

Appendix for 15.247

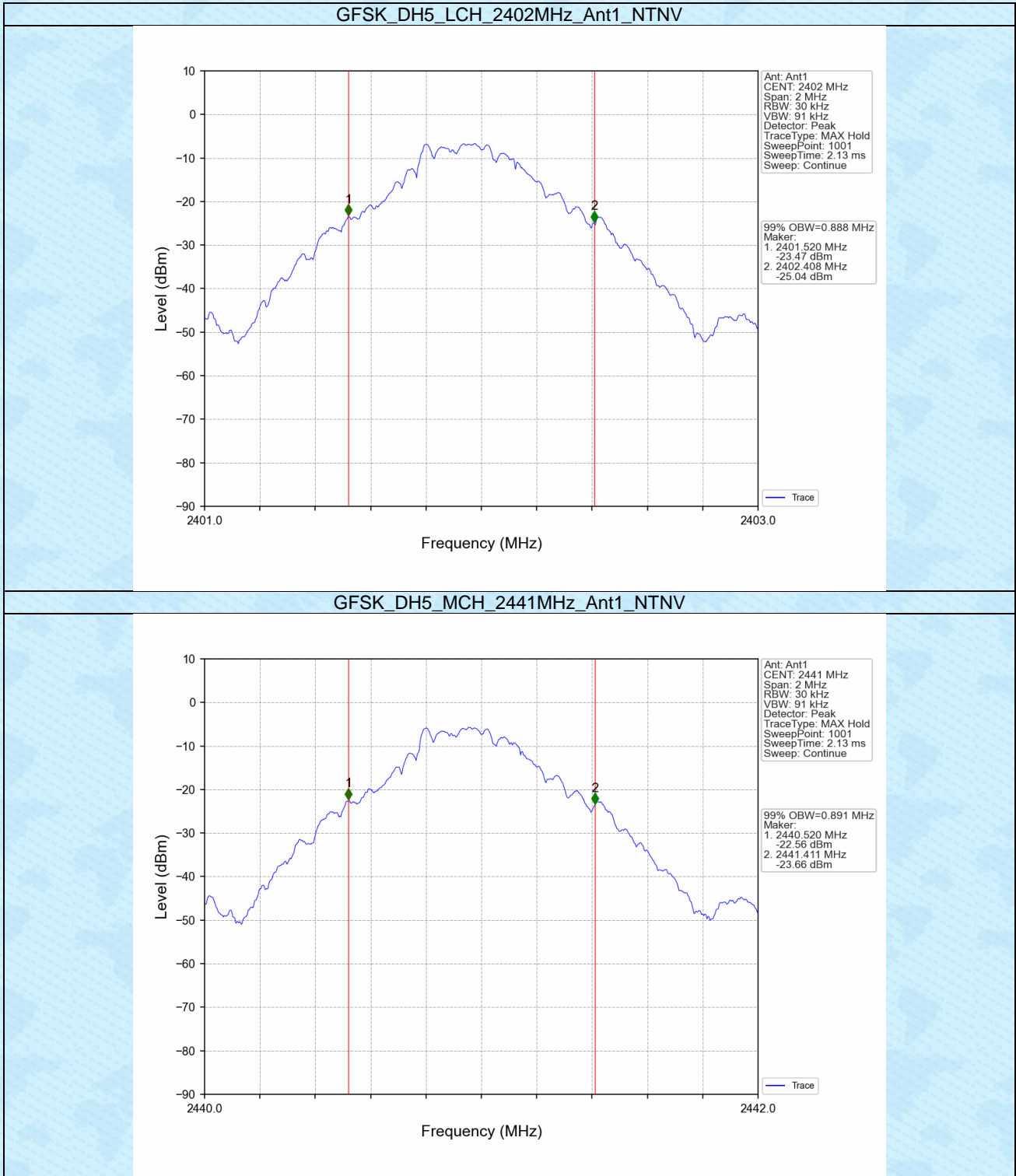
1. Bandwidth

1.1 OBW

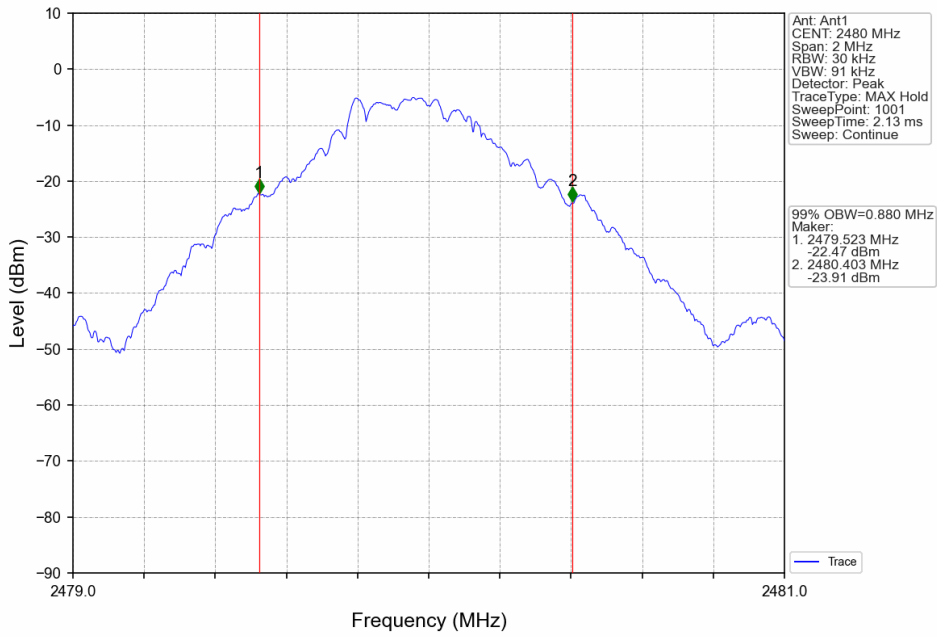
1.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.888	Pass
		2441	DH5	1	0.891	Pass
		2480	DH5	1	0.880	Pass
$\pi/4$ -DQPSK	SISO	2402	2DH5	1	1.199	Pass
		2441	2DH5	1	1.221	Pass
		2480	2DH5	1	1.229	Pass

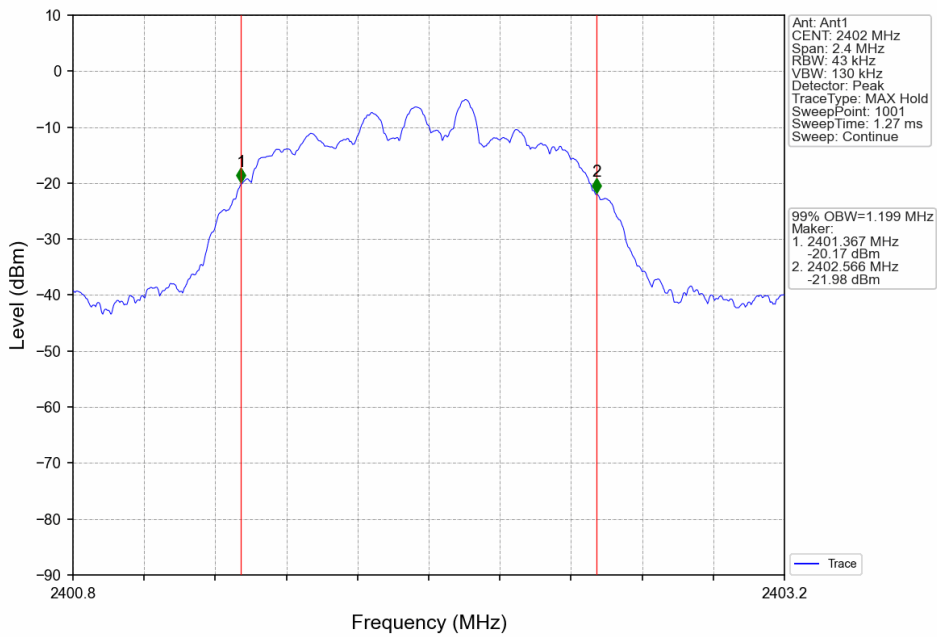
1.1.2 Test Graph



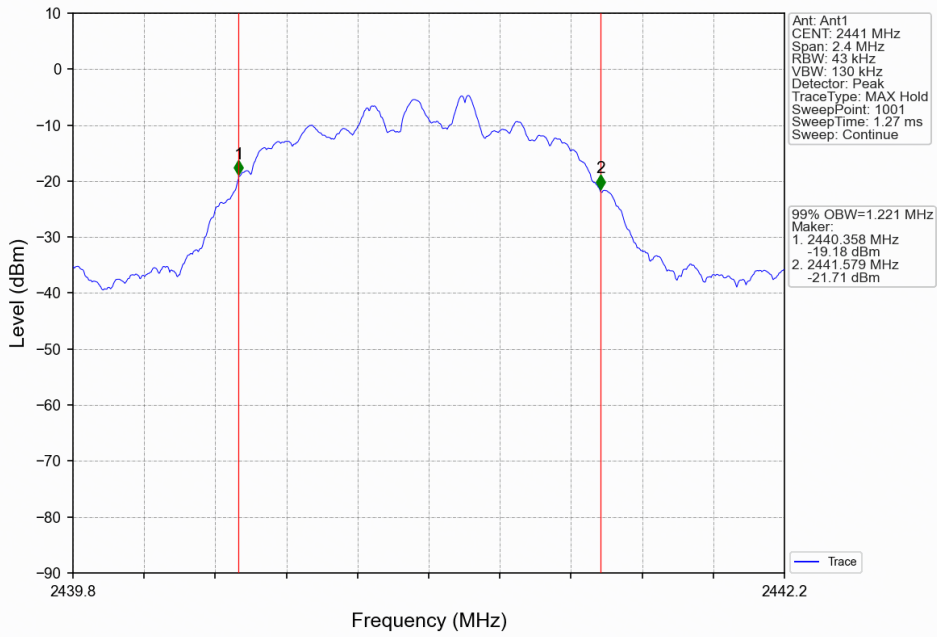
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



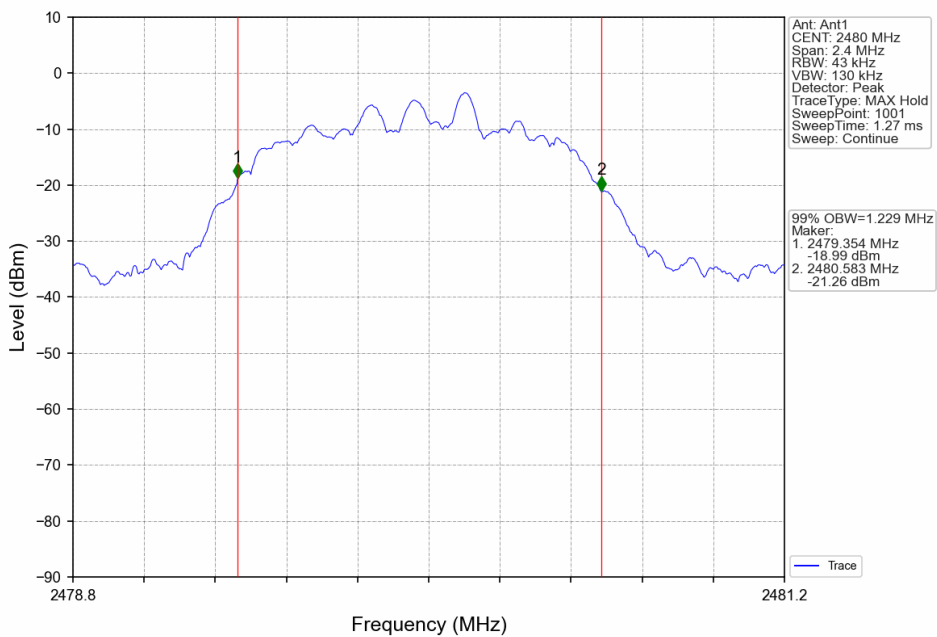
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTV



$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTV

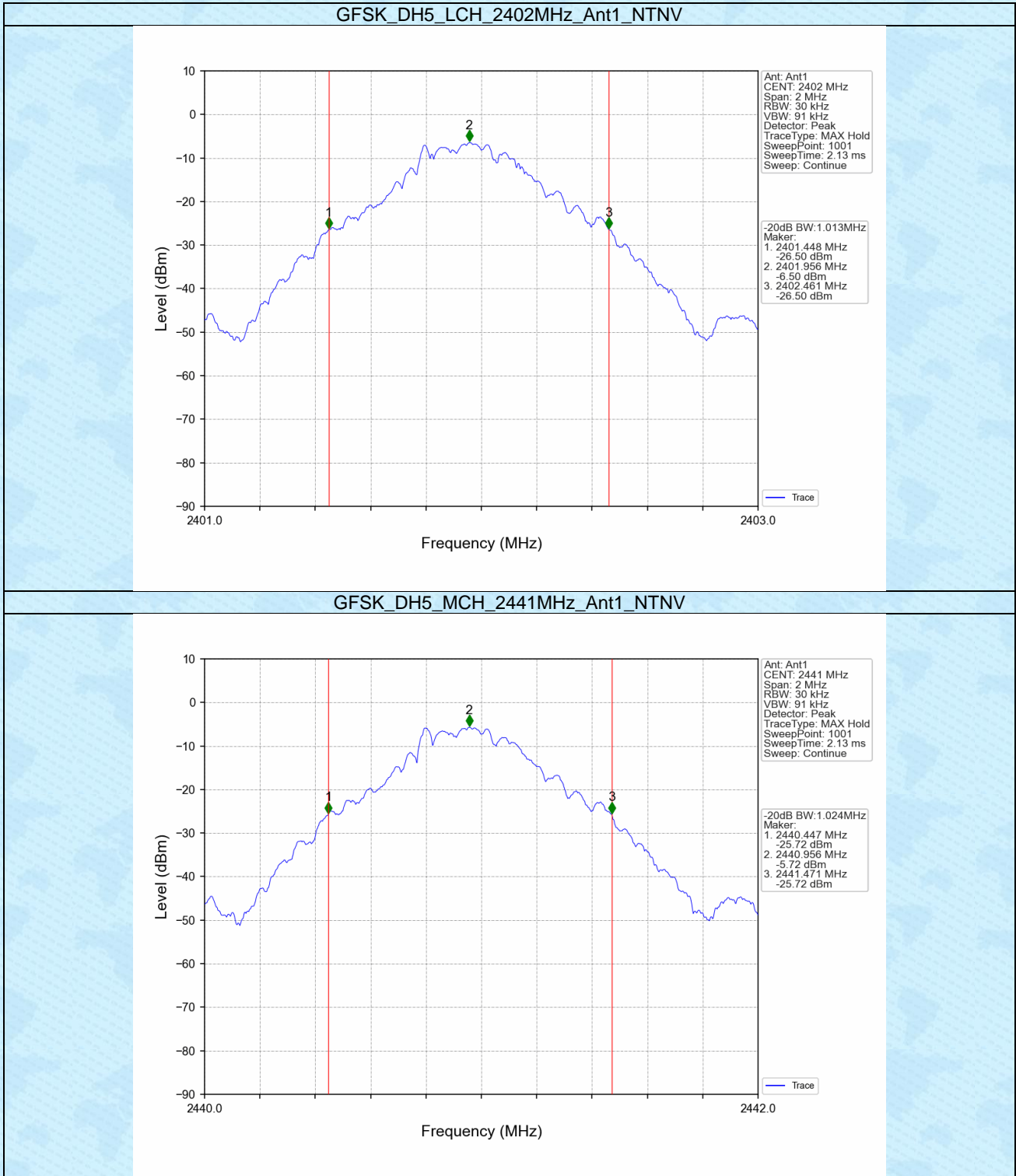


1.2 20dB BW

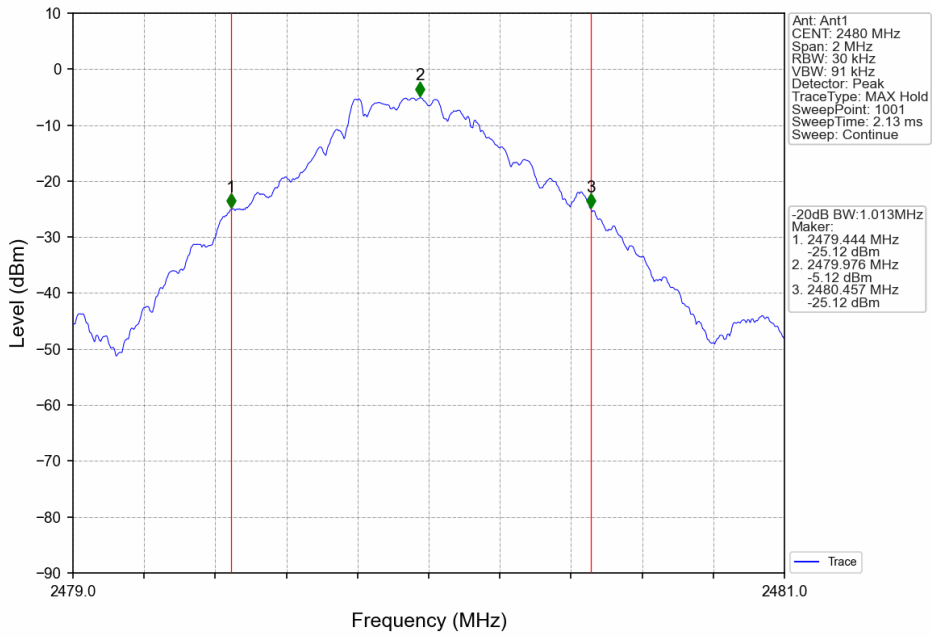
1.2.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	1.013	Pass
		2441	DH5	1	1.024	Pass
		2480	DH5	1	1.013	Pass
$\pi/4$ -DQPSK	SISO	2402	2DH5	1	1.328	Pass
		2441	2DH5	1	1.330	Pass
		2480	2DH5	1	1.347	Pass

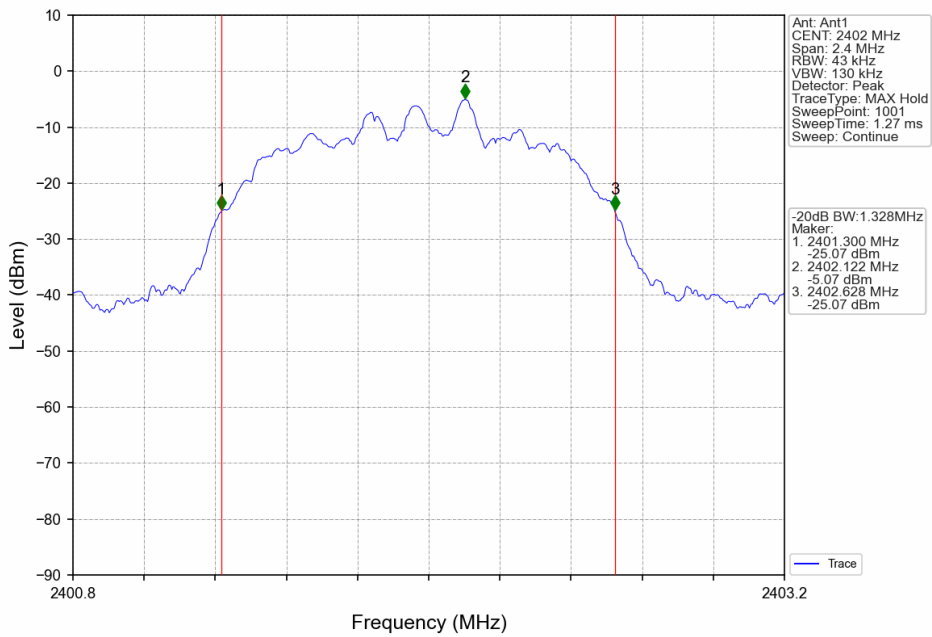
1.2.2 Test Graph



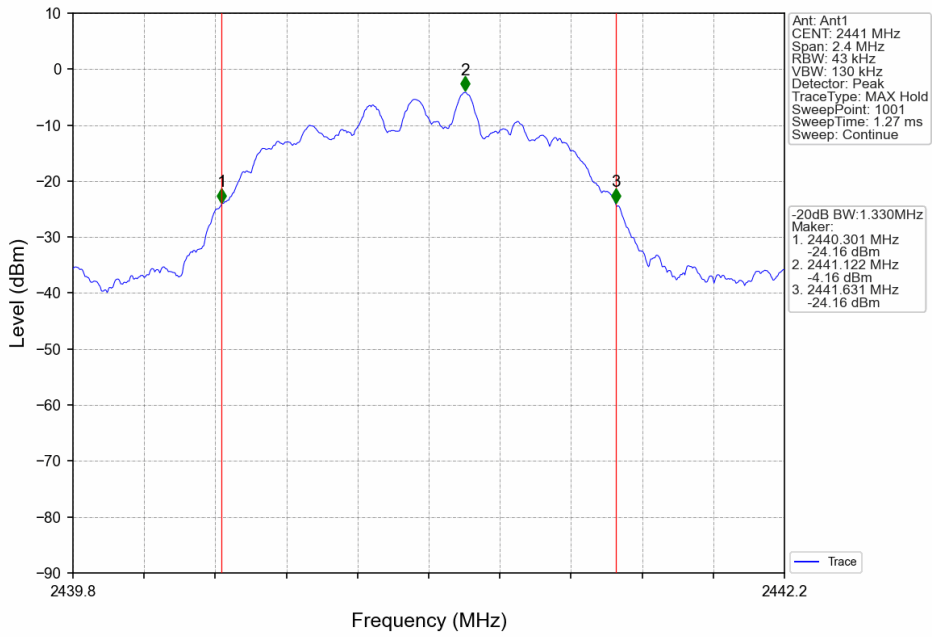
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



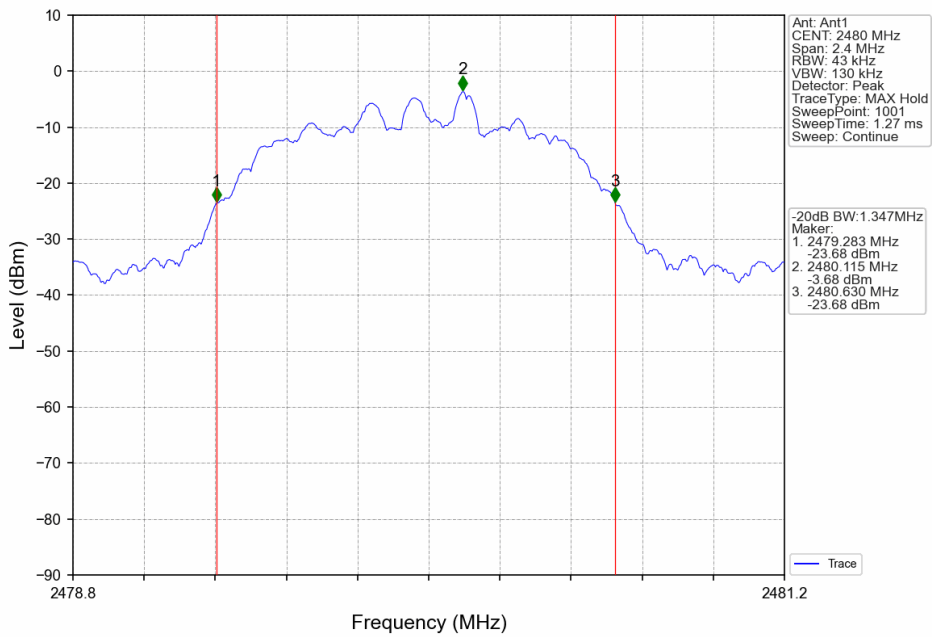
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTV



$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTV

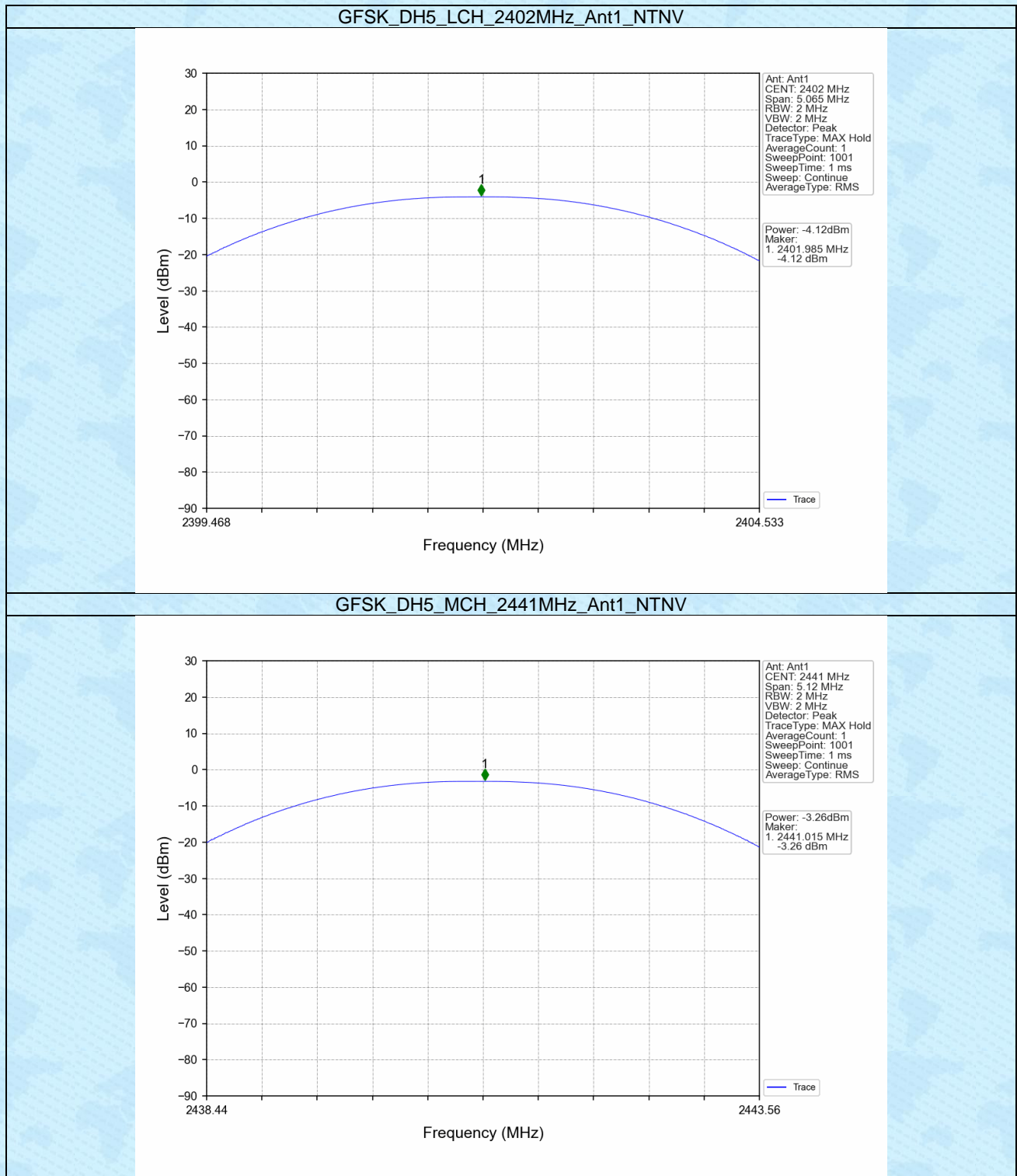


2. Maximum Conducted Output Power

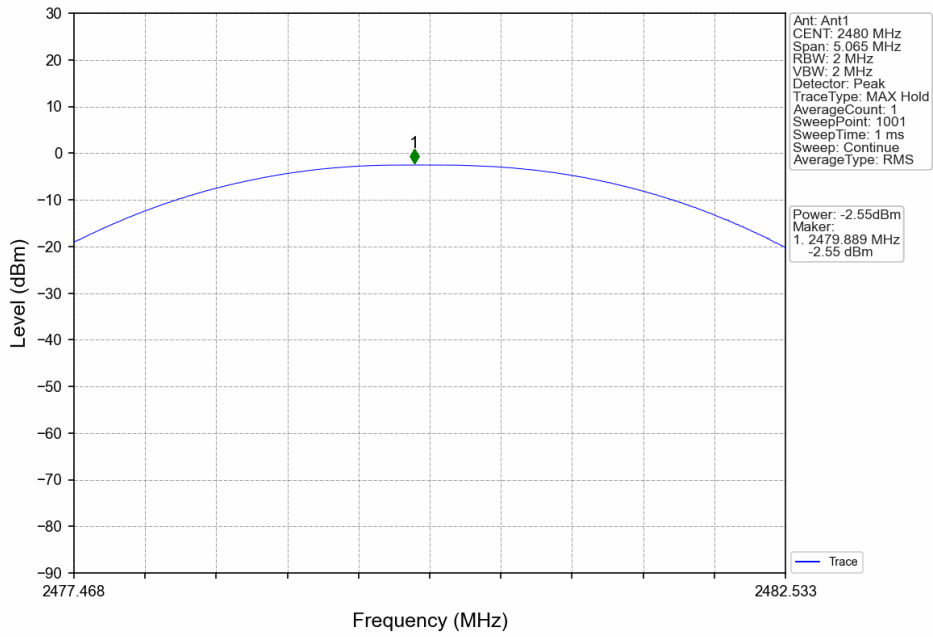
2.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	-4.12	<=20.97	Pass
		2441	DH5	-3.26	<=20.97	Pass
		2480	DH5	-2.55	<=20.97	Pass
$\pi/4$ -DQPSK	SISO	2402	2DH5	-3.80	<=20.97	Pass
		2441	2DH5	-3.06	<=20.97	Pass
		2480	2DH5	-2.39	<=20.97	Pass

