



Shenzhen CTL Testing Technology Co., Ltd.

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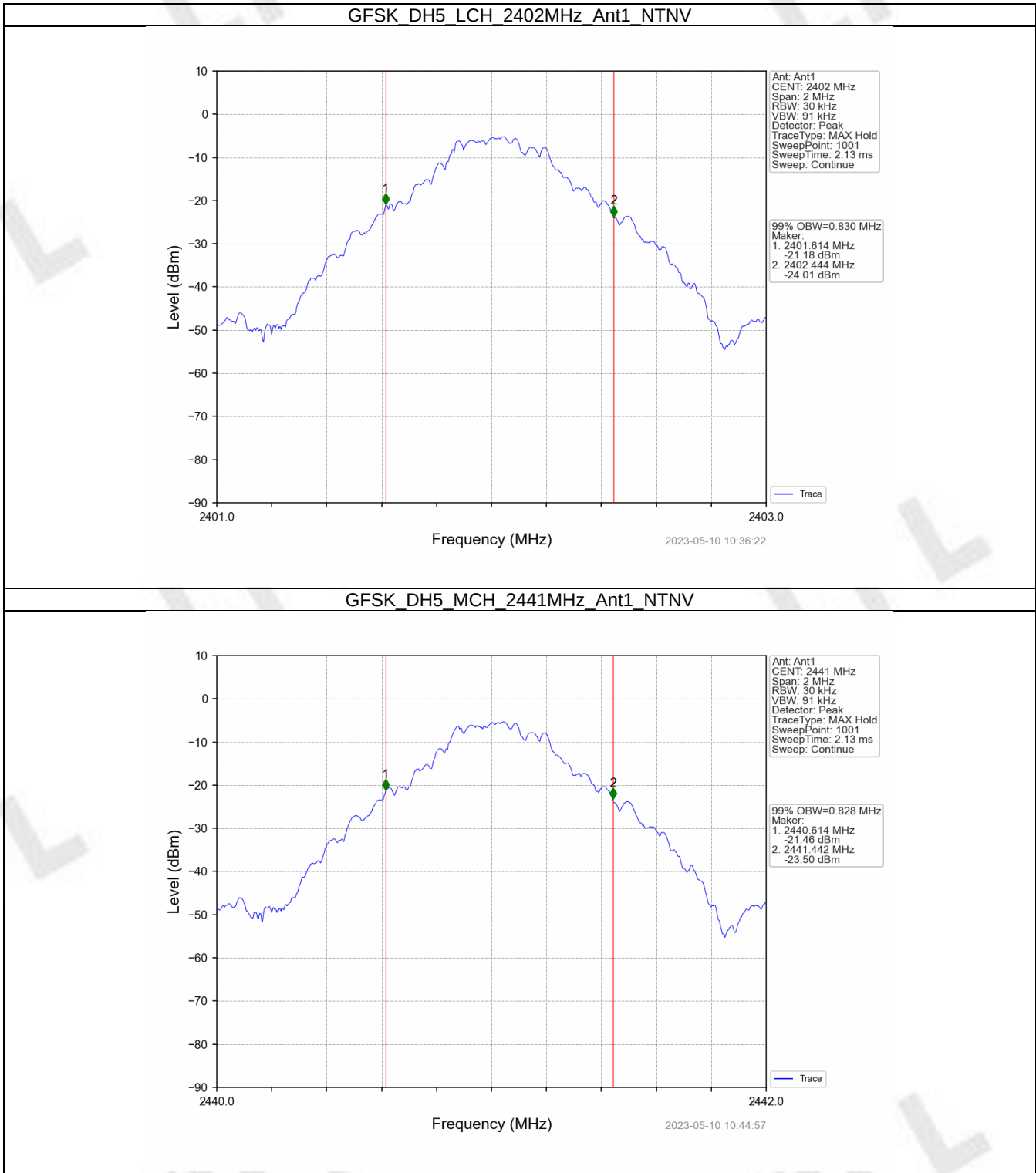
1 Bandwidth

1.1 OBW

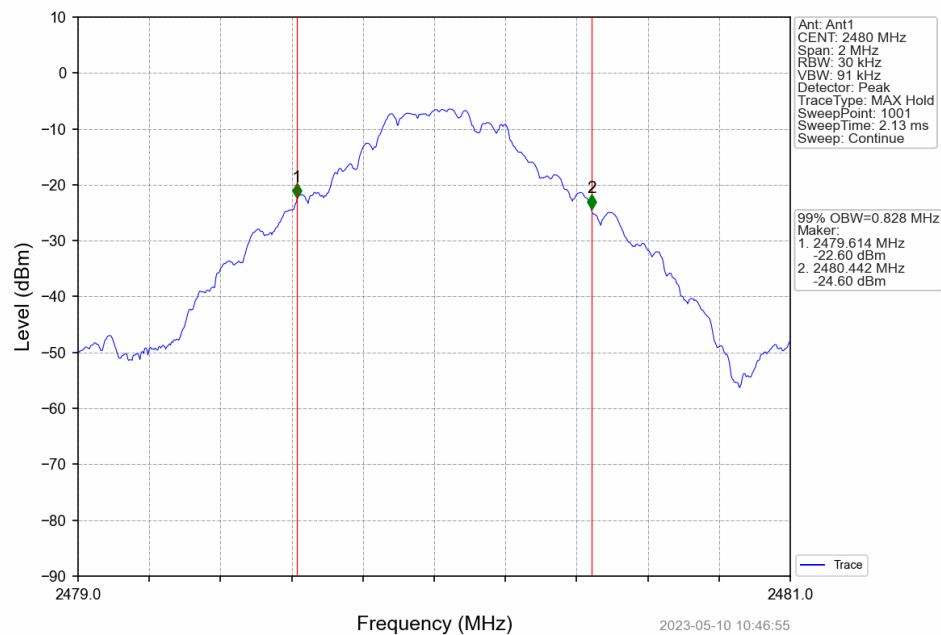
1.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.830	Pass
		2441	DH5	1	0.828	Pass
		2480	DH5	1	0.828	Pass
PI/4DQPSK	SISO	2402	2DH5	1	1.165	Pass
		2441	2DH5	1	1.163	Pass
		2480	2DH5	1	1.163	Pass
8DPSK	SISO	2402	3DH5	1	1.180	Pass
		2441	3DH5	1	1.182	Pass
		2480	3DH5	1	1.180	Pass

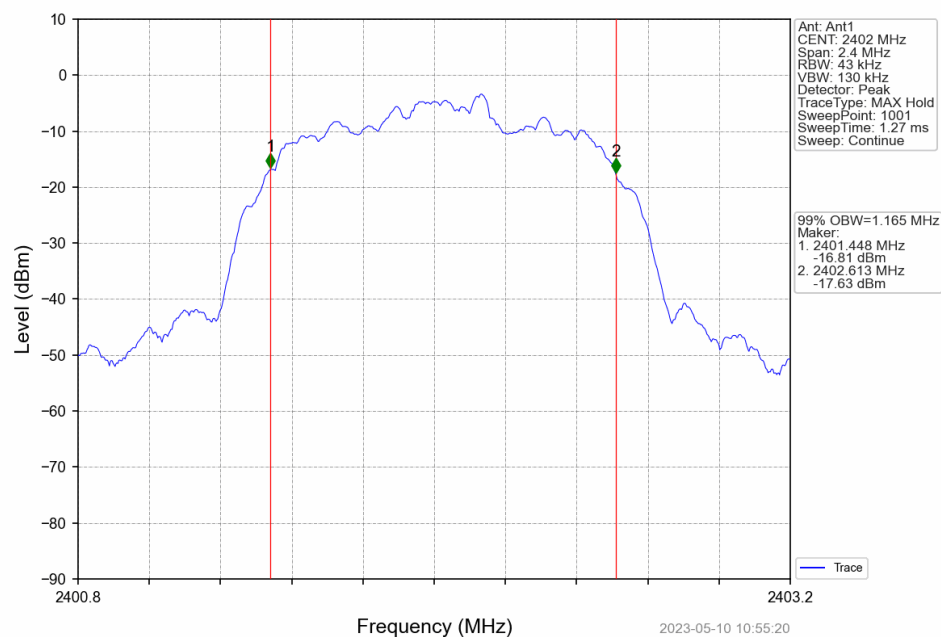
1.1.2 Test Graph

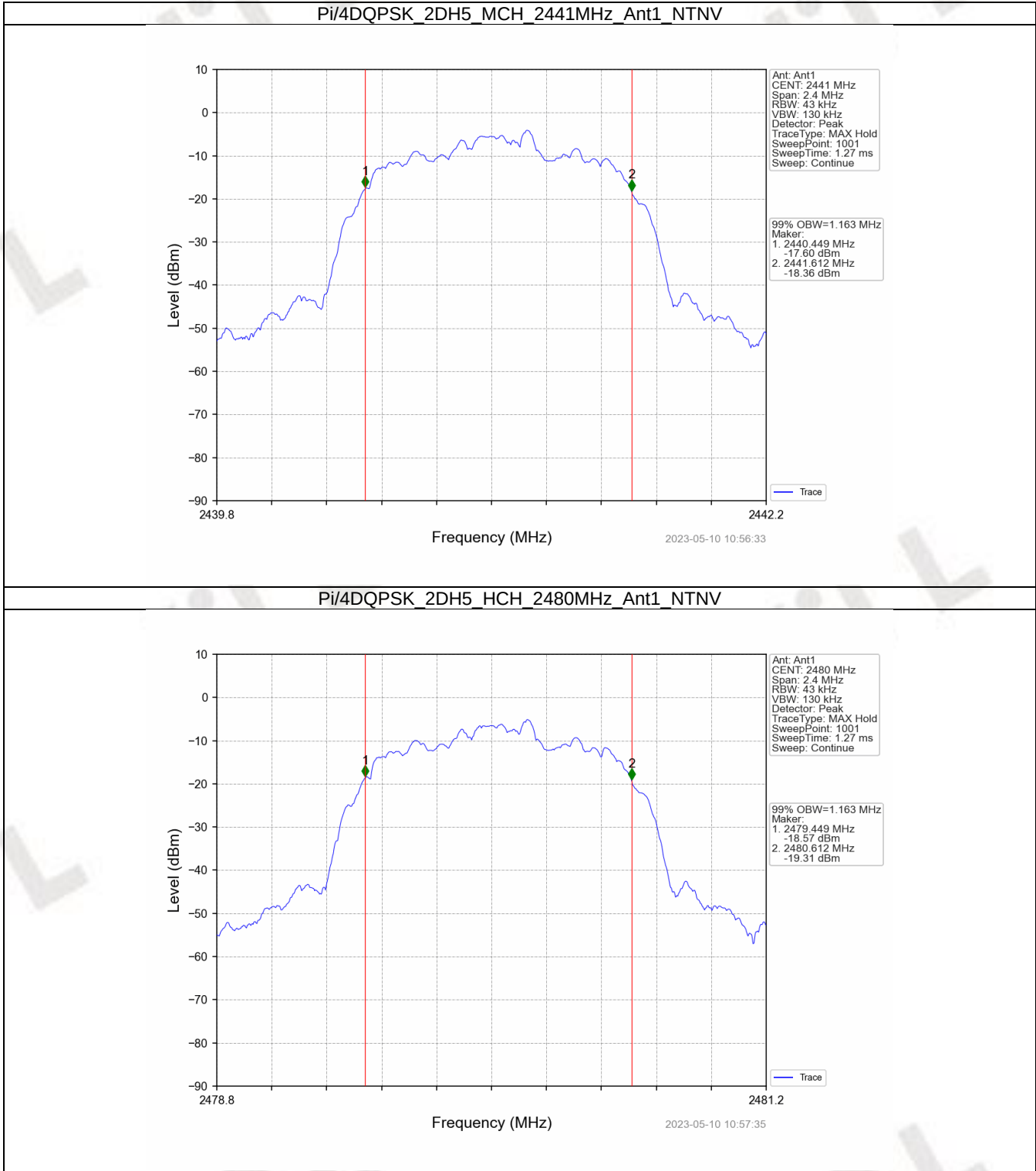


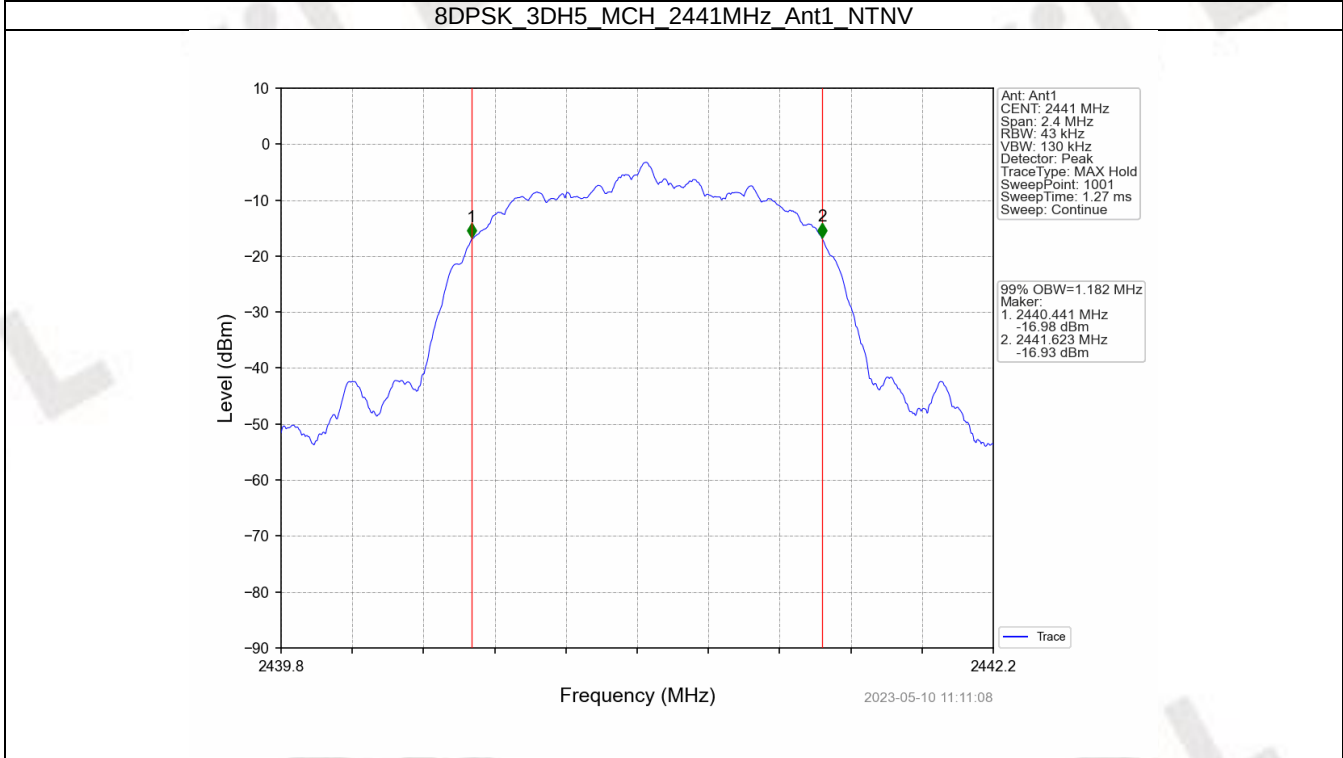
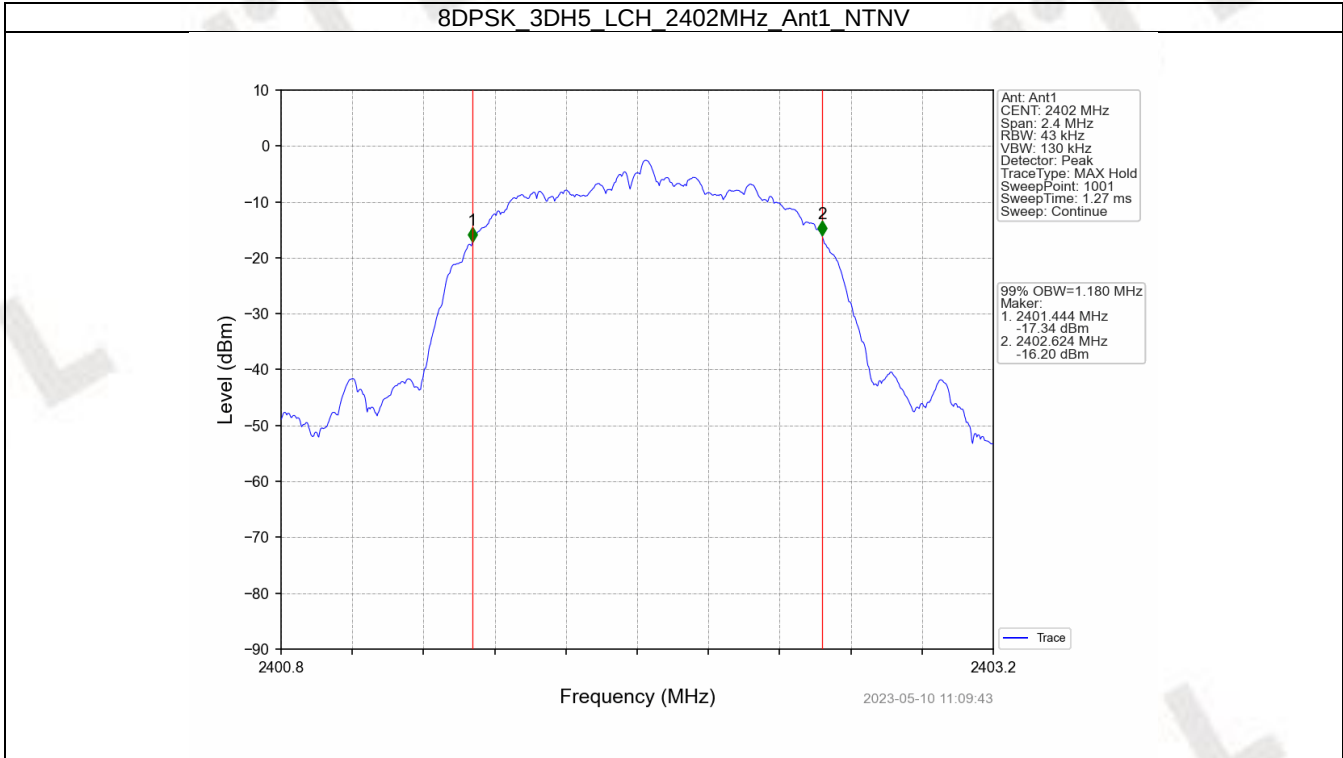
GFSK DH5_HCH_2480MHz_Ant1_NTNV

