

Appendix for 15.247

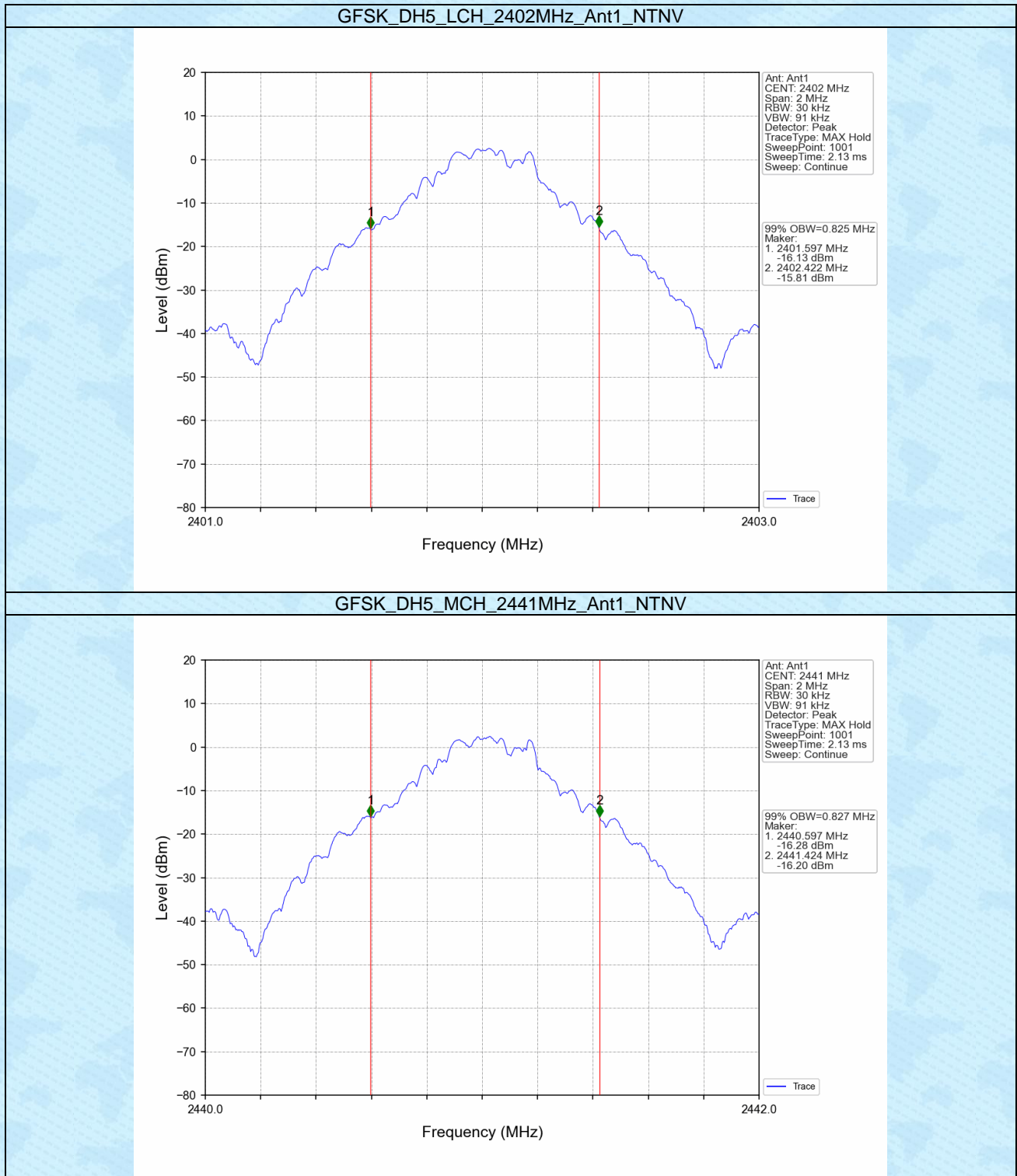
1. Bandwidth

1.1 OBW

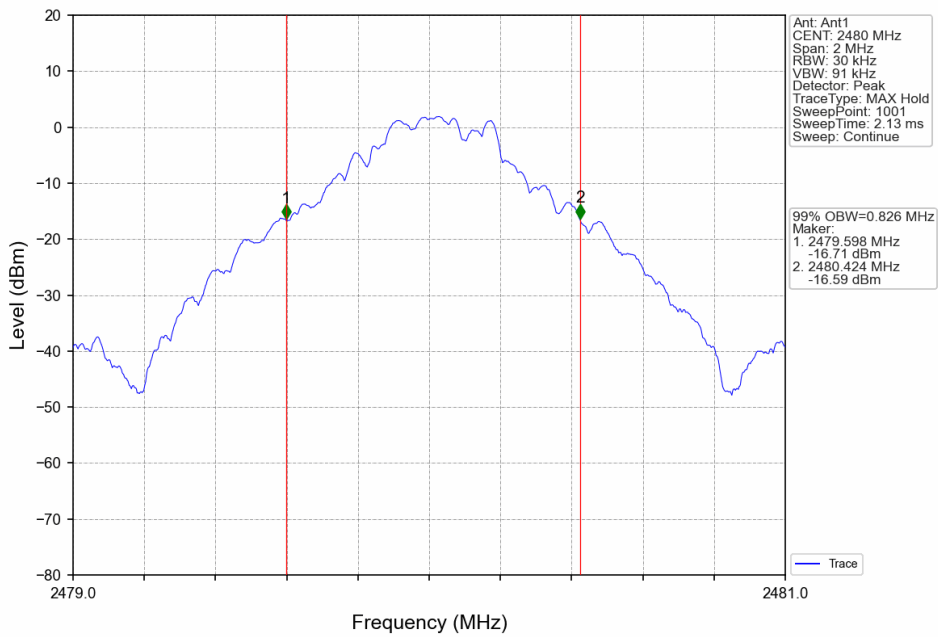
1.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.825	Pass
		2441	DH5	1	0.827	Pass
		2480	DH5	1	0.826	Pass
$\pi/4$ -DQPSK	SISO	2402	2DH5	1	1.174	Pass
		2441	2DH5	1	1.175	Pass
		2480	2DH5	1	1.173	Pass
8-DPSK	SISO	2402	3DH5	1	1.178	Pass
		2441	3DH5	1	1.177	Pass
		2480	3DH5	1	1.178	Pass

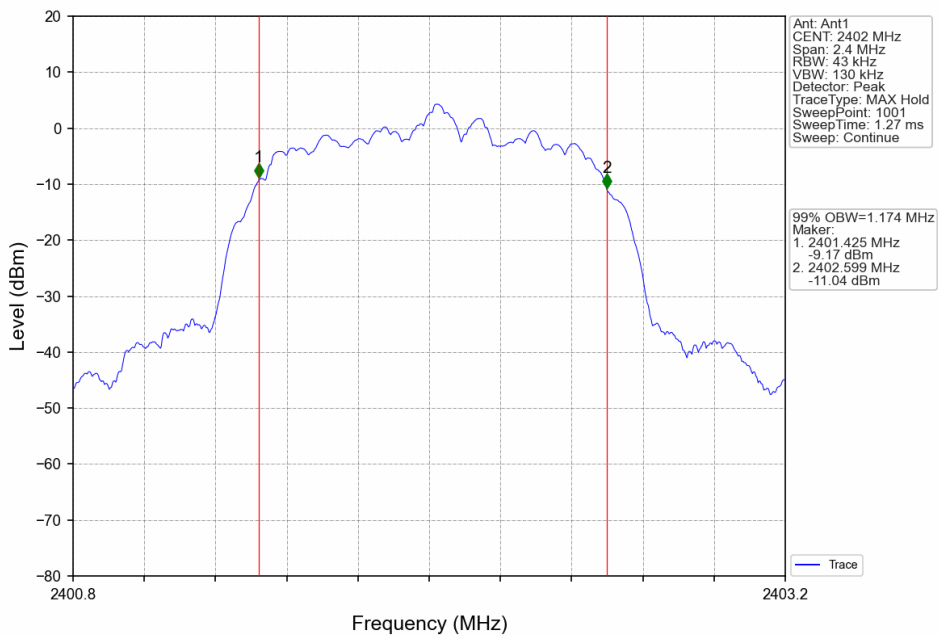
1.1.2 Test Graph



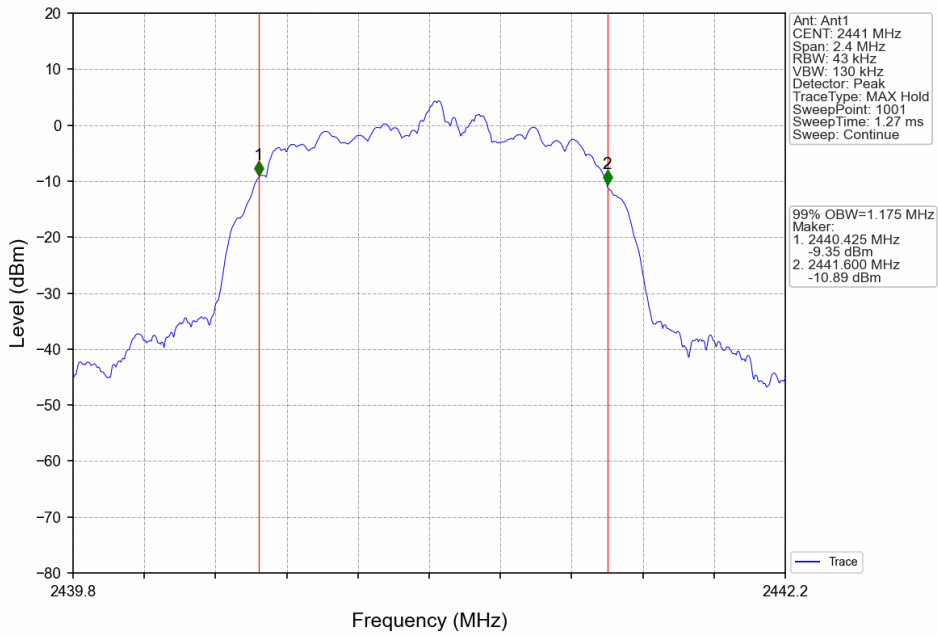
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



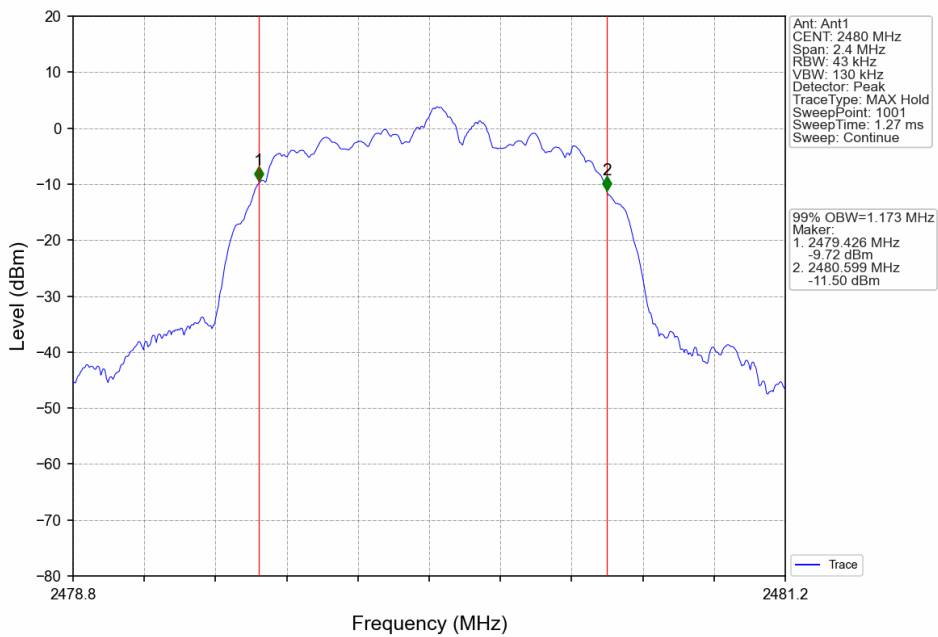
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



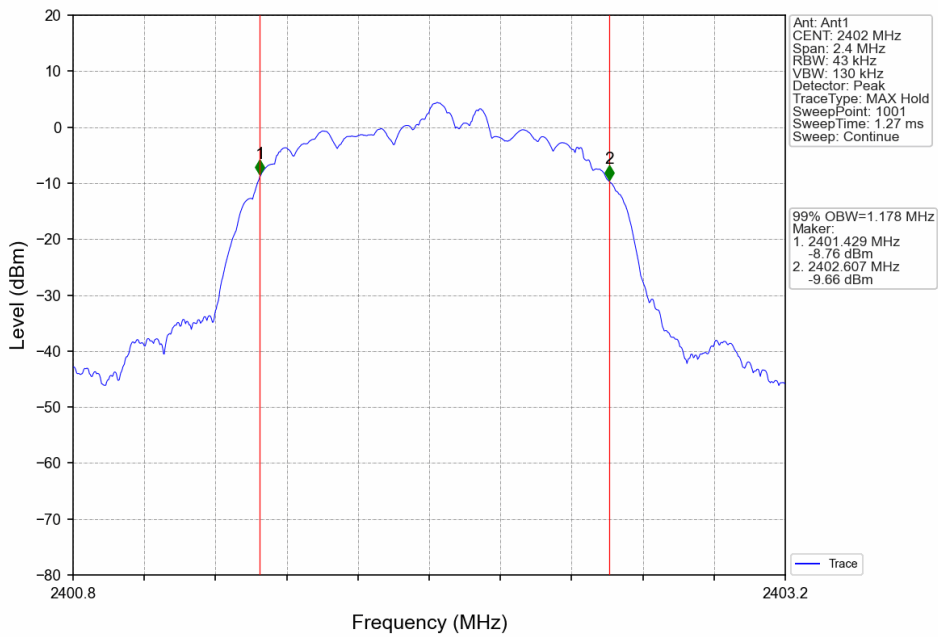
$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



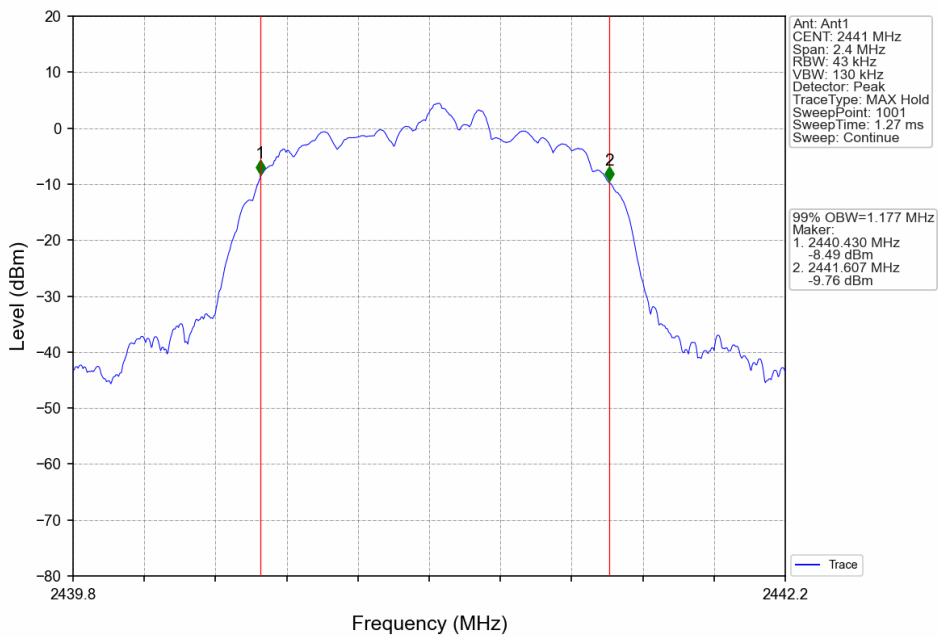
$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

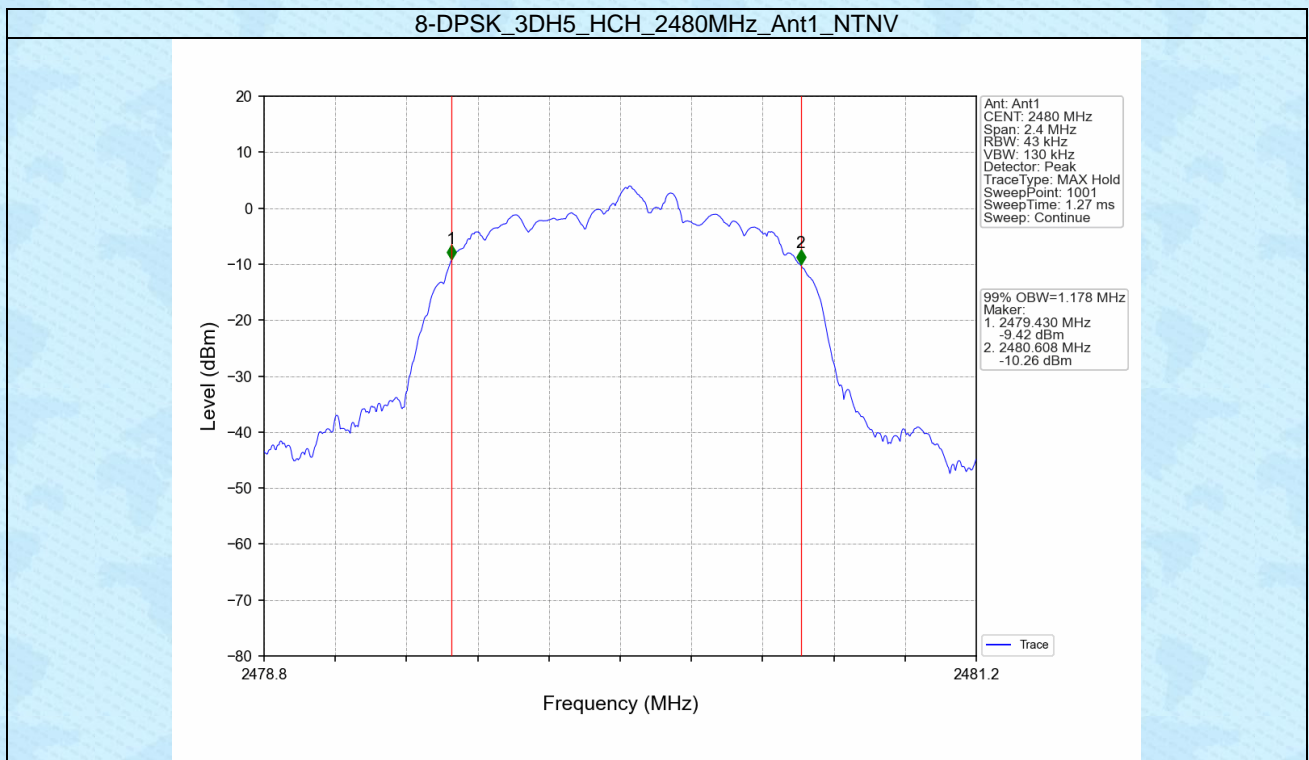


8-DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8-DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



