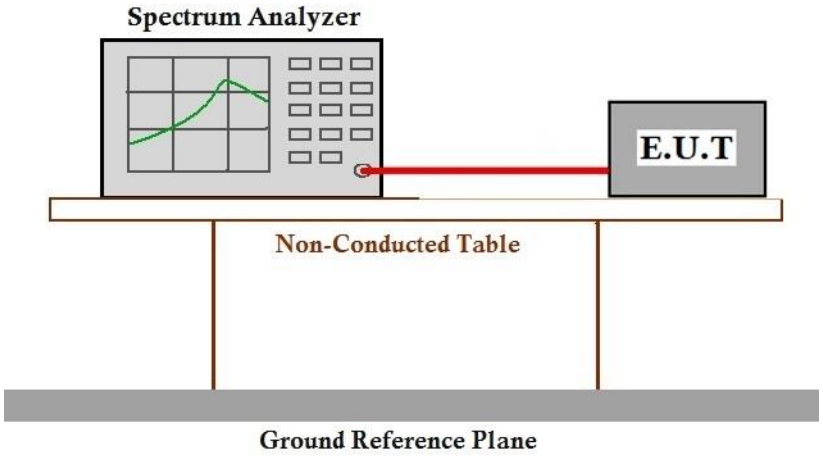
7.9 Duty Cycle

Test Requirement KDB 558074 D01 v05r02 section 6
Test Method: ANSI C63.10 (2013) Section 11.6

7.9.1 E.U.T. Operation

Operating Environment:
Temperature: °C Humidity: % RH Atmospheric Pressure: 1003 mbar

7.9.2 Test Setup Diagram



7.9.3 Measurement Procedure and Data

cable loss=0.9dB

Please Refer to Appendix for Details

8 Test Setup Photo

Refer to Appendix –Setup Photos for GZCR2111021410AT

9 EUT Constructional Details (EUT Photos)

Refer to Appendix – External and Internal Photos for GZCR2111021410AT

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10 Appendix

For Left earbuds:

1. Duty Cycle

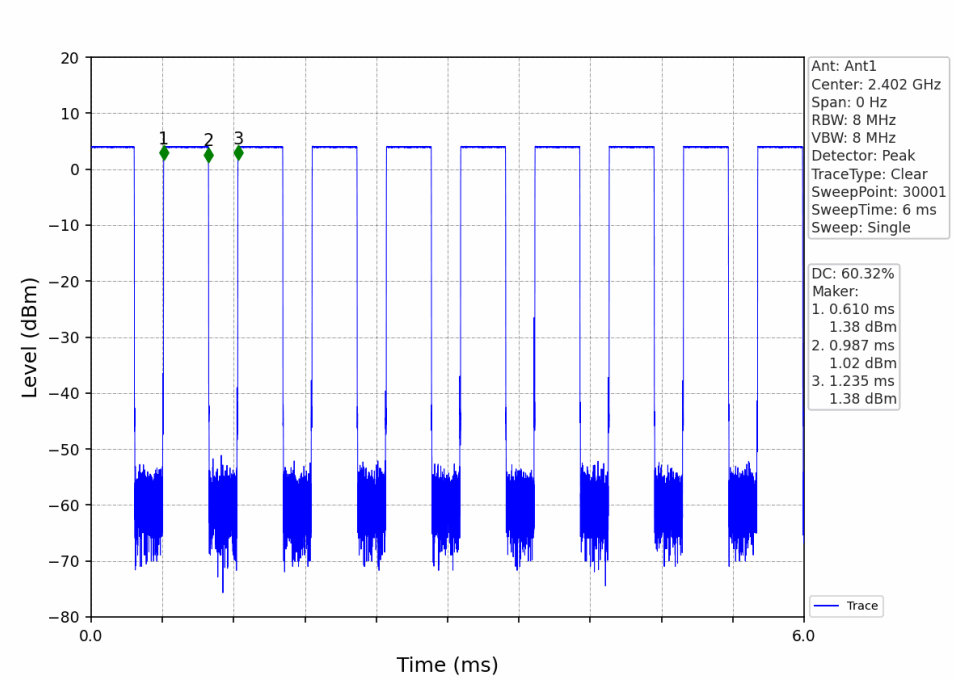
1.1 Ant1

1.1.1 Test Result

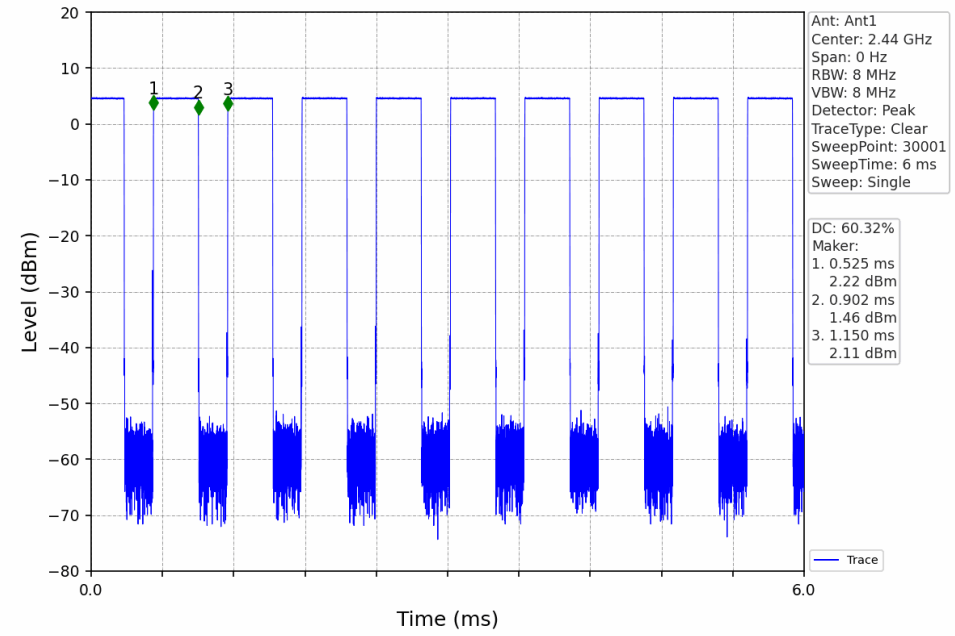
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
1M	SISO	2402	0.377	0.625	60.32	2.20	0.00
		2440	0.377	0.625	60.32	2.20	0.00
		2480	0.377	0.625	60.32	2.20	0.00
2M	SISO	2402	0.193	0.625	30.88	5.10	0.00
		2440	0.193	0.625	30.88	5.10	0.00
		2480	0.193	0.625	30.88	5.10	0.00

1.1.2 Test Graph

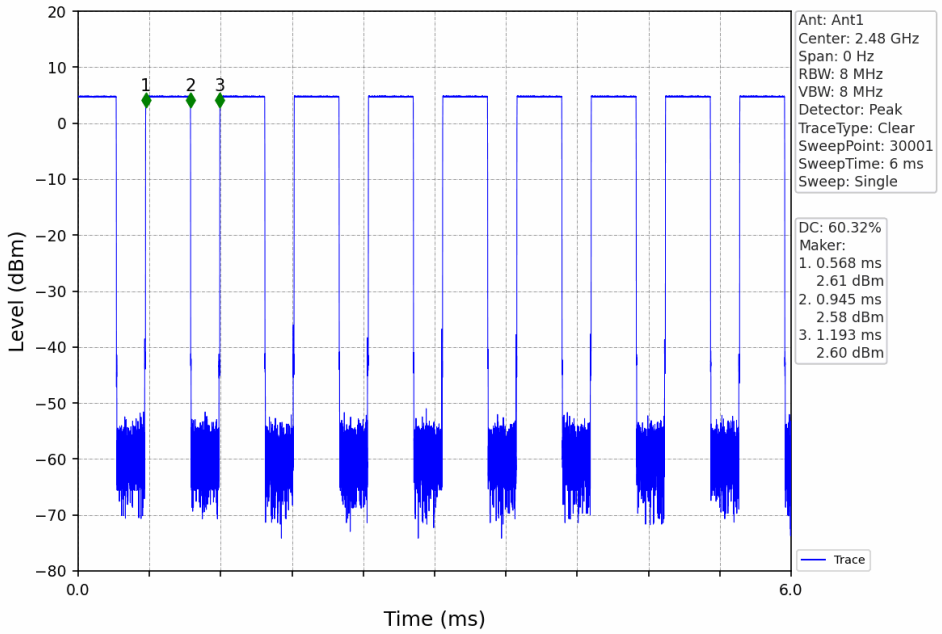
1M_LCH_2402MHz_DataRate=_Ant1_NTNV



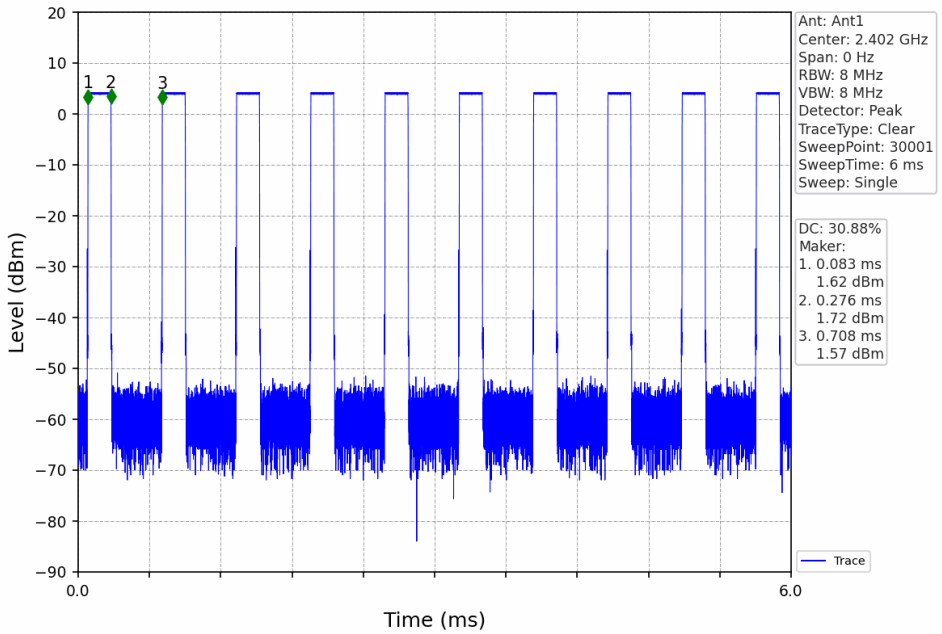
1M_MCH_2440MHz_DataRate=_Ant1_NTNV



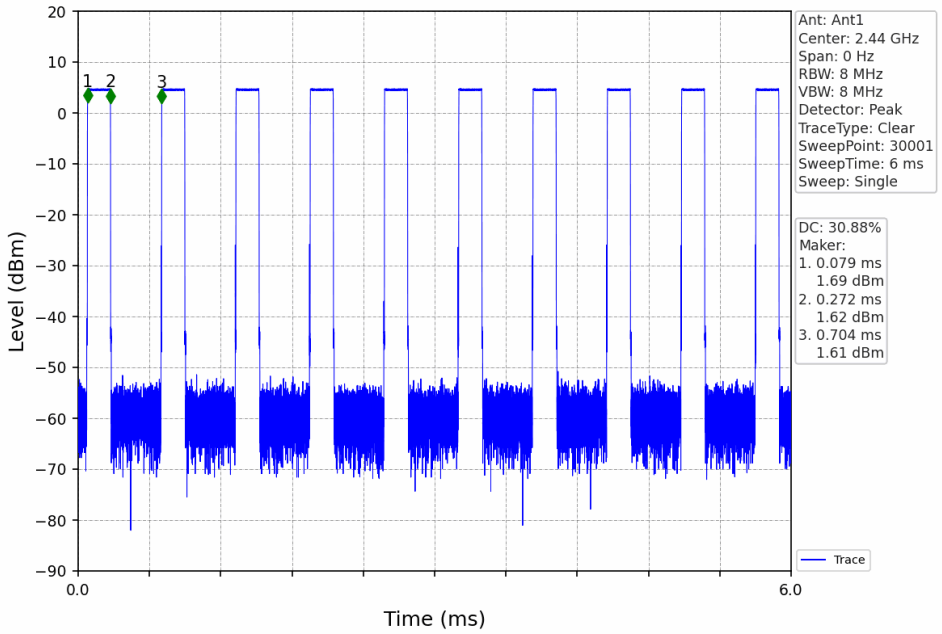
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



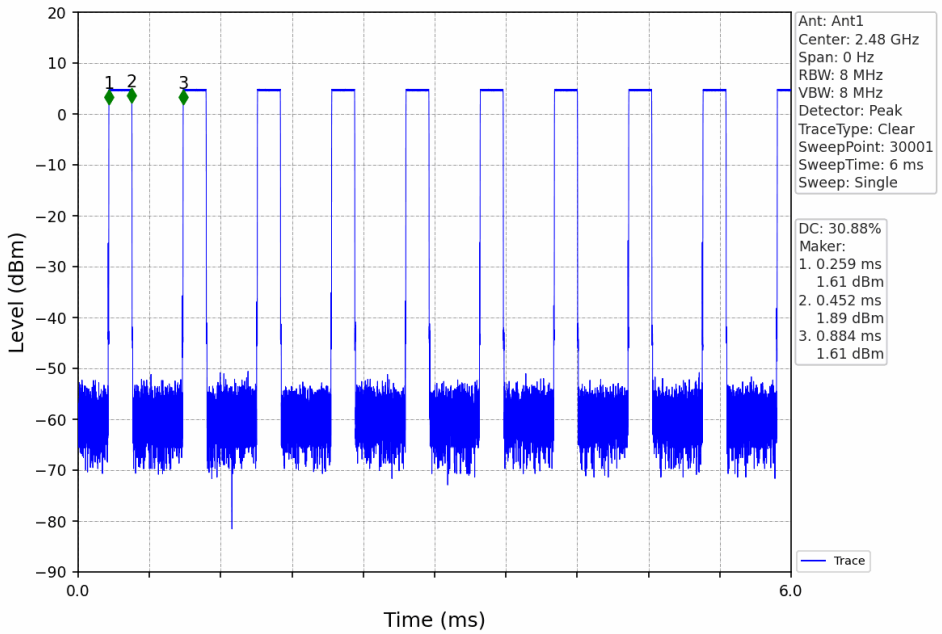
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



2M_MCH_2440MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



2. Bandwidth

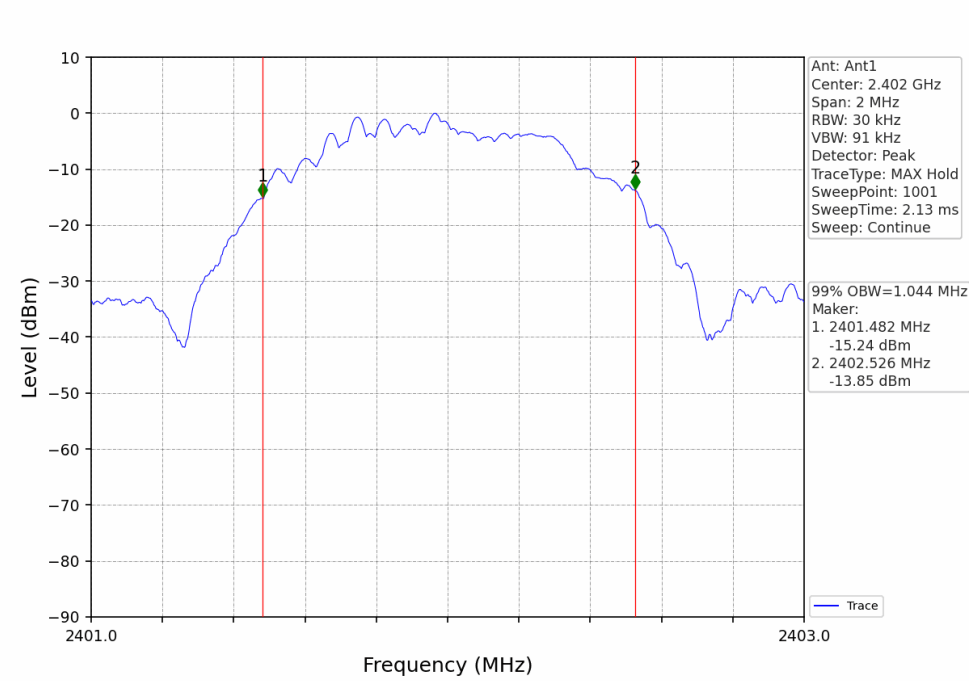
2.1 OBW

2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Ant	99% Occupied Bandwidth (MHz)	Verdict
				Result	
1M	SISO	2402	1	1.044	Pass
		2440	1	1.046	Pass
		2480	1	1.044	Pass
2M	SISO	2402	1	2.081	Pass
		2440	1	2.080	Pass
		2480	1	2.081	Pass

2.1.2 Test Graph

1M_LCH_2402MHz_DataRate=_Ant1_NTNV



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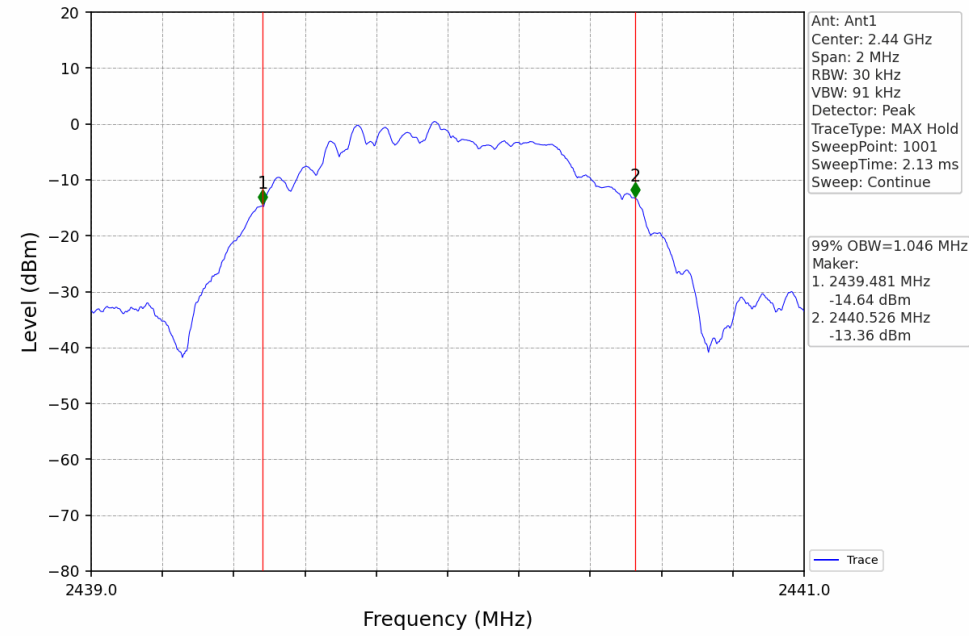
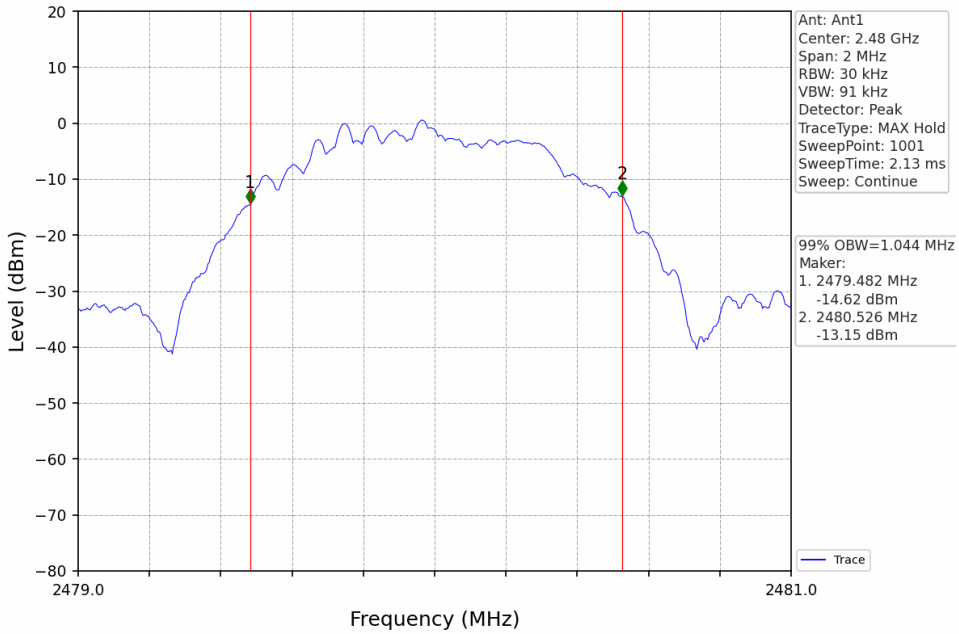
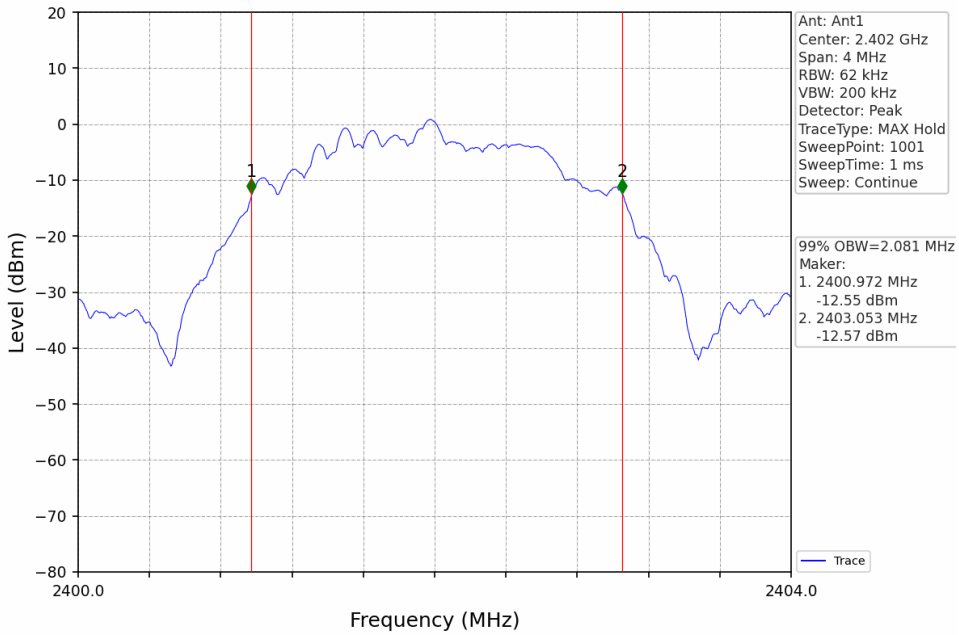


