

Appendix RF Test Data for BT

Company: : Shenzhen Speediance Living Technology co., Ltd.

EUT : Portable Multimedia Digital Fitness Equipment

FCC ID: : 2A4WP-GNA1A1

Model Number : GNA1A1

Report No. : HTT202605688F03

Reviewed By : Heber He

1. Duty Cycle

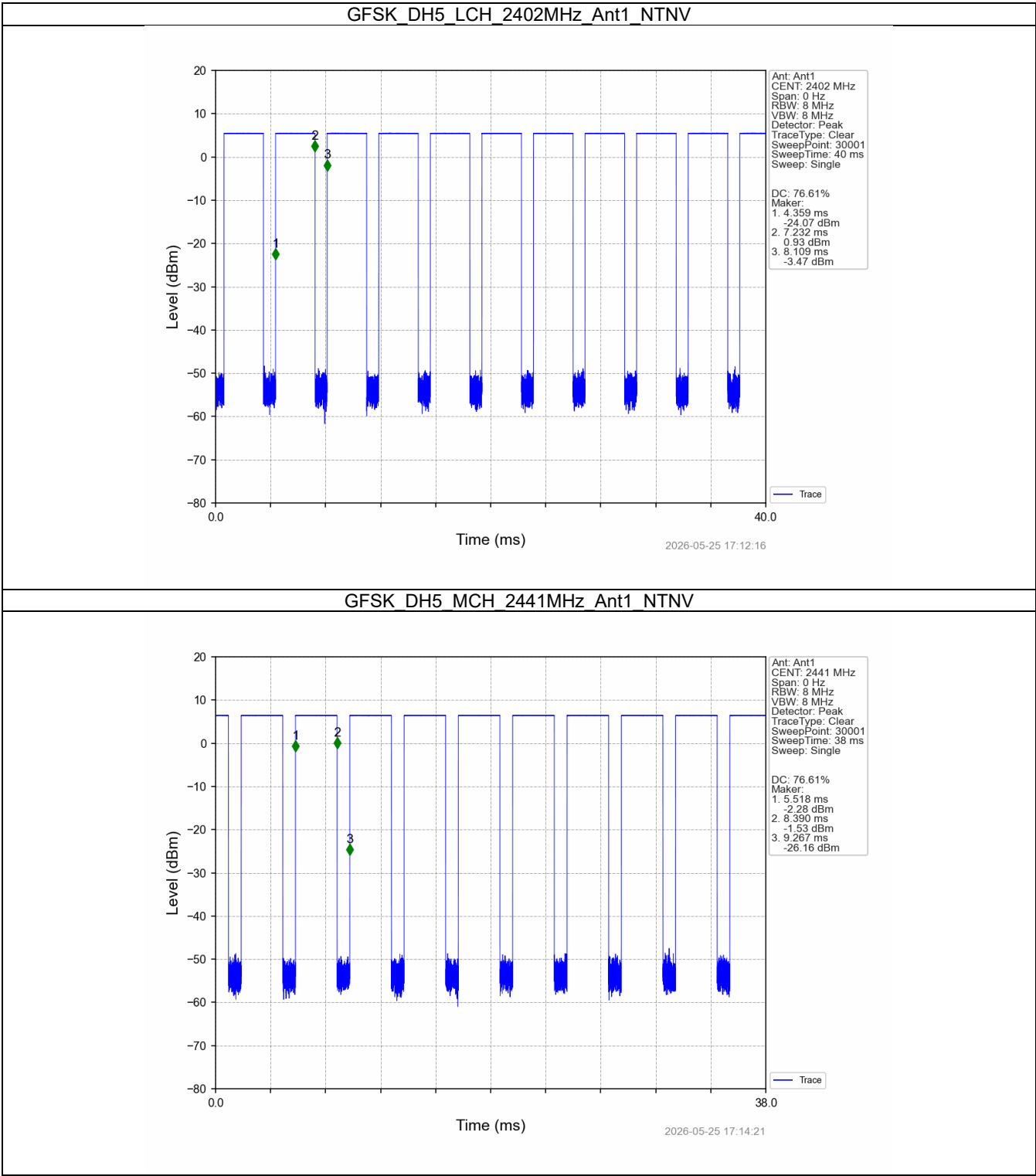
1.1 Test Result

1.1.1 Ant1

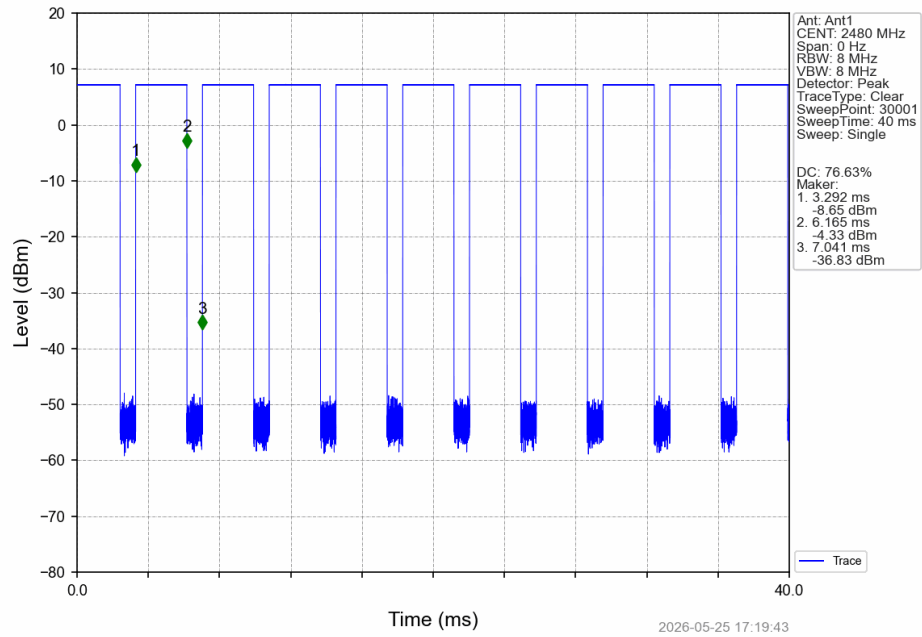
Ant1								
Mode	TX Type	Frequency (MHz)	Packet Type	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
GFSK	SISO	2402	DH5	2.873	3.750	76.61	1.16	0.03
		2441	DH5	2.872	3.749	76.61	1.16	0.03
		2480	DH5	2.873	3.749	76.63	1.16	0.01
Pi/4DQPSK	SISO	2402	2DH5	2.879	3.749	76.79	1.15	0.01
		2441	2DH5	2.879	3.751	76.75	1.15	0.03
		2480	2DH5	2.879	3.750	76.77	1.15	0.01
8DPSK	SISO	2402	3DH5	2.880	3.749	76.82	1.15	0.03
		2441	3DH5	2.880	3.749	76.82	1.15	0.03
		2480	3DH5	2.880	3.749	76.82	1.15	0.03

1.2 Test Graph

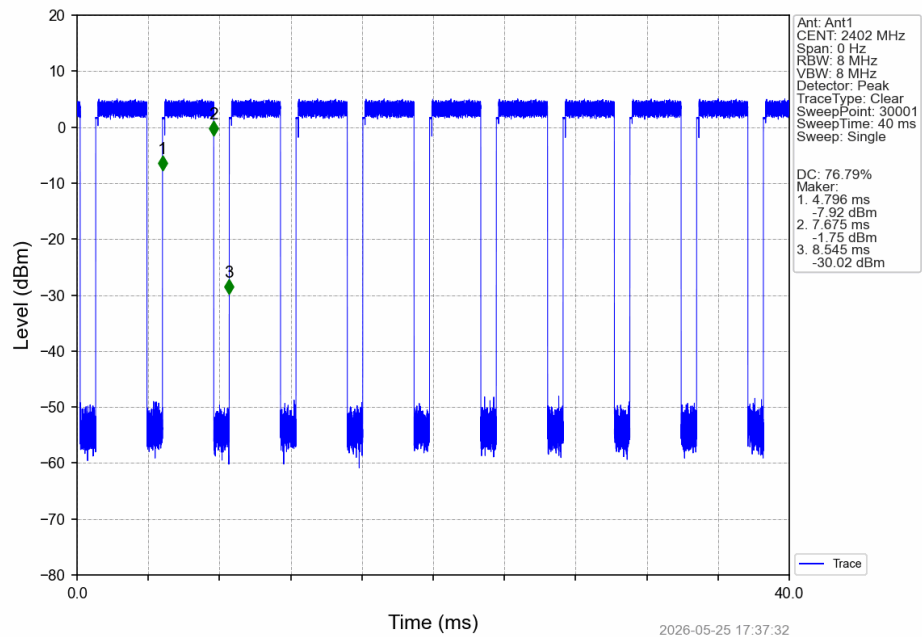
1.2.1 Ant1



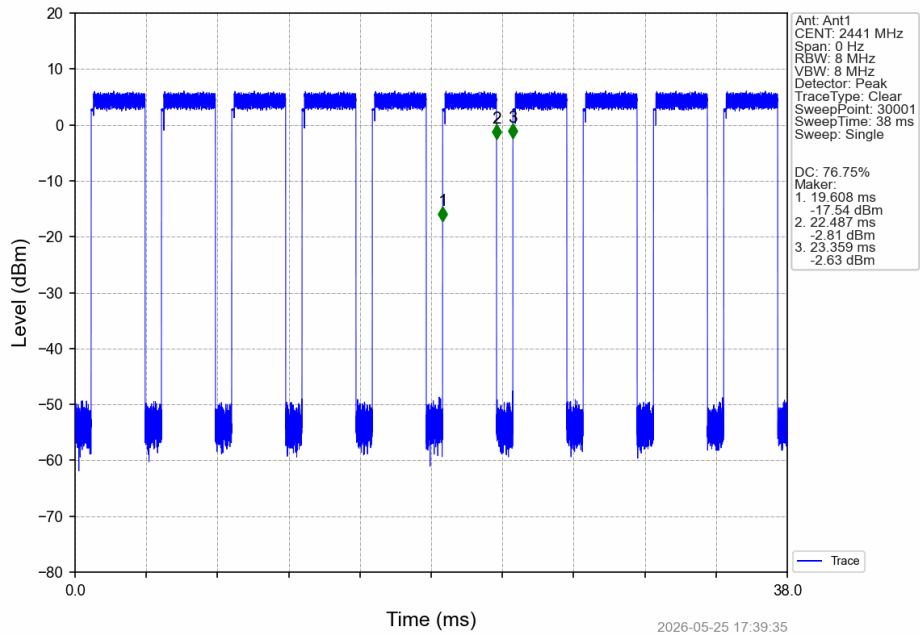
GFSK DH5 HCH 2480MHz Ant1 NTN



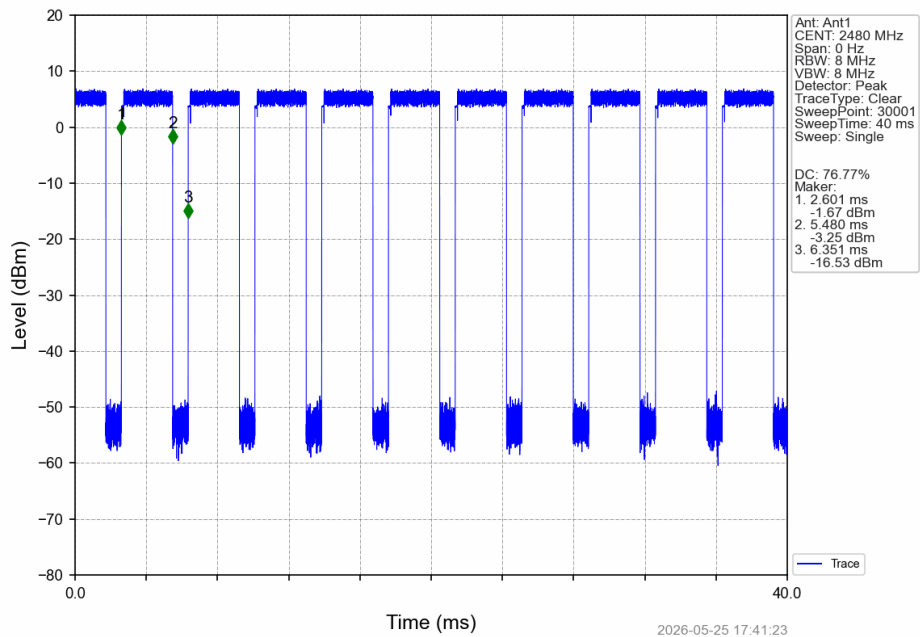
Pi/4DQPSK 2DH5 LCH 2402MHz Ant1 NTN



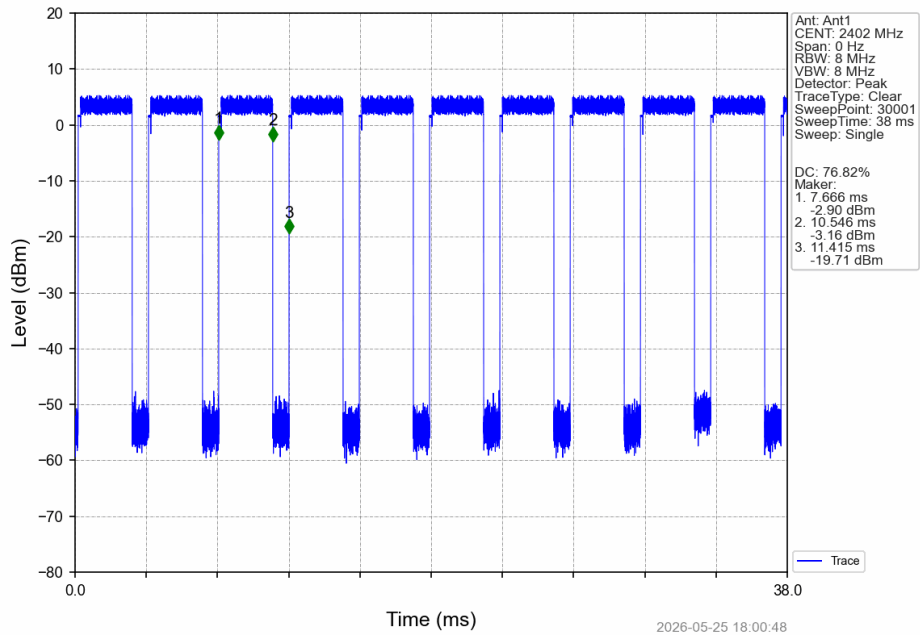
Pi/4DQPSK 2DH5 MCH 2441MHz Ant1 NTN



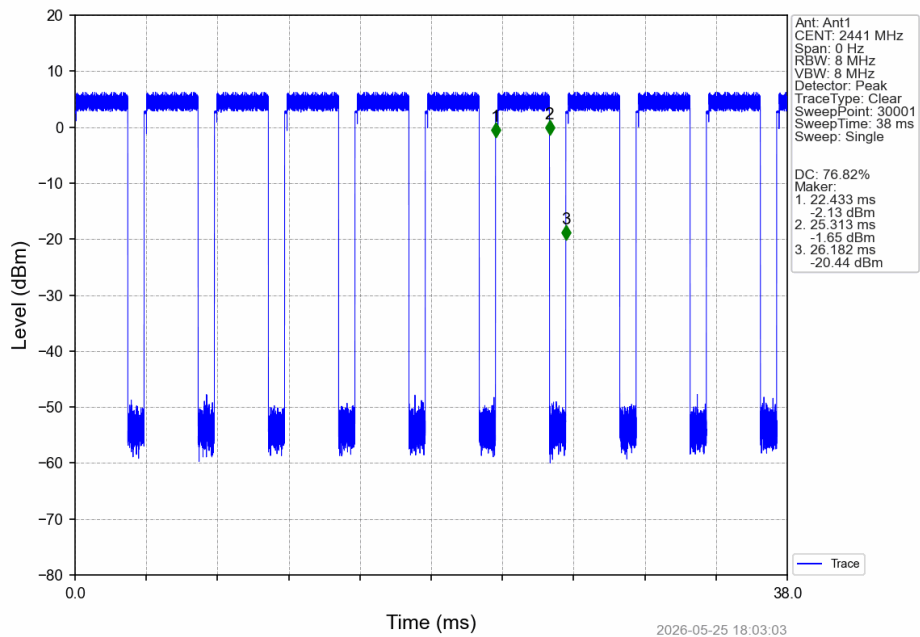
Pi/4DQPSK 2DH5 HCH 2480MHz Ant1 NTN



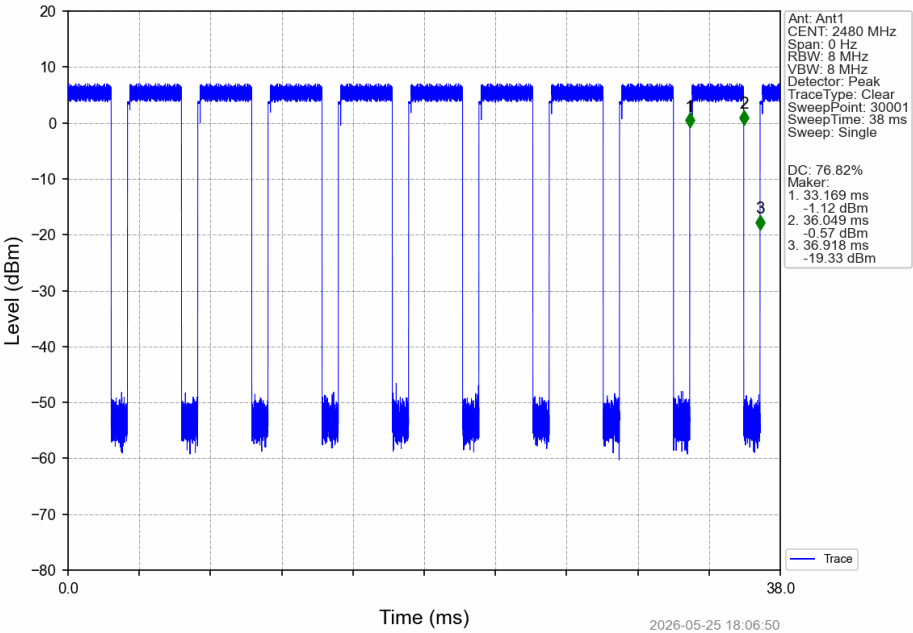
8DPSK 3DH5 LCH 2402MHz Ant1 NTN



8DPSK 3DH5 MCH 2441MHz Ant1 NTN



8DPSK 3DH5 HCH 2480MHz Ant1 NTN



2. Bandwidth

2.1 Test Result

2.1.1 OBW

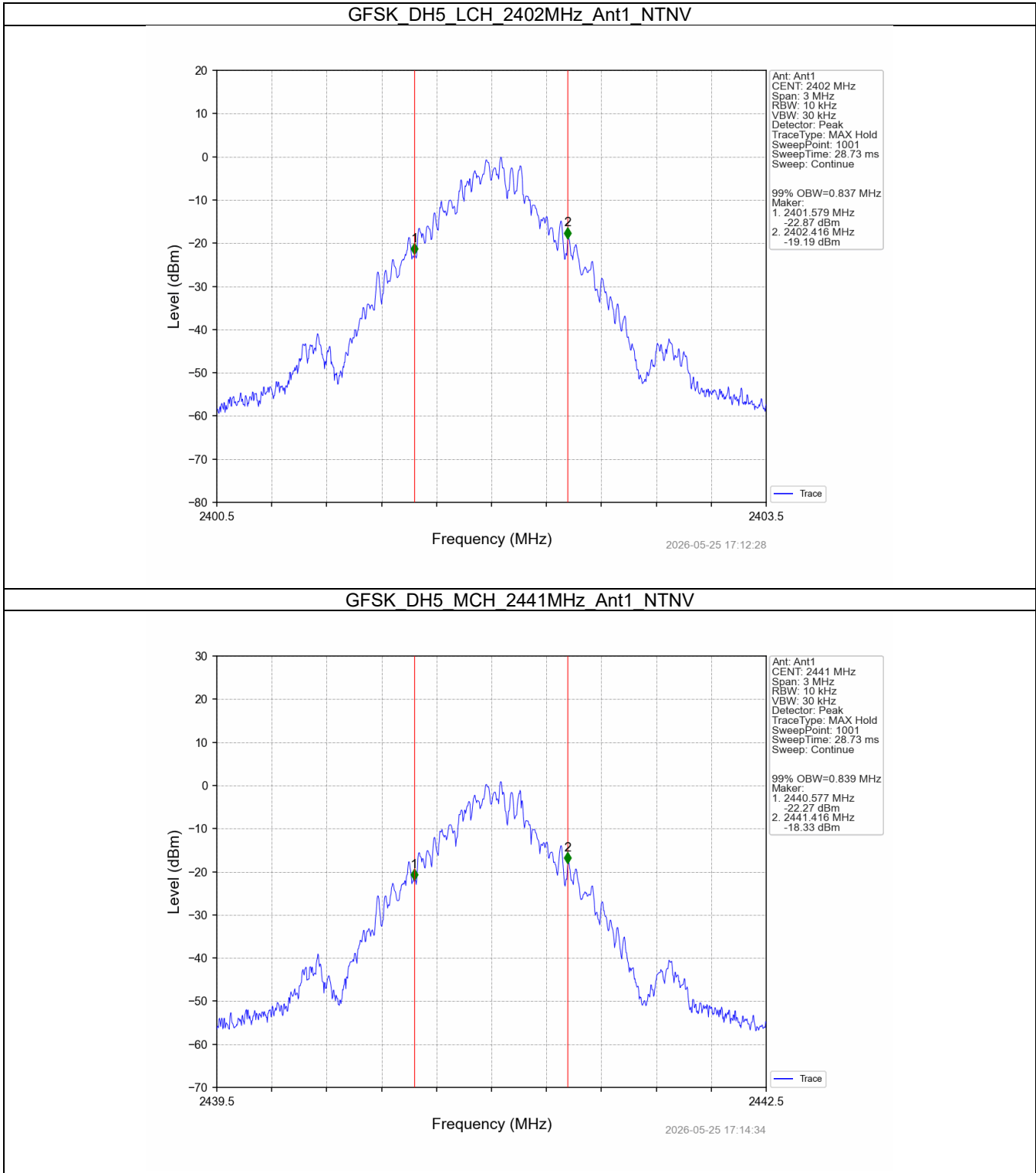
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.837	/	Pass
		2441	DH5	1	0.839	/	Pass
		2480	DH5	1	0.848	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.193	/	Pass
		2441	2DH5	1	1.189	/	Pass
		2480	2DH5	1	1.199	/	Pass
8DPSK	SISO	2402	3DH5	1	1.190	/	Pass
		2441	3DH5	1	1.197	/	Pass
		2480	3DH5	1	1.204	/	Pass

