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Annex for Bluetooth

Test Report No.: CTL2508262021-WF01

TABLE OF CONTENTS

1. Bandwidth.....	3
1.1 Test Result	3
1.1.1 OBW	3
1.1.2 20dB BW	3
1.2 Test Graph.....	4
1.2.1 OBW	4
1.2.2 20dB BW	9
2. Maximum Conducted Output Power	14
2.1 Test Result	14
2.1.1 Power	14
3. Carrier Frequency Separation.....	15
3.1 Test Result	15
3.1.1 Ant1	15
3.2 Test Graph.....	16
3.2.1 Ant1	16
4. Number of Hopping Frequencies	18
4.1 Test Result	18
4.1.1 HoppNum	18
4.2 Test Graph.....	19
4.2.1 HoppNum	19

FCC ID: 2ASC7DS5060V

5. Time of Occupancy (Dwell Time)	21
5.1 Test Result	21
5.1.1 Ant1	21
5.2 Test Graph.....	22
5.2.1 Ant1	22
6. Unwanted Emissions In Non-restricted Frequency Bands.....	31
6.1 Test Result	31
6.1.1 Ref.....	31
6.1.2 CSE	31
6.2 Test Graph.....	32
6.2.1 Ref.....	32
6.2.2 CSE	37

FCC ID: 2ASC7DS5060V

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	0.854	/	Pass
		2441	DH5	1	0.854	/	Pass
		2480	DH5	1	0.911	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.168	/	Pass
		2441	2DH5	1	1.183	/	Pass
		2480	2DH5	1	1.211	/	Pass
8DPSK	SISO	2402	3DH5	1	1.183	/	Pass
		2441	3DH5	1	1.183	/	Pass
		2480	3DH5	1	1.215	/	Pass

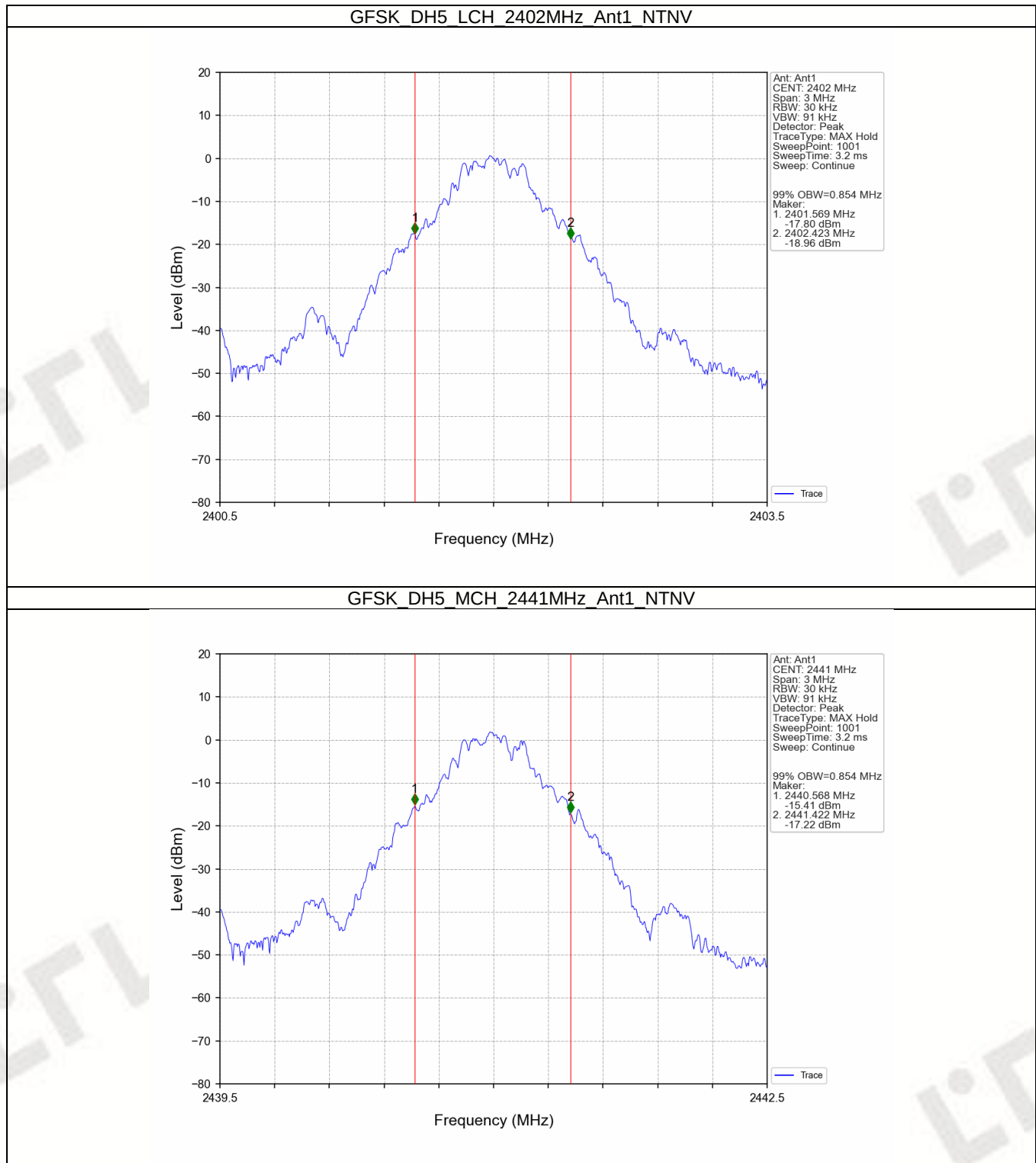
1.1.2 20dB BW

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.953	/	Pass
		2441	DH5	1	0.941	/	Pass
		2480	DH5	1	0.946	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.311	/	Pass
		2441	2DH5	1	1.289	/	Pass
		2480	2DH5	1	1.313	/	Pass
8DPSK	SISO	2402	3DH5	1	1.302	/	Pass
		2441	3DH5	1	1.302	/	Pass
		2480	3DH5	1	1.295	/	Pass

