



Shenzhen BANTEK Testing Co., Ltd.

Report No.: BTEK250717099A01E04

RF Test Report

For BTEK250717099A01-T01

Project No.:	BTEK250717099A01E04
Product Description:	23.4℃, 59%, 100.8kPa
Test Engineer:	Zora
Test Date:	2025-08-01



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 Test Result

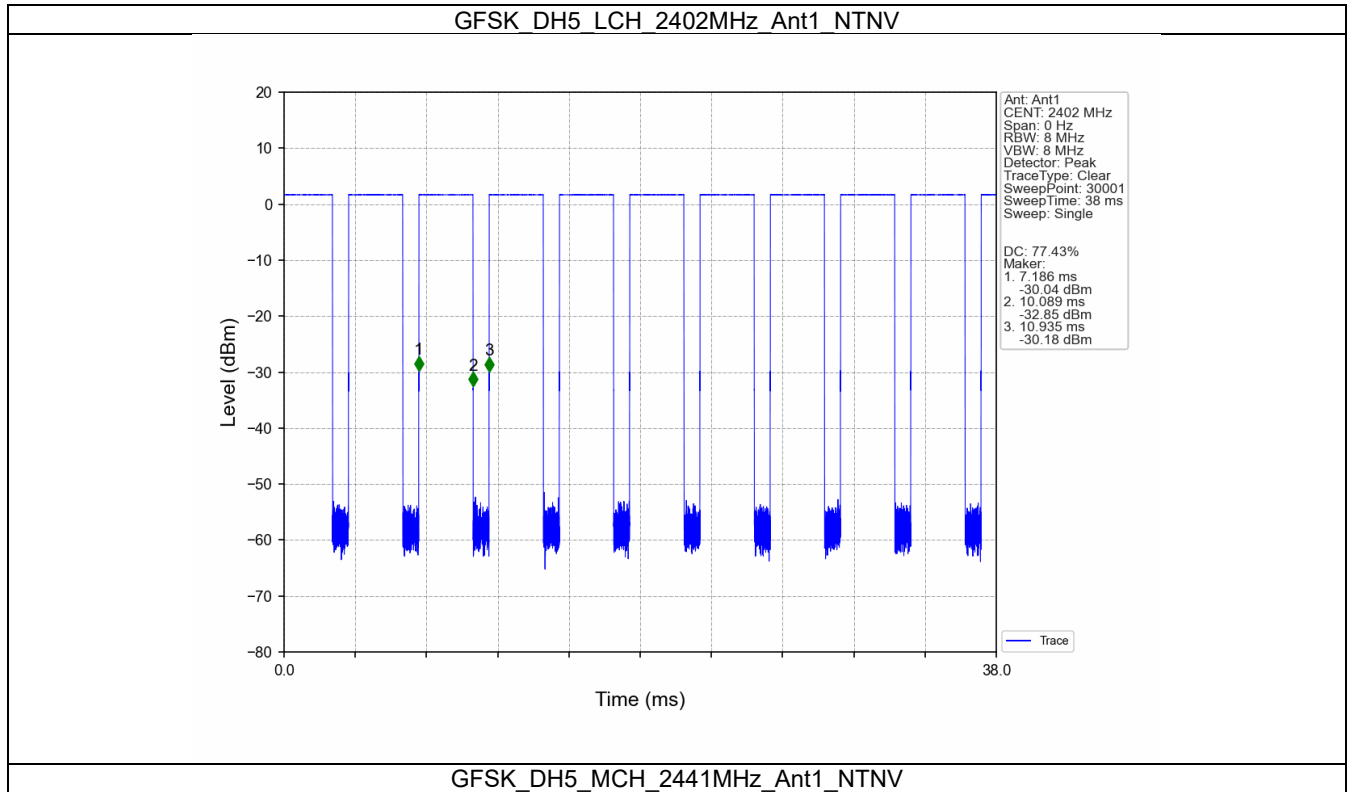
1.1.1 Ant1

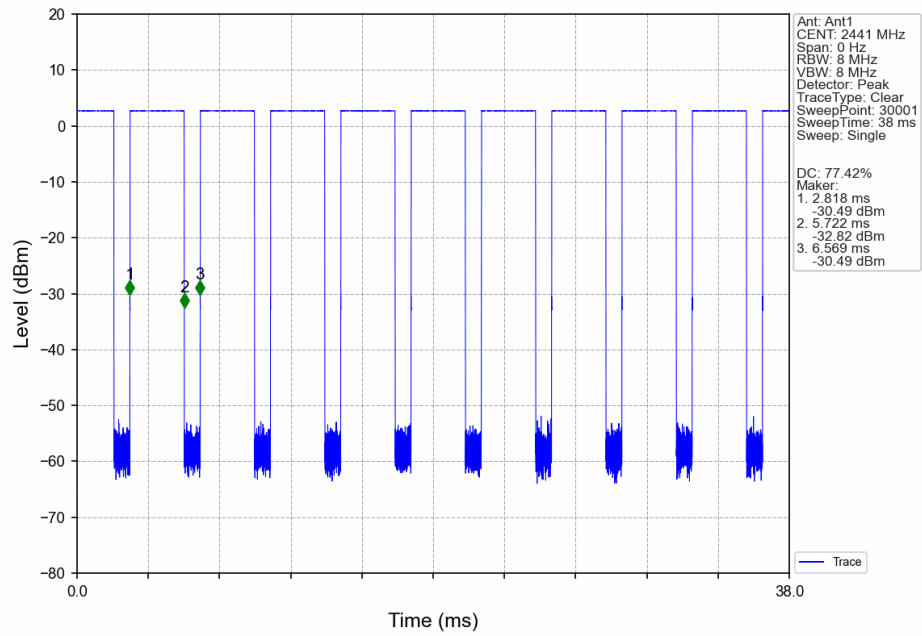
Ant1								
Mode	Tx Type	Frequency (MHz)	Packet Type	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
GFSK	SISO	2402	DH5	2.903	3.749	77.43	1.11	0.01
		2441	DH5	2.904	3.751	77.42	1.11	0.03
		2480	DH5	2.903	3.749	77.43	1.11	0.01
Pi/4DQPSK	SISO	2402	2DH5	2.902	3.749	77.41	1.11	0.01
		2441	2DH5	2.903	3.751	77.39	1.11	0.03
		2480	2DH5	2.902	3.750	77.39	1.11	0.01
8DPSK	SISO	2402	3DH5	2.905	3.751	77.45	1.11	0.03
		2441	3DH5	2.904	3.749	77.46	1.11	0.01
		2480	3DH5	2.904	3.749	77.46	1.11	0.01



1.2 Test Graph

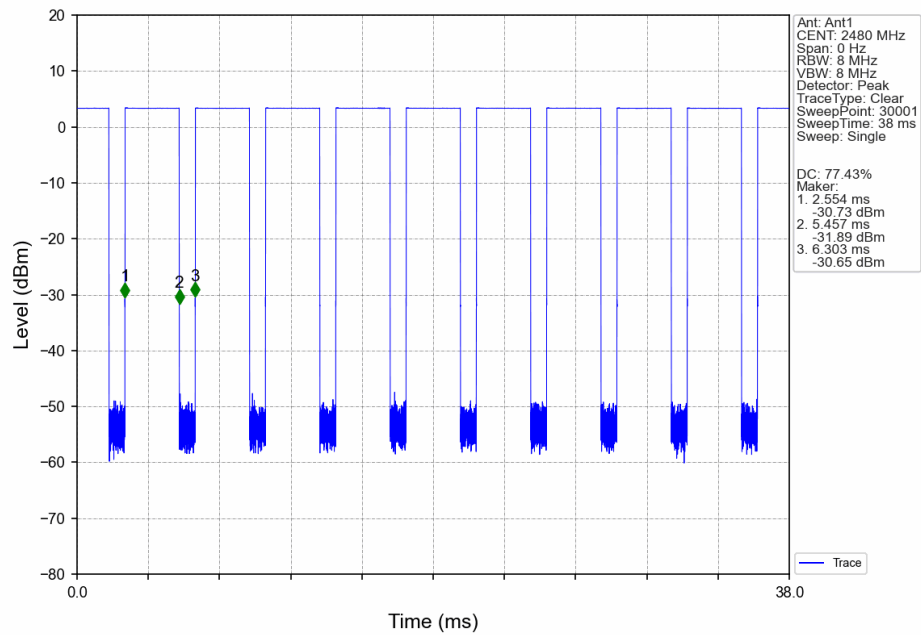
1.2.1 Ant1



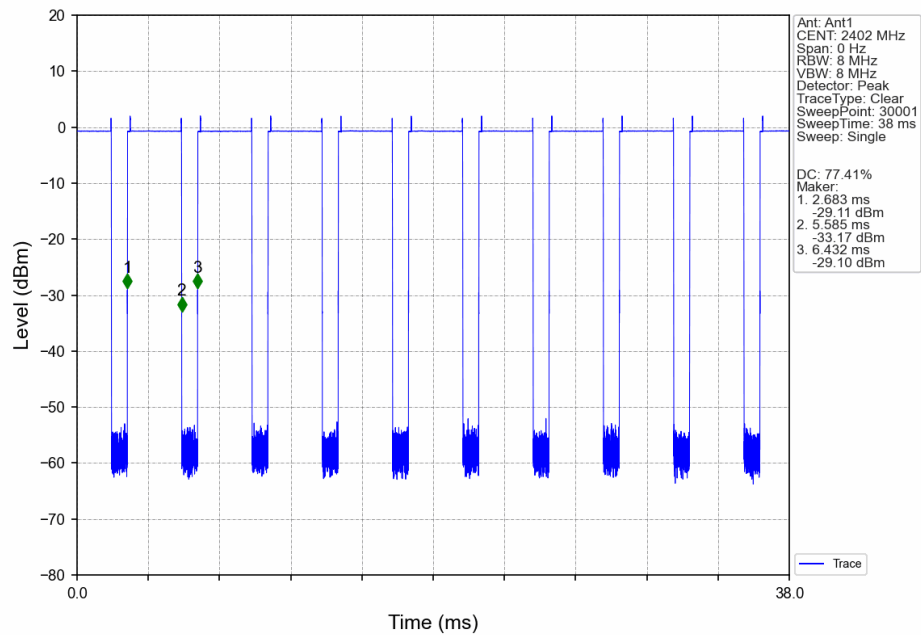




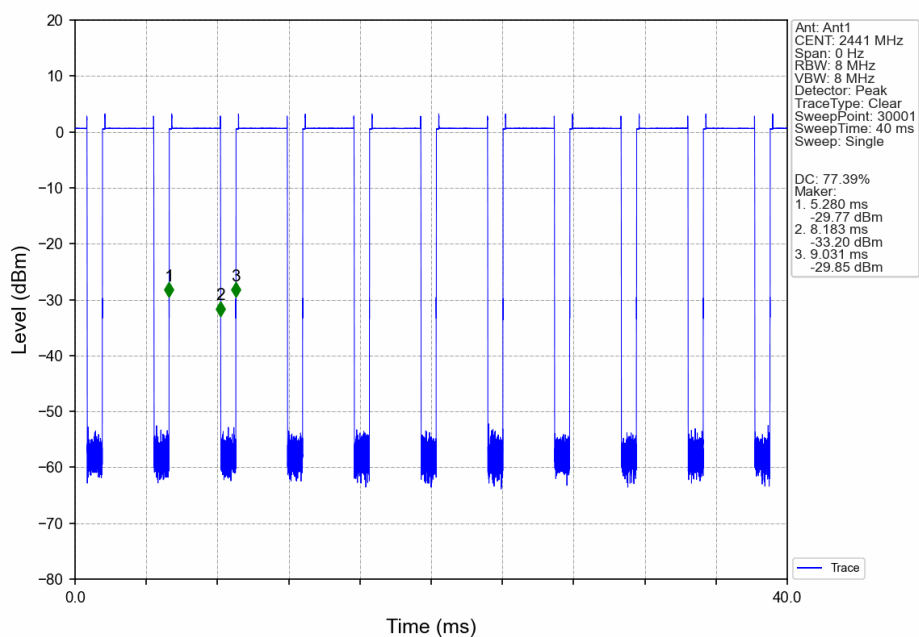
GFSK DH5_HCH_2480MHz_Ant1_NTNV



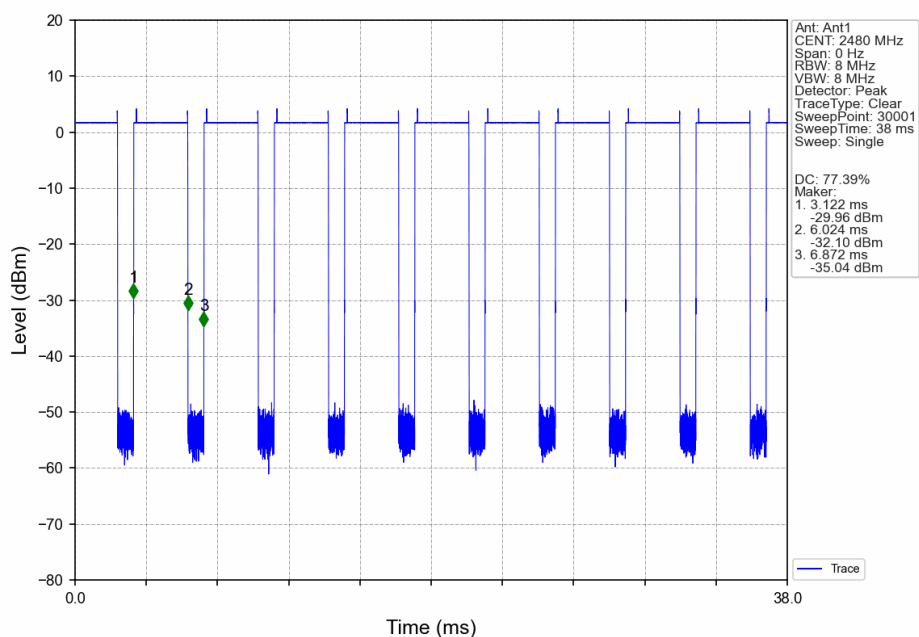
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



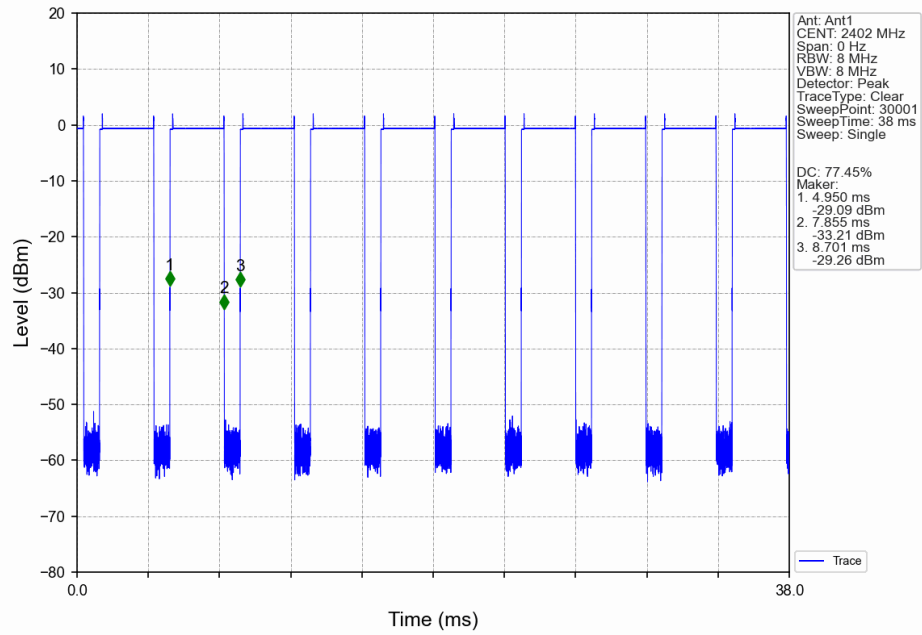
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



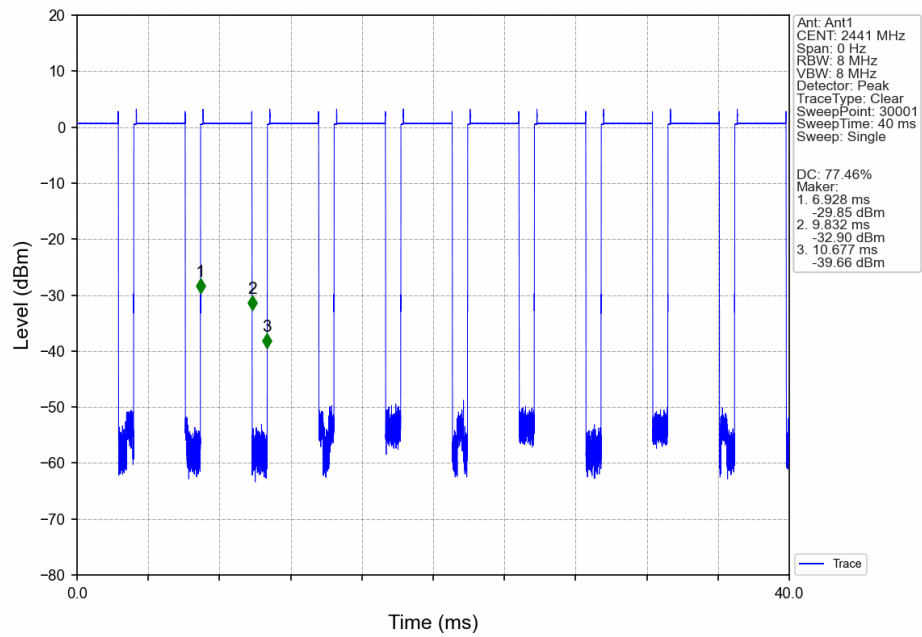
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

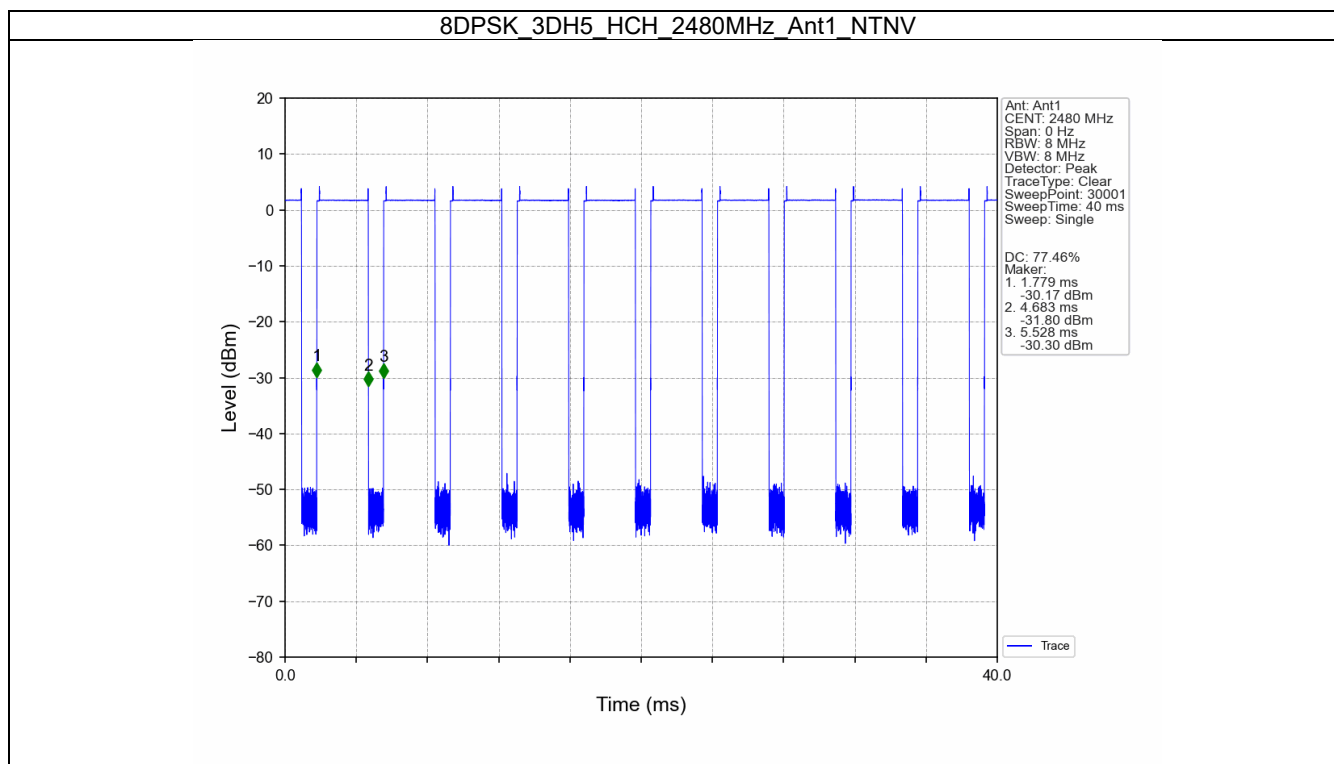


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV





2. Bandwidth

2.1 Test Result

2.1.1 OBW

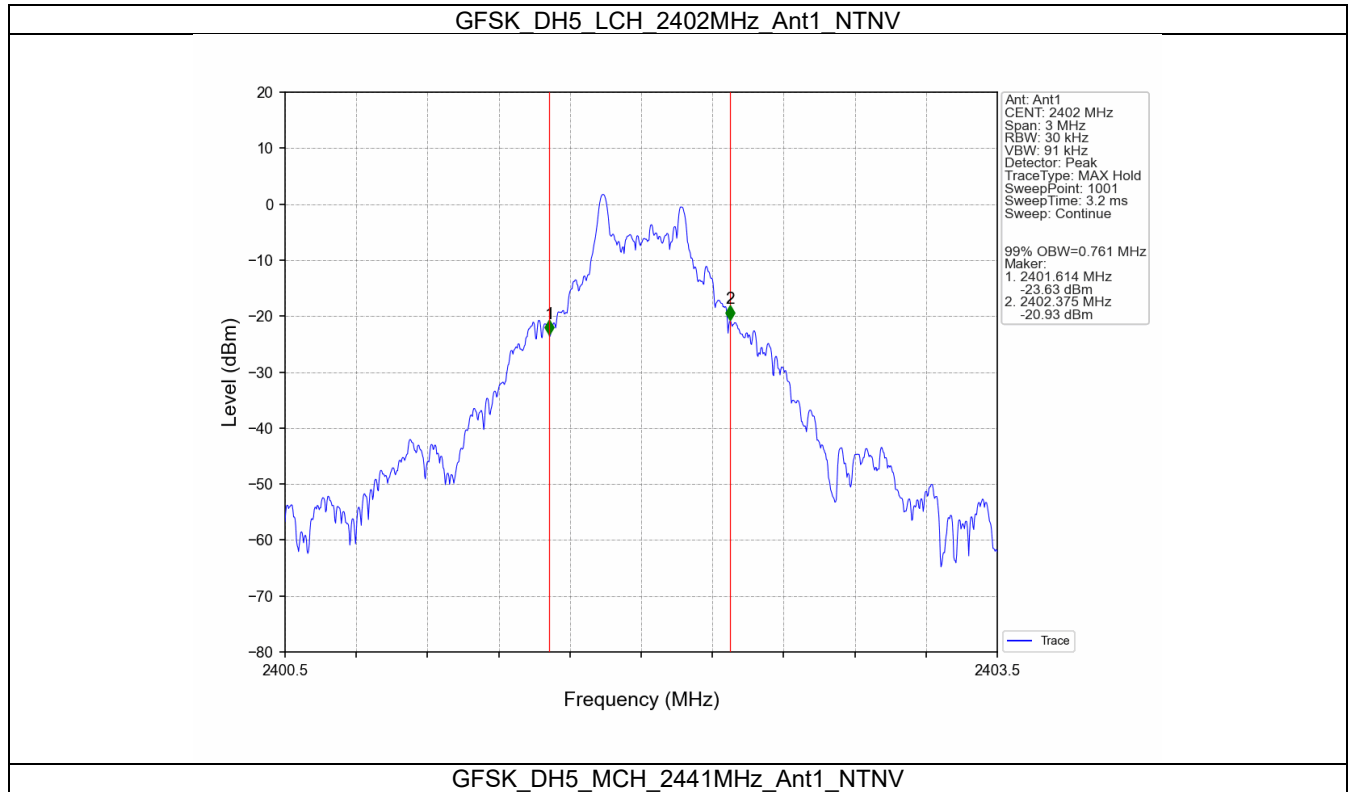
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.761	/	Pass
		2441	DH5	1	0.763	/	Pass
		2480	DH5	1	0.784	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.108	/	Pass
		2441	2DH5	1	1.109	/	Pass
		2480	2DH5	1	1.104	/	Pass
8DPSK	SISO	2402	3DH5	1	1.089	/	Pass
		2441	3DH5	1	1.092	/	Pass
		2480	3DH5	1	1.094	/	Pass

