

Test Data for Bluetooth

Product Name: Motorcycle Wireless Earphone

Test Model: X5

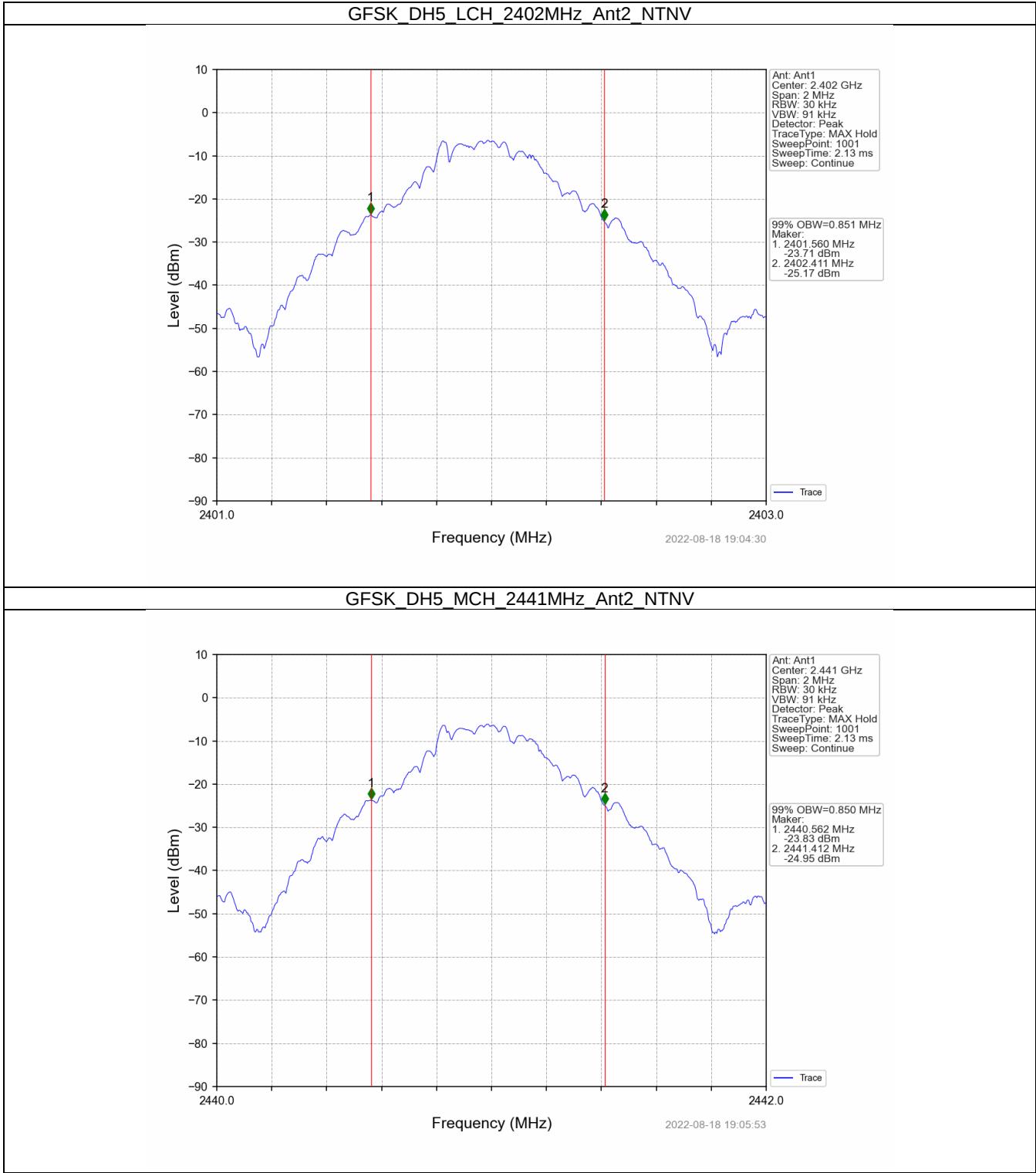
1. Bandwidth

1.1 OBW

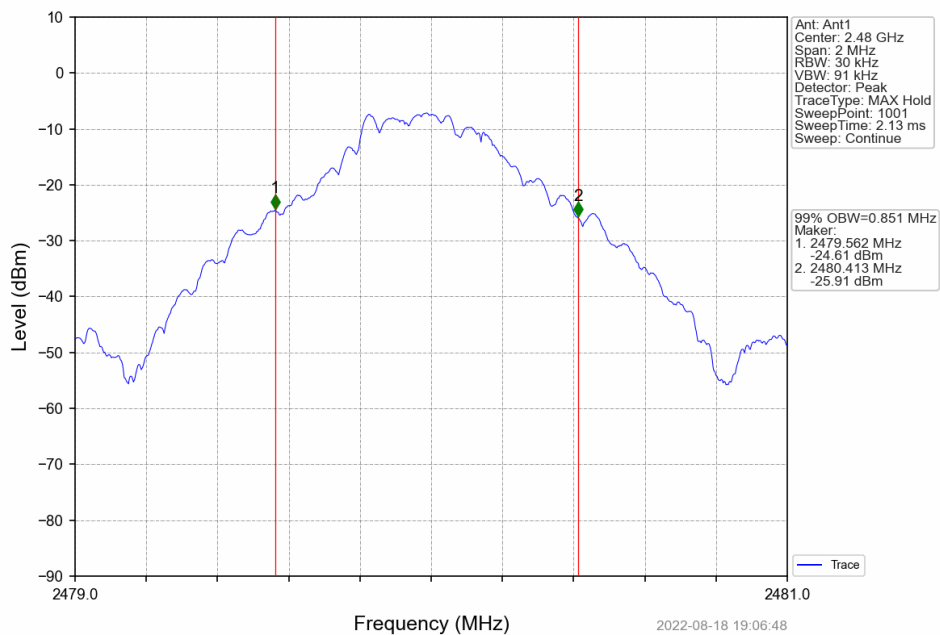
1.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	2	0.851	Pass
		2441	DH5	2	0.850	Pass
		2480	DH5	2	0.851	Pass
Pi/4DQPSK	SISO	2402	2DH5	2	1.169	Pass
		2441	2DH5	2	1.170	Pass
		2480	2DH5	2	1.169	Pass
8DPSK	SISO	2402	3DH5	2	1.180	Pass
		2441	3DH5	2	1.182	Pass
		2480	3DH5	2	1.180	Pass

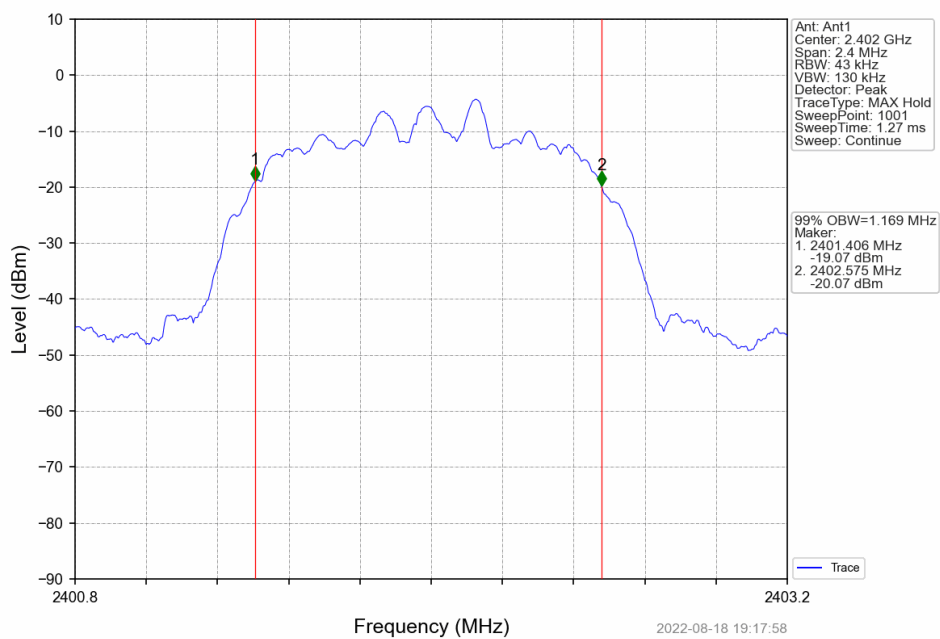
1.1.2 Test Graph



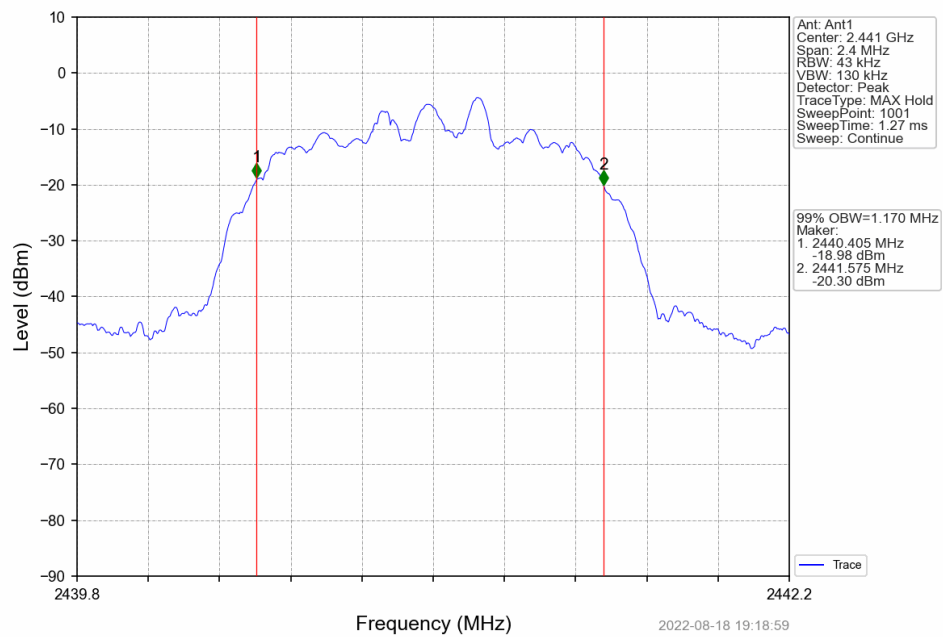
GFSK DH5 HCH 2480MHz Ant2 NTN



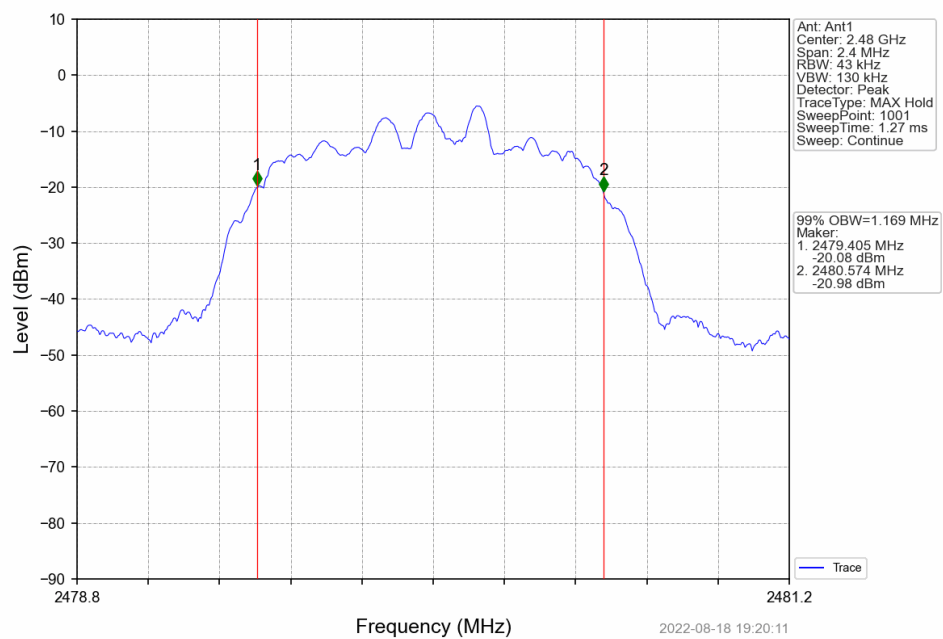
Pi/4DQPSK 2DH5 LCH 2402MHz Ant2 NTN

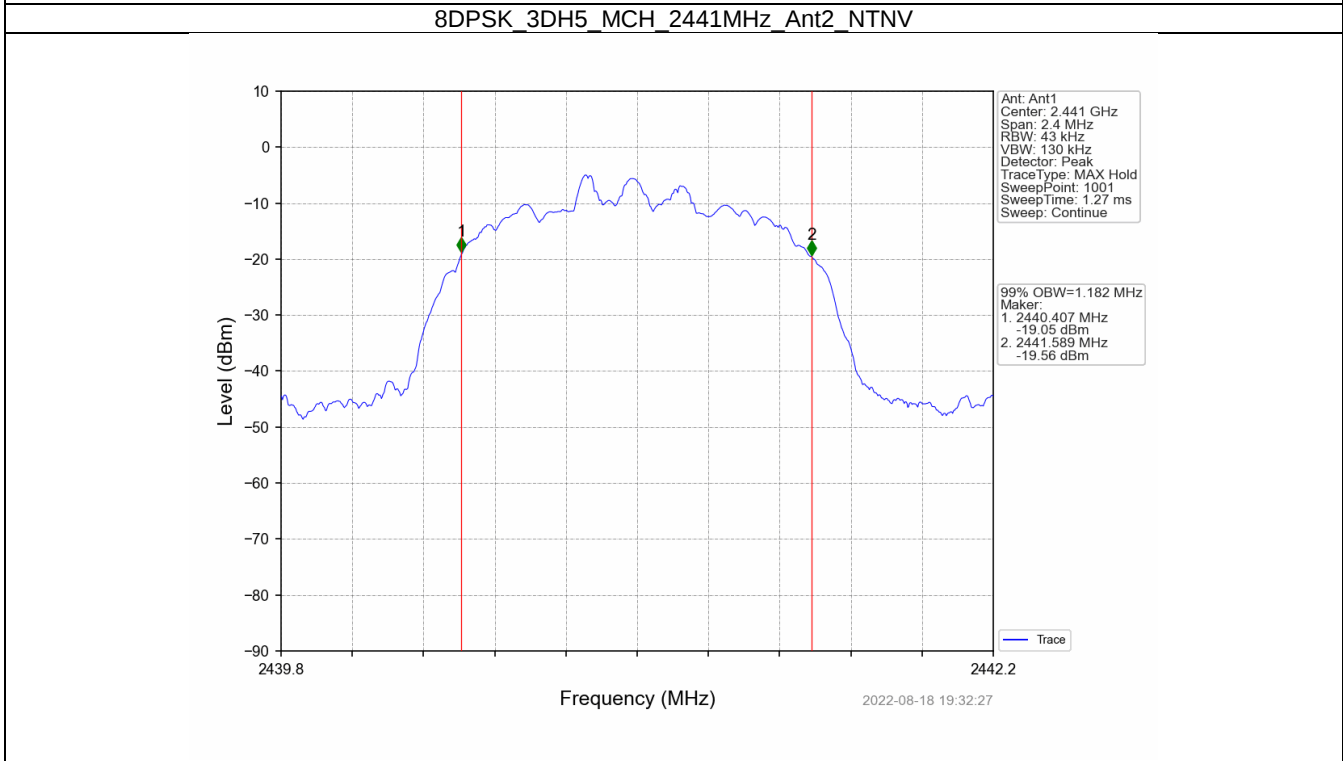
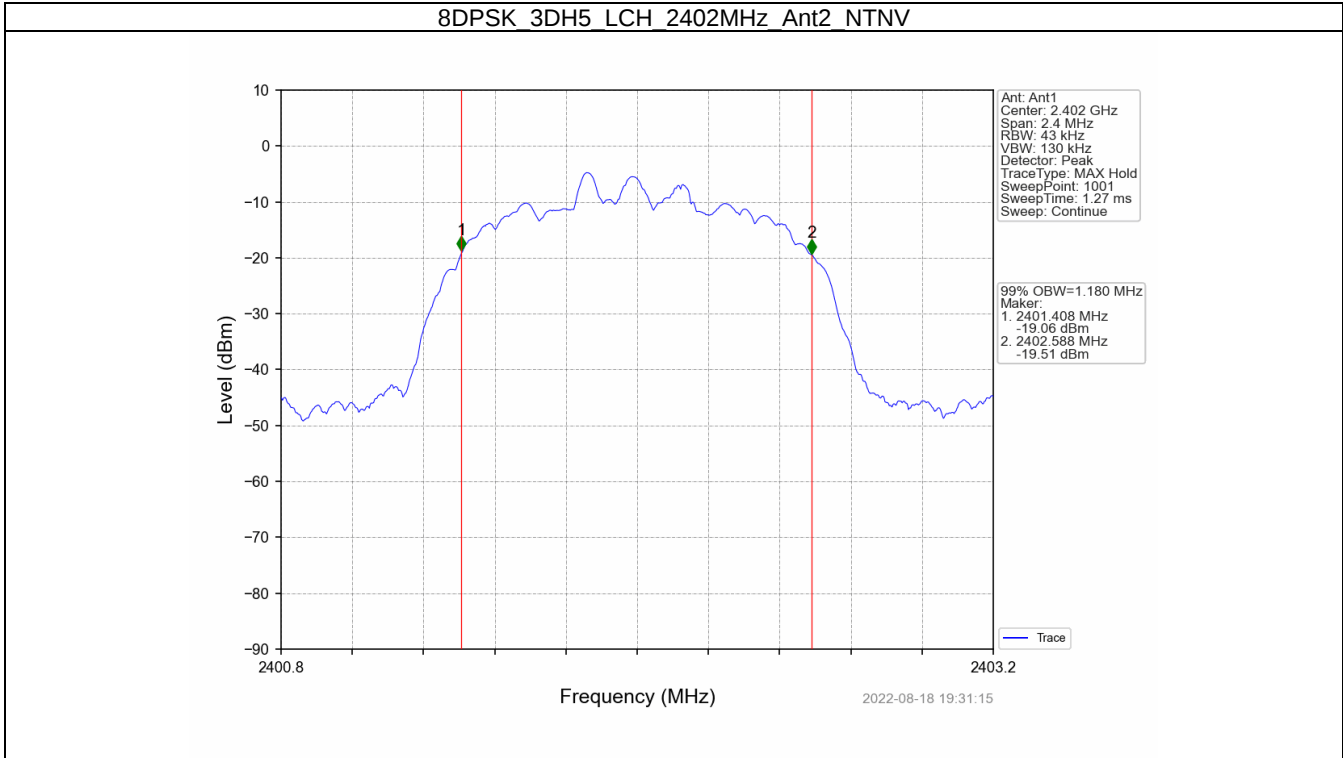