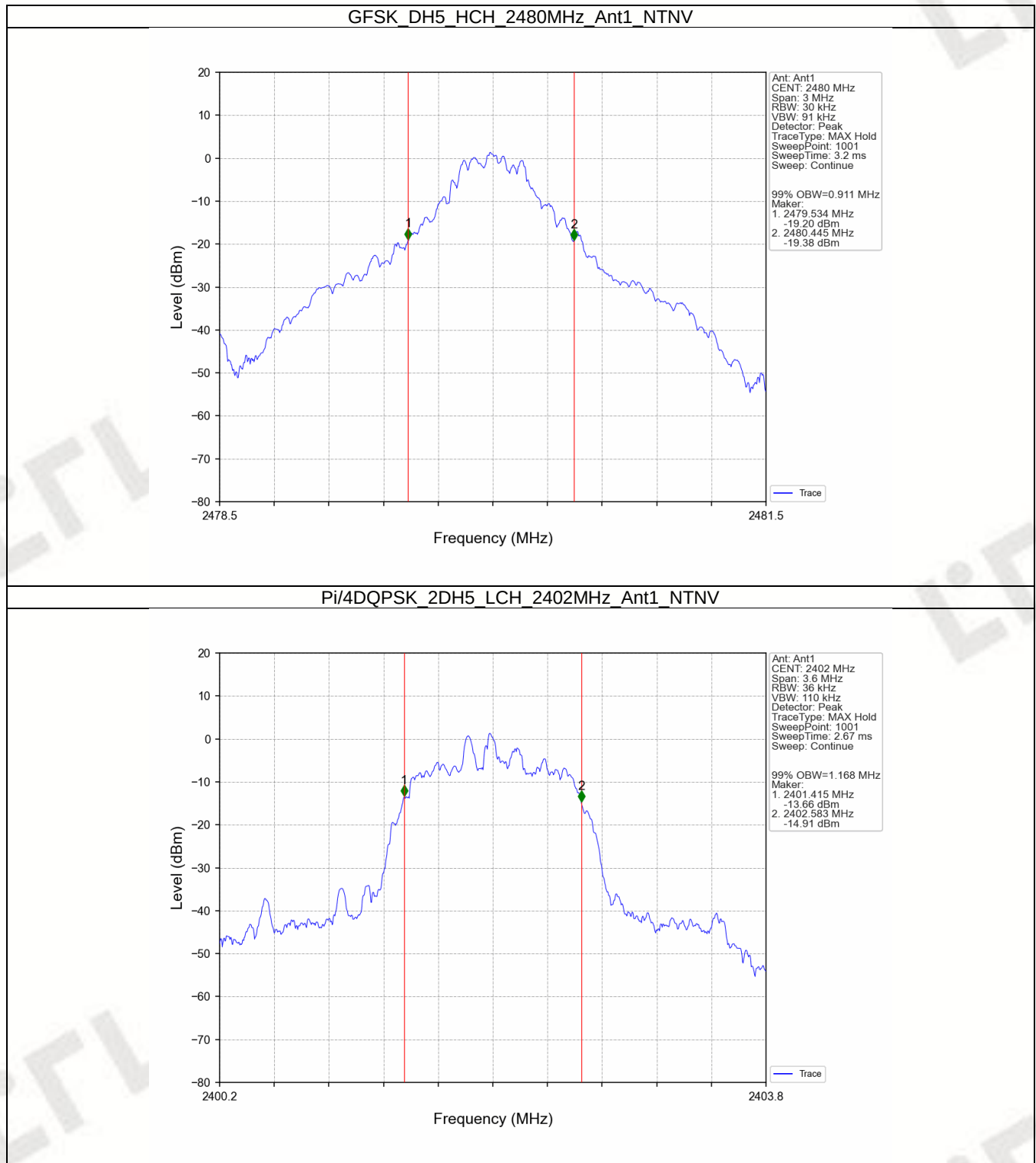
FCC ID: 2ASC7DS5060V

1.2 Test Graph

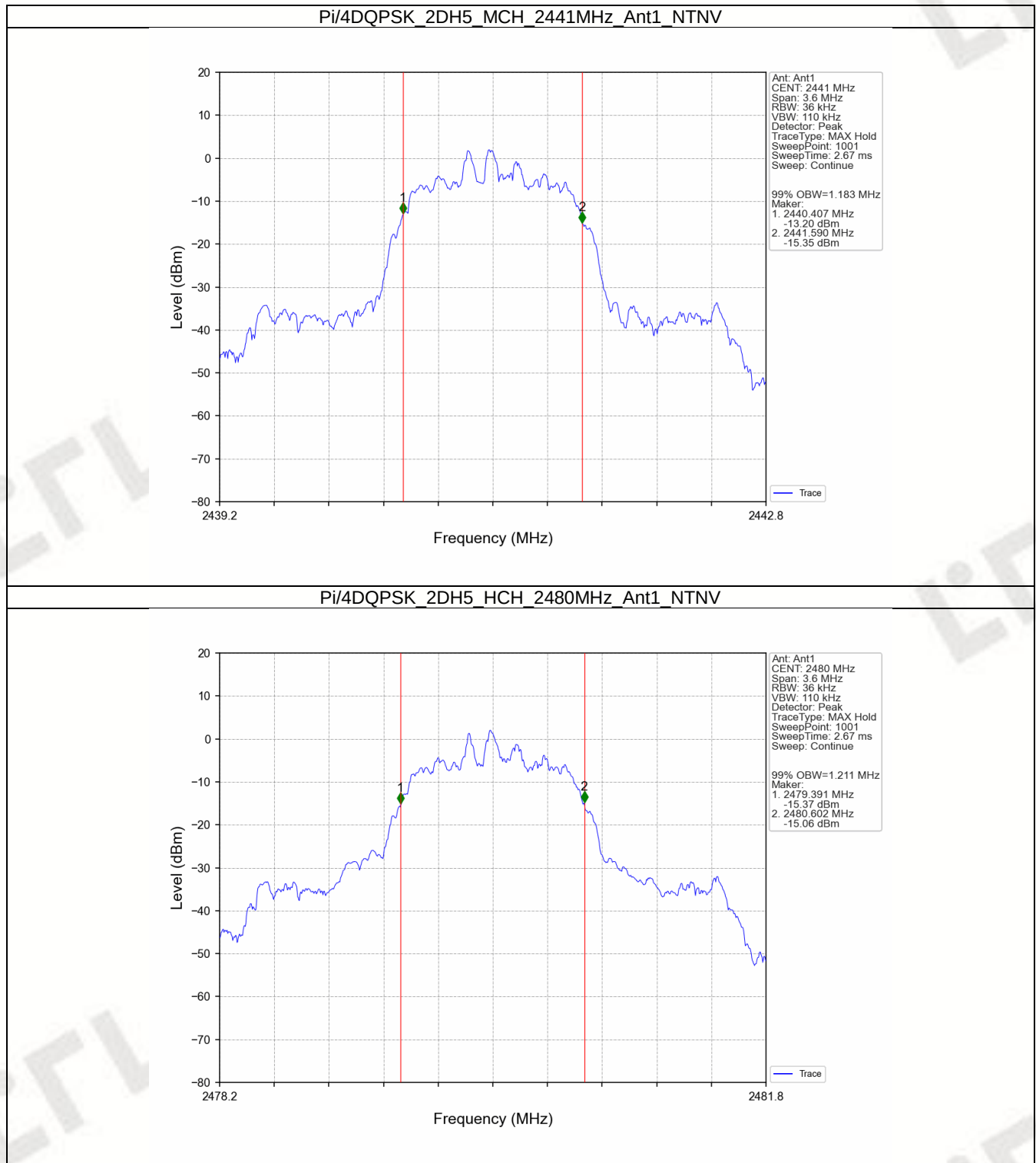
1.2.1 OBW



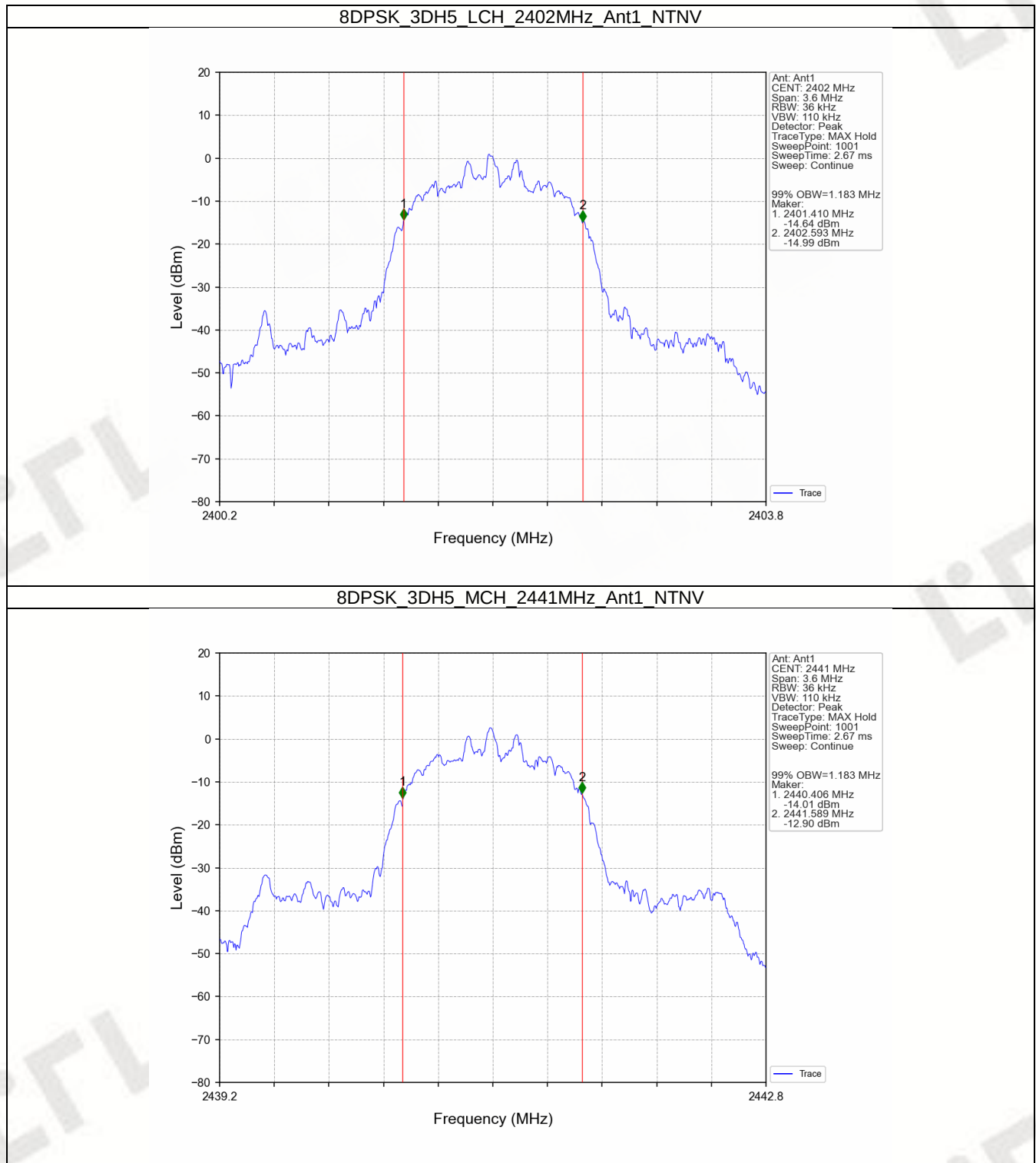
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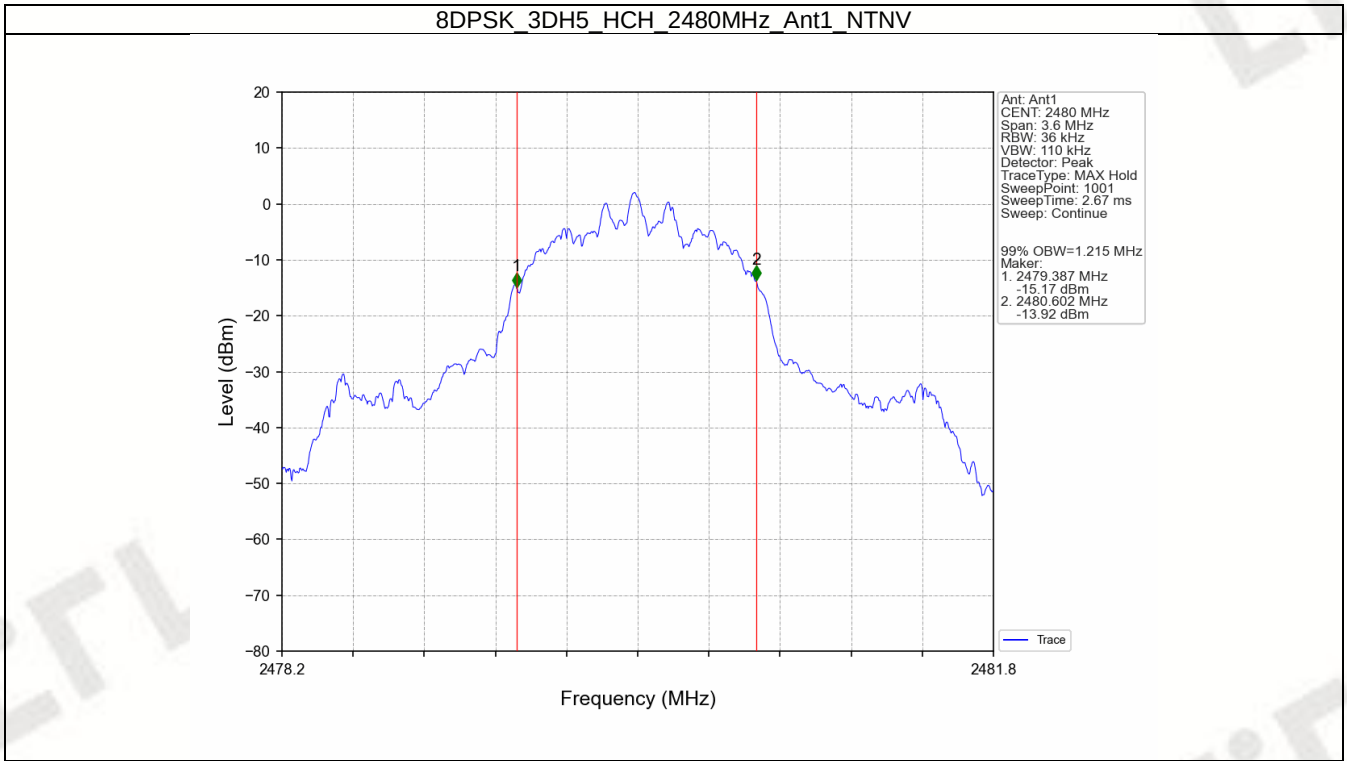
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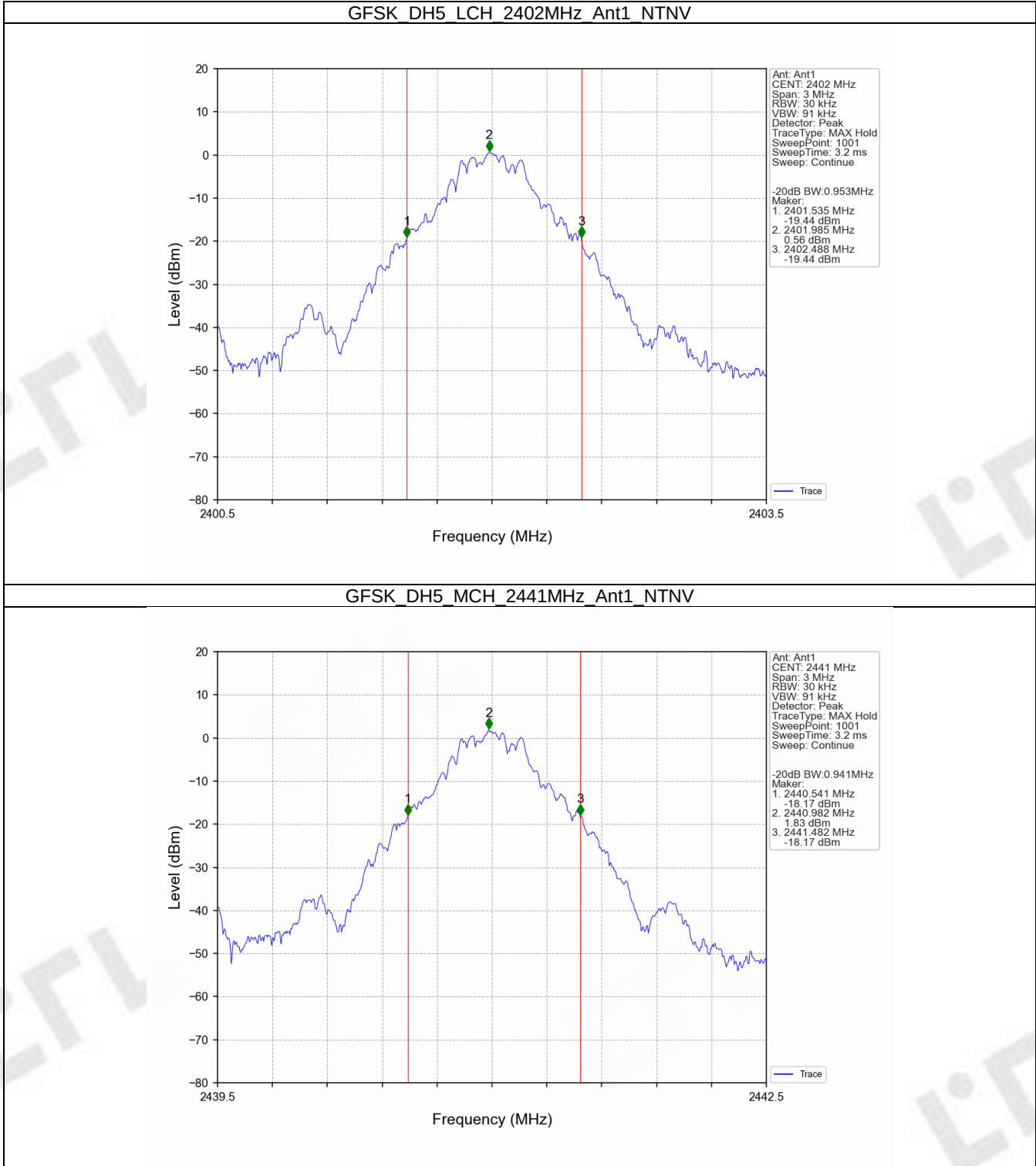
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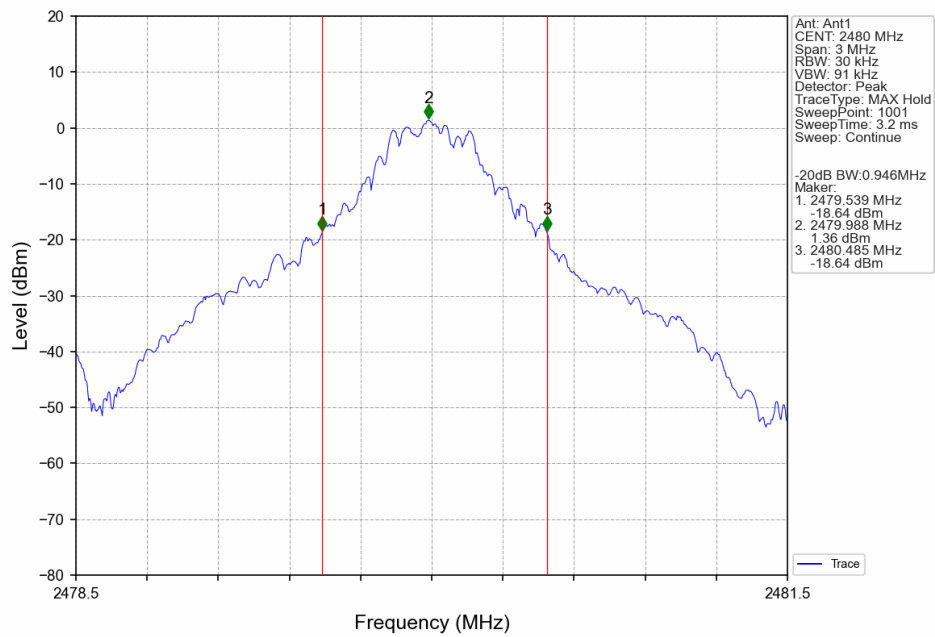
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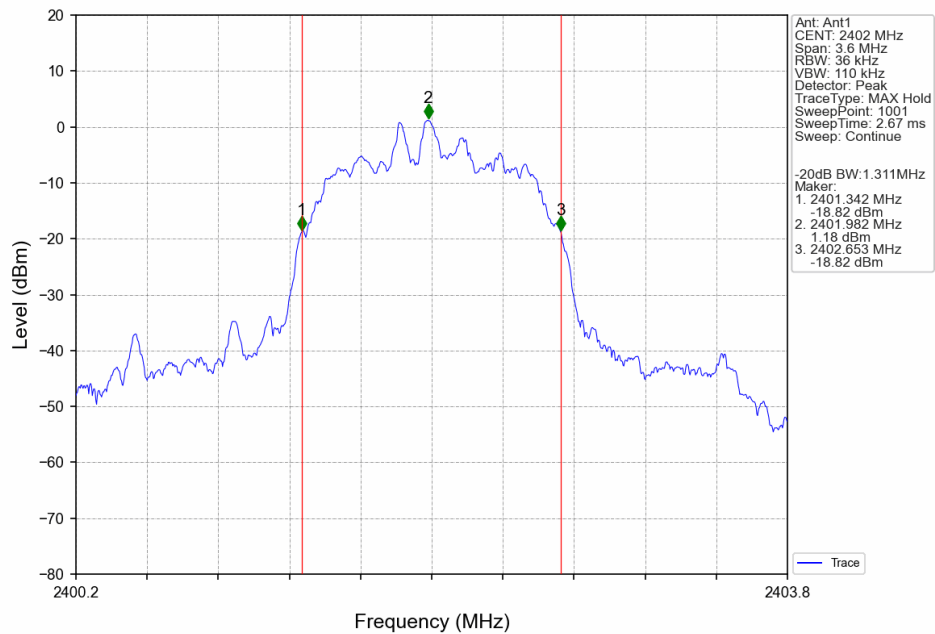
1.2.2 20dB BW



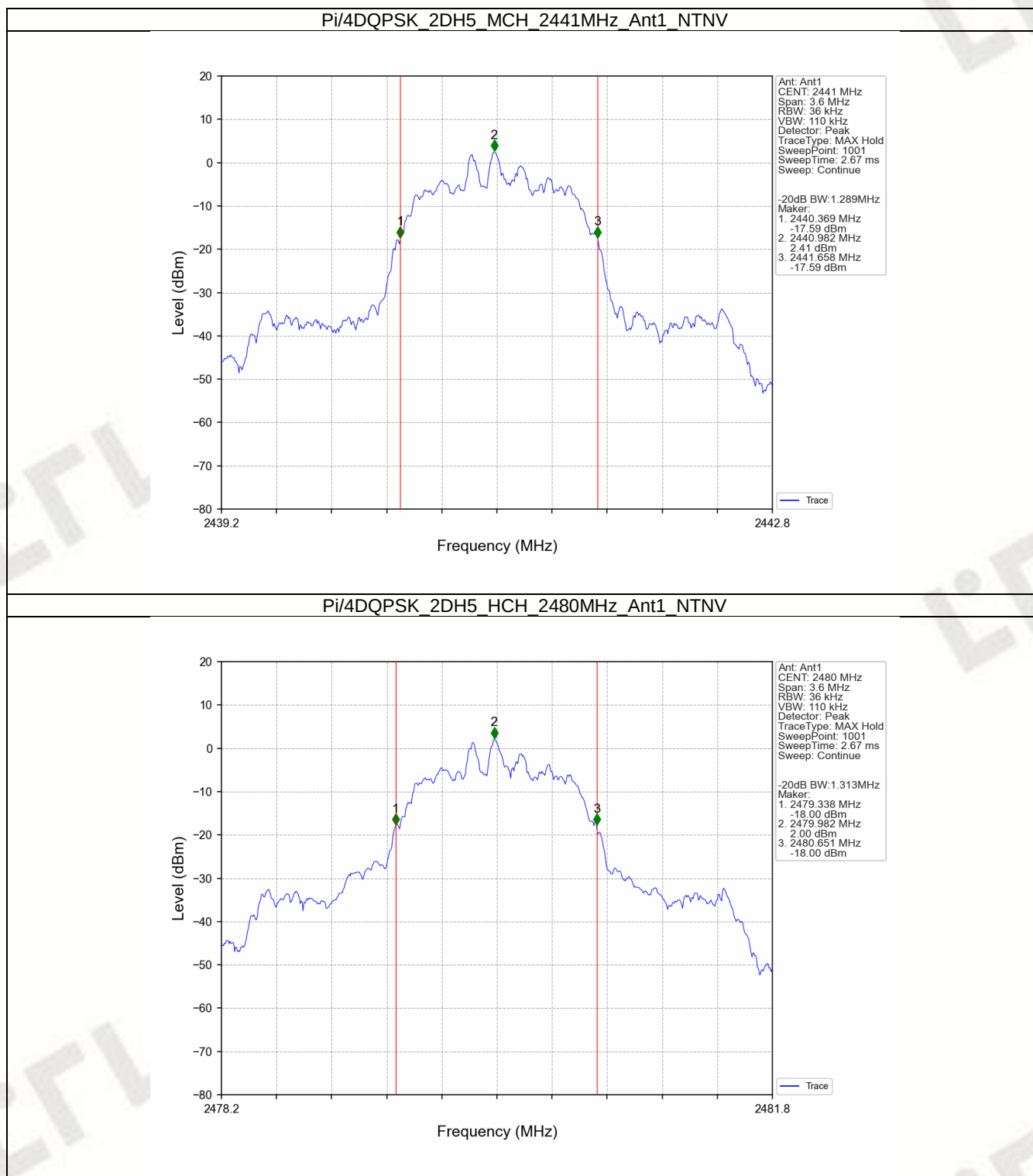
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV

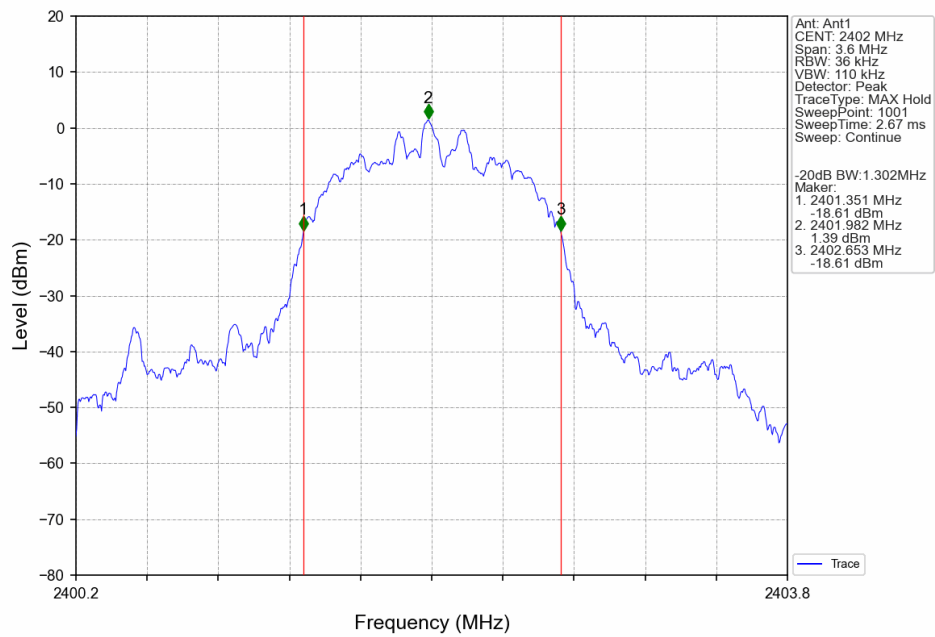


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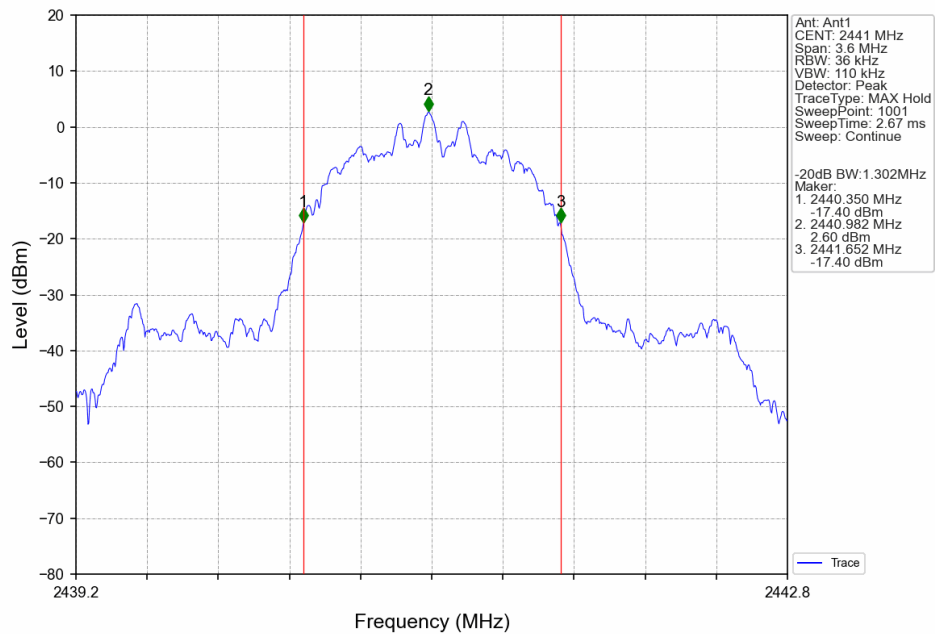


