

1. Bandwidth

1.1 Test Result

1.1.1 OBW

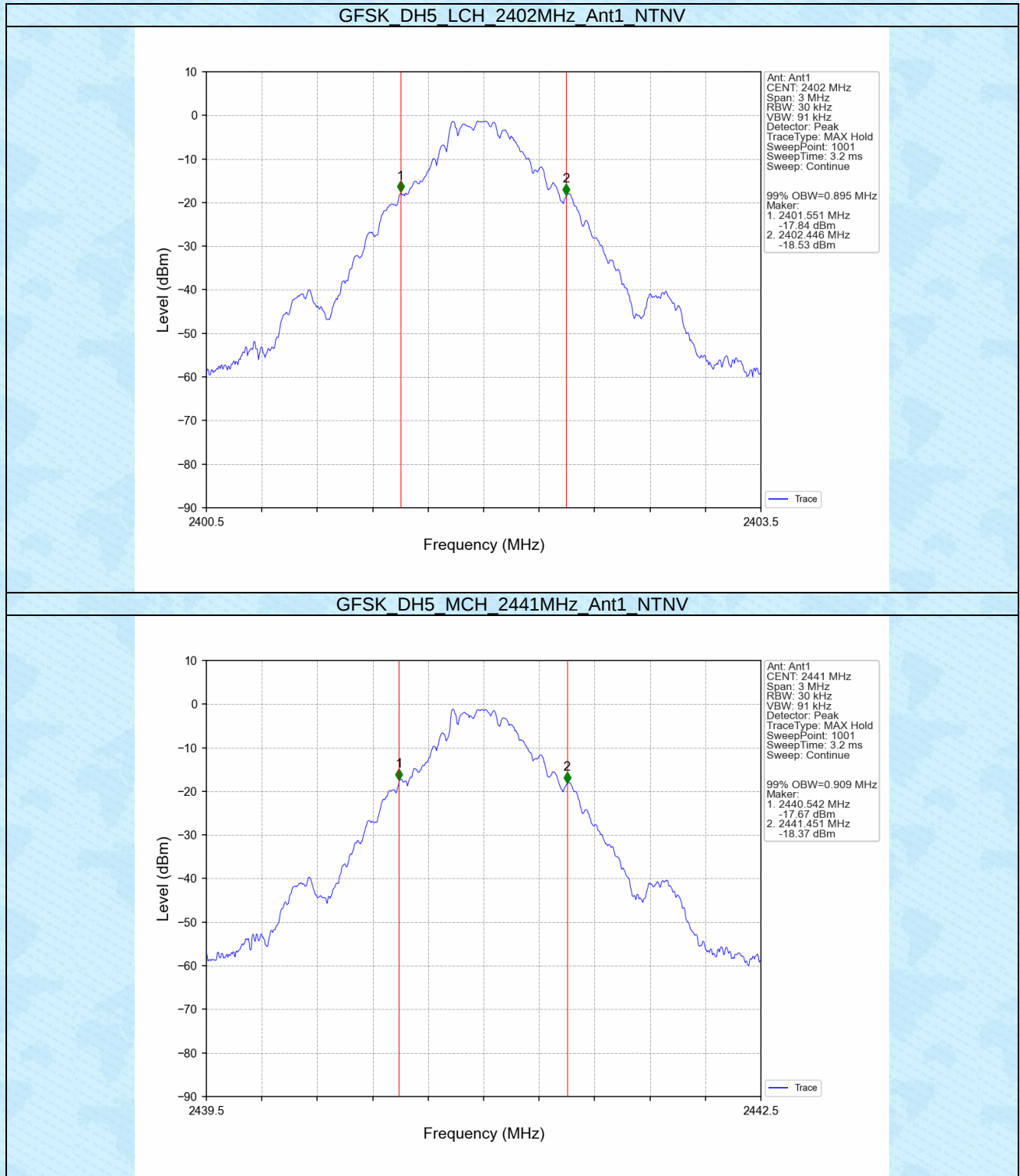
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.895	/	Pass
		2441	DH5	1	0.909	/	Pass
		2480	DH5	1	0.920	/	Pass
π /4DQPSK	SISO	2402	2DH5	1	1.186	/	Pass
		2441	2DH5	1	1.196	/	Pass
		2480	2DH5	1	1.203	/	Pass
8-DPSK	SISO	2402	3DH5	1	1.197	/	Pass
		2441	3DH5	1	1.201	/	Pass
		2480	3DH5	1	1.202	/	Pass

1.1.2 20dB BW

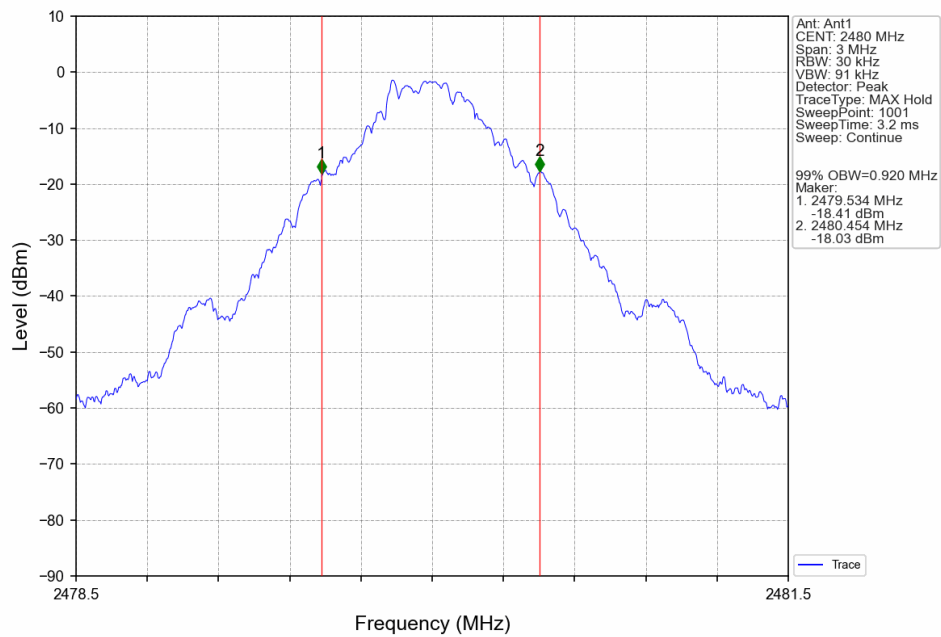
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	1.018	/	Pass
		2441	DH5	1	1.034	/	Pass
		2480	DH5	1	1.043	/	Pass
π /4DQPSK	SISO	2402	2DH5	1	1.321	/	Pass
		2441	2DH5	1	1.325	/	Pass
		2480	2DH5	1	1.328	/	Pass
8-DPSK	SISO	2402	3DH5	1	1.313	/	Pass
		2441	3DH5	1	1.311	/	Pass
		2480	3DH5	1	1.308	/	Pass

1.2 Test Graph

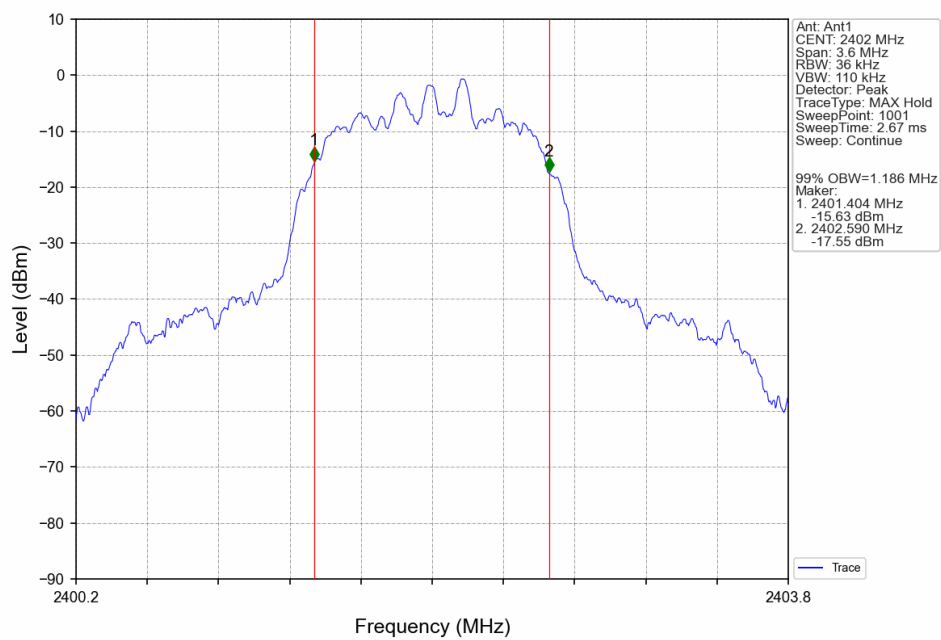
1.2.1 OBW

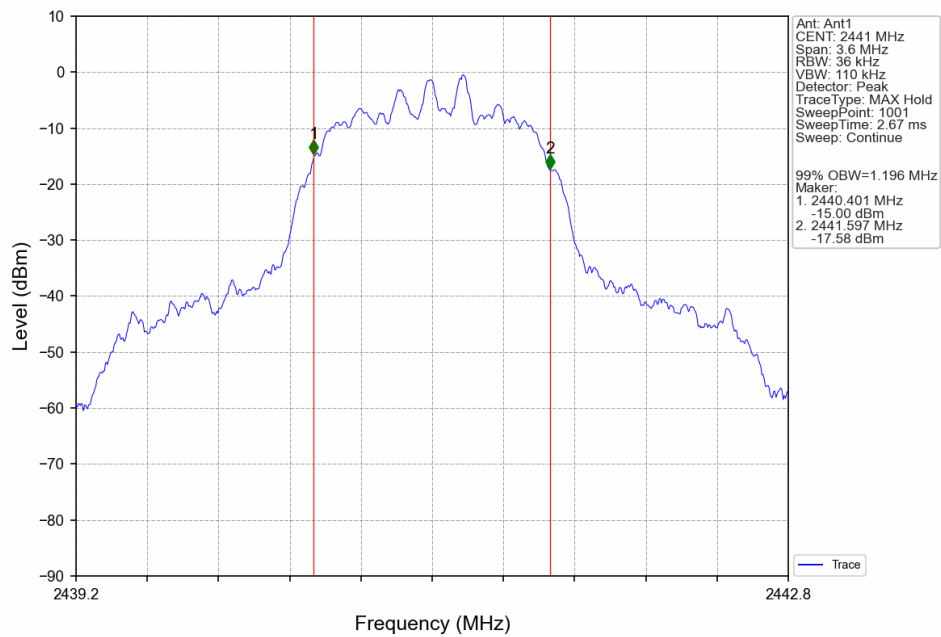
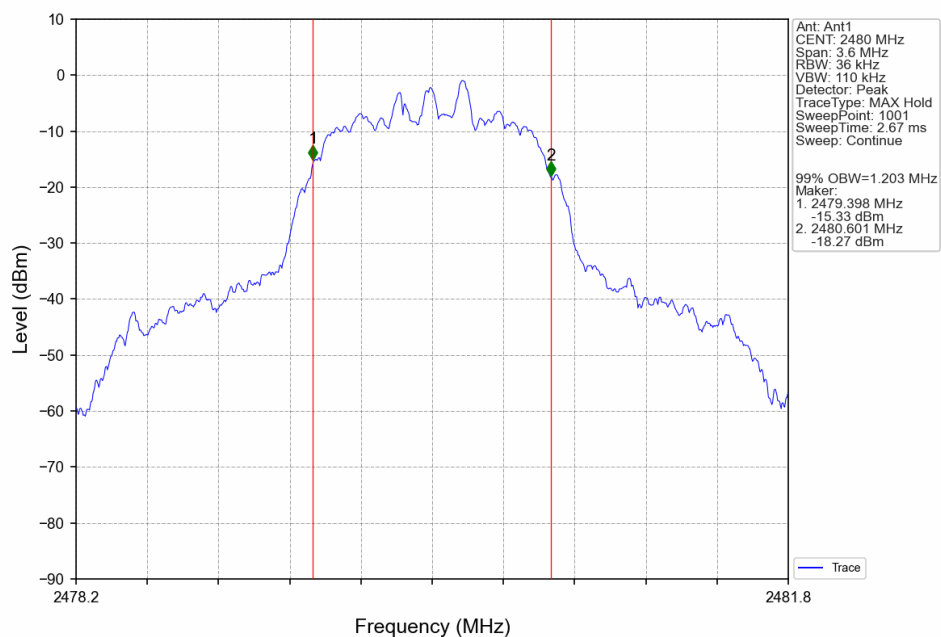


GFSK DH5 HCH 2480MHz Ant1 NTN

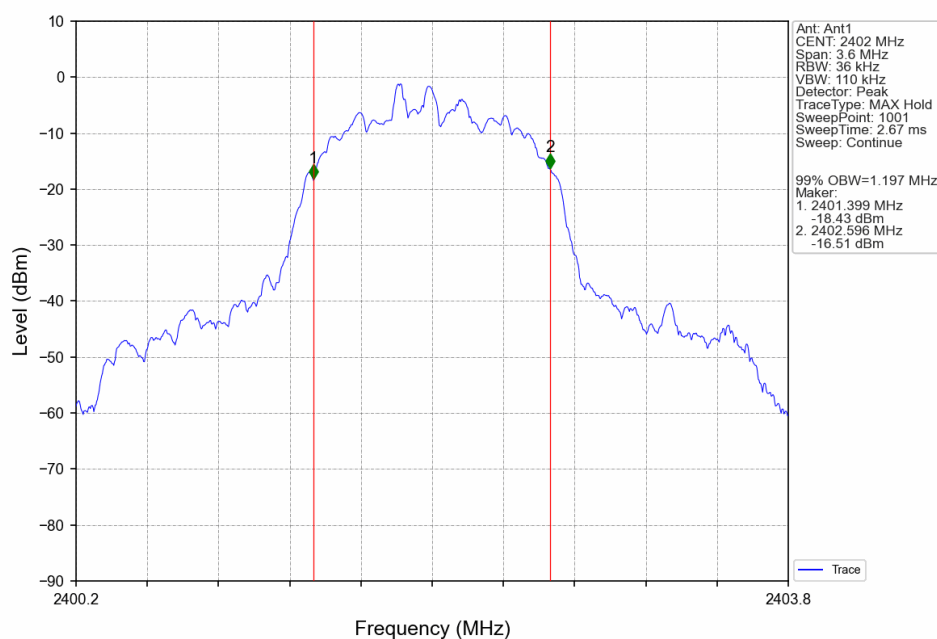


$\pi/4$ DQPSK 2DH5 LCH 2402MHz Ant1 NTN

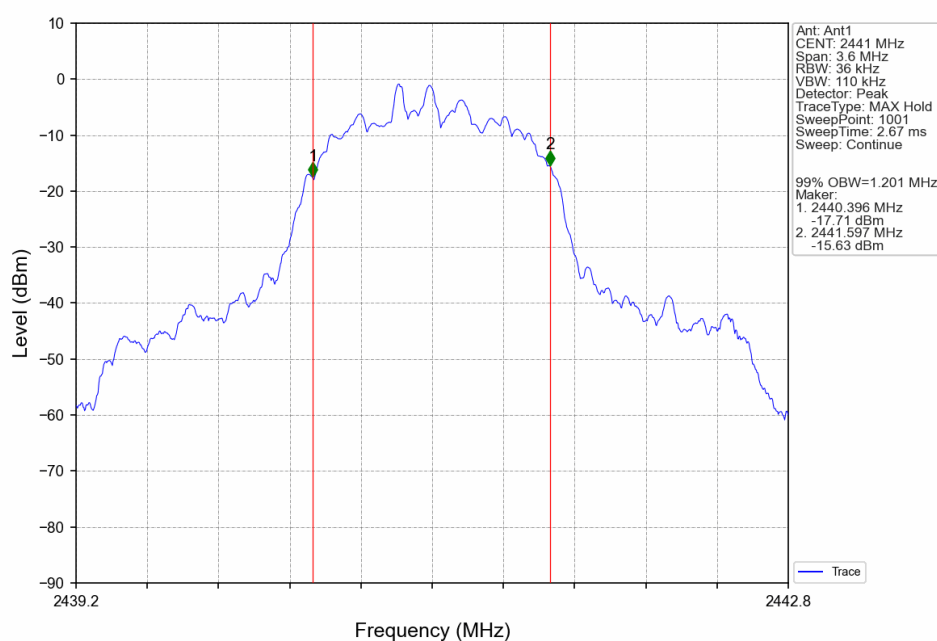


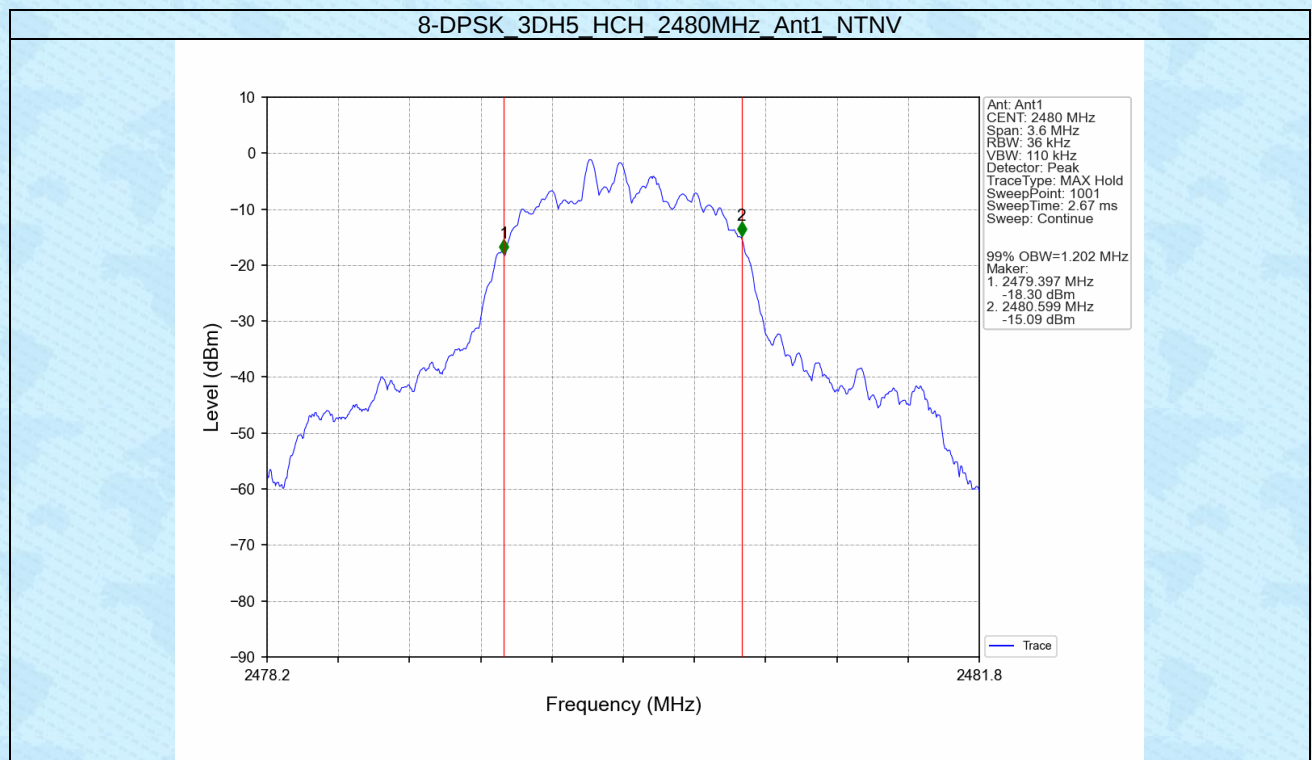
$\pi/4$ DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV $\pi/4$ DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