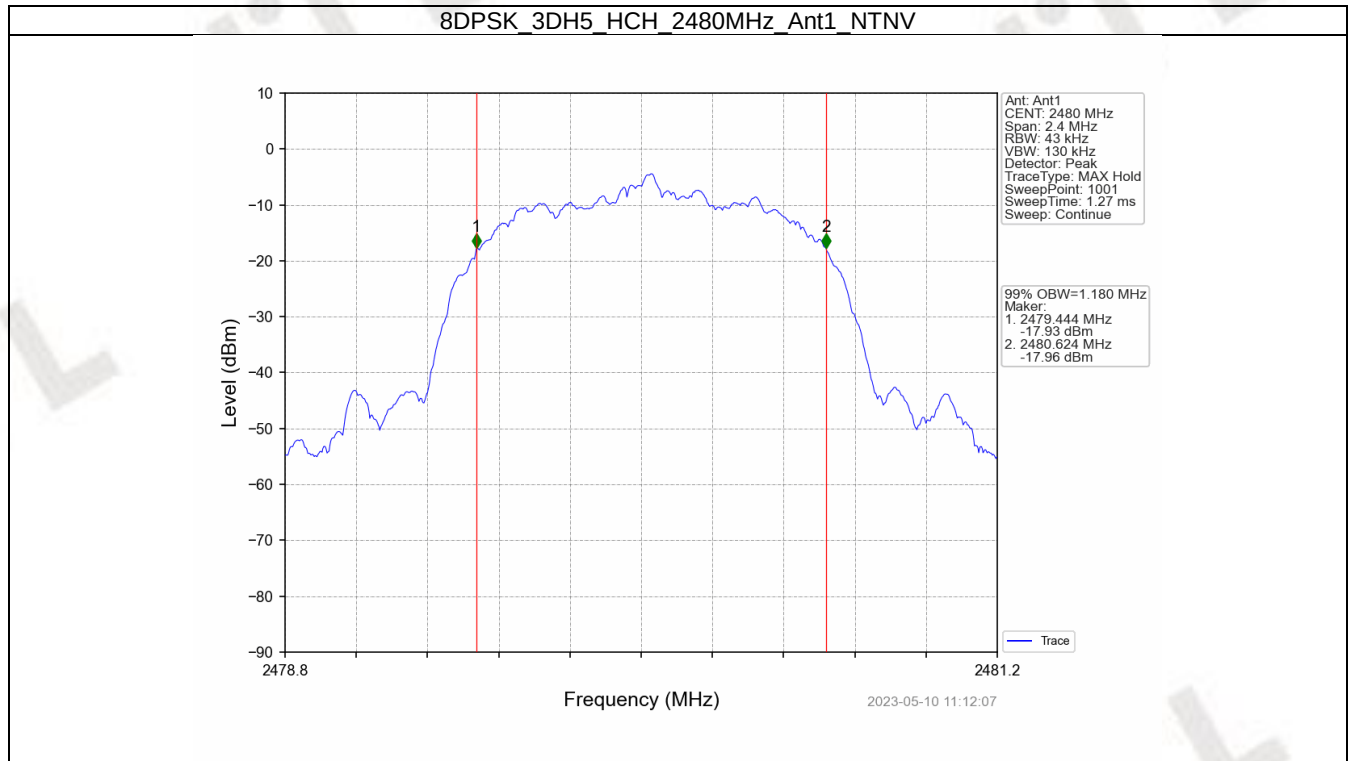


PI/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV







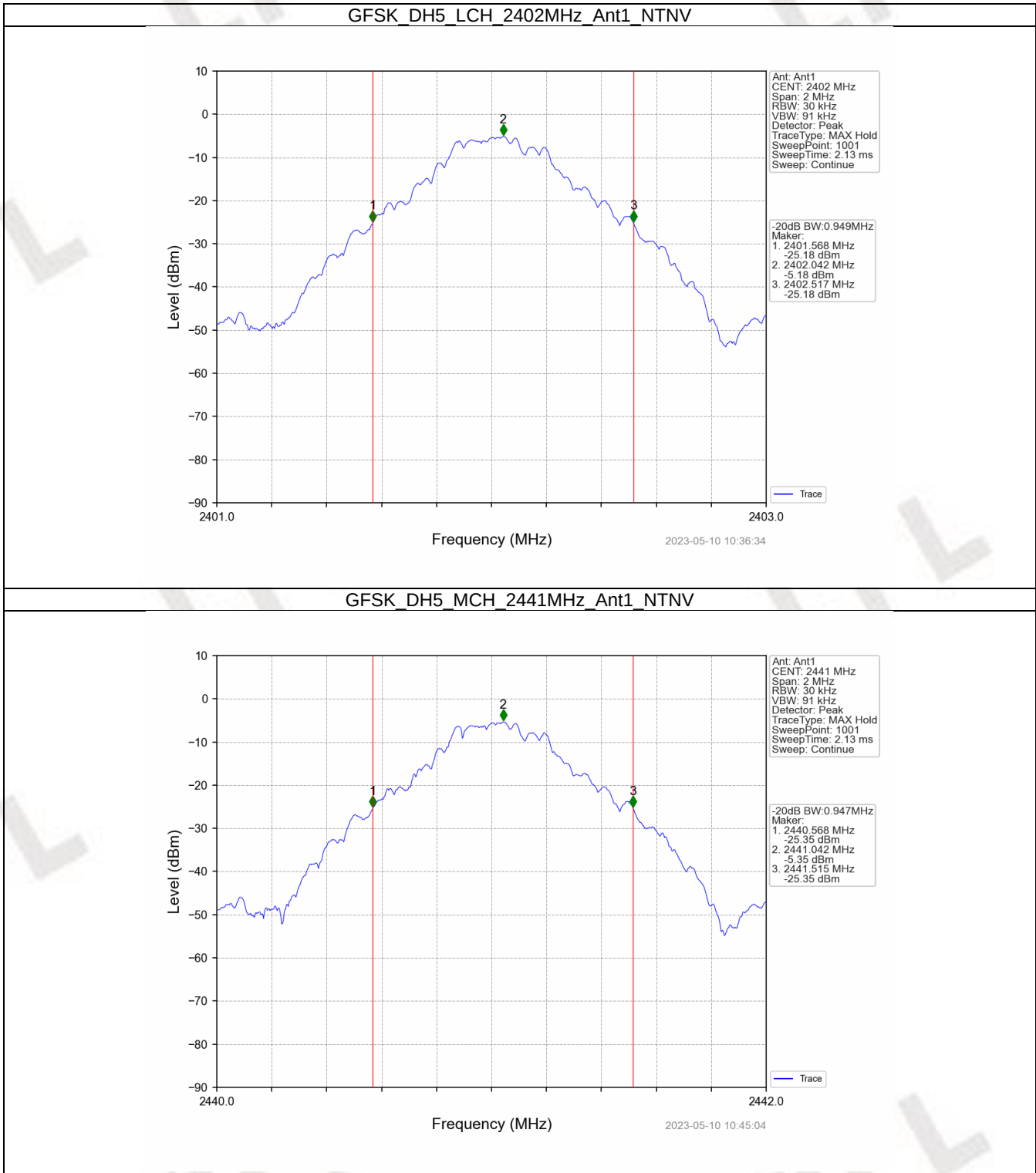


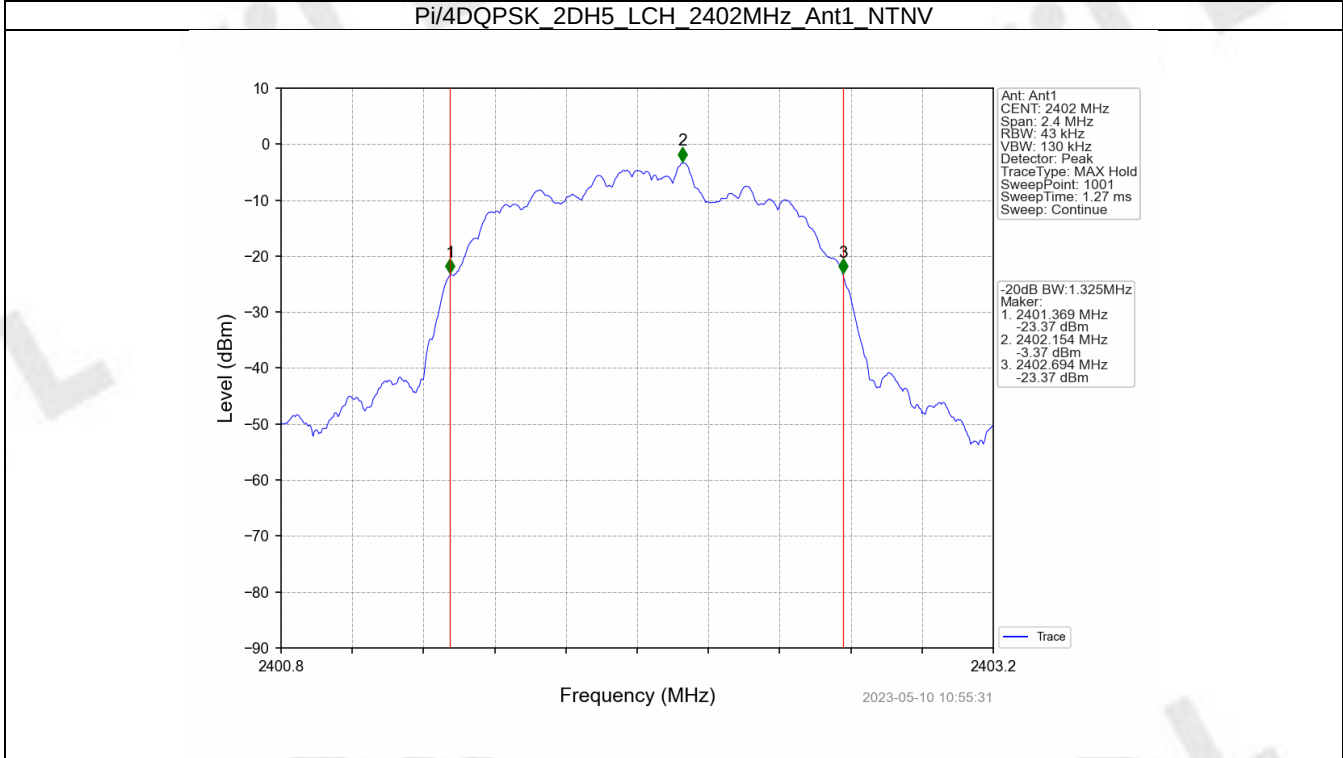
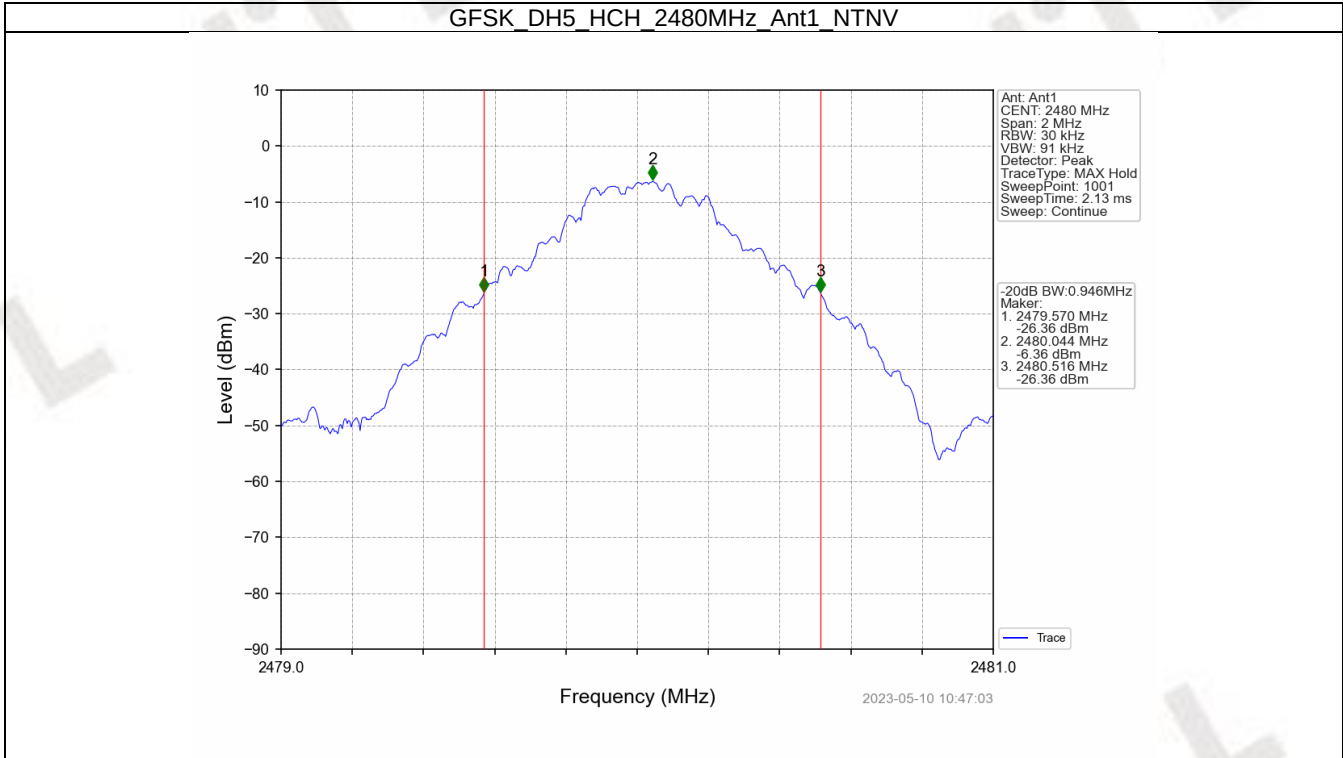
1.2 20dB BW

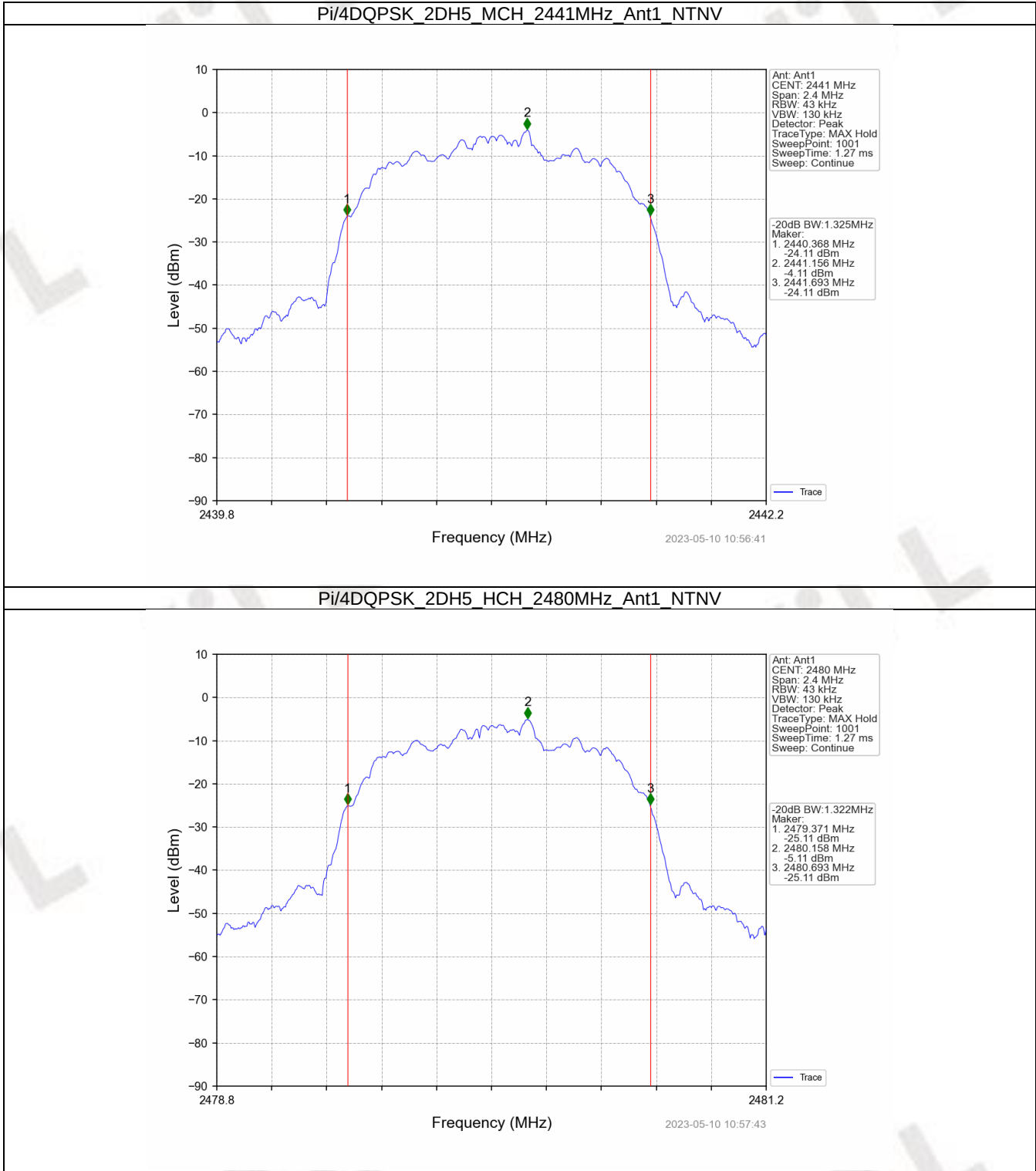
1.2.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.949	Pass
		2441	DH5	1	0.947	Pass
		2480	DH5	1	0.946	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.325	Pass
		2441	2DH5	1	1.325	Pass
		2480	2DH5	1	1.322	Pass
8DPSK	SISO	2402	3DH5	1	1.322	Pass
		2441	3DH5	1	1.322	Pass
		2480	3DH5	1	1.320	Pass