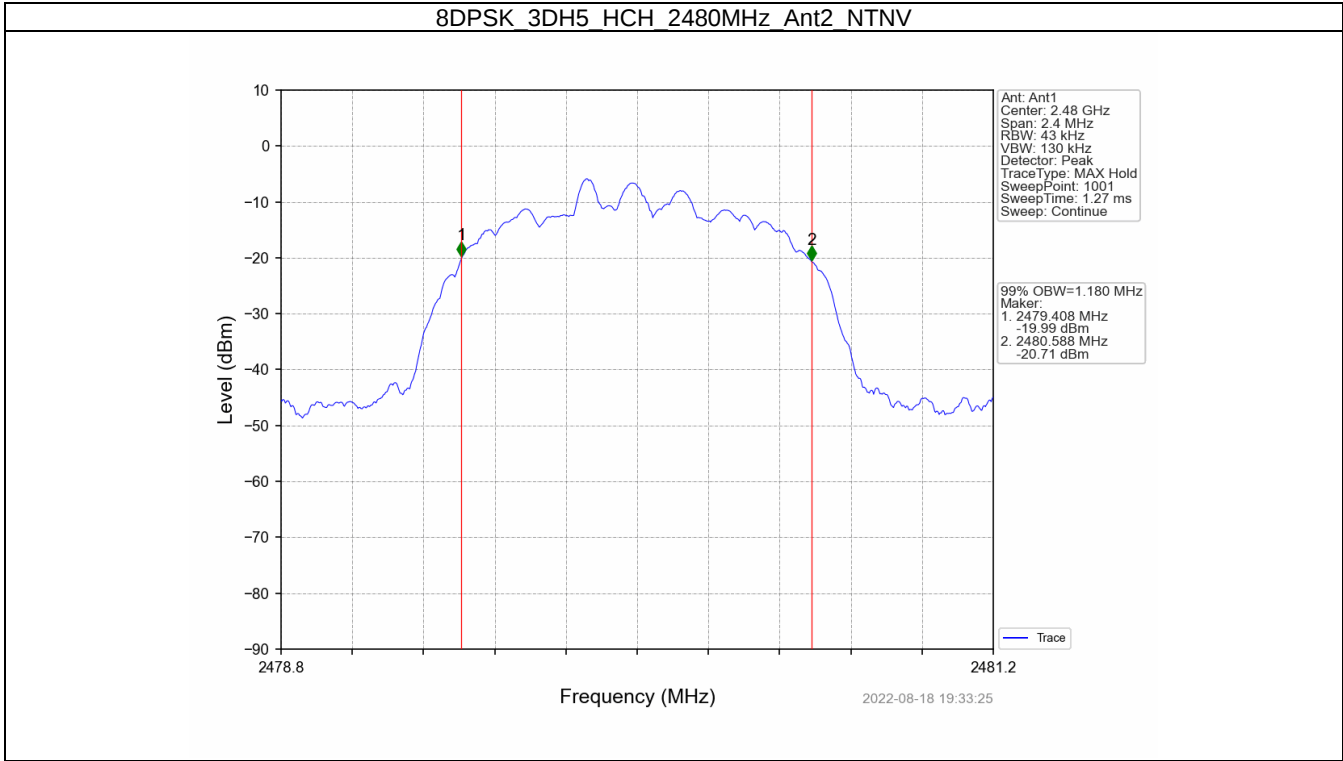
Pi/4DQPSK 2DH5 MCH 2441MHz Ant2 NTN



Pi/4DQPSK 2DH5 HCH 2480MHz Ant2 NTN





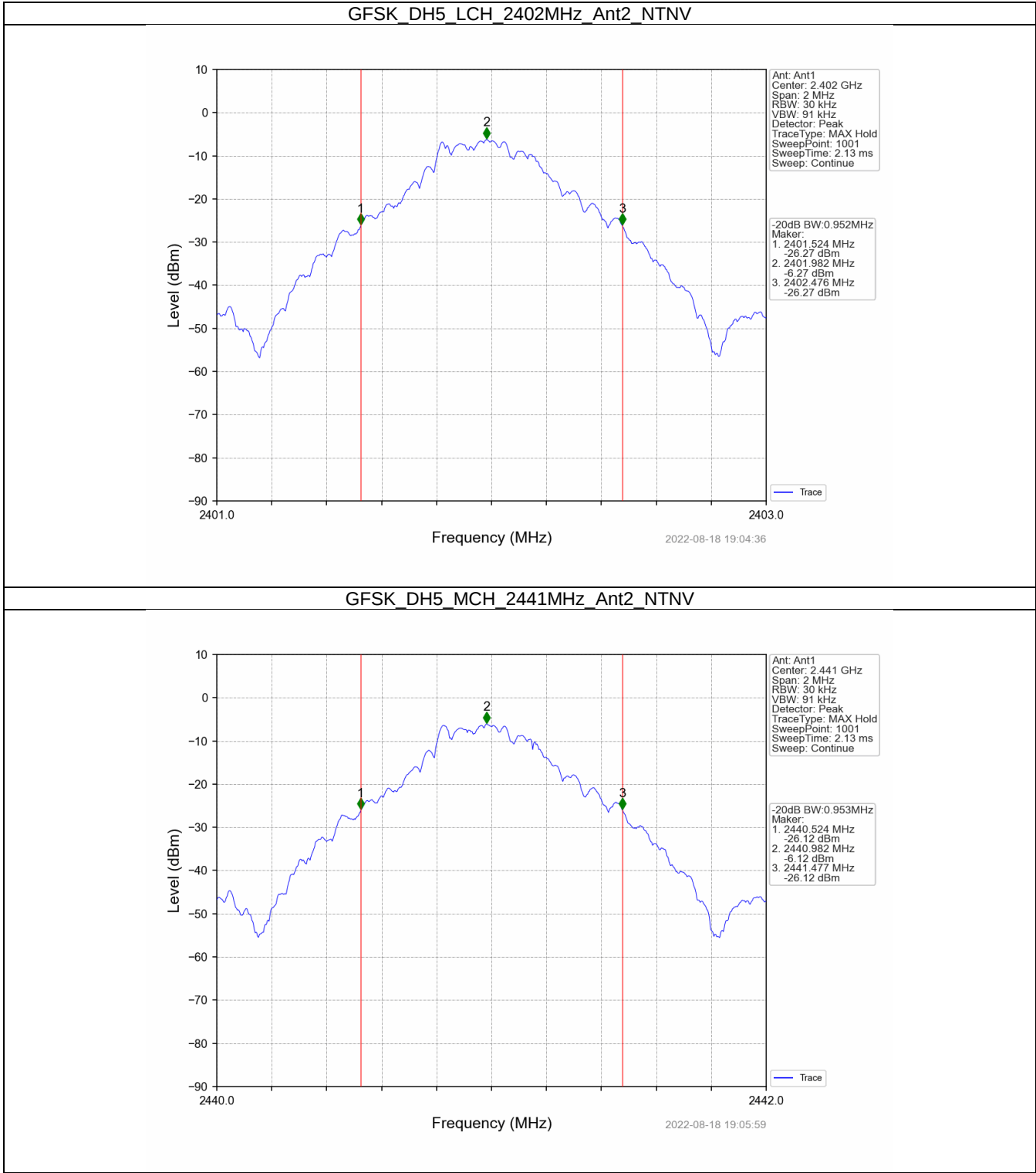


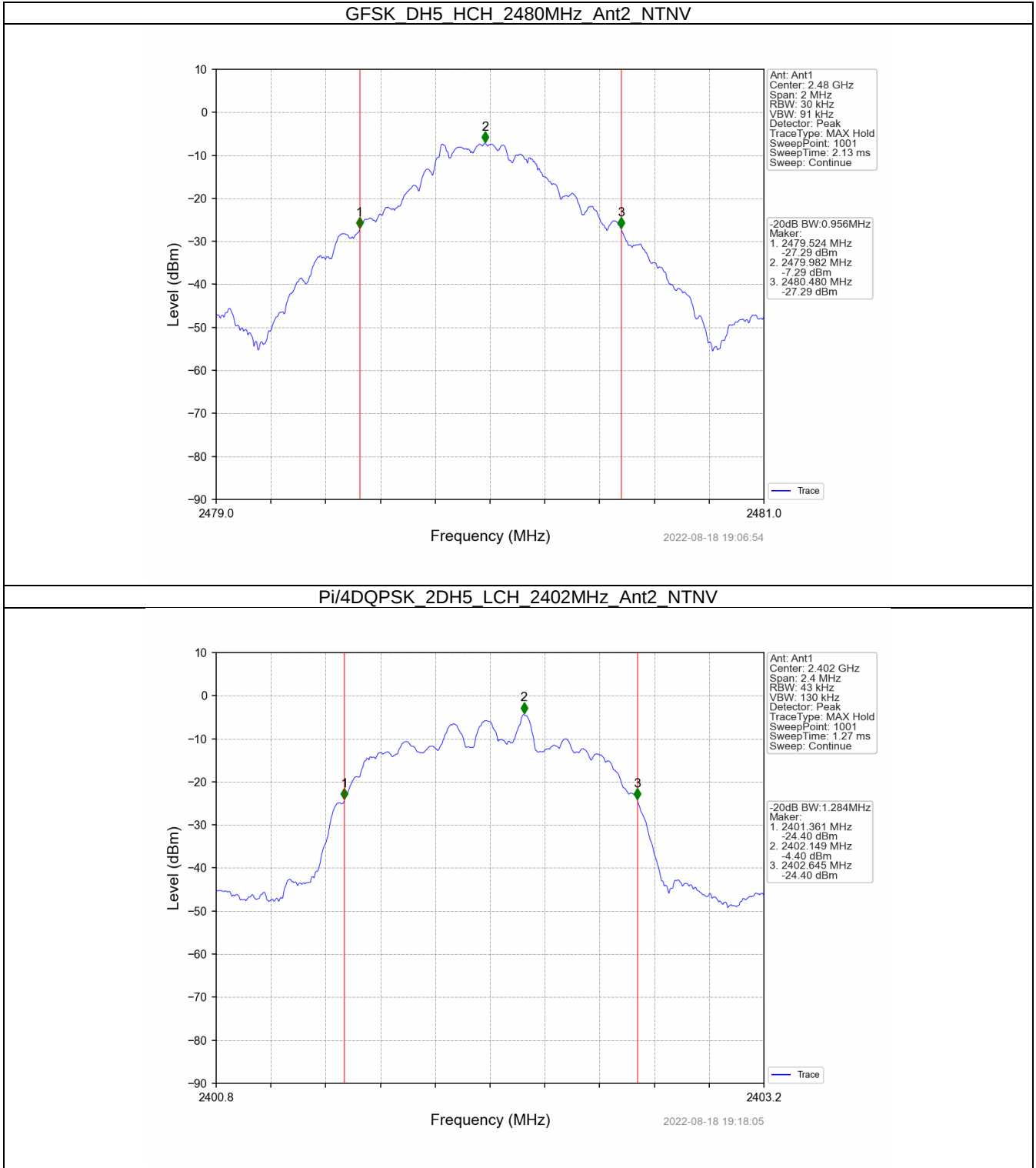
1.2 20dB BW

1.2.1 Test Result

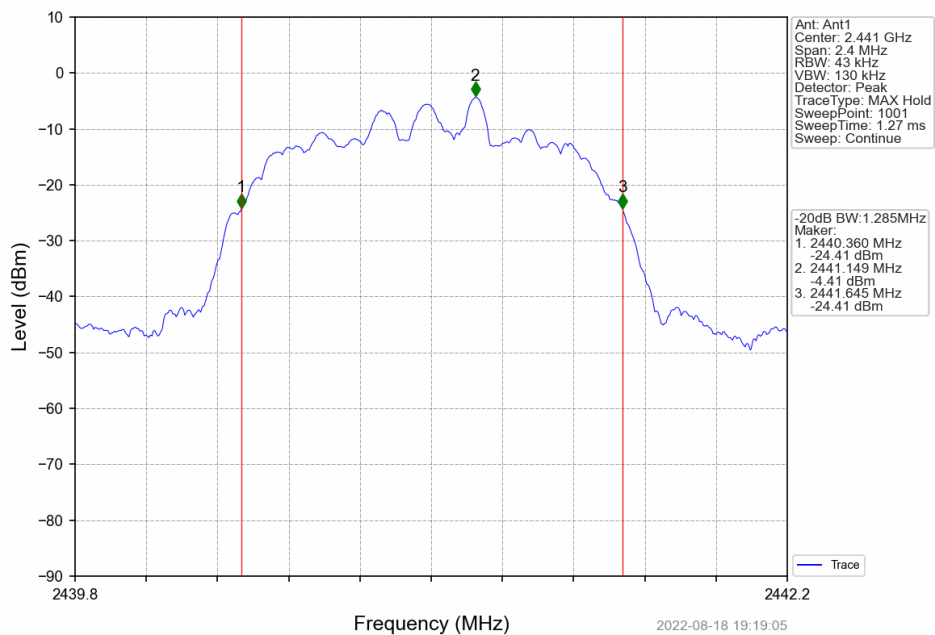
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	2	0.952	Pass
		2441	DH5	2	0.953	Pass
		2480	DH5	2	0.956	Pass
Pi/4DQPSK	SISO	2402	2DH5	2	1.284	Pass
		2441	2DH5	2	1.285	Pass
		2480	2DH5	2	1.284	Pass
8DPSK	SISO	2402	3DH5	2	1.312	Pass
		2441	3DH5	2	1.314	Pass
		2480	3DH5	2	1.312	Pass

1.2.2 Test Graph

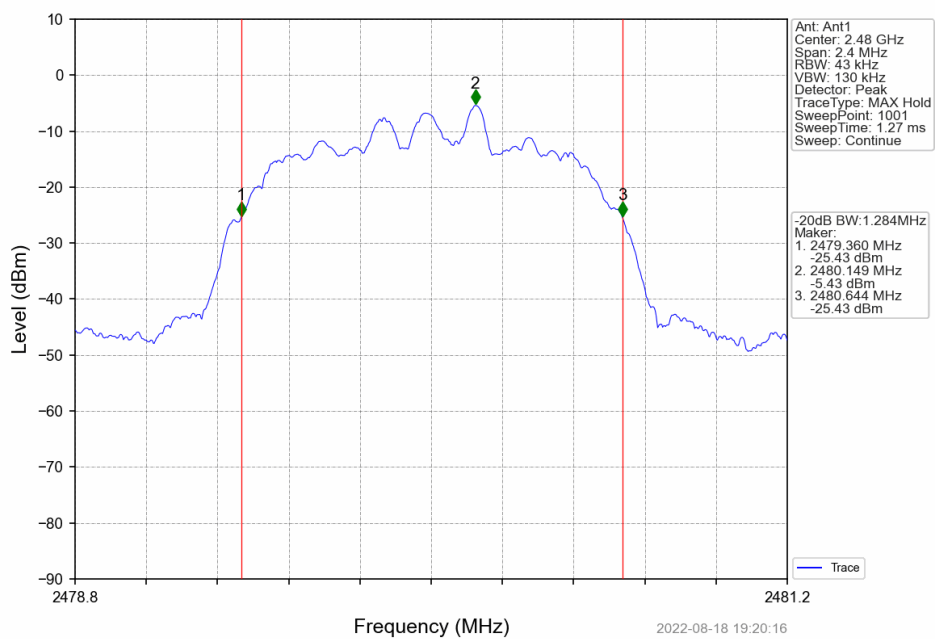


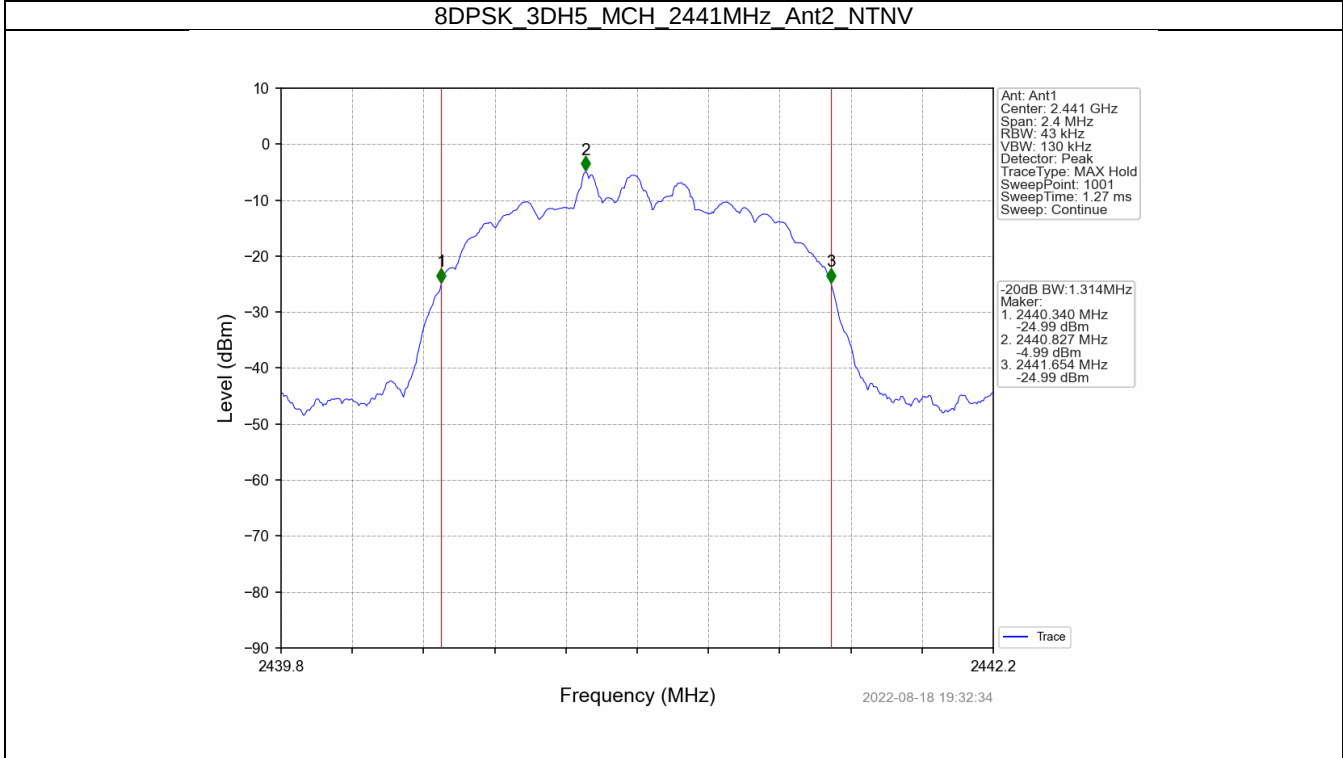
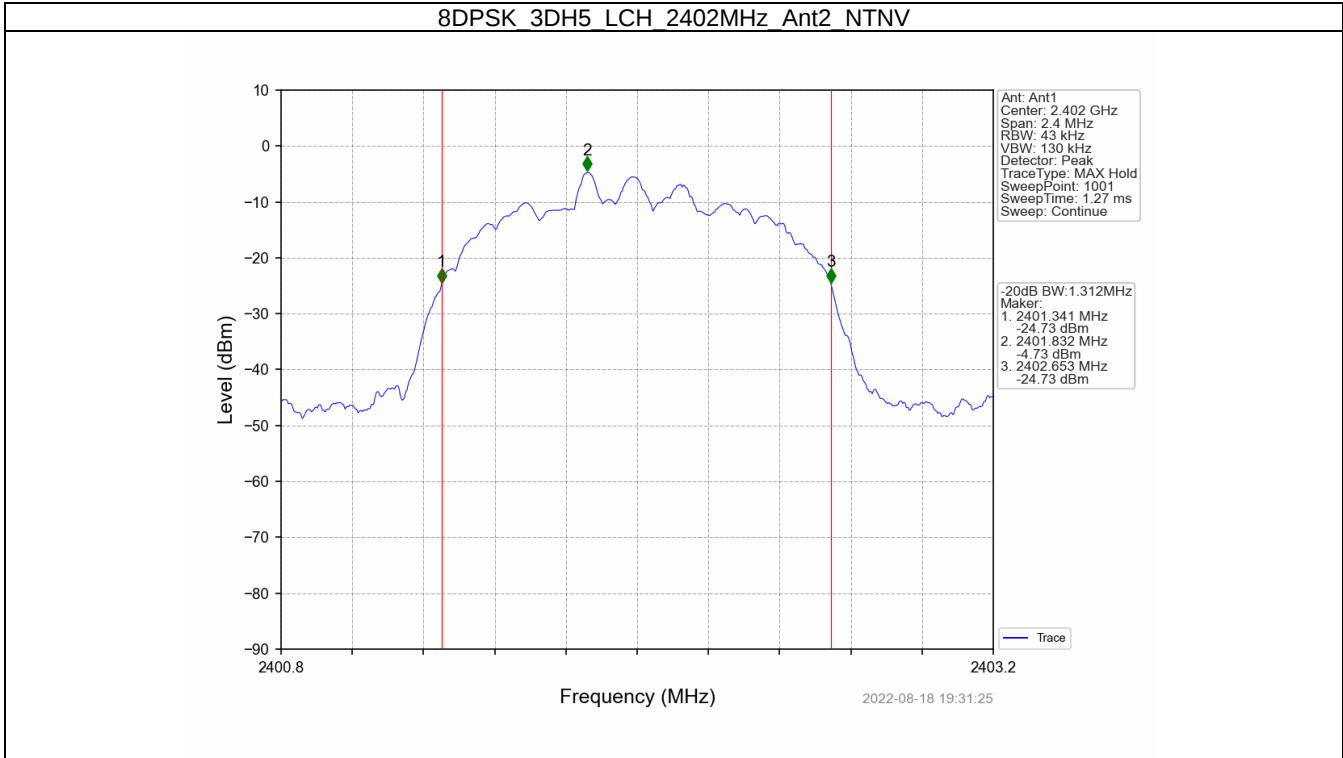


