

Appendix RF test data for BT1

1. Bandwidth

1.1 Test Result

1.1.1 OBW

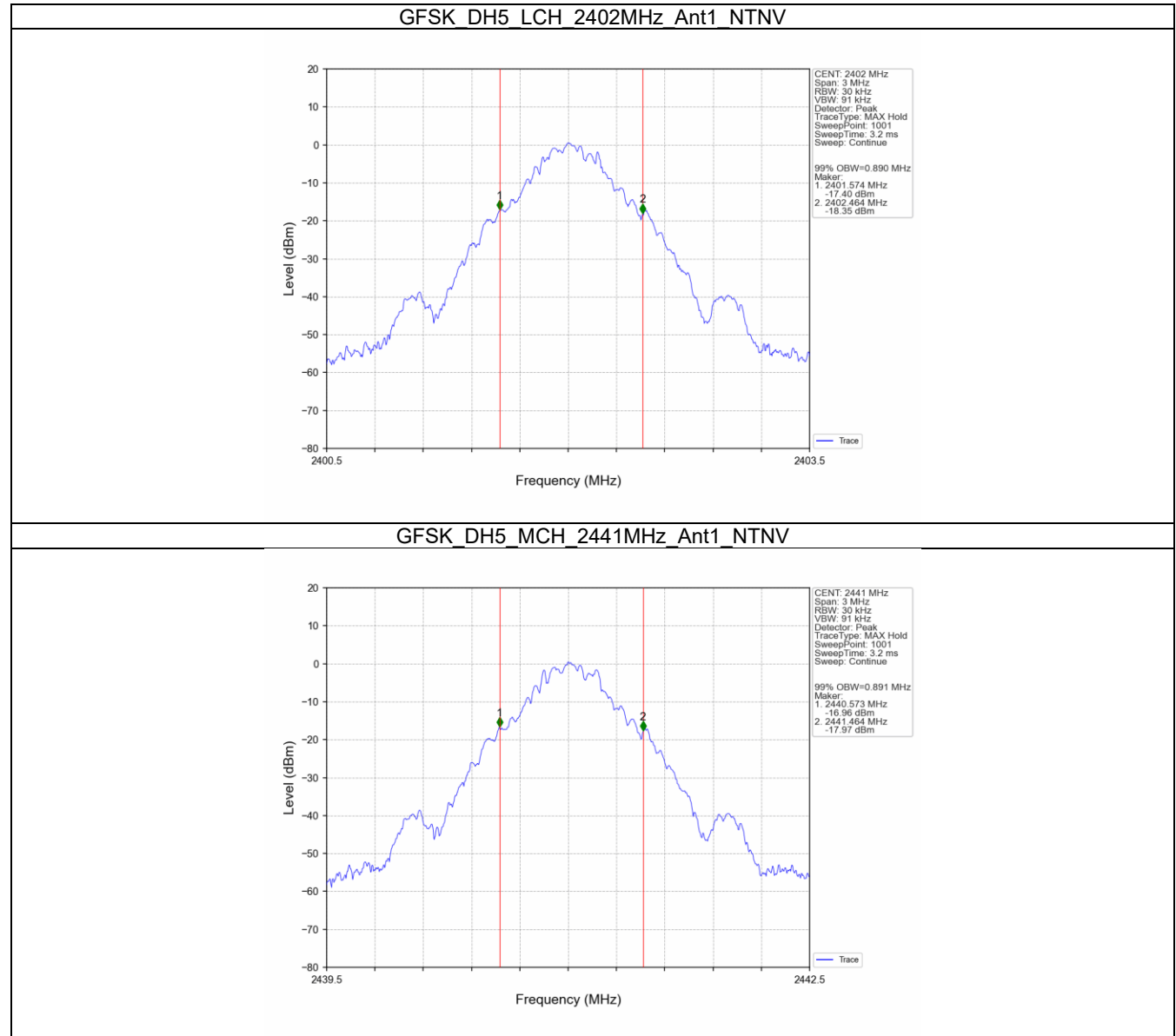
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.890	/	Pass
		2441	DH5	1	0.891	/	Pass
		2480	DH5	1	0.896	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.174	/	Pass
		2441	2DH5	1	1.177	/	Pass
		2480	2DH5	1	1.175	/	Pass
8DPSK	SISO	2402	3DH5	1	1.177	/	Pass
		2441	3DH5	1	1.179	/	Pass
		2480	3DH5	1	1.187	/	Pass

1.1.2 20dB BW

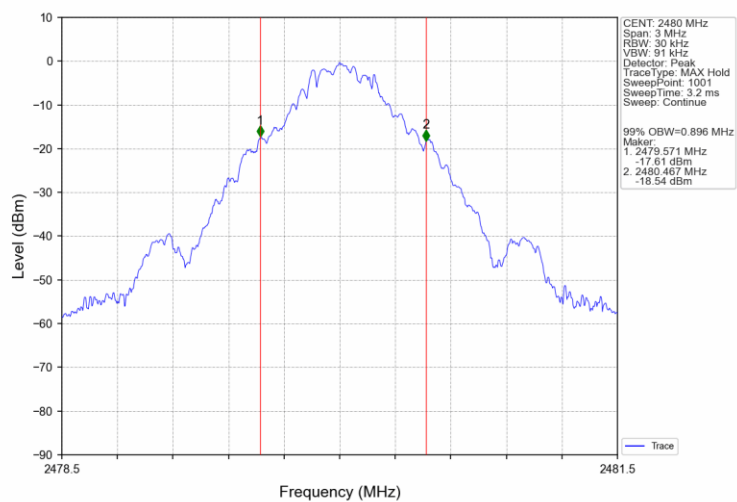
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.957	/	Pass
		2441	DH5	1	0.958	/	Pass
		2480	DH5	1	0.999	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.286	/	Pass
		2441	2DH5	1	1.286	/	Pass
		2480	2DH5	1	1.288	/	Pass
8DPSK	SISO	2402	3DH5	1	1.300	/	Pass
		2441	3DH5	1	1.303	/	Pass
		2480	3DH5	1	1.311	/	Pass

1.2 Test Graph

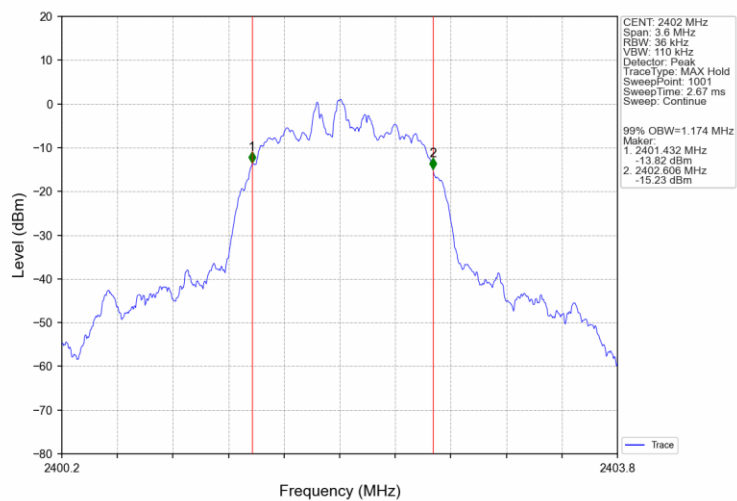
1.2.1 OBW



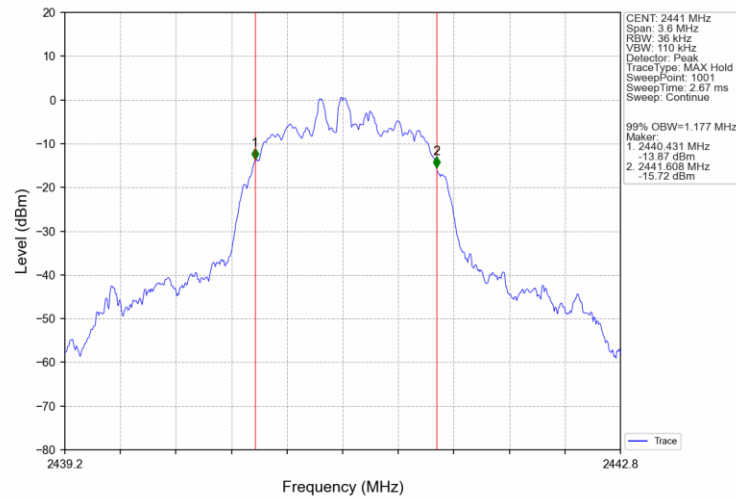
GFSK DH5 HCH 2480MHz Ant1 NTN



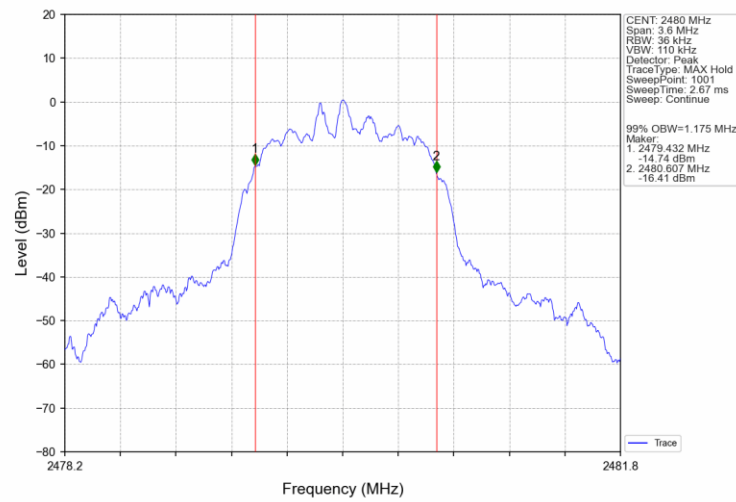
Pi/4DQPSK 2DH5 LCH 2402MHz Ant1 NTN



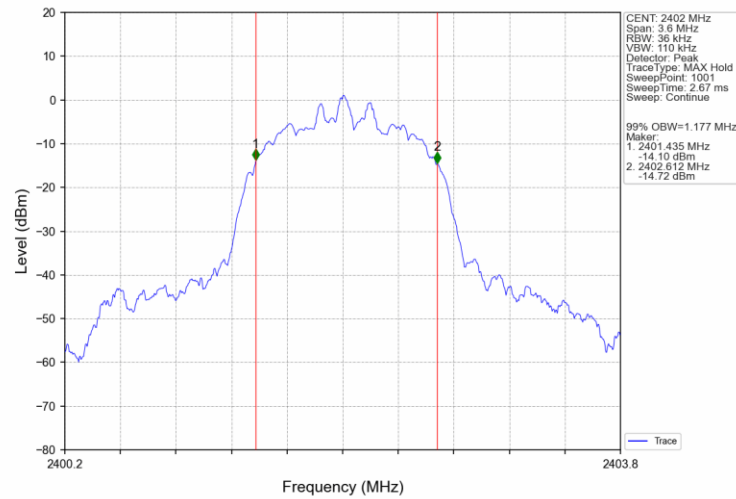
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



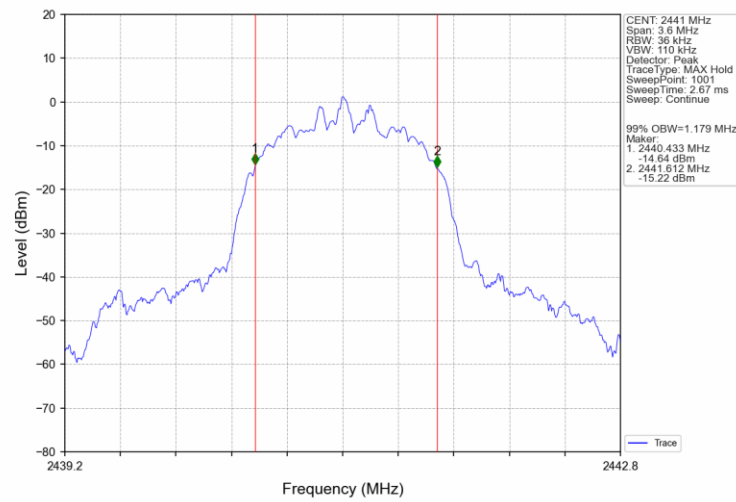
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



