

Test Data for Bluetooth

Product Name: Bluetooth speaker

Test Model: VSS-301-MX1

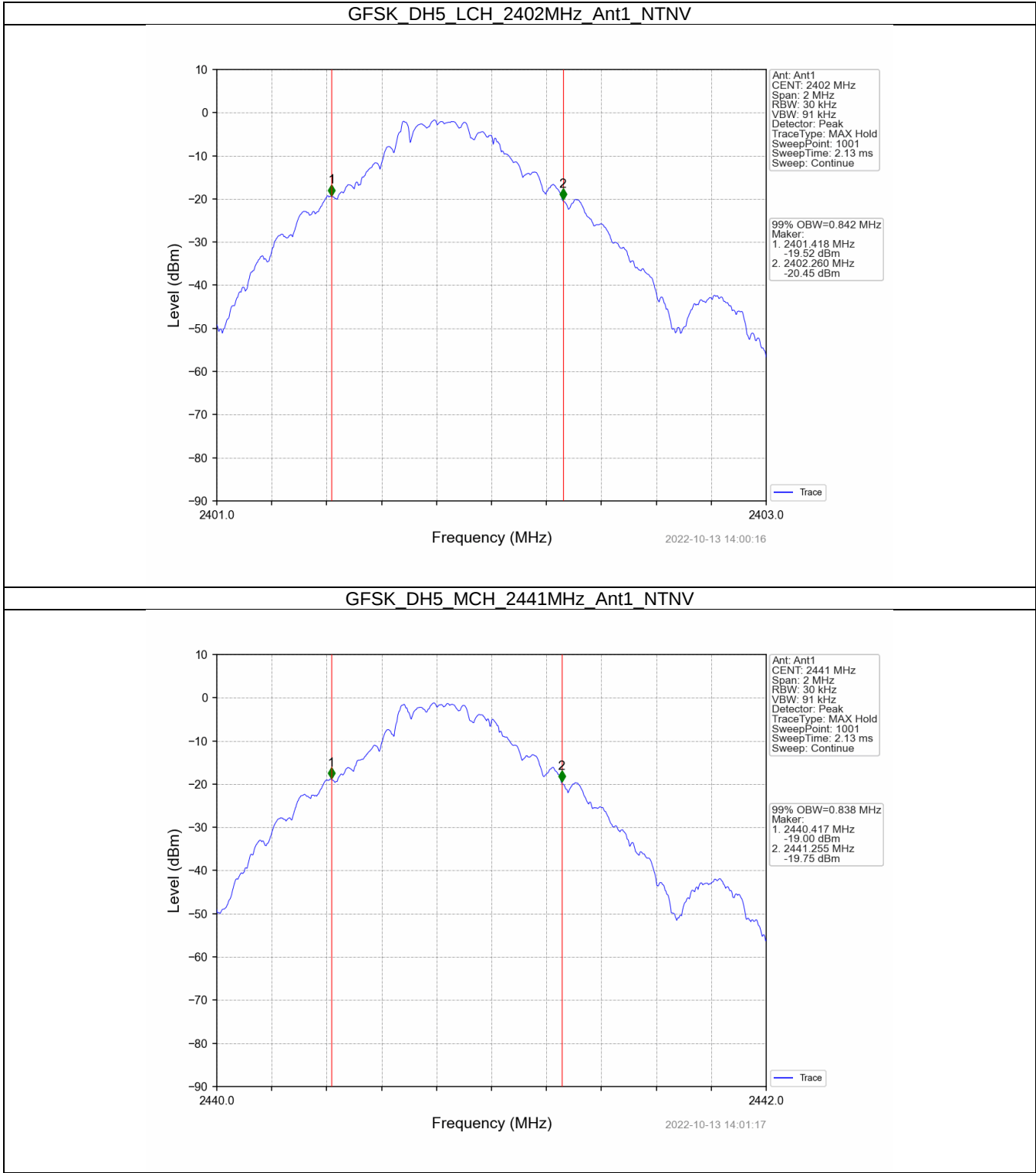
1. Bandwidth

1.1 OBW

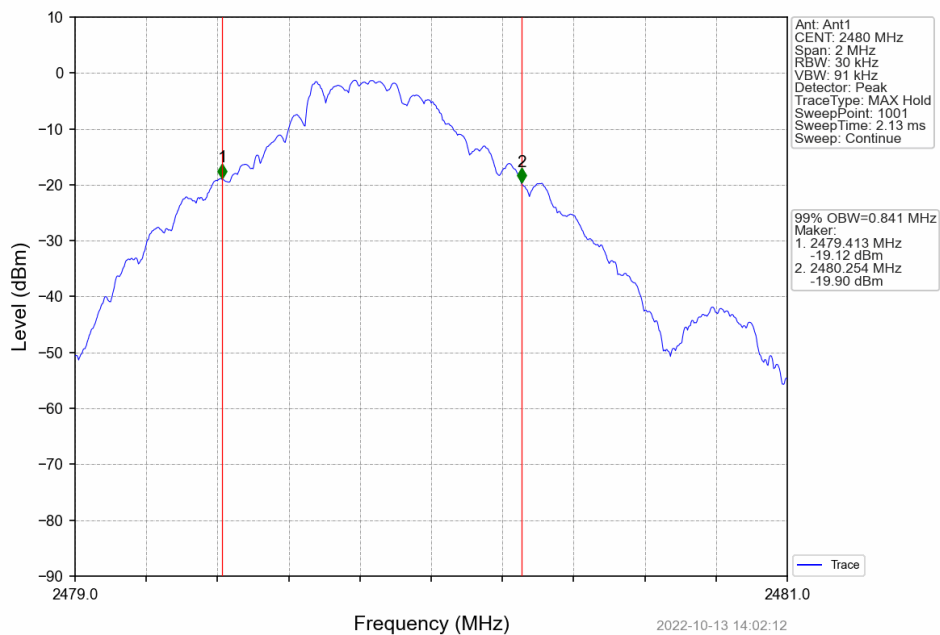
1.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.842	Pass
		2441	DH5	1	0.838	Pass
		2480	DH5	1	0.841	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.177	Pass
		2441	2DH5	1	1.176	Pass
		2480	2DH5	1	1.179	Pass
8DPSK	SISO	2402	3DH5	1	1.175	Pass
		2441	3DH5	1	1.182	Pass
		2480	3DH5	1	1.177	Pass

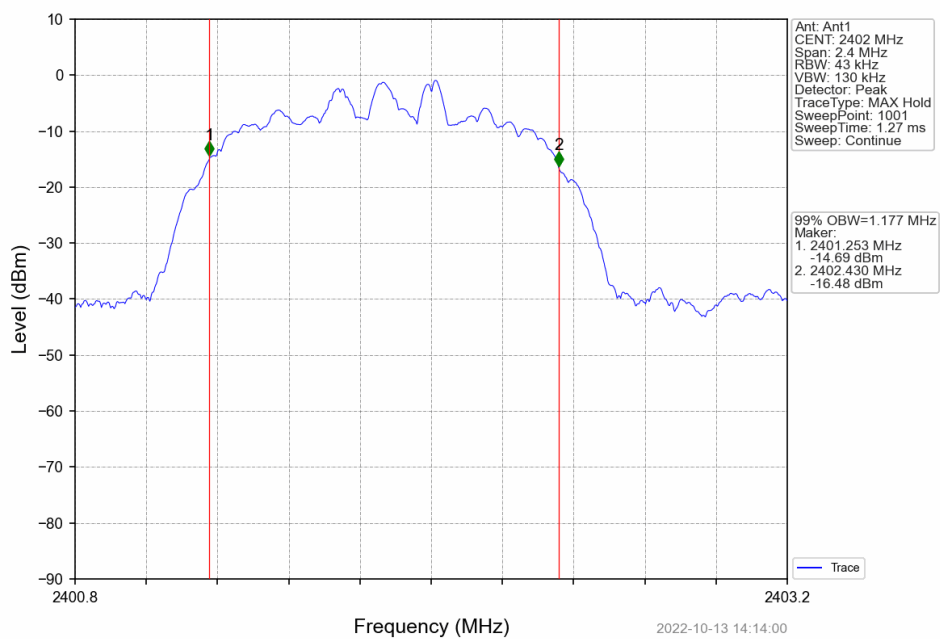
1.1.2 Test Graph



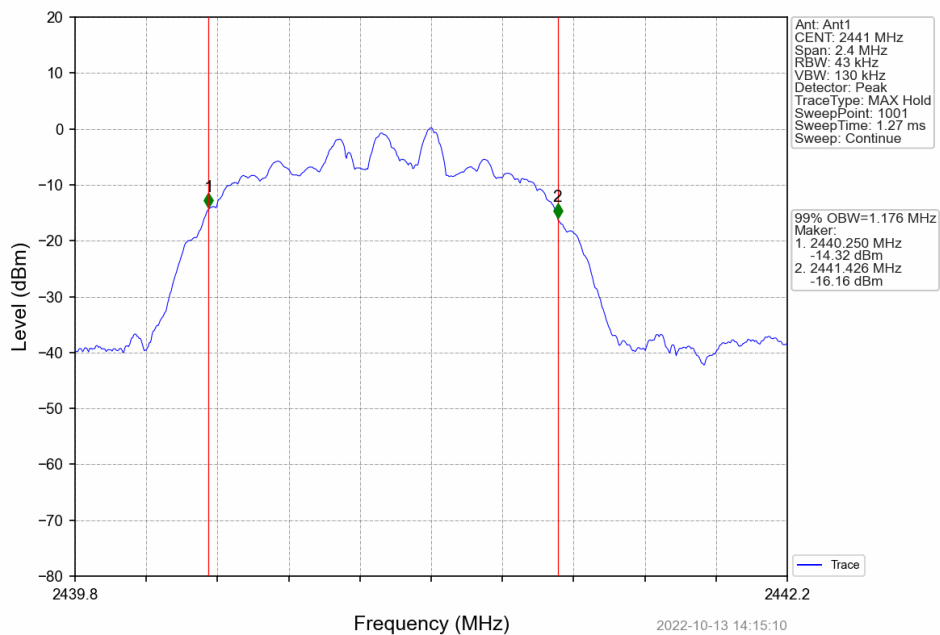
GFSK DH5 HCH 2480MHz Ant1 NTN



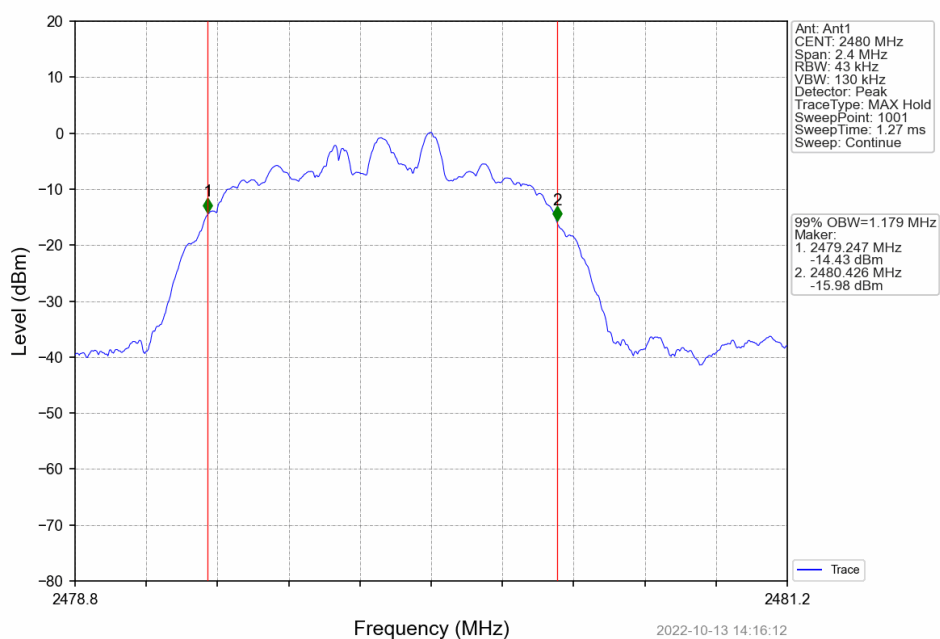
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1 NTN



