



Shenzhen CTL Testing Technology Co., Ltd.

Unit 01A&B&C&D-1, Building A3, Guangming Sci-Tech Park, Guan Guang Road,
Fenghuang Subdistrict, Guangming District, Shenzhen, Guangdong, China
Tel: +86-755-89486194 E-mail: ctl@ctl-lab.com

Annex for Bluetooth

Test Report No.: CTL2604134031-WF01

TABLE OF CONTENTS

1. Bandwidth.....	2
2. Maximum Conducted Output Power.....	13
3. Carrier Frequency Separation.....	19
4. Number of Hopping Frequencies.....	22
5. Time of Occupancy (Dwell Time).....	25
6. Unwanted Emissions In Non-restricted Frequency Bands.....	35

FCC ID: 2BR98-R10

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	0.848	/	Pass
		2441	DH5	1	0.850	/	Pass
		2480	DH5	1	0.845	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.172	/	Pass
		2441	2DH5	1	1.174	/	Pass
		2480	2DH5	1	1.171	/	Pass
8DPSK	SISO	2402	3DH5	1	1.187	/	Pass
		2441	3DH5	1	1.183	/	Pass
		2480	3DH5	1	1.183	/	Pass

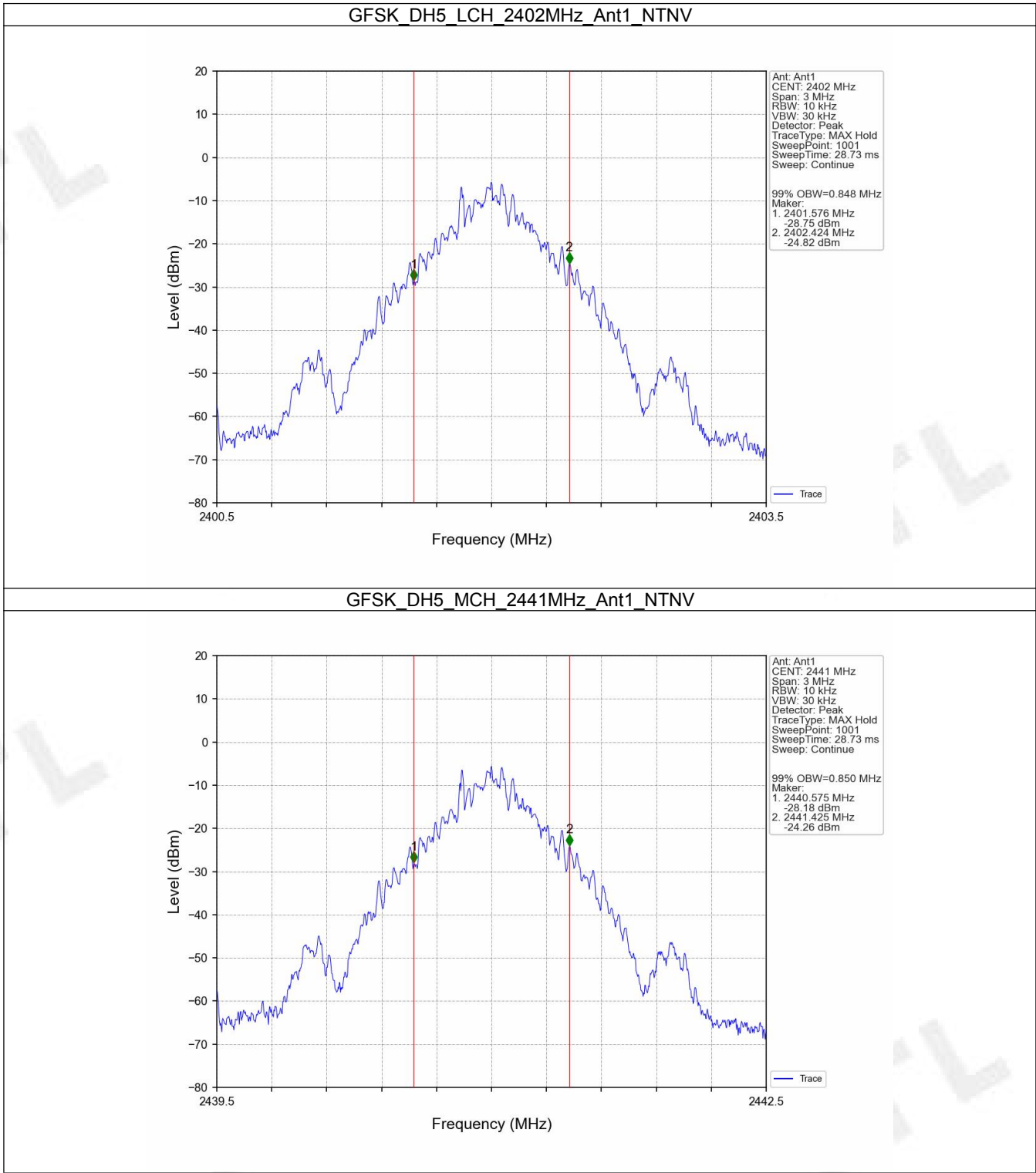
1.1.2 20dB BW

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	1.098	/	Pass
		2441	DH5	1	1.097	/	Pass
		2480	DH5	1	1.099	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.366	/	Pass
		2441	2DH5	1	1.364	/	Pass
		2480	2DH5	1	1.365	/	Pass
8DPSK	SISO	2402	3DH5	1	1.373	/	Pass
		2441	3DH5	1	1.376	/	Pass
		2480	3DH5	1	1.371	/	Pass

