



RF Test Report

For BTEK250714074A02-T01

Project No.:	BTEK250714074A01E01
Product Description:	24.8℃, 56%, 101.6kPa
Test Engineer:	Zora
Test Date:	2025-08-20



Test Summary

Item	Result
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. Bandwidth

1.1 Test Result

1.1.1 OBW

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.856	/	Pass
		2441	DH5	1	0.859	/	Pass
		2480	DH5	1	0.845	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.147	/	Pass
		2441	2DH5	1	1.169	/	Pass
		2480	2DH5	1	1.166	/	Pass
8DPSK	SISO	2402	3DH5	1	1.155	/	Pass
		2441	3DH5	1	1.143	/	Pass
		2480	3DH5	1	1.151	/	Pass

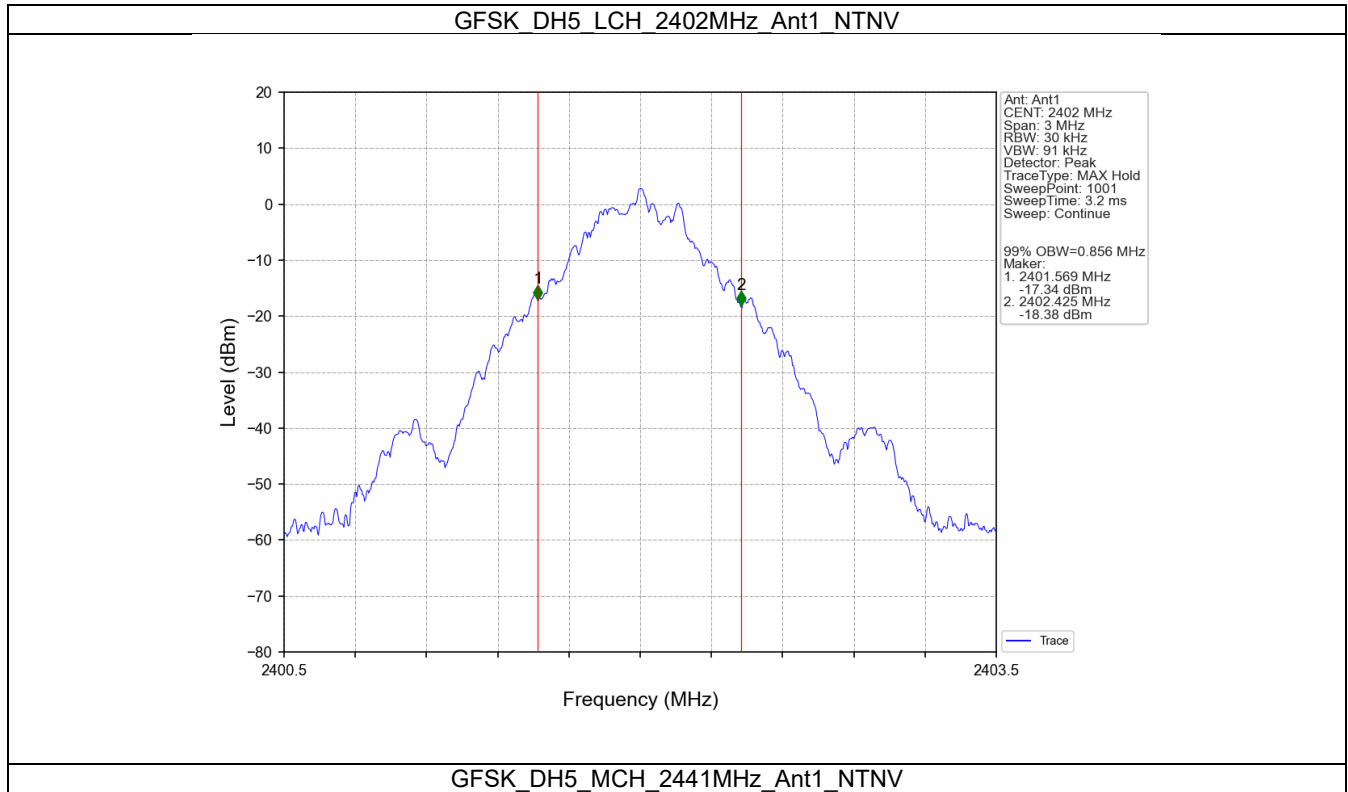
1.1.2 20dB BW

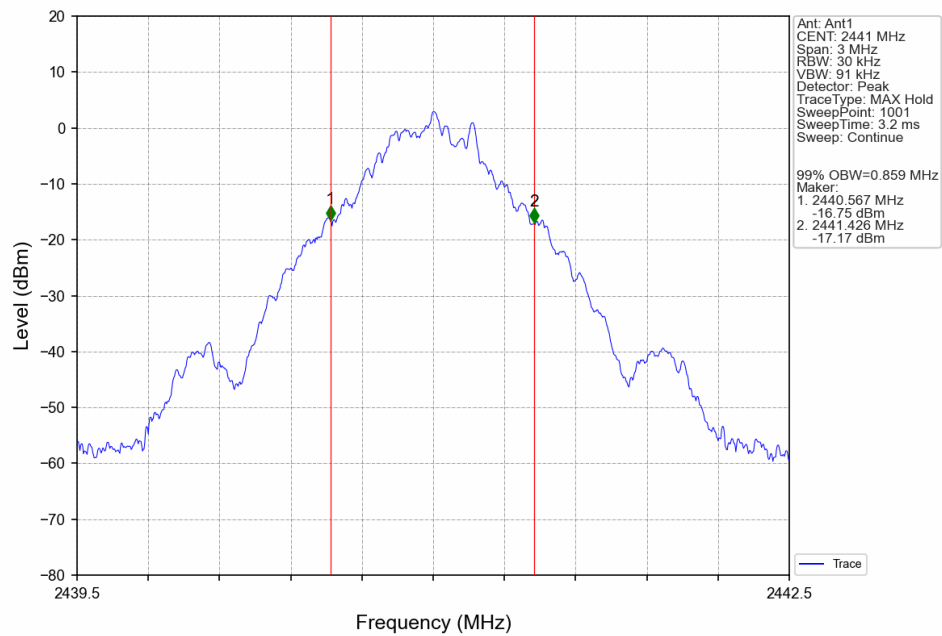
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.934	/	Pass
		2441	DH5	1	0.925	/	Pass
		2480	DH5	1	0.948	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.274	/	Pass
		2441	2DH5	1	1.216	/	Pass
		2480	2DH5	1	1.229	/	Pass
8DPSK	SISO	2402	3DH5	1	1.217	/	Pass
		2441	3DH5	1	1.301	/	Pass
		2480	3DH5	1	1.223	/	Pass