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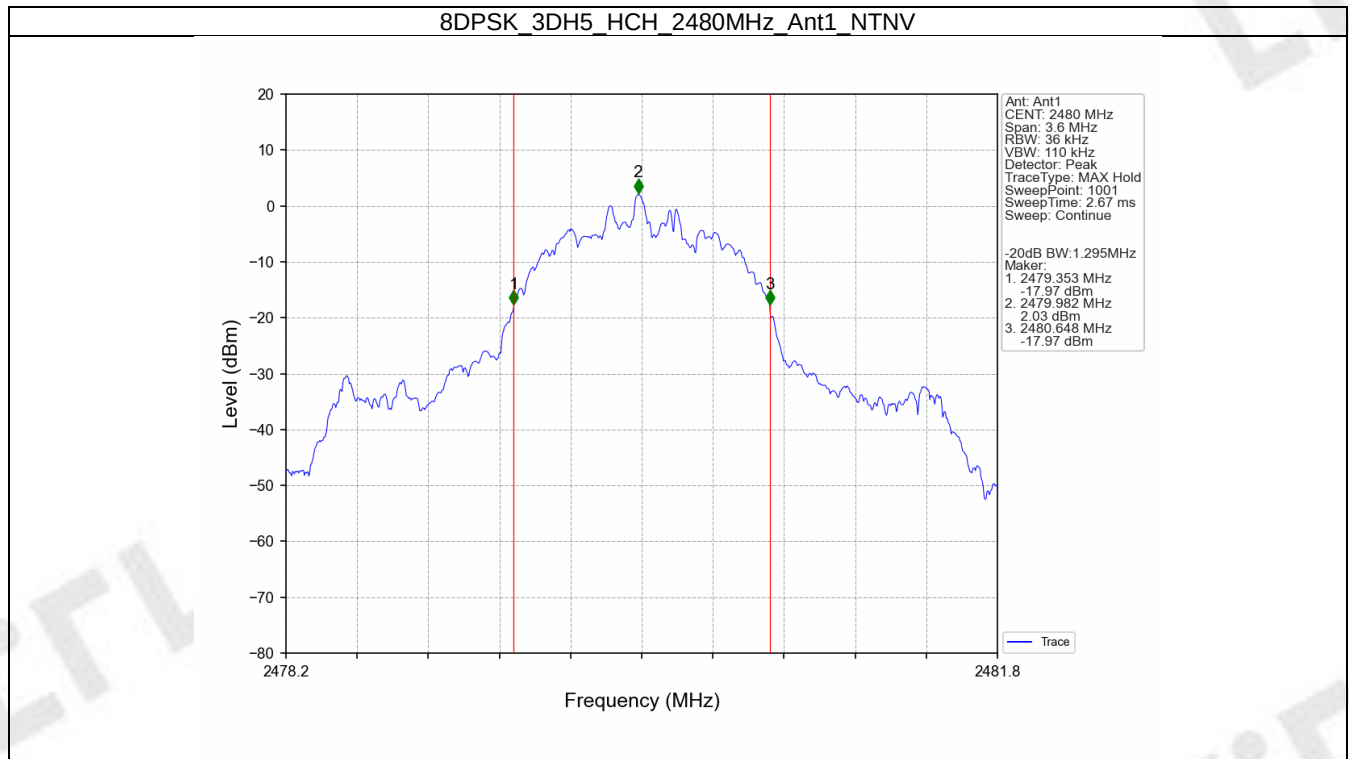
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



FCC ID: 2ASC7DS5060V



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	2.71	<=30	Pass
		2441	DH5	3.92	<=30	Pass
		2480	DH5	3.31	<=30	Pass
Pi/4DQPSK	SISO	2402	2DH5	3.45	<=20.97	Pass
		2441	2DH5	4.41	<=20.97	Pass
		2480	2DH5	3.84	<=20.97	Pass
8DPSK	SISO	2402	3DH5	3.84	<=20.97	Pass
		2441	3DH5	4.78	<=20.97	Pass
		2480	3DH5	4.07	<=20.97	Pass
Note1: Antenna Gain: Ant1: 1.21dBi;						

FCC ID: 2ASC7DS5060V

3. Carrier Frequency Separation

3.1 Test Result

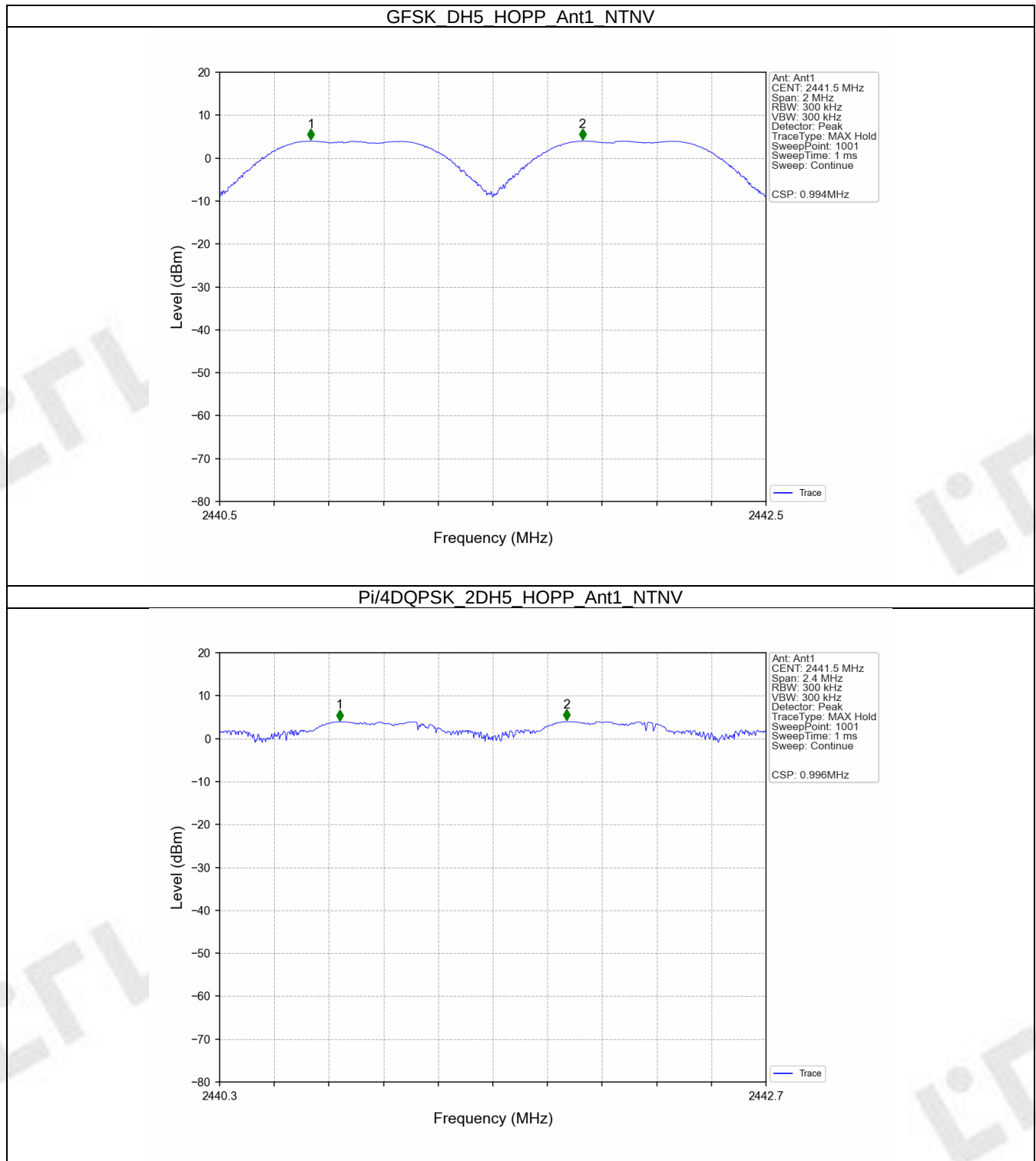
3.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	0.994	0.953	≥ 0.953	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	0.996	1.313	≥ 0.875	Pass
8DPSK	SISO	HOPP	3DH5	1.001	1.302	≥ 0.868	Pass

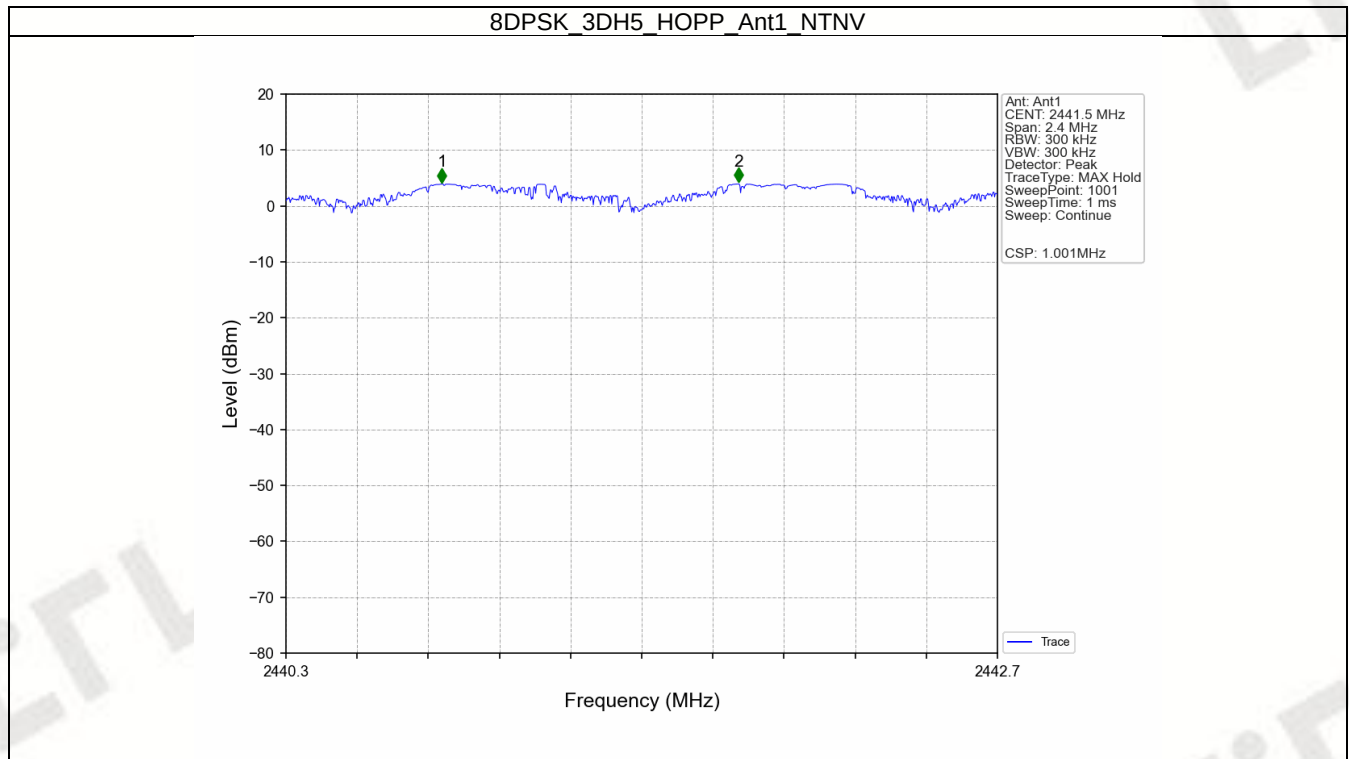
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3.2 Test Graph

3.2.1 Ant1



FCC ID: 2ASC7DS5060V



4. Number of Hopping Frequencies

4.1 Test Result

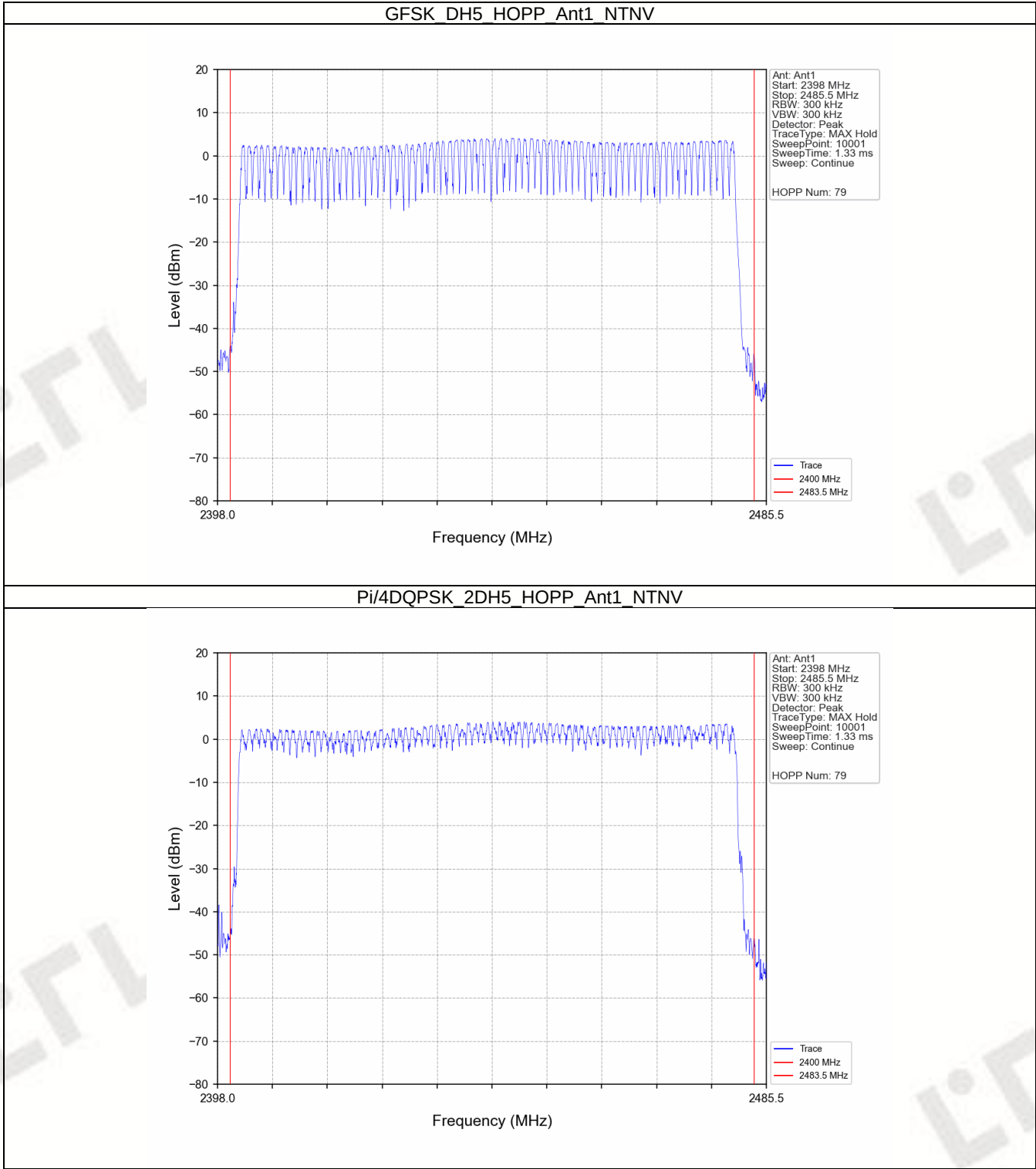
4.1.1 HoppNum

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

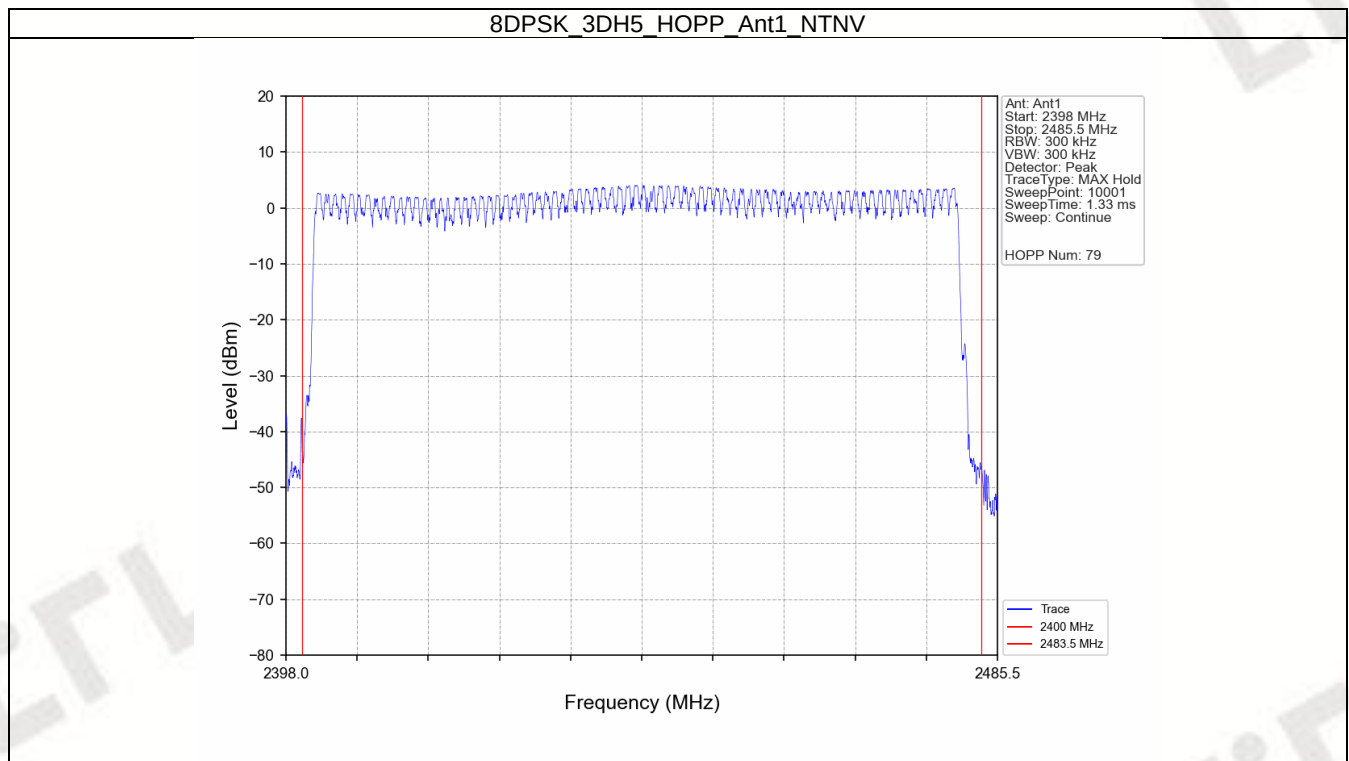
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4.2 Test Graph