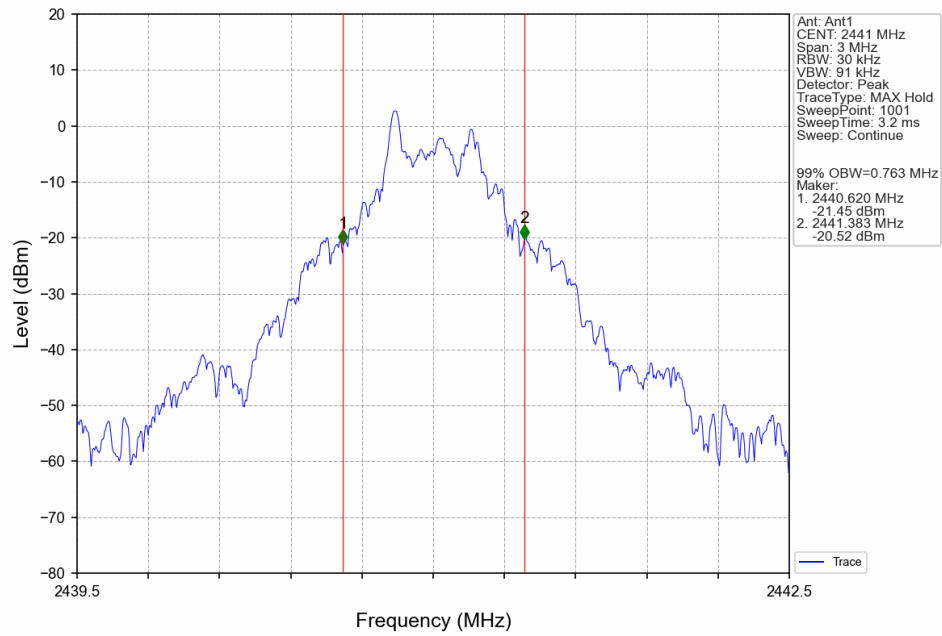
2.1.2 20dB BW

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.641	/	Pass
		2441	DH5	1	0.646	/	Pass
		2480	DH5	1	0.650	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.161	/	Pass
		2441	2DH5	1	1.167	/	Pass
		2480	2DH5	1	1.139	/	Pass
8DPSK	SISO	2402	3DH5	1	1.165	/	Pass
		2441	3DH5	1	1.142	/	Pass
		2480	3DH5	1	1.121	/	Pass

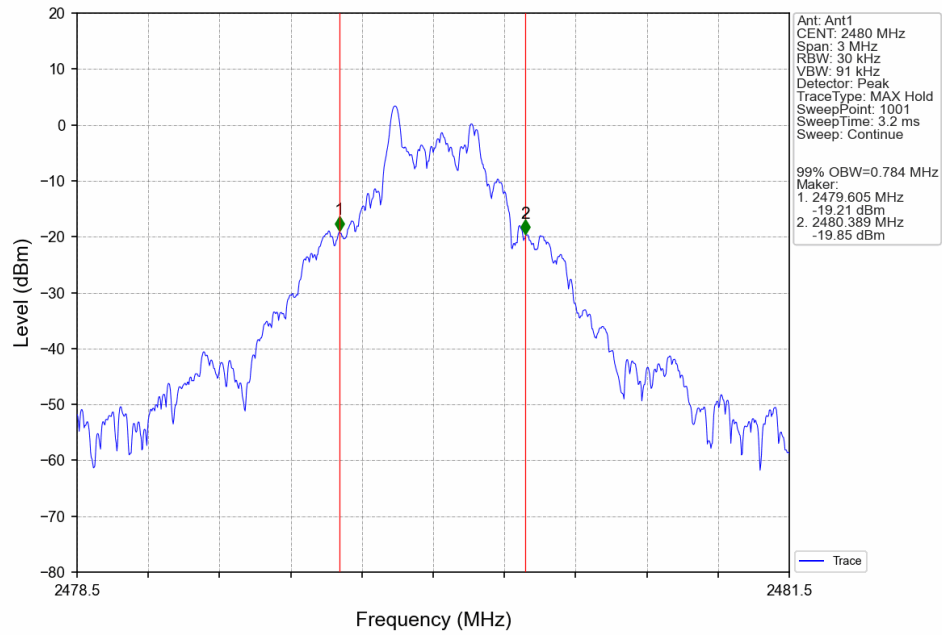
2.2 Test Graph

2.2.1 OBW

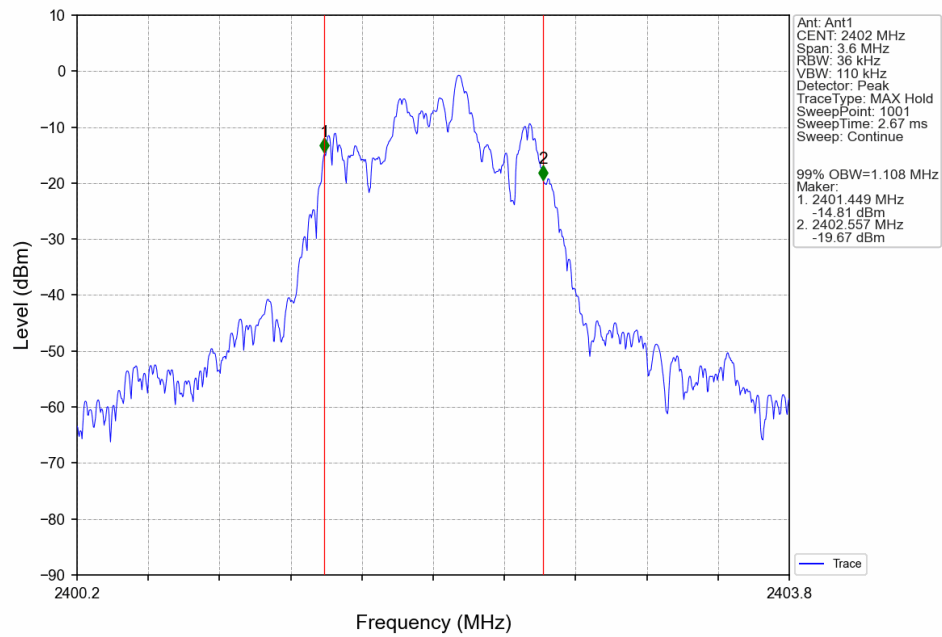




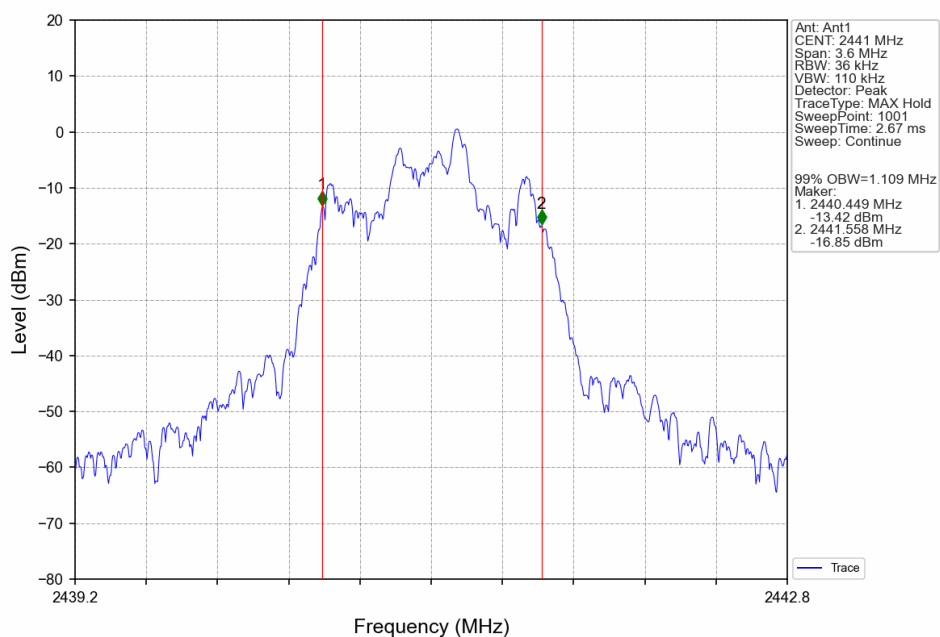
GFSK DH5 HCH 2480MHz_Ant1_NTNV



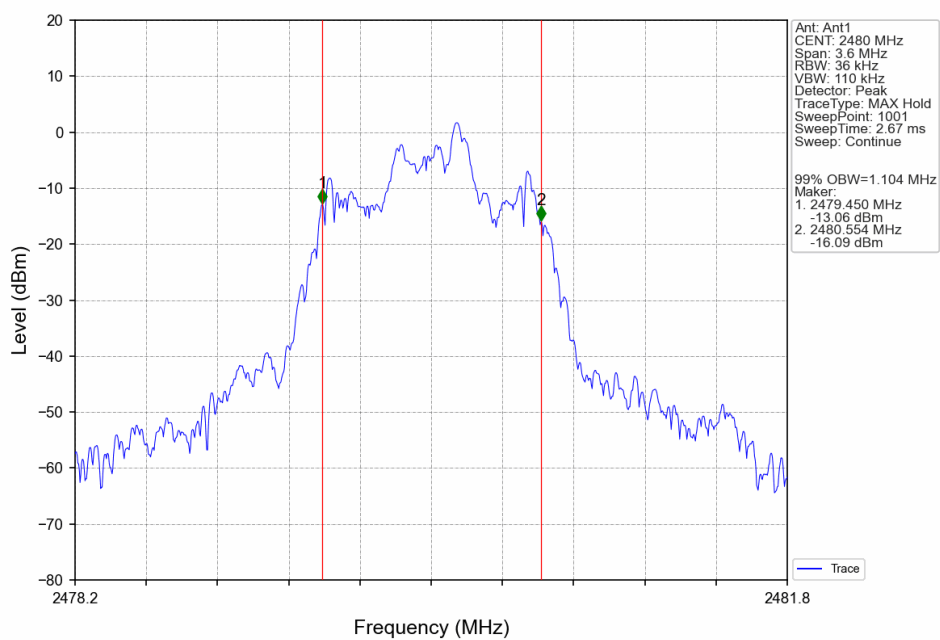
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



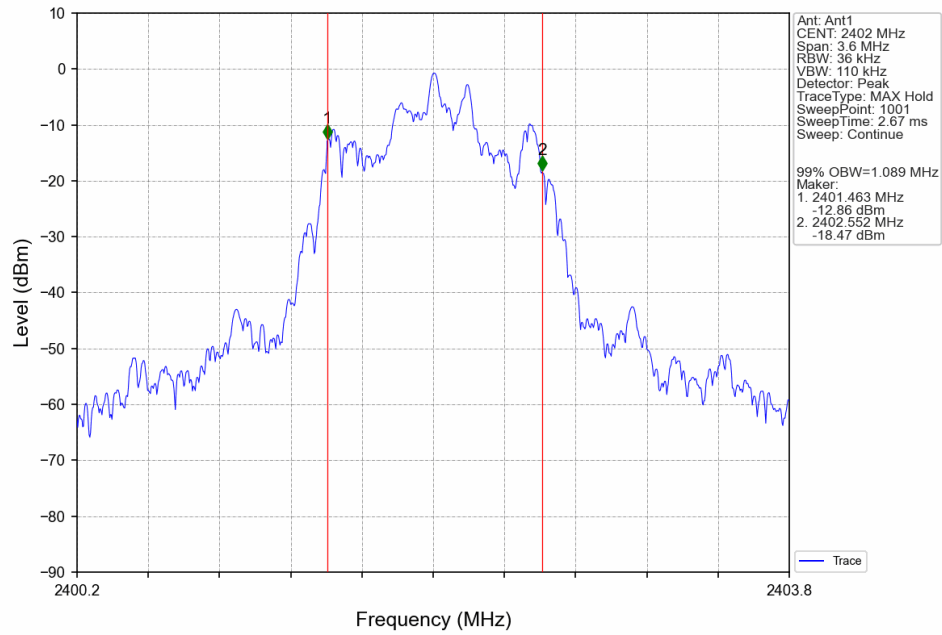
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



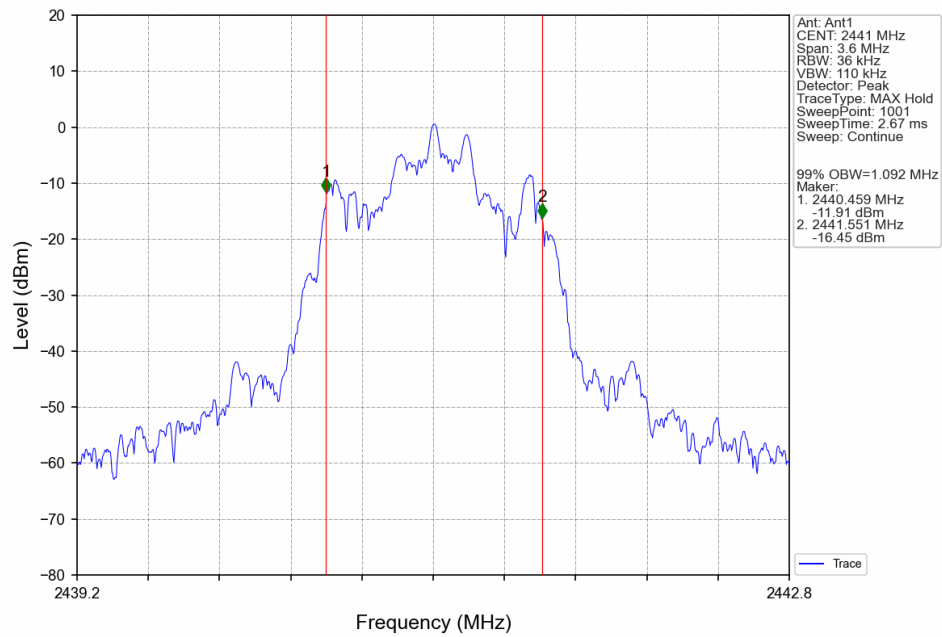
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