1.2 Test Graph

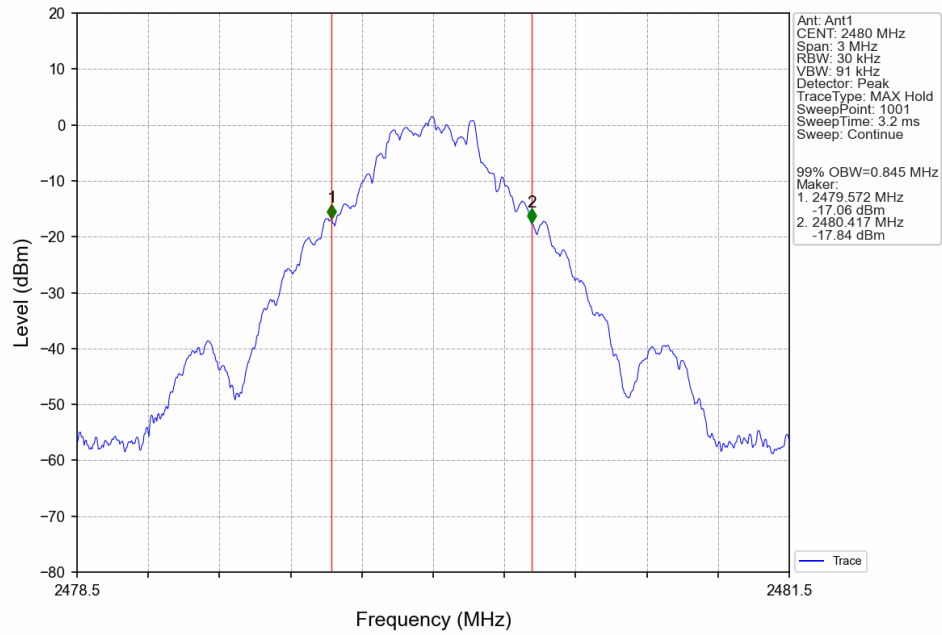
1.2.1 OBW



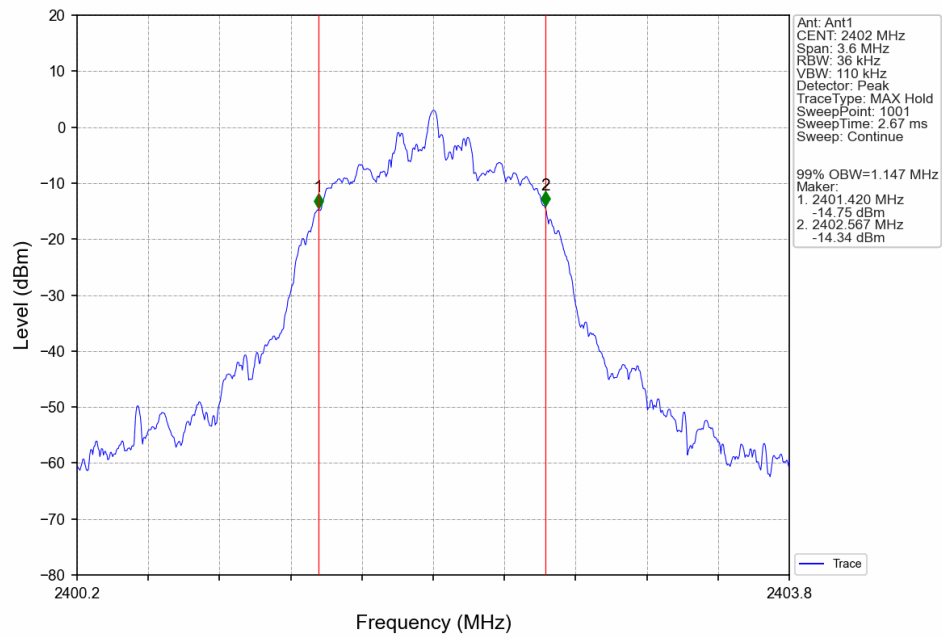




GFSK DH5 HCH 2480MHz_Ant1_NTNV

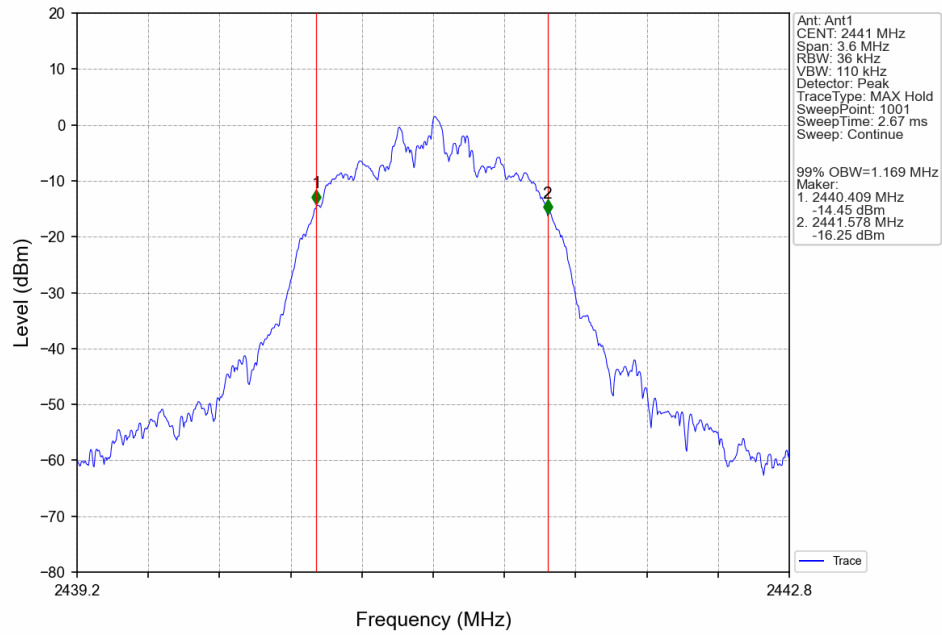


Pi/4DQPSK 2DH5 LCH 2402MHz_Ant1_NTNV

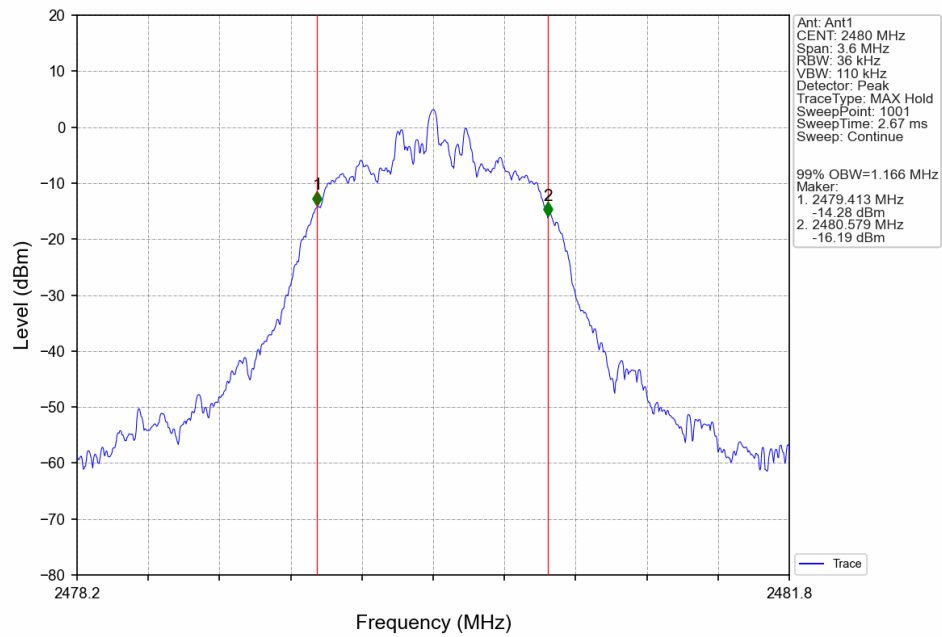




Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV

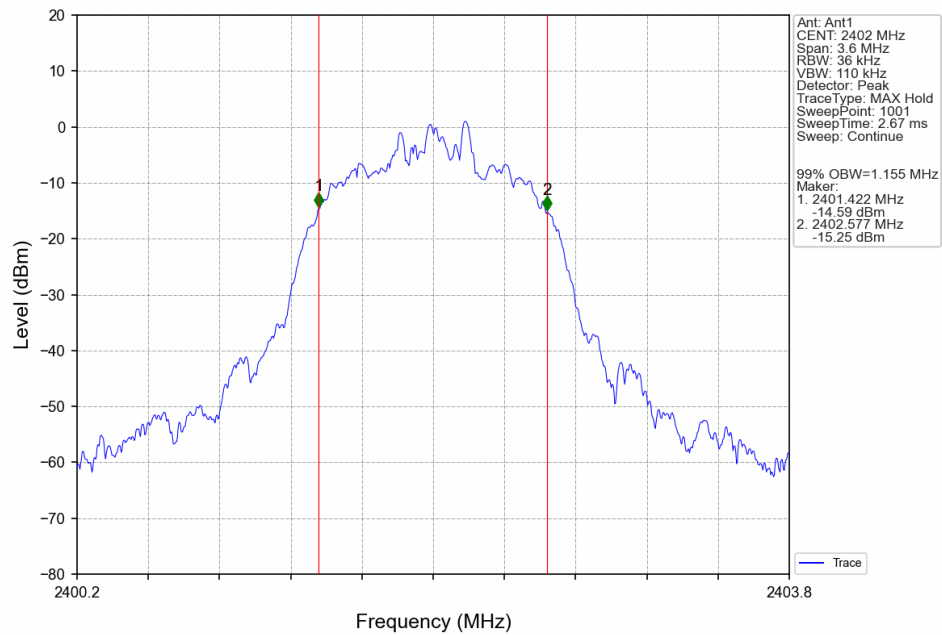


Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

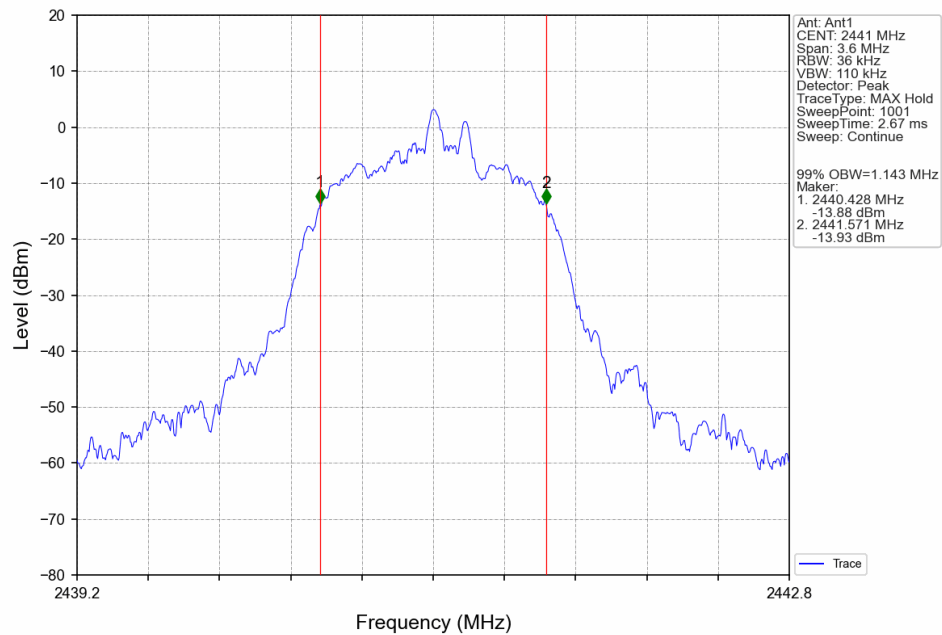


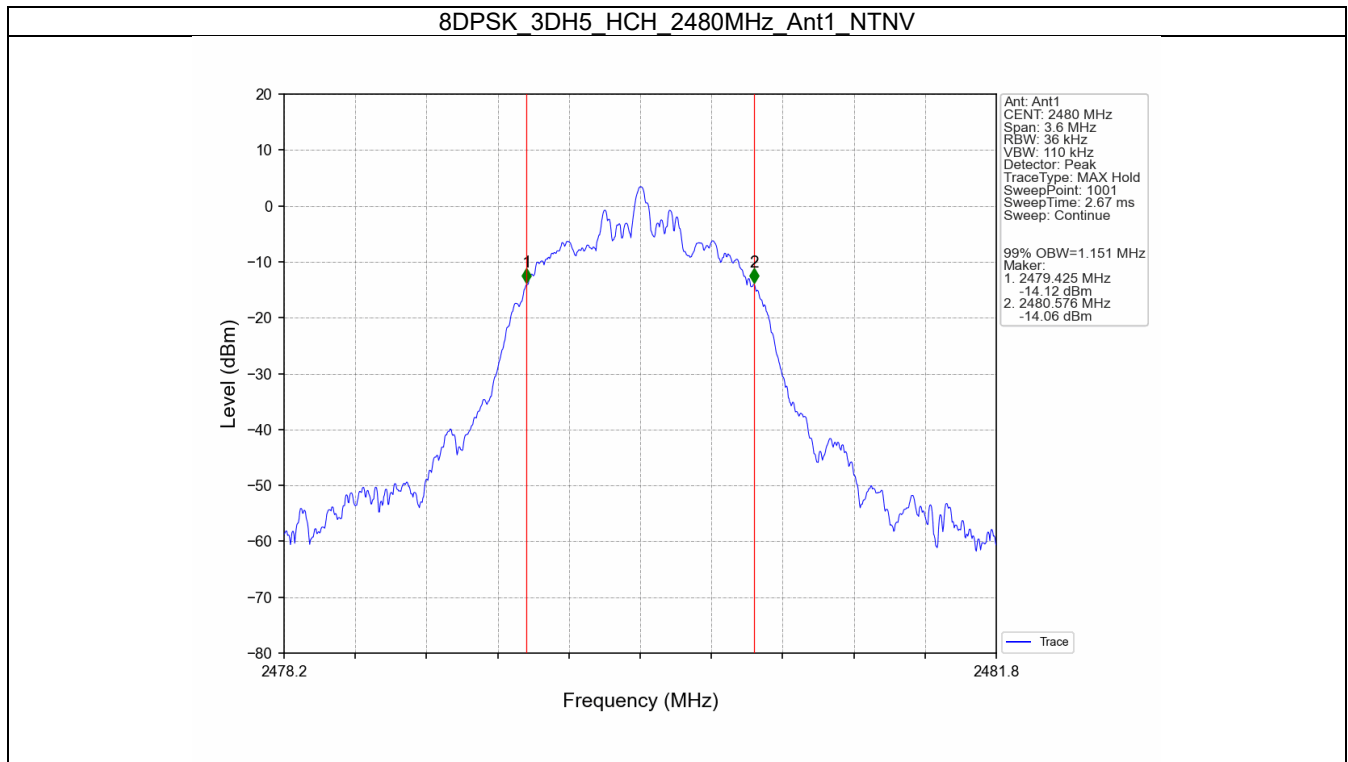


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



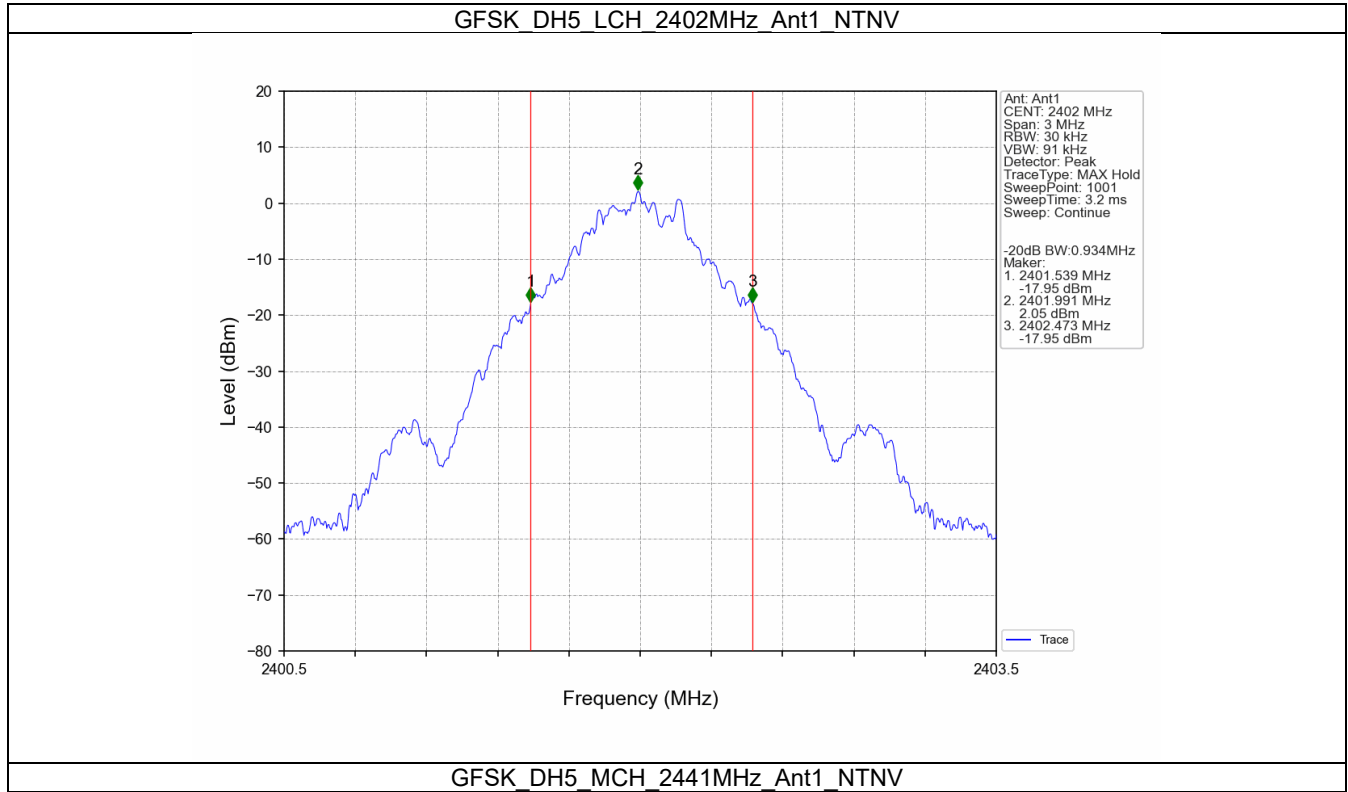
8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV

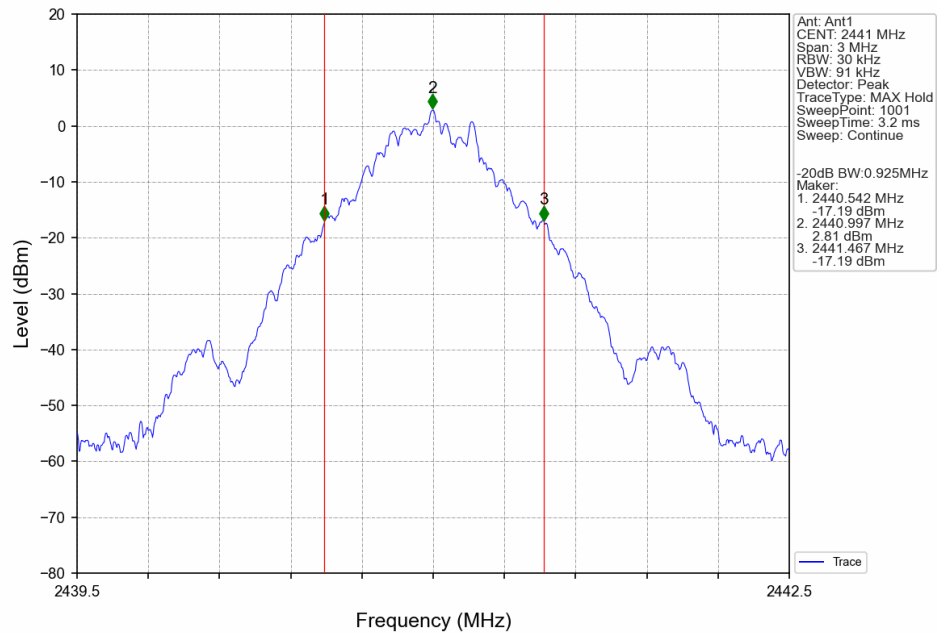






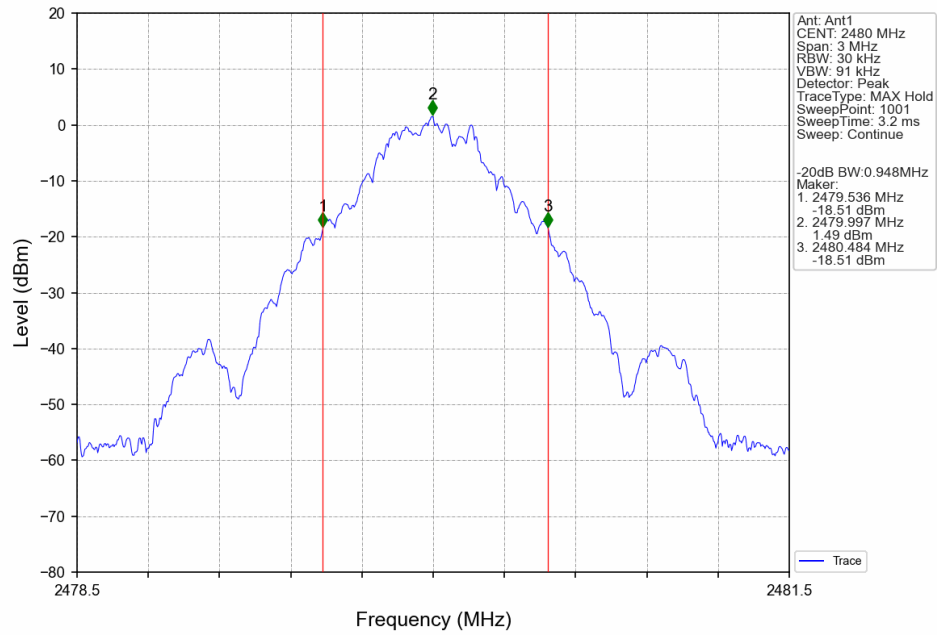
1.2.2 20dB BW



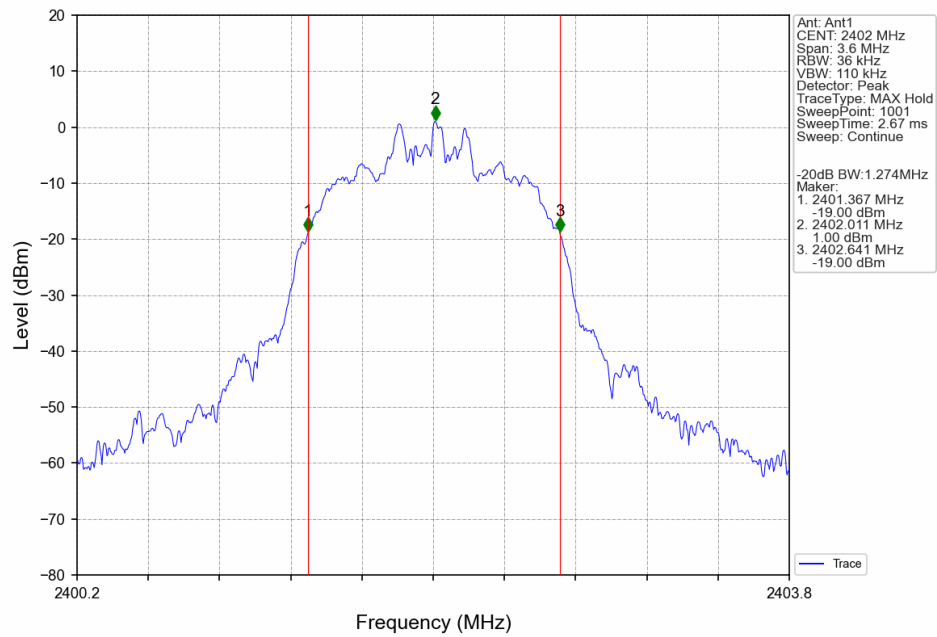




GFSK DH5_HCH_2480MHz_Ant1_NTNV

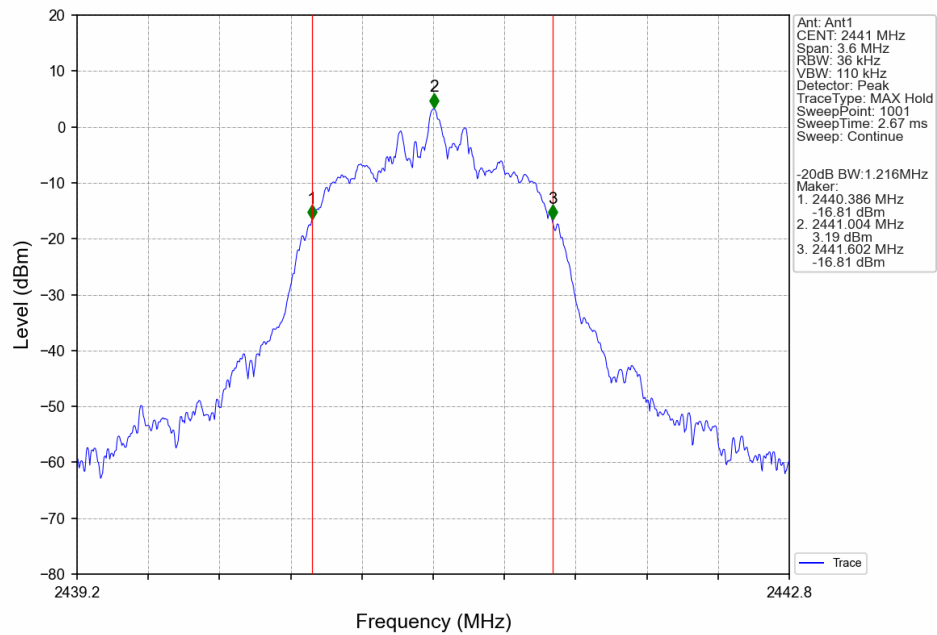


Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV

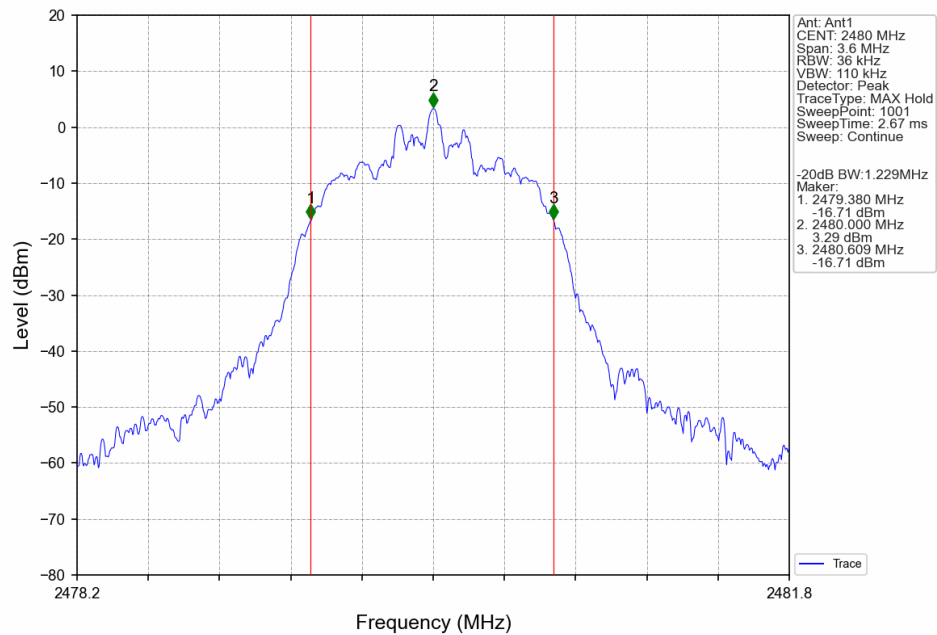




Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV

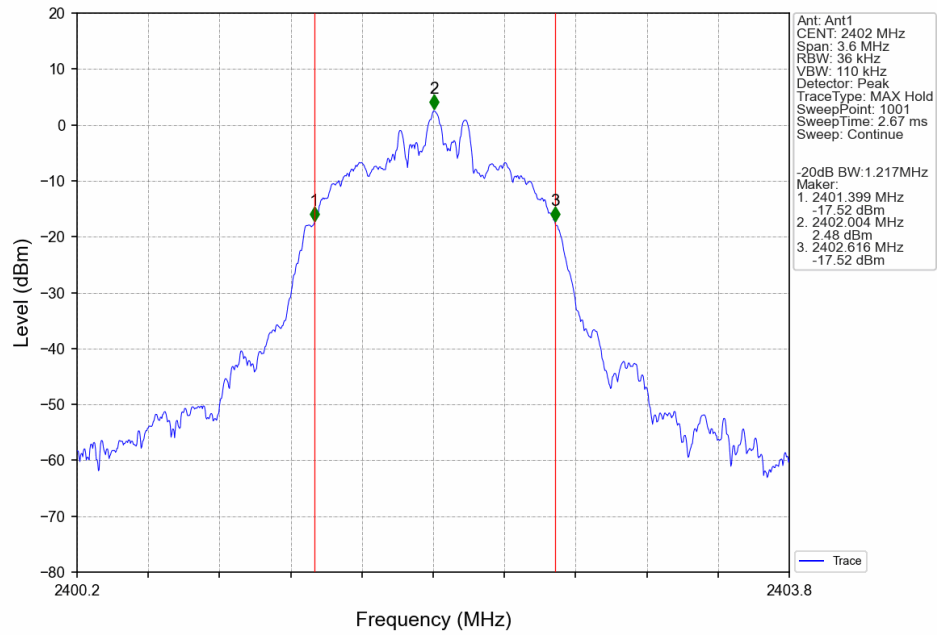


Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

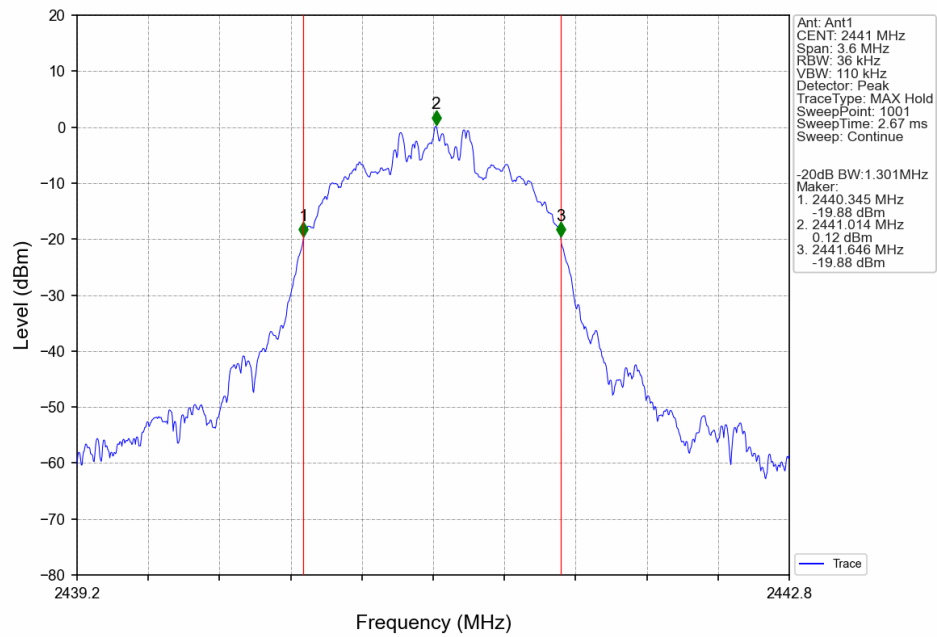


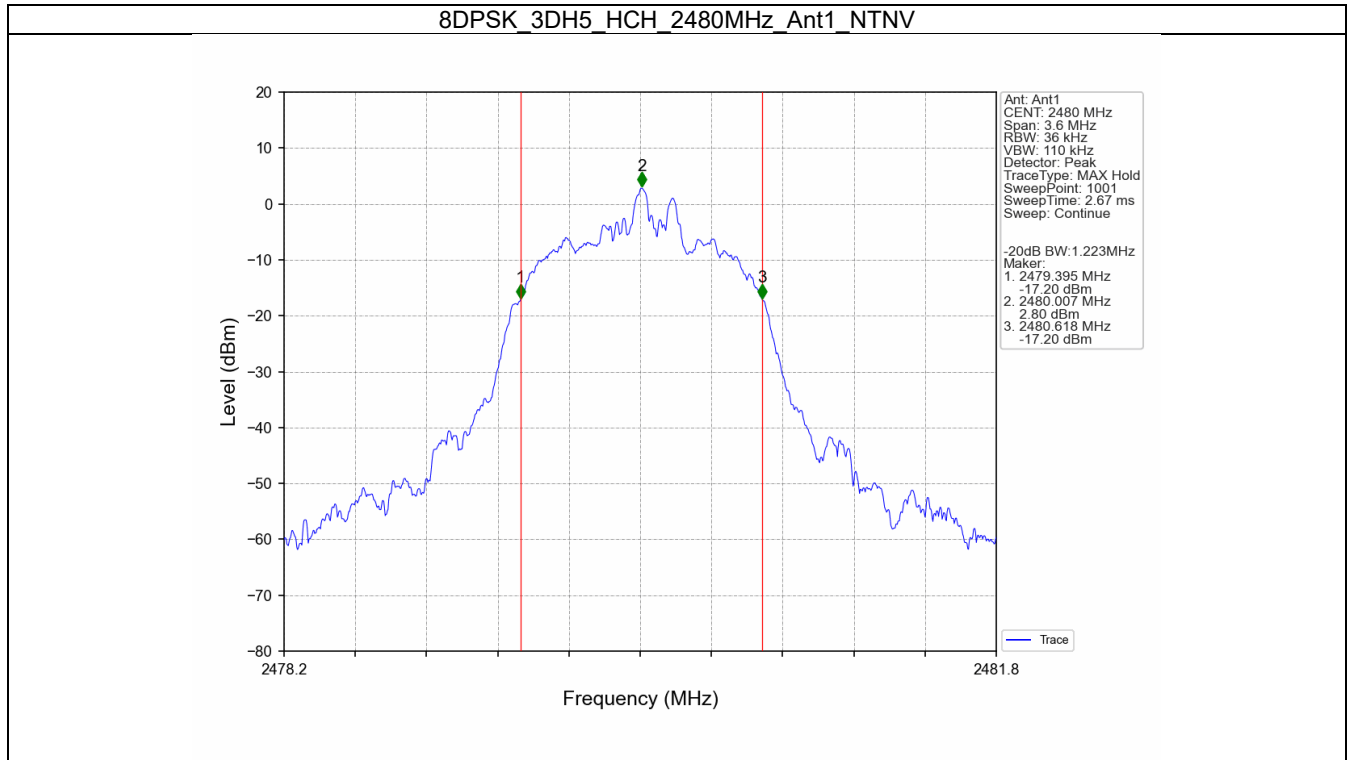


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV







2. Maximum Conducted Output Power

2.1 Test Result

2.1.1 Power

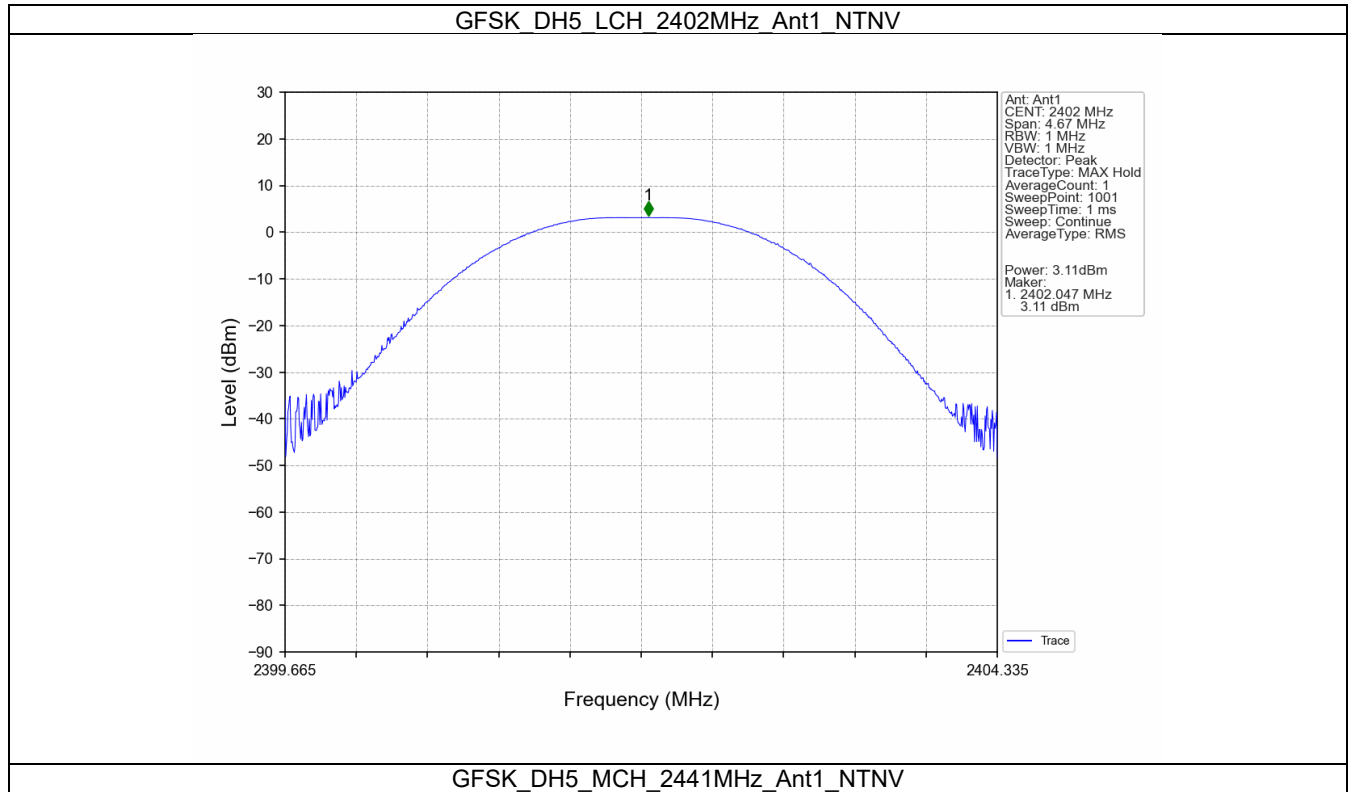
Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	3.11	≤ 30	Pass
		2441	DH5	3.29	≤ 30	Pass
		2480	DH5	3.10	≤ 30	Pass
Pi/4DQPSK	SISO	2402	2DH5	3.12	≤ 20.97	Pass
		2441	2DH5	3.34	≤ 20.97	Pass
		2480	2DH5	3.61	≤ 20.97	Pass
8DPSK	SISO	2402	3DH5	3.16	≤ 20.97	Pass
		2441	3DH5	3.33	≤ 20.97	Pass
		2480	3DH5	3.60	≤ 20.97	Pass

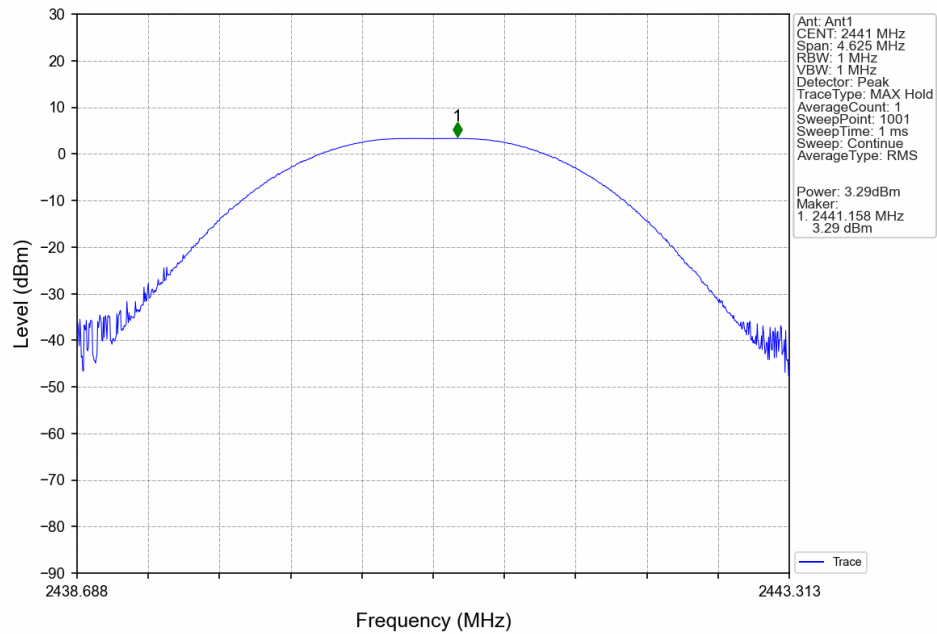
Note1: Antenna Gain: Ant1: 0.00dBi;



