

ANNEX D TEST DATA**For**

Project No.:	8225EU011902W
Client:	Shenzhen Jinyuansheng Electronics Co.,Ltd
Product Description.	Wireless Keyboard
Model No..	JYS-P5121
FCC ID:	2A5DV-JYS-P5121
Technology:	Bluetooth BDR+EDR
Test Engineer:	<i>Mikey zhu</i>
Test Date:	2024-01-22

Test Summary

Item	Result
Duty Cycle	Pass
Bandwidth	Pass
Maximum Conducted Output Power	Pass
Carrier Frequency Separation	Pass
Number of Hopping Frequencies	Pass
Time of Occupancy (Dwell Time)	Pass
Unwanted Emissions In Non-restricted Frequency Bands	Pass

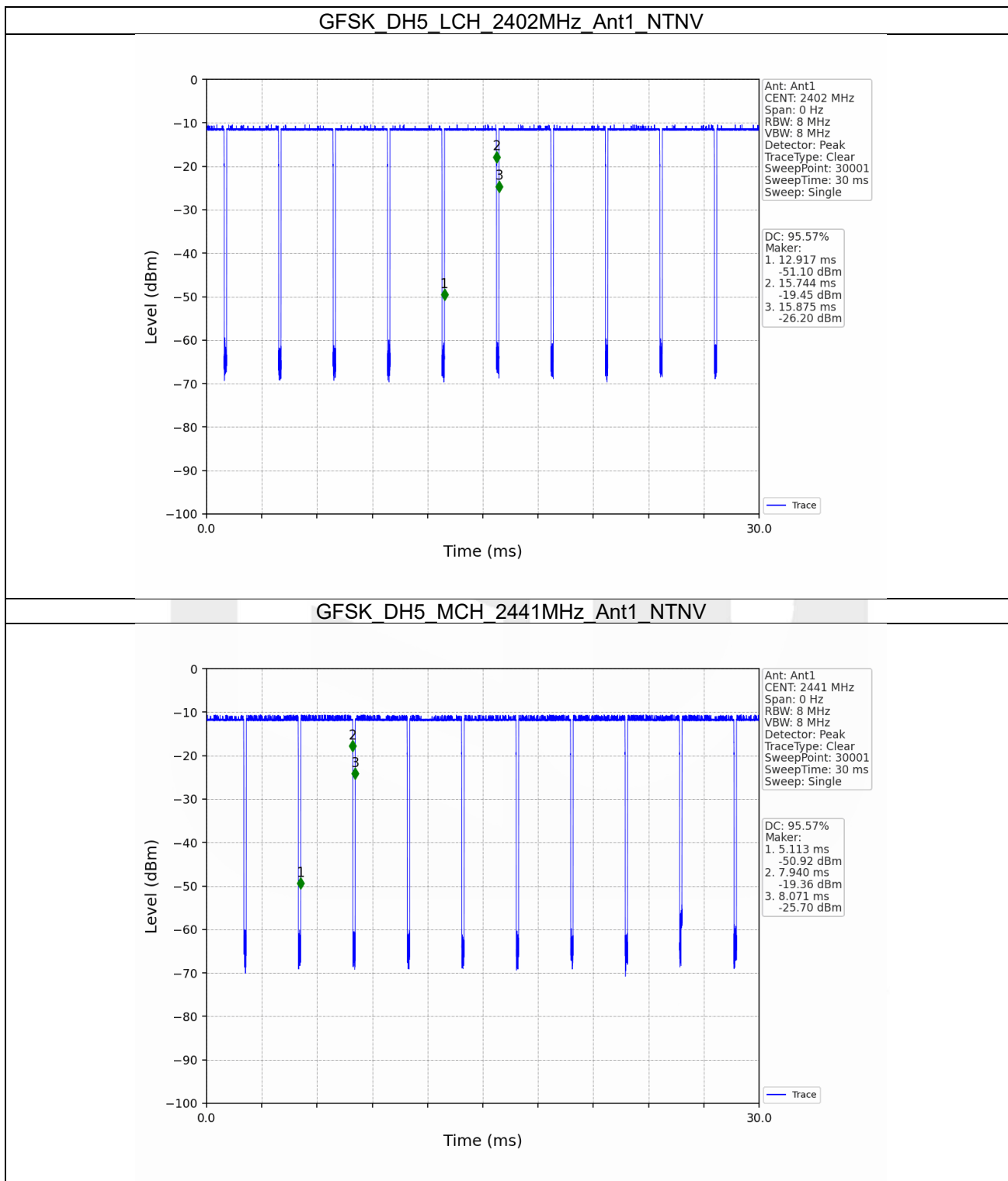
1. Duty Cycle

1.1 Ant1

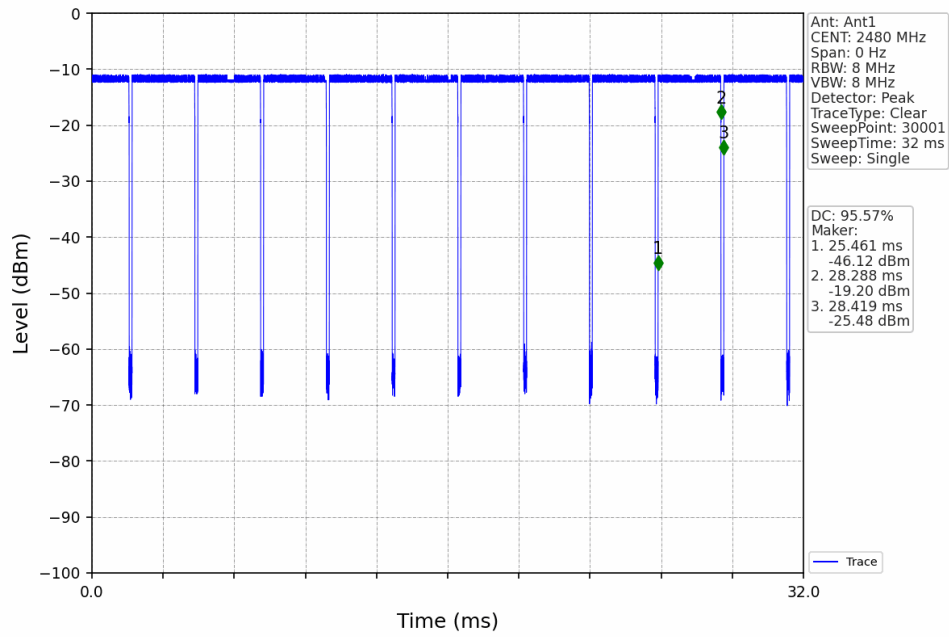
1.1.1 Test Result

Ant1								
Mode	TX Type	Frequency (MHz)	Packet Type	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
GFSK	SISO	2402	DH5	2.827	2.958	95.57	0.20	0.03
		2441	DH5	2.827	2.958	95.57	0.20	0.03
		2480	DH5	2.827	2.958	95.57	0.20	0.04
$\pi/4$ DQPSK	SISO	2402	2DH5	2.819	2.950	95.56	0.20	0.03
		2441	2DH5	2.819	2.950	95.56	0.20	0.03
		2480	2DH5	2.819	2.950	95.56	0.20	0.03
8DPSK	SISO	2402	3DH5	2.826	2.957	95.57	0.20	0.03
		2441	3DH5	2.826	2.957	95.57	0.20	0.03
		2480	3DH5	2.825	2.957	95.54	0.20	0.04

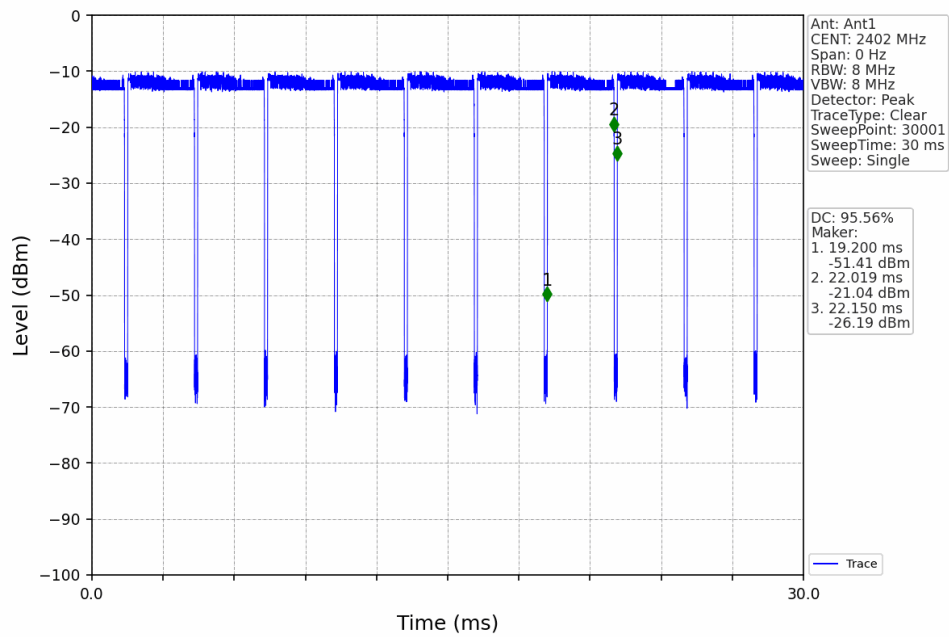
1.1.2 Test Graph



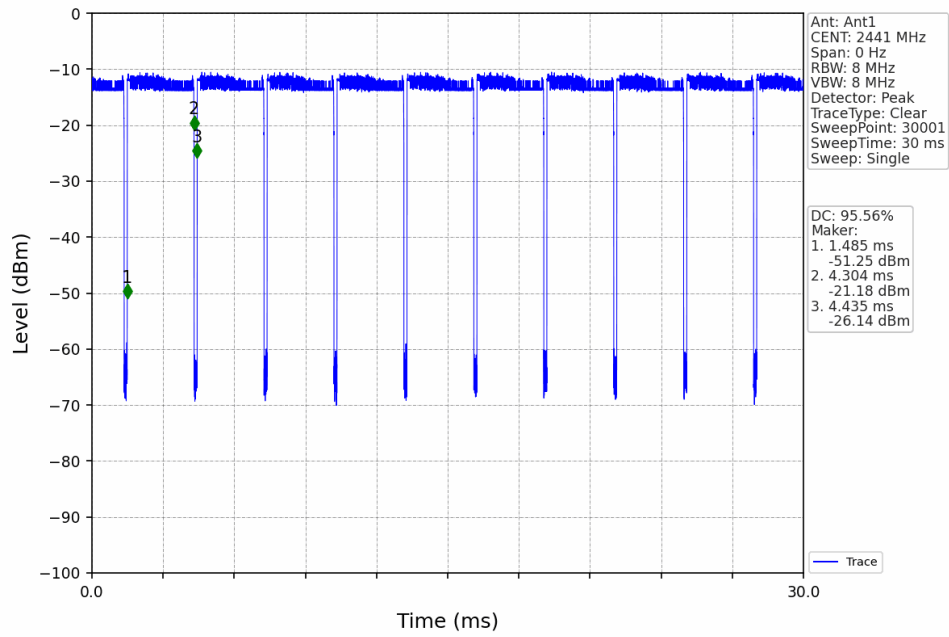
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



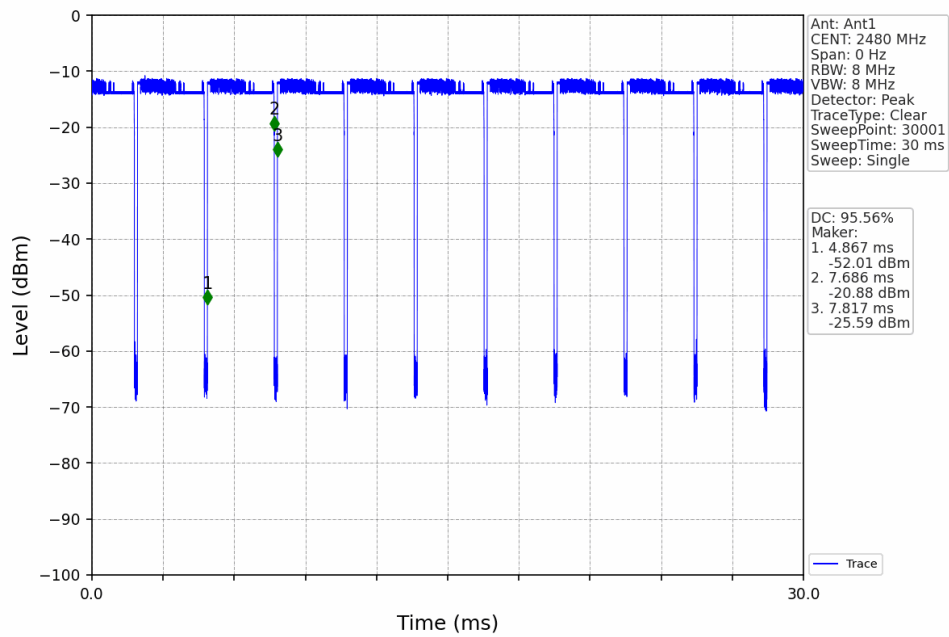
$\pi/4$ DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



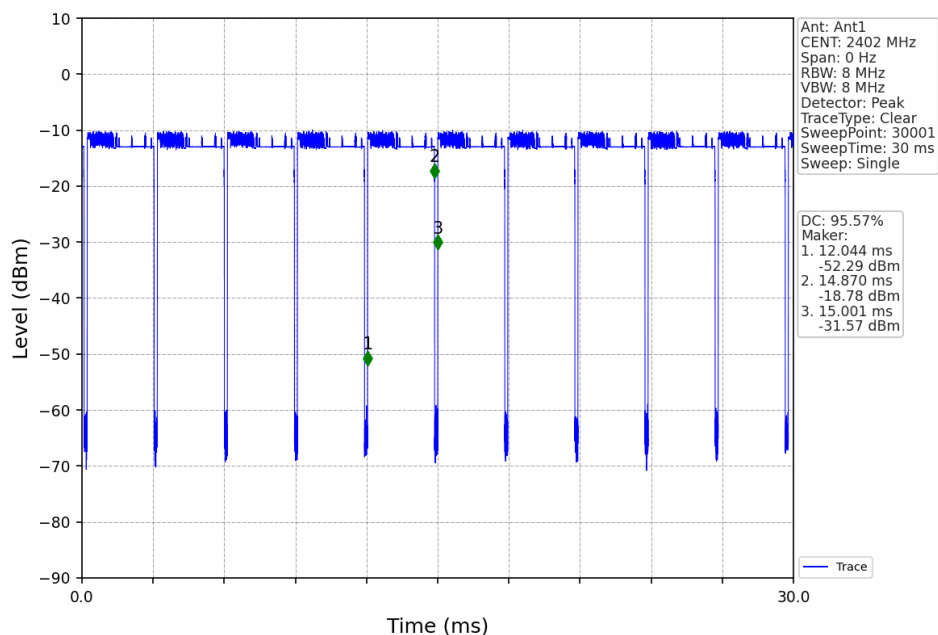
$\pi/4$ DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



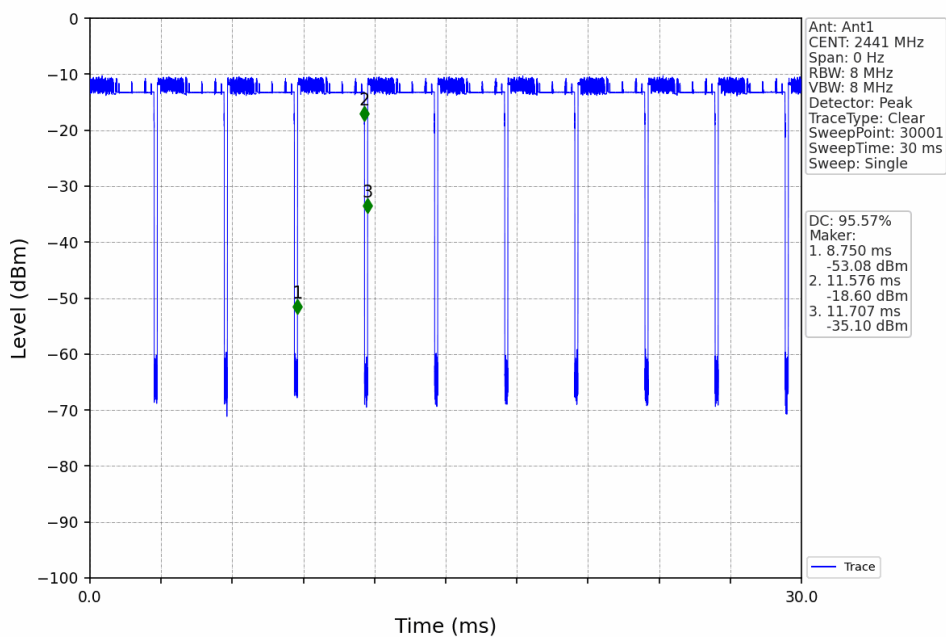
$\pi/4$ DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

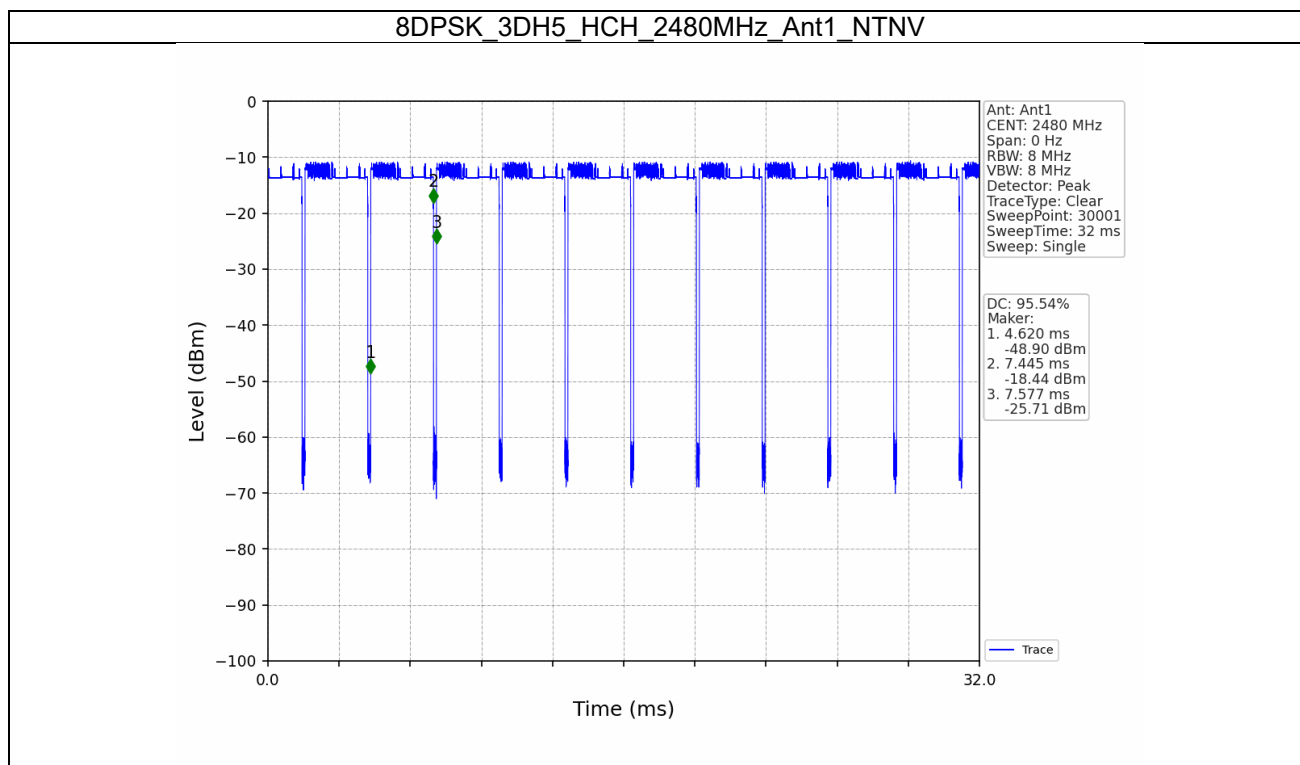


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV





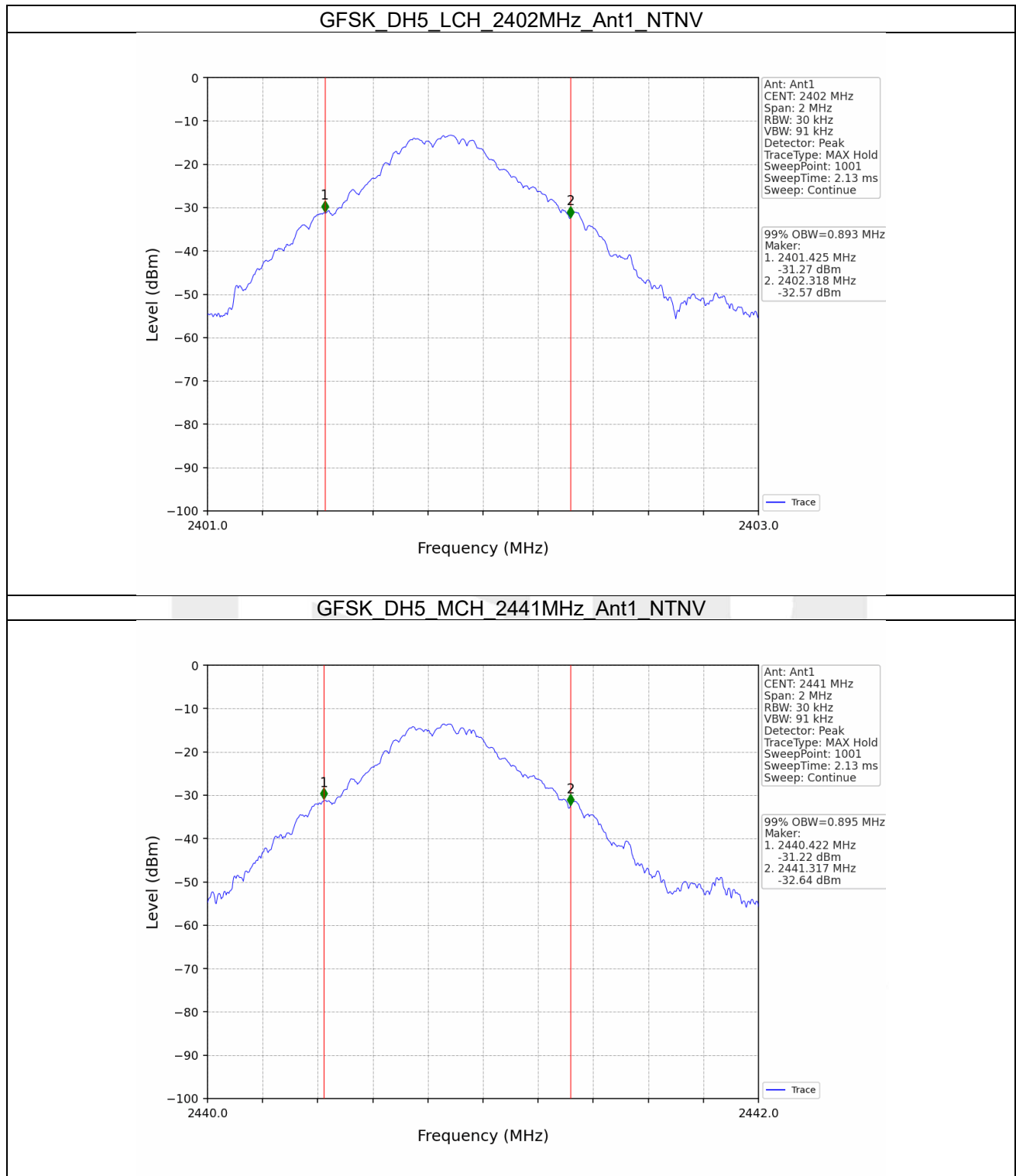
2. Bandwidth

2.1 OBW

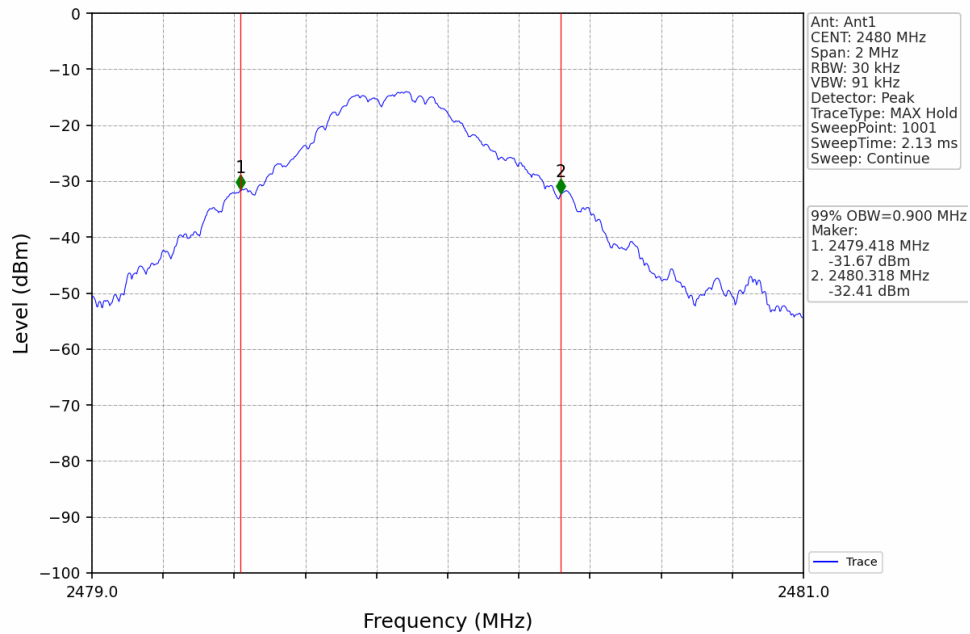
2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.893	Pass
		2441	DH5	1	0.895	Pass
		2480	DH5	1	0.900	Pass
$\pi/4$ DQPSK	SISO	2402	2DH5	1	1.192	Pass
		2441	2DH5	1	1.186	Pass
		2480	2DH5	1	1.188	Pass
8DPSK	SISO	2402	3DH5	1	1.193	Pass
		2441	3DH5	1	1.188	Pass
		2480	3DH5	1	1.189	Pass

