



Annex for BT

Test Report No.: CTL2409269021-WF01

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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	0.859	/	Pass
		2441	DH5	1	0.859	/	Pass
		2480	DH5	1	0.863	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.144	/	Pass
		2441	2DH5	1	1.144	/	Pass
		2480	2DH5	1	1.145	/	Pass
8DPSK	SISO	2402	3DH5	1	1.150	/	Pass
		2441	3DH5	1	1.150	/	Pass
		2480	3DH5	1	1.149	/	Pass

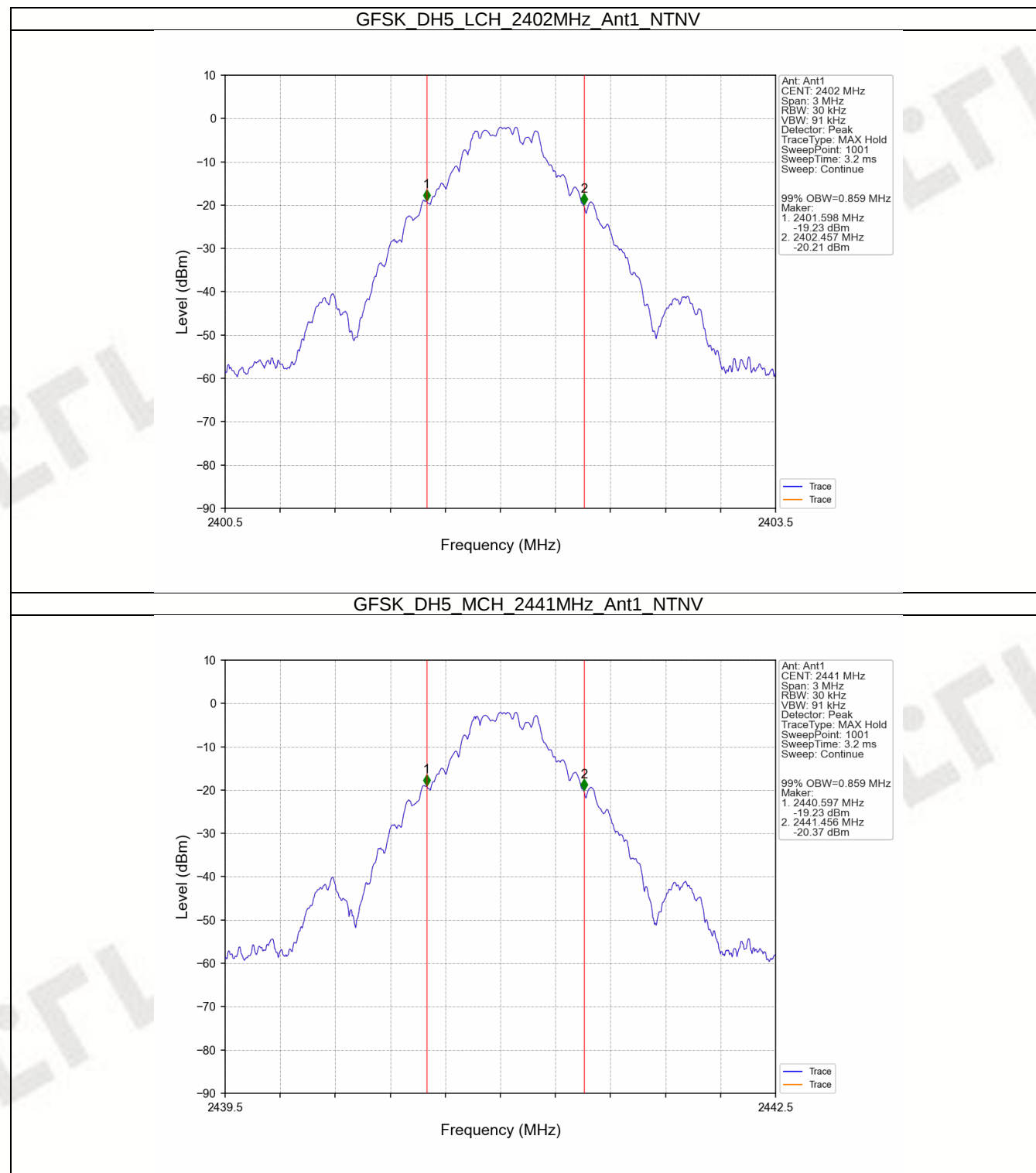
1.1.2 20dB BW

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.965	/	Pass
		2441	DH5	1	0.964	/	Pass
		2480	DH5	1	0.964	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.278	/	Pass
		2441	2DH5	1	1.276	/	Pass
		2480	2DH5	1	1.276	/	Pass
8DPSK	SISO	2402	3DH5	1	1.295	/	Pass
		2441	3DH5	1	1.292	/	Pass
		2480	3DH5	1	1.292	/	Pass

