

ANNEX D

Test Report

For

Project No.:	8135EU120501W
Client:	Shenzhen Shangrui Industrial Co., LTD
Manufacturer:	Shenzhen Shangrui Industrial Co., LTD
Product Description:	Bluetooth Headset / H20-PRO
Test Engineer:	<i>Mikoy zhu</i>
Test Date:	2023-12-08

Test Summary

Item	Result
Duty Cycle	Pass
Bandwidth	Pass
Maximum Conducted Output Power	Pass
Carrier Frequency Separation	Pass
Number of Hopping Frequencies	Pass
Time of Occupancy (Dwell Time)	Pass
Unwanted Emissions In Non-restricted Frequency Bands	Pass



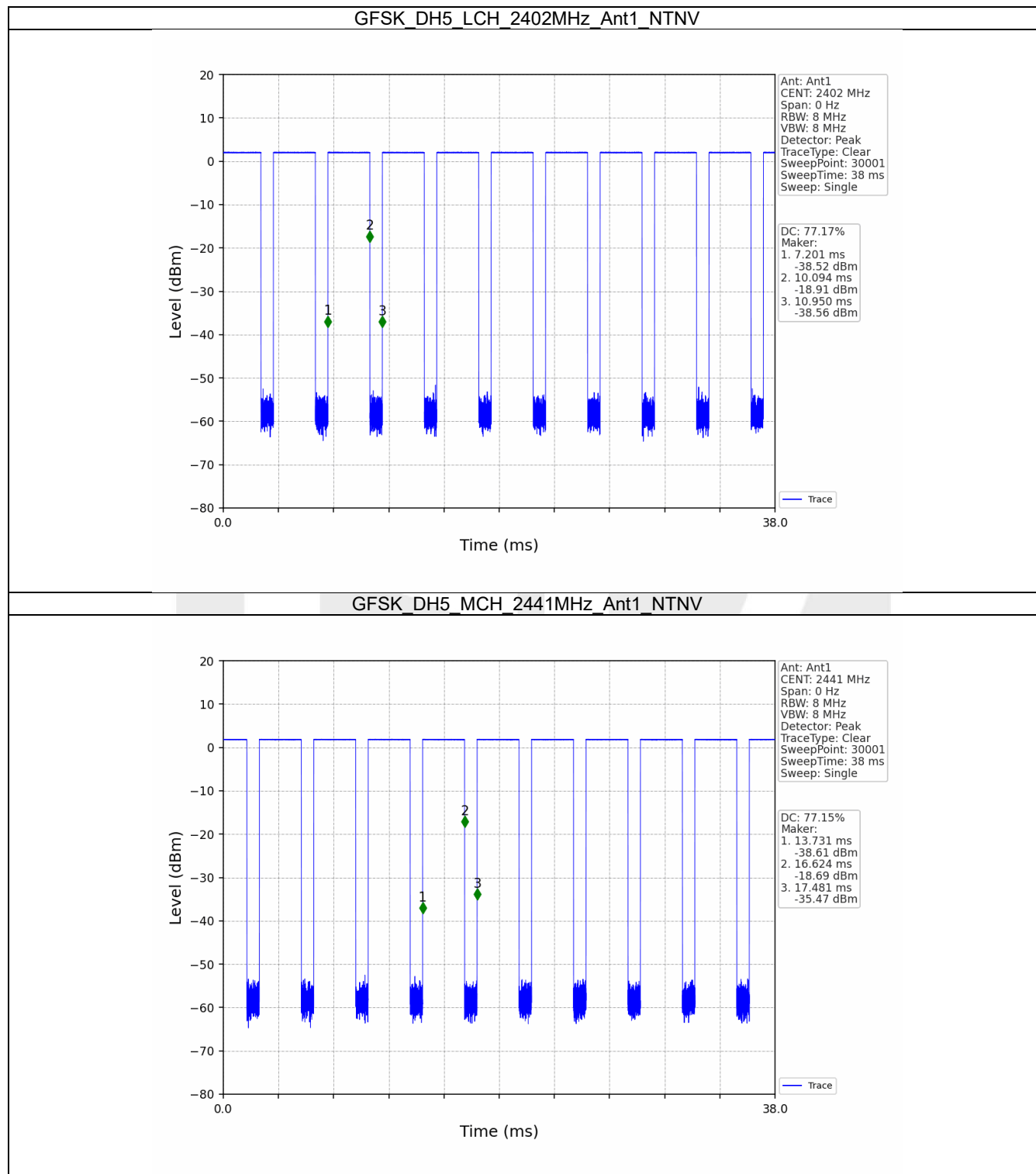
1. Duty Cycle

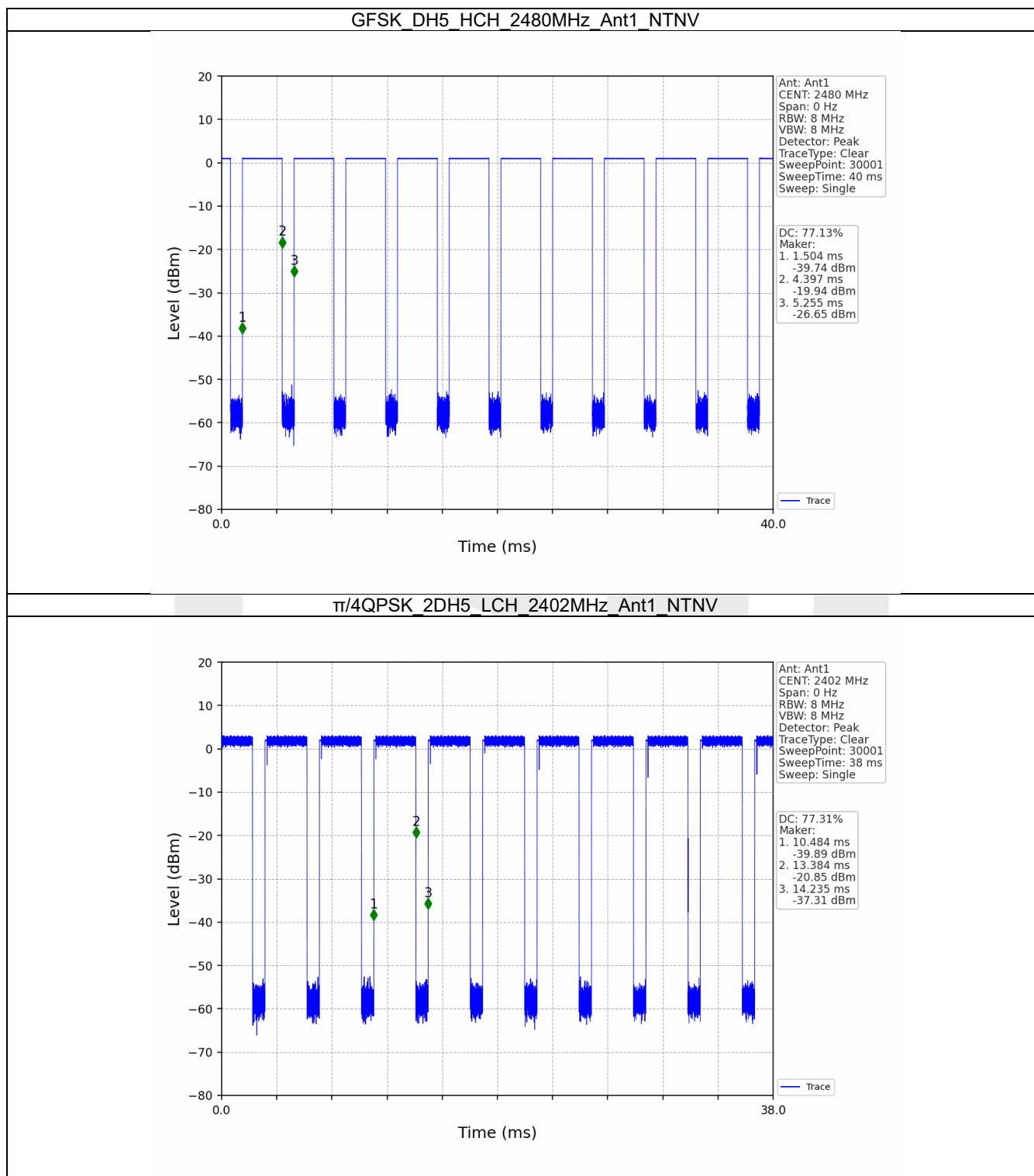
1.1 Ant1

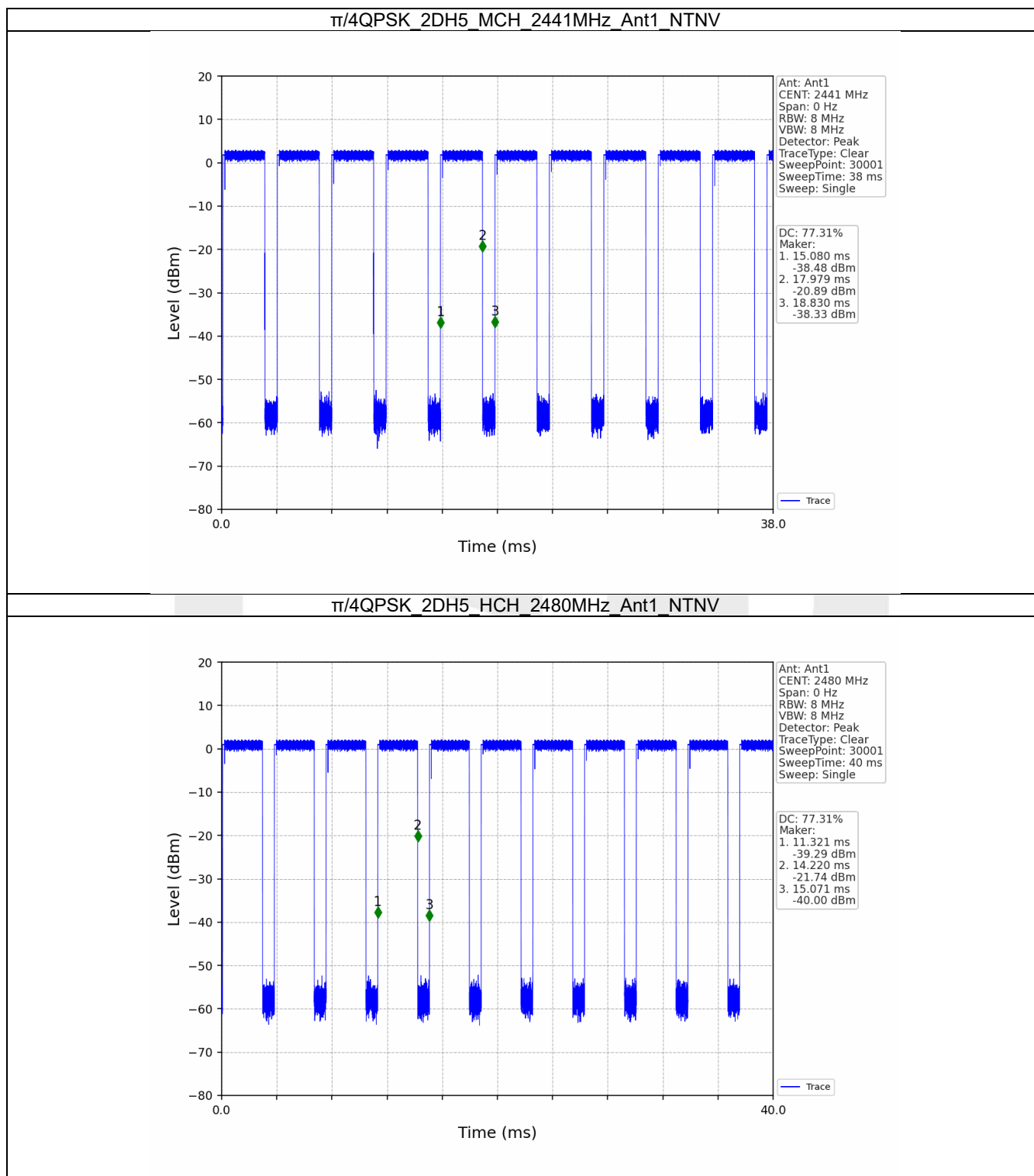
1.1.1 Test Result

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	2.893	3.749	77.17	1.13	0.01
		2441	DH5	2.893	3.750	77.15	1.13	0.03
		2480	DH5	2.893	3.751	77.13	1.13	0.04
$\pi/4$ QPSK	SISO	2402	2DH5	2.900	3.751	77.31	1.12	0.03
		2441	2DH5	2.899	3.750	77.31	1.12	0.03
		2480	2DH5	2.899	3.750	77.31	1.12	0.04