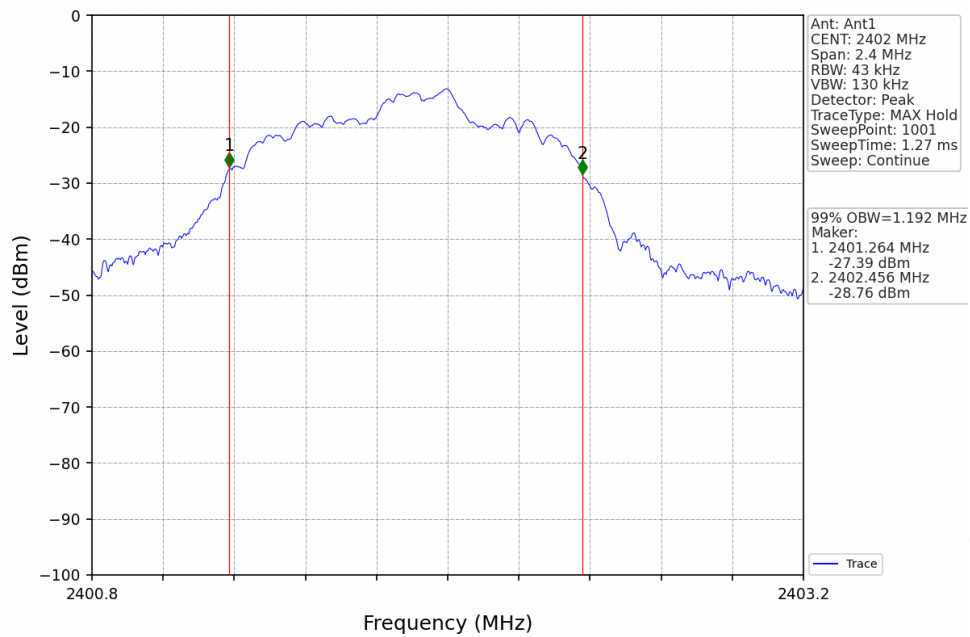
2.1.2 Test Graph



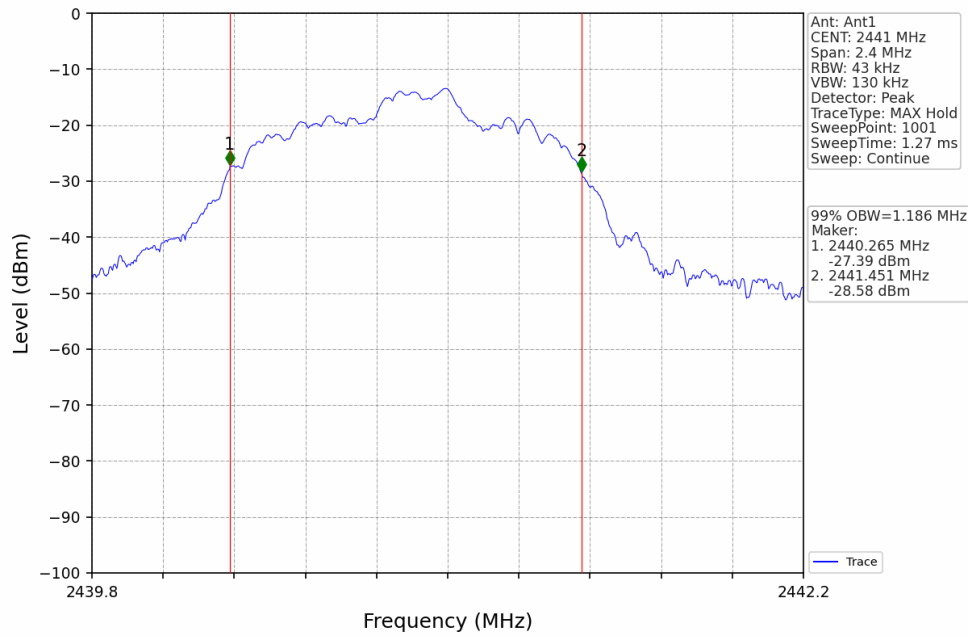
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



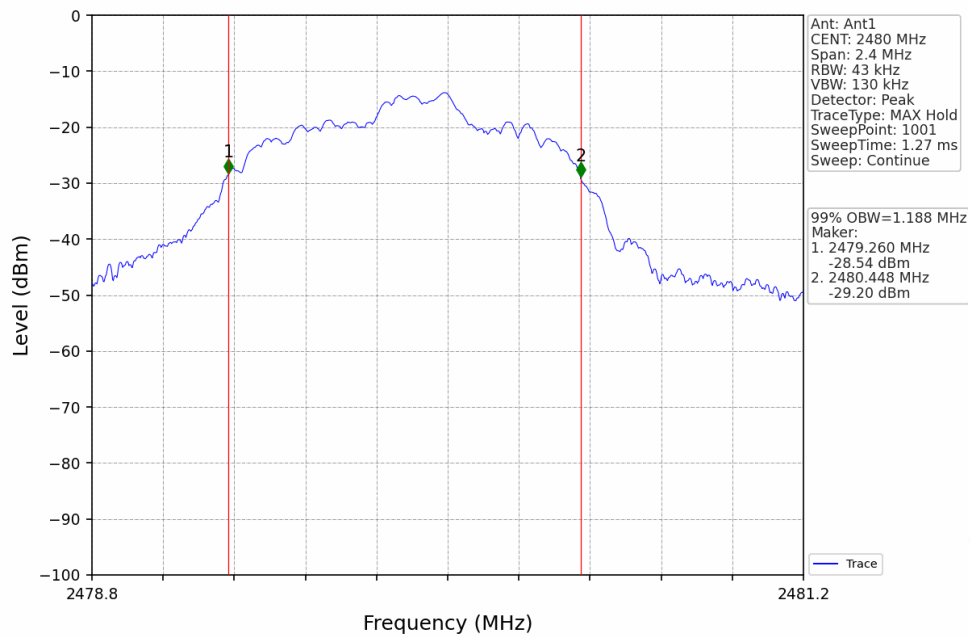
$\pi/4$ DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



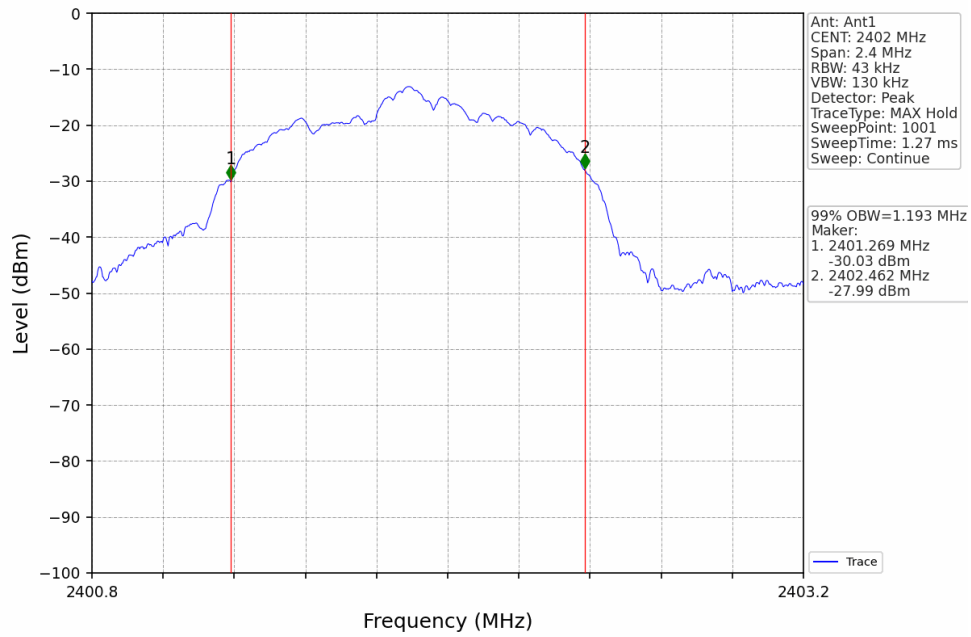
$\pi/4$ DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



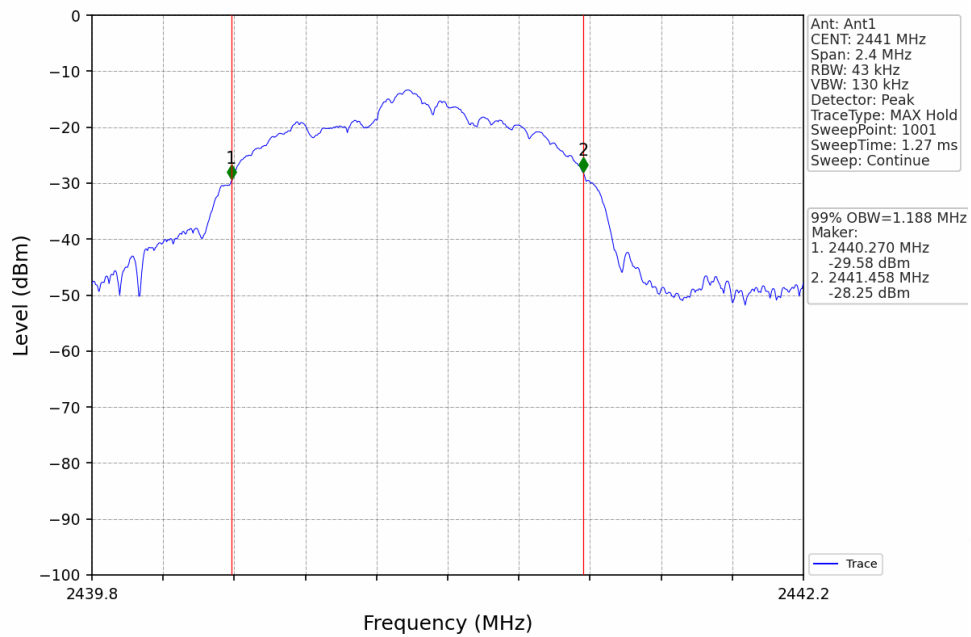
$\pi/4$ DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

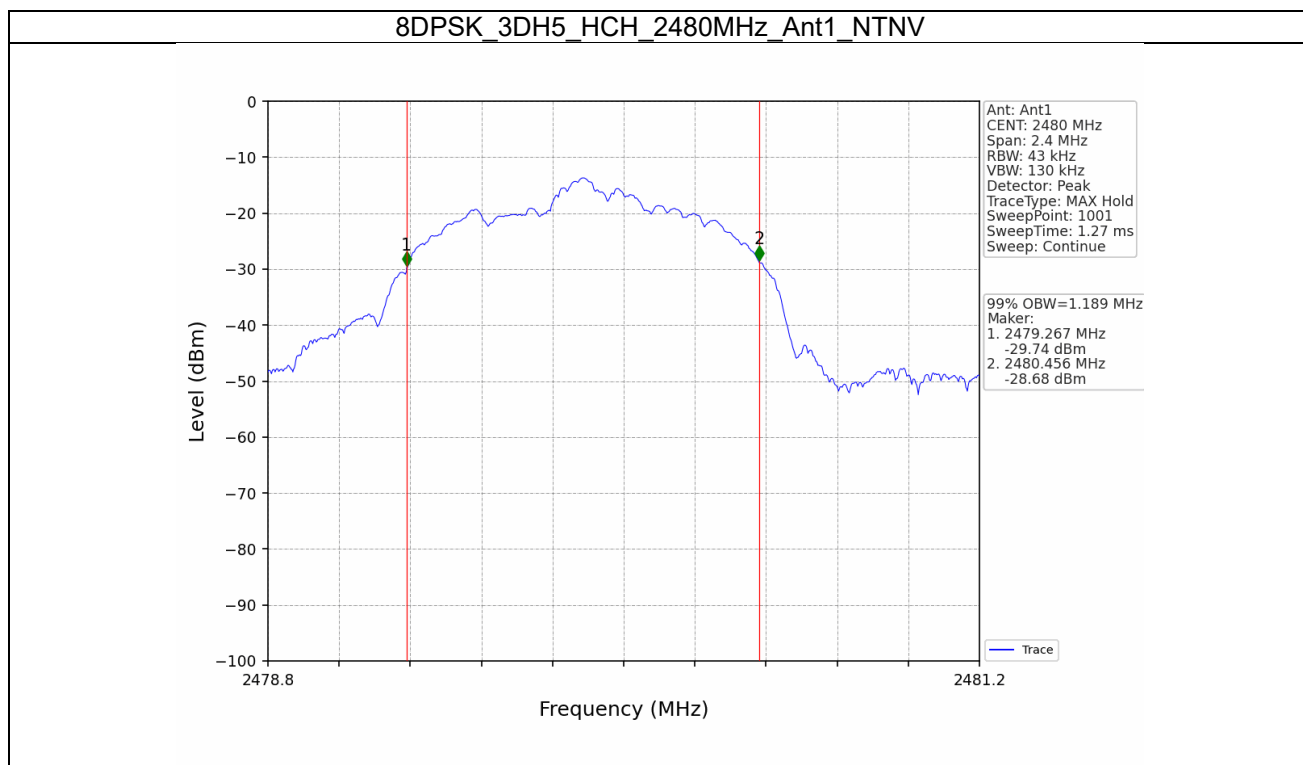


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV





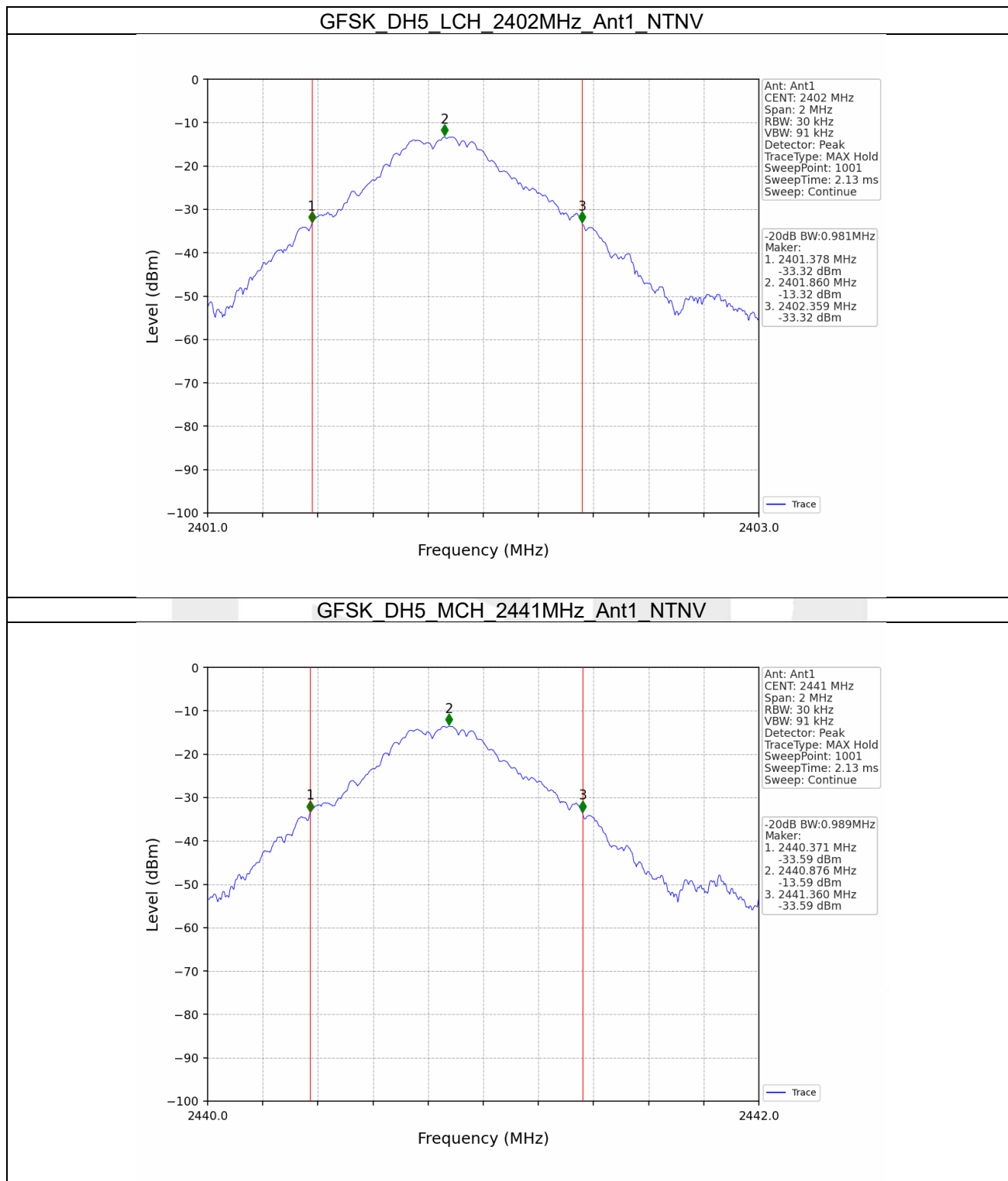
2.2 20dB BW

2.2.1 Test Result

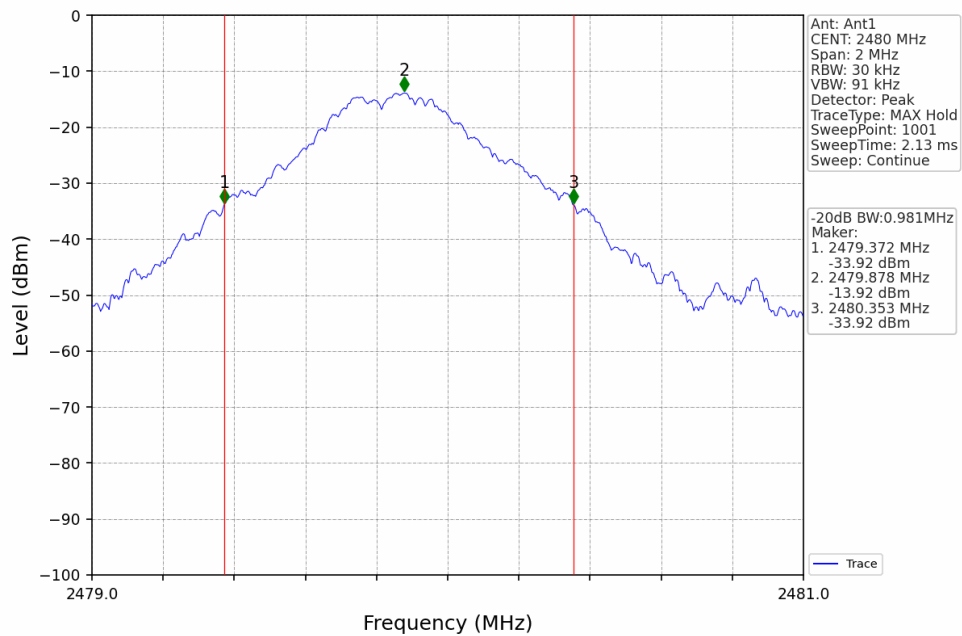
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.981	Pass
		2441	DH5	1	0.989	Pass
		2480	DH5	1	0.981	Pass
$\pi/4$ DQPSK	SISO	2402	2DH5	1	1.321	Pass
		2441	2DH5	1	1.327	Pass
		2480	2DH5	1	1.317	Pass
8DPSK	SISO	2402	3DH5	1	1.307	Pass
		2441	3DH5	1	1.311	Pass
		2480	3DH5	1	1.316	Pass



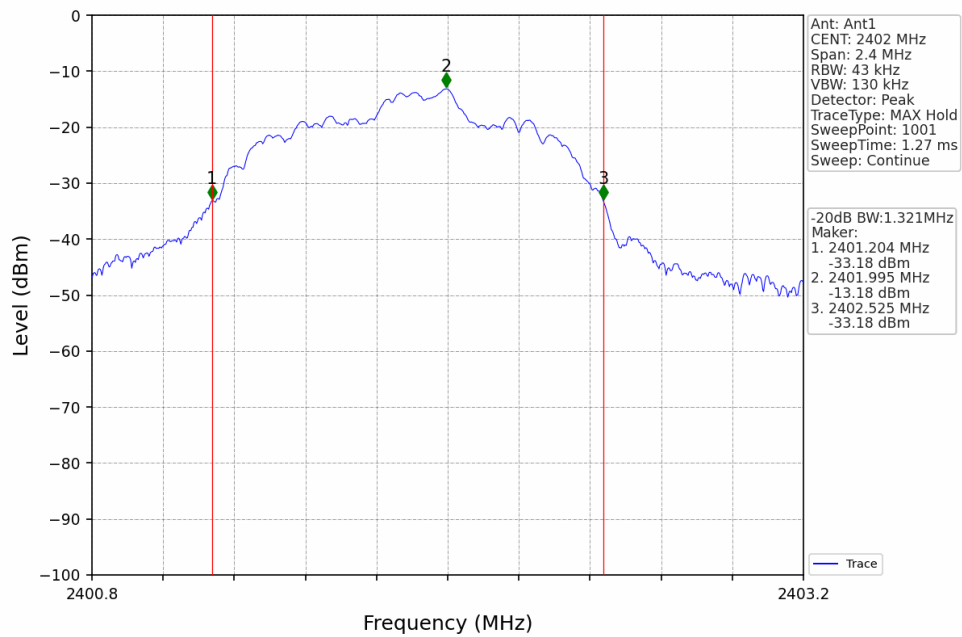
2.2.2 Test Graph



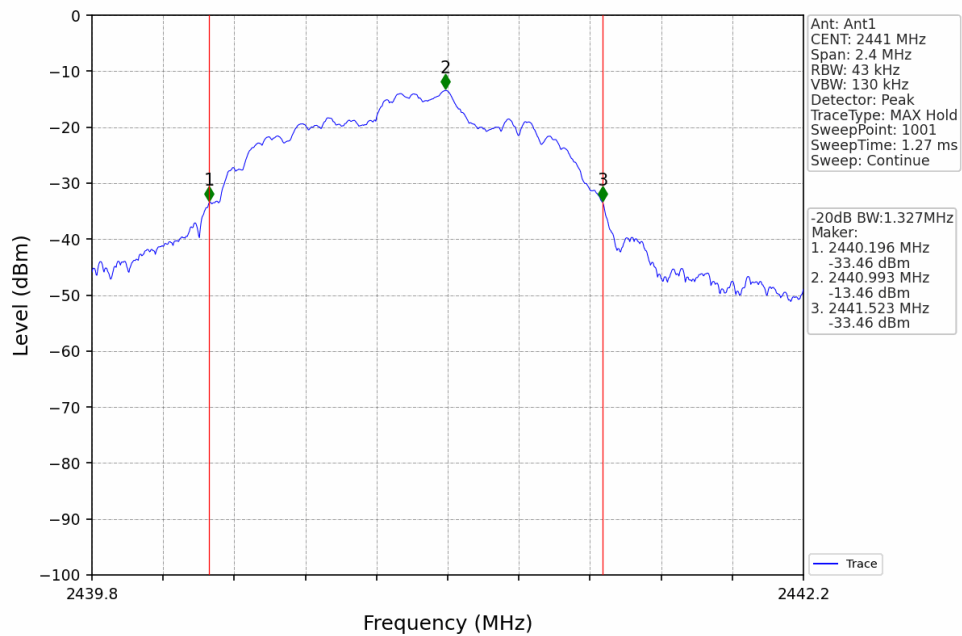
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