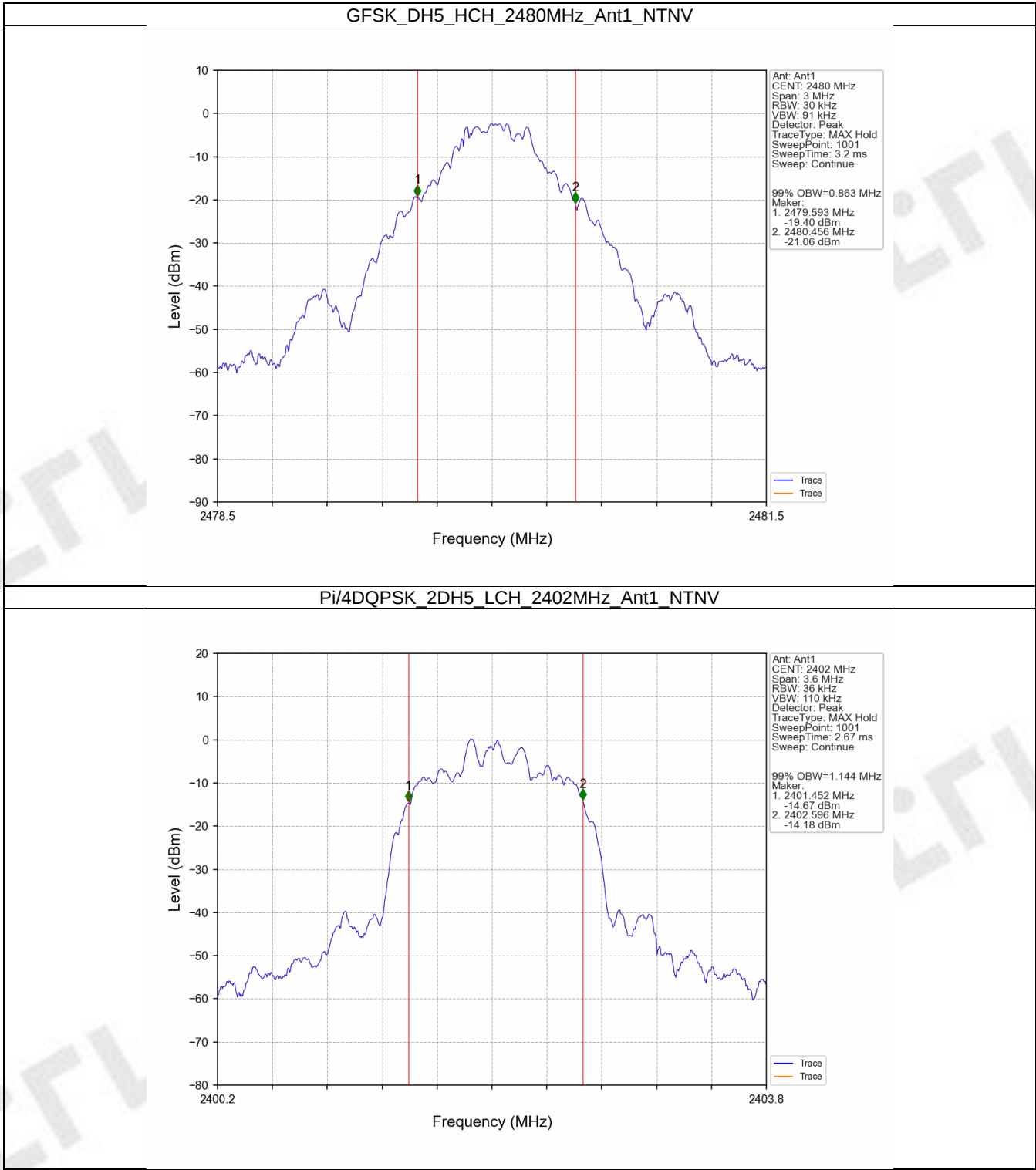
FCCID: SMQ-UWM3

1.2 Test Graph

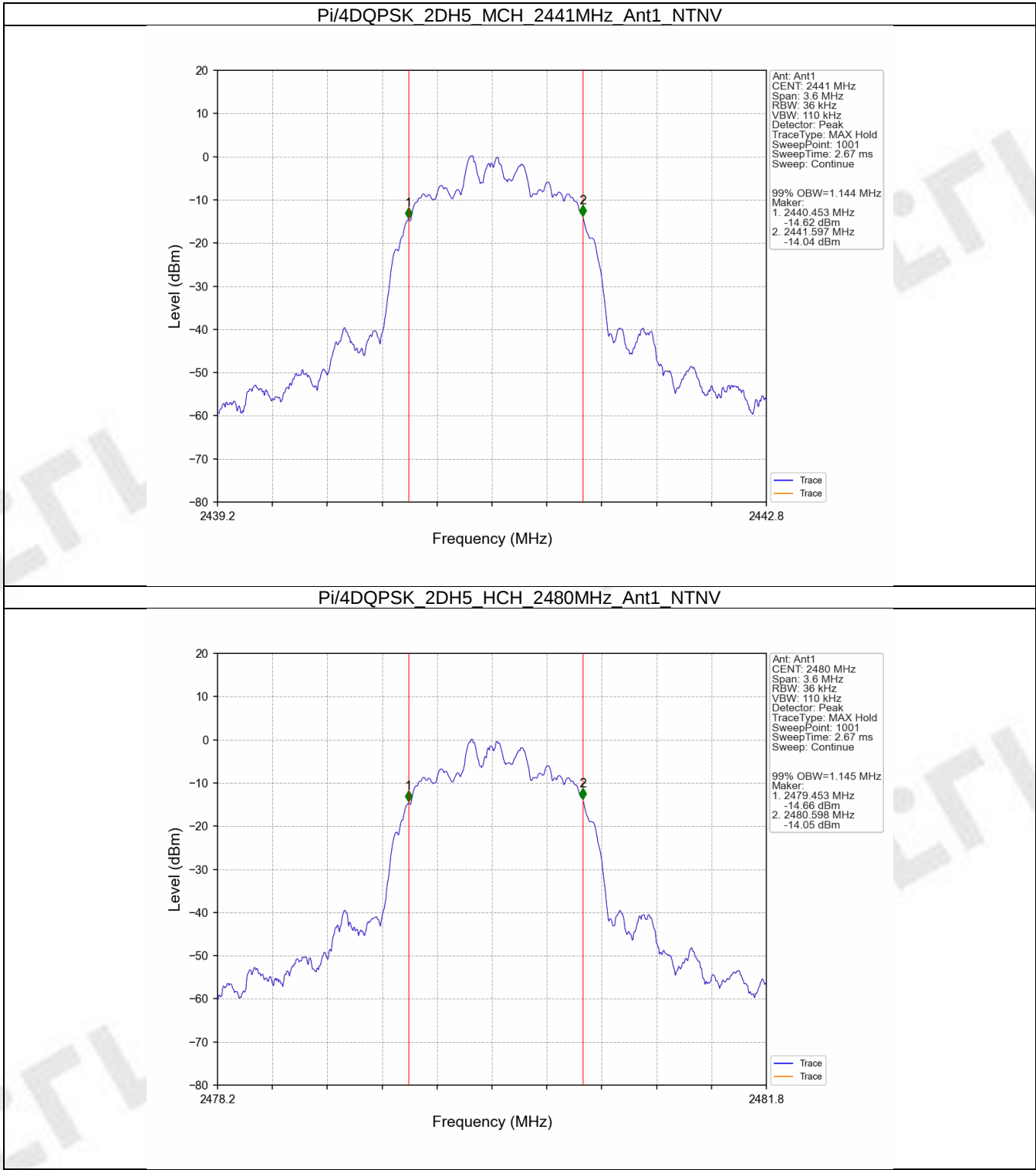
1.2.1 OBW



FCCID: SMQ-UWM3

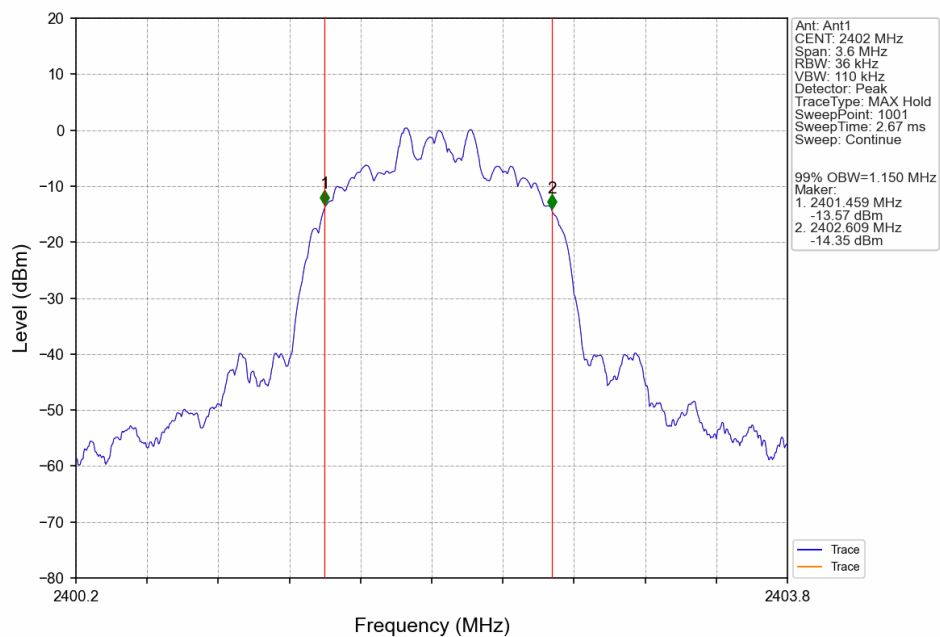


FCCID: SMQ-UWM3

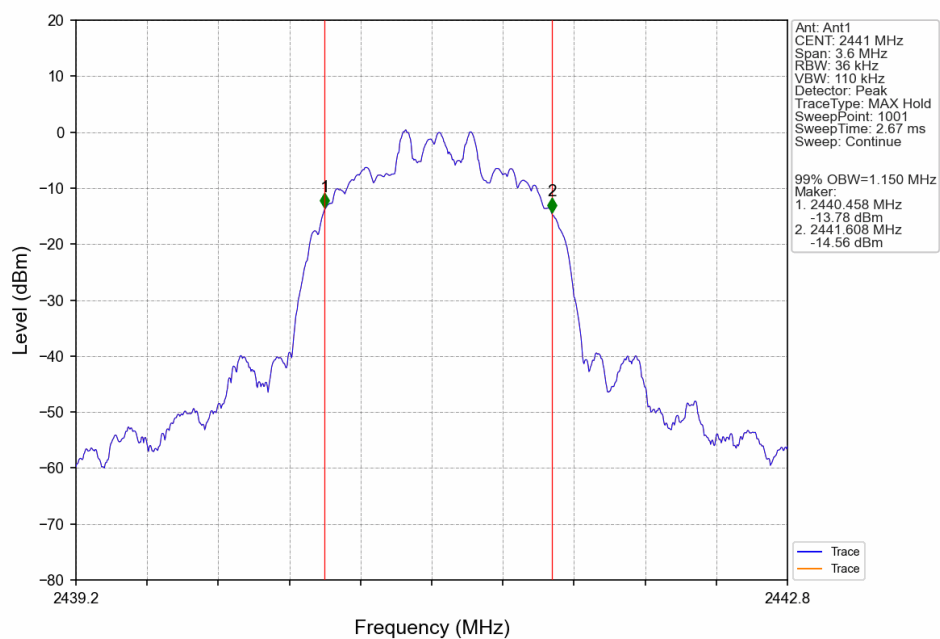


FCCID: SMQ-UWM3

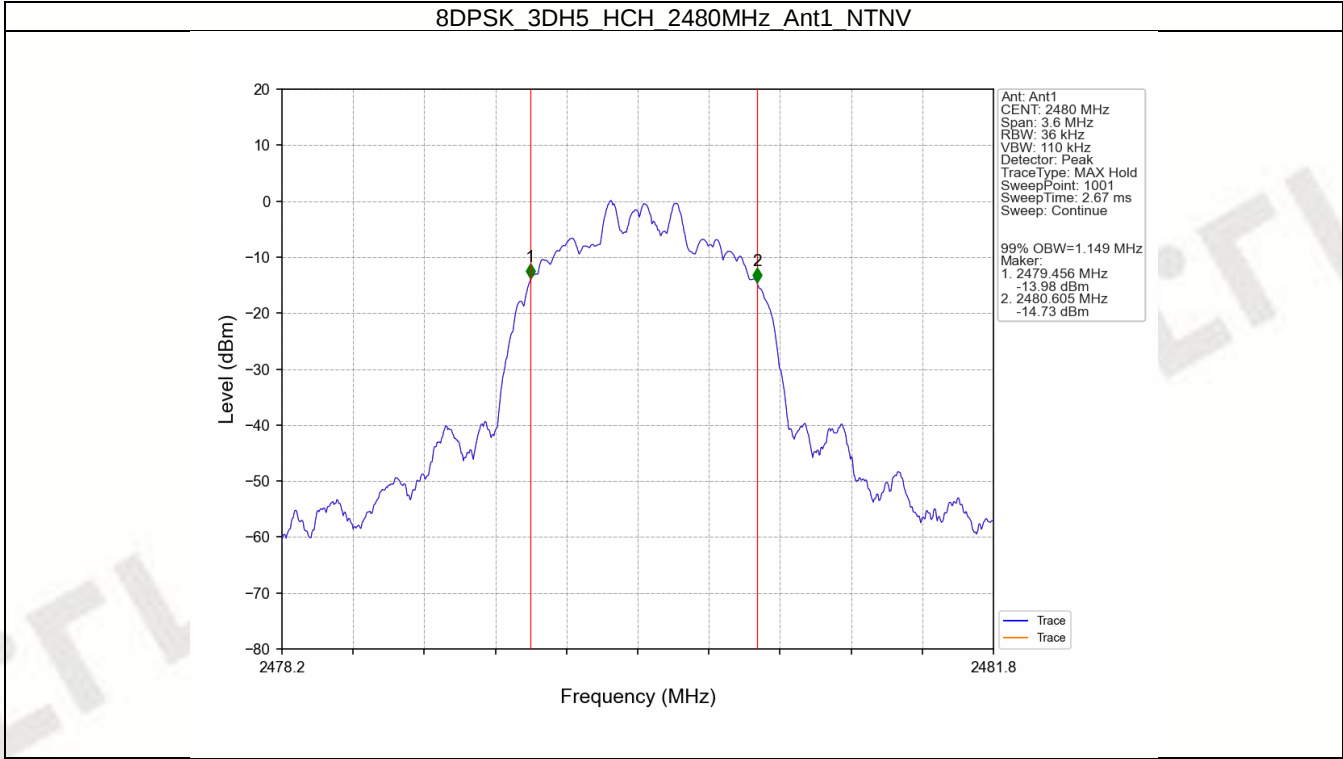
8DPSK 3DH5 LCH 2402MHz Ant1 NTN



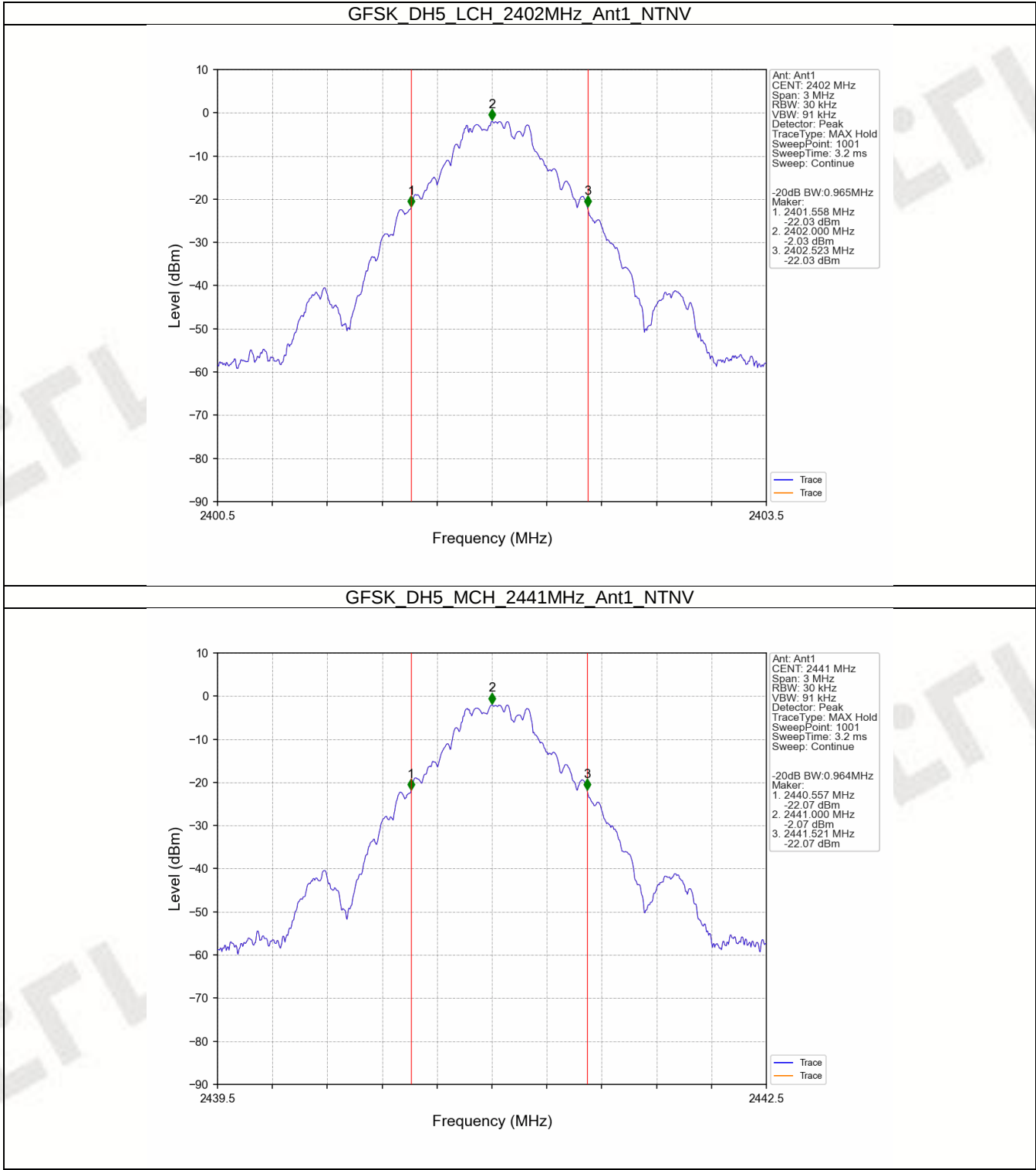
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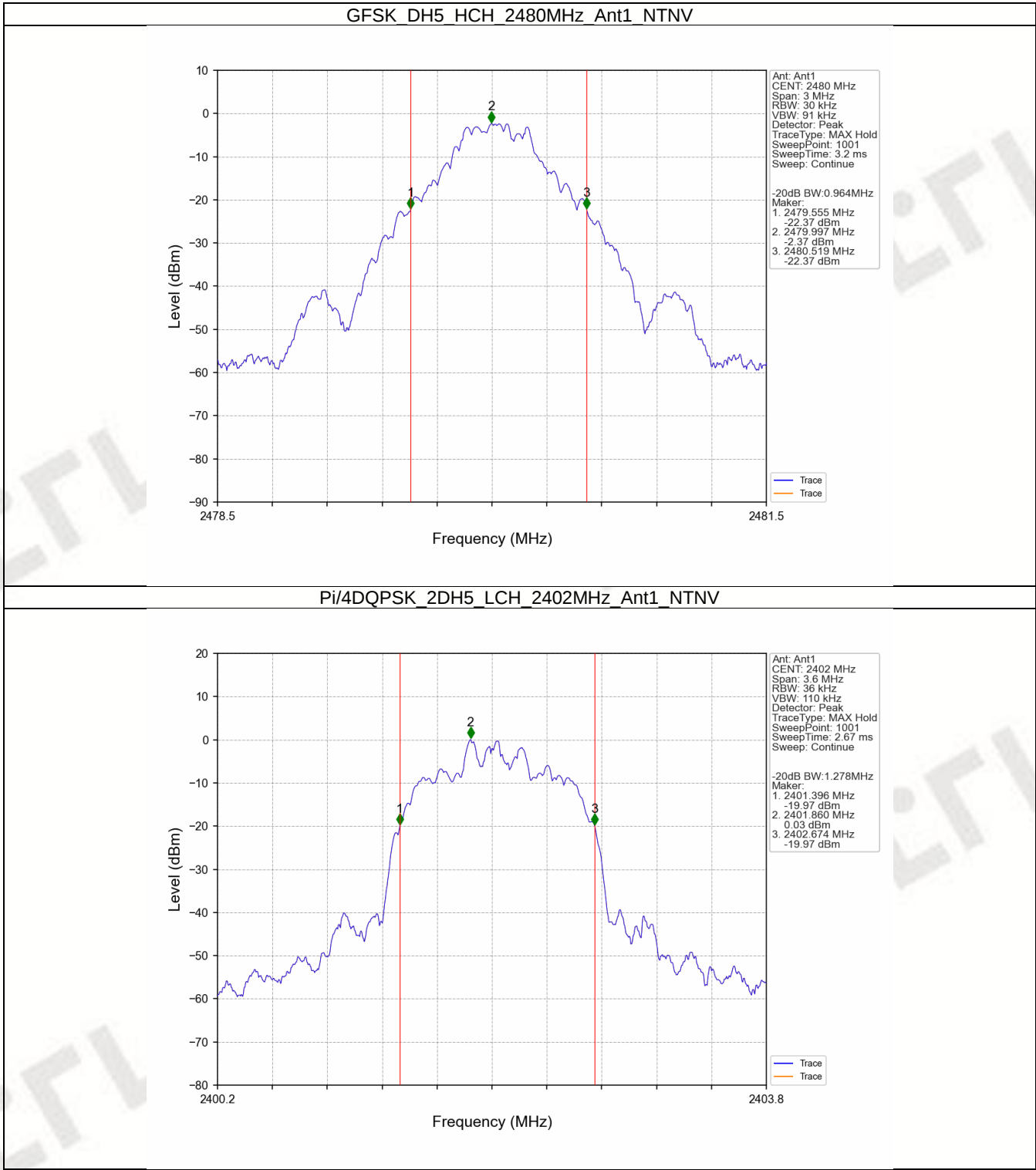
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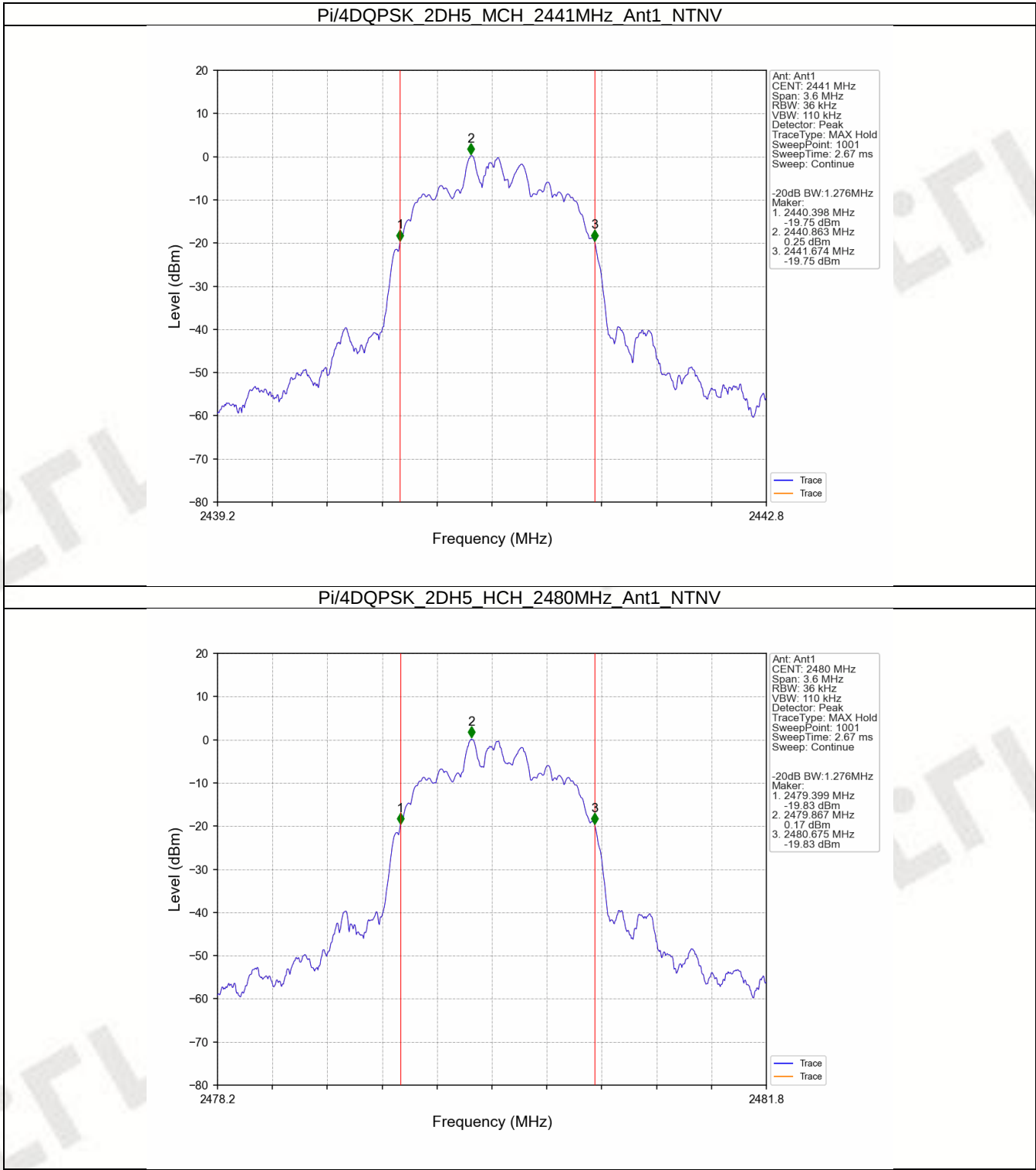
1.2.2 20dB BW