4.2.1 HoppNum



FCC ID: 2ASC7DS5060V



5. Time of Occupancy (Dwell Time)

5.1 Test Result

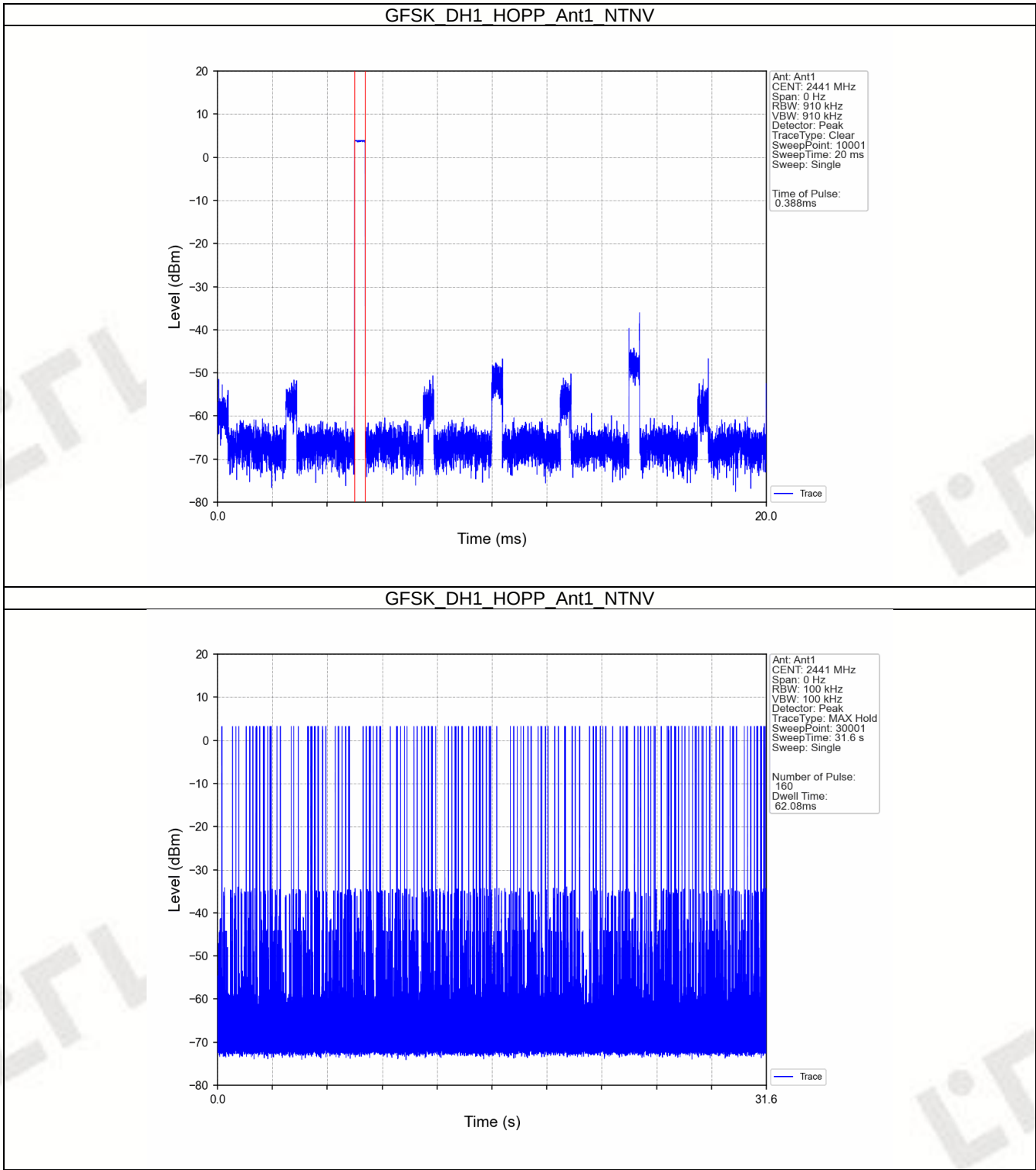
5.1.1 Ant1

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	0.388	31.600	160	62.080	<=400	Pass
			DH3	0.652	31.600	164	106.928	<=400	Pass
			DH5	0.652	31.600	165	107.580	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.396	31.600	171	67.716	<=400	Pass
			2DH3	0.654	31.600	161	105.294	<=400	Pass
			2DH5	0.652	31.600	162	105.624	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.396	31.600	155	61.380	<=400	Pass
			3DH3	0.652	31.600	163	106.276	<=400	Pass
			3DH5	0.652	31.600	149	97.148	<=400	Pass

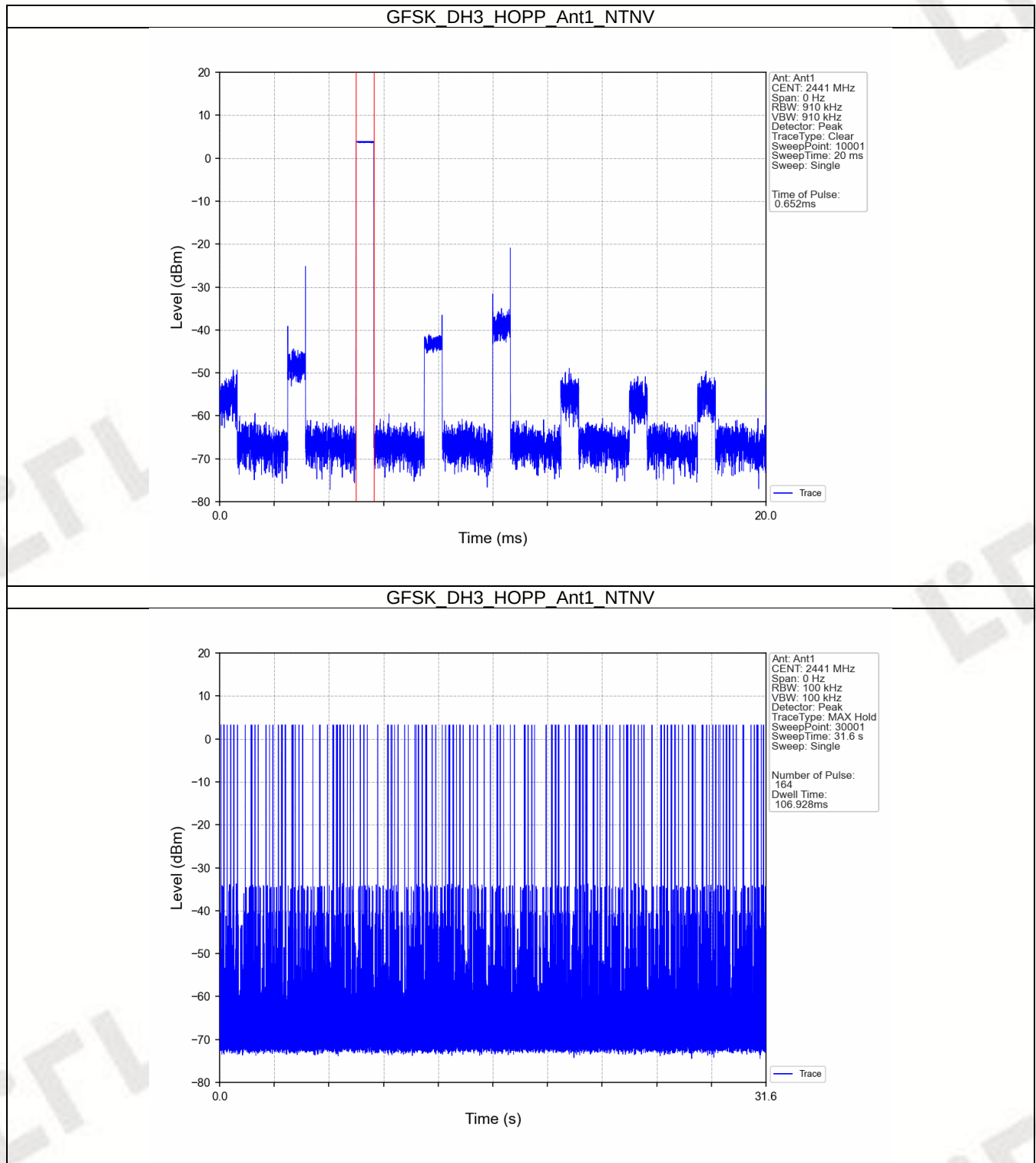
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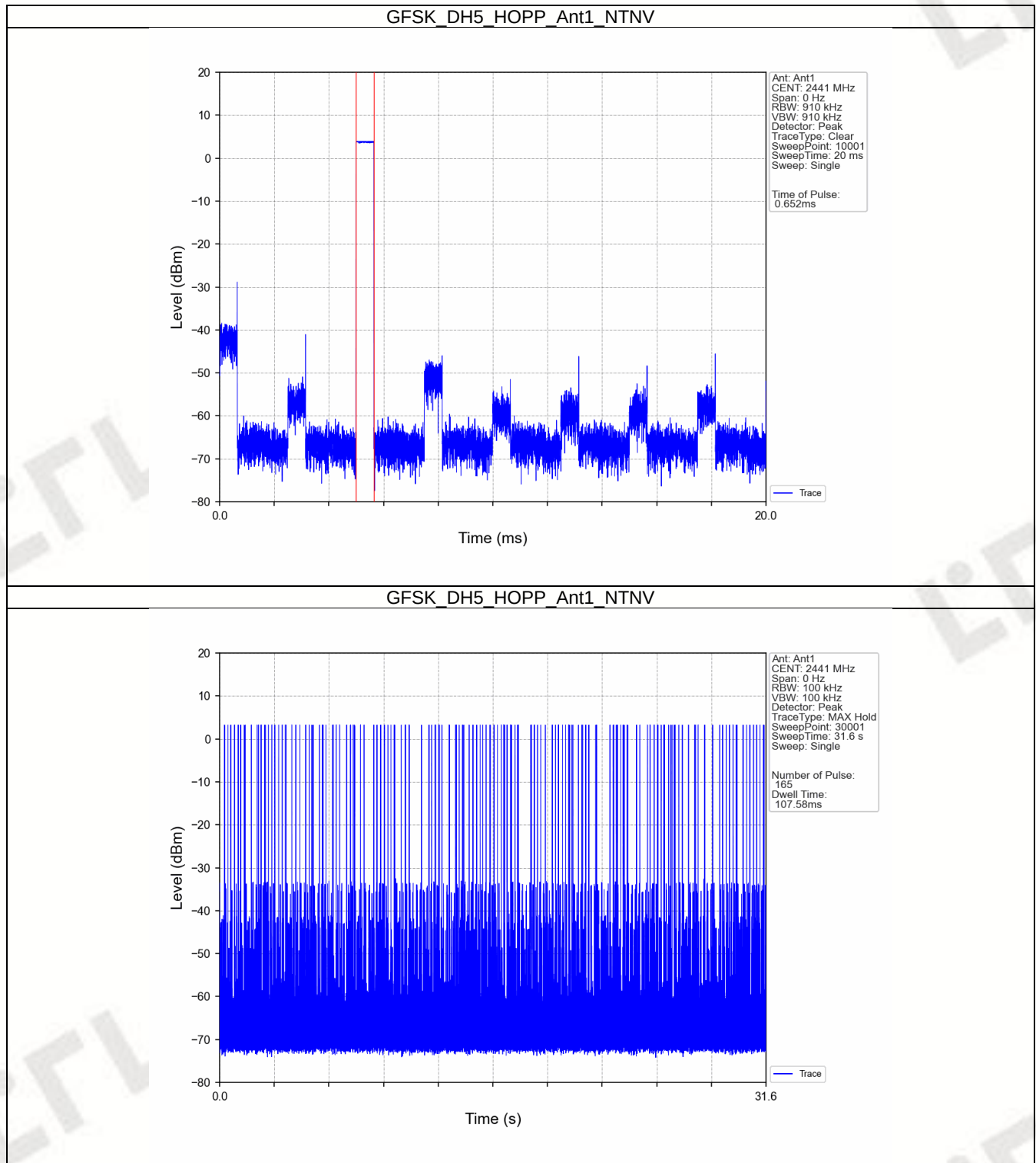
5.2 Test Graph