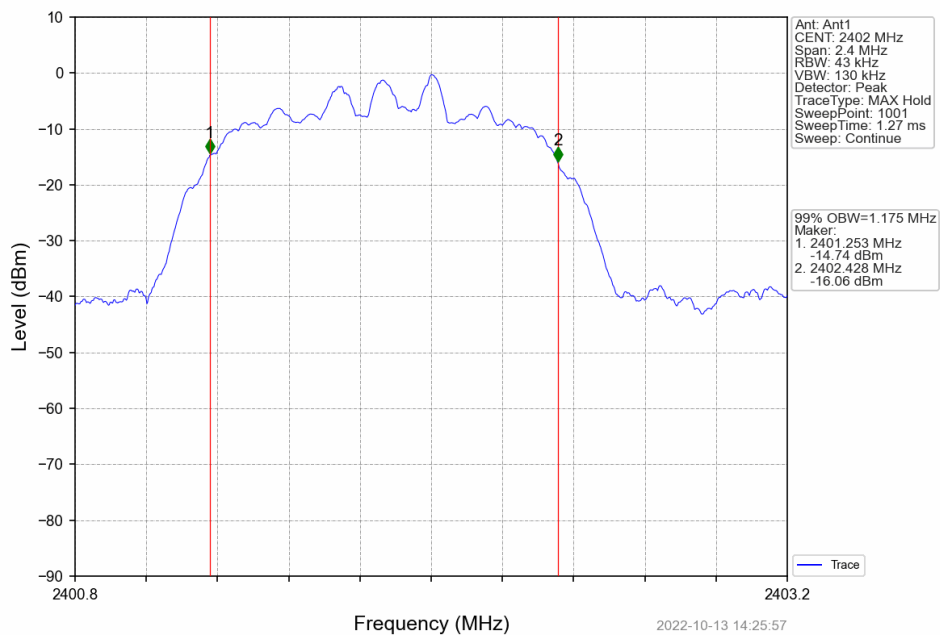
Pi/4DQPSK 2DH5 MCH 2441MHz Ant1 NTN



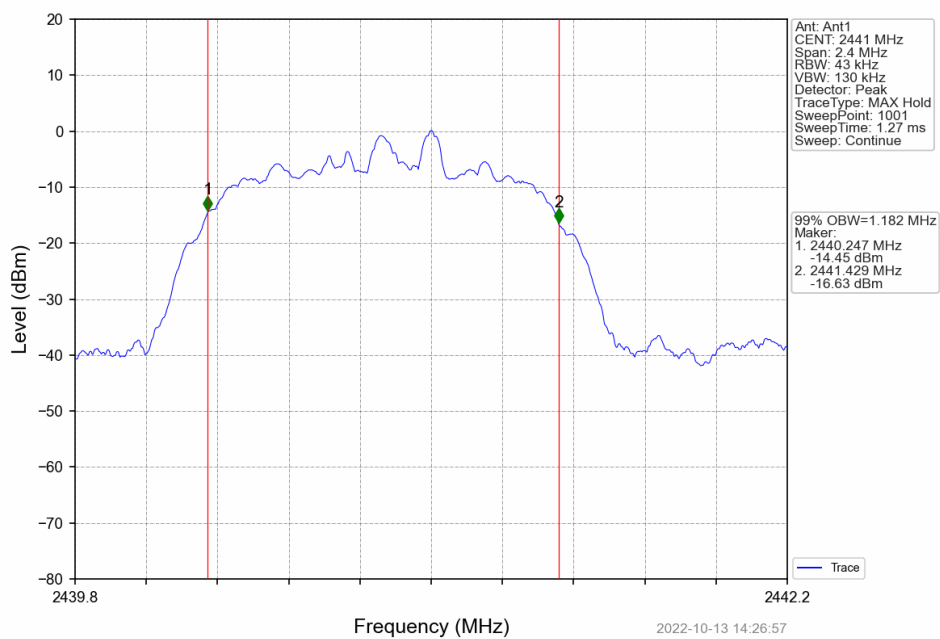
Pi/4DQPSK 2DH5 HCH 2480MHz Ant1 NTN

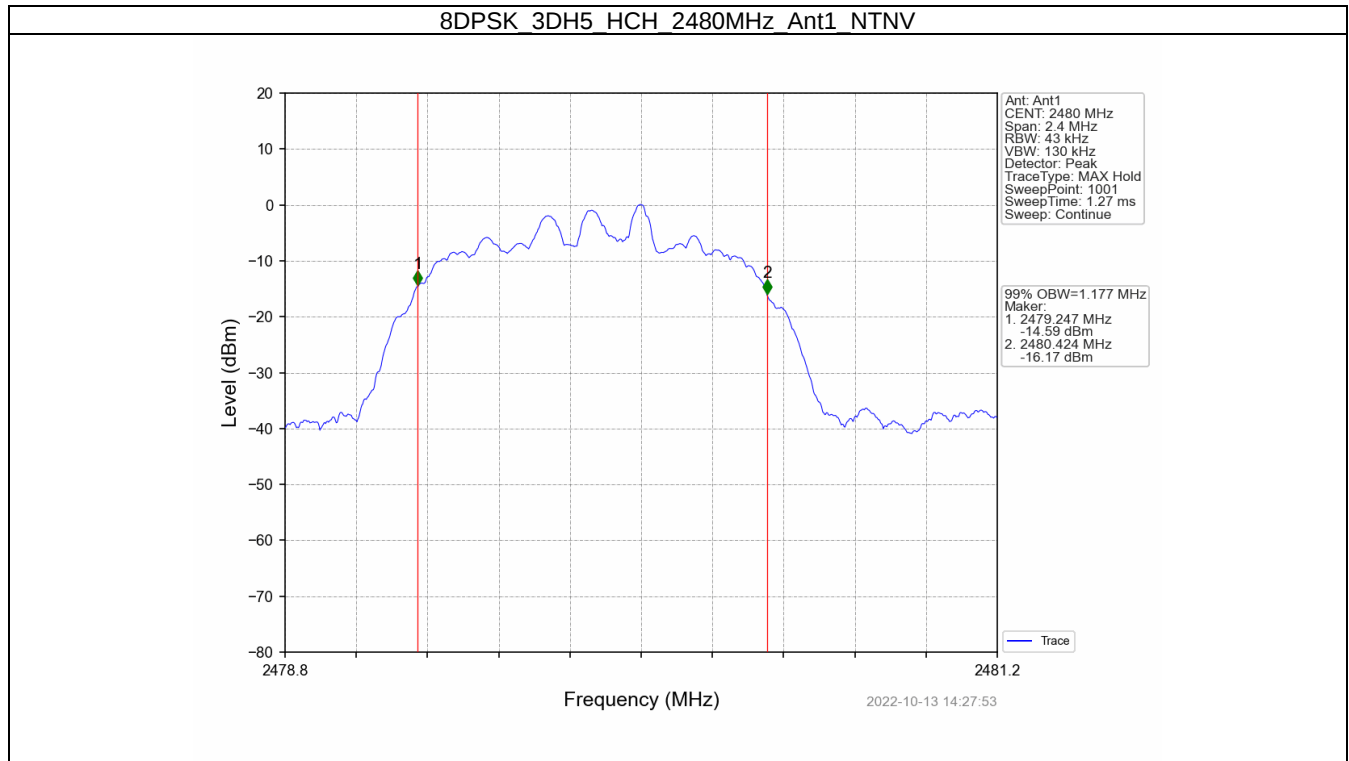


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



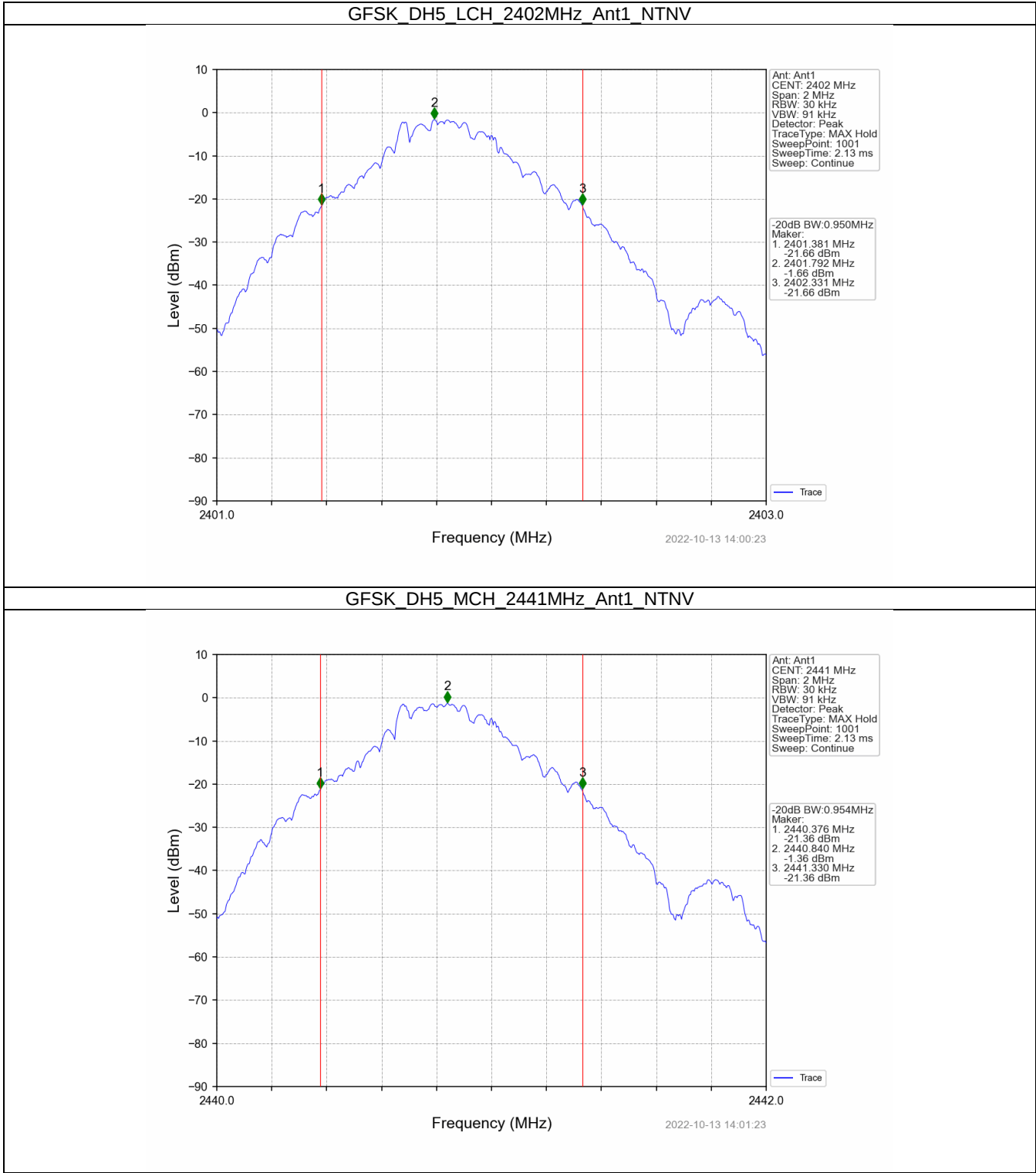


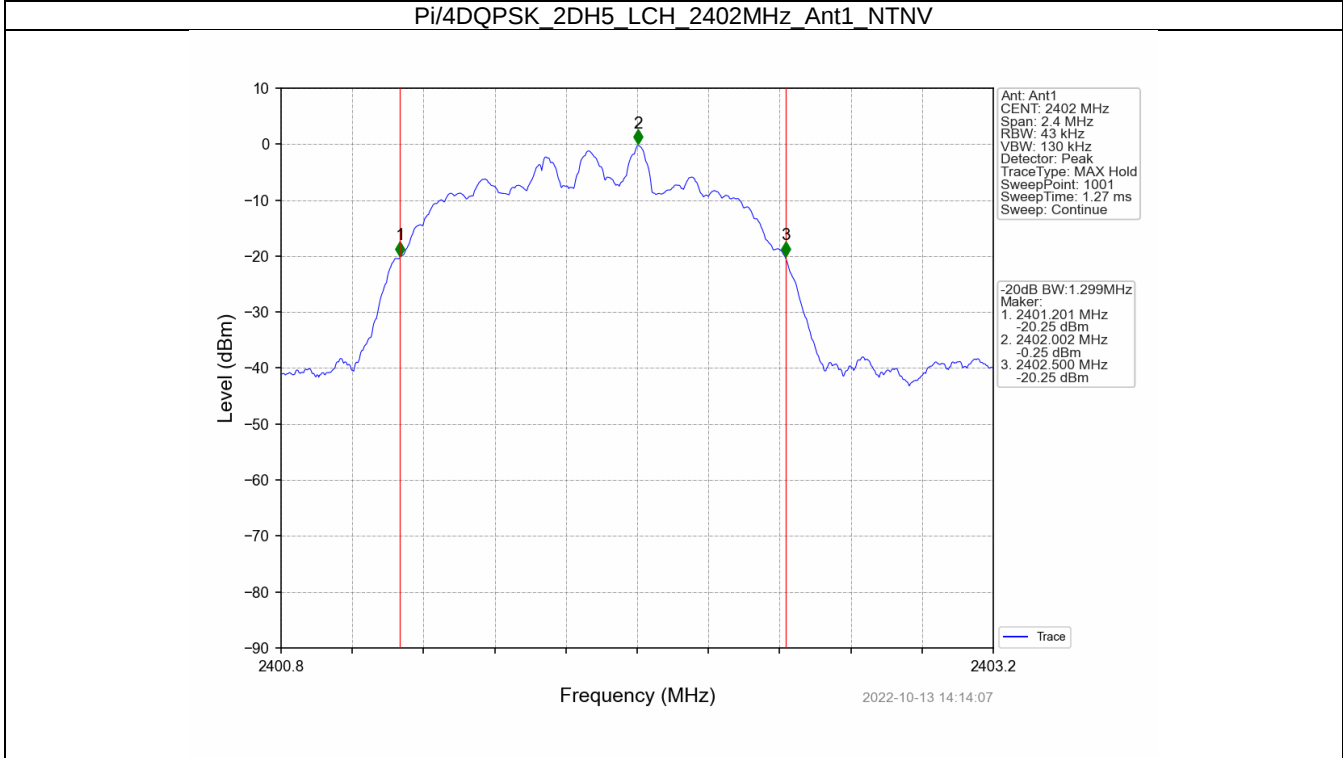
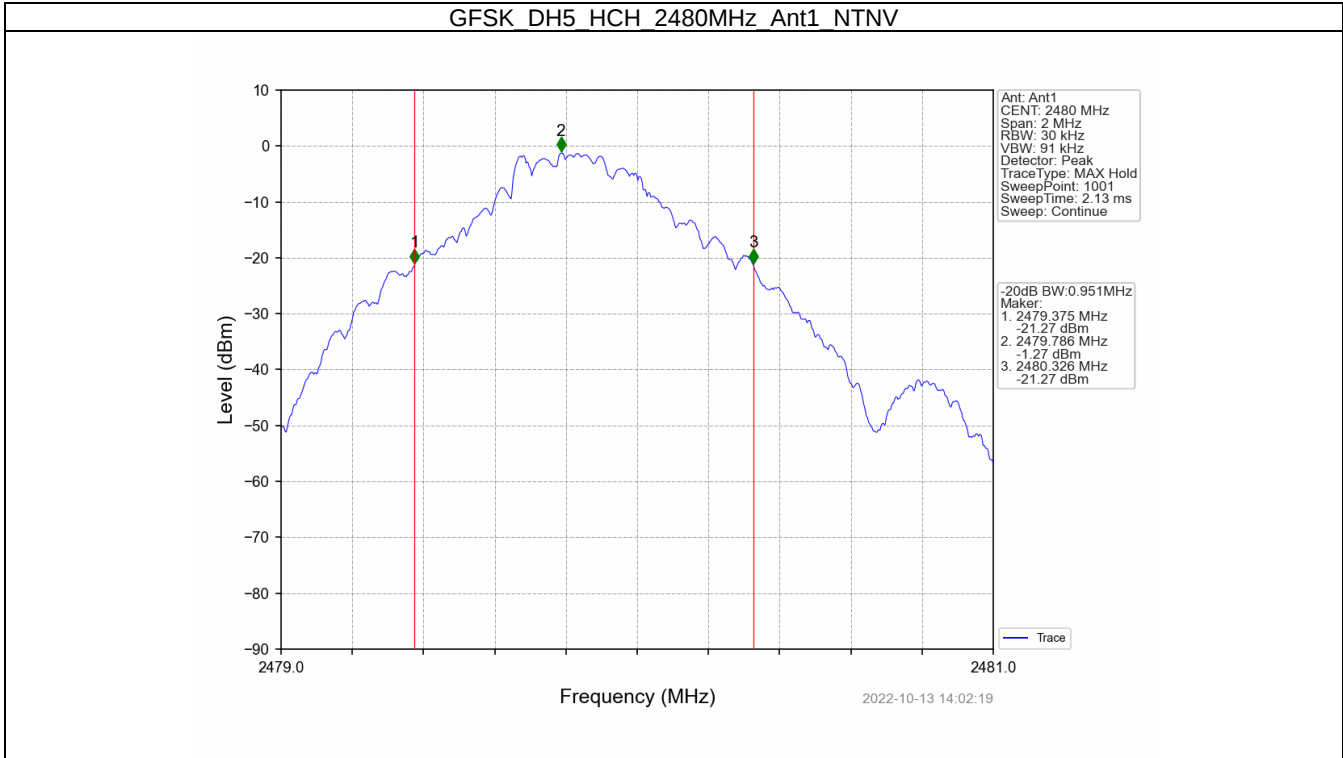
1.2 20dB BW

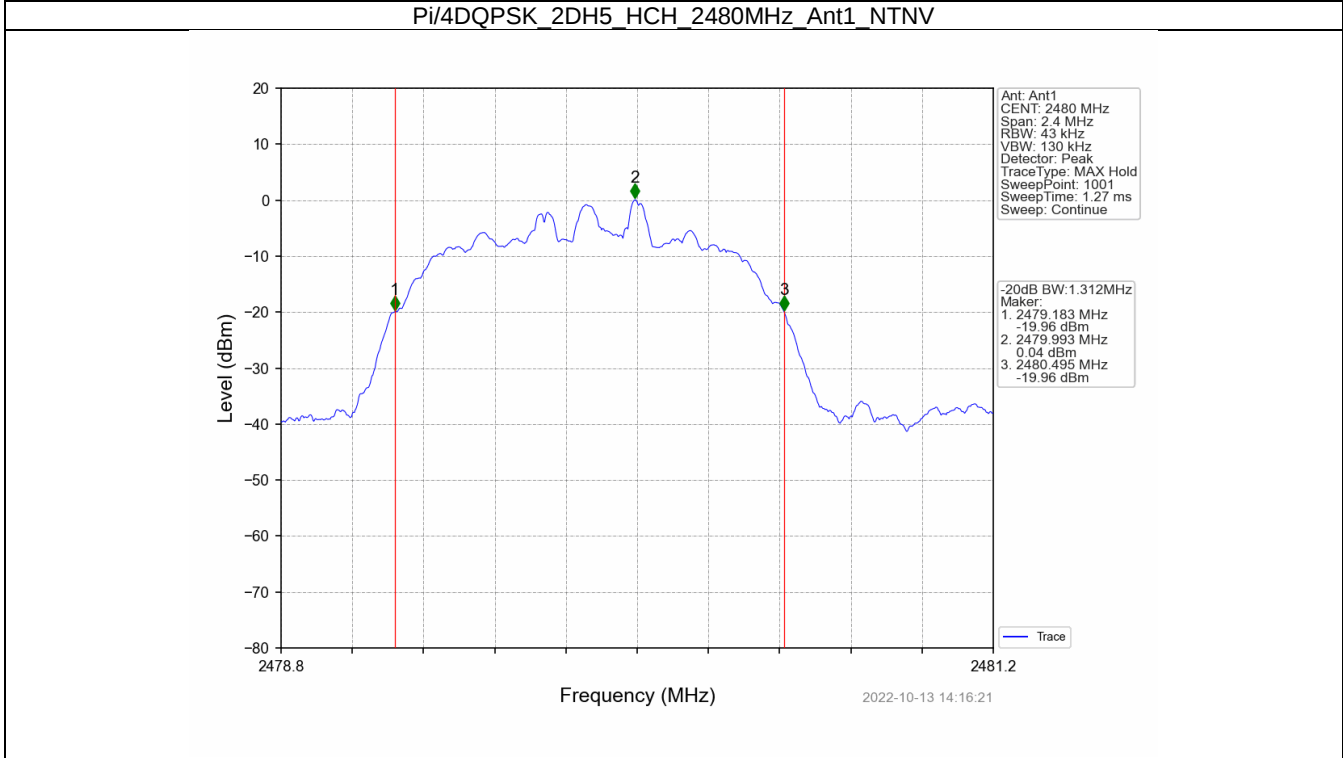
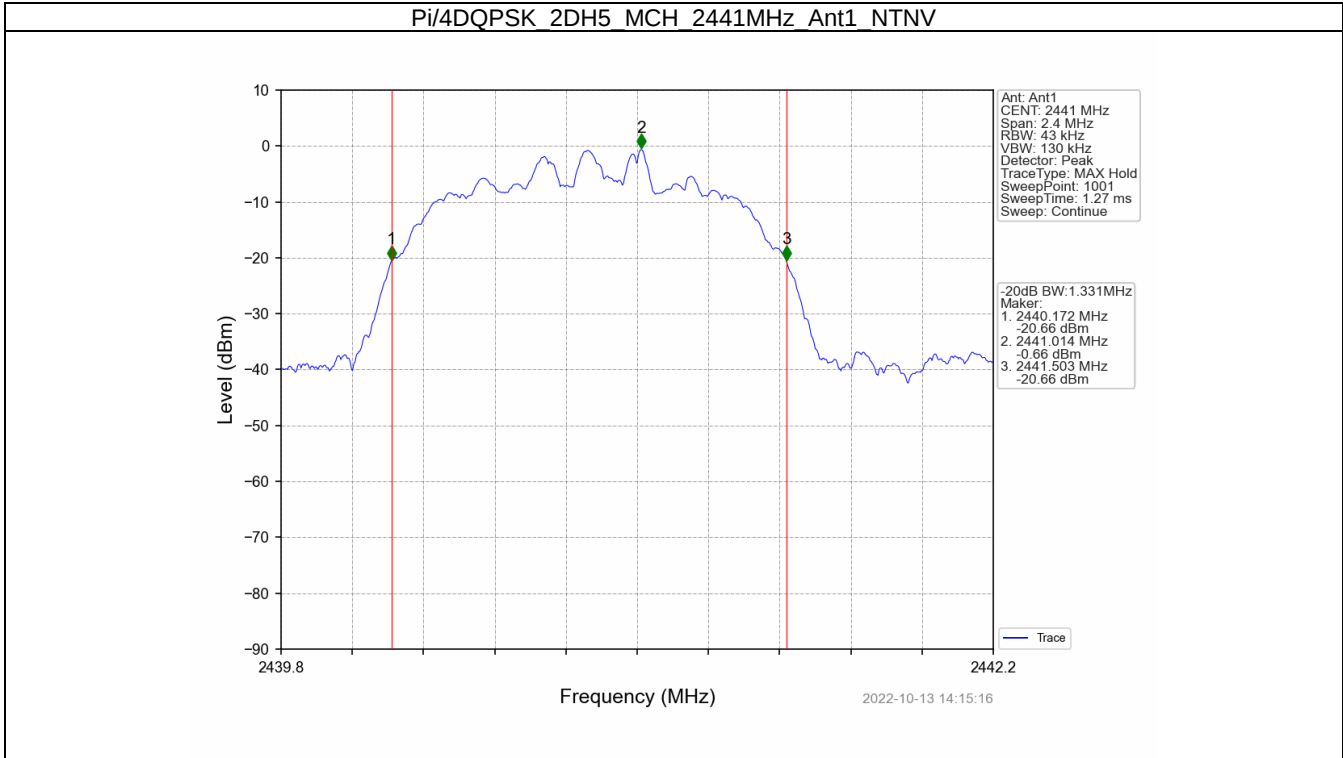
1.2.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.950	Pass
		2441	DH5	1	0.954	Pass
		2480	DH5	1	0.951	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.299	Pass
		2441	2DH5	1	1.331	Pass
		2480	2DH5	1	1.312	Pass
8DPSK	SISO	2402	3DH5	1	1.299	Pass
		2441	3DH5	1	1.336	Pass
		2480	3DH5	1	1.323	Pass

