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Annex for Bluetooth

Test Report No.: CTL2603252101-WF01

TABLE OF CONTENTS

Annex for Bluetooth	1
Test Report No.: CTL2603252101-WF01	1
TABLE OF CONTENTS	1
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	10
2. Maximum Conducted Output Power	15
2.1 Test Result	15
2.1.1 Power	15
2.2 Test Graph	16
2.2.1 Power	16
3. Carrier Frequency Separation	22
3.1 Test Result	22
3.1.1 Ant1	22
3.2 Test Graph	23
3.2.1 Ant1	23

FCC ID: 2BWH8-17PROMAX

4. Number of Hopping Frequencies	26
4.1 Test Result	26
4.1.1 HoppNum	26
4.2 Test Graph	27
4.2.1 HoppNum	27
5. Time of Occupancy (Dwell Time)	30
5.1 Test Result	30
5.1.1 Ant1	30
5.2 Test Graph	31
5.2.1 Ant1	31
6. Unwanted Emissions In Non-restricted Frequency Bands	41
6.1 Test Result	41
6.1.1 Ref	41
6.1.2 CSE	41
6.2 Test Graph	42
6.2.1 Ref	42
6.2.2 CSE	50

FCC ID: 2BWH8-17PROMAX

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	0.759	/	Pass
		2441	DH5	1	0.760	/	Pass
		2480	DH5	1	0.759	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.149	/	Pass
		2441	2DH5	1	1.150	/	Pass
		2480	2DH5	1	1.150	/	Pass
8DPSK	SISO	2402	3DH5	1	1.150	/	Pass
		2441	3DH5	1	1.755	/	Pass
		2480	3DH5	1	1.148	/	Pass

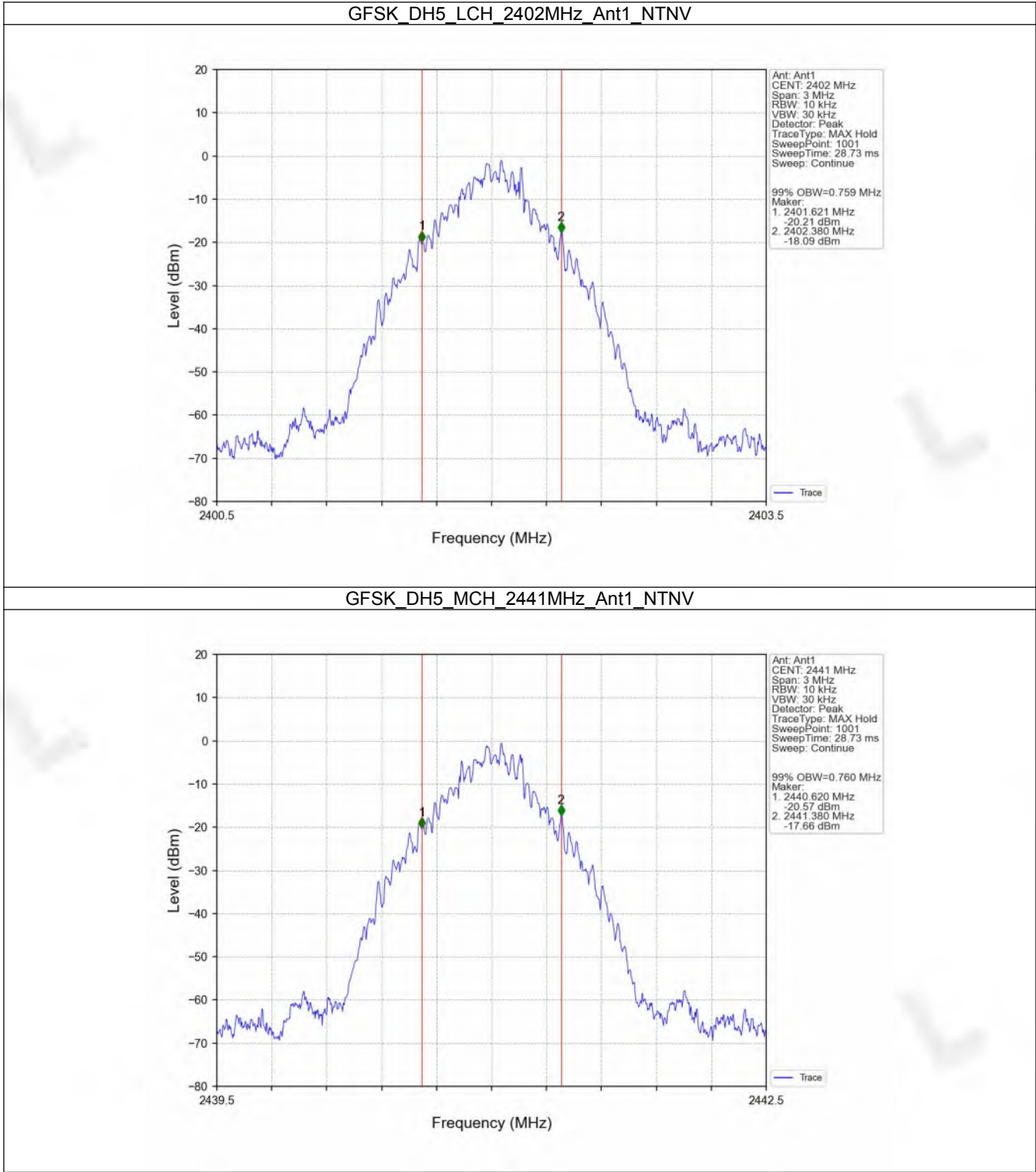
1.1.2 20dB BW

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.990	/	Pass
		2441	DH5	1	0.989	/	Pass
		2480	DH5	1	0.984	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.317	/	Pass
		2441	2DH5	1	1.321	/	Pass
		2480	2DH5	1	1.321	/	Pass
8DPSK	SISO	2402	3DH5	1	1.320	/	Pass
		2441	3DH5	1	1.341	/	Pass
		2480	3DH5	1	1.334	/	Pass

FCC ID: 2BWH8-17PROMAX

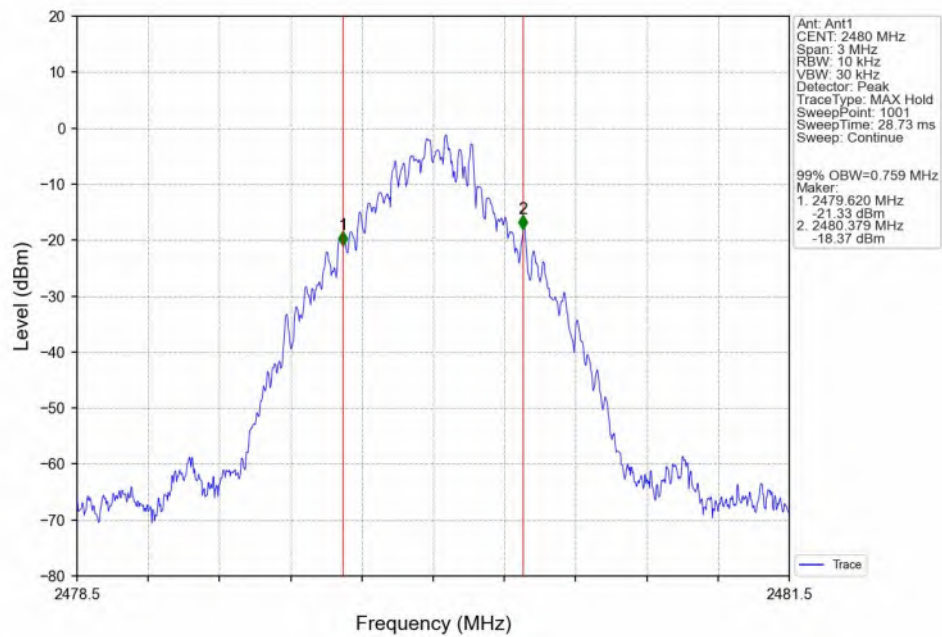
1.2 Test Graph

1.2.1 OBW

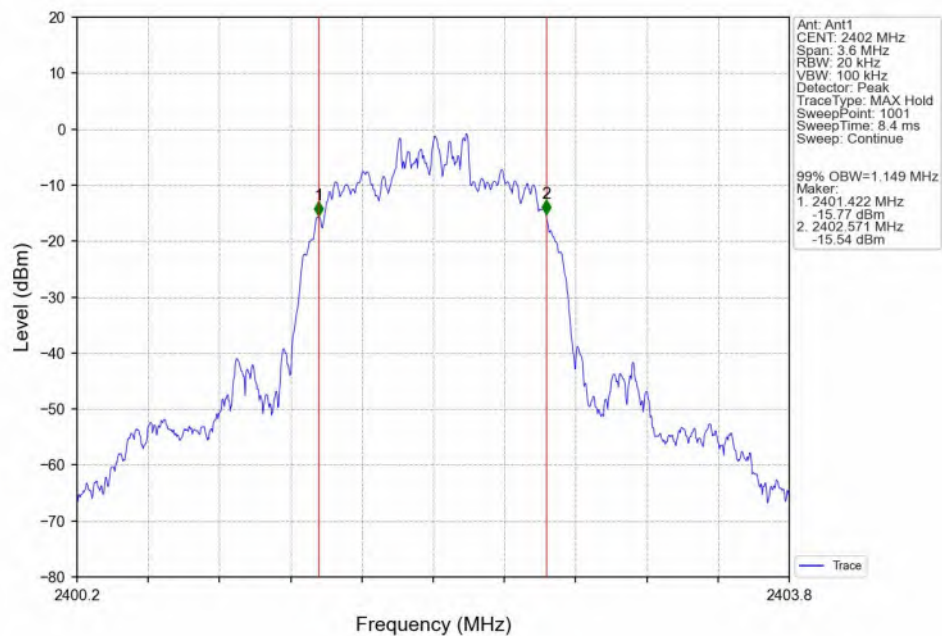


FCC ID: 2BWH8-17PROMAX

GFSK_DH5_HCH_2480MHz_Ant1_NTNV

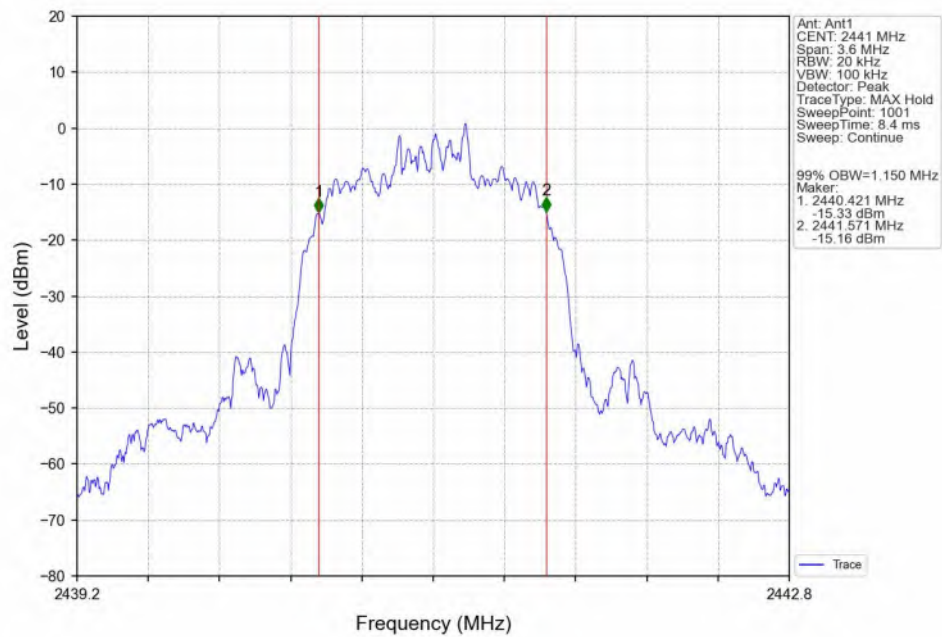


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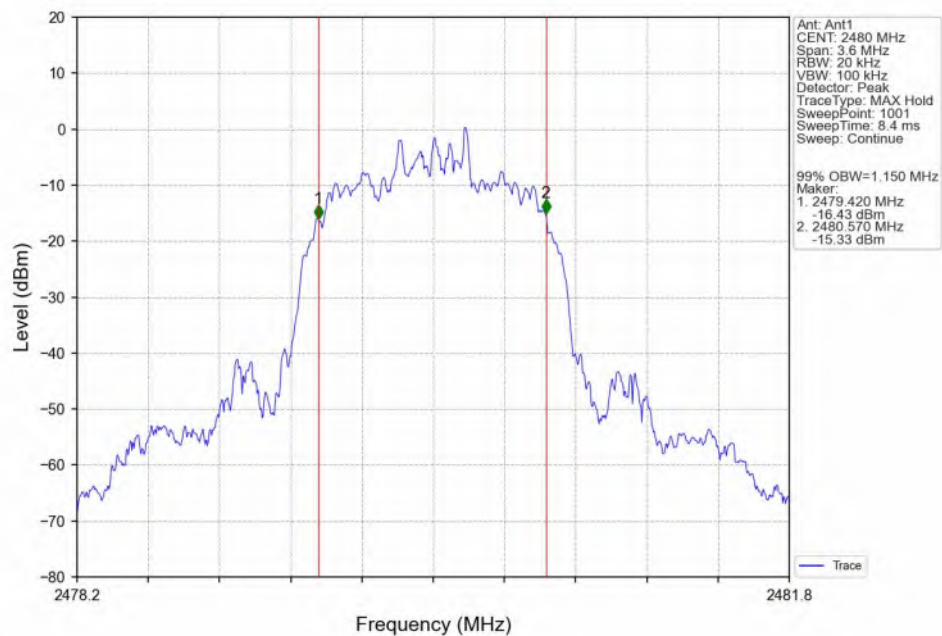


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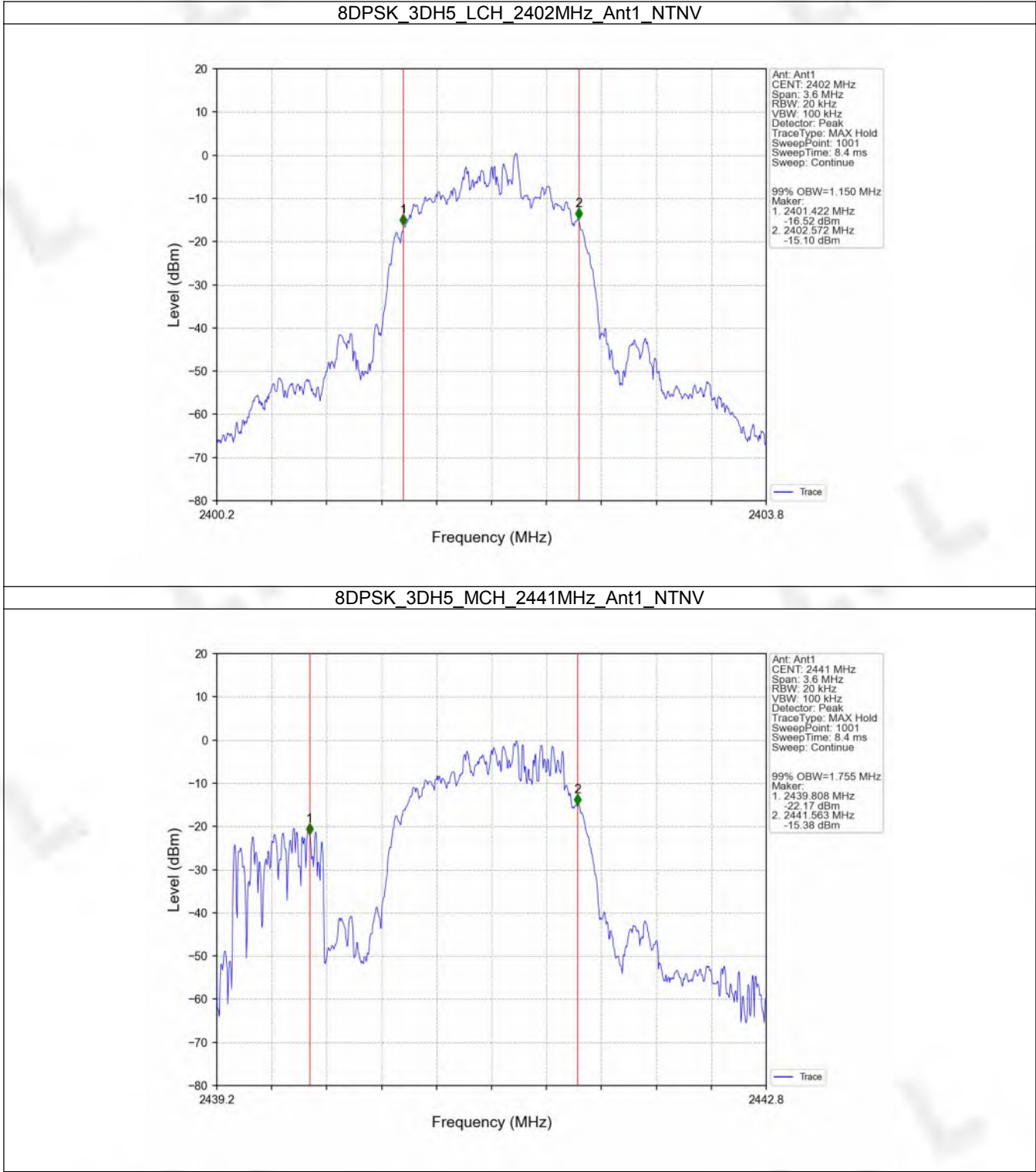
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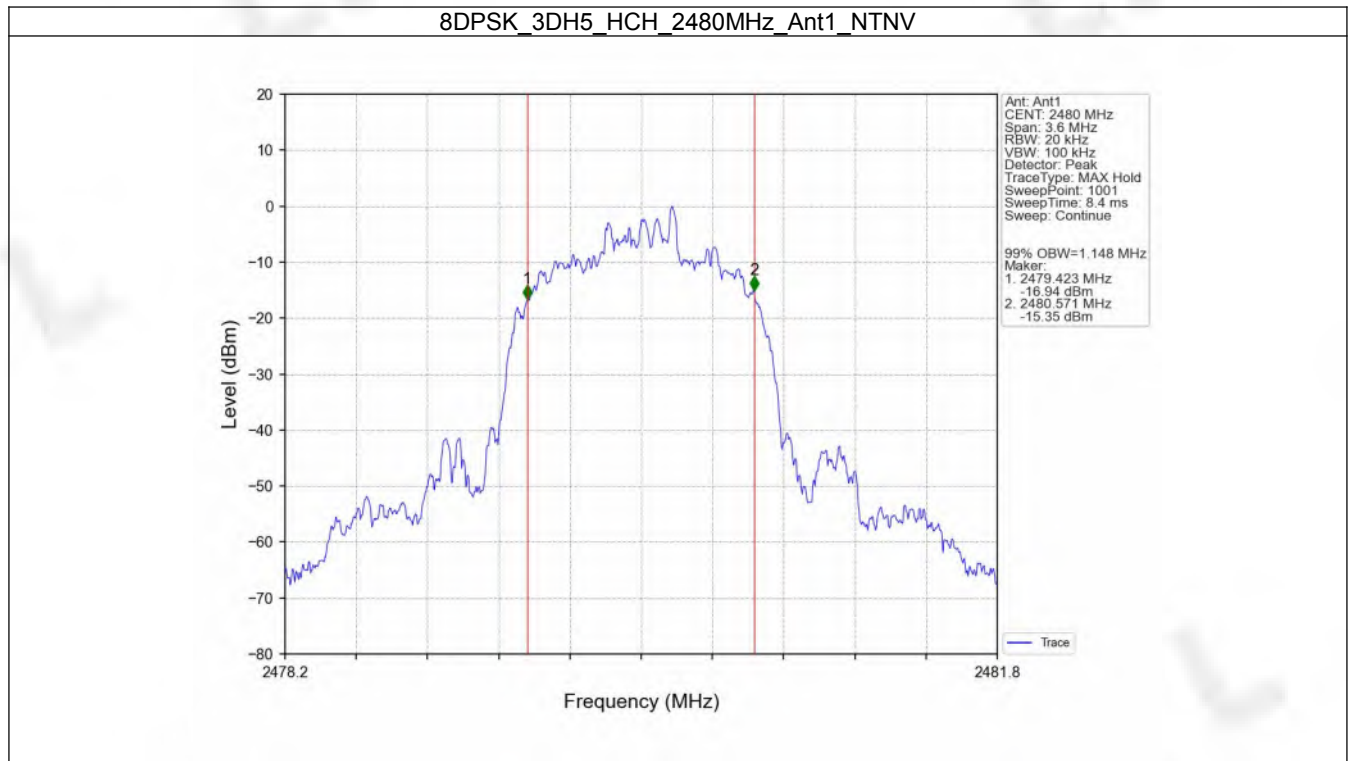
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FCC ID: 2BWH8-17PROMAX