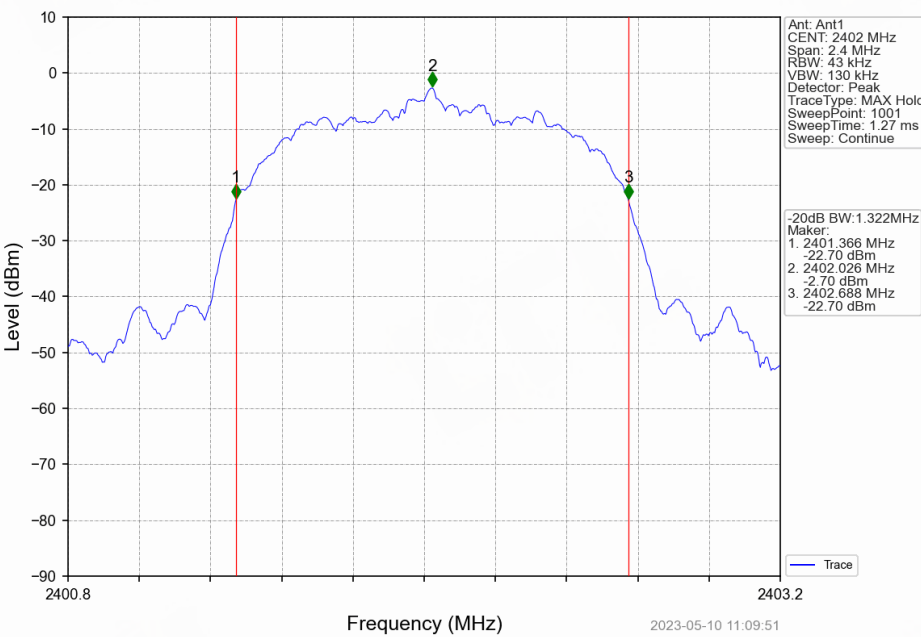
1.2.2 Test Graph



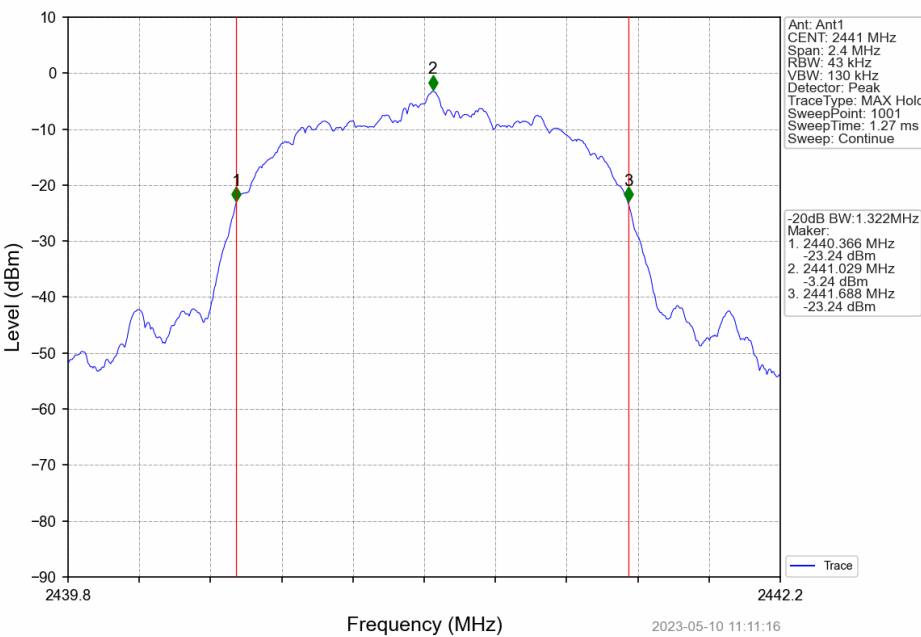


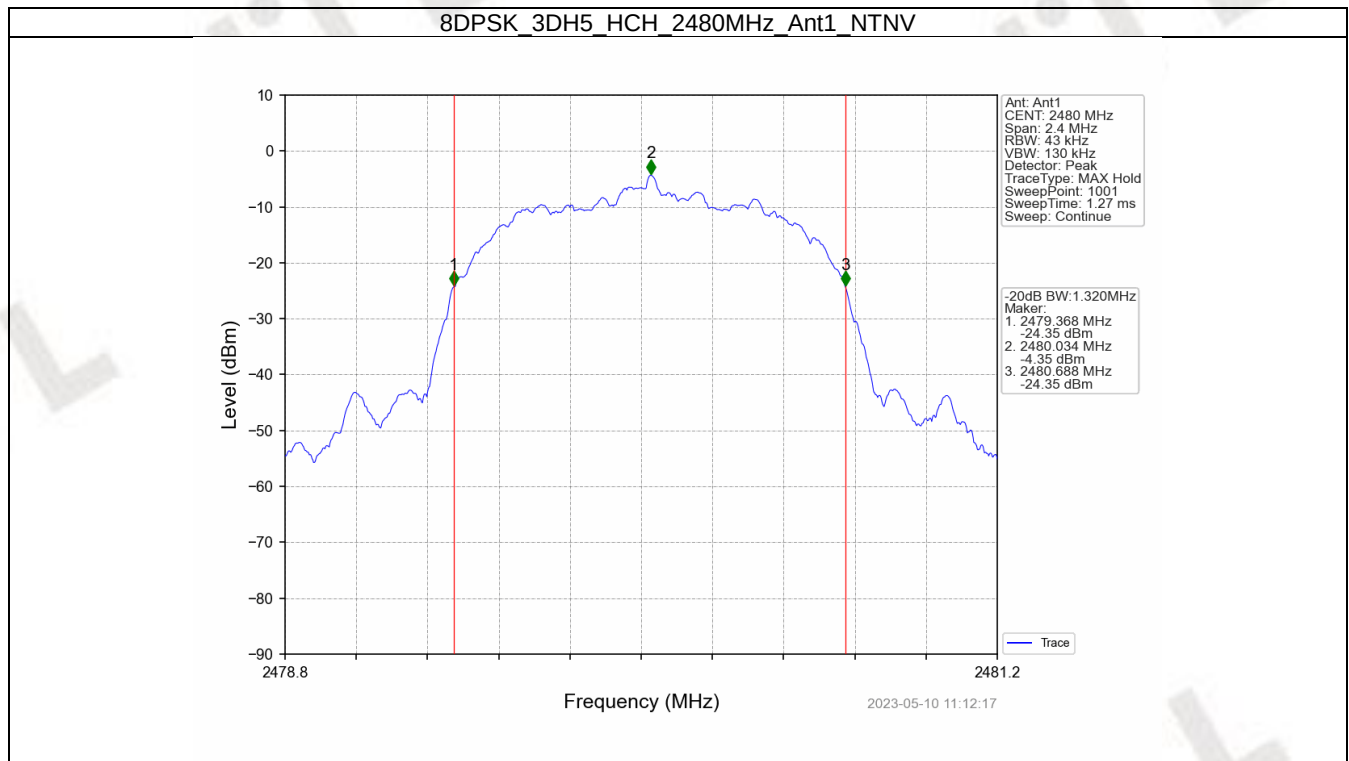


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV





2 Maximum Conducted Output Power

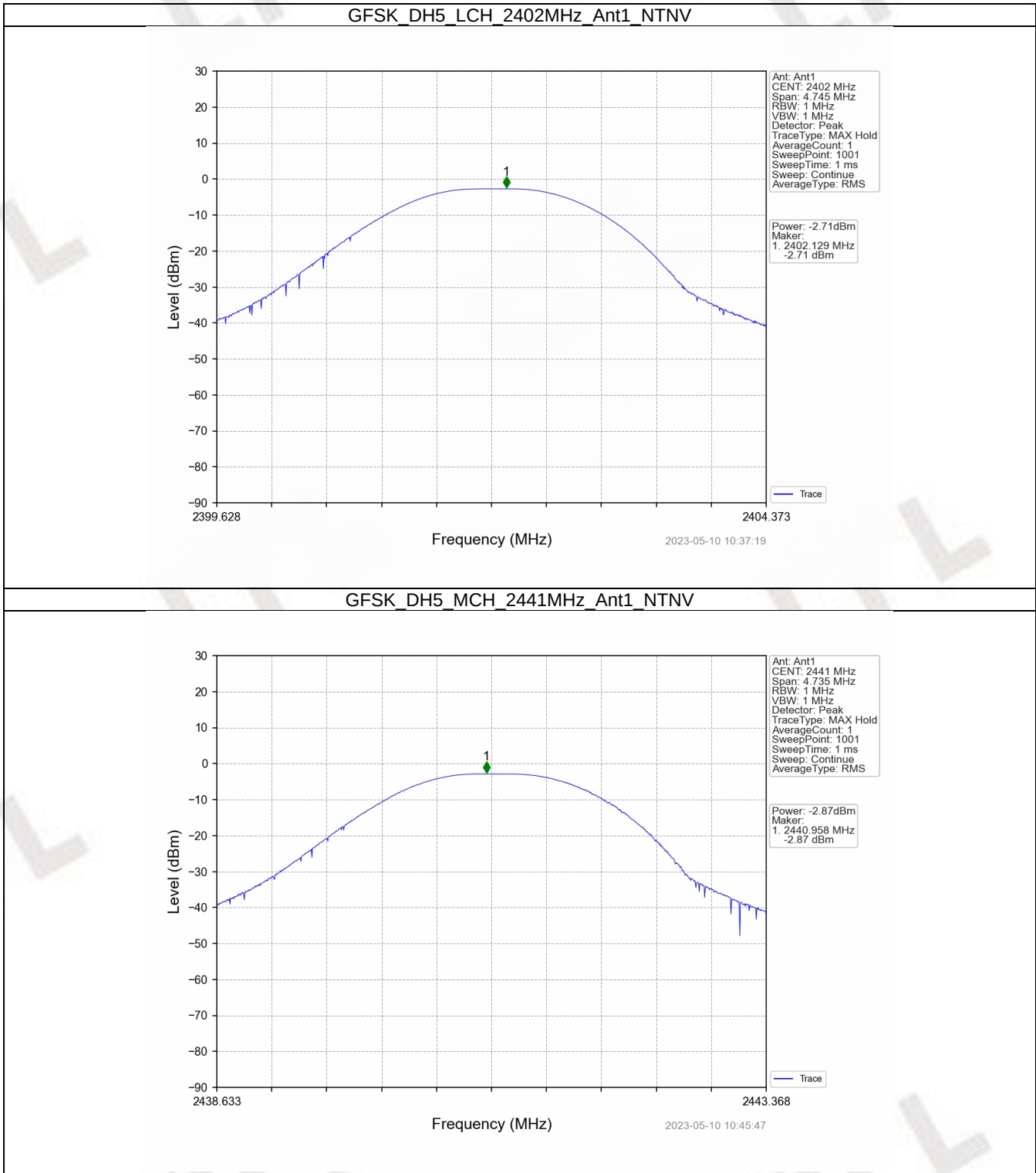
2.1 Power

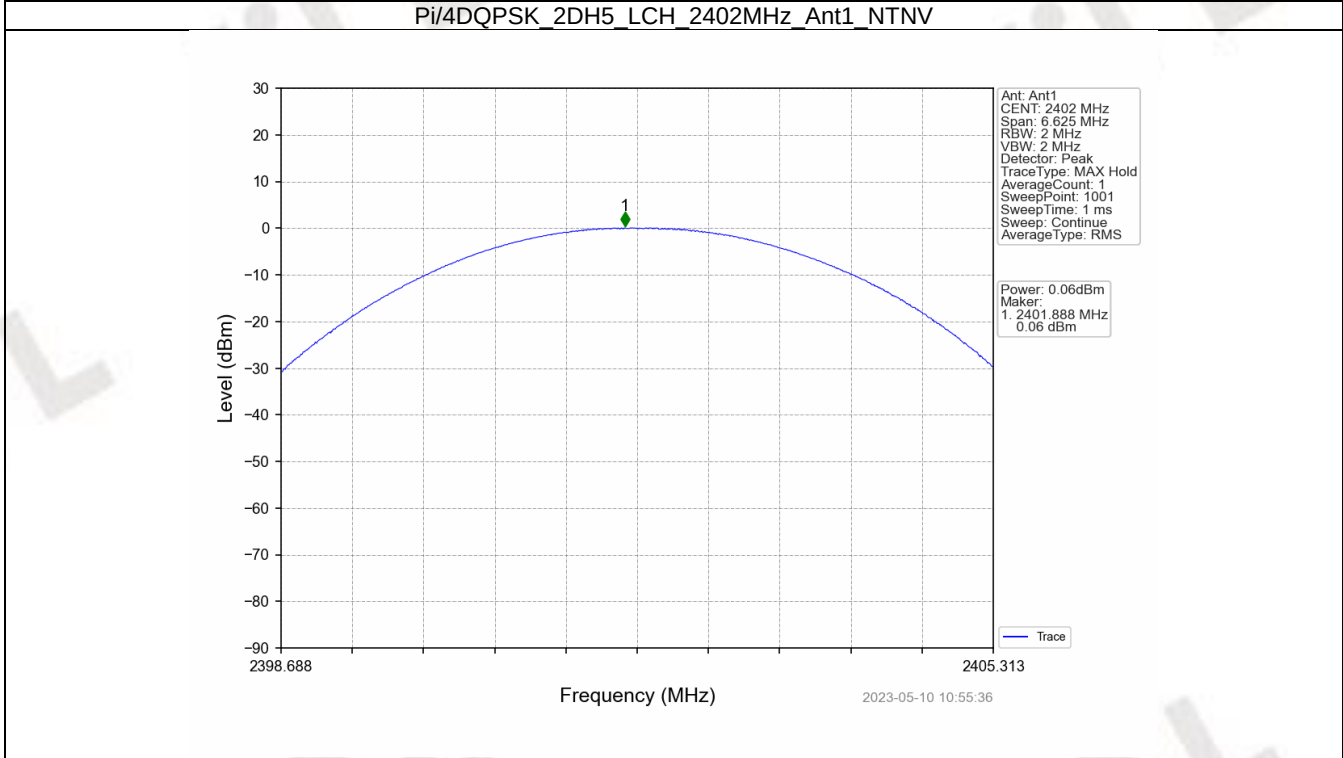
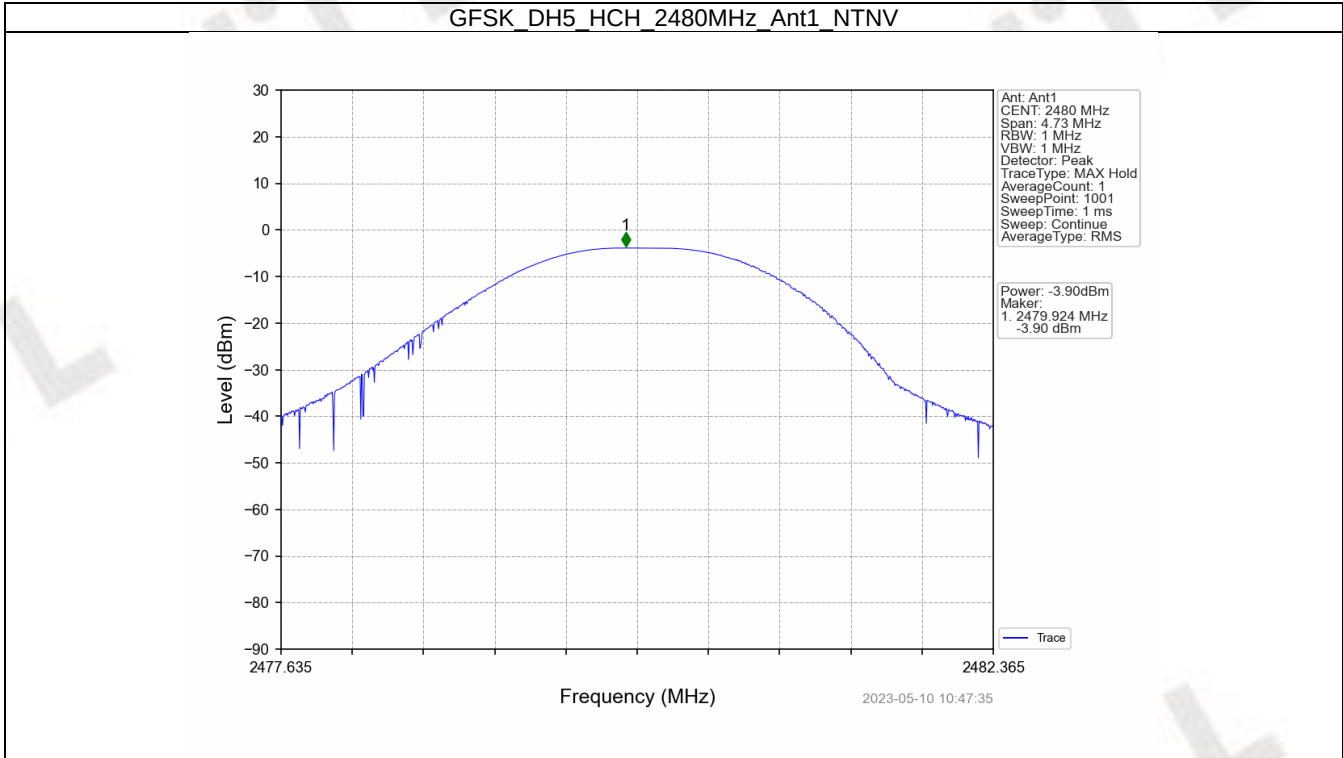
2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	-2.71	<=30	Pass
		2441	DH5	-2.87	<=30	Pass
		2480	DH5	-3.90	<=30	Pass
Pi/4DQPSK	SISO	2402	2DH5	0.06	<=20.97	Pass
		2441	2DH5	-0.66	<=20.97	Pass
		2480	2DH5	-1.65	<=20.97	Pass
8DPSK	SISO	2402	3DH5	0.33	<=20.97	Pass
		2441	3DH5	-0.33	<=20.97	Pass
		2480	3DH5	-1.35	<=20.97	Pass

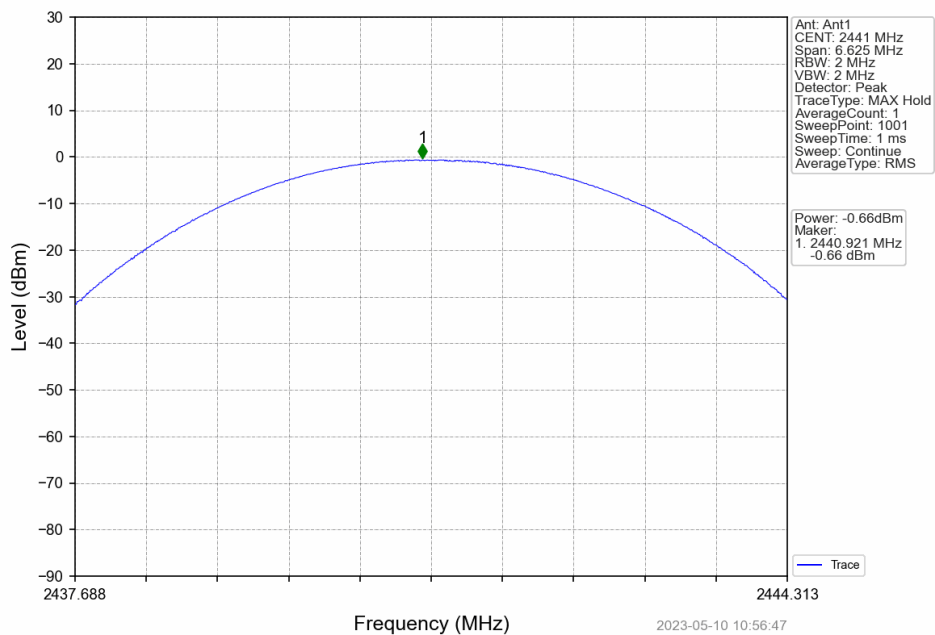
Note1: Antenna Gain: Ant1: 0.00dBi;

2.1.2 Test Graph

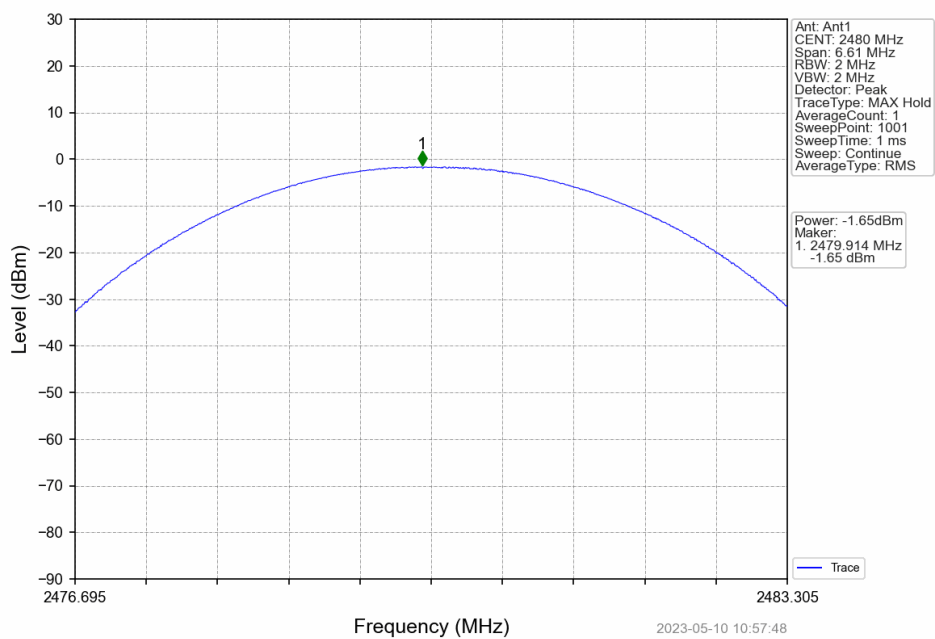




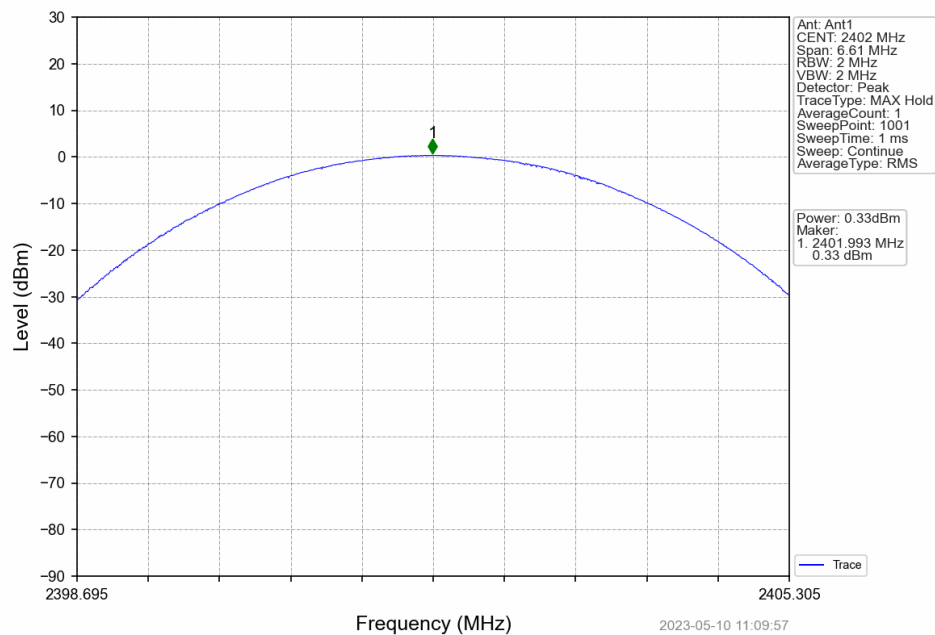
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



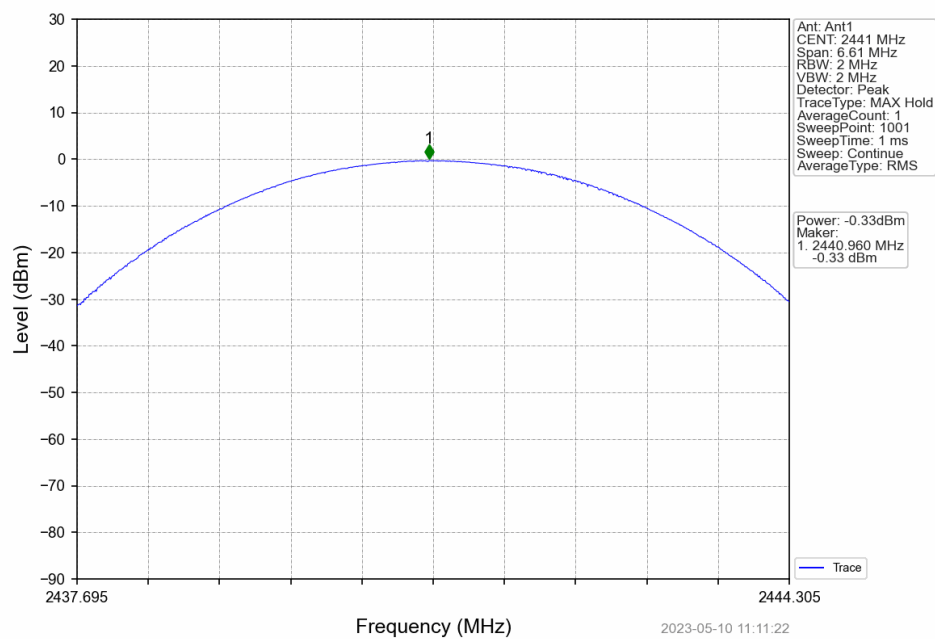
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