2.2 Test Graph

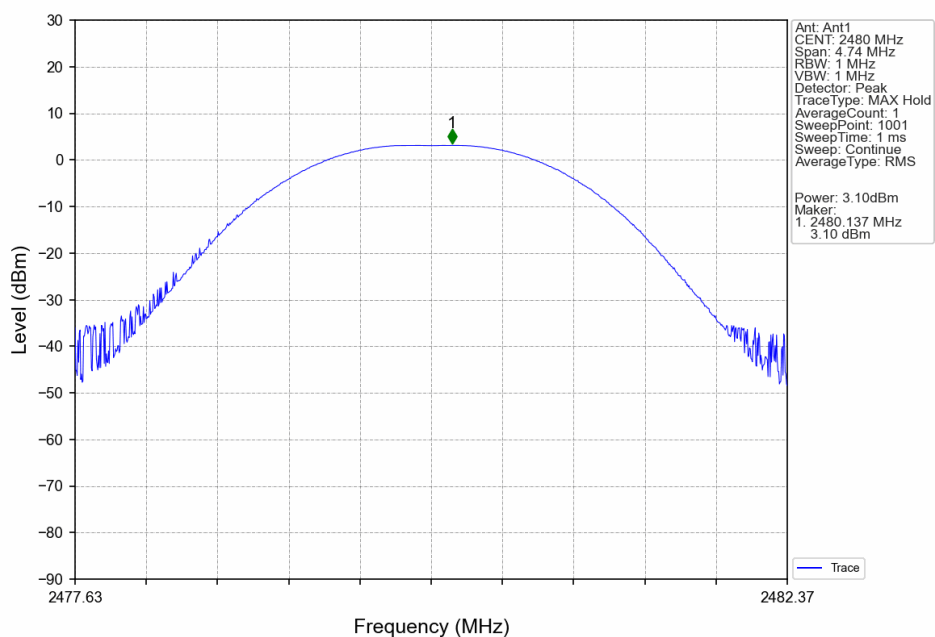
2.2.1 Power



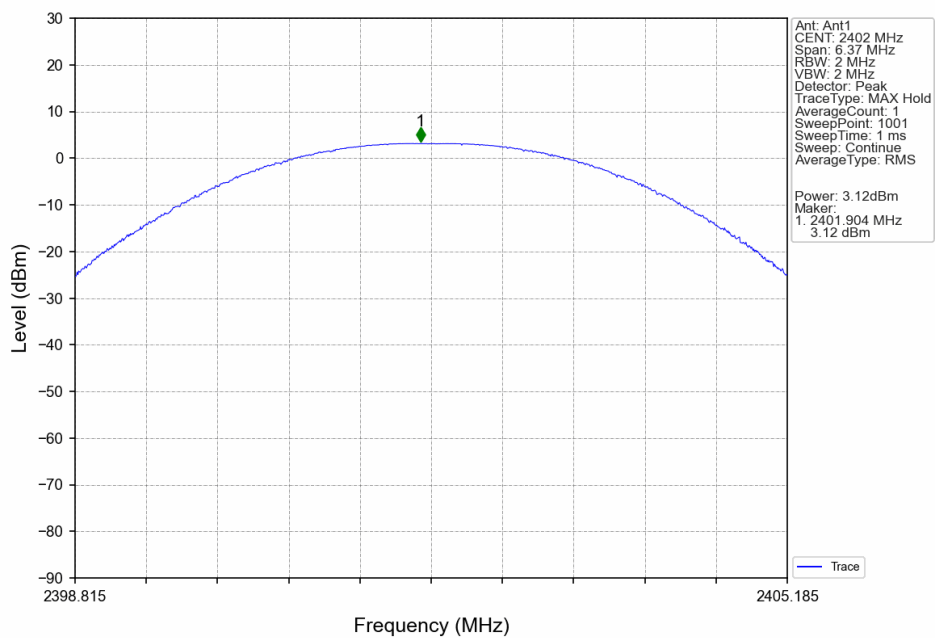




GFSK DH5 HCH 2480MHz_Ant1_NTNV

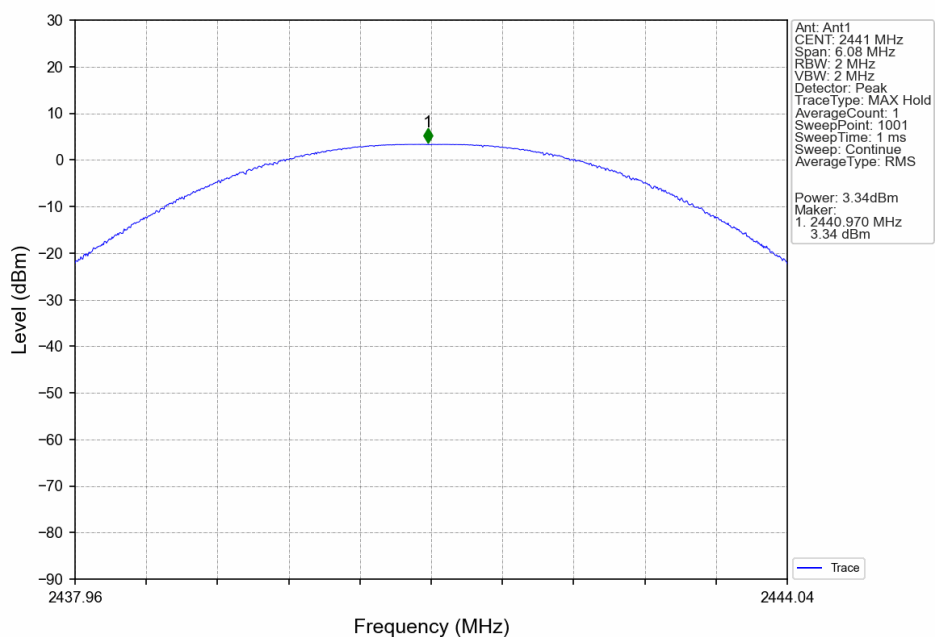


Pi/4DQPSK 2DH5 LCH 2402MHz_Ant1_NTNV

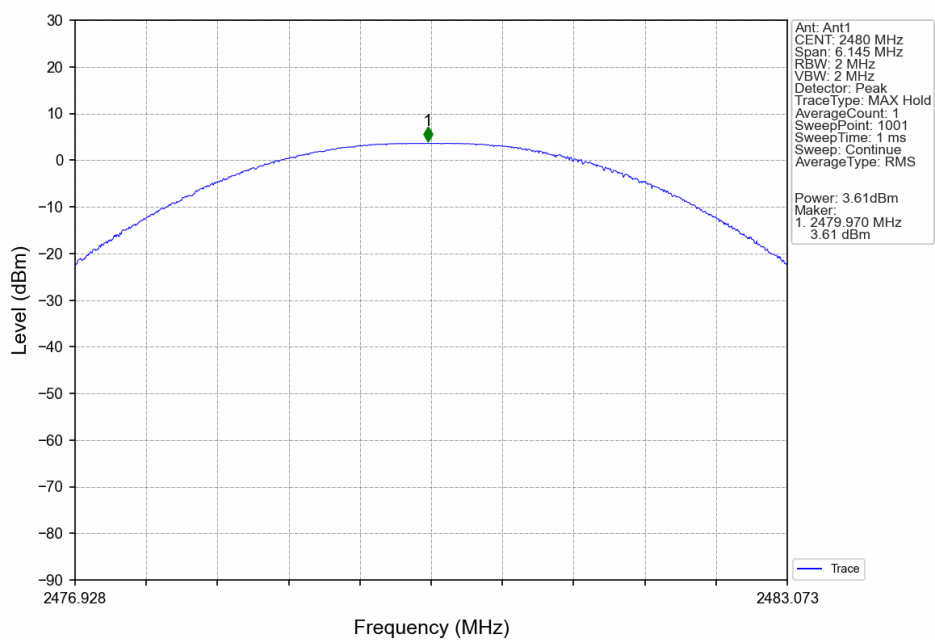




Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV

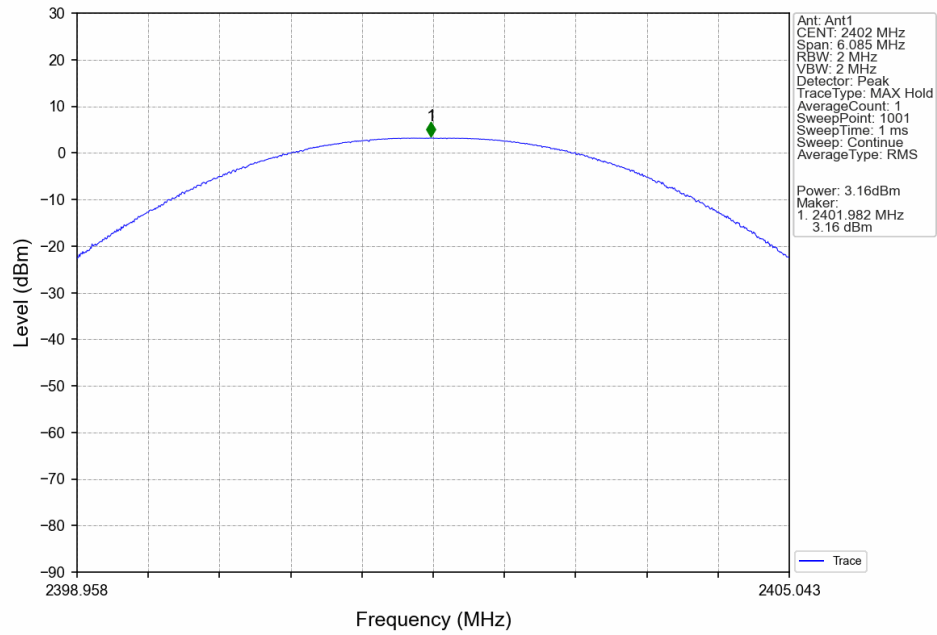


Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

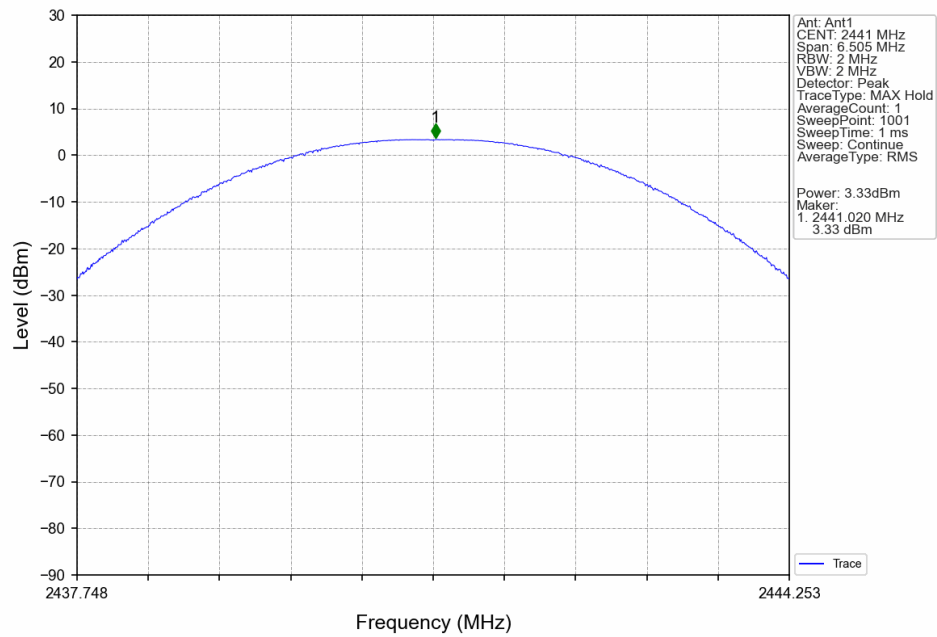


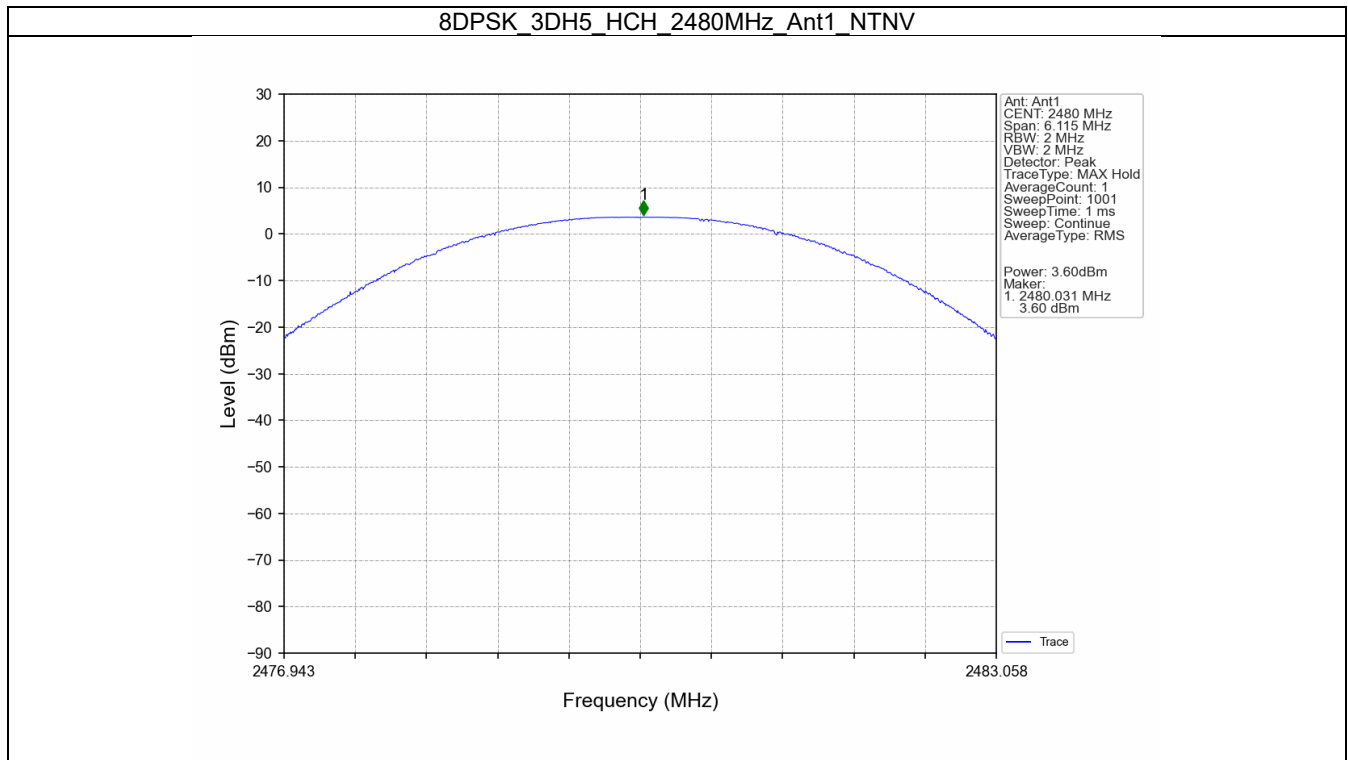


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV







3. Carrier Frequency Separation

3.1 Test Result

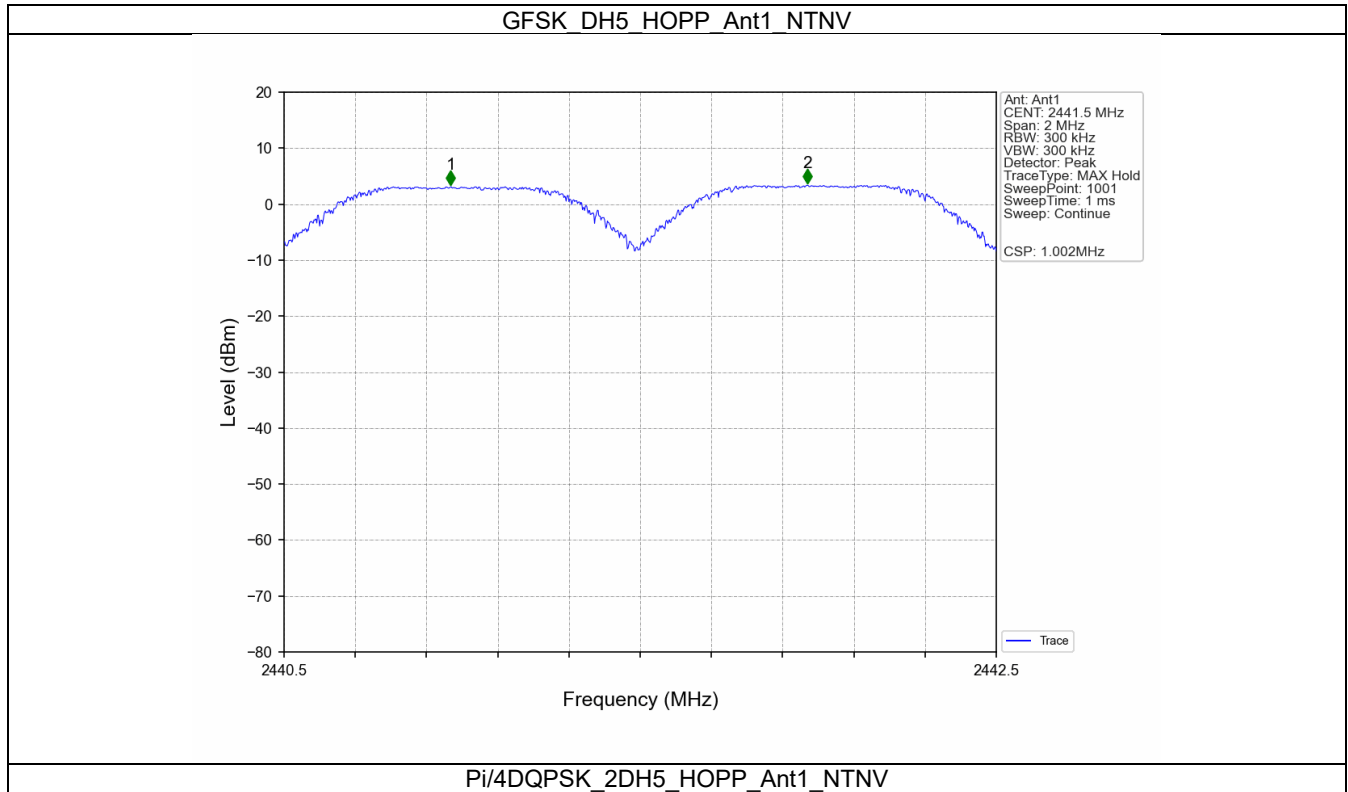
3.1.1 Ant1

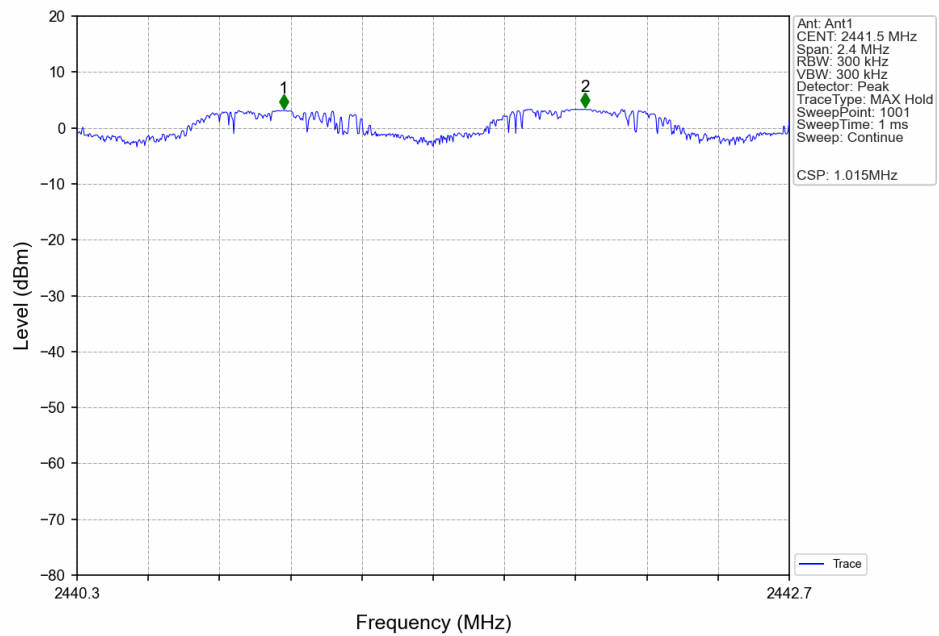
Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	1.002	0.948	≥ 0.948	Pass
PI/4DQPSK	SISO	HOPP	2DH5	1.015	1.274	≥ 0.849	Pass
8DPSK	SISO	HOPP	3DH5	0.986	1.301	≥ 0.867	Pass

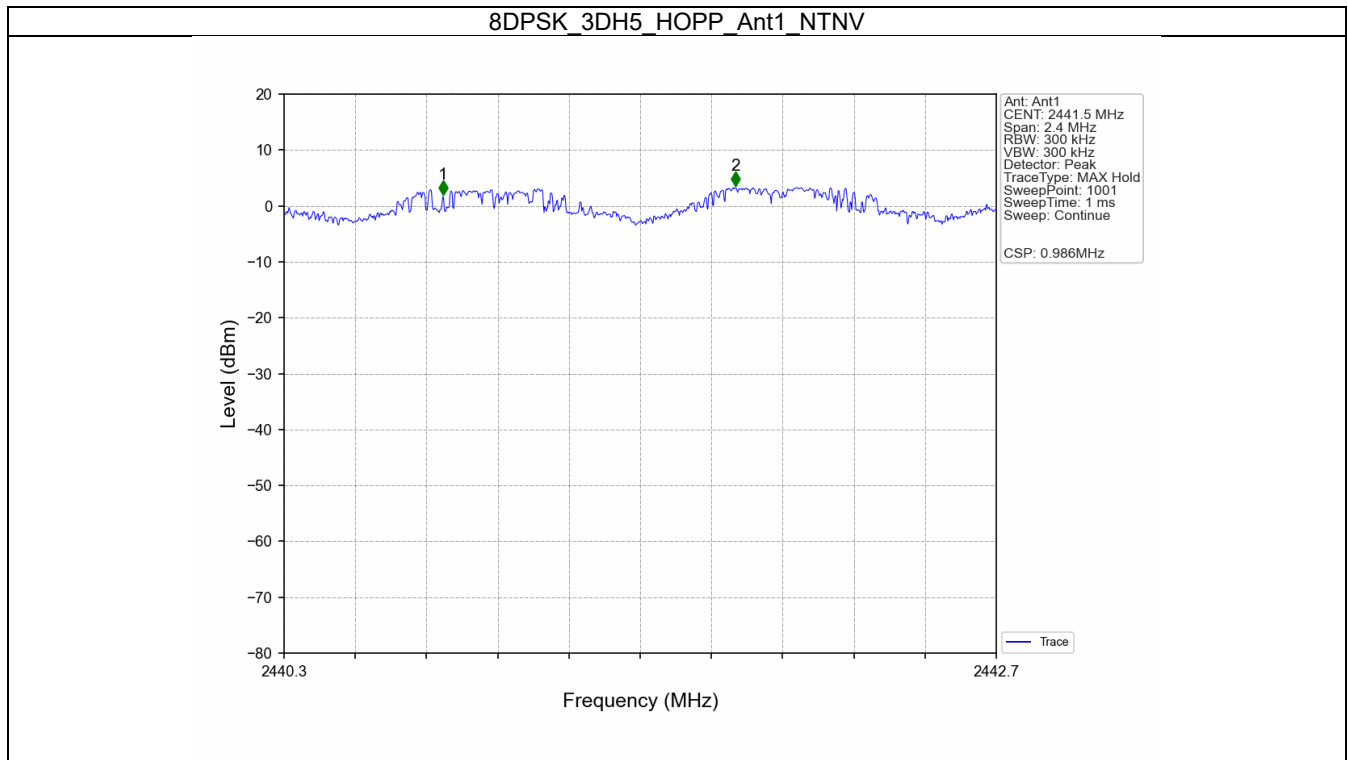


3.2 Test Graph

3.2.1 Ant1









4. Number of Hopping Frequencies

4.1 Test Result

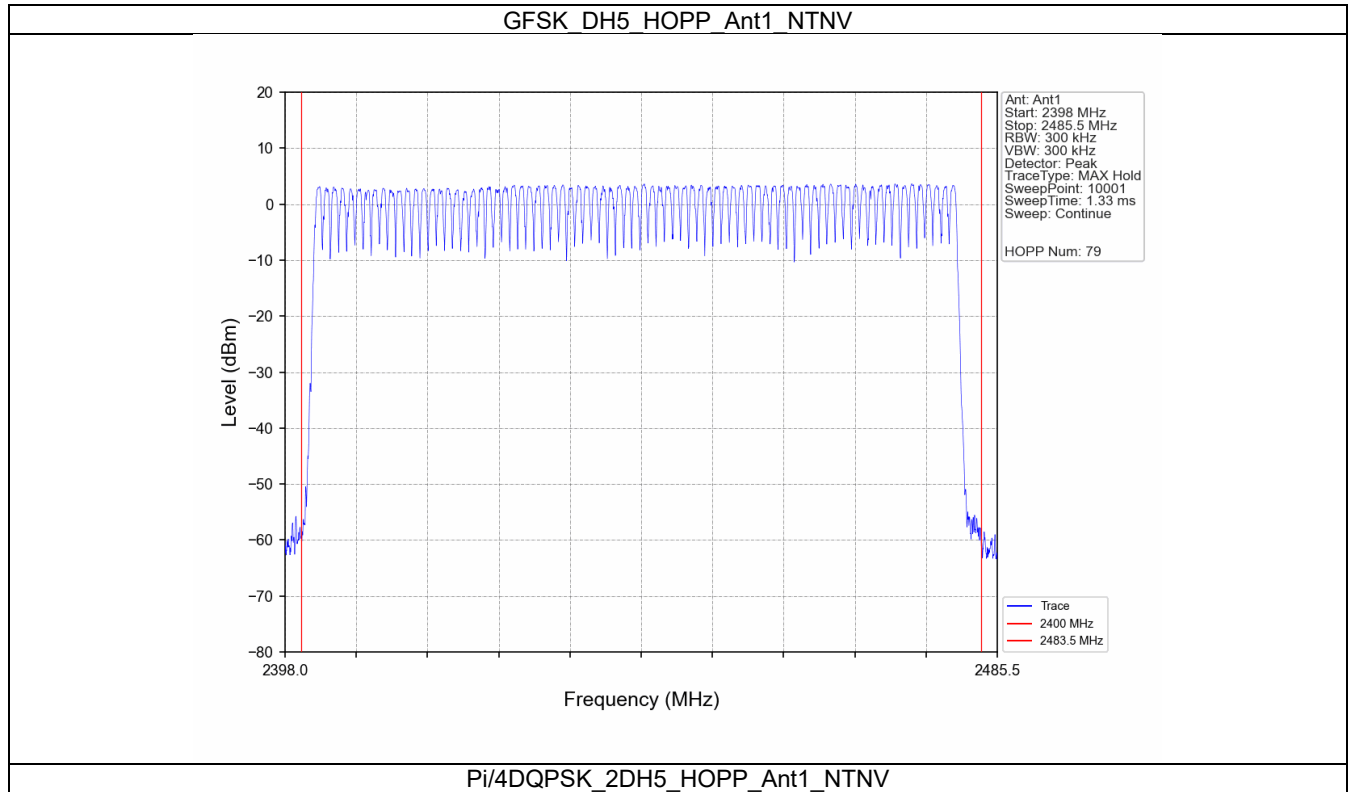
4.1.1 HoppNum

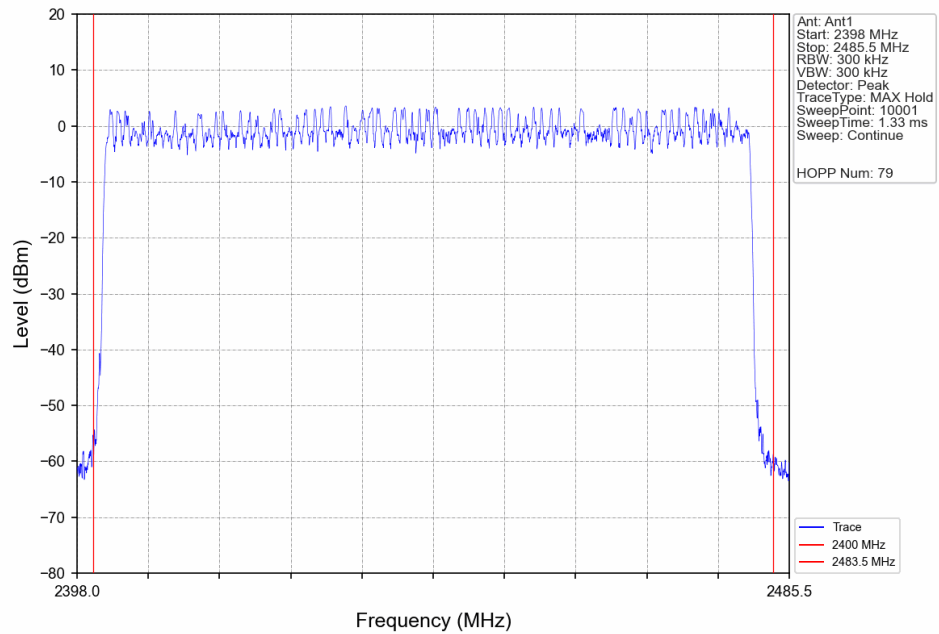
Mode	TX Type	Frequency (MHz)	Packet Type	Num of Hopping Frequencies		Verdict
				ANT1	Limit	
GFSK	SISO	HOPP	DH5	79	≥ 15	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	79	≥ 15	Pass
8DPSK	SISO	HOPP	3DH5	79	≥ 15	Pass