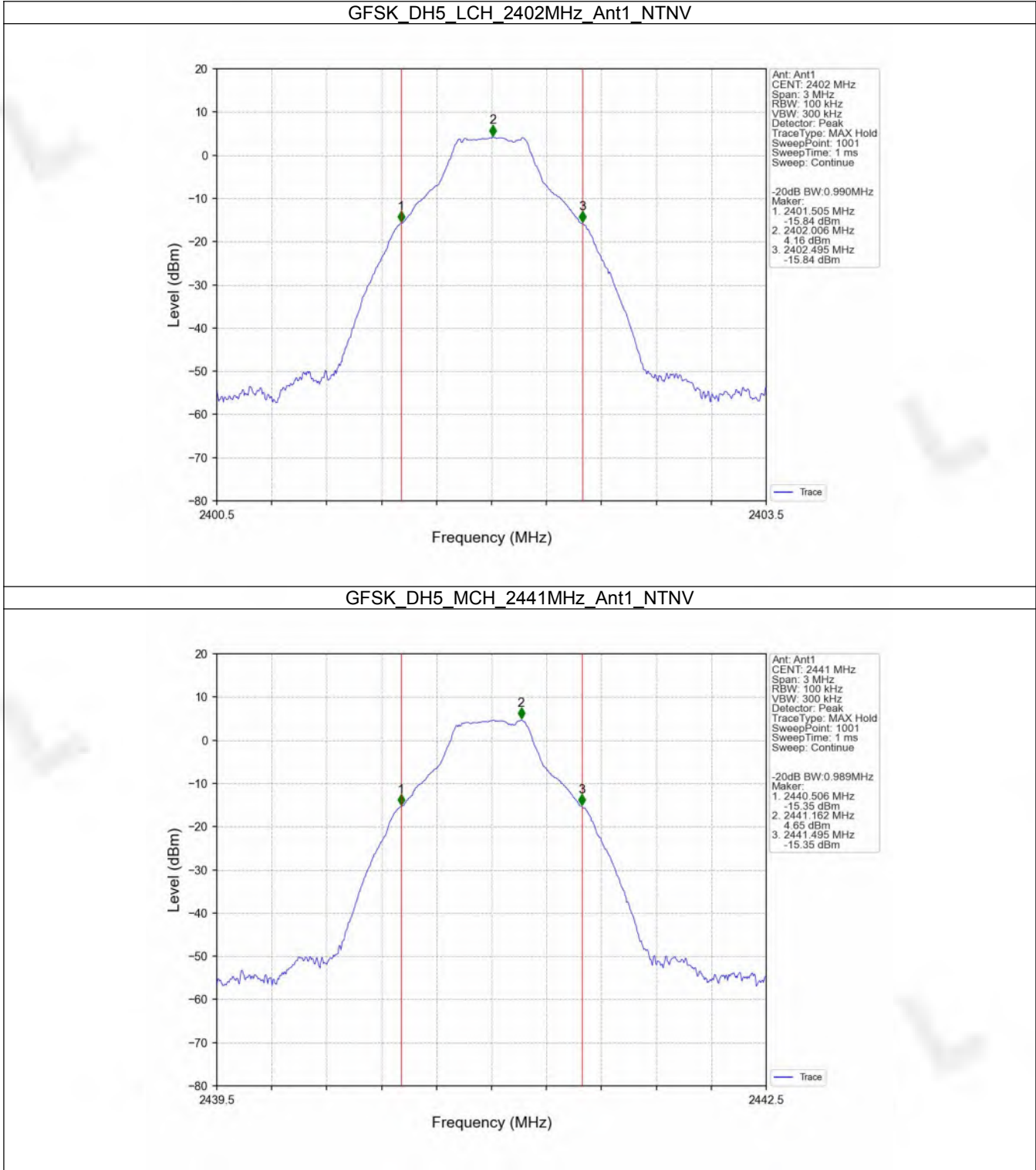


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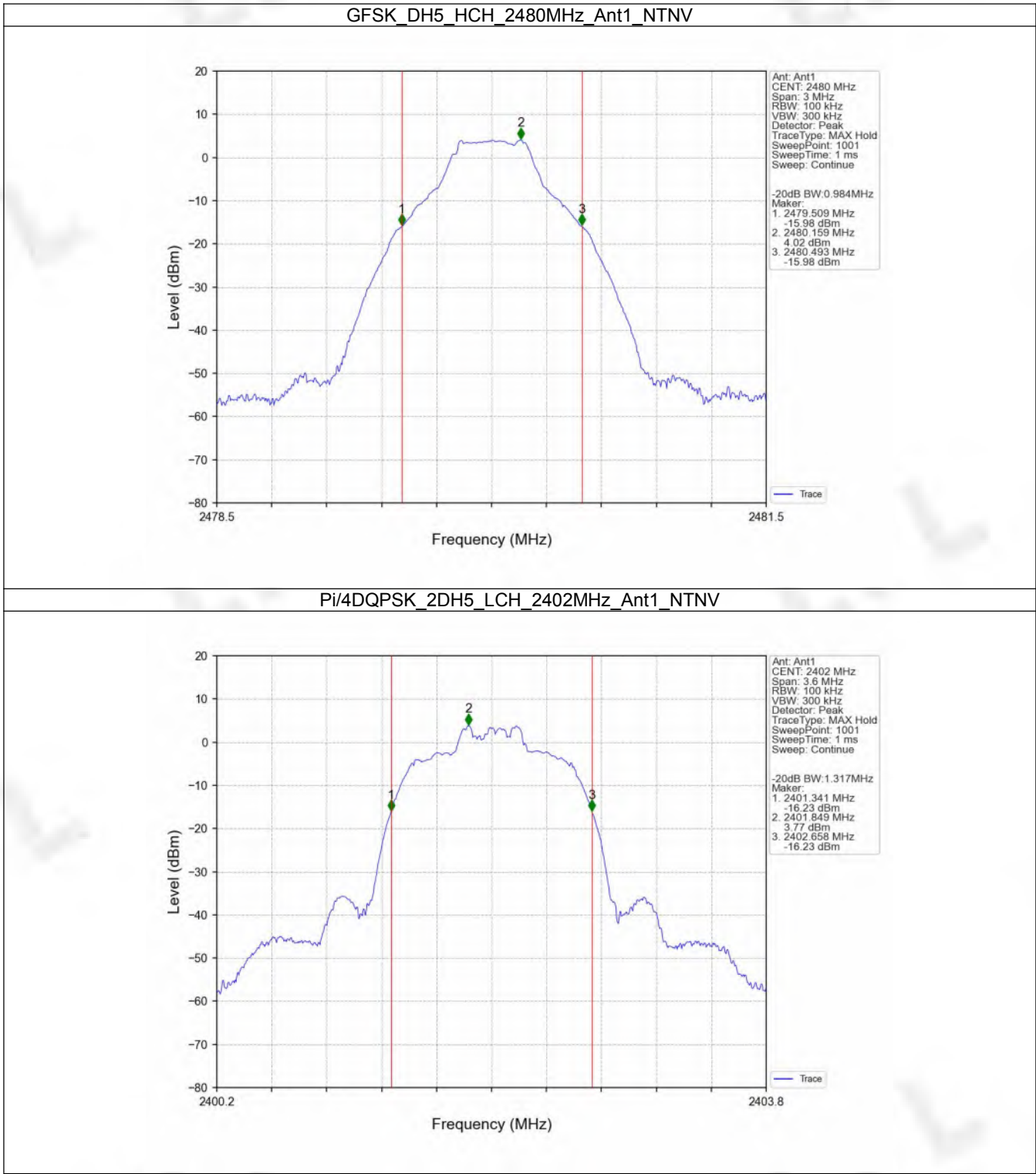


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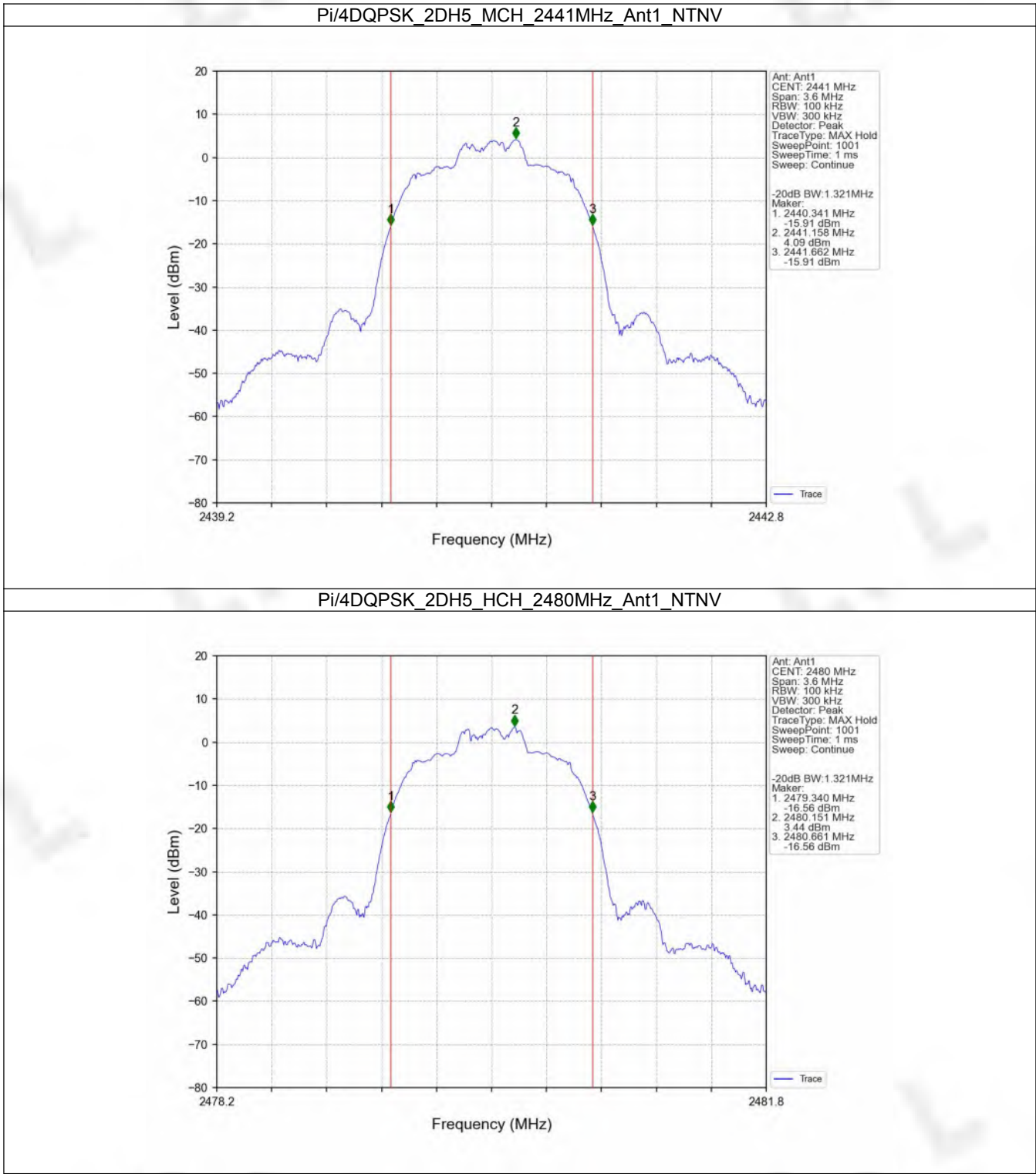
1.2.2 20dB BW



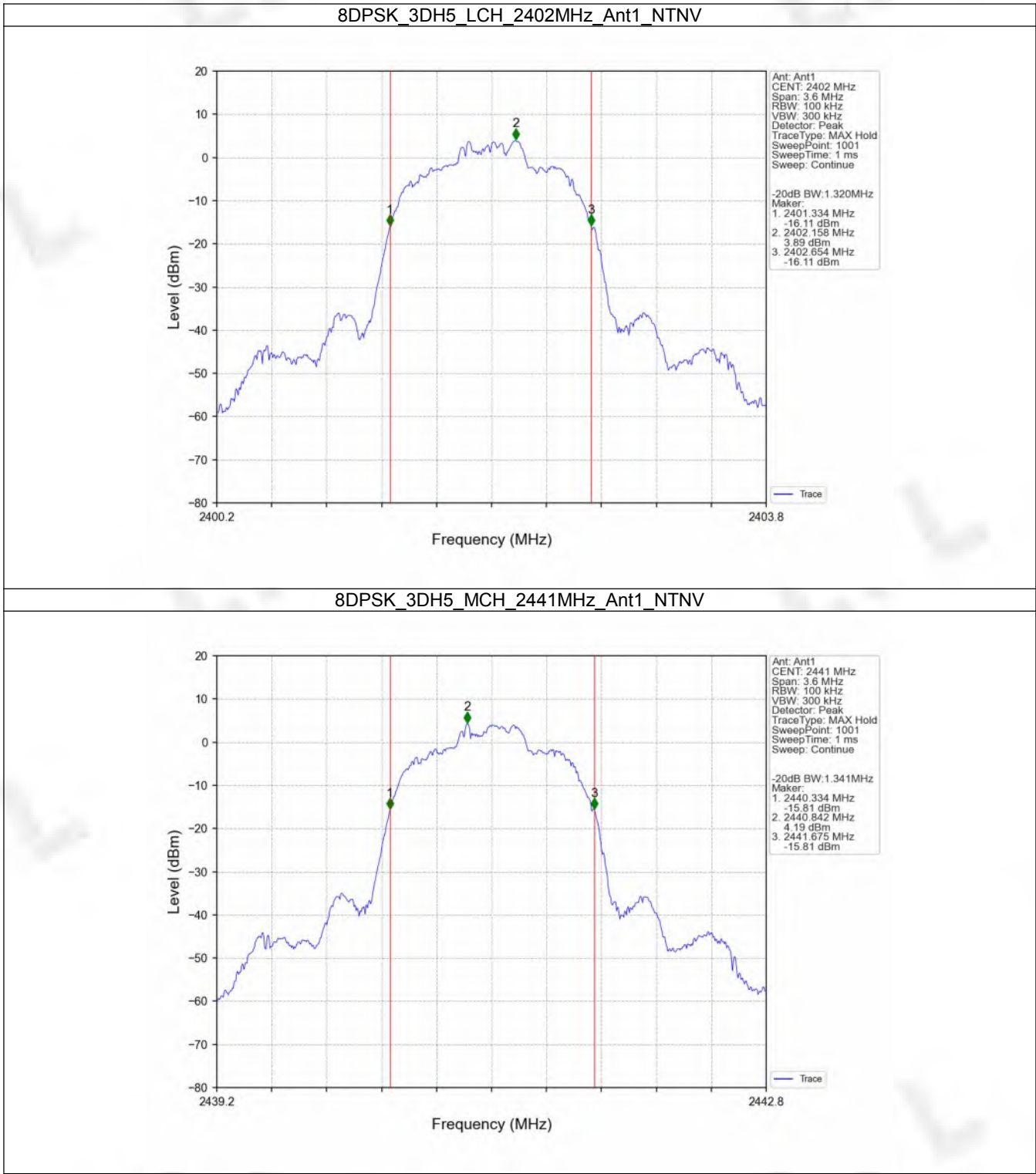
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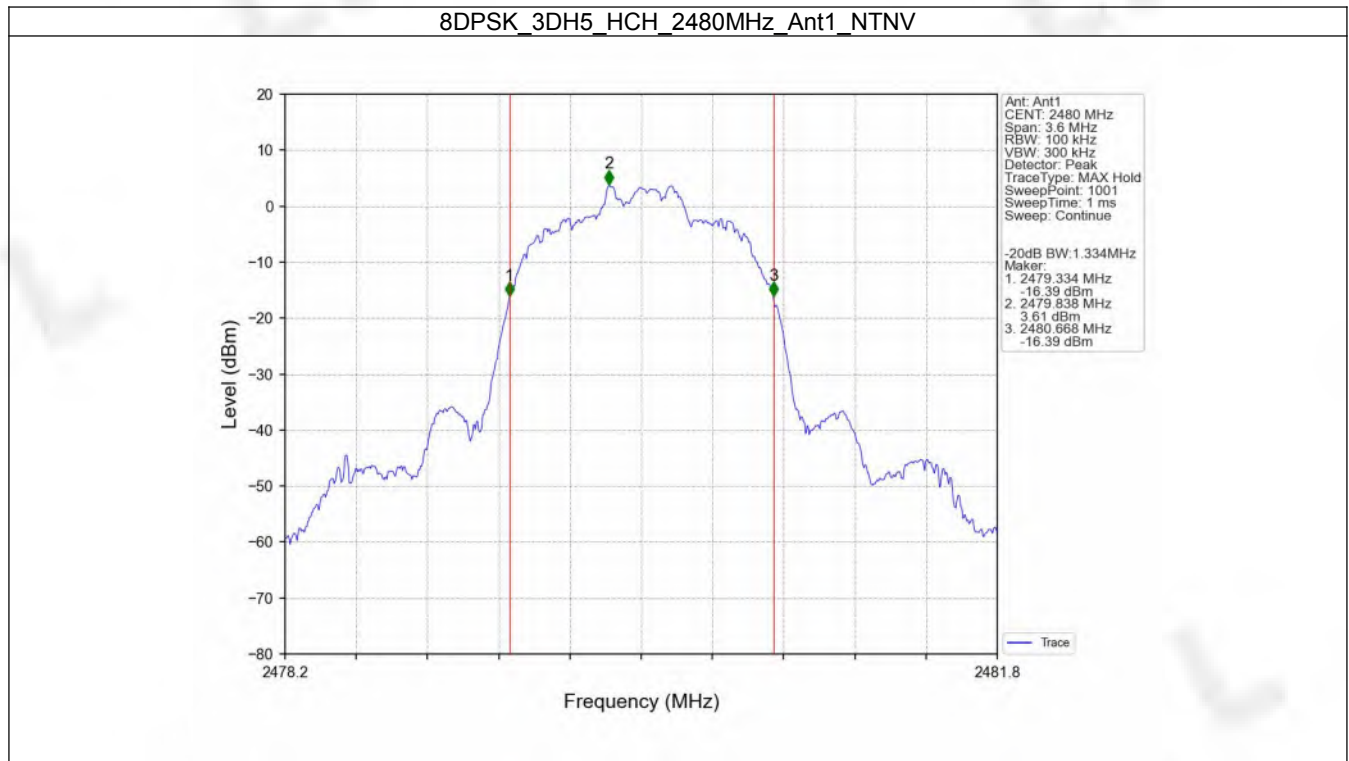
FCC ID: 2BWH8-17PROMAX



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FCC ID: 2BWH8-17PROMAX

2. Maximum Conducted Output Power

2.1 Test Result

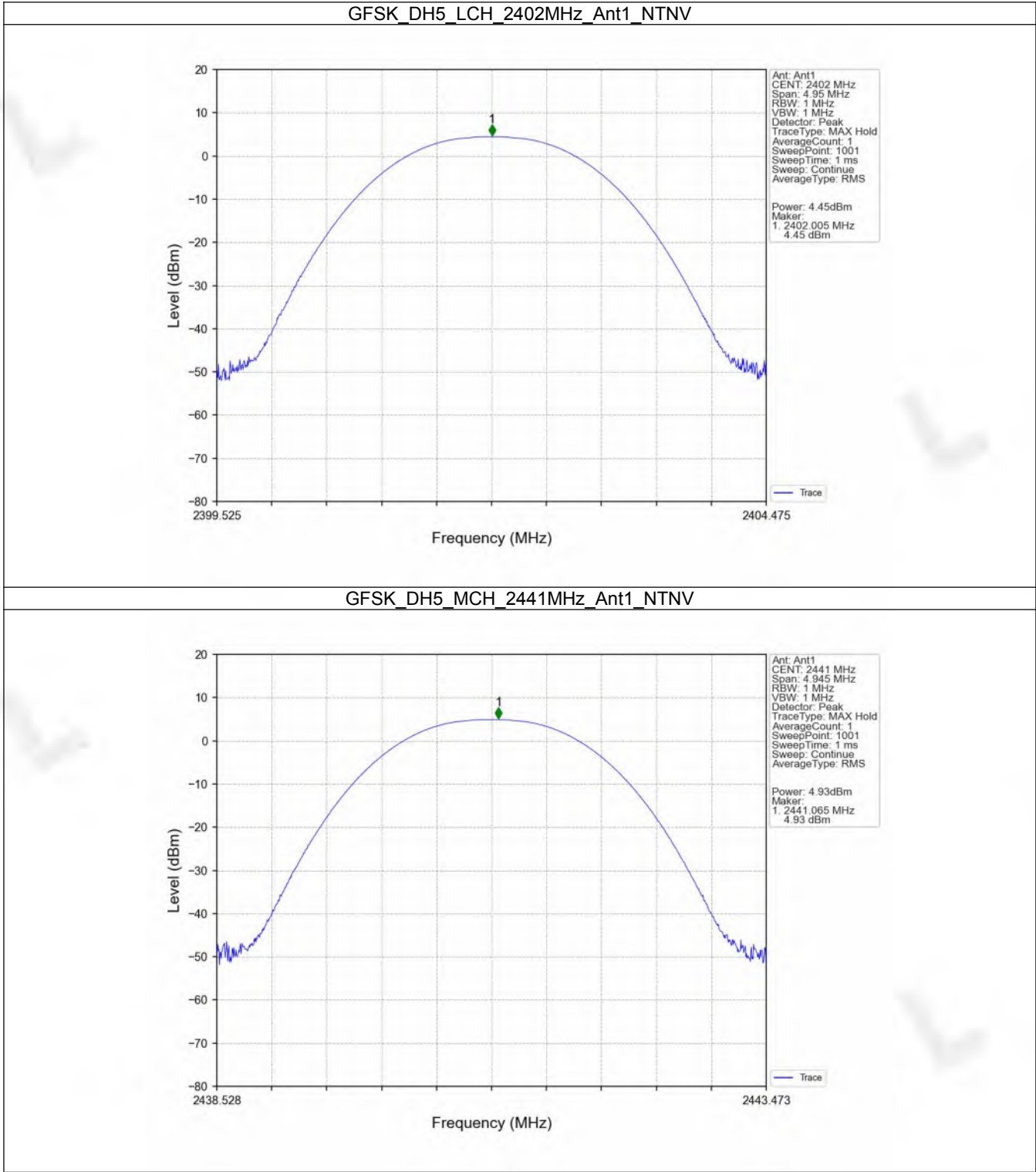
2.1.1 Power

Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	4.45	<=30	Pass
		2441	DH5	4.93	<=30	Pass
		2480	DH5	4.28	<=30	Pass
Pi/4DQPSK	SISO	2402	2DH5	3.92	<=20.97	Pass
		2441	2DH5	4.29	<=20.97	Pass
		2480	2DH5	3.71	<=20.97	Pass
8DPSK	SISO	2402	3DH5	3.97	<=20.97	Pass
		2441	3DH5	4.35	<=20.97	Pass
		2480	3DH5	3.79	<=20.97	Pass
Note1: Antenna Gain: Ant1: -0.15dBi; Note2: RF Cable loss=0.5dB Note3: The test results include RF Cable loss.						