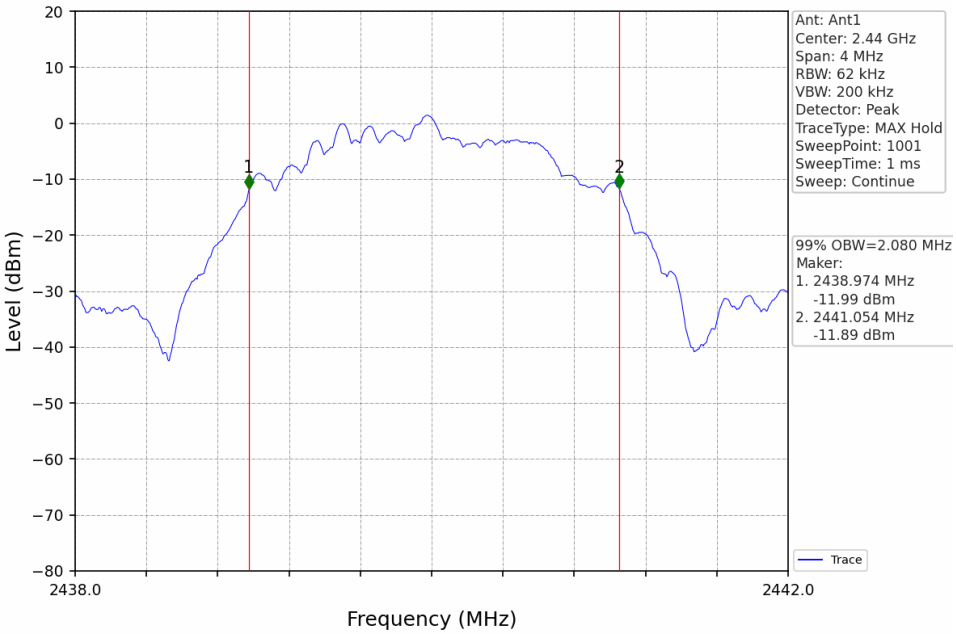
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



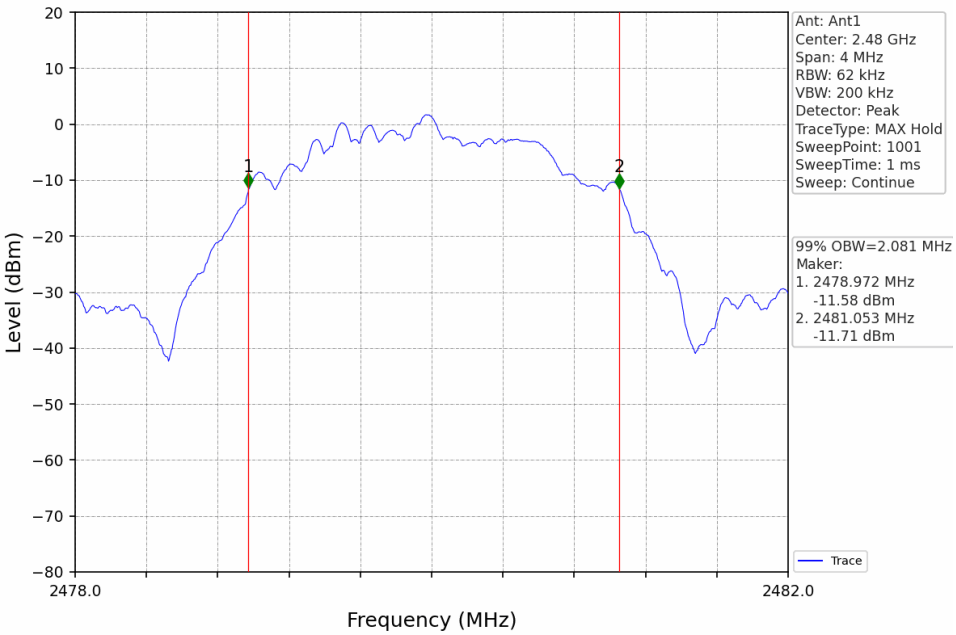
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



2M_MCH_2440MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



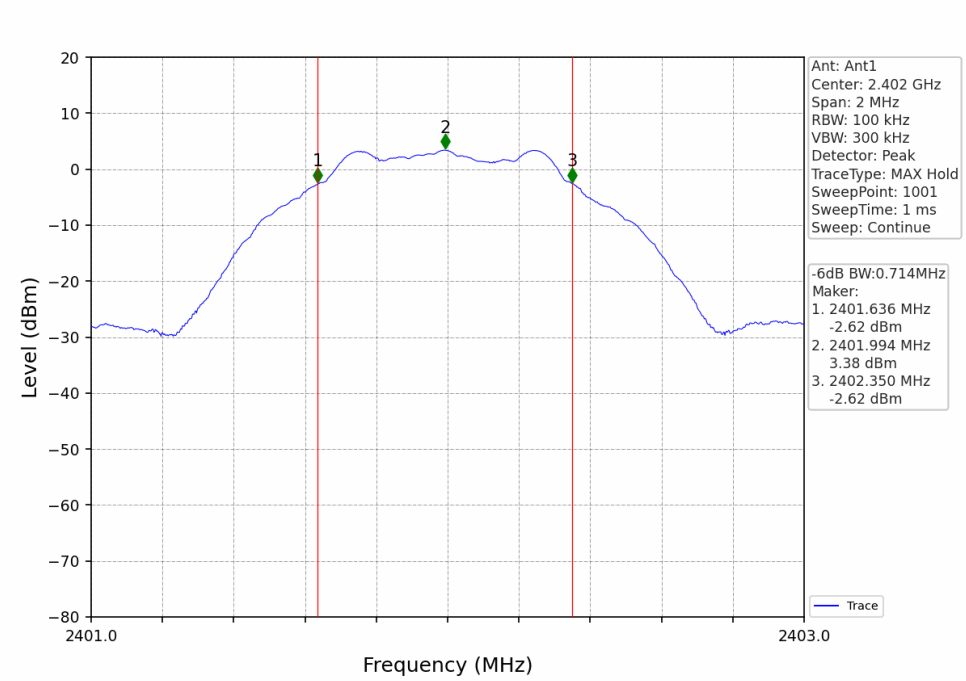
2.2 6dB BW

2.2.1 Test Result

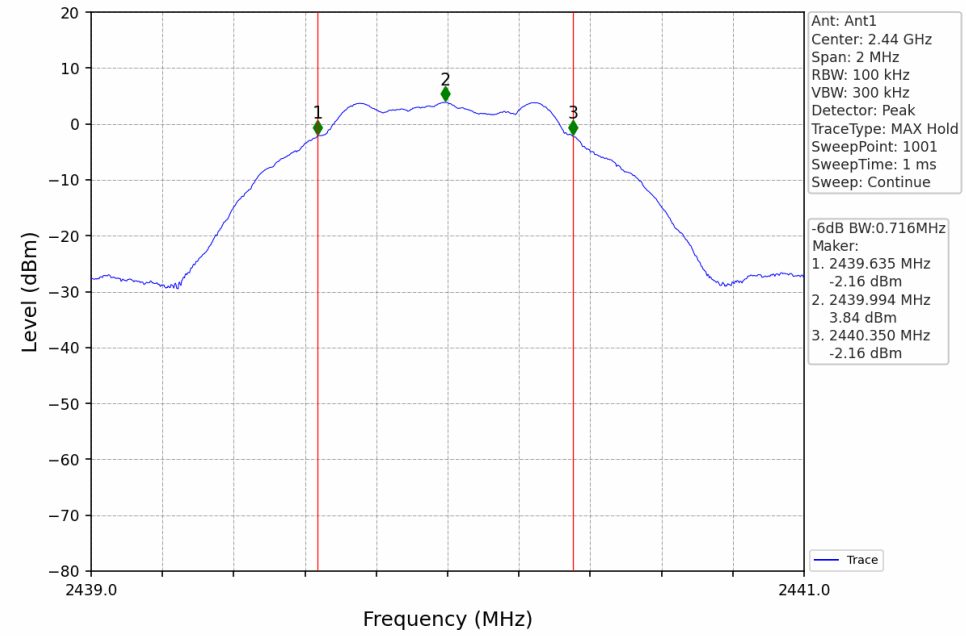
Mode	TX Type	Frequency (MHz)	Ant	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	0.714	>=0.5	Pass
		2440	1	0.716	>=0.5	Pass
		2480	1	0.710	>=0.5	Pass
2M	SISO	2402	1	1.252	>=0.5	Pass
		2440	1	1.252	>=0.5	Pass
		2480	1	1.249	>=0.5	Pass

2.2.2 Test Graph

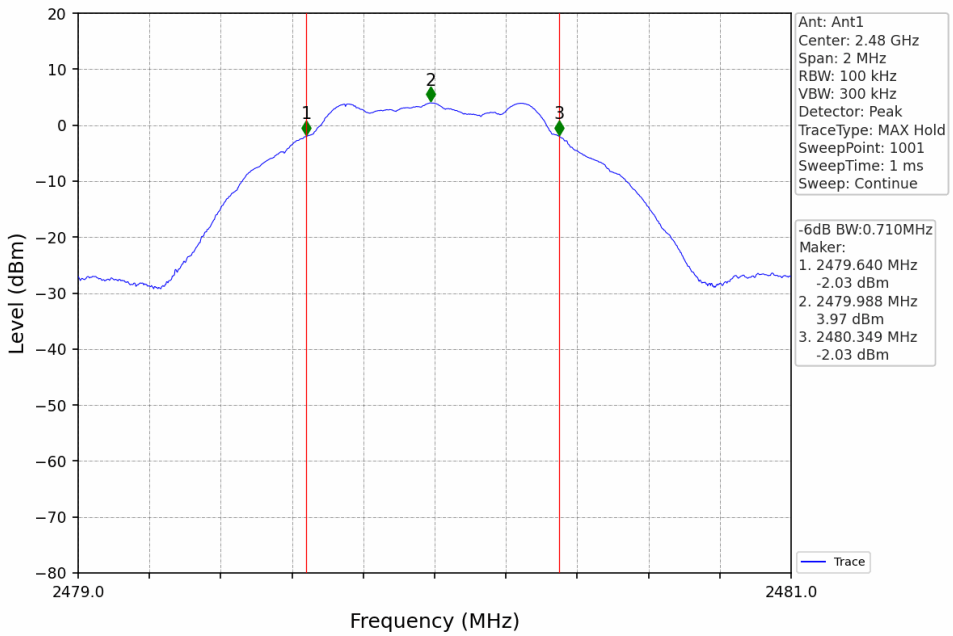
1M_LCH_2402MHz_DataRate=_Ant1_NTNV



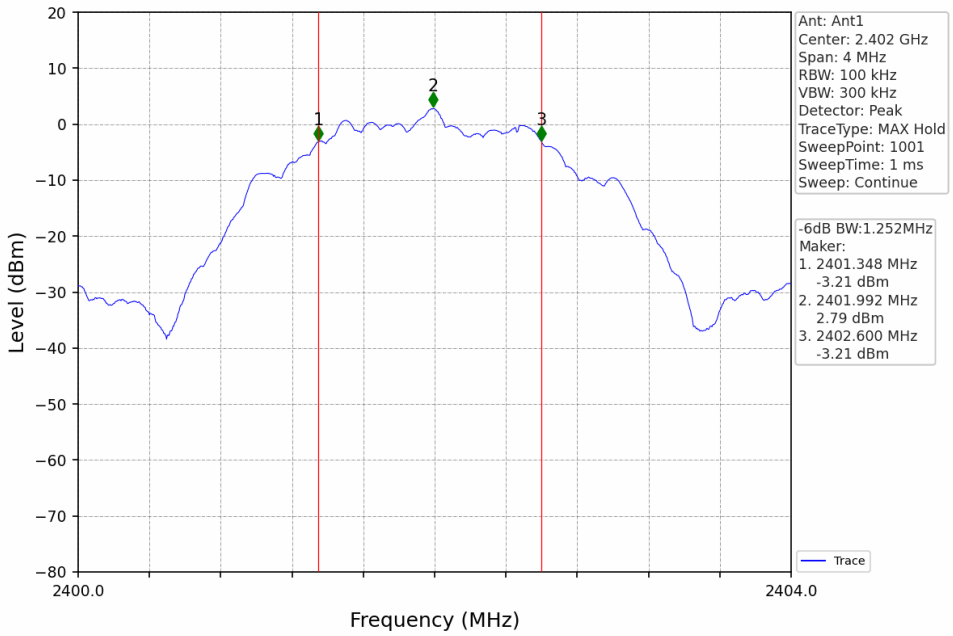
1M_MCH_2440MHz_DataRate=_Ant1_NTNV



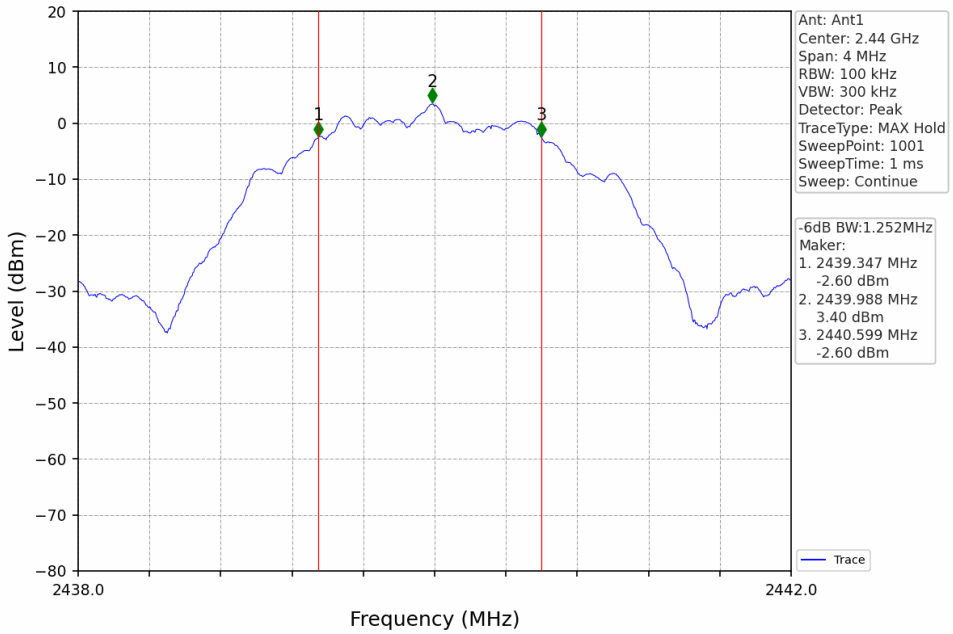
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



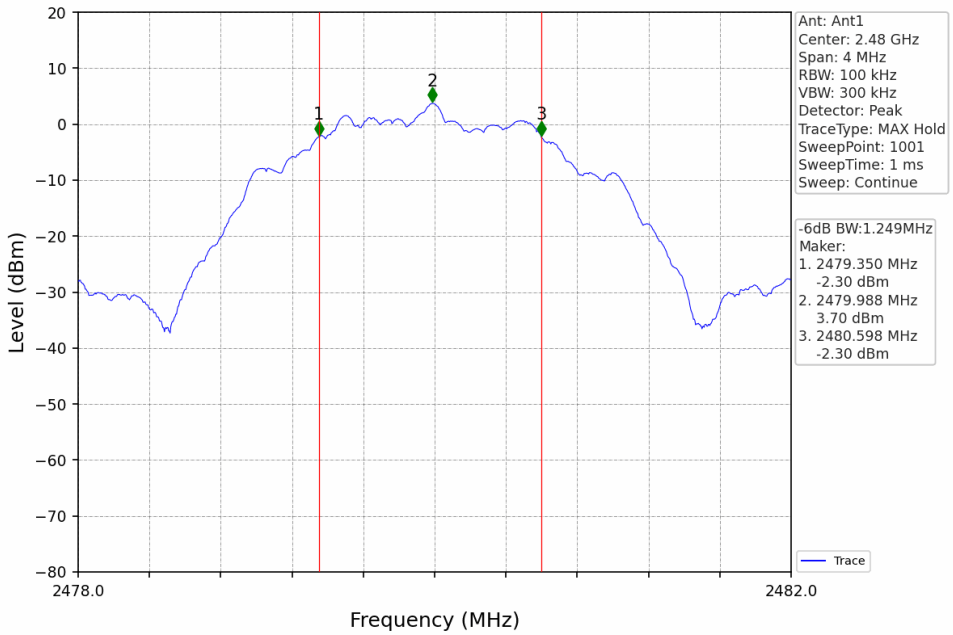
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



2M_MCH_2440MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



3. Maximum Conducted Output Power

3.1 Power

3.1.1 Test Result

1st Source

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			Ant1	Limit	
1M	SISO	2402	4.18	<=30	Pass
		2440	4.64	<=30	Pass
		2480	4.76	<=30	Pass
2M	SISO	2402	4.02	<=30	Pass
		2440	4.63	<=30	Pass
		2480	4.89	<=30	Pass

2nd Source

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			Ant1	Limit	
1M	SISO	2402	4.16	<=30	Pass
		2440	4.63	<=30	Pass
		2480	4.72	<=30	Pass
2M	SISO	2402	4.01	<=30	Pass
		2440	4.63	<=30	Pass
		2480	4.87	<=30	Pass

4. Maximum Power Spectral Density

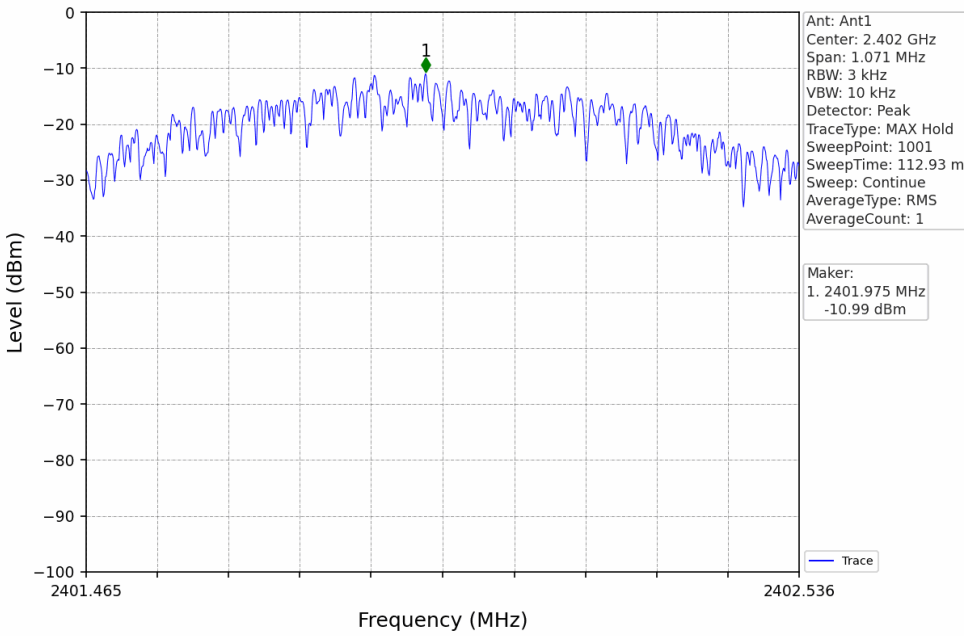
4.1 PSD

4.1.1 Test Result

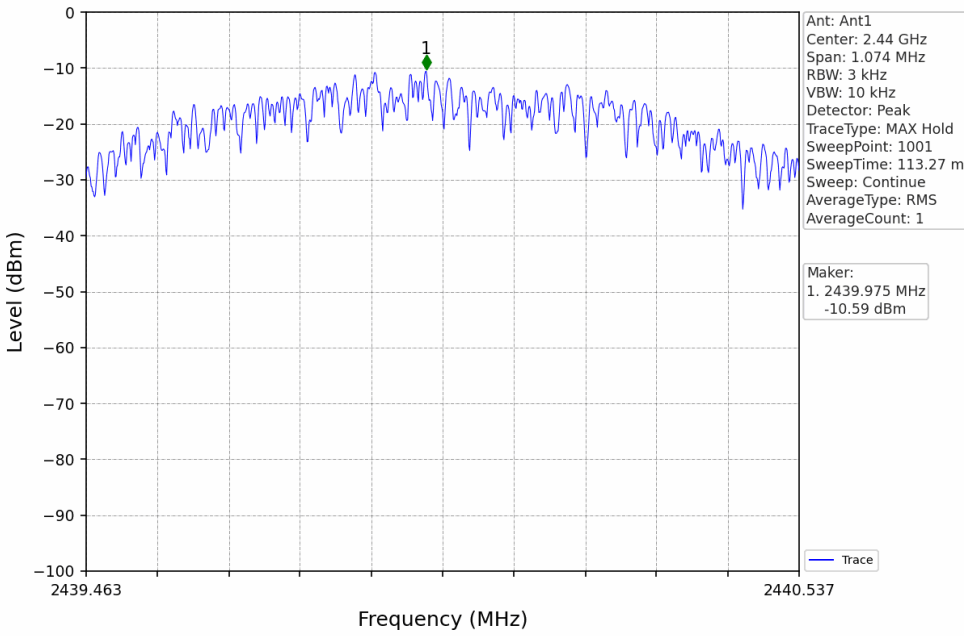
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			Ant1	Limit	
1M	SISO	2402	-10.99	<=8	Pass
		2440	-10.59	<=8	Pass
		2480	-10.36	<=8	Pass
2M	SISO	2402	-13.48	<=8	Pass
		2440	-13.03	<=8	Pass
		2480	-12.67	<=8	Pass

