



Shenzhen CTL Testing Technology Co., Ltd.

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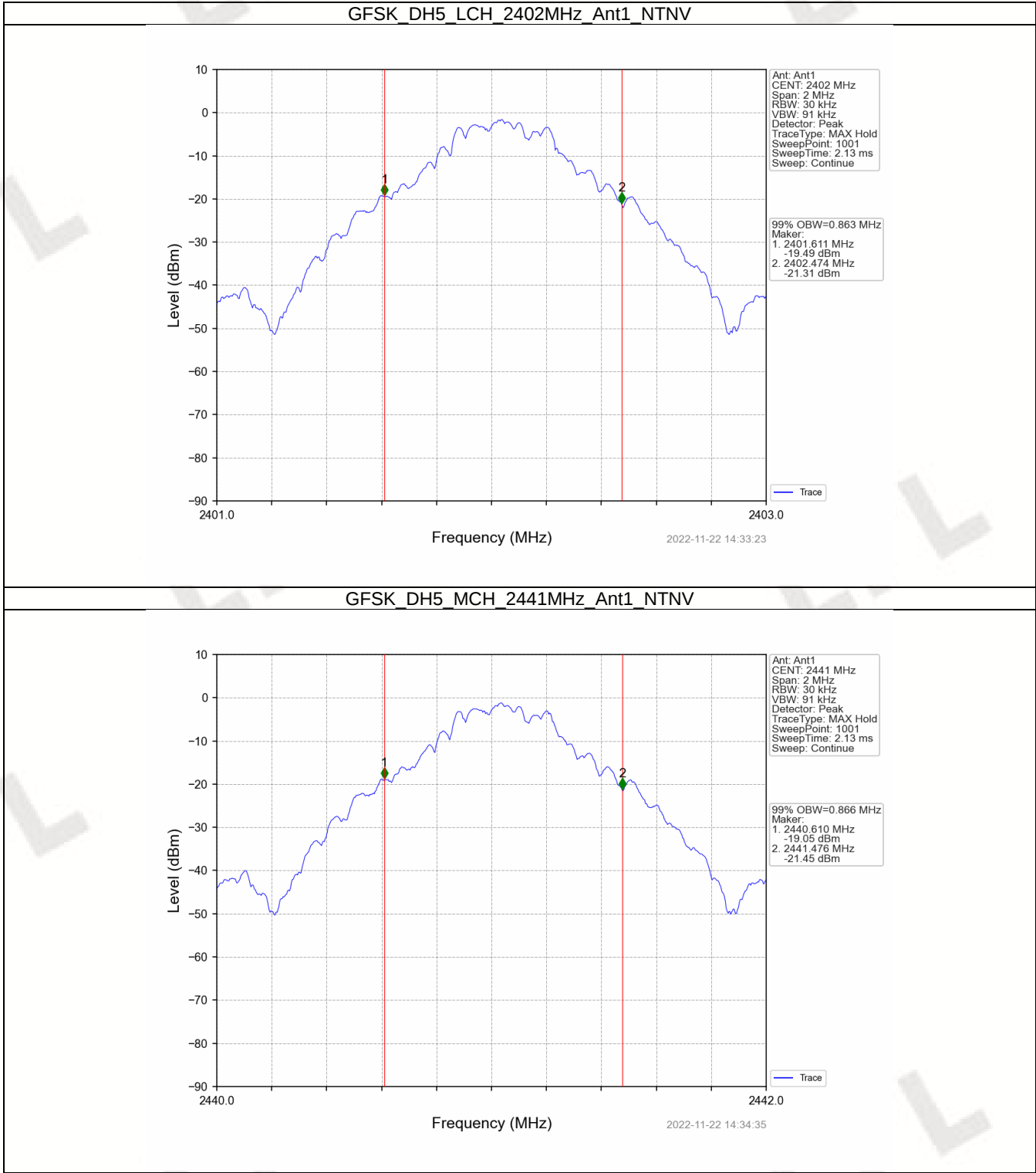
1. Bandwidth

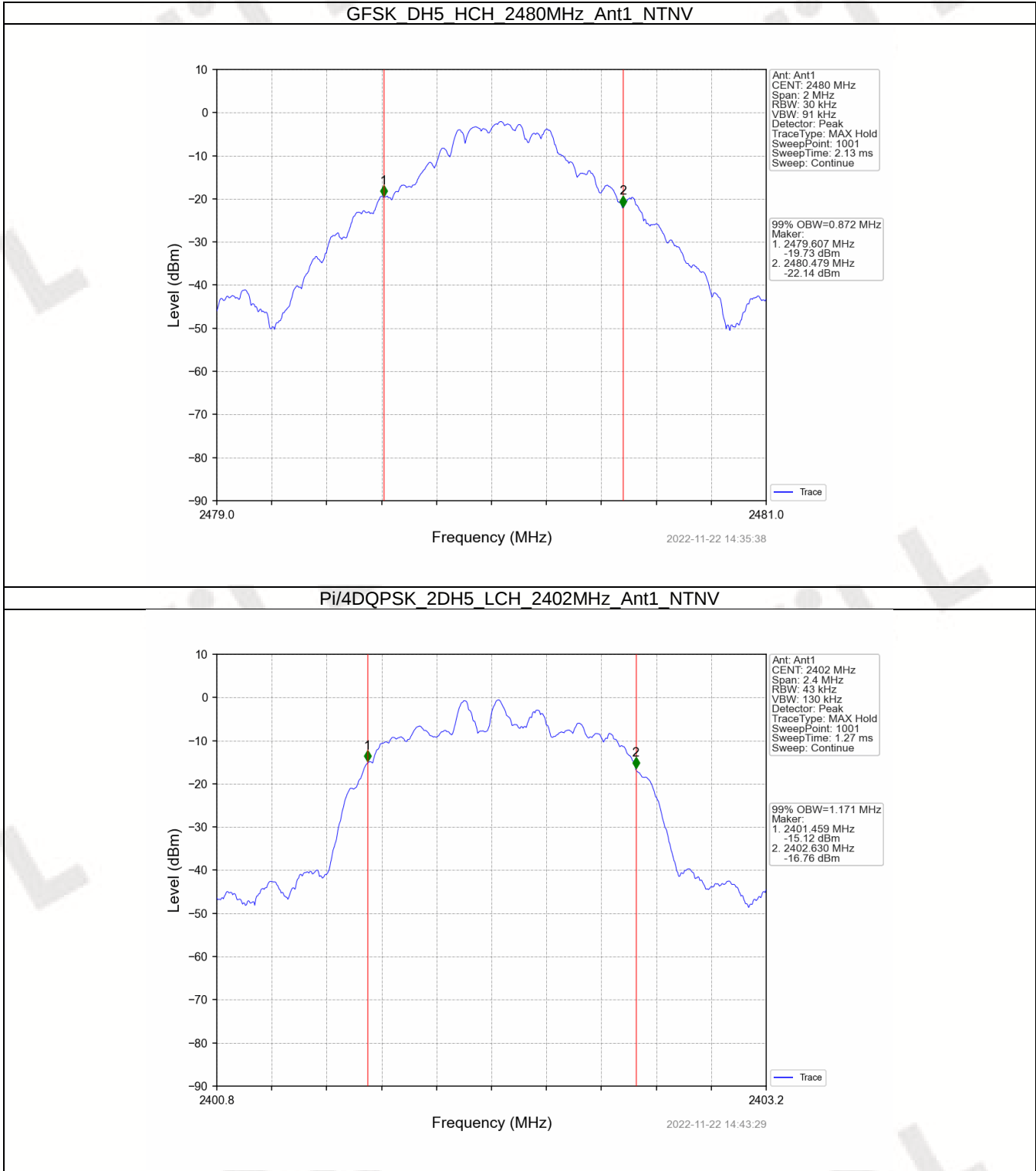
1.1 OBW

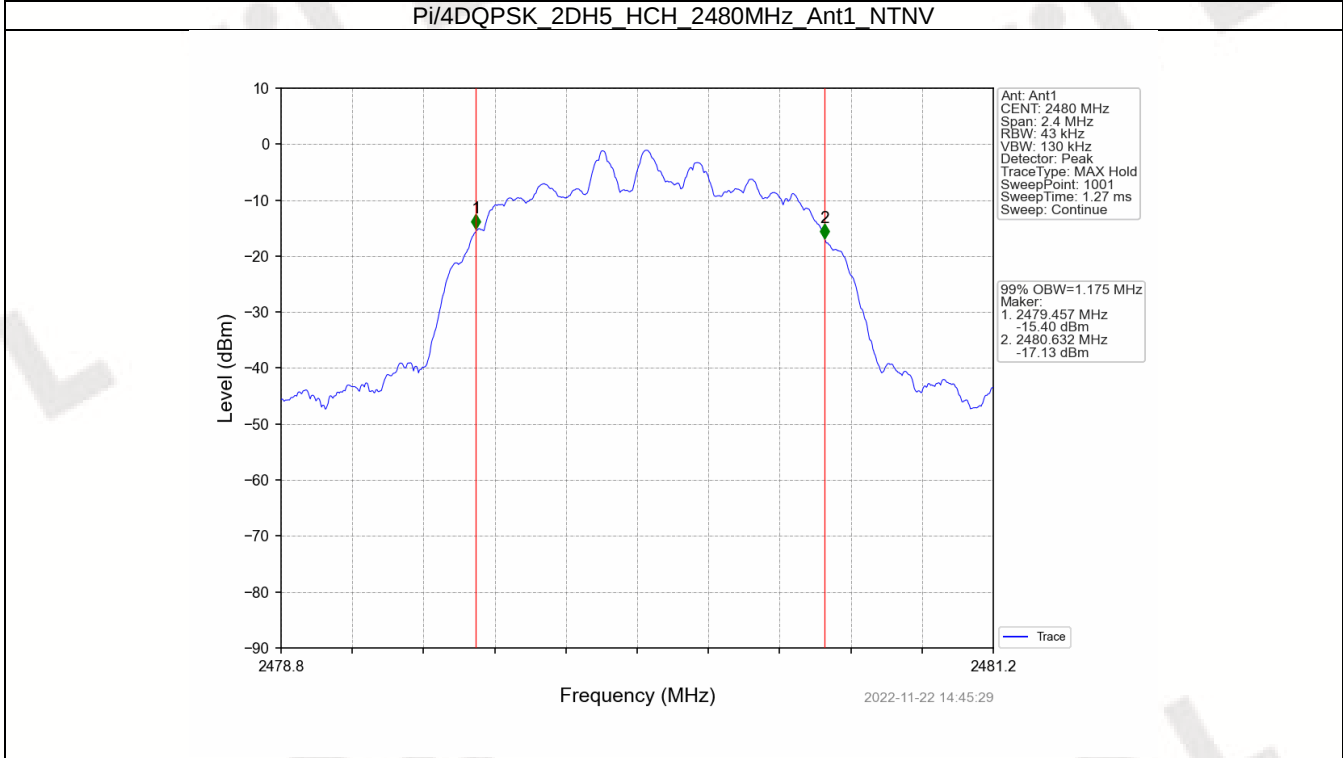
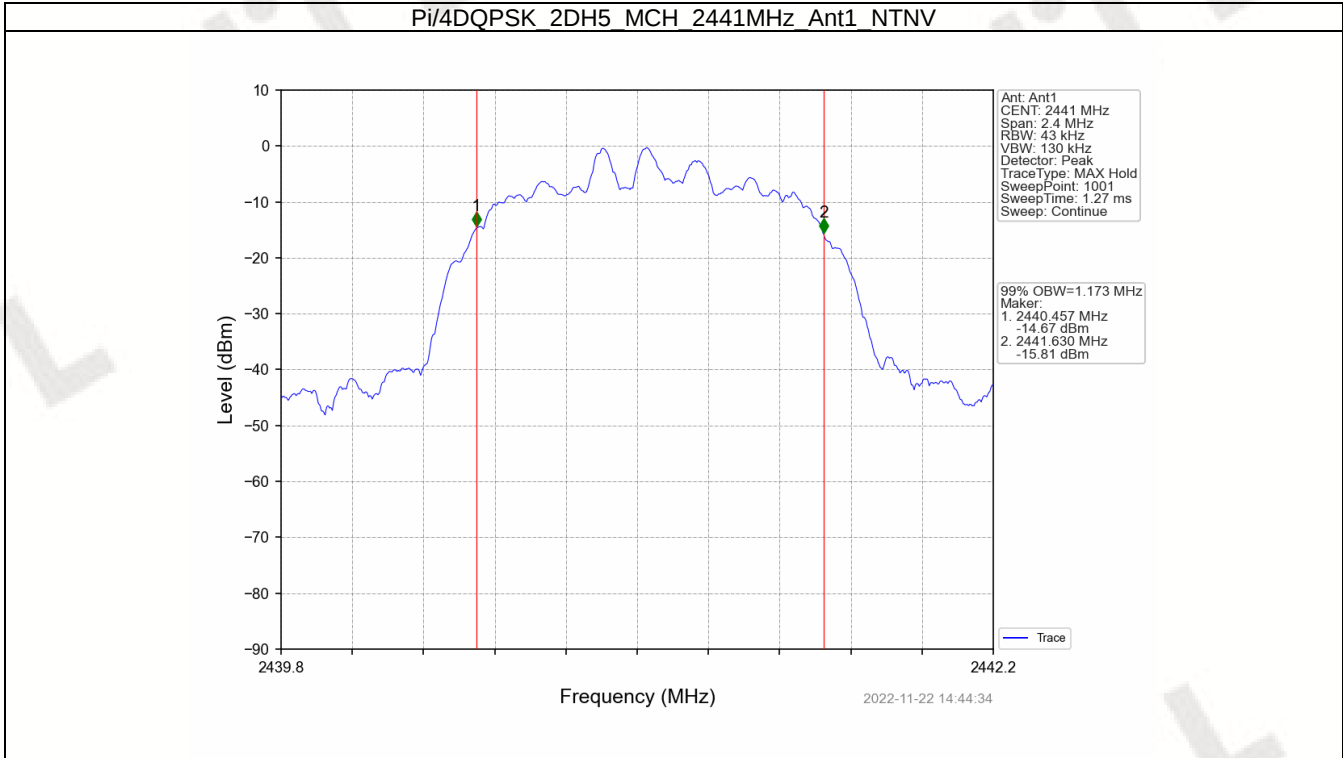
1.1.1 Test Result

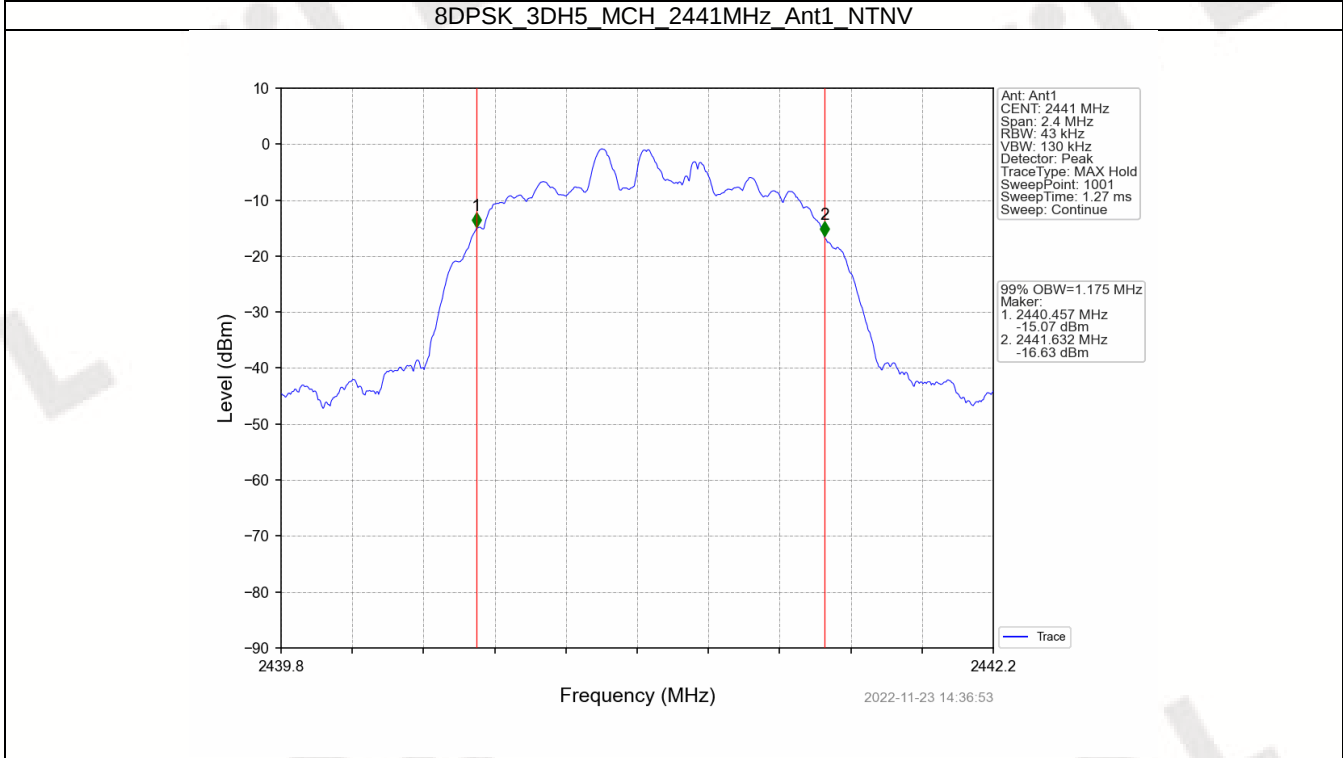
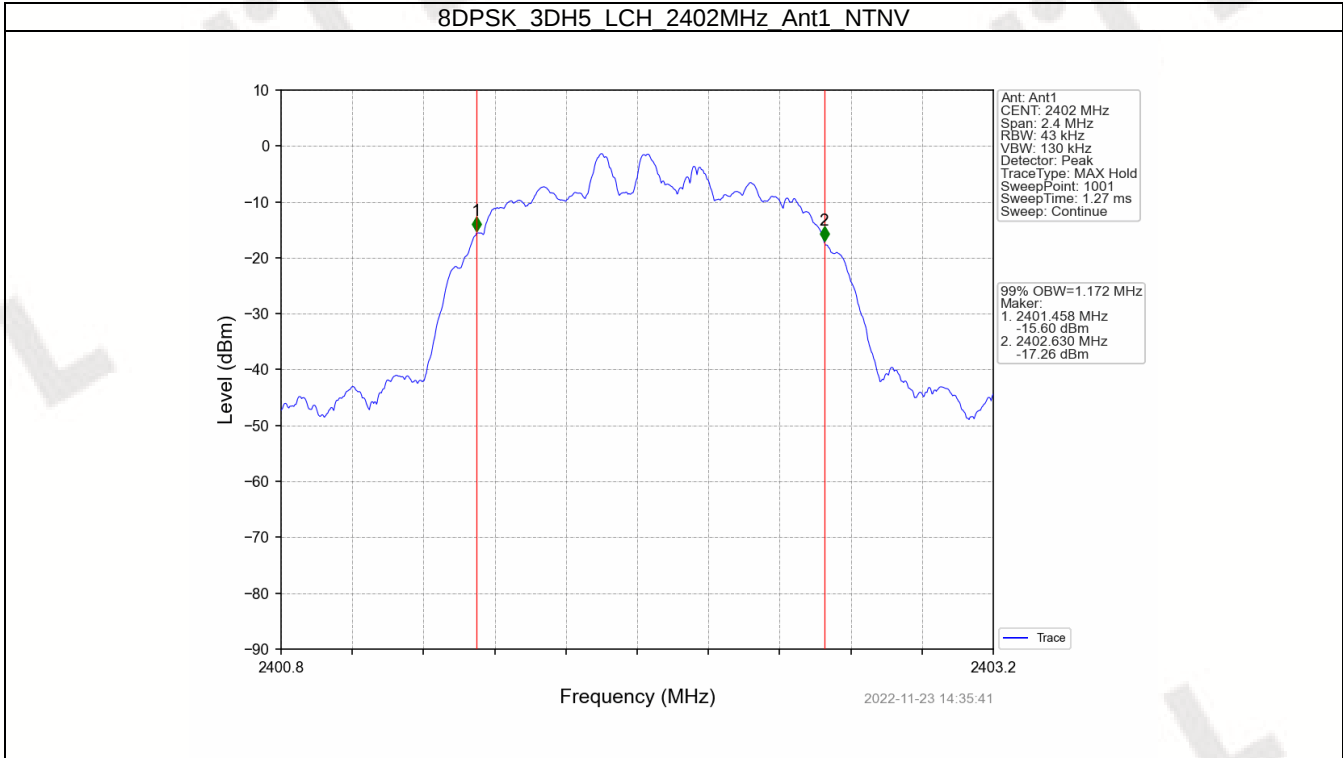
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.863	Pass
		2441	DH5	1	0.866	Pass
		2480	DH5	1	0.872	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.171	Pass
		2441	2DH5	1	1.173	Pass
		2480	2DH5	1	1.175	Pass
8DPSK	SISO	2402	3DH5	1	1.172	Pass
		2441	3DH5	1	1.175	Pass
		2480	3DH5	1	1.175	Pass

