

Test Data for BLE

Product Name: Unigear Bombing Wireless Bluetooth Earpiece

Test Model: bombing

1. Duty Cycle

1.1 Ant1

1.1.1 Test Result

Left earpiece

Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
1M	SISO	2402	2.145	2.500	85.80	0.67	0.03
		2440	2.145	2.500	85.80	0.67	0.03
		2480	2.145	2.500	85.80	0.67	0.03
2M	SISO	2402	1.088	1.876	58.00	2.37	0.03
		2440	1.087	1.875	57.97	2.37	0.03
		2480	1.087	1.875	57.97	2.37	0.02

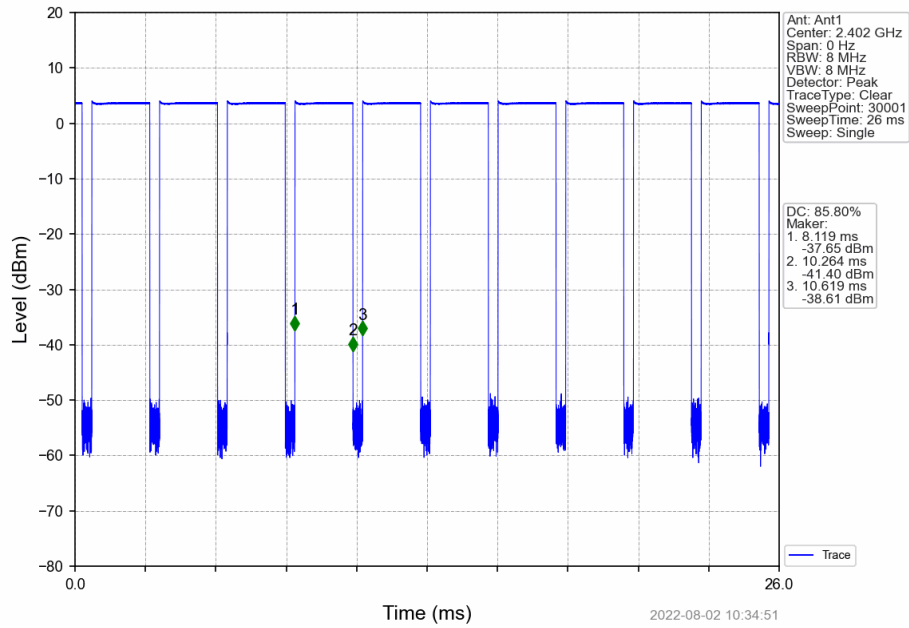
Right earpiece

Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
1M	SISO	2402	2.145	2.501	85.77	0.67	0.03
		2440	2.145	2.500	85.80	0.67	0.00
		2480	2.145	2.500	85.80	0.67	0.03
2M	SISO	2402	1.087	1.875	57.97	2.37	0.03
		2440	1.088	1.875	58.03	2.36	0.03
		2480	1.087	1.875	57.97	2.37	0.03