1.1.2 Test Graph







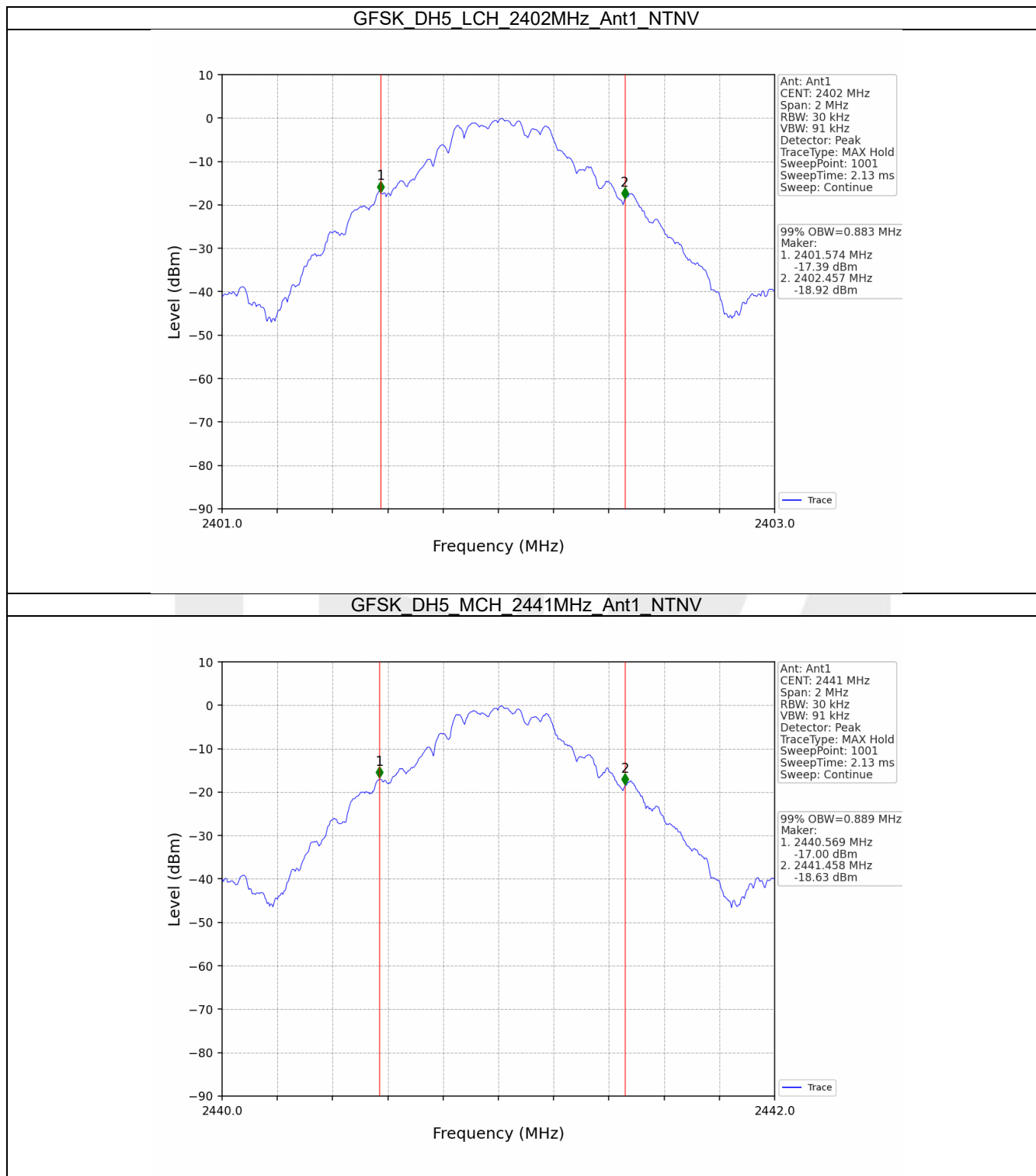
2. Bandwidth

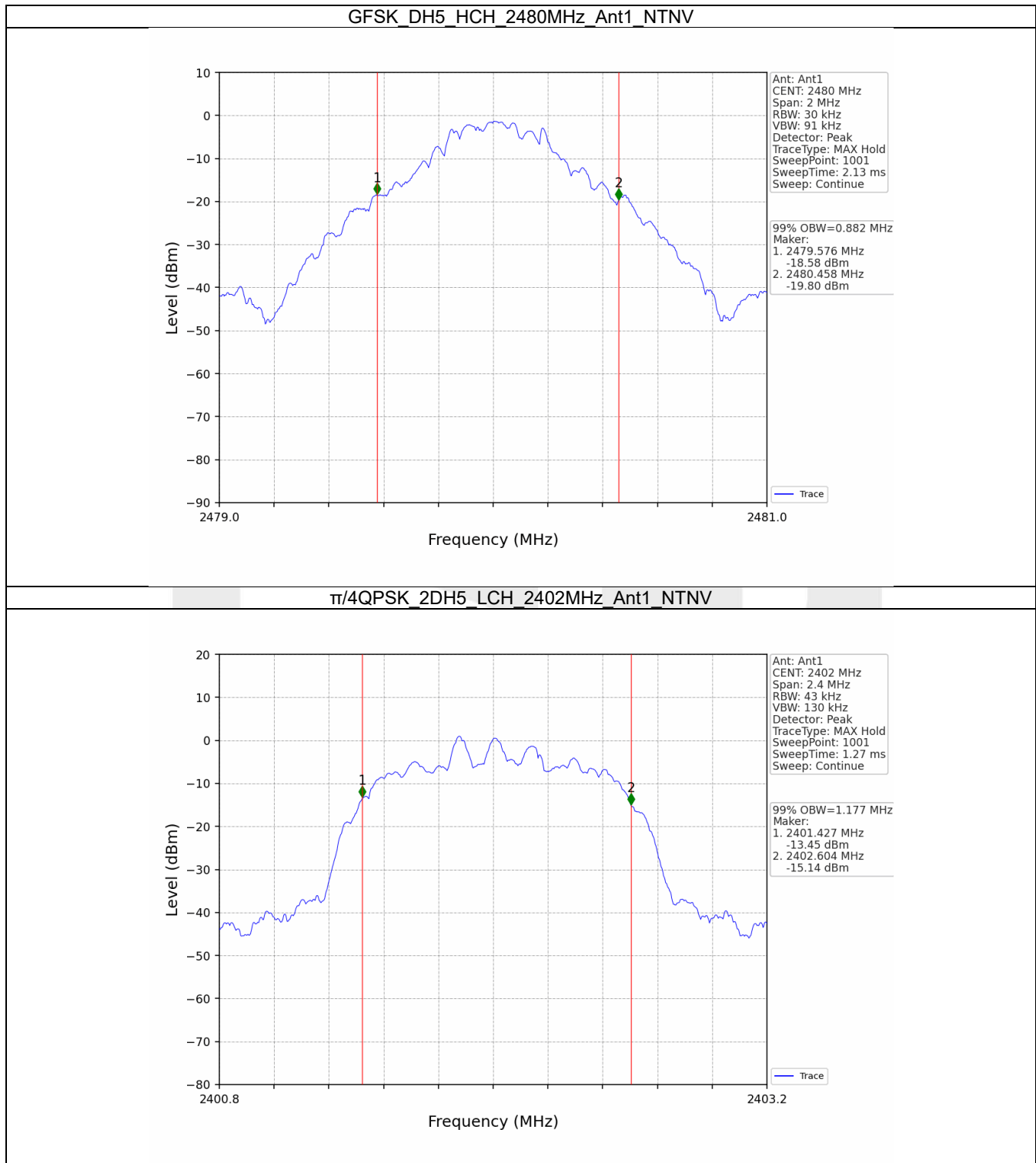
2.1 OBW

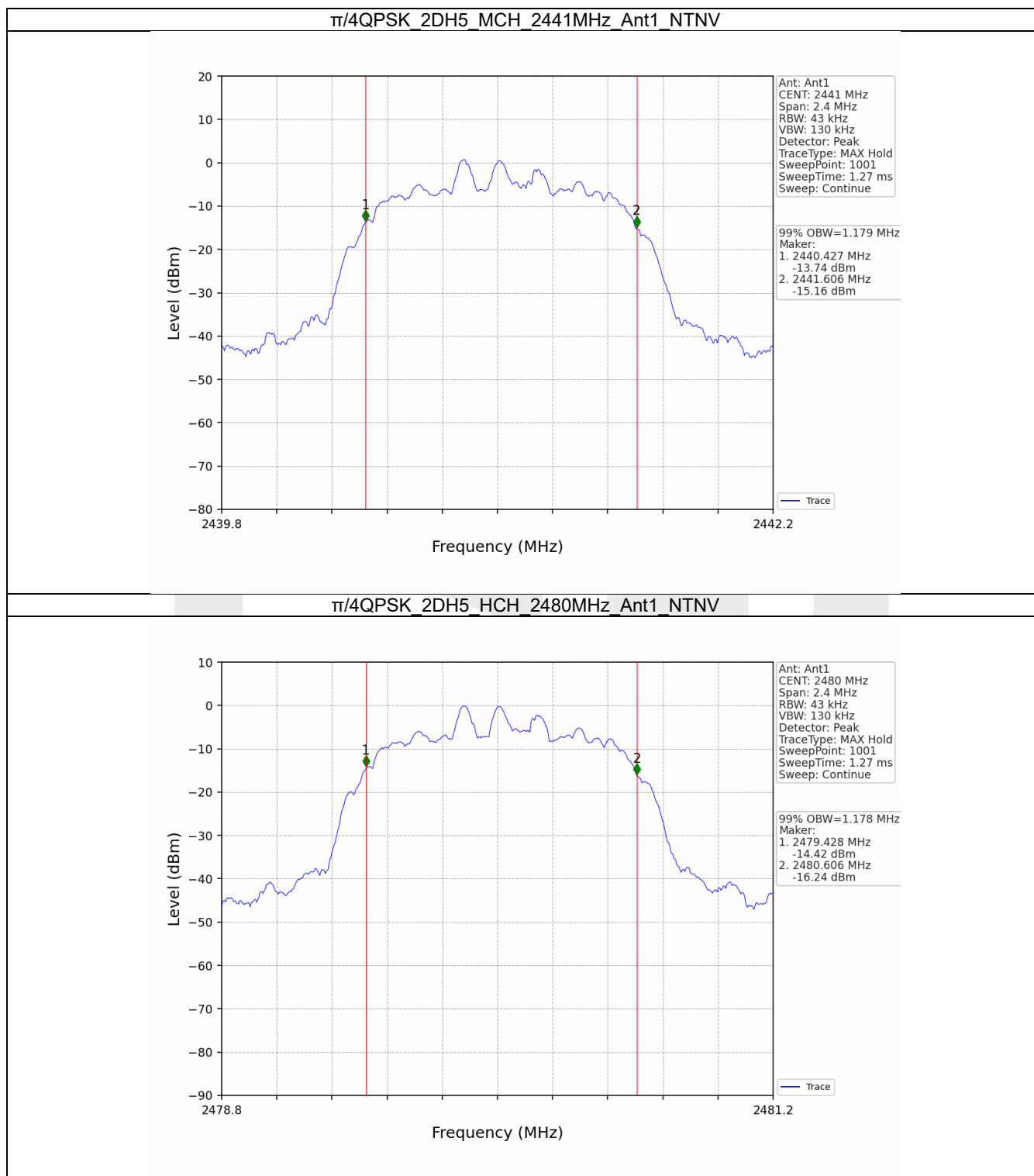
2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.883	Pass
		2441	DH5	1	0.889	Pass
		2480	DH5	1	0.882	Pass
π /4QPSK	SISO	2402	2DH5	1	1.177	Pass
		2441	2DH5	1	1.179	Pass
		2480	2DH5	1	1.178	Pass