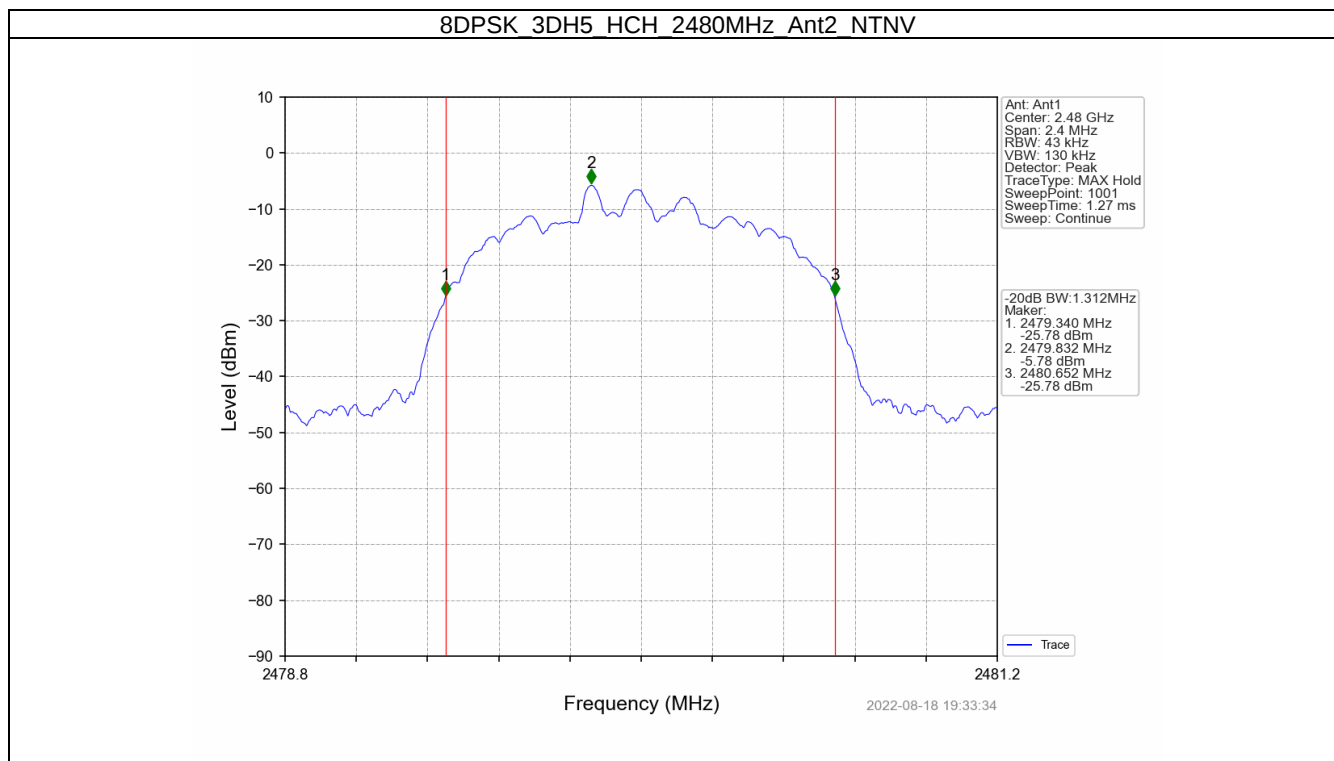
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant2_NTNV



Pi/4DQPSK_2DH5_HCH_2480MHz_Ant2_NTNV







2. Maximum Conducted Output Power

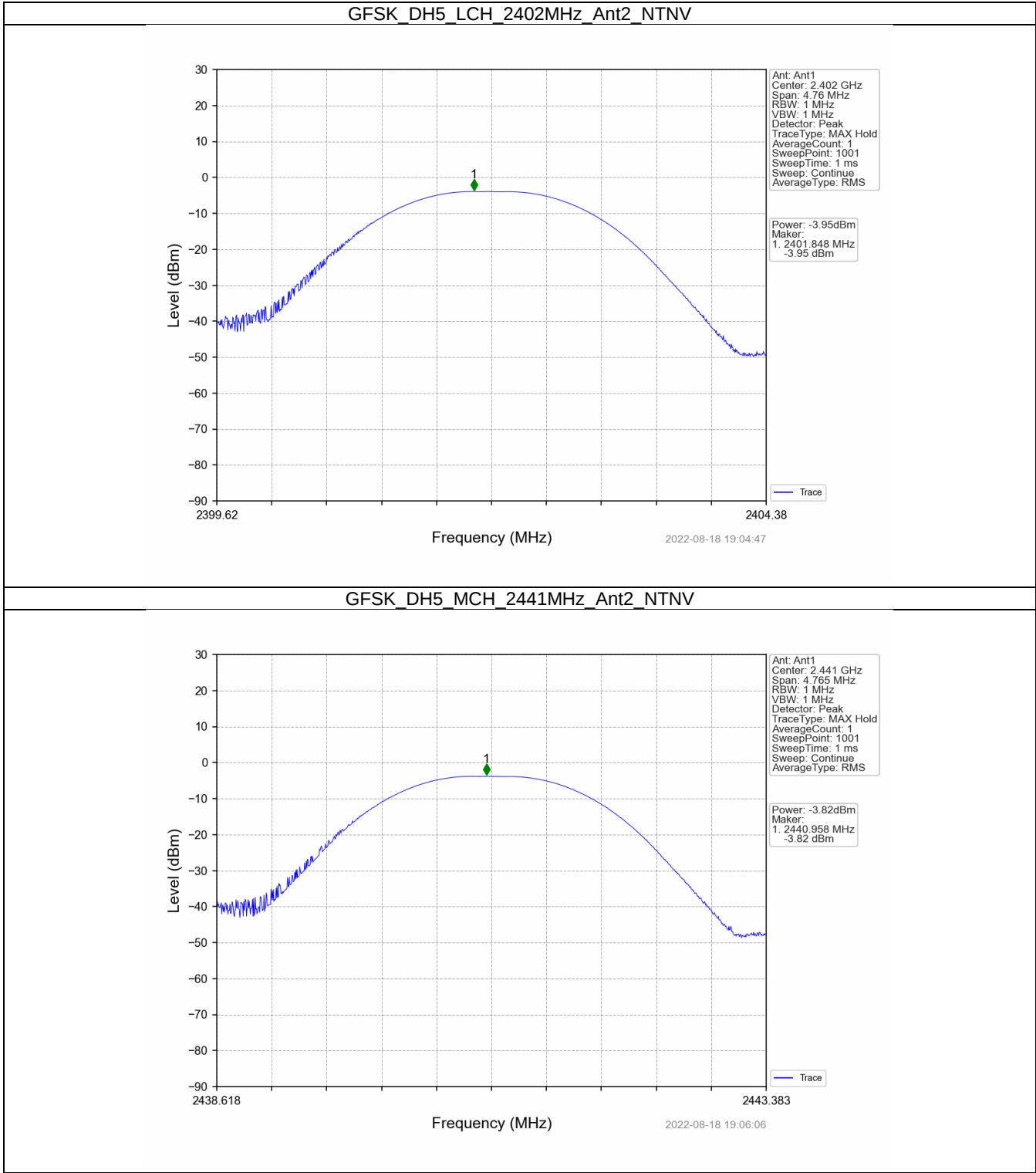
2.1 Power

2.1.1 Test Result

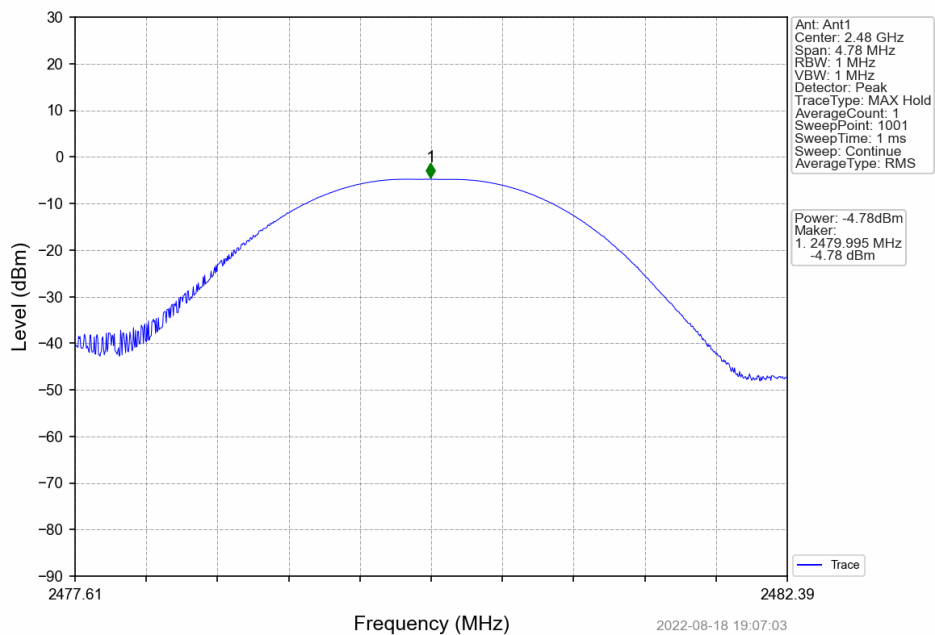
Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT2	Limit	
GFSK	SISO	2402	DH5	-3.95	<=30	Pass
		2441	DH5	-3.82	<=30	Pass
		2480	DH5	-4.78	<=30	Pass
Pi/4DQPSK	SISO	2402	2DH5	-2.76	<=20.97	Pass
		2441	2DH5	-2.73	<=20.97	Pass
		2480	2DH5	-3.82	<=20.97	Pass
8DPSK	SISO	2402	3DH5	-2.24	<=20.97	Pass
		2441	3DH5	-2.31	<=20.97	Pass
		2480	3DH5	-3.28	<=20.97	Pass

Note1: Antenna Gain: Ant2: 2.00dBi;

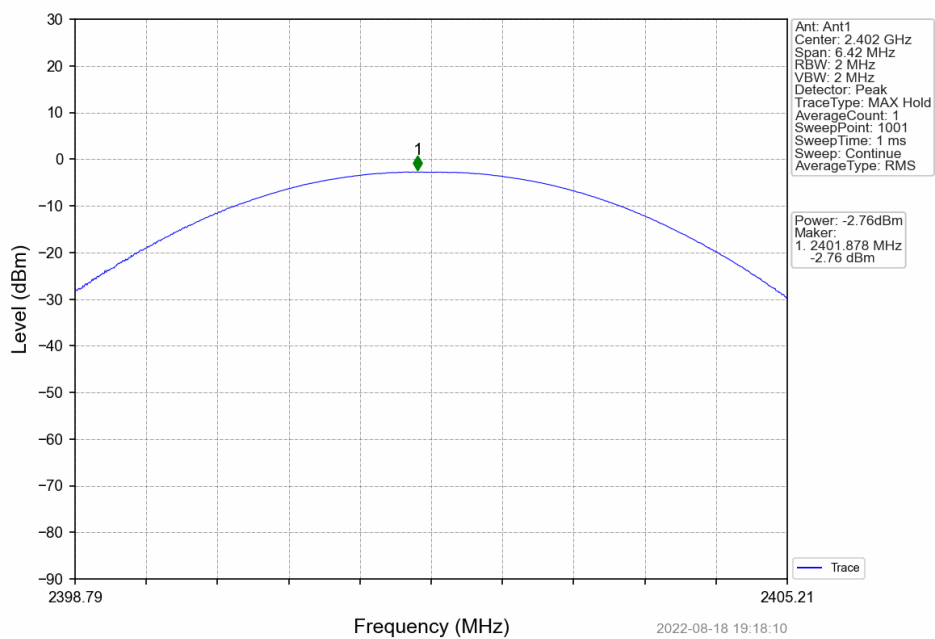
2.1.2 Test Graph



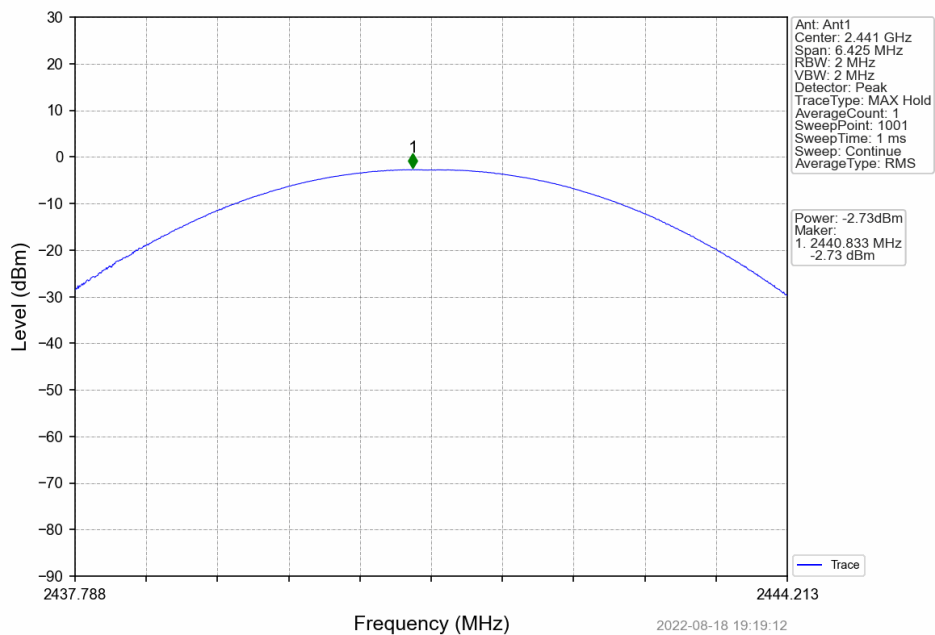
GFSK DH5 HCH 2480MHz Ant2 NTN



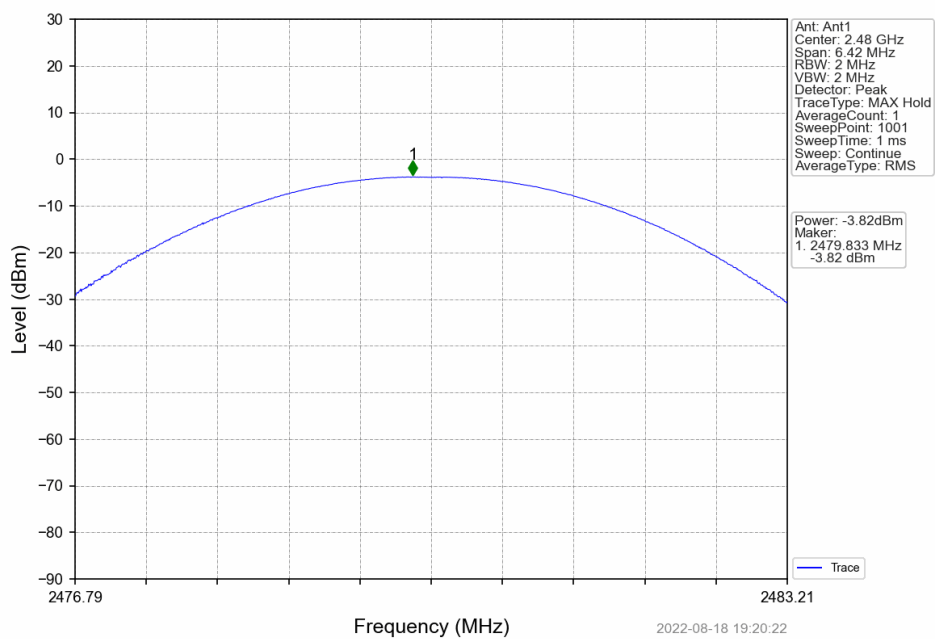
Pi/4DQPSK 2DH5 LCH 2402MHz Ant2 NTN



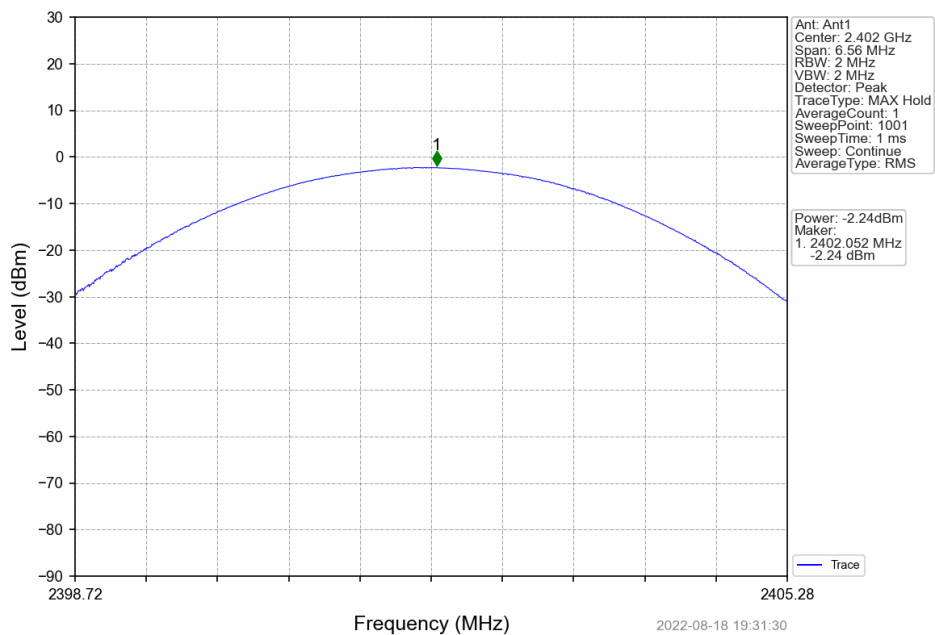
Pi/4DQPSK 2DH5 MCH 2441MHz Ant2 NTN



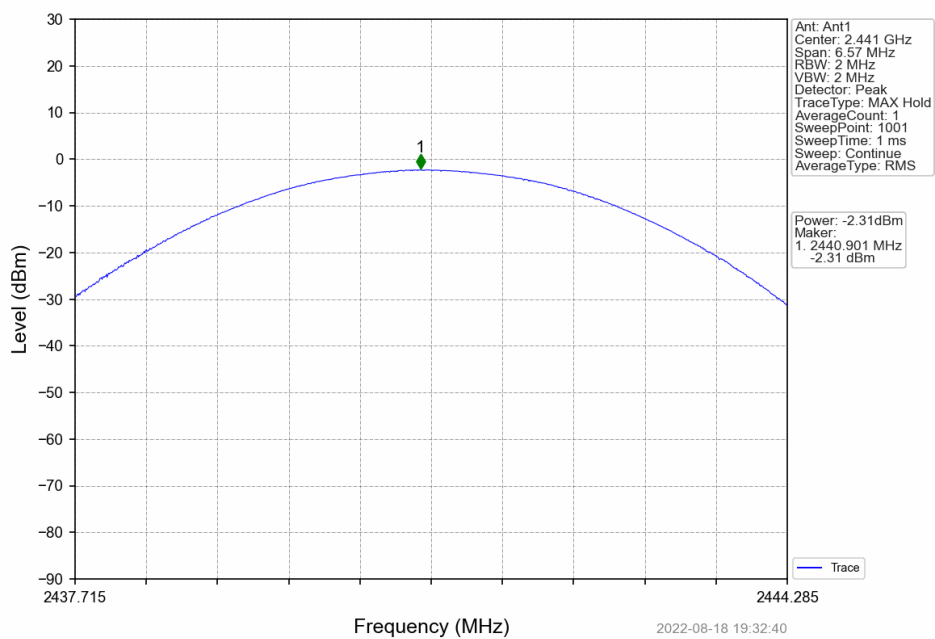
Pi/4DQPSK 2DH5 HCH 2480MHz Ant2 NTN



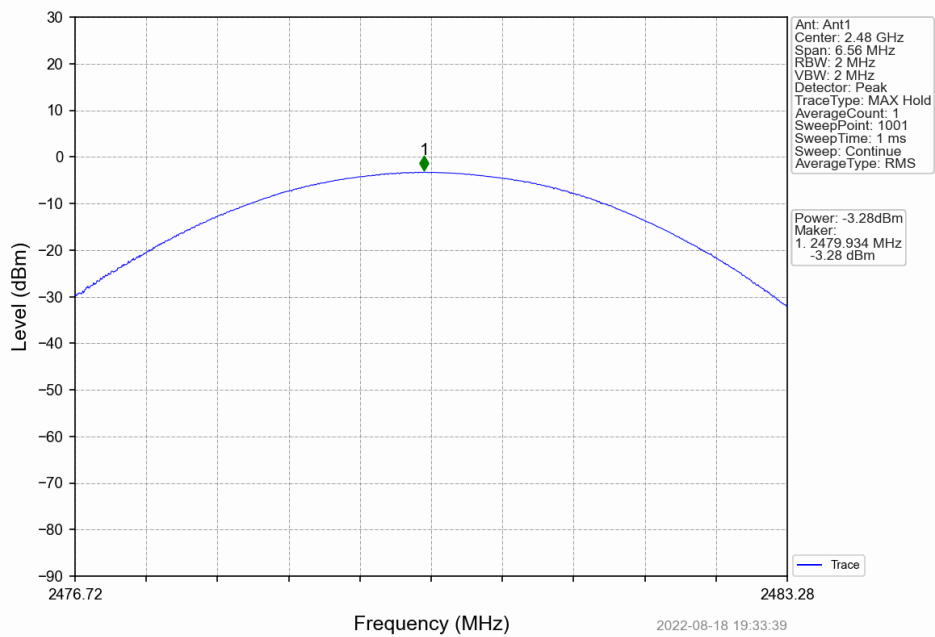
8DPSK_3DH5_LCH_2402MHz_Ant2_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant2_NTNV