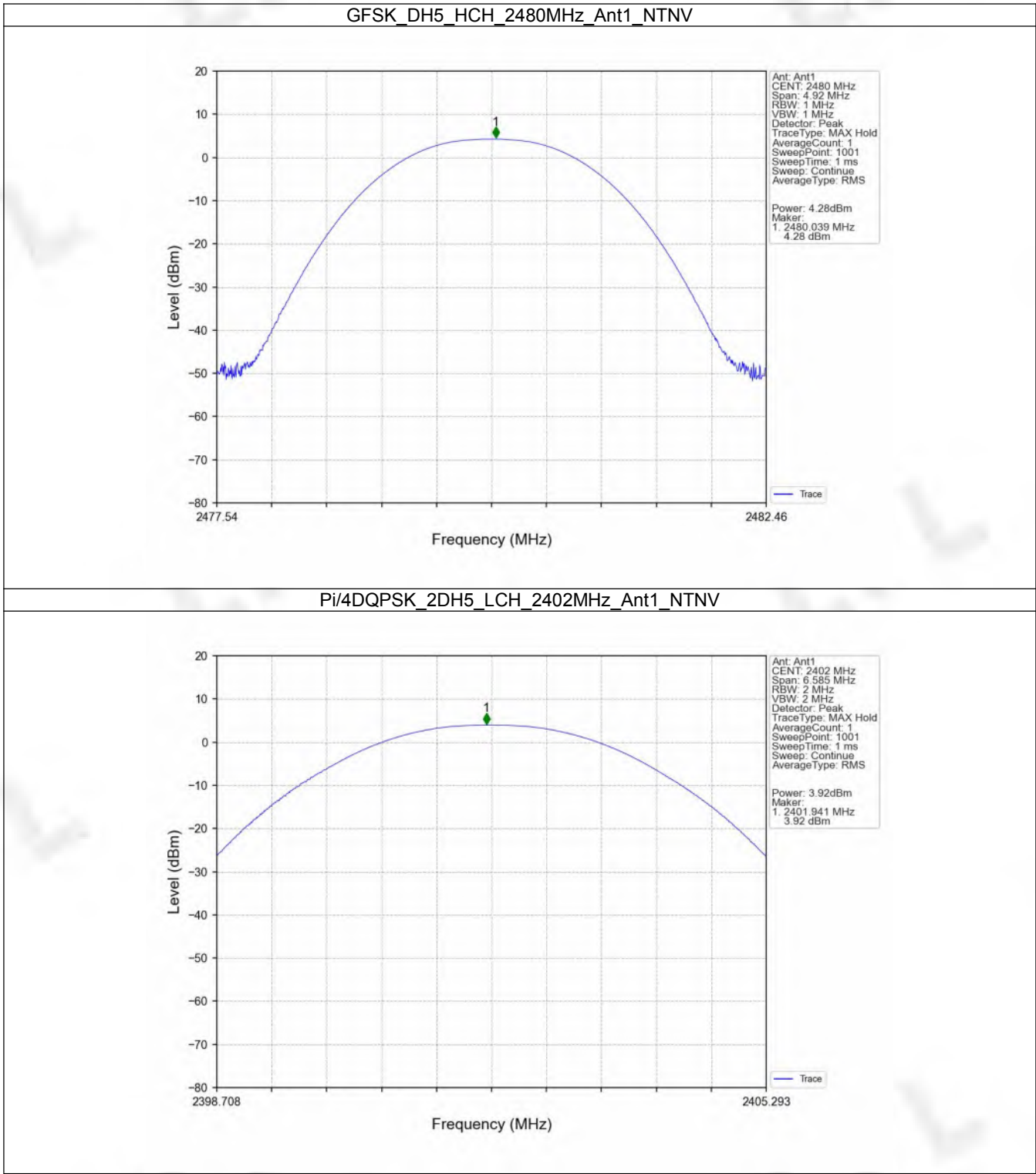
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2.2 Test Graph

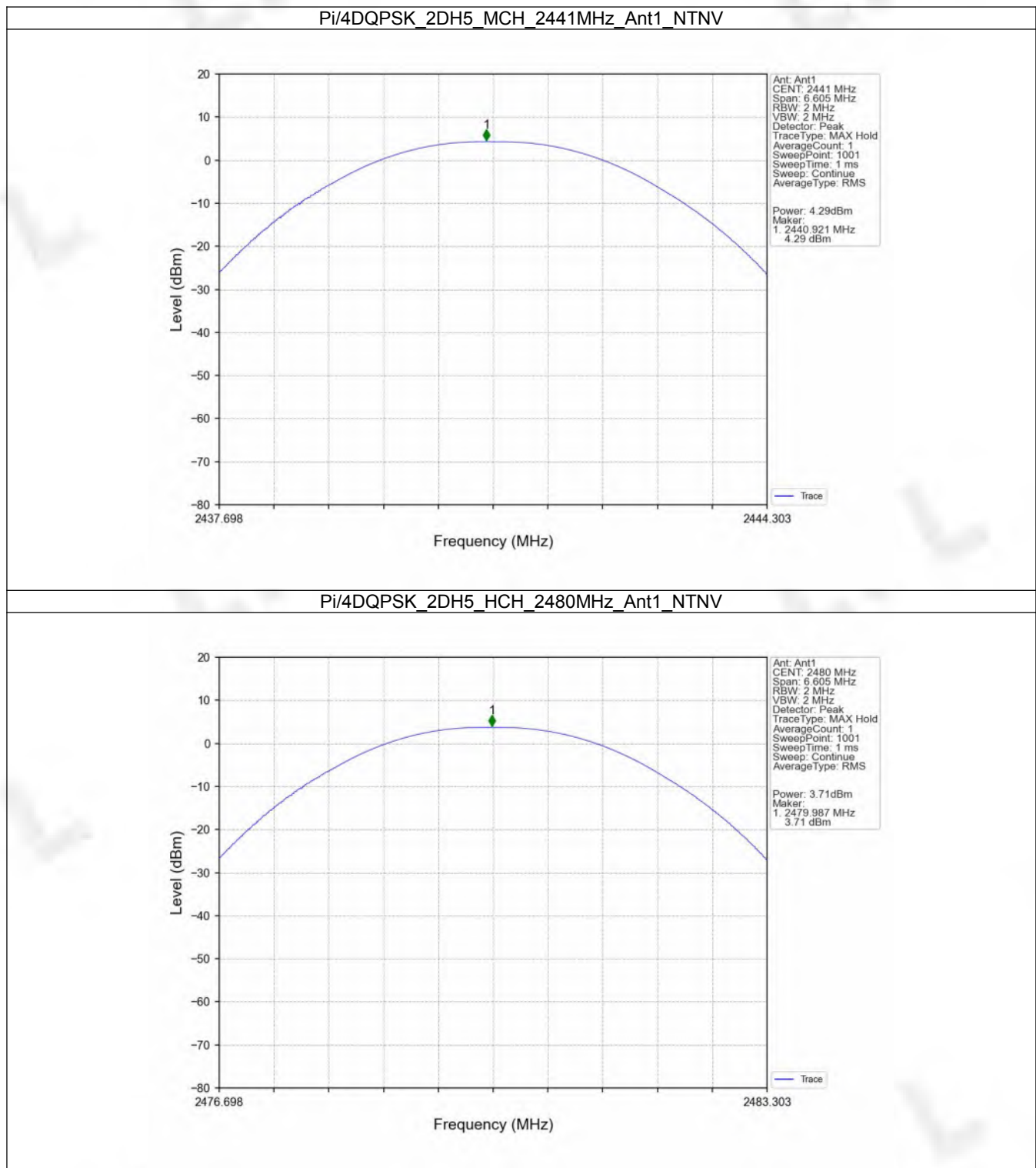
2.2.1 Power



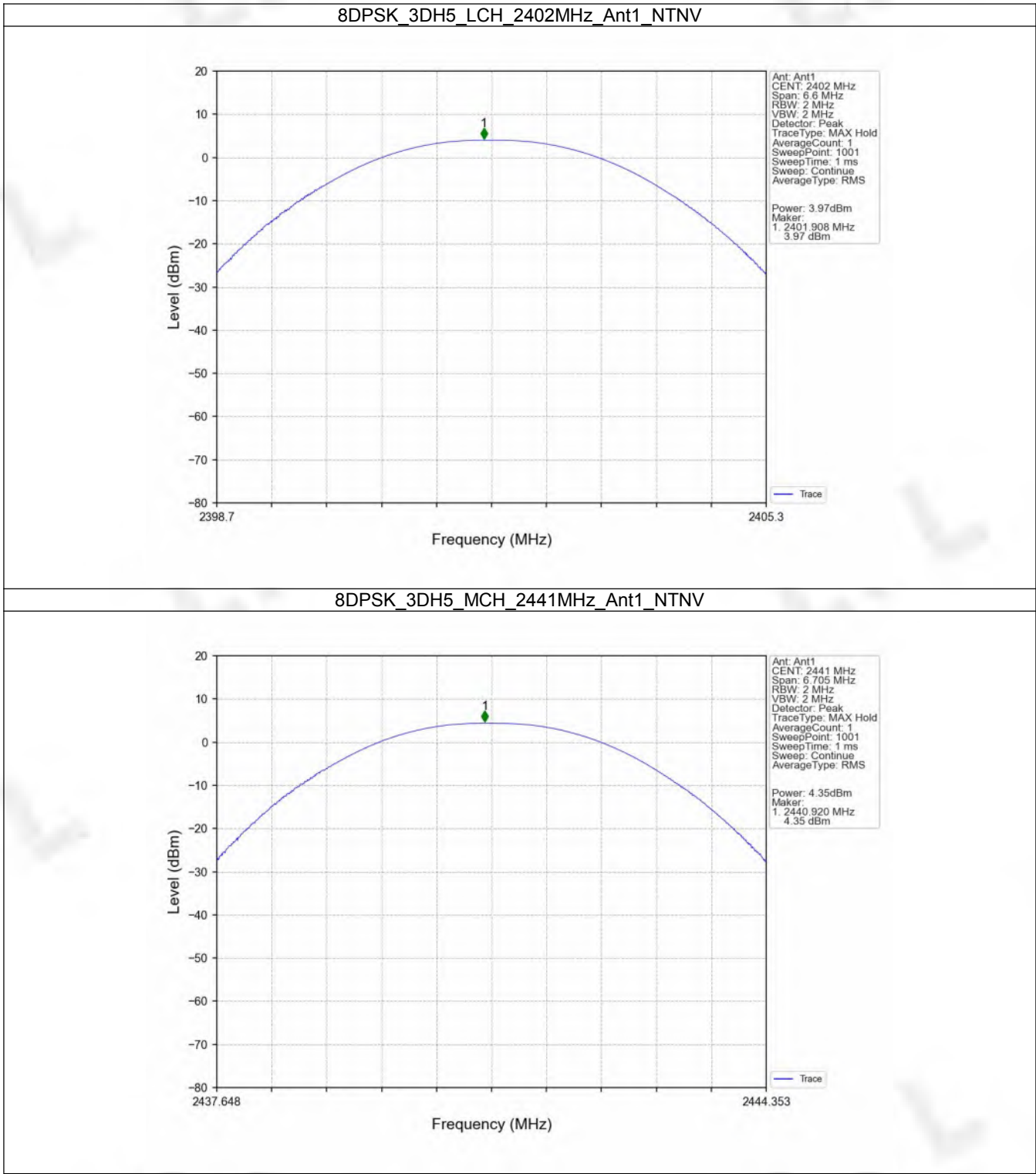
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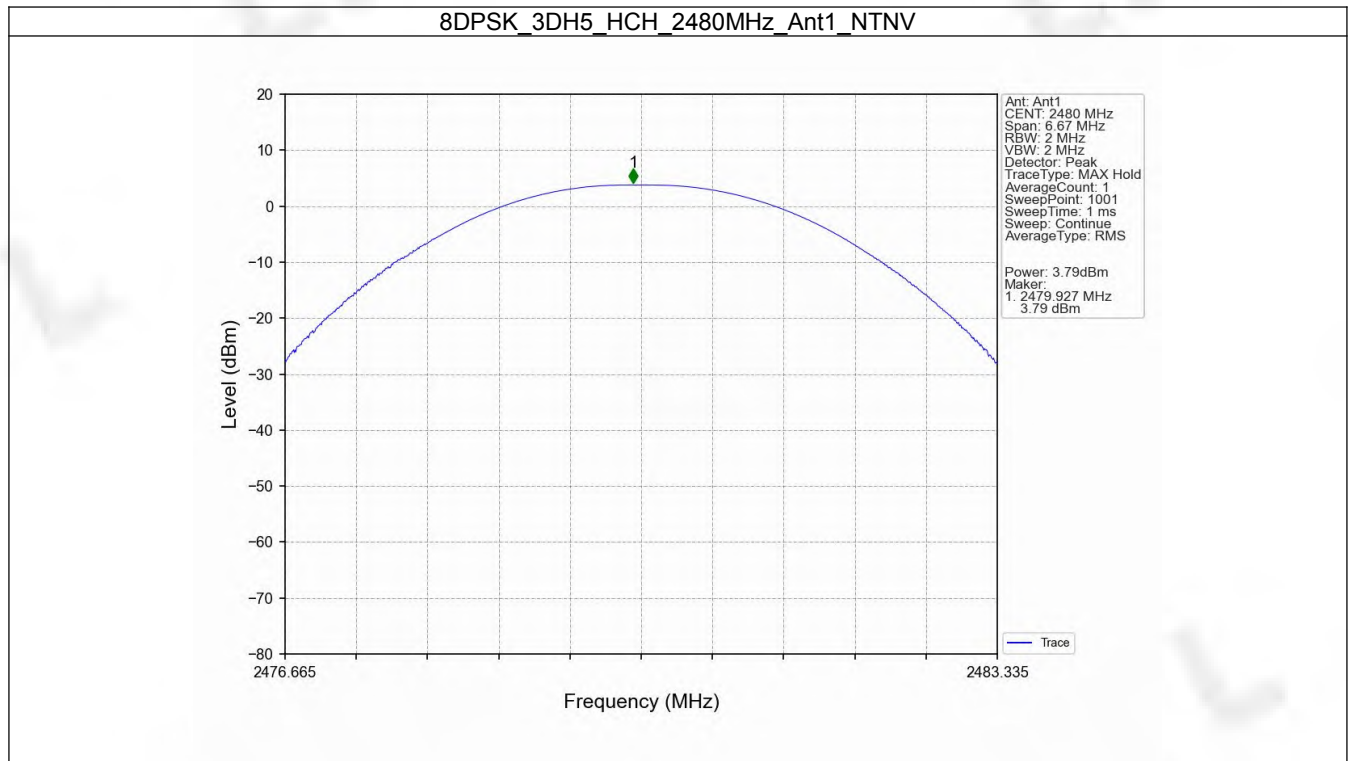
FCC ID: 2BWH8-17PROMAX



FCC ID: 2BWH8-17PROMAX



FCC ID: 2BWH8-17PROMAX



FCC ID: 2BWH8-17PROMAX

3. Carrier Frequency Separation

3.1 Test Result

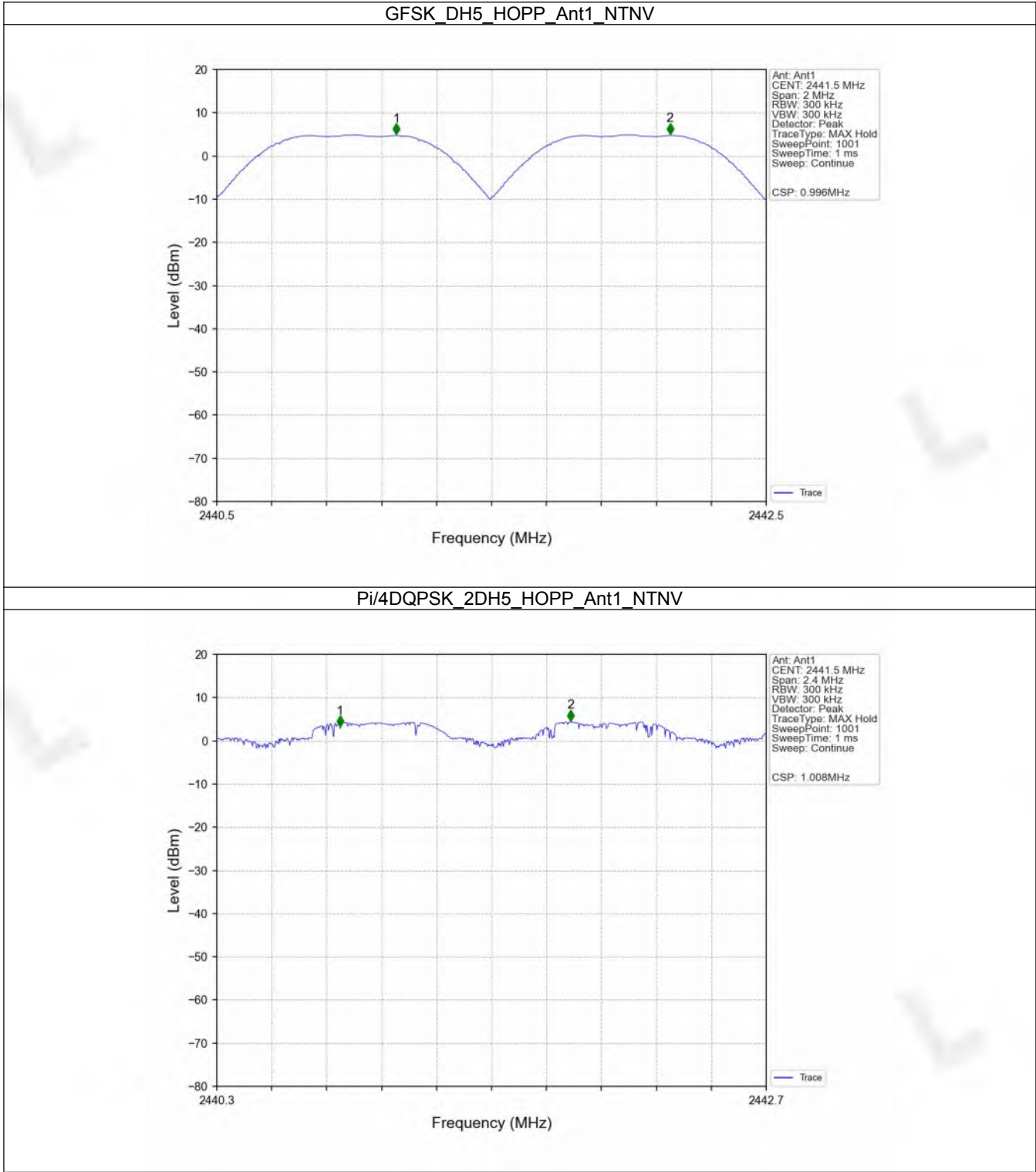
3.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	0.996	0.990	≥ 0.99	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	1.008	1.321	≥ 0.881	Pass
8DPSK	SISO	HOPP	3DH5	1.015	1.341	≥ 0.894	Pass

