



Annex for BT

Test Report No.: CTL2406041042-WF

TABLE OF CONTENTS

1. Bandwidth3

 1.1 Test Result3

 1.1.1 OBW 3

 1.1.2 20dB BW3

 1.2 Test Graph 4

 1.2.1 OBW 4

 1.2.2 20dB BW9

2. Maximum Conducted Output Power 14

 2.1 Test Result 14

 2.1.1 Power 14

 2.2 Test Graph 15

 2.2.1 Power 15

3. Carrier Frequency Separation 20

 3.1 Test Result 20

 3.1.1 Ant1 20

 3.2 Test Graph 21

 3.2.1 Ant1 21

4. Number of Hopping Frequencies 23

 4.1 Test Result 23

FCCID: 2BB37-EW-VOUGE3

4.1.1 HoppNum	23
4.2 Test Graph	24
4.2.1 HoppNum	24
5. Time of Occupancy (Dwell Time)	26
5.1 Test Result	26
5.1.1 Ant1	26
5.2 Test Graph	27
5.2.1 Ant1	27
6. Unwanted Emissions In Non-restricted Frequency Bands	36
6.1 Test Result	36
6.1.1 Ref	36
6.1.2 CSE	36
6.2 Test Graph	37
6.2.1 Ref	37
6.2.2 CSE	42

FCCID: 2BB37-EW-VOUGE3

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	0.853	/	Pass
		2441	DH5	1	0.855	/	Pass
		2480	DH5	1	0.852	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.182	/	Pass
		2441	2DH5	1	1.185	/	Pass
		2480	2DH5	1	1.185	/	Pass
8DPSK	SISO	2402	3DH5	1	1.184	/	Pass
		2441	3DH5	1	1.186	/	Pass
		2480	3DH5	1	1.185	/	Pass

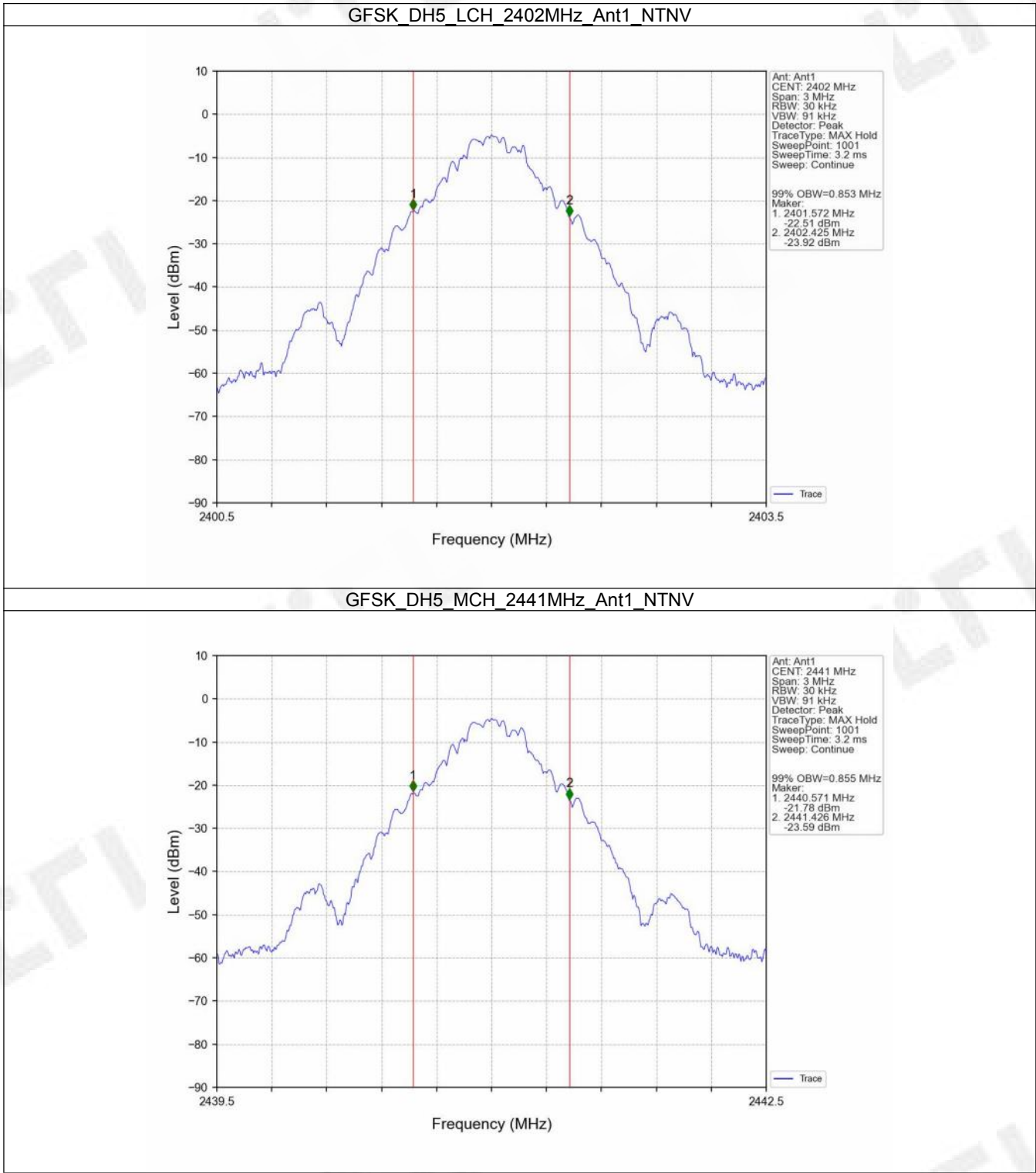
1.1.2 20dB BW

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.951	/	Pass
		2441	DH5	1	0.956	/	Pass
		2480	DH5	1	0.952	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.327	/	Pass
		2441	2DH5	1	1.325	/	Pass
		2480	2DH5	1	1.323	/	Pass
8DPSK	SISO	2402	3DH5	1	1.323	/	Pass
		2441	3DH5	1	1.325	/	Pass
		2480	3DH5	1	1.324	/	Pass

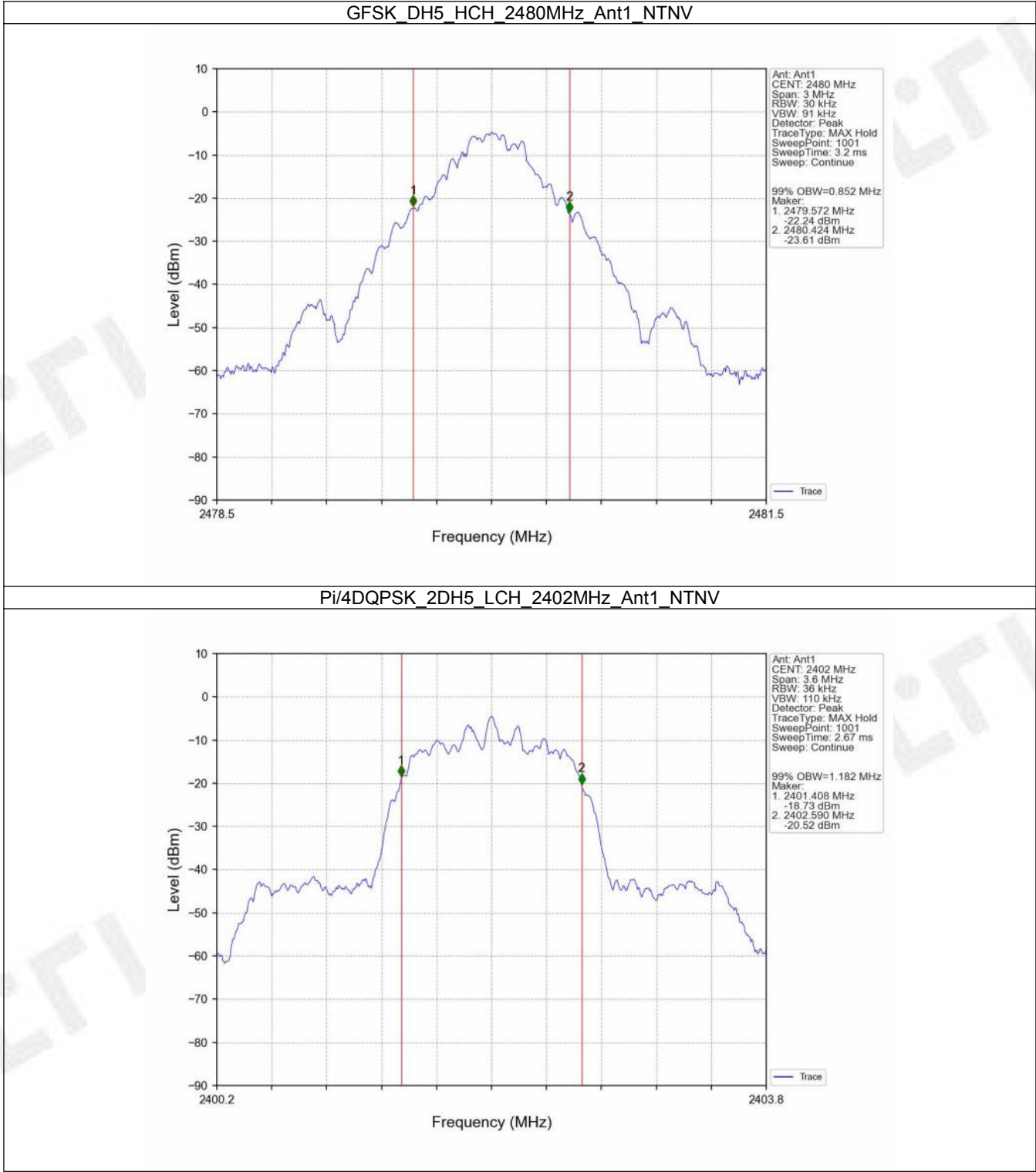
FCCID: 2BB37-EW-VOUGE3

1.2 Test Graph

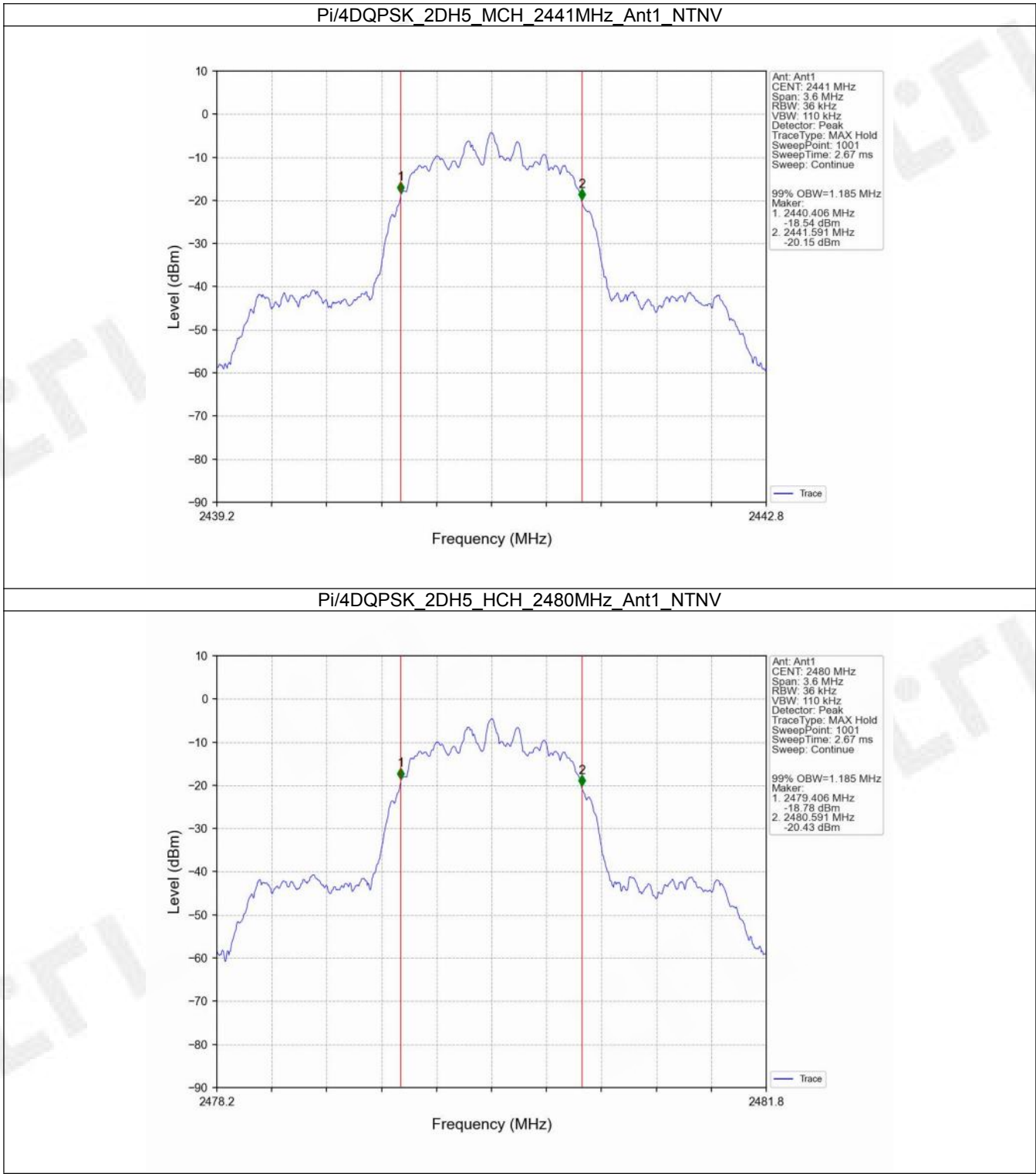
1.2.1 OBW



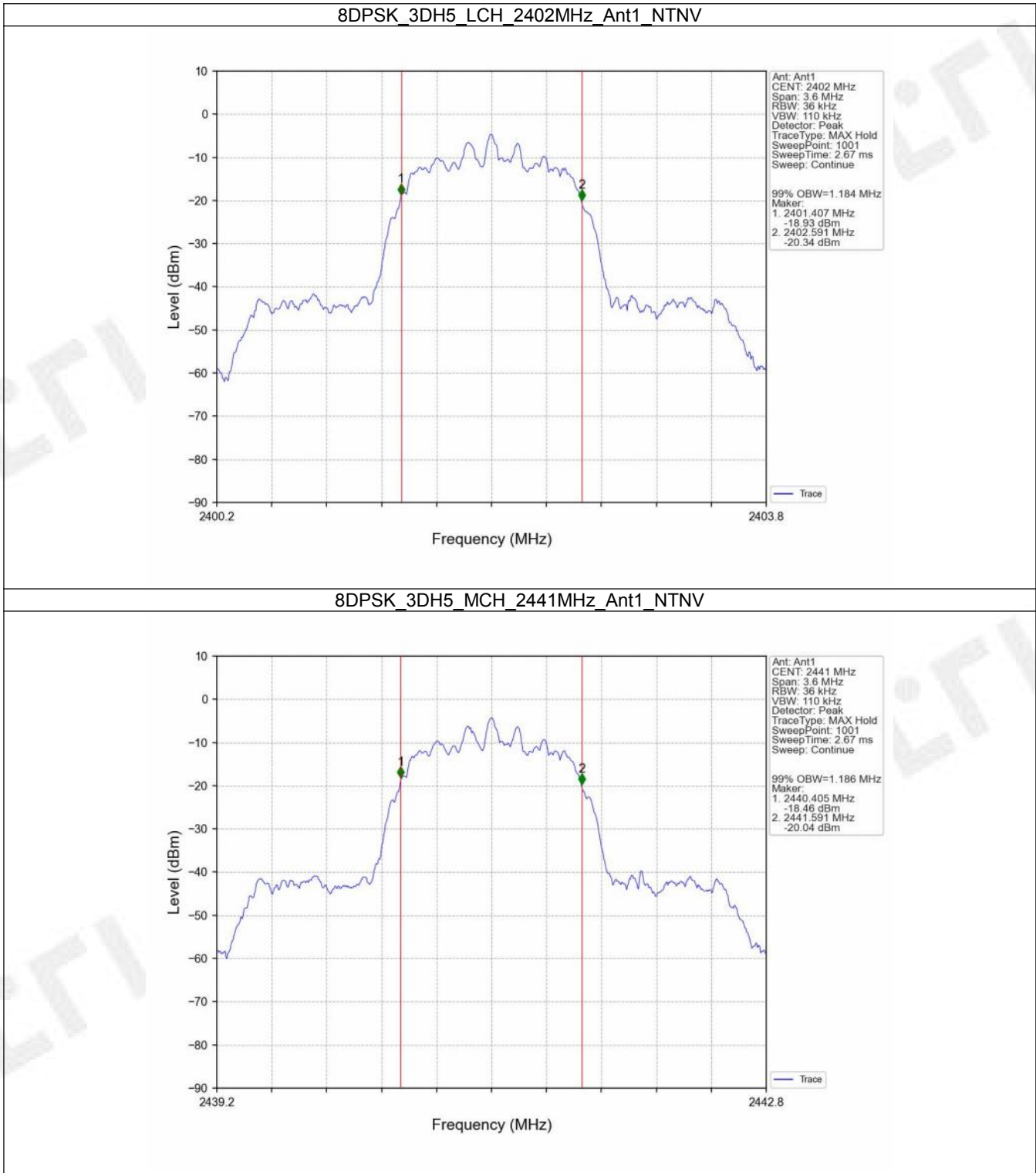
FCCID: 2BB37-EW-VOUGE3



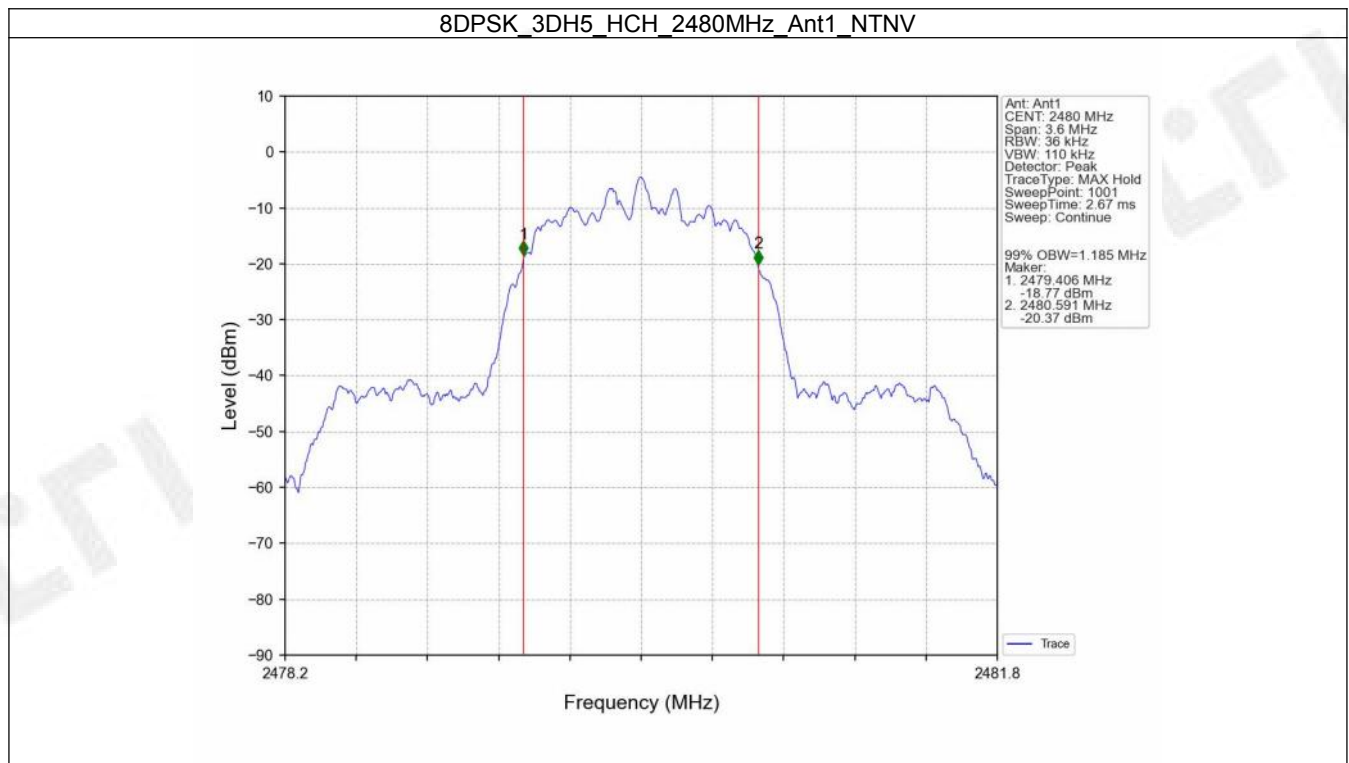
FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3