8-DPSK 3DH5 LCH 2402MHz Ant1 NTV

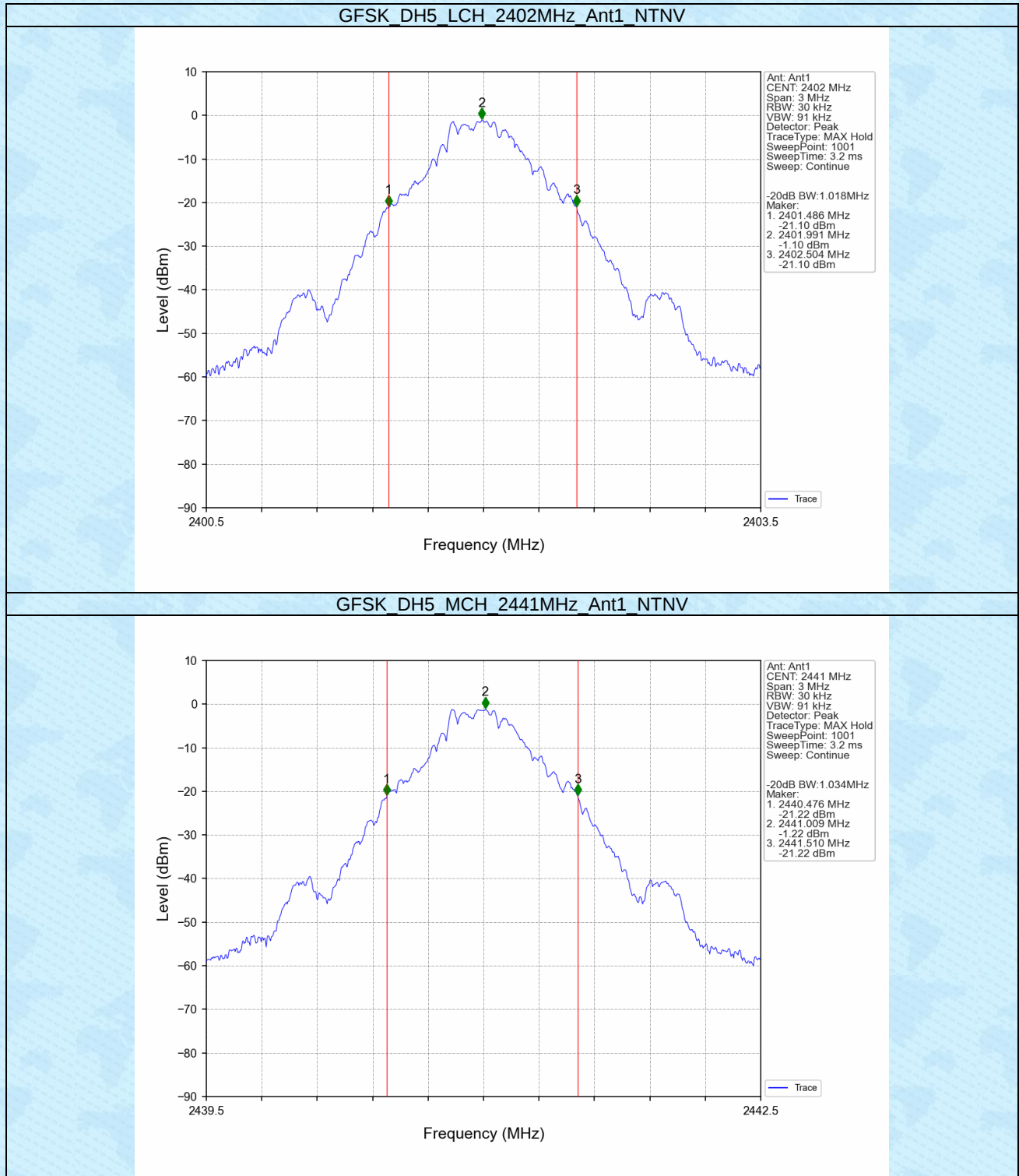


8-DPSK 3DH5 MCH 2441MHz Ant1 NTV

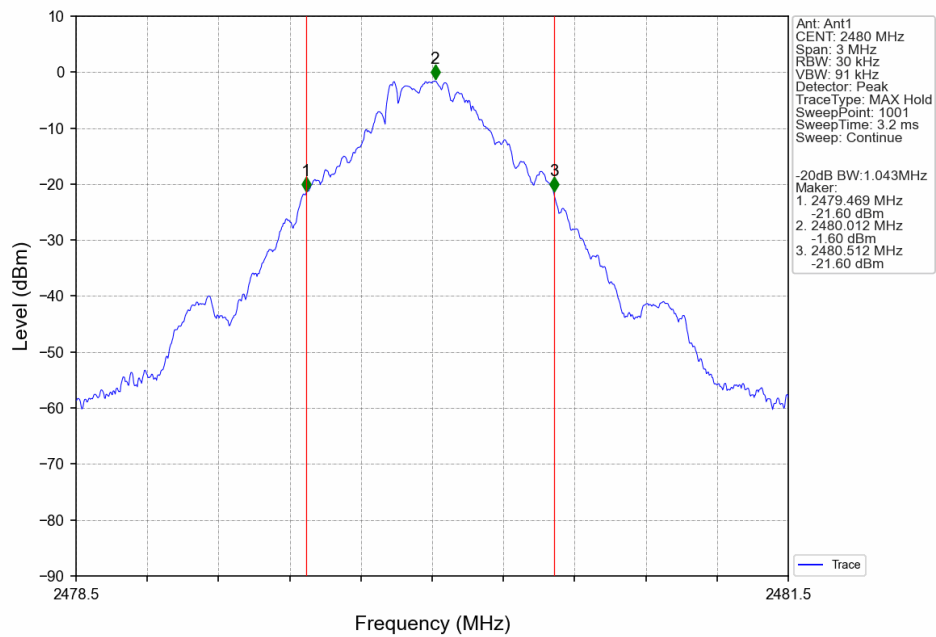
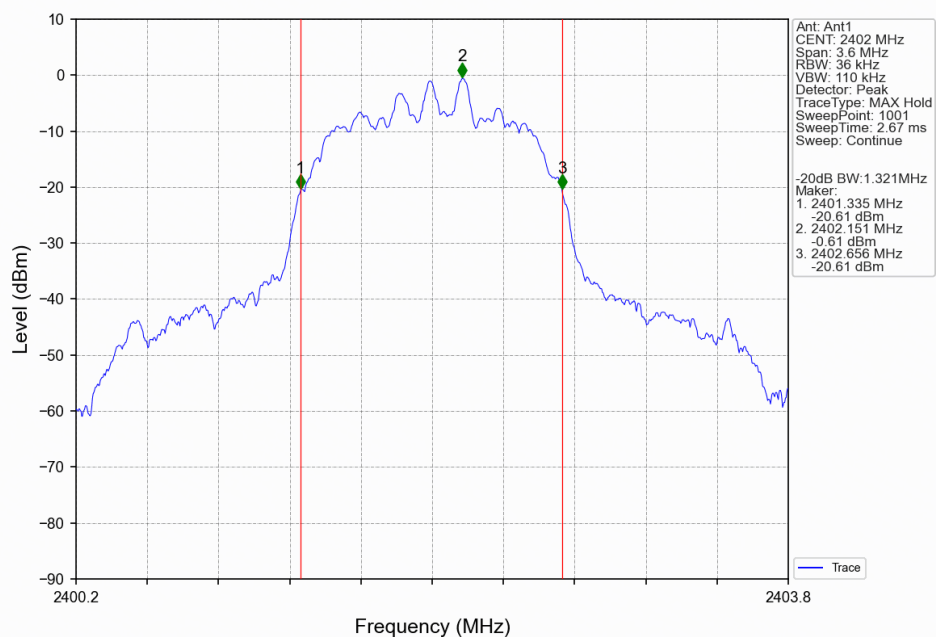


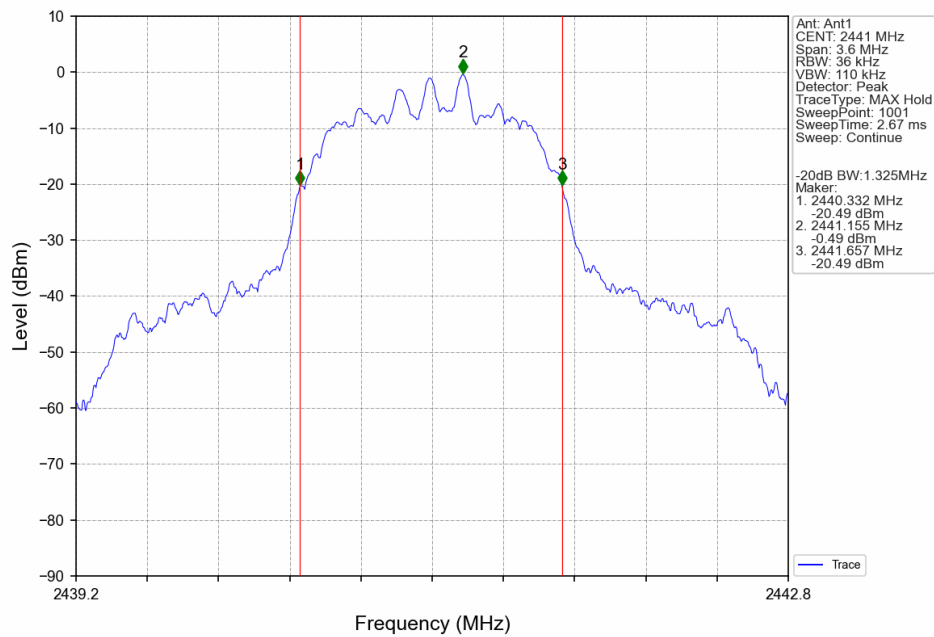
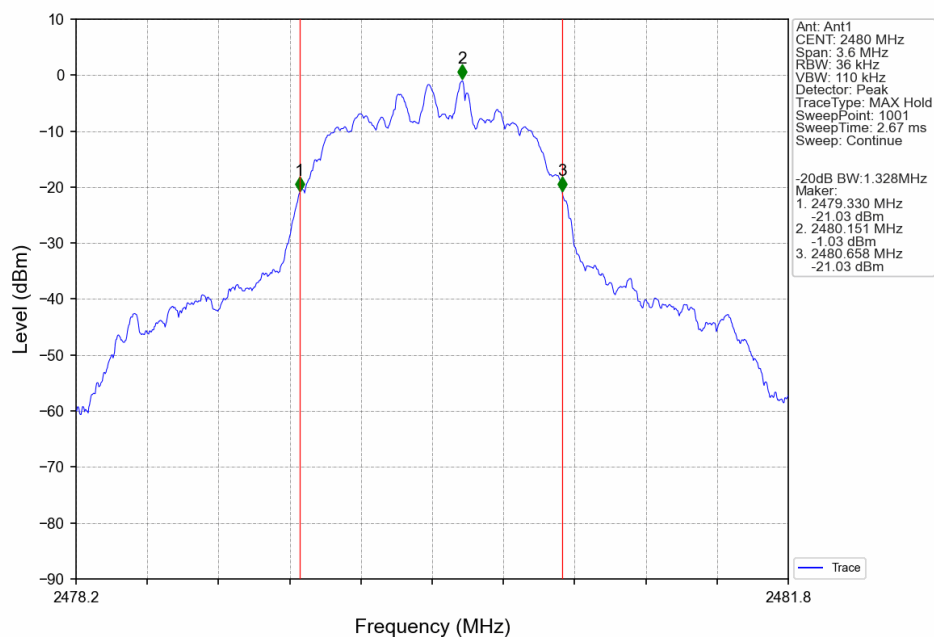


1.2.2 20dB BW

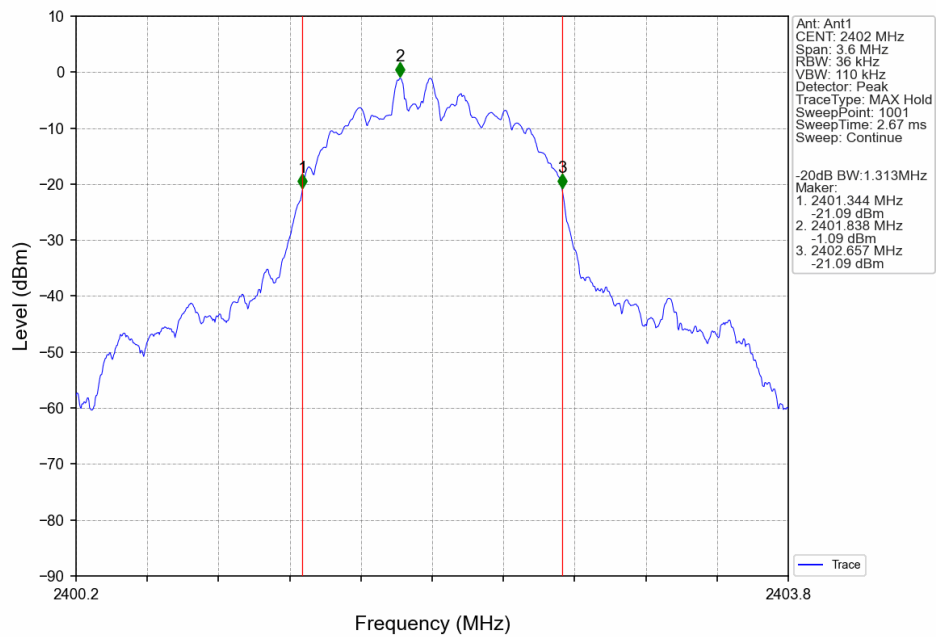


GFSK_DH5_HCH_2480MHz_Ant1_NTNV

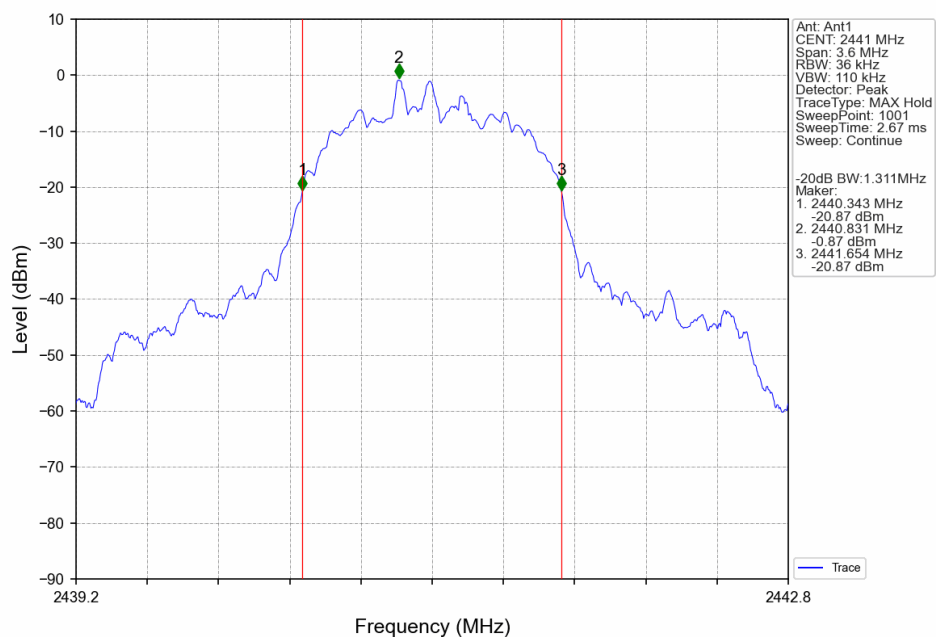
 $\pi/4$ DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV

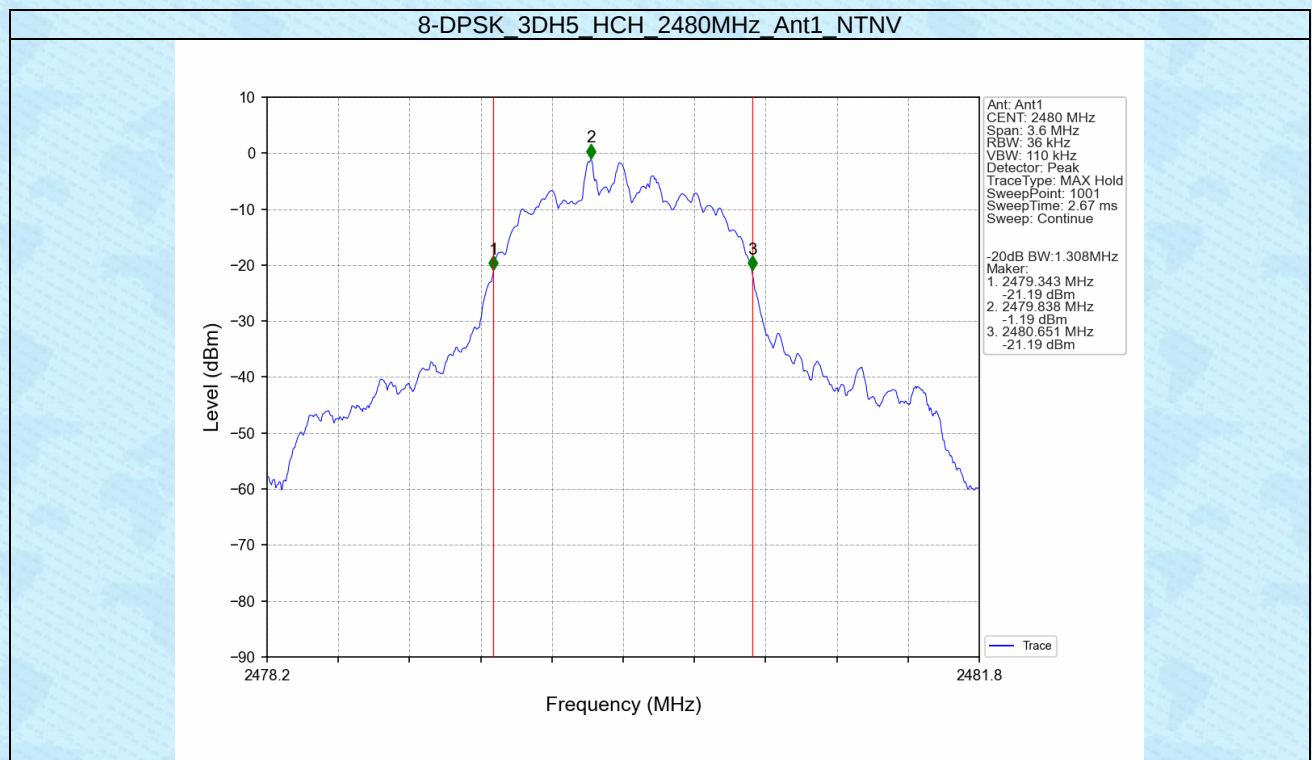
$\pi/4$ DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV $\pi/4$ DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

8-DPSK 3DH5 LCH 2402MHz Ant1_NTNV



8-DPSK 3DH5 MCH 2441MHz Ant1_NTNV



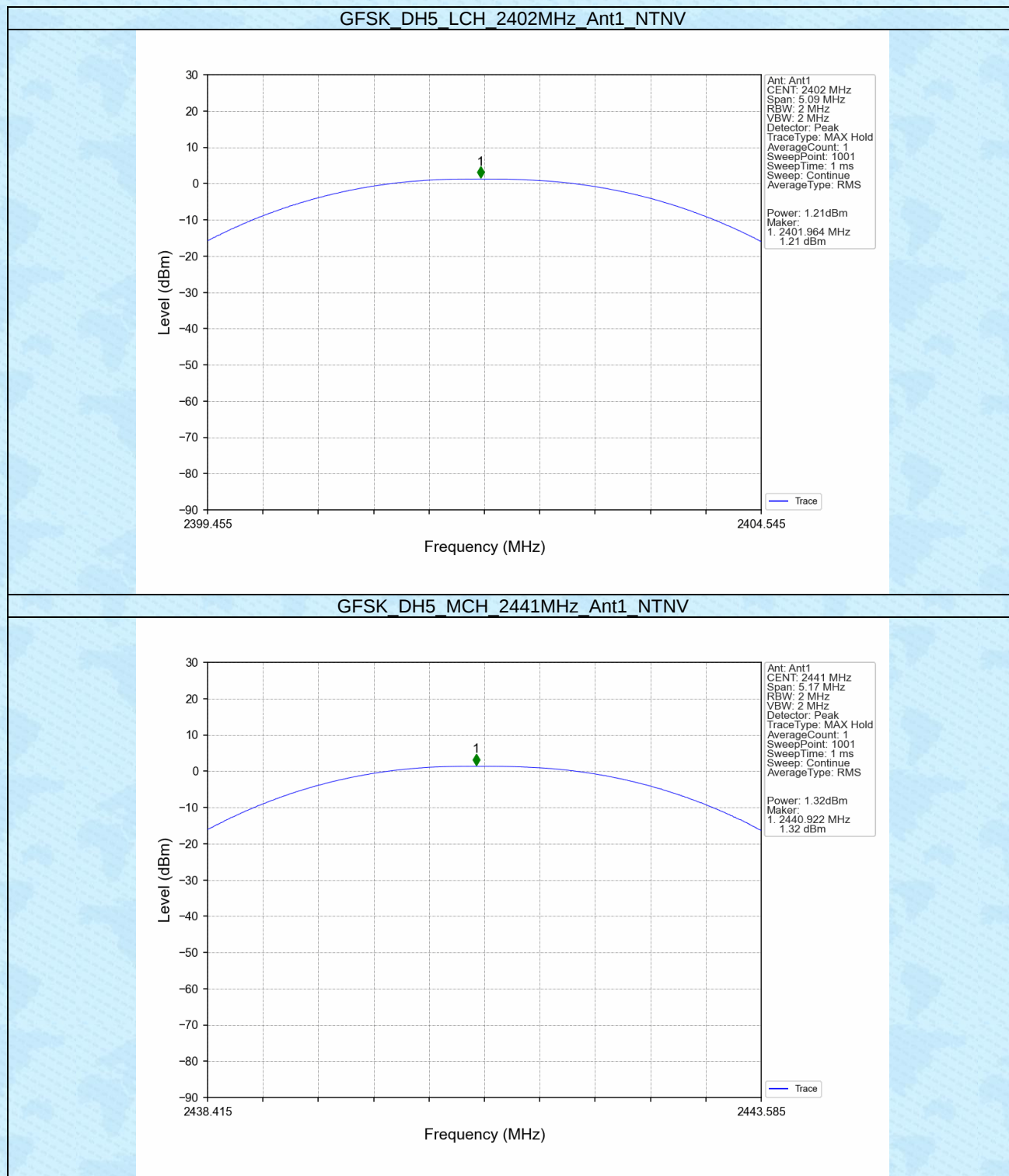


2. Maximum Conducted Output Power

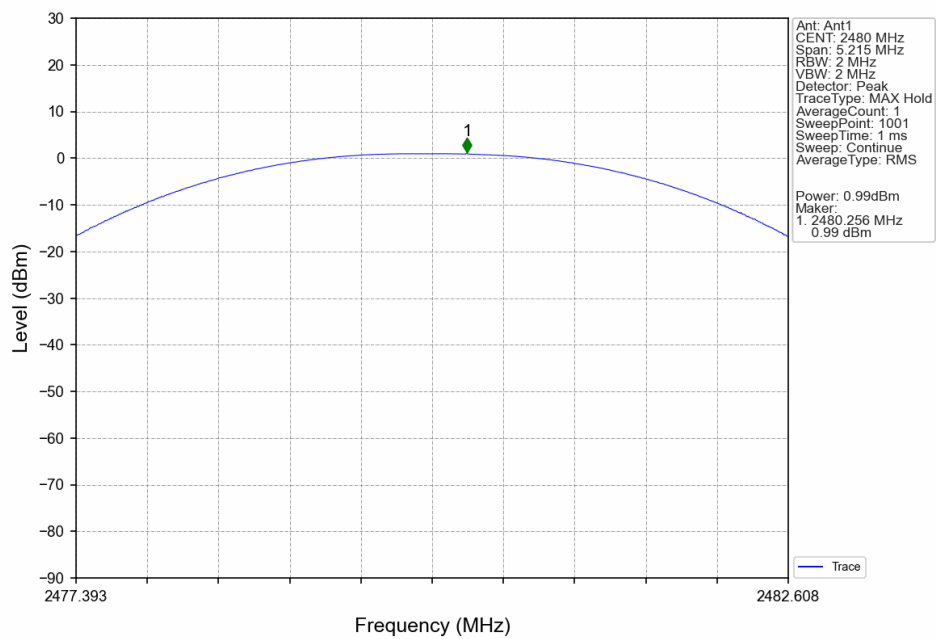
2.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	1.21	<=20.97	Pass
		2441	DH5	1.32	<=20.97	Pass
		2480	DH5	0.99	<=20.97	Pass
$\pi/4$ DQPSK	SISO	2402	2DH5	1.71	<=20.97	Pass
		2441	2DH5	1.84	<=20.97	Pass
		2480	2DH5	1.48	<=20.97	Pass
8-DPSK	SISO	2402	3DH5	2.03	<=20.97	Pass
		2441	3DH5	2.14	<=20.97	Pass
		2480	3DH5	1.76	<=20.97	Pass