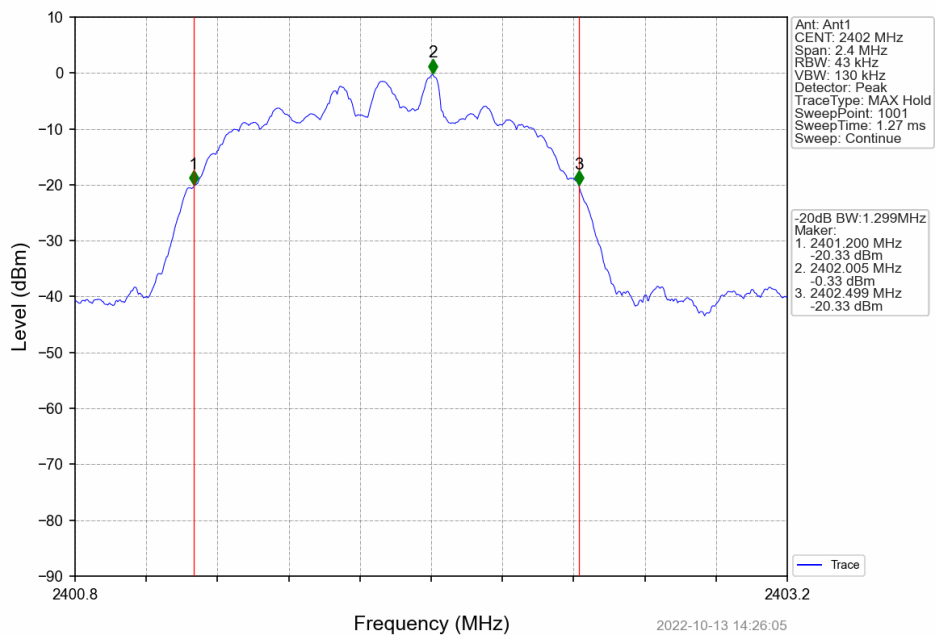
1.2.2 Test Graph



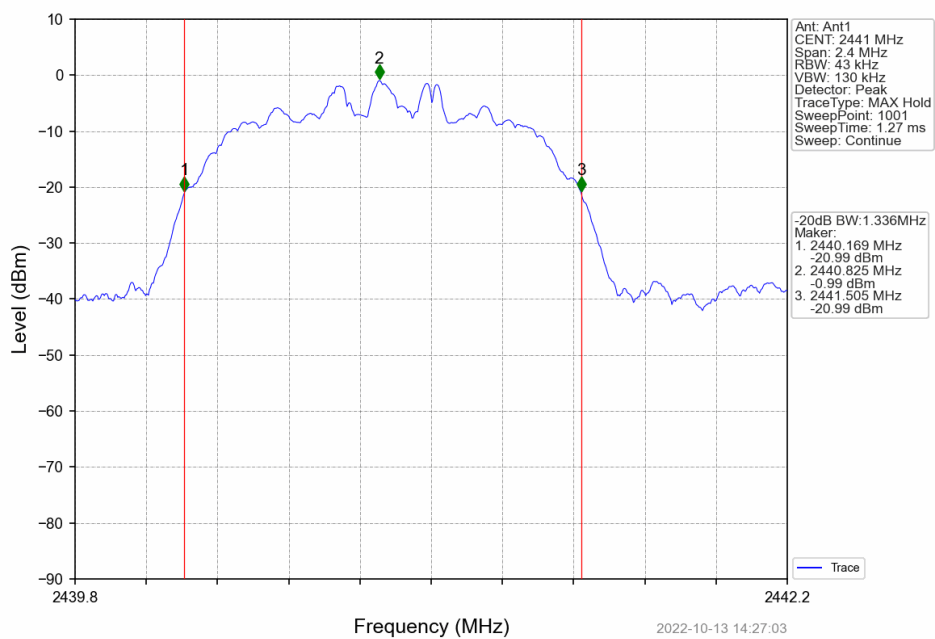


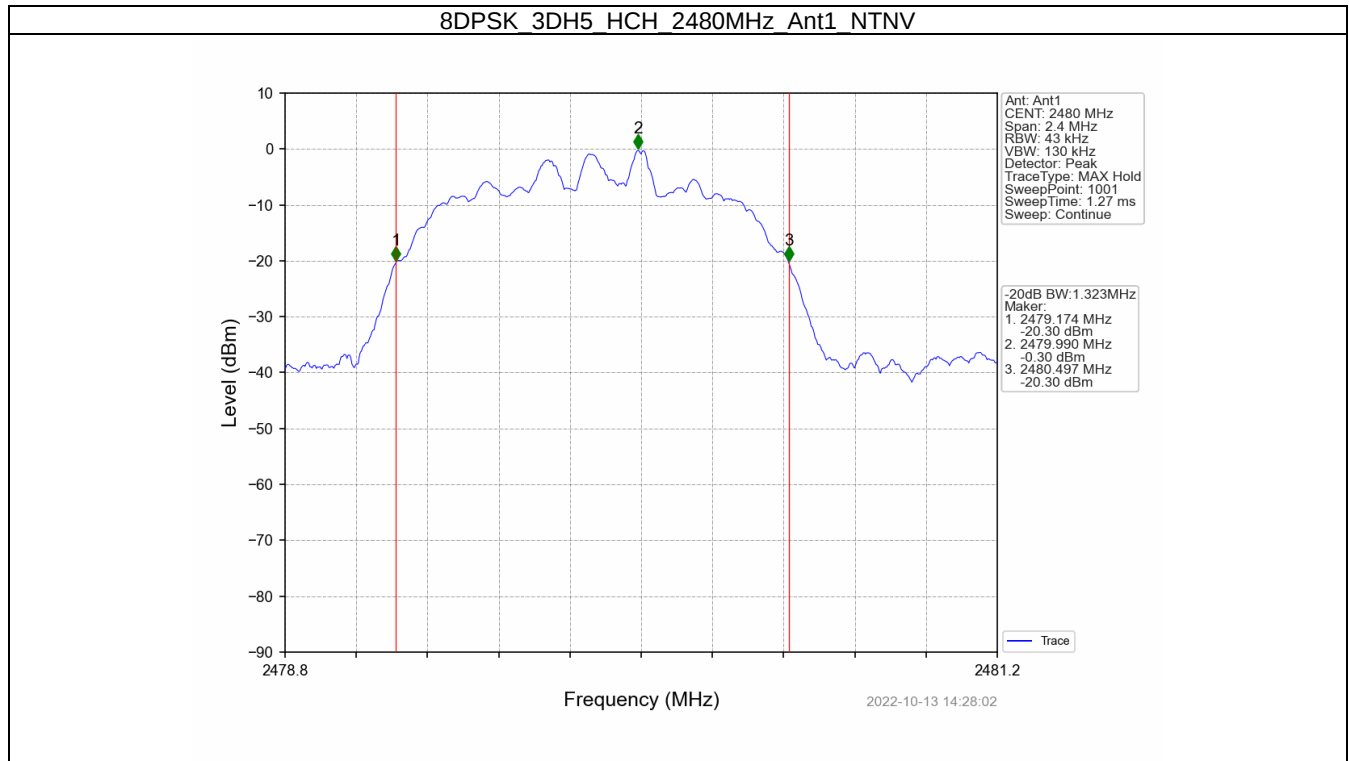


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV

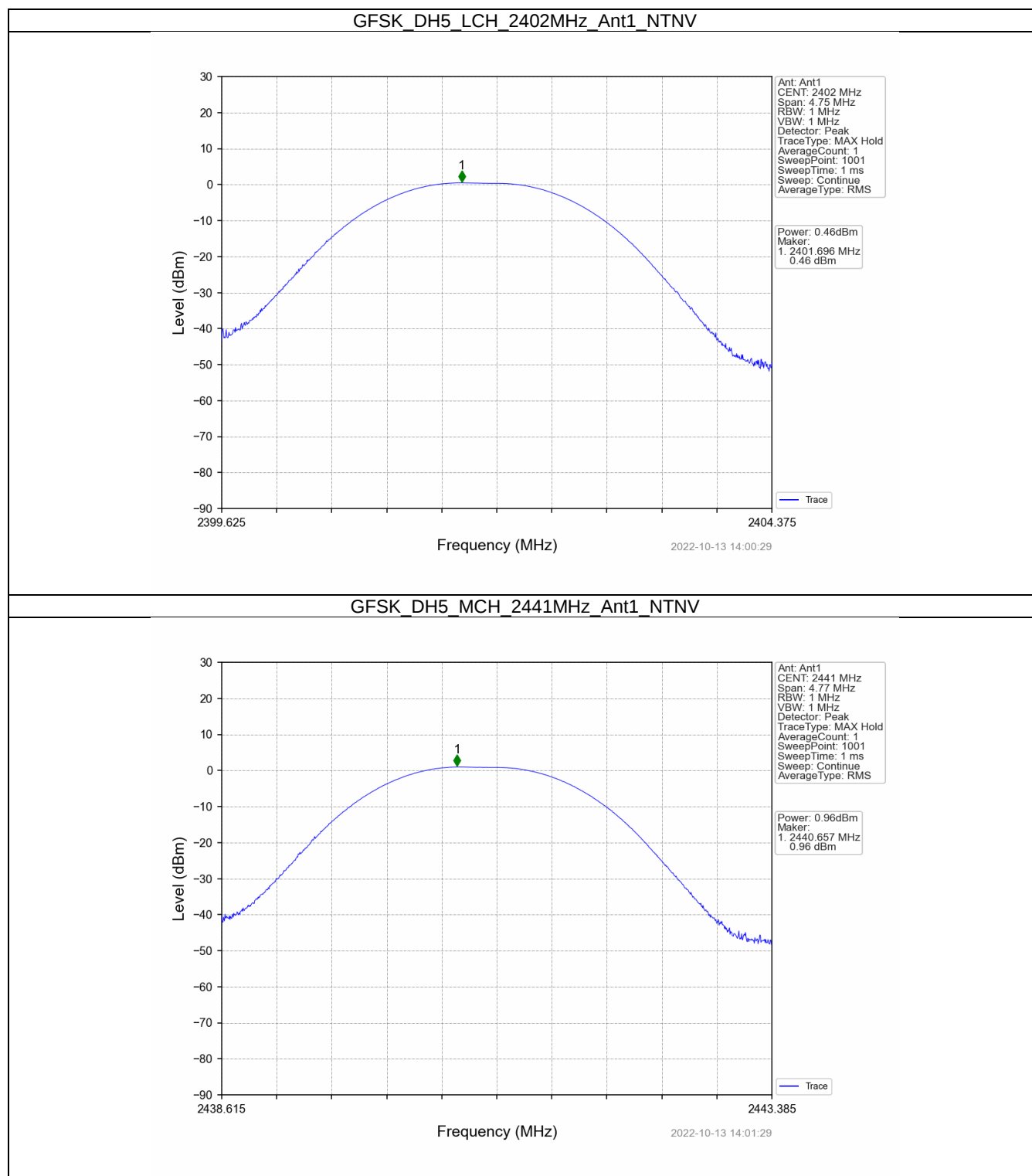




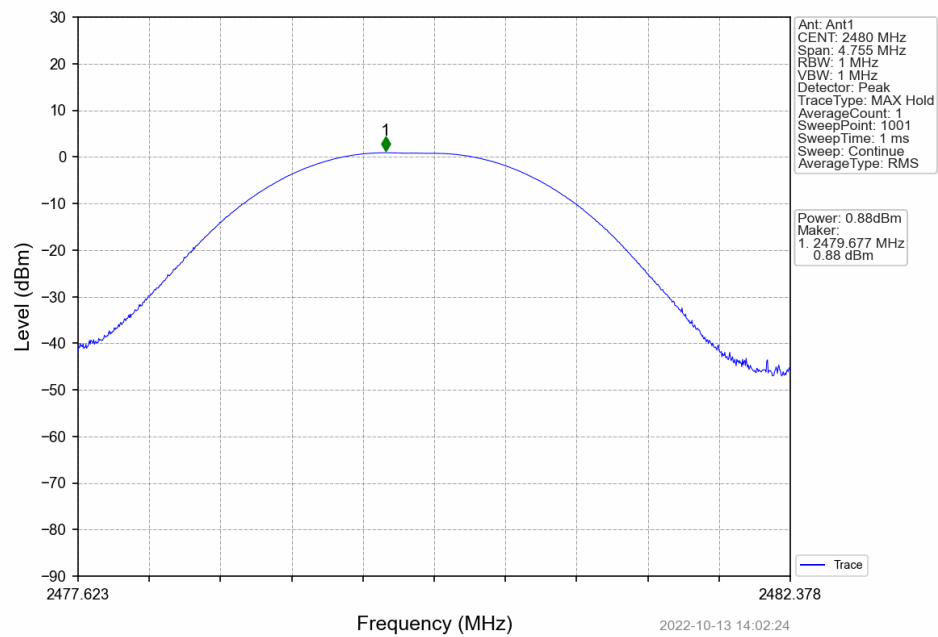
Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	0.46	<=30	Pass
		2441	DH5	0.96	<=30	Pass
		2480	DH5	0.88	<=30	Pass
Pi/4DQPSK	SISO	2402	2DH5	1.22	<=20.97	Pass
		2441	2DH5	1.65	<=20.97	Pass
		2480	2DH5	1.57	<=20.97	Pass
8DPSK	SISO	2402	3DH5	1.20	<=20.97	Pass
		2441	3DH5	1.61	<=20.97	Pass
		2480	3DH5	1.55	<=20.97	Pass

Note1: Antenna Gain: Ant1: 1.08dBi;

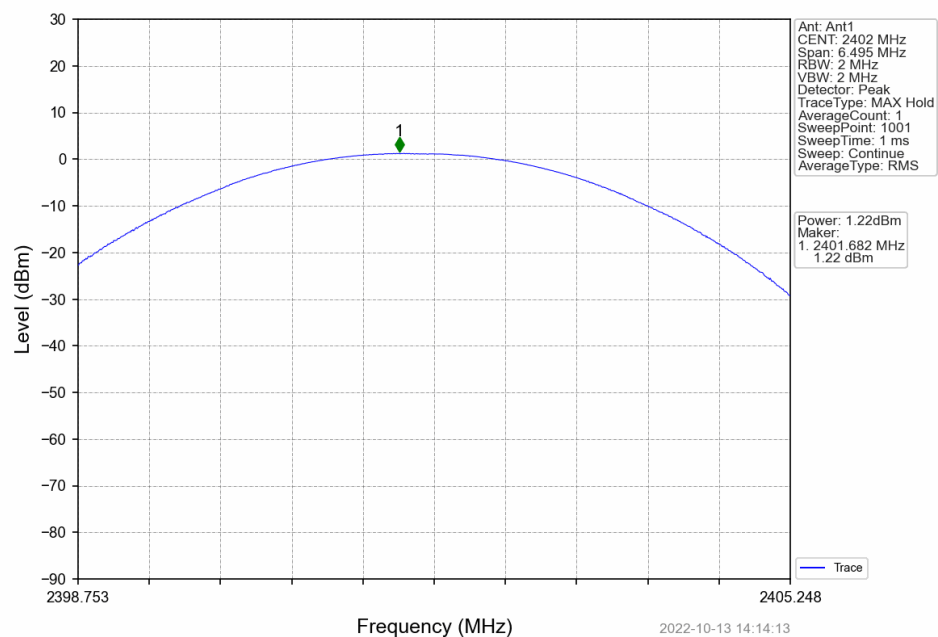
2.1.2 Test Graph

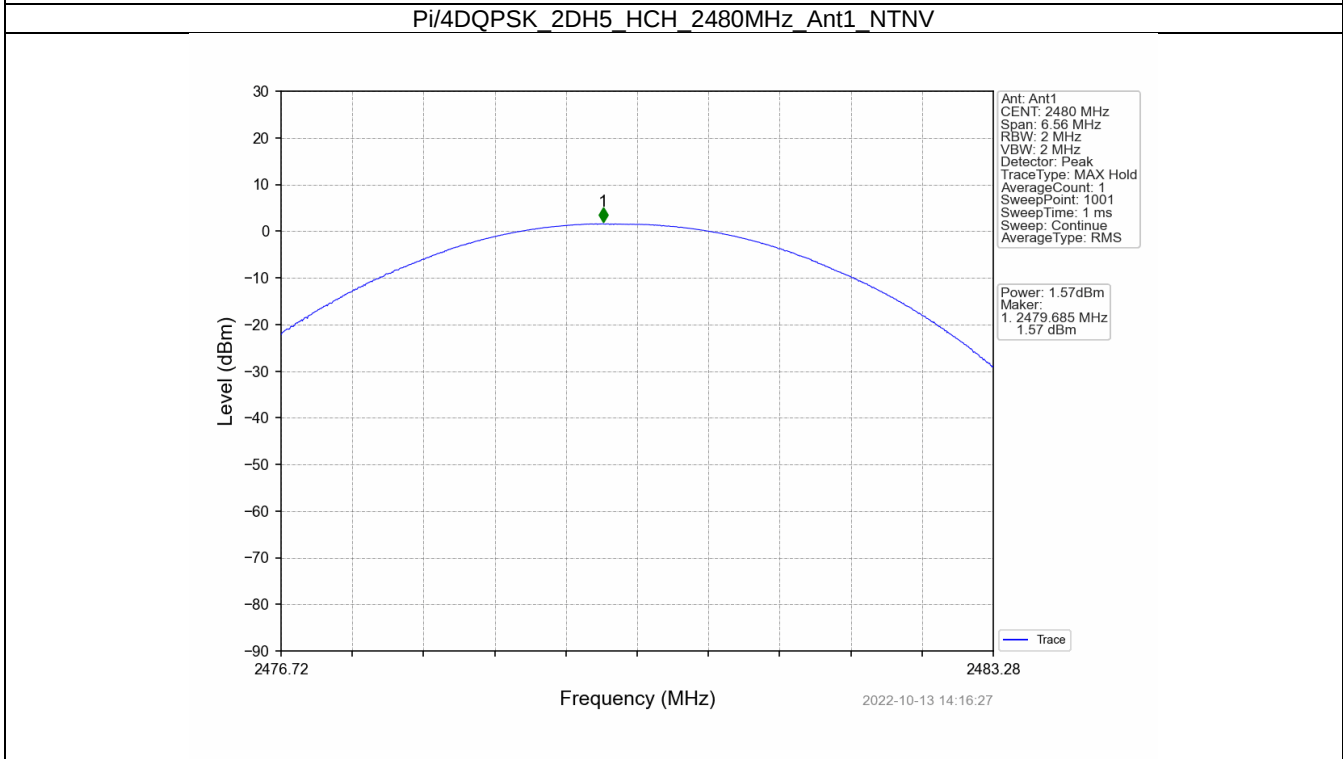
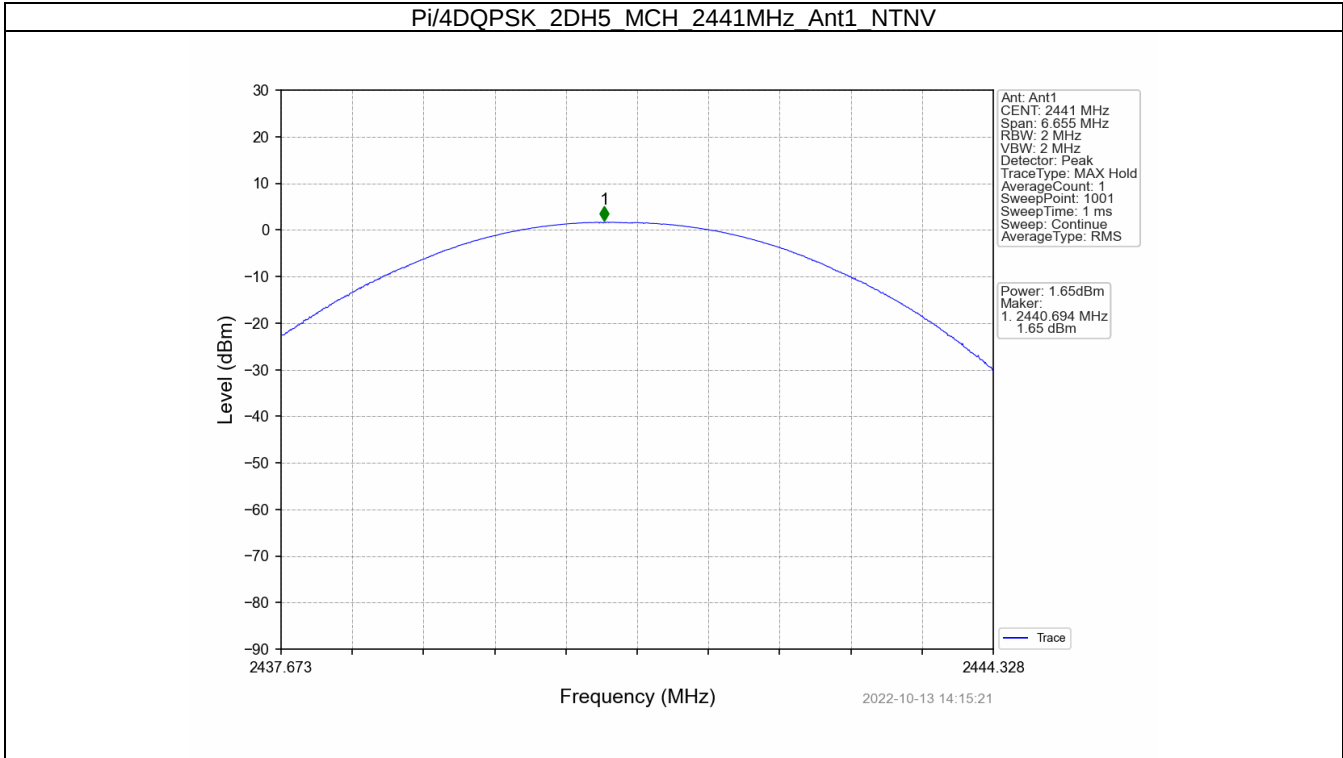