4.1.2 Test Graph

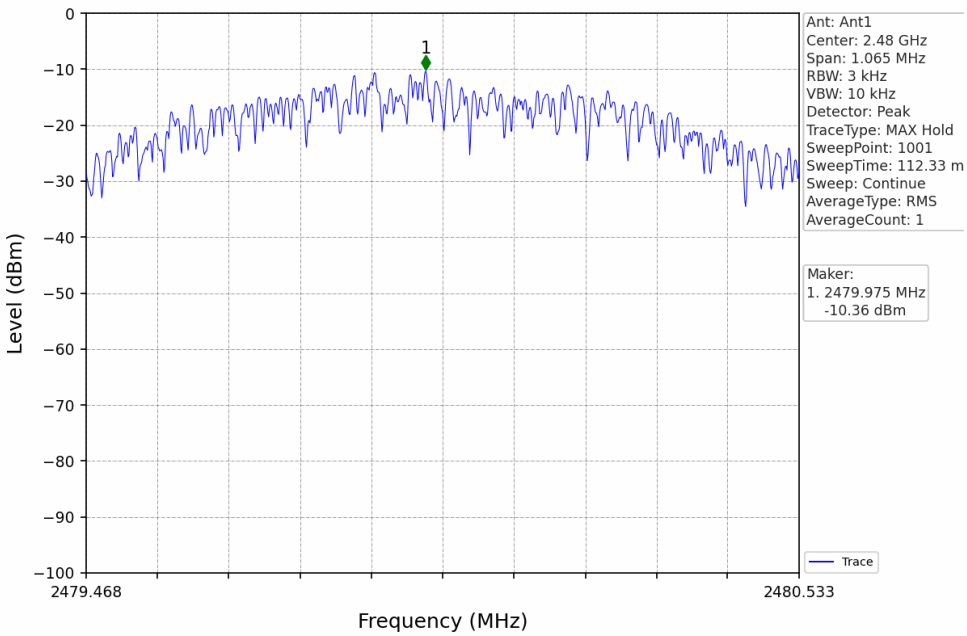
1M_LCH_2402MHz_DataRate=_Ant1_NTNV



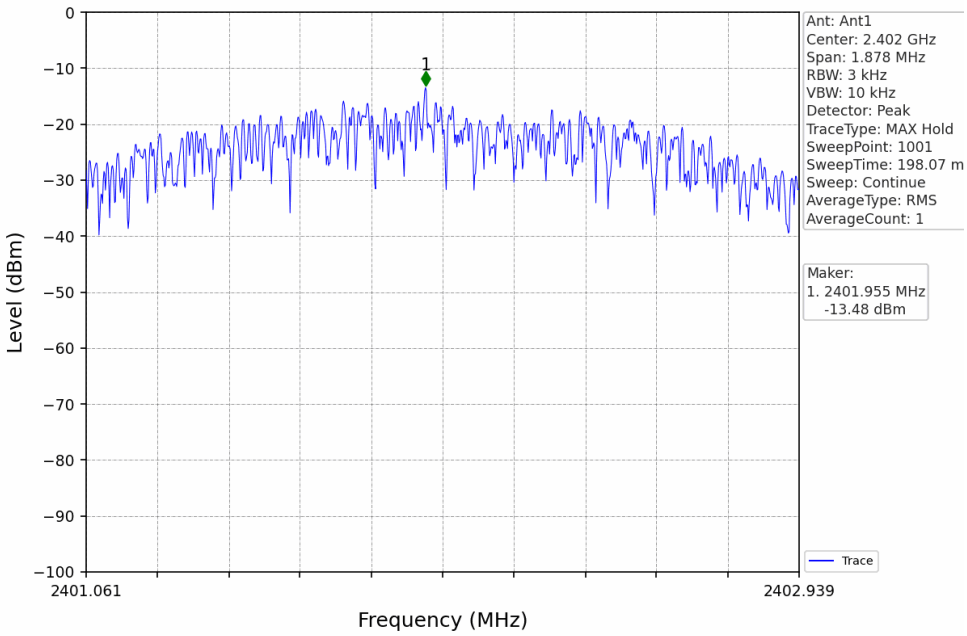
1M_MCH_2440MHz_DataRate=_Ant1_NTNV



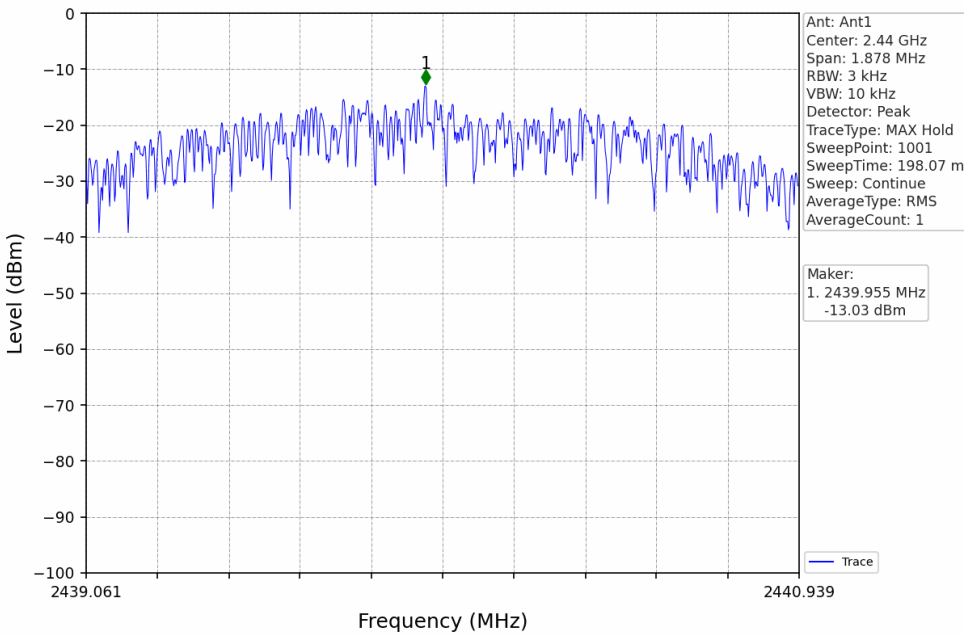
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



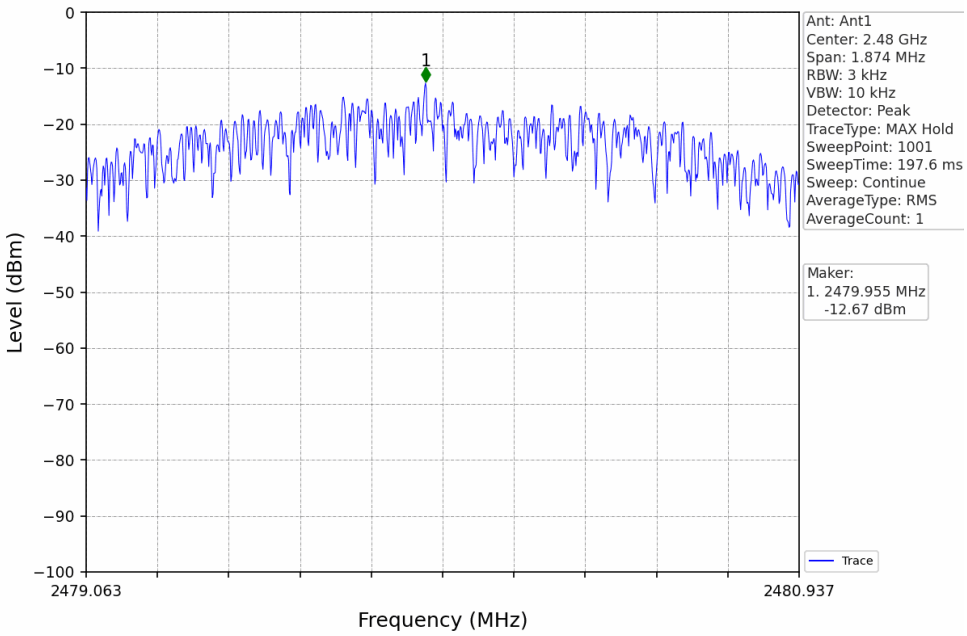
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



2M_MCH_2440MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



5. Unwanted Emissions In Non-restricted Frequency Bands

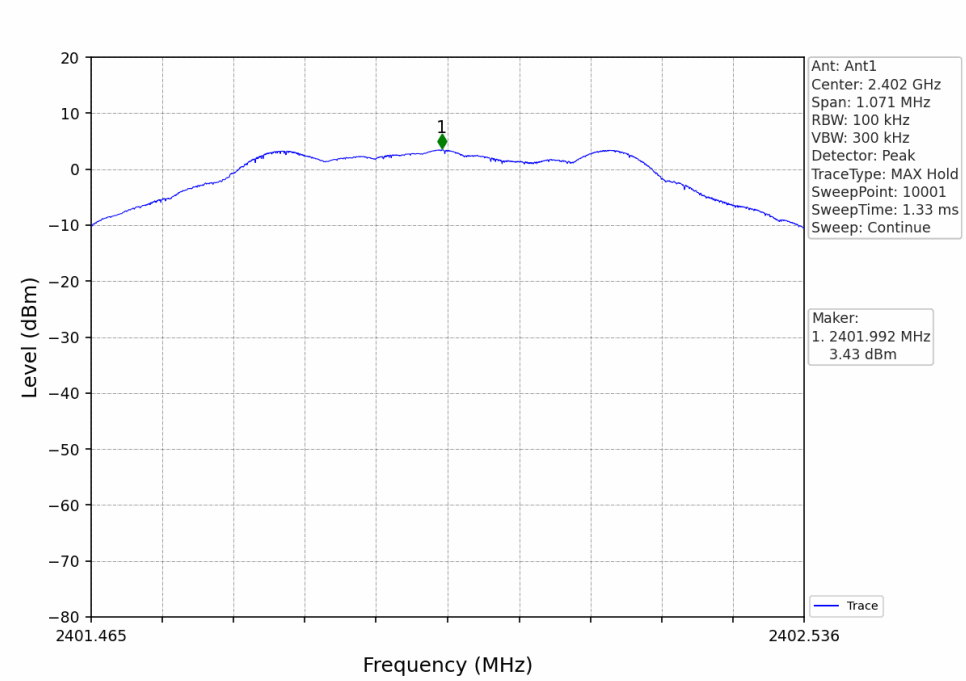
5.1 Ref

5.1.1 Test Result

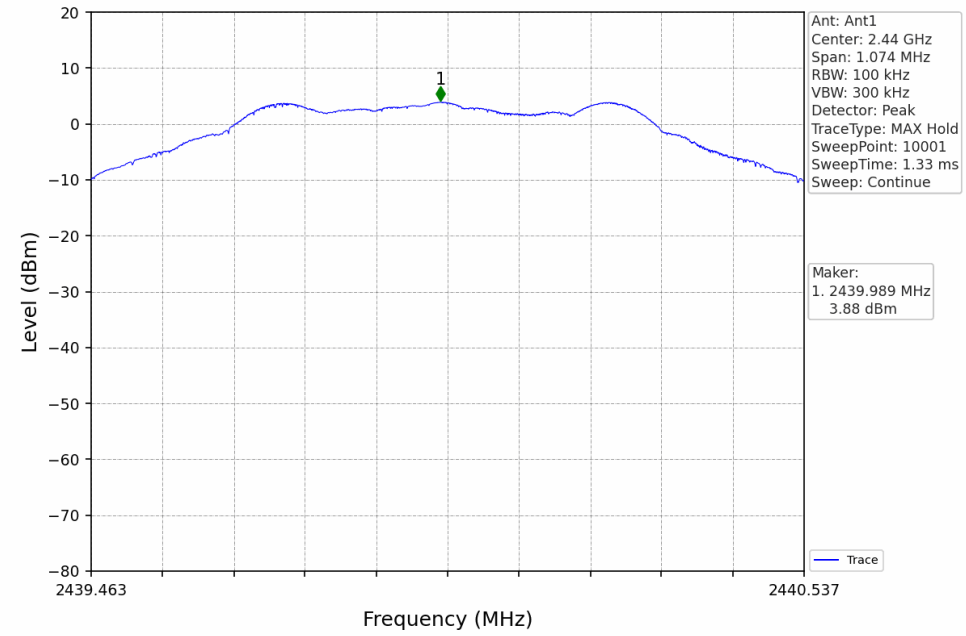
Mode	TX Type	Frequency (MHz)	Ant	Level of Reference (dBm)
1M	SISO	2402	1	3.43
		2440	1	3.88
		2480	1	4.00
2M	SISO	2402	1	2.85
		2440	1	3.43
		2480	1	3.66

5.1.2 Test Graph

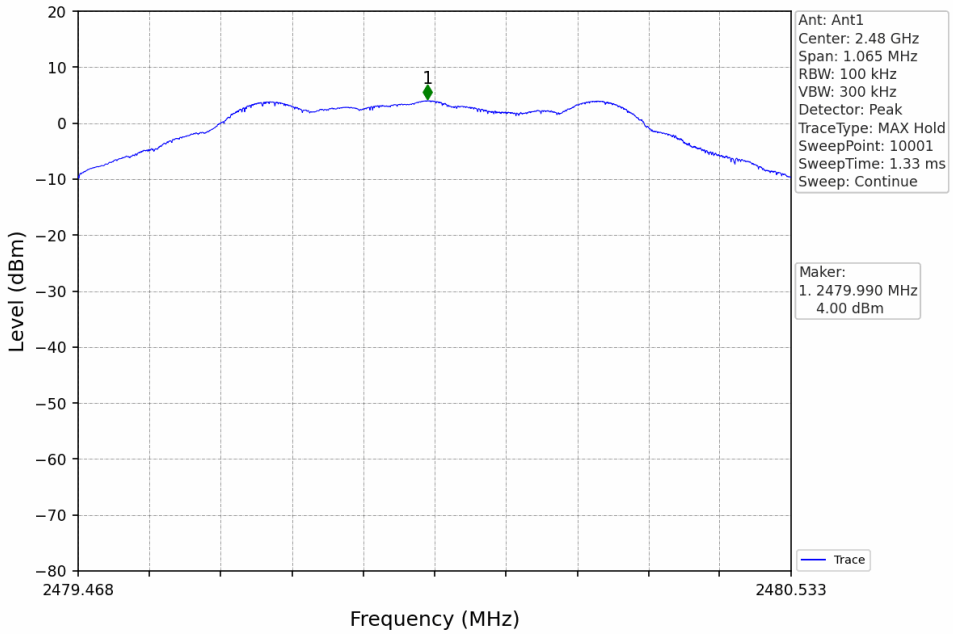
1M_LCH_2402MHz_DataRate=_Ant1_NTNV



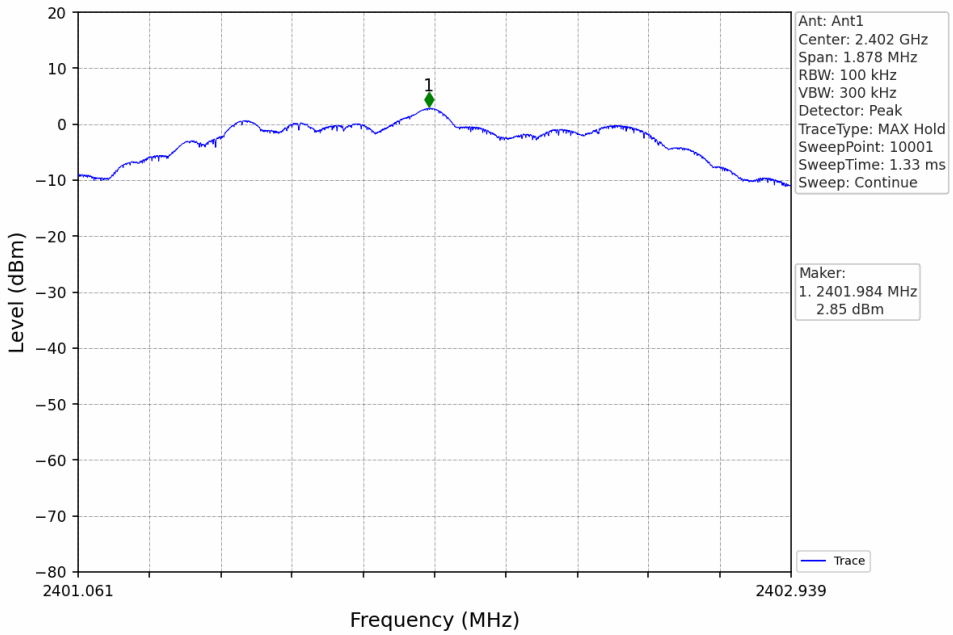
1M_MCH_2440MHz_DataRate=_Ant1_NTNV



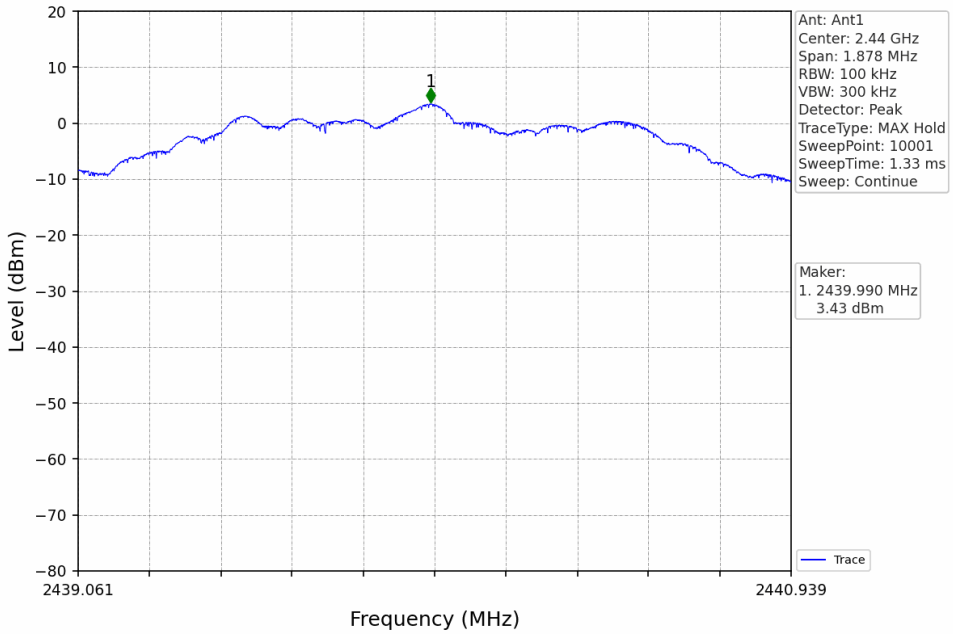
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



