

Test Data for Bluetooth

Product Name: MaaXBoard RT

Test Model: AES-MC-SBC-IMXRT1176-G

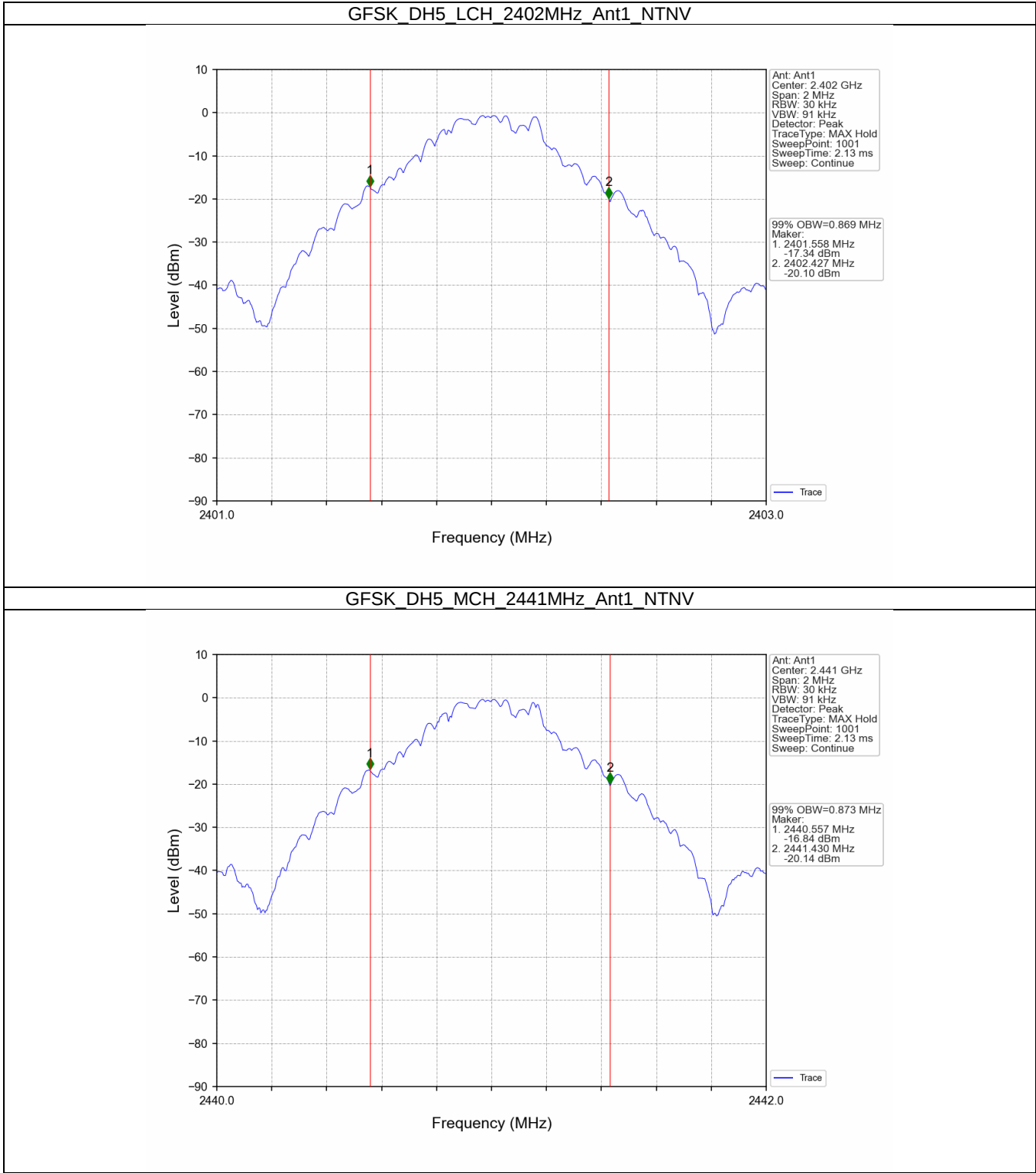
1. Bandwidth

1.1 OBW

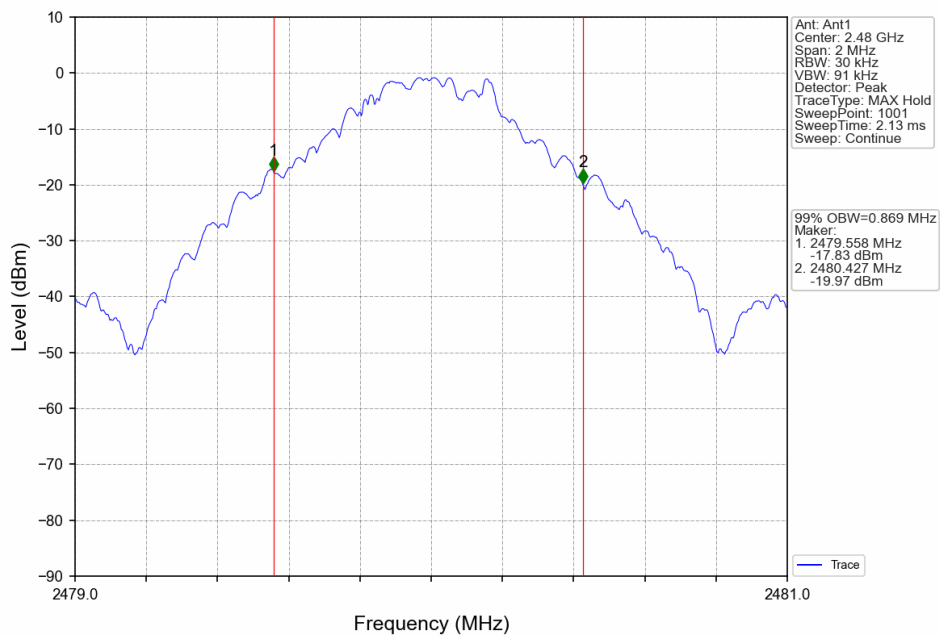
1.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.869	Pass
		2441	DH5	1	0.873	Pass
		2480	DH5	1	0.869	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.173	Pass
		2441	2DH5	1	1.174	Pass
		2480	2DH5	1	1.173	Pass
8DPSK	SISO	2402	3DH5	1	1.182	Pass
		2441	3DH5	1	1.180	Pass
		2480	3DH5	1	1.182	Pass

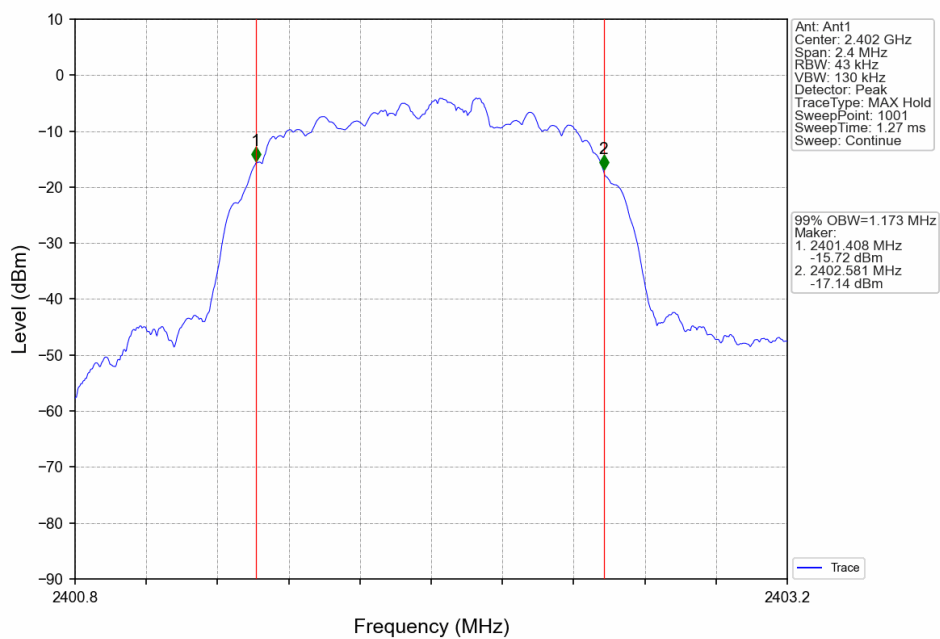
1.1.2 Test Graph



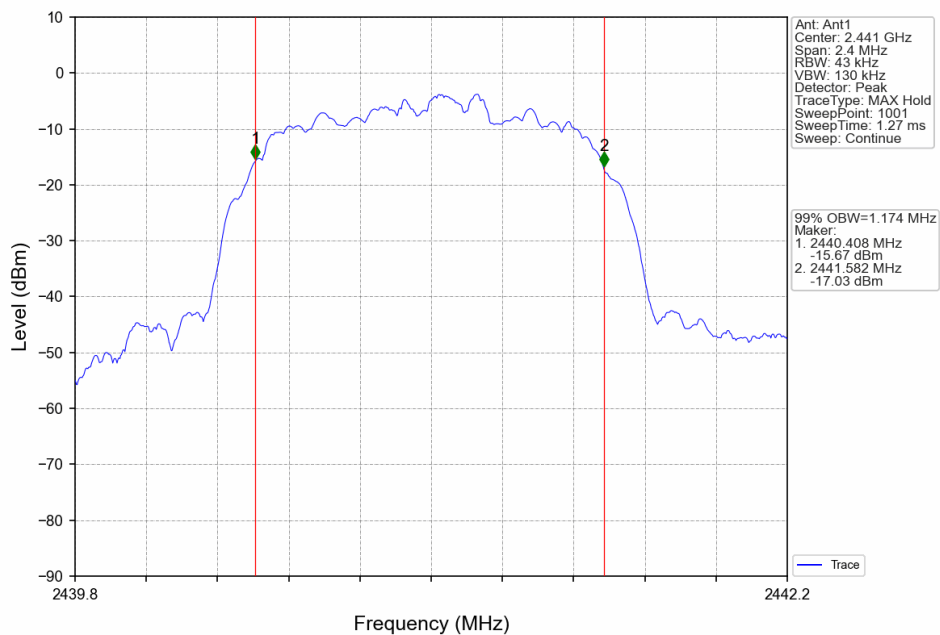
GFSK DH5 HCH 2480MHz Ant1 NTN



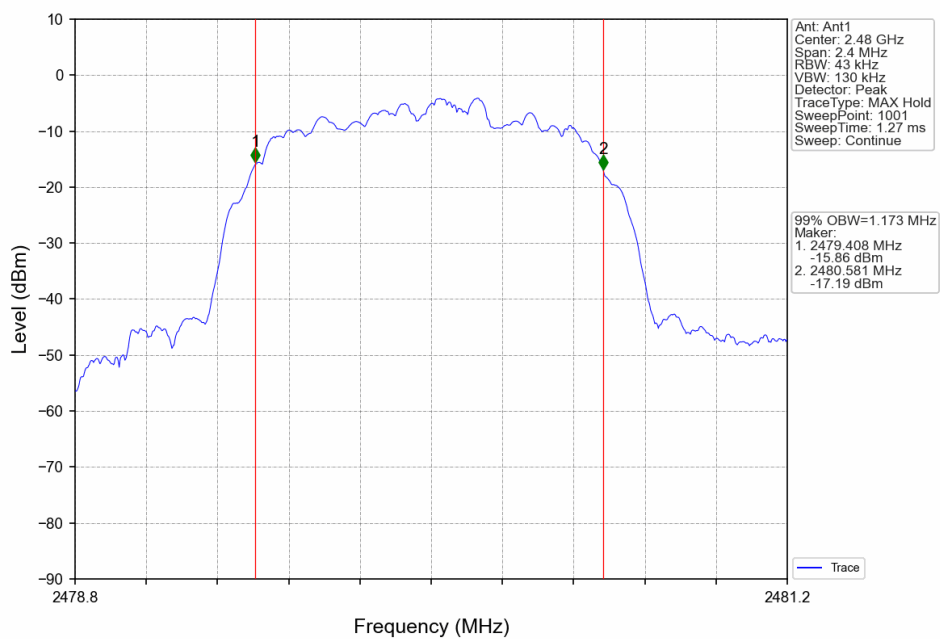
Pi/4DQPSK 2DH5 LCH 2402MHz Ant1 NTN

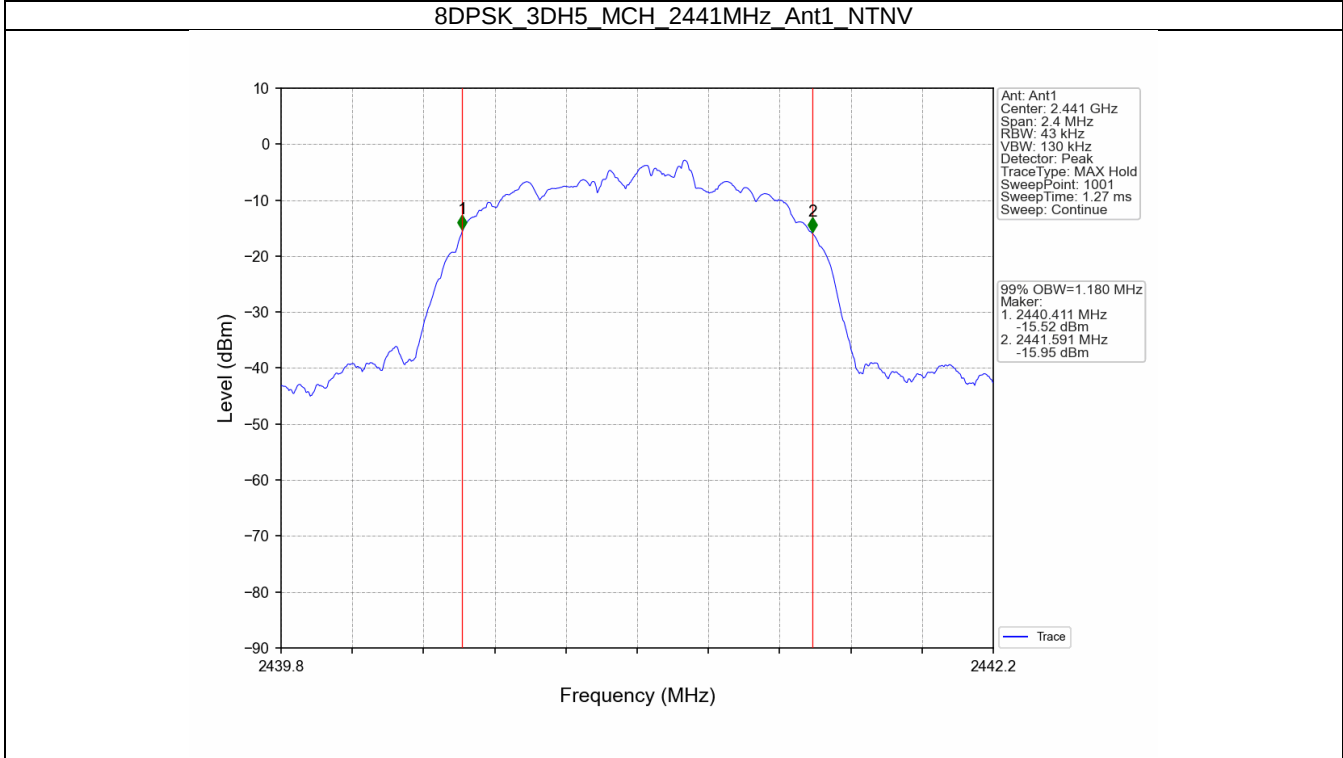
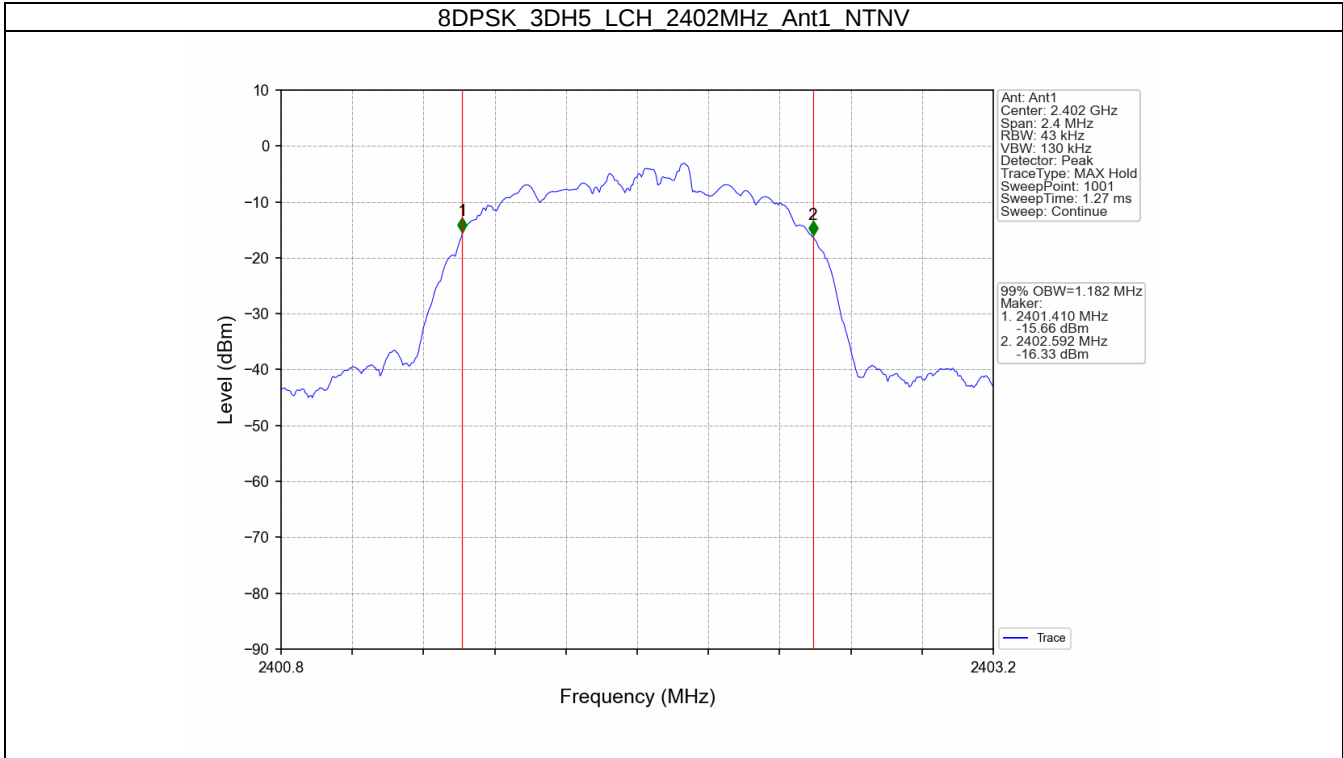


