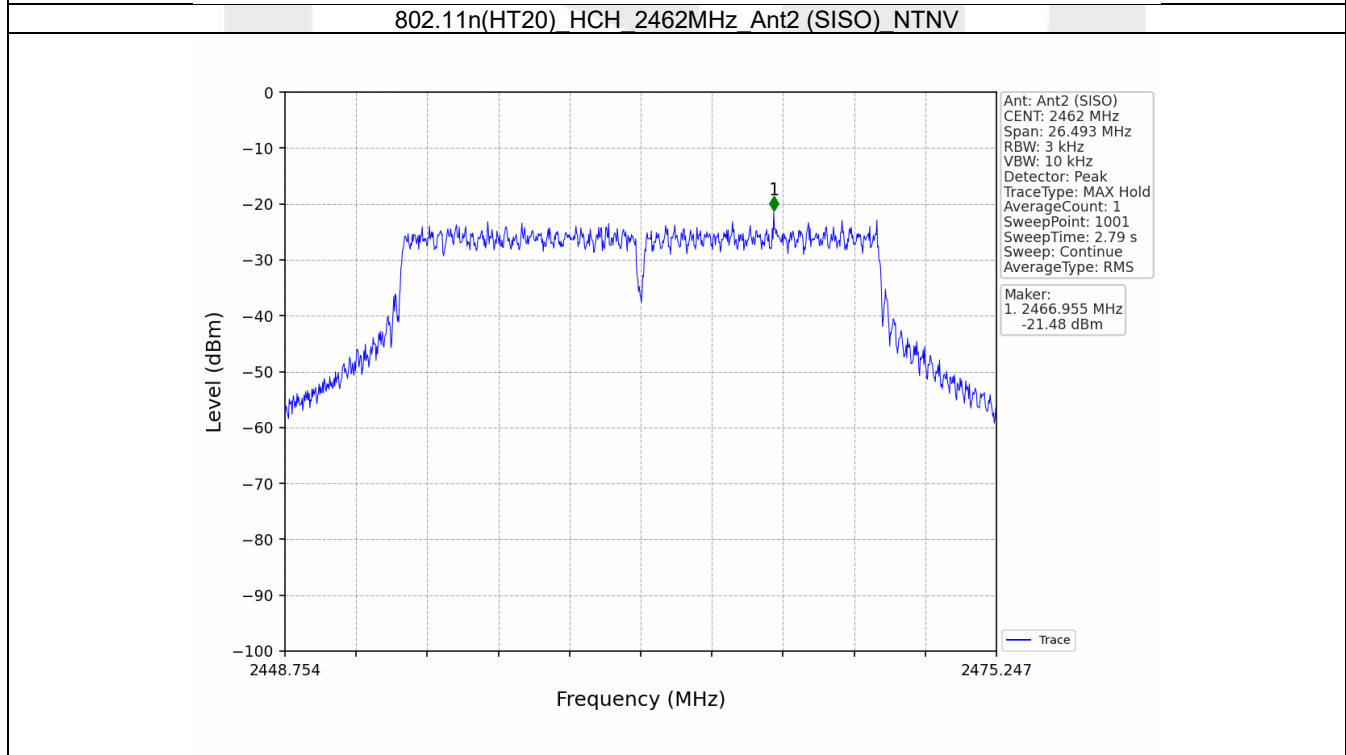
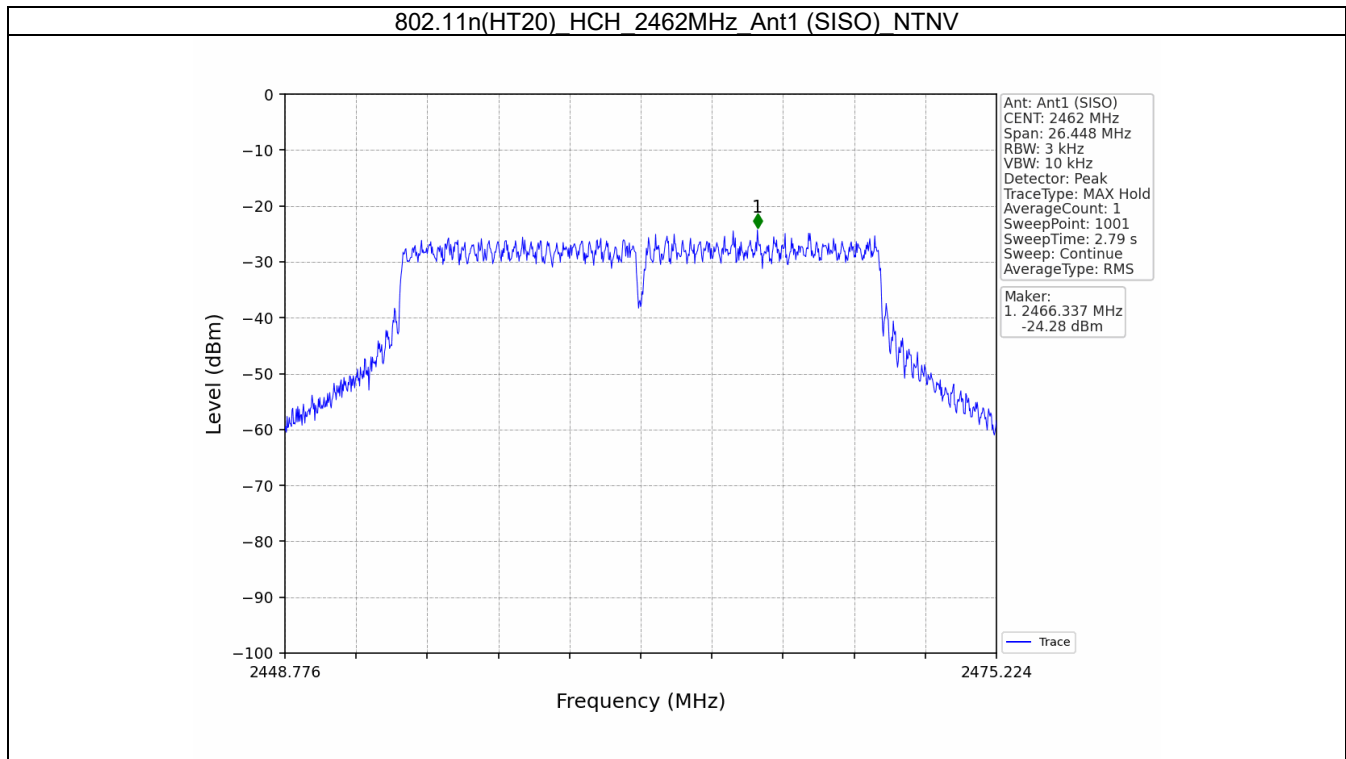


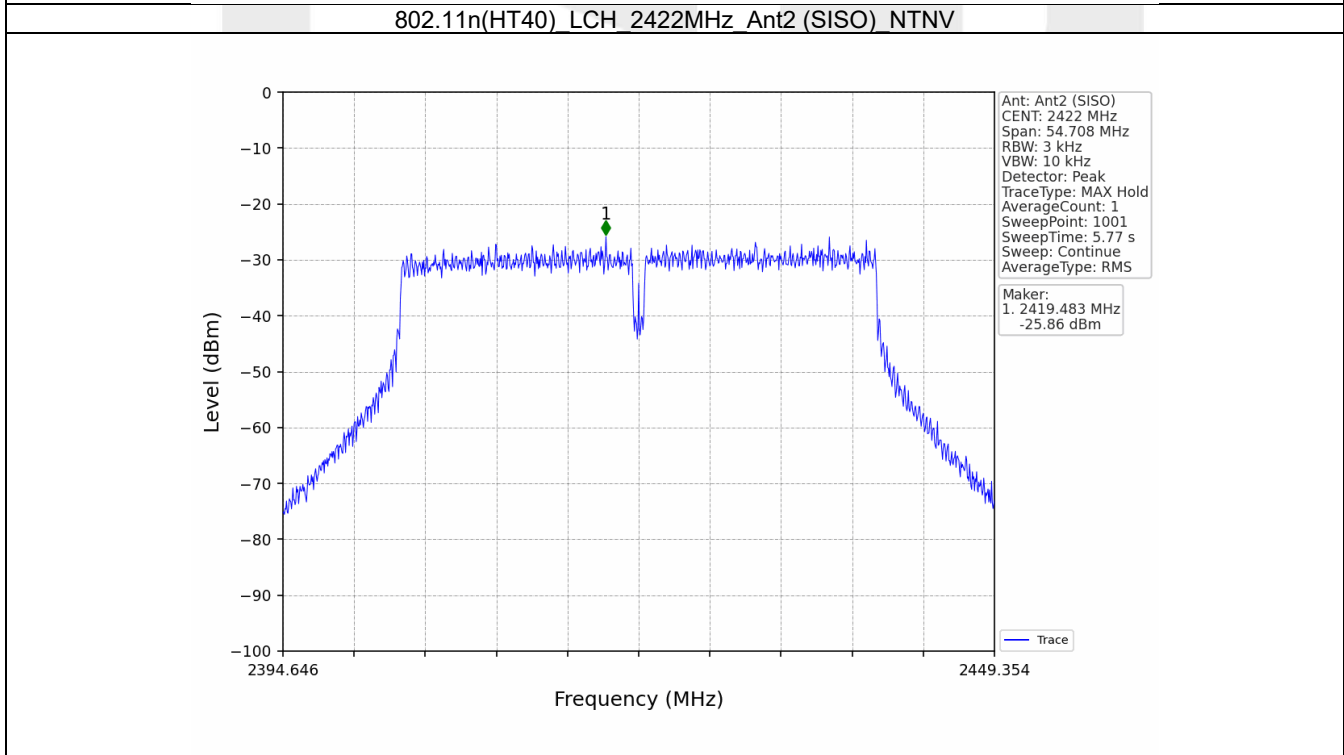
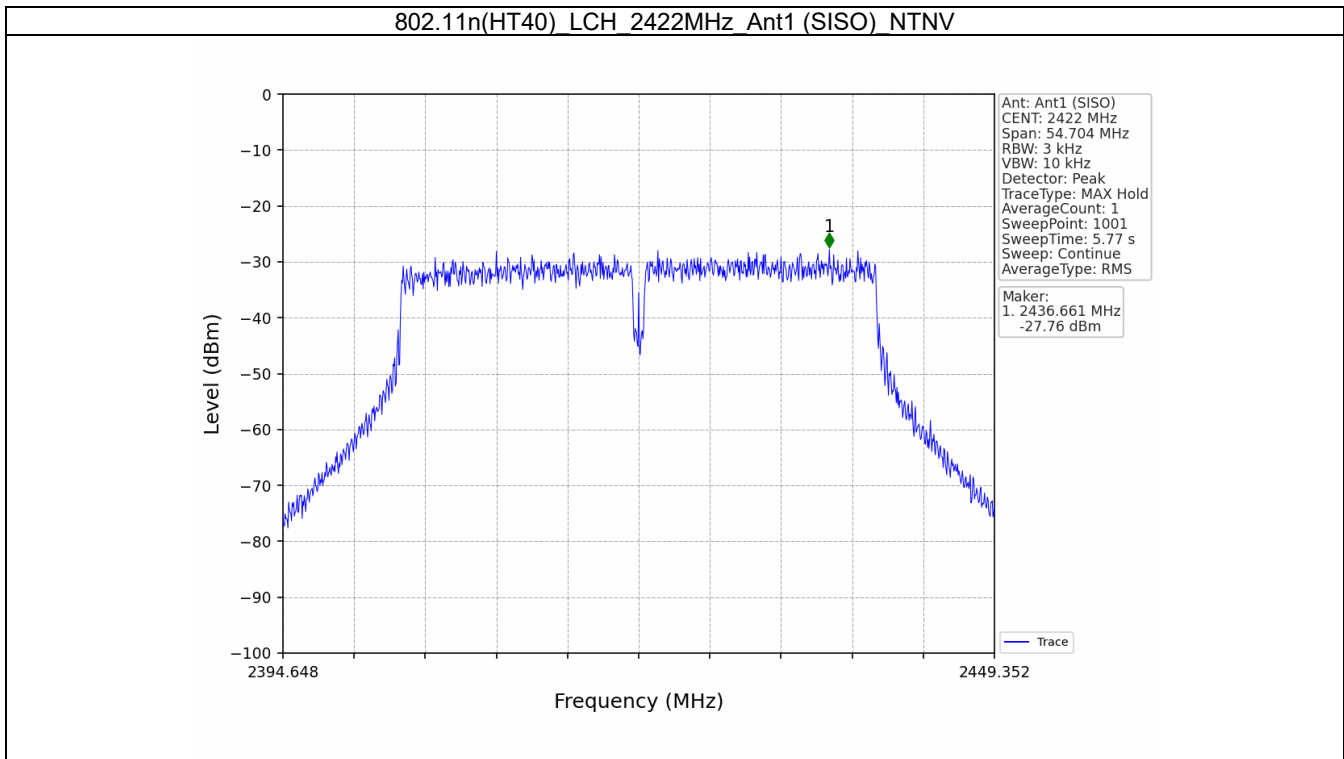


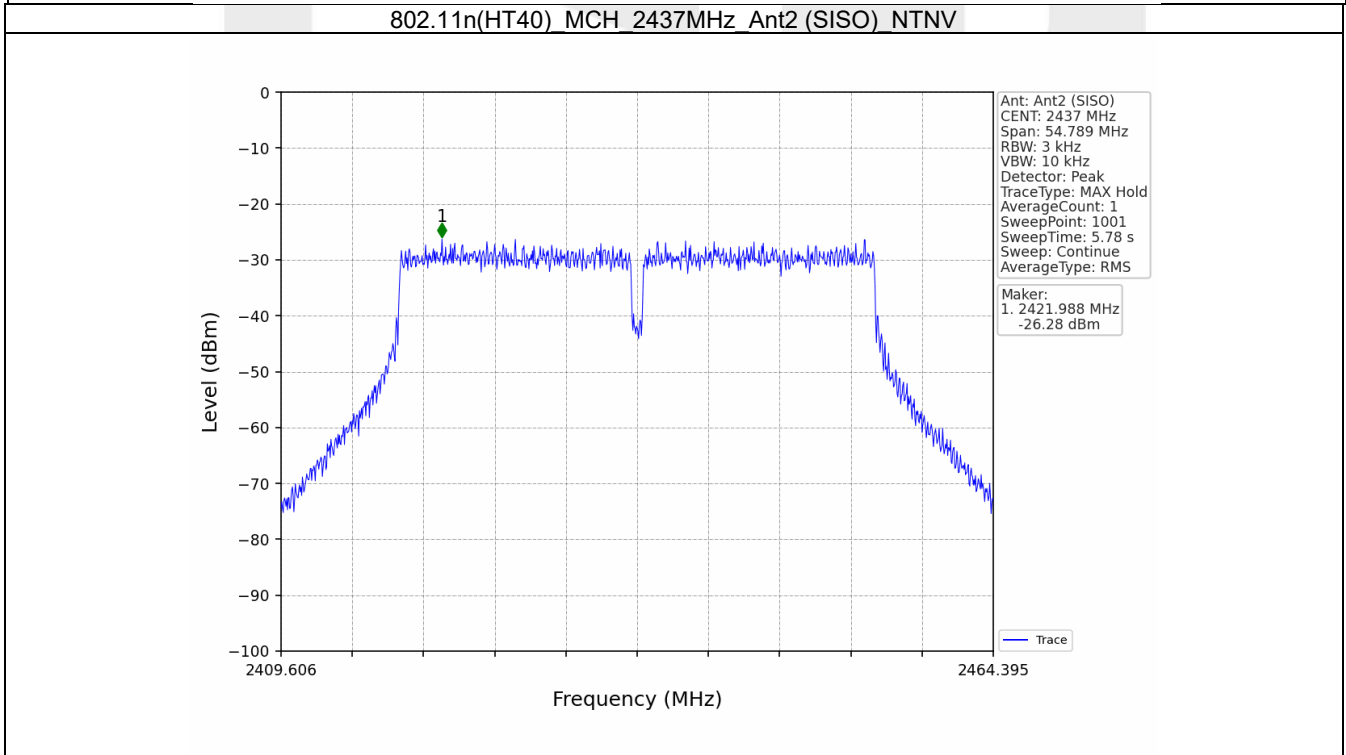