FCCID: SMQ-UWM3

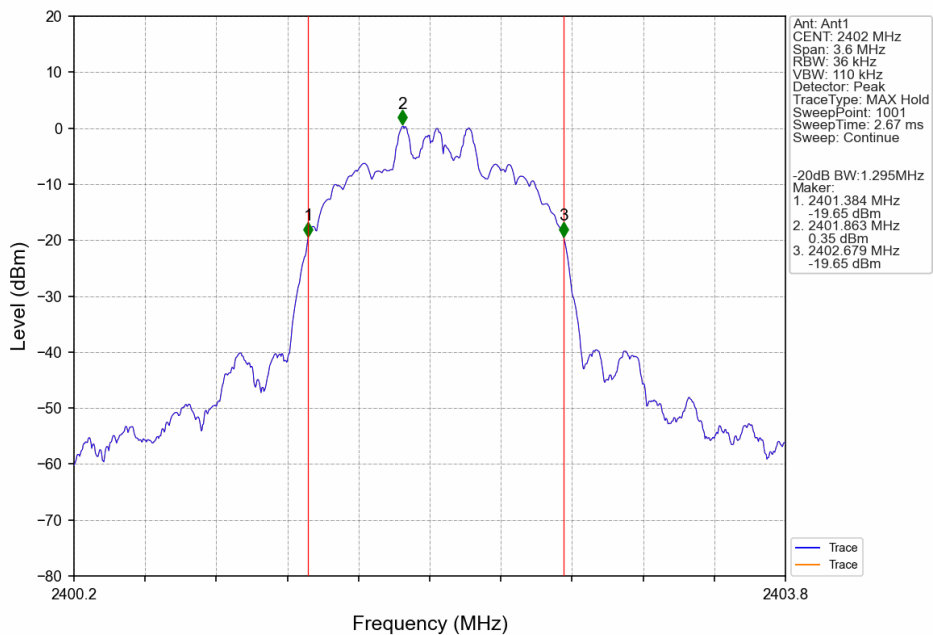


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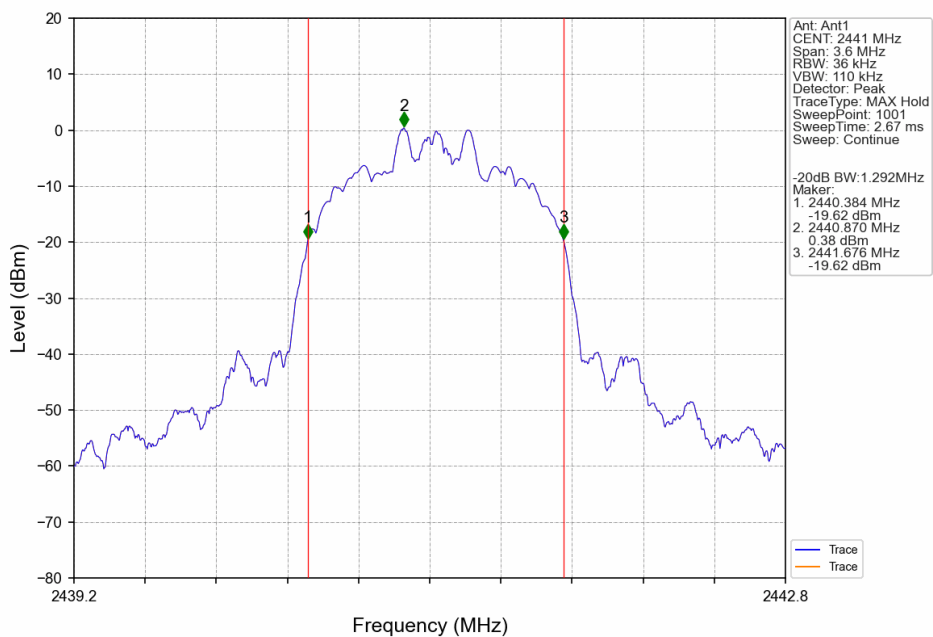


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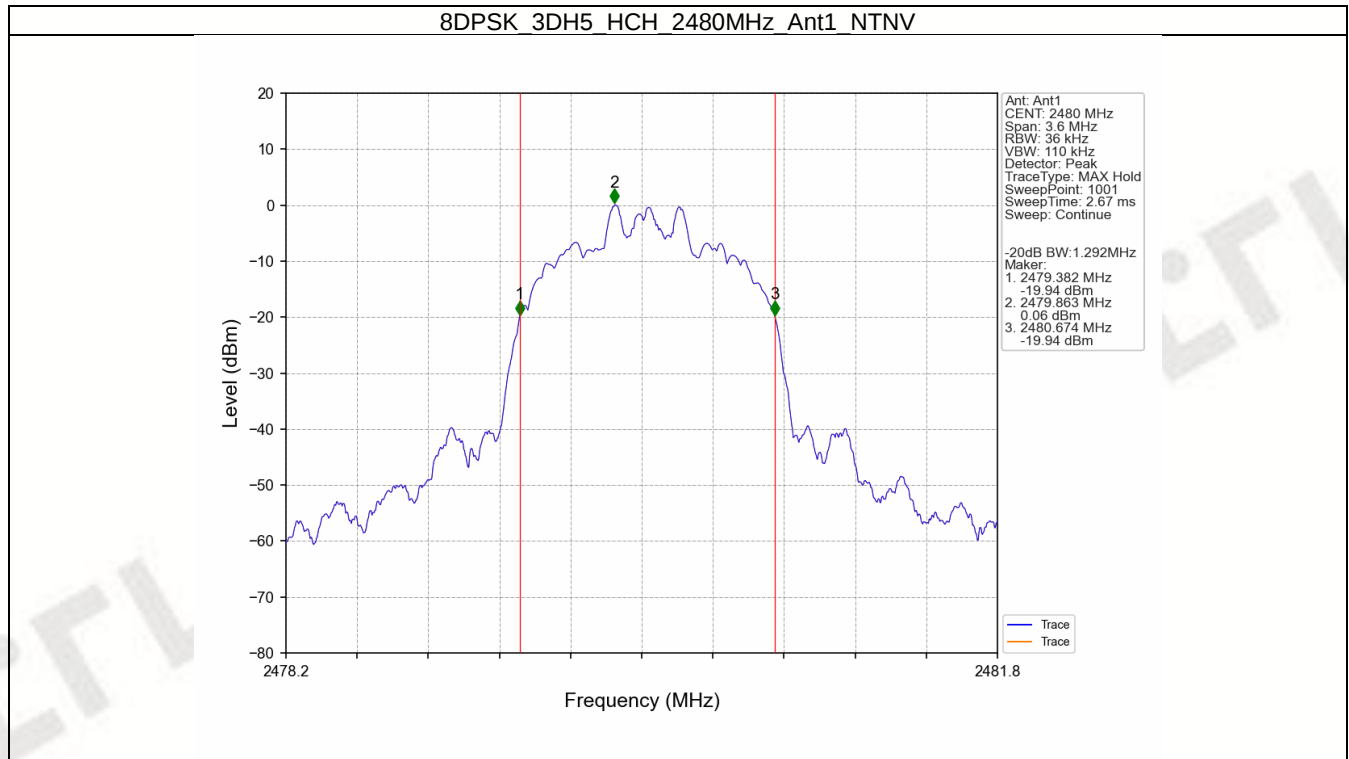
8DPSK 3DH5 LCH 2402MHz Ant1 NTN



8DPSK 3DH5_MCH_2441MHz_Ant1_NTN



FCCID: SMQ-UWM3



2. Maximum Conducted Output Power

2.1 Test Result

2.1.1 Power

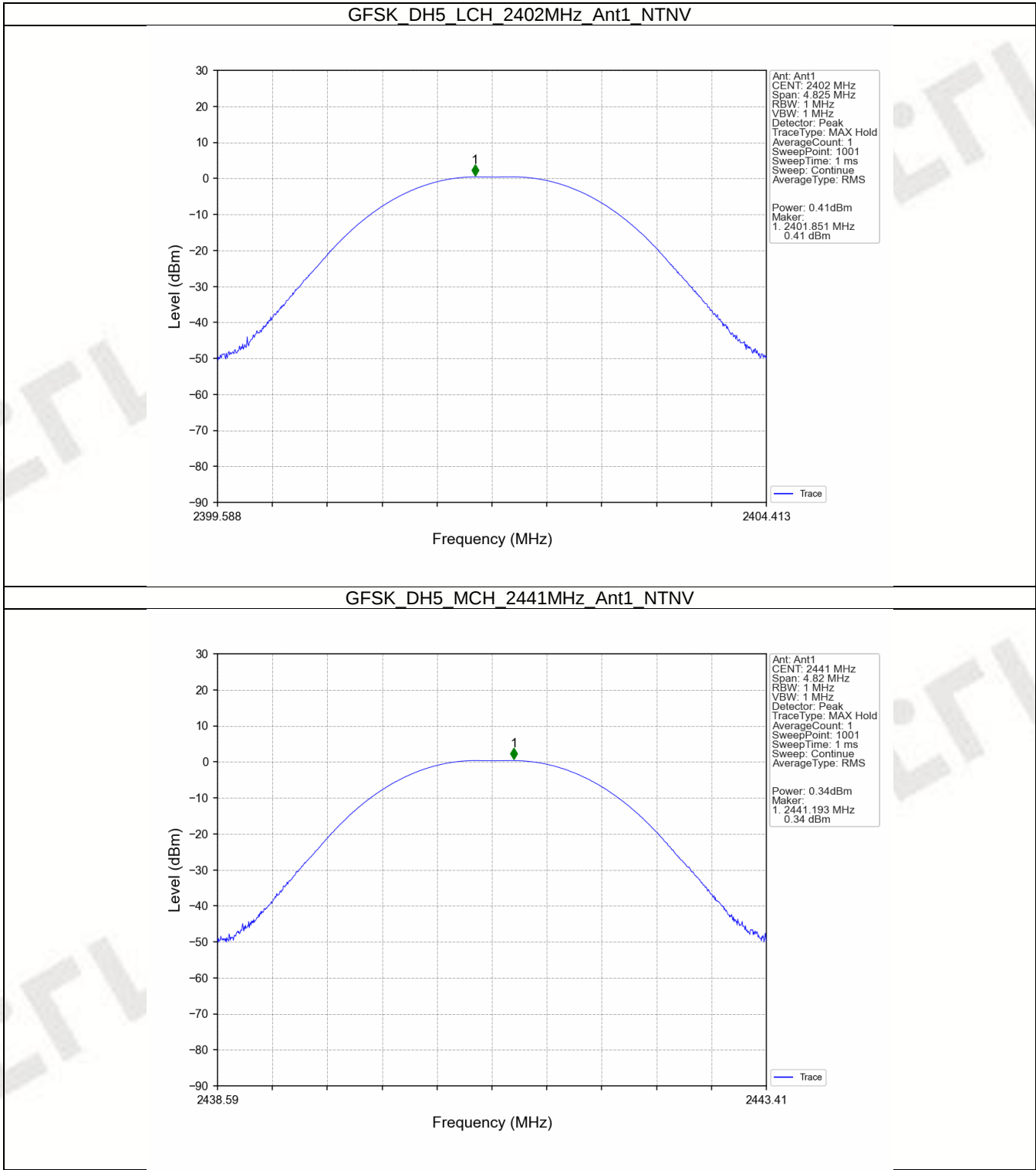
Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	0.41	≤ 30	Pass
		2441	DH5	0.34	≤ 30	Pass
		2480	DH5	0.02	≤ 30	Pass
Pi/4DQPSK	SISO	2402	2DH5	0.28	≤ 20.97	Pass
		2441	2DH5	0.27	≤ 20.97	Pass
		2480	2DH5	-0.09	≤ 20.97	Pass
8DPSK	SISO	2402	3DH5	0.20	≤ 20.97	Pass
		2441	3DH5	0.26	≤ 20.97	Pass
		2480	3DH5	-0.08	≤ 20.97	Pass

Note1: Antenna Gain: Ant1: 4.21dBi;