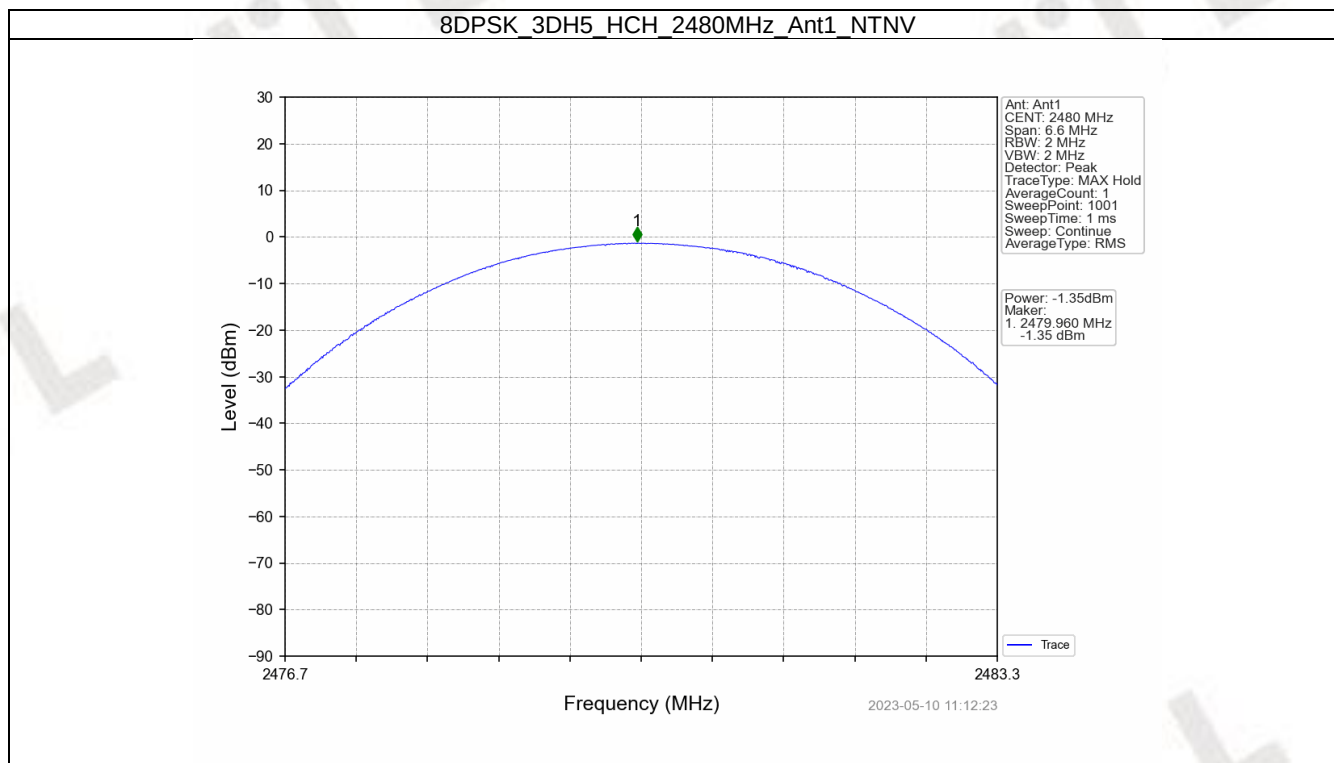


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV





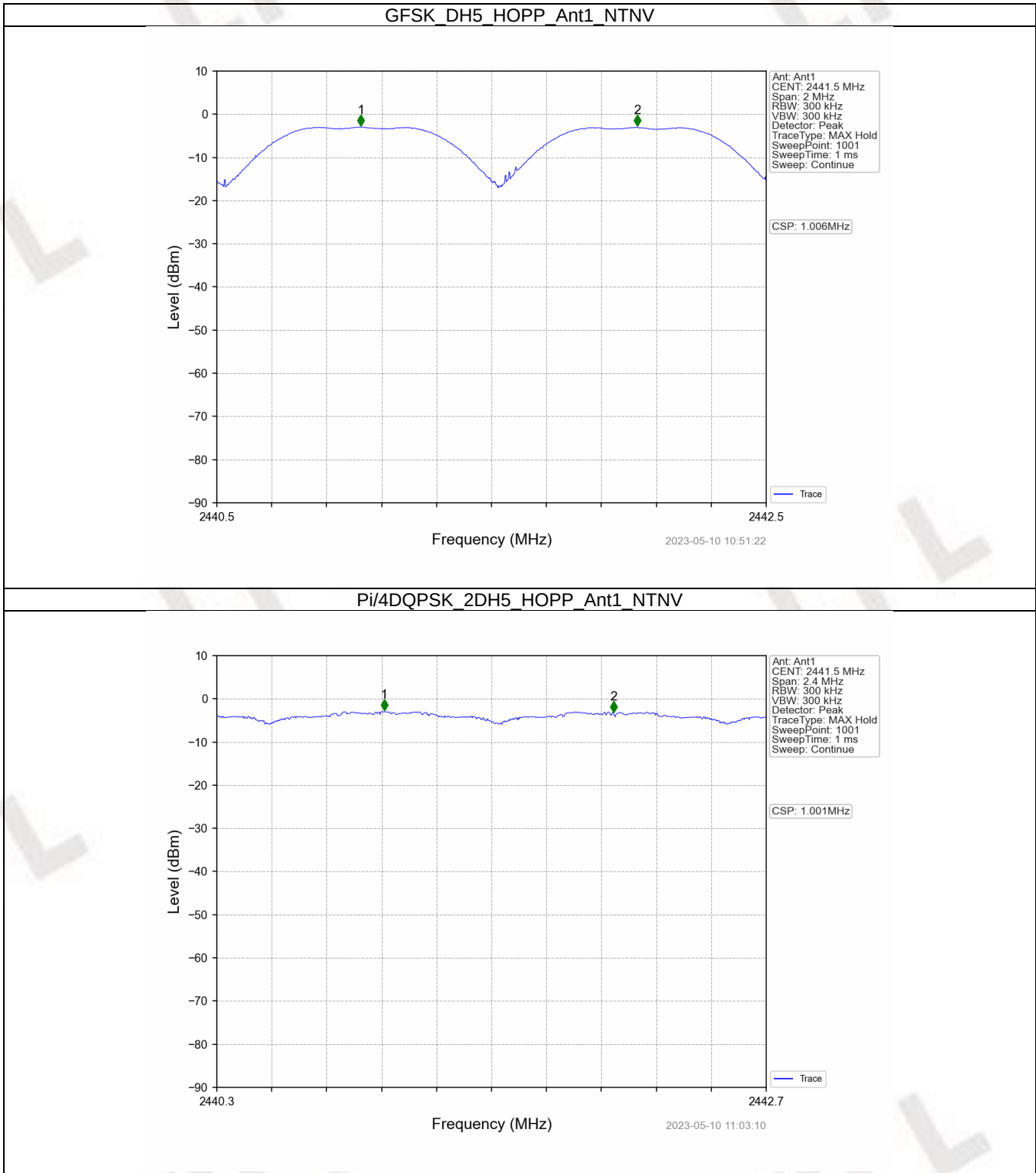
3 Carrier Frequency Separation

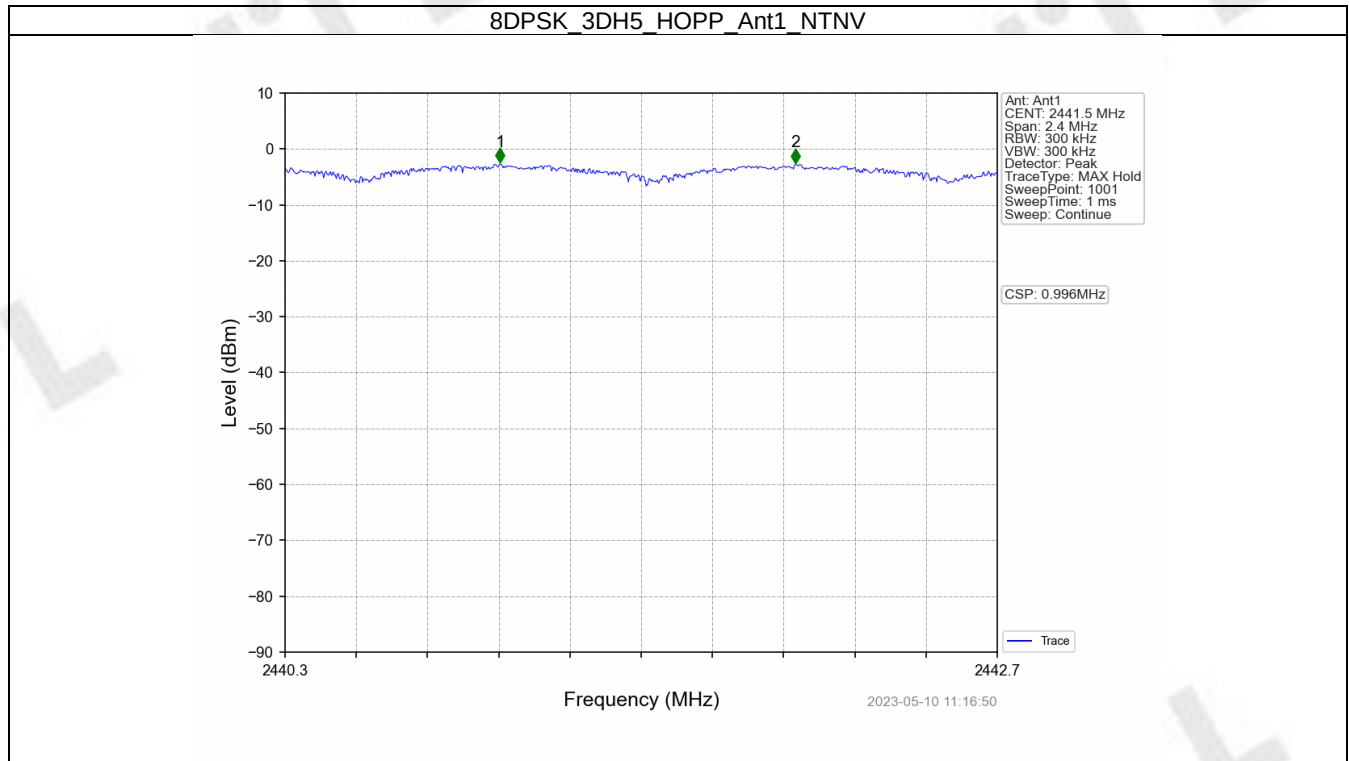
3.1 Ant1

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	1.006	0.949	≥ 0.949	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	1.001	1.325	≥ 0.883	Pass
8DPSK	SISO	HOPP	3DH5	0.996	1.322	≥ 0.881	Pass

3.1.2 Test Graph





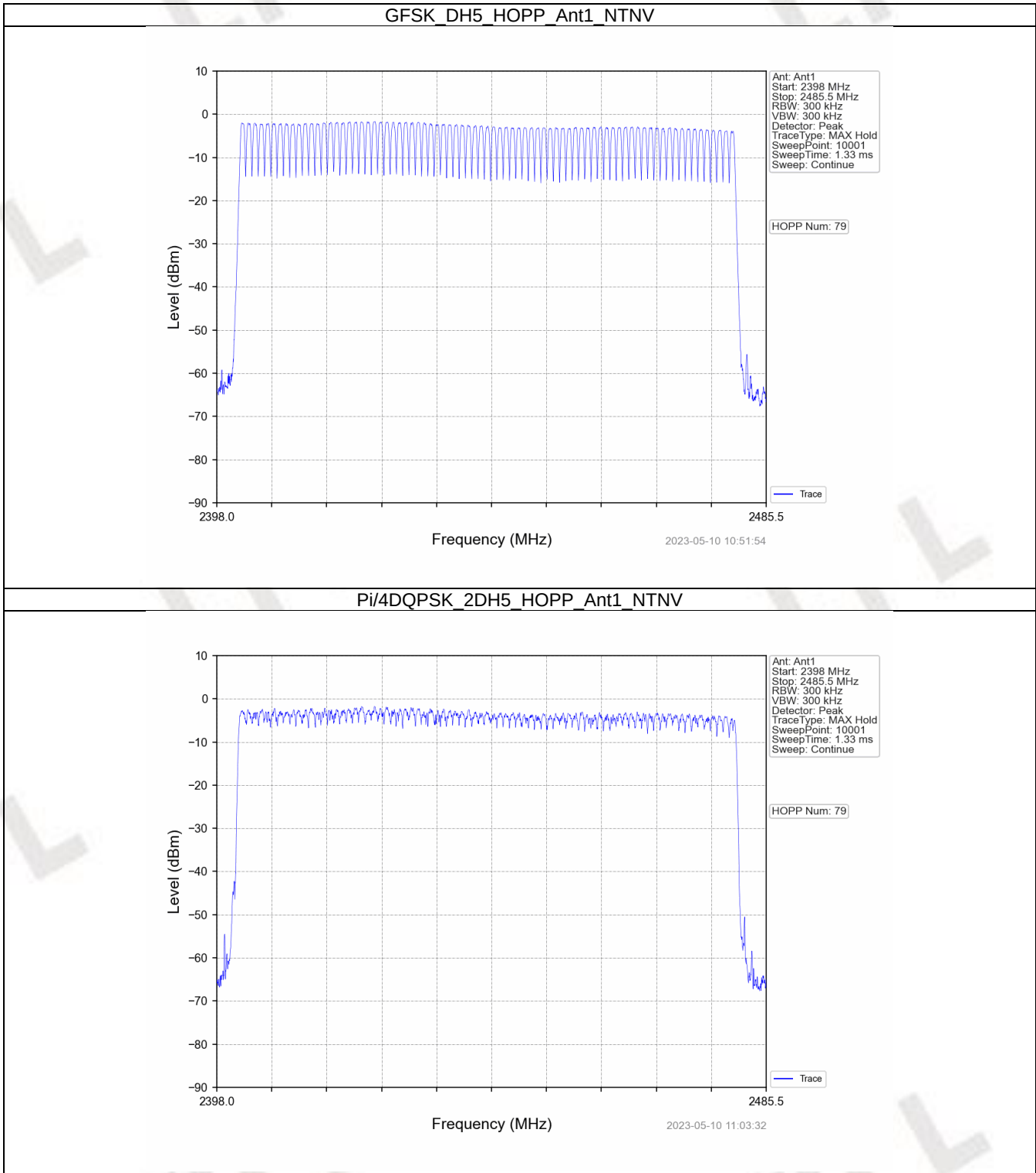
4 Number of Hopping Frequencies

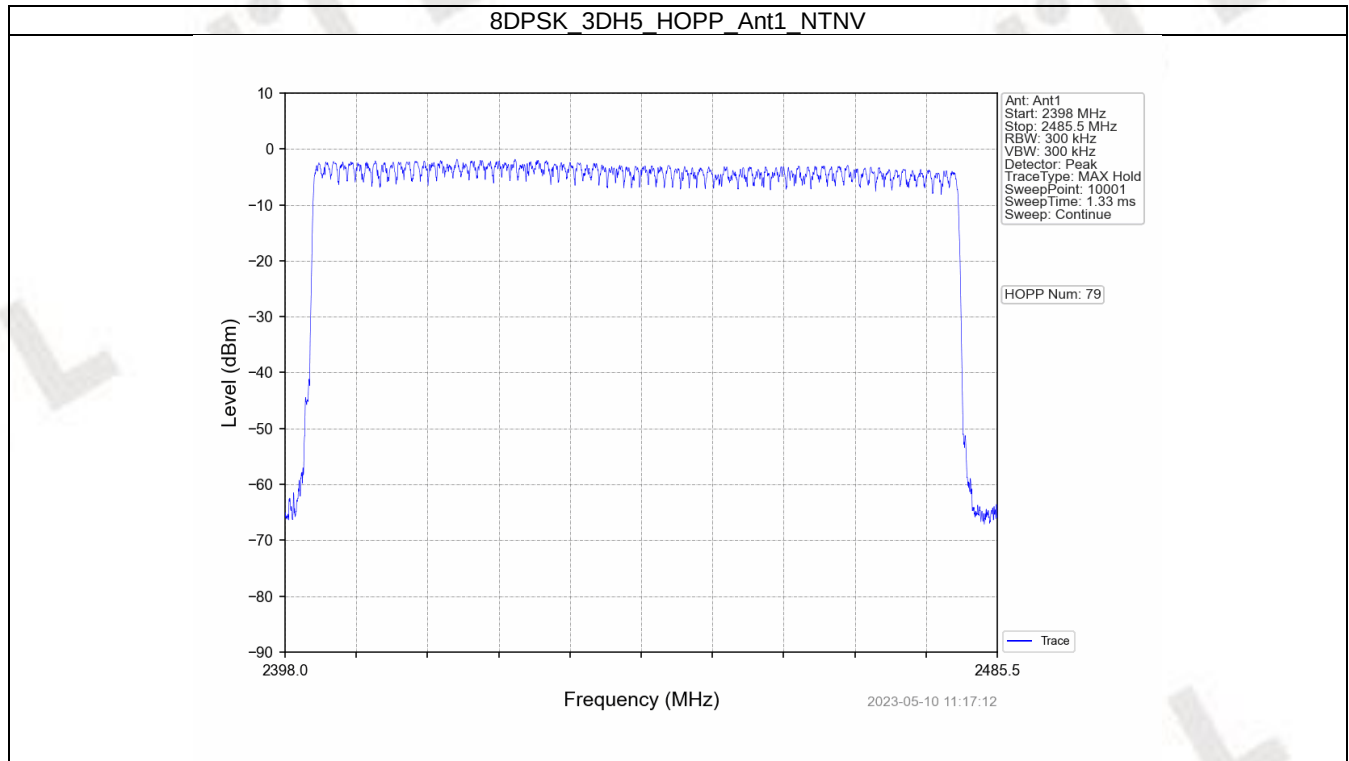
4.1 HoppNum

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





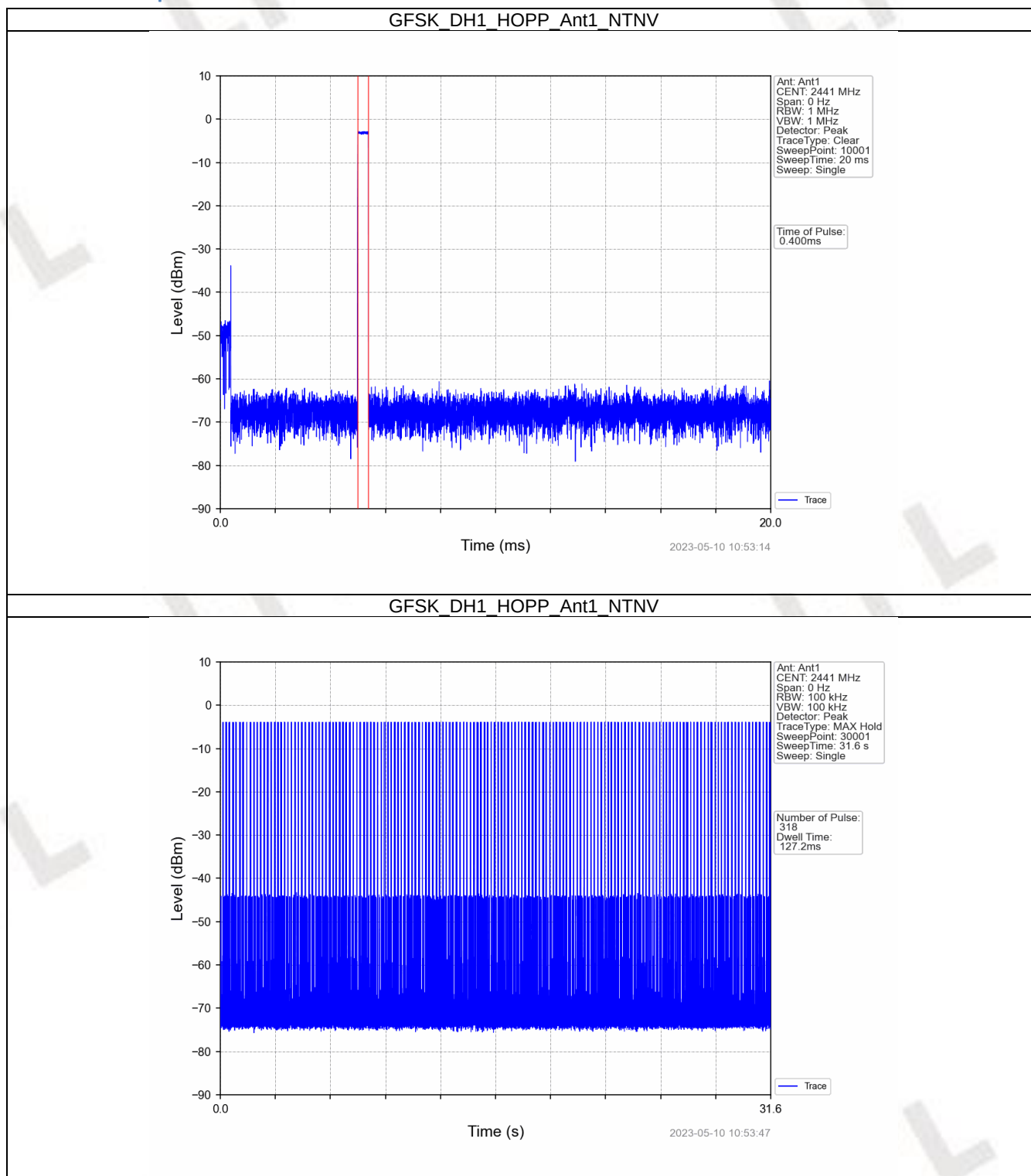
5 Time of Occupancy (Dwell Time)

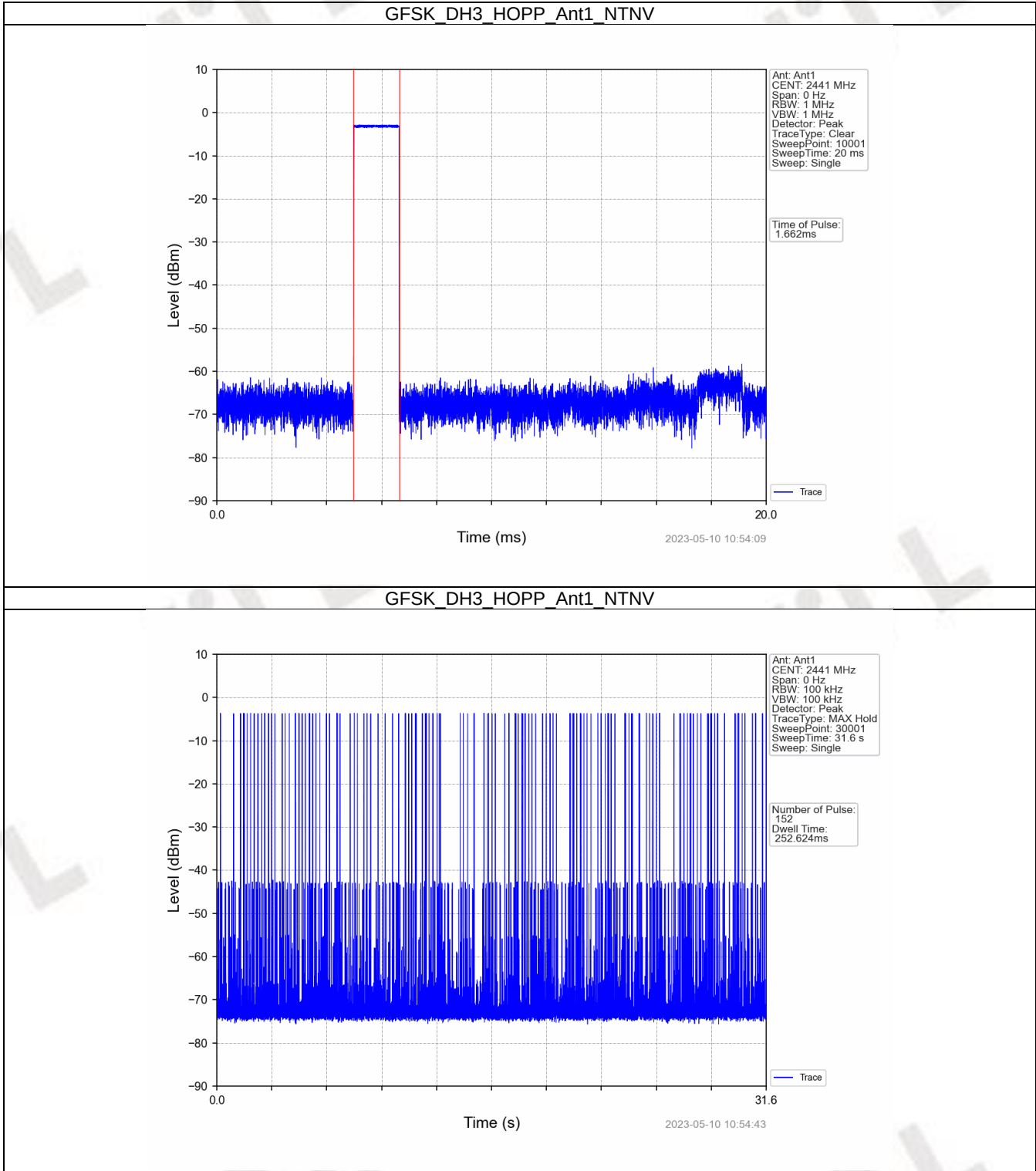
5.1 Ant1

5.1.1 Test Result

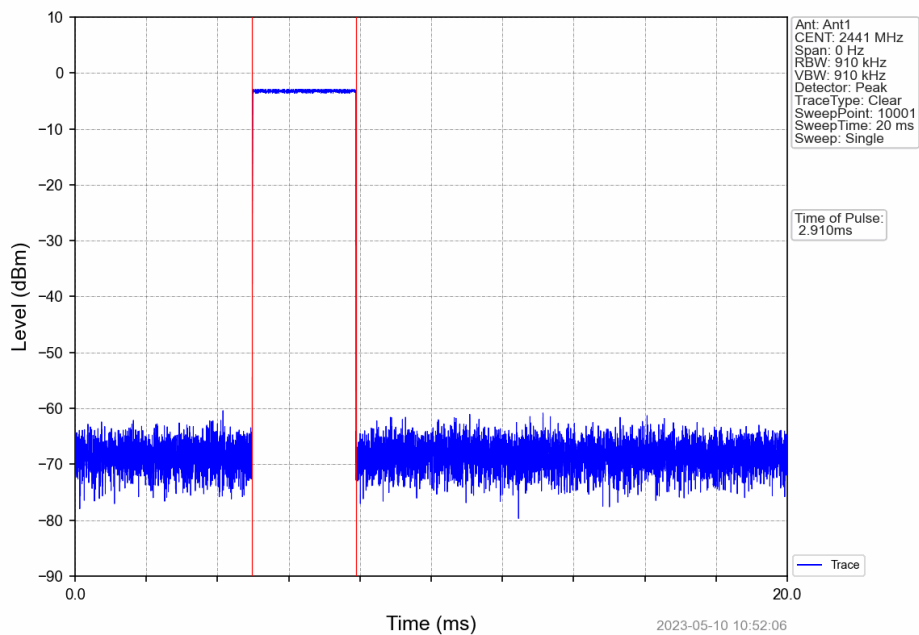
Ant1									
Mode	Tx Type	Frequency (MHz)	Packet Type	Duration of Single Pulse (ms)	Observation Period (s)	Num of Pulse in Observation Period	Dwell Time (ms)	Limit (ms)	Verdict
GFSK	SISO	HOPP	DH1	0.400	31.600	318	127.200	<=400	Pass
			DH3	1.662	31.600	152	252.624	<=400	Pass
			DH5	2.910	31.600	108	314.280	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.414	31.600	320	132.480	<=400	Pass
			2DH3	1.666	31.600	166	276.556	<=400	Pass
			2DH5	2.910	31.600	118	343.380	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.412	31.600	321	132.252	<=400	Pass
			3DH3	1.662	31.600	163	270.906	<=400	Pass
			3DH5	2.918	31.600	108	315.144	<=400	Pass