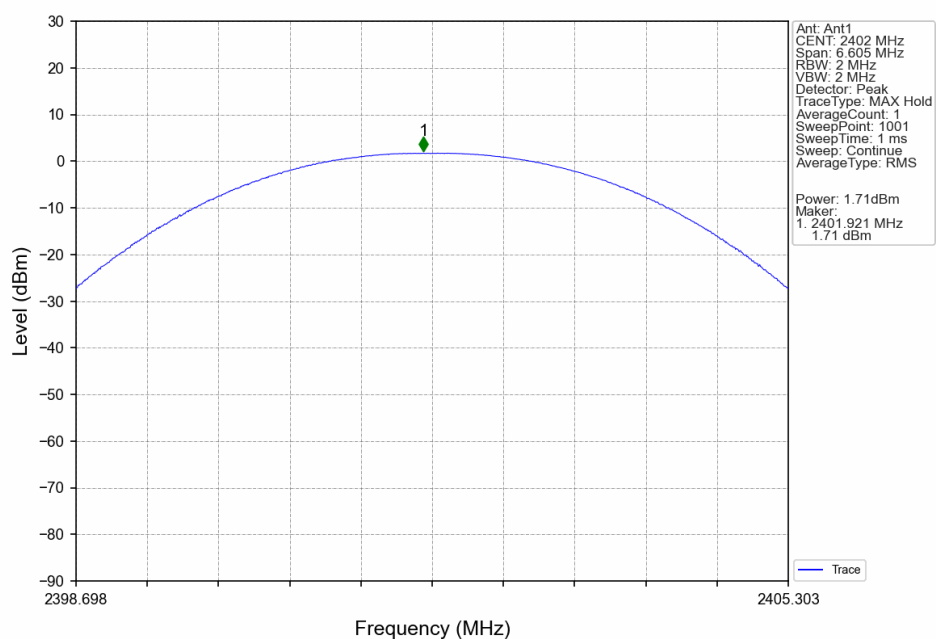
2.2 Test Graph



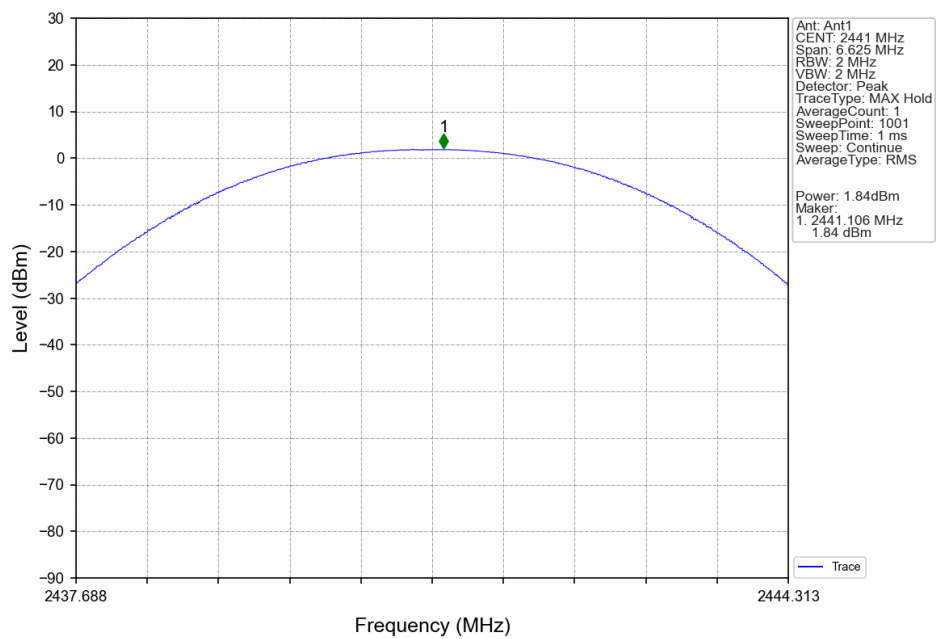
GFSK DH5 HCH 2480MHz Ant1 NTN



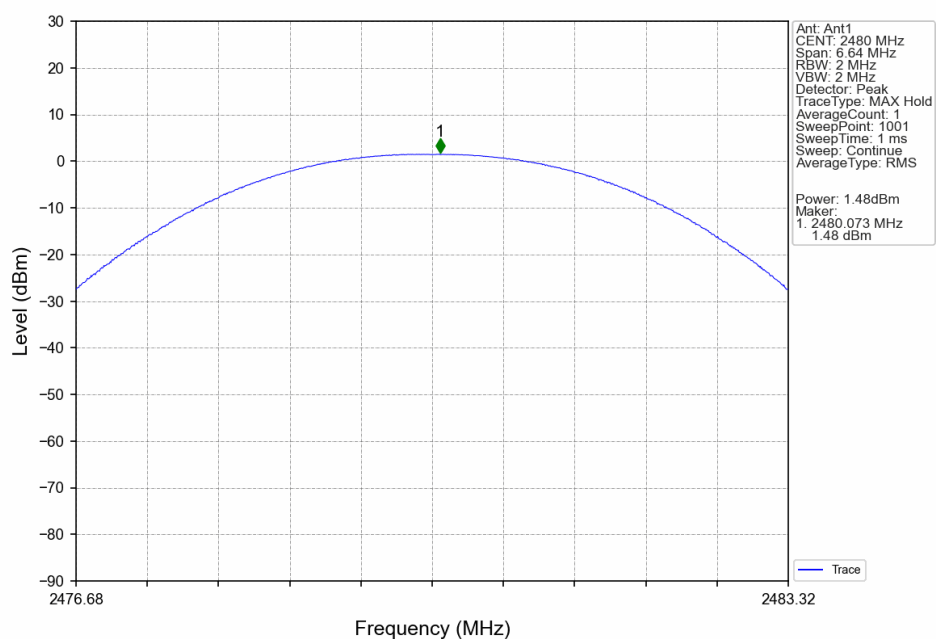
$\pi/4$ DQPSK 2DH5 LCH 2402MHz Ant1 NTN



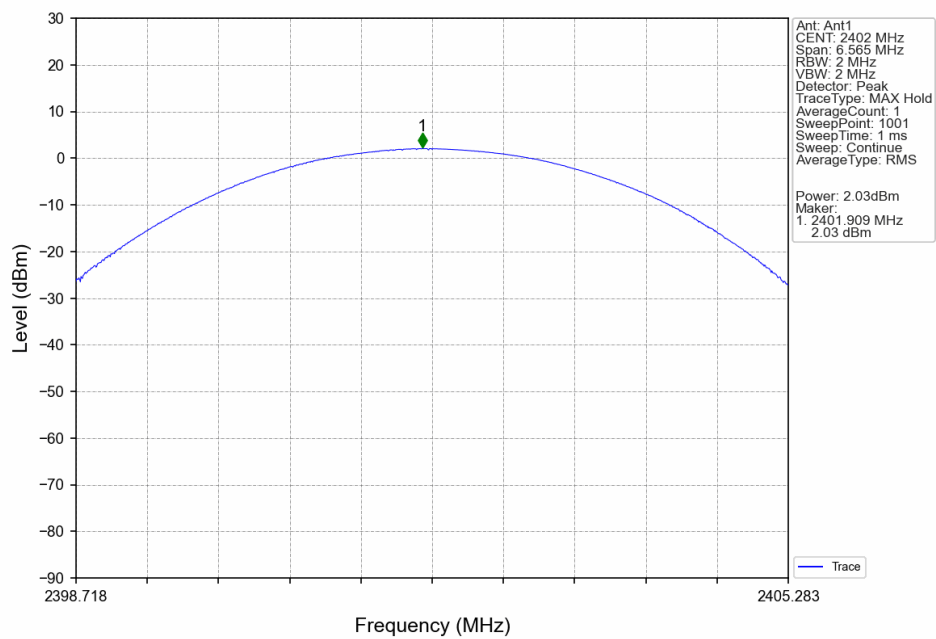
$\pi/4$ DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



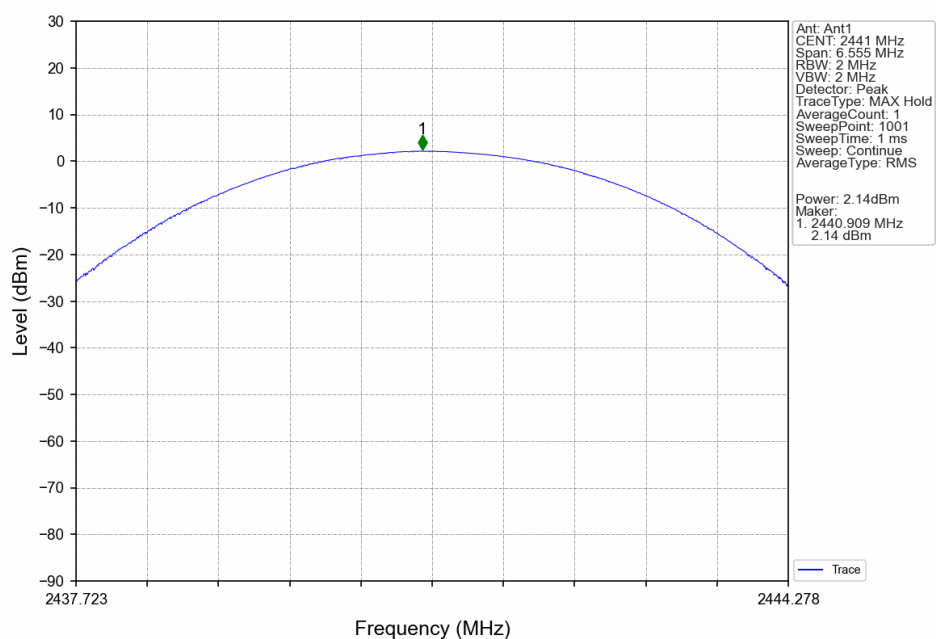
$\pi/4$ DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

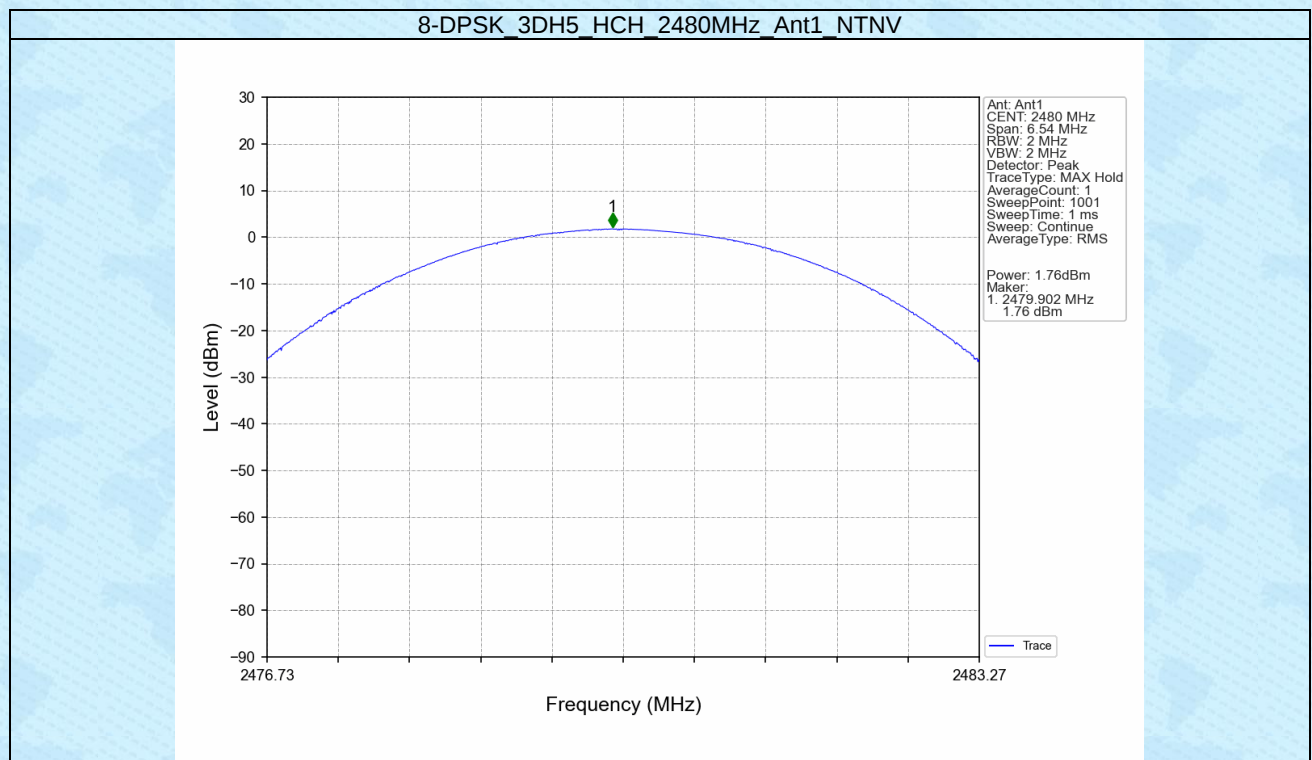


8-DPSK 3DH5 LCH 2402MHz Ant1 NTN



8-DPSK 3DH5 MCH 2441MHz Ant1 NTN



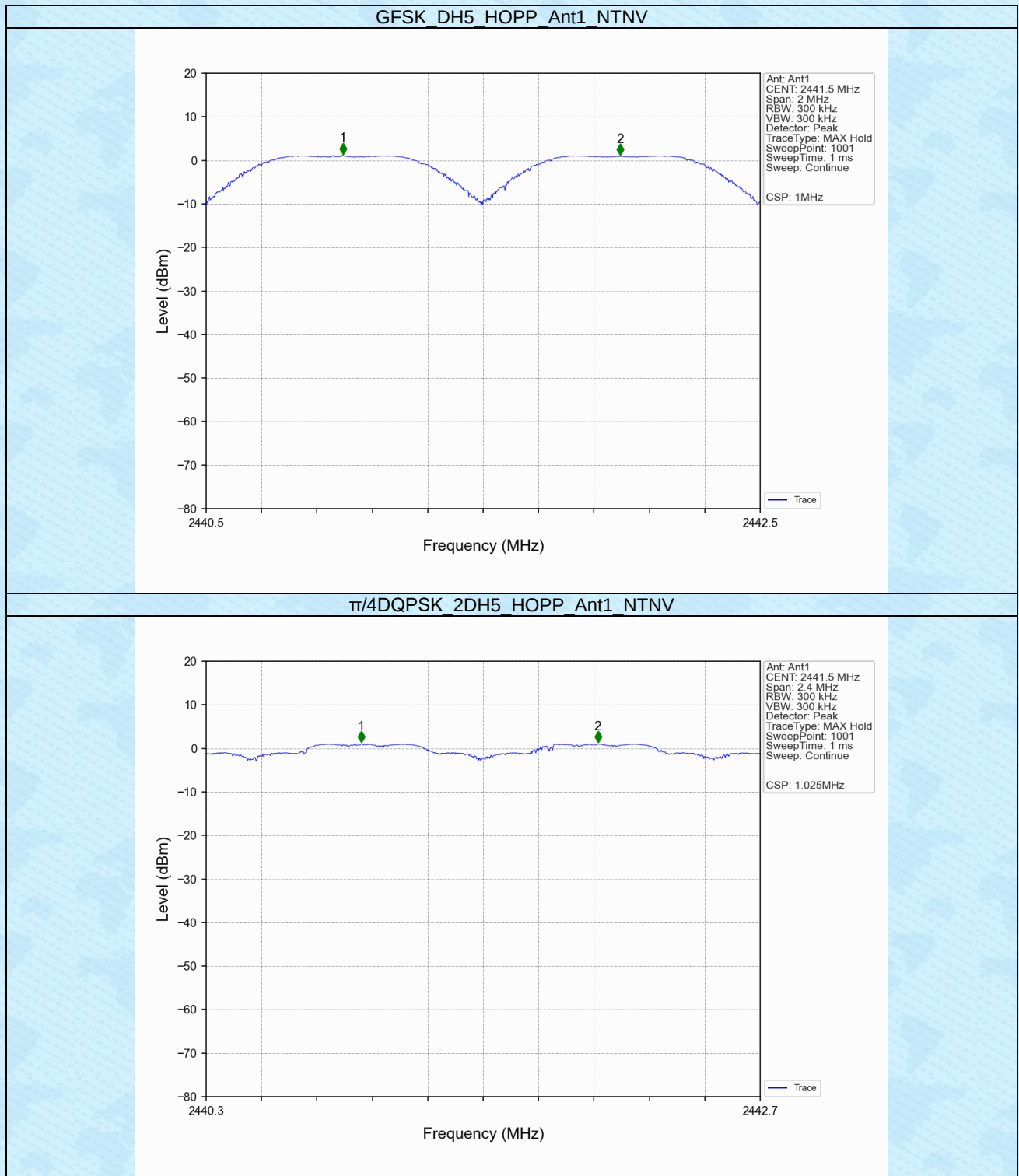


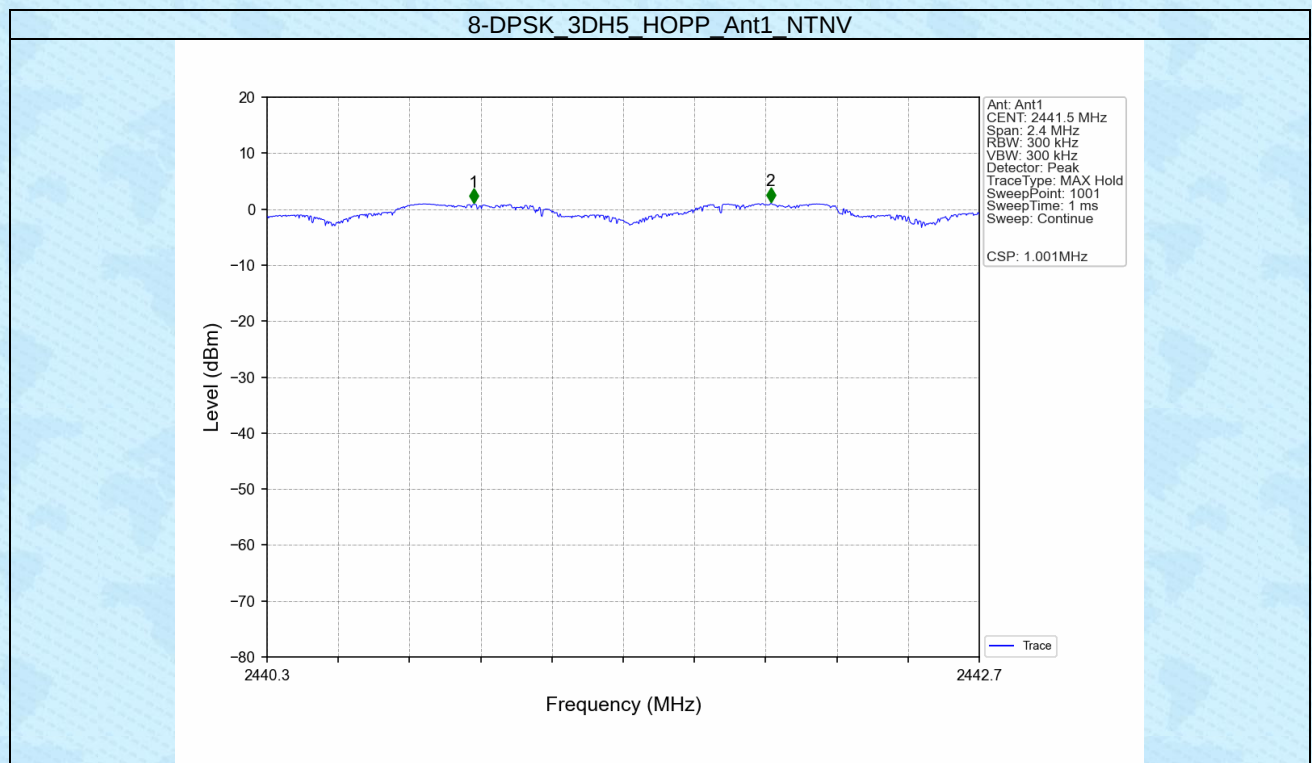
3. Carrier Frequency Separation

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	1.000	1.043	≥ 0.695	Pass
$\pi/4$ DQPSK	SISO	HOPP	2DH5	1.025	1.328	≥ 0.885	Pass
8-DPSK	SISO	HOPP	3DH5	1.001	1.313	≥ 0.875	Pass