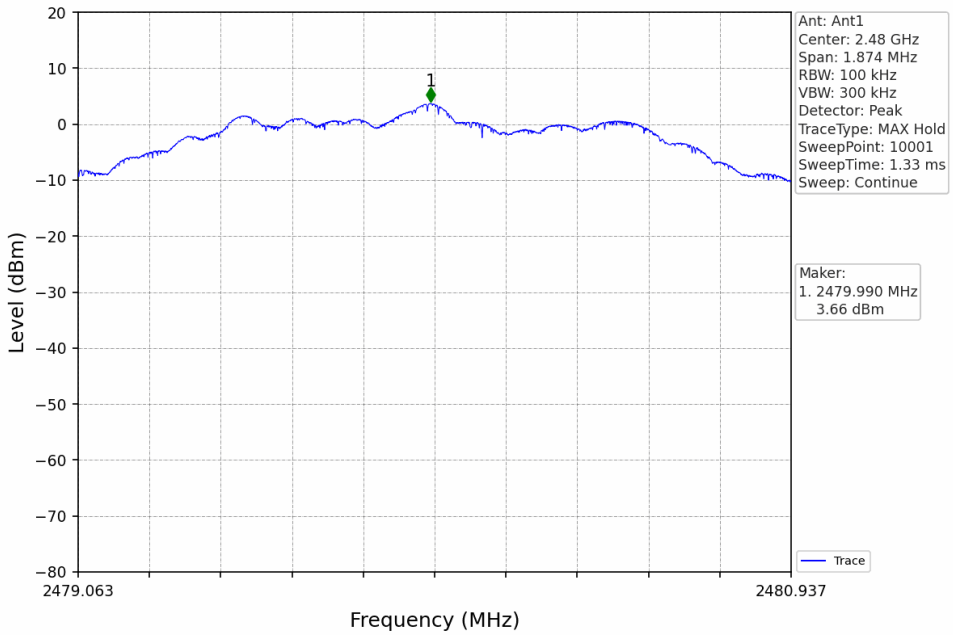
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



2M_MCH_2440MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



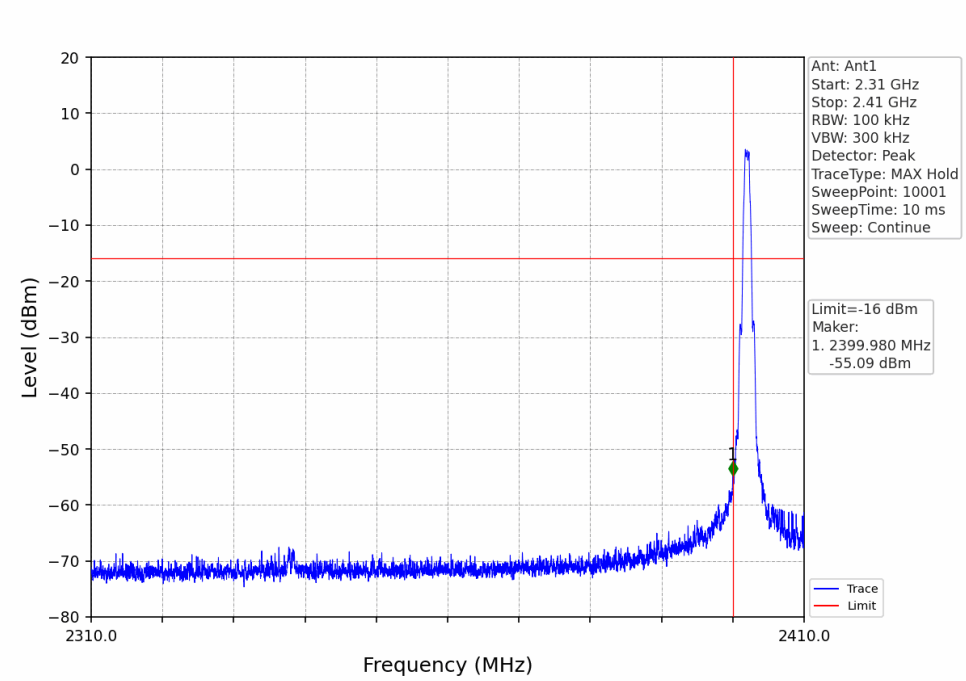
5.2 CSE

5.2.1 Test Result

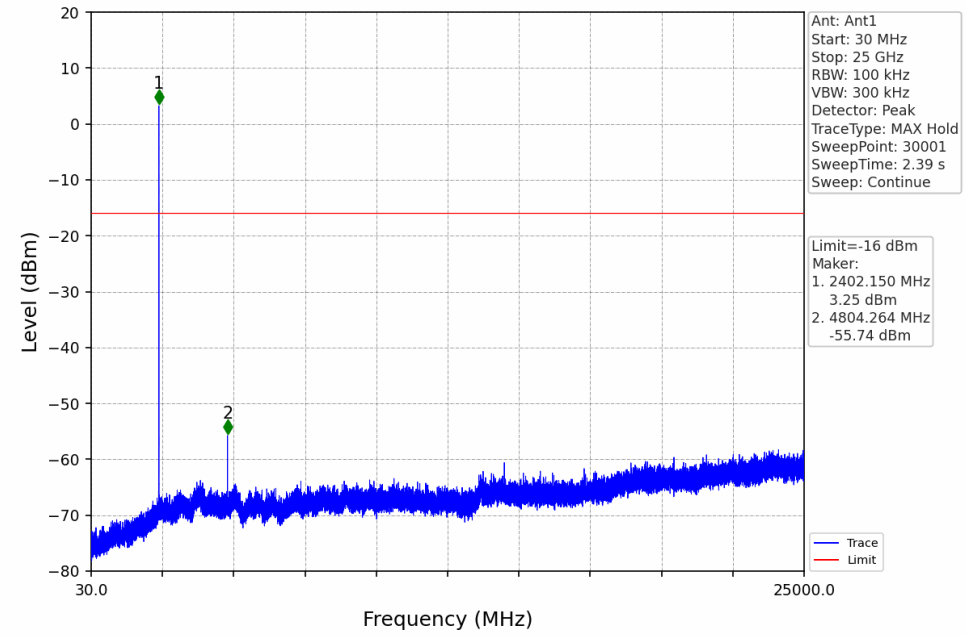
Mode	TX Type	Frequency (MHz)	Ant	Level of Reference (dBm)	Limit (dBm)	Verdict
1M	SISO	2402	1	4.00	-16.00	Pass
		2440	1	4.00	-16.00	Pass
		2480	1	4.00	-16.00	Pass
2M	SISO	2402	1	3.66	-16.34	Pass
		2440	1	3.66	-16.34	Pass
		2480	1	3.66	-16.34	Pass

5.2.2 Test Graph

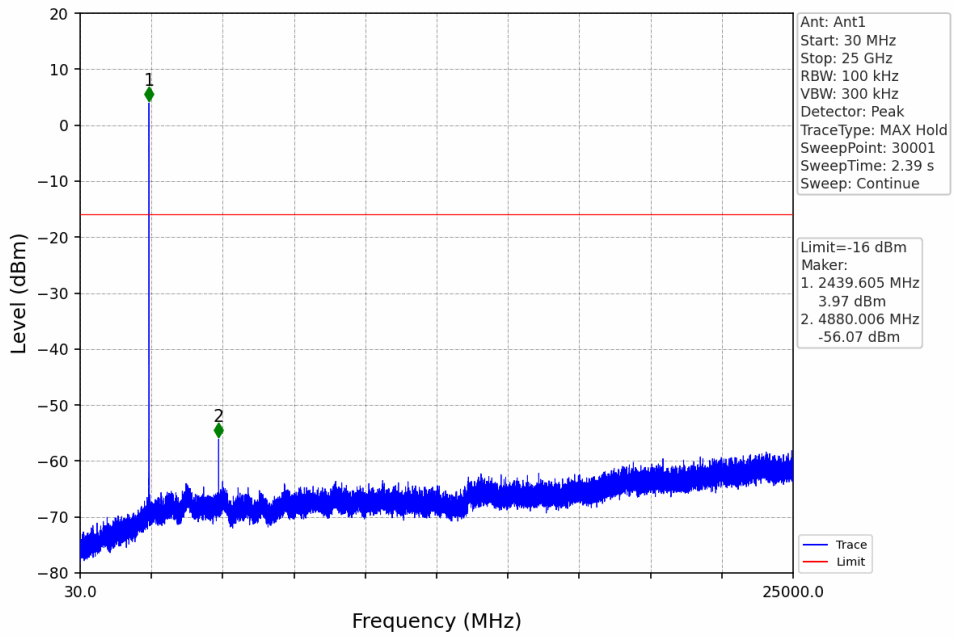
1M_LCH_2402MHz_DataRate=_Ant1_NTNV



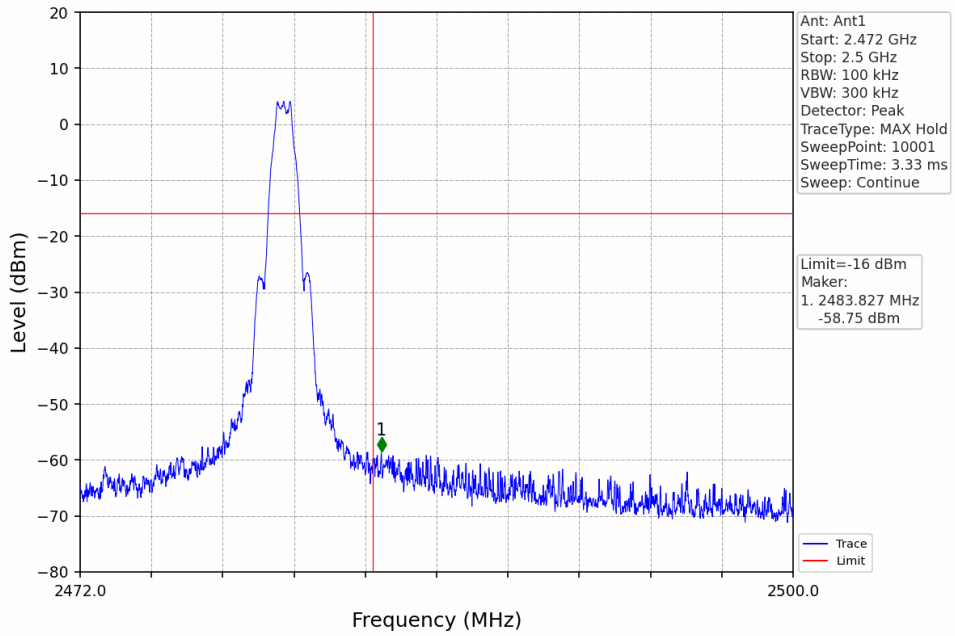
1M_LCH_2402MHz_DataRate=_Ant1_NTNV



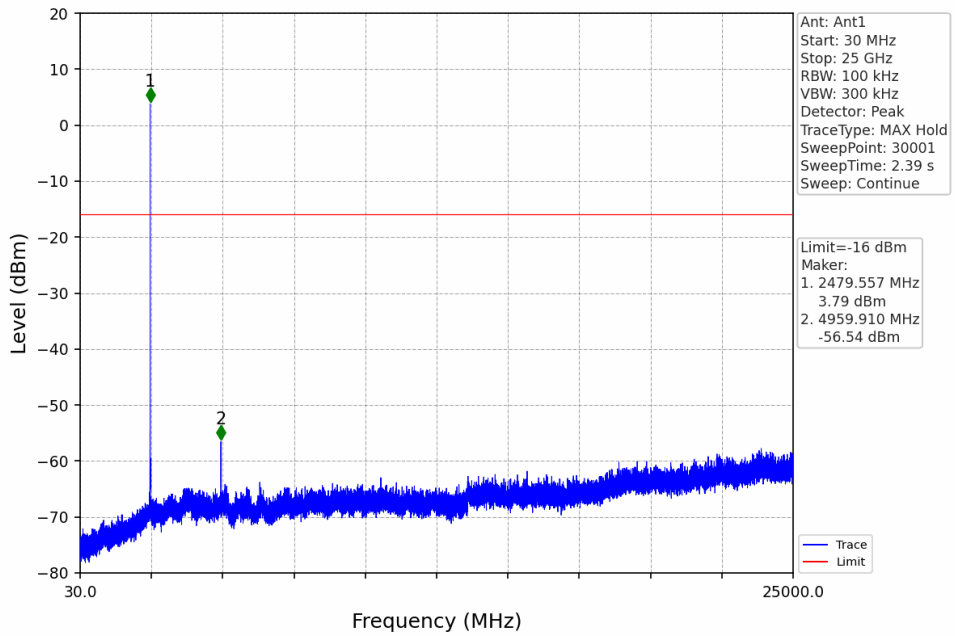
1M_MCH_2440MHz_DataRate=_Ant1_NTNV



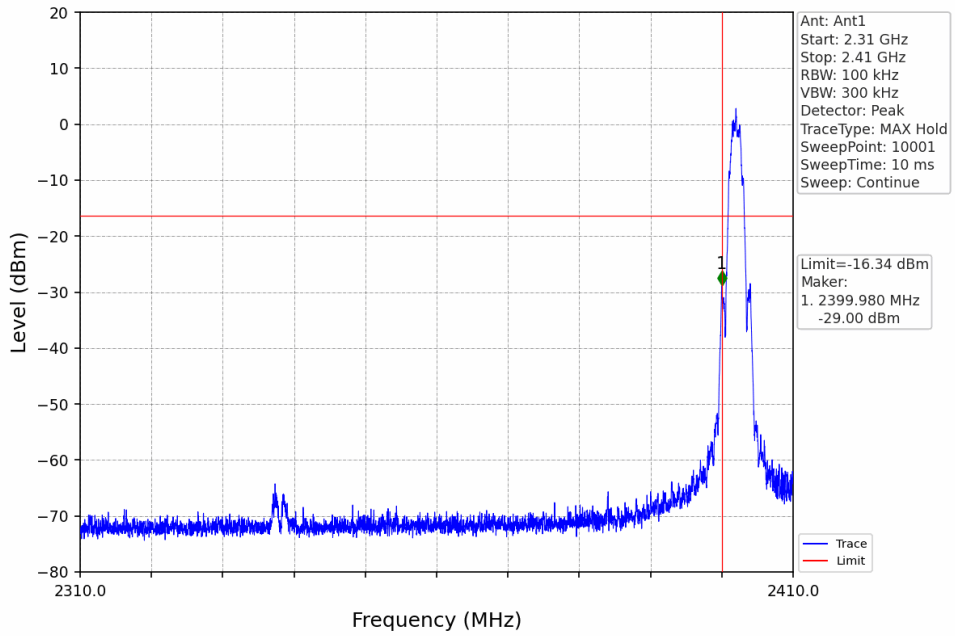
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



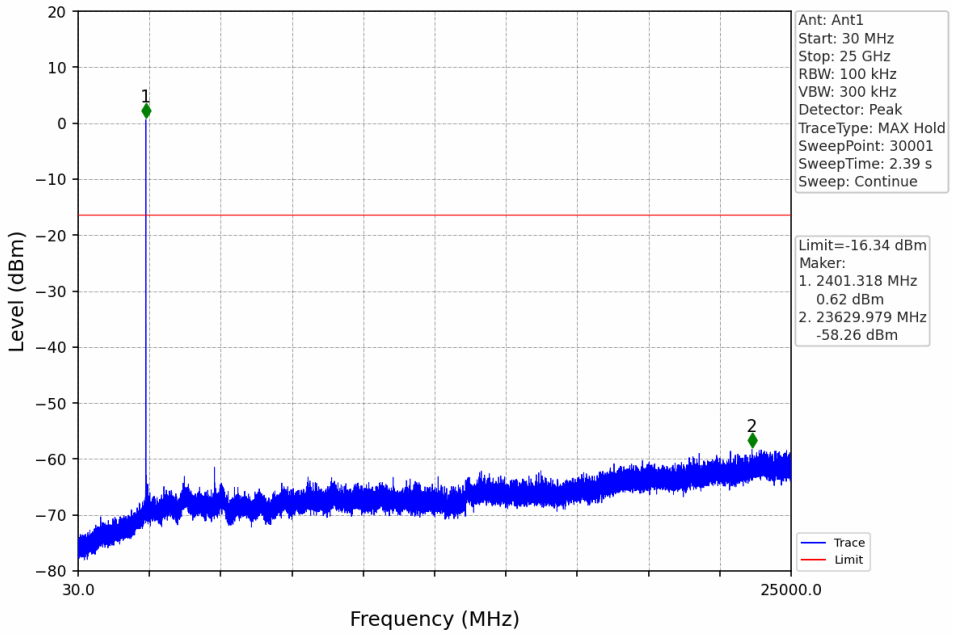
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



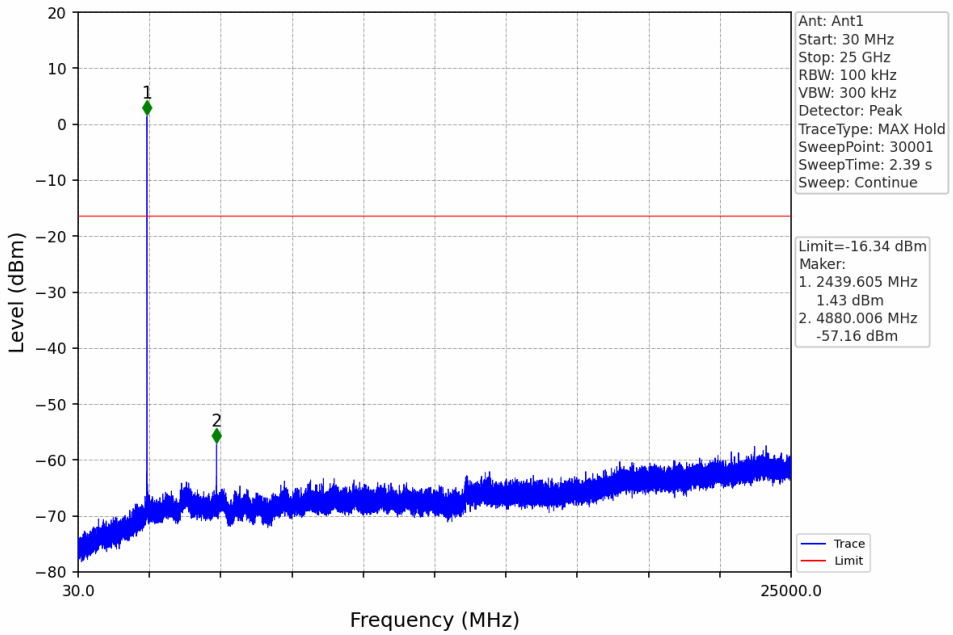
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



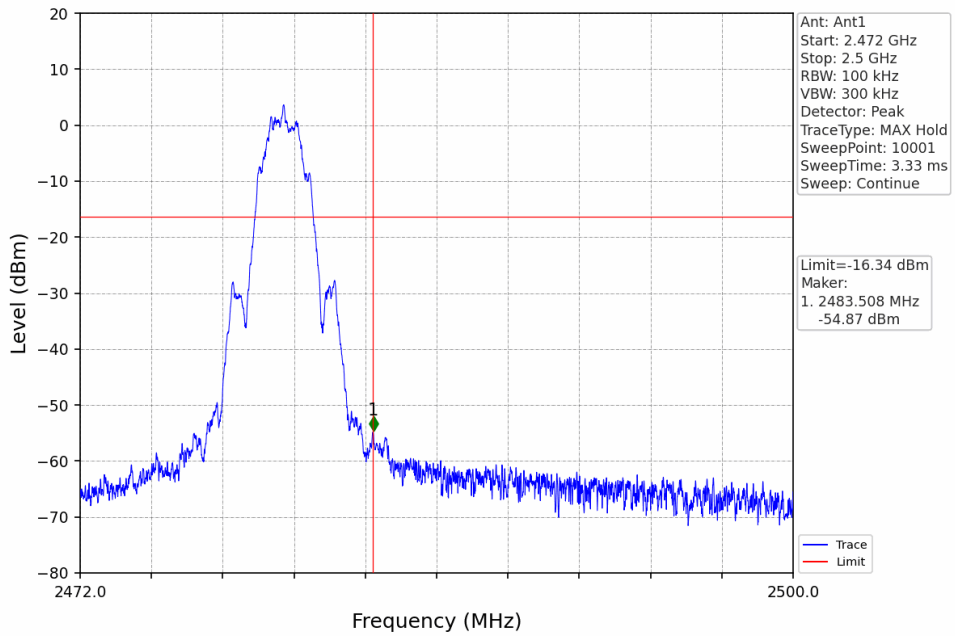
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



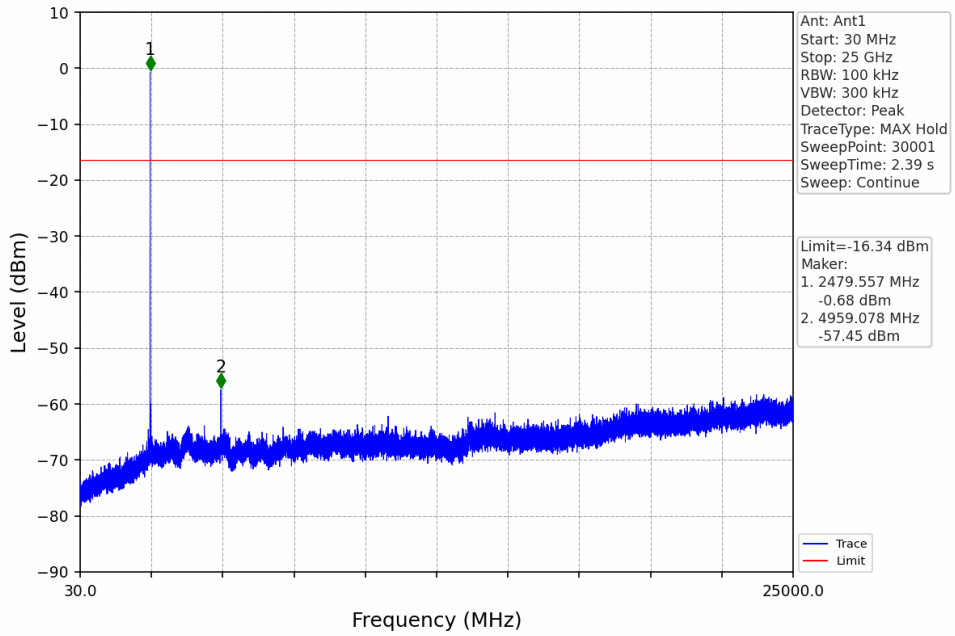
2M_MCH_2440MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