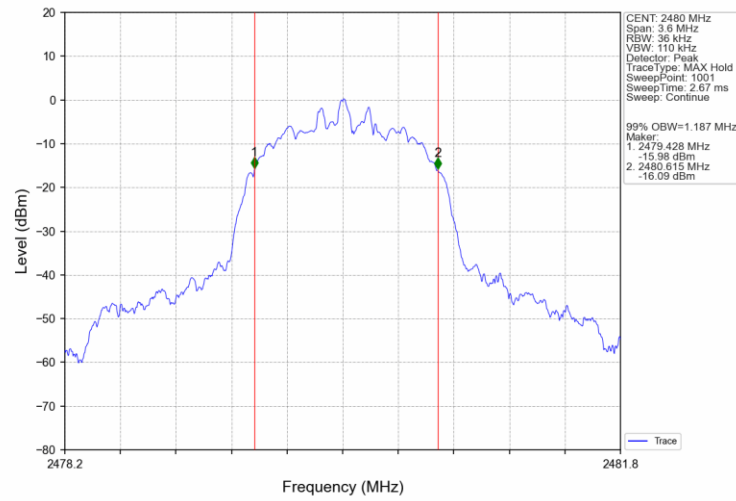
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV

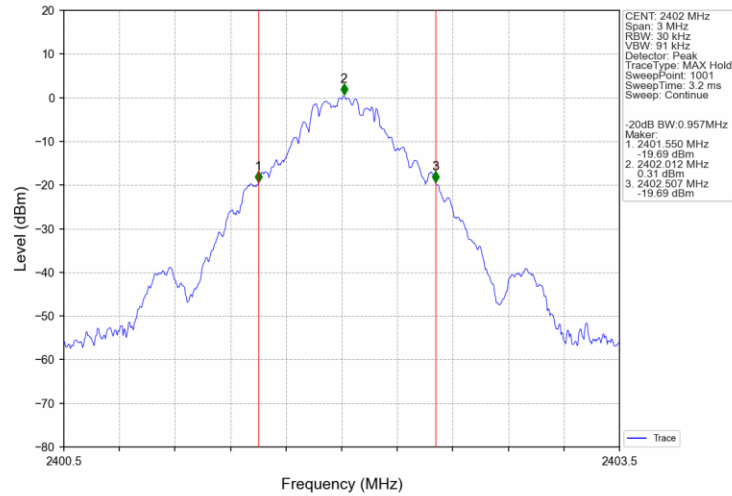


8DPSK 3DH5 HCH 2480MHz Ant1 NTN

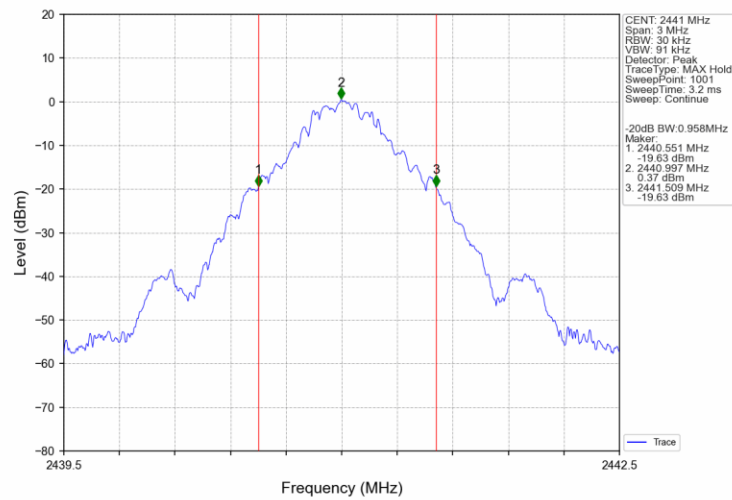


1.2.2 20dB BW

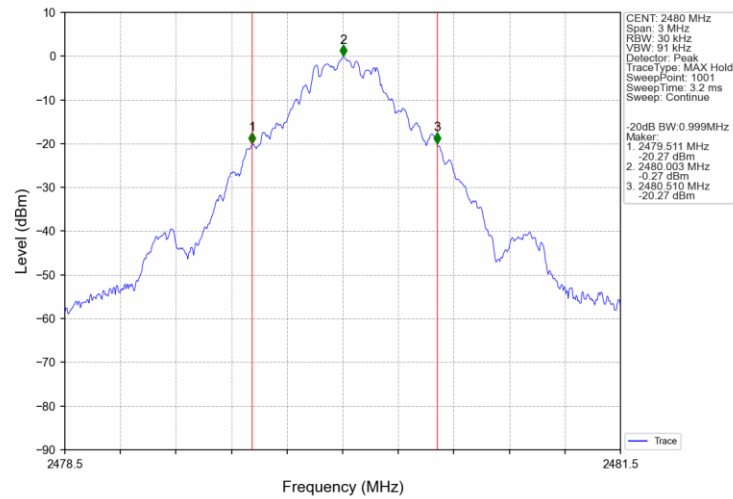
GFSK DH5 LCH 2402MHz Ant1 NTN



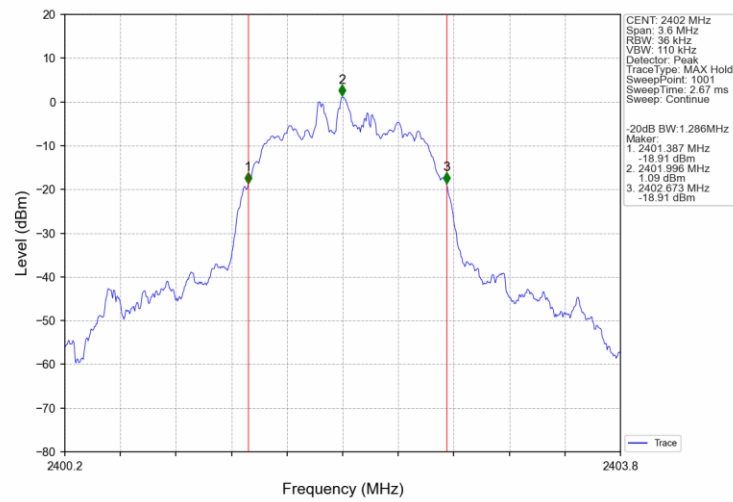
GFSK DH5 MCH 2441MHz Ant1 NTN



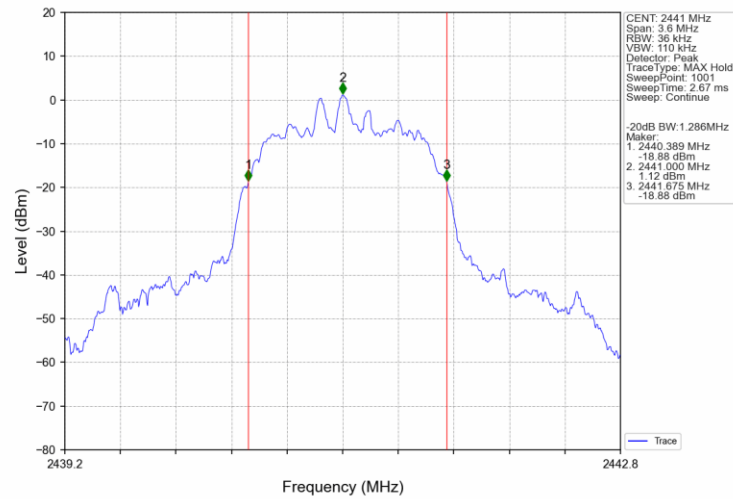
GFSK DH5 HCH 2480MHz Ant1 NTN



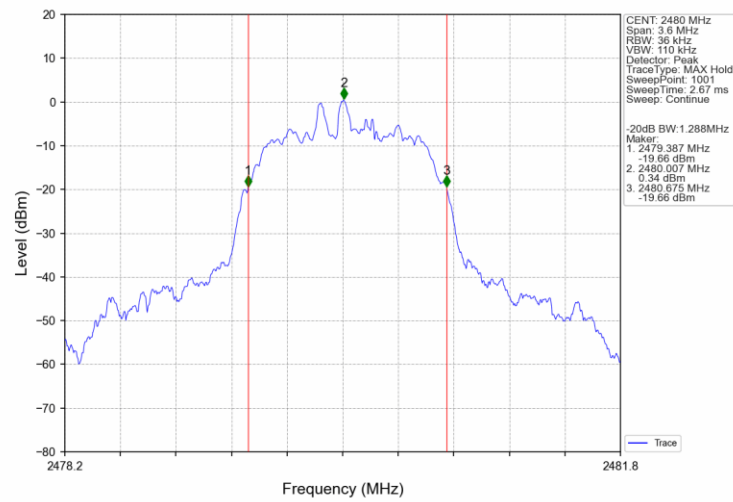
Pi/4DQPSK 2DH5 LCH 2402MHz Ant1 NTN



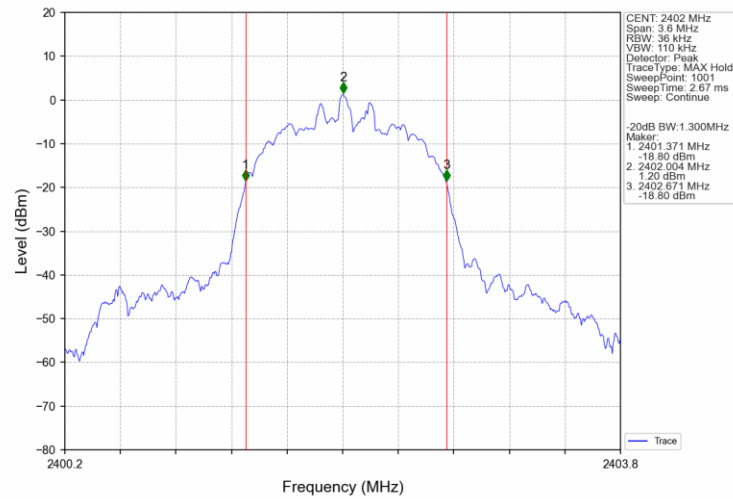
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



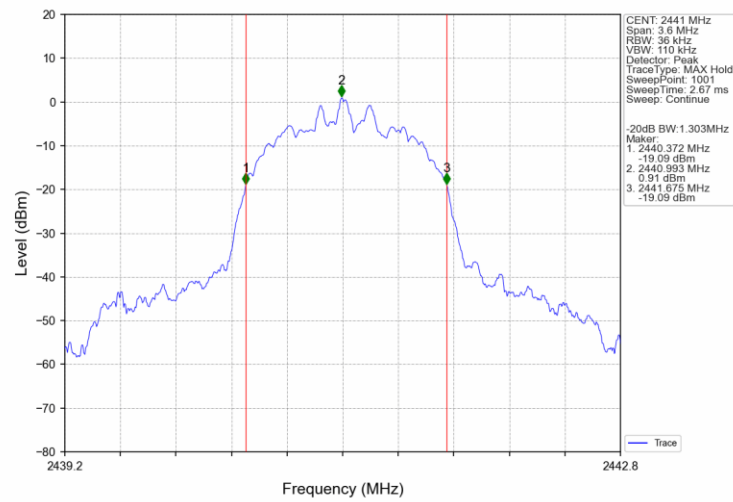
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