3.2 Test Graph



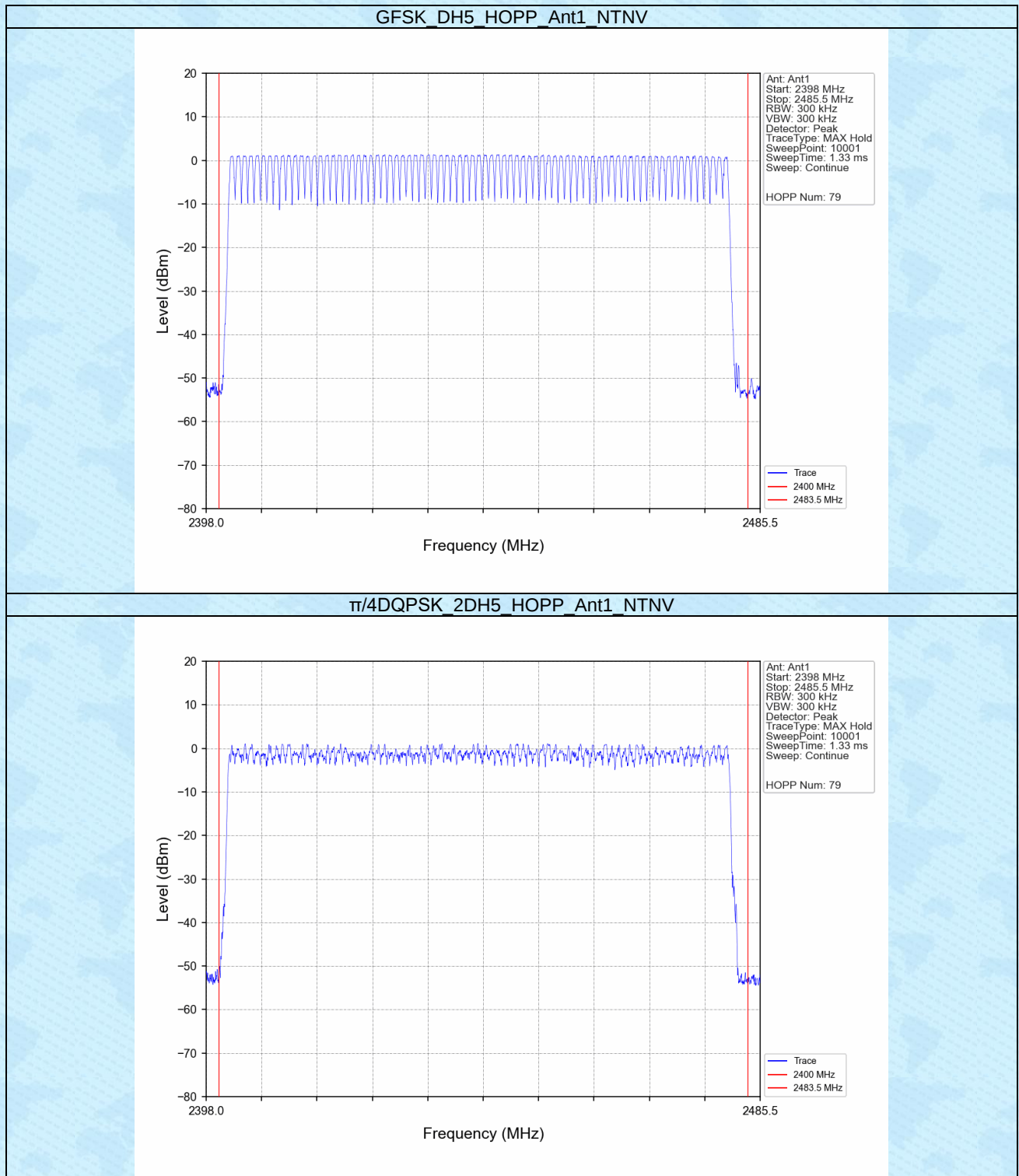


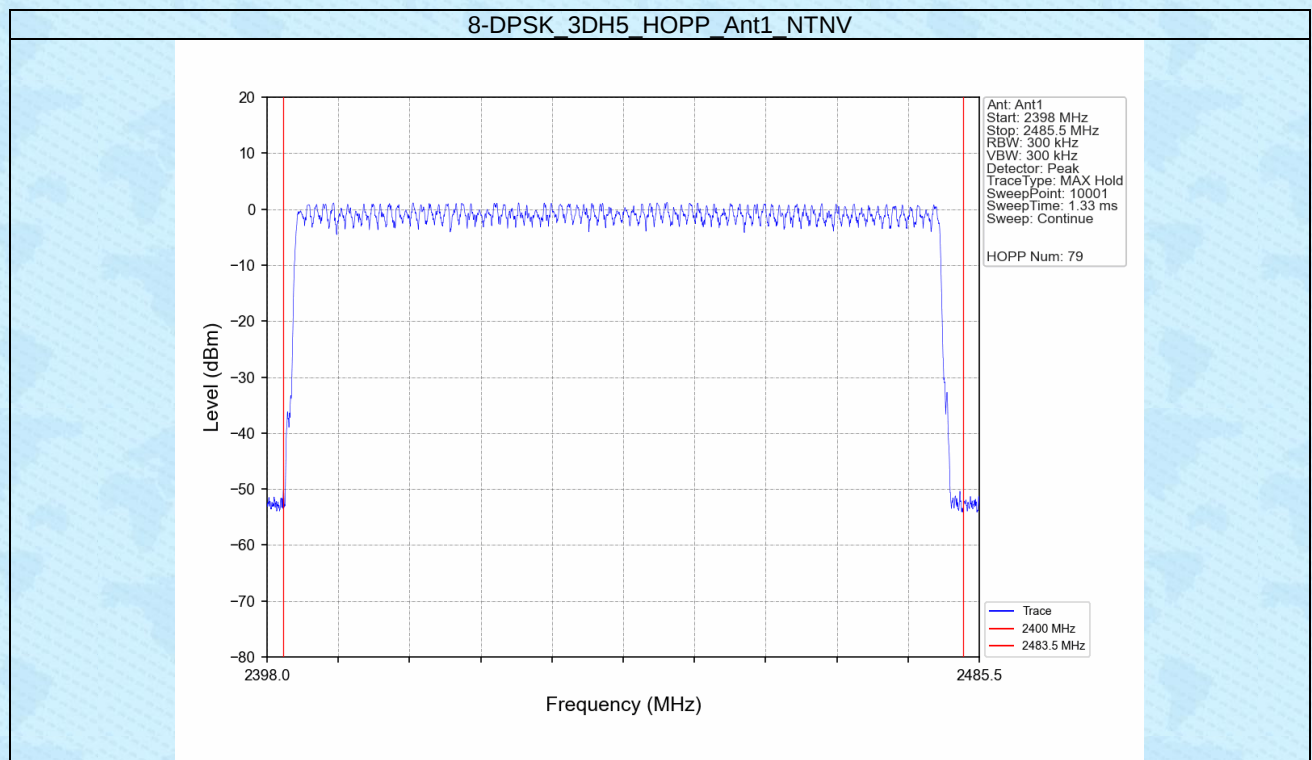
4. Number of Hopping Frequencies

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



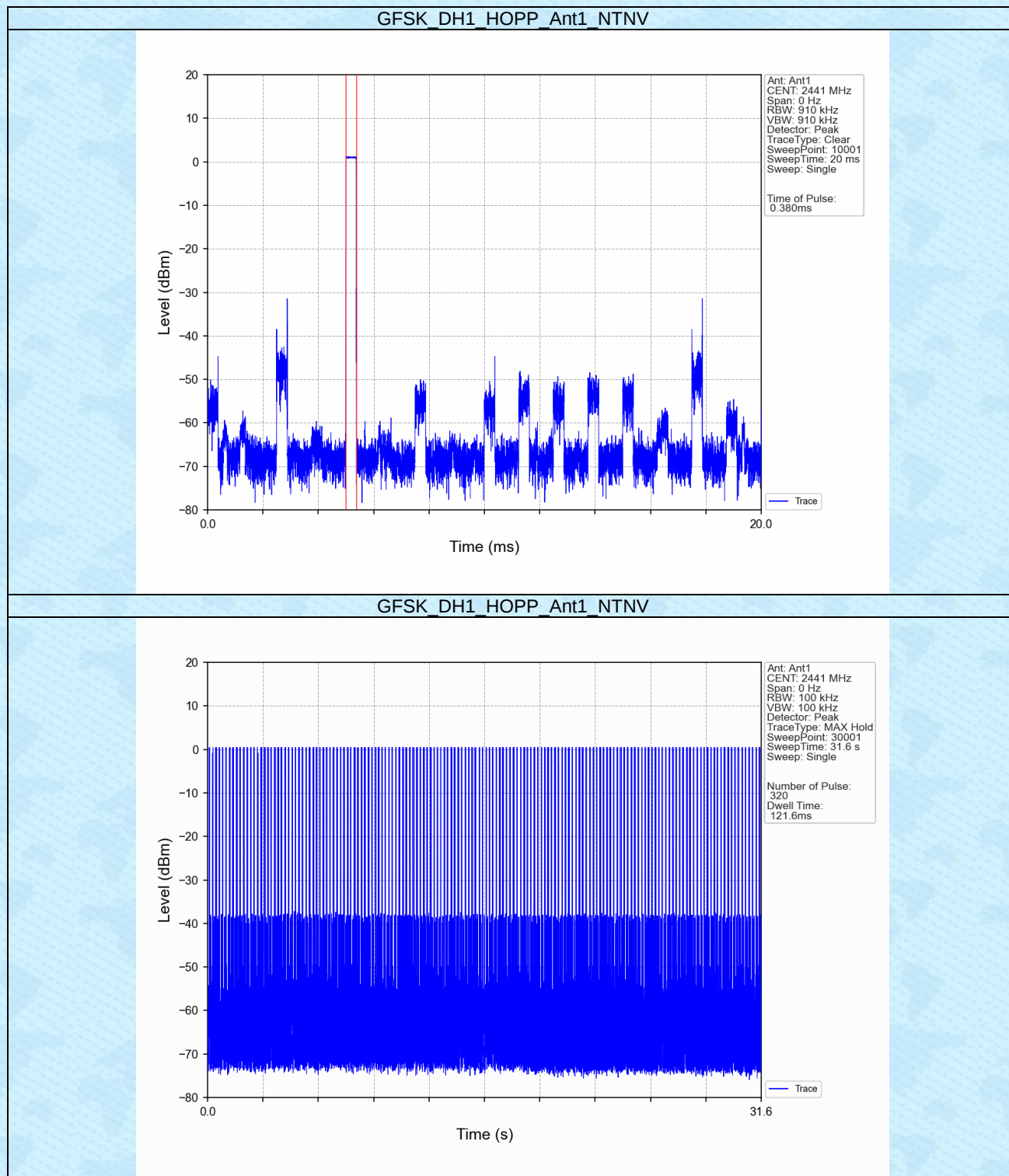


5. Time of Occupancy (Dwell Time)

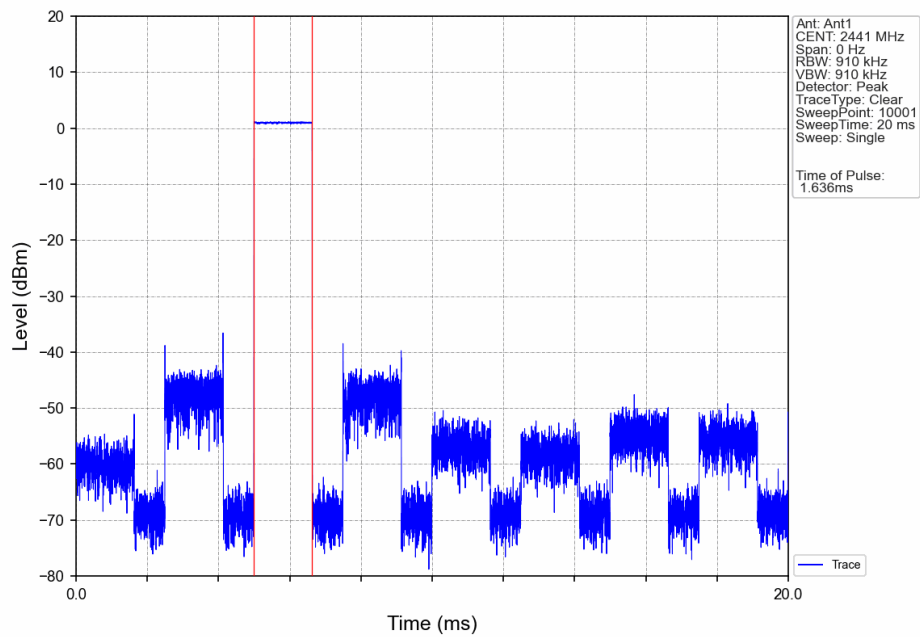
5.1 Test Result

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	0.380	31.600	320	121.600	<=400	Pass
			DH3	1.636	31.600	168	274.848	<=400	Pass
			DH5	2.890	31.600	100	289.000	<=400	Pass
$\pi/4$ DQPSK	SISO	HOPP	2DH1	0.390	31.600	319	124.410	<=400	Pass
			2DH3	1.648	31.600	165	271.920	<=400	Pass
			2DH5	2.888	31.600	103	297.464	<=400	Pass
8-DPSK	SISO	HOPP	3DH1	0.390	31.600	319	124.410	<=400	Pass
			3DH3	1.642	31.600	157	257.794	<=400	Pass
			3DH5	2.890	31.600	101	291.890	<=400	Pass

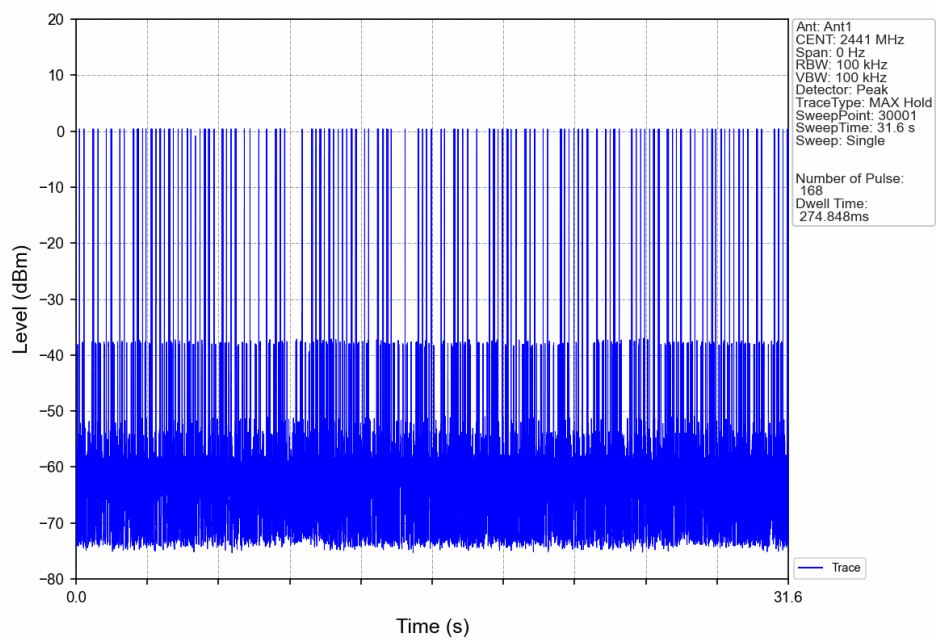
5.2 Test Graph



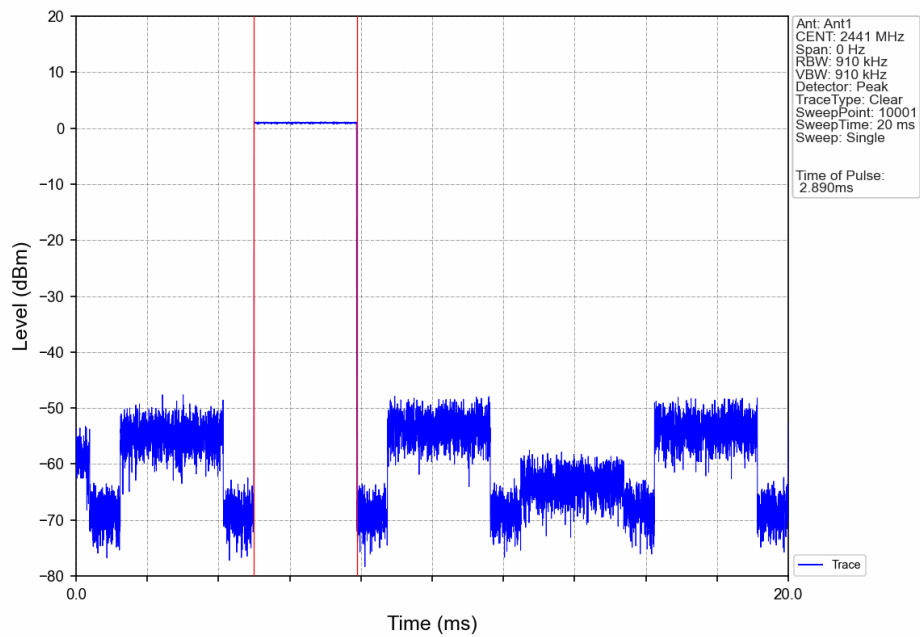
GFSK DH3 HOPP Ant1 NTN



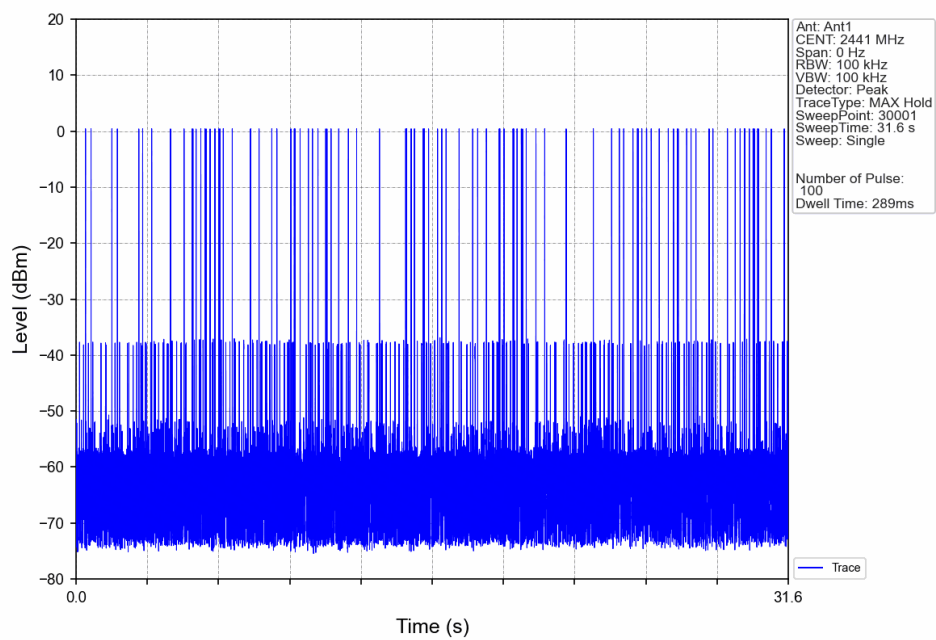
GFSK DH3 HOPP Ant1 NTN



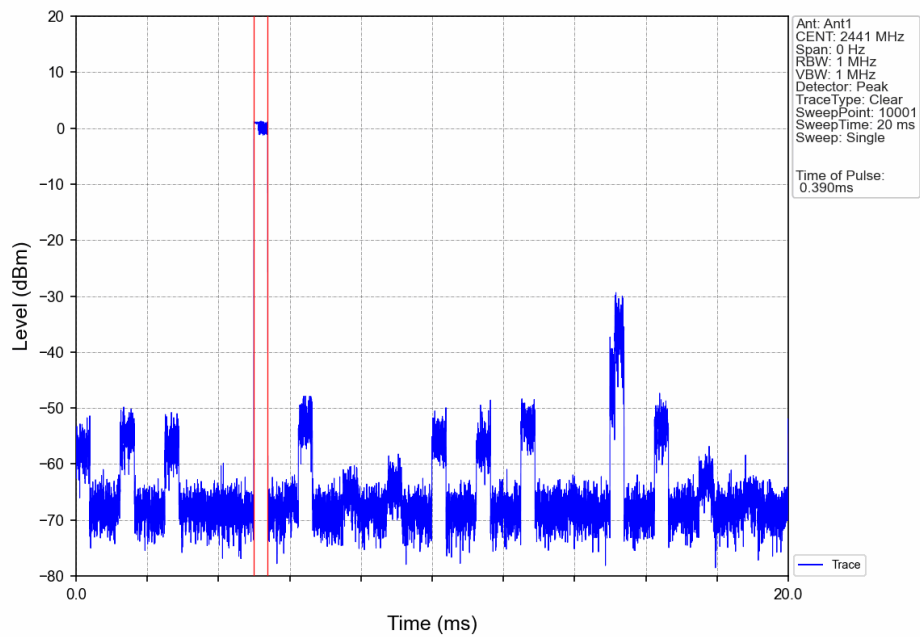
GFSK DH5 HOPP Ant1 NTN



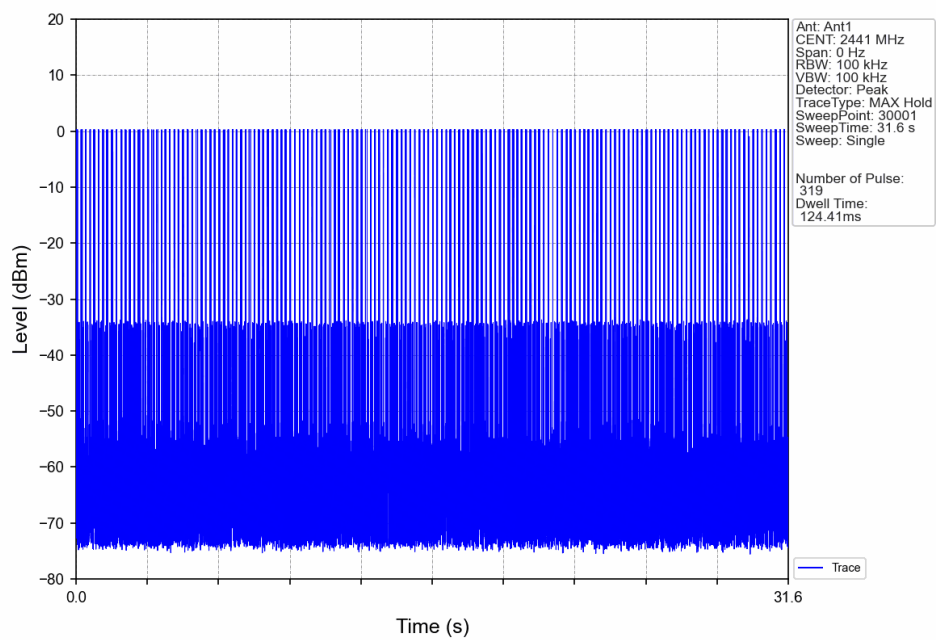
GFSK DH5 HOPP Ant1 NTN

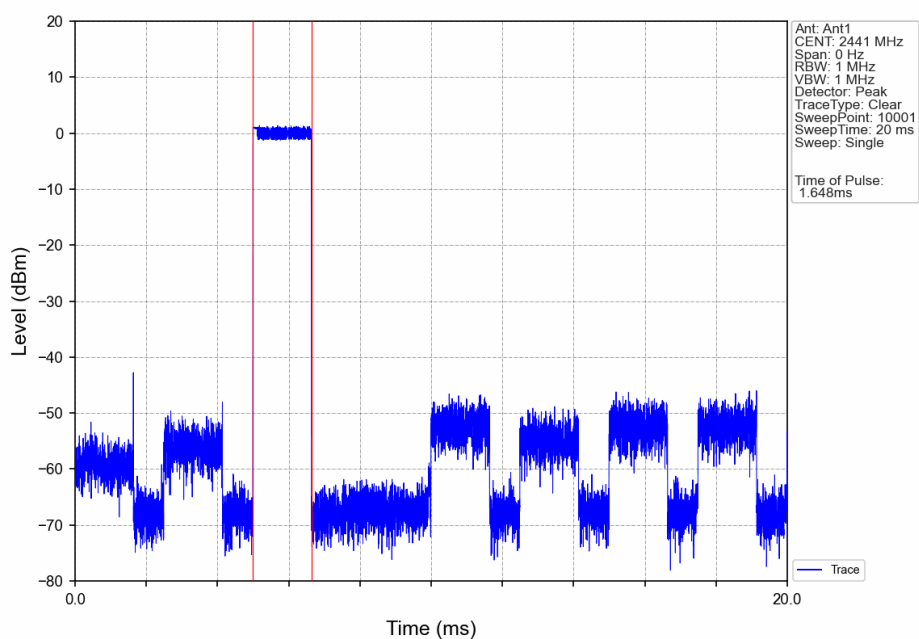
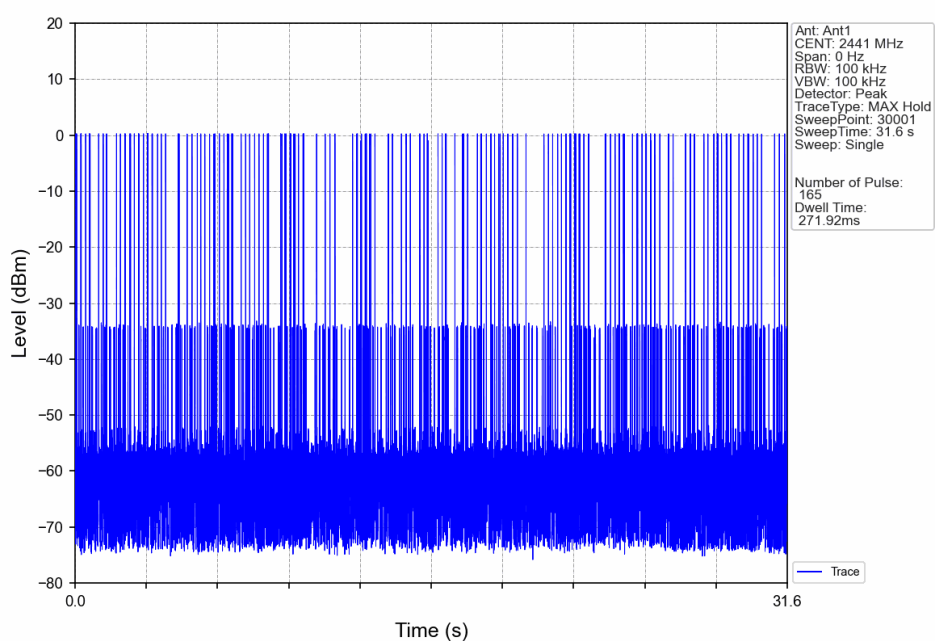