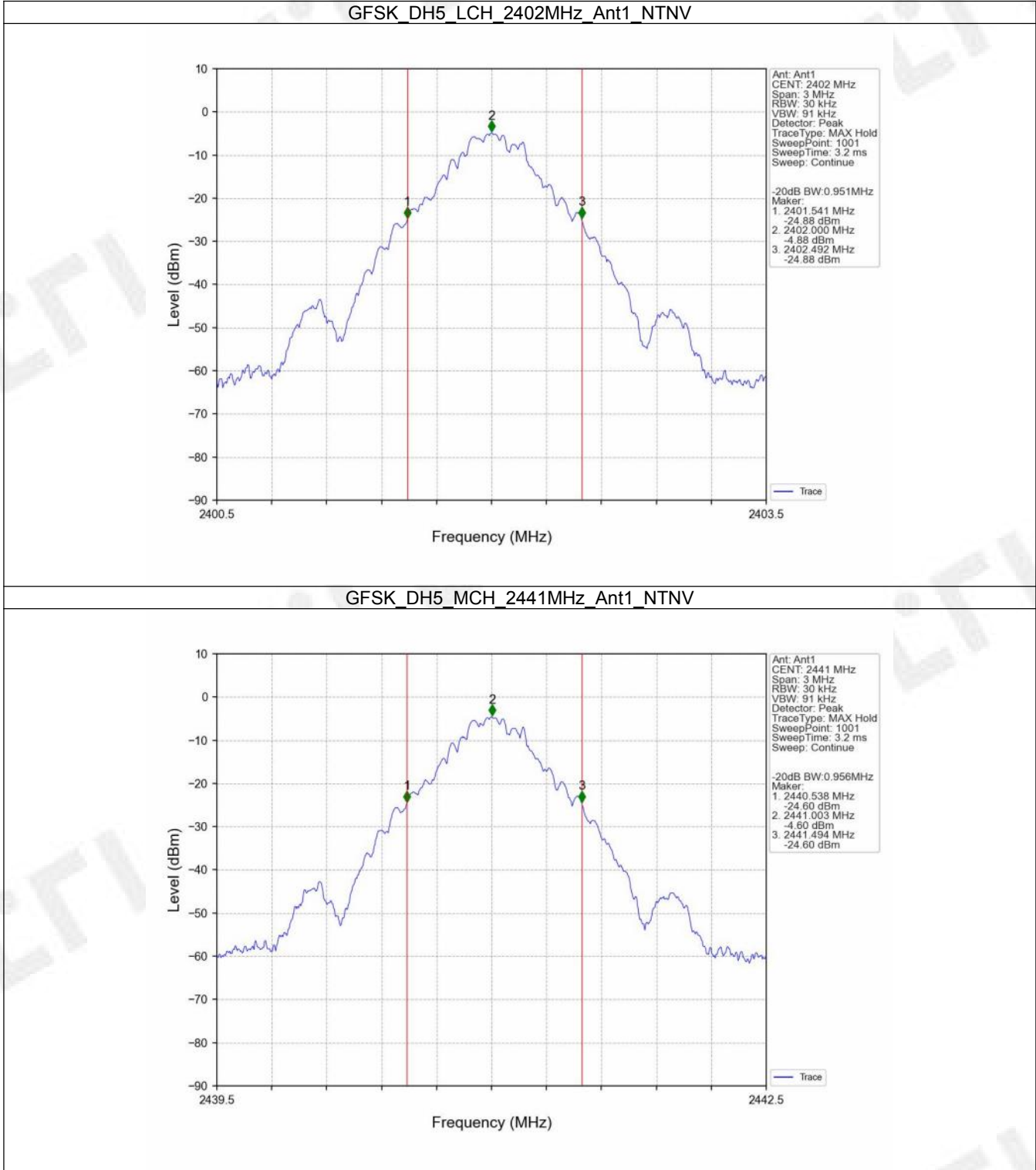


FCCID: 2BB37-EW-VOUGE3

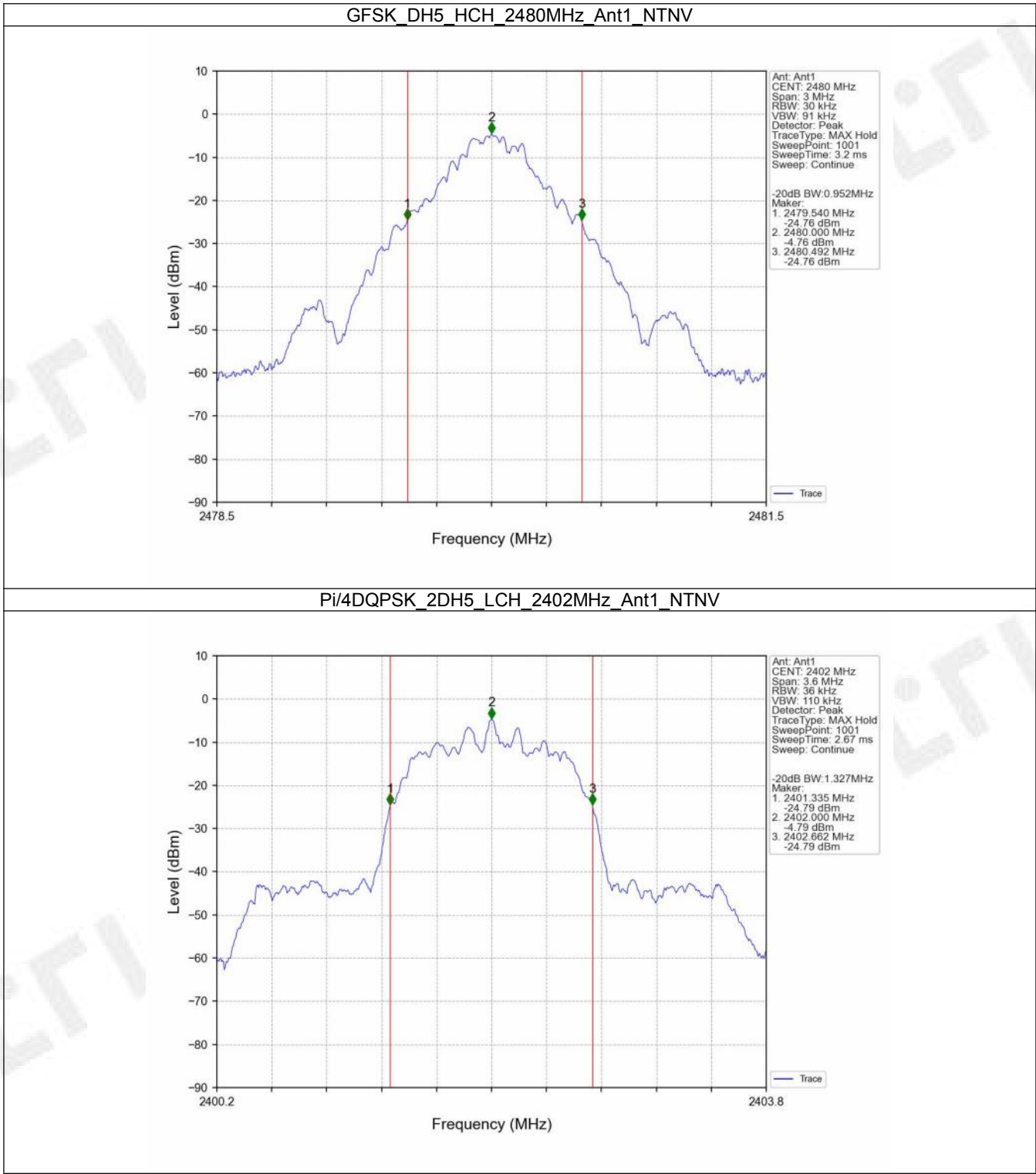


FCCID: 2BB37-EW-VOUGE3

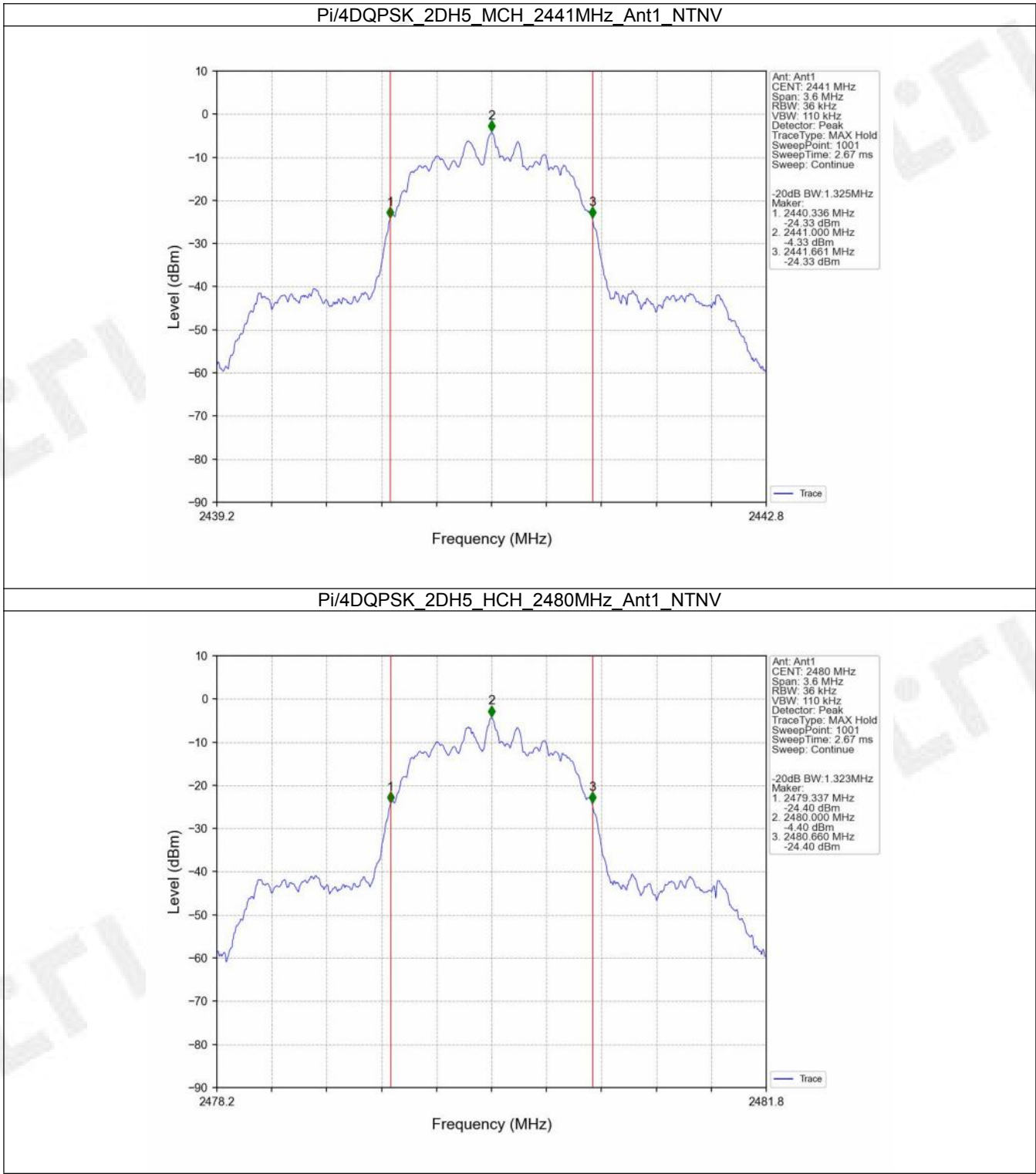
1.2.2 20dB BW



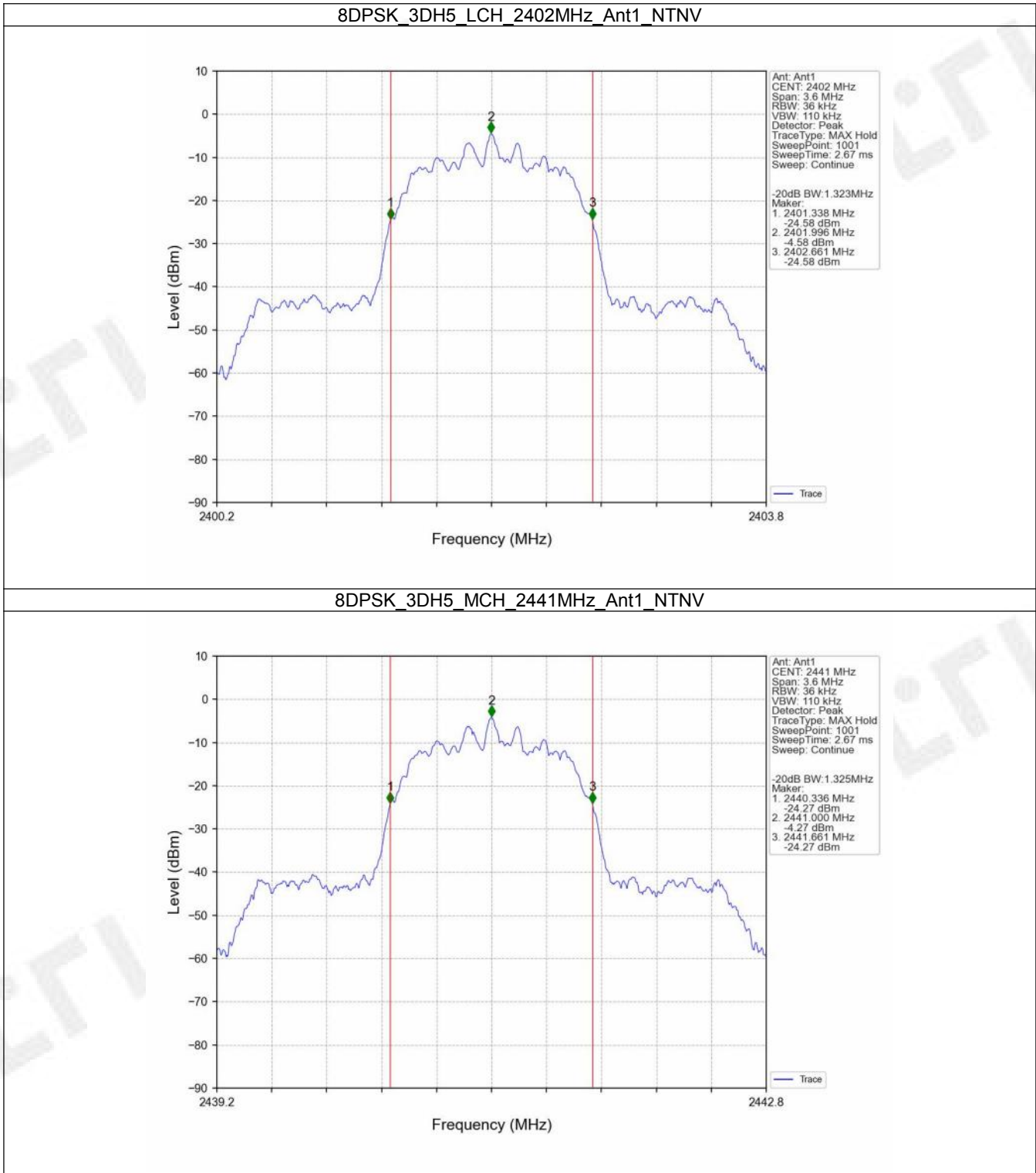
FCCID: 2BB37-EW-VOUGE3



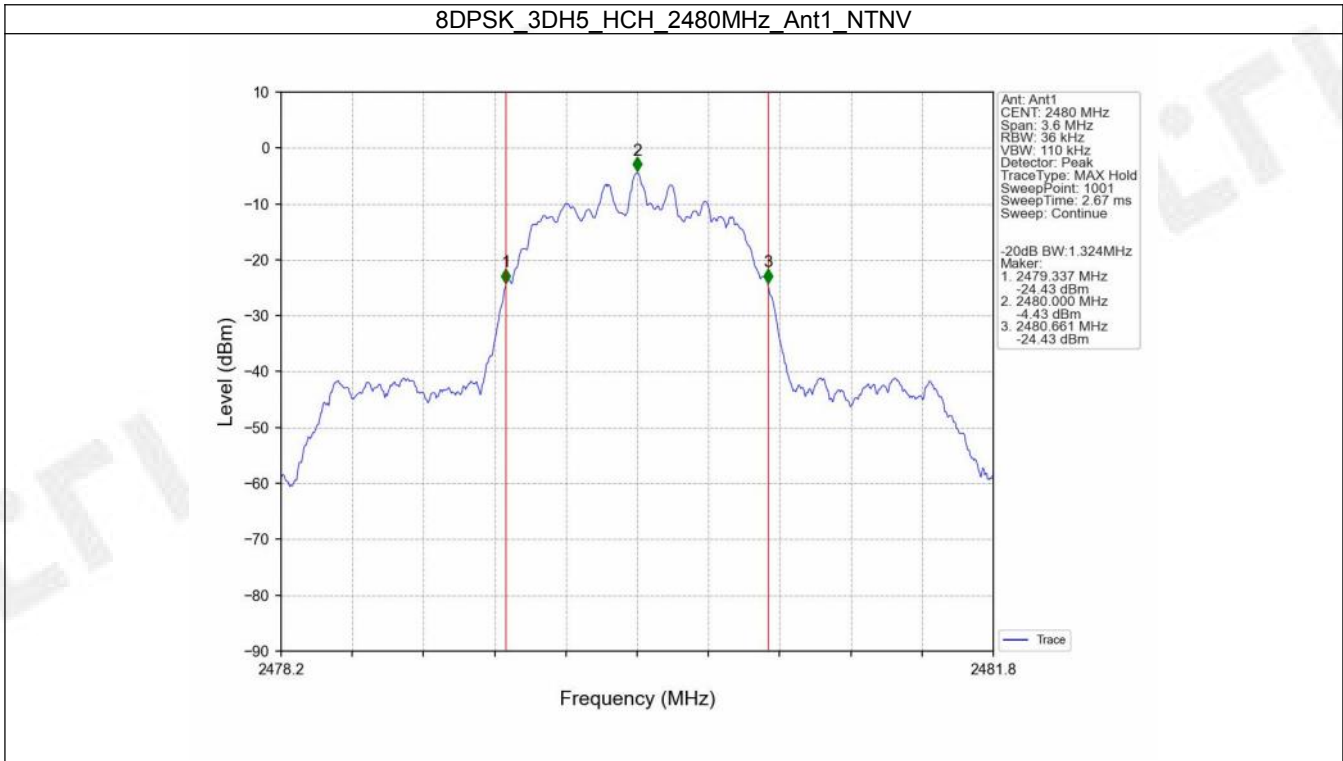
FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3