2.1.2 20dB BW

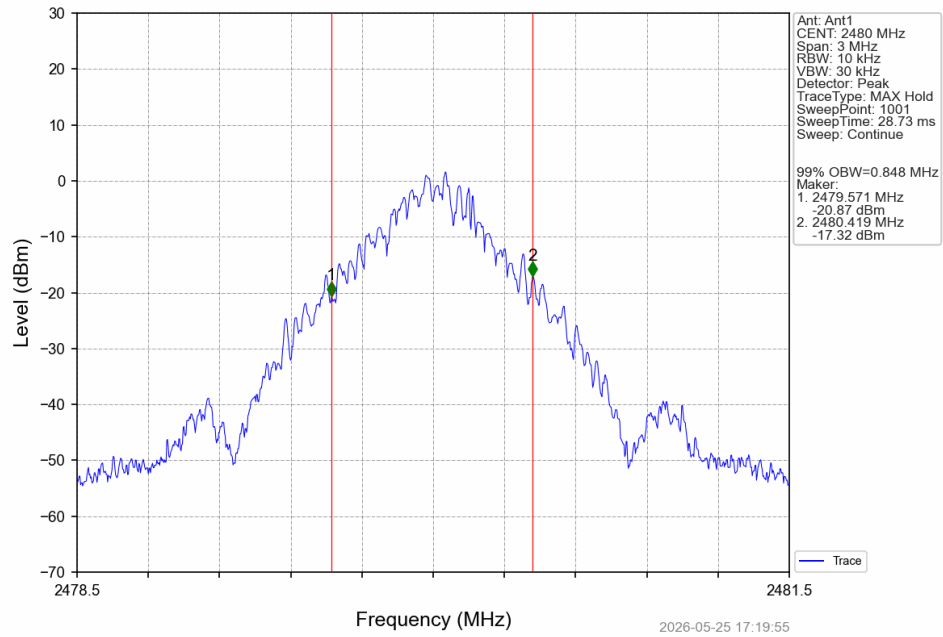
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.884	/	Pass
		2441	DH5	1	0.884	/	Pass
		2480	DH5	1	0.884	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.319	/	Pass
		2441	2DH5	1	1.319	/	Pass
		2480	2DH5	1	1.320	/	Pass
8DPSK	SISO	2402	3DH5	1	1.309	/	Pass
		2441	3DH5	1	1.296	/	Pass
		2480	3DH5	1	1.293	/	Pass

2.2 Test Graph

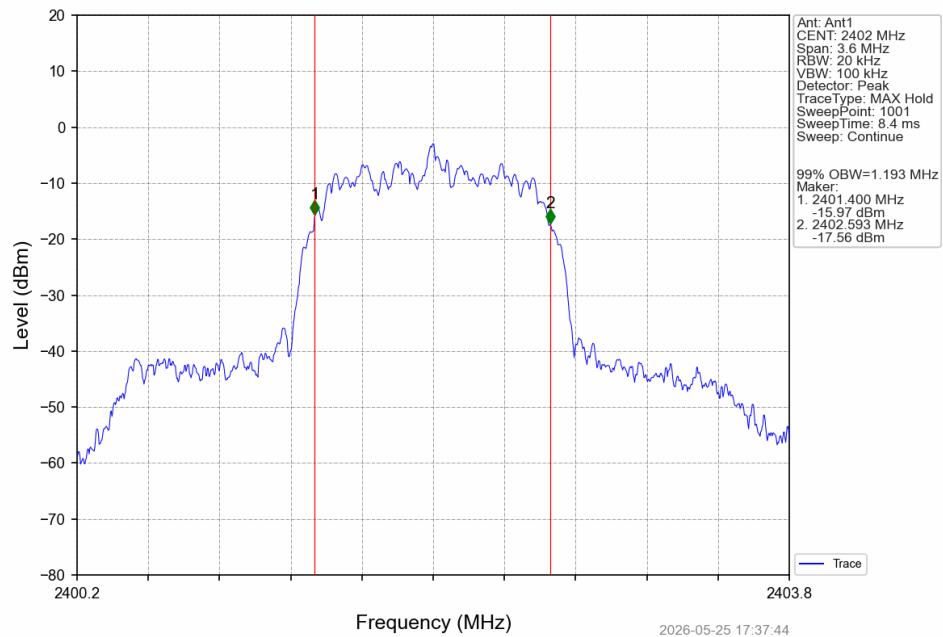
2.2.1 OBW



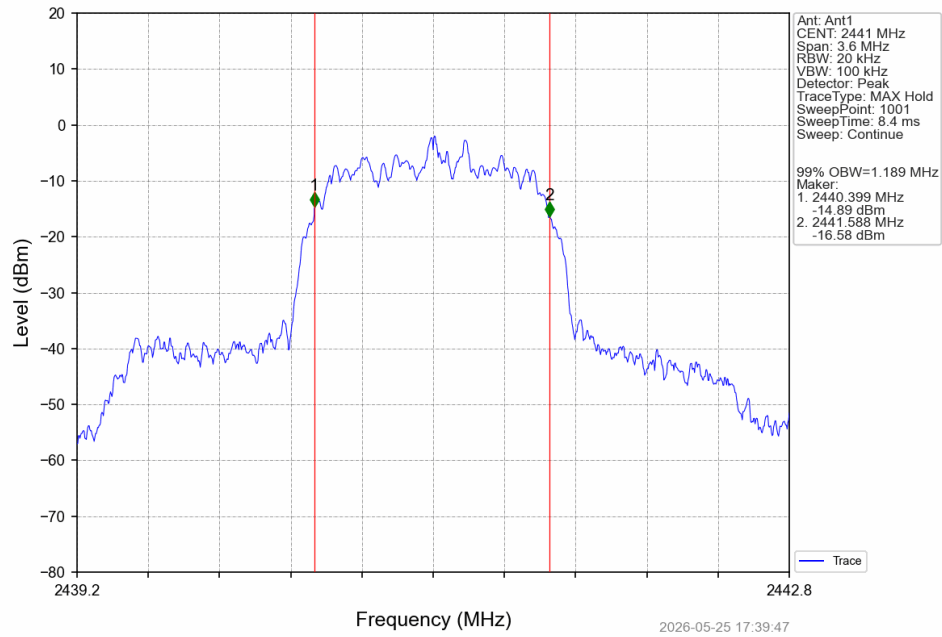
GFSK DH5 HCH 2480MHz Ant1 NTN



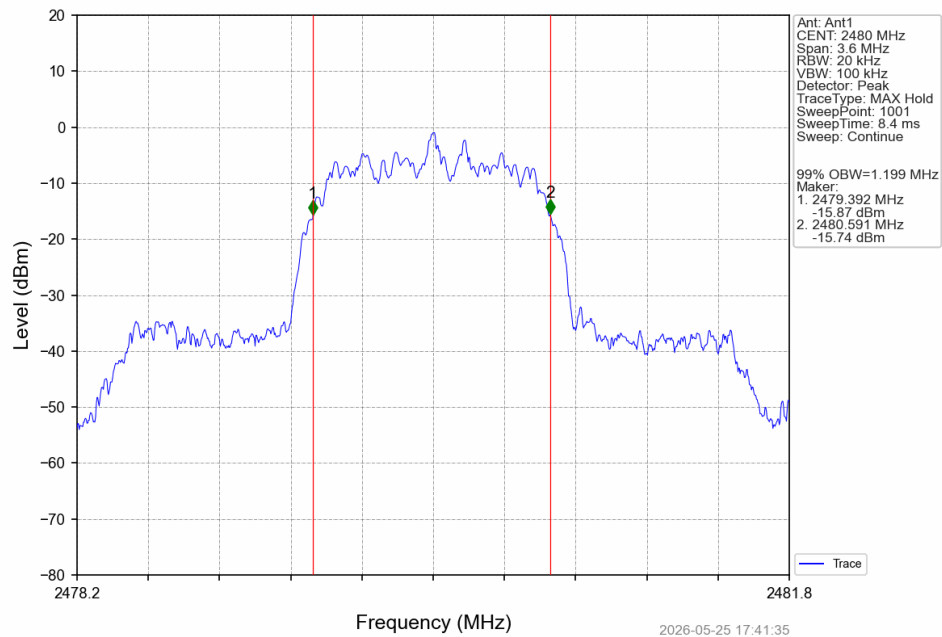
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1 NTN