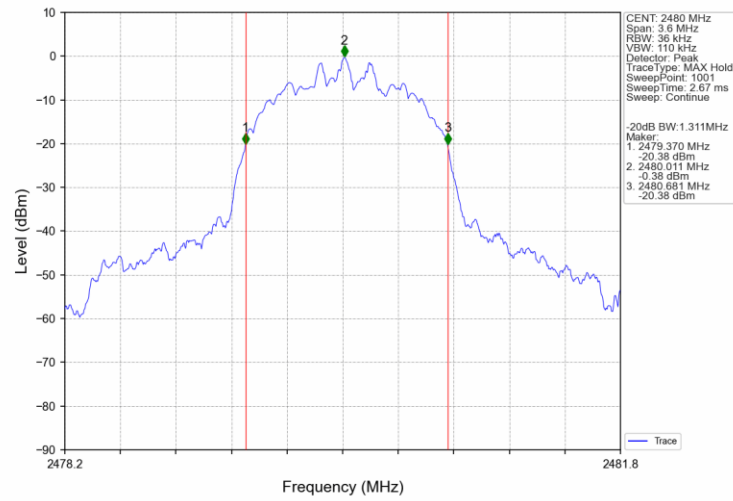
8DPSK 3DH5 LCH 2402MHz Ant1 NTN



8DPSK 3DH5 MCH 2441MHz Ant1 NTN



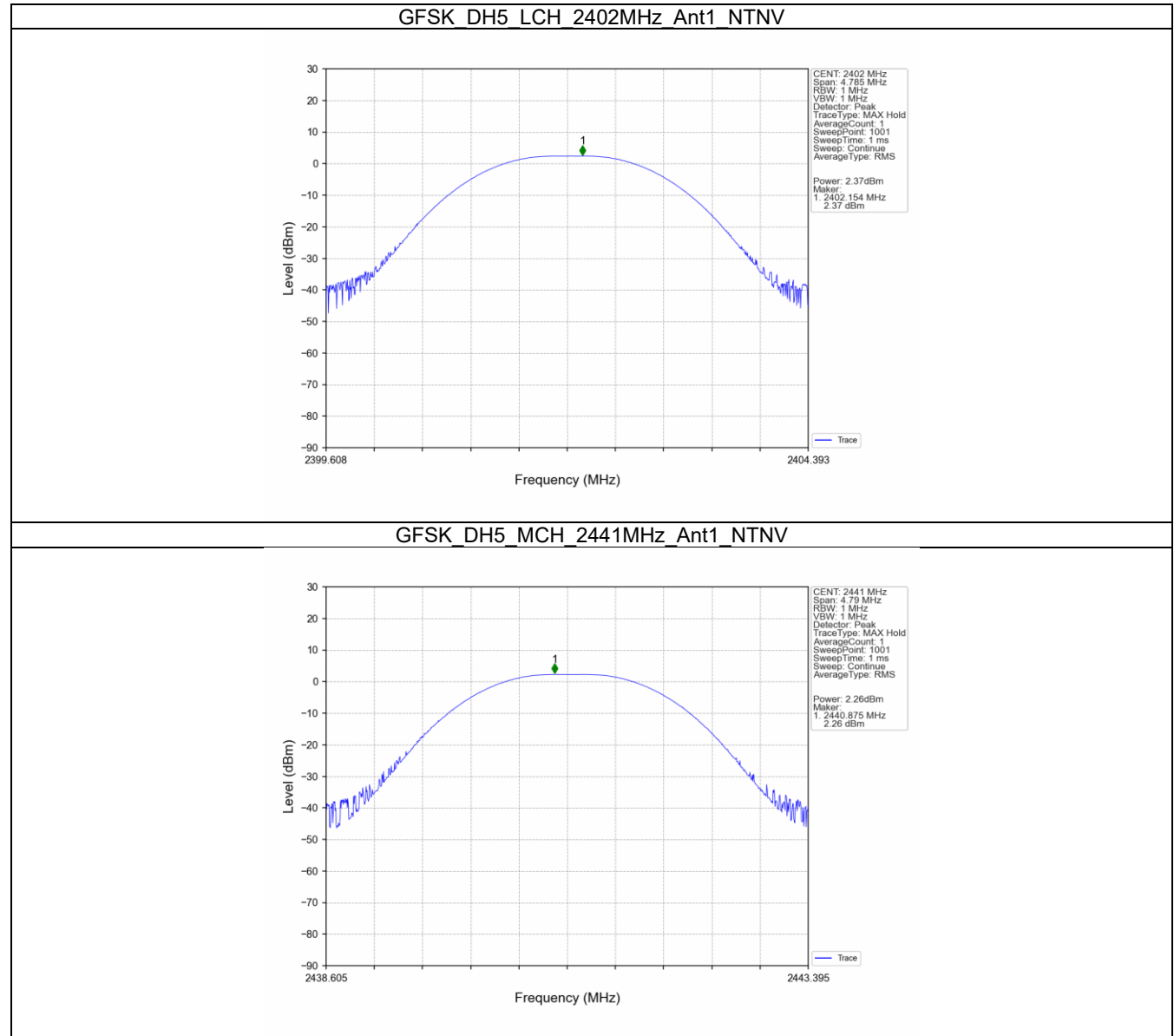
8DPSK 3DH5 HCH 2480MHz Ant1 NTN



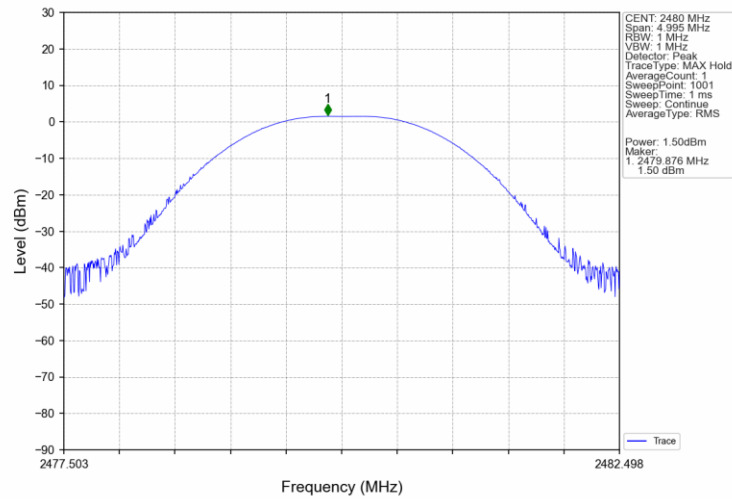
Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	2.37	<=30	Pass
		2441	DH5	2.26	<=30	Pass
		2480	DH5	1.50	<=30	Pass
Pi/4DQPSK	SISO	2402	2DH5	3.19	<=20.97	Pass
		2441	2DH5	3.07	<=20.97	Pass
		2480	2DH5	2.41	<=20.97	Pass
8DPSK	SISO	2402	3DH5	3.61	<=20.97	Pass
		2441	3DH5	3.46	<=20.97	Pass
		2480	3DH5	2.74	<=20.97	Pass
Note1: Antenna Gain: Ant1: 1.46dBi;						

2.2 Test Graph

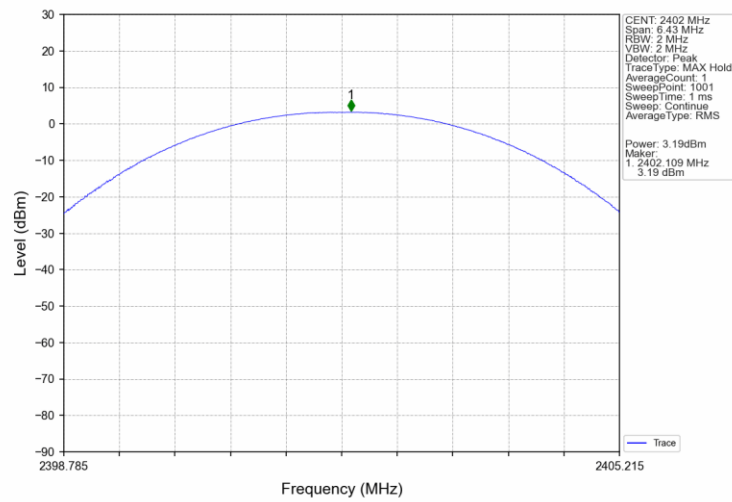
2.2.1 Power



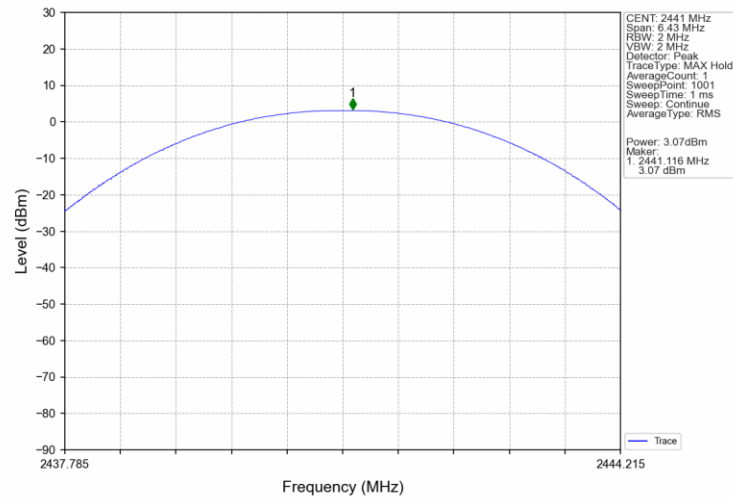
GFSK DH5 HCH 2480MHz Ant1 NTN



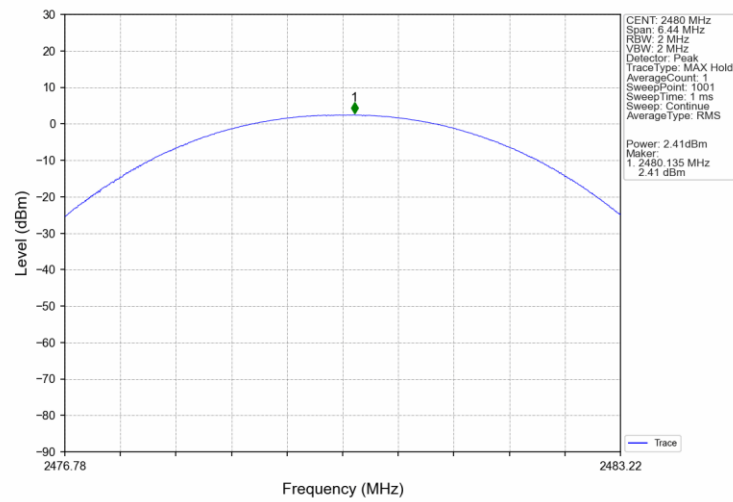
Pi/4DQPSK 2DH5 LCH 2402MHz Ant1 NTN



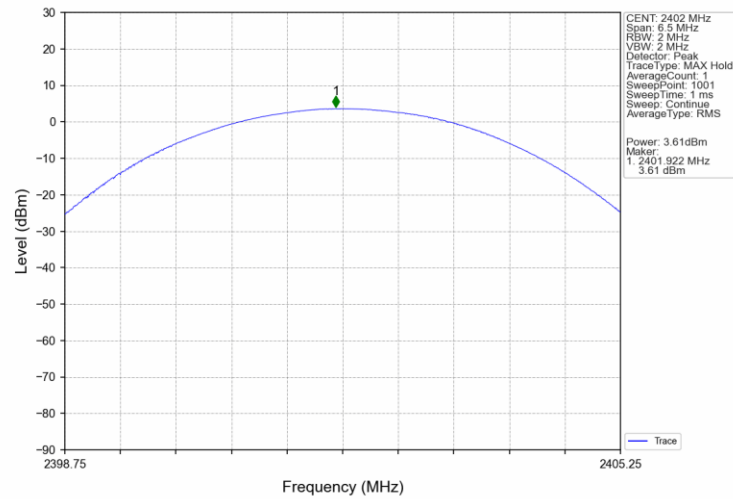
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



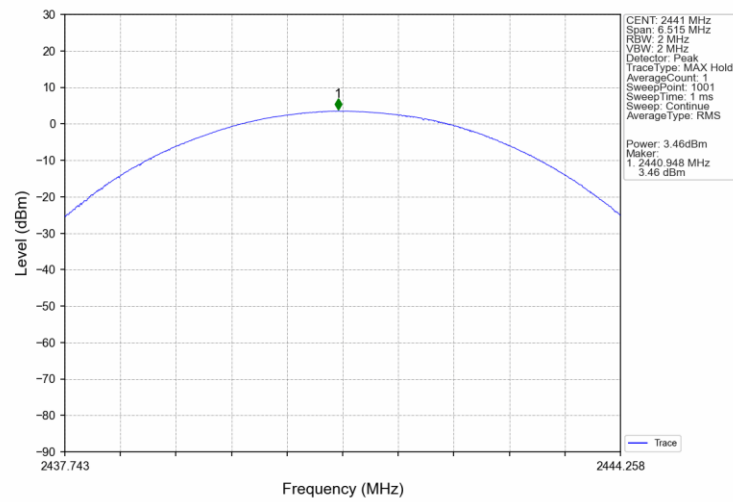
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