2. Maximum Conducted Output Power

2.1 Test Result

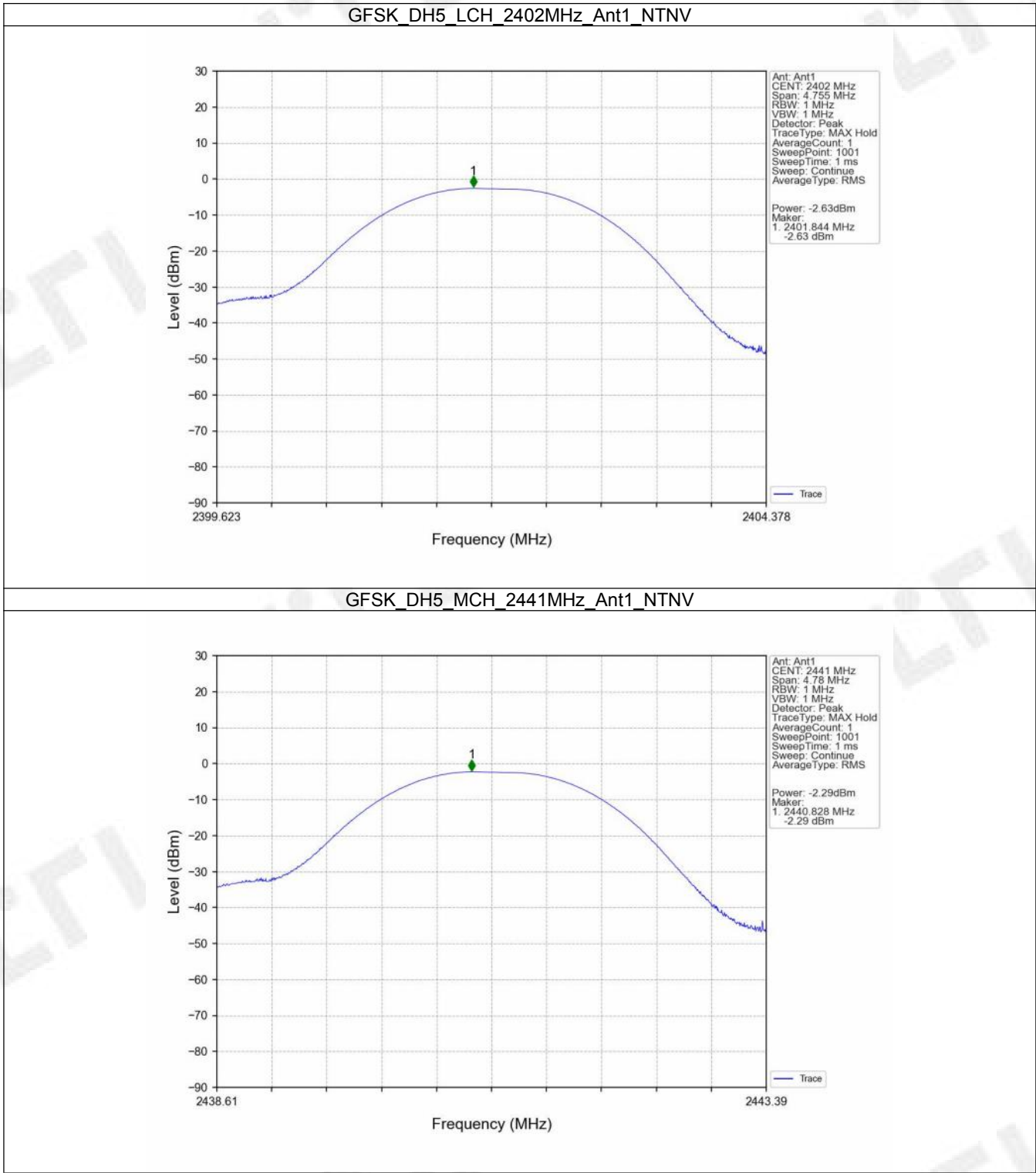
2.1.1 Power

Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	-2.63	<=30	Pass
		2441	DH5	-2.29	<=30	Pass
		2480	DH5	-2.53	<=30	Pass
Pi/4DQPSK	SISO	2402	2DH5	-1.79	<=20.97	Pass
		2441	2DH5	-1.47	<=20.97	Pass
		2480	2DH5	-1.72	<=20.97	Pass
8DPSK	SISO	2402	3DH5	-1.79	<=20.97	Pass
		2441	3DH5	-1.48	<=20.97	Pass
		2480	3DH5	-1.71	<=20.97	Pass
Note1: Antenna Gain: Ant1: 3.11dBi;						

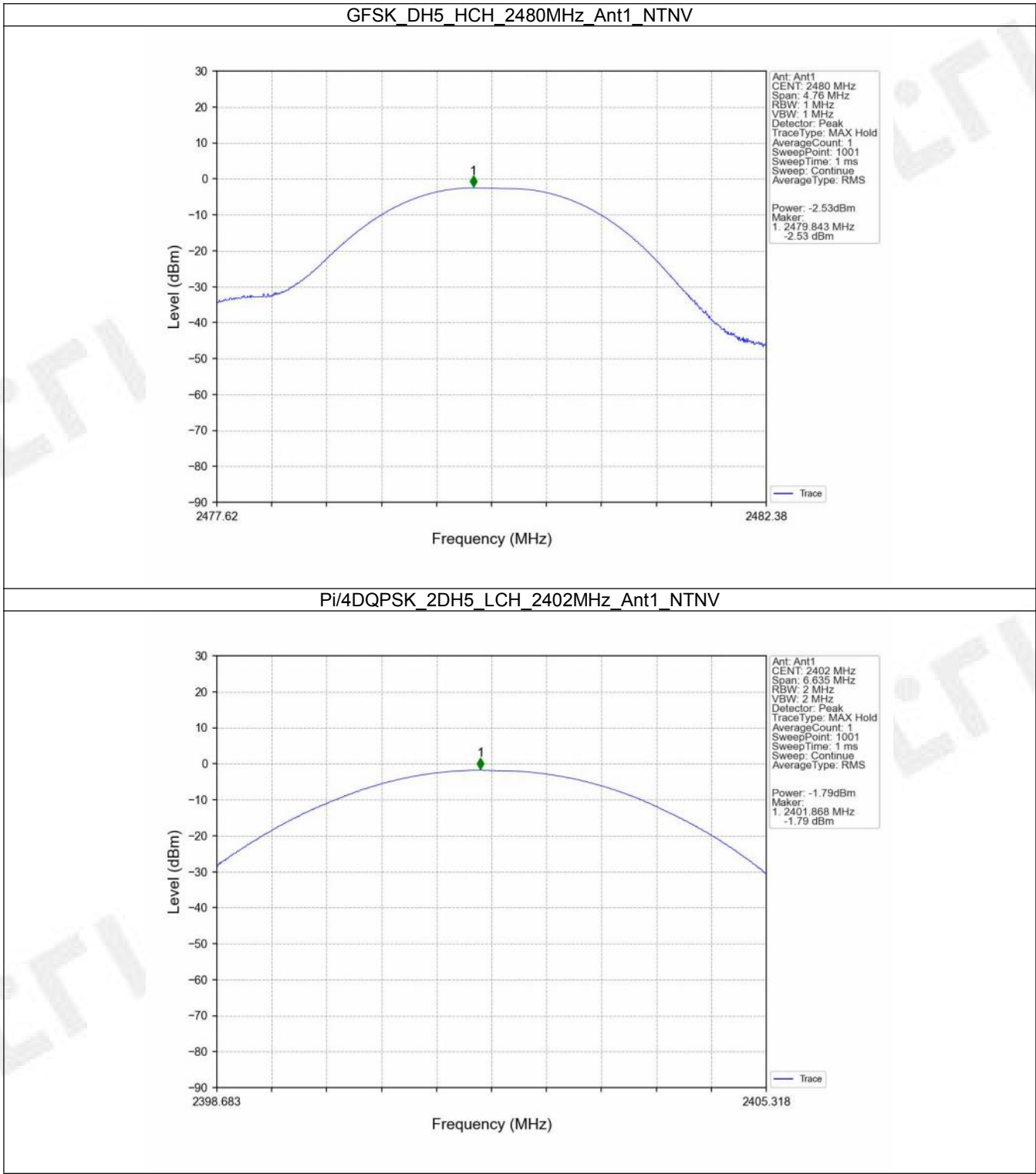
FCCID: 2BB37-EW-VOUGE3

2.2 Test Graph

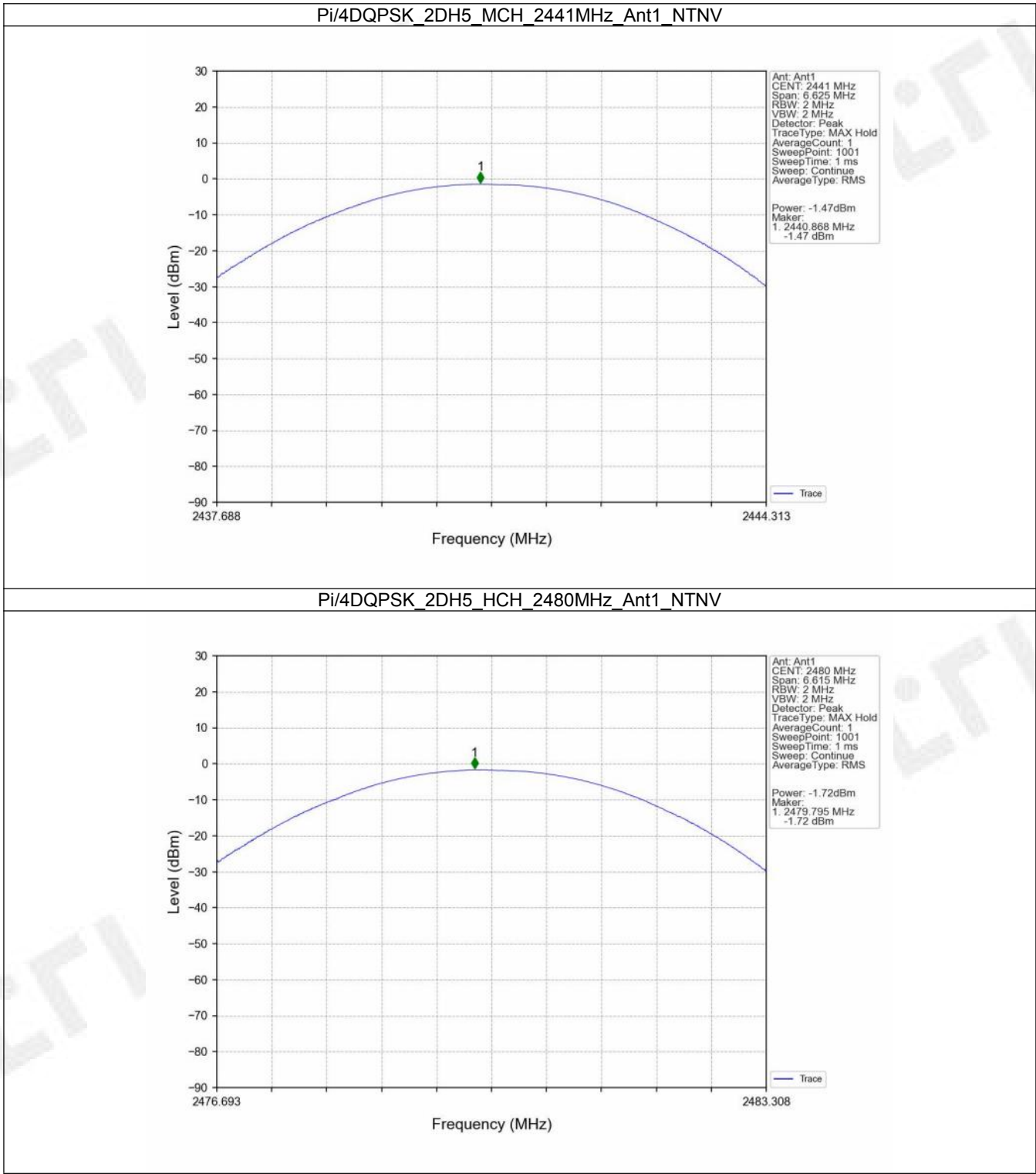
2.2.1 Power



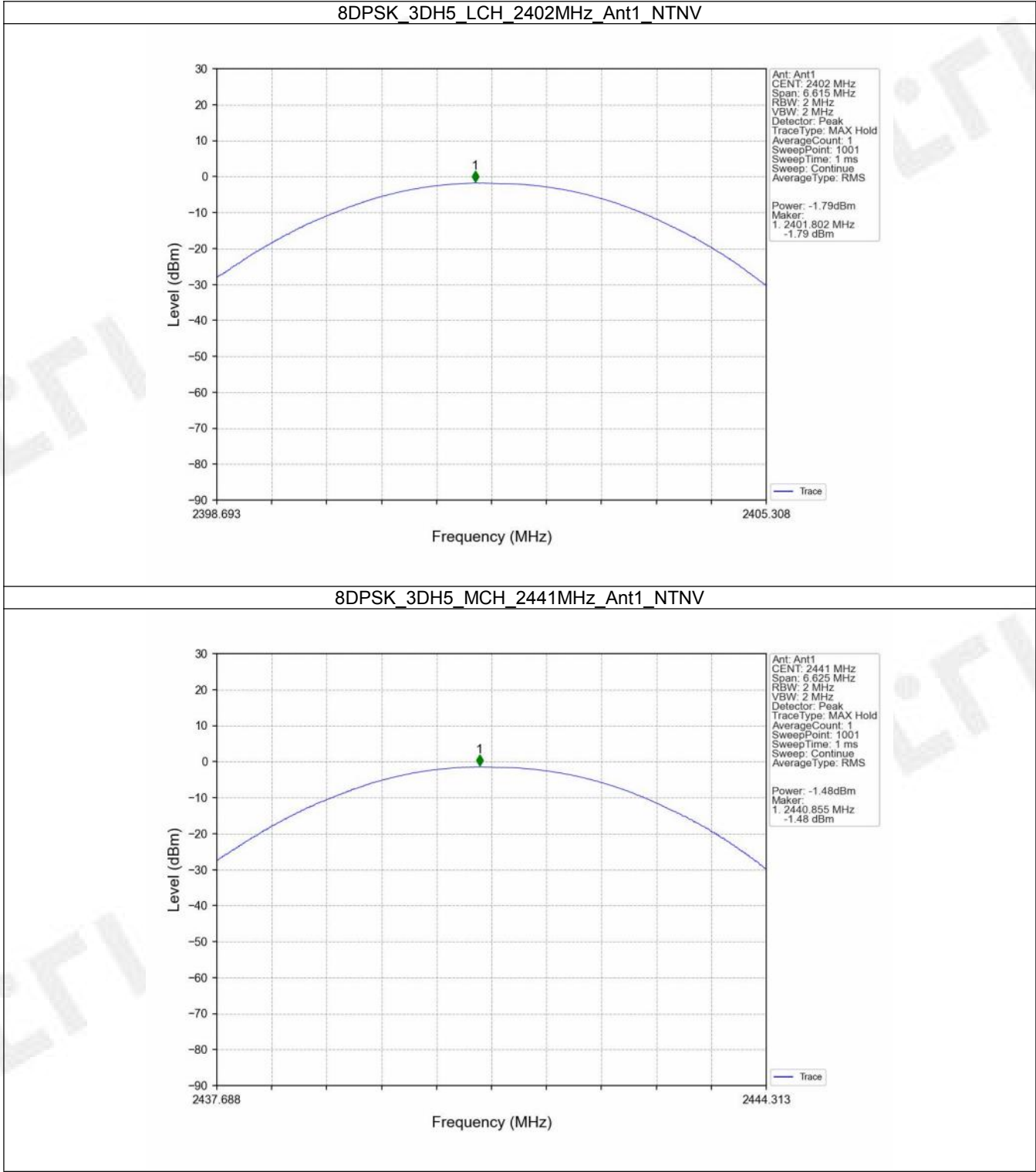
FCCID: 2BB37-EW-VOUGE3



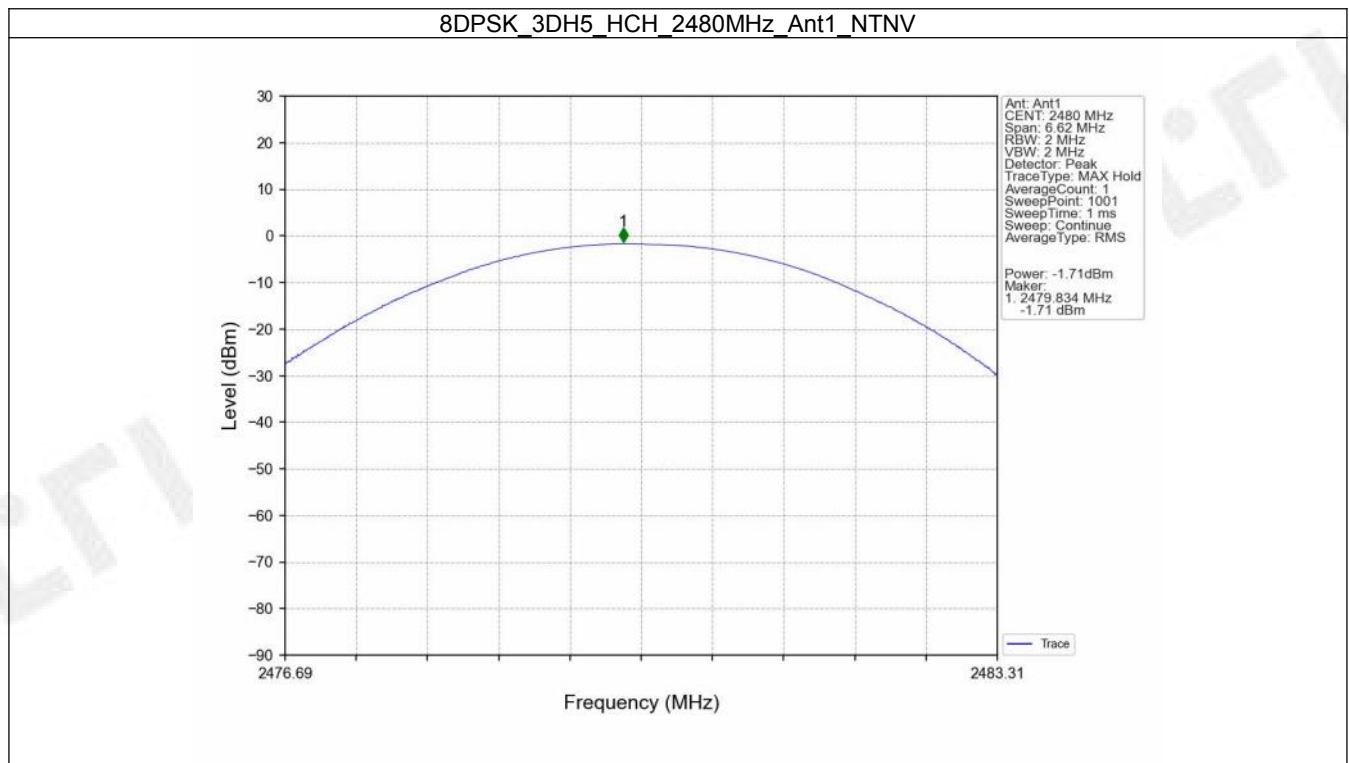
FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3

3. Carrier Frequency Separation

3.1 Test Result

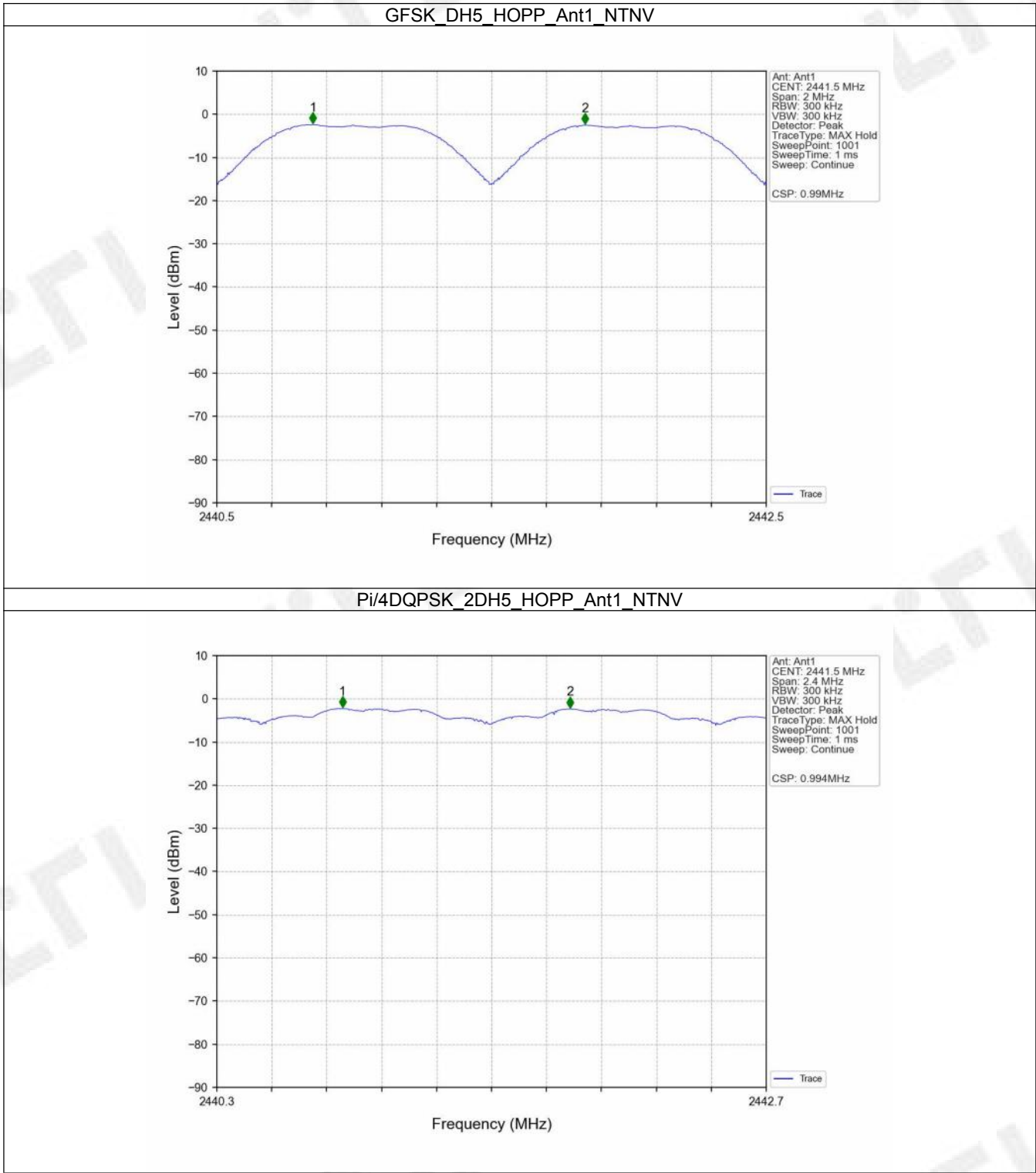
3.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	0.990	0.956	≥ 0.956	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	0.994	1.327	≥ 0.885	Pass
8DPSK	SISO	HOPP	3DH5	0.991	1.325	≥ 0.883	Pass