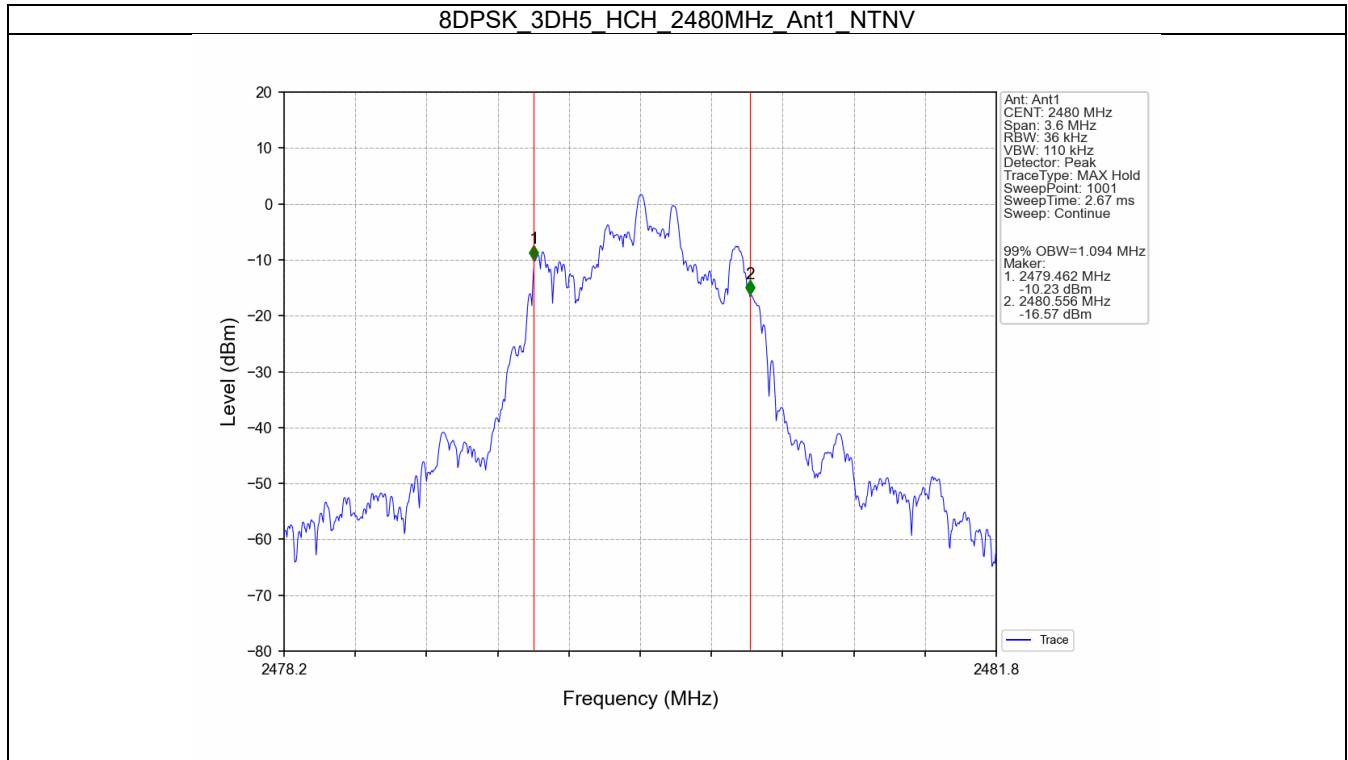


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV

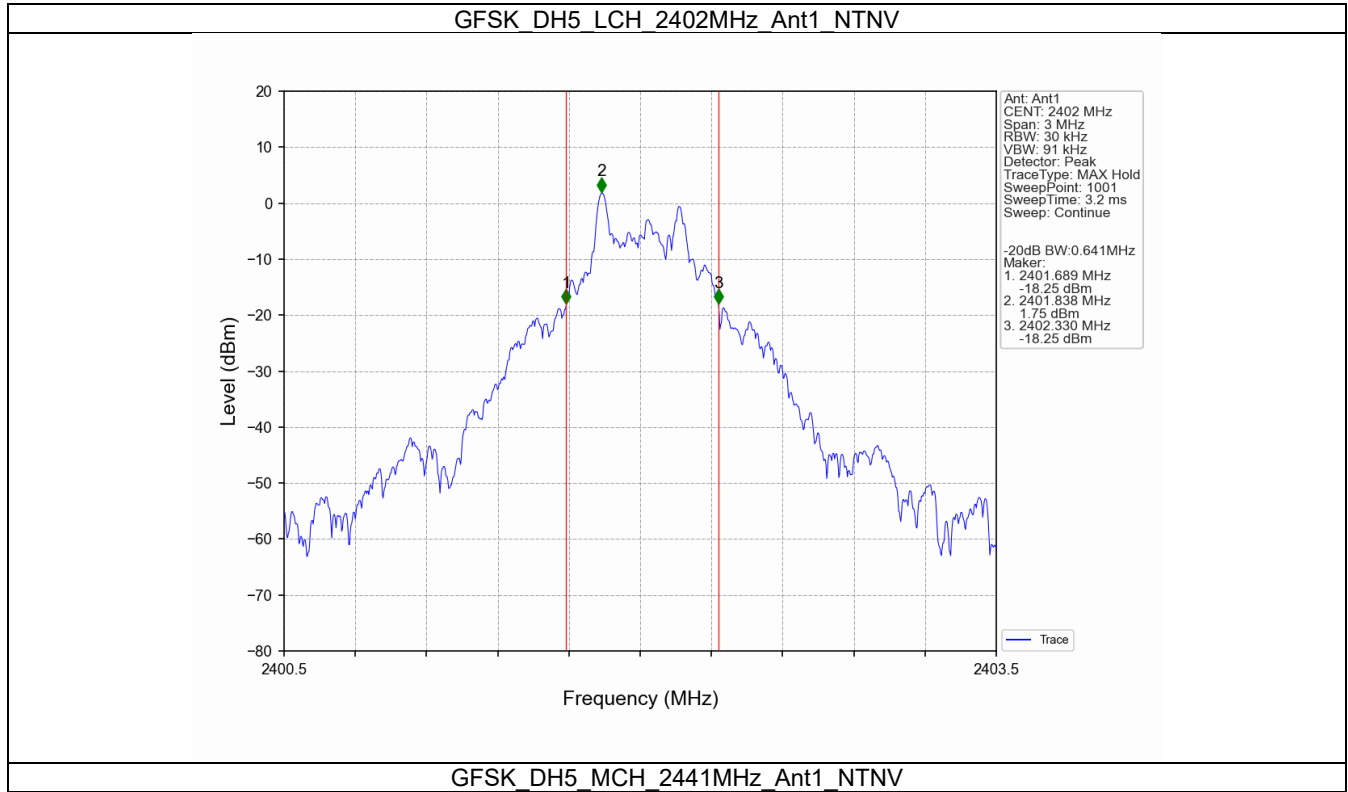


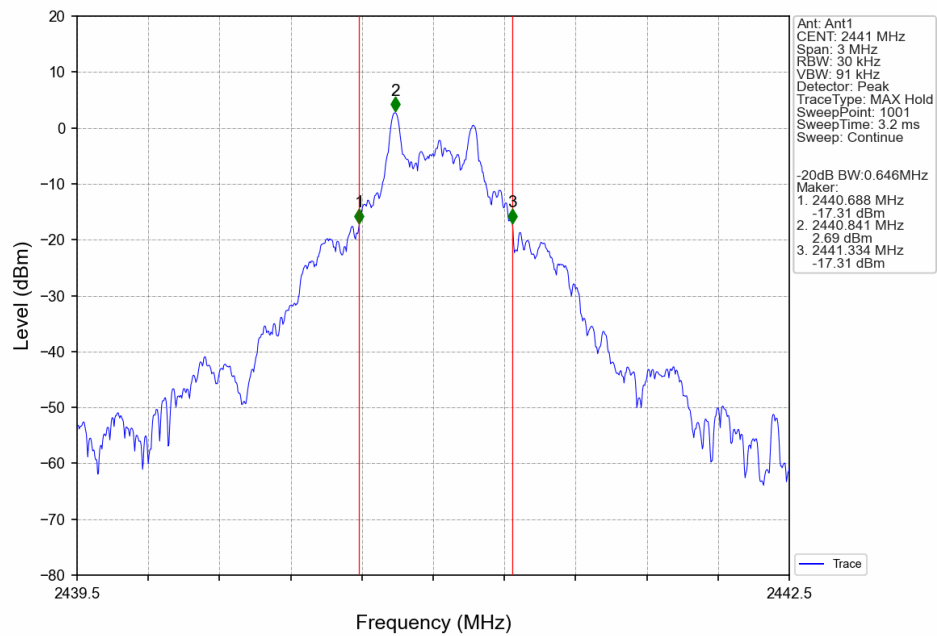
8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



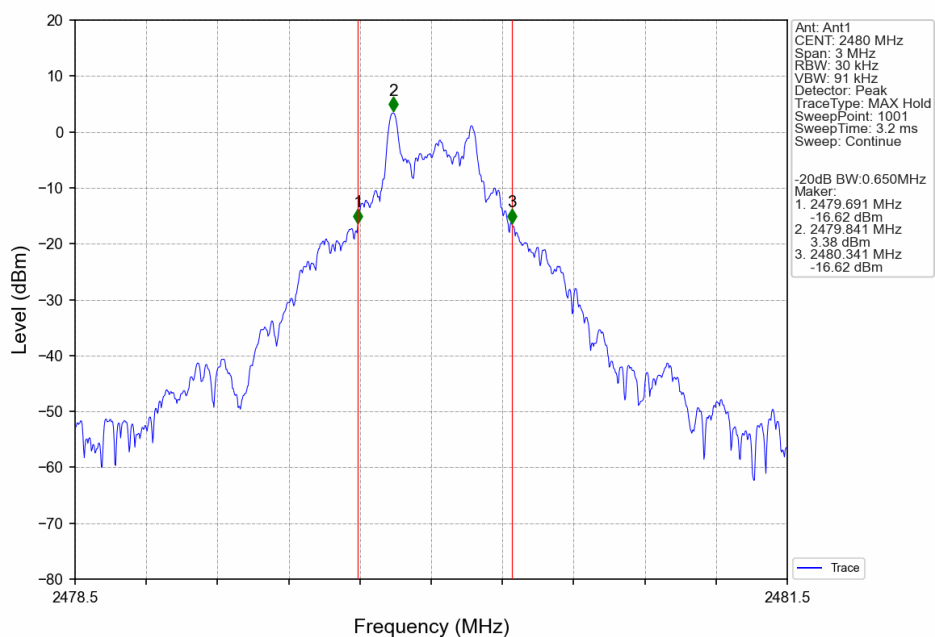


2.2.2 20dB BW

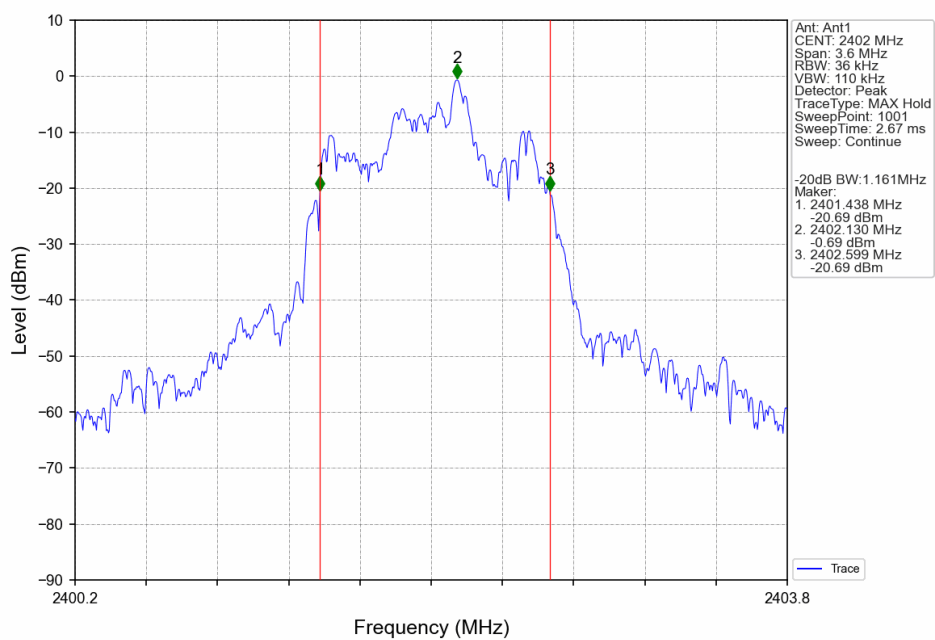




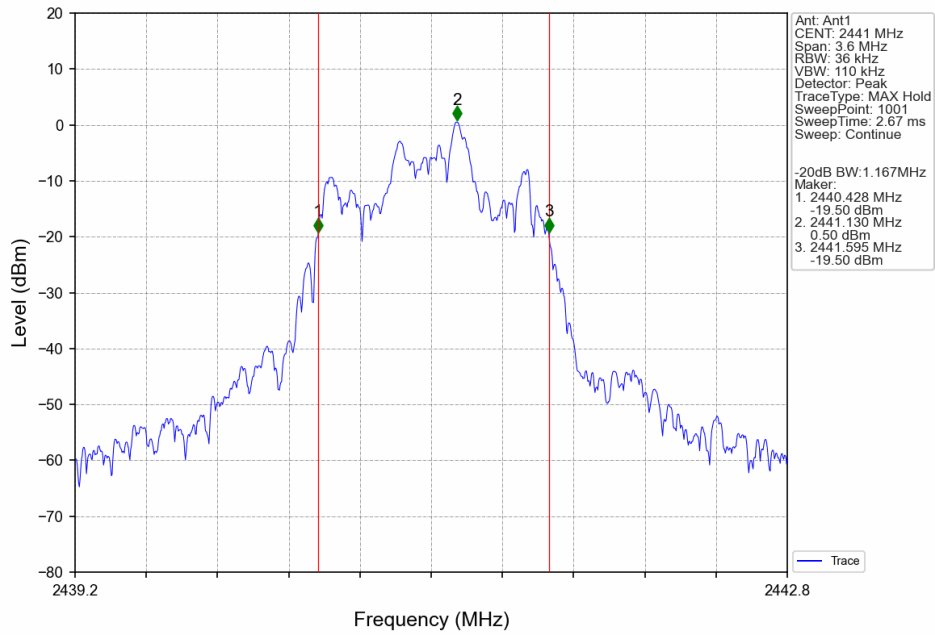
GFSK DH5 HCH 2480MHz_Ant1_NTNV



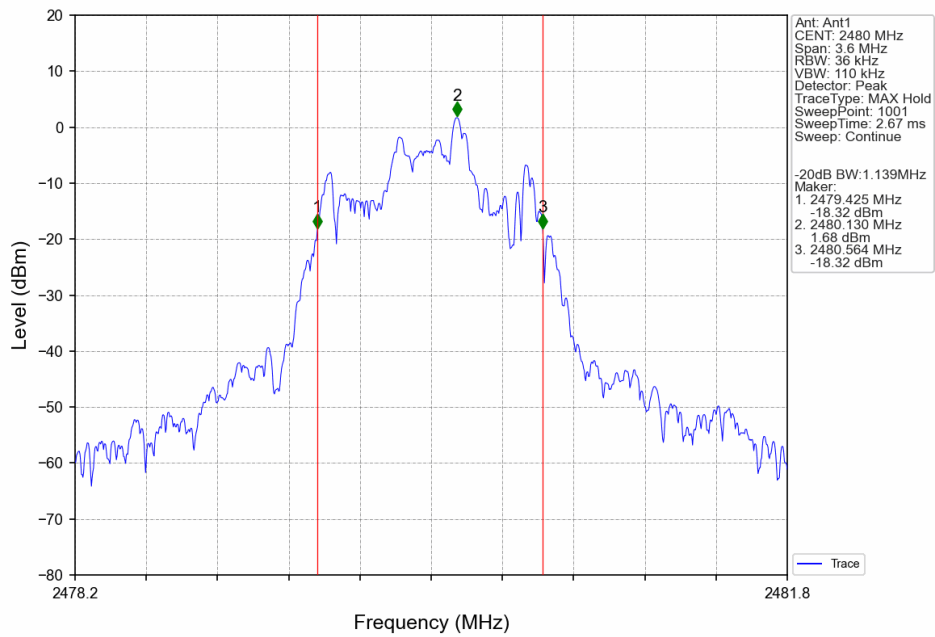
Pi/4DQPSK 2DH5 LCH 2402MHz_Ant1_NTNV



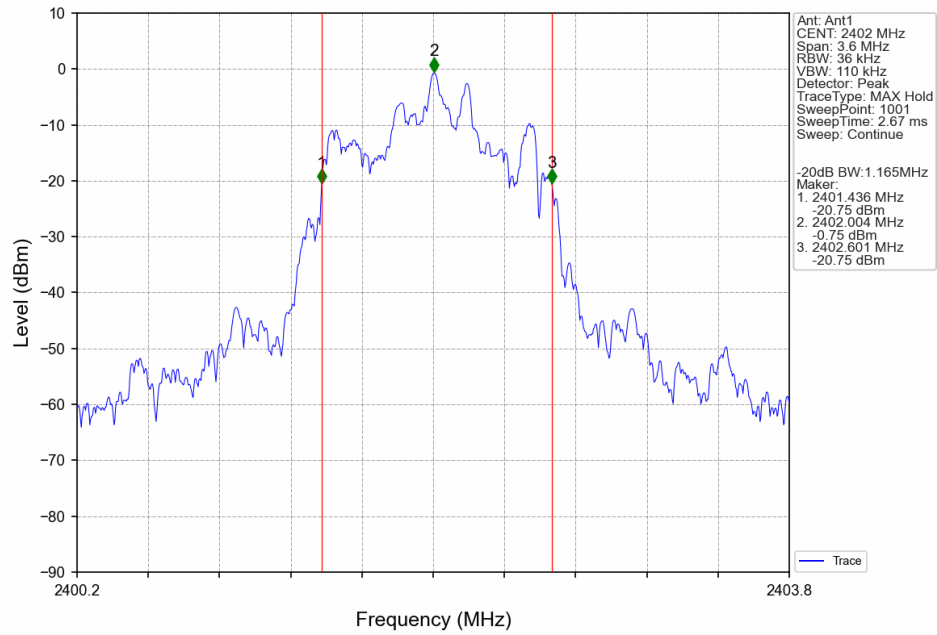
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



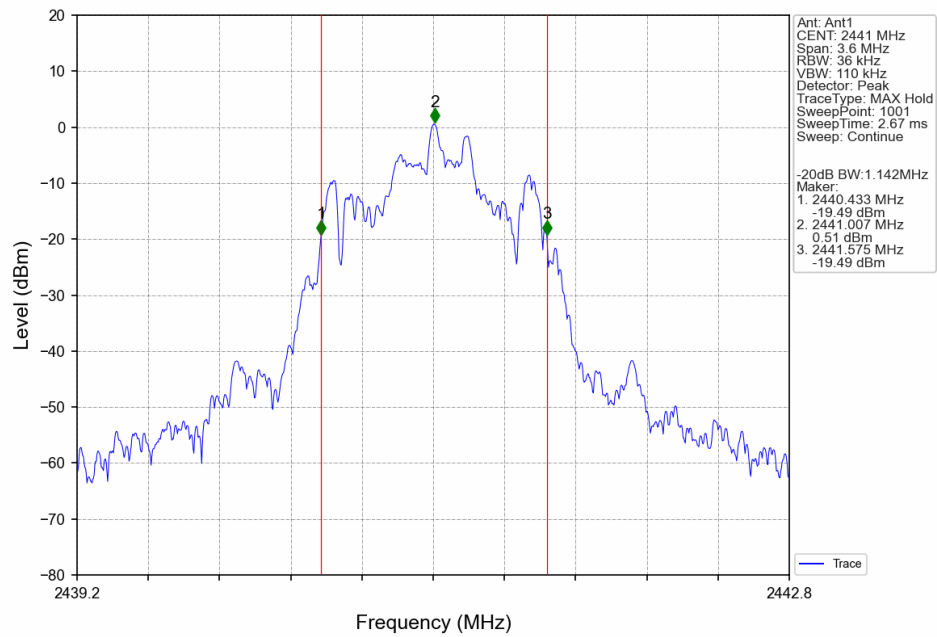
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

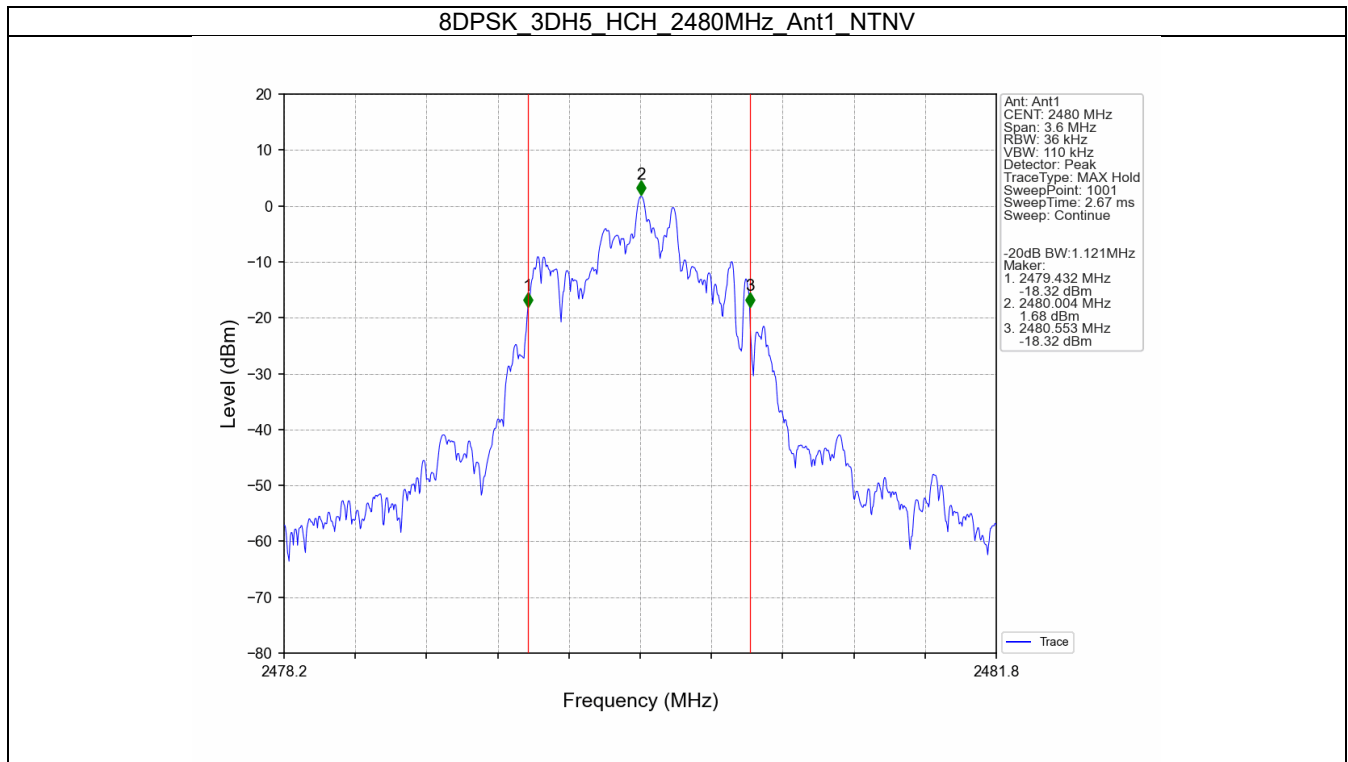


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV







3. Maximum Conducted Output Power

3.1 Test Result

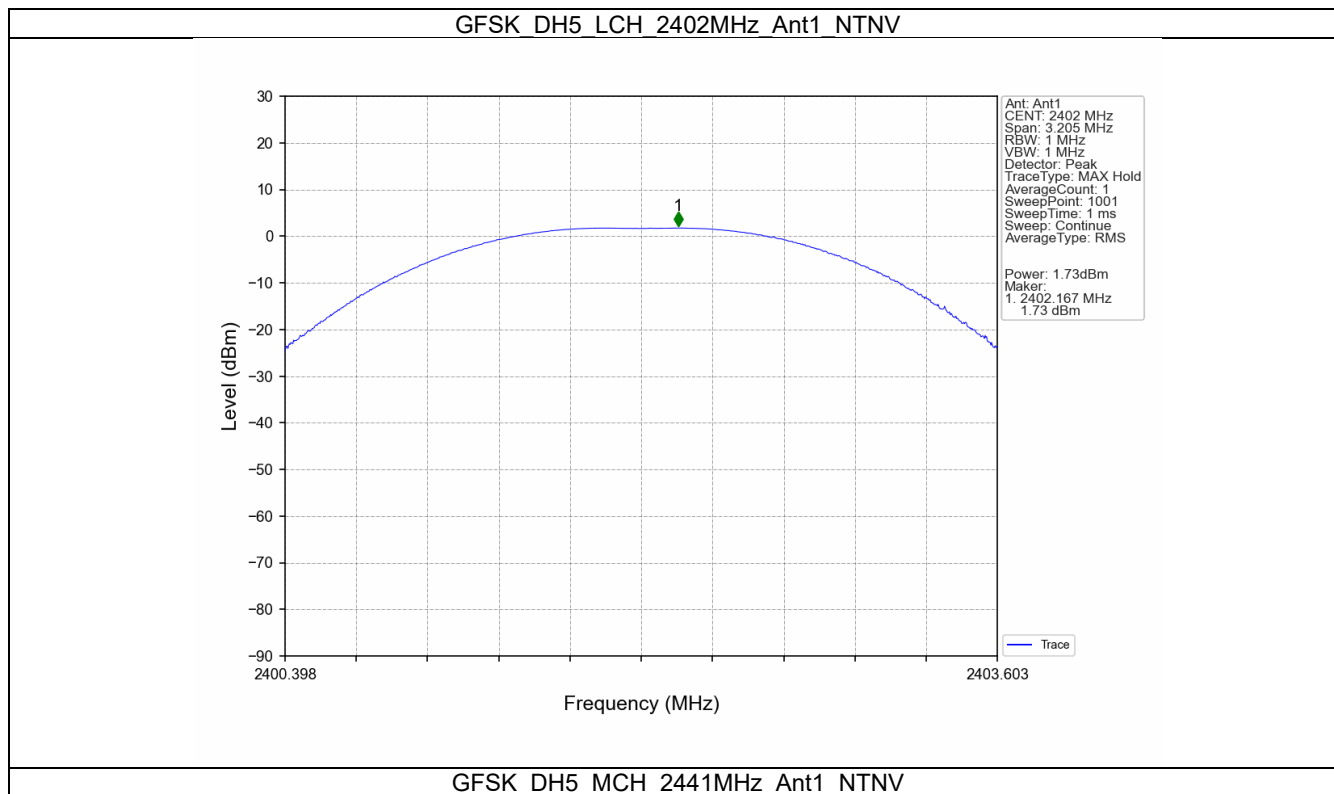
3.1.1 Power

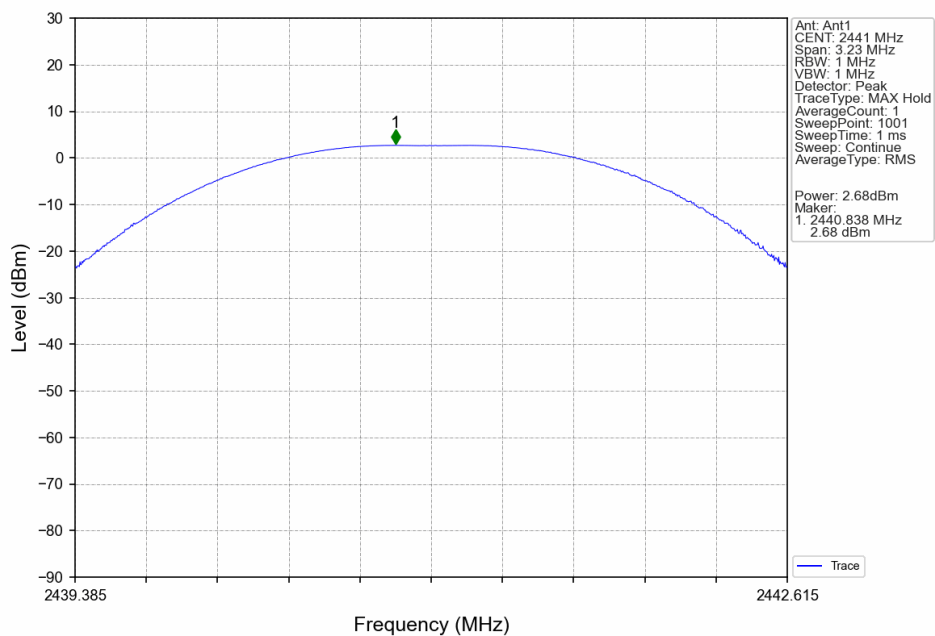
Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	1.73	≤ 30	Pass
		2441	DH5	2.68	≤ 30	Pass
		2480	DH5	3.36	≤ 30	Pass
Pi/4DQPSK	SISO	2402	2DH5	1.34	≤ 20.97	Pass
		2441	2DH5	2.52	≤ 20.97	Pass
		2480	2DH5	3.61	≤ 20.97	Pass
8DPSK	SISO	2402	3DH5	1.34	≤ 20.97	Pass
		2441	3DH5	2.51	≤ 20.97	Pass
		2480	3DH5	3.57	≤ 20.97	Pass