$\pi/4$ DQPSK_2DH1_HOPP_Ant1_NTNV

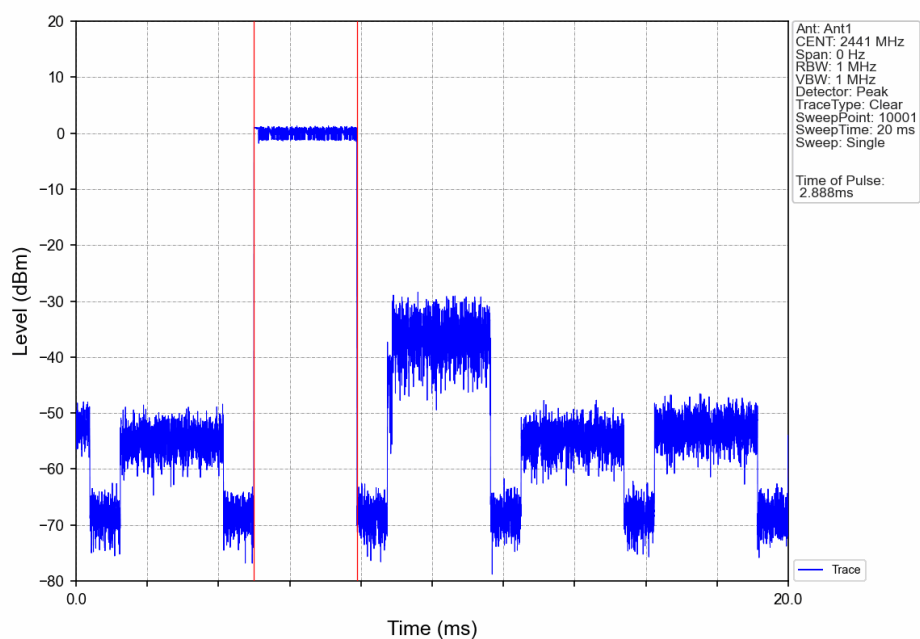


$\pi/4$ DQPSK_2DH1_HOPP_Ant1_NTNV

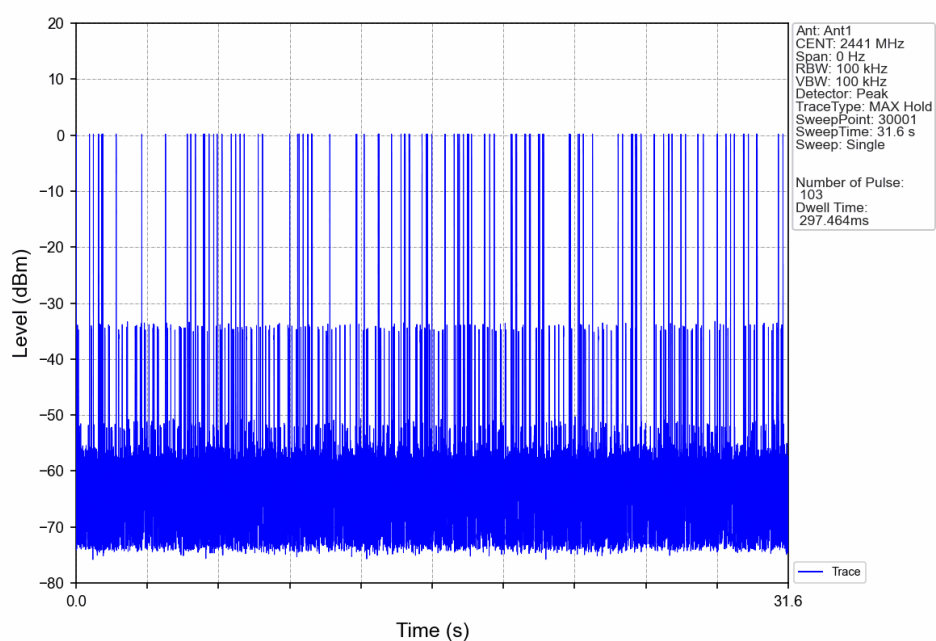


$\pi/4$ DQPSK_2DH3_HOPP_Ant1_NTNV $\pi/4$ DQPSK_2DH3_HOPP_Ant1_NTNV

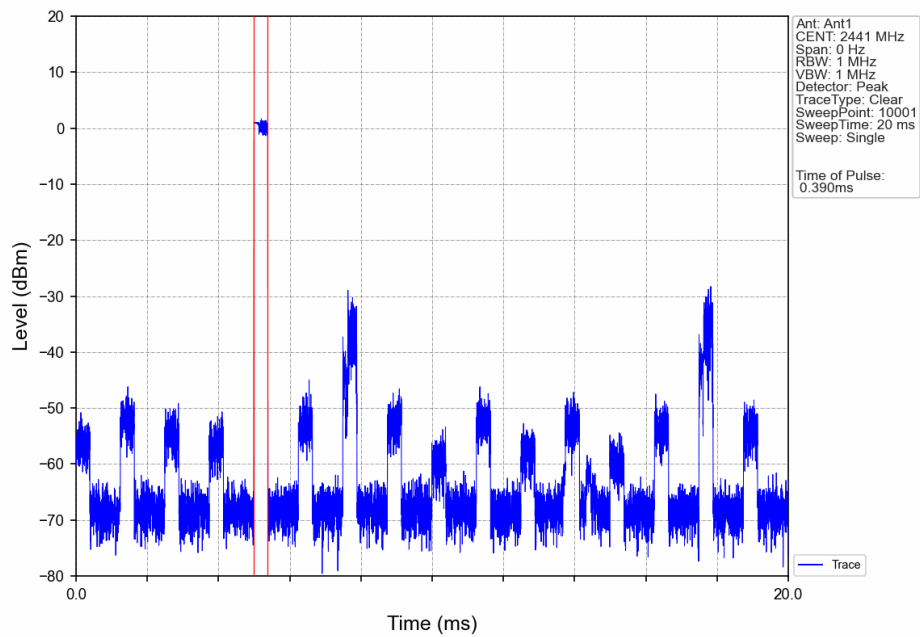
$\pi/4$ DQPSK_2DH5_HOPP_Ant1_NTNV



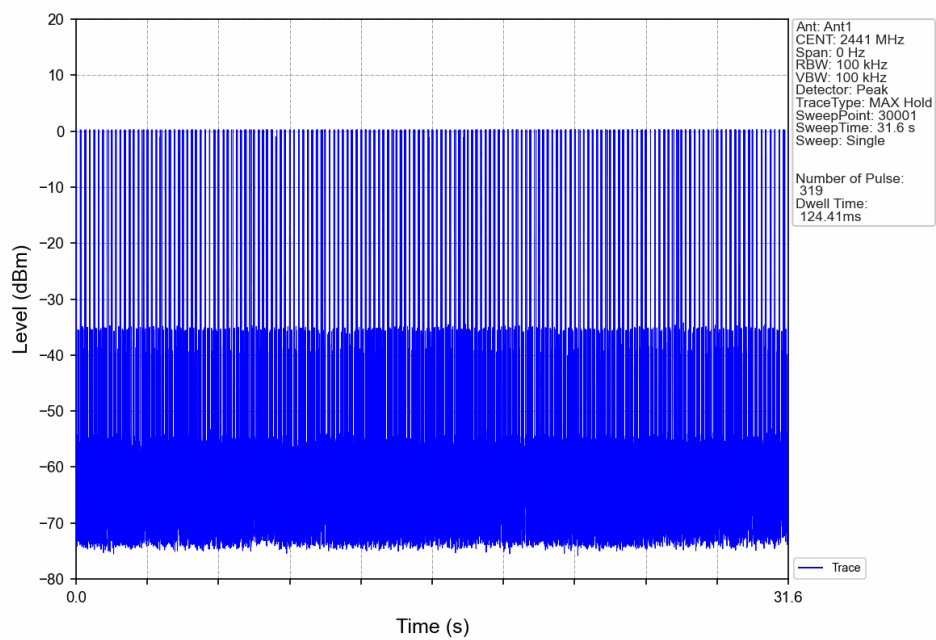
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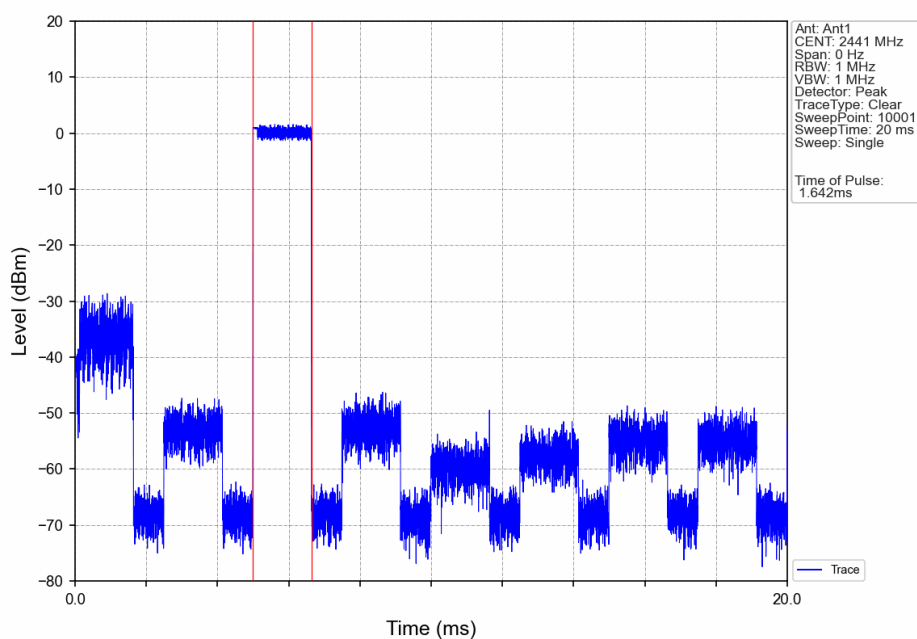
8-DPSK_3DH1_HOPP_Ant1_NTNV



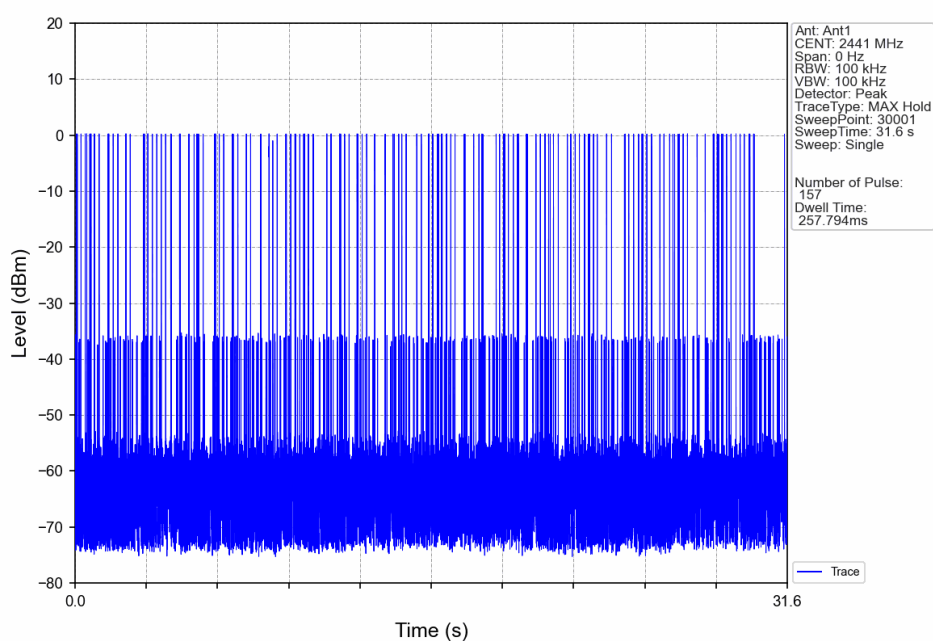
8-DPSK_3DH1_HOPP_Ant1_NTNV



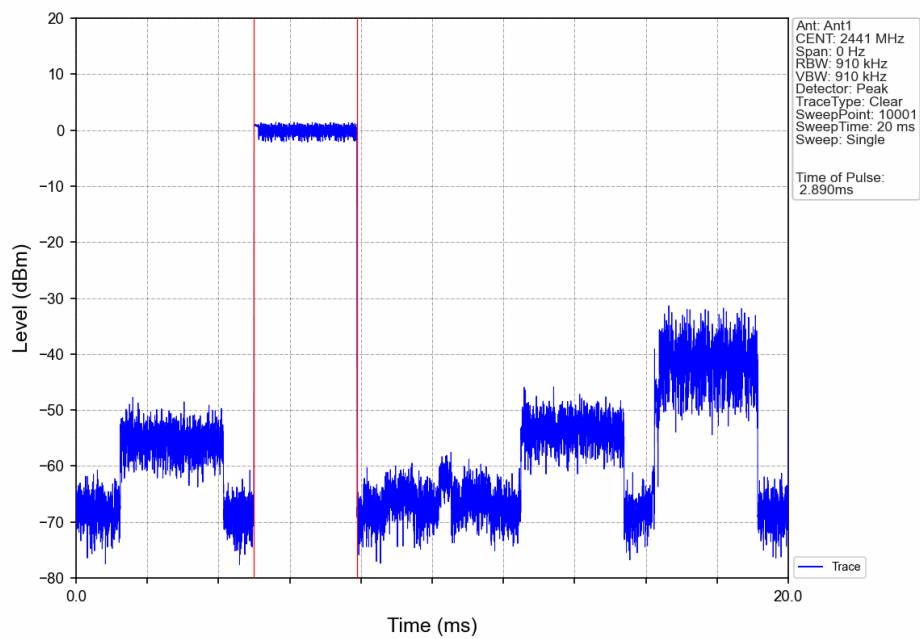
8-DPSK_3DH3_HOPP_Ant1_NTNV



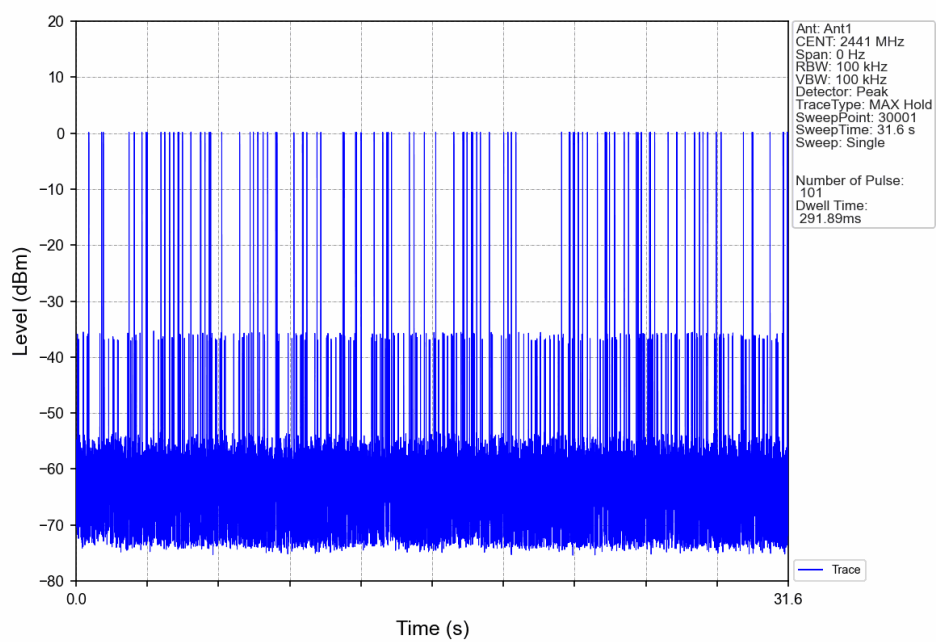
8-DPSK_3DH3_HOPP_Ant1_NTNV



8-DPSK 3DH5_HOPP_Ant1_NTNV



8-DPSK 3DH5_HOPP_Ant1_NTNV



6. Unwanted Emissions In Non-restricted Frequency Bands

6.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	1.00
		2441	DH5	1	0.91
		2480	DH5	1	0.59
$\pi/4$ DQPSK	SISO	2402	2DH5	1	0.74
		2441	2DH5	1	0.89
		2480	2DH5	1	0.46
8-DPSK	SISO	2402	3DH5	1	0.70
		2441	3DH5	1	0.85
		2480	3DH5	1	0.42

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.

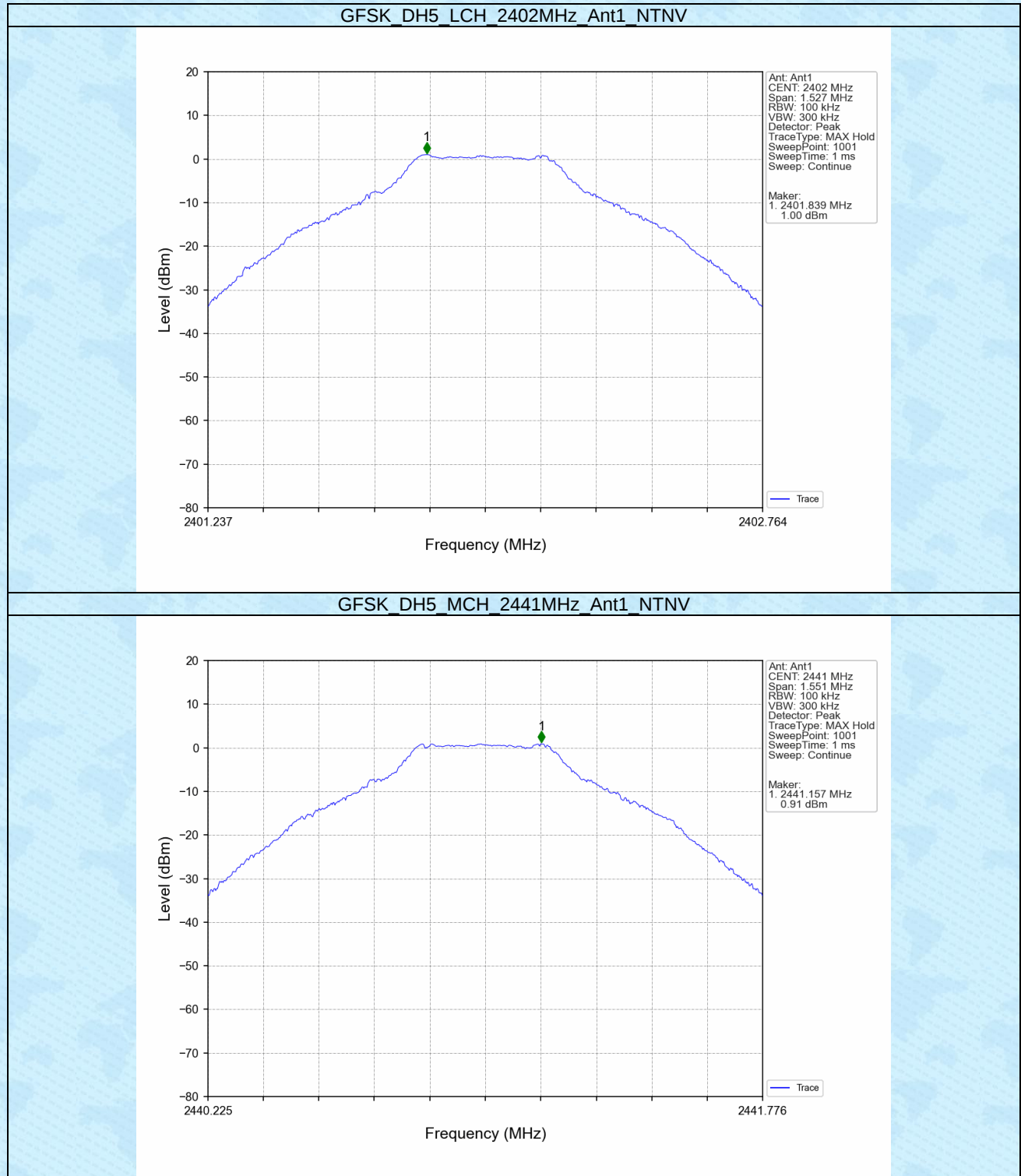
6.1.2 CSE

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	1.00	-19.00	Pass
		2441	DH5	1	1.00	-19.00	Pass
		2480	DH5	1	1.00	-19.00	Pass
		HOPP	DH5	1	1.00	-19.00	Pass
					1.00	-19.00	Pass
$\pi/4$ DQPSK	SISO	2402	2DH5	1	0.89	-19.11	Pass
		2441	2DH5	1	0.89	-19.11	Pass
		2480	2DH5	1	0.89	-19.11	Pass
		HOPP	2DH5	1	0.89	-19.11	Pass
					0.89	-19.11	Pass
8-DPSK	SISO	2402	3DH5	1	0.85	-19.15	Pass
		2441	3DH5	1	0.85	-19.15	Pass
		2480	3DH5	1	0.85	-19.15	Pass
		HOPP	3DH5	1	0.85	-19.15	Pass
					0.85	-19.15	Pass

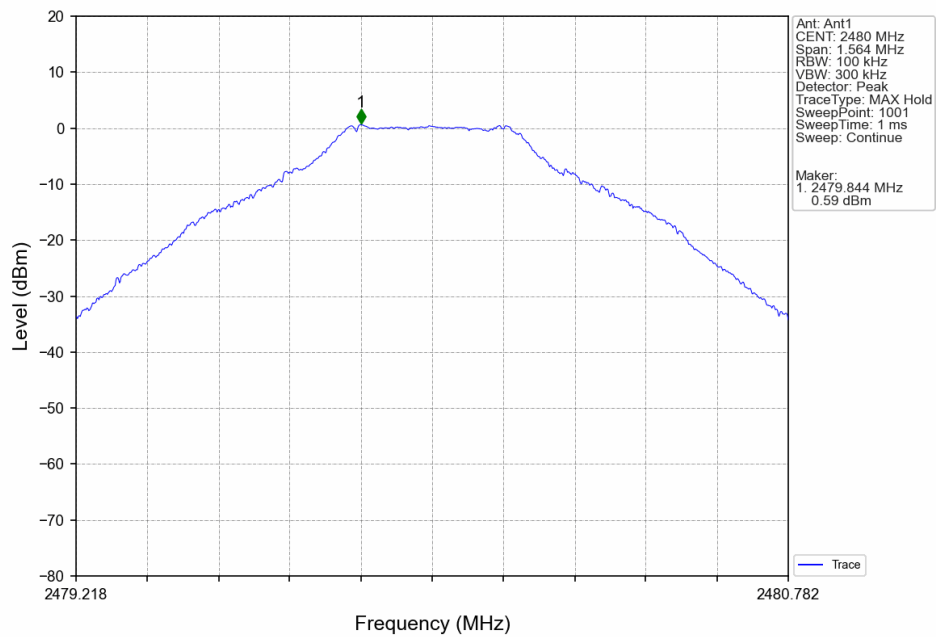
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