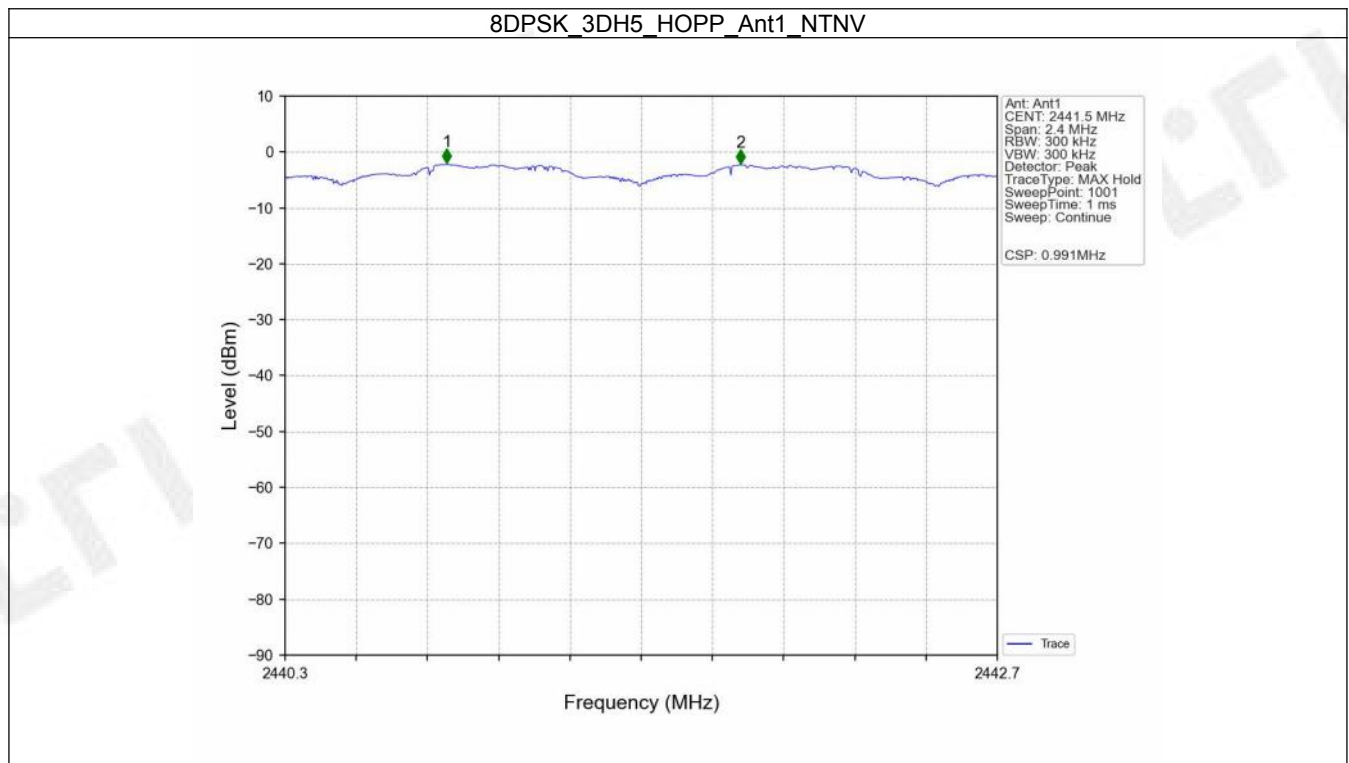
FCCID: 2BB37-EW-VOUGE3

3.2 Test Graph

3.2.1 Ant1



FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3

4. Number of Hopping Frequencies

4.1 Test Result

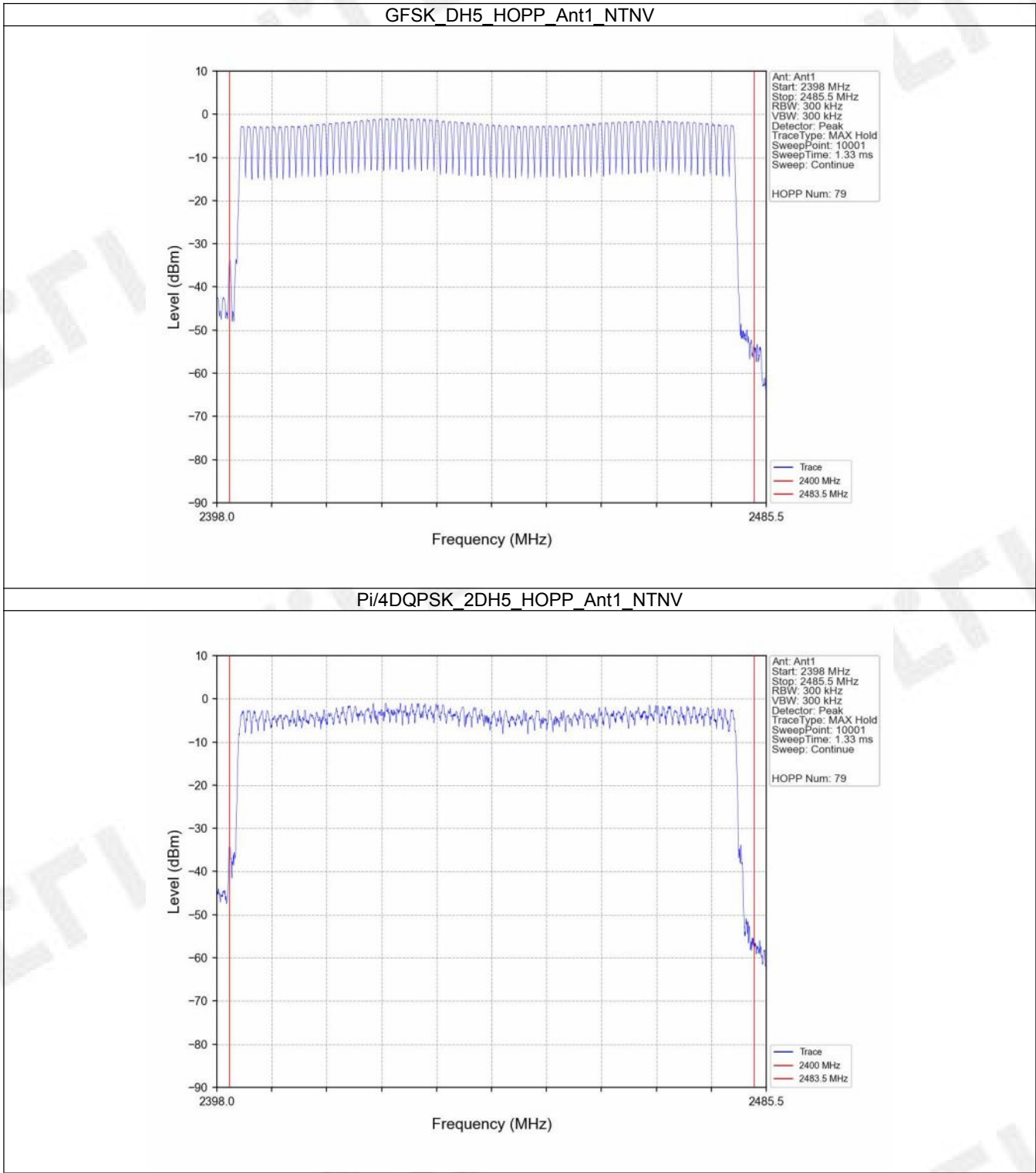
4.1.1 HoppNum

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

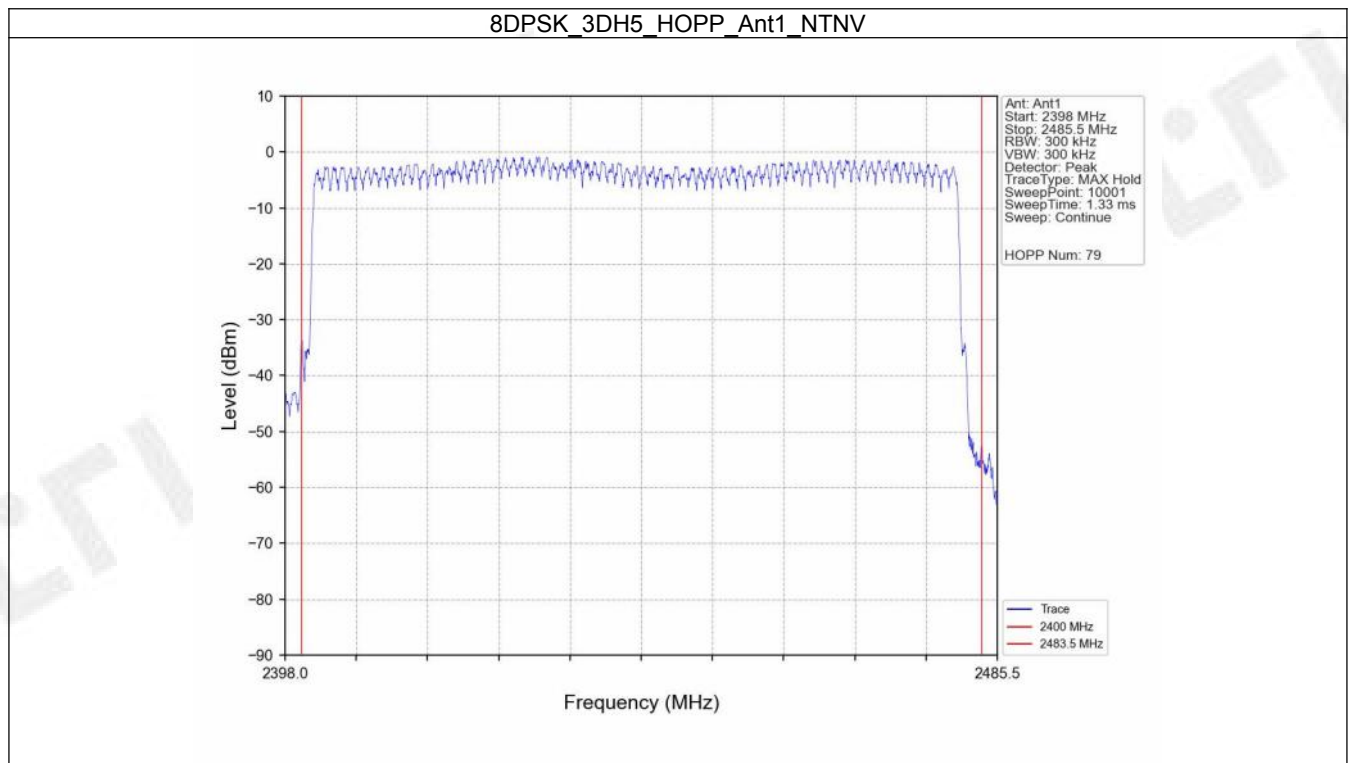
FCCID: 2BB37-EW-VOUGE3

4.2 Test Graph

4.2.1 HoppNum



FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3

5. Time of Occupancy (Dwell Time)

5.1 Test Result

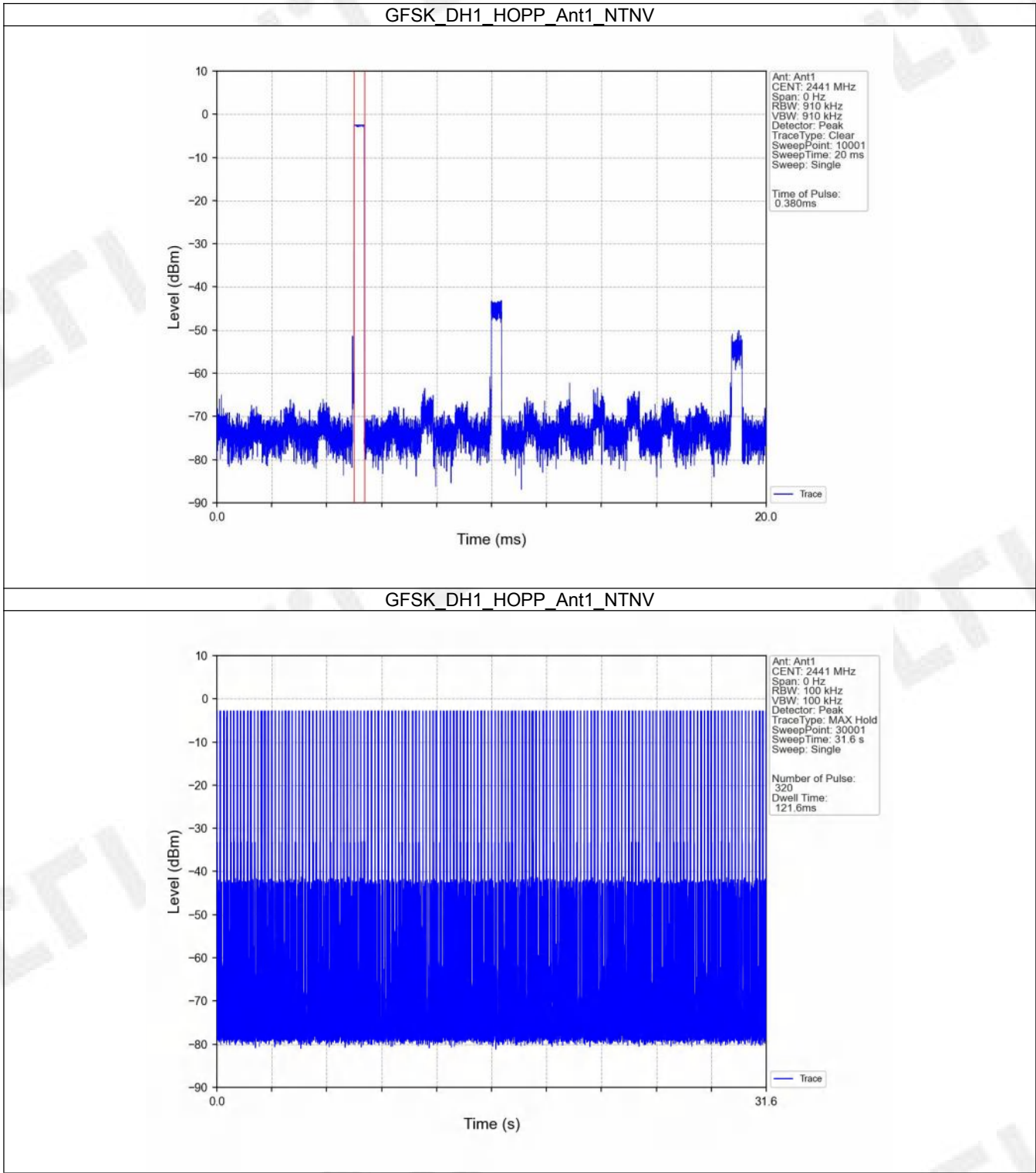
5.1.1 Ant1

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	0.380	31.600	320	121.600	<=400	Pass
			DH3	1.636	31.600	145	237.220	<=400	Pass
			DH5	2.884	31.600	122	351.848	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.390	31.600	320	124.800	<=400	Pass
			2DH3	1.642	31.600	162	266.004	<=400	Pass
			2DH5	2.890	31.600	131	378.590	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.390	31.600	317	123.630	<=400	Pass
			3DH3	1.642	31.600	151	247.942	<=400	Pass
			3DH5	2.892	31.600	112	323.904	<=400	Pass