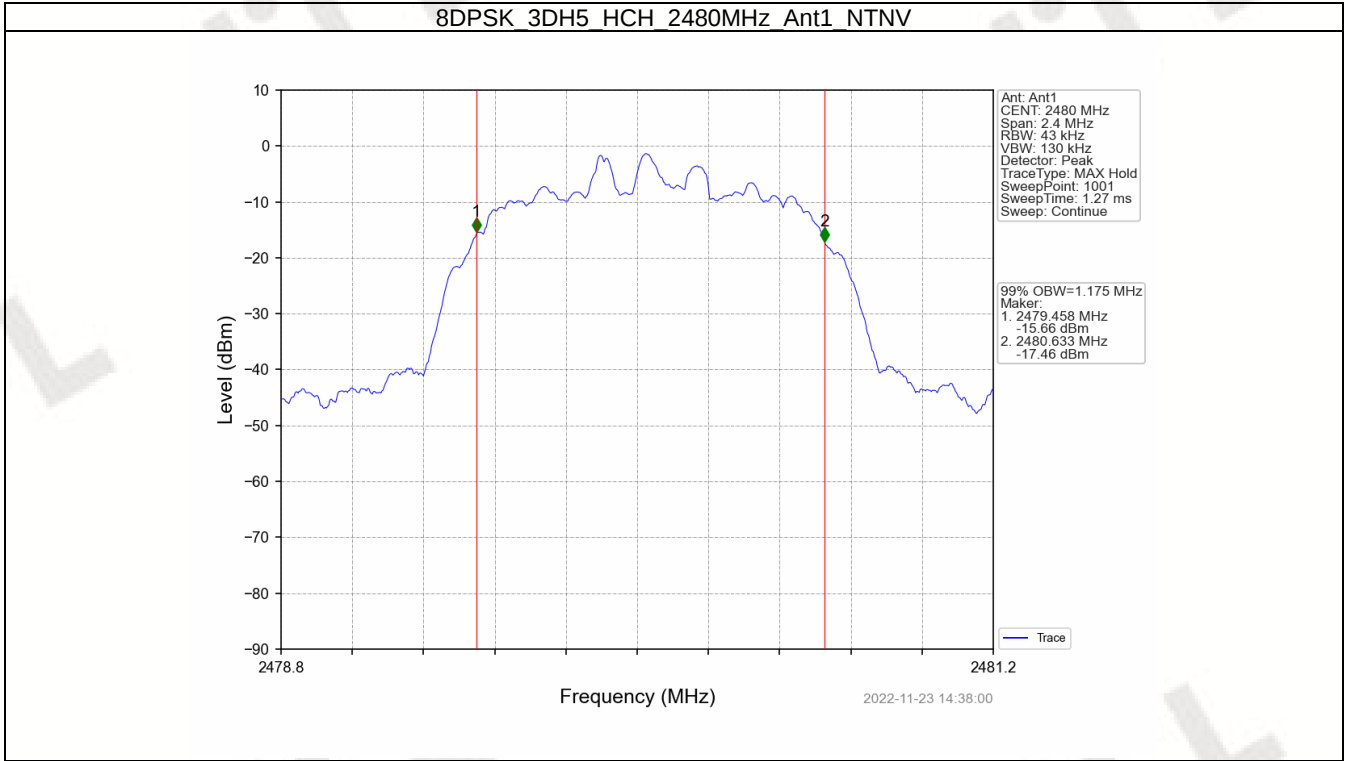
1.1.2 Test Graph









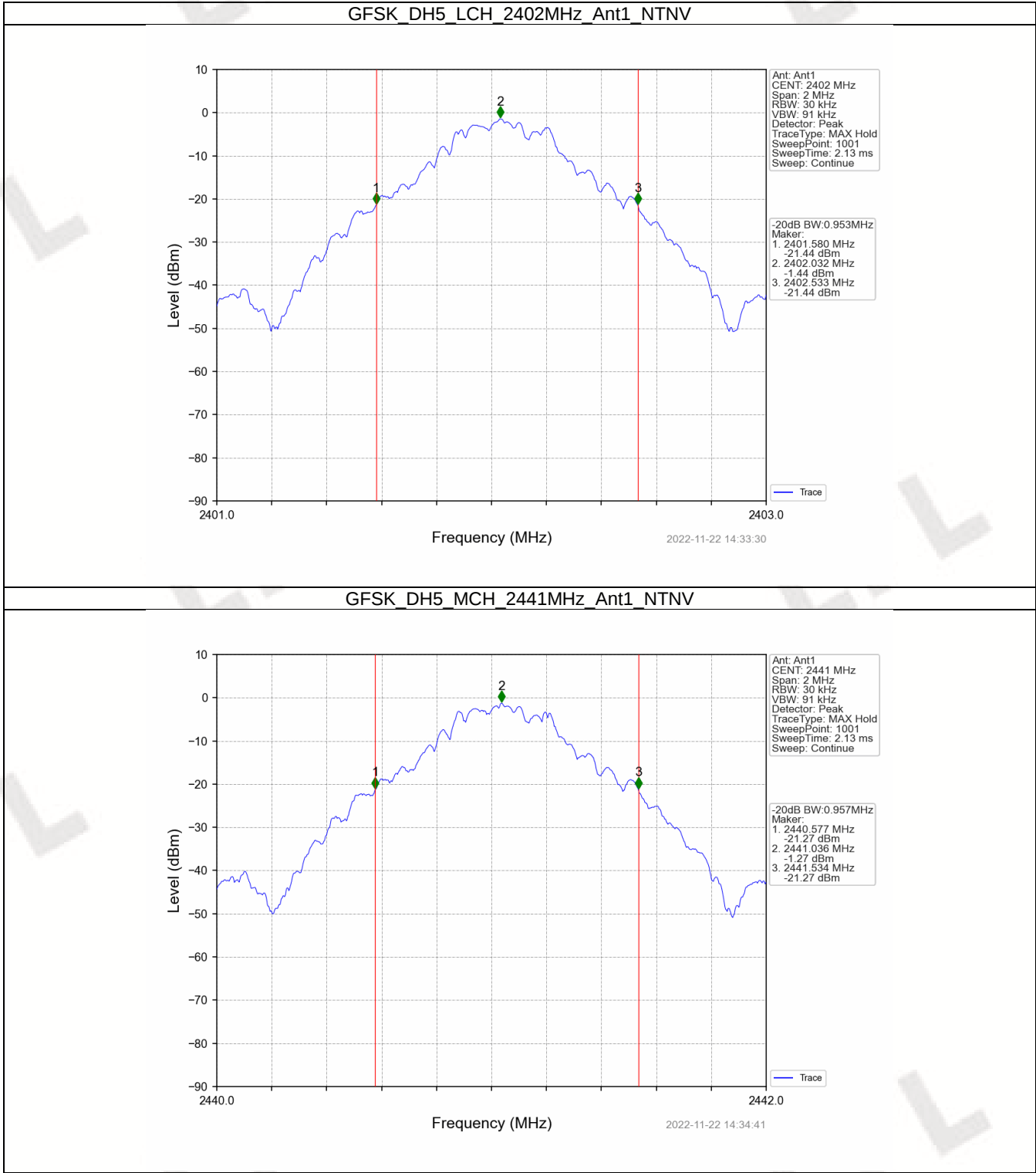


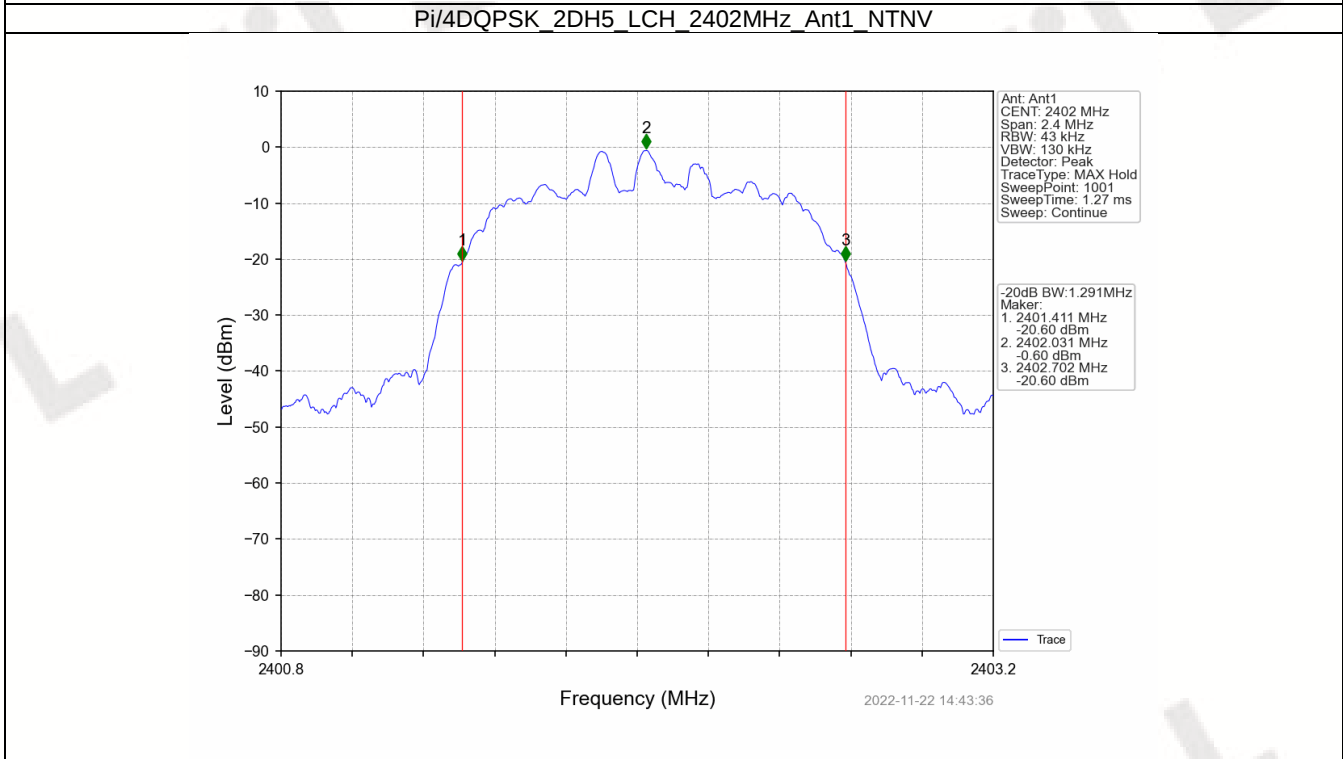
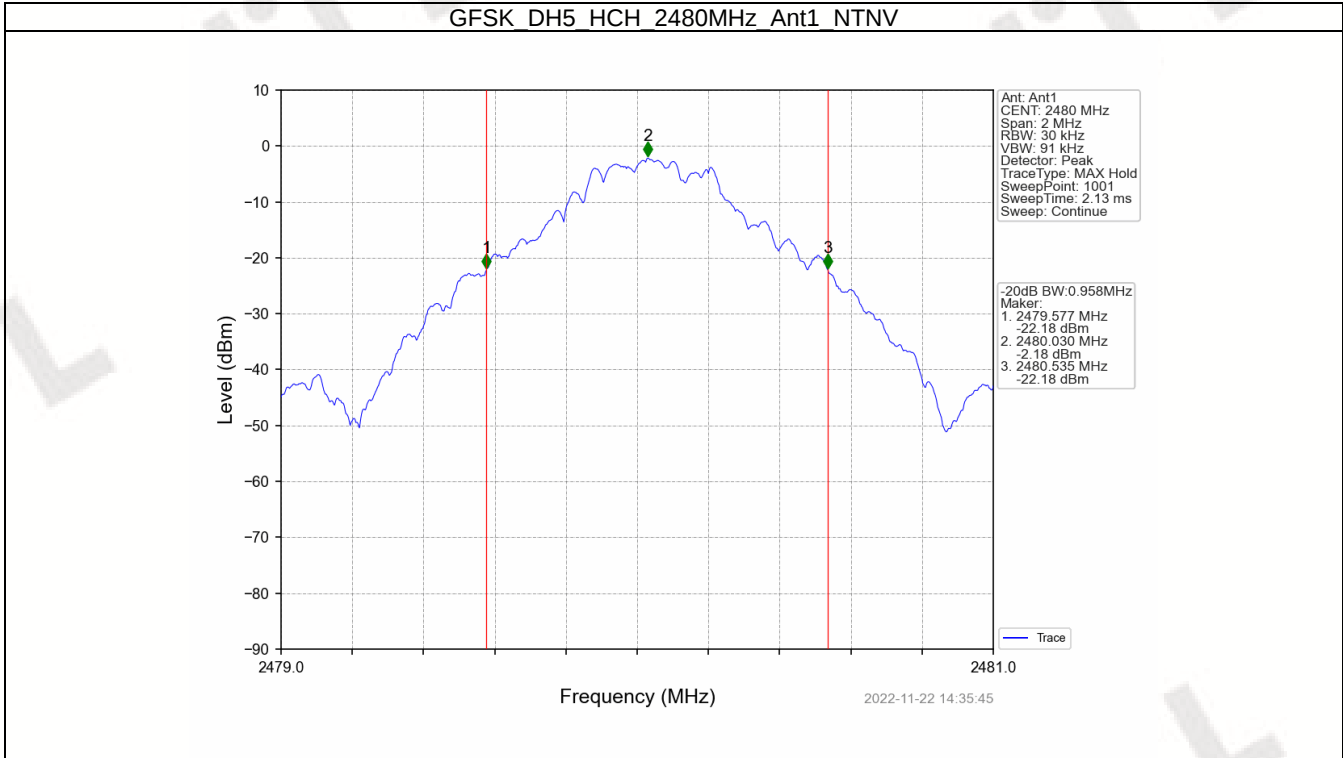
1.2 20dB BW

1.2.1 Test Result

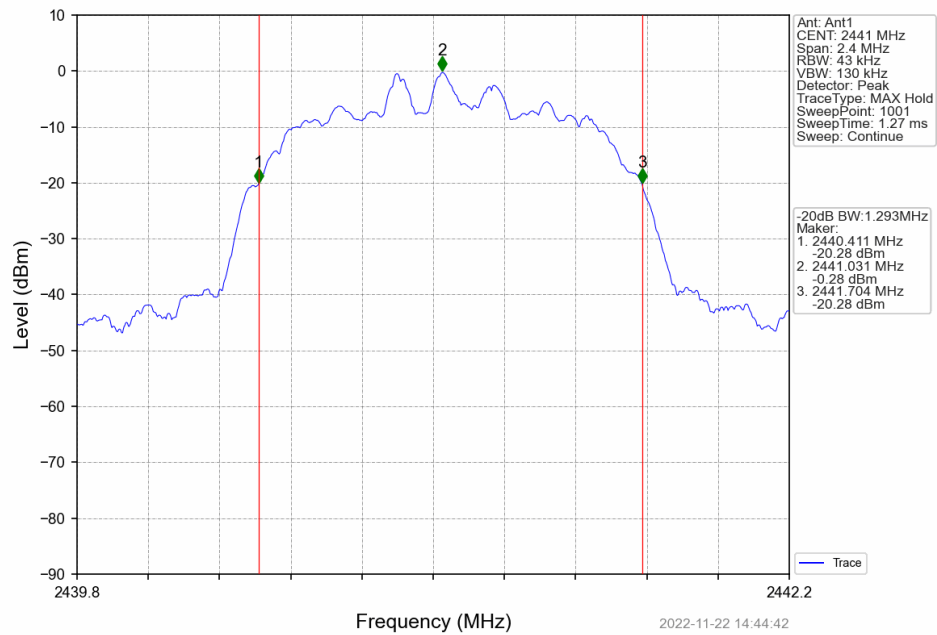
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.953	Pass
		2441	DH5	1	0.957	Pass
		2480	DH5	1	0.958	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.291	Pass
		2441	2DH5	1	1.293	Pass
		2480	2DH5	1	1.294	Pass
8DPSK	SISO	2402	3DH5	1	1.294	Pass
		2441	3DH5	1	1.295	Pass
		2480	3DH5	1	1.296	Pass