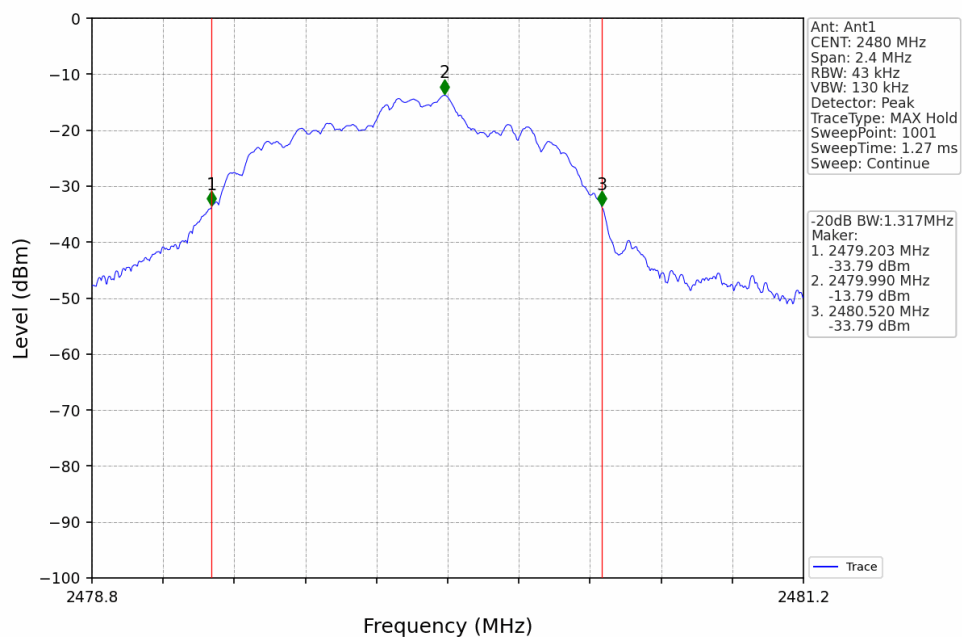
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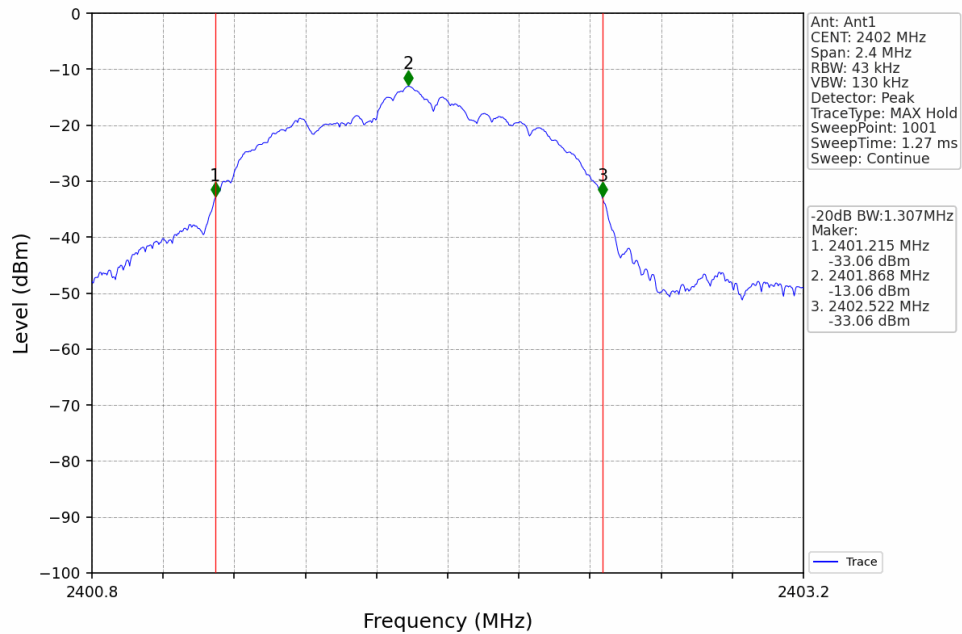
$\pi/4$ DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



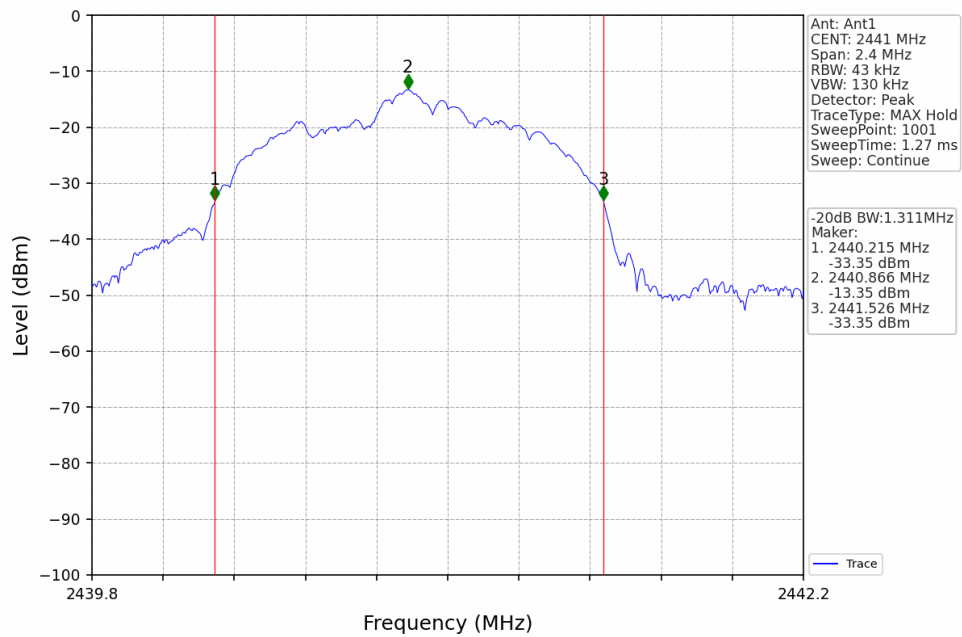
$\pi/4$ DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

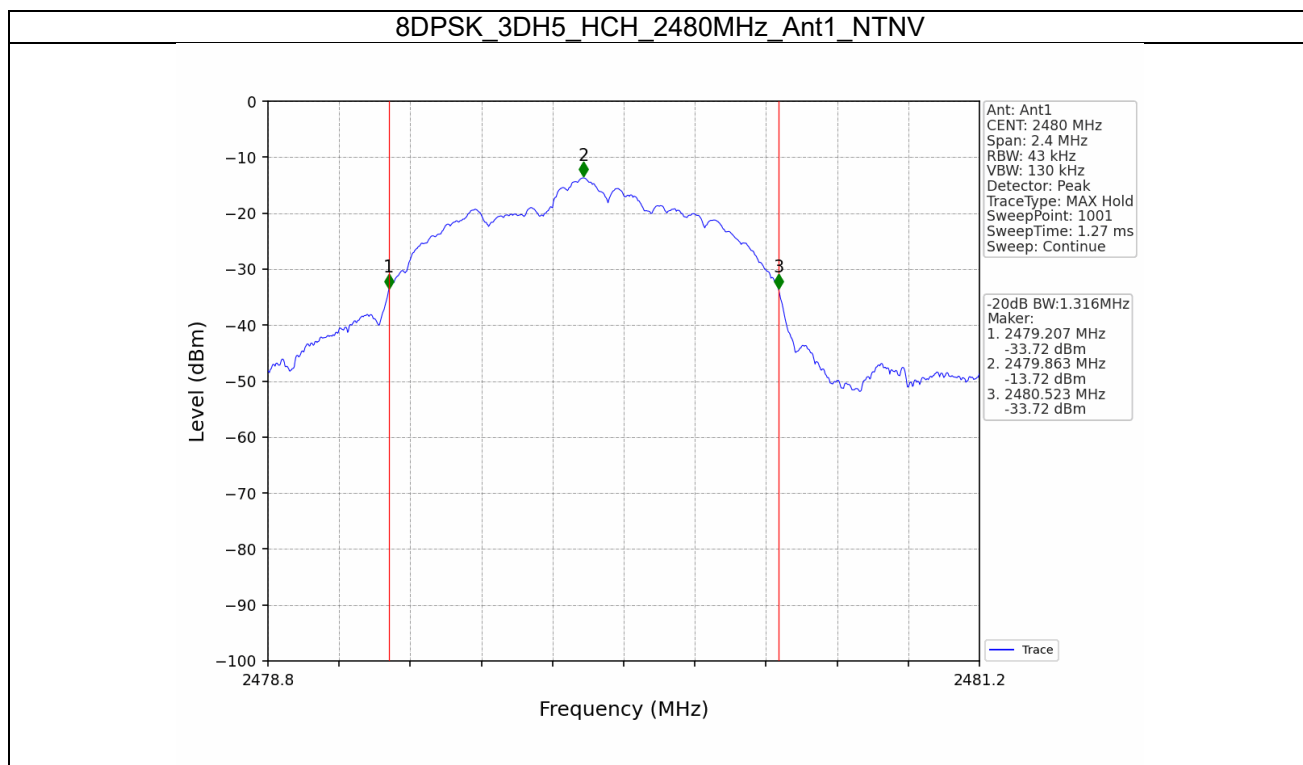


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV





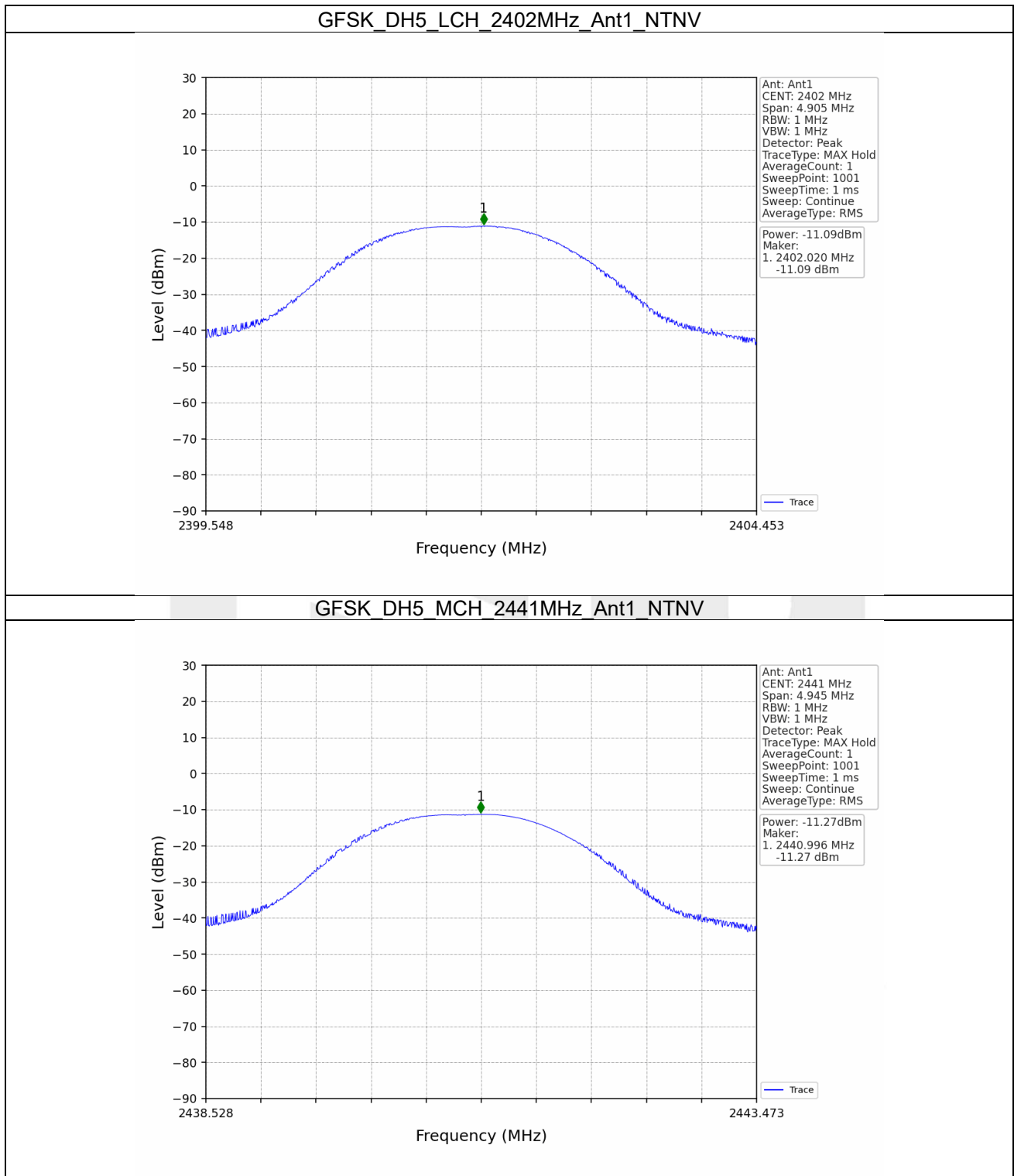
3. Maximum Conducted Output Power

3.1 Power

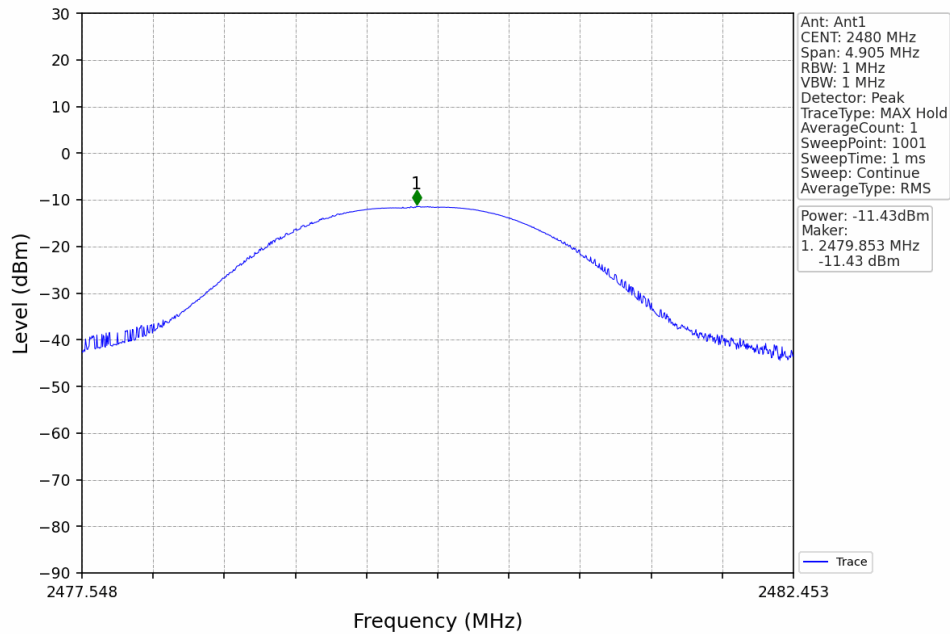
3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	-11.09	≤ 20.97	Pass
		2441	DH5	-11.27	≤ 20.97	Pass
		2480	DH5	-11.43	≤ 20.97	Pass
$\pi/4$ DQPSK	SISO	2402	2DH5	-10.51	≤ 20.97	Pass
		2441	2DH5	-10.76	≤ 20.97	Pass
		2480	2DH5	-11.10	≤ 20.97	Pass
8DPSK	SISO	2402	3DH5	-10.29	≤ 20.97	Pass
		2441	3DH5	-10.44	≤ 20.97	Pass
		2480	3DH5	-10.91	≤ 20.97	Pass

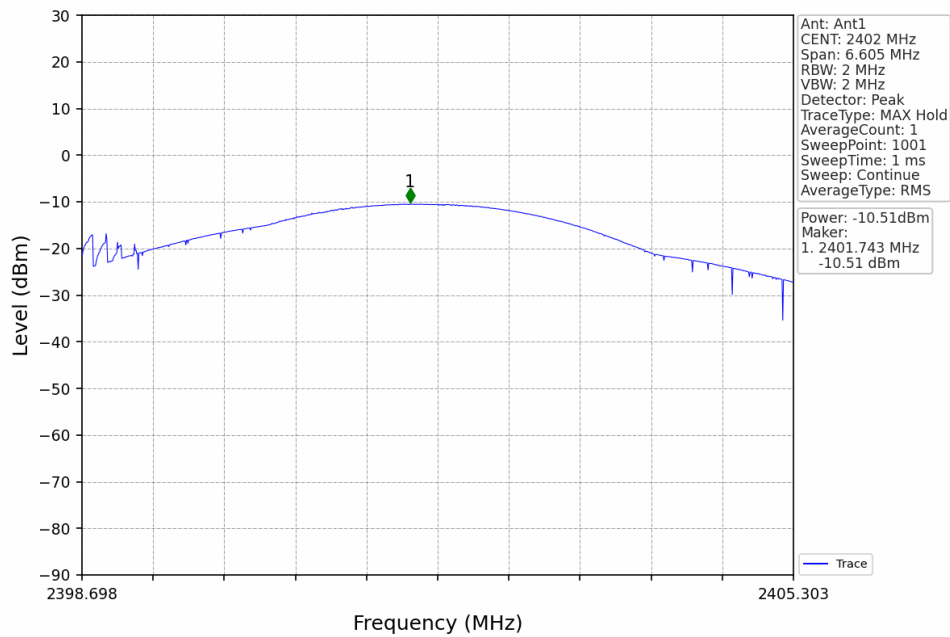
3.1.2 Test Graph



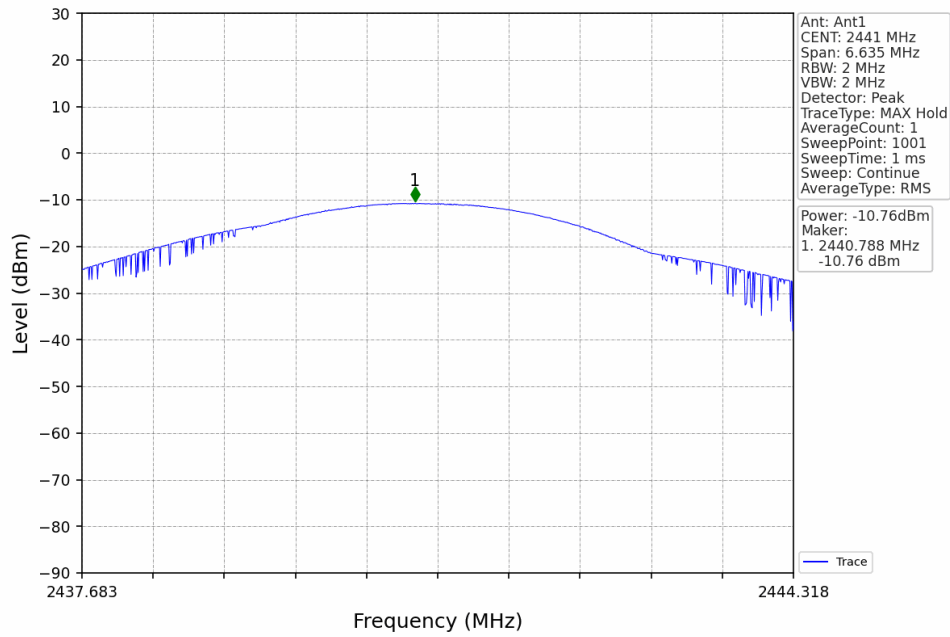
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



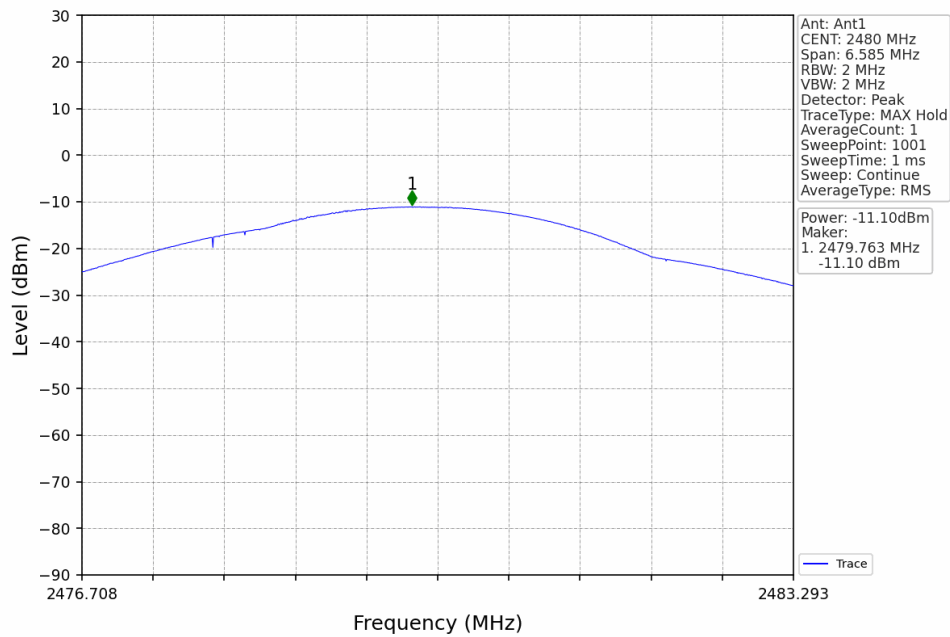
$\pi/4$ DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