8DPSK 3DH5 HCH 2480MHz Ant2 NTN



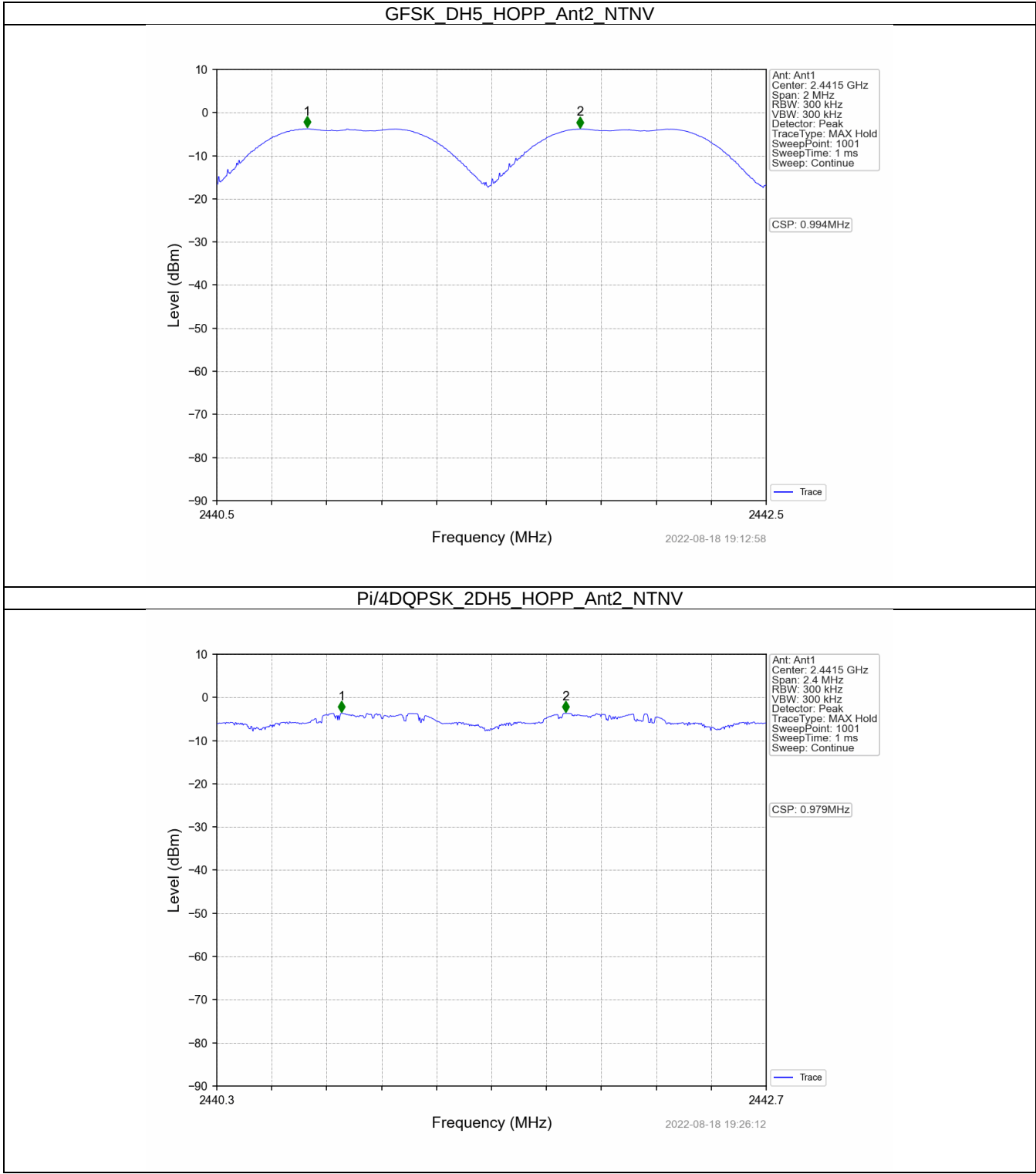
3. Carrier Frequency Separation

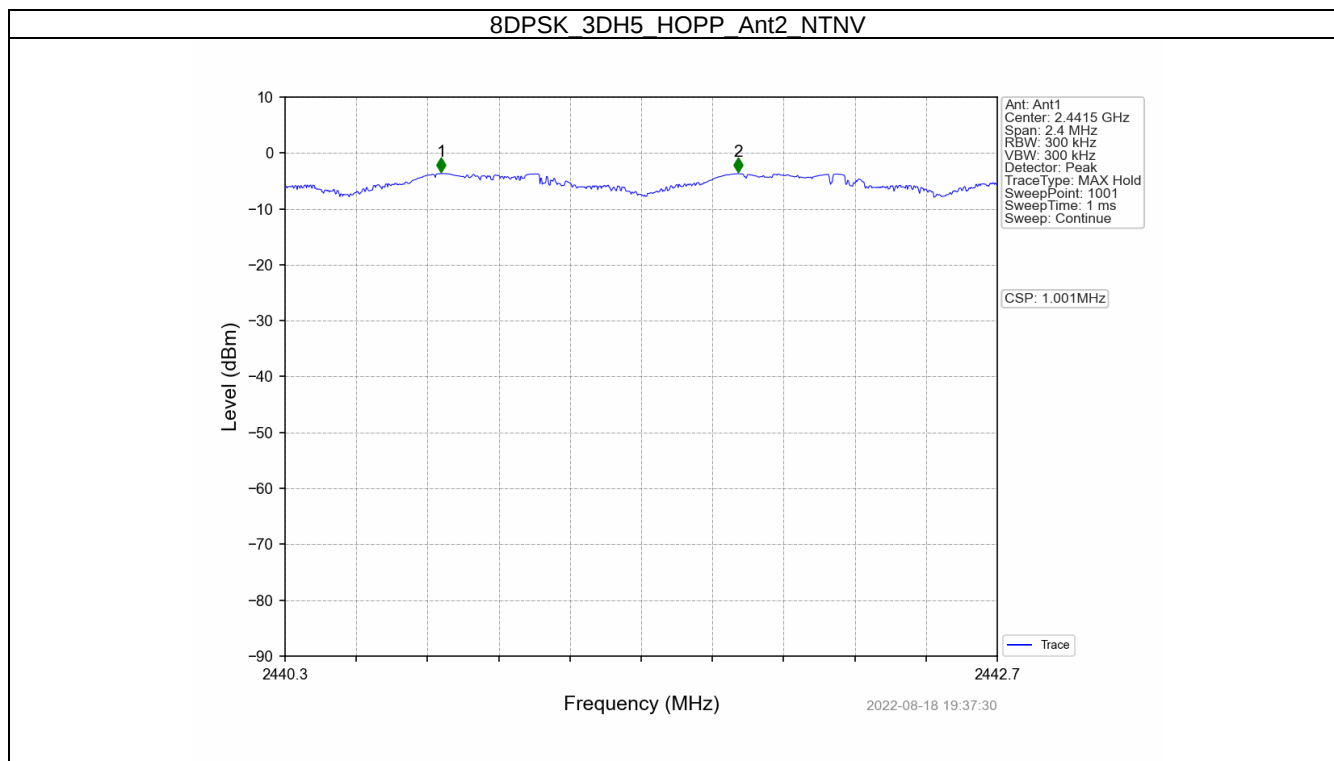
3.1 Ant2

3.1.1 Test Result

Ant2							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	0.994	0.956	≥ 0.956	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	0.979	1.285	≥ 0.857	Pass
8DPSK	SISO	HOPP	3DH5	1.001	1.314	≥ 0.876	Pass

3.1.2 Test Graph





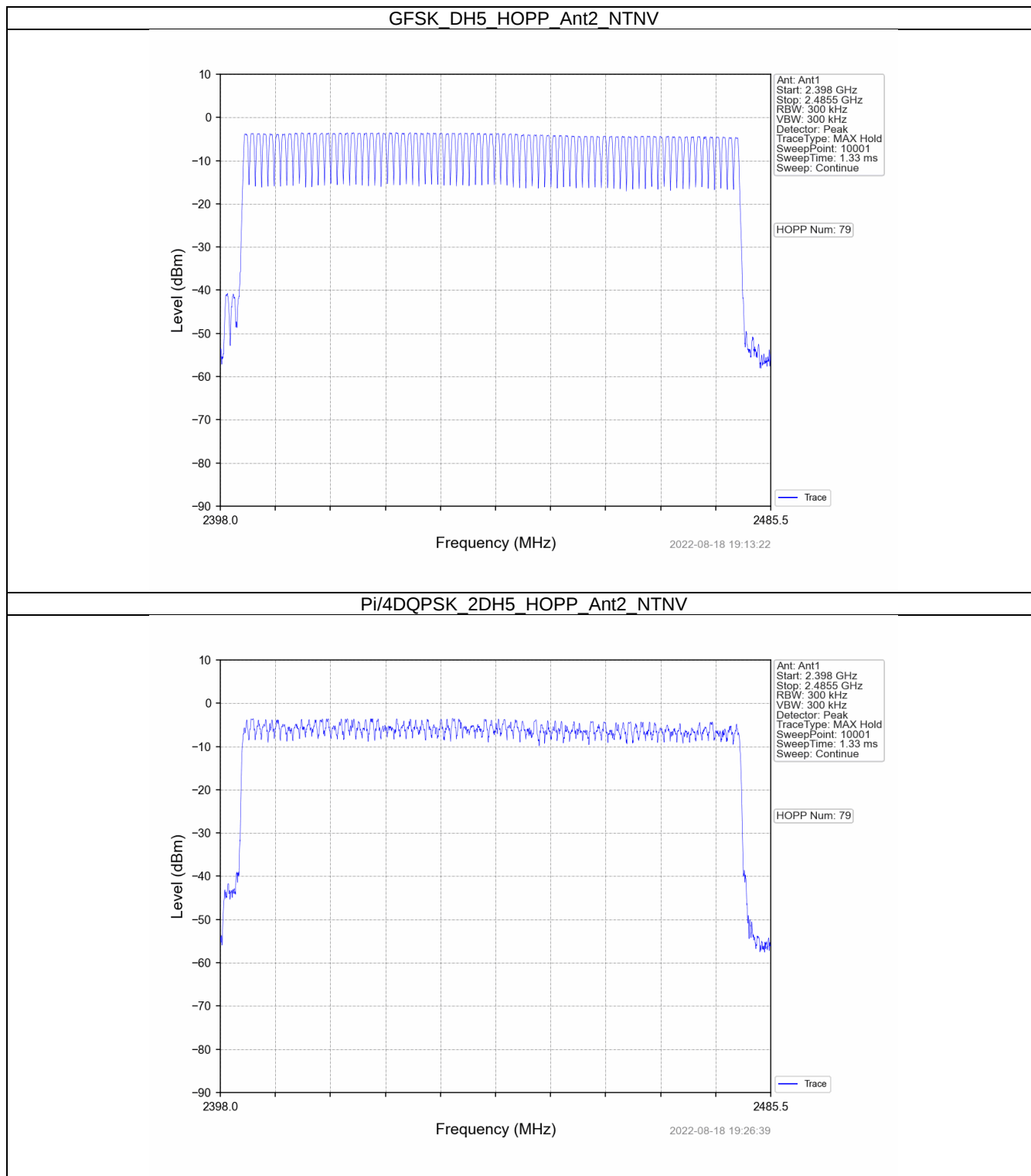
4. Number of Hopping Frequencies

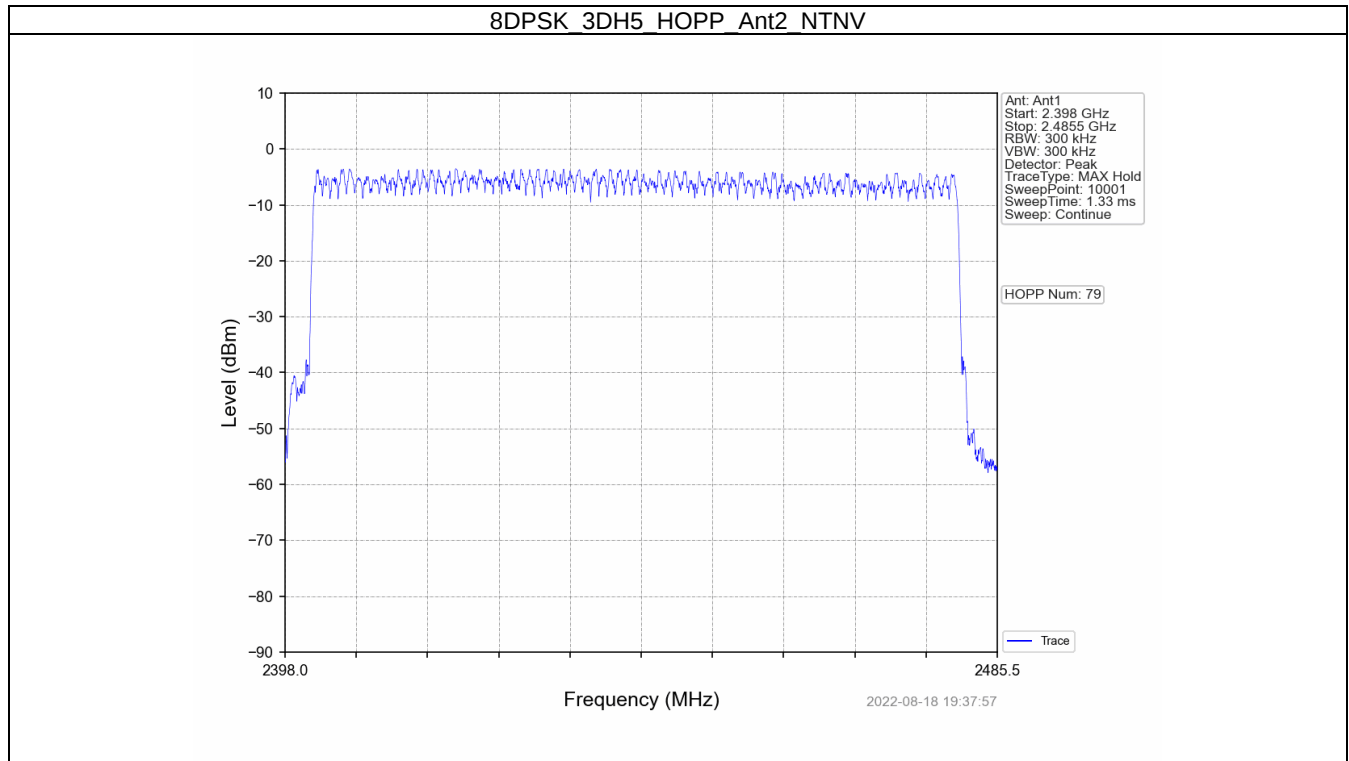
4.1 HoppNum

4.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	Num of Hopping Frequencies		Verdict
				ANT2	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





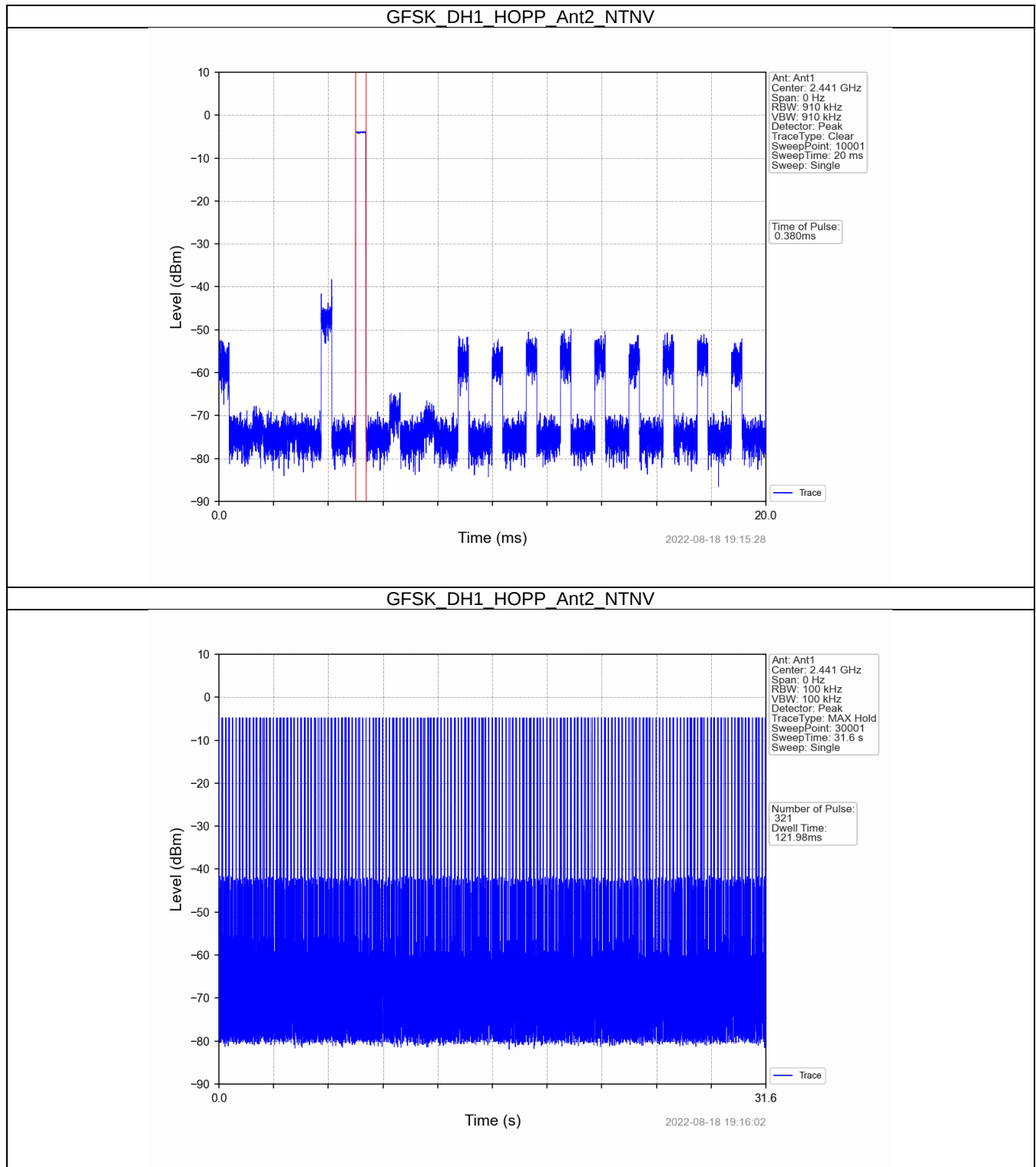
5. Time of Occupancy (Dwell Time)

5.1 Ant2

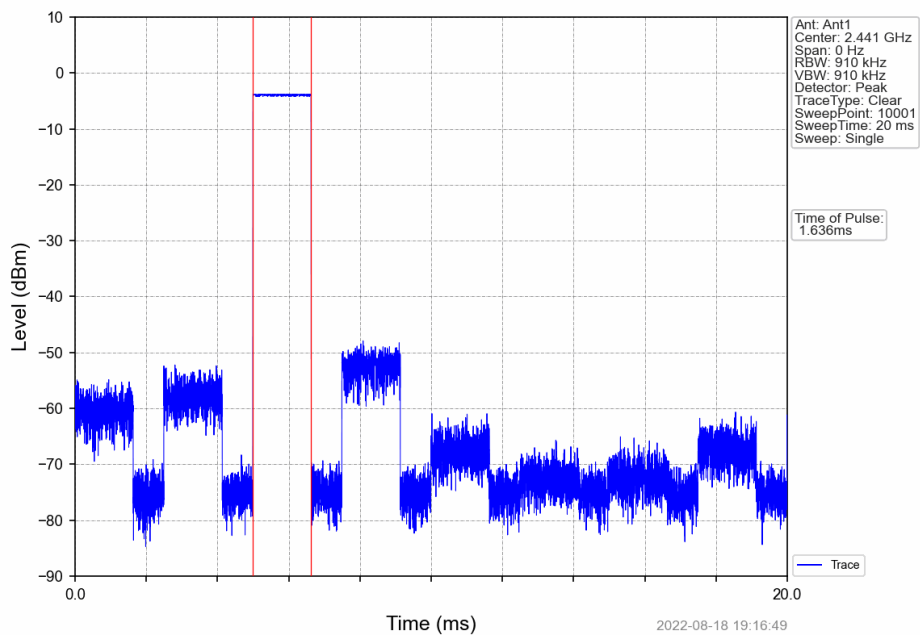
5.1.1 Test Result

Ant2									
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	0.380	31.600	321	121.980	<=400	Pass
			DH3	1.636	31.600	157	256.852	<=400	Pass
			DH5	2.890	31.600	112	323.680	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.396	31.600	320	126.720	<=400	Pass
			2DH3	1.640	31.600	165	270.600	<=400	Pass
			2DH5	2.894	31.600	102	295.188	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.390	31.600	320	124.800	<=400	Pass
			3DH3	1.640	31.600	164	268.960	<=400	Pass
			3DH5	2.894	31.600	114	329.916	<=400	Pass