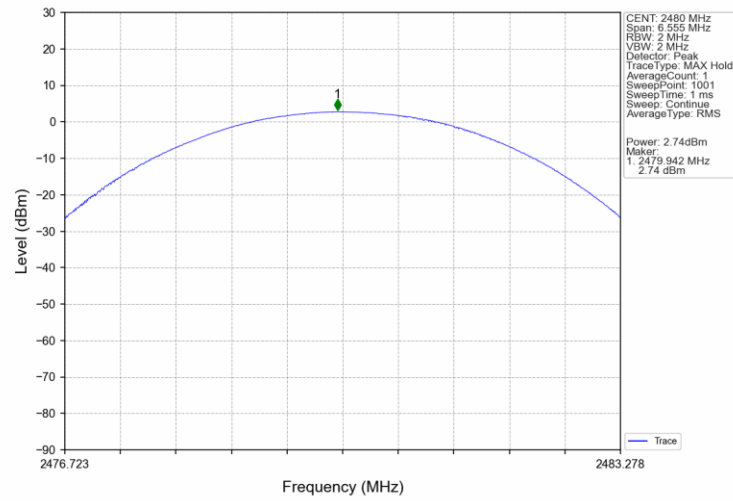
8DPSK 3DH5 LCH 2402MHz Ant1 NTN



8DPSK 3DH5 MCH 2441MHz Ant1 NTN



8DPSK 3DH5 HCH 2480MHz Ant1 NTNV



3. Carrier Frequency Separation

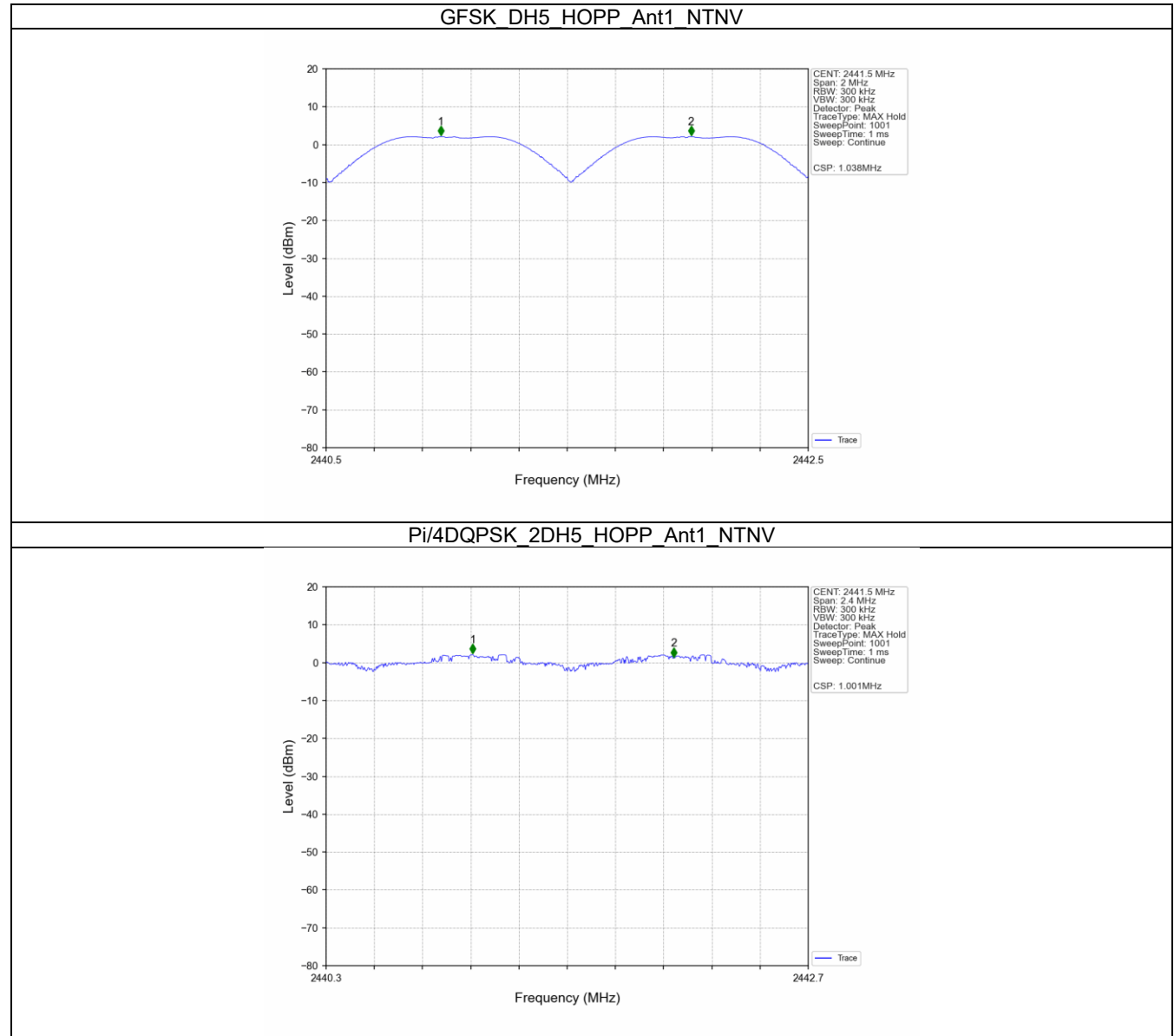
3.1 Test Result

3.1.1 Ant1

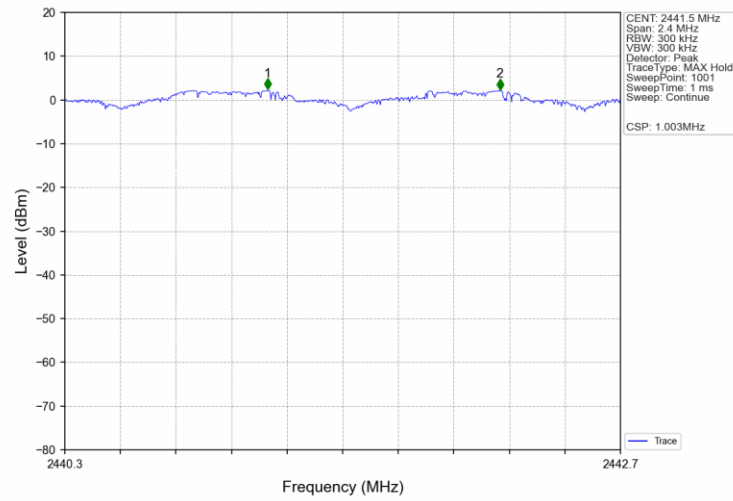
Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	1.038	0.999	≥ 0.999	Pass
PI/4DQPSK	SISO	HOPP	2DH5	1.001	1.288	≥ 0.859	Pass
8DPSK	SISO	HOPP	3DH5	1.003	1.311	≥ 0.874	Pass

3.2 Test Graph

3.2.1 Ant1



8DPSK 3DH5 HOPP Ant1 NTN



4. Number of Hopping Frequencies

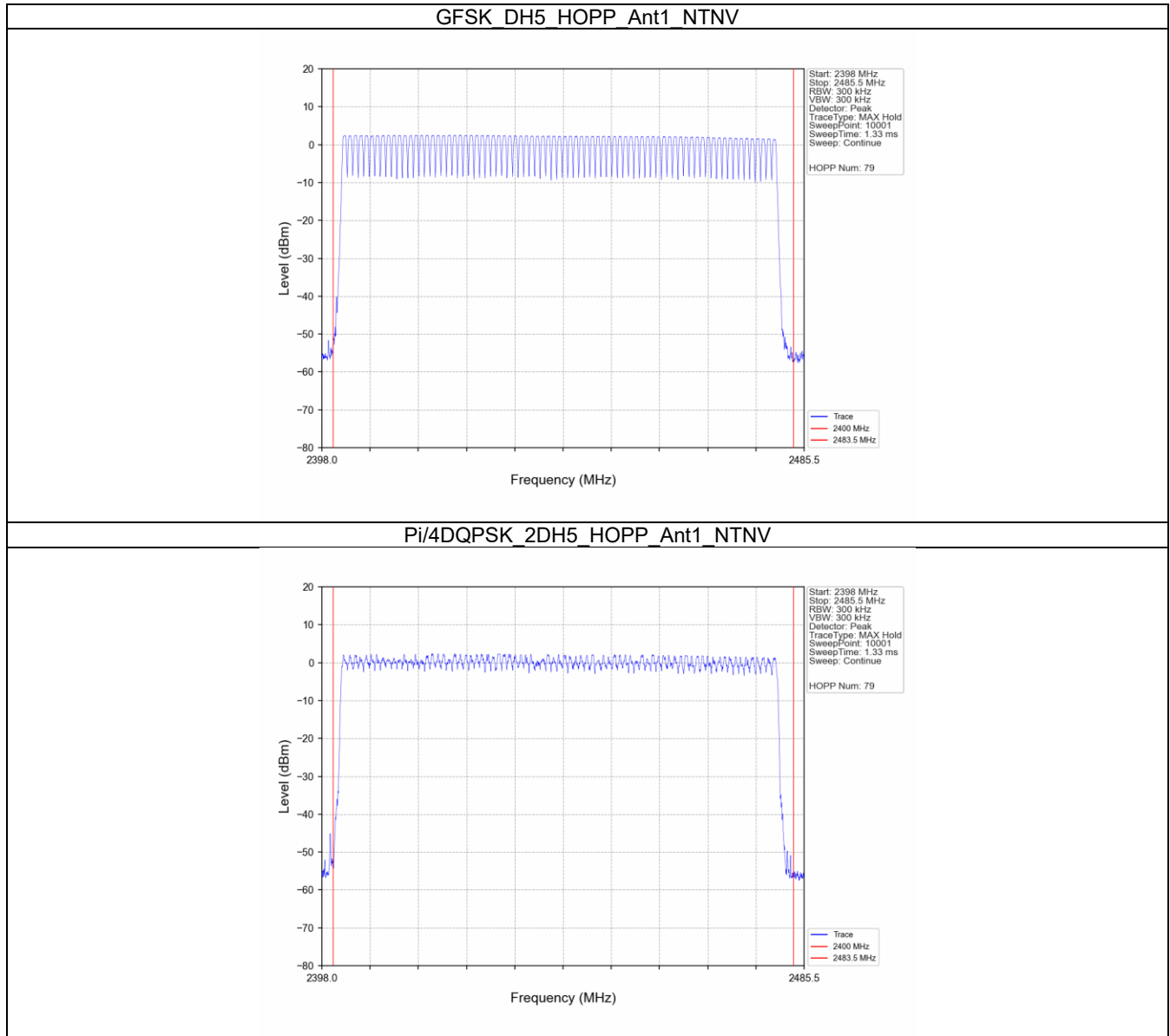
4.1 Test Result

4.1.1 HoppNum

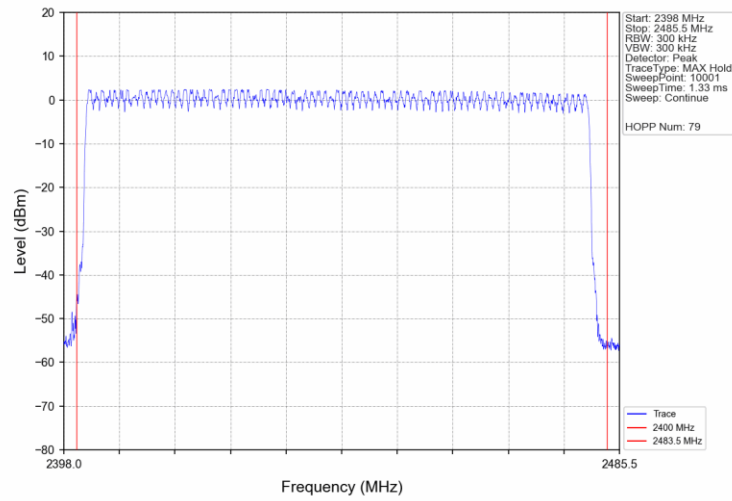
Mode	TX Type	Frequency (MHz)	Packet Type	Num of Hopping Frequencies		Verdict
				ANT1	Limit	
GFSK	SISO	HOPP	DH5	79	≥ 15	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	79	≥ 15	Pass
8DPSK	SISO	HOPP	3DH5	79	≥ 15	Pass