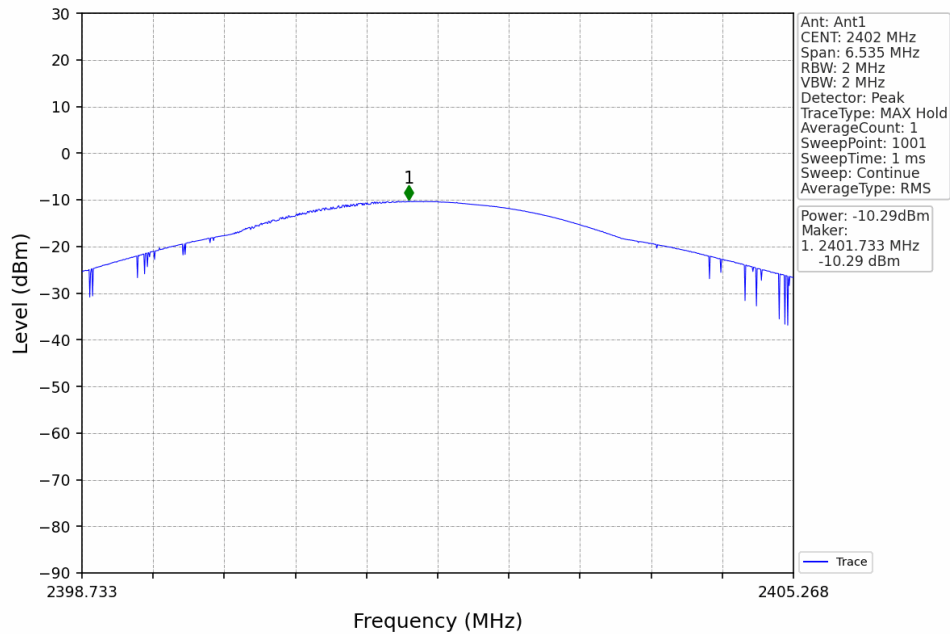
$\pi/4$ DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



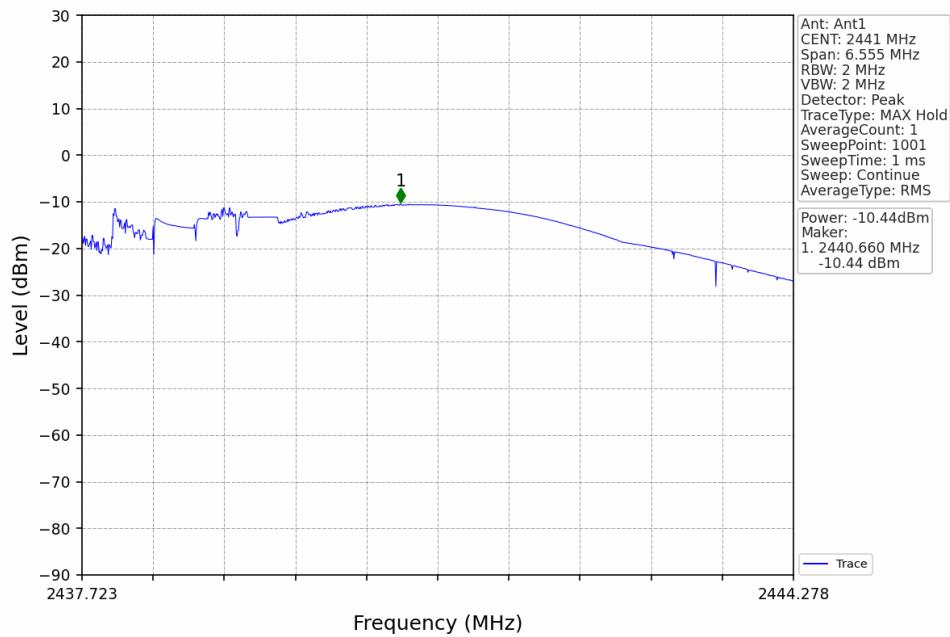
$\pi/4$ DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

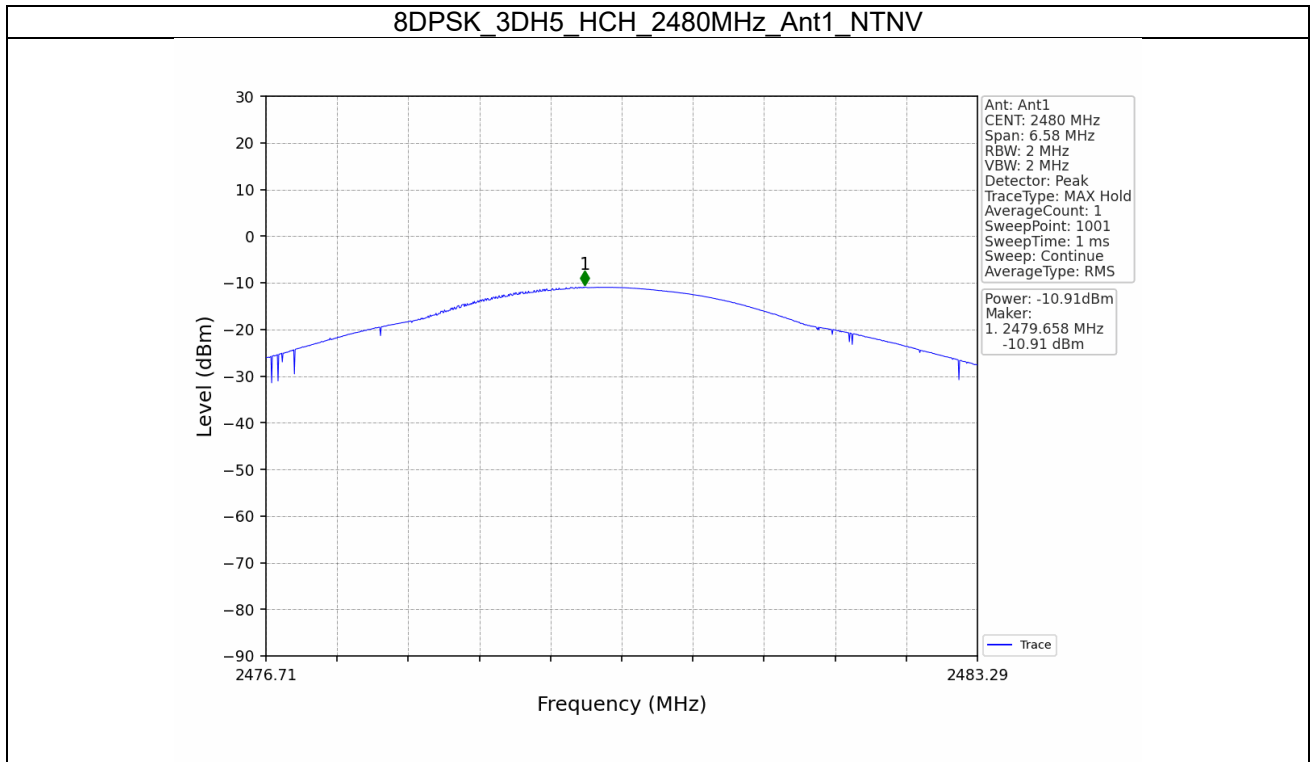


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV





4. Carrier Frequency Separation

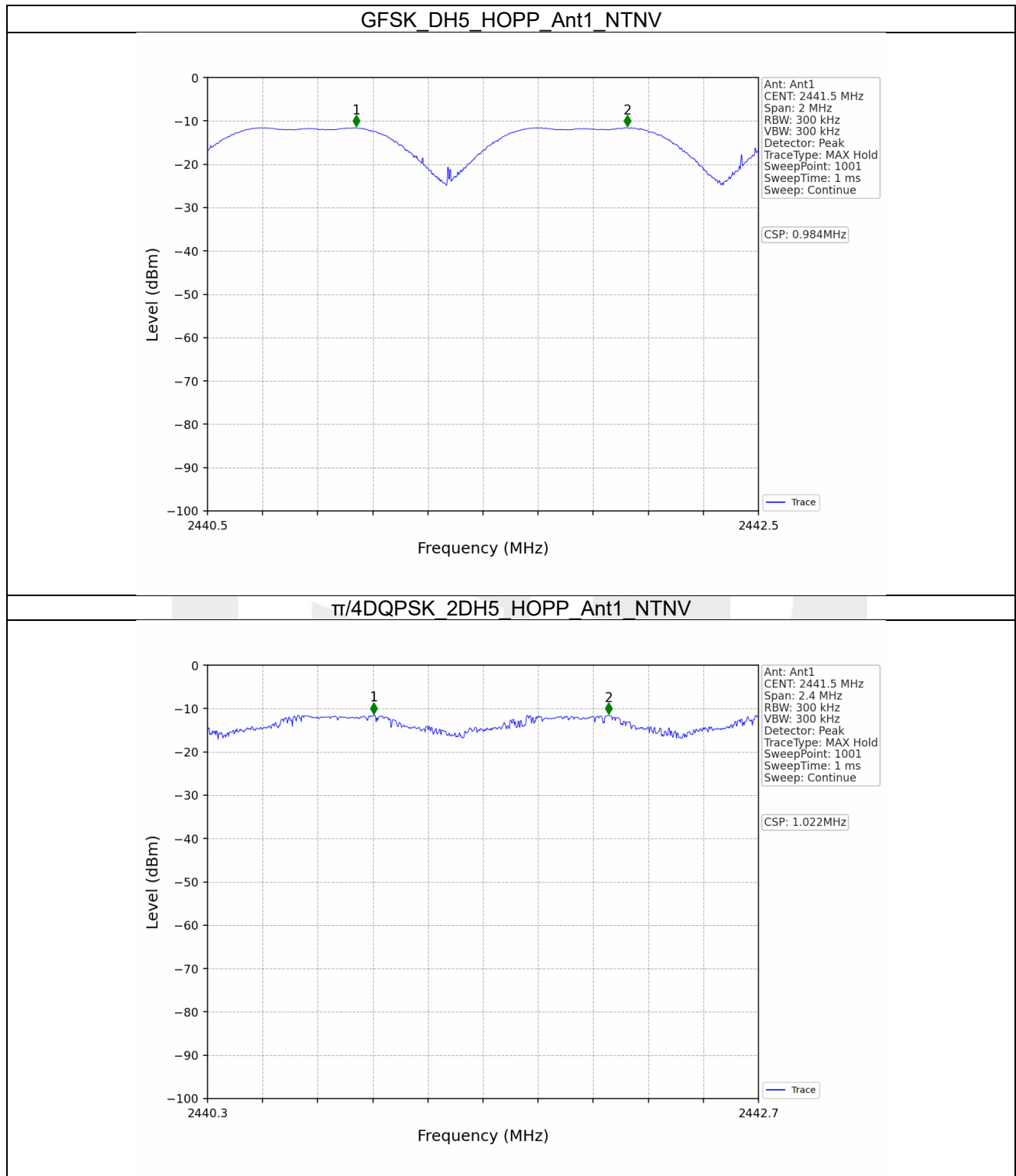
4.1 Ant1

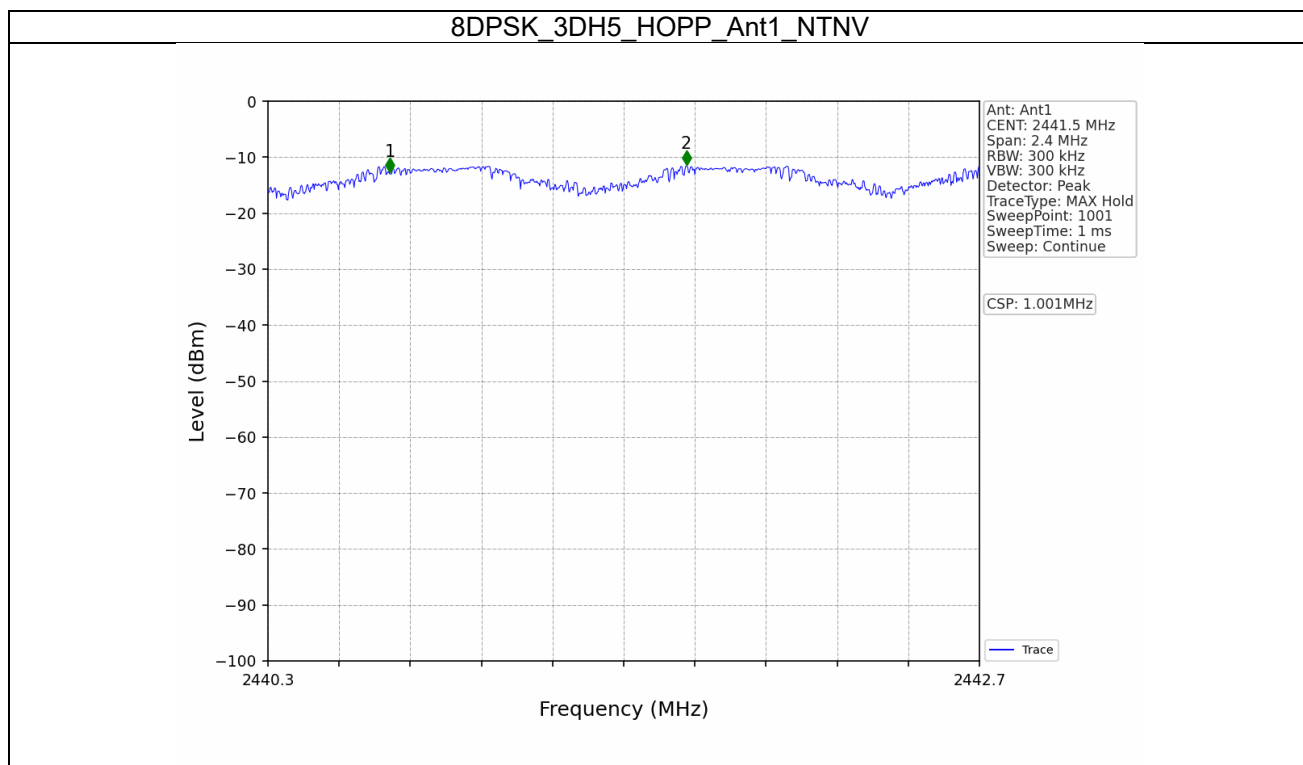
4.1.1 Test Result

Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	0.984	0.989	≥ 0.659	Pass
$\pi/4$ DQPSK	SISO	HOPP	2DH5	1.022	1.327	≥ 0.885	Pass
8DPSK	SISO	HOPP	3DH5	1.001	1.316	≥ 0.877	Pass



4.1.2 Test Graph





5. Number of Hopping Frequencies

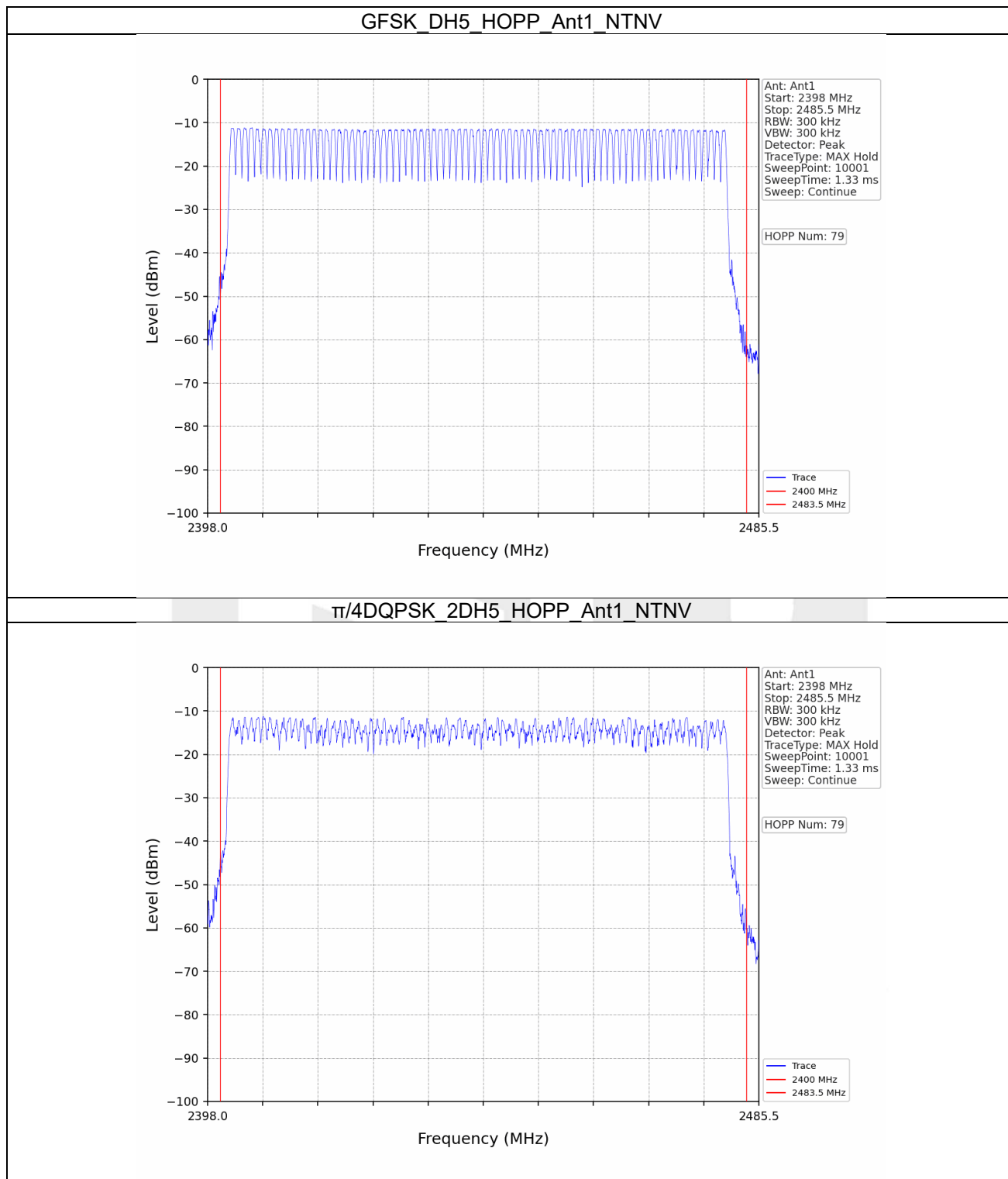
5.1 HoppNum

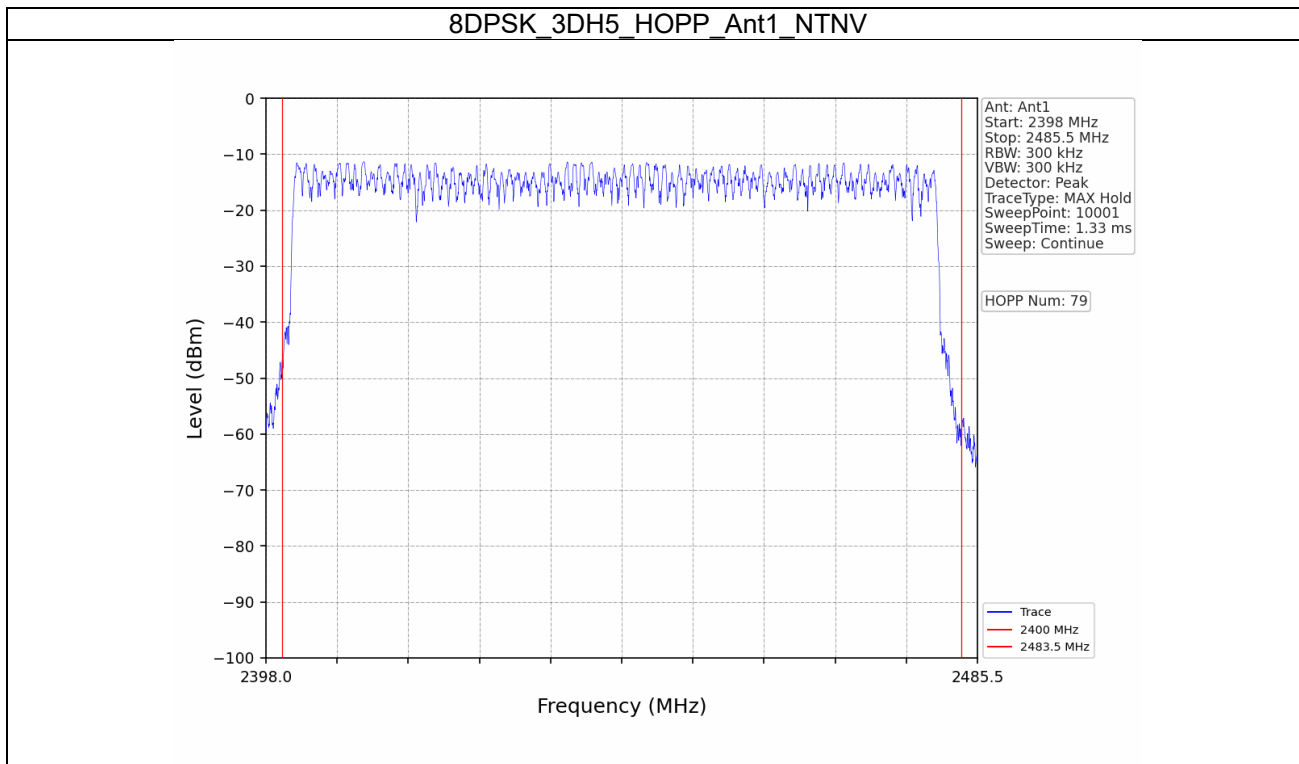
5.1.1 Test Result

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



5.1.2 Test Graph





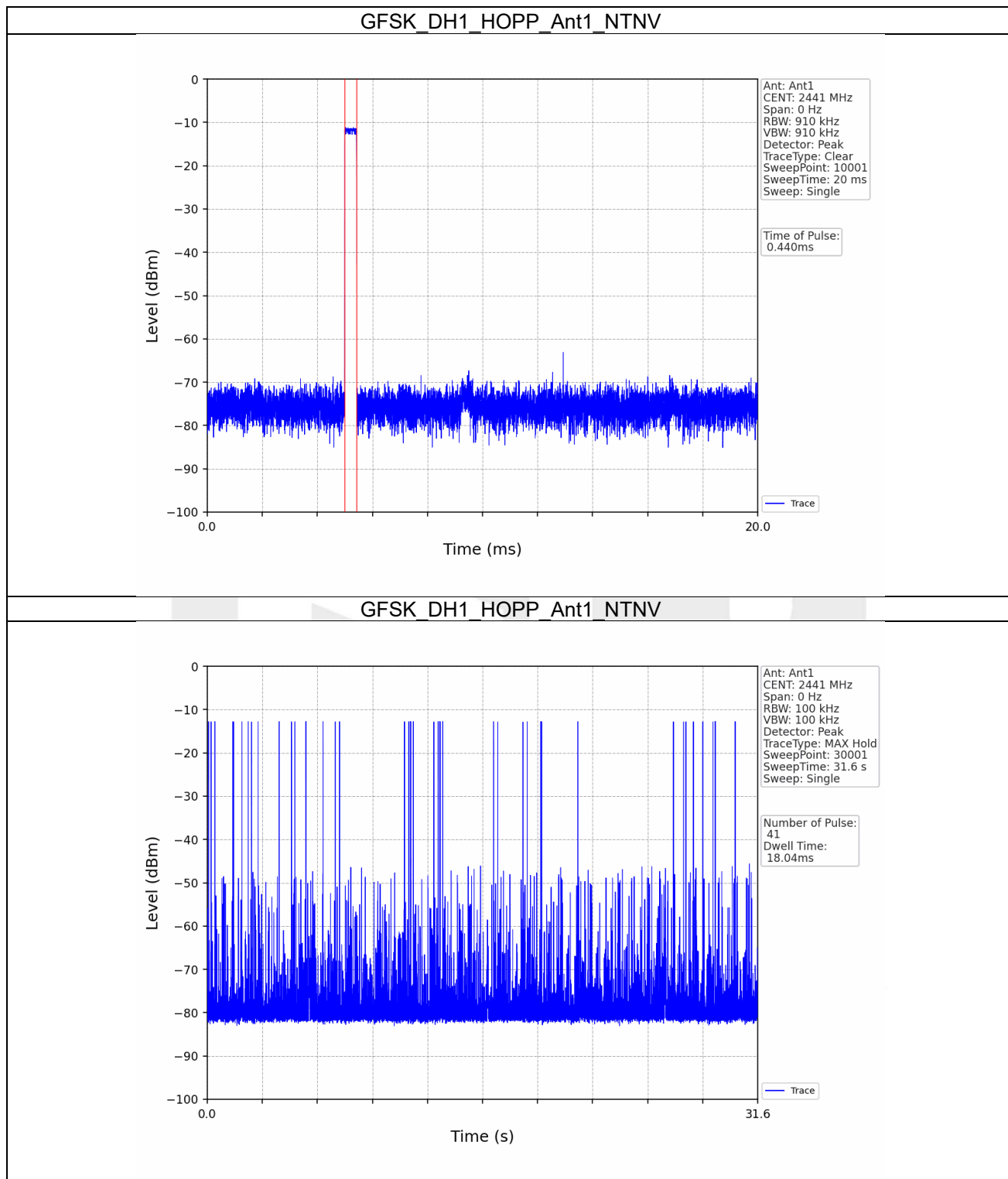
6. Time of Occupancy (Dwell Time)