6.2 Test Graph

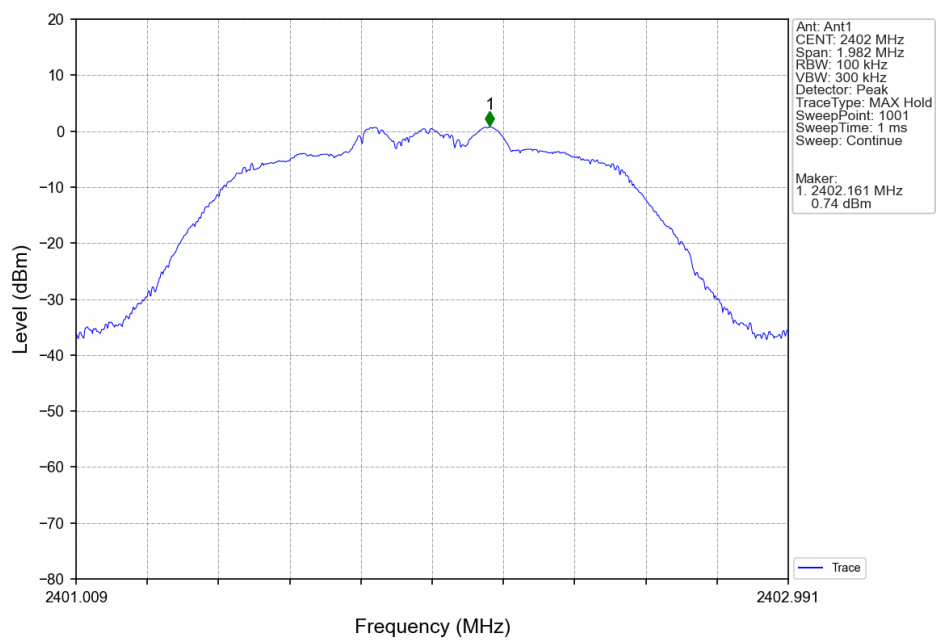
6.2.1 Ref



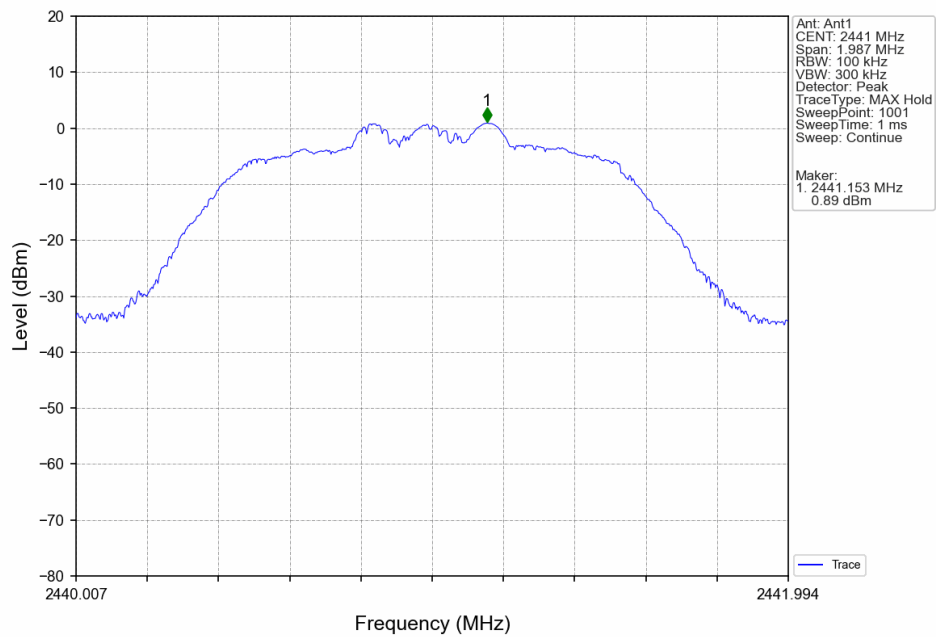
GFSK DH5 HCH 2480MHz Ant1 NTN



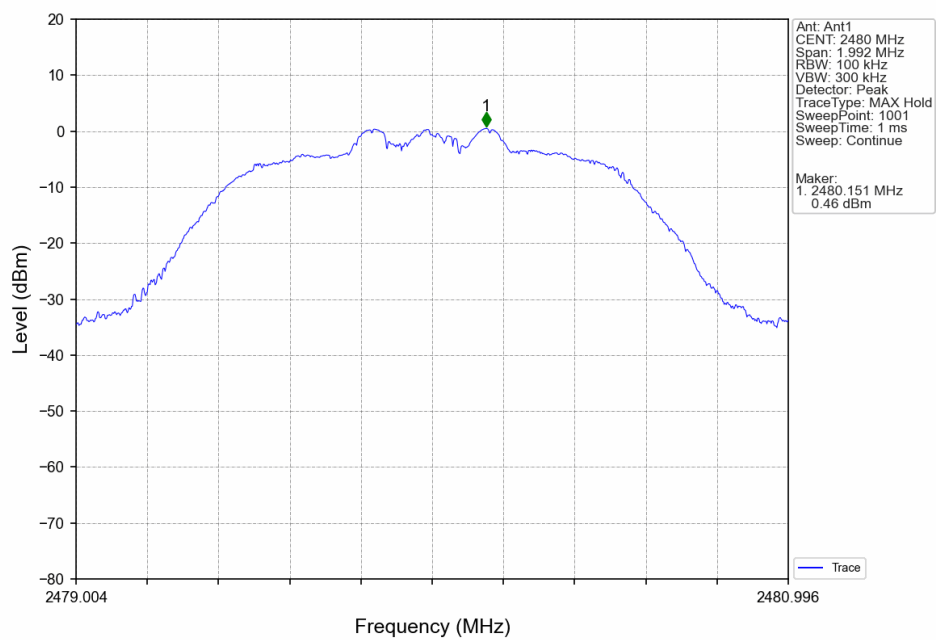
$\pi/4$ DQPSK 2DH5 LCH 2402MHz Ant1 NTN



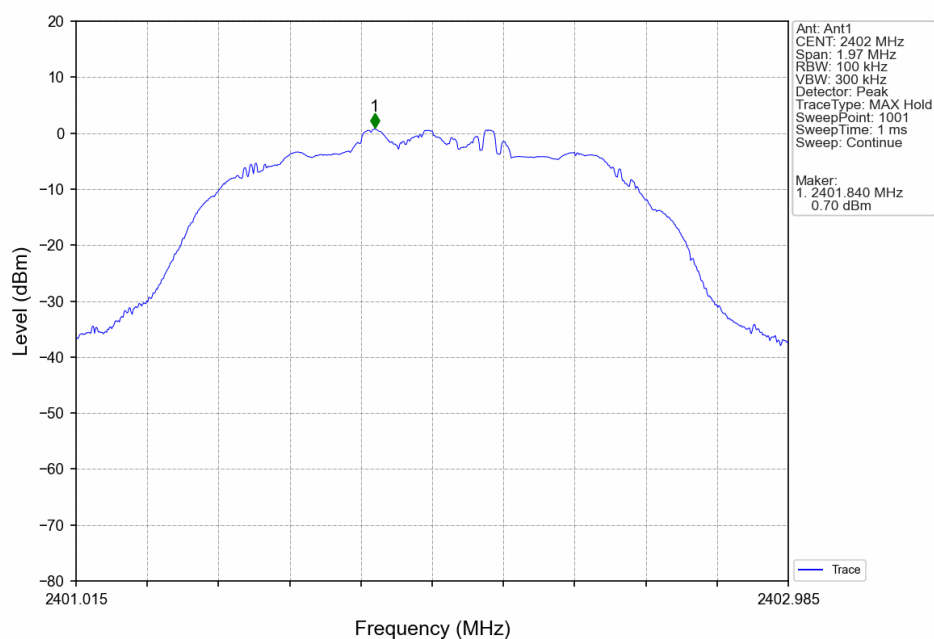
$\pi/4$ DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



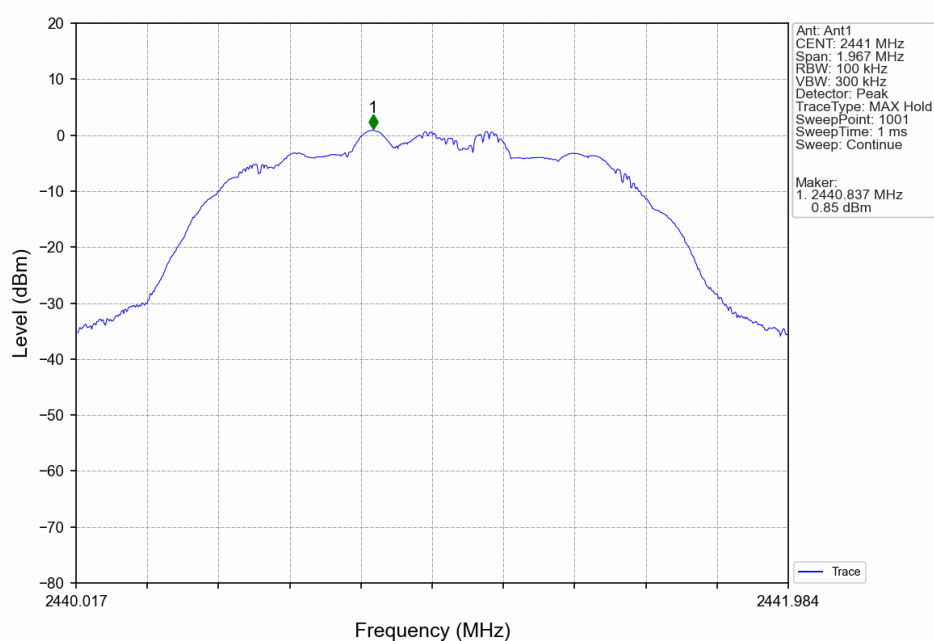
$\pi/4$ DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

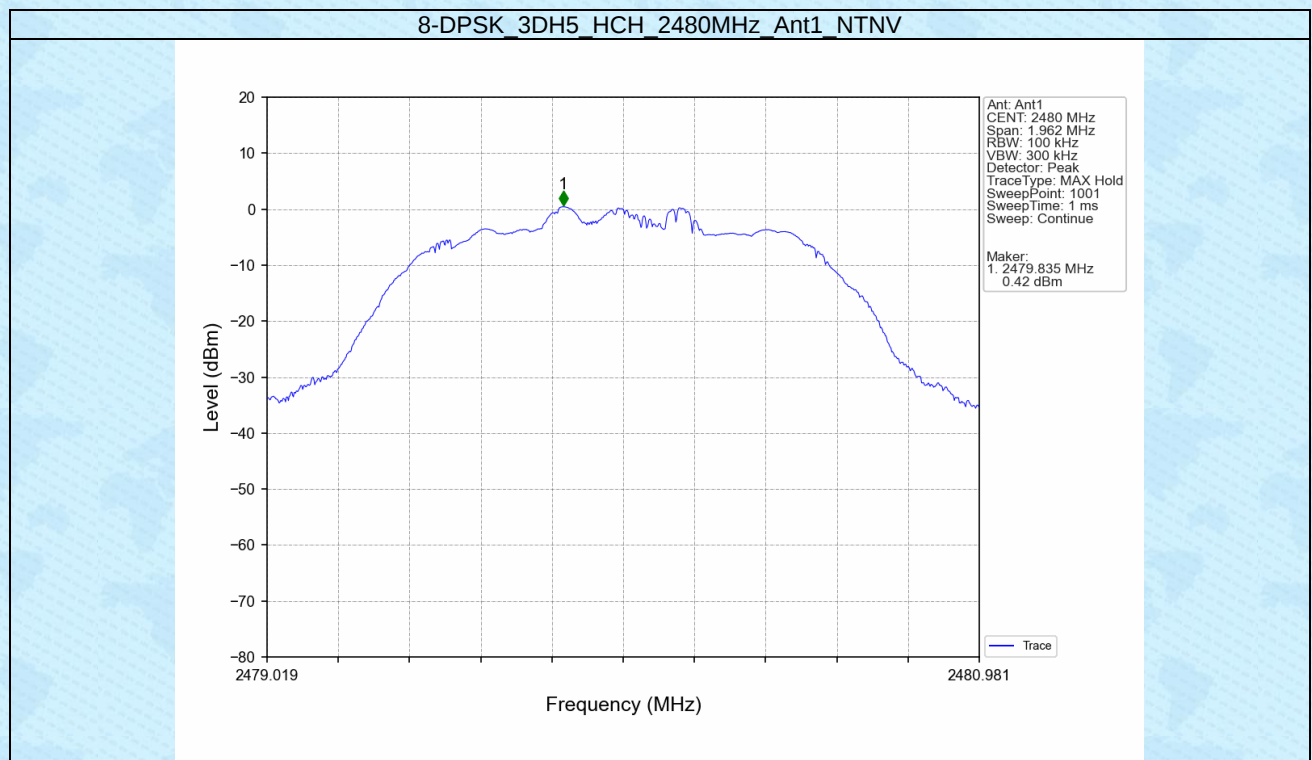


8-DPSK_3DH5_LCH_2402MHz_Ant1_NTNV

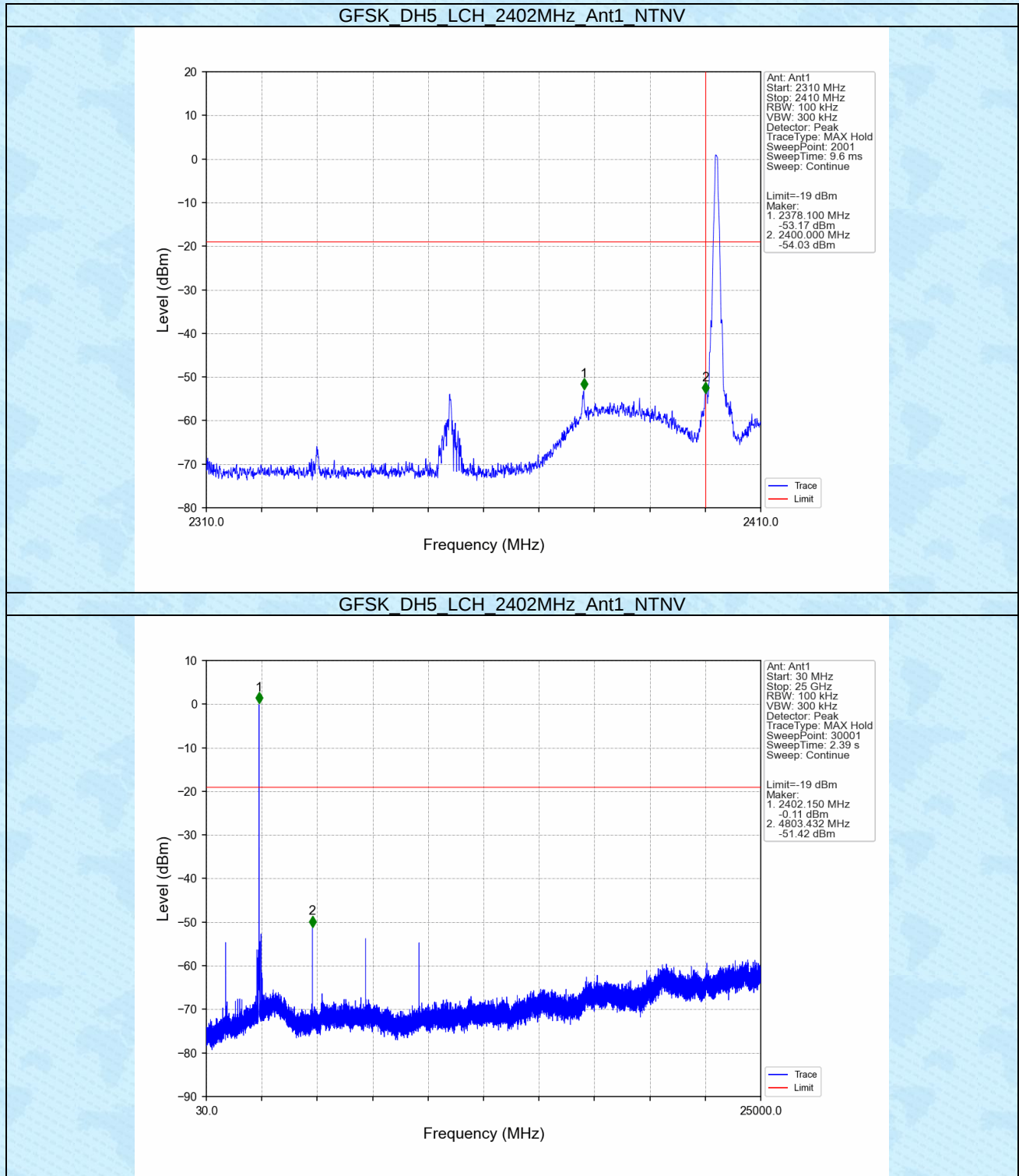


8-DPSK_3DH5_MCH_2441MHz_Ant1_NTNV

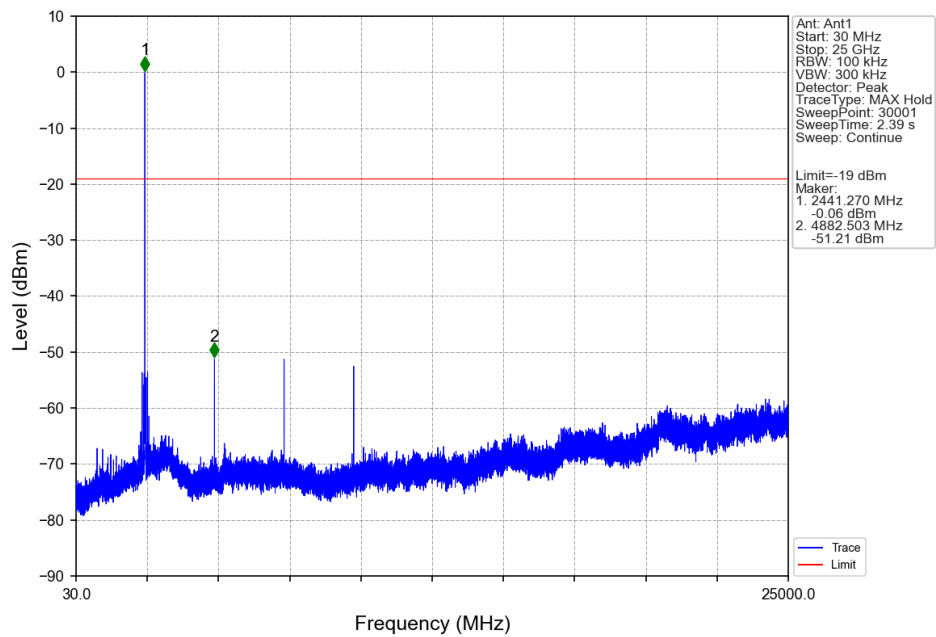




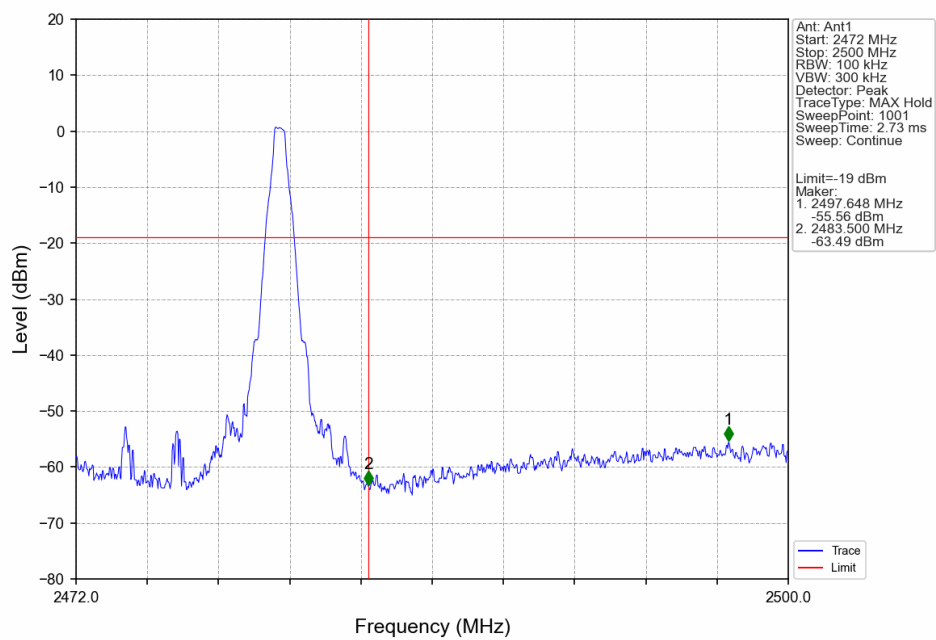
6.2.2 CSE



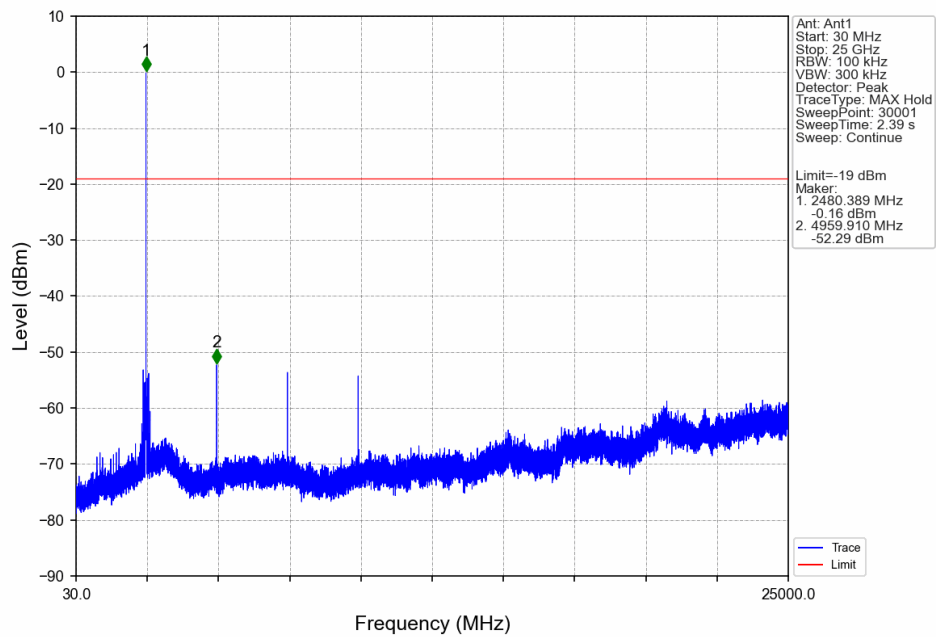
GFSK_DH5_MCH_2441MHz_Ant1_NTNV



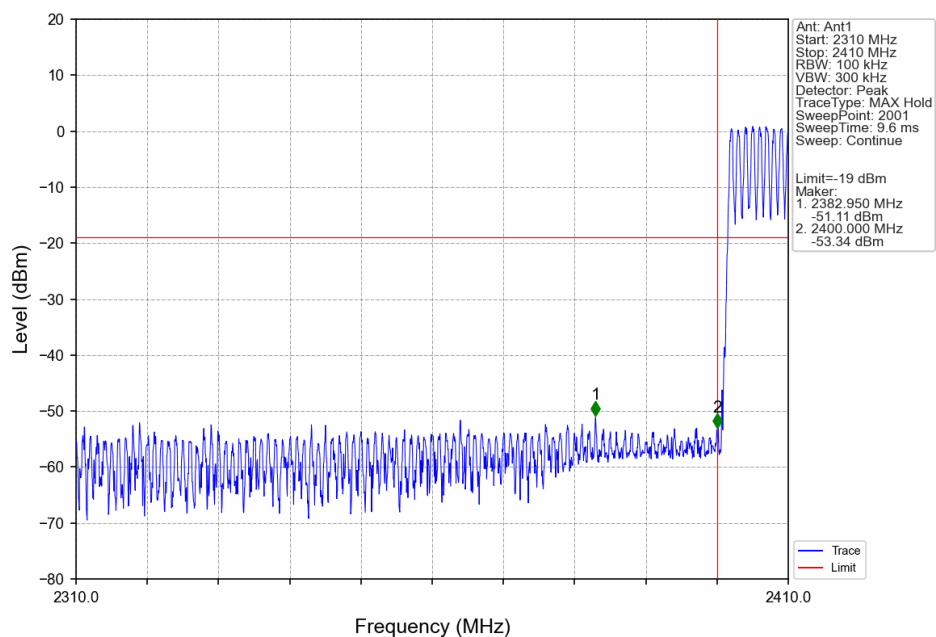
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