Note1: Antenna Gain: Ant1: -0.37dBi;

3.2 Test Graph

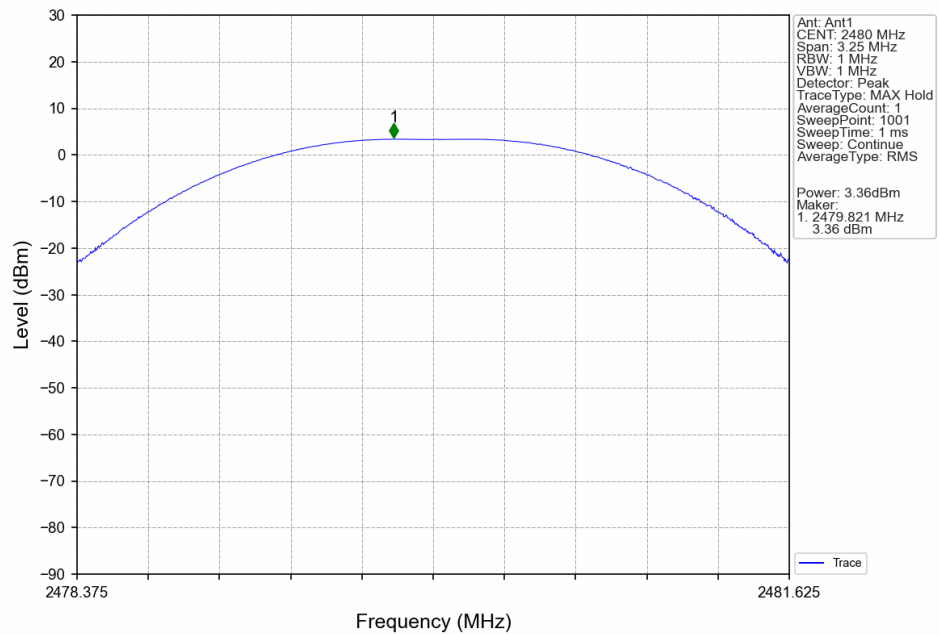
3.2.1 Power



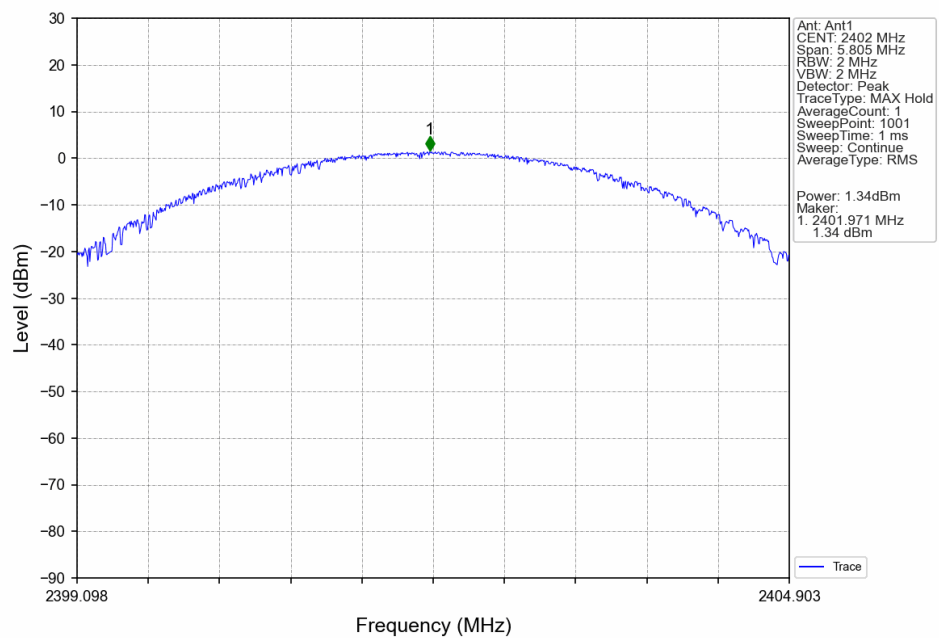




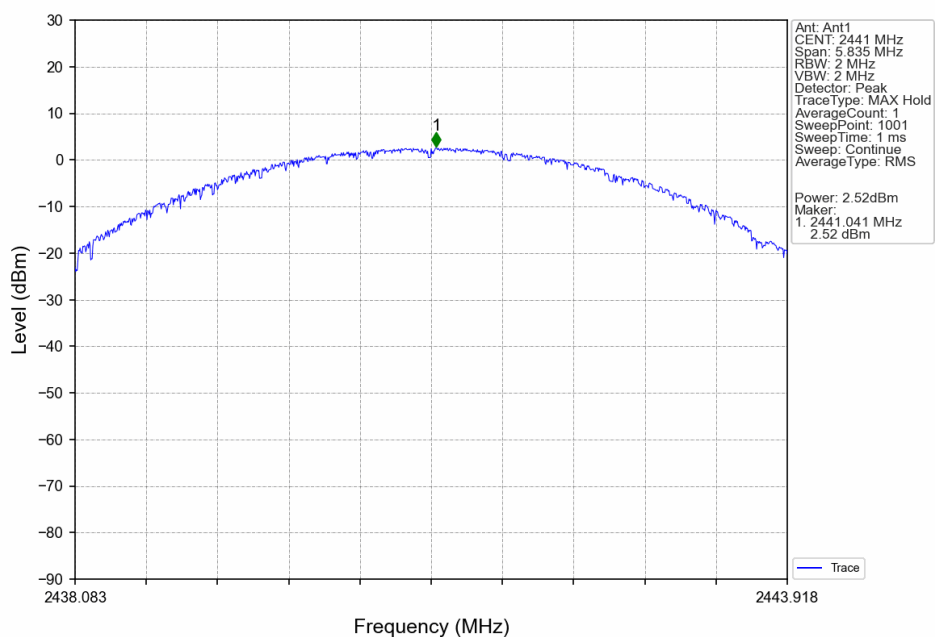
GFSK DH5 HCH 2480MHz Ant1 NTN



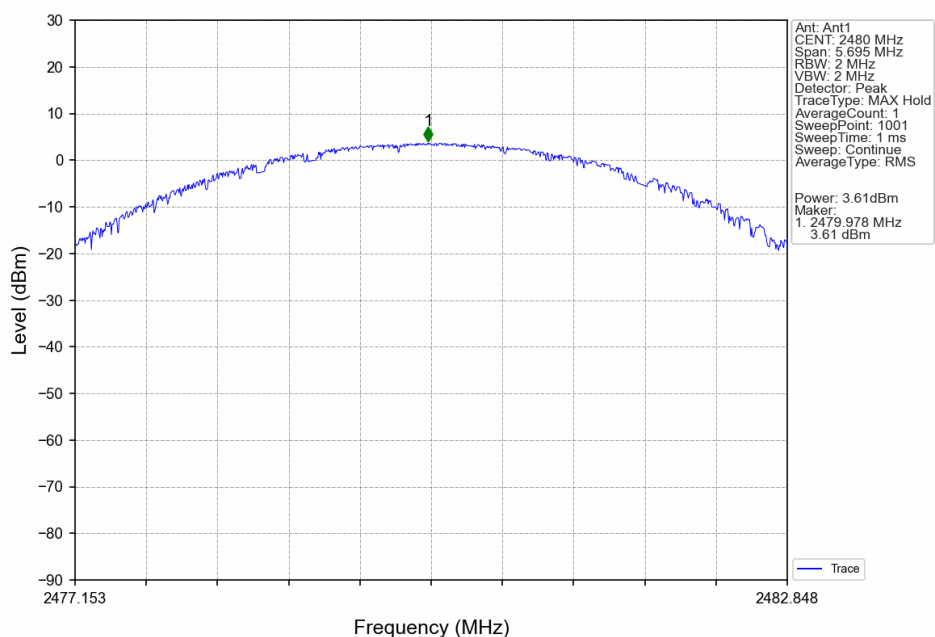
Pi/4DQPSK 2DH5 LCH 2402MHz Ant1 NTN



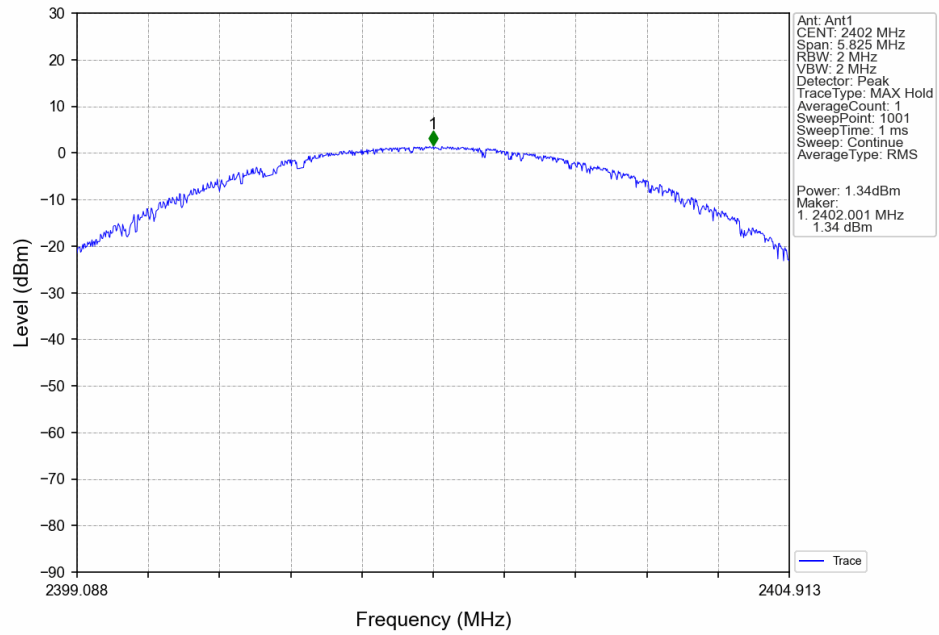
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



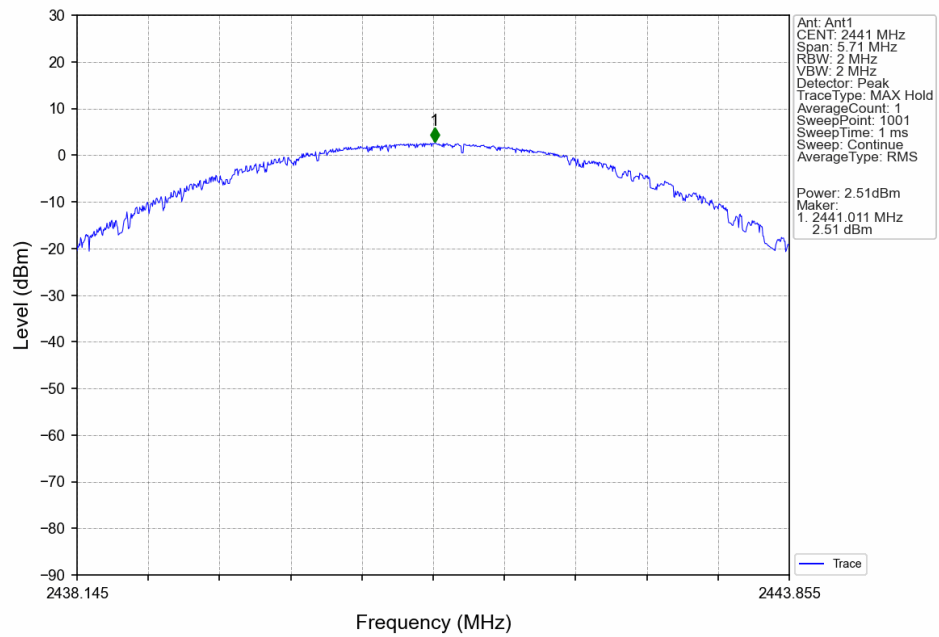
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

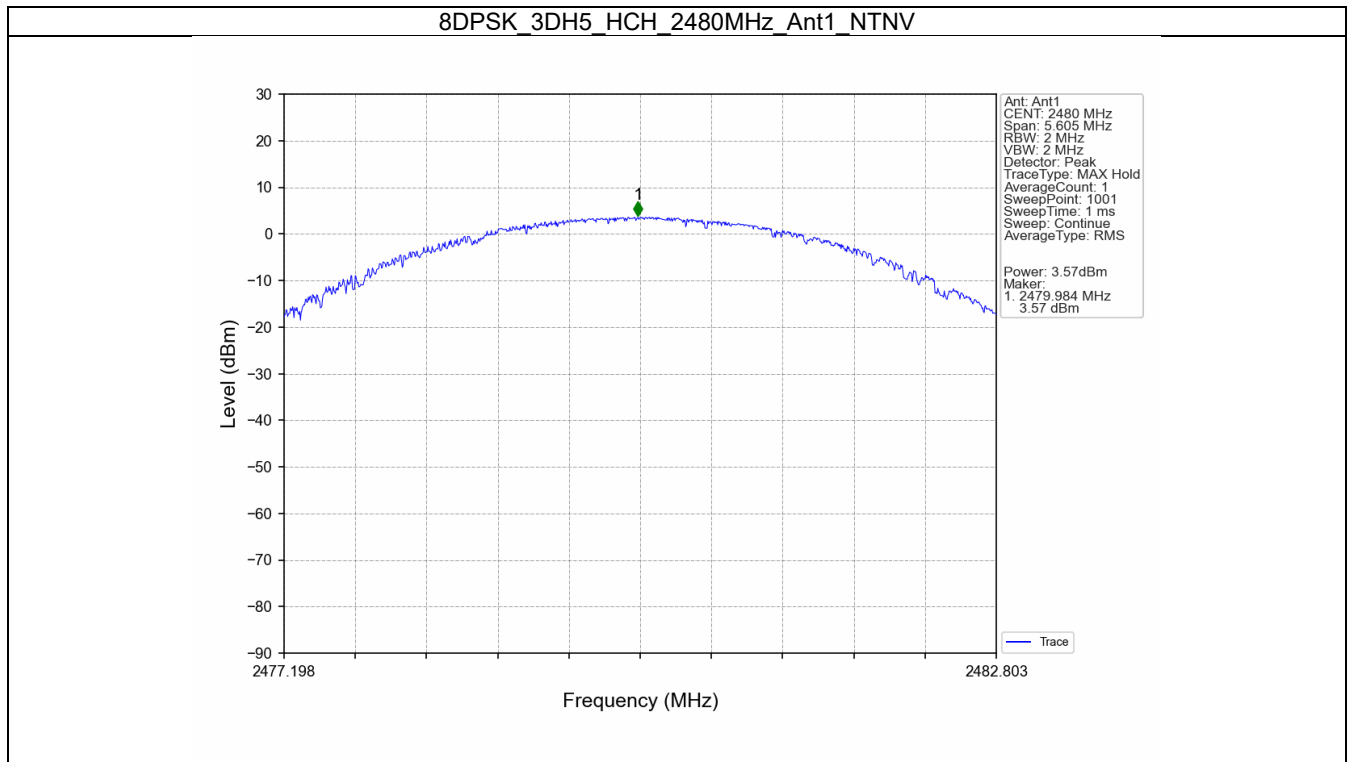


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV







4. Carrier Frequency Separation

4.1 Test Result

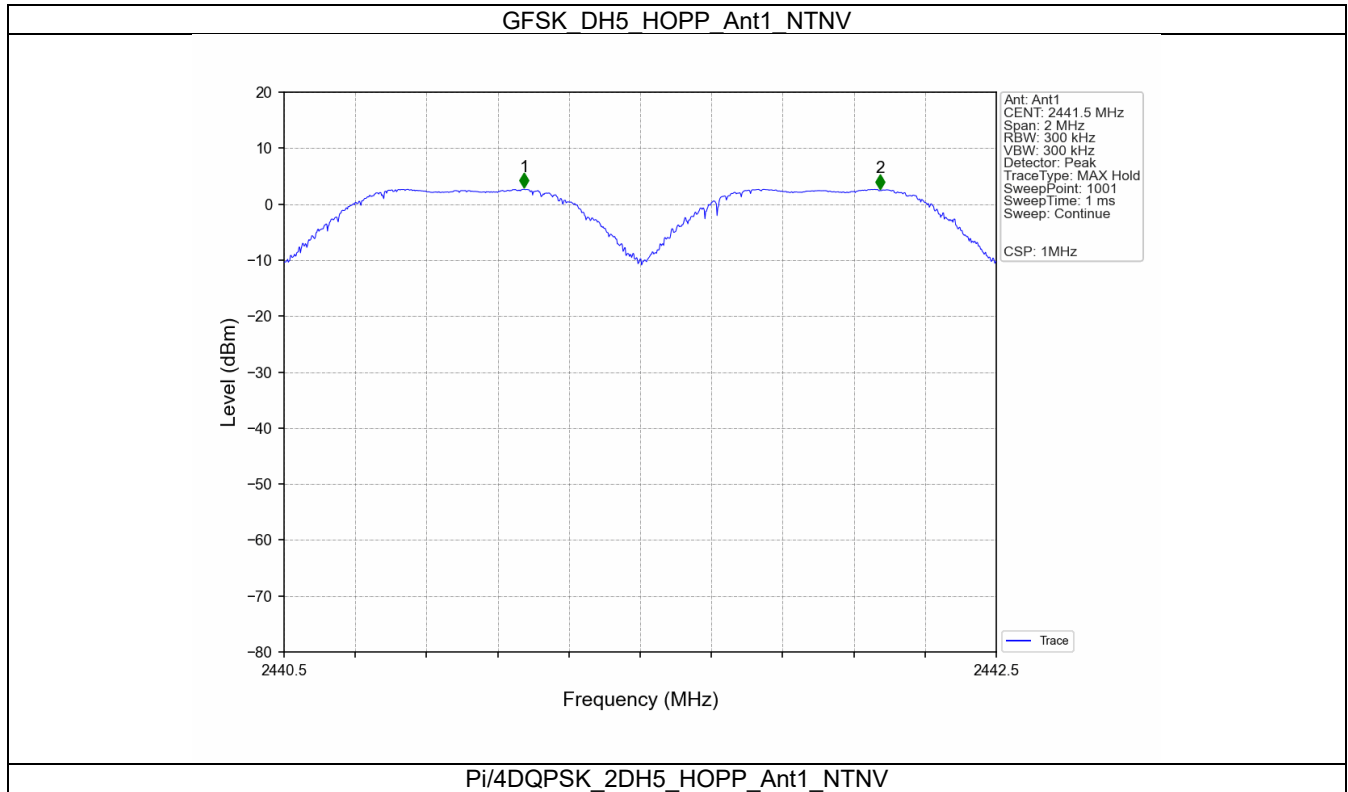
4.1.1 Ant1

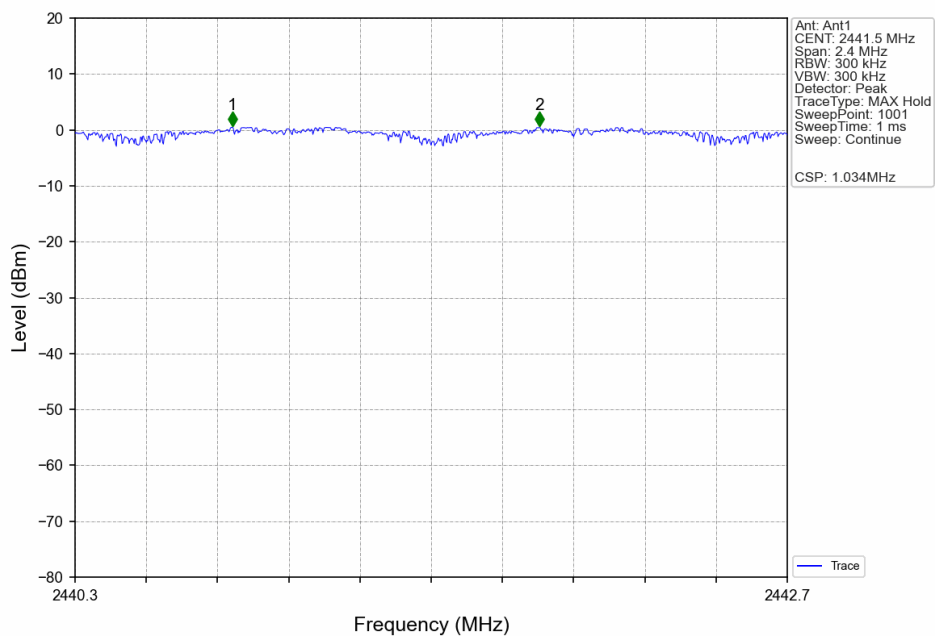
Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	1.000	0.650	≥ 0.65	Pass
PI/4DQPSK	SISO	HOPP	2DH5	1.034	1.167	≥ 0.778	Pass
8DPSK	SISO	HOPP	3DH5	1.001	1.165	≥ 0.777	Pass