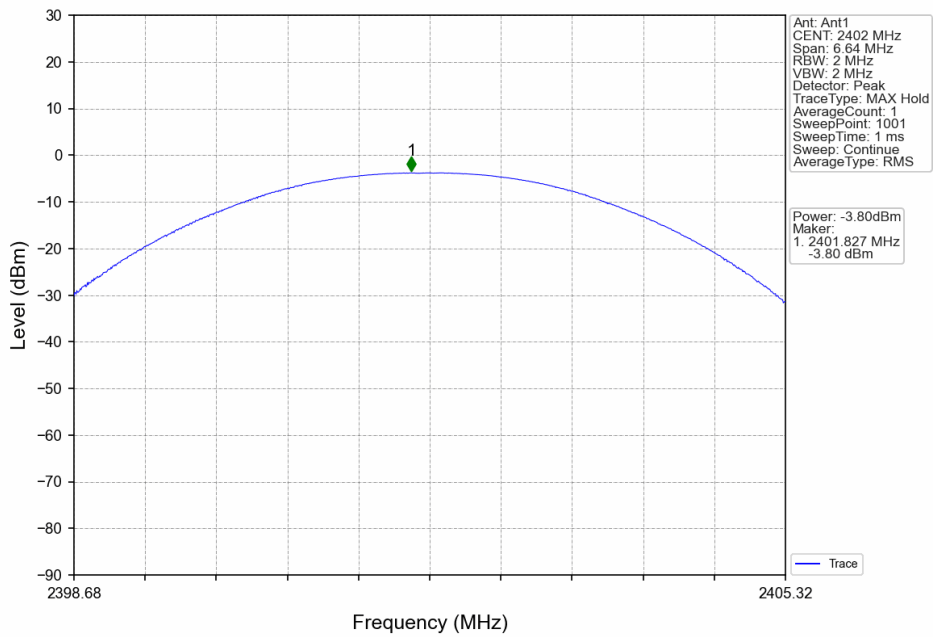
2.2 Test Graph

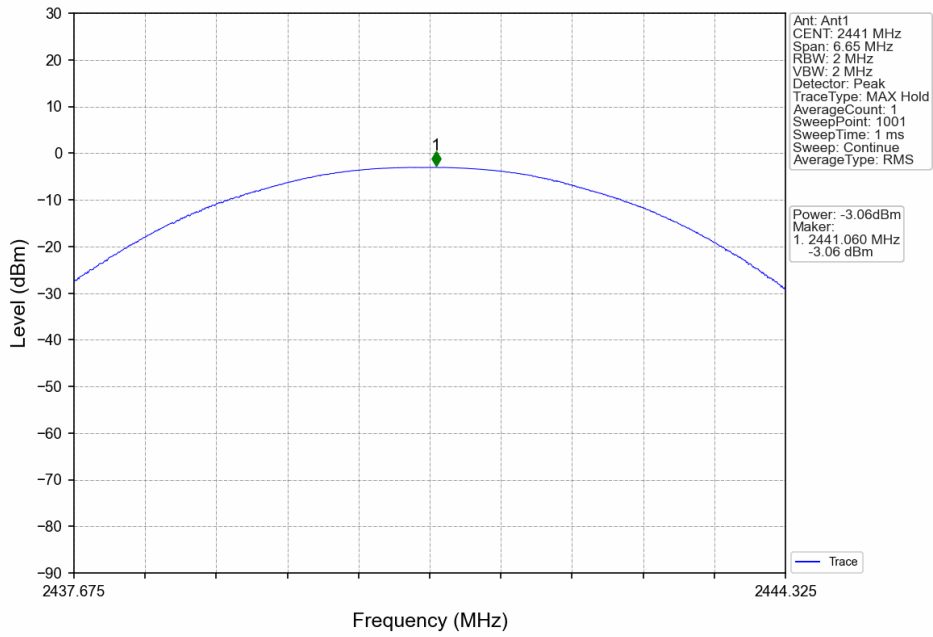
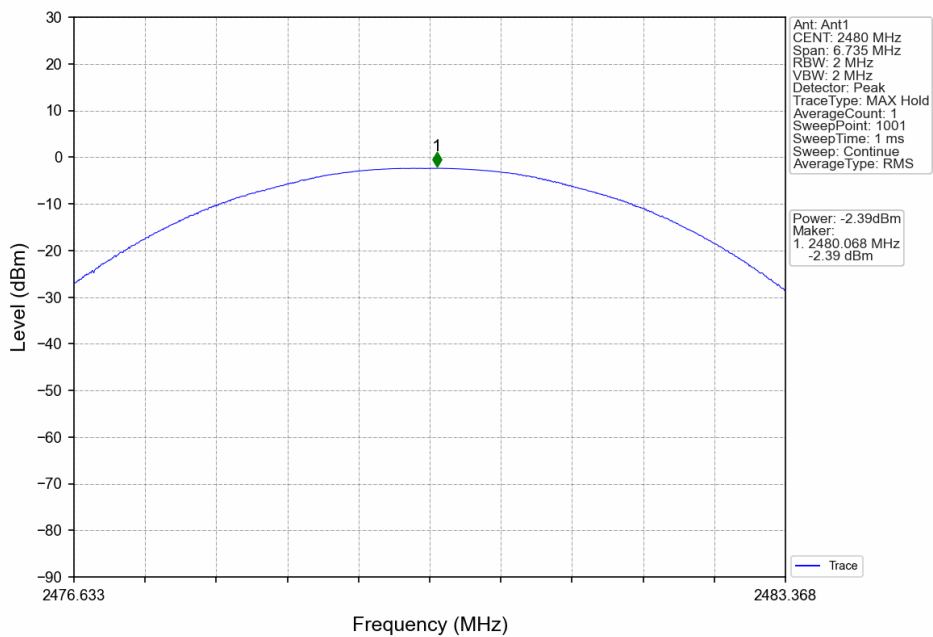


GFSK_DH5_HCH_2480MHz_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



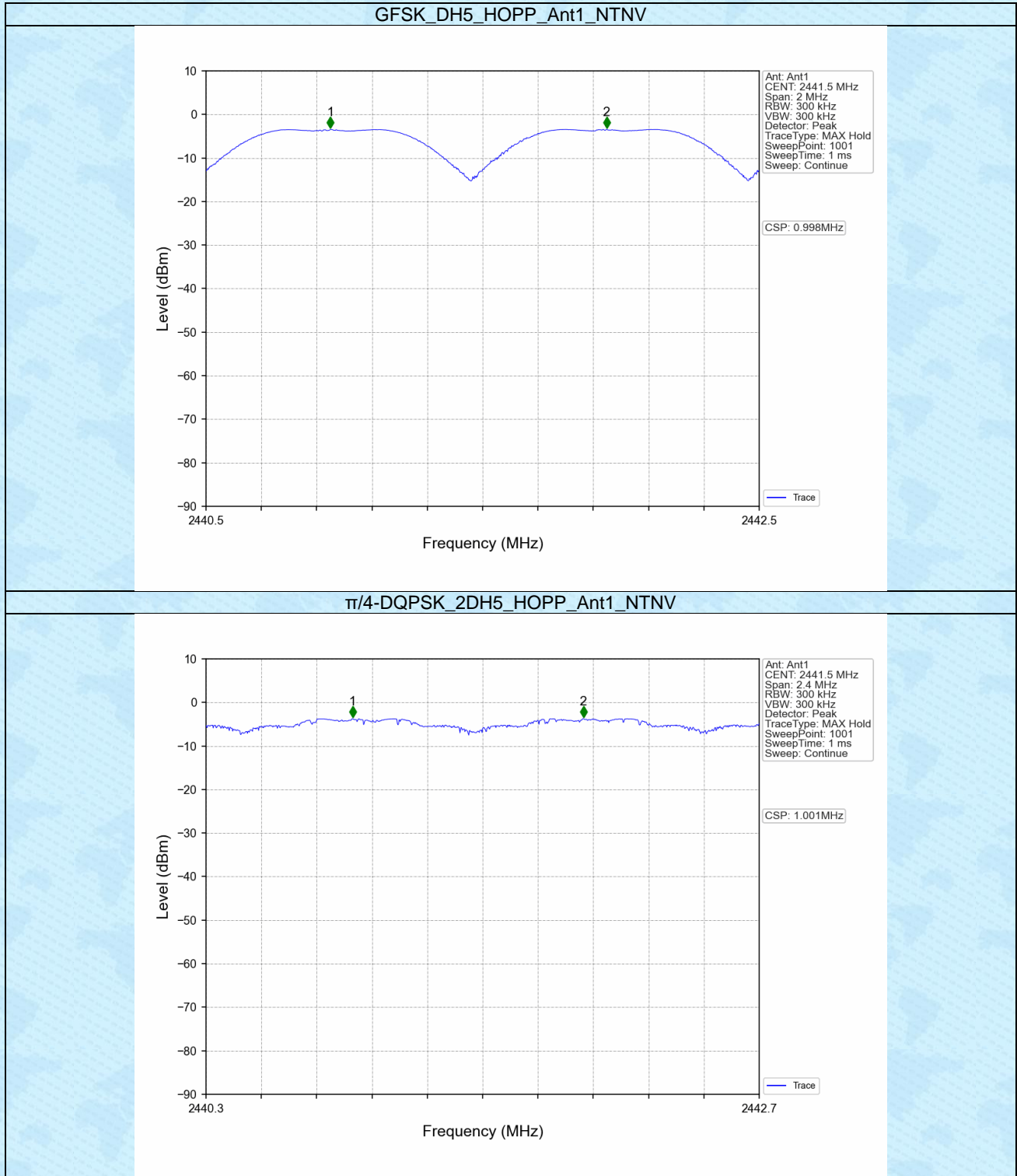
$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV $\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

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	0.998	1.024	≥ 0.683	Pass
$\pi/4$ -DQPSK	SISO	HOPP	2DH5	1.001	1.347	≥ 0.898	Pass