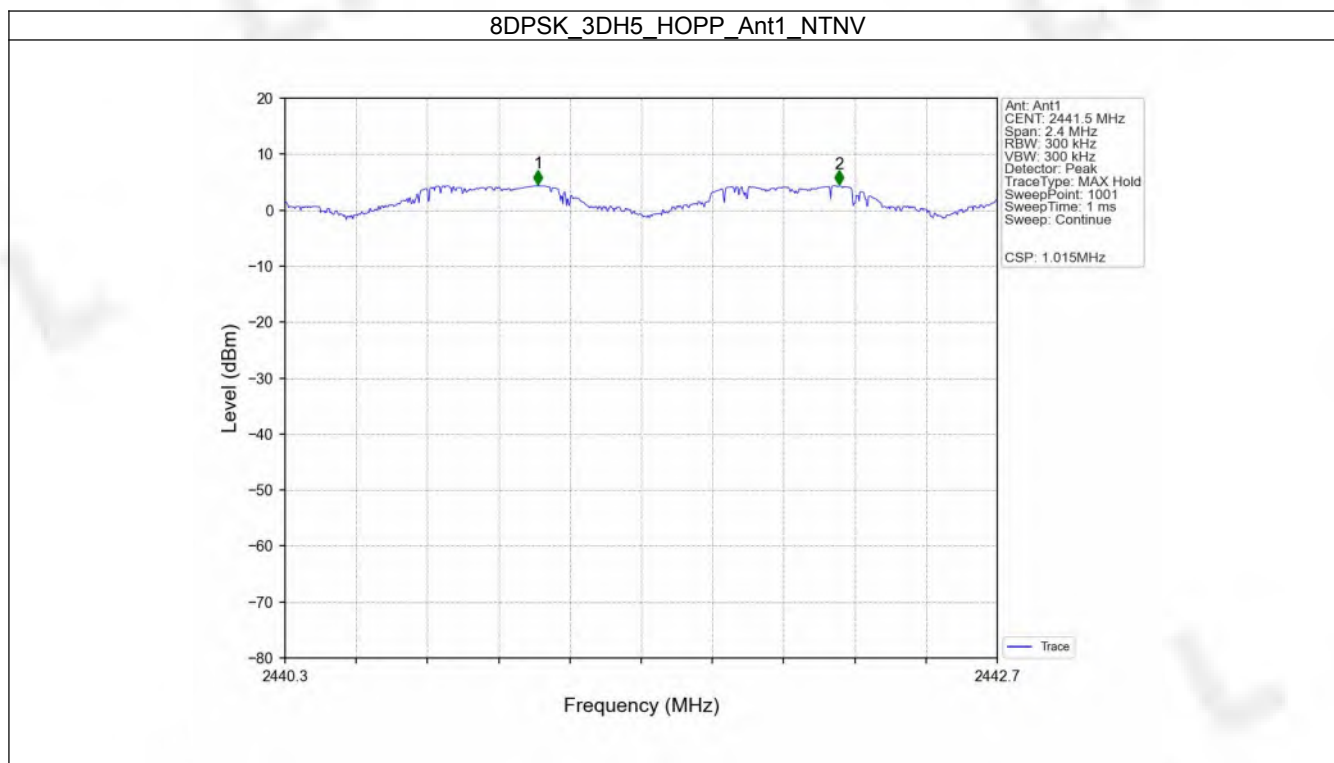
FCC ID: 2BWH8-17PROMAX

3.2 Test Graph

3.2.1 Ant1



FCC ID: 2BWH8-17PROMAX



FCC ID: 2BWH8-17PROMAX

4. Number of Hopping Frequencies

4.1 Test Result

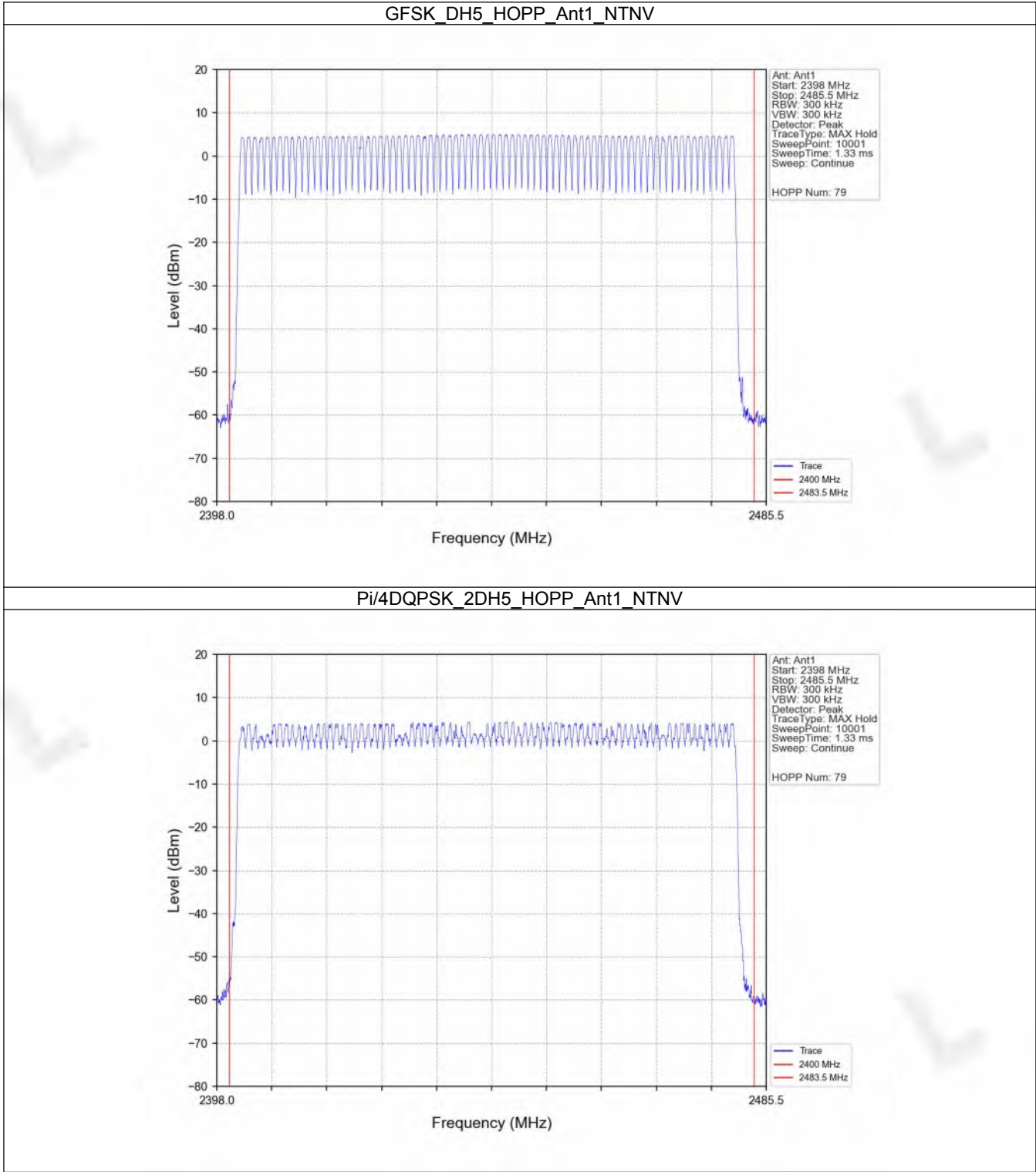
4.1.1 HoppNum

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

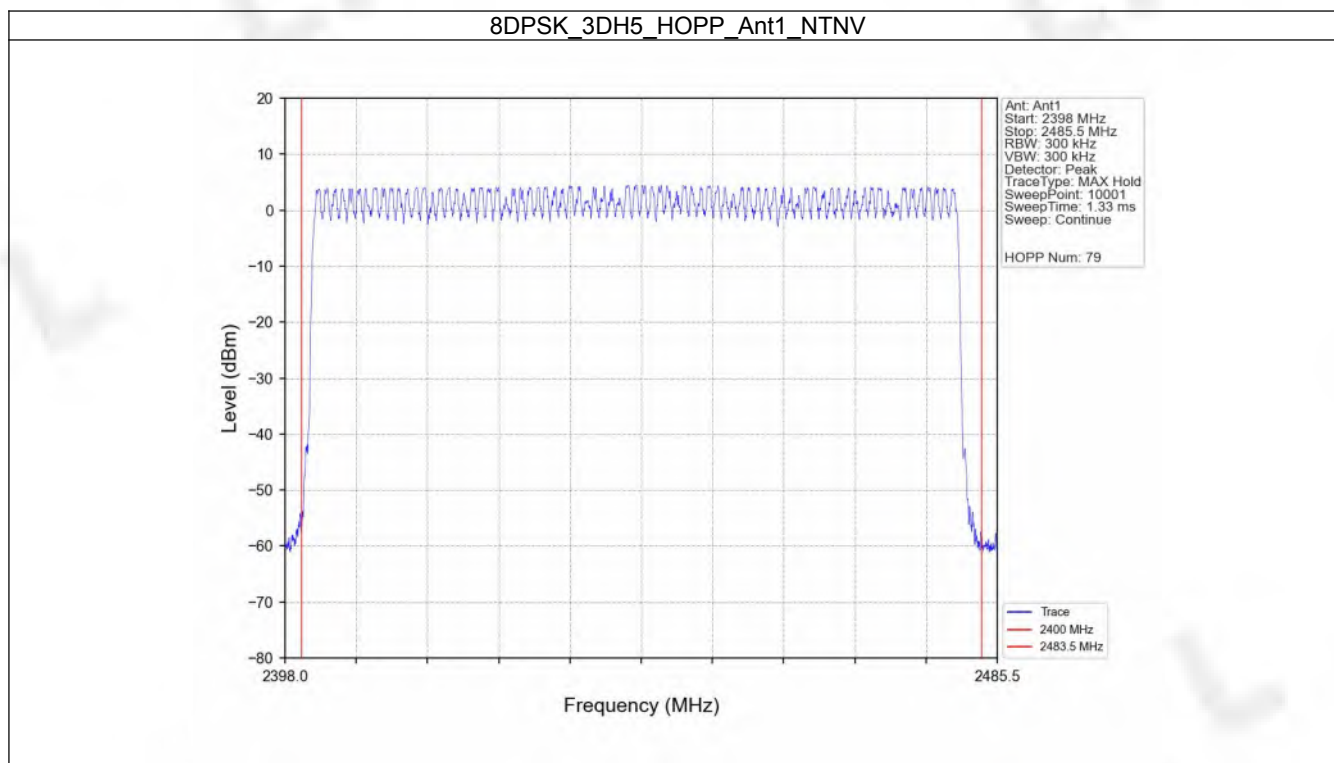
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4.2 Test Graph

4.2.1 HoppNum



FCC ID: 2BWH8-17PROMAX



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5. Time of Occupancy (Dwell Time)

5.1 Test Result

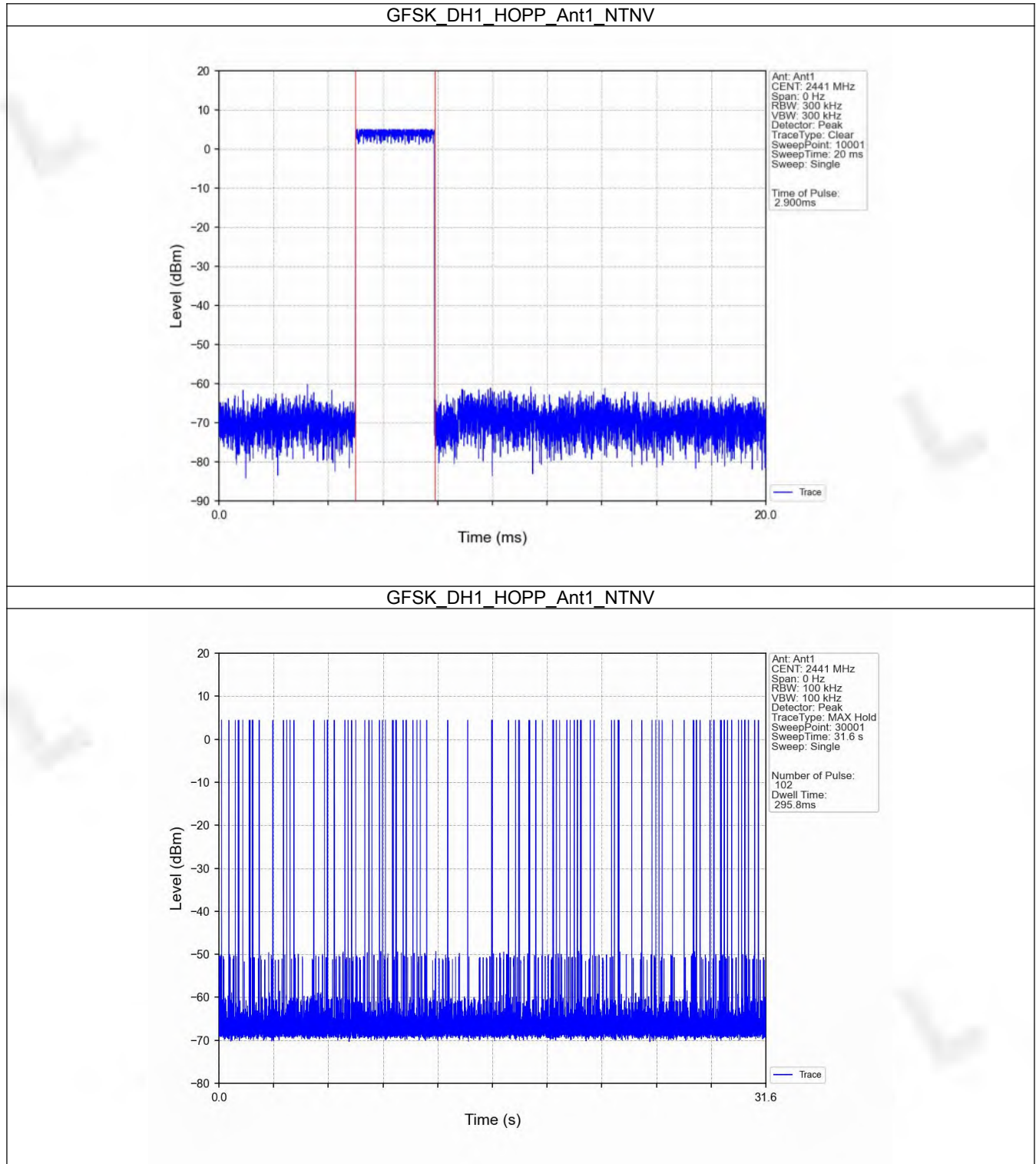
5.1.1 Ant1

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	2.900	31.600	102	295.800	<=400	Pass
			DH3	1.652	31.600	158	261.016	<=400	Pass
			DH5	2.898	31.600	108	312.984	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.394	31.600	315	124.110	<=400	Pass
			2DH3	1.650	31.600	170	280.500	<=400	Pass
			2DH5	2.898	31.600	105	304.290	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.396	31.600	320	126.720	<=400	Pass
			3DH3	1.646	31.600	160	263.360	<=400	Pass
			3DH5	2.898	31.600	97	281.106	<=400	Pass

FCC ID: 2BWH8-17PROMAX

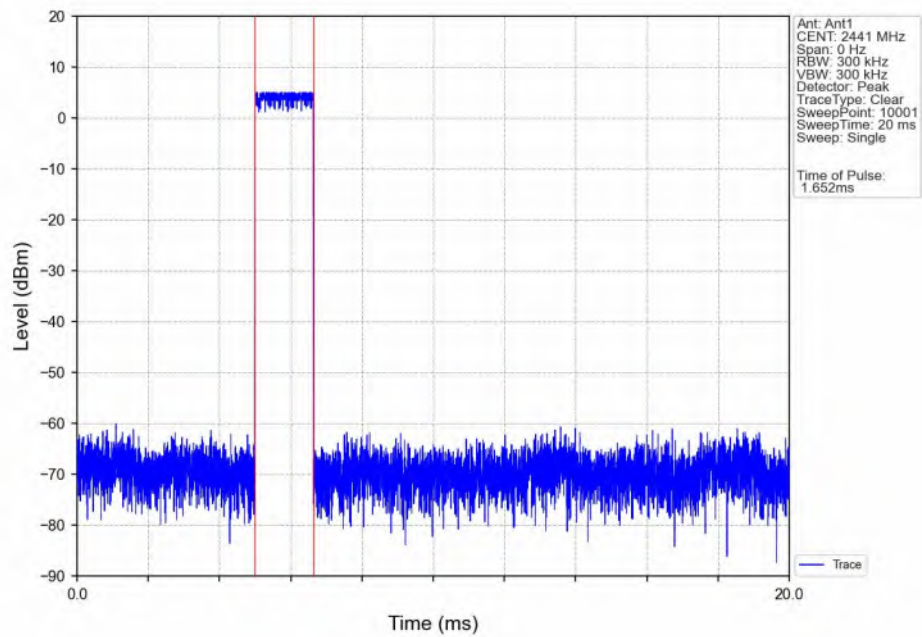
5.2 Test Graph

5.2.1 Ant1

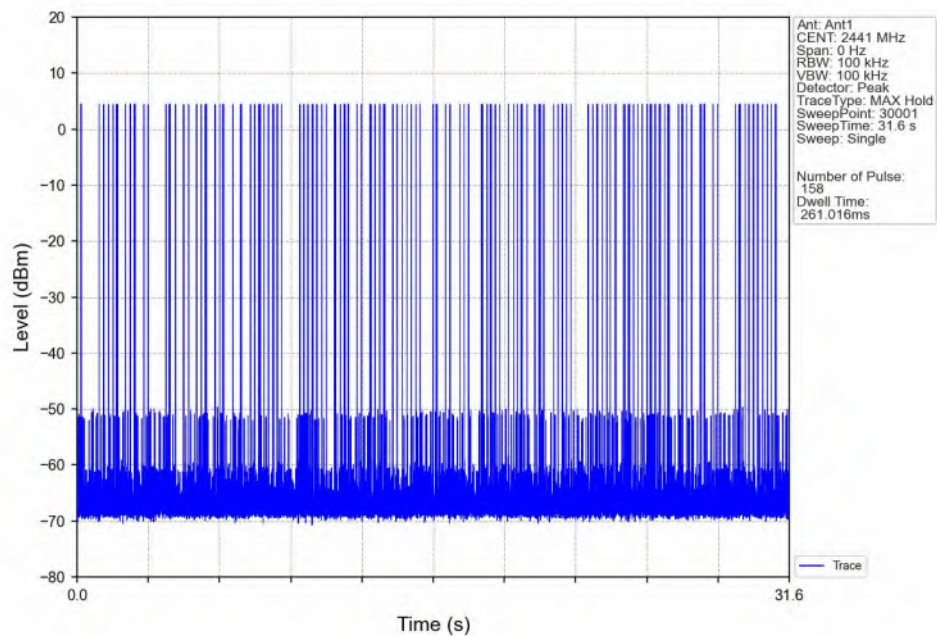


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GFSK_DH3_HOPP_Ant1_NTNV

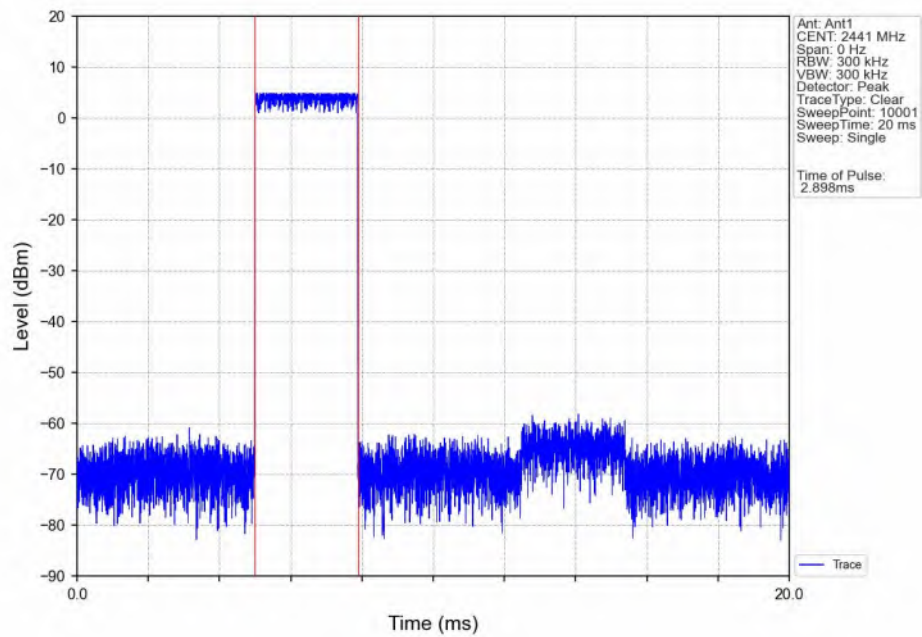


GFSK_DH3_HOPP_Ant1_NTNV

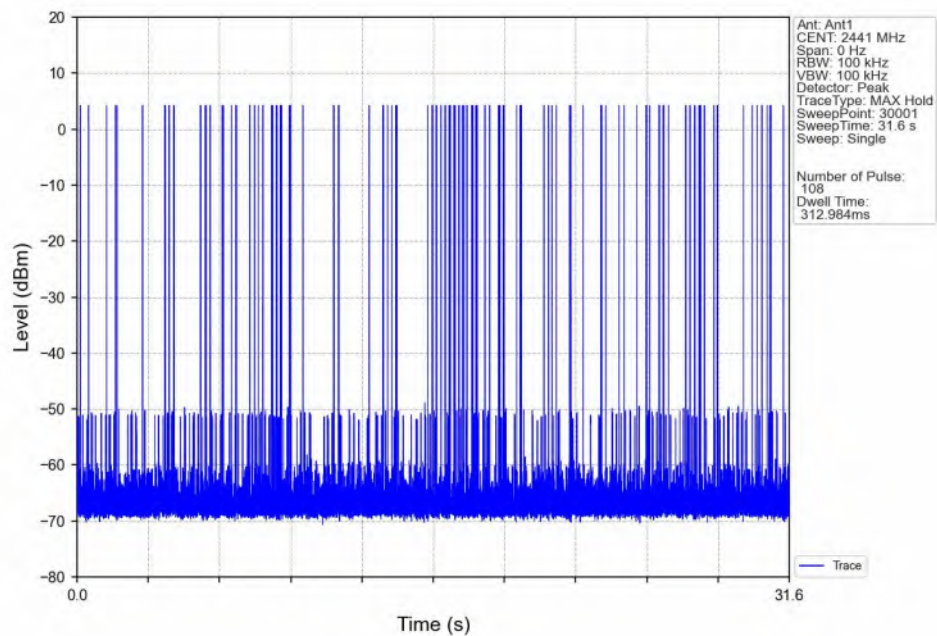


FCC ID: 2BWH8-17PROMAX

GFSK_DH5_HOPP_Ant1_NTNV

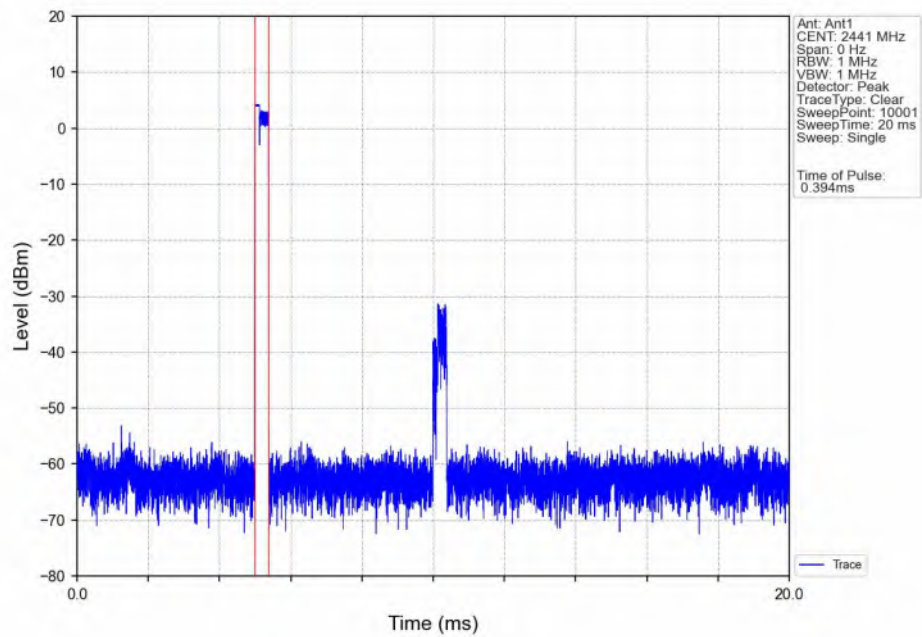


GFSK_DH5_HOPP_Ant1_NTNV

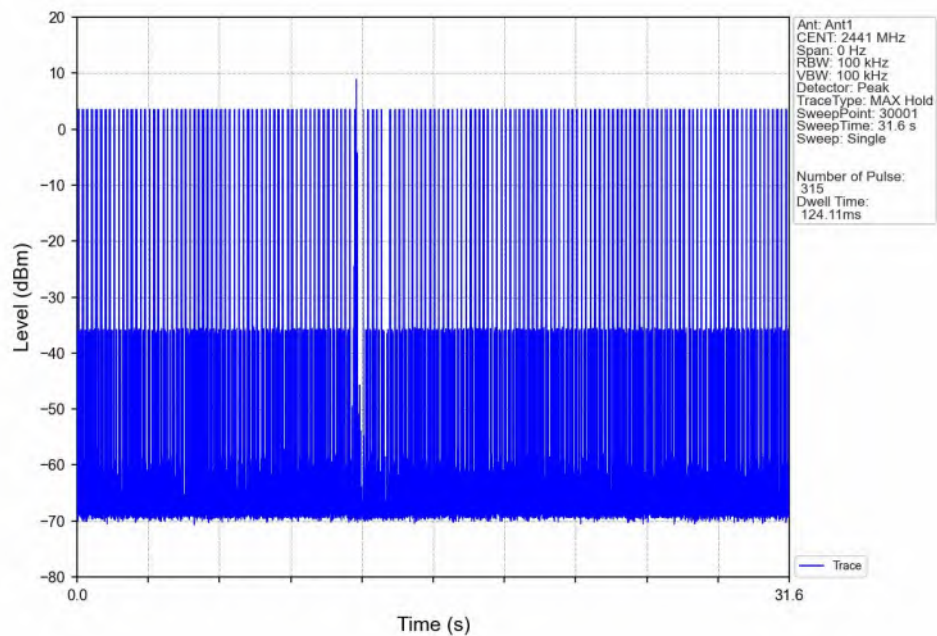


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Pi/4DQPSK_2DH1_HOPP_Ant1_NTNV