4.2 Test Graph

4.2.1 HoppNum



8DPSK 3DH5 HOPP Ant1 NTN



5. Time of Occupancy (Dwell Time)

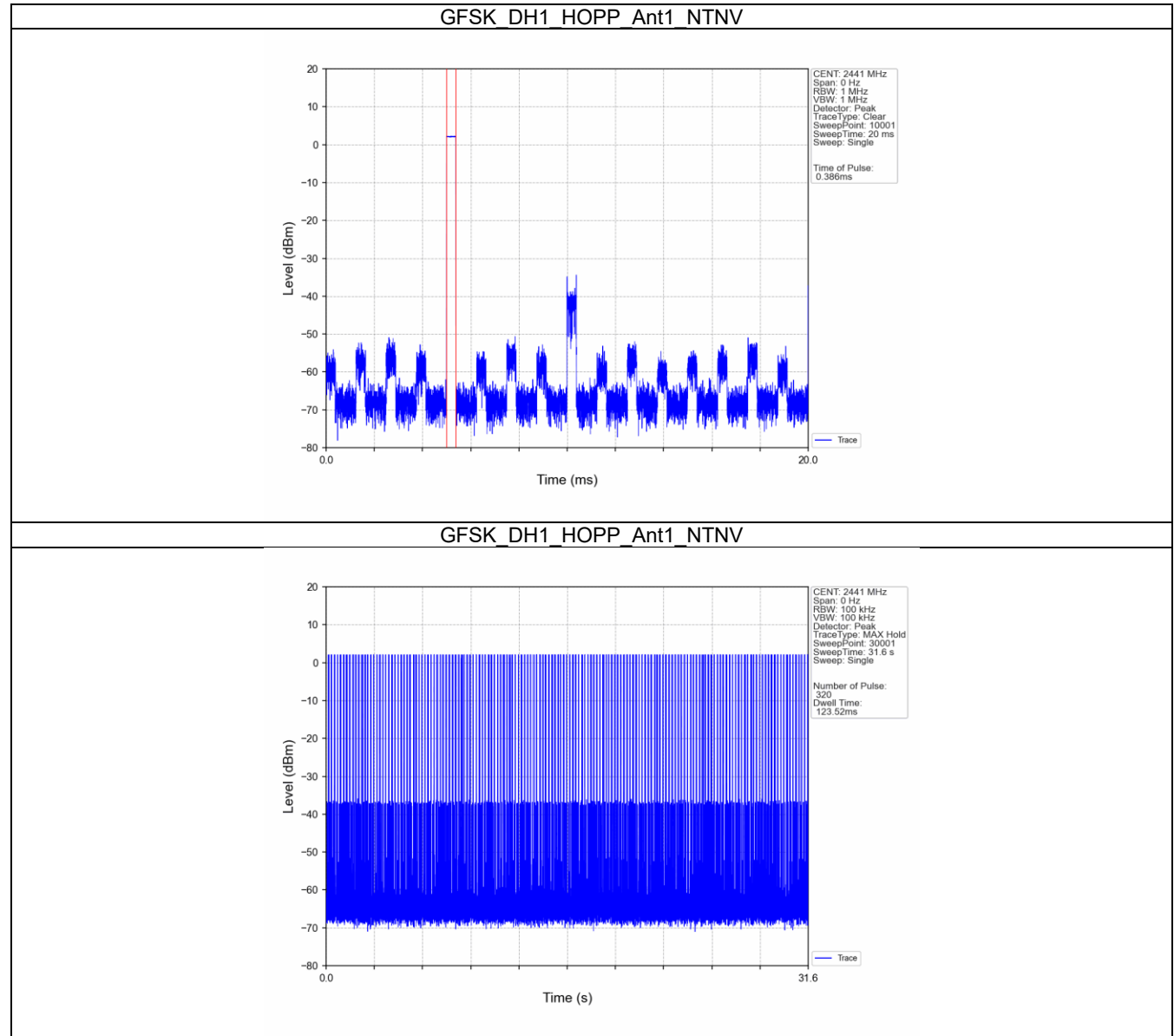
5.1 Test Result

5.1.1 Ant1

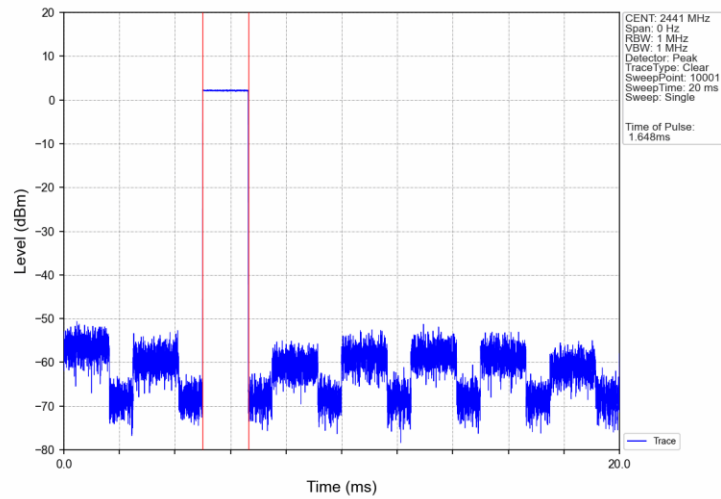
Ant1									
Mode	Tx Type	Frequency (MHz)	Packet Type	Duration of Single Pulse (ms)	Observation Period (s)	Num of Pulse in Observation Period	Dwell Time (ms)	Limit (ms)	Verdict
GFSK	SISO	HOPP	DH1	0.386	31.600	320	123.520	<=400	Pass
			DH3	1.648	31.600	157	258.736	<=400	Pass
			DH5	2.894	31.600	111	321.234	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.400	31.600	320	128.000	<=400	Pass
			2DH3	1.648	31.600	151	248.848	<=400	Pass
			2DH5	2.896	31.600	107	309.872	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.396	31.600	320	126.720	<=400	Pass
			3DH3	1.646	31.600	158	260.068	<=400	Pass
			3DH5	2.904	31.600	98	284.592	<=400	Pass