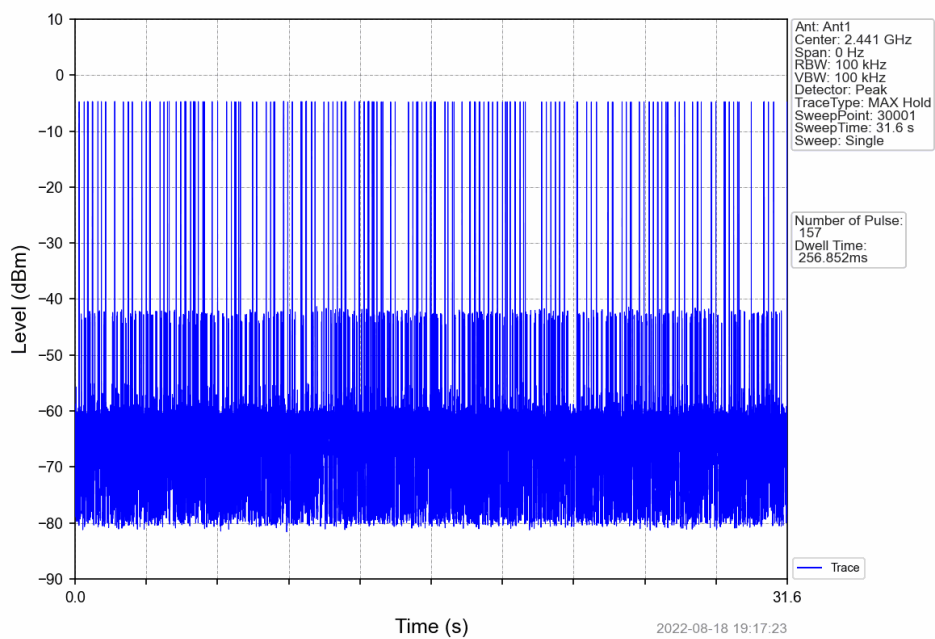
5.1.2 Test Graph



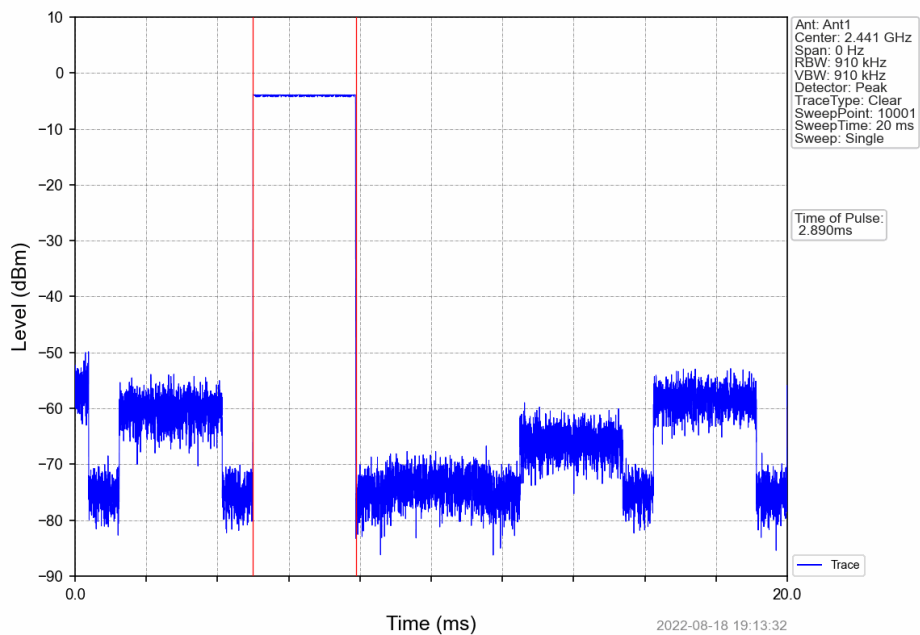
GFSK DH3 HOPP Ant2 NTN



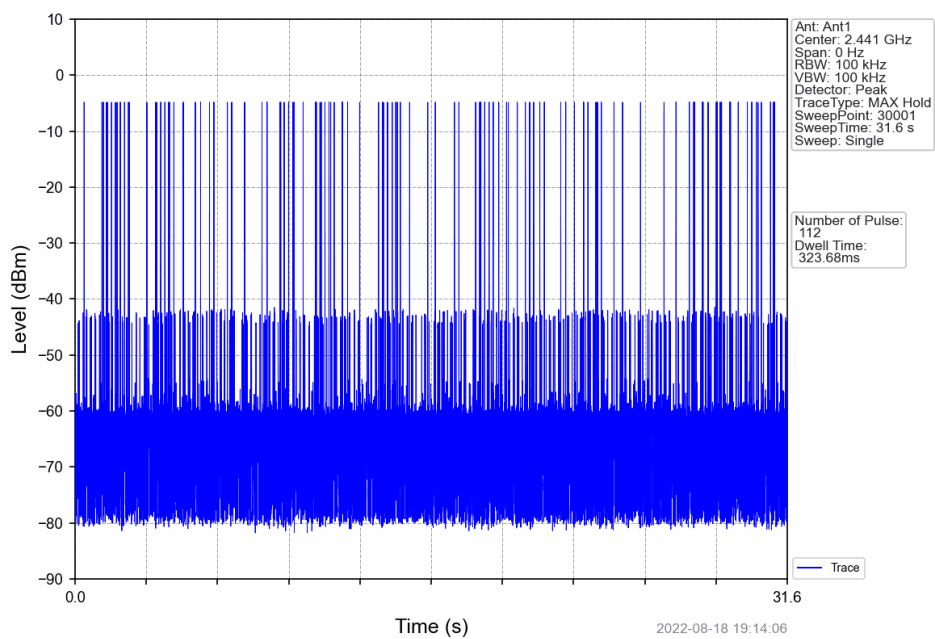
GFSK_DH3_HOPP_Ant2_NTNV



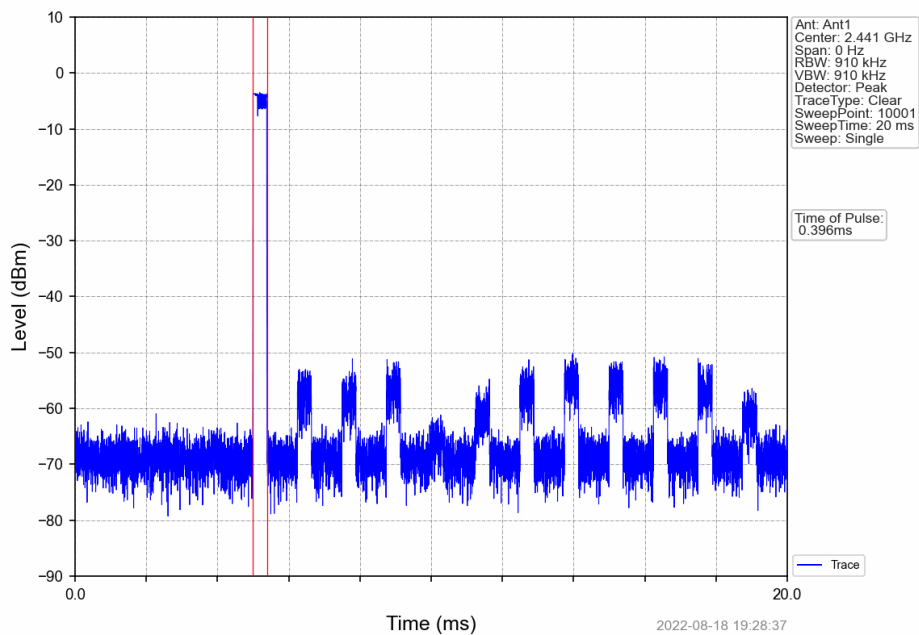
GFSK DH5 HOPP Ant2 NTN



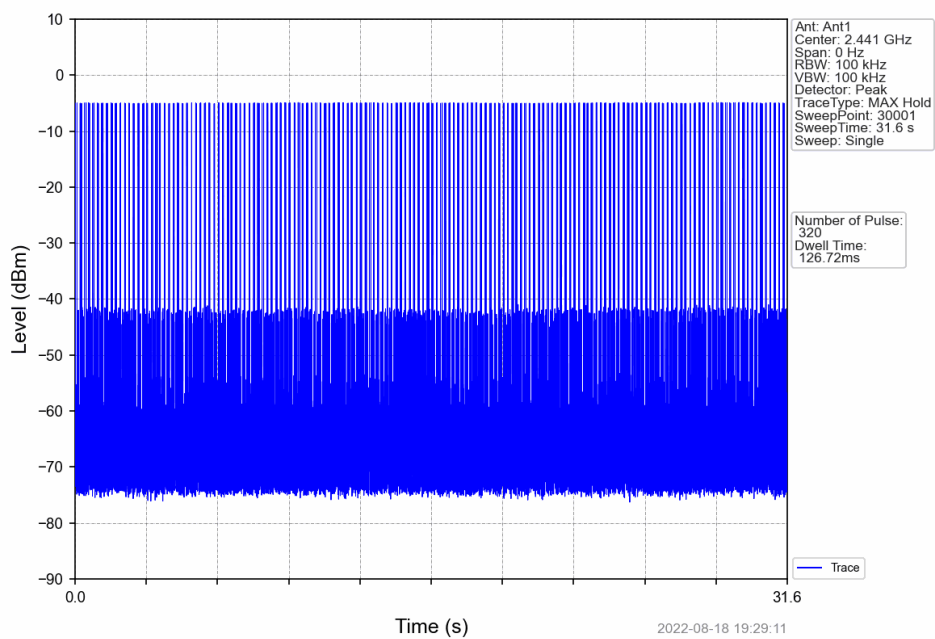
GFSK_DH5_HOPP_Ant2_NTNV



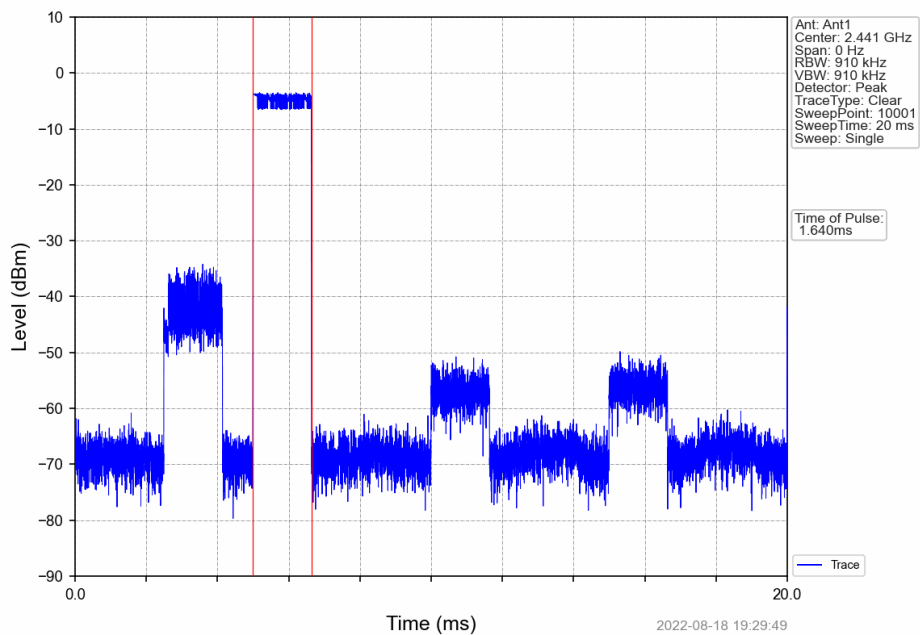
Pi/4DQPSK_2DH1_HOPP_Ant2_NTNV



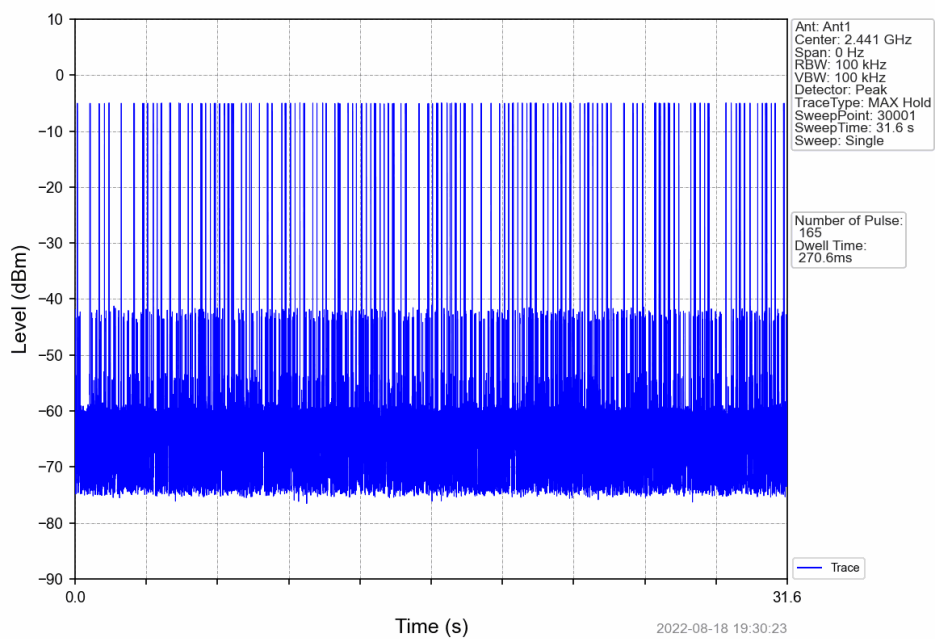
Pi/4DQPSK_2DH1_HOPP_Ant2_NTNV



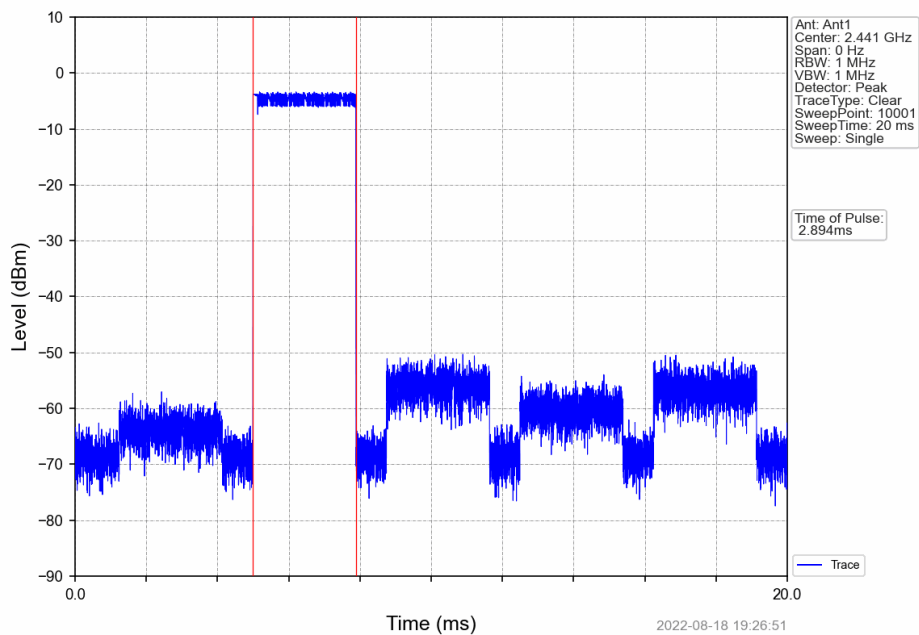
Pi/4DQPSK_2DH3_HOPP_Ant2_NTNV



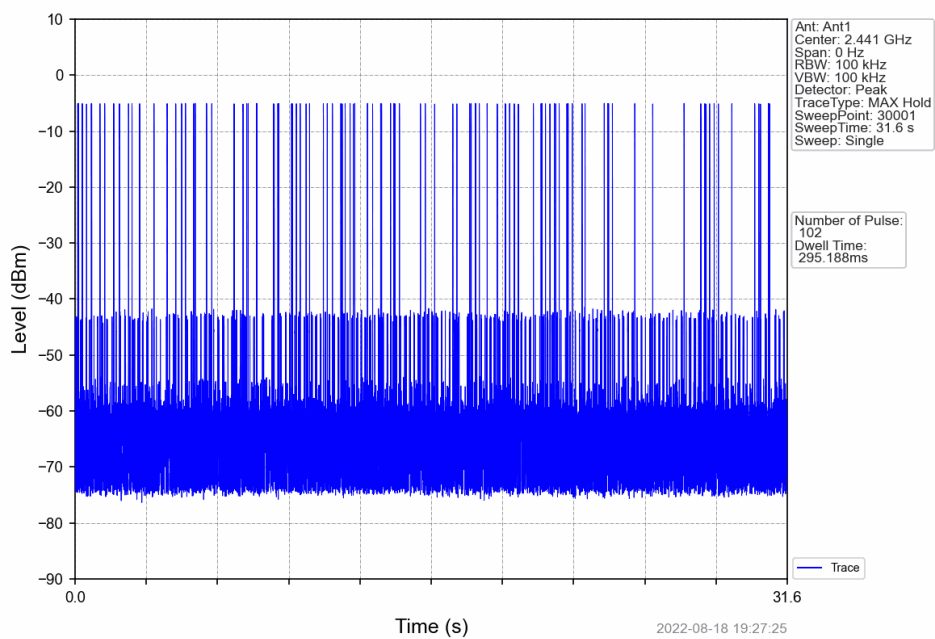
Pi/4DQPSK_2DH3_HOPP_Ant2_NTNV



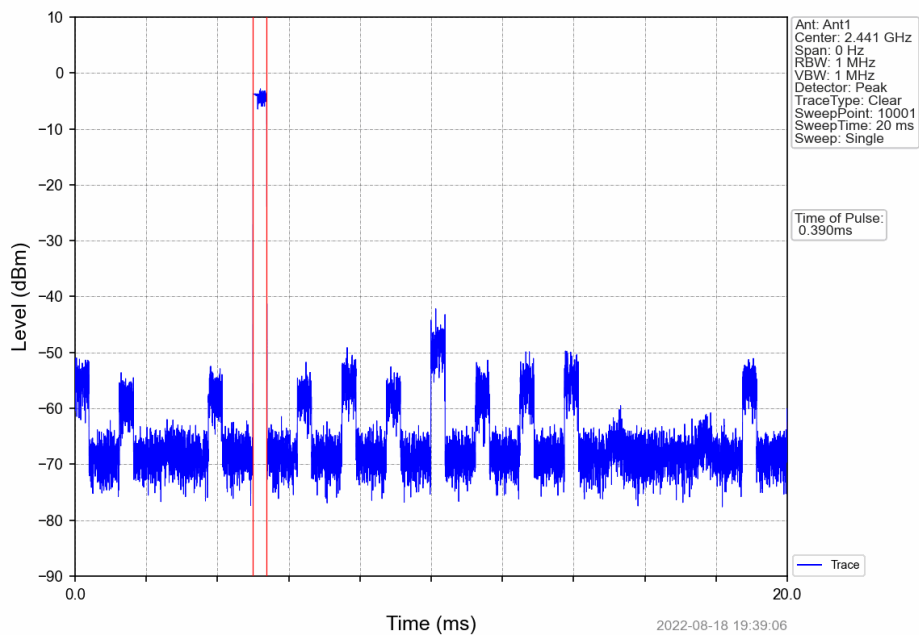
Pi/4DQPSK_2DH5_HOPP_Ant2_NTNV



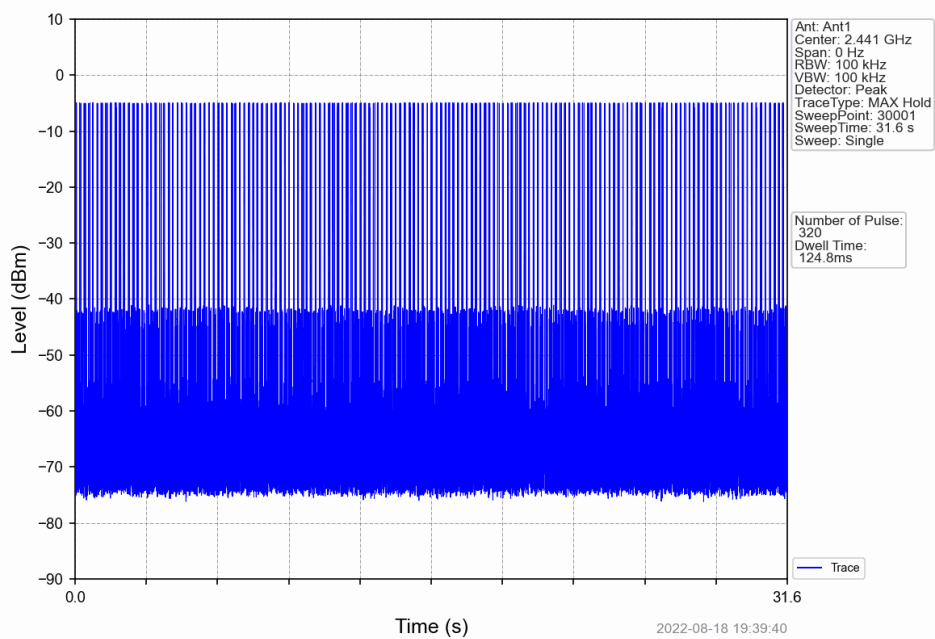
Pi/4DQPSK_2DH5_HOPP_Ant2_NTNV



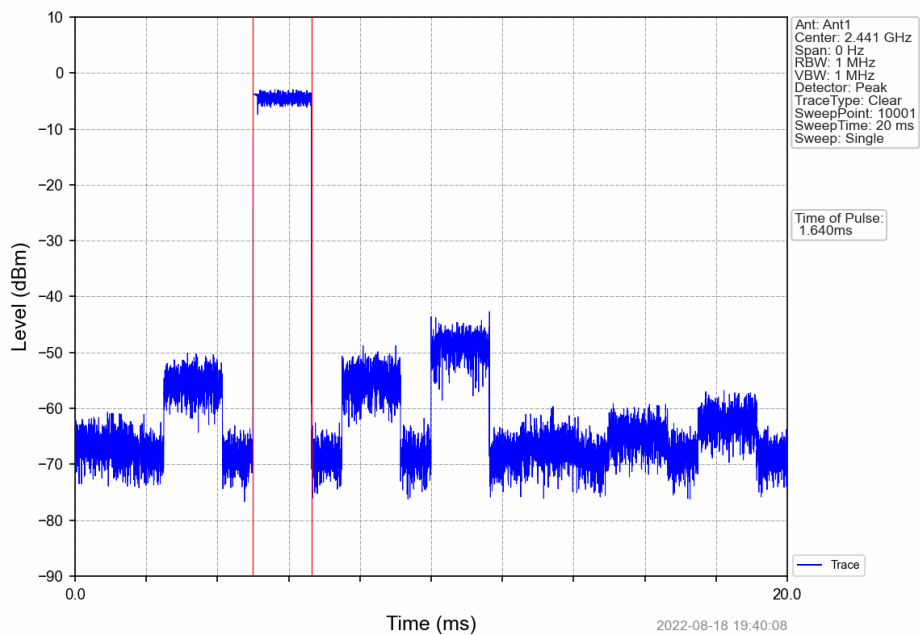
8DPSK 3DH1 HOPP Ant2 NTN



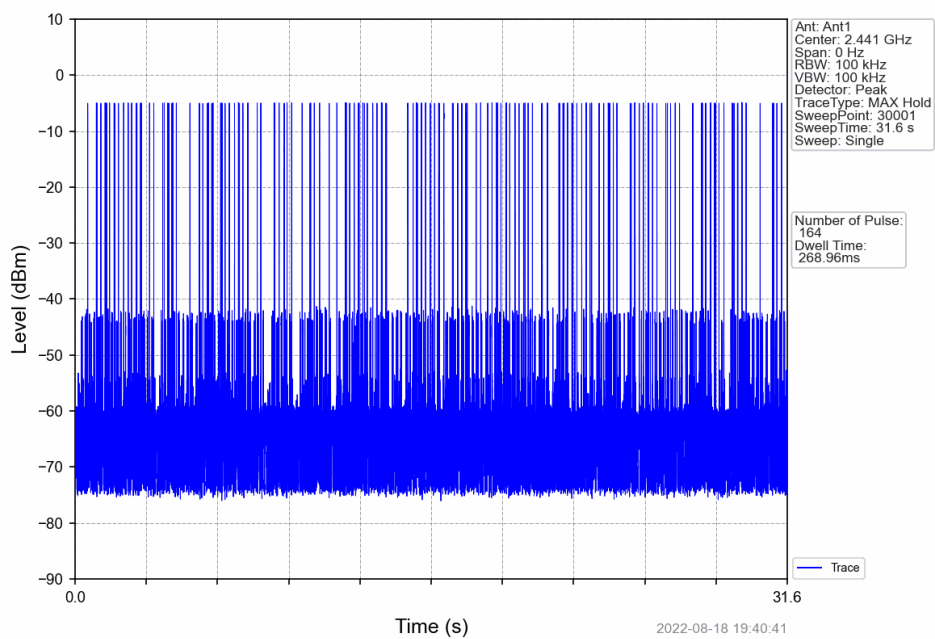
8DPSK_3DH1_HOPP_Ant2_NTN



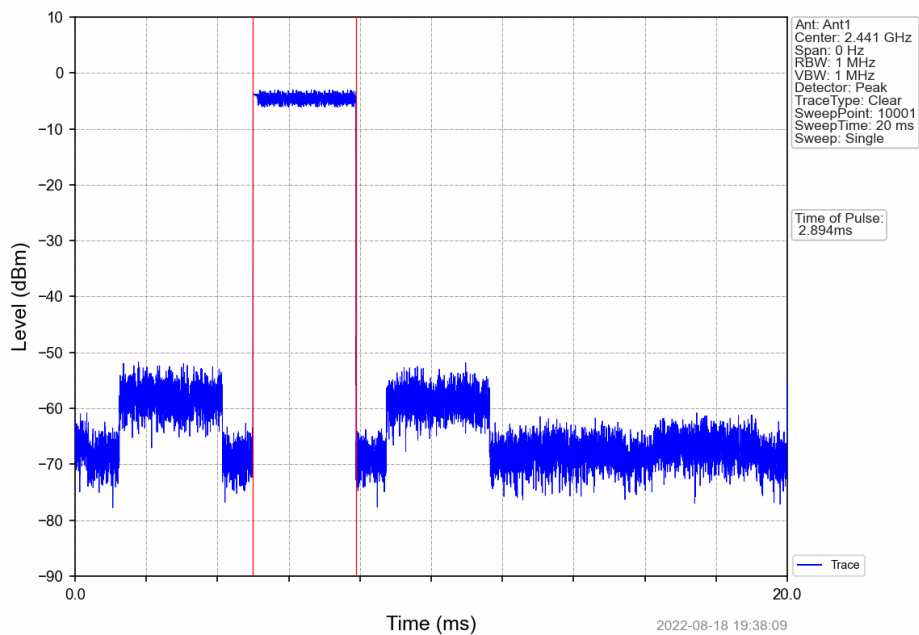