GFSK DH5 HCH 2480MHz Ant1 NTN

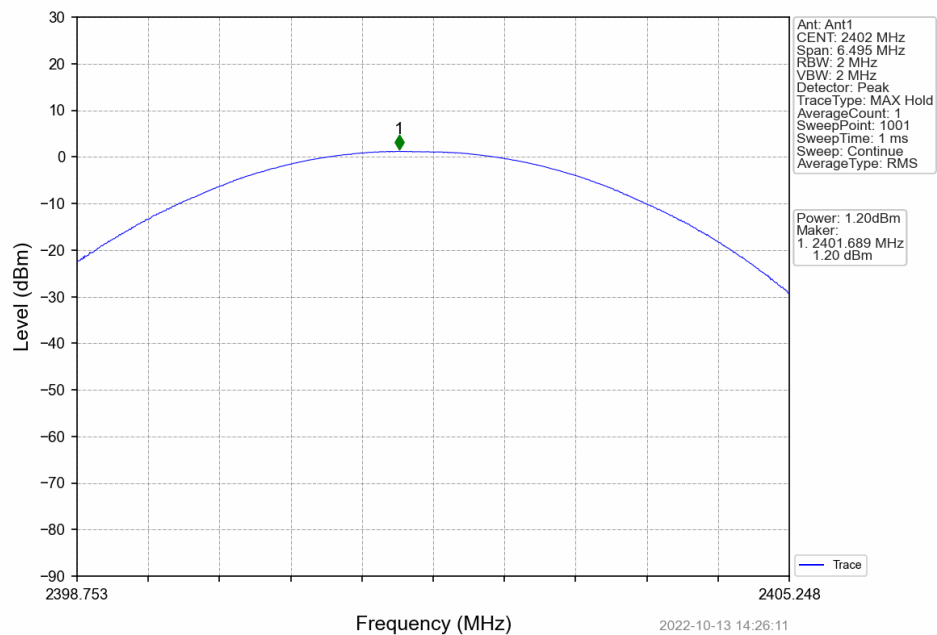


Pi/4DQPSK 2DH5 LCH 2402MHz Ant1 NTN

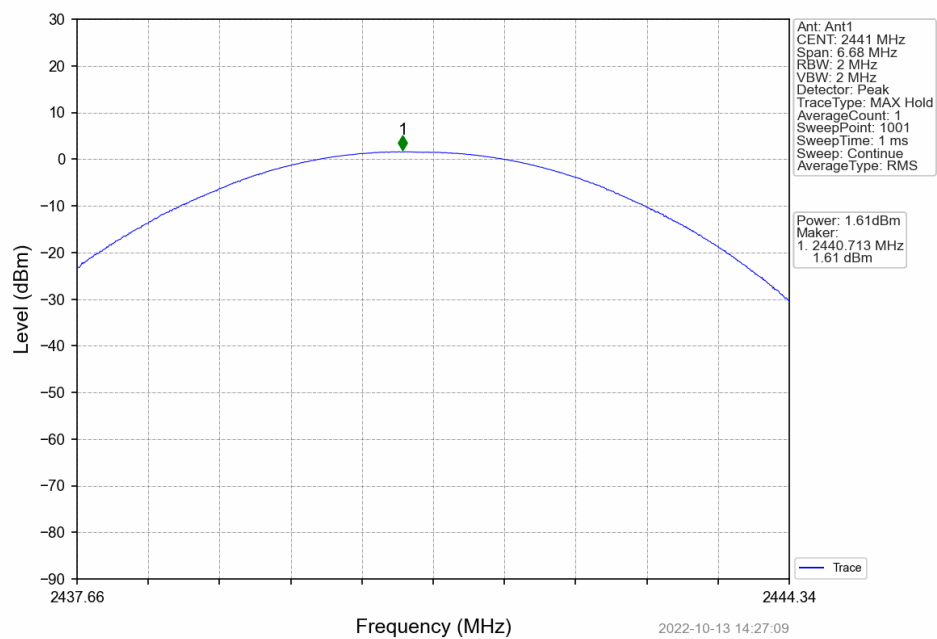


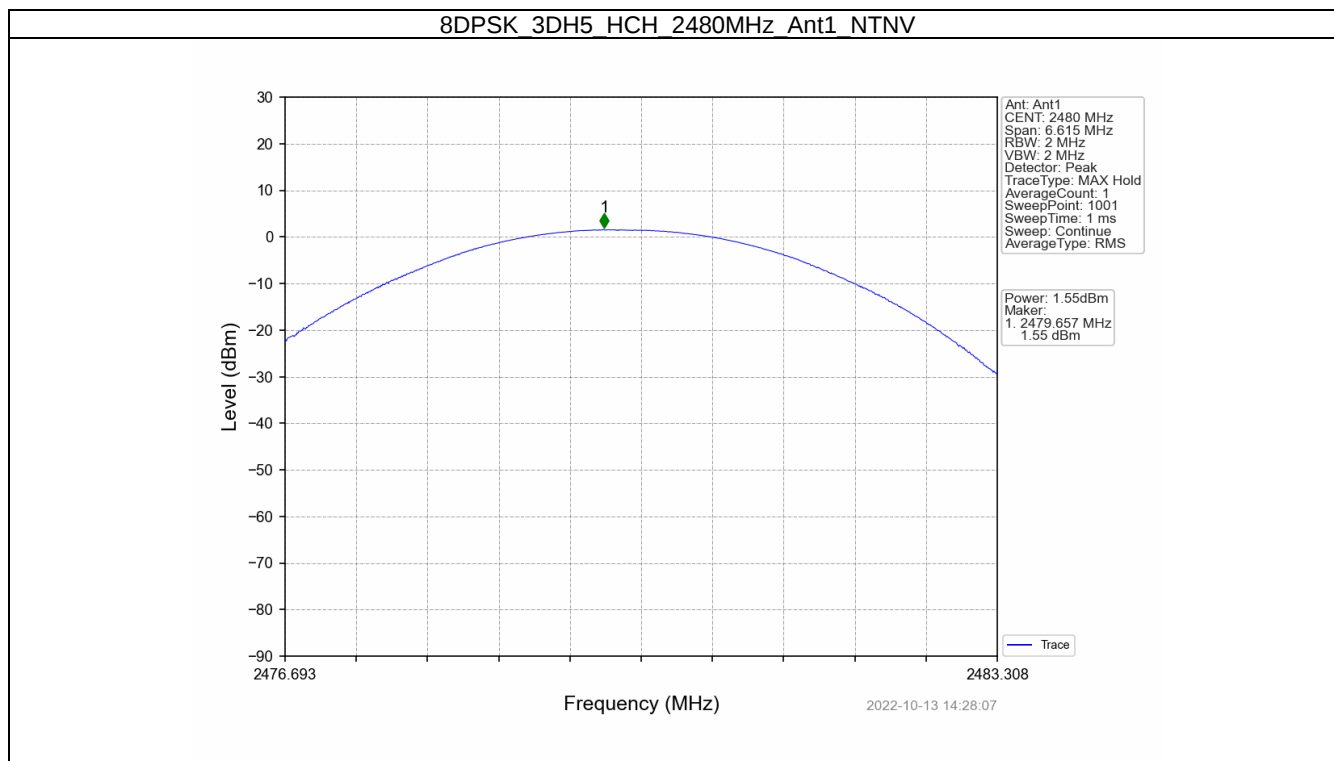


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV





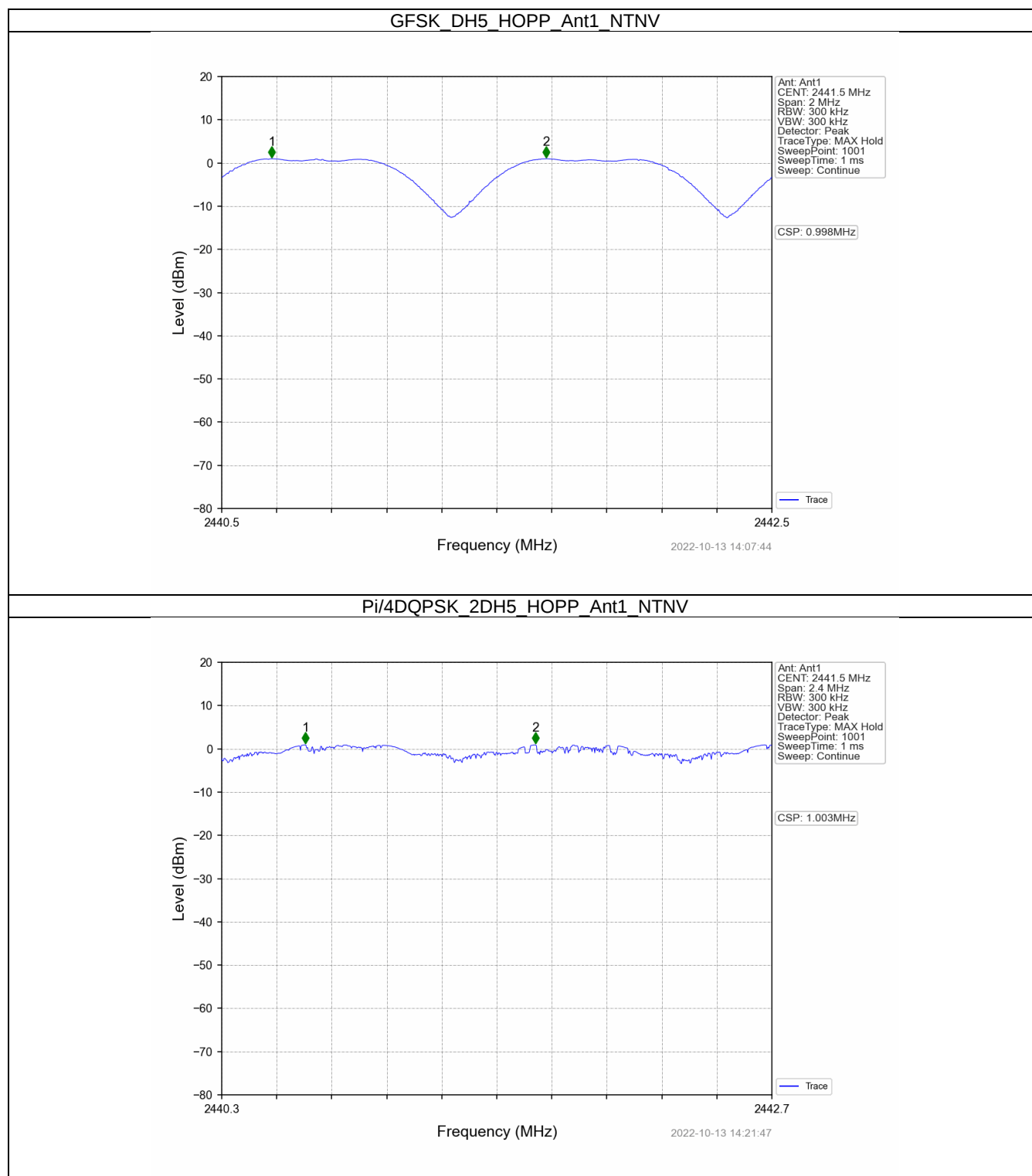
3. Carrier Frequency Separation

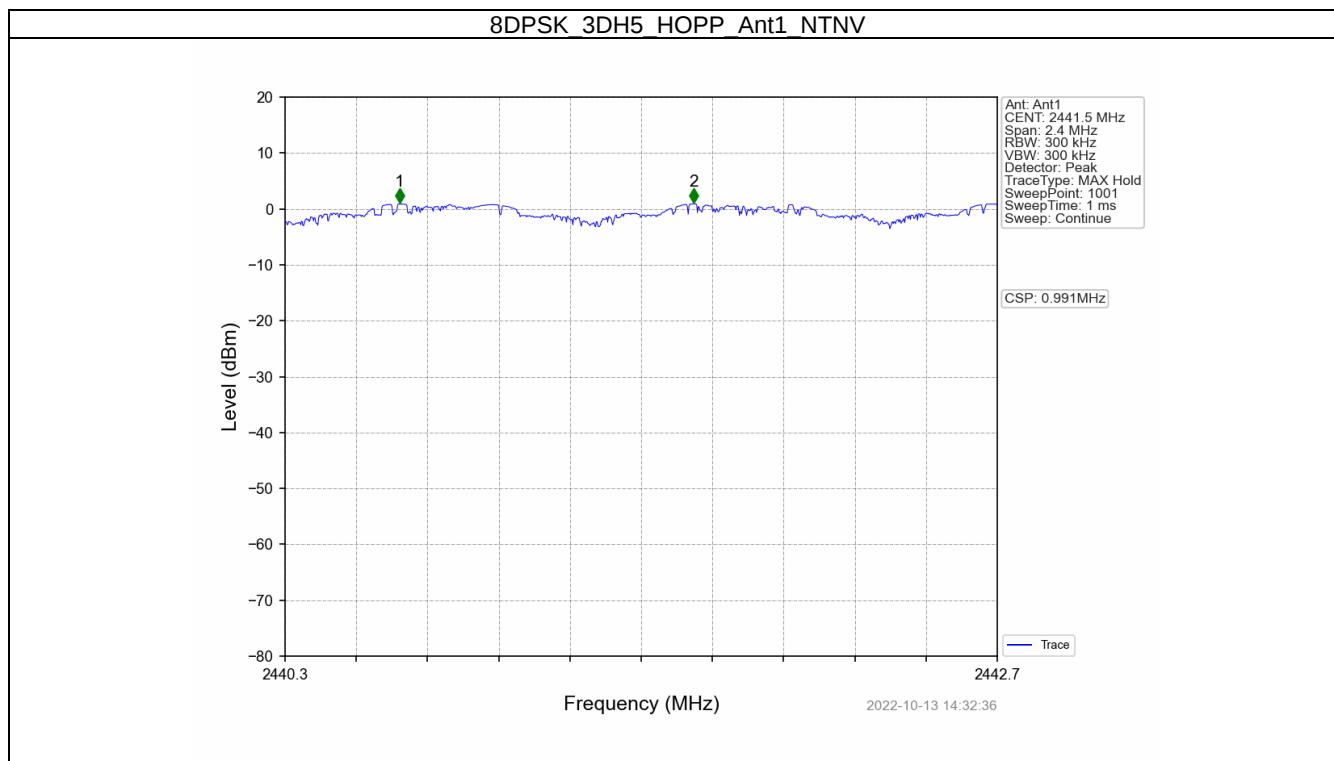
3.1 Ant1

3.1.1 Test Result

Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	0.998	0.954	≥ 0.954	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	1.003	1.331	≥ 0.887	Pass
8DPSK	SISO	HOPP	3DH5	0.991	1.336	≥ 0.891	Pass

3.1.2 Test Graph





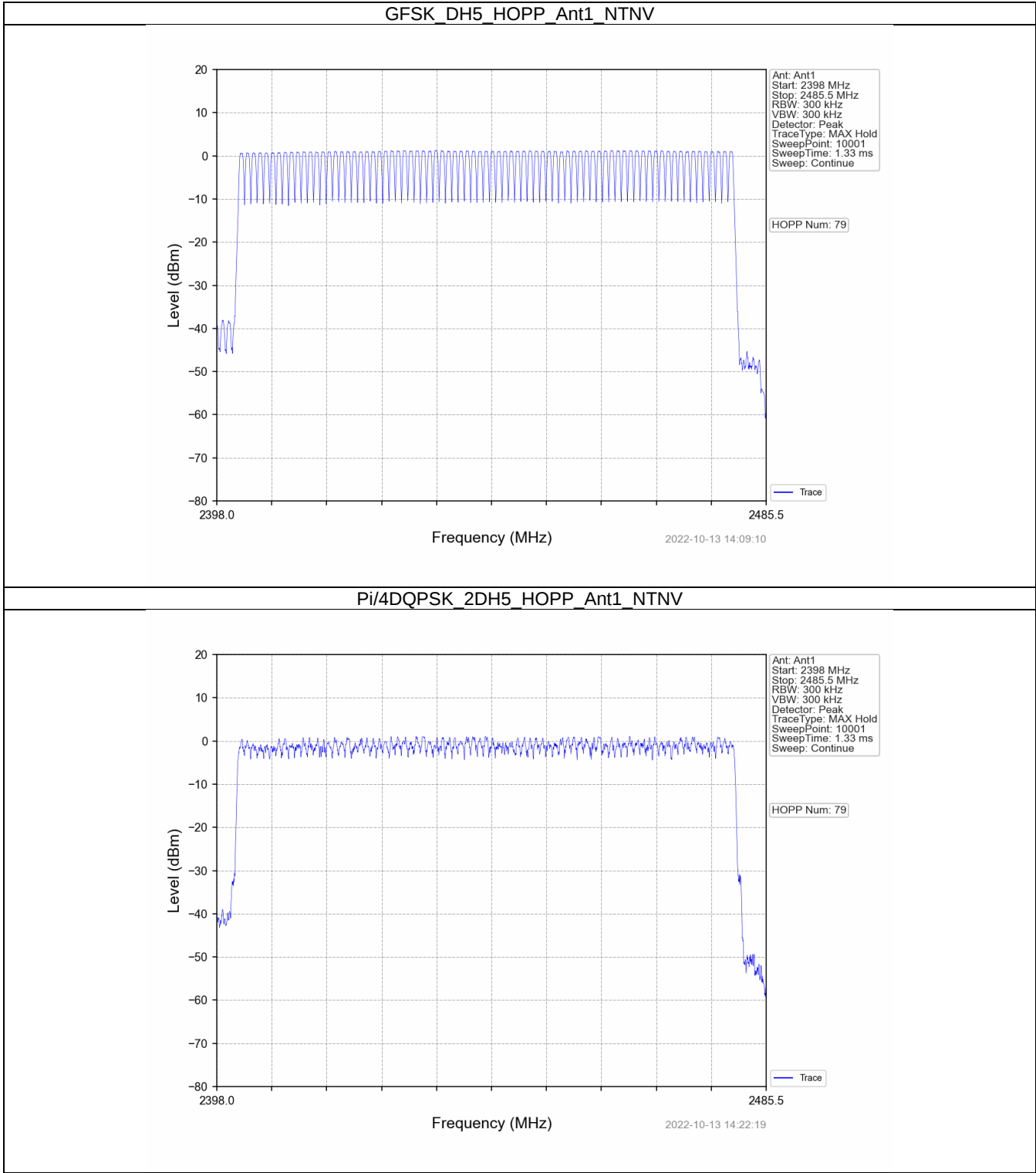
4. Number of Hopping Frequencies

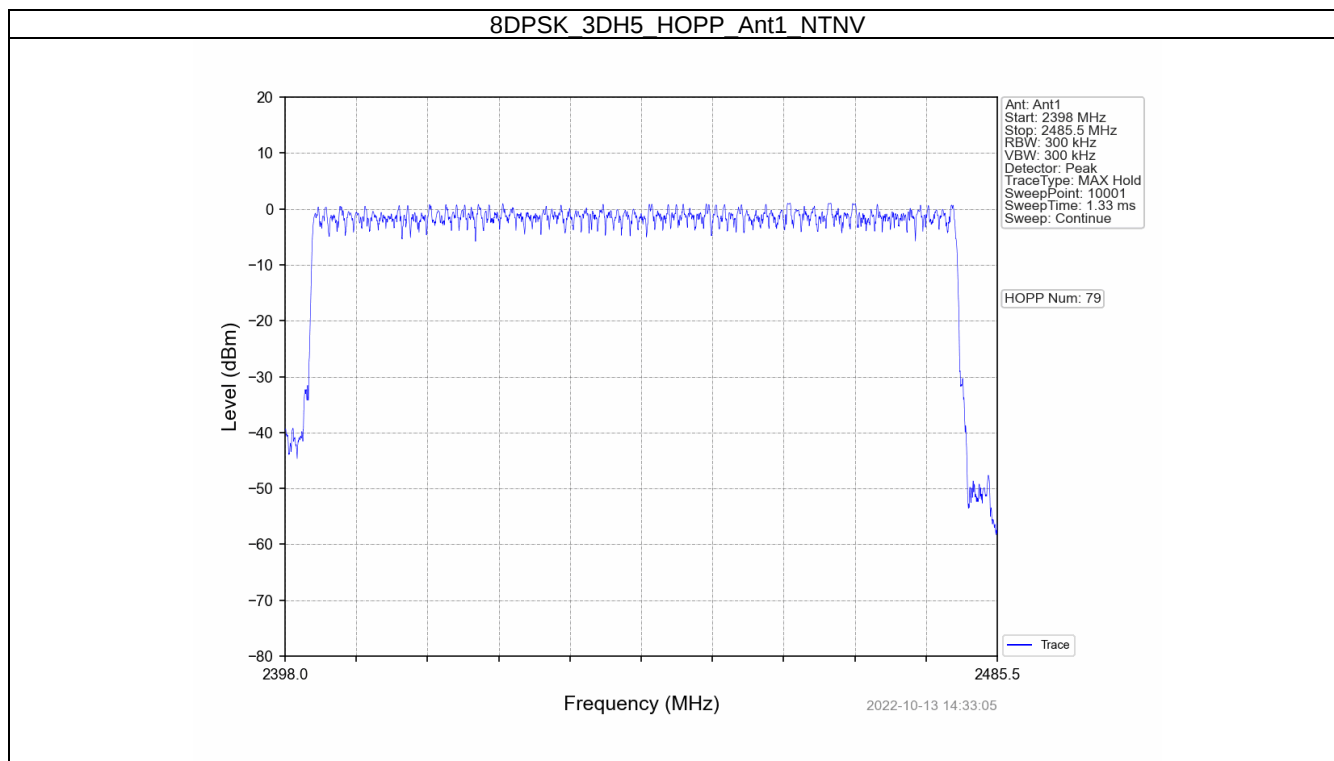
4.1 HoppNum

4.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	Num of Hopping Frequencies		Verdict
				ANT1	Limit	
GFSK	SISO	HOPP	DH5	79	>=15	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	79	>=15	Pass
8DPSK	SISO	HOPP	3DH5	79	>=15	Pass

4.1.2 Test Graph





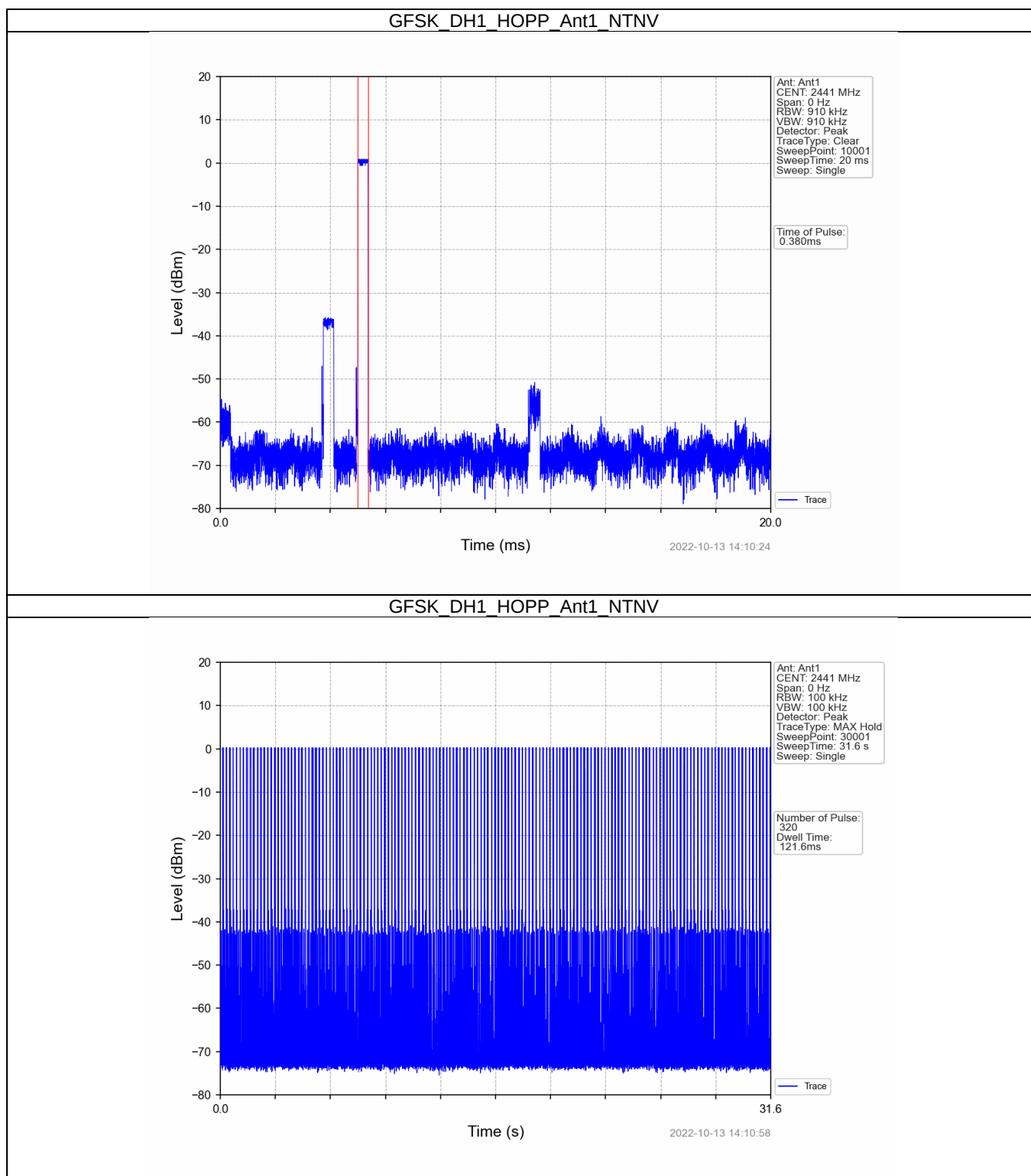
5. Time of Occupancy (Dwell Time)

5.1 Ant1

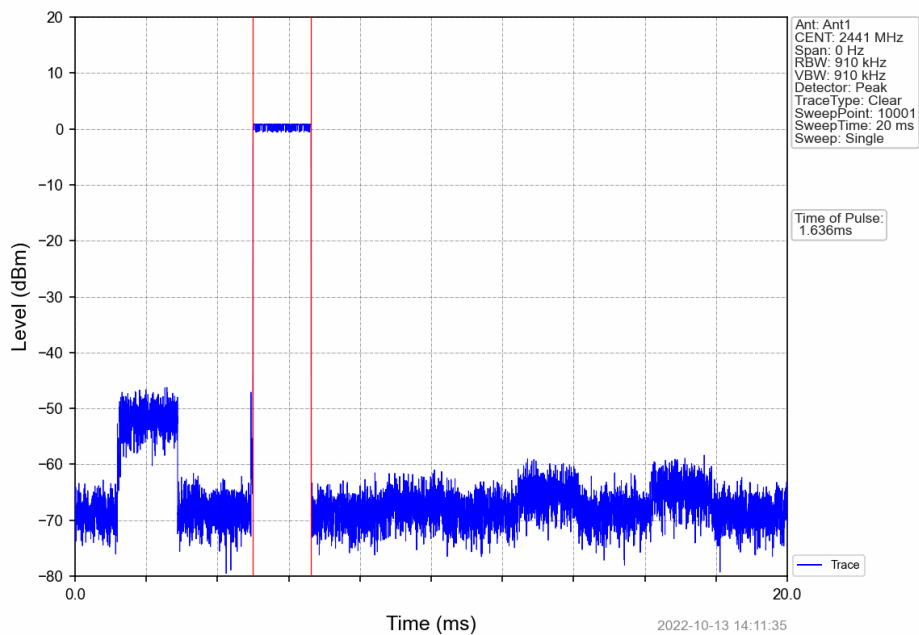
5.1.1 Test Result

Ant1									
Mode	TX Type	Frequency (MHz)	Packet Type	Duration of Single Pulse (ms)	Observation Period (s)	Num of Pulse in Observation Period	Dwell Time (ms)	Limit (ms)	Verdict
GFSK	SISO	HOPP	DH1	0.380	31.600	320	121.600	<=400	Pass
			DH3	1.636	31.600	111	181.596	<=400	Pass
			DH5	2.886	31.600	66	190.476	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.390	31.600	318	124.020	<=400	Pass
			2DH3	1.640	31.600	104	170.560	<=400	Pass
			2DH5	2.890	31.600	64	184.960	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.390	31.600	320	124.800	<=400	Pass
			3DH3	1.642	31.600	114	187.188	<=400	Pass
			3DH5	2.892	31.600	66	190.872	<=400	Pass