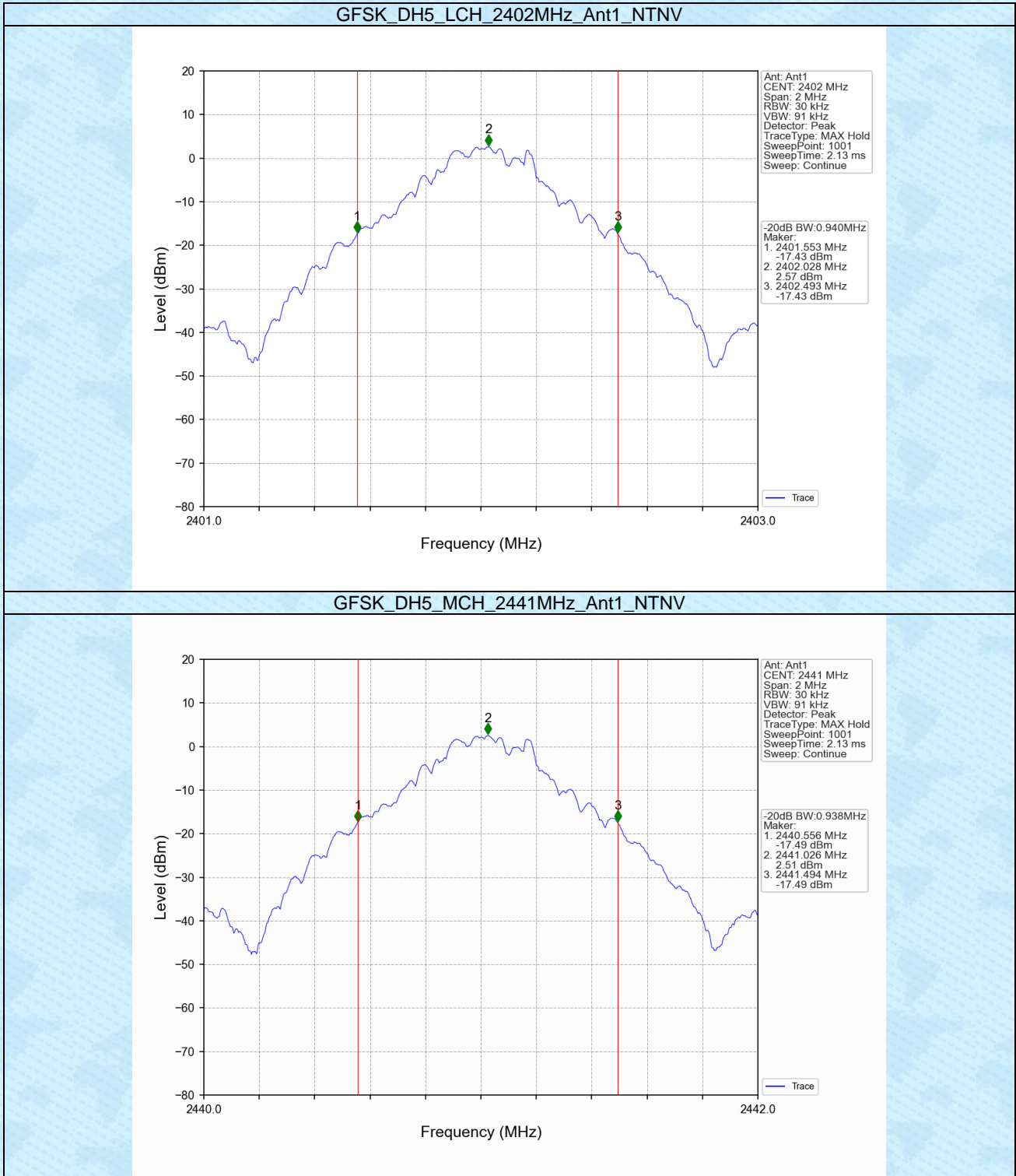


1.2 20dB BW

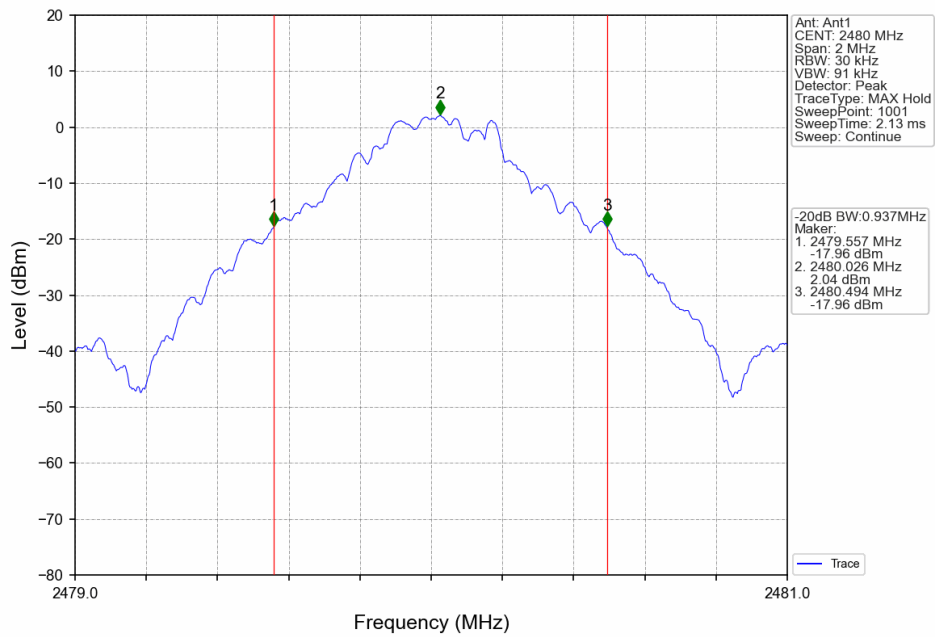
1.2.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.940	Pass
		2441	DH5	1	0.938	Pass
		2480	DH5	1	0.937	Pass
$\pi/4$ -DQPSK	SISO	2402	2DH5	1	1.295	Pass
		2441	2DH5	1	1.293	Pass
		2480	2DH5	1	1.293	Pass
8-DPSK	SISO	2402	3DH5	1	1.307	Pass
		2441	3DH5	1	1.308	Pass
		2480	3DH5	1	1.308	Pass

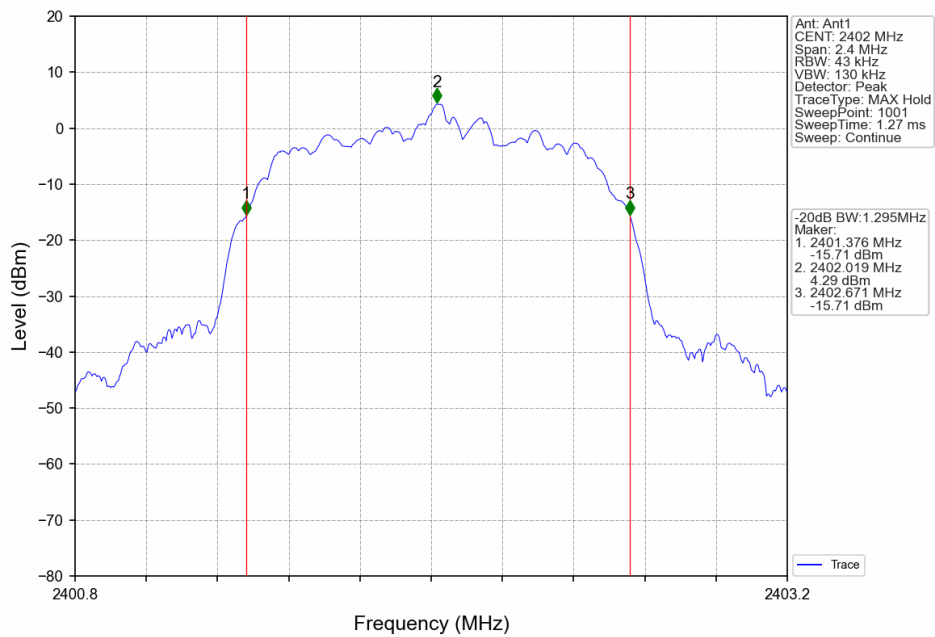
1.2.2 Test Graph



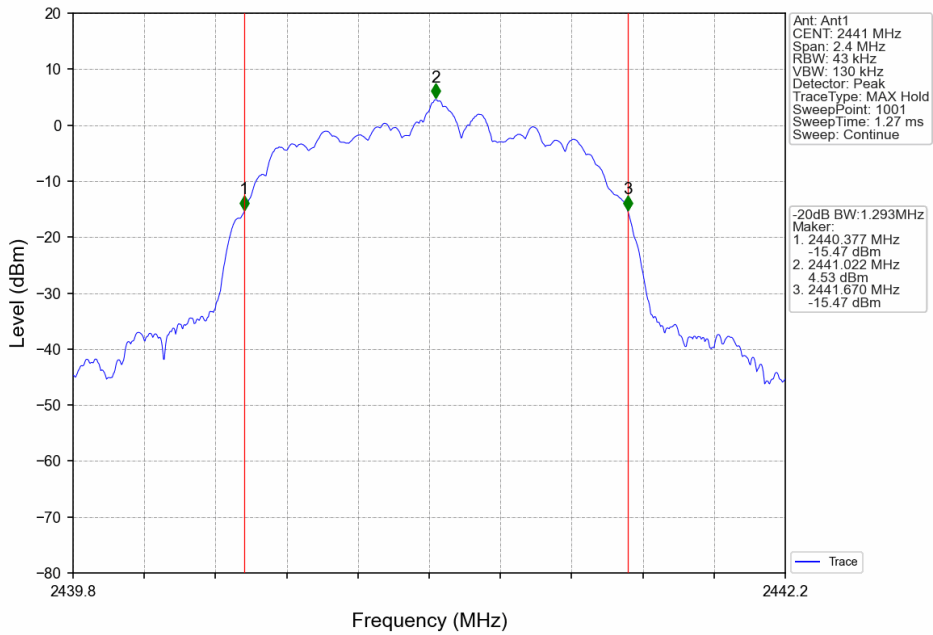
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



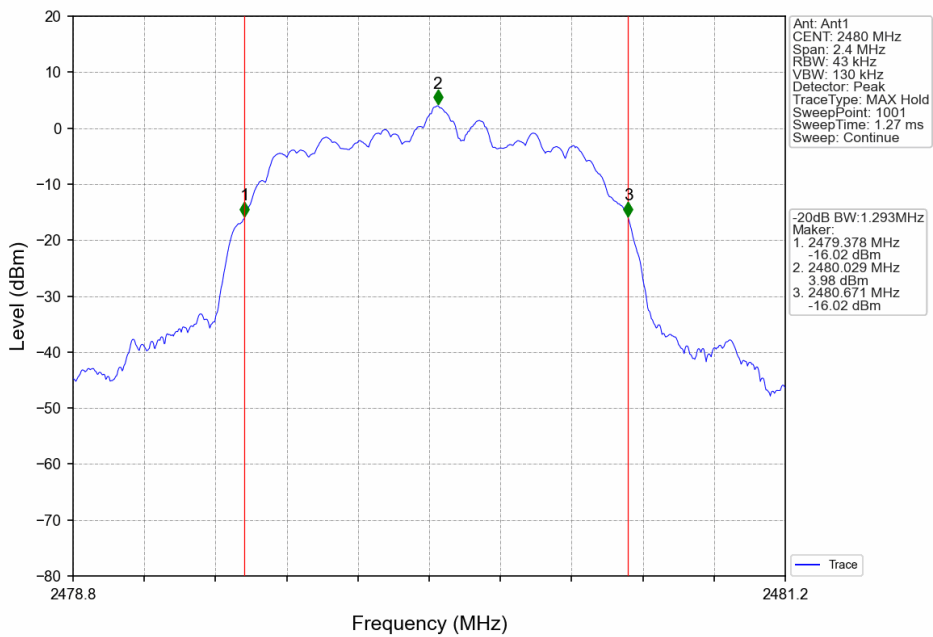
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



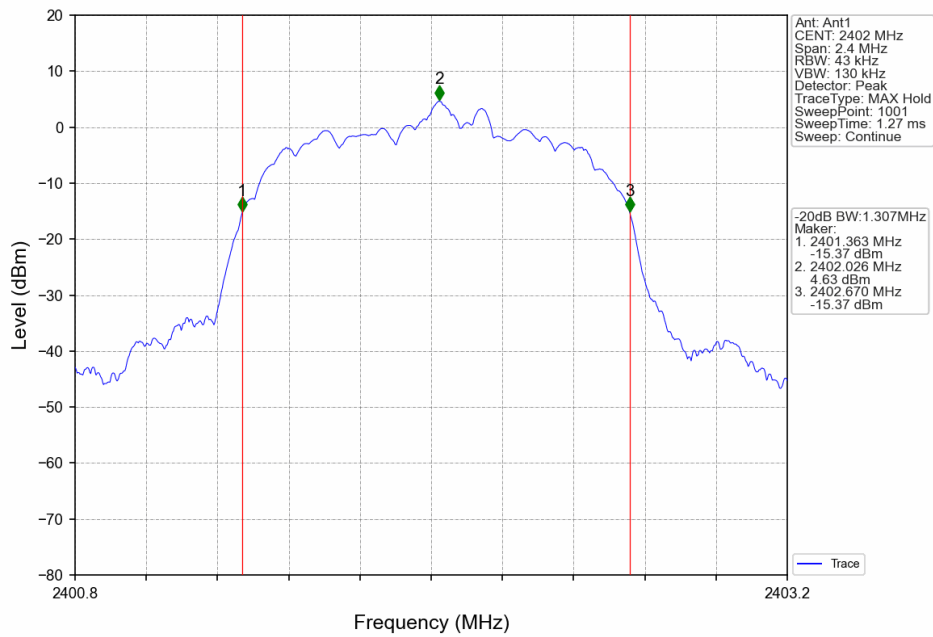
$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



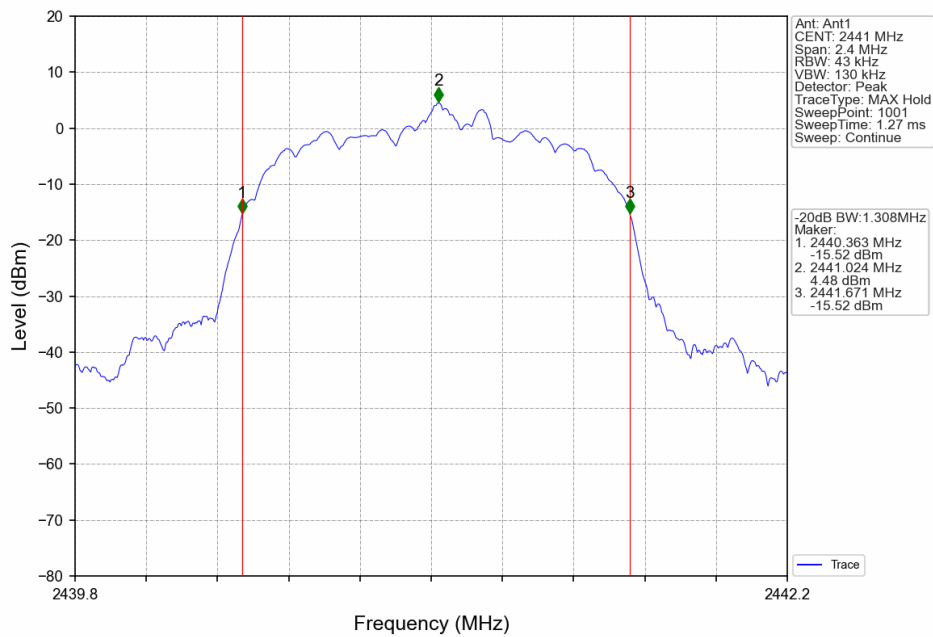
$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

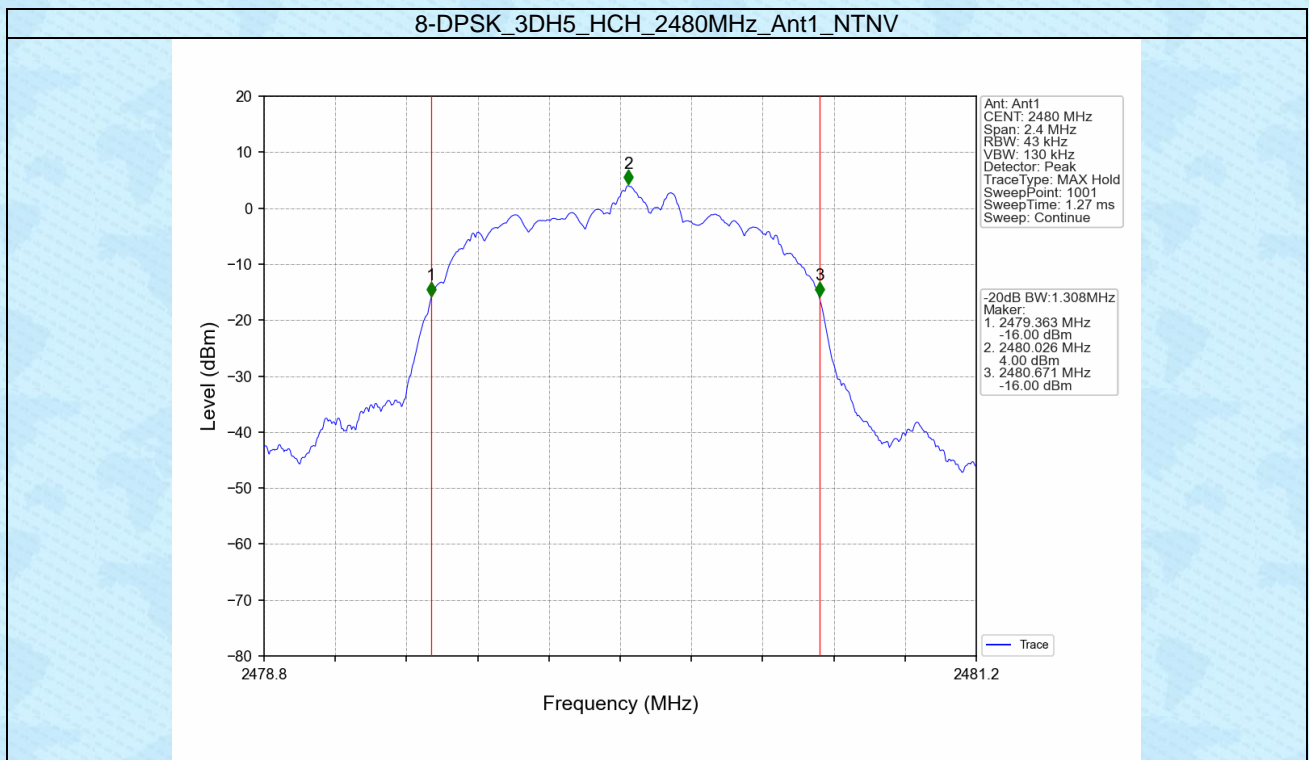


8-DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8-DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



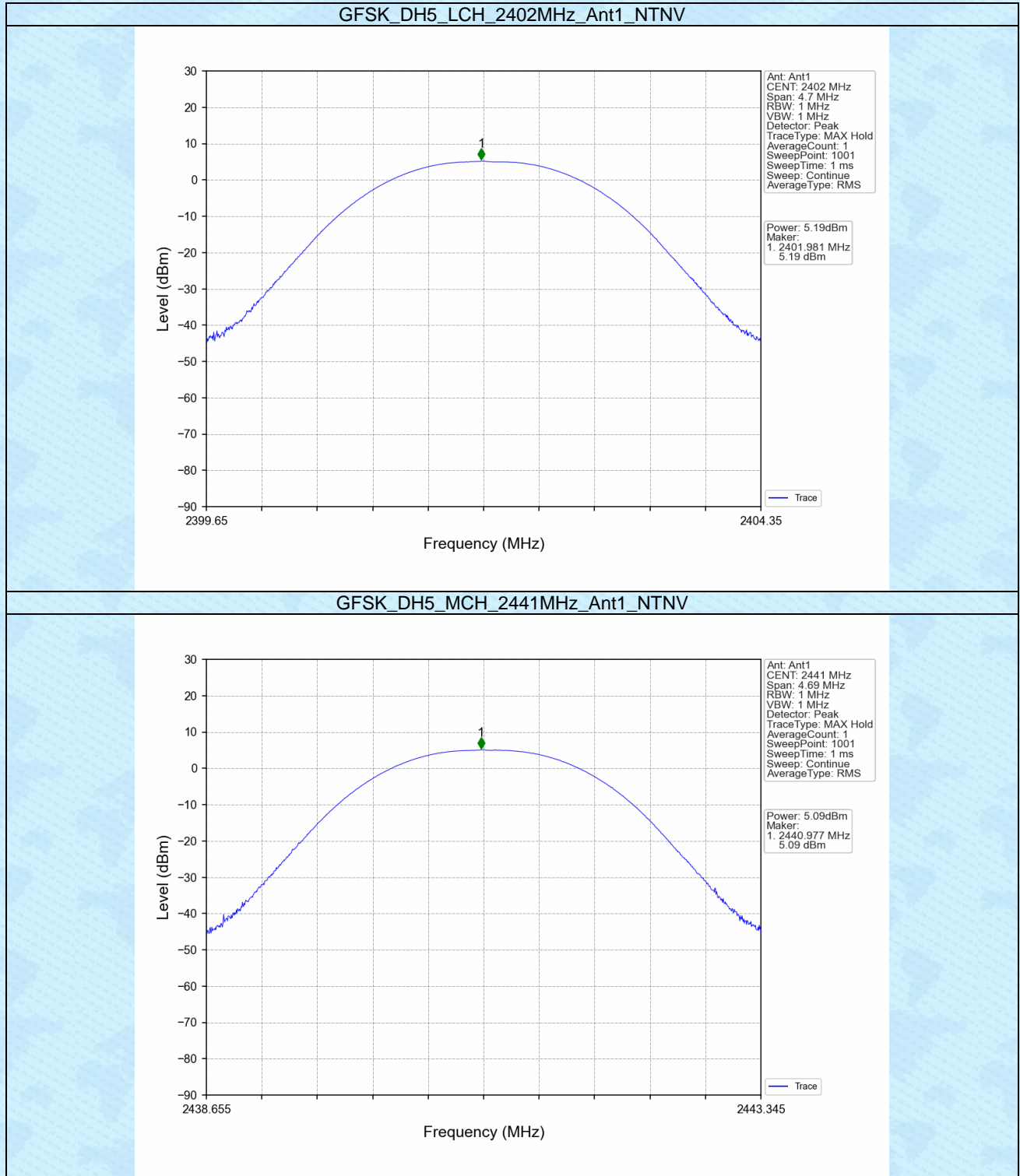


2. Maximum Conducted Output Power

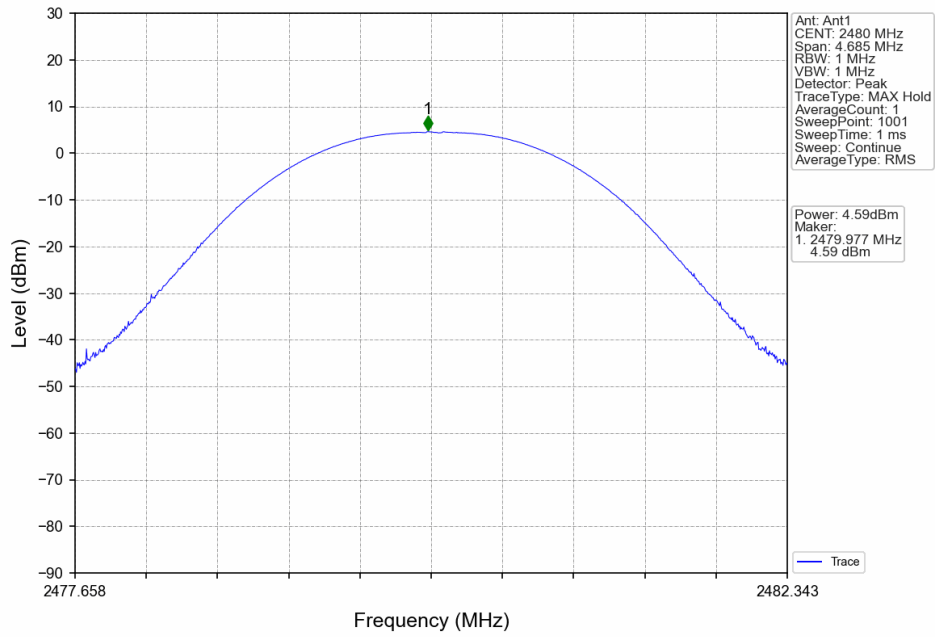
2.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	5.19	<=30	Pass
		2441	DH5	5.09	<=30	Pass
		2480	DH5	4.59	<=30	Pass
$\pi/4$ -DQPSK	SISO	2402	2DH5	7.43	<=20.97	Pass
		2441	2DH5	7.60	<=20.97	Pass
		2480	2DH5	7.02	<=20.97	Pass
8-DPSK	SISO	2402	3DH5	8.04	<=20.97	Pass
		2441	3DH5	8.03	<=20.97	Pass
		2480	3DH5	7.47	<=20.97	Pass