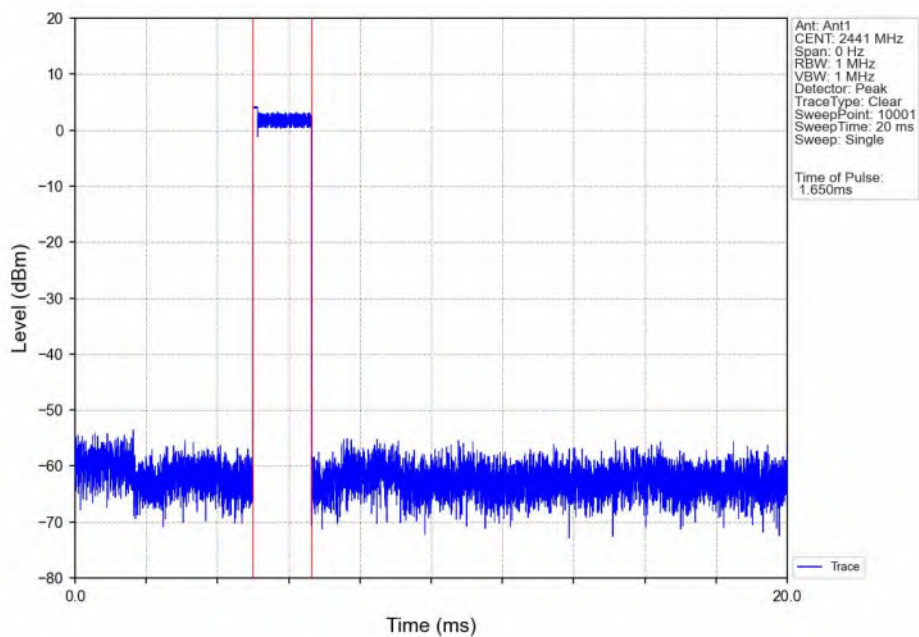


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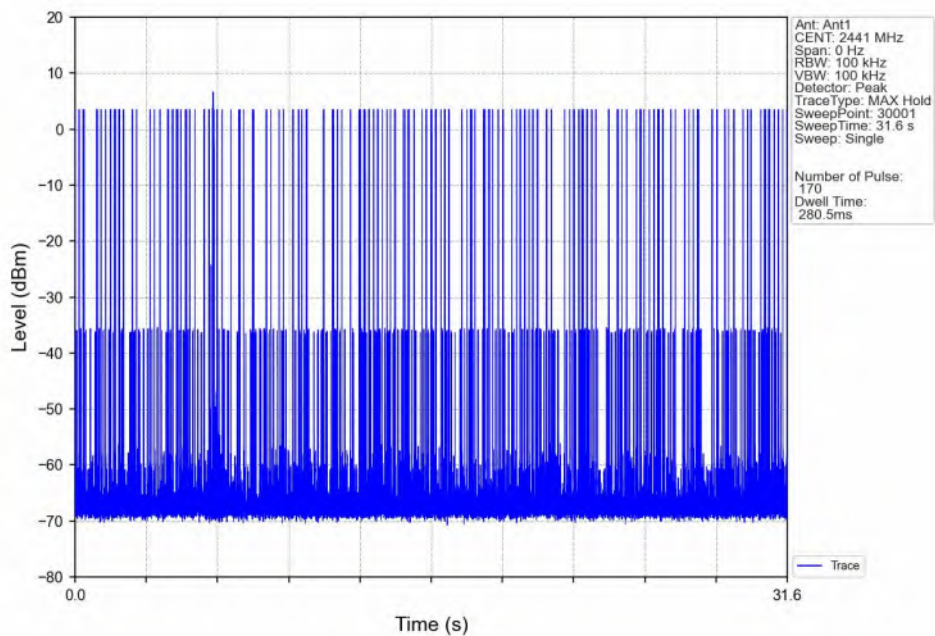


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Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV

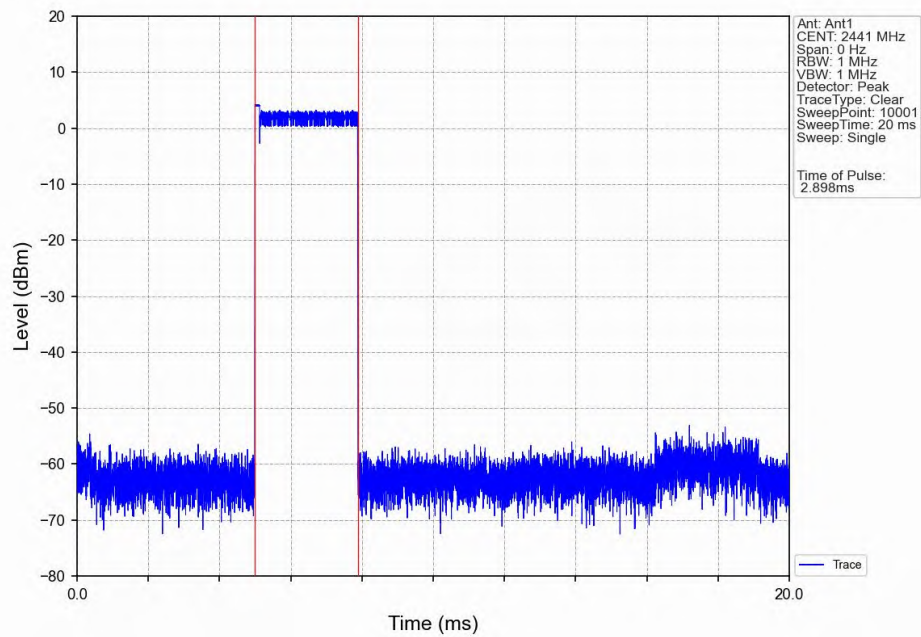


Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV

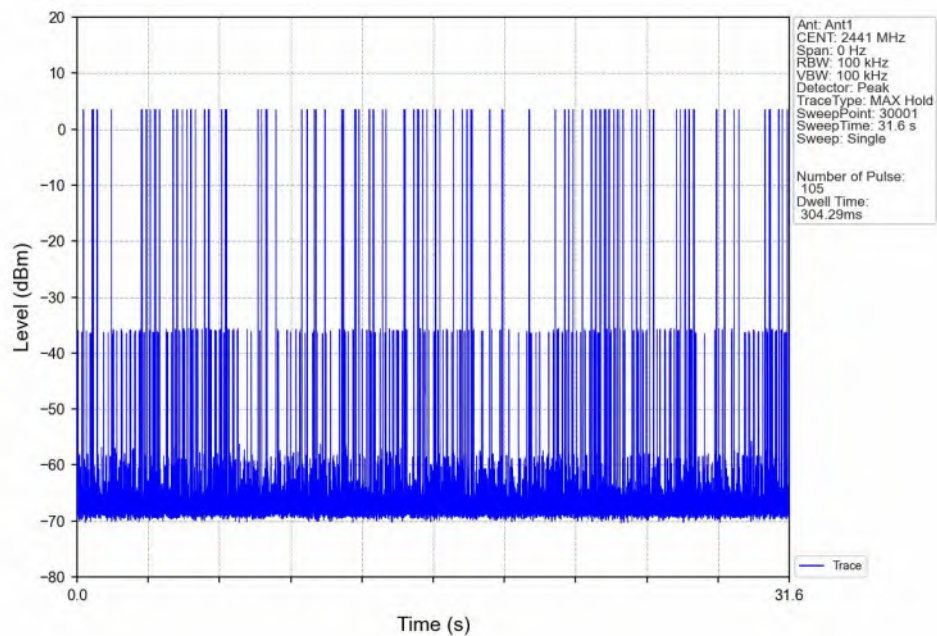


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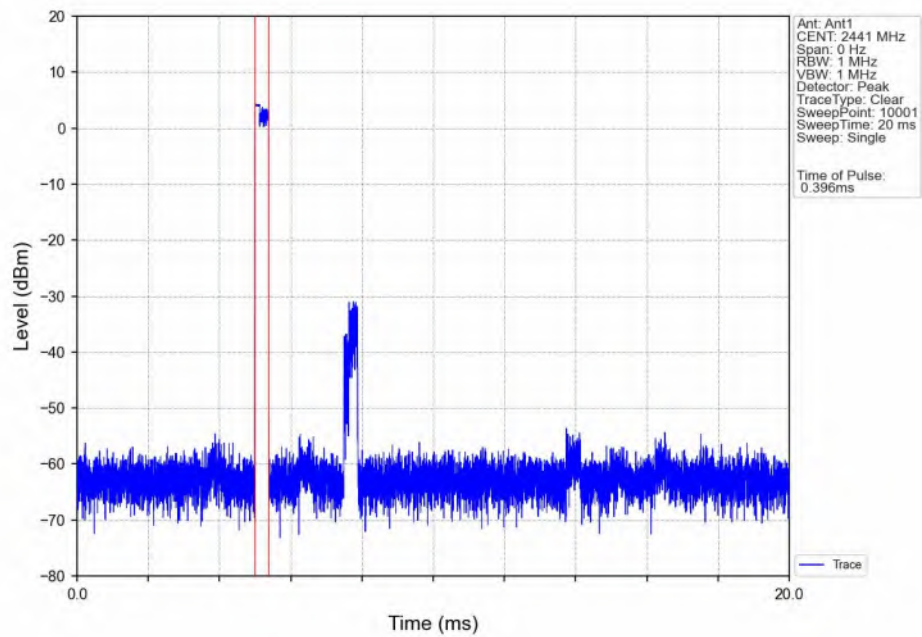


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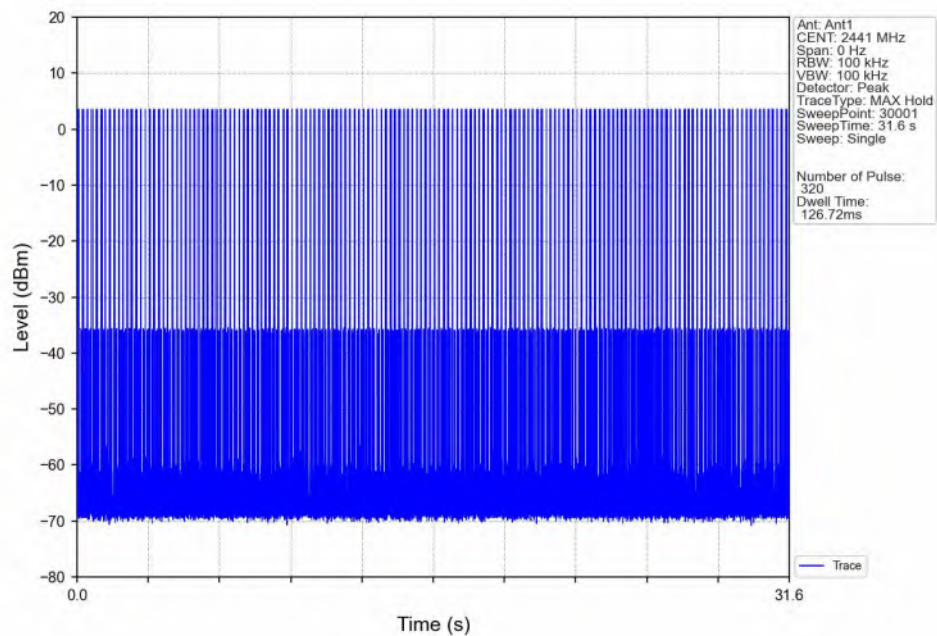


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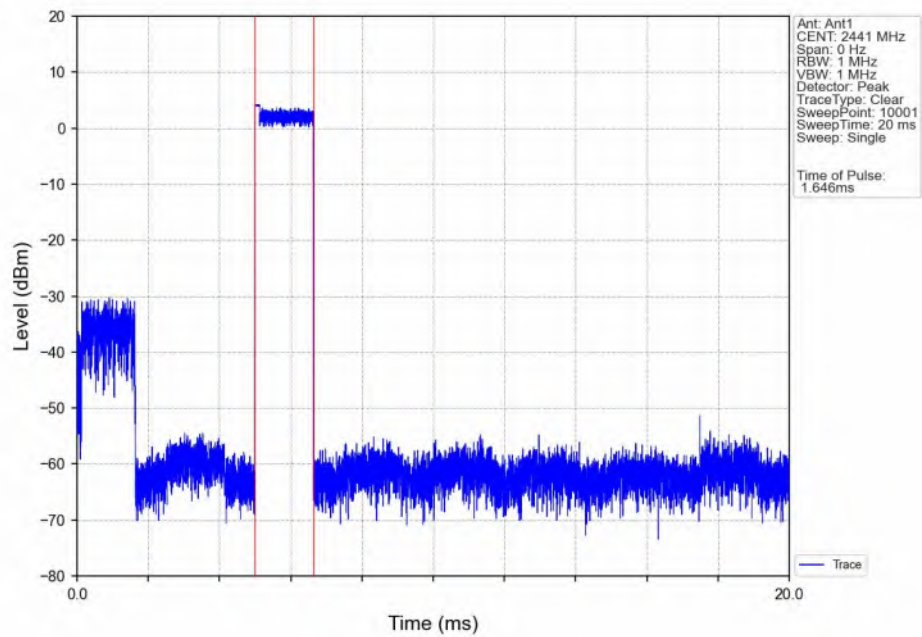


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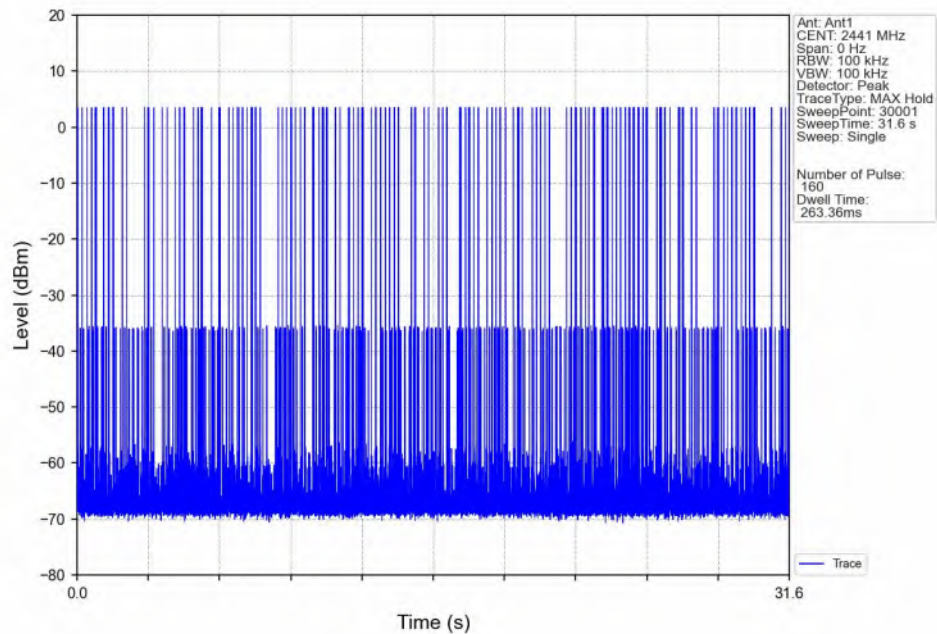


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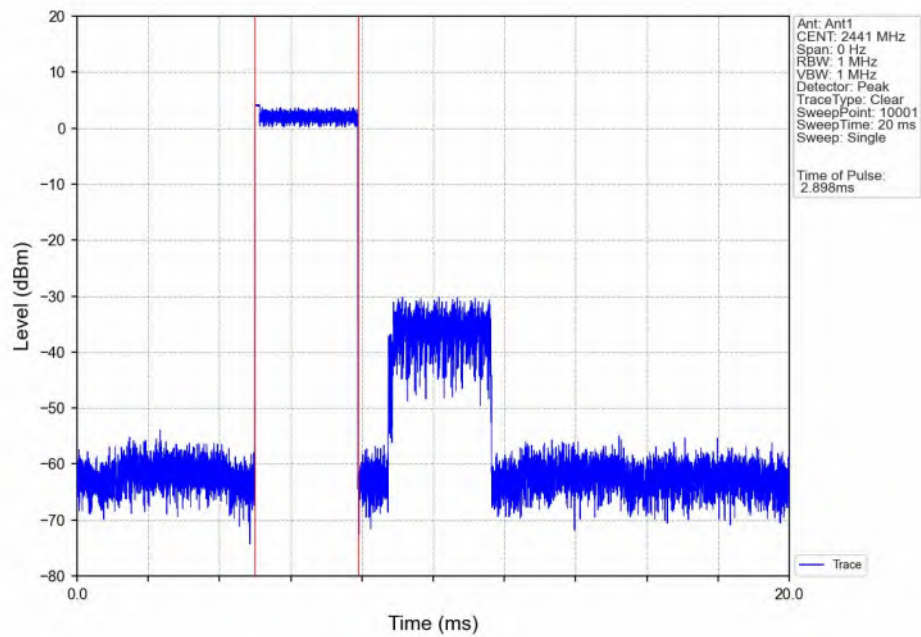


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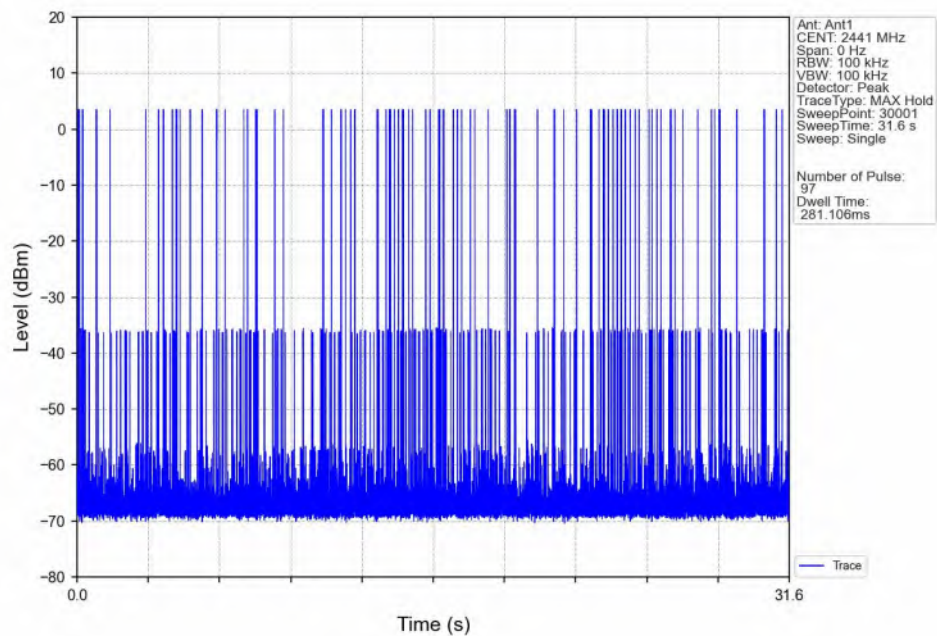


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8DPSK_3DH5_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV



FCC ID: 2BWH8-17PROMAX

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	3.15
		2441	DH5	1	3.78
		2480	DH5	1	3.33
		HOPP	DH5	1	6.79
					6.79
Pi/4DQPSK	SISO	2402	2DH5	1	2.85
		2441	2DH5	1	3.25
		2480	2DH5	1	2.97
		HOPP	2DH5	1	6.73
					6.73
8DPSK	SISO	2402	3DH5	1	2.91
		2441	3DH5	1	3.36
		2480	3DH5	1	3.02
		HOPP	3DH5	1	6.45
					6.45