2.1.2 Test Graph





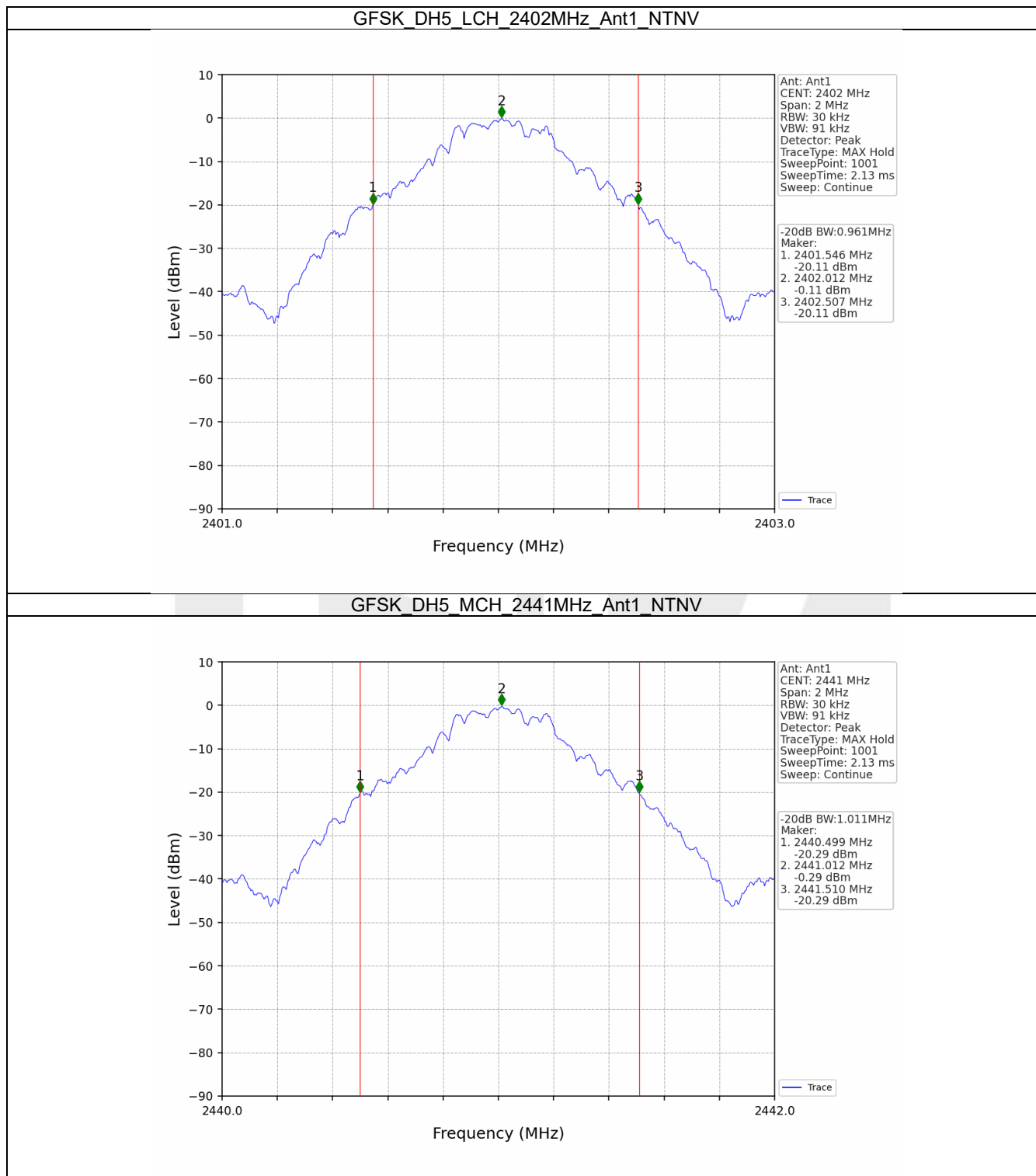


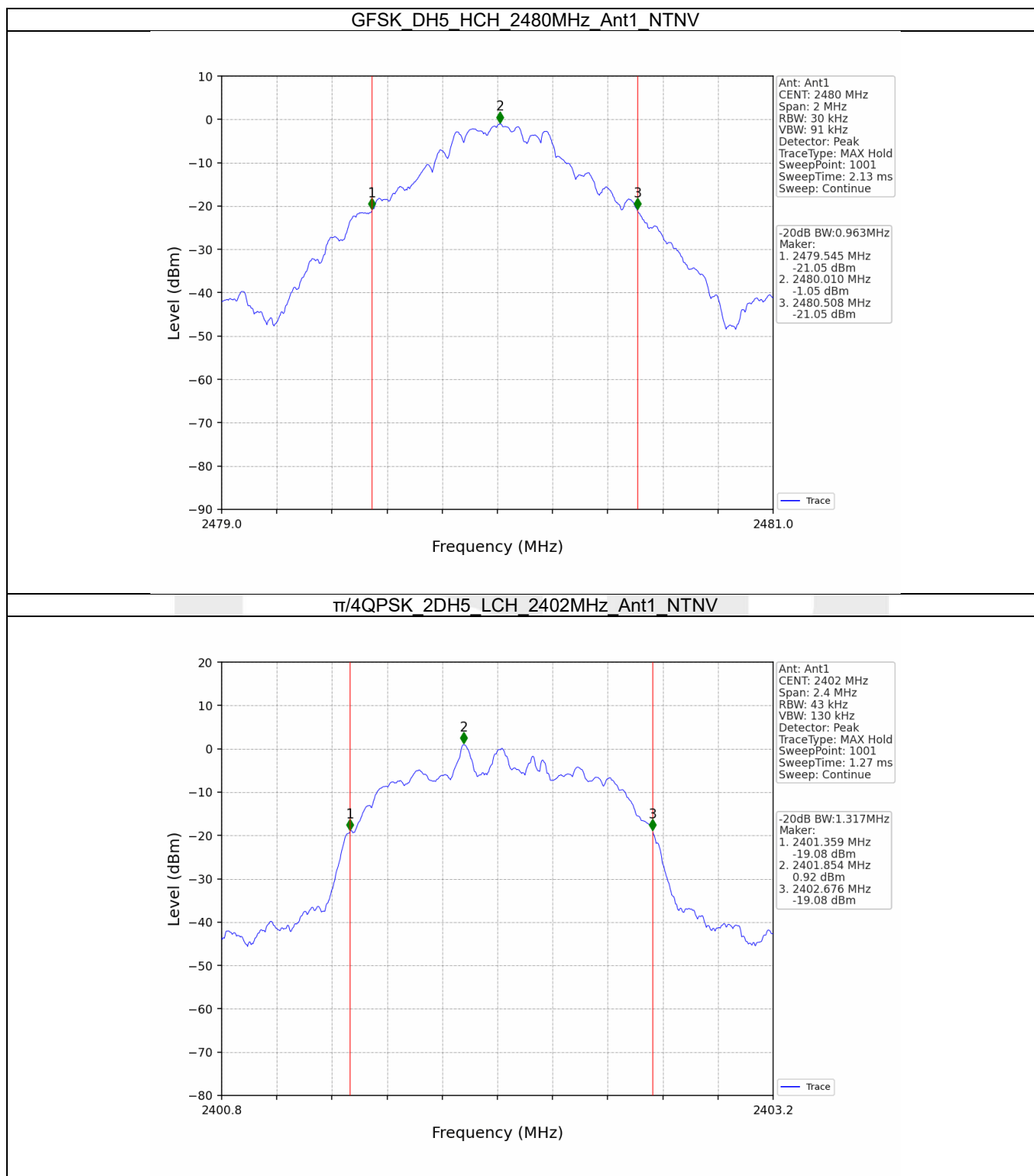
2.2 20dB BW

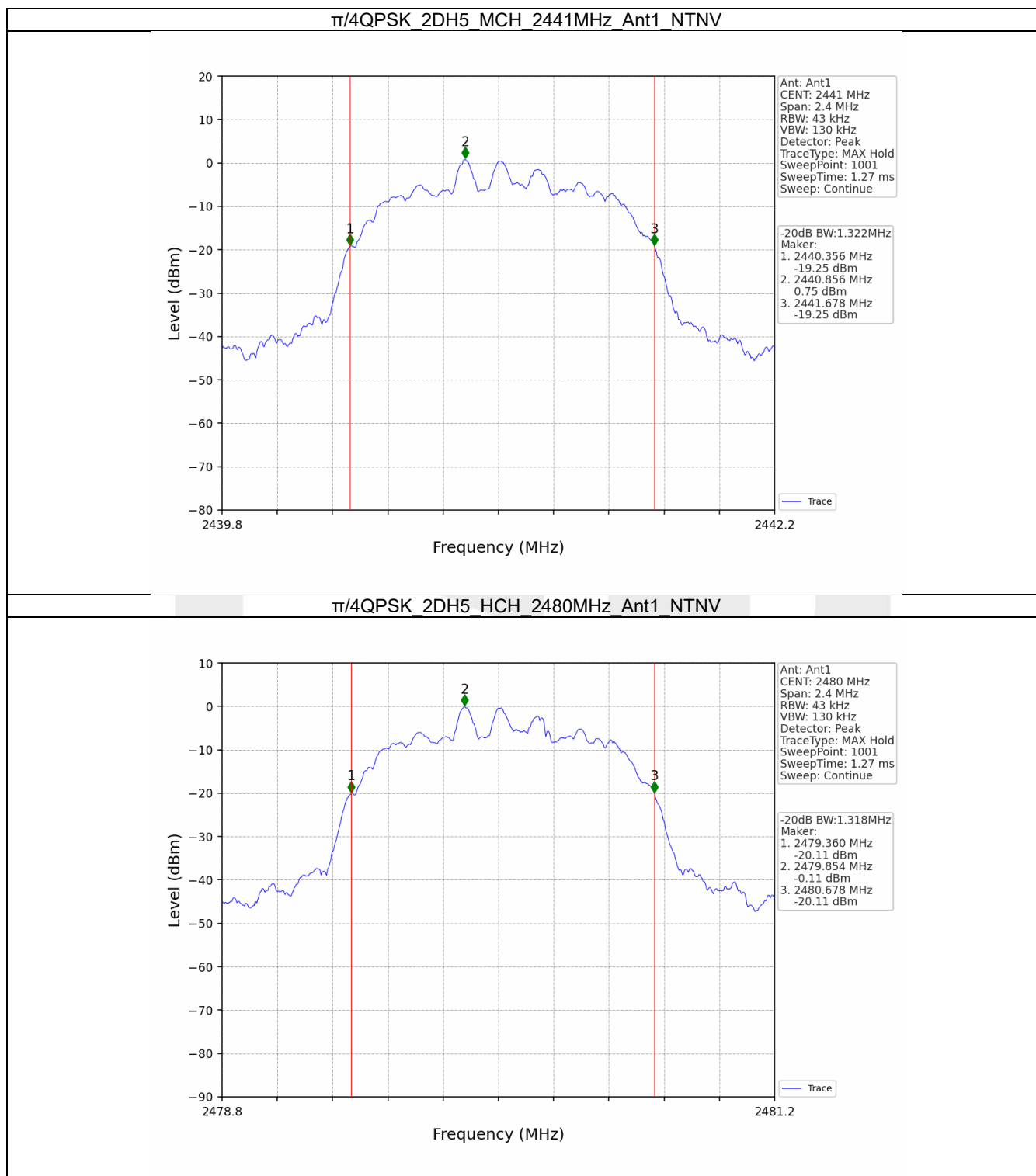
2.2.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.961	Pass
		2441	DH5	1	1.011	Pass
		2480	DH5	1	0.963	Pass
$\pi/4$ QPSK	SISO	2402	2DH5	1	1.317	Pass
		2441	2DH5	1	1.322	Pass
		2480	2DH5	1	1.318	Pass