3.2 Test Graph

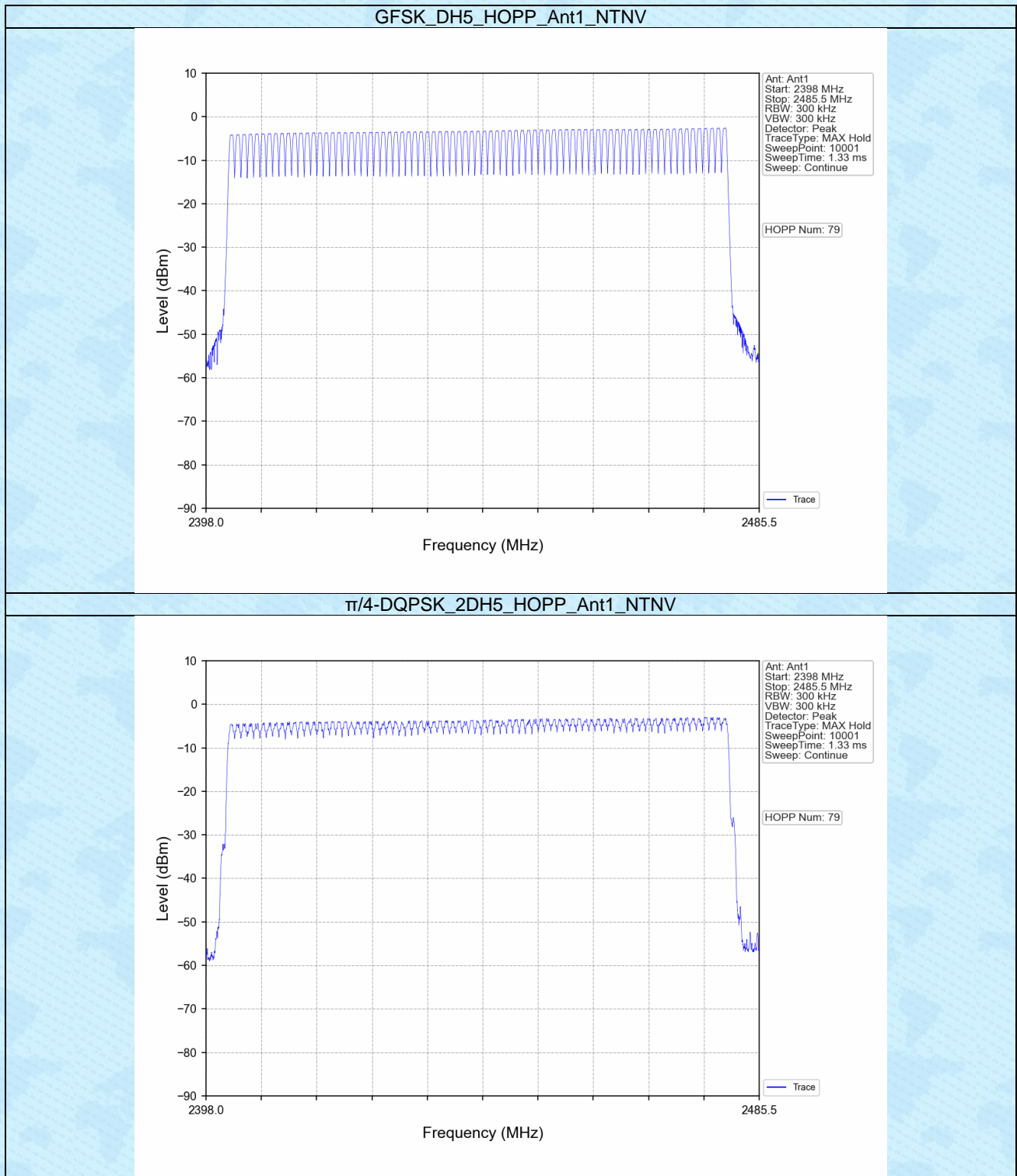


4. Number of Hopping Frequencies

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

4.2 Test Graph

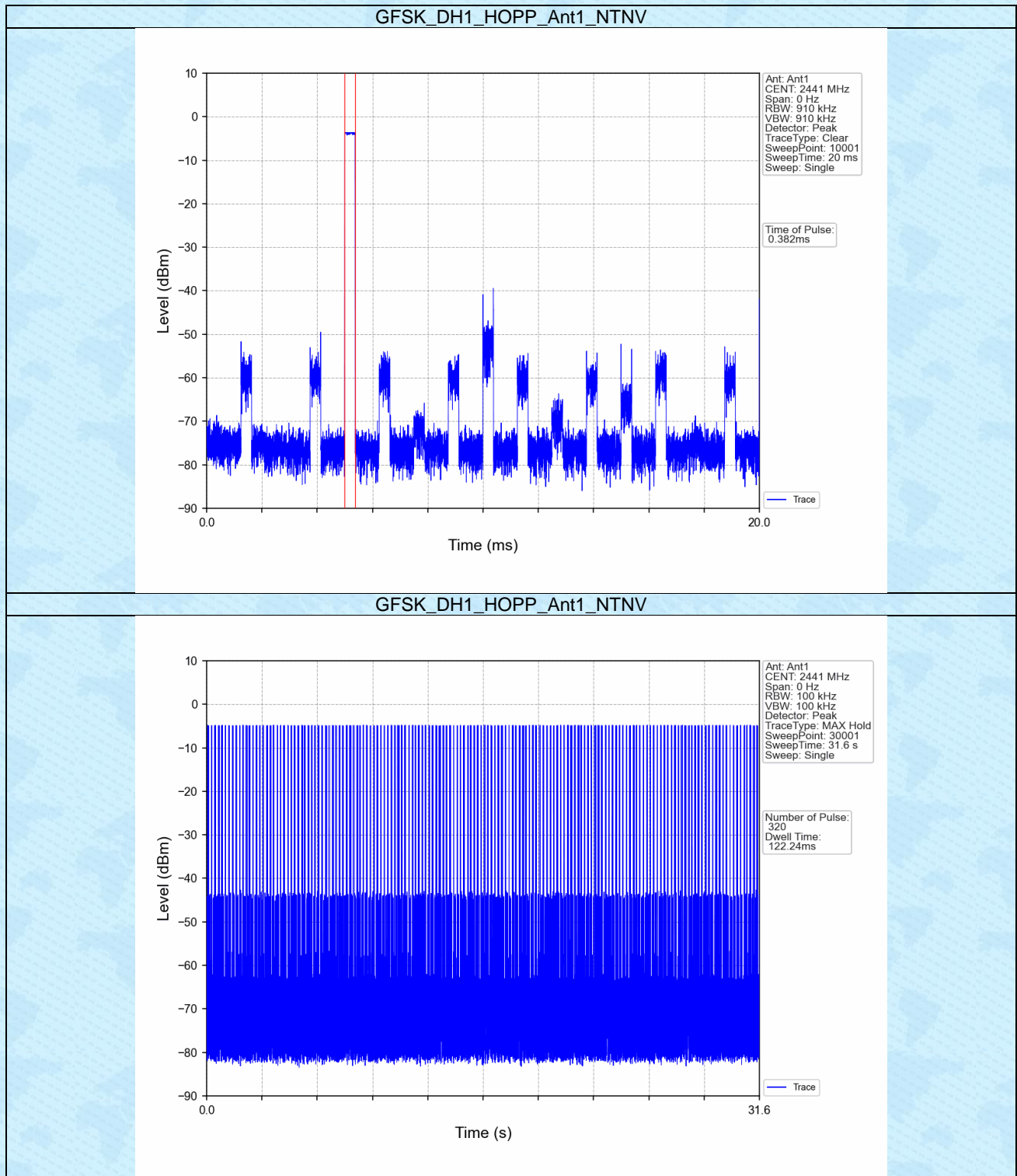


5. Time of Occupancy (Dwell Time)

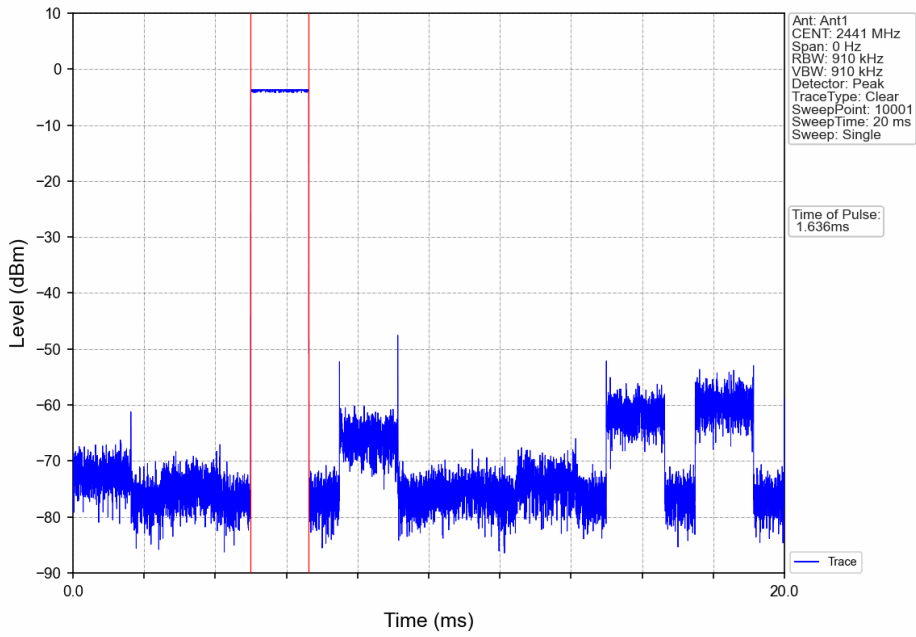
5.1 Test Result

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	0.382	31.600	320	122.240	<=400	Pass
			DH3	1.636	31.600	165	269.940	<=400	Pass
			DH5	2.884	31.600	103	297.052	<=400	Pass
π/4-DQPSK	SISO	HOPP	2DH1	0.390	31.600	320	124.800	<=400	Pass
			2DH3	1.648	31.600	155	255.440	<=400	Pass
			2DH5	2.892	31.600	109	315.228	<=400	Pass