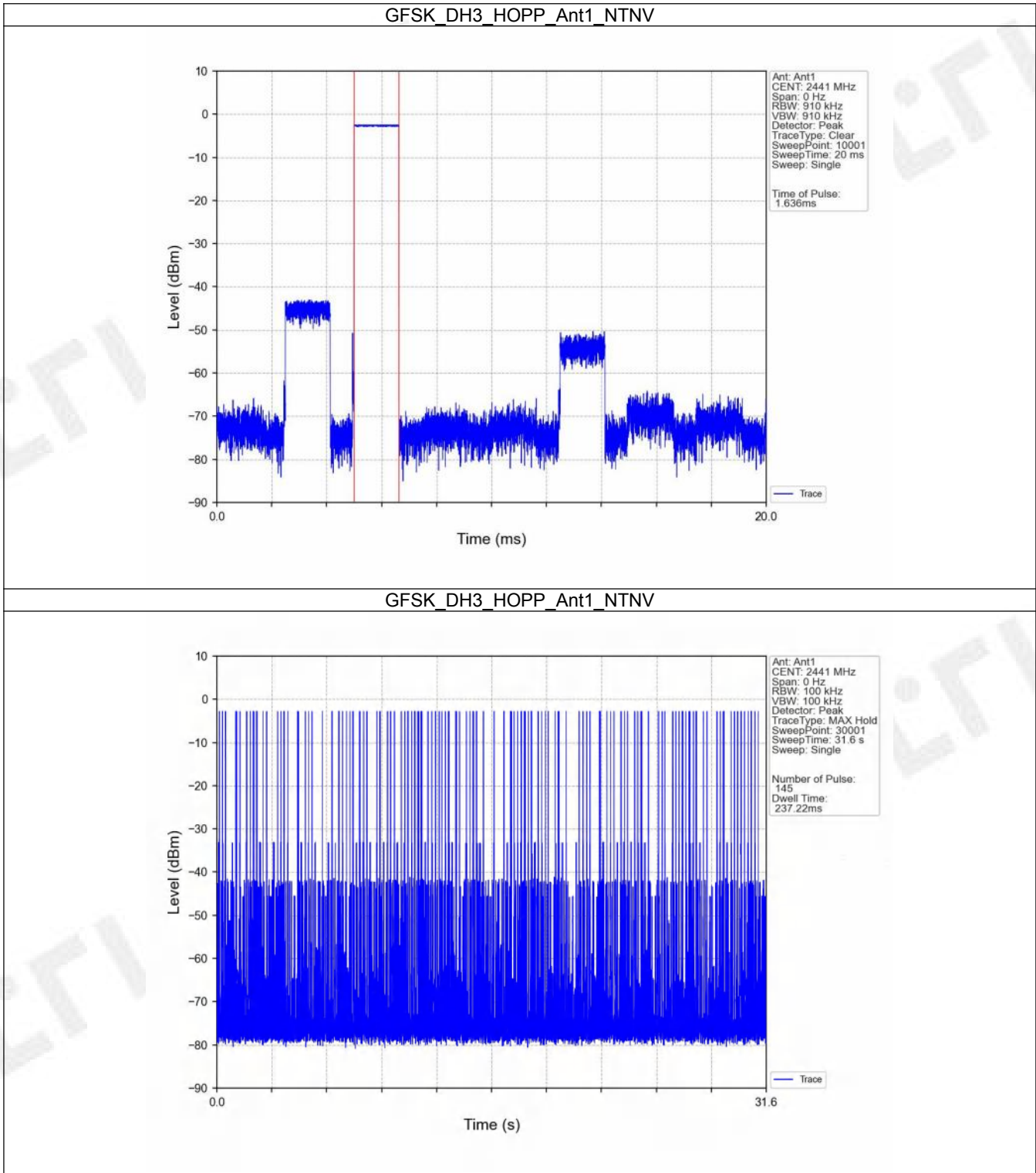
FCCID: 2BB37-EW-VOUGE3

5.2 Test Graph

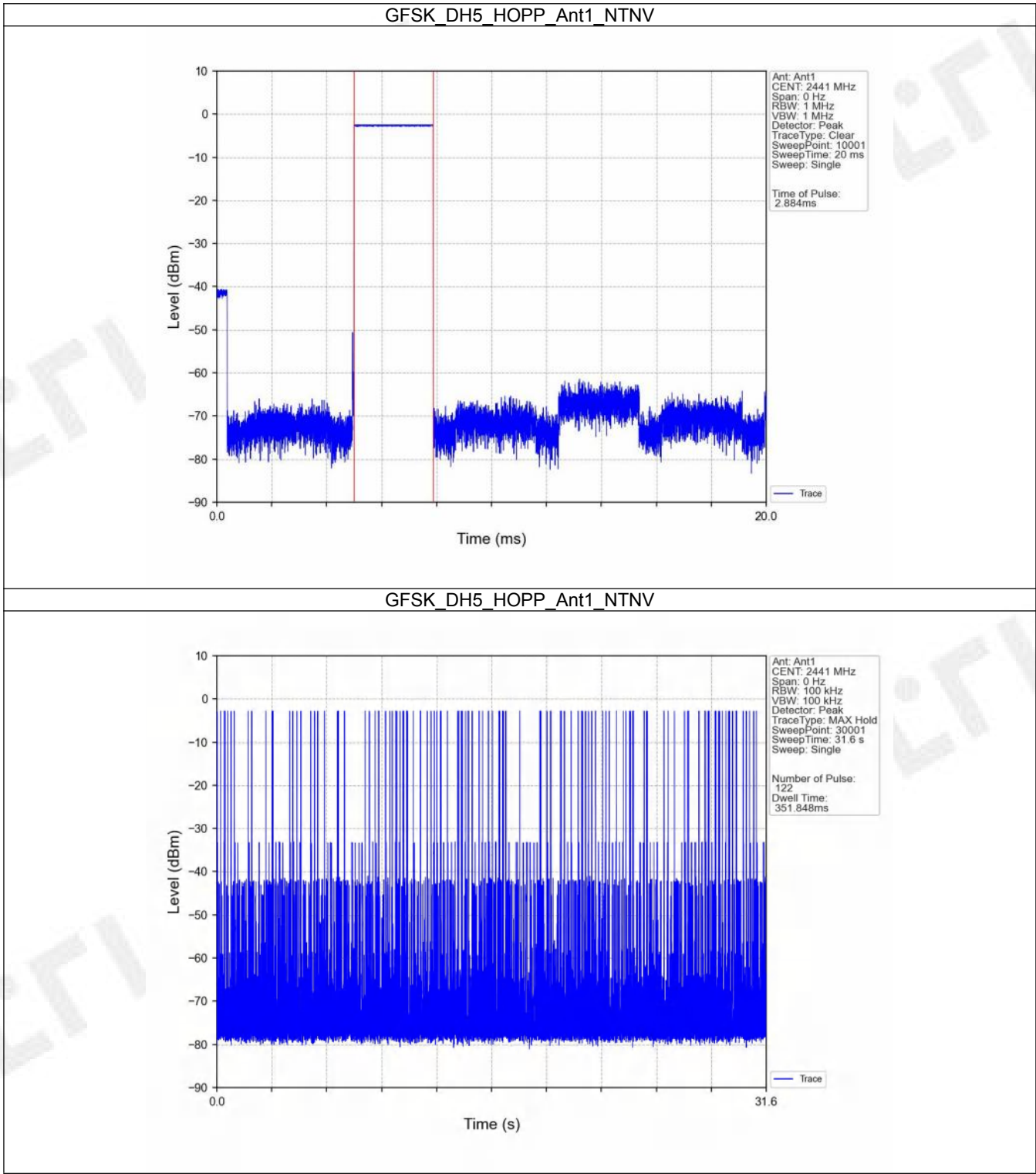
5.2.1 Ant1



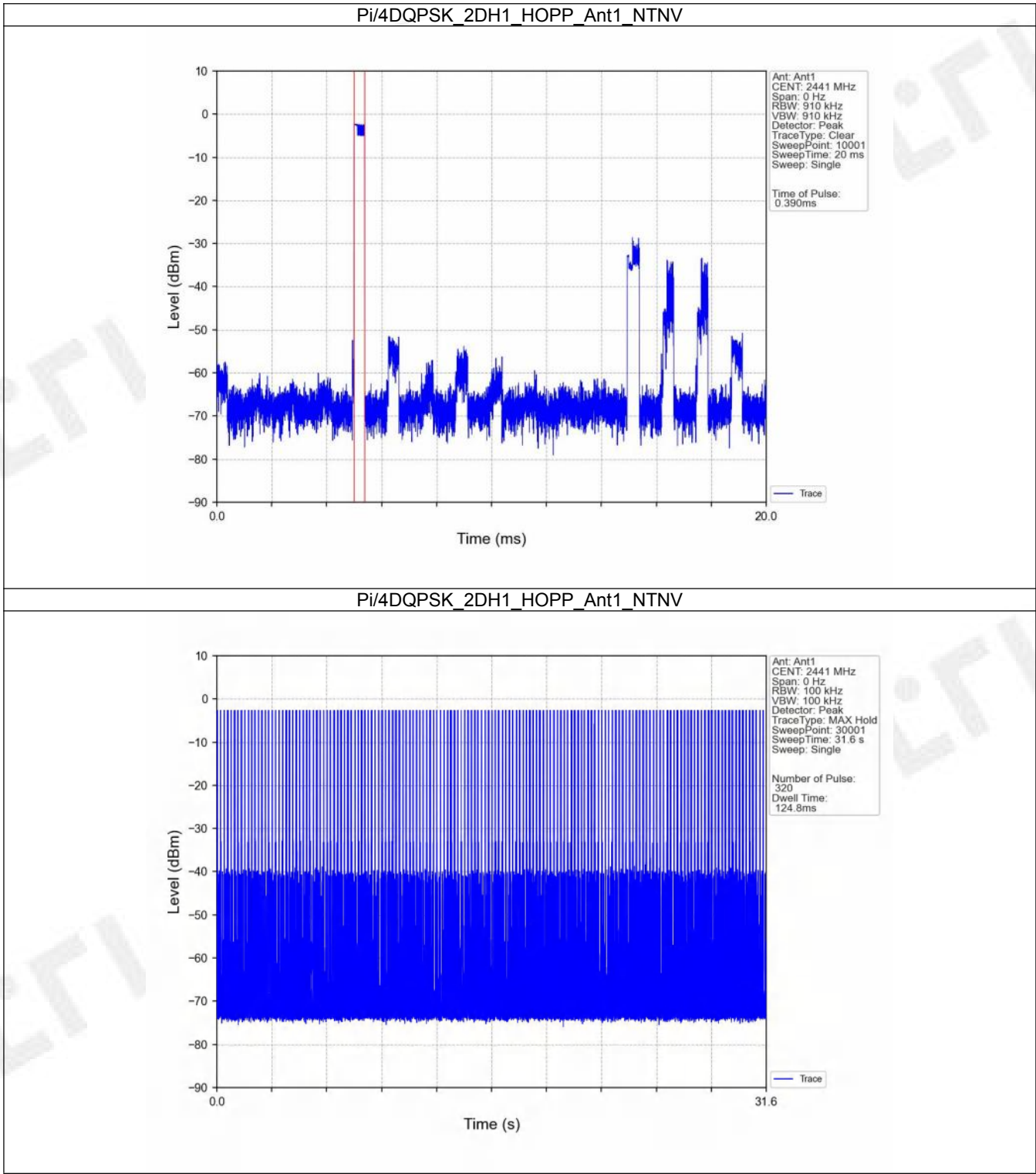
FCCID: 2BB37-EW-VOUGE3



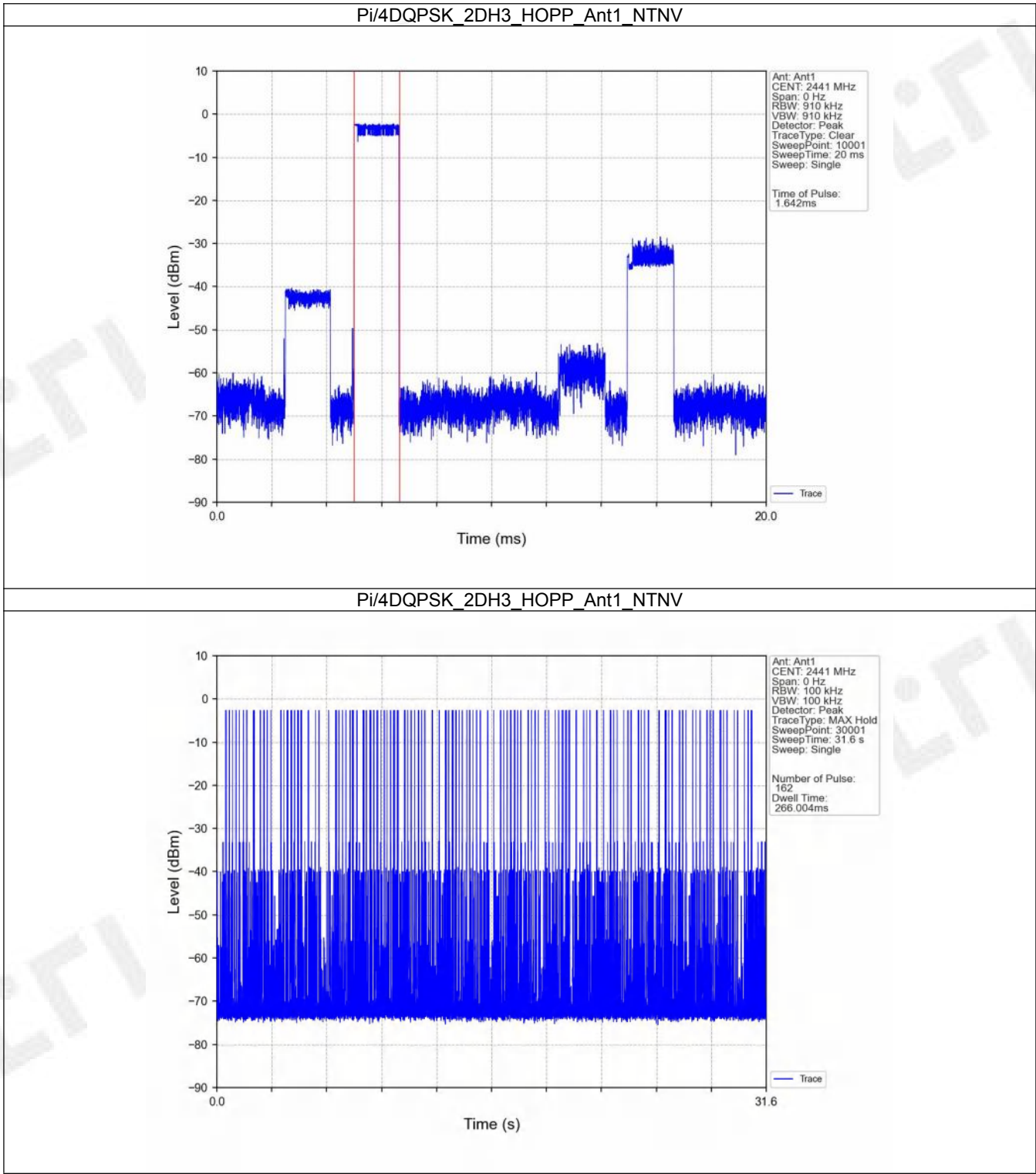
FCCID: 2BB37-EW-VOUGE3



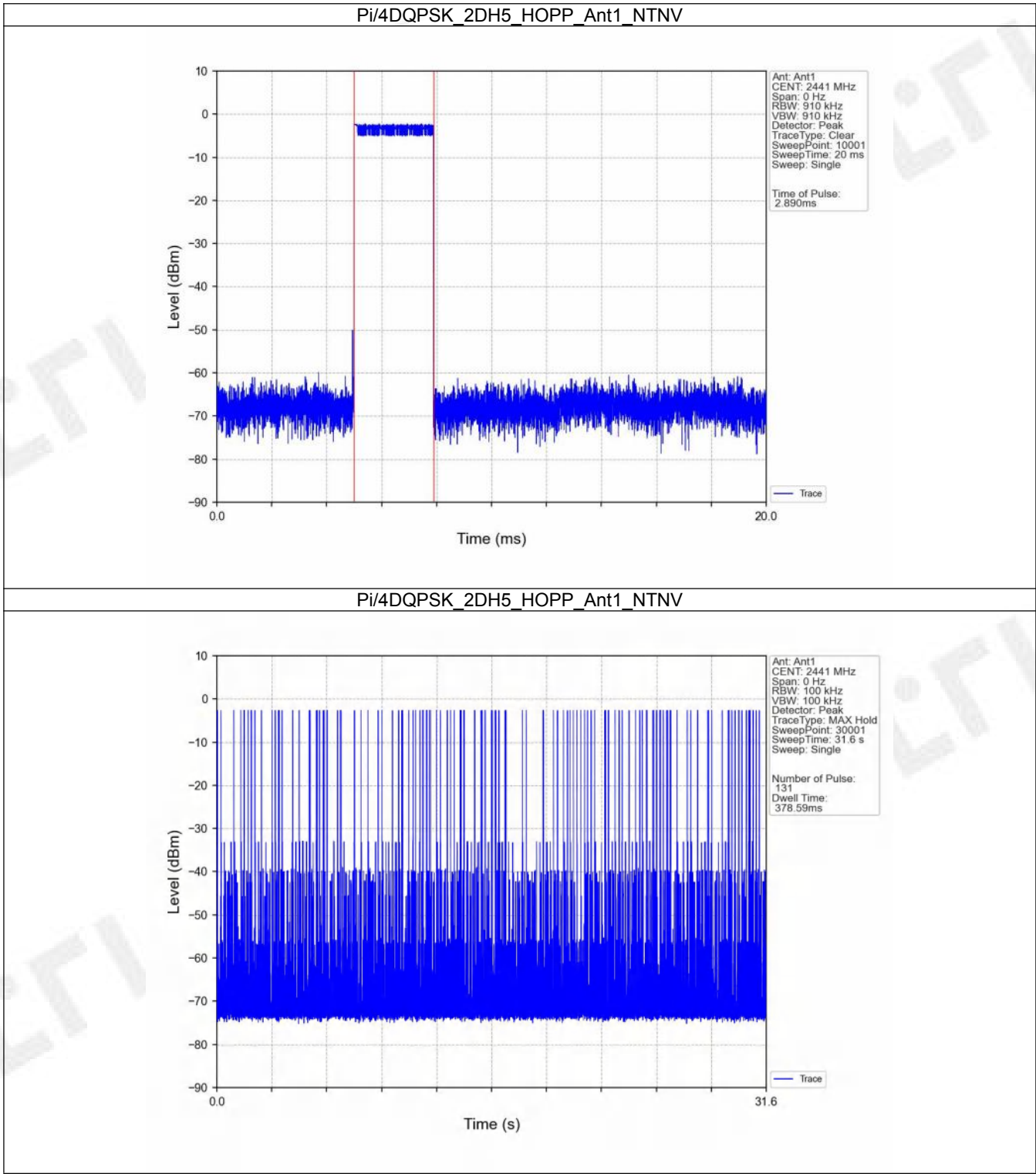
FCCID: 2BB37-EW-VOUGE3



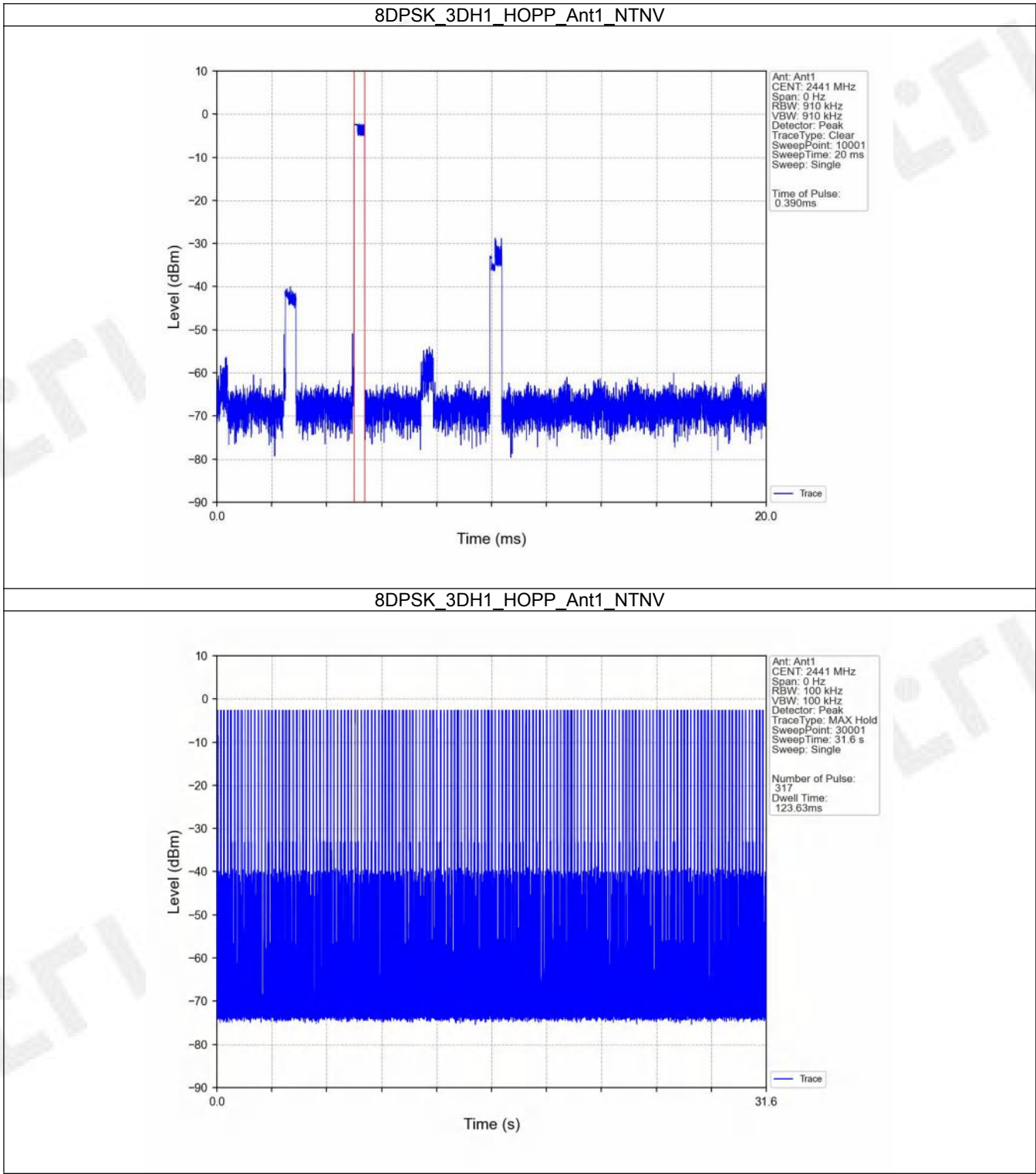
FCCID: 2BB37-EW-VOUGE3



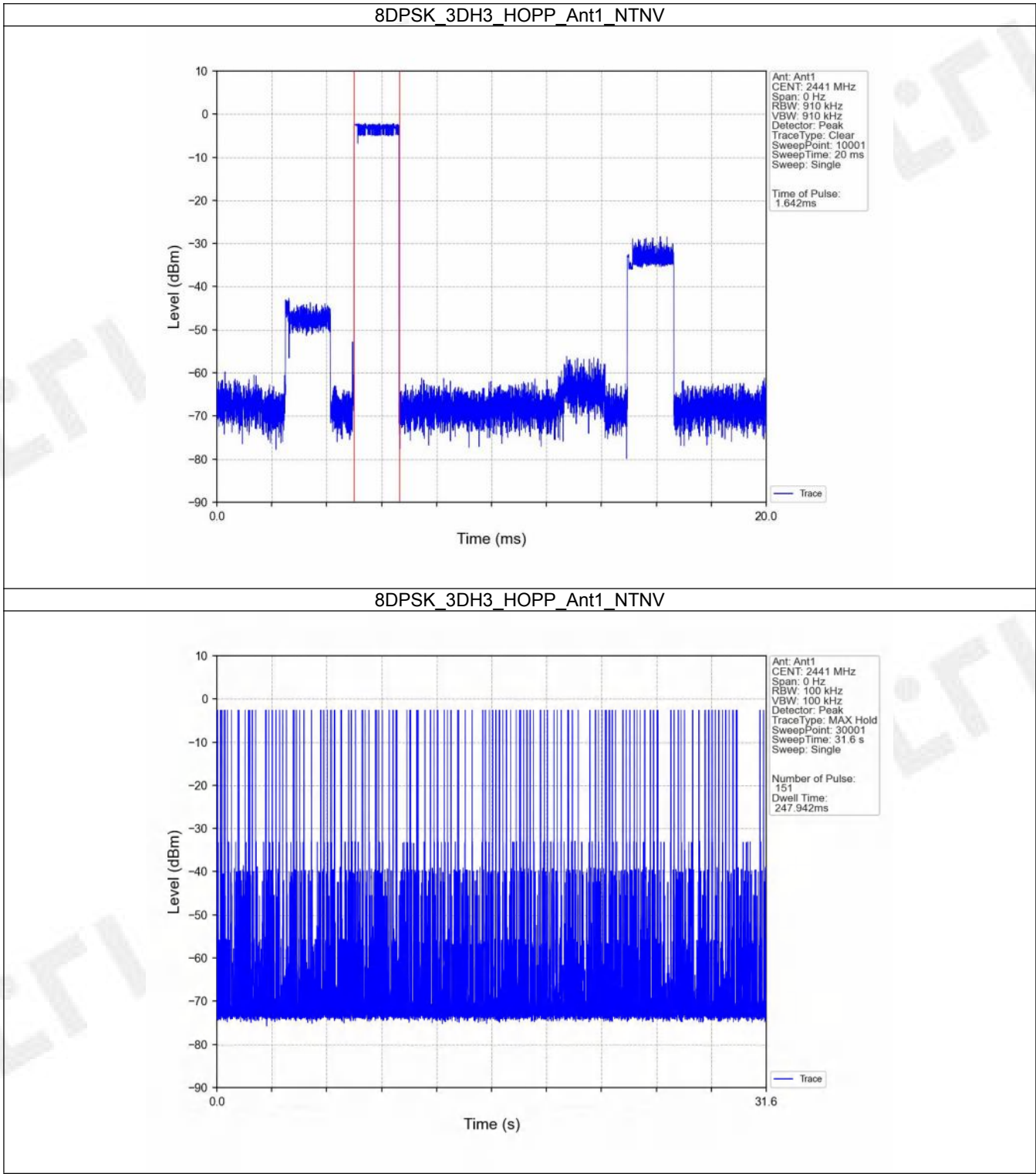
FCCID: 2BB37-EW-VOUGE3



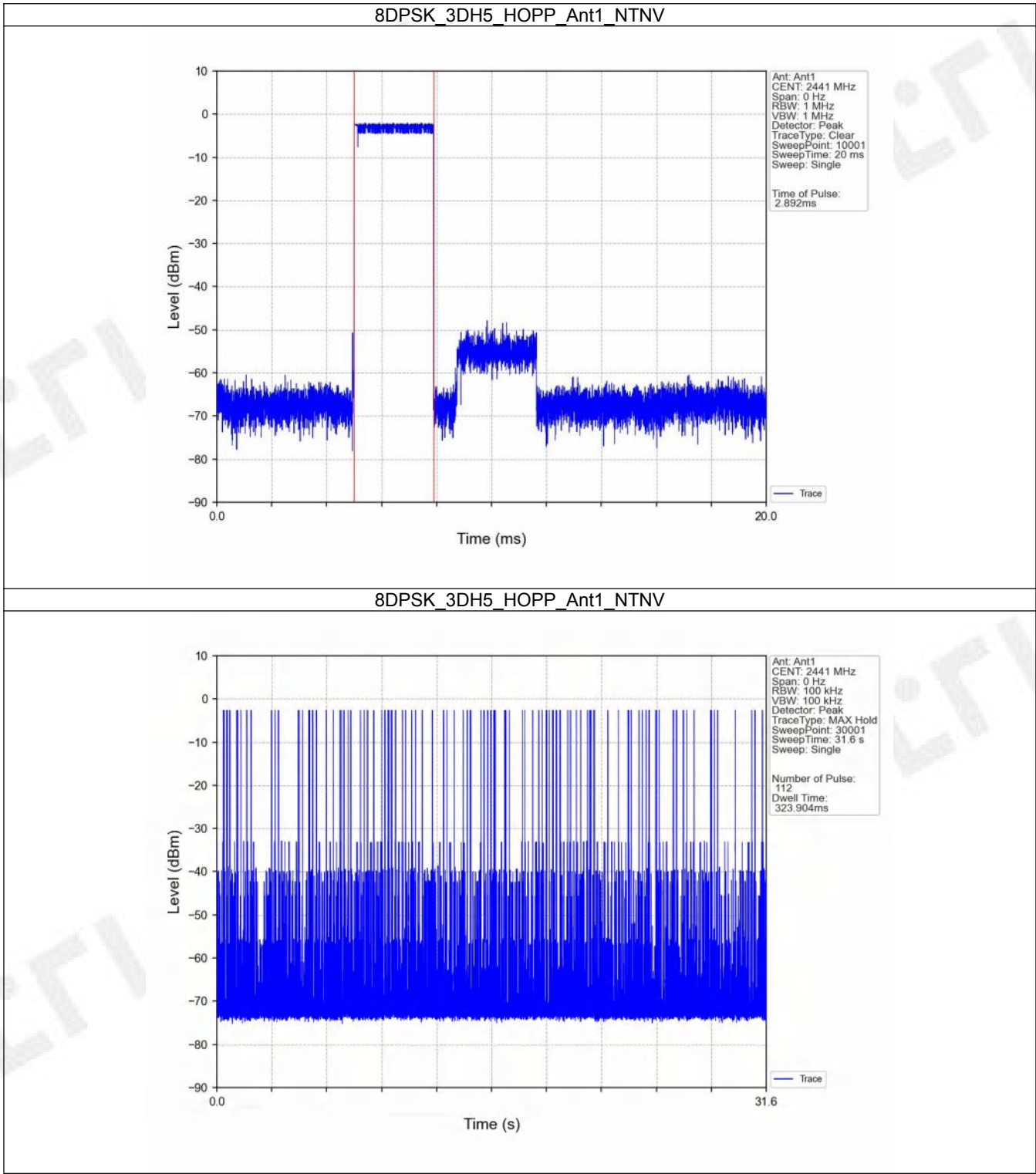
FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3

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	-2.92
		2441	DH5	1	-2.58
		2480	DH5	1	-2.88
Pi/4DQPSK	SISO	2402	2DH5	1	-2.68
		2441	2DH5	1	-2.34
		2480	2DH5	1	-2.58
8DPSK	SISO	2402	3DH5	1	-2.76
		2441	3DH5	1	-2.34
		2480	3DH5	1	-2.57

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 CSE