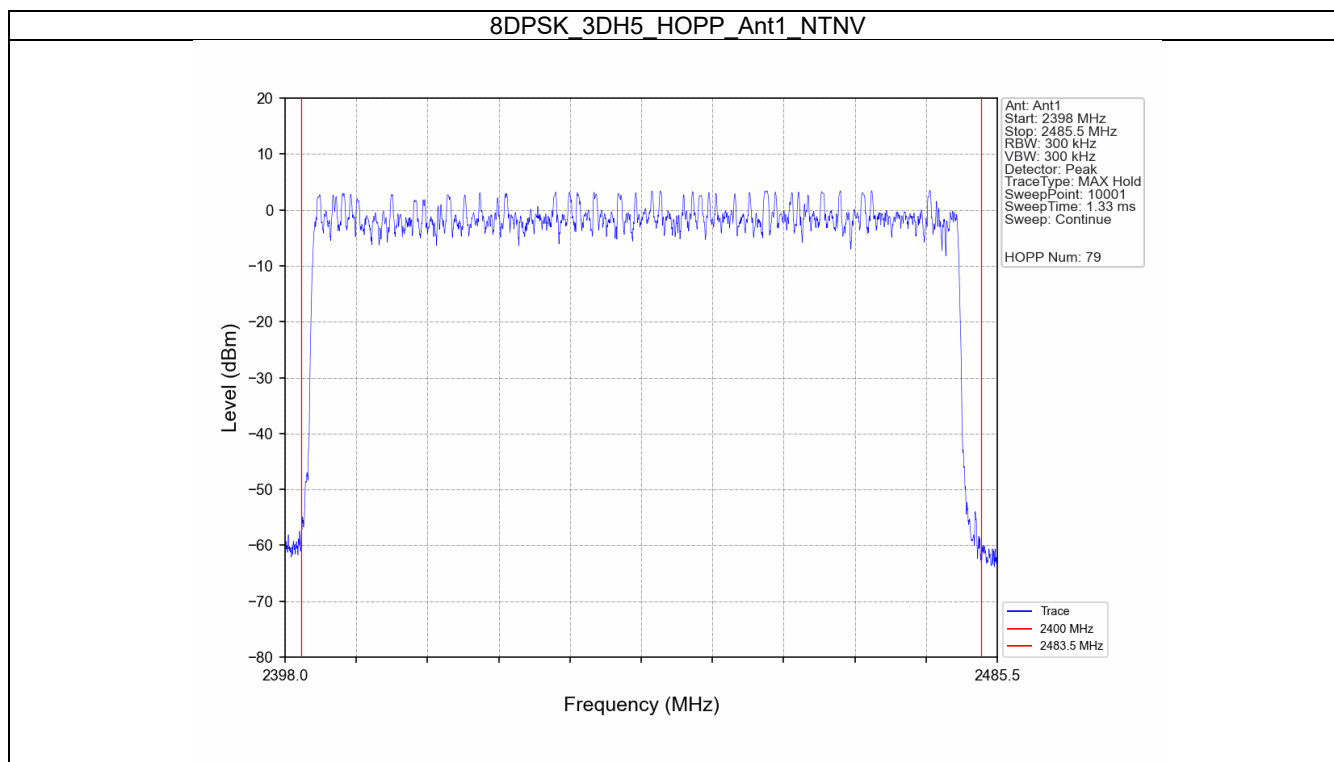


4.2 Test Graph

4.2.1 HoppNum









5. Time of Occupancy (Dwell Time)

5.1 Test Result

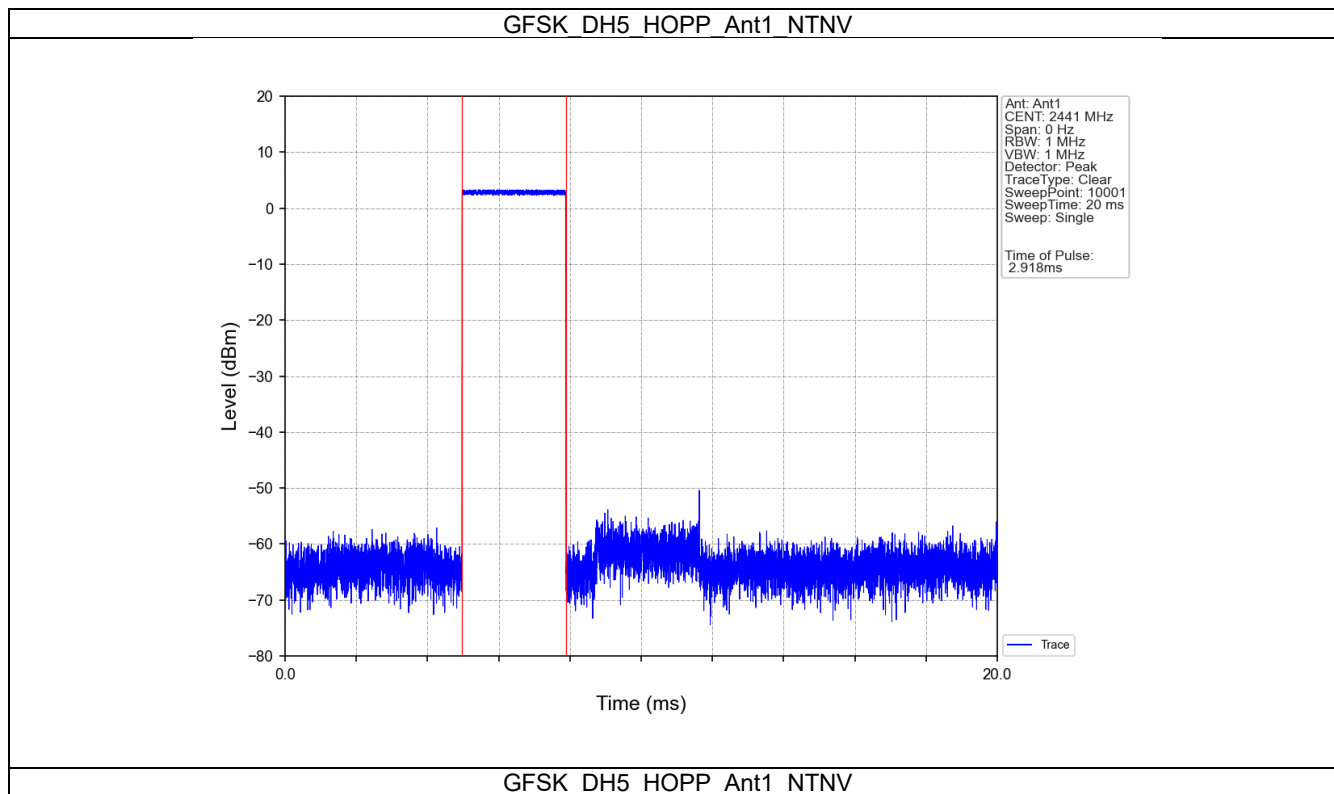
5.1.1 Ant1

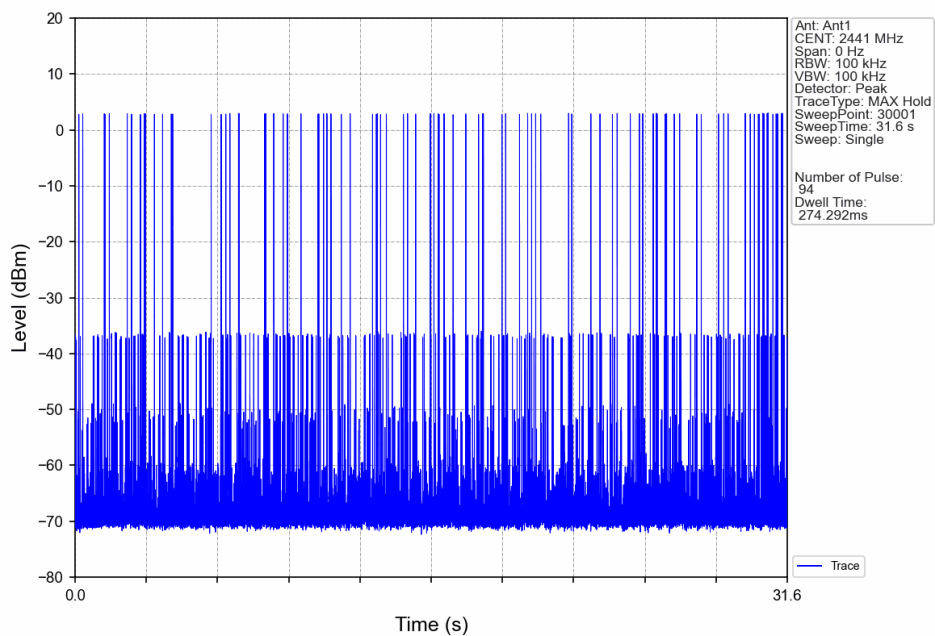
Ant1									
Mode	TX Type	Frequency (MHz)	Packet Type	Duration of Single Pulse (ms)	Observation Period (s)	Num of Pulse in Observation Period	Dwell Time (ms)	Limit (ms)	Verdict
GFSK	SISO	HOPP	DH5	2.918	31.600	94	274.292	<=400	Pass
PI/4DQPSK	SISO	HOPP	2DH5	2.924	31.600	107	312.868	<=400	Pass
8DPSK	SISO	HOPP	3DH5	2.926	31.600	96	280.896	<=400	Pass



5.2 Test Graph

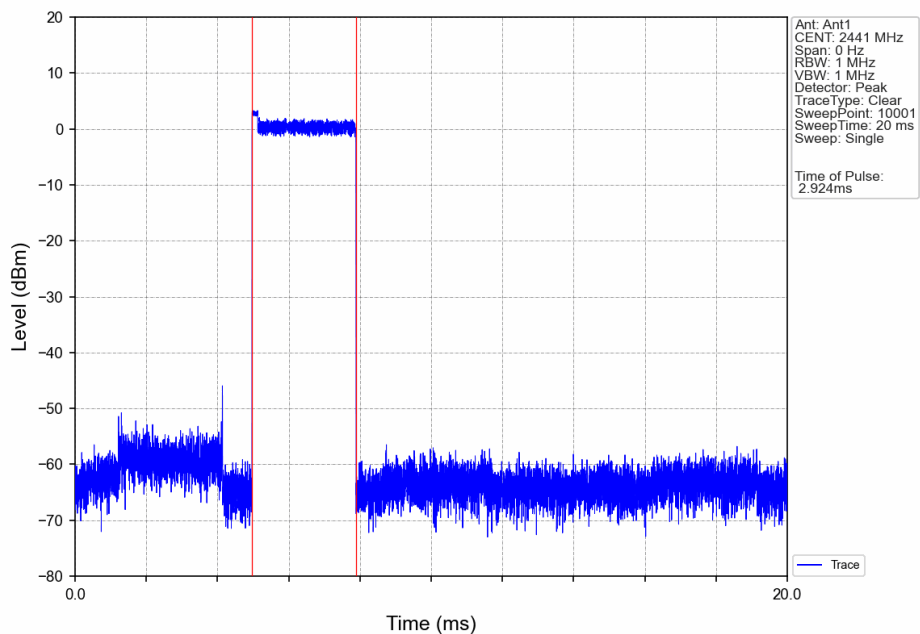
5.2.1 Ant1



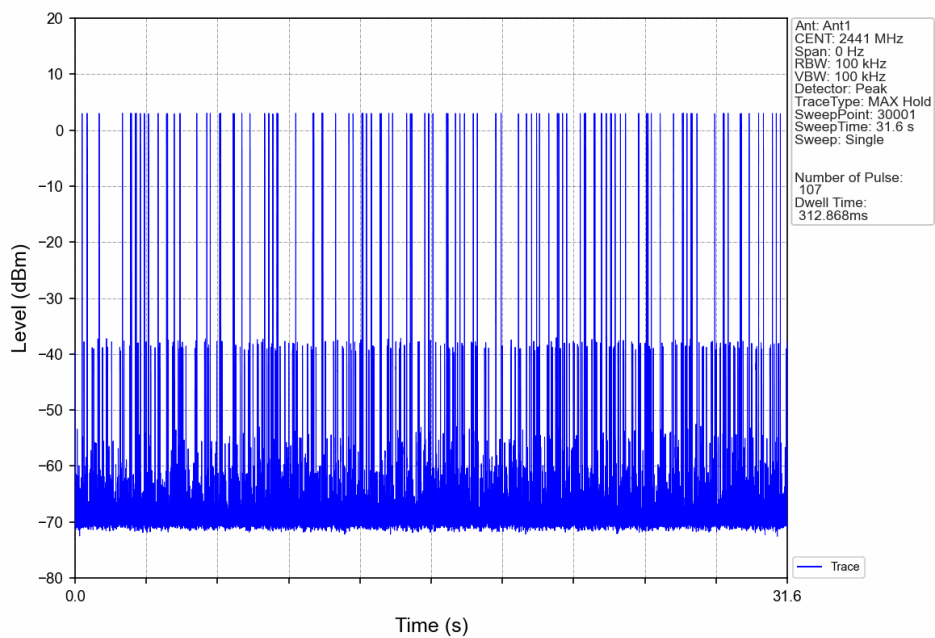




Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV

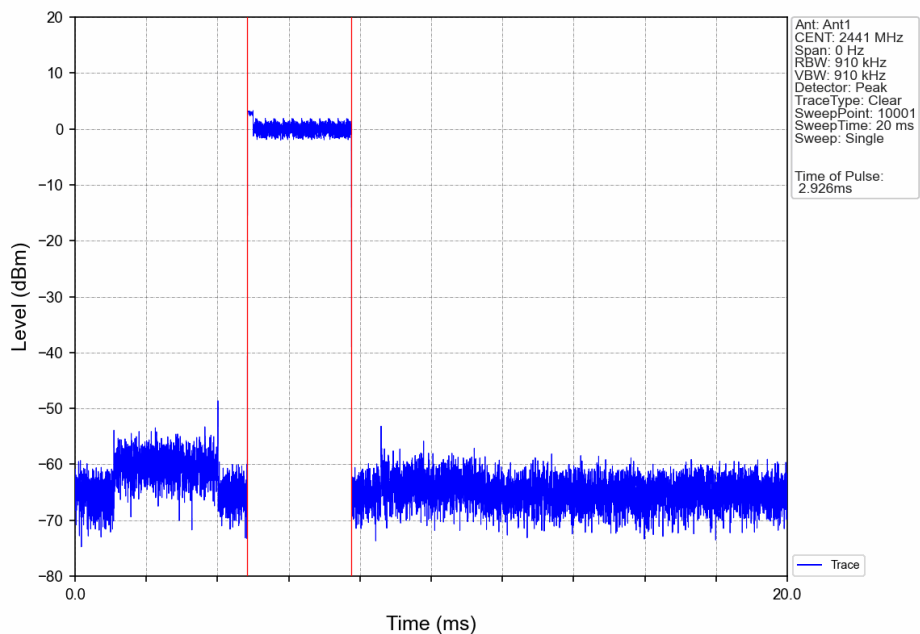


Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV

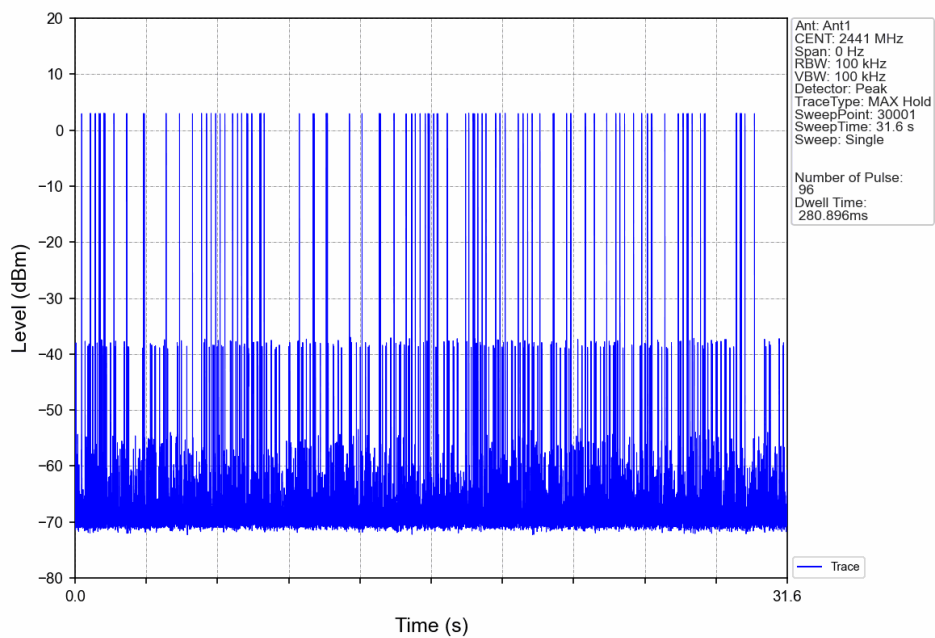




8DPSK_3DH5_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV





6. Unwanted Emissions In Non-restricted Frequency Bands

6.1 Test Result

6.1.1 Ref

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	2.92
		2441	DH5	1	2.58
		2480	DH5	1	2.75
Pi/4DQPSK	SISO	2402	2DH5	1	2.87
		2441	2DH5	1	3.01
		2480	2DH5	1	3.20
8DPSK	SISO	2402	3DH5	1	2.89
		2441	3DH5	1	3.06
		2480	3DH5	1	3.26