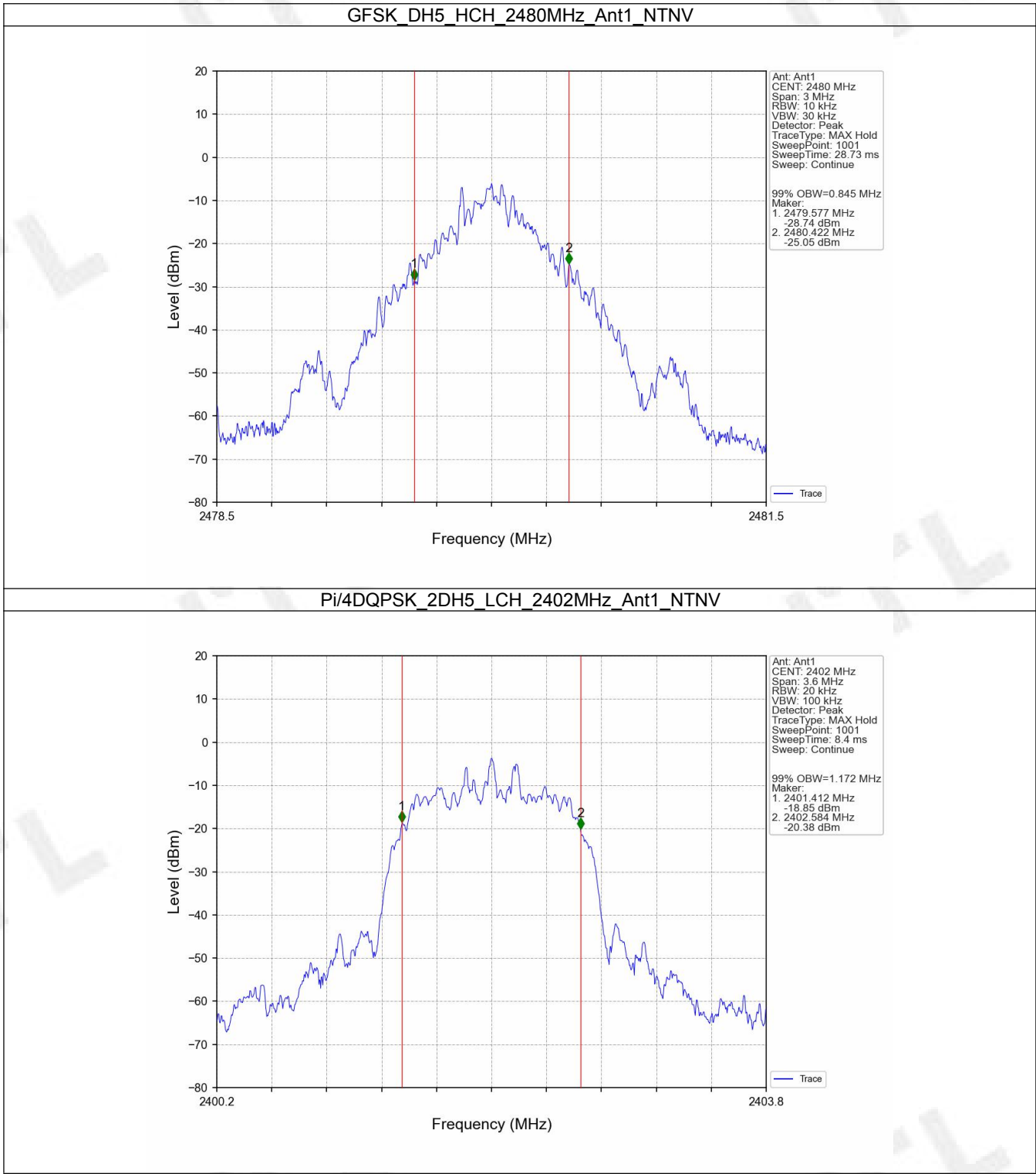
FCC ID: 2BR98-R10

1.2 Test Graph

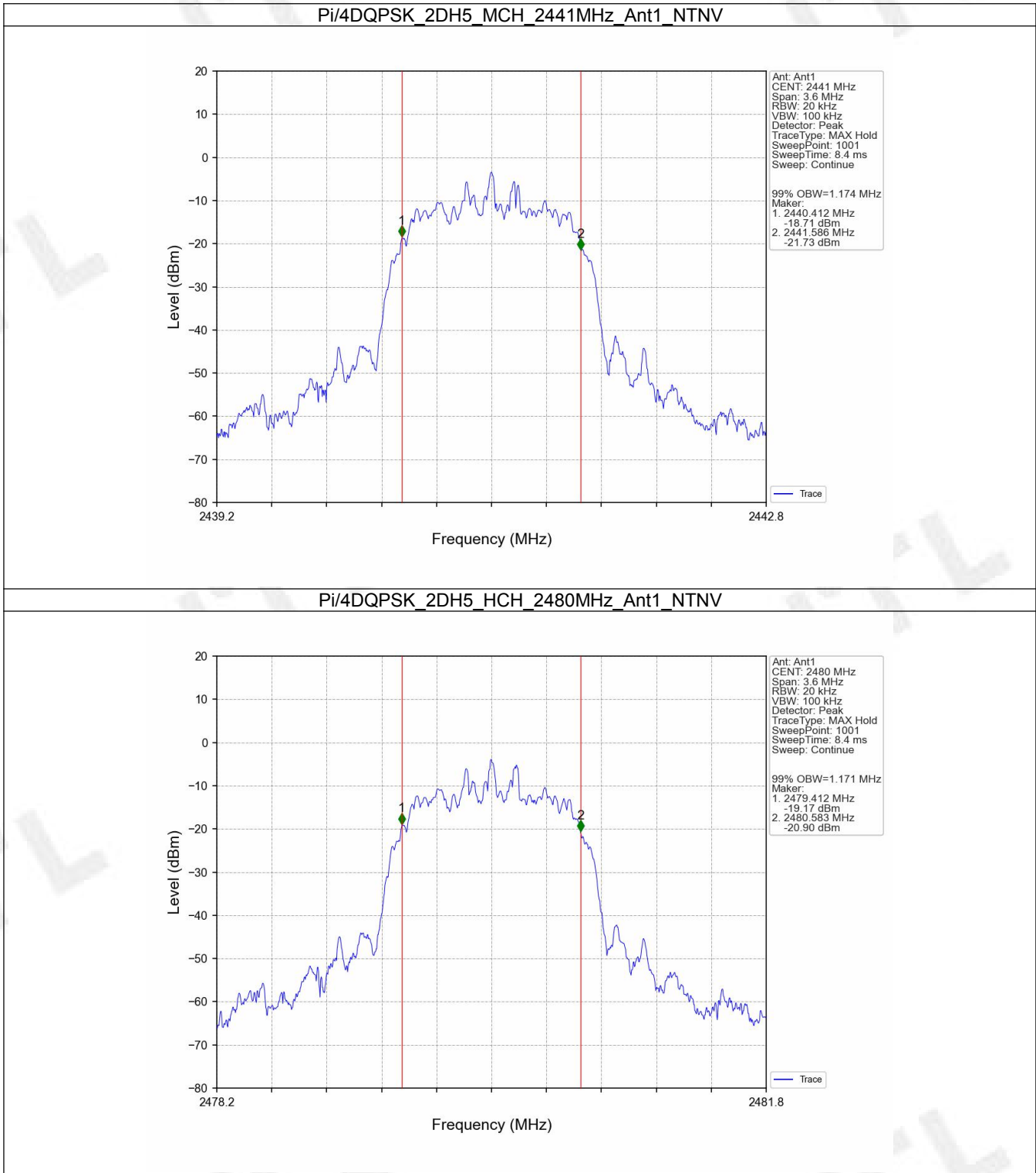
1.2.1 OBW



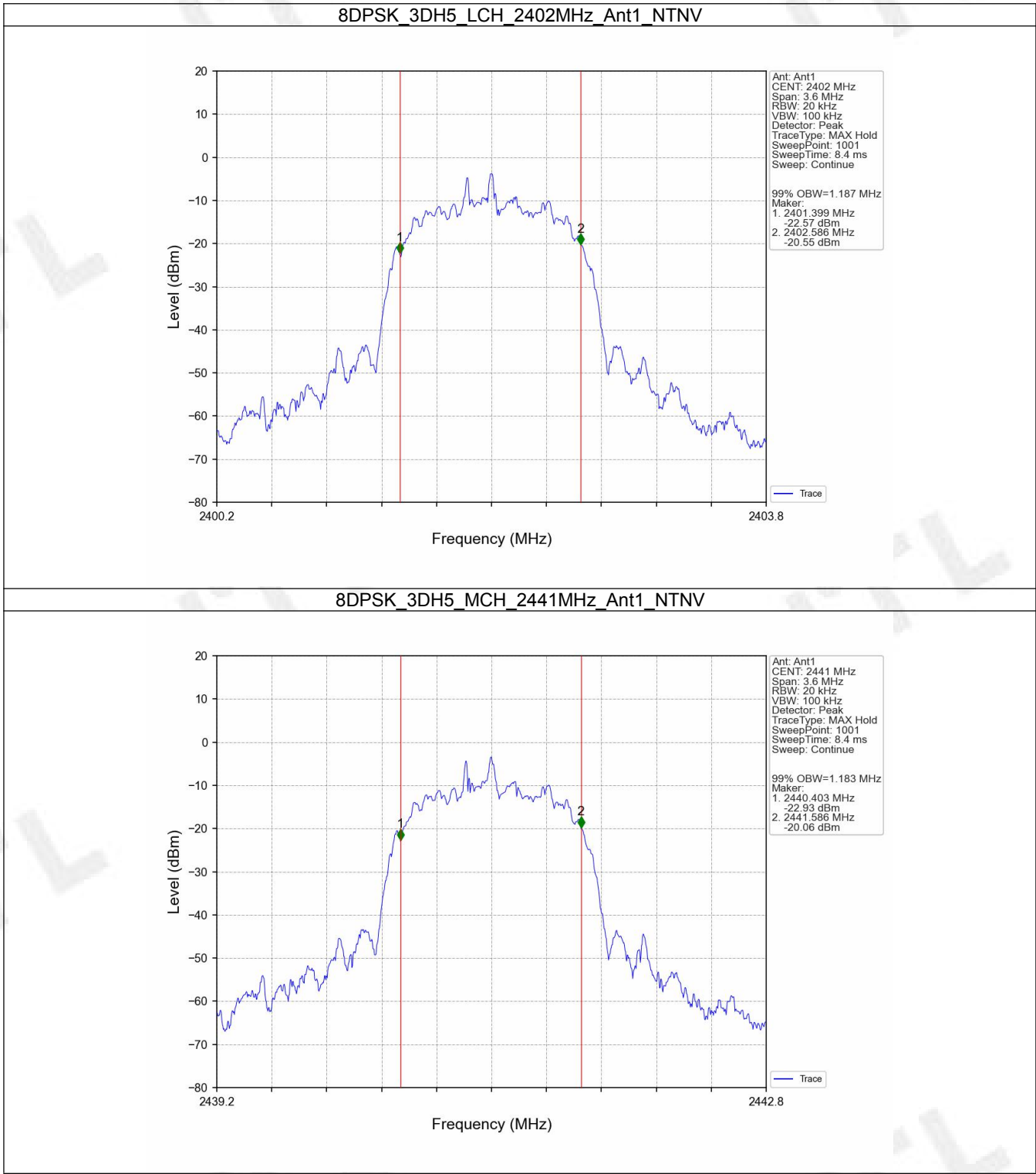
FCC ID: 2BR98-R10



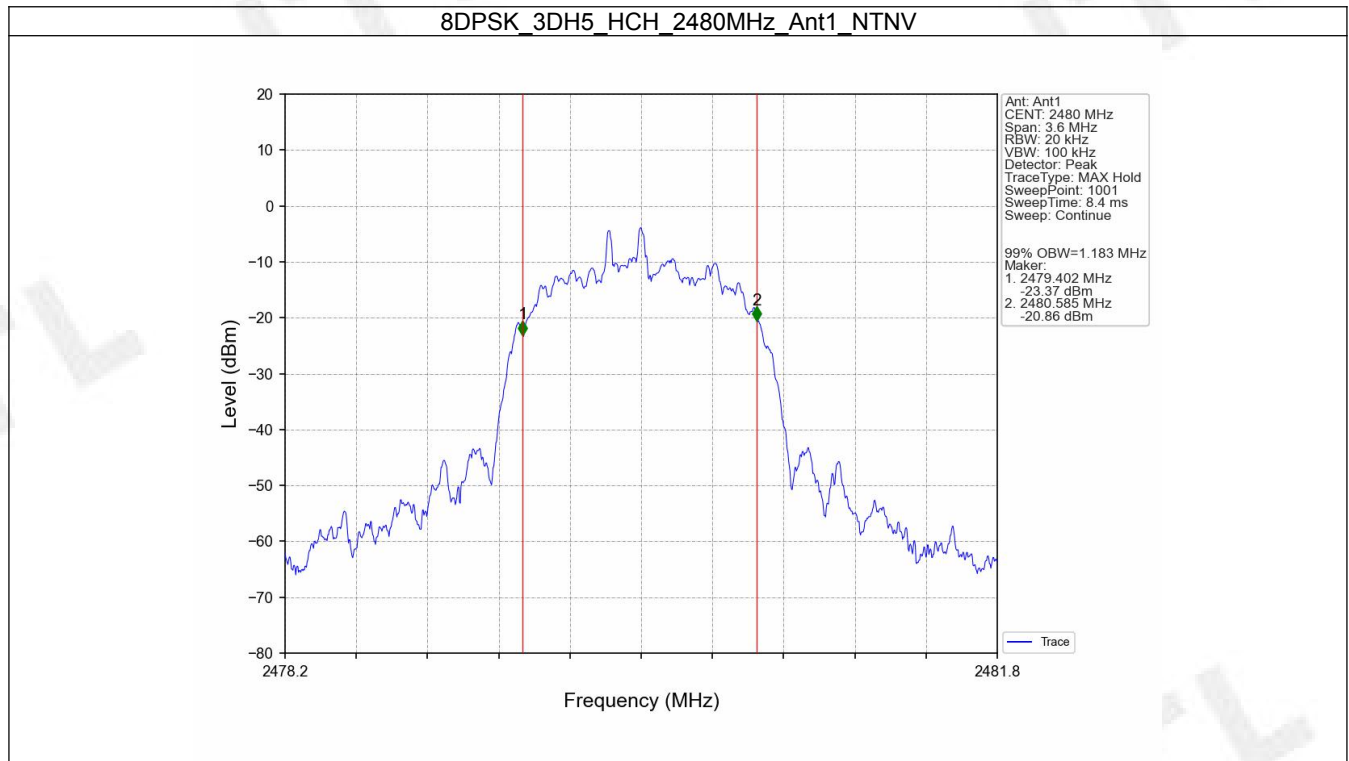
FCC ID: 2BR98-R10



FCC ID: 2BR98-R10

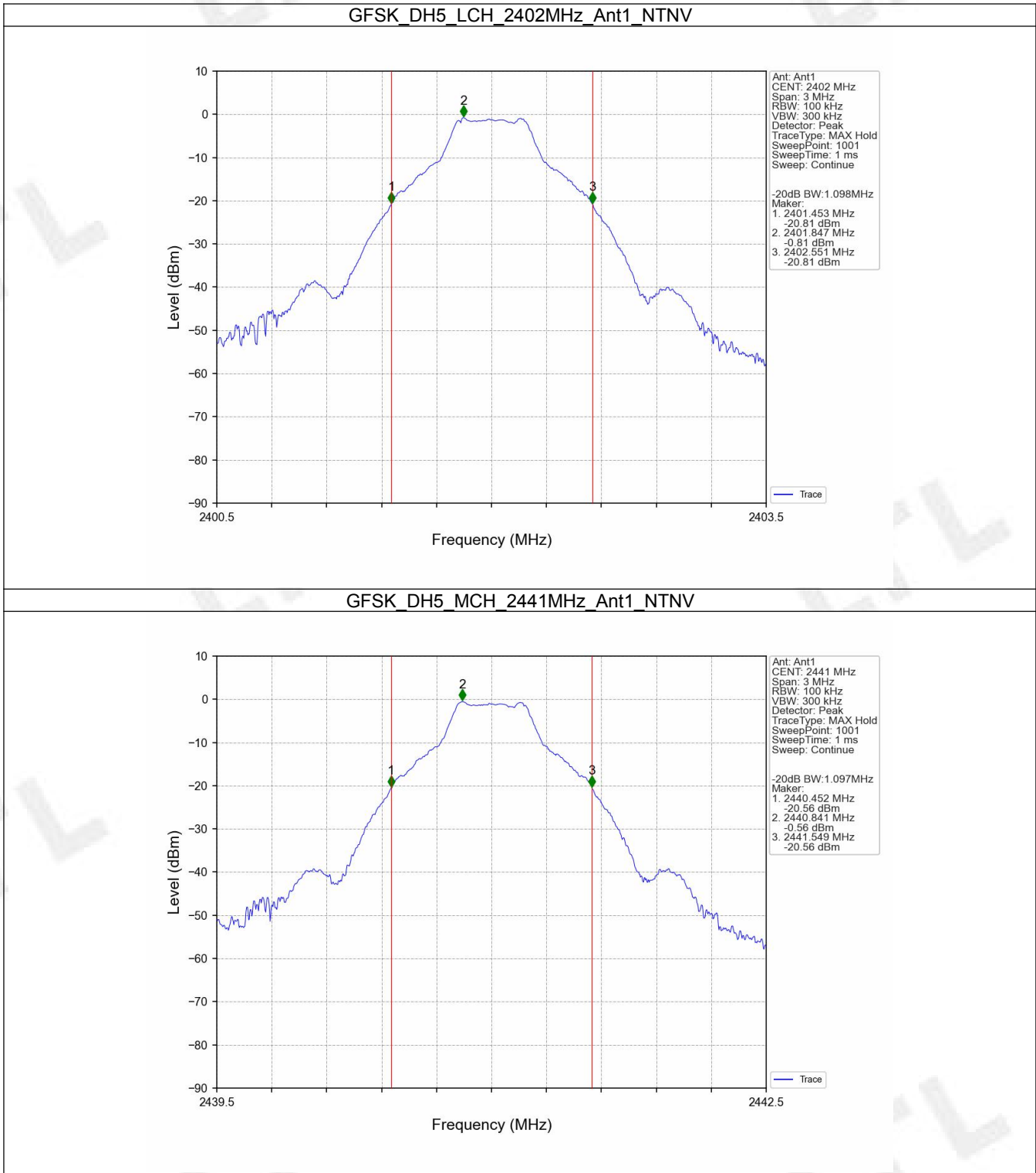


FCC ID: 2BR98-R10

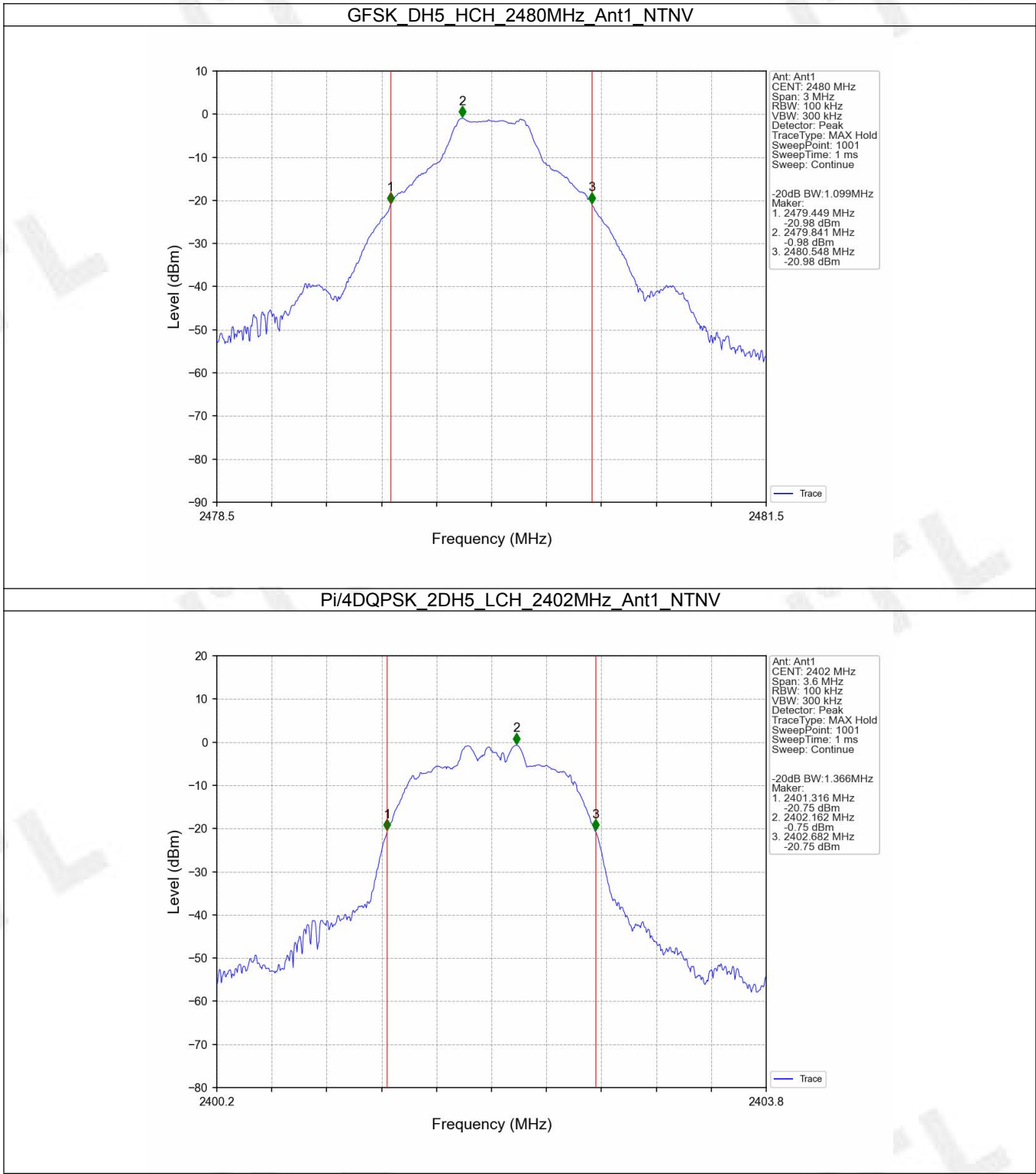