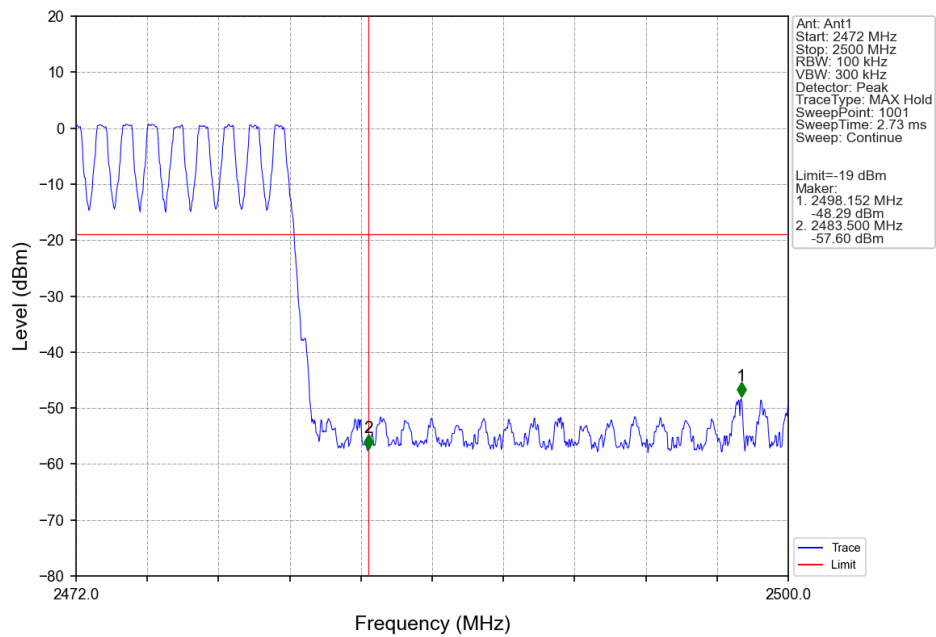
GFSK DH5 HCH 2480MHz Ant1 NTN



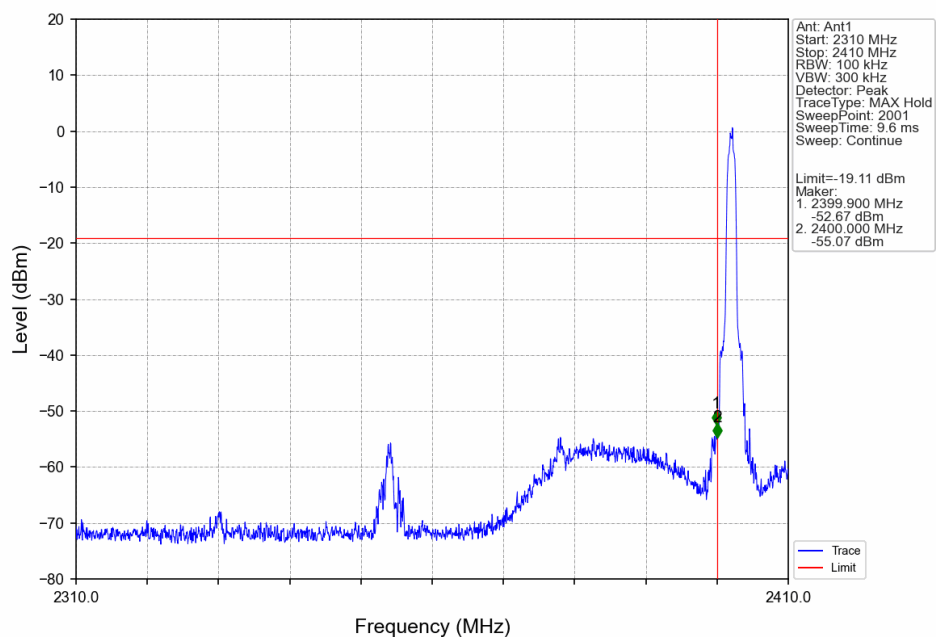
GFSK DH5 HOPP Ant1 NTN



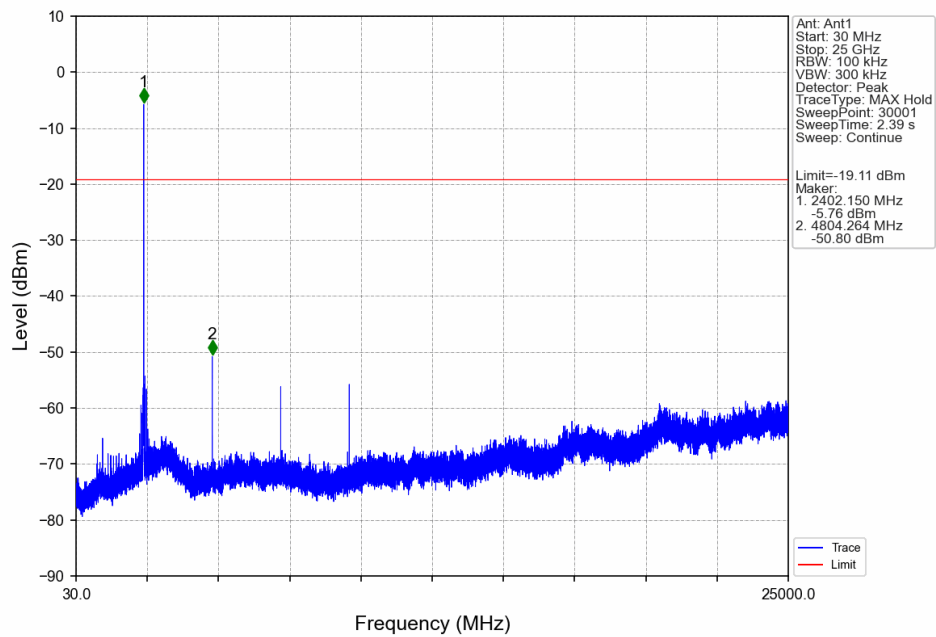
GFSK DH5 HOPP_Ant1_NTNV



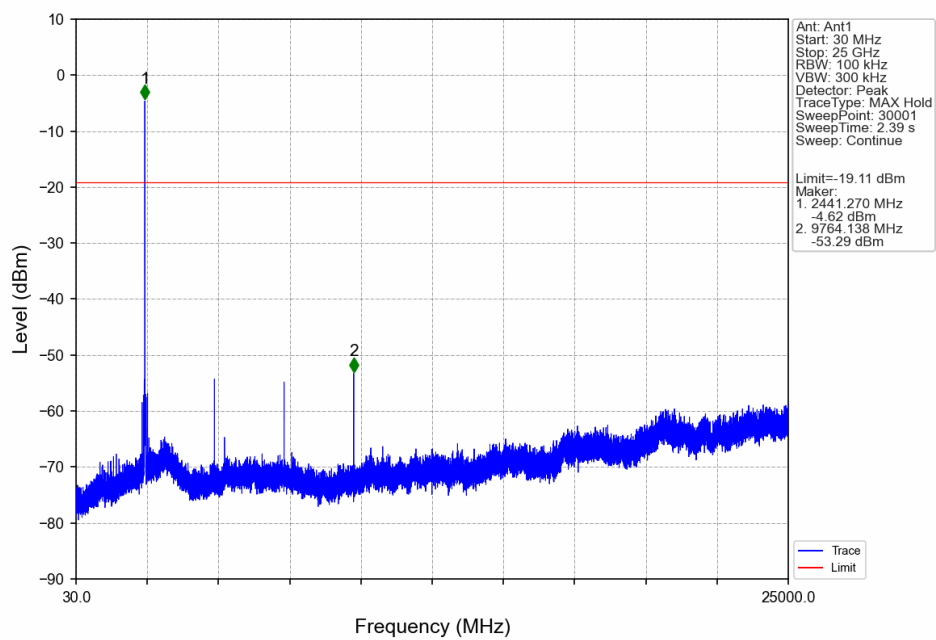
$\pi/4$ DQPSK 2DH5 LCH 2402MHz_Ant1_NTNV

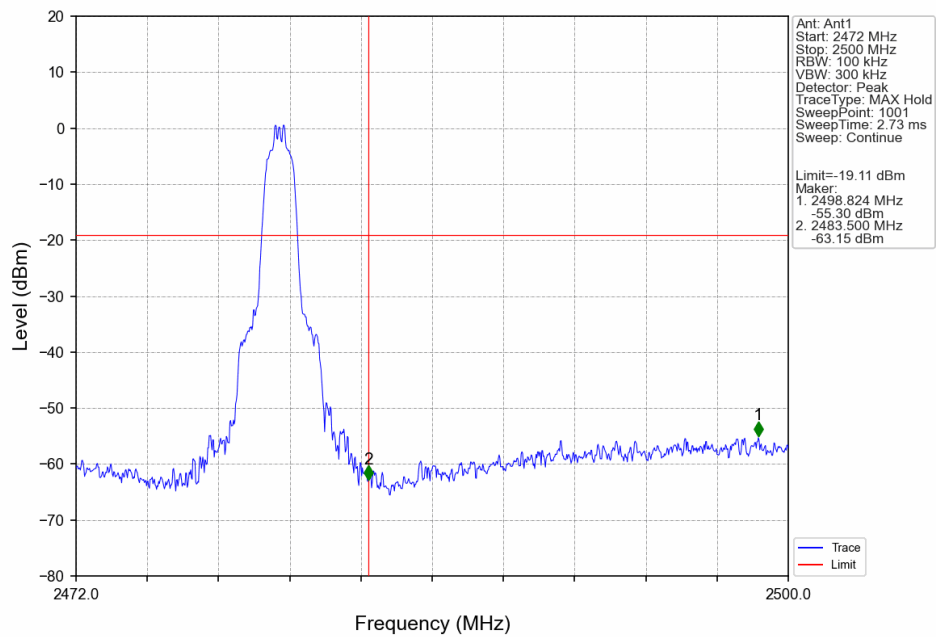
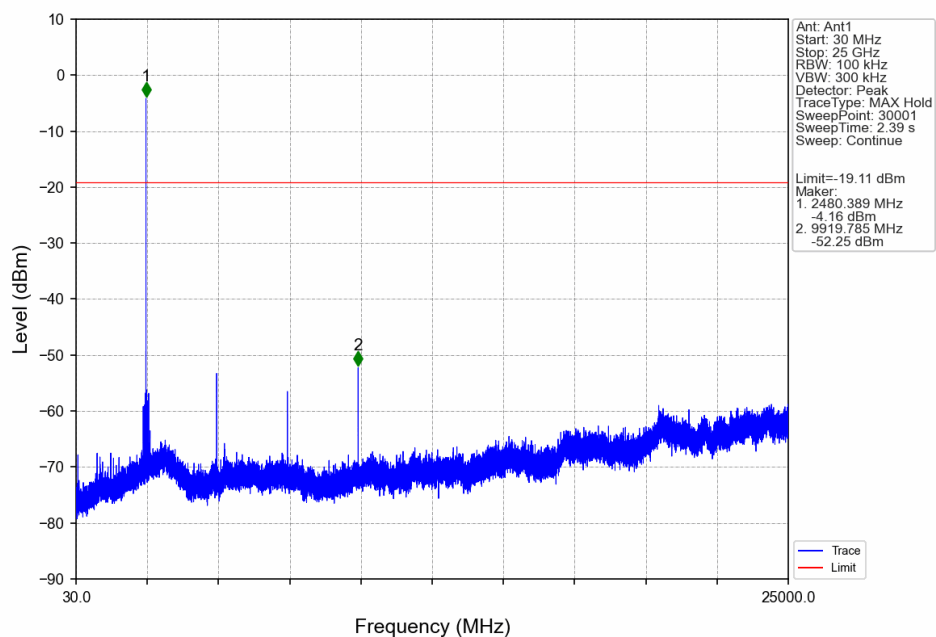


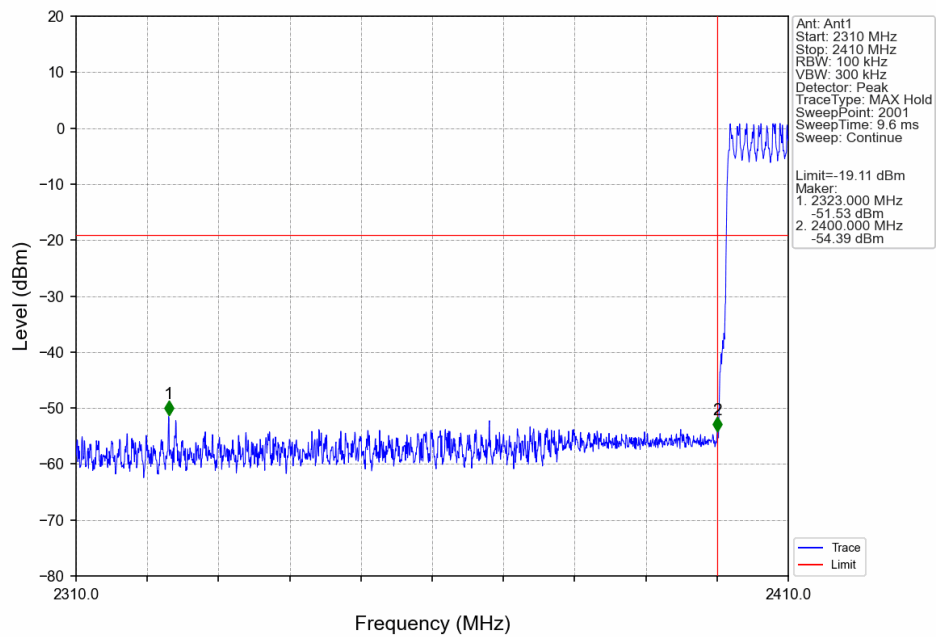
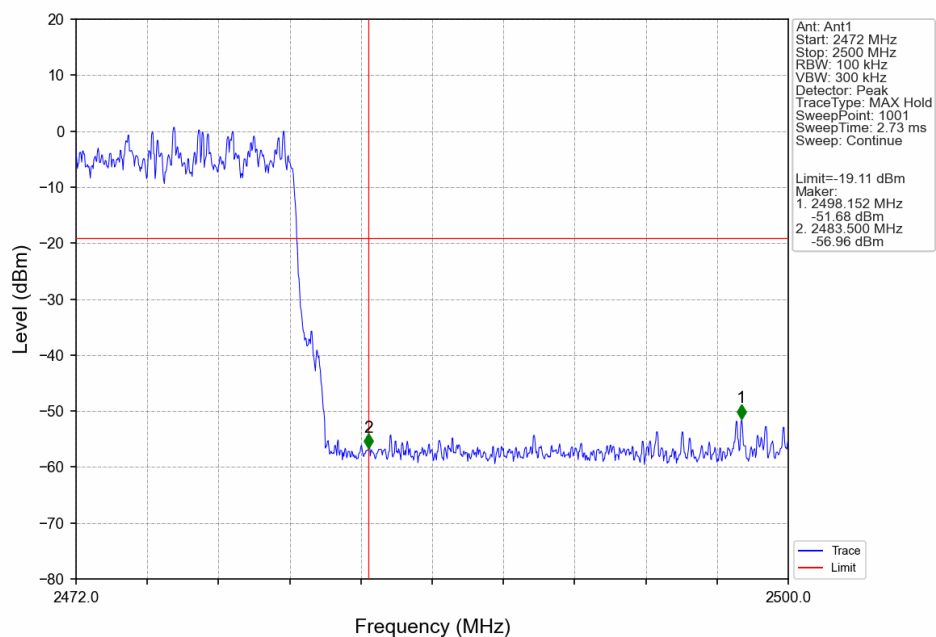
$\pi/4$ DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



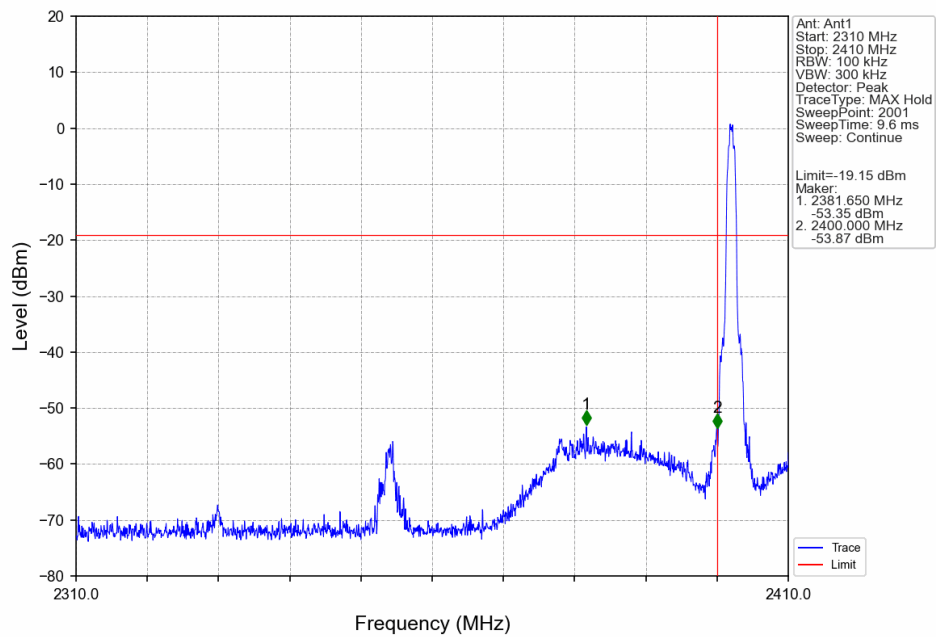
$\pi/4$ DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



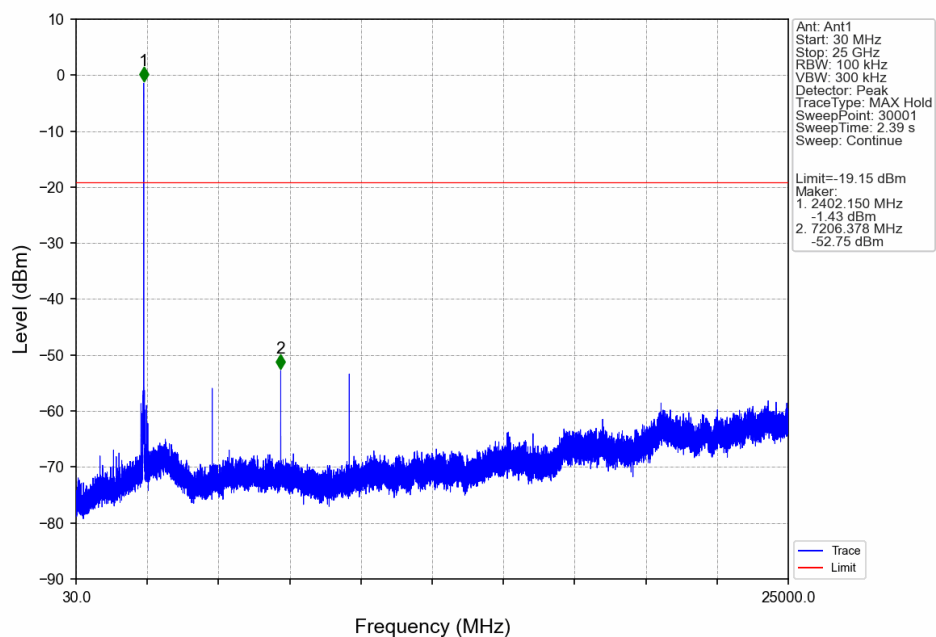
$\pi/4$ DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV $\pi/4$ DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

$\pi/4$ DQPSK_2DH5_HOPP_Ant1_NTNV $\pi/4$ DQPSK_2DH5_HOPP_Ant1_NTNV

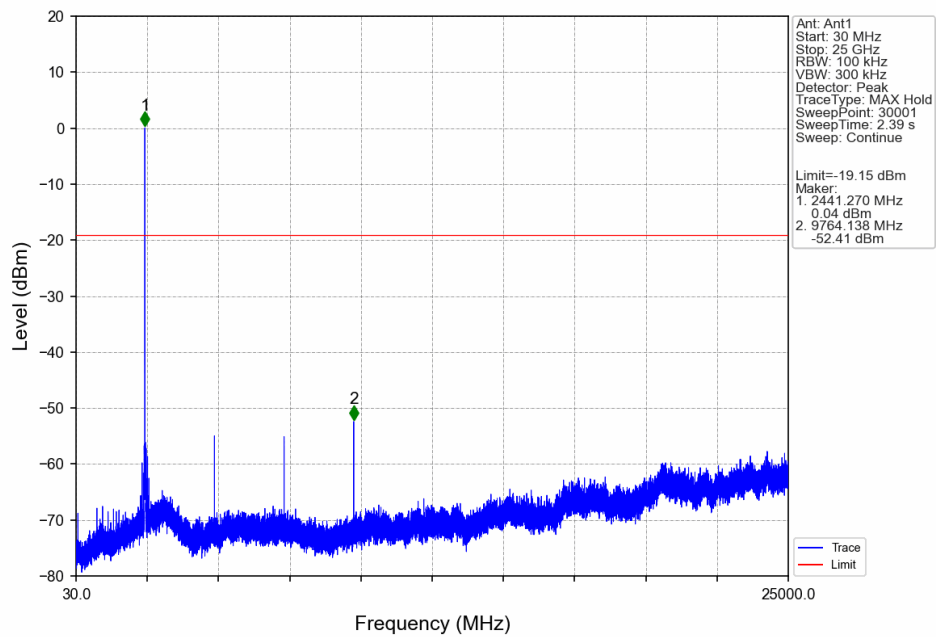
8-DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



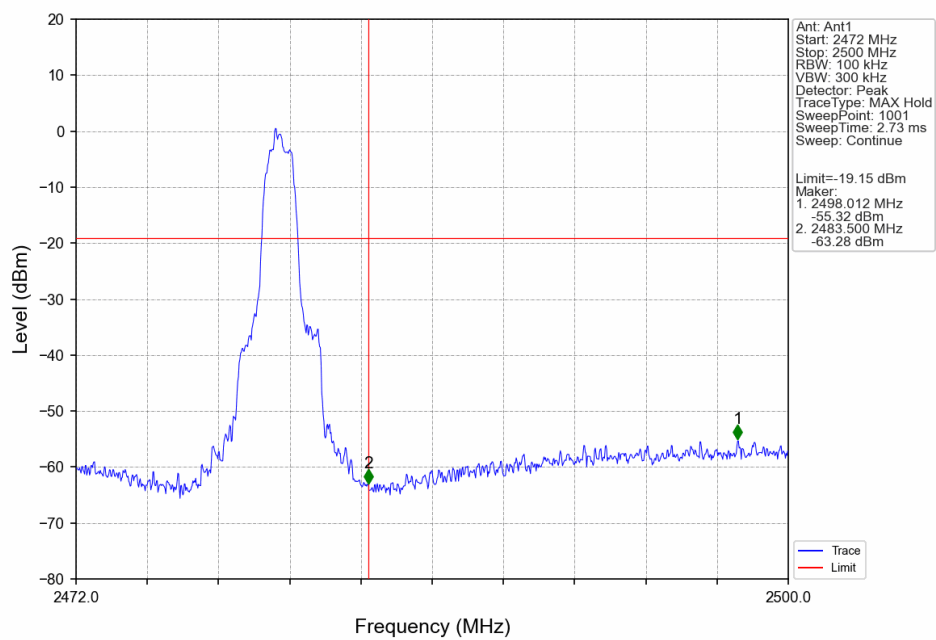
8-DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