For Right earbuds:

1. Duty Cycle

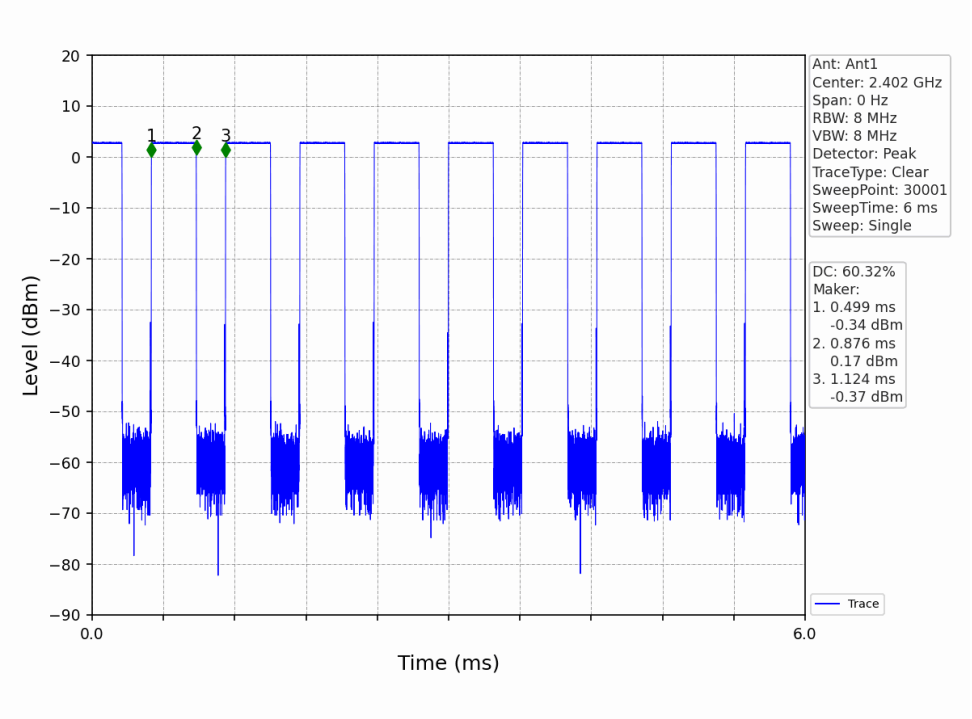
1.1 Ant1

1.1.1 Test Result

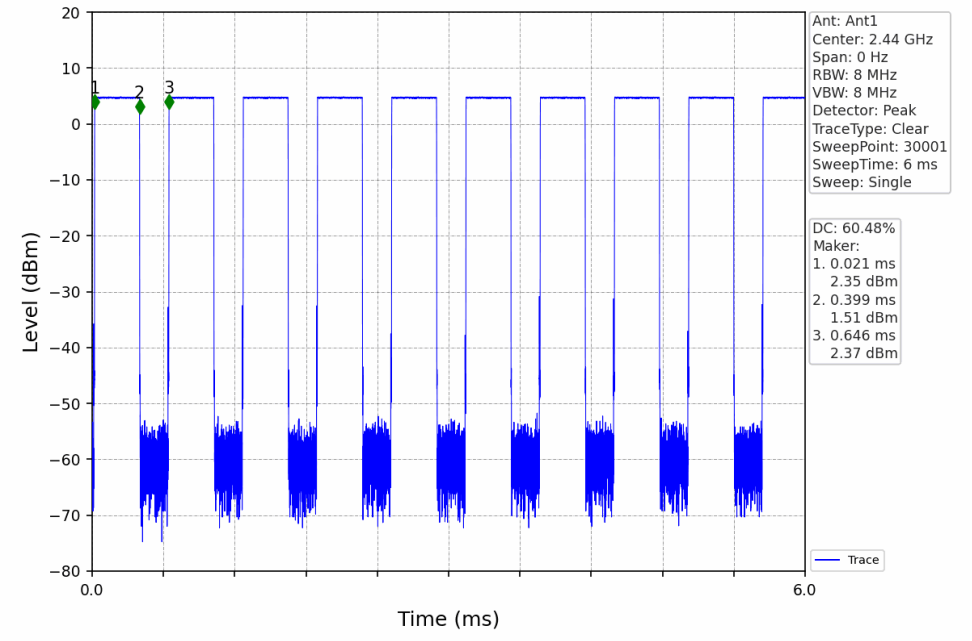
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
1M	SISO	2402	0.377	0.625	60.32	2.20	0.00
		2440	0.378	0.625	60.48	2.18	0.00
		2480	0.377	0.625	60.32	2.20	0.00
2M	SISO	2402	0.193	0.625	30.88	5.10	0.03
		2440	0.193	0.625	30.88	5.10	0.00
		2480	0.193	0.625	30.88	5.10	0.00

1.1.2 Test Graph

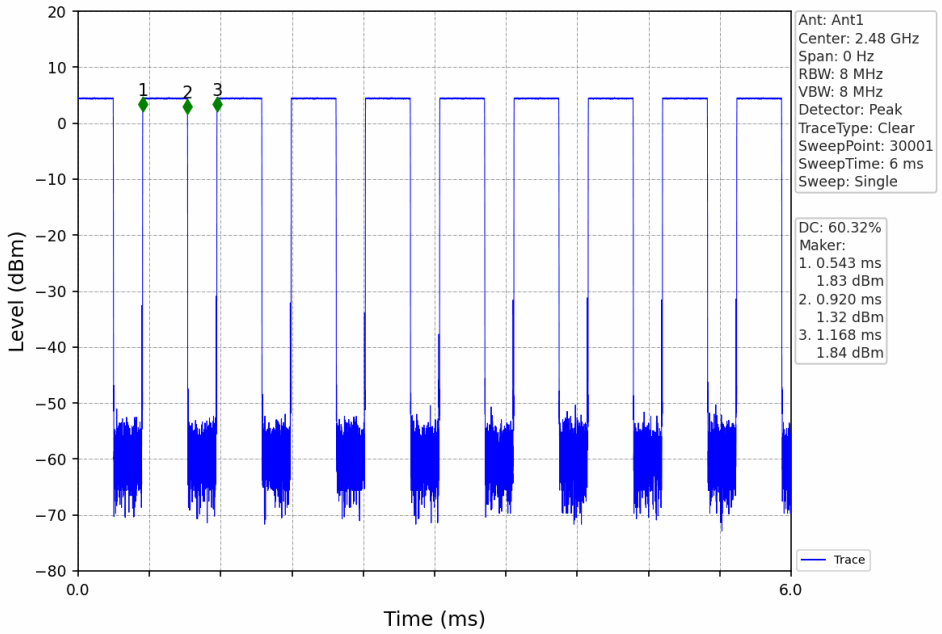
1M_LCH_2402MHz_DataRate=_Ant1_NTNV



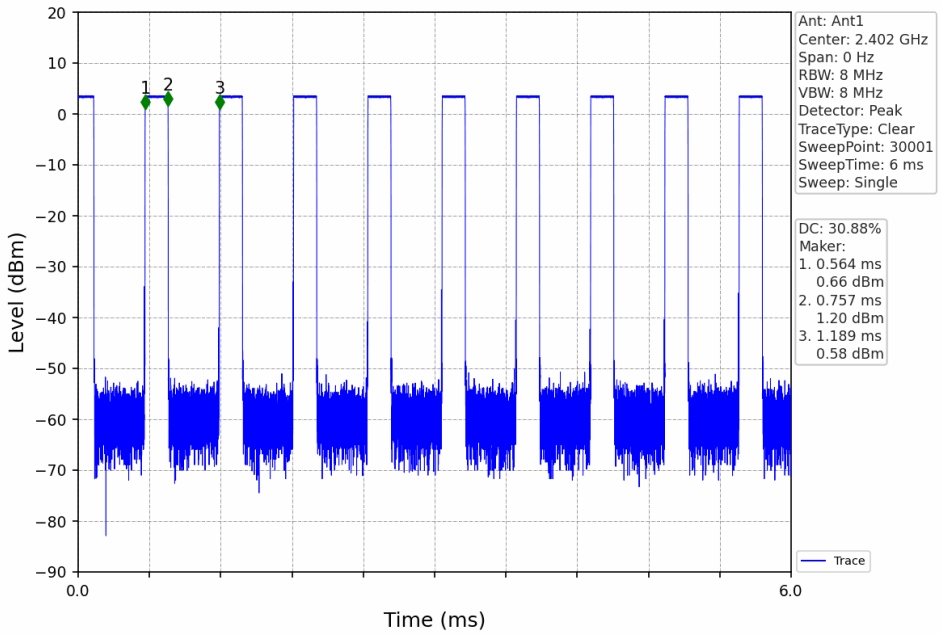
1M_MCH_2440MHz_DataRate=_Ant1_NTNV



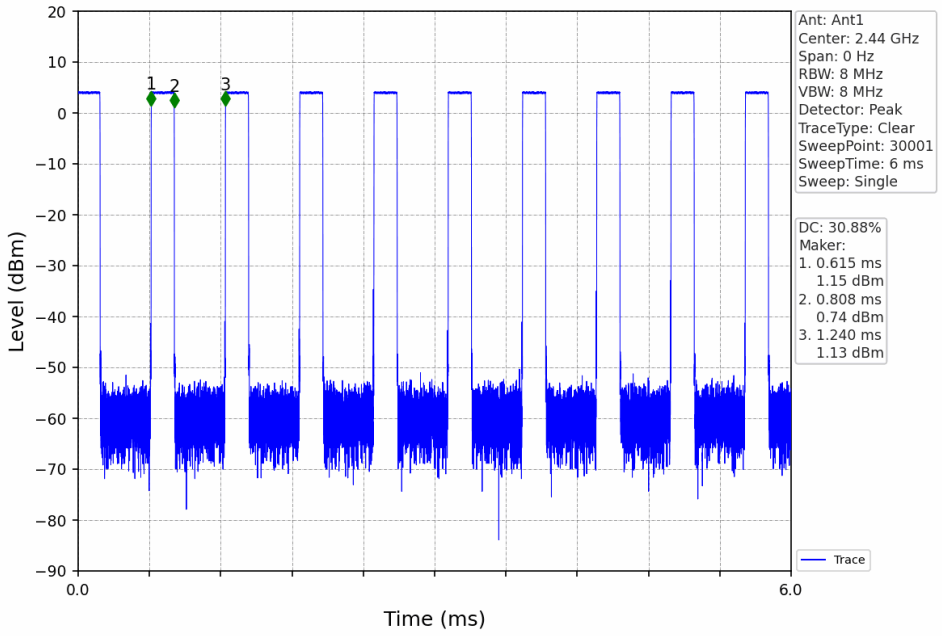
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



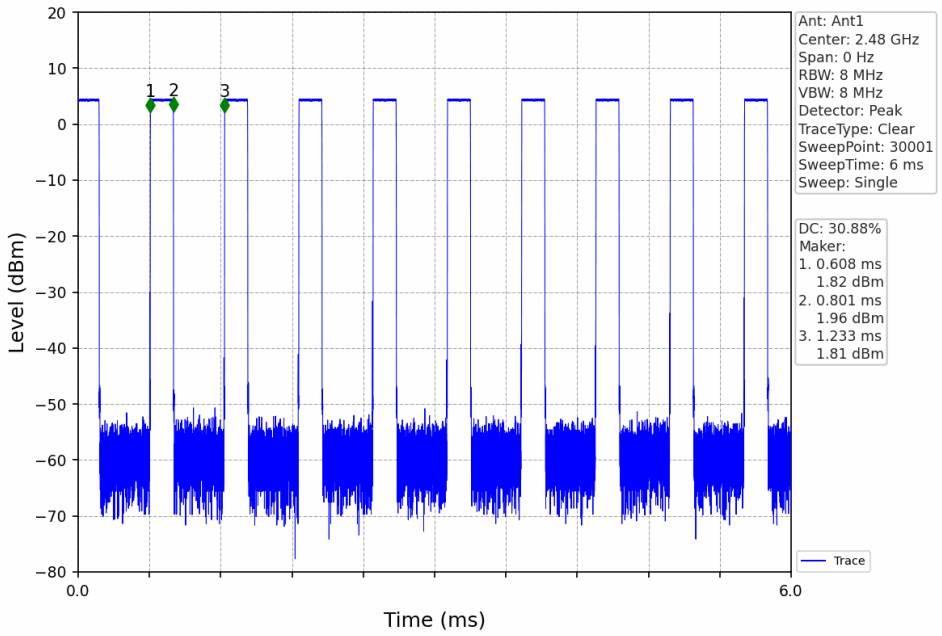
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



2M_MCH_2440MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



2. Bandwidth

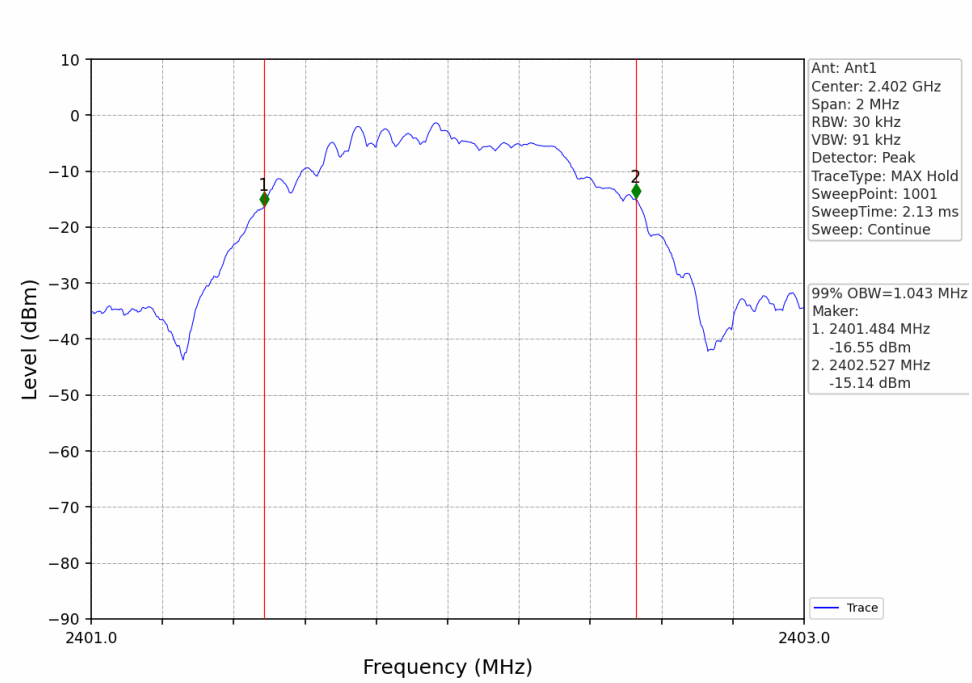
2.1 OBW

2.1.1 Test Result

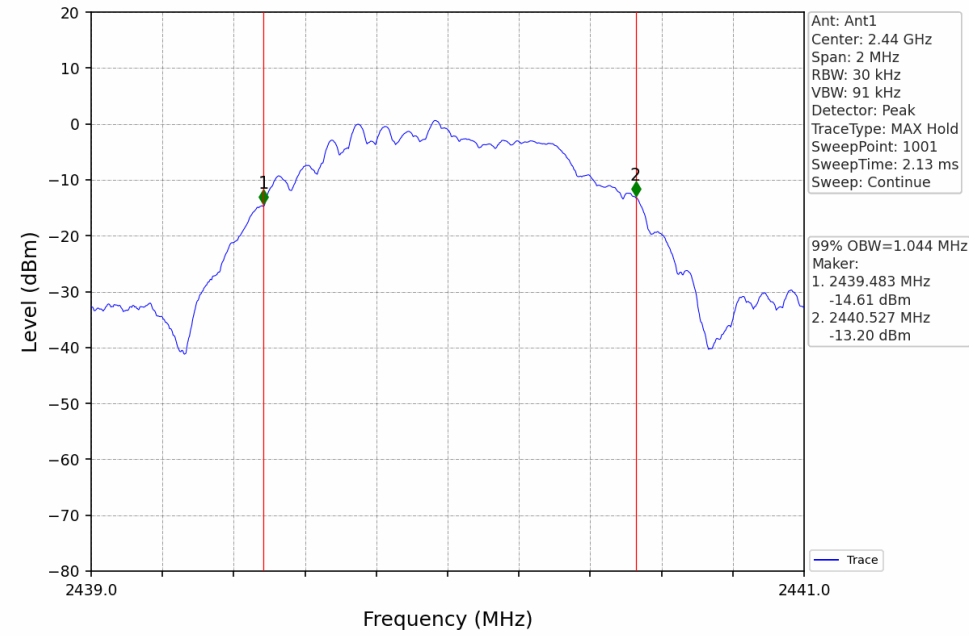
Mode	TX Type	Frequency (MHz)	Ant	99% Occupied Bandwidth (MHz)	Verdict
				Result	
1M	SISO	2402	1	1.043	Pass
		2440	1	1.044	Pass
		2480	1	1.044	Pass
2M	SISO	2402	1	2.081	Pass
		2440	1	2.082	Pass
		2480	1	2.082	Pass

2.1.2 Test Graph

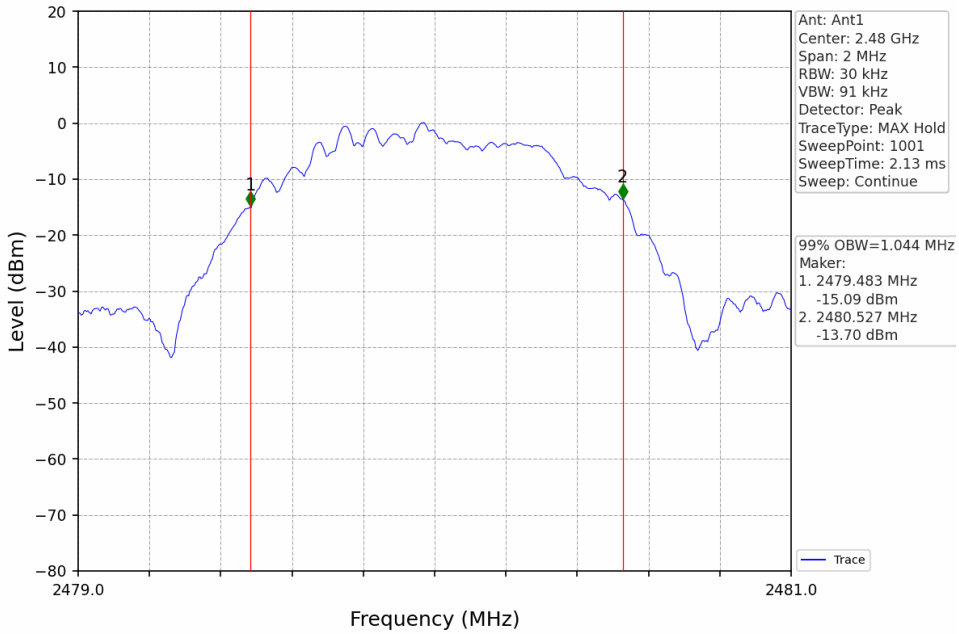
1M_LCH_2402MHz_DataRate=_Ant1_NTNV



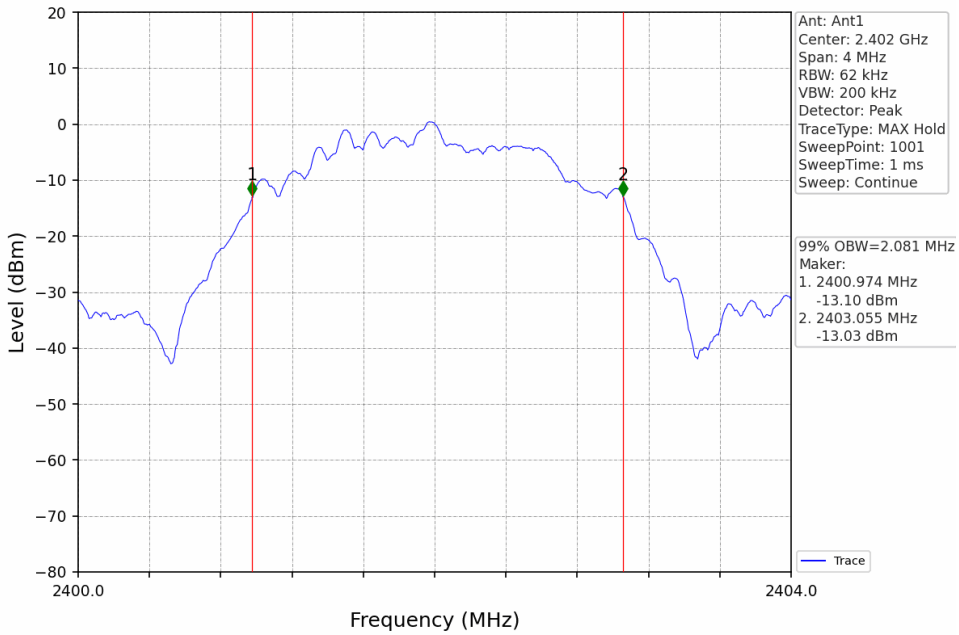
1M_MCH_2440MHz_DataRate=_Ant1_NTNV



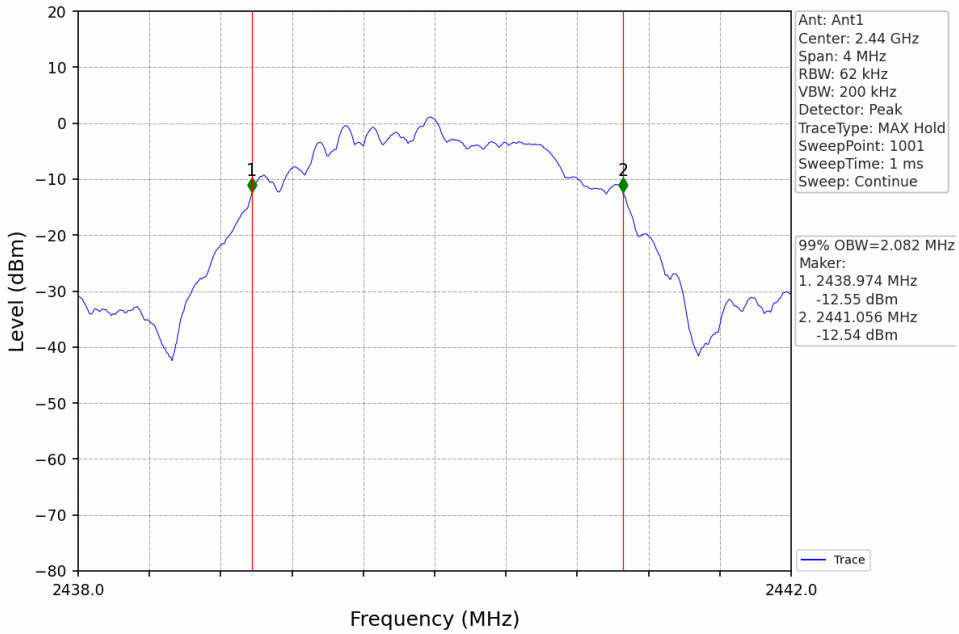
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