1.2.2 Test Graph

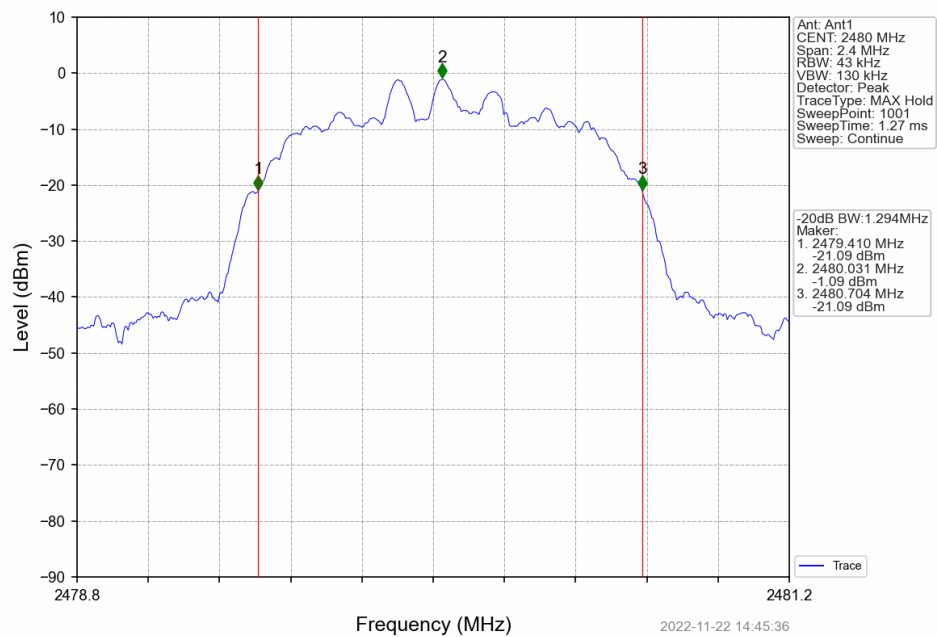


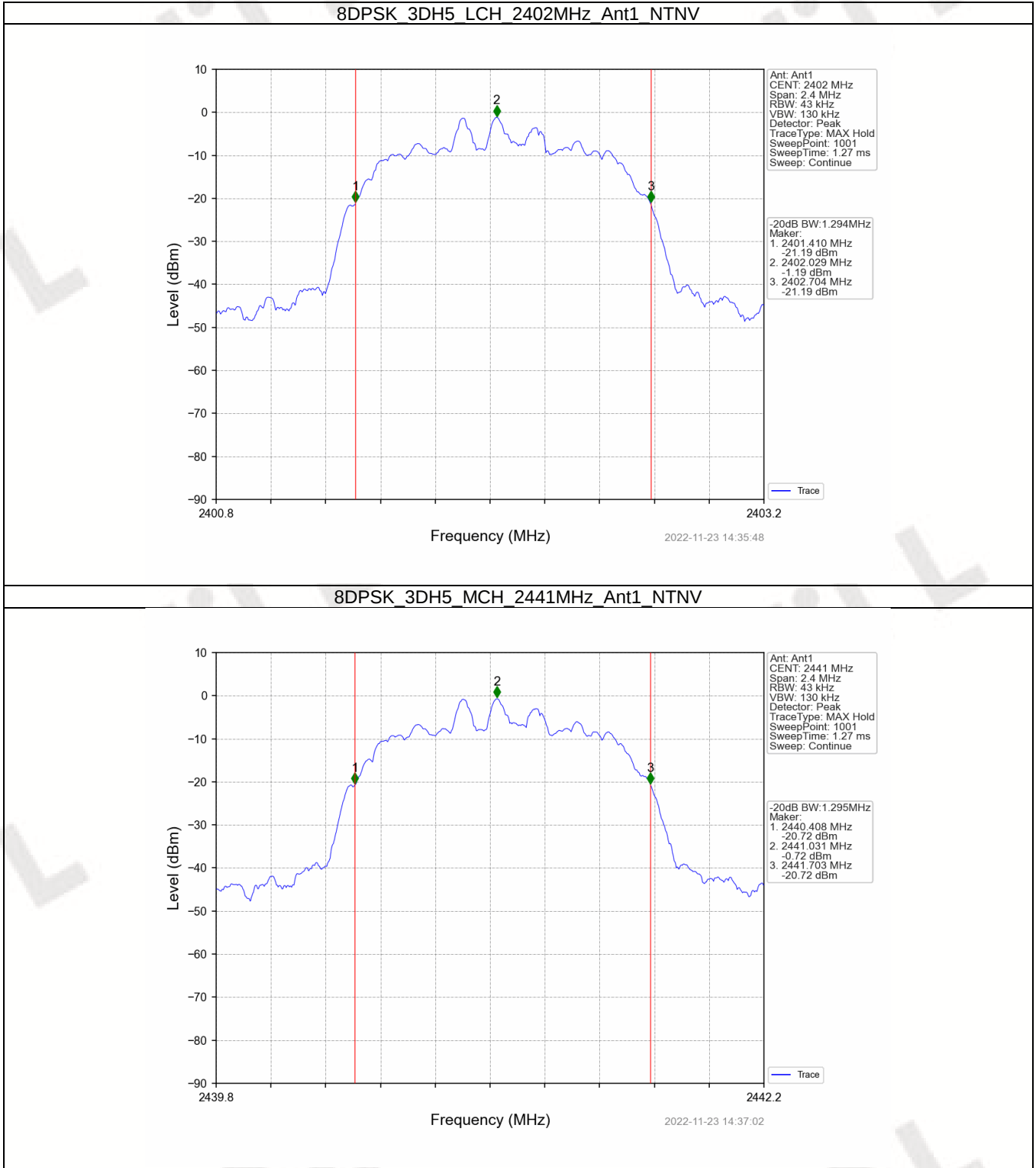


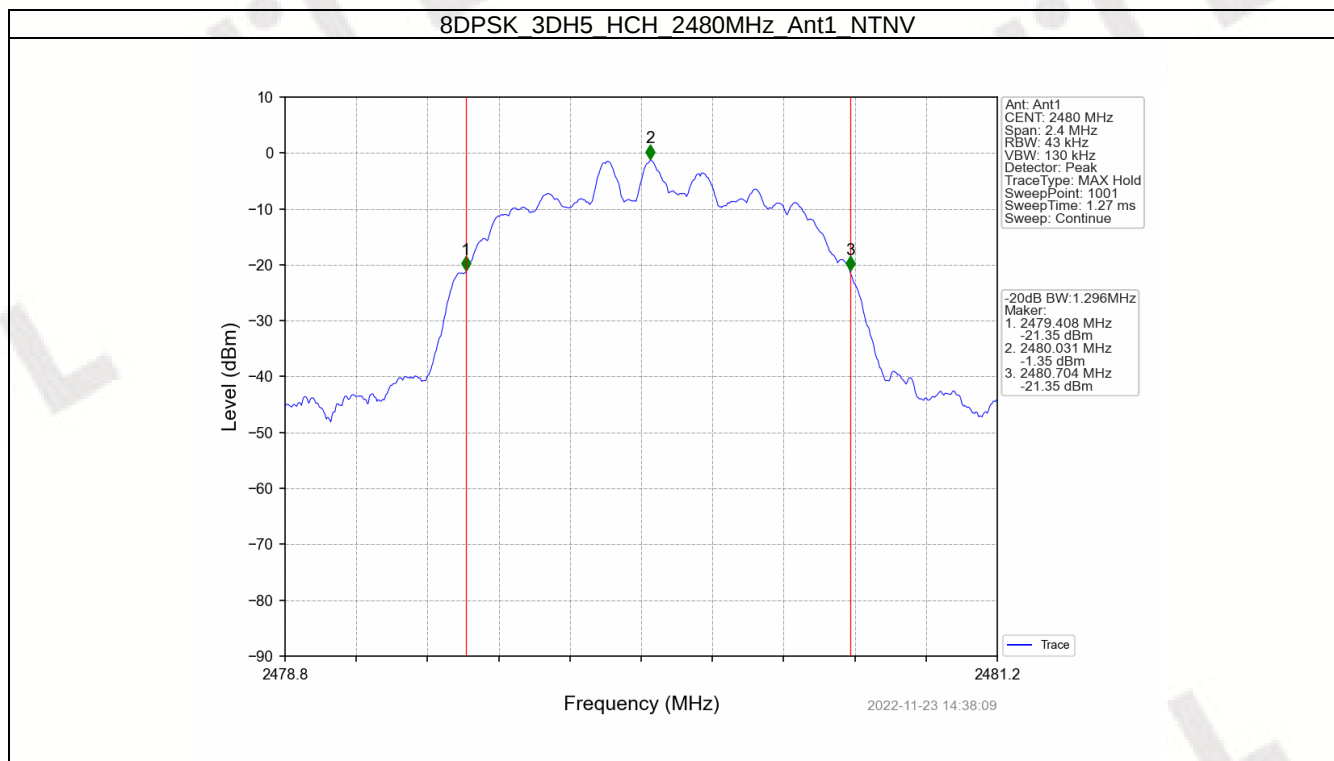
Pi/4DQPSK 2DH5 MCH 2441MHz Ant1 NTN



Pi/4DQPSK 2DH5 HCH 2480MHz Ant1 NTN







2. Maximum Conducted Output Power

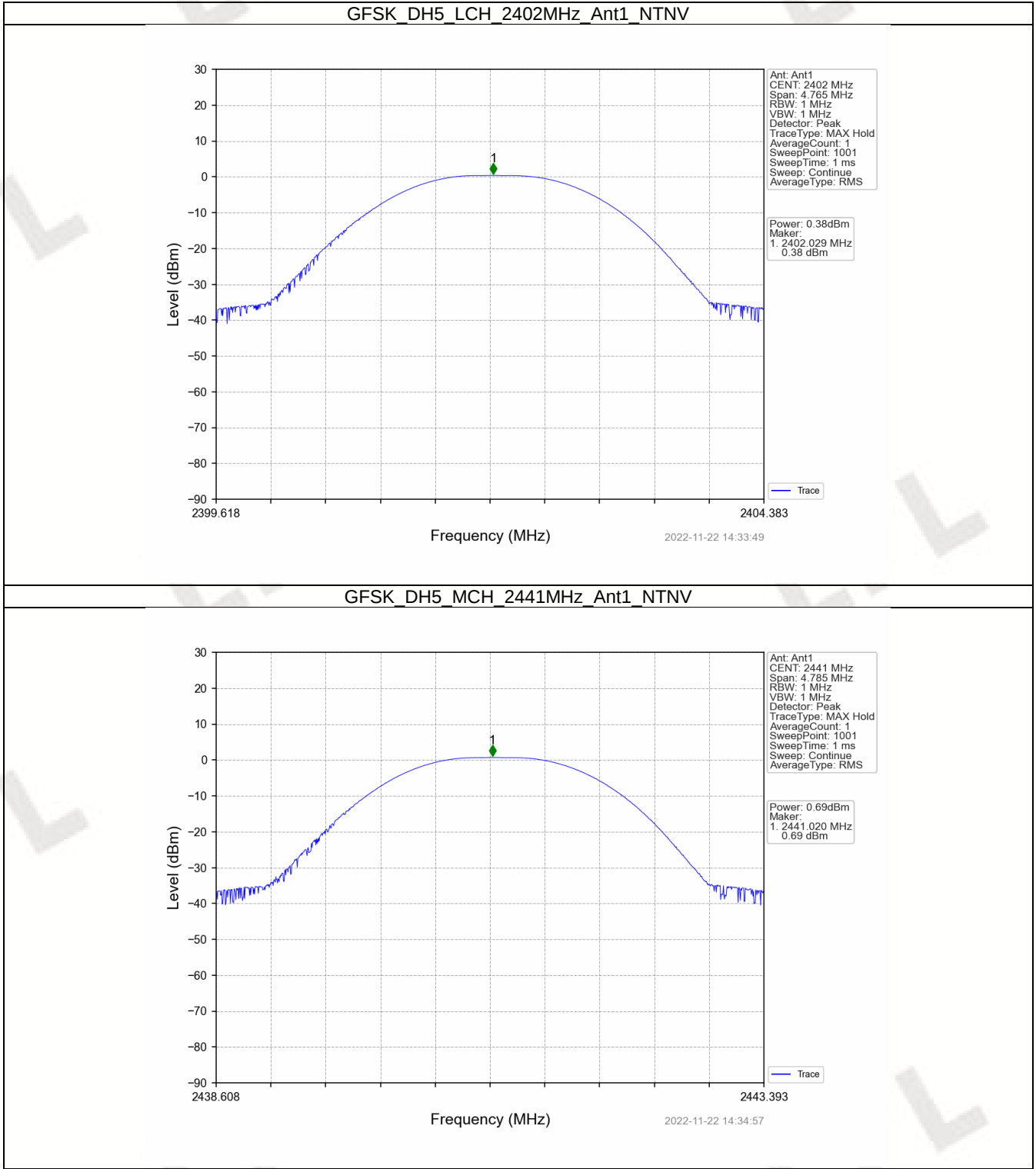
2.1 Power

2.1.1 Test Result

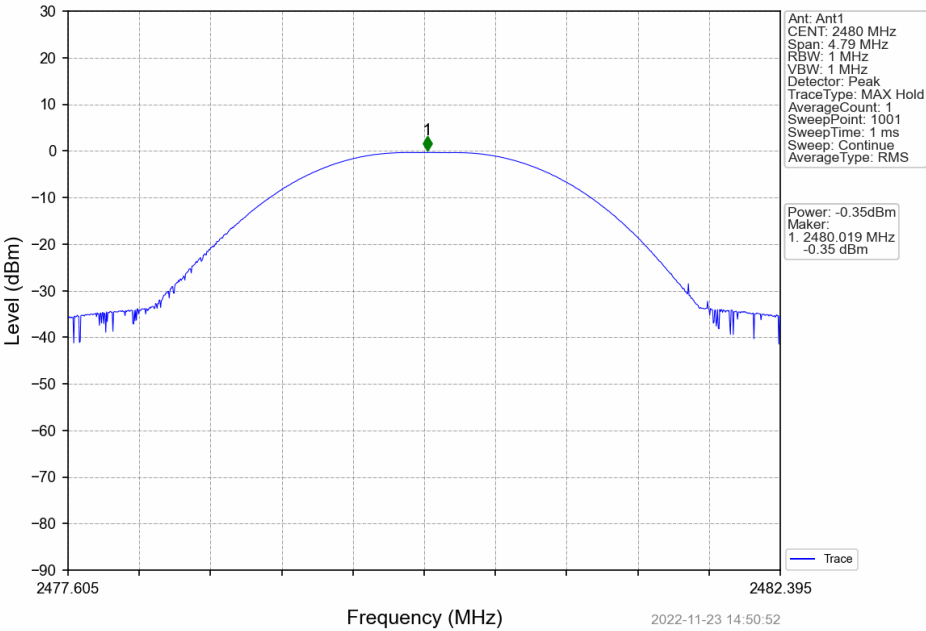
Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	0.38	<=30	Pass
		2441	DH5	0.69	<=30	Pass
		2480	DH5	-0.35	<=30	Pass
Pi/4DQPSK	SISO	2402	2DH5	0.53	<=20.97	Pass
		2441	2DH5	1.02	<=20.97	Pass
		2480	2DH5	0.75	<=20.97	Pass
8DPSK	SISO	2402	3DH5	0.53	<=20.97	Pass
		2441	3DH5	1.03	<=20.97	Pass
		2480	3DH5	0.48	<=20.97	Pass

Note1: Antenna Gain: Ant1: -0.68dBi;

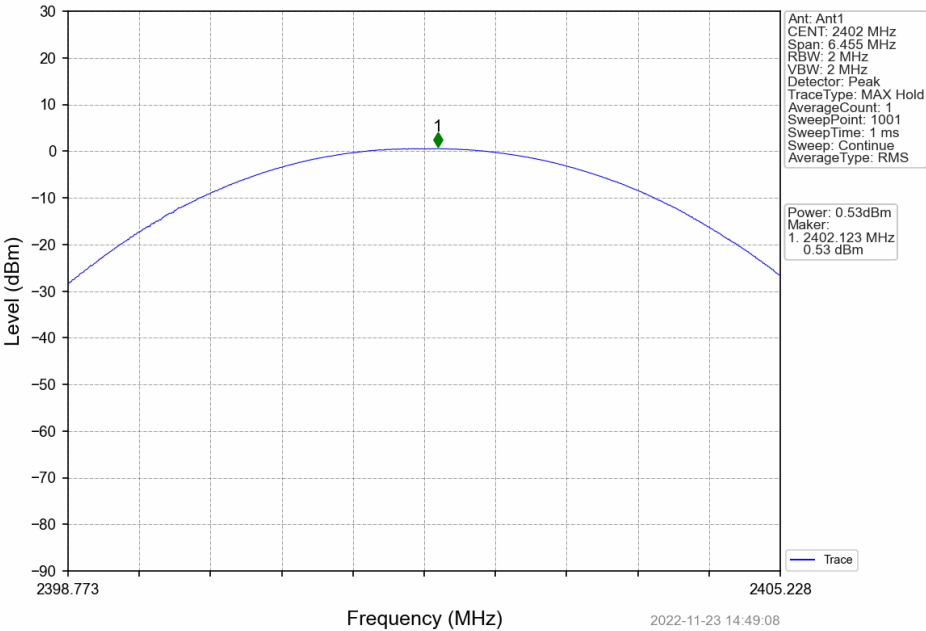
2.1.2 Test Graph



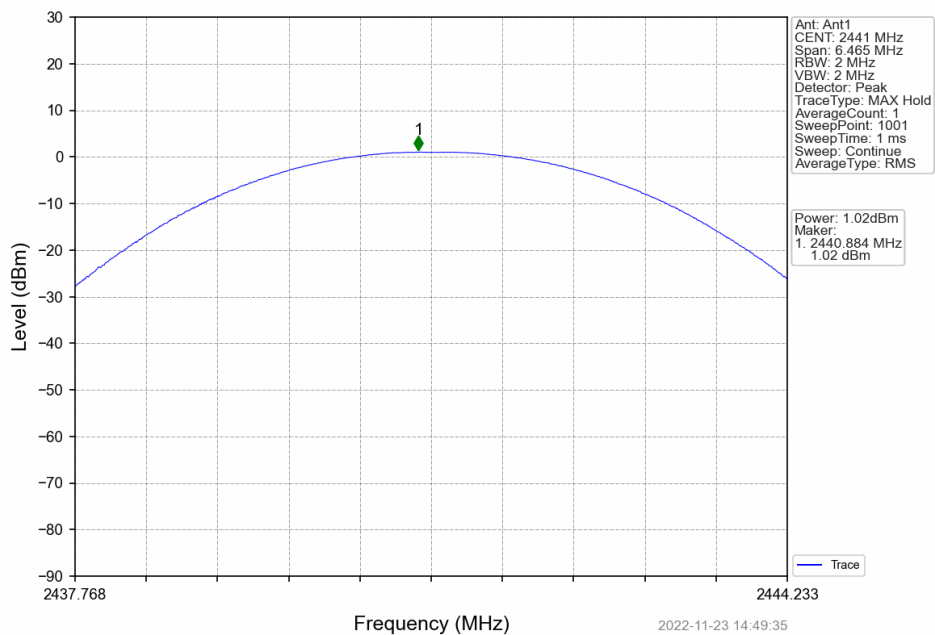
GFSK DH5 HCH 2480MHz Ant1 NTN



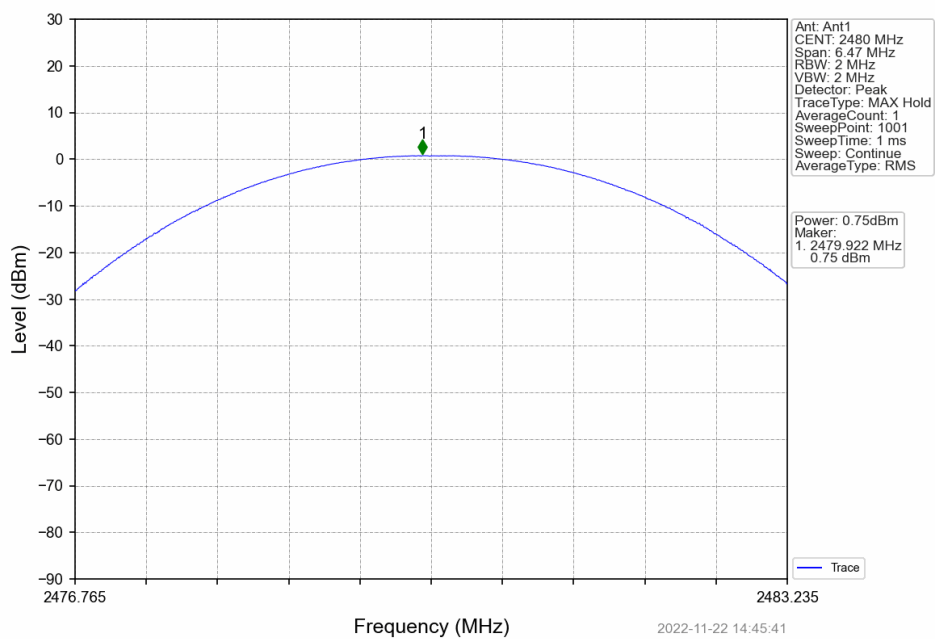
Pi/4DQPSK 2DH5 LCH 2402MHz Ant1 NTN

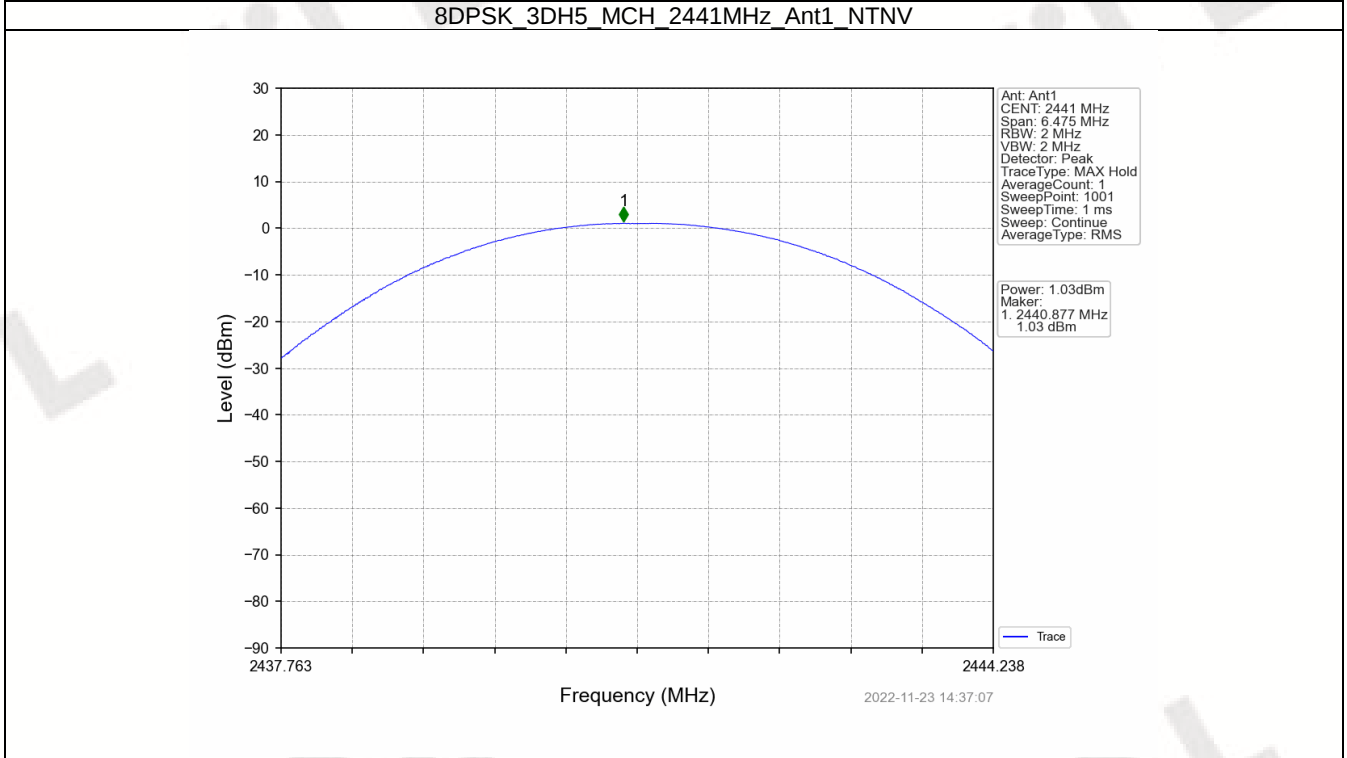
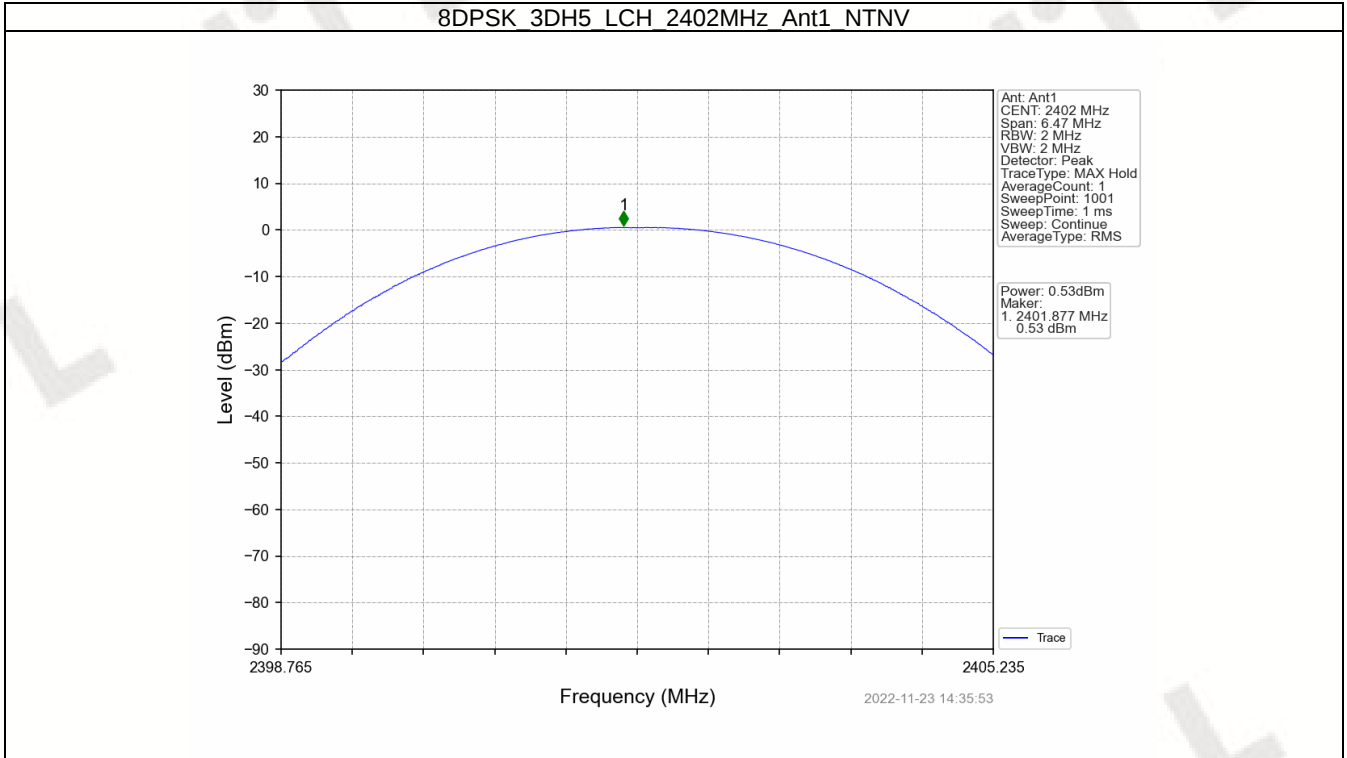


