



Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

Tel: +86-755-89486194 E-mail: ctl@ctl-lab.com

Annex for BT

Test Report No.: CTL2403197021-WF

TABLE OF CONTENTS

1. Bandwidth	2
2. Maximum Conducted Output Power	14
3. Carrier Frequency Separation	20
4. Number of Hopping Frequencies	23
5. Time of Occupancy (Dwell Time)	26
6. Unwanted Emissions In Non-restricted Frequency Bands	36

FCCID: Q8W-T11

1. Bandwidth

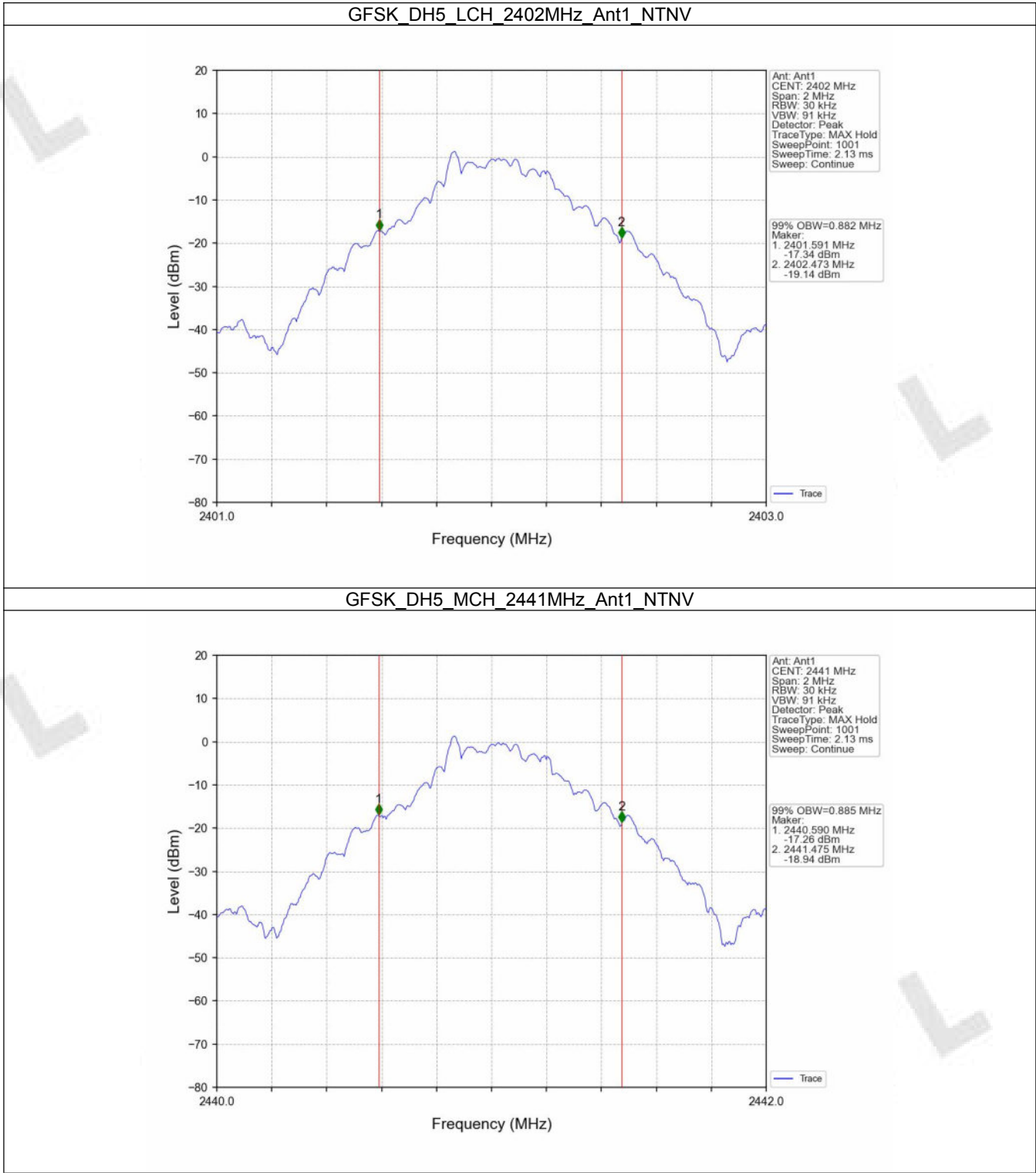
1.1 OBW

1.1.1 Test Result

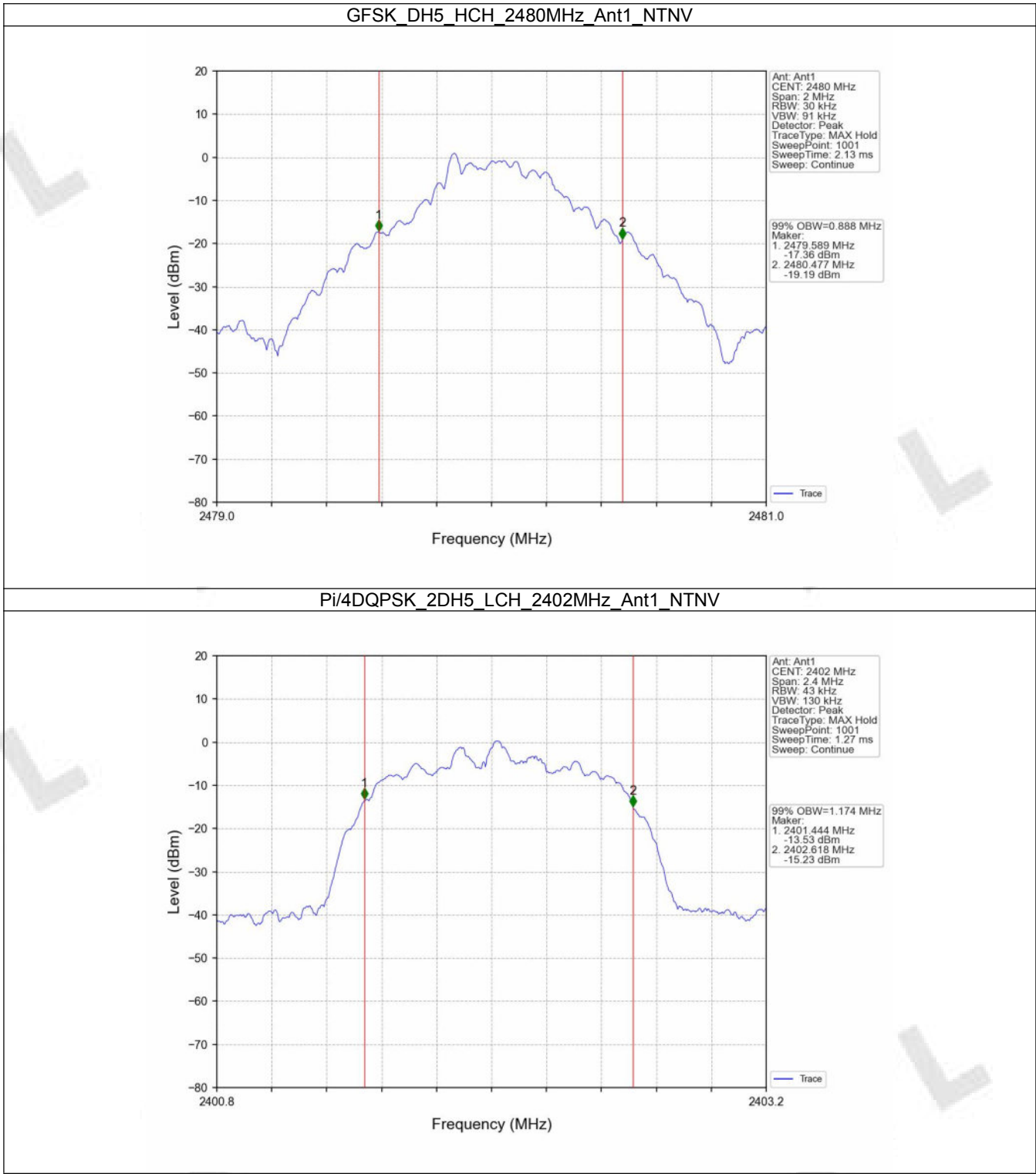
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.882	/	Pass
		2441	DH5	1	0.885	/	Pass
		2480	DH5	1	0.888	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.174	/	Pass
		2441	2DH5	1	1.177	/	Pass
		2480	2DH5	1	1.172	/	Pass
8DPSK	SISO	2402	3DH5	1	1.170	/	Pass
		2441	3DH5	1	1.168	/	Pass
		2480	3DH5	1	1.169	/	Pass

FCCID: Q8W-T11

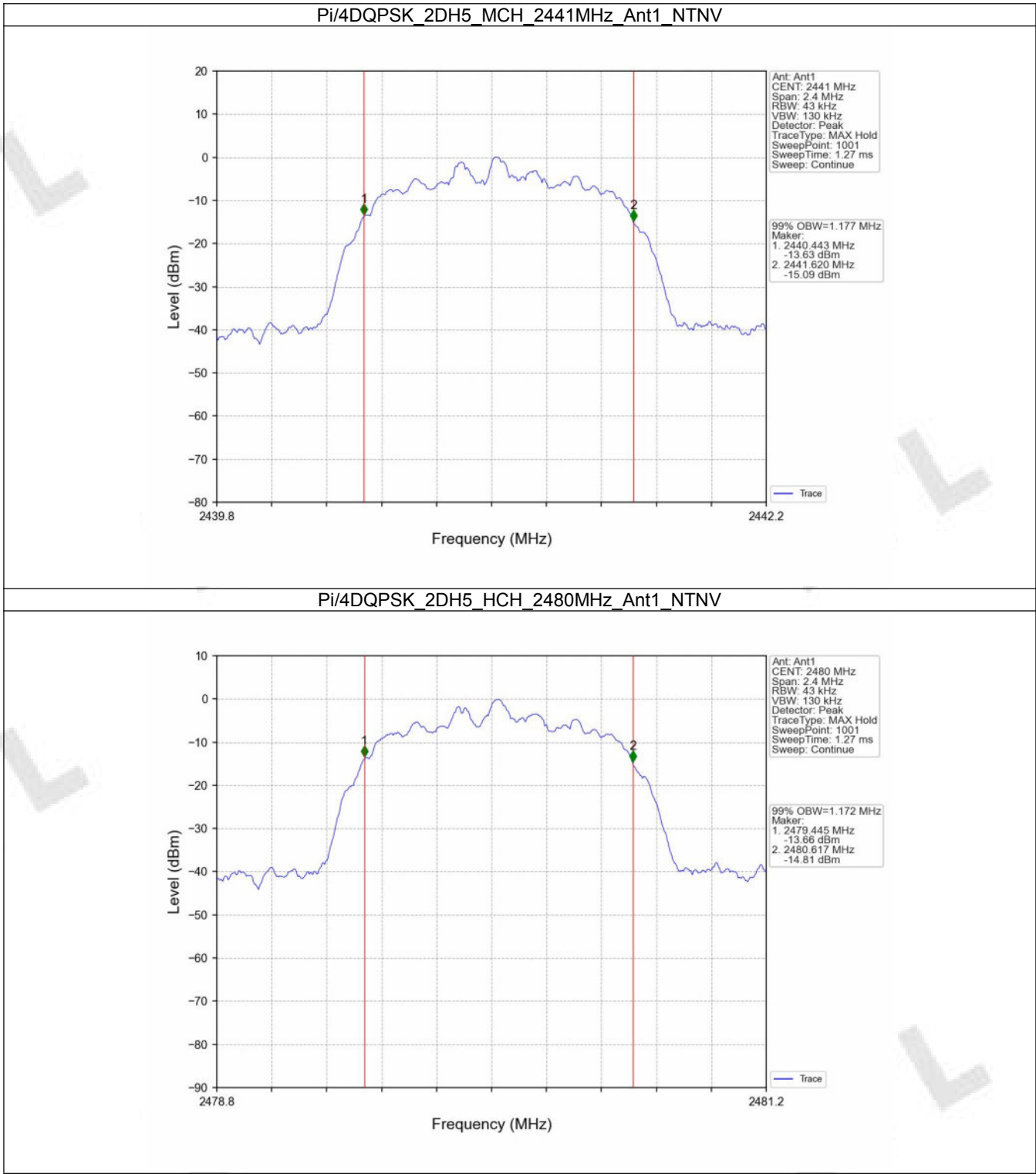
1.1.2 Test Graph



FCCID: Q8W-T11

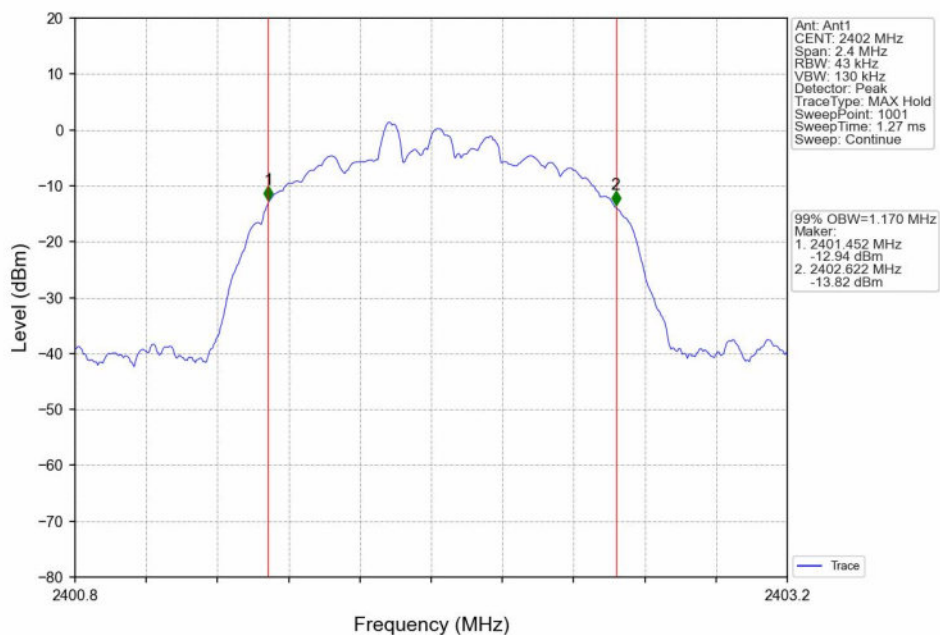


FCCID: Q8W-T11

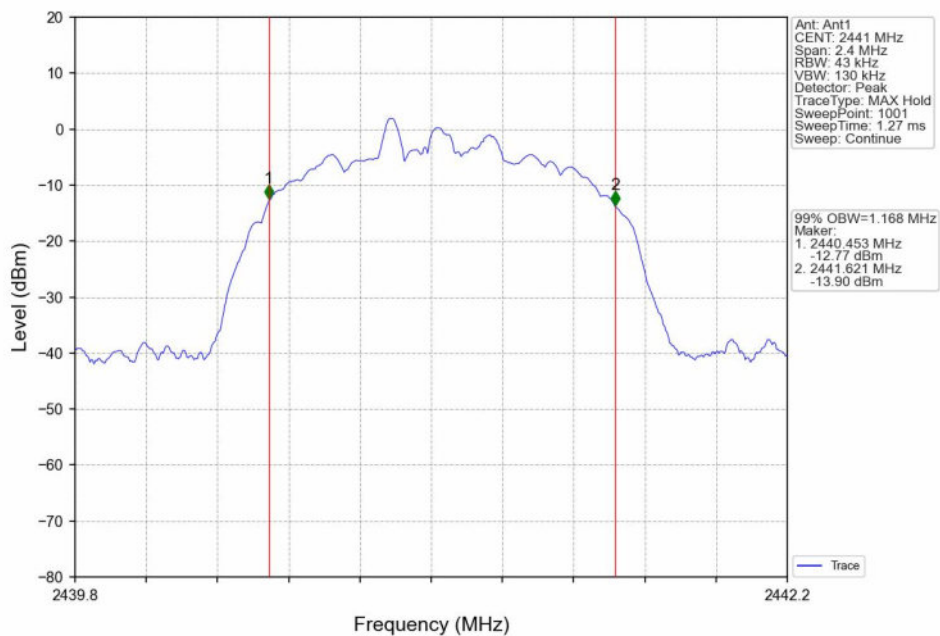


FCCID: Q8W-T11

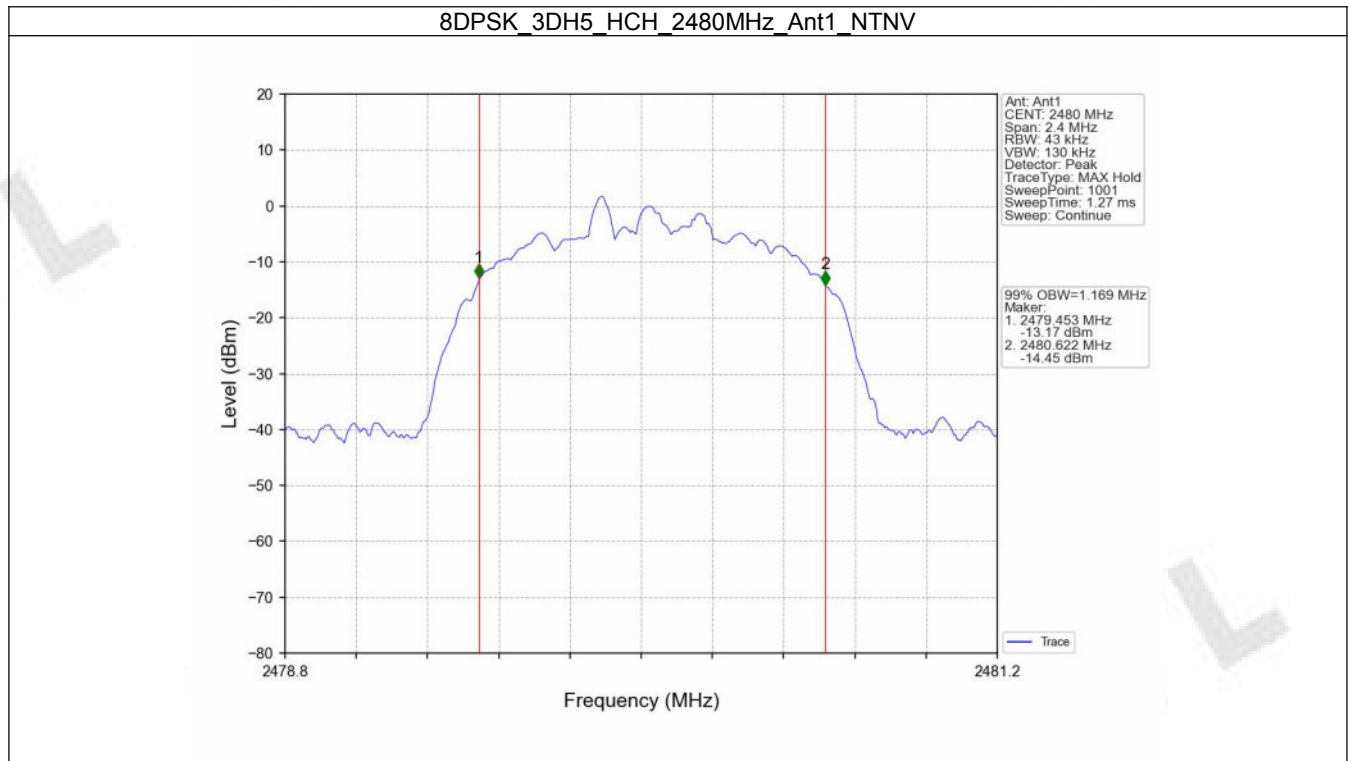
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