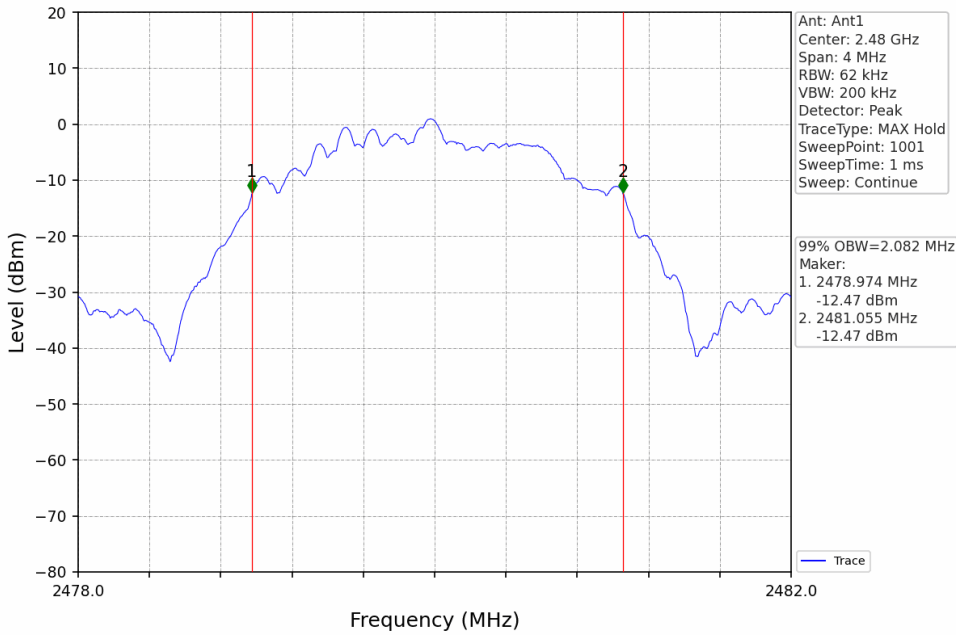
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



2M_MCH_2440MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



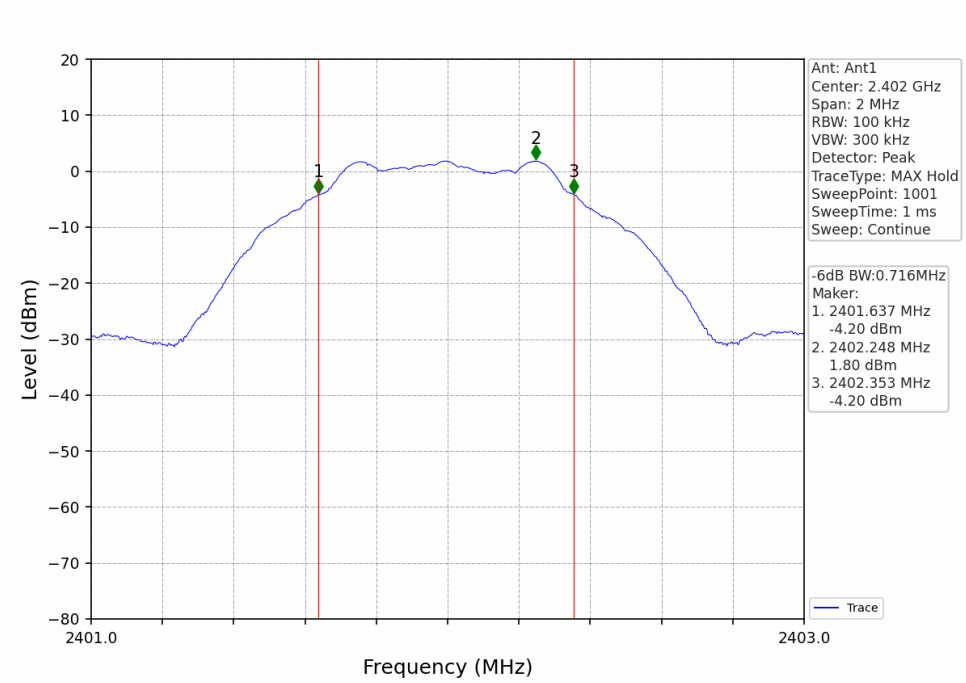
2.2 6dB BW

2.2.1 Test Result

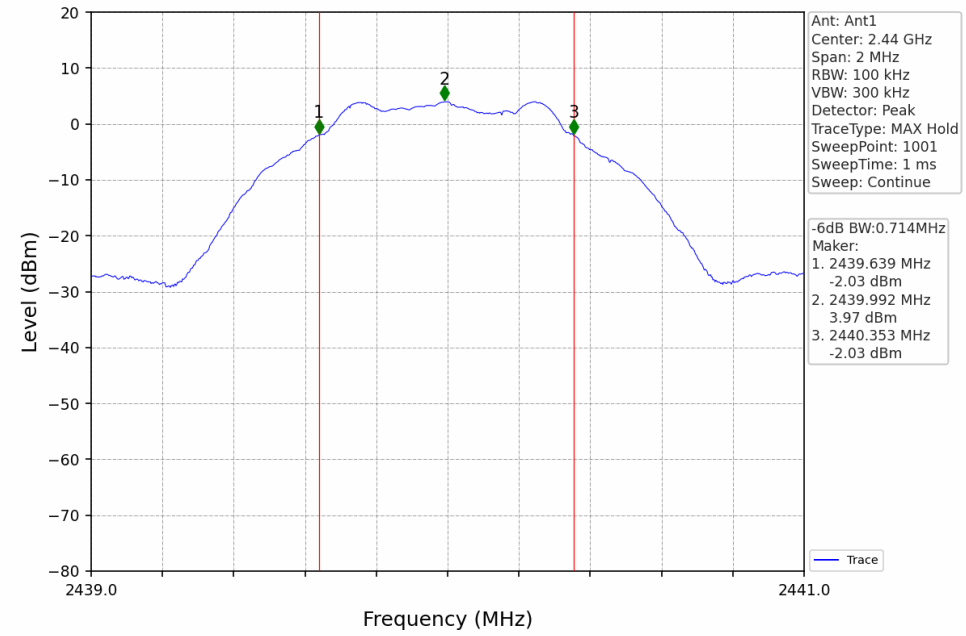
Mode	TX Type	Frequency (MHz)	Ant	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	0.716	>=0.5	Pass
		2440	1	0.714	>=0.5	Pass
		2480	1	0.716	>=0.5	Pass
2M	SISO	2402	1	1.255	>=0.5	Pass
		2440	1	1.247	>=0.5	Pass
		2480	1	1.257	>=0.5	Pass

2.2.2 Test Graph

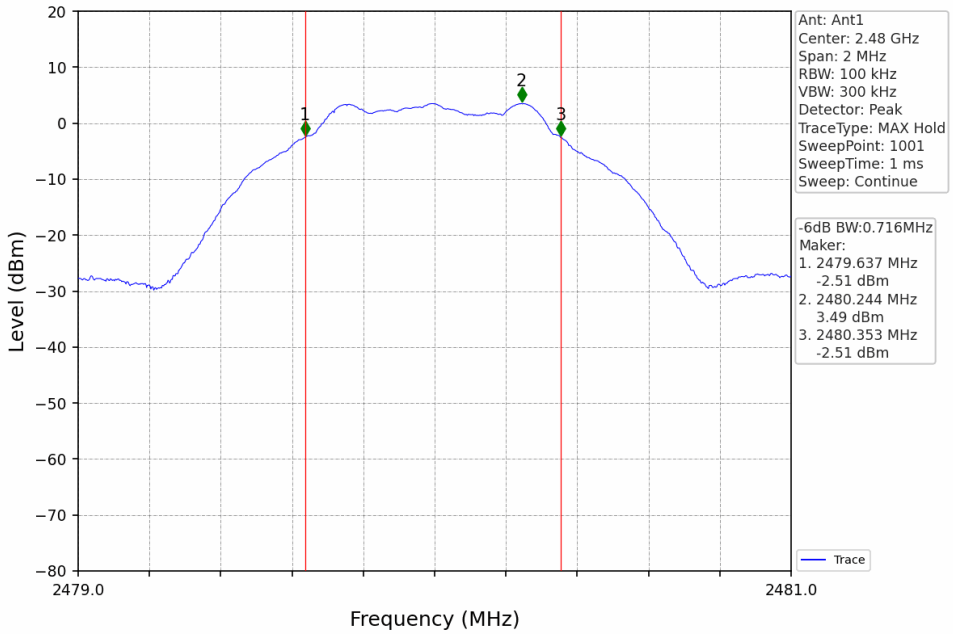
1M_LCH_2402MHz_DataRate=_Ant1_NTNV



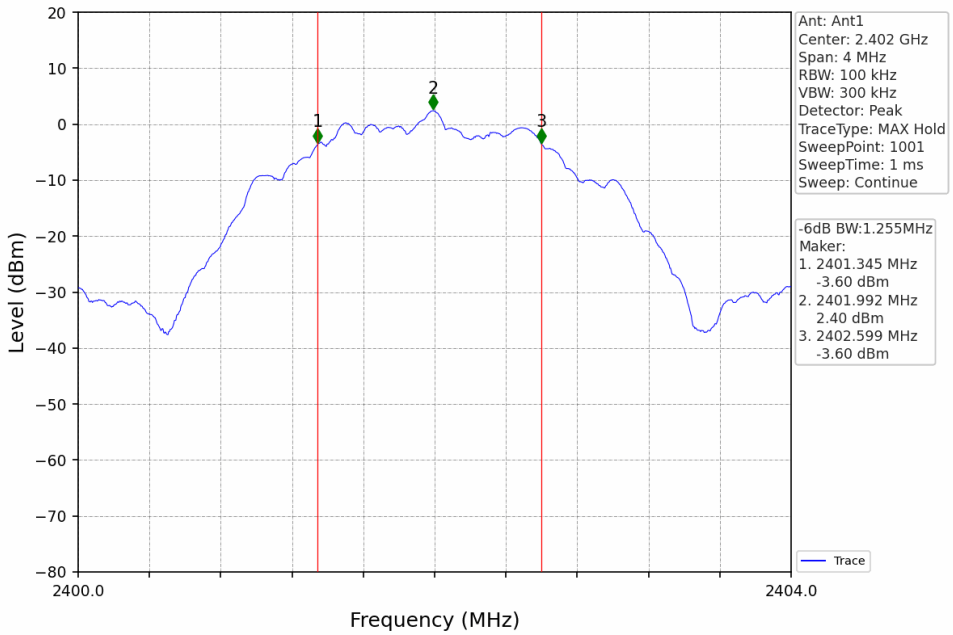
1M_MCH_2440MHz_DataRate=_Ant1_NTNV



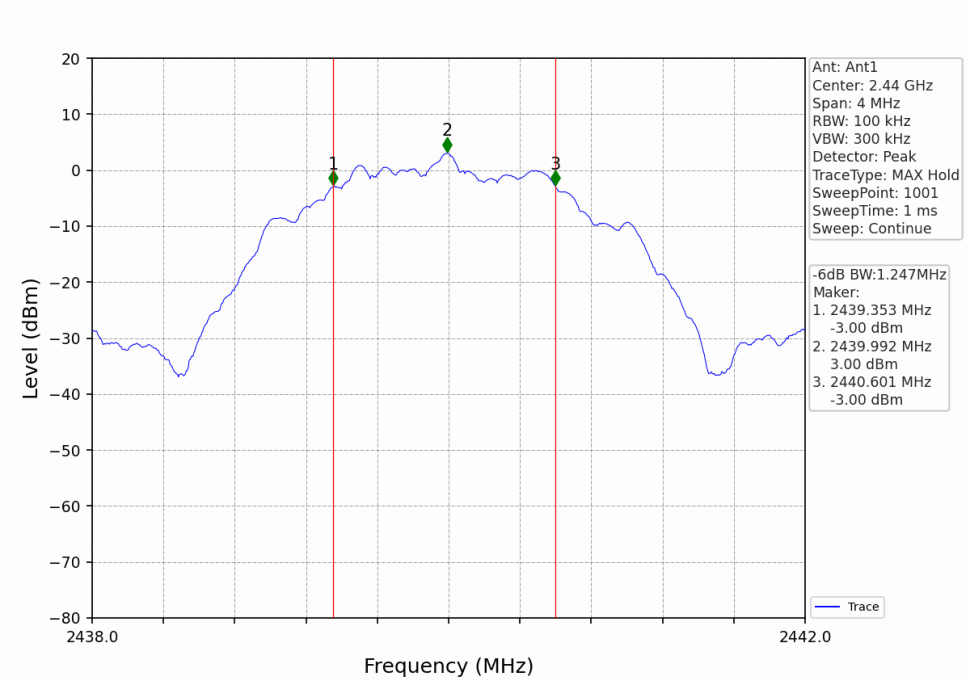
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



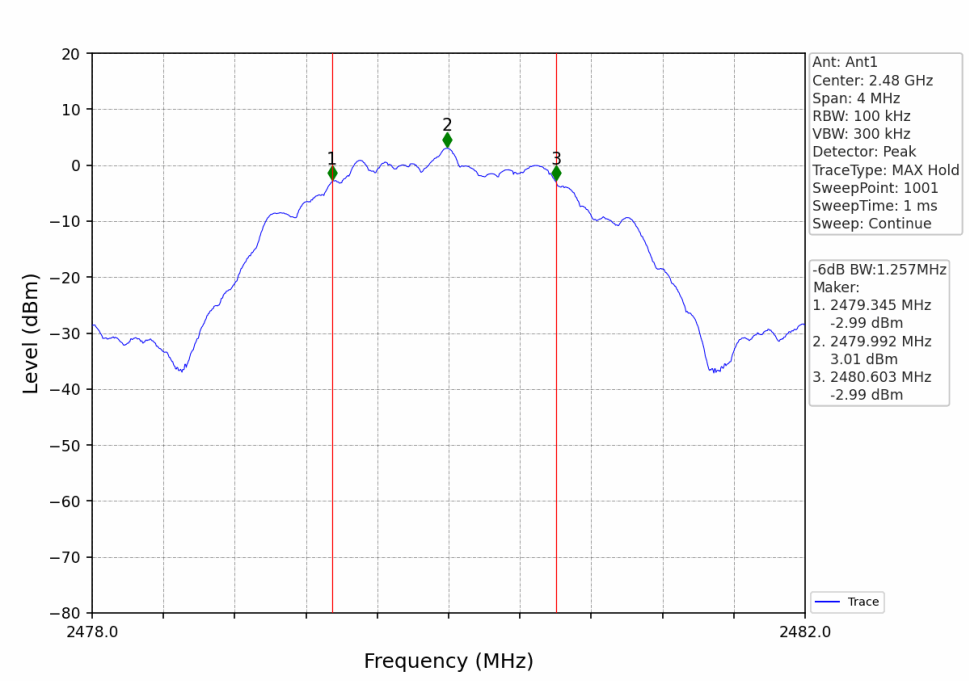
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



2M_MCH_2440MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



3. Maximum Conducted Output Power

3.1 Power

3.1.1 Test Result

1st Source

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			Ant1	Limit	
1M	SISO	2402	3.71	<=30	Pass
		2440	4.24	<=30	Pass
		2480	4.33	<=30	Pass
2M	SISO	2402	3.58	<=30	Pass
		2440	4.14	<=30	Pass
		2480	4.24	<=30	Pass

1st Source

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			Ant1	Limit	
1M	SISO	2402	3.65	<=30	Pass
		2440	4.21	<=30	Pass
		2480	4.28	<=30	Pass
2M	SISO	2402	3.54	<=30	Pass
		2440	4.13	<=30	Pass
		2480	4.22	<=30	Pass

4. Maximum Power Spectral Density

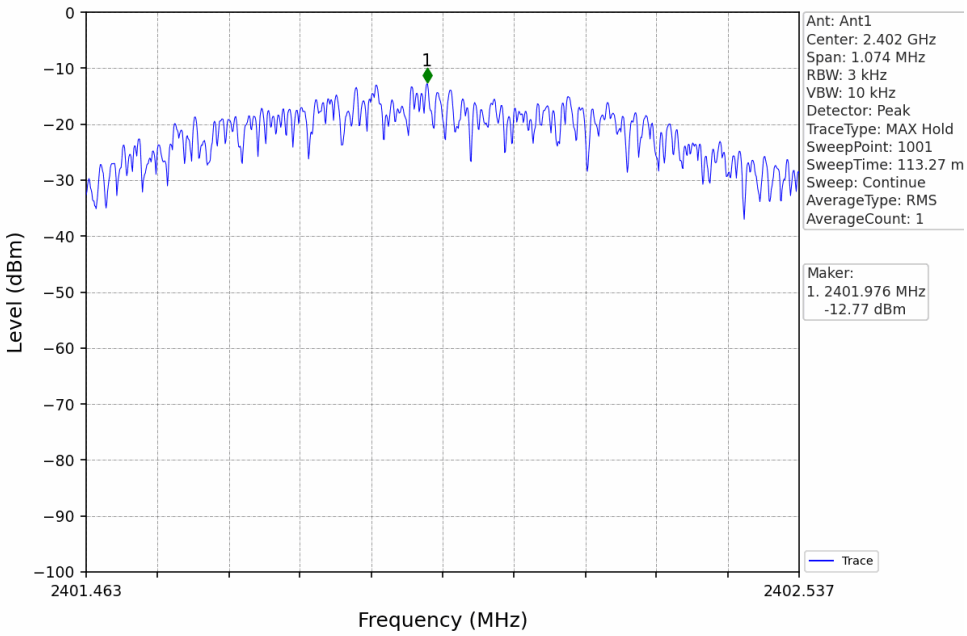
4.1 PSD

4.1.1 Test Result

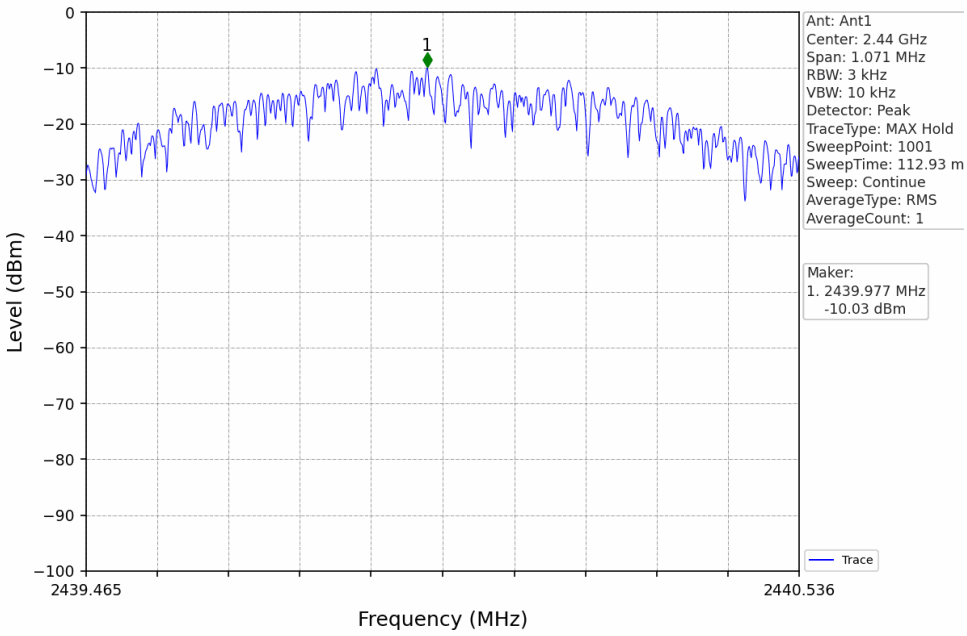
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			Ant1	Limit	
1M	SISO	2402	-12.77	<=8	Pass
		2440	-10.03	<=8	Pass
		2480	-10.90	<=8	Pass
2M	SISO	2402	-13.96	<=8	Pass
		2440	-13.42	<=8	Pass
		2480	-13.21	<=8	Pass