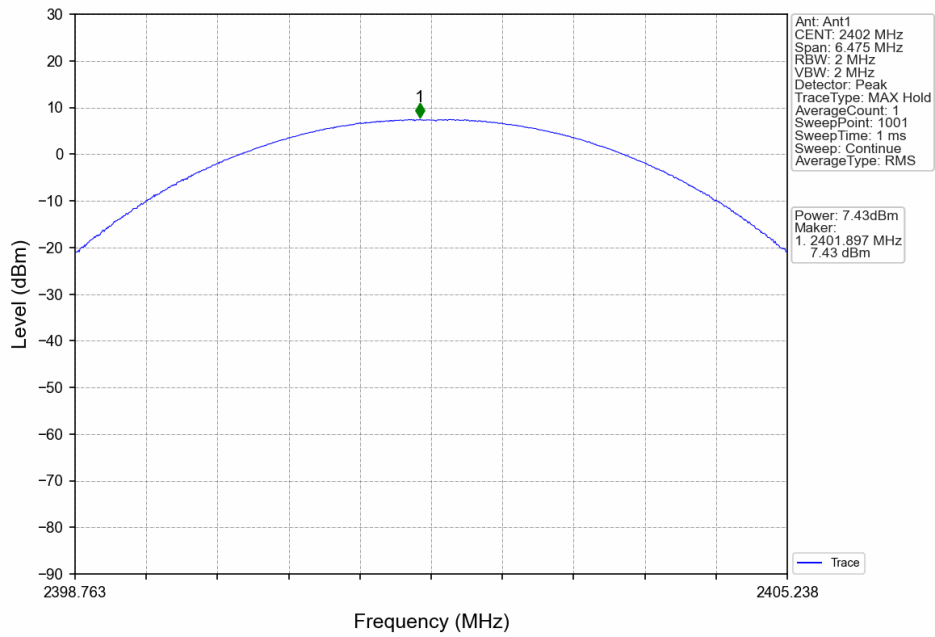
2.2 Test Graph



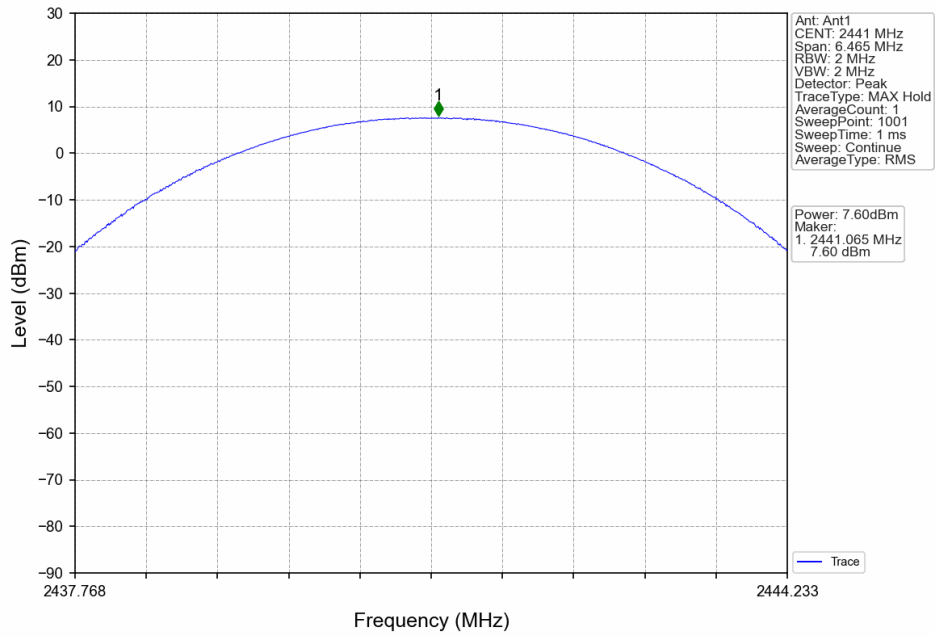
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



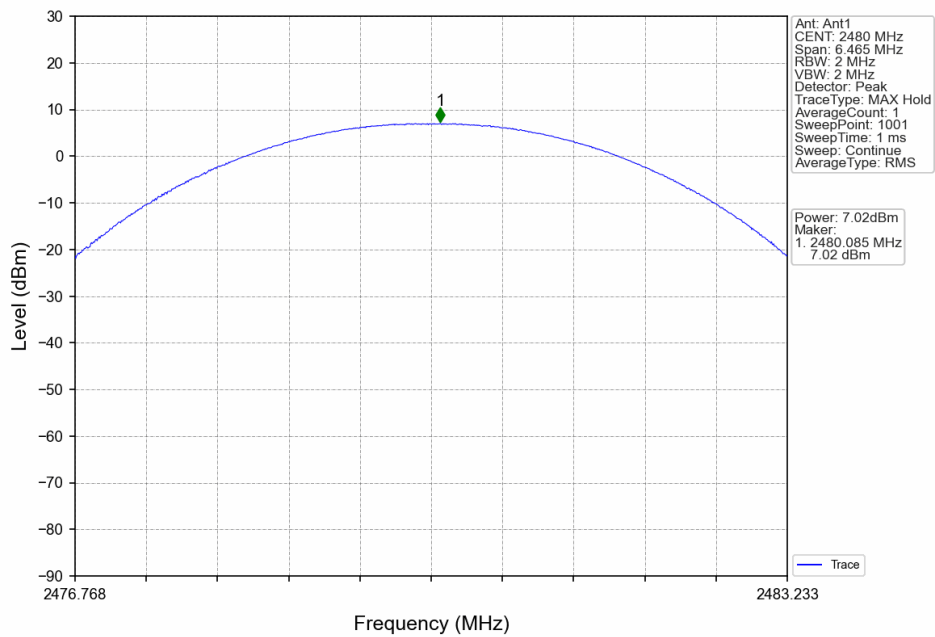
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



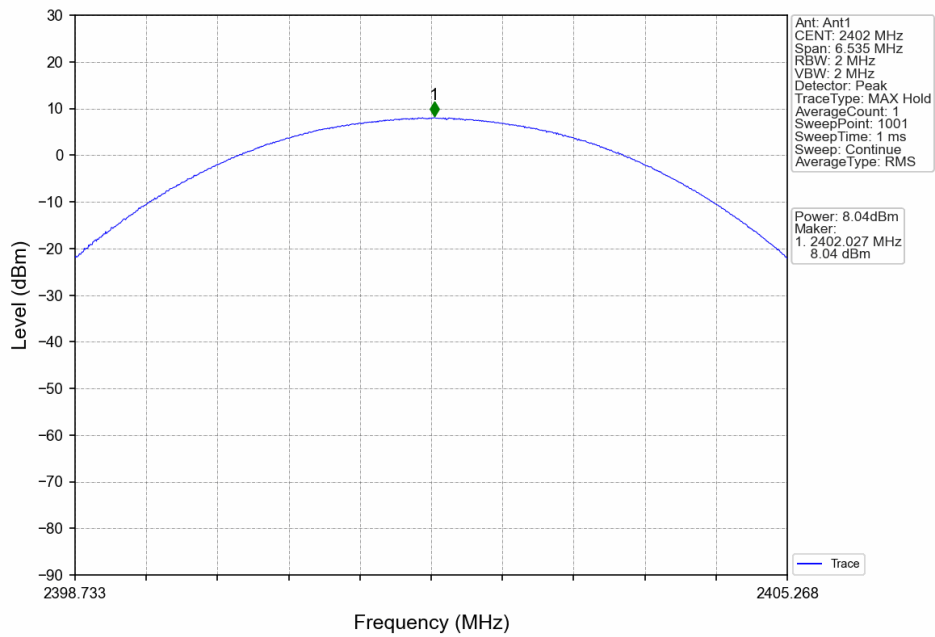
$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



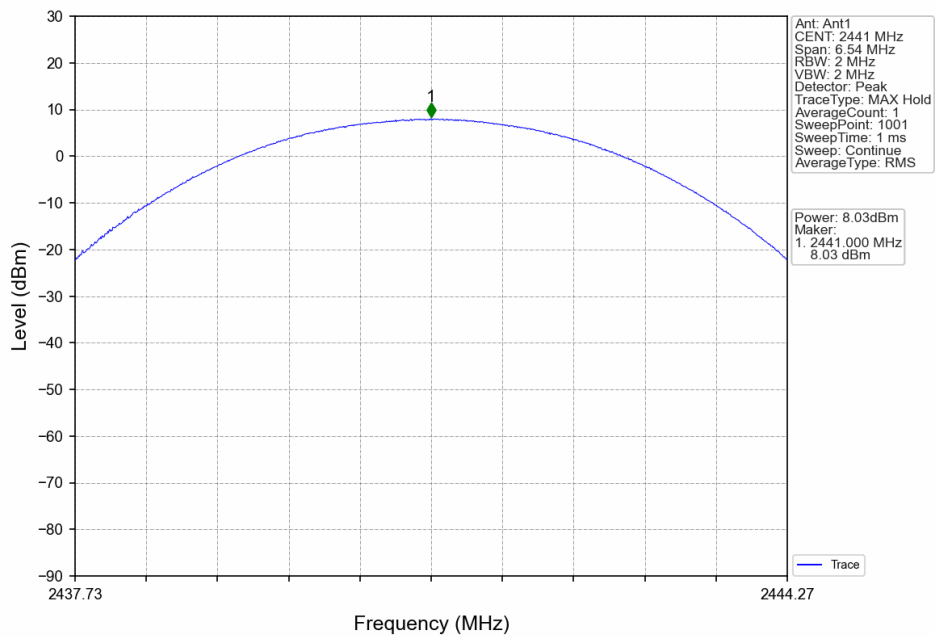
$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

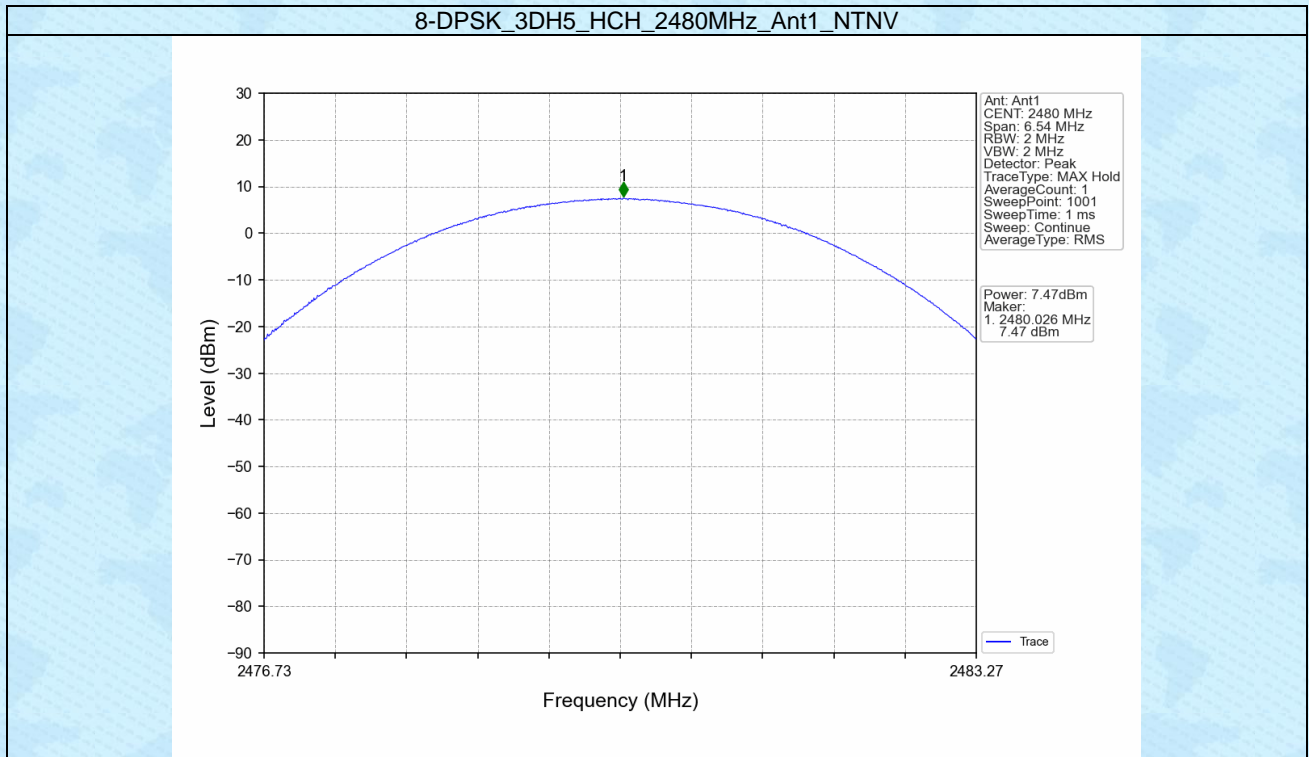


8-DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8-DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



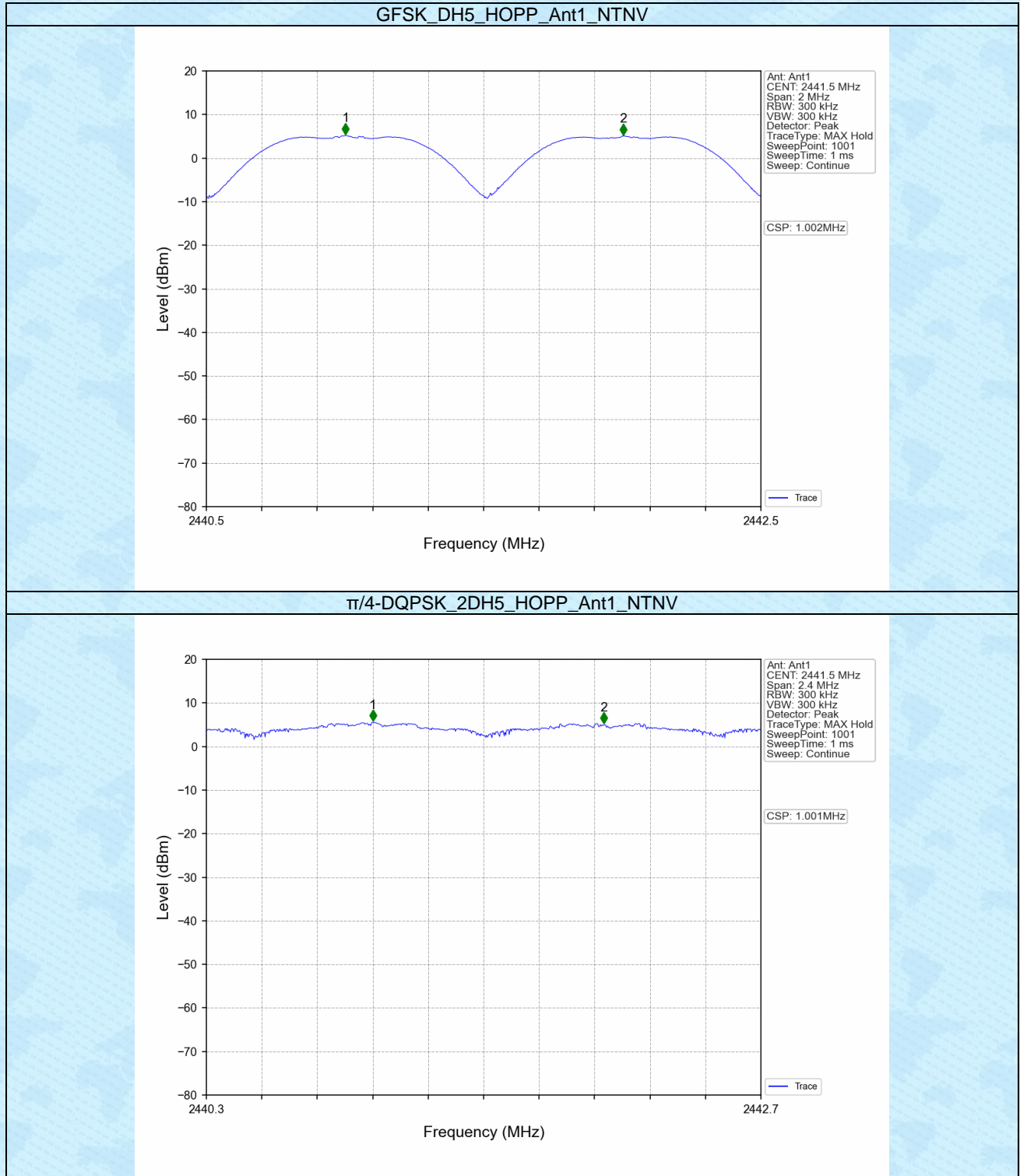


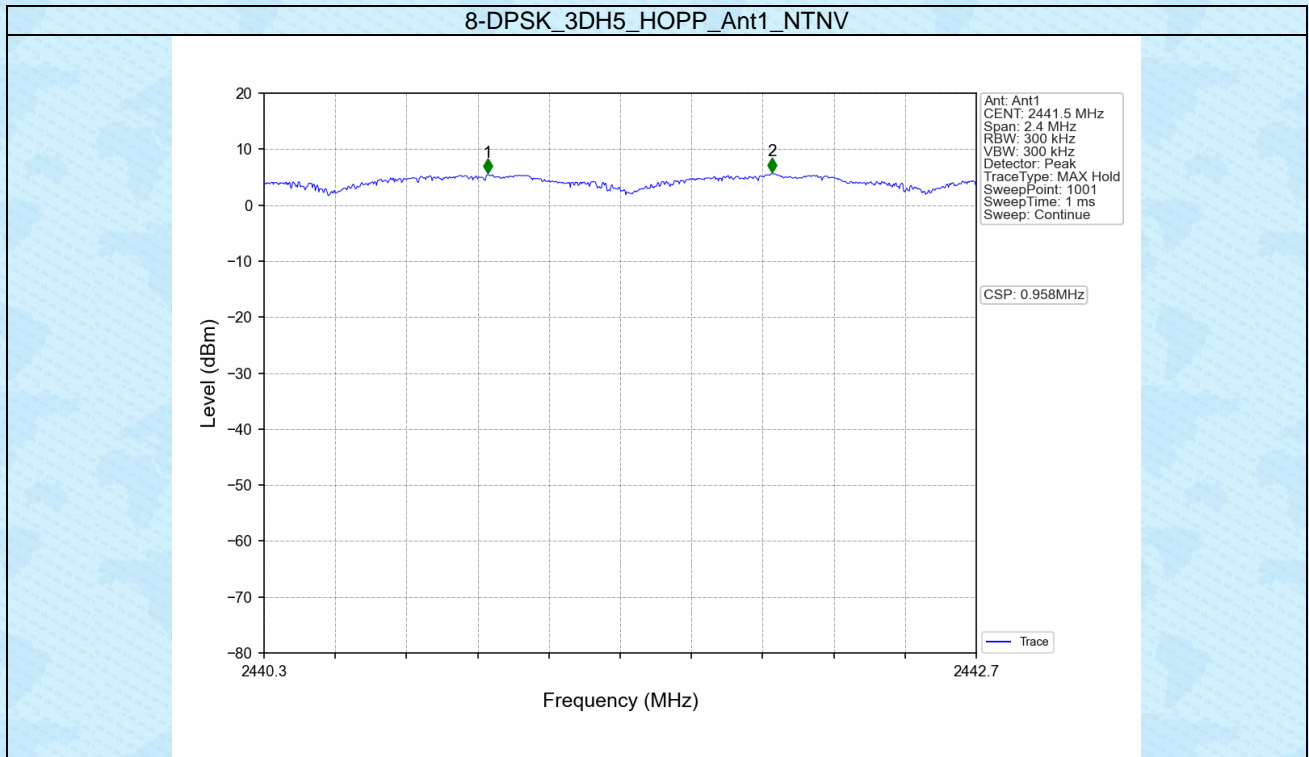
3. Carrier Frequency Separation

3.1 Test Result

Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	1.002	0.940	≥ 0.94	Pass
$\pi/4$ -DQPSK	SISO	HOPP	2DH5	1.001	1.295	≥ 0.863	Pass
8-DPSK	SISO	HOPP	3DH5	0.958	1.308	≥ 0.872	Pass