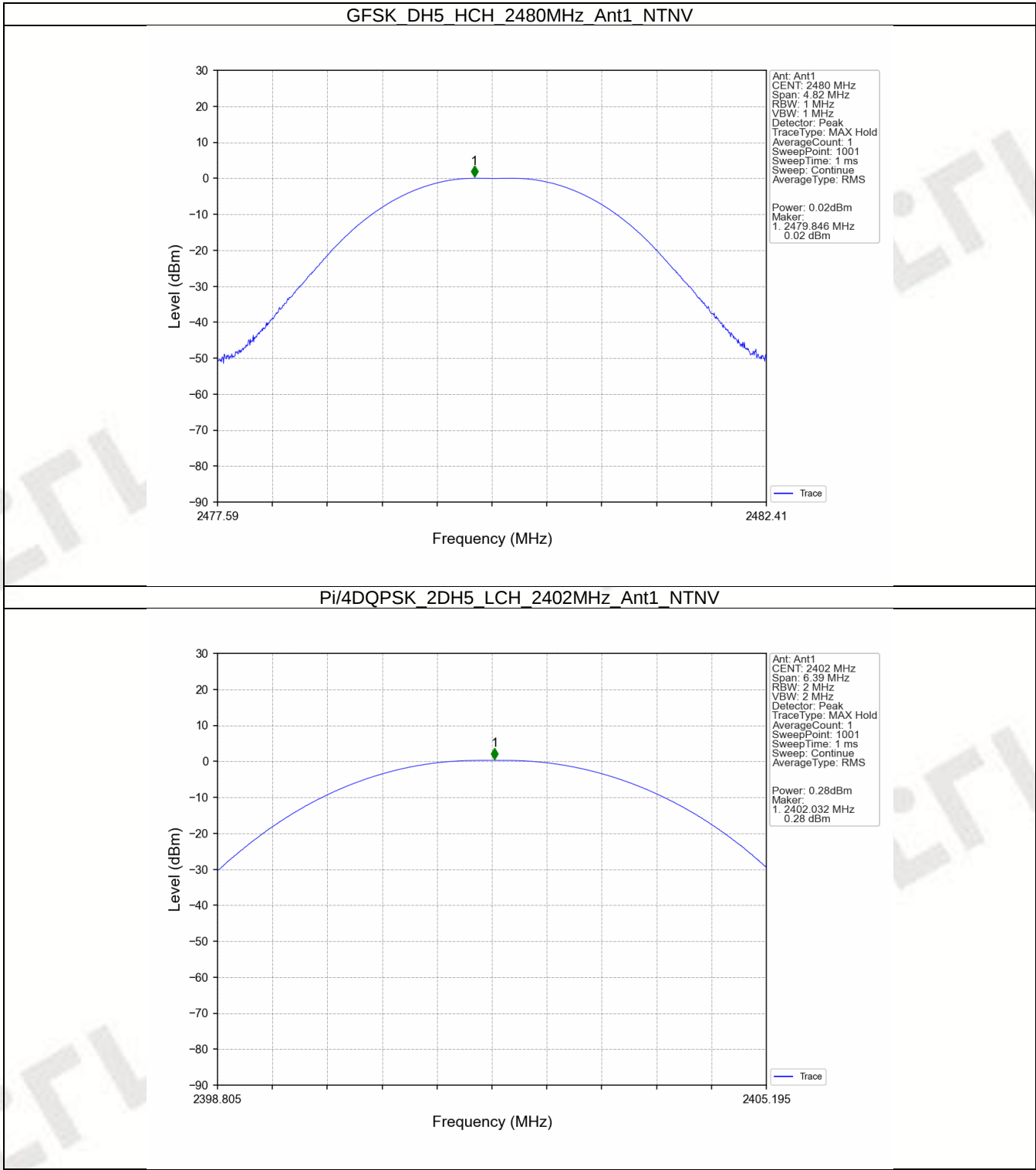
FCCID: SMQ-UWM3

2.2 Test Graph

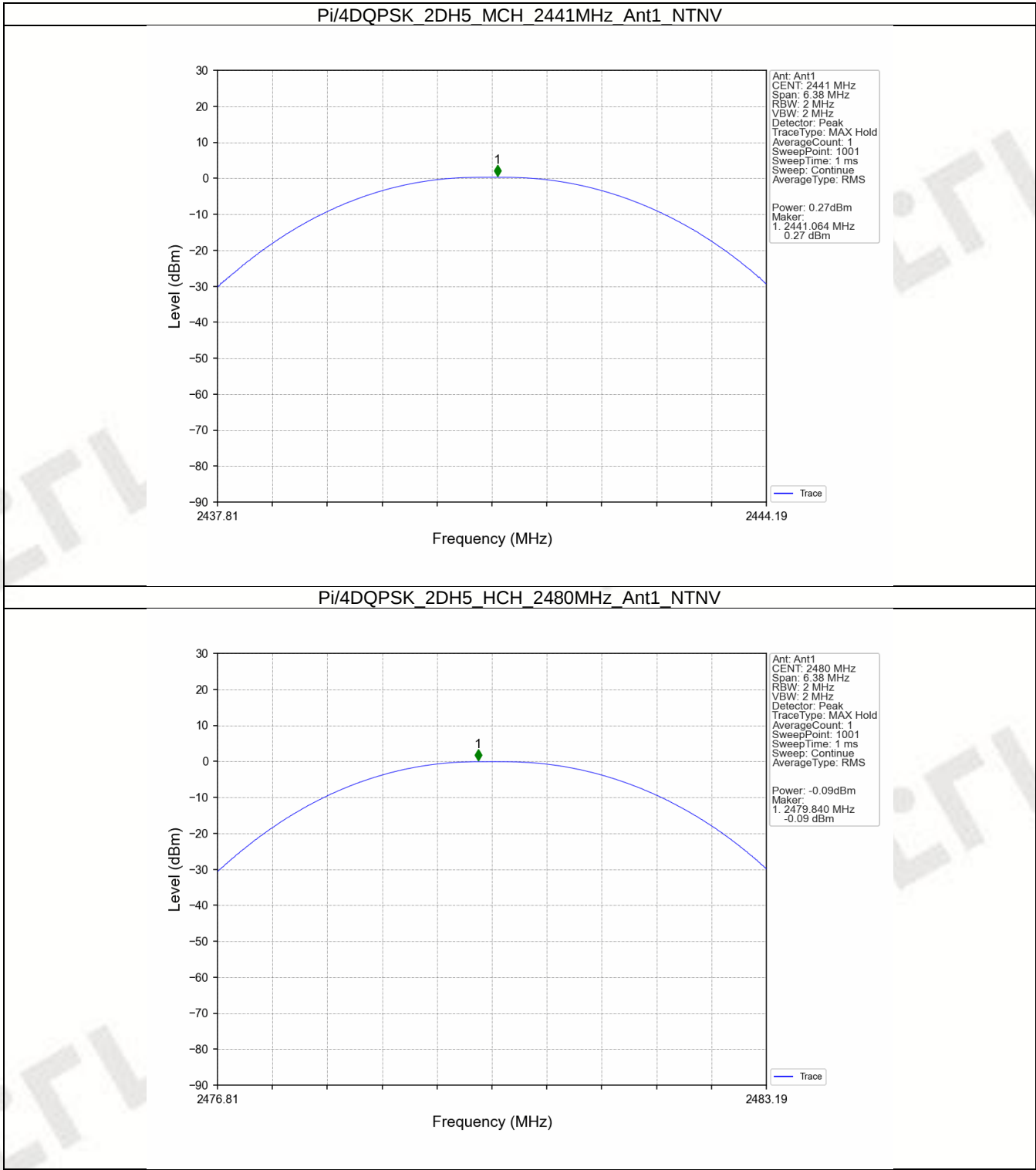
2.2.1 Power



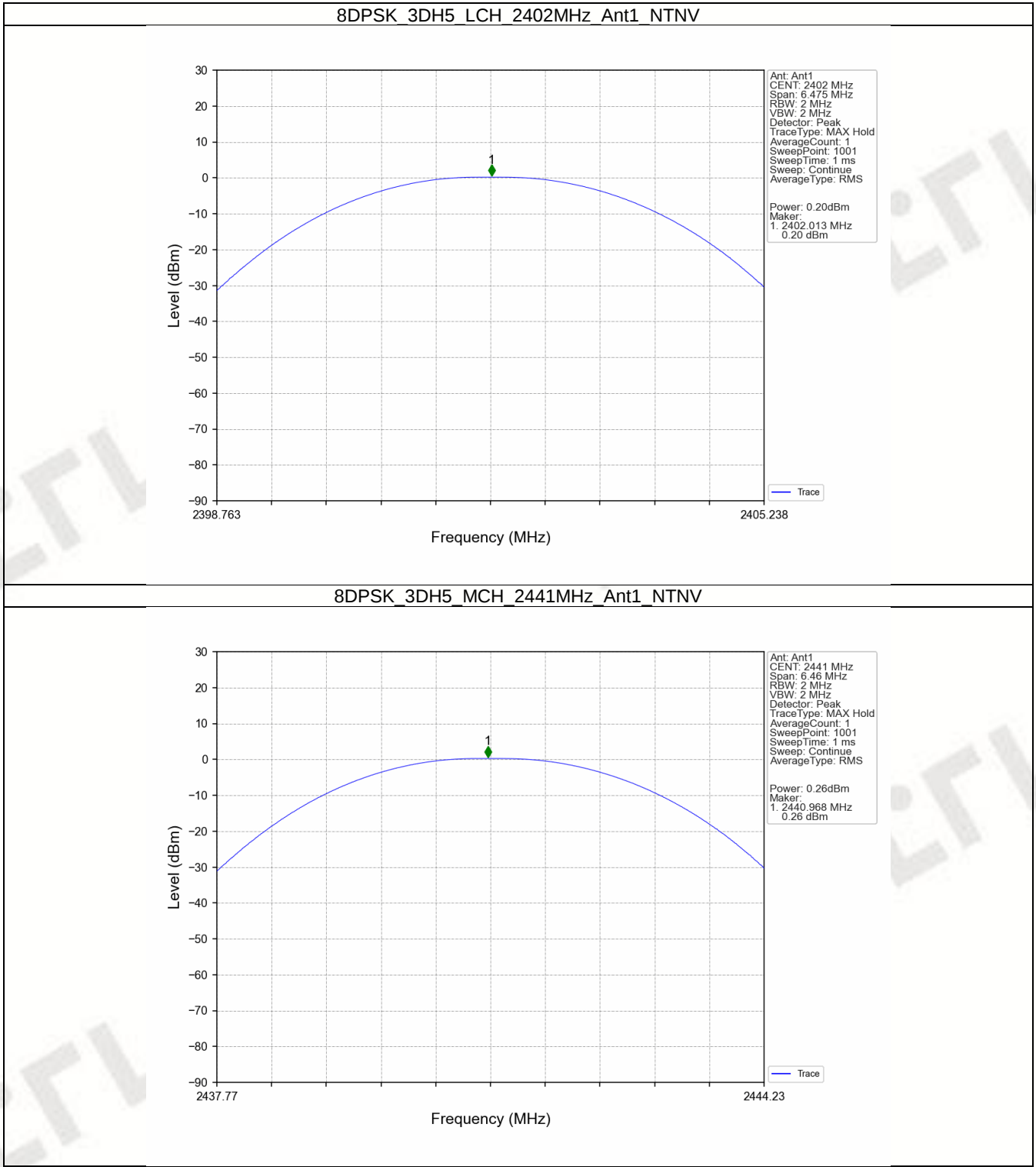
FCCID: SMQ-UWM3



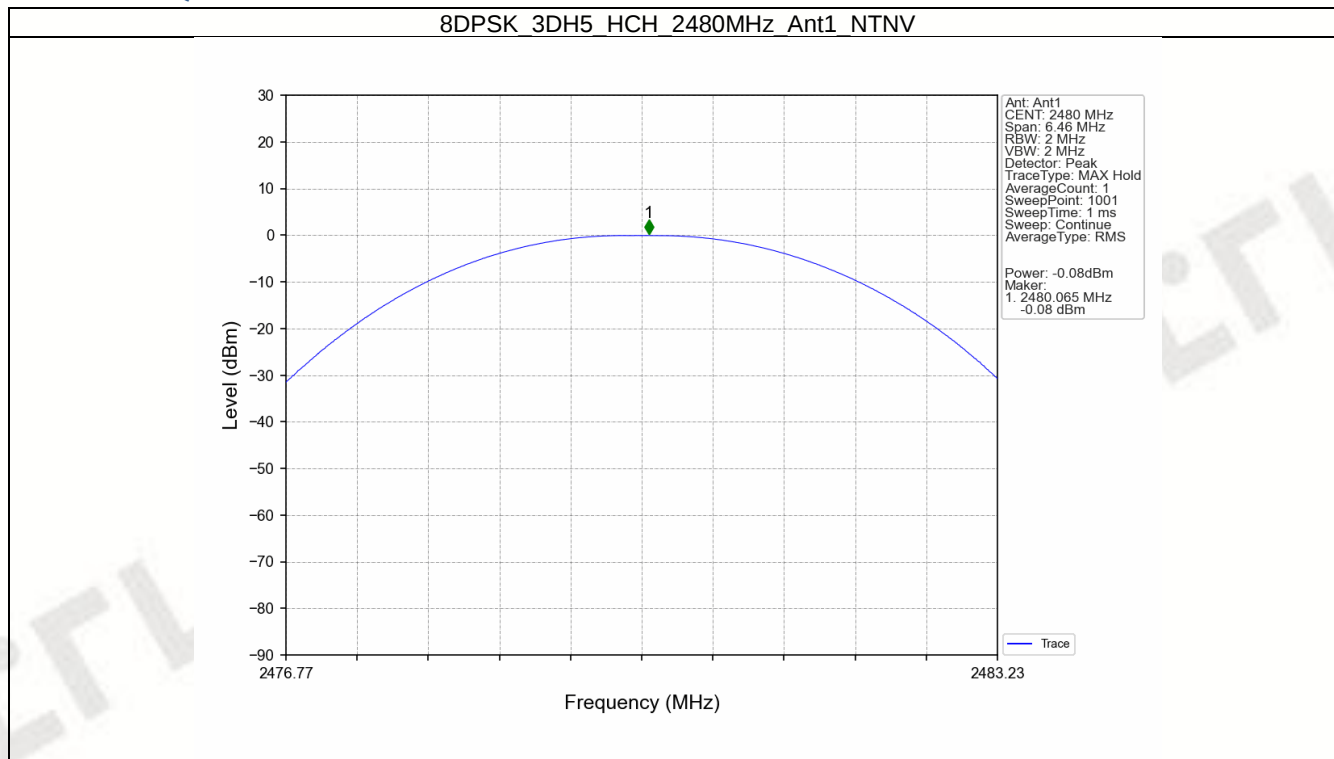
FCCID: SMQ-UWM3



FCCID: SMQ-UWM3



FCCID: SMQ-UWM3



3. Carrier Frequency Separation

3.1 Test Result

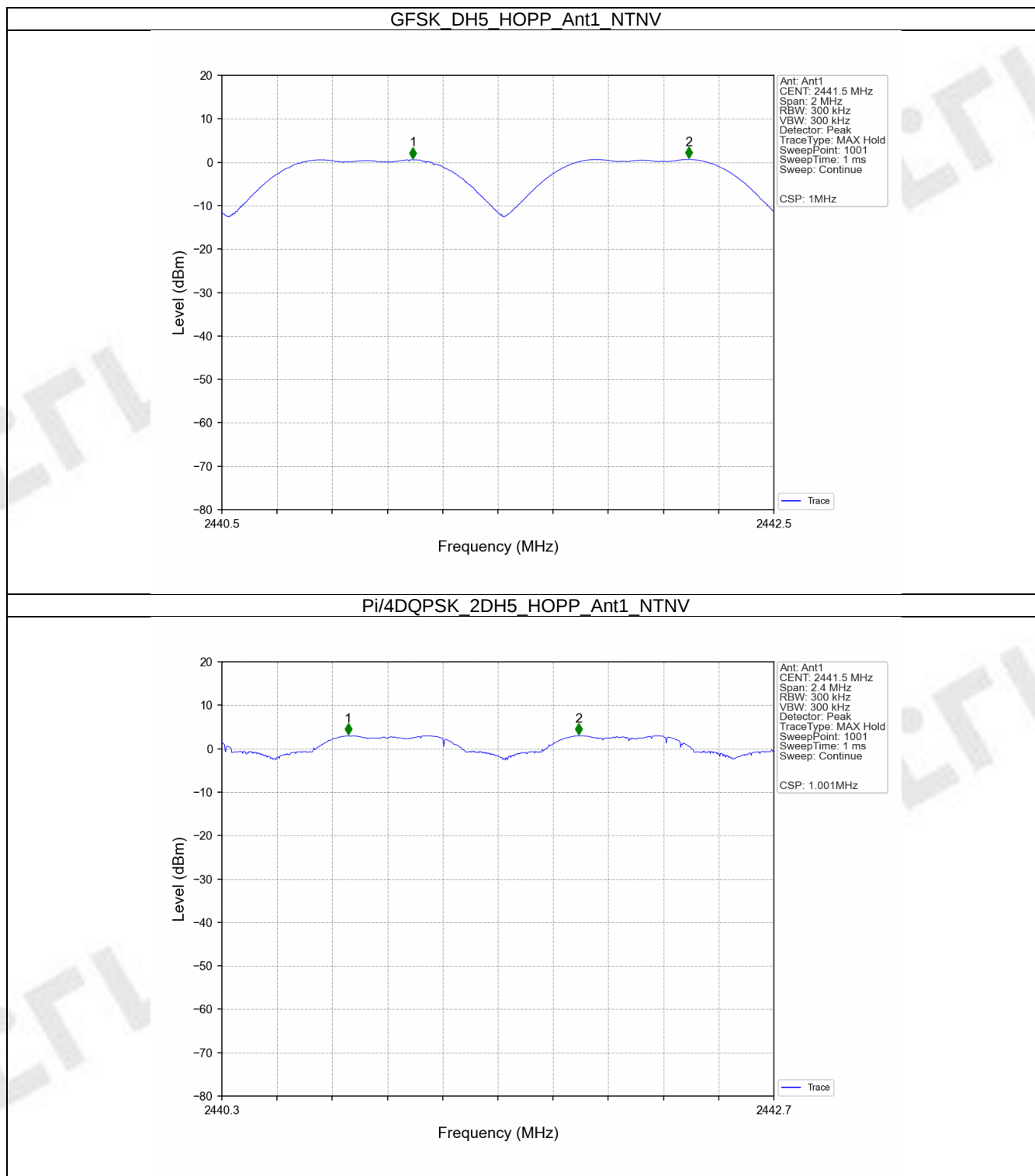
3.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	1.000	0.965	≥ 0.965	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	1.001	1.278	≥ 0.852	Pass
8DPSK	SISO	HOPP	3DH5	0.998	1.295	≥ 0.863	Pass