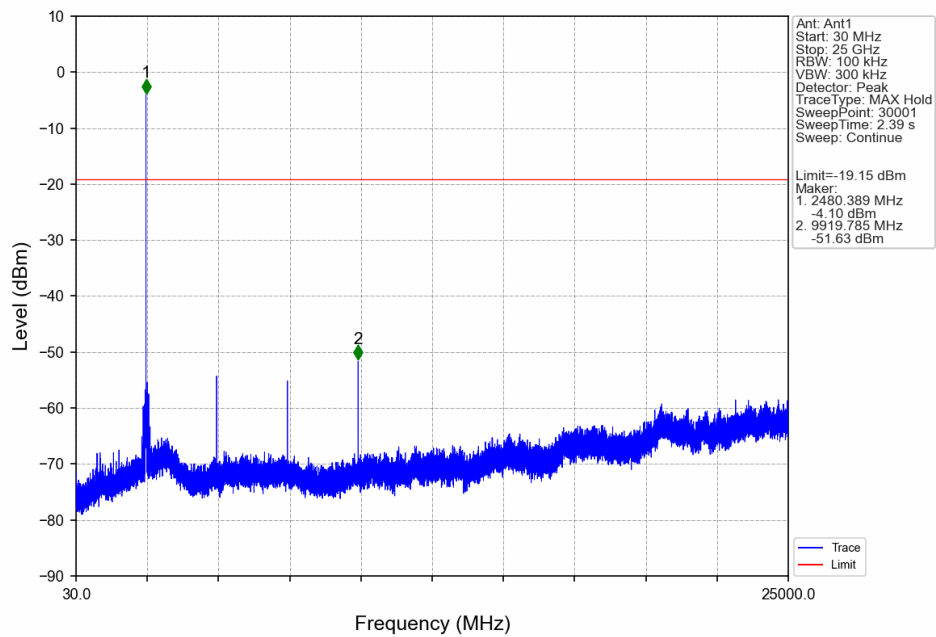
8-DPSK 3DH5 MCH 2441MHz Ant1 NTN



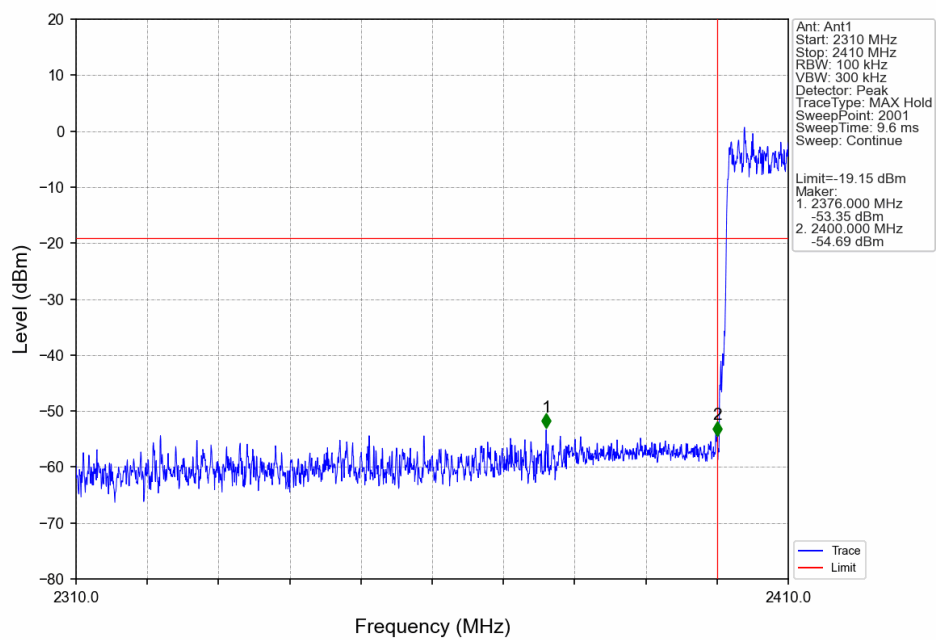
8-DPSK 3DH5 HCH 2480MHz Ant1 NTN

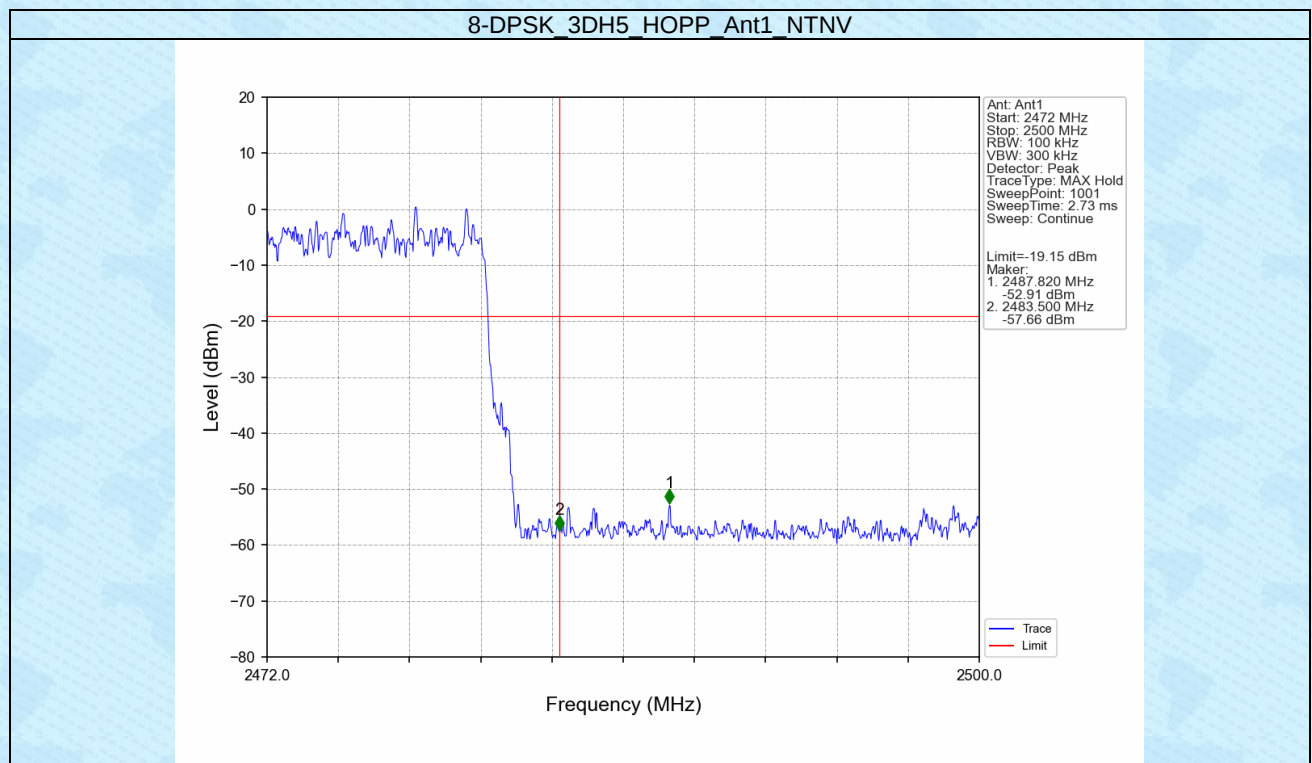


8-DPSK_3DH5_HCH_2480MHz_Ant1_NTNV



8-DPSK_3DH5_HOPP_Ant1_NTNV



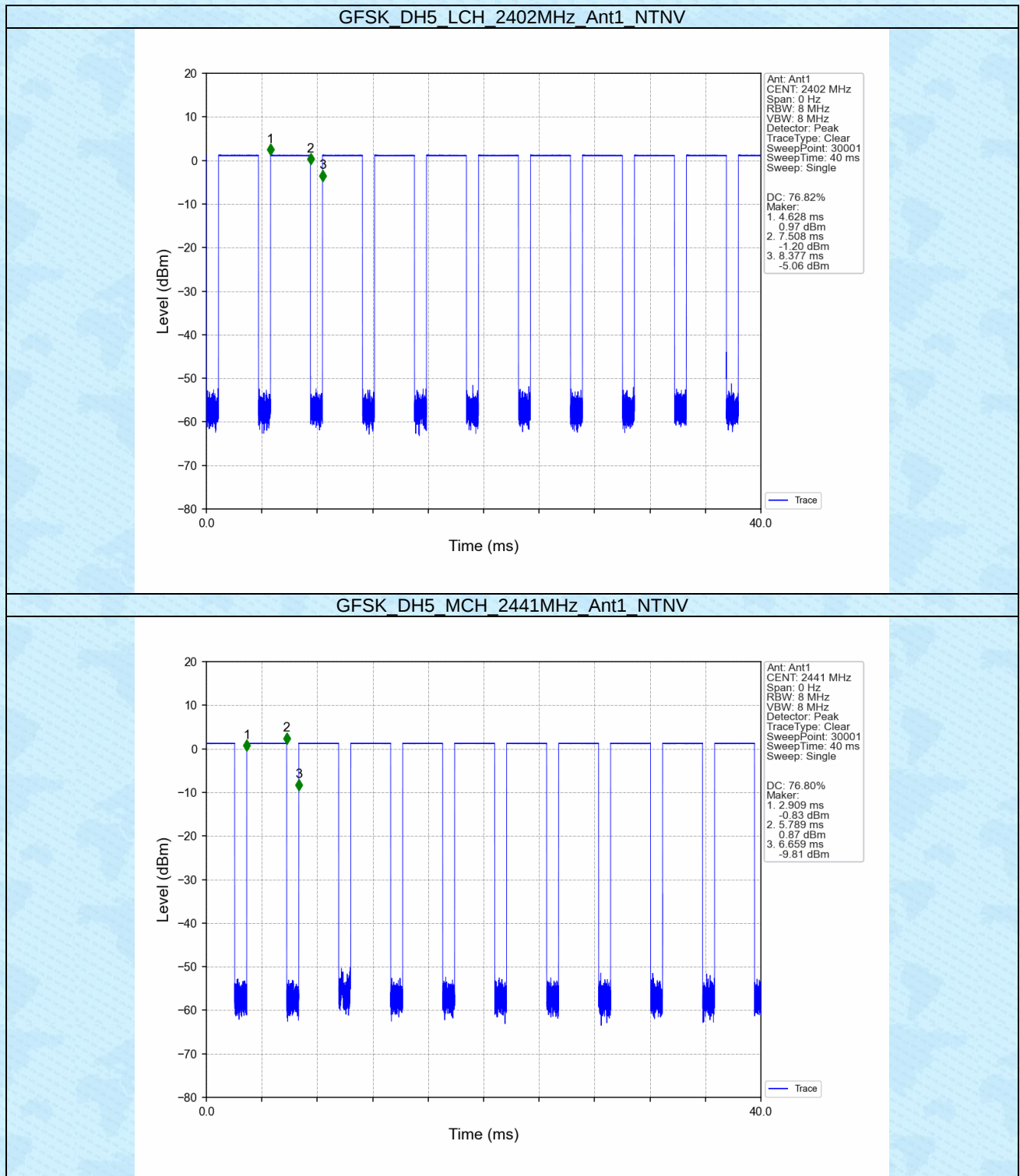


7. Duty Cycle

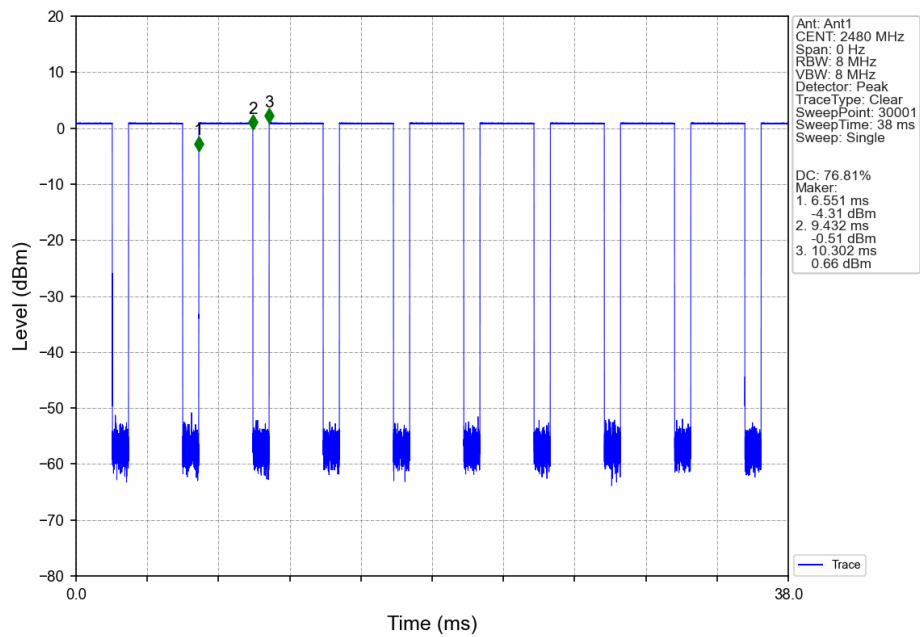
7.1 Test Result

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	2.880	3.749	76.82	1.15	0.01
		2441	DH5	2.880	3.750	76.80	1.15	0.01
		2480	DH5	2.881	3.751	76.81	1.15	0.03
$\pi/4$ DQPSK	SISO	2402	2DH5	2.887	3.751	76.97	1.14	0.03
		2441	2DH5	2.886	3.750	76.96	1.14	0.03
		2480	2DH5	2.887	3.751	76.97	1.14	0.03
8-DPSK	SISO	2402	3DH5	2.894	3.749	77.19	1.12	0.03
		2441	3DH5	2.888	3.749	77.03	1.13	0.03
		2480	3DH5	2.888	3.749	77.03	1.13	0.03

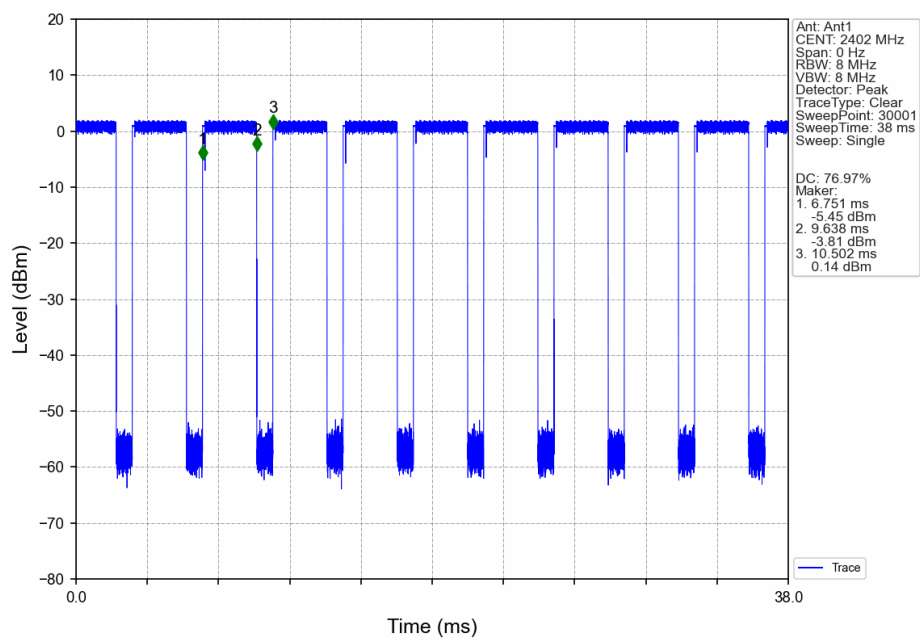
7.2 Test Graph



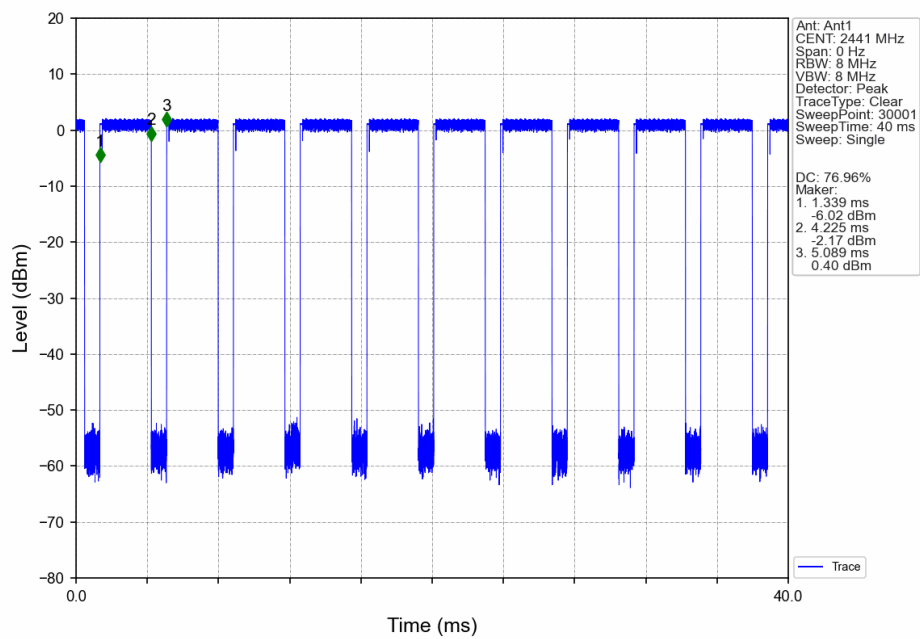
GFSK DH5 HCH 2480MHz Ant1 NTN



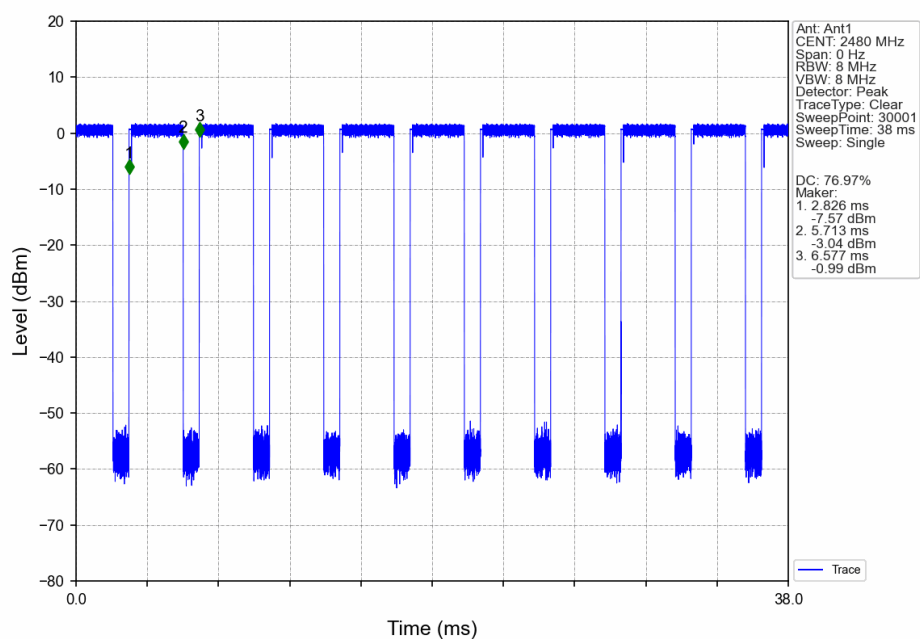
$\pi/4$ DQPSK 2DH5 LCH 2402MHz Ant1 NTN



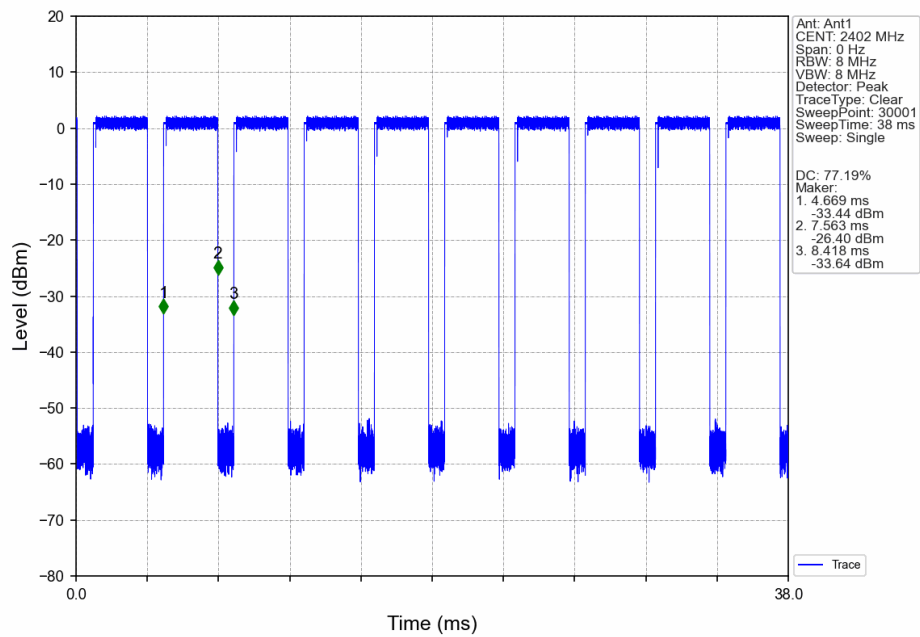
$\pi/4$ DQPSK 2DH5 MCH 2441MHz_Ant1_NTNV



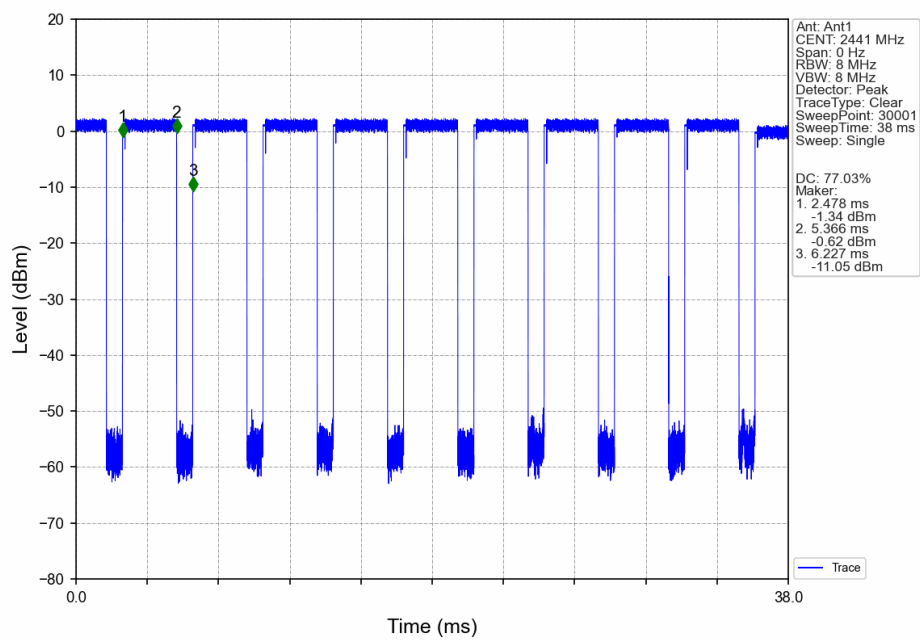
$\pi/4$ DQPSK 2DH5 HCH 2480MHz_Ant1_NTNV

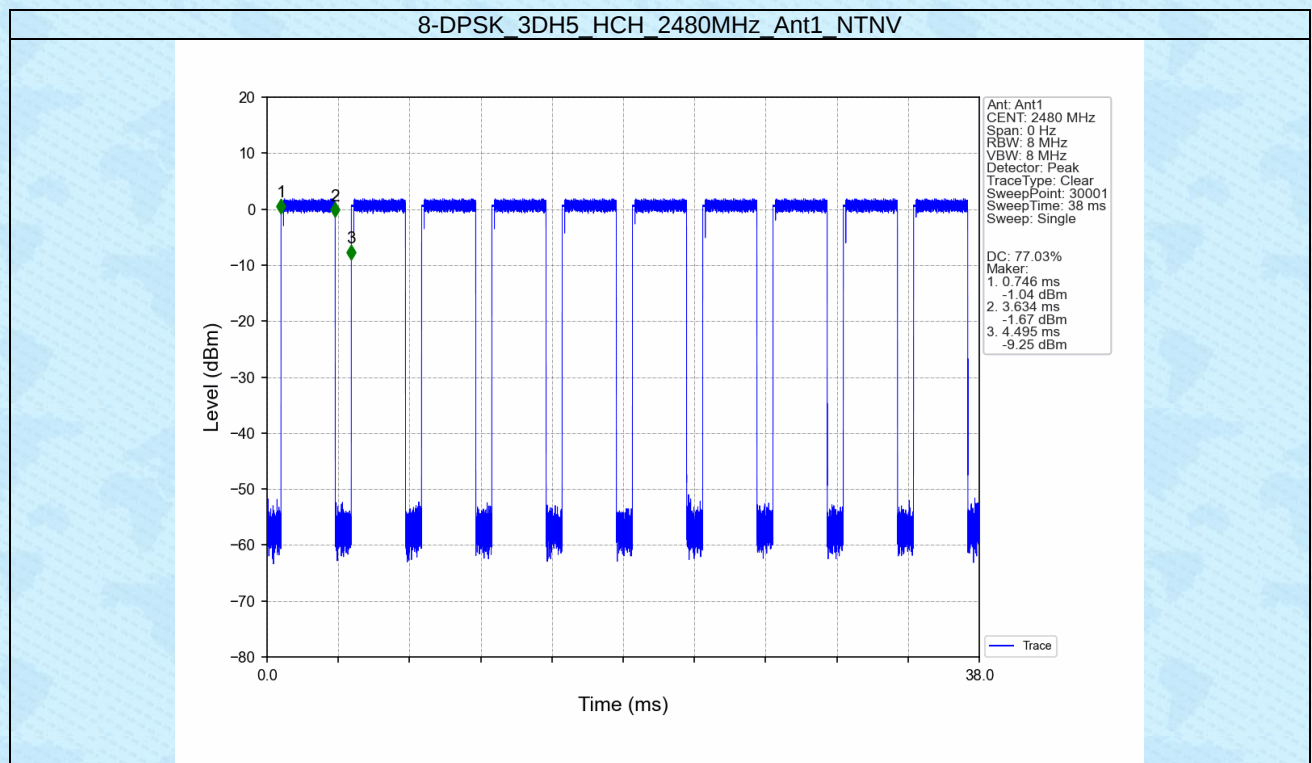


8-DPSK 3DH5_LCH_2402MHz_Ant1_NTNV



8-DPSK 3DH5_MCH_2441MHz_Ant1_NTNV





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