FCCID: Q8W-T11



FCCID: Q8W-T11

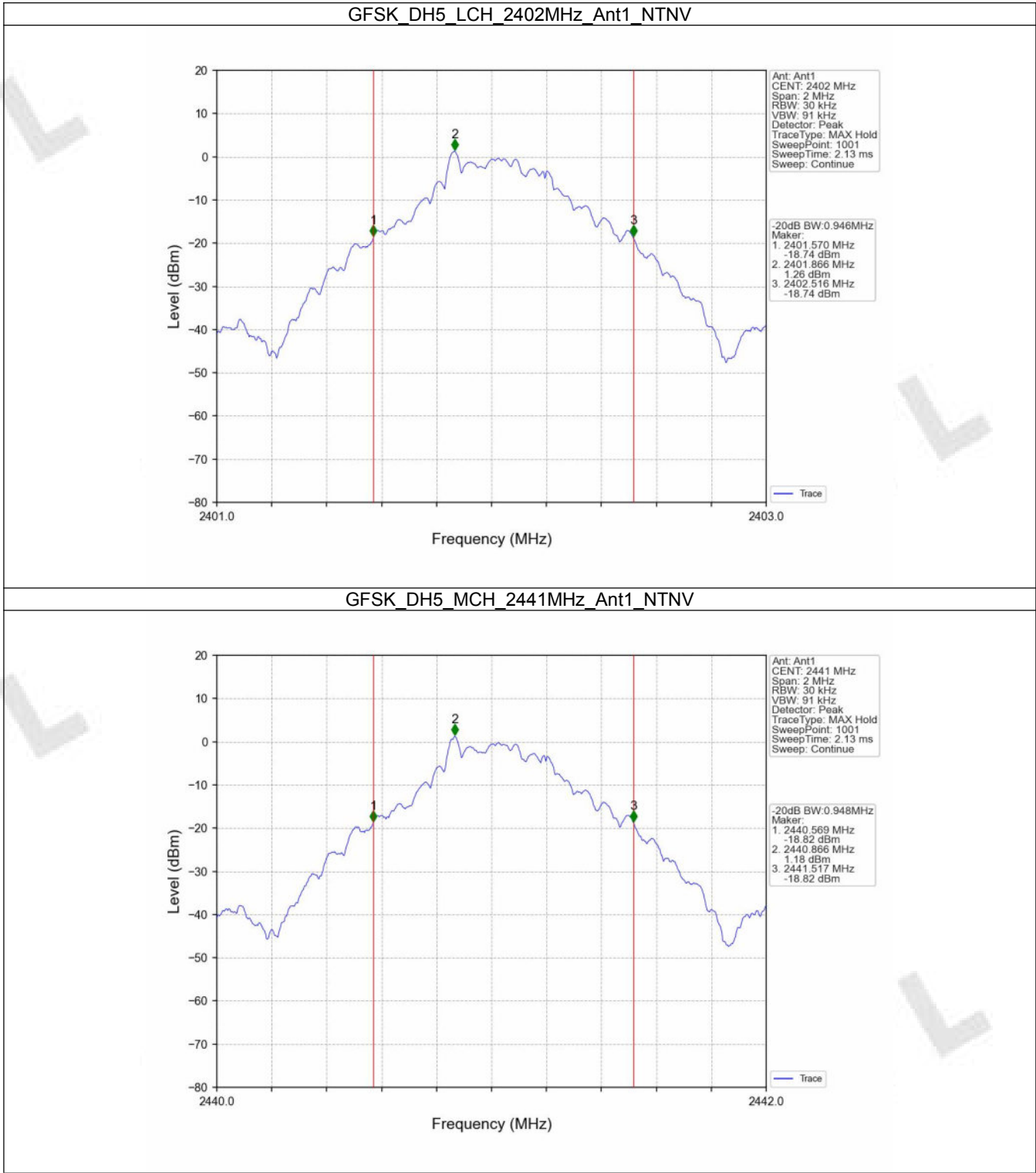
1.2 20dB BW

1.2.1 Test Result

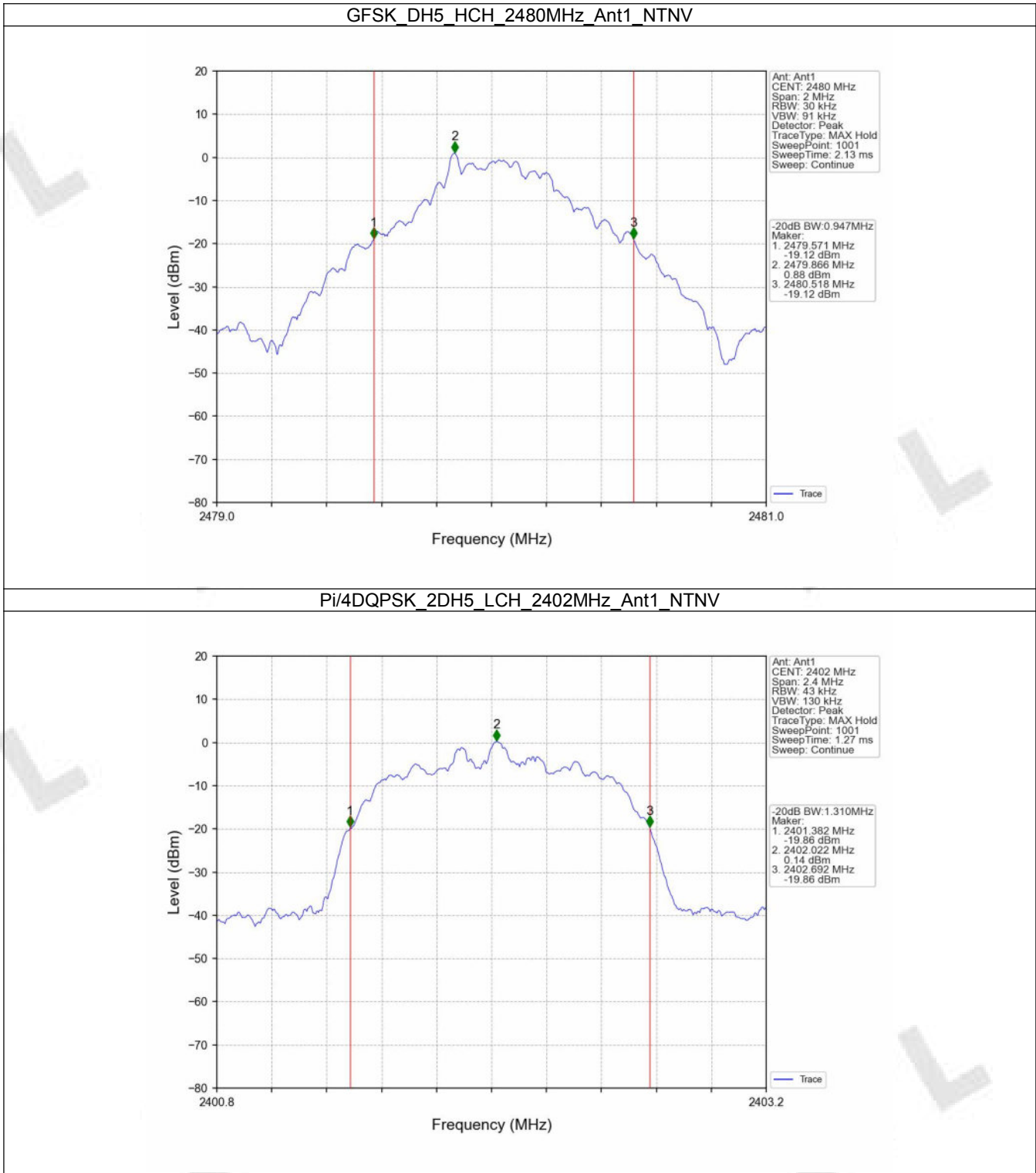
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.946	/	Pass
		2441	DH5	1	0.948	/	Pass
		2480	DH5	1	0.947	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.310	/	Pass
		2441	2DH5	1	1.300	/	Pass
		2480	2DH5	1	1.307	/	Pass
8DPSK	SISO	2402	3DH5	1	1.290	/	Pass
		2441	3DH5	1	1.294	/	Pass
		2480	3DH5	1	1.294	/	Pass

FCCID: Q8W-T11

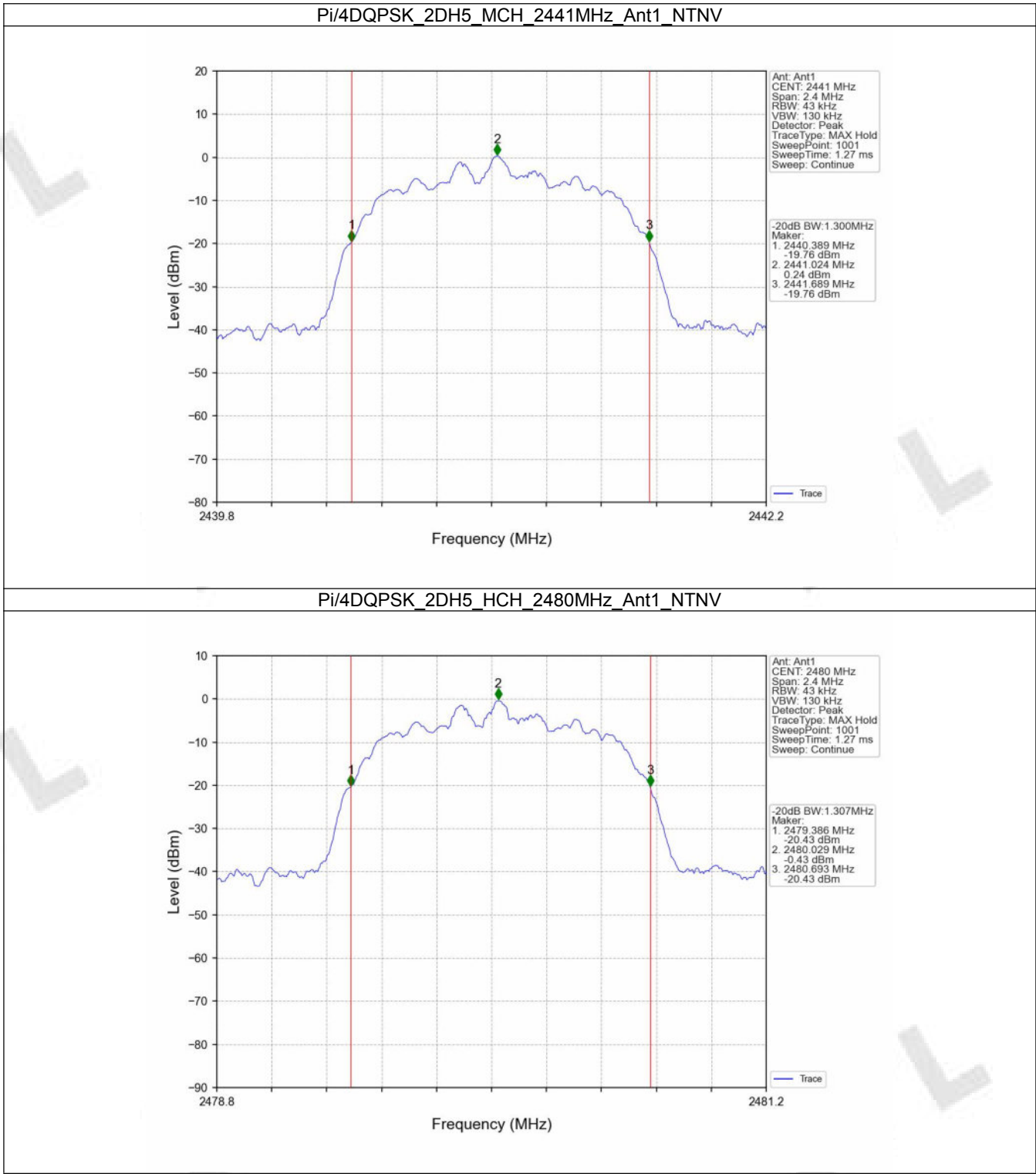
1.2.2 Test Graph



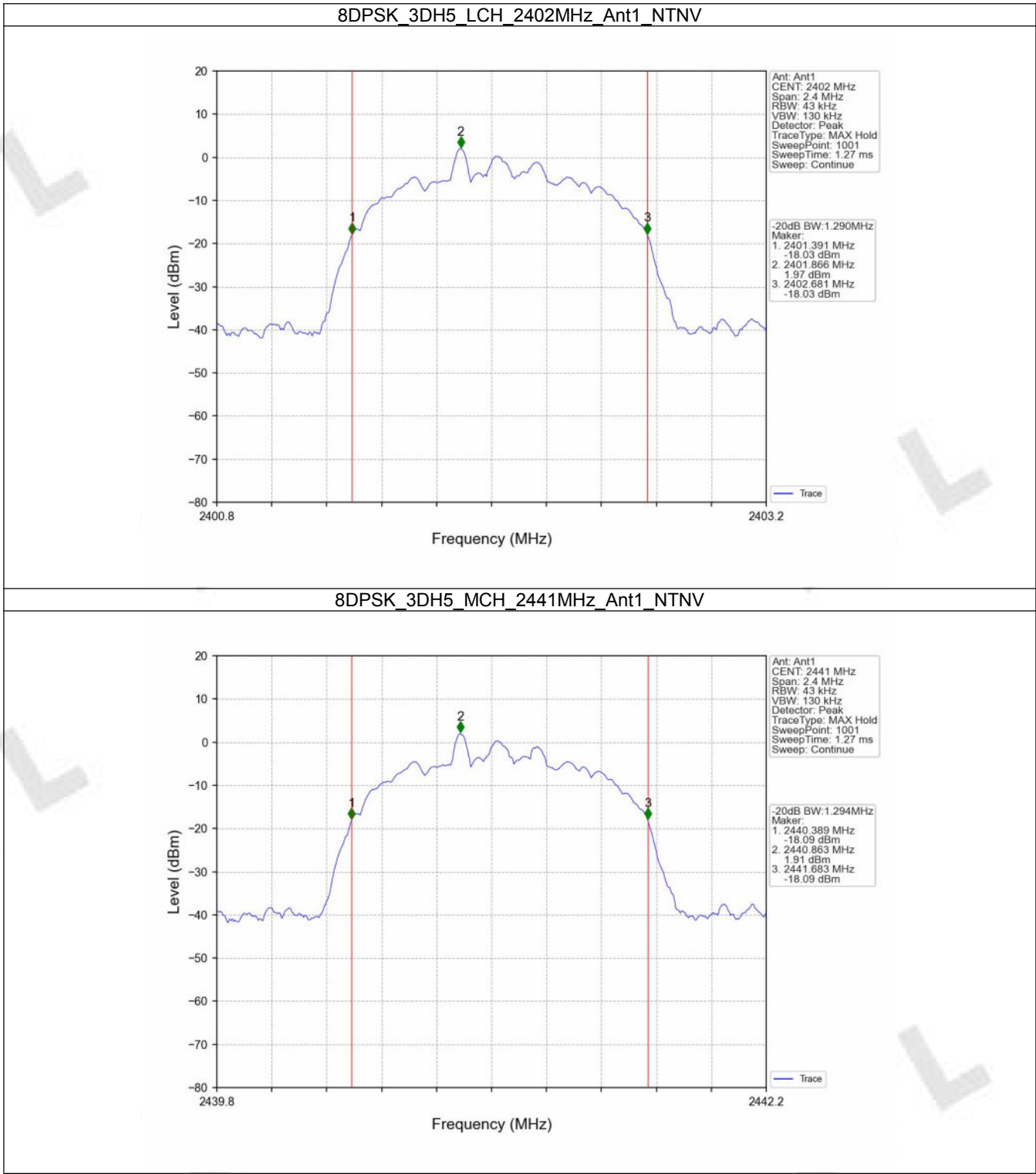
FCCID: Q8W-T11



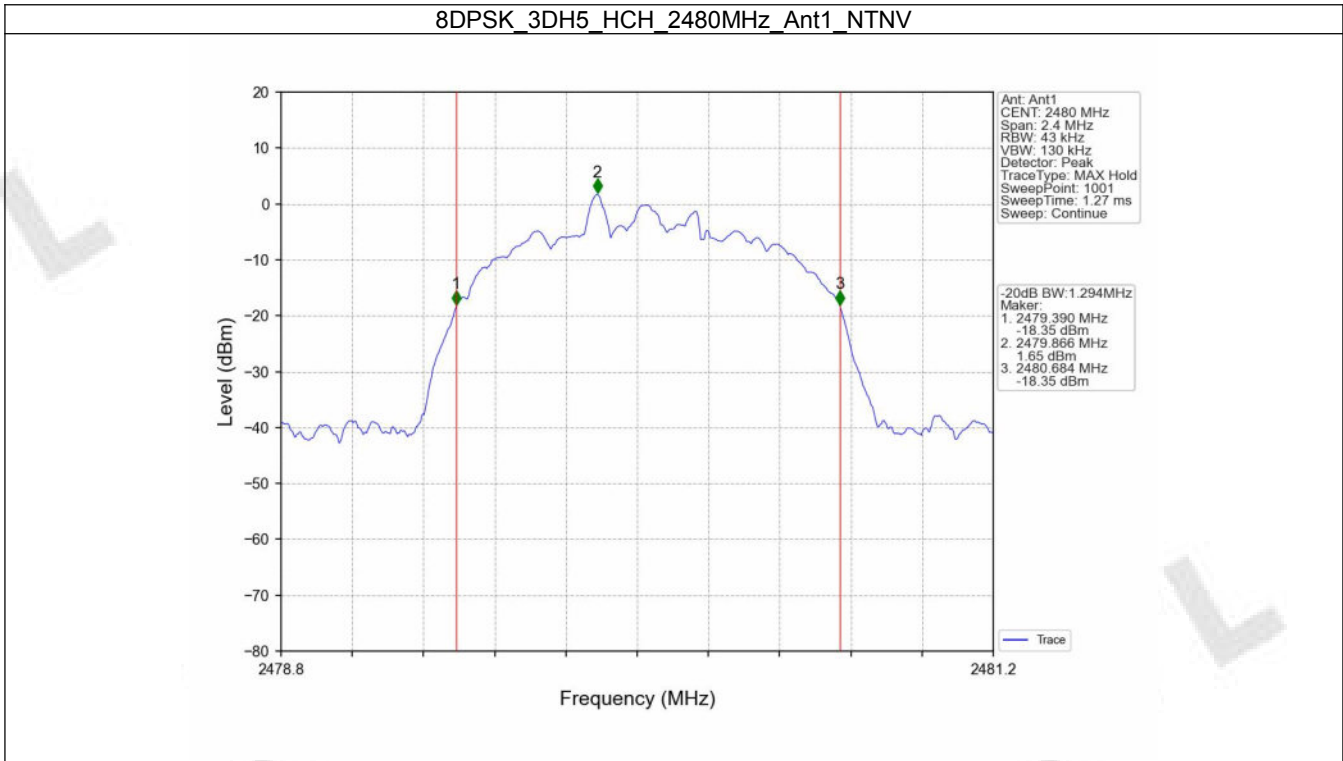
FCCID: Q8W-T11



FCCID: Q8W-T11



FCCID: Q8W-T11



2. Maximum Conducted Output Power

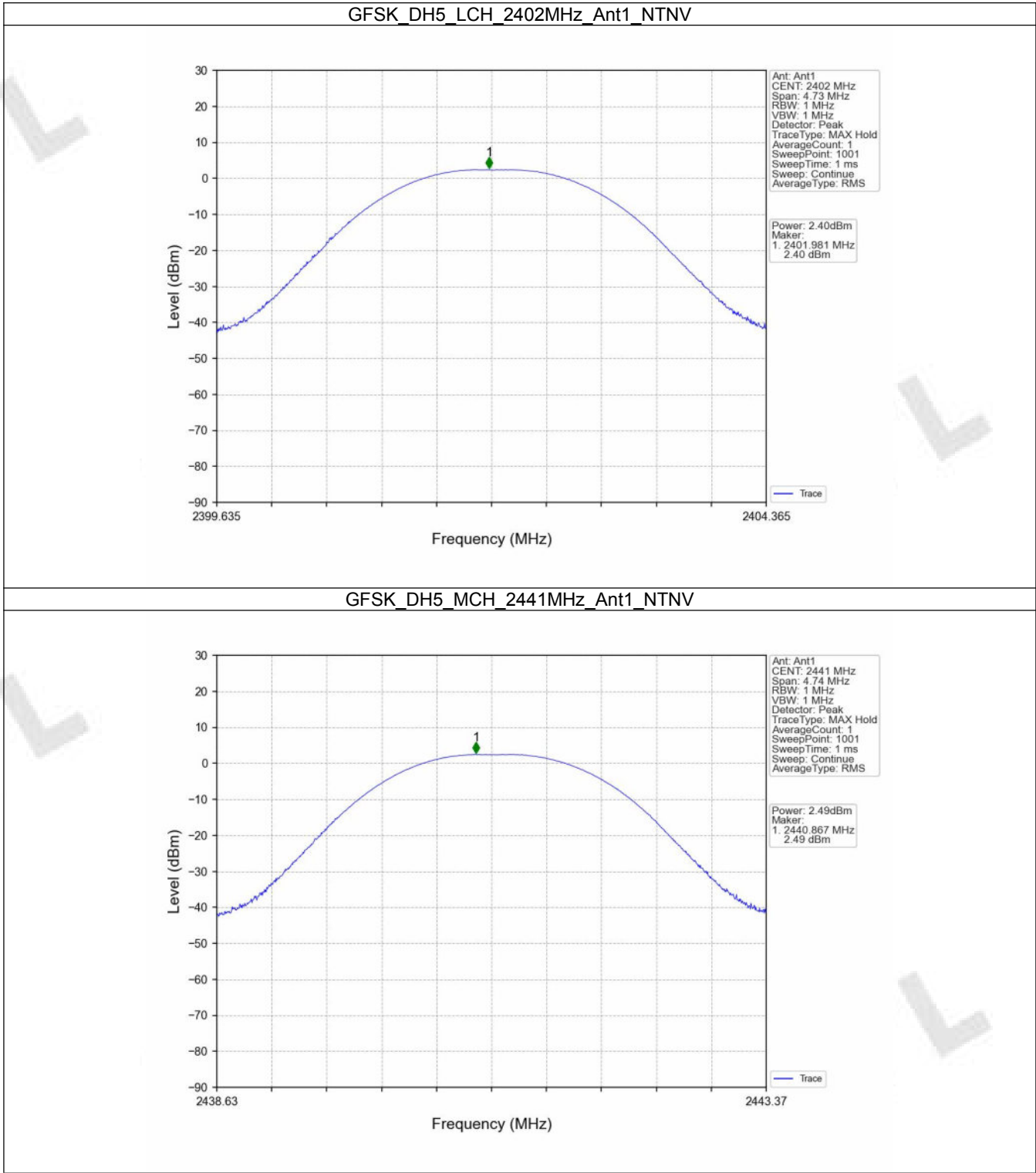
2.1 Power

2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	2.40	<=30	Pass
		2441	DH5	2.49	<=30	Pass
		2480	DH5	2.12	<=30	Pass
Pi/4DQPSK	SISO	2402	2DH5	3.08	<=20.97	Pass
		2441	2DH5	3.06	<=20.97	Pass
		2480	2DH5	2.67	<=20.97	Pass
8DPSK	SISO	2402	3DH5	3.39	<=20.97	Pass
		2441	3DH5	3.47	<=20.97	Pass
		2480	3DH5	3.13	<=20.97	Pass
Note1: Antenna Gain: Ant1: 0.00dBi;						