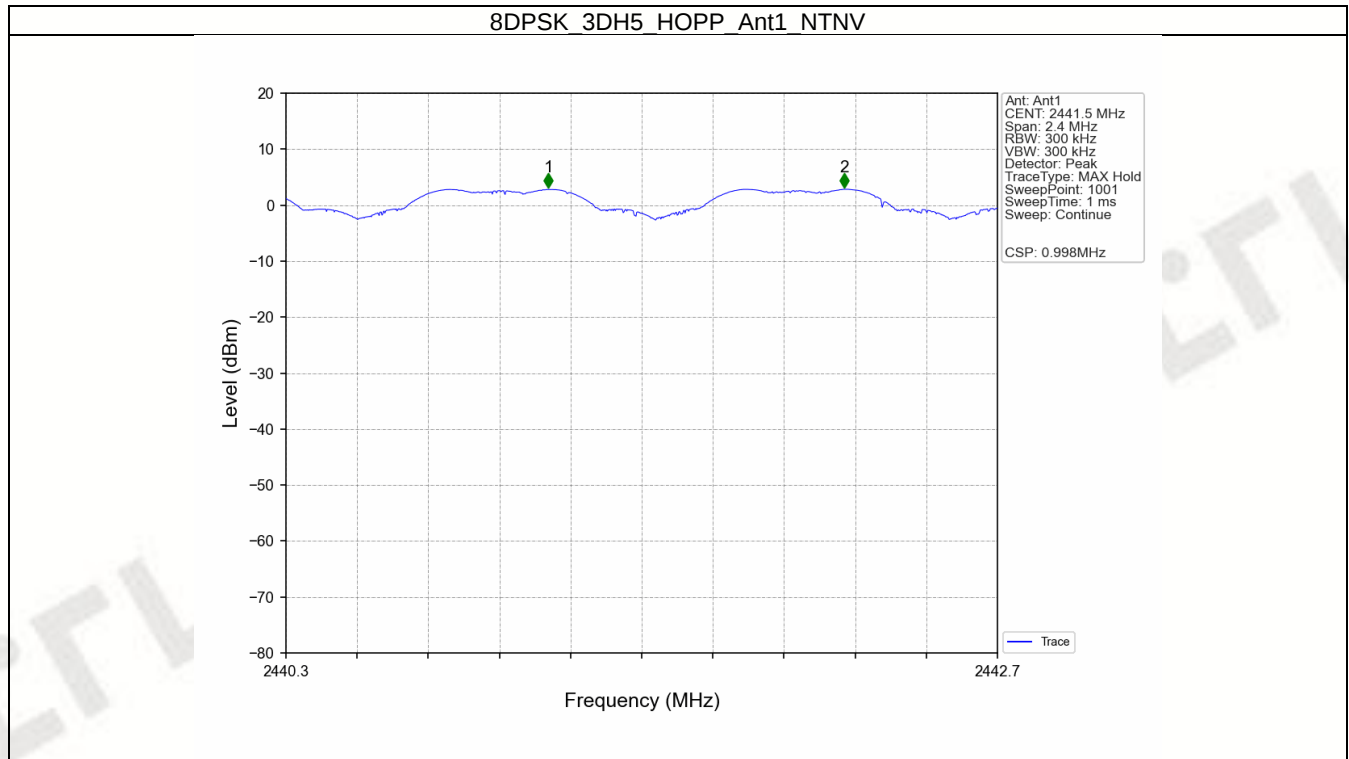
FCCID: SMQ-UWM3

3.2 Test Graph

3.2.1 Ant1



FCCID: SMQ-UWM3



4. Number of Hopping Frequencies

4.1 Test Result

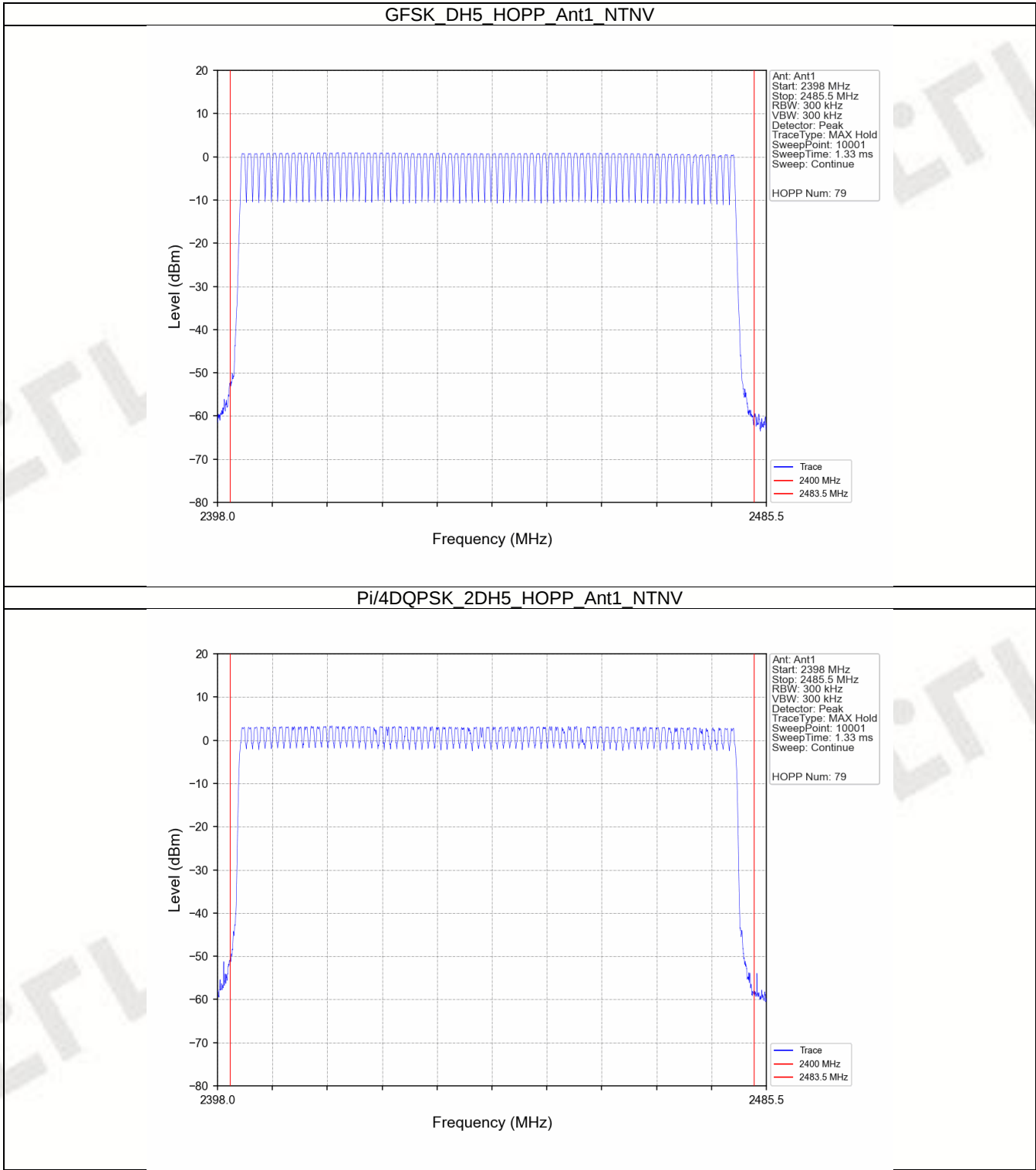
4.1.1 HoppNum

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

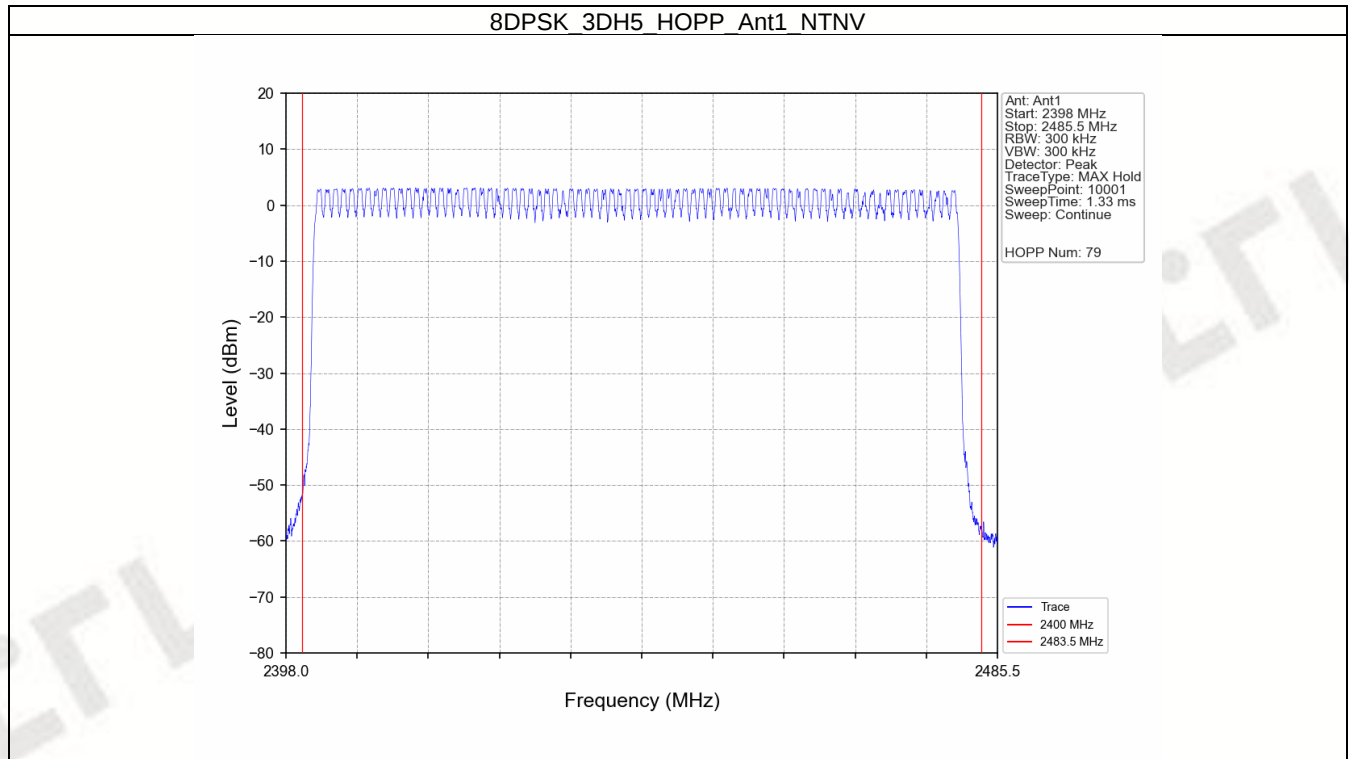
FCCID: SMQ-UWM3

4.2 Test Graph

4.2.1 HoppNum



FCCID: SMQ-UWM3



5. Time of Occupancy (Dwell Time)

5.1 Test Result

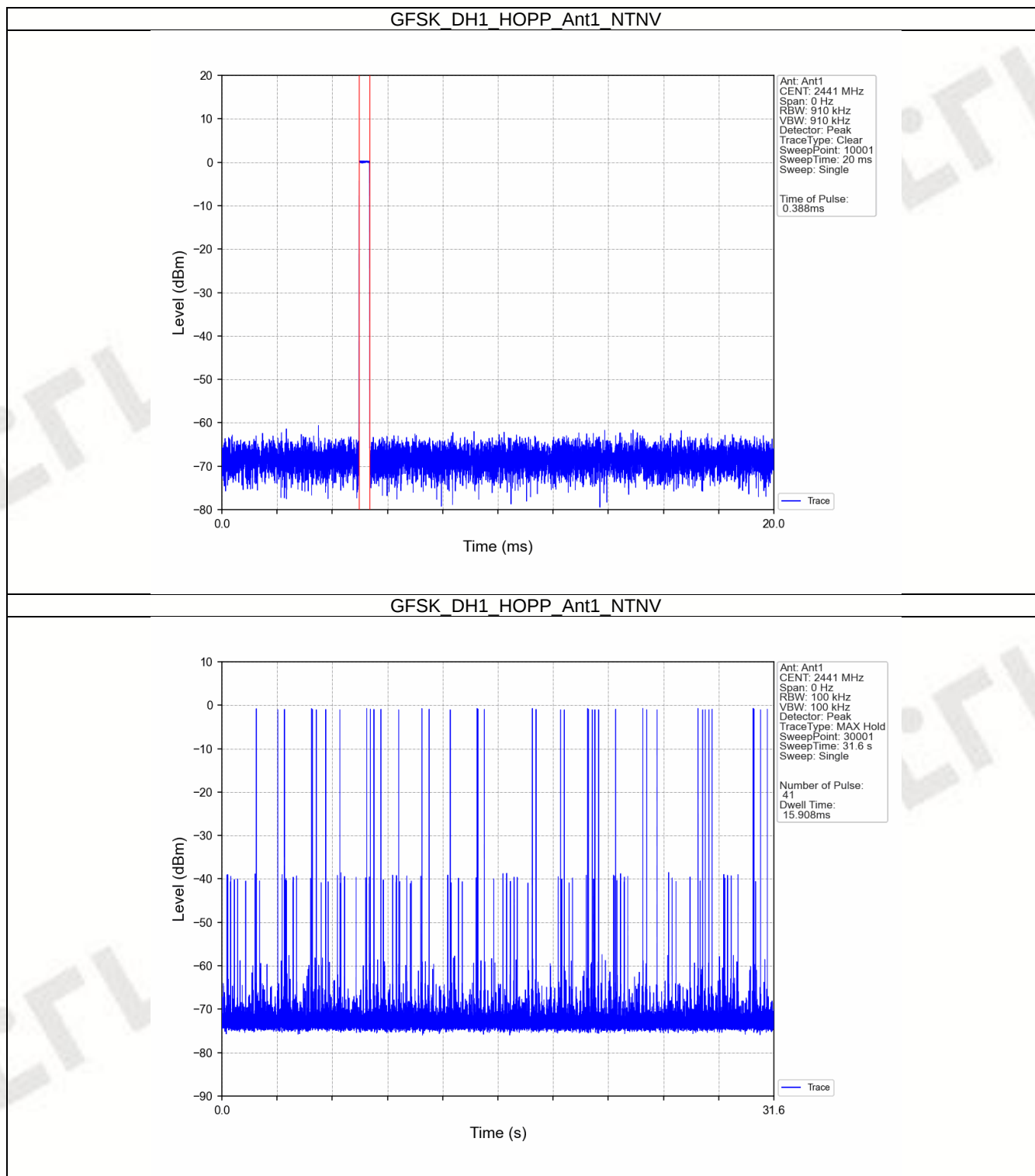
5.1.1 Ant1

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	41	15.908	<=400	Pass
			DH3	1.646	31.600	45	74.070	<=400	Pass
			DH5	2.894	31.600	47	136.018	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.396	31.600	45	17.820	<=400	Pass
			2DH3	1.648	31.600	45	74.160	<=400	Pass
			2DH5	2.896	31.600	35	101.360	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.396	31.600	33	13.068	<=400	Pass
			3DH3	1.646	31.600	27	44.442	<=400	Pass
			3DH5	2.898	31.600	34	98.532	<=400	Pass