3.2 Test Graph



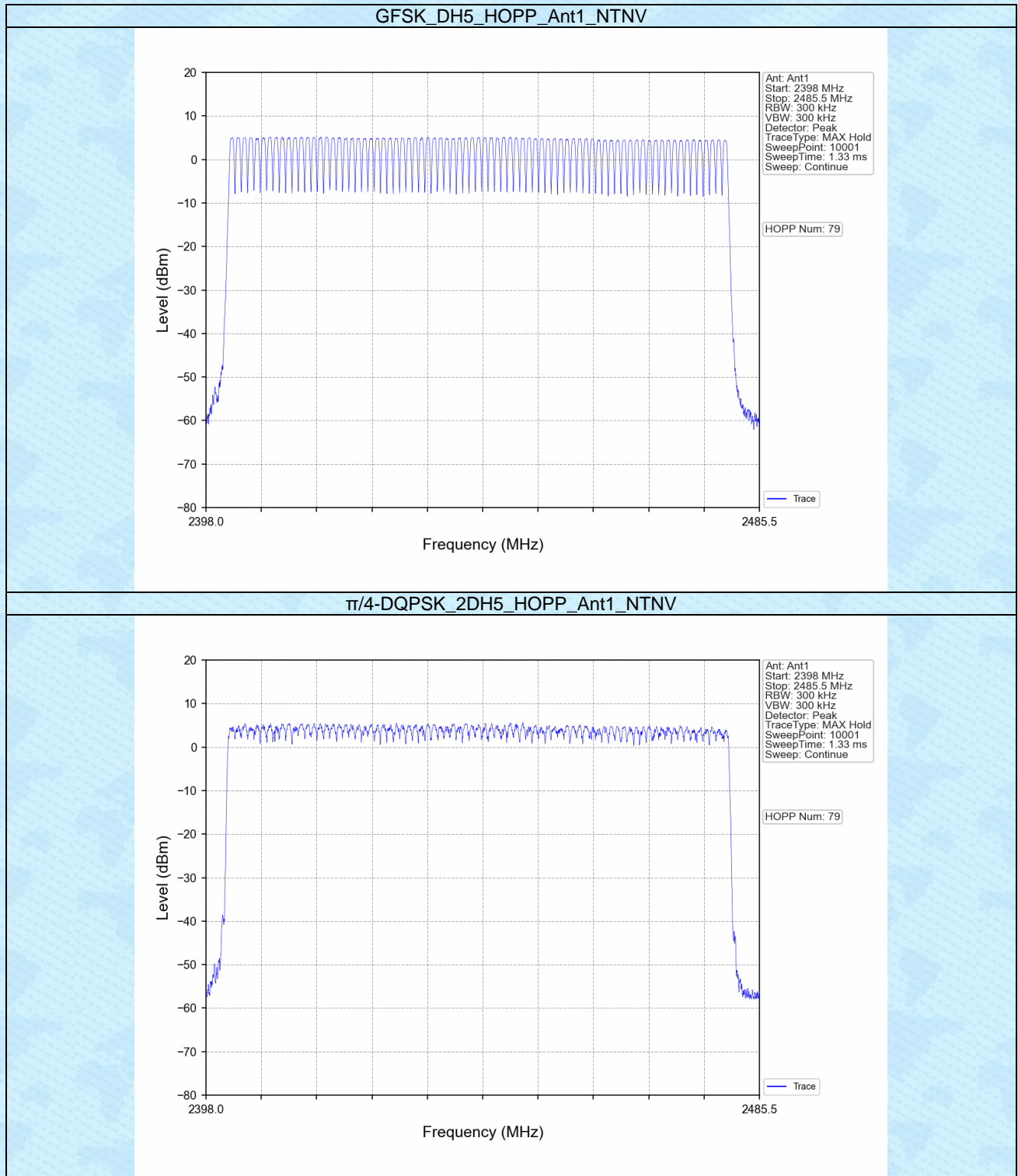


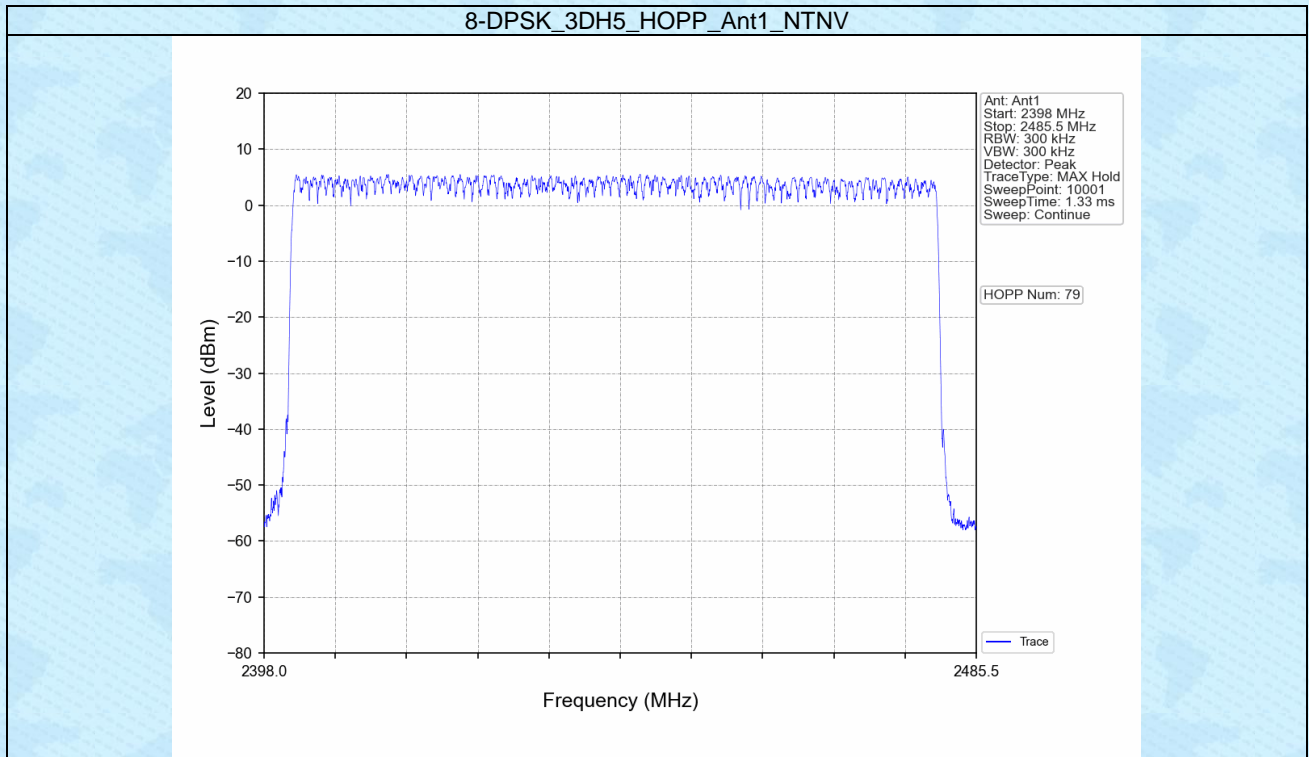
4. Number of Hopping Frequencies

4.1 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
8-DPSK	SISO	HOPP	3DH5	79	>=15	Pass

4.2 Test Graph



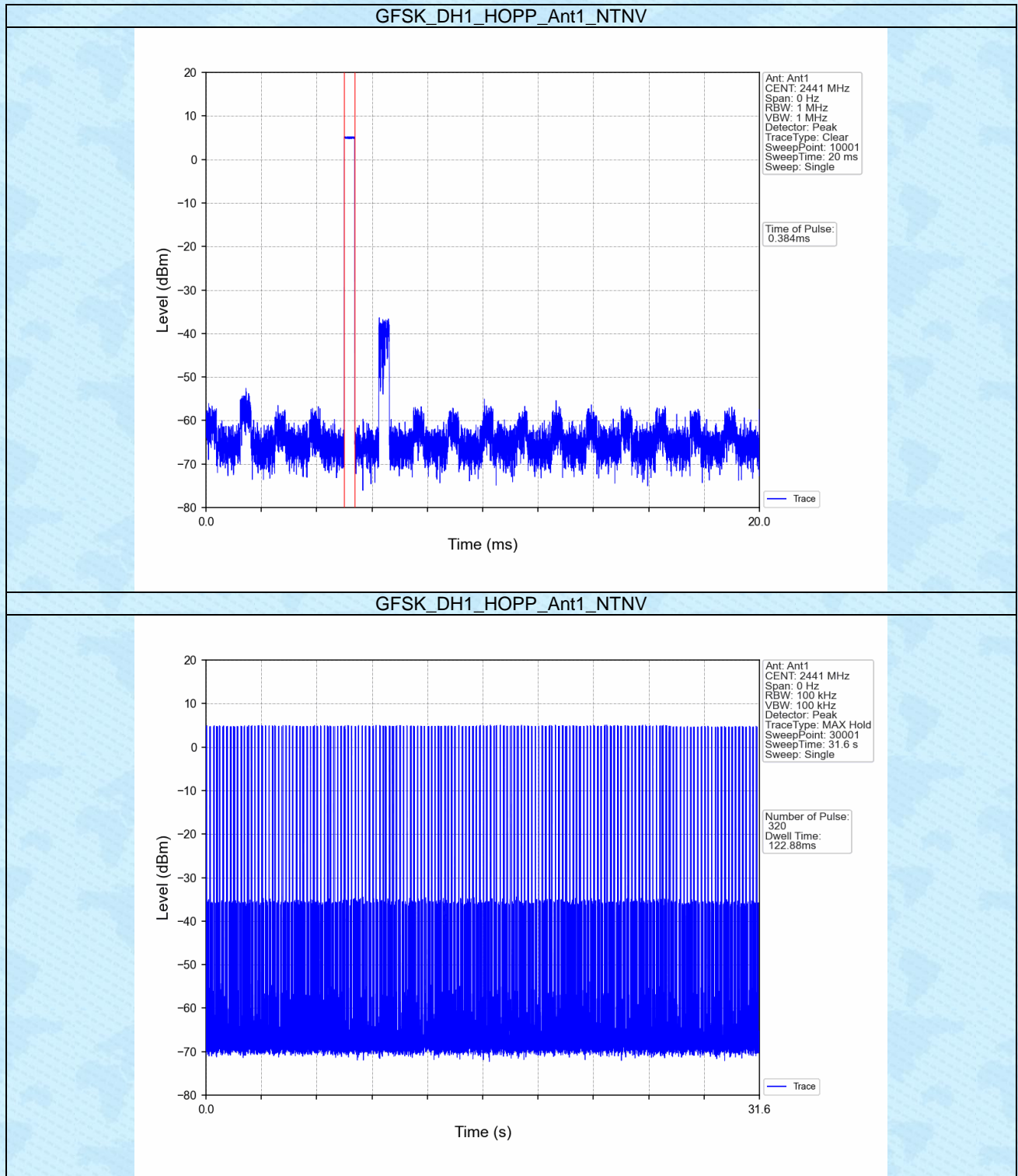


5. Time of Occupancy (Dwell Time)

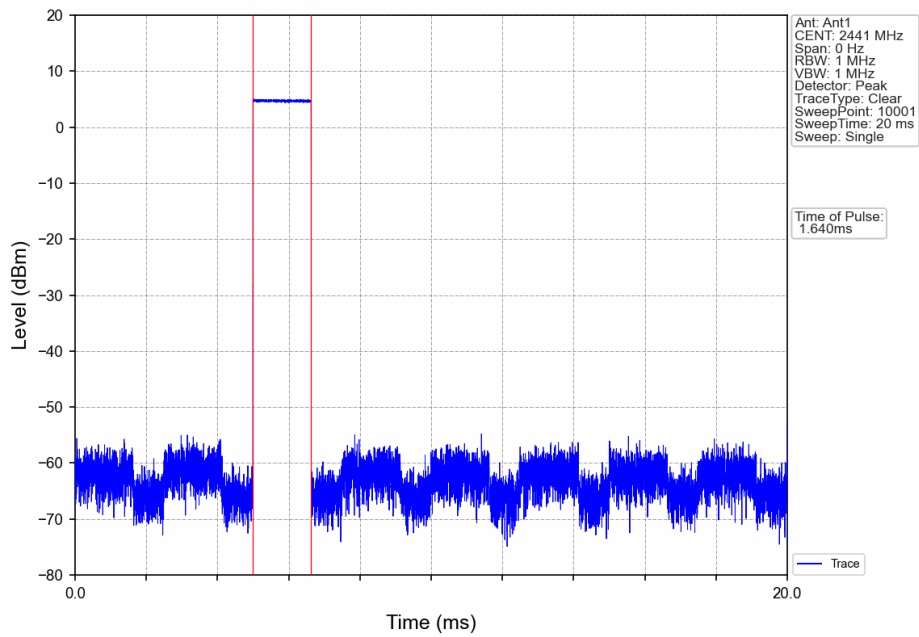
5.1 Test Result

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	0.384	31.600	320	122.880	<=400	Pass
			DH3	1.640	31.600	169	277.160	<=400	Pass
			DH5	2.888	31.600	94	271.472	<=400	Pass
$\pi/4$ -DQPSK	SISO	HOPP	2DH1	0.394	31.600	320	126.080	<=400	Pass
			2DH3	1.650	31.600	148	244.200	<=400	Pass
			2DH5	2.898	31.600	110	318.780	<=400	Pass
8-DPSK	SISO	HOPP	3DH1	0.396	31.600	320	126.720	<=400	Pass
			3DH3	1.646	31.600	163	268.298	<=400	Pass
			3DH5	2.900	31.600	106	307.400	<=400	Pass