2.2.2 Test Graph







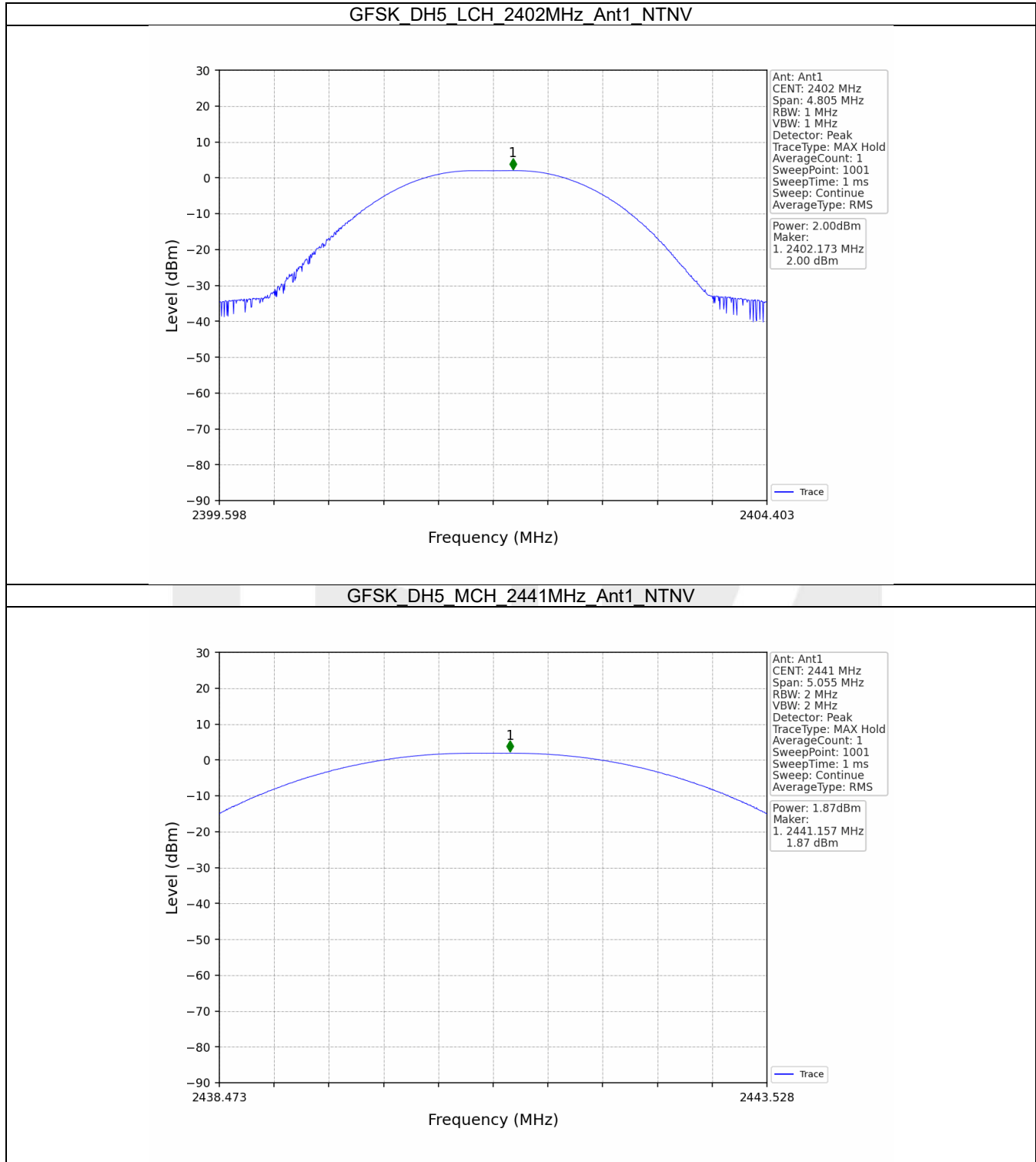
3. Maximum Conducted Output Power

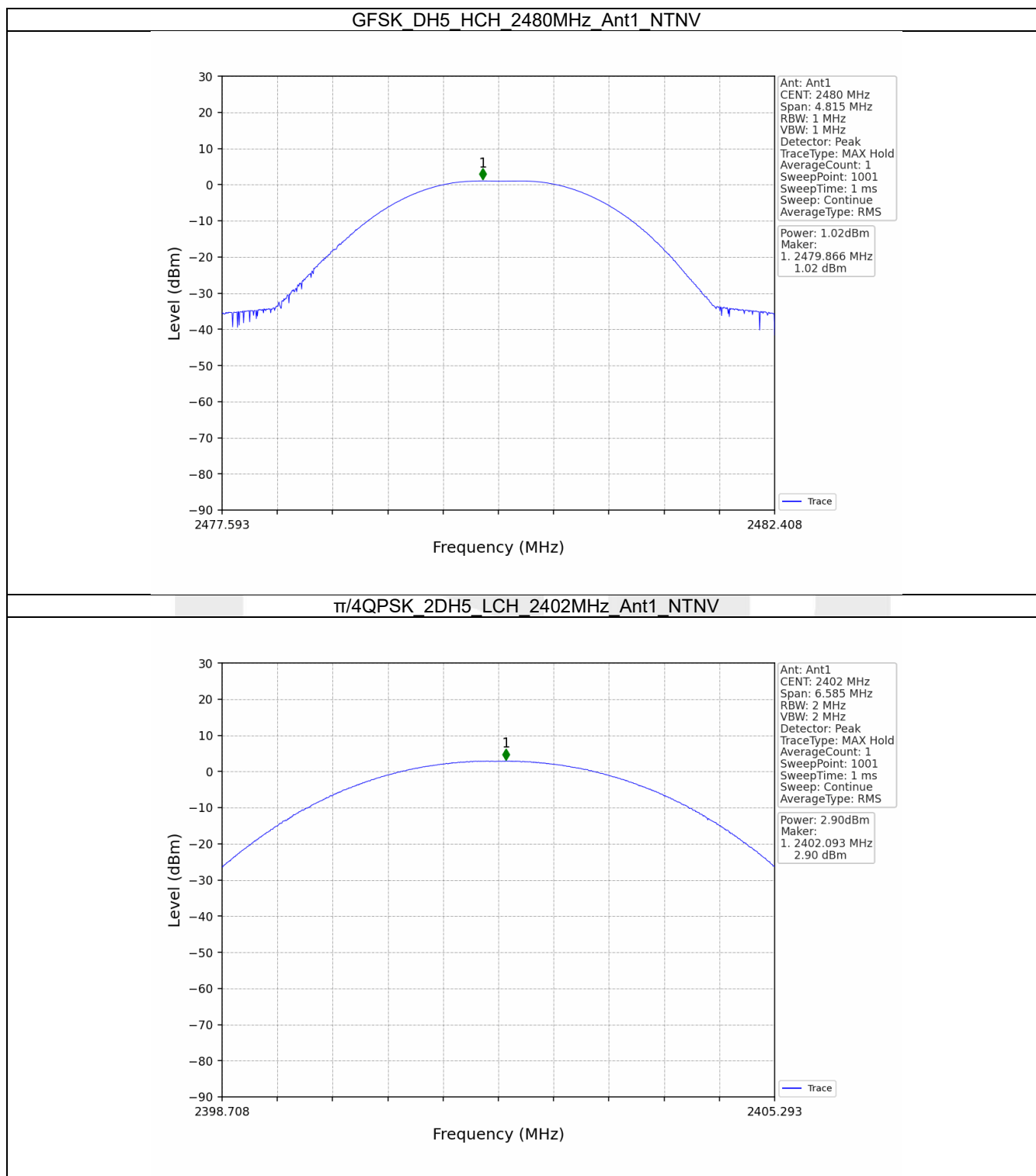
3.1 Power

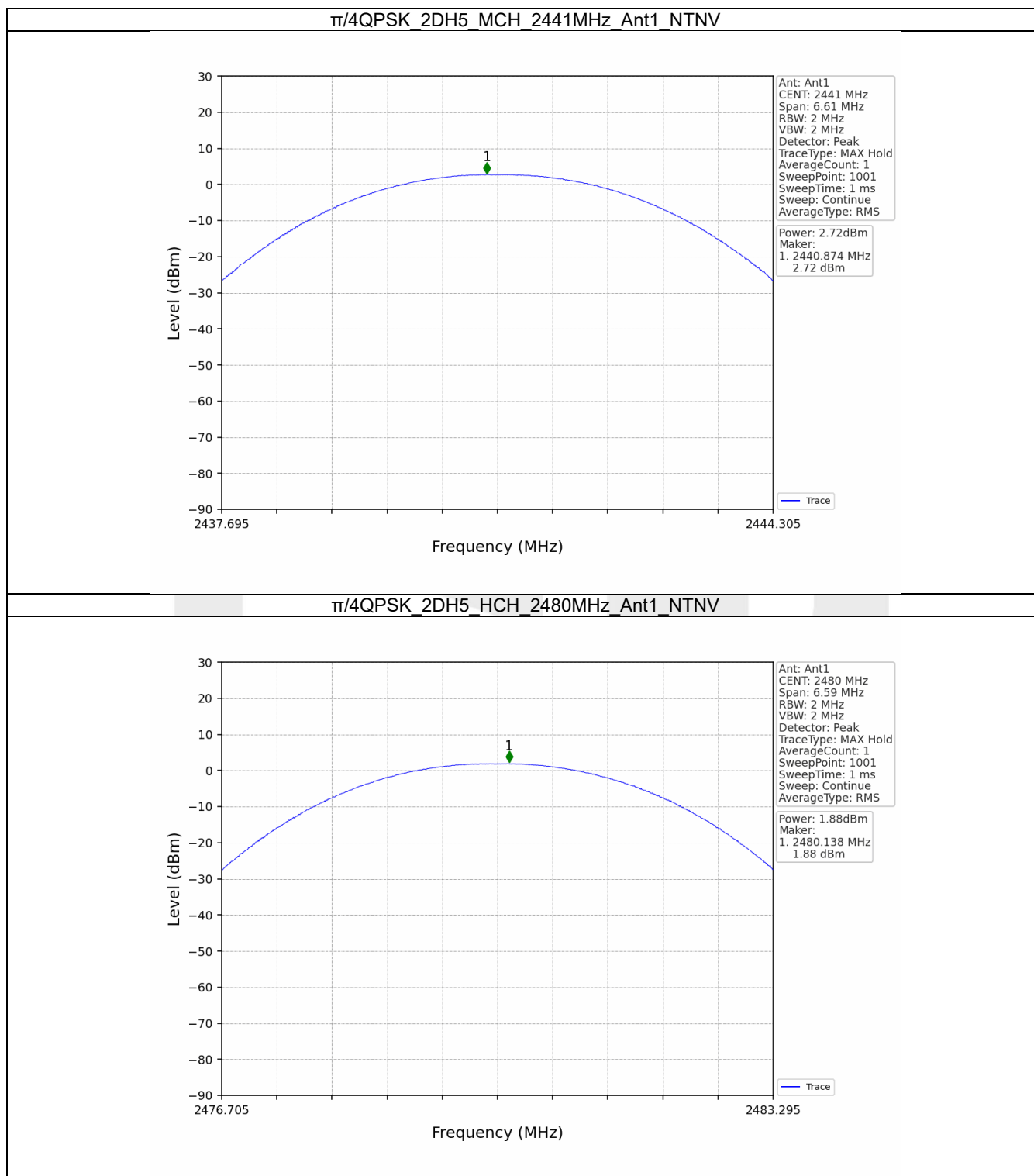
3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	2.00	≤ 20.97	Pass
		2441	DH5	1.87	≤ 20.97	Pass
		2480	DH5	1.02	≤ 20.97	Pass
$\pi/4$ QPSK	SISO	2402	2DH5	2.90	≤ 20.97	Pass
		2441	2DH5	2.72	≤ 20.97	Pass
		2480	2DH5	1.88	≤ 20.97	Pass

3.1.2 Test Graph







4. Carrier Frequency Separation

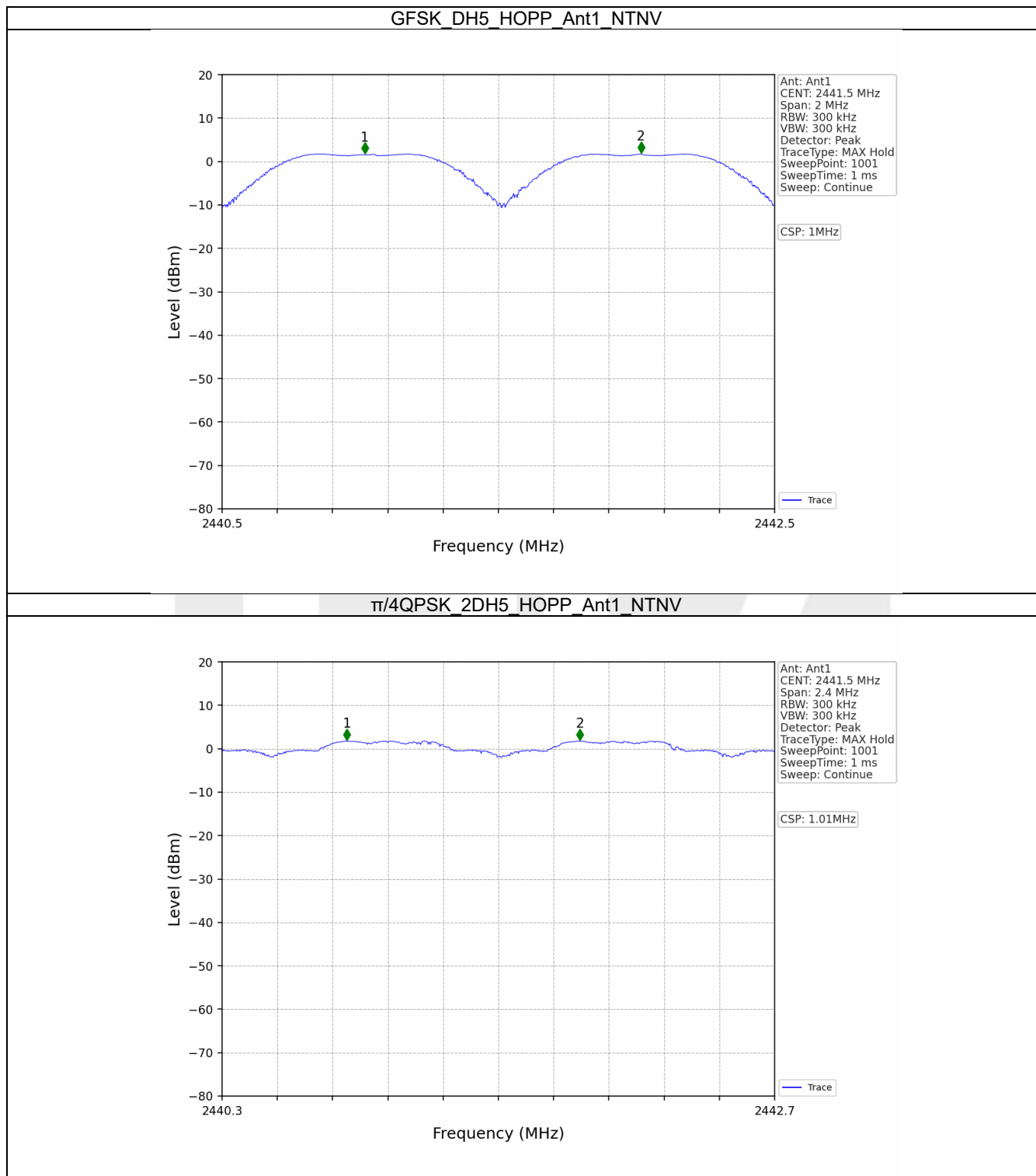
4.1 Ant1

4.1.1 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	1.011	≥ 0.674	Pass
$\pi/4$ QPSK	SISO	HOPP	2DH5	1.010	1.322	≥ 0.881	Pass



4.1.2 Test Graph



5. Number of Hopping Frequencies

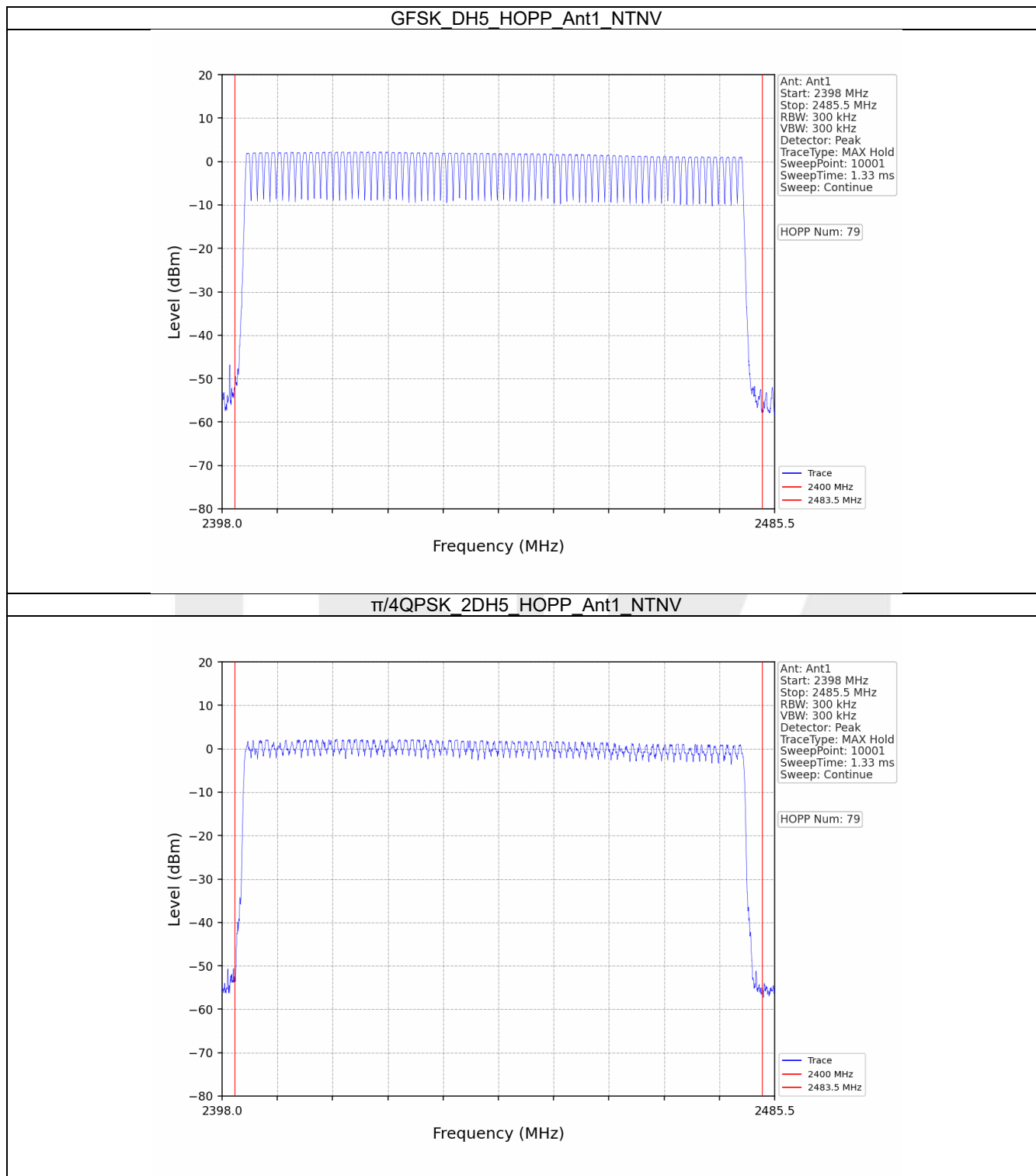
5.1 HoppNum

5.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	Num of Hopping Frequencies		Verdict
				ANT1	Limit	
GFSK	SISO	HOPP	DH5	79	≥ 15	Pass
$\pi/4$ QPSK	SISO	HOPP	2DH5	79	≥ 15	Pass



5.1.2 Test Graph



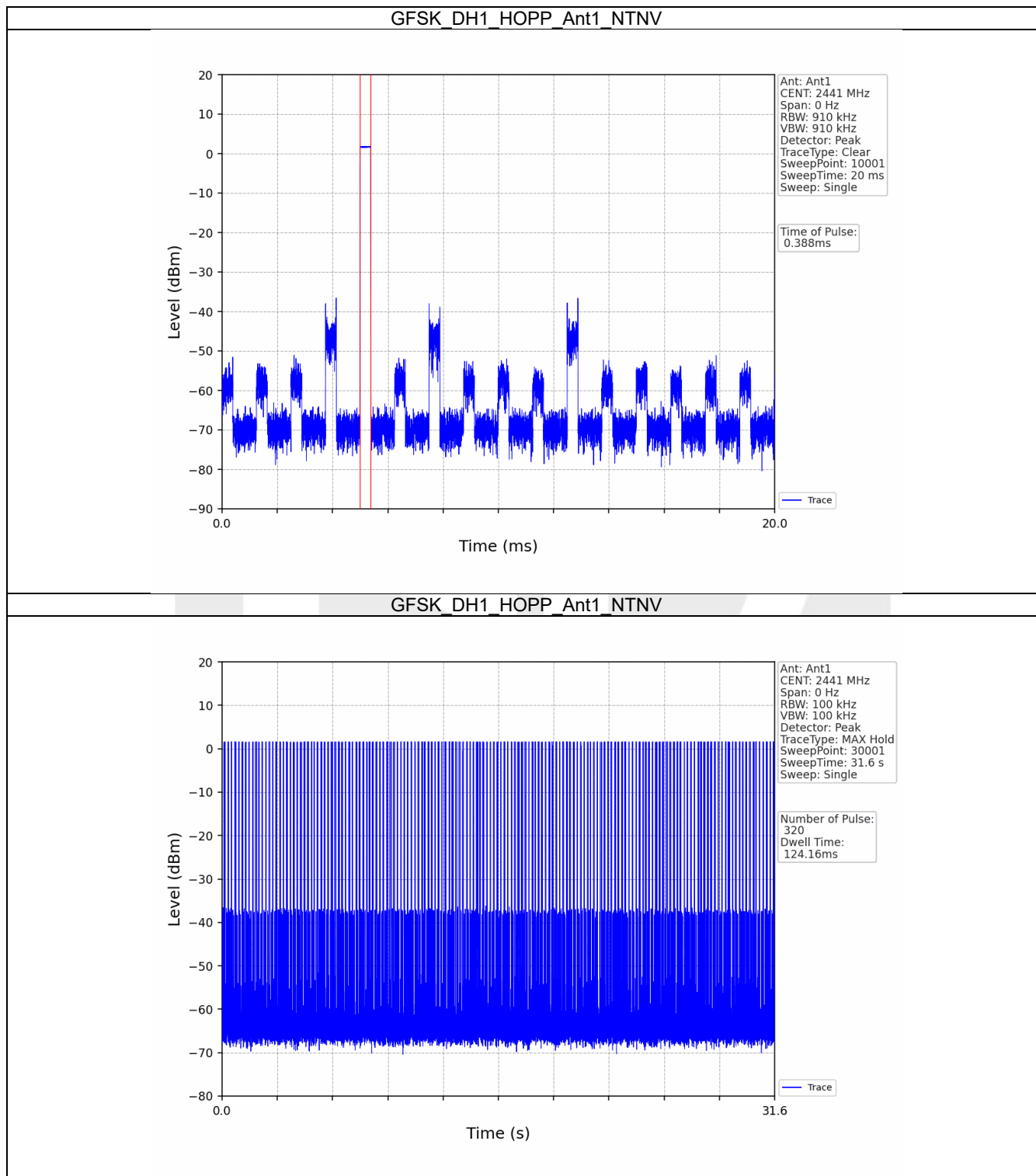
6. Time of Occupancy (Dwell Time)