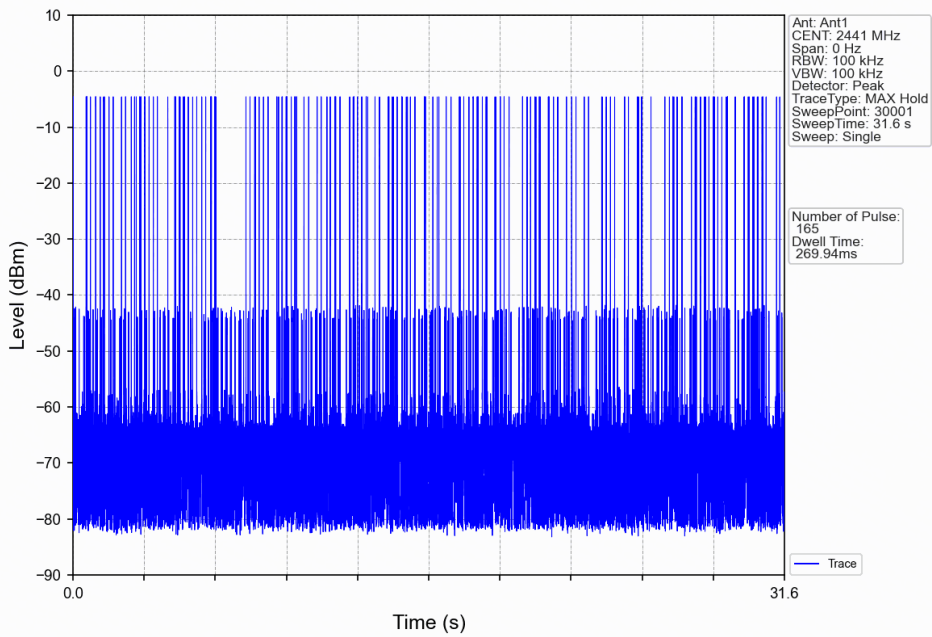
5.2 Test Graph



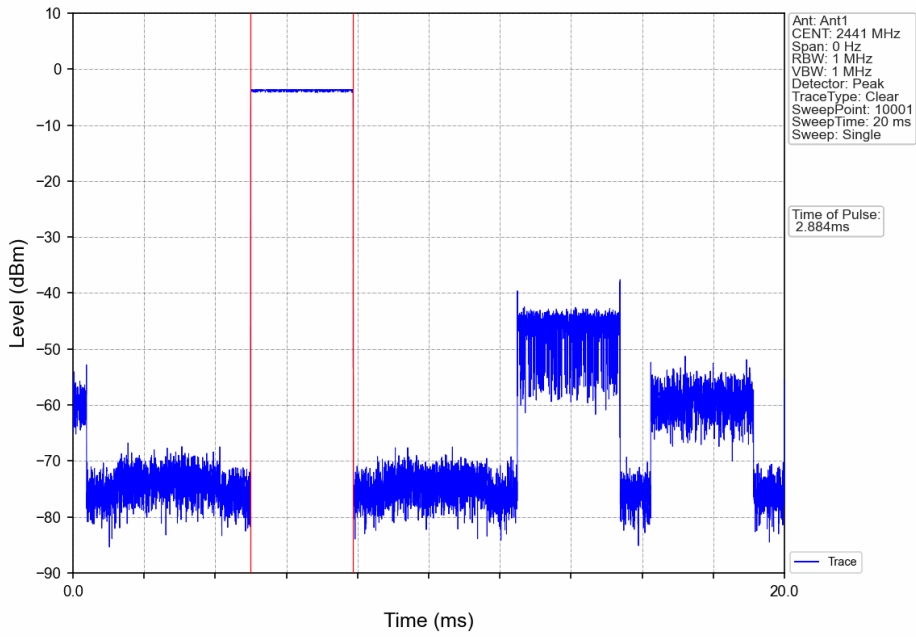
GFSK_DH3_HOPP_Ant1_NTNV



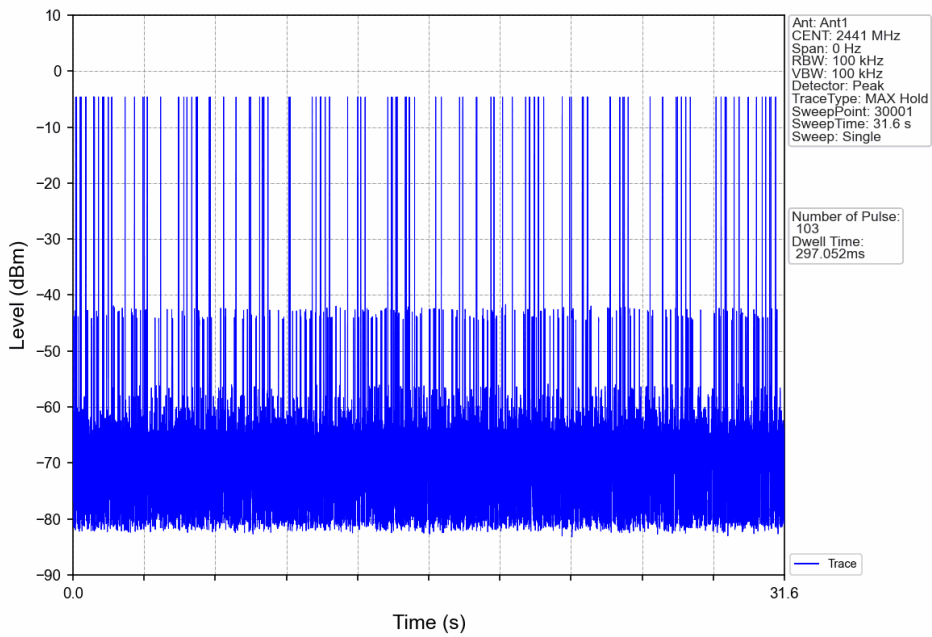
GFSK_DH3_HOPP_Ant1_NTNV



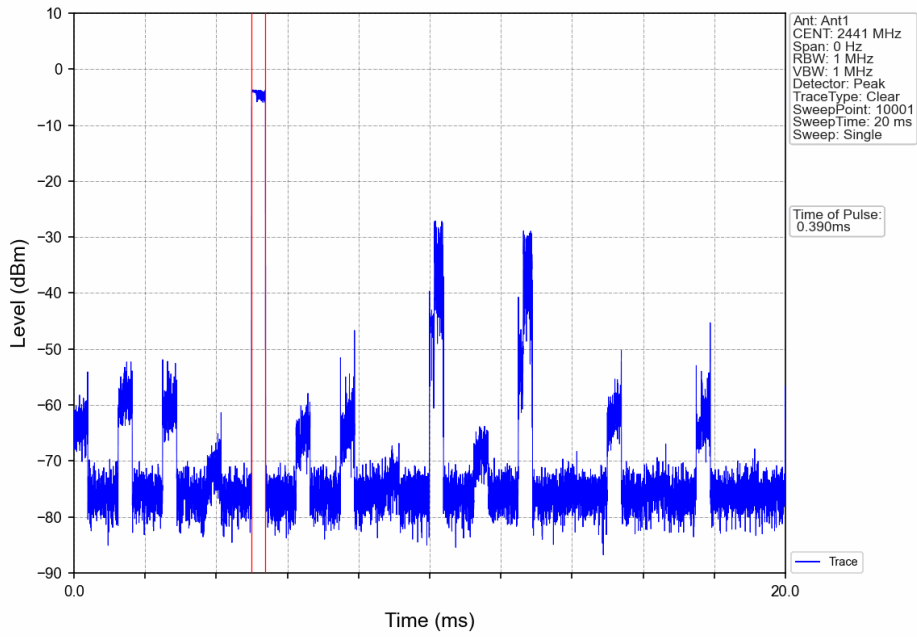
GFSK_DH5_HOPP_Ant1_NTNV



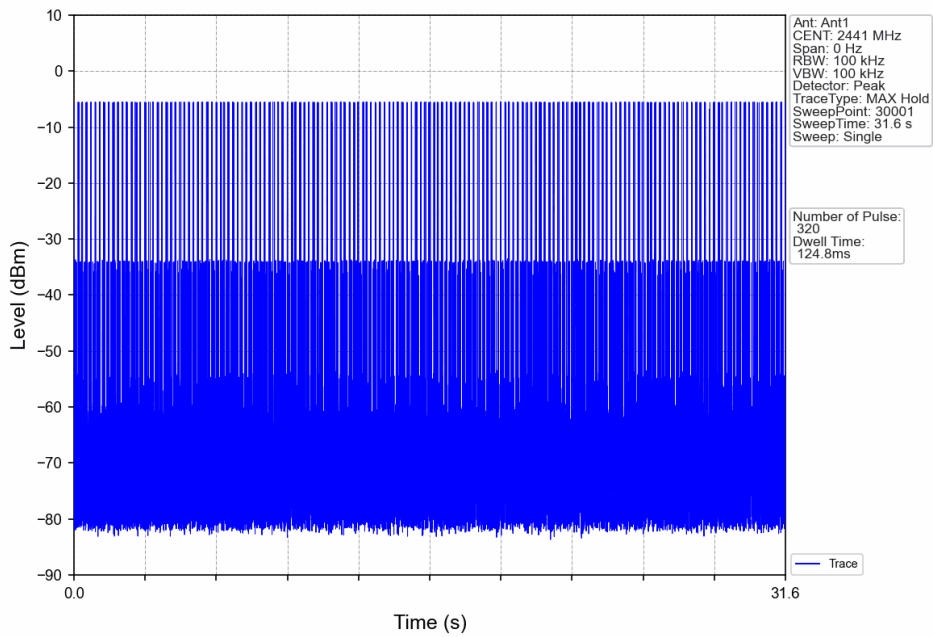
GFSK_DH5_HOPP_Ant1_NTNV



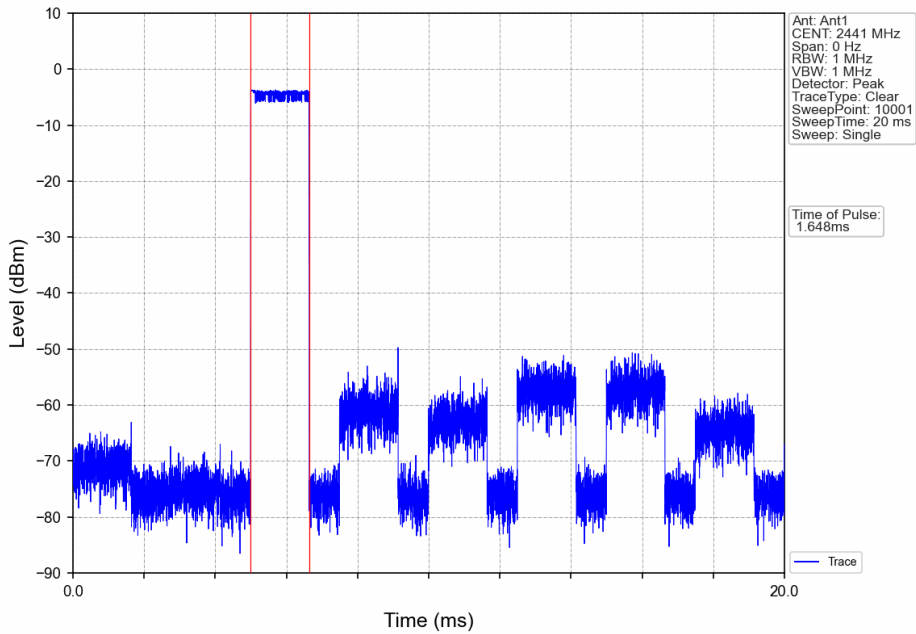
$\pi/4$ -DQPSK_2DH1_HOPP_Ant1_NTNV



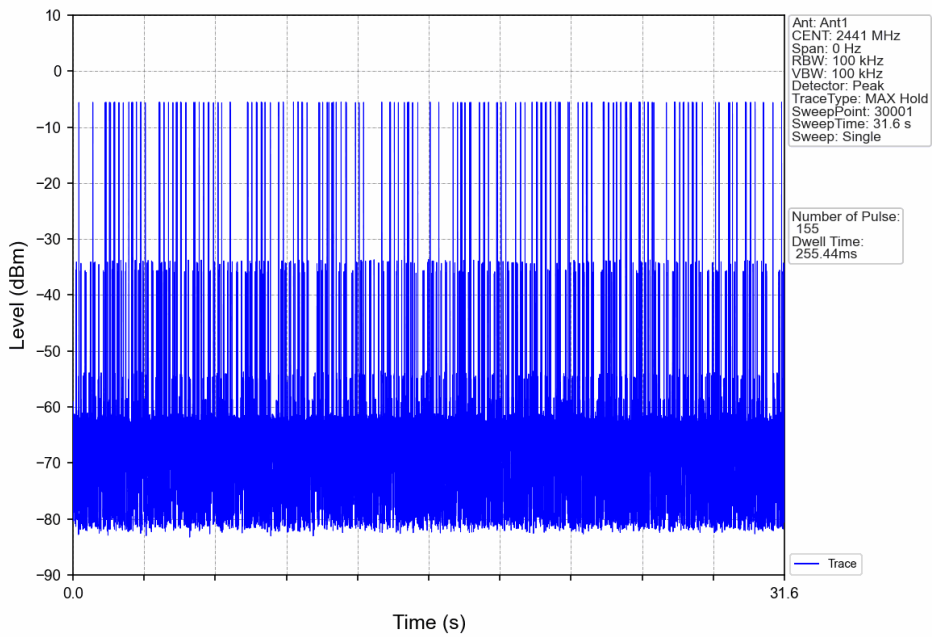
$\pi/4$ -DQPSK_2DH1_HOPP_Ant1_NTNV



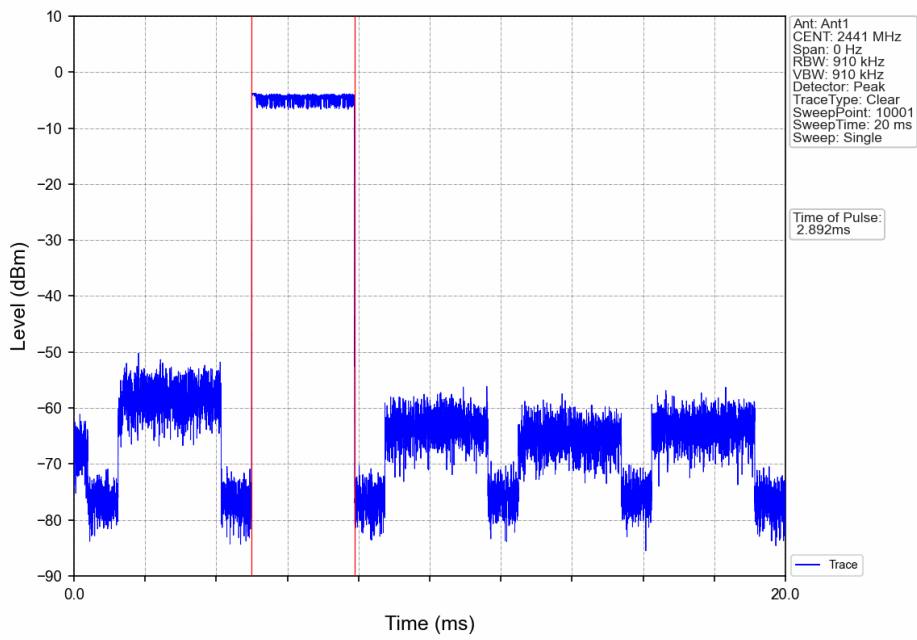
$\pi/4$ -DQPSK_2DH3_HOPP_Ant1_NTNV



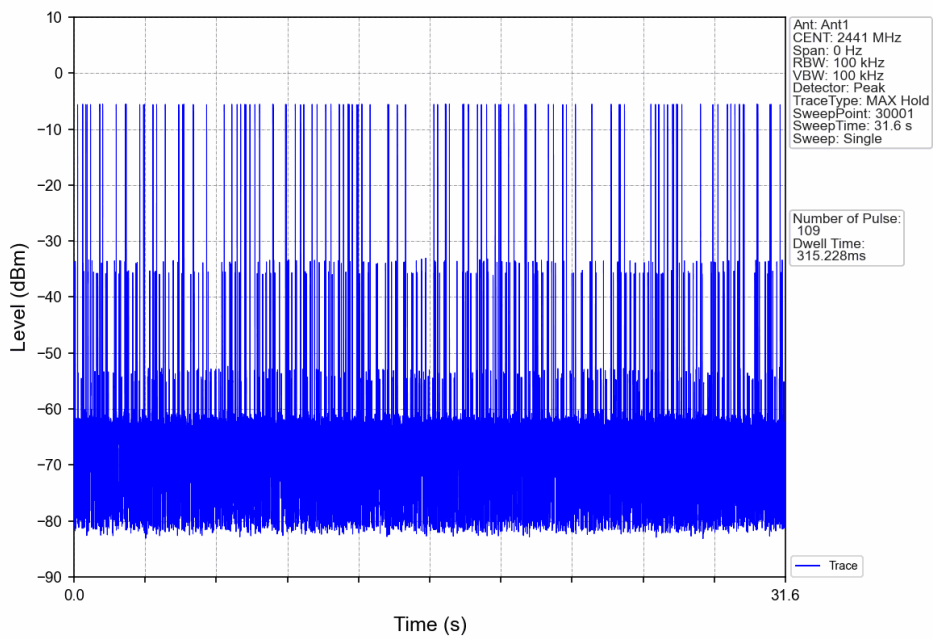
$\pi/4$ -DQPSK_2DH3_HOPP_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_HOPP_Ant1_NTNV



Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



6. Unwanted Emissions In Non-restricted Frequency Bands

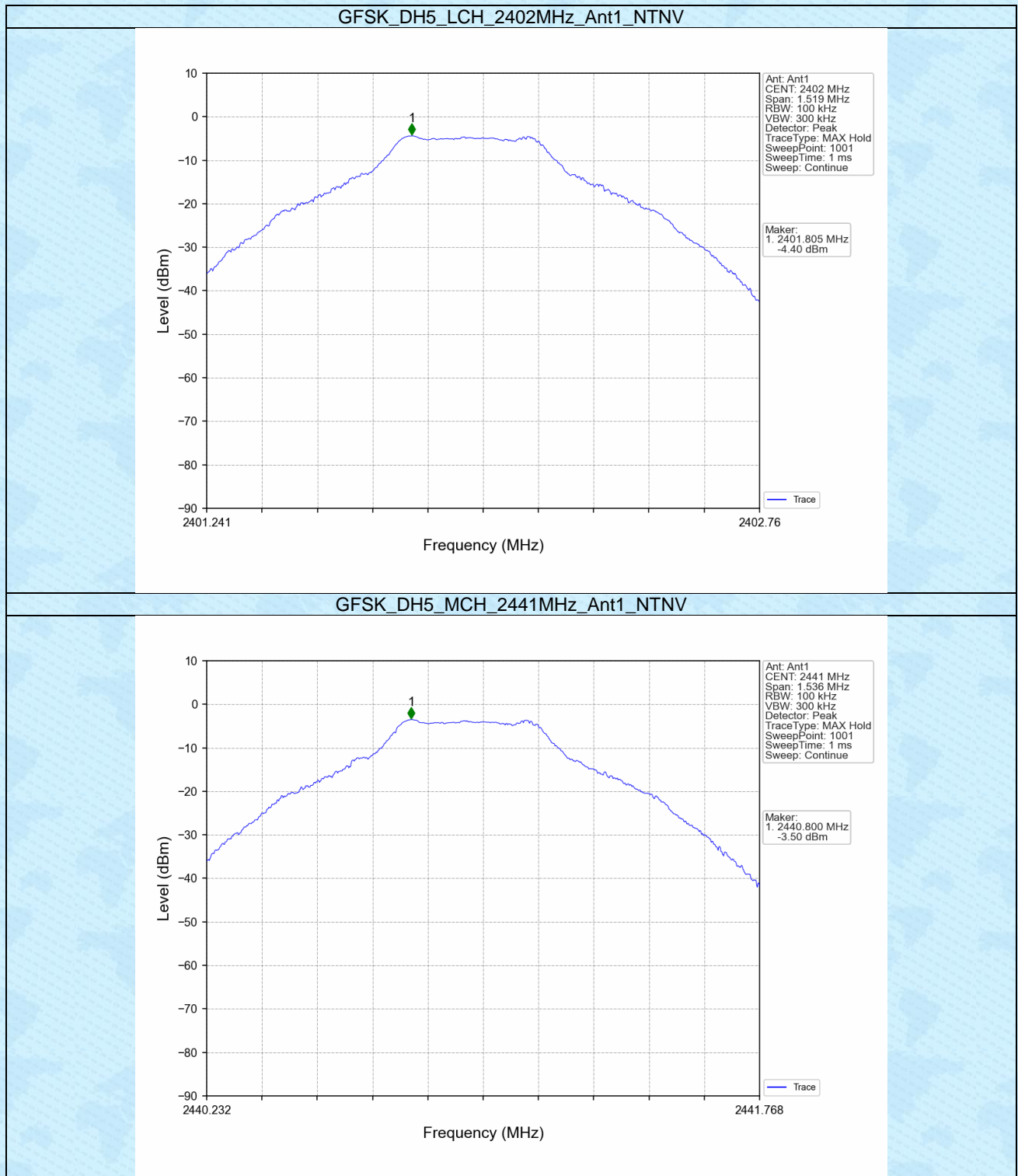
6.1 Ref

6.1.1 Test Result

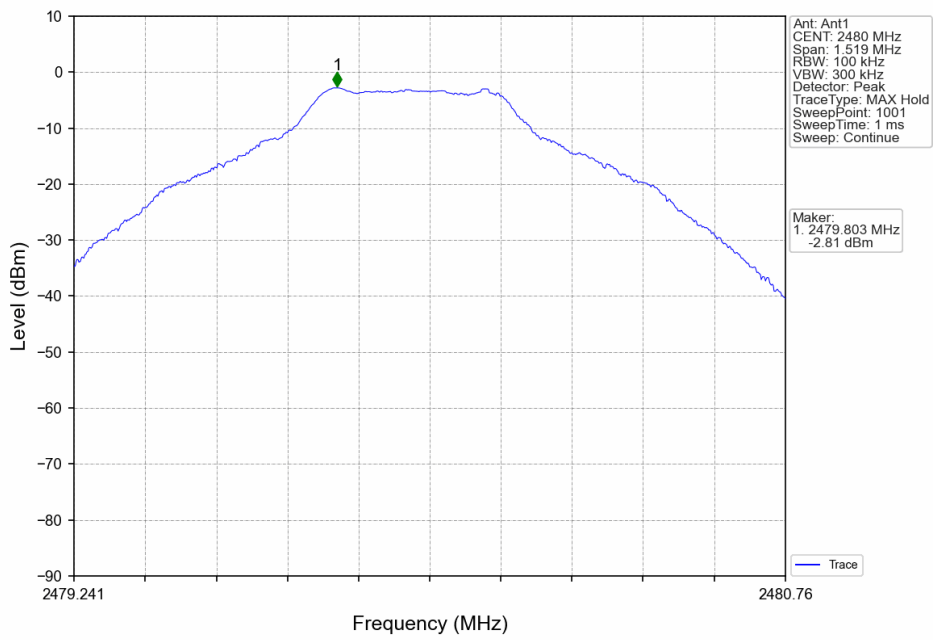
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	-4.40
		2441	DH5	1	-3.50
		2480	DH5	1	-2.81
$\pi/4$ -DQPSK	SISO	2402	2DH5	1	-4.48
		2441	2DH5	1	-3.56
		2480	2DH5	1	-2.88

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.

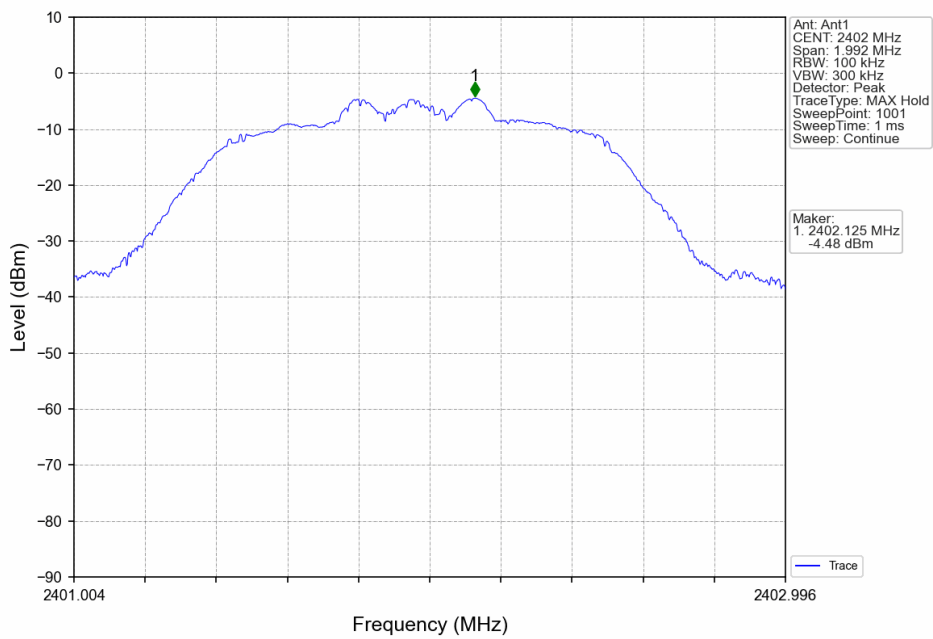
6.1.2 Test Graph



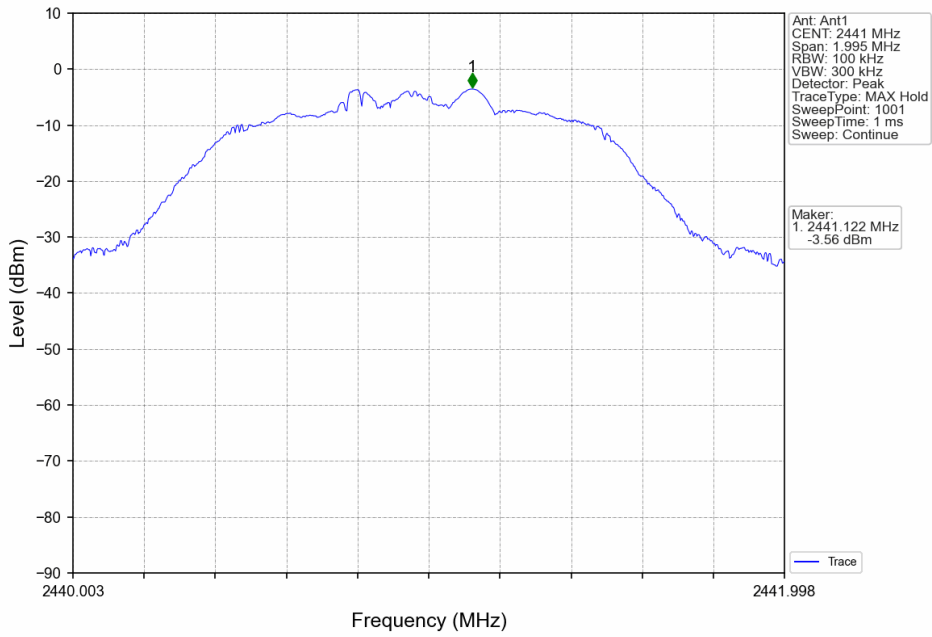
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



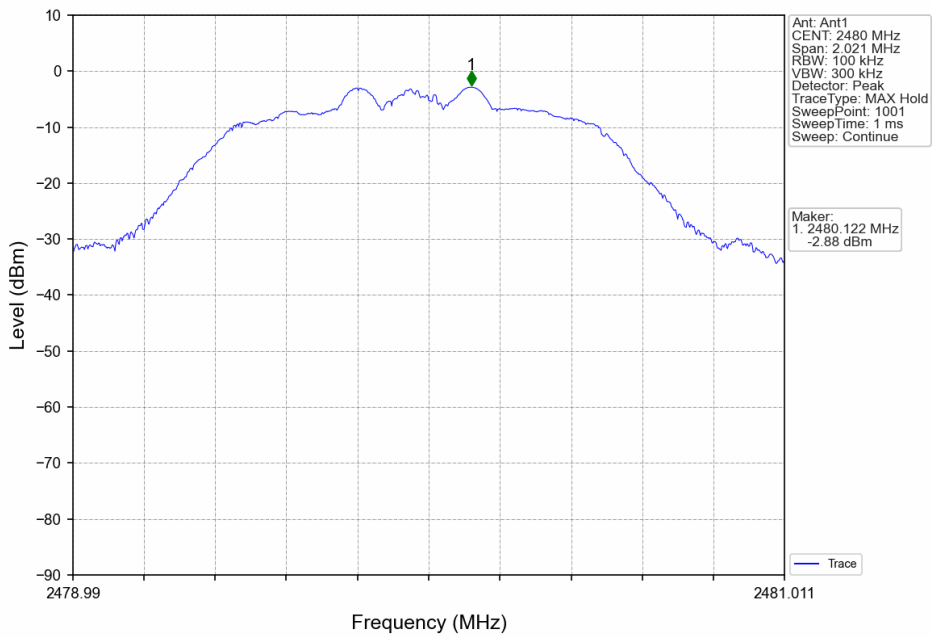
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTV



$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTV



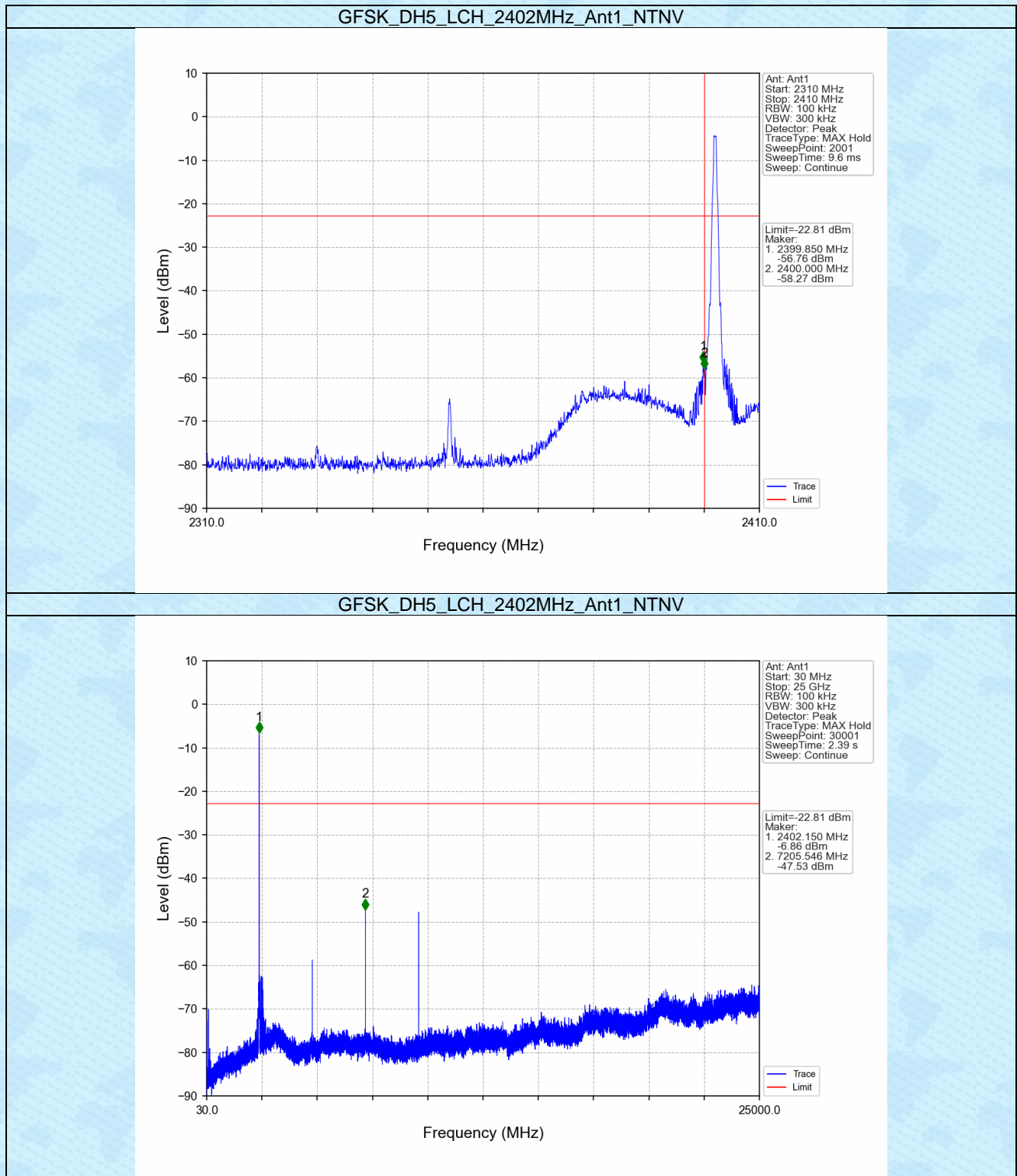
6.2 CSE

6.2.1 Test Result

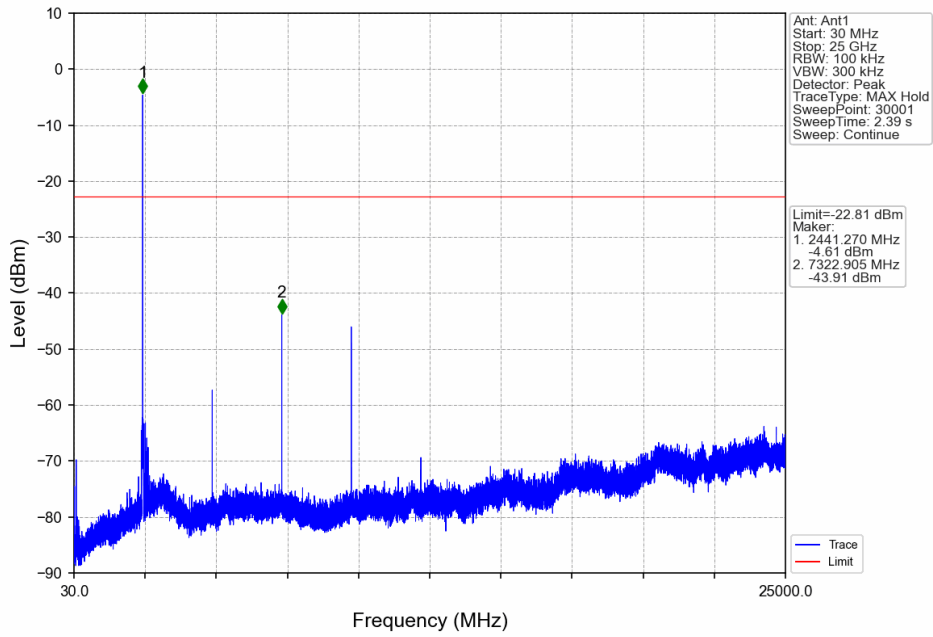
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	-2.81	-22.81	Pass
		2441	DH5	1	-2.81	-22.81	Pass
		2480	DH5	1	-2.81	-22.81	Pass
		HOPP	DH5	1	-2.81	-22.81	Pass
$\pi/4$ -DQPSK	SISO	2402	2DH5	1	-2.88	-22.88	Pass
		2441	2DH5	1	-2.88	-22.88	Pass
		2480	2DH5	1	-2.88	-22.88	Pass
		HOPP	2DH5	1	-2.88	-22.88	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.