6.1 Ant1

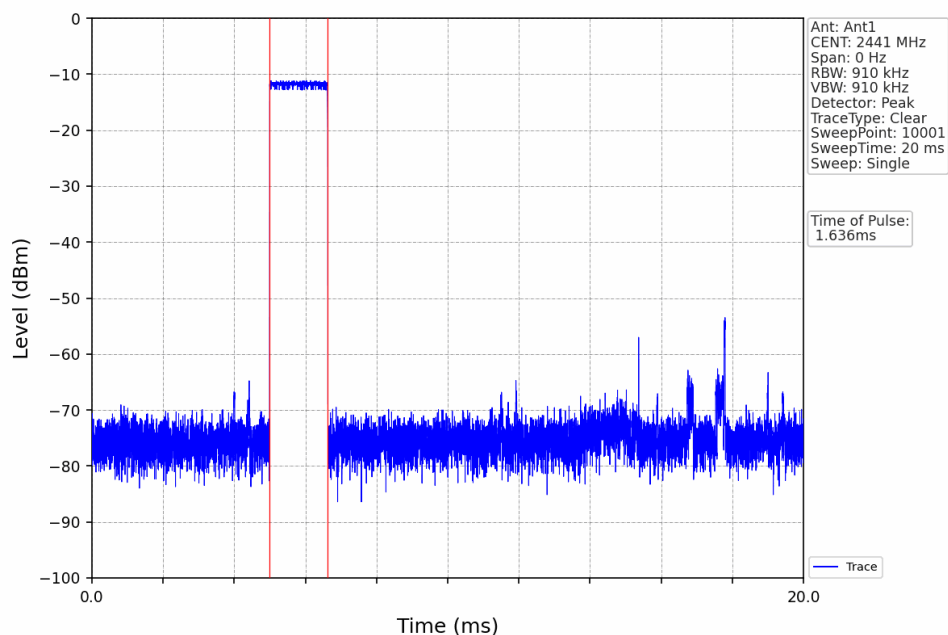
6.1.1 Test Result

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	0.440	31.600	41	18.040	<=400	Pass
			DH3	1.636	31.600	45	73.620	<=400	Pass
			DH5	2.838	31.600	30	85.140	<=400	Pass
$\pi/4$ DQPSK	SISO	HOPP	2DH1	0.498	31.600	58	28.884	<=400	Pass
			2DH3	1.698	31.600	45	76.410	<=400	Pass
			2DH5	2.898	31.600	43	124.614	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.424	31.600	58	24.592	<=400	Pass
			3DH3	1.676	31.600	37	62.012	<=400	Pass
			3DH5	2.770	31.600	42	116.340	<=400	Pass

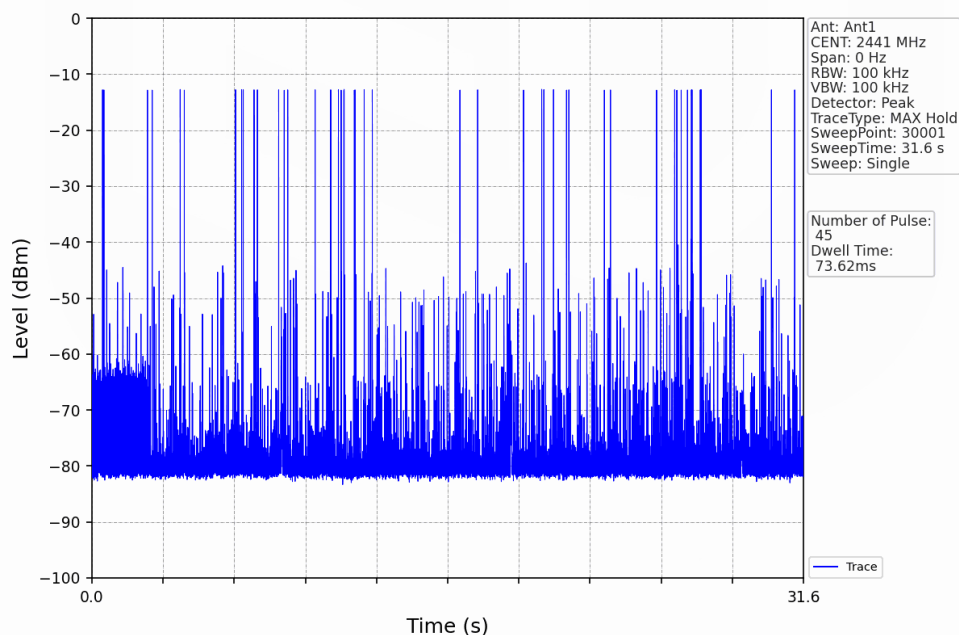
6.1.2 Test Graph



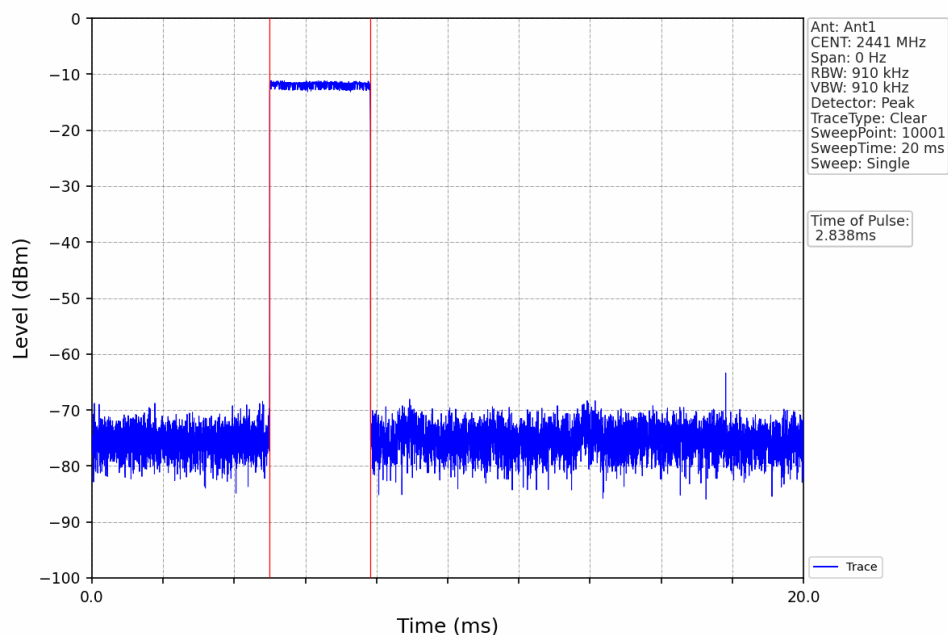
GFSK_DH3_HOPP_Ant1_NTNV



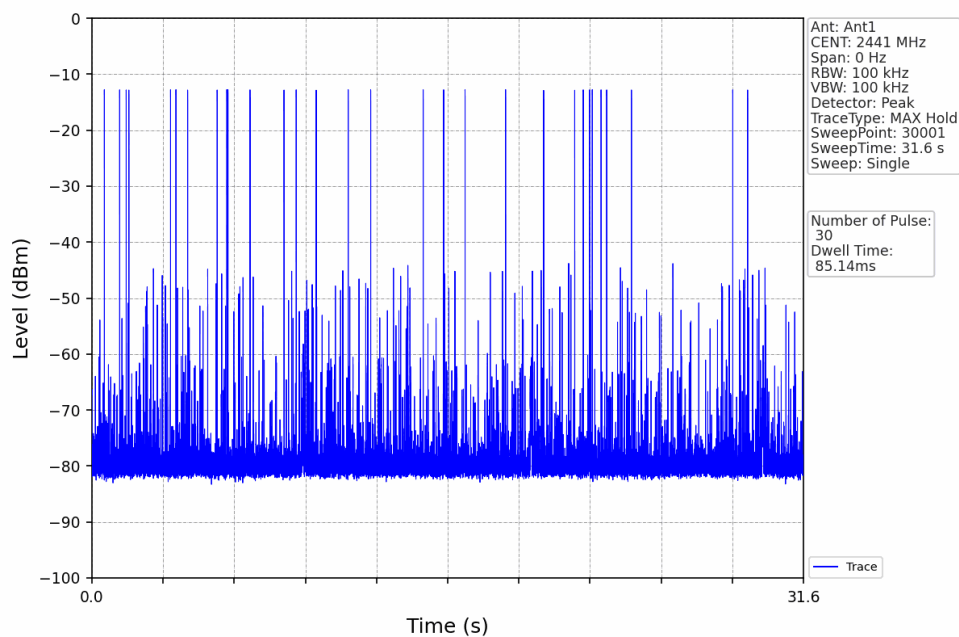
GFSK_DH3_HOPP_Ant1_NTNV

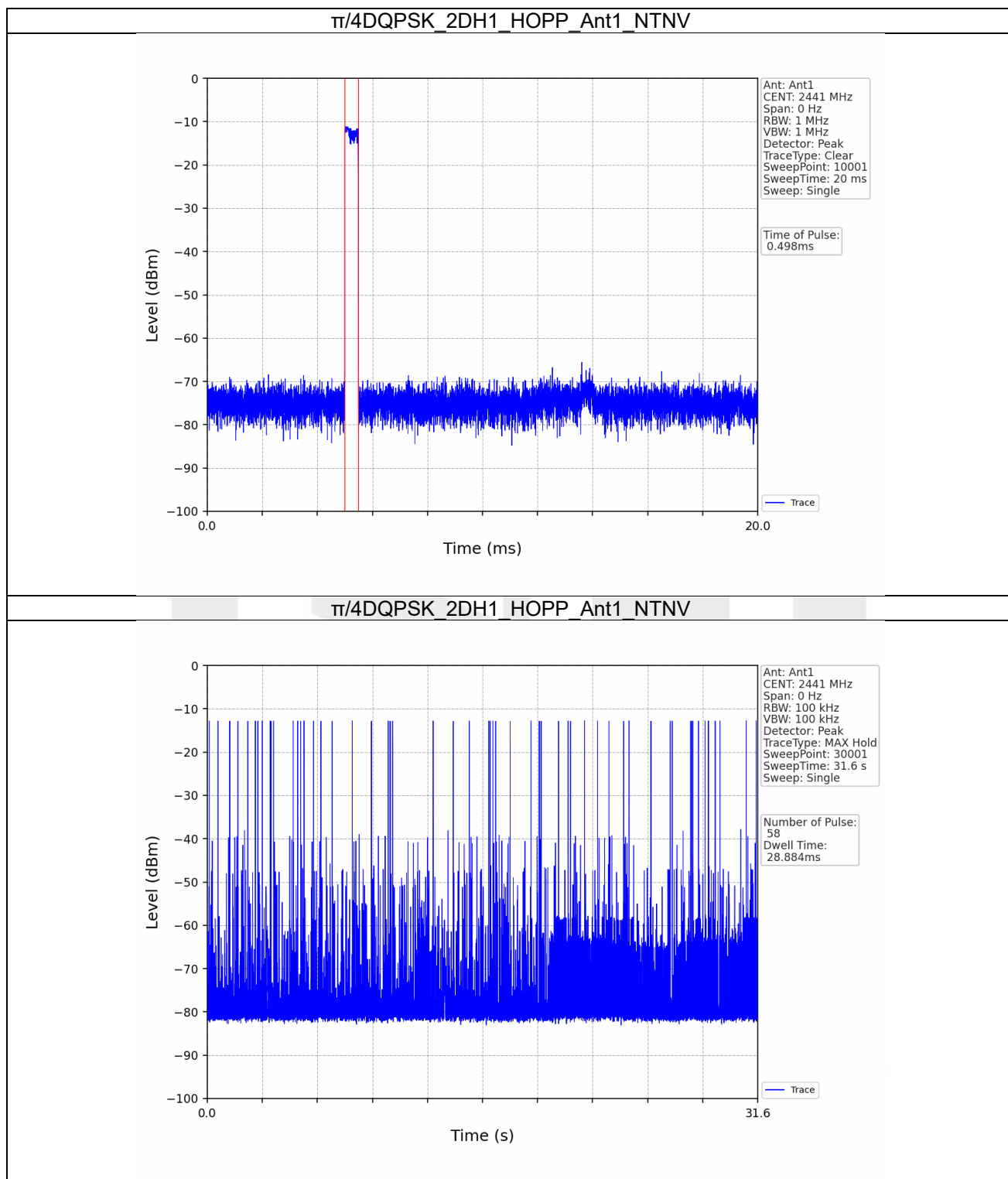


GFSK_DH5_HOPP_Ant1_NTNV

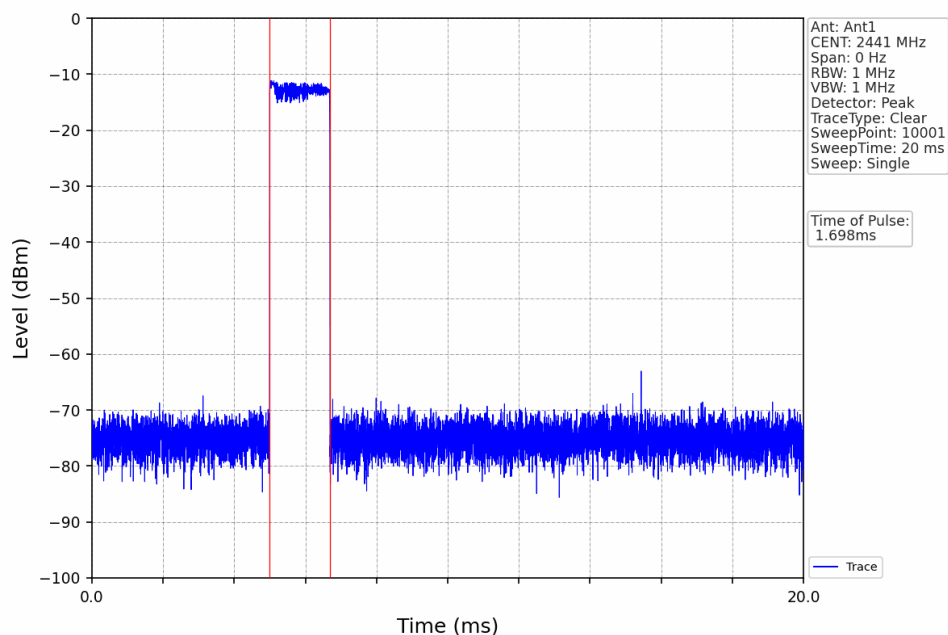


GFSK_DH5_HOPP_Ant1_NTNV

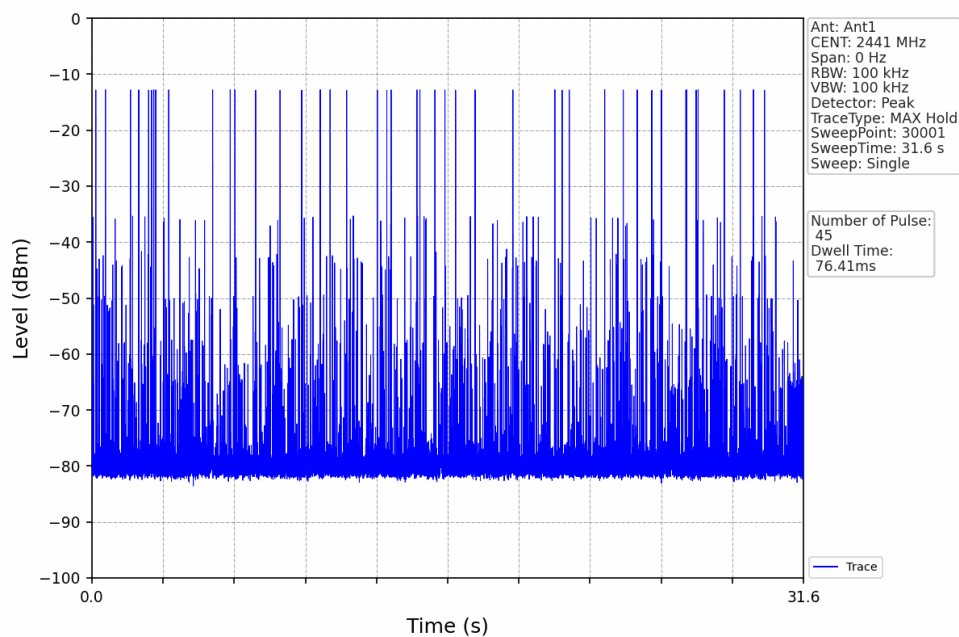




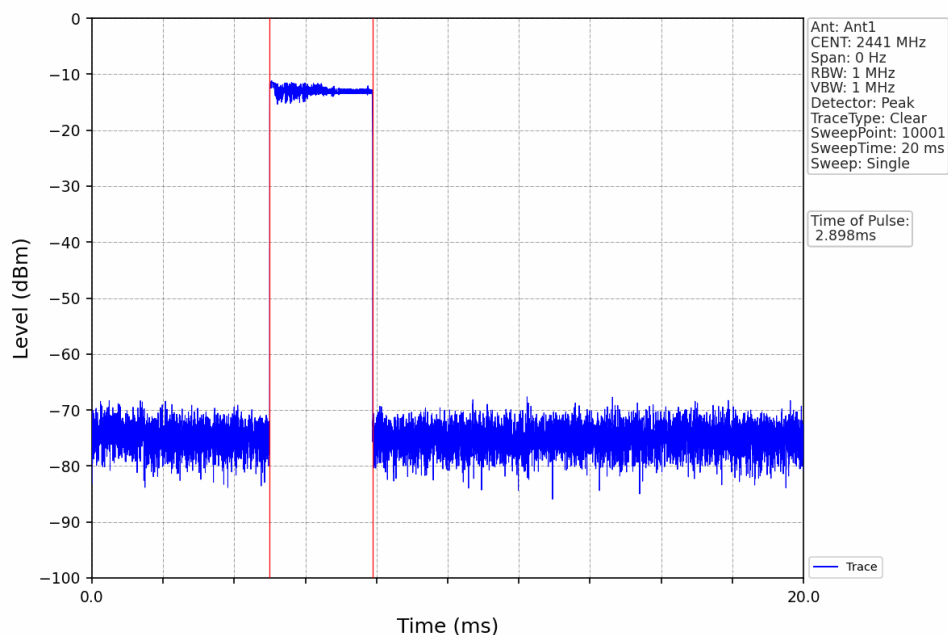
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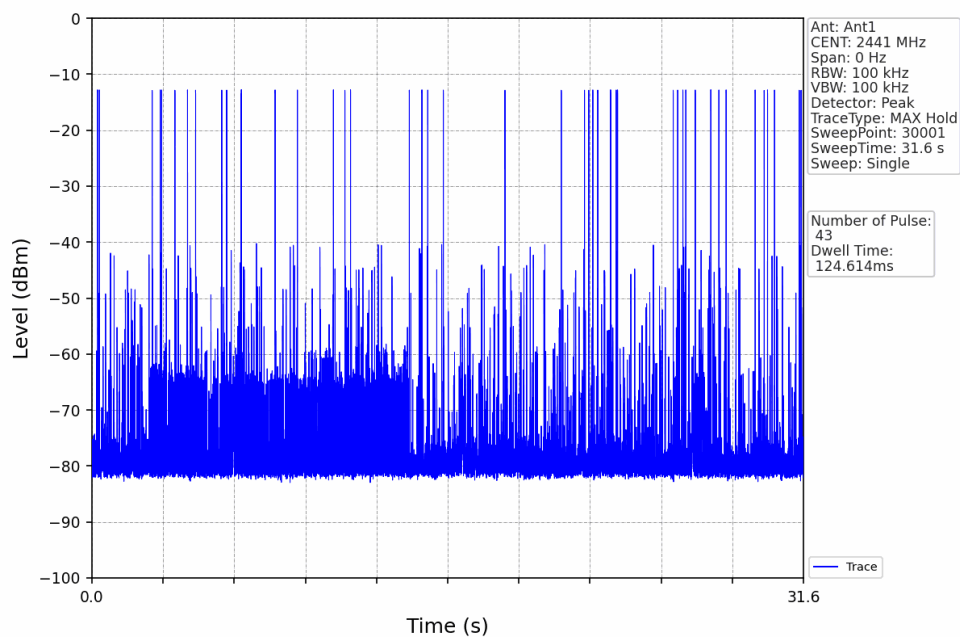
$\pi/4$ DQPSK_2DH3_HOPP_Ant1_NTNV