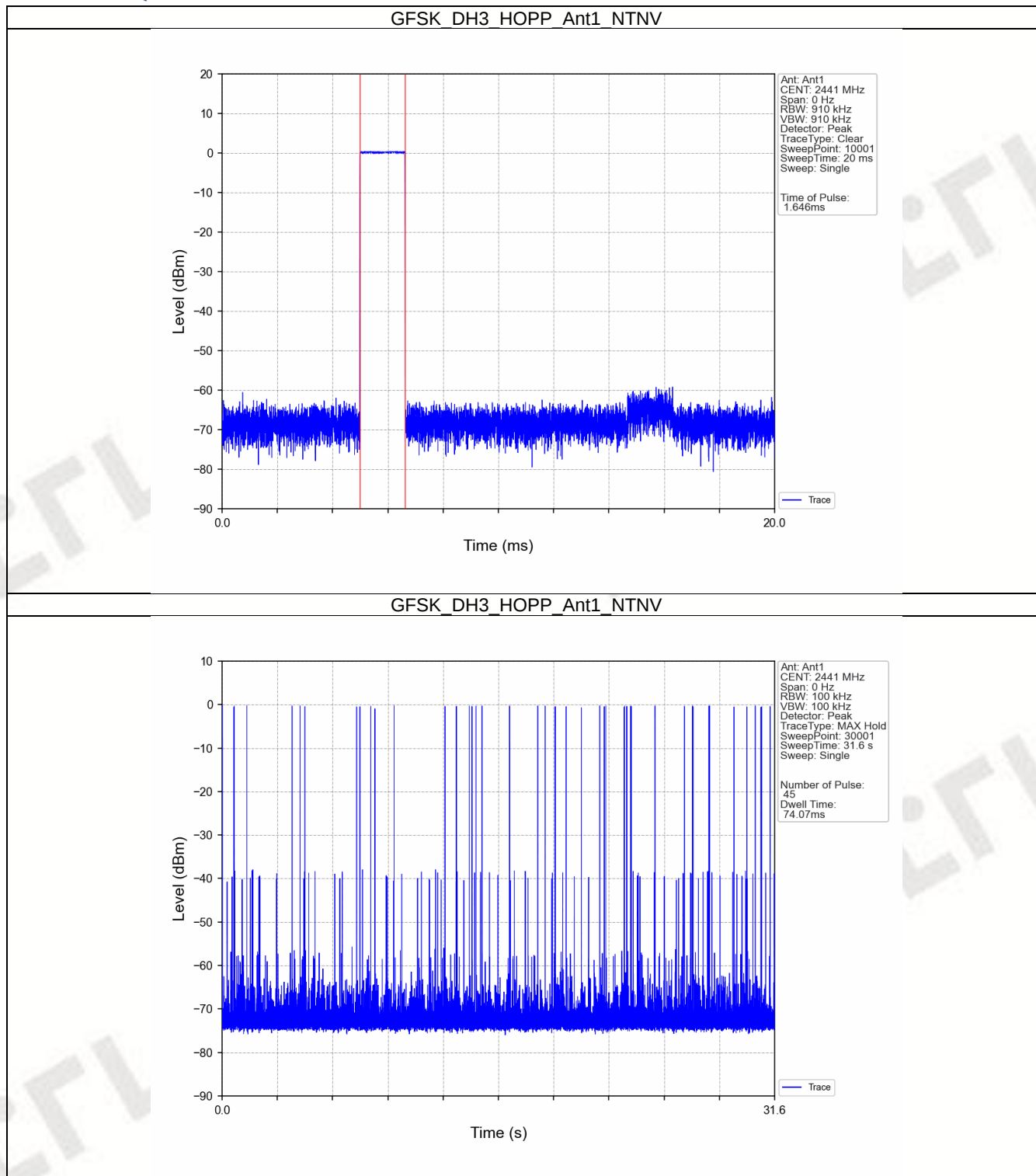
FCCID: SMQ-UWM3

5.2 Test Graph

5.2.1 Ant1

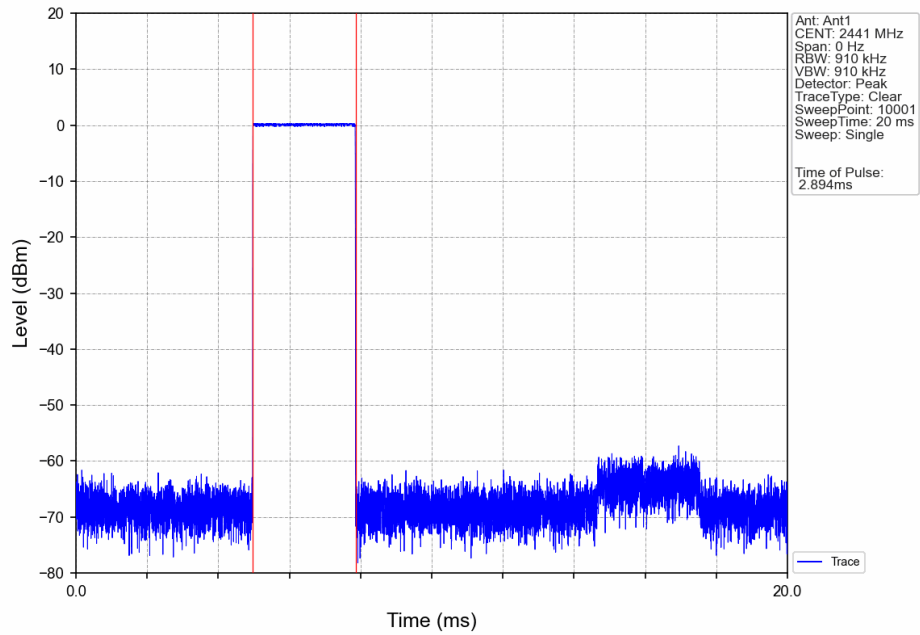


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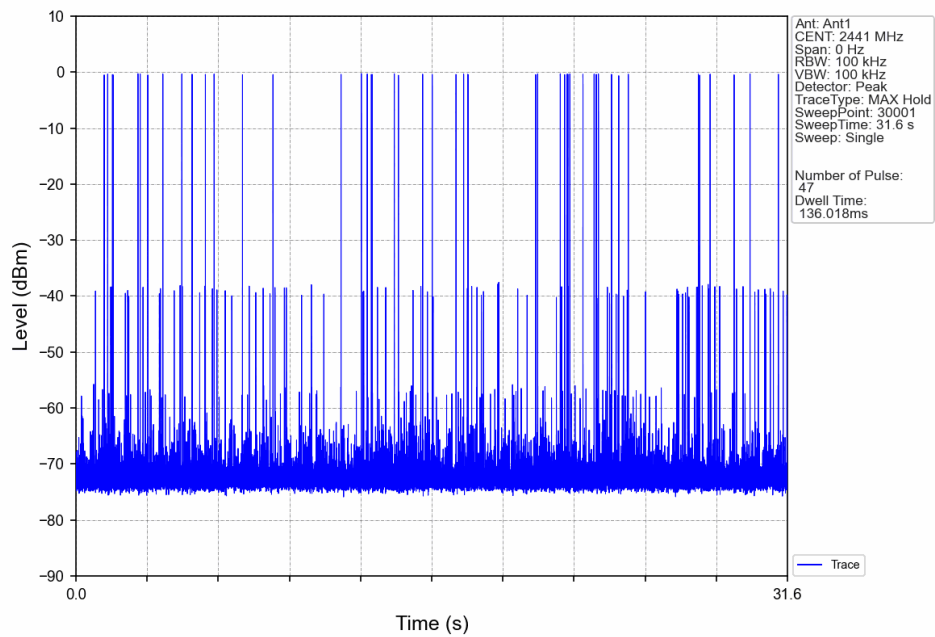