FCC ID: 2BR98-R10

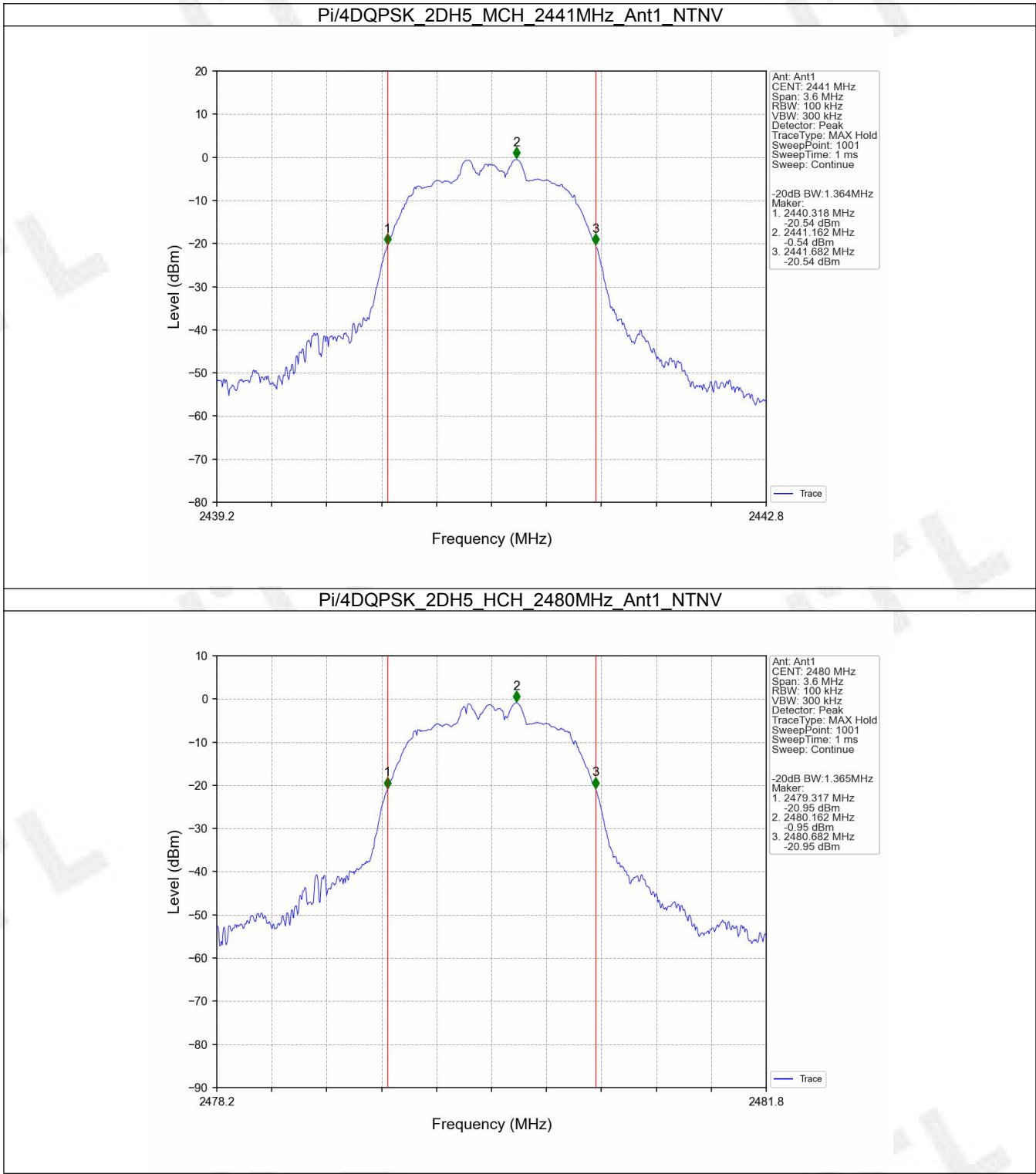
1.2.2 20dB BW



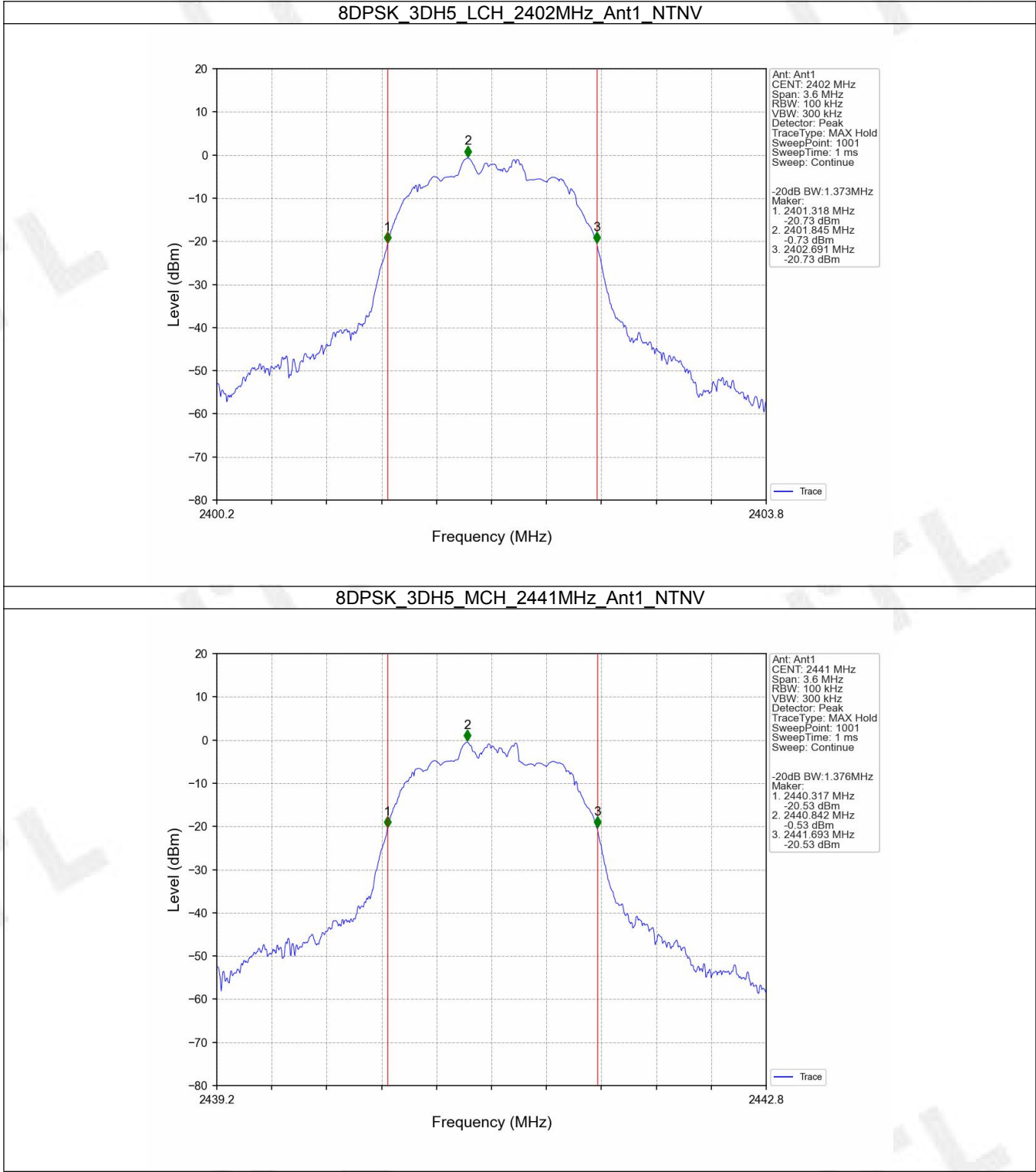
FCC ID: 2BR98-R10



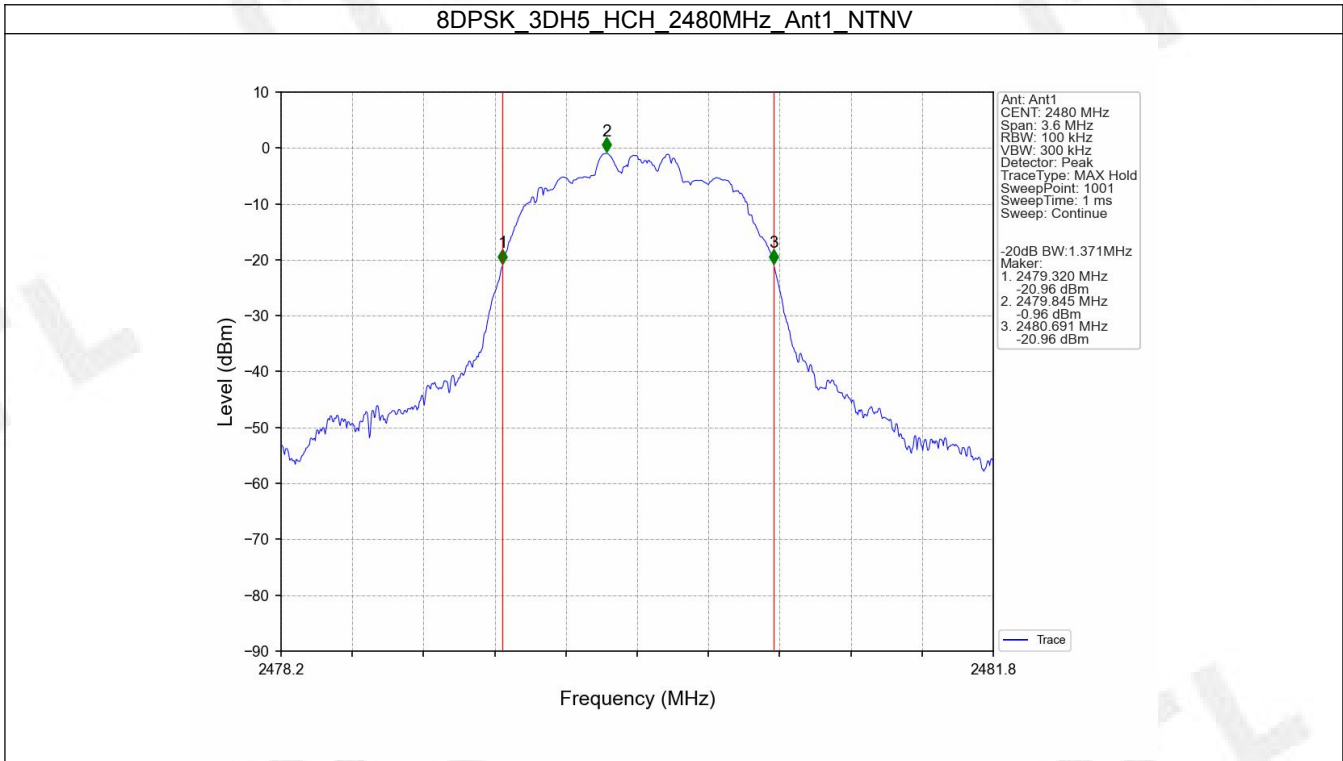
FCC ID: 2BR98-R10



FCC ID: 2BR98-R10



FCC ID: 2BR98-R10



FCC ID: 2BR98-R10

2. Maximum Conducted Output Power

2.1 Test Result

2.1.1 Power

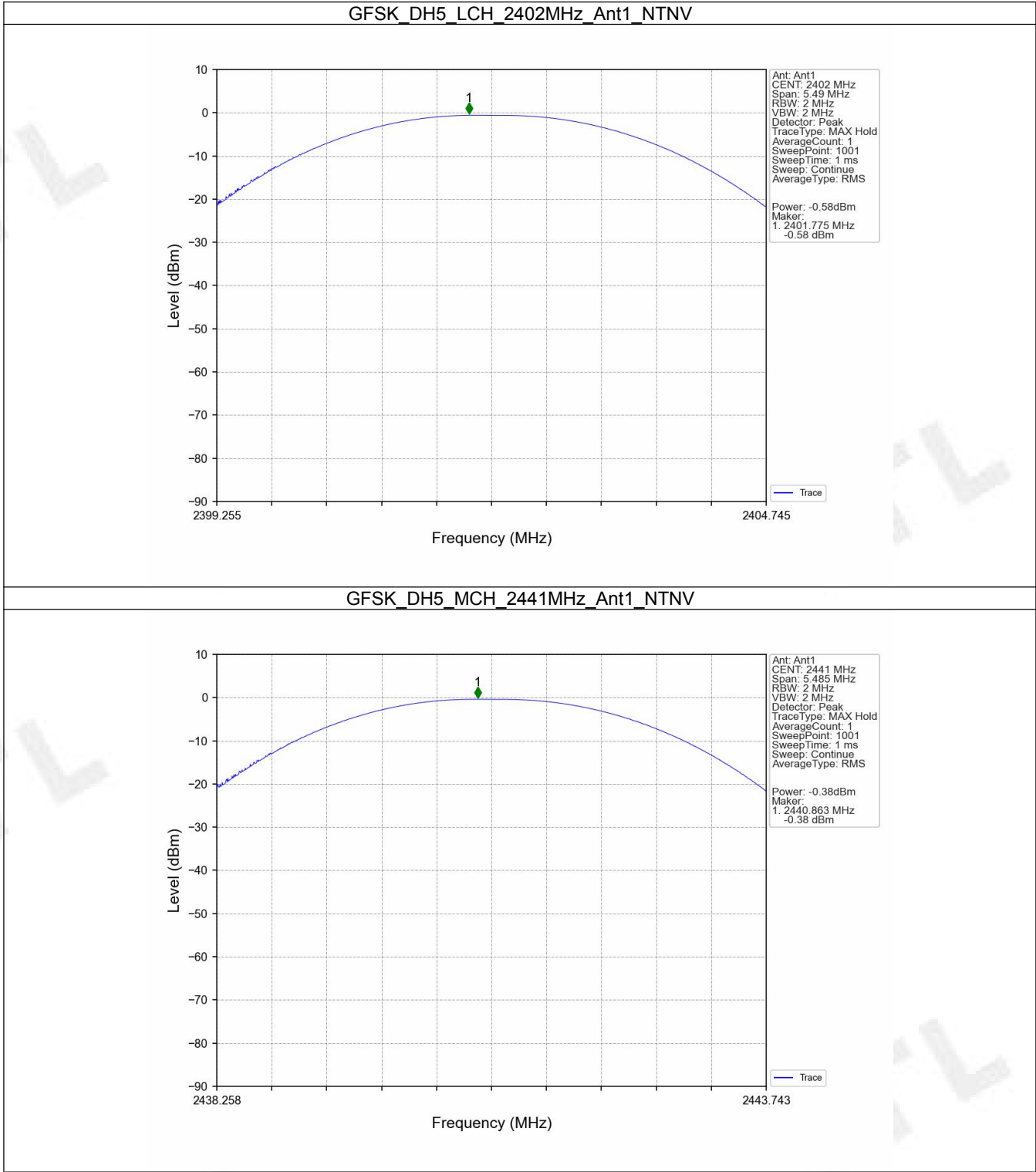
Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	-0.58	≤ 20.97	Pass
		2441	DH5	-0.38	≤ 20.97	Pass
		2480	DH5	-0.80	≤ 20.97	Pass
Pi/4DQPSK	SISO	2402	2DH5	0.35	≤ 20.97	Pass
		2441	2DH5	0.55	≤ 20.97	Pass
		2480	2DH5	0.15	≤ 20.97	Pass
8DPSK	SISO	2402	3DH5	0.77	≤ 20.97	Pass
		2441	3DH5	0.97	≤ 20.97	Pass
		2480	3DH5	0.56	≤ 20.97	Pass

Note1: Antenna Gain: Ant1: -0.58dBi;