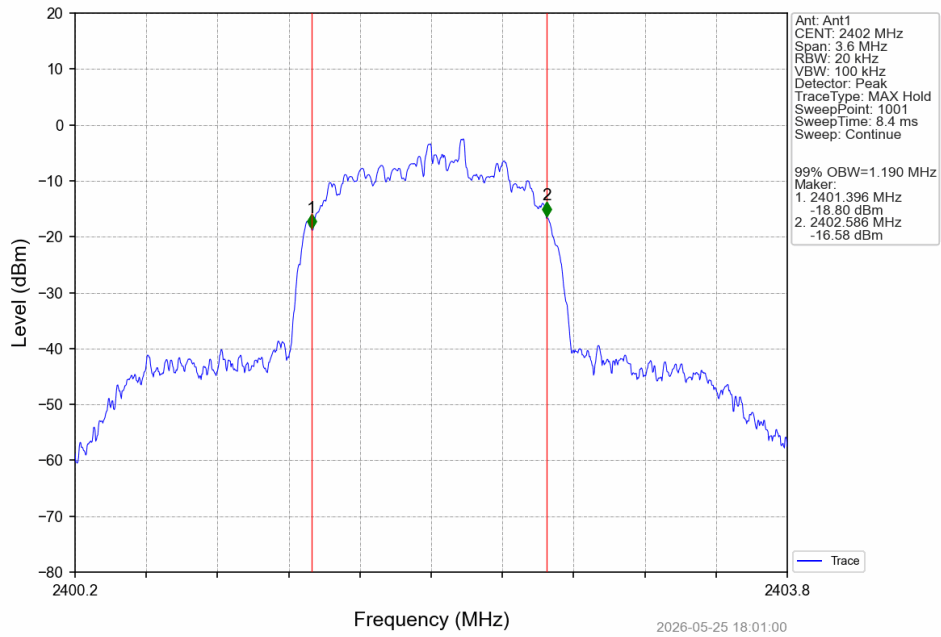
Pi/4DQPSK 2DH5 MCH 2441MHz Ant1 NTN



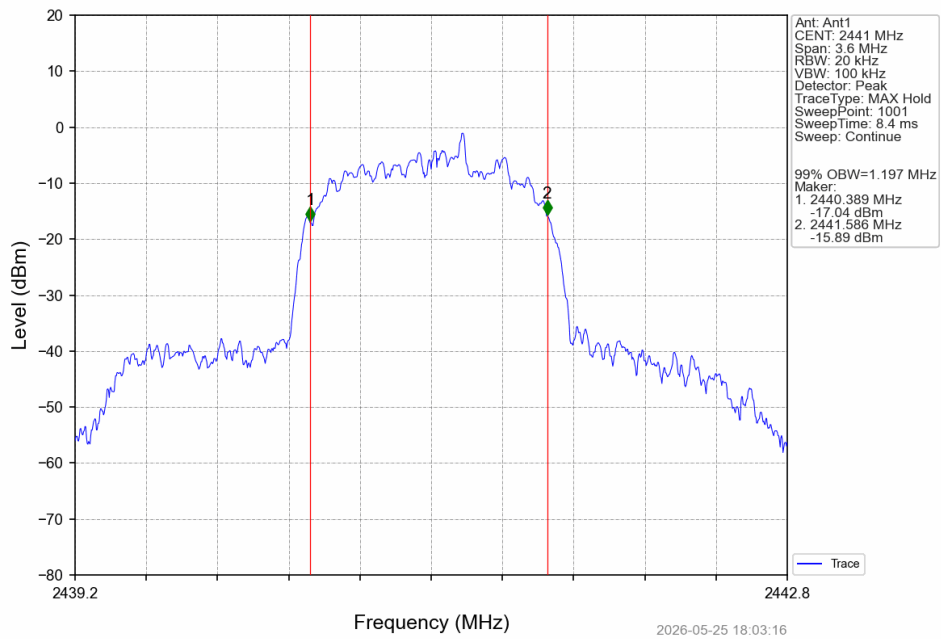
Pi/4DQPSK 2DH5 HCH 2480MHz Ant1 NTN



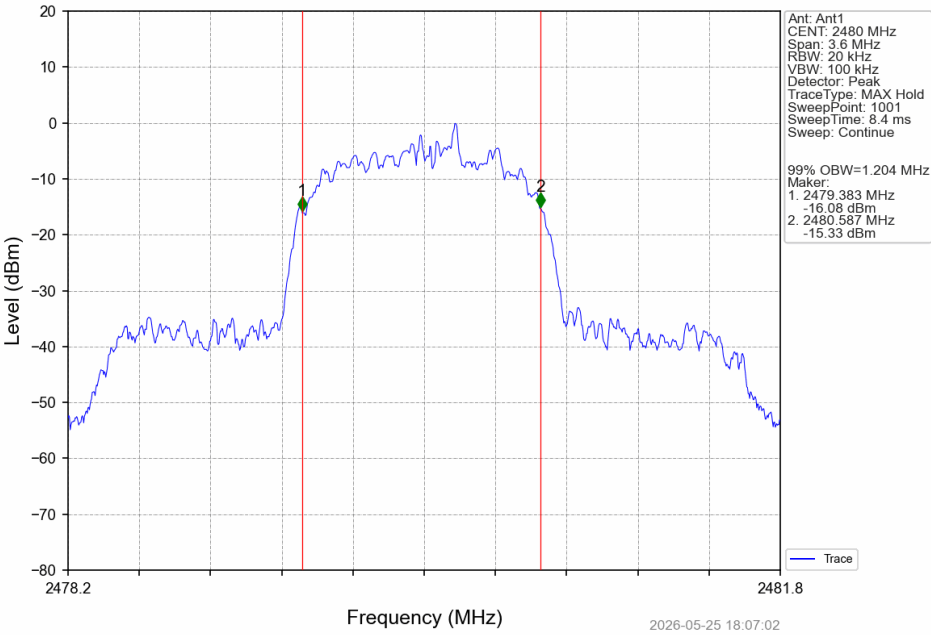
8DPSK 3DH5 LCH 2402MHz Ant1 NTN



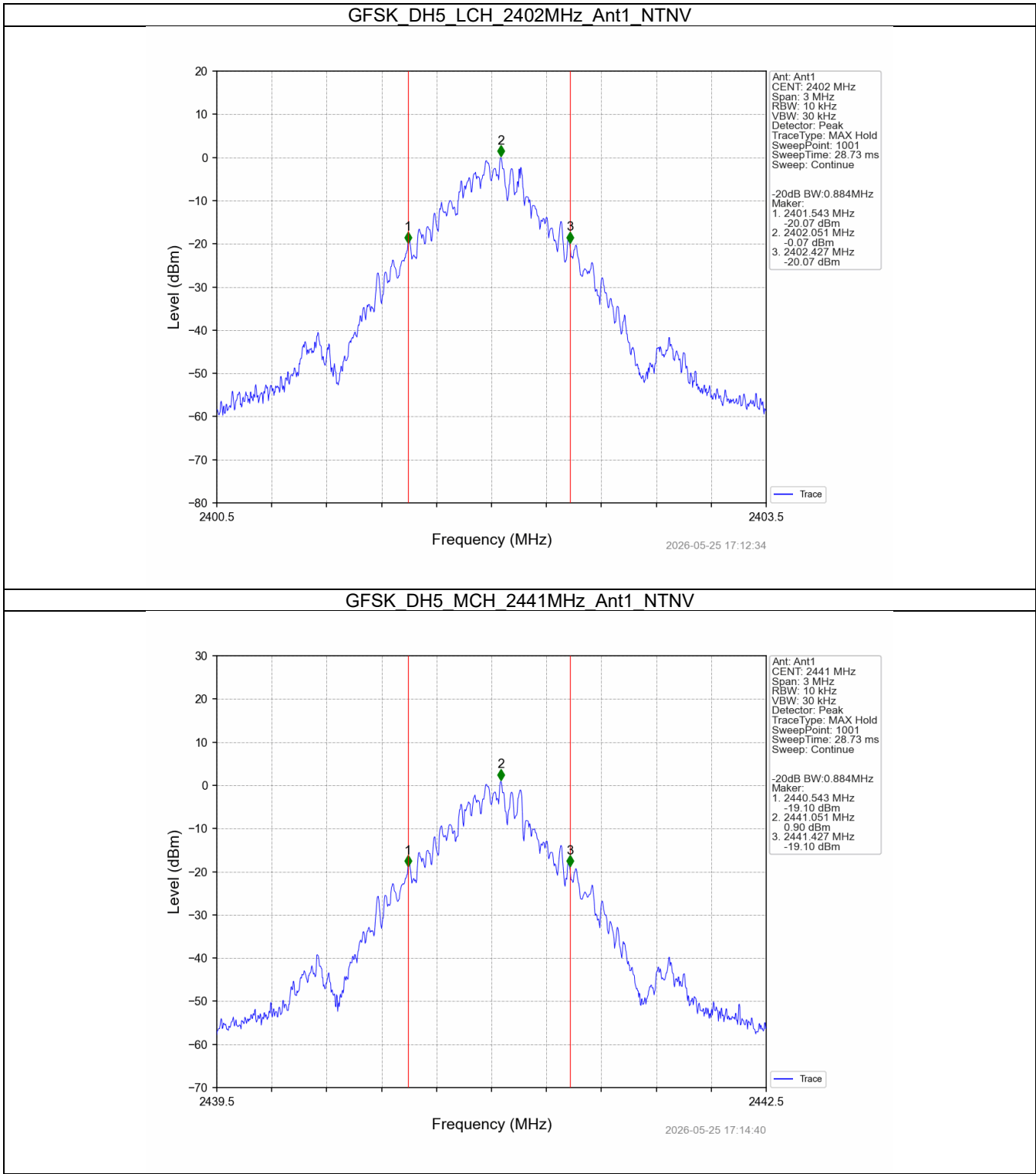
8DPSK 3DH5 MCH 2441MHz Ant1 NTN



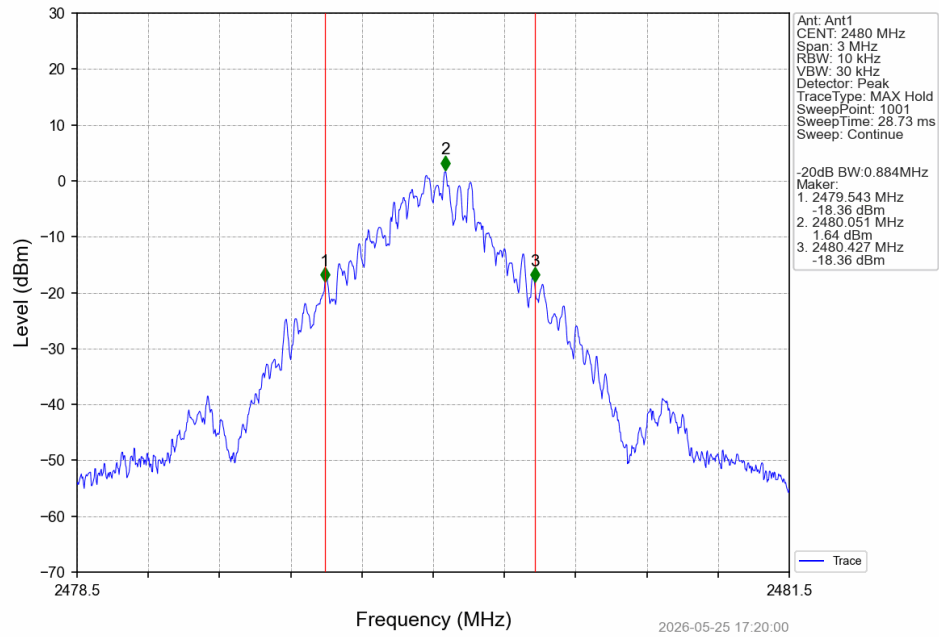
8DPSK 3DH5 HCH 2480MHz Ant1 NTN



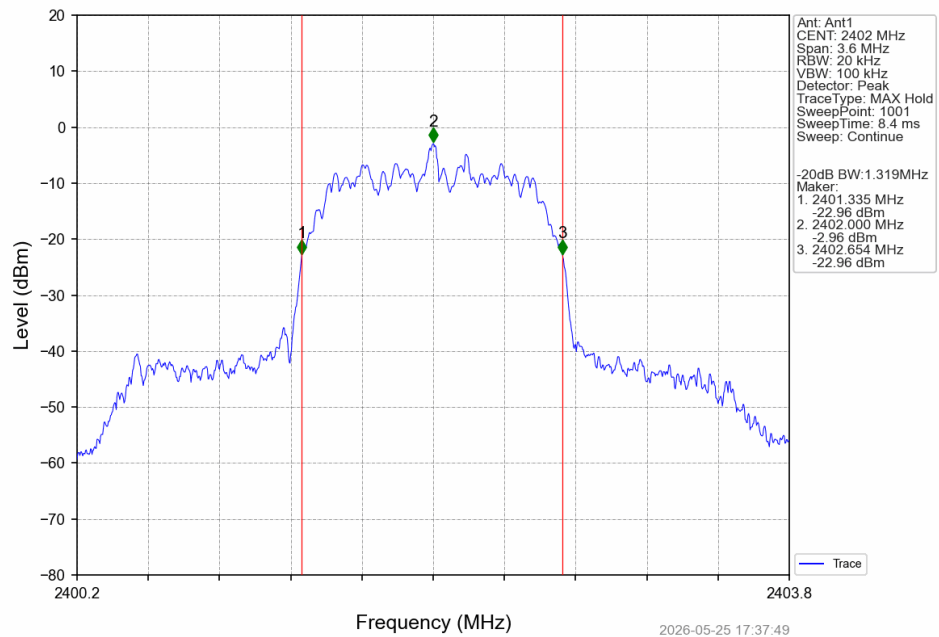
2.2.2 20dB BW



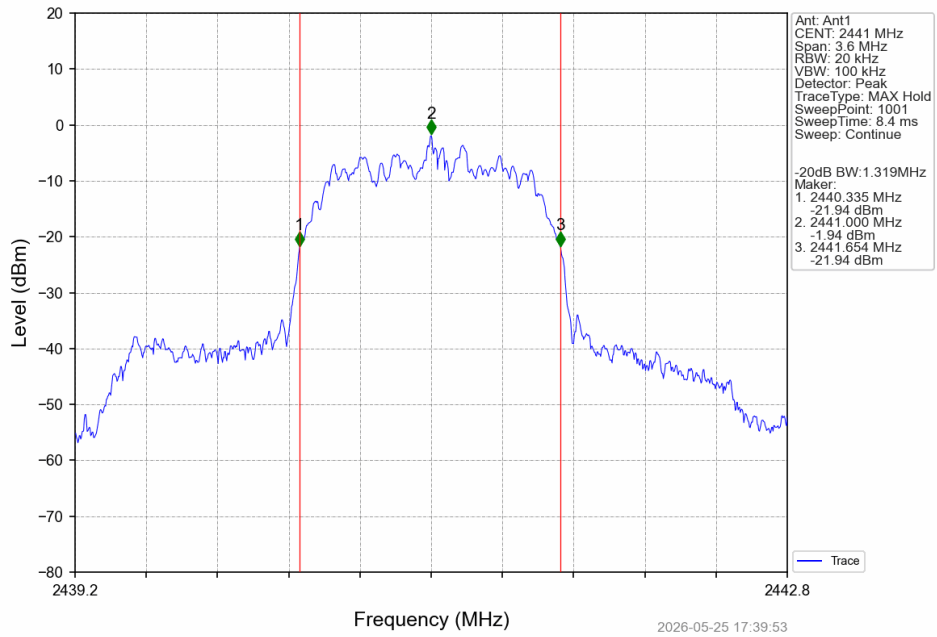
GFSK DH5 HCH 2480MHz Ant1 NTNV



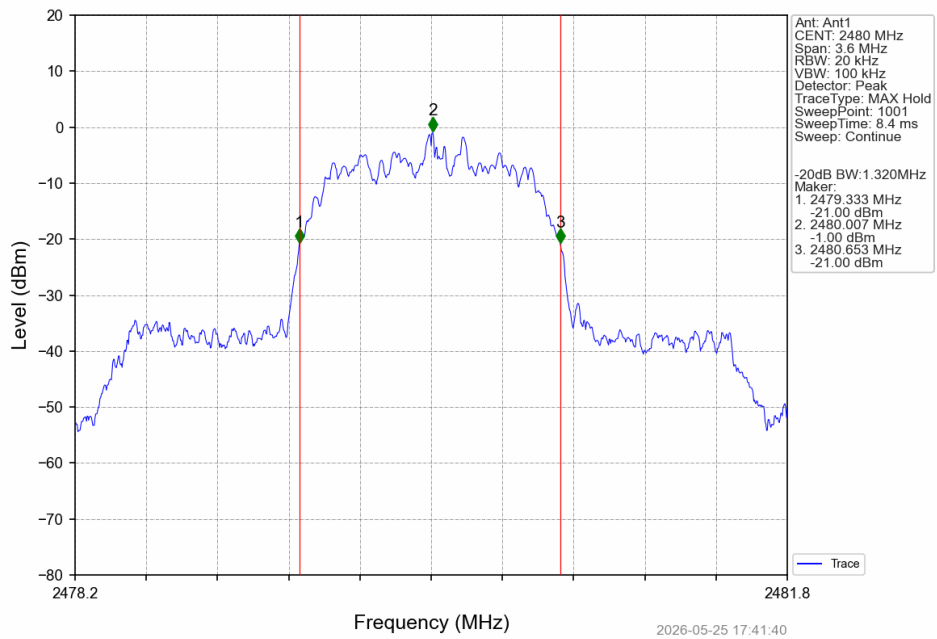
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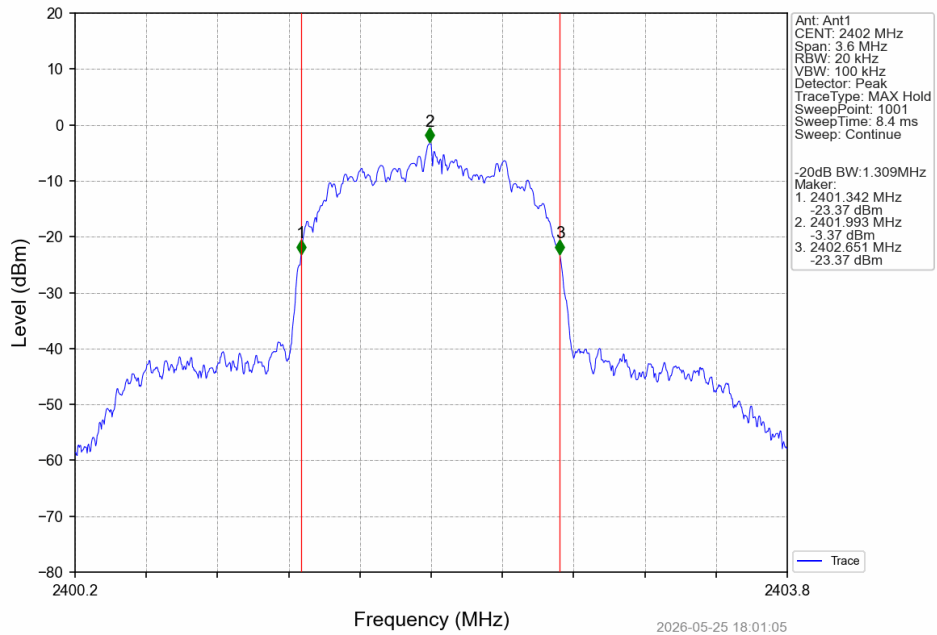
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



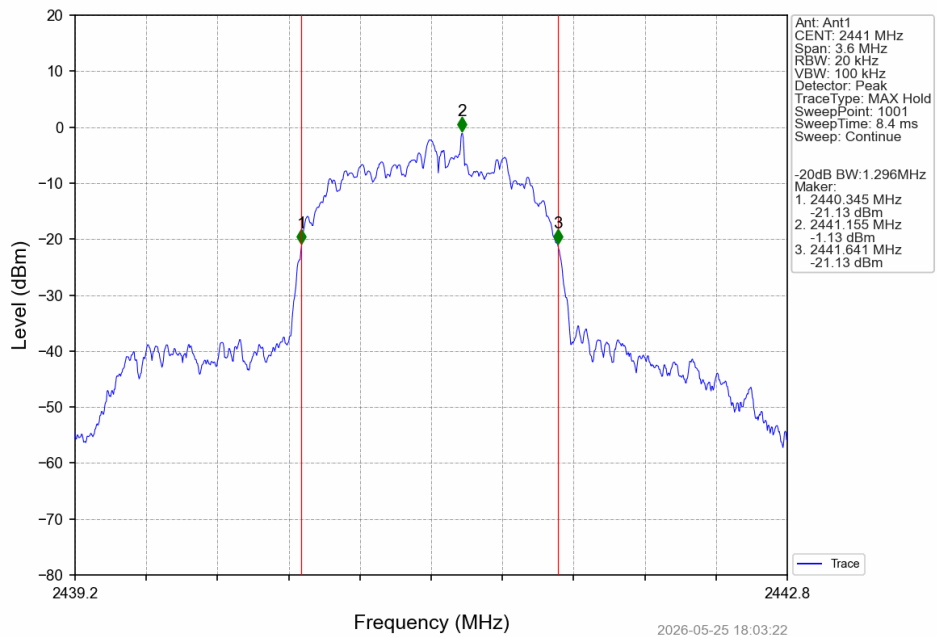
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



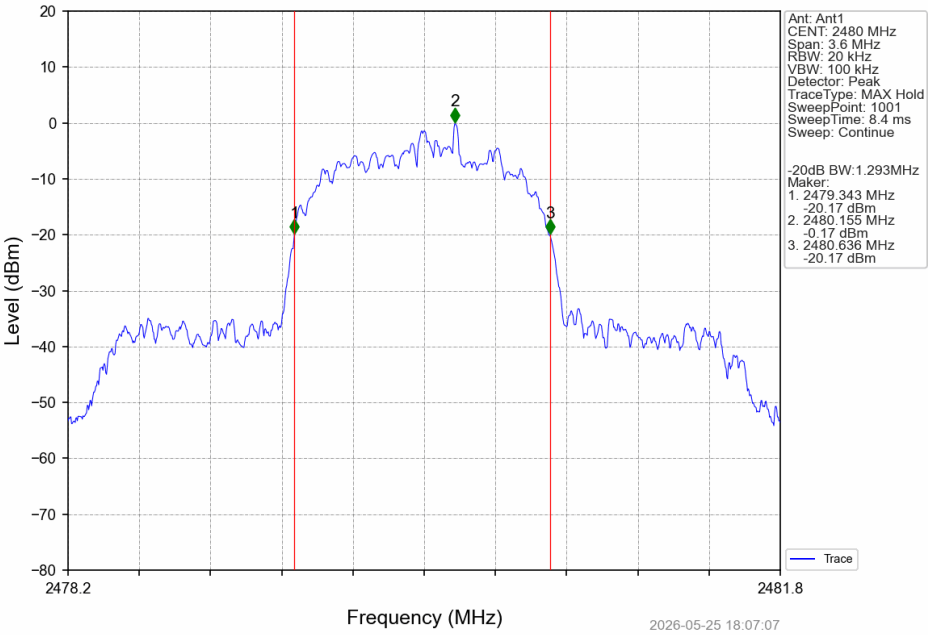
8DPSK 3DH5 LCH 2402MHz Ant1 NTN



8DPSK 3DH5 MCH 2441MHz Ant1 NTN



8DPSK 3DH5 HCH 2480MHz Ant1 NTN



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	5.48	≤ 30	Pass
		2441	DH5	6.41	≤ 30	Pass
		2480	DH5	7.18	≤ 30	Pass
Pi/4DQPSK	SISO	2402	2DH5	4.83	≤ 20.97	Pass
		2441	2DH5	5.83	≤ 20.97	Pass
		2480	2DH5	6.65	≤ 20.97	Pass
8DPSK	SISO	2402	3DH5	5.10	≤ 20.97	Pass
		2441	3DH5	6.07	≤ 20.97	Pass
		2480	3DH5	6.81	≤ 20.97	Pass

4. Carrier Frequency Separation

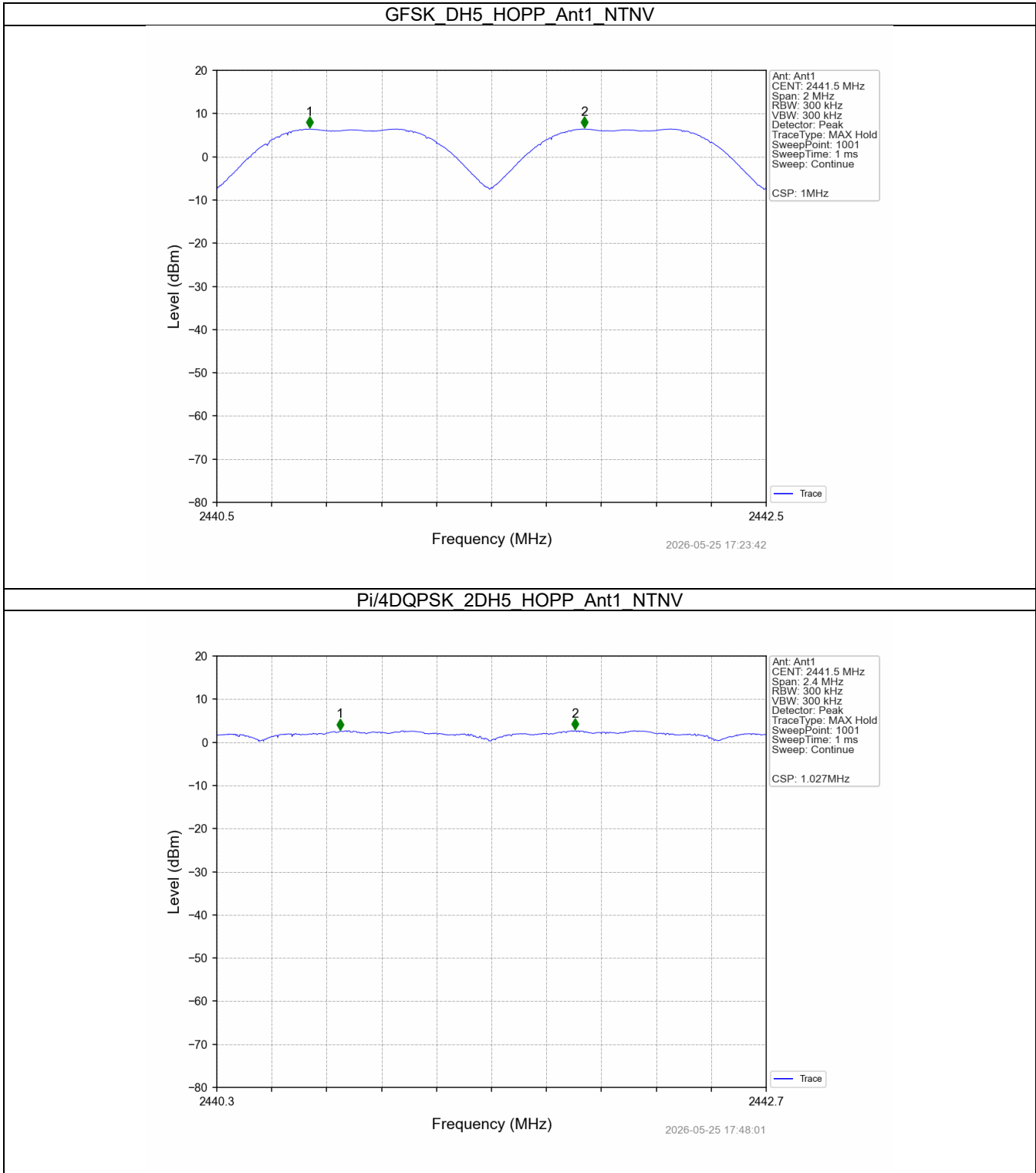
4.1 Test Result

4.1.1 Ant1

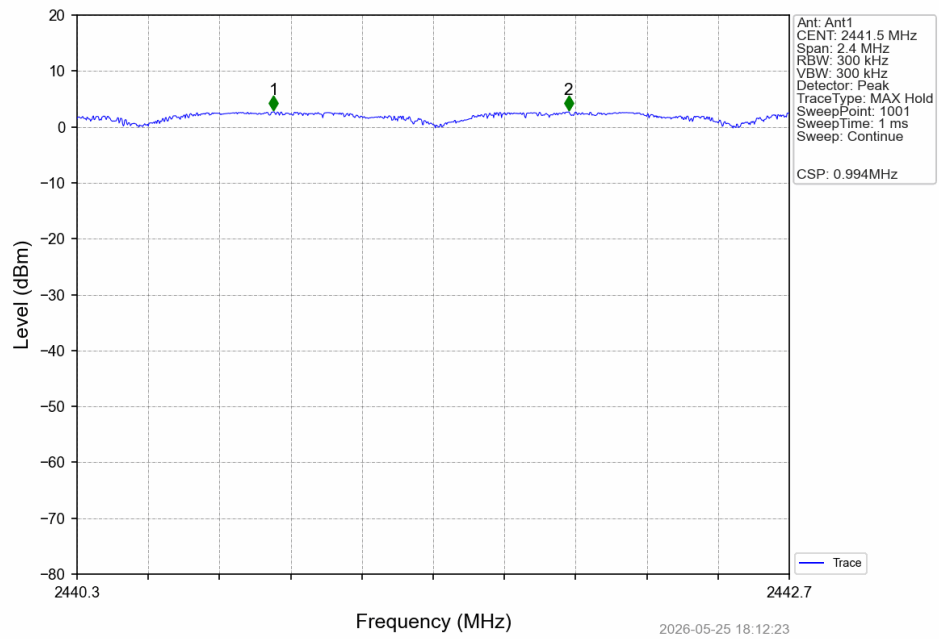
Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	1.000	0.884	≥ 0.884	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	1.027	1.320	≥ 0.88	Pass
8DPSK	SISO	HOPP	3DH5	0.994	1.309	≥ 0.873	Pass

4.2 Test Graph

4.2.1 Ant1



8DPSK 3DH5 HOPP Ant1 NTN



5. Number of Hopping Frequencies

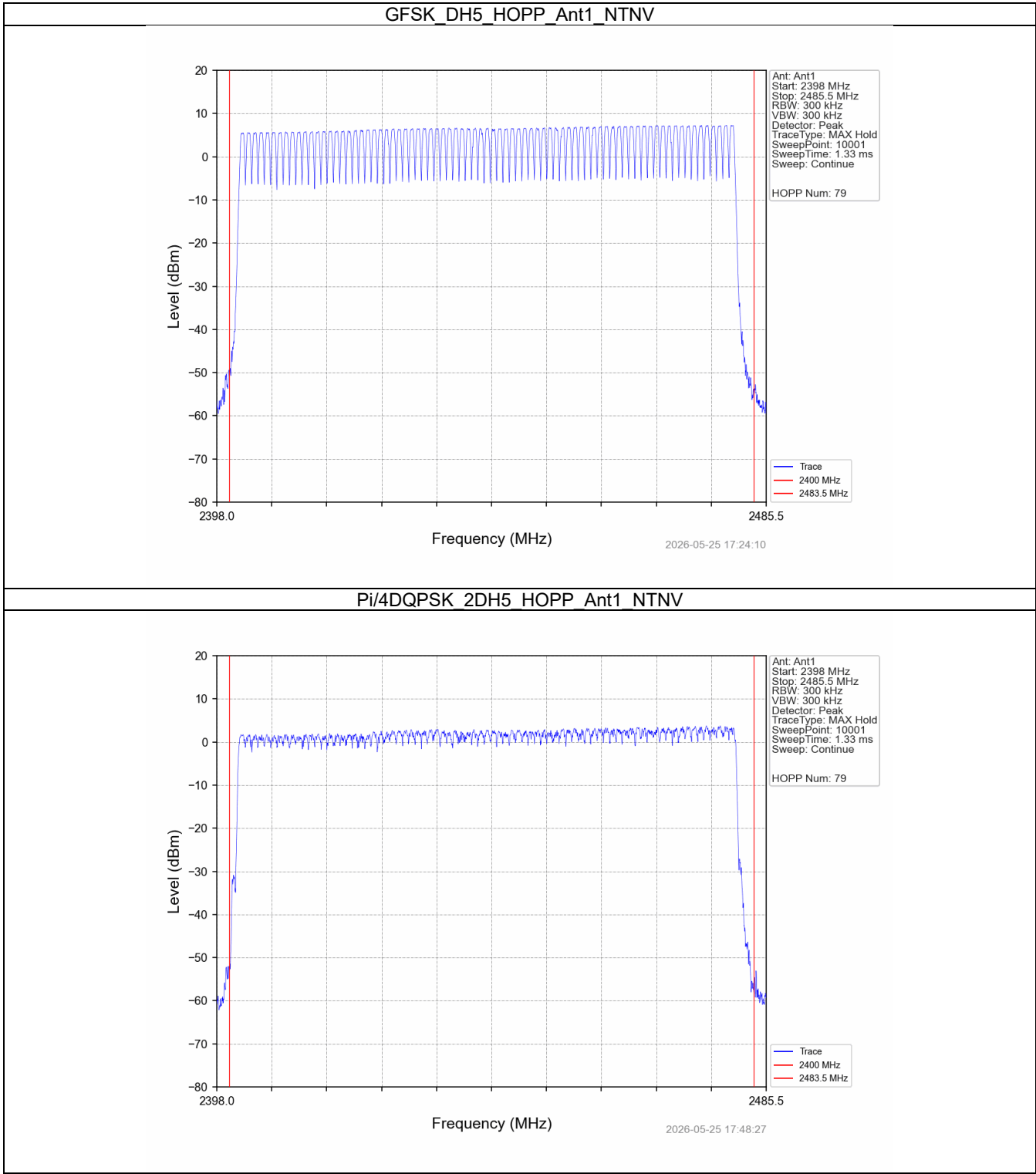
5.1 Test Result

5.1.1 HoppNum

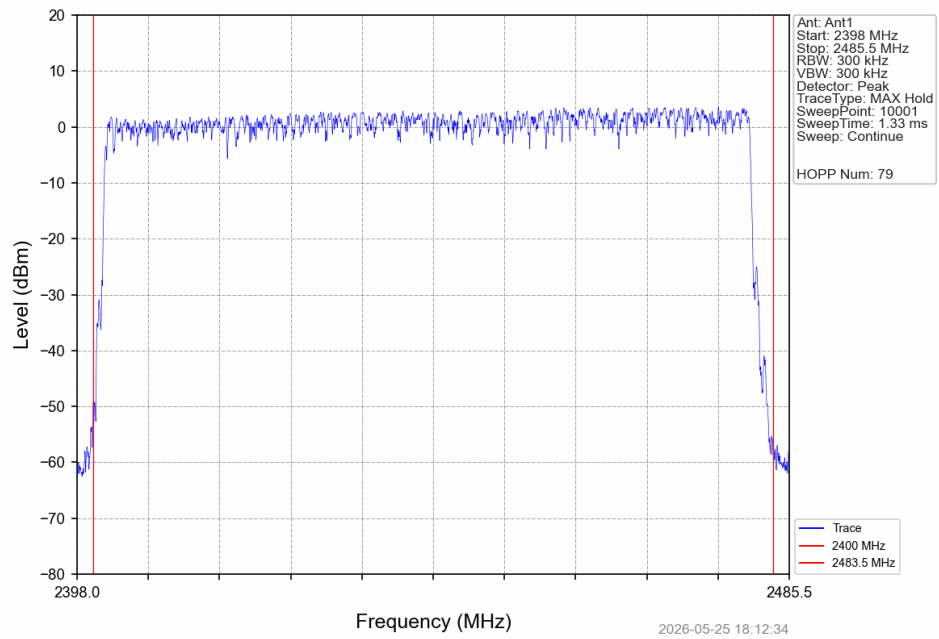
Mode	TX Type	Frequency (MHz)	Packet Type	Num of Hopping Frequencies		Verdict
				ANT1	Limit	
GFSK	SISO	HOPP	DH5	79	>=15	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	79	>=15	Pass
8DPSK	SISO	HOPP	3DH5	79	>=15	Pass