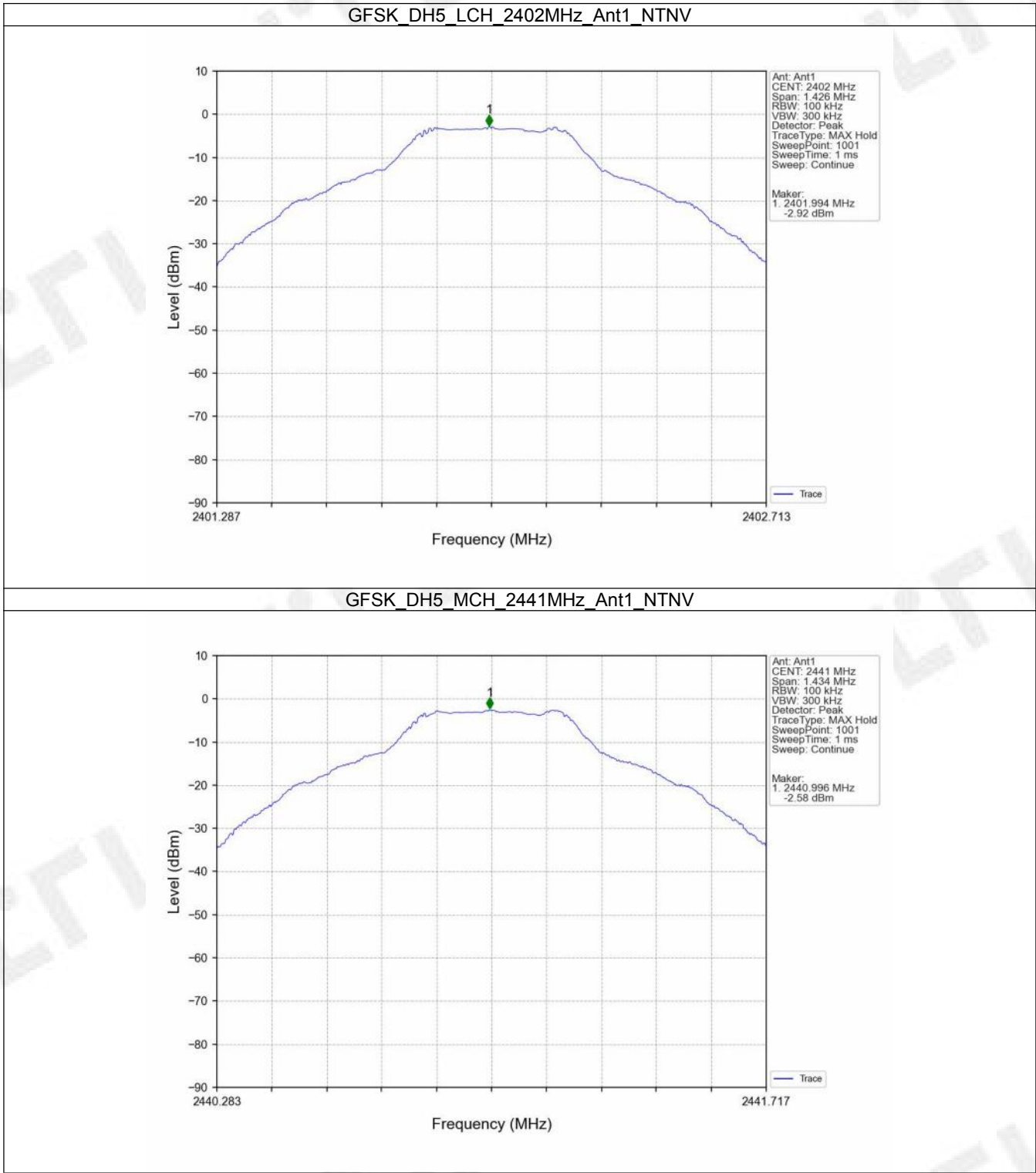
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	-2.58	-22.58	Pass
		2441	DH5	1	-2.58	-22.58	Pass
		2480	DH5	1	-2.58	-22.58	Pass
		HOPP	DH5	1	-2.58	-22.58	Pass
					-2.58	-22.58	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	-2.34	-22.34	Pass
		2441	2DH5	1	-2.34	-22.34	Pass
		2480	2DH5	1	-2.34	-22.34	Pass
		HOPP	2DH5	1	-2.34	-22.34	Pass
					-2.34	-22.34	Pass
8DPSK	SISO	2402	3DH5	1	-2.34	-22.34	Pass
		2441	3DH5	1	-2.34	-22.34	Pass
		2480	3DH5	1	-2.34	-22.34	Pass
		HOPP	3DH5	1	-2.34	-22.34	Pass
					-2.34	-22.34	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.

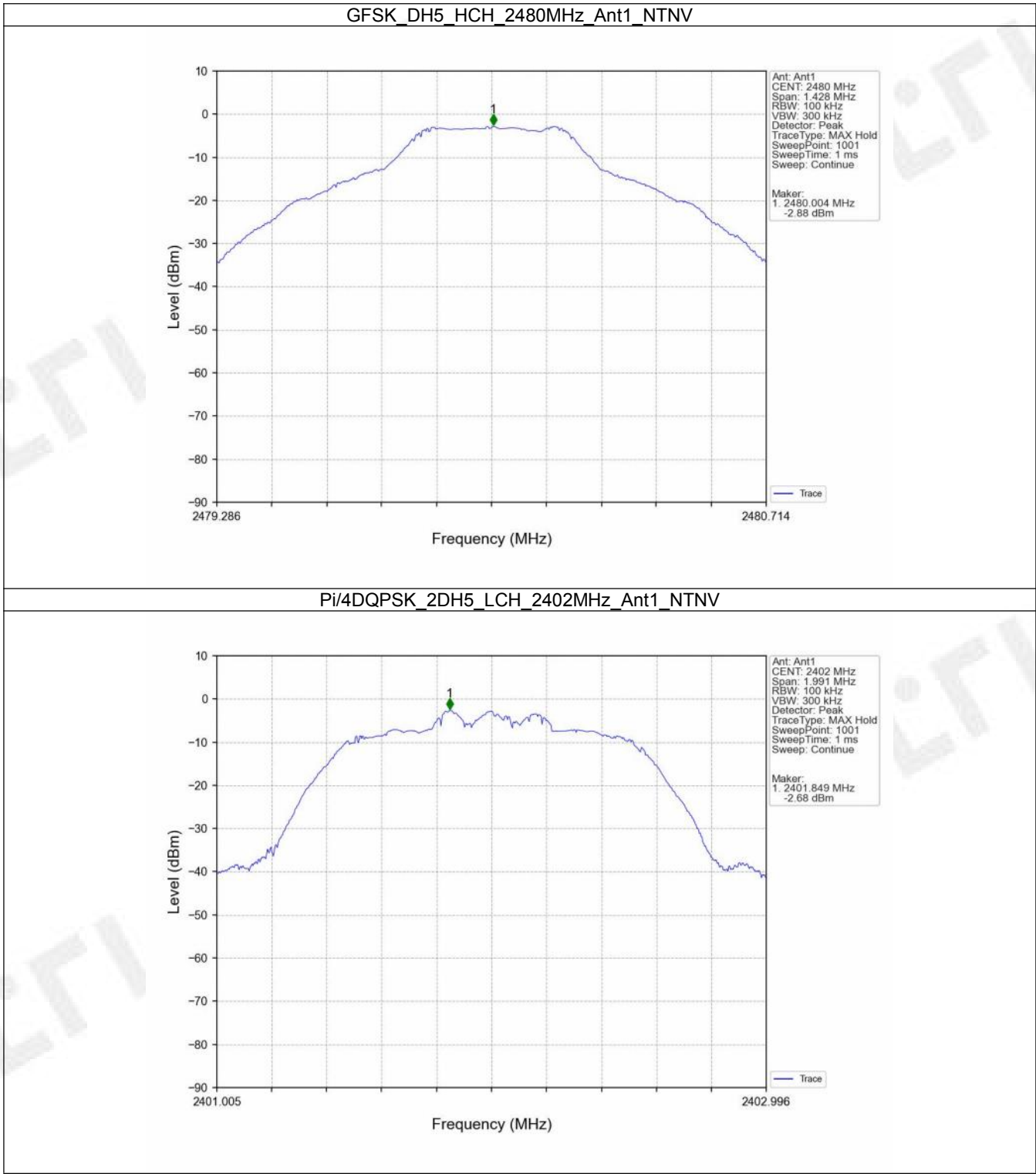
FCCID: 2BB37-EW-VOUGE3

6.2 Test Graph

6.2.1 Ref



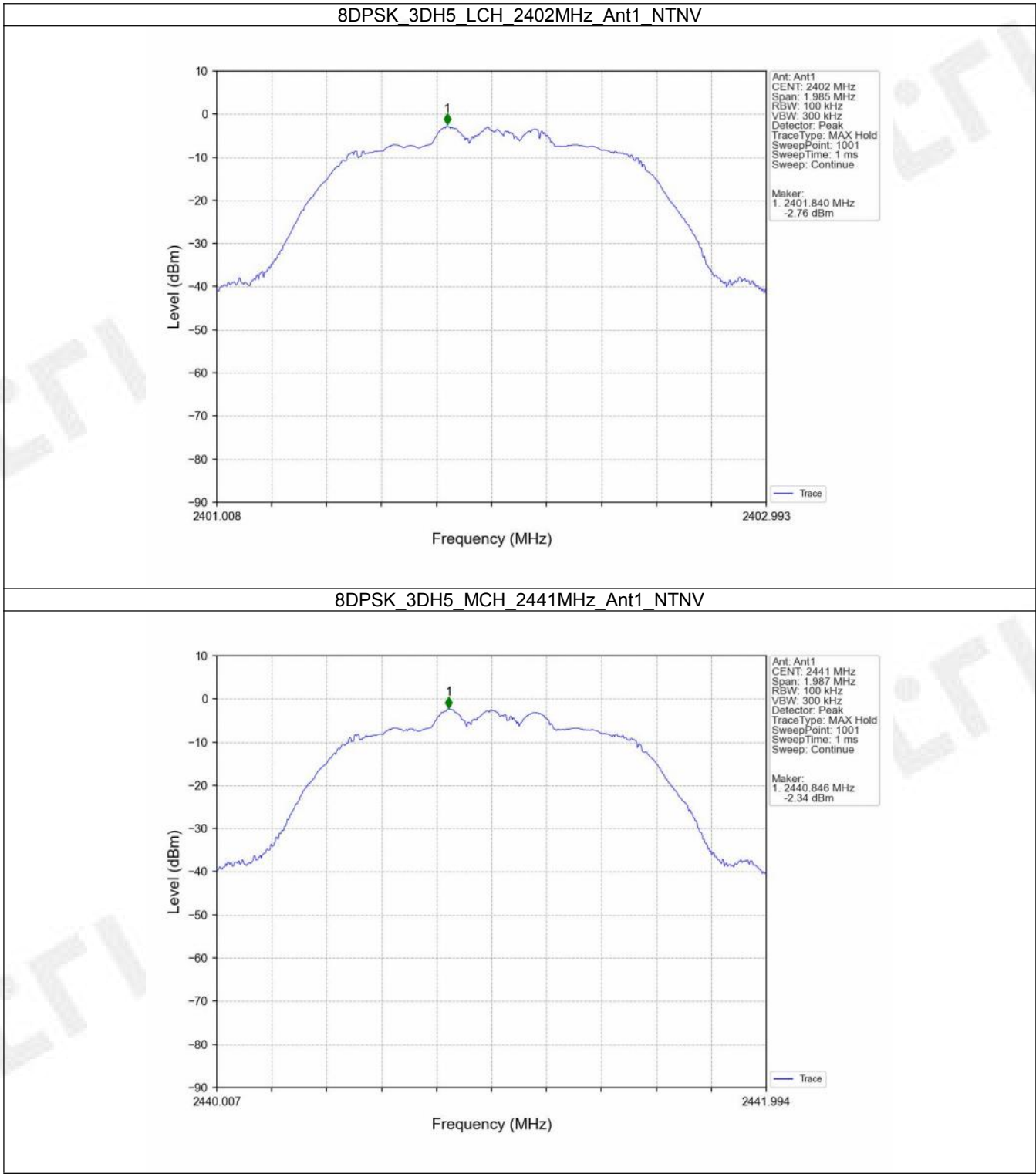
FCCID: 2BB37-EW-VOUGE3



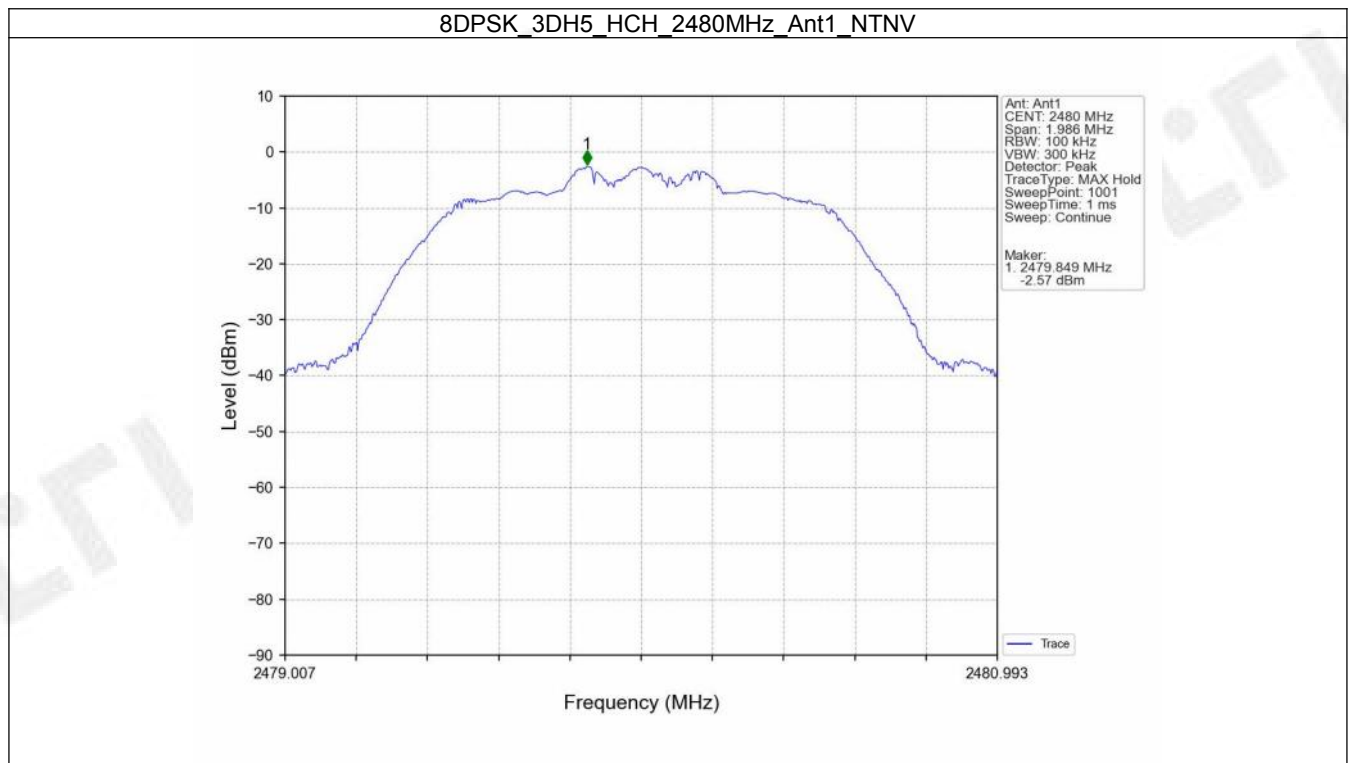
FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3