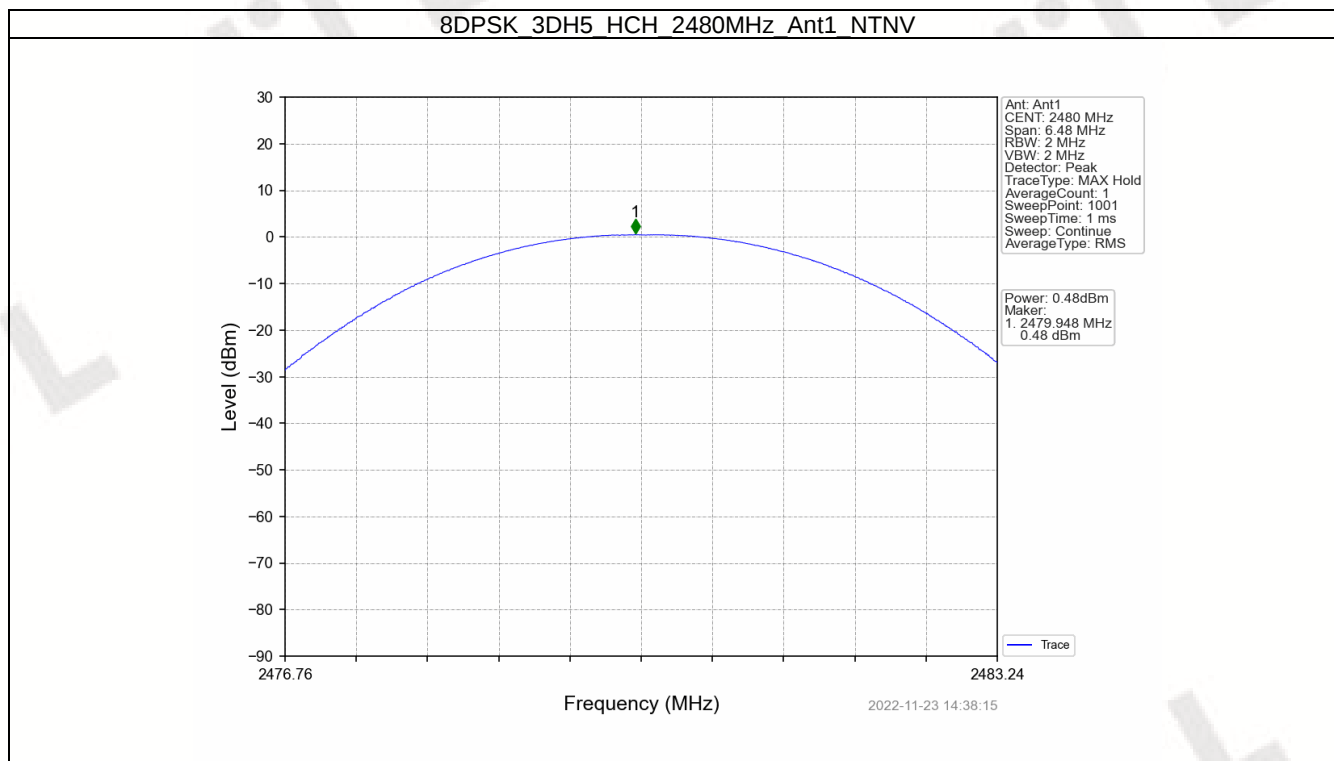
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV







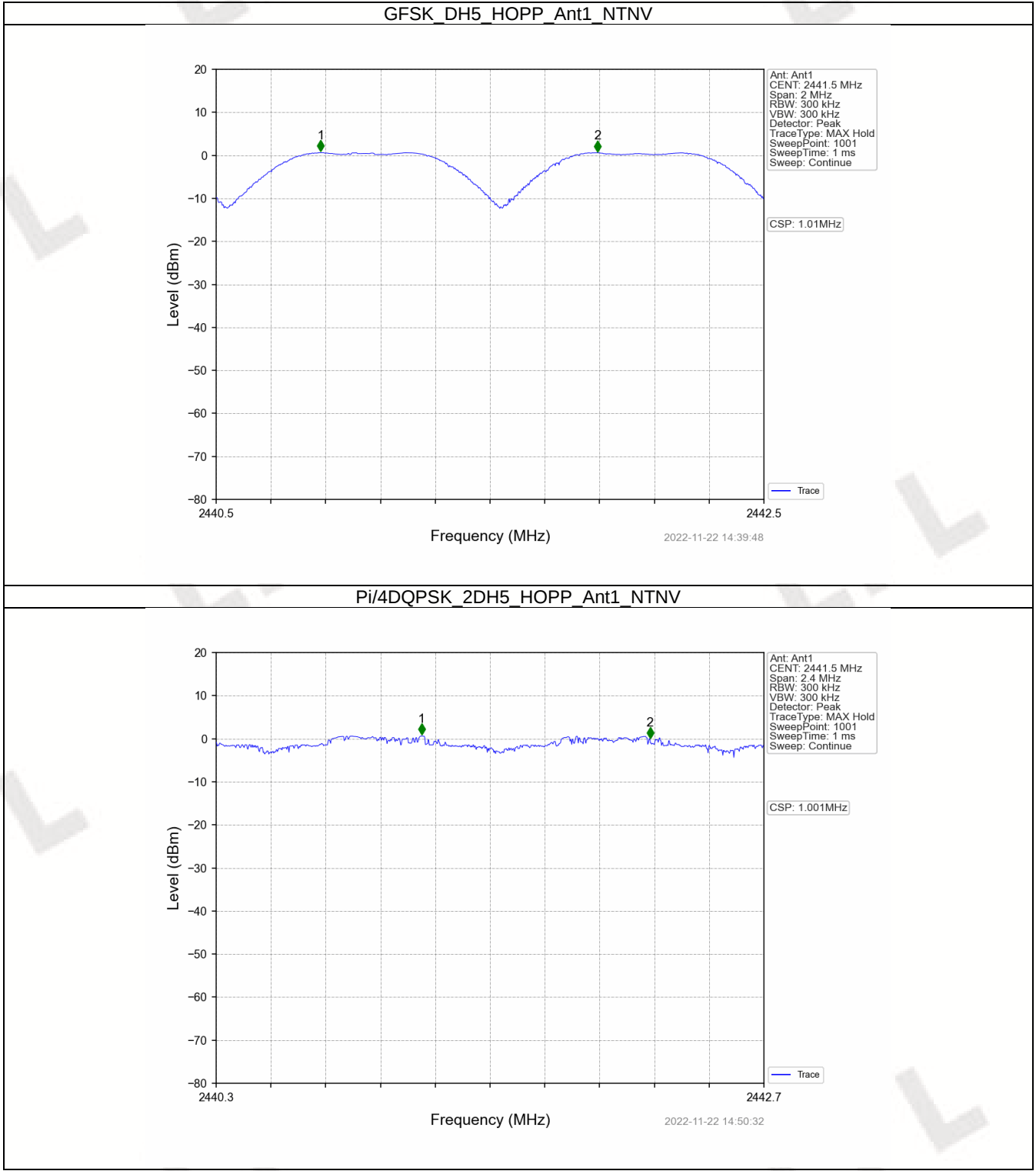
3. Carrier Frequency Separation

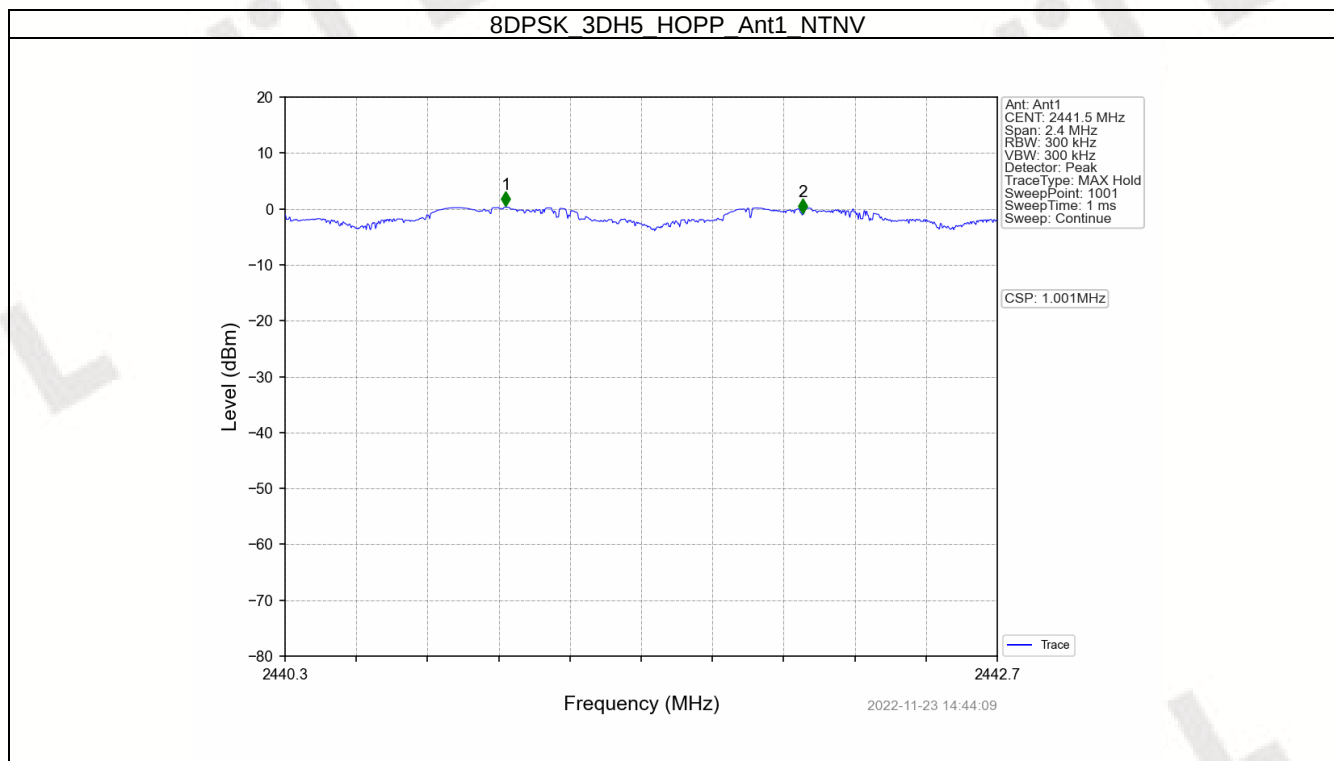
3.1 Ant1

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	1.010	0.958	≥ 0.958	Pass
PI/4DQPSK	SISO	HOPP	2DH5	1.001	1.294	≥ 0.863	Pass
8DPSK	SISO	HOPP	3DH5	1.001	1.296	≥ 0.864	Pass

3.1.2 Test Graph





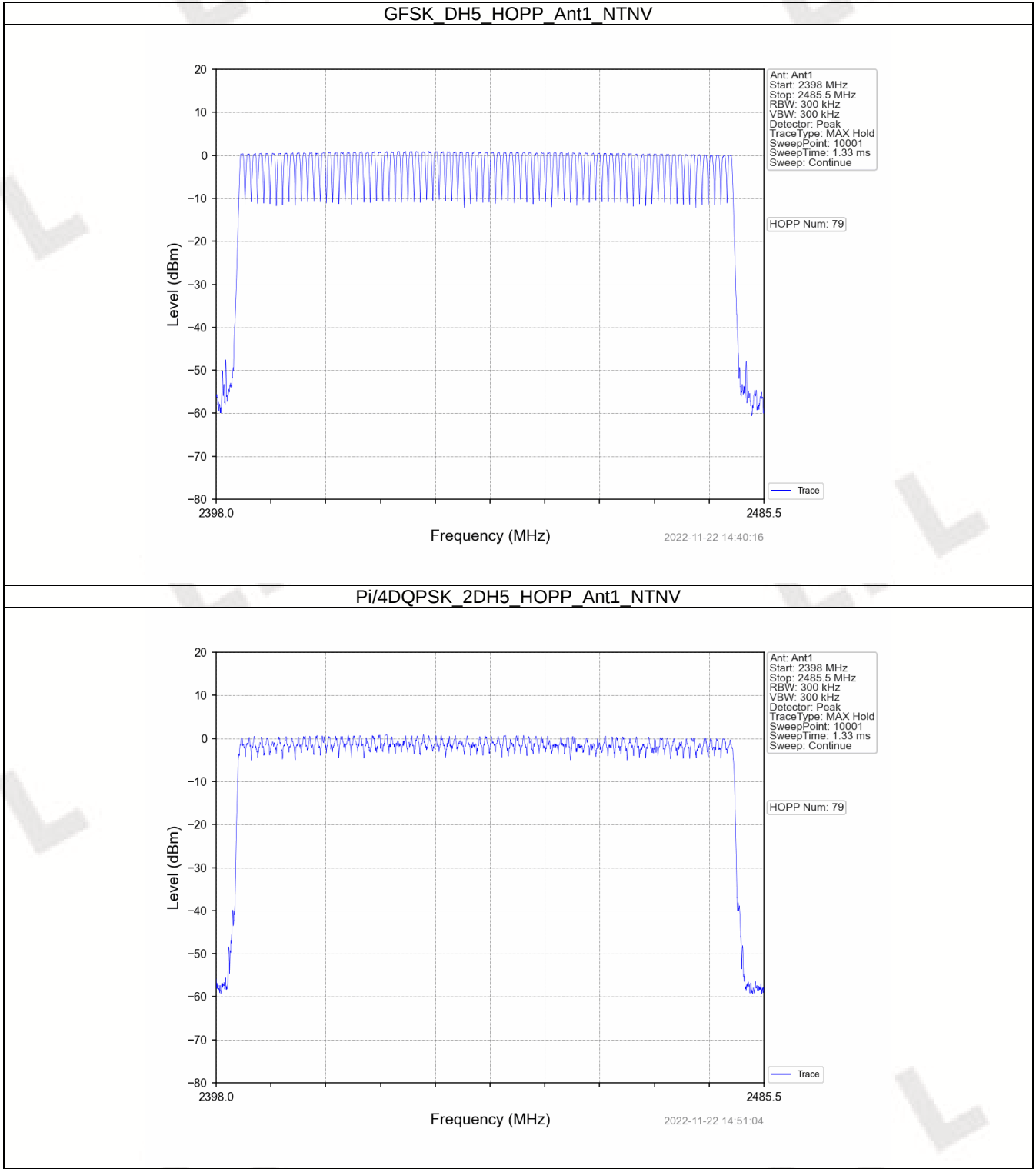
4. Number of Hopping Frequencies

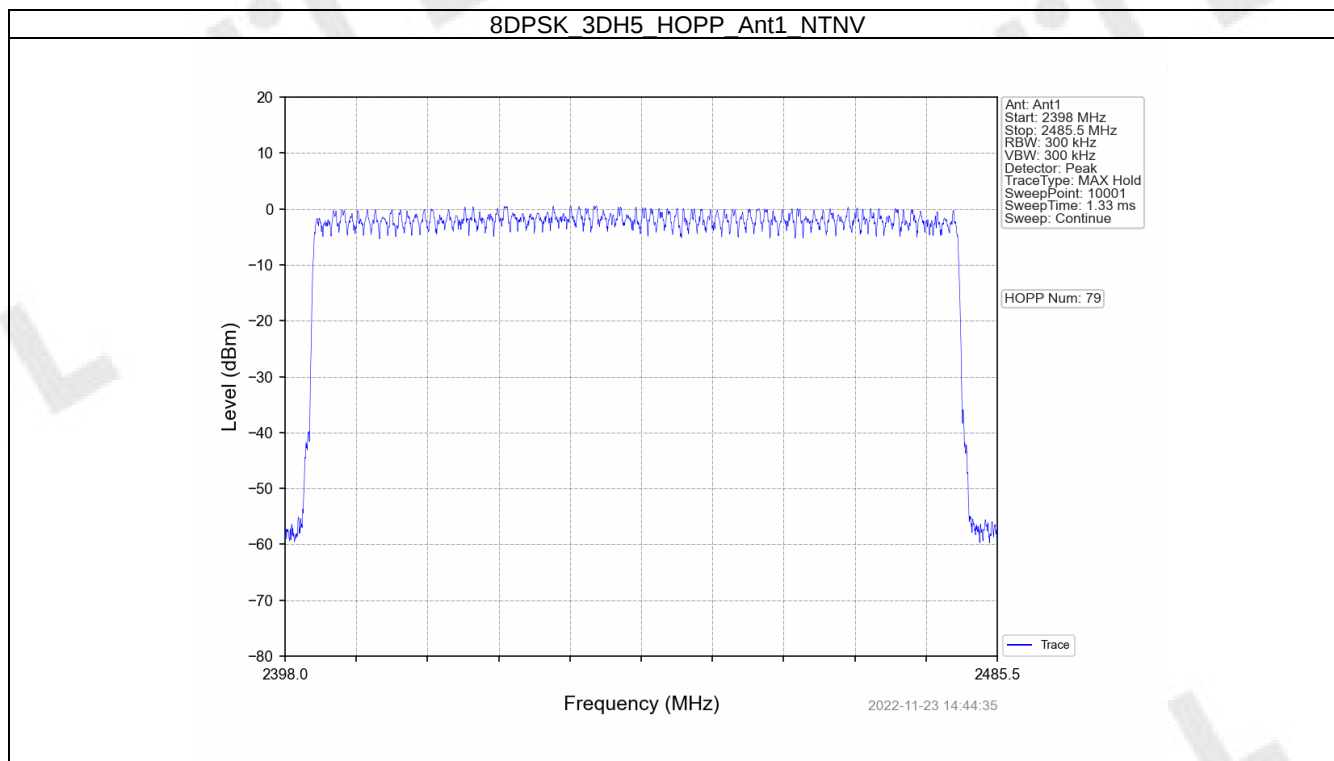
4.1 HoppNum

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





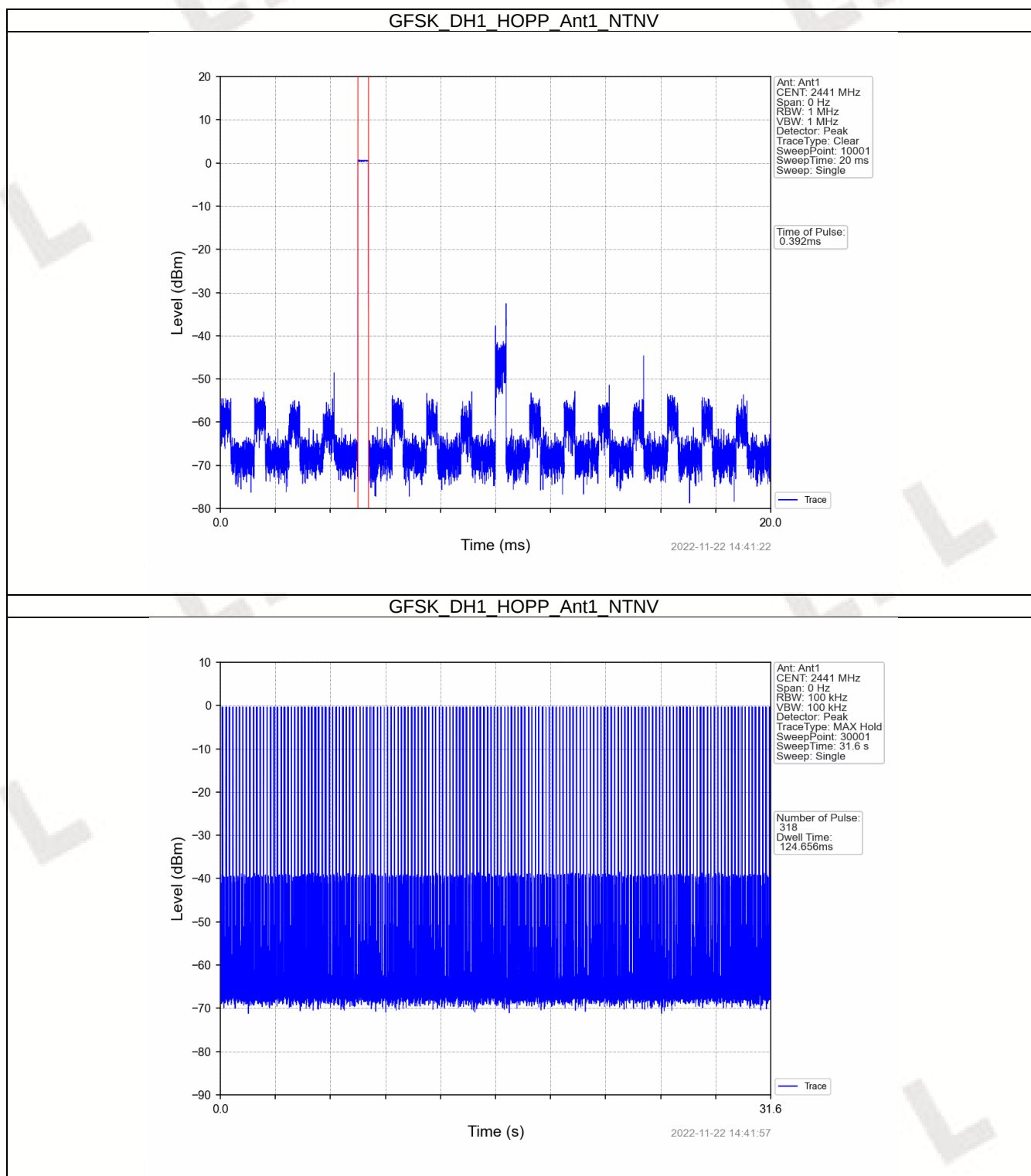
5. Time of Occupancy (Dwell Time)

5.1 Ant1

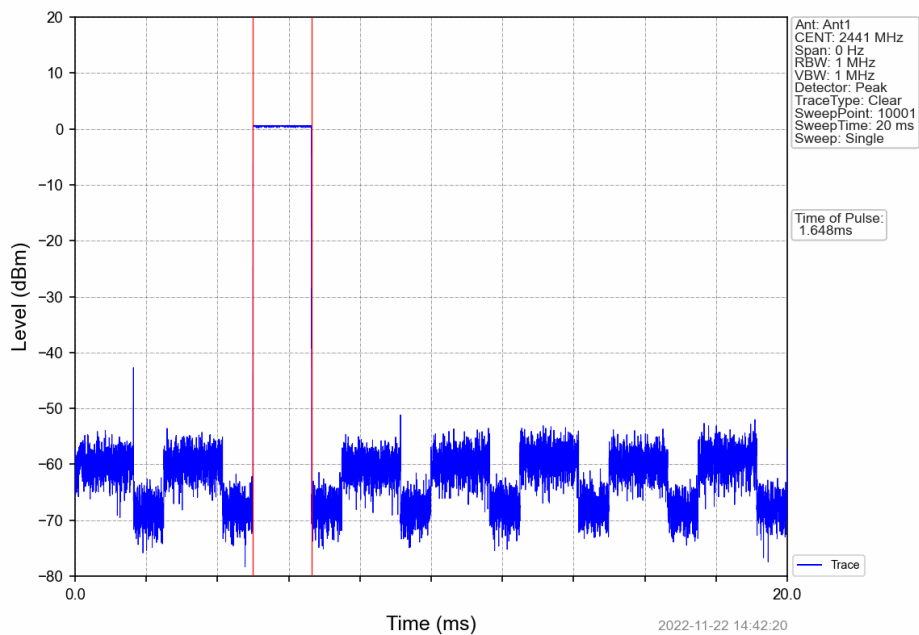
5.1.1 Test Result

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	0.392	31.600	318	124.656	<=400	Pass
			DH3	1.648	31.600	151	248.848	<=400	Pass
			DH5	2.894	31.600	103	298.082	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.396	31.600	319	126.324	<=400	Pass
			2DH3	1.648	31.600	158	260.384	<=400	Pass
			2DH5	2.902	31.600	117	339.534	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.396	31.600	318	125.928	<=400	Pass
			3DH3	1.648	31.600	155	255.440	<=400	Pass
			3DH5	2.900	31.600	92	266.800	<=400	Pass