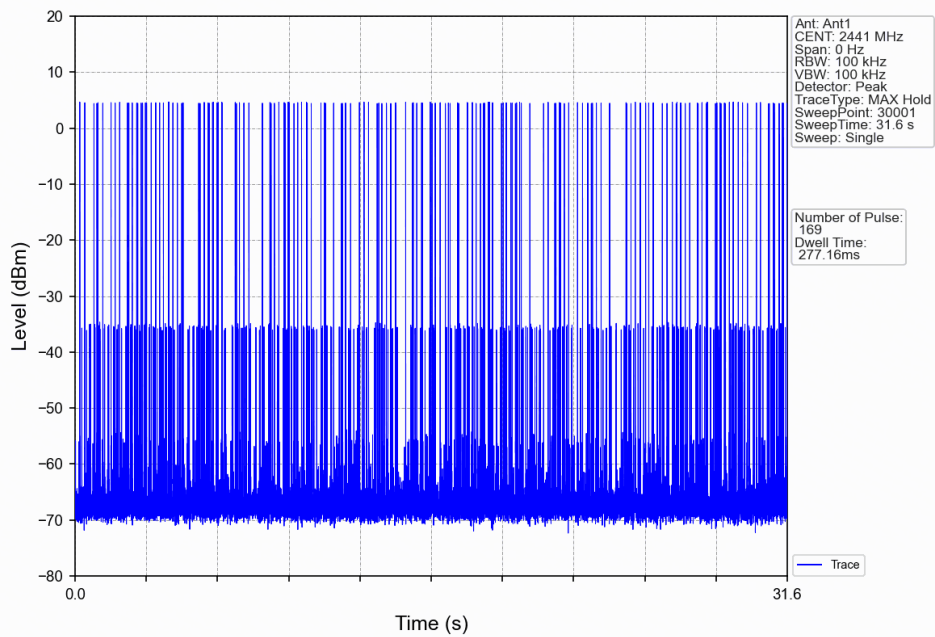
5.2 Test Graph



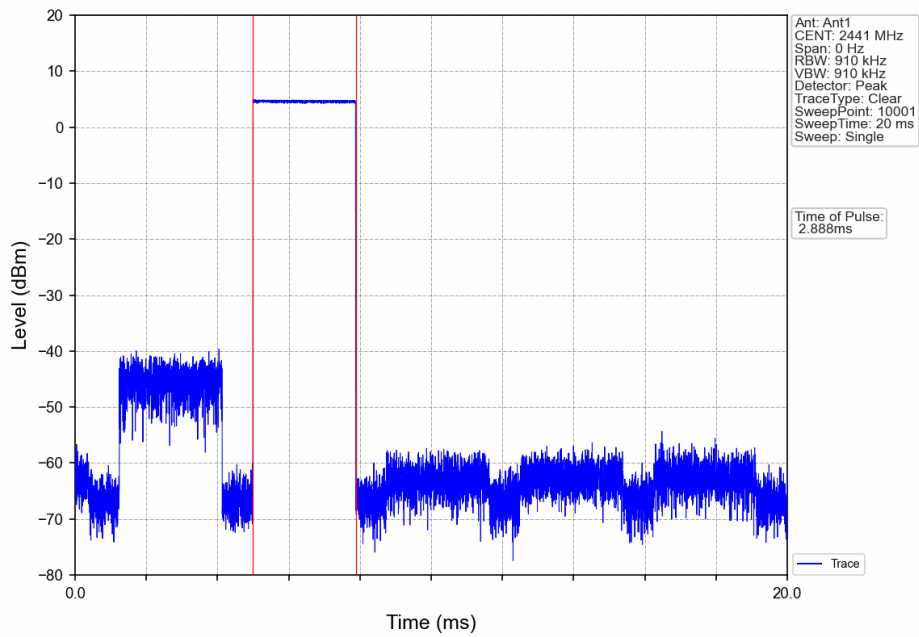
GFSK_DH3_HOPP_Ant1_NTNV



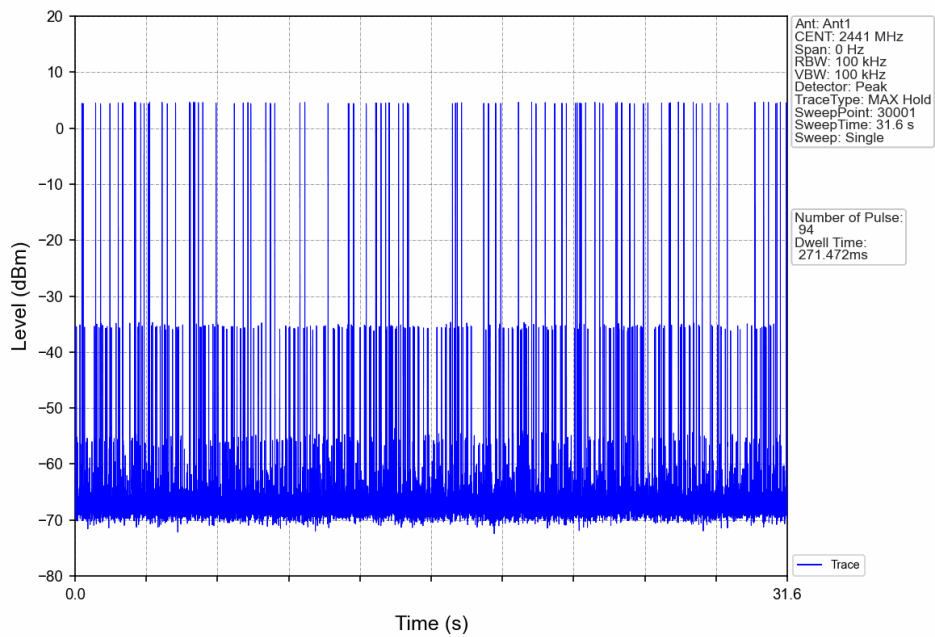
GFSK_DH3_HOPP_Ant1_NTNV



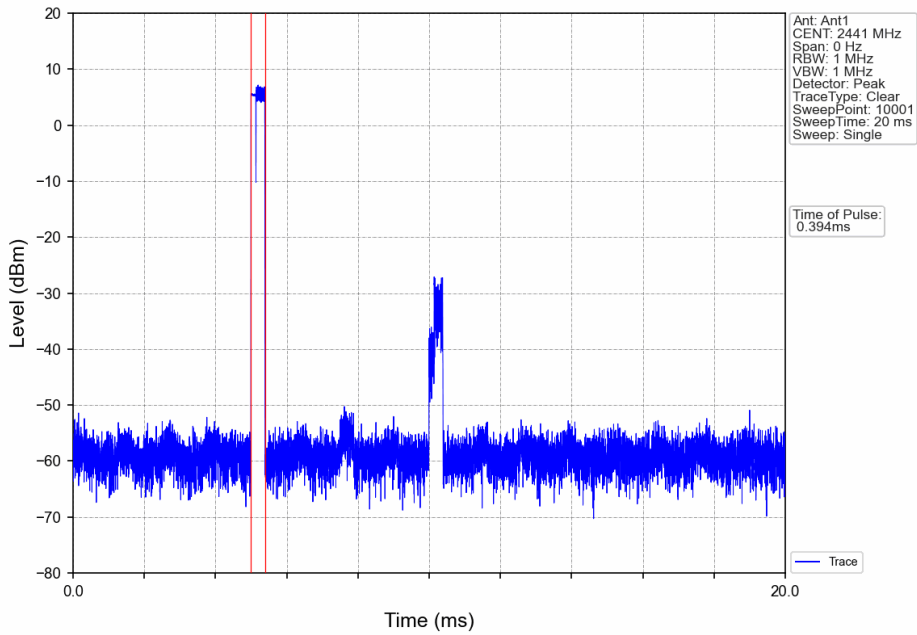
GFSK_DH5_HOPP_Ant1_NTNV



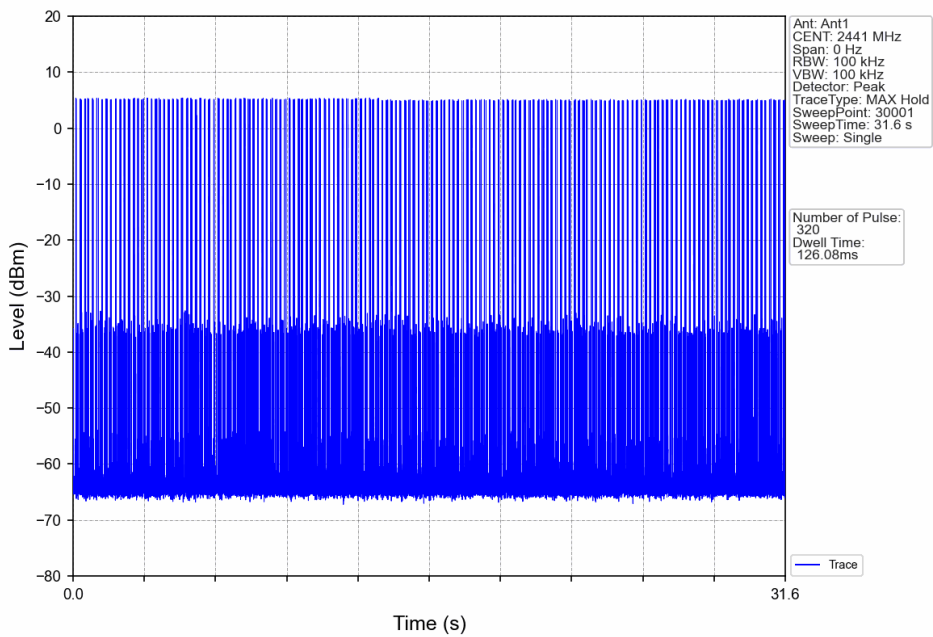
GFSK_DH5_HOPP_Ant1_NTNV



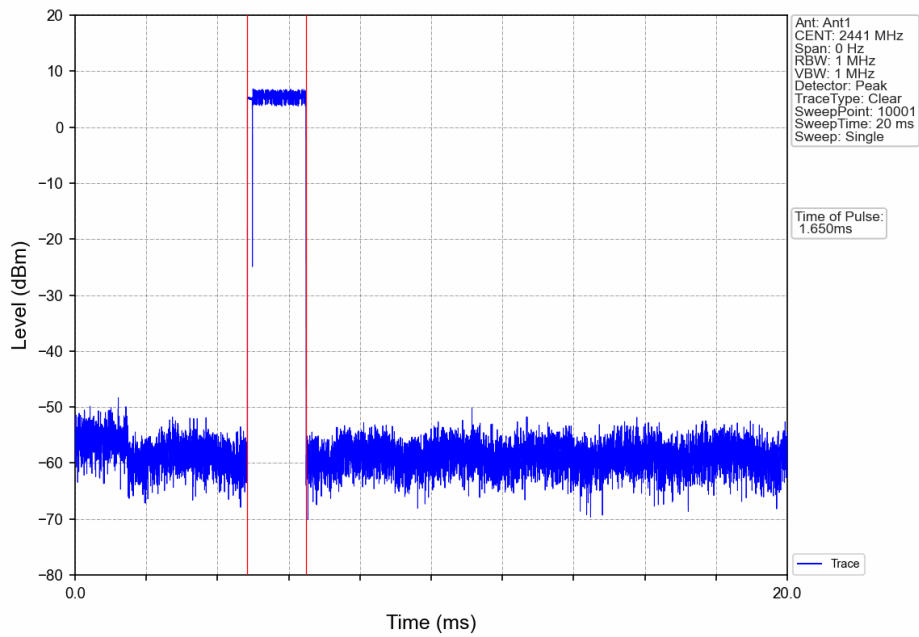
$\pi/4$ -DQPSK_2DH1_HOPP_Ant1_NTNV



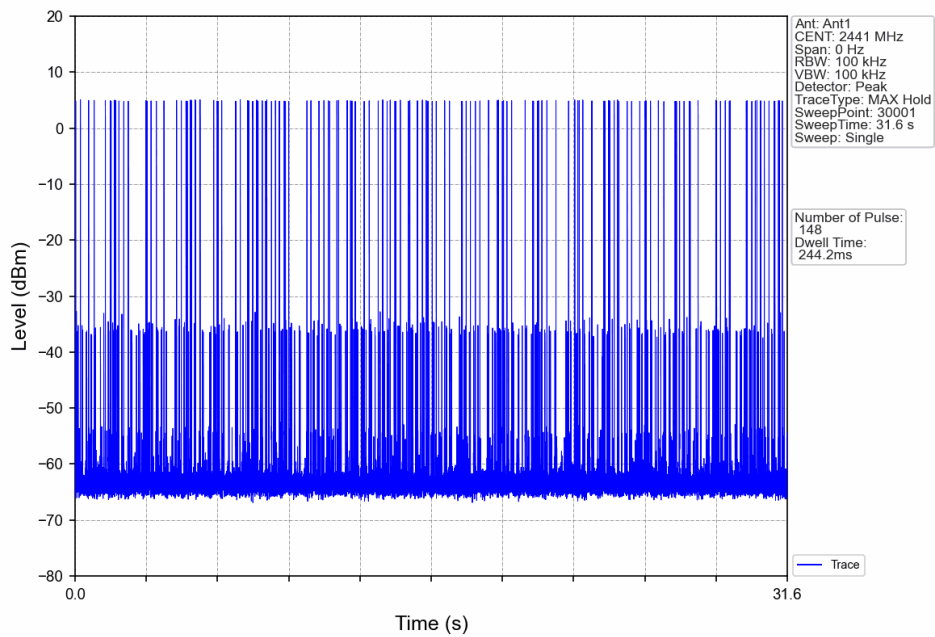
$\pi/4$ -DQPSK_2DH1_HOPP_Ant1_NTNV



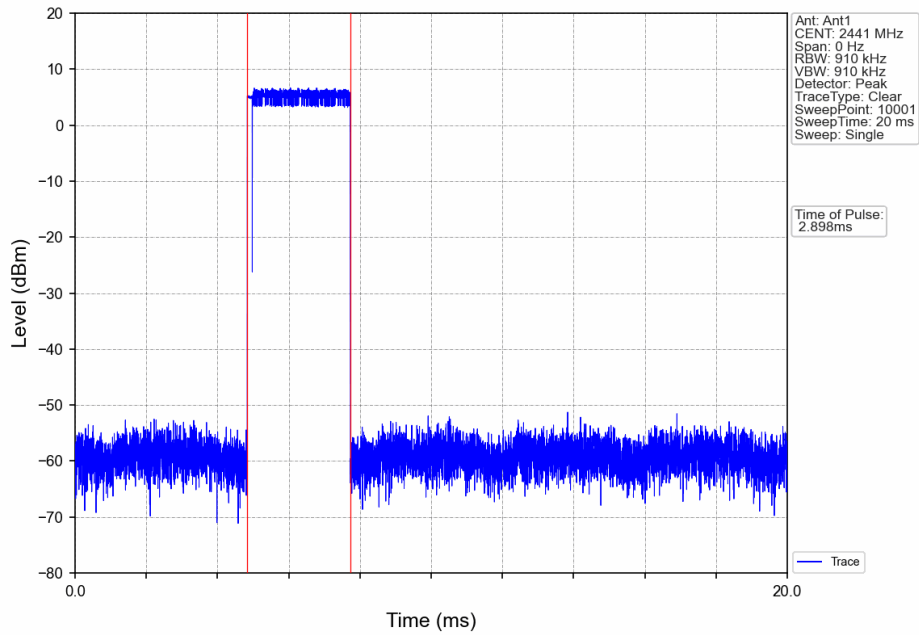
$\pi/4$ -DQPSK_2DH3_HOPP_Ant1_NTNV



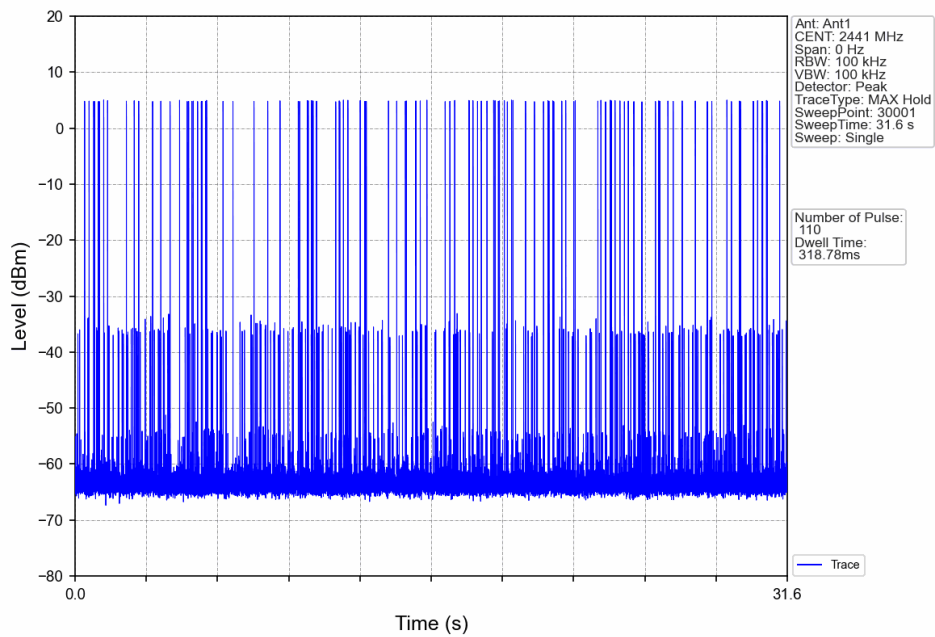
$\pi/4$ -DQPSK_2DH3_HOPP_Ant1_NTNV



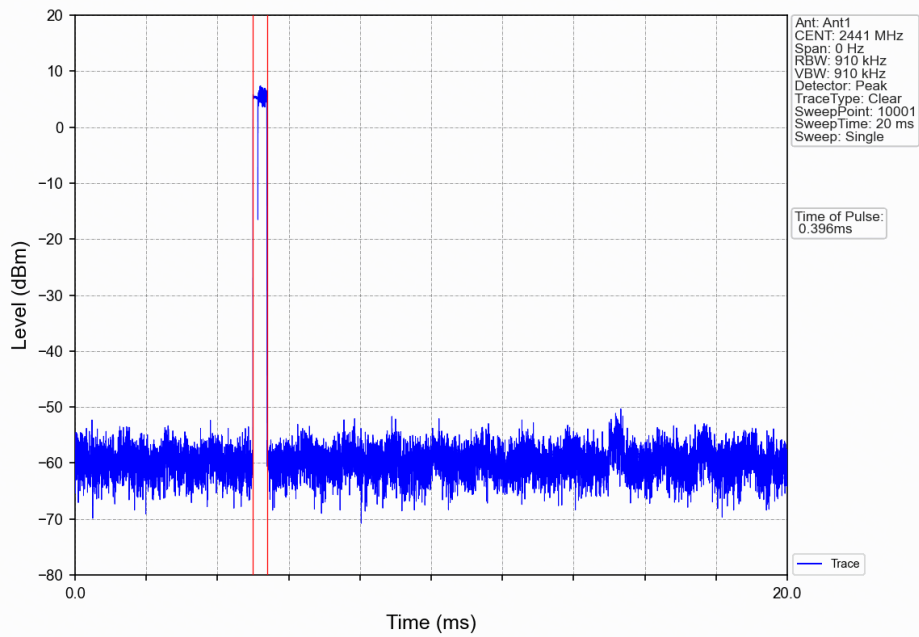
$\pi/4$ -DQPSK_2DH5_HOPP_Ant1_NTNV



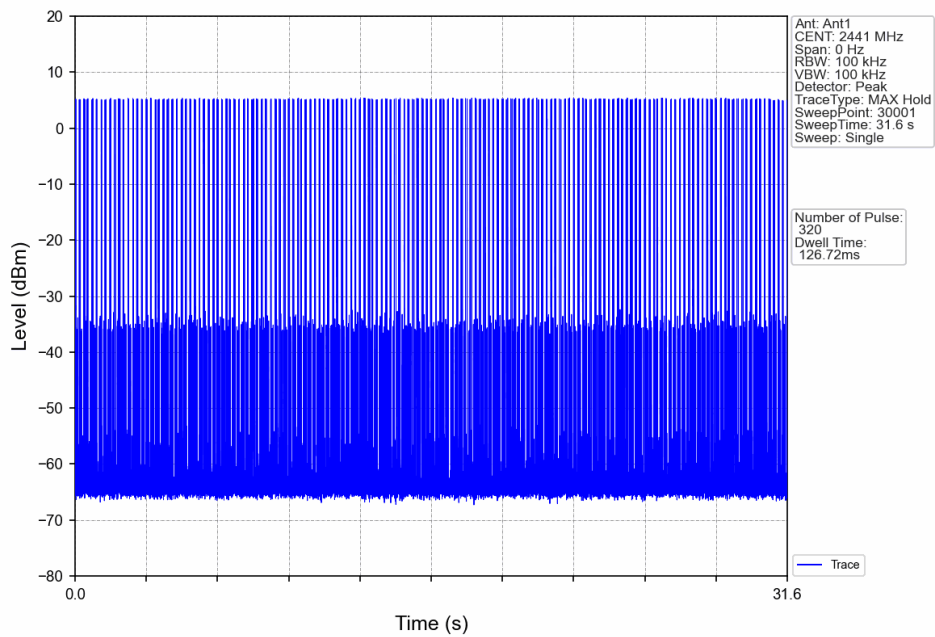
$\pi/4$ -DQPSK_2DH5_HOPP_Ant1_NTNV



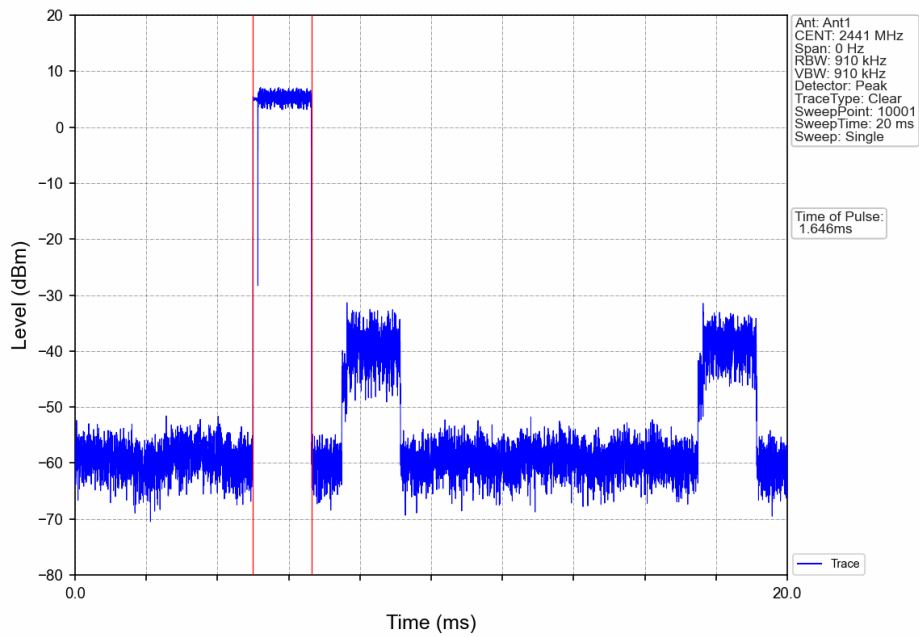
8-DPSK_3DH1_HOPP_Ant1_NTNV



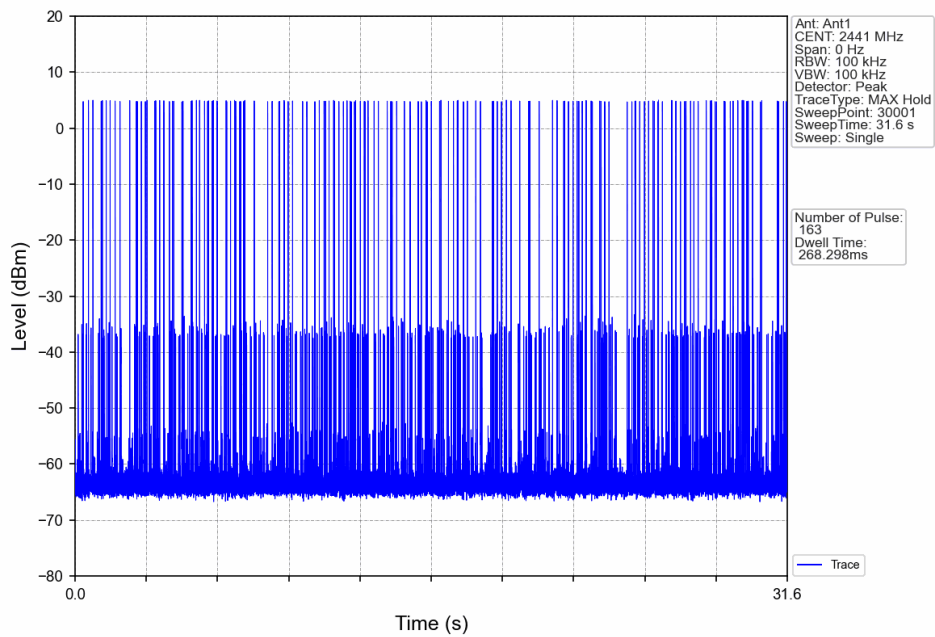
8-DPSK_3DH1_HOPP_Ant1_NTNV



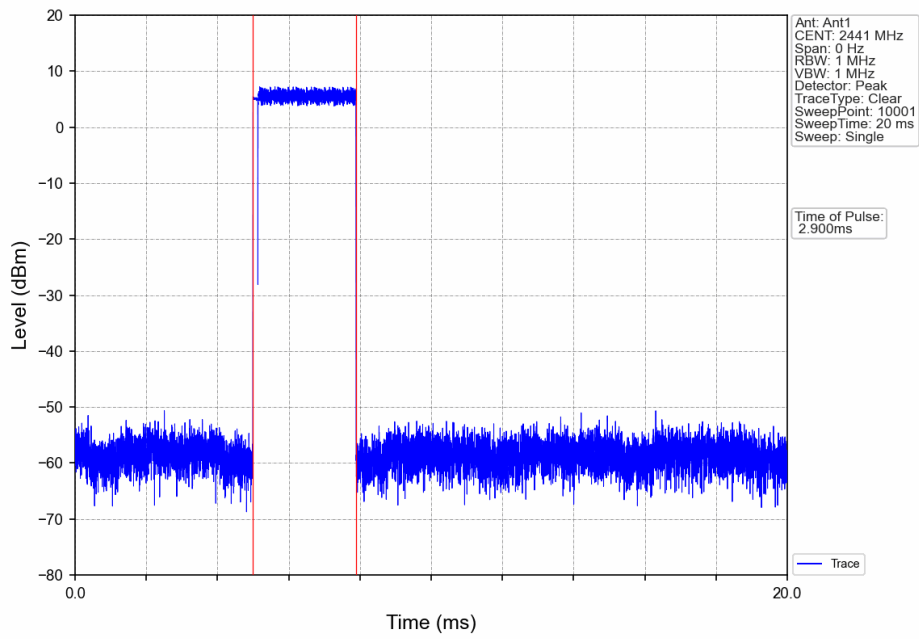
8-DPSK_3DH3_HOPP_Ant1_NTNV



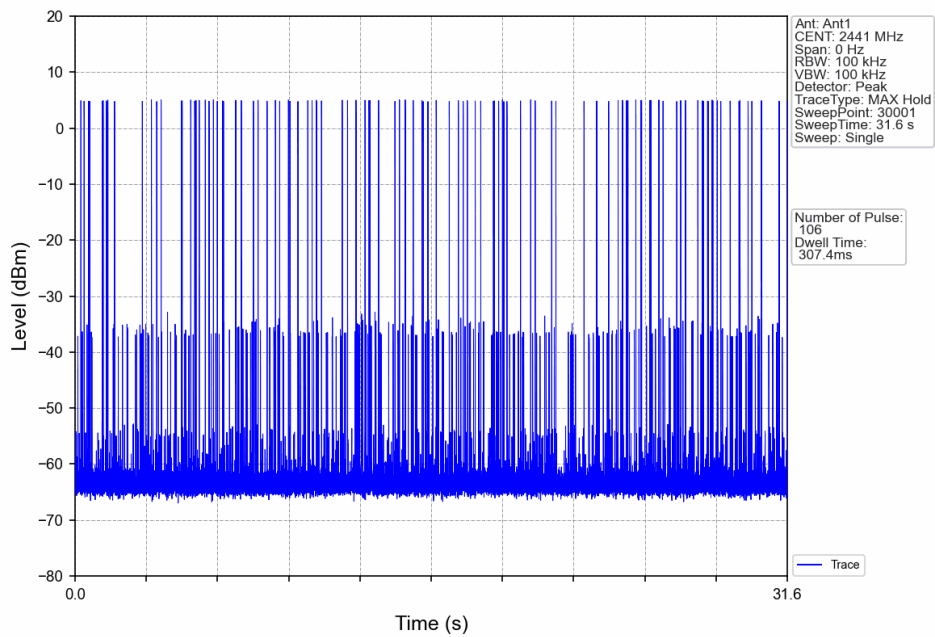
8-DPSK_3DH3_HOPP_Ant1_NTNV