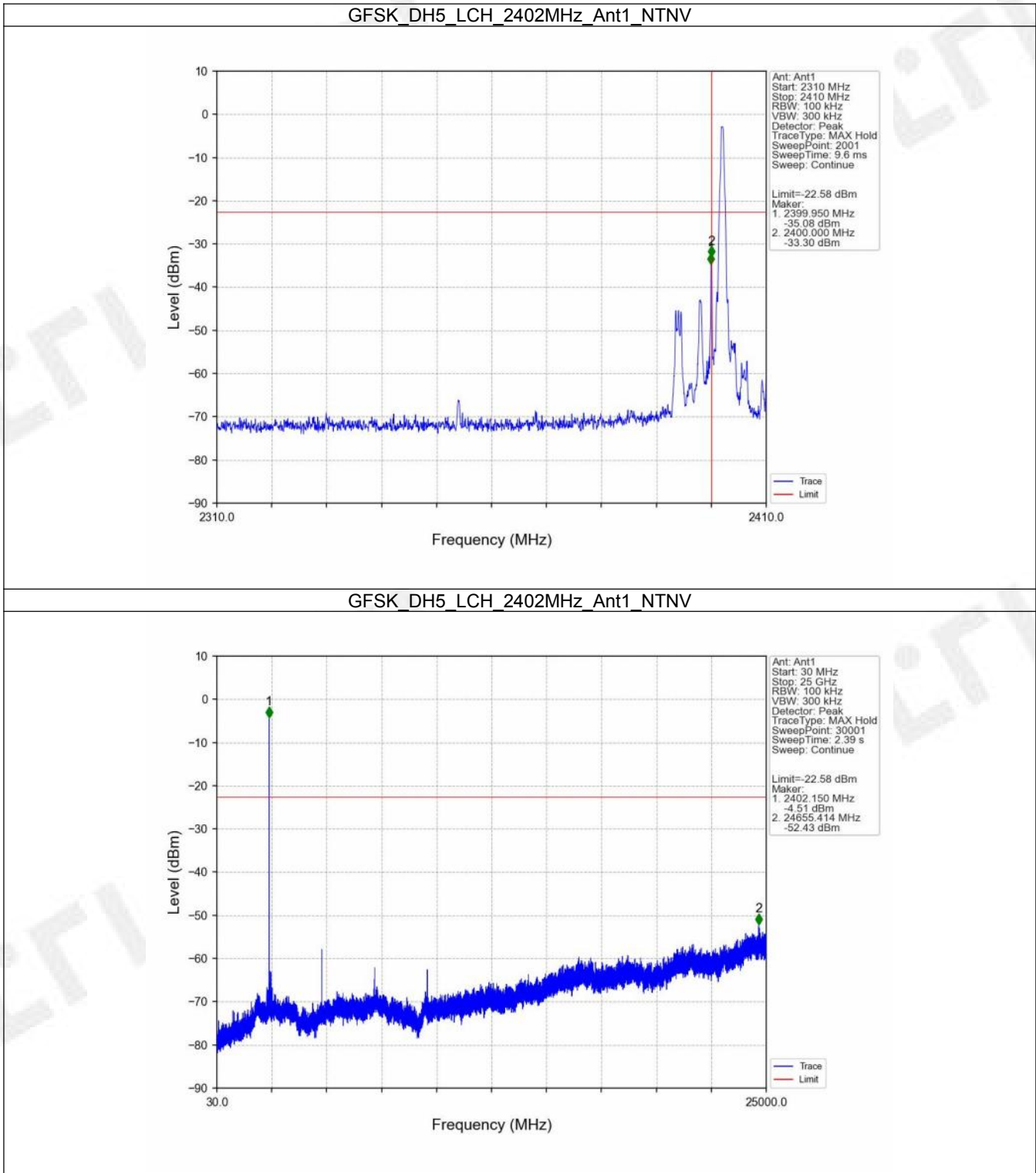


FCCID: 2BB37-EW-VOUGE3

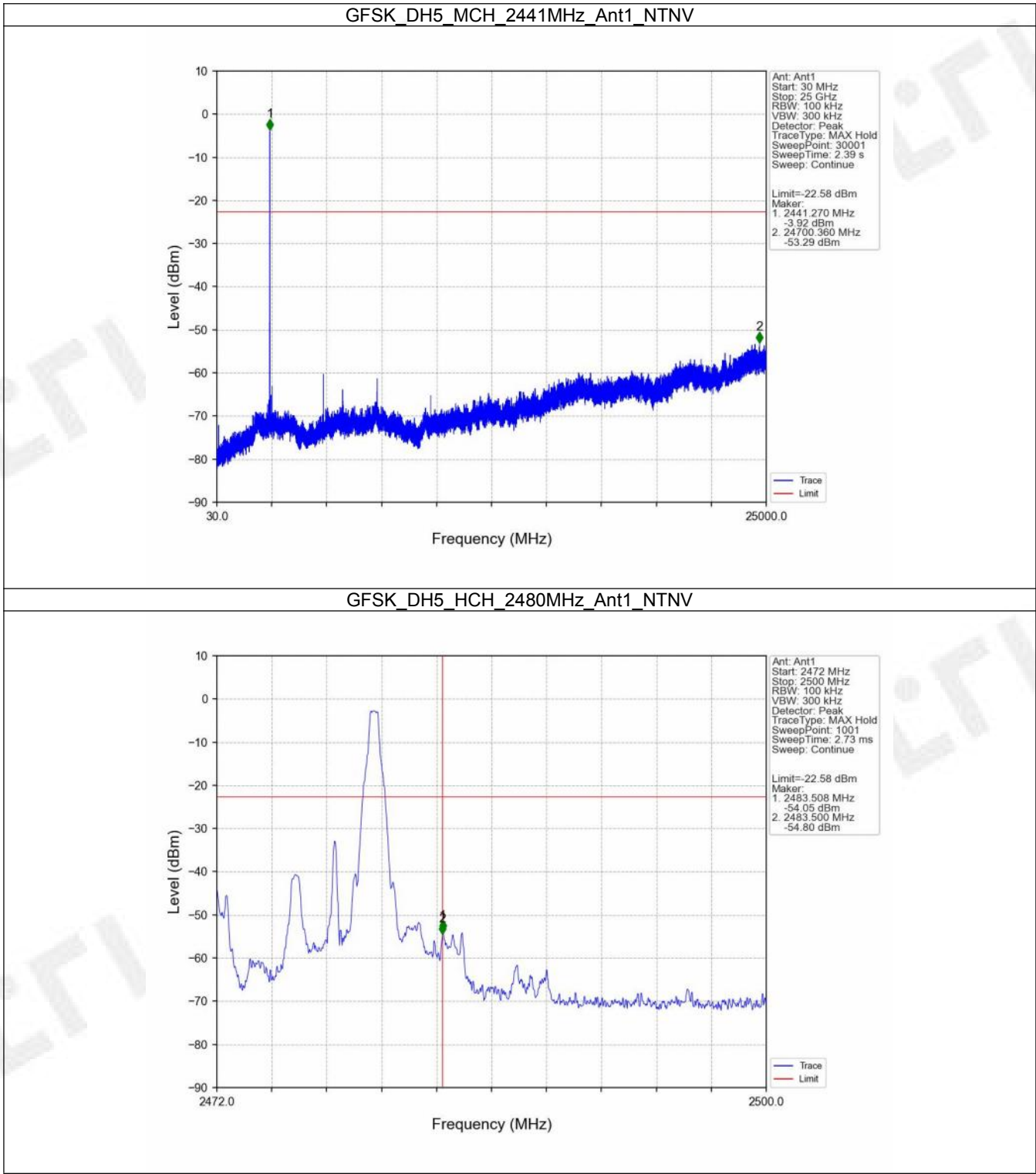


FCCID: 2BB37-EW-VOUGE3

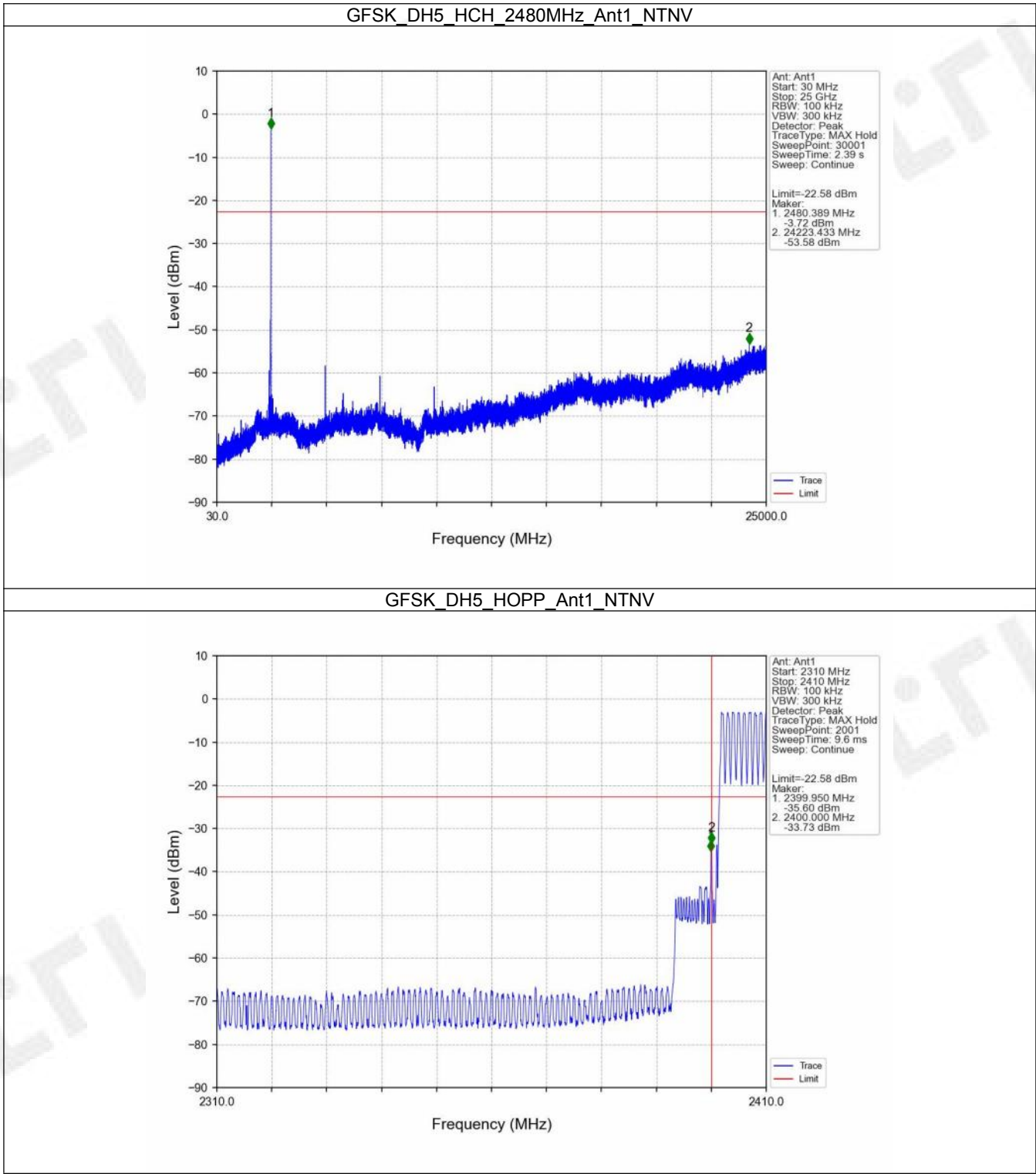
6.2.2 CSE



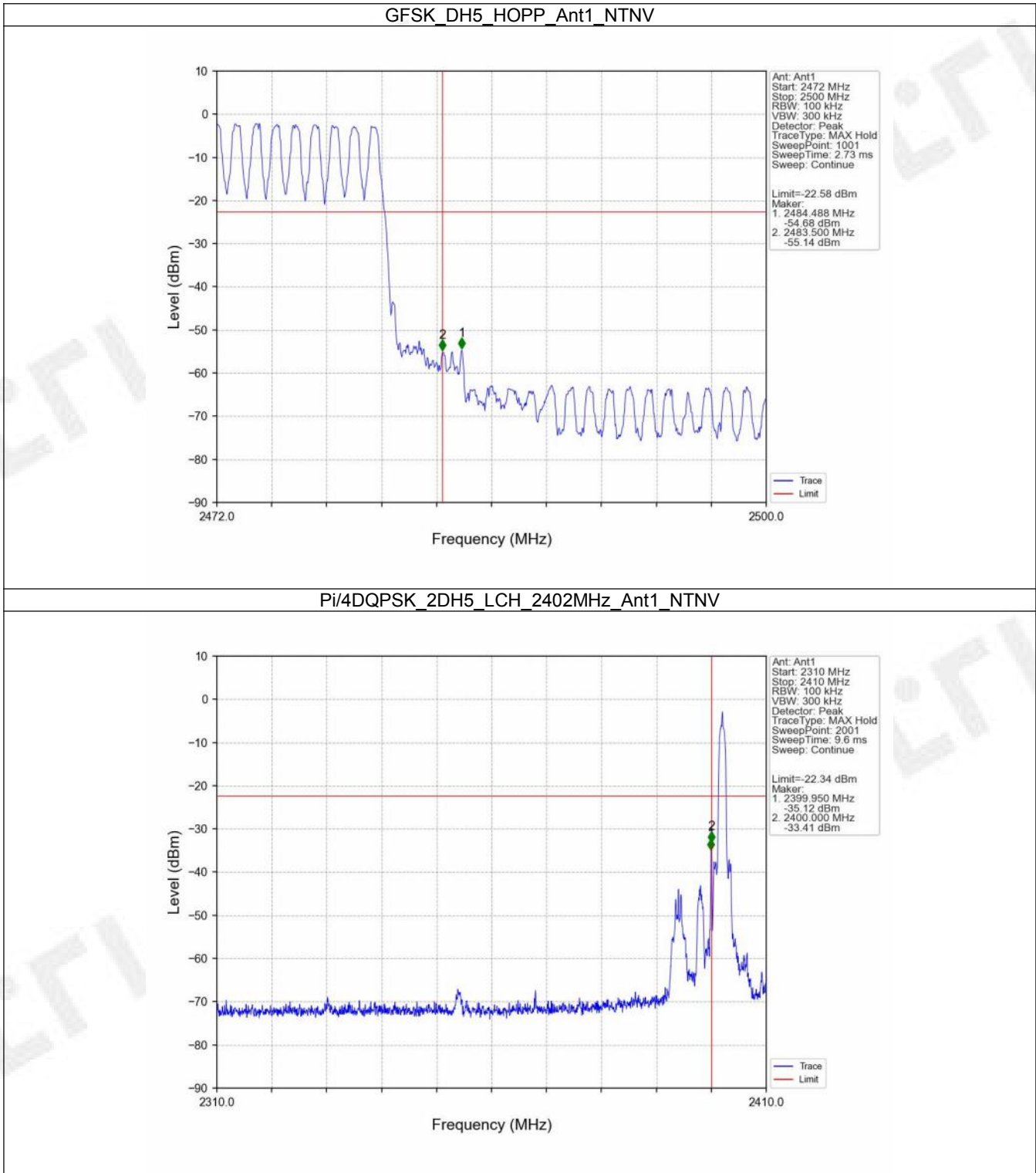
FCCID: 2BB37-EW-VOUGE3



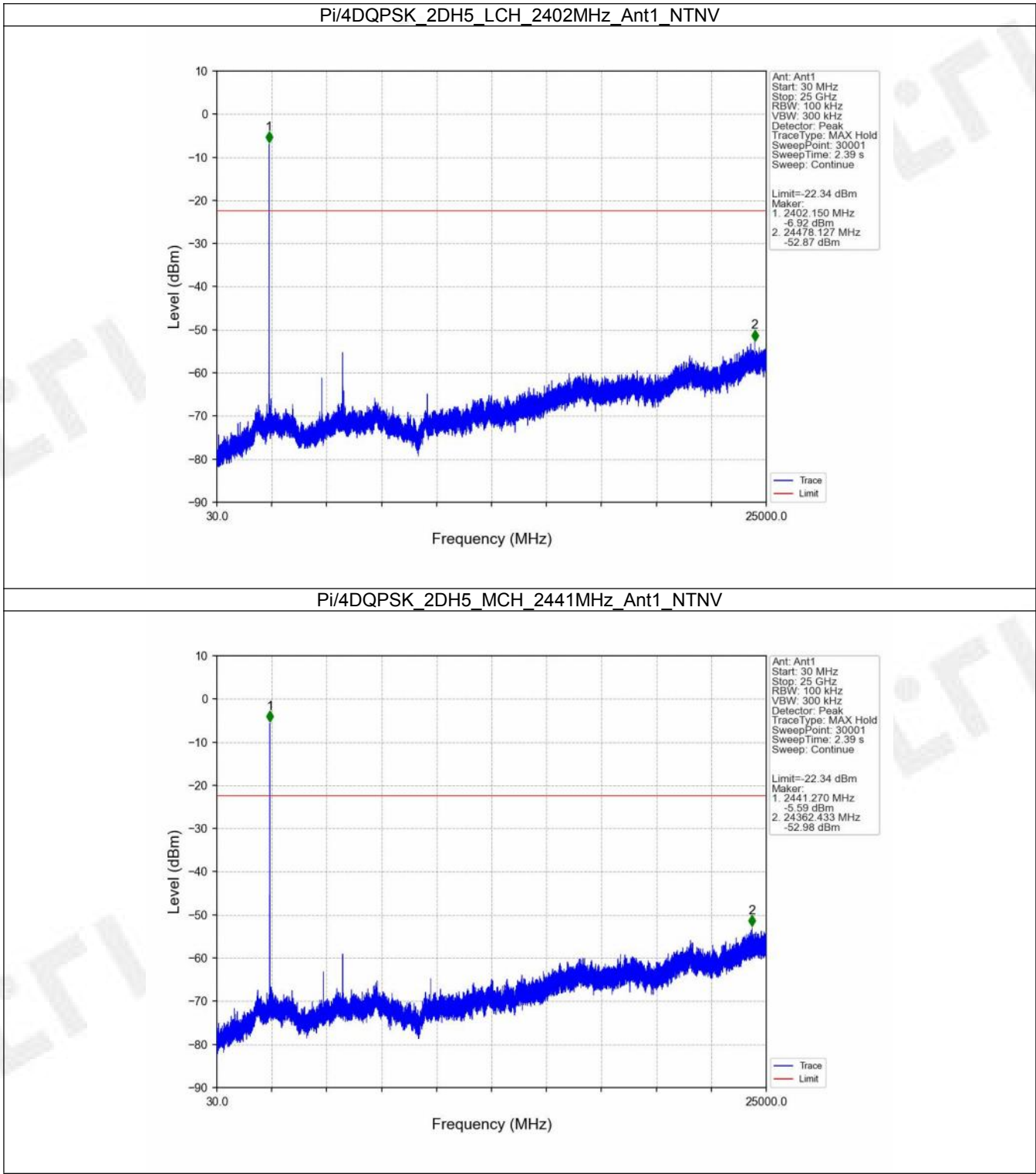
FCCID: 2BB37-EW-VOUGE3



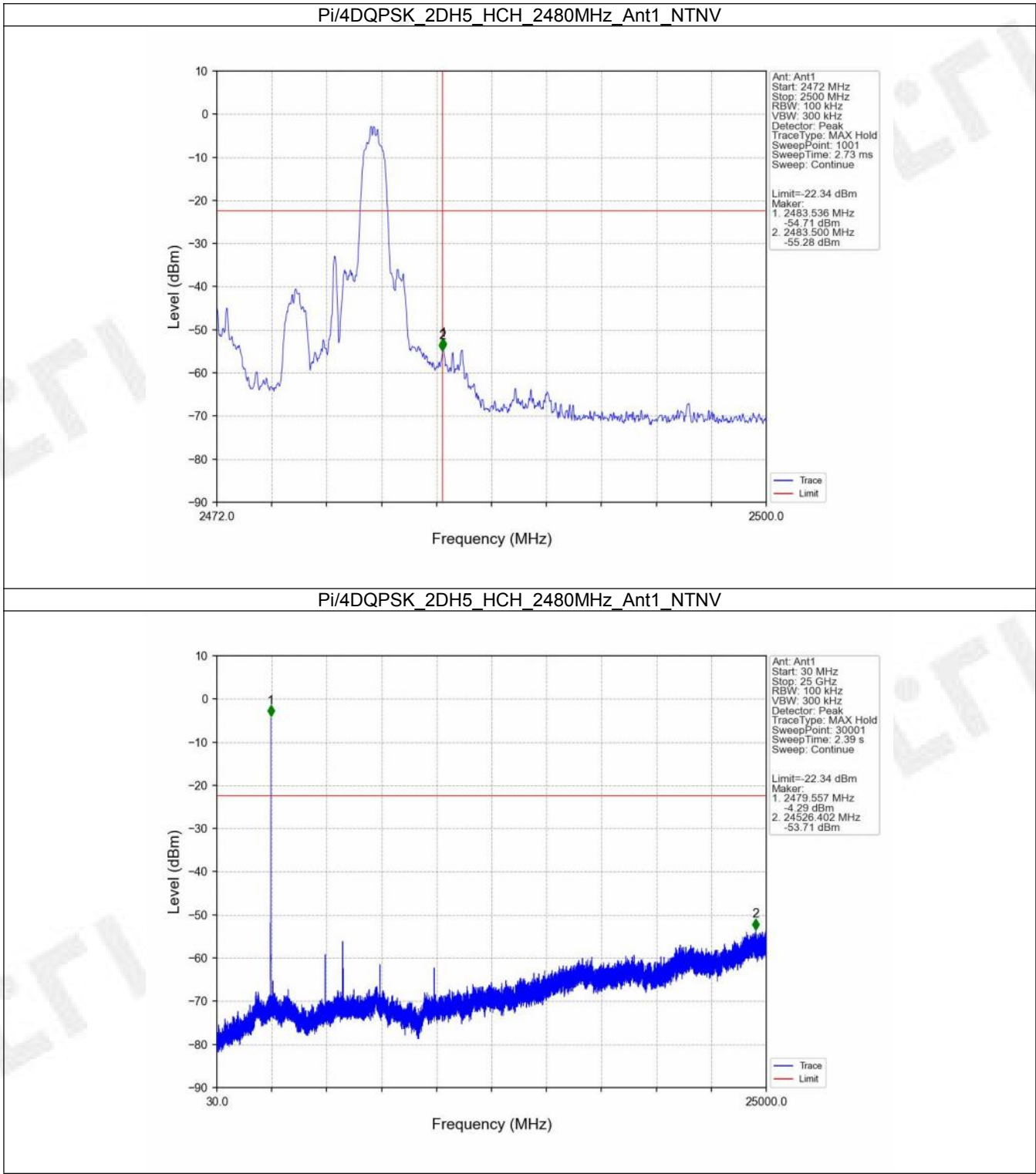
FCCID: 2BB37-EW-VOUGE3



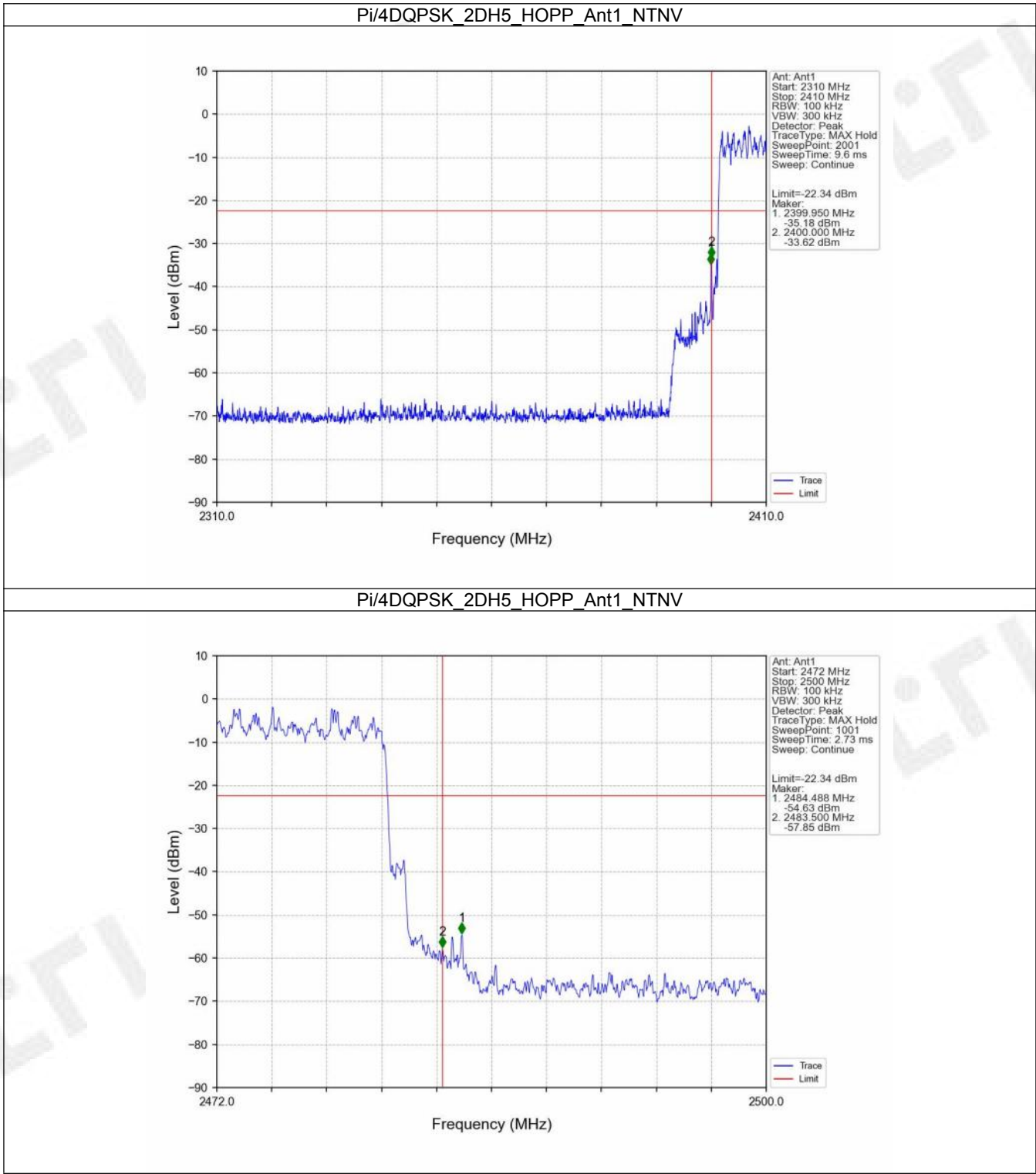
FCCID: 2BB37-EW-VOUGE3



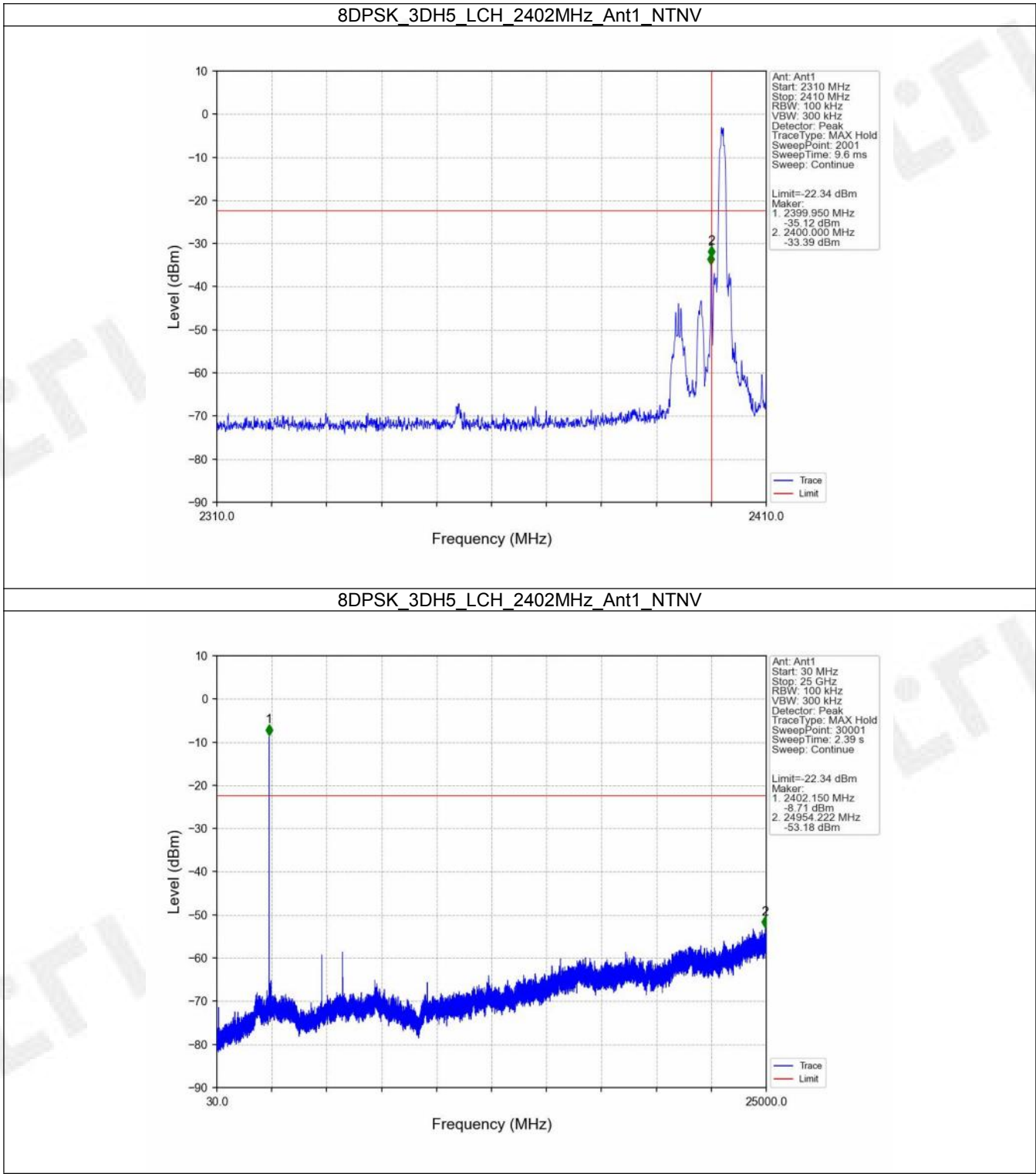
FCCID: 2BB37-EW-VOUGE3



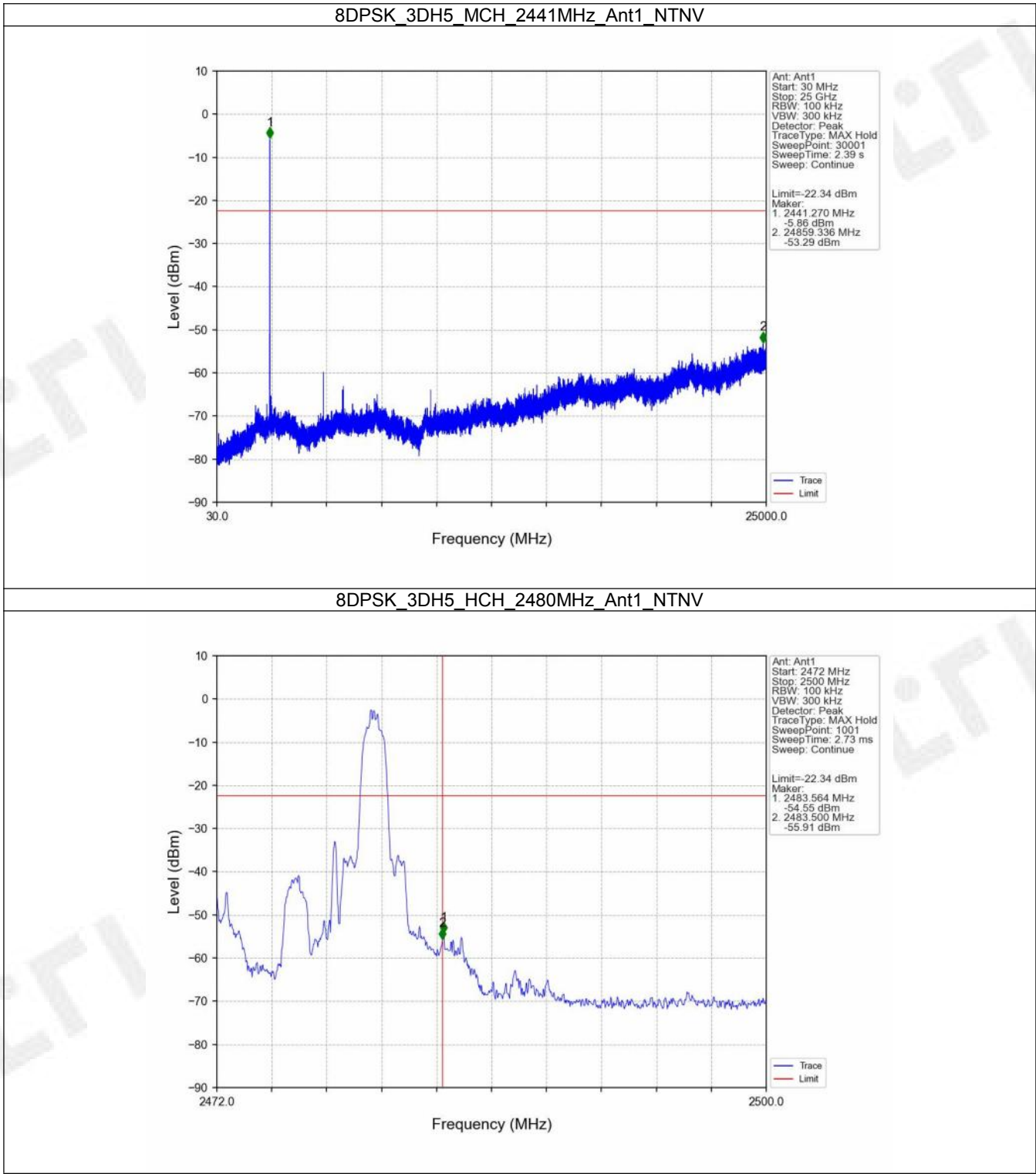
FCCID: 2BB37-EW-VOUGE3



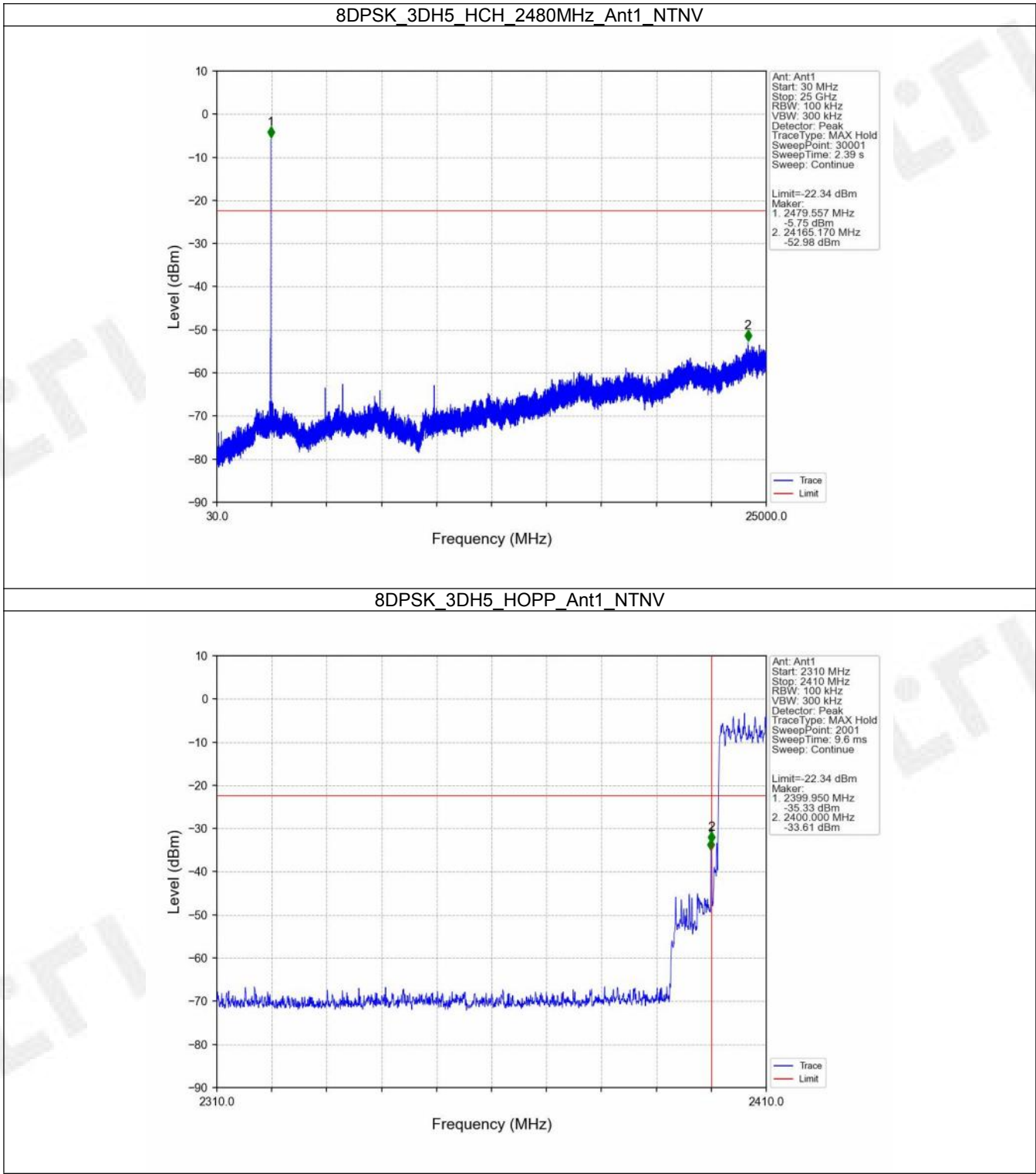
FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3



FCCID: 2BB37-EW-VOUGE3