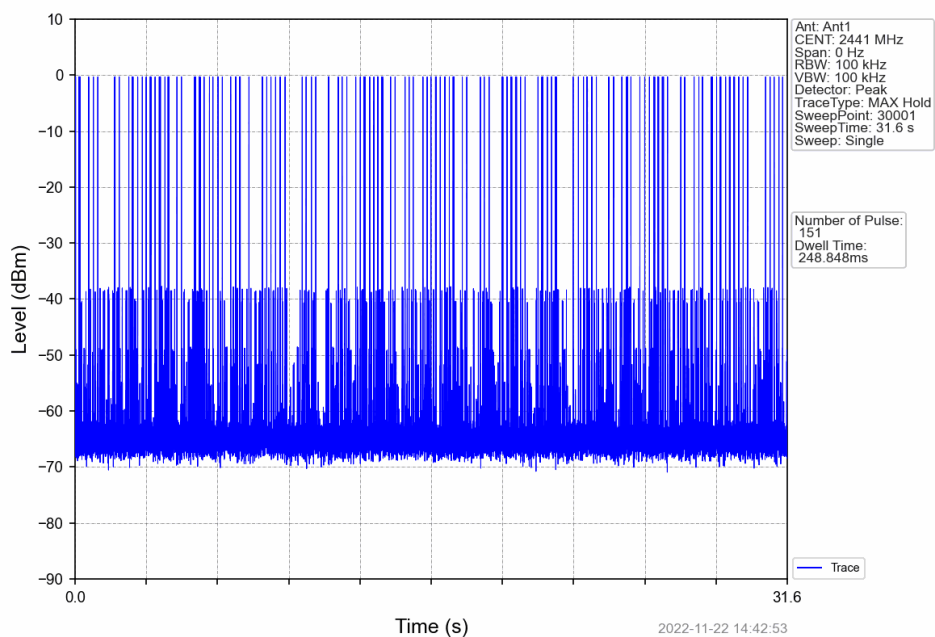
5.1.2 Test Graph

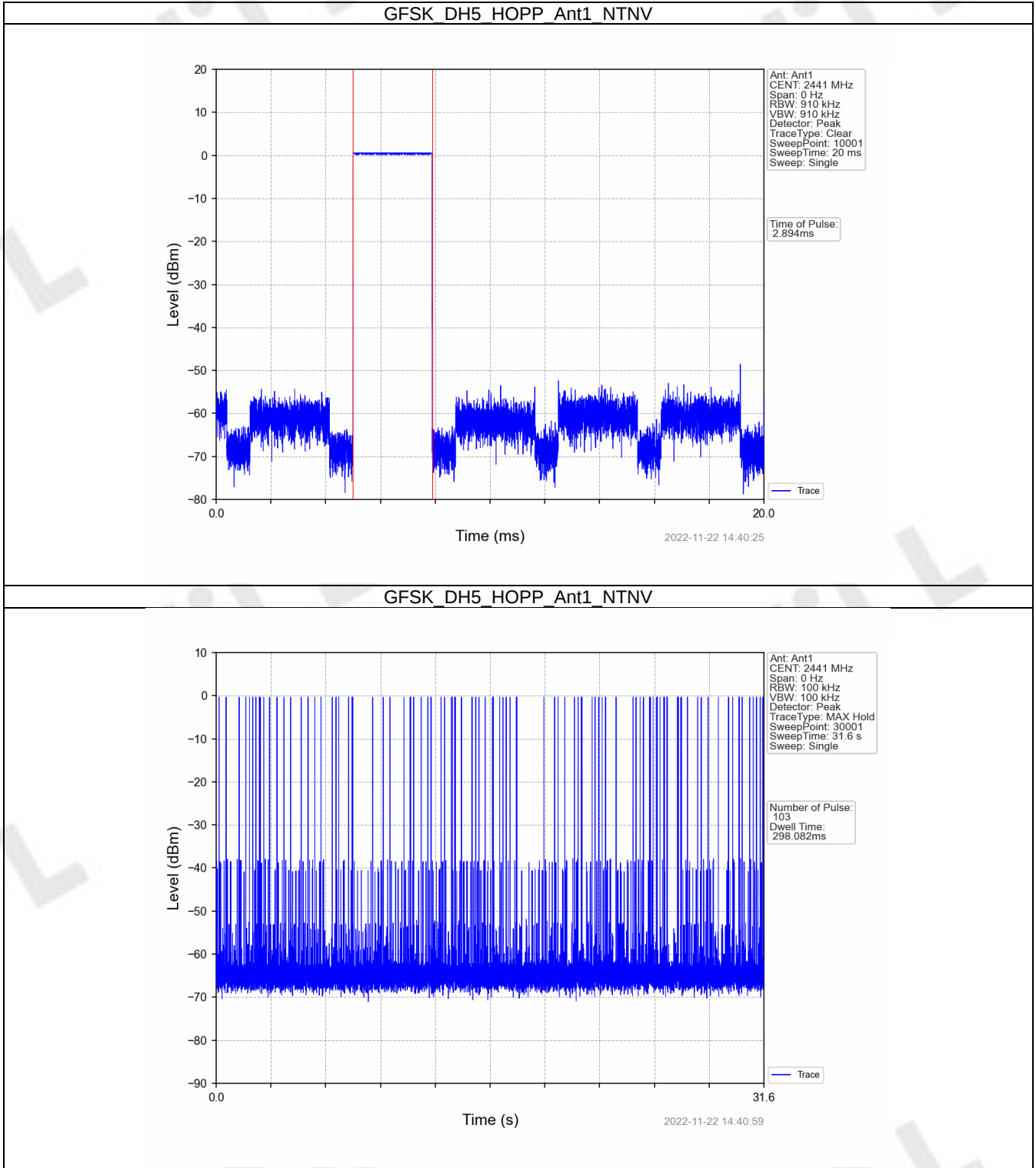


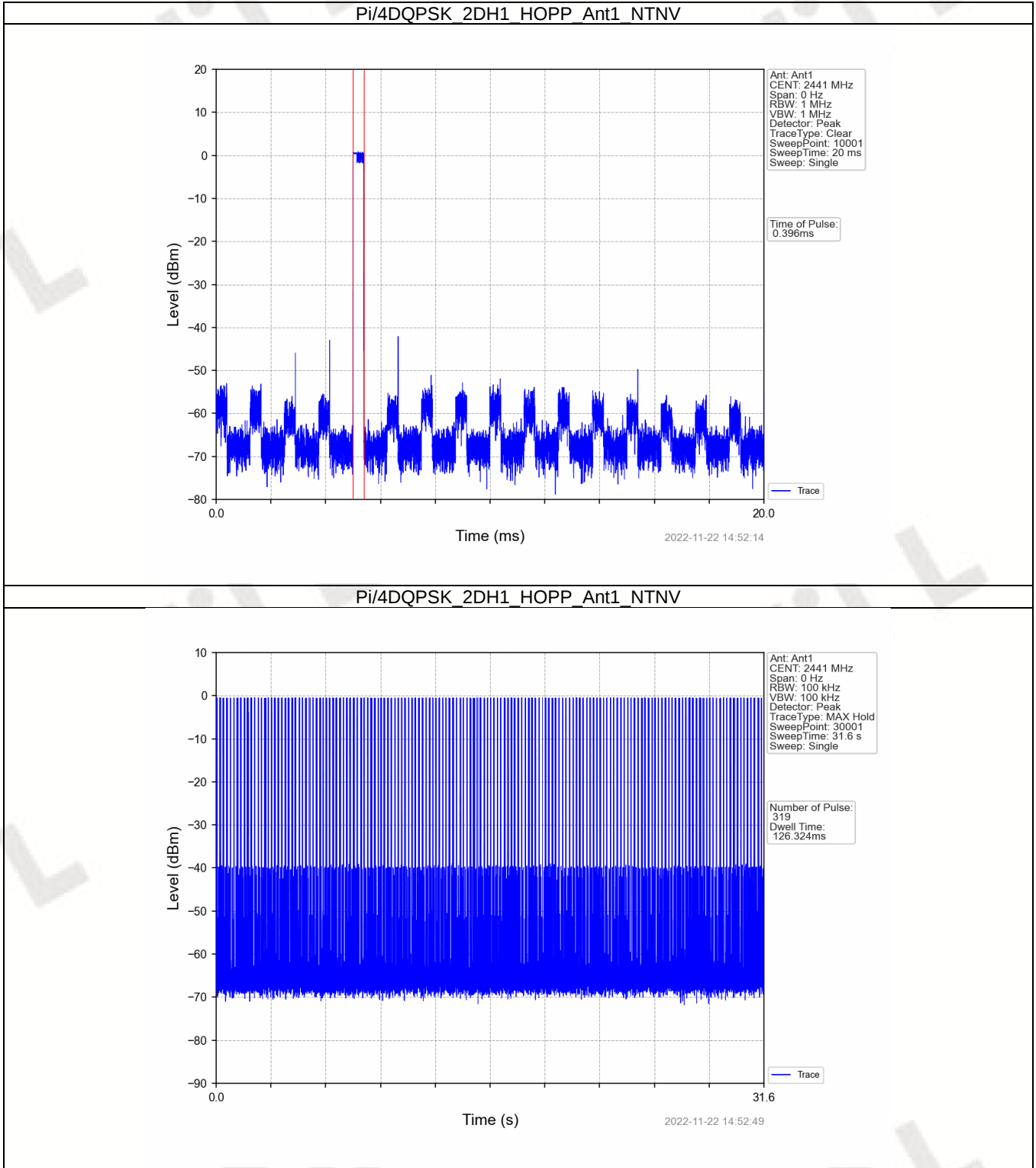
GFSK DH3 HOPP Ant1 NTN

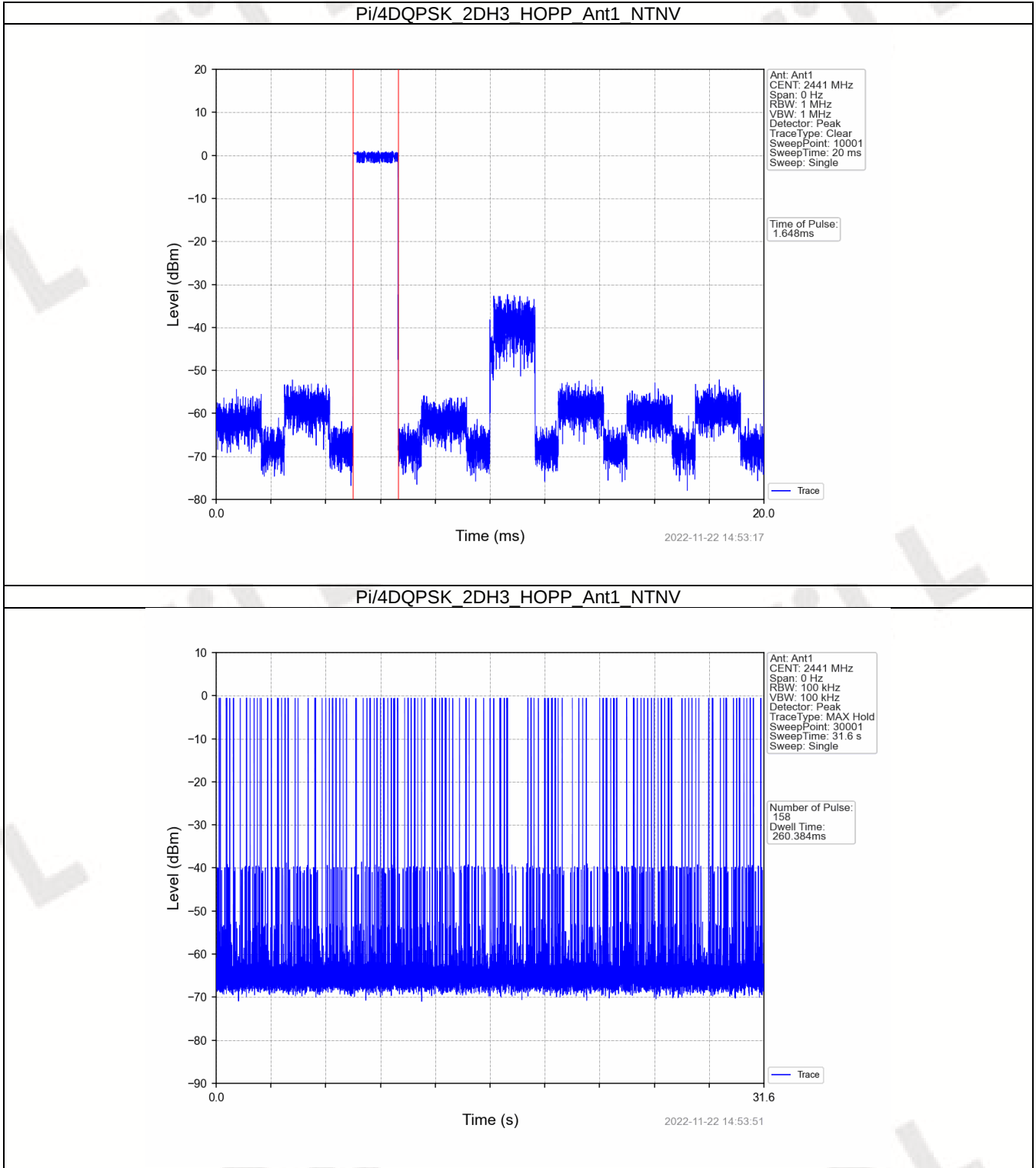


GFSK_DH3_HOPP_Ant1_NTNV

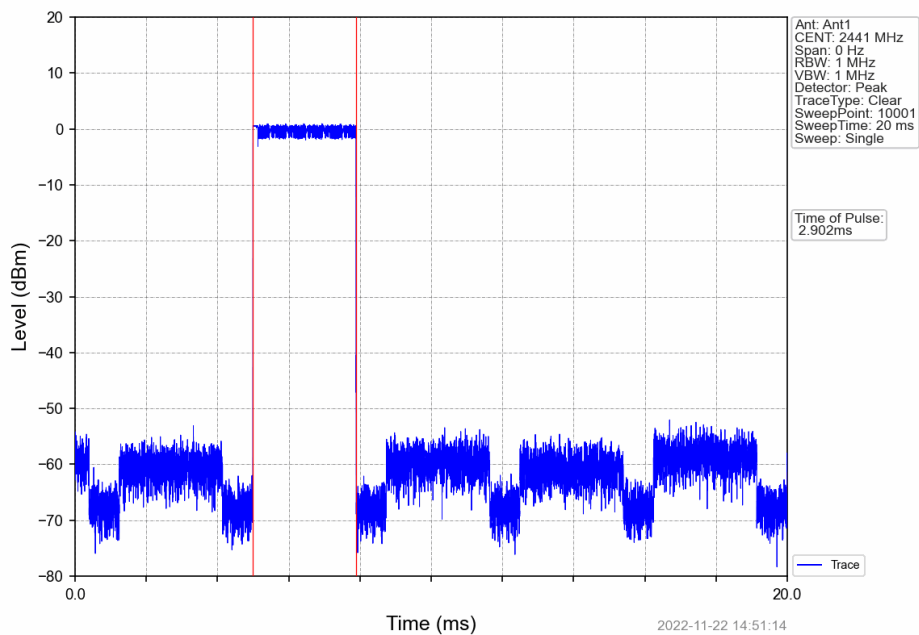




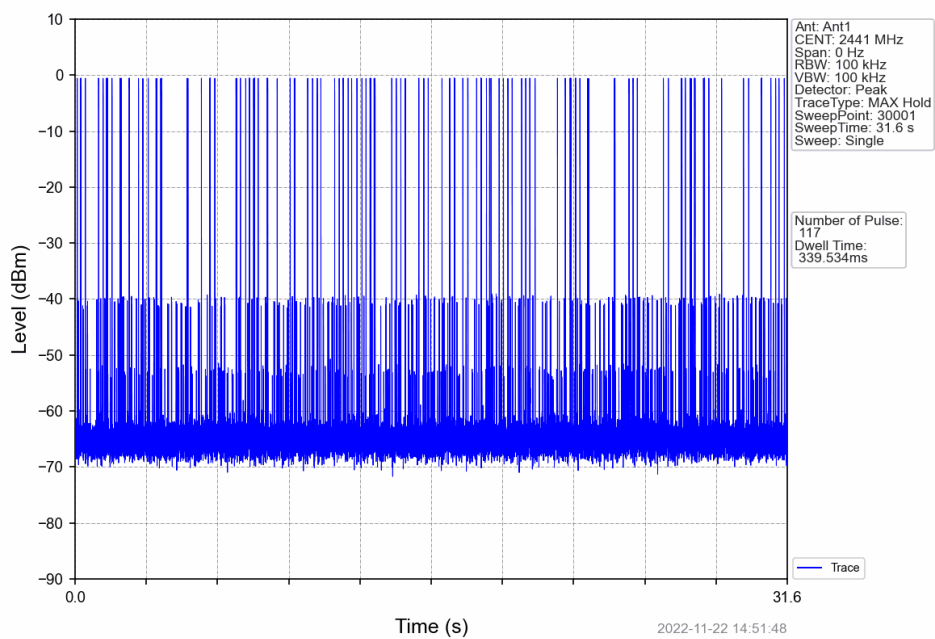


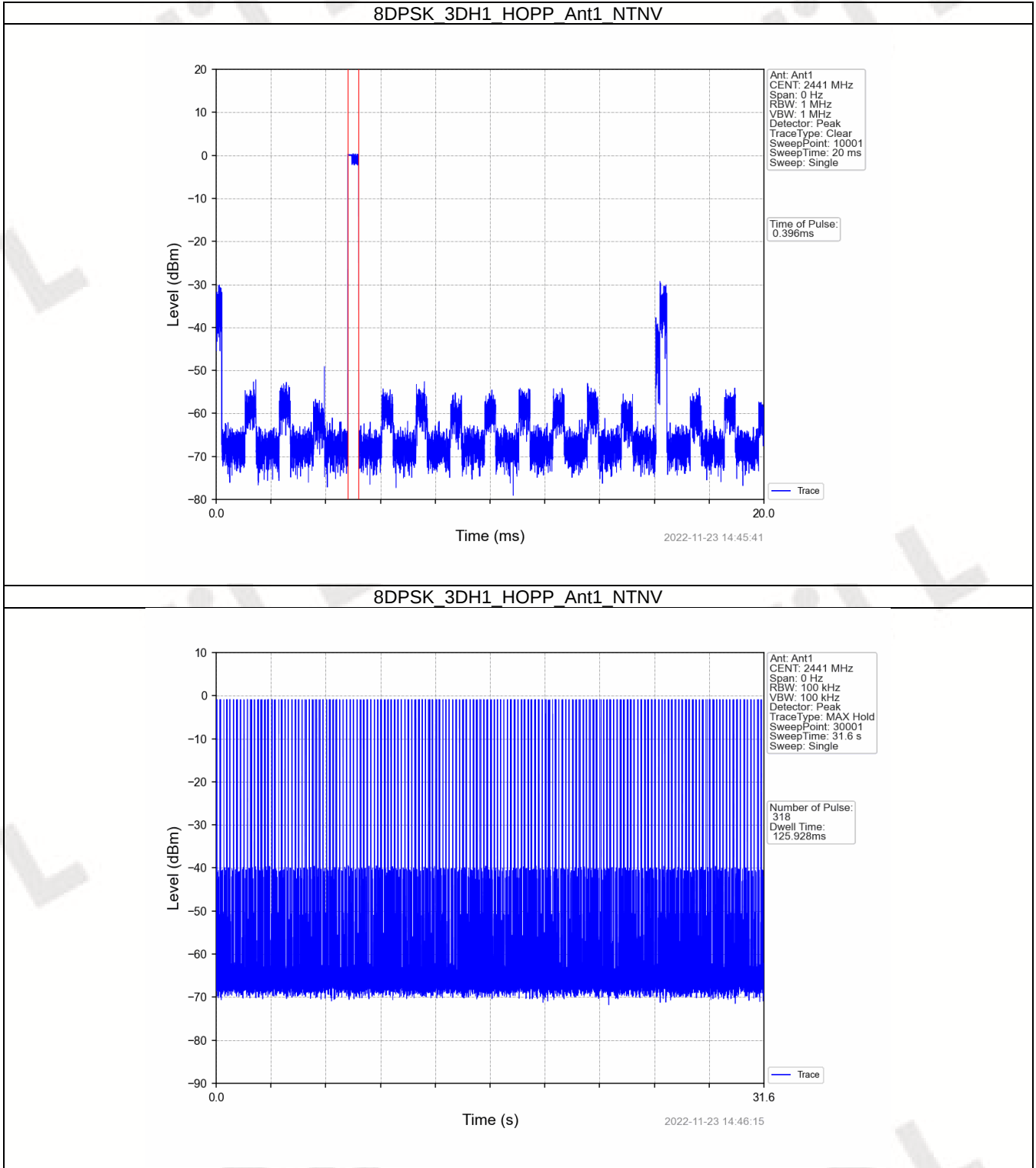


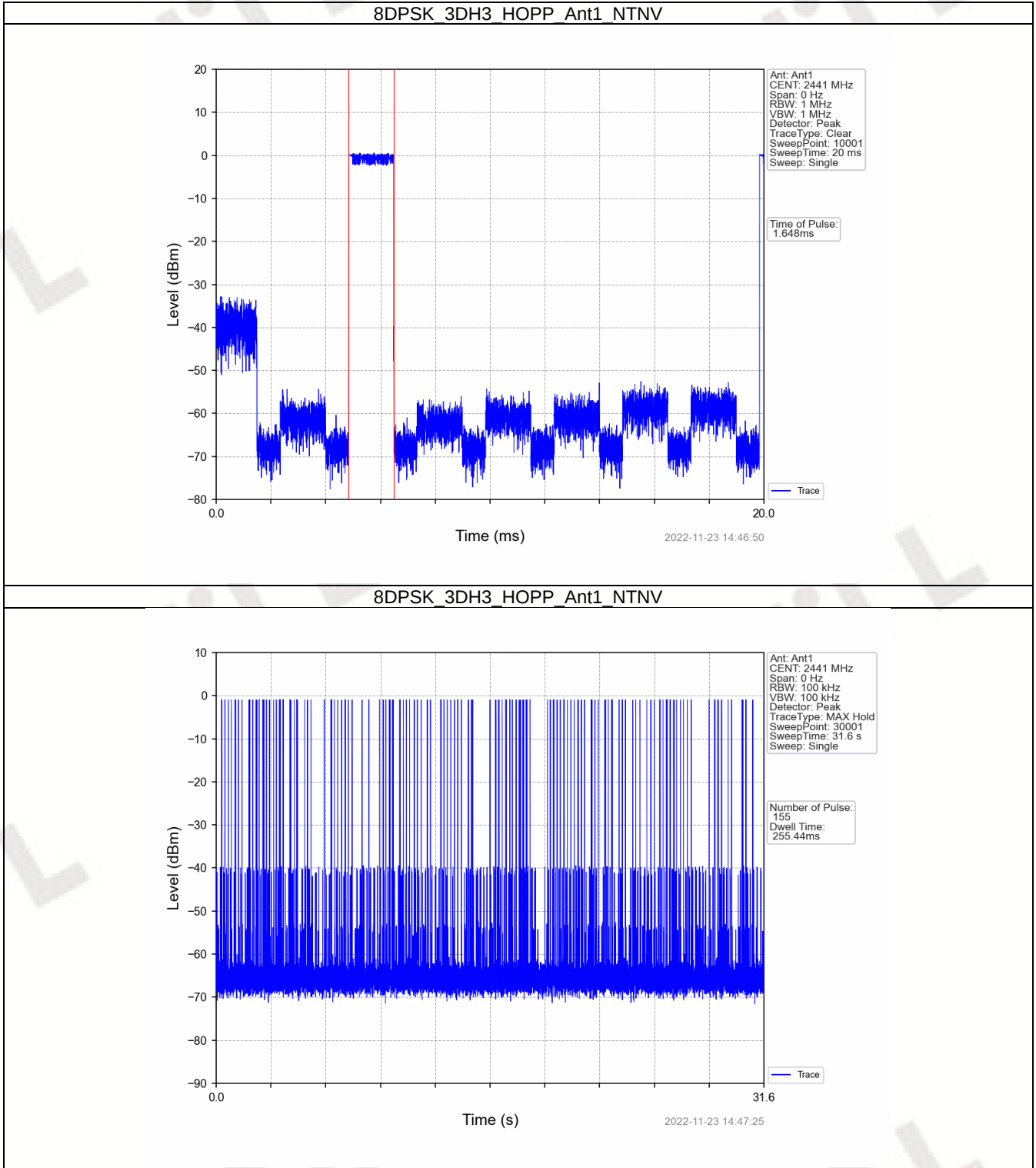
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV

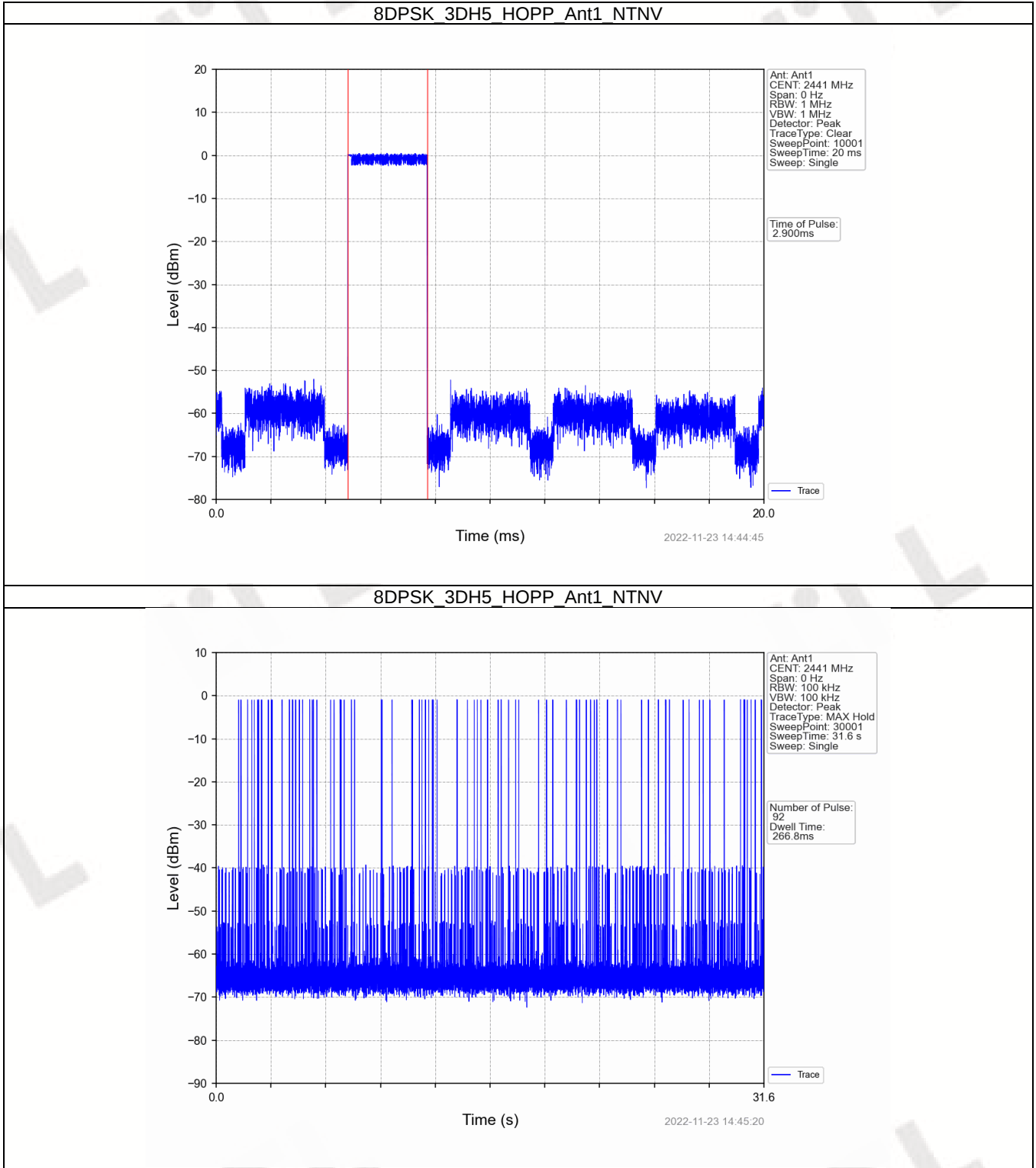


Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV









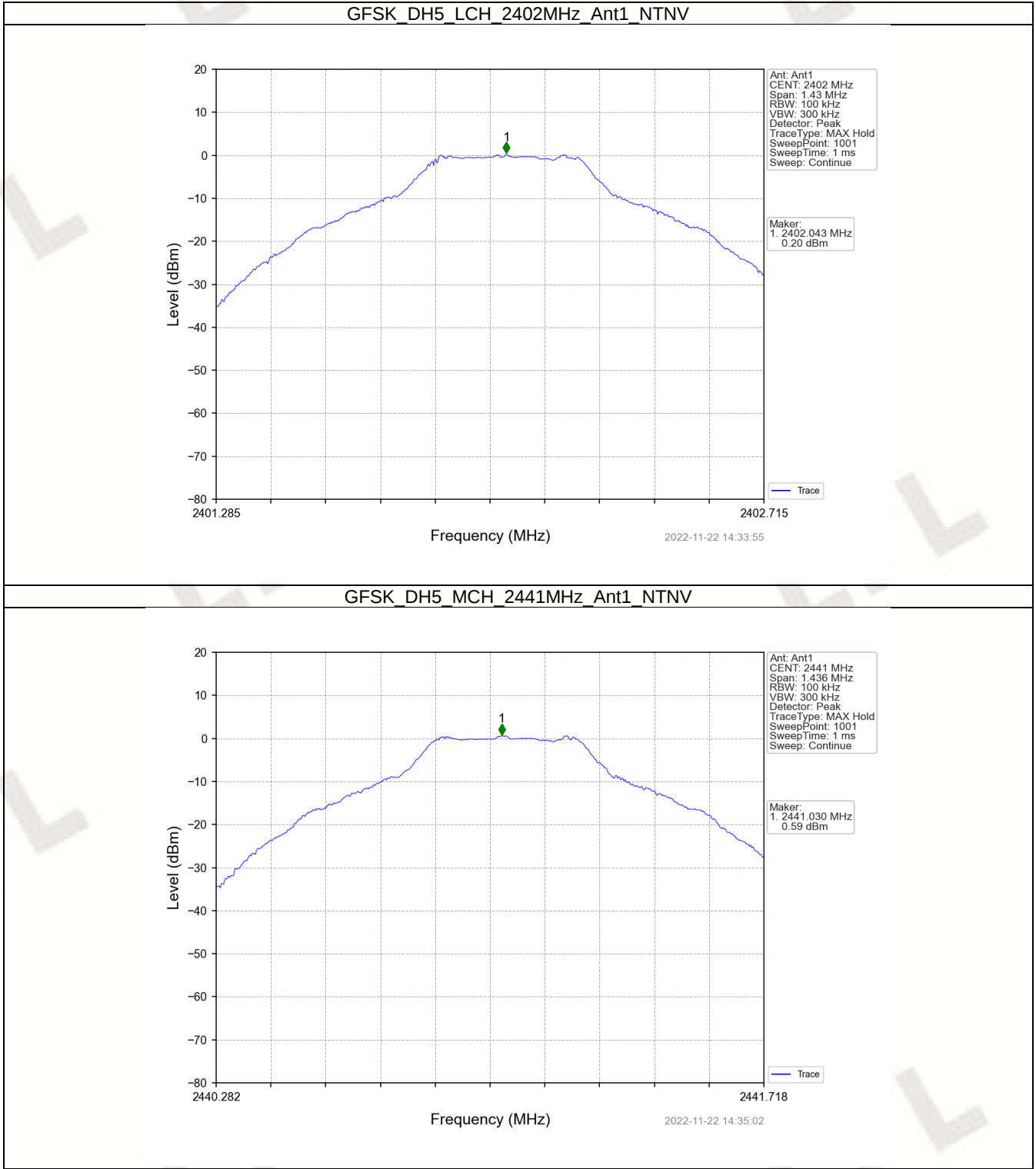
6. Unwanted Emissions In Non-restricted Frequency Bands

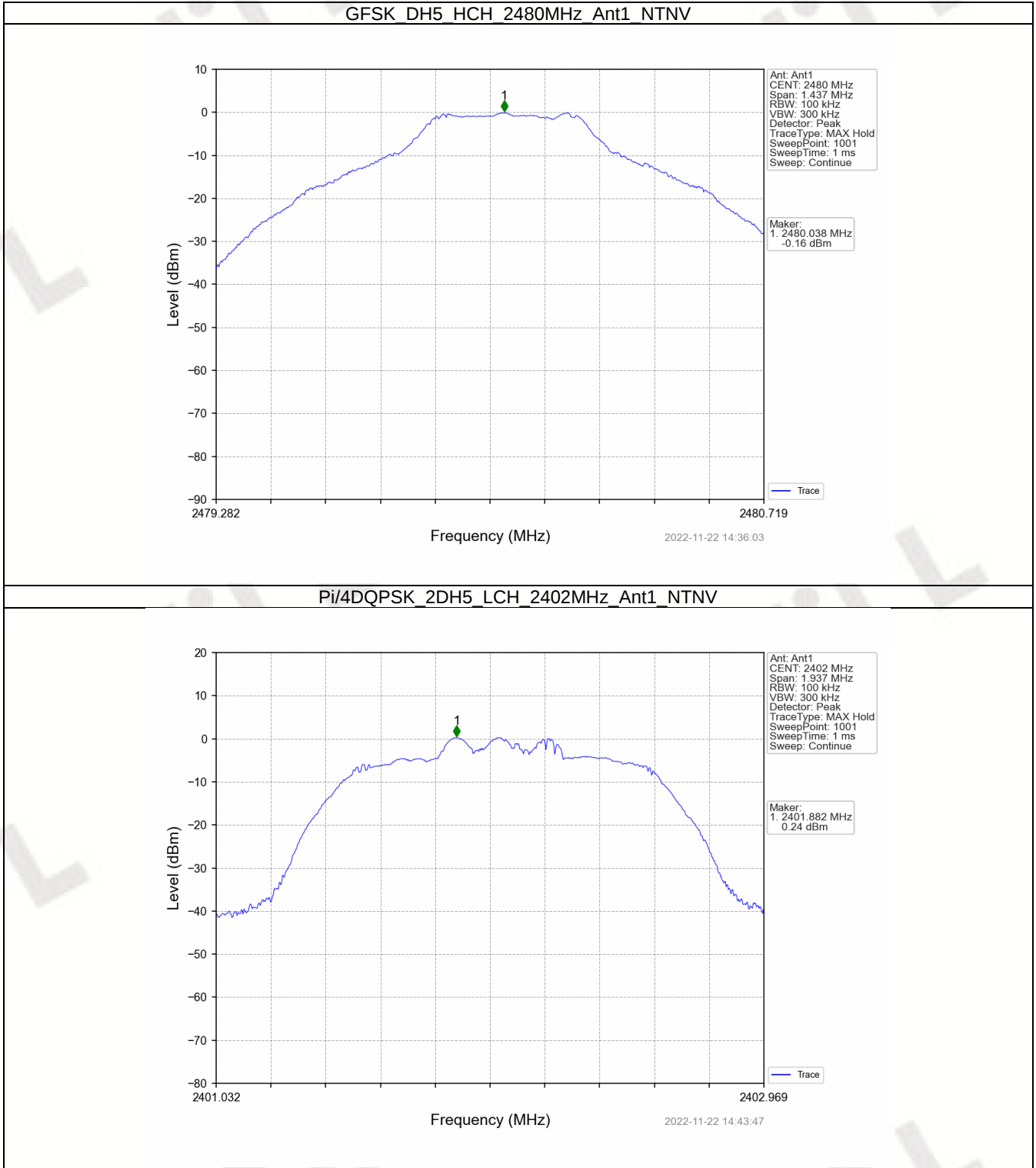
6.1 Ref

6.1.1 Test Result

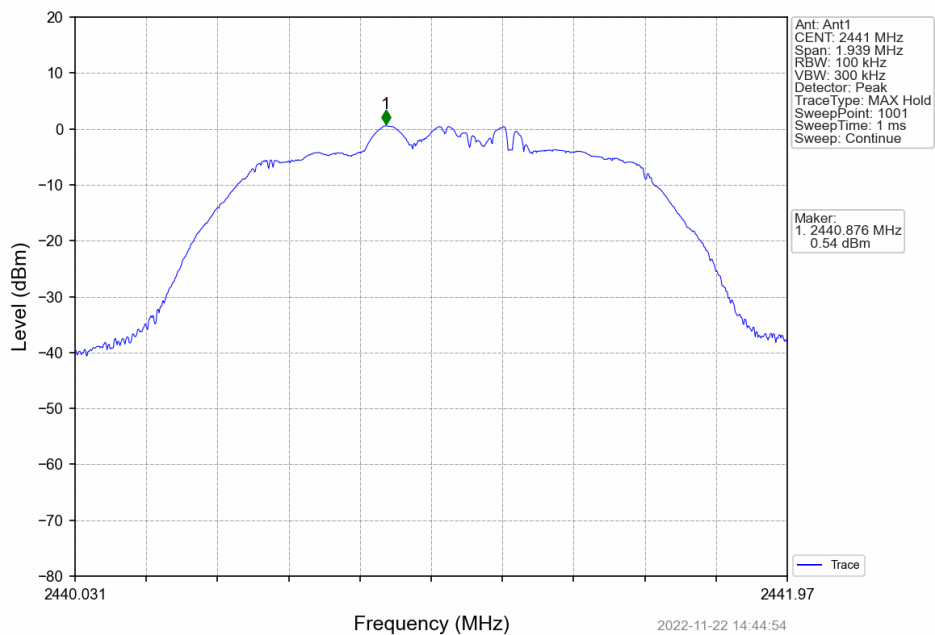
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	0.20
		2441	DH5	1	0.59
		2480	DH5	1	-0.16
Pi/4DQPSK	SISO	2402	2DH5	1	0.24
		2441	2DH5	1	0.54
		2480	2DH5	1	-0.17
8DPSK	SISO	2402	3DH5	1	-0.39
		2441	3DH5	1	0.14
		2480	3DH5	1	-0.42
Note1: Refer to FCC Part 15.247 (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