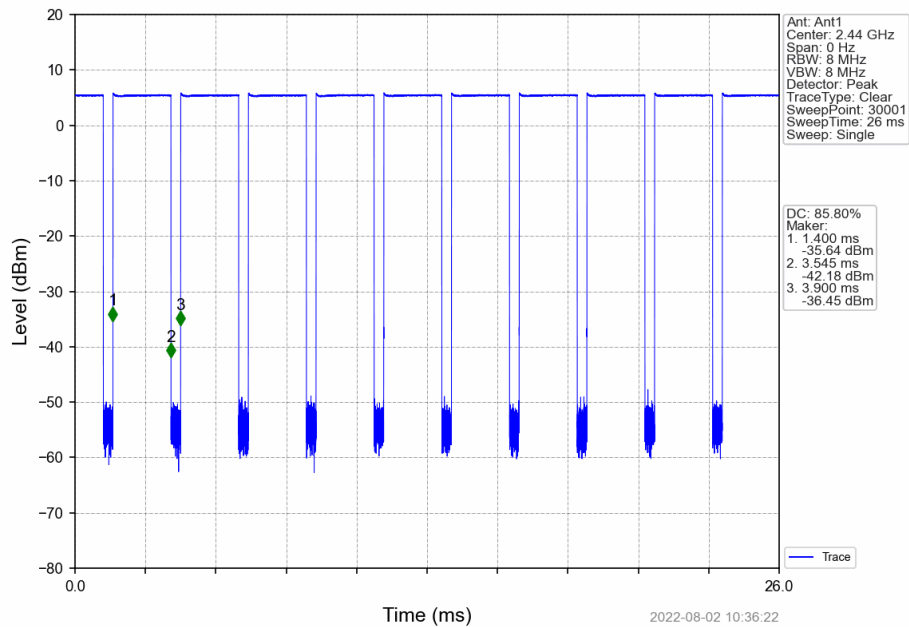
1.1.2 Test Graph

Left earpiece

1M LCH 2402MHz Ant1 NTN

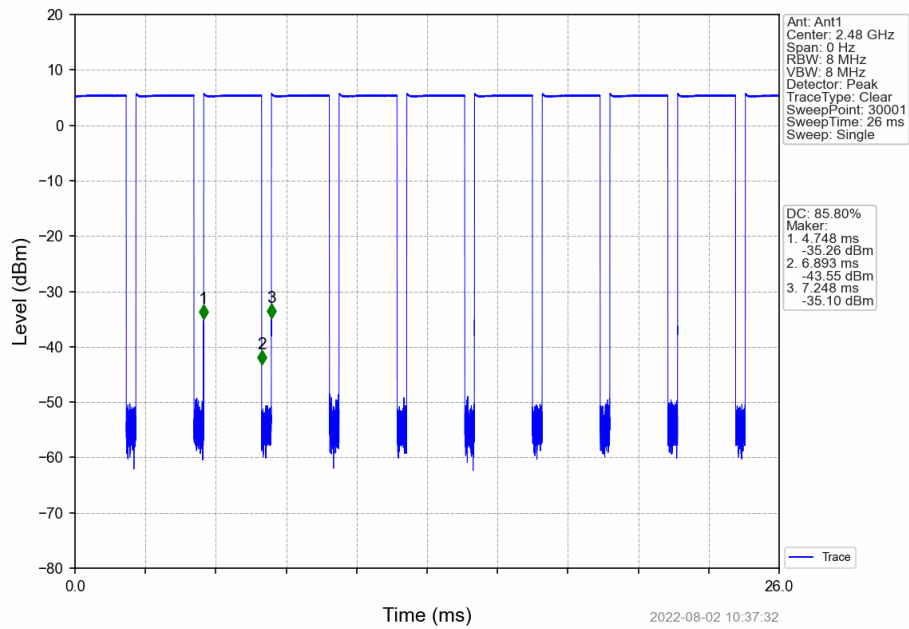


1M_MCH_2440MHz_Ant1 NTN

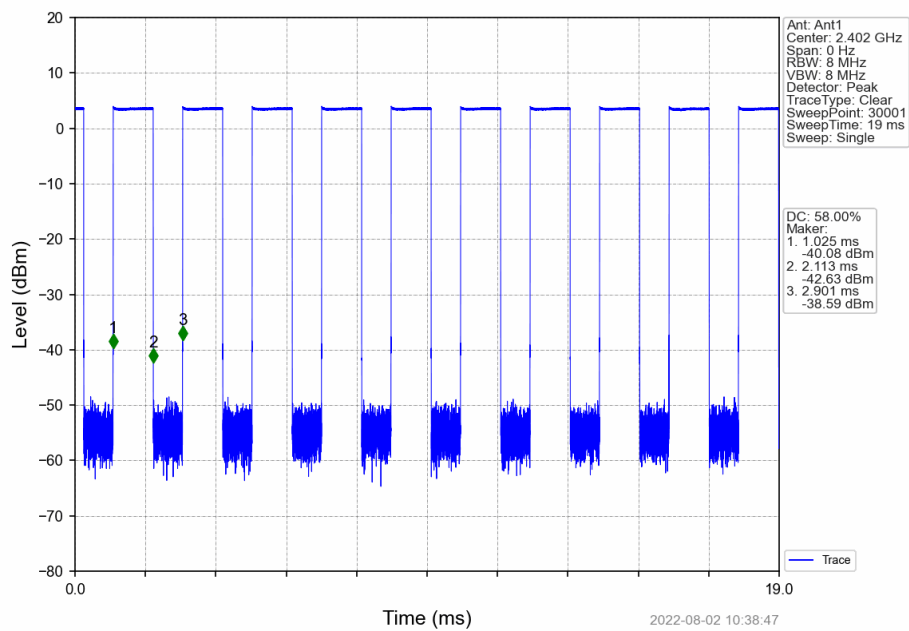


FCC ID: 2A8BL-BOMBING

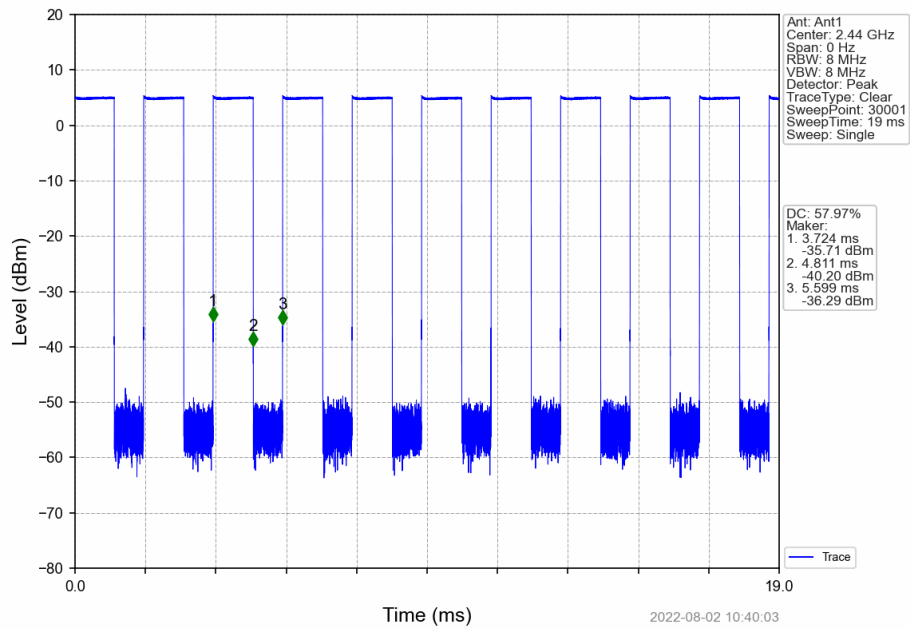
1M HCH 2480MHz Ant1 NTN



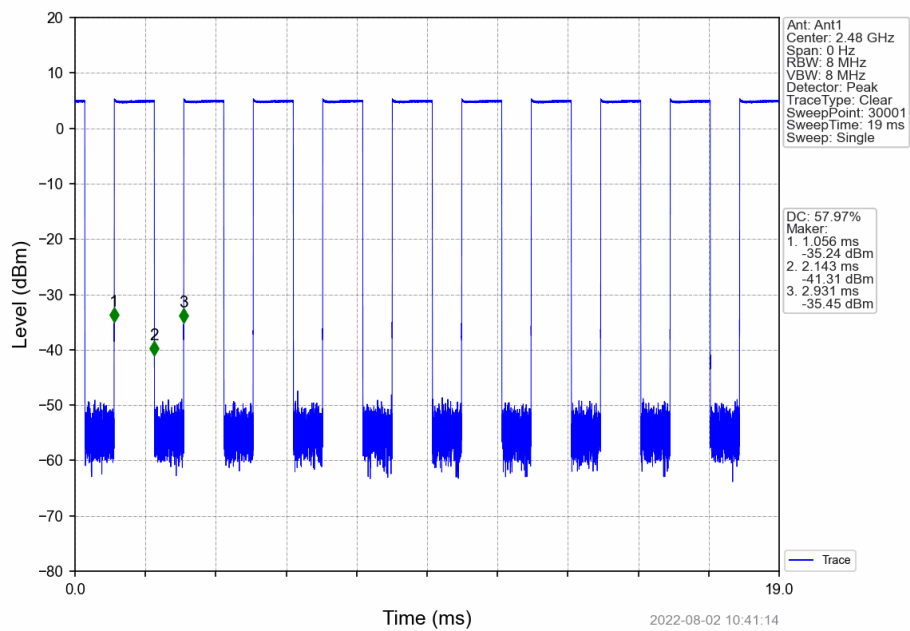
2M LCH 2402MHz Ant1 NTN



2M MCH 2440MHz Ant1 NTN

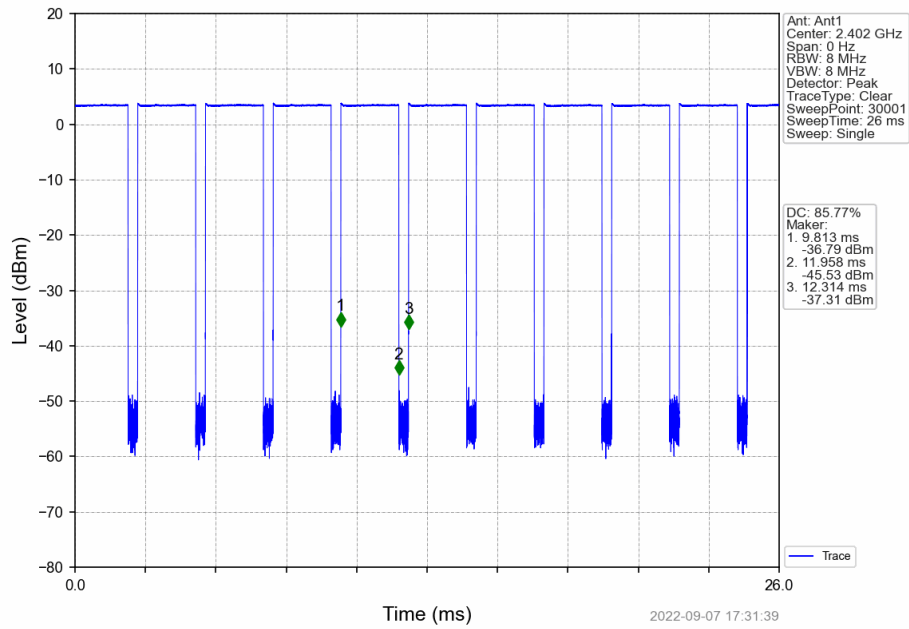


2M HCH 2480MHz Ant1 NTN

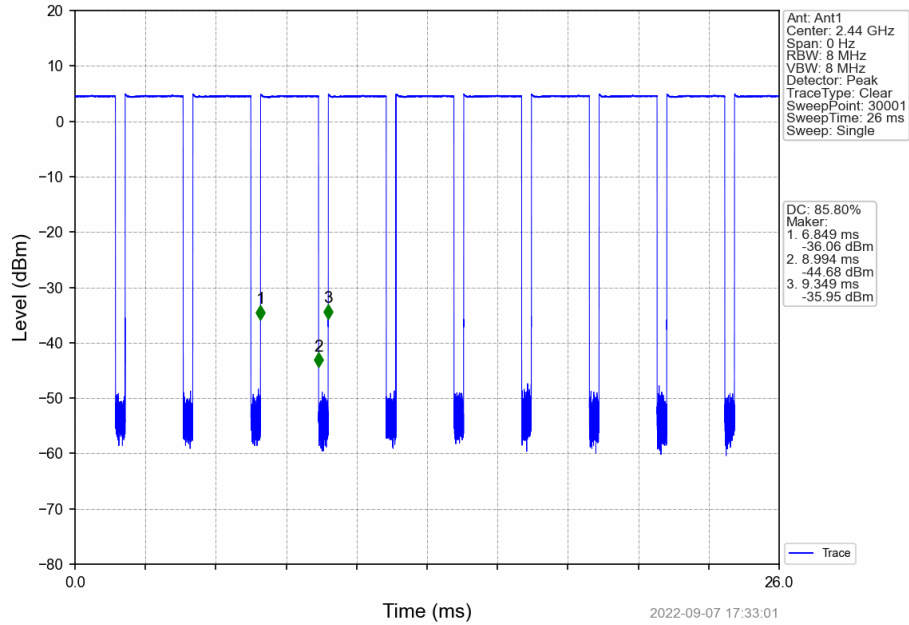


Right earpiece

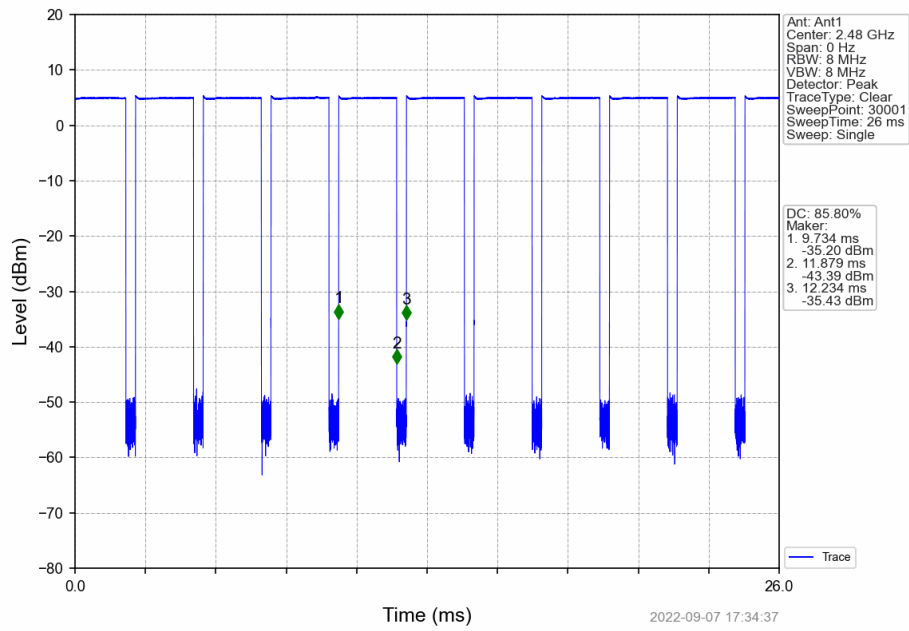
1M_LCH_2402MHz_Ant1_NTNV



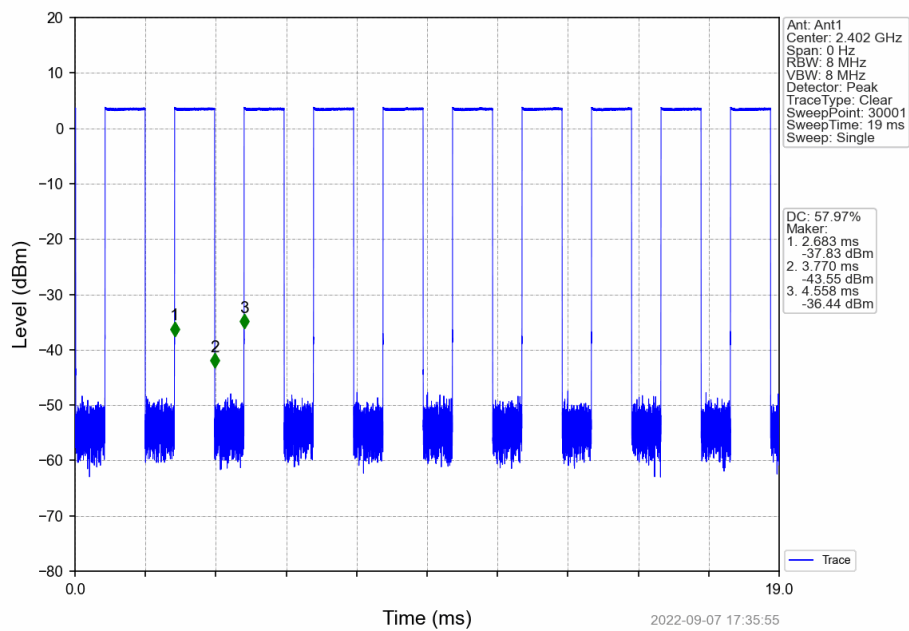
1M_MCH_2440MHz_Ant1_NTNV



1M HCH 2480MHz Ant1 NTN

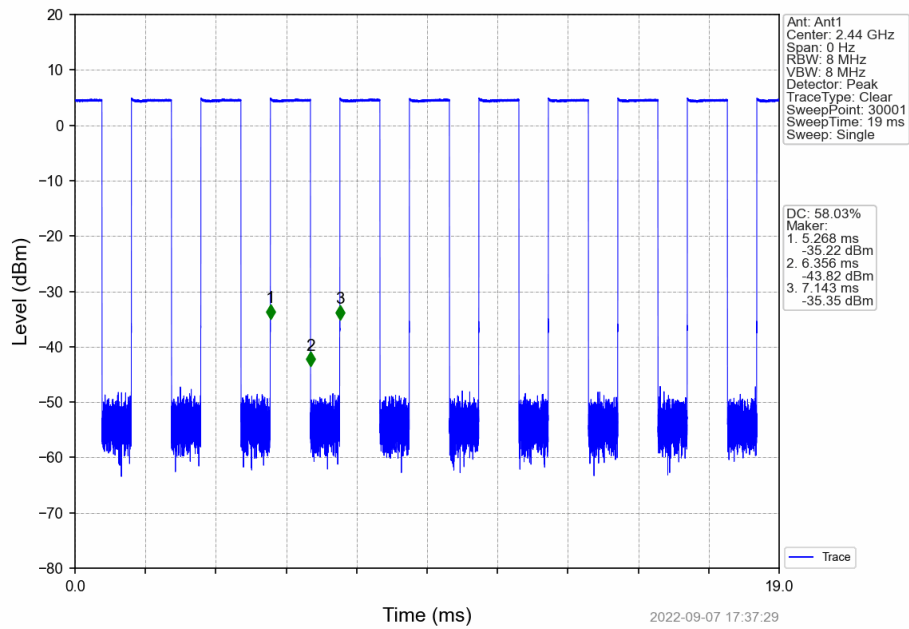


2M_LCH_2402MHz_Ant1_NTNV

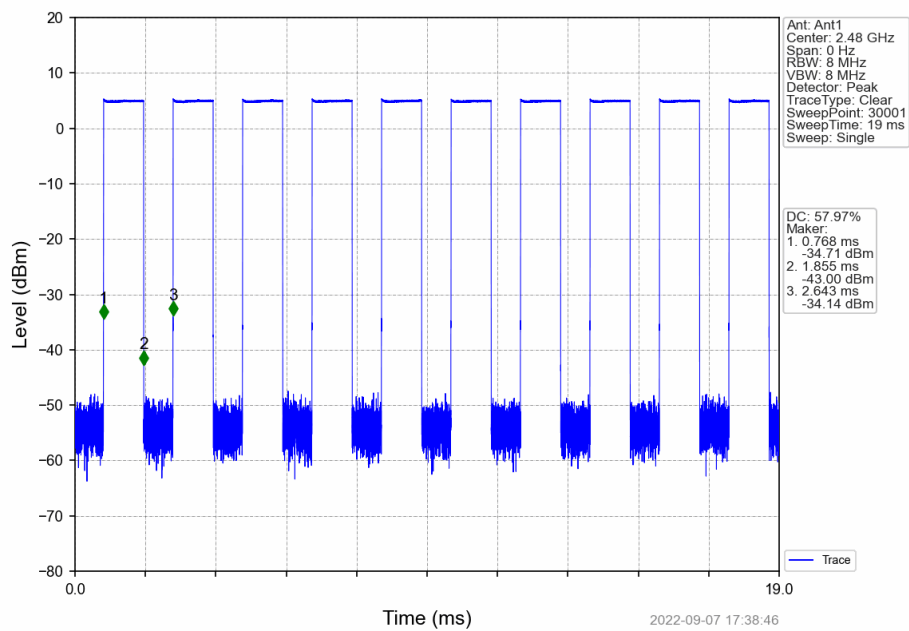


FCC ID: 2A8BL-BOMBING

2M MCH 2440MHz Ant1 NTN



2M HCH 2480MHz Ant1 NTN



2. Bandwidth

2.1 OBW

2.1.1 Test Result

Left earpiece

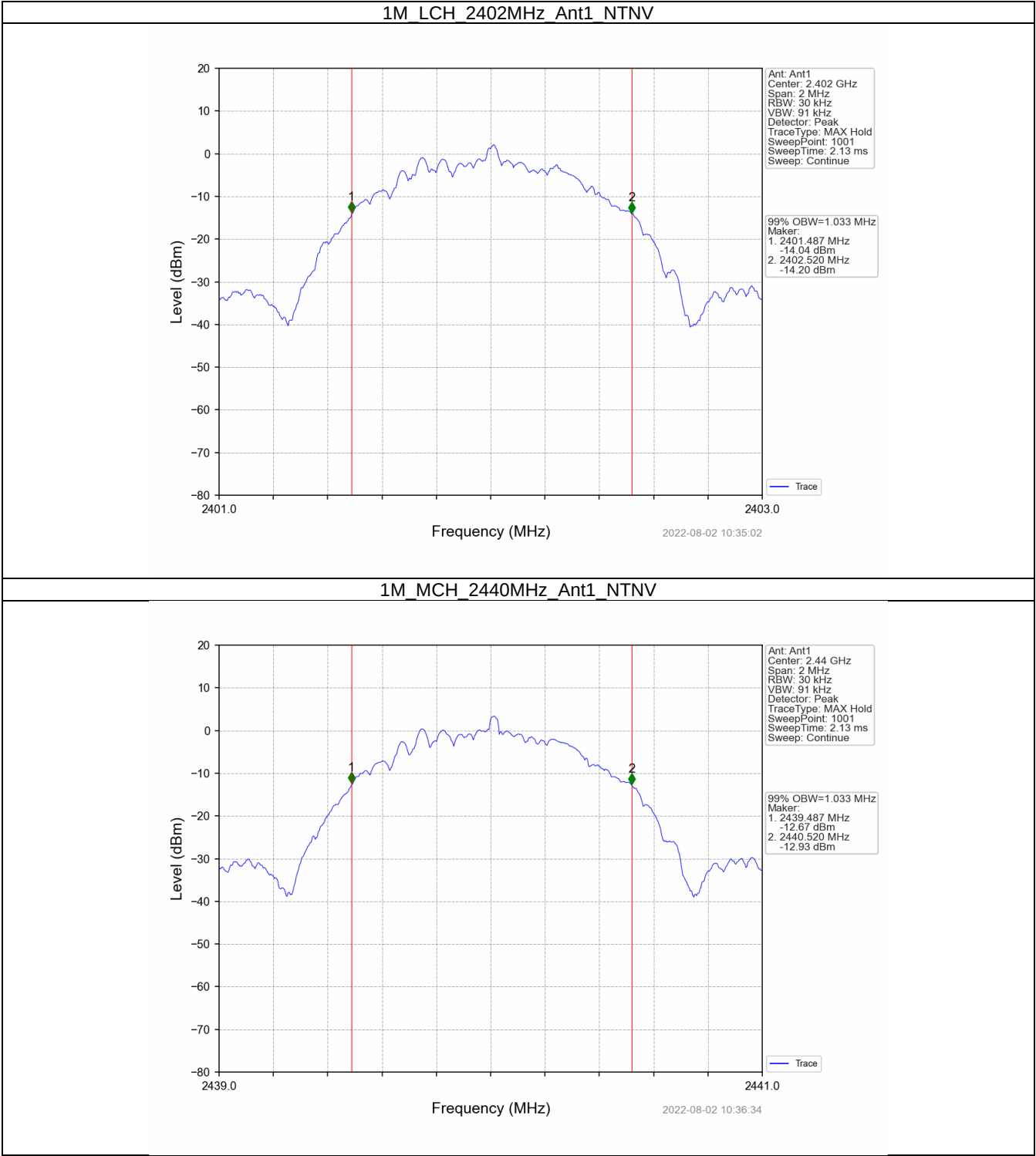
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)	Verdict
				Result	
1M	SISO	2402	1	1.033	Pass
		2440	1	1.033	Pass
		2480	1	1.029	Pass
2M	SISO	2402	1	2.063	Pass
		2440	1	2.062	Pass
		2480	1	2.063	Pass

Right earpiece

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)	Verdict
				Result	
1M	SISO	2402	1	1.027	Pass
		2440	1	1.036	Pass
		2480	1	1.035	Pass
2M	SISO	2402	1	2.071	Pass
		2440	1	2.063	Pass
		2480	1	2.070	Pass