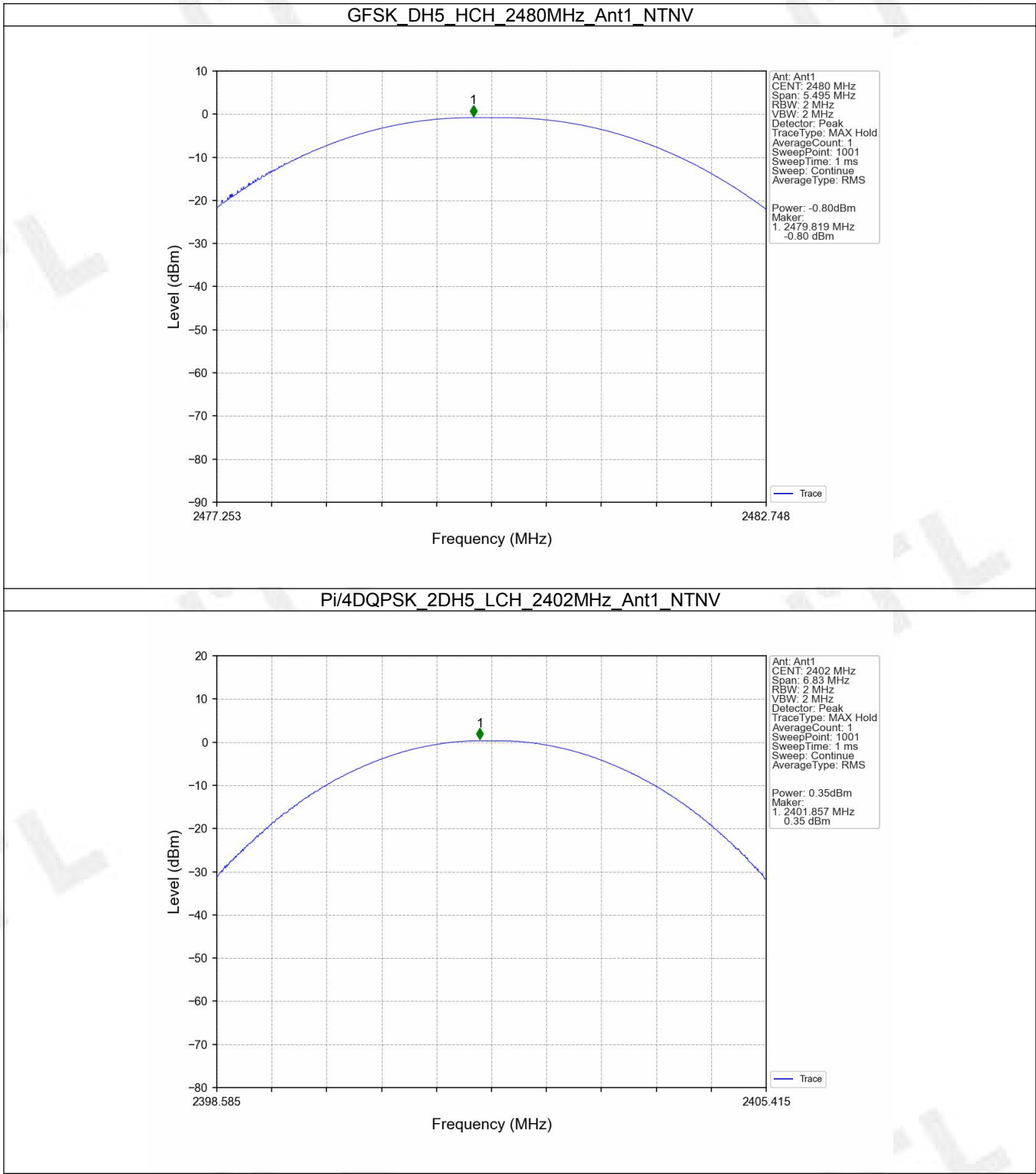
FCC ID: 2BR98-R10

2.2 Test Graph

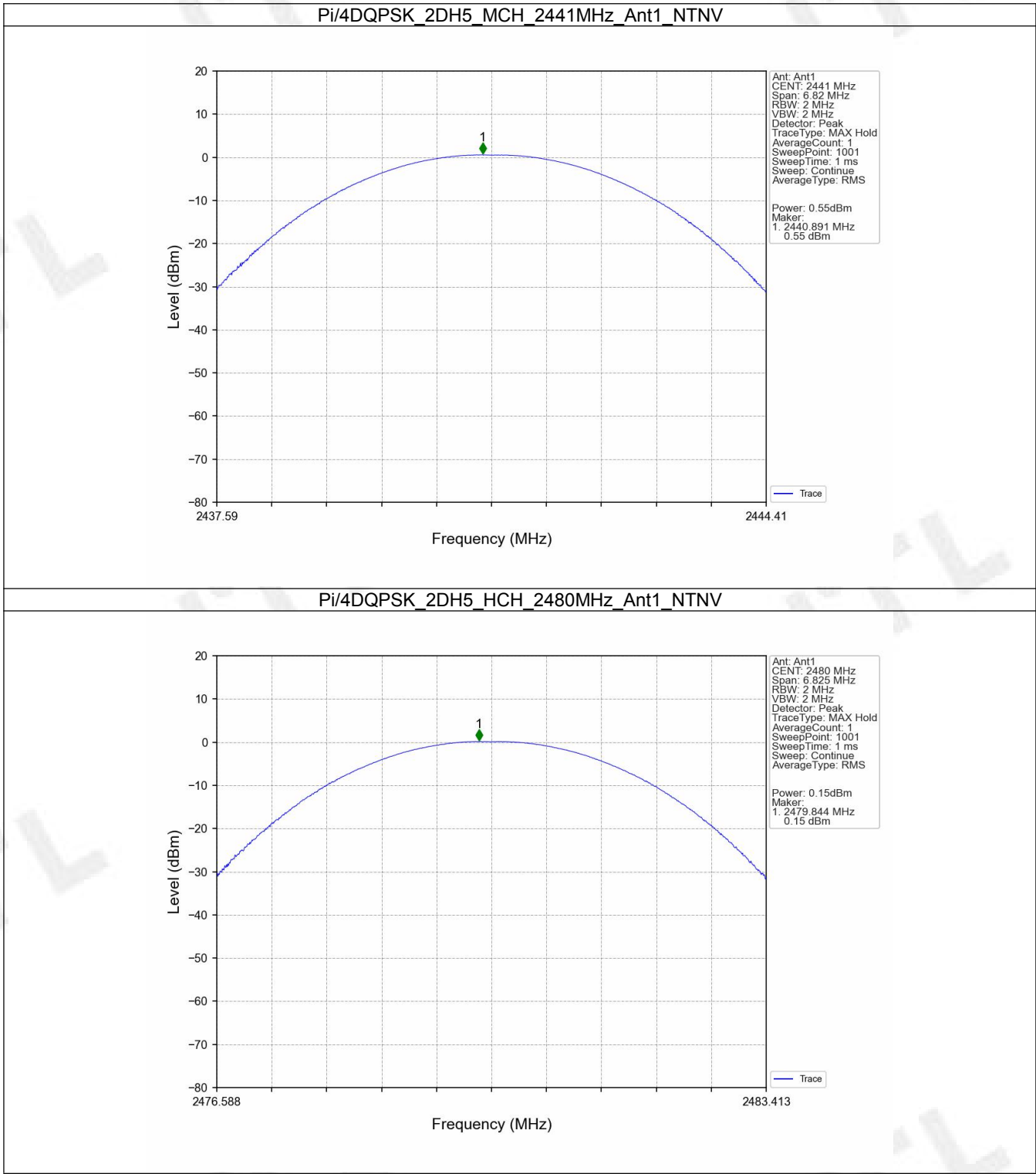
2.2.1 Power



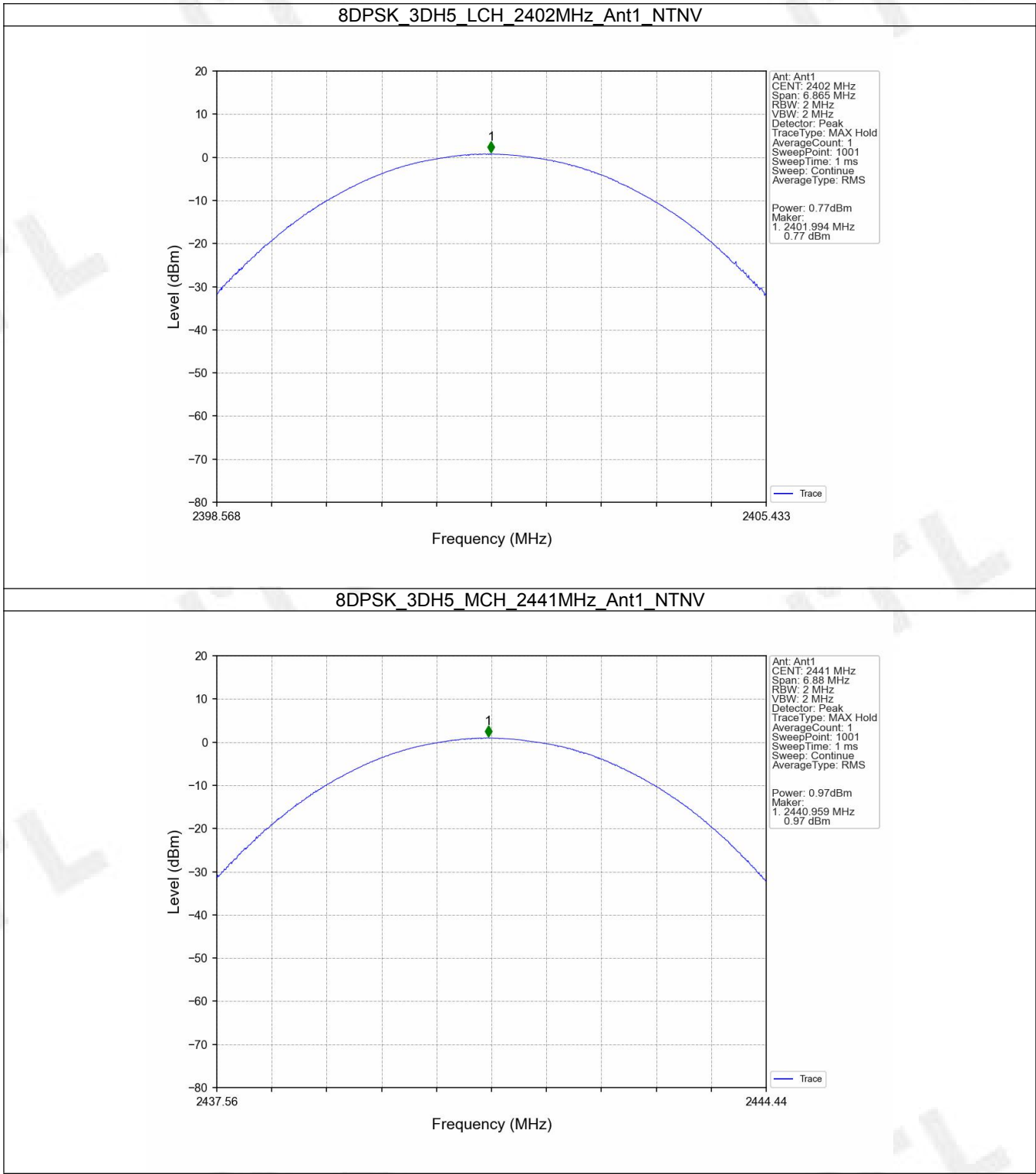
FCC ID: 2BR98-R10



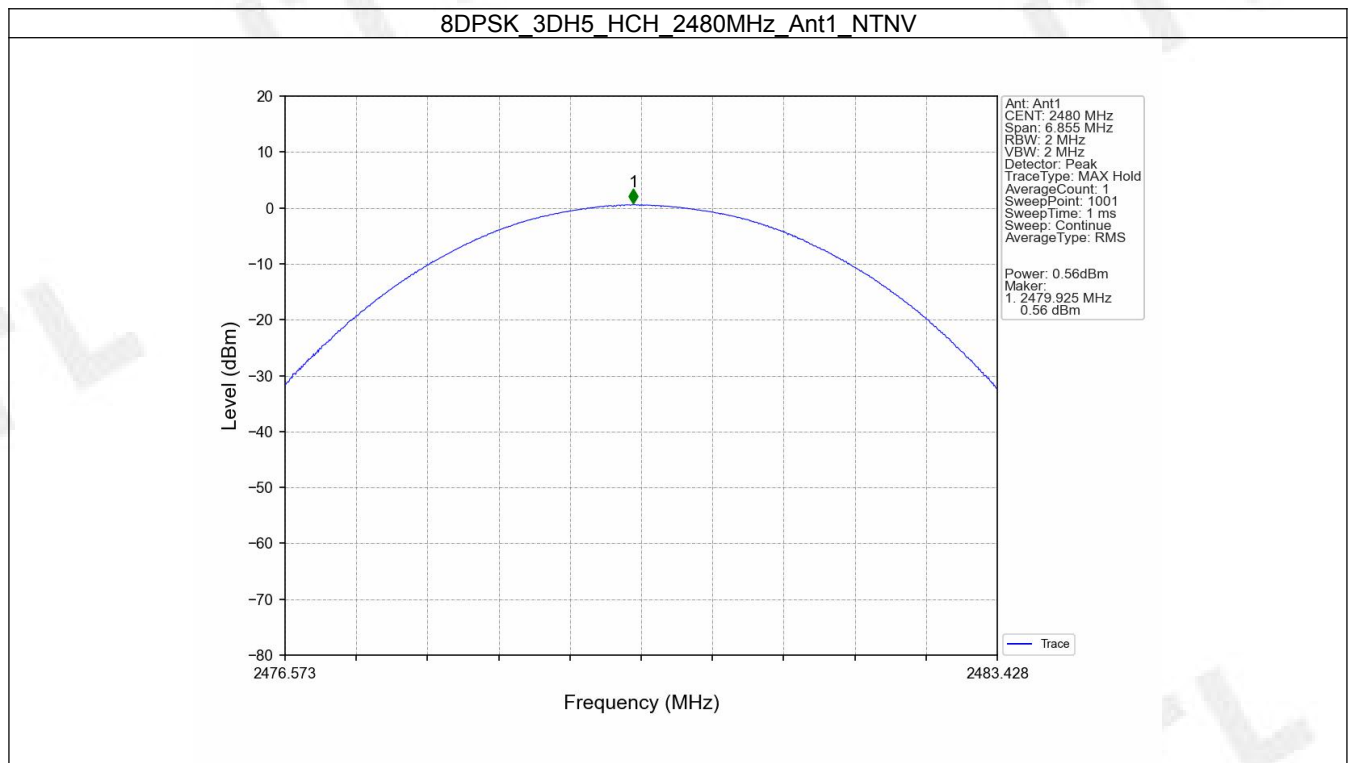
FCC ID: 2BR98-R10



FCC ID: 2BR98-R10



FCC ID: 2BR98-R10



FCC ID: 2BR98-R10

3. Carrier Frequency Separation

3.1 Test Result

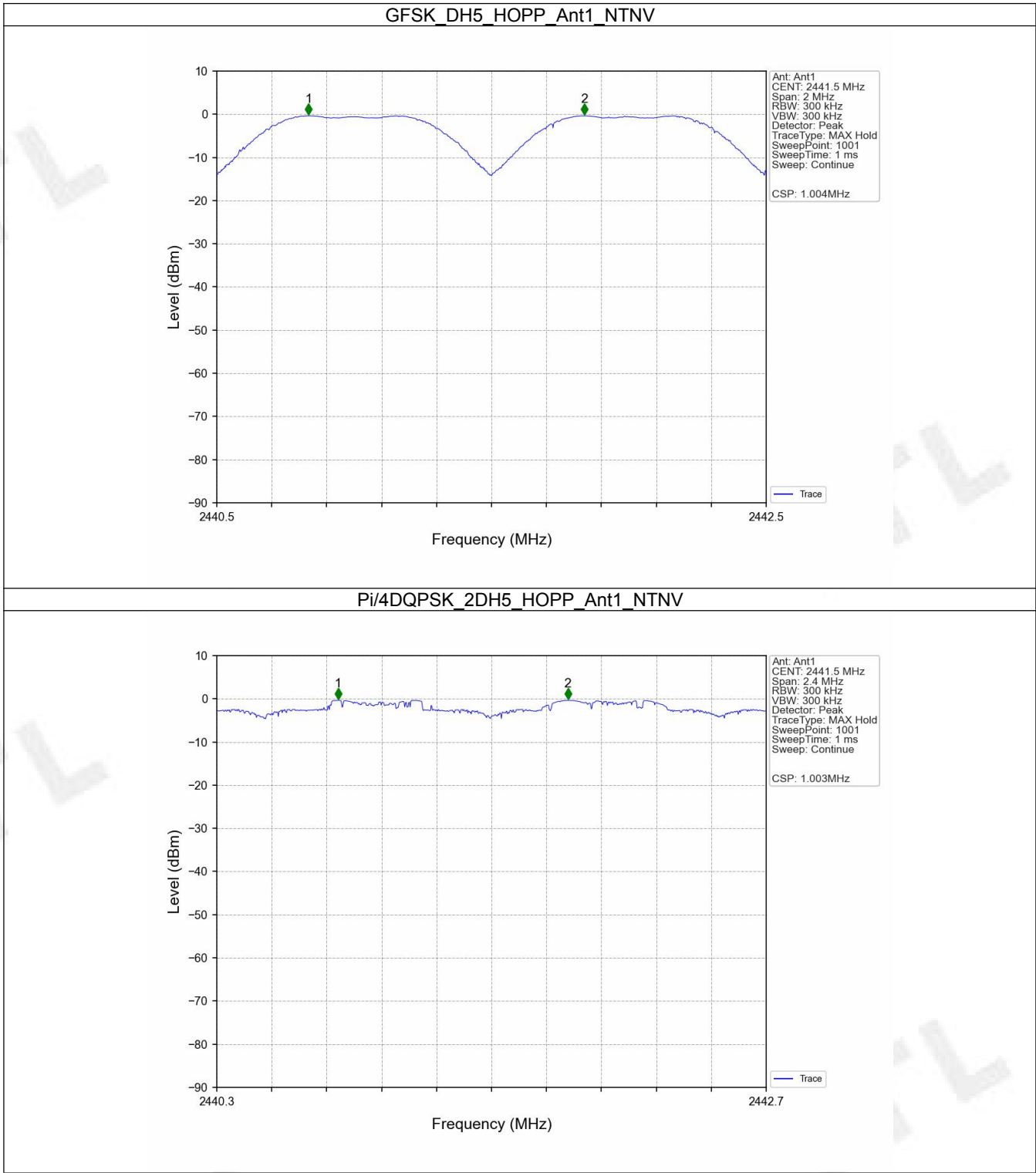
3.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	1.004	1.099	≥ 0.733	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	1.003	1.366	≥ 0.911	Pass
8DPSK	SISO	HOPP	3DH5	1.013	1.376	≥ 0.917	Pass