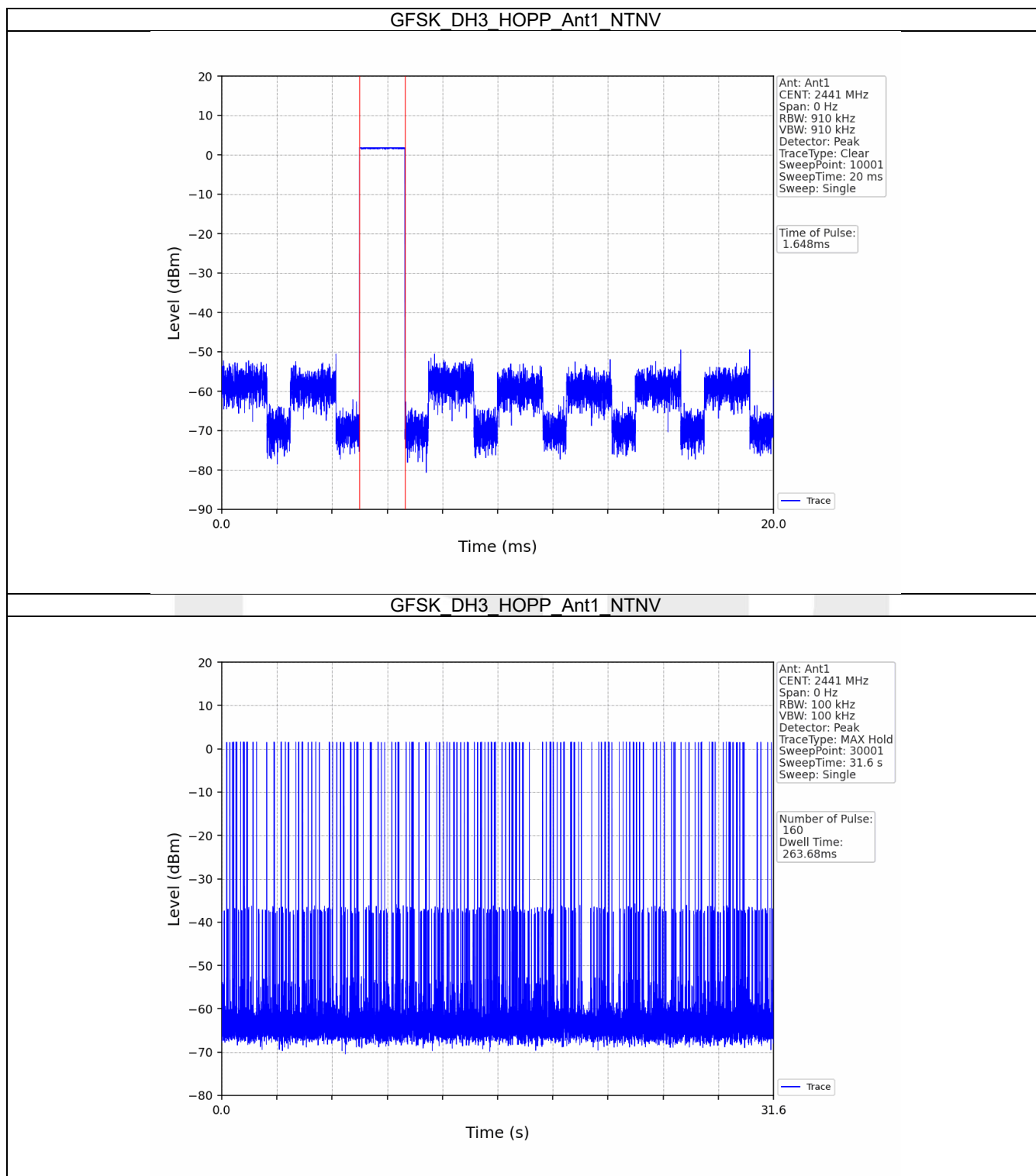
6.1 Ant1

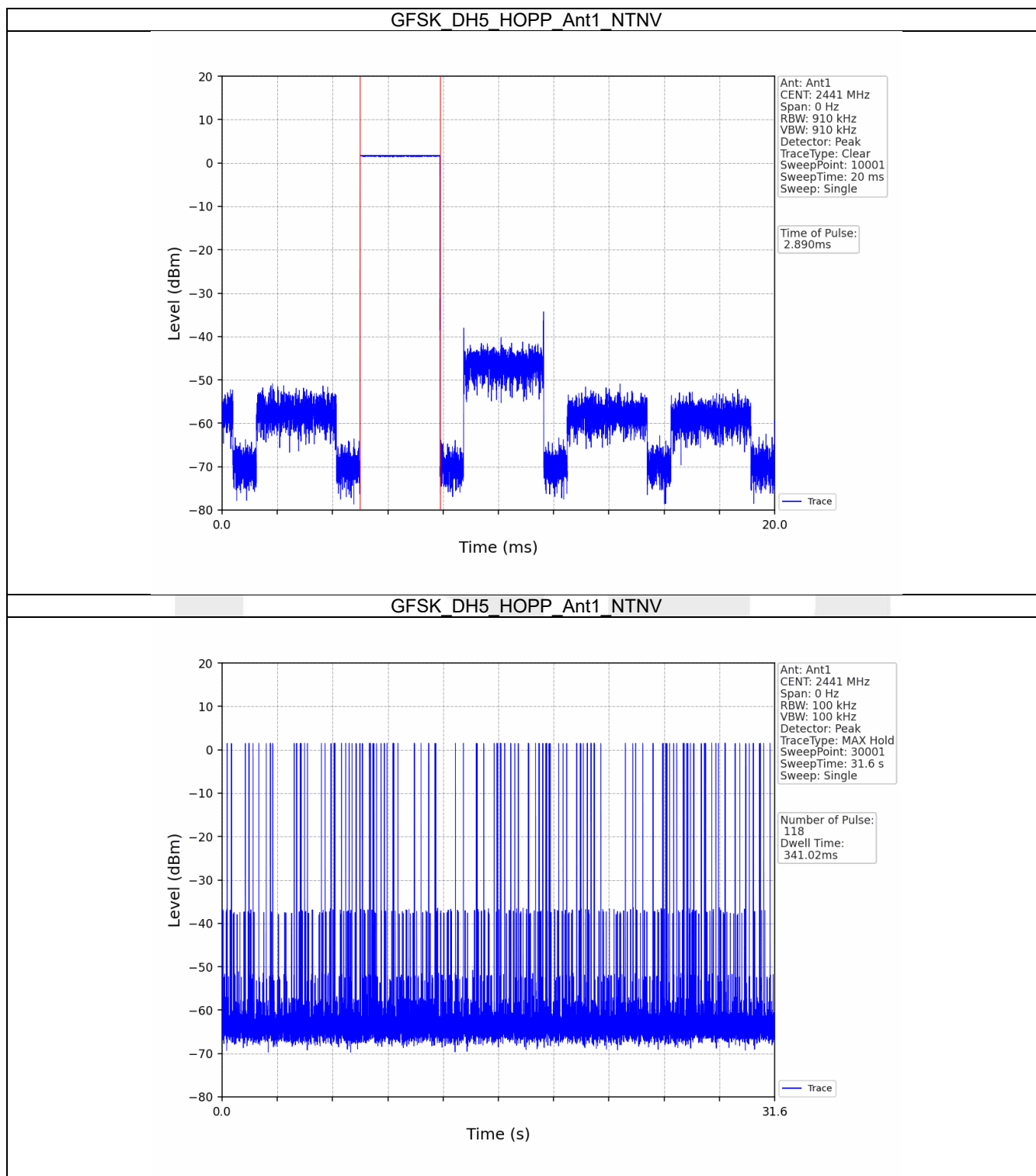
6.1.1 Test Result

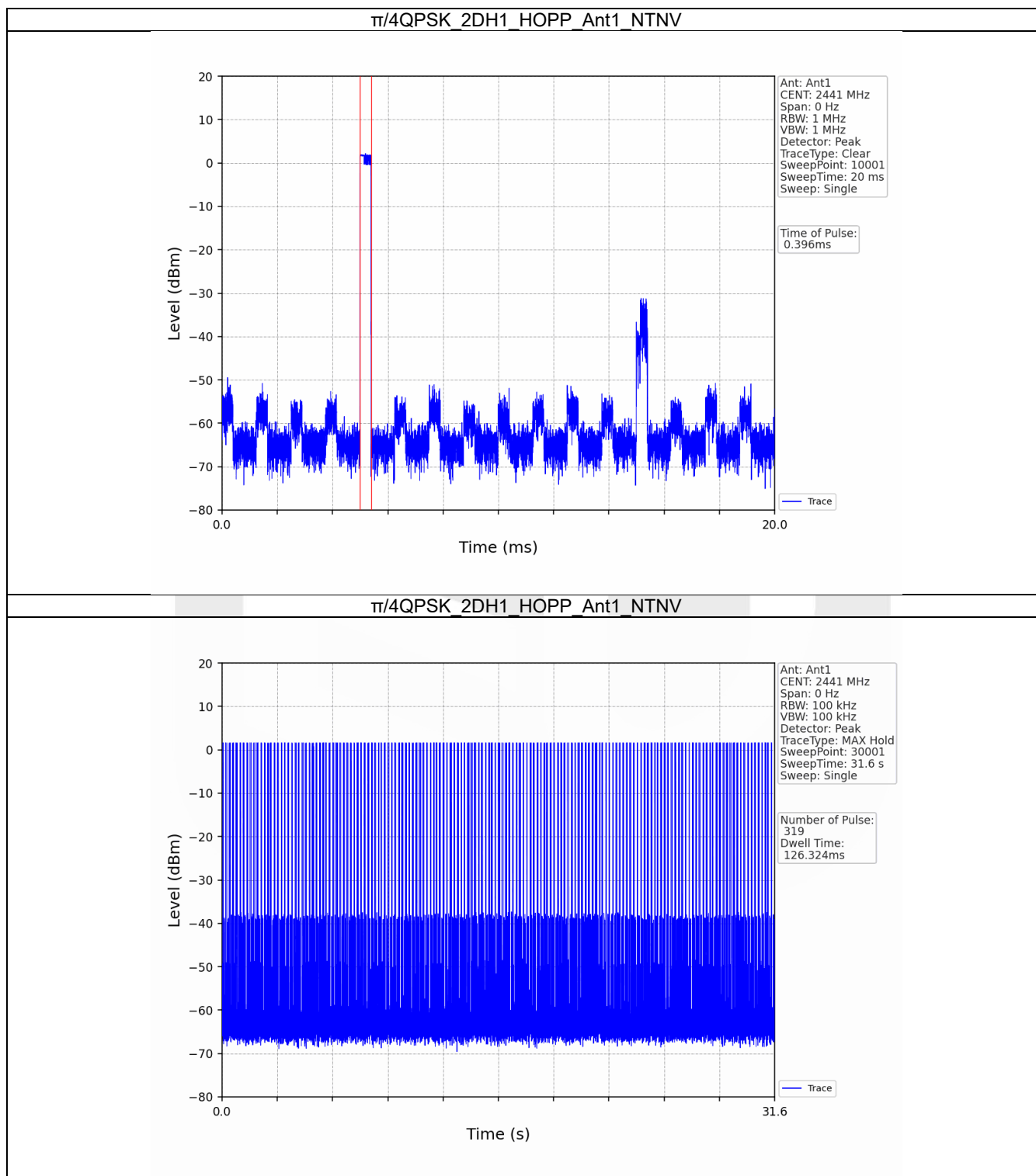
Ant1									
Mode	TX Type	Frequency (MHz)	Packet Type	Duration of Single Pulse (ms)	Observation Period (s)	Num of Pulse in Observation Period	Dwell Time (ms)	Limit (ms)	Verdict
GFSK	SISO	HOPP	DH1	0.388	31.600	320	124.160	<=400	Pass
			DH3	1.648	31.600	160	263.680	<=400	Pass
			DH5	2.890	31.600	118	341.020	<=400	Pass
$\pi/4$ QPSK	SISO	HOPP	2DH1	0.396	31.600	319	126.324	<=400	Pass
			2DH3	1.646	31.600	163	268.298	<=400	Pass
			2DH5	2.904	31.600	109	316.536	<=400	Pass