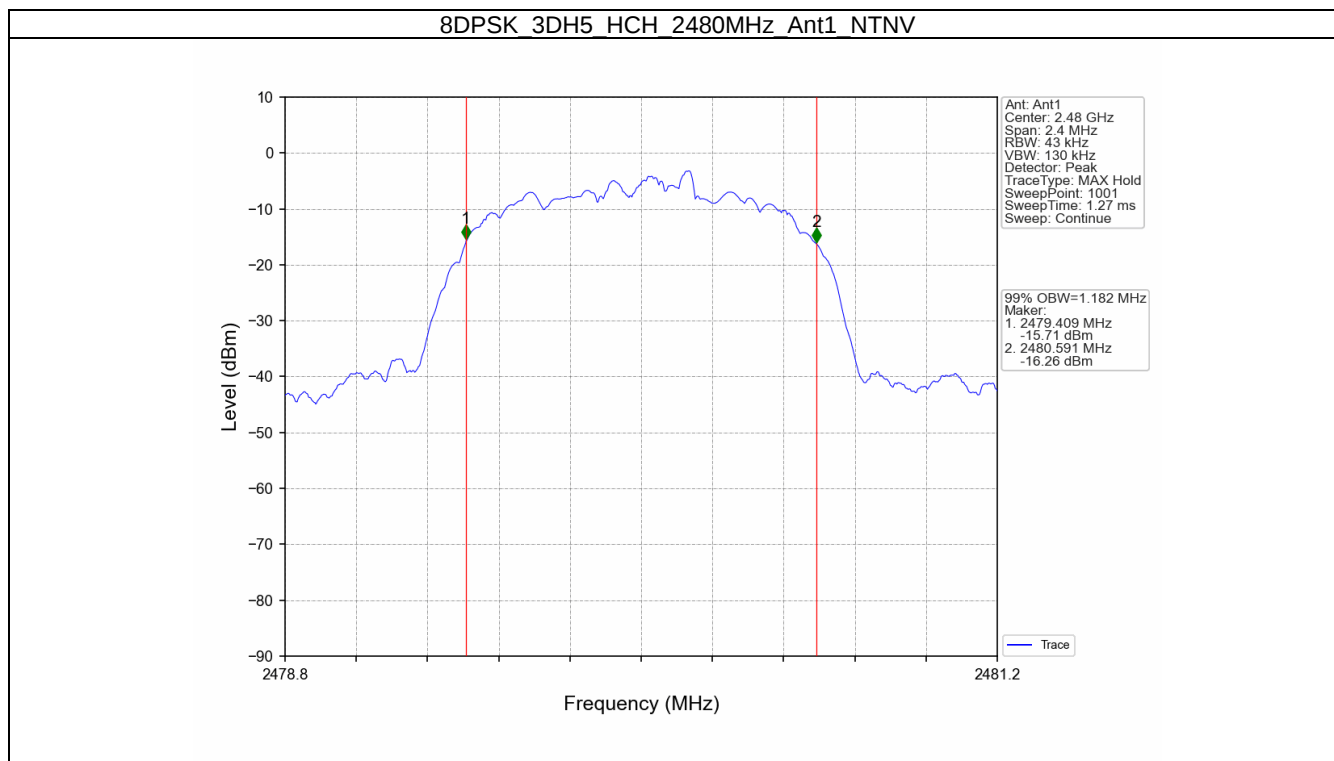
Pi/4DQPSK 2DH5 MCH 2441MHz Ant1 NTN



Pi/4DQPSK 2DH5 HCH 2480MHz Ant1 NTN





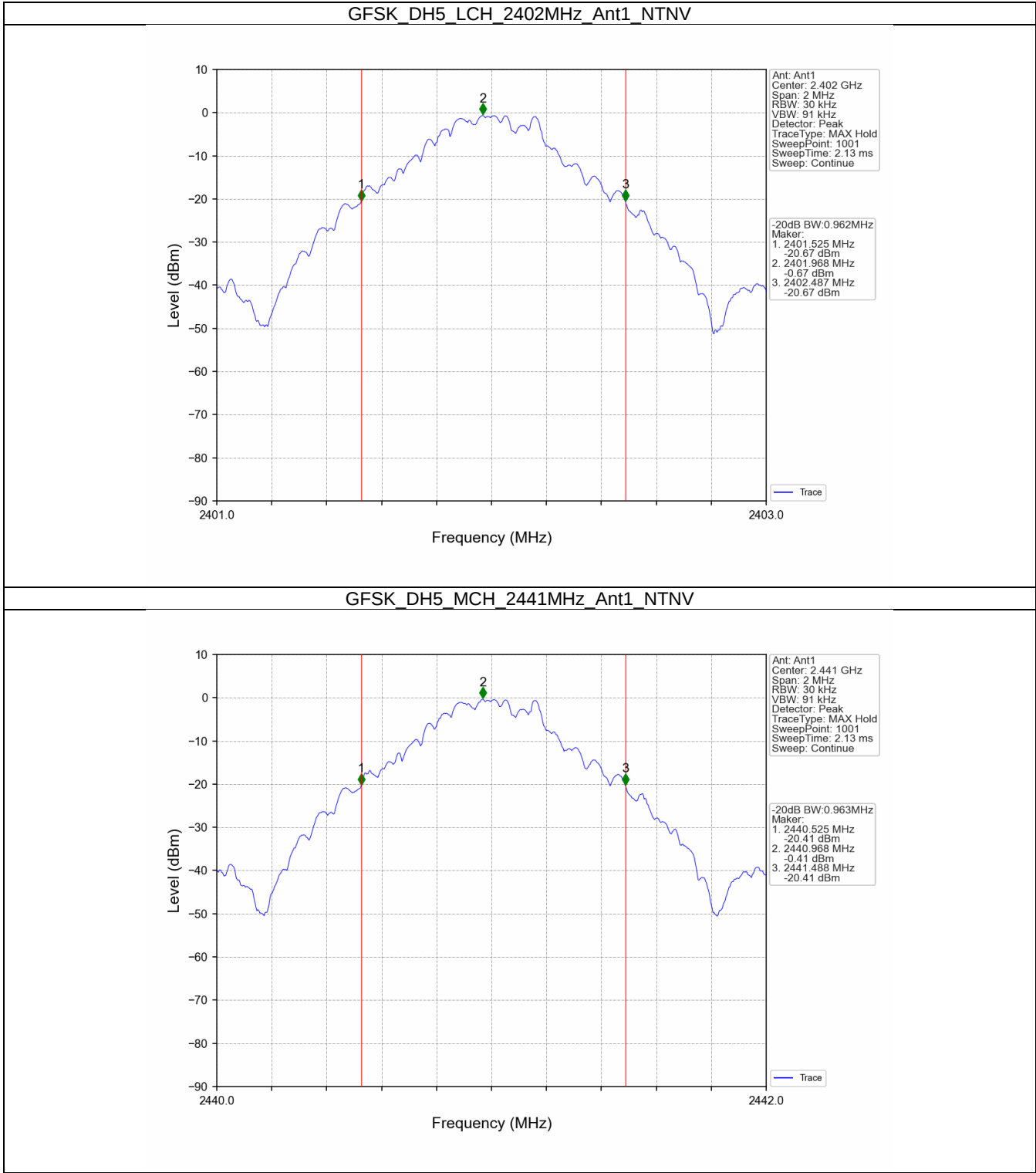


1.2 20dB BW

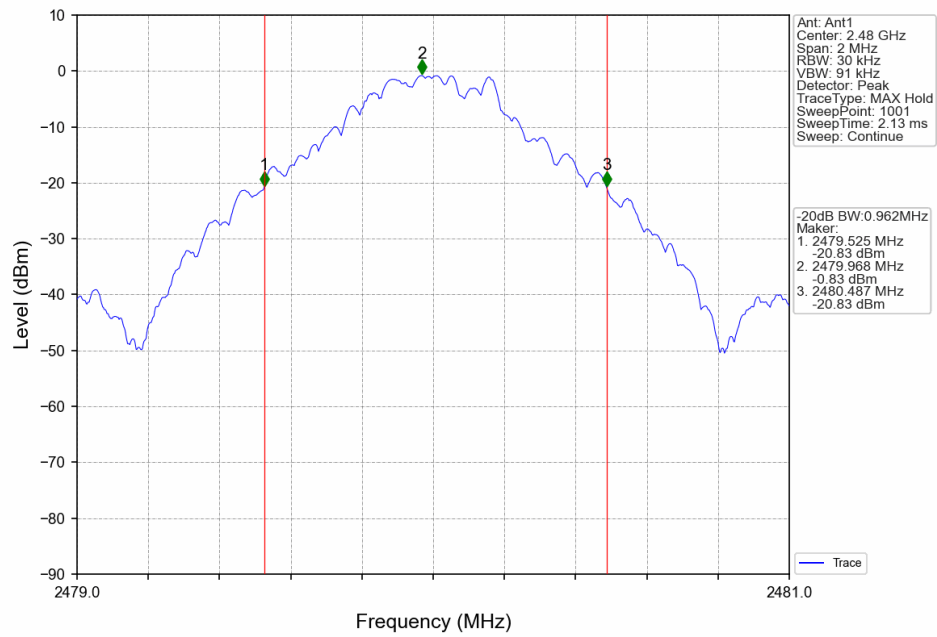
1.2.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.962	Pass
		2441	DH5	1	0.963	Pass
		2480	DH5	1	0.962	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.341	Pass
		2441	2DH5	1	1.342	Pass
		2480	2DH5	1	1.342	Pass
8DPSK	SISO	2402	3DH5	1	1.314	Pass
		2441	3DH5	1	1.315	Pass
		2480	3DH5	1	1.315	Pass

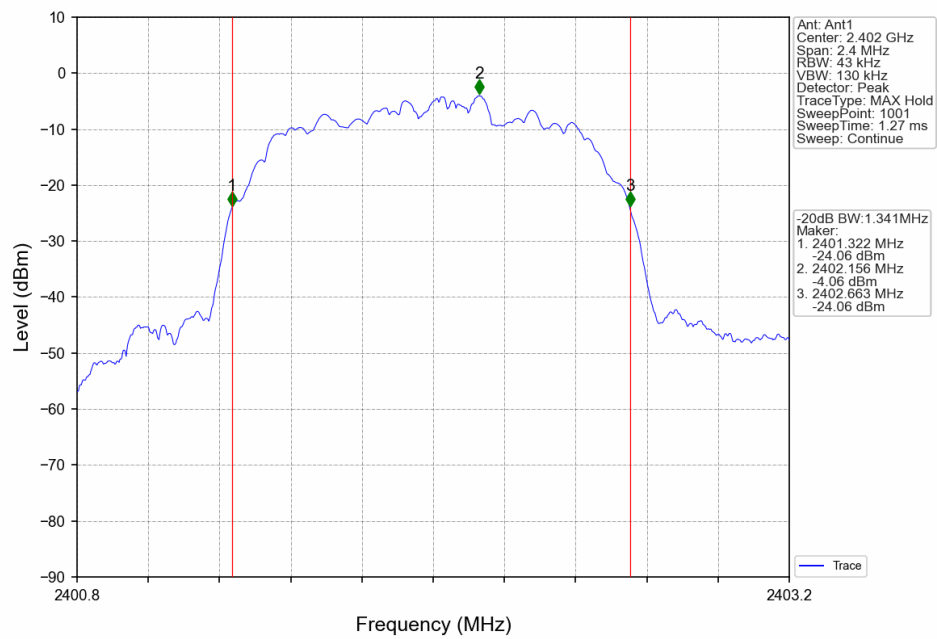
1.2.2 Test Graph



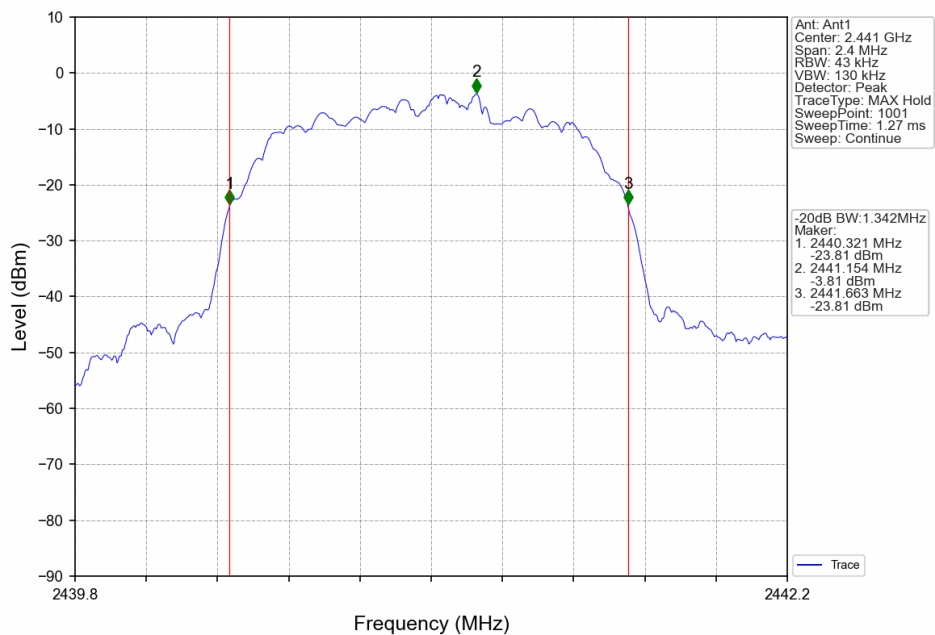
GFSK DH5 HCH 2480MHz Ant1 NTNV



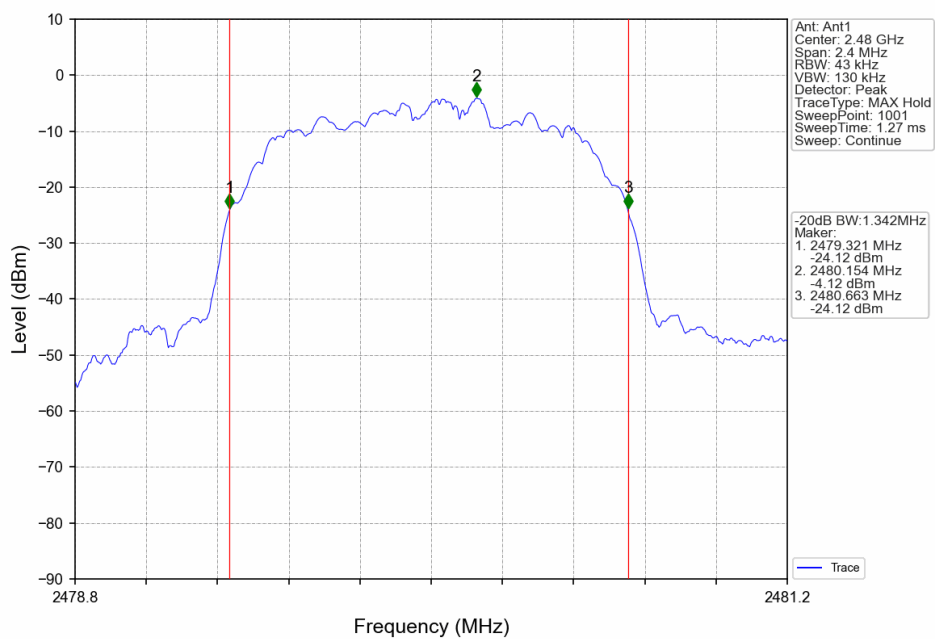
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



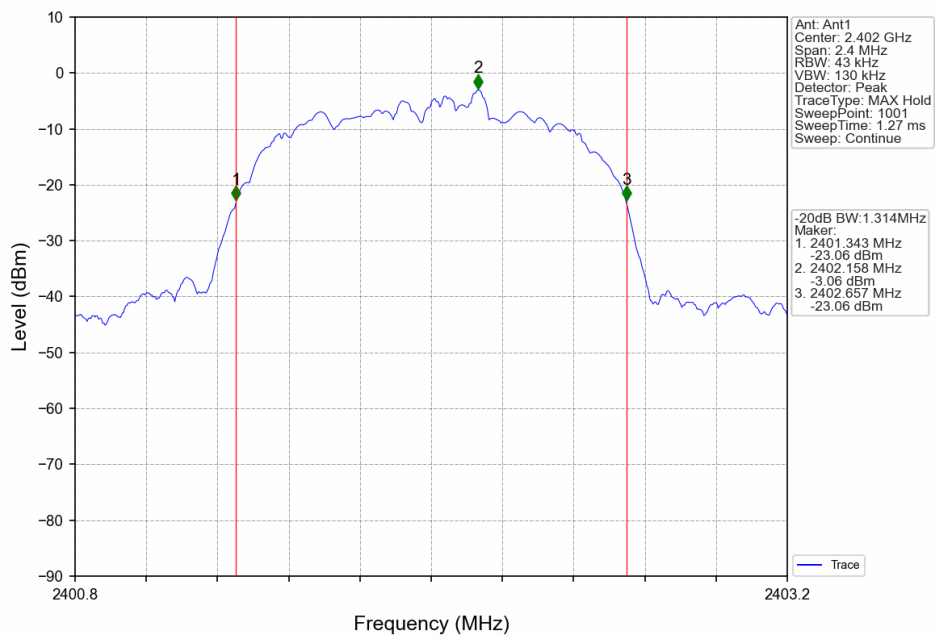
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



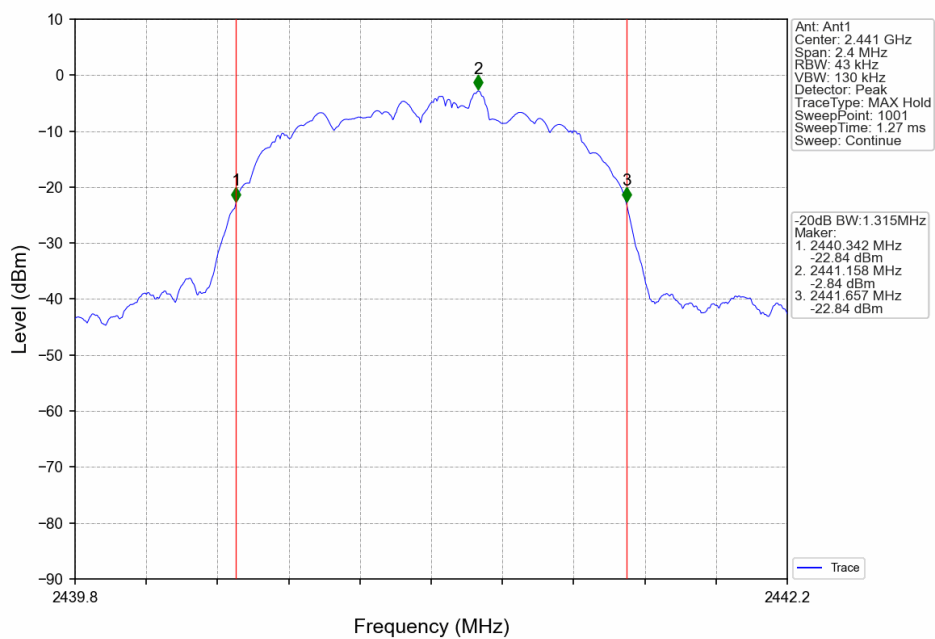
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