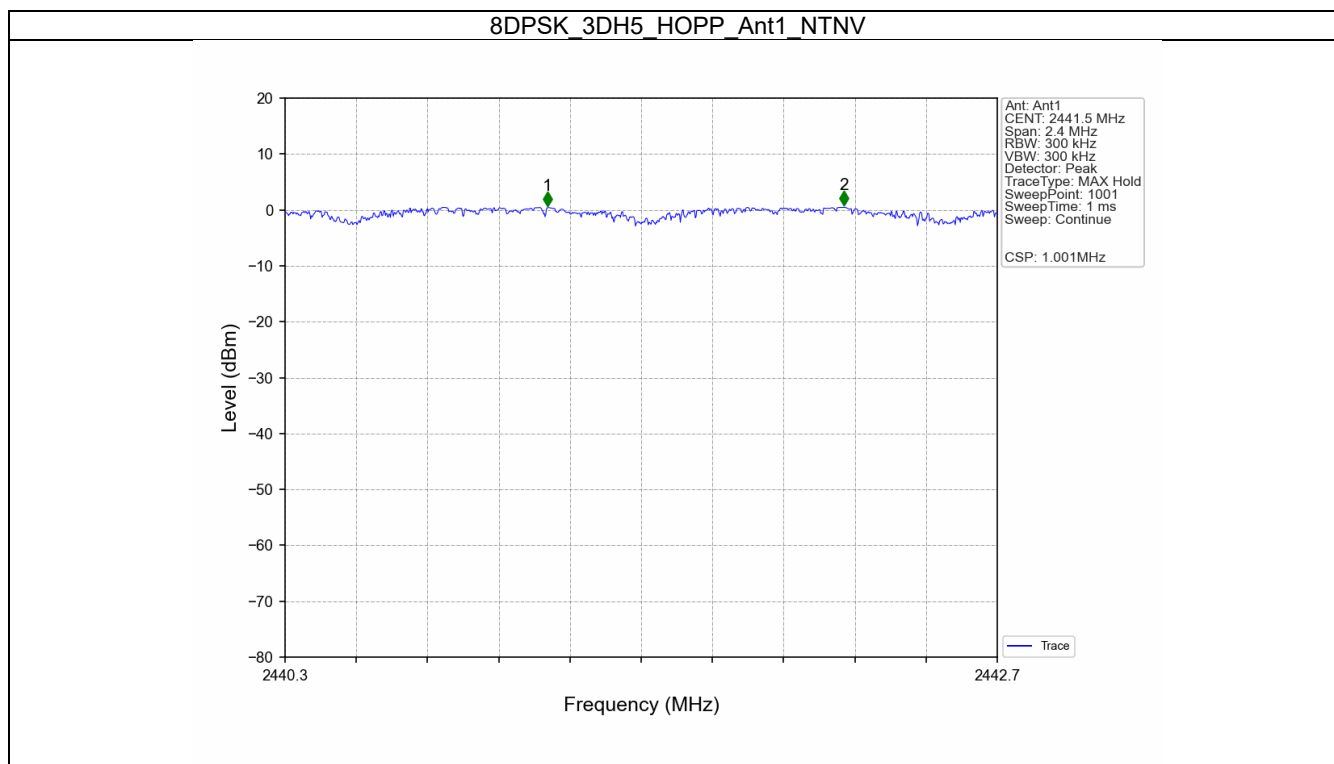


4.2 Test Graph

4.2.1 Ant1









5. Number of Hopping Frequencies

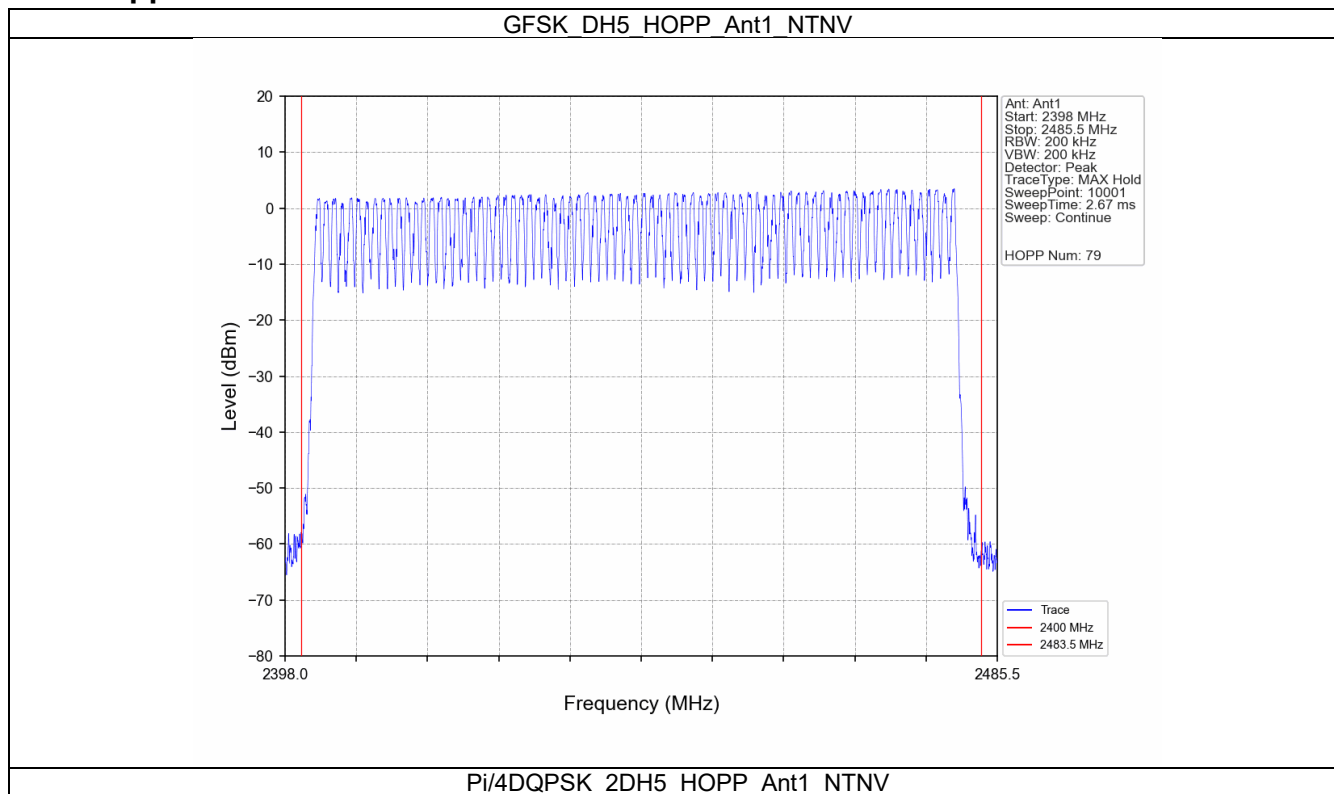
5.1 Test Result

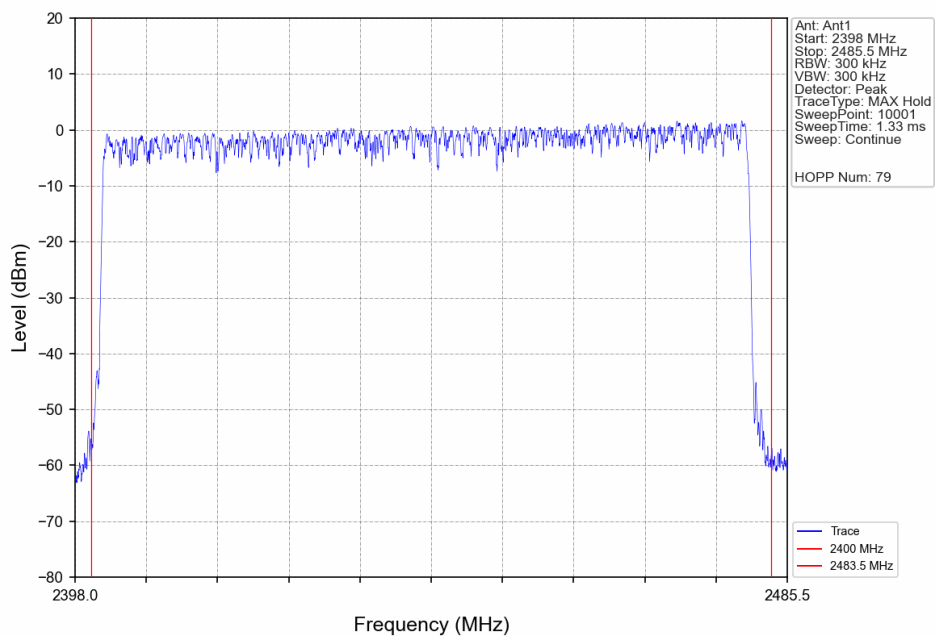
5.1.1 HoppNum

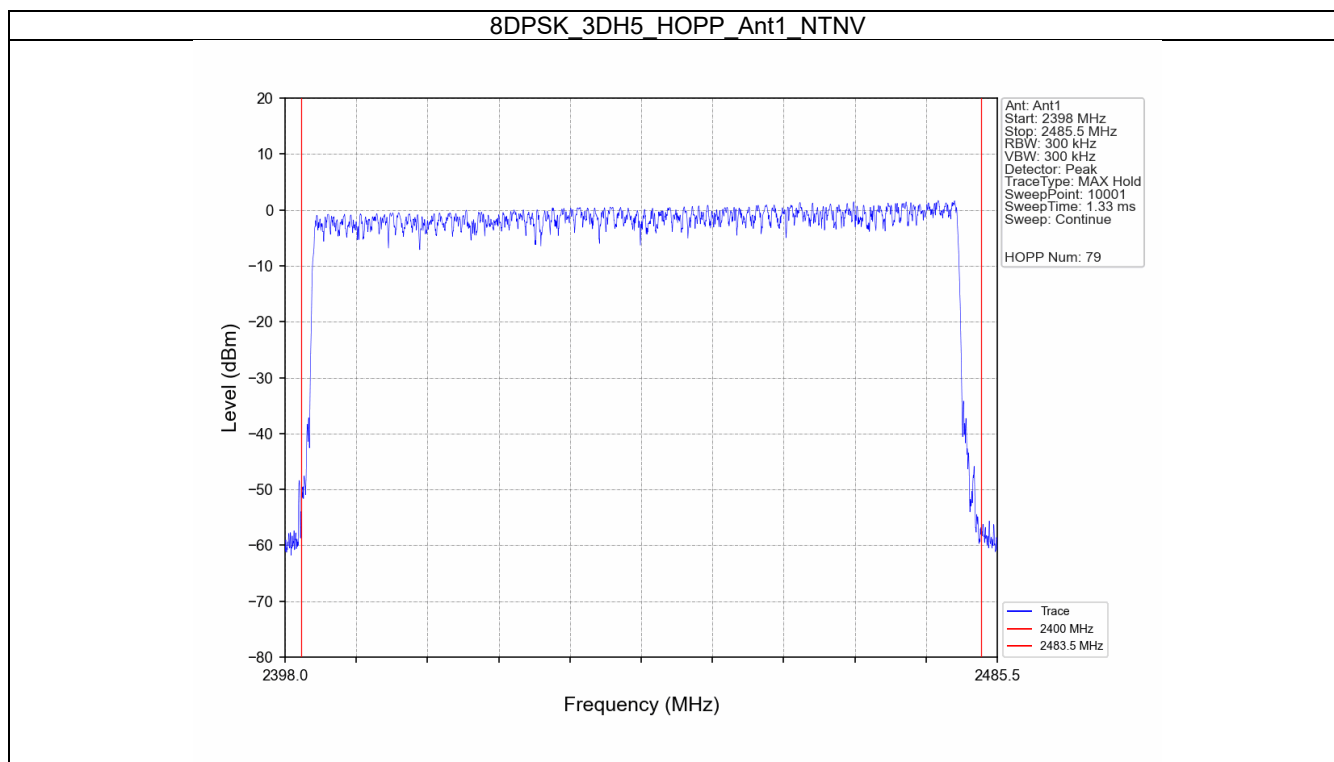
Mode	TX Type	Frequency (MHz)	Packet Type	Num of Hopping Frequencies		Verdict
				ANT1	Limit	
GFSK	SISO	HOPP	DH5	79	≥ 15	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	79	≥ 15	Pass
8DPSK	SISO	HOPP	3DH5	79	≥ 15	Pass

5.2 Test Graph

5.2.1 HoppNum









6. Time of Occupancy (Dwell Time)

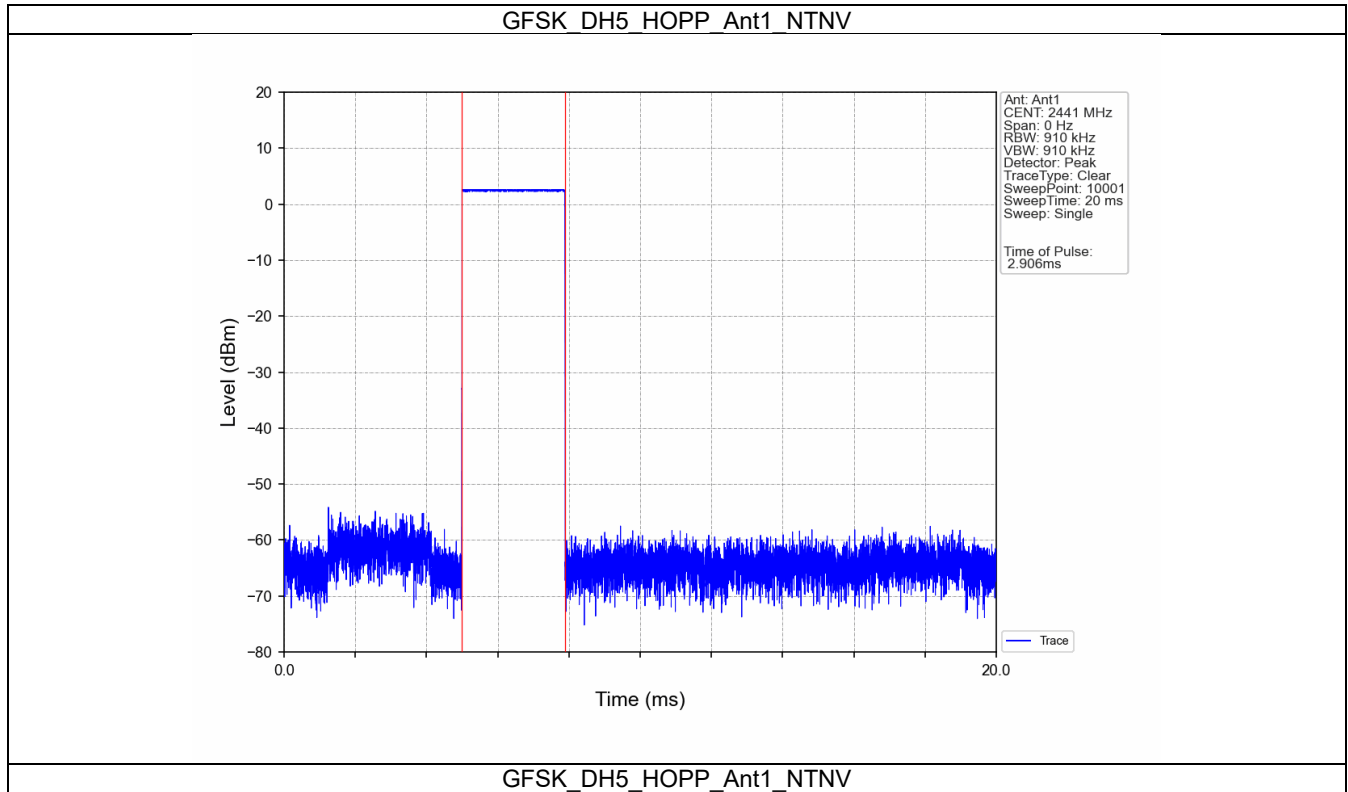
6.1 Test Result

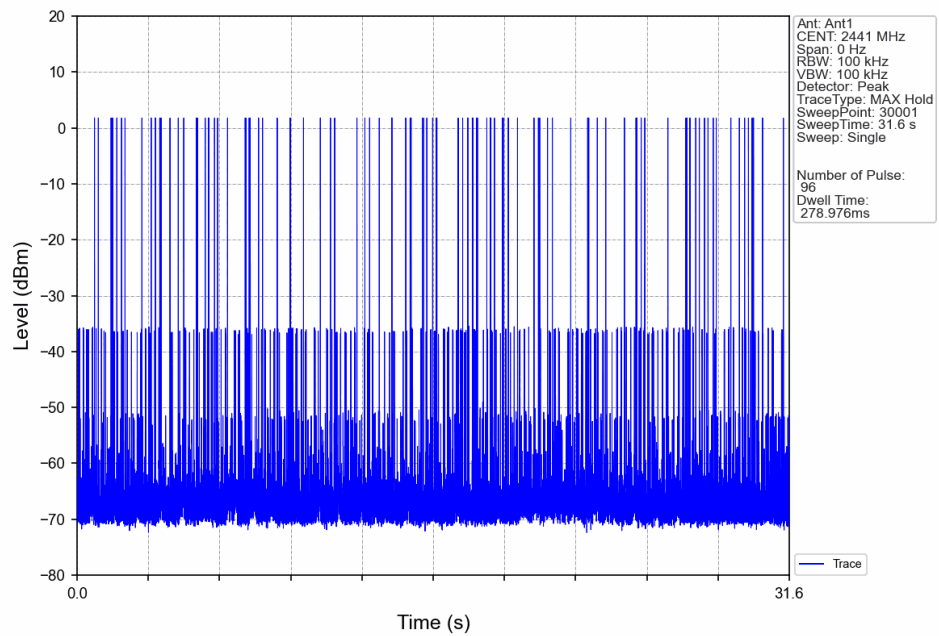
6.1.1 Ant1

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	DH5	2.906	31.600	96	278.976	<=400	Pass
PI/4DQPSK	SISO	HOPP	2DH5	2.906	31.600	118	342.908	<=400	Pass
8DPSK	SISO	HOPP	3DH5	2.908	31.600	111	322.788	<=400	Pass