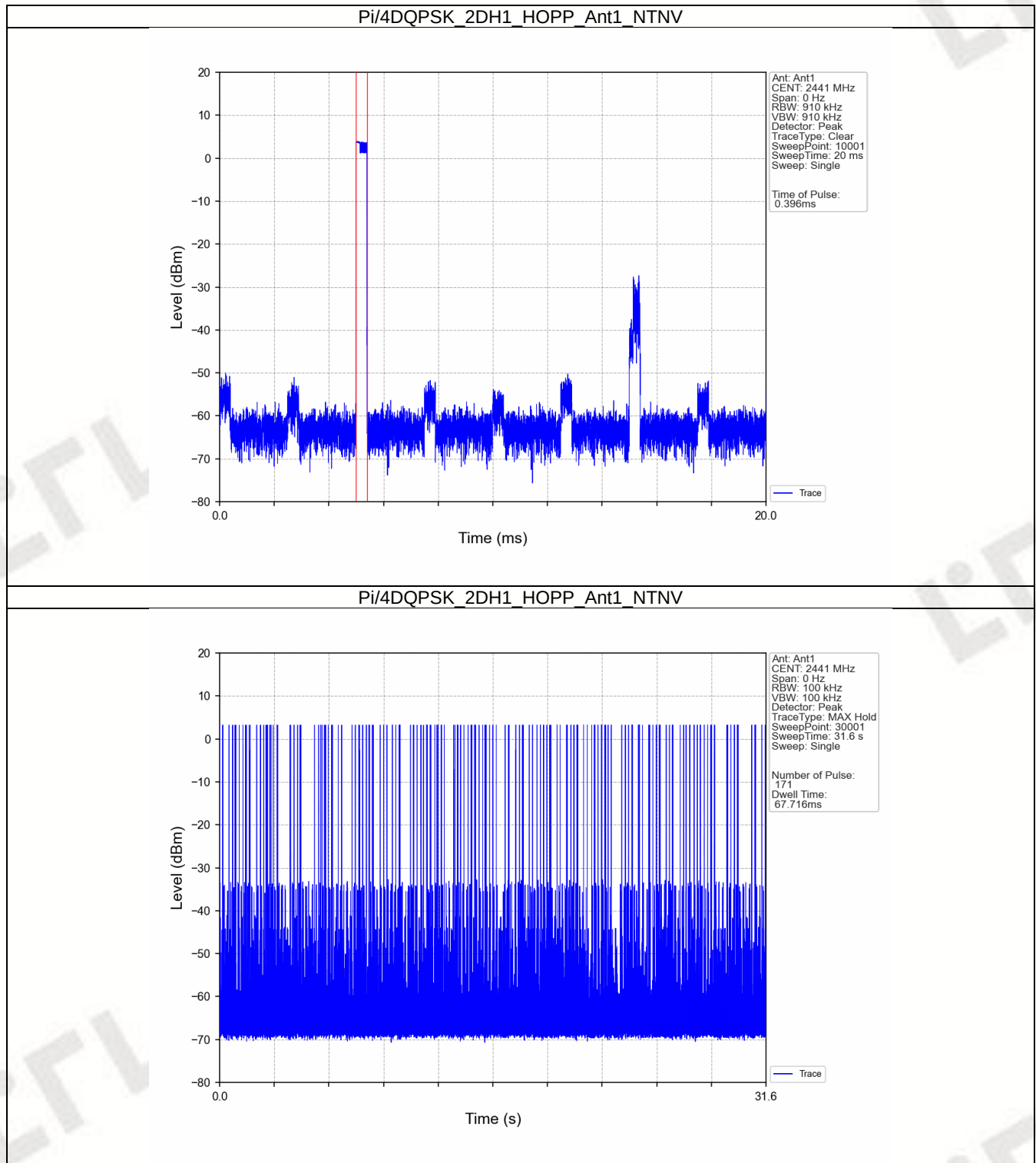
5.2.1 Ant1

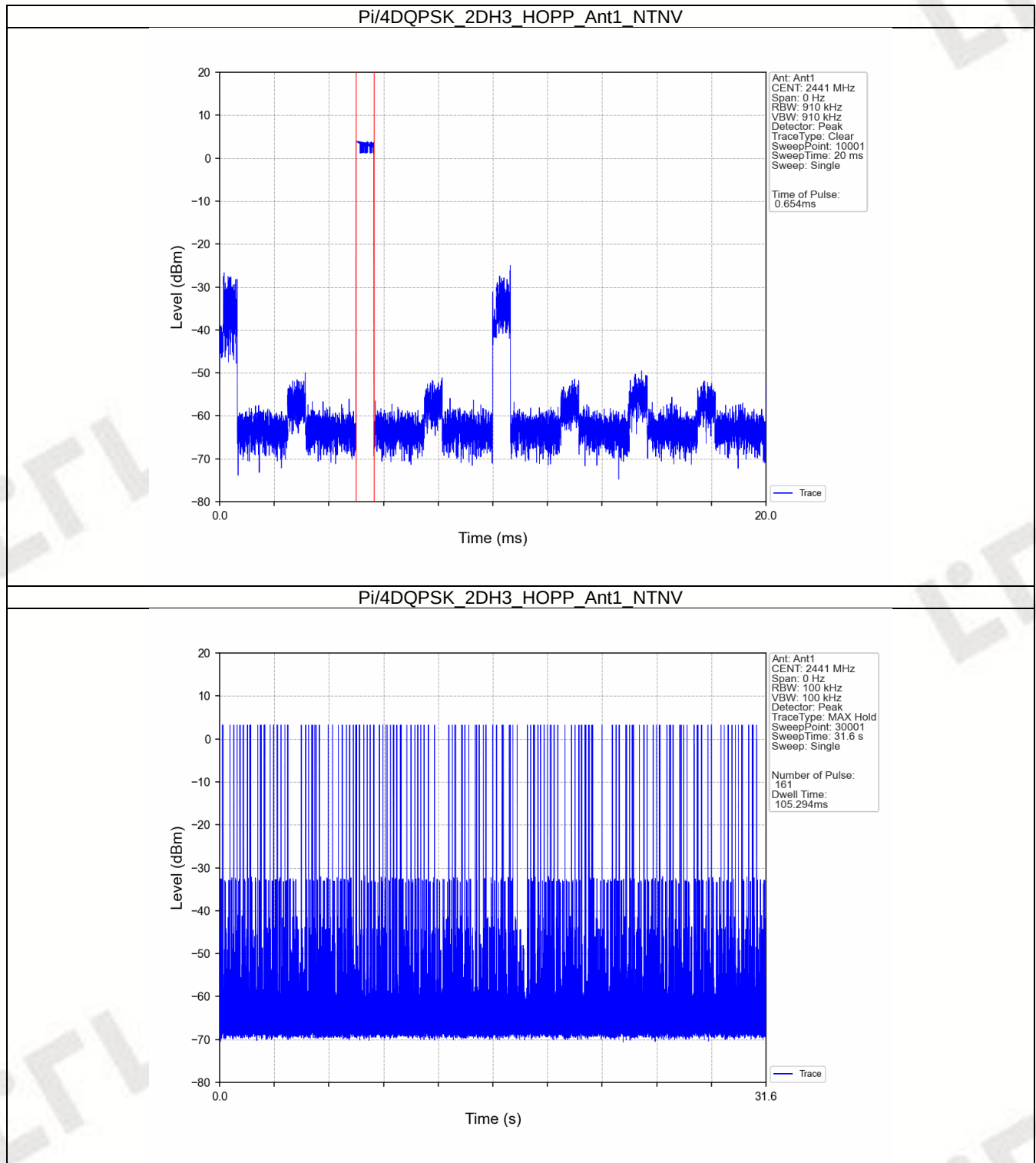


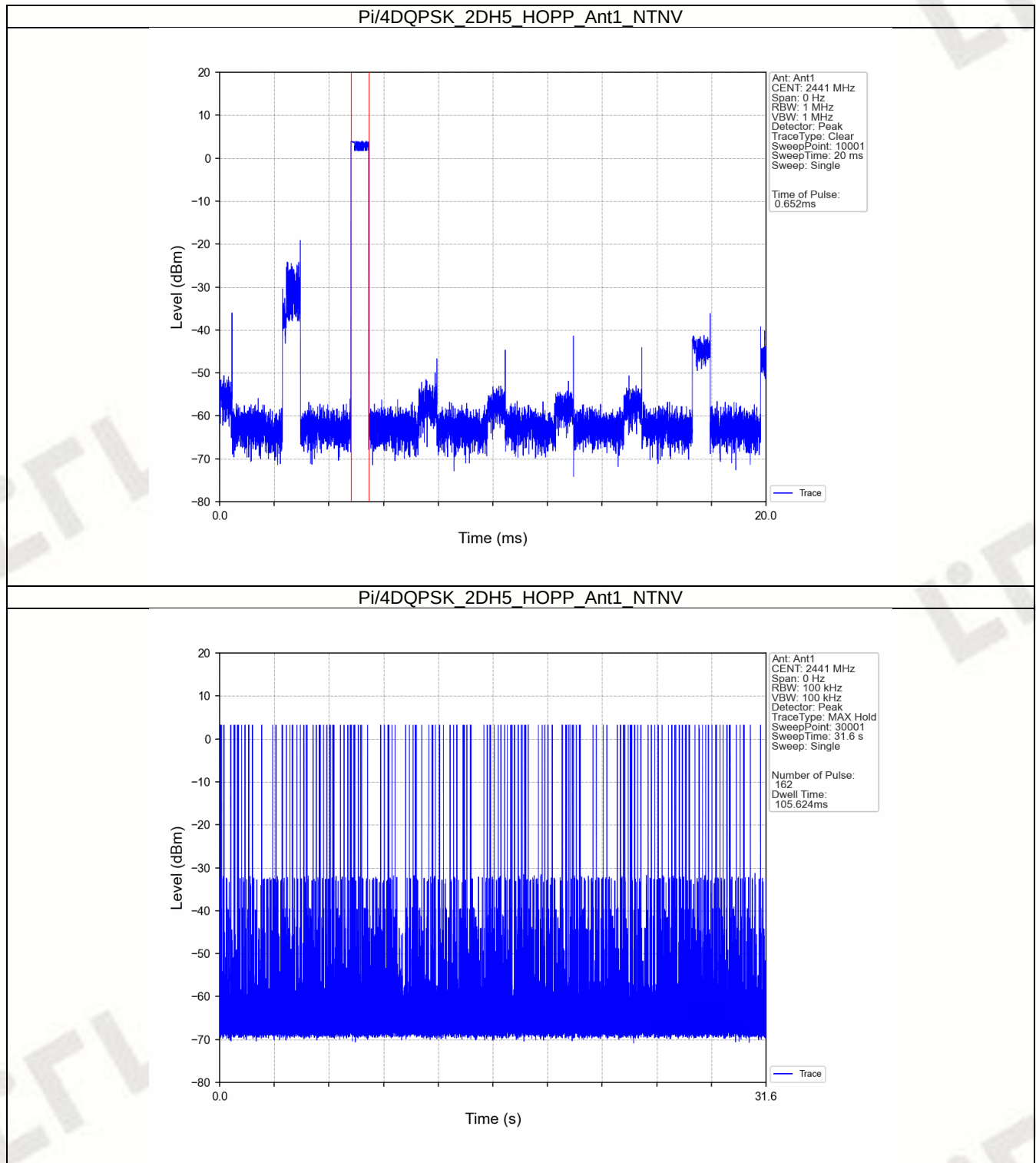
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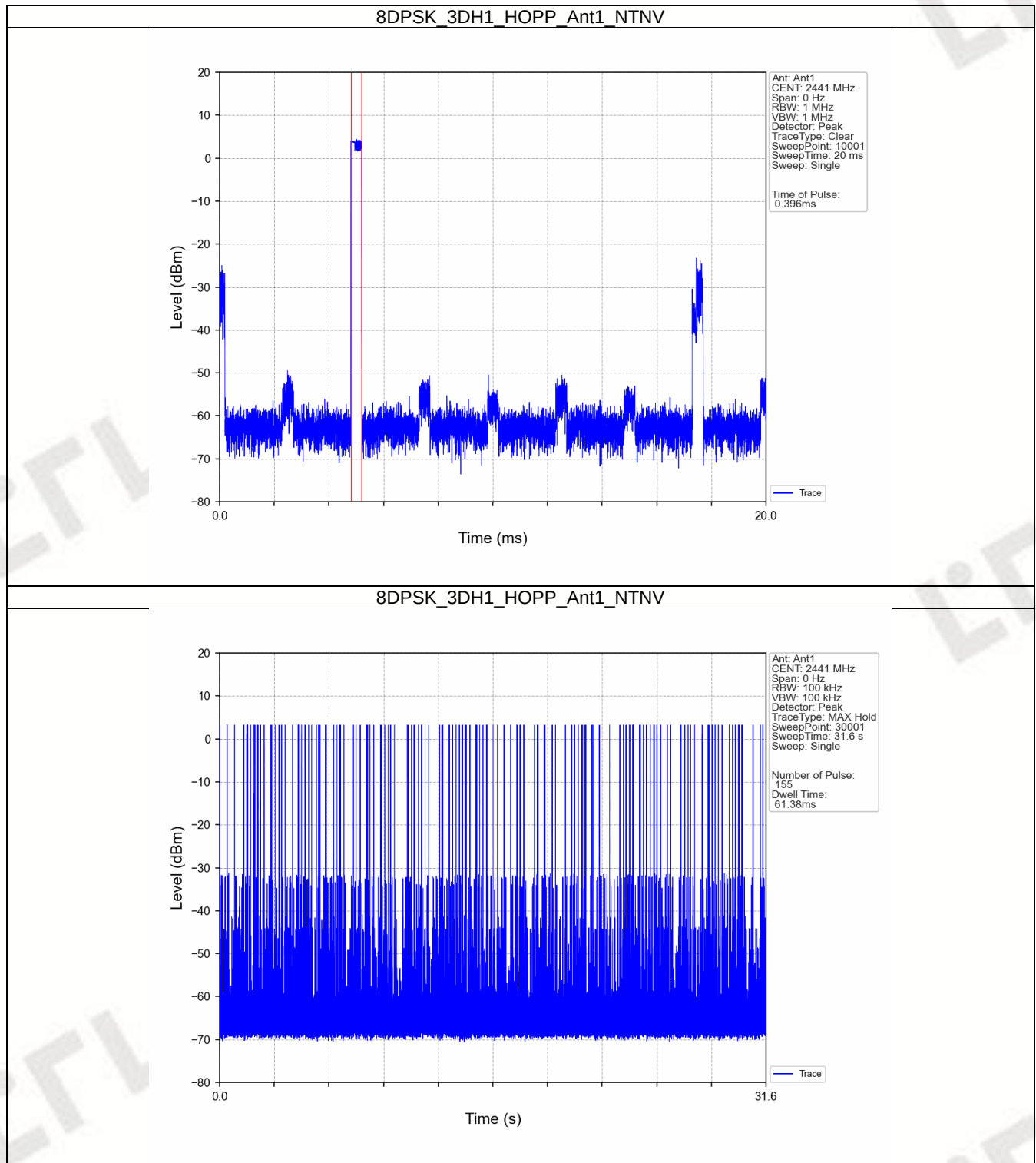


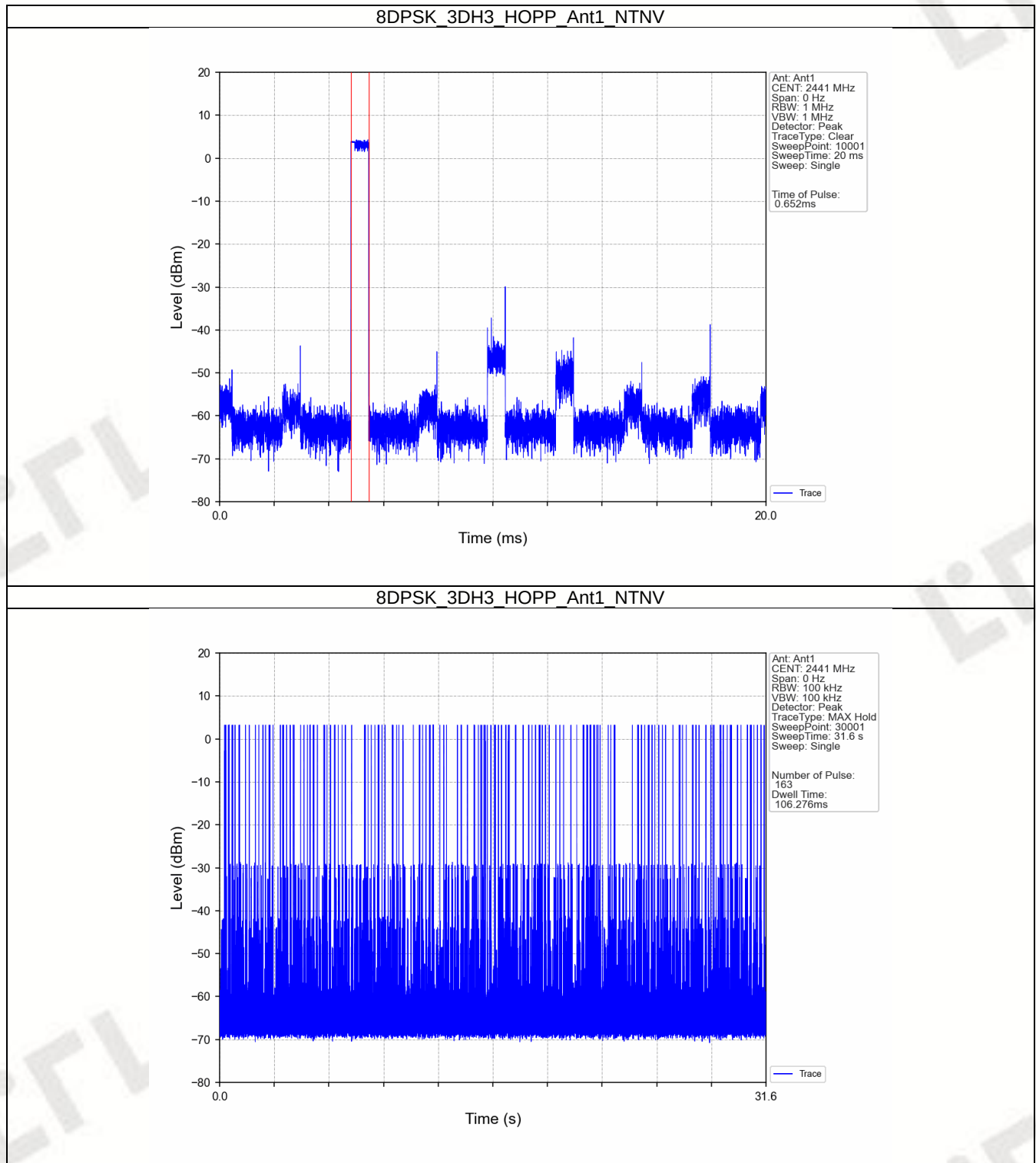


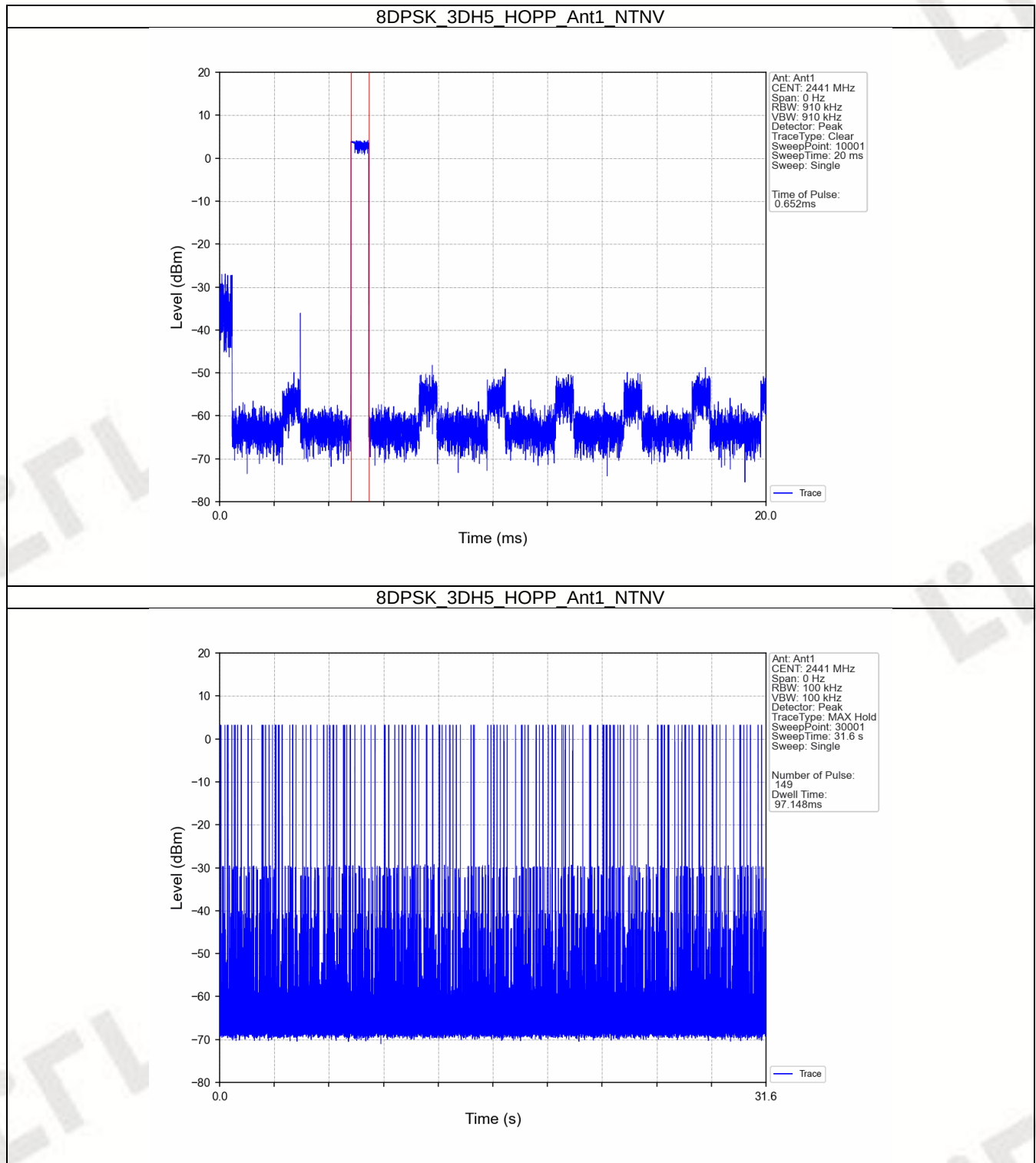












6. Unwanted Emissions In Non-restricted Frequency Bands

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	2.51
		2441	DH5	1	3.73
		2480	DH5	1	3.14
Pi/4DQPSK	SISO	2402	2DH5	1	2.57
		2441	2DH5	1	3.63
		2480	2DH5	1	3.22
8DPSK	SISO	2402	3DH5	1	2.52
		2441	3DH5	1	3.74
		2480	3DH5	1	3.18

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.