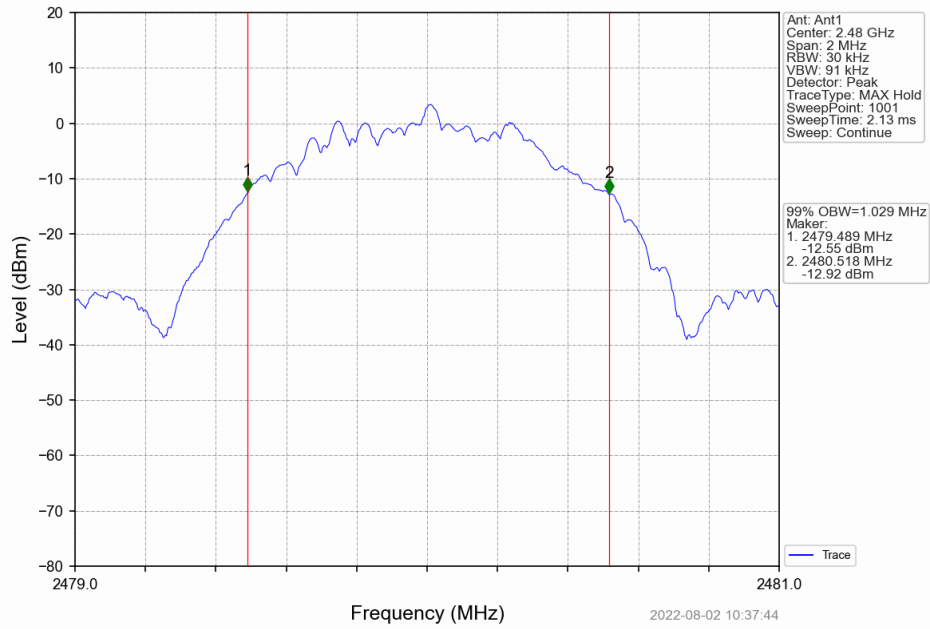
2.1.2 Test Graph

Left earpiece

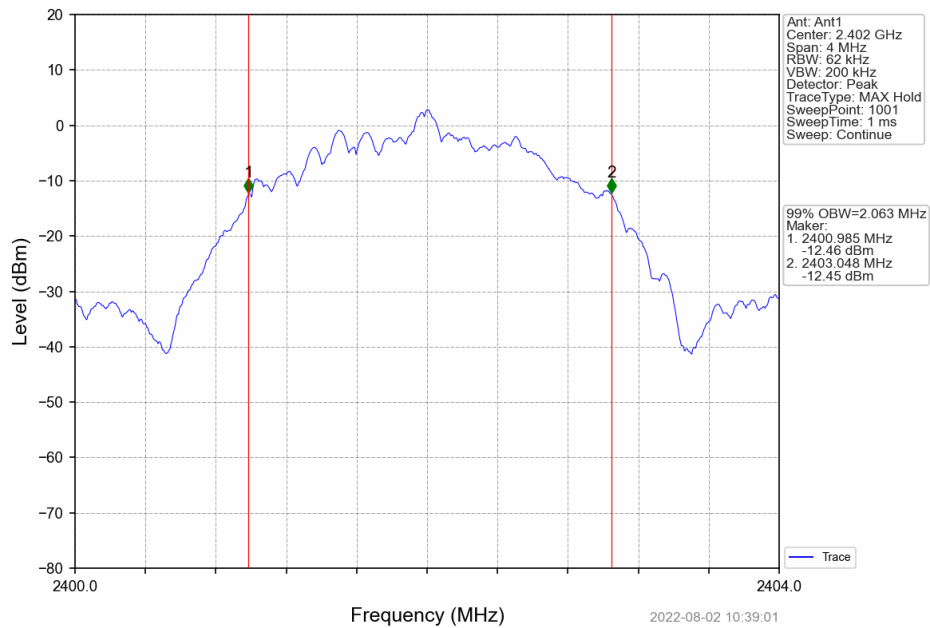


FCC ID: 2A8BL-BOMBING

1M HCH 2480MHz Ant1 NTN

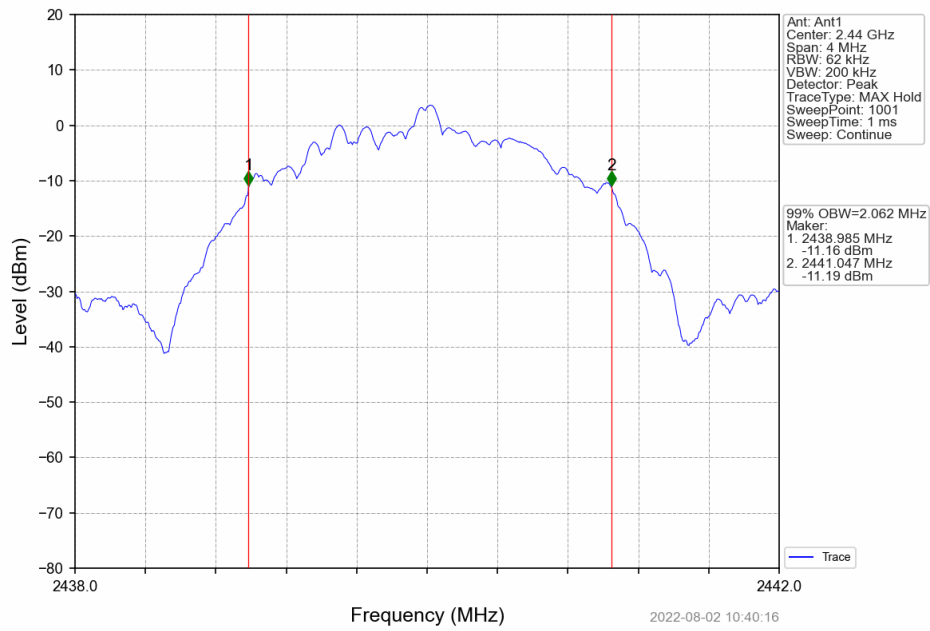


2M LCH 2402MHz Ant1 NTN

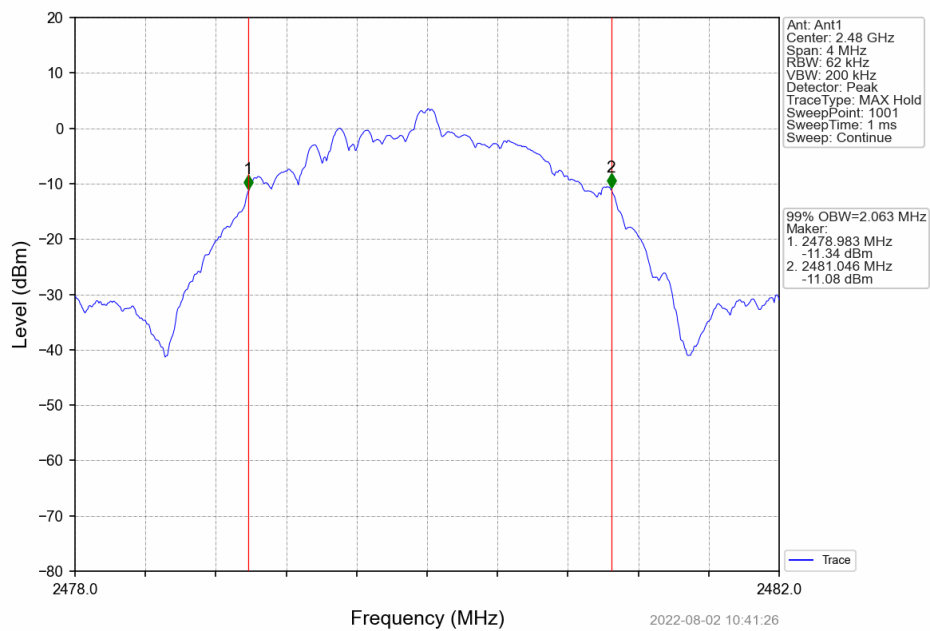


FCC ID: 2A8BL-BOMBING

2M MCH 2440MHz Ant1 NTN

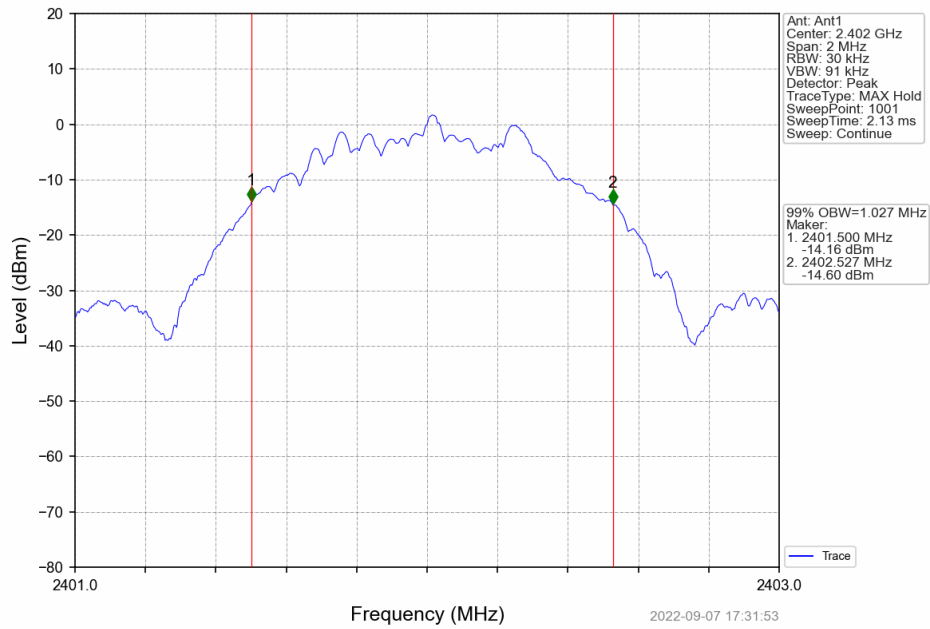


2M HCH 2480MHz Ant1 NTN

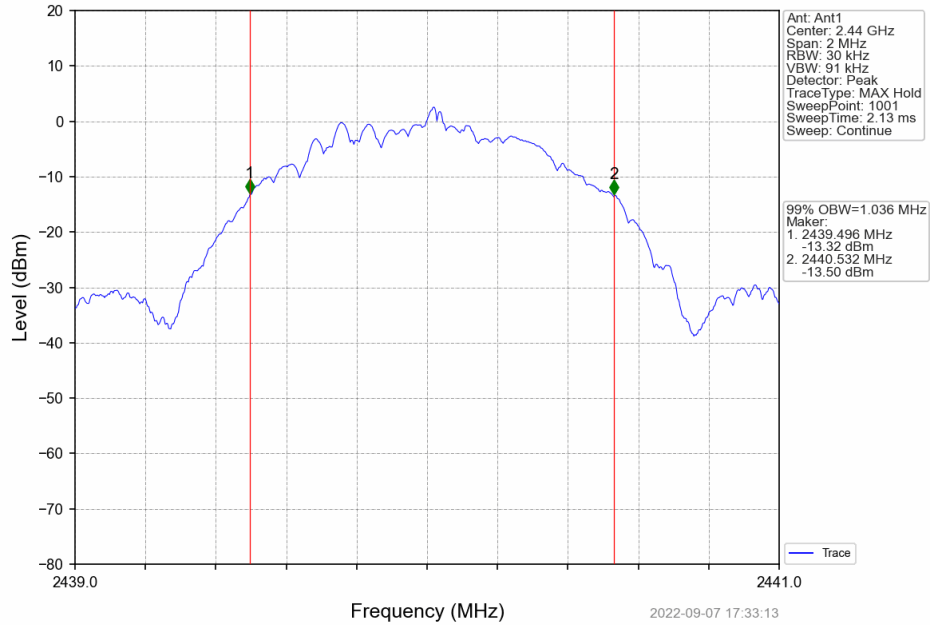


Right earpiece

1M_LCH_2402MHz_Ant1_NTNV

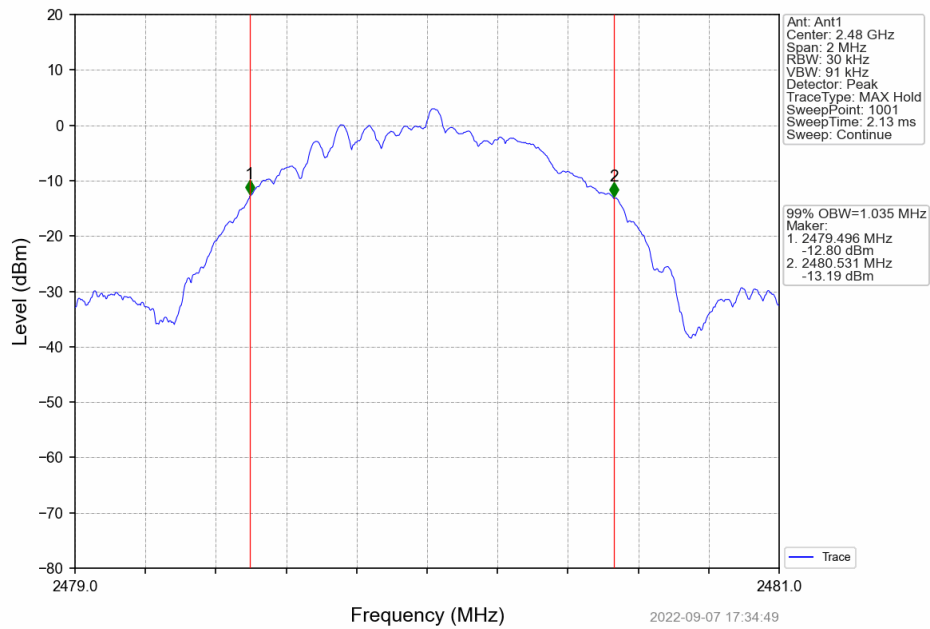


1M_MCH_2440MHz_Ant1_NTNV

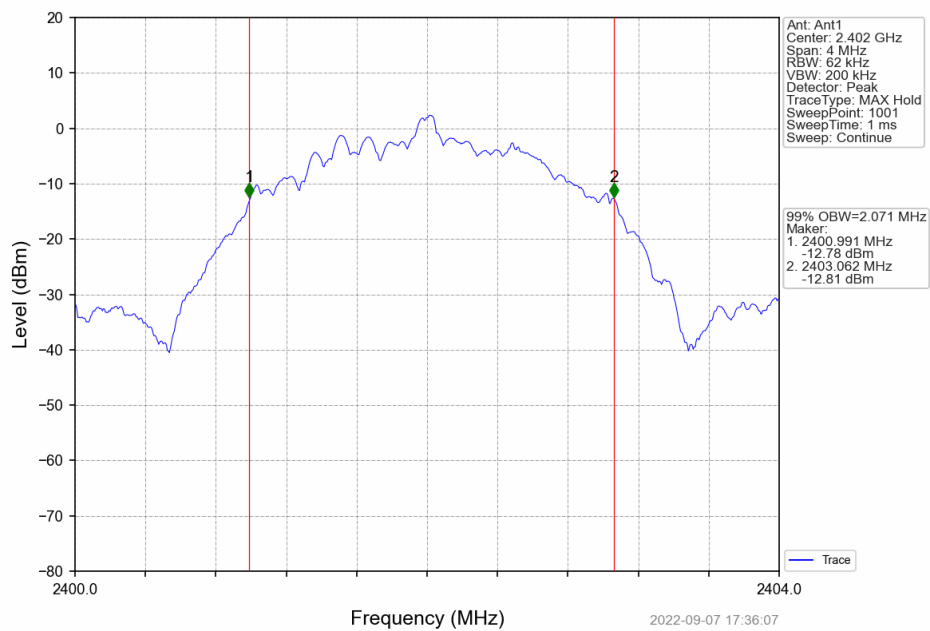


FCC ID: 2A8BL-BOMBING

1M HCH 2480MHz Ant1 NTN

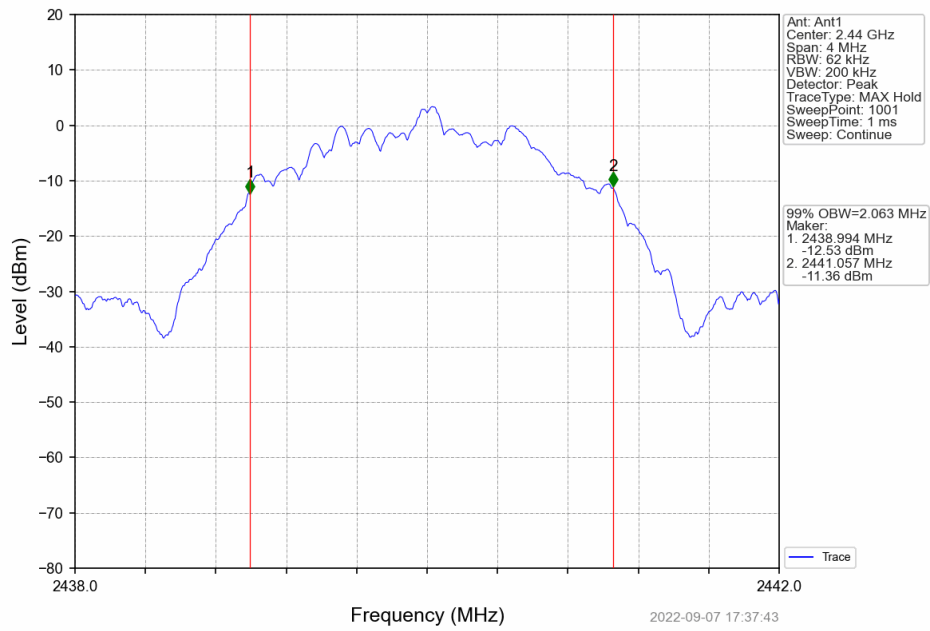


2M LCH 2402MHz Ant1 NTN

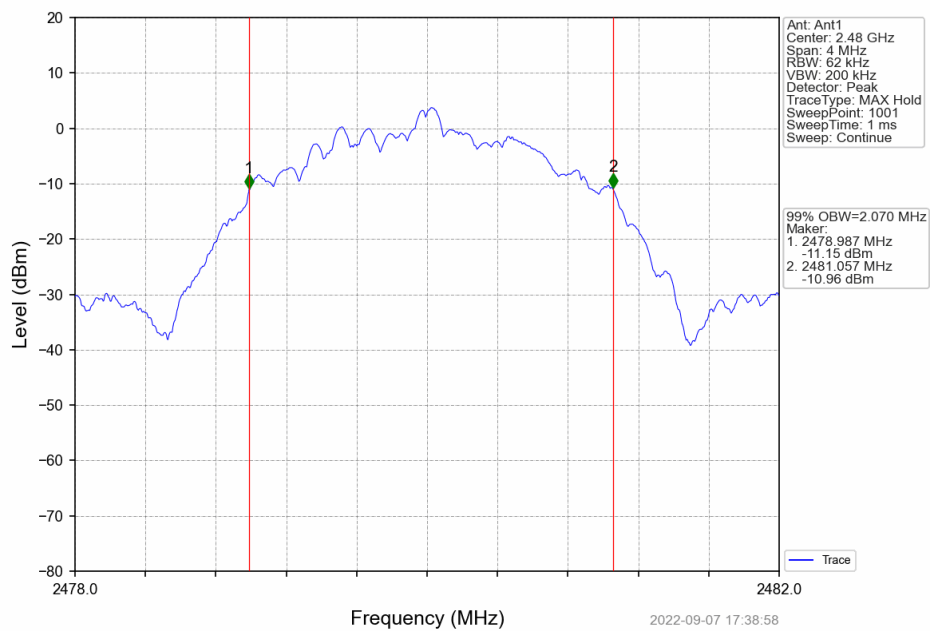


FCC ID: 2A8BL-BOMBING

2M MCH 2440MHz Ant1 NTN



2M HCH 2480MHz Ant1 NTN



2.2 6dB BW

2.2.1 Test Result

Left earpiece

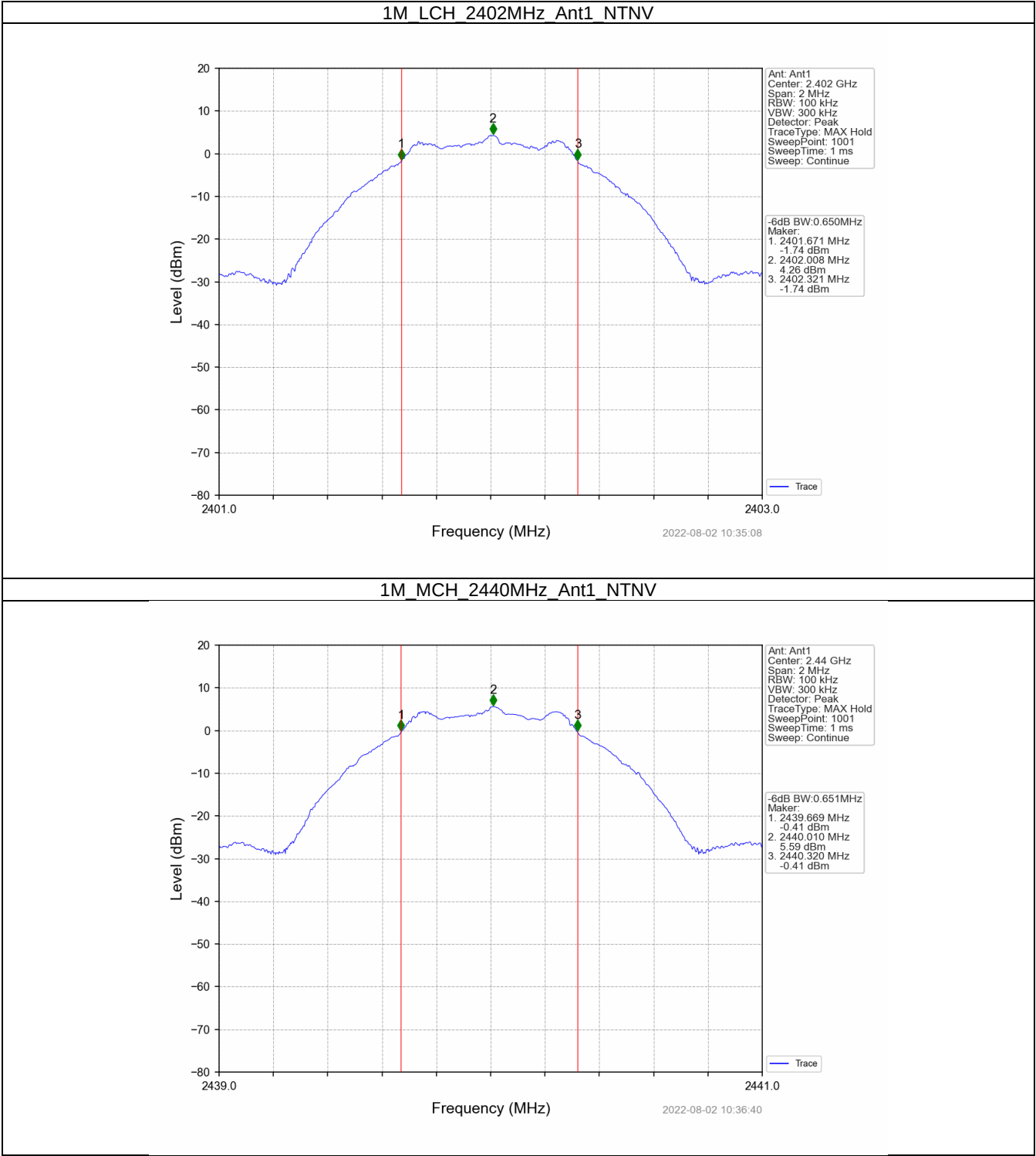
Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	0.650	≥ 0.5	Pass
		2440	1	0.651	≥ 0.5	Pass
		2480	1	0.649	≥ 0.5	Pass
2M	SISO	2402	1	1.111	≥ 0.5	Pass
		2440	1	1.114	≥ 0.5	Pass
		2480	1	1.111	≥ 0.5	Pass

Right earpiece

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	0.652	≥ 0.5	Pass
		2440	1	0.649	≥ 0.5	Pass
		2480	1	0.651	≥ 0.5	Pass
2M	SISO	2402	1	1.123	≥ 0.5	Pass
		2440	1	1.130	≥ 0.5	Pass
		2480	1	1.121	≥ 0.5	Pass