5.2 Test Graph

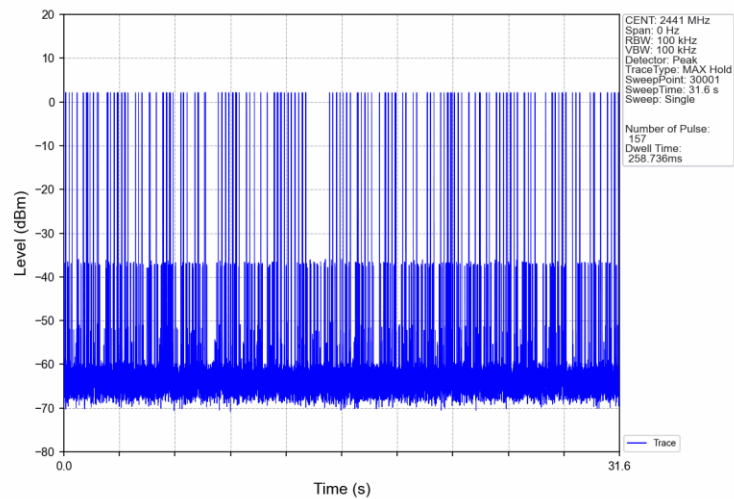
5.2.1 Ant1



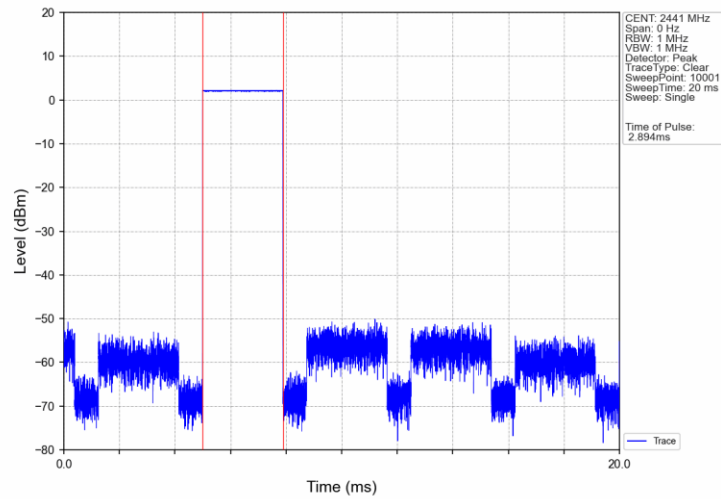
GFSK DH3 HOPP Ant1 NTN



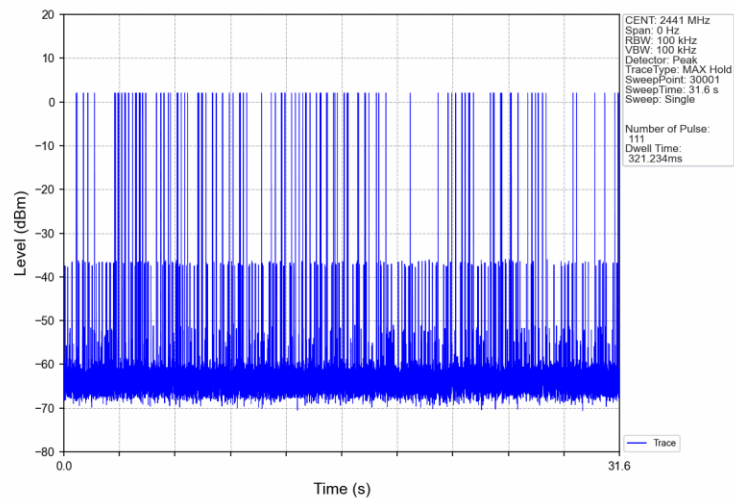
GFSK_DH3_HOPP_Ant1_NTNV



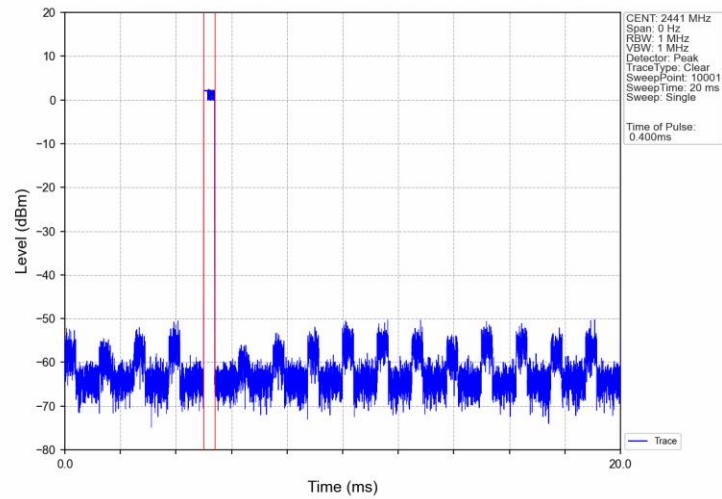
GFSK DH5 HOPP Ant1 NTN



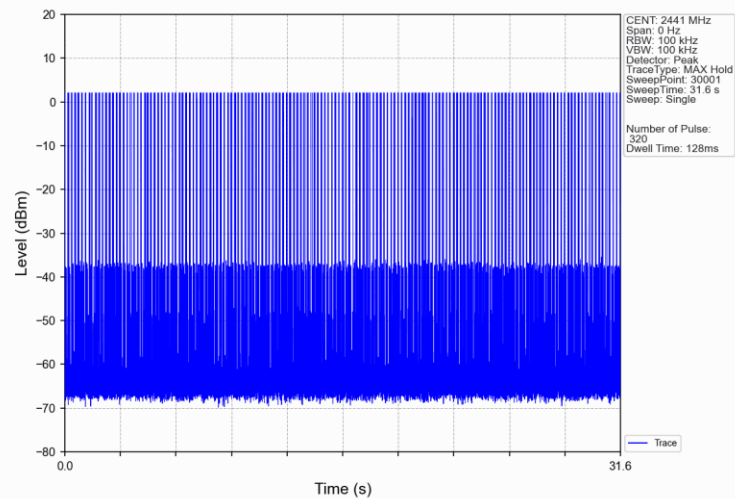
GFSK_DH5_HOPP_Ant1_NTNV



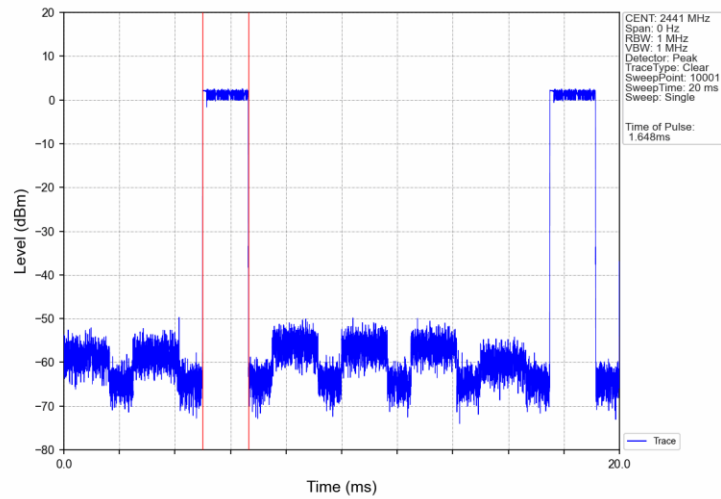
Pi/4DQPSK_2DH1_HOPP_Ant1_NTNV



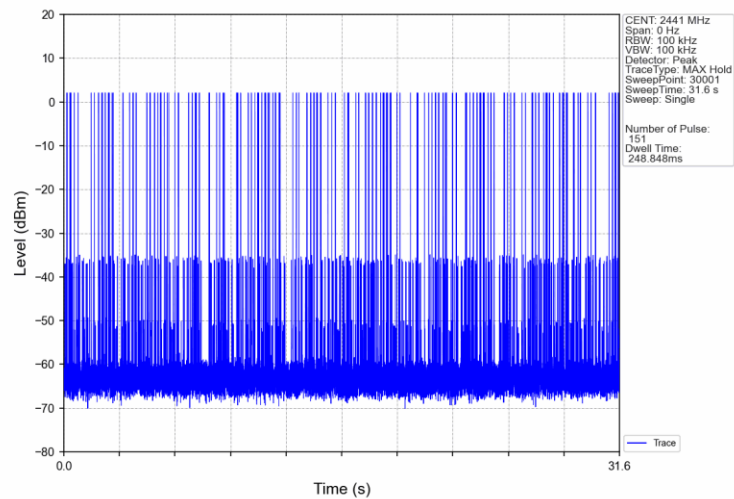
Pi/4DQPSK_2DH1_HOPP_Ant1_NTNV



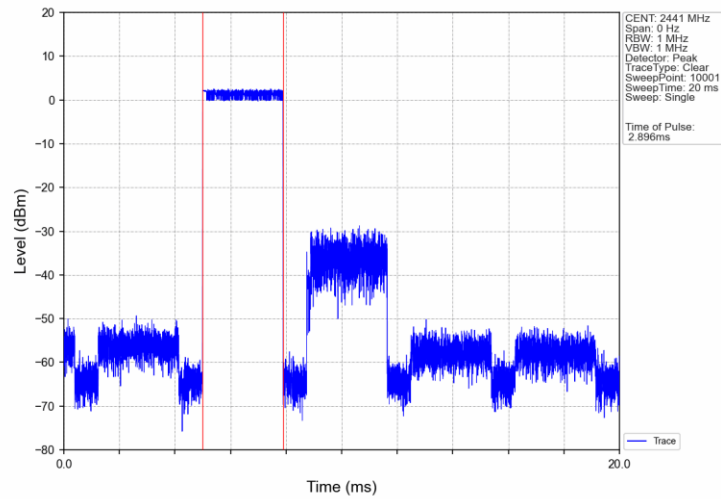
Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV



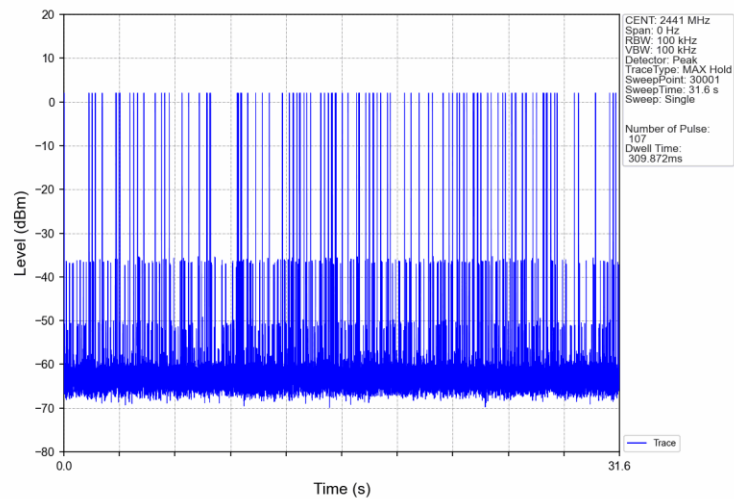
Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV



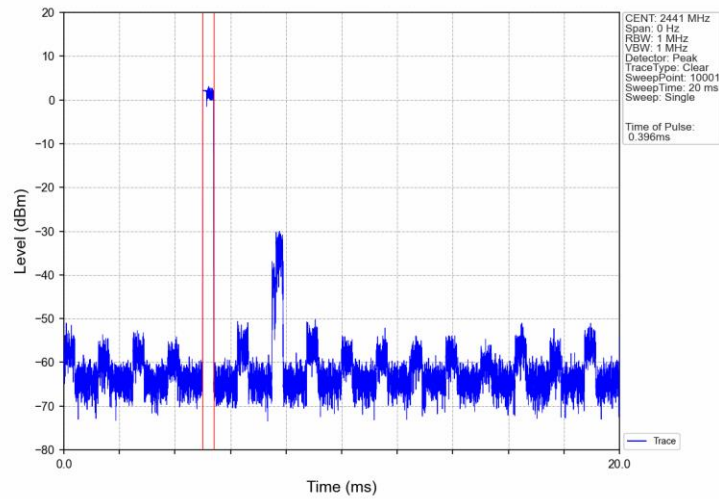
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



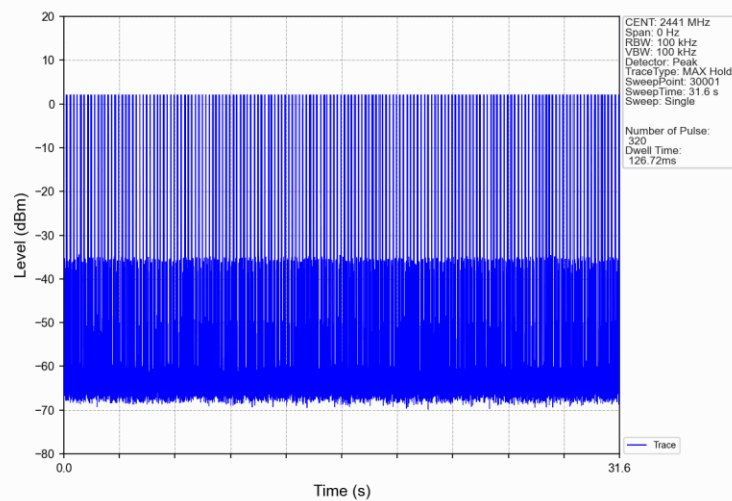
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



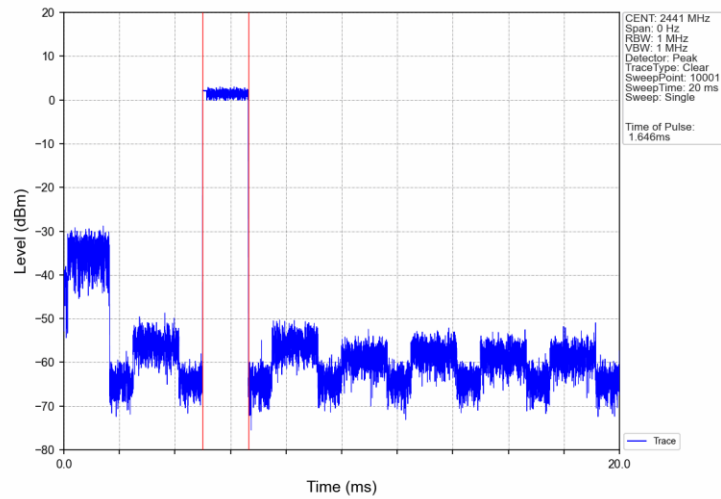
8DPSK_3DH1_HOPP_Ant1_NTNV



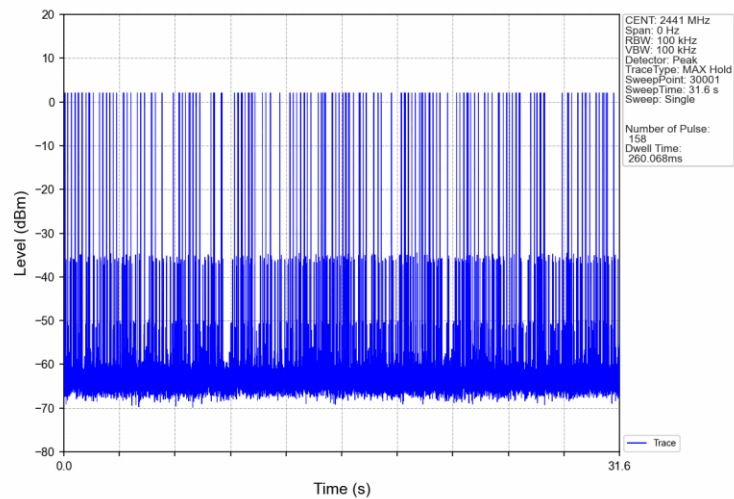
8DPSK_3DH1_HOPP_Ant1_NTNV



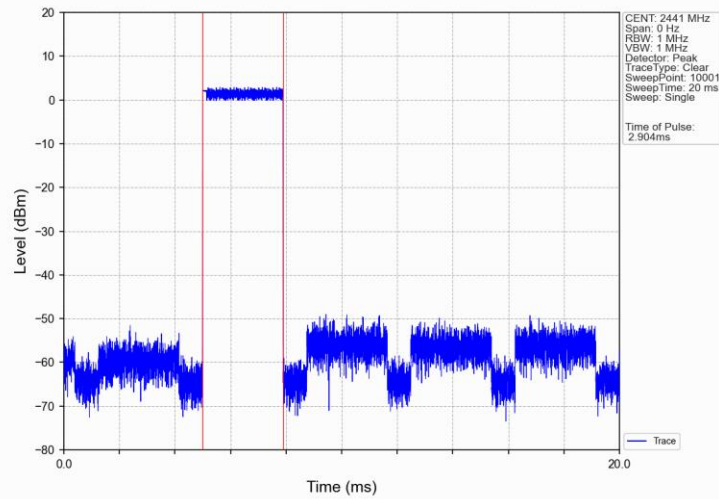
8DPSK_3DH3_HOPP_Ant1_NTNV



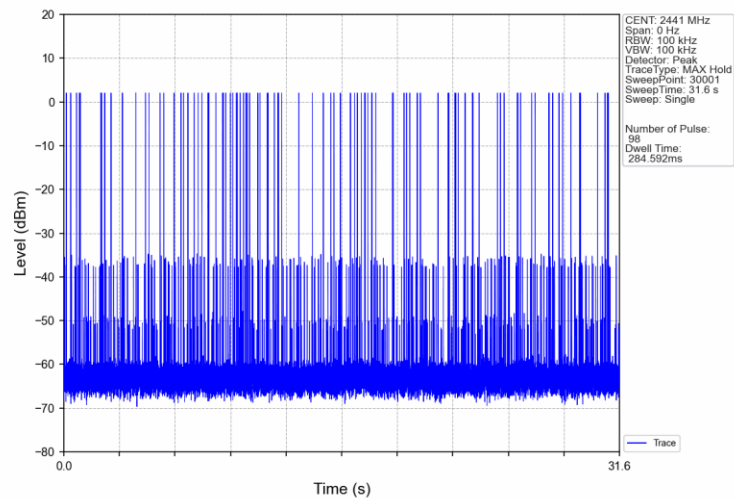
8DPSK_3DH3_HOPP_Ant1_NTNV



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	2.28
		2441	DH5	1	2.16
		2480	DH5	1	1.33
		HOPP	DH5	1	2.50
					2.50
Pi/4DQPSK	SISO	2402	2DH5	1	2.24
		2441	2DH5	1	2.10
		2480	2DH5	1	1.42
		HOPP	2DH5	1	2.27
					2.27
8DPSK	SISO	2402	3DH5	1	2.26
		2441	3DH5	1	2.14
		2480	3DH5	1	1.43
		HOPP	3DH5	1	2.55
					2.55