6.1.2 CSE

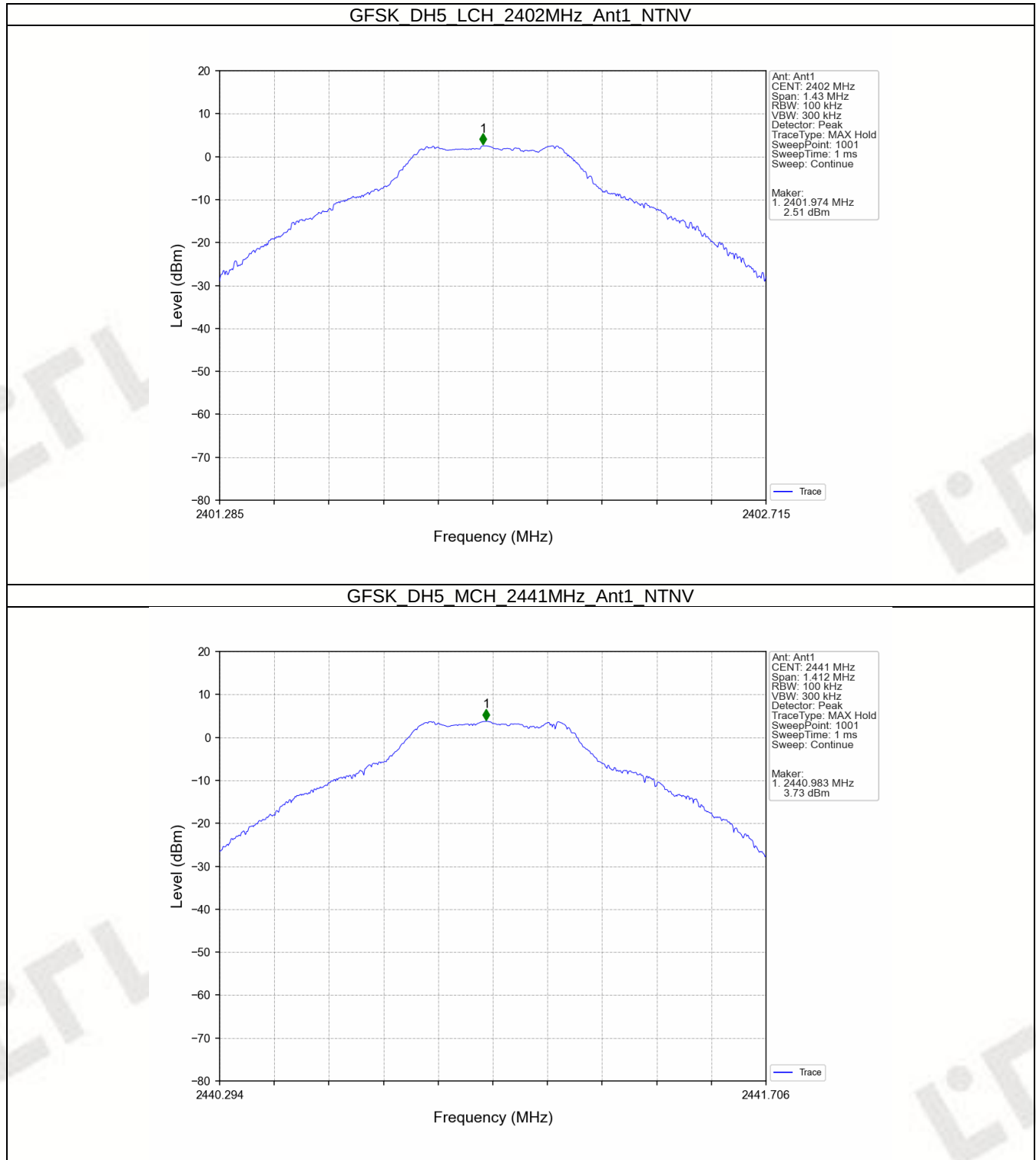
Mode	Tx Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	3.73	-16.27	Pass
		2441	DH5	1	3.73	-16.27	Pass
		2480	DH5	1	3.73	-16.27	Pass
		HOPP	DH5	1	3.73	-16.27	Pass
					3.73	-16.27	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	3.63	-16.37	Pass
		2441	2DH5	1	3.63	-16.37	Pass
		2480	2DH5	1	3.63	-16.37	Pass
		HOPP	2DH5	1	3.63	-16.37	Pass
					3.63	-16.37	Pass
8DPSK	SISO	2402	3DH5	1	3.74	-16.26	Pass
		2441	3DH5	1	3.74	-16.26	Pass
		2480	3DH5	1	3.74	-16.26	Pass
		HOPP	3DH5	1	3.74	-16.26	Pass
					3.74	-16.26	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.

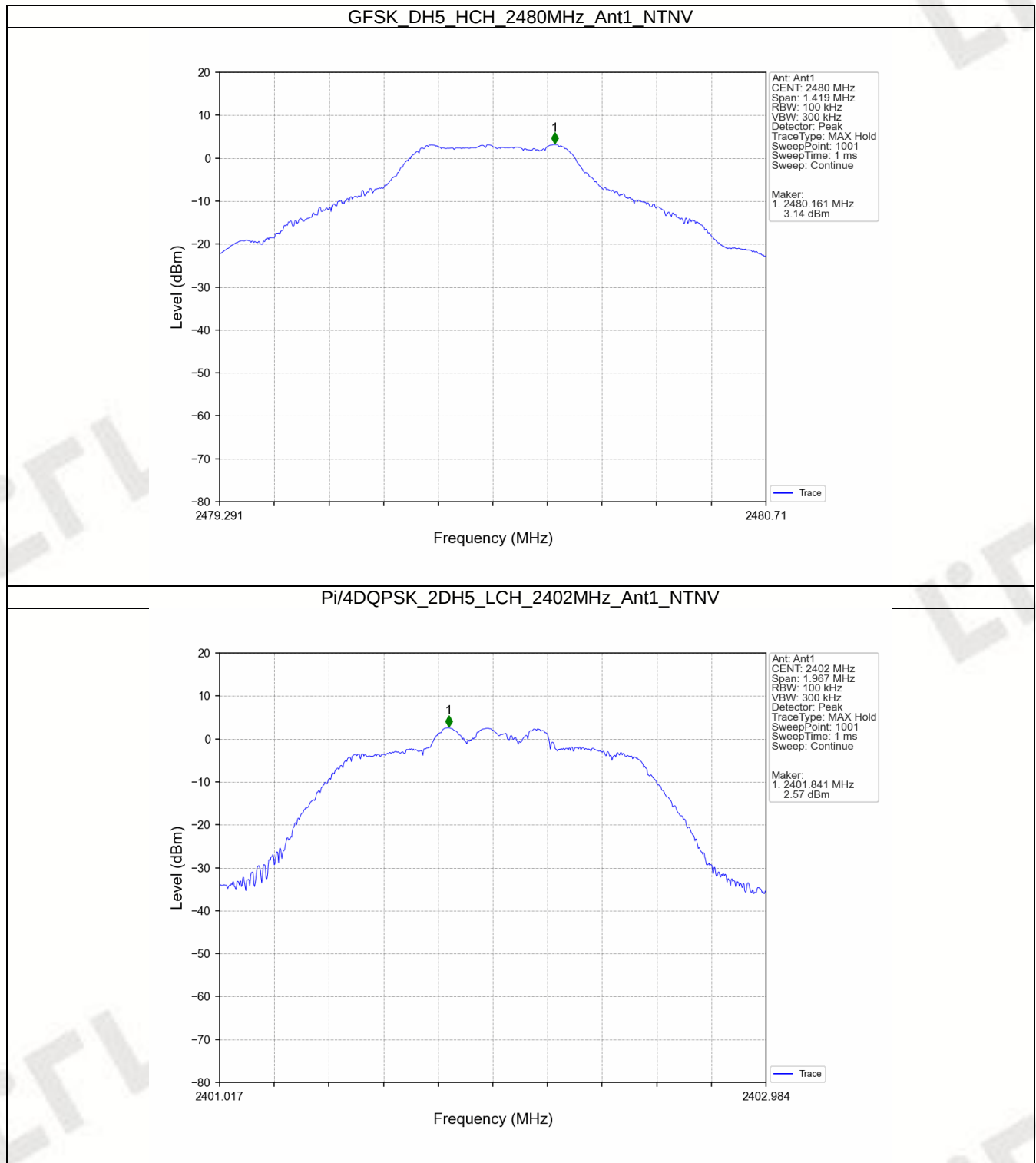
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6.2 Test Graph