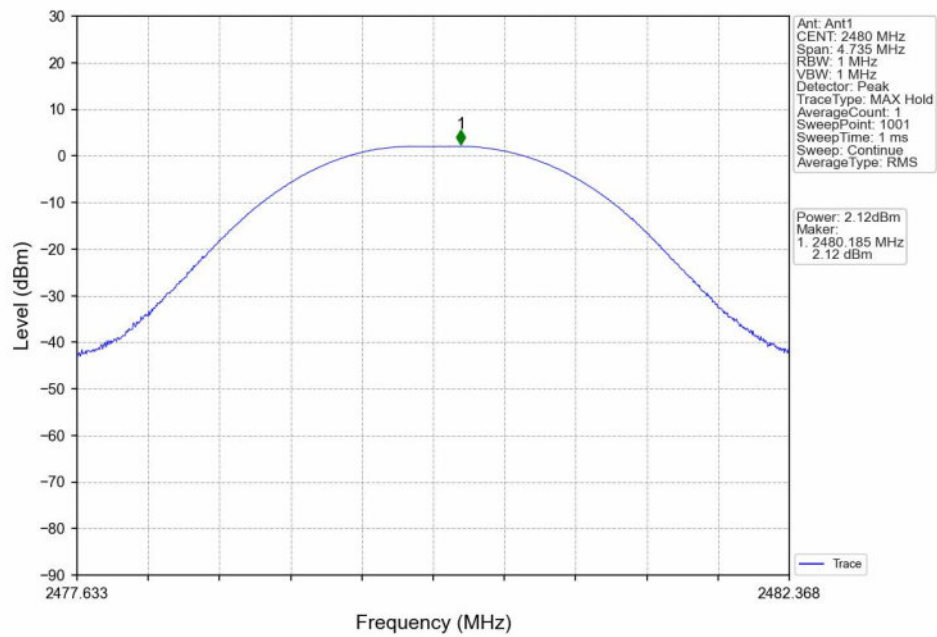
FCCID: Q8W-T11

2.1.2 Test Graph

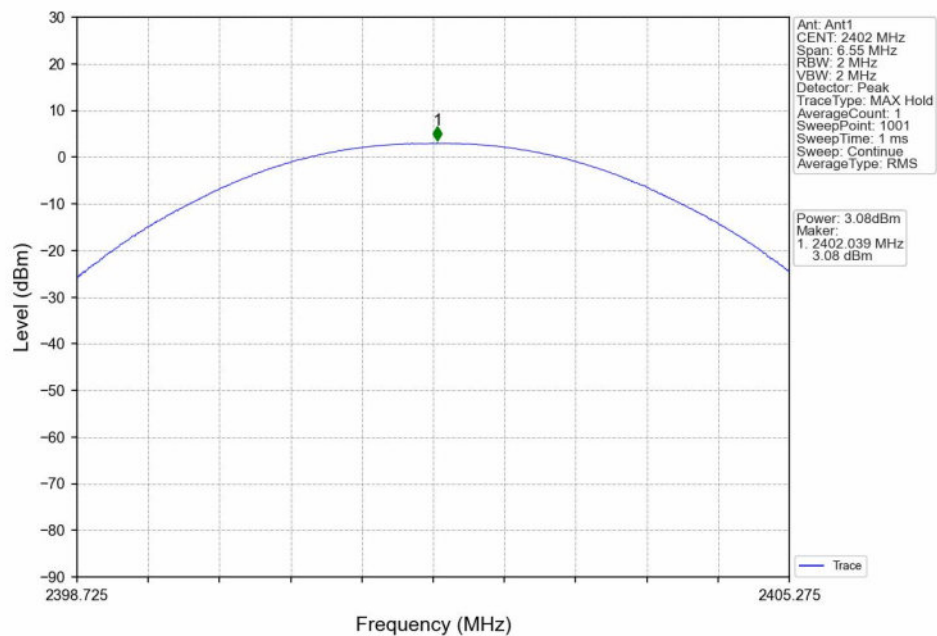


FCCID: Q8W-T11

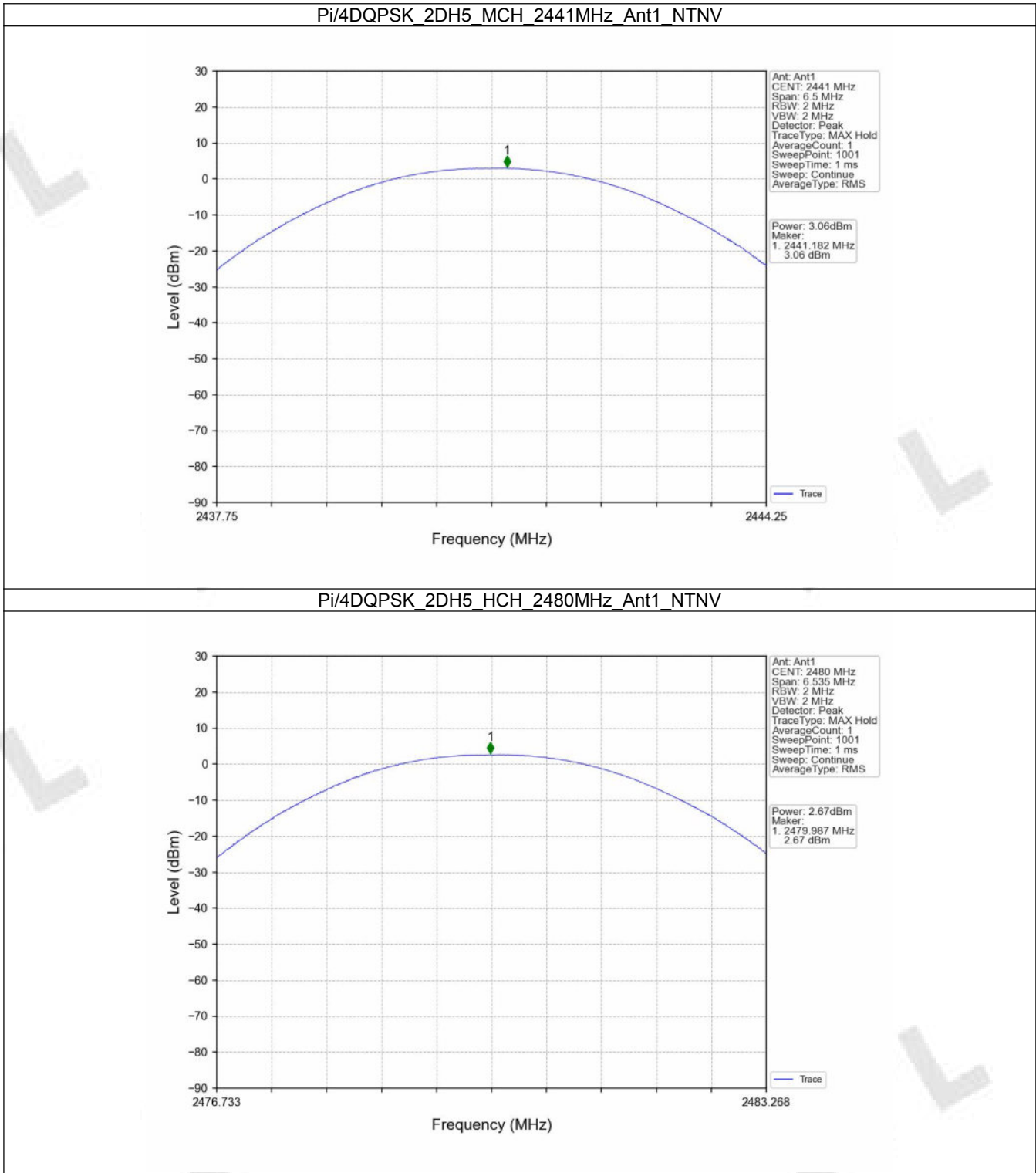
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



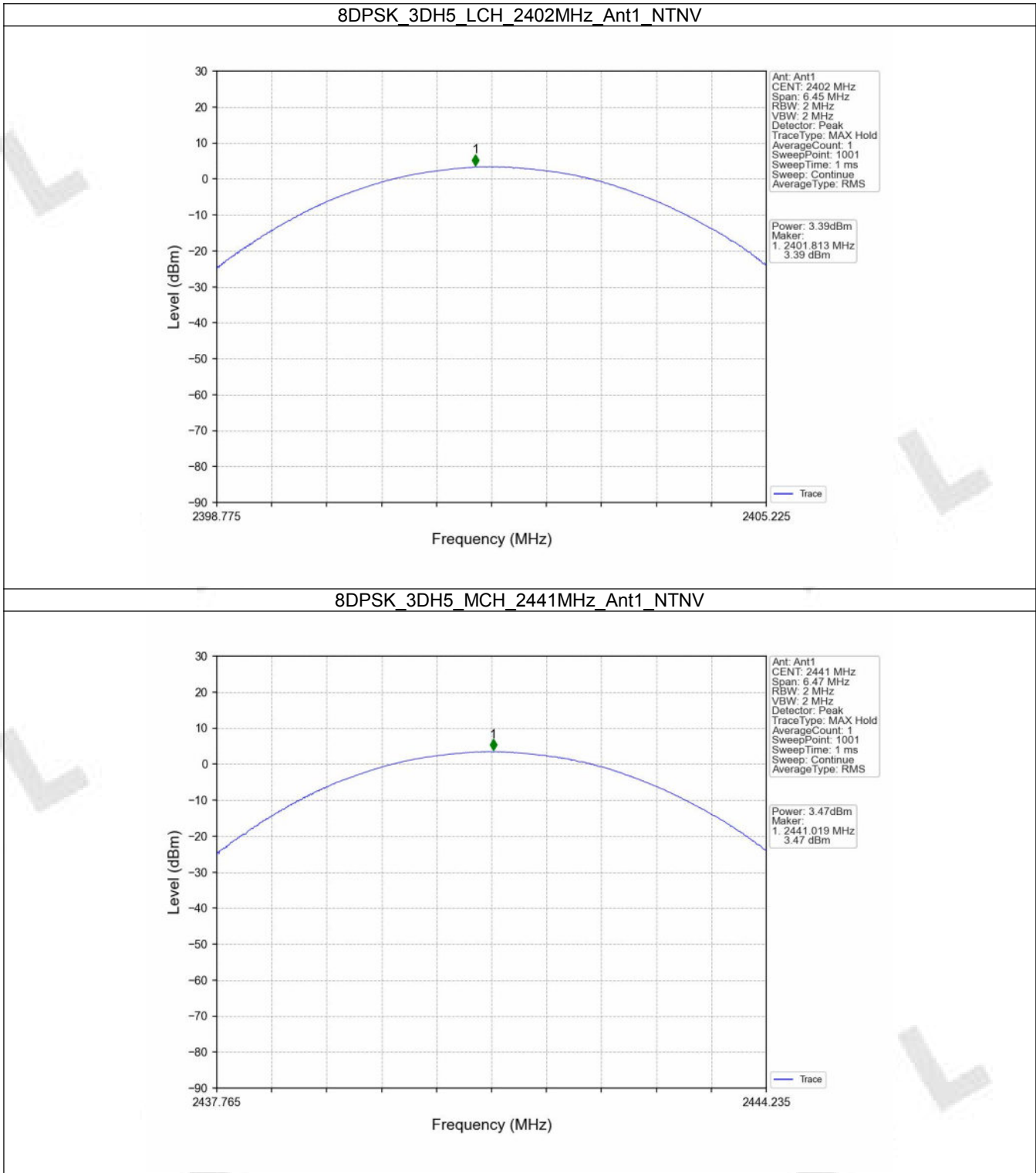
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



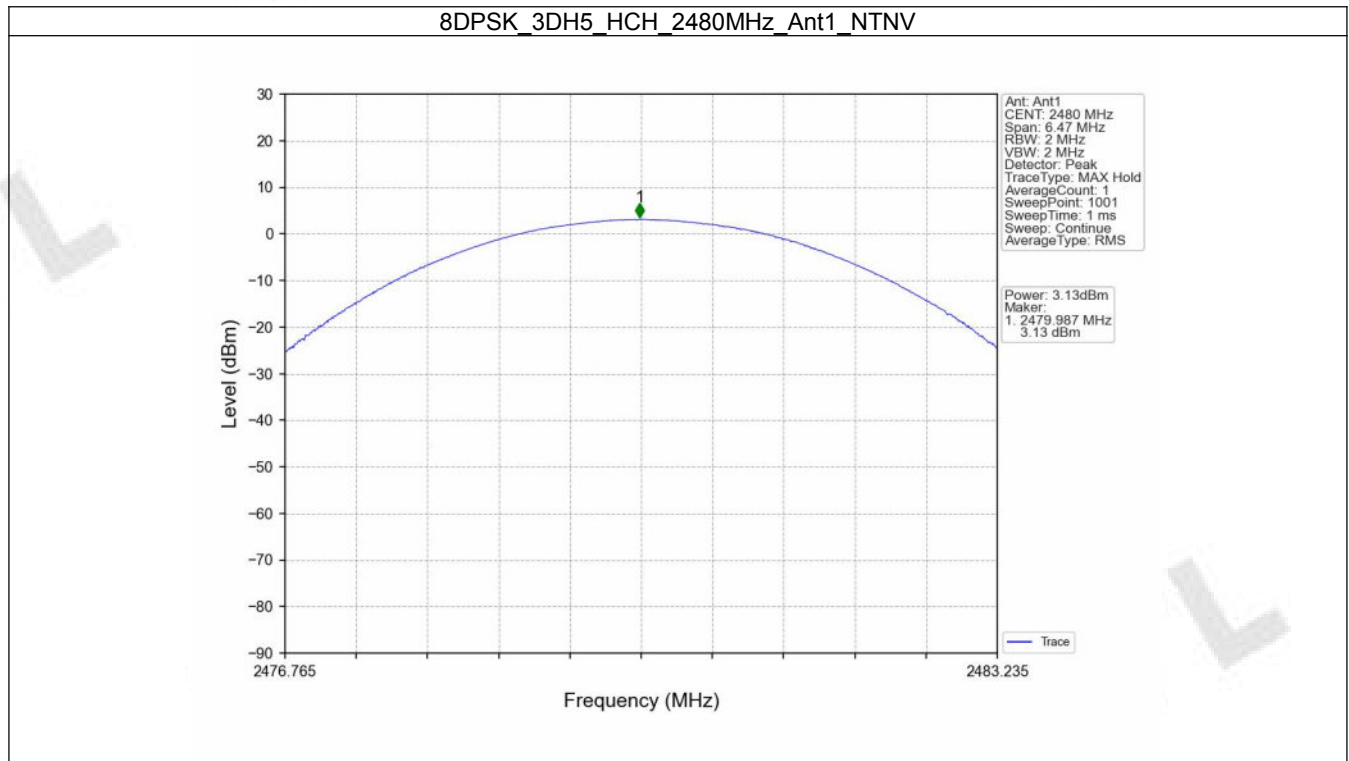
FCCID: Q8W-T11



FCCID: Q8W-T11



FCCID: Q8W-T11



3. Carrier Frequency Separation

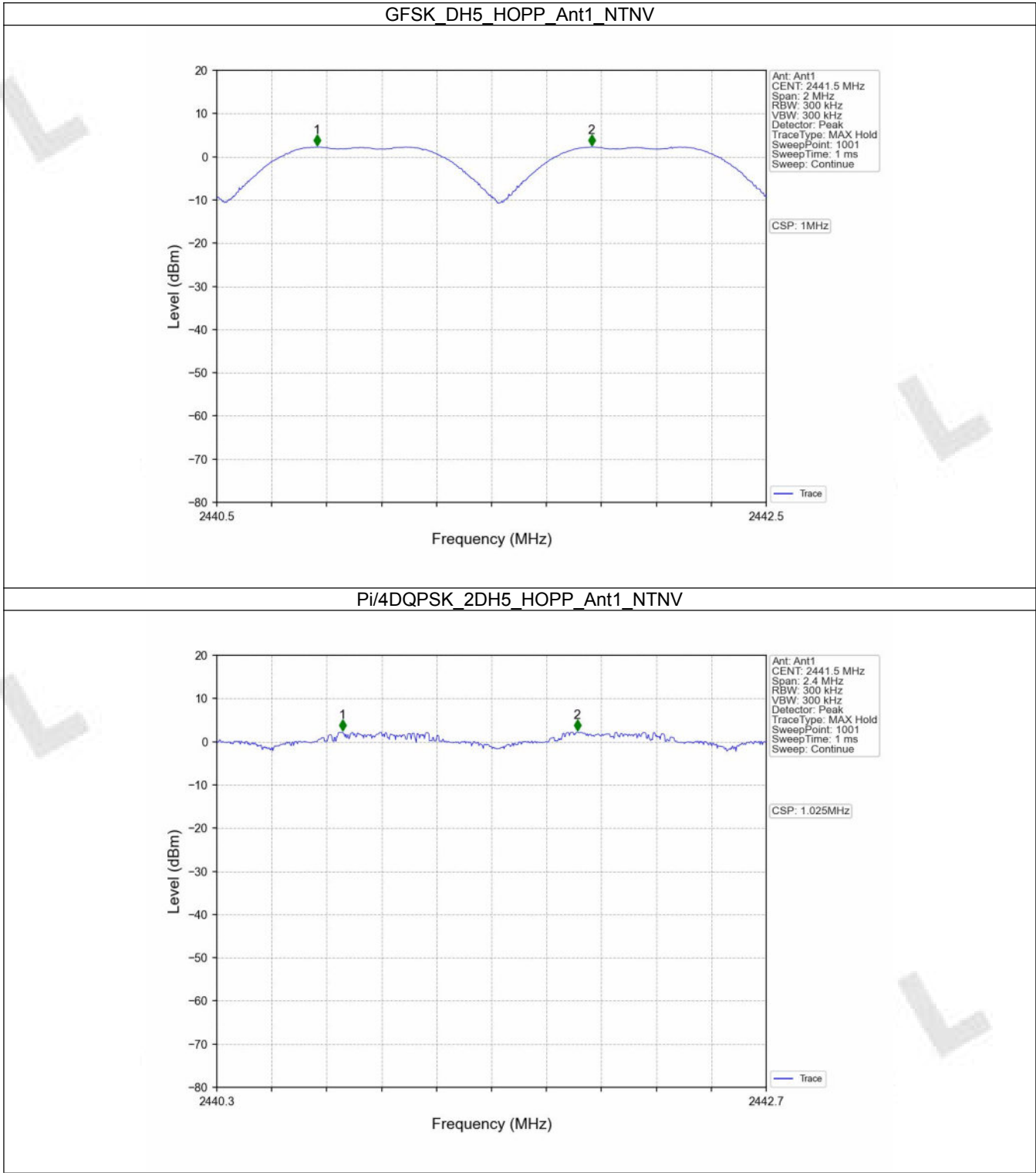
3.1 Ant1

3.1.1 Test Result

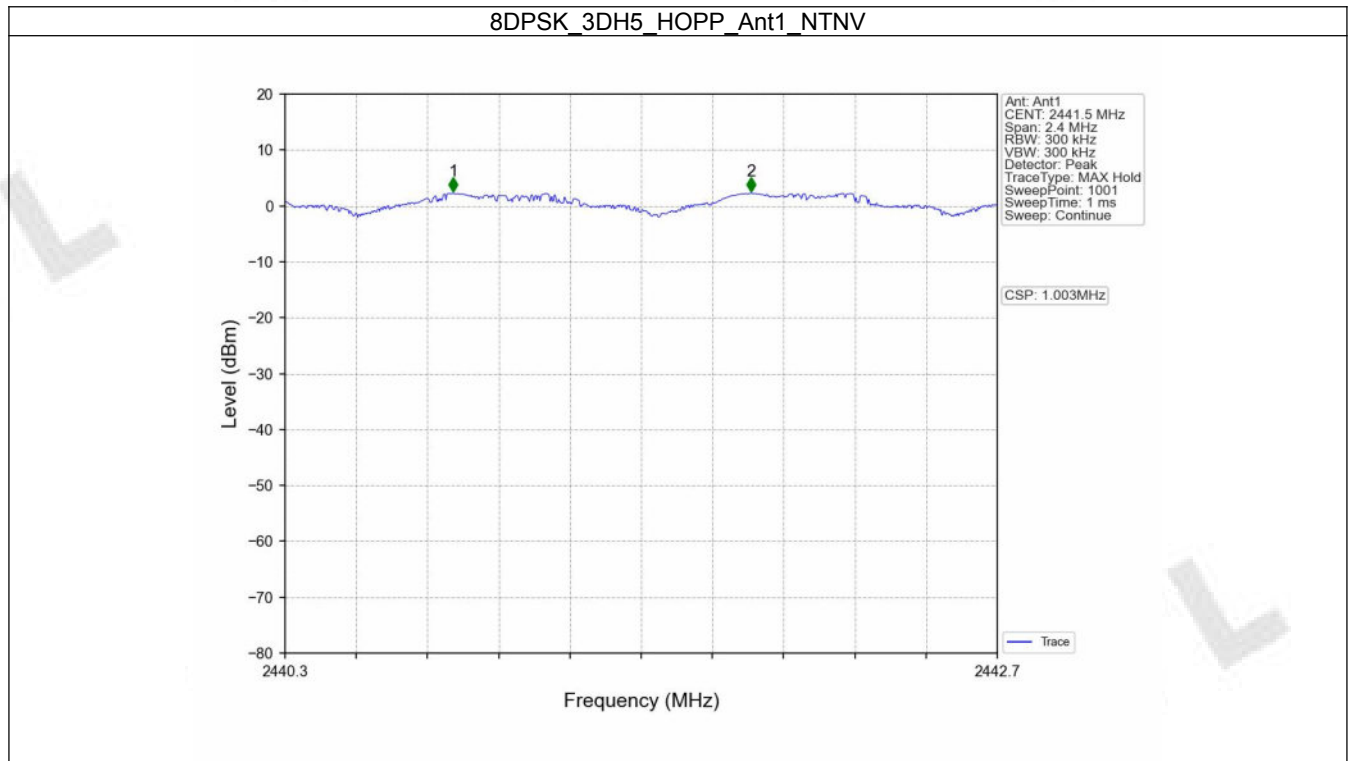
Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	1.000	0.948	≥ 0.948	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	1.025	1.310	≥ 0.873	Pass
8DPSK	SISO	HOPP	3DH5	1.003	1.294	≥ 0.863	Pass