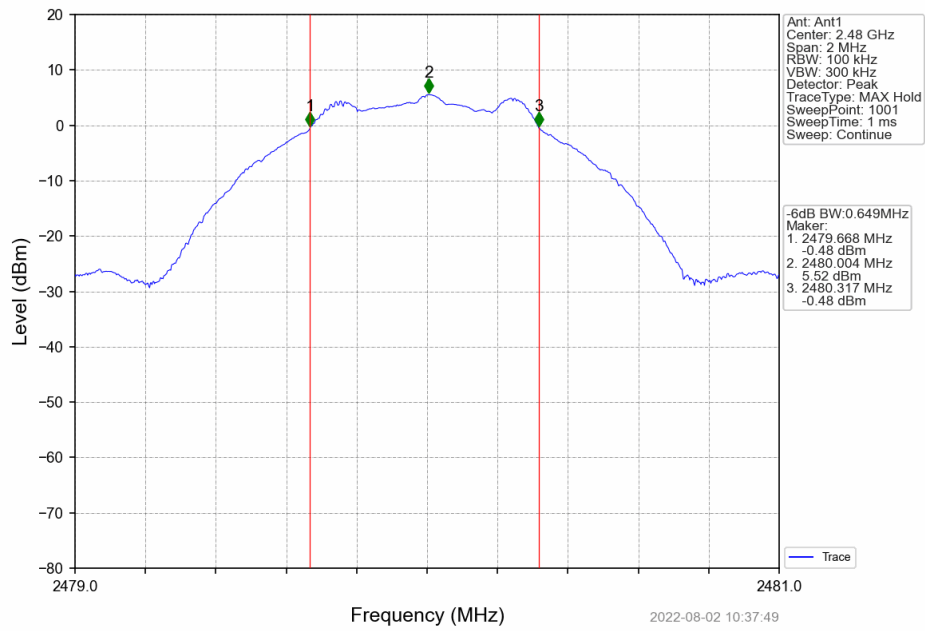
2.2.2 Test Graph

Left earpiece

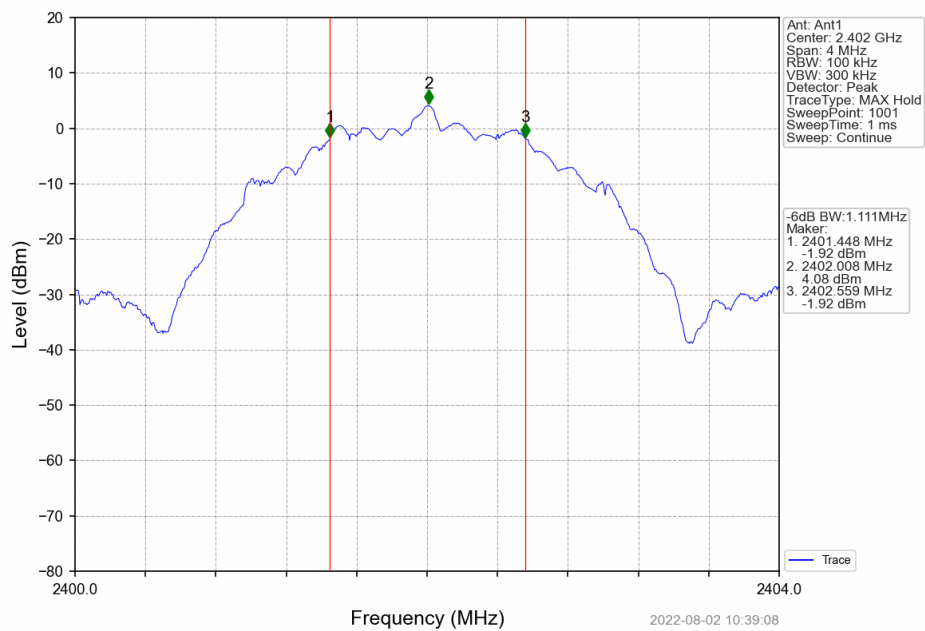


FCC ID: 2A8BL-BOMBING

1M HCH 2480MHz Ant1 NTN

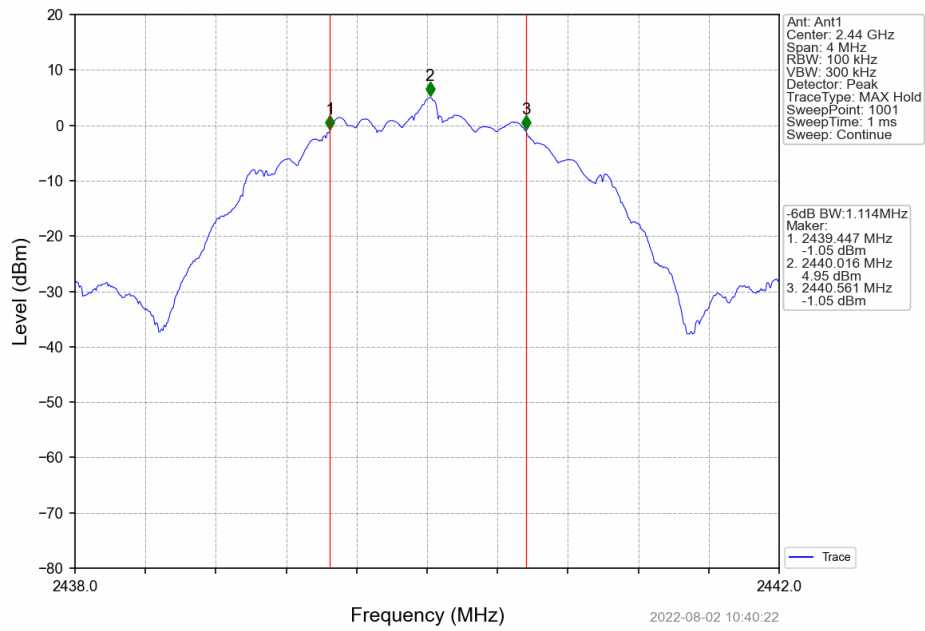


2M LCH 2402MHz Ant1 NTN

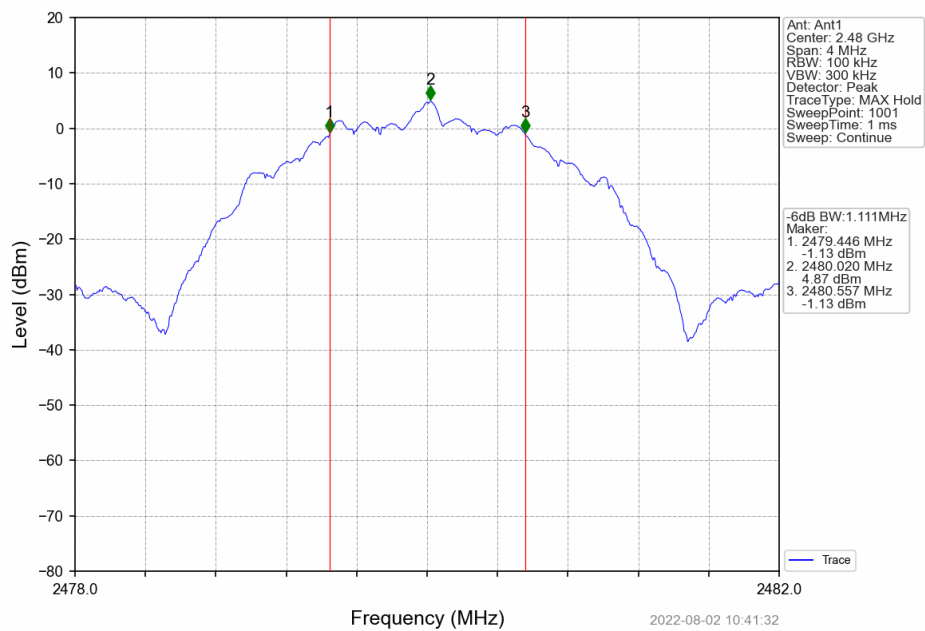


FCC ID: 2A8BL-BOMBING

2M_MCH_2440MHz_Ant1_NTNV

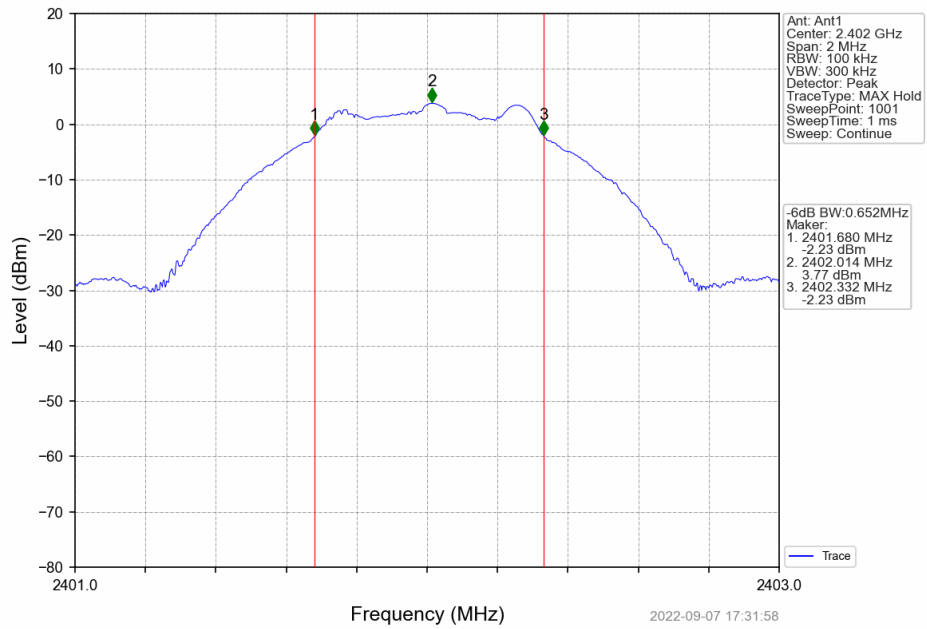


2M_HCH_2480MHz_Ant1_NTNV

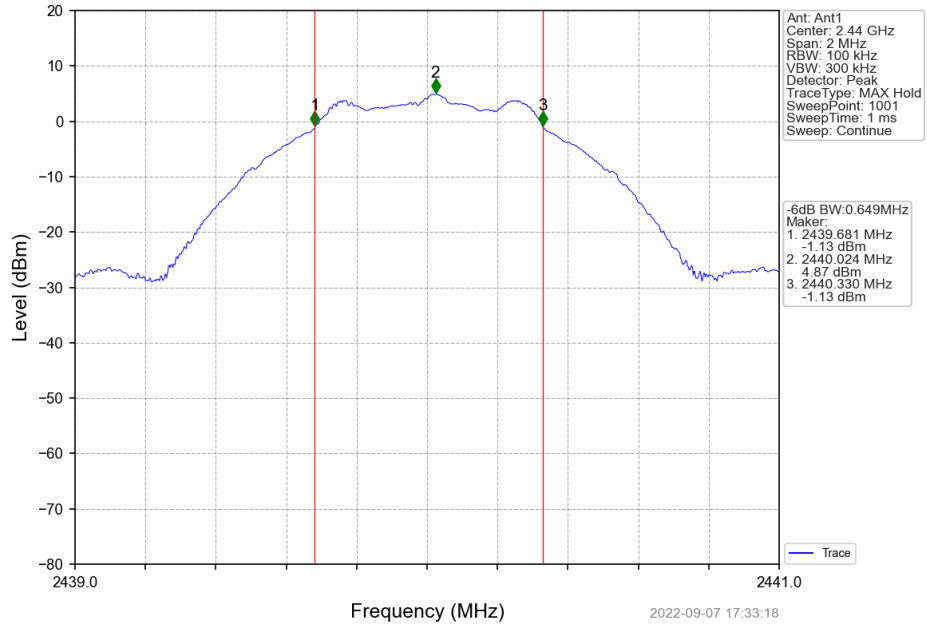


Right earpiece

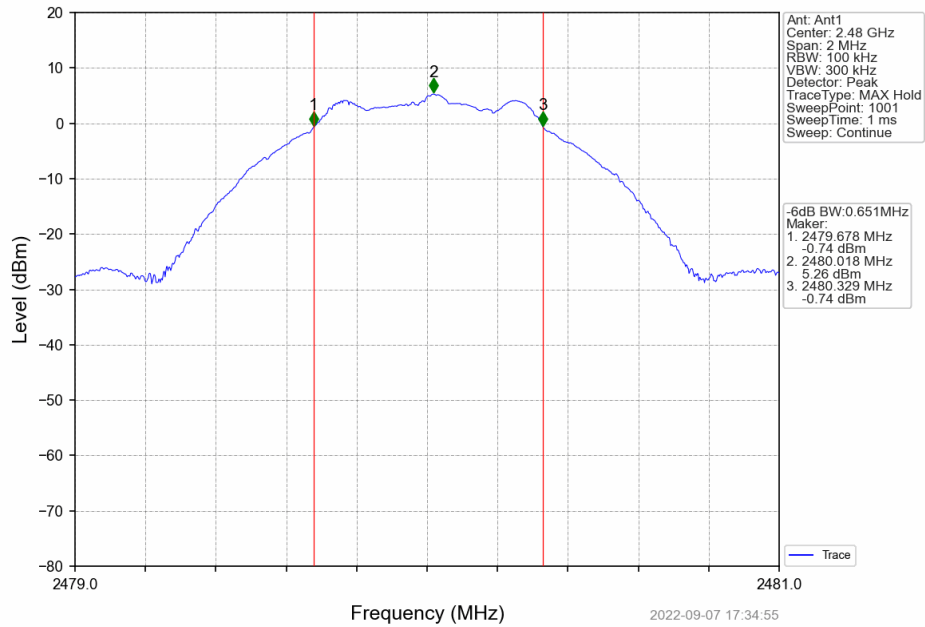
1M_LCH_2402MHz_Ant1_NTNV



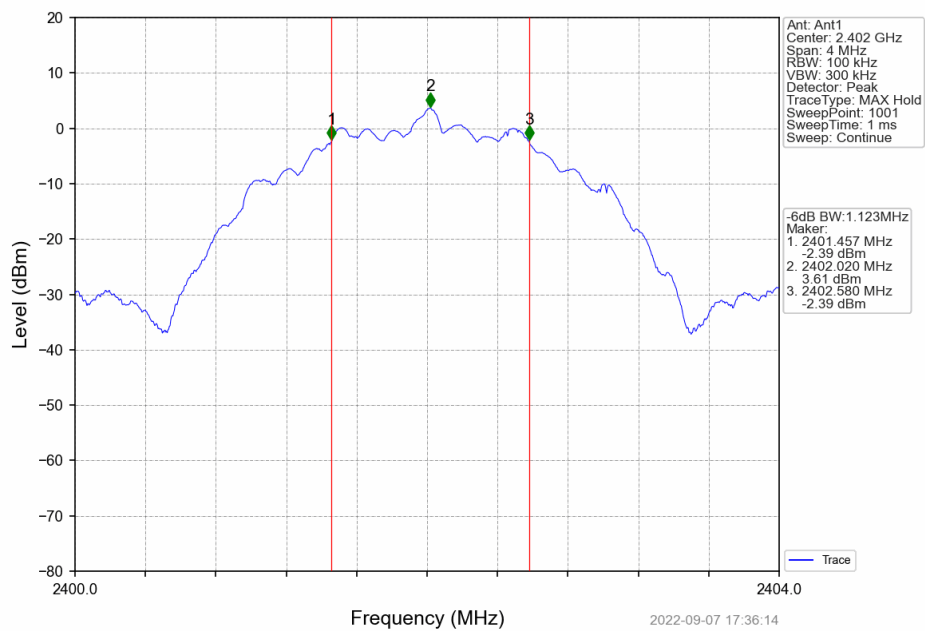
1M_MCH_2440MHz_Ant1_NTNV



1M HCH 2480MHz Ant1 NTN

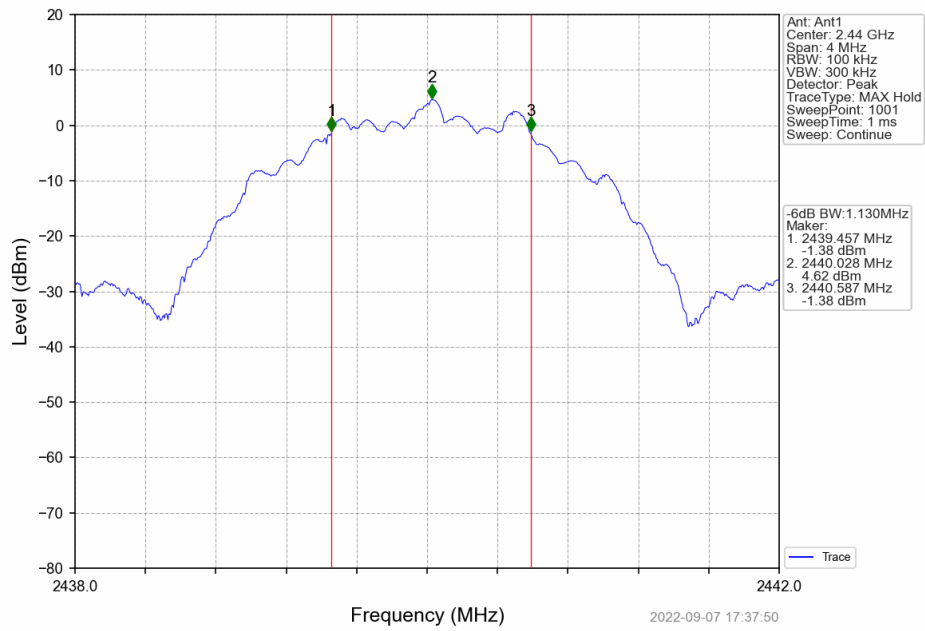


2M LCH 2402MHz Ant1 NTN

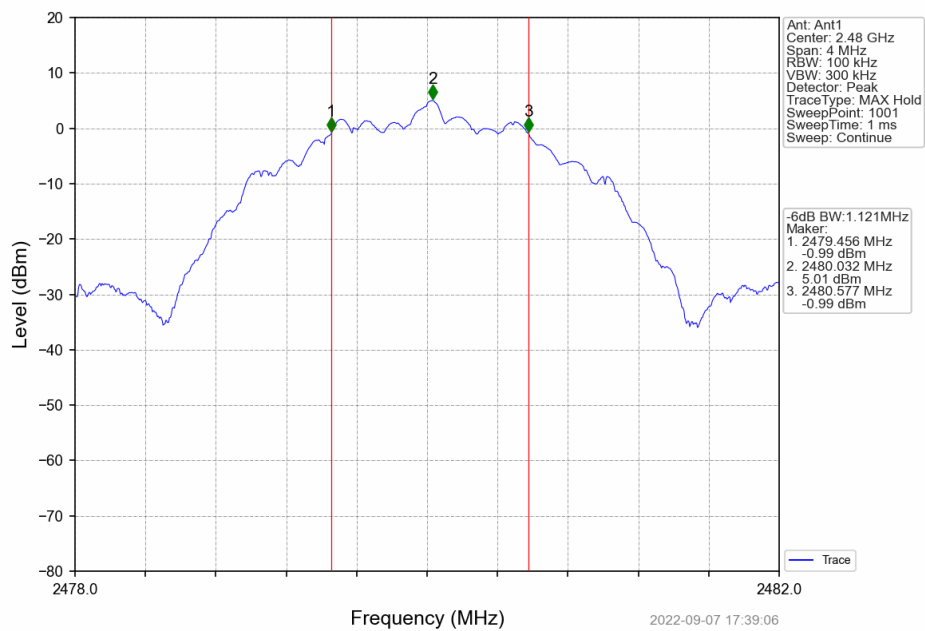


FCC ID: 2A8BL-BOMBING

2M_MCH_2440MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



3. Maximum Conducted Output Power

3.1 Power

3.1.1 Test Result

Left earpiece

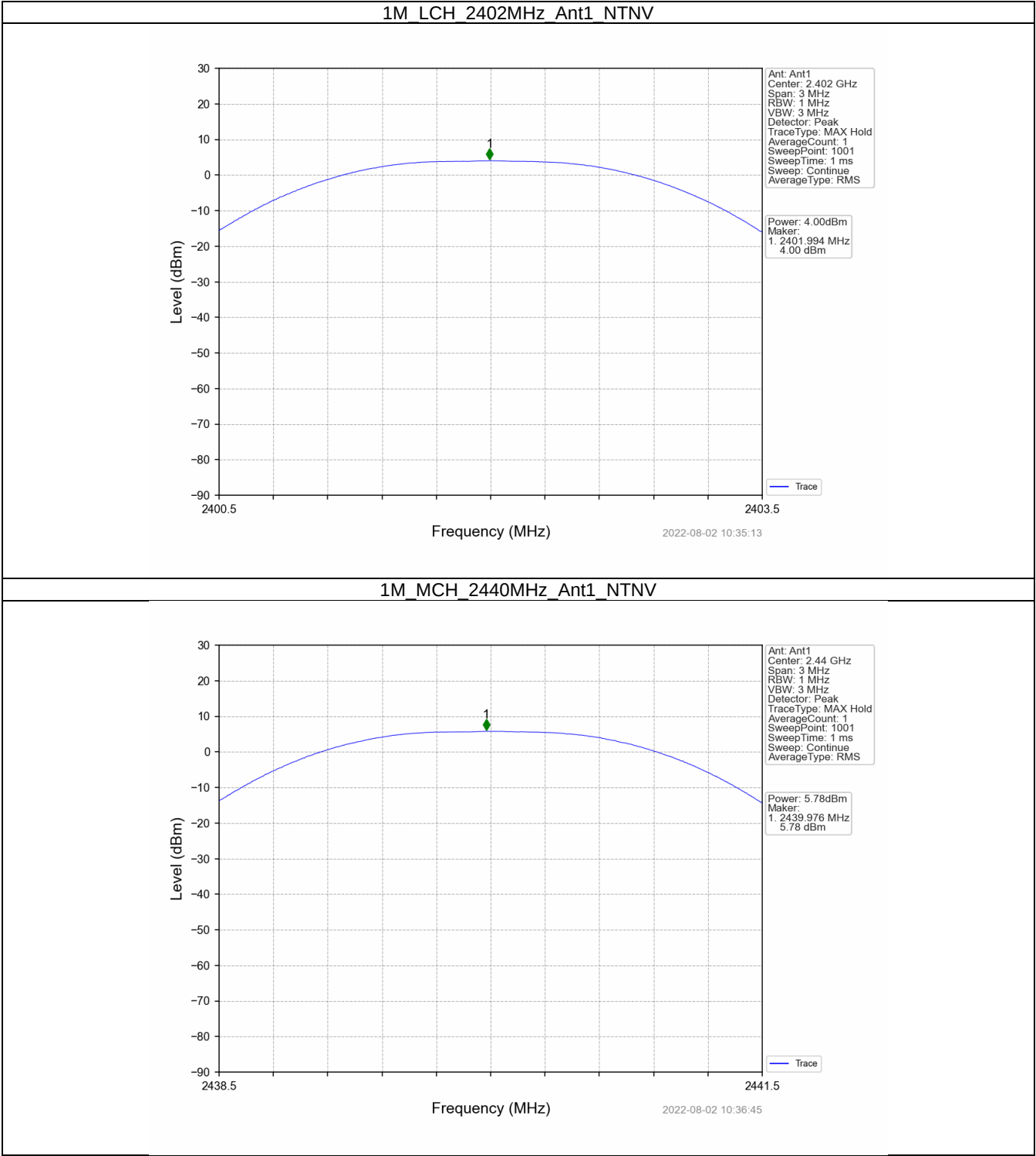
Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
1M	SISO	2402	4.00	<=30	Pass
		2440	5.78	<=30	Pass
		2480	5.74	<=30	Pass
2M	SISO	2402	3.96	<=30	Pass
		2440	5.35	<=30	Pass
		2480	5.30	<=30	Pass

Right earpiece

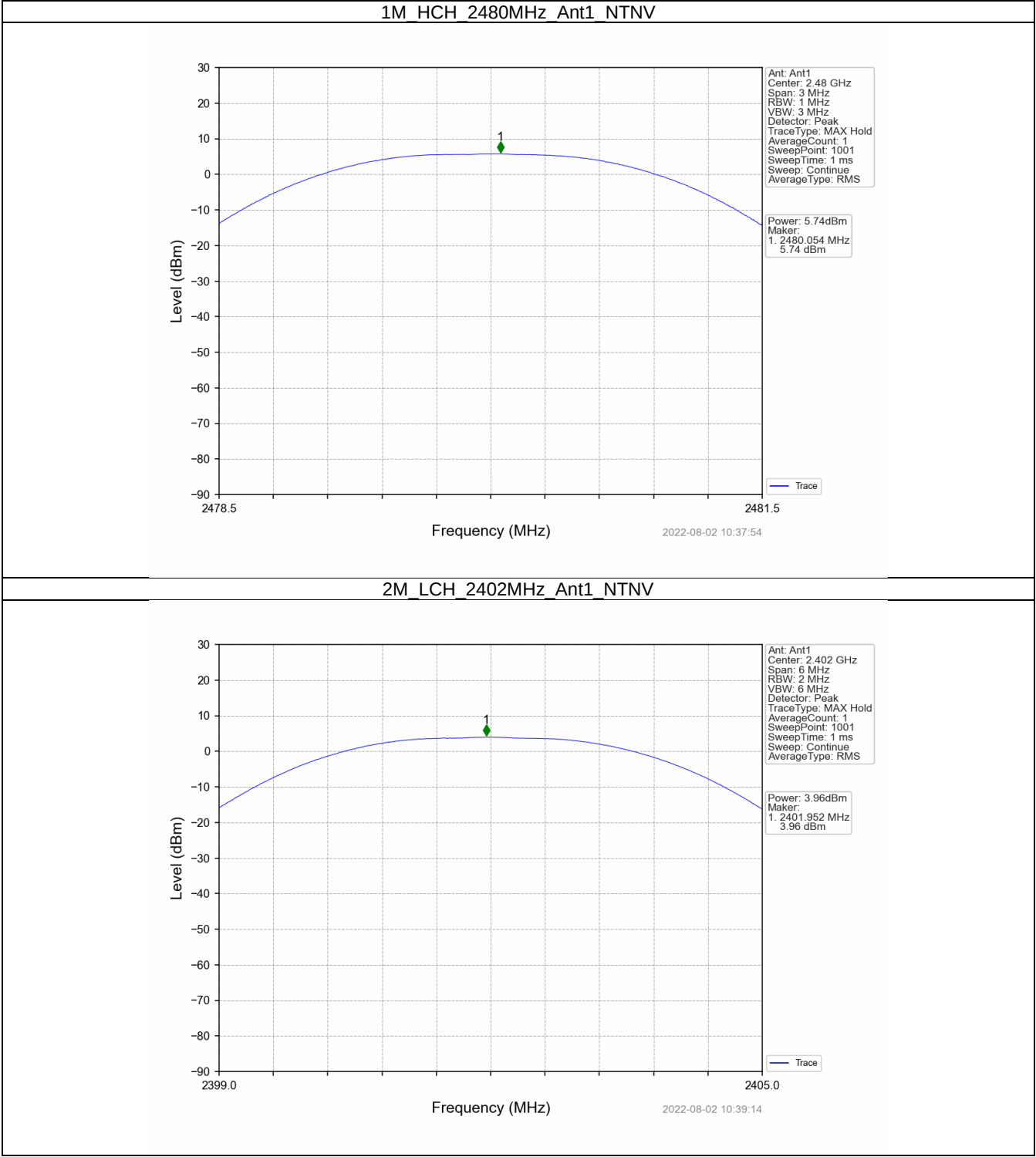
Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
1M	SISO	2402	3.75	<=30	Pass
		2440	4.90	<=30	Pass
		2480	5.29	<=30	Pass
2M	SISO	2402	3.79	<=30	Pass
		2440	4.91	<=30	Pass
		2480	5.30	<=30	Pass

3.1.2 Test Graph

Left earpiece

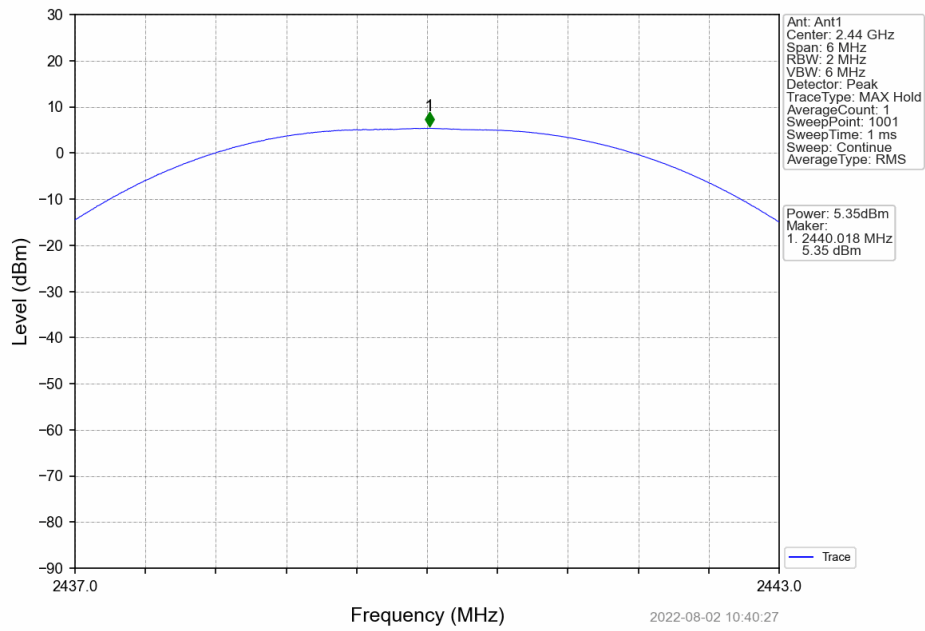


FCC ID: 2A8BL-BOMBING

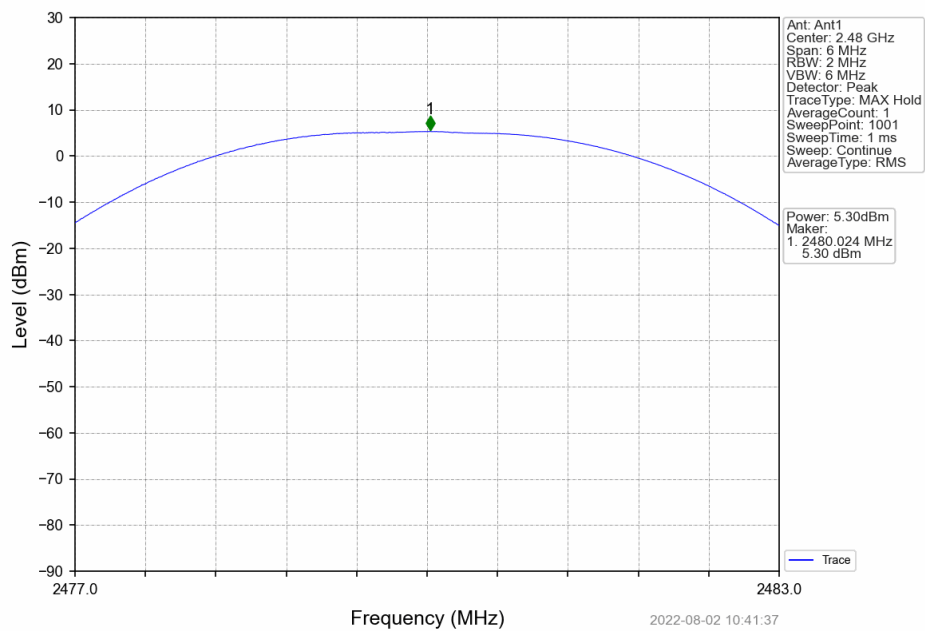


FCC ID: 2A8BL-BOMBING

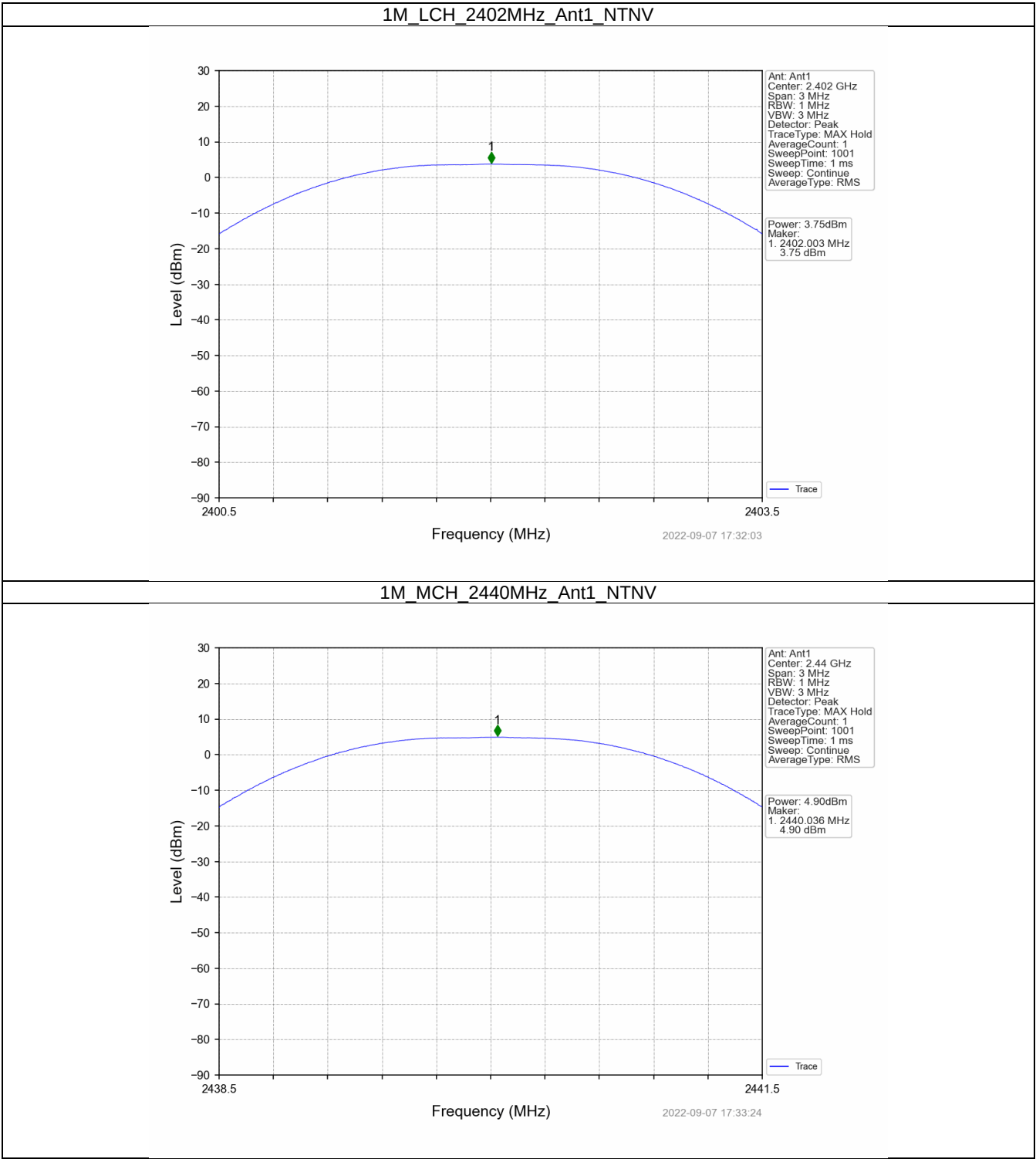
2M_MCH_2440MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV

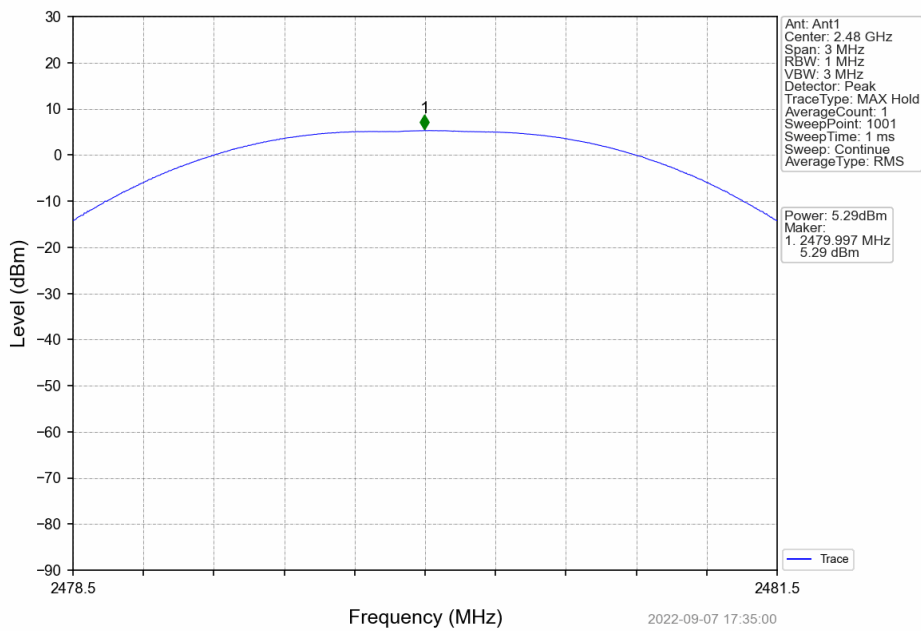


Right earpiece

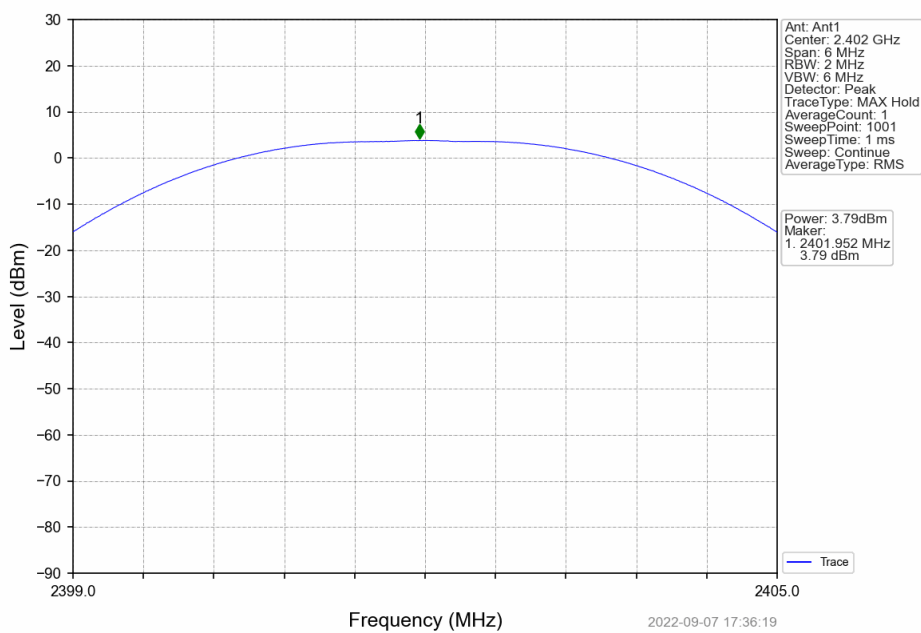


FCC ID: 2A8BL-BOMBING

1M HCH 2480MHz Ant1 NTN

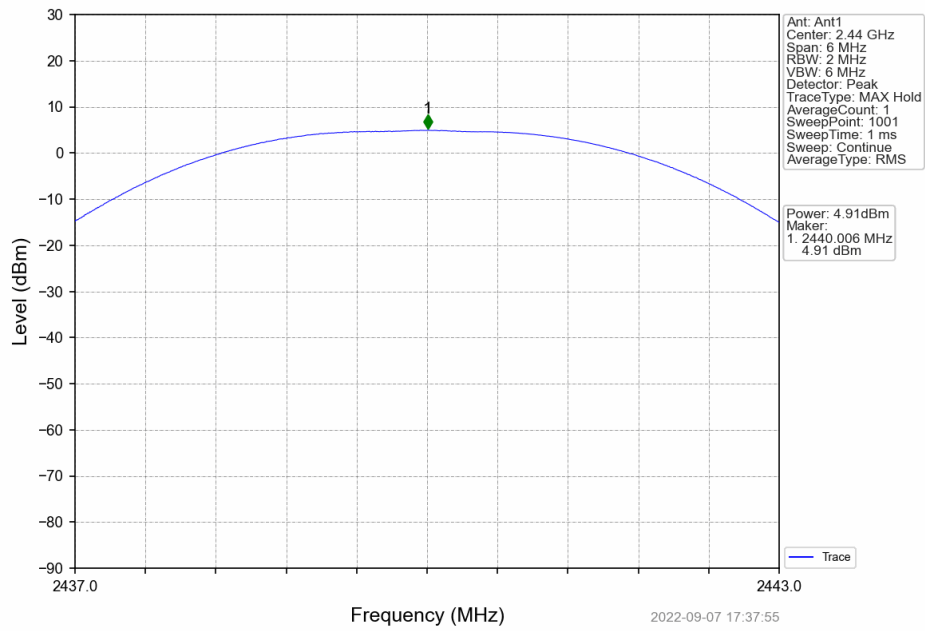


2M LCH 2402MHz Ant1 NTN

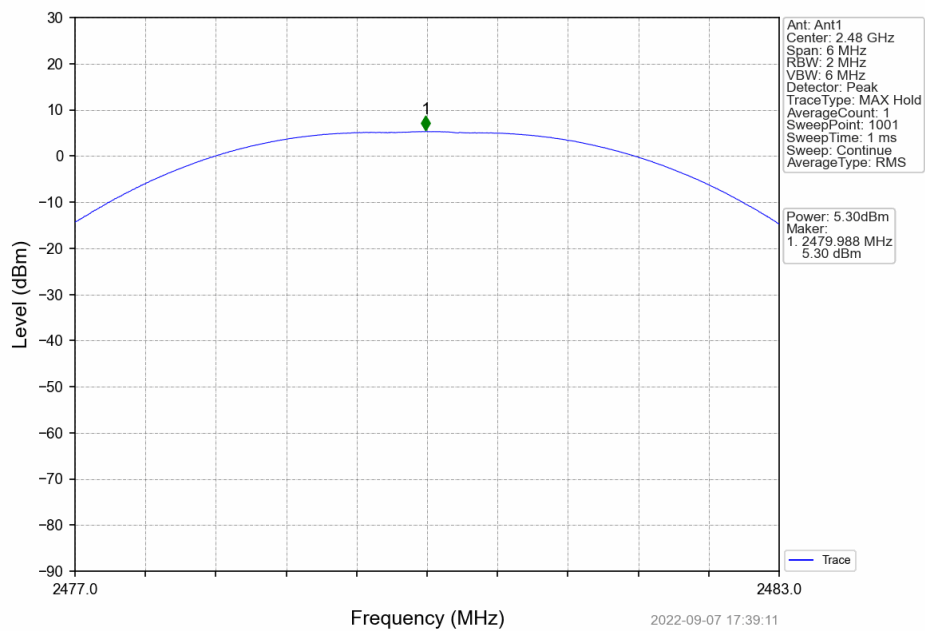


FCC ID: 2A8BL-BOMBING

2M_MCH_2440MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



4. Maximum Power Spectral Density

4.1 PSD

4.1.1 Test Result

Left earpiece

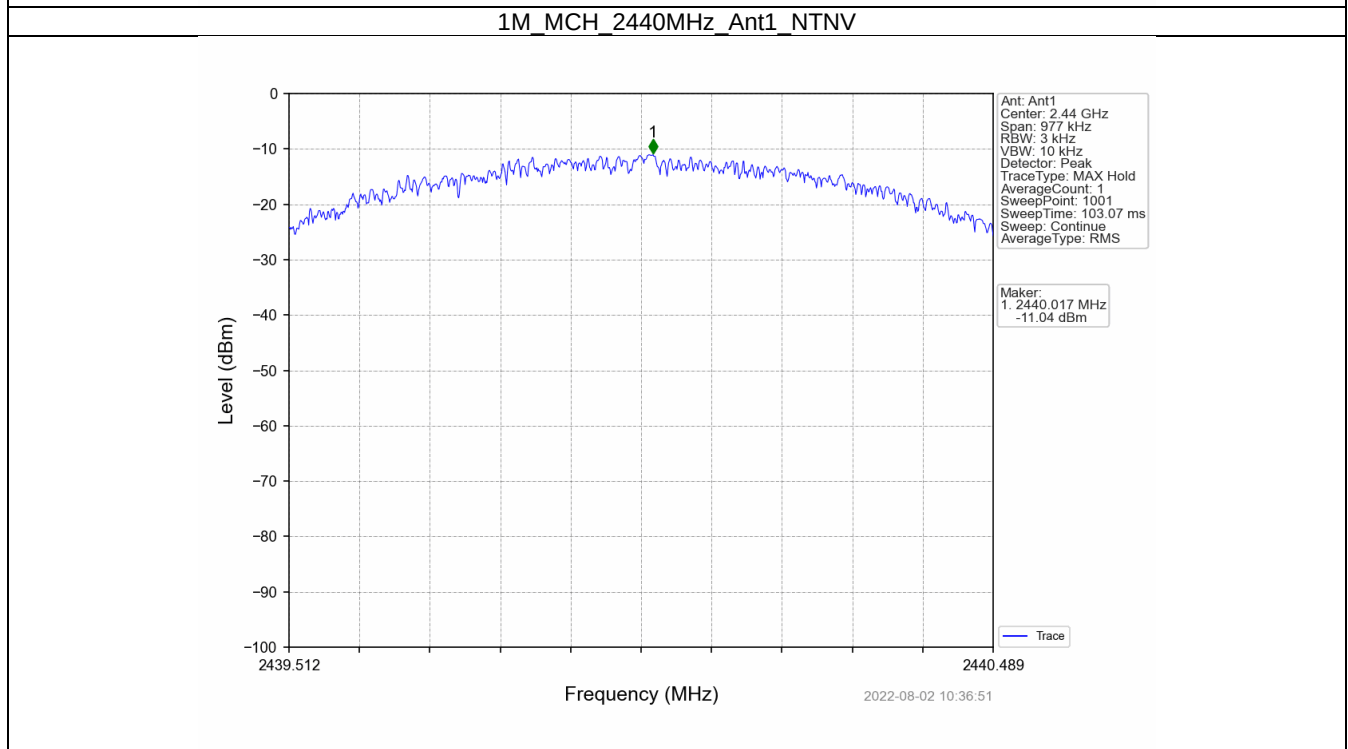
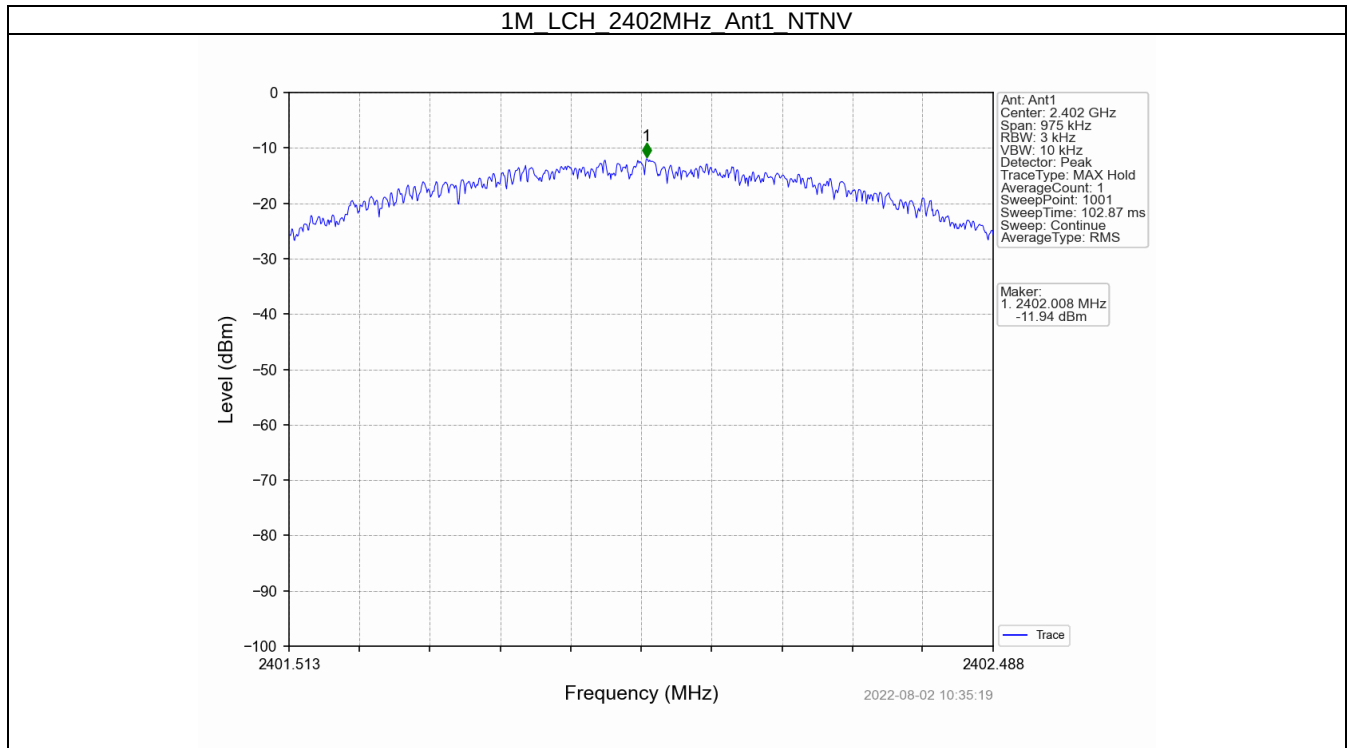
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
1M	SISO	2402	-11.94	<=8	Pass
		2440	-11.04	<=8	Pass
		2480	-10.37	<=8	Pass
2M	SISO	2402	-14.06	<=8	Pass
		2440	-13.39	<=8	Pass
		2480	-13.71	<=8	Pass

Right earpiece

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
1M	SISO	2402	-12.76	<=8	Pass
		2440	-10.91	<=8	Pass
		2480	-11.03	<=8	Pass
2M	SISO	2402	-13.82	<=8	Pass
		2440	-12.58	<=8	Pass
		2480	-11.70	<=8	Pass