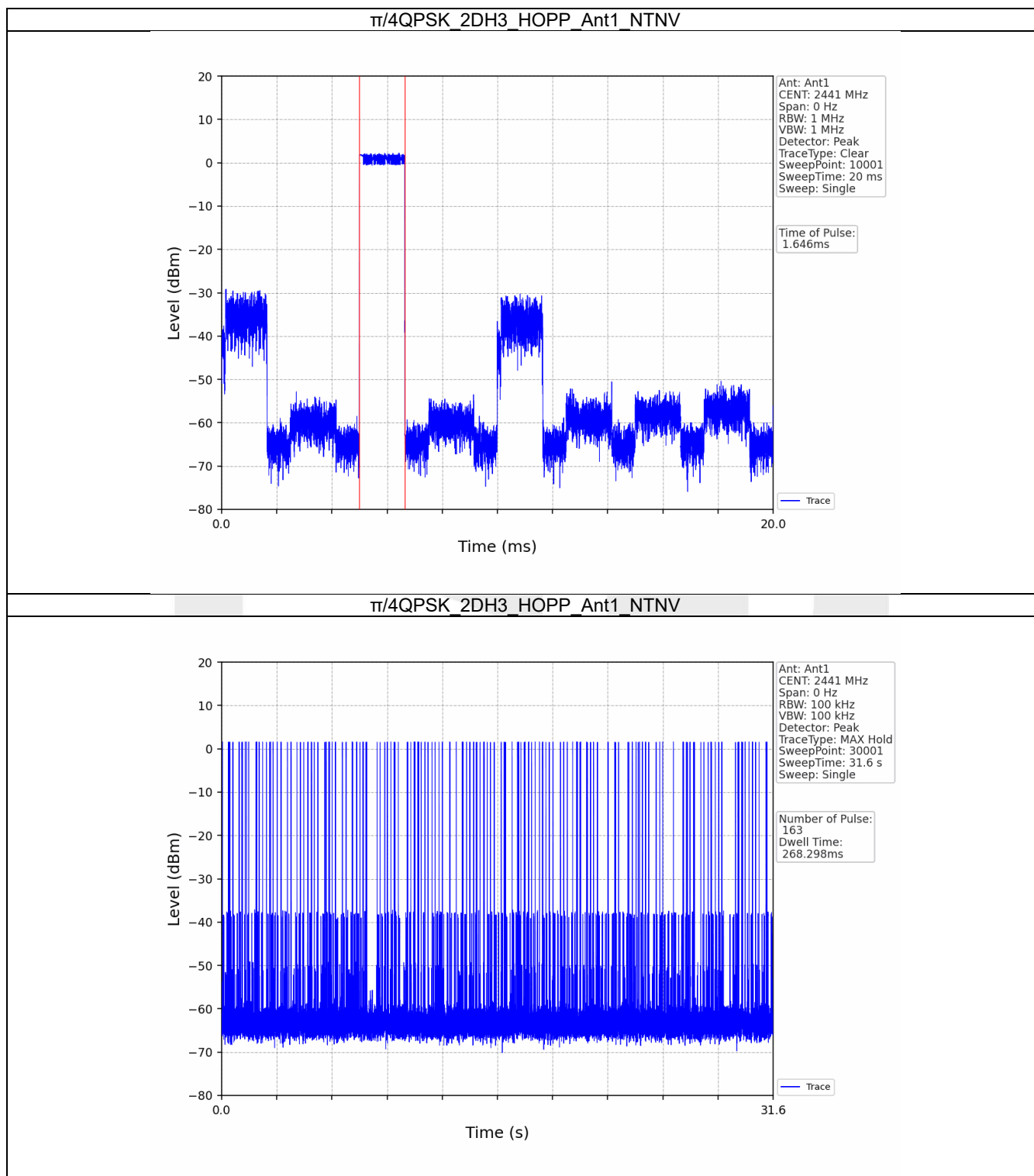
6.1.2 Test Graph

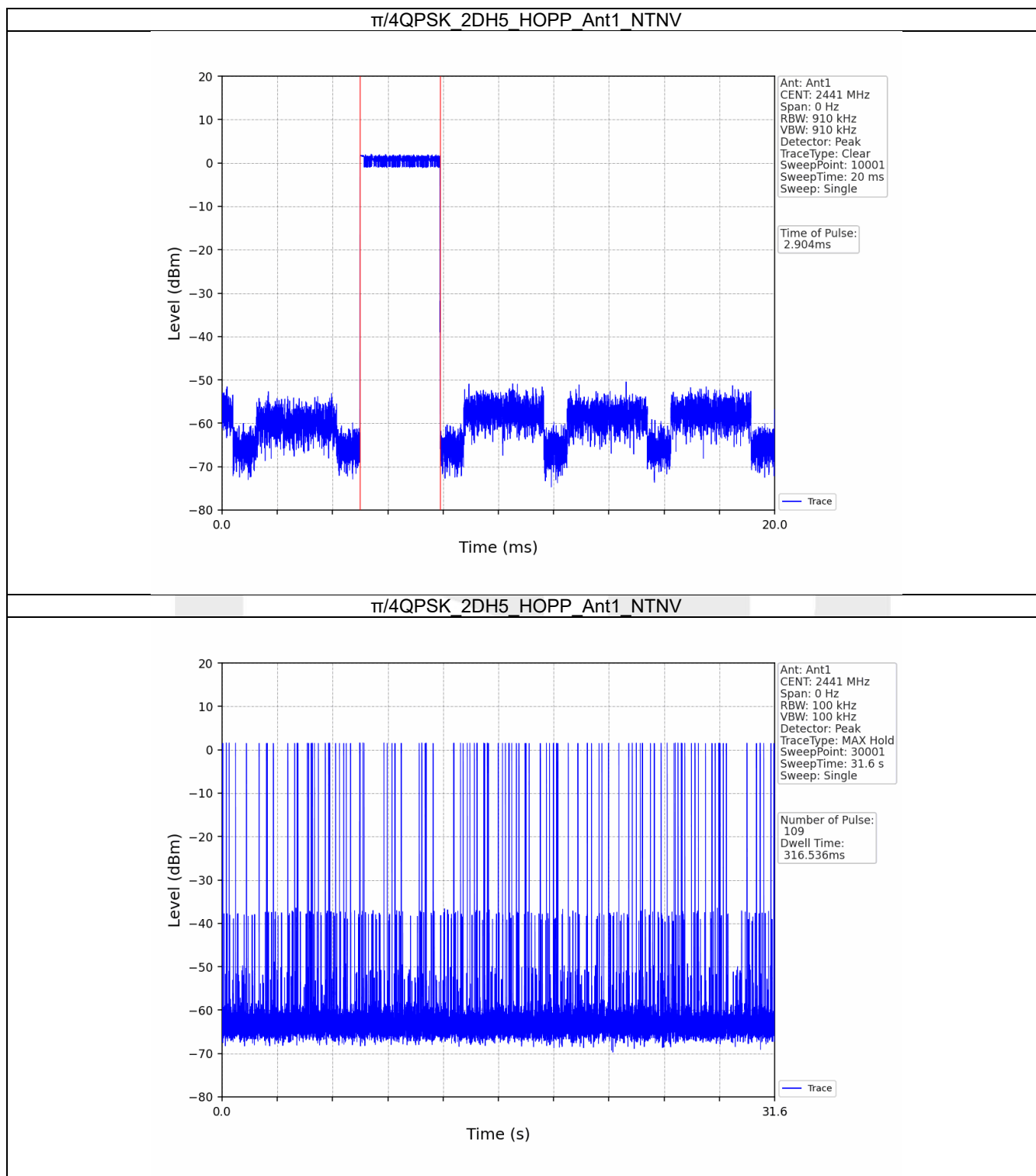












7. Unwanted Emissions In Non-restricted Frequency Bands

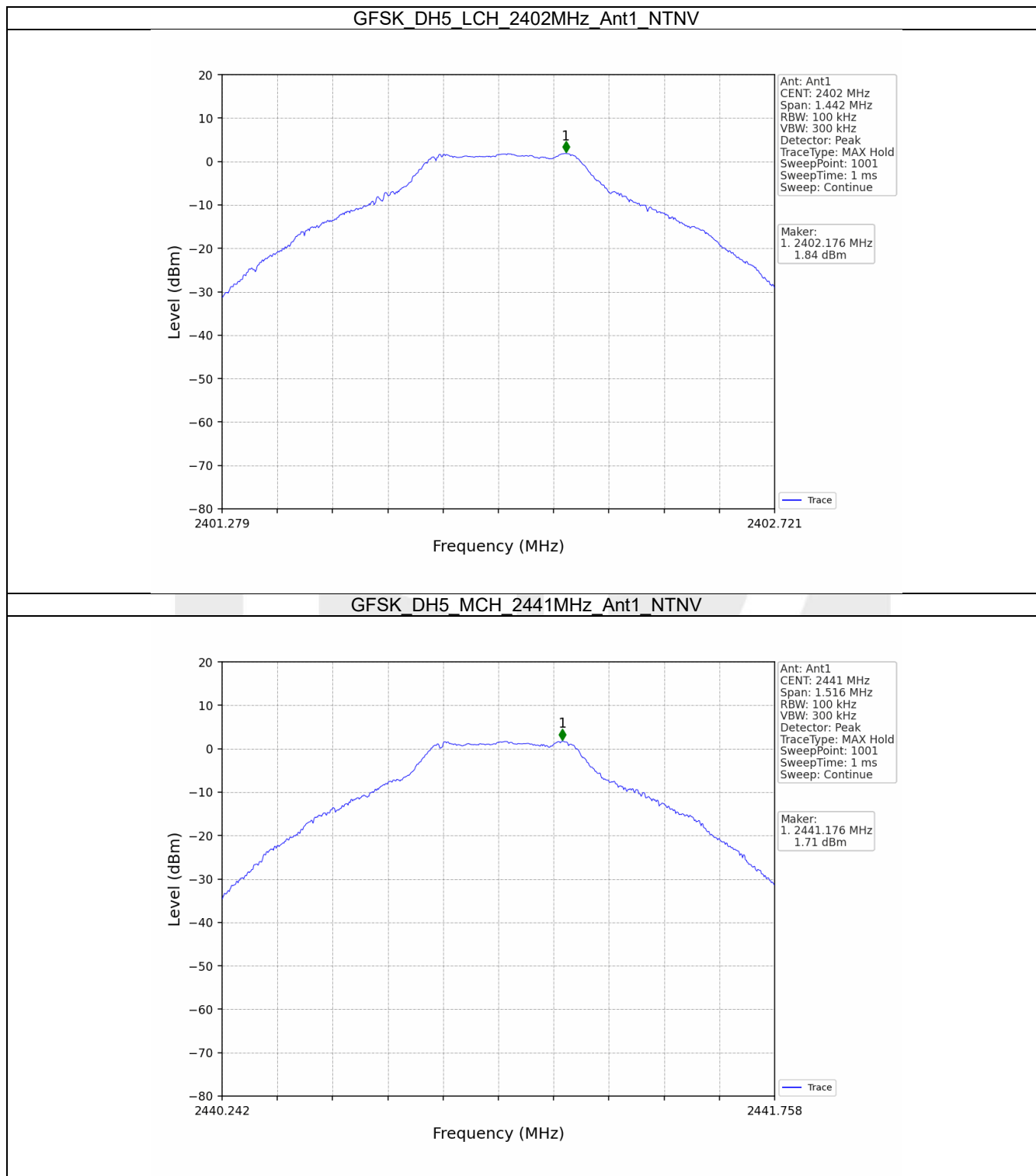
7.1 Ref

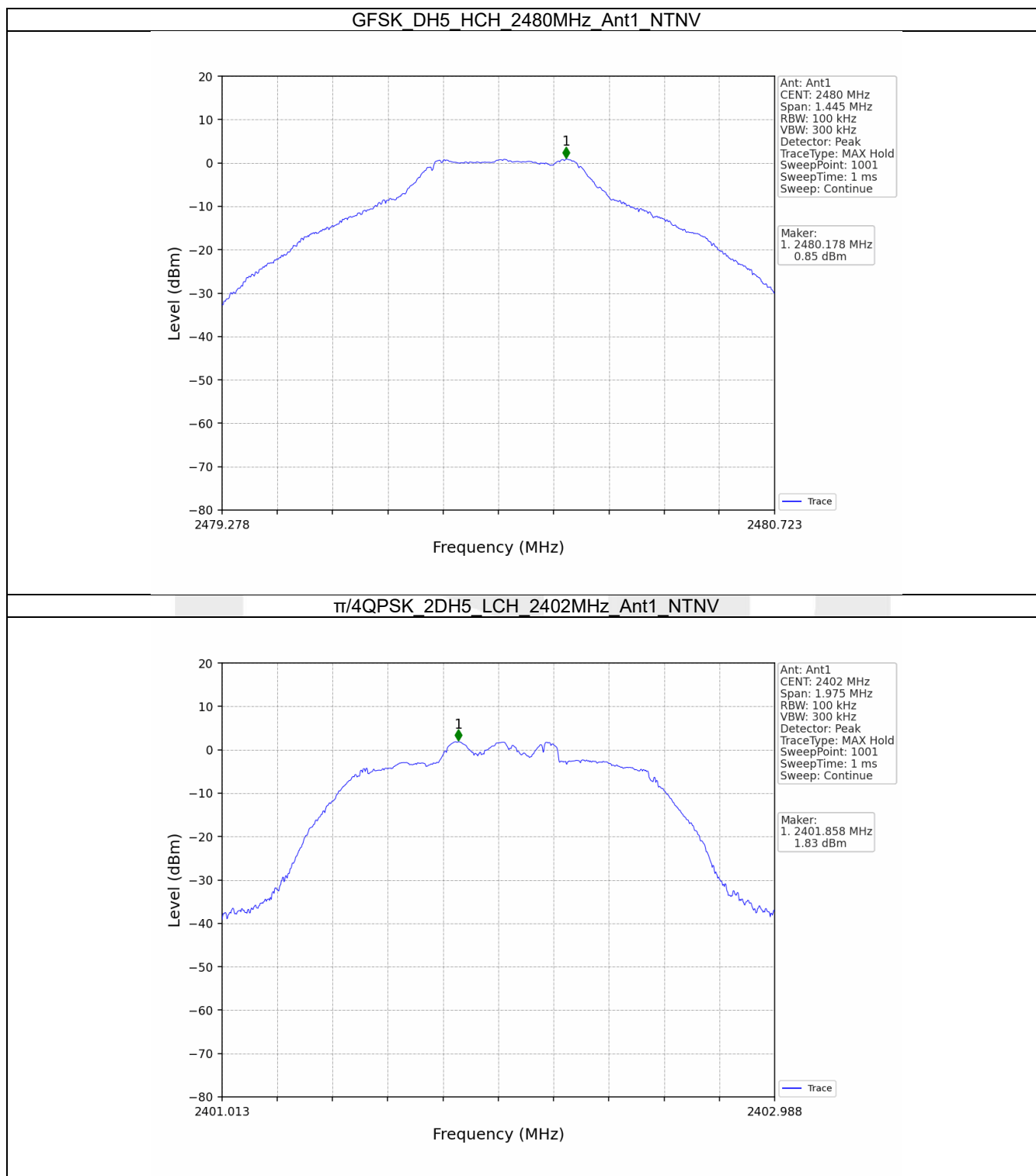
7.1.1 Test Result

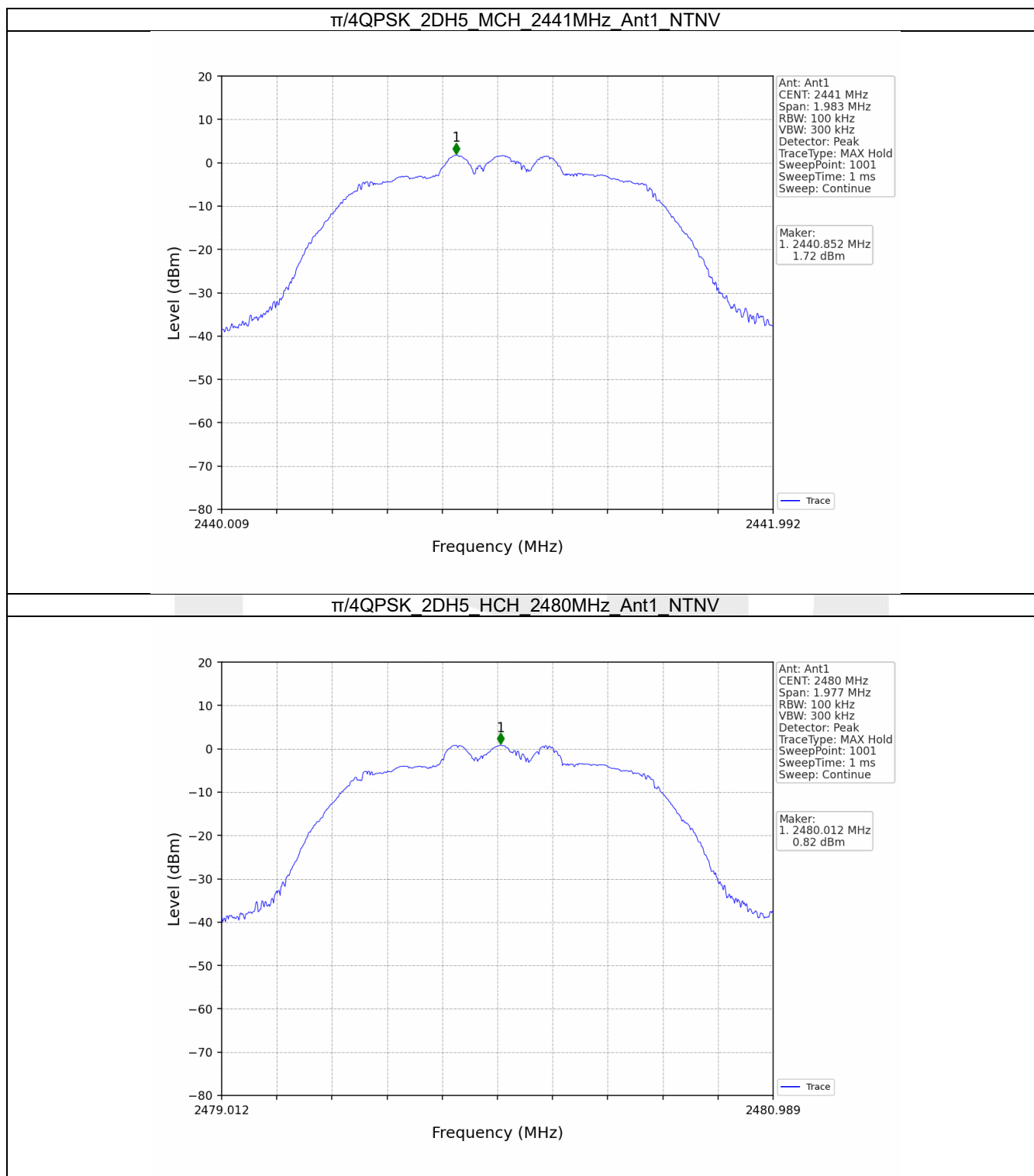
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	1.84
		2441	DH5	1	1.71
		2480	DH5	1	0.85
$\pi/4$ QPSK	SISO	2402	2DH5	1	1.83
		2441	2DH5	1	1.72
		2480	2DH5	1	0.82

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.