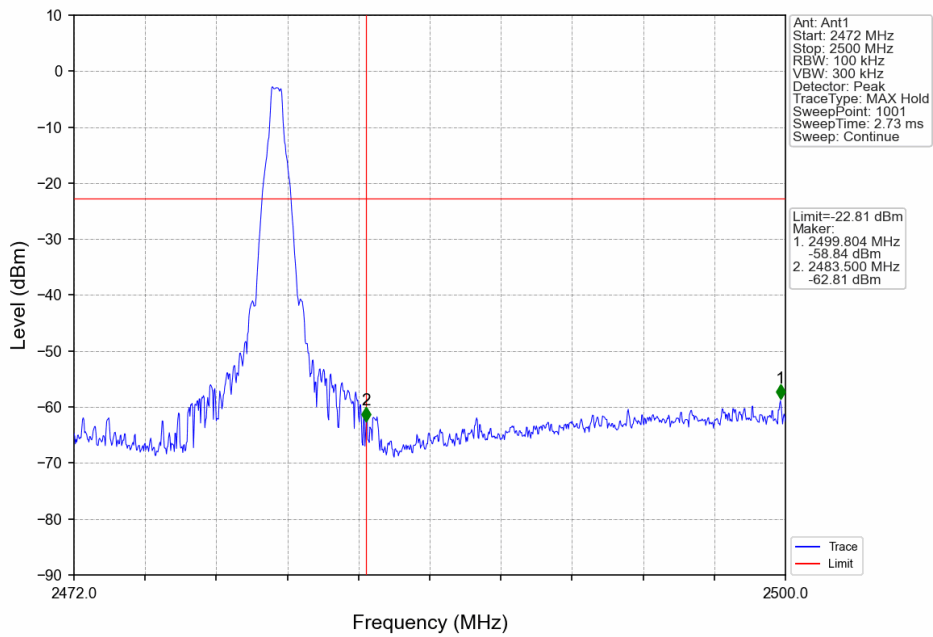
6.2.2 Test Graph



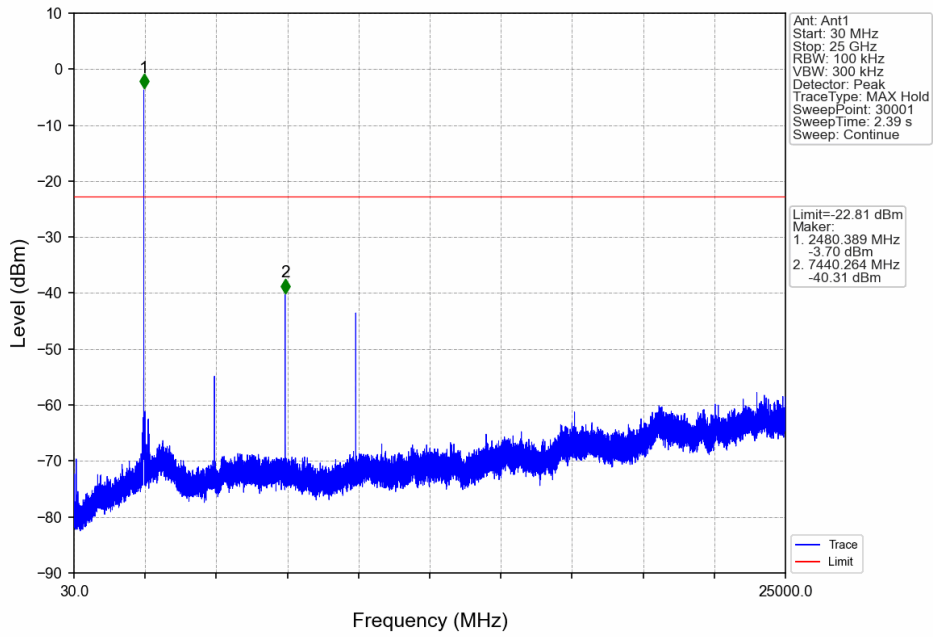
GFSK_DH5_MCH_2441MHz_Ant1_NTNV



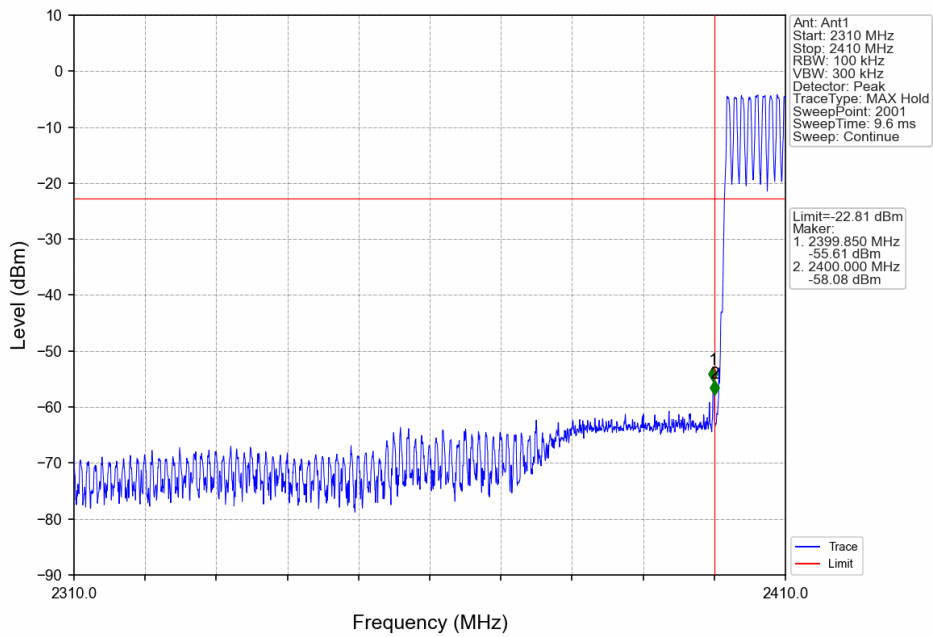
GFSK_DH5_HCH_2480MHz_Ant1_NTNV

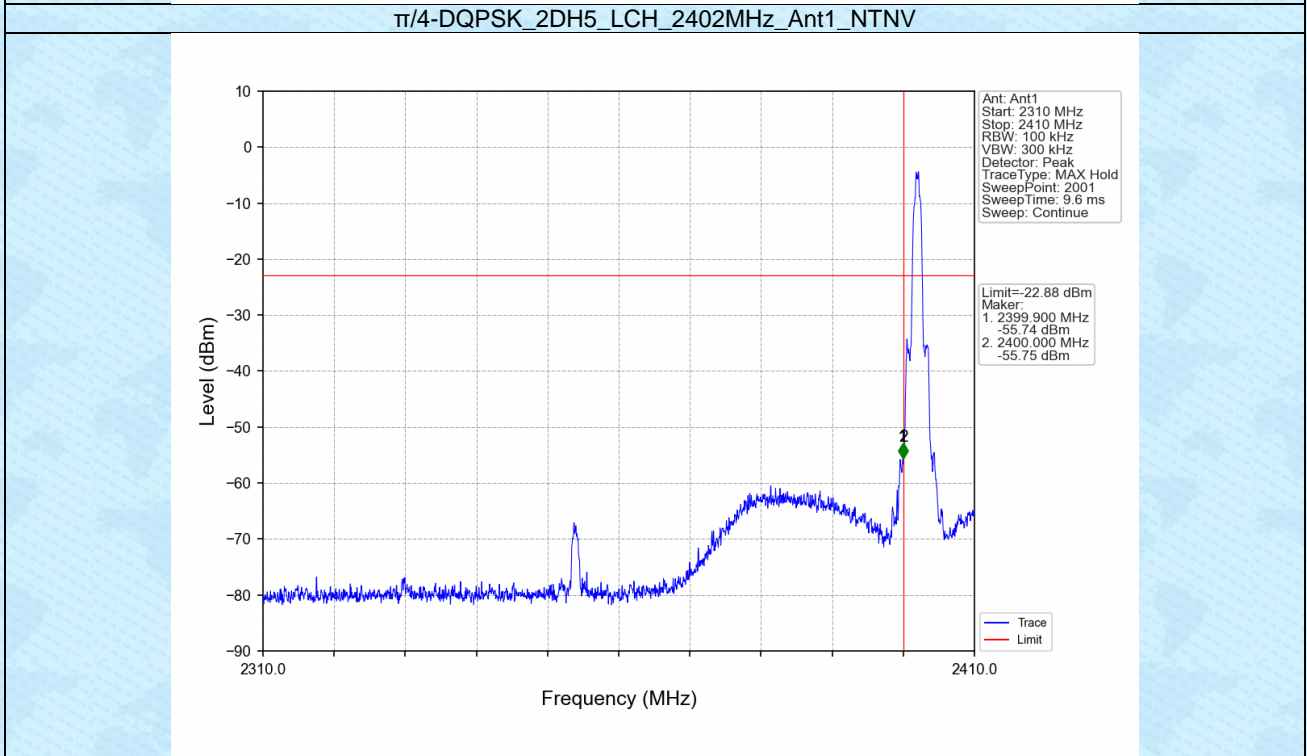
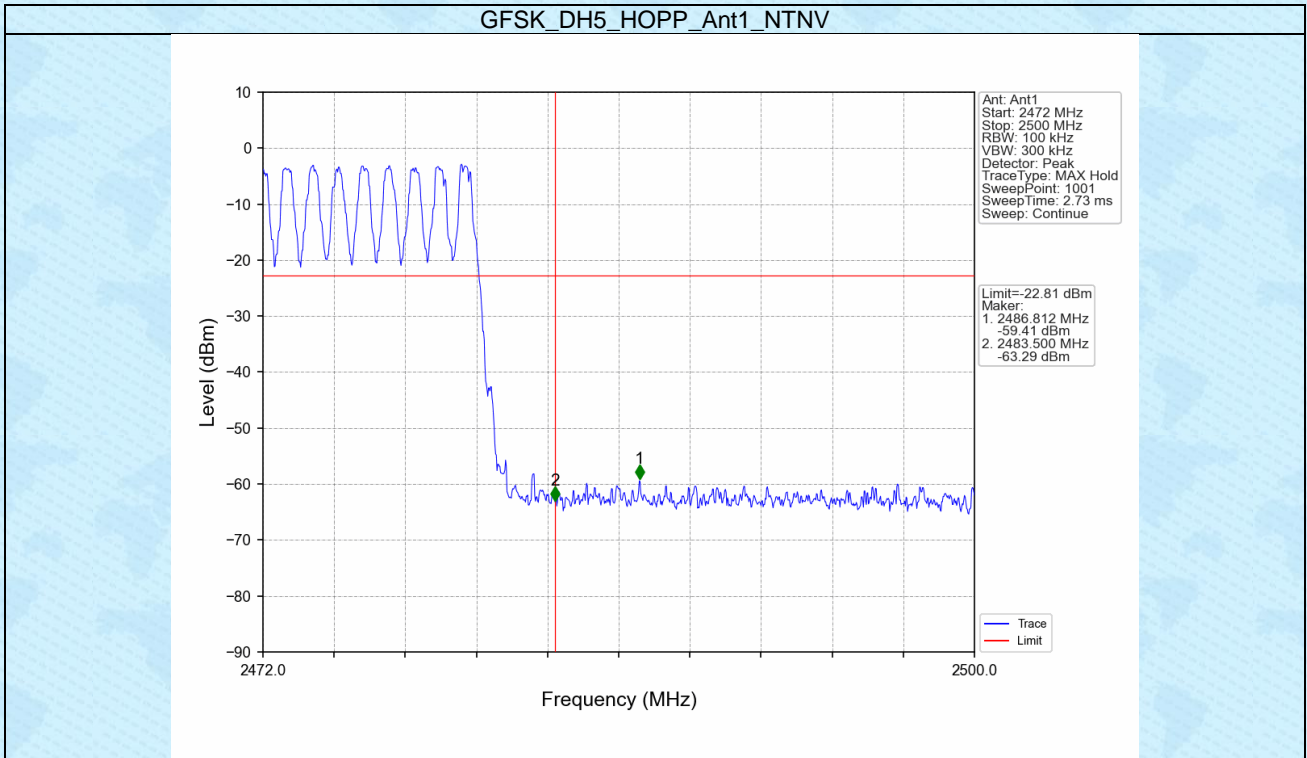