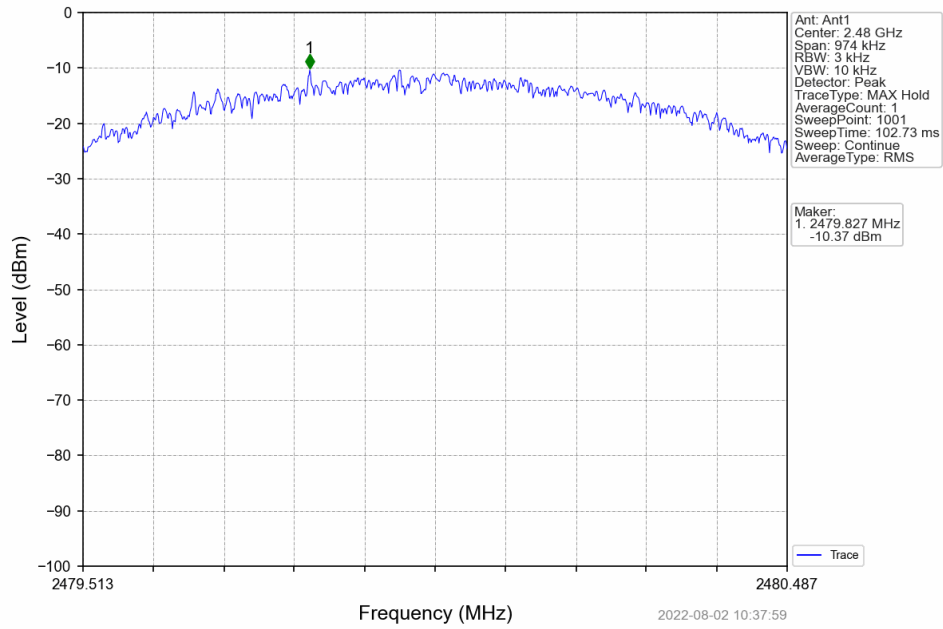
4.1.2 Test Graph

Left earpiece

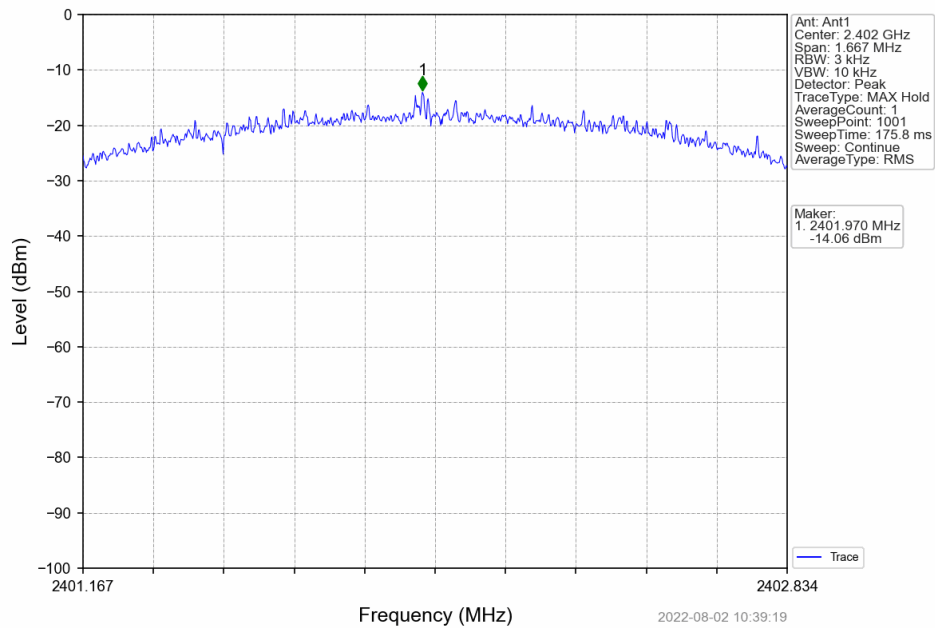


FCC ID: 2A8BL-BOMBING

1M HCH 2480MHz Ant1 NTN

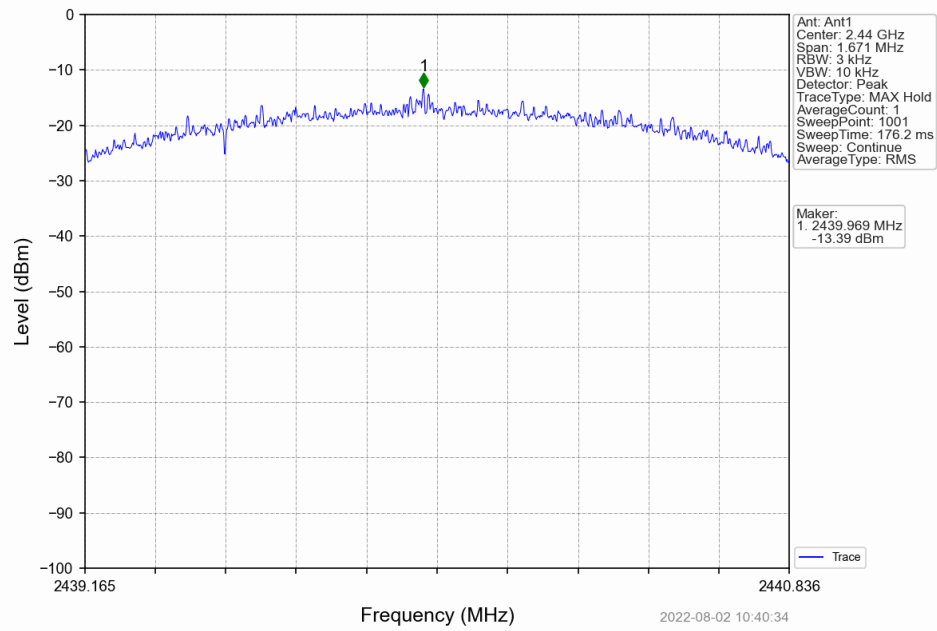


2M LCH 2402MHz Ant1 NTN

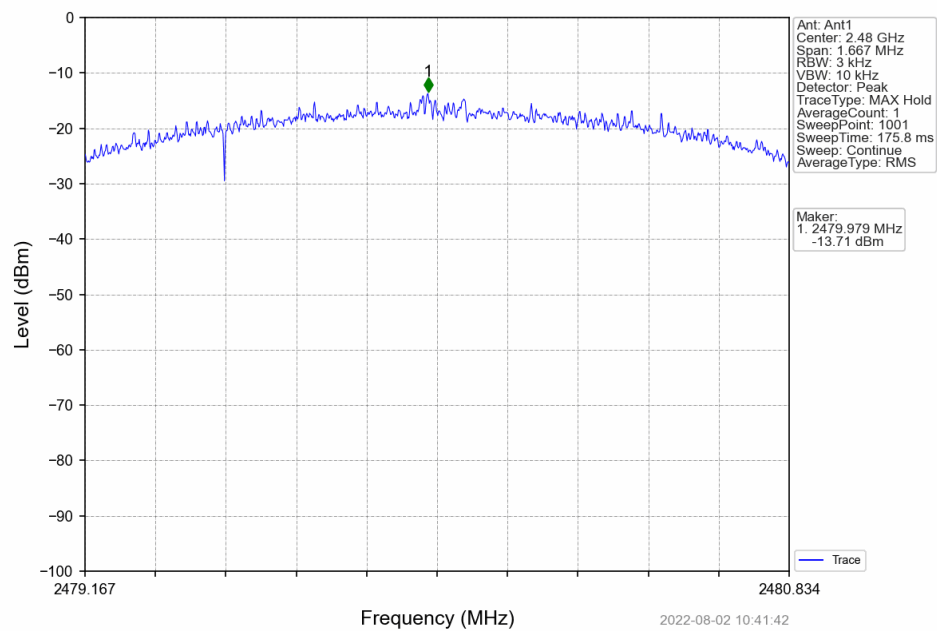


FCC ID: 2A8BL-BOMBING

2M_MCH_2440MHz_Ant1_NTNV

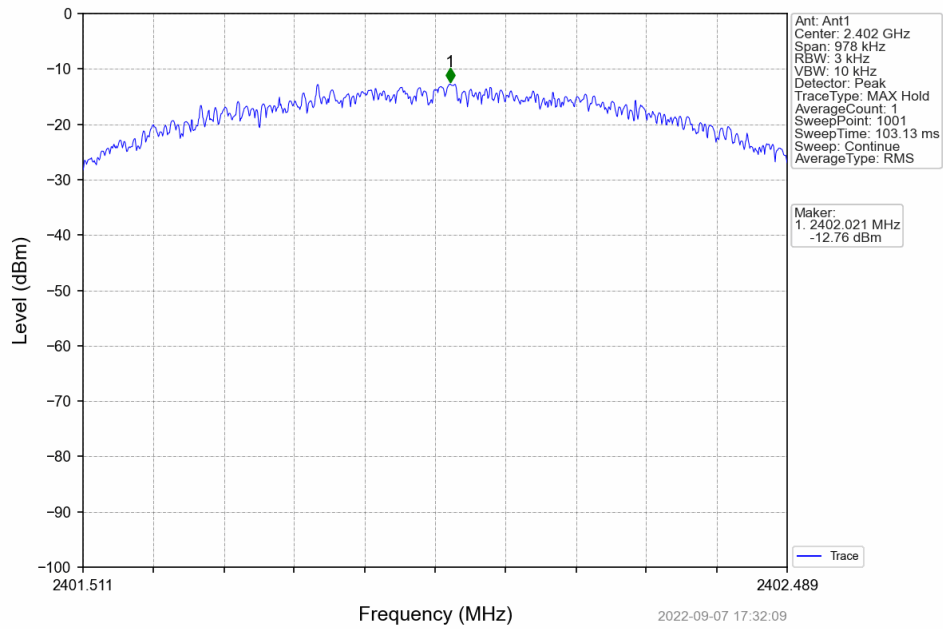


2M_HCH_2480MHz_Ant1_NTNV

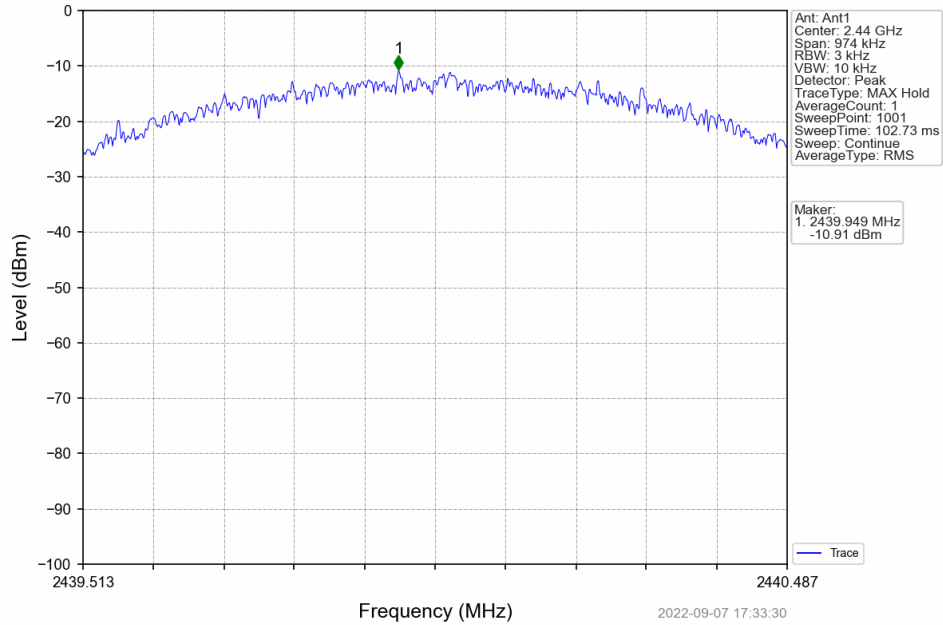


Right earpiece

1M_LCH_2402MHz_Ant1_NTNV

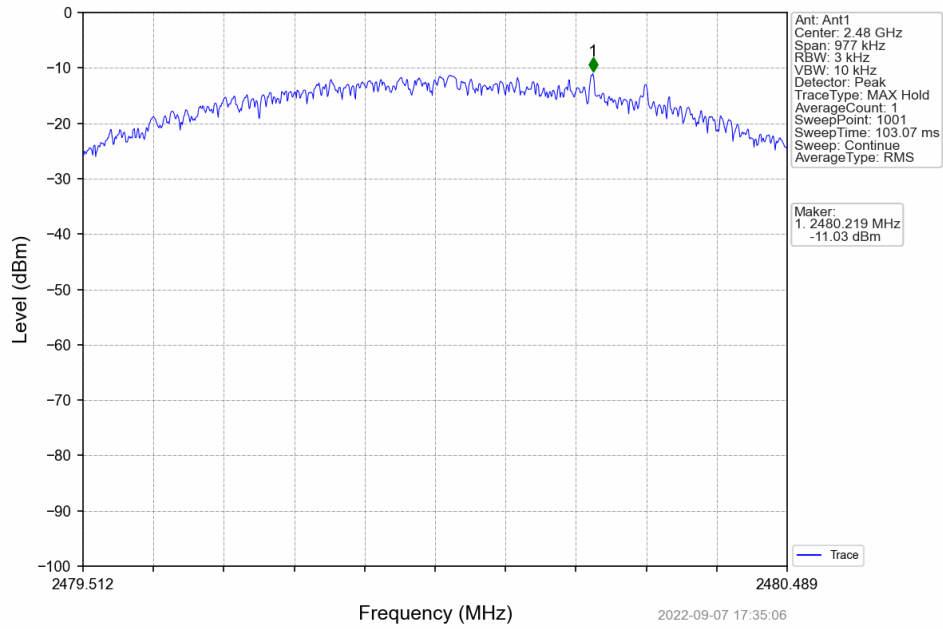


1M_MCH_2440MHz_Ant1_NTNV

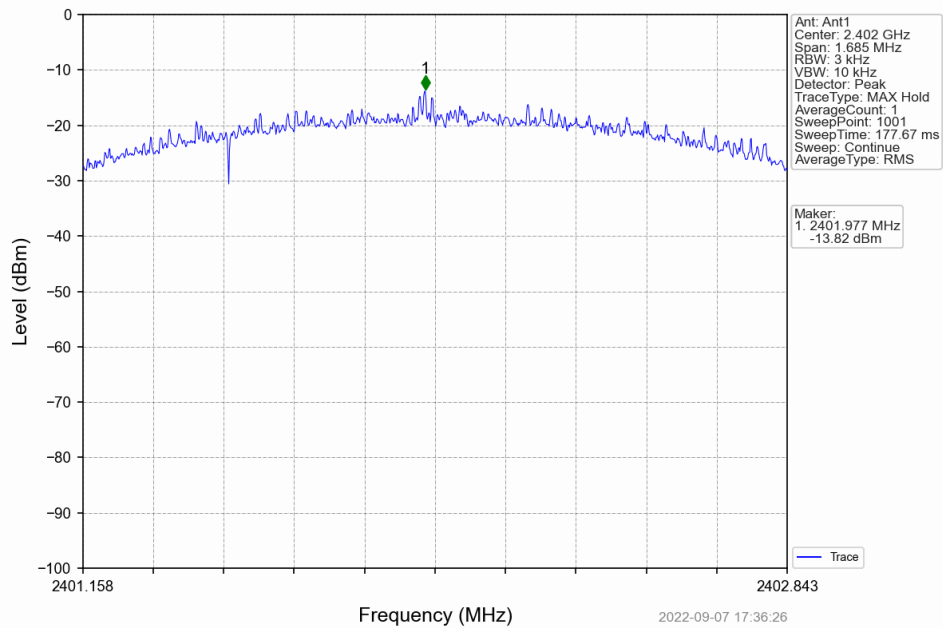


FCC ID: 2A8BL-BOMBING

1M HCH 2480MHz Ant1 NTN

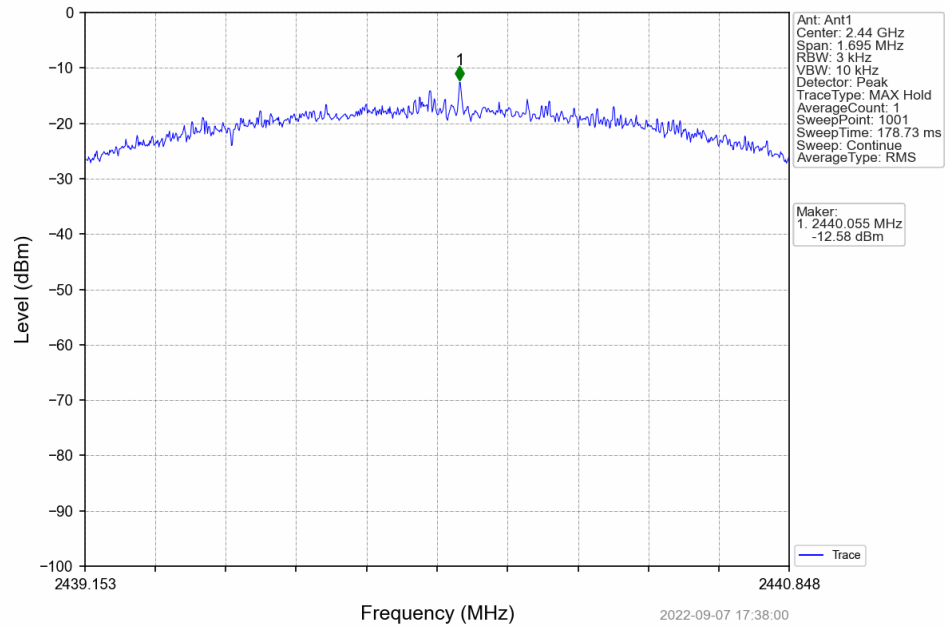


2M LCH 2402MHz Ant1 NTN

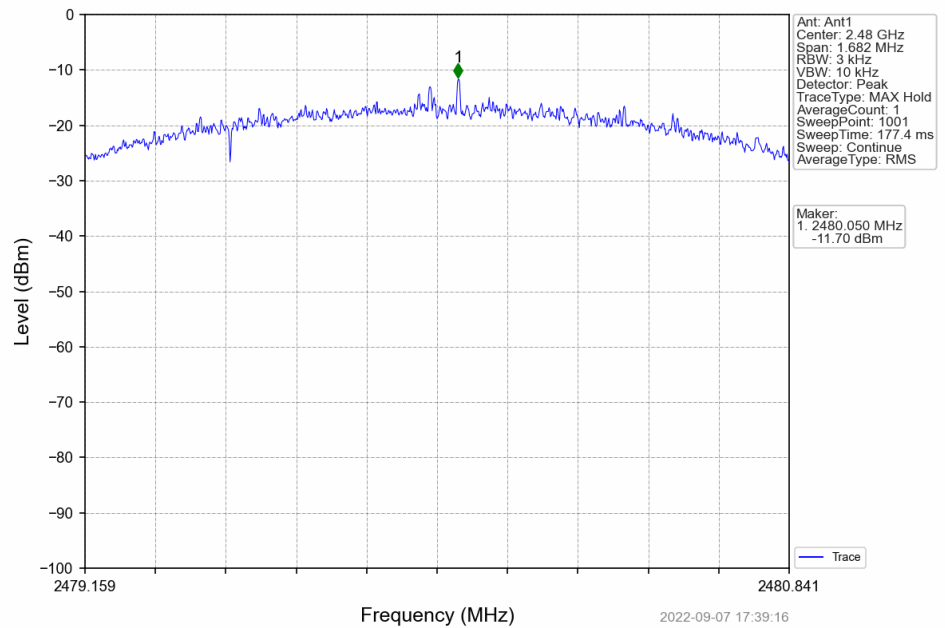


FCC ID: 2A8BL-BOMBING

2M MCH 2440MHz Ant1 NTN



2M HCH 2480MHz Ant1 NTN



5. Unwanted Emissions In Standard Non-restricted Frequency Bands

5.1 Ref

5.1.1 Test Result

Left earpiece

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
1M	SISO	2402	1	4.26
		2440	1	5.60
		2480	1	5.53
2M	SISO	2402	1	3.60
		2440	1	5.00
		2480	1	5.38

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.

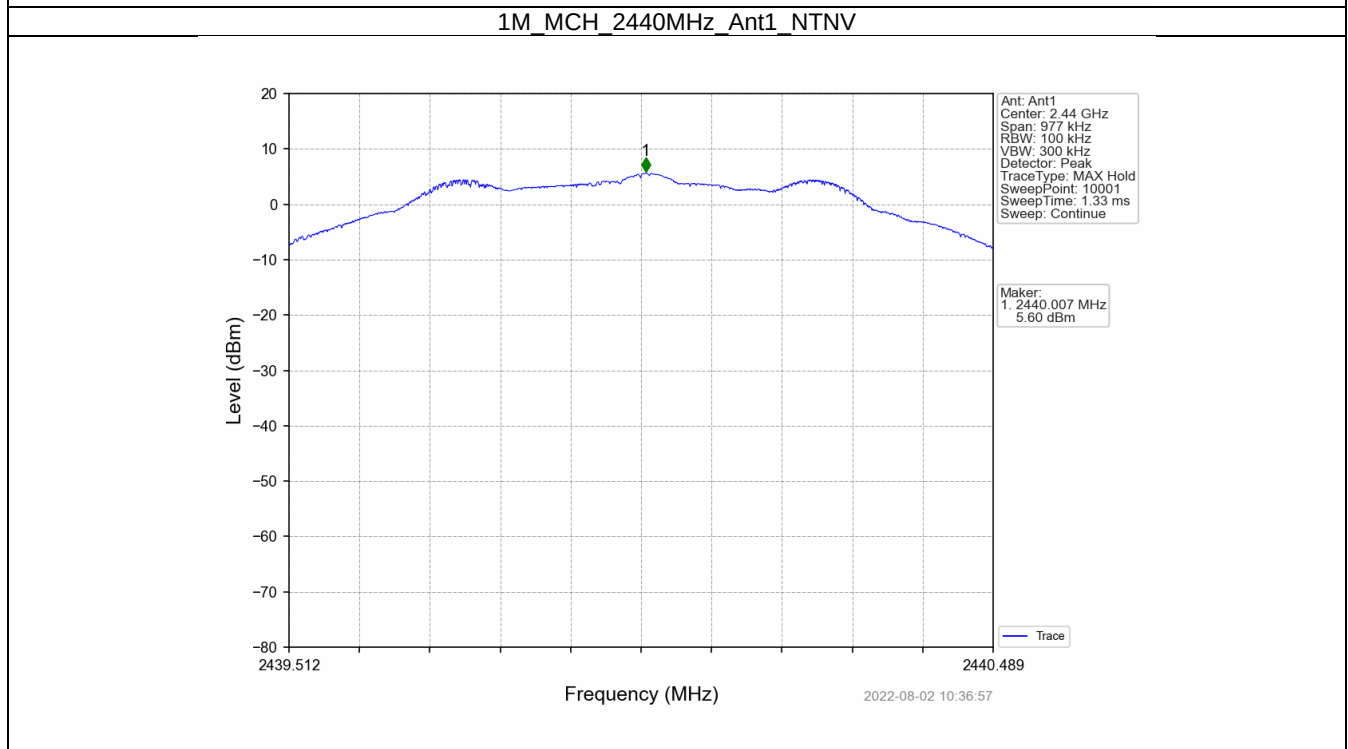
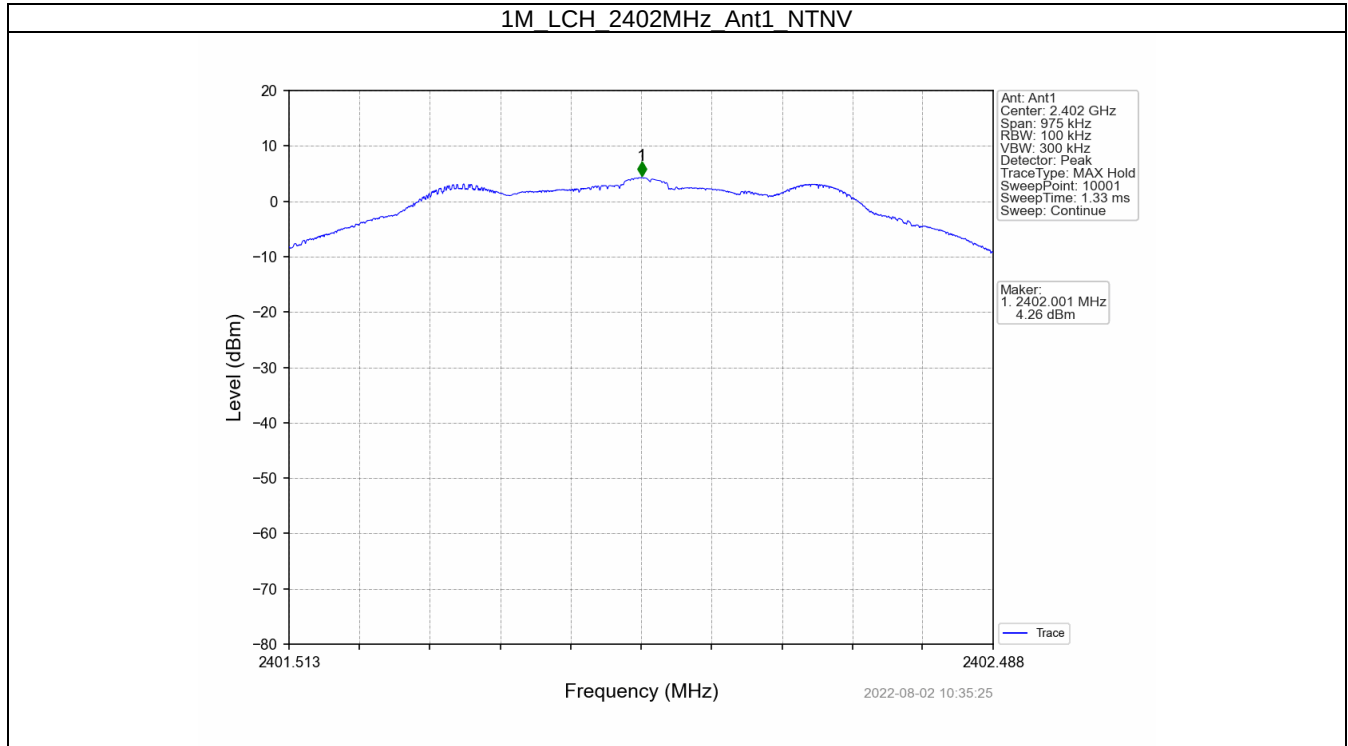
Right earpiece

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
1M	SISO	2402	1	3.77
		2440	1	4.88
		2480	1	5.24
2M	SISO	2402	1	3.63
		2440	1	4.63
		2480	1	5.07

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.