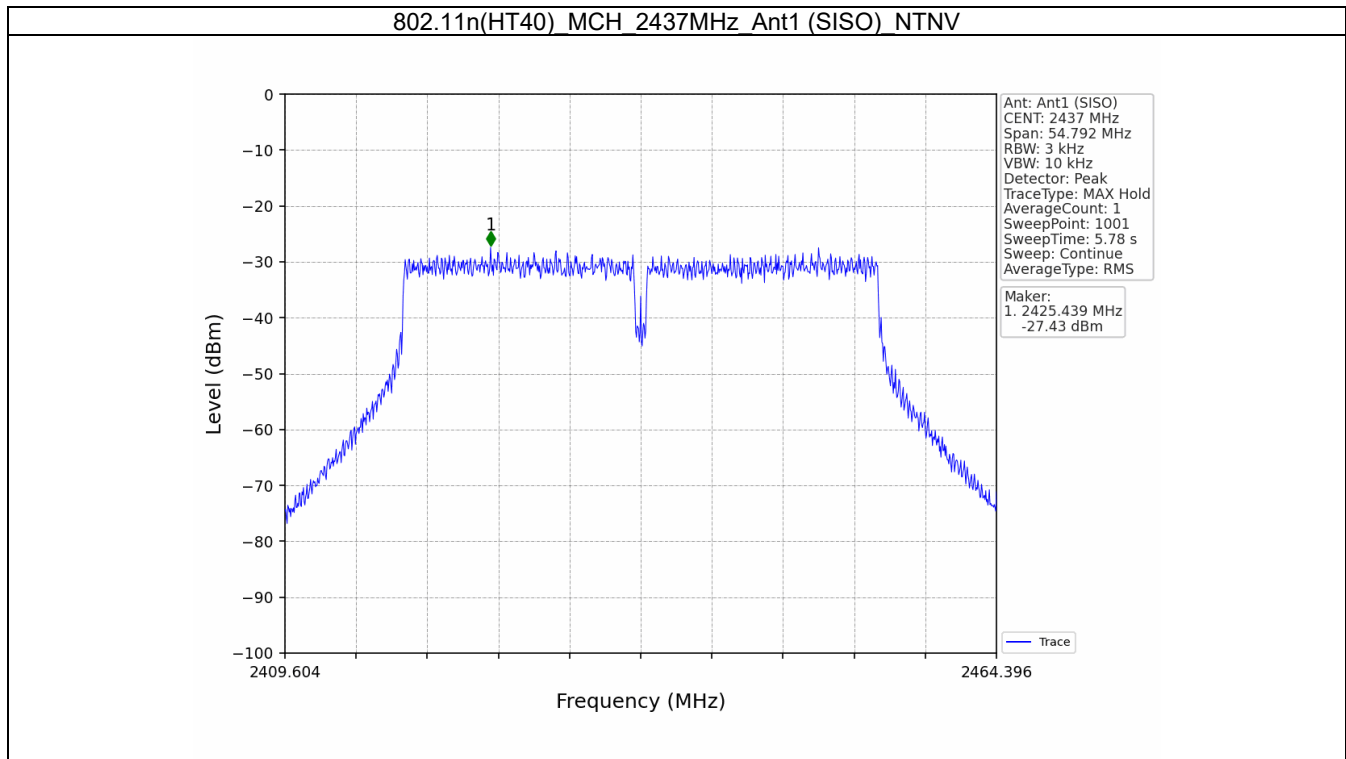


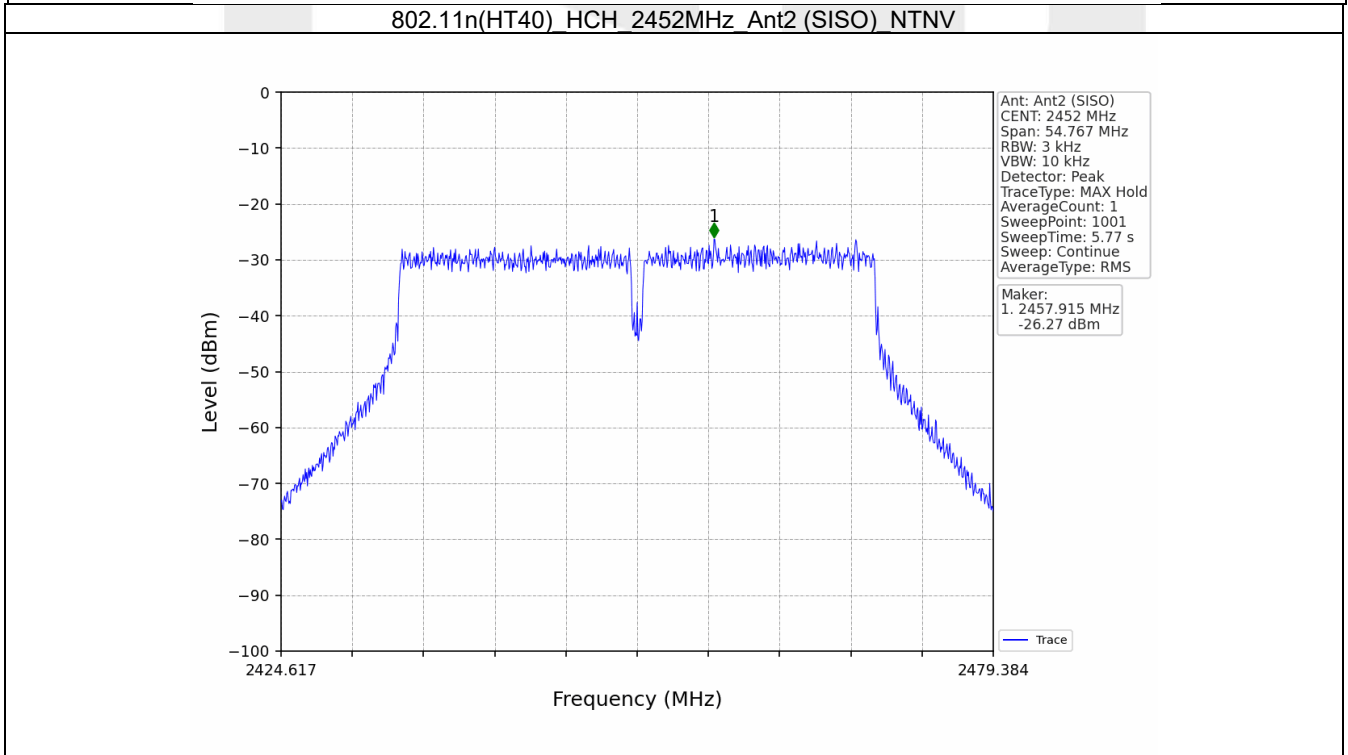
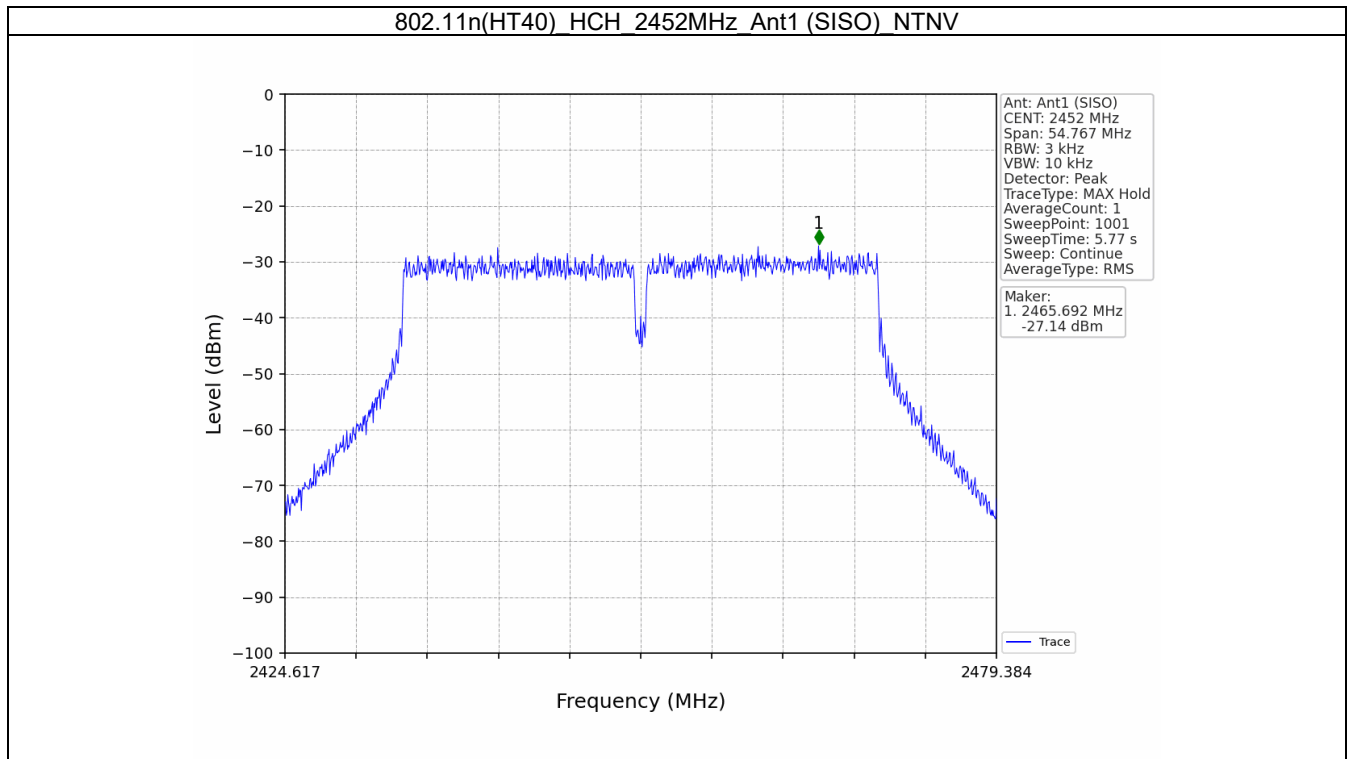












4.2 PSD (WiFi Module 2)

4.2.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)			Verdict