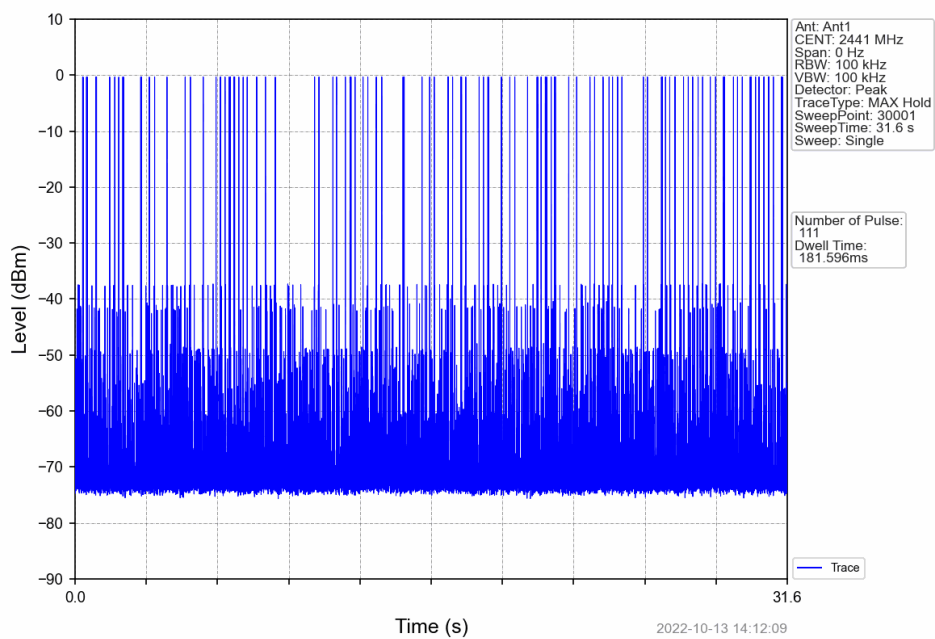
5.1.2 Test Graph



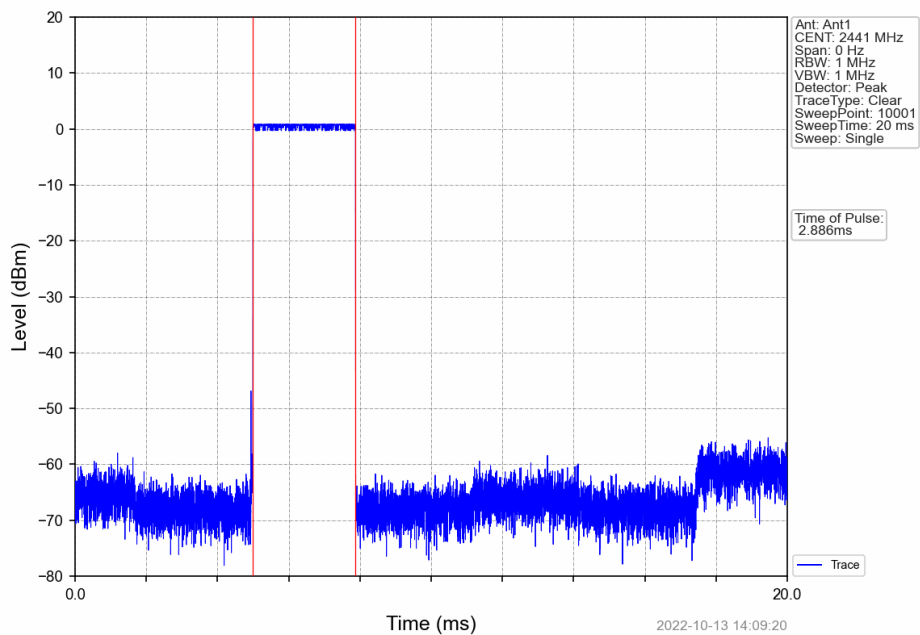
GFSK DH3 HOPP Ant1 NTN



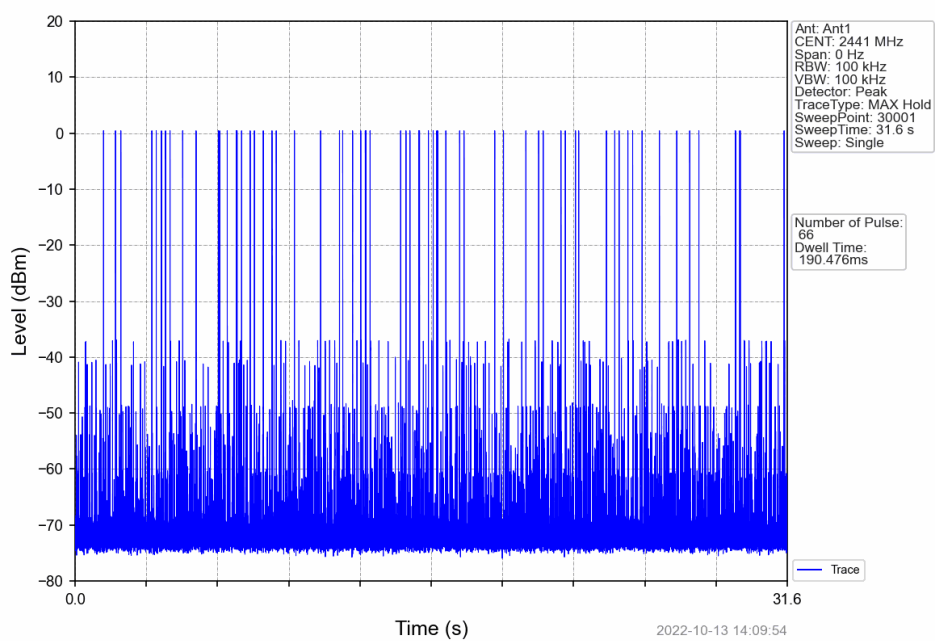
GFSK_DH3_HOPP_Ant1_NTNV



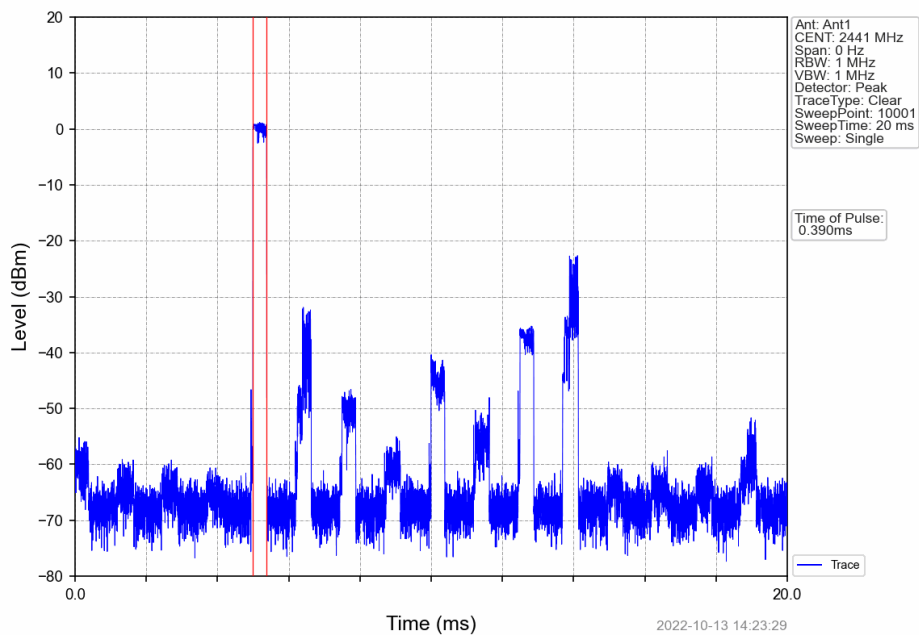
GFSK DH5 HOPP Ant1 NTN



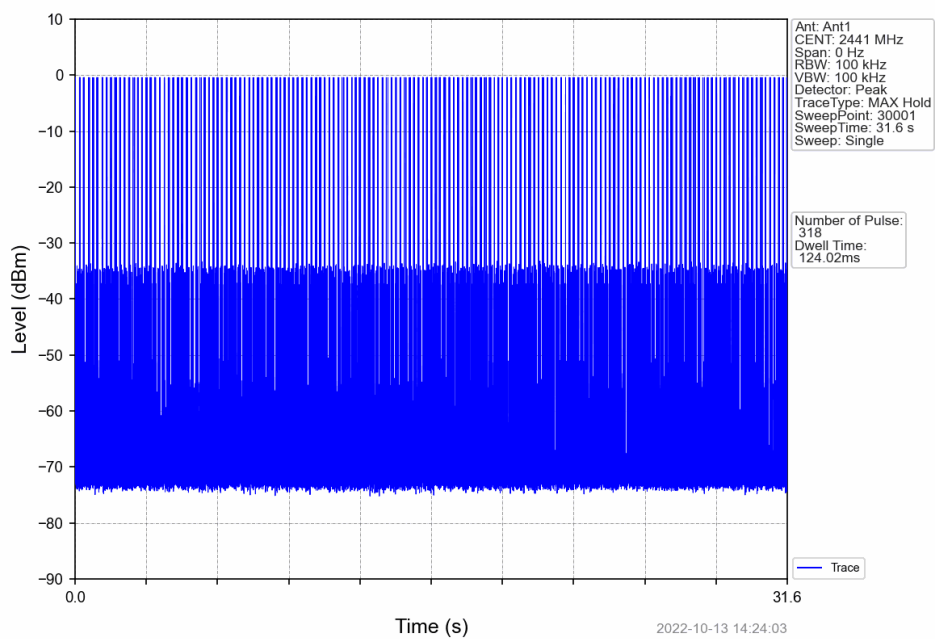
GFSK_DH5_HOPP_Ant1_NTNV



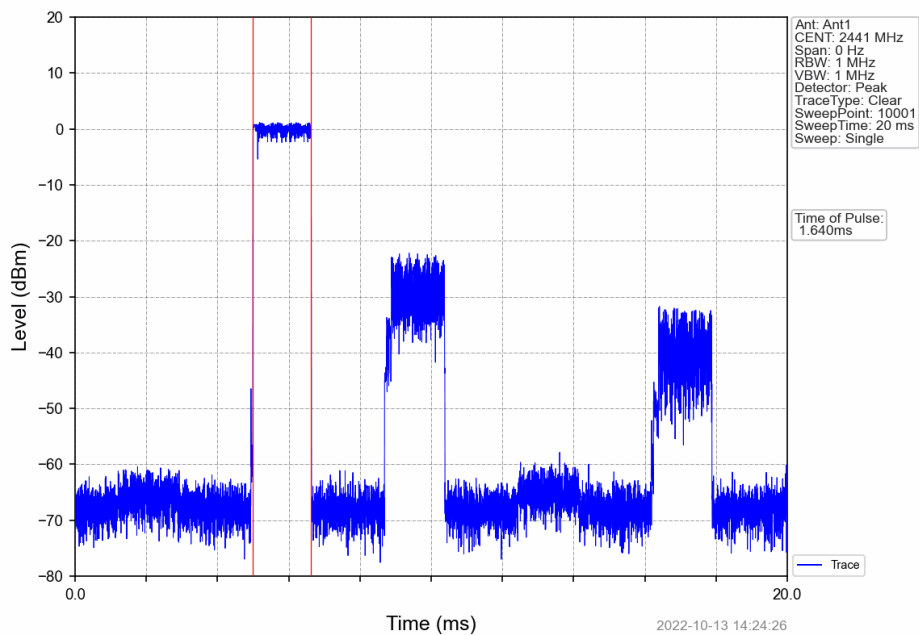
Pi/4DQPSK_2DH1_HOPP_Ant1_NTNV



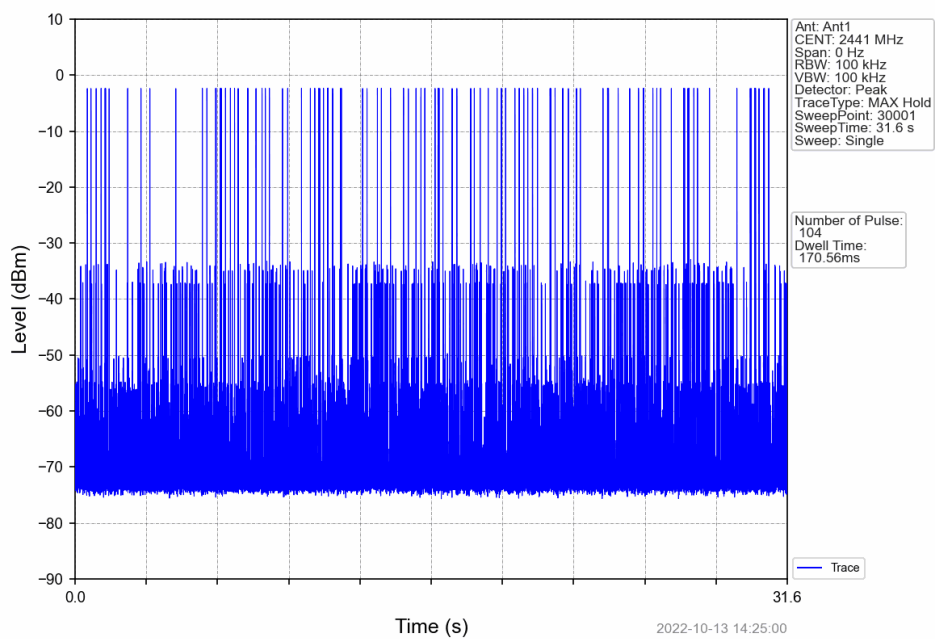
Pi/4DQPSK_2DH1_HOPP_Ant1_NTNV



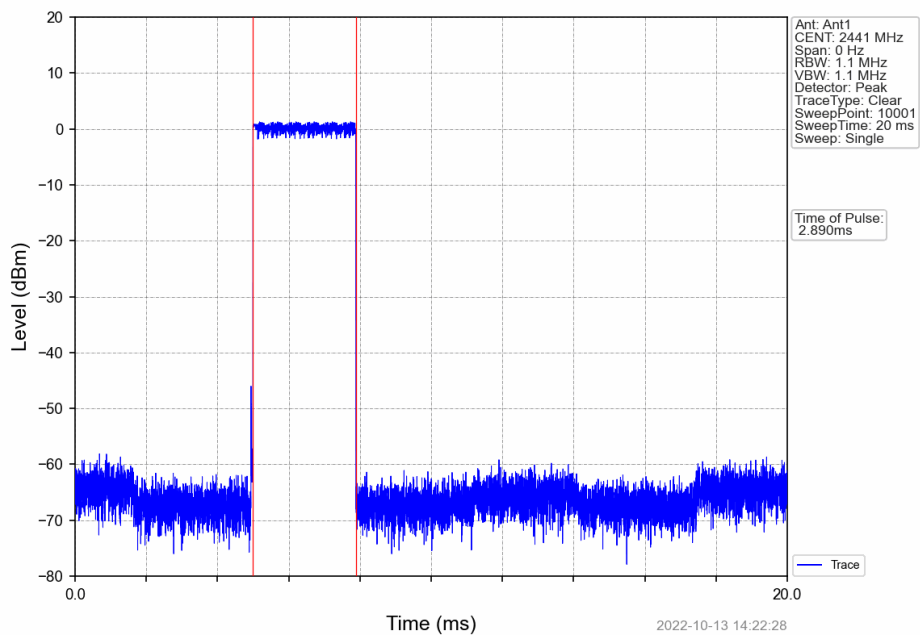
Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV



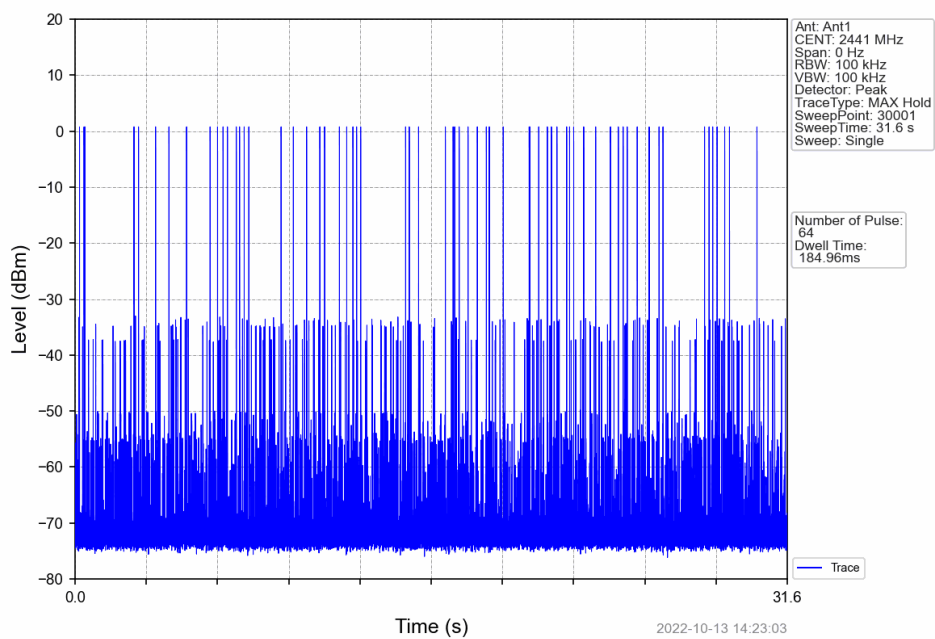
Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV



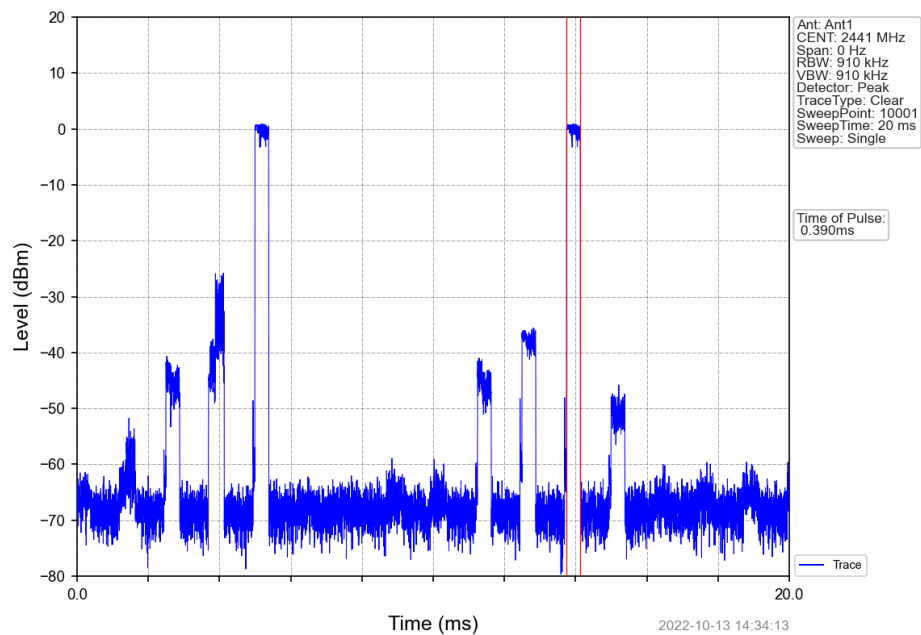
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



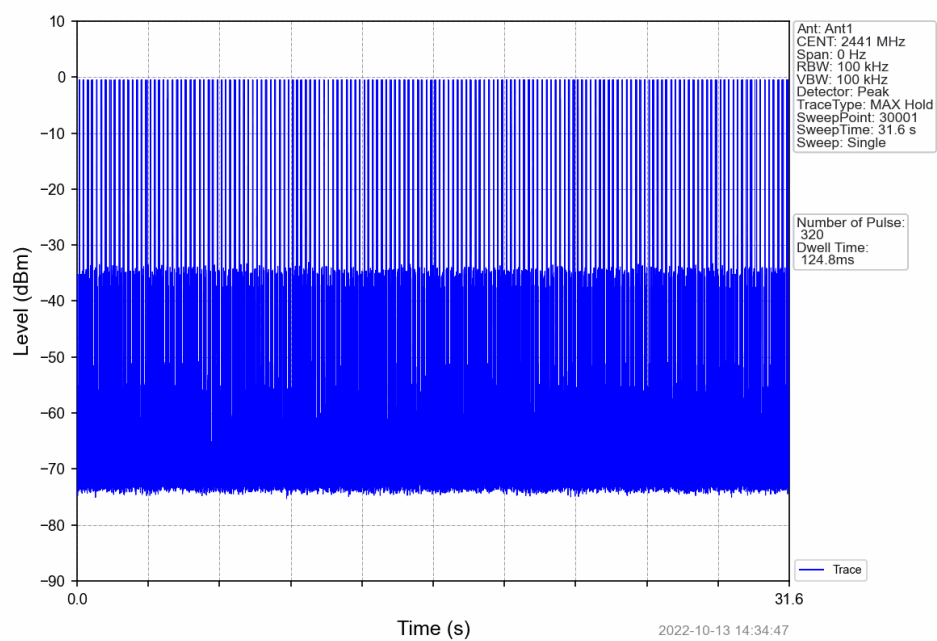
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