8-DPSK_3DH5_HOPP_Ant1_NTNV



8-DPSK_3DH5_HOPP_Ant1_NTNV



6. Unwanted Emissions In Non-restricted Frequency Bands

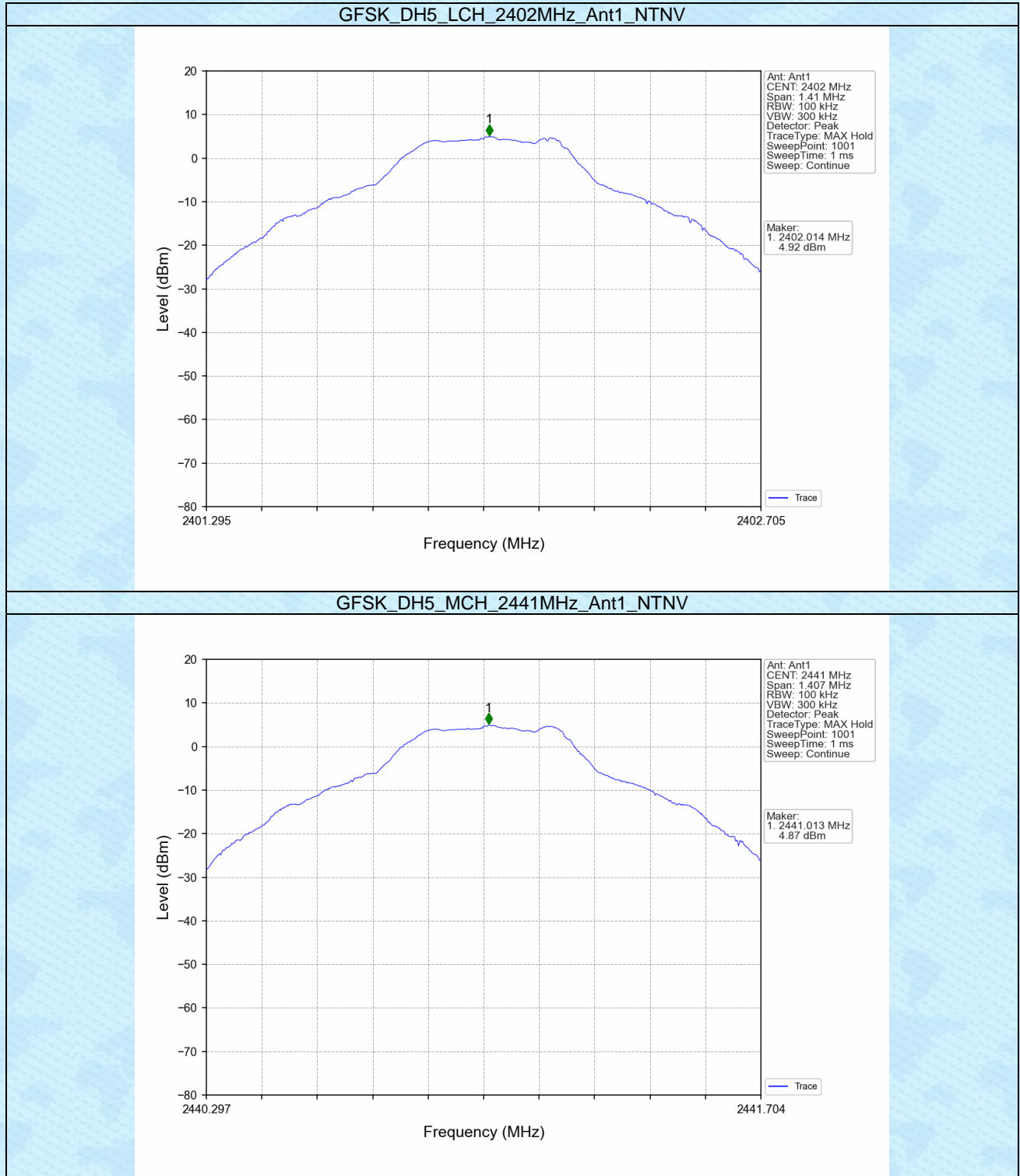
6.1 Ref

6.1.1 Test Result

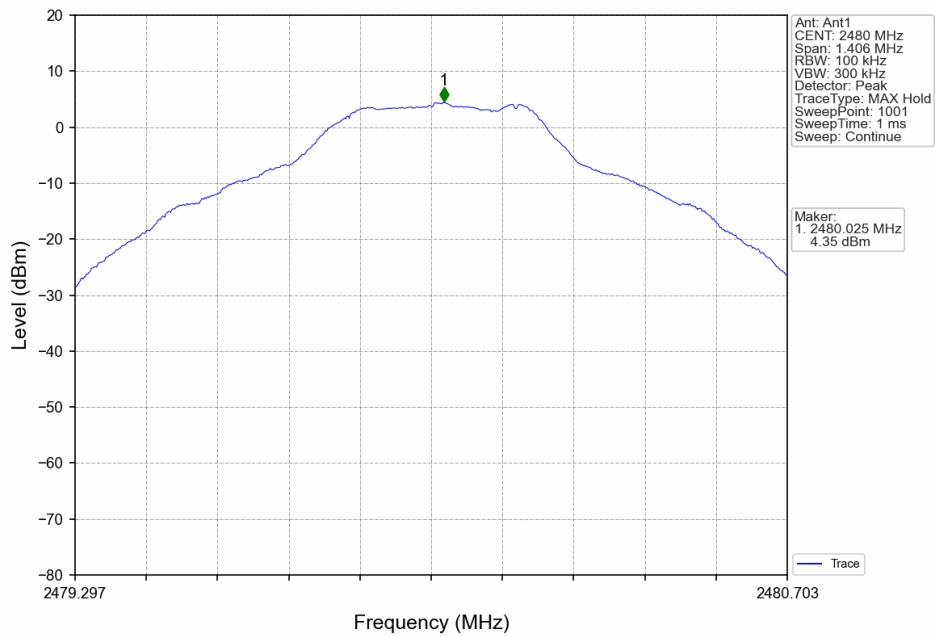
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	4.92
		2441	DH5	1	4.87
		2480	DH5	1	4.35
$\pi/4$ -DQPSK	SISO	2402	2DH5	1	5.06
		2441	2DH5	1	5.09
		2480	2DH5	1	4.68
8-DPSK	SISO	2402	3DH5	1	5.28
		2441	3DH5	1	5.16
		2480	3DH5	1	4.53

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.

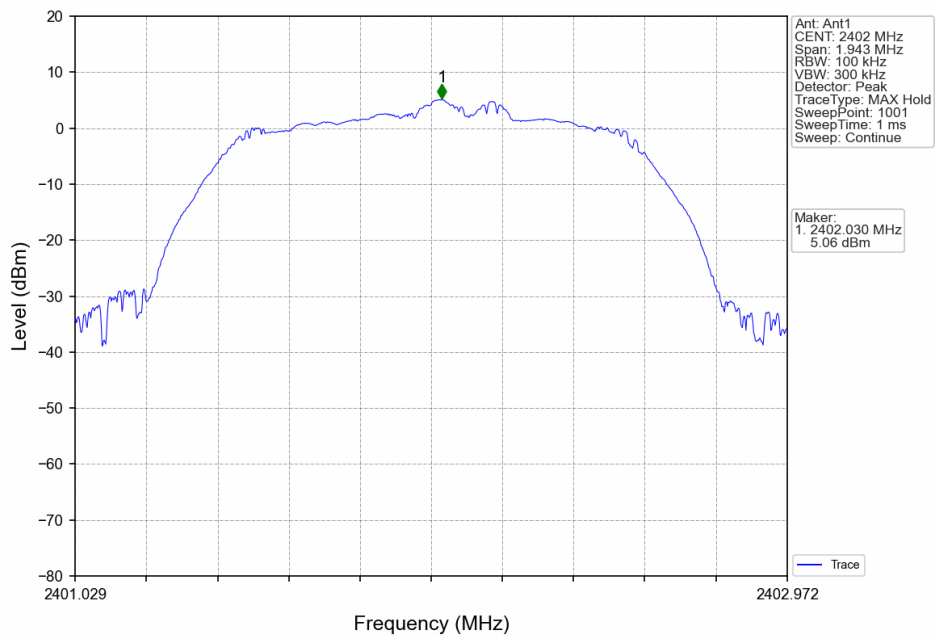
6.1.2 Test Graph



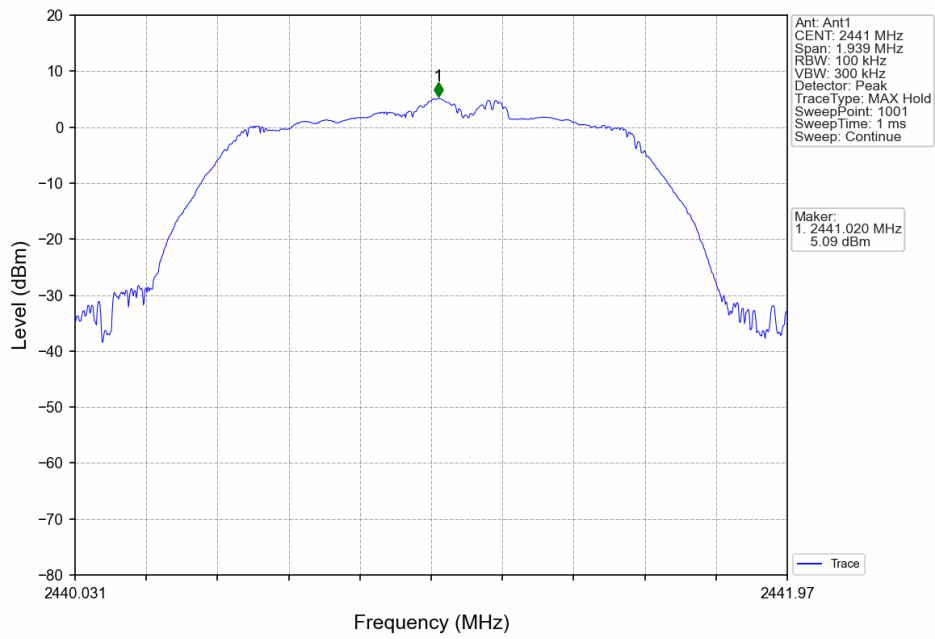
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



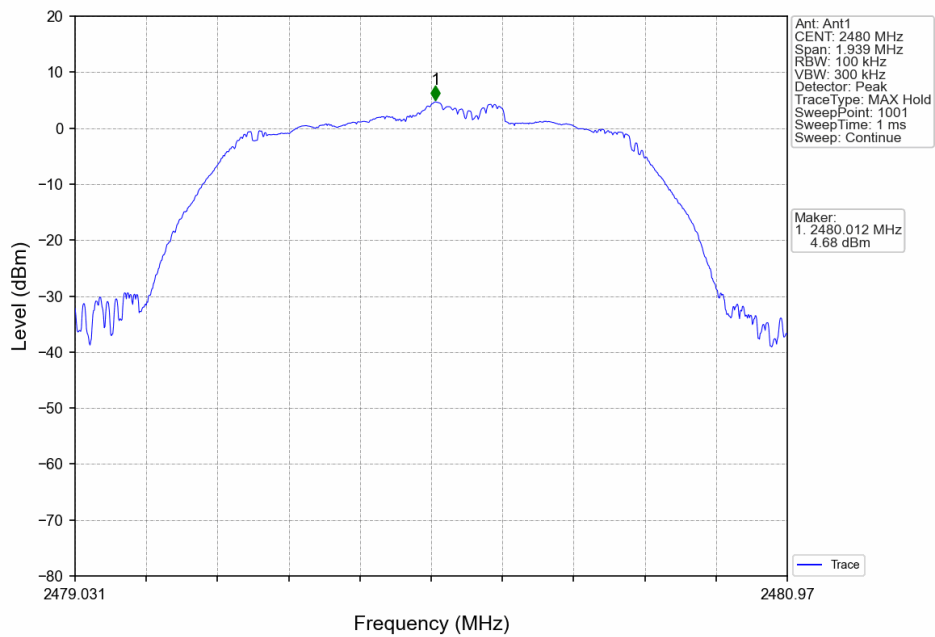
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



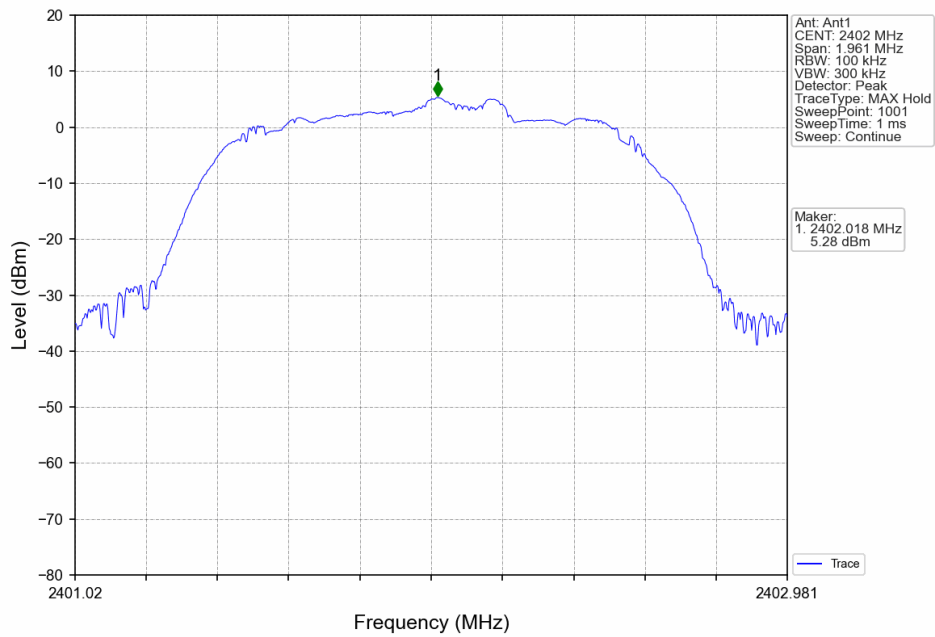
$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



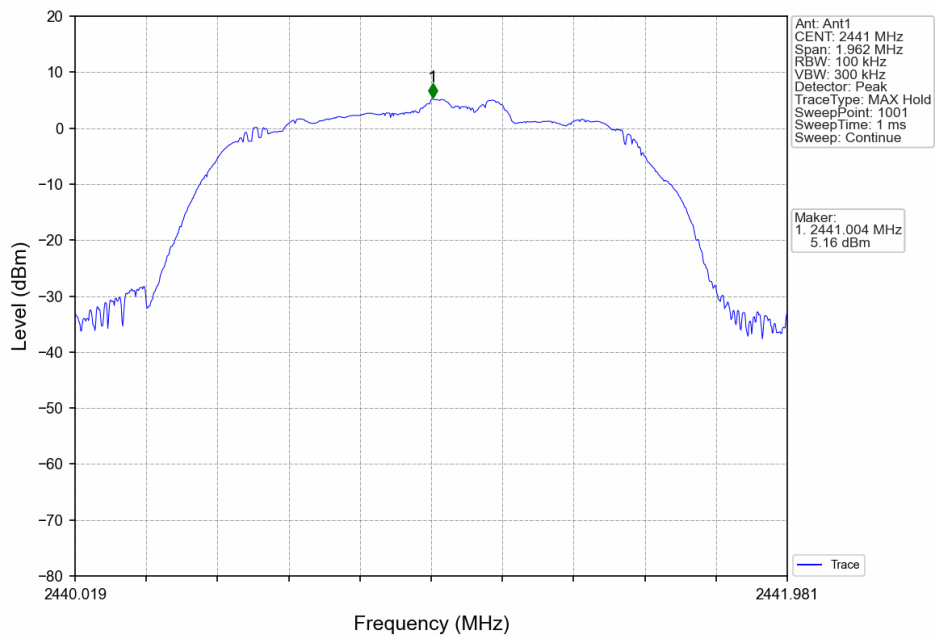
$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

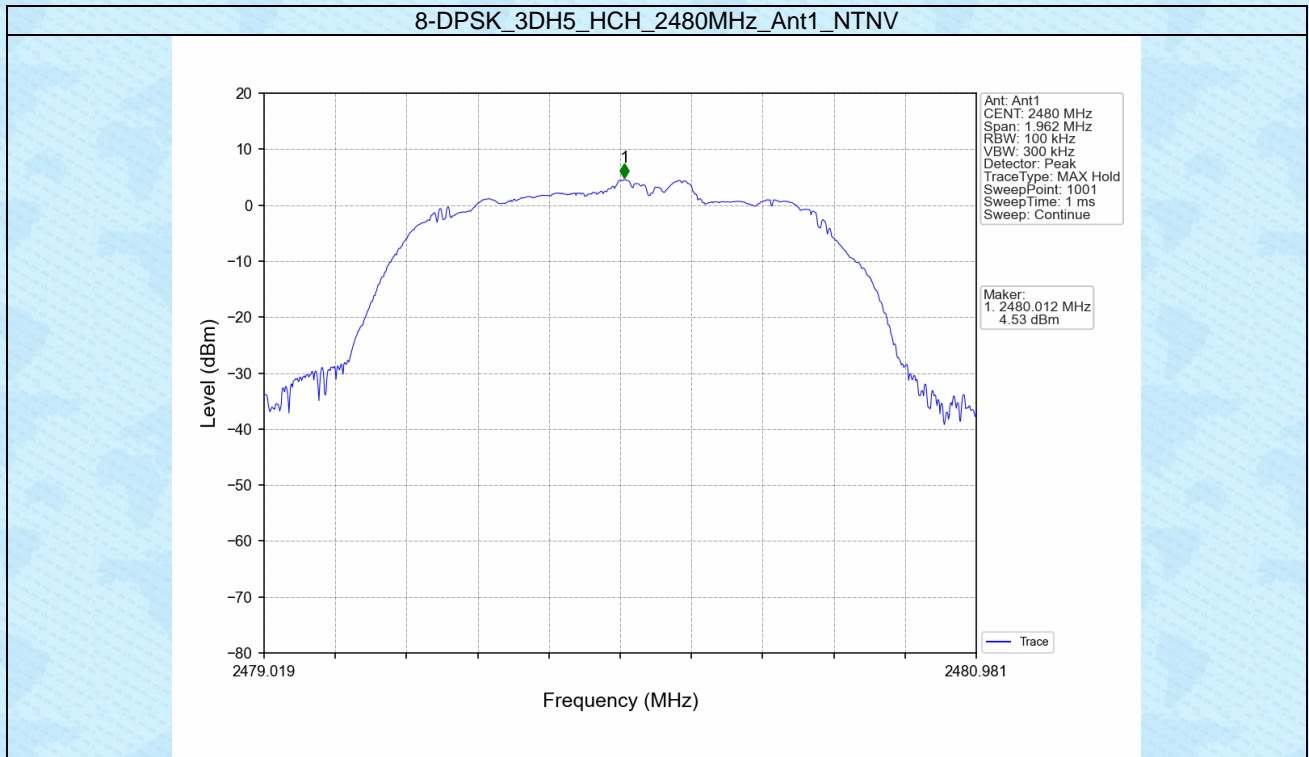


8-DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8-DPSK_3DH5_MCH_2441MHz_Ant1_NTNV