8DPSK 3DH3 HOPP Ant2 NTN



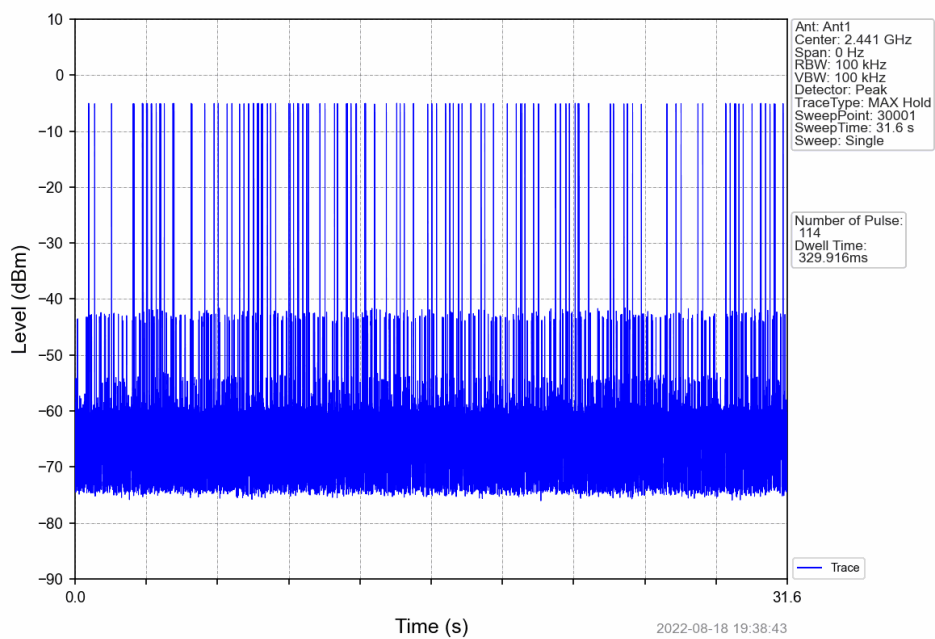
8DPSK_3DH3_HOPP_Ant2_NTN



8DPSK 3DH5 HOPP Ant2 NTN



8DPSK 3DH5 HOPP Ant2 NTN



6. Unwanted Emissions InStandard Non-restricted Frequency Bands

6.1 Ref

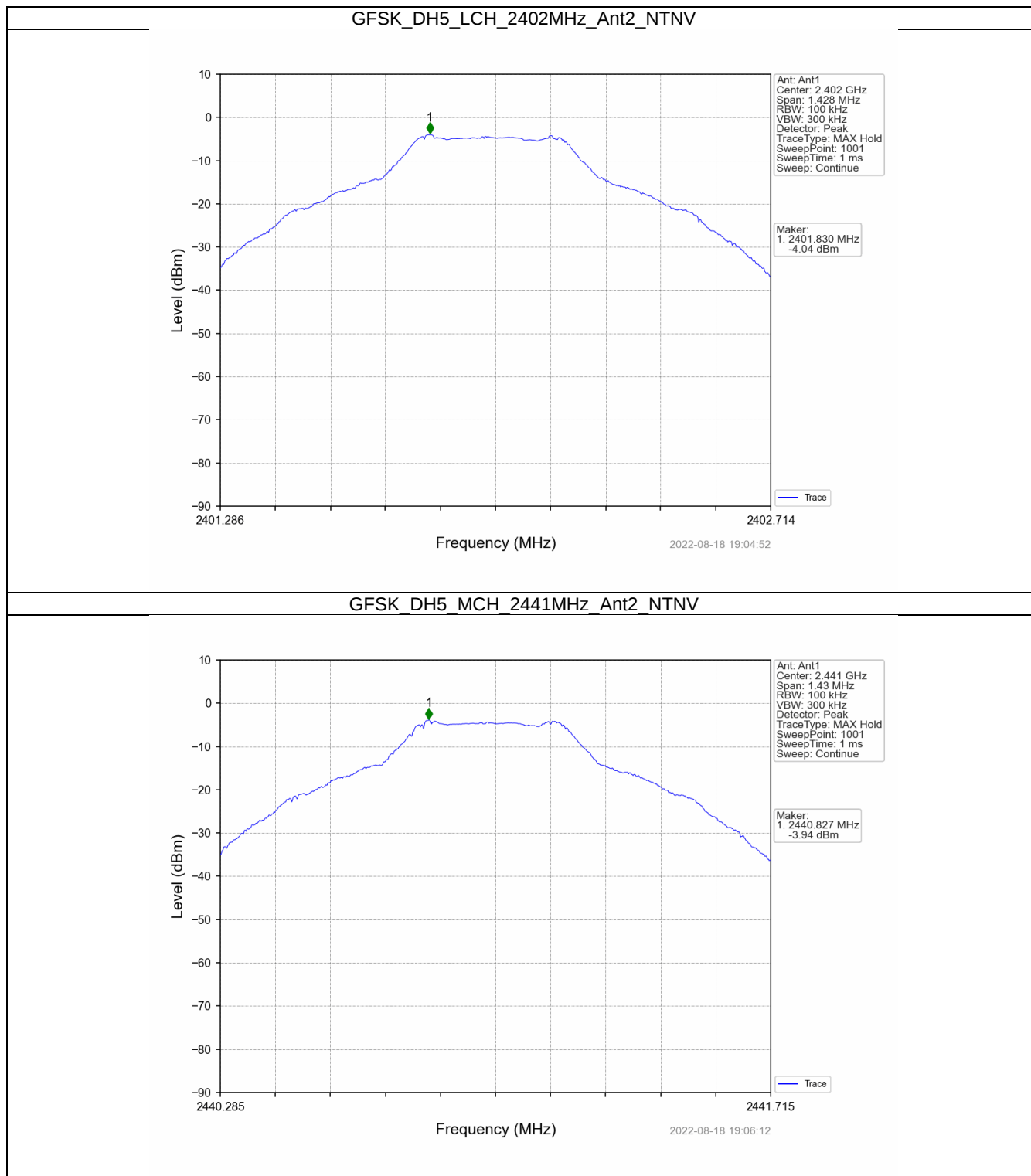
6.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	2	-4.04
		2441	DH5	2	-3.94
		2480	DH5	2	-4.96
Pi/4DQPSK	SISO	2402	2DH5	2	-3.78
		2441	2DH5	2	-3.80
		2480	2DH5	2	-4.82
8DPSK	SISO	2402	3DH5	2	-3.69
		2441	3DH5	2	-3.72
		2480	3DH5	2	-4.76

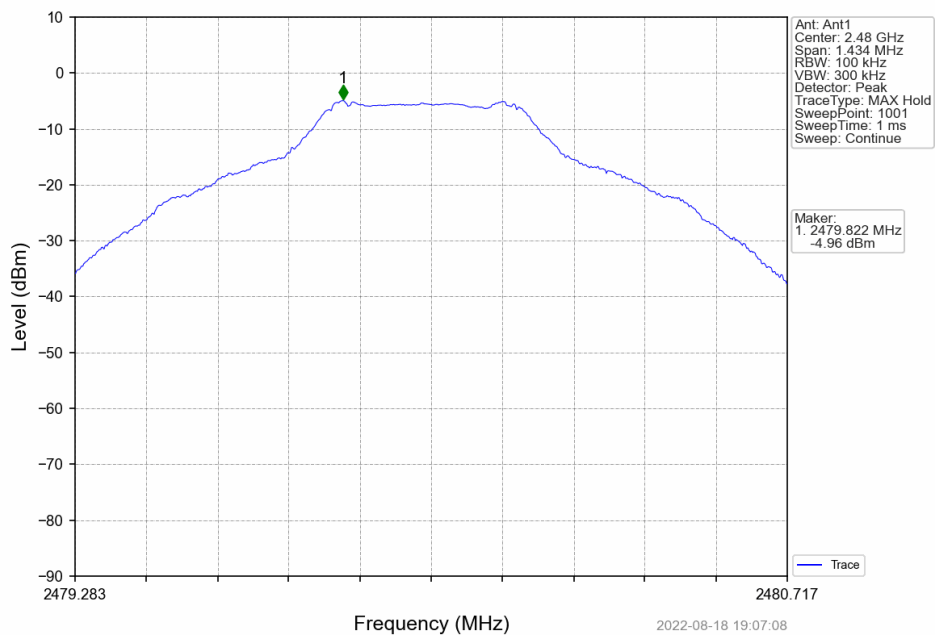
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.

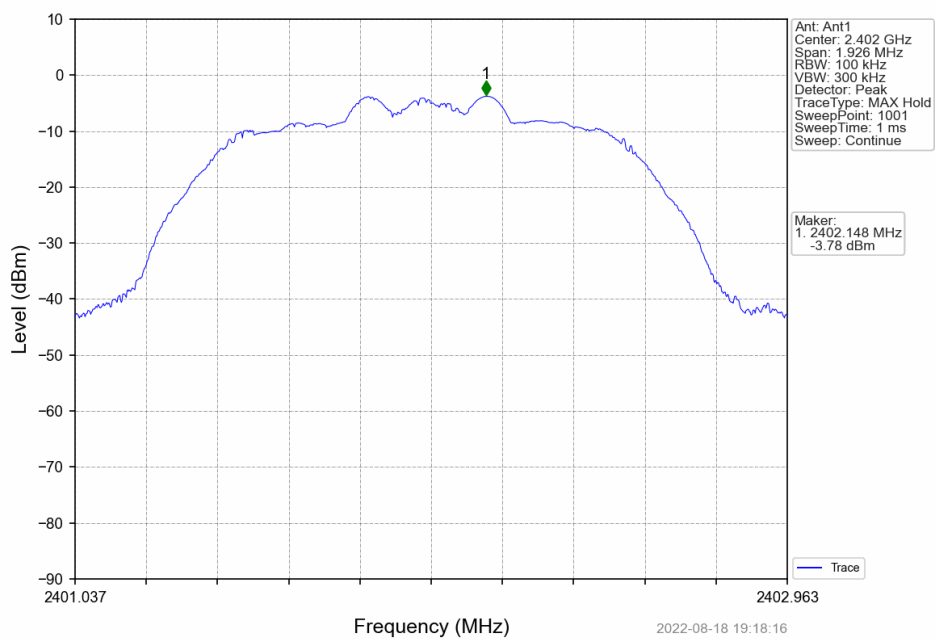
6.1.2 Test Graph



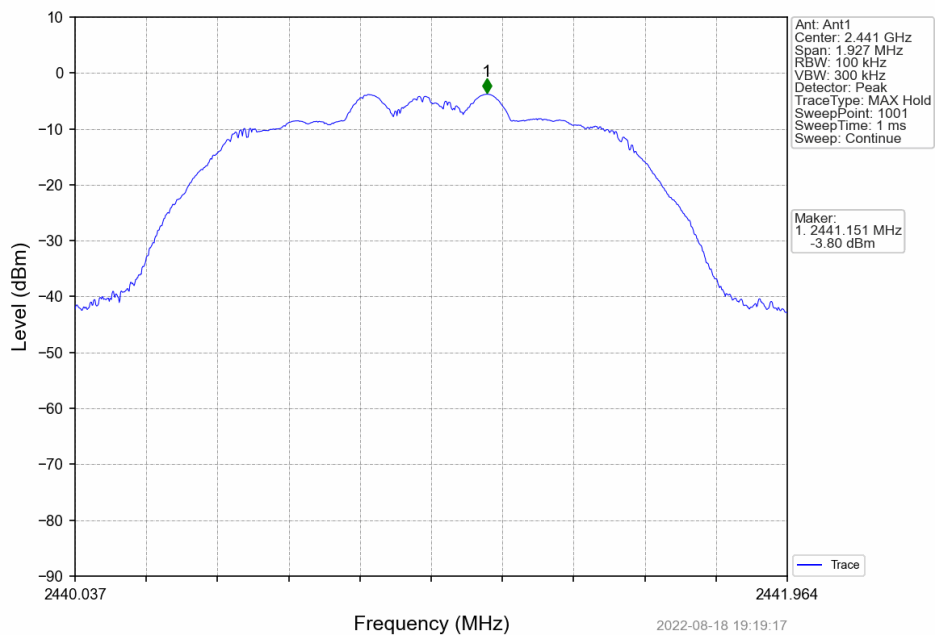
GFSK DH5 HCH 2480MHz Ant2 NTN



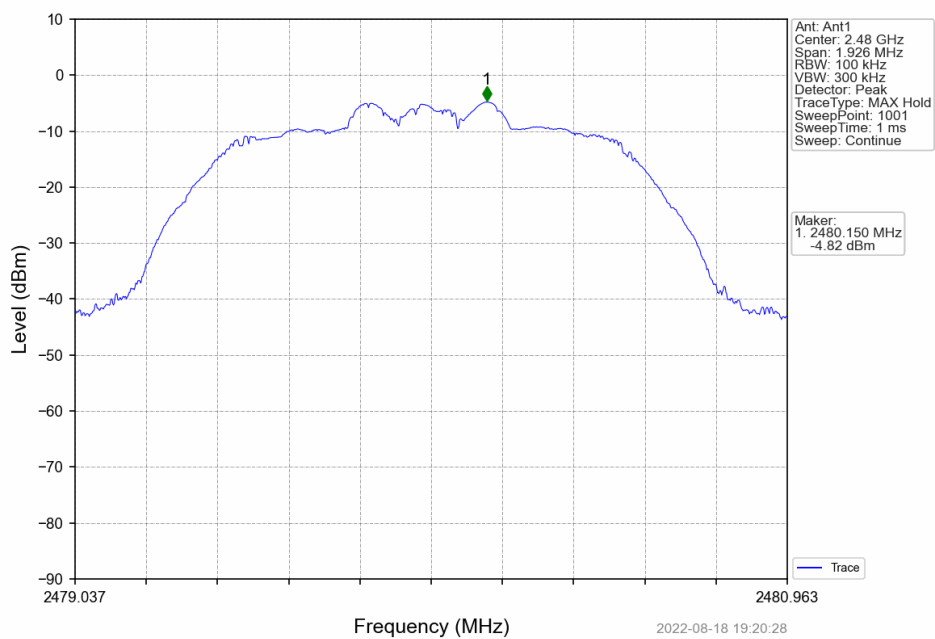
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant2 NTN



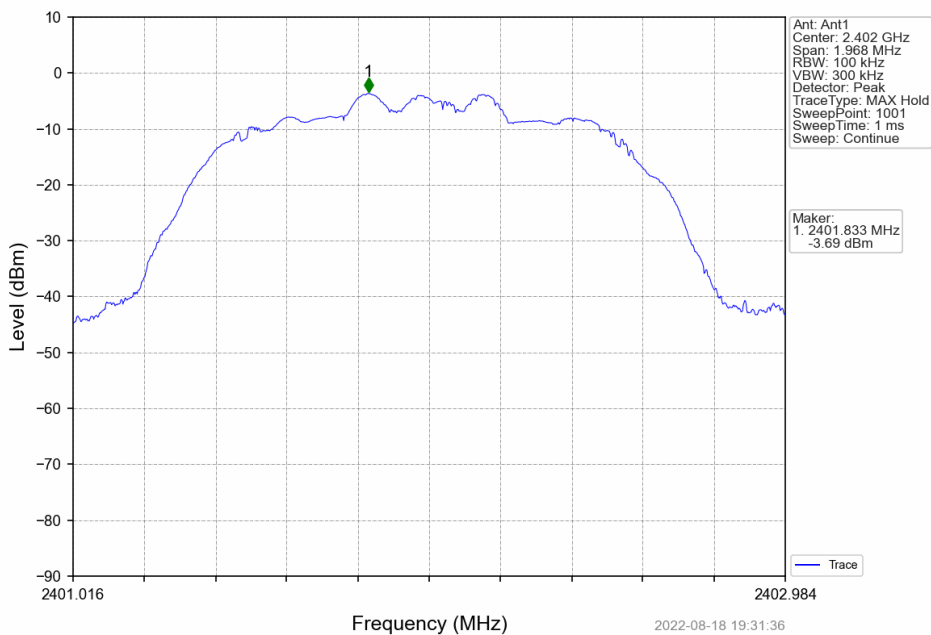
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant2_NTNV