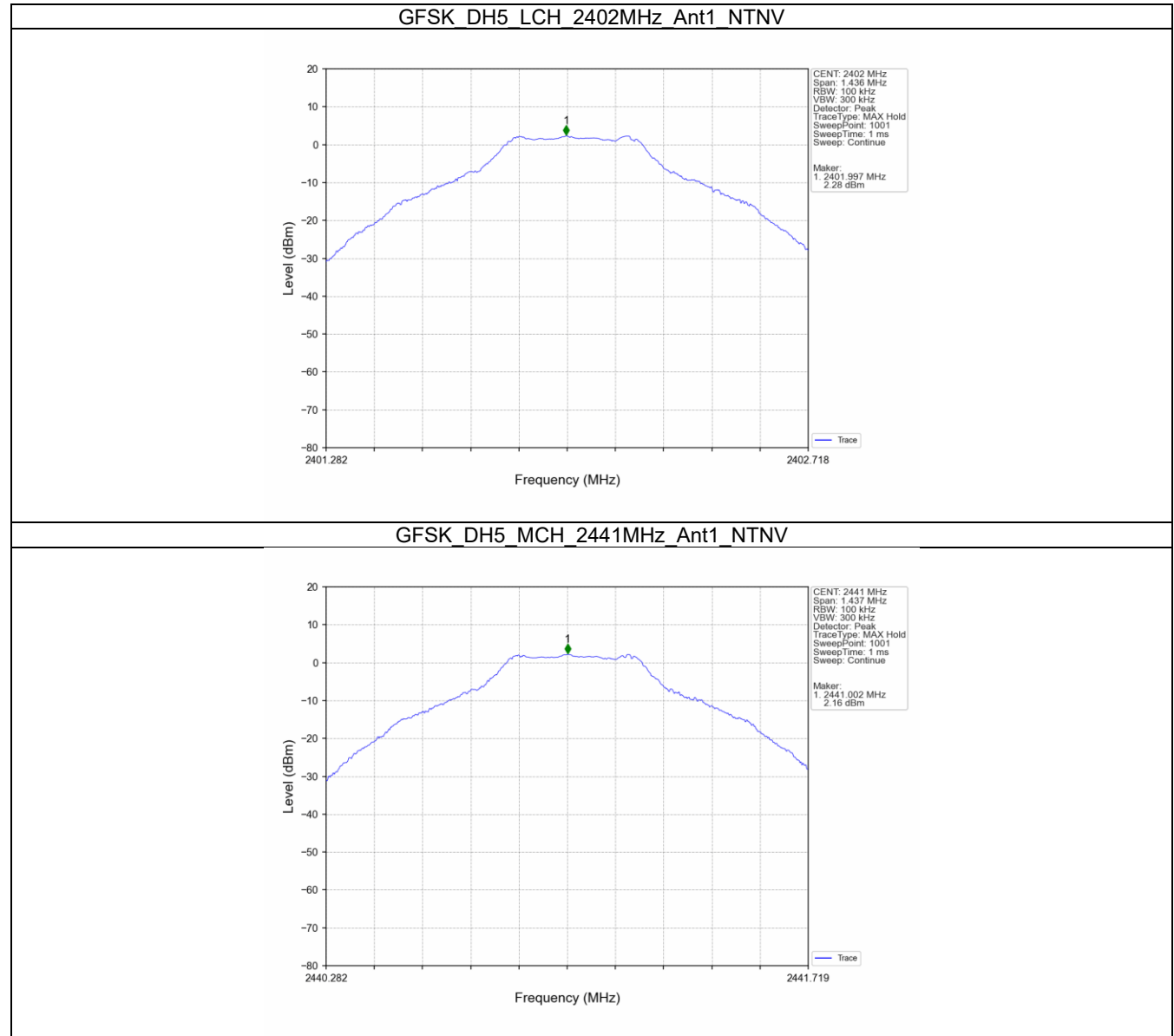
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

6.1.2 CSE

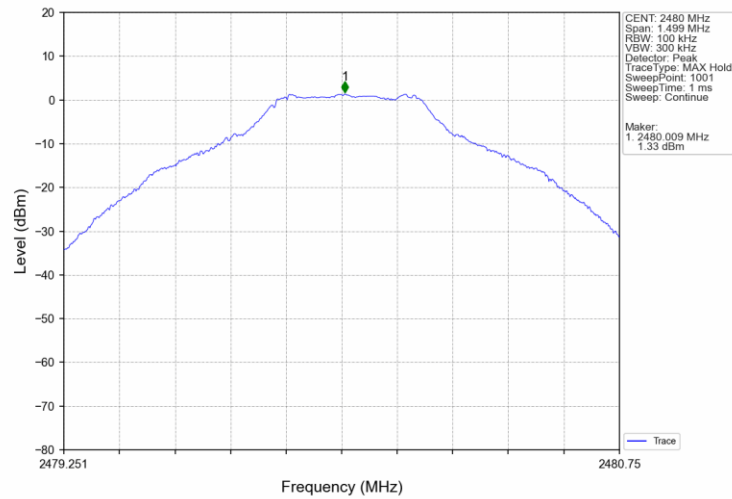
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	2.28	-17.72	Pass
		2441	DH5	1	2.16	-17.84	Pass
		2480	DH5	1	1.33	-18.67	Pass
		HOPP	DH5	1	2.50	-17.50	Pass
					2.50	-17.50	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	2.24	-17.76	Pass
		2441	2DH5	1	2.10	-17.90	Pass
		2480	2DH5	1	1.42	-18.58	Pass
		HOPP	2DH5	1	2.27	-17.73	Pass
					2.27	-17.73	Pass
8DPSK	SISO	2402	3DH5	1	2.26	-17.74	Pass
		2441	3DH5	1	2.14	-17.86	Pass
		2480	3DH5	1	1.43	-18.57	Pass
		HOPP	3DH5	1	2.55	-17.45	Pass
					2.55	-17.45	Pass
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.							

6.2 Test Graph

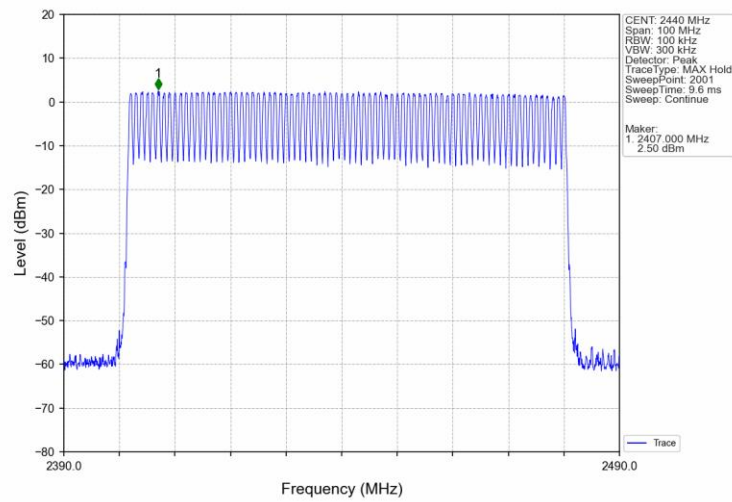
6.2.1 Ref



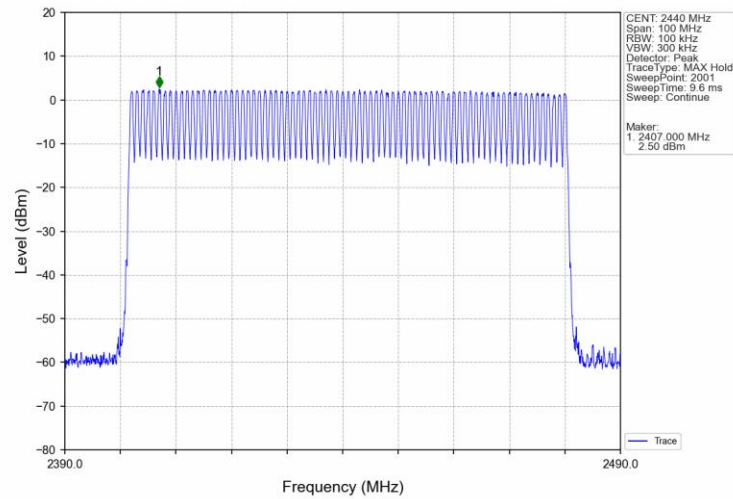
GFSK DH5 HCH 2480MHz Ant1 NTN



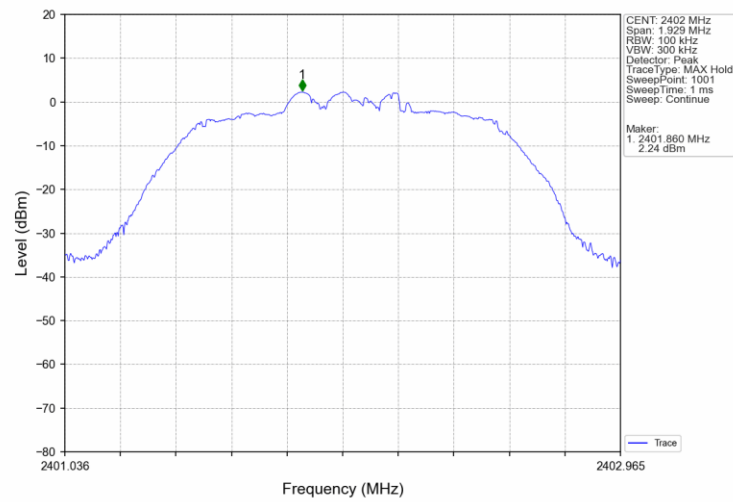
GFSK_DH5_HOPP_Ant1_NTN



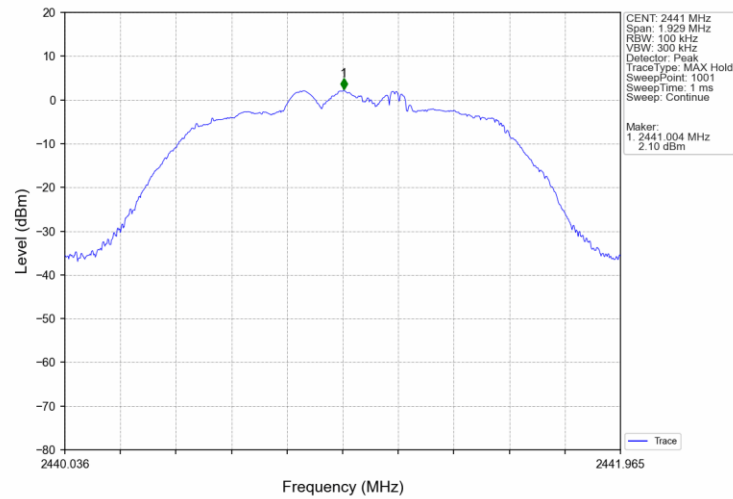
GFSK DH5 HOPP Ant1 NTN



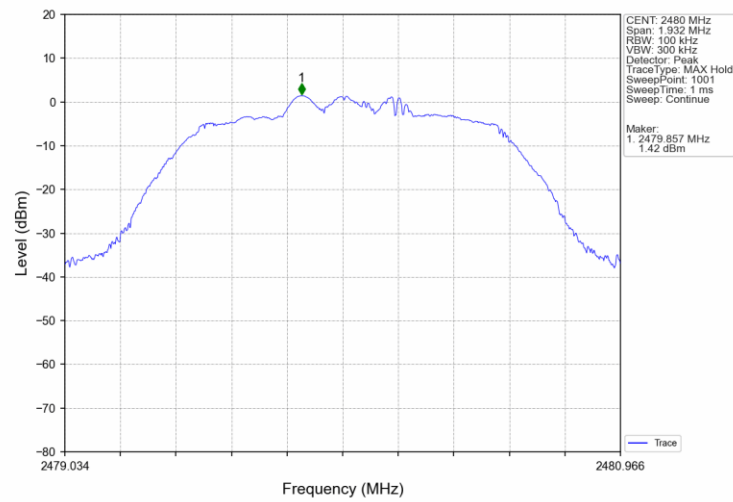
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1 NTN