			ANT3	ANT4	Limit	
802.11b	SISO	2412	-16.45	-15.40	<=8	Pass
		2437	-17.38	-15.53	<=8	Pass
		2462	-16.90	-14.49	<=8	Pass
802.11g	SISO	2412	-22.34	-21.32	<=8	Pass
		2437	-23.98	-20.96	<=8	Pass
		2462	-23.52	-22.48	<=8	Pass
802.11n (HT20)	SISO	2412	-22.92	-15.88	<=8	Pass
		2437	-22.61	-22.45	<=8	Pass
		2462	-22.76	-21.79	<=8	Pass
802.11n (HT40)	SISO	2422	-26.81	-26.79	<=8	Pass
		2437	-27.39	-26.78	<=8	Pass
		2452	-27.23	-26.24	<=8	Pass

Note1: Antenna Gain: Ant3:2.50dBi; Ant4: 2.50dBi;

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)				Verdict
			ANT3	ANT4	MIMO	Limit	
802.11g	MIMO	2412	-22.34	-21.32	-18.79	<=8	Pass
		2437	-23.98	-20.96	-19.20	<=8	Pass
		2462	-23.52	-22.48	-19.96	<=8	Pass
802.11n (HT20)	MIMO	2412	-22.92	-15.88	-15.10	<=8	Pass
		2437	-22.61	-22.45	-19.52	<=8	Pass
		2462	-22.76	-21.79	-19.24	<=8	Pass
802.11n (HT40)	MIMO	2422	-26.81	-26.79	-23.79	<=8	Pass
		2437	-27.39	-26.78	-24.06	<=8	Pass
		2452	-27.23	-26.24	-23.70	<=8	Pass

Note1: Antenna Gain: Ant3: 2.50dBi; Ant4: 2.50dBi;

Note2: Directional Gain: Uncorrelated(Directional Gain = Ant Gain=2.50dBi)

4.2.2 Test Graph