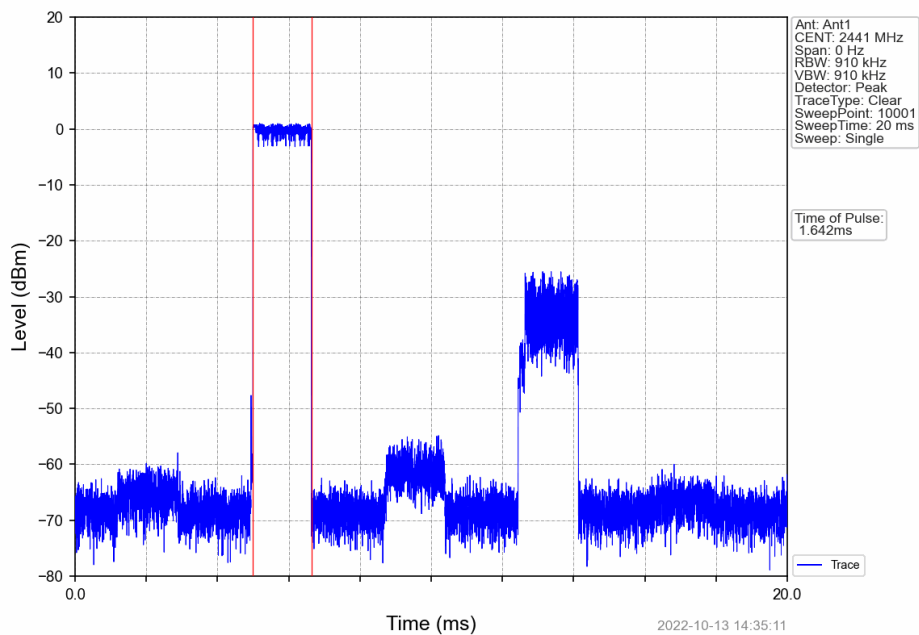
8DPSK 3DH1 HOPP Ant1 NTNV



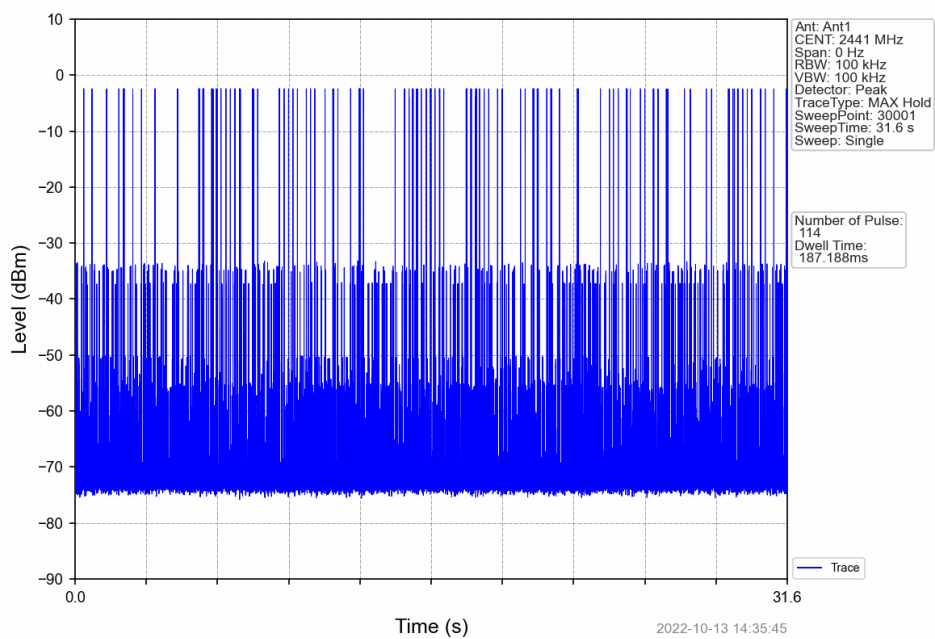
8DPSK 3DH1 HOPP Ant1 NTNV



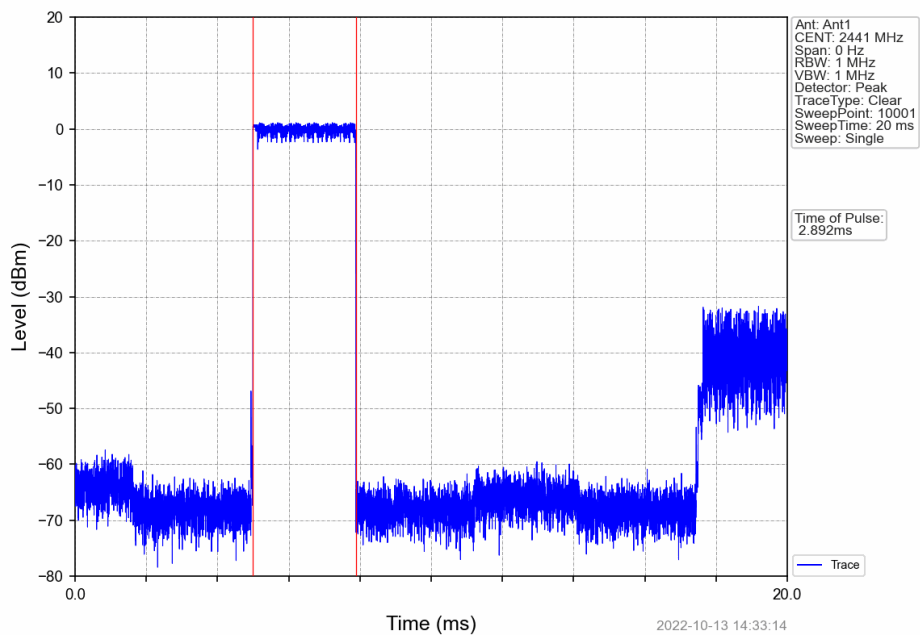
8DPSK 3DH3 HOPP Ant1 NTN



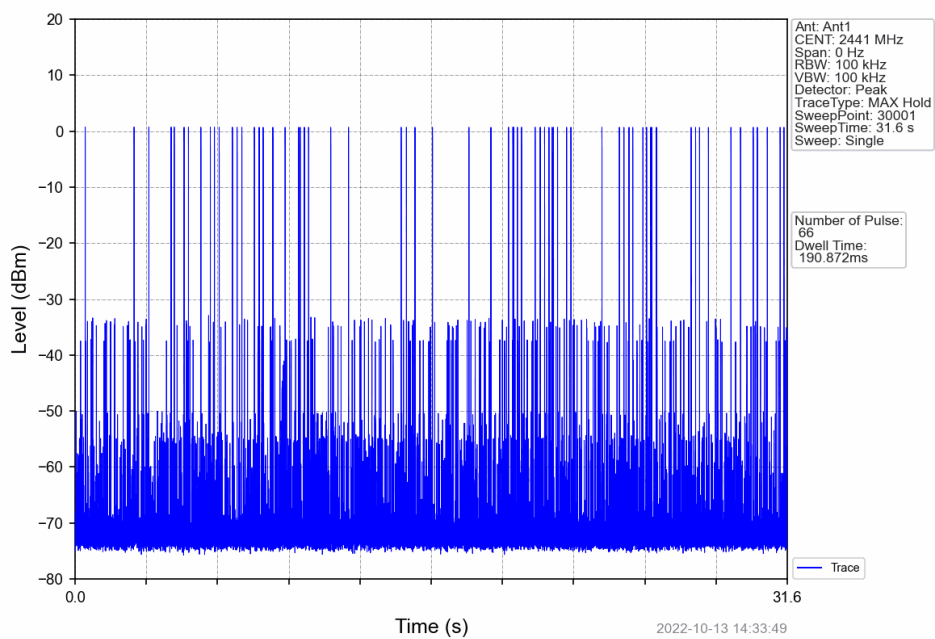
8DPSK_3DH3_HOPP_Ant1_NTNV



8DPSK 3DH5 HOPP Ant1 NTN



8DPSK 3DH5 HOPP Ant1 NTN



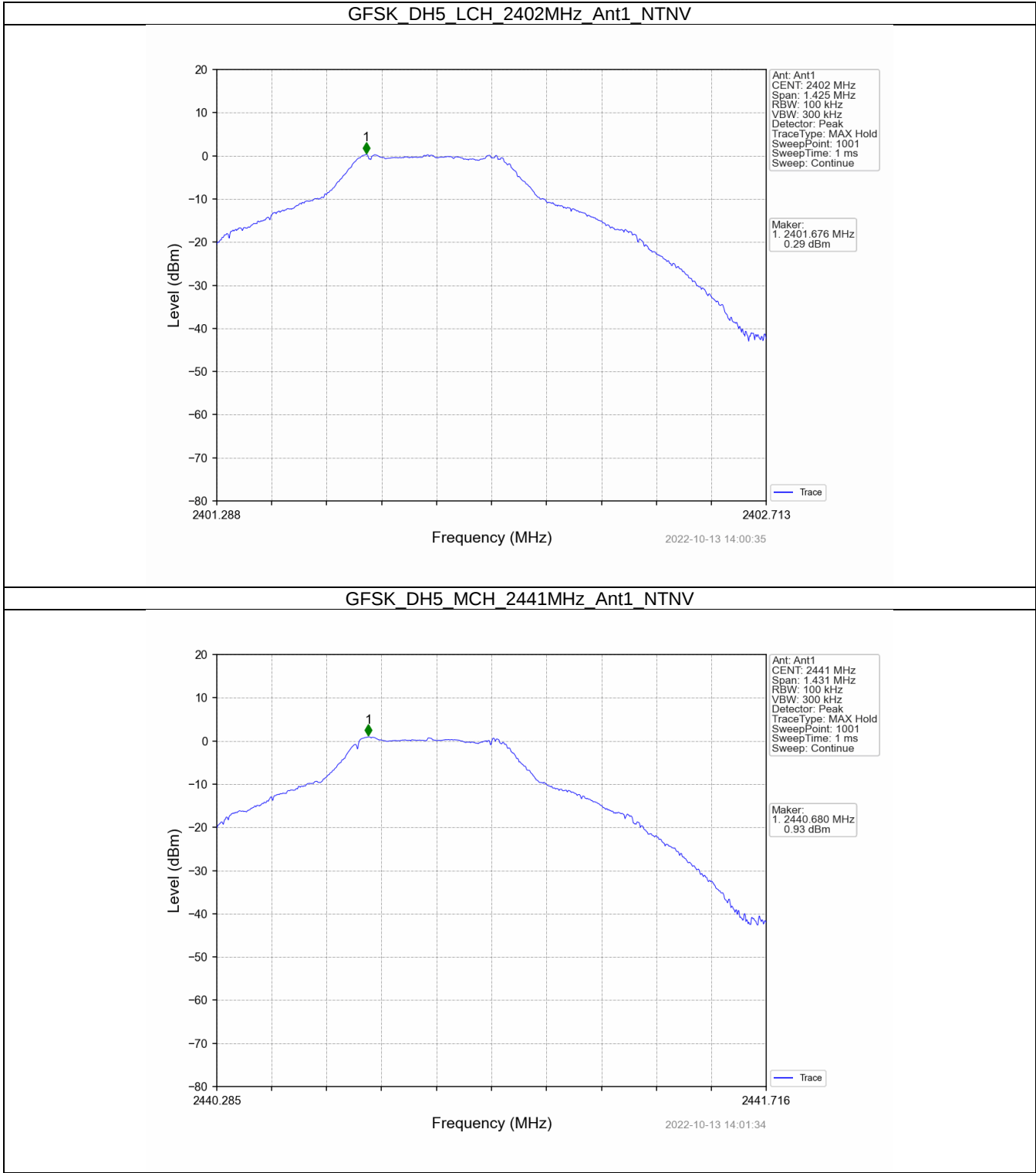
6. Unwanted Emissions In Non-restricted Frequency Bands

6.1 Ref

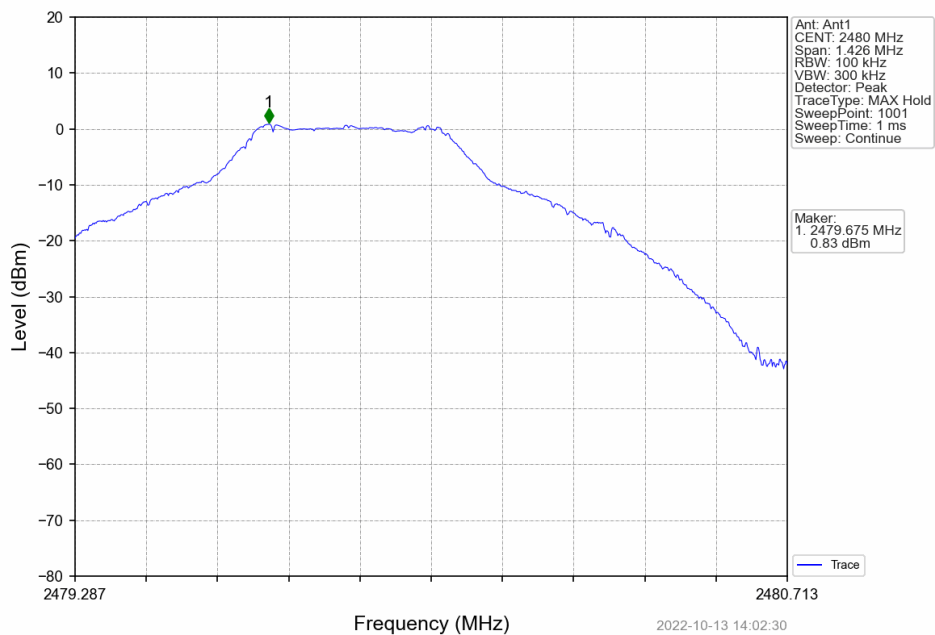
6.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	0.29
		2441	DH5	1	0.93
		2480	DH5	1	0.83
Pi/4DQPSK	SISO	2402	2DH5	1	0.27
		2441	2DH5	1	0.78
		2480	2DH5	1	0.77
8DPSK	SISO	2402	3DH5	1	0.30
		2441	3DH5	1	0.77
		2480	3DH5	1	0.68
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.					

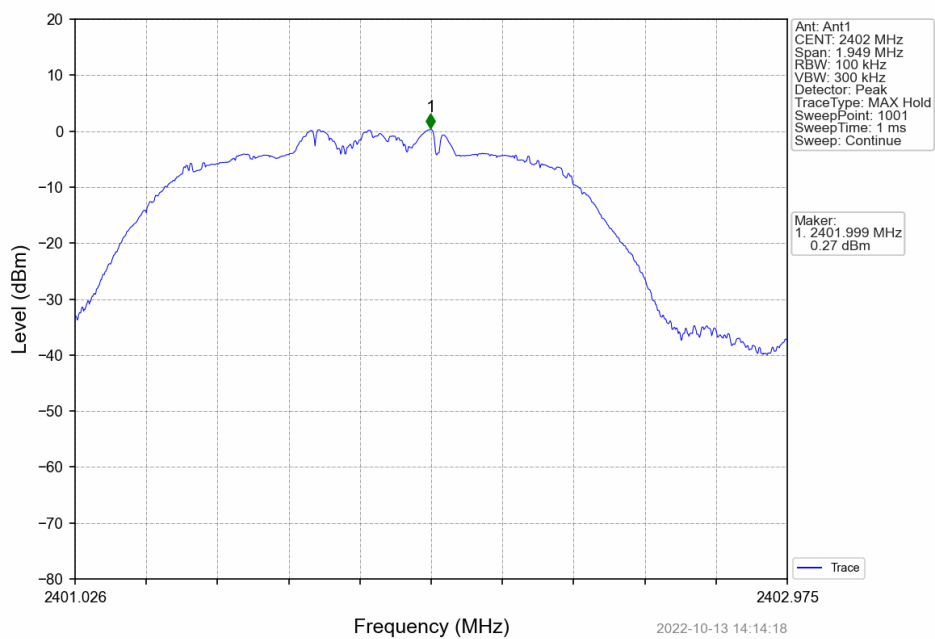
6.1.2 Test Graph



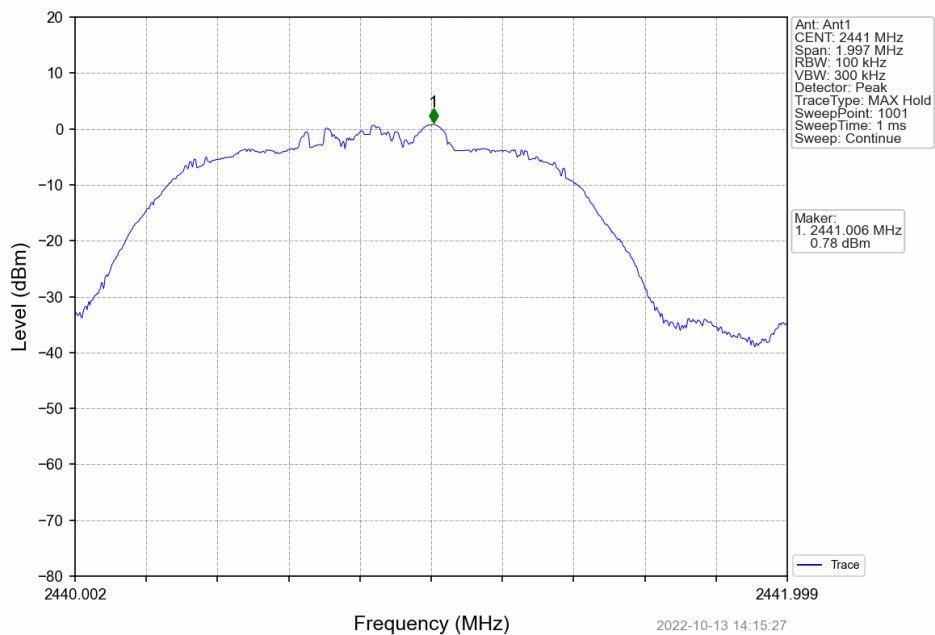
GFSK DH5 HCH 2480MHz Ant1 NTN



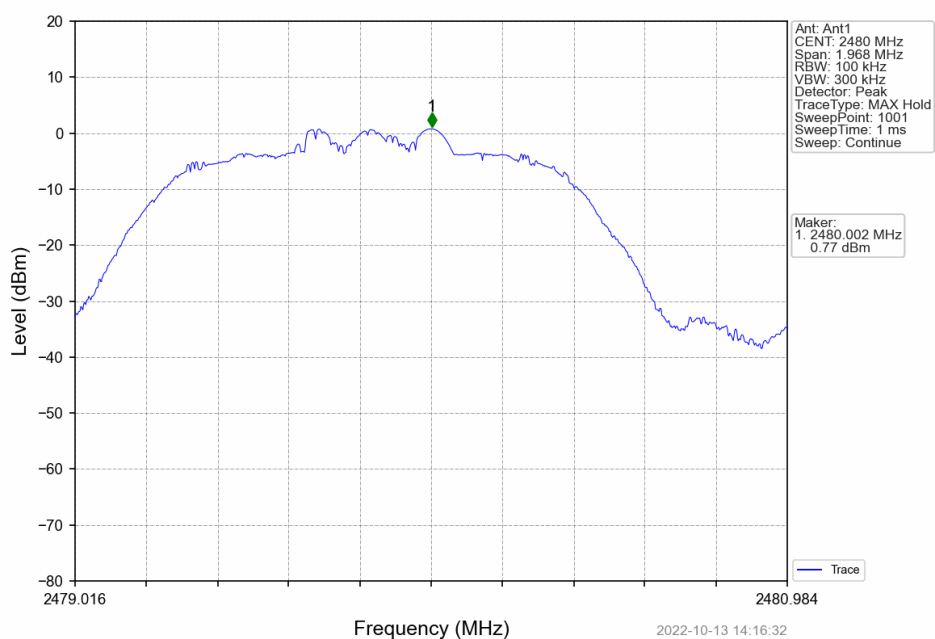
Pi/4DQPSK 2DH5 LCH 2402MHz Ant1 NTN



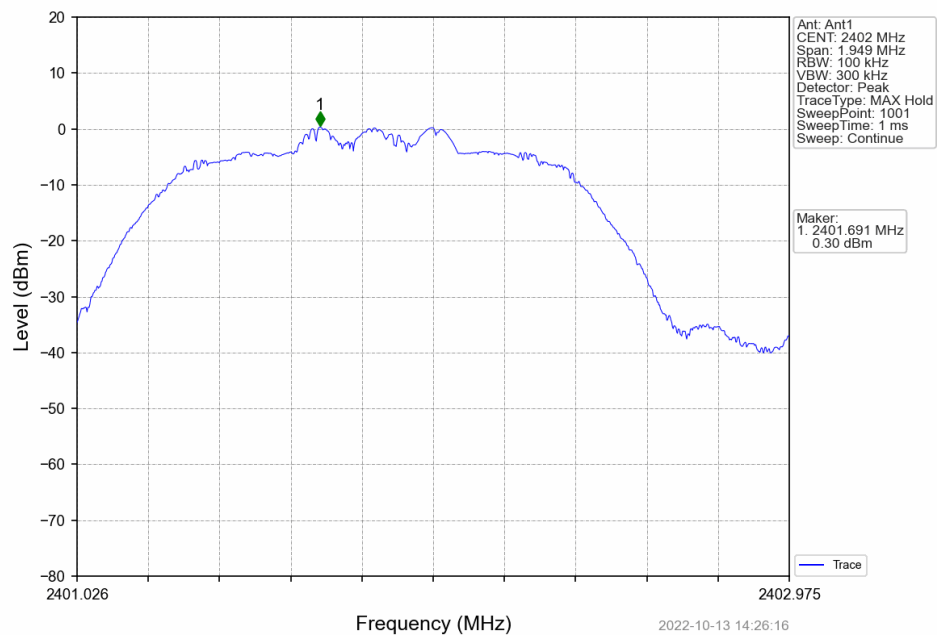
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