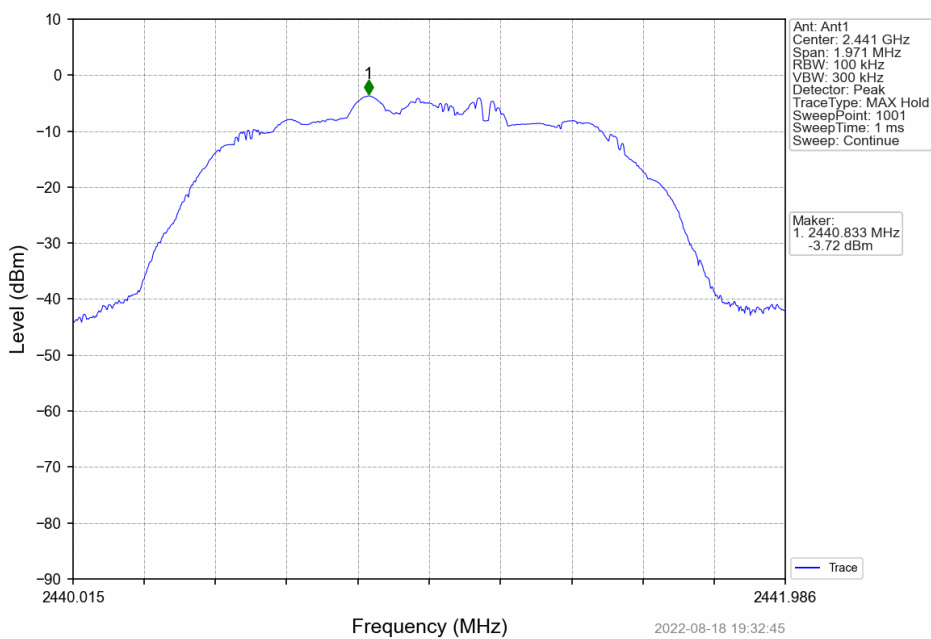
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant2_NTNV

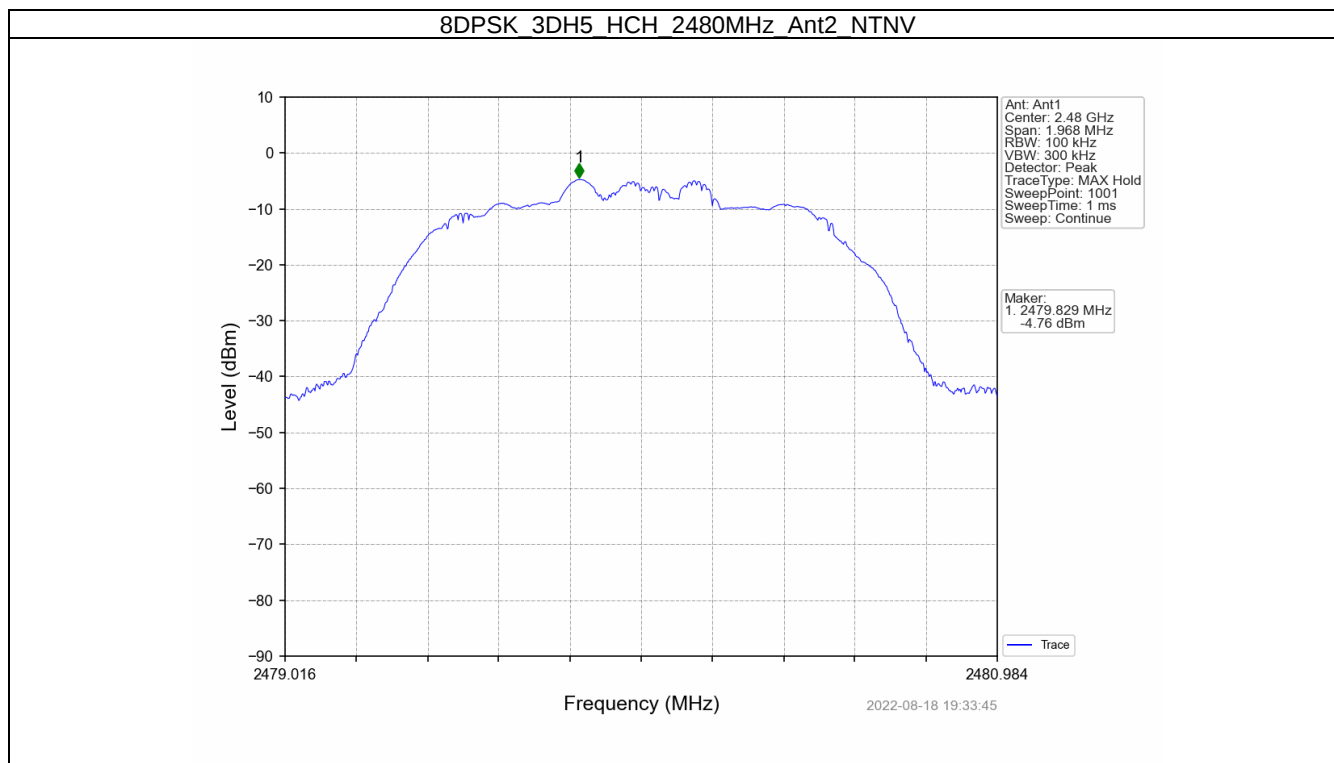


8DPSK 3DH5 LCH 2402MHz Ant2 NTN



8DPSK 3DH5 MCH 2441MHz Ant2 NTN





6.2 CSE

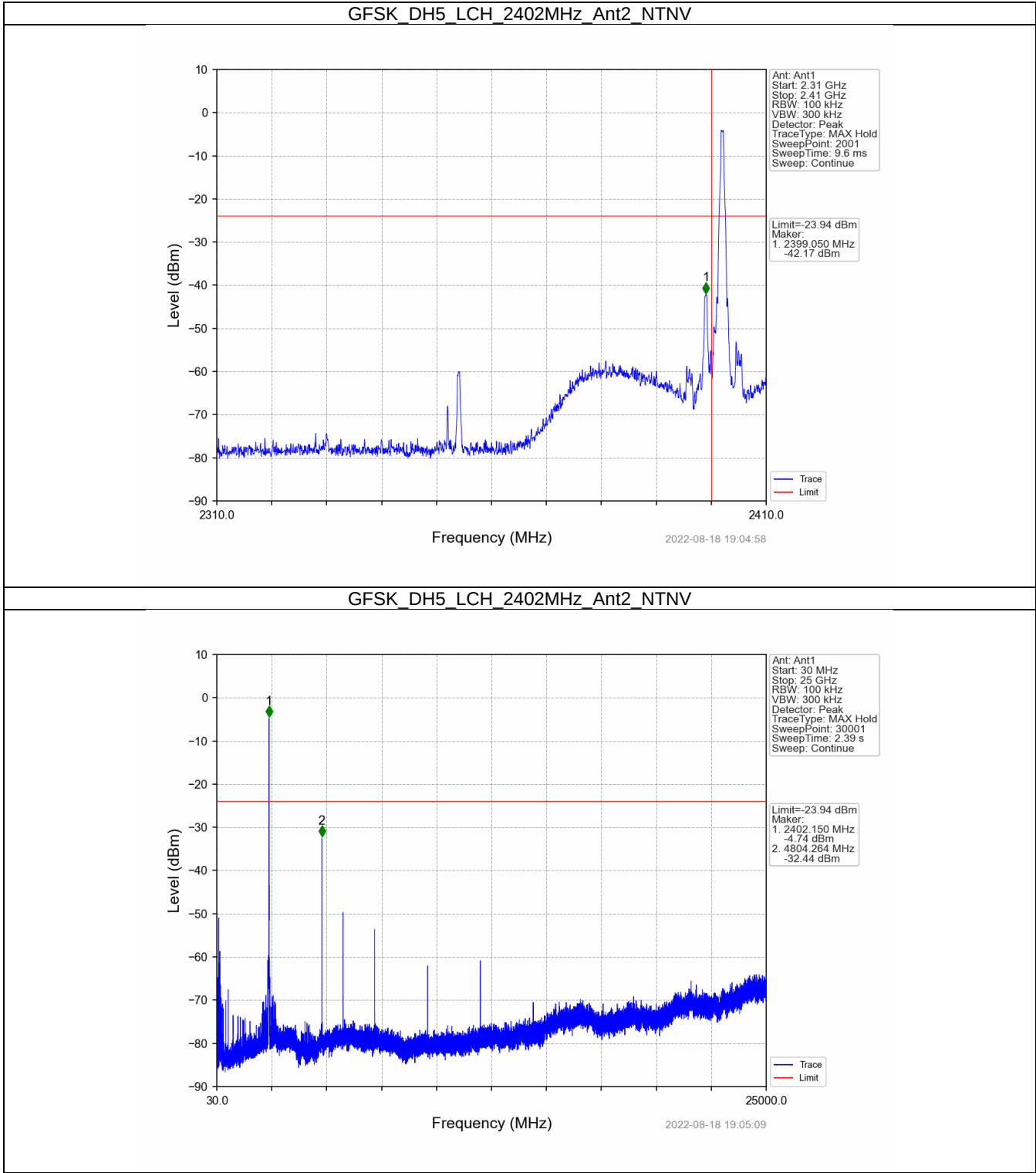
6.2.1 Test Result

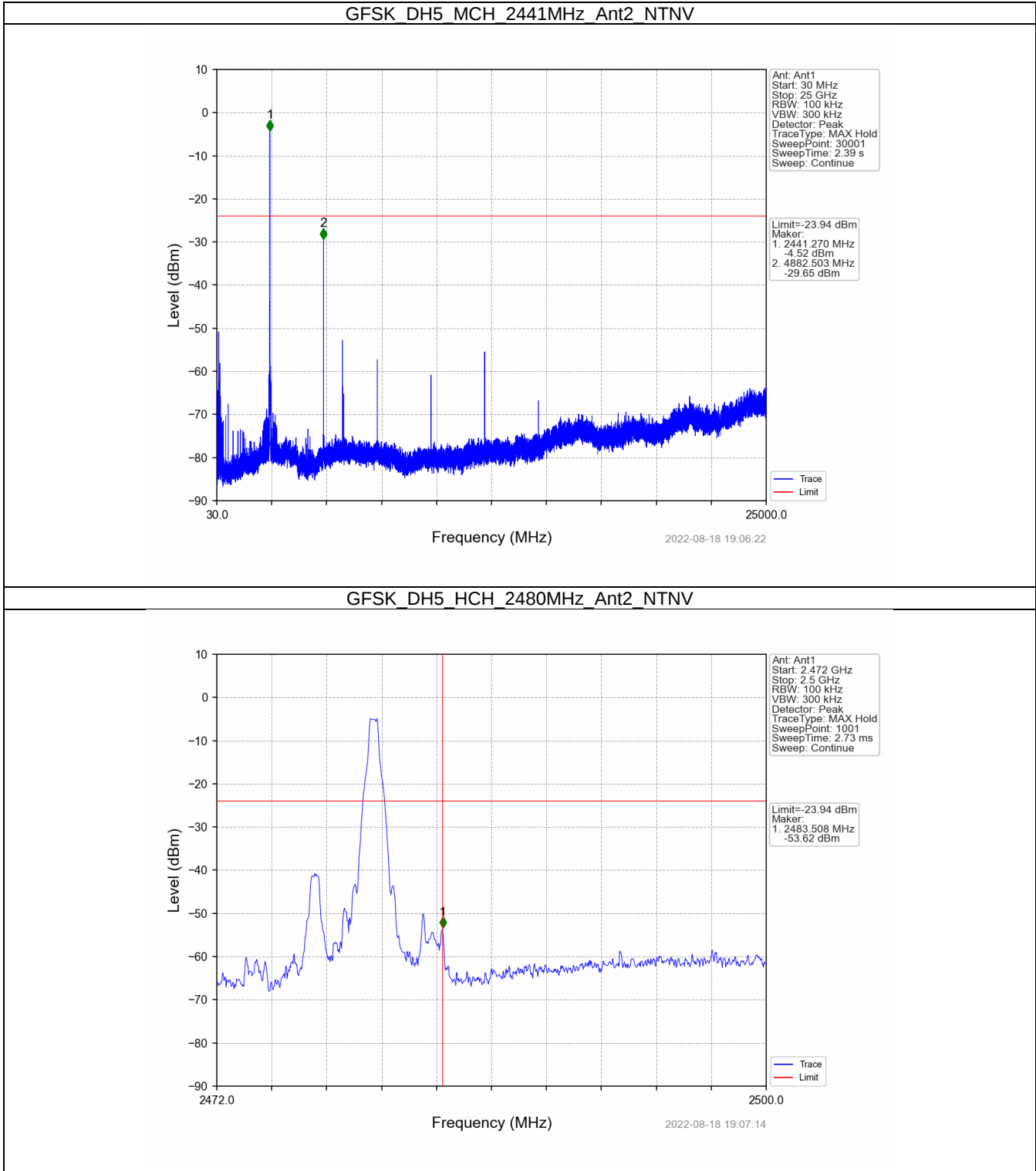
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	2	-3.94	-23.94	Pass
		2441	DH5	2	-3.94	-23.94	Pass
		2480	DH5	2	-3.94	-23.94	Pass
		HOPP	DH5	2	-3.94	-23.94	Pass
Pi/4DQPSK	SISO	2402	2DH5	2	-3.78	-23.78	Pass
		2441	2DH5	2	-3.78	-23.78	Pass
		2480	2DH5	2	-3.78	-23.78	Pass
		HOPP	2DH5	2	-3.78	-23.78	Pass
8DPSK	SISO	2402	3DH5	2	-3.69	-23.69	Pass
		2441	3DH5	2	-3.69	-23.69	Pass
		2480	3DH5	2	-3.69	-23.69	Pass
		HOPP	3DH5	2	-3.69	-23.69	Pass

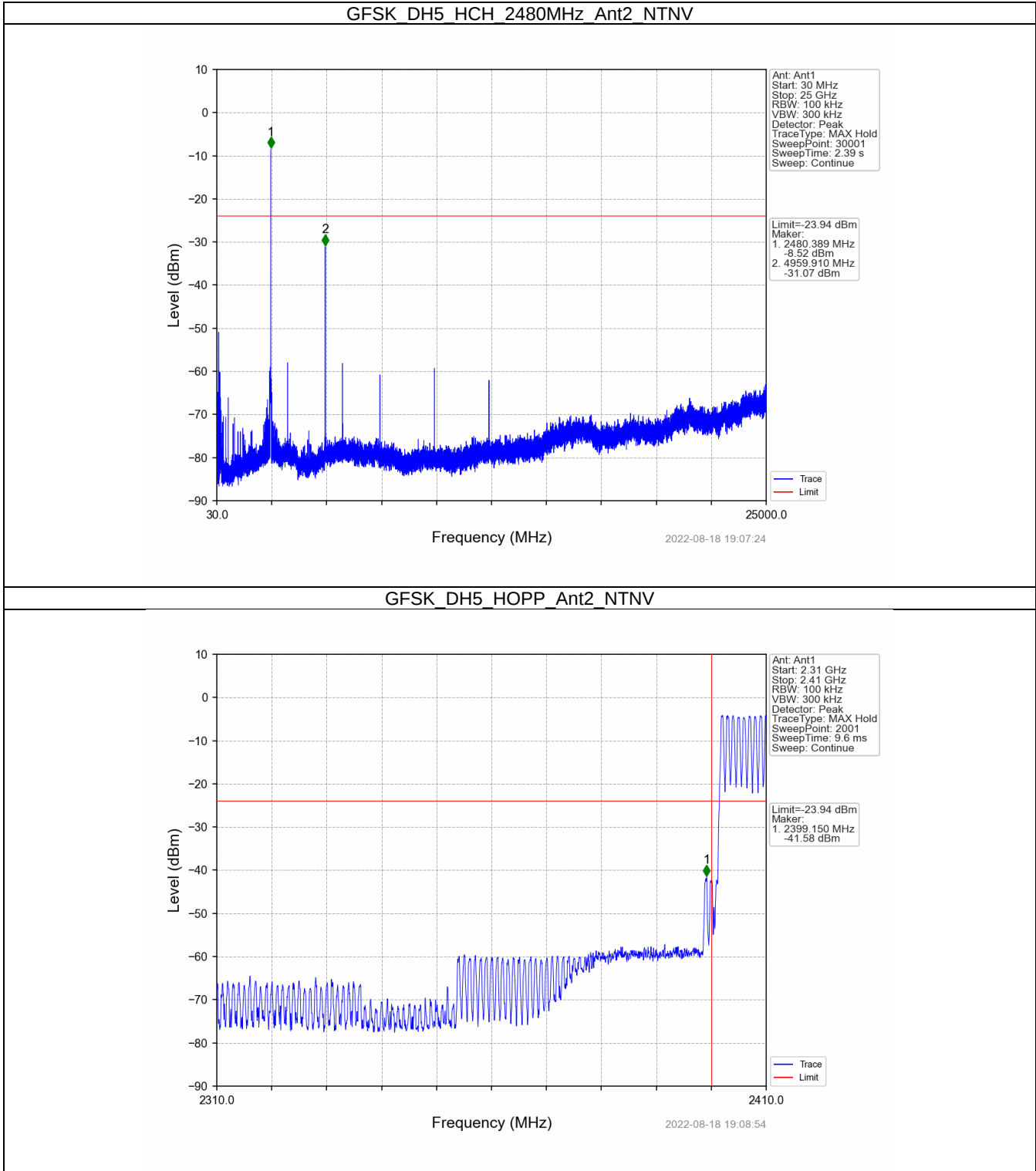
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