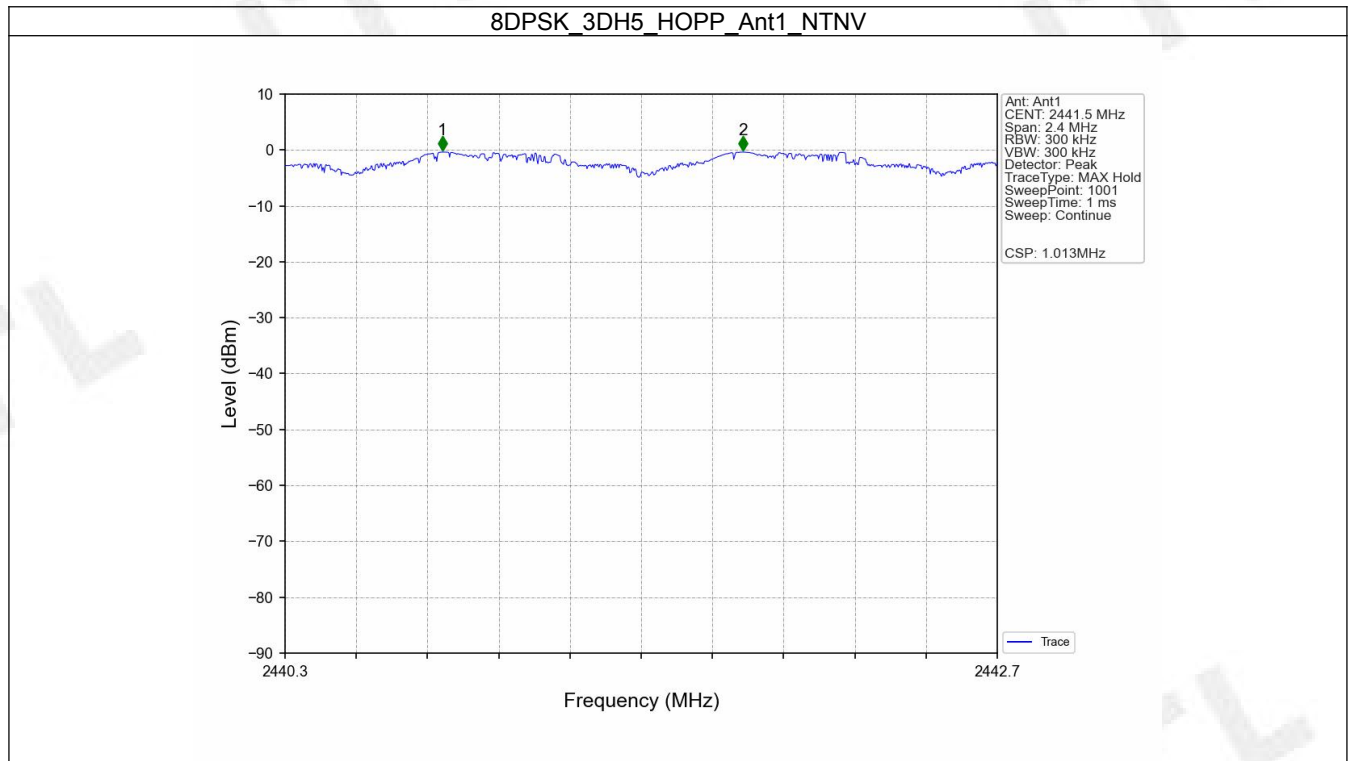
FCC ID: 2BR98-R10

3.2 Test Graph

3.2.1 Ant1



FCC ID: 2BR98-R10



FCC ID: 2BR98-R10

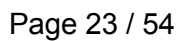
4. Number of Hopping Frequencies

4.1 Test Result

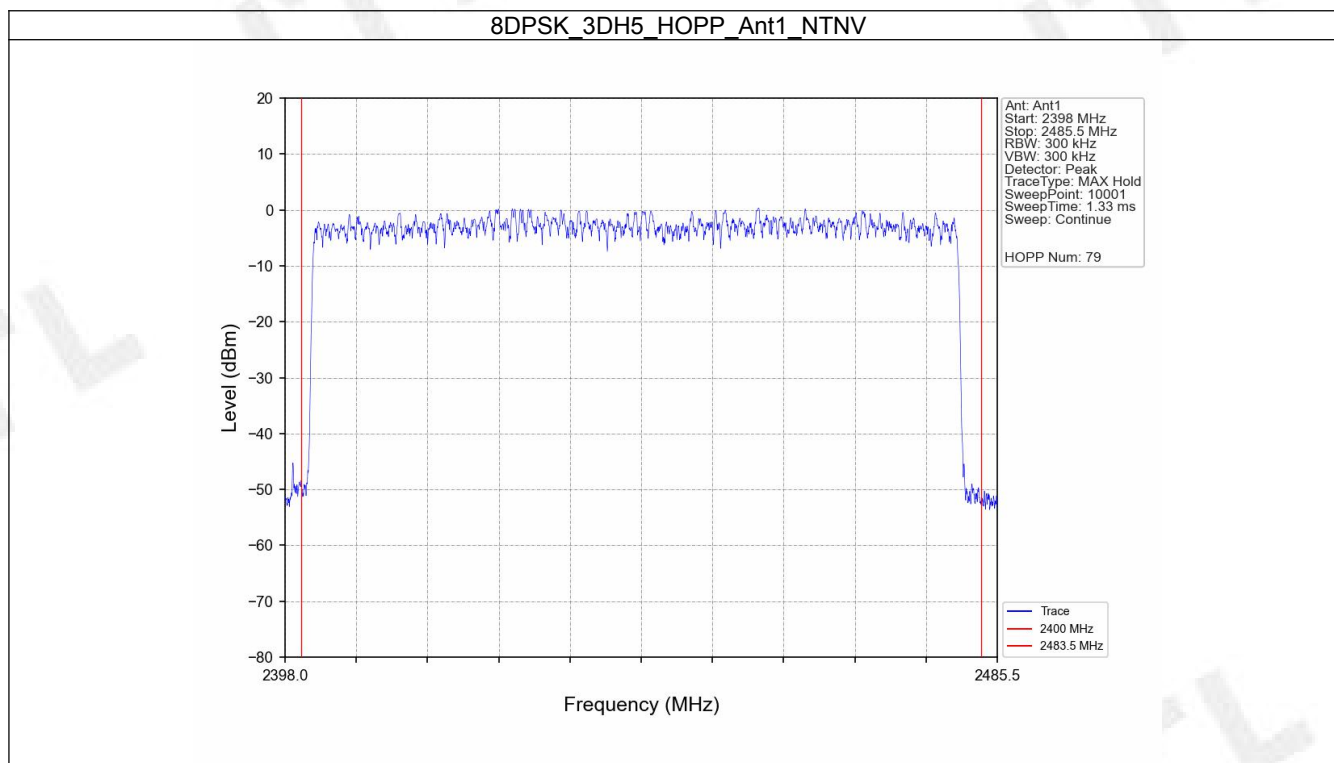
4.1.1 HoppNum

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

4.2.1 HoppNum



FCC ID: 2BR98-R10



FCC ID: 2BR98-R10

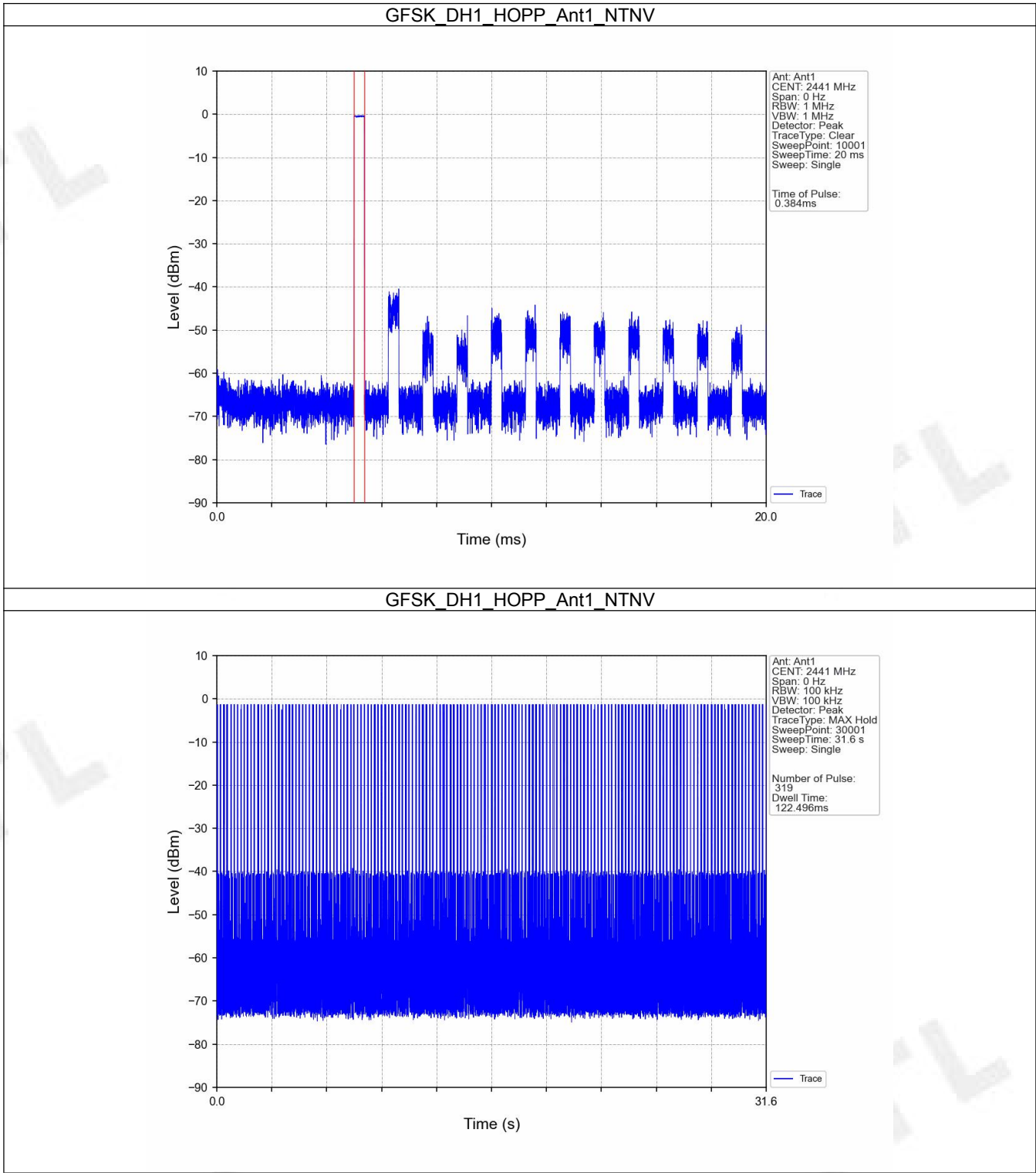
5. Time of Occupancy (Dwell Time)**5.1 Test Result****5.1.1 Ant1**

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	0.384	31.600	319	122.496	<=400	Pass
			DH3	1.636	31.600	158	258.488	<=400	Pass
			DH5	2.888	31.600	109	314.792	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.390	31.600	318	124.020	<=400	Pass
			2DH3	1.644	31.600	162	266.328	<=400	Pass
			2DH5	2.894	31.600	91	263.354	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.390	31.600	319	124.410	<=400	Pass
			3DH3	1.640	31.600	154	252.560	<=400	Pass
			3DH5	2.892	31.600	105	303.660	<=400	Pass