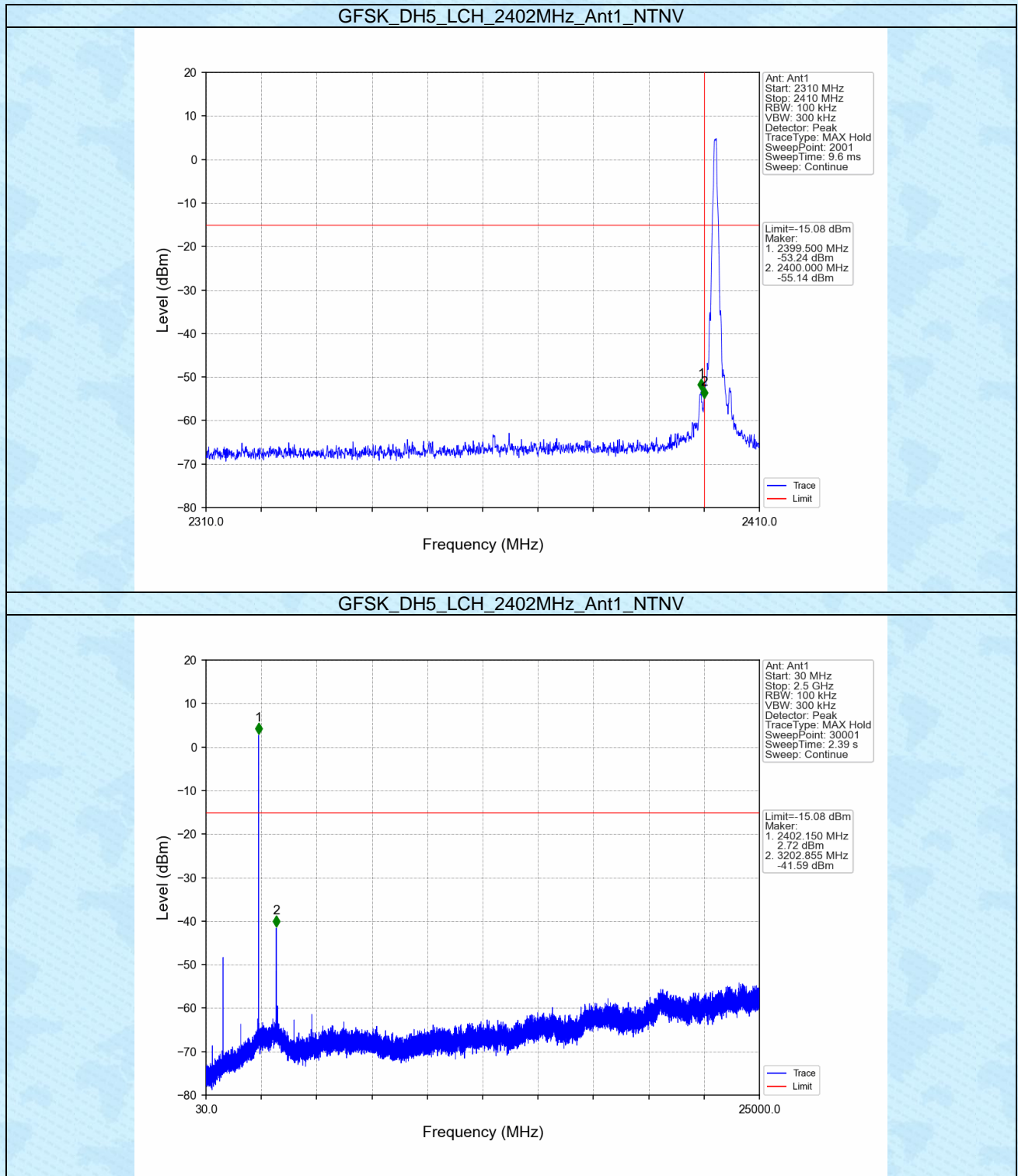
6.2 CSE

6.2.1 Test Result

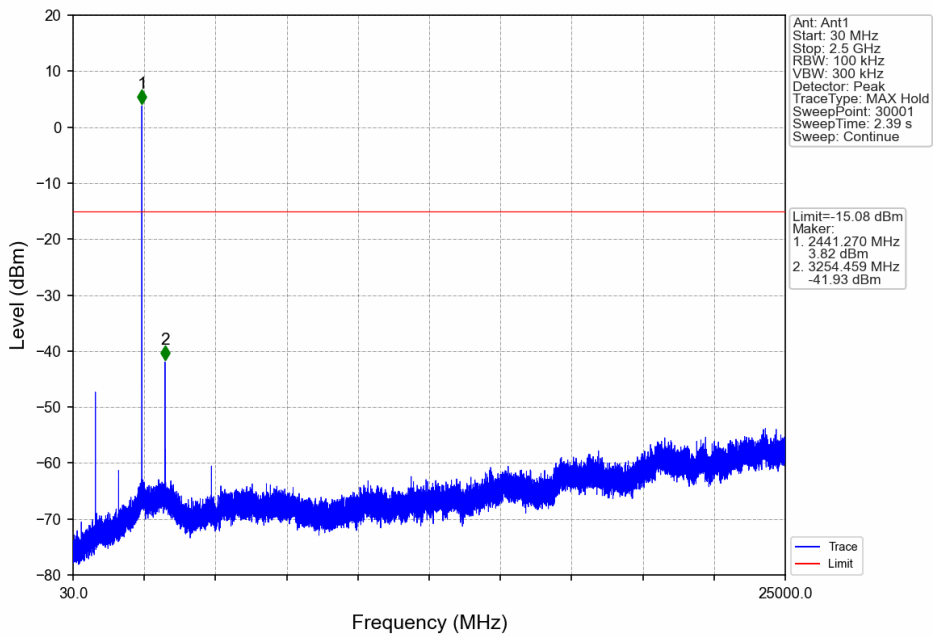
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	4.92	-15.08	Pass
		2441	DH5	1	4.92	-15.08	Pass
		2480	DH5	1	4.92	-15.08	Pass
		HOPP	DH5	1	4.92	-15.08	Pass
$\pi/4$ -DQPSK	SISO	2402	2DH5	1	5.09	-14.91	Pass
		2441	2DH5	1	5.09	-14.91	Pass
		2480	2DH5	1	5.09	-14.91	Pass
		HOPP	2DH5	1	5.09	-14.91	Pass
8-DPSK	SISO	2402	3DH5	1	5.28	-14.72	Pass
		2441	3DH5	1	5.28	-14.72	Pass
		2480	3DH5	1	5.28	-14.72	Pass
		HOPP	3DH5	1	5.28	-14.72	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.

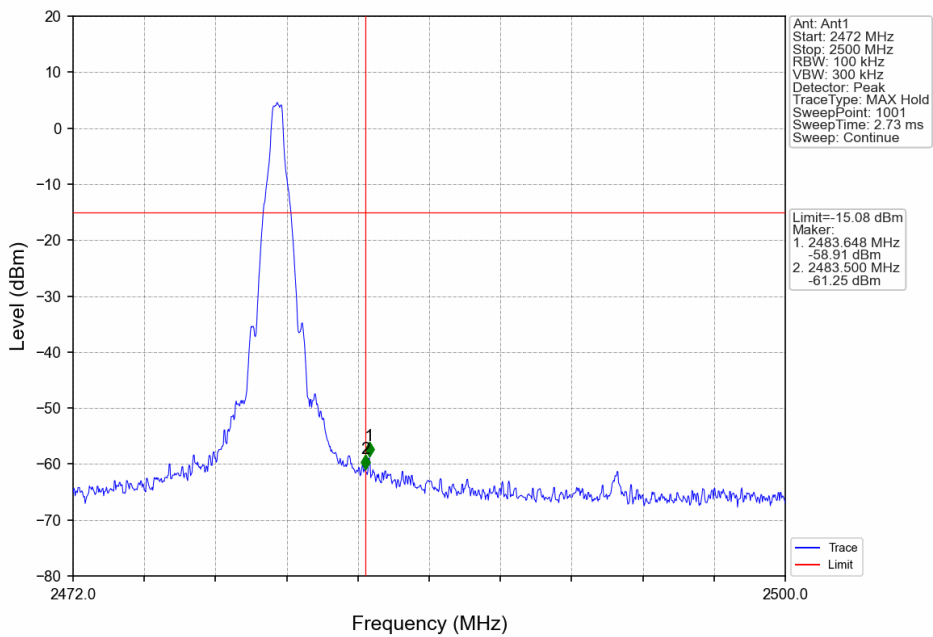
6.2.2 Test Graph



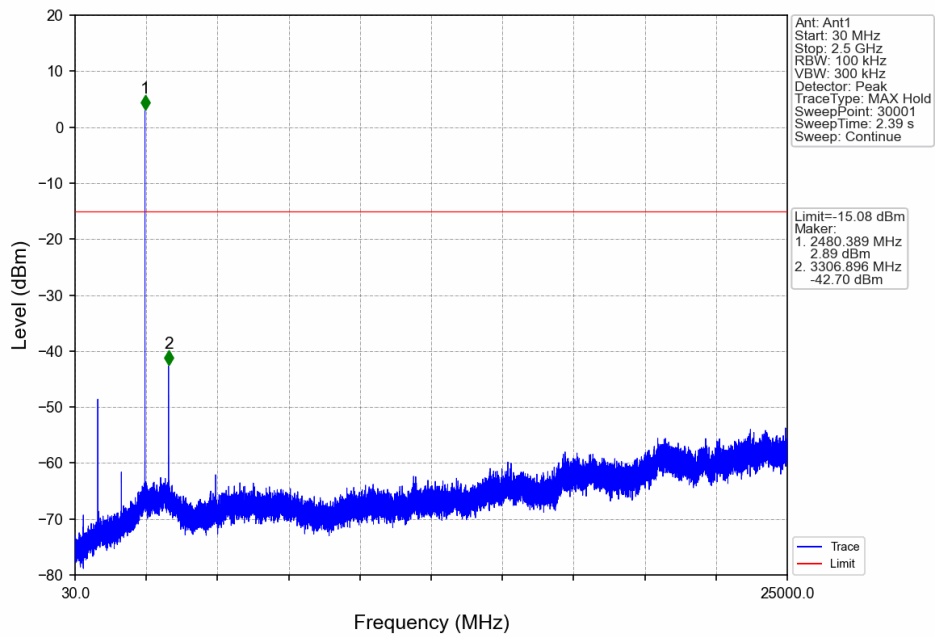
GFSK_DH5_MCH_2441MHz_Ant1_NTNV



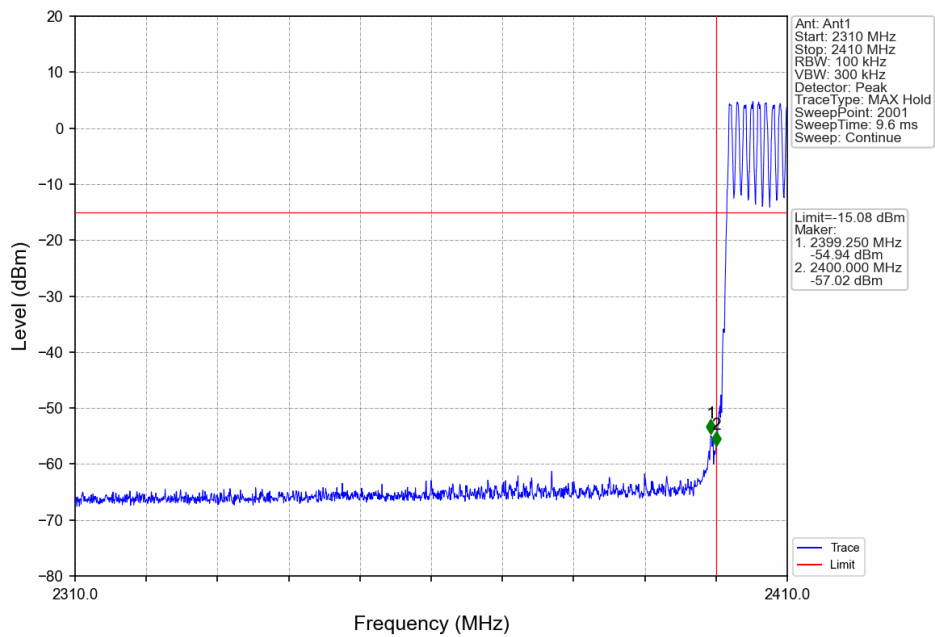
GFSK_DH5_HCH_2480MHz_Ant1_NTNV

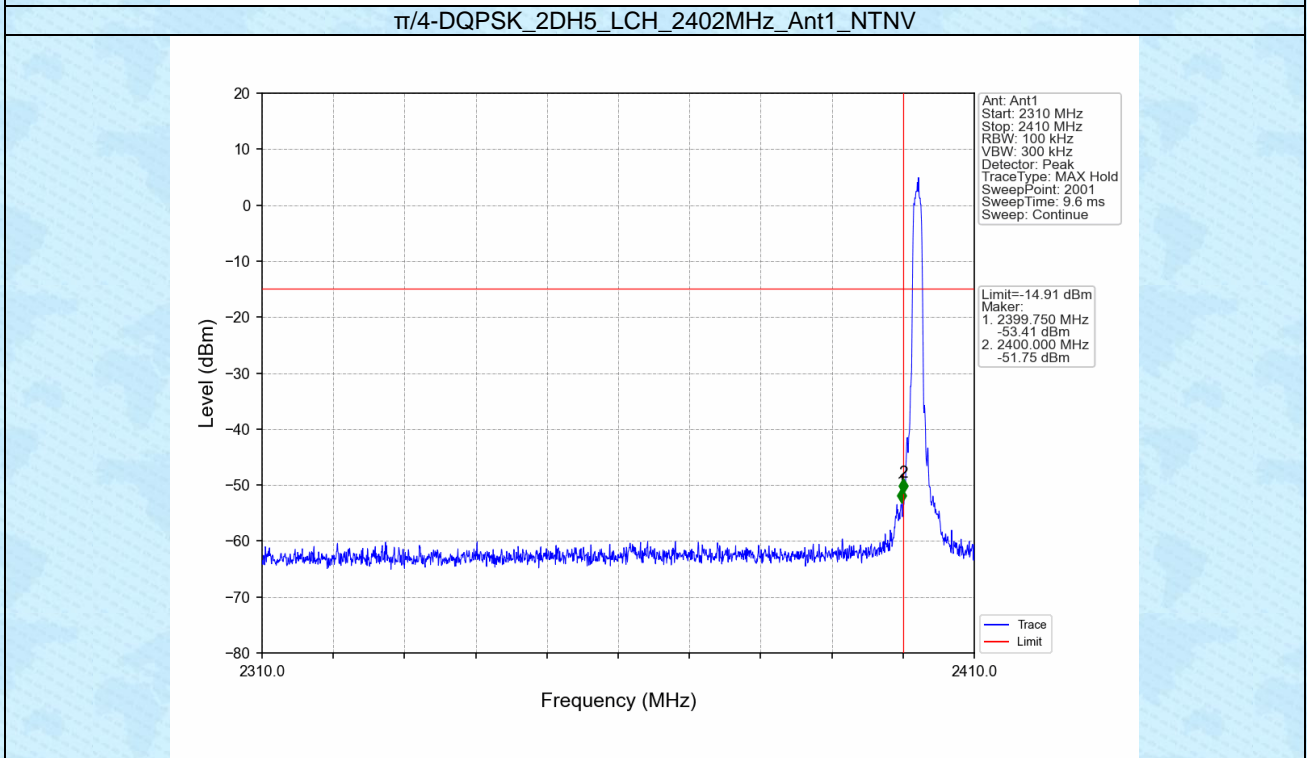
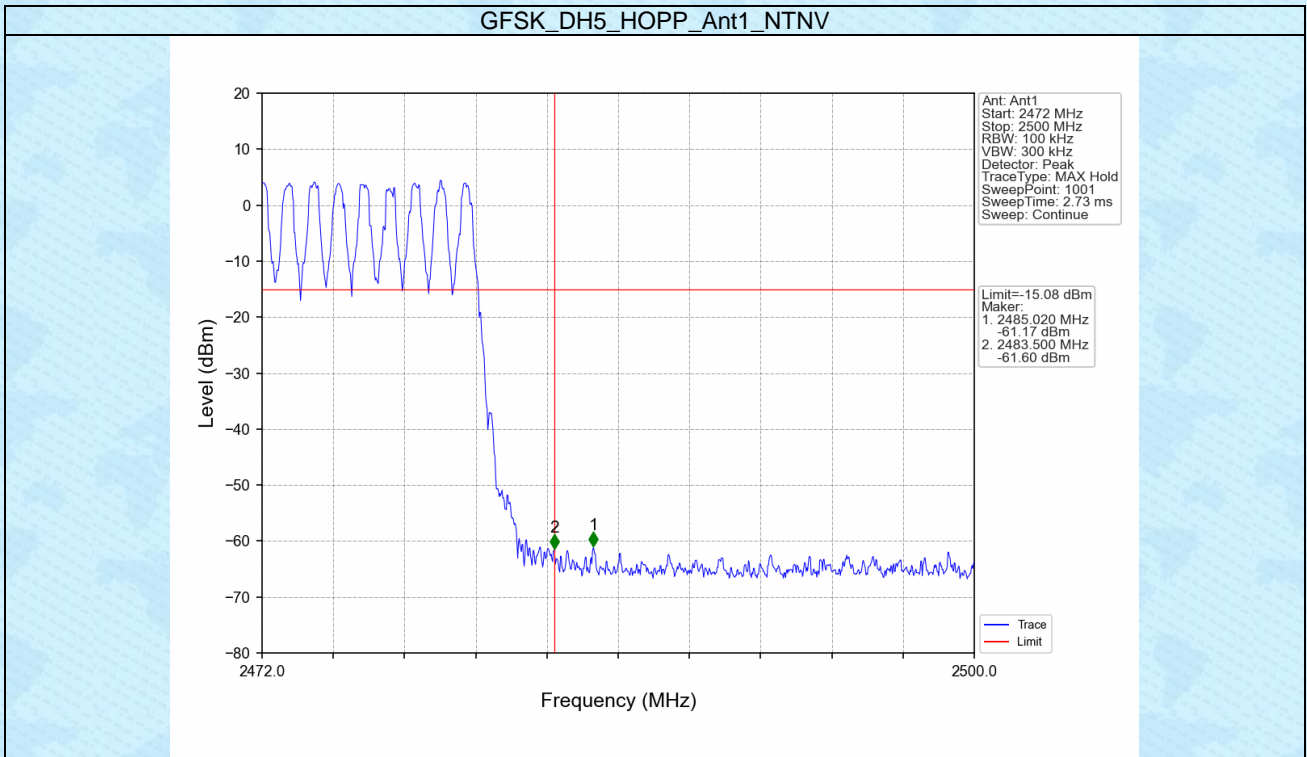


GFSK_DH5_HCH_2480MHz_Ant1_NTNV

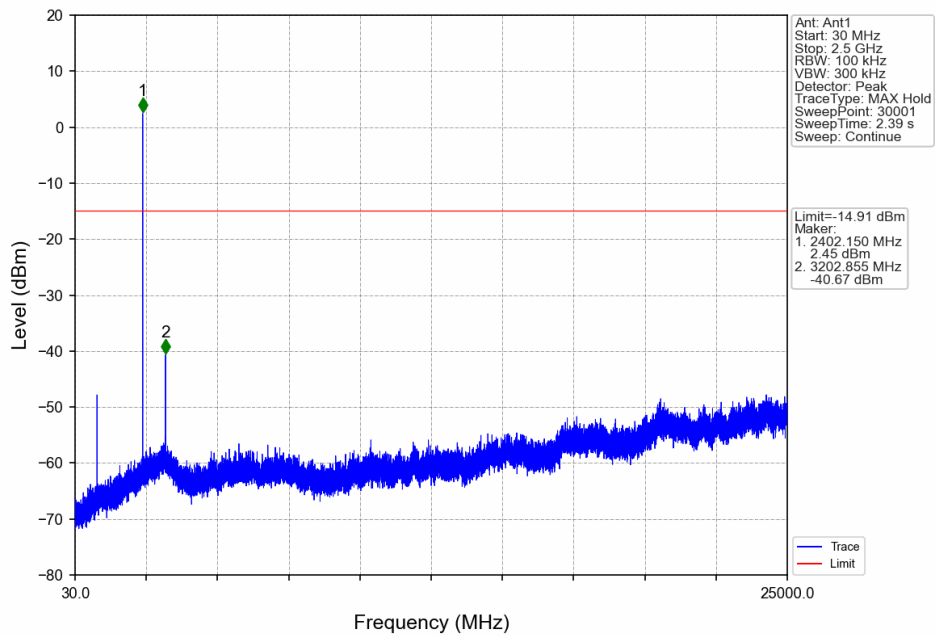


GFSK_DH5_HOPP_Ant1_NTNV

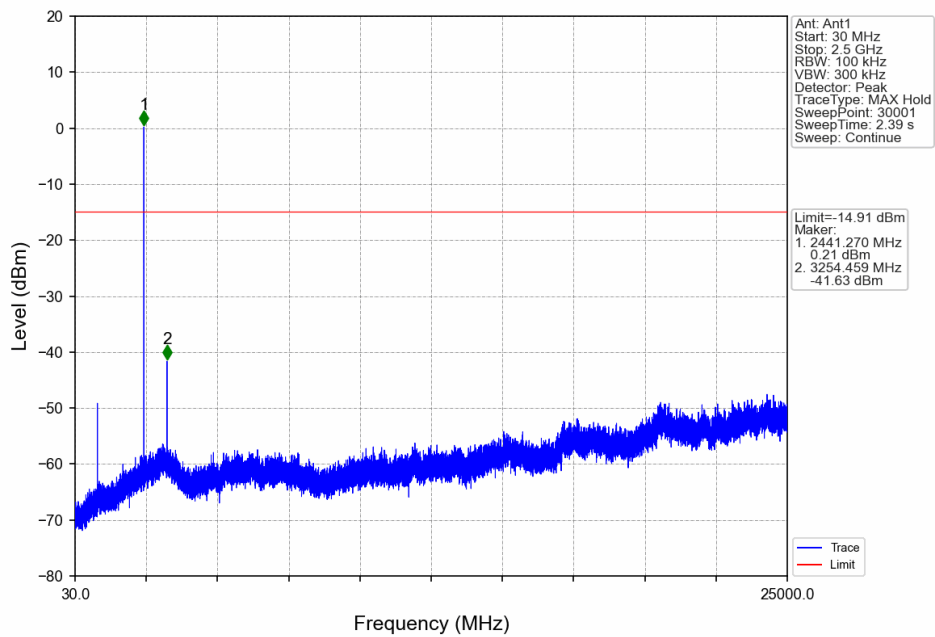




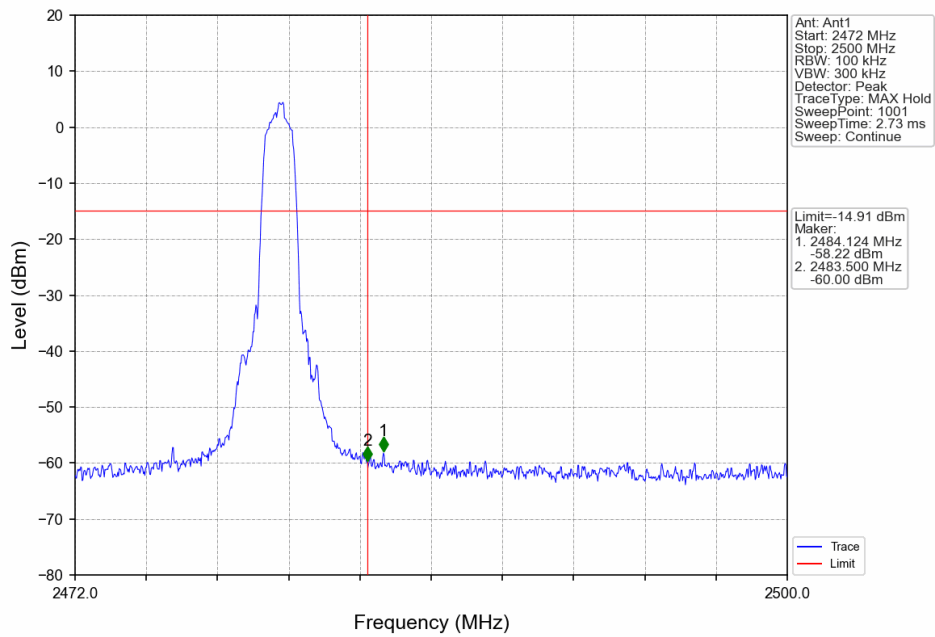
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