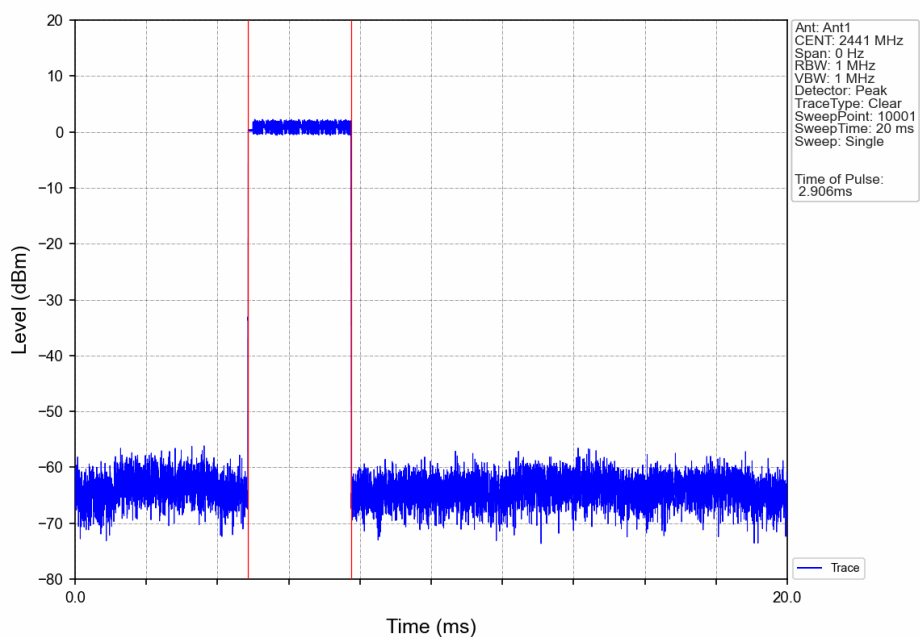
6.2 Test Graph

6.2.1 Ant1

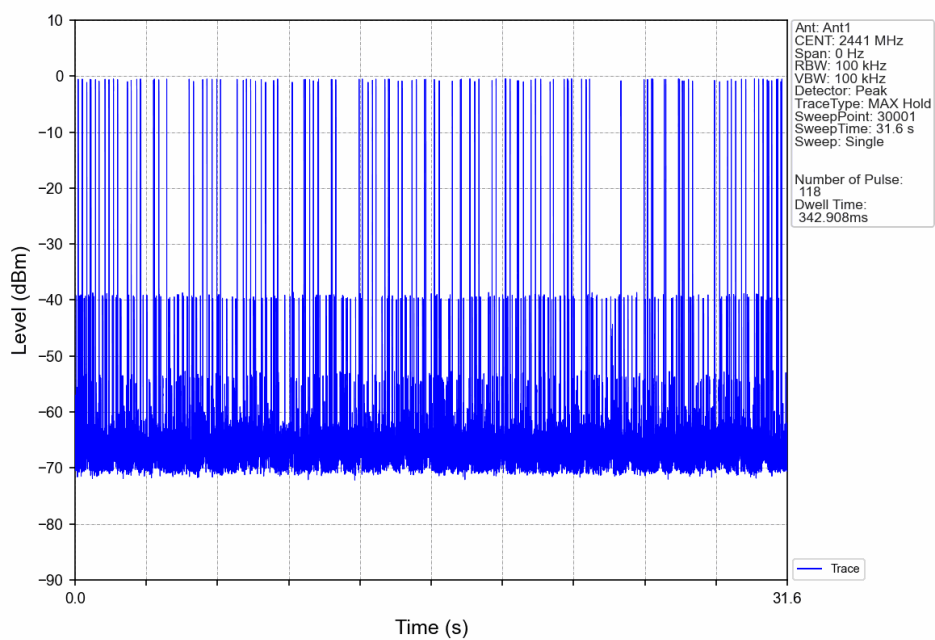




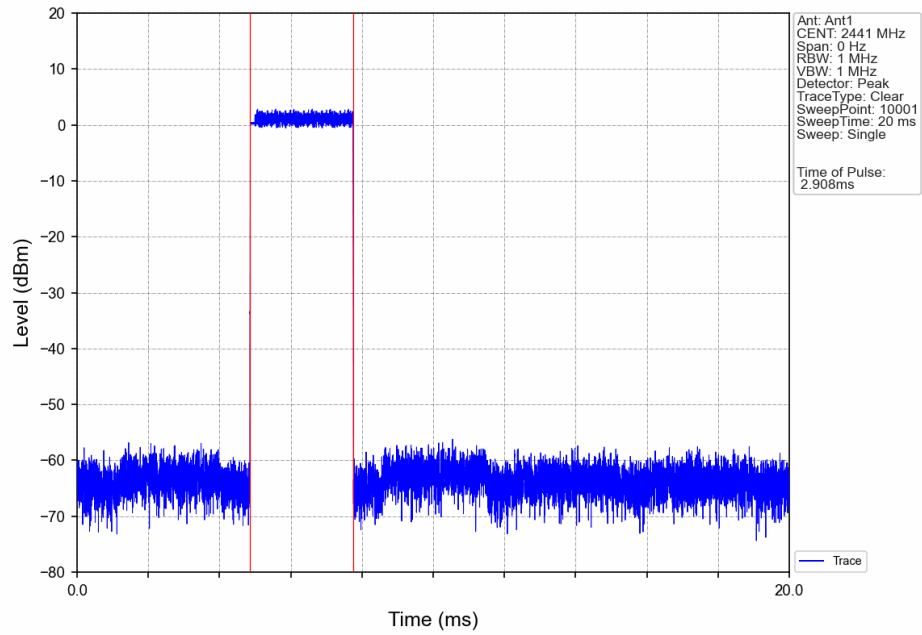
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



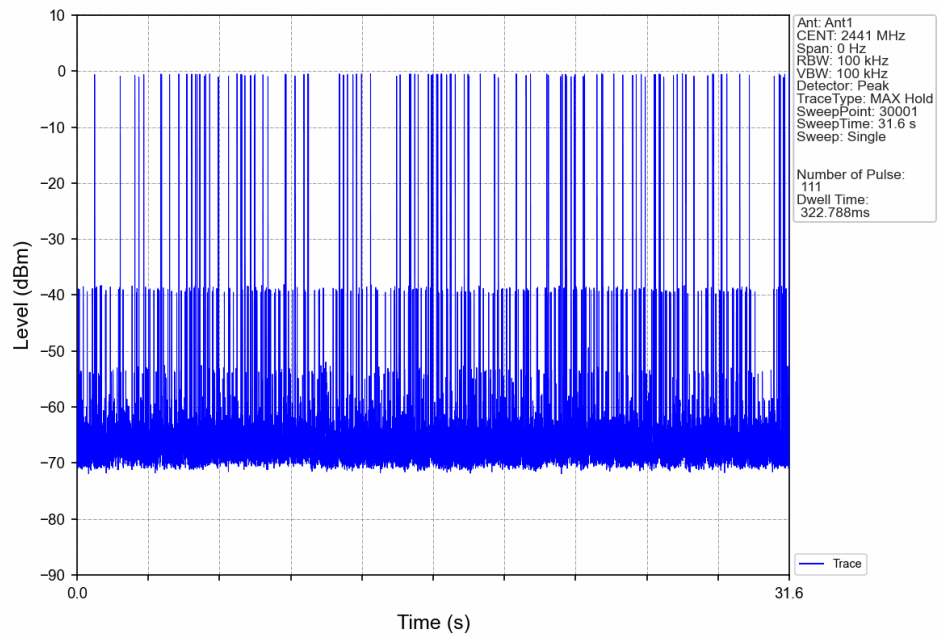
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV



7. Unwanted Emissions In Non-restricted Frequency Bands

7.1 Test Result

7.1.1 Ref

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	1.69
		2441	DH5	1	2.64
		2480	DH5	1	3.32
Pi/4DQPSK	SISO	2402	2DH5	1	-0.79
		2441	2DH5	1	0.46
		2480	2DH5	1	1.63
8DPSK	SISO	2402	3DH5	1	-0.78
		2441	3DH5	1	0.45
		2480	3DH5	1	1.61

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.

7.1.2 CSE

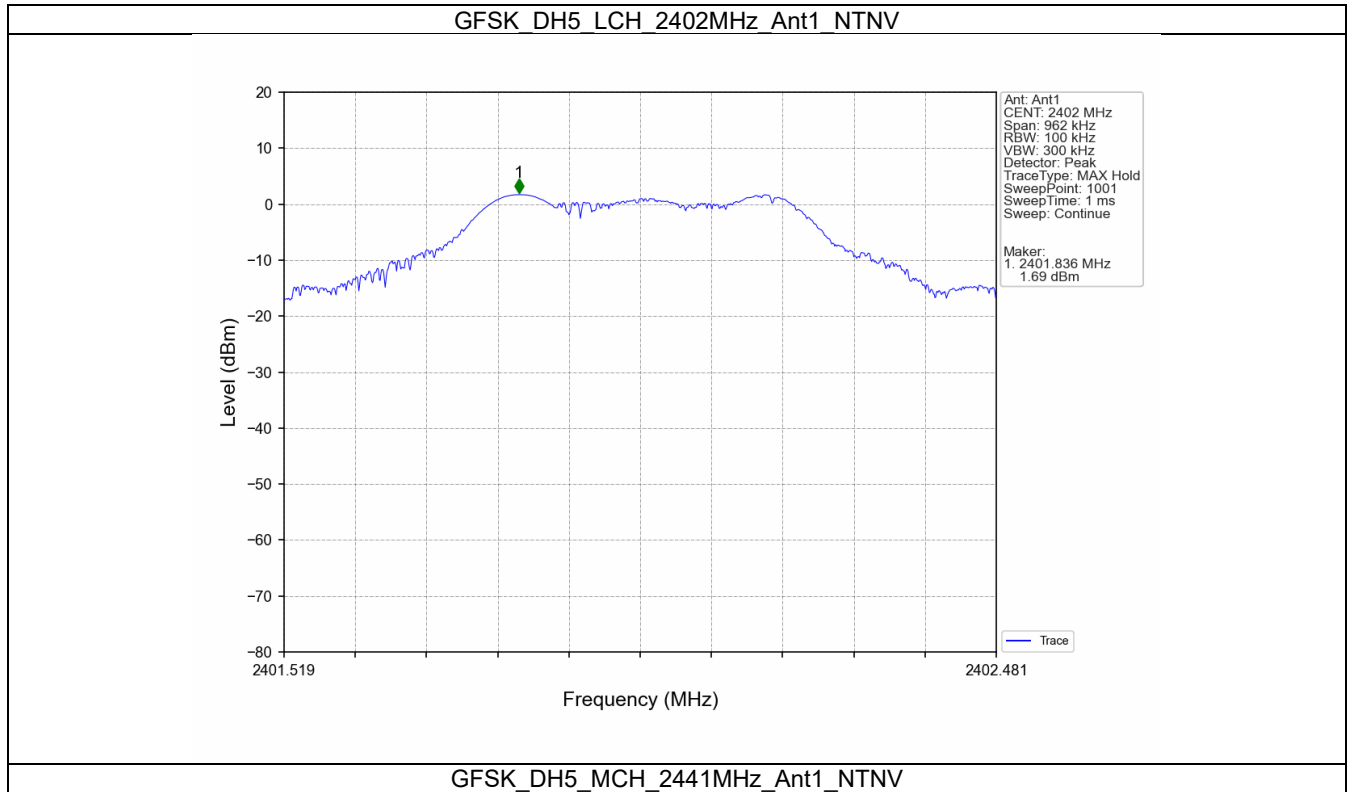
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	3.32	-16.68	Pass
		2441	DH5	1	3.32	-16.68	Pass
		2480	DH5	1	3.32	-16.68	Pass
		HOPP	DH5	1	3.32	-16.68	Pass
					3.32	-16.68	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.63	-18.37	Pass
		2441	2DH5	1	1.63	-18.37	Pass
		2480	2DH5	1	1.63	-18.37	Pass
		HOPP	2DH5	1	1.63	-18.37	Pass
					1.63	-18.37	Pass
8DPSK	SISO	2402	3DH5	1	1.61	-18.39	Pass
		2441	3DH5	1	1.61	-18.39	Pass
		2480	3DH5	1	1.61	-18.39	Pass
		HOPP	3DH5	1	1.61	-18.39	Pass
					1.61	-18.39	Pass

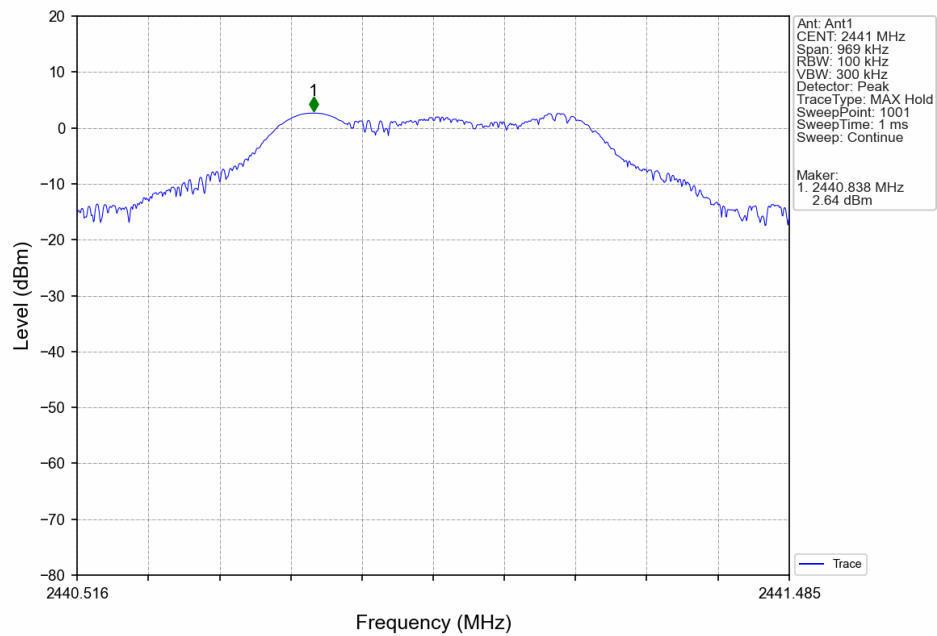
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.



7.2 Test Graph

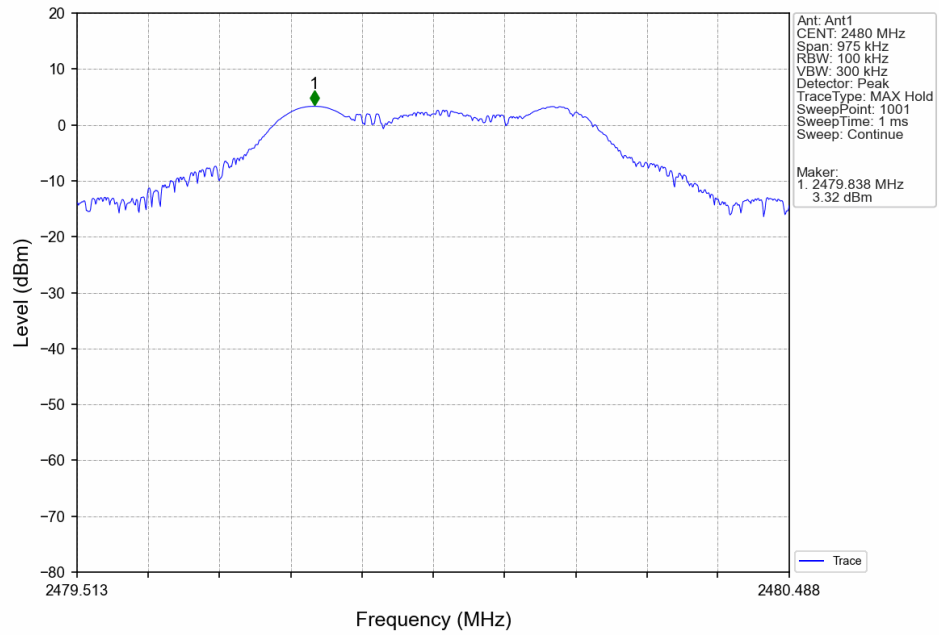
7.2.1 Ref



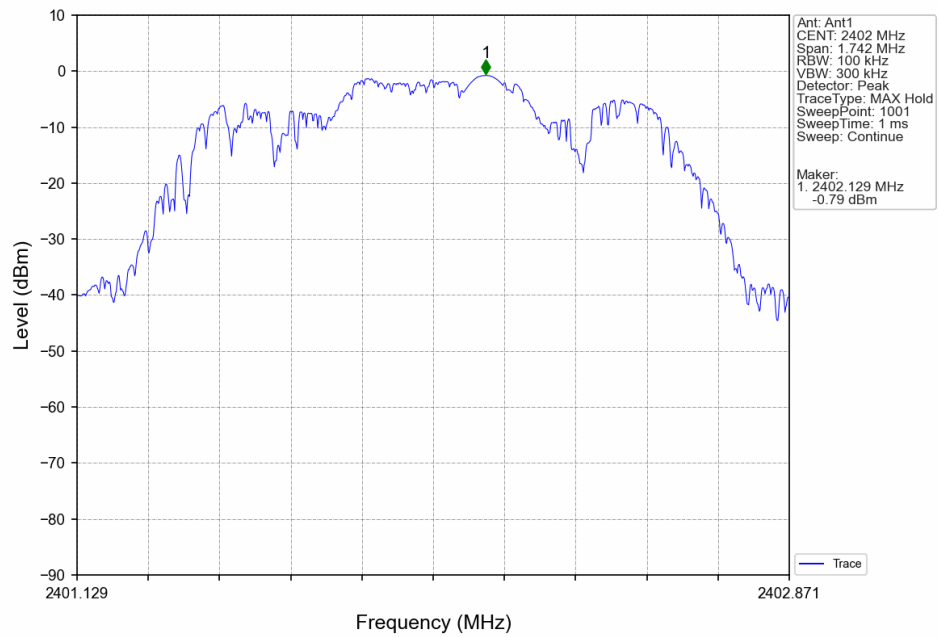




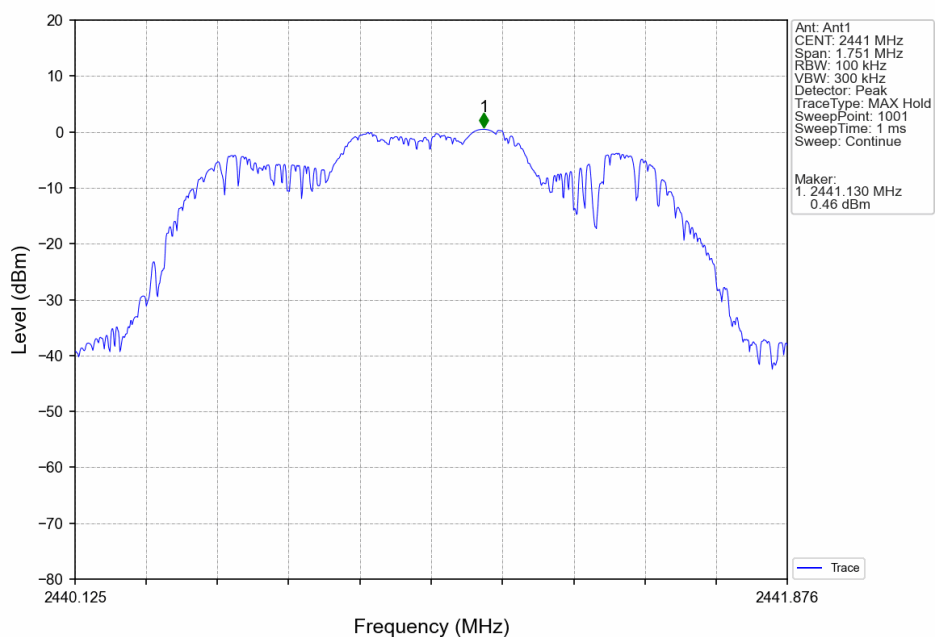
GFSK DH5 HCH 2480MHz_Ant1_NTNV



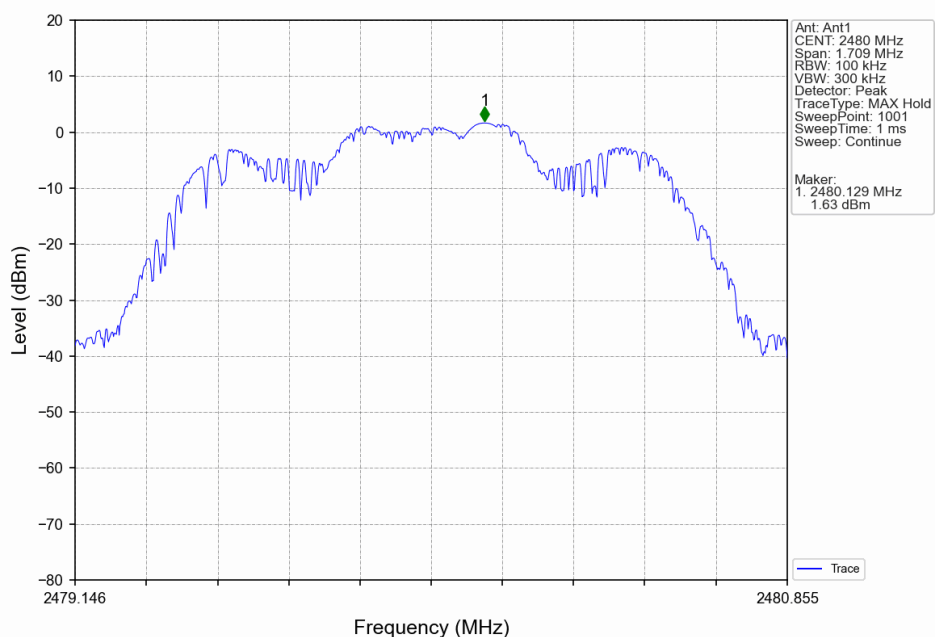
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



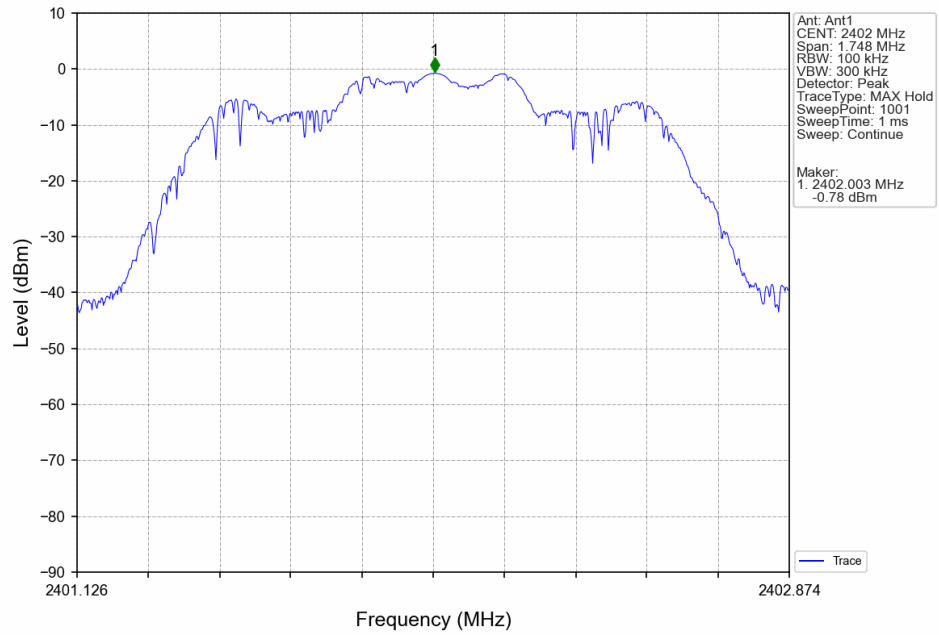
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