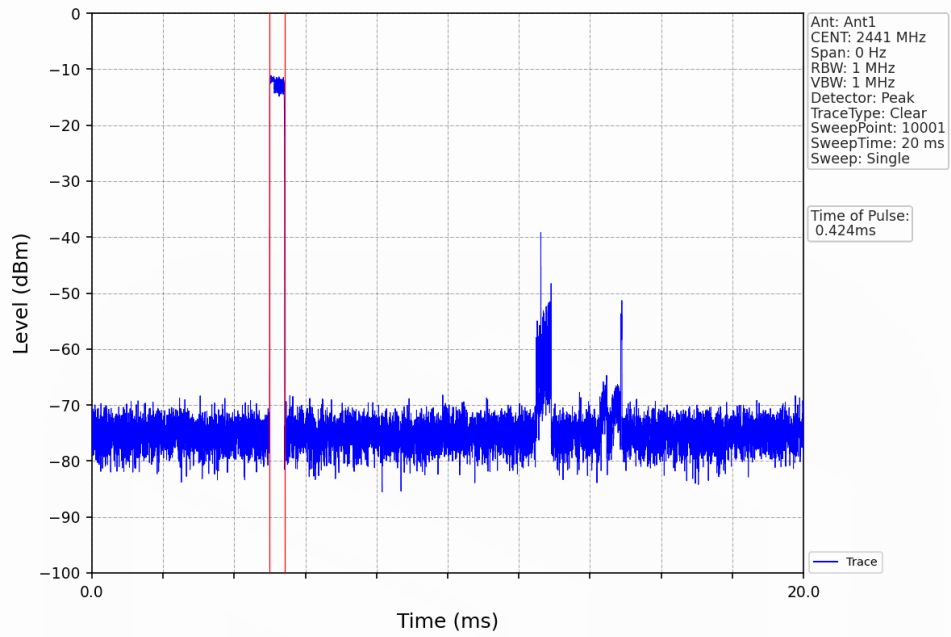
$\pi/4$ DQPSK_2DH5_HOPP_Ant1_NTNV



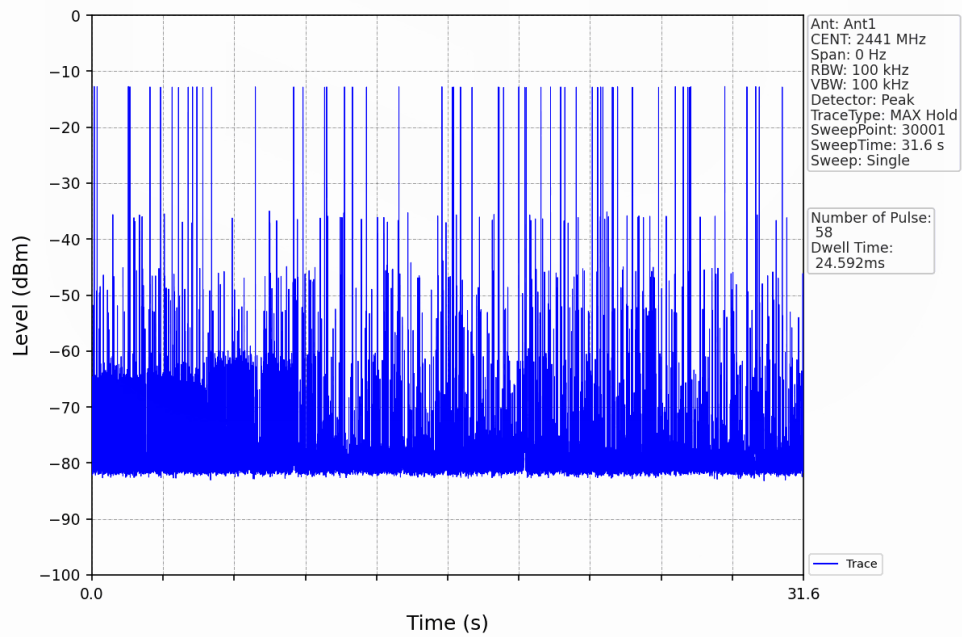
$\pi/4$ DQPSK_2DH5_HOPP_Ant1_NTNV



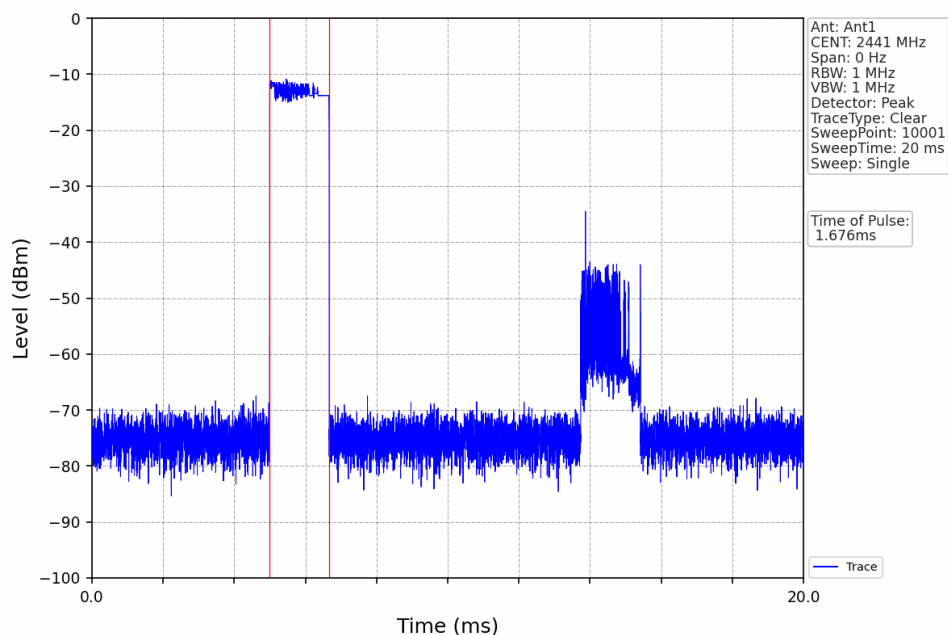
8DPSK_3DH1_HOPP_Ant1_NTNV



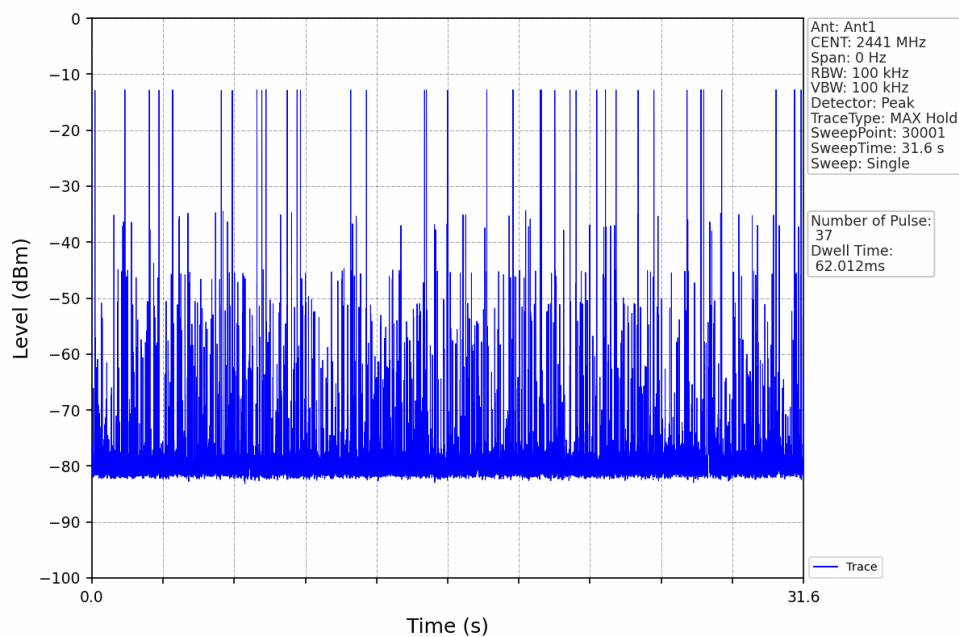
8DPSK_3DH1_HOPP_Ant1_NTNV



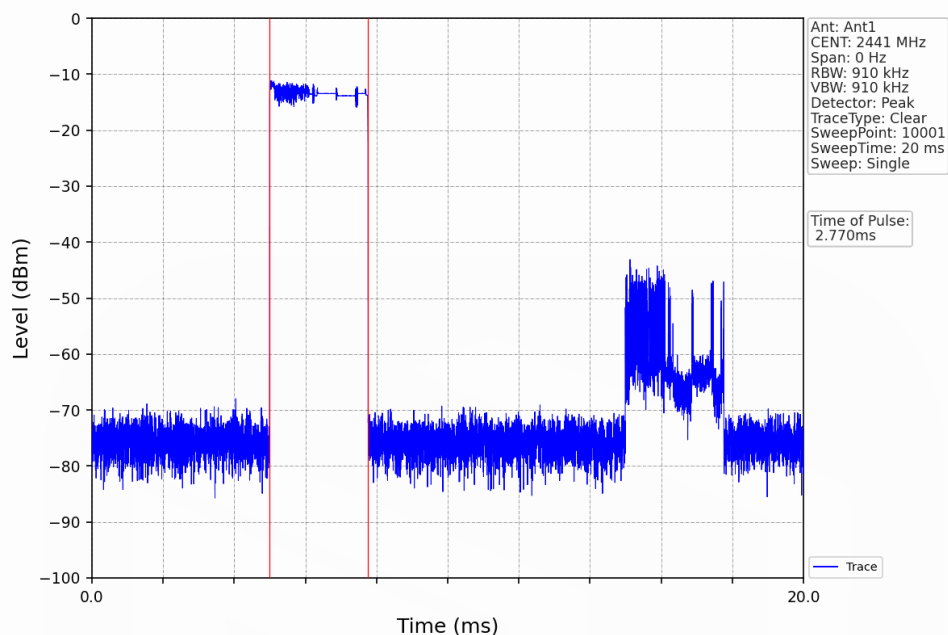
8DPSK_3DH3_HOPP_Ant1_NTNV



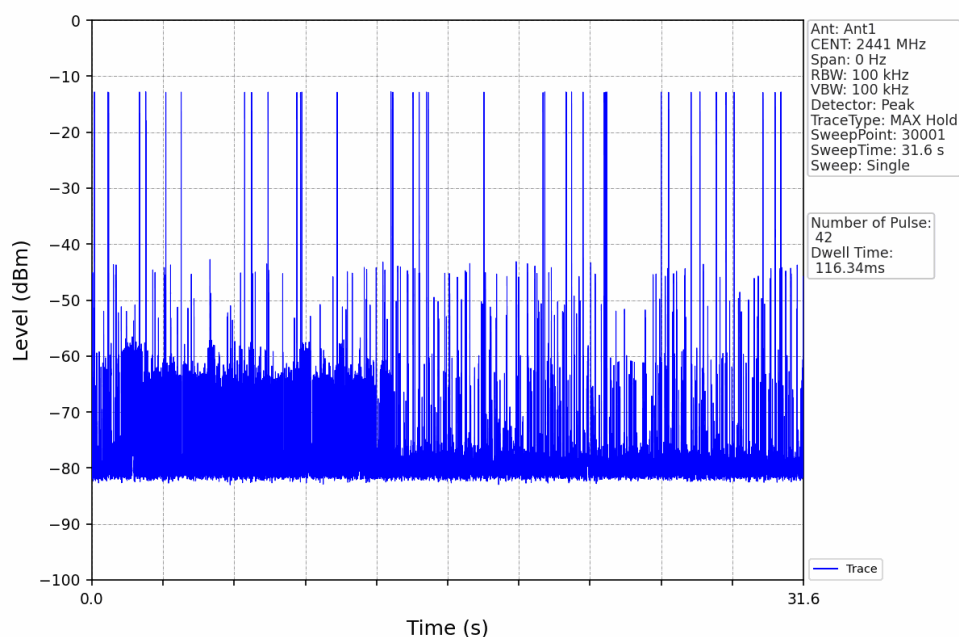
8DPSK_3DH3_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV



7. Unwanted Emissions In Non-restricted Frequency Bands

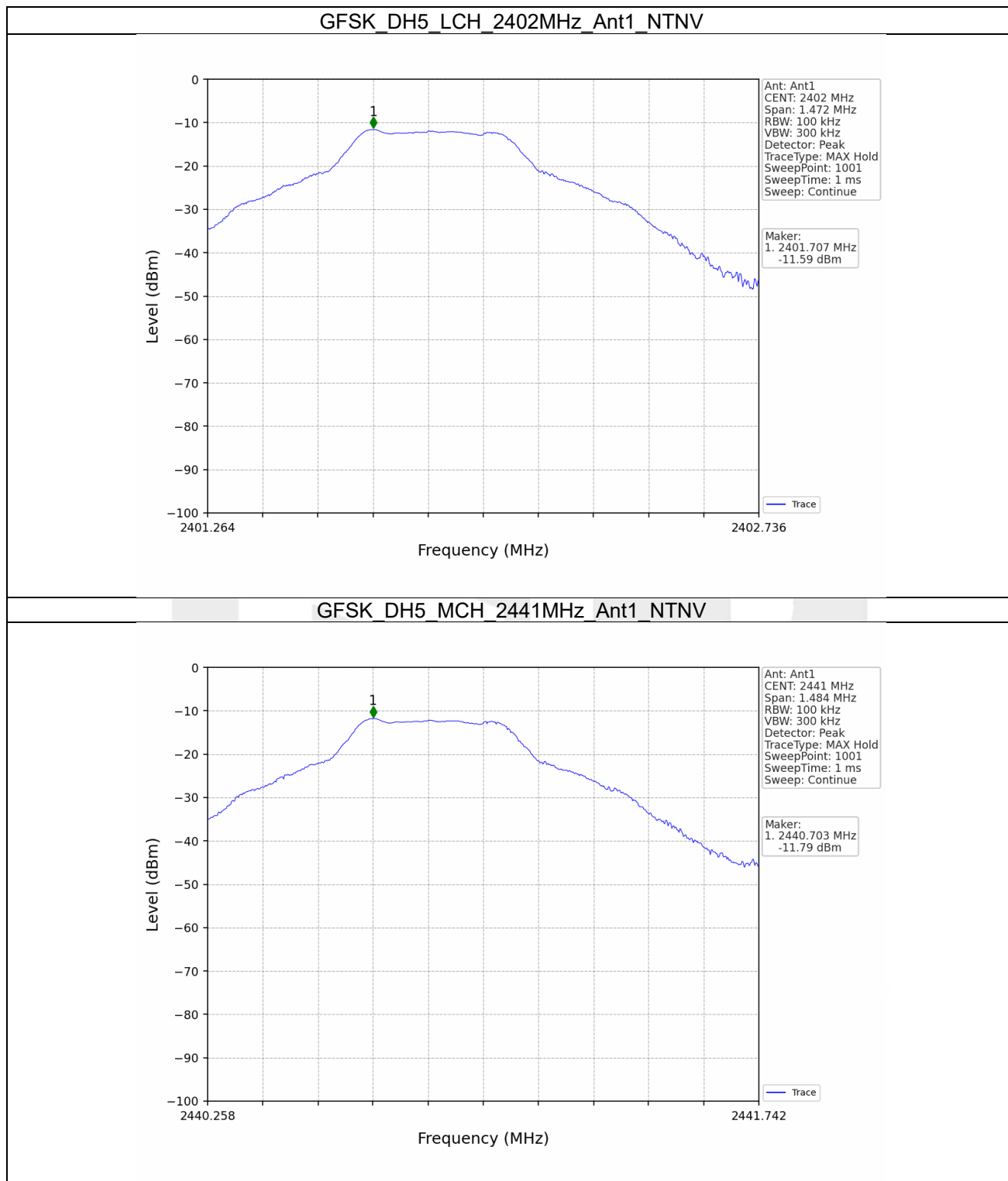
7.1 Ref

7.1.1 Test Result

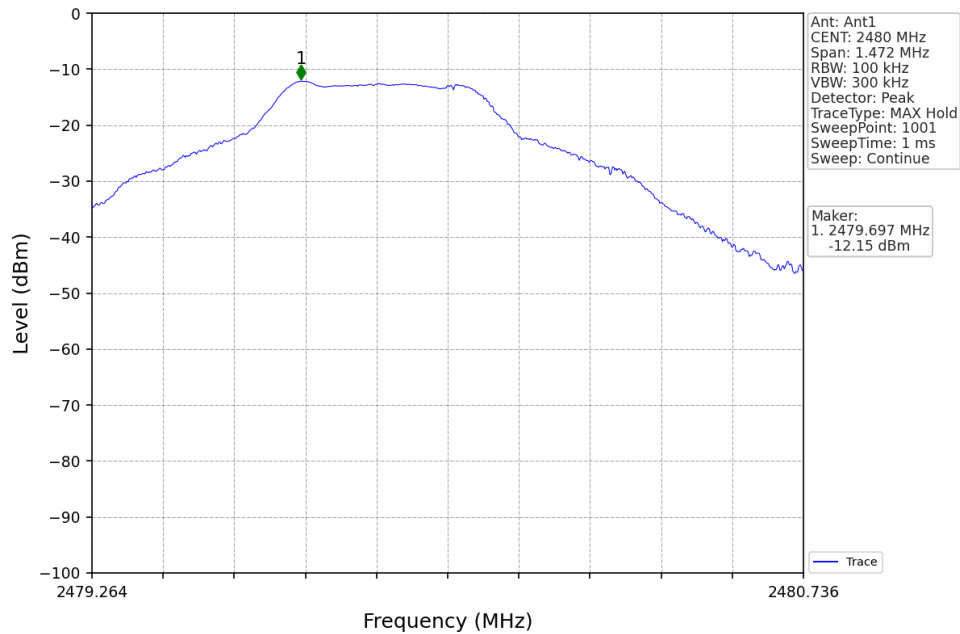
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	-11.59
		2441	DH5	1	-11.79
		2480	DH5	1	-12.15
$\pi/4$ DQPSK	SISO	2402	2DH5	1	-12.21
		2441	2DH5	1	-12.37
		2480	2DH5	1	-12.76
8DPSK	SISO	2402	3DH5	1	-12.27
		2441	3DH5	1	-12.44
		2480	3DH5	1	-12.77

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

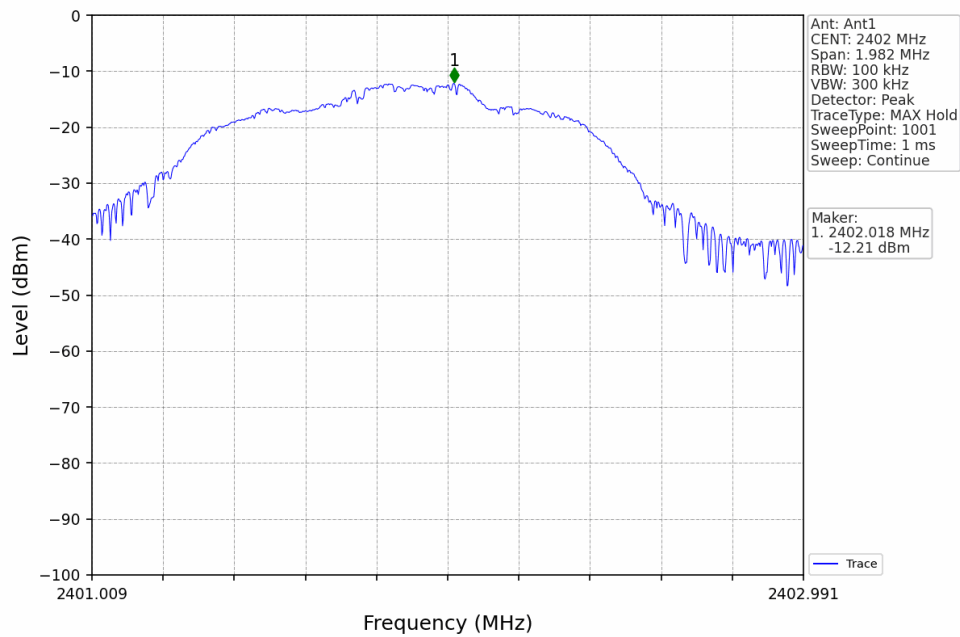
7.1.2 Test Graph



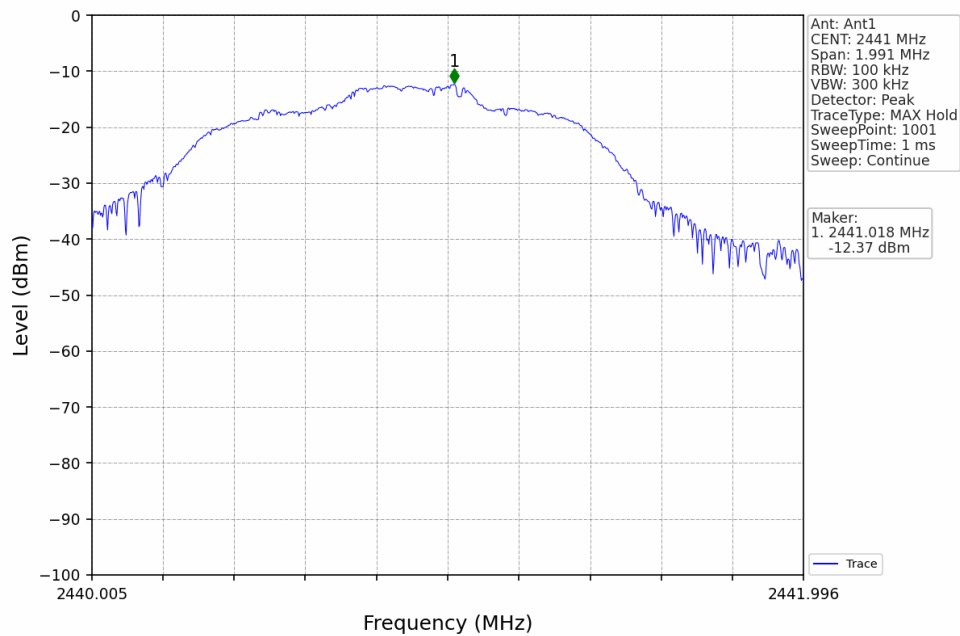
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



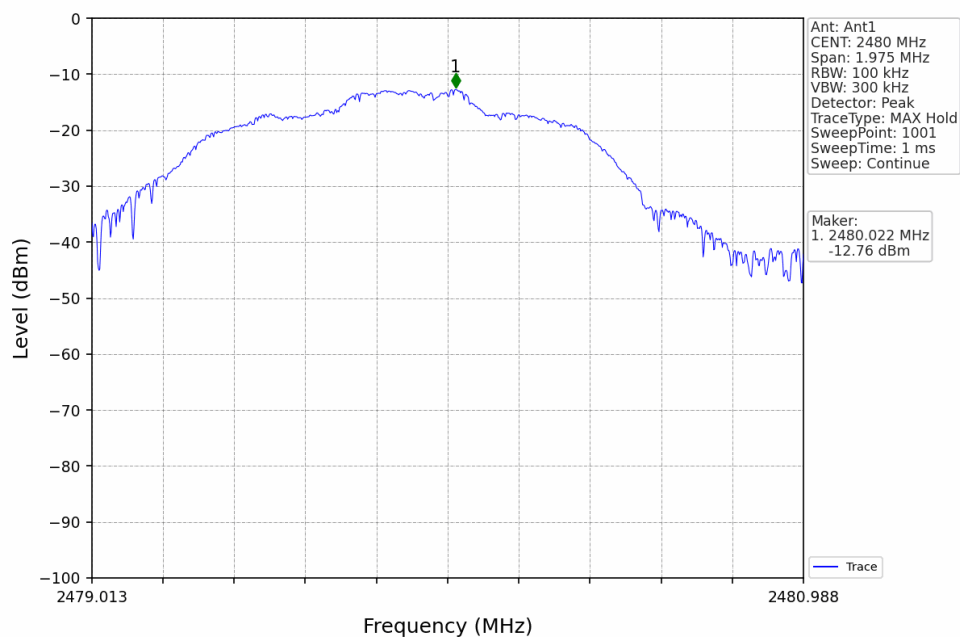
$\pi/4$ DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



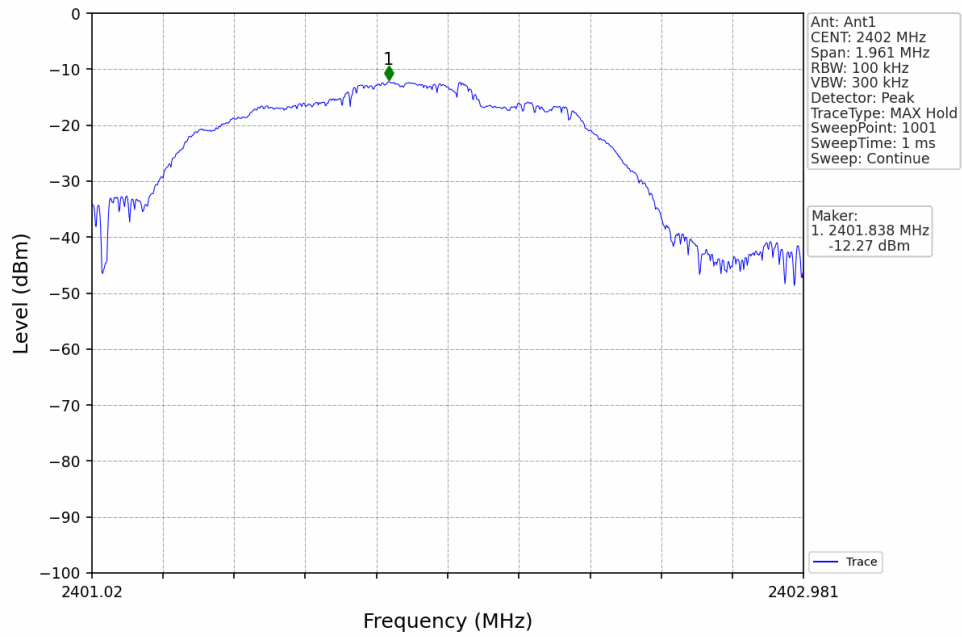
$\pi/4$ DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