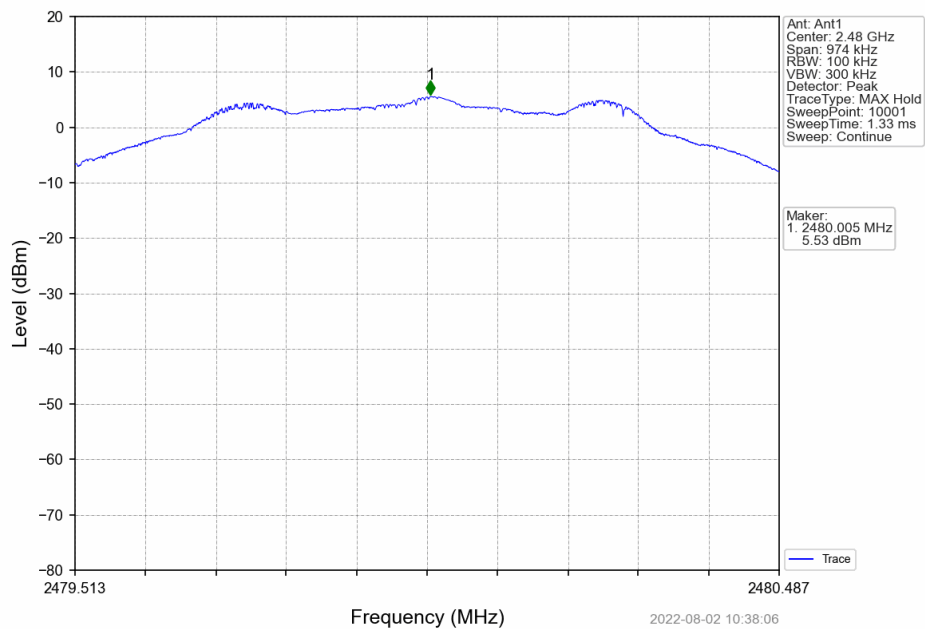
5.1.2 Test Graph

Left earpiece

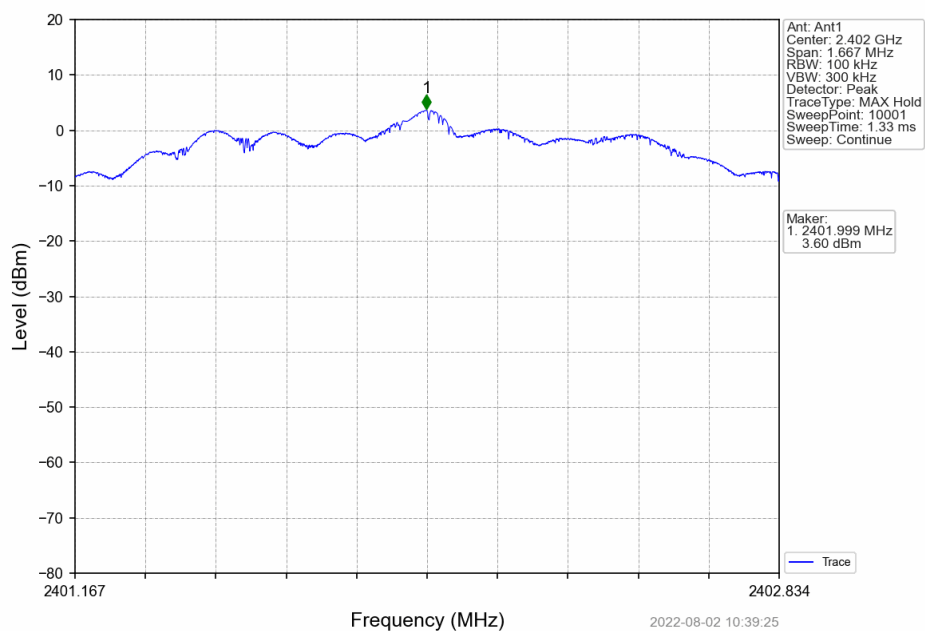


FCC ID: 2A8BL-BOMBING

1M HCH 2480MHz Ant1 NTN

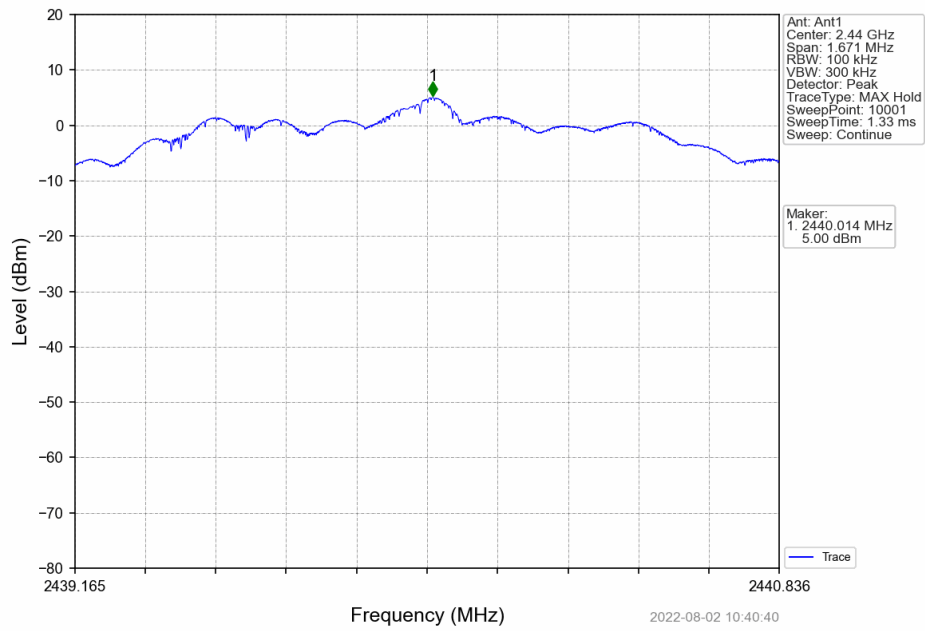


2M LCH 2402MHz Ant1 NTN

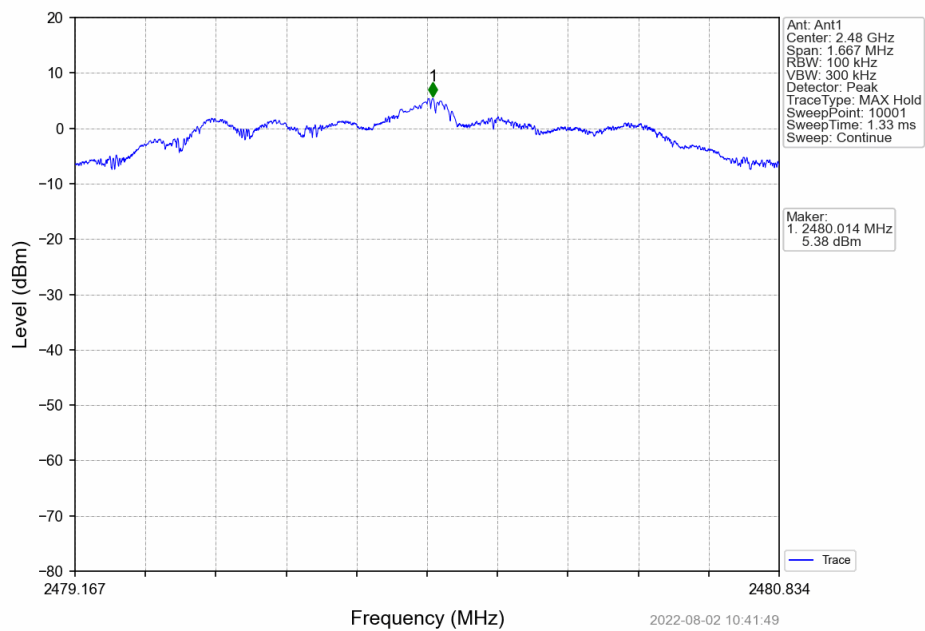


FCC ID: 2A8BL-BOMBING

2M_MCH_2440MHz_Ant1_NTNV

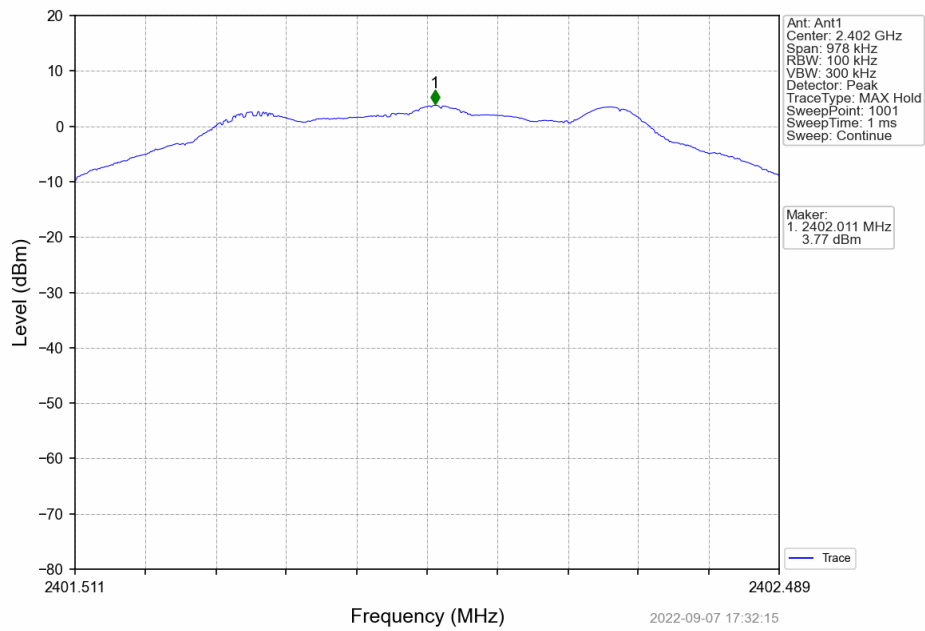


2M_HCH_2480MHz_Ant1_NTNV

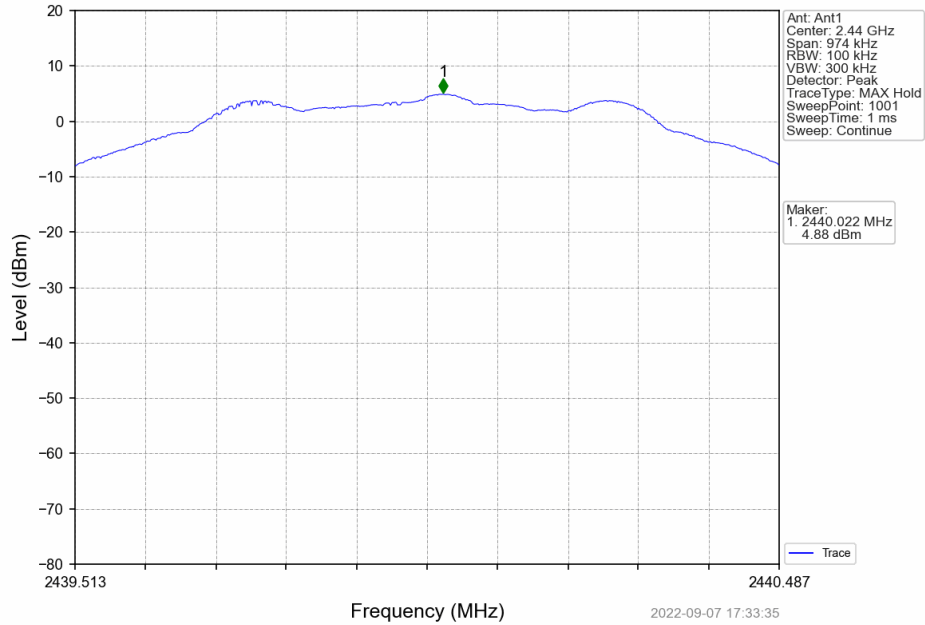


Right earpiece

1M_LCH_2402MHz_Ant1_NTNV

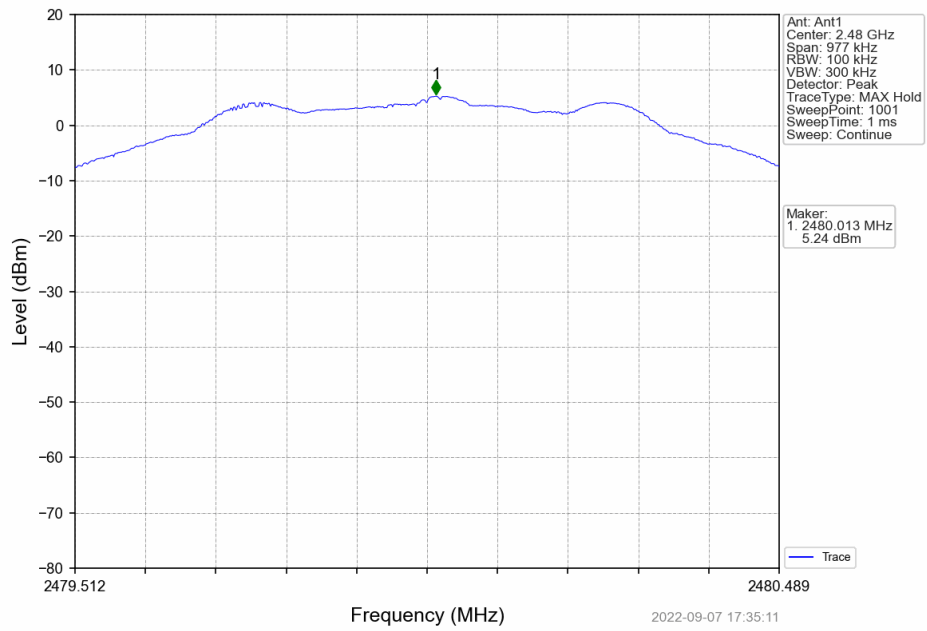


1M_MCH_2440MHz_Ant1_NTNV

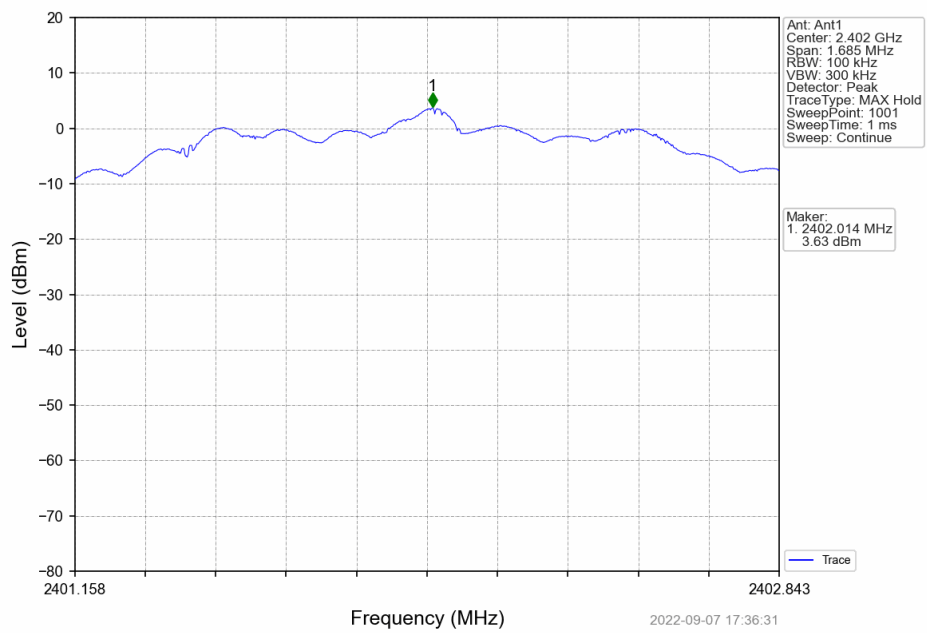


FCC ID: 2A8BL-BOMBING

1M HCH 2480MHz Ant1 NTN

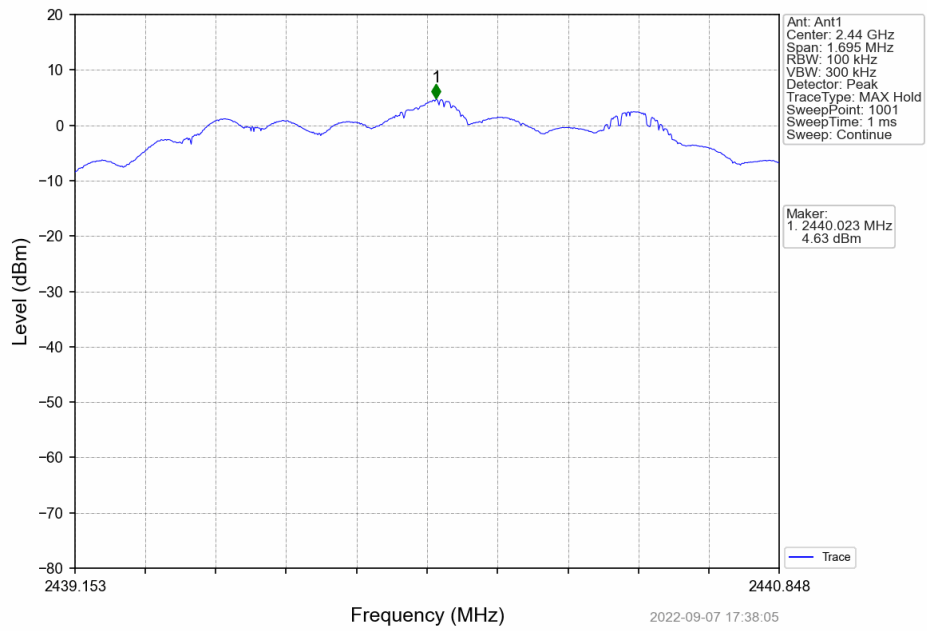


2M LCH 2402MHz Ant1 NTN

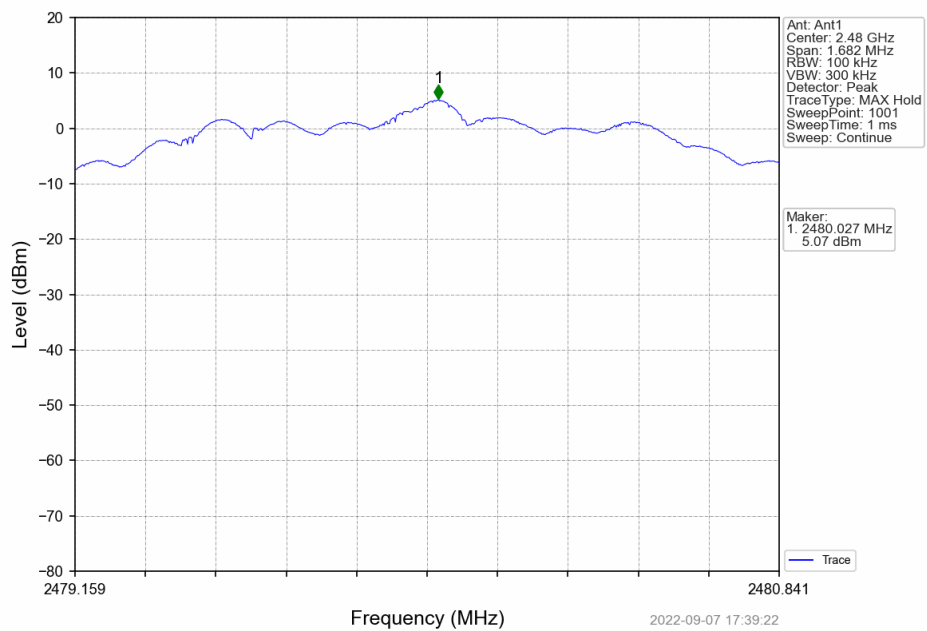


FCC ID: 2A8BL-BOMBING

2M_MCH_2440MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



5.2 CSE

5.2.1 Test Result

Left earpiece

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
1M	SISO	2402	1	5.60	-14.40	Pass
		2440	1	5.60	-14.40	Pass
		2480	1	5.60	-14.40	Pass
2M	SISO	2402	1	5.38	-14.62	Pass
		2440	1	5.38	-14.62	Pass
		2480	1	5.38	-14.62	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.

Right earpiece

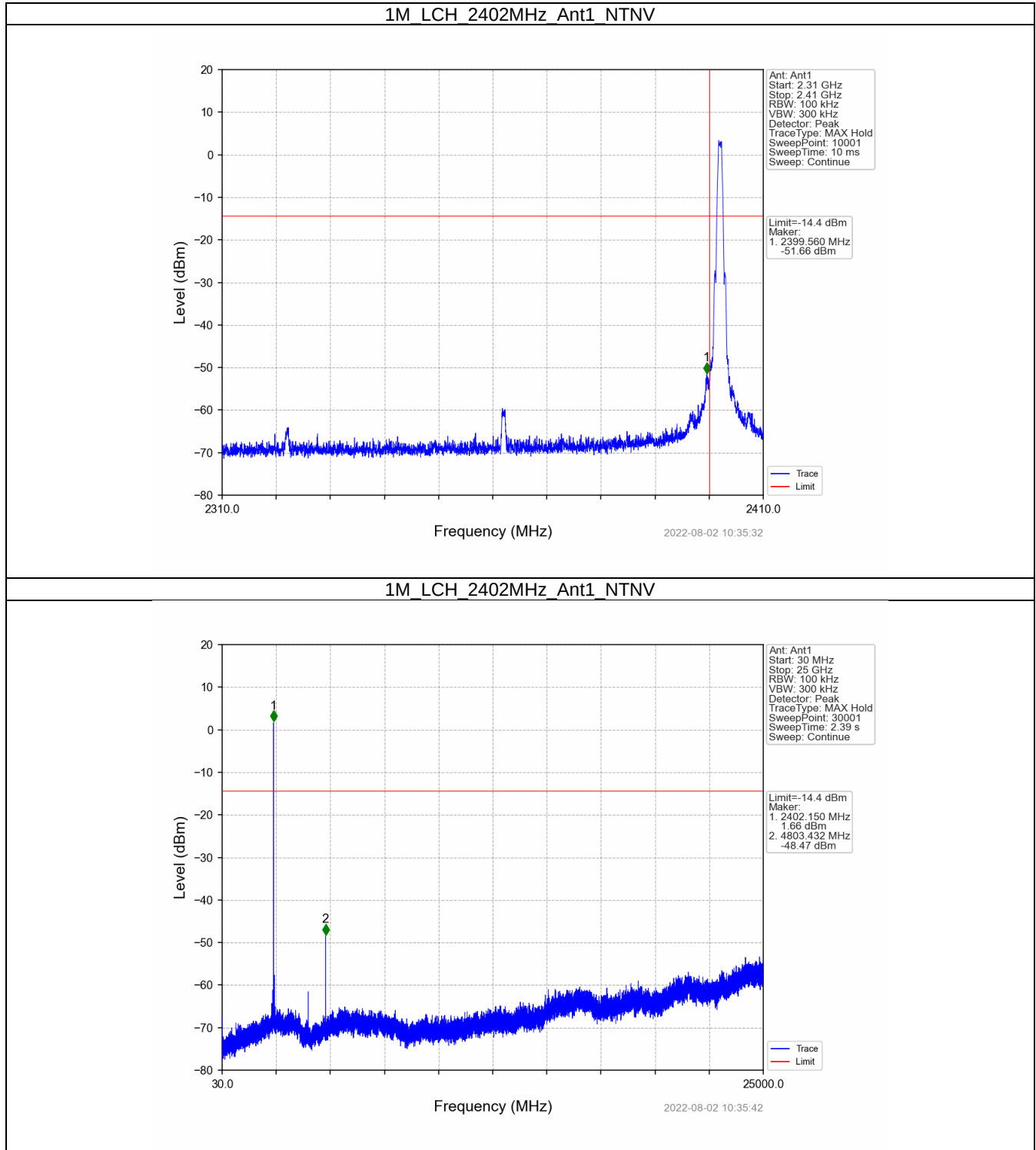
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
1M	SISO	2402	1	5.24	-14.76	Pass
		2440	1	5.24	-14.76	Pass
		2480	1	5.24	-14.76	Pass
2M	SISO	2402	1	5.07	-14.93	Pass
		2440	1	5.07	-14.93	Pass
		2480	1	5.07	-14.93	Pass

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.