7.1.2 Test Graph





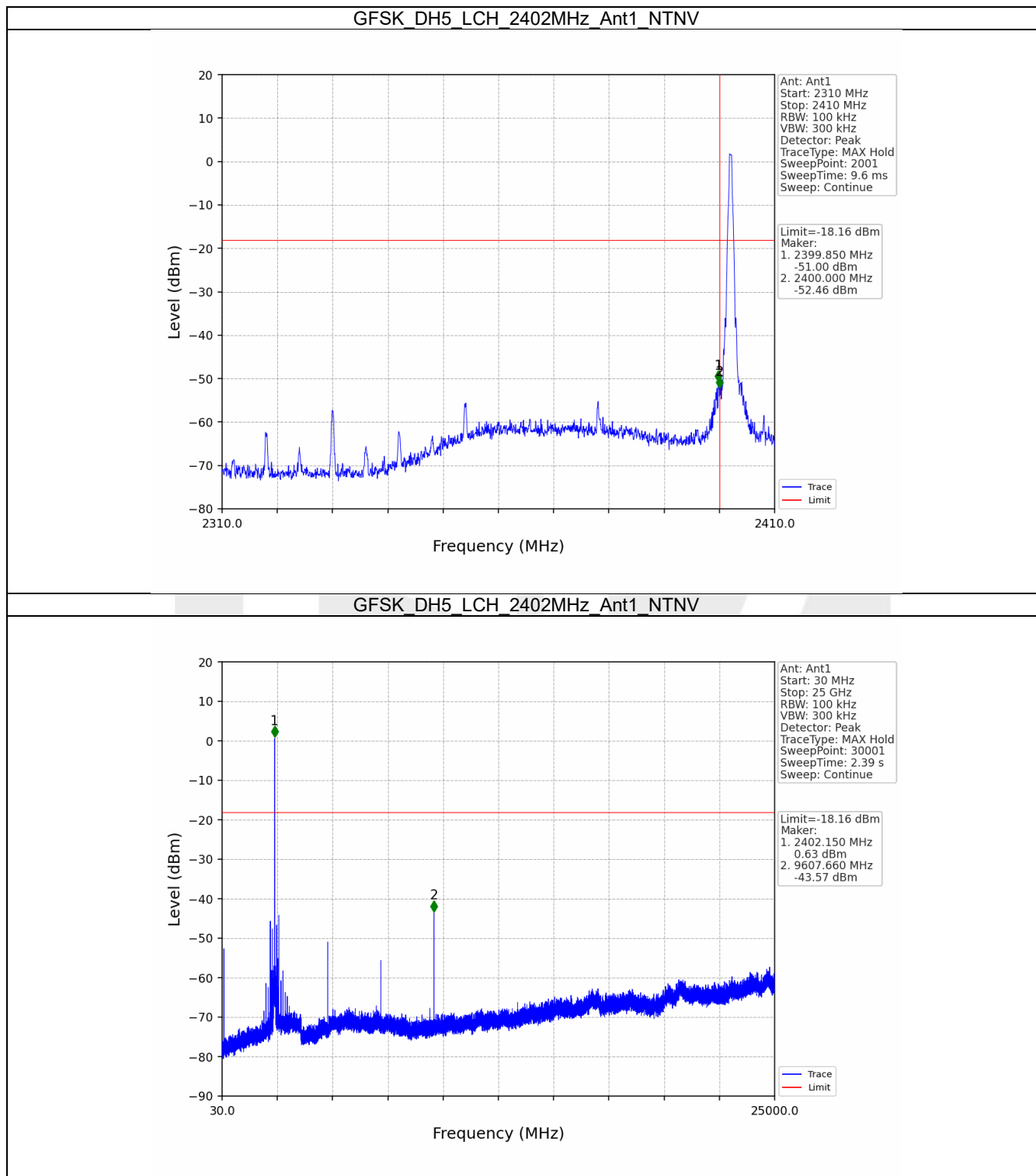


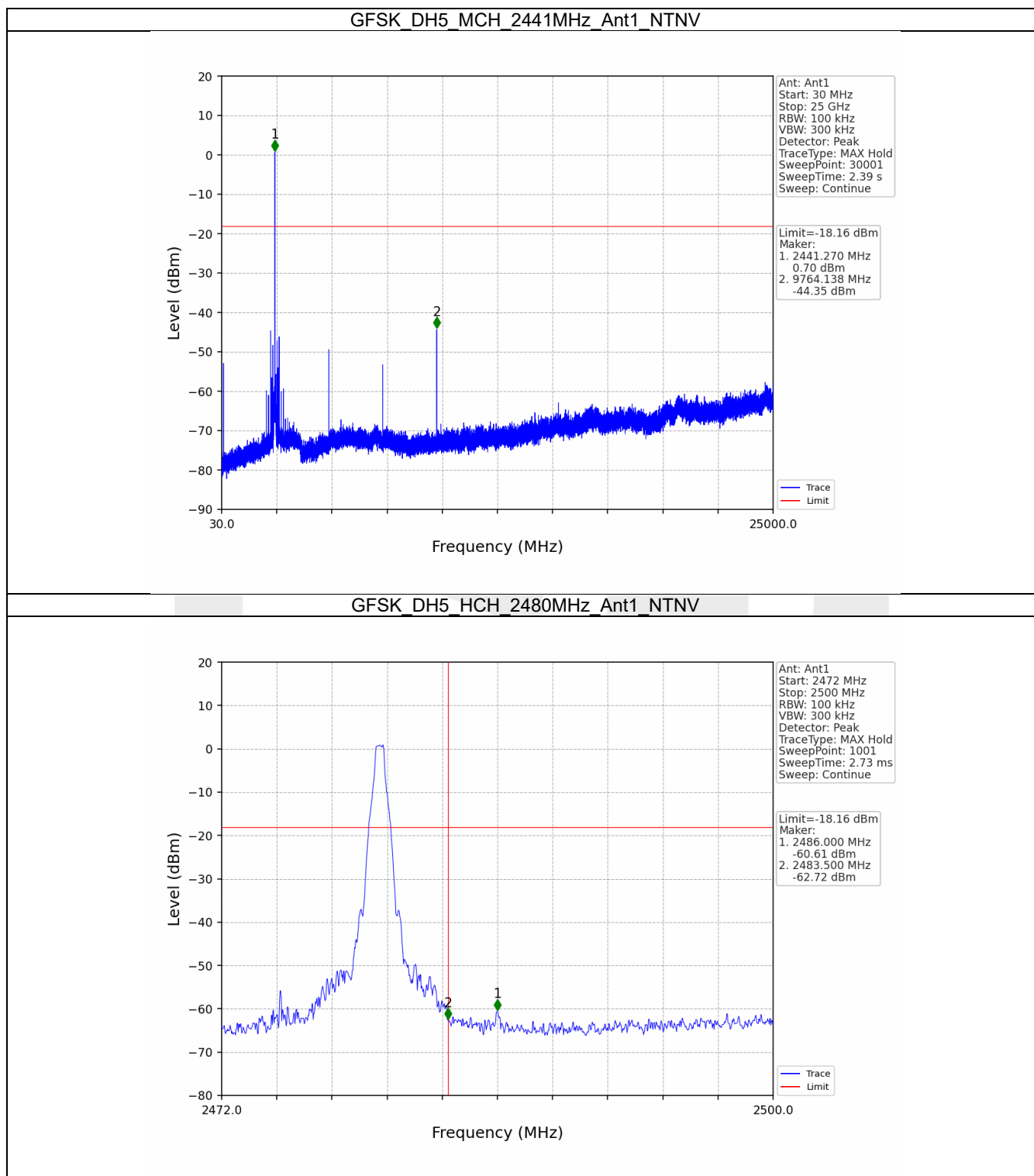
7.2 CSE

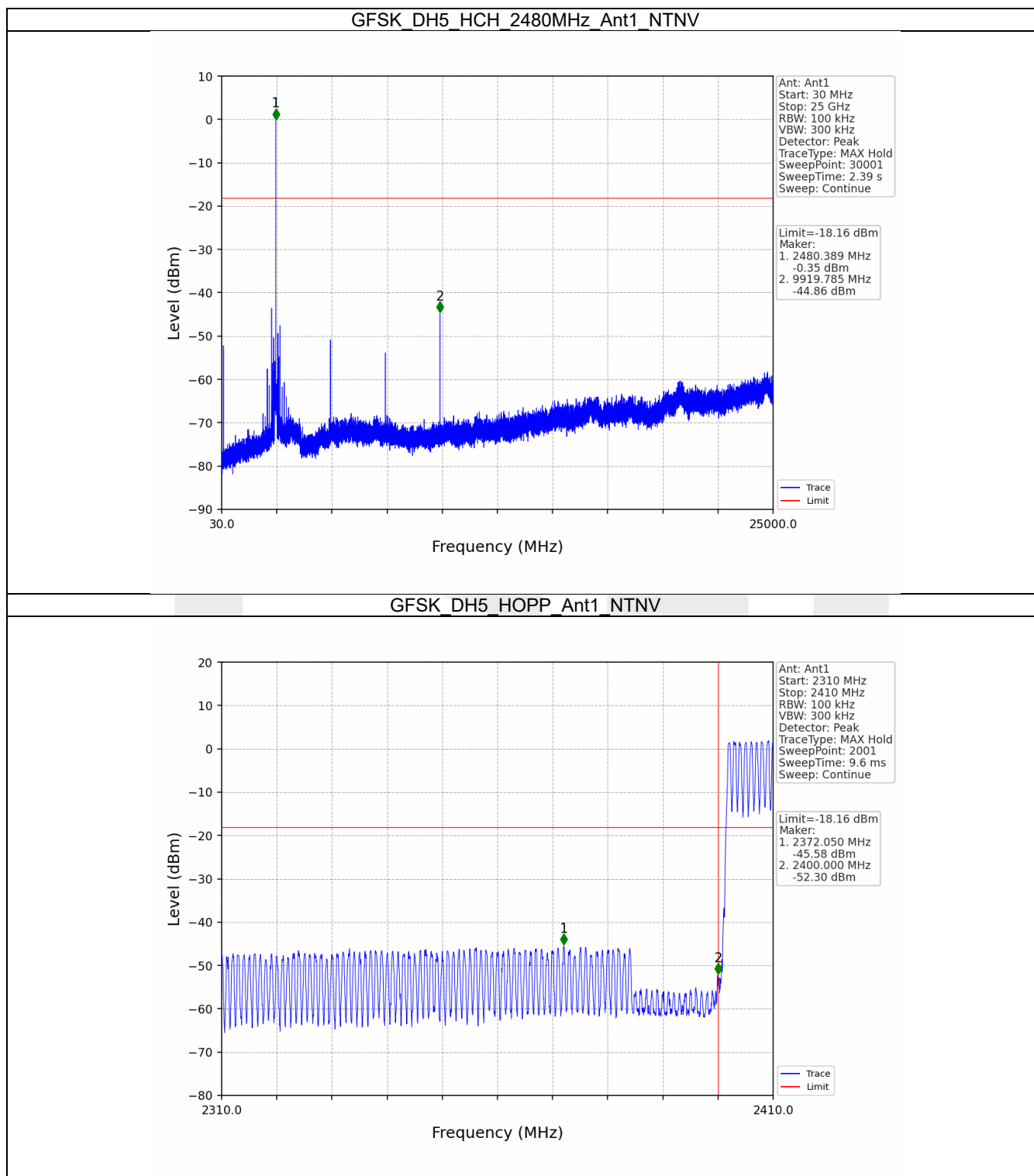
7.2.1 Test Result

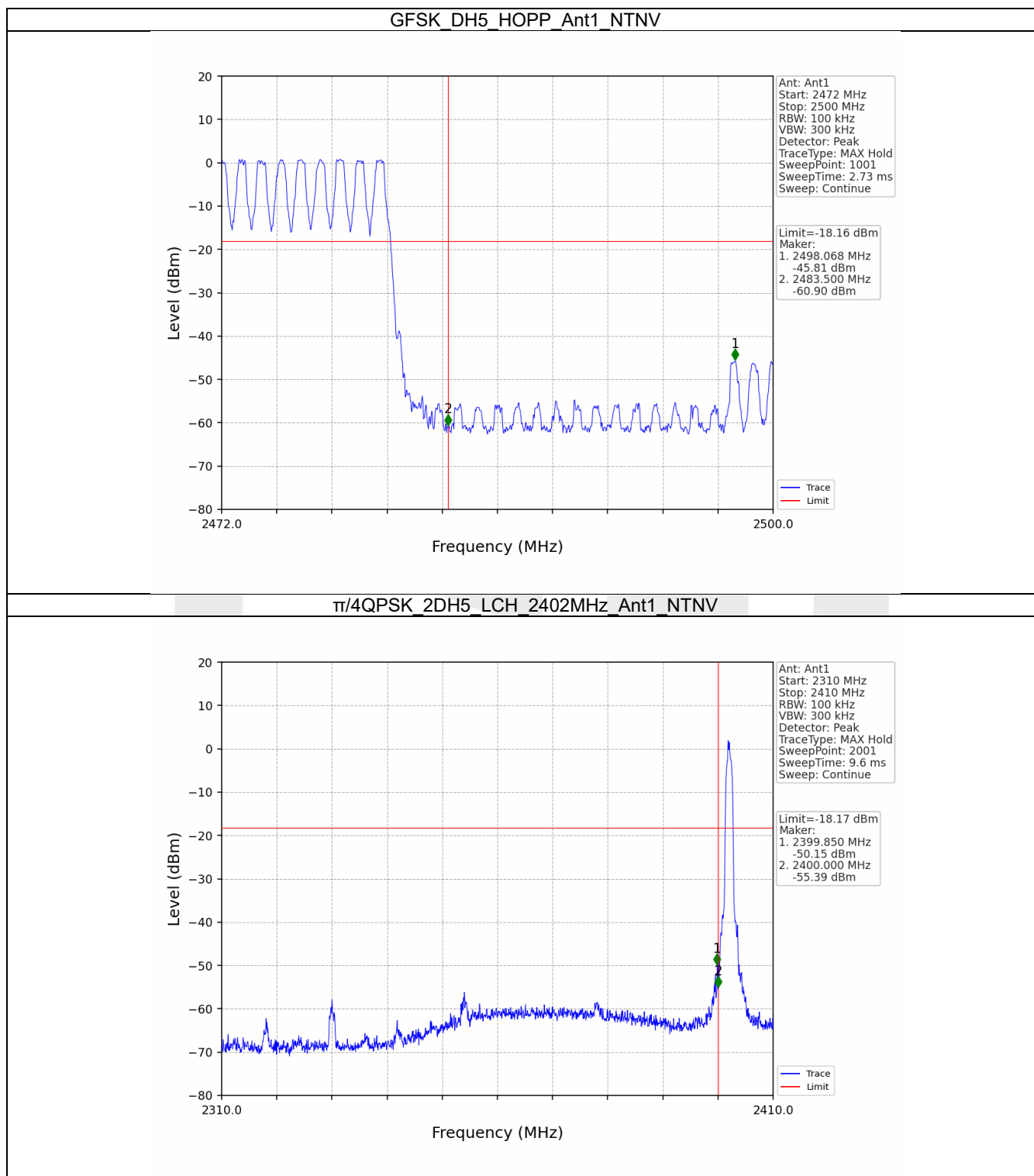
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	1.84	-18.16	Pass
		2441	DH5	1	1.84	-18.16	Pass
		2480	DH5	1	1.84	-18.16	Pass
		HOPP	DH5	1	1.84	-18.16	Pass