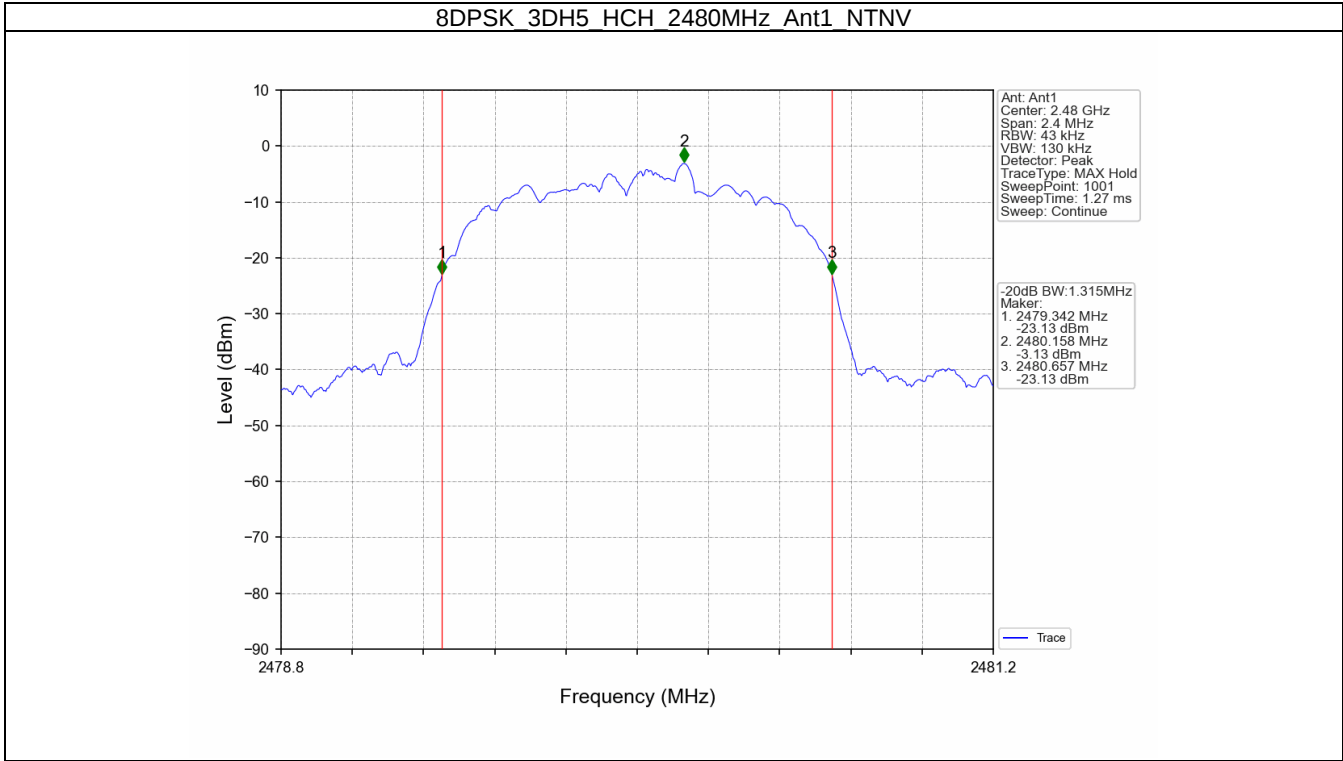


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV

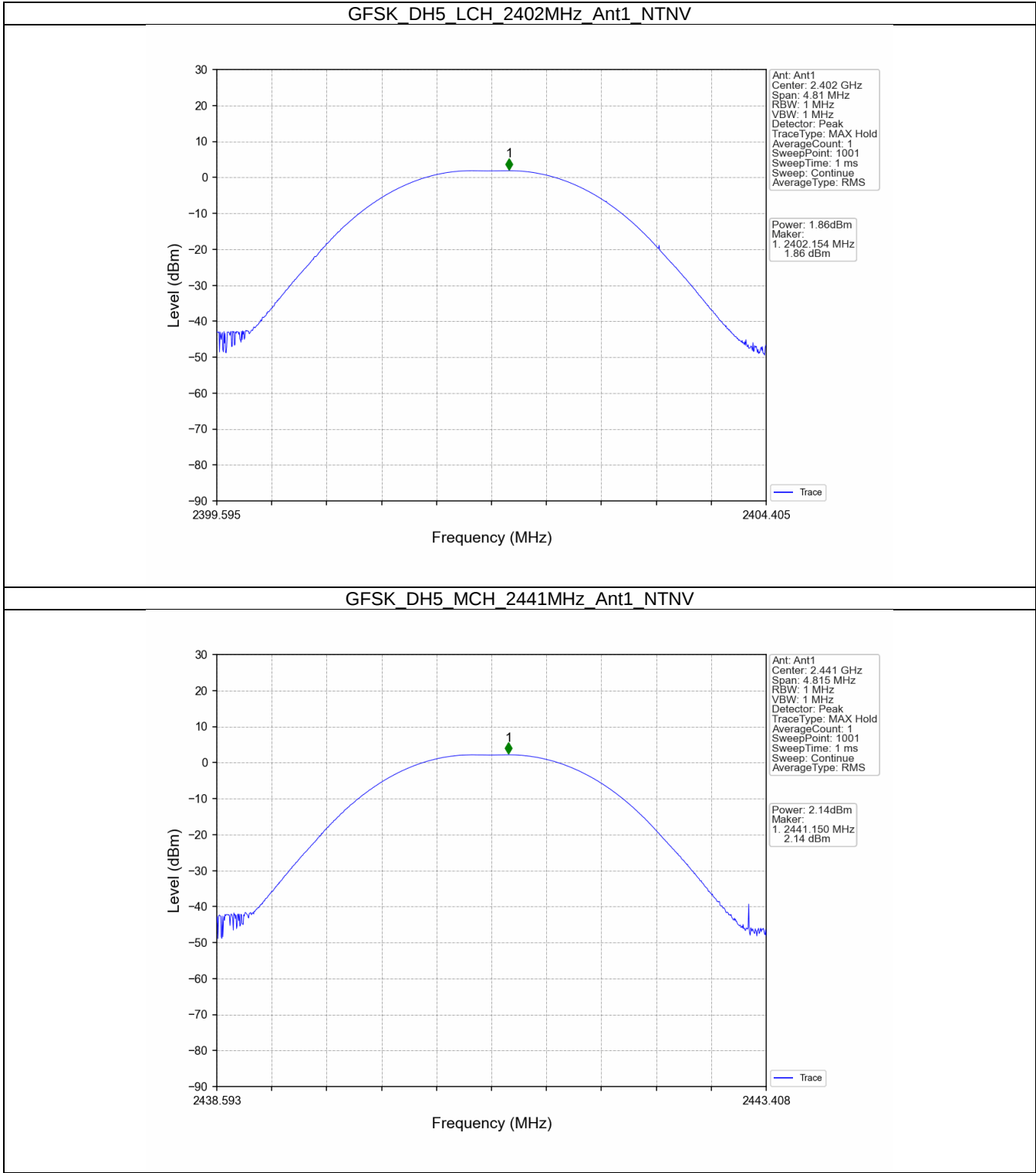




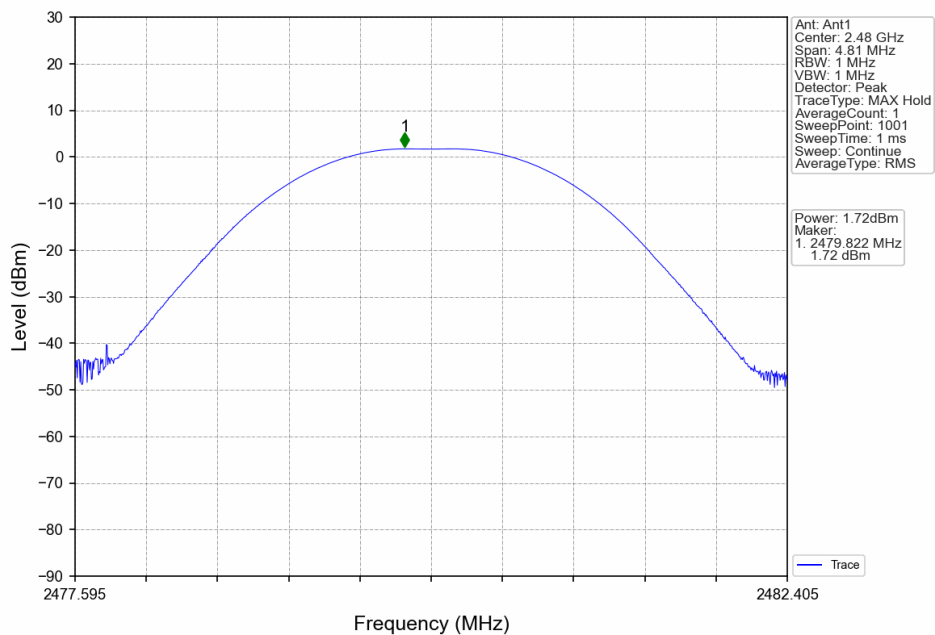
2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)				Verdict
				ANT1	Limit	EIRP	Limit	
GFSK	SISO	2402	DH5	1.86	<=30	5.06	<=36	Pass
		2441	DH5	2.14	<=30	5.34	<=36	Pass
		2480	DH5	1.72	<=30	4.92	<=36	Pass
Pi/4DQPSK	SISO	2402	2DH5	0.80	<=20.97	4.00	<=36	Pass
		2441	2DH5	1.05	<=20.97	4.25	<=36	Pass
		2480	2DH5	0.72	<=20.97	3.92	<=36	Pass
8DPSK	SISO	2402	3DH5	1.12	<=20.97	4.32	<=36	Pass
		2441	3DH5	1.37	<=20.97	4.57	<=36	Pass
		2480	3DH5	1.04	<=20.97	4.24	<=36	Pass
Note1: Antenna Gain: Ant1: 3.20dBi;								