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 CSE

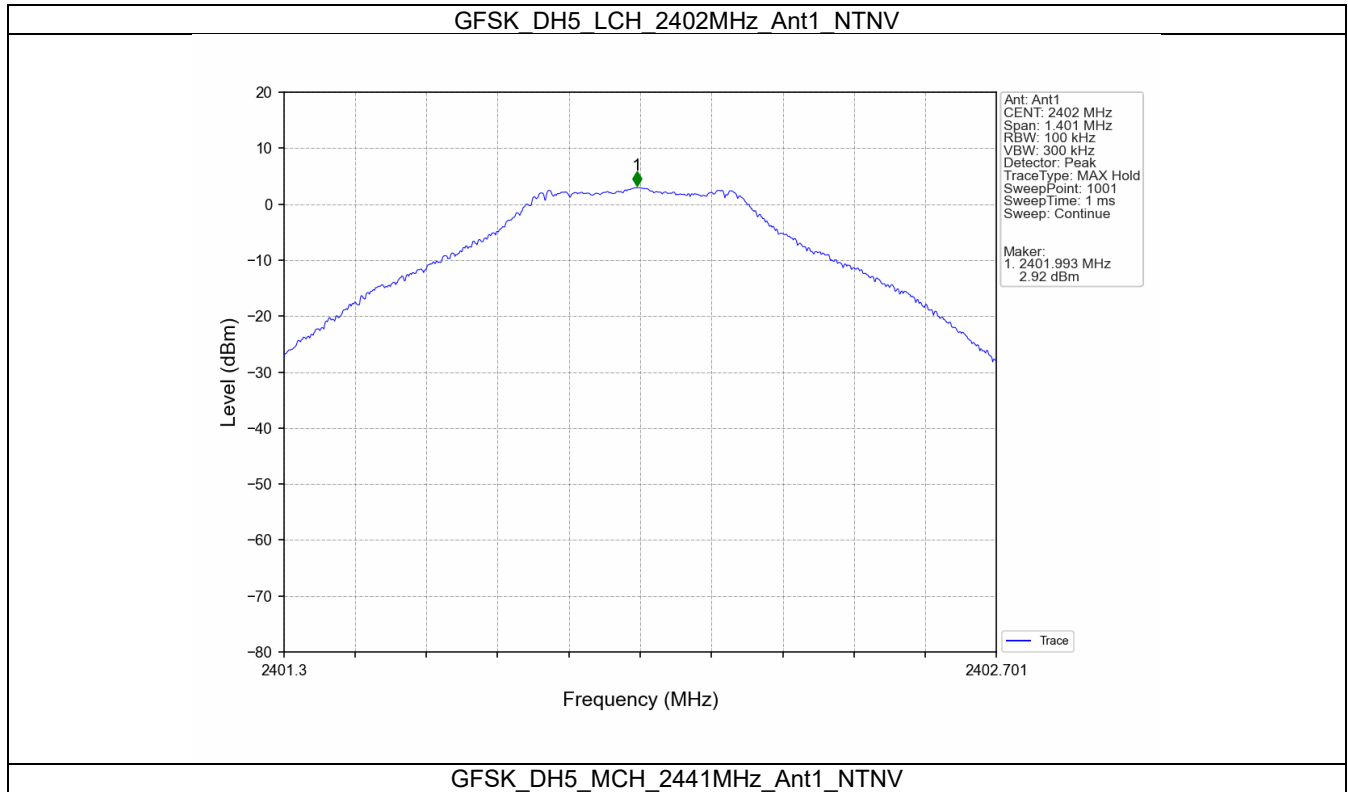
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	2.92	-17.08	Pass
		2441	DH5	1	2.92	-17.08	Pass
		2480	DH5	1	2.92	-17.08	Pass
		HOPP	DH5	1	2.92	-17.08	Pass
					2.92	-17.08	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	3.20	-16.80	Pass
		2441	2DH5	1	3.20	-16.80	Pass
		2480	2DH5	1	3.20	-16.80	Pass
		HOPP	2DH5	1	3.20	-16.80	Pass
					3.20	-16.80	Pass
8DPSK	SISO	2402	3DH5	1	3.26	-16.74	Pass
		2441	3DH5	1	3.26	-16.74	Pass
		2480	3DH5	1	3.26	-16.74	Pass
		HOPP	3DH5	1	3.26	-16.74	Pass
					3.26	-16.74	Pass

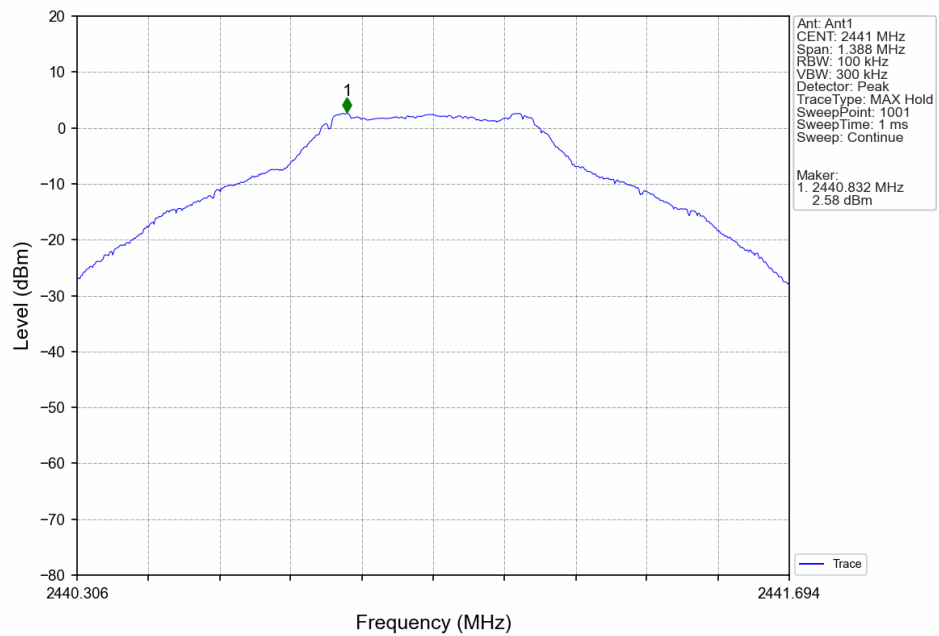
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.