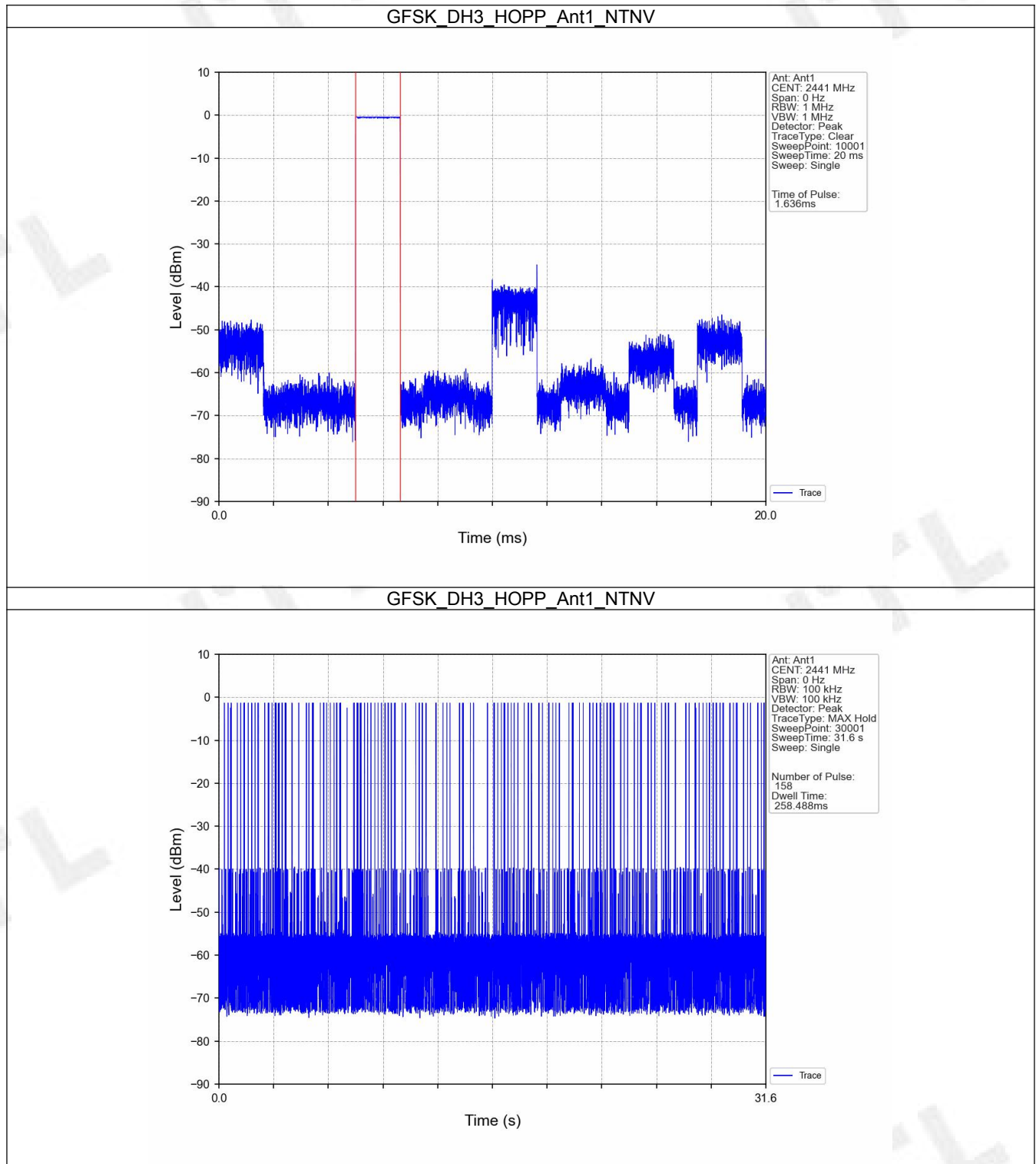
FCC ID: 2BR98-R10

5.2 Test Graph

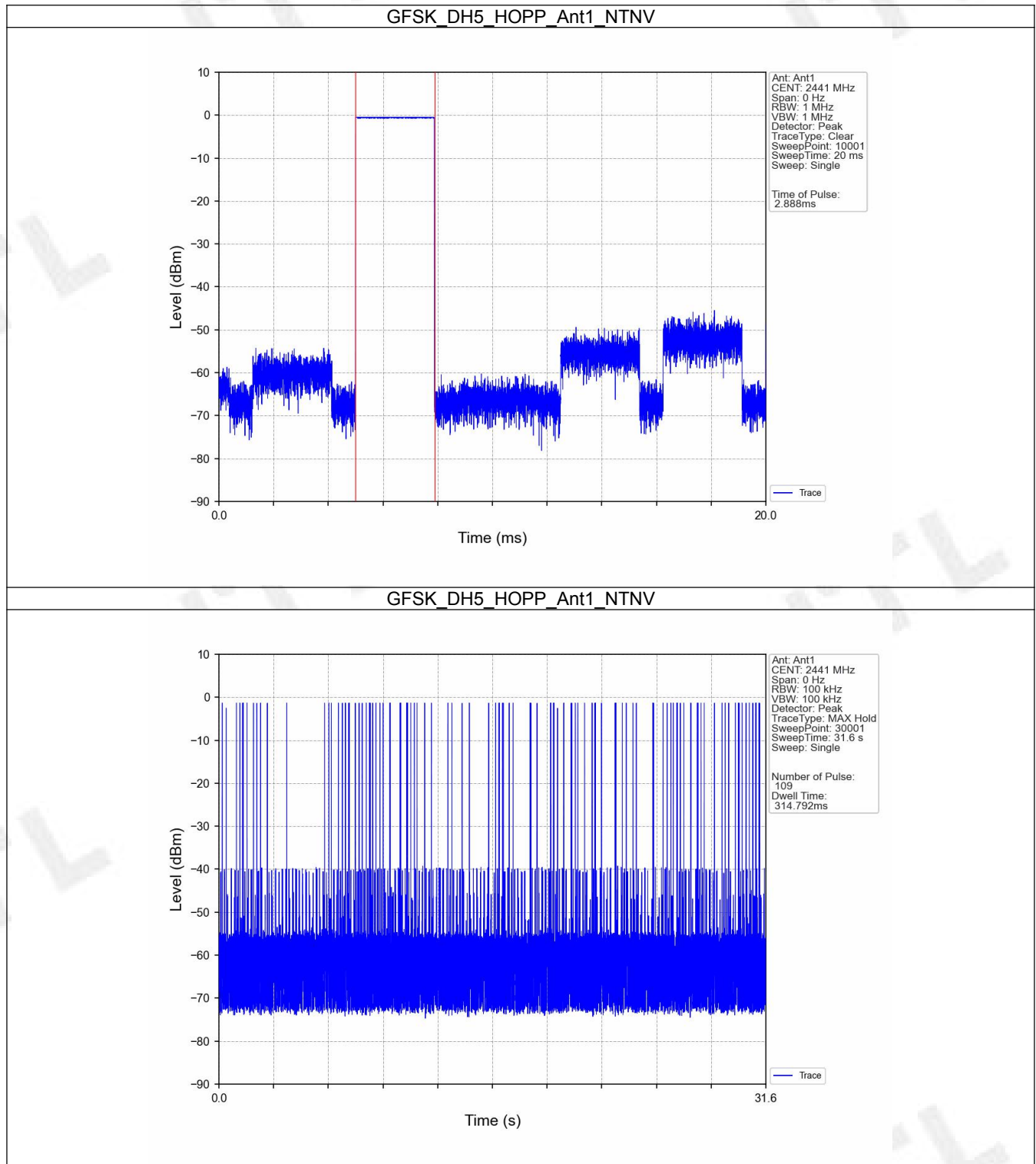
5.2.1 Ant1



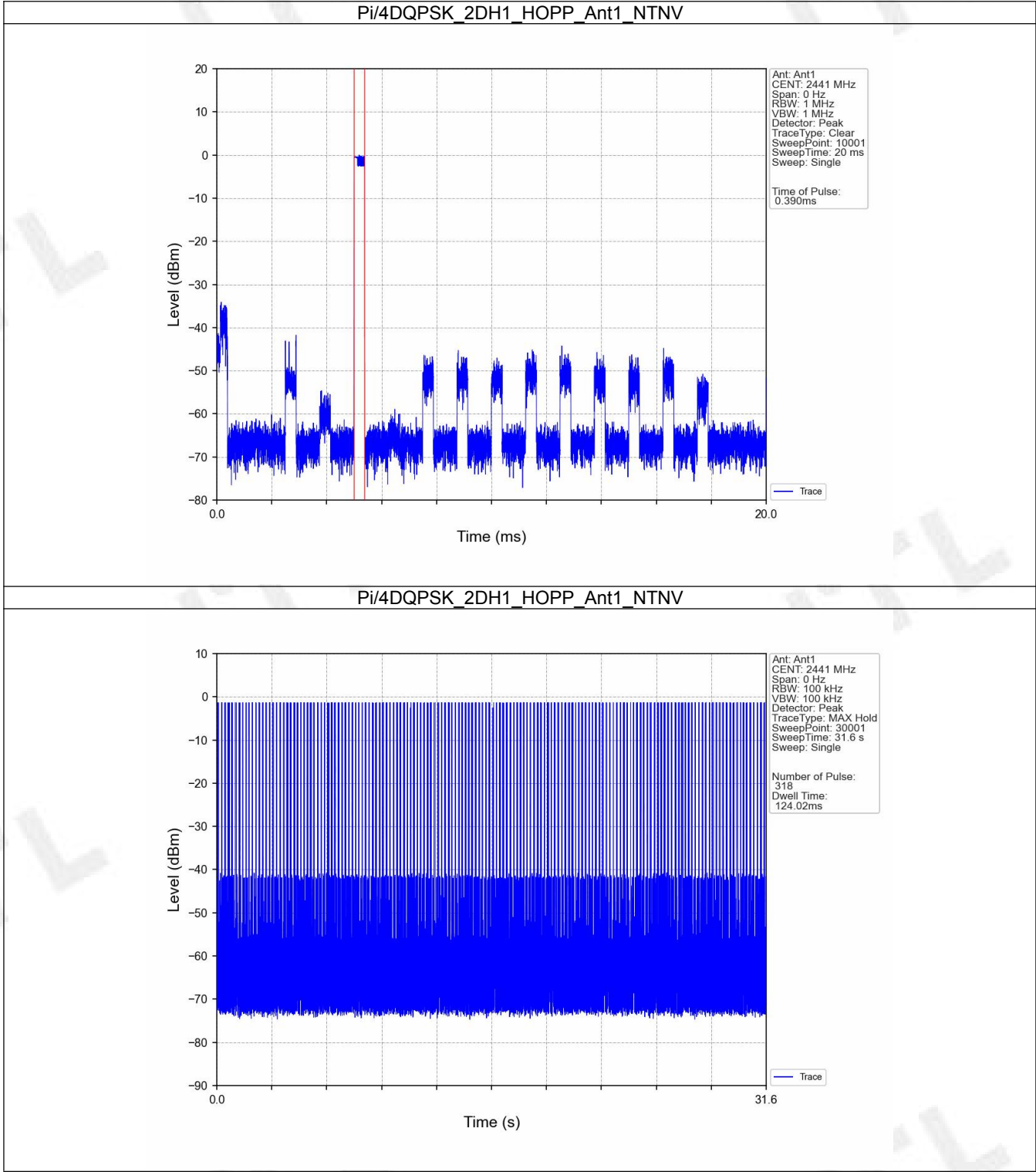
FCC ID: 2BR98-R10



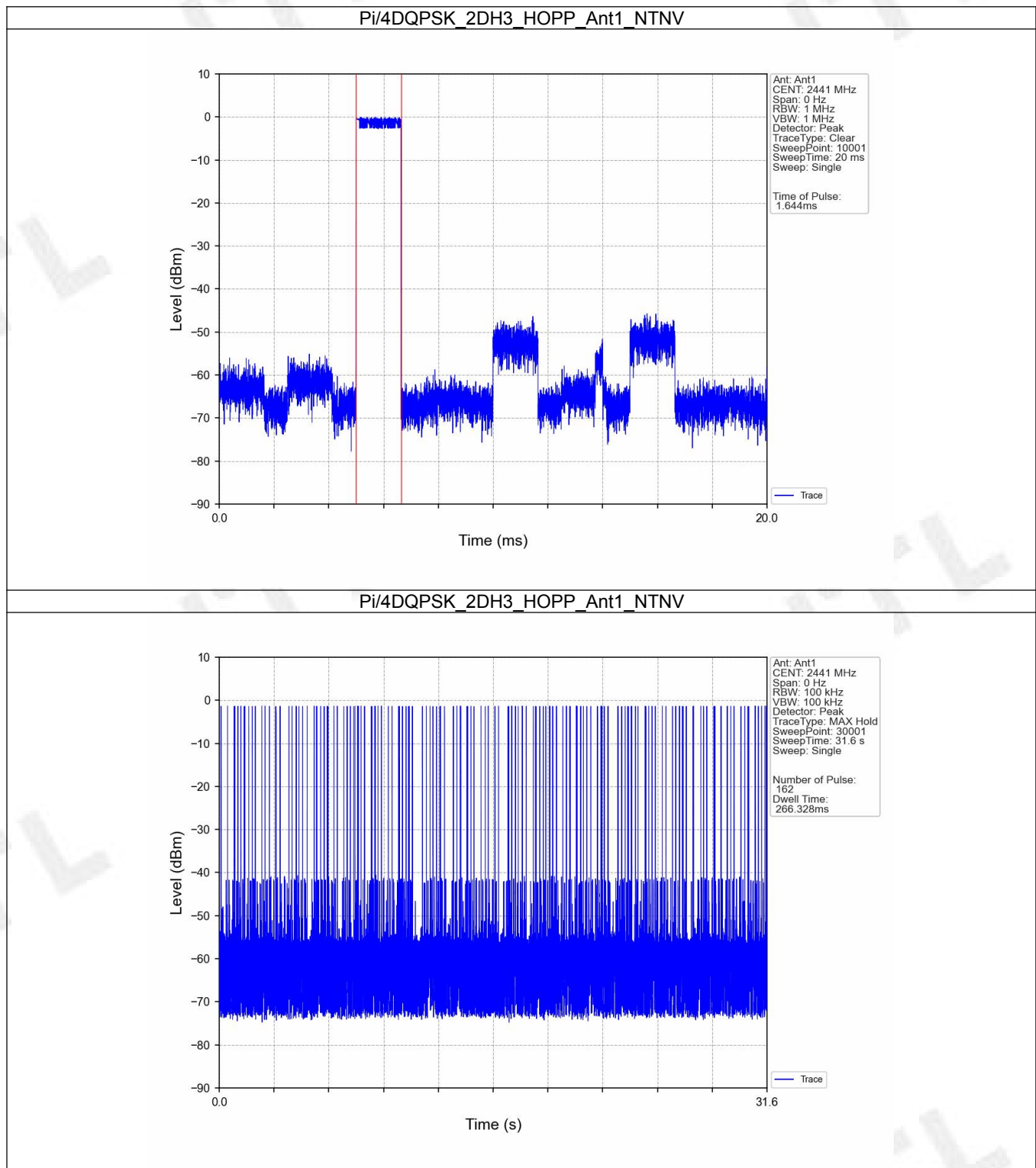
FCC ID: 2BR98-R10



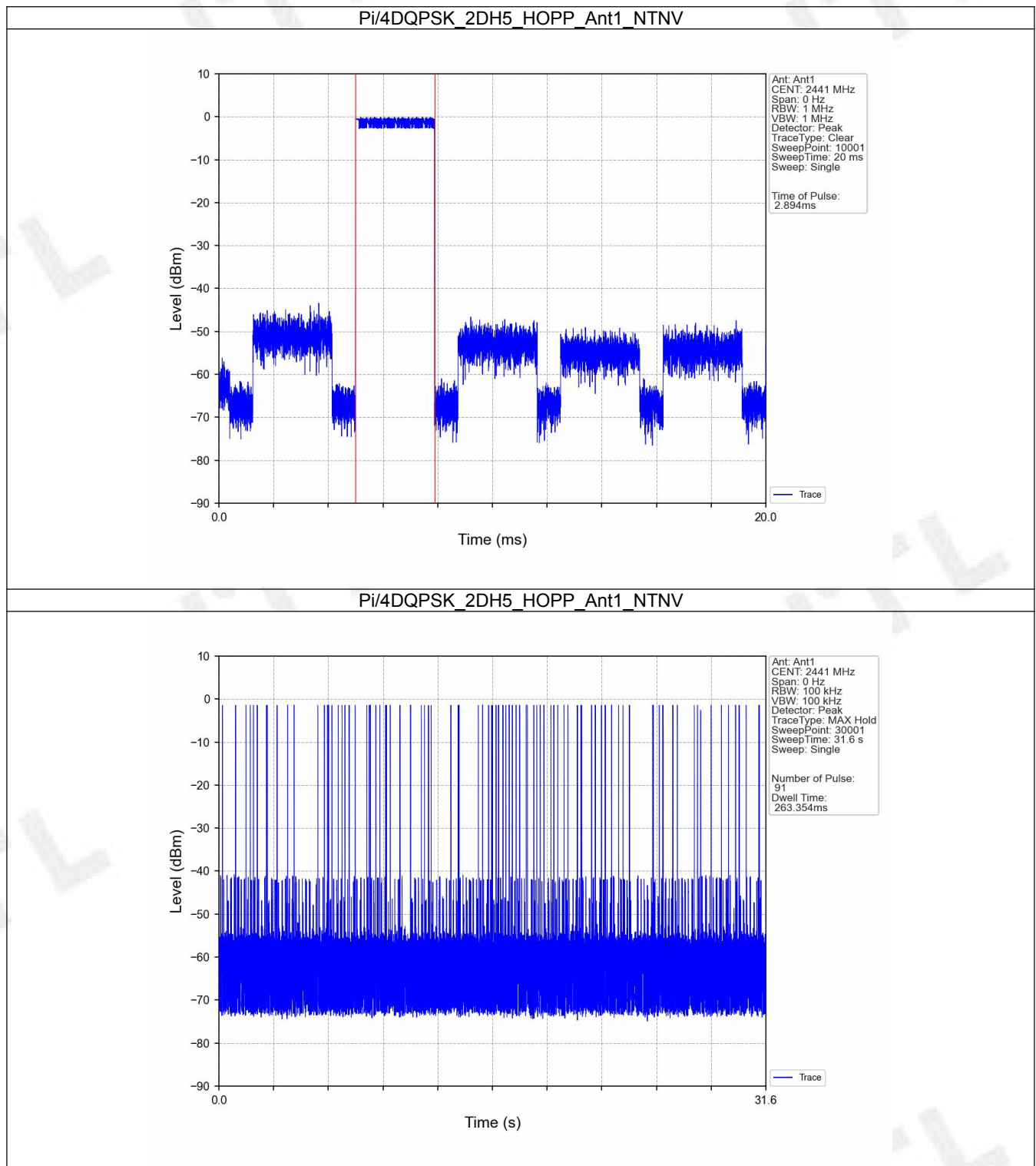
FCC ID: 2BR98-R10



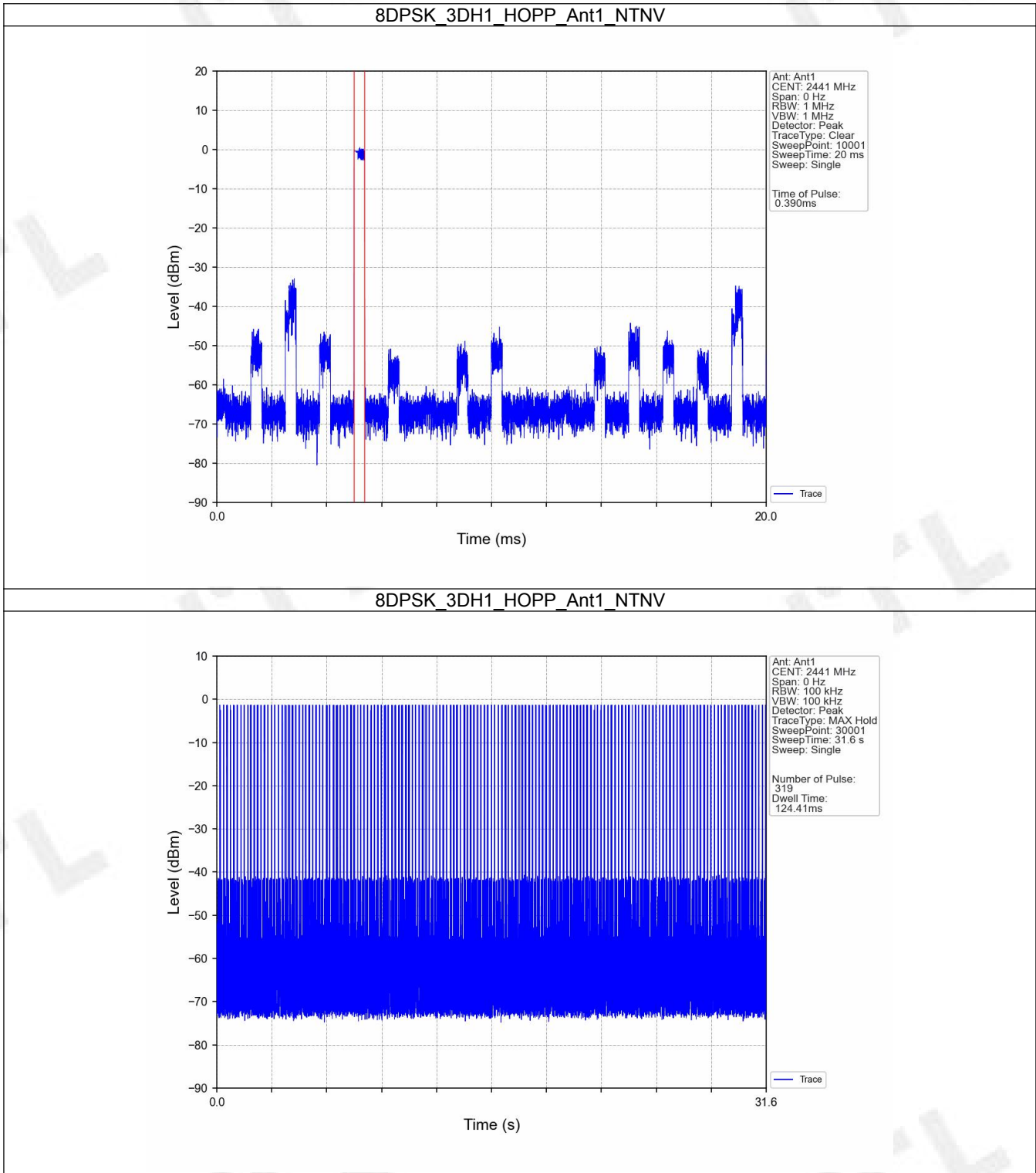
FCC ID: 2BR98-R10



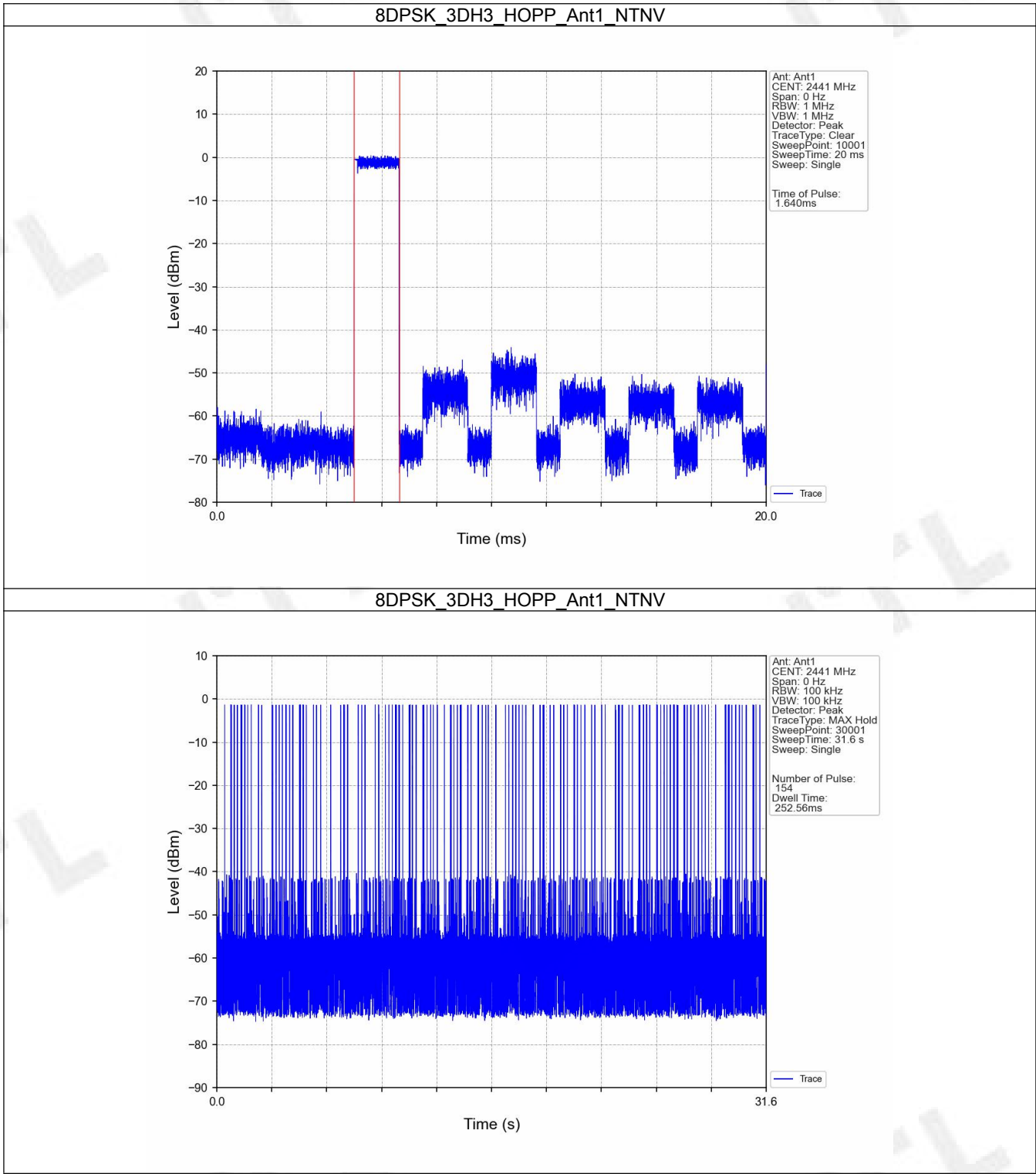
FCC ID: 2BR98-R10



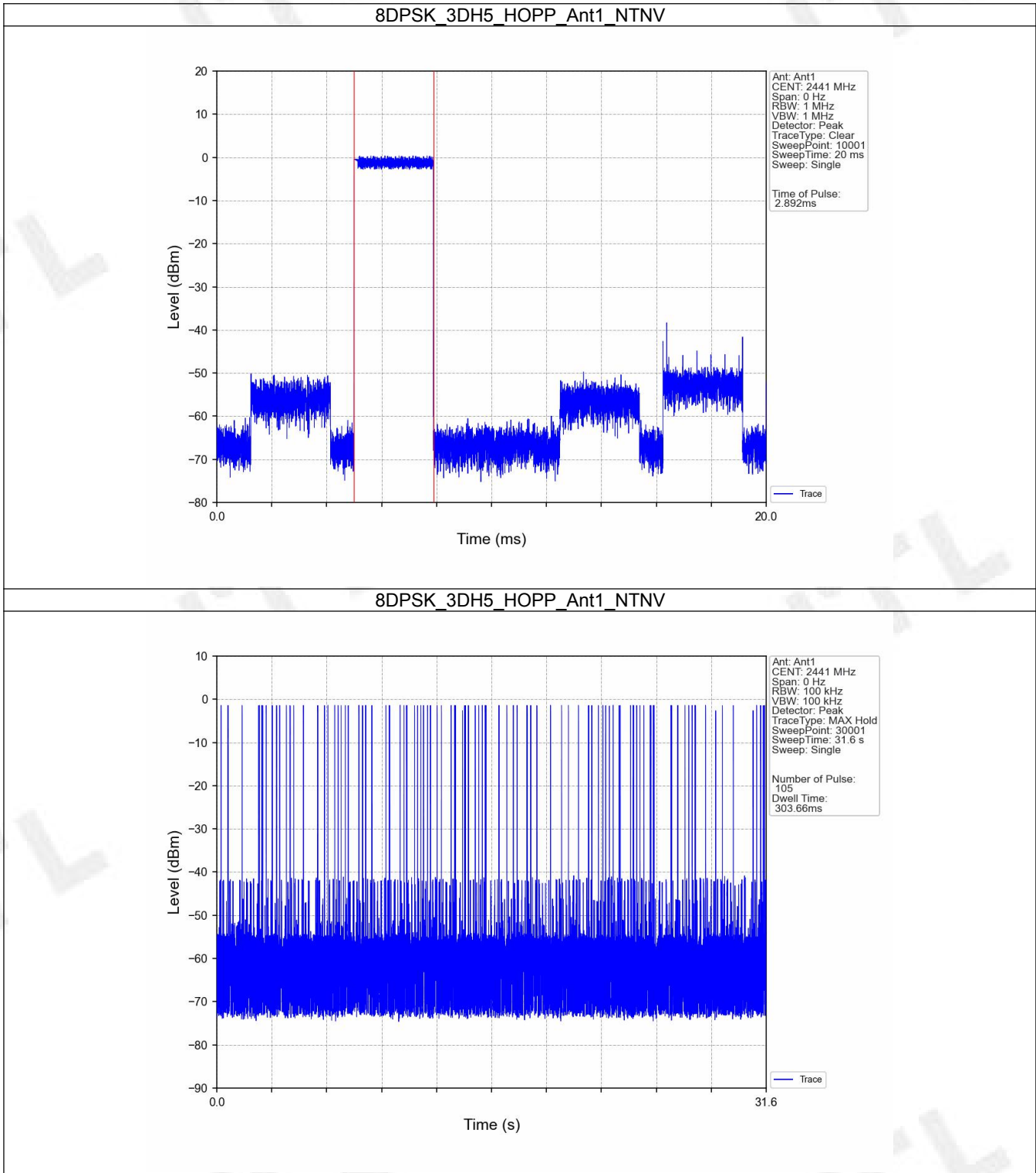
FCC ID: 2BR98-R10



FCC ID: 2BR98-R10



FCC ID: 2BR98-R10



FCC ID: 2BR98-R10

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	-0.75
		2441	DH5	1	-0.55
		2480	DH5	1	-0.95
		HOPP	DH5	1	1.95
					1.95
Pi/4DQPSK	SISO	2402	2DH5	1	-0.75
		2441	2DH5	1	-0.54
		2480	2DH5	1	-0.94