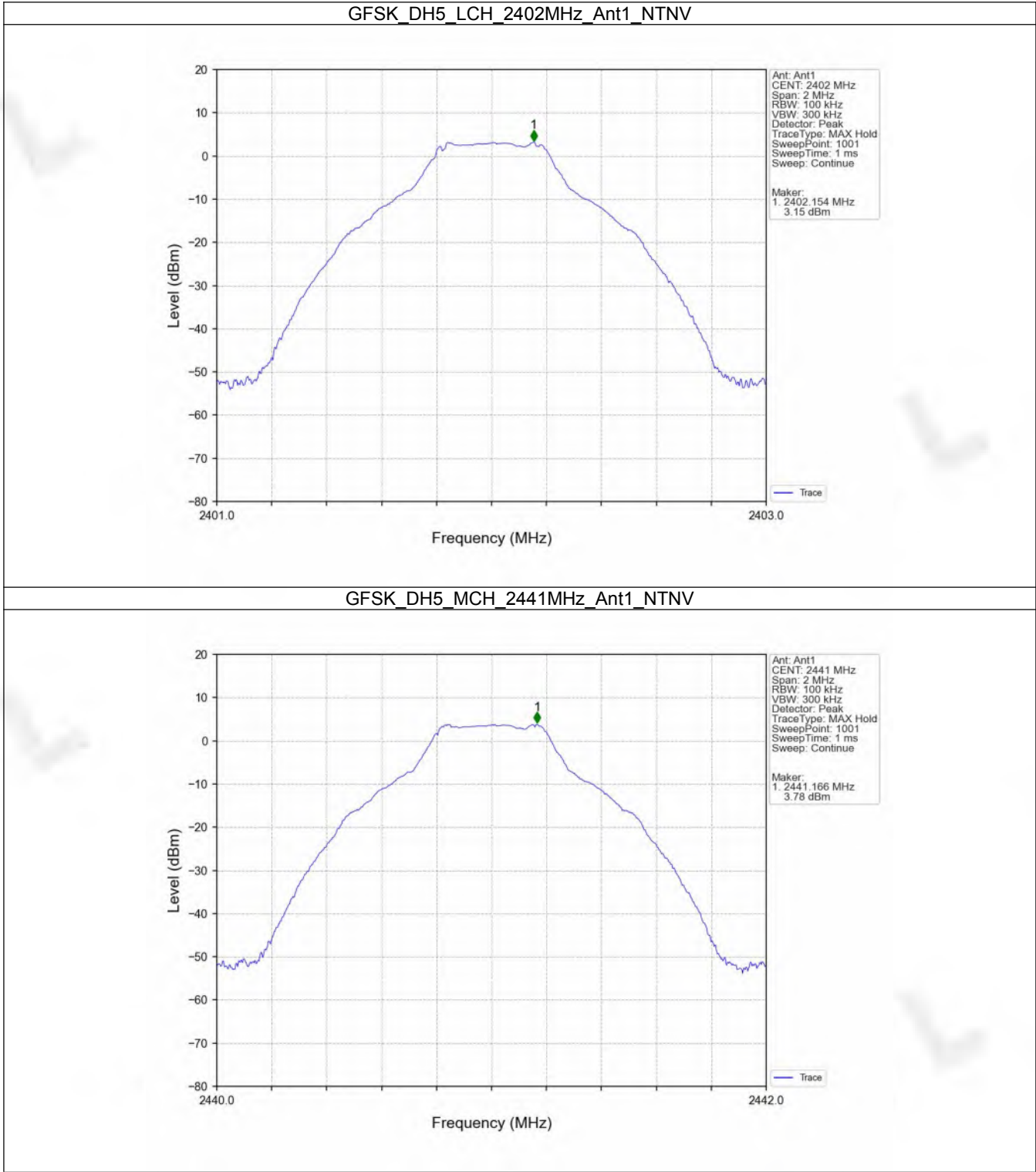
6.1.2 CSE

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	3.15	-16.85	Pass
		2441	DH5	1	3.78	-16.22	Pass
		2480	DH5	1	3.33	-16.67	Pass
		HOPP	DH5	1	6.79	-13.21	Pass
					6.79	-13.21	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	2.85	-17.15	Pass
		2441	2DH5	1	3.25	-16.75	Pass
		2480	2DH5	1	2.97	-17.03	Pass
		HOPP	2DH5	1	6.73	-13.27	Pass
					6.73	-13.27	Pass
8DPSK	SISO	2402	3DH5	1	2.91	-17.09	Pass
		2441	3DH5	1	3.36	-16.64	Pass
		2480	3DH5	1	3.02	-16.98	Pass
		HOPP	3DH5	1	6.45	-13.55	Pass
					6.45	-13.55	Pass

FCC ID: 2BWH8-17PROMAX

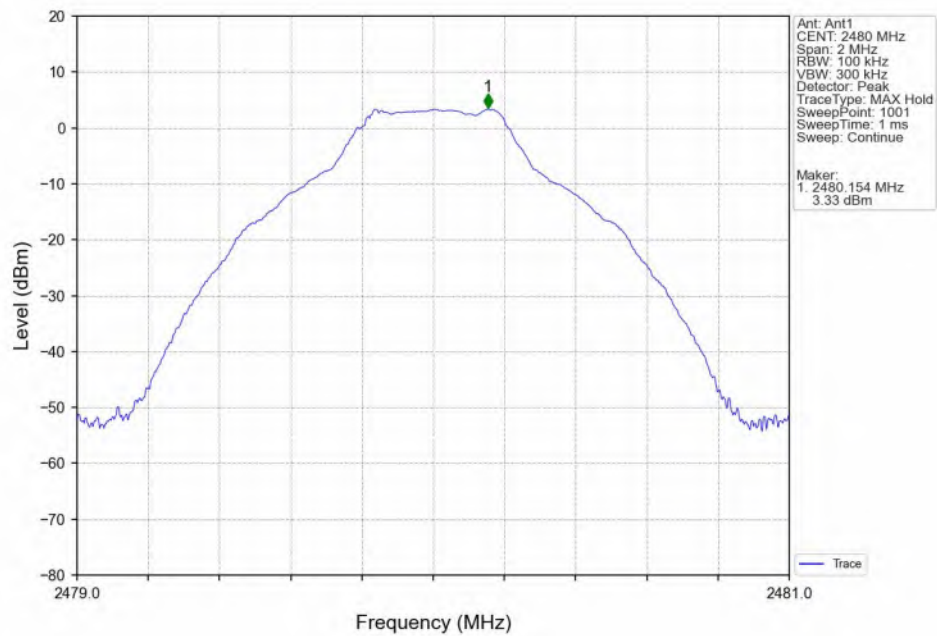
6.2 Test Graph

6.2.1 Ref

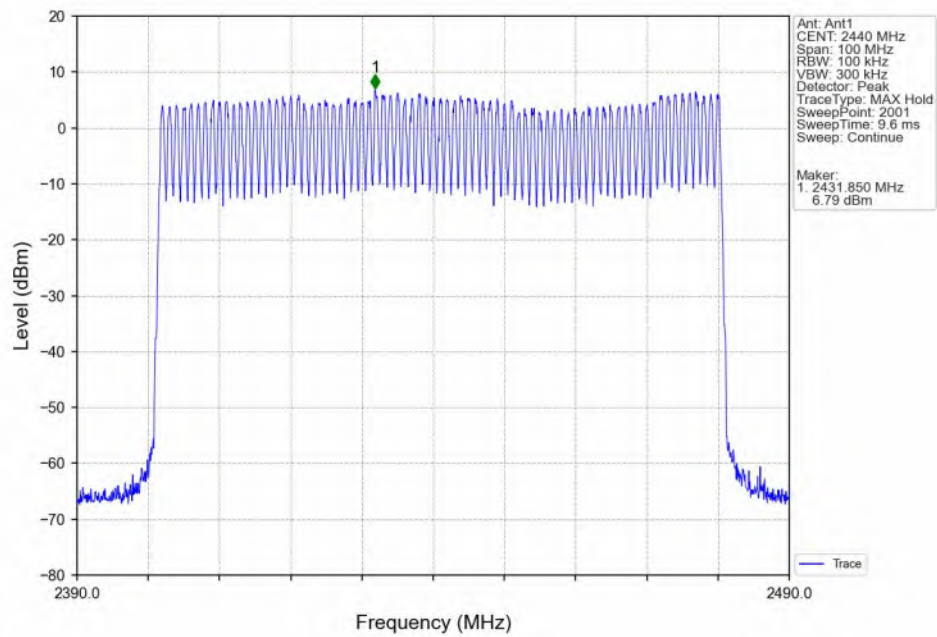


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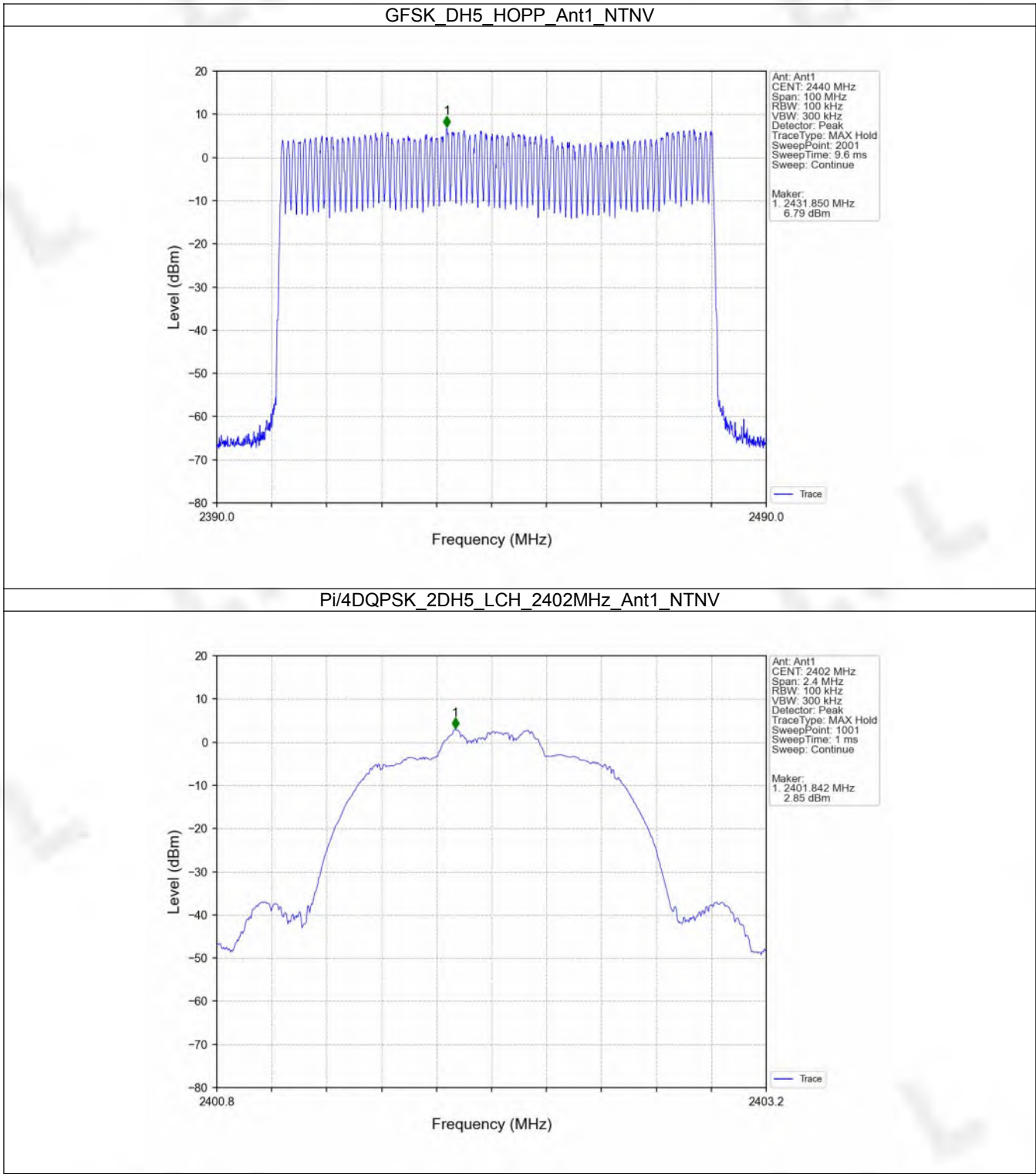
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GFSK_DH5_HOPP_Ant1_NTNV

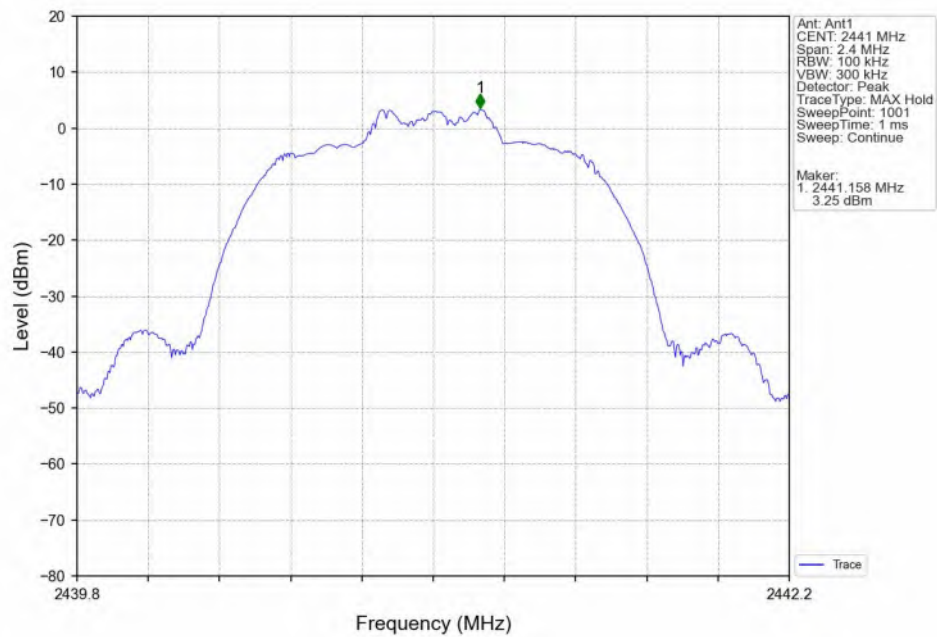


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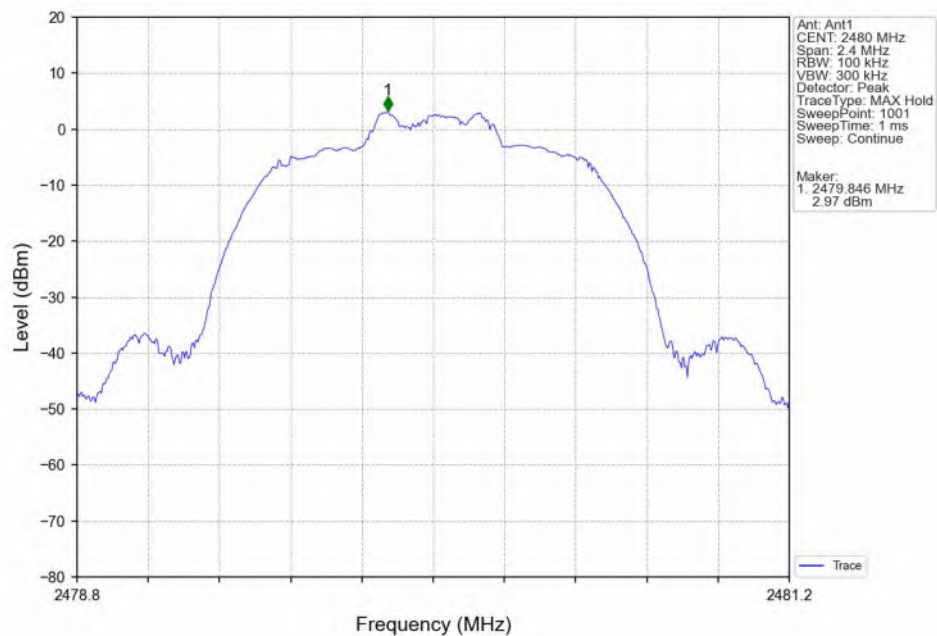


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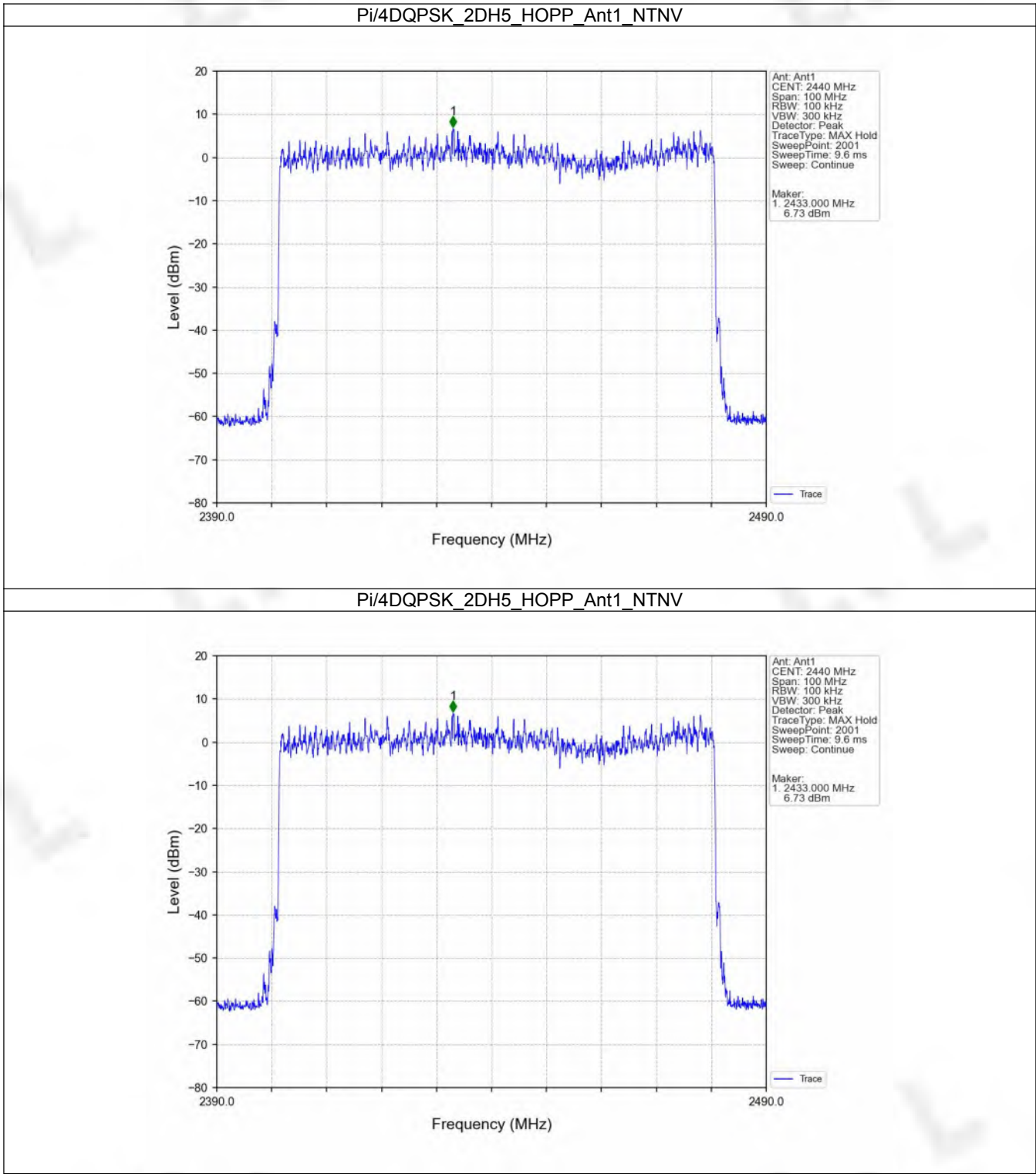
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Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

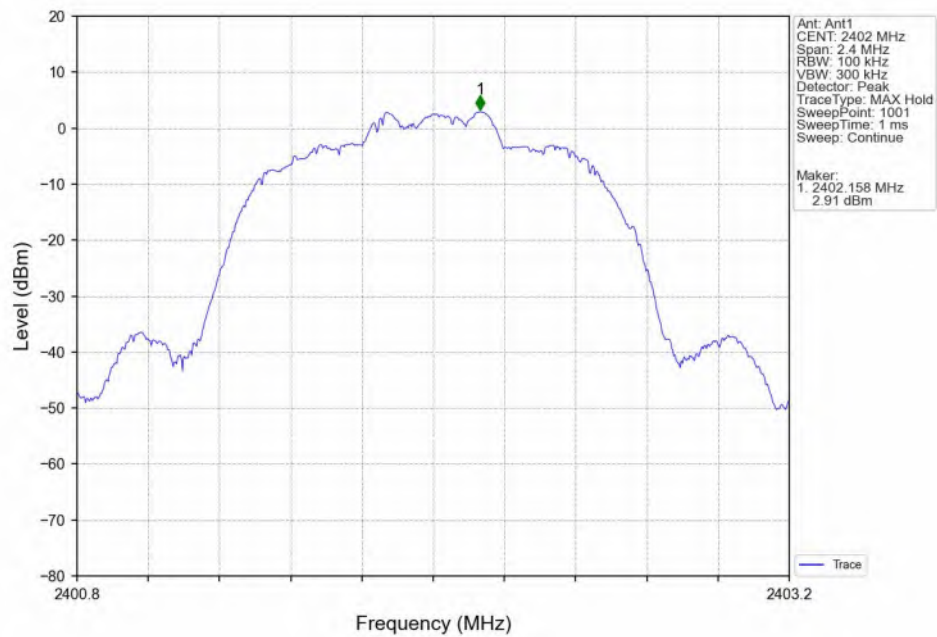


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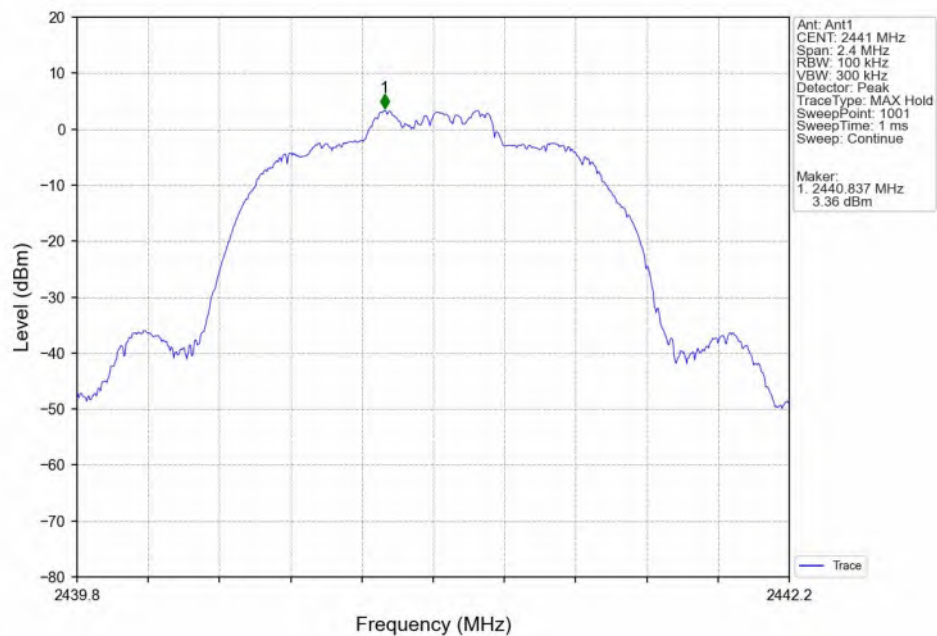