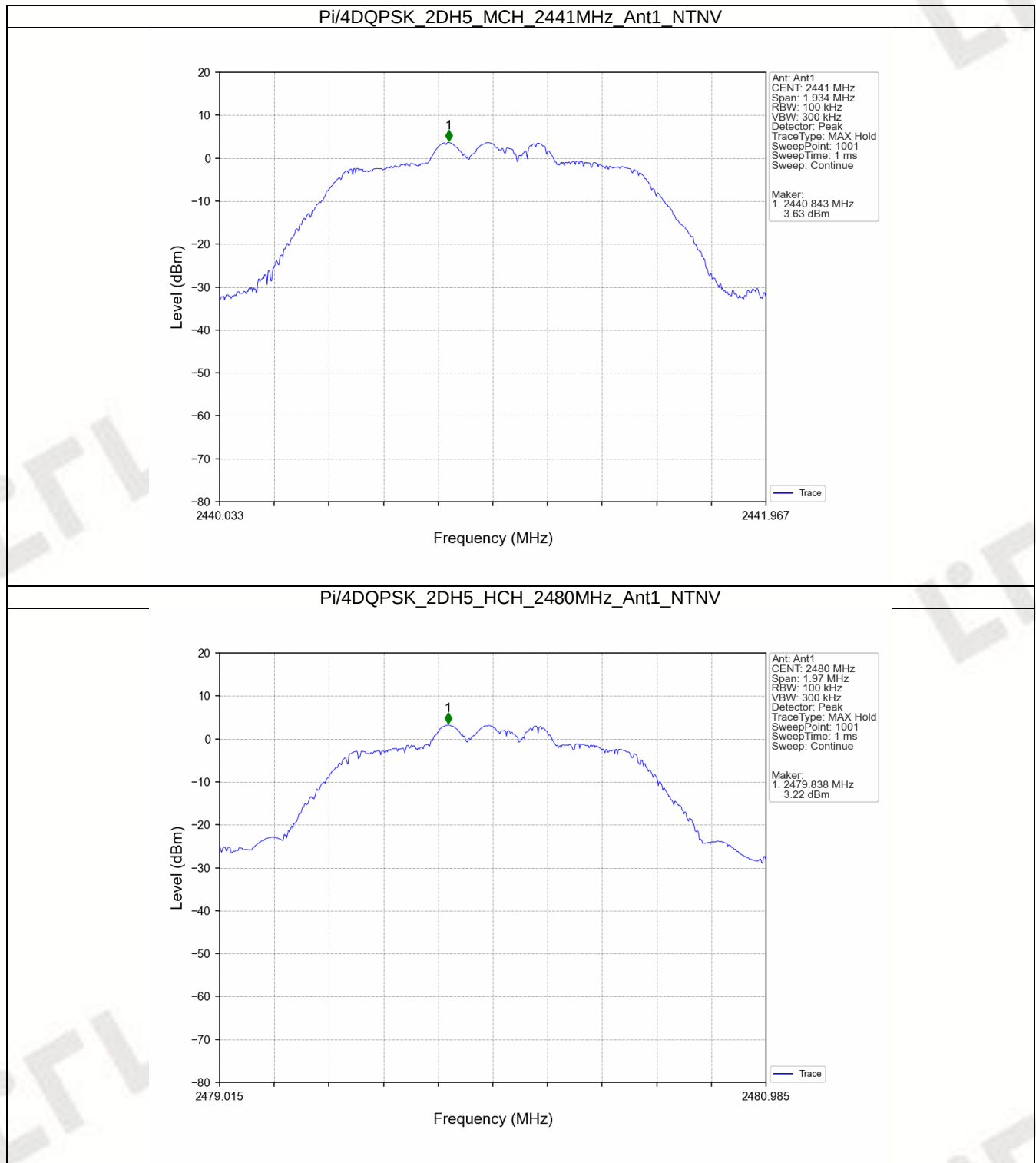
6.2.1 Ref



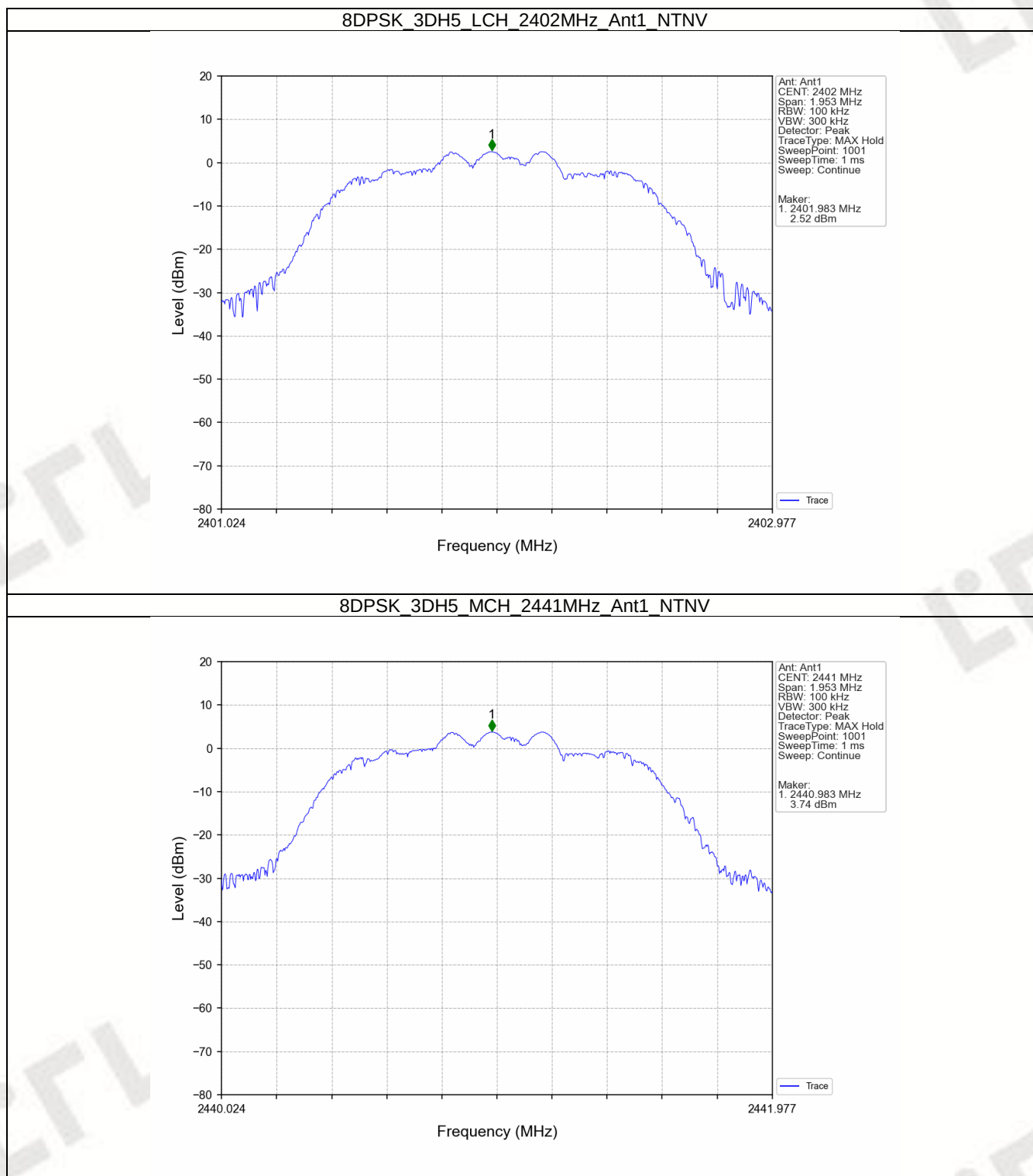
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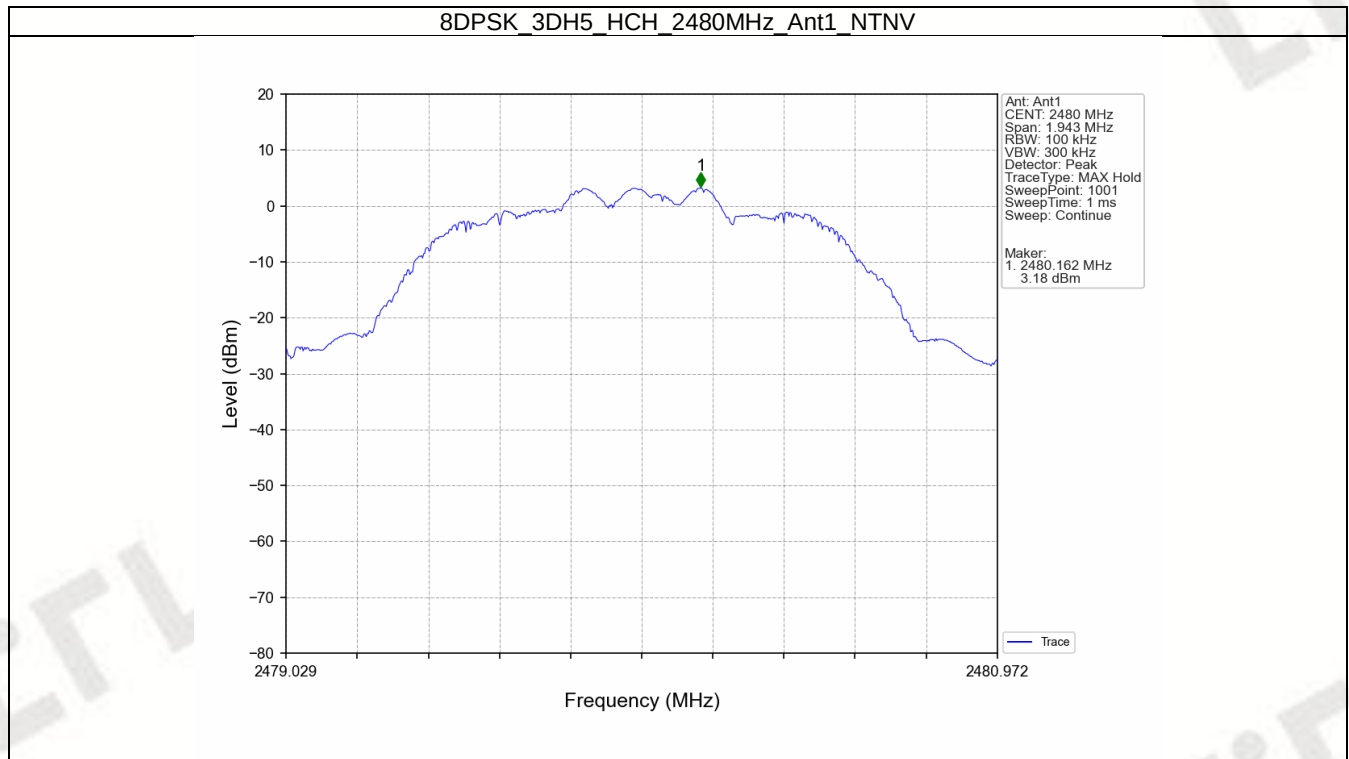
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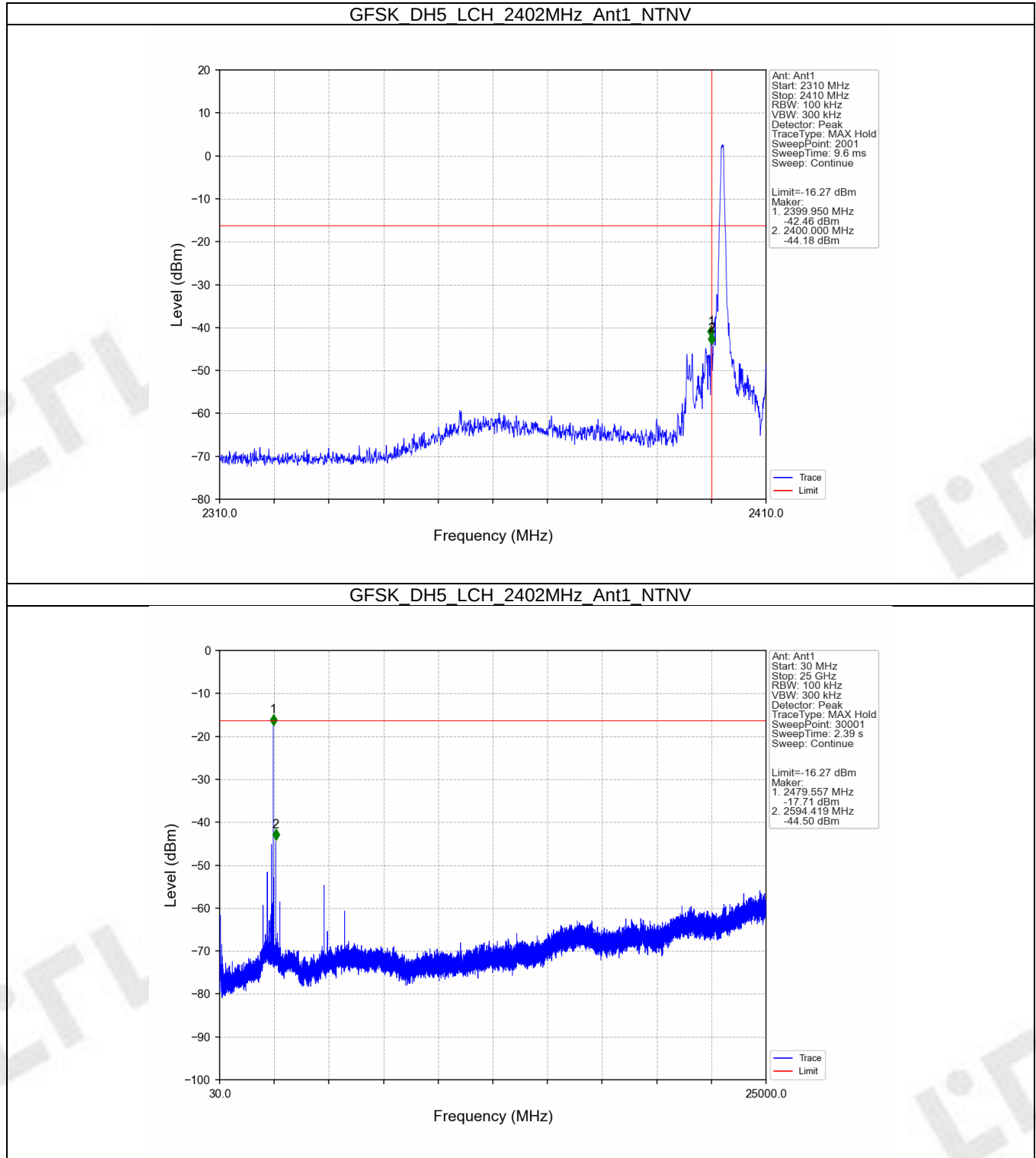
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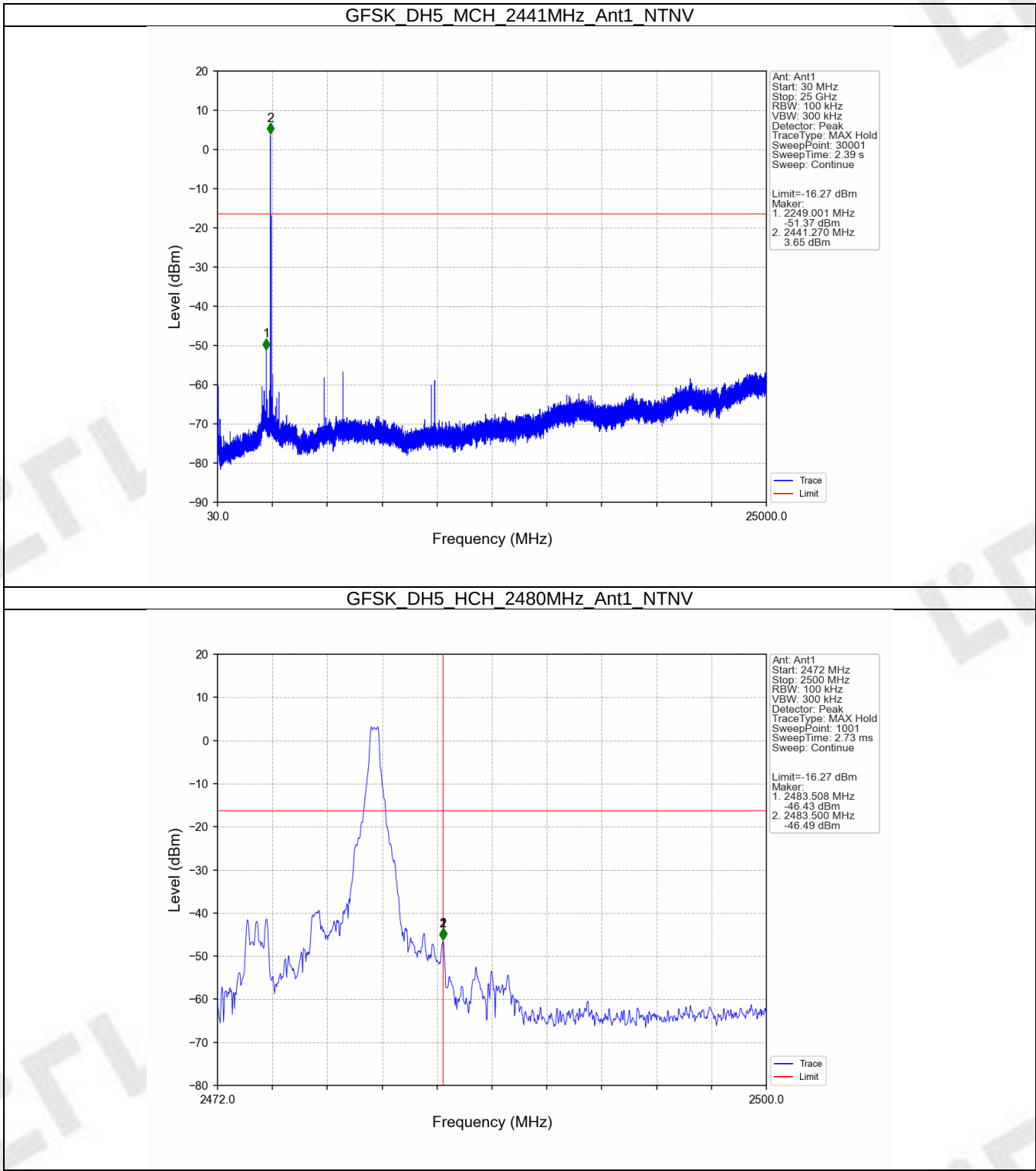
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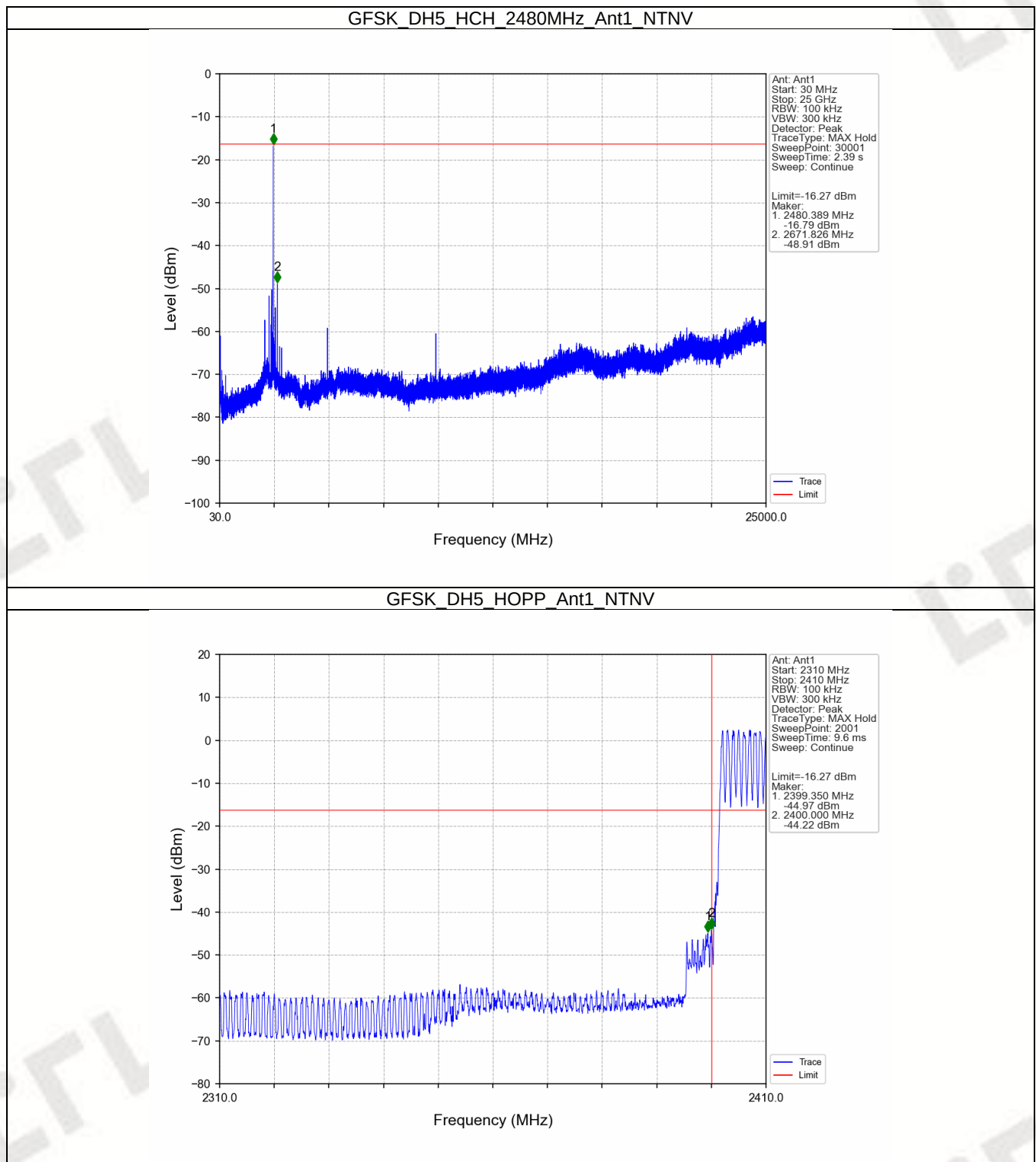
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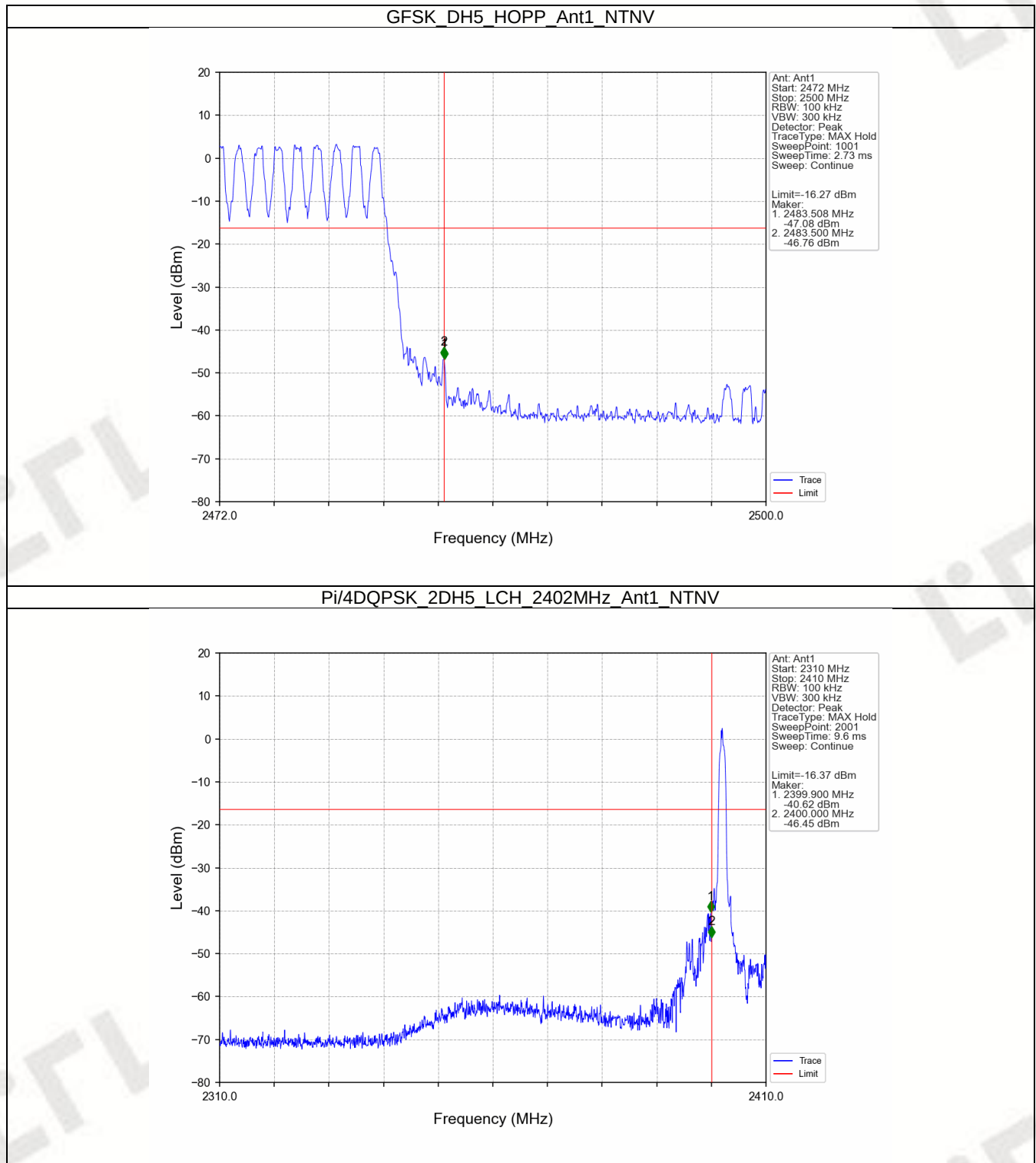
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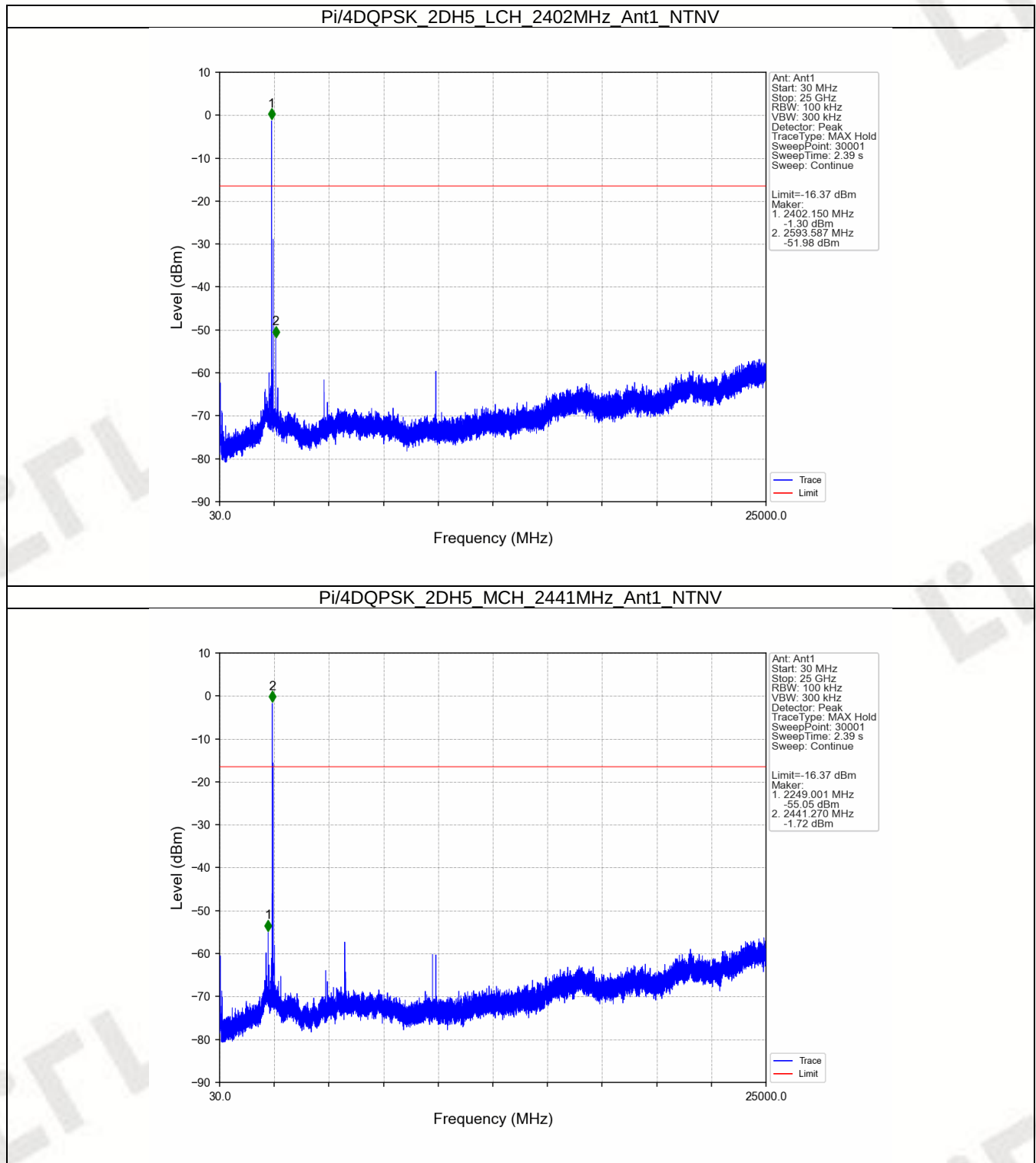