		HOPP	2DH5	1	1.70
					1.70
8DPSK	SISO	2402	3DH5	1	-0.72
		2441	3DH5	1	-0.60
		2480	3DH5	1	-0.93
		HOPP	3DH5	1	1.55
					1.55

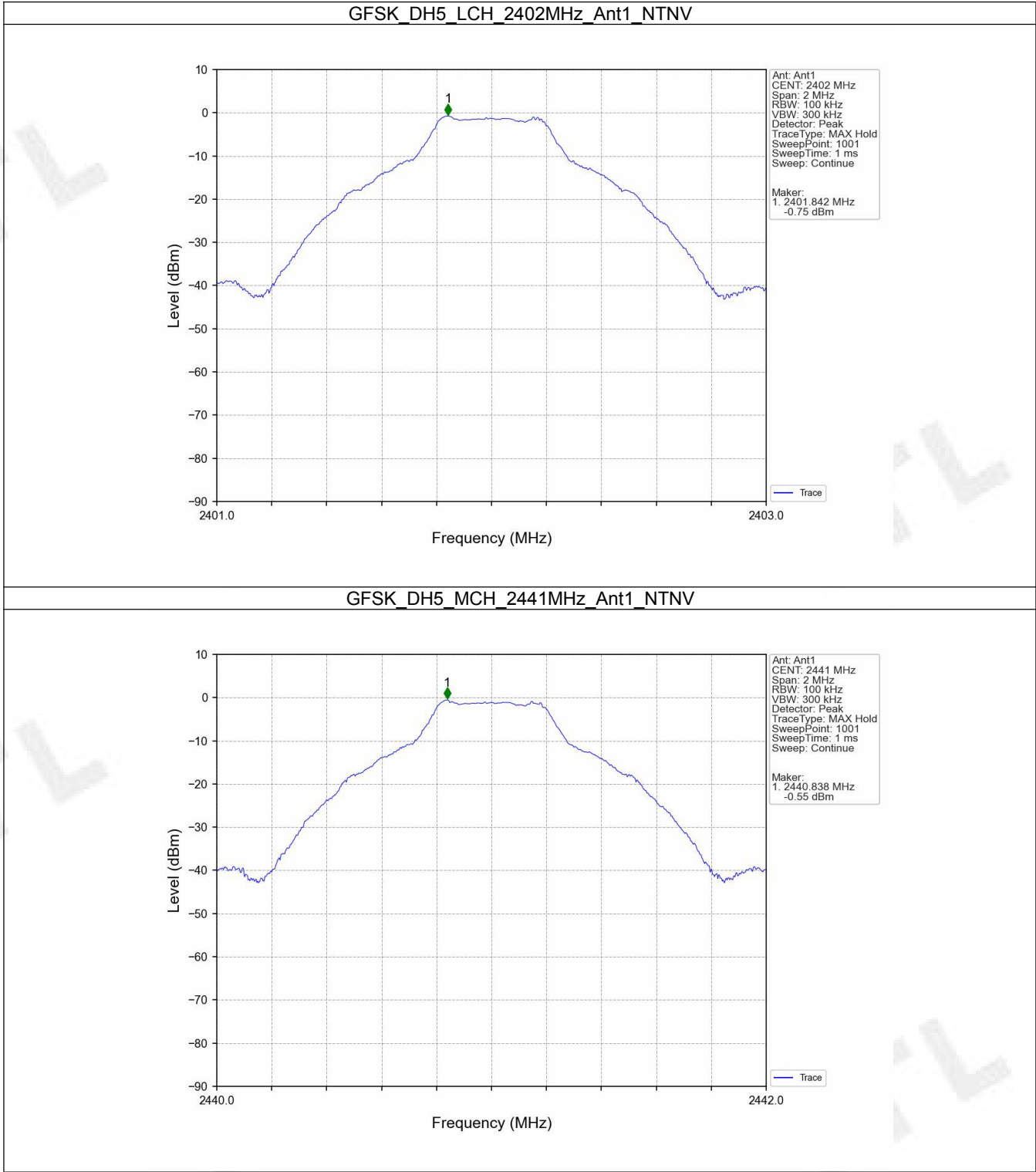
6.1.2 CSE

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	-0.75	-20.75	Pass
		2441	DH5	1	-0.55	-20.55	Pass
		2480	DH5	1	-0.95	-20.95	Pass
		HOPP	DH5	1	1.95	-18.05	Pass
					1.95	-18.05	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	-0.75	-20.75	Pass
		2441	2DH5	1	-0.54	-20.54	Pass
		2480	2DH5	1	-0.94	-20.94	Pass
		HOPP	2DH5	1	1.70	-18.30	Pass
					1.70	-18.30	Pass
8DPSK	SISO	2402	3DH5	1	-0.72	-20.72	Pass
		2441	3DH5	1	-0.60	-20.60	Pass
		2480	3DH5	1	-0.93	-20.93	Pass
		HOPP	3DH5	1	1.55	-18.45	Pass
					1.55	-18.45	Pass

FCC ID: 2BR98-R10

6.2 Test Graph

6.2.1 Ref



FCC ID: 2BR98-R10