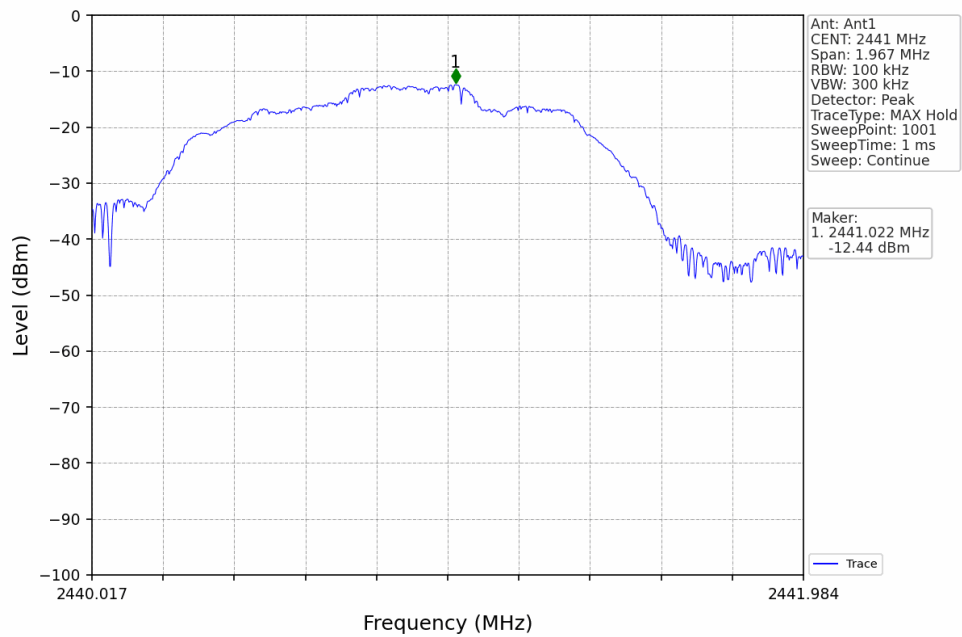
$\pi/4$ DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

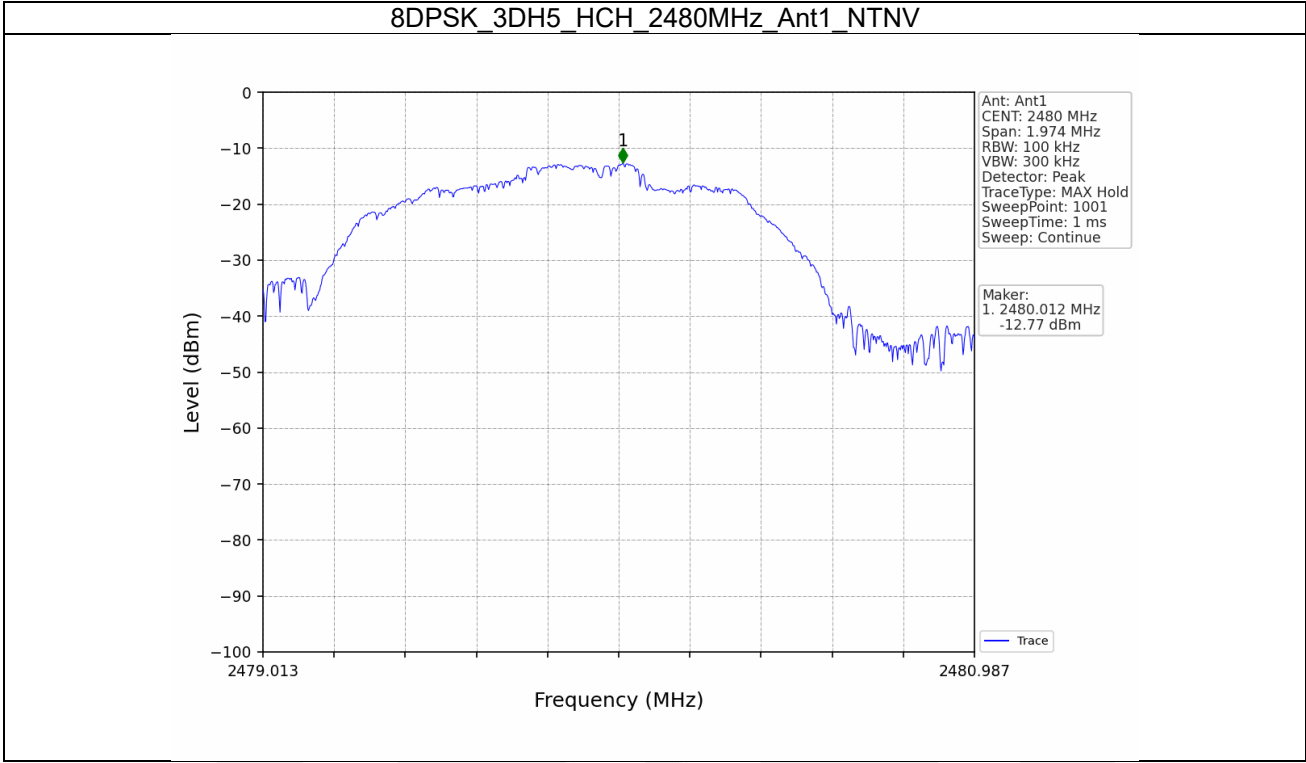


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV





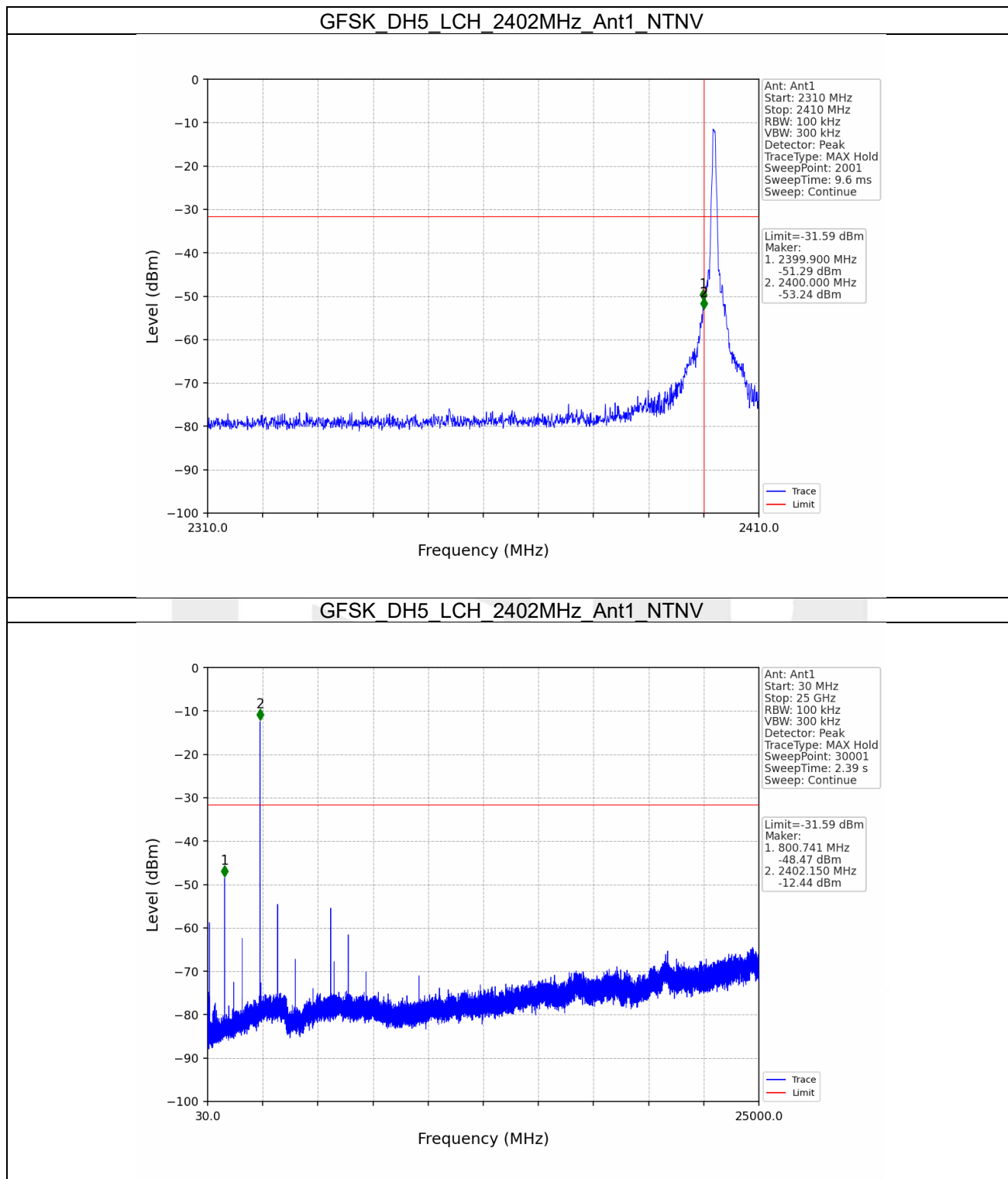
7.2 CSE

7.2.1 Test Result

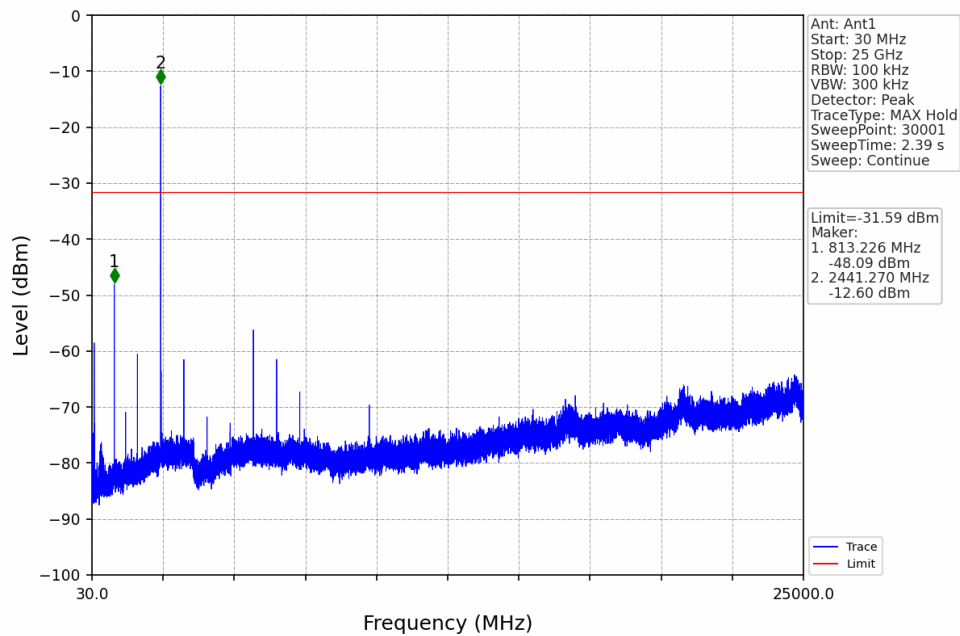
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	-11.59	-31.59	Pass
		2441	DH5	1	-11.59	-31.59	Pass
		2480	DH5	1	-11.59	-31.59	Pass
		HOPP	DH5	1	-11.59	-31.59	Pass
$\pi/4$ DQPSK	SISO	2402	2DH5	1	-12.21	-32.21	Pass
		2441	2DH5	1	-12.21	-32.21	Pass
		2480	2DH5	1	-12.21	-32.21	Pass
		HOPP	2DH5	1	-12.21	-32.21	Pass
8DPSK	SISO	2402	3DH5	1	-12.27	-32.27	Pass
		2441	3DH5	1	-12.27	-32.27	Pass
		2480	3DH5	1	-12.27	-32.27	Pass
		HOPP	3DH5	1	-12.27	-32.27	Pass

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

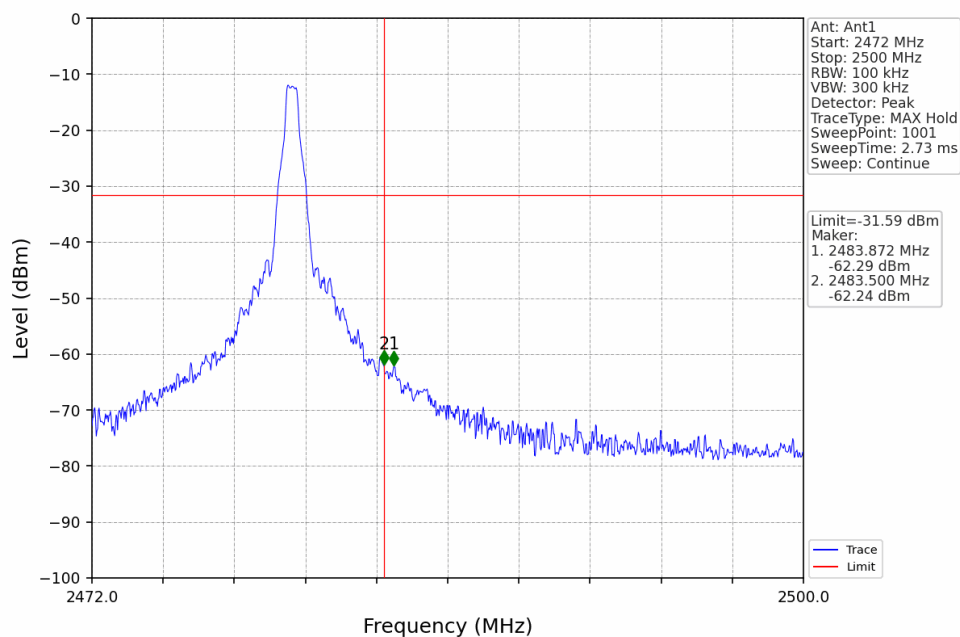
7.2.2 Test Graph



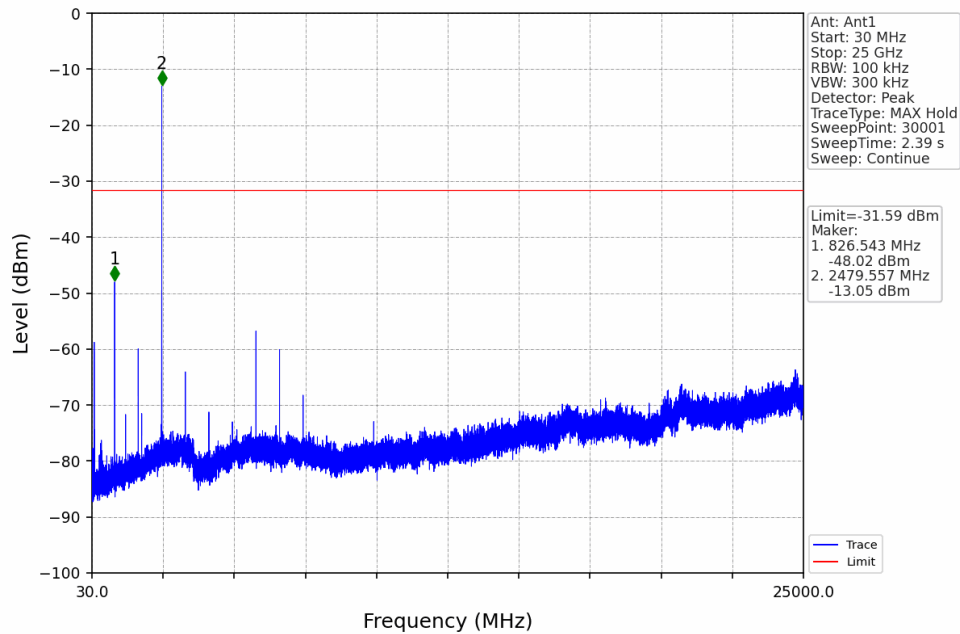
GFSK_DH5_MCH_2441MHz_Ant1_NTNV



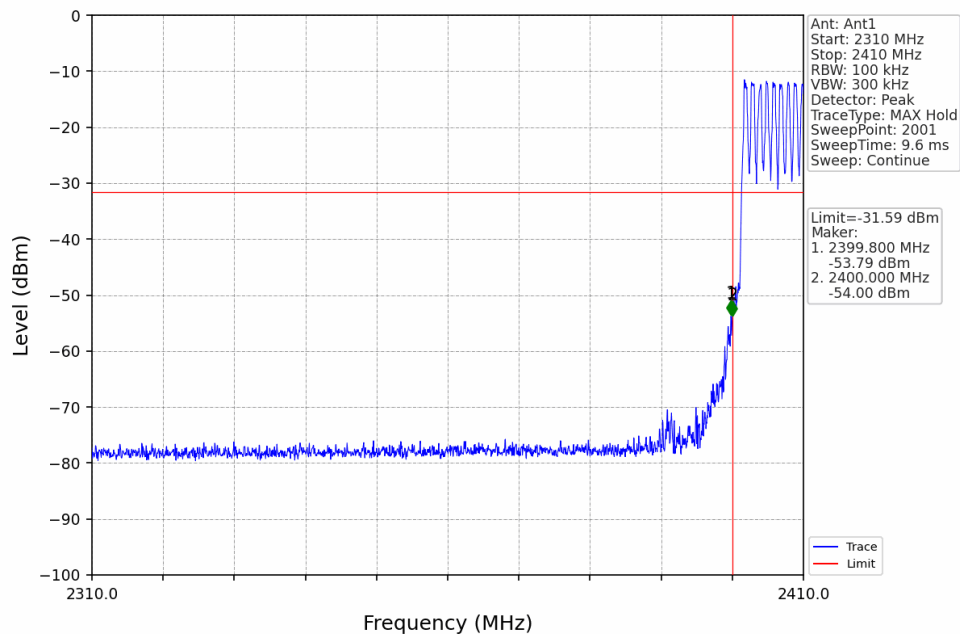
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



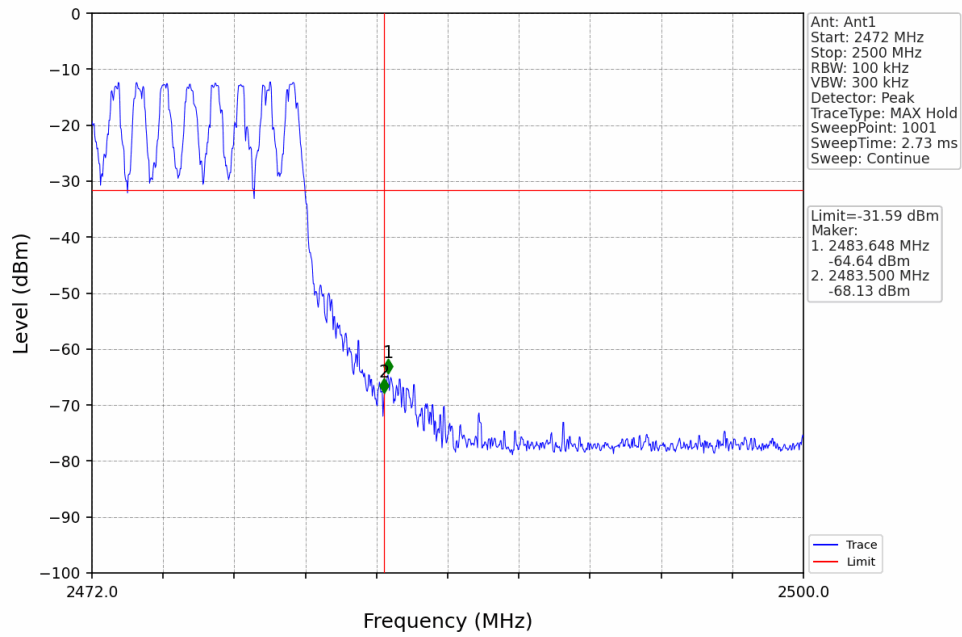
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



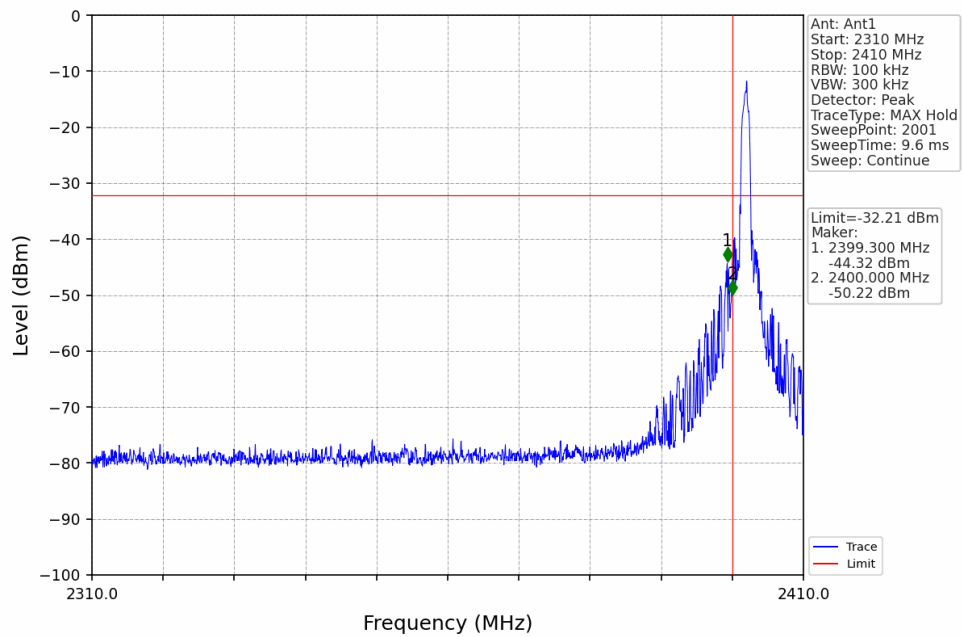
GFSK_DH5_HOPP_Ant1_NTNV



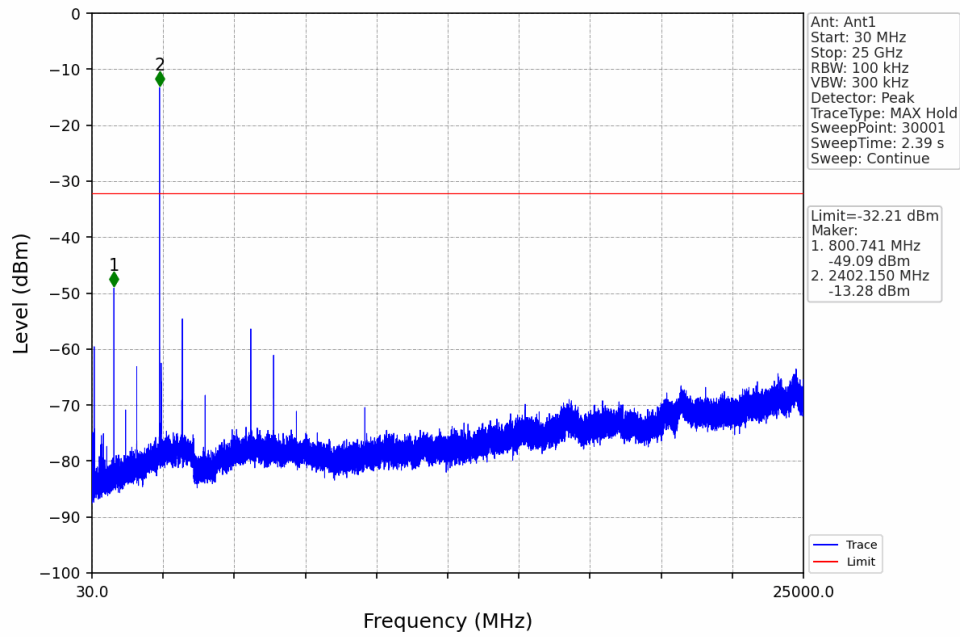
GFSK_DH5_HOPP_Ant1_NTNV



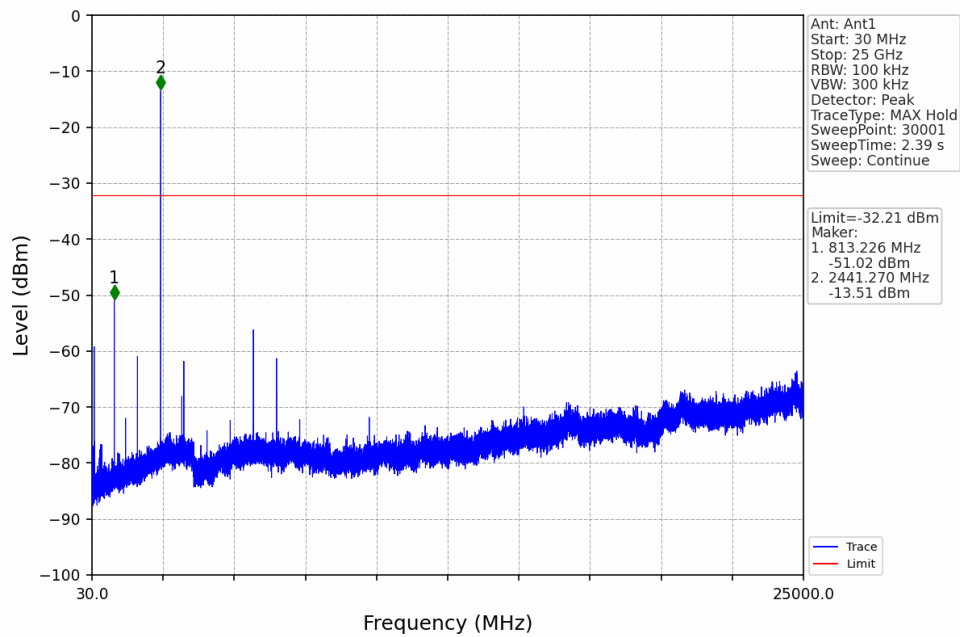
$\pi/4$ QPSK_2DH5_LCH_2402MHz_Ant1_NTNV



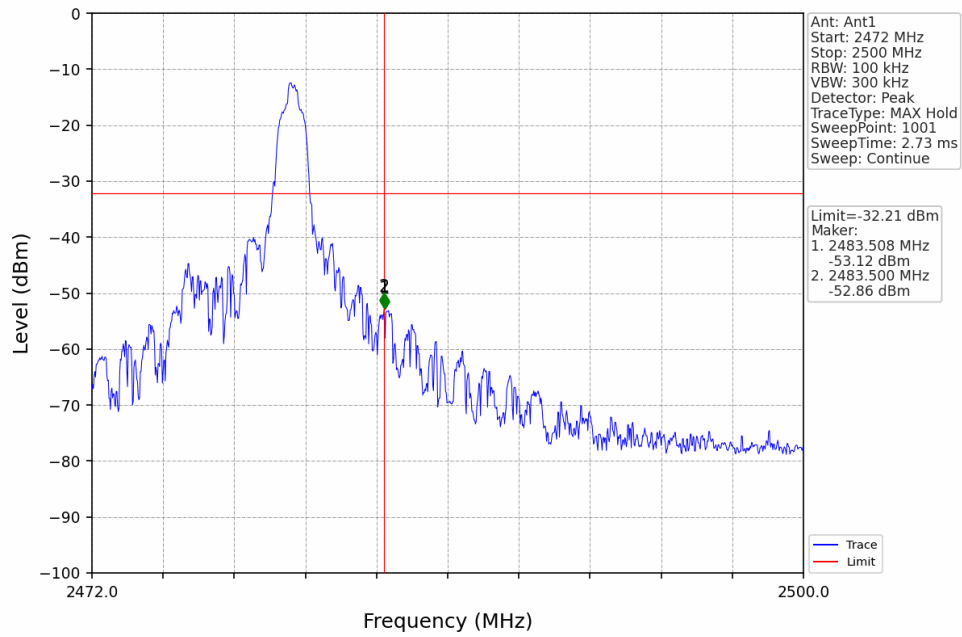
$\pi/4$ DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