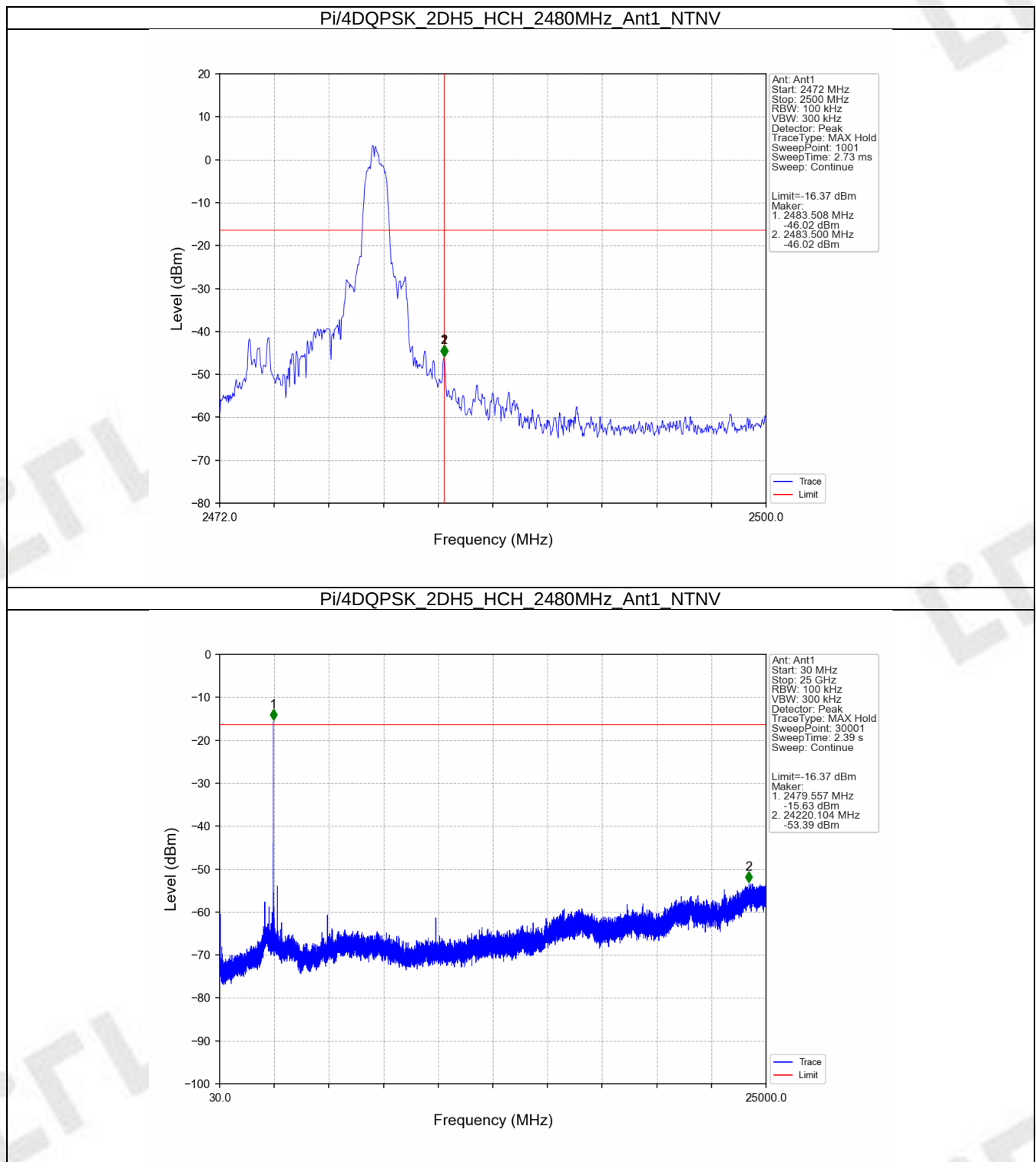
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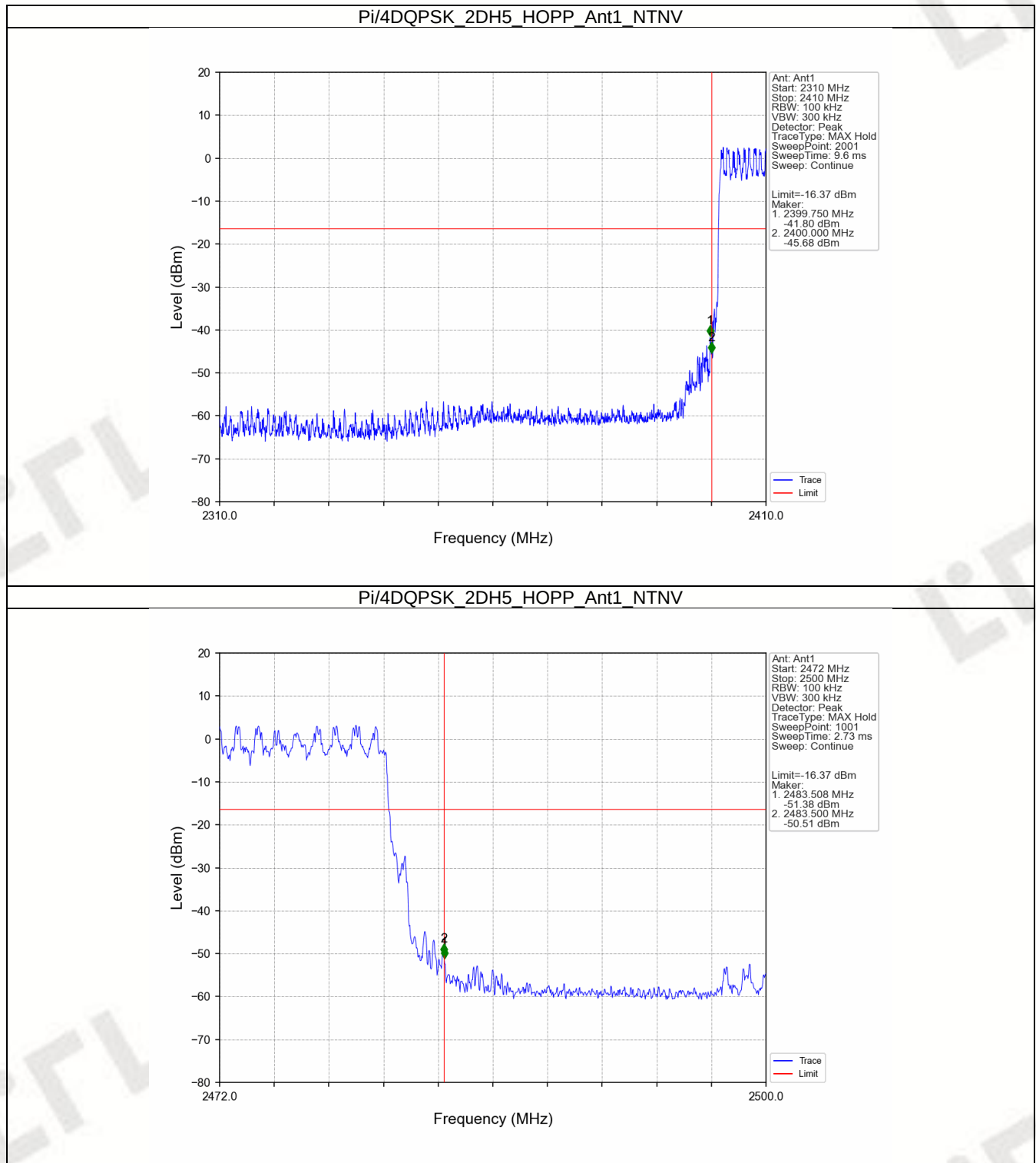


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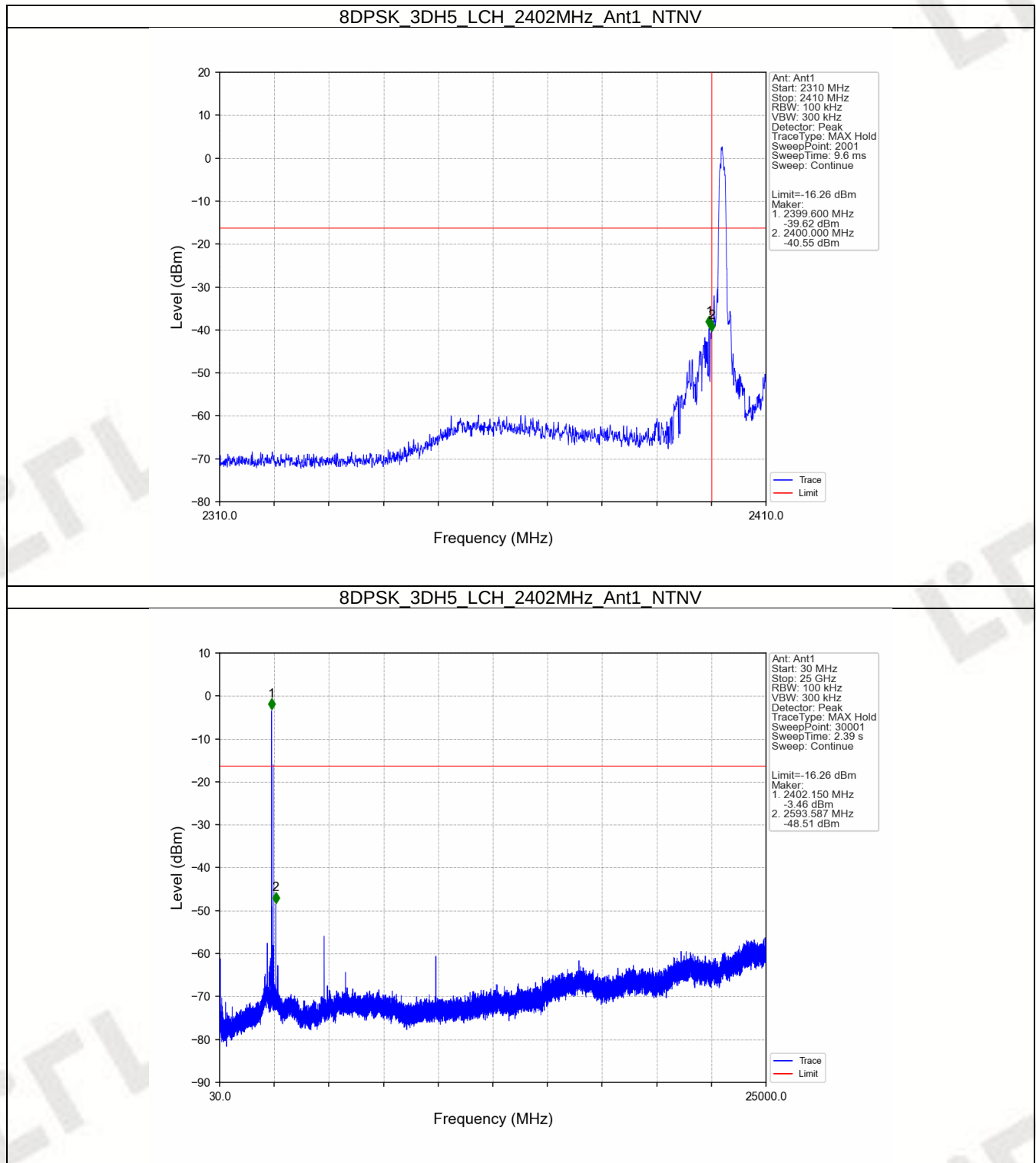




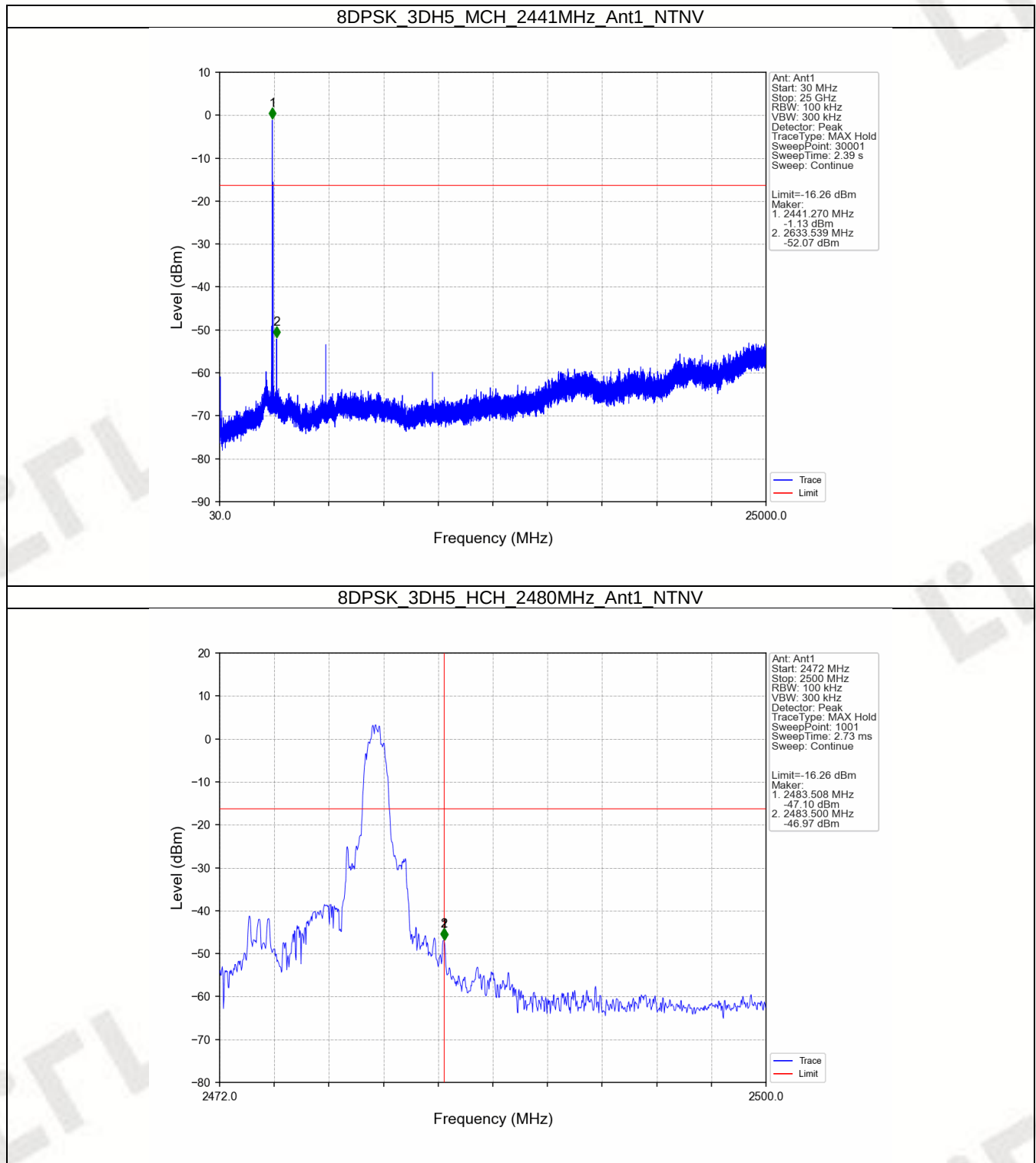


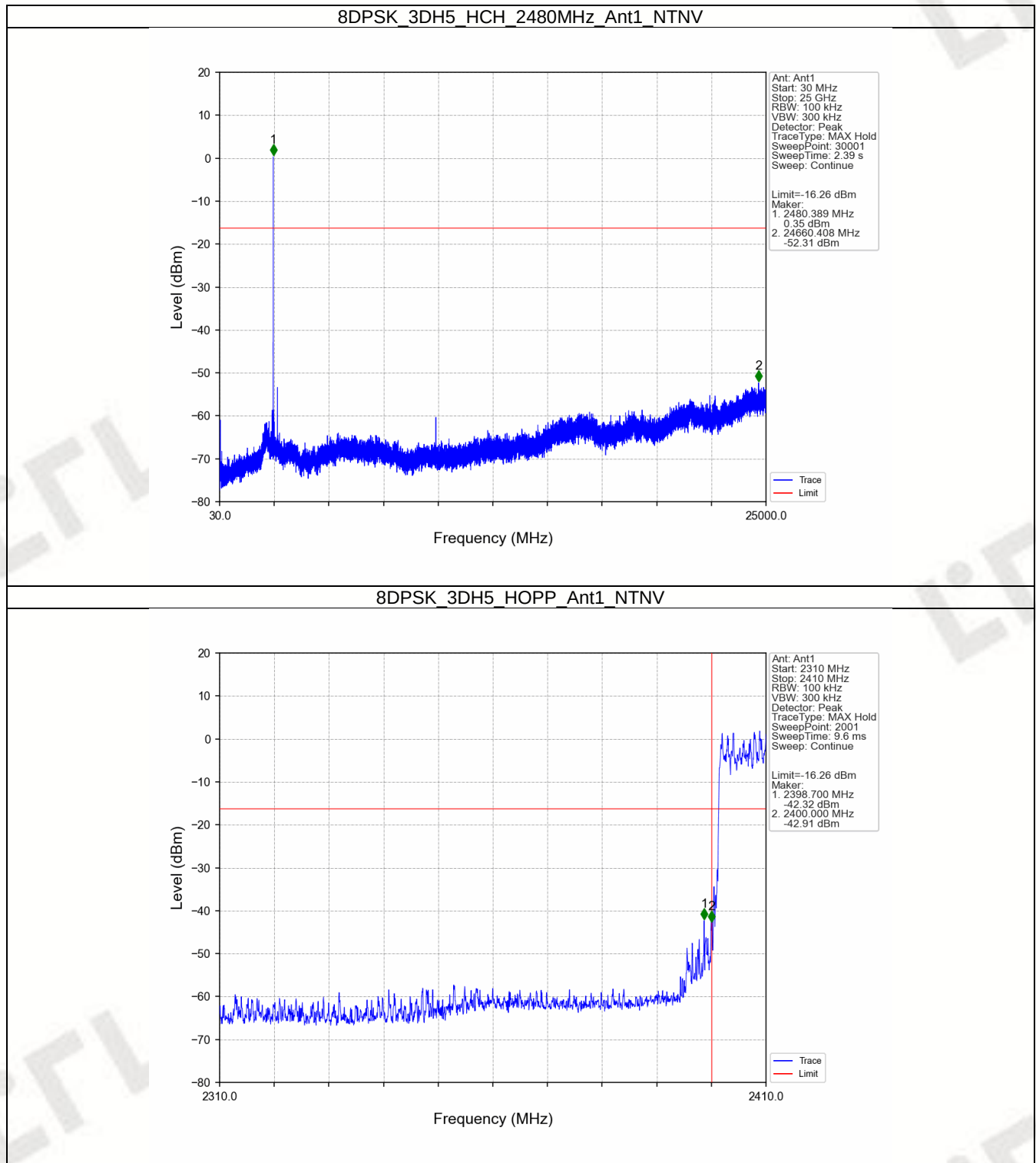


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