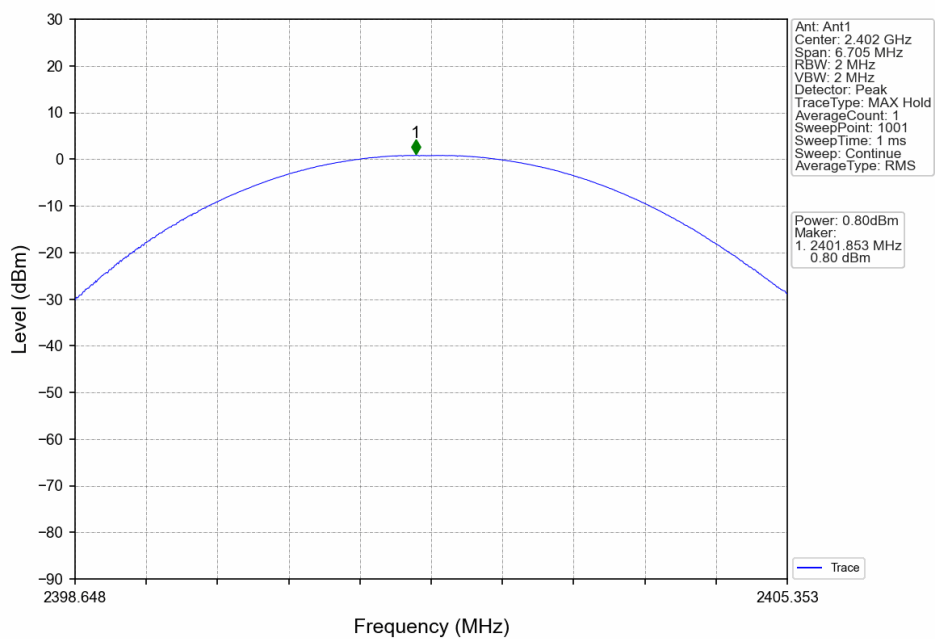
2.1.2 Test Graph

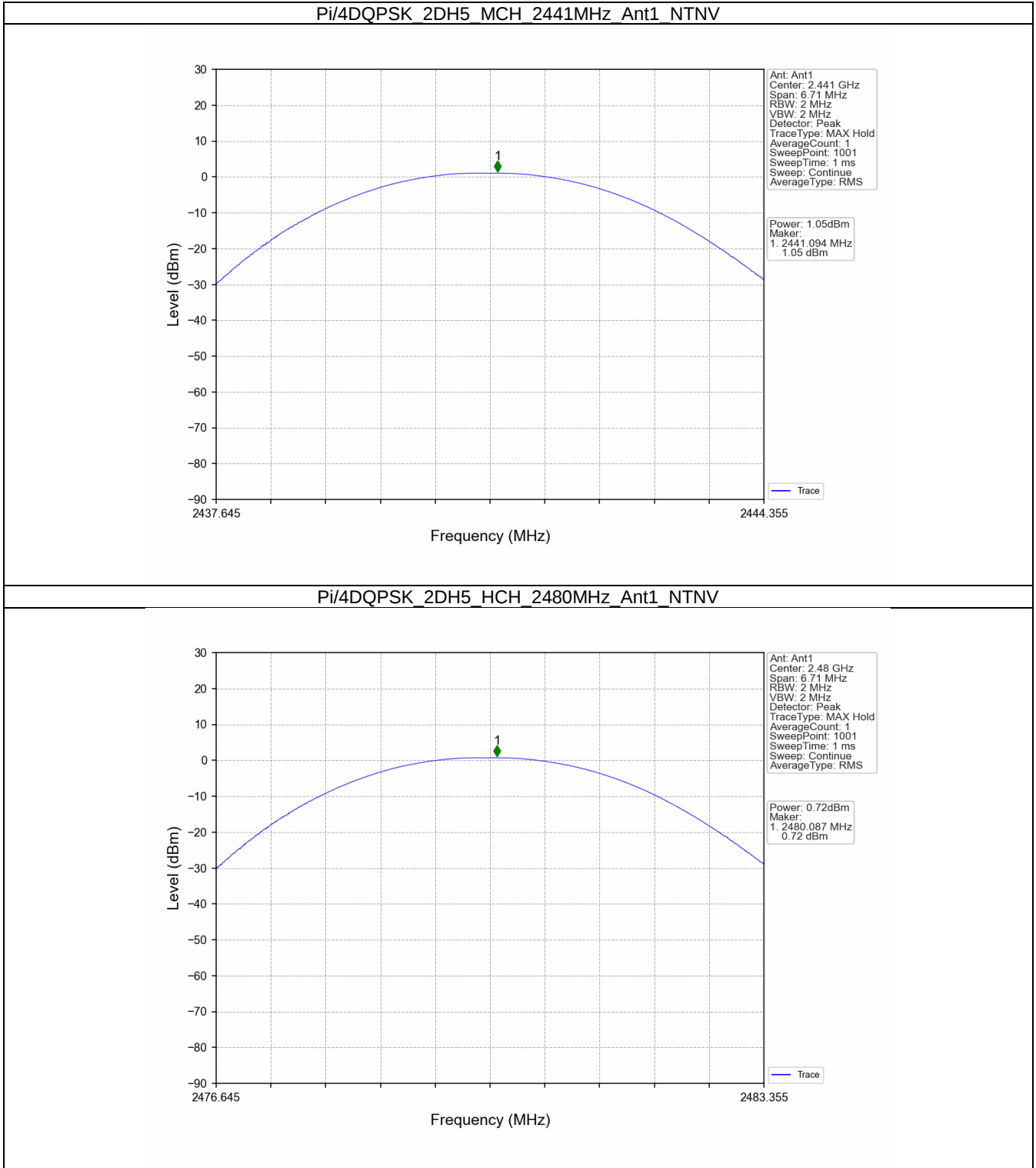


GFSK DH5 HCH 2480MHz Ant1 NTN

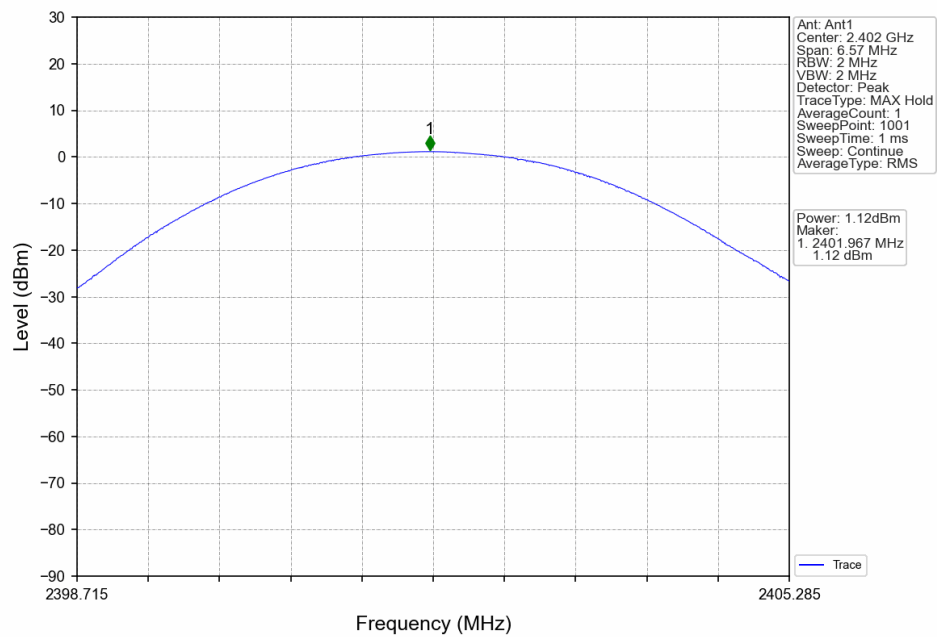


Pi/4DQPSK 2DH5 LCH 2402MHz Ant1 NTN

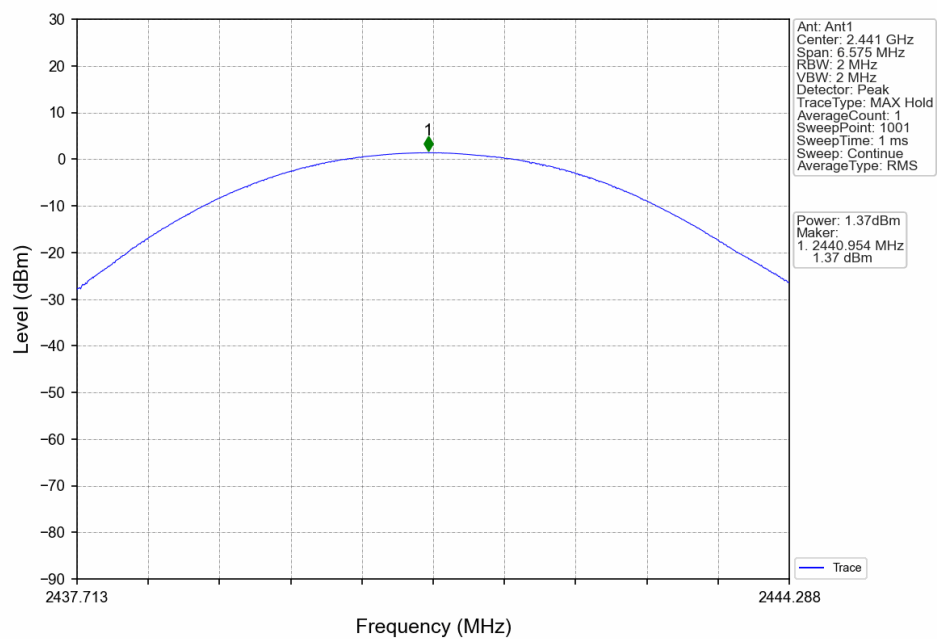


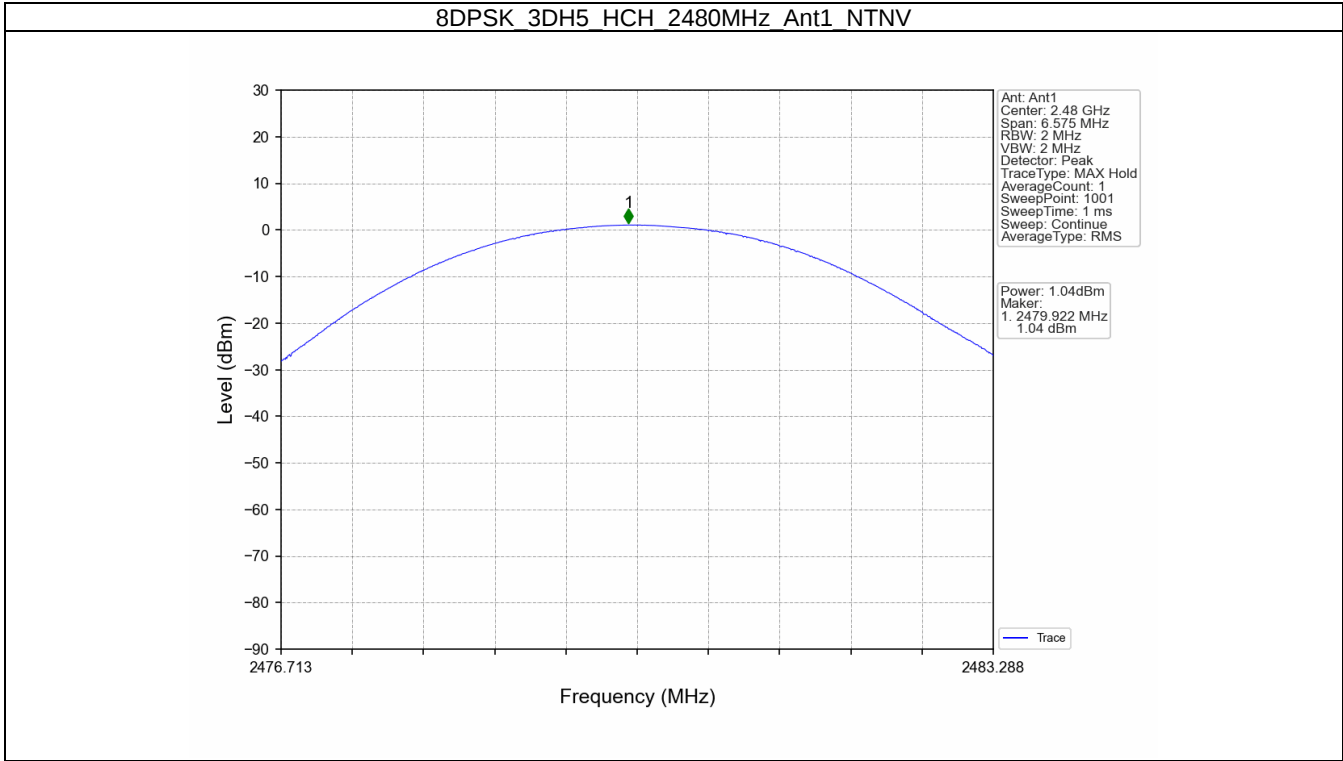


8DPSK 3DH5 LCH 2402MHz Ant1 NTN



8DPSK 3DH5 MCH 2441MHz Ant1 NTN





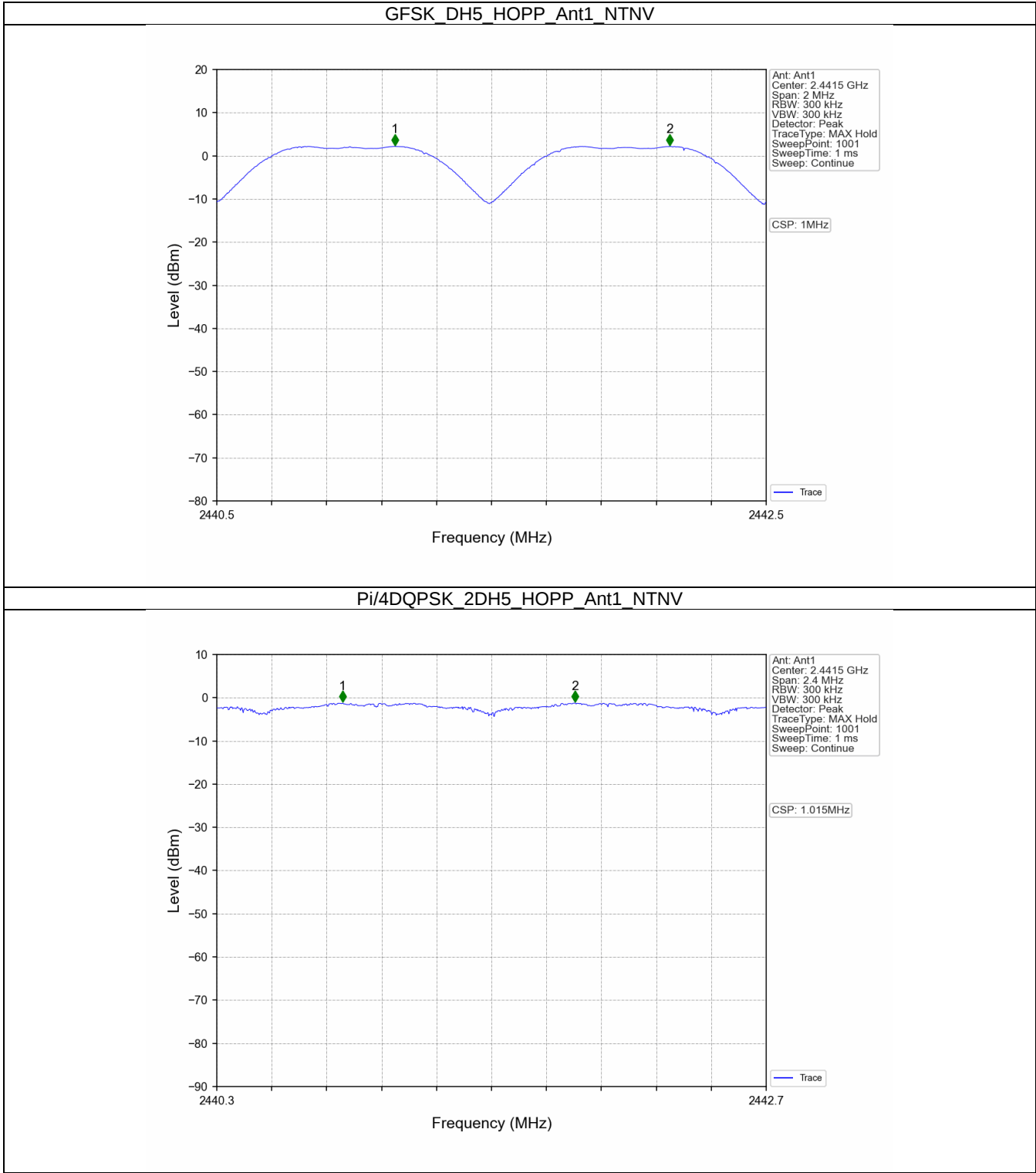
3. Carrier Frequency Separation

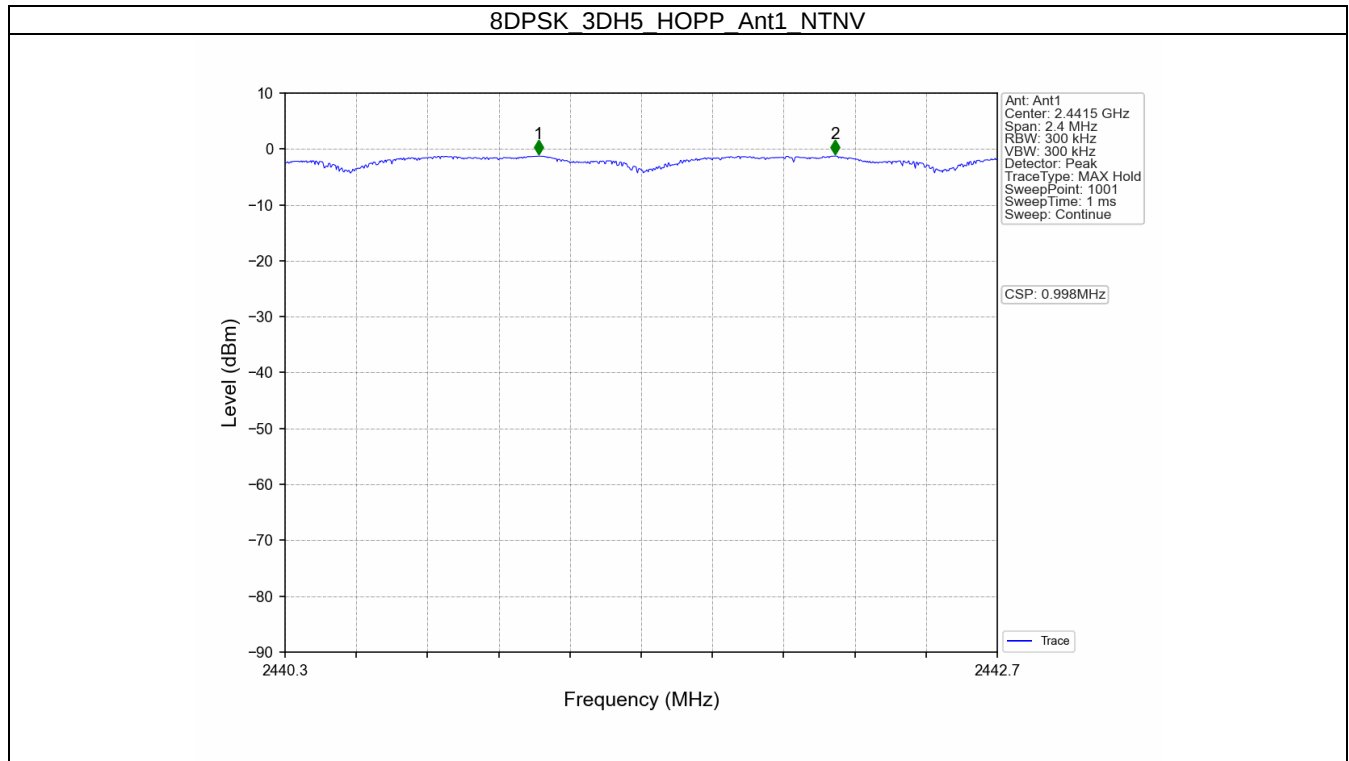
3.1 Ant1

3.1.1 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	0.963	≥ 0.963	Pass
PI/4DQPSK	SISO	HOPP	2DH5	1.015	1.342	≥ 0.895	Pass
8DPSK	SISO	HOPP	3DH5	0.998	1.315	≥ 0.877	Pass

3.1.2 Test Graph





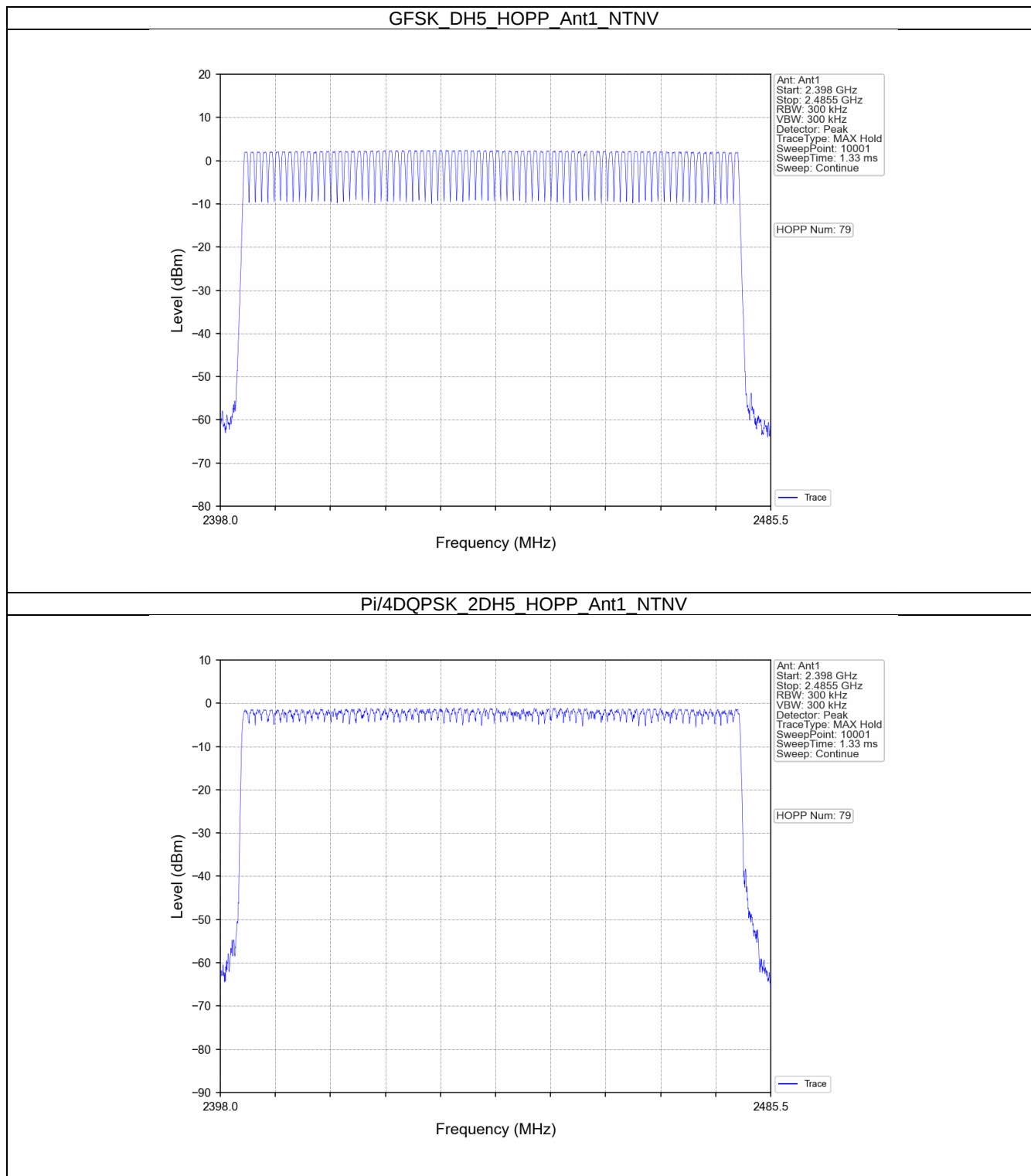
4. Number of Hopping Frequencies

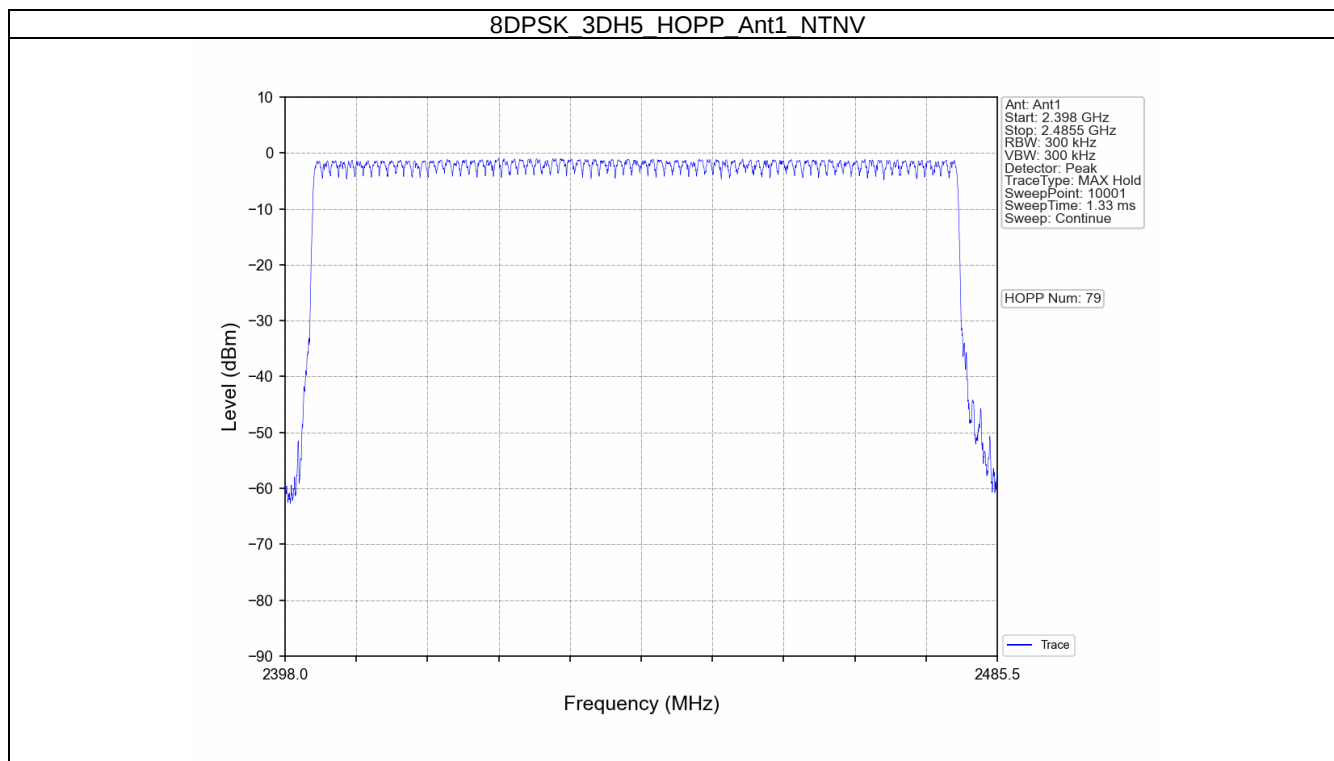
4.1 HoppNum

4.1.1 Test Result

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

4.1.2 Test Graph





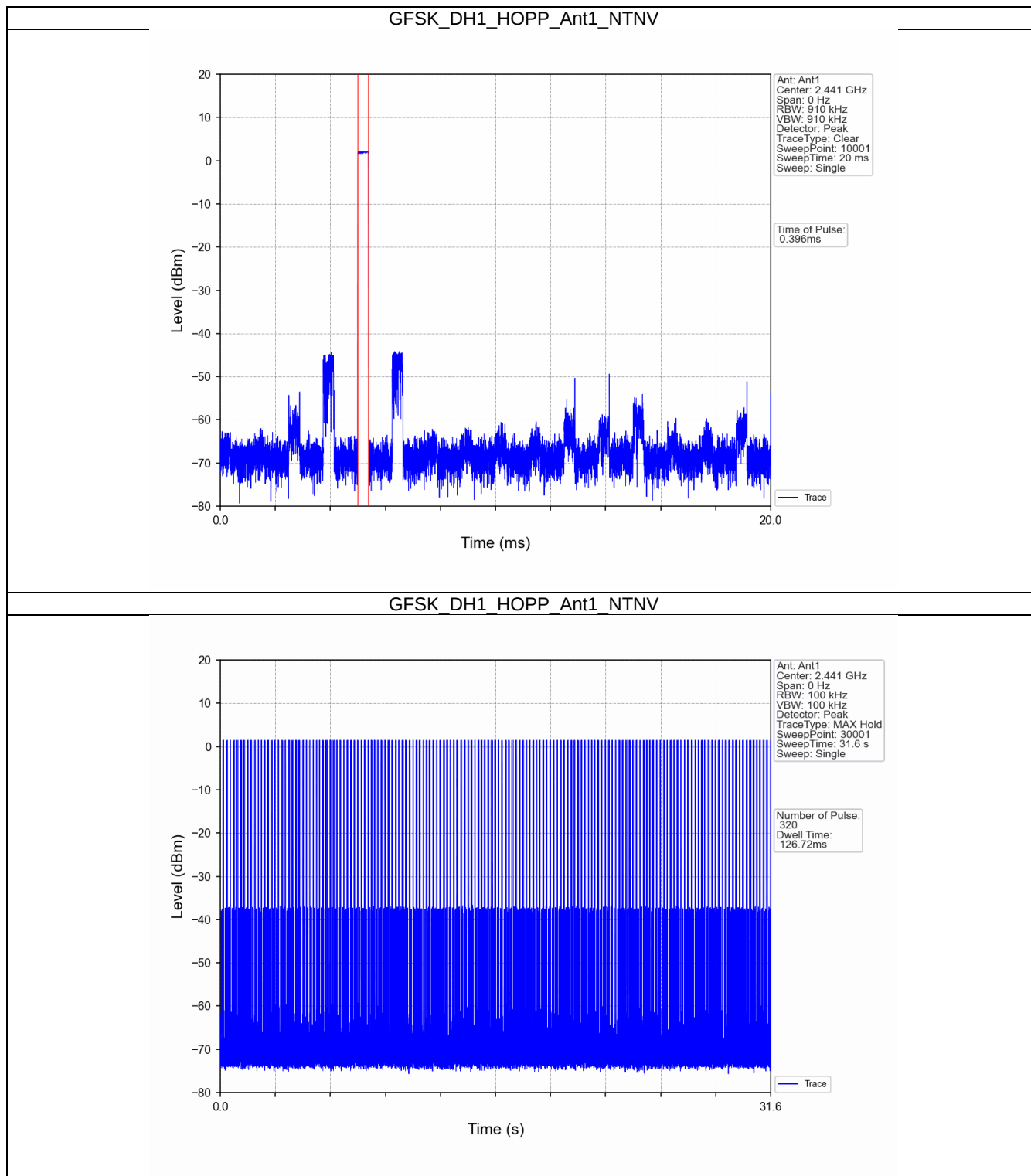
5. Time of Occupancy (Dwell Time)

5.1 Ant1

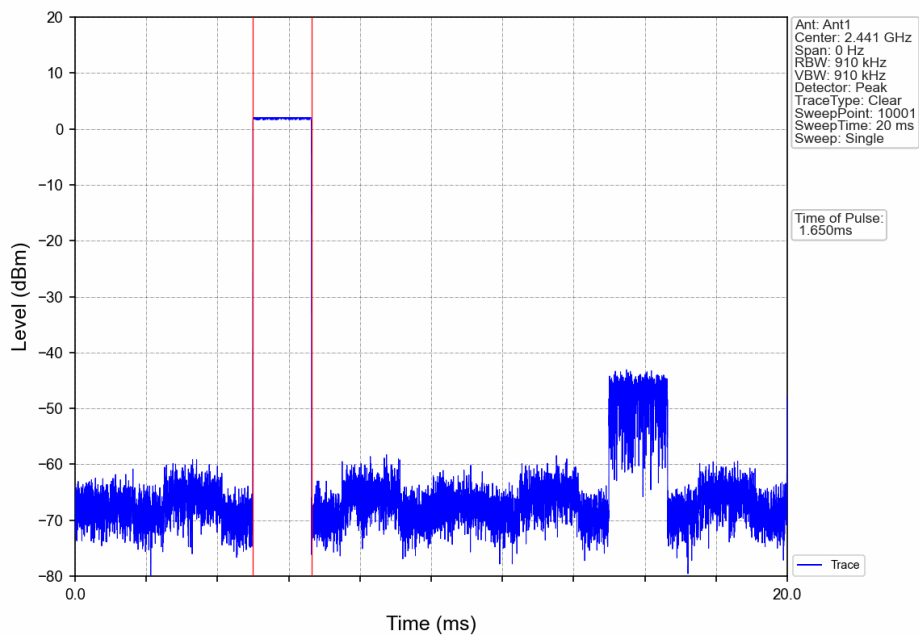
5.1.1 Test Result

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	0.396	31.600	320	126.720	<=400	Pass
			DH3	1.650	31.600	165	272.250	<=400	Pass
			DH5	2.900	31.600	108	313.200	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.398	31.600	320	127.360	<=400	Pass
			2DH3	1.648	31.600	164	270.272	<=400	Pass
			2DH5	2.898	31.600	108	312.984	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.392	31.600	320	125.440	<=400	Pass
			3DH3	1.646	31.600	156	256.776	<=400	Pass
			3DH5	2.898	31.600	103	298.494	<=400	Pass