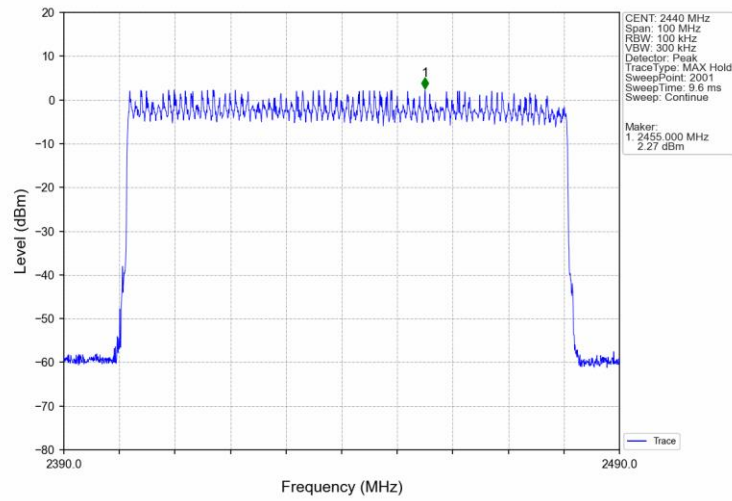
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



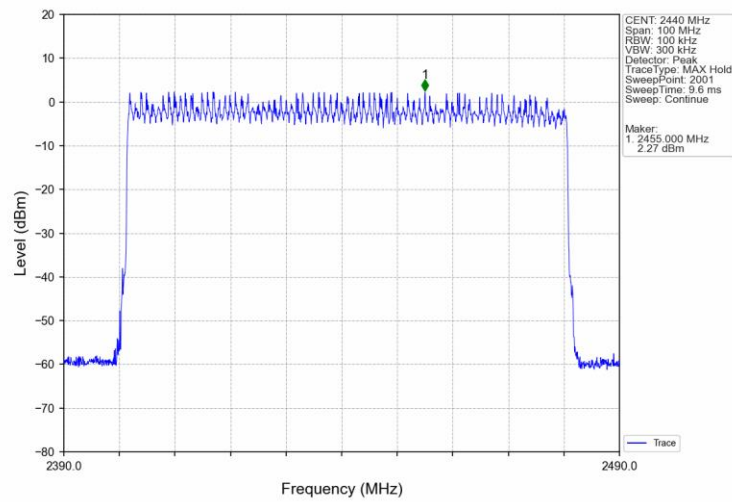
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



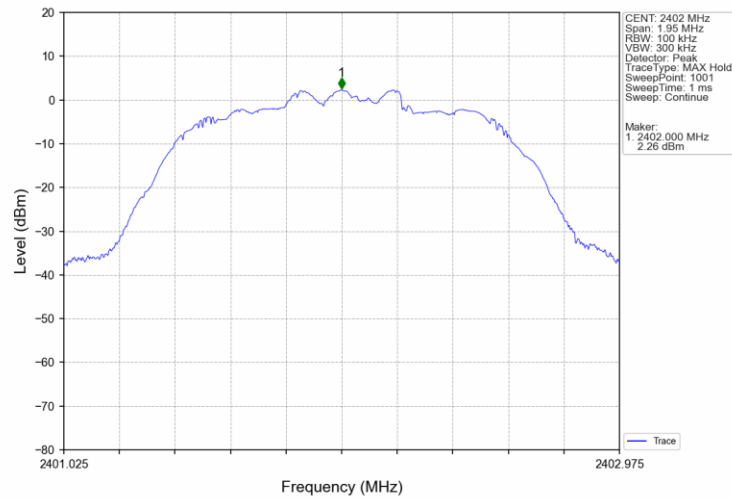
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



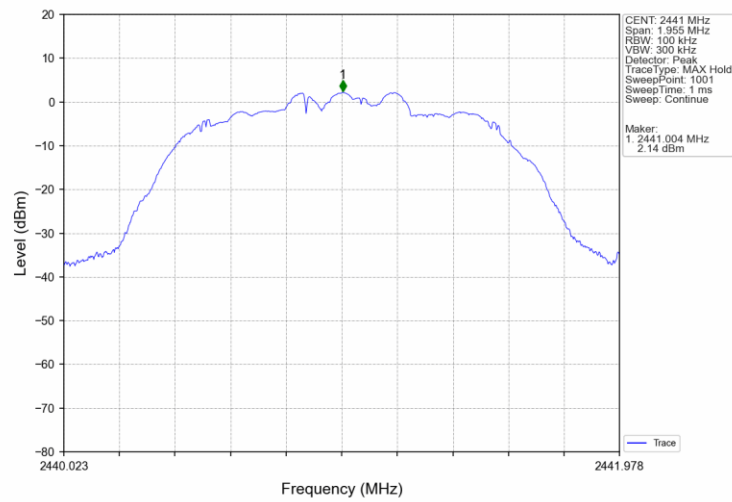
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



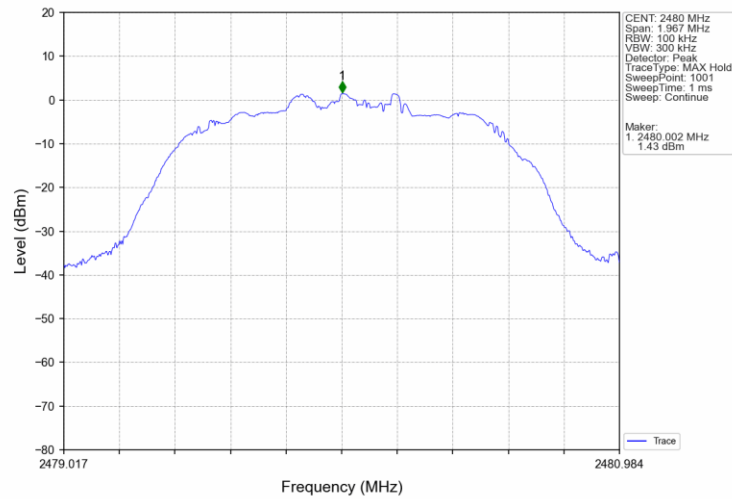
8DPSK 3DH5 LCH 2402MHz Ant1 NTN



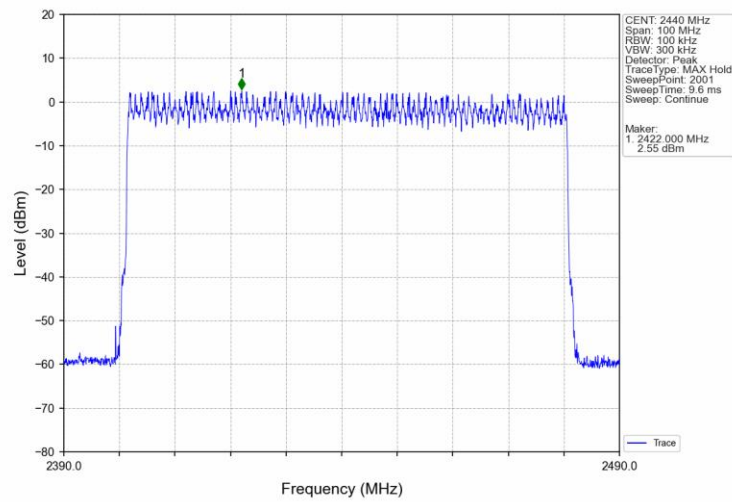
8DPSK 3DH5 MCH 2441MHz Ant1 NTN



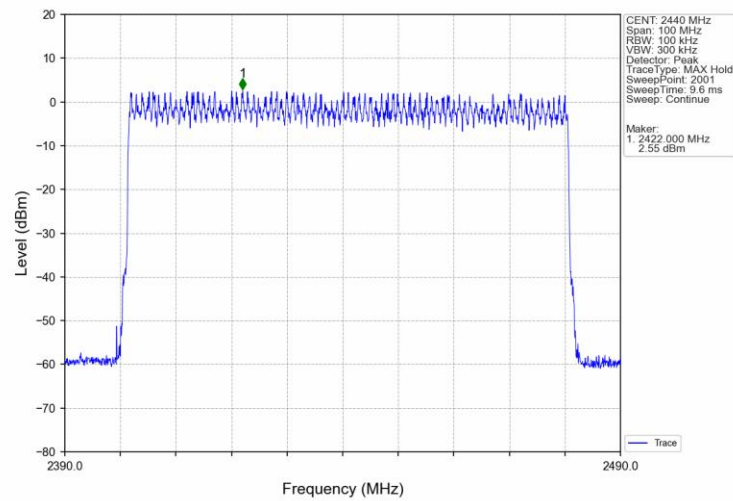
8DPSK 3DH5 HCH 2480MHz Ant1 NTN



8DPSK 3DH5 HOPP Ant1 NTN

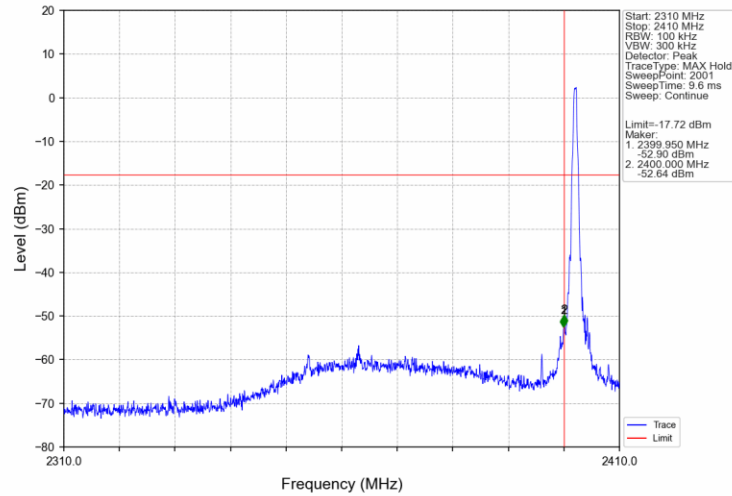


8DPSK 3DH5 HOPP Ant1 NTNV

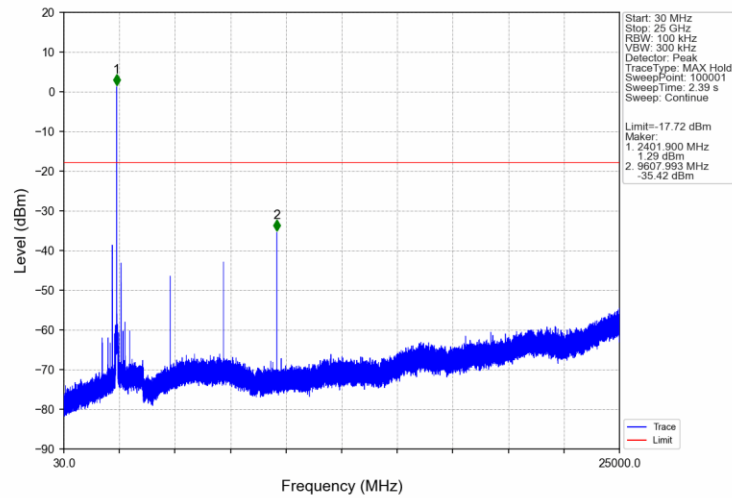


6.2.2 CSE

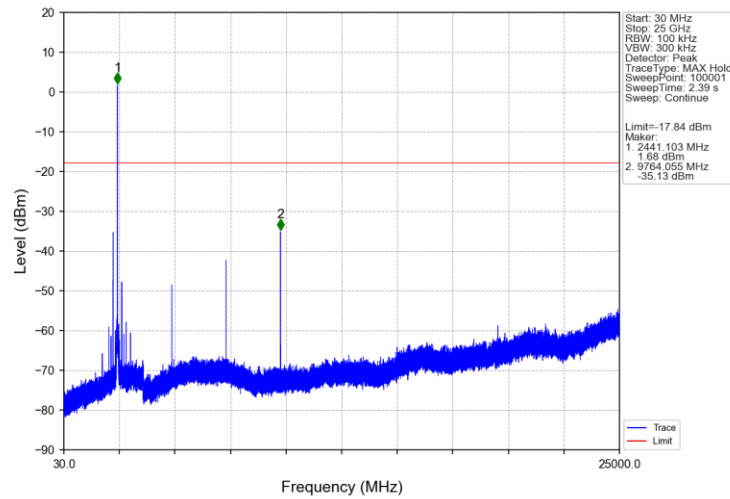
GFSK_DH5_LCH_2402MHz_Ant1_NTNV



GFSK_DH5_LCH_2402MHz_Ant1_NTNV



GFSK_DH5_MCH_2441MHz_Ant1_NTNV



GFSK_DH5_HCH_2480MHz_Ant1_NTNV