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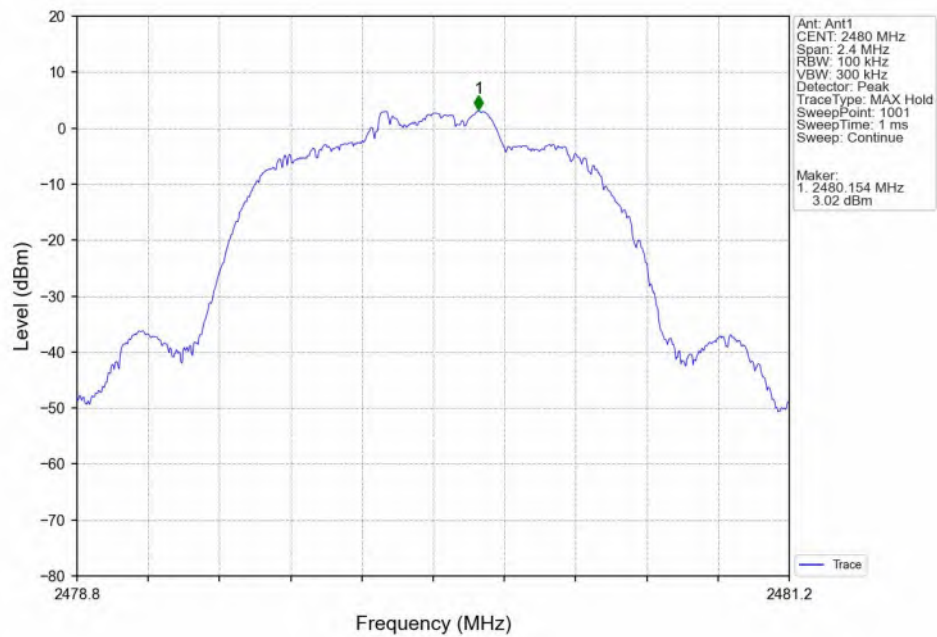


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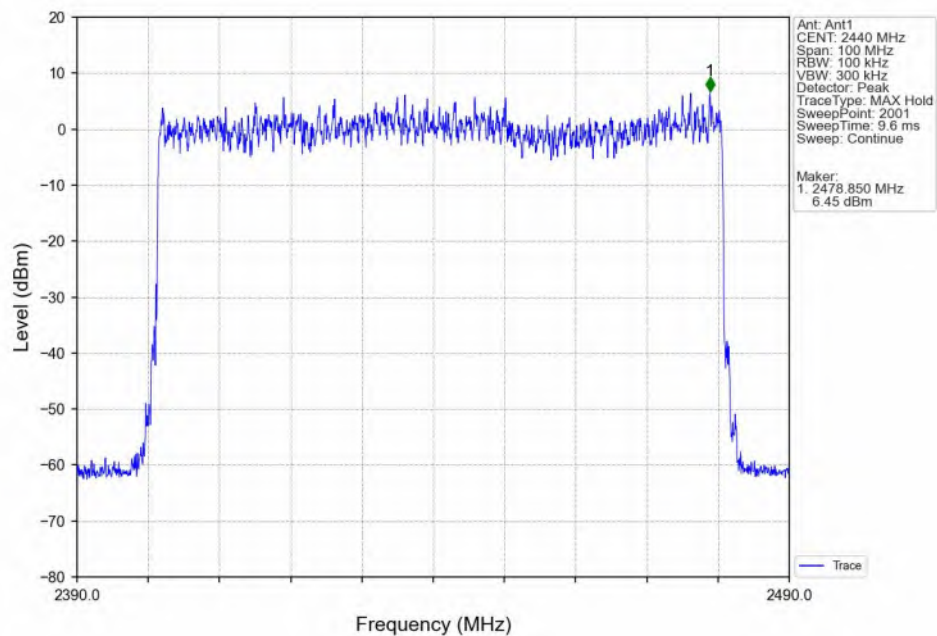


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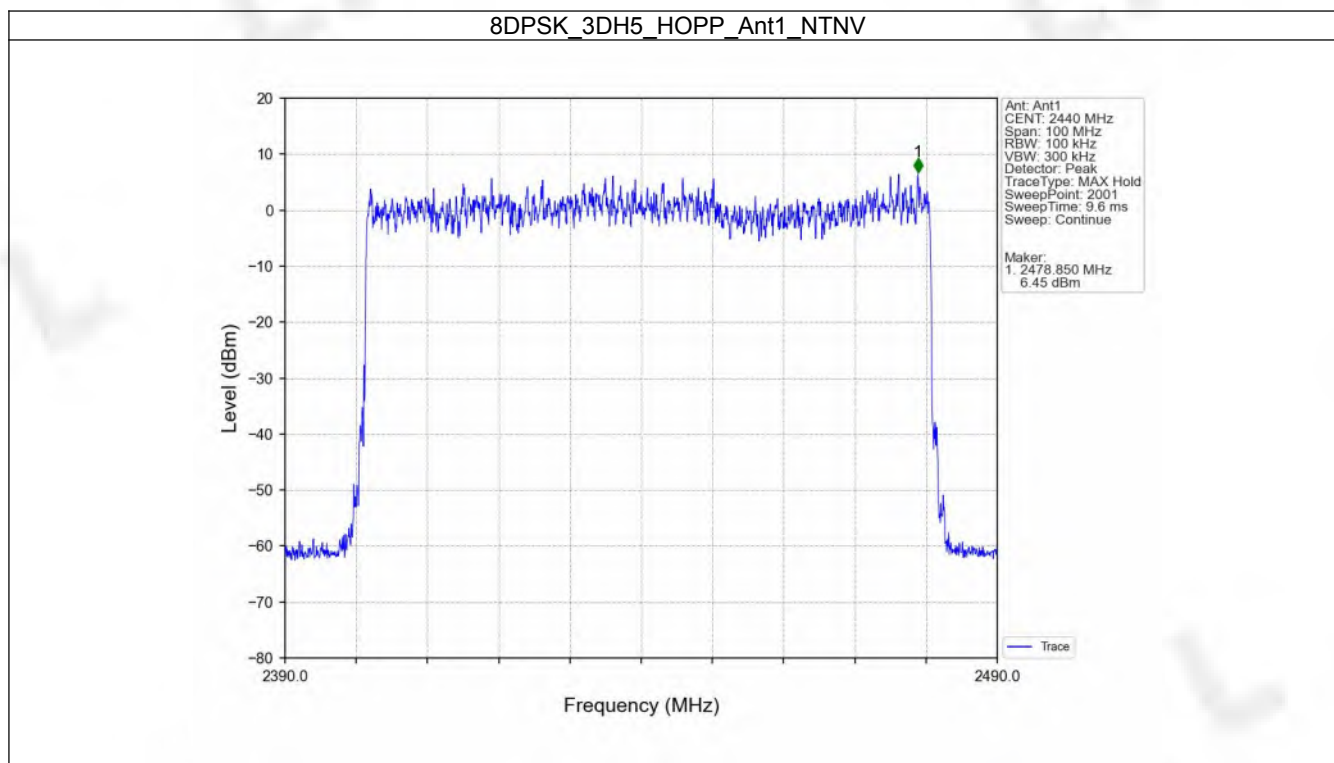
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8DPSK_3DH5_HOPP_Ant1_NTNV

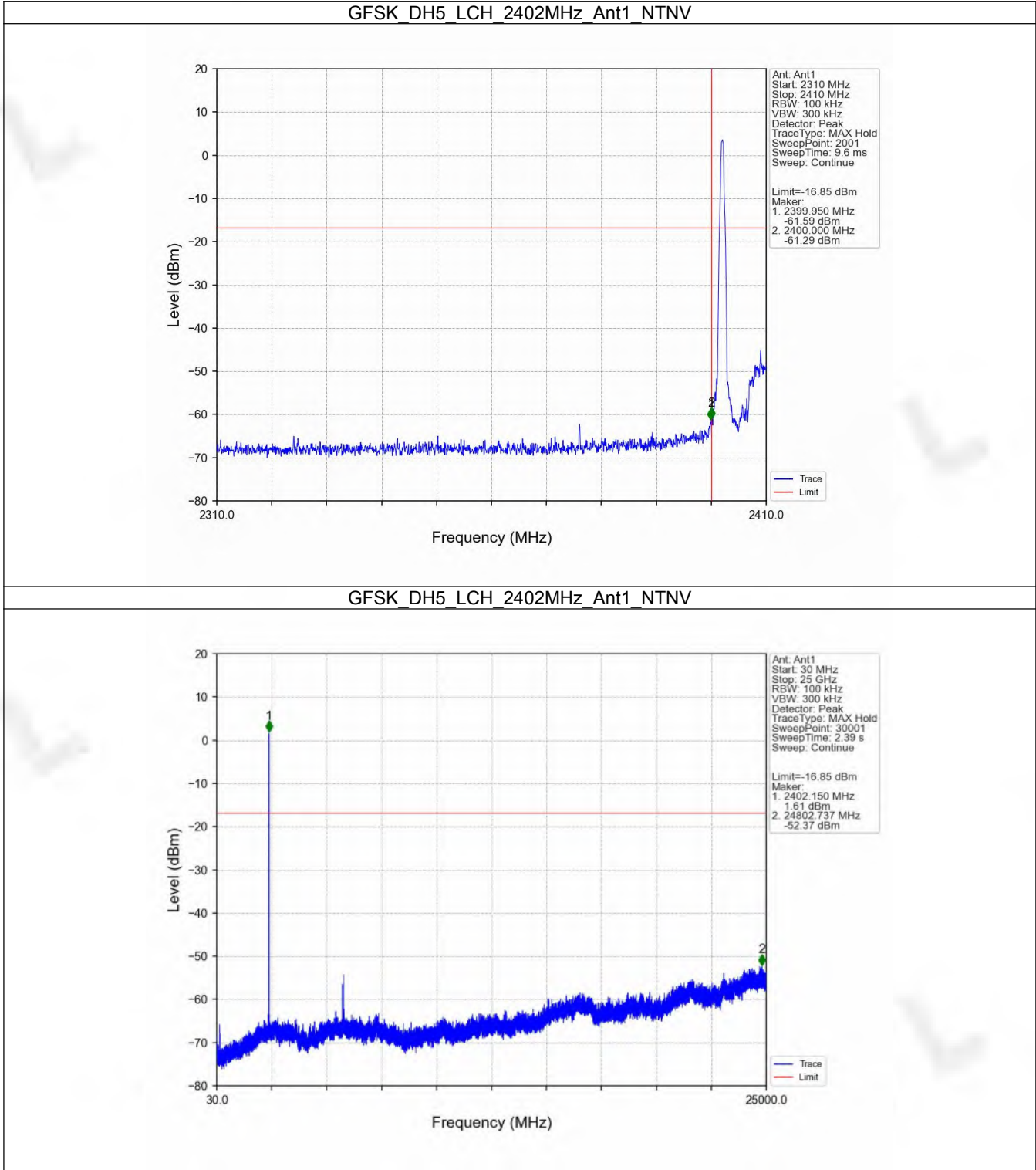


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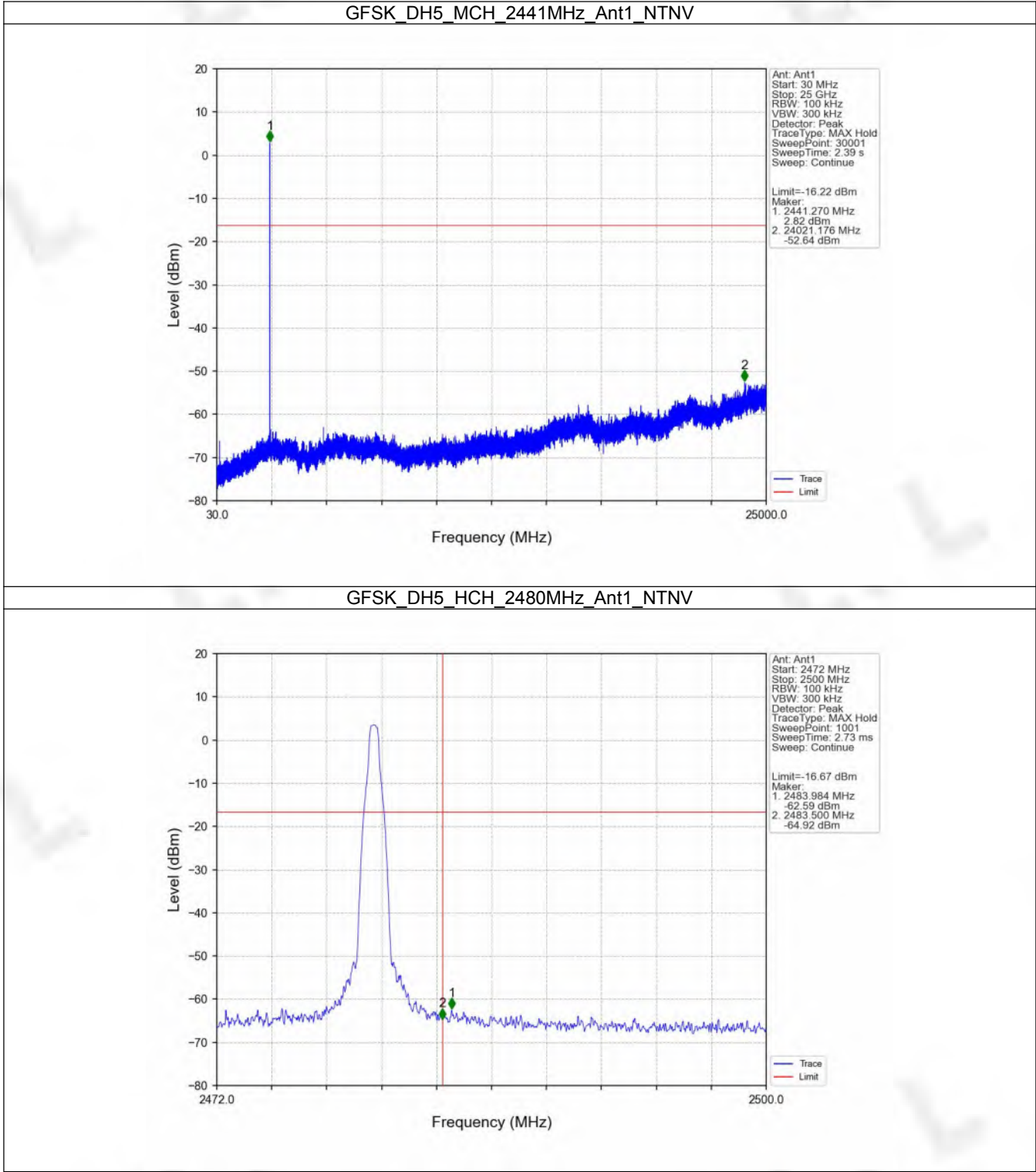


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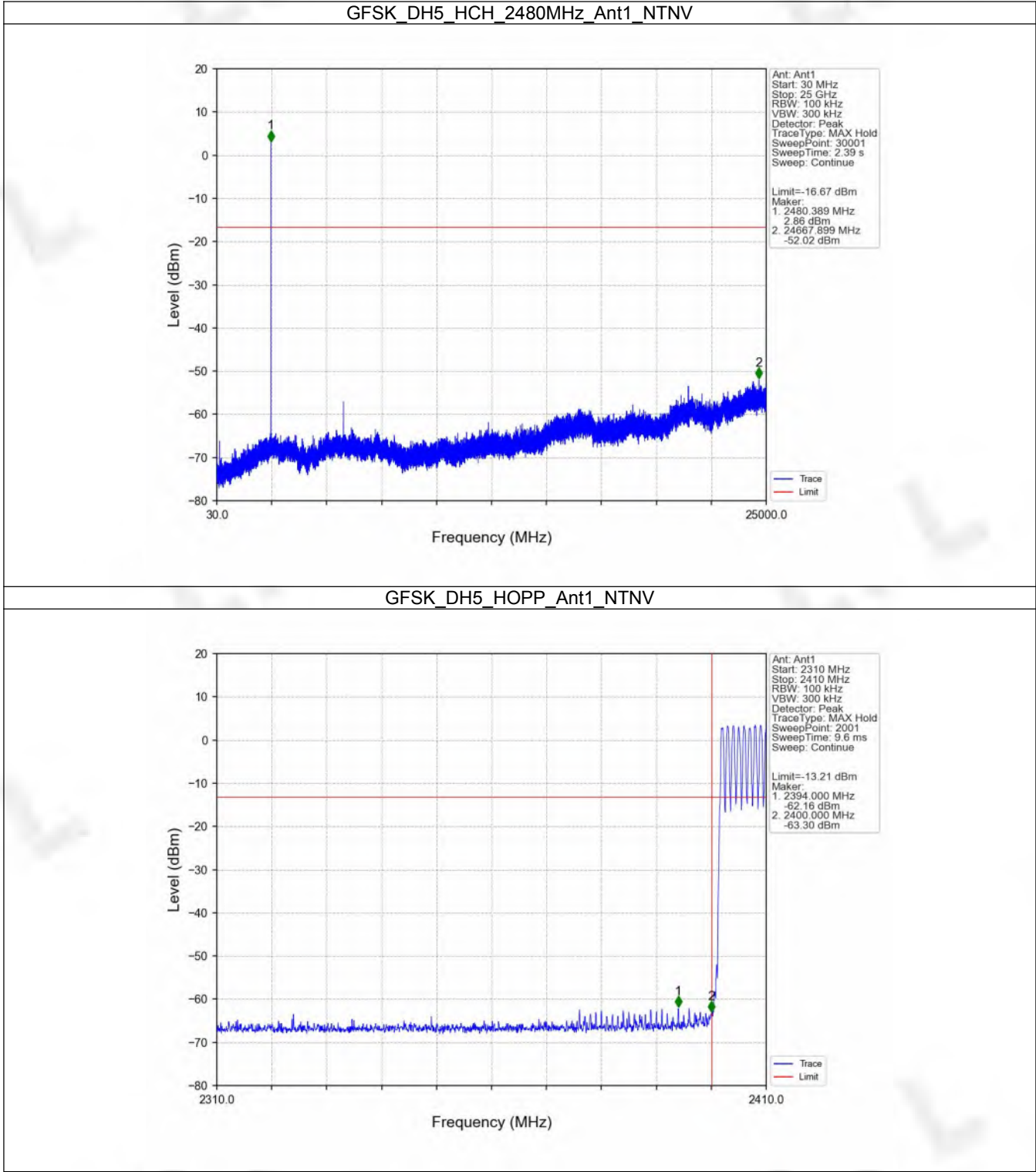
6.2.2 CSE



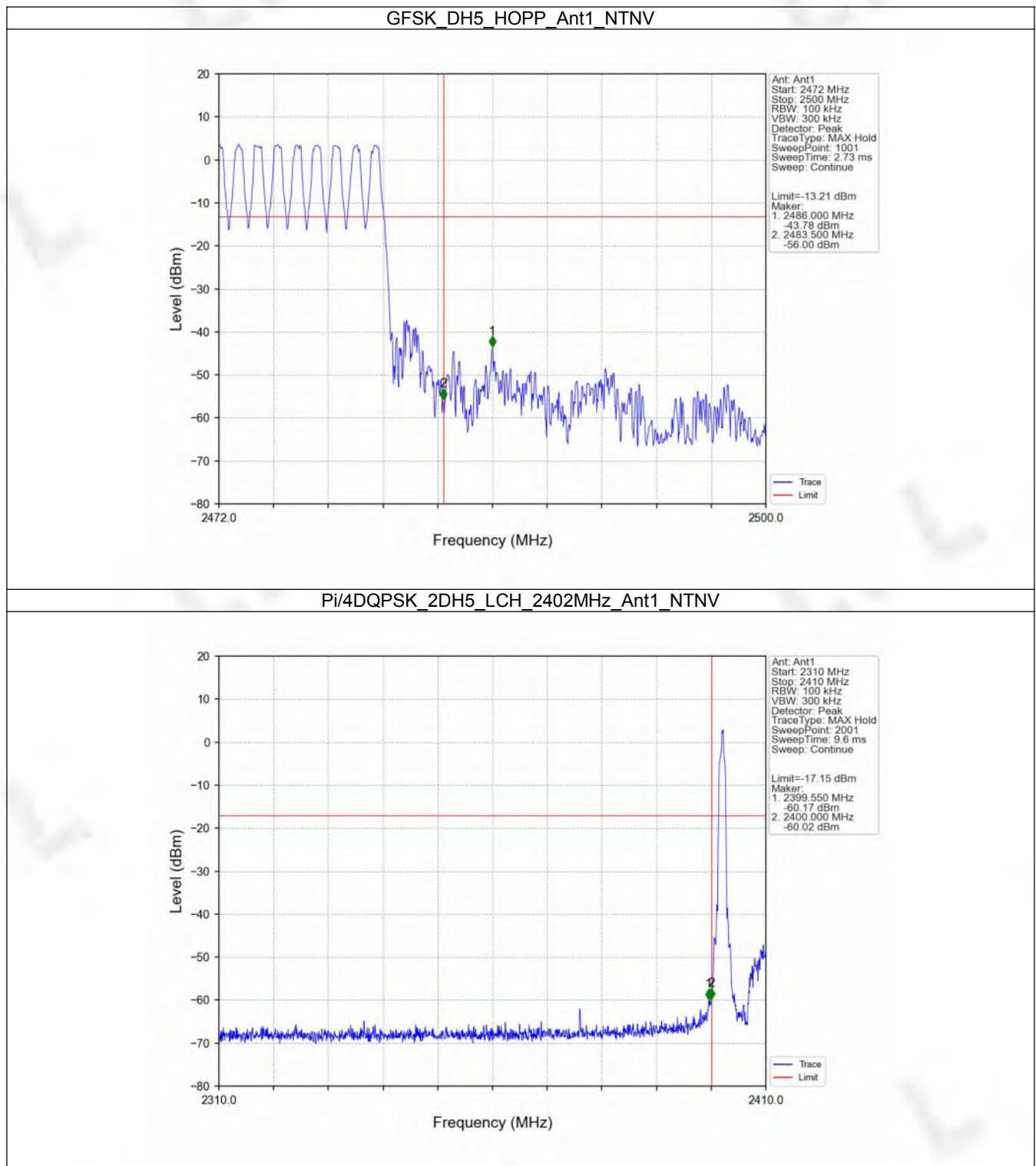
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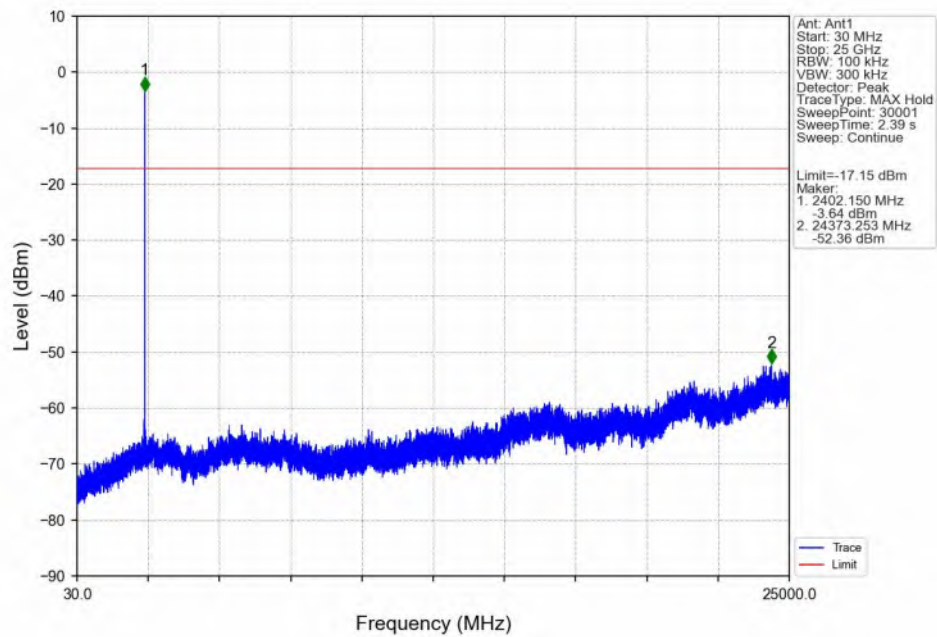