5.2 Test Graph

5.2.1 HoppNum



8DPSK 3DH5 HOPP Ant1 NTN



6. Time of Occupancy (Dwell Time)

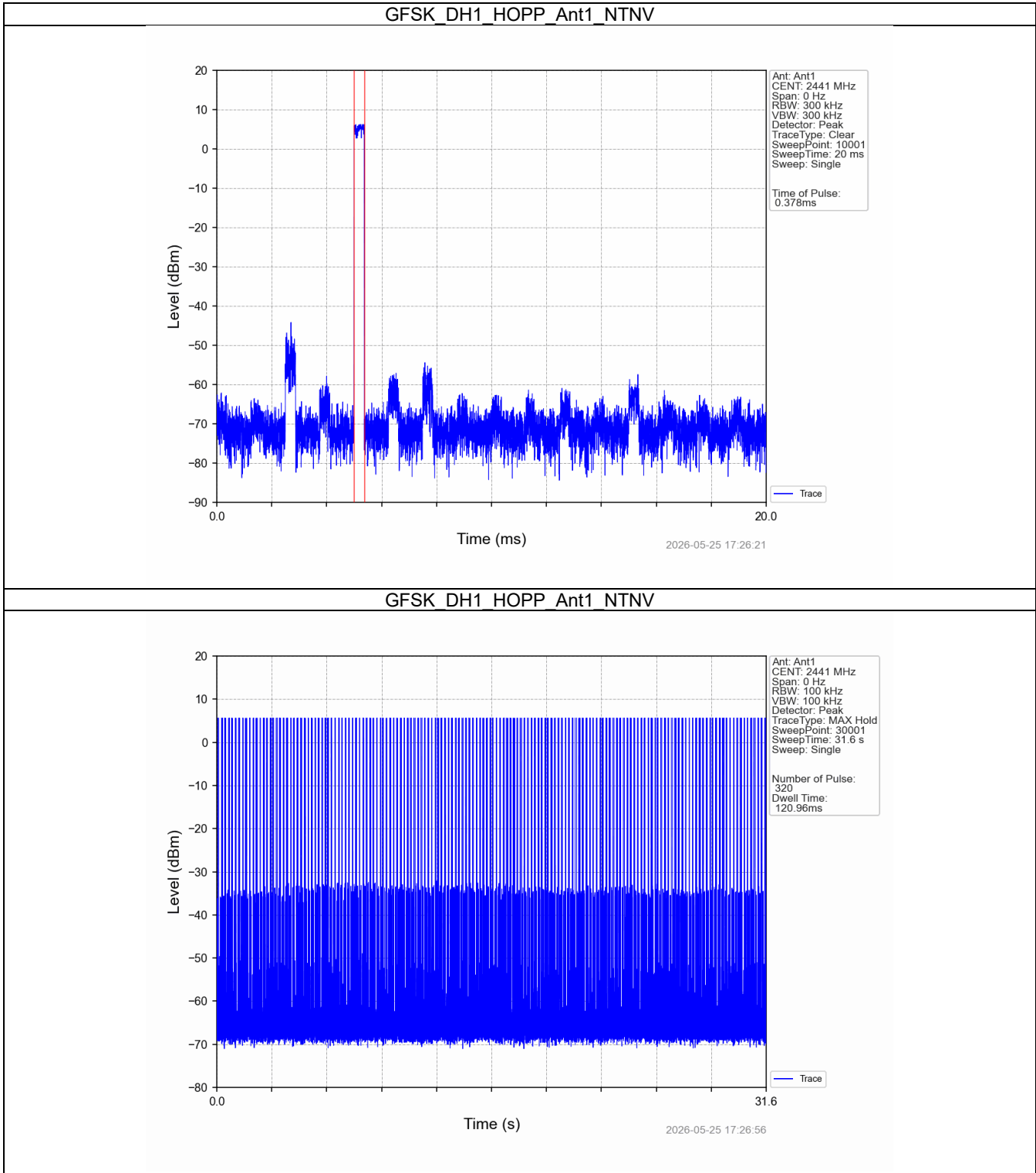
6.1 Test Result

6.1.1 Ant1

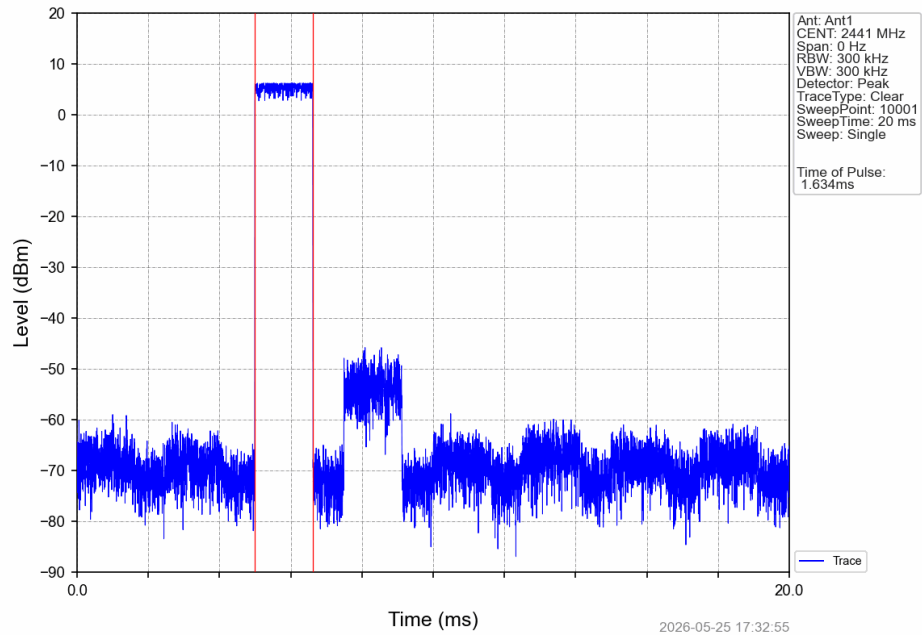
Ant1									
Mode	Tx Type	Frequency (MHz)	Packet Type	Duration of Single Pulse (ms)	Observation Period (s)	Num of Pulse in Observation Period	Dwell Time (ms)	Limit (ms)	Verdict
GFSK	SISO	HOPP	DH1	0.378	31.600	320	120.960	<=400	Pass
			DH3	1.634	31.600	157	256.538	<=400	Pass
			DH5	2.884	31.600	101	291.284	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.380	31.600	320	121.600	<=400	Pass
			2DH3	1.634	31.600	145	236.930	<=400	Pass
			2DH5	2.882	31.600	107	308.374	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.388	31.600	319	123.772	<=400	Pass
			3DH3	1.638	31.600	164	268.632	<=400	Pass
			3DH5	2.892	31.600	111	321.012	<=400	Pass

6.2 Test Graph

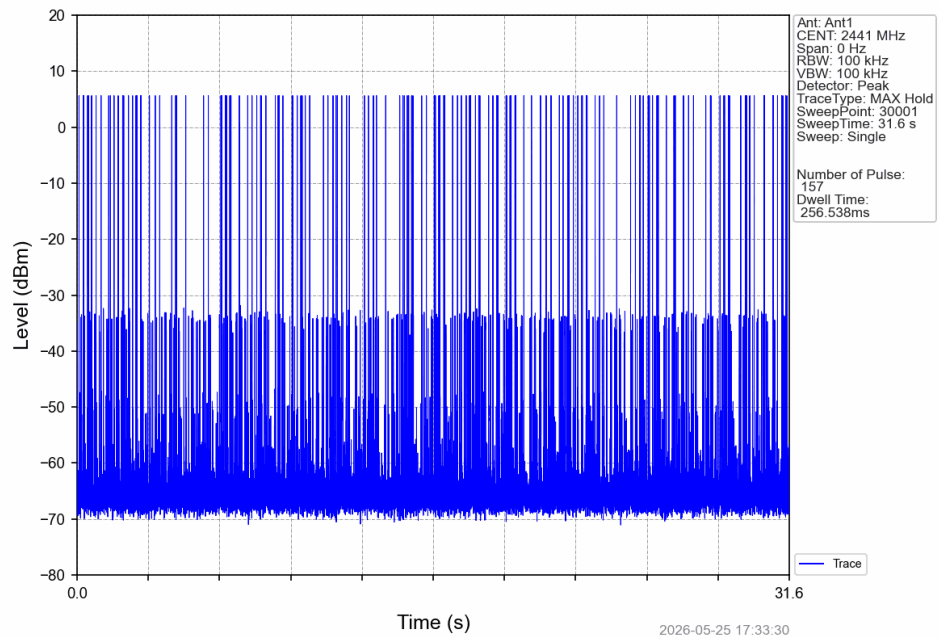
6.2.1 Ant1



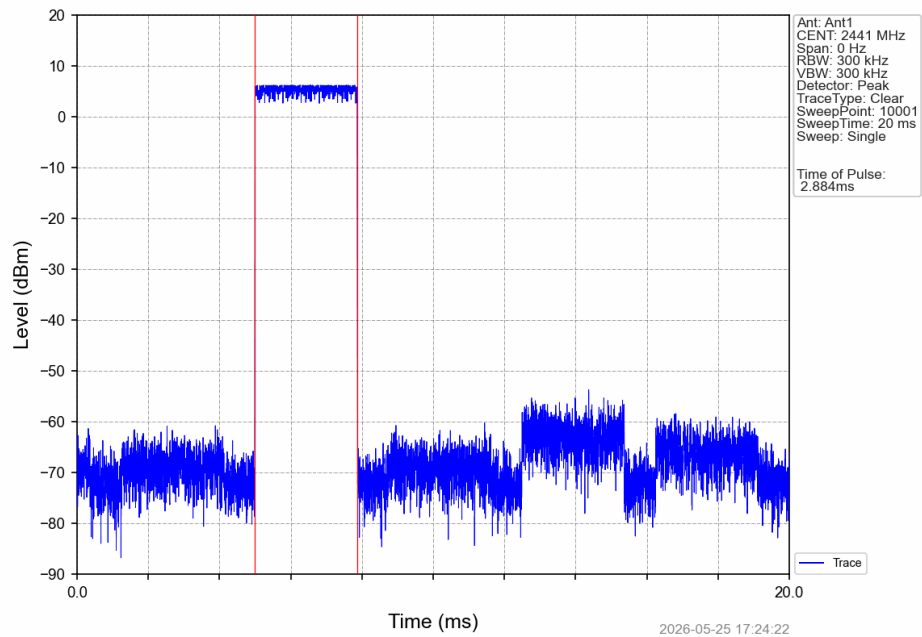
GFSK DH3 HOPP Ant1 NTN



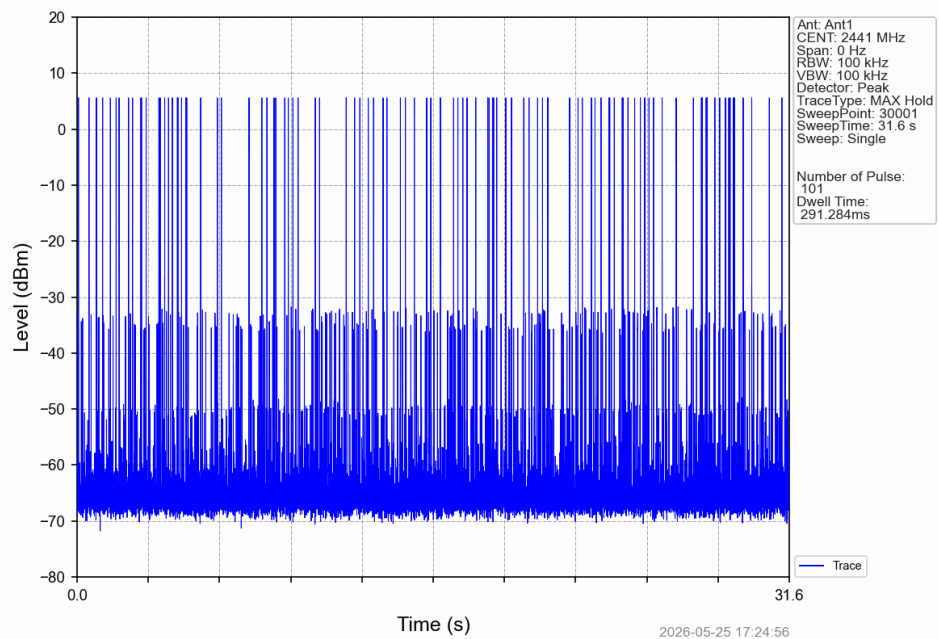
GFSK_DH3_HOPP_Ant1_NTNV



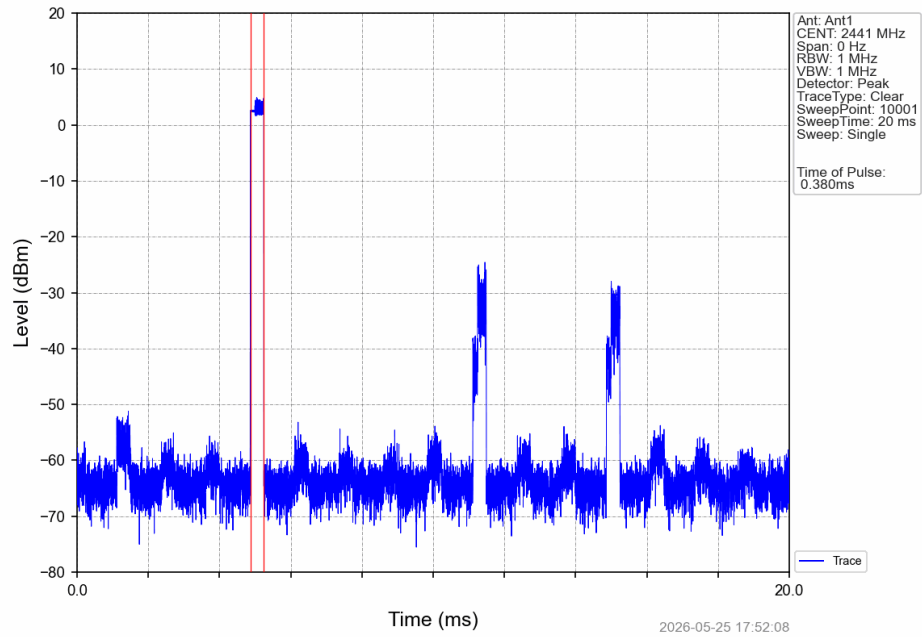
GFSK DH5 HOPP Ant1 NTN



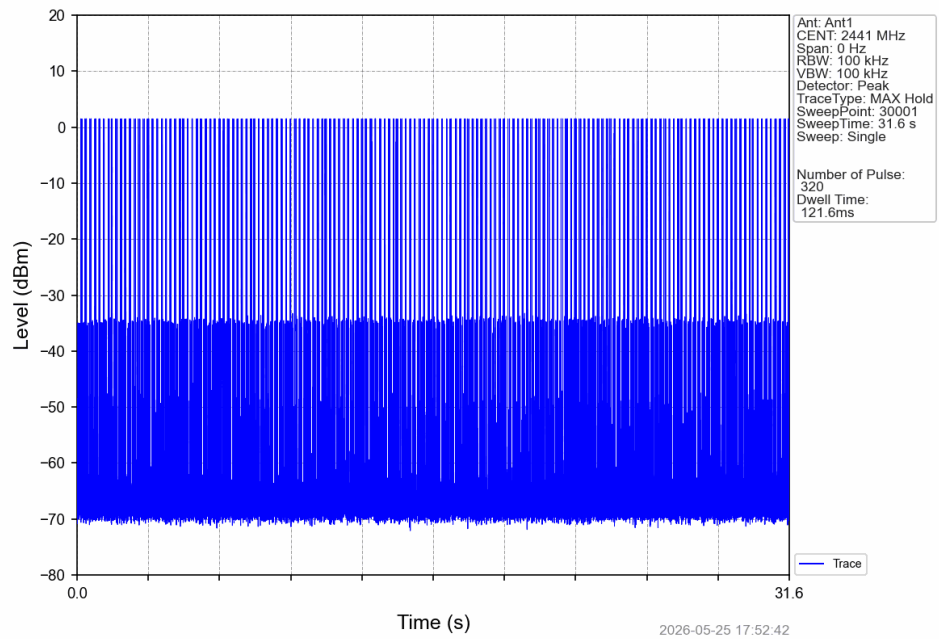
GFSK_DH5_HOPP_Ant1_NTNV



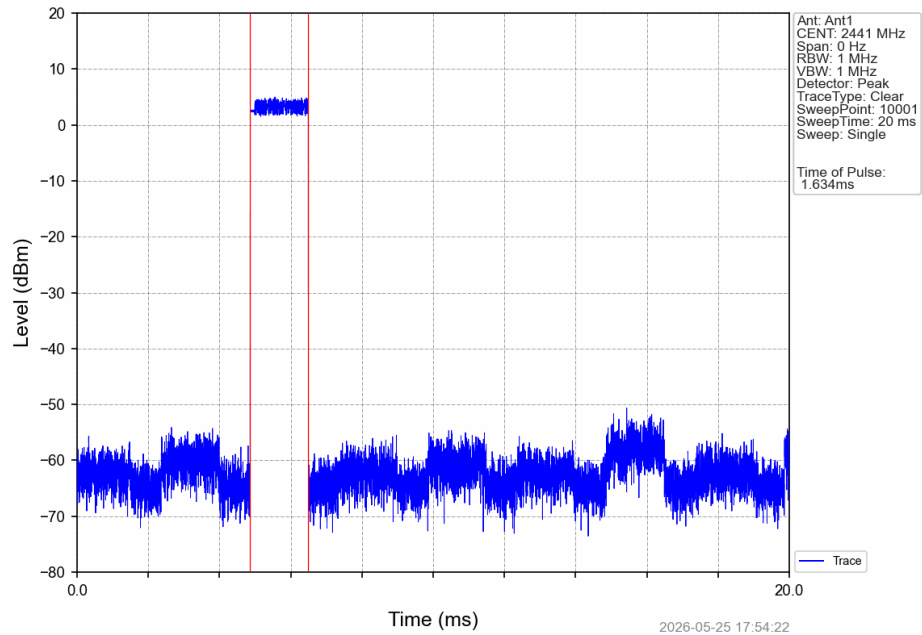
Pi/4DQPSK 2DH1_HOPP_Ant1_NTNV



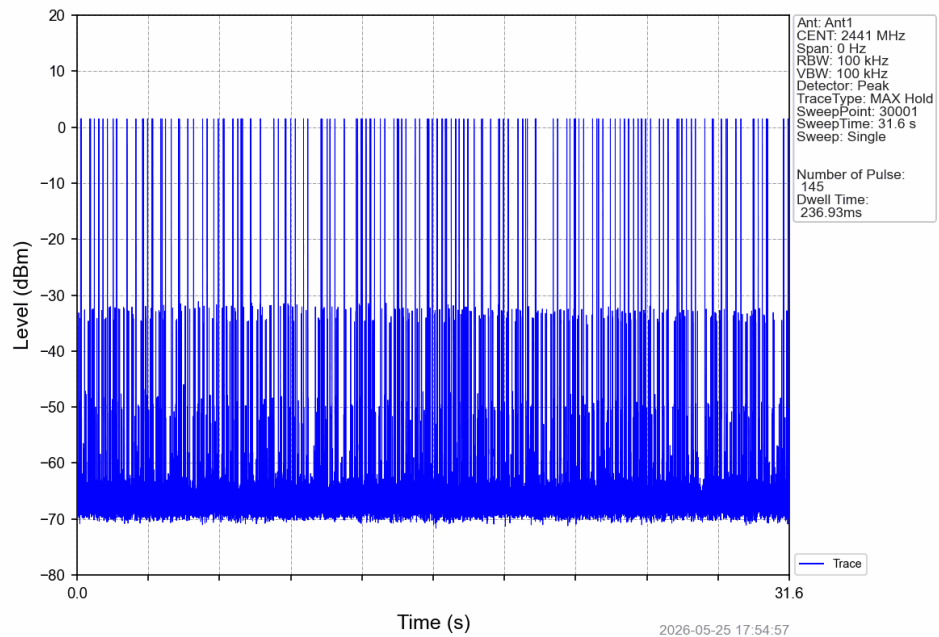
Pi/4DQPSK 2DH1_HOPP_Ant1_NTNV



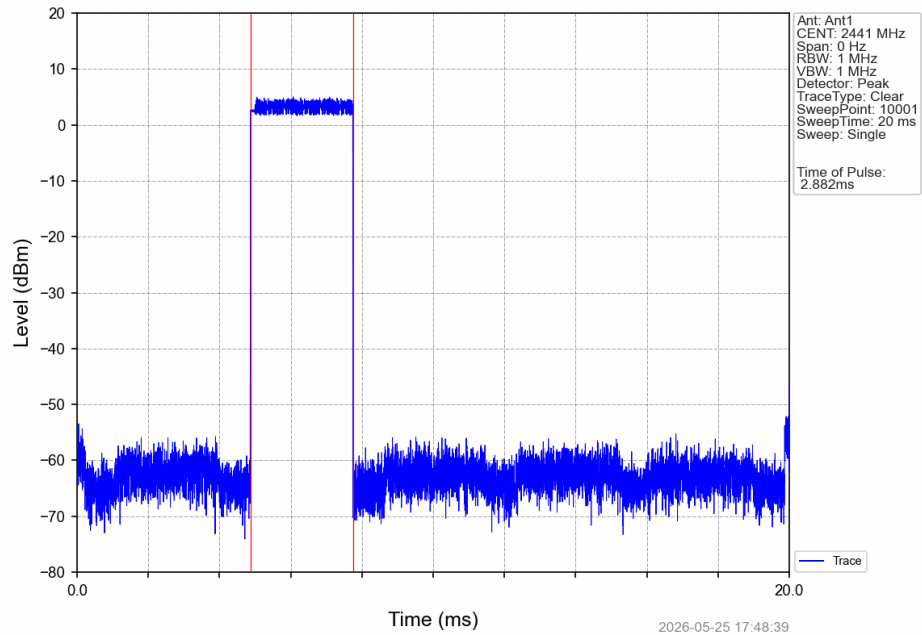
Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV



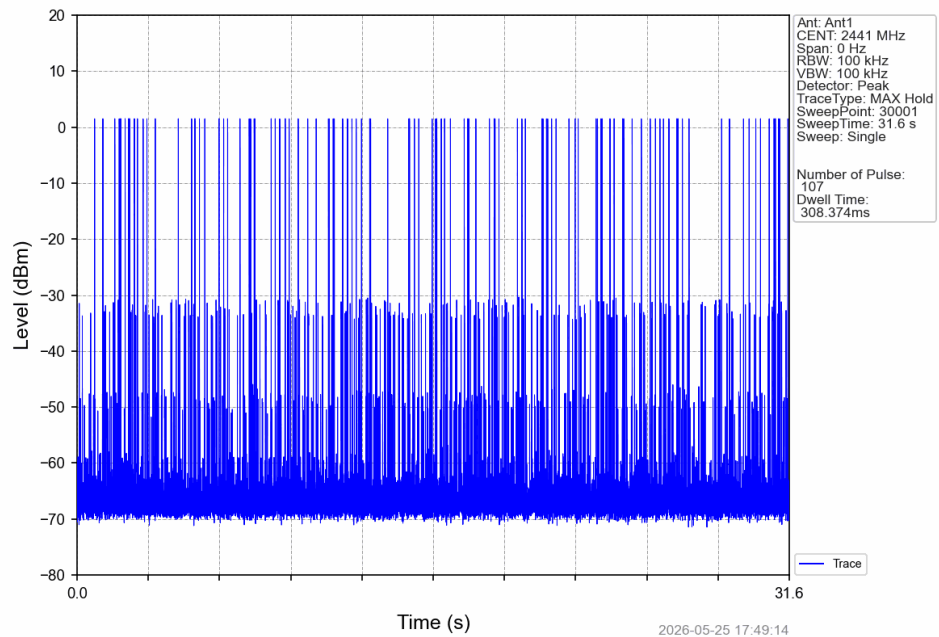
Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV



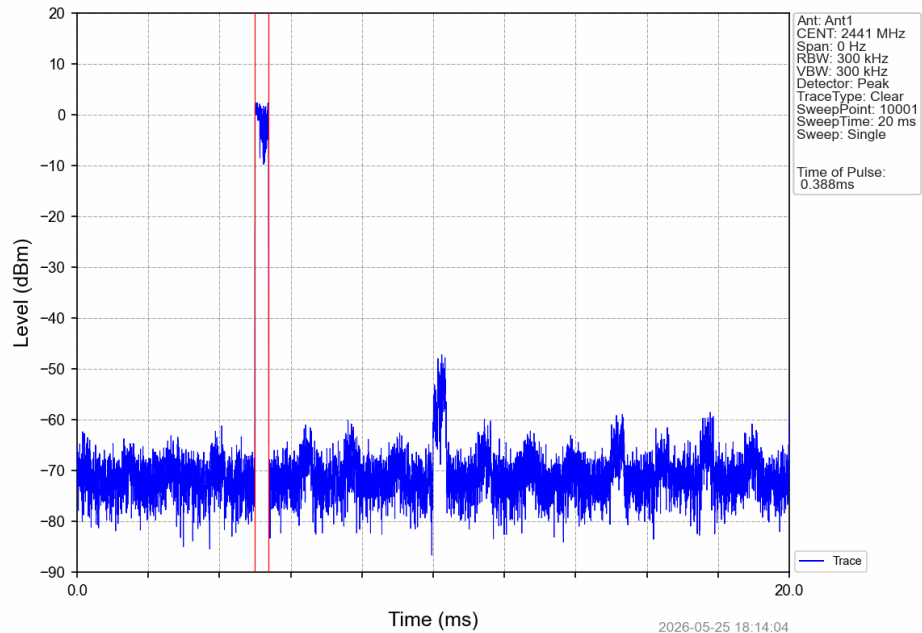
Pi/4DQPSK 2DH5_HOPP_Ant1_NTNV



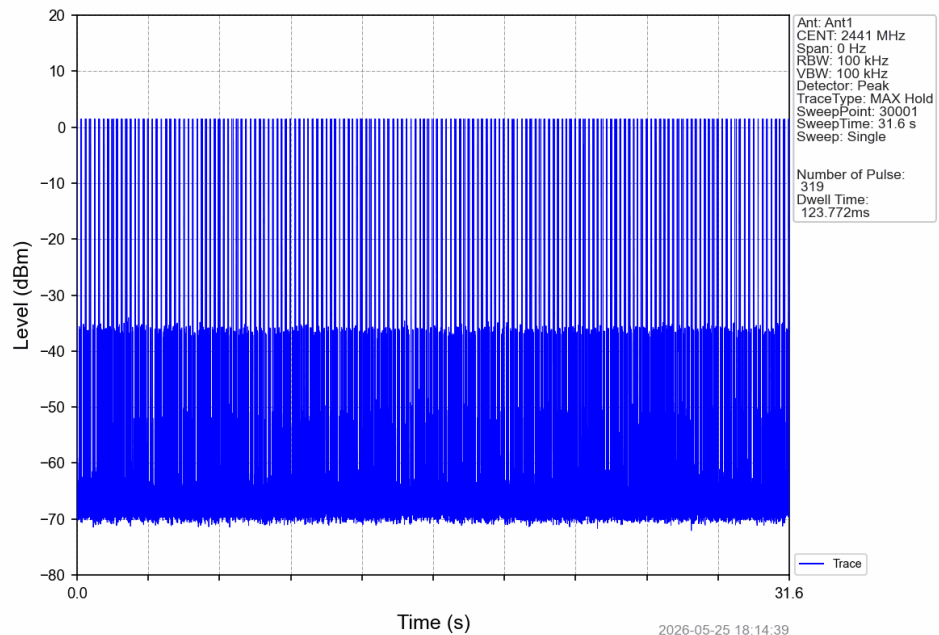
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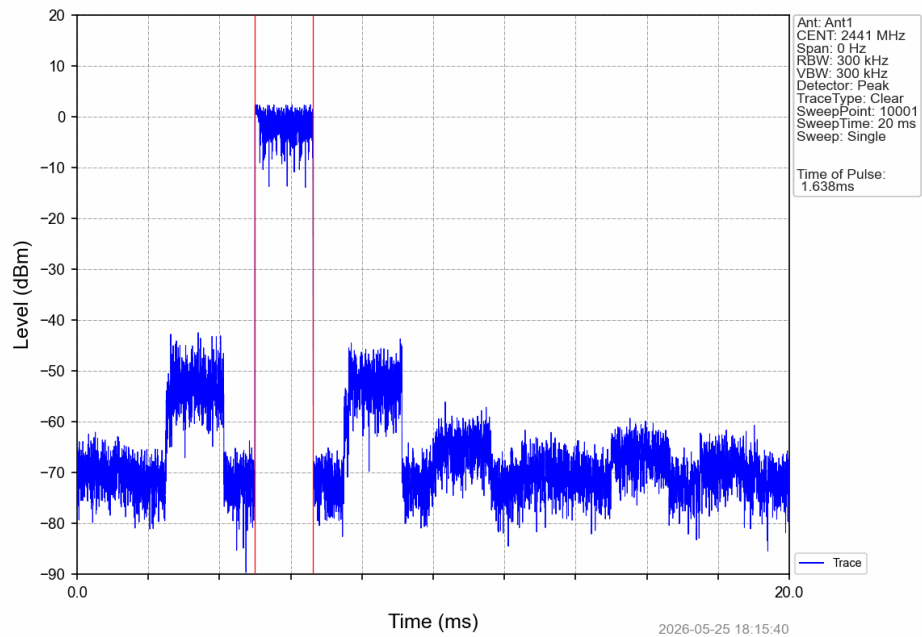
8DPSK 3DH1 HOPP Ant1 NTN



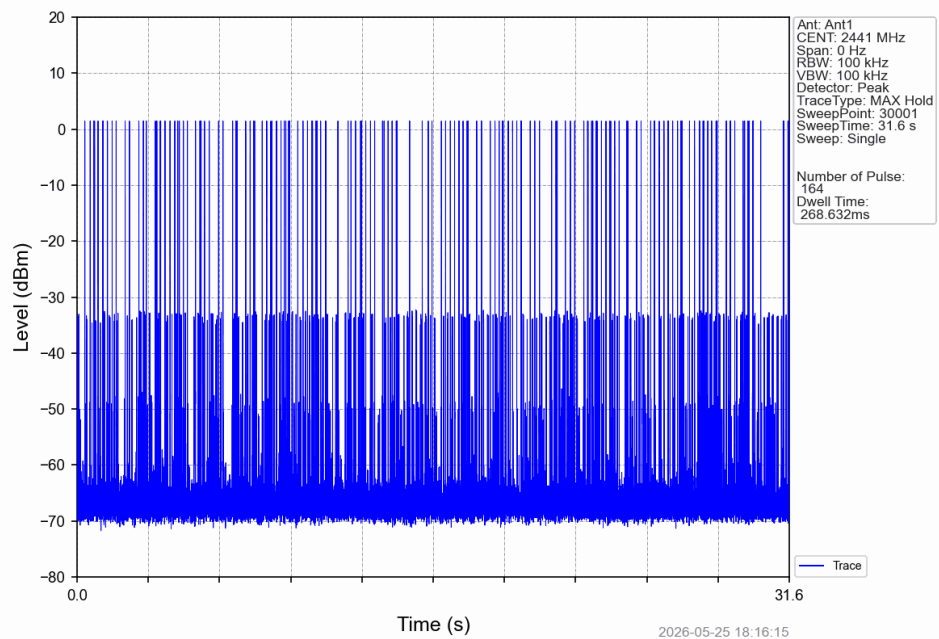
8DPSK_3DH1_HOPP_Ant1_NTNV



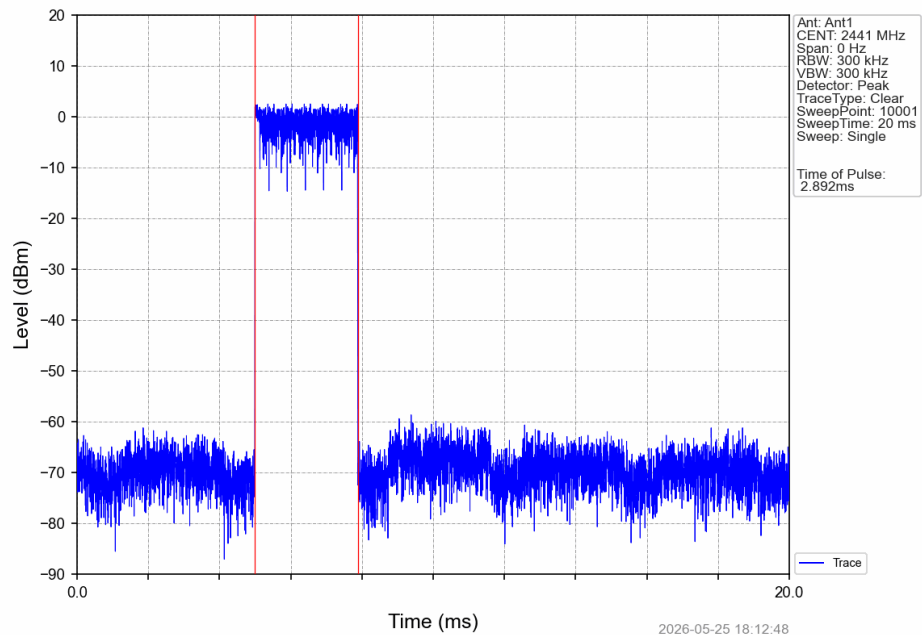
8DPSK 3DH3 HOPP Ant1 NTN



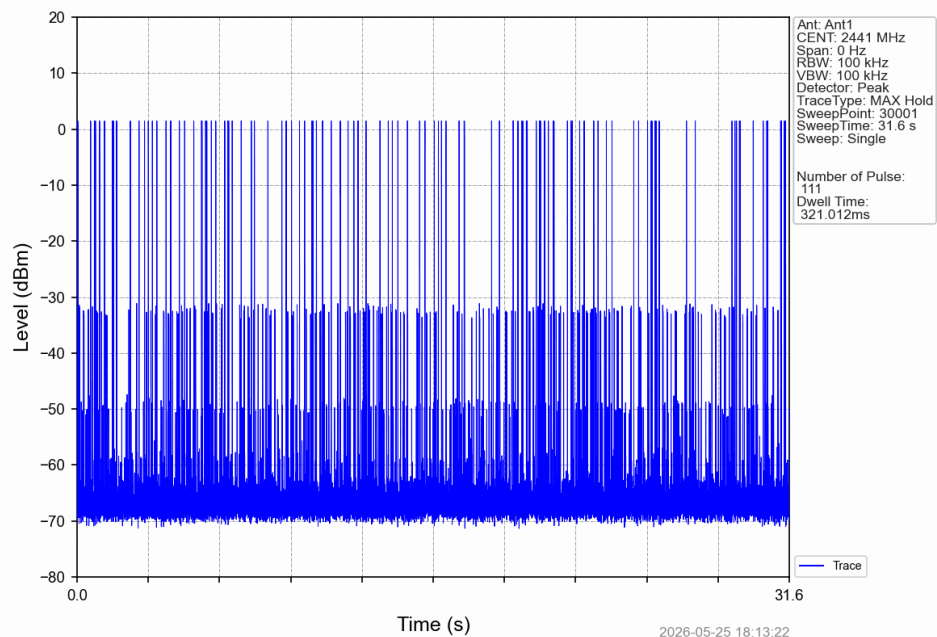
8DPSK_3DH3_HOPP_Ant1_NTN



8DPSK 3DH5 HOPP Ant1 NTN



8DPSK_3DH5_HOPP_Ant1_NTNV



7. Unwanted Emissions In Non-restricted Frequency Bands

7.1 Test Result

7.1.1 Ref

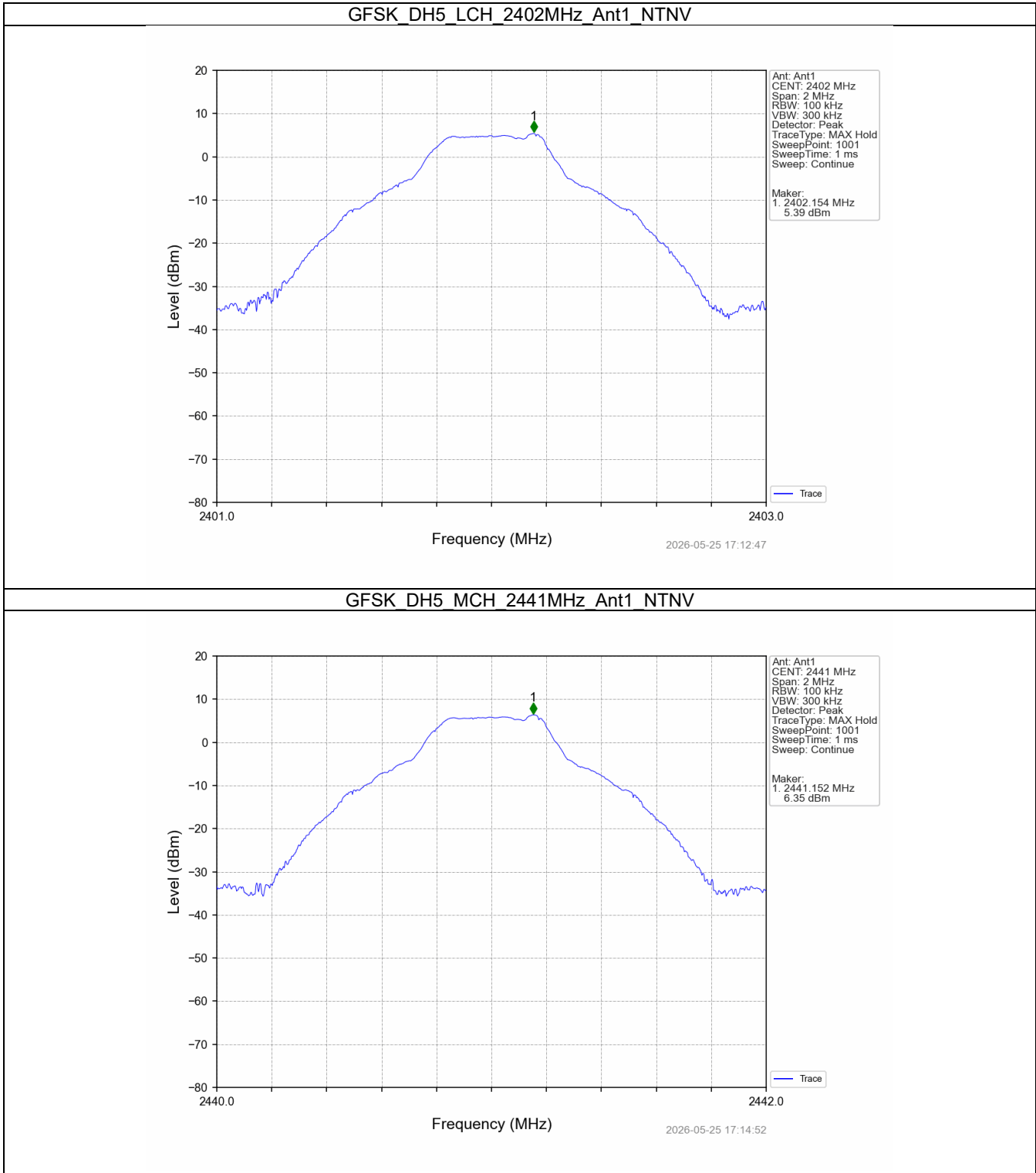
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	5.39
		2441	DH5	1	6.35
		2480	DH5	1	7.10
		HOPP	DH5	1	6.92
					6.92
Pi/4DQPSK	SISO	2402	2DH5	1	1.43
		2441	2DH5	1	2.50
		2480	2DH5	1	3.48
		HOPP	2DH5	1	3.06
					3.06
8DPSK	SISO	2402	3DH5	1	1.42
		2441	3DH5	1	2.51
		2480	3DH5	1	3.46
		HOPP	3DH5	1	3.12
					3.12

7.1.2 CSE

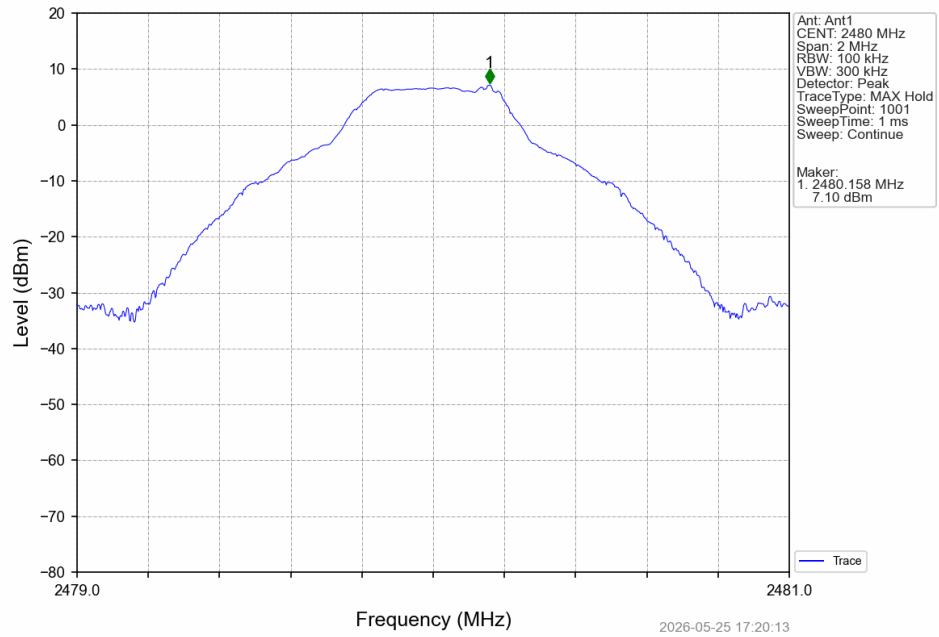
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	5.39	-14.61	Pass
		2441	DH5	1	6.35	-13.65	Pass
		2480	DH5	1	7.10	-12.90	Pass
		HOPP	DH5	1	6.92	-13.08	Pass
					6.92	-13.08	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.43	-18.57	Pass
		2441	2DH5	1	2.50	-17.50	Pass
		2480	2DH5	1	3.48	-16.52	Pass
		HOPP	2DH5	1	3.06	-16.94	Pass
					3.06	-16.94	Pass
8DPSK	SISO	2402	3DH5	1	1.42	-18.58	Pass
		2441	3DH5	1	2.51	-17.49	Pass
		2480	3DH5	1	3.46	-16.54	Pass
		HOPP	3DH5	1	3.12	-16.88	Pass
					3.12	-16.88	Pass