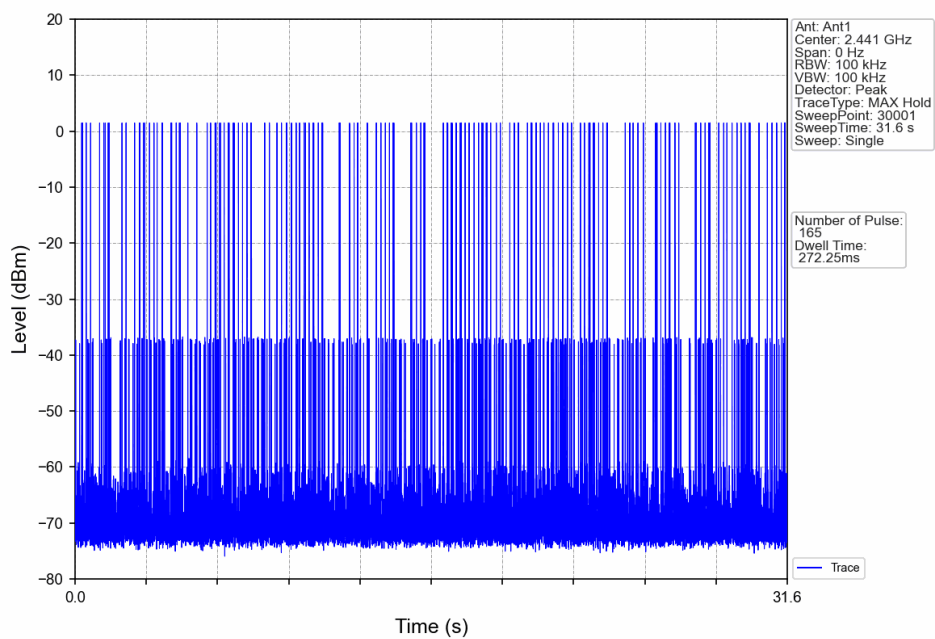
5.1.2 Test Graph



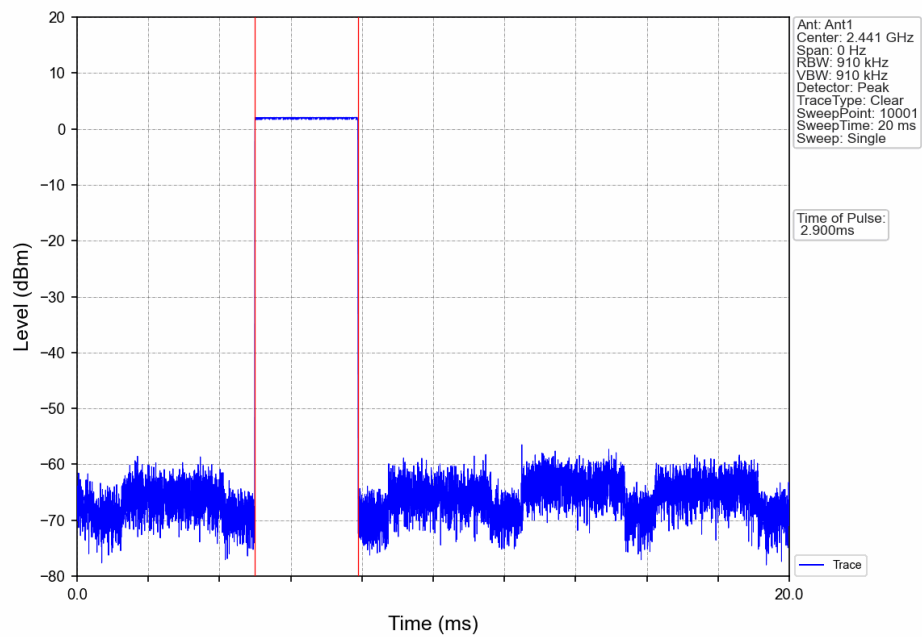
GFSK DH3 HOPP Ant1 NTN



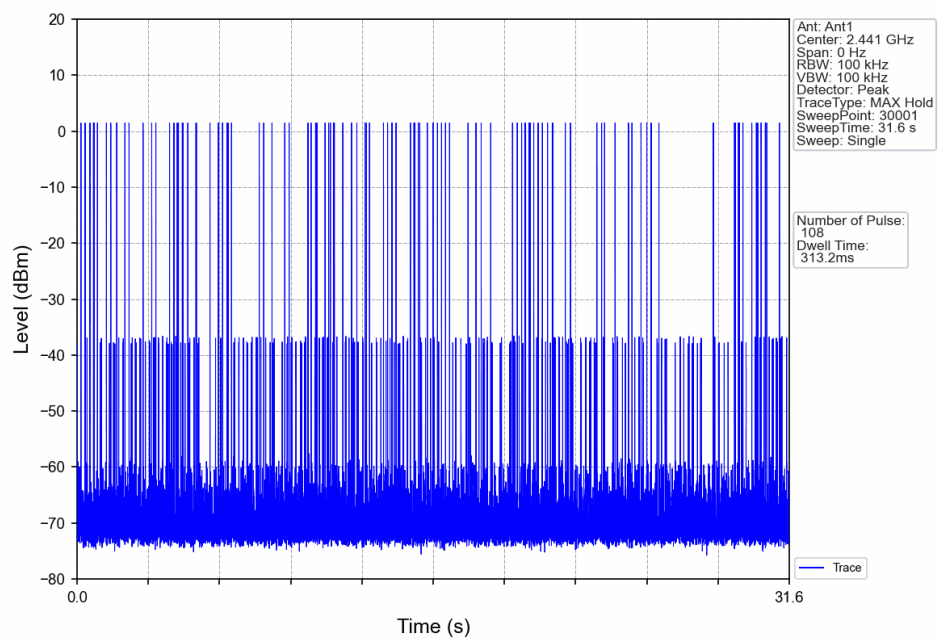
GFSK_DH3_HOPP_Ant1_NTNV

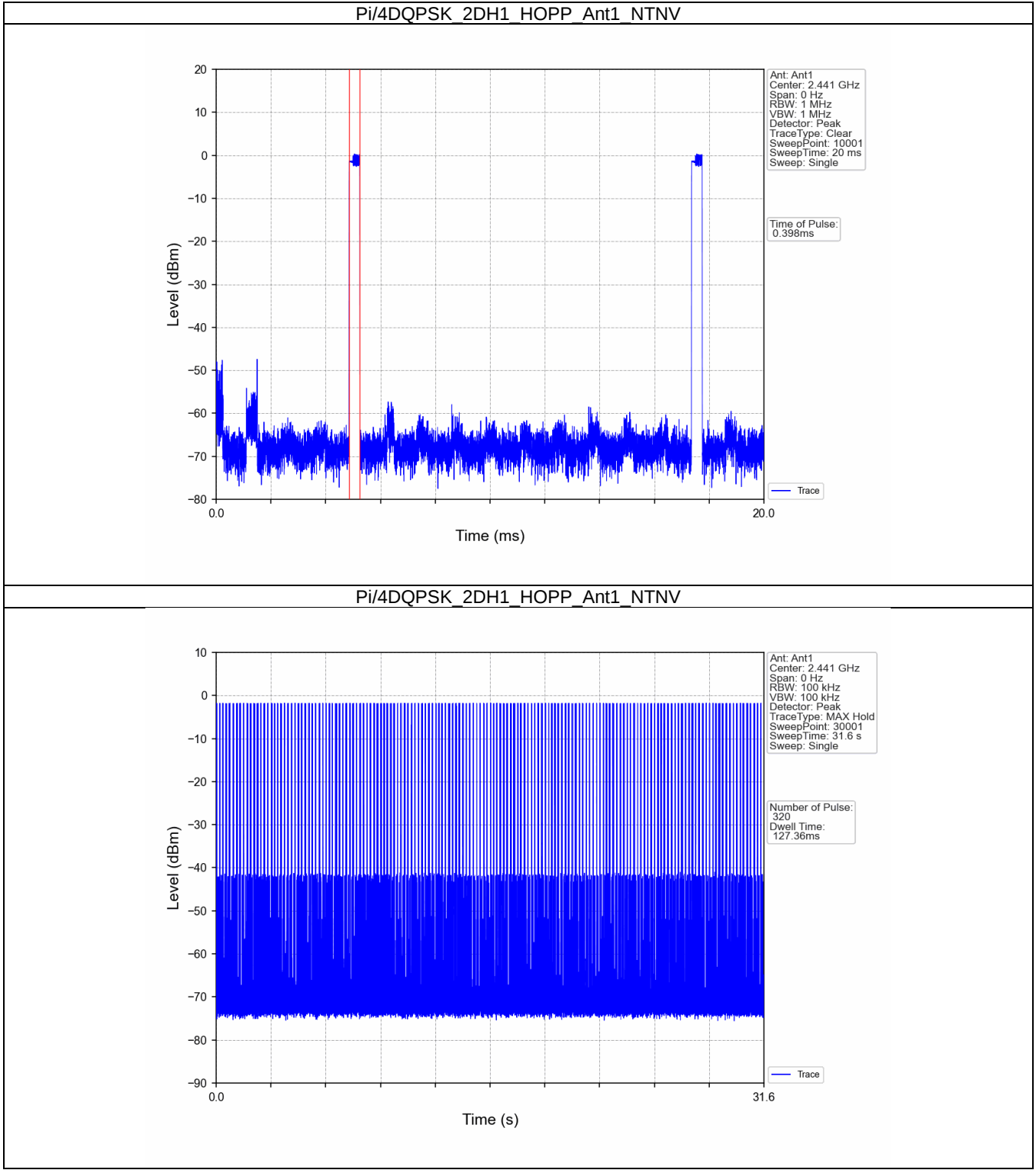


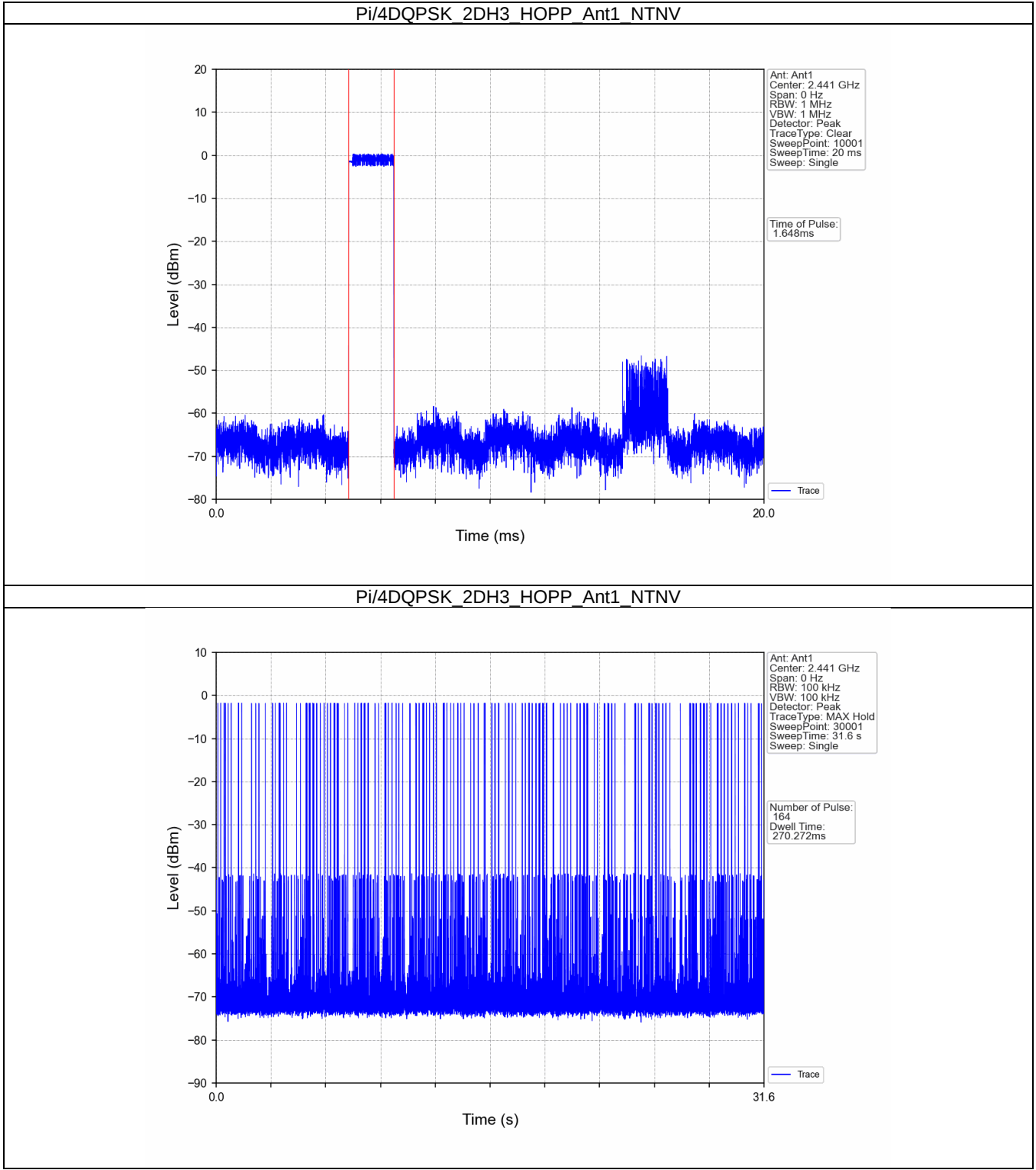
GFSK DH5 HOPP Ant1 NTN

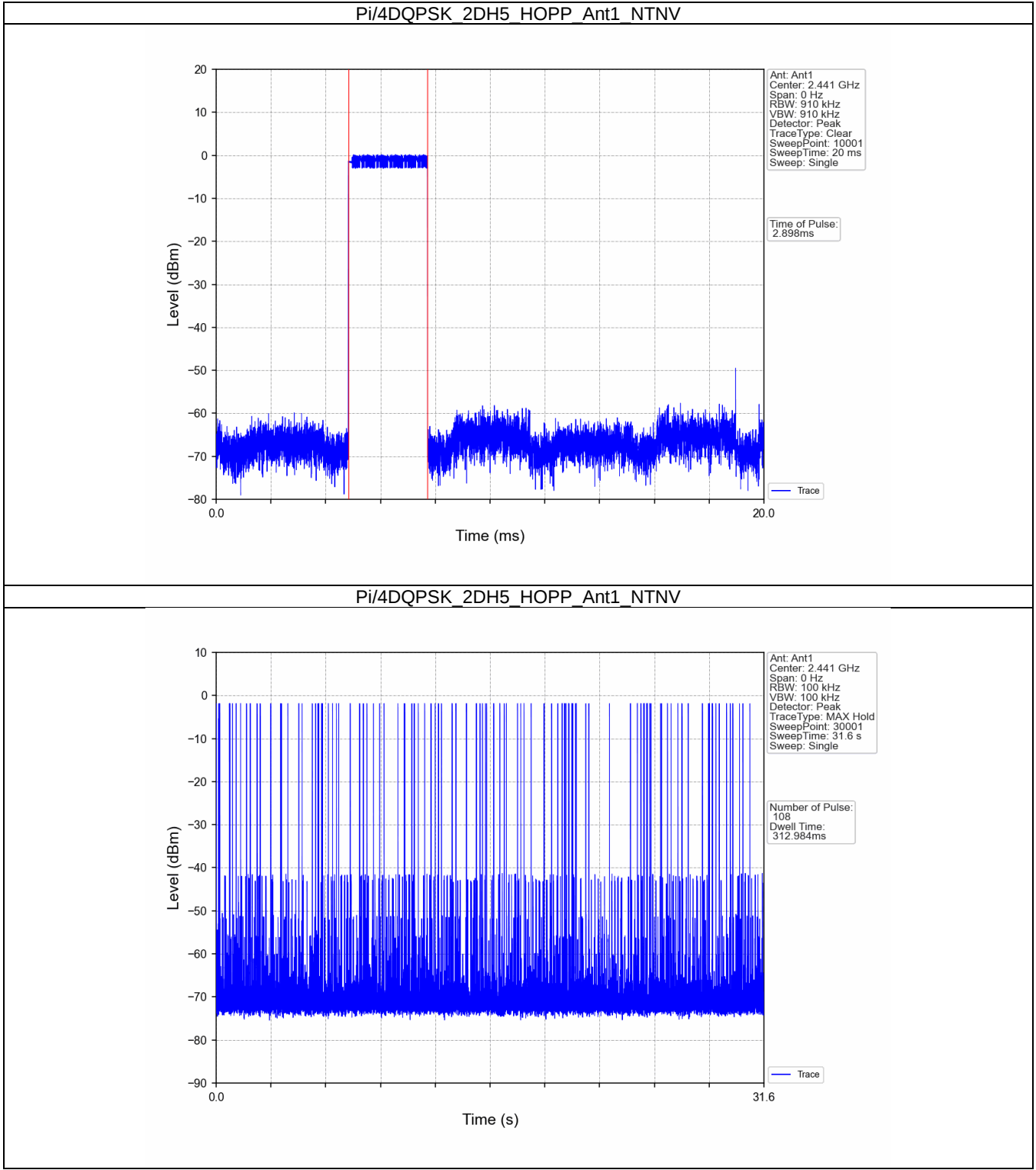


GFSK_DH5_HOPP_Ant1_NTNV

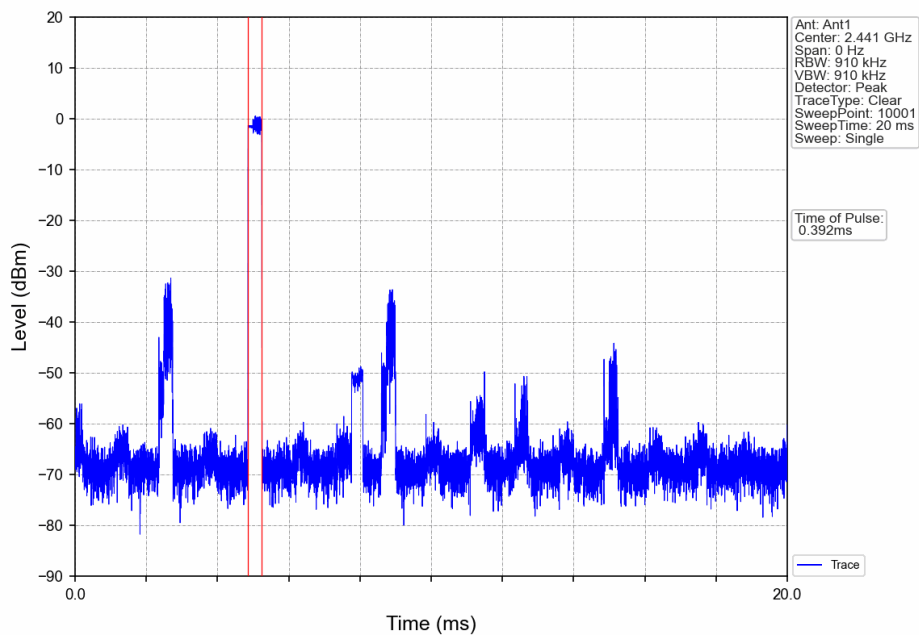




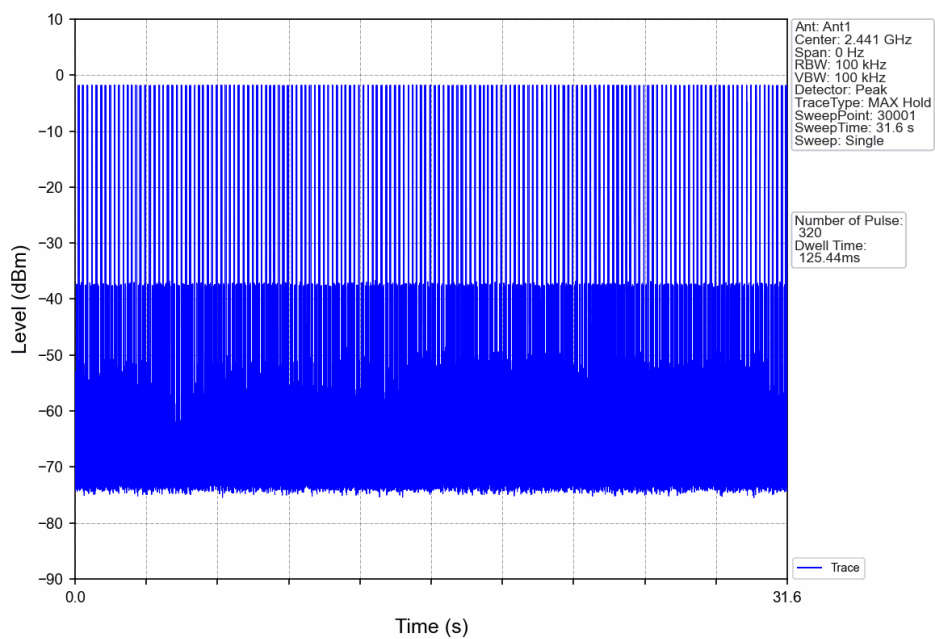




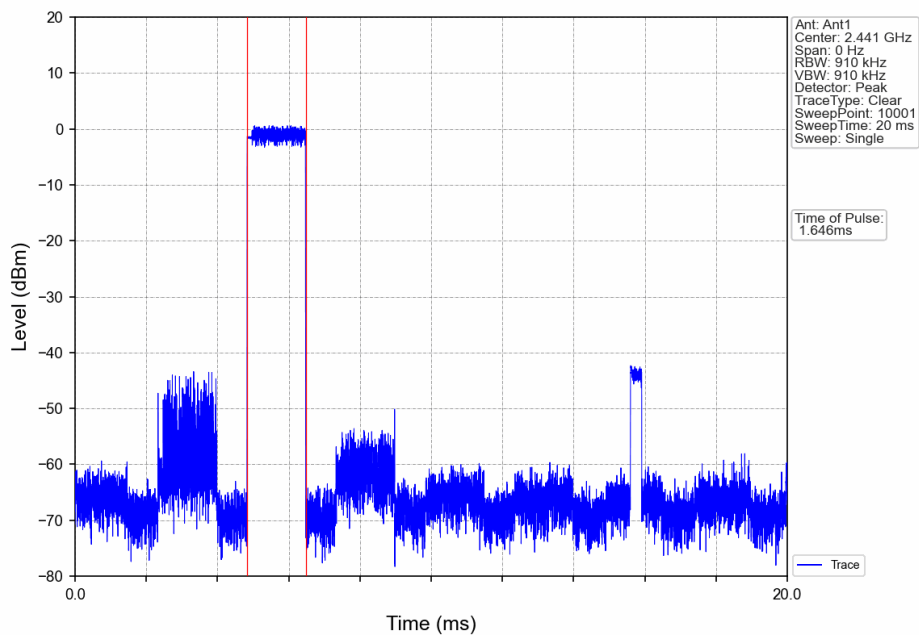
8DPSK 3DH1 HOPP_Ant1_NTNV



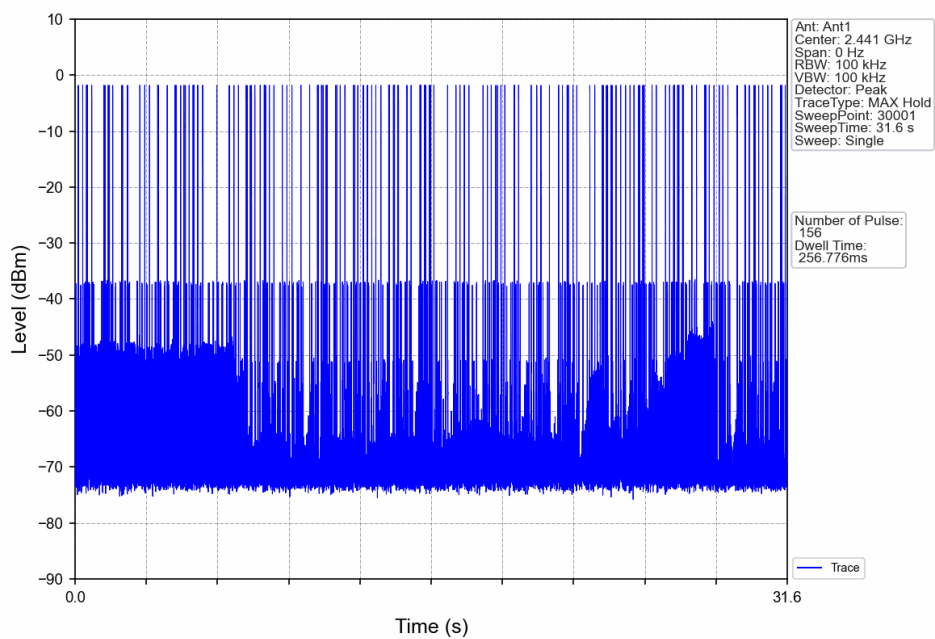
8DPSK_3DH1_HOPP_Ant1_NTNV

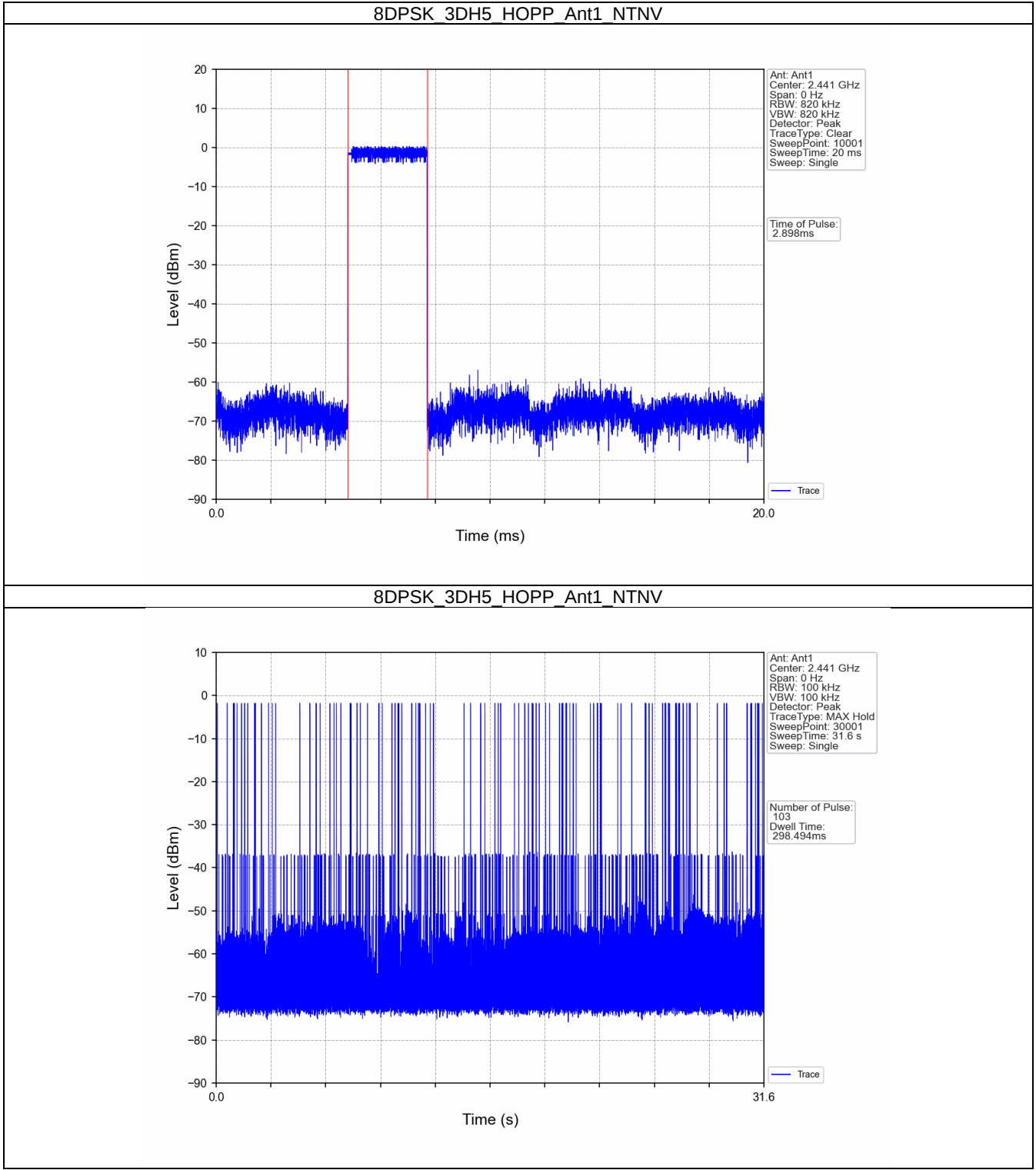


8DPSK 3DH3 HOPP_Ant1_NTNV



8DPSK_3DH3_HOPP_Ant1_NTNV