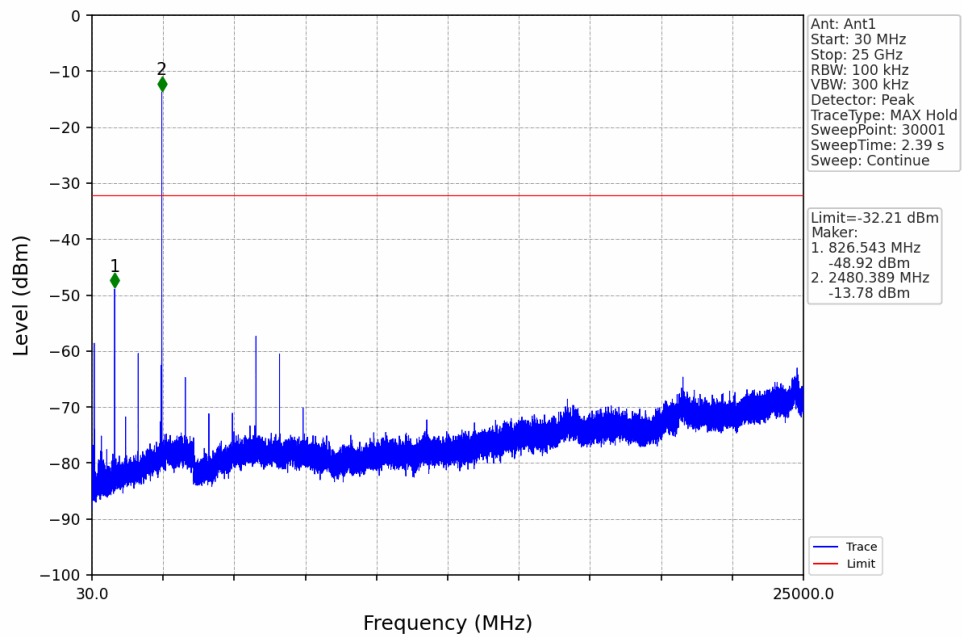
$\pi/4$ DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV

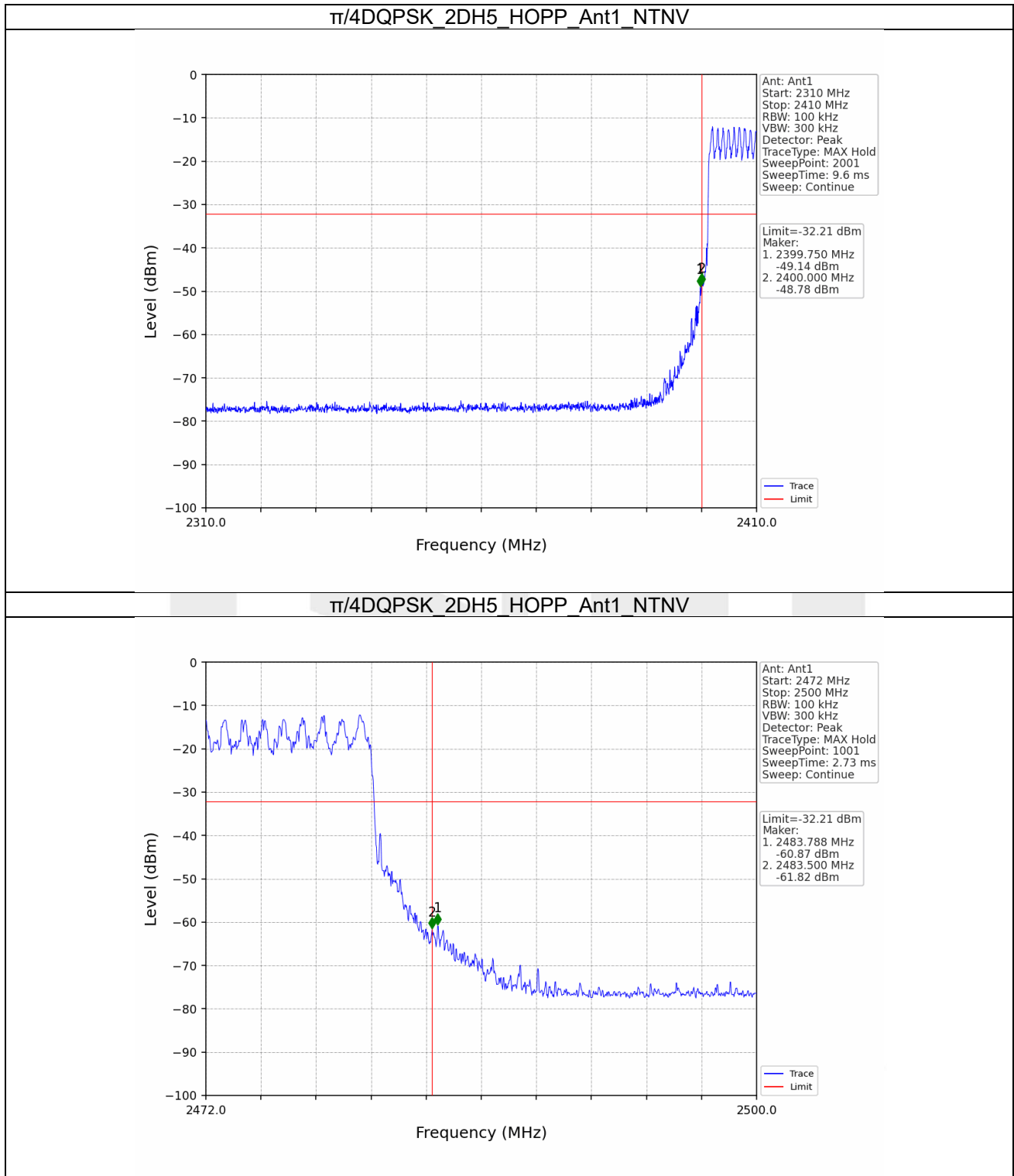


$\pi/4$ DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

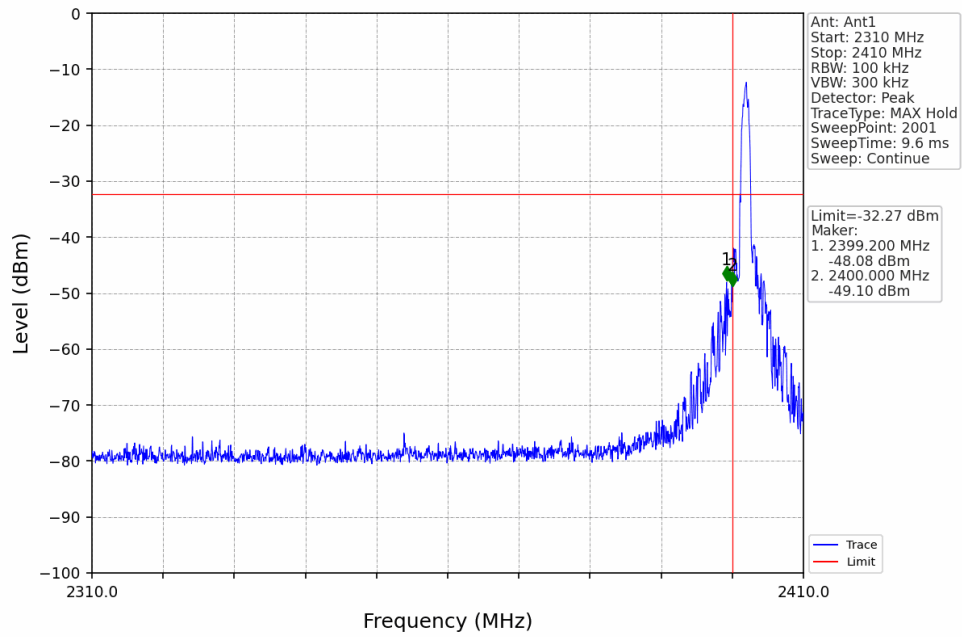


$\pi/4$ DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

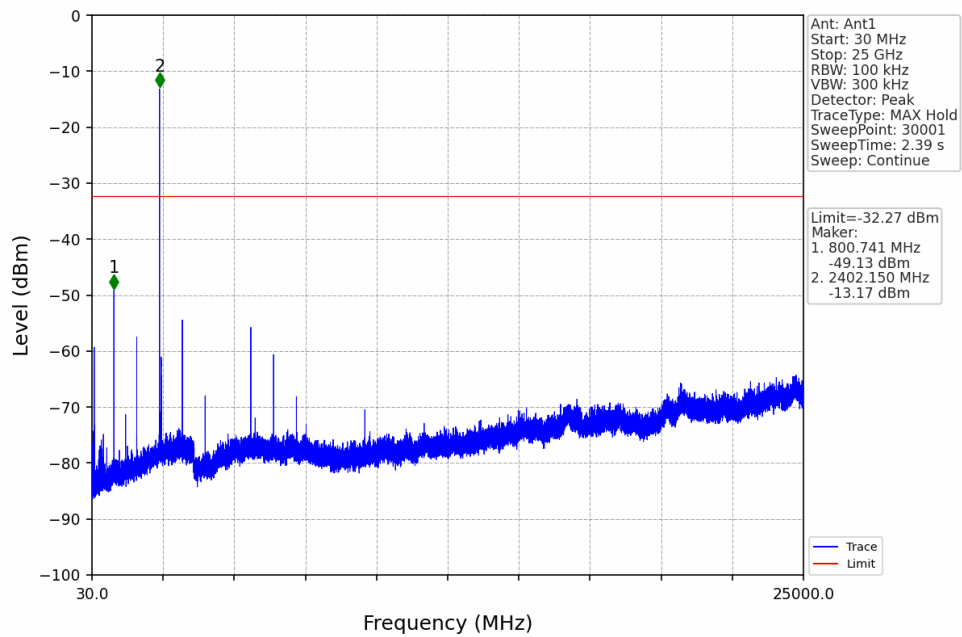




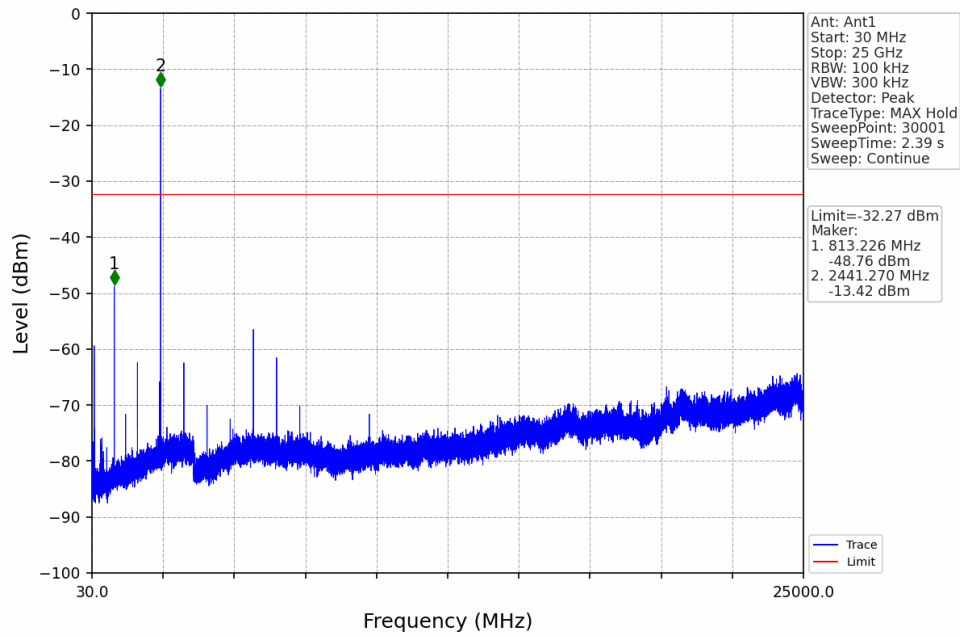
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



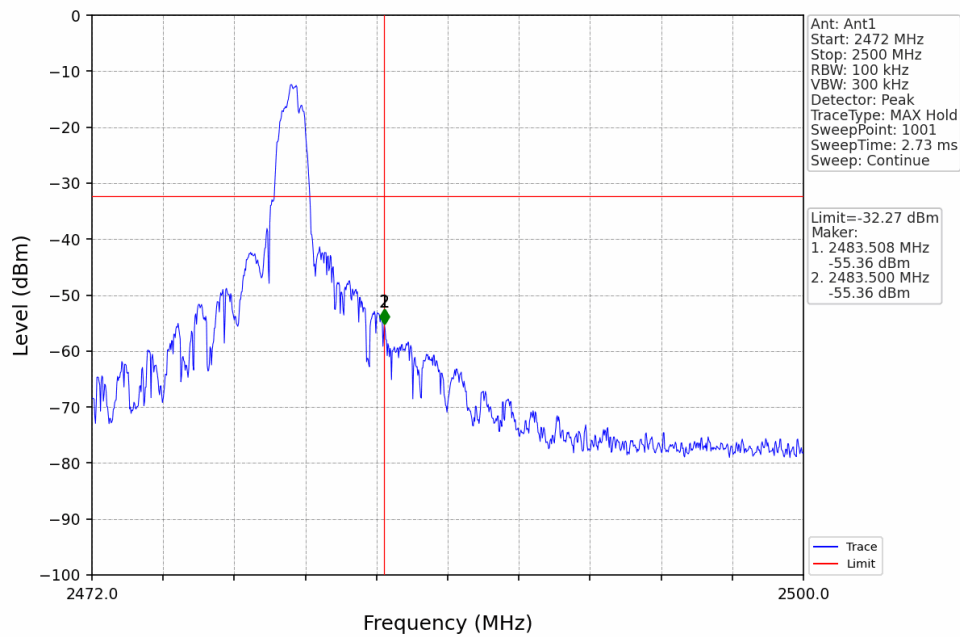
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



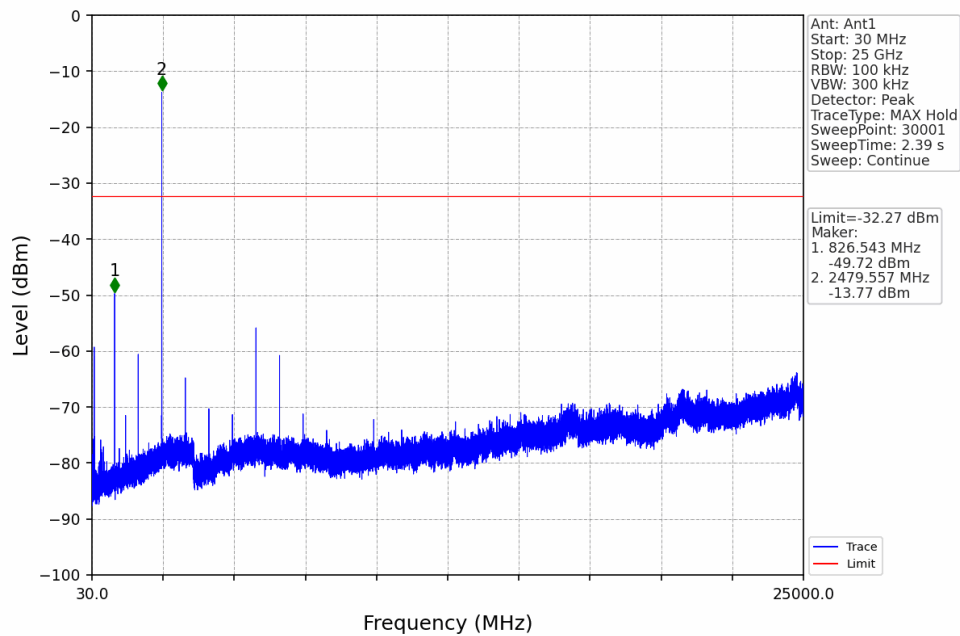
8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



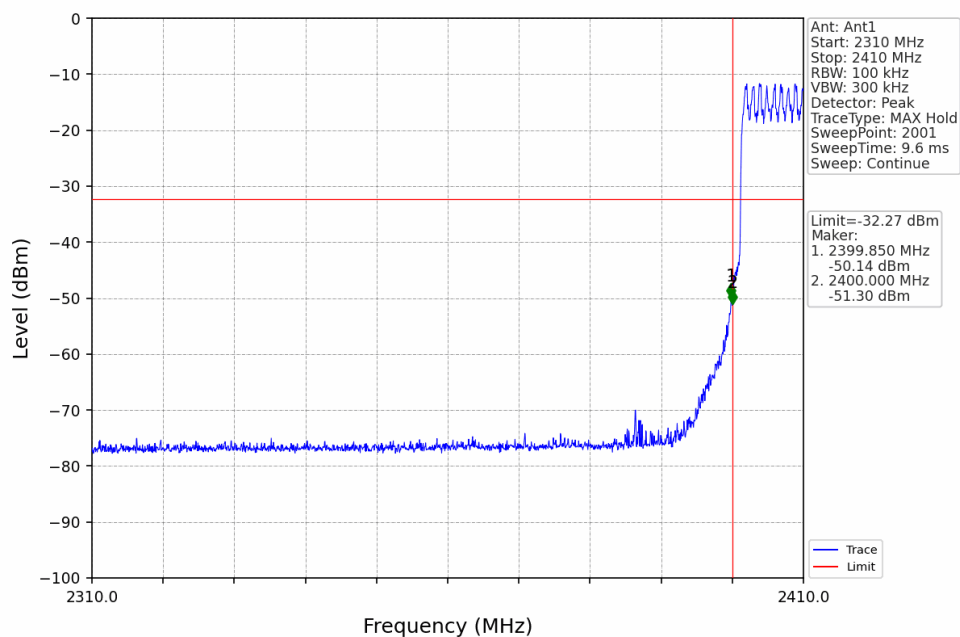
8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV

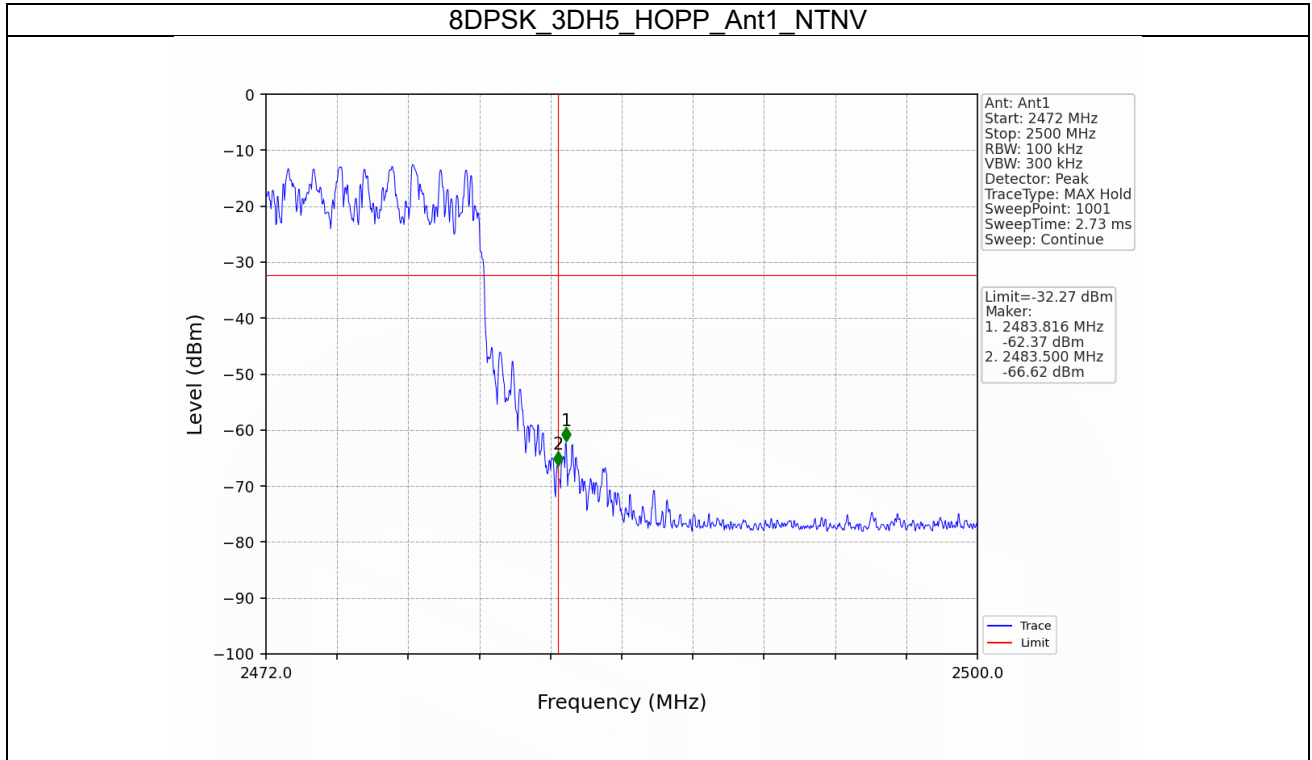


8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV





----- End of Report -----