5.1.2 Test Graph

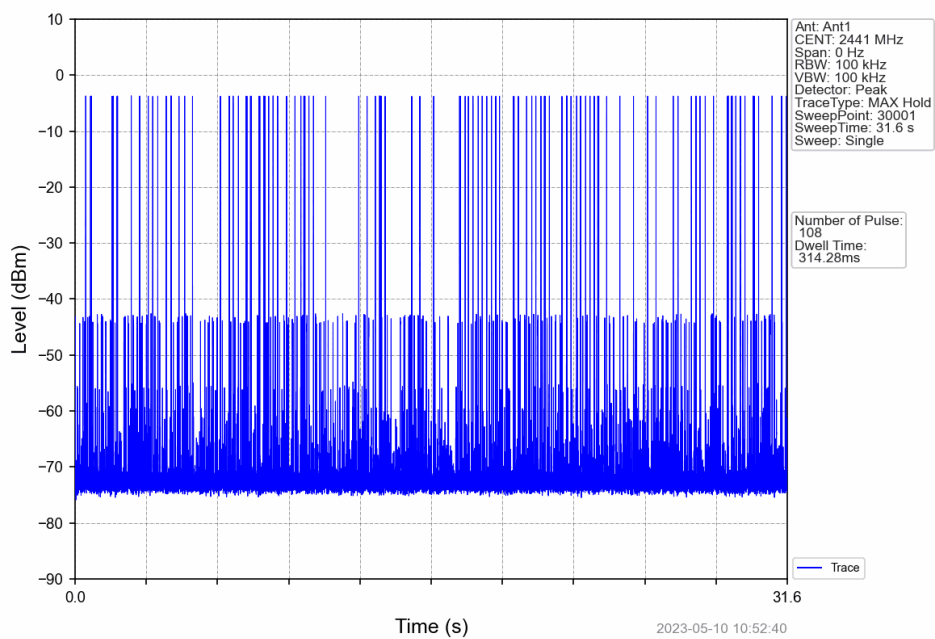


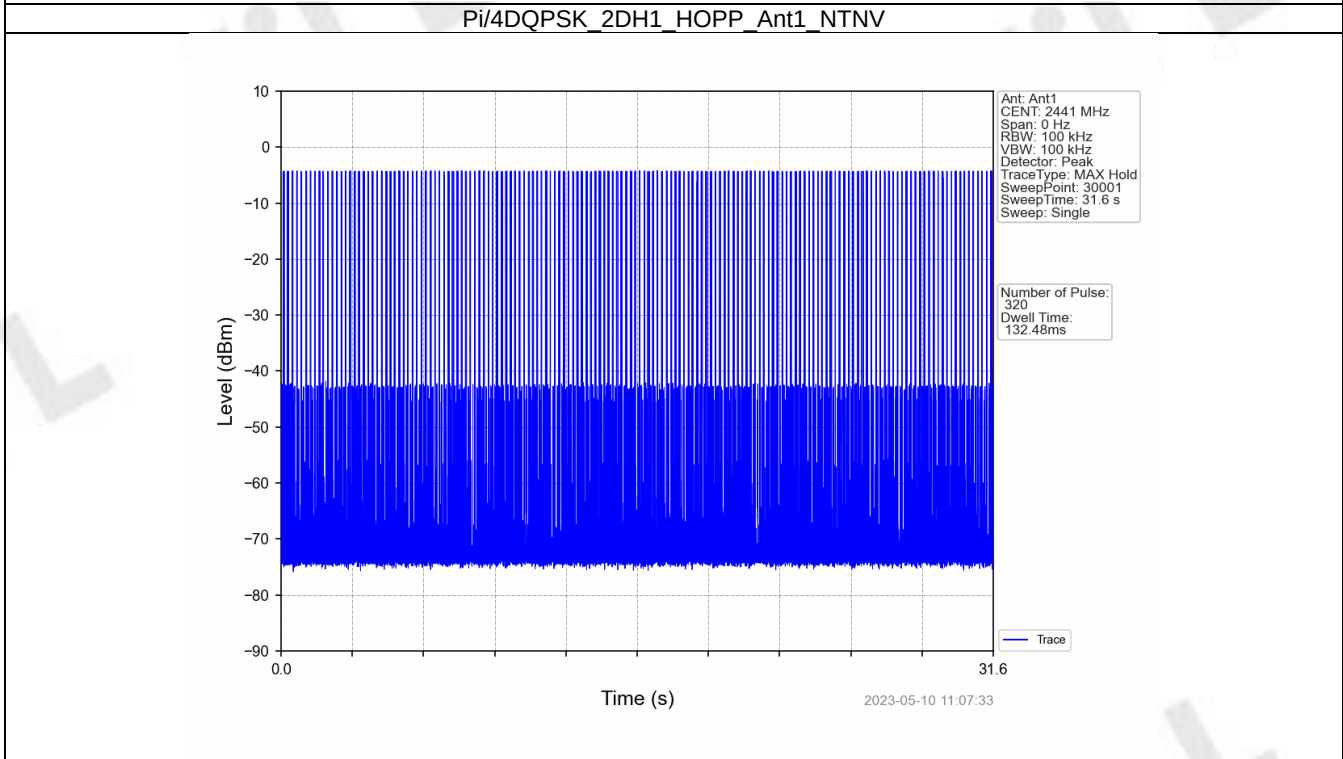
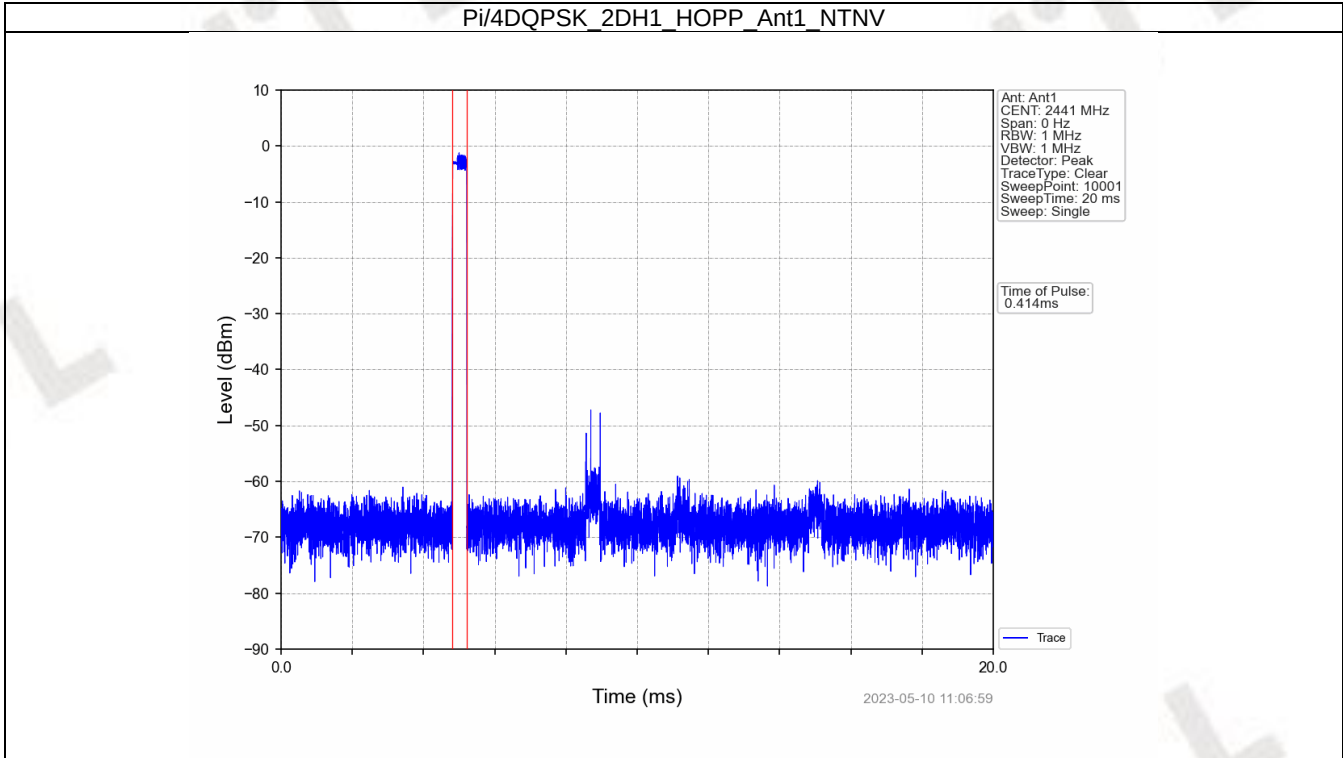


GFSK_DH5_HOPP_Ant1_NTNV

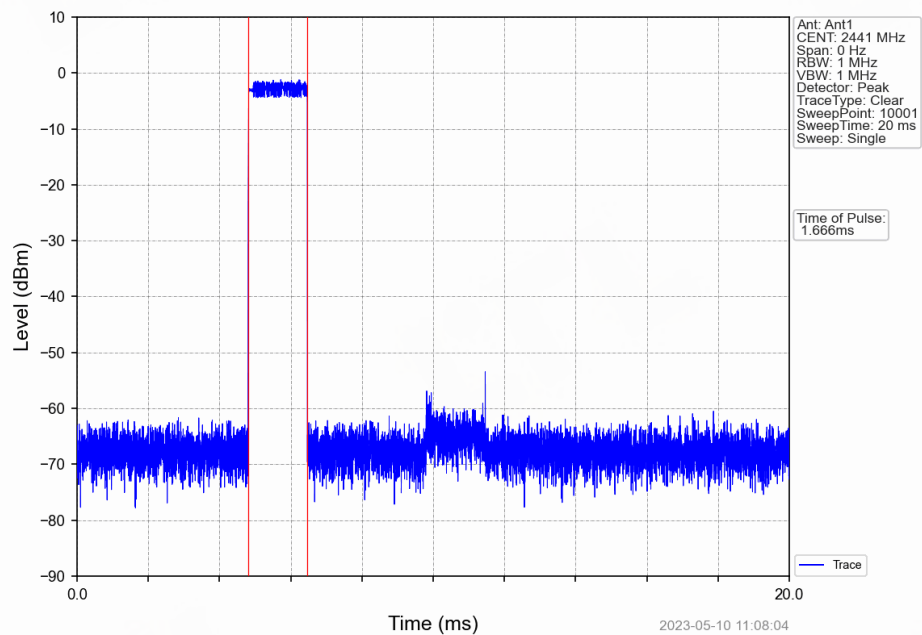


GFSK_DH5_HOPP_Ant1_NTNV

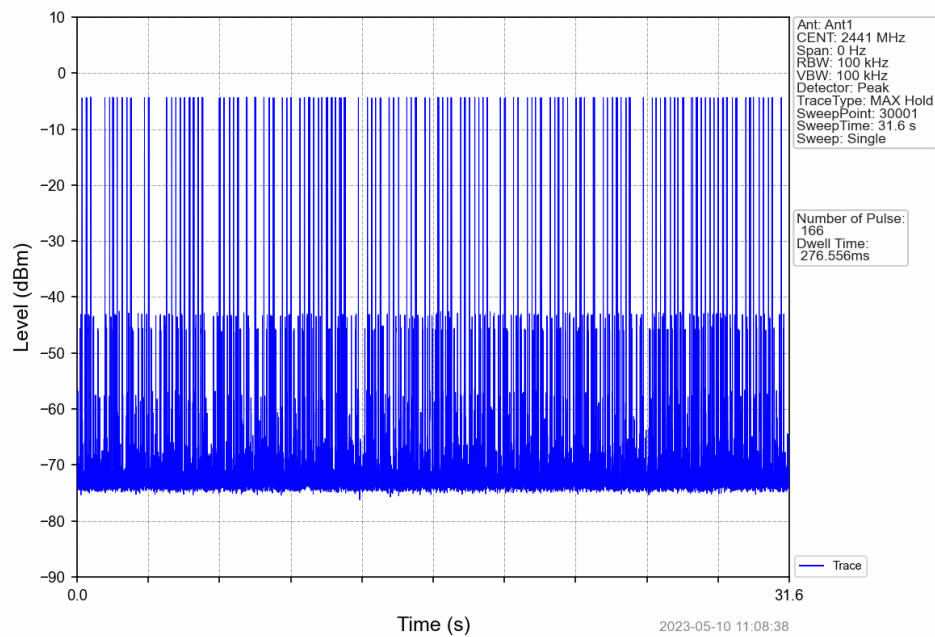




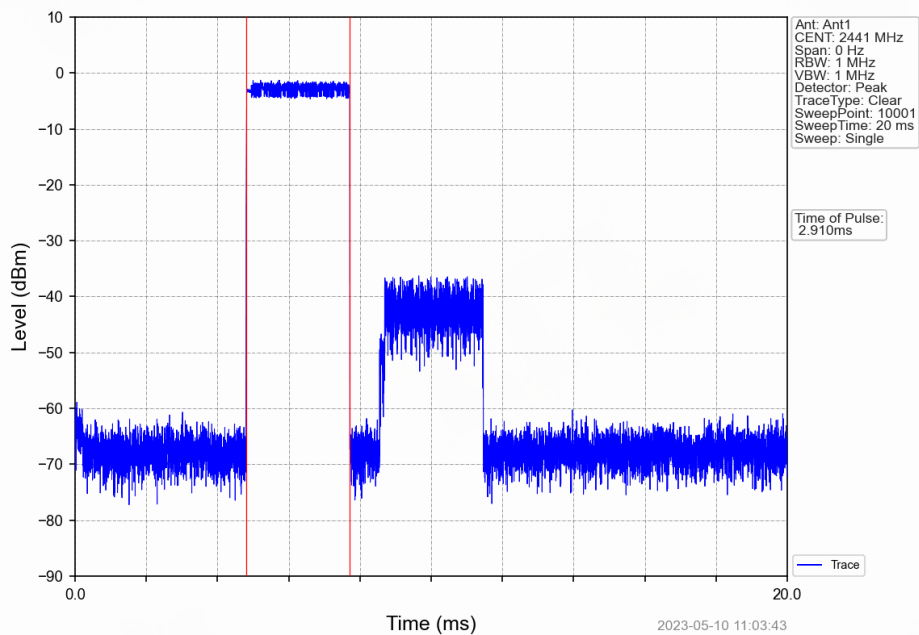
Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV



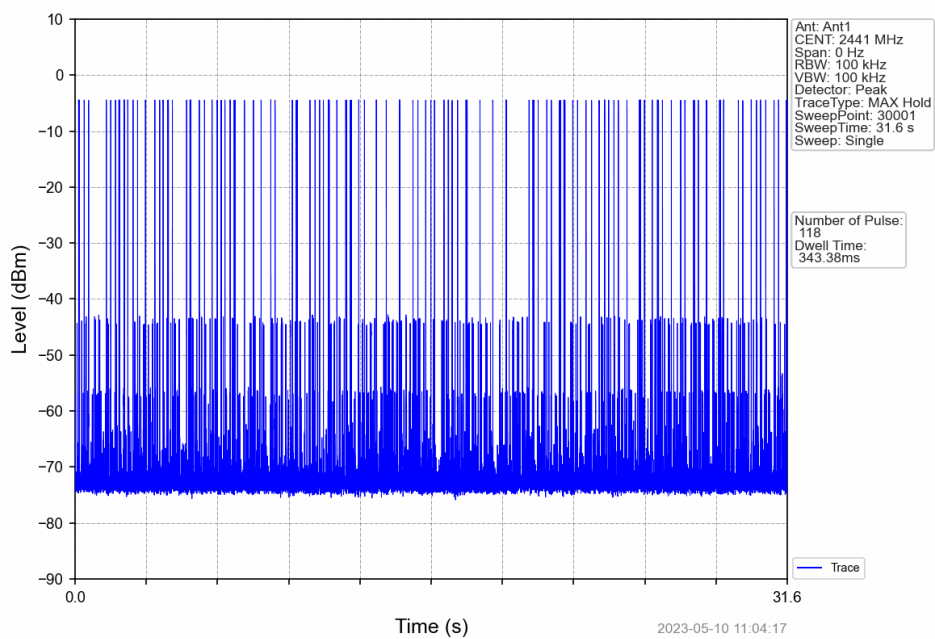
Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV

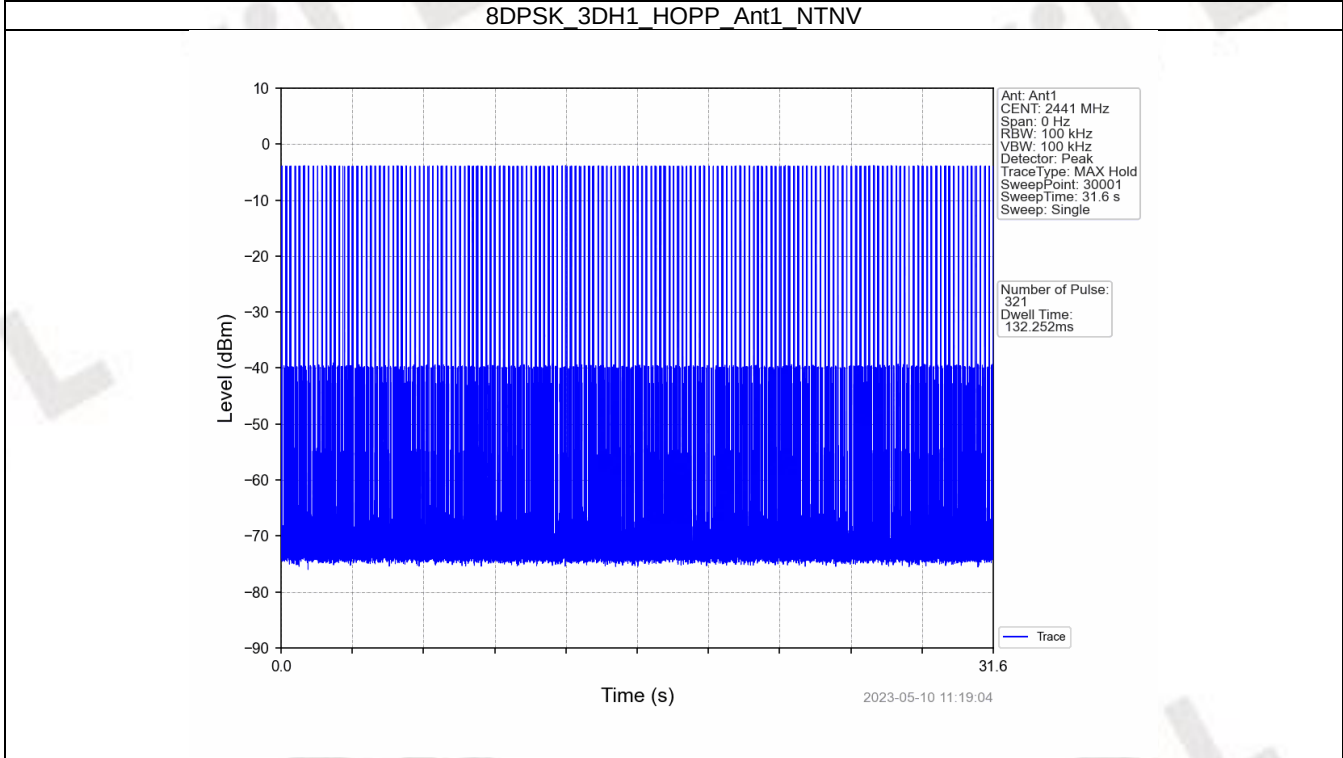
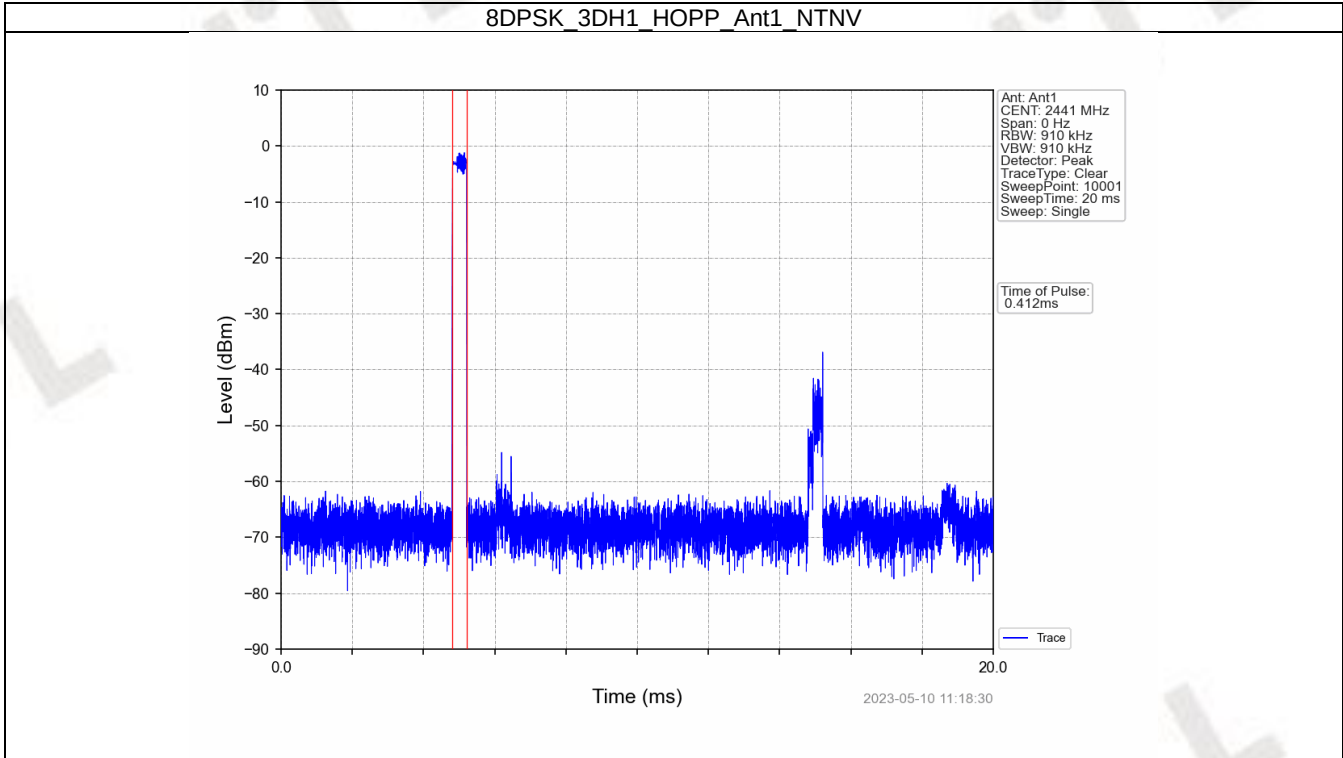


Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV

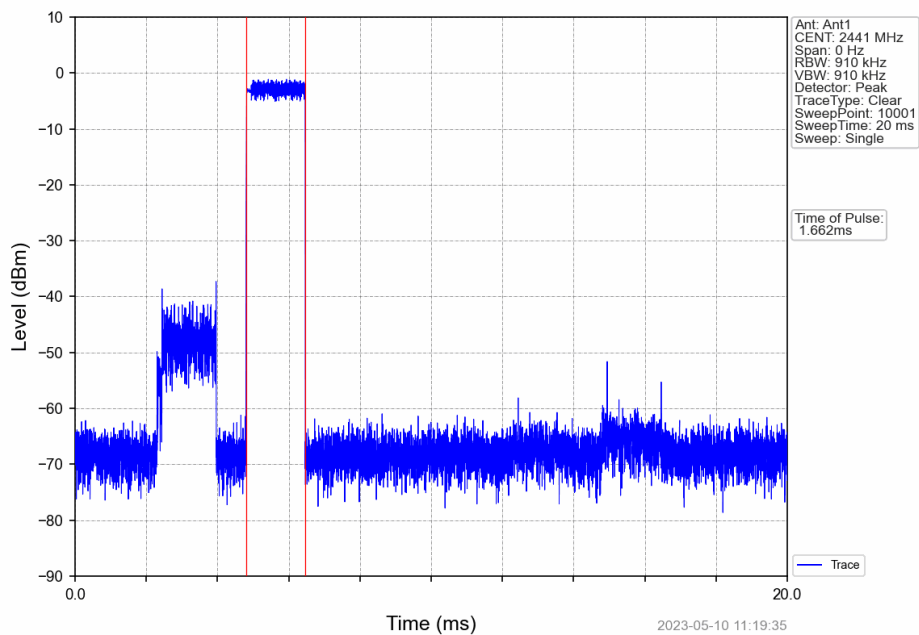


Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV

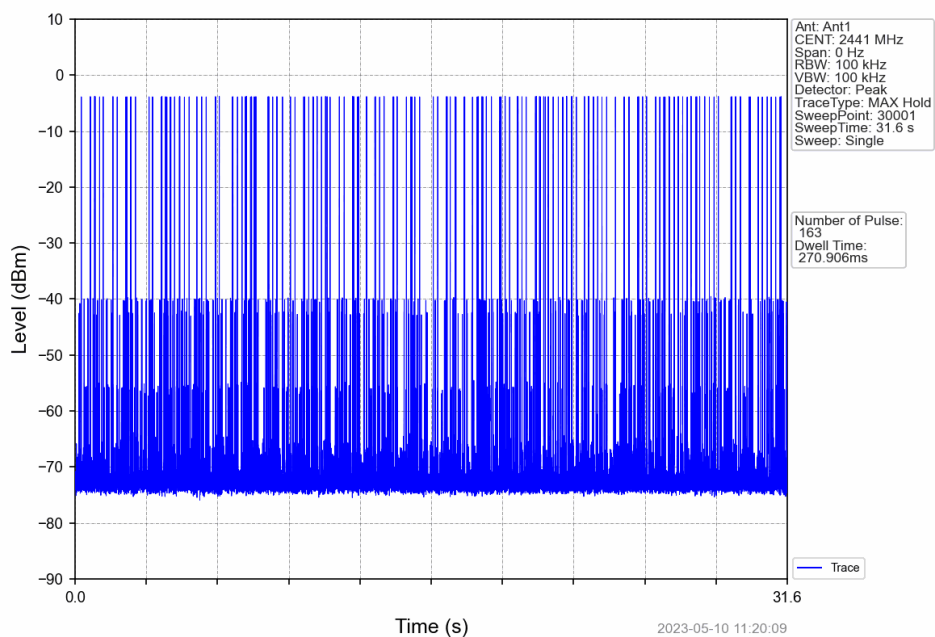




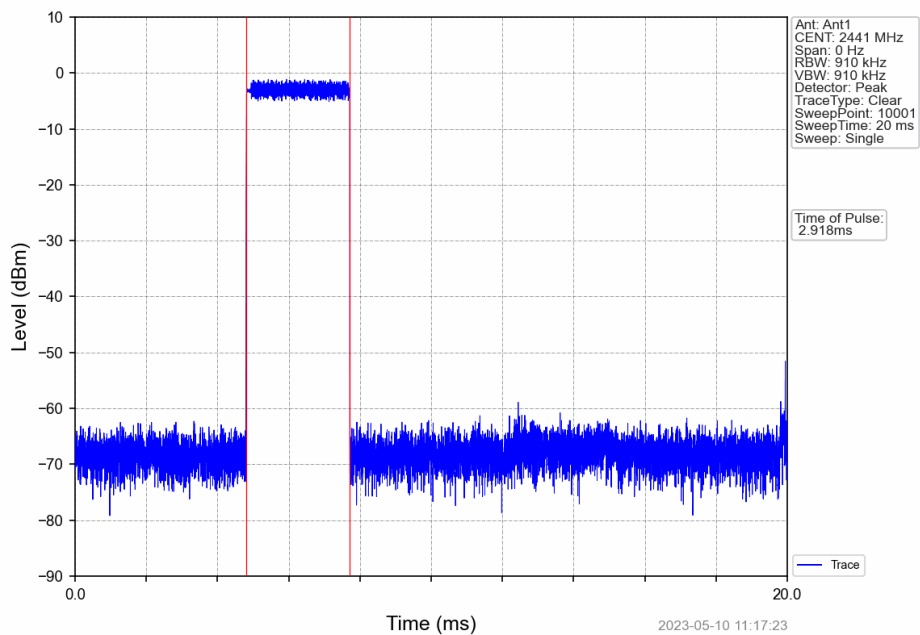
8DPSK_3DH3_HOPP_Ant1_NTNV



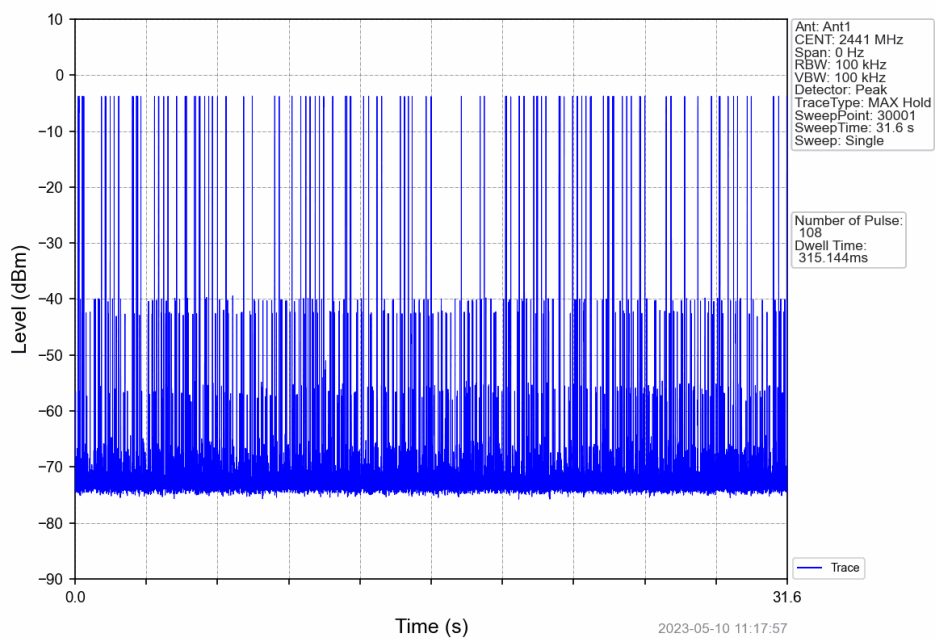
8DPSK_3DH3_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV



6 Unwanted Emissions In Non-restricted Frequency Bands

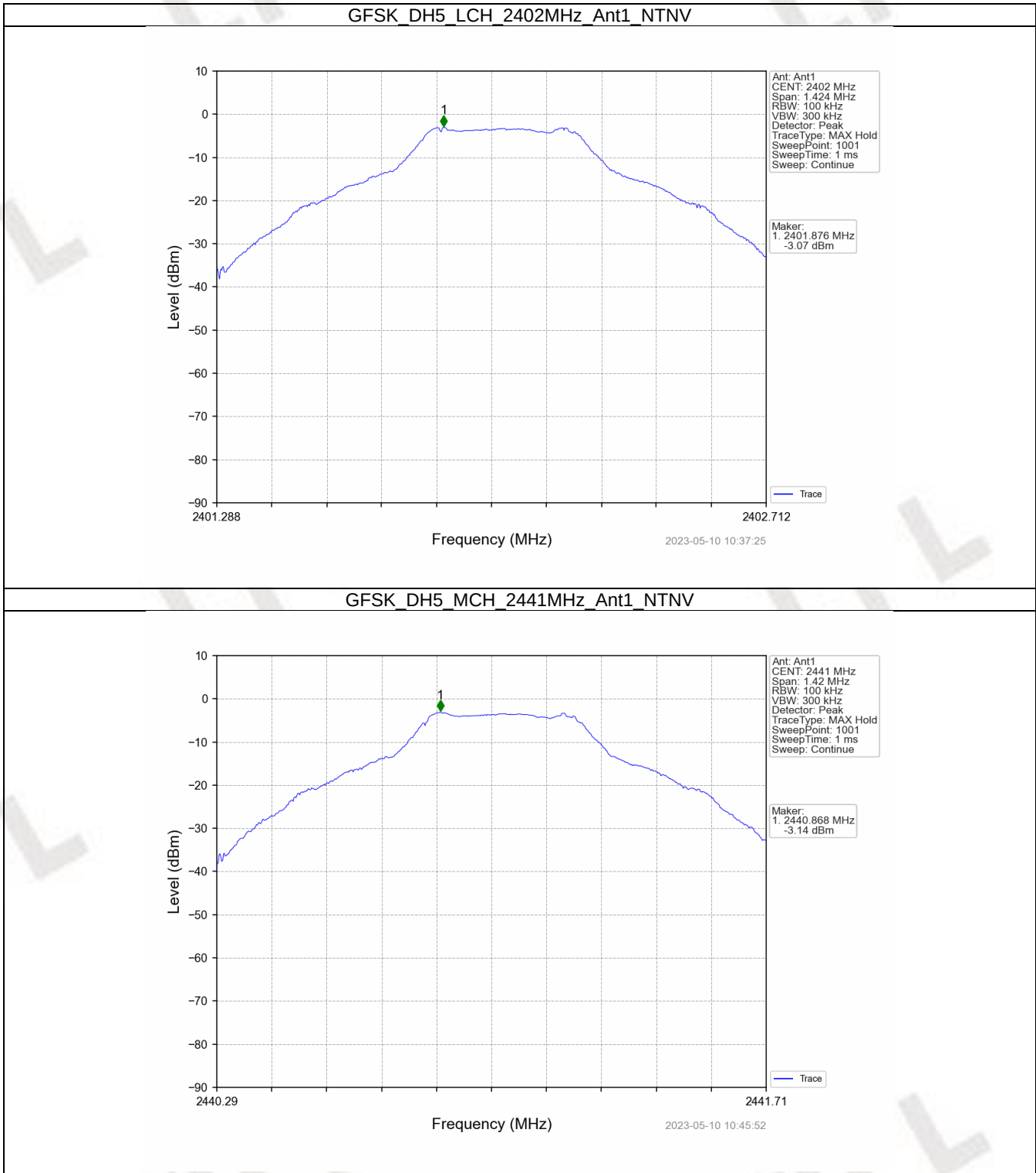
6.1 Ref

6.1.1 Test Result

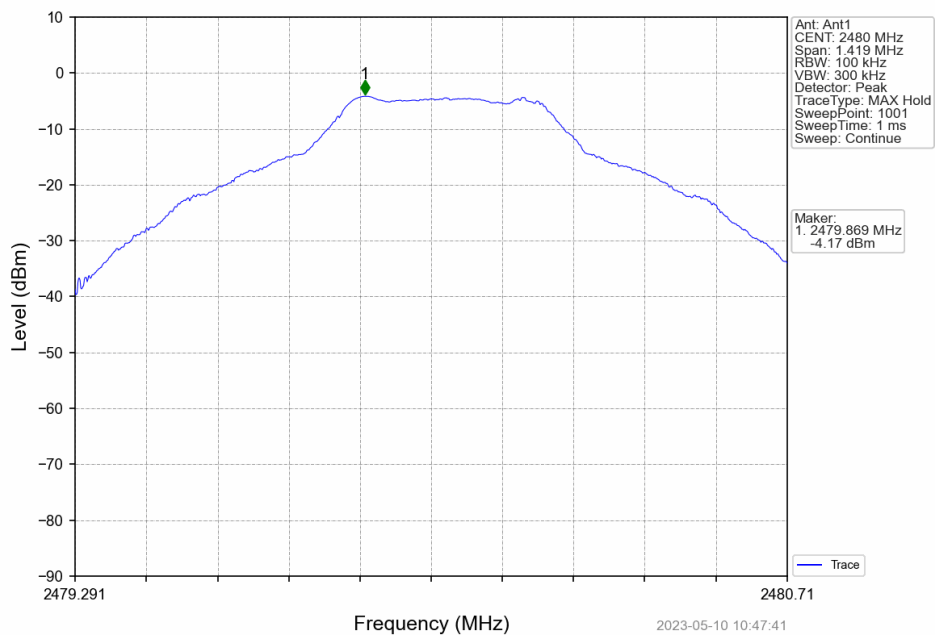
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	-3.07
		2441	DH5	1	-3.14
		2480	DH5	1	-4.17
Pi/4DQPSK	SISO	2402	2DH5	1	-2.59
		2441	2DH5	1	-3.35
		2480	2DH5	1	-4.36
8DPSK	SISO	2402	3DH5	1	-2.28
		2441	3DH5	1	-2.96
		2480	3DH5	1	-4.01

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.

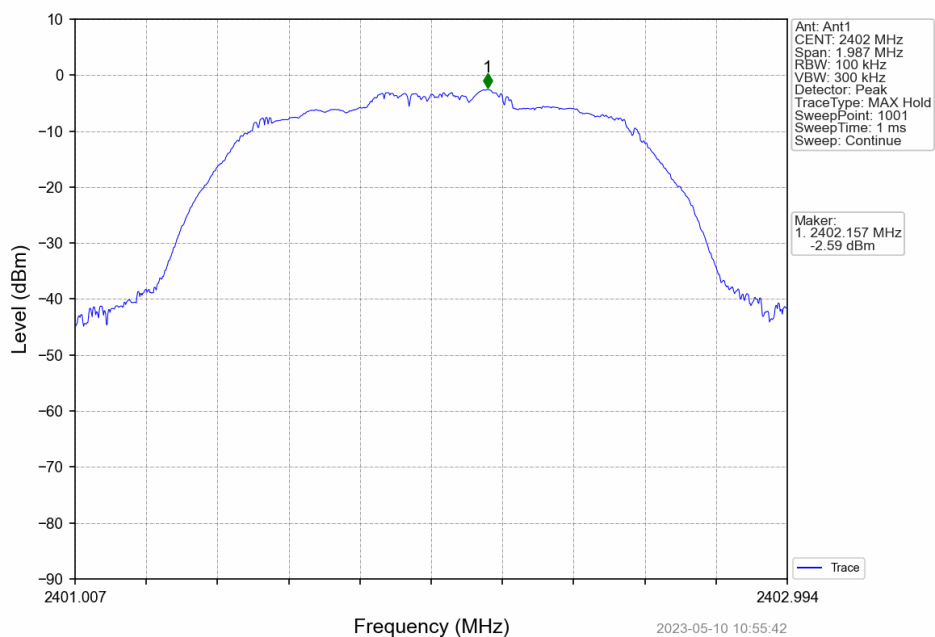
6.1.2 Test Graph



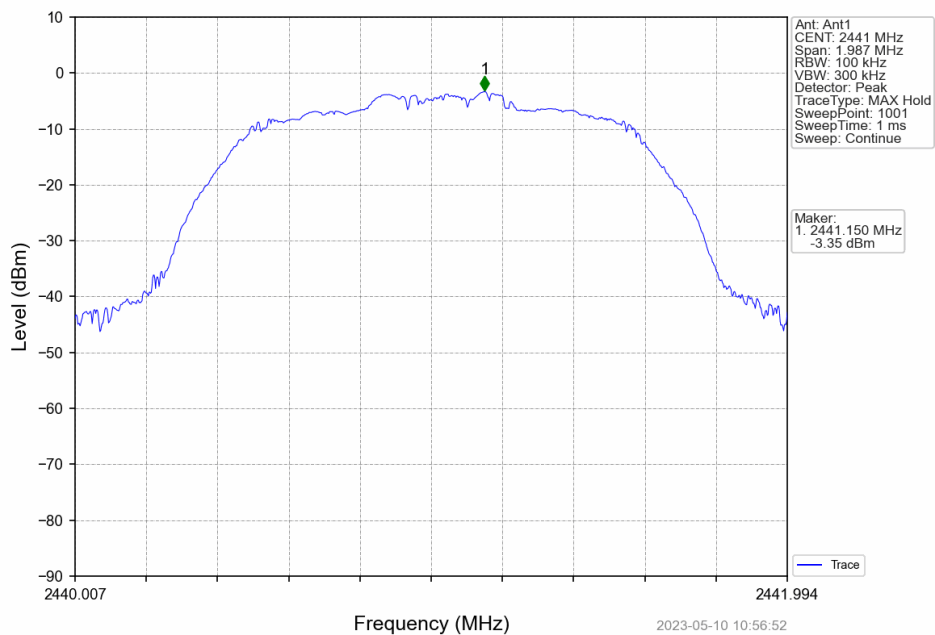
GFSK DH5_HCH_2480MHz_Ant1_NTNV



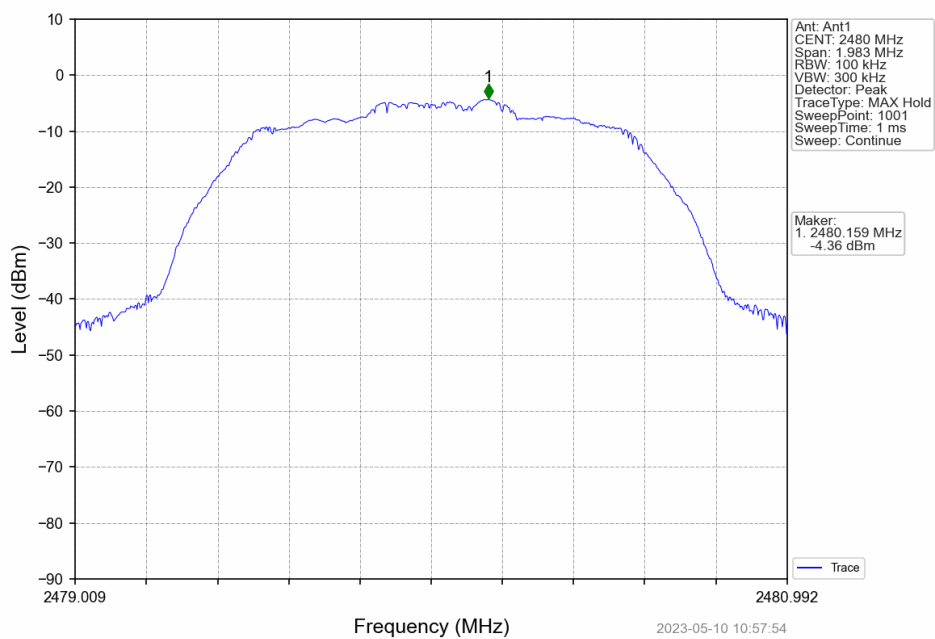
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



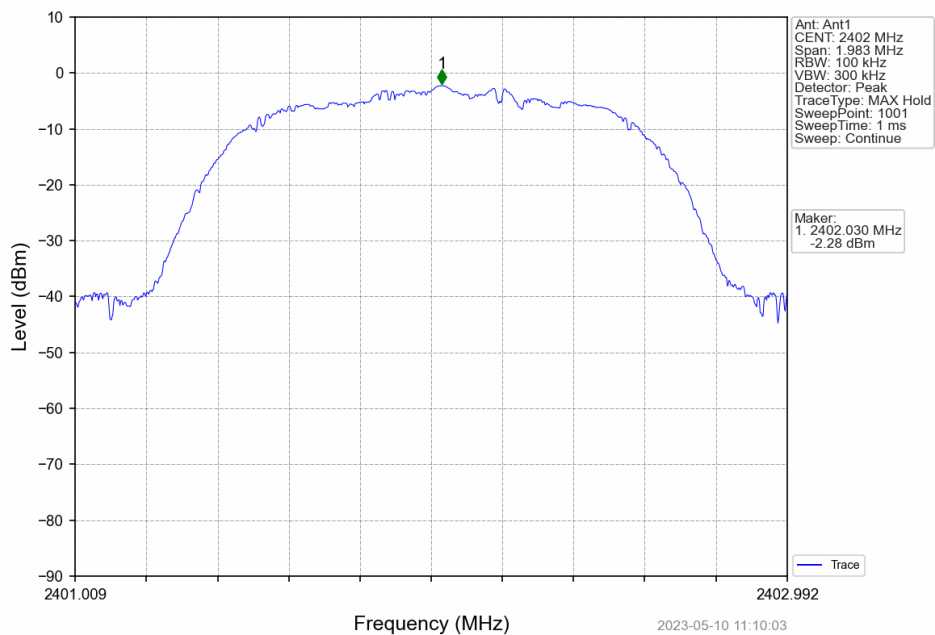
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



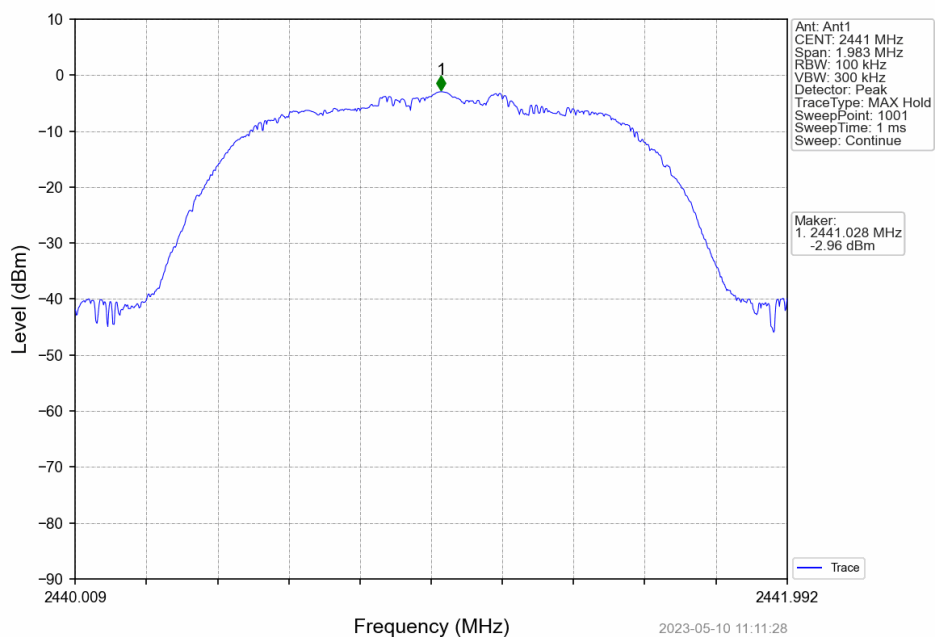
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