4.1.2 Test Graph

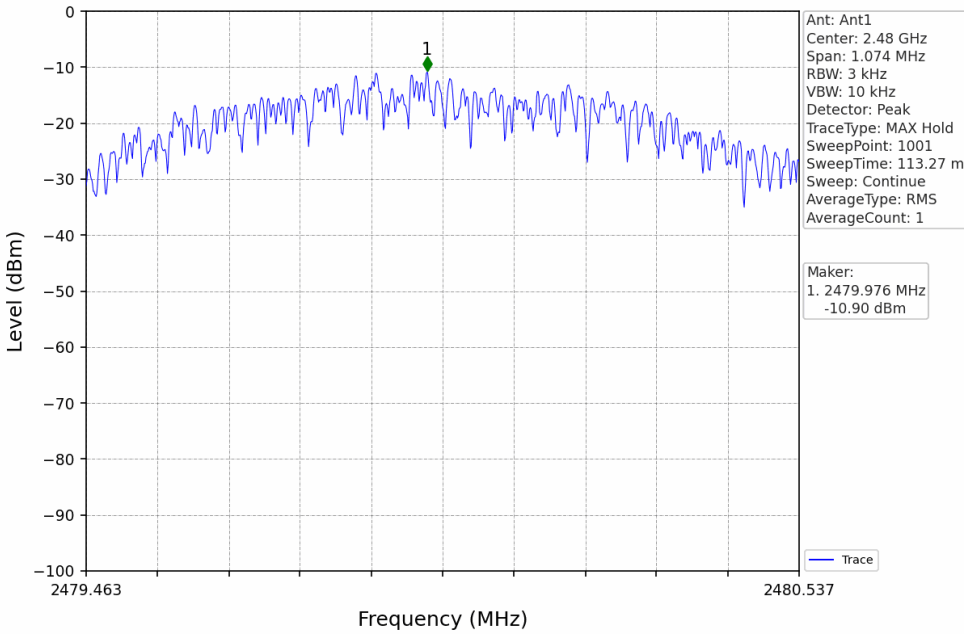
1M_LCH_2402MHz_DataRate=_Ant1_NTNV



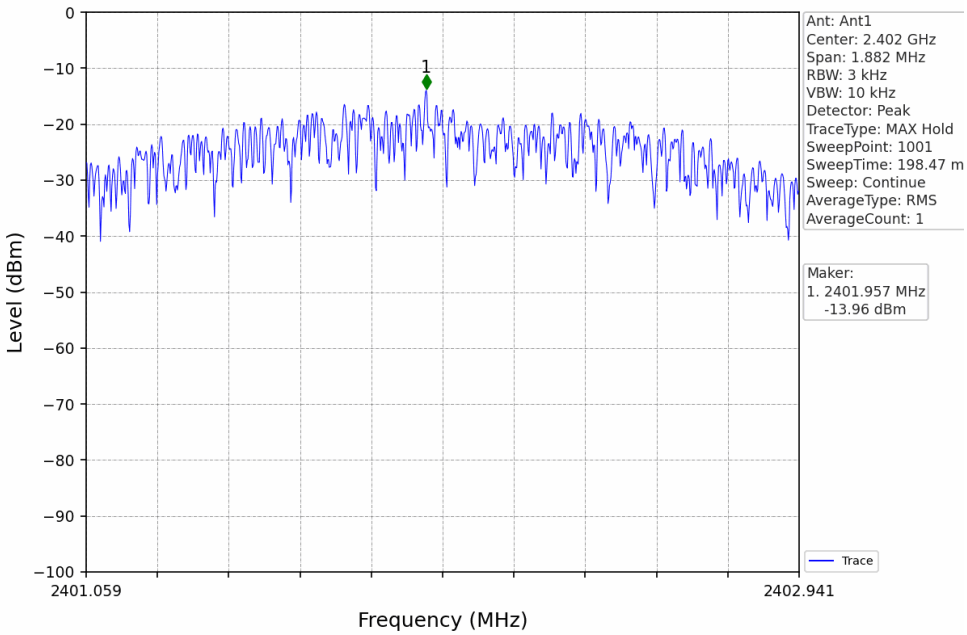
1M_MCH_2440MHz_DataRate=_Ant1_NTNV



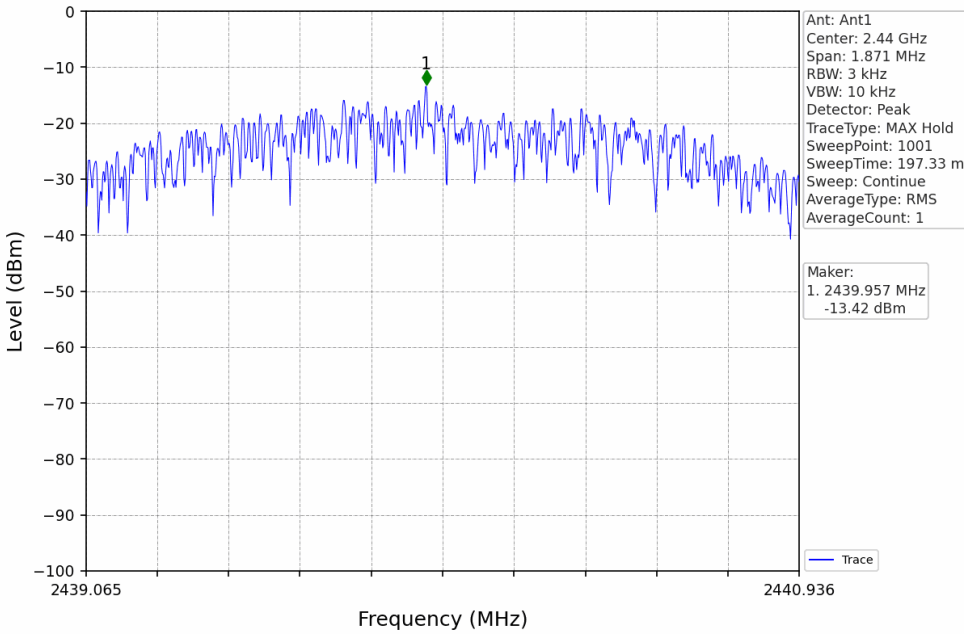
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



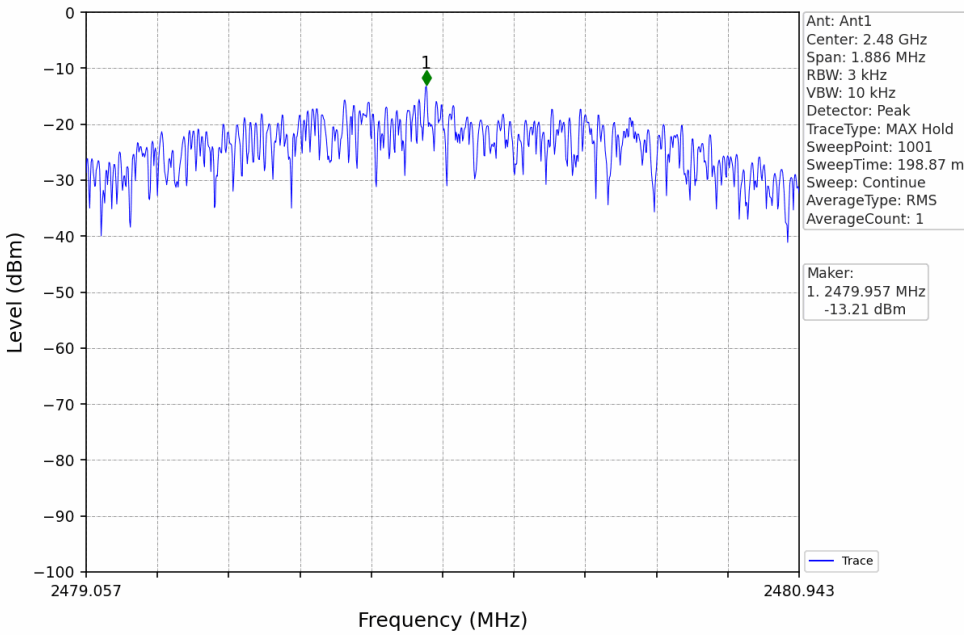
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



2M_MCH_2440MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



5. Unwanted Emissions In Non-restricted Frequency Bands

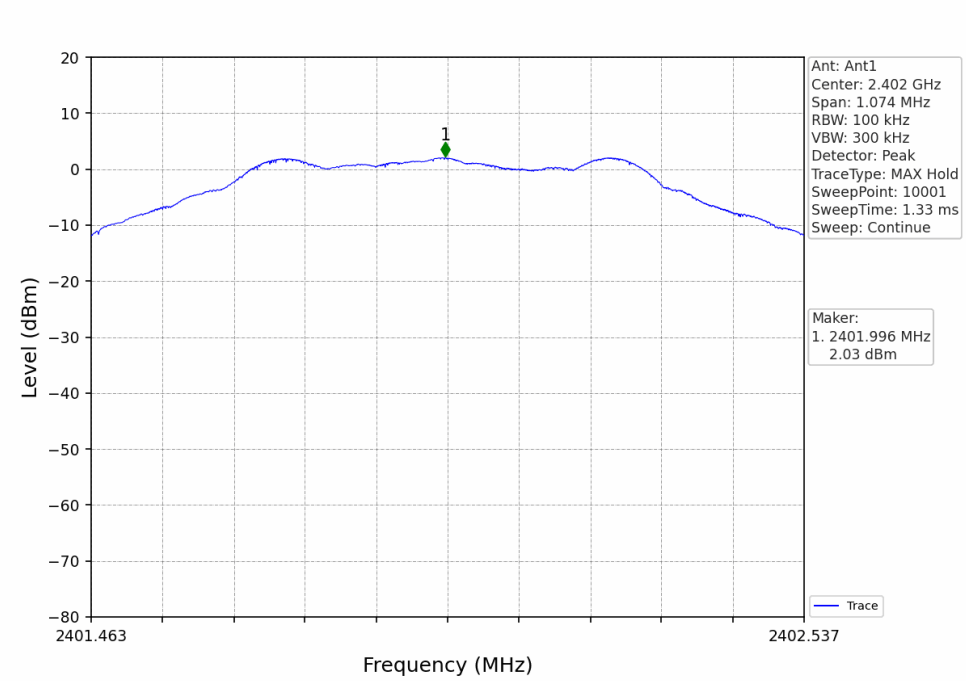
5.1 Ref

5.1.1 Test Result

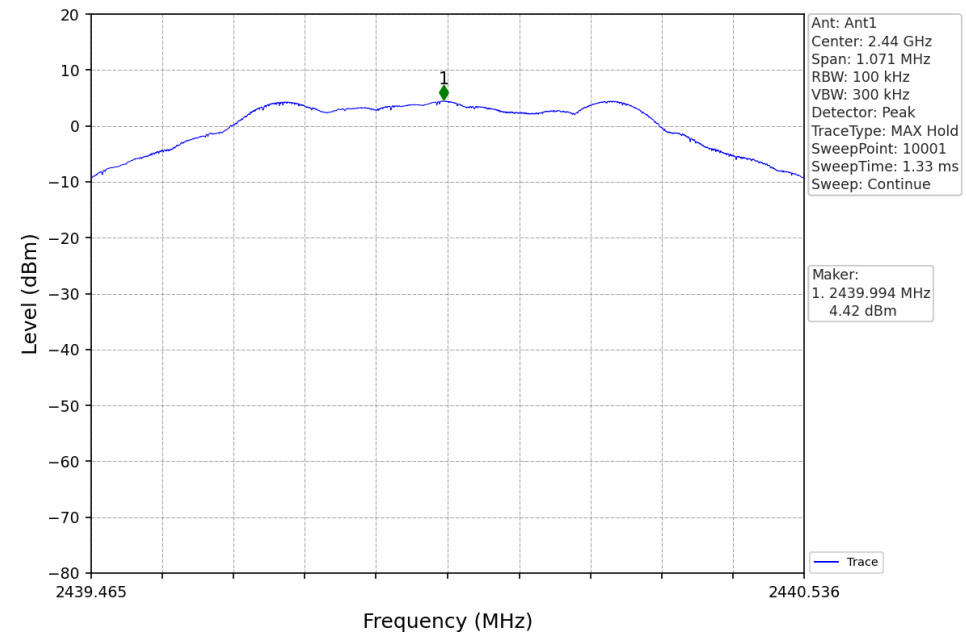
Mode	TX Type	Frequency (MHz)	Ant	Level of Reference (dBm)
1M	SISO	2402	1	2.03
		2440	1	4.42
		2480	1	3.55
2M	SISO	2402	1	2.28
		2440	1	2.83
		2480	1	3.09

5.1.2 Test Graph

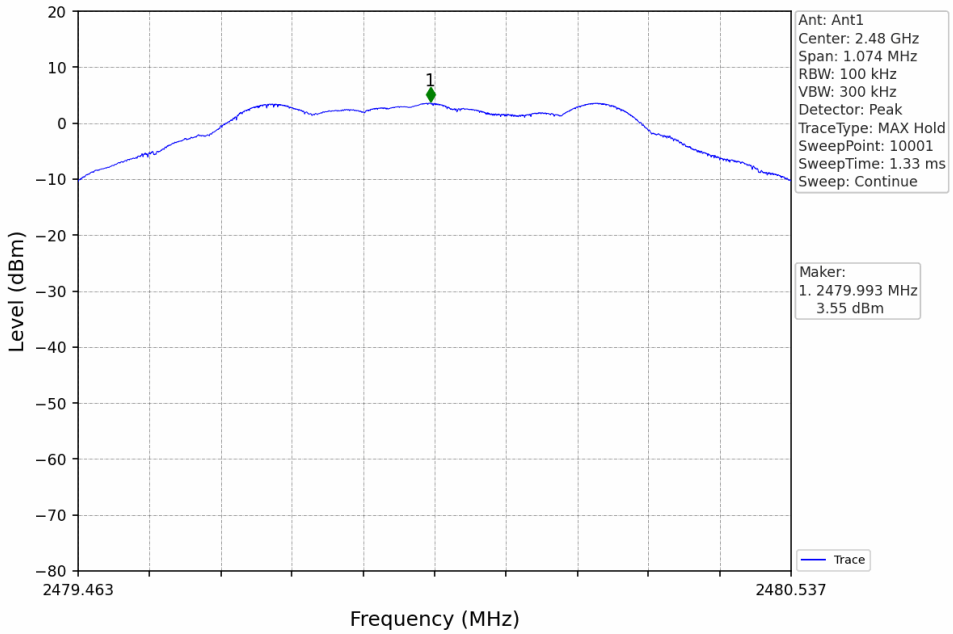
1M_LCH_2402MHz_DataRate=_Ant1_NTNV



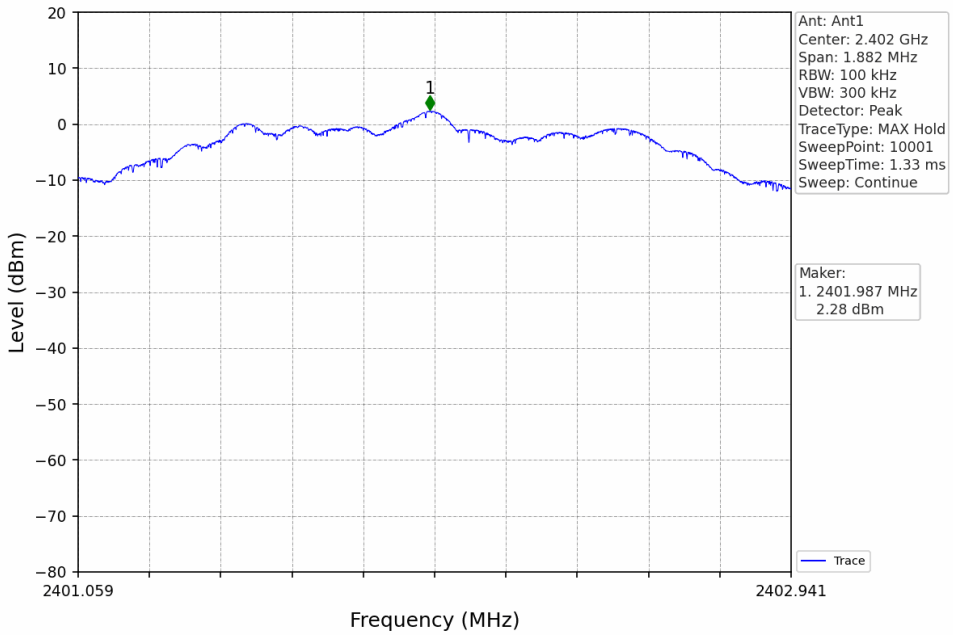
1M_MCH_2440MHz_DataRate=_Ant1_NTNV



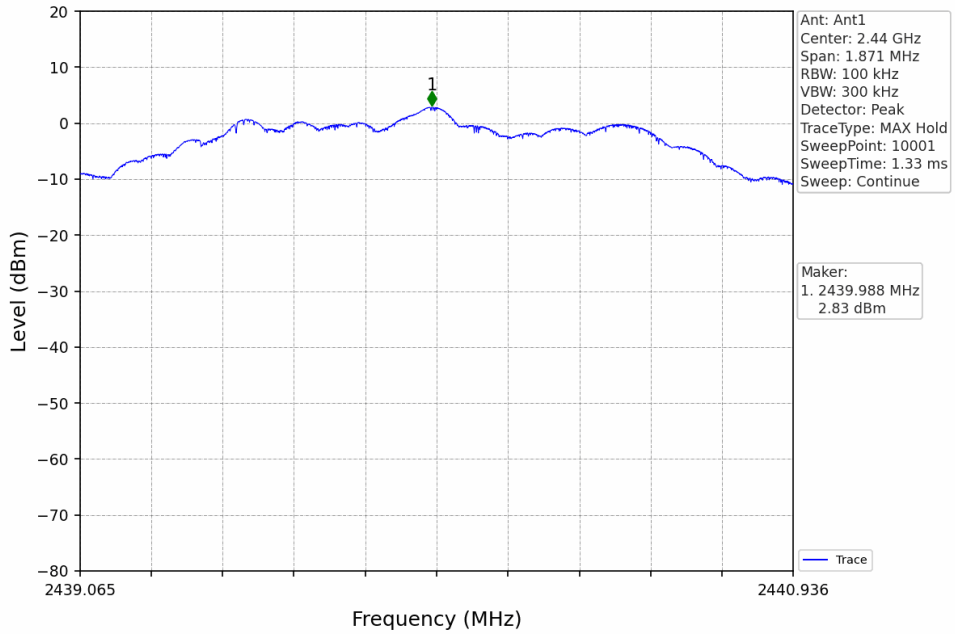
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



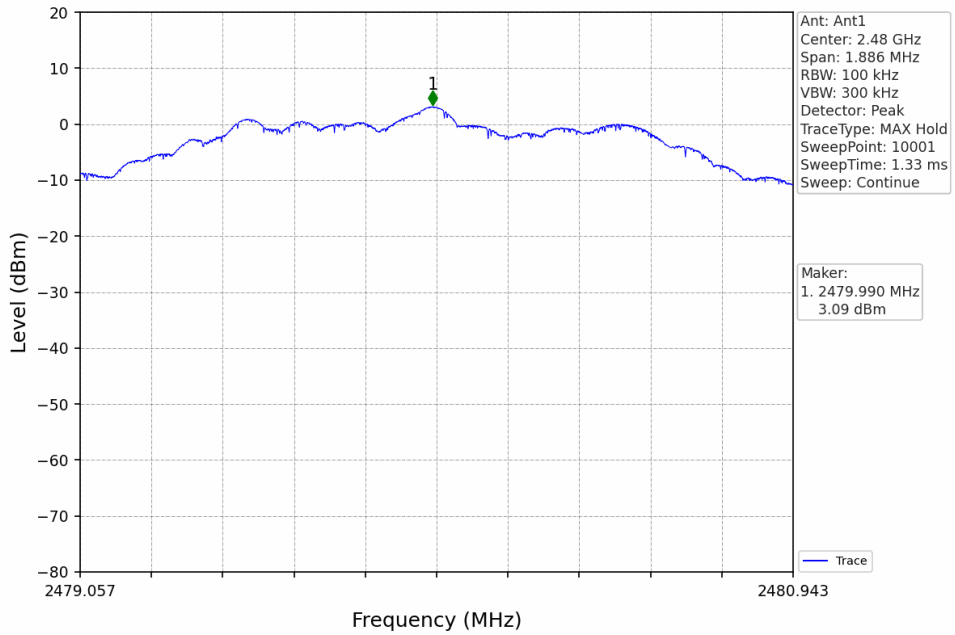
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