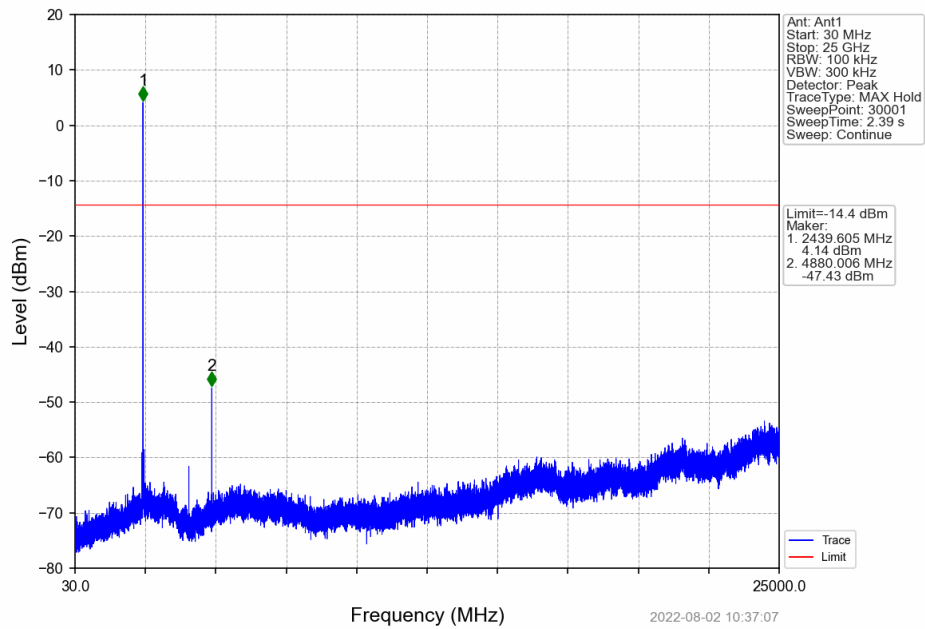
5.2.2 Test Graph

Left earpiece

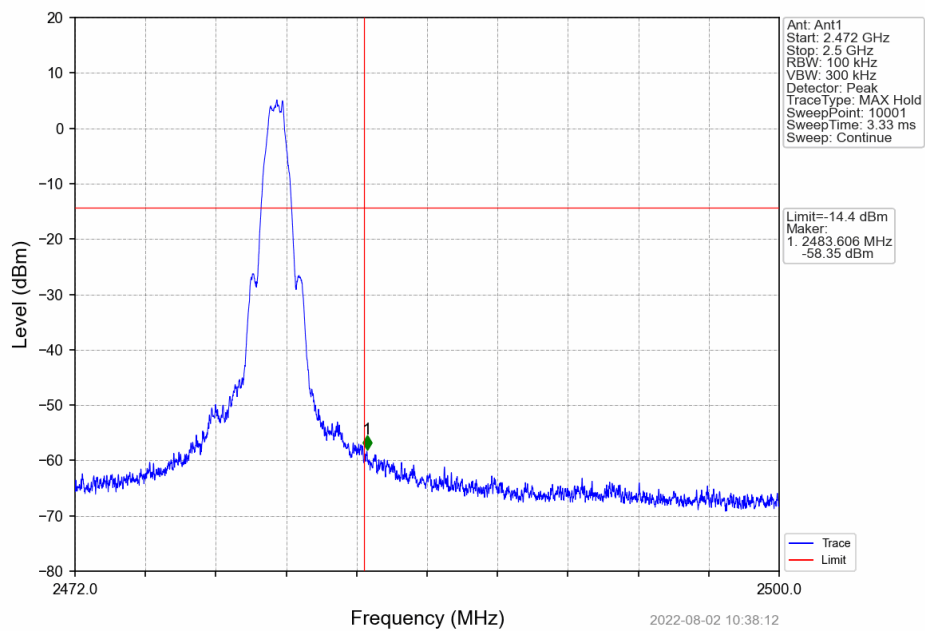


FCC ID: 2A8BL-BOMBING

1M_MCH_2440MHz_Ant1_NTNV

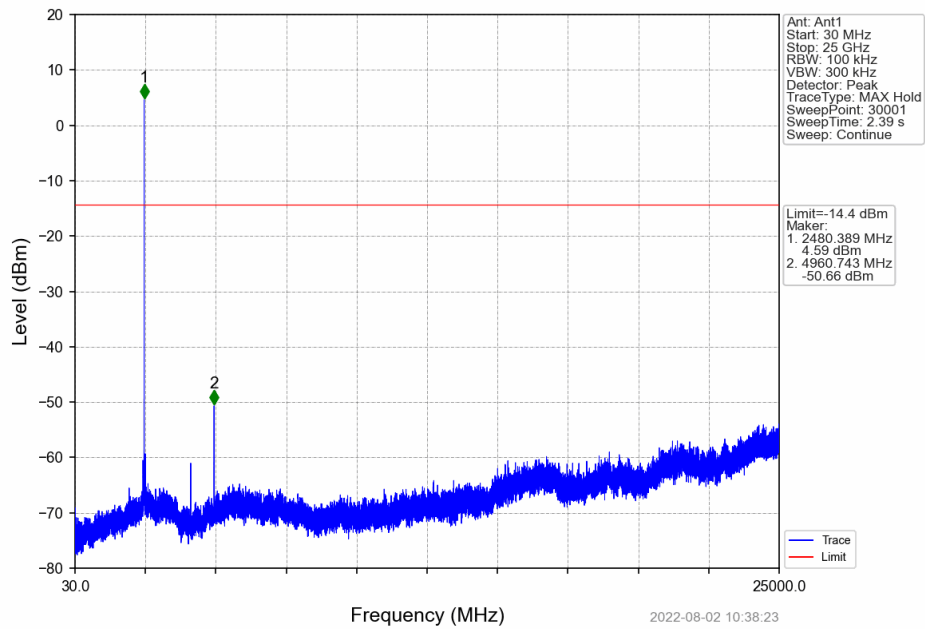


1M_HCH_2480MHz_Ant1_NTNV

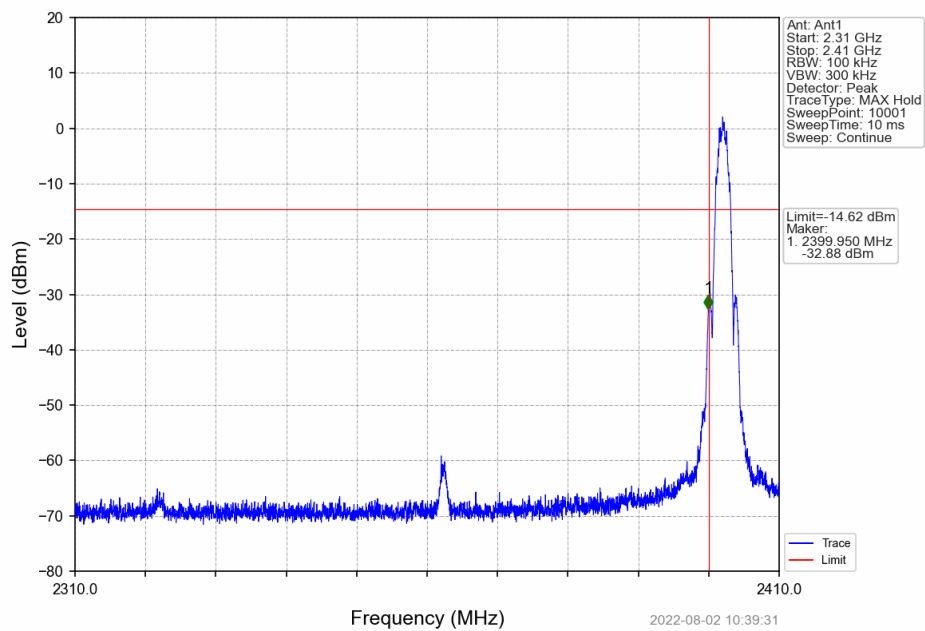


FCC ID: 2A8BL-BOMBING

1M HCH 2480MHz Ant1 NTN

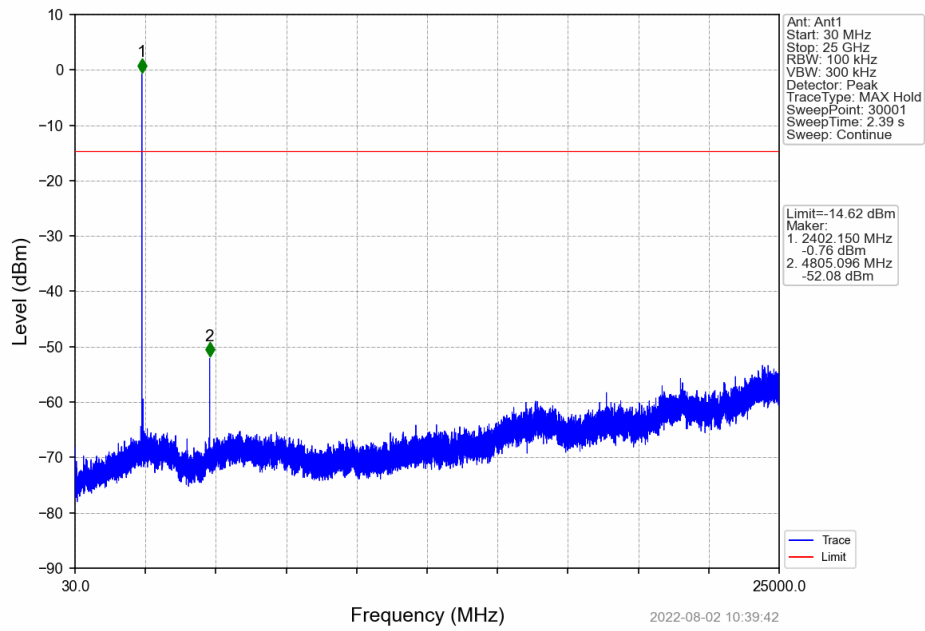


2M_LCH_2402MHz_Ant1_NTNV

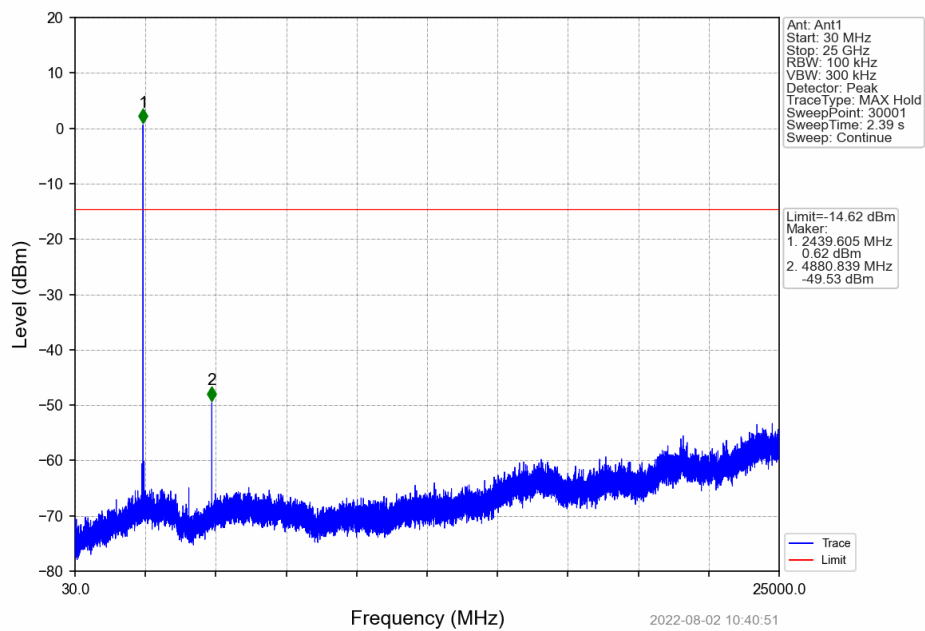


FCC ID: 2A8BL-BOMBING

2M LCH 2402MHz Ant1 NTN

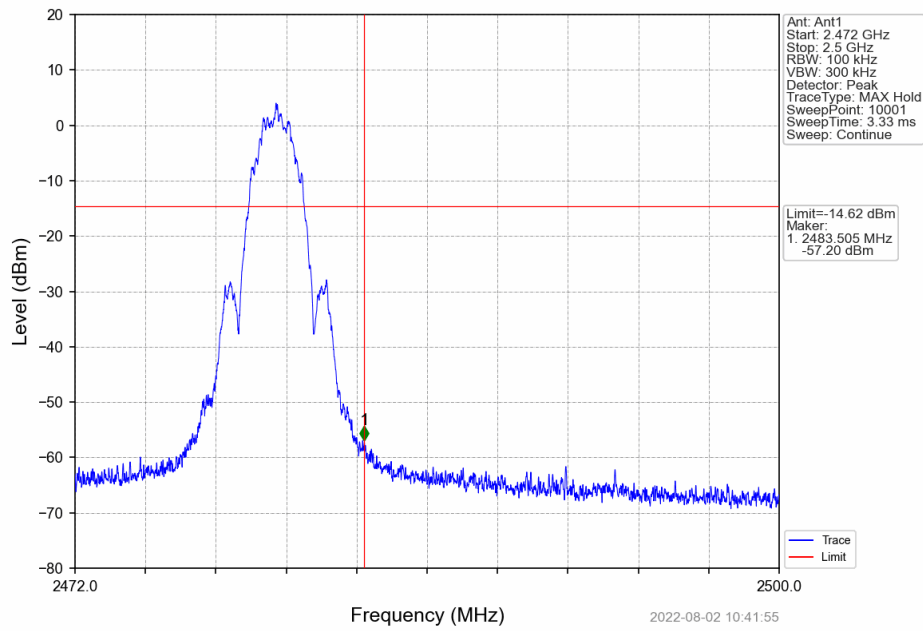


2M MCH 2440MHz Ant1 NTN

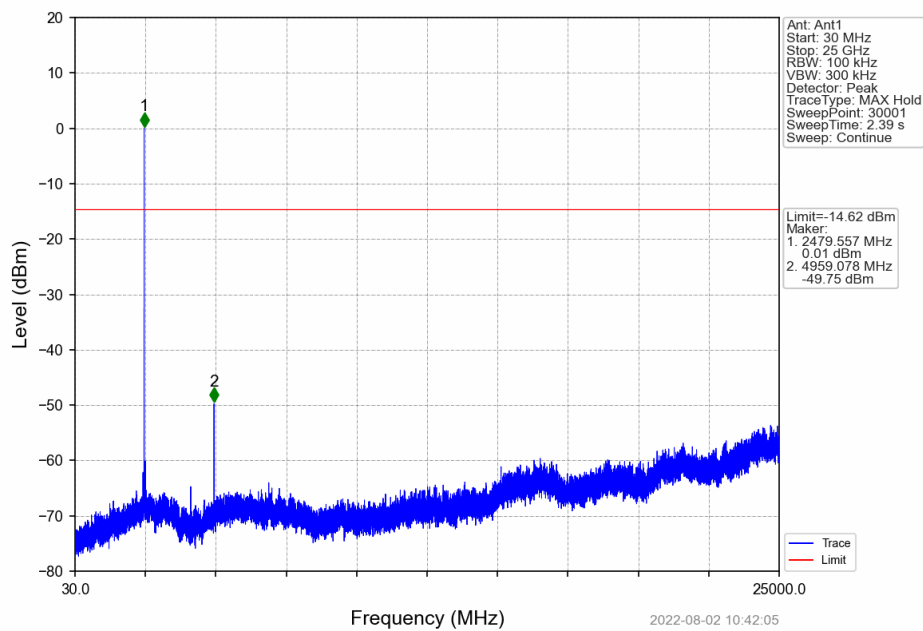


FCC ID: 2A8BL-BOMBING

2M HCH 2480MHz Ant1 NTN

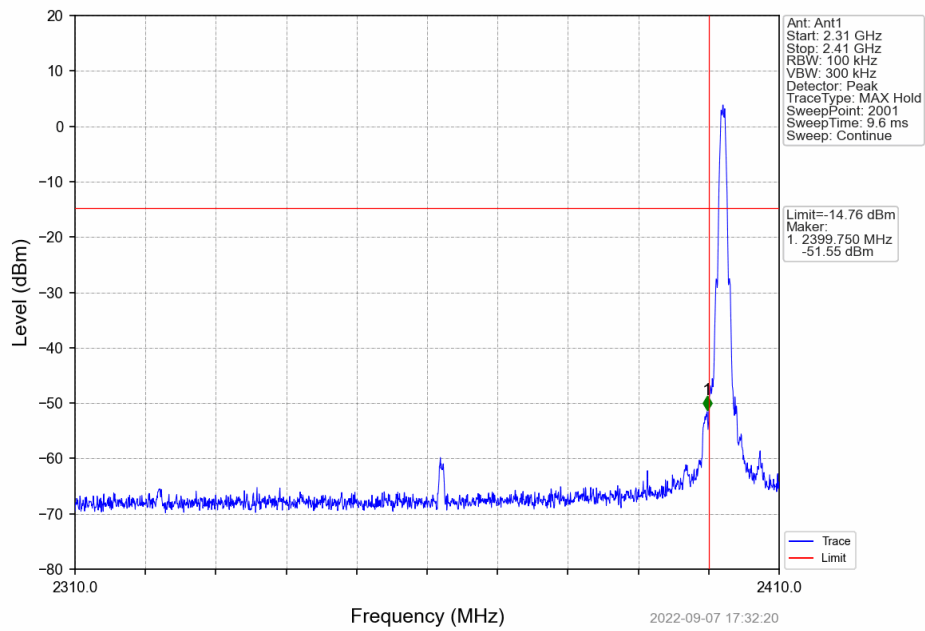


2M_HCH_2480MHz_Ant1_NTN

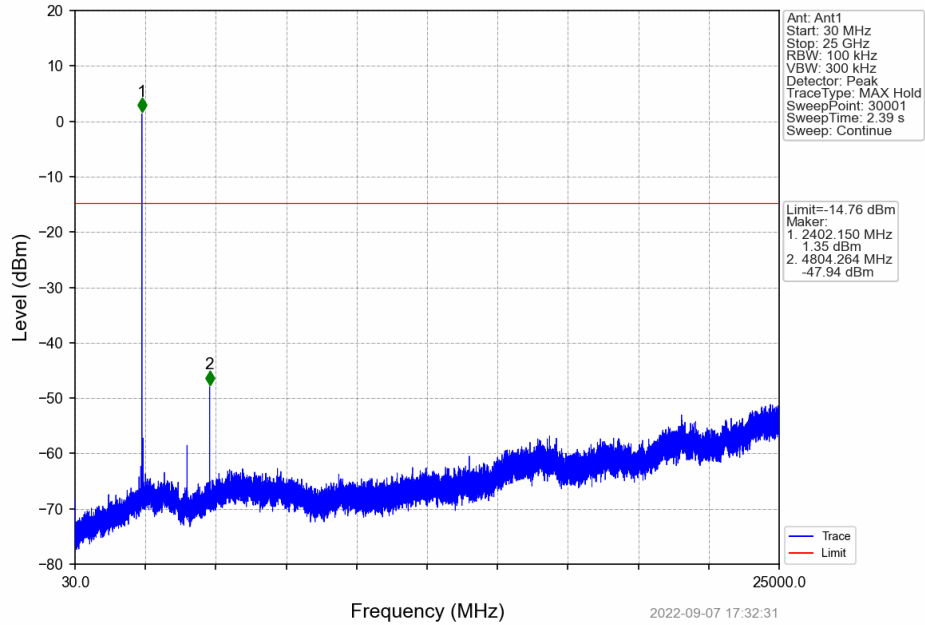


Right earpiece

1M_LCH_2402MHz_Ant1_NTNV

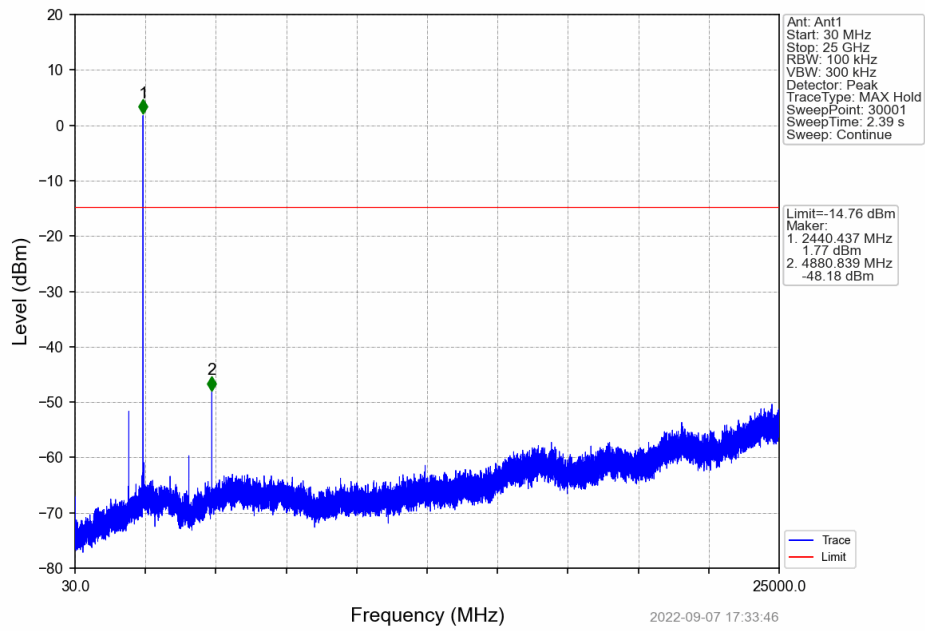


1M_LCH_2402MHz_Ant1_NTNV

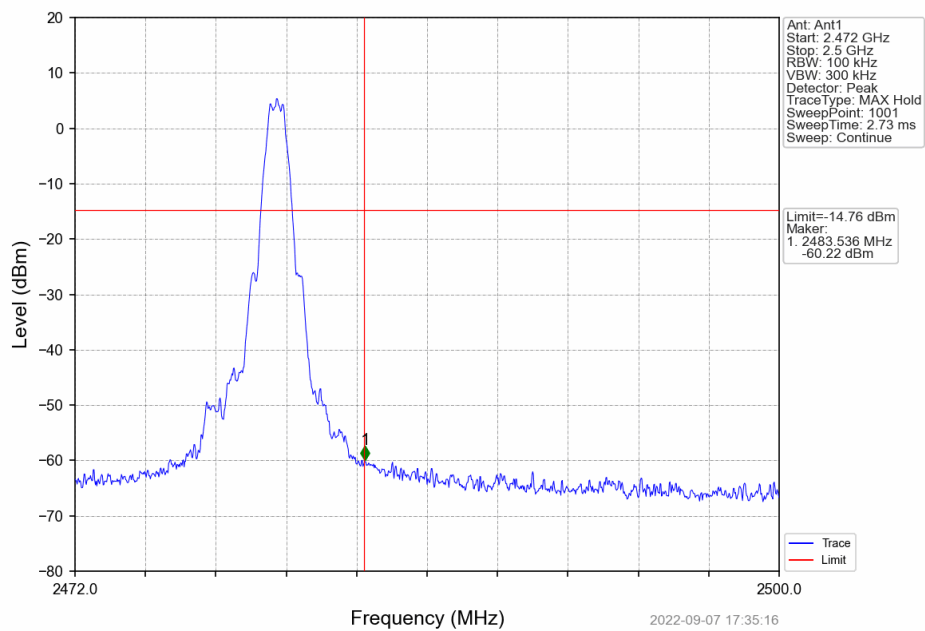


FCC ID: 2A8BL-BOMBING

1M MCH 2440MHz Ant1 NTN

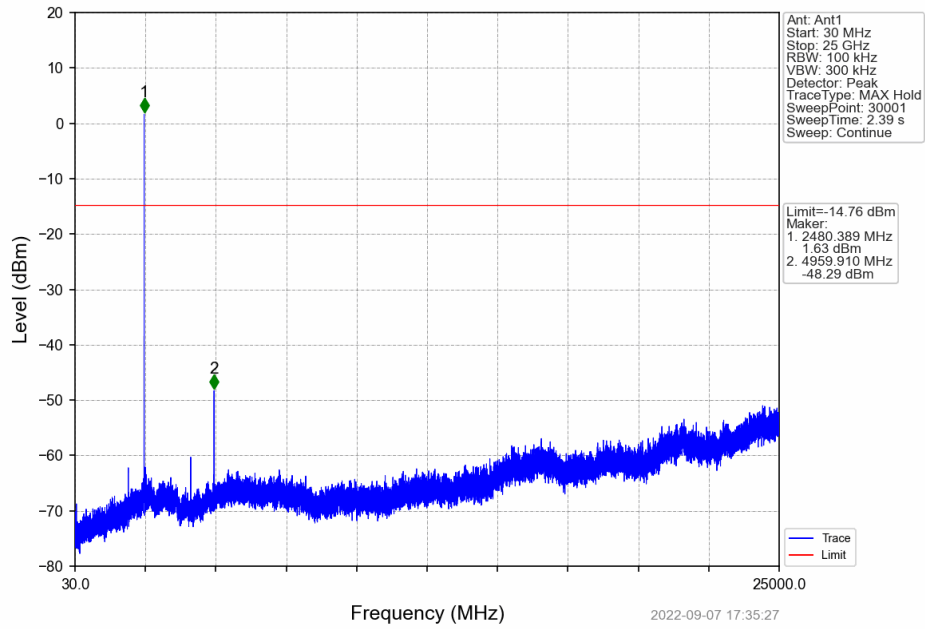


1M_HCH 2480MHz_Ant1 NTN

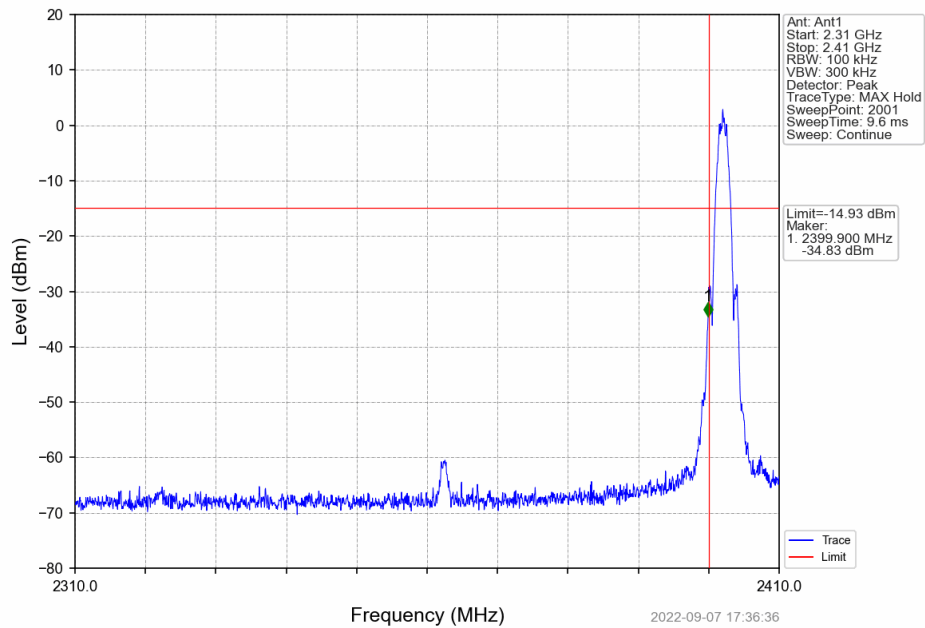


FCC ID: 2A8BL-BOMBING

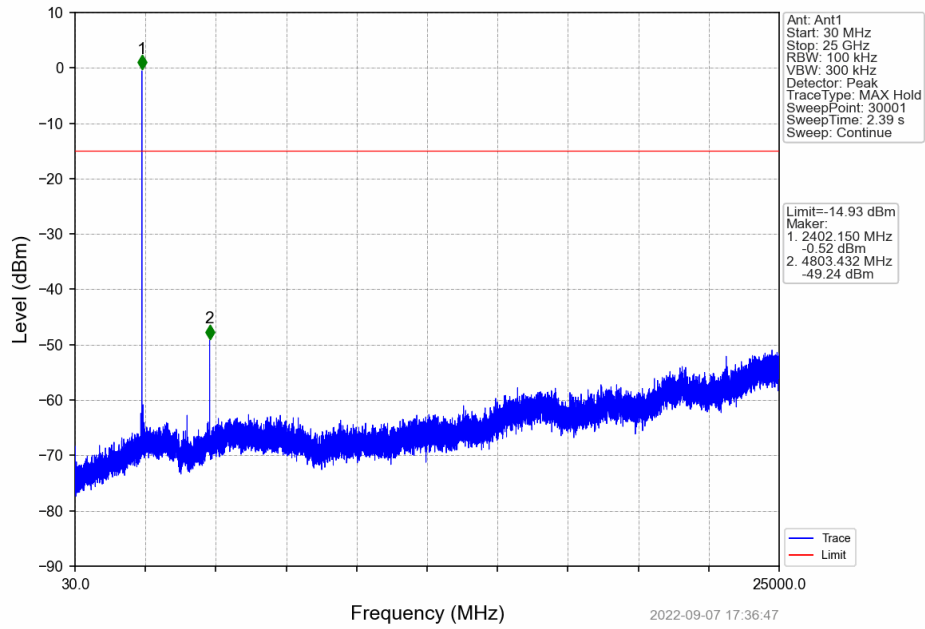
1M HCH 2480MHz Ant1 NTN



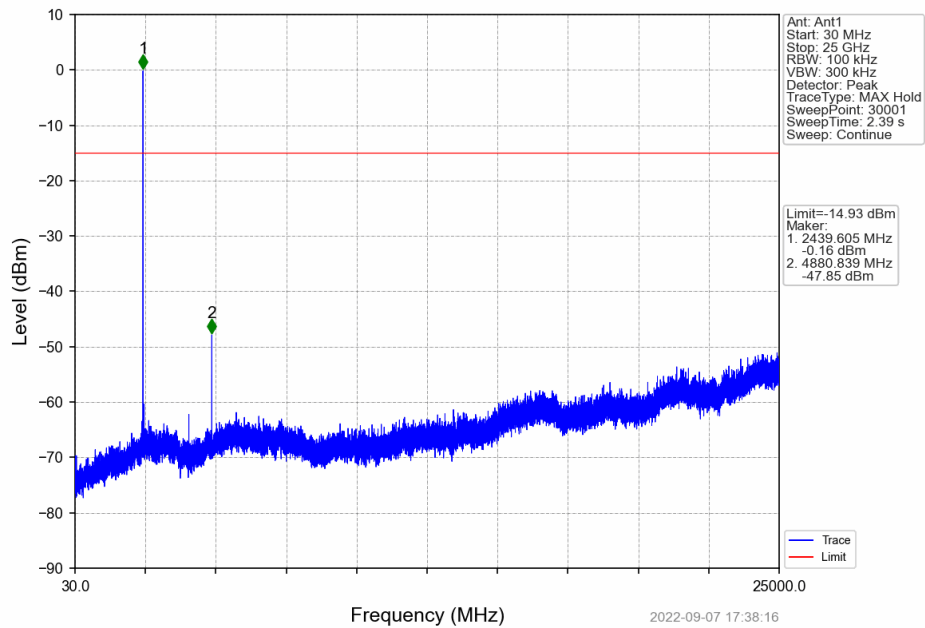
2M_LCH_2402MHz_Ant1_NTN



2M_LCH_2402MHz_Ant1_NTNV

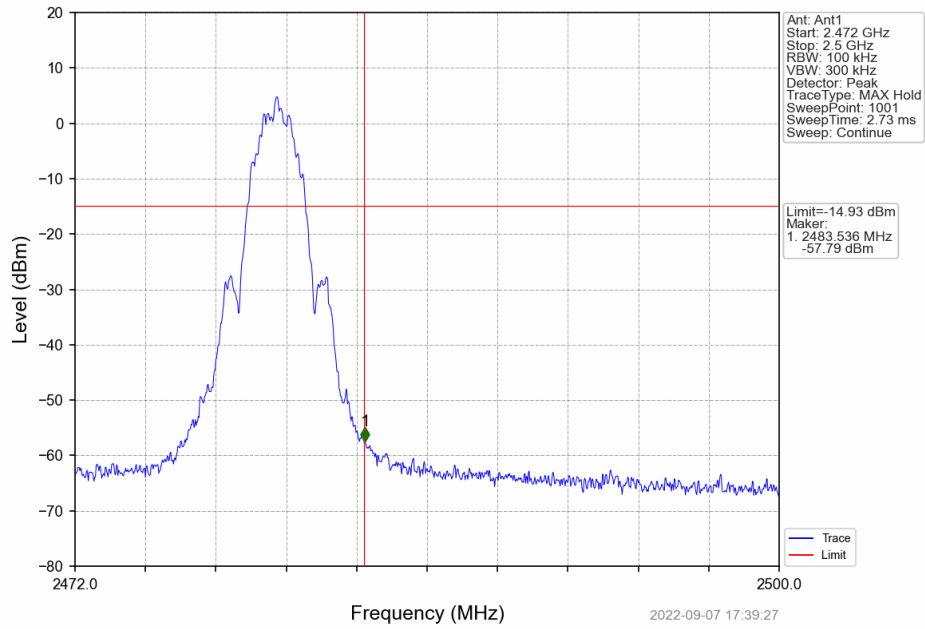


2M_MCH_2440MHz_Ant1_NTNV



FCC ID: 2A8BL-BOMBING

2M HCH 2480MHz Ant1 NTN



2M HCH 2480MHz Ant1 NTN