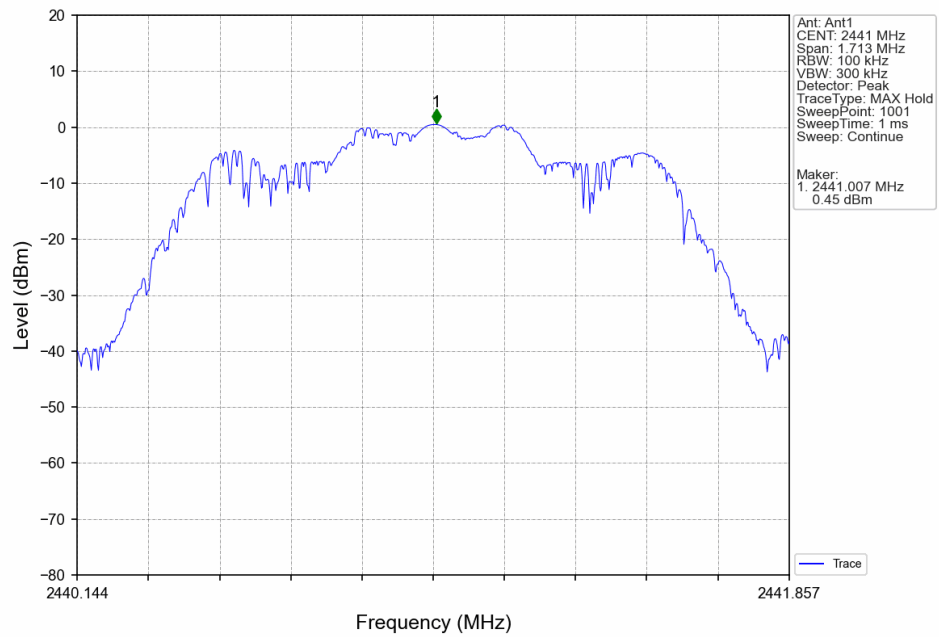
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

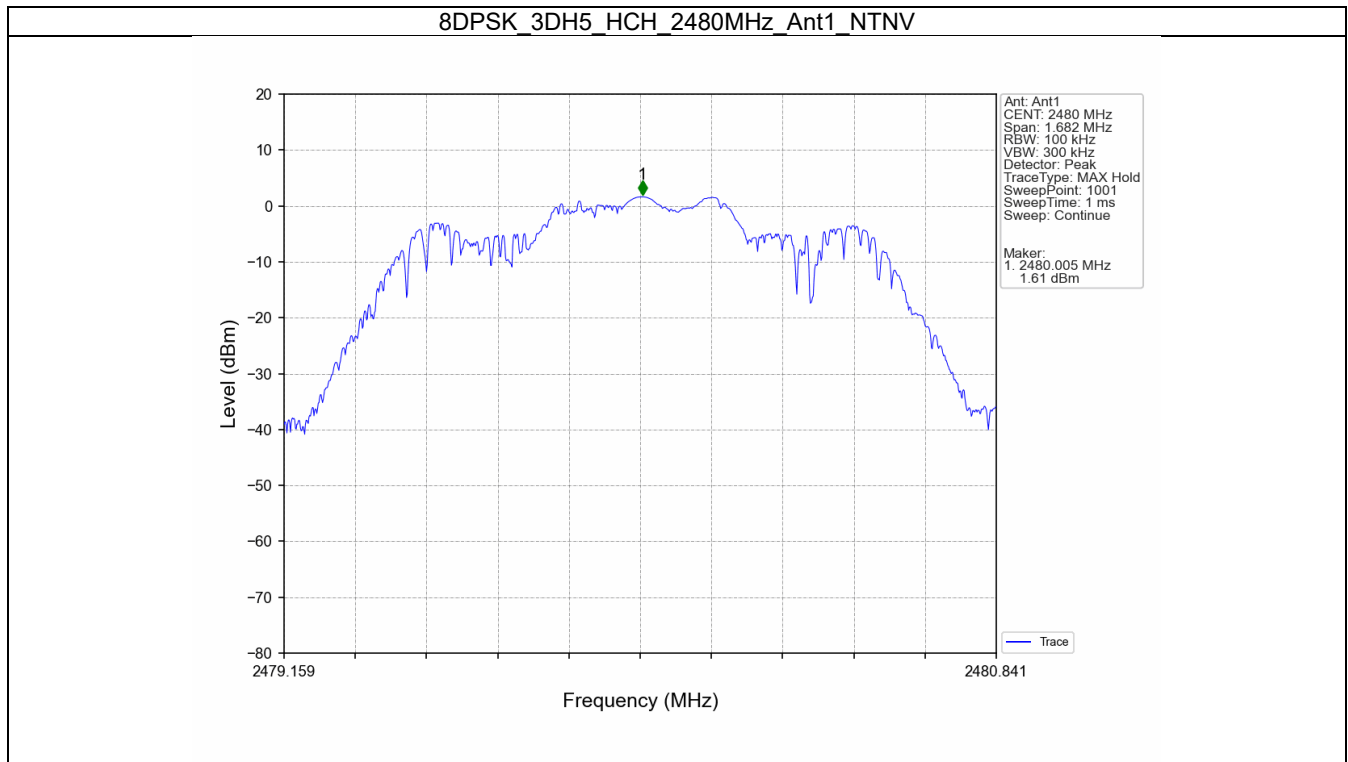


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV

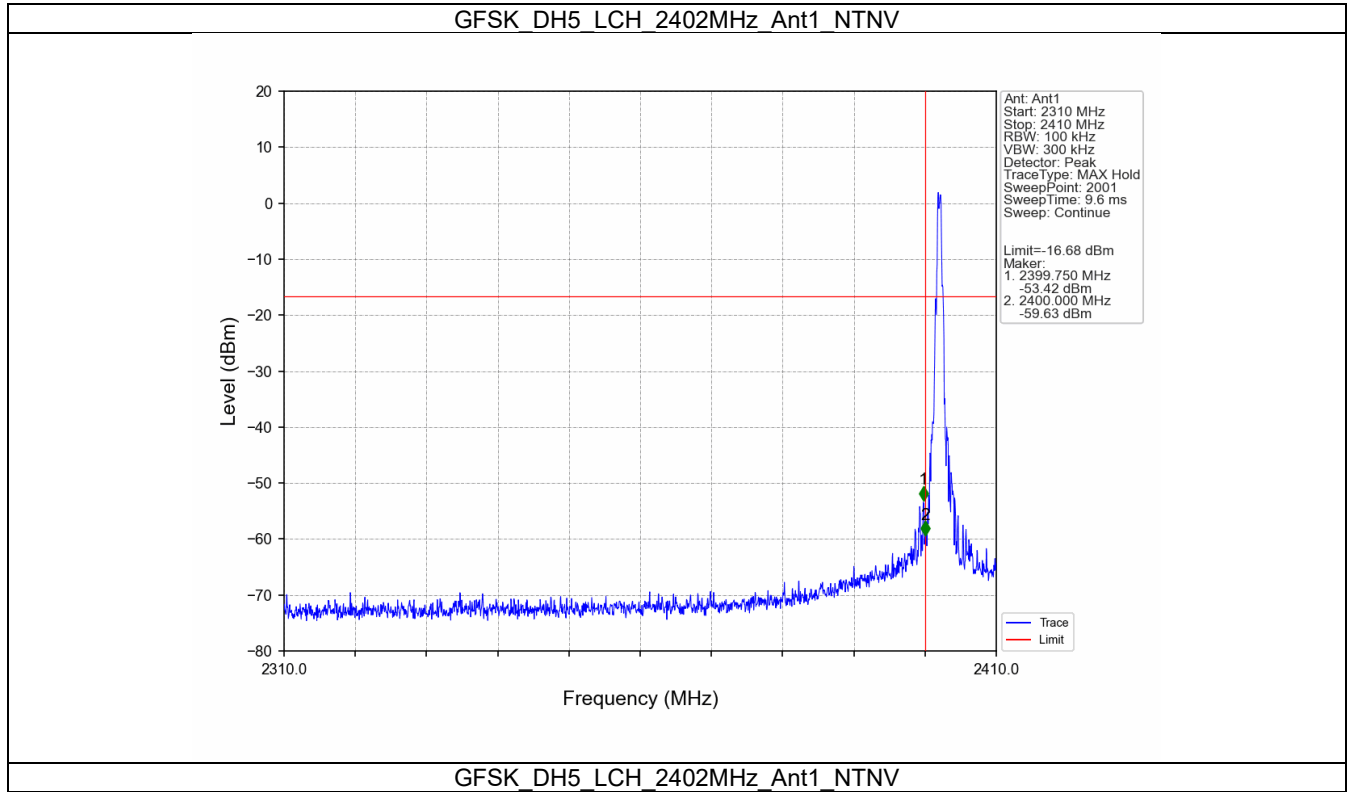


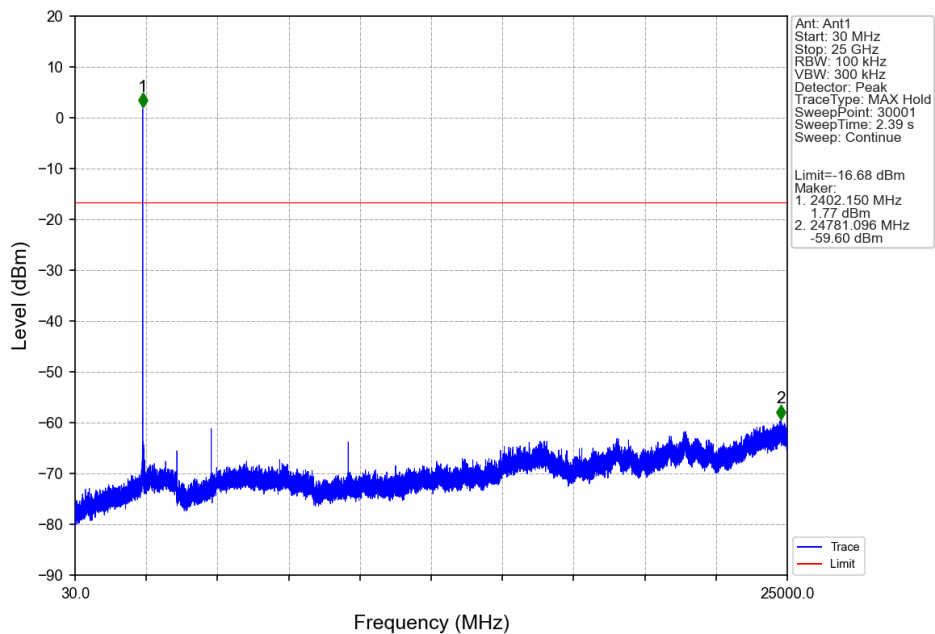
8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



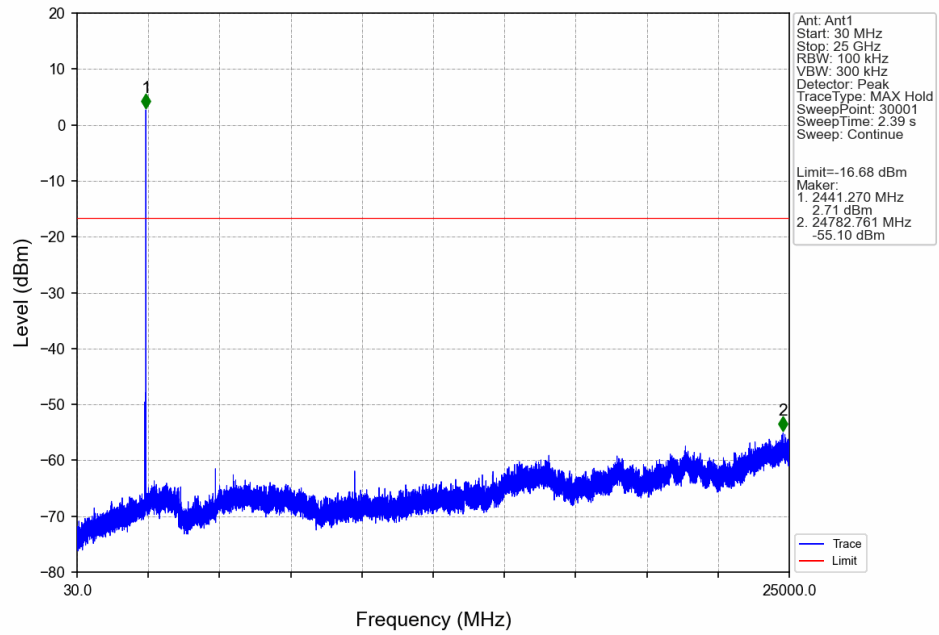


7.2.2 CSE

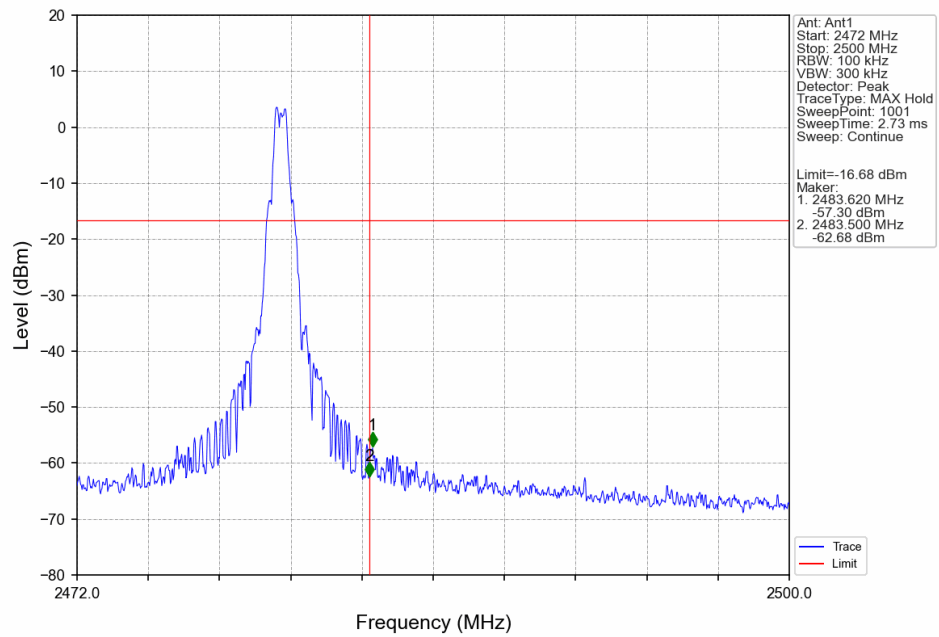




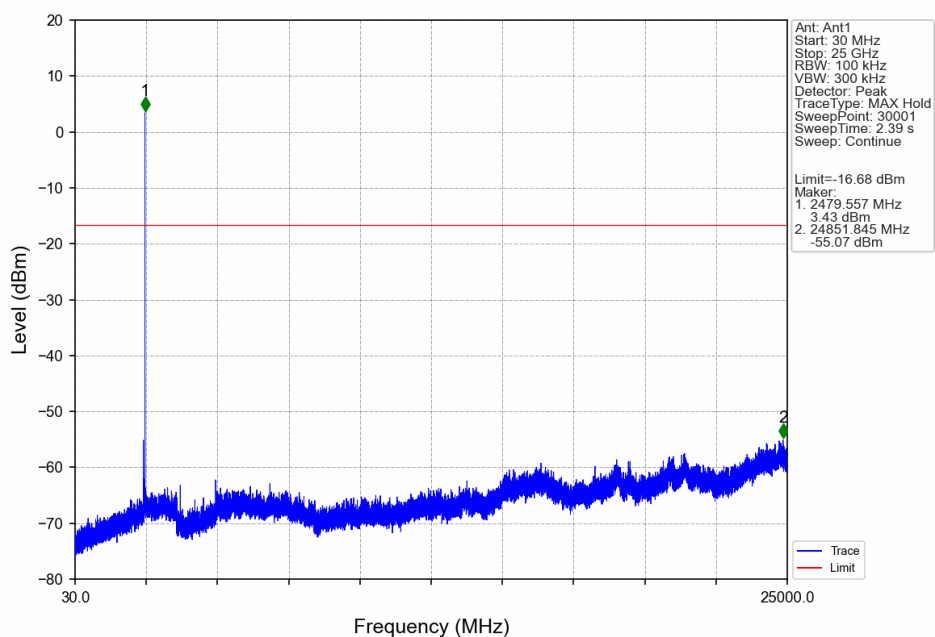
GFSK_DH5_MCH_2441MHz_Ant1_NTNV



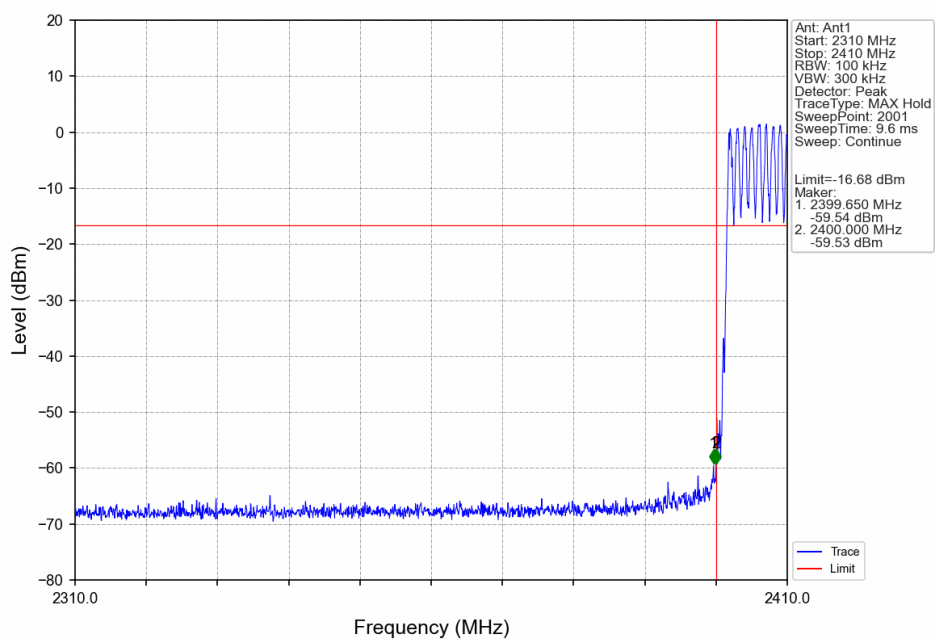
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