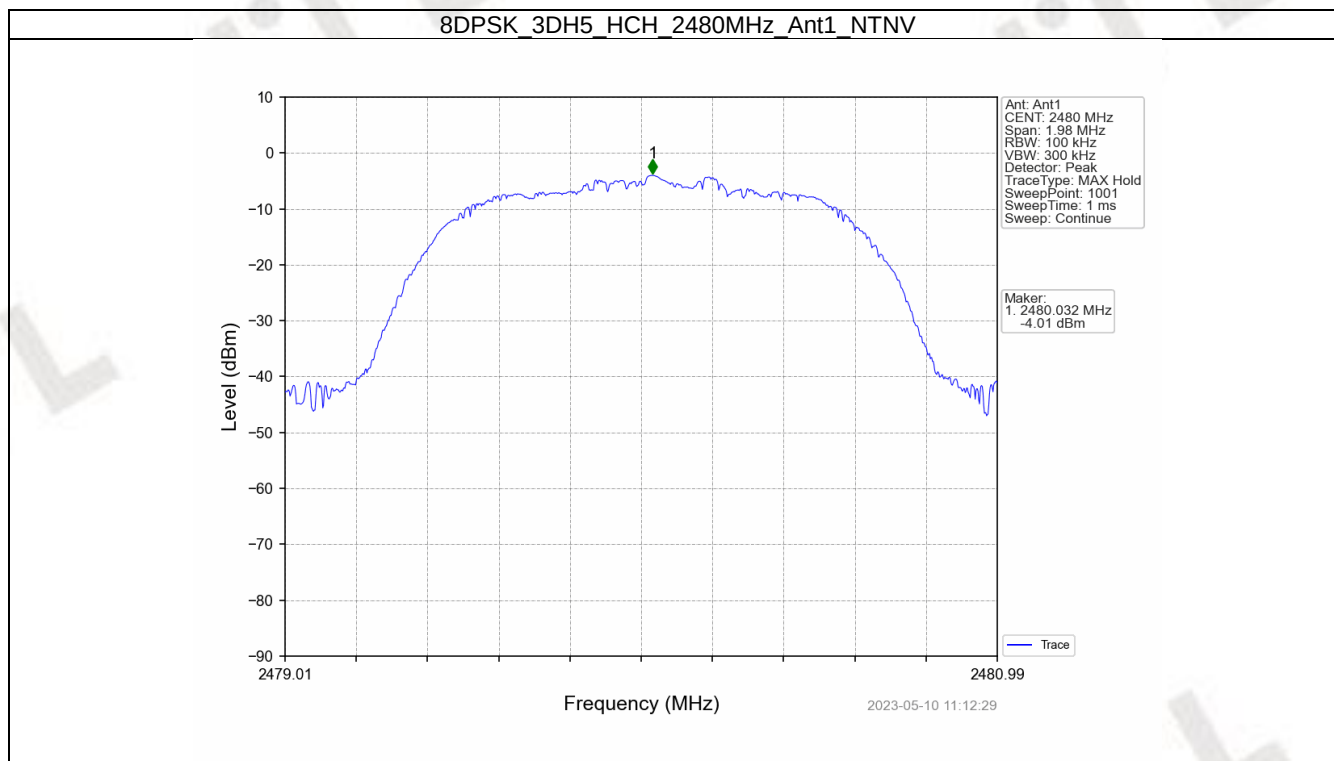


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV





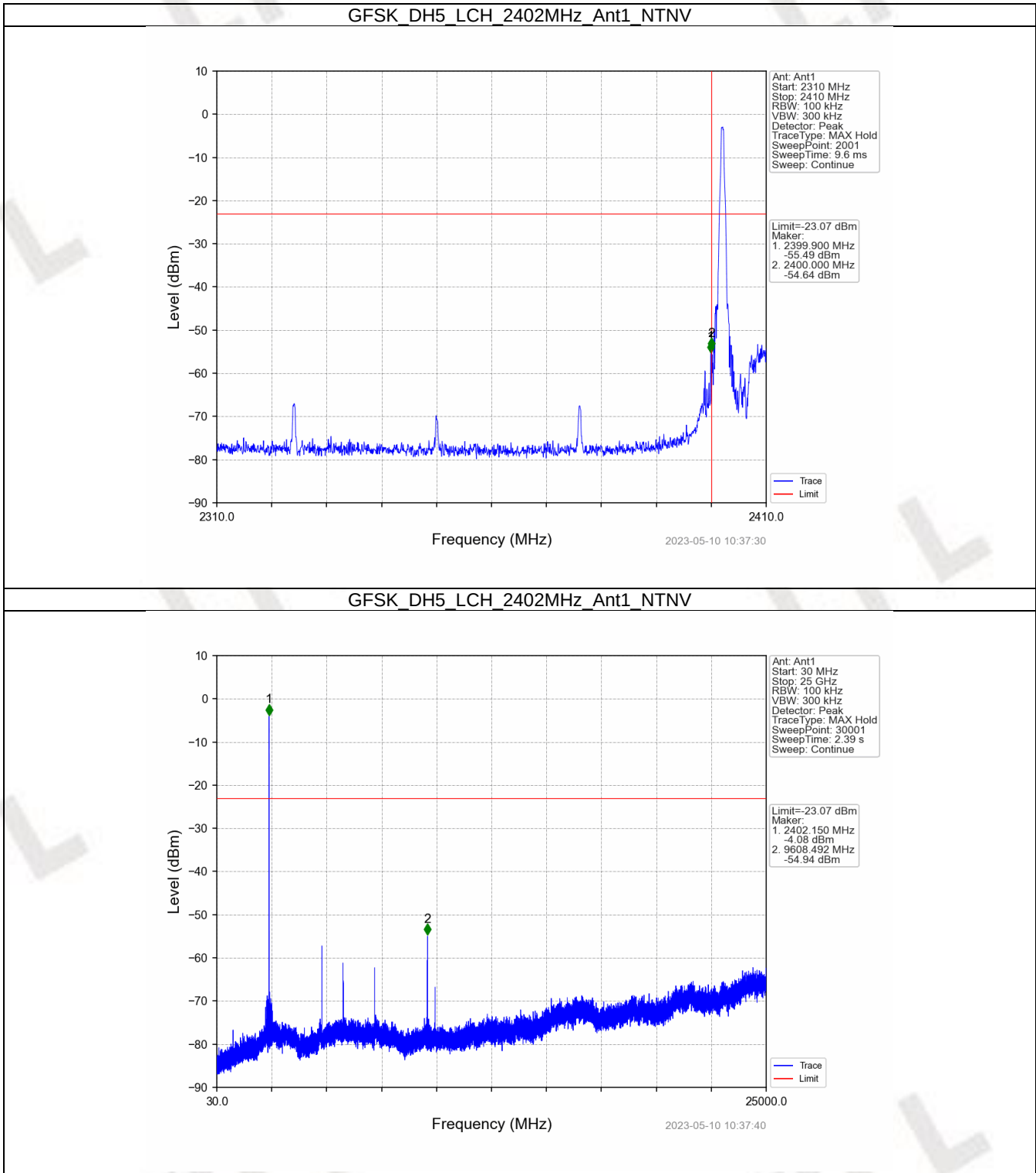
6.2 CSE

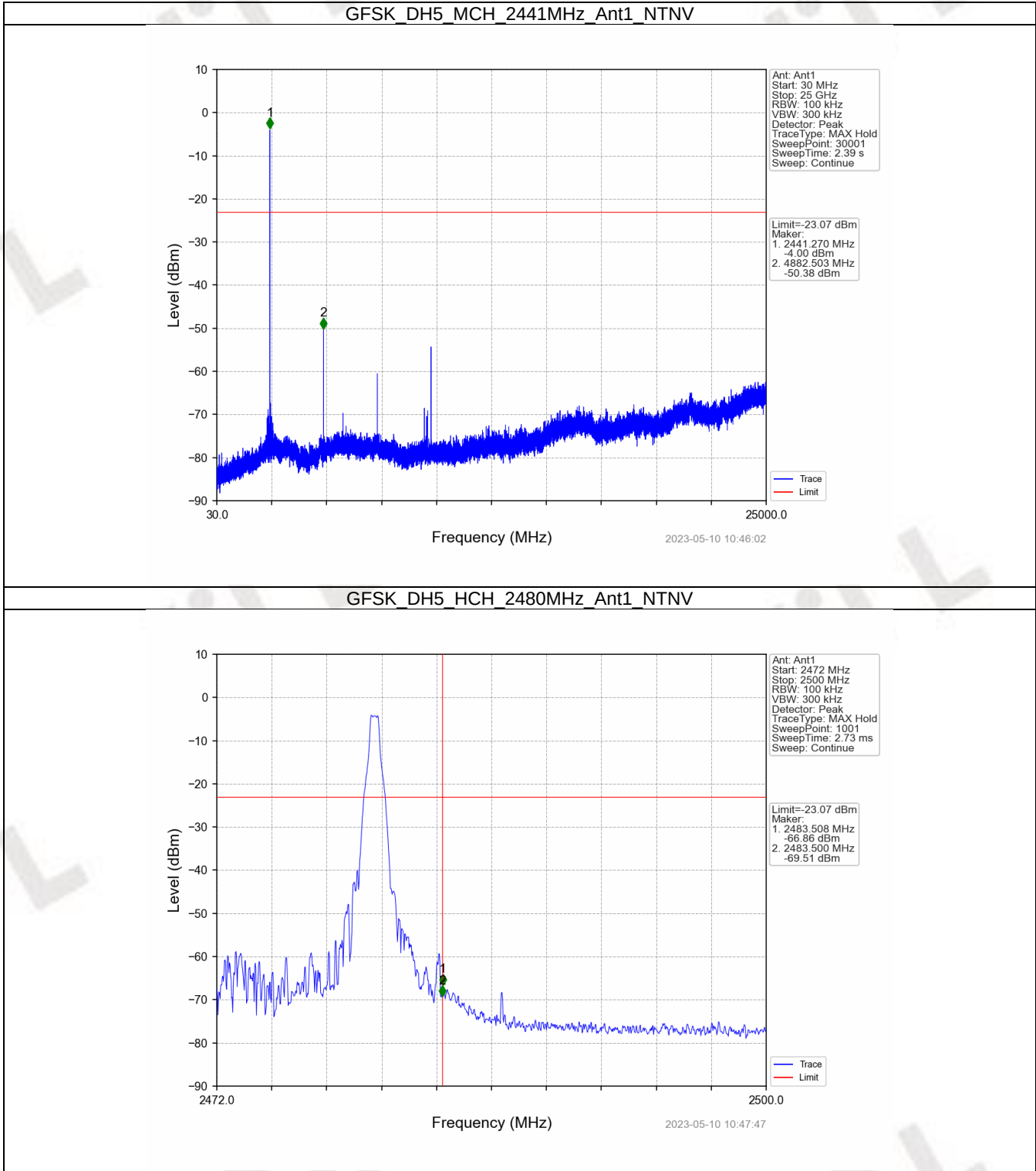
6.2.1 Test Result

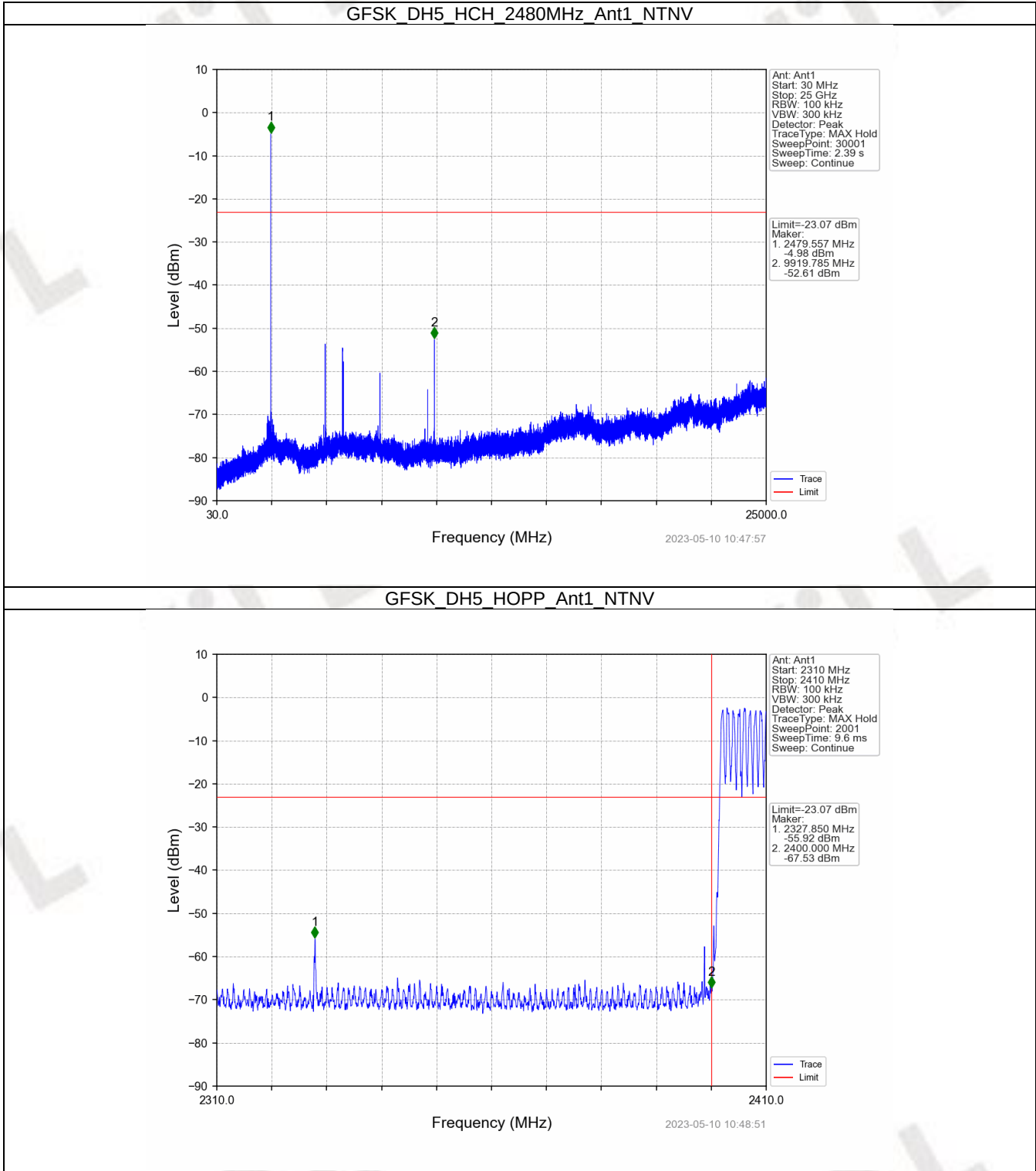
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	-3.07	-23.07	Pass
		2441	DH5	1	-3.07	-23.07	Pass
		2480	DH5	1	-3.07	-23.07	Pass
		HOPP	DH5	1	-3.07	-23.07	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	-2.59	-22.59	Pass
		2441	2DH5	1	-2.59	-22.59	Pass
		2480	2DH5	1	-2.59	-22.59	Pass
		HOPP	2DH5	1	-2.59	-22.59	Pass
8DPSK	SISO	2402	3DH5	1	-2.28	-22.28	Pass
		2441	3DH5	1	-2.28	-22.28	Pass
		2480	3DH5	1	-2.28	-22.28	Pass
		HOPP	3DH5	1	-2.28	-22.28	Pass

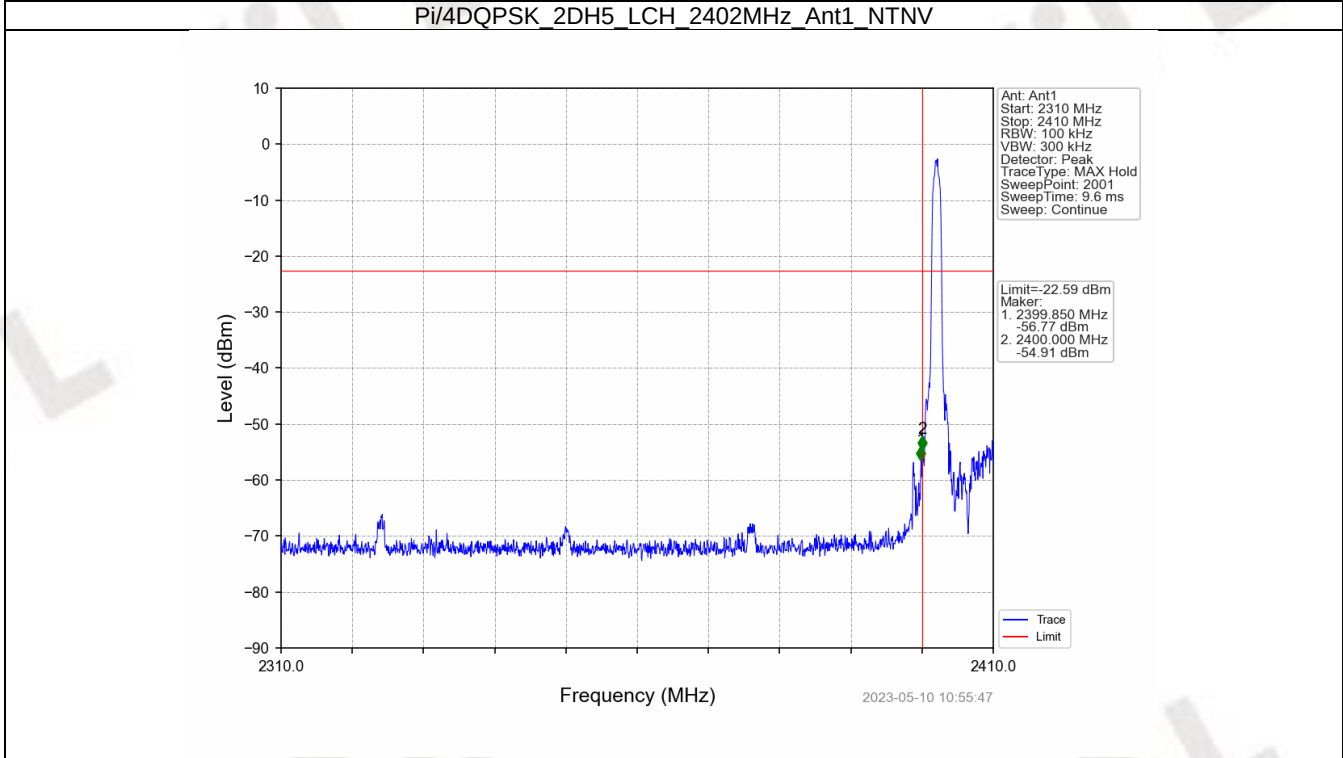
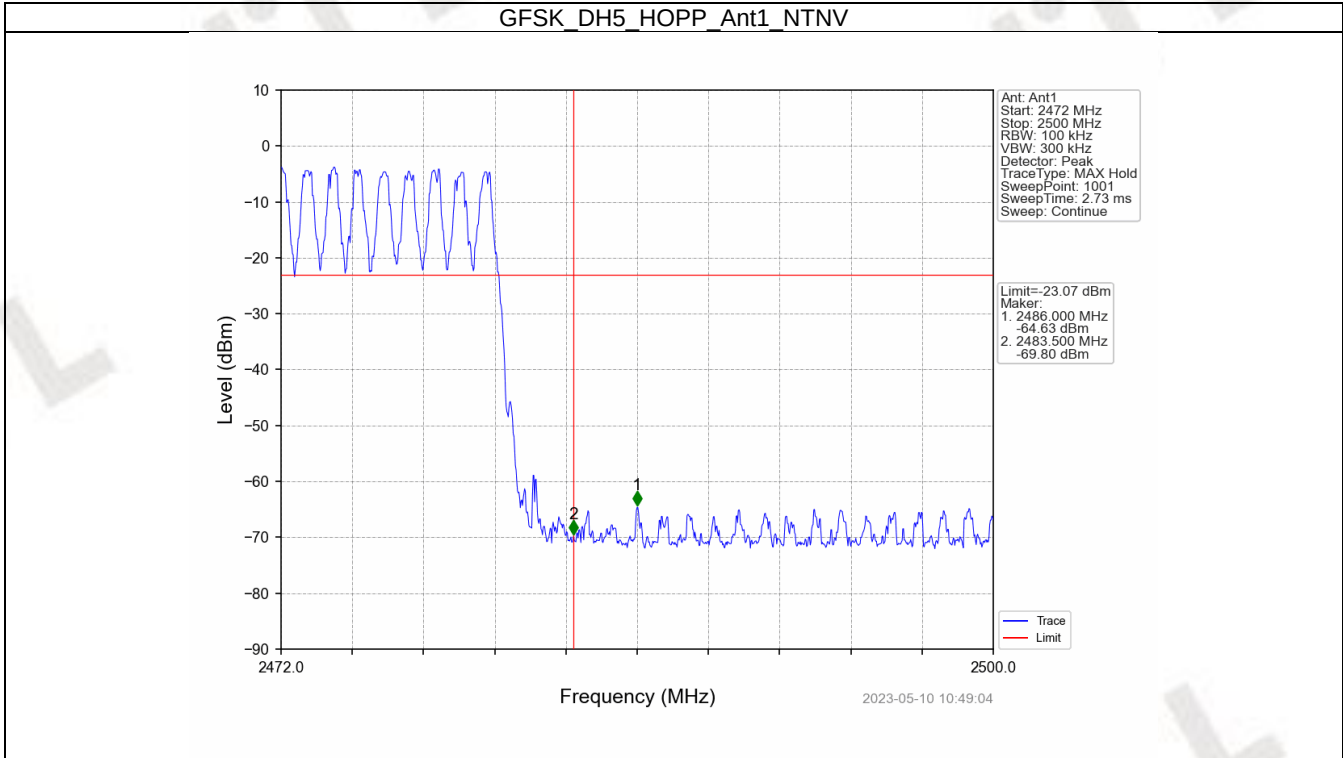
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

6.2.2 Test Graph

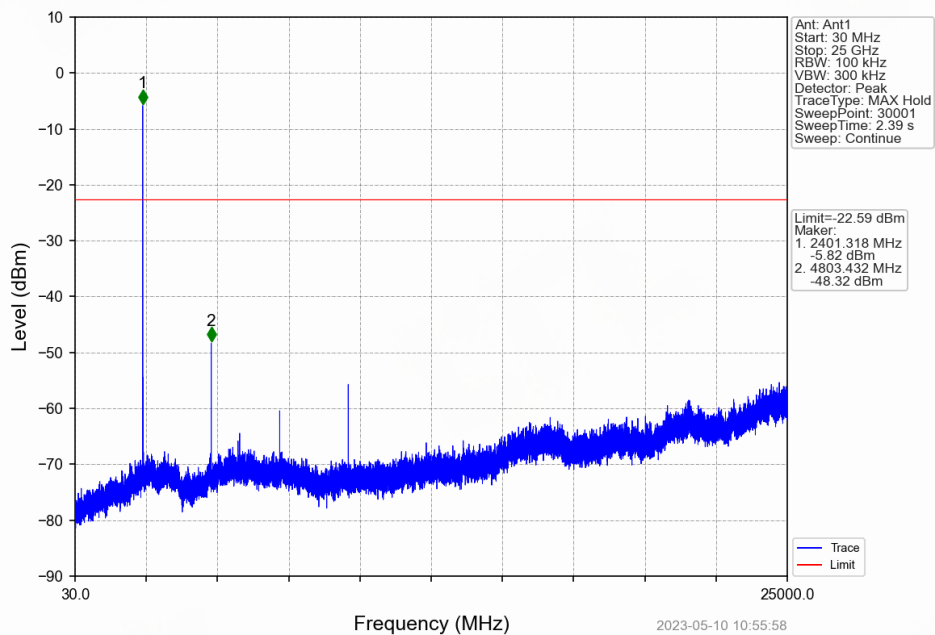




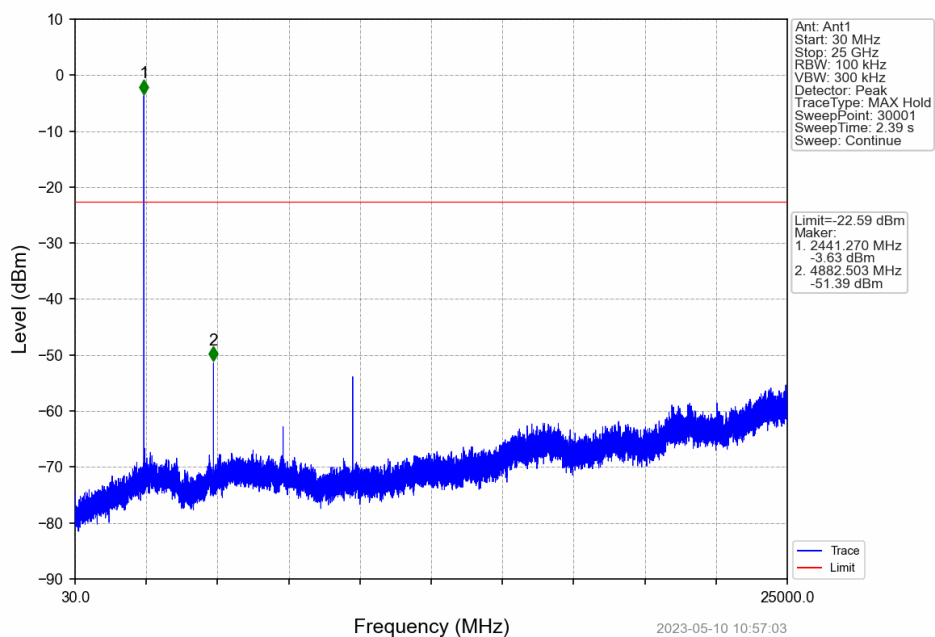




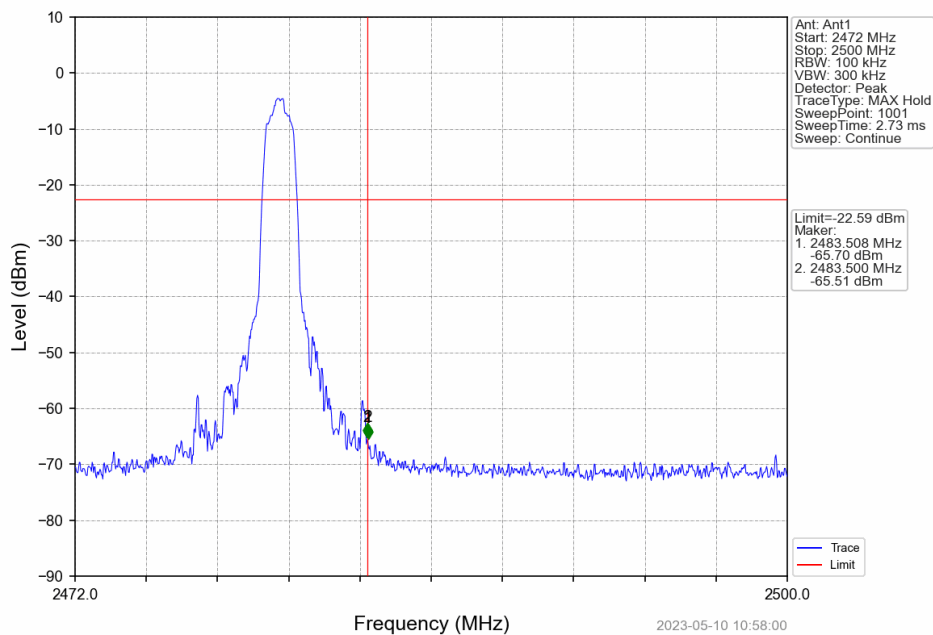
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