FCCID: Q8W-T11

3.1.2 Test Graph



FCCID: Q8W-T11



4. Number of Hopping Frequencies

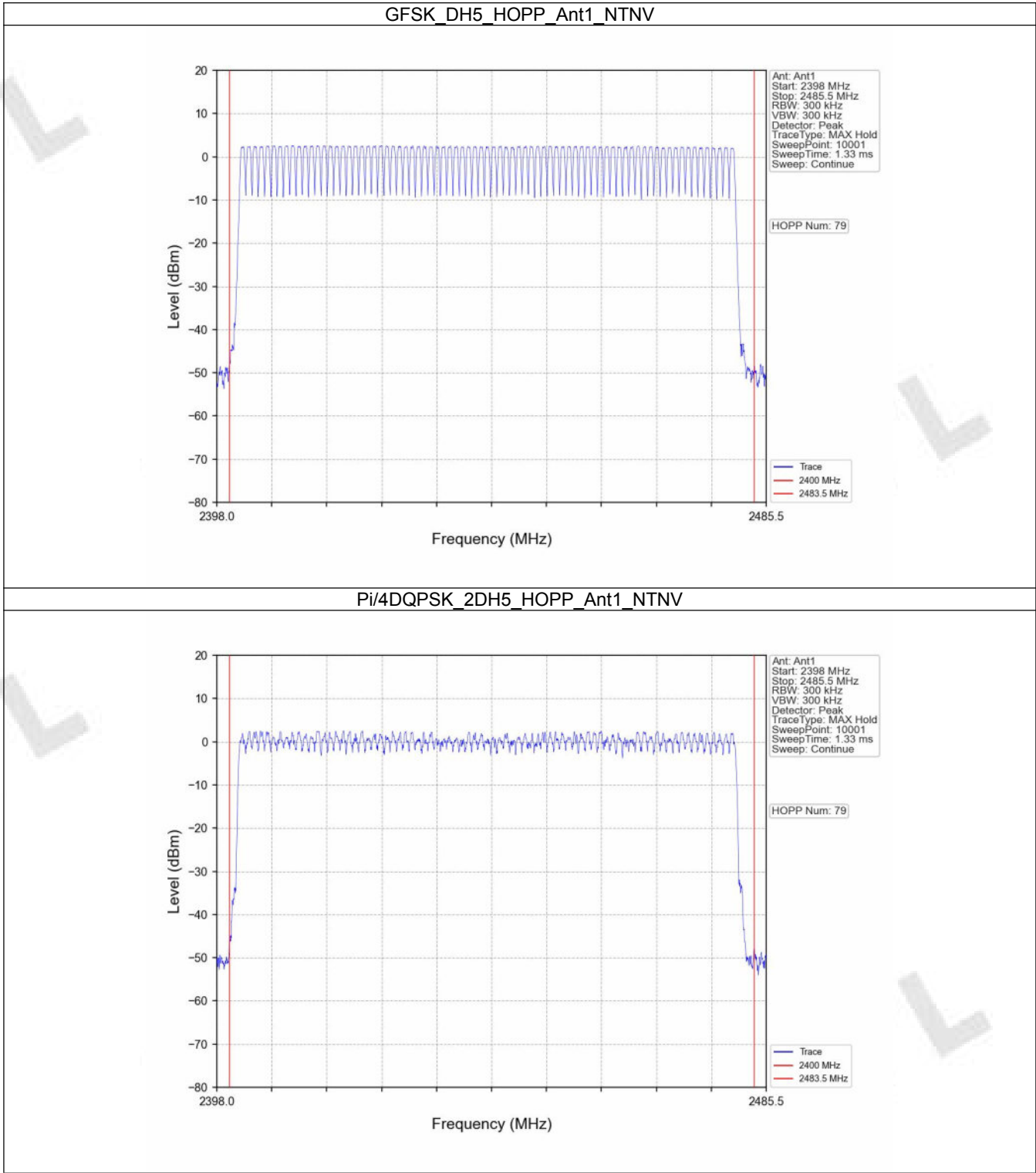
4.1 HoppNum

4.1.1 Test Result

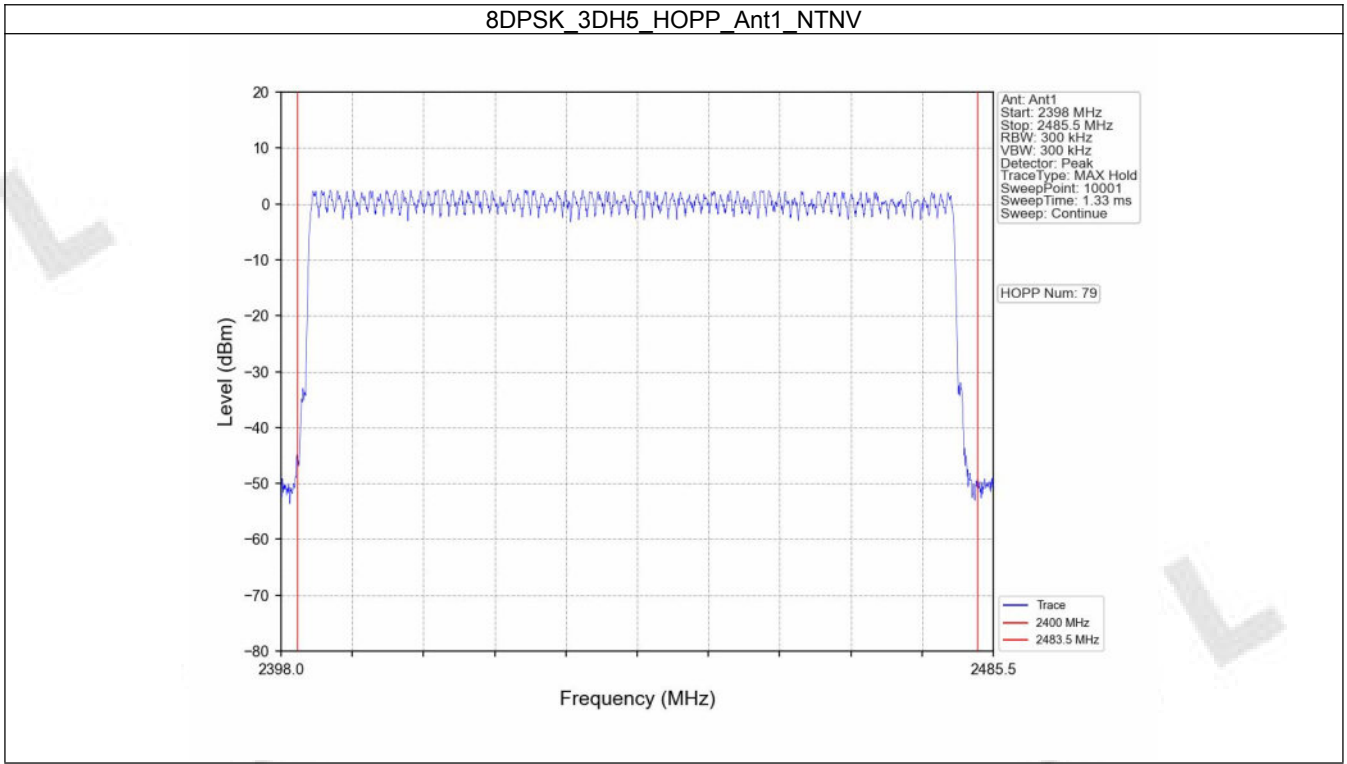
Mode	TX Type	Frequency (MHz)	Packet Type	Num of Hopping Frequencies		Verdict
				ANT1	Limit	
GFSK	SISO	HOPP	DH5	79	≥ 15	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	79	≥ 15	Pass
8DPSK	SISO	HOPP	3DH5	79	≥ 15	Pass

FCCID: Q8W-T11

4.1.2 Test Graph



FCCID: Q8W-T11



5. Time of Occupancy (Dwell Time)

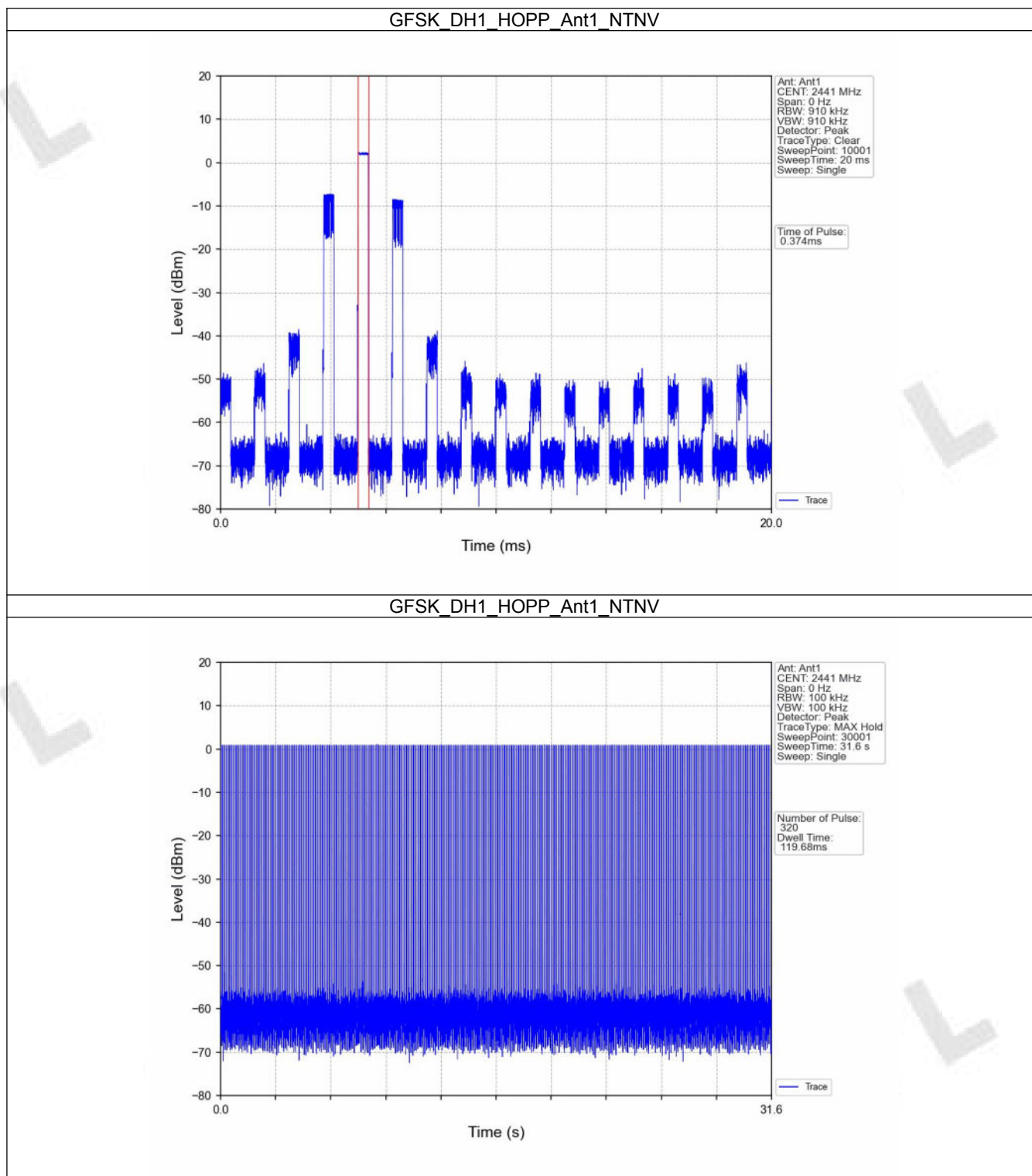
5.1 Ant1

5.1.1 Test Result

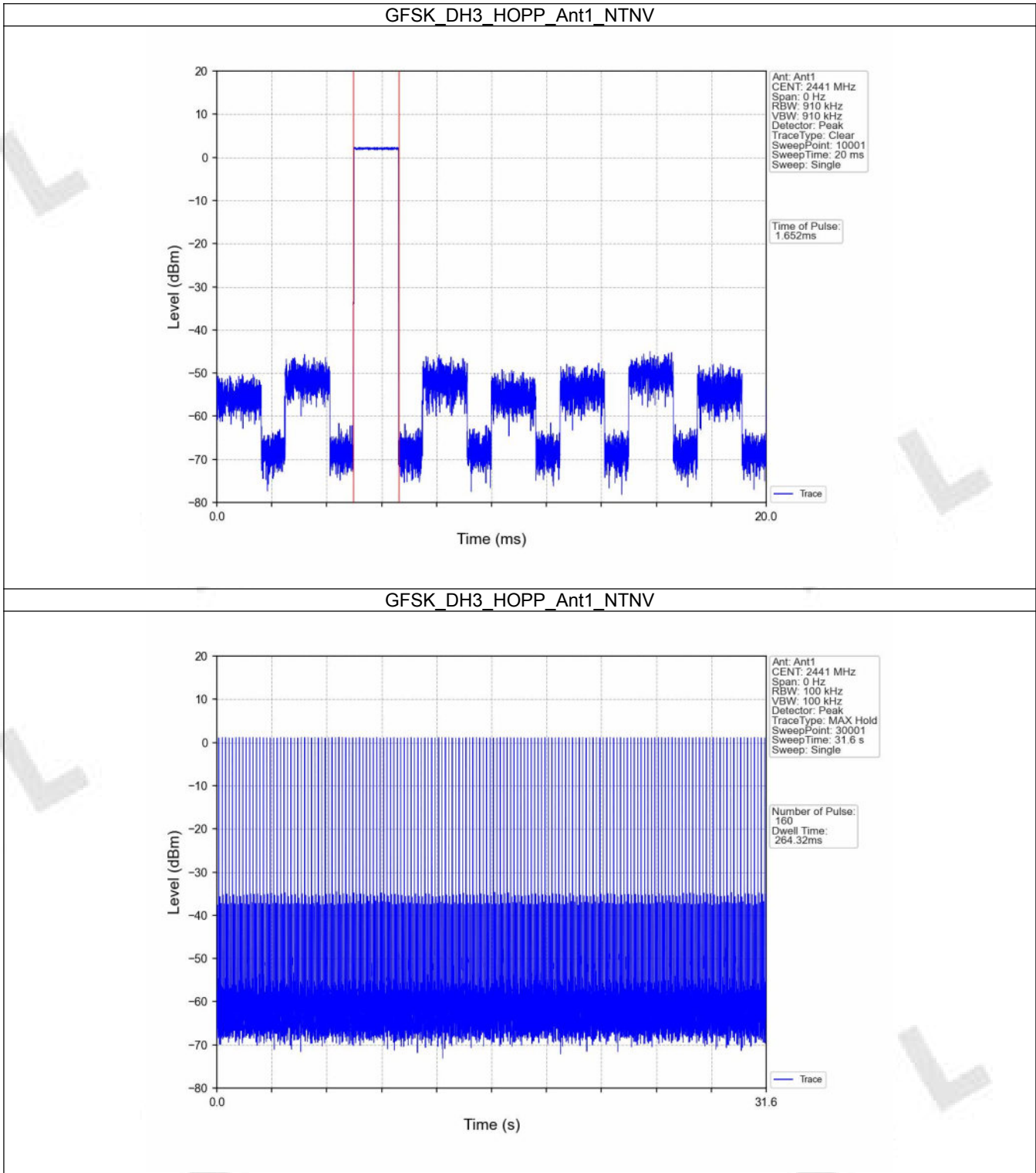
Ant1									
Mode	TX Type	Frequency (MHz)	Packet Type	Duration of Single Pulse (ms)	Observation Period (s)	Num of Pulse in Observation Period	Dwell Time (ms)	Limit (ms)	Verdict
GFSK	SISO	HOPP	DH1	0.374	31.600	320	119.680	<=400	Pass
			DH3	1.652	31.600	160	264.320	<=400	Pass
			DH5	2.900	31.600	106	307.400	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.382	31.600	320	122.240	<=400	Pass
			2DH3	1.662	31.600	160	265.920	<=400	Pass
			2DH5	2.912	31.600	107	311.584	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.380	31.600	320	121.600	<=400	Pass
			3DH3	1.660	31.600	160	265.600	<=400	Pass
			3DH5	2.912	31.600	106	308.672	<=400	Pass