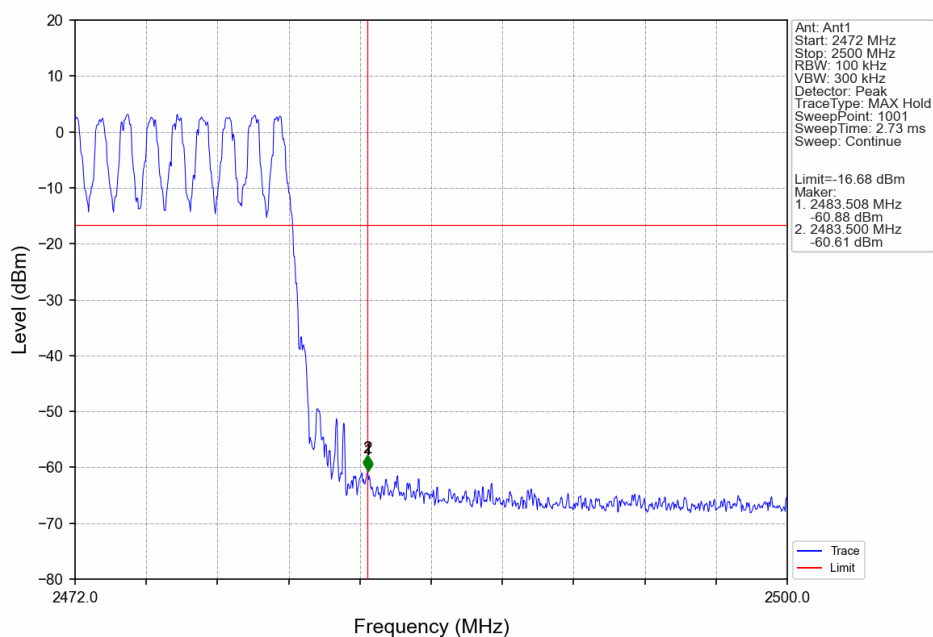
GFSK DH5_HCH_2480MHz_Ant1_NTNV



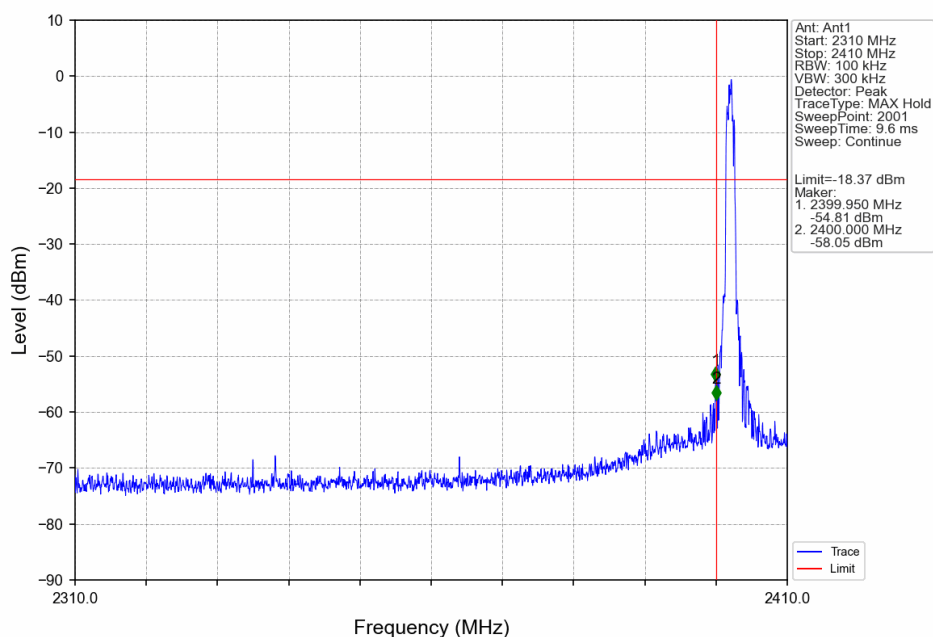
GFSK_DH5_HOPP_Ant1_NTNV



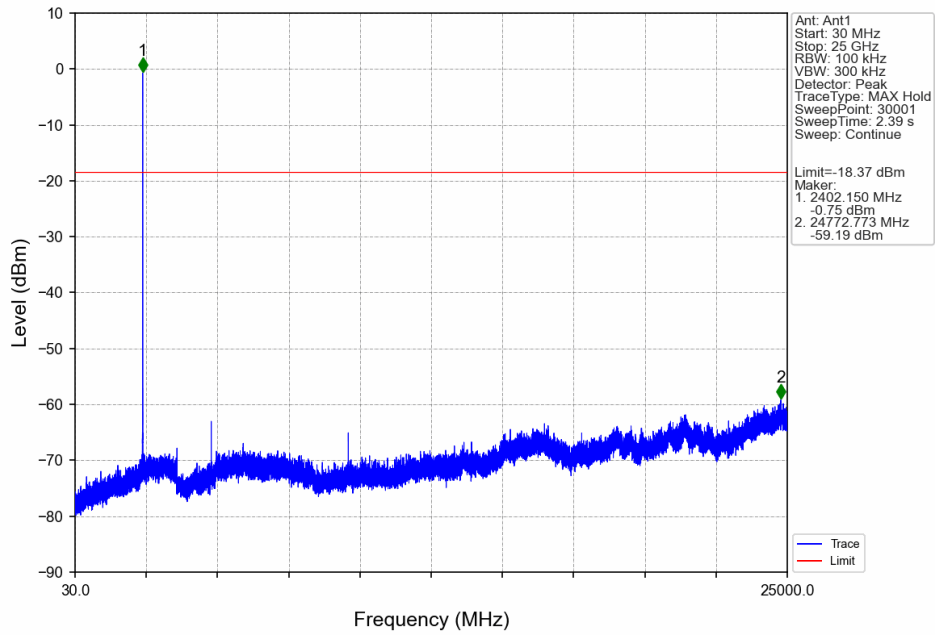
GFSK_DH5_HOPP_Ant1_NTNV



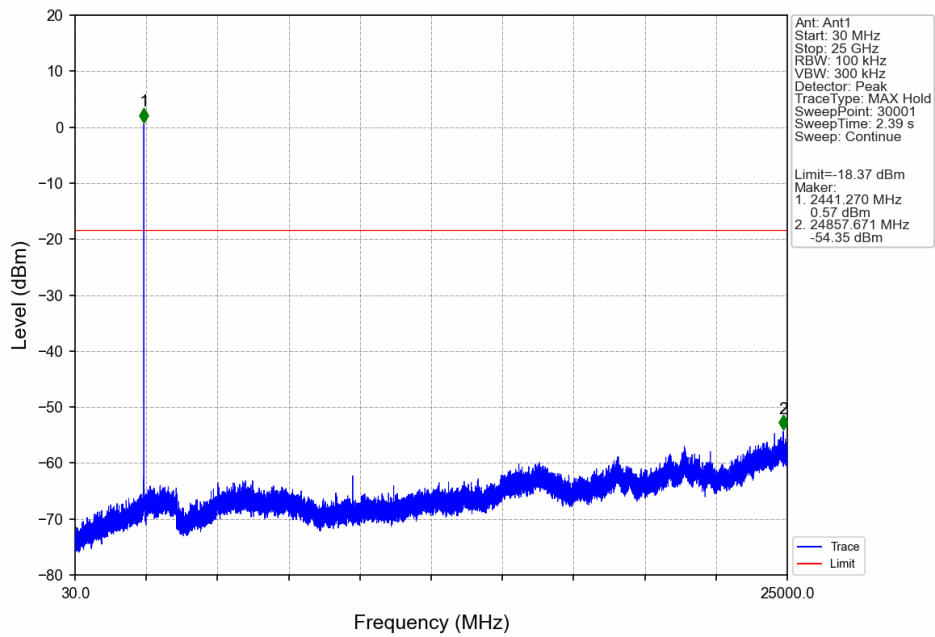
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



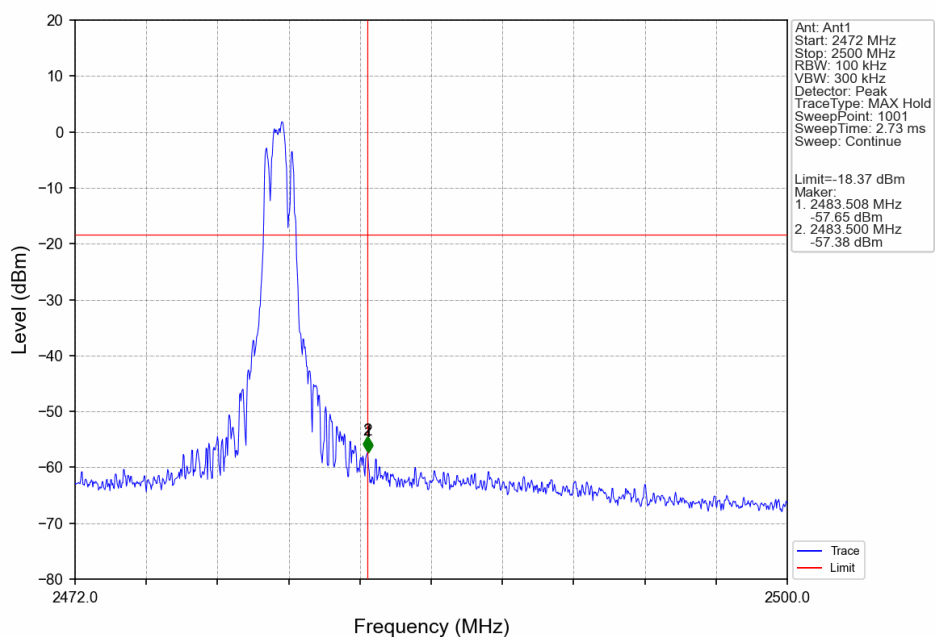
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



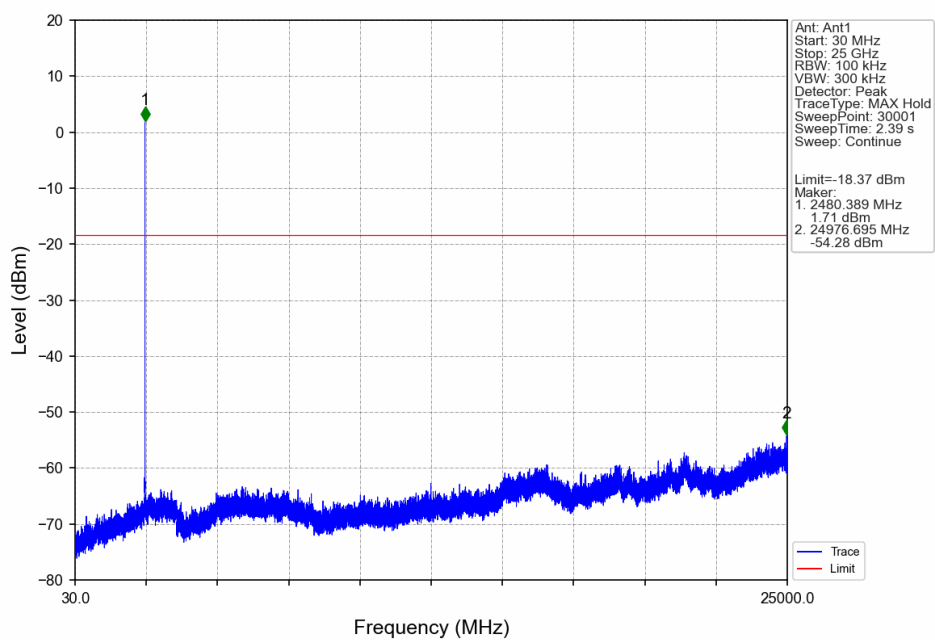
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



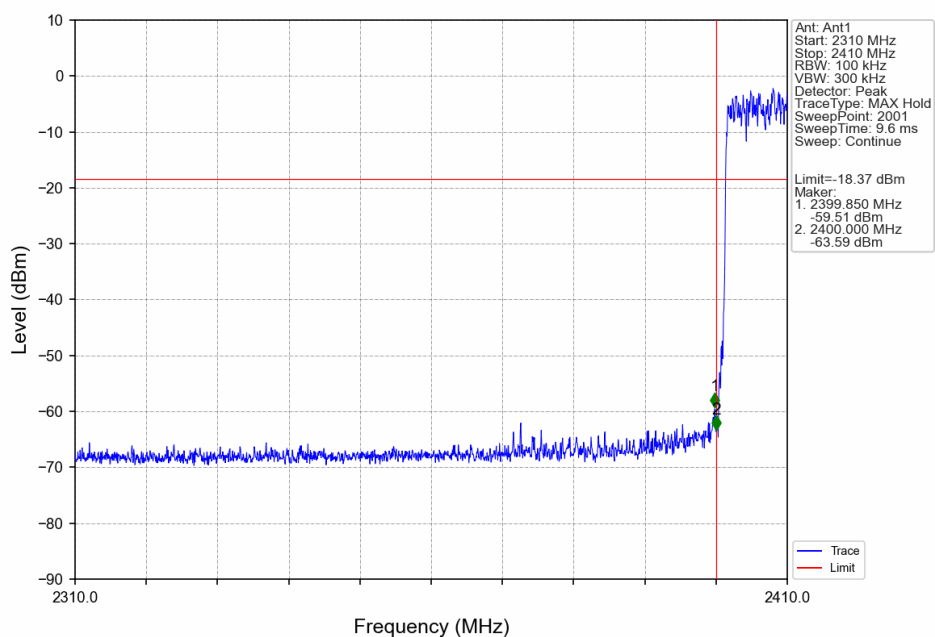
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



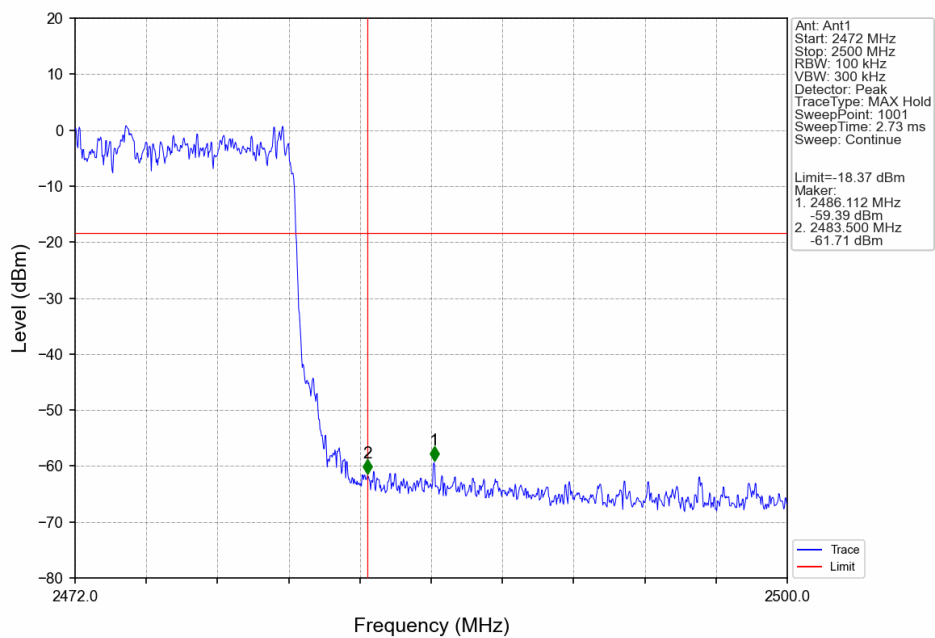
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



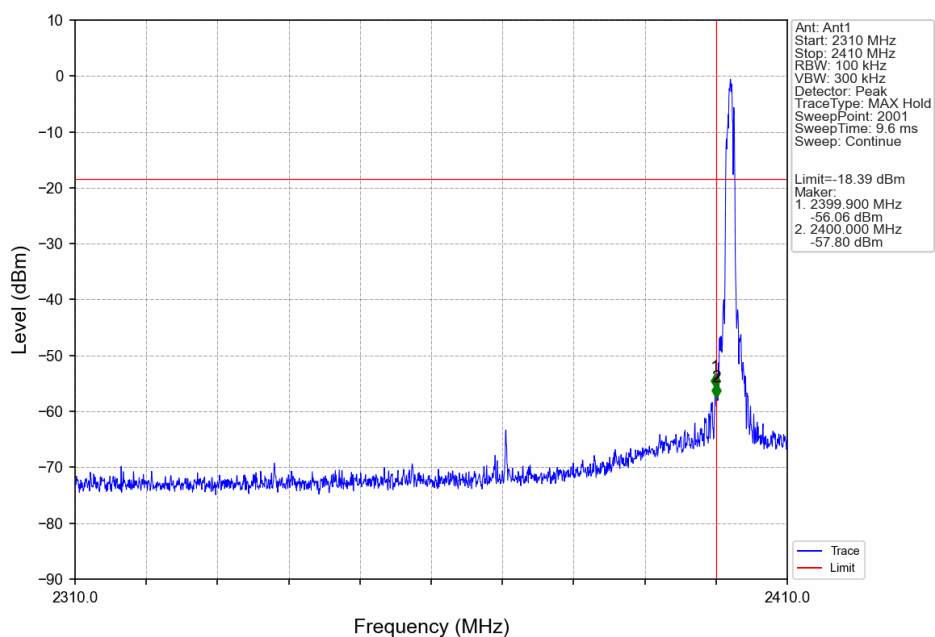
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



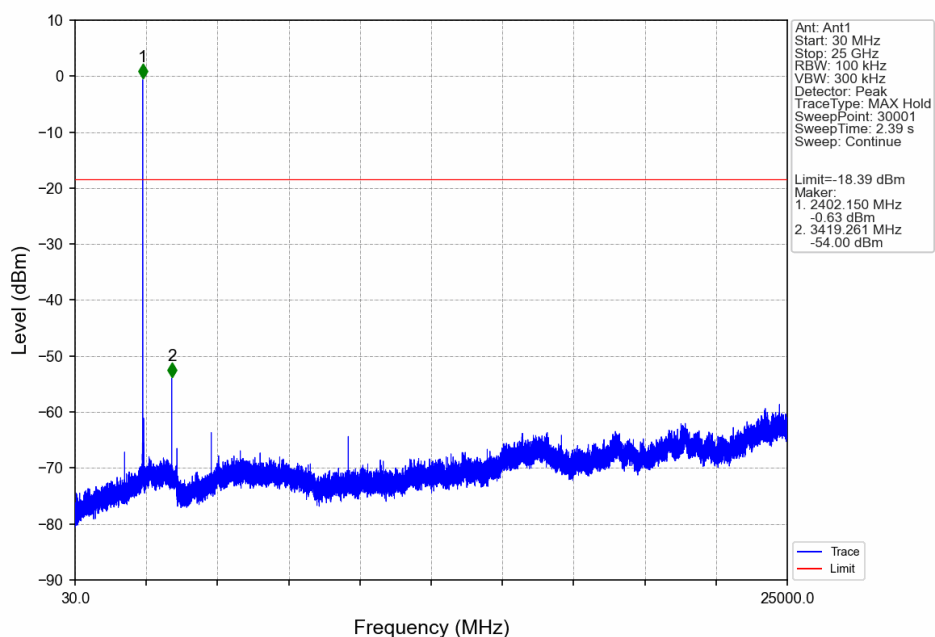
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



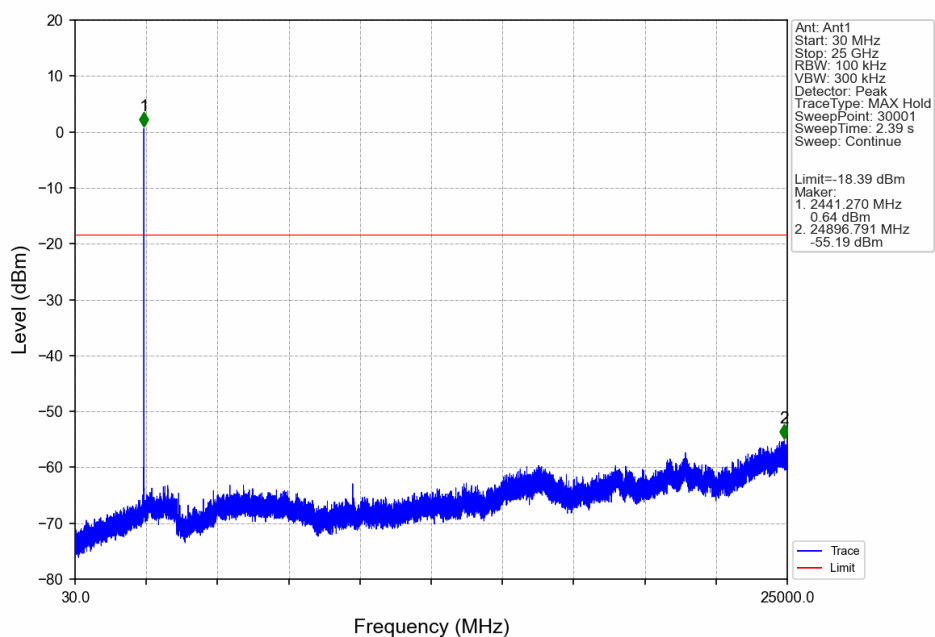
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



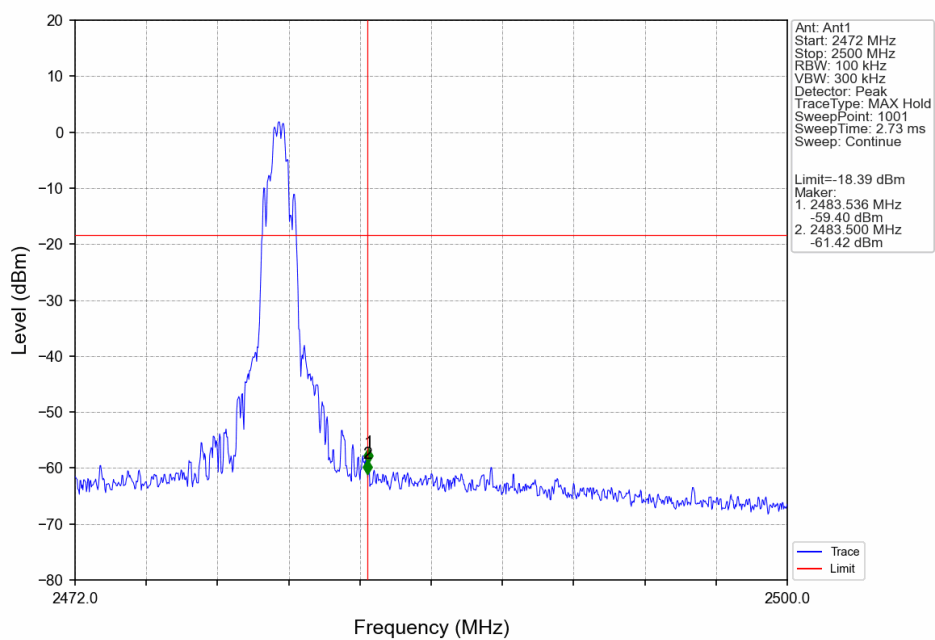
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



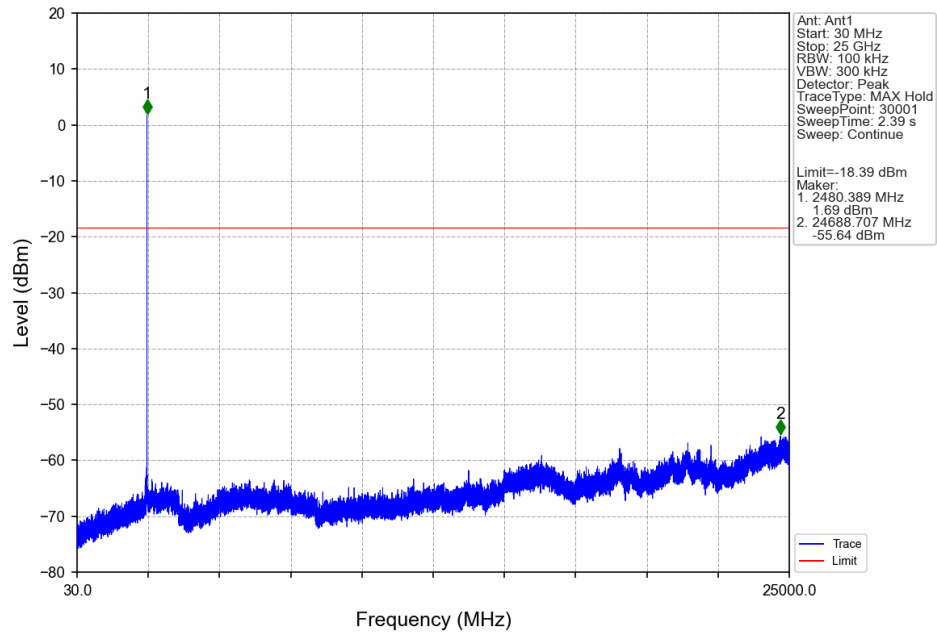
8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV



8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV