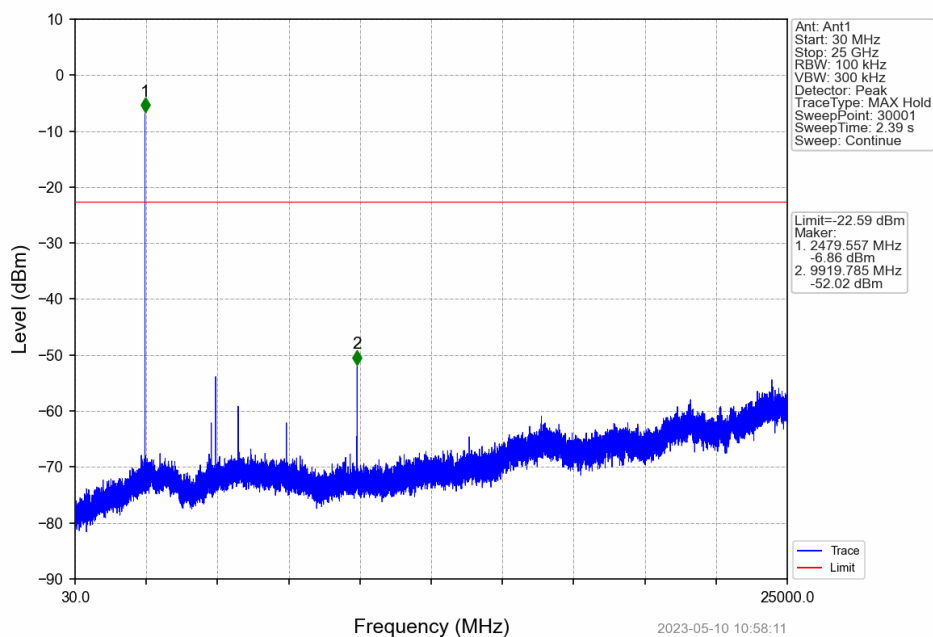
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



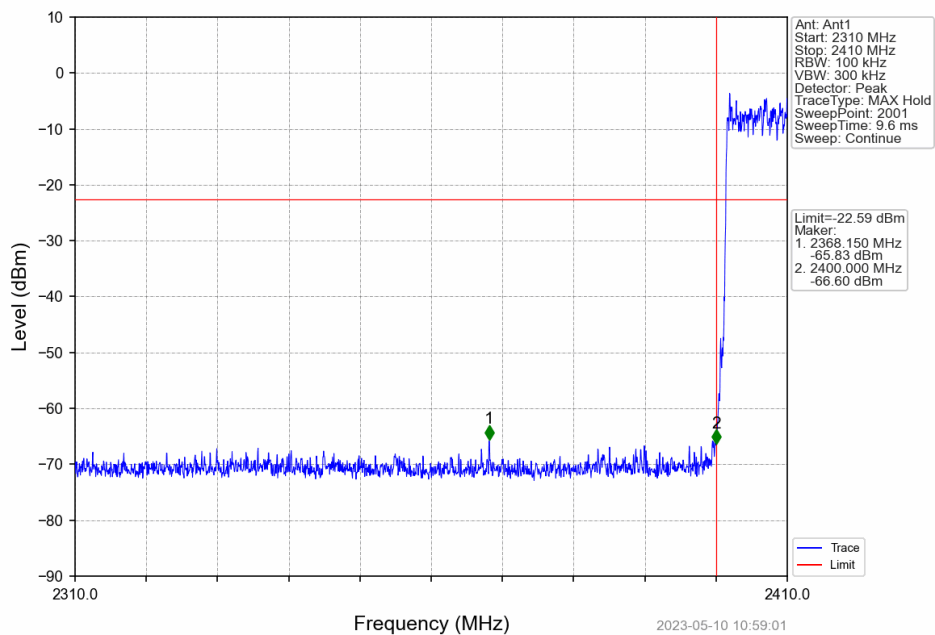
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



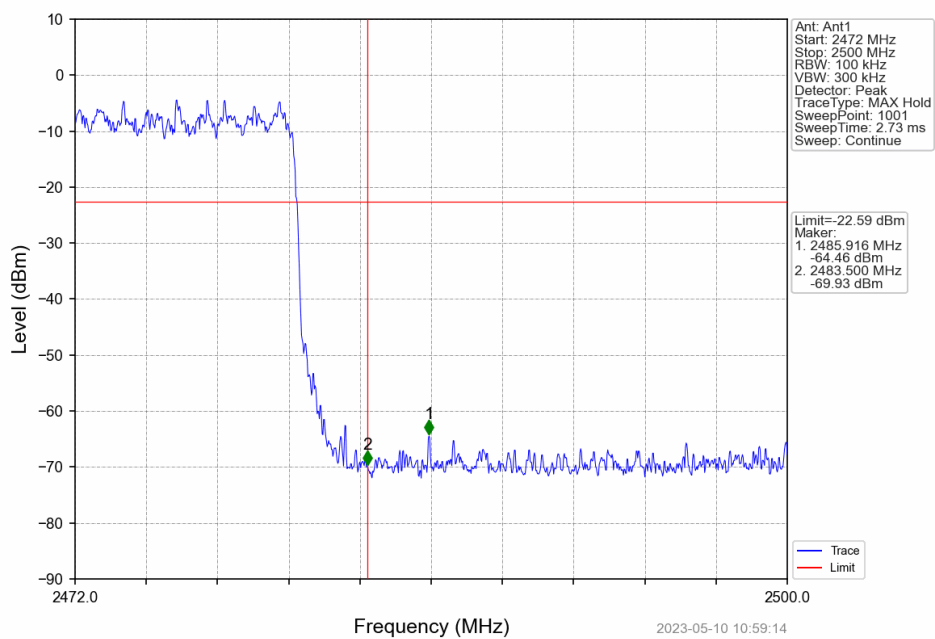
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



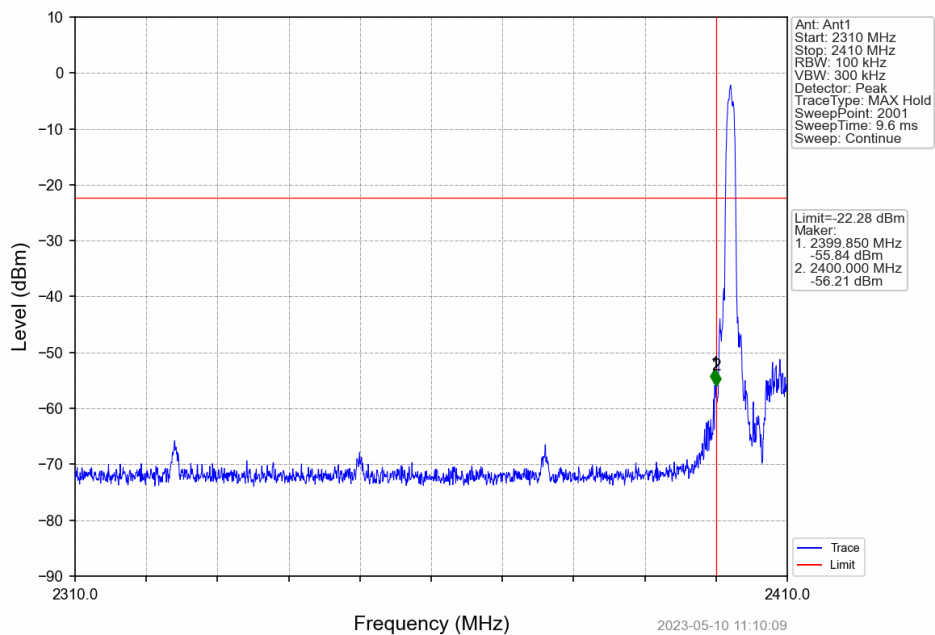
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



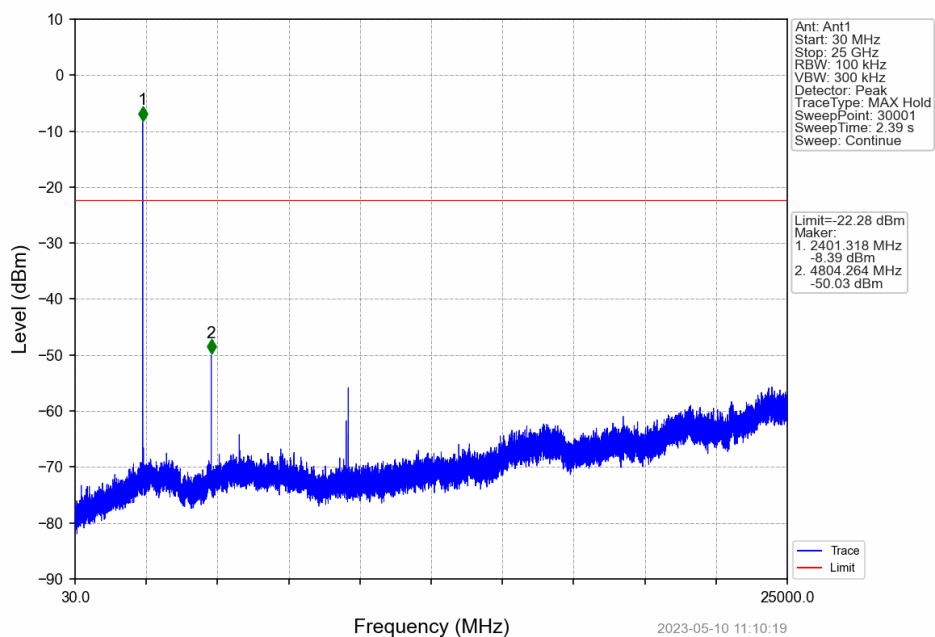
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



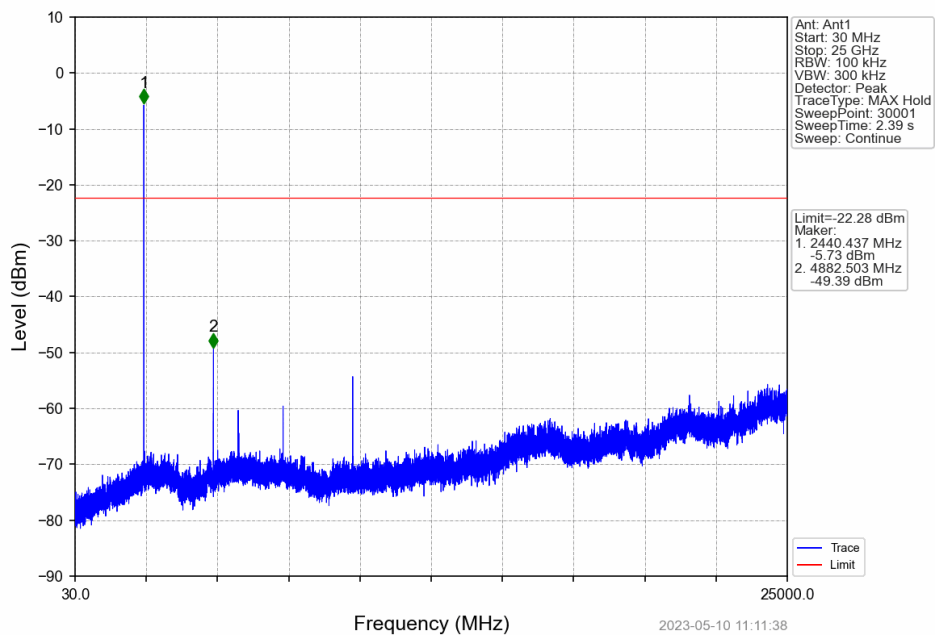
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



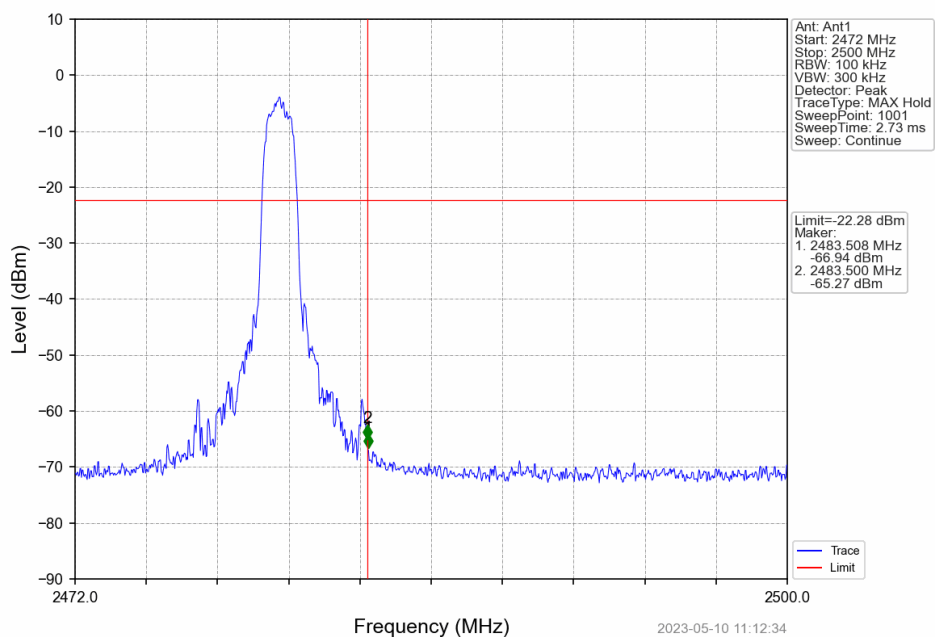
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV

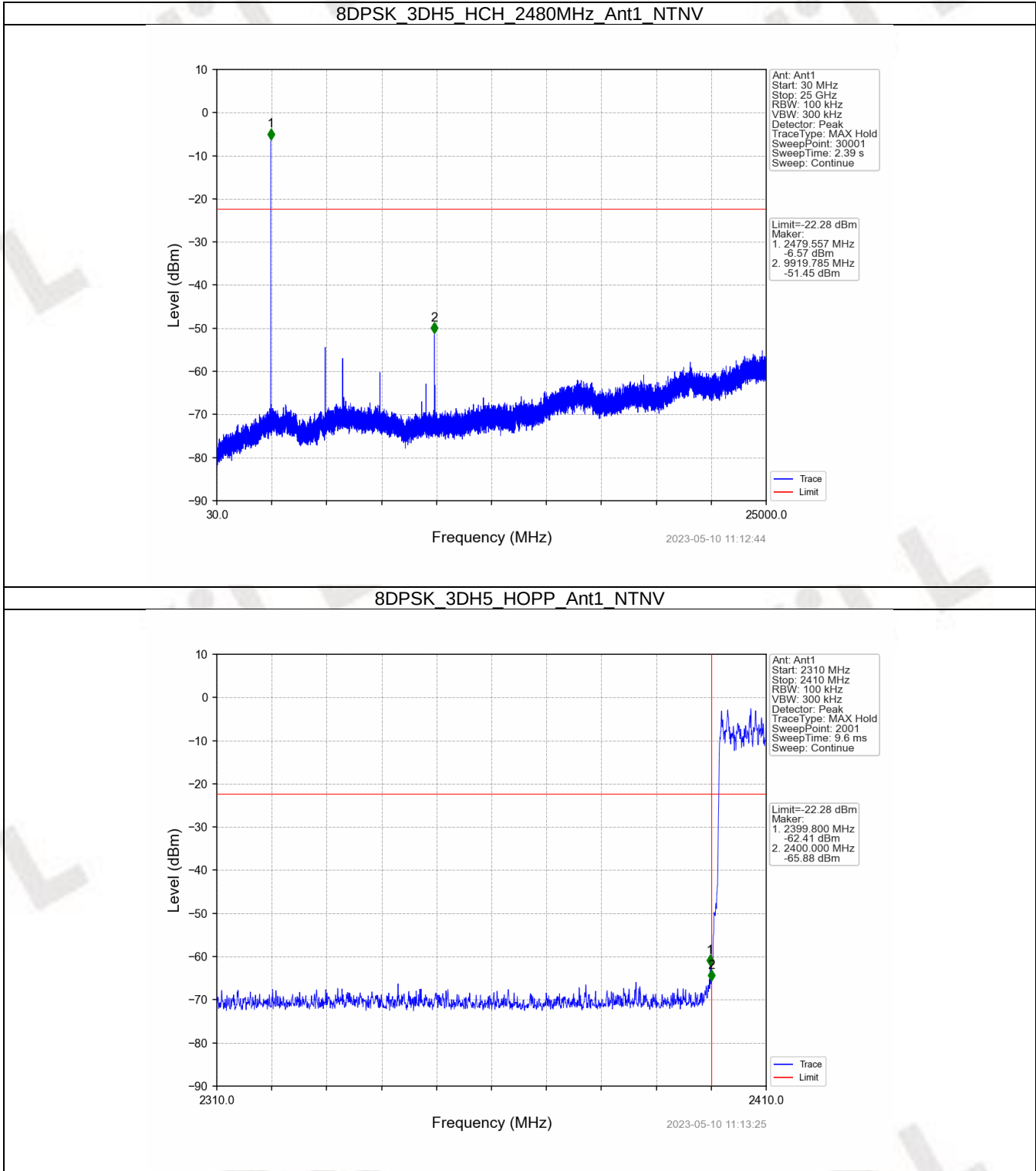


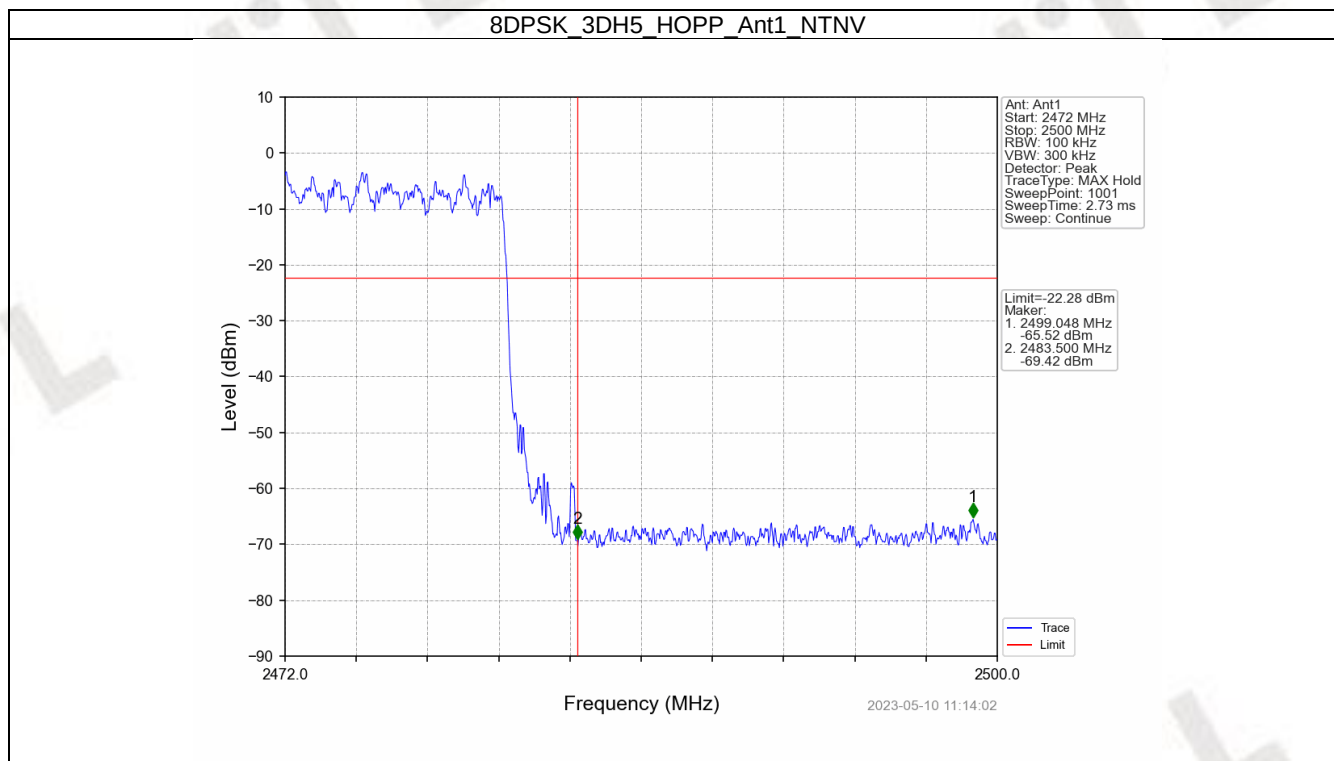
8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV







7 Form731

7.1 Form731

7.1.1 Test Result

Lower Freq (MHz)	High Freq (MHz)	MAX Power (W)	MAX Power (dBm)
2402	2480	0.0011	0.33