7.2 Test Graph

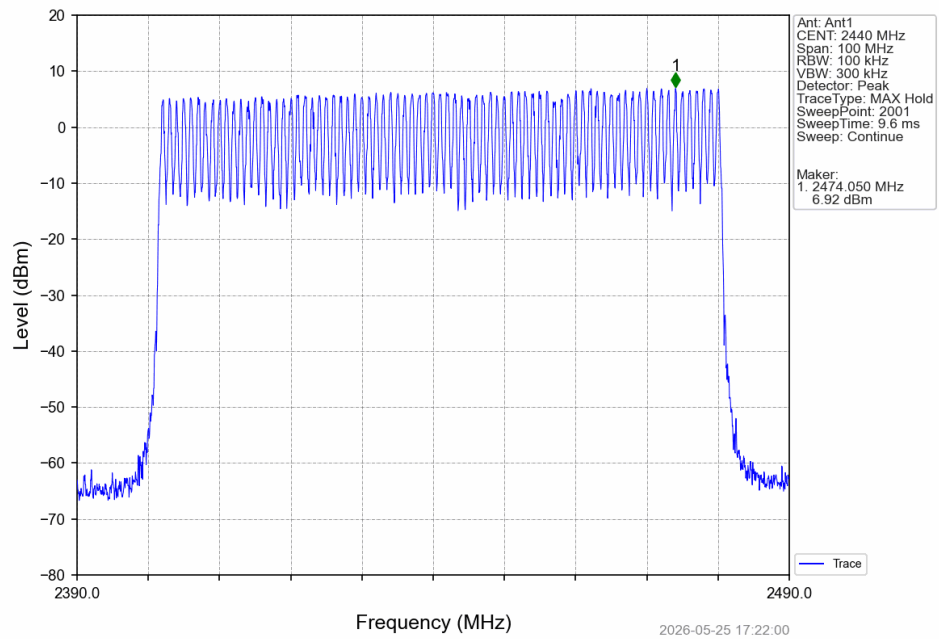
7.2.1 Ref



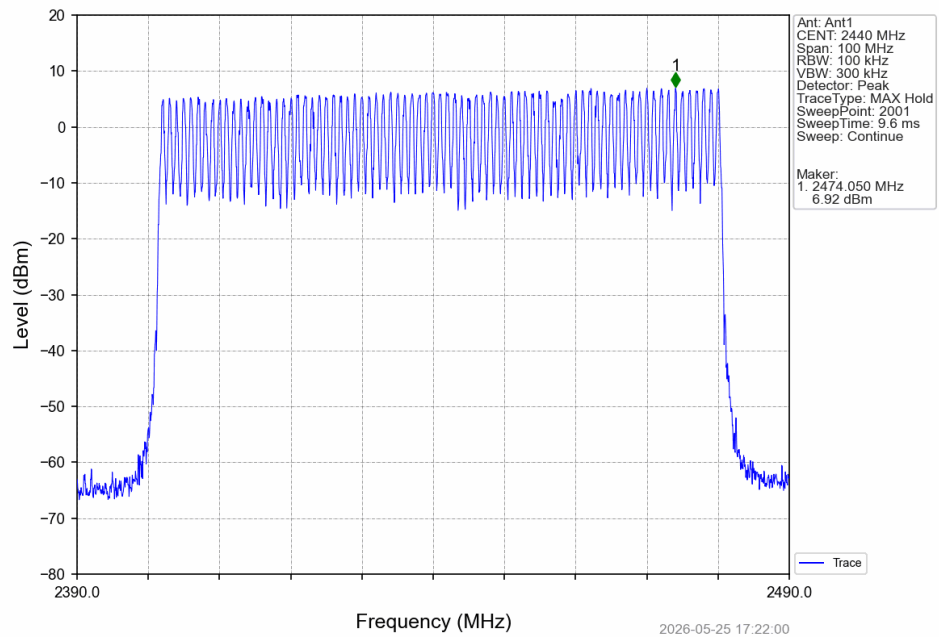
GFSK DH5 HCH 2480MHz Ant1 NTN



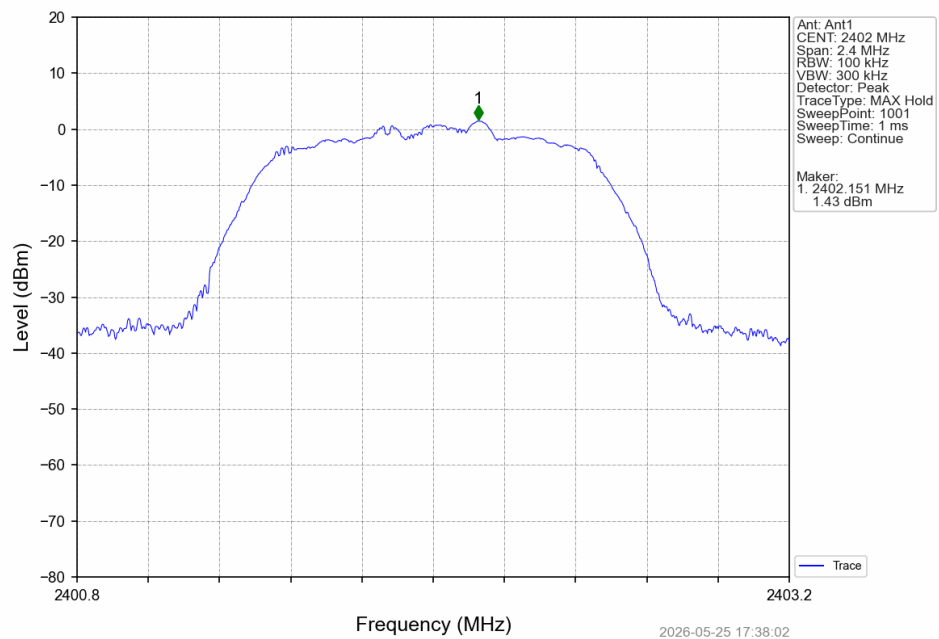
GFSK_DH5_HOPP_Ant1_NTNV



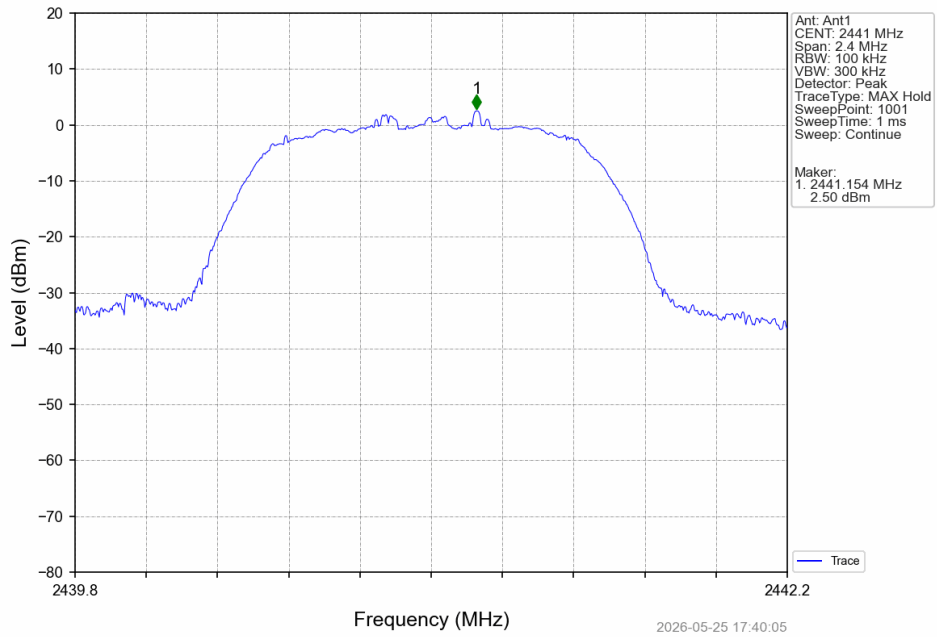
GFSK DH5 HOPP Ant1 NTN



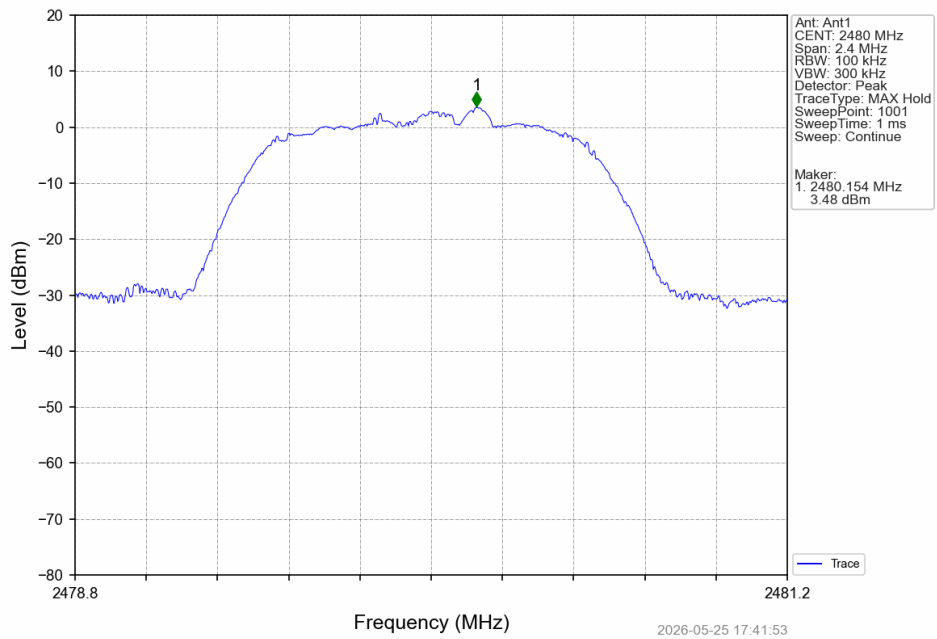
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTN



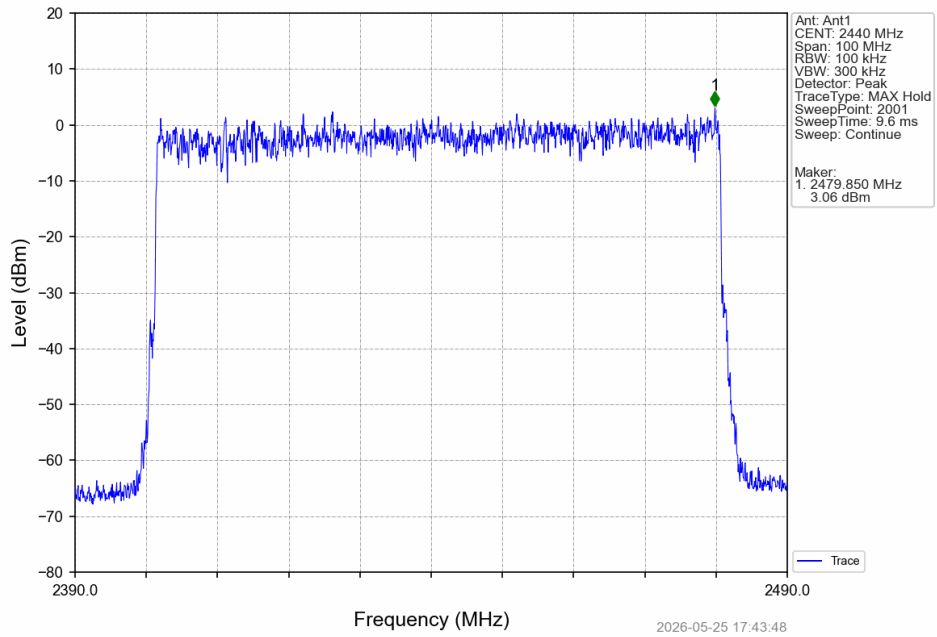
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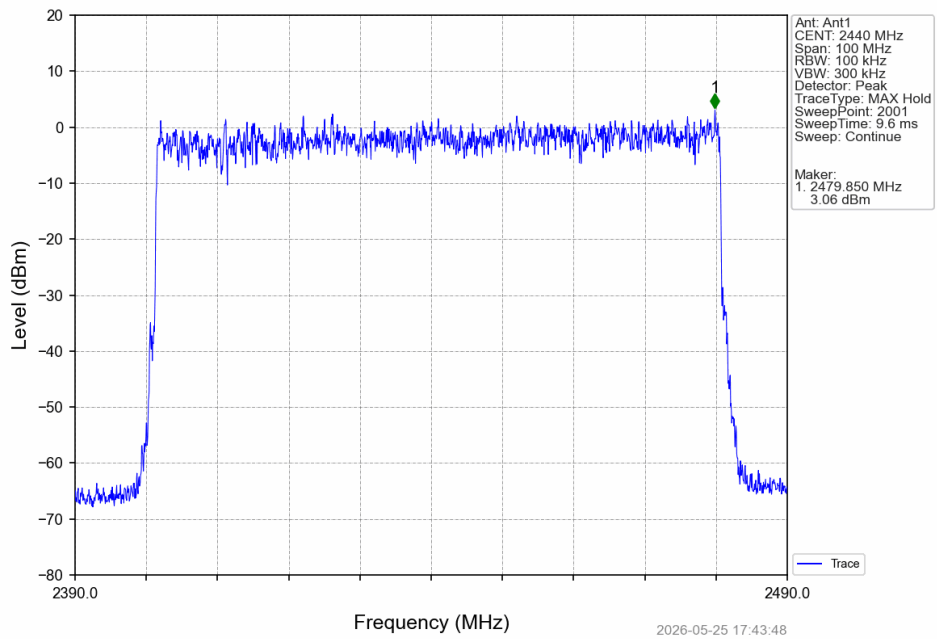
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



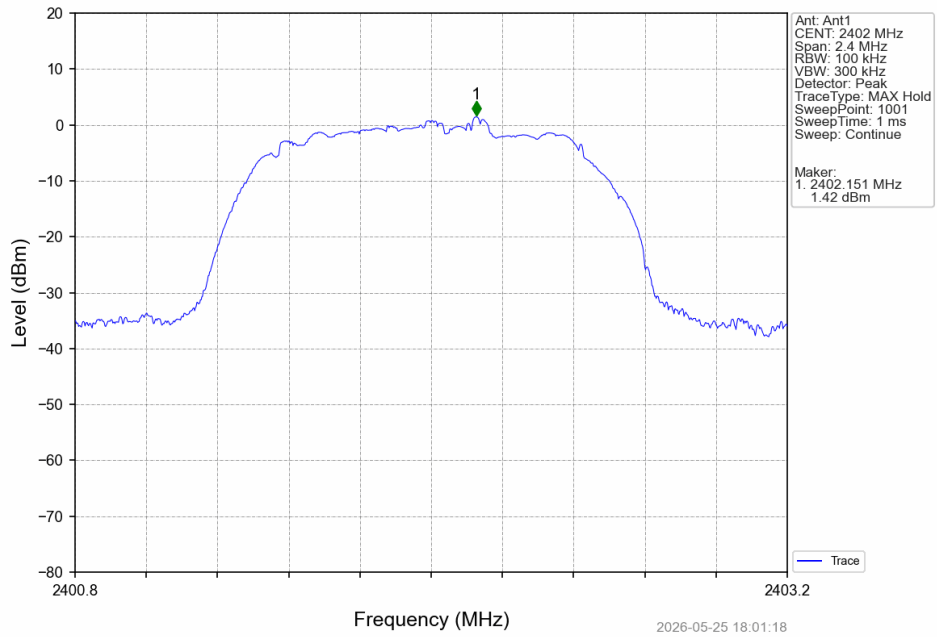
Pi/4DQPSK 2DH5 HOPP Ant1 NTN



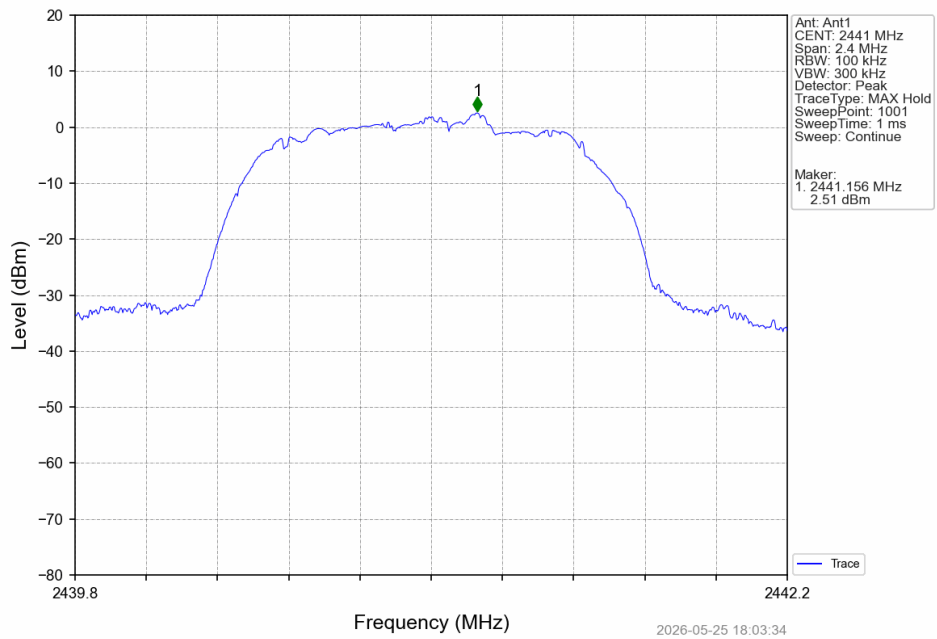
Pi/4DQPSK_2DH5_HOPP_Ant1_NTN



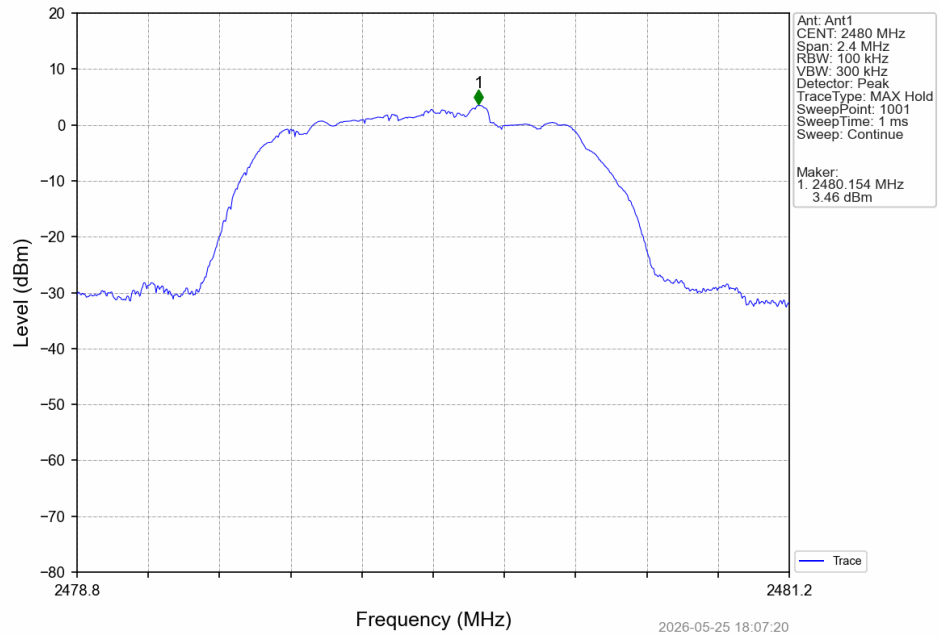
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



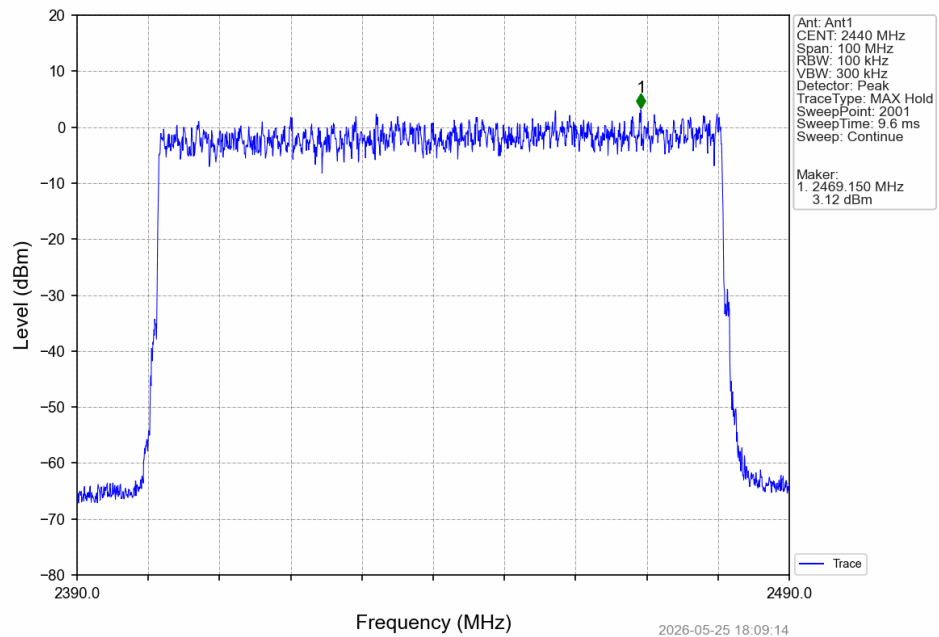
8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