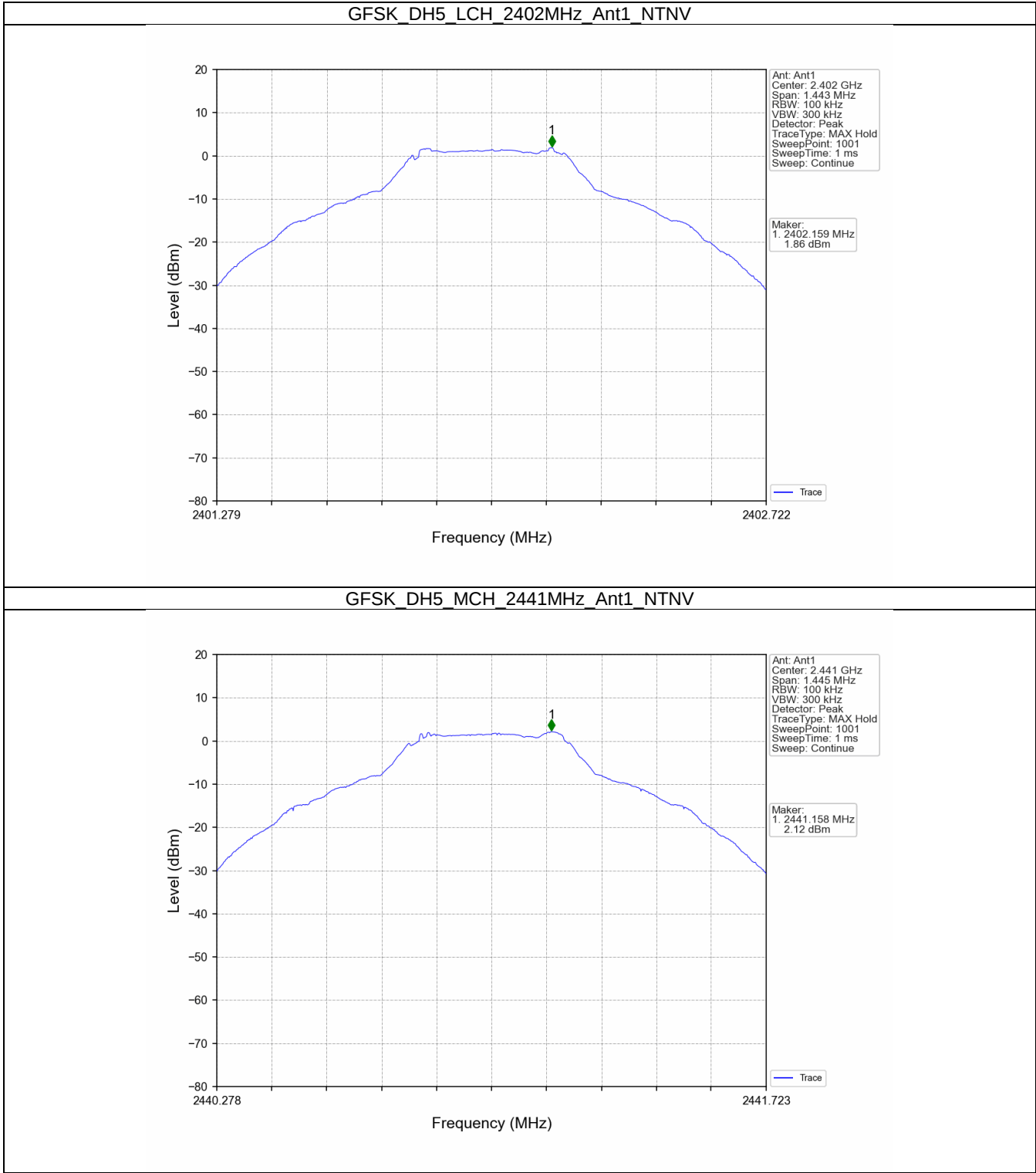
6. Unwanted Emissions In Non-restricted Frequency Bands

6.1 Ref

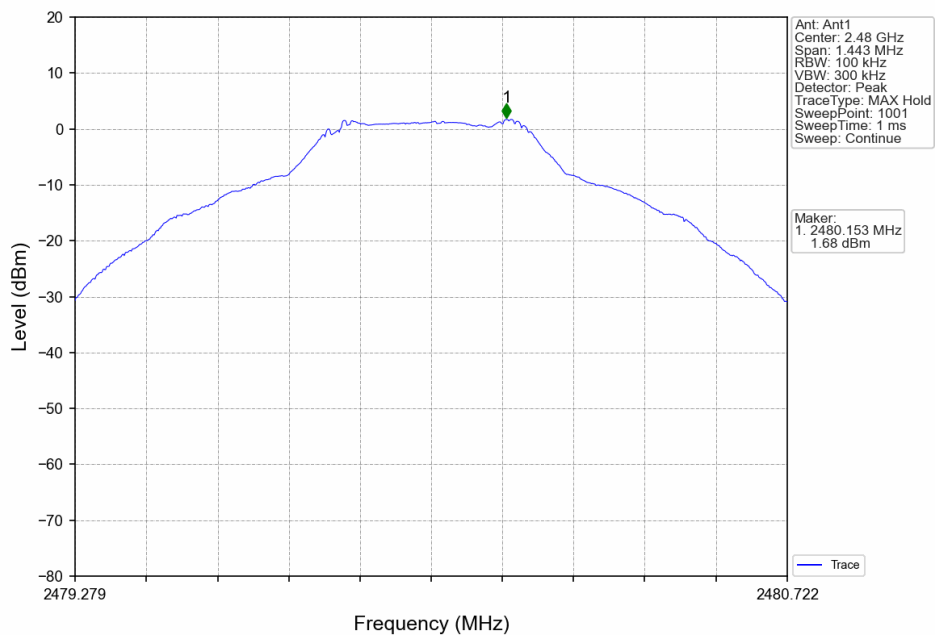
6.1.1 Test Result

Mode	Tx Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	1.86
		2441	DH5	1	2.12
		2480	DH5	1	1.68
Pi/4DQPSK	SISO	2402	2DH5	1	-1.69
		2441	2DH5	1	-1.44
		2480	2DH5	1	-1.83
8DPSK	SISO	2402	3DH5	1	-1.62
		2441	3DH5	1	-1.42
		2480	3DH5	1	-1.62
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.					

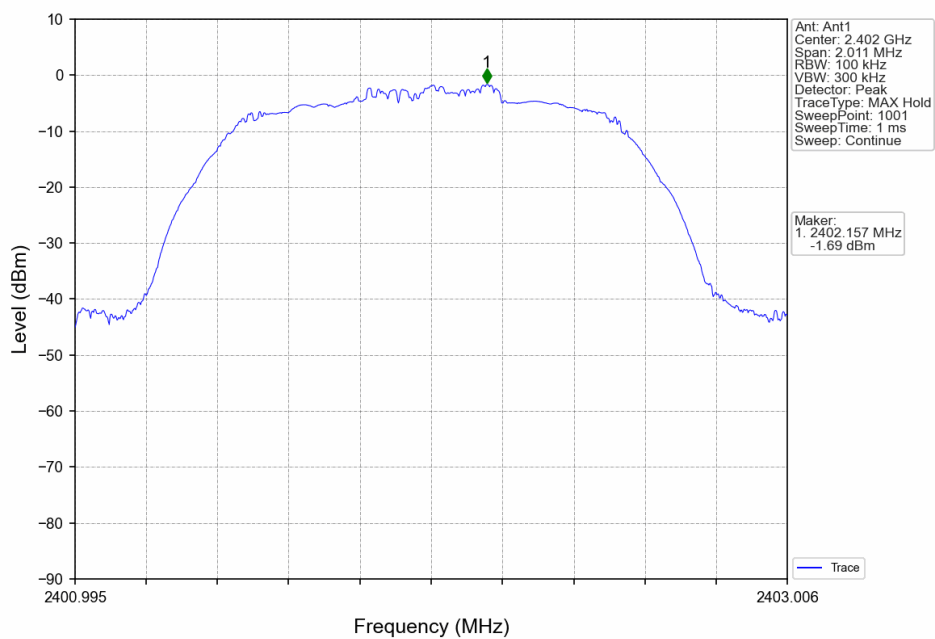
6.1.2 Test Graph



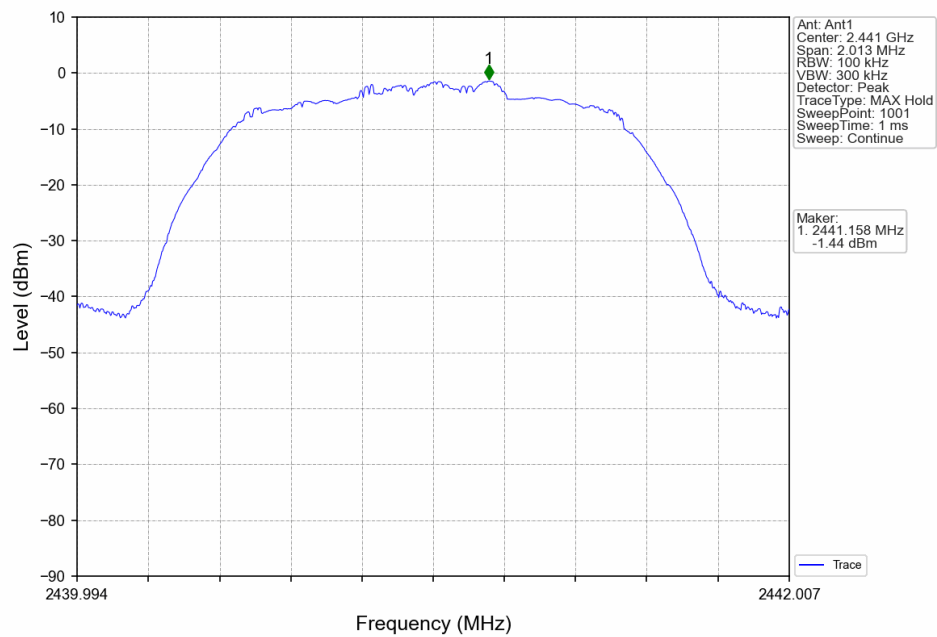
GFSK DH5 HCH 2480MHz Ant1 NTNV



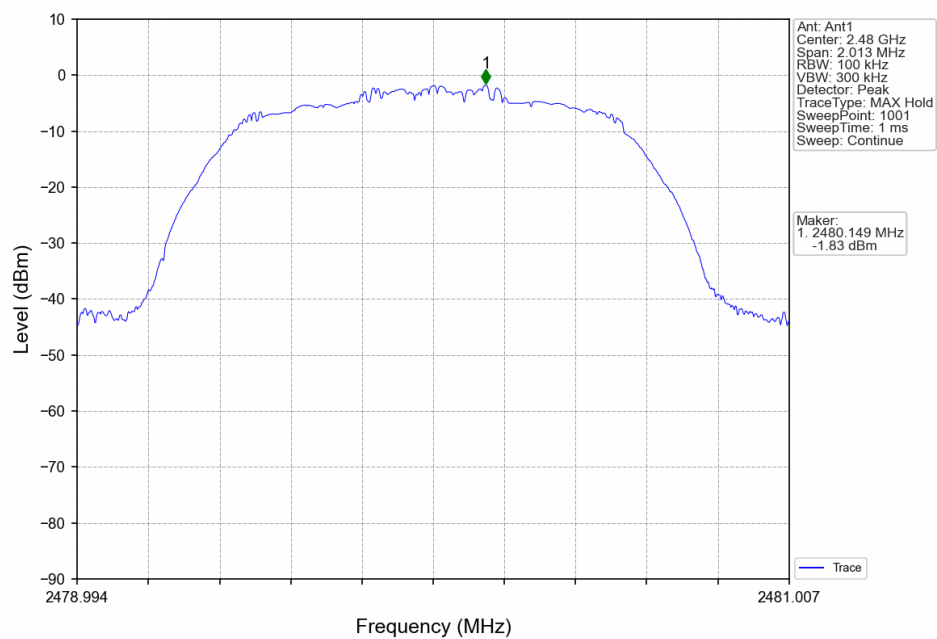
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