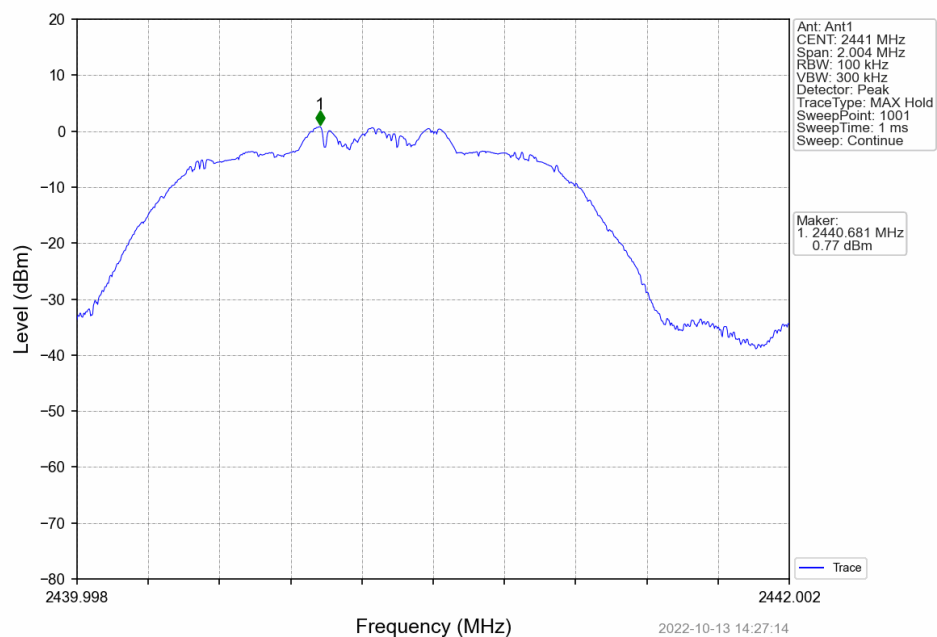
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



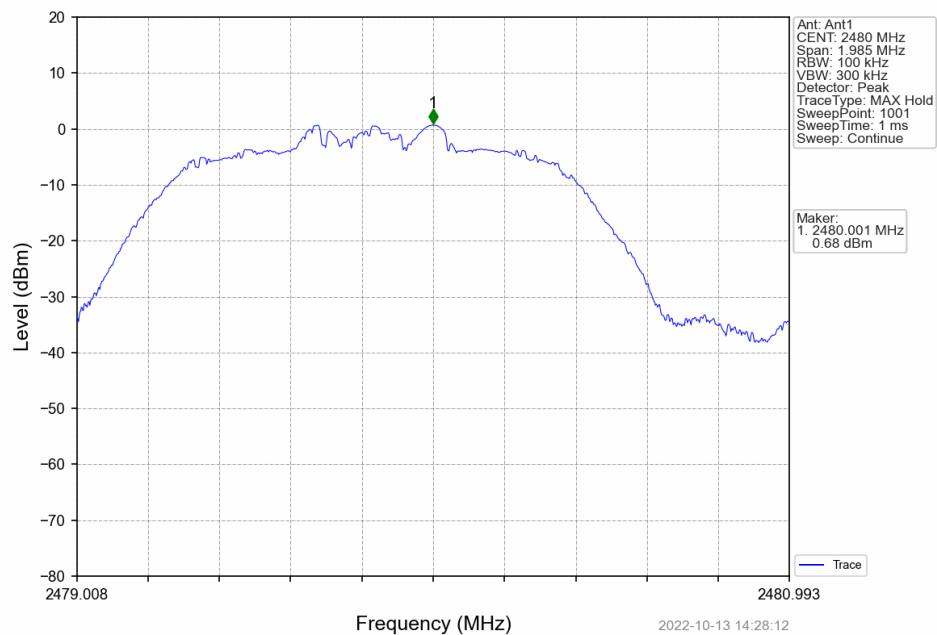
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



8DPSK 3DH5 HCH 2480MHz Ant1 NTN



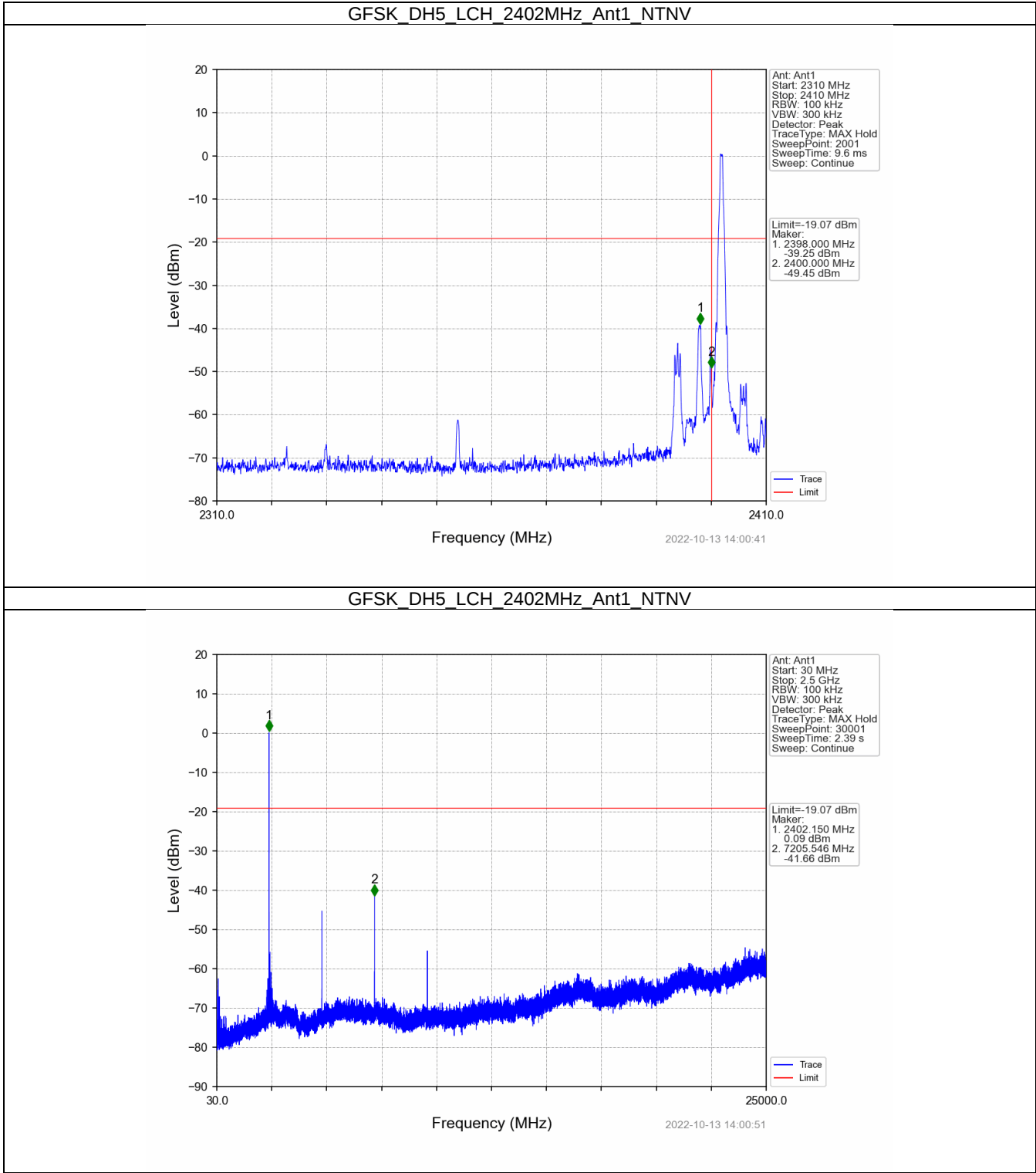
6.2 CSE

6.2.1 Test Result

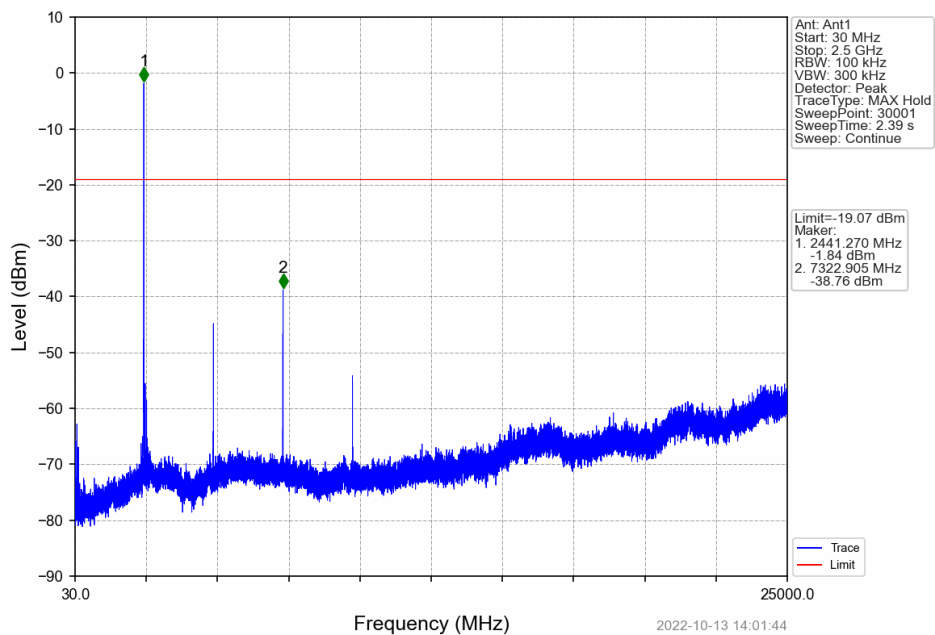
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	0.93	-19.07	Pass
		2441	DH5	1	0.93	-19.07	Pass
		2480	DH5	1	0.93	-19.07	Pass
		HOPP	DH5	1	0.93	-19.07	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	0.78	-19.22	Pass
		2441	2DH5	1	0.78	-19.22	Pass
		2480	2DH5	1	0.78	-19.22	Pass
		HOPP	2DH5	1	0.78	-19.22	Pass
8DPSK	SISO	2402	3DH5	1	0.77	-19.23	Pass
		2441	3DH5	1	0.77	-19.23	Pass
		2480	3DH5	1	0.77	-19.23	Pass
		HOPP	3DH5	1	0.77	-19.23	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.

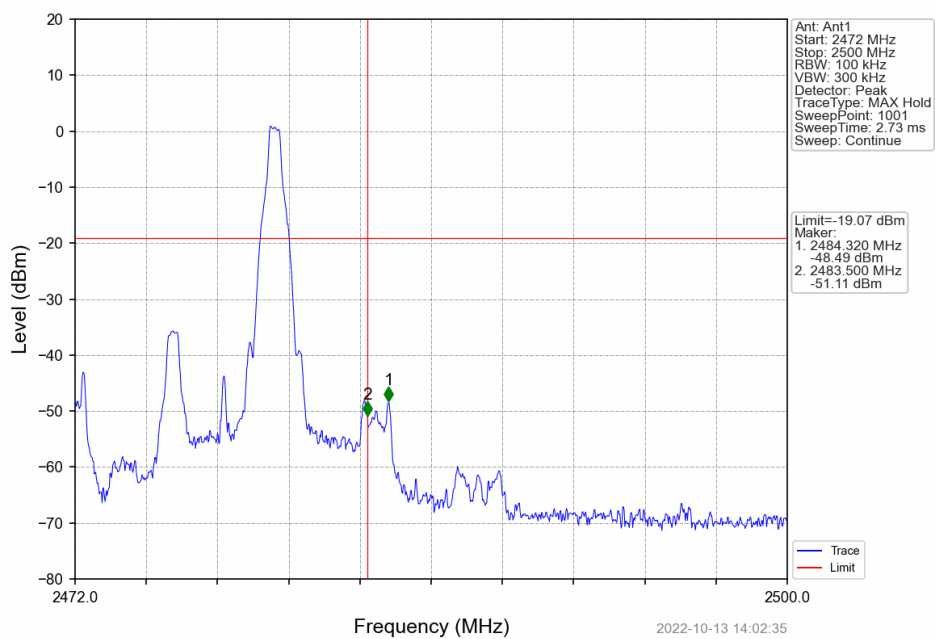
6.2.2 Test Graph



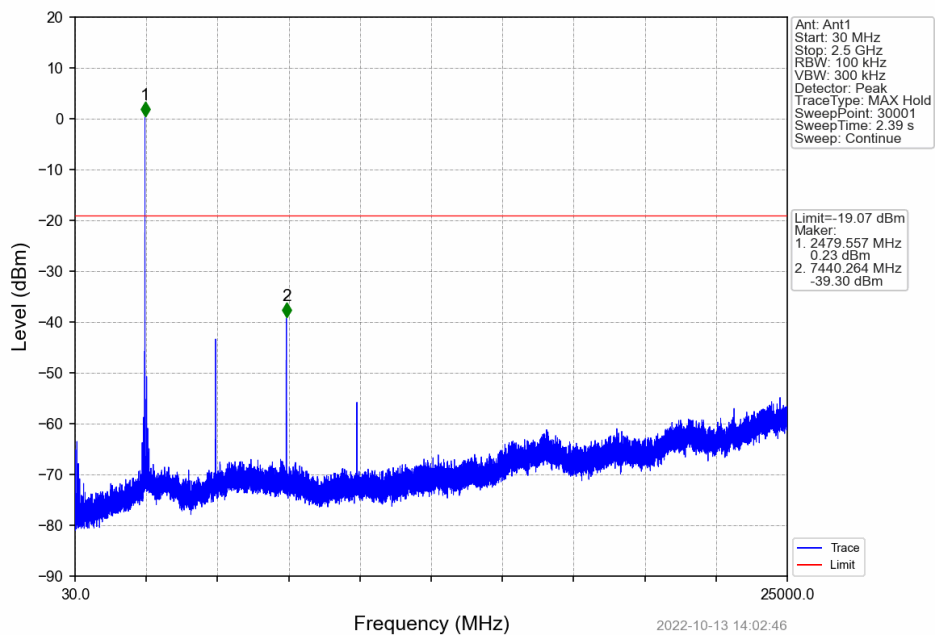
GFSK DH5 MCH 2441MHz Ant1 NTN



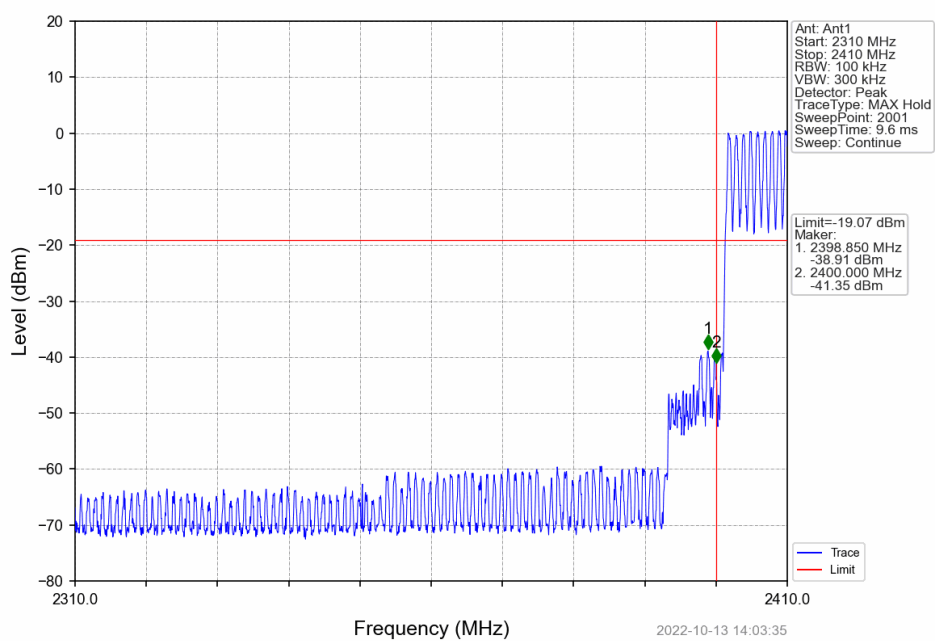
GFSK_DH5_HCH_2480MHz_Ant1_NTN



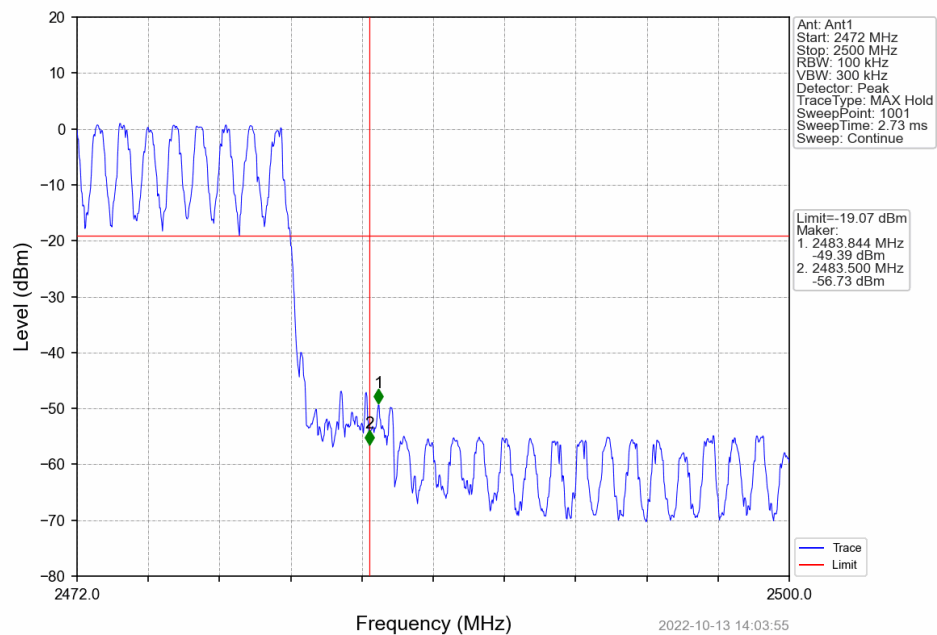
GFSK DH5 HCH 2480MHz Ant1 NTNV



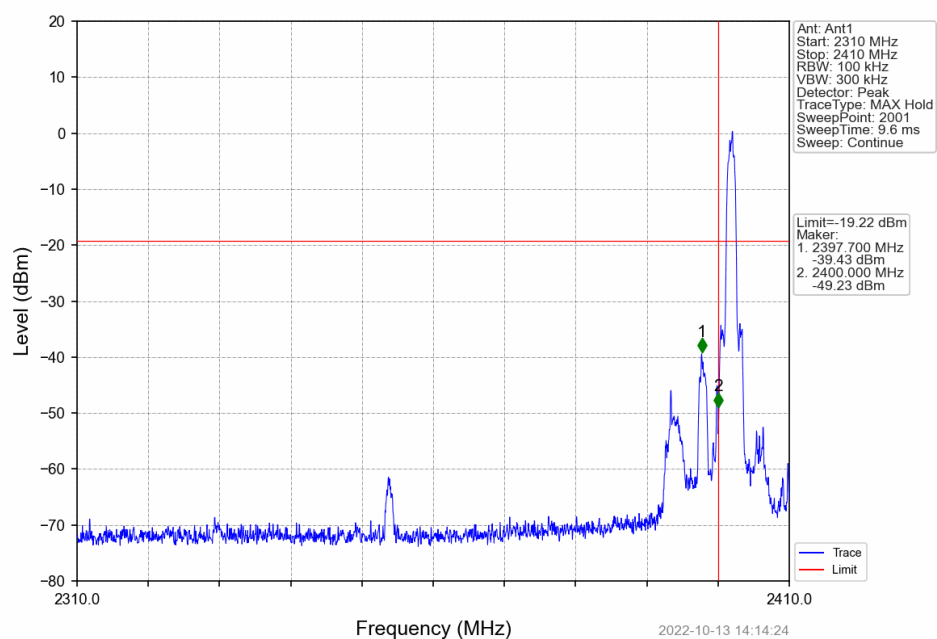
GFSK_DH5_HOPP_Ant1_NTNV



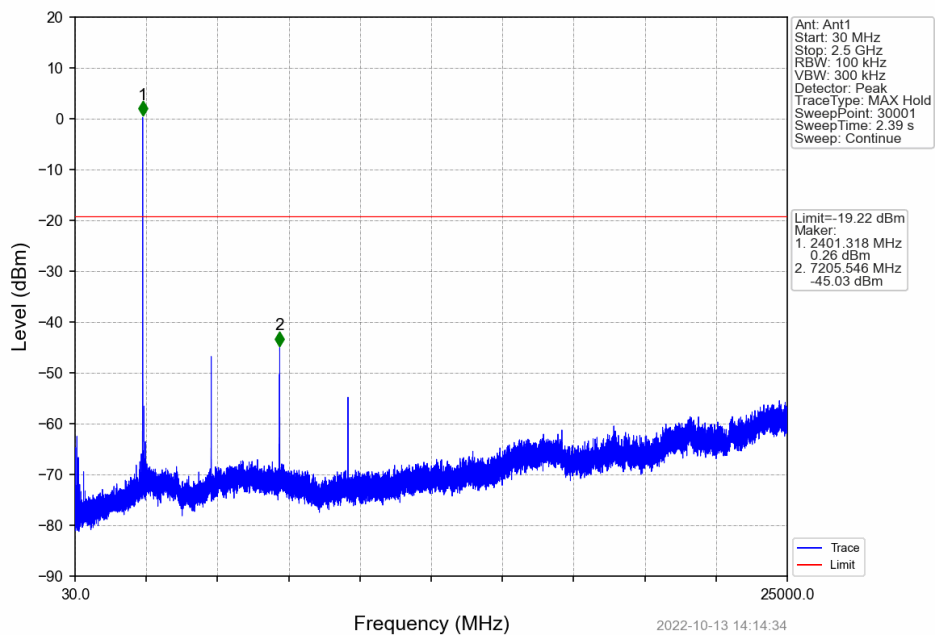
GFSK DH5 HOPP Ant1 NTN



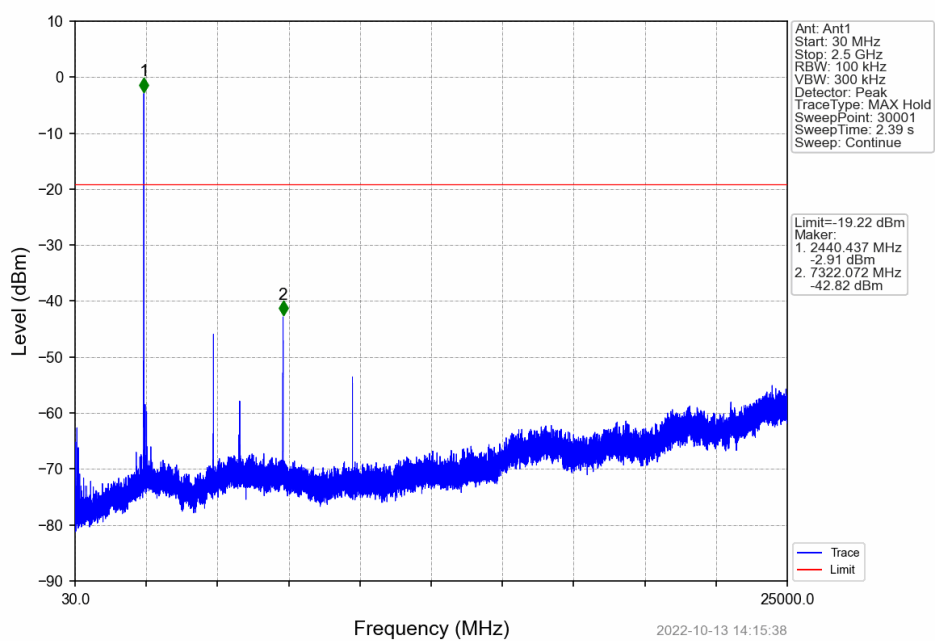
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1 NTN