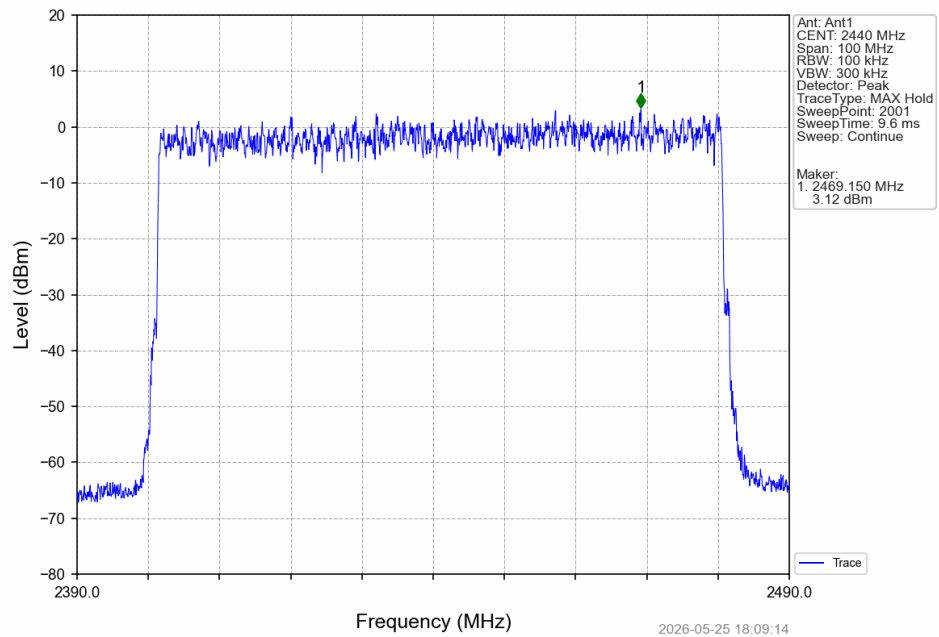
8DPSK 3DH5 HCH 2480MHz Ant1 NTN



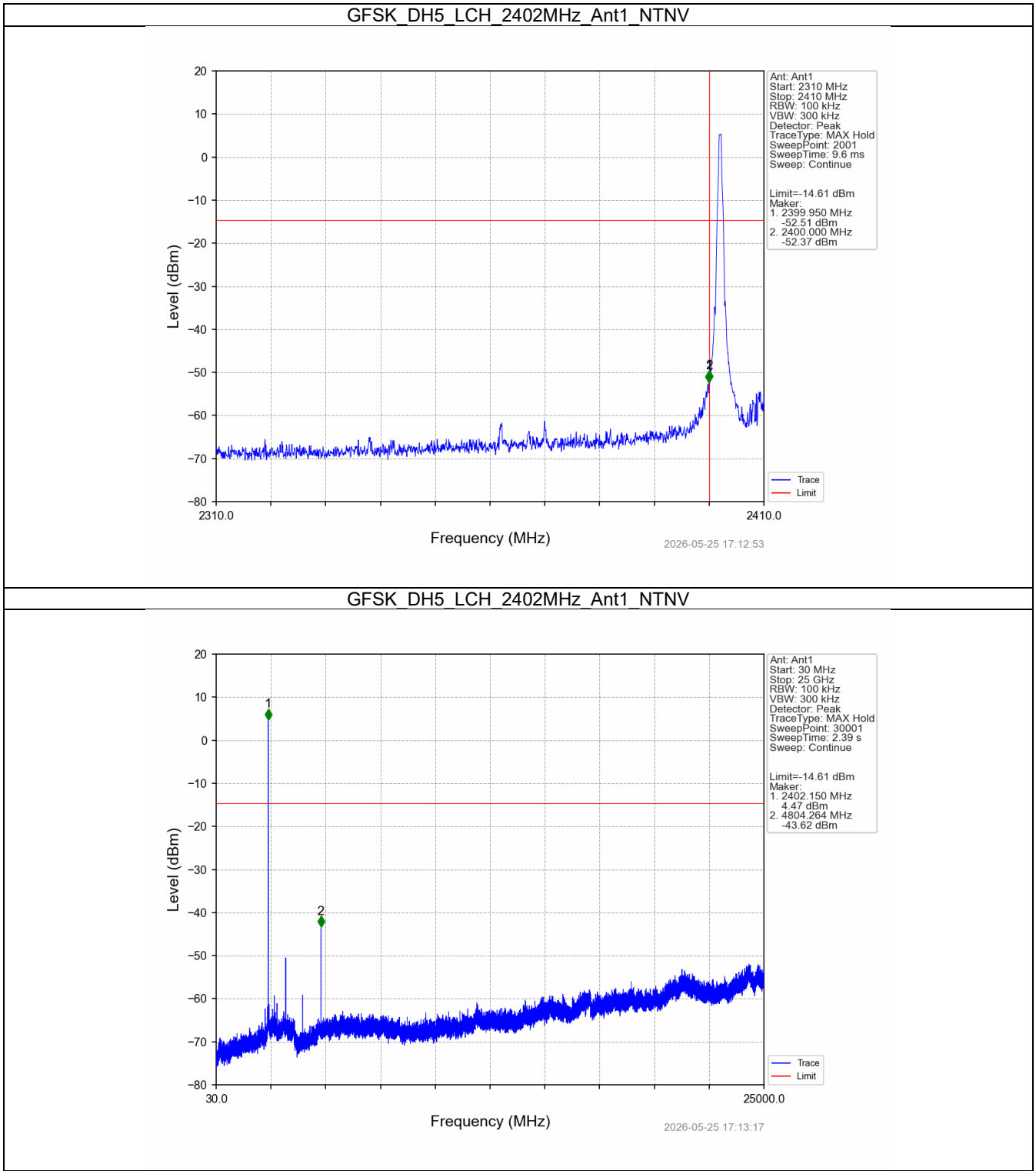
8DPSK 3DH5 HOPP Ant1 NTN



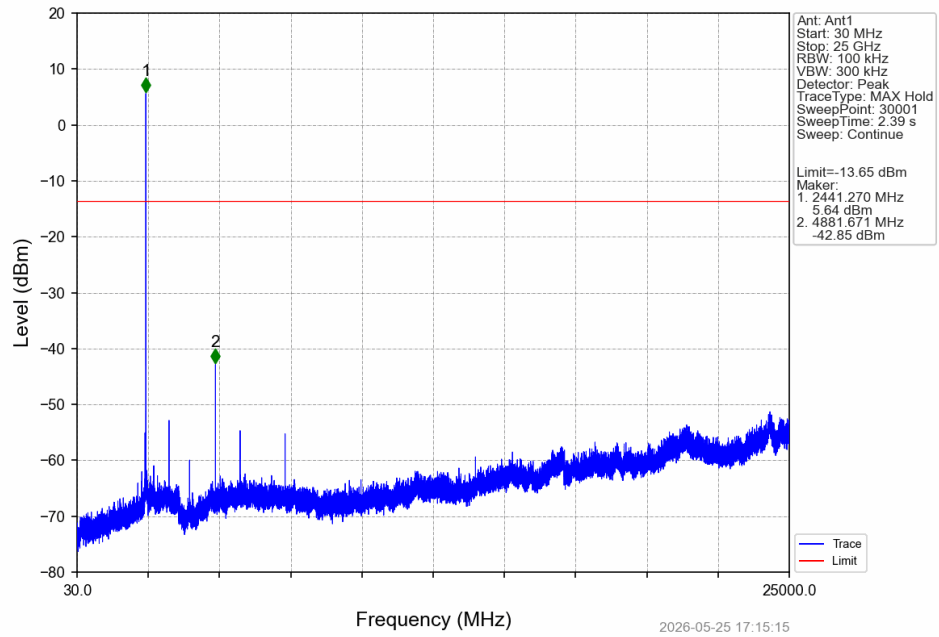
8DPSK 3DH5 HOPP Ant1 NTN



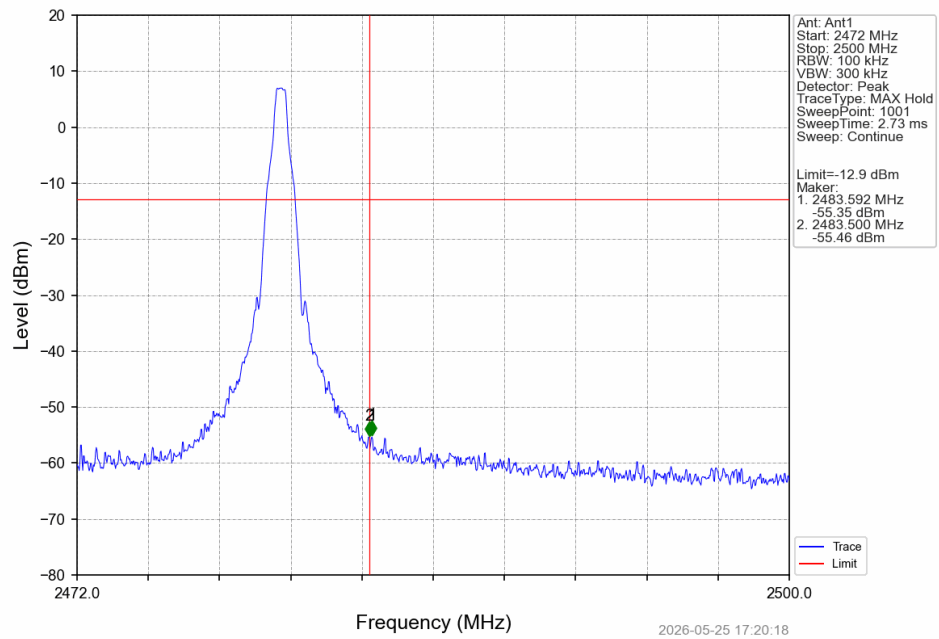
7.2.2 CSE



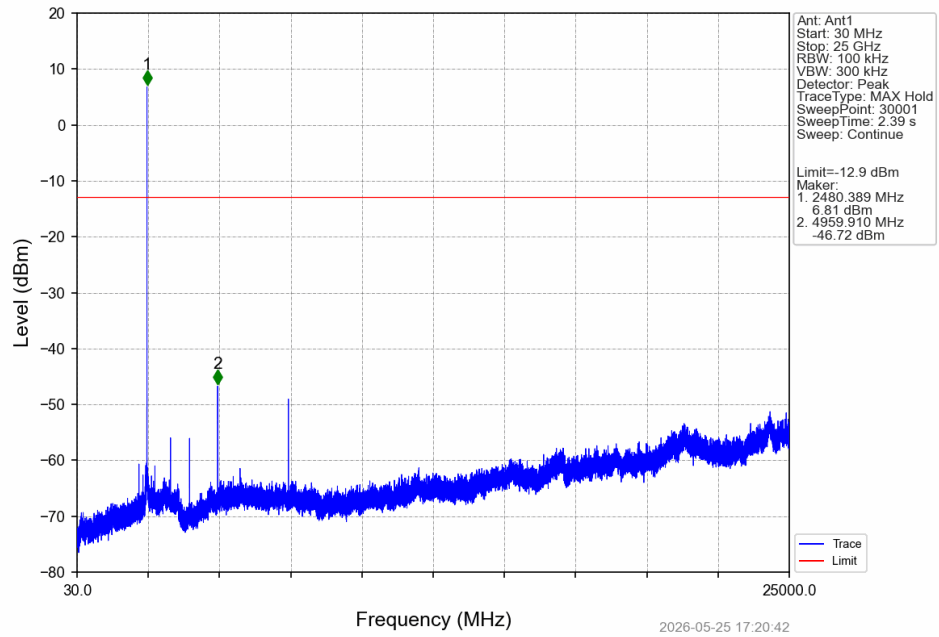
GFSK DH5 MCH 2441MHz Ant1 NTN



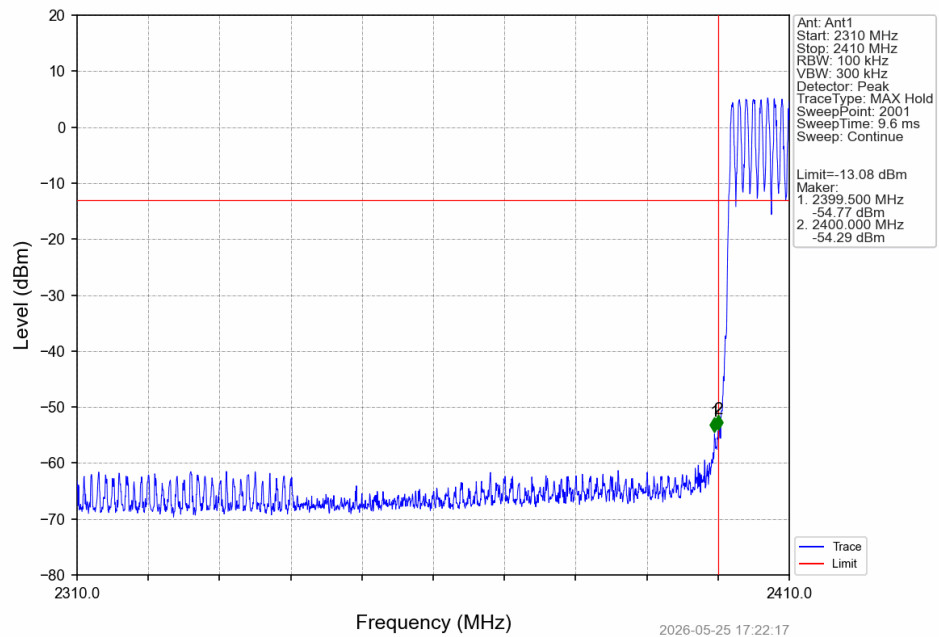
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



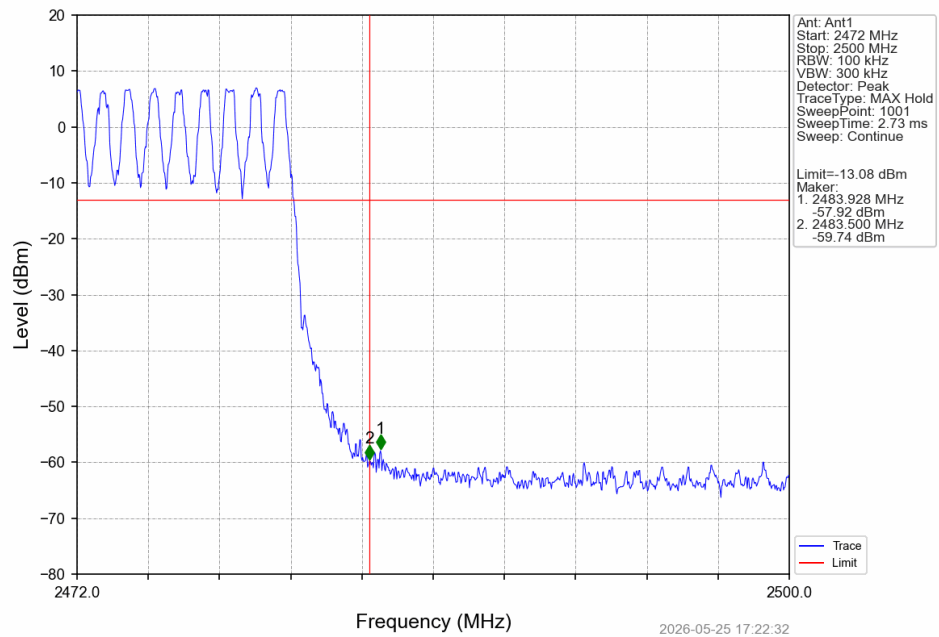
GFSK DH5 HCH 2480MHz Ant1 NTN



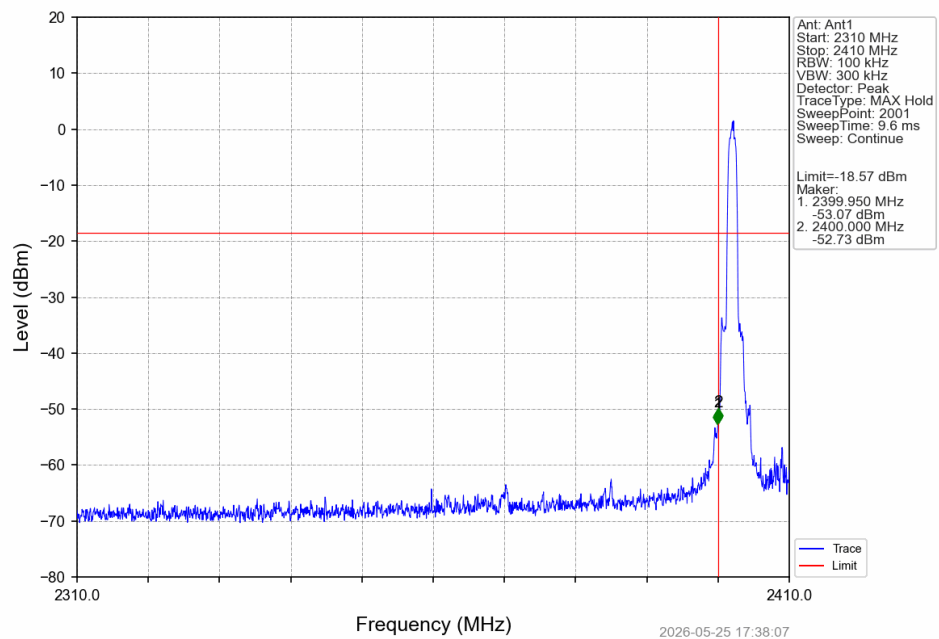
GFSK_DH5_HOPP_Ant1_NTNV



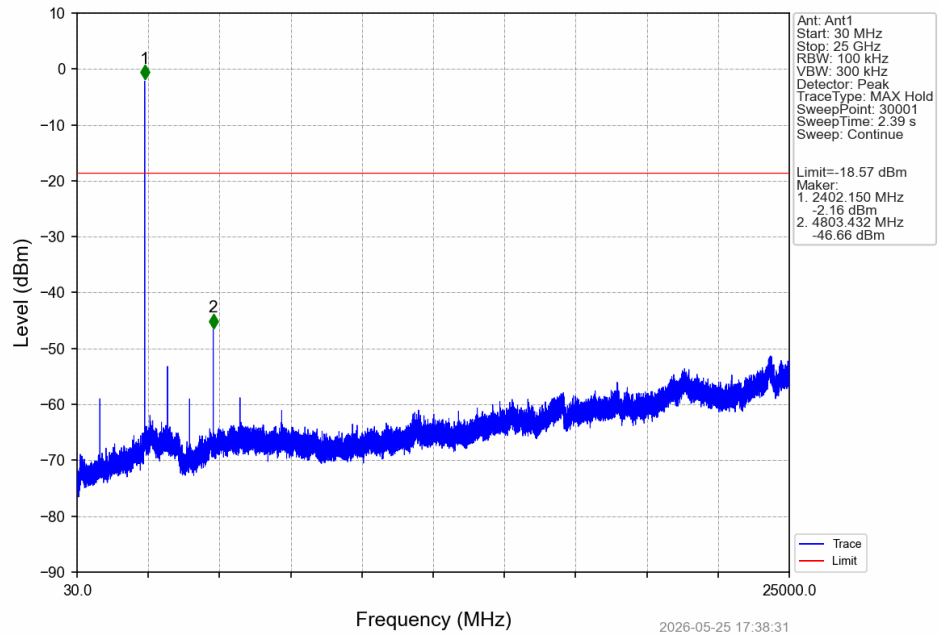
GFSK DH5 HOPP Ant1 NTN



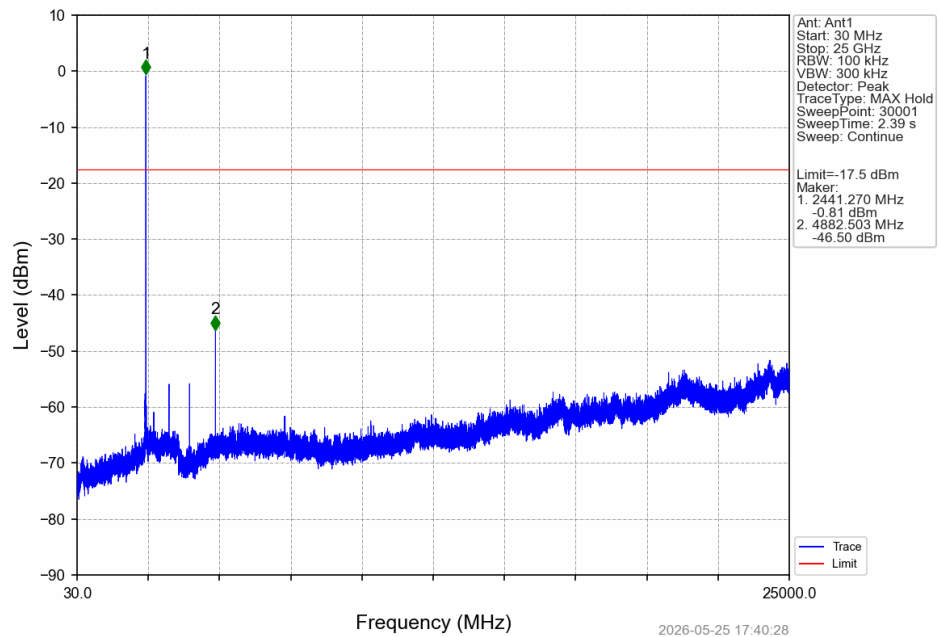
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1 NTN



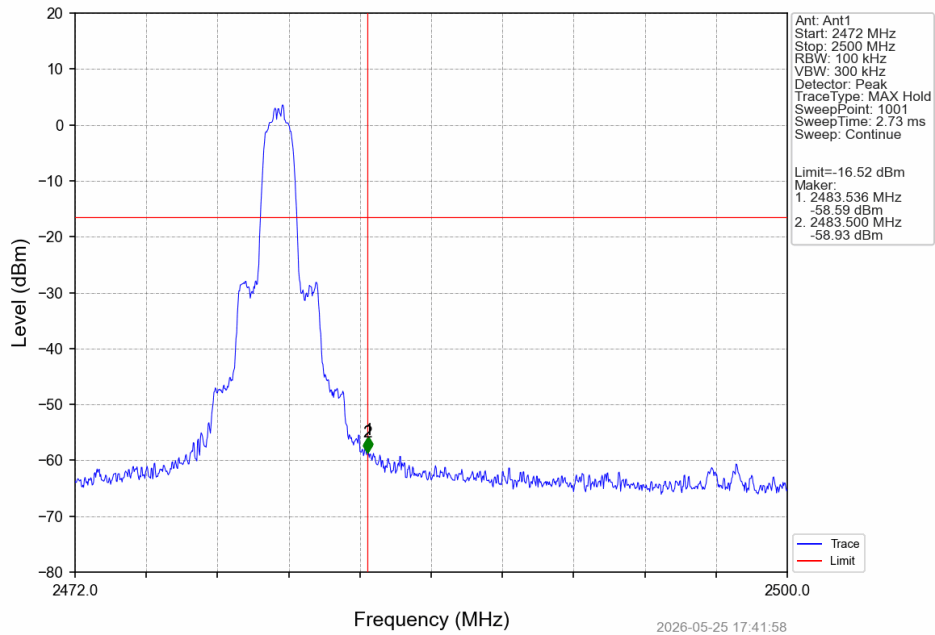
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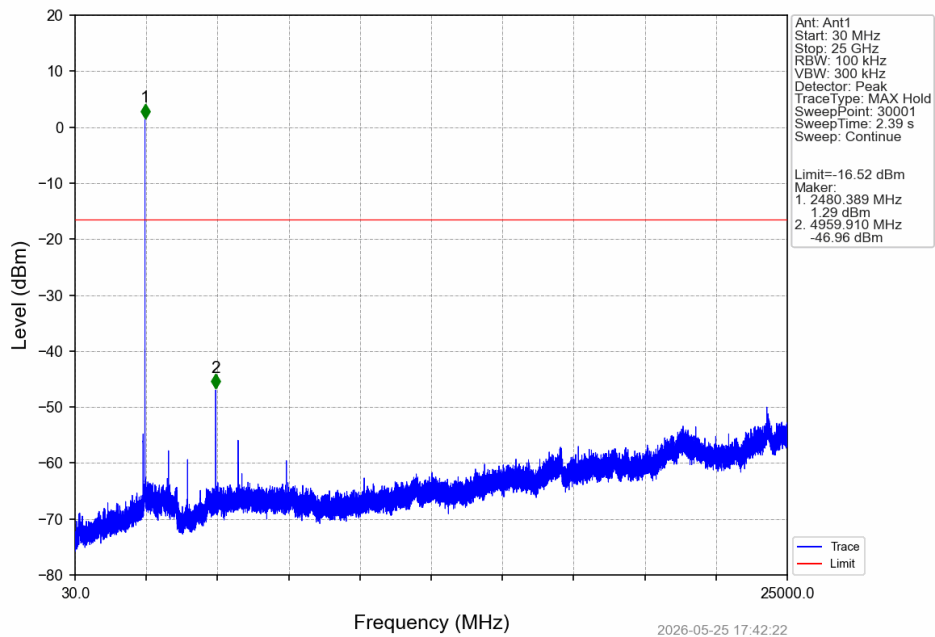
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



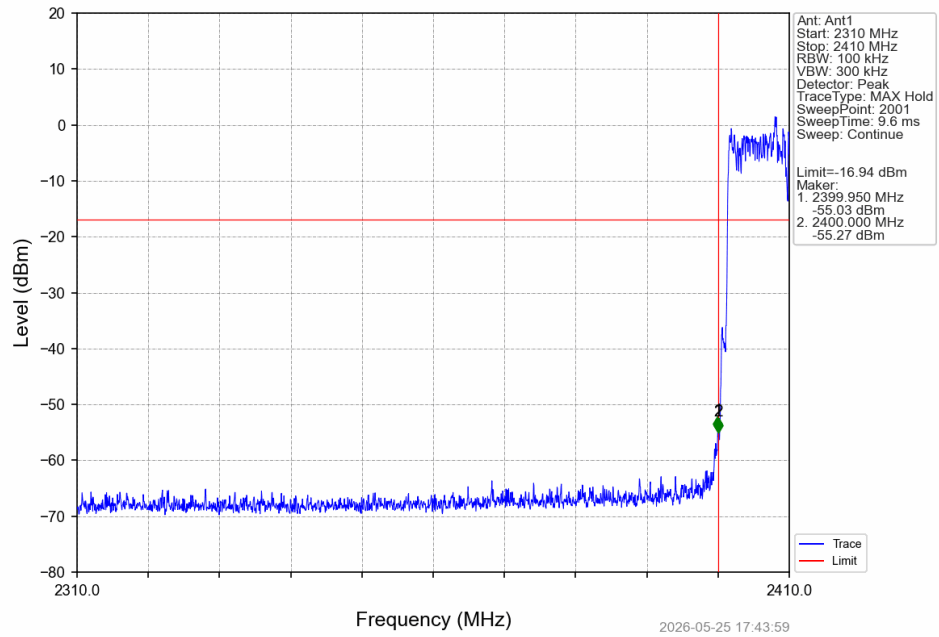
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



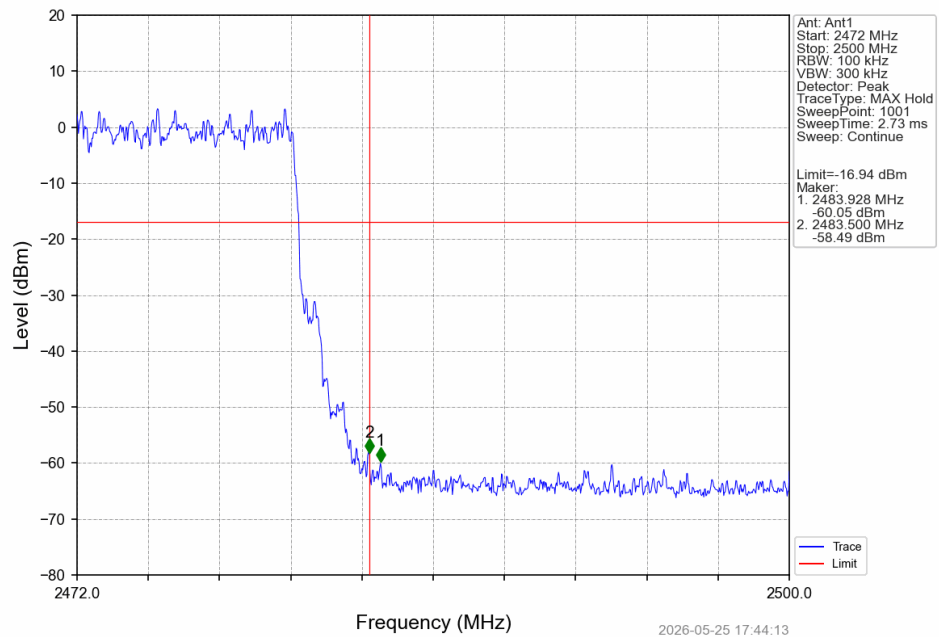
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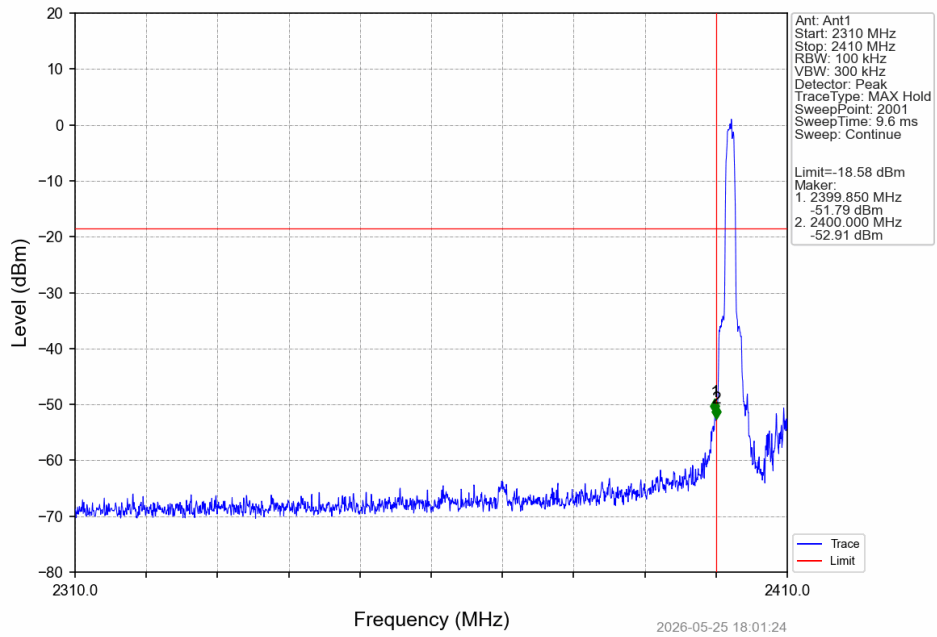
Pi/4DQPSK 2DH5_HOPP_Ant1_NTNV