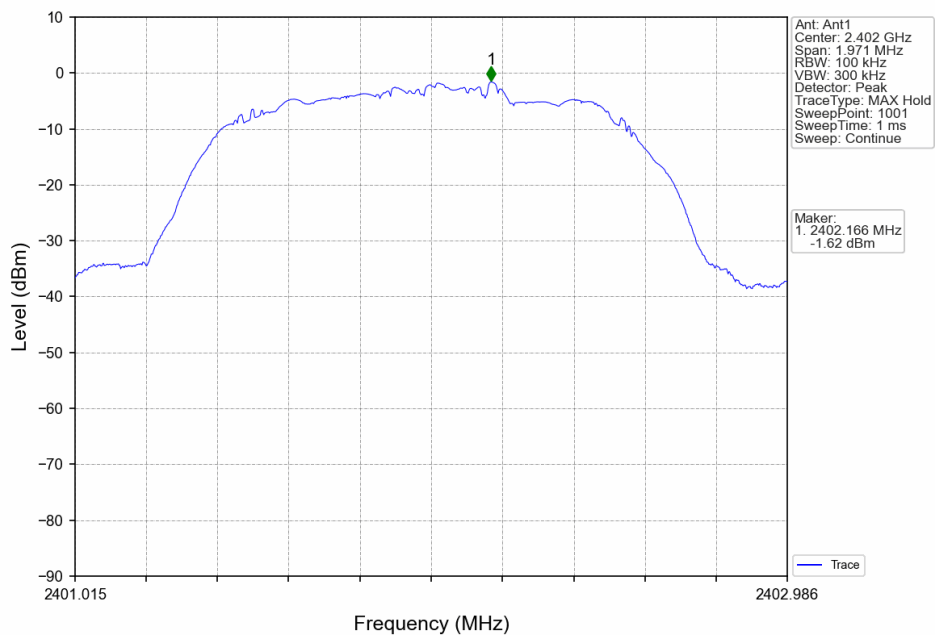
Pi/4DQPSK 2DH5 MCH 2441MHz Ant1 NTN



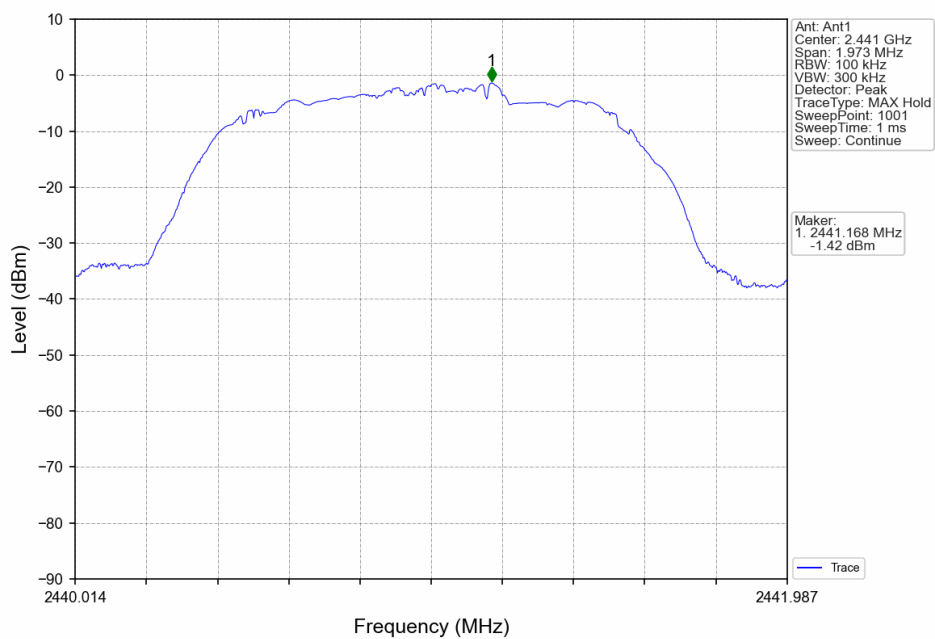
Pi/4DQPSK 2DH5 HCH 2480MHz Ant1 NTN

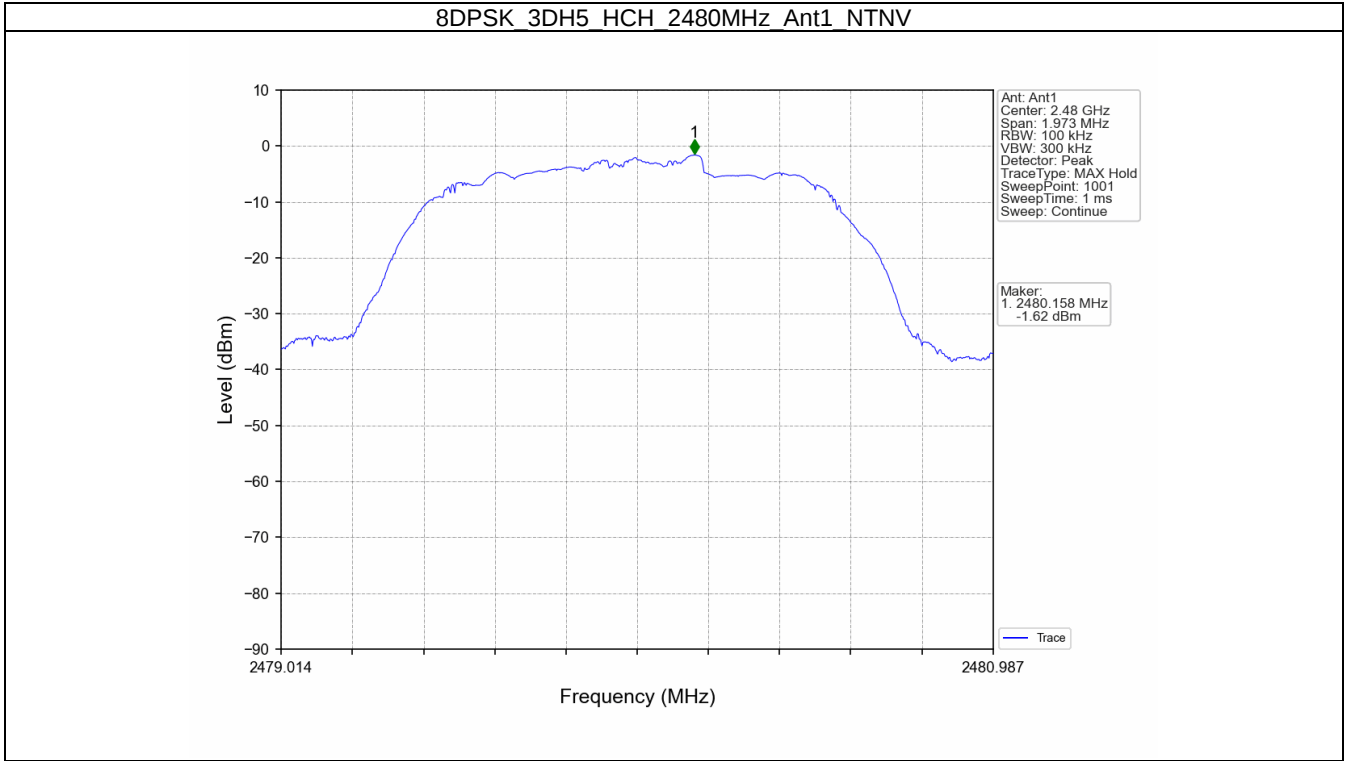


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV





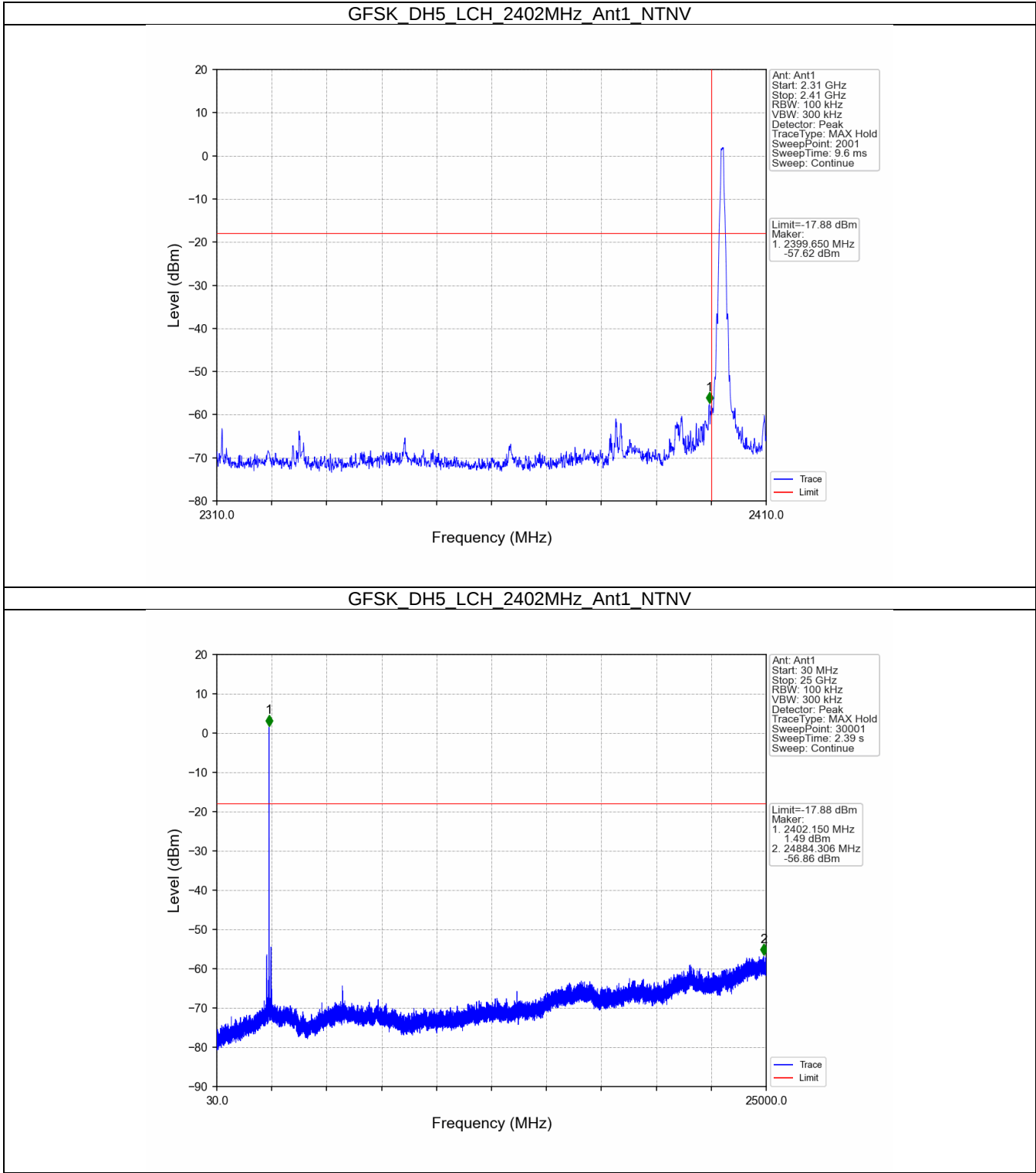
6.2 CSE

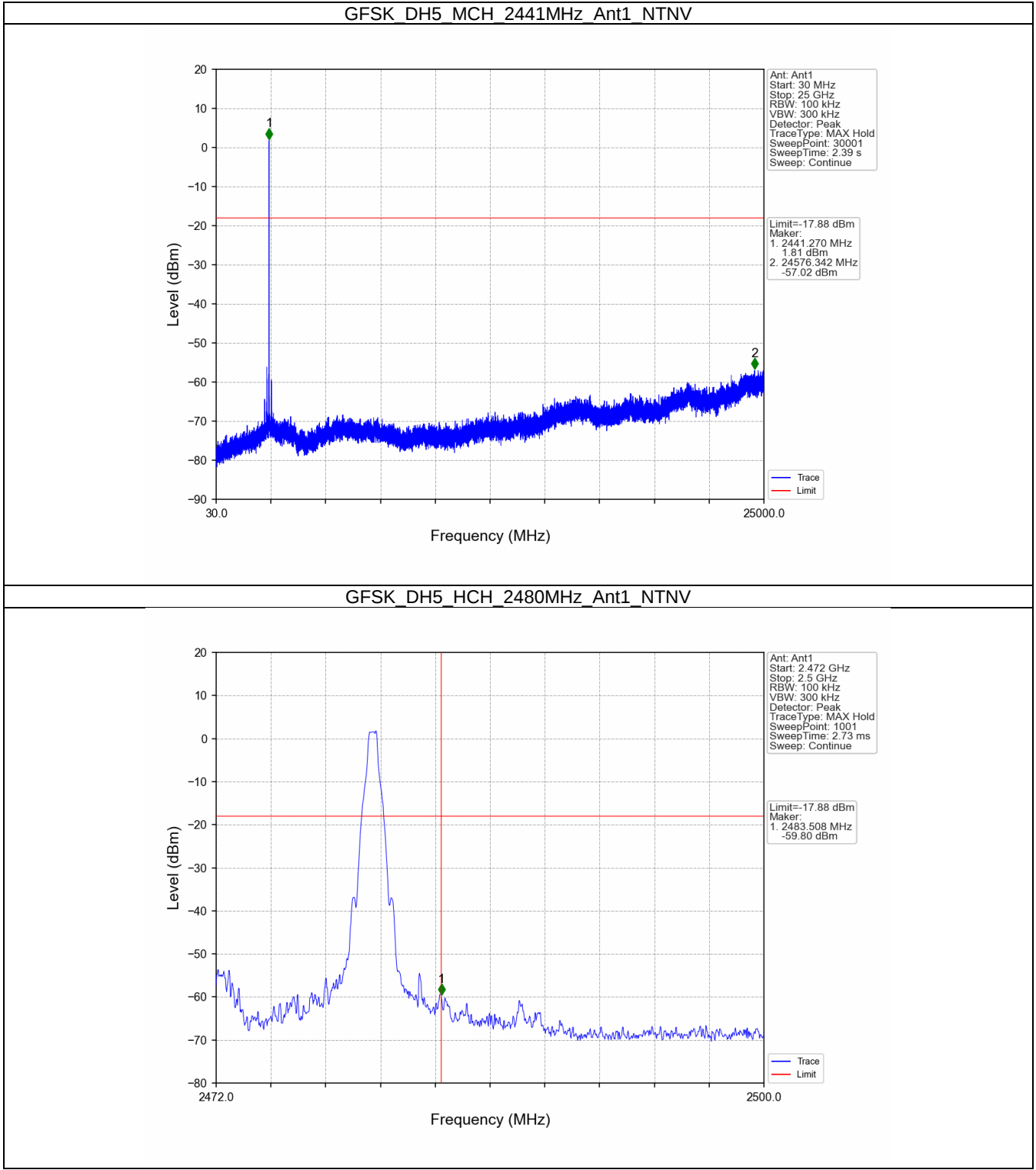
6.2.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	2.12	-17.88	Pass
		2441	DH5	1	2.12	-17.88	Pass
		2480	DH5	1	2.12	-17.88	Pass
		HOPP	DH5	1	2.12	-17.88	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	-1.44	-21.44	Pass
		2441	2DH5	1	-1.44	-21.44	Pass
		2480	2DH5	1	-1.44	-21.44	Pass
		HOPP	2DH5	1	-1.44	-21.44	Pass
8DPSK	SISO	2402	3DH5	1	-1.42	-21.42	Pass
		2441	3DH5	1	-1.42	-21.42	Pass
		2480	3DH5	1	-1.42	-21.42	Pass
		HOPP	3DH5	1	-1.42	-21.42	Pass

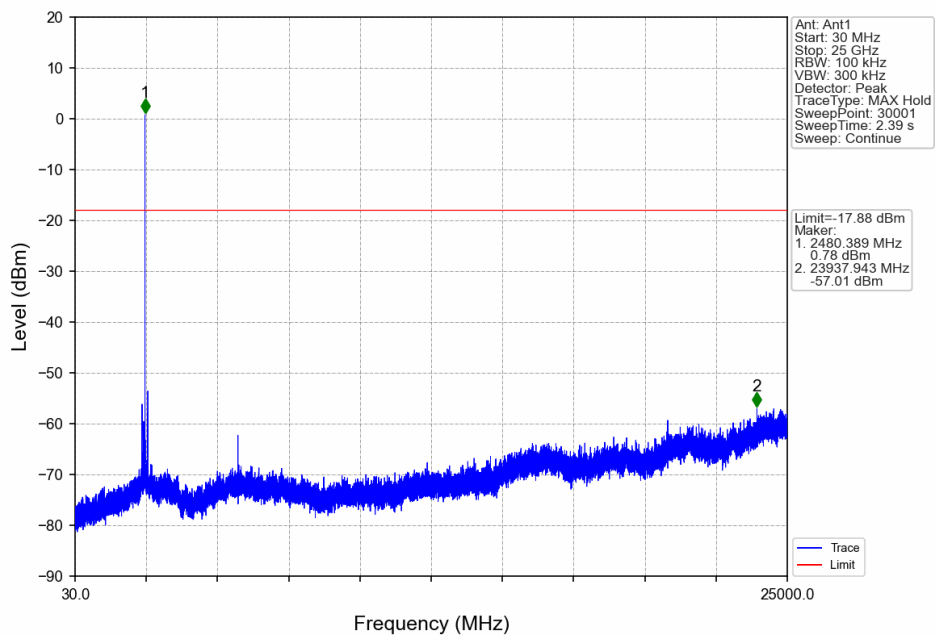
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