FCCID: Q8W-T11

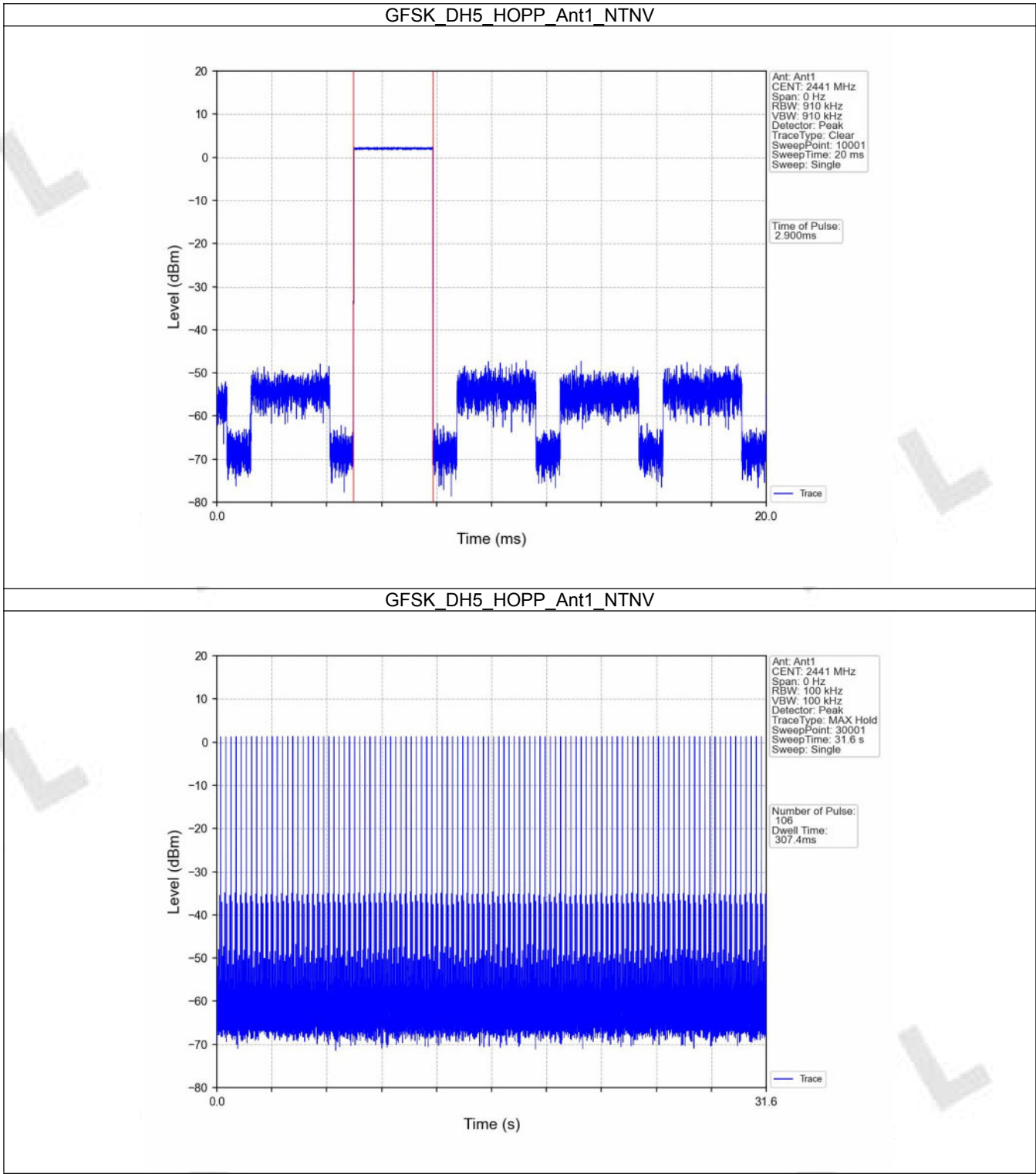
5.1.2 Test Graph



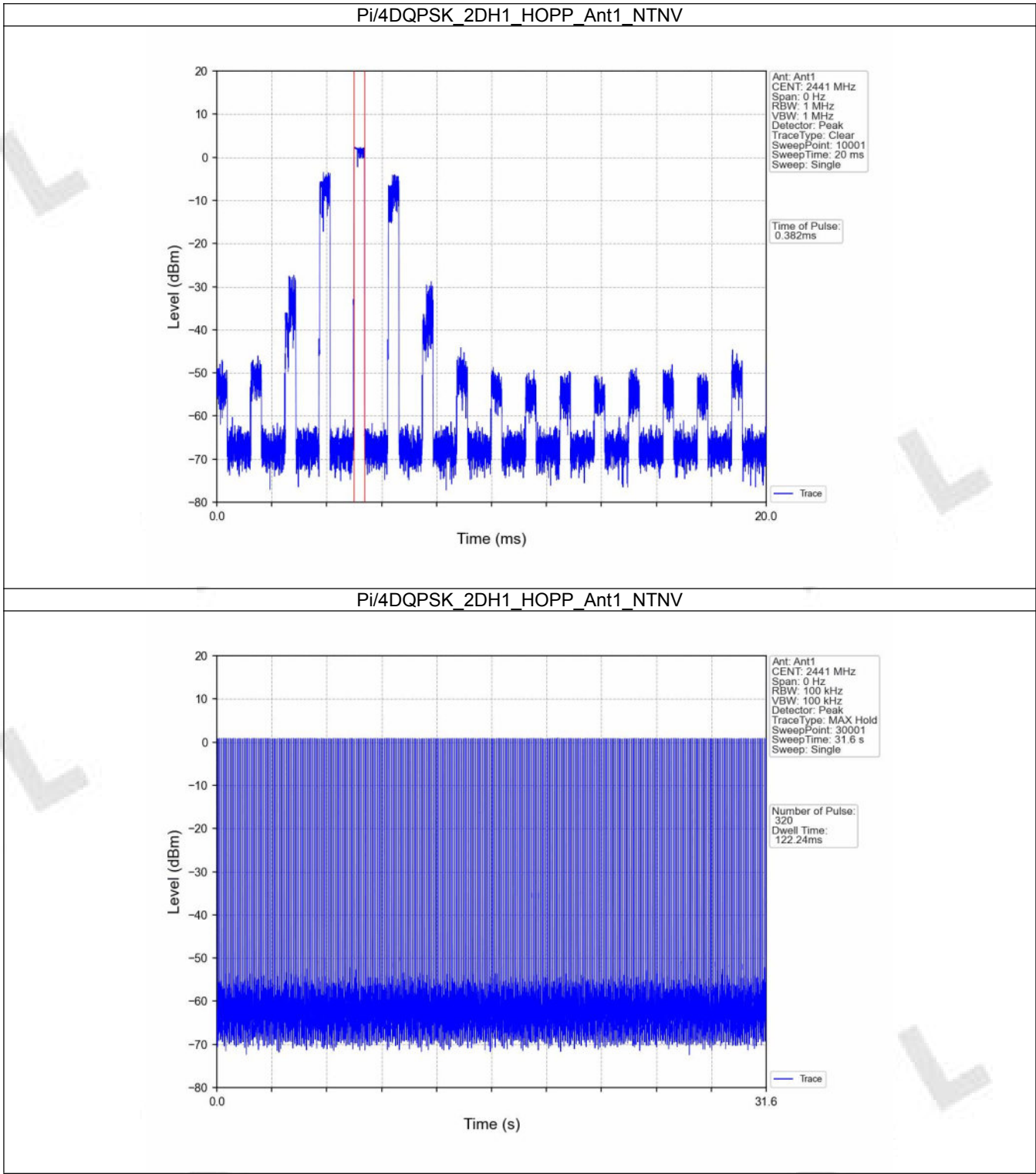
FCCID: Q8W-T11



FCCID: Q8W-T11

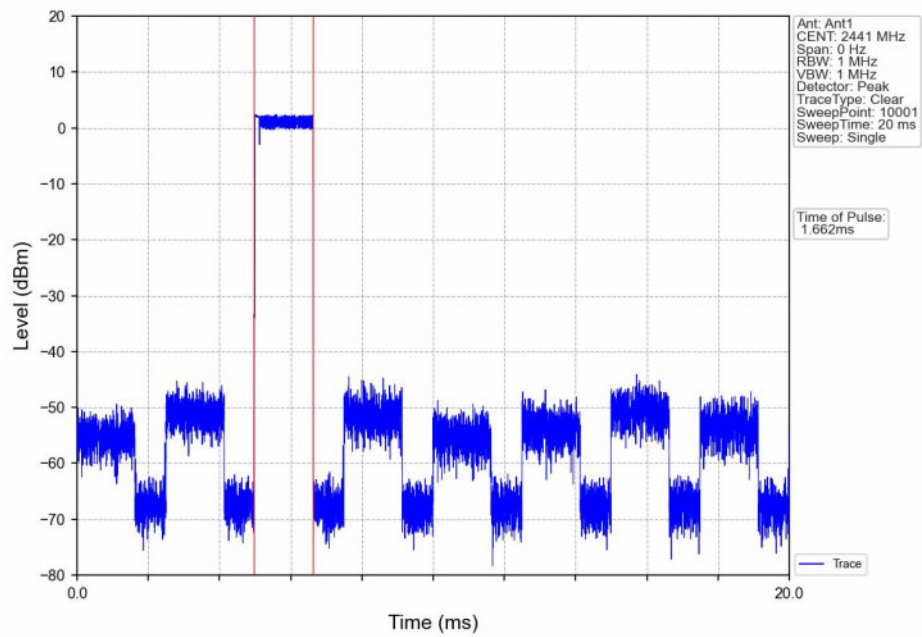


FCCID: Q8W-T11

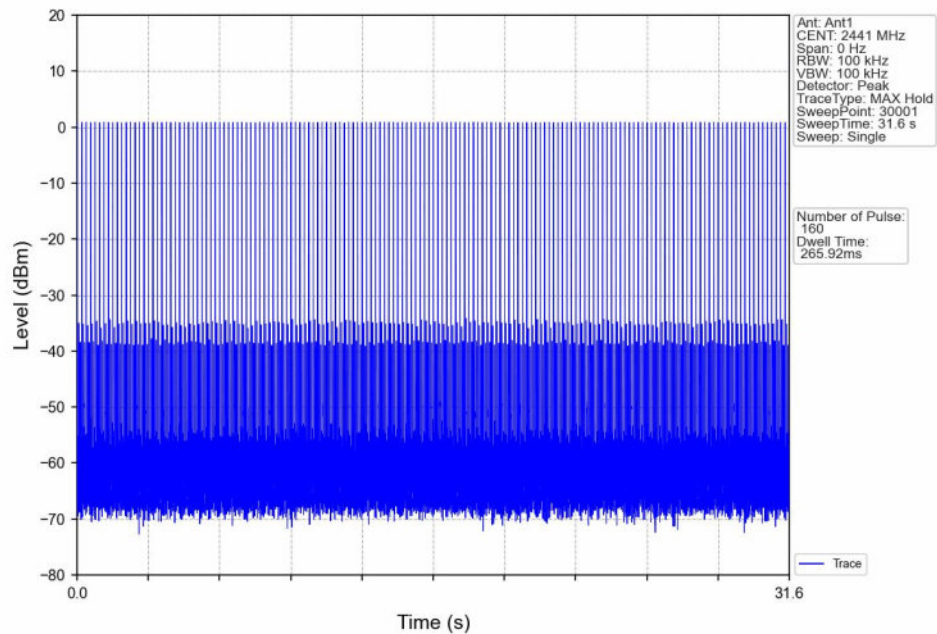


FCCID: Q8W-T11

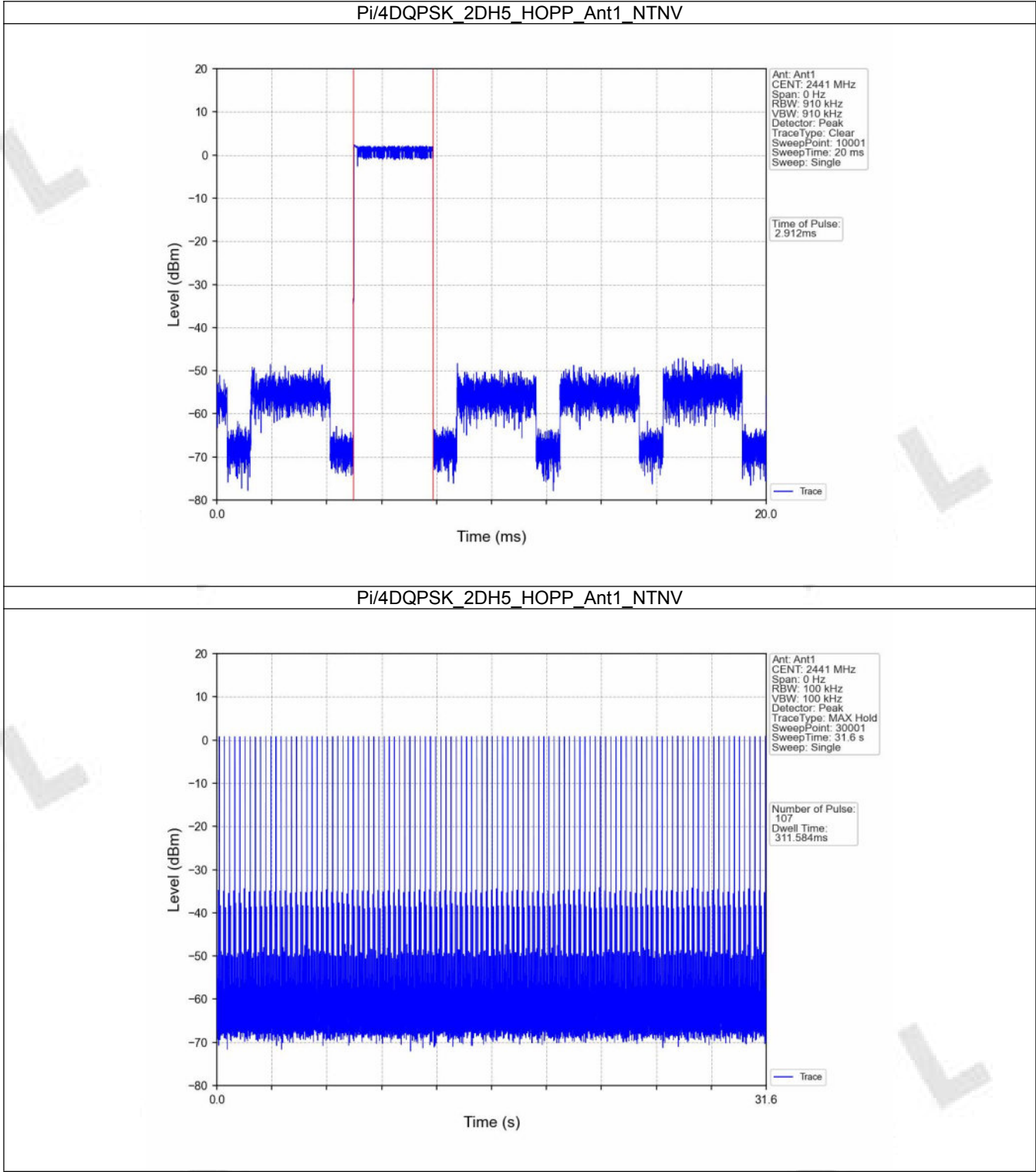
Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV



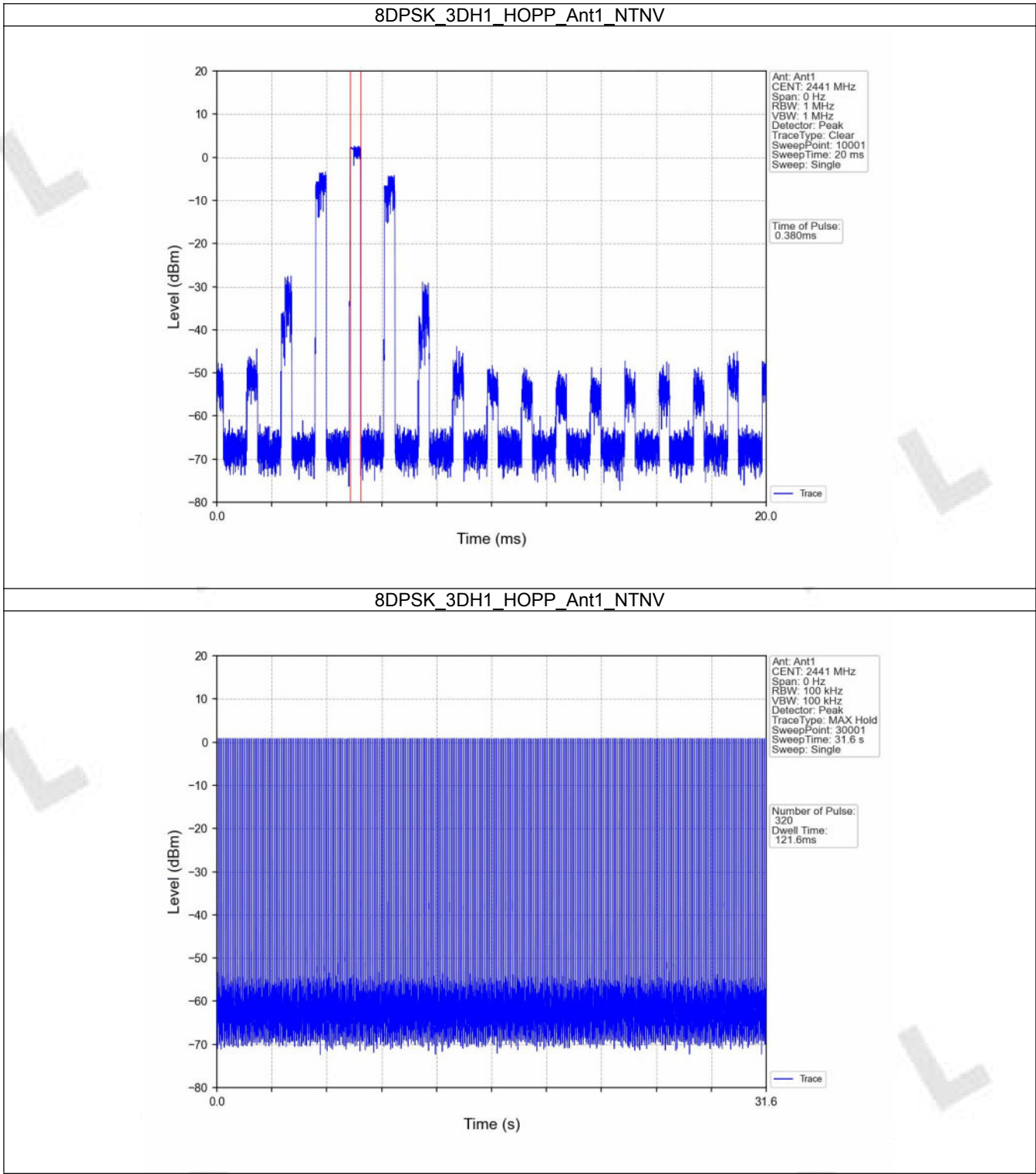
Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV



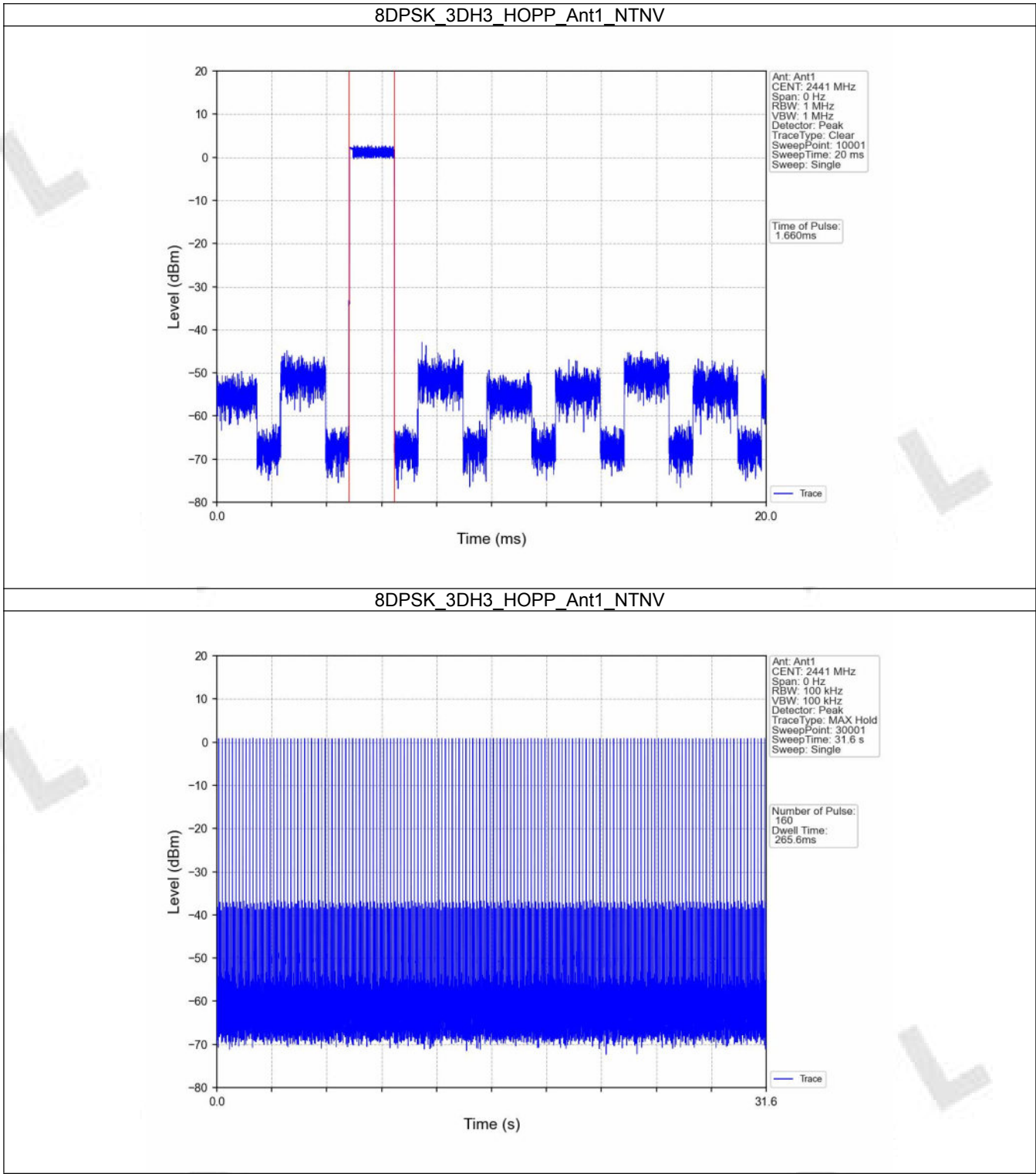
FCCID: Q8W-T11



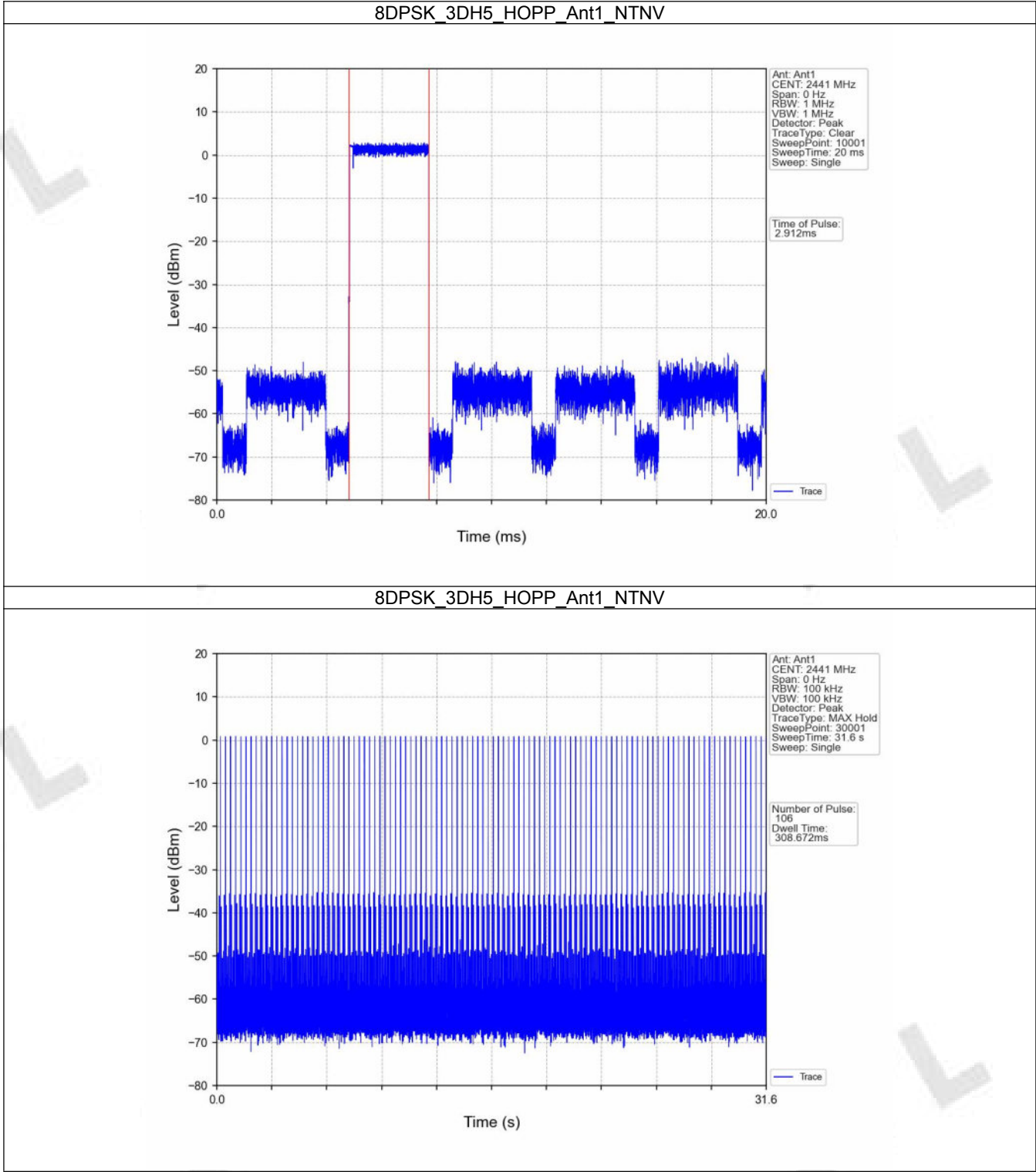
FCCID: Q8W-T11



FCCID: Q8W-T11



FCCID: Q8W-T11



6. Unwanted Emissions In Non-restricted Frequency Bands

6.1 Ref

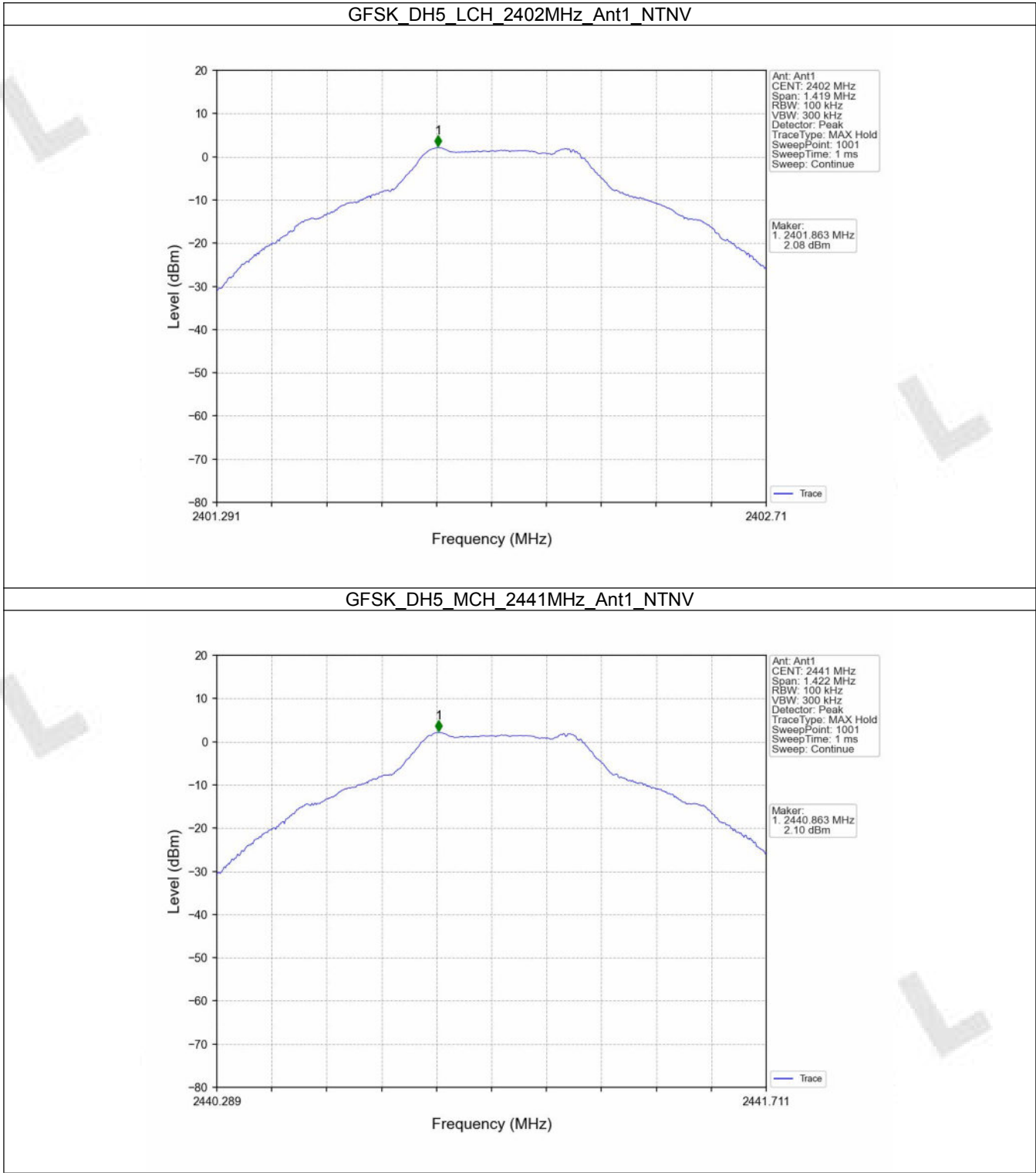
6.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	2.08
		2441	DH5	1	2.10
		2480	DH5	1	1.74
Pi/4DQPSK	SISO	2402	2DH5	1	1.87
		2441	2DH5	1	1.86
		2480	2DH5	1	1.55
8DPSK	SISO	2402	3DH5	1	2.05
		2441	3DH5	1	2.13
		2480	3DH5	1	1.77

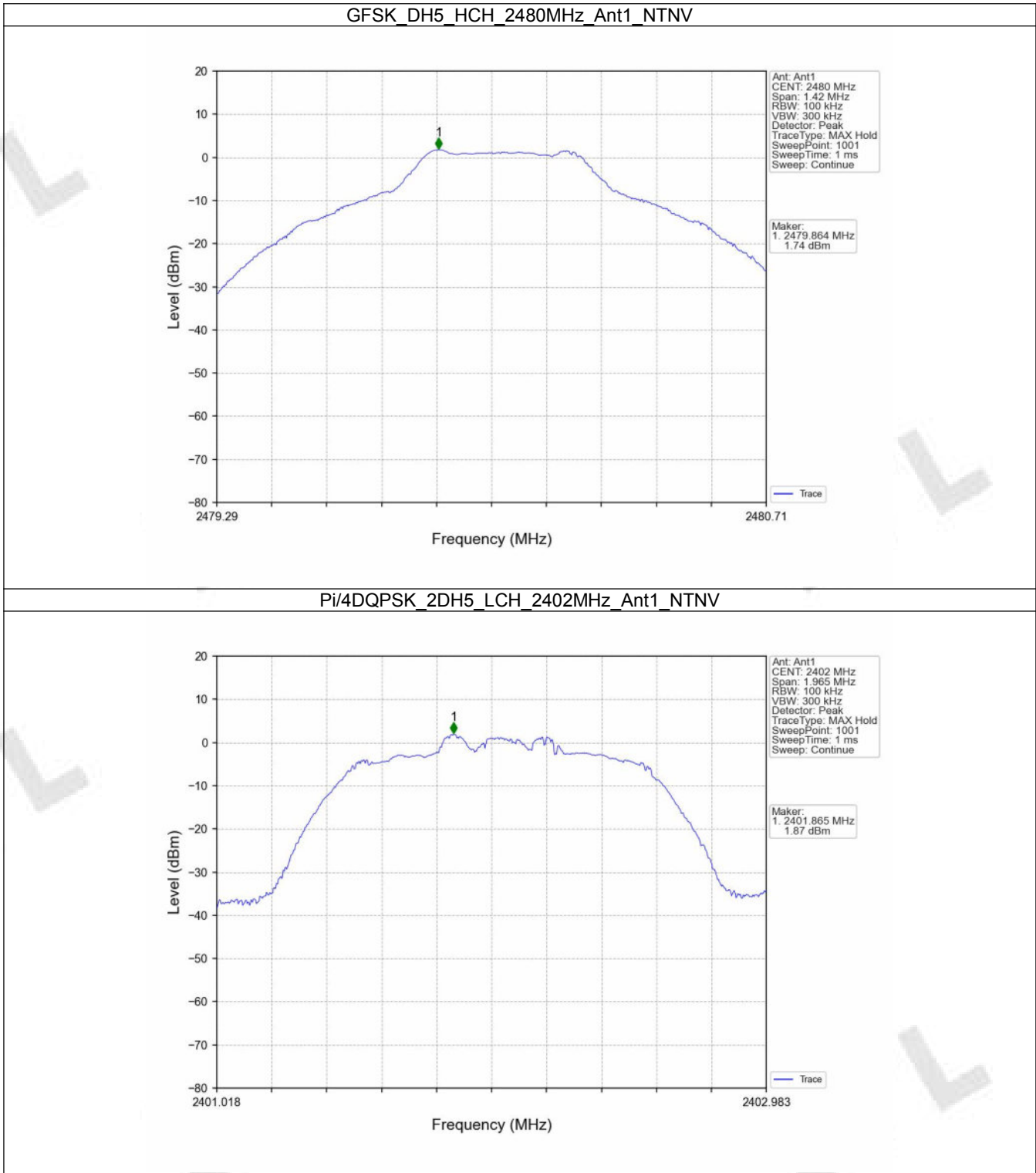
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