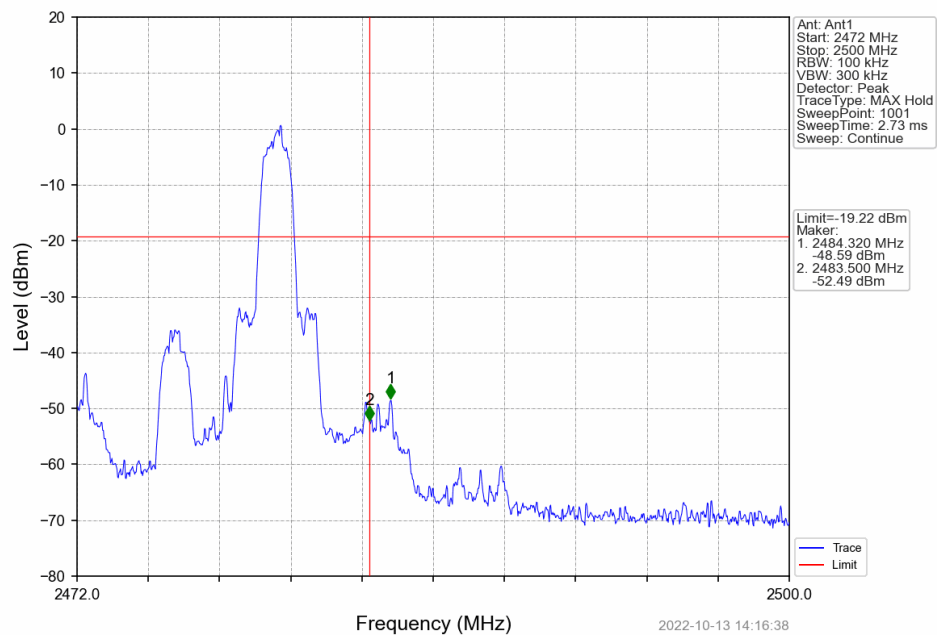
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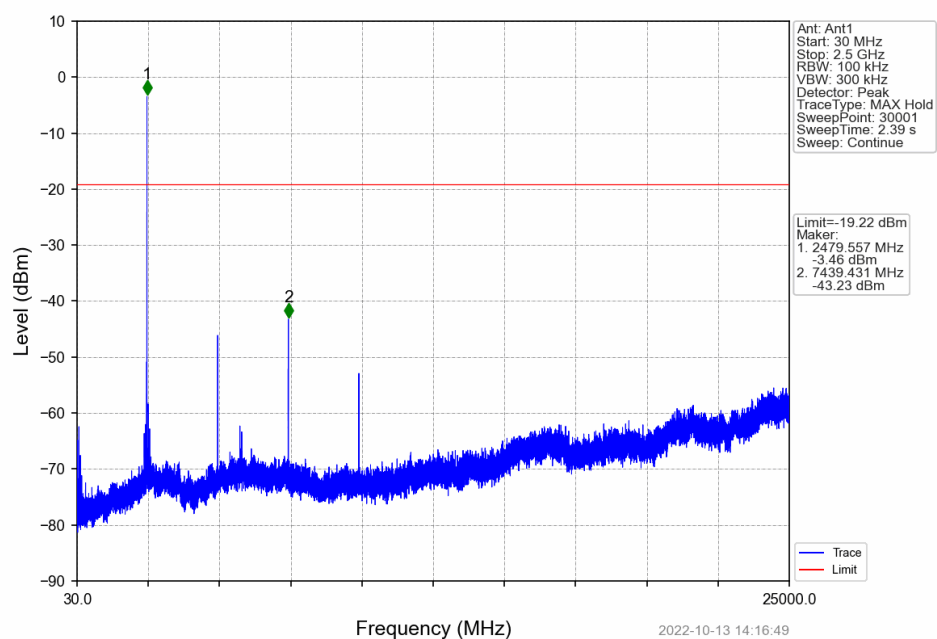
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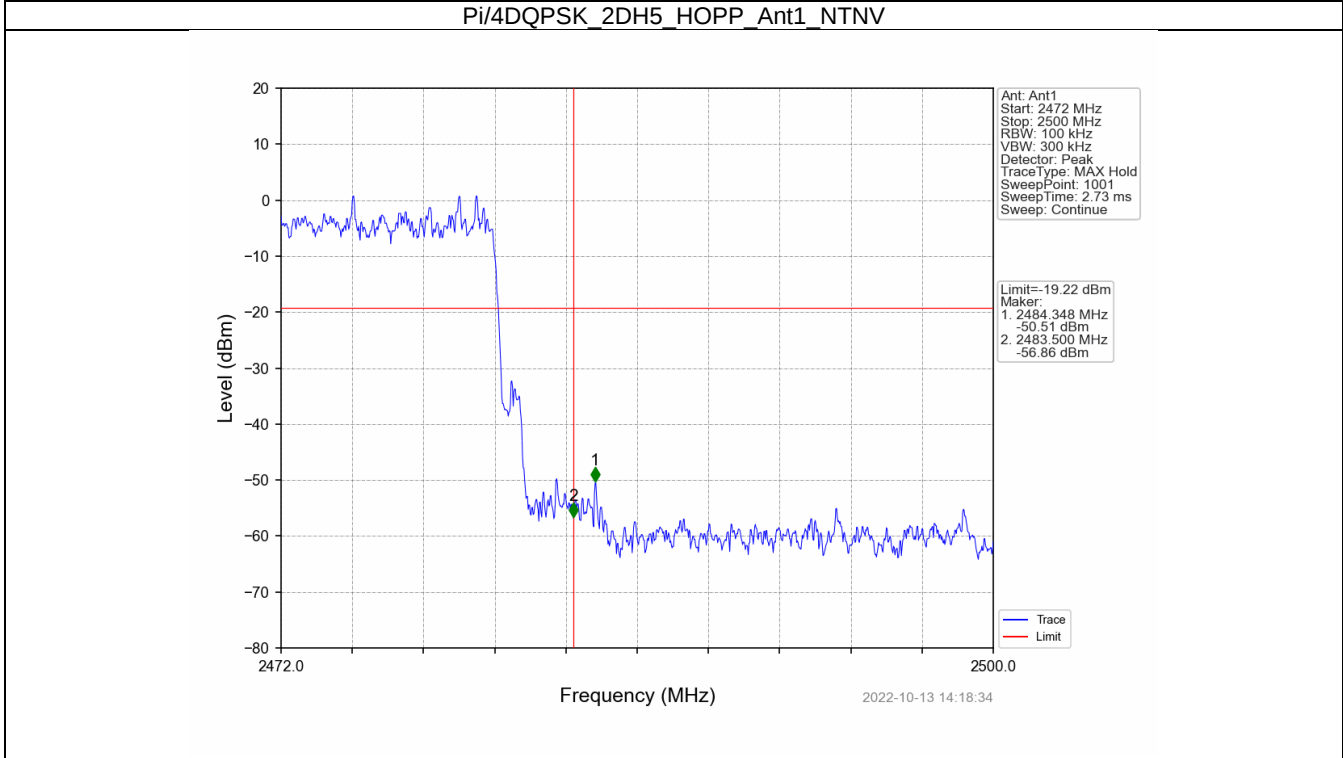
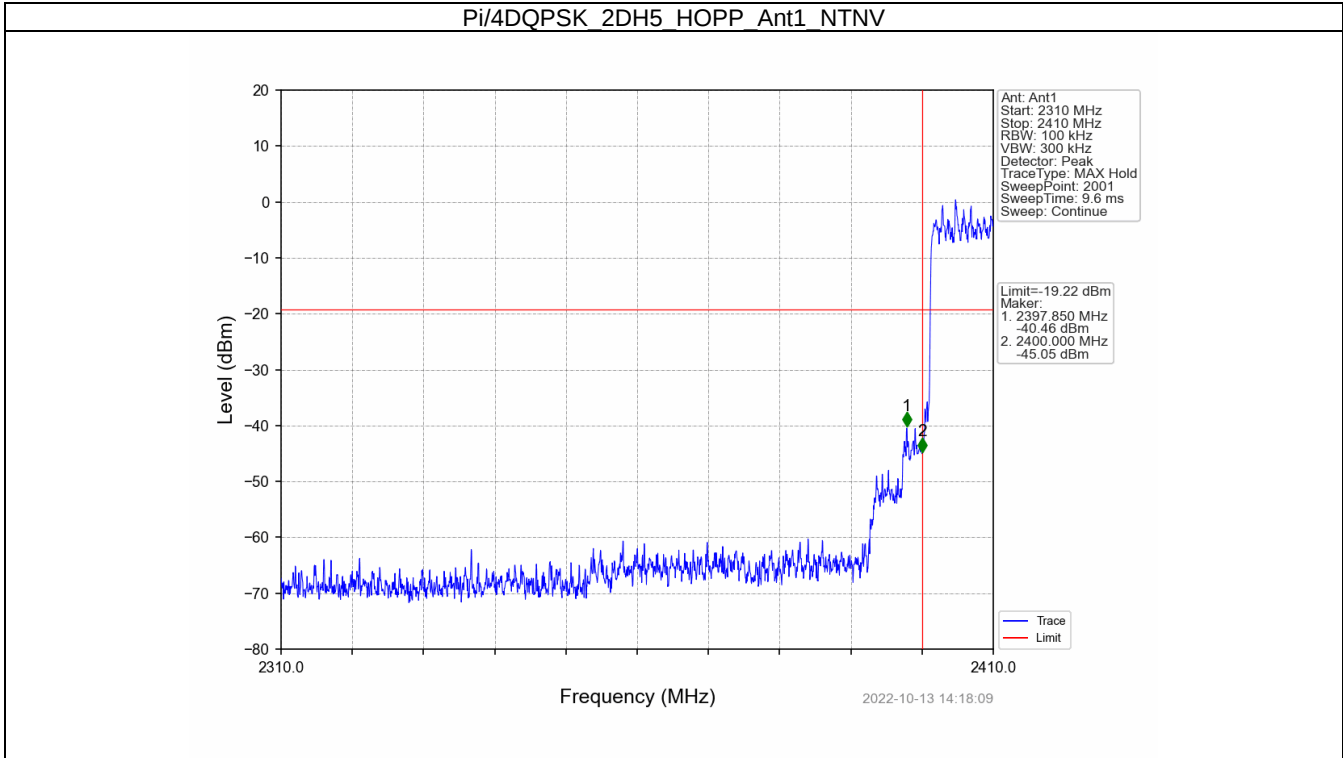


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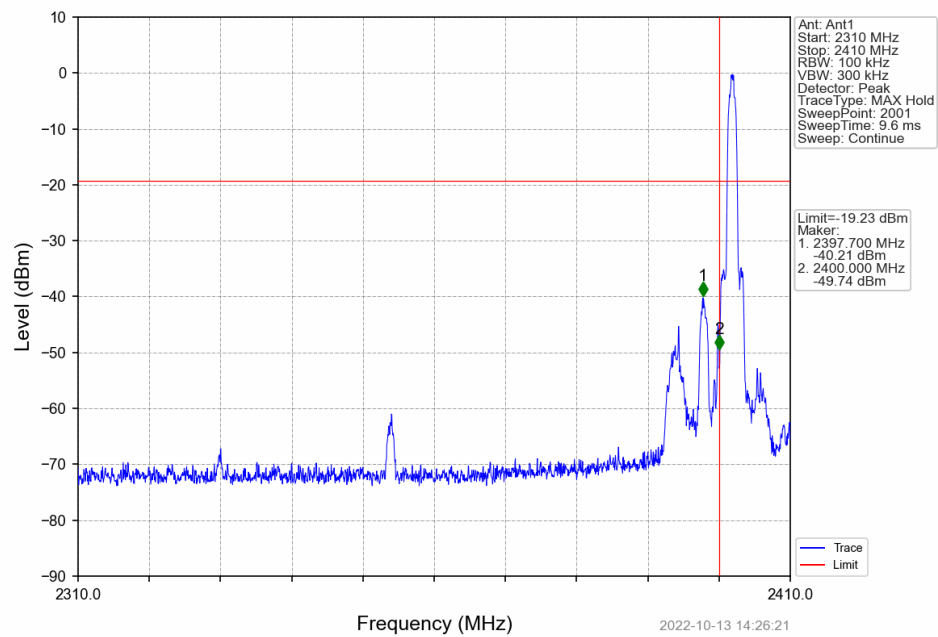


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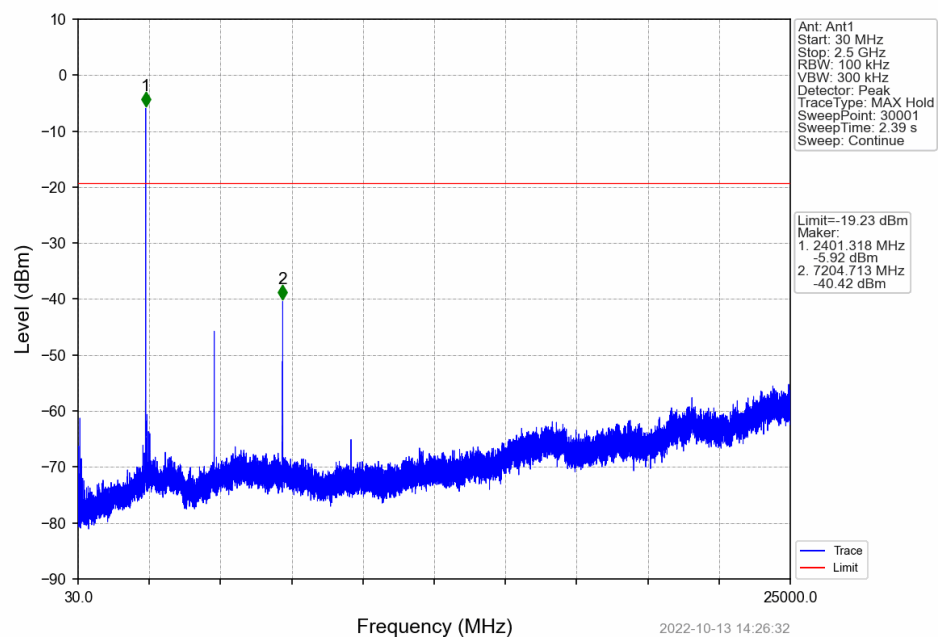




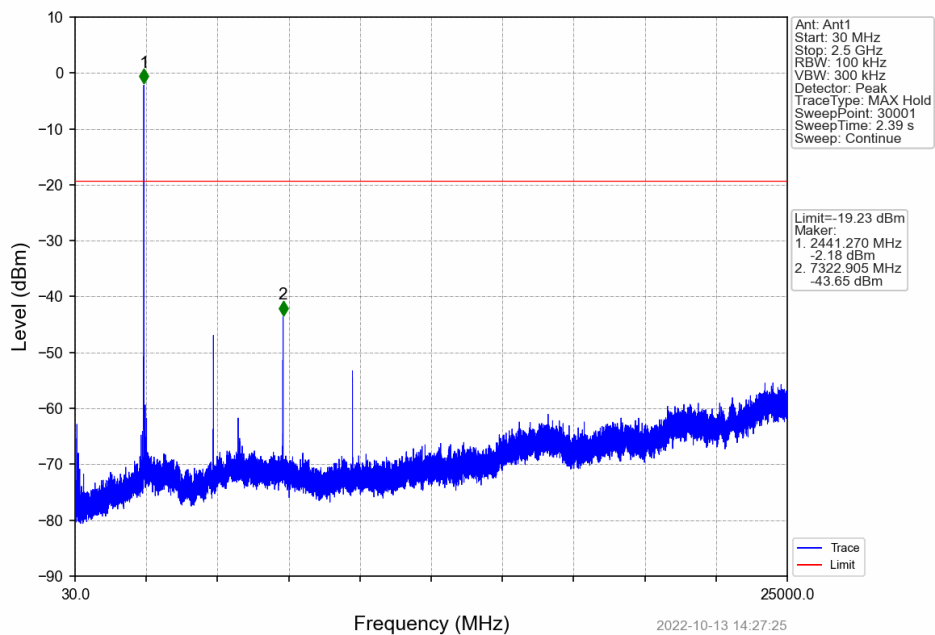
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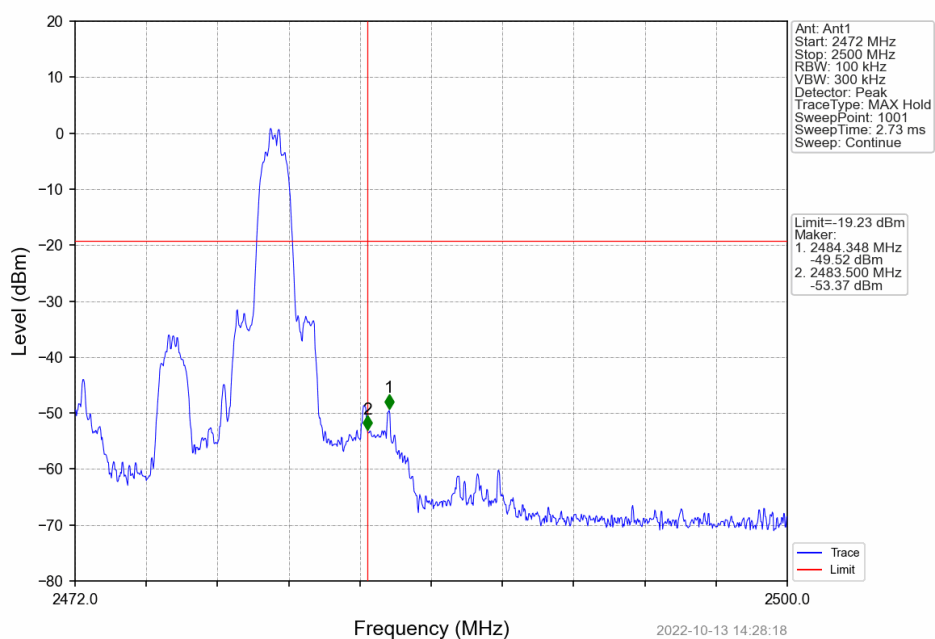
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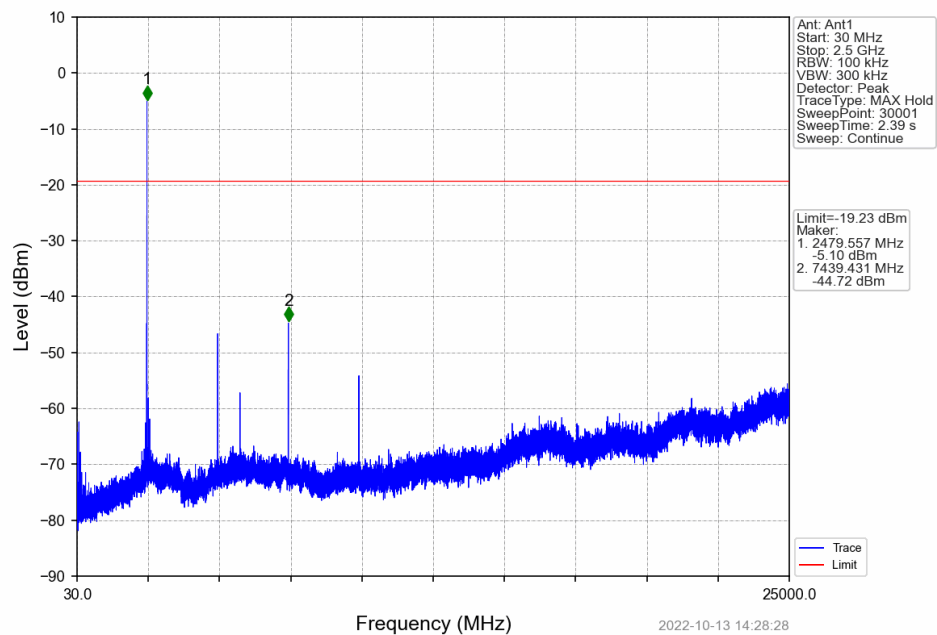
8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV



8DPSK 3DH5 HCH 2480MHz Ant1 NTN



8DPSK 3DH5 HOPP Ant1 NTN