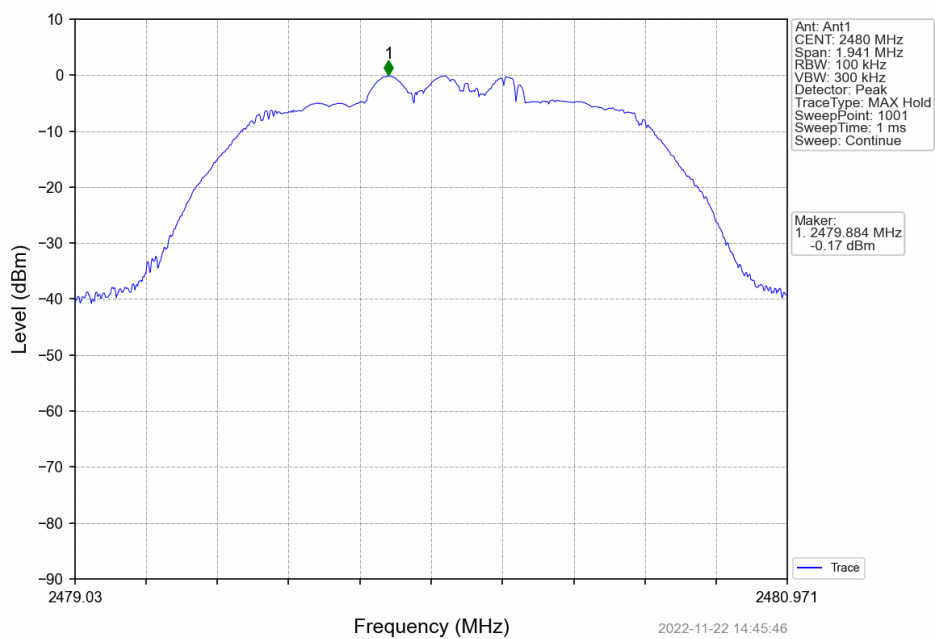


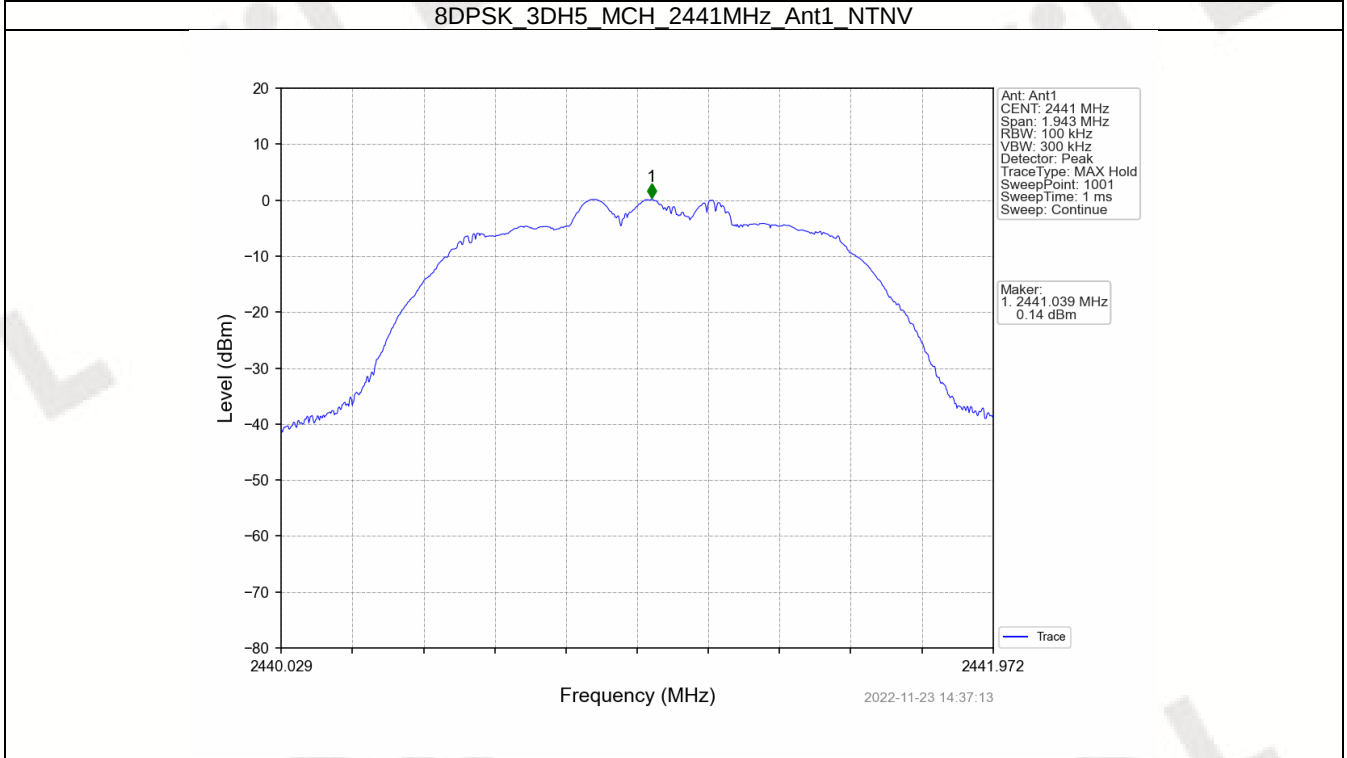
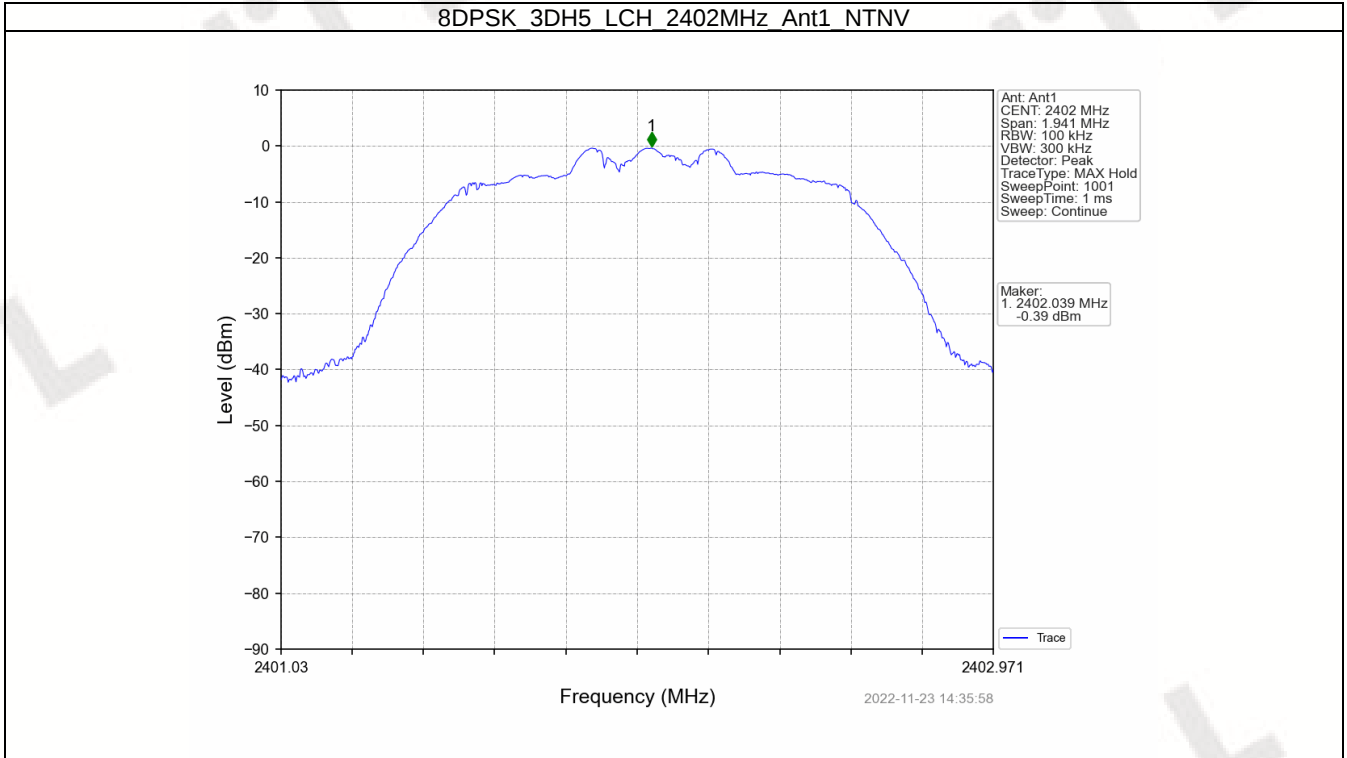