π/4QPSK	SISO	2402	2DH5	1	1.83	-18.17	Pass
		2441	2DH5	1	1.83	-18.17	Pass
		2480	2DH5	1	1.83	-18.17	Pass
		HOPP	2DH5	1	1.83	-18.17	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.							

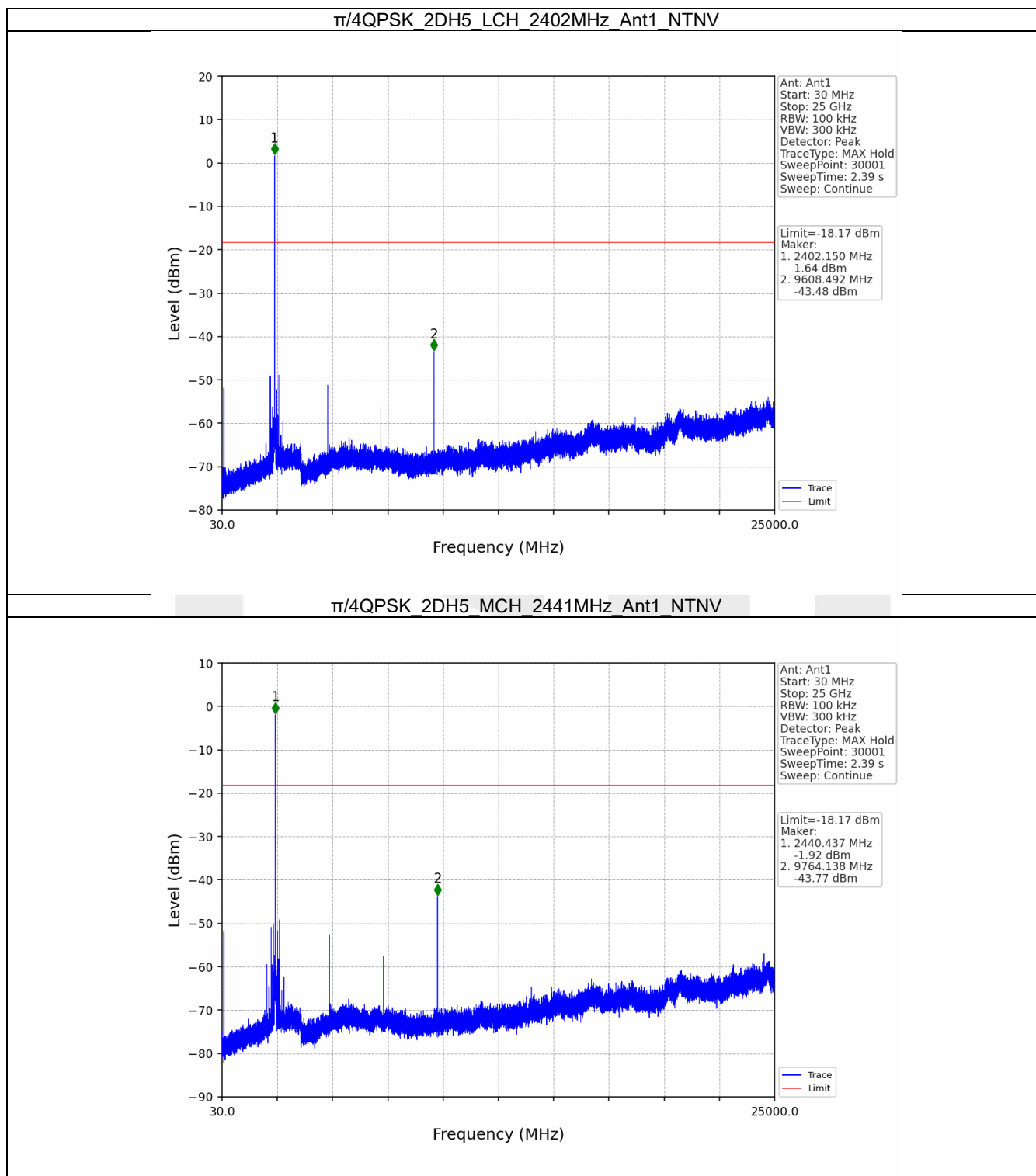
7.2.2 Test Graph

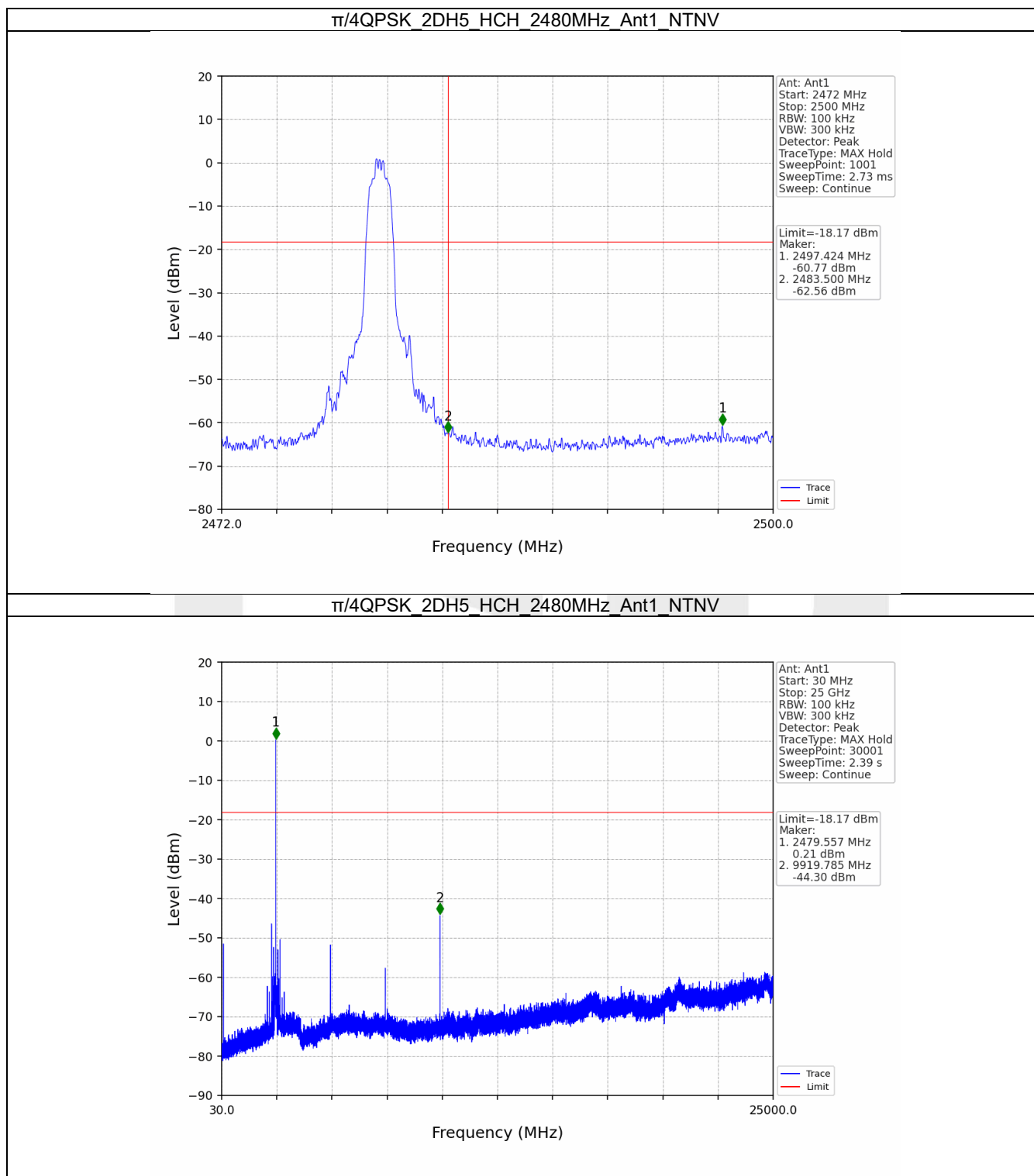


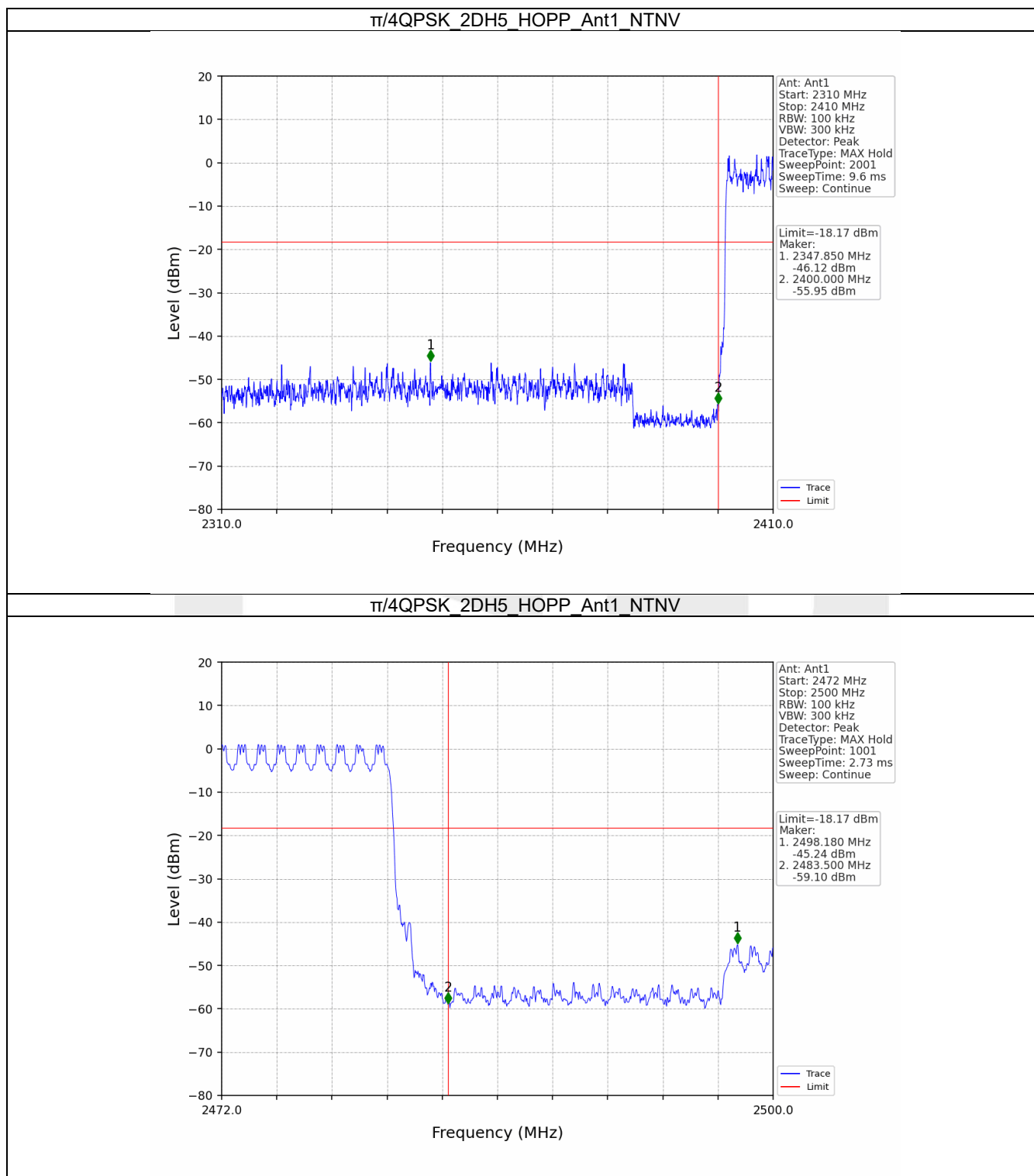












----- End of Report -----