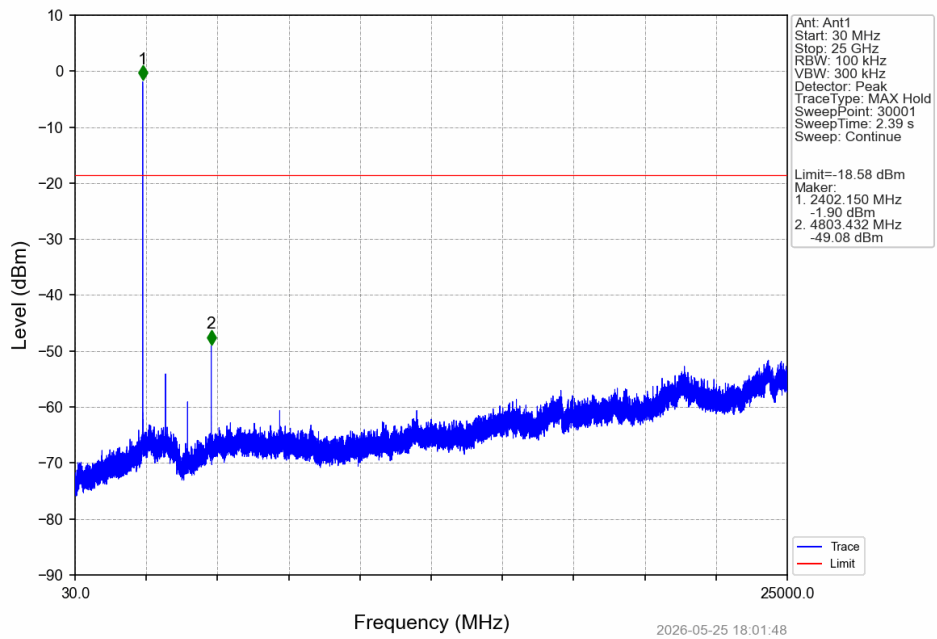
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



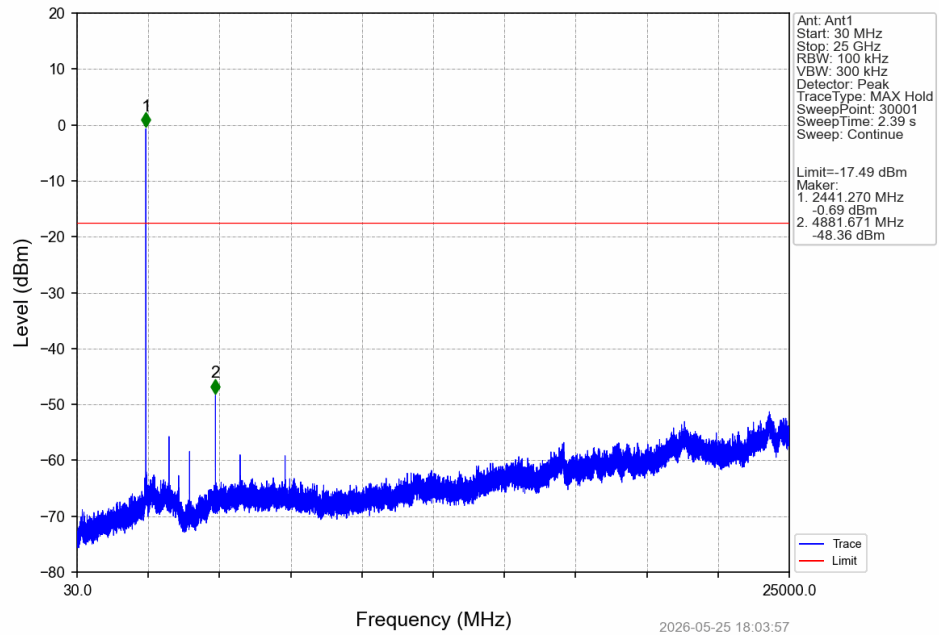
8DPSK 3DH5 LCH 2402MHz Ant1 NTN



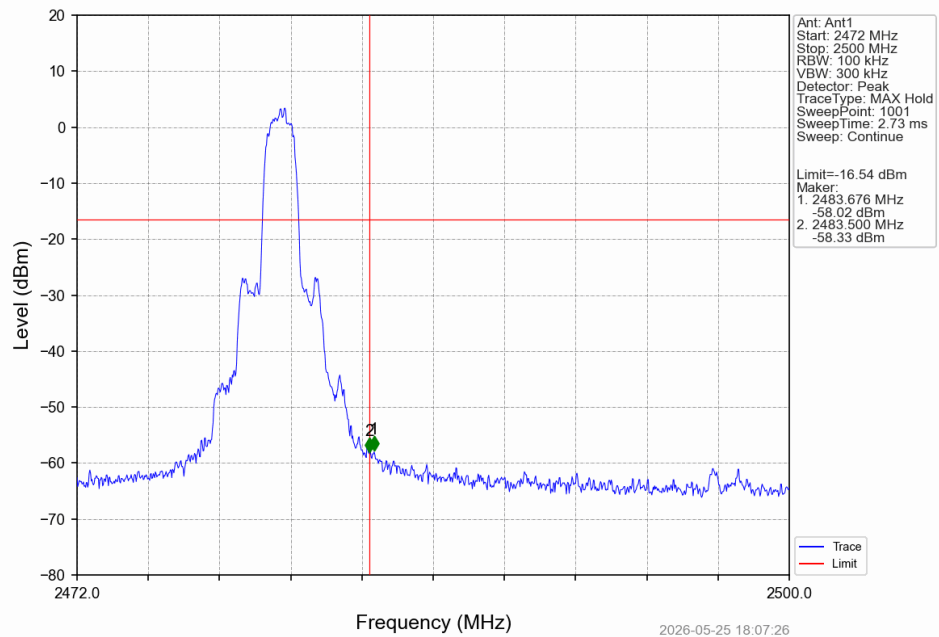
8DPSK 3DH5 LCH 2402MHz Ant1 NTN



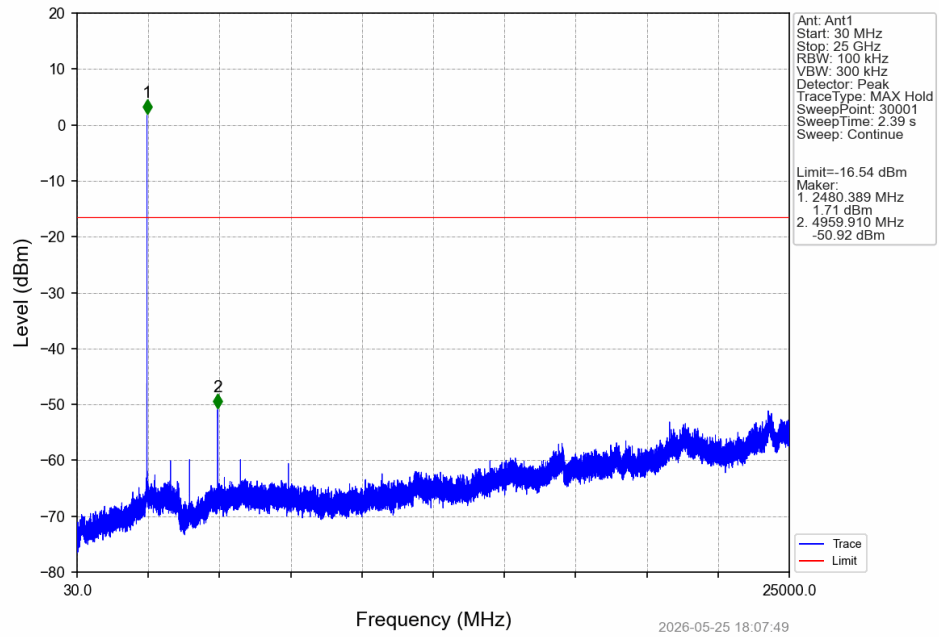
8DPSK 3DH5 MCH 2441MHz Ant1 NTN



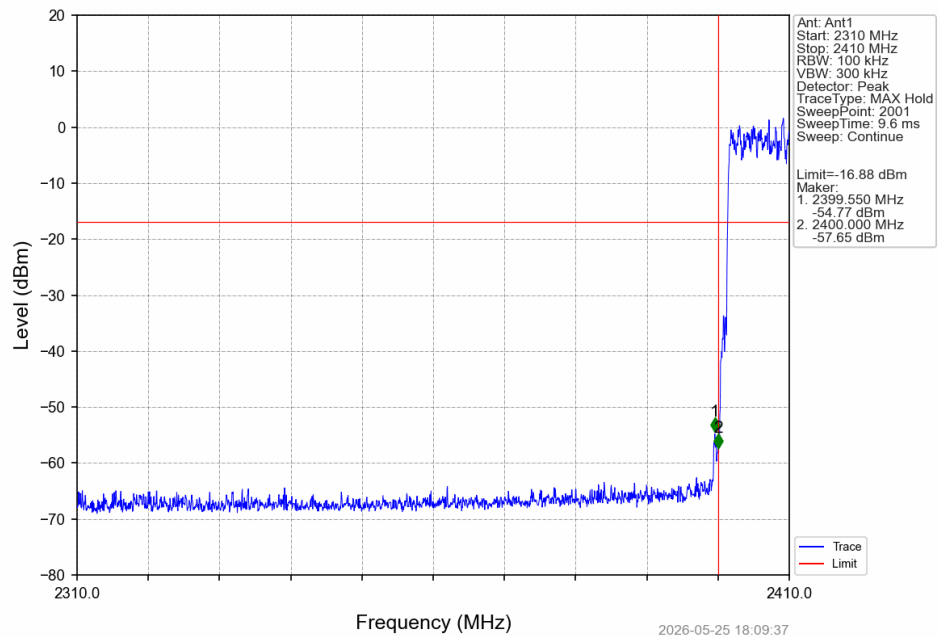
8DPSK 3DH5 HCH 2480MHz Ant1 NTN



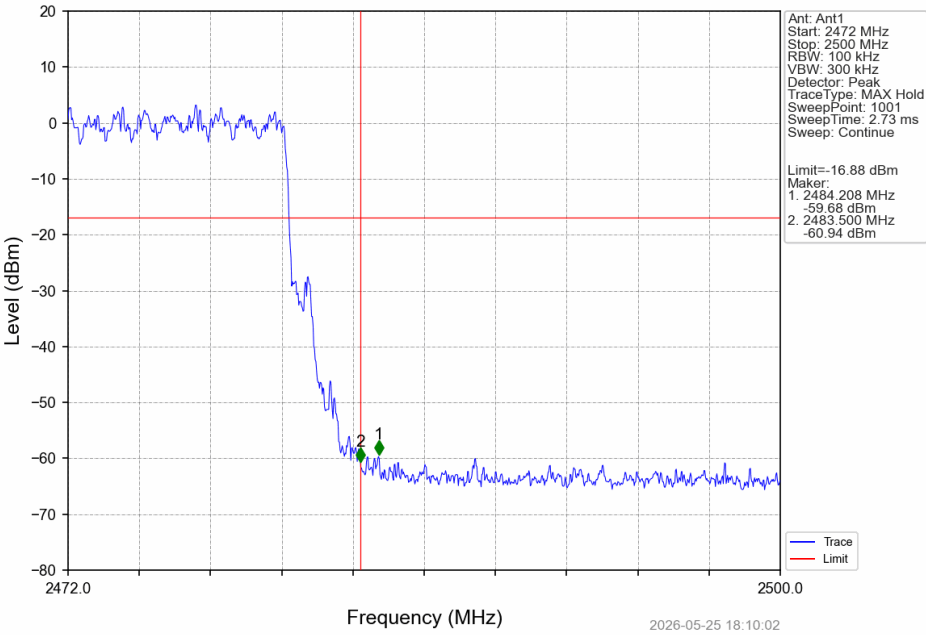
8DPSK 3DH5 HCH 2480MHz Ant1 NTN



8DPSK 3DH5 HOPP Ant1 NTN



8DPSK 3DH5 HOPP Ant1 NTNV



8. Unwanted Emissions In Restricted Frequency Bands

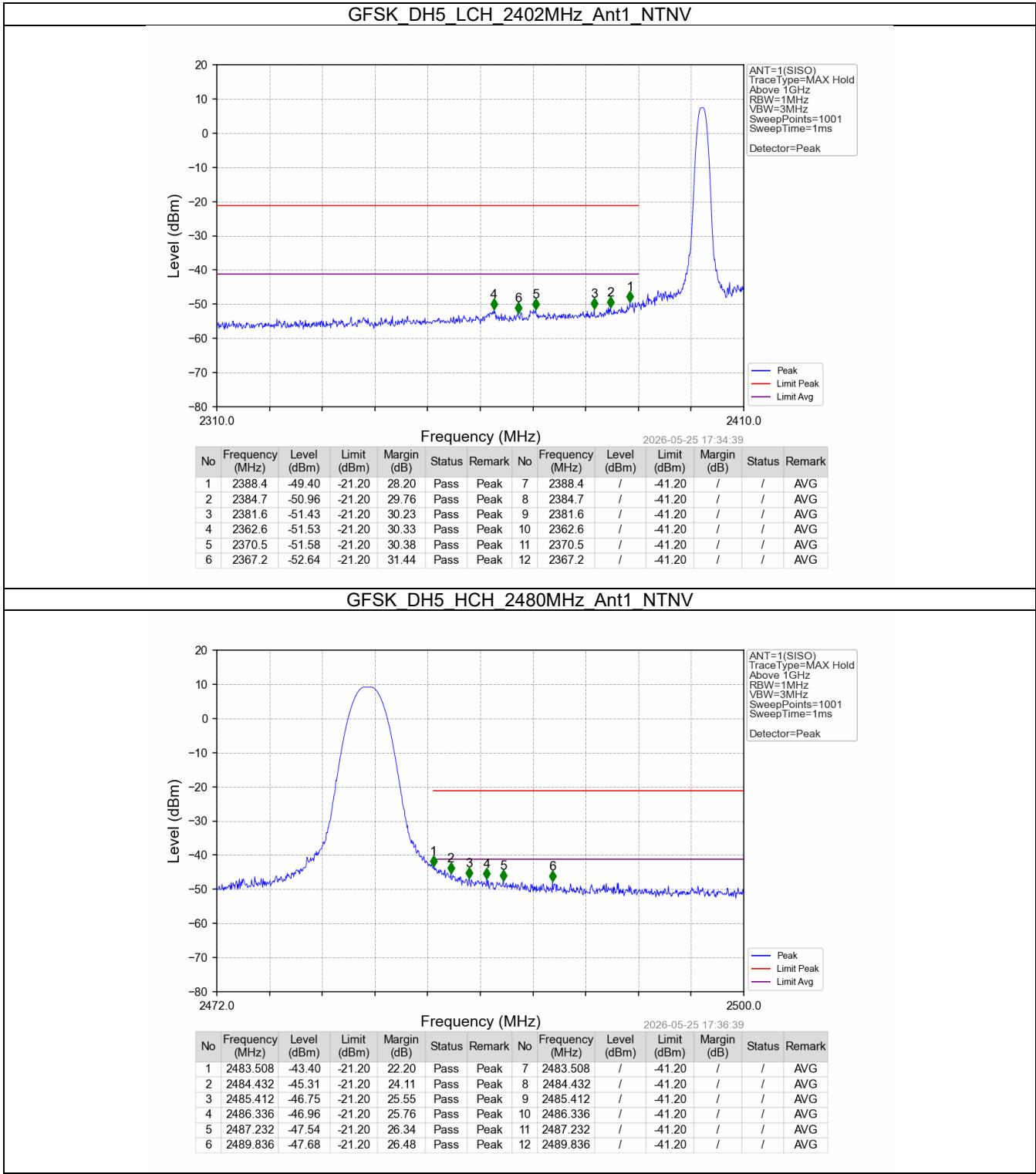
8.1 Test Result

8.1.1 RSE

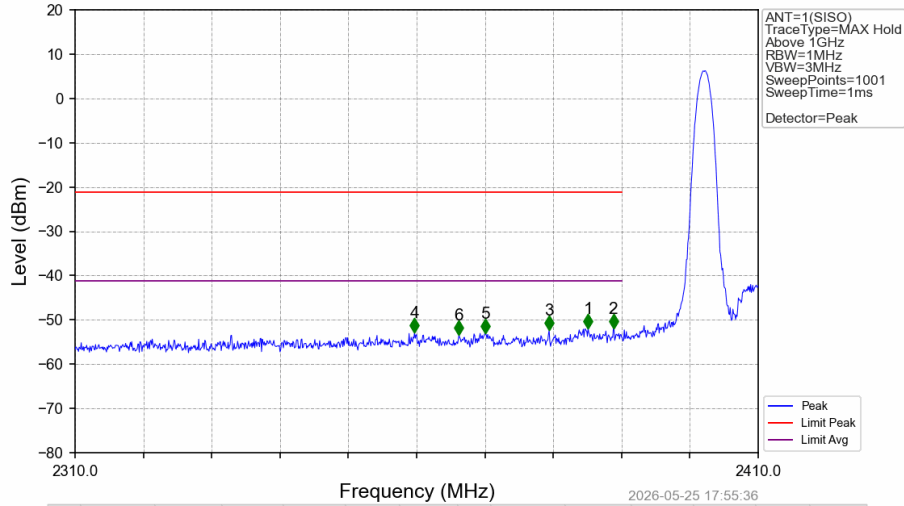
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Unwanted Emissions (dBm)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	Refer To Test Graph		Pass
		2480	DH5	1	Refer To Test Graph		Pass
Pi/4DQPSK	SISO	2402	2DH5	1	Refer To Test Graph		Pass
		2480	2DH5	1	Refer To Test Graph		Pass
8DPSK	SISO	2402	3DH5	1	Refer To Test Graph		Pass
		2480	3DH5	1	Refer To Test Graph		Pass

8.2 Test Graph

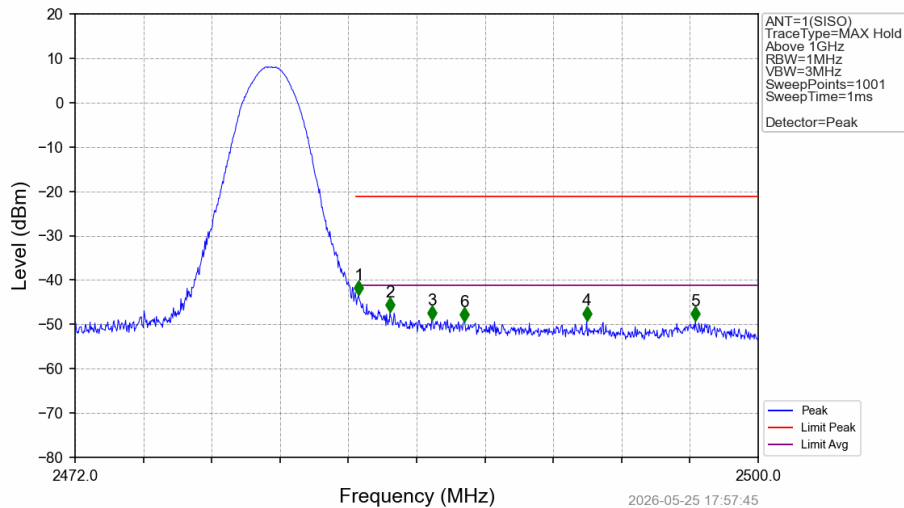
8.2.1 RSE



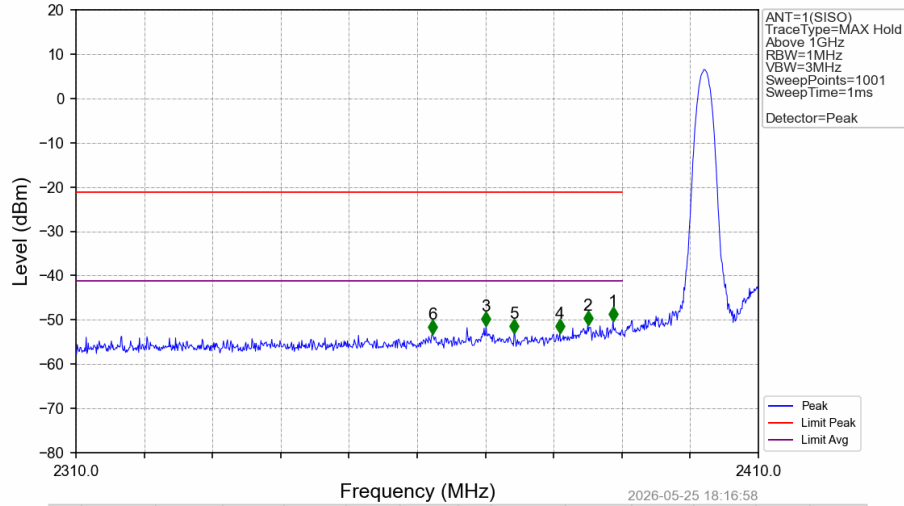
Pi/4DQPSK 2DH5 LCH 2402MHz Ant1 NTN



Pi/4DQPSK 2DH5 HCH 2480MHz Ant1 NTN



8DPSK 3DH5 LCH 2402MHz Ant1 NTN



8DPSK 3DH5 HCH 2480MHz Ant1 NTN