6.2 Test Graph

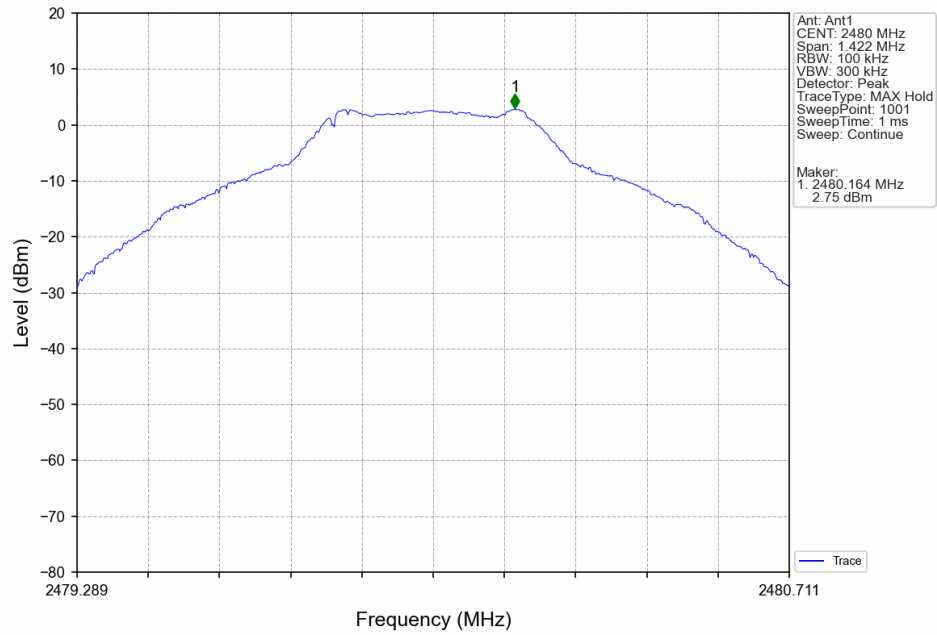
6.2.1 Ref



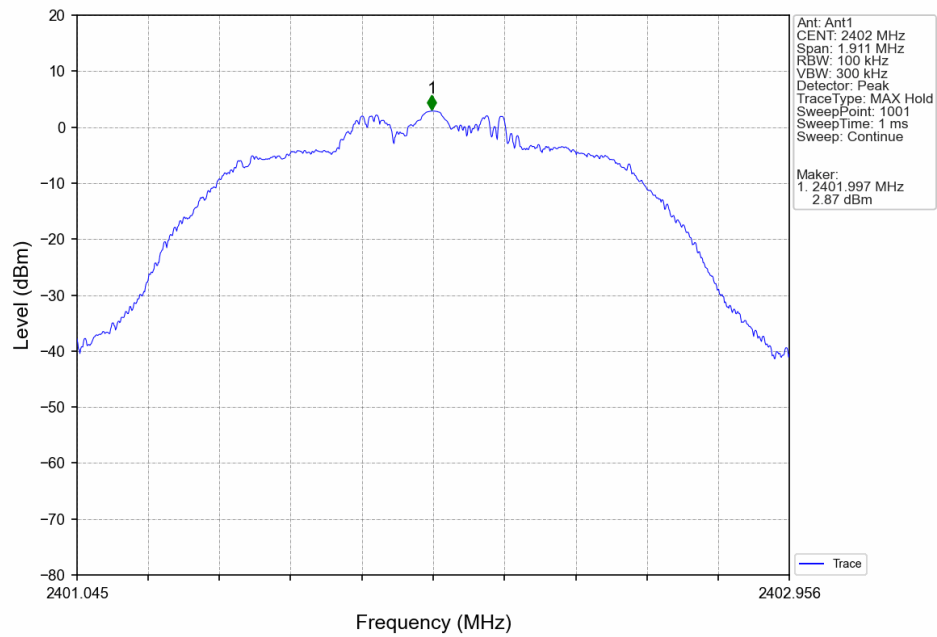




GFSK DH5_HCH_2480MHz_Ant1_NTNV

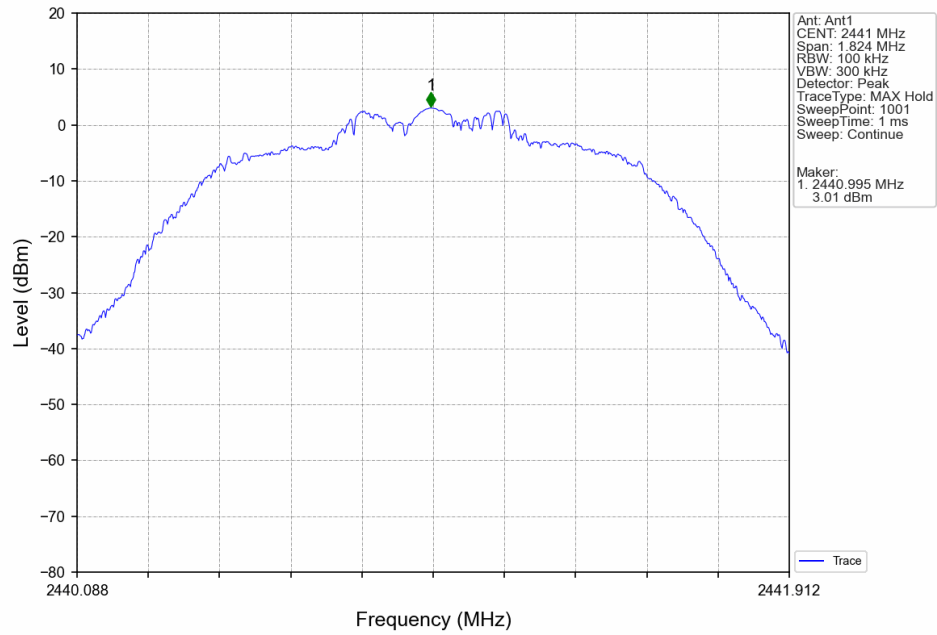


Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV

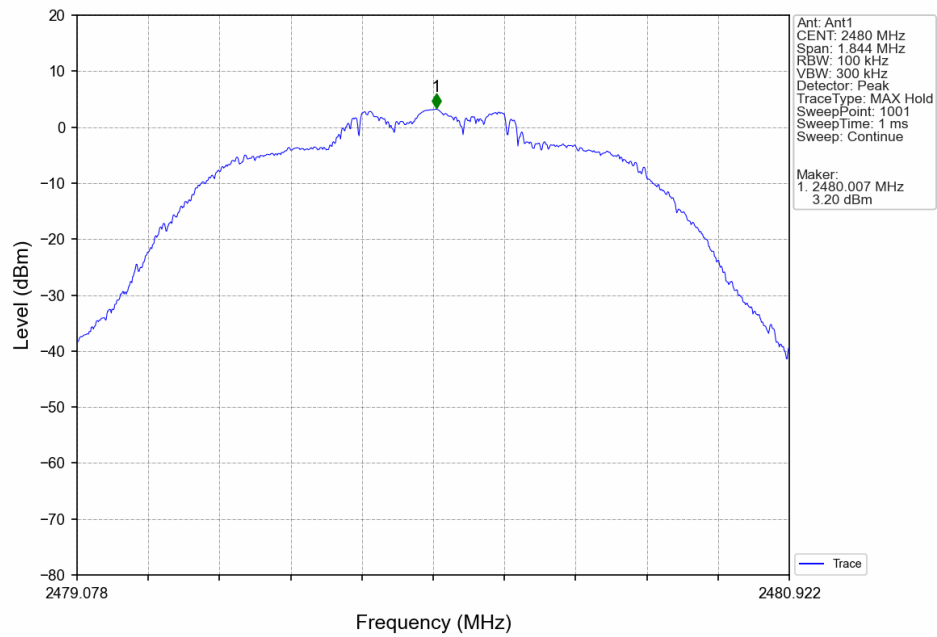




Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV

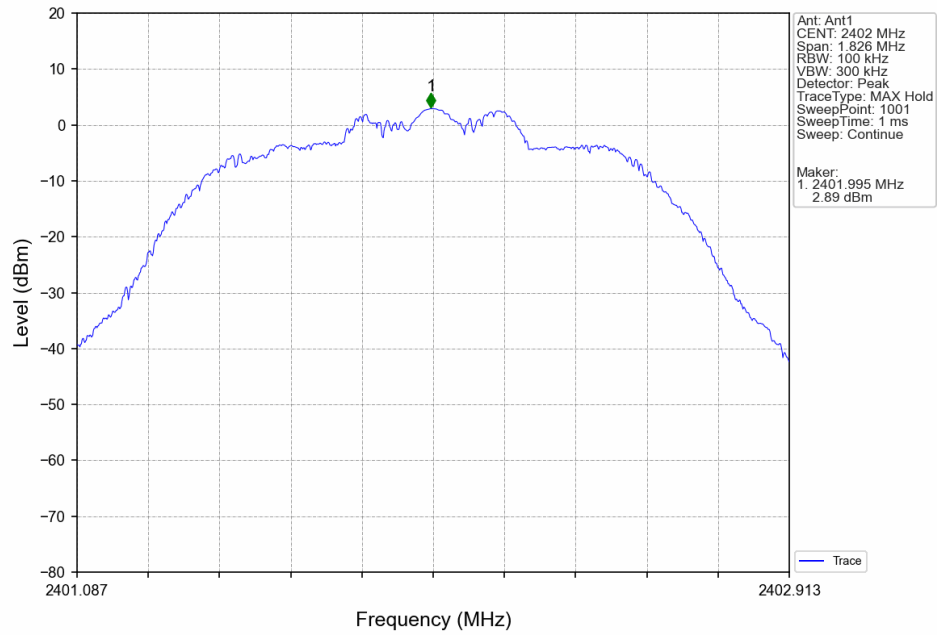


Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

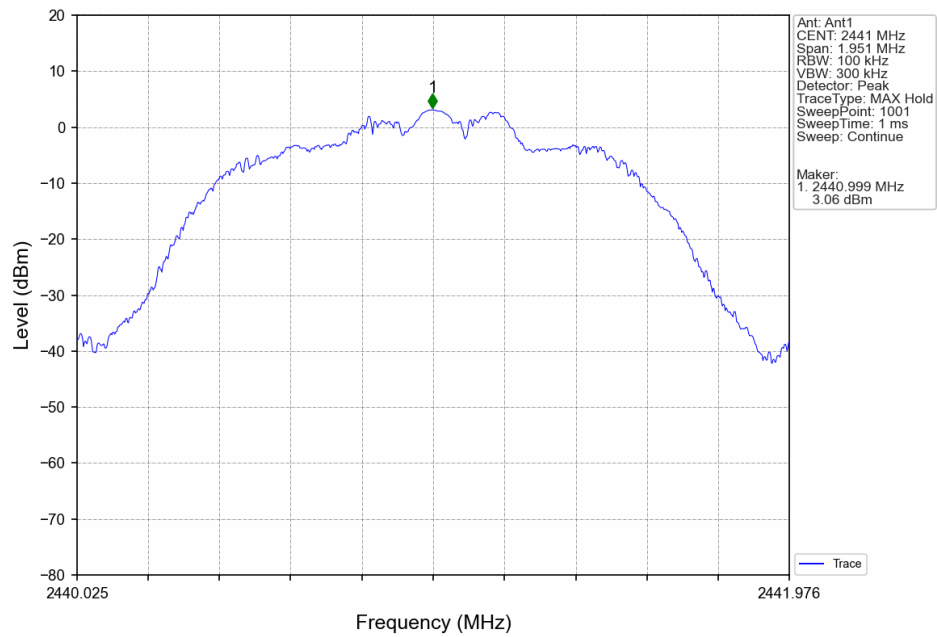


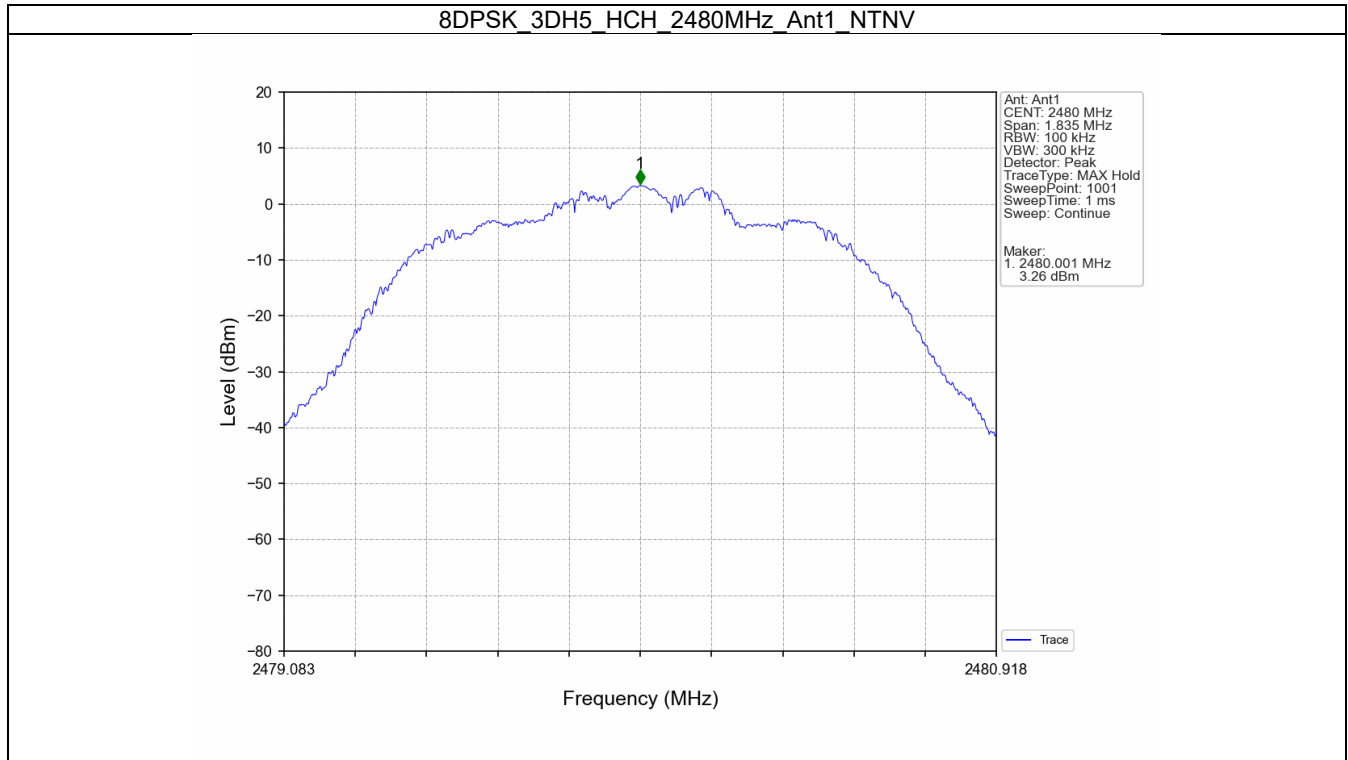


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



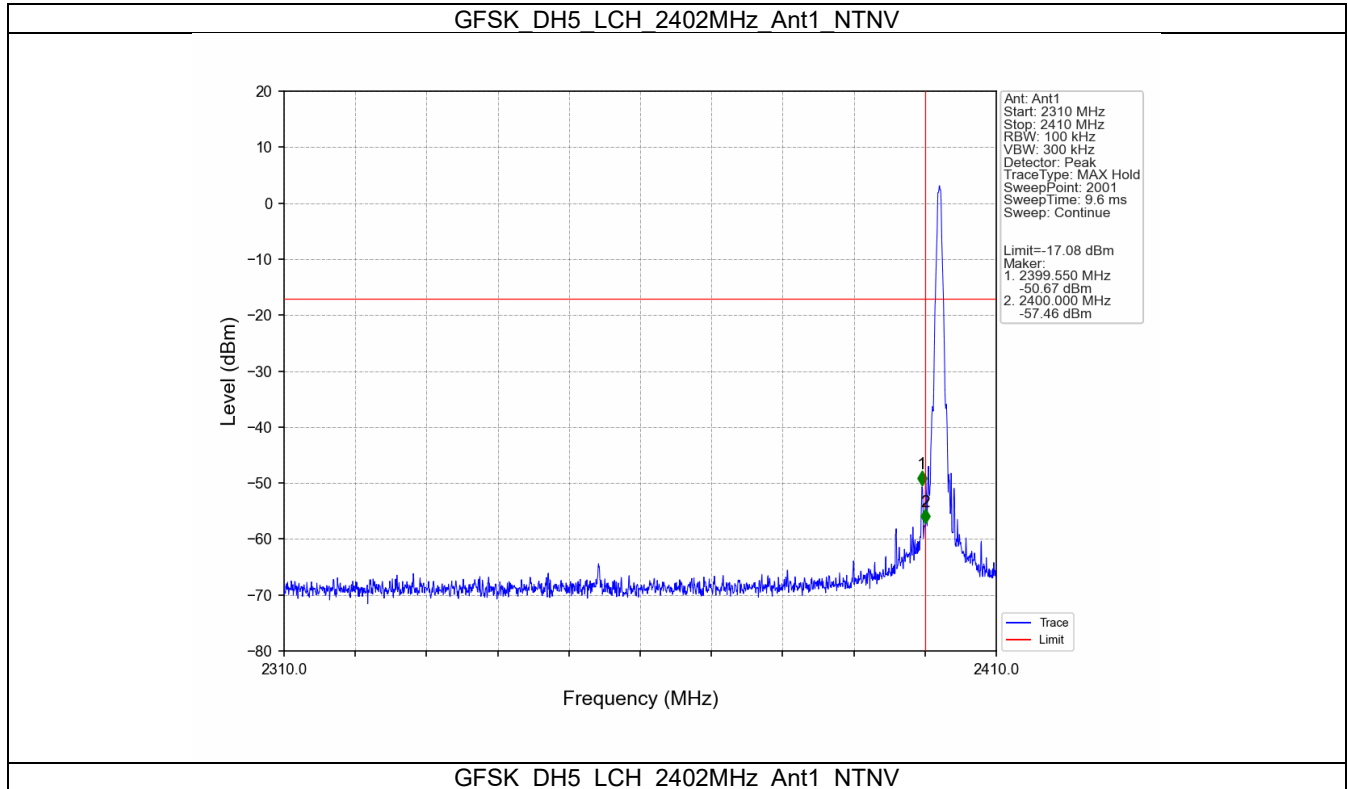
8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV

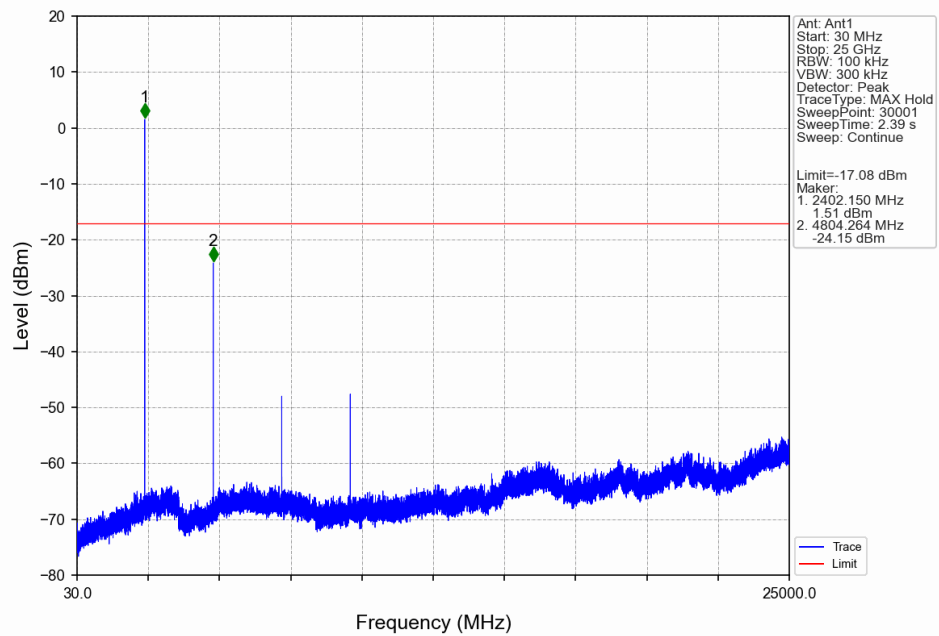






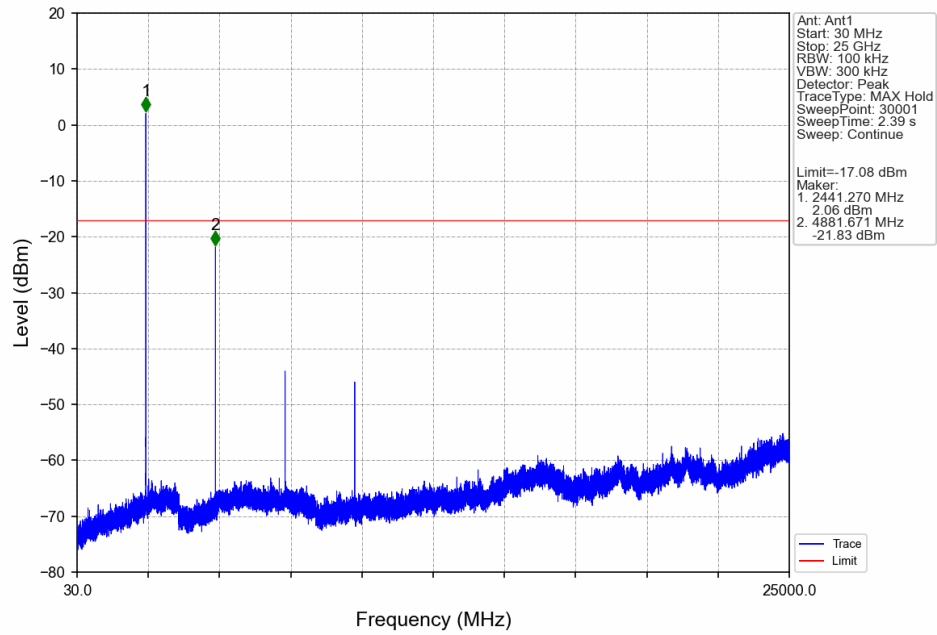
6.2.2 CSE



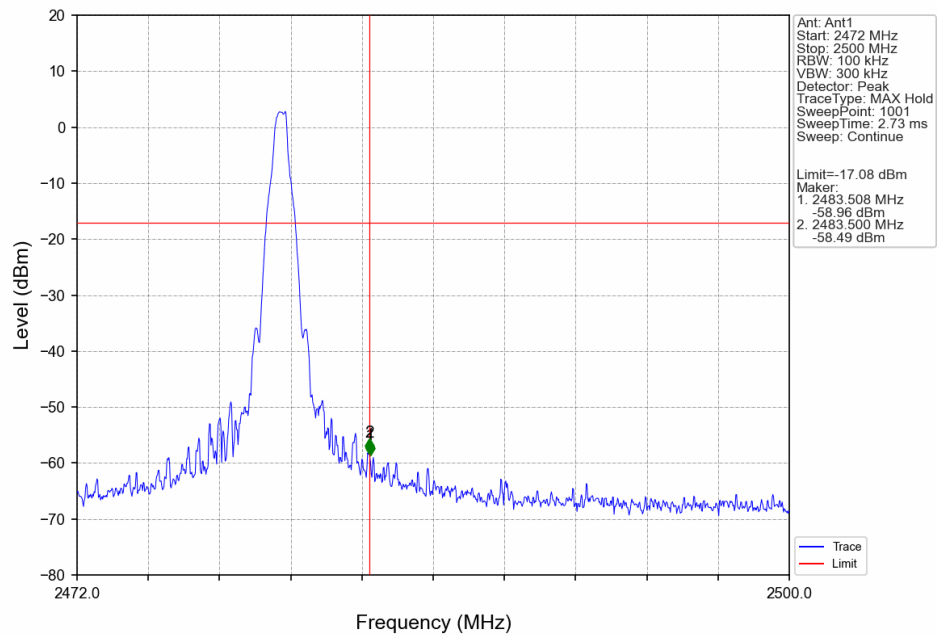




GFSK_DH5_MCH_2441MHz_Ant1_NTNV

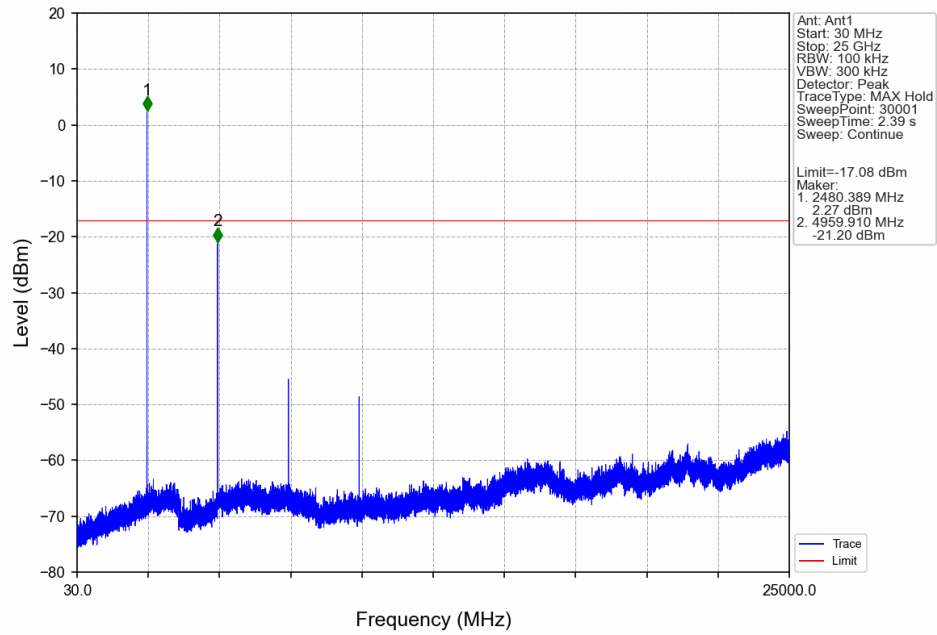


GFSK_DH5_HCH_2480MHz_Ant1_NTNV

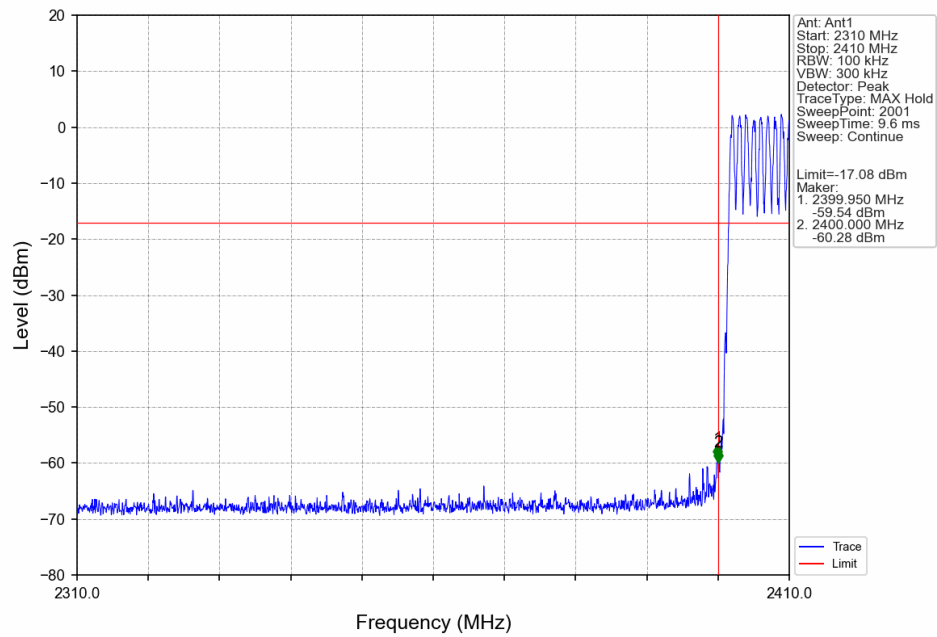




GFSK_DH5_HCH_2480MHz_Ant1_NTNV

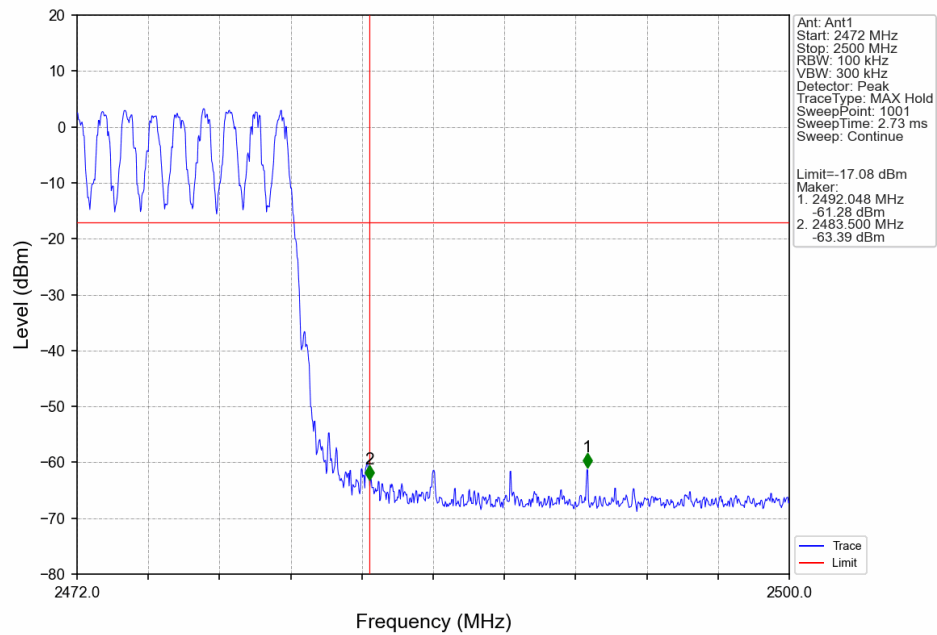


GFSK_DH5_HOPP_Ant1_NTNV

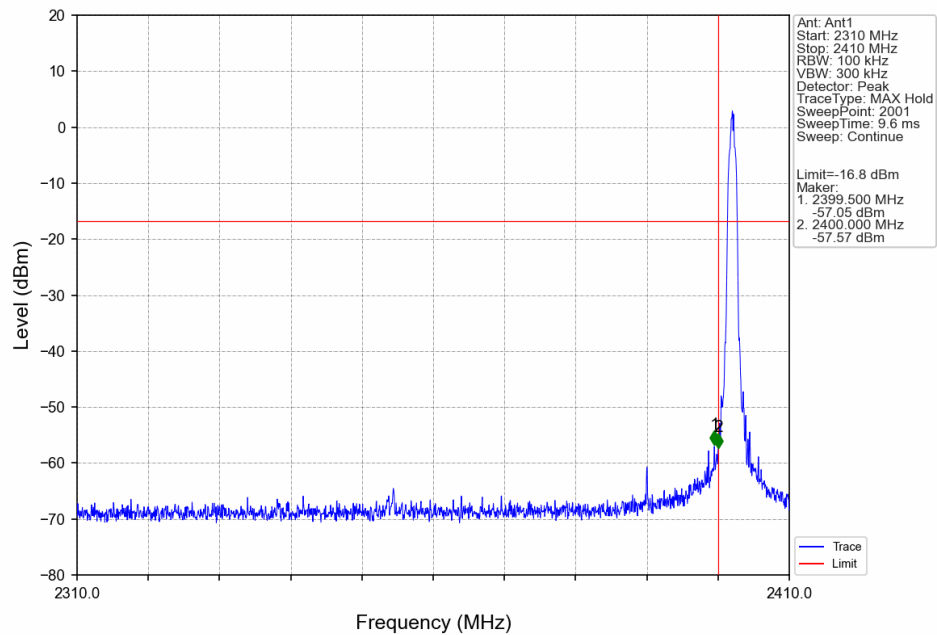




GFSK_DH5_HOPP_Ant1_NTNV

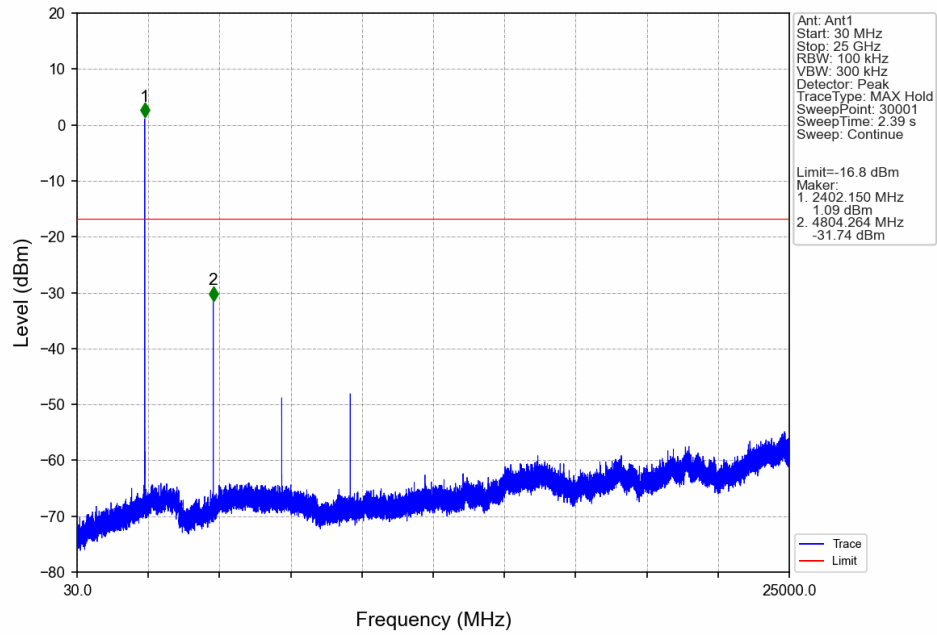


Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV

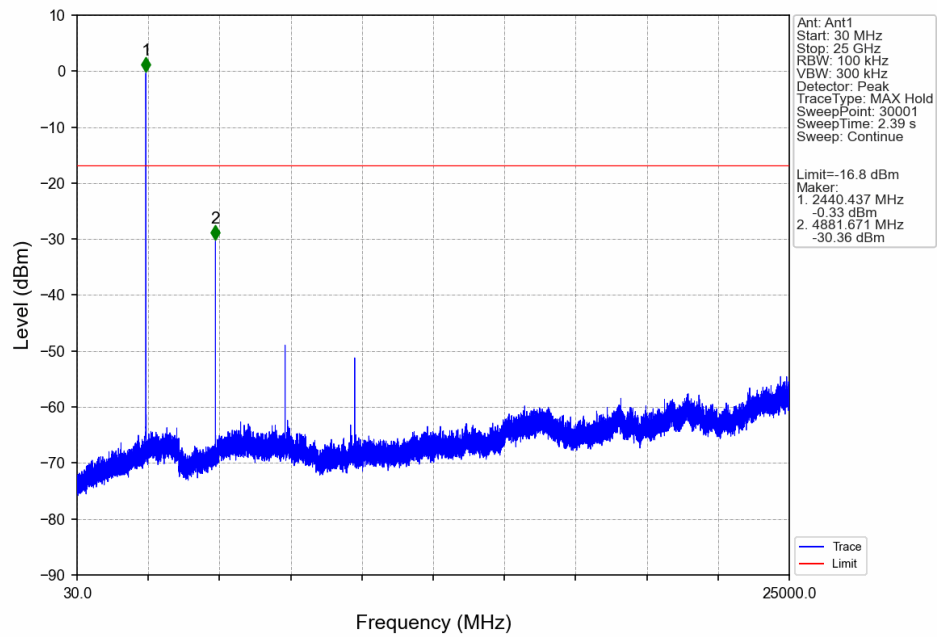




Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV

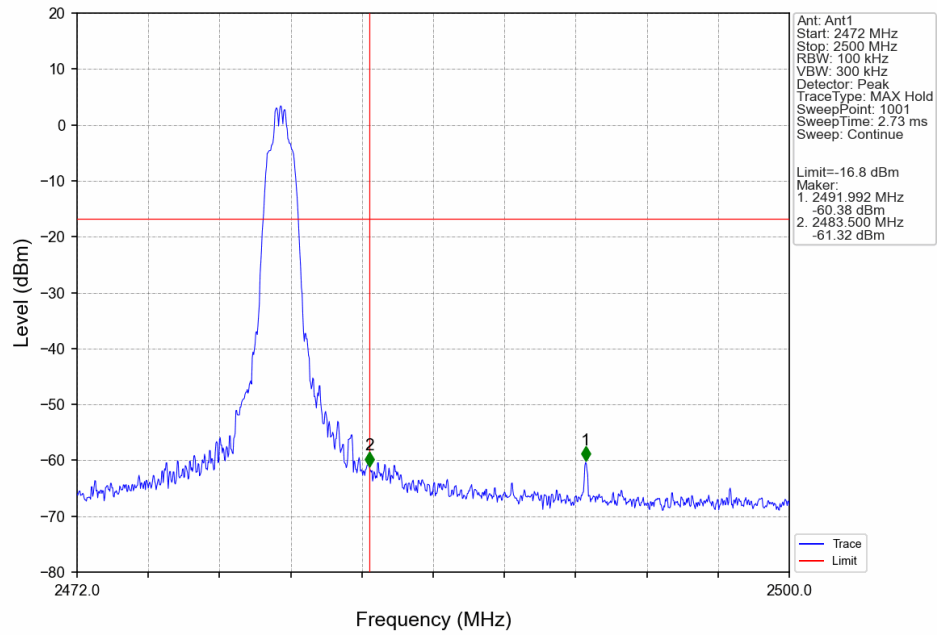


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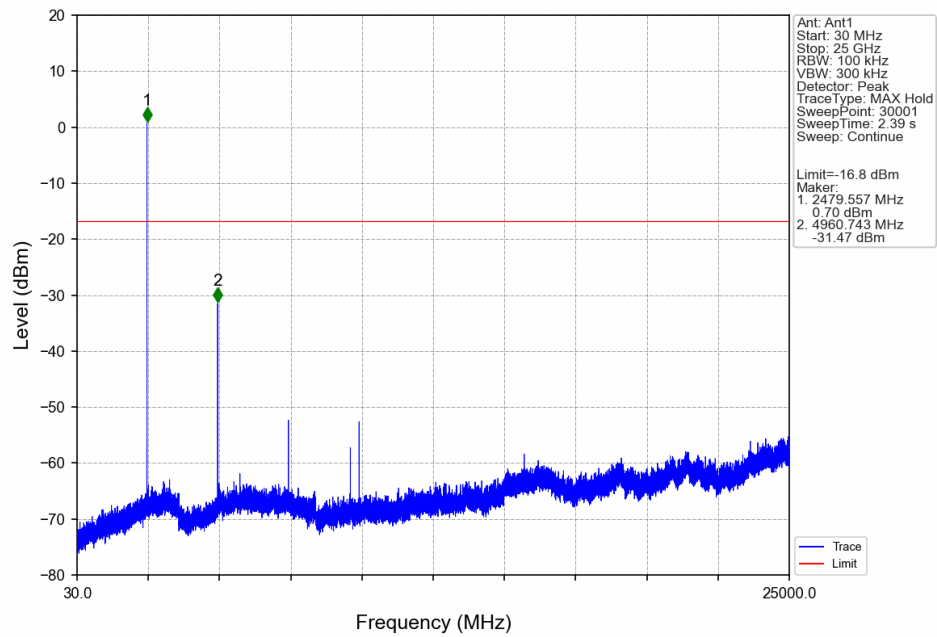




Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

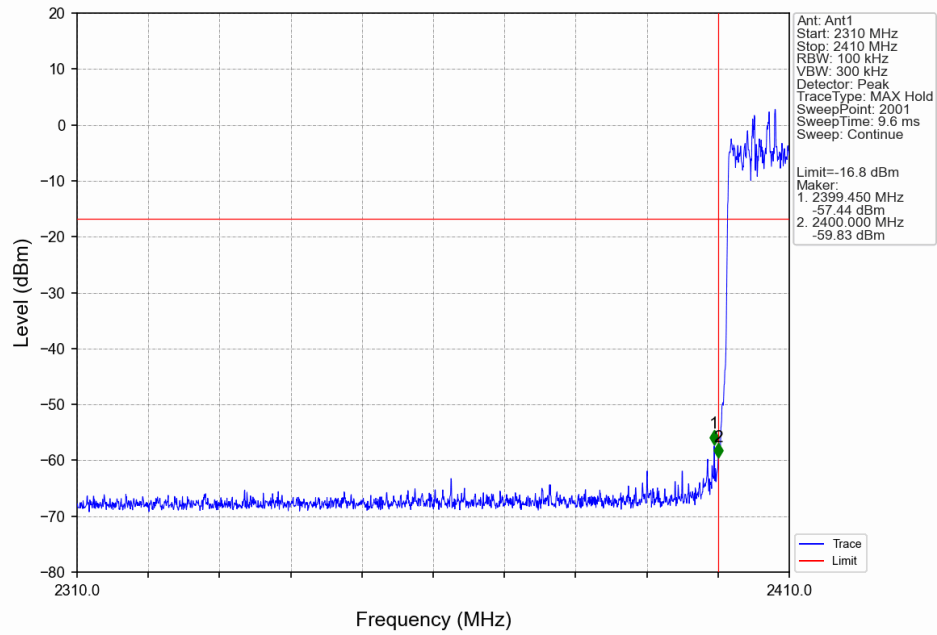


Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

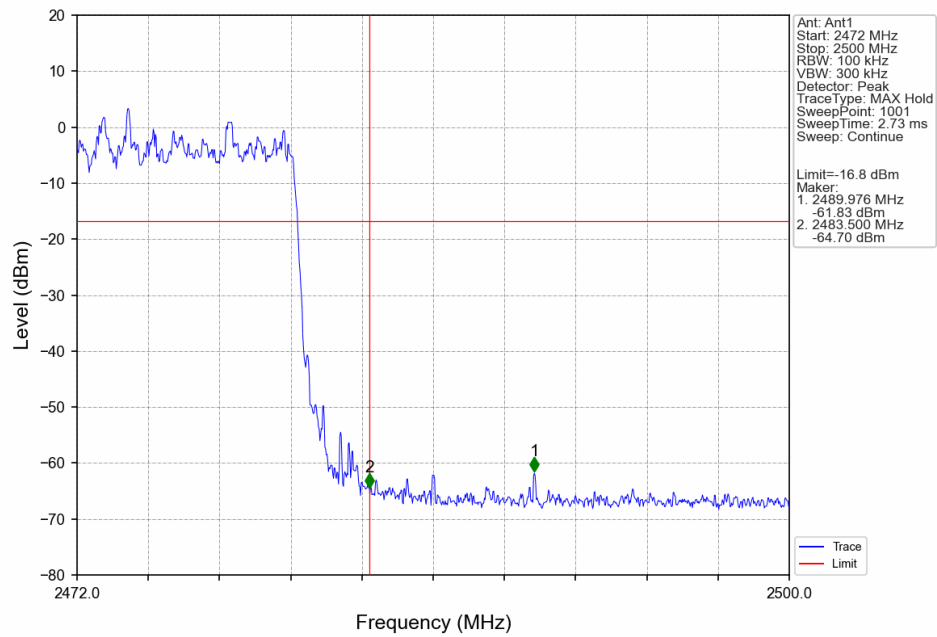




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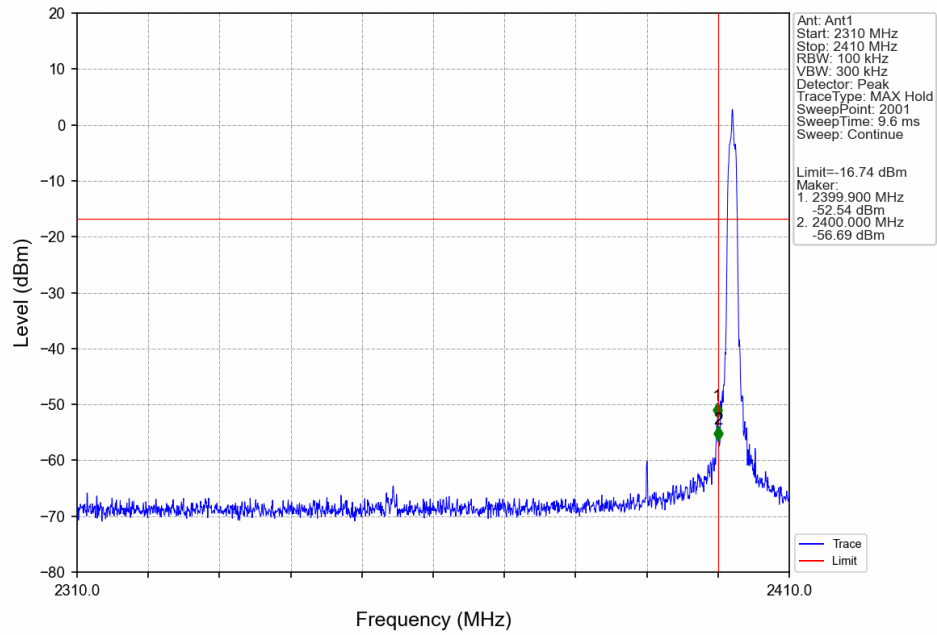


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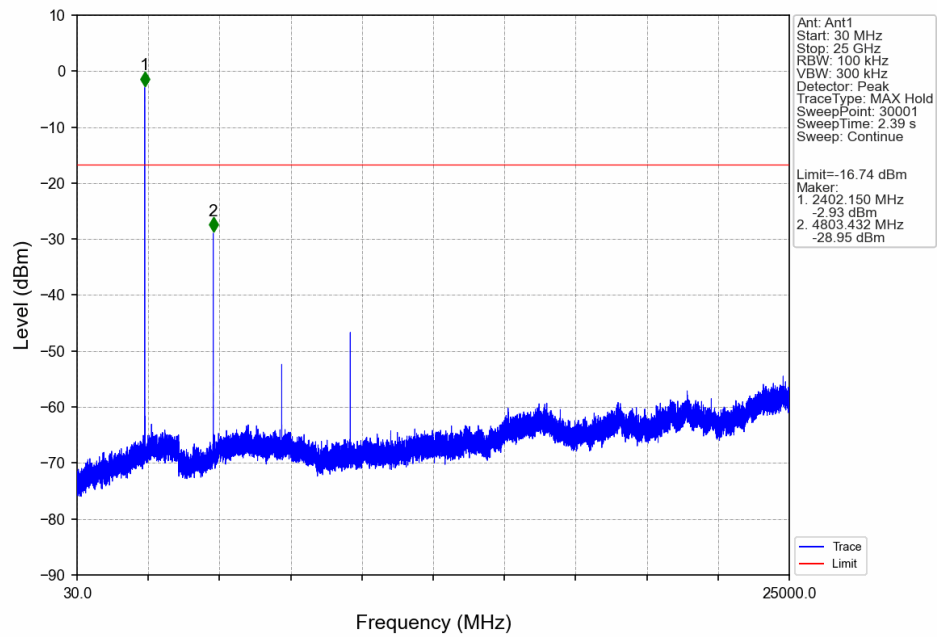




8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV

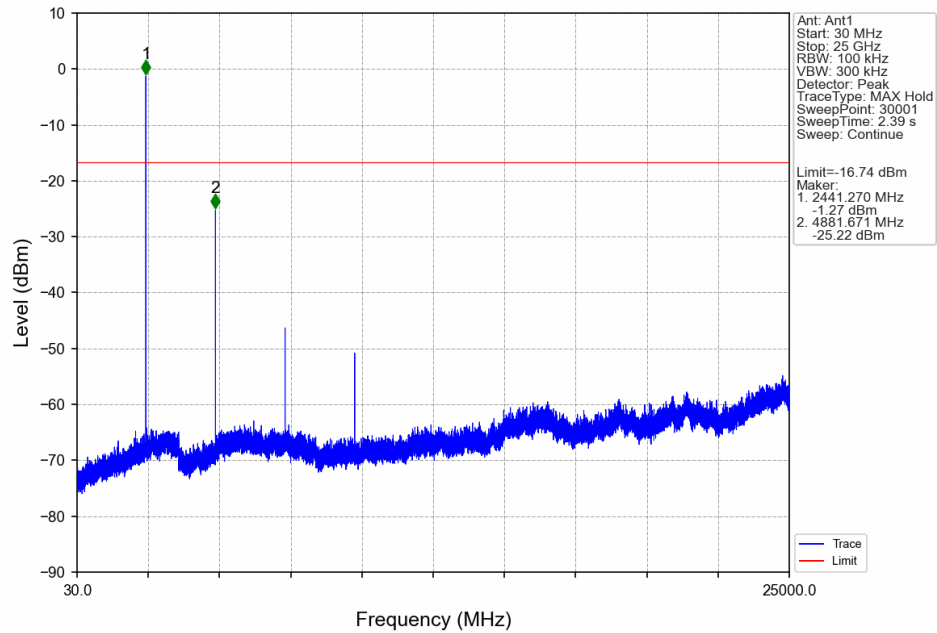


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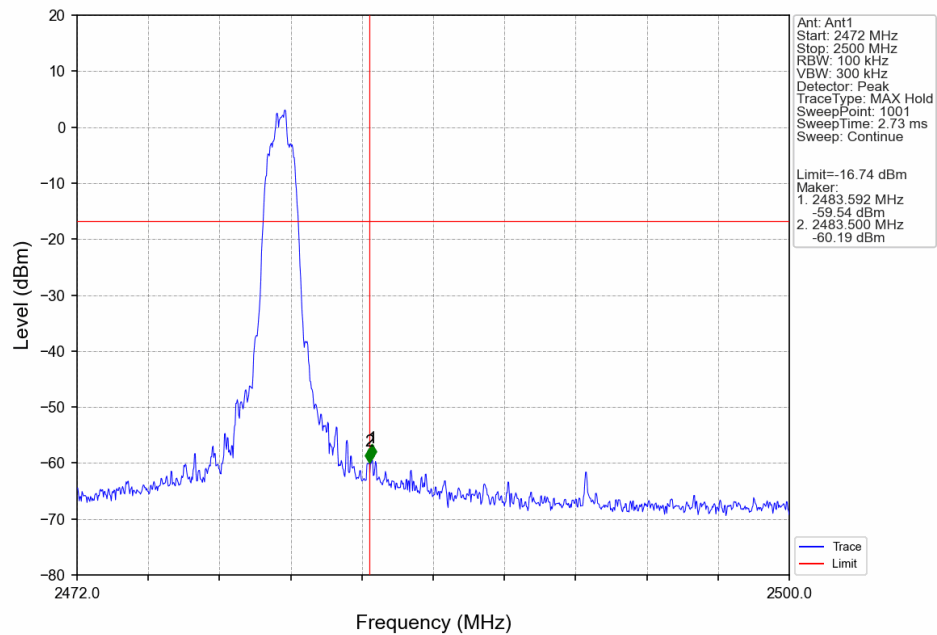




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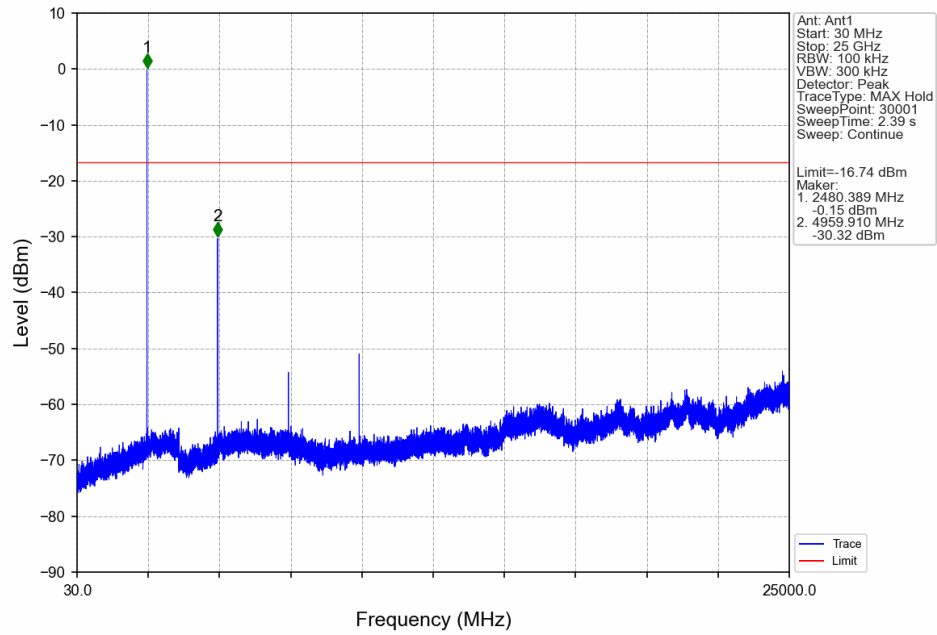


8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV





8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV