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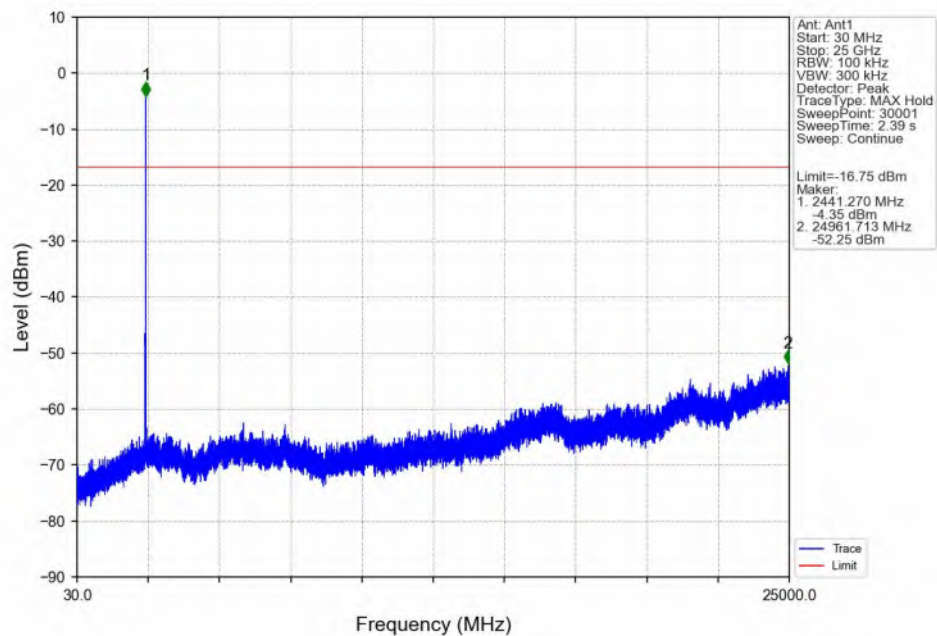


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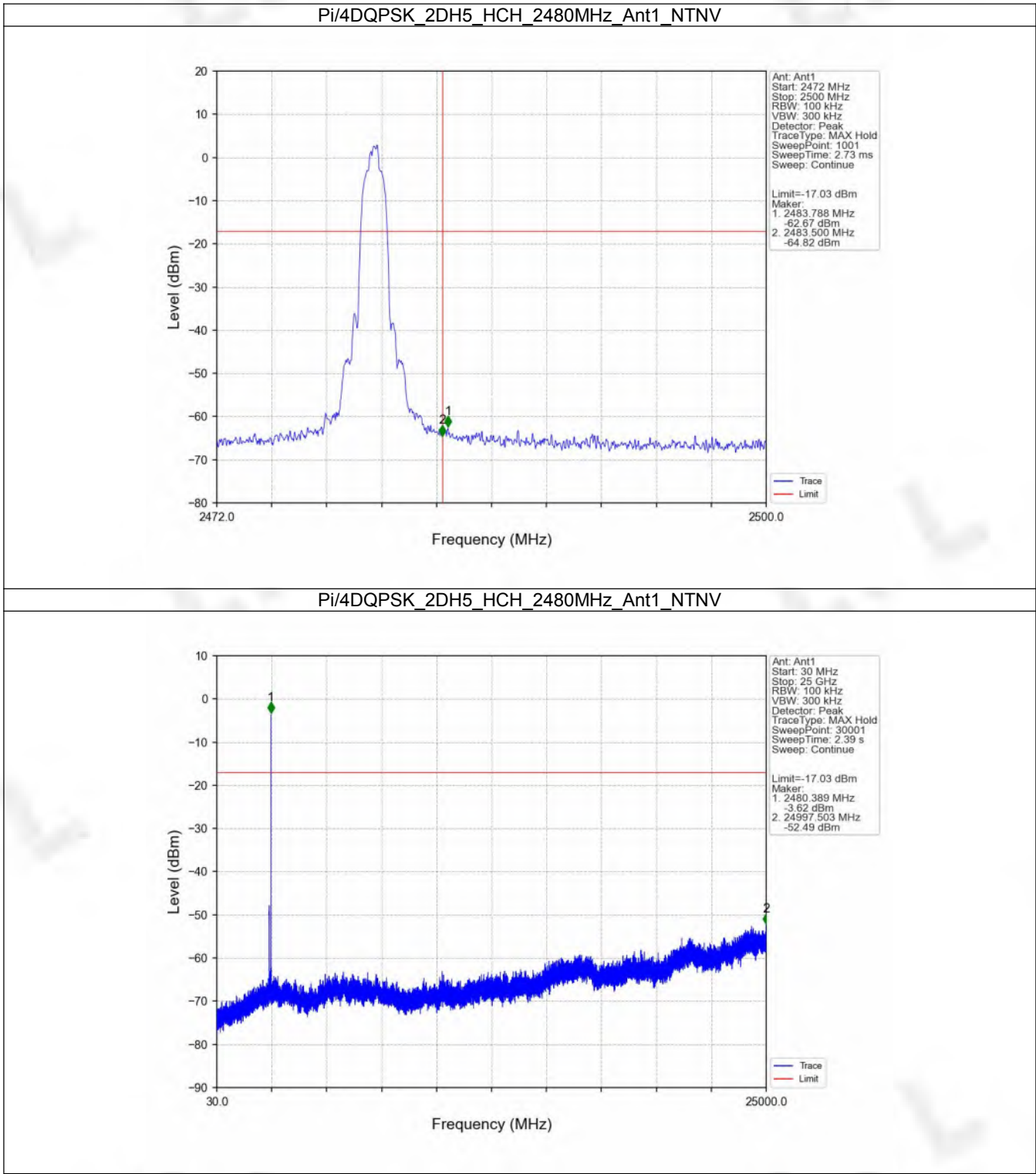
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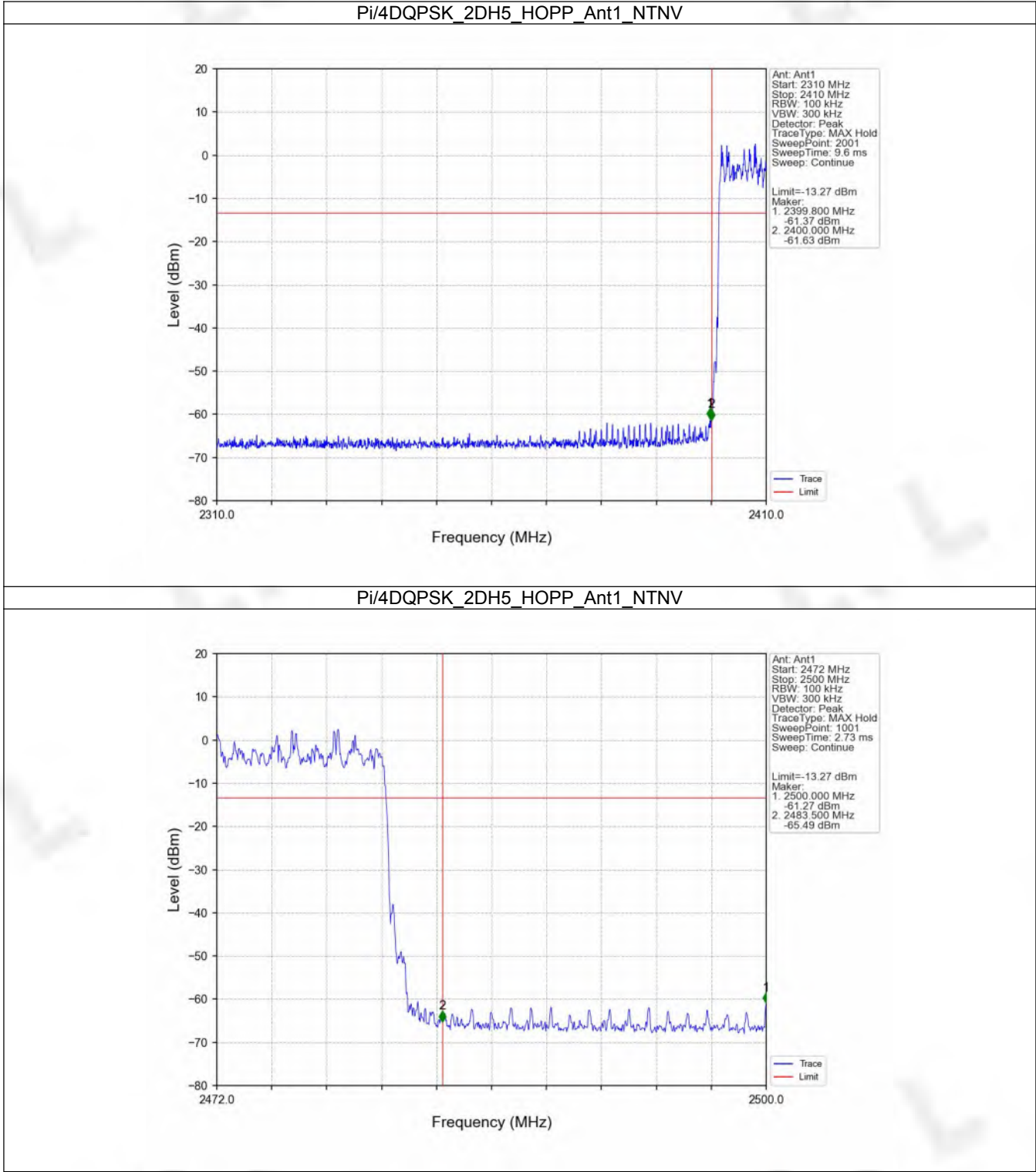
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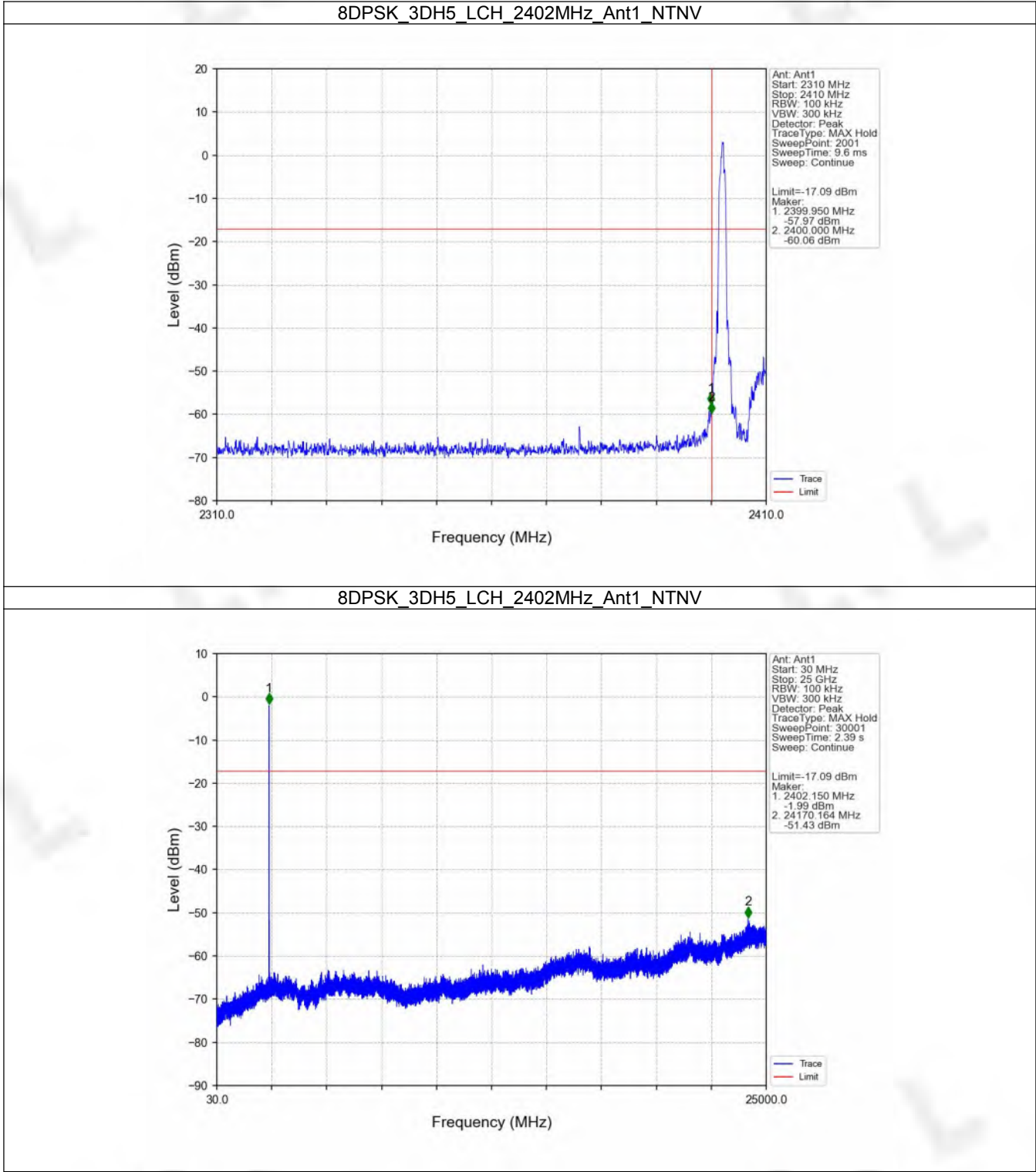
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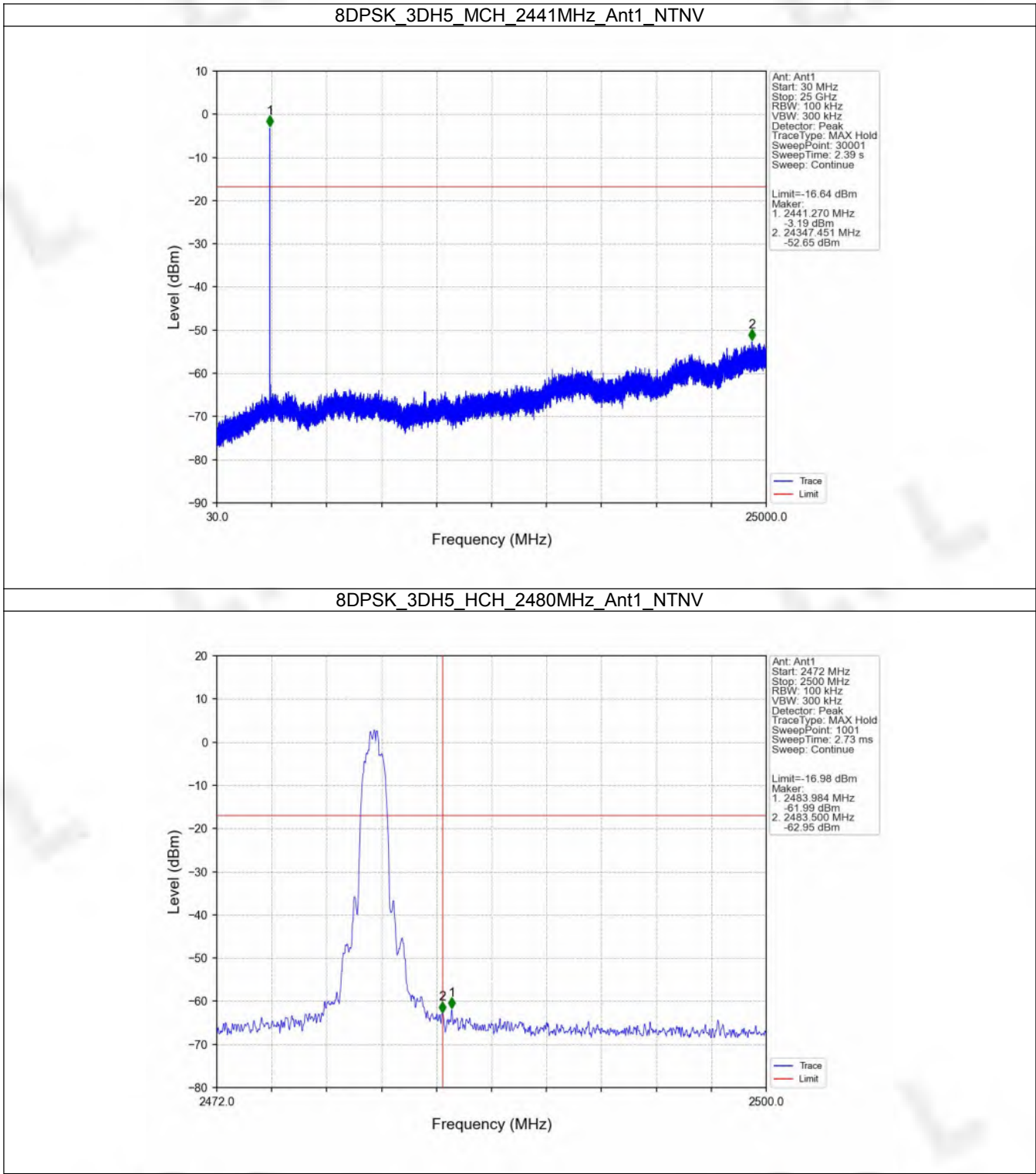
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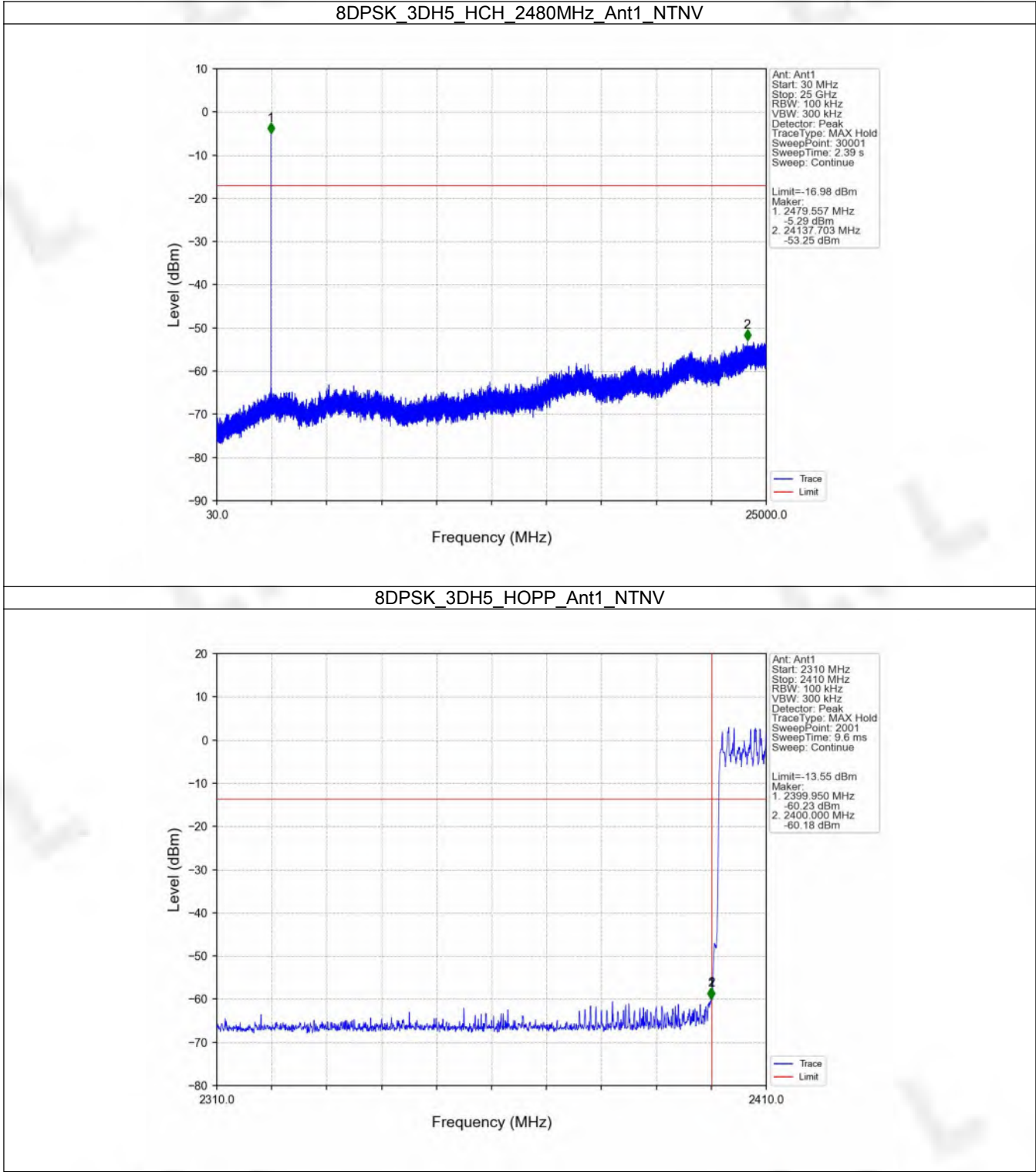
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