6.2.2 Test Graph

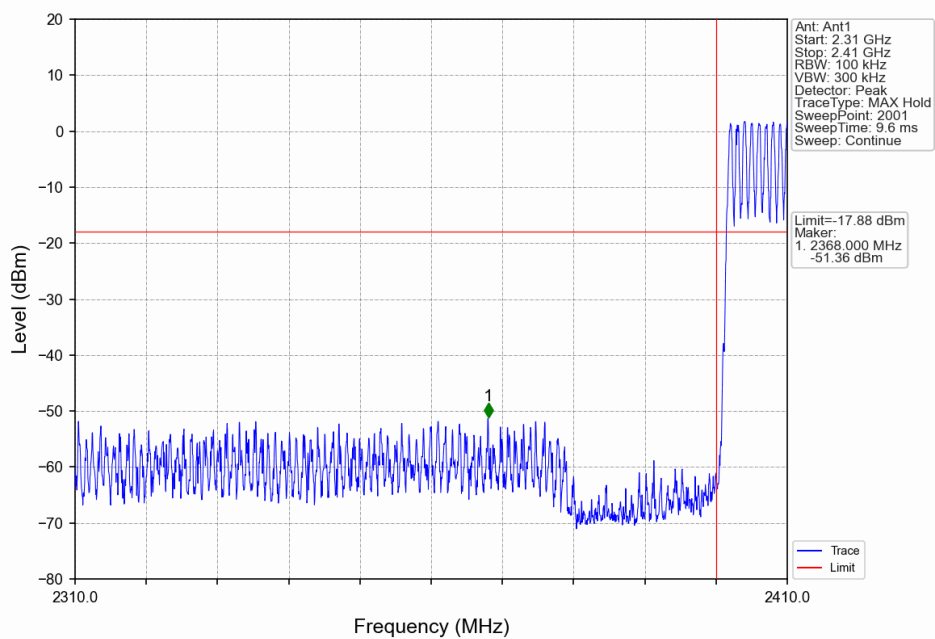


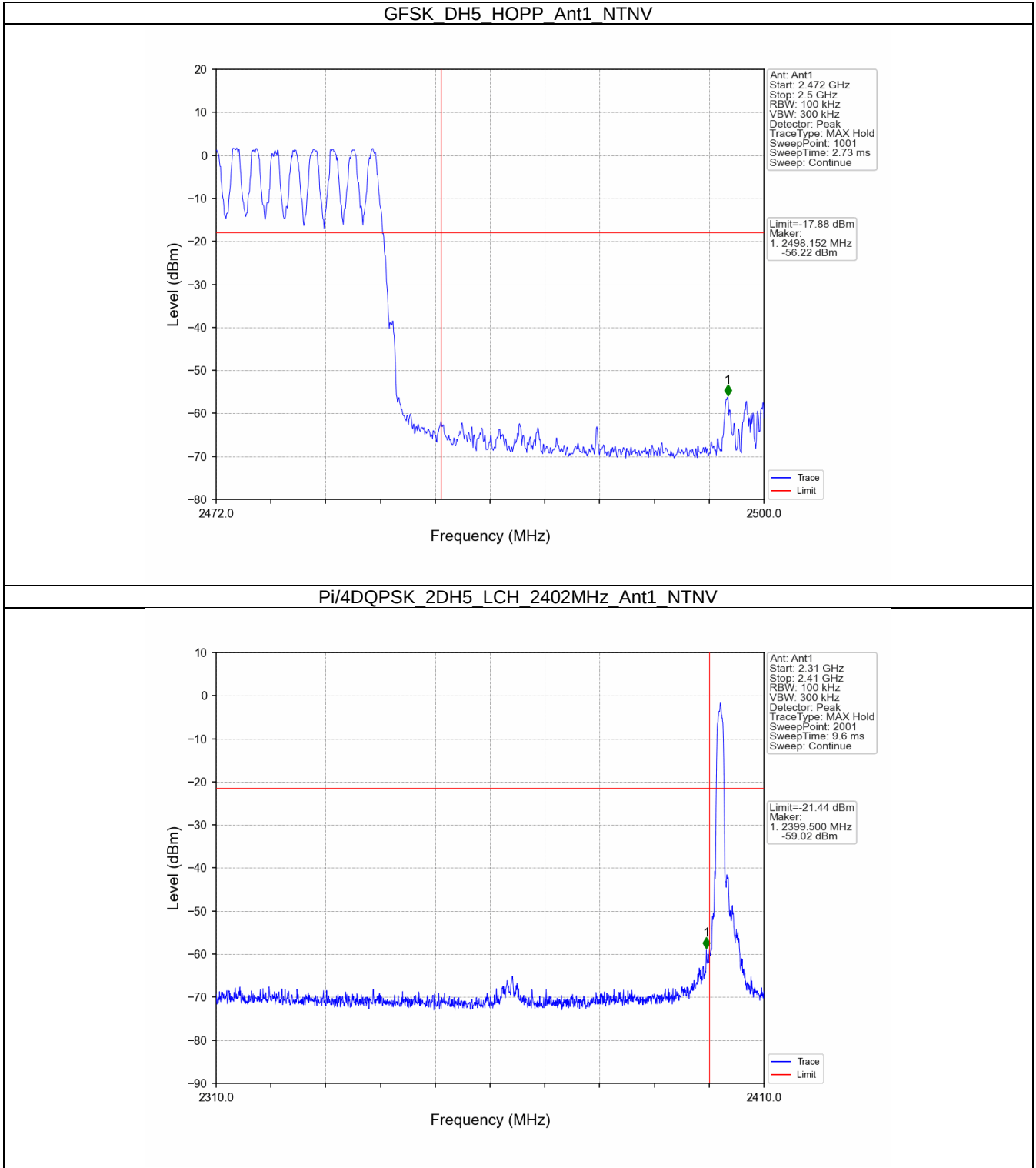


GFSK DH5 HCH 2480MHz Ant1 NTN

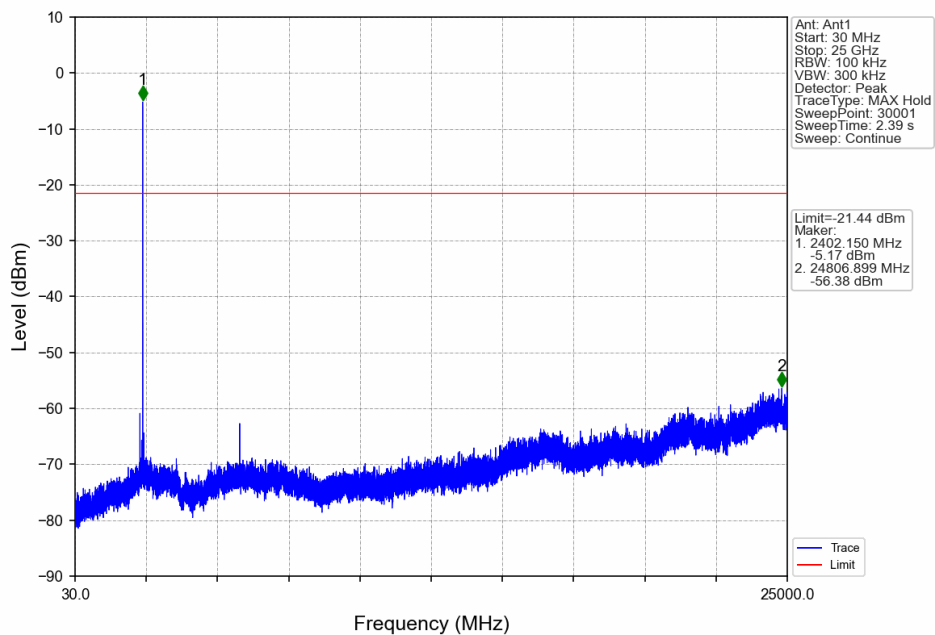


GFSK_DH5_HOPP_Ant1_NTNV

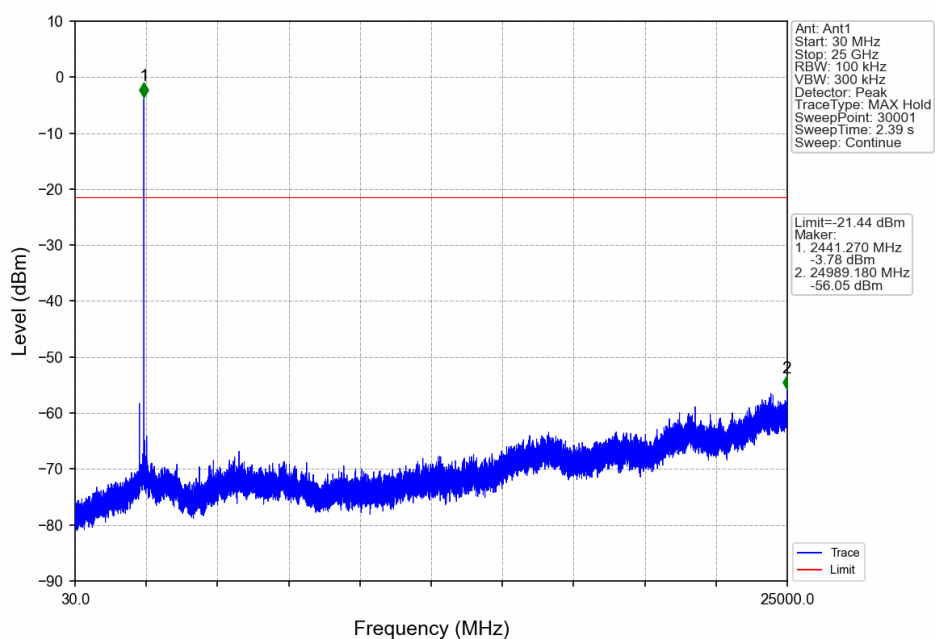


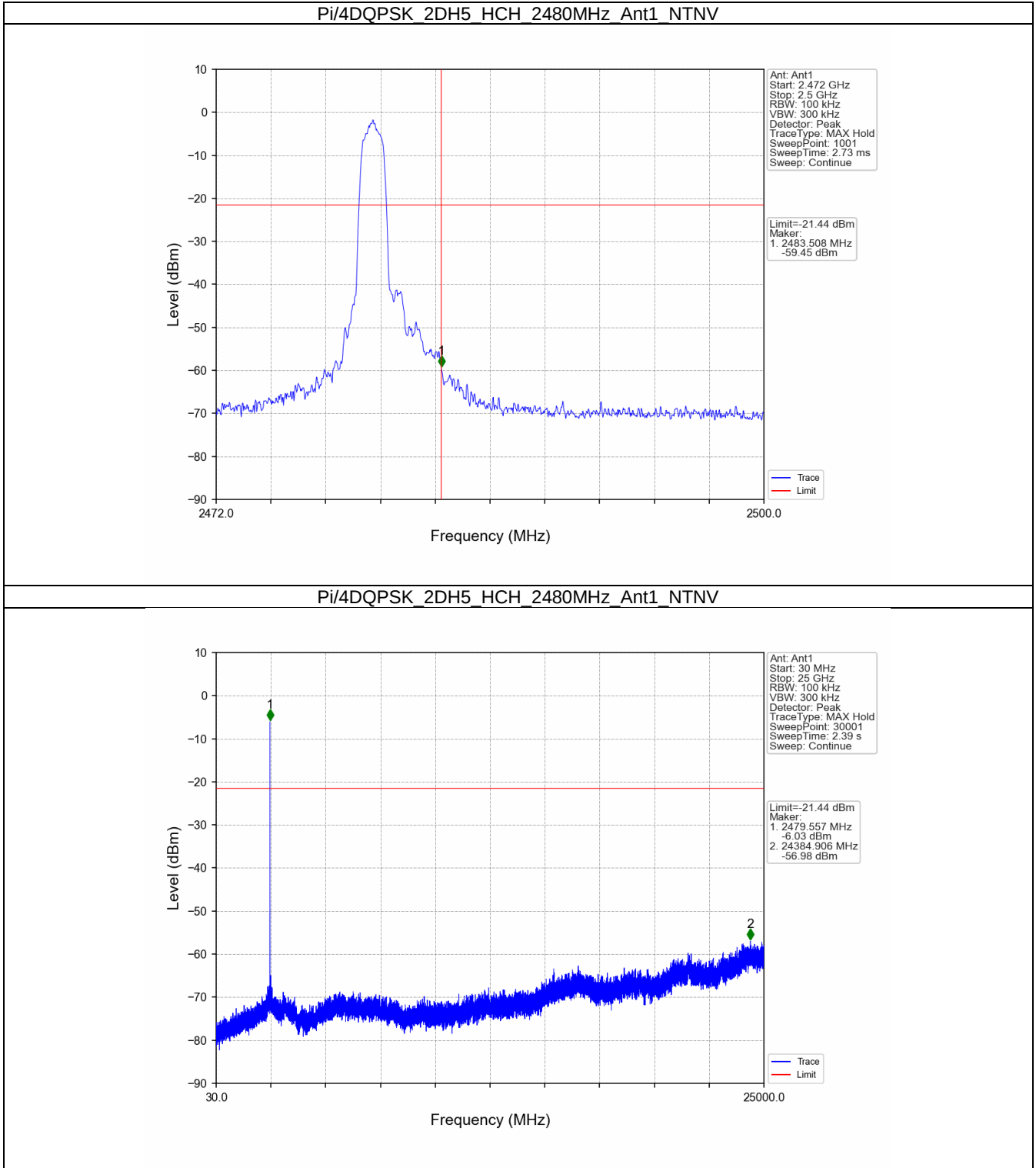


Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV

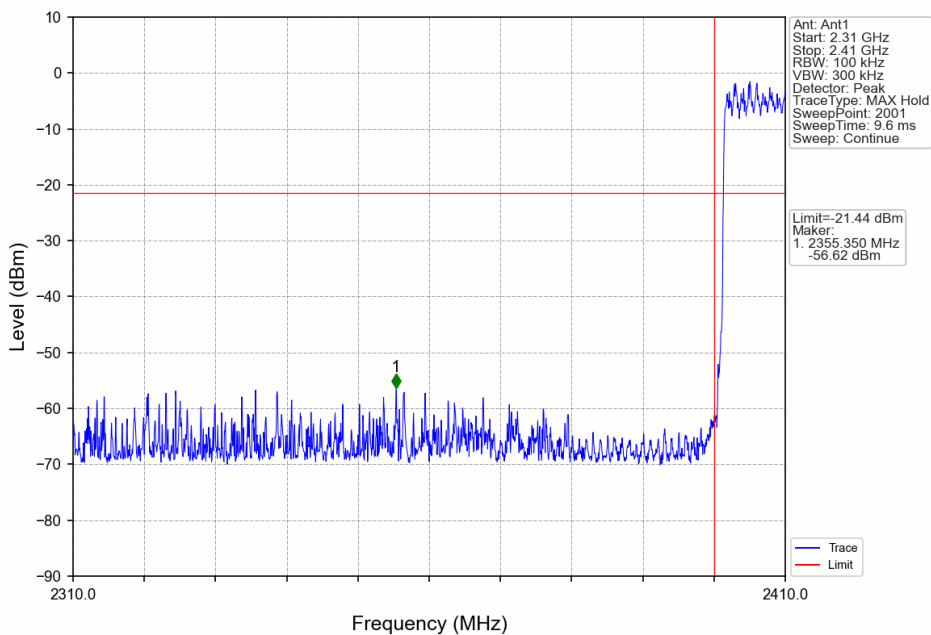


Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV

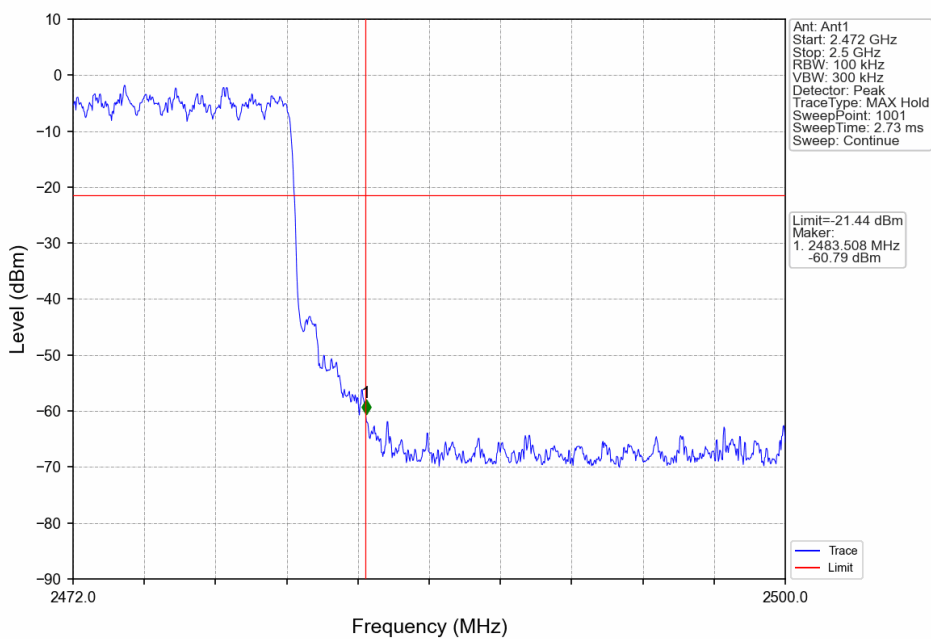




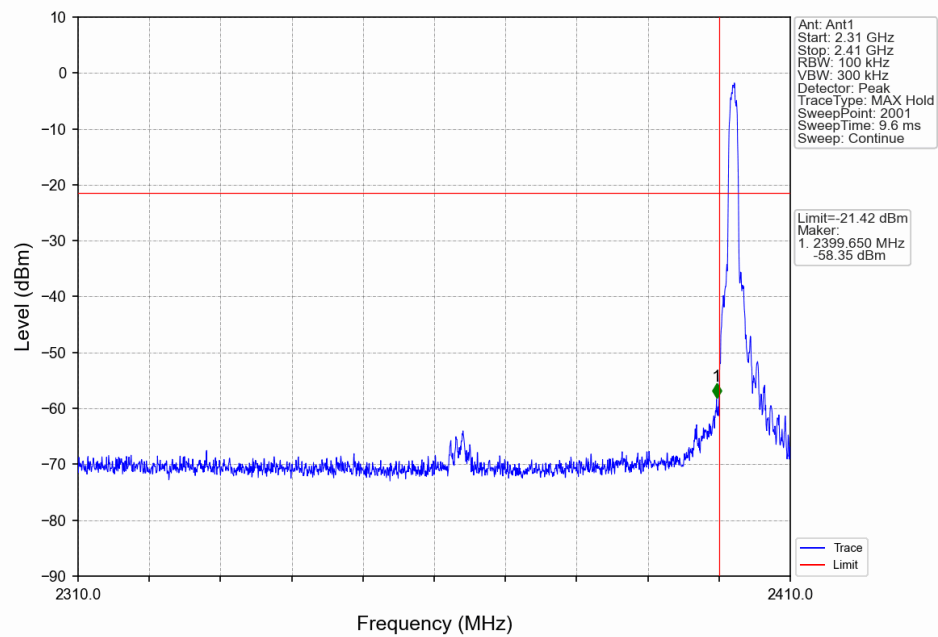
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



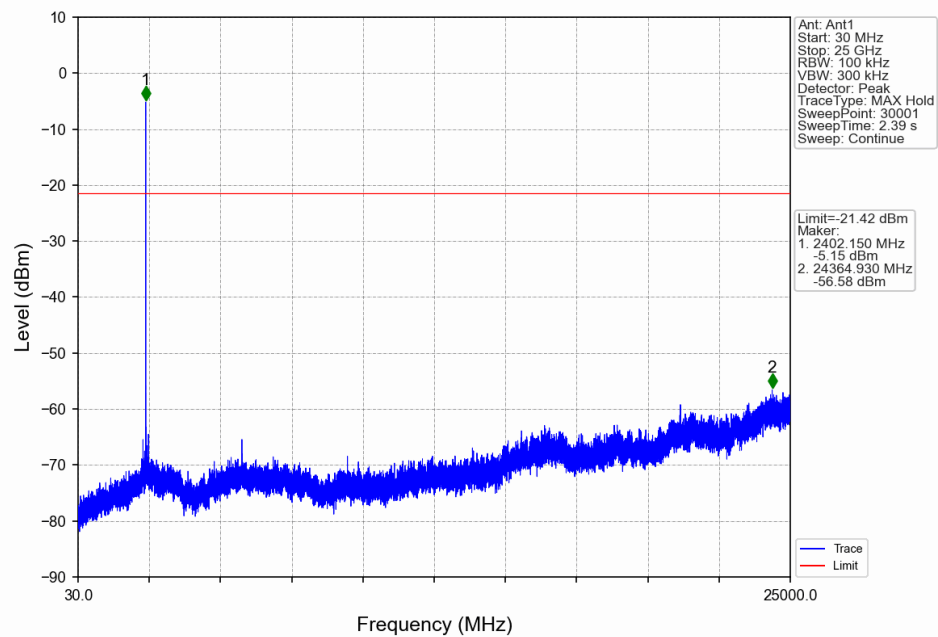
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV

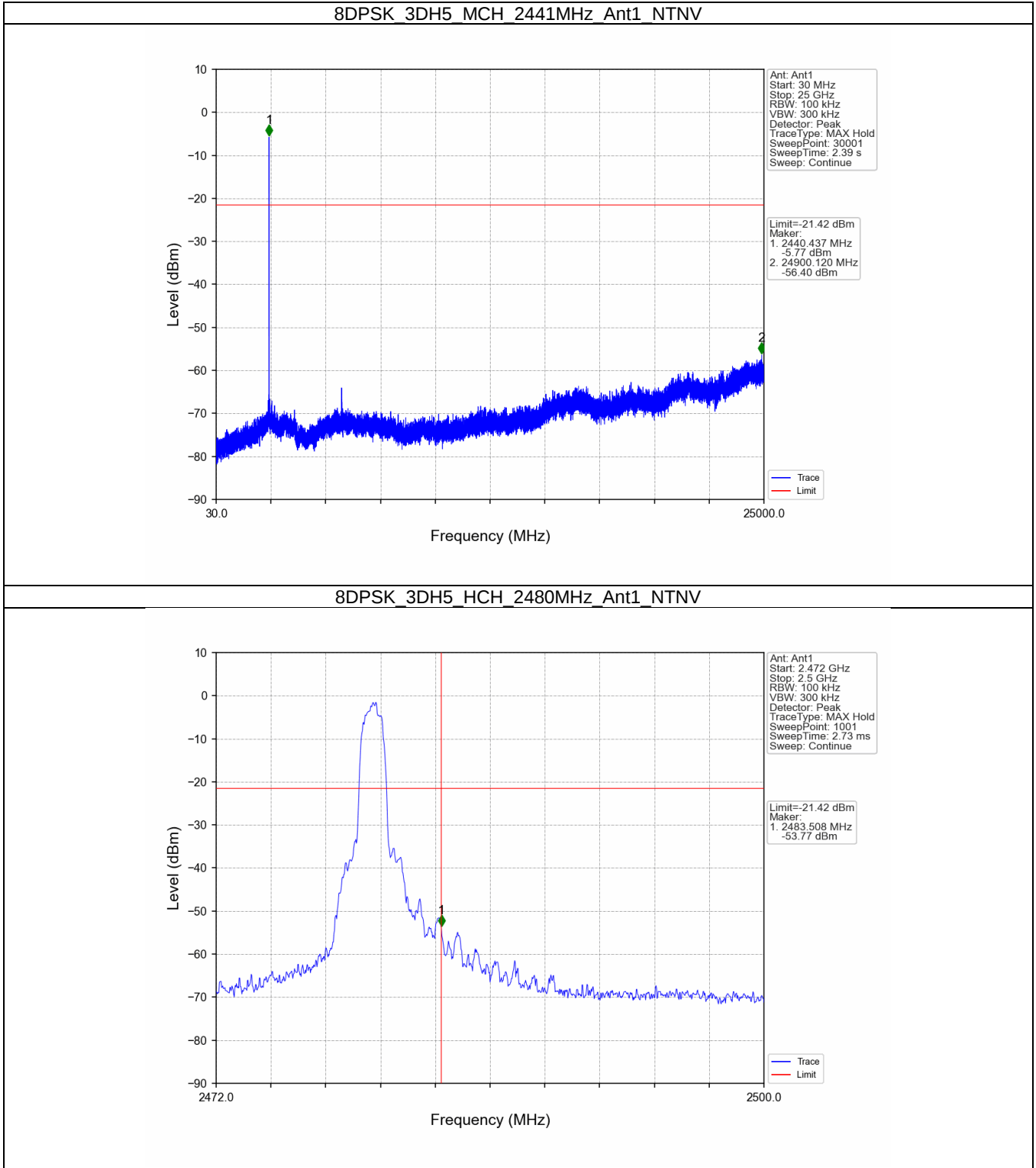


8DPSK 3DH5 LCH 2402MHz Ant1 NTNV

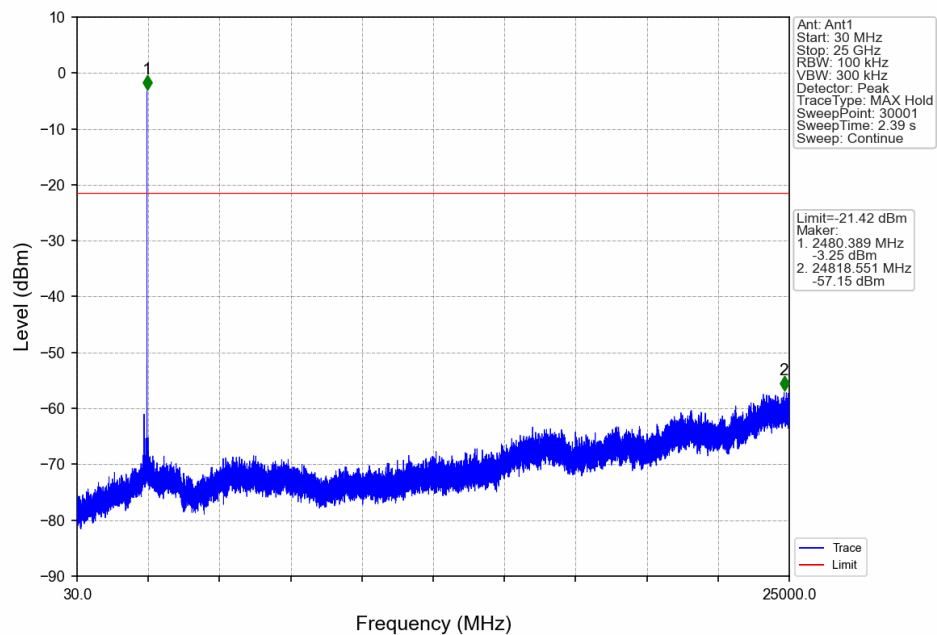


8DPSK 3DH5 LCH 2402MHz Ant1 NTNV





8DPSK 3DH5 HCH 2480MHz Ant1 NTN



8DPSK 3DH5 HOPP_Ant1 NTN