GFSK_DH5_HCH_2480MHz_Ant1_NTNV

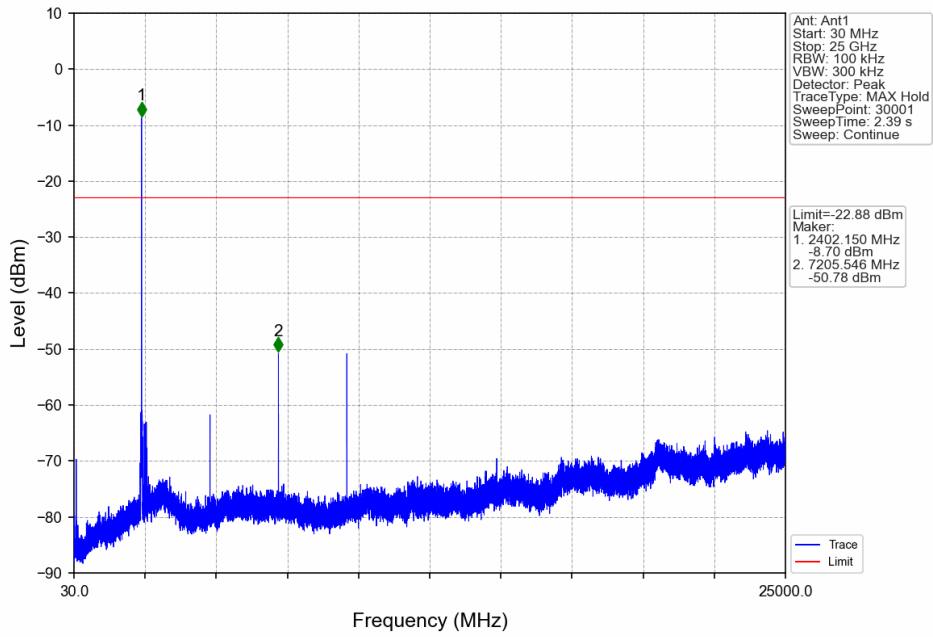


GFSK_DH5_HOPP_Ant1_NTNV

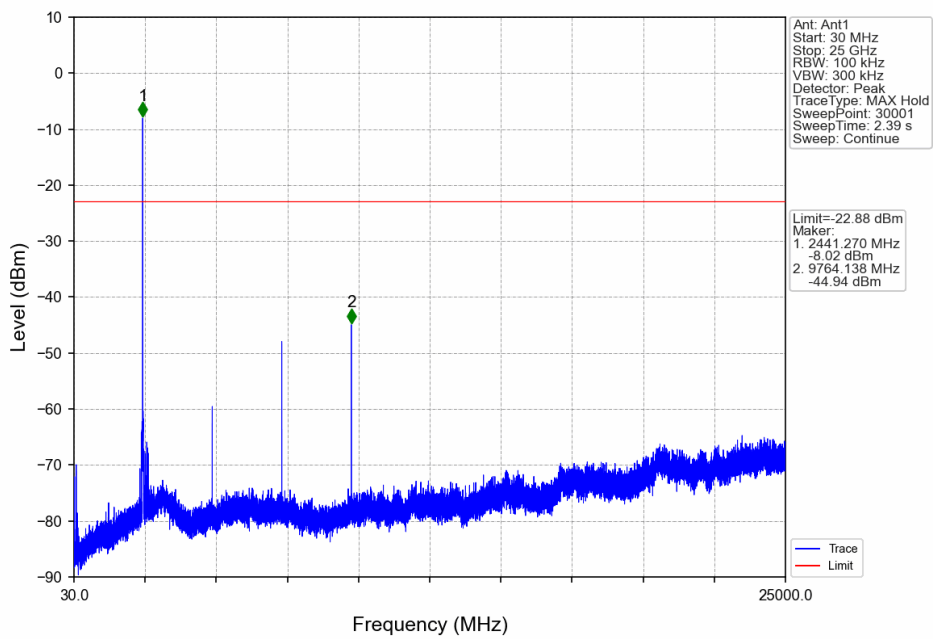




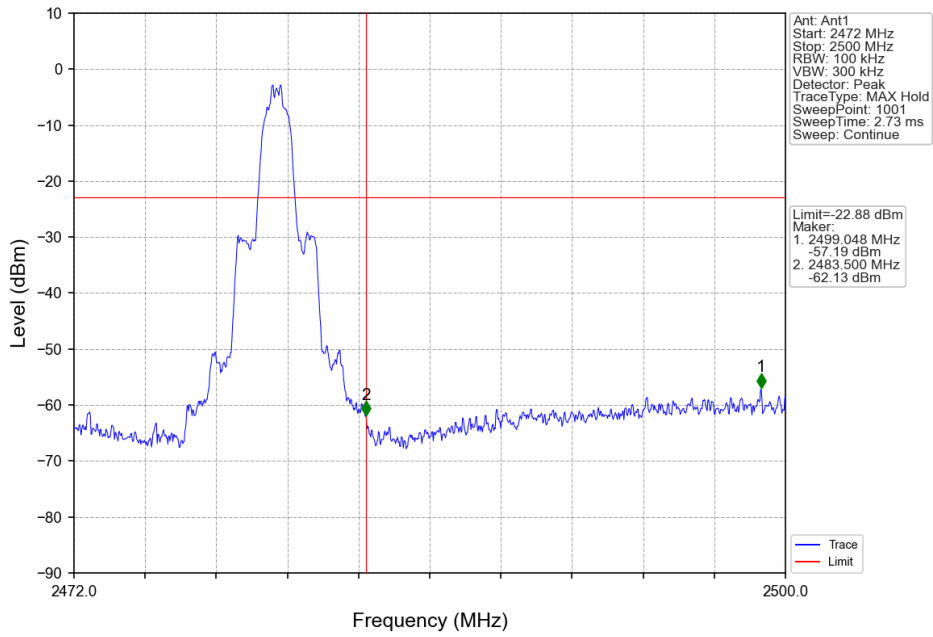
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



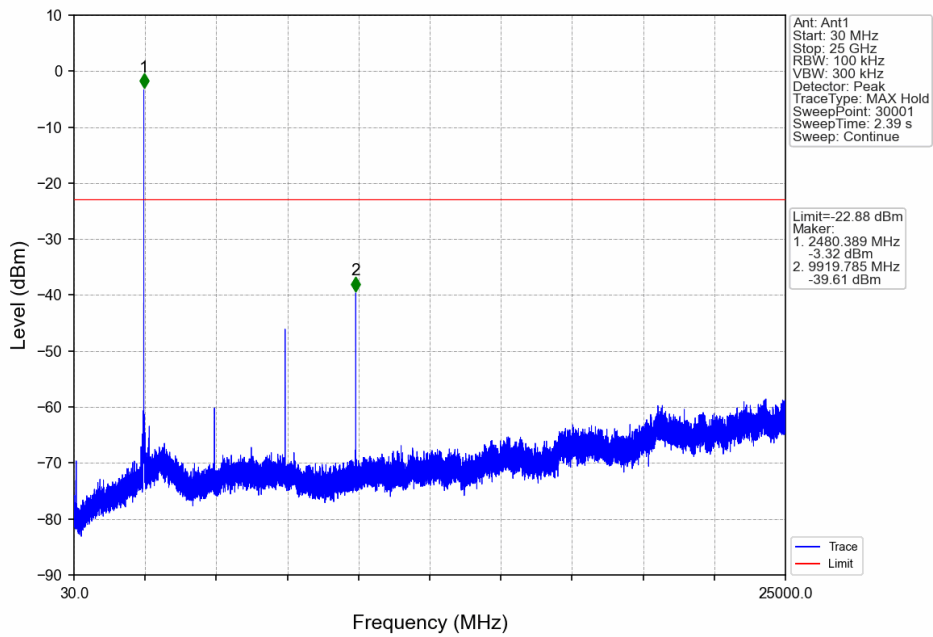
$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV

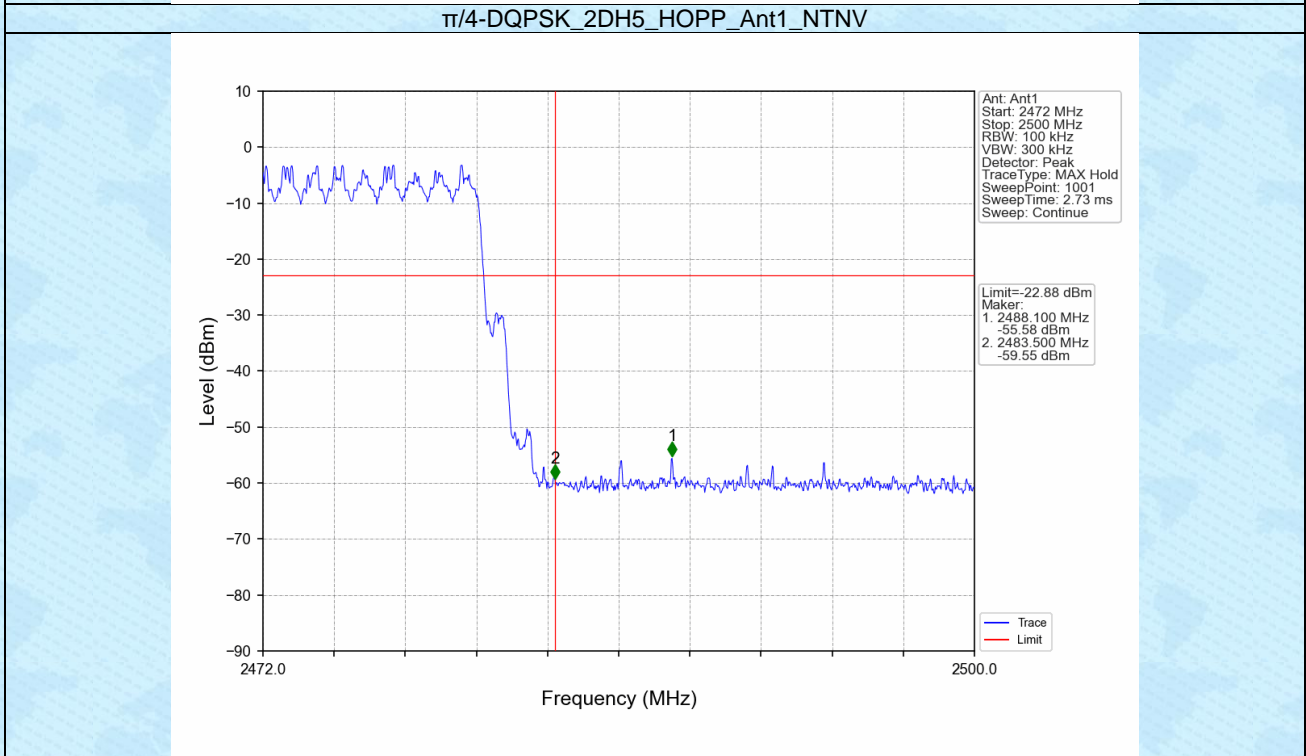
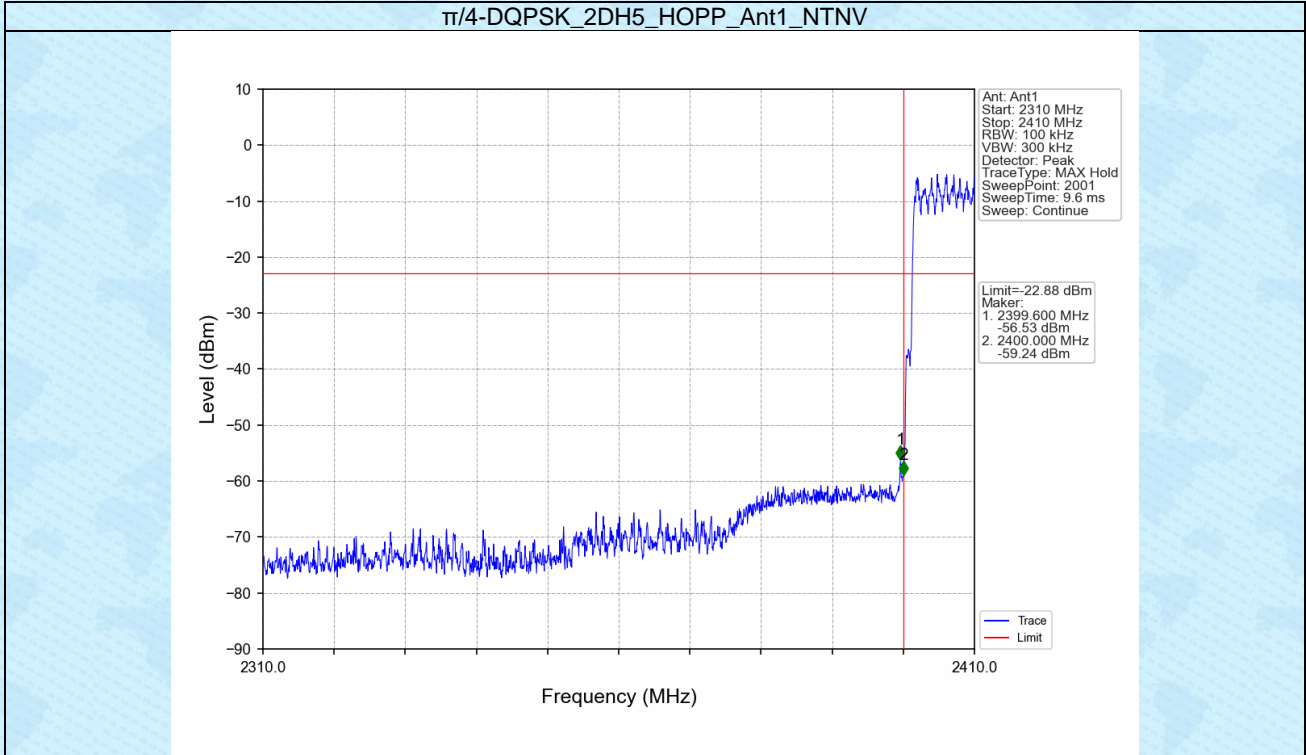


$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV





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