2M_MCH_2440MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



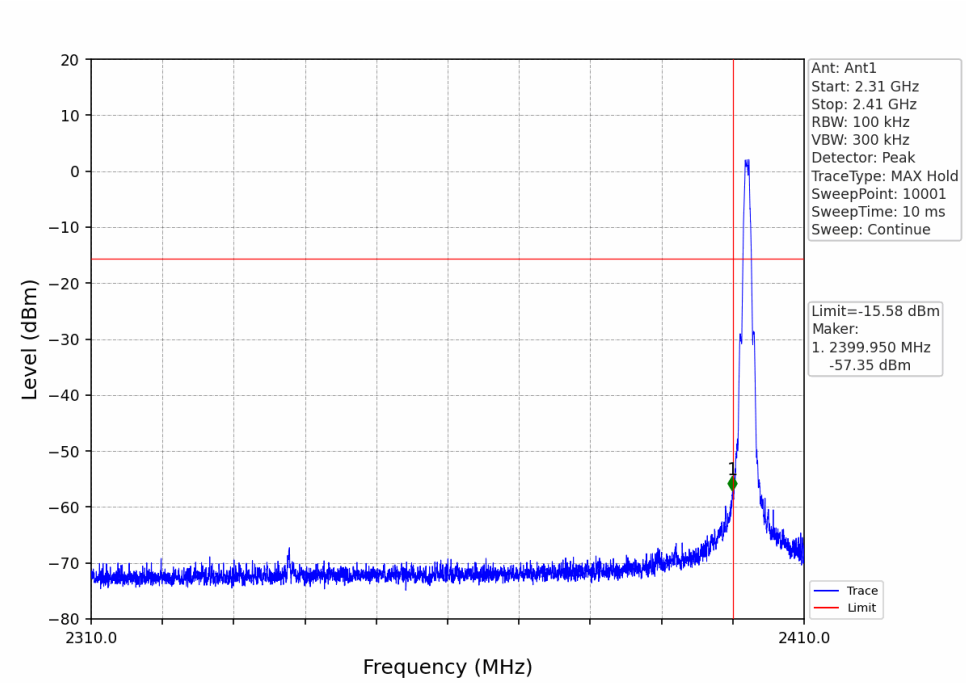
5.2 CSE

5.2.1 Test Result

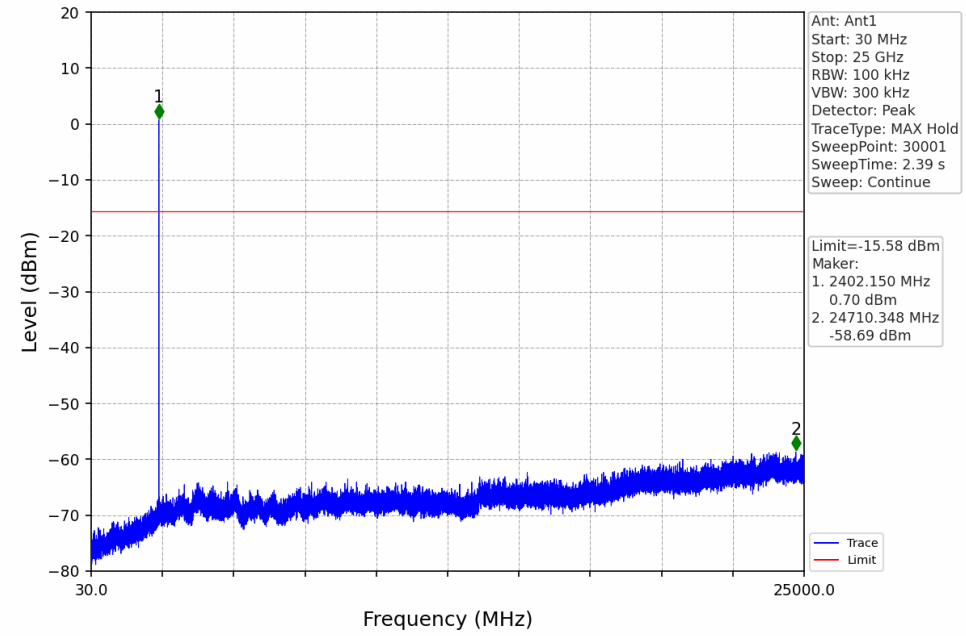
Mode	TX Type	Frequency (MHz)	Ant	Level of Reference (dBm)	Limit (dBm)	Verdict
1M	SISO	2402	1	4.42	-15.58	Pass
		2440	1	4.42	-15.58	Pass
		2480	1	4.42	-15.58	Pass
2M	SISO	2402	1	3.09	-16.91	Pass
		2440	1	3.09	-16.91	Pass
		2480	1	3.09	-16.91	Pass

5.2.2 Test Graph

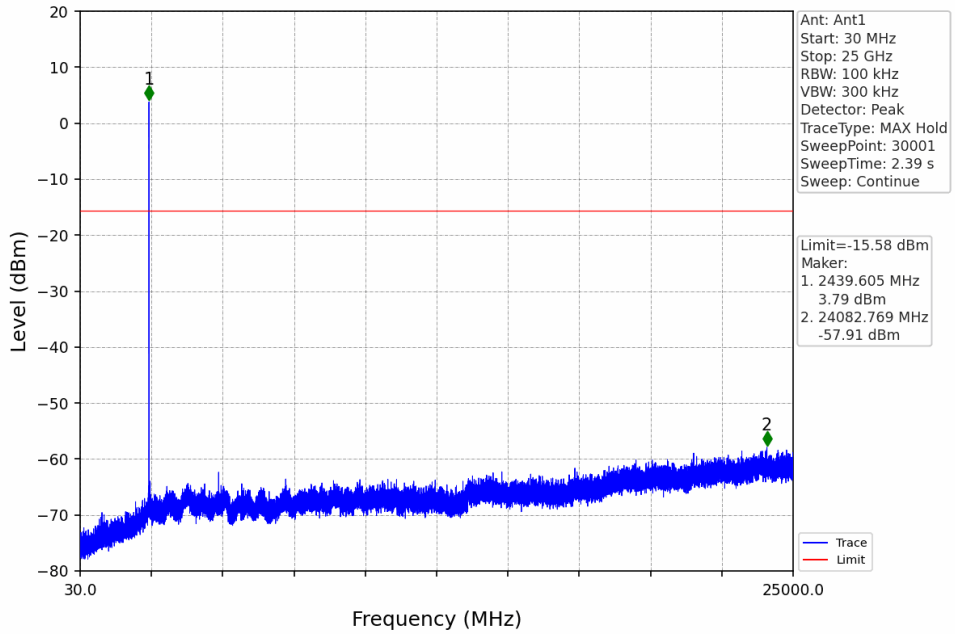
1M_LCH_2402MHz_DataRate=_Ant1_NTNV



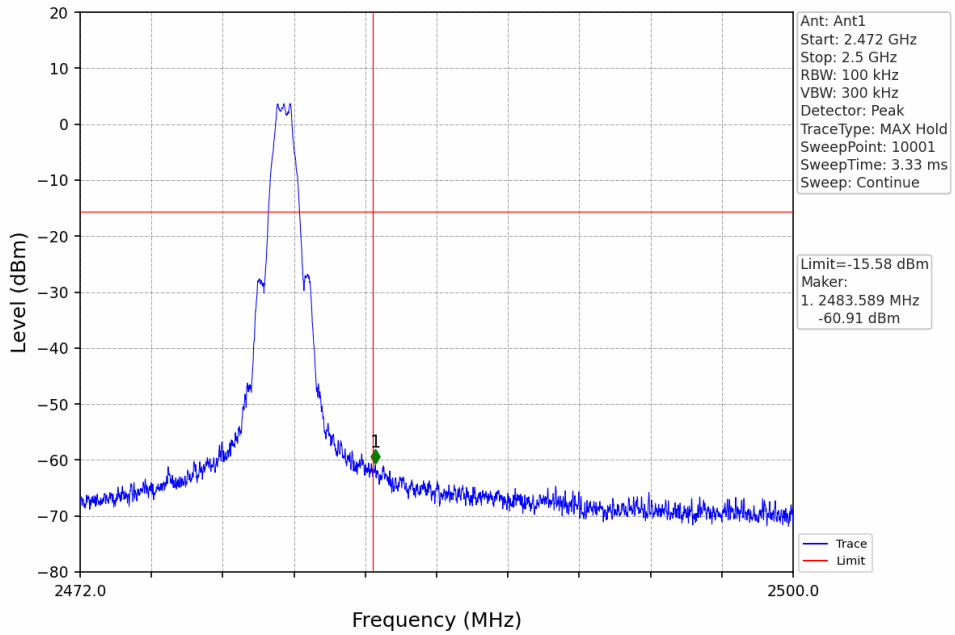
1M_LCH_2402MHz_DataRate=_Ant1_NTNV



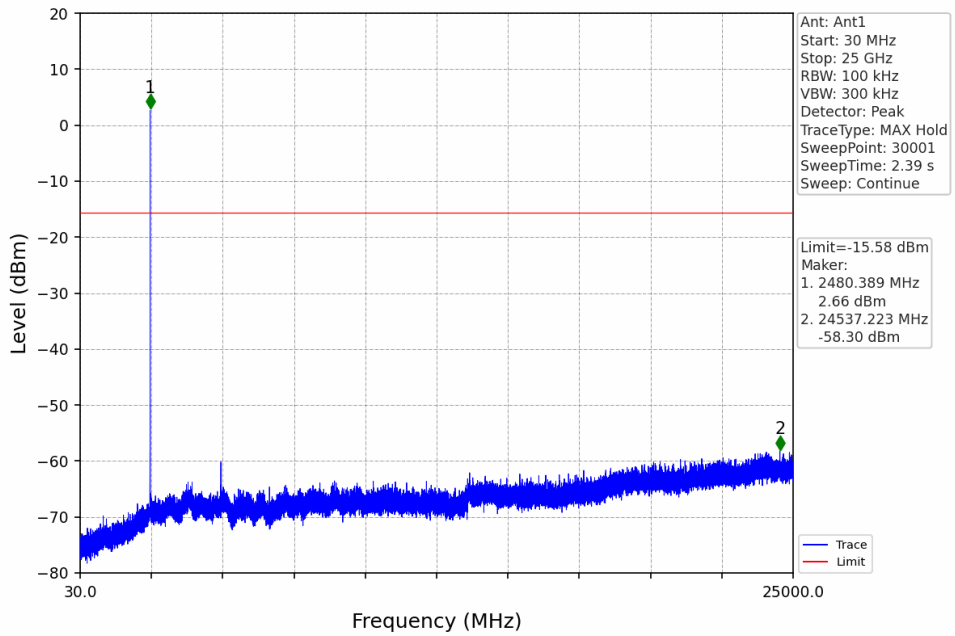
1M_MCH_2440MHz_DataRate=_Ant1_NTNV



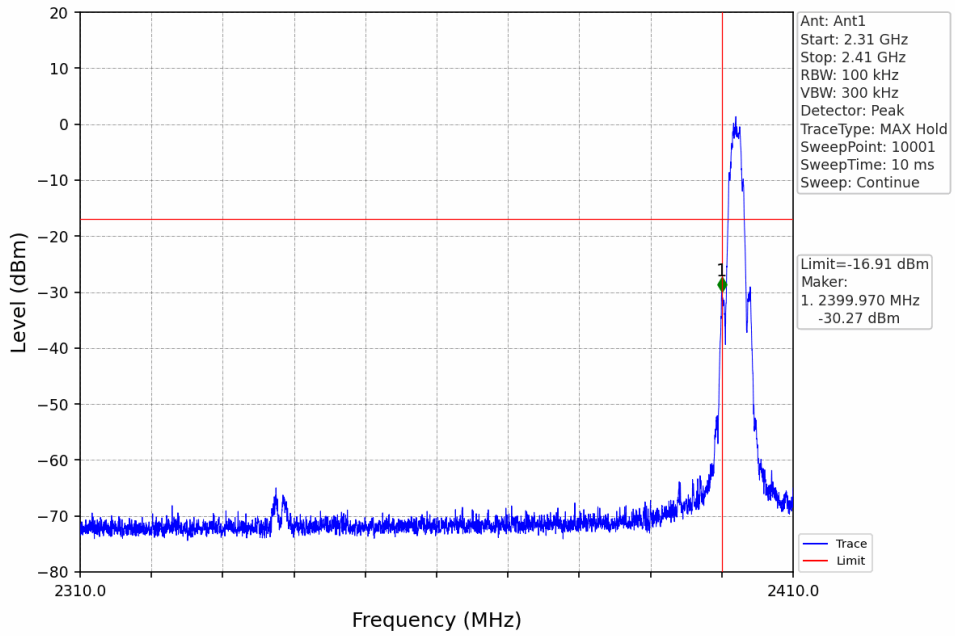
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



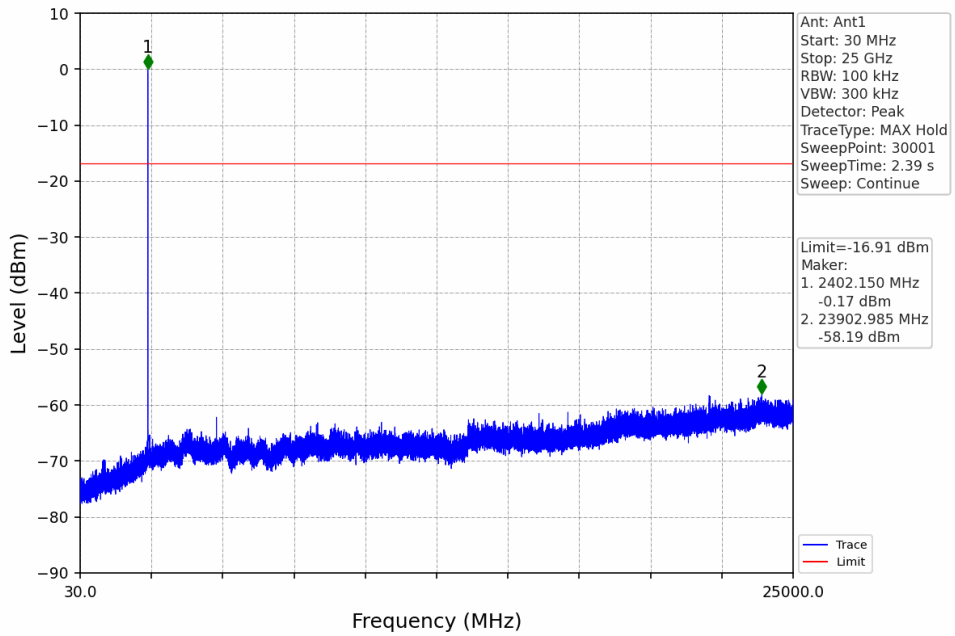
1M_HCH_2480MHz_DataRate=_Ant1_NTNV



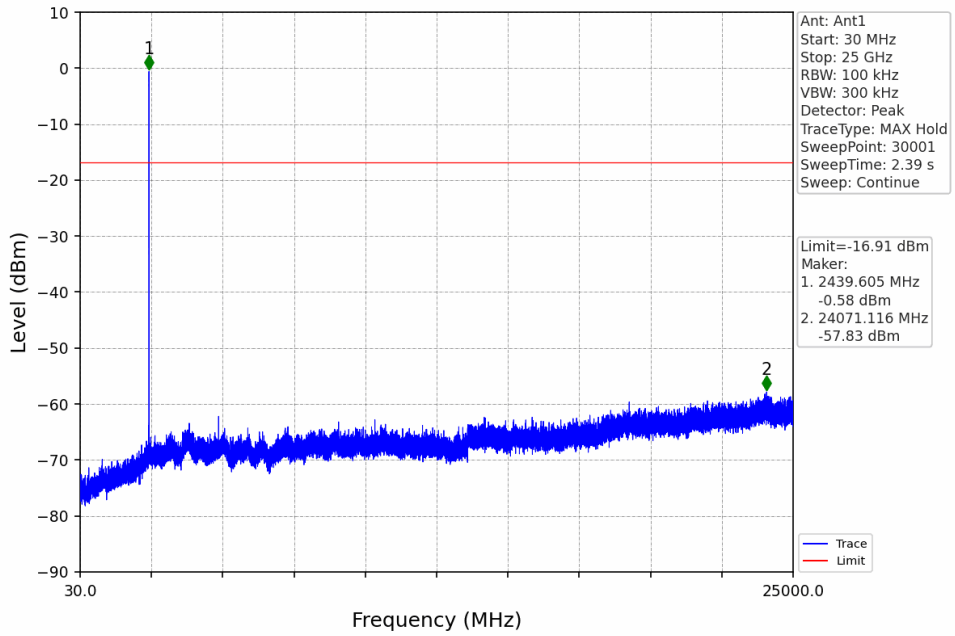
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



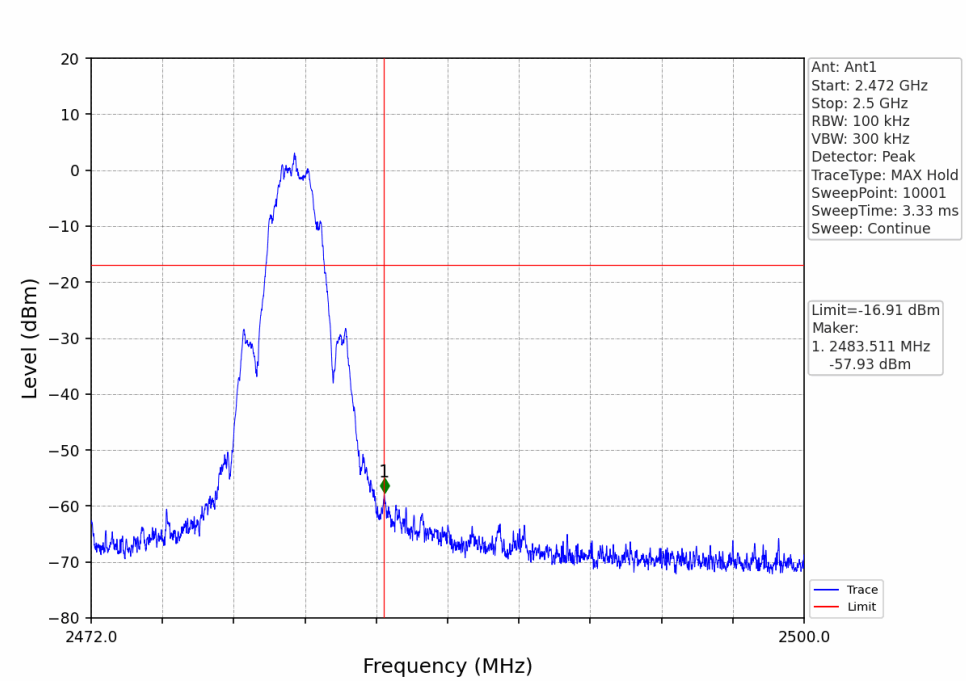
2M_LCH_2402MHz_DataRate=_Ant1_NTNV



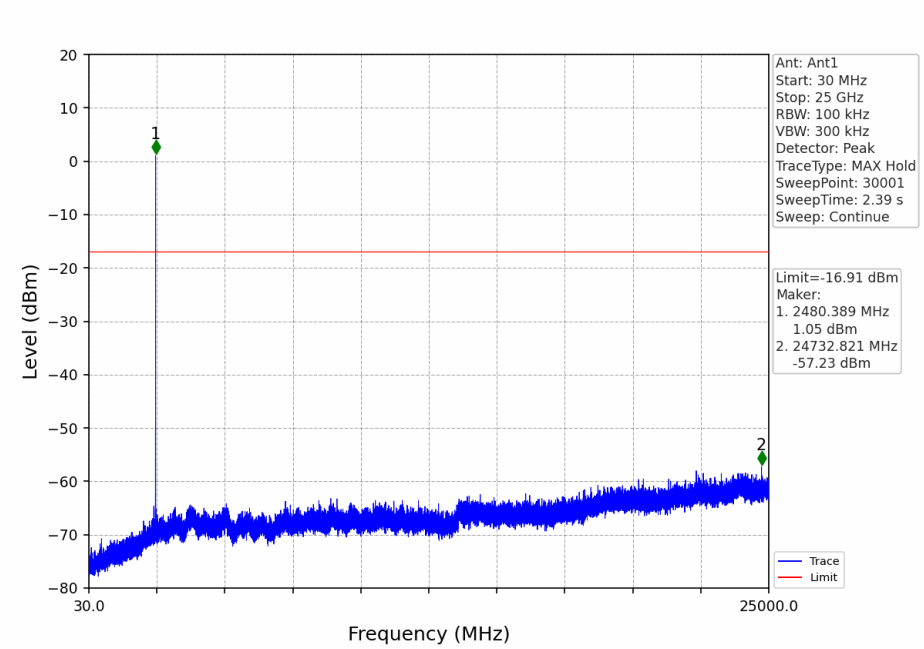
2M_MCH_2440MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



2M_HCH_2480MHz_DataRate=_Ant1_NTNV



- End of the Report -