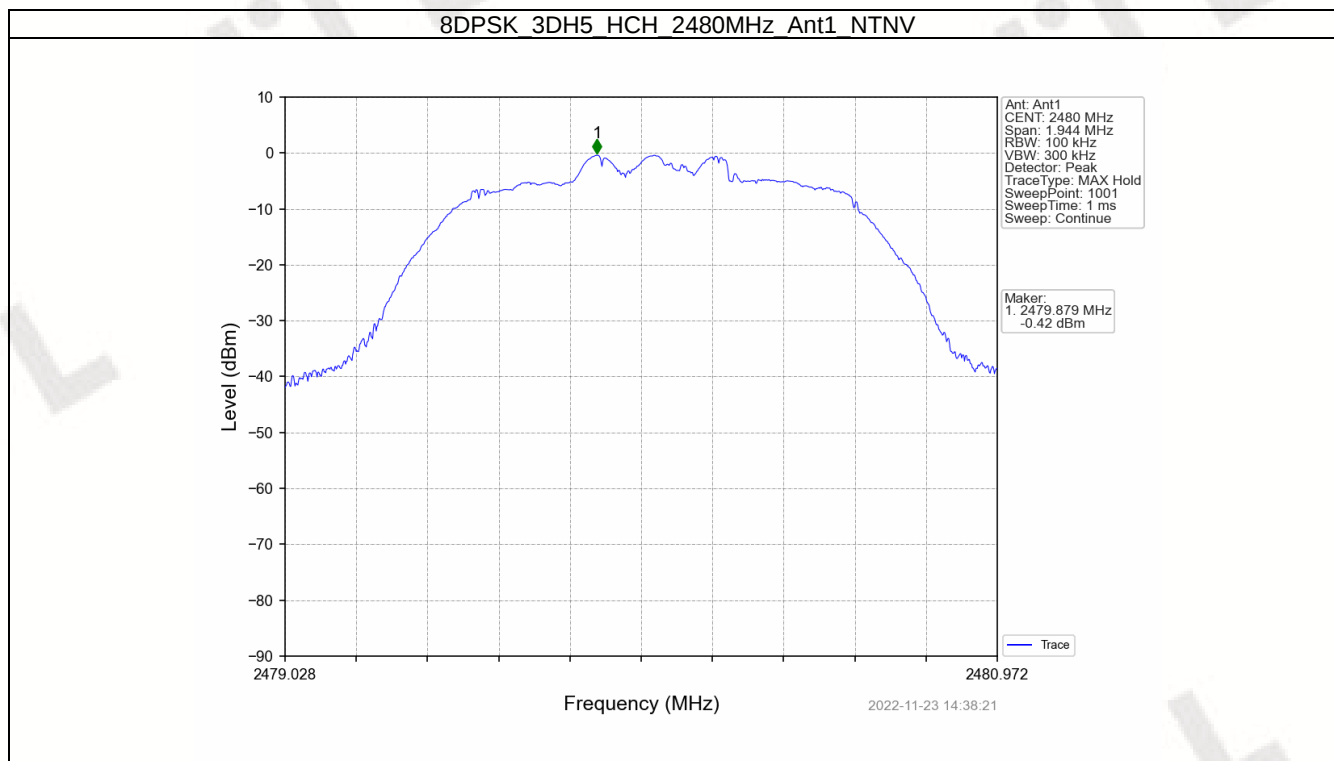
Pi/4DQPSK 2DH5 MCH 2441MHz Ant1 NTN



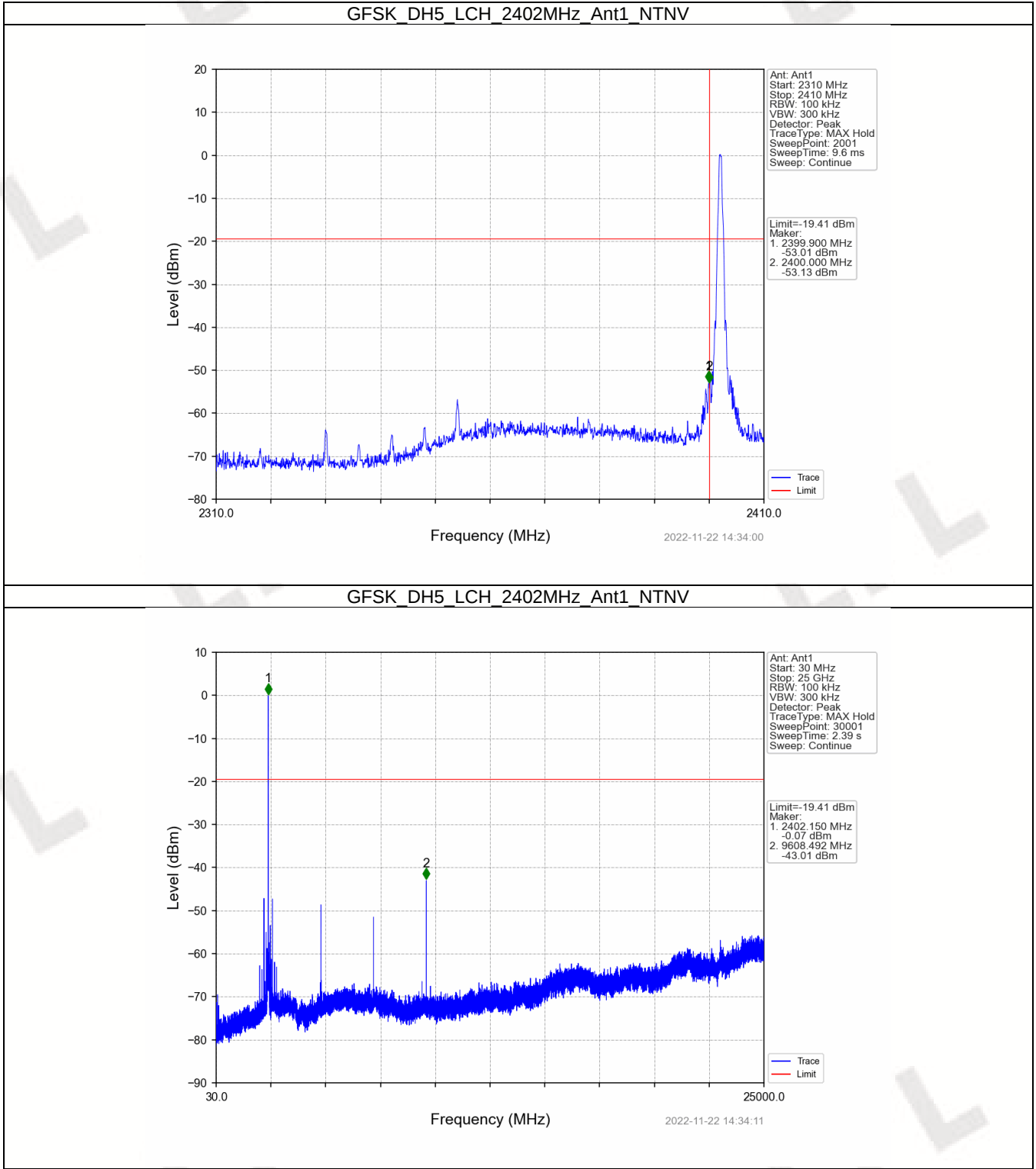
Pi/4DQPSK 2DH5 HCH 2480MHz Ant1 NTN



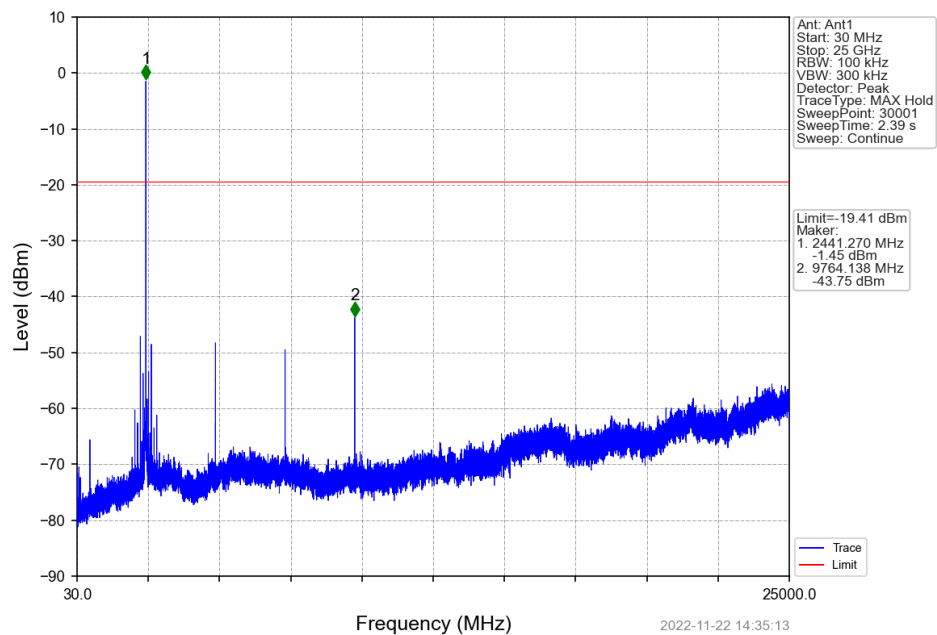




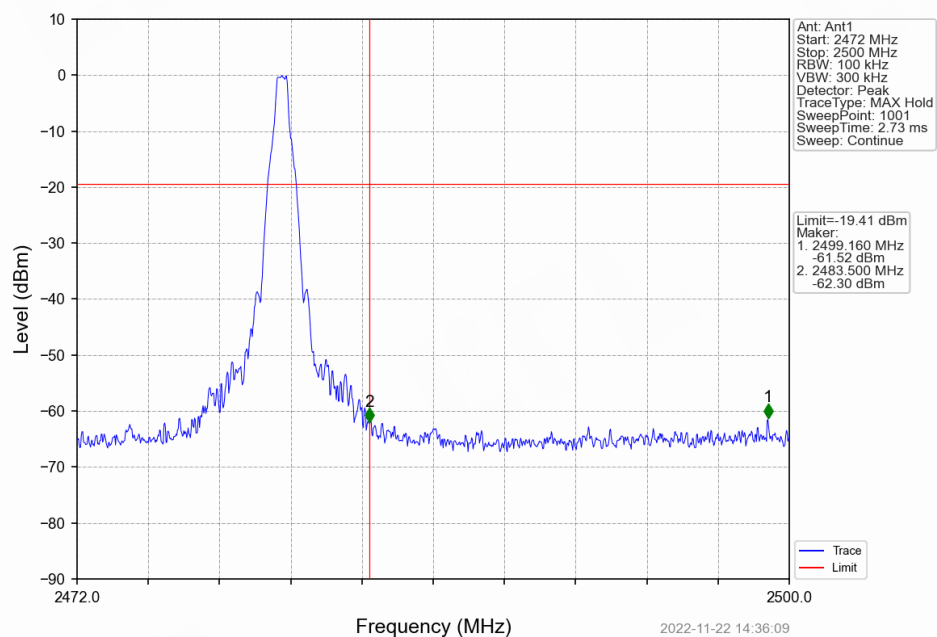
6.2.2 Test Graph

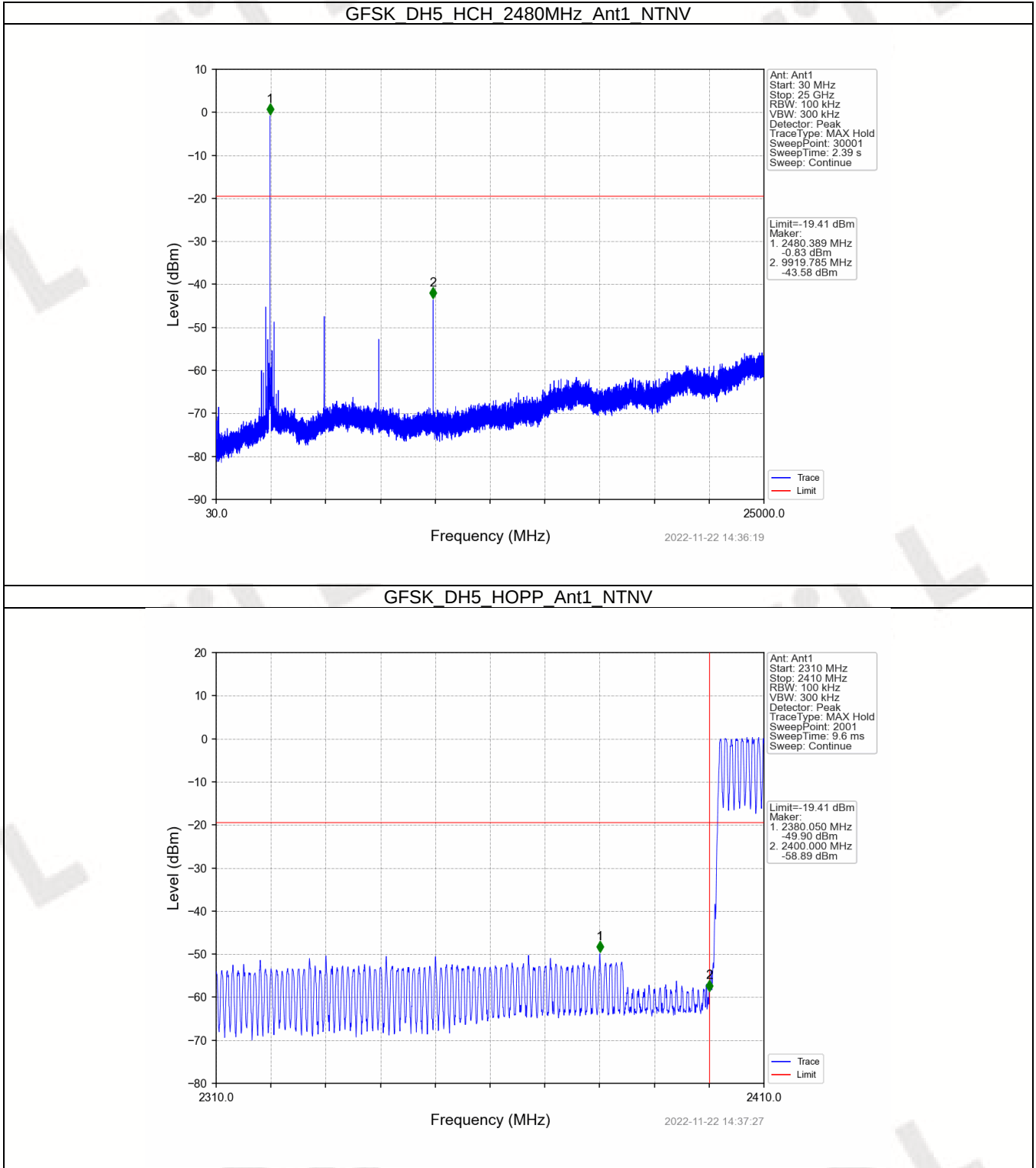


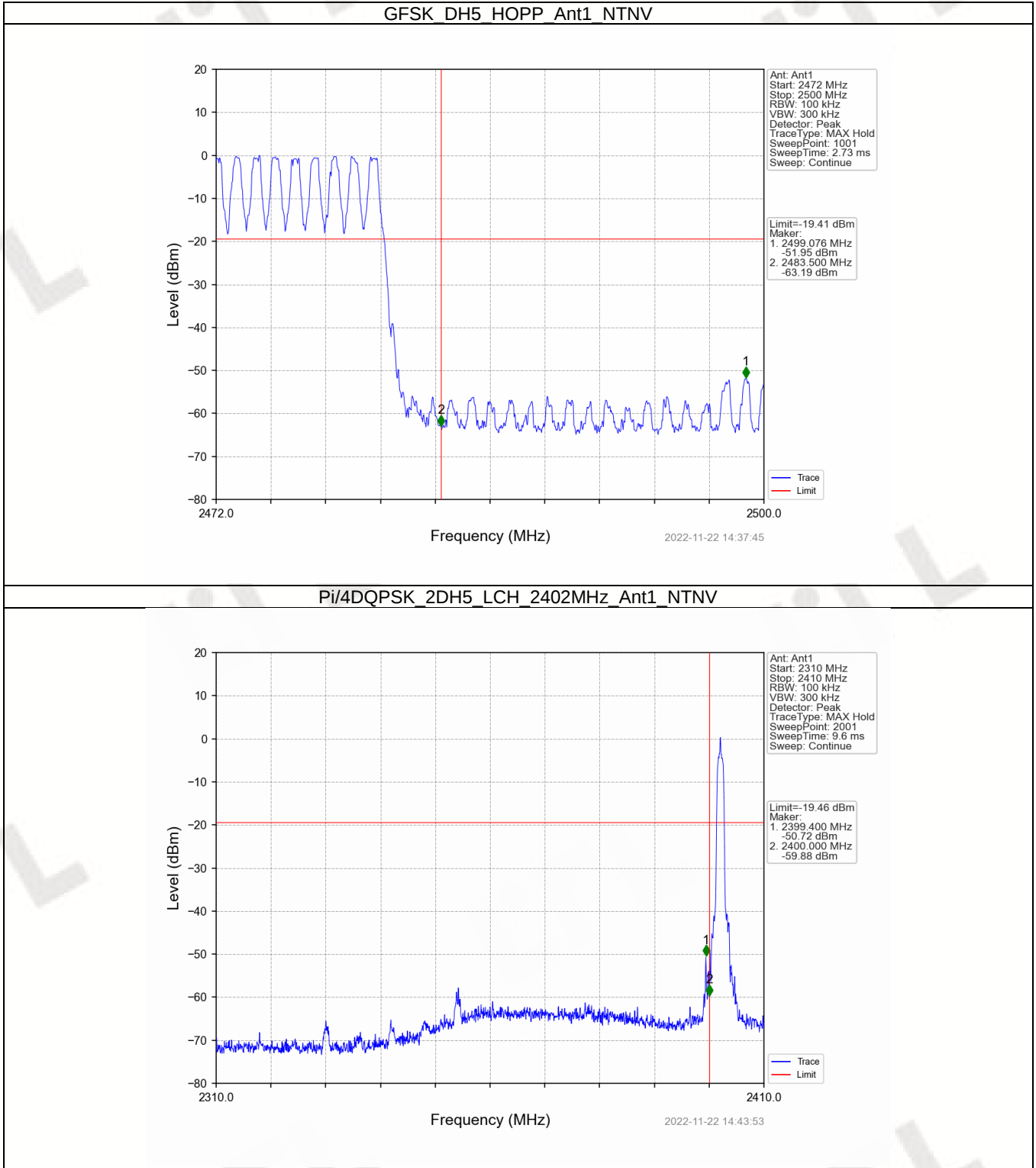
GFSK DH5 MCH 2441MHz Ant1 NTN



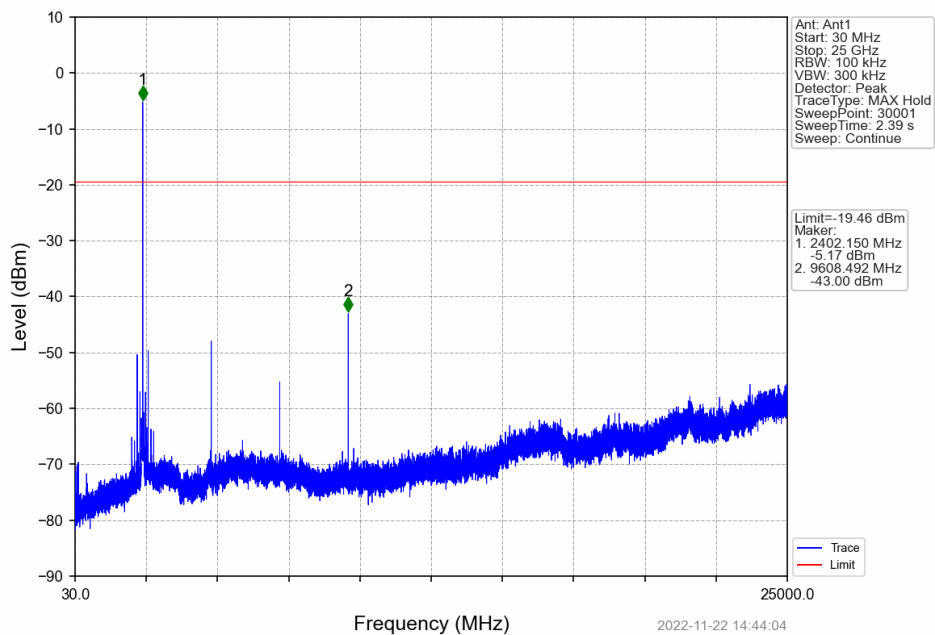
GFSK_DH5_HCH_2480MHz_Ant1_NTN



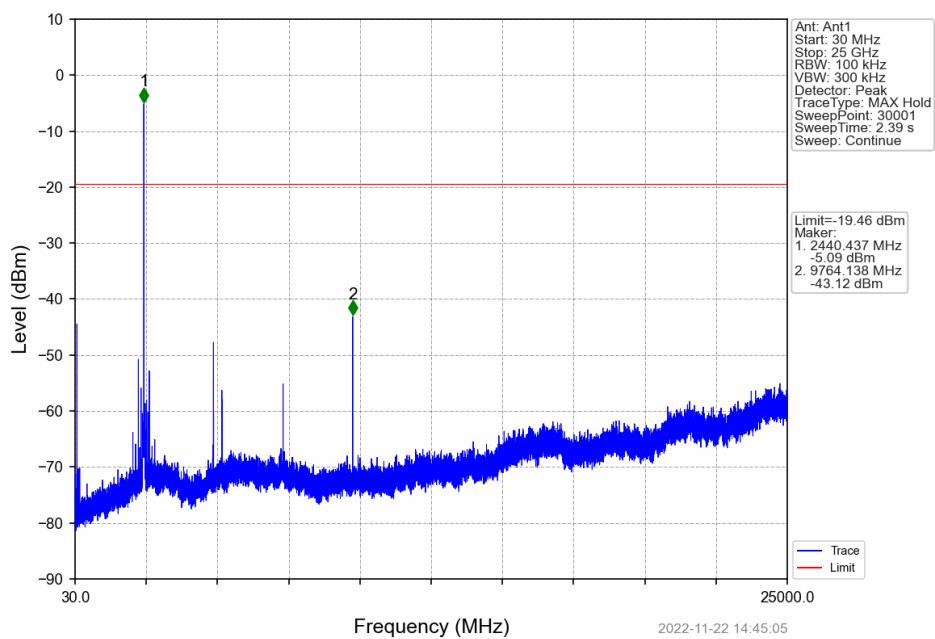




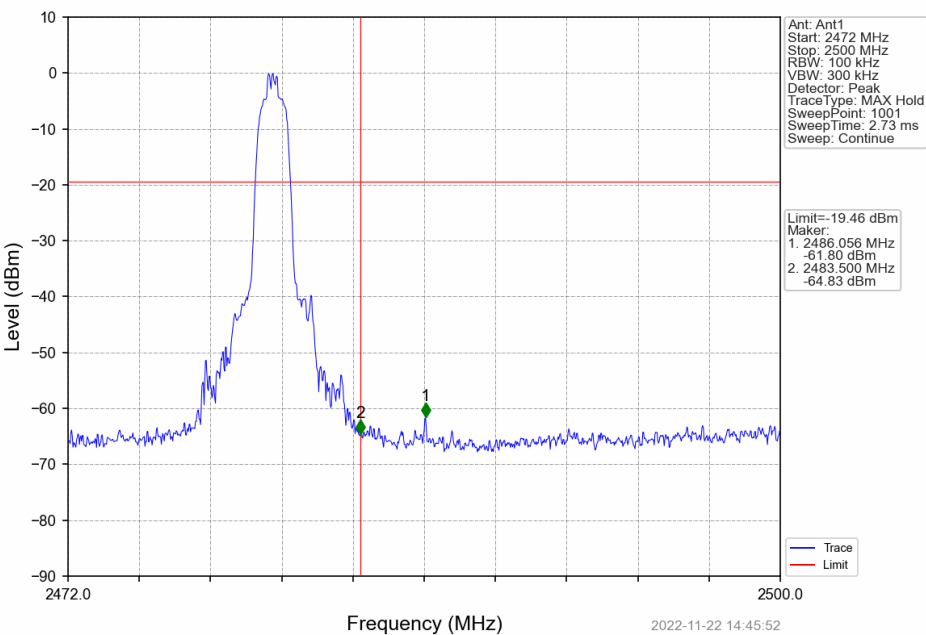
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



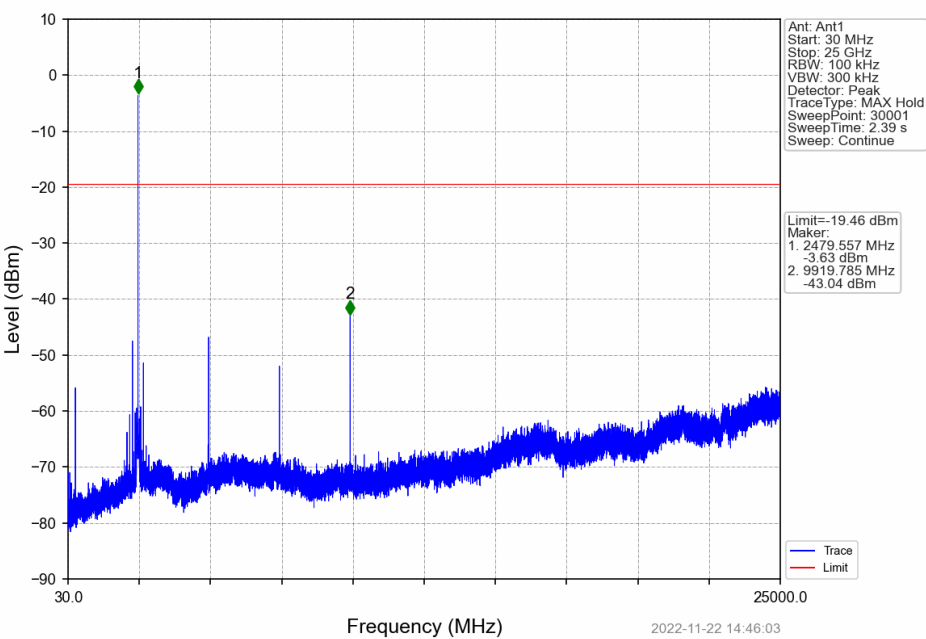