FCCID: SMQ-UWM3

GFSK DH5 HOPP Ant1 NTN

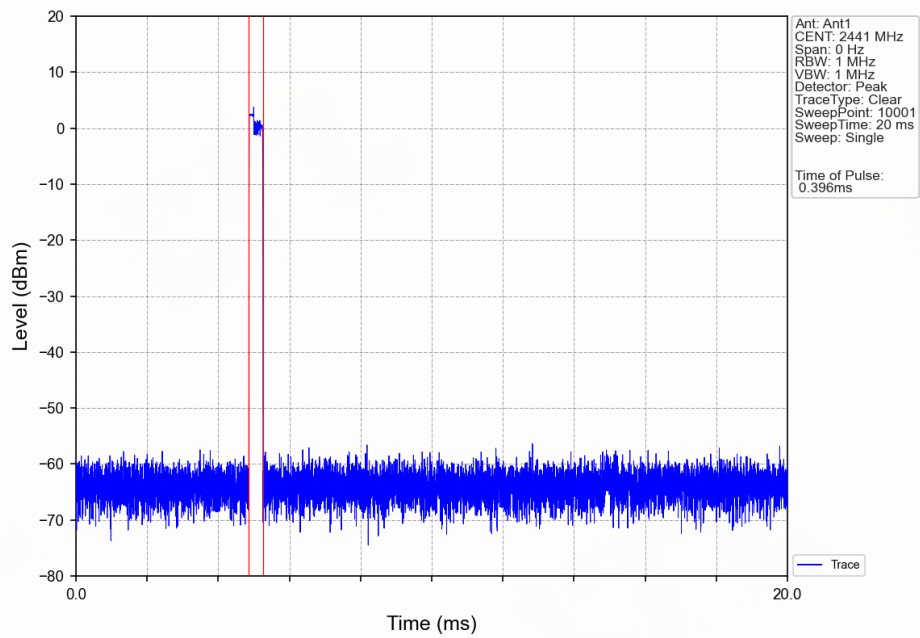


GFSK_DH5_HOPP_Ant1_NTN

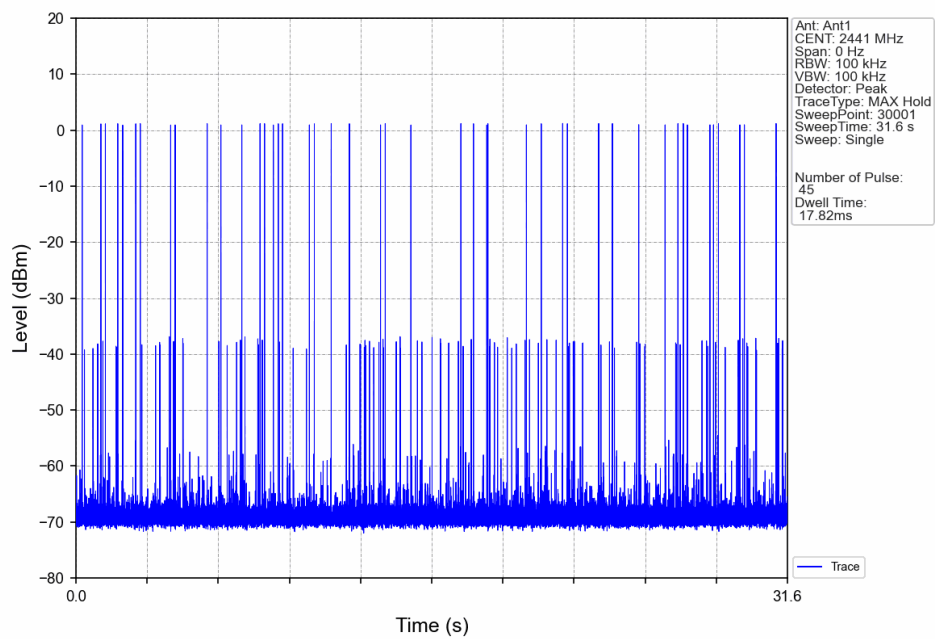


FCCID: SMQ-UWM3

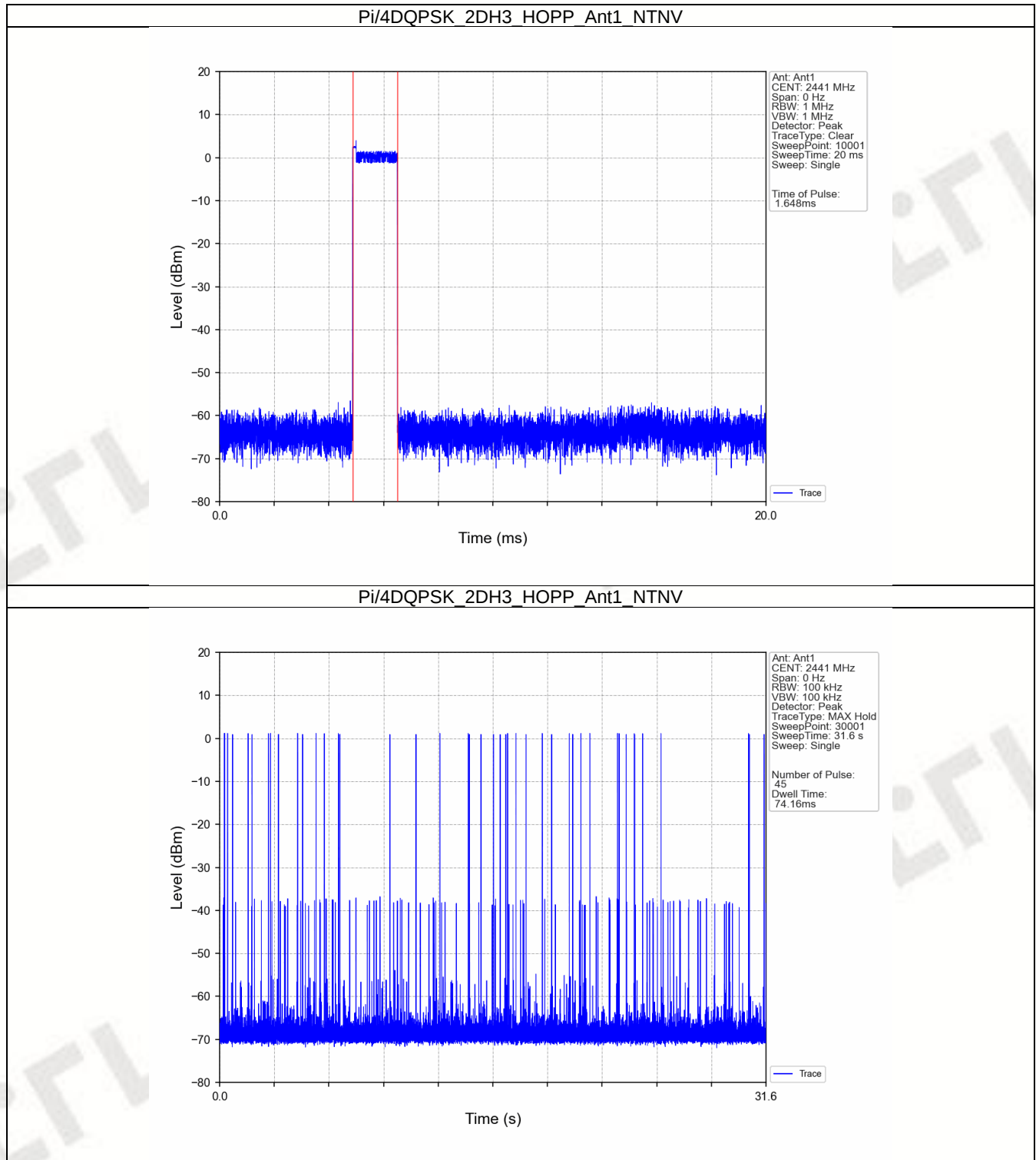
Pi/4DQPSK_2DH1_HOPP_Ant1_NTNV



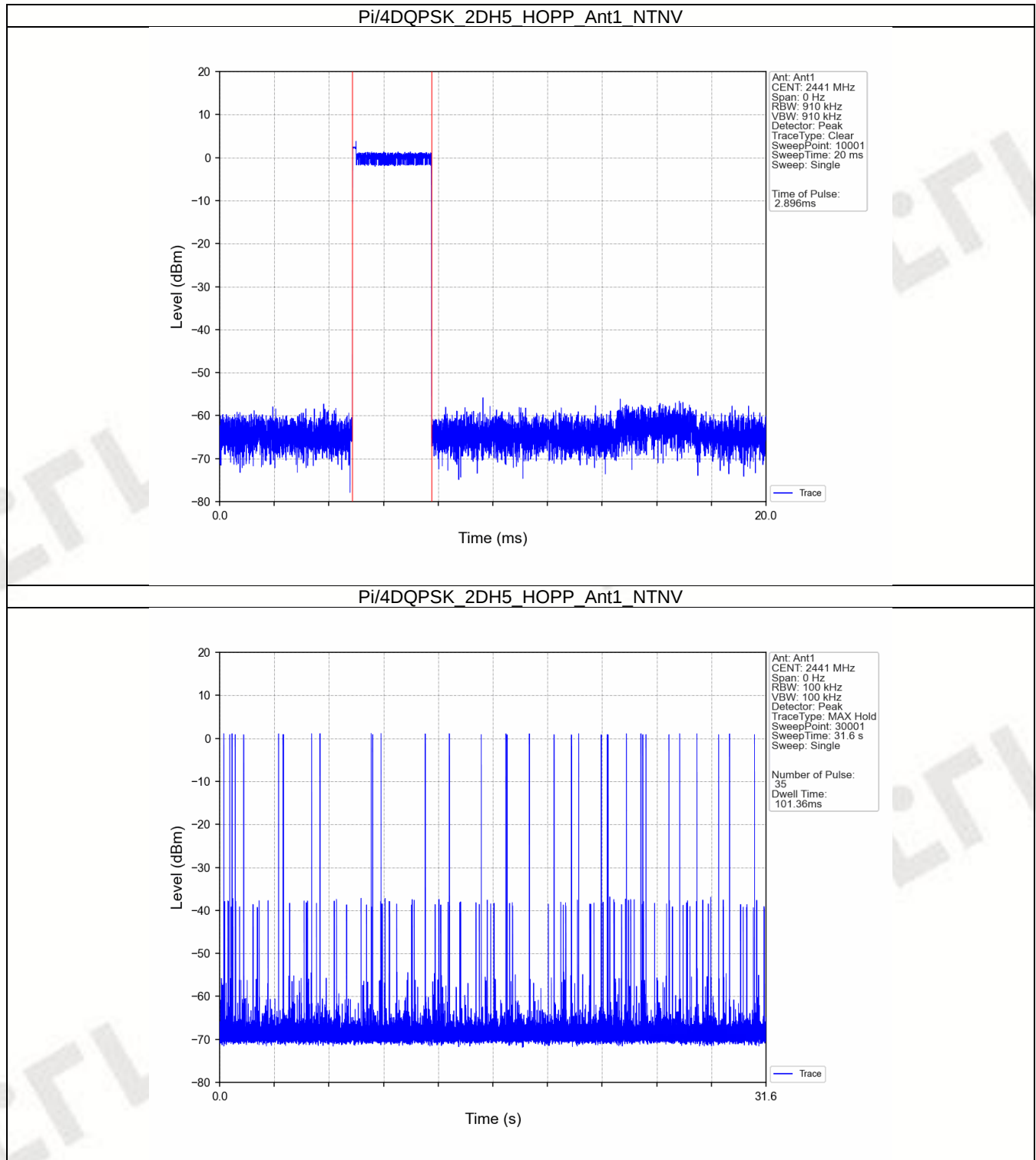
Pi/4DQPSK_2DH1_HOPP_Ant1_NTNV



FCCID: SMQ-UWM3

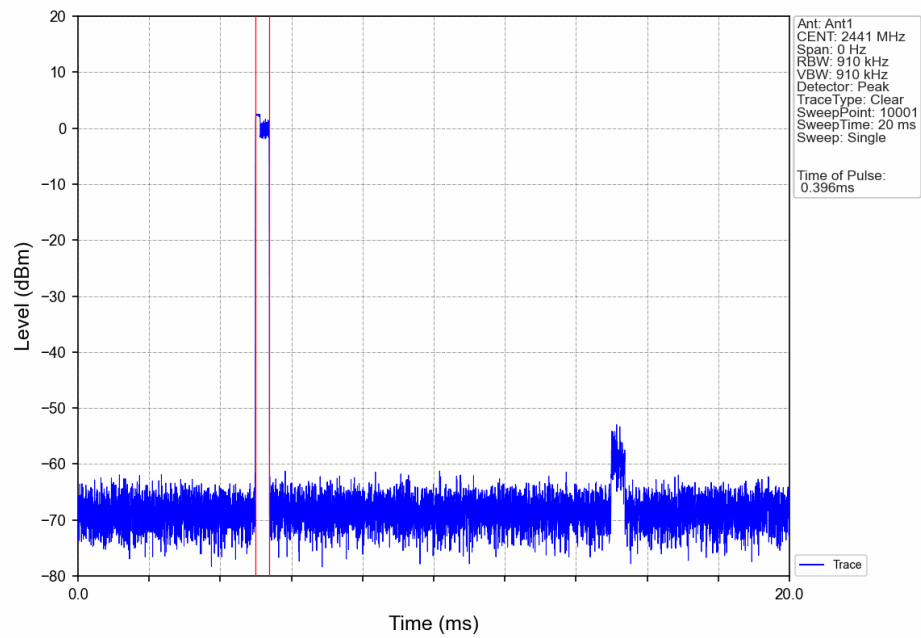


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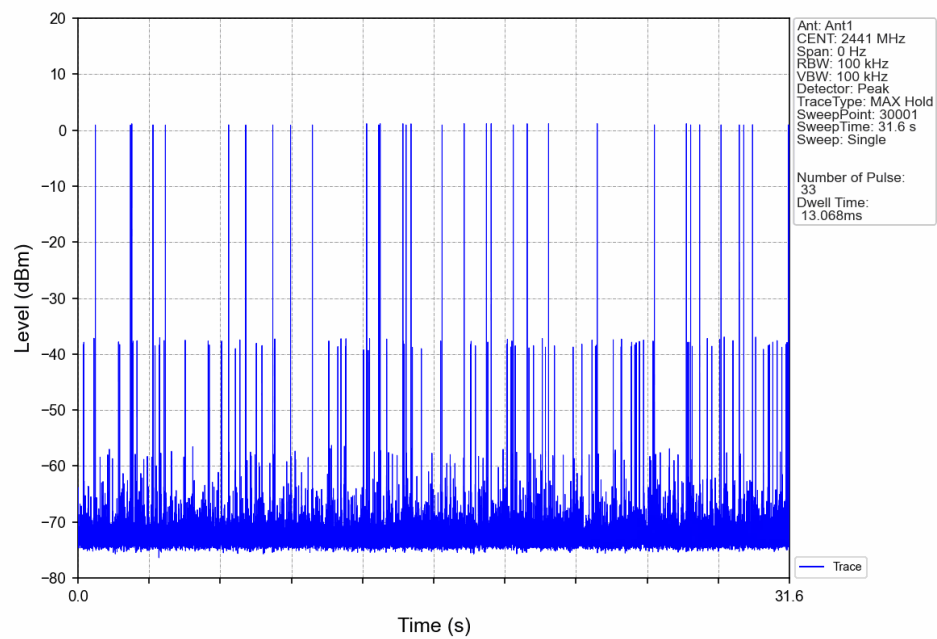