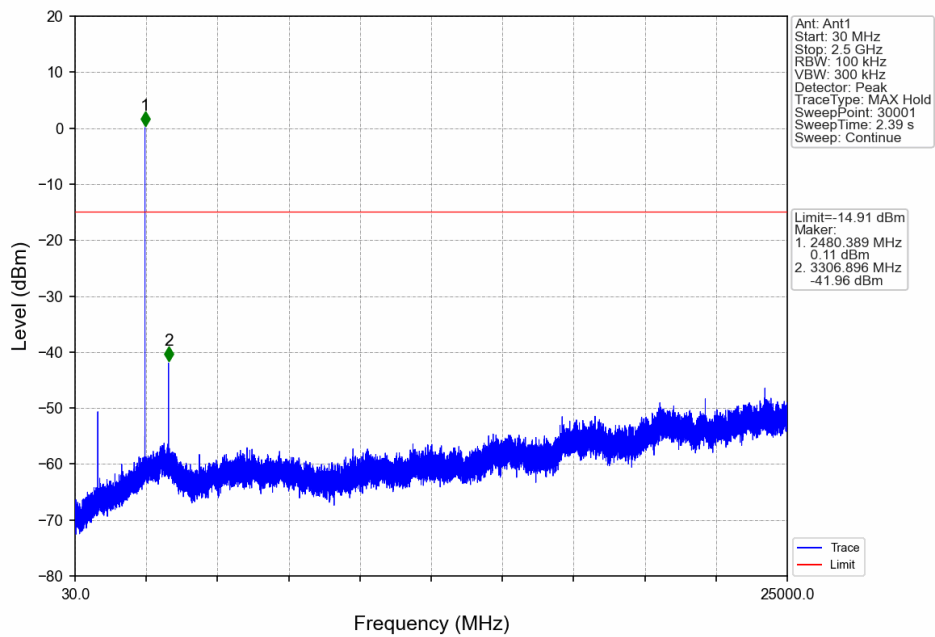
$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



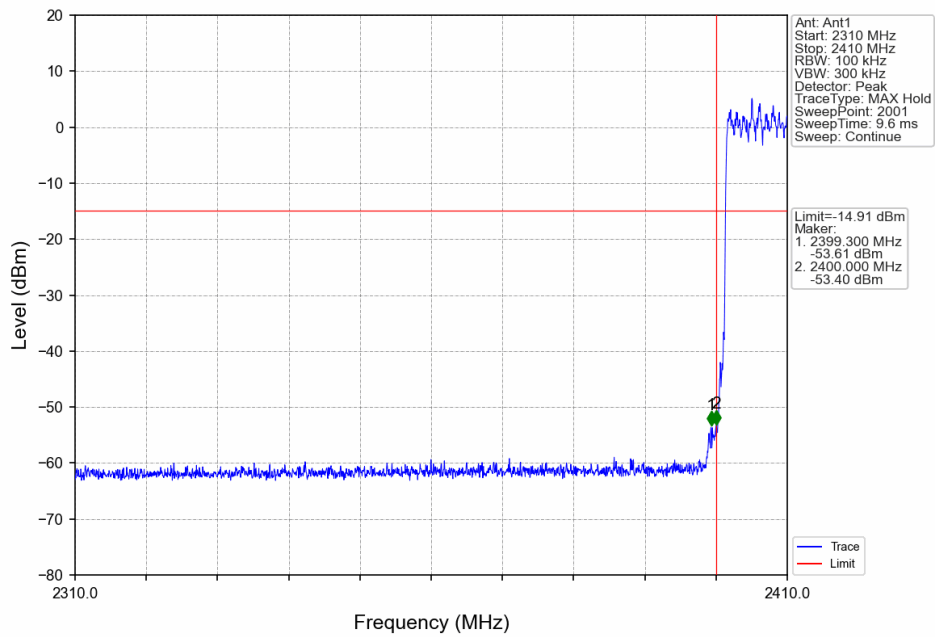
$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



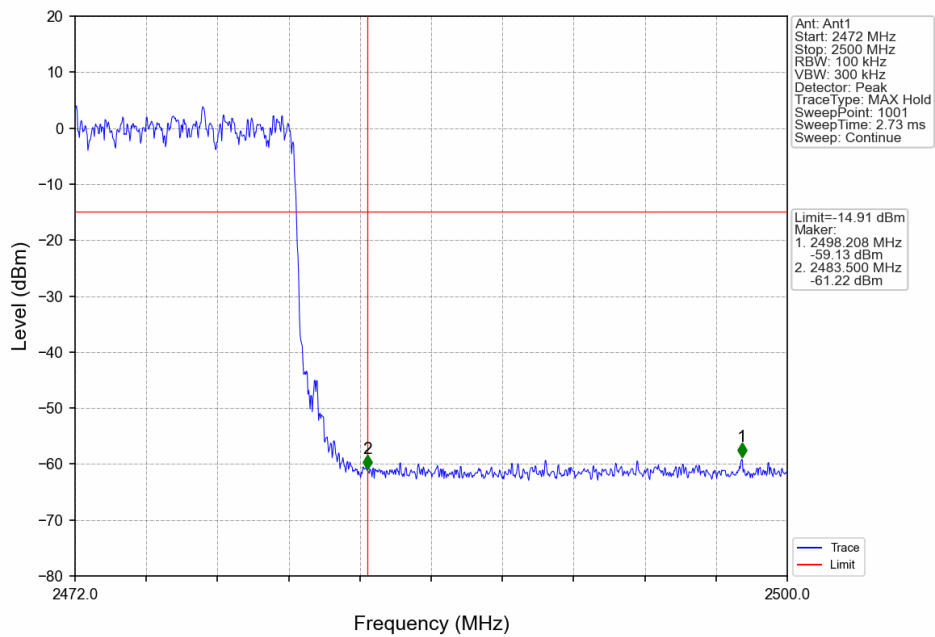
$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



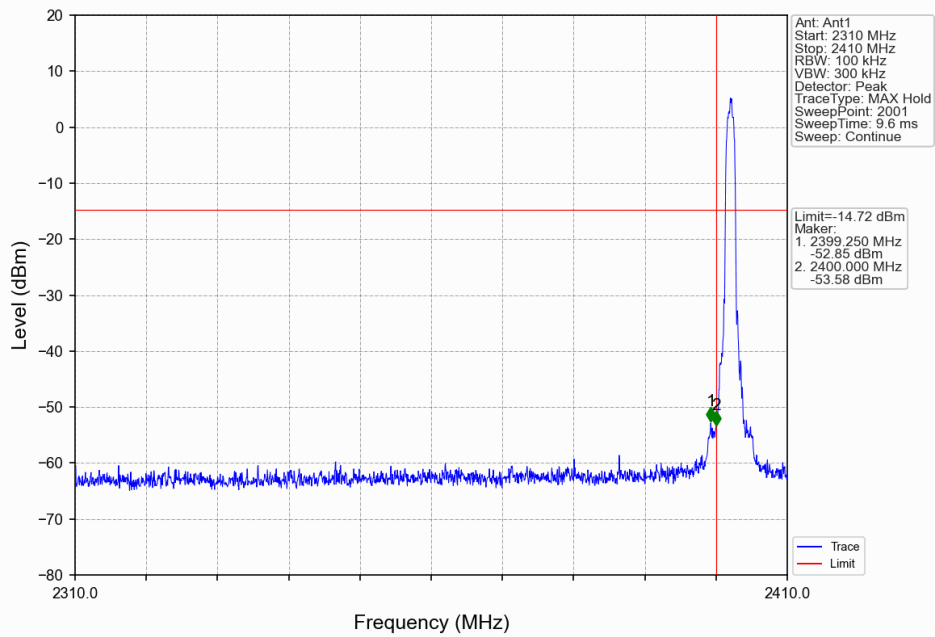
$\pi/4$ -DQPSK_2DH5_HOPP_Ant1_NTNV



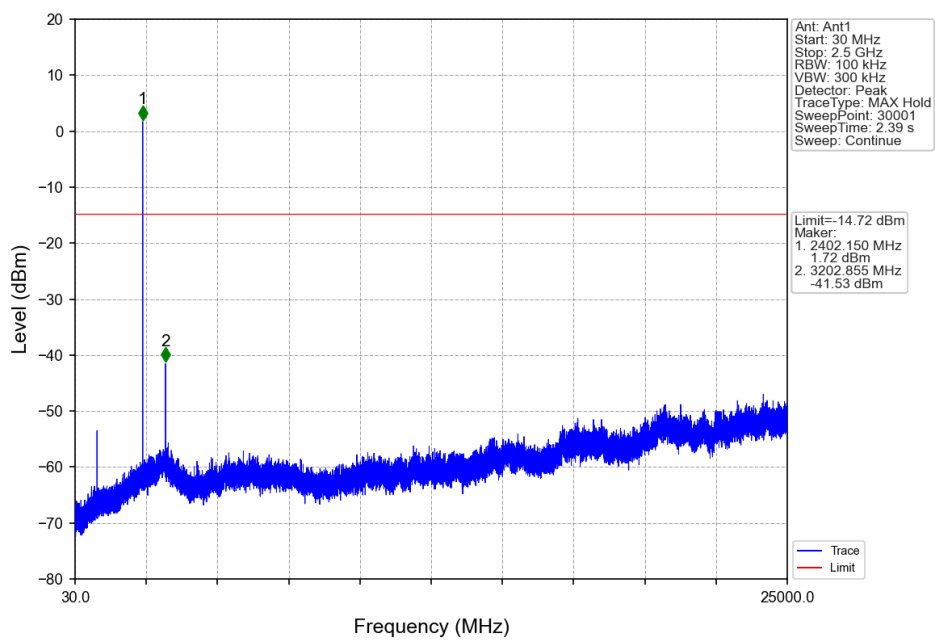
$\pi/4$ -DQPSK_2DH5_HOPP_Ant1_NTNV



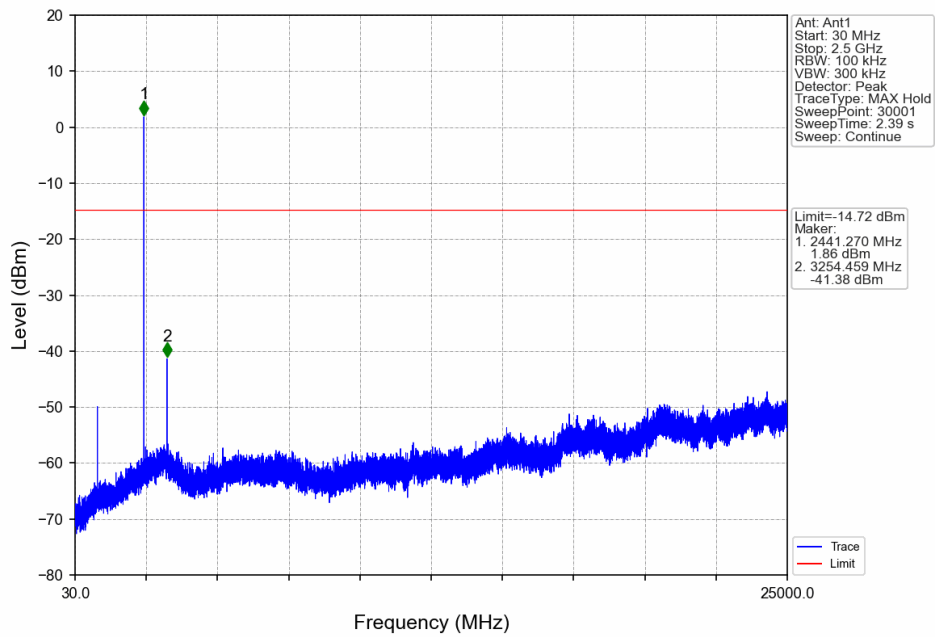
8-DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



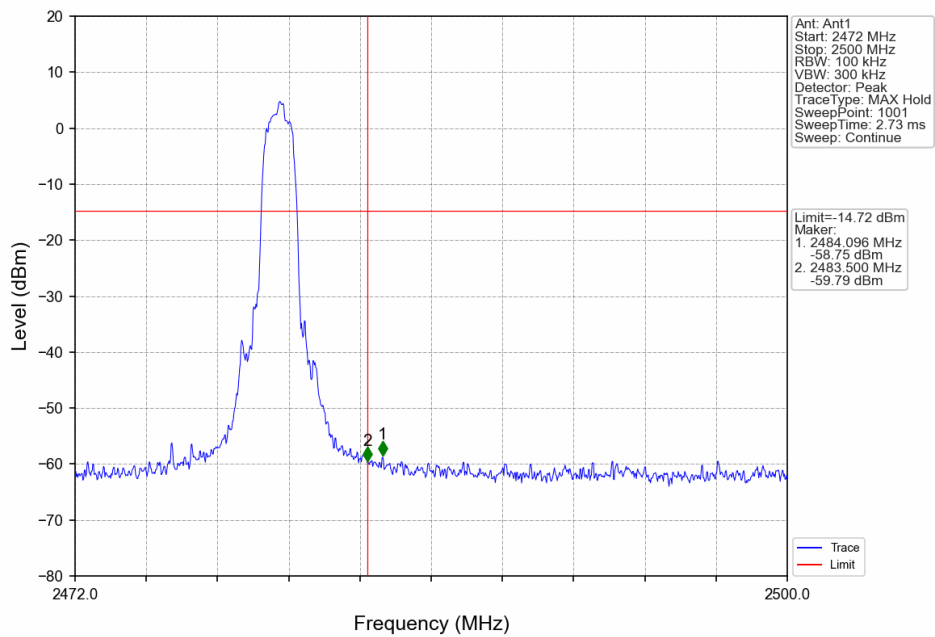
8-DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



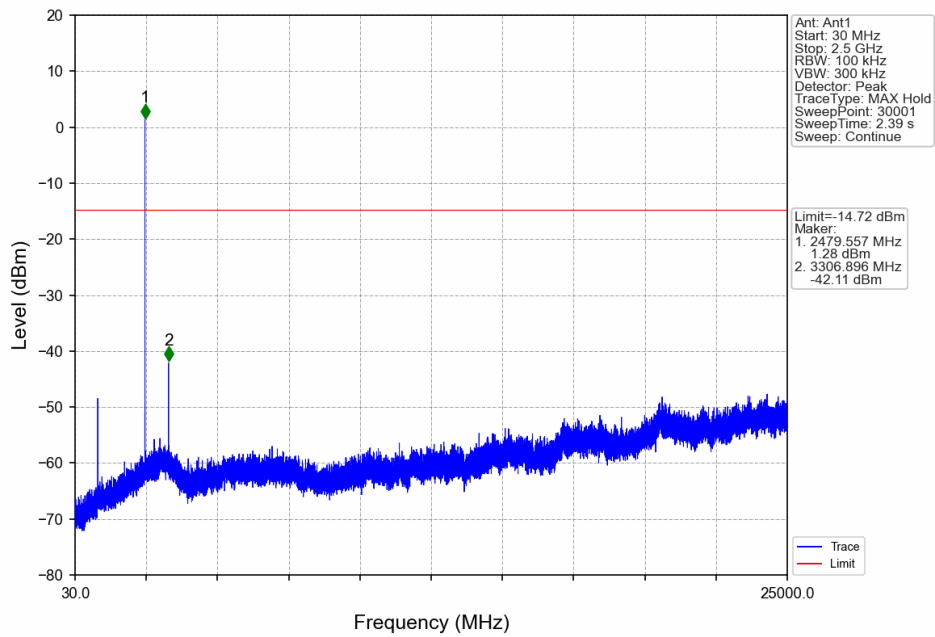
8-DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



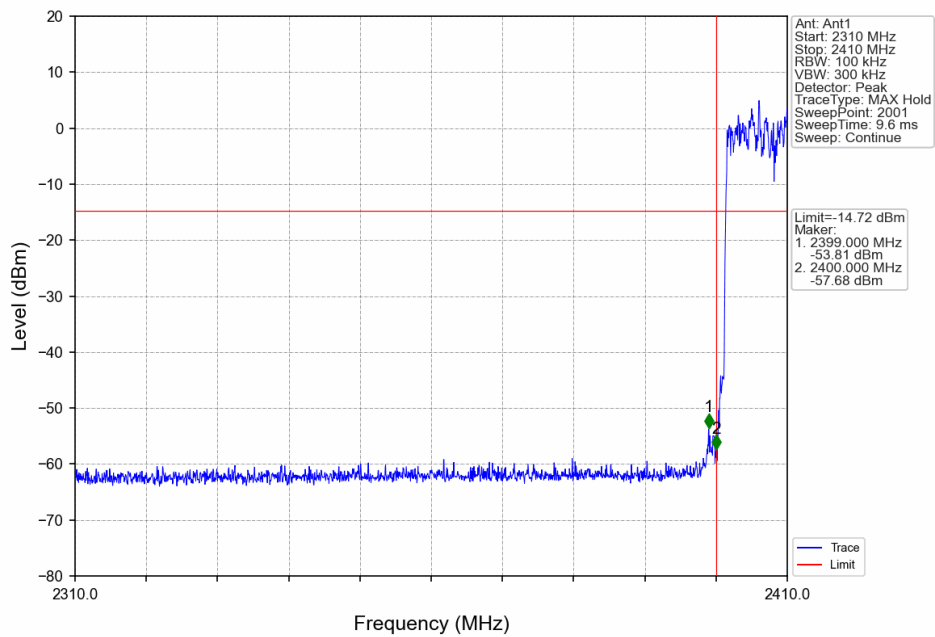
8-DPSK_3DH5_HCH_2480MHz_Ant1_NTNV

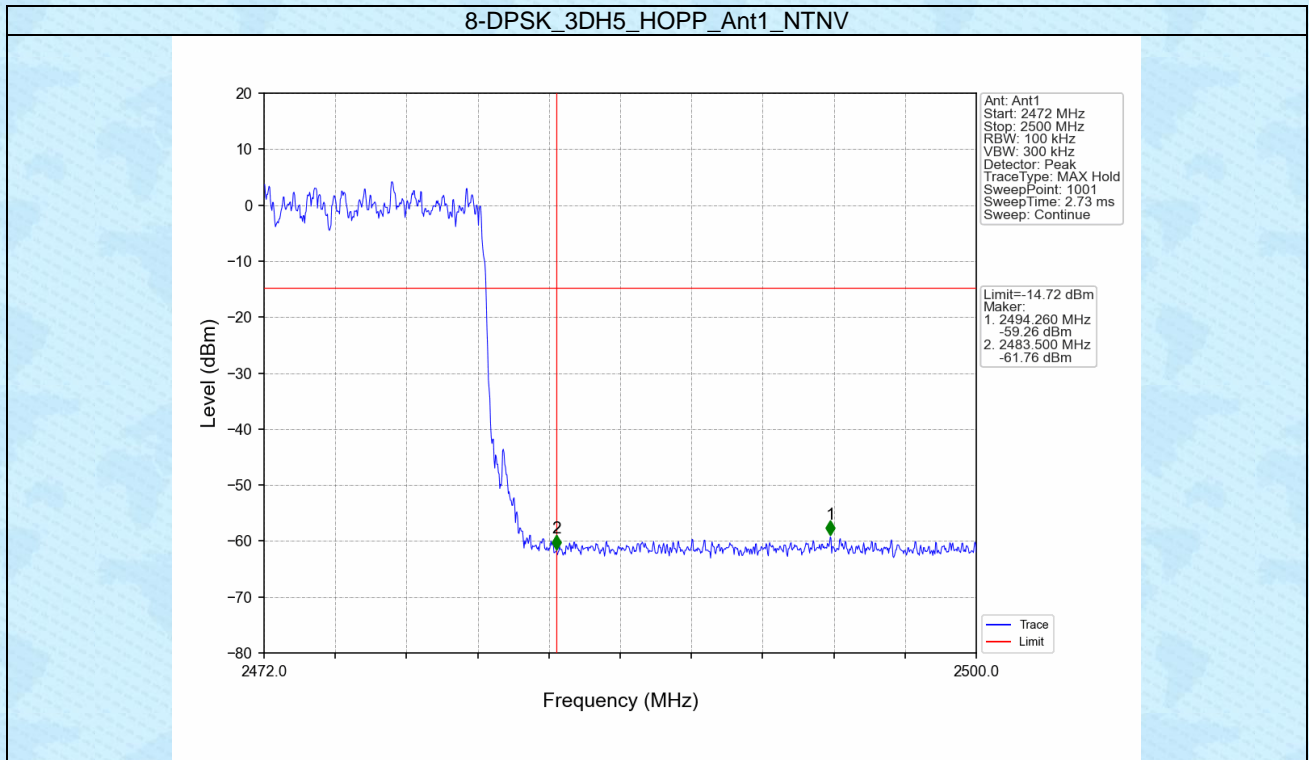


8-DPSK_3DH5_HCH_2480MHz_Ant1_NTNV



8-DPSK_3DH5_HOPP_Ant1_NTNV





-----End-----