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



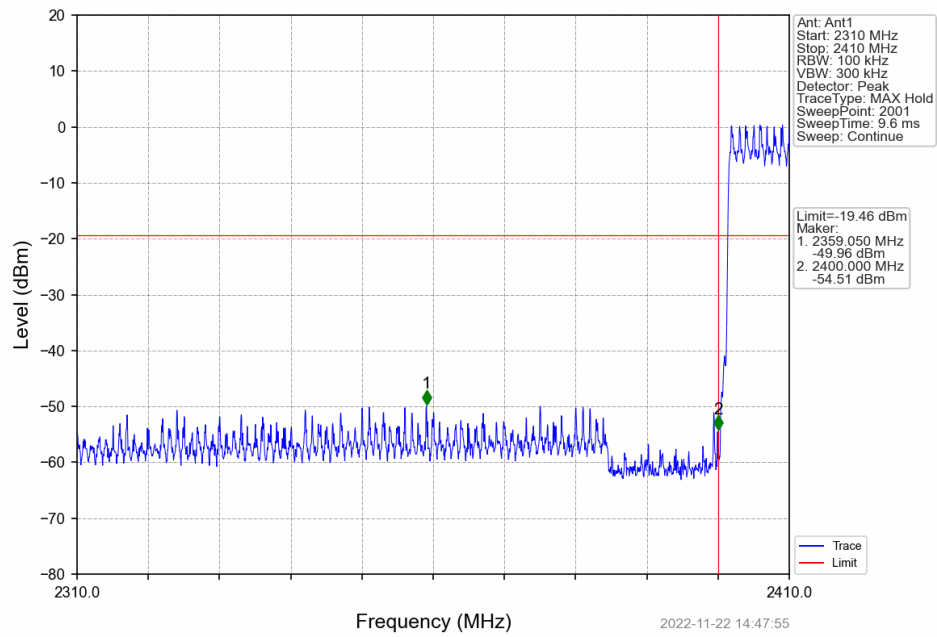
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



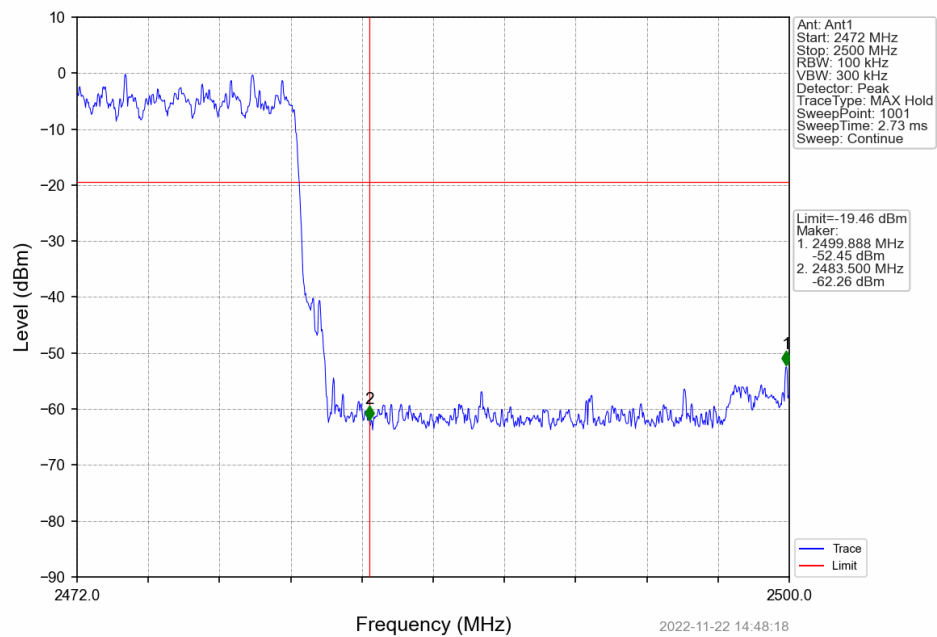
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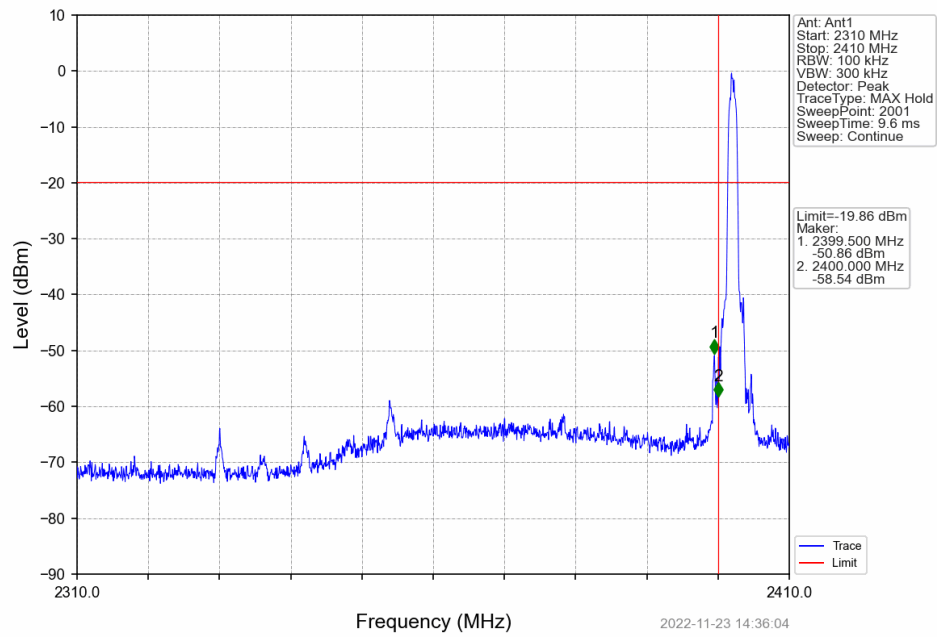
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



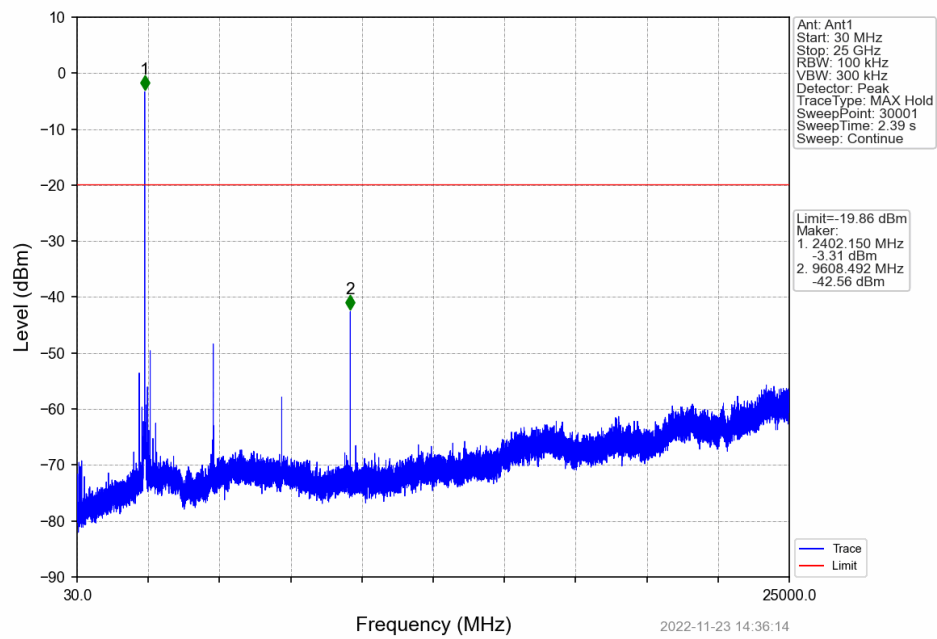
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV

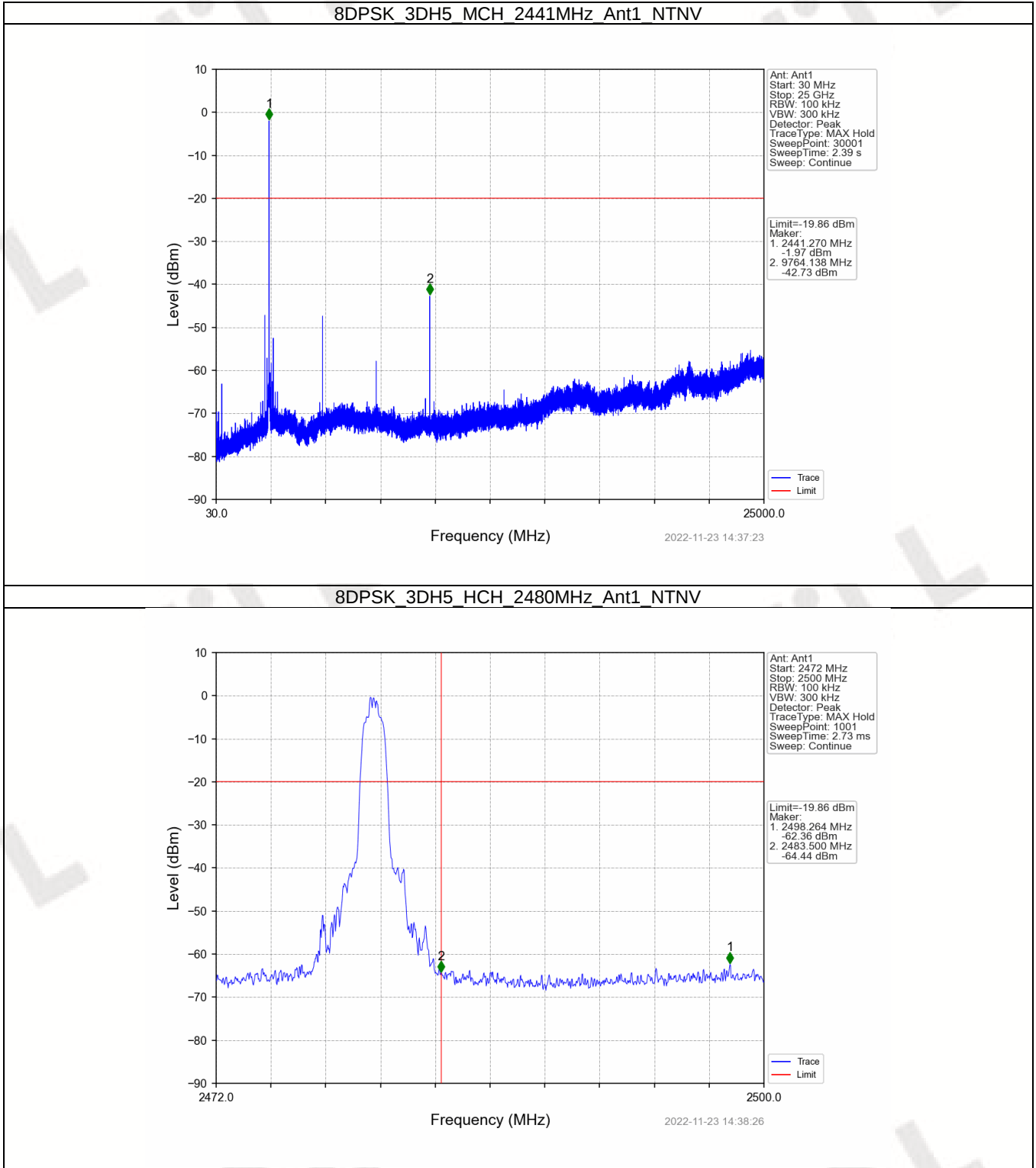


8DPSK 3DH5 LCH 2402MHz Ant1 NTNV

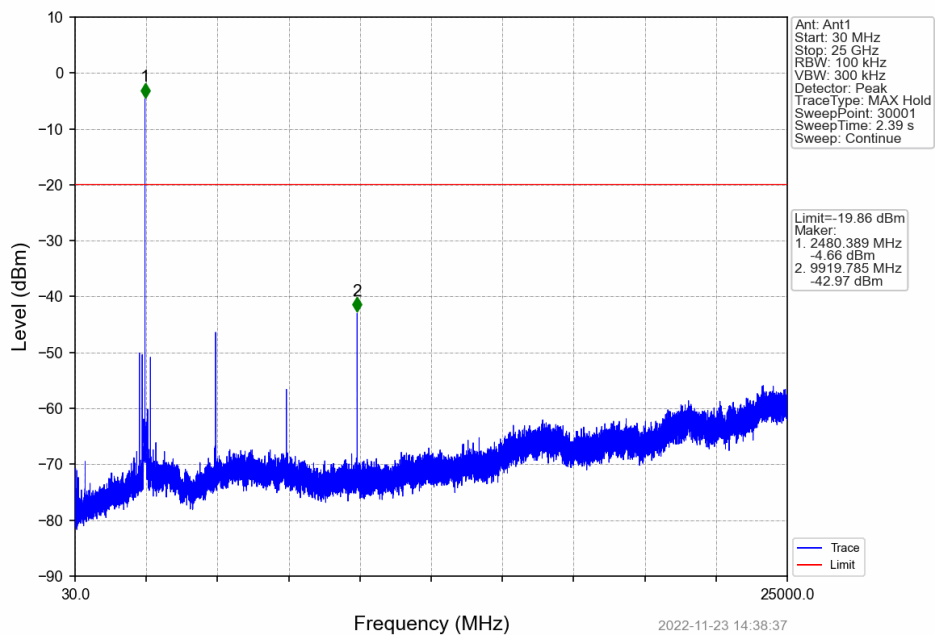


8DPSK 3DH5 LCH 2402MHz Ant1 NTNV





8DPSK 3DH5 HCH 2480MHz Ant1 NTN



8DPSK 3DH5 HOPP Ant1 NTN