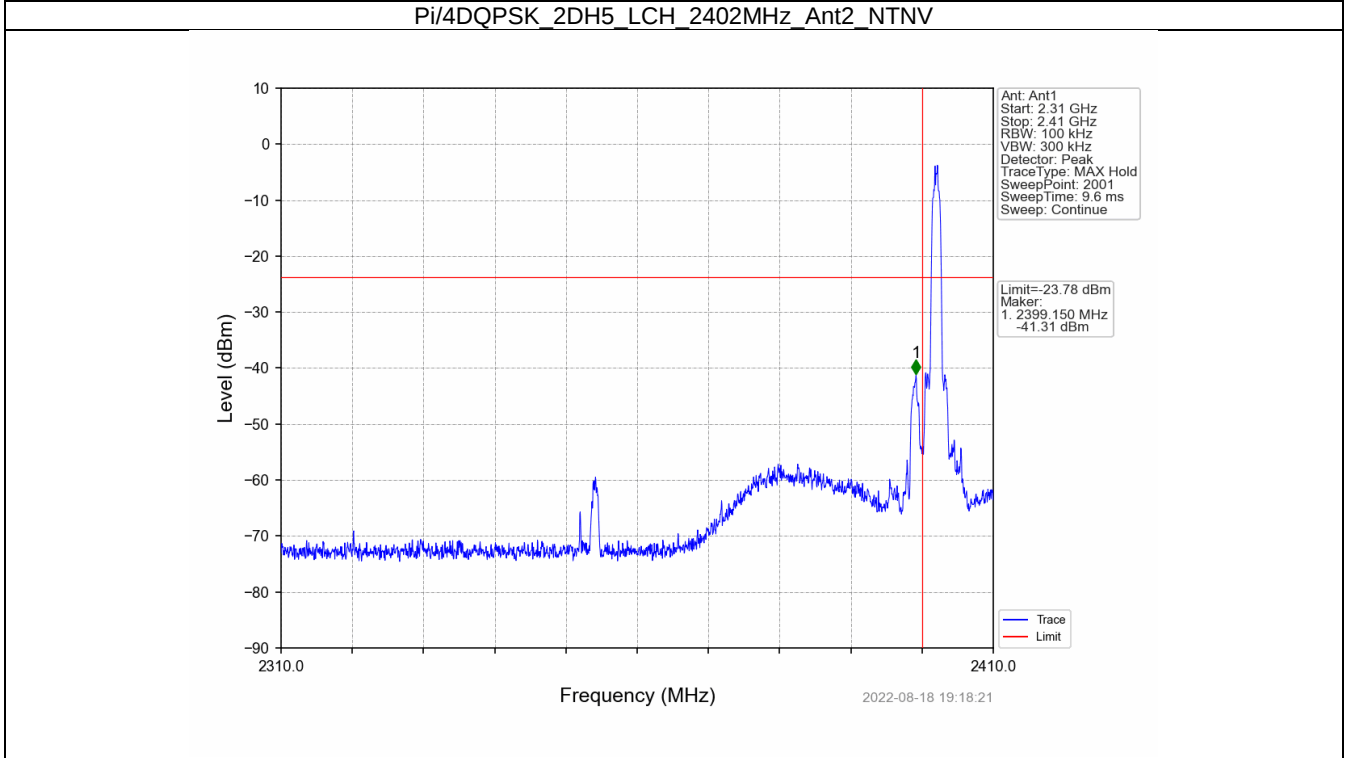
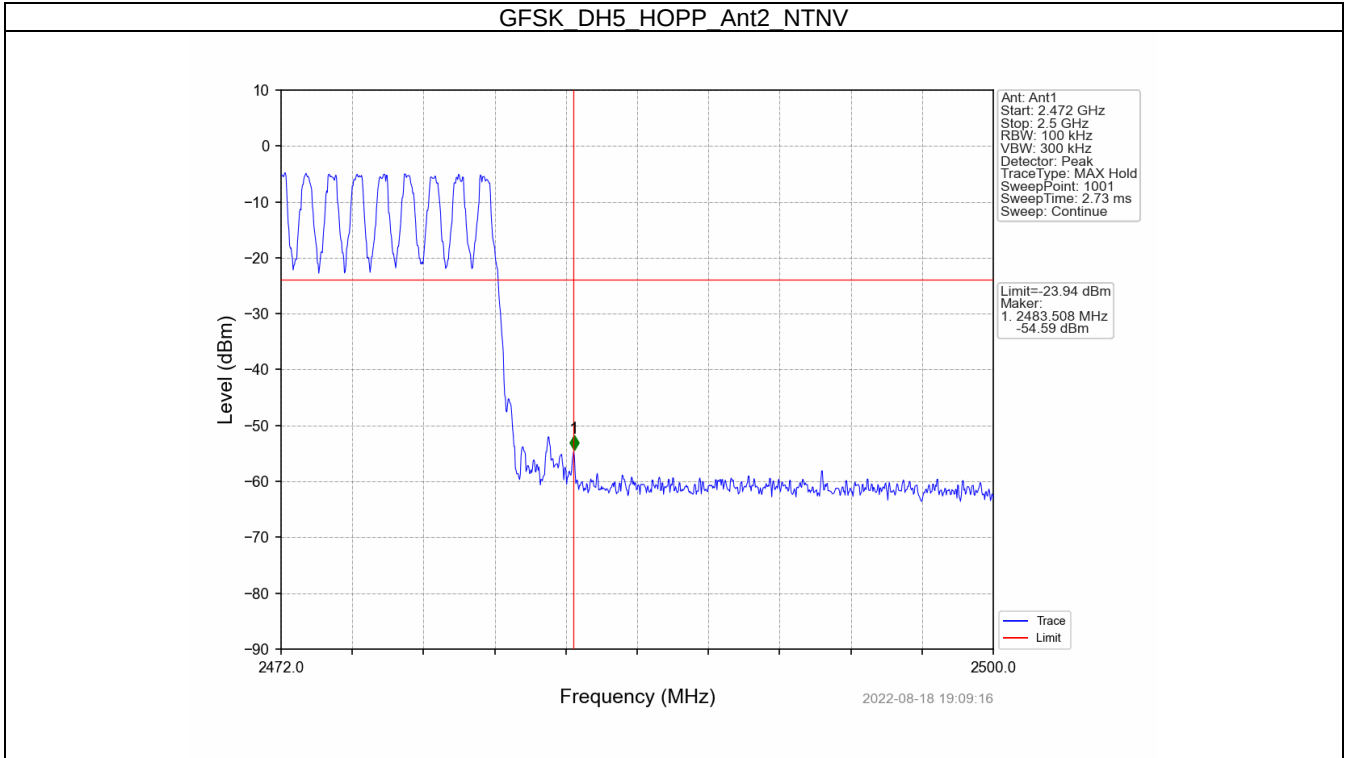
Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.

6.2.2 Test Graph

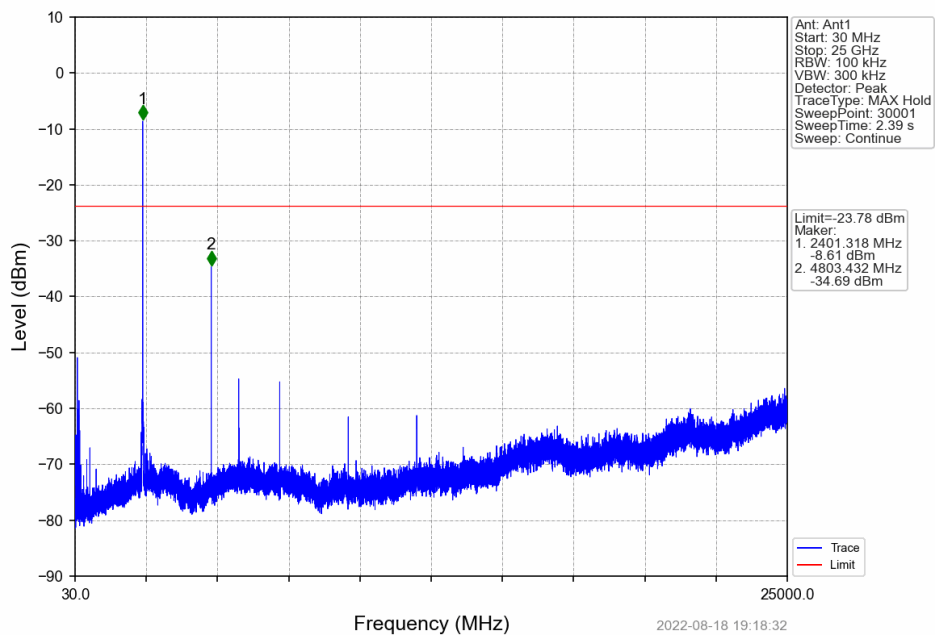




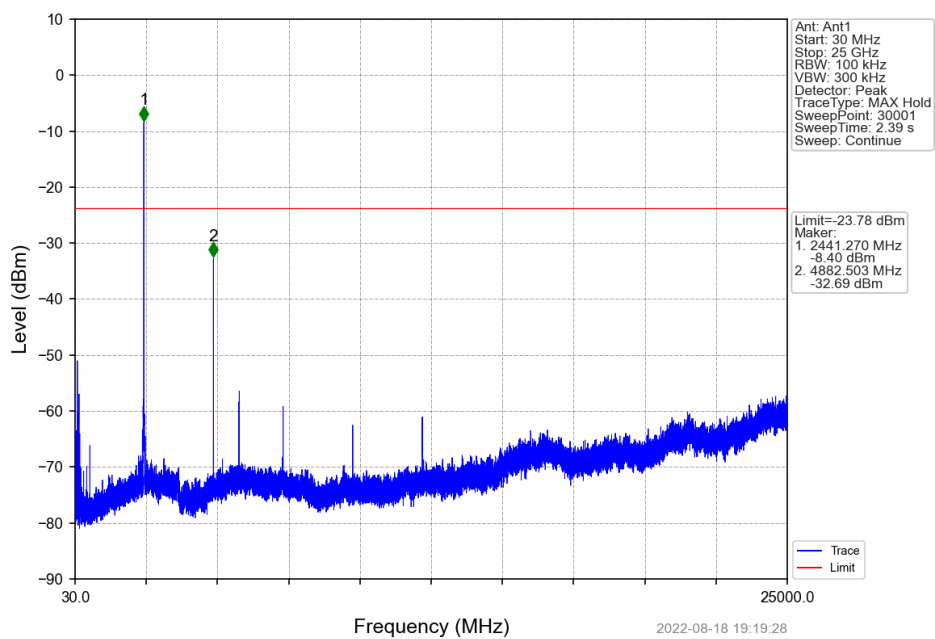




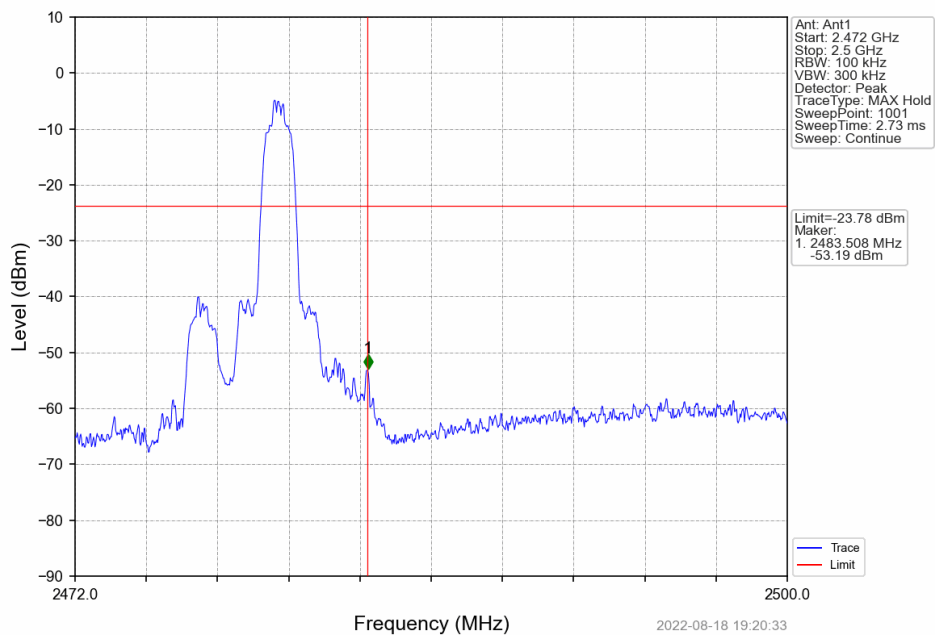
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant2_NTNV



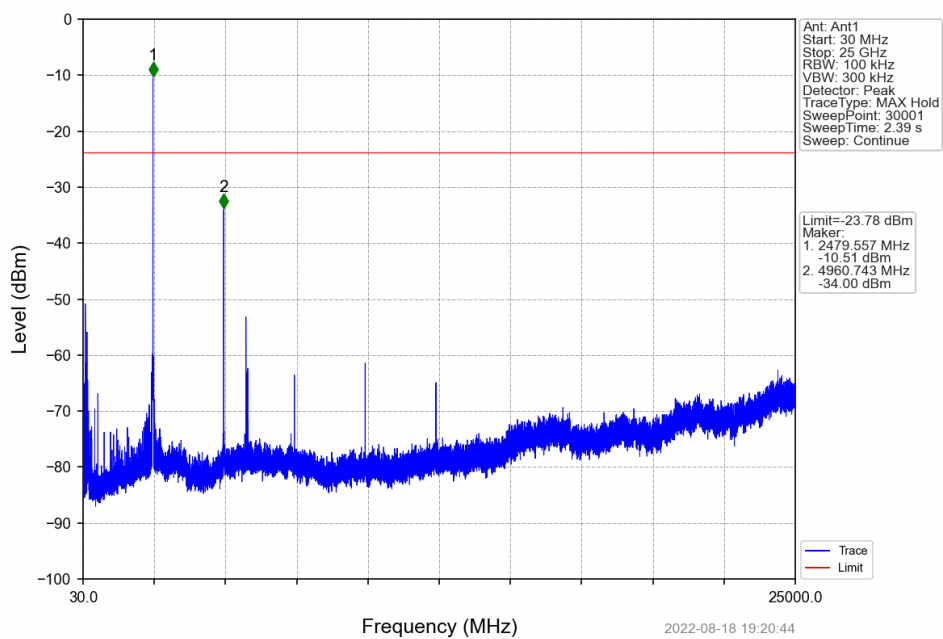
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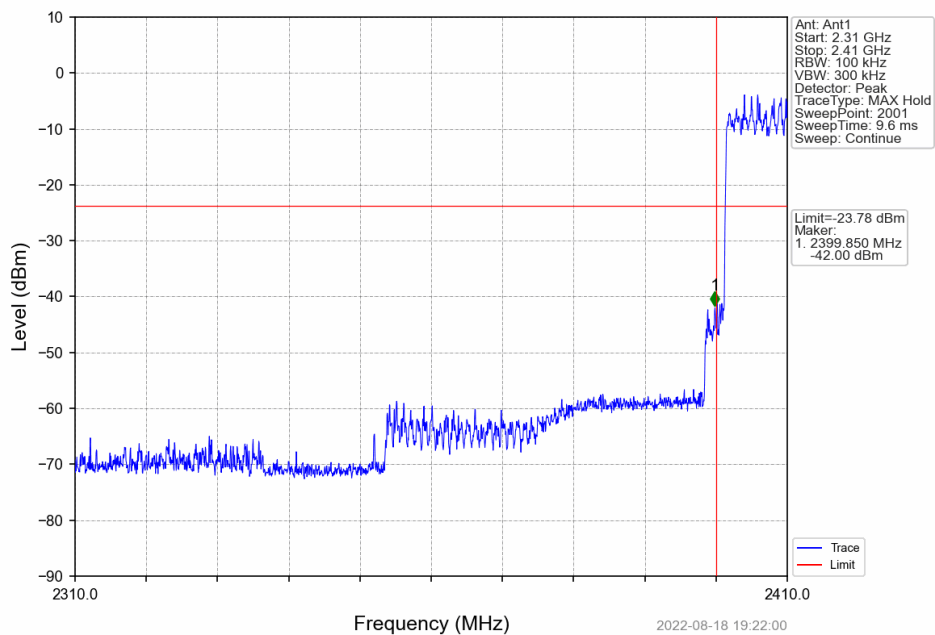
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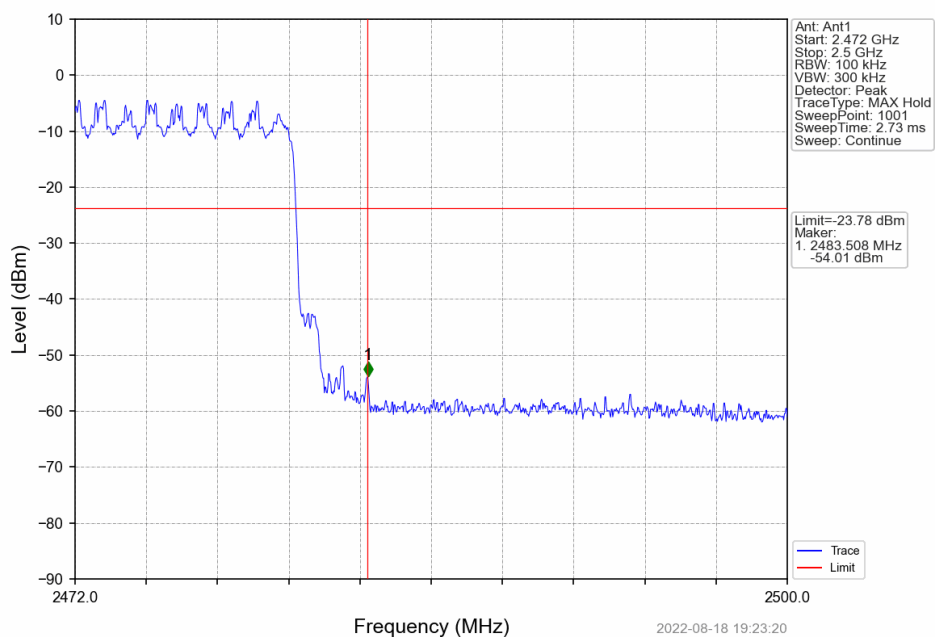
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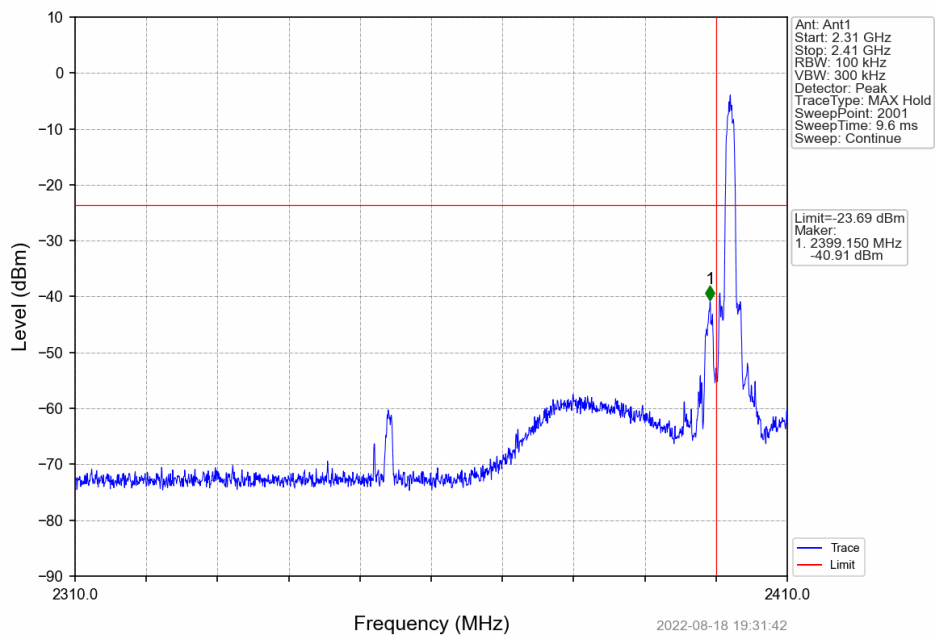
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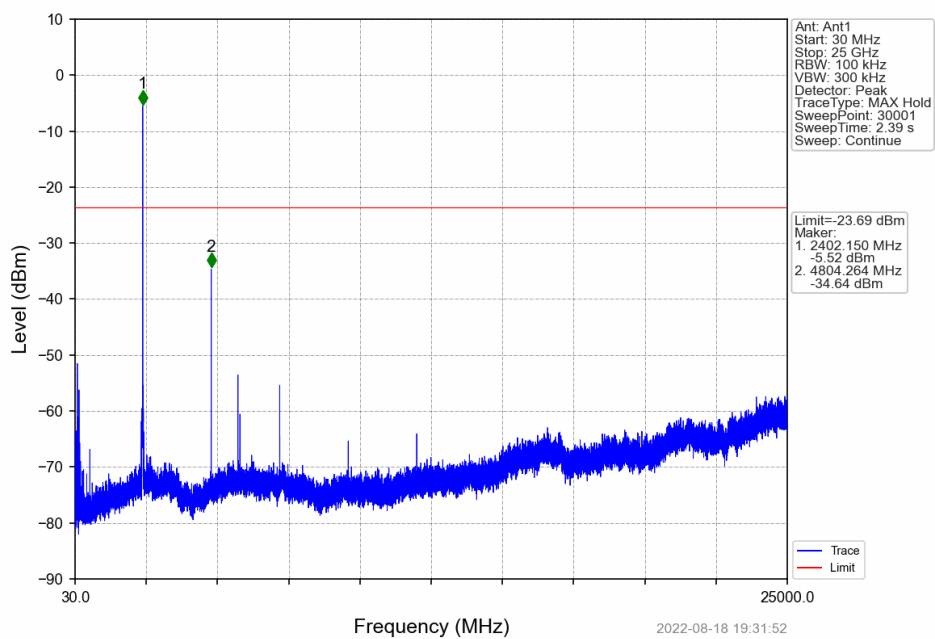
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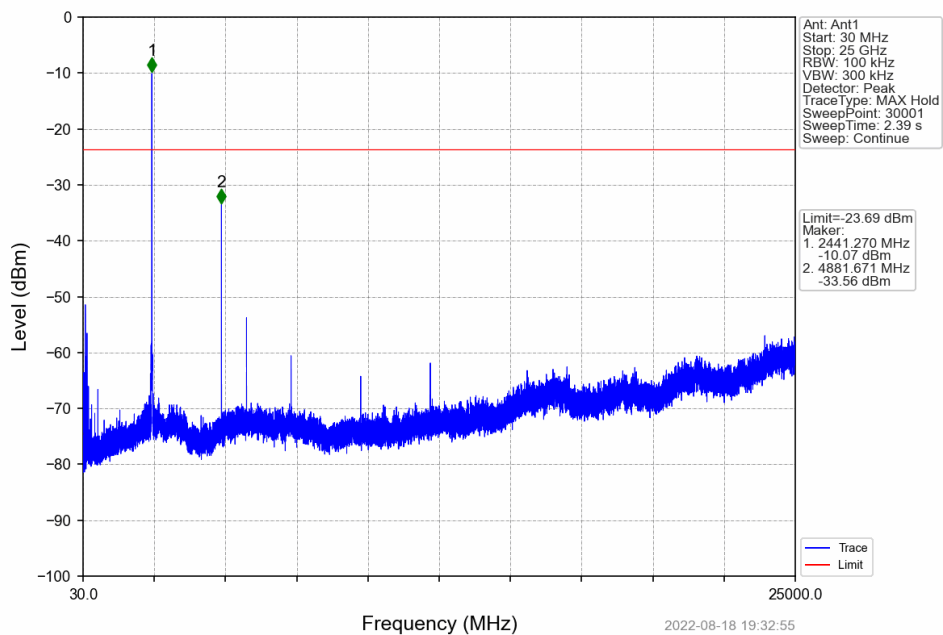
8DPSK 3DH5 LCH 2402MHz Ant2 NTNV



8DPSK 3DH5 LCH 2402MHz Ant2 NTNV



8DPSK_3DH5_MCH_2441MHz_Ant2_NTNV



8DPSK_3DH5_HCH_2480MHz_Ant2_NTNV