FCCID: Q8W-T11

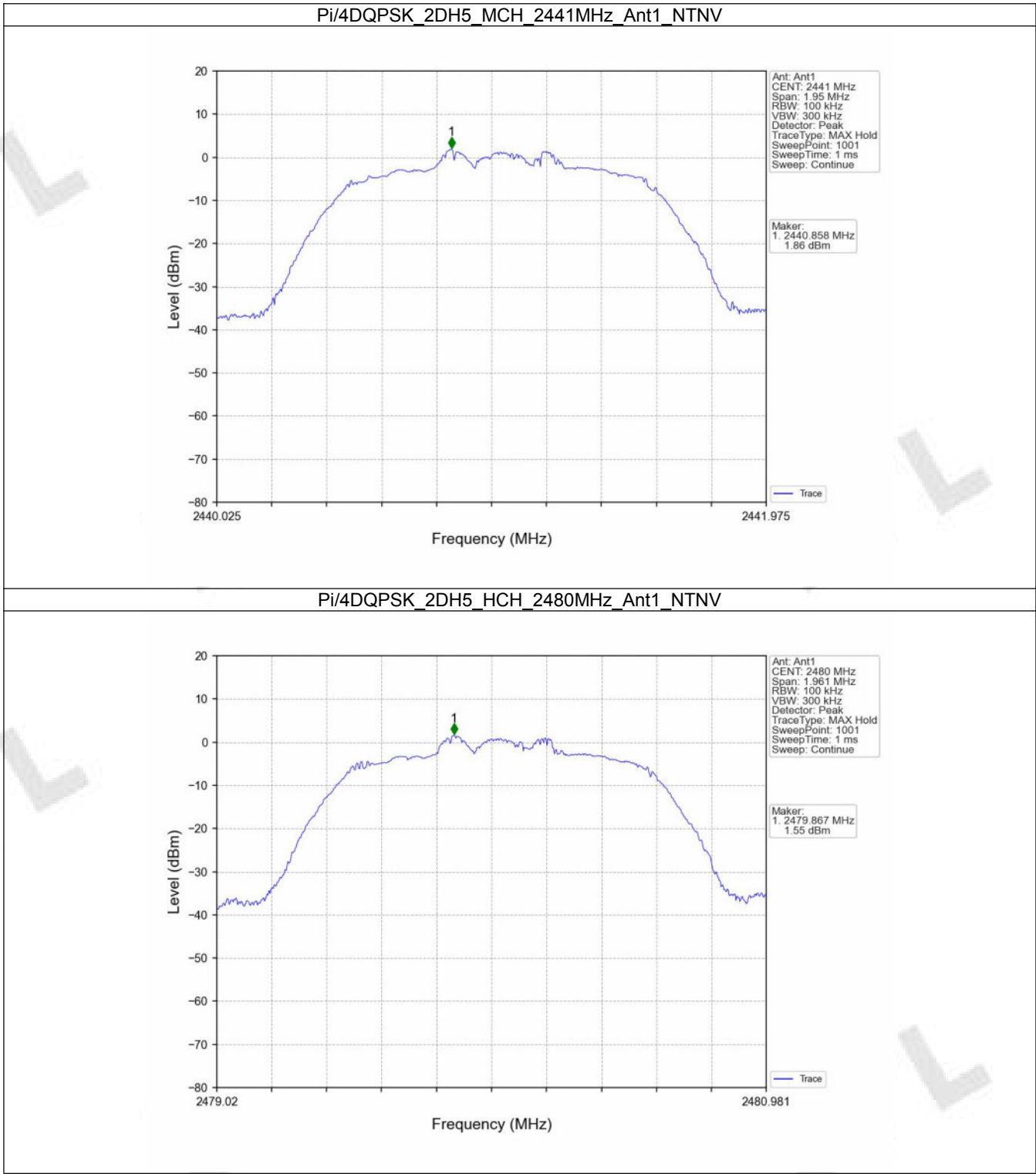
6.1.2 Test Graph



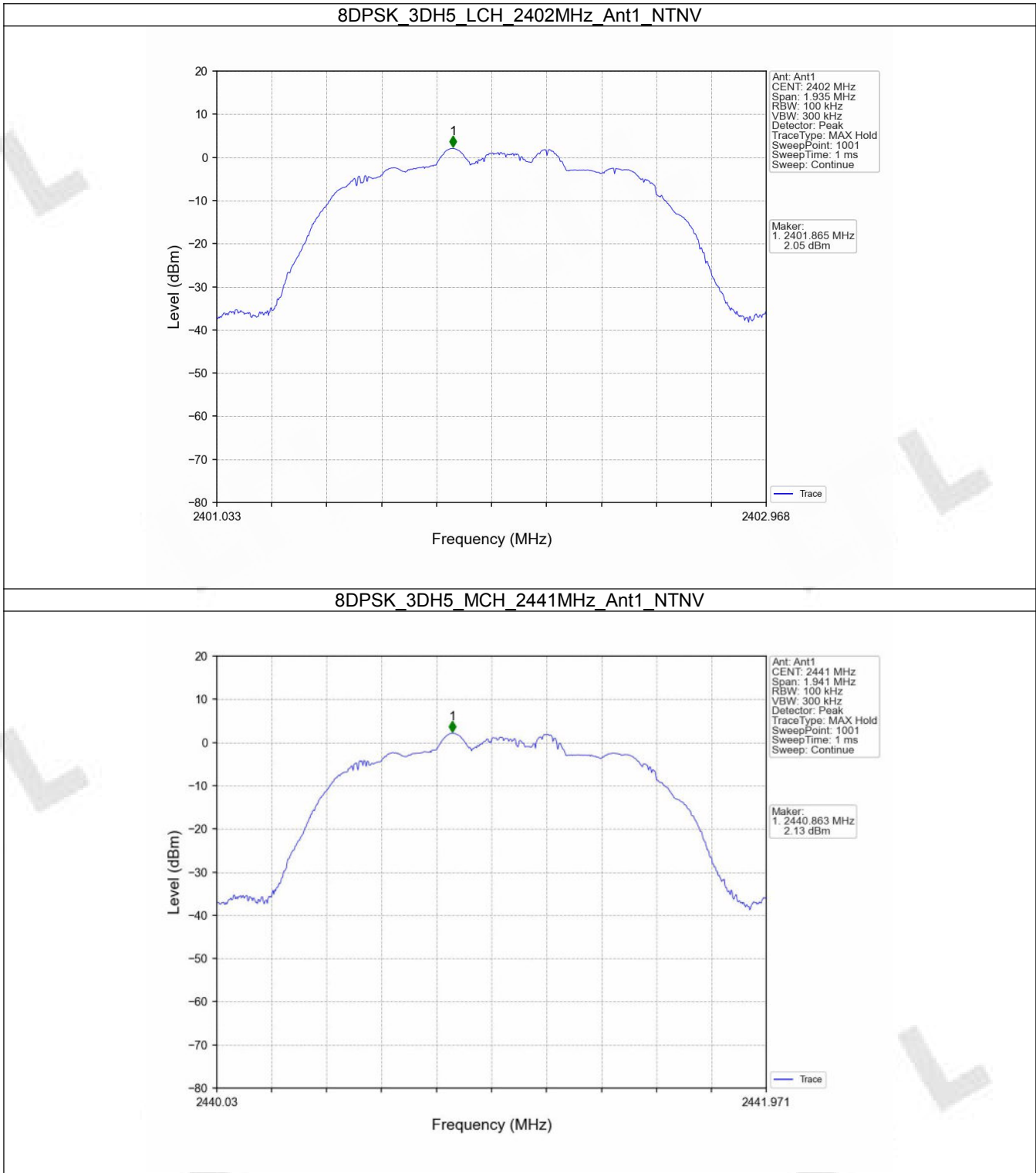
FCCID: Q8W-T11



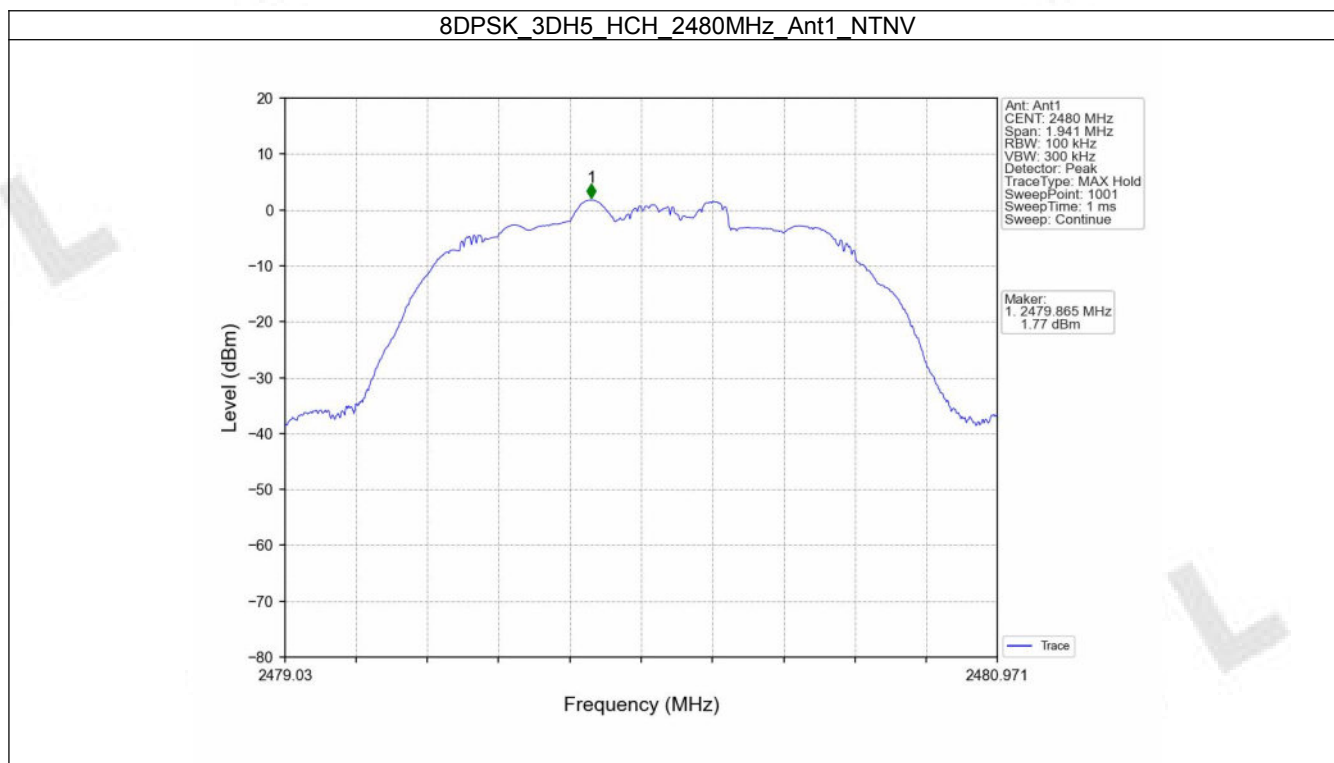
FCCID: Q8W-T11



FCCID: Q8W-T11



FCCID: Q8W-T11



FCCID: Q8W-T11

6.2 CSE

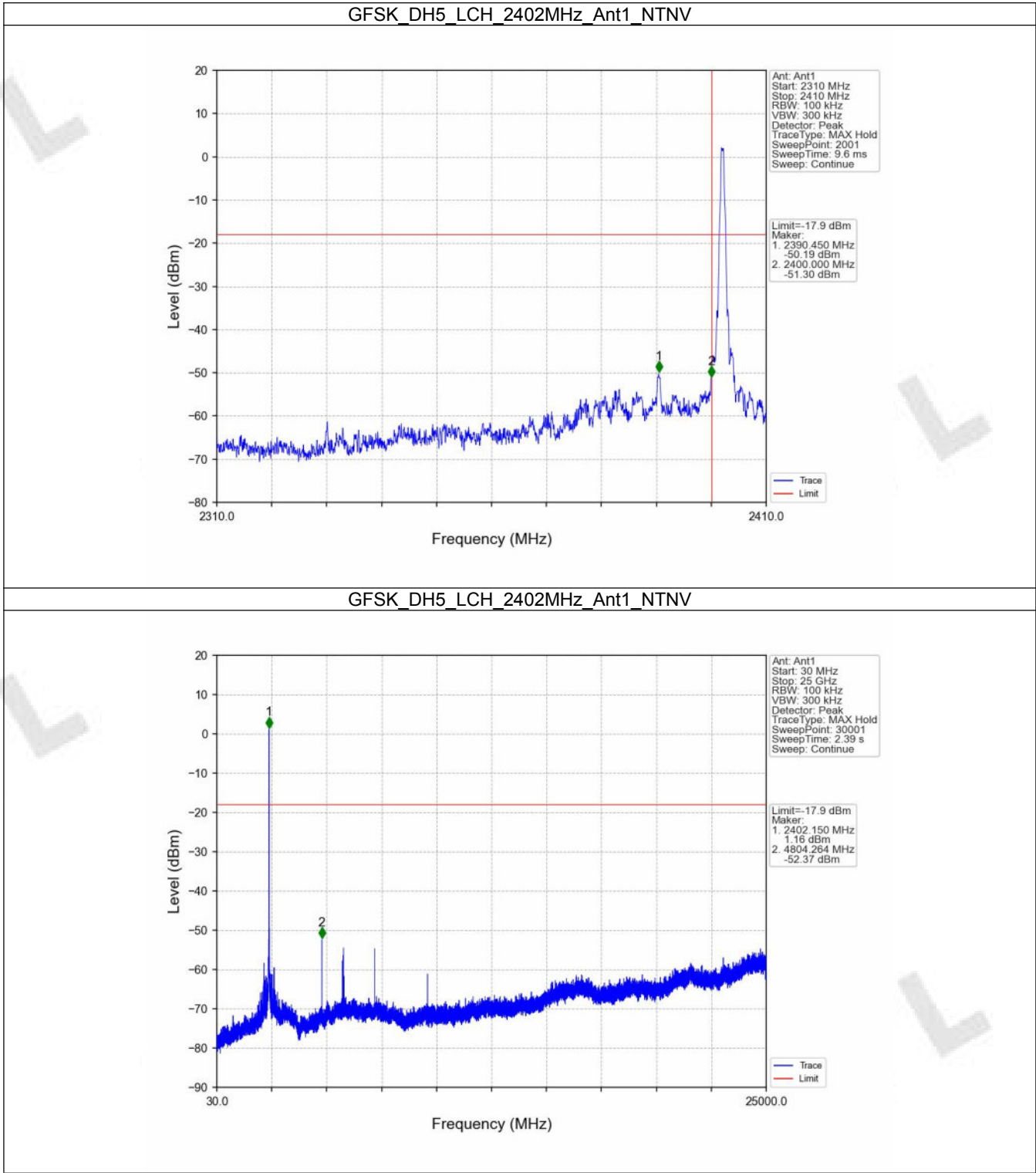
6.2.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	2.10	-17.90	Pass
		2441	DH5	1	2.10	-17.90	Pass
		2480	DH5	1	2.10	-17.90	Pass
		HOPP	DH5	1	2.10	-17.90	Pass
					2.10	-17.90	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.87	-18.13	Pass
		2441	2DH5	1	1.87	-18.13	Pass
		2480	2DH5	1	1.87	-18.13	Pass
		HOPP	2DH5	1	1.87	-18.13	Pass
					1.87	-18.13	Pass
8DPSK	SISO	2402	3DH5	1	2.13	-17.87	Pass
		2441	3DH5	1	2.13	-17.87	Pass
		2480	3DH5	1	2.13	-17.87	Pass
		HOPP	3DH5	1	2.13	-17.87	Pass
					2.13	-17.87	Pass

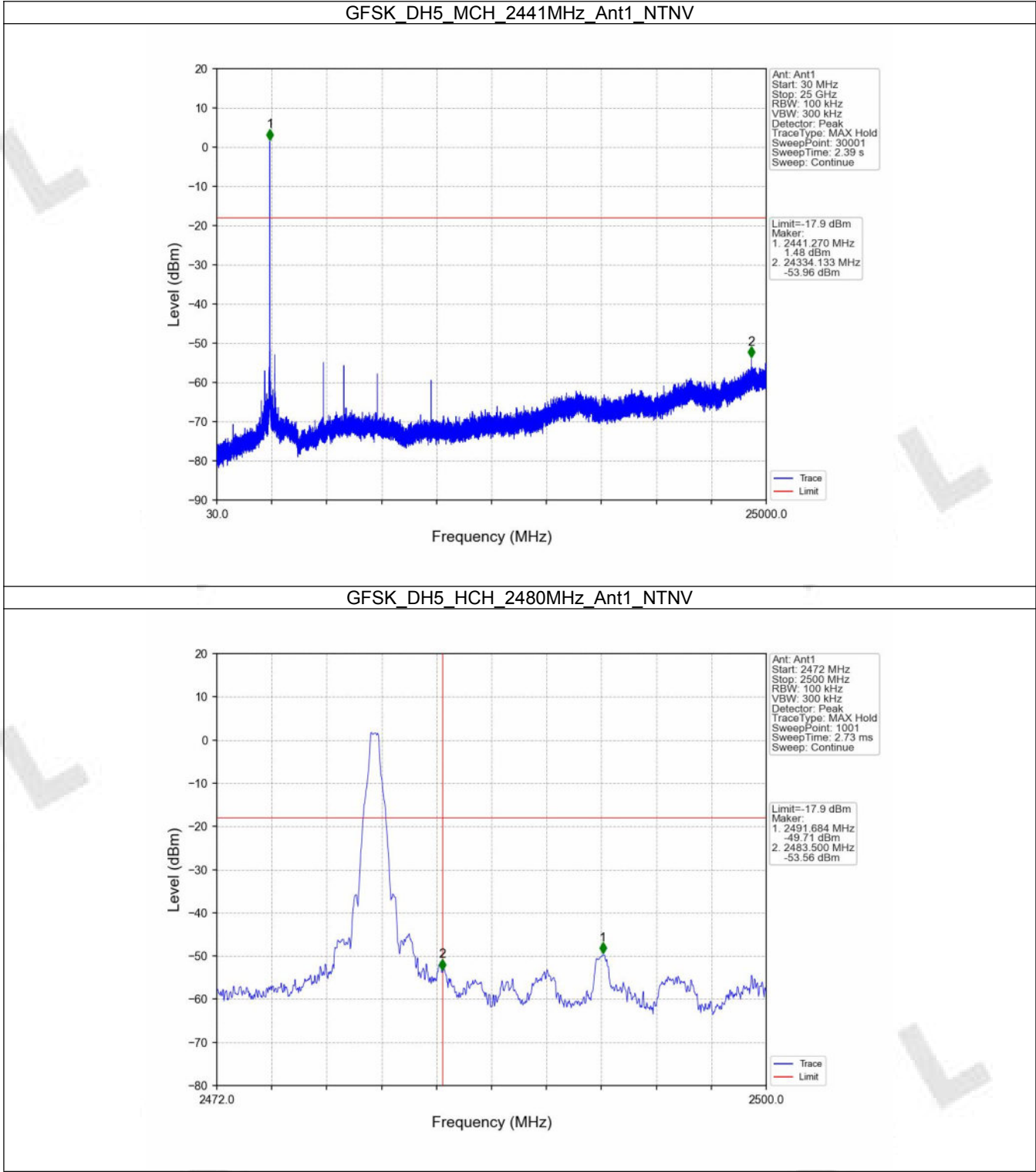
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

FCCID: Q8W-T11

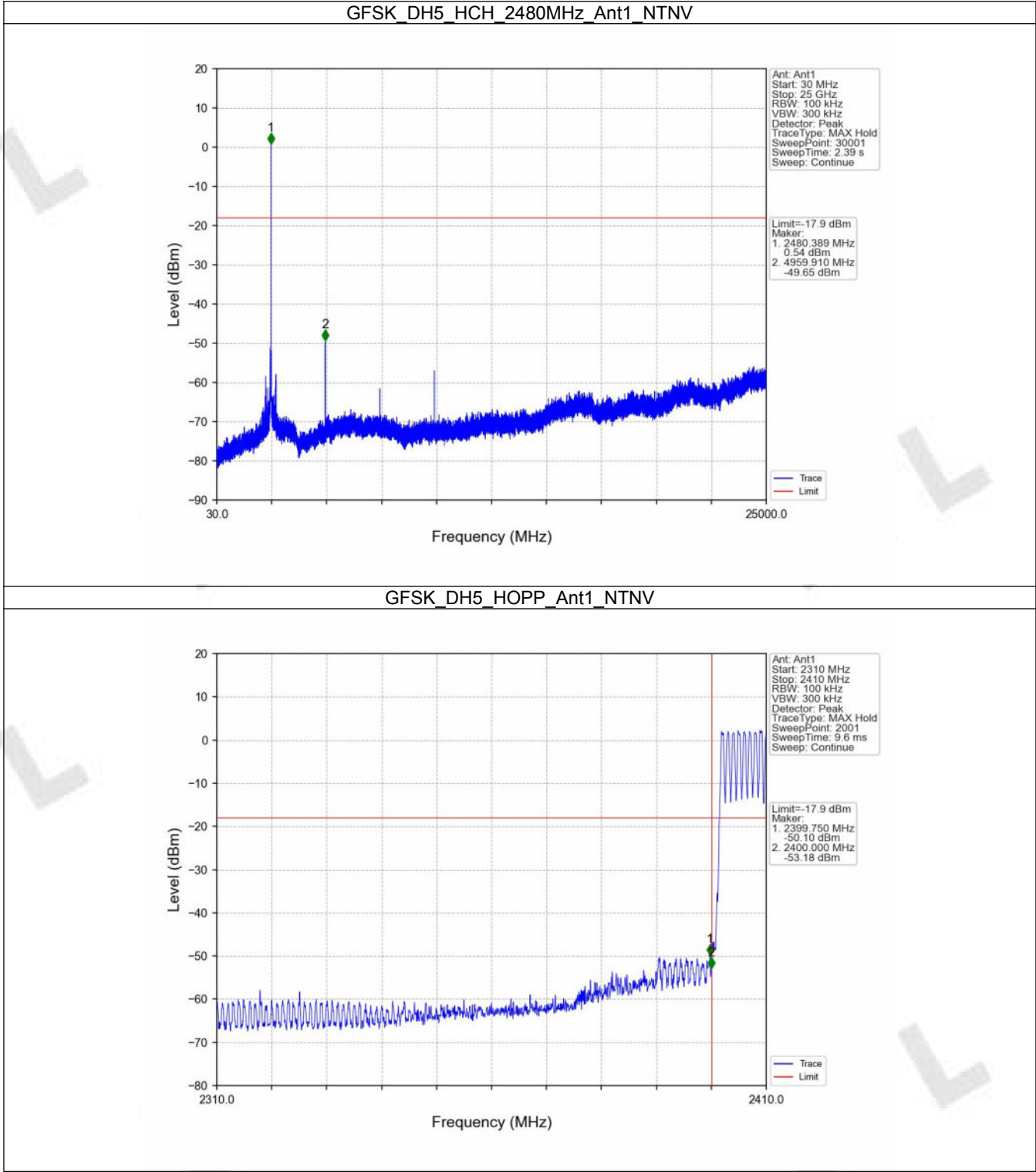
6.2.2 Test Graph



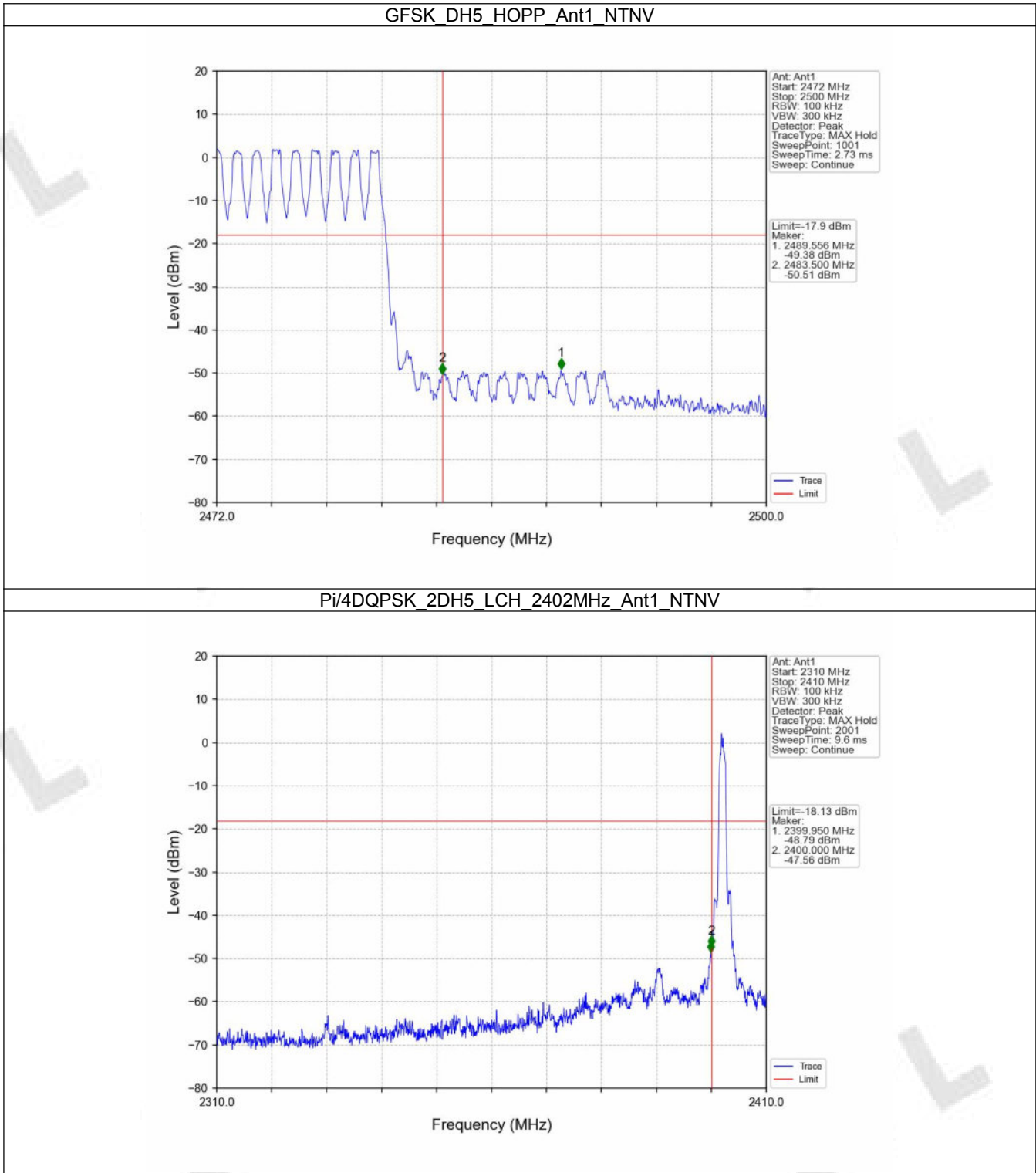
FCCID: Q8W-T11



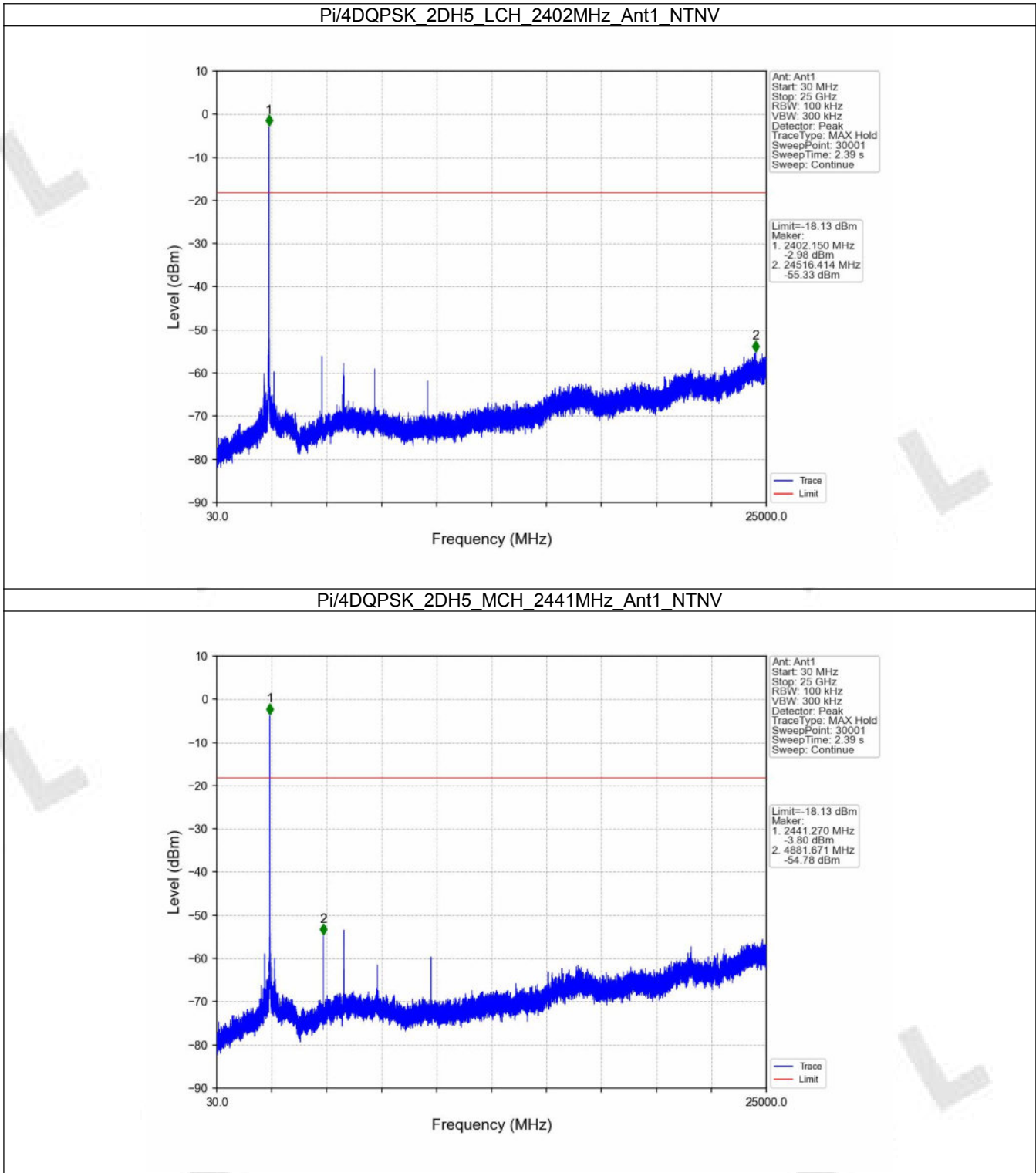
FCCID: Q8W-T11



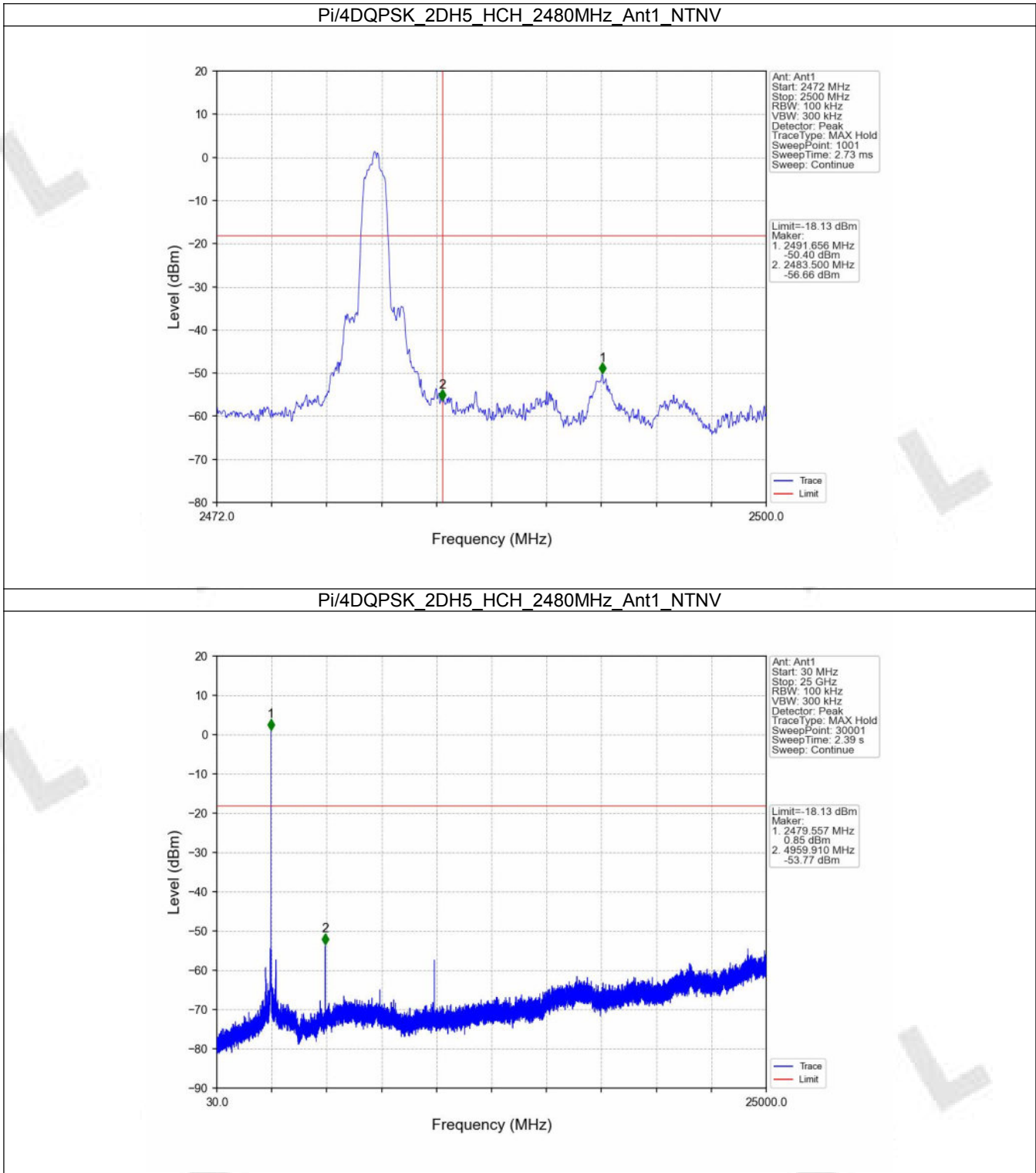
FCCID: Q8W-T11



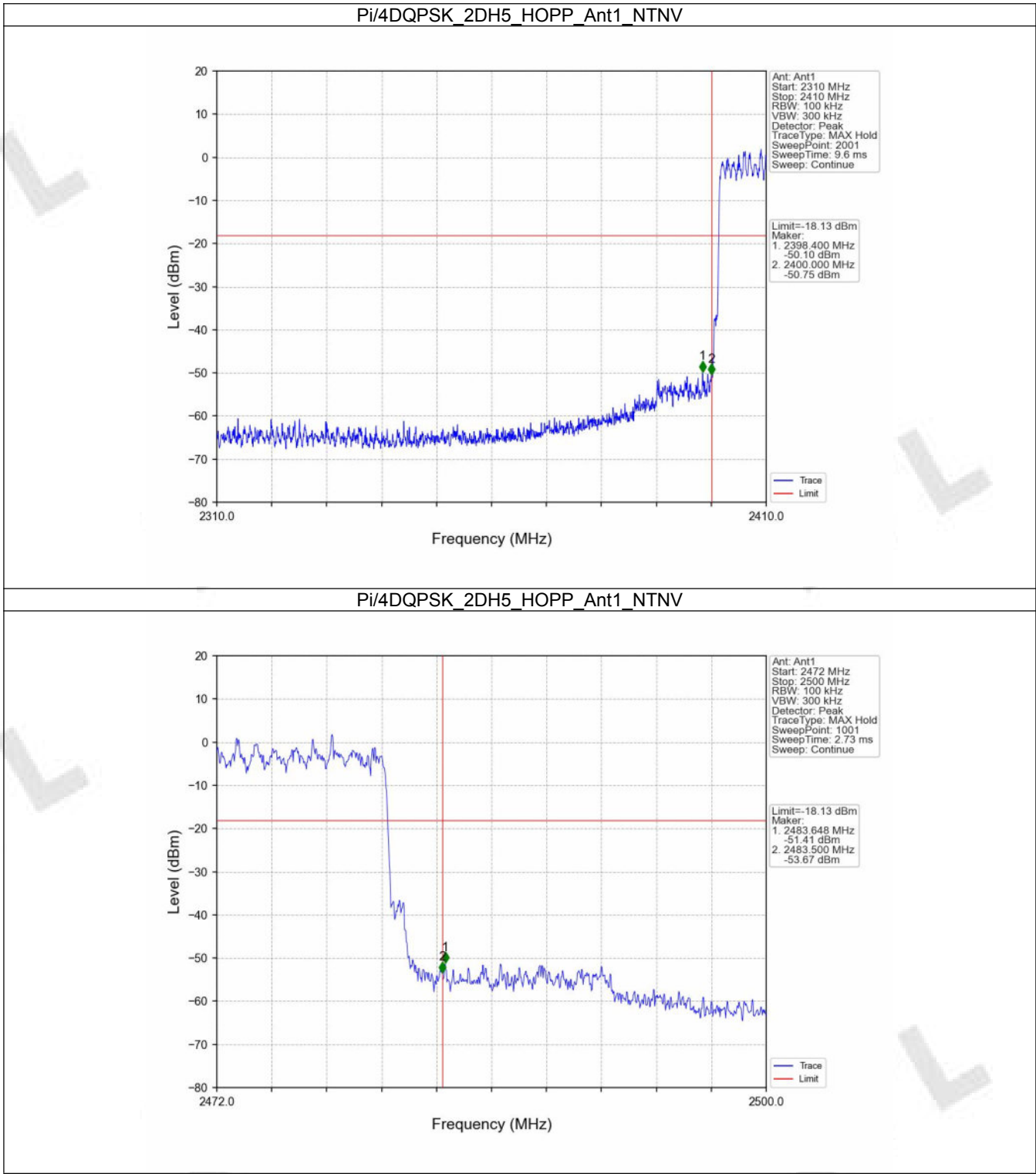
FCCID: Q8W-T11



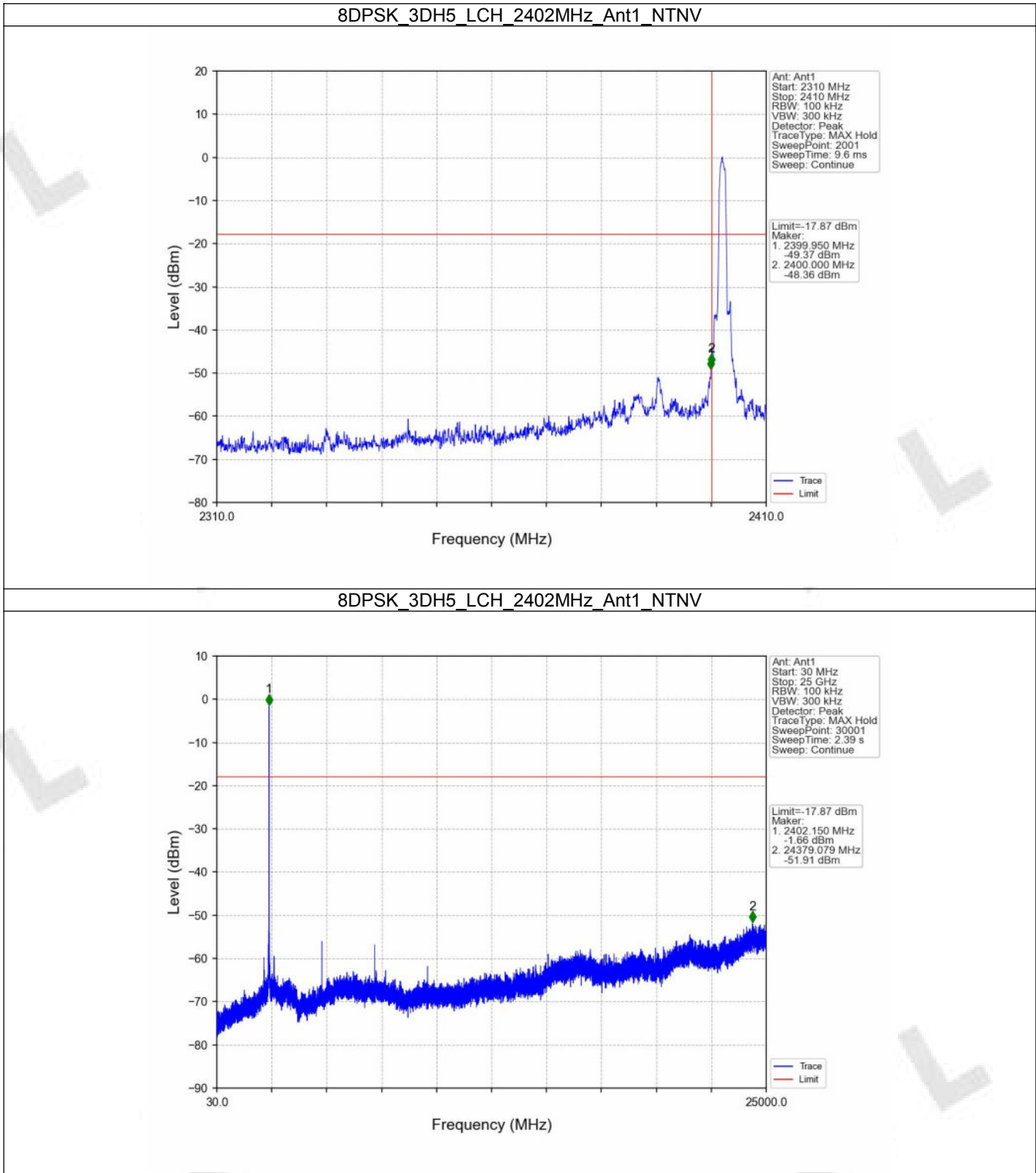
FCCID: Q8W-T11



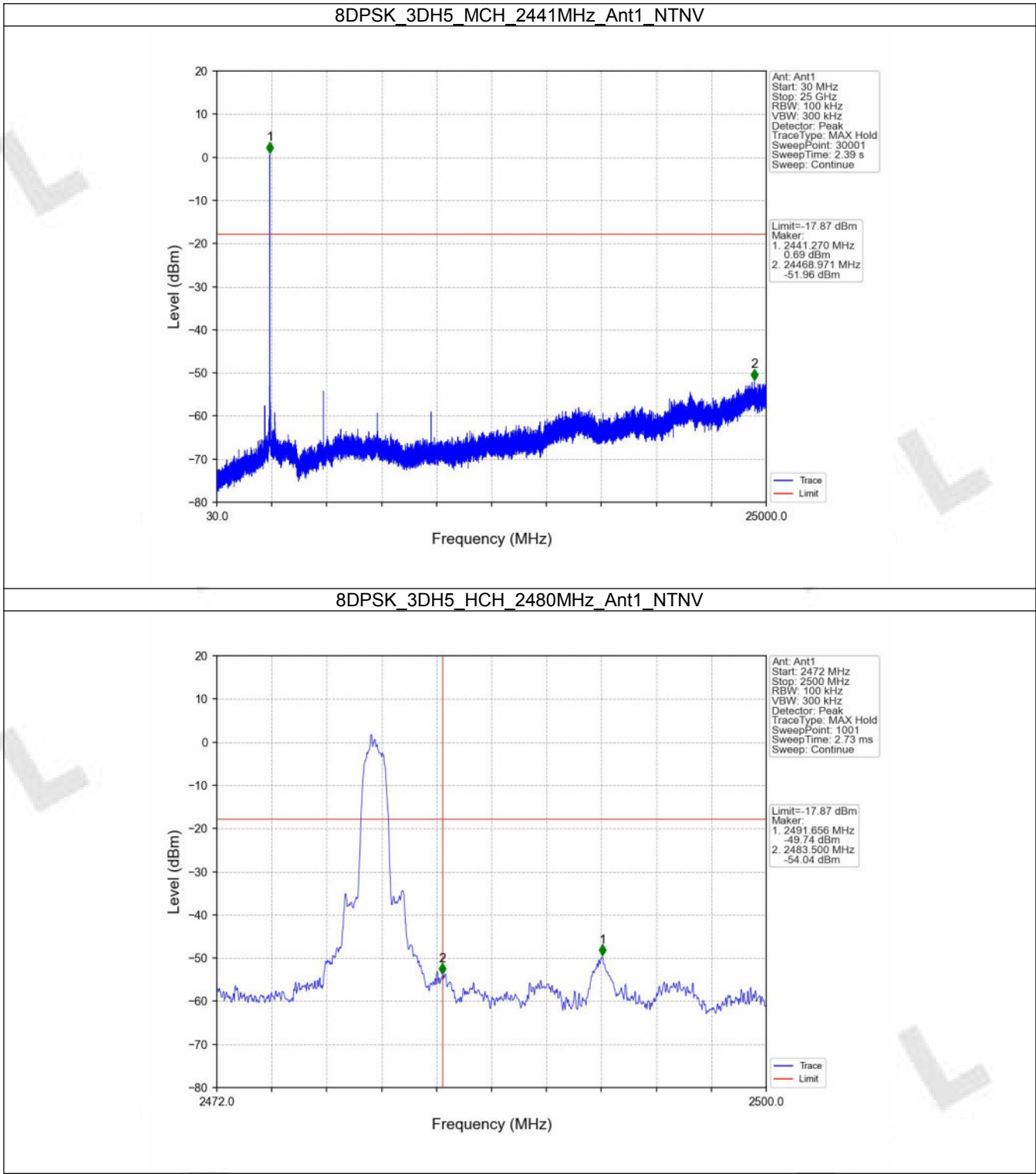
FCCID: Q8W-T11



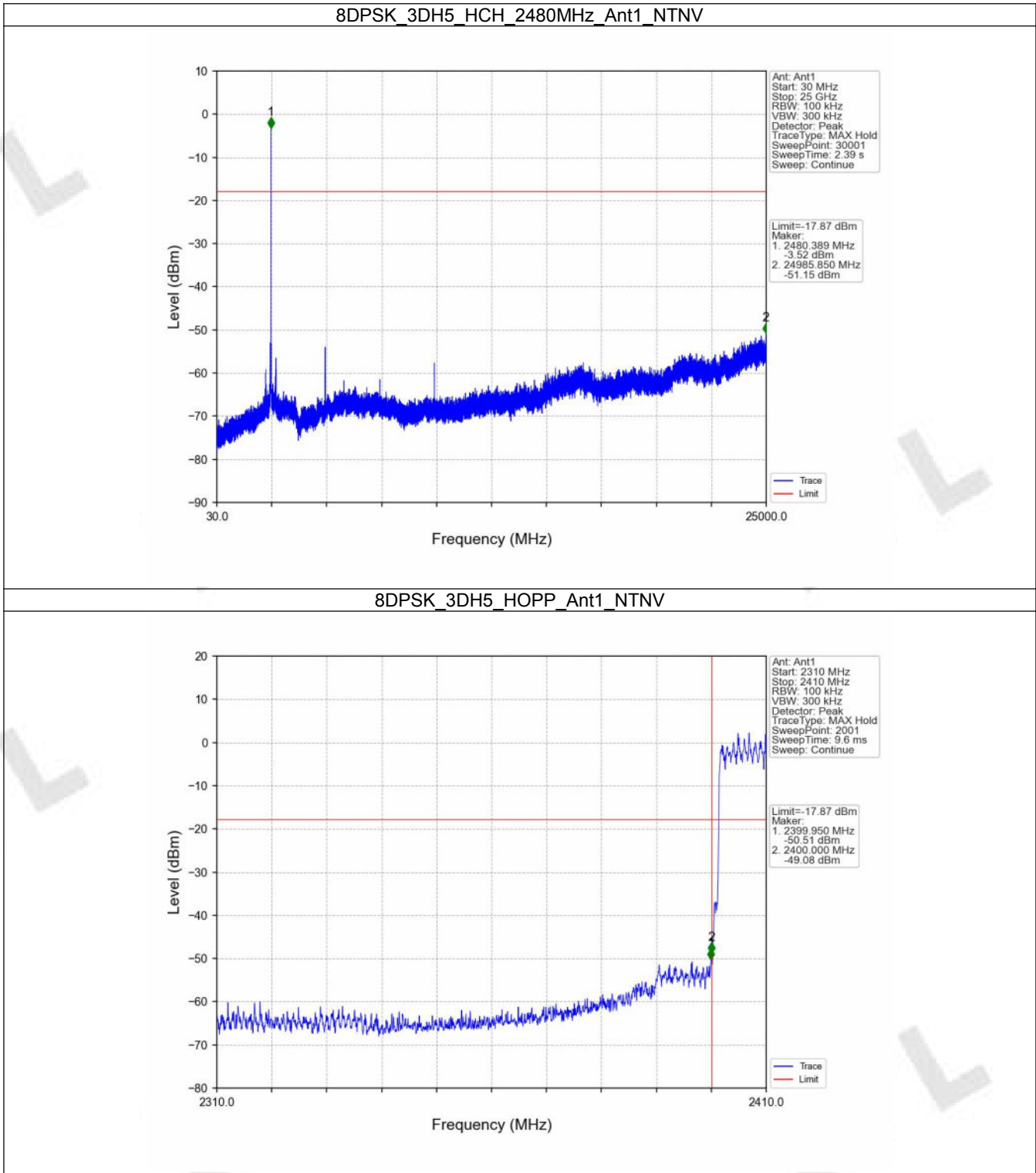
FCCID: Q8W-T11



FCCID: Q8W-T11



FCCID: Q8W-T11



FCCID: Q8W-T11