FCCID: SMQ-UWM3

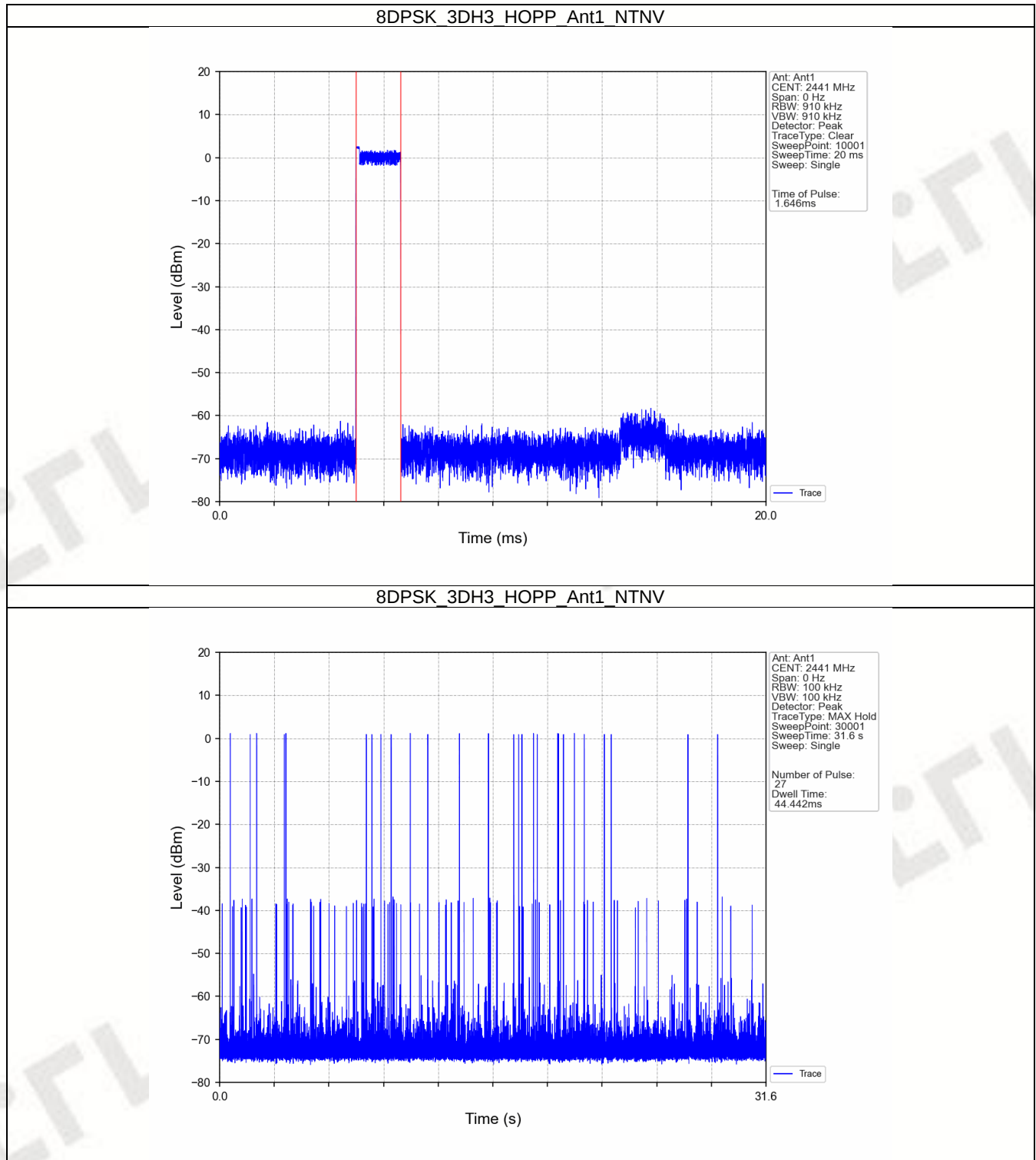
8DPSK 3DH1 HOPP Ant1 NTN



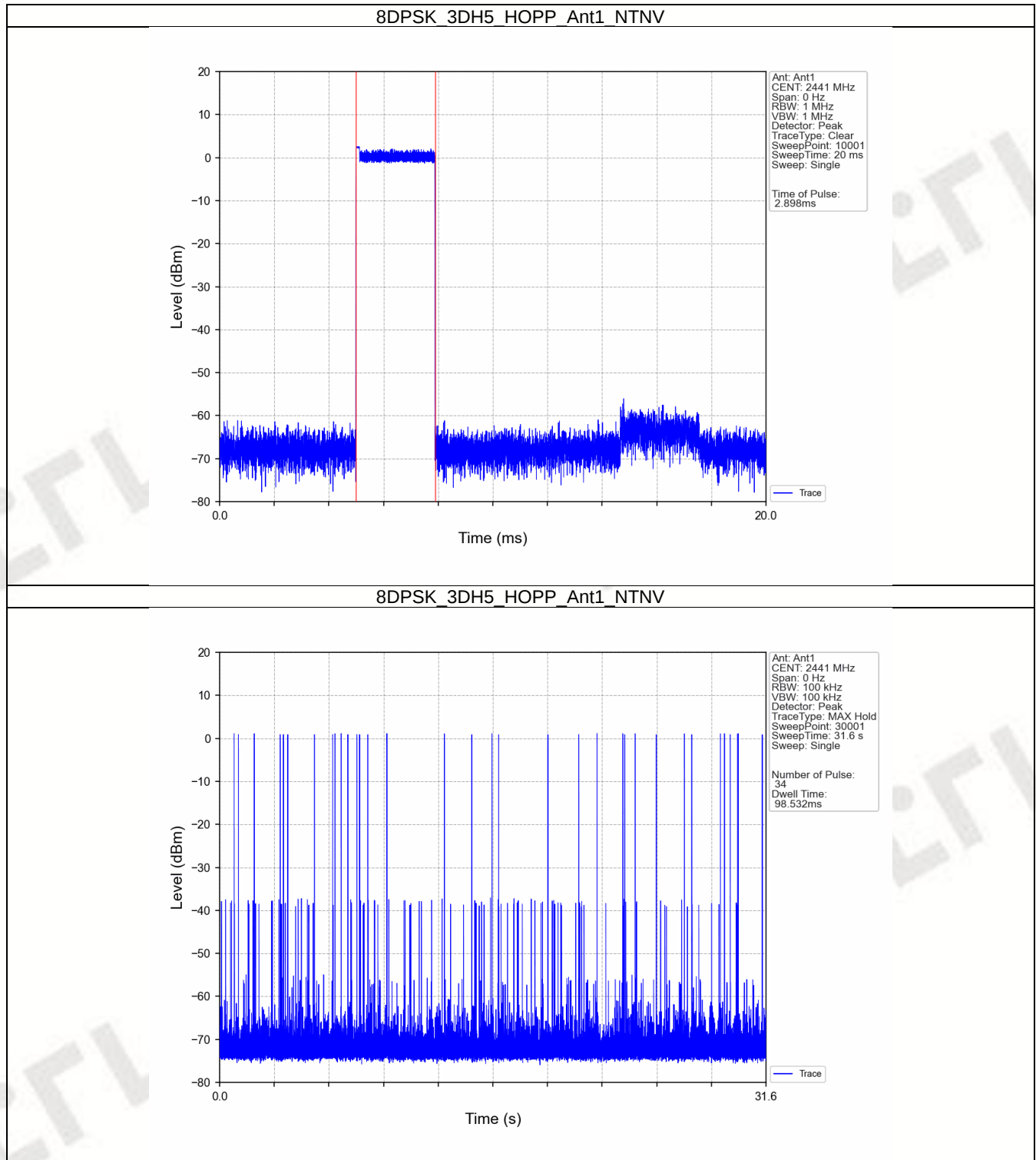
8DPSK 3DH1 HOPP Ant1 NTN



FCCID: SMQ-UWM3



FCCID: SMQ-UWM3



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	0.57
		2441	DH5	1	0.54
		2480	DH5	1	0.25
Pi/4DQPSK	SISO	2402	2DH5	1	2.55
		2441	2DH5	1	2.64
		2480	2DH5	1	2.62
8DPSK	SISO	2402	3DH5	1	2.80
		2441	3DH5	1	2.73
		2480	3DH5	1	2.44

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

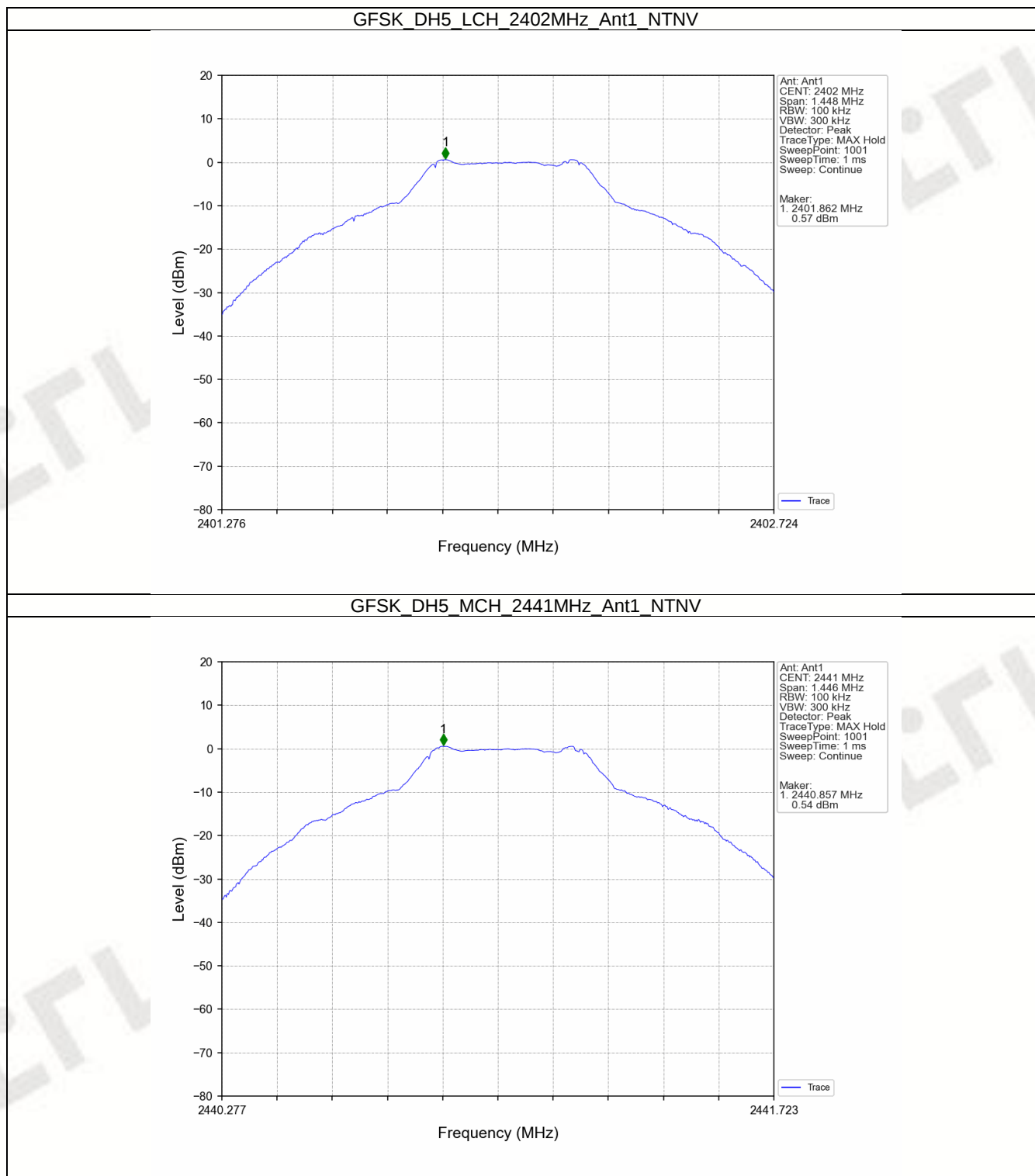
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	0.57	-19.43	Pass
		2441	DH5	1	0.57	-19.43	Pass
		2480	DH5	1	0.57	-19.43	Pass
		HOPP	DH5	1	0.57	-19.43	Pass
					0.57	-19.43	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	2.64	-17.36	Pass
		2441	2DH5	1	2.64	-17.36	Pass
		2480	2DH5	1	2.64	-17.36	Pass
		HOPP	2DH5	1	2.64	-17.36	Pass
					2.64	-17.36	Pass
8DPSK	SISO	2402	3DH5	1	2.80	-17.20	Pass
		2441	3DH5	1	2.80	-17.20	Pass
		2480	3DH5	1	2.80	-17.20	Pass
		HOPP	3DH5	1	2.80	-17.20	Pass
					2.80	-17.20	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.

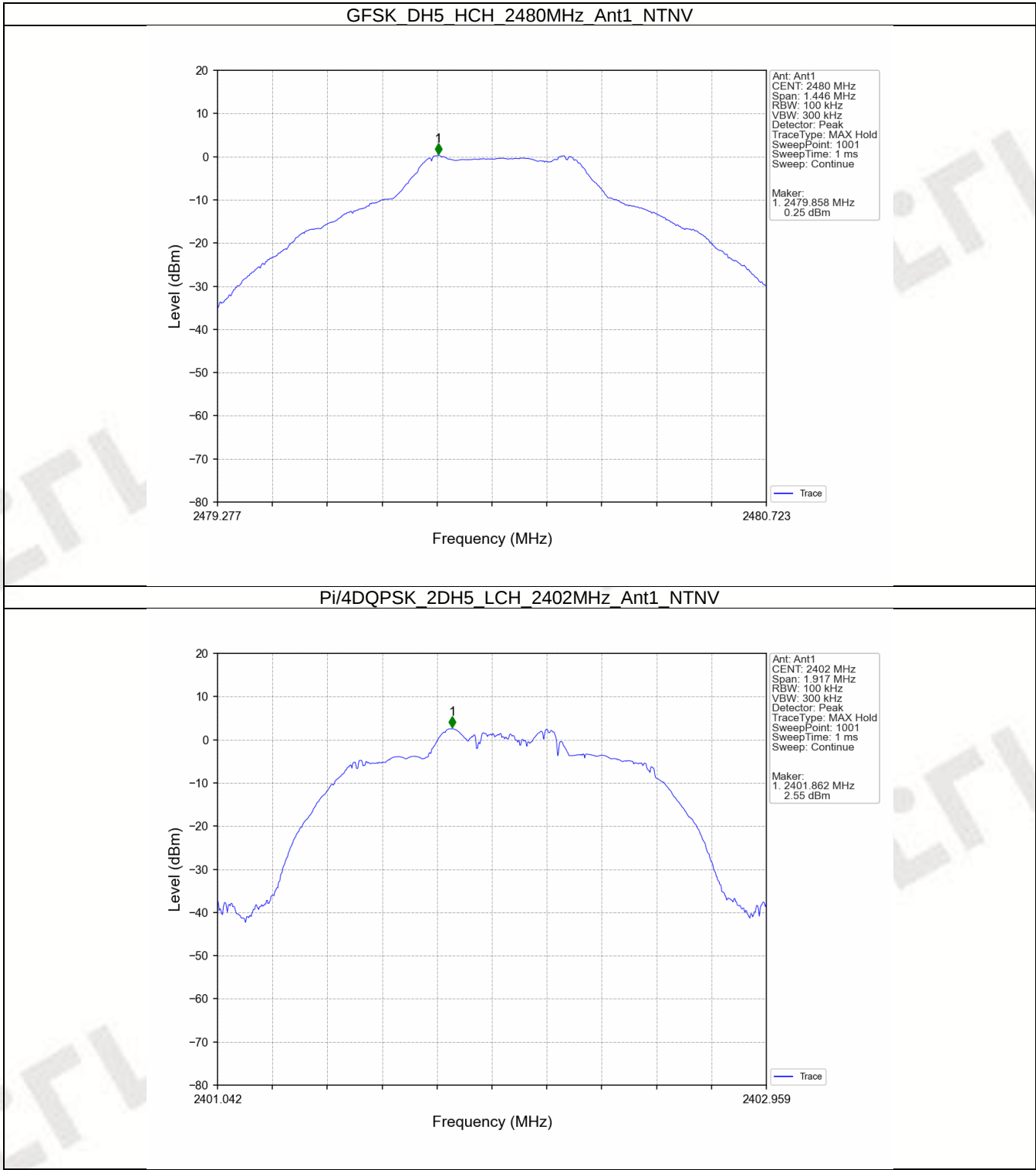
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6.2 Test Graph

6.2.1 Ref

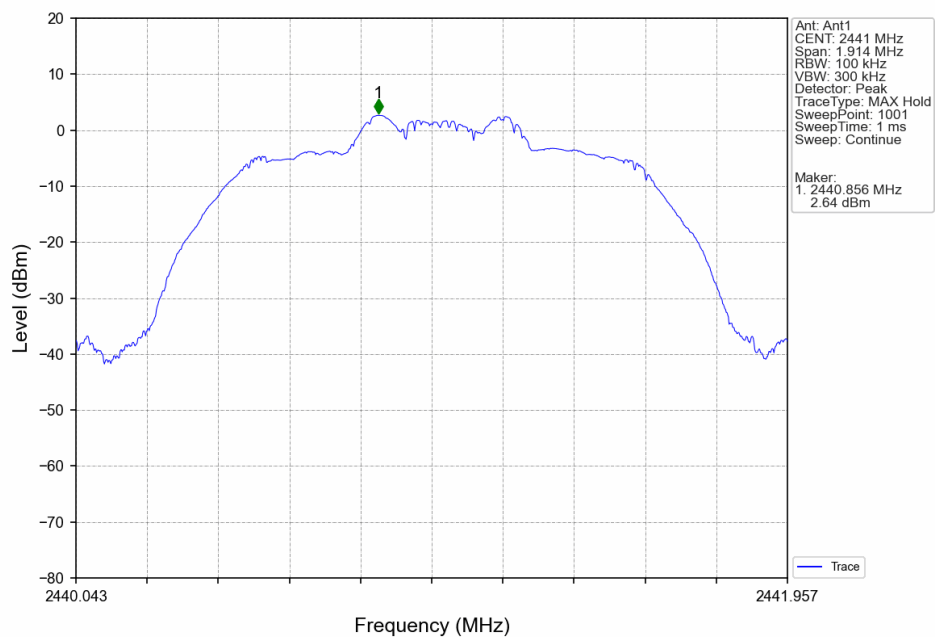


FCCID: SMQ-UWM3

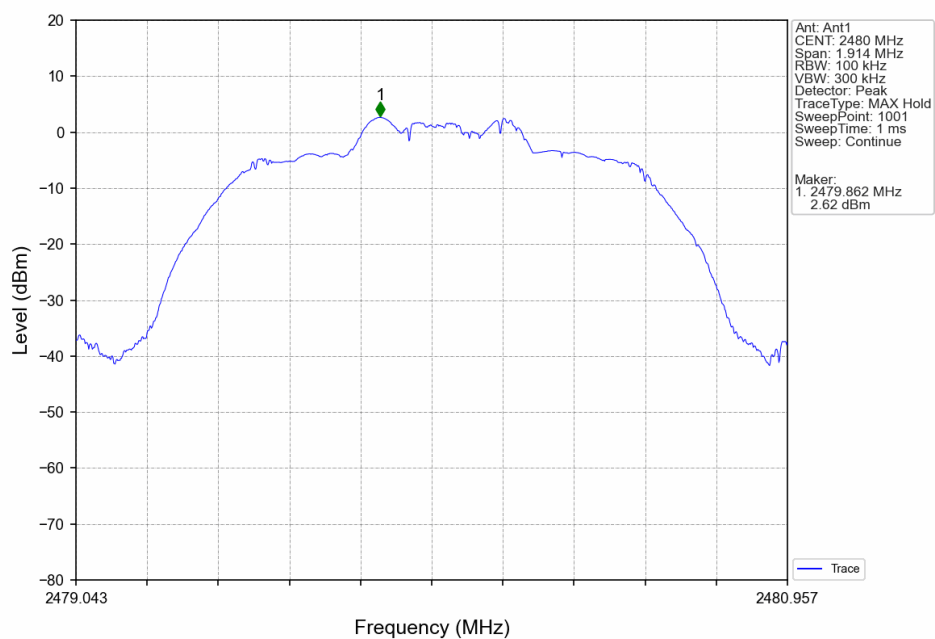


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Pi/4DQPSK 2DH5 MCH 2441MHz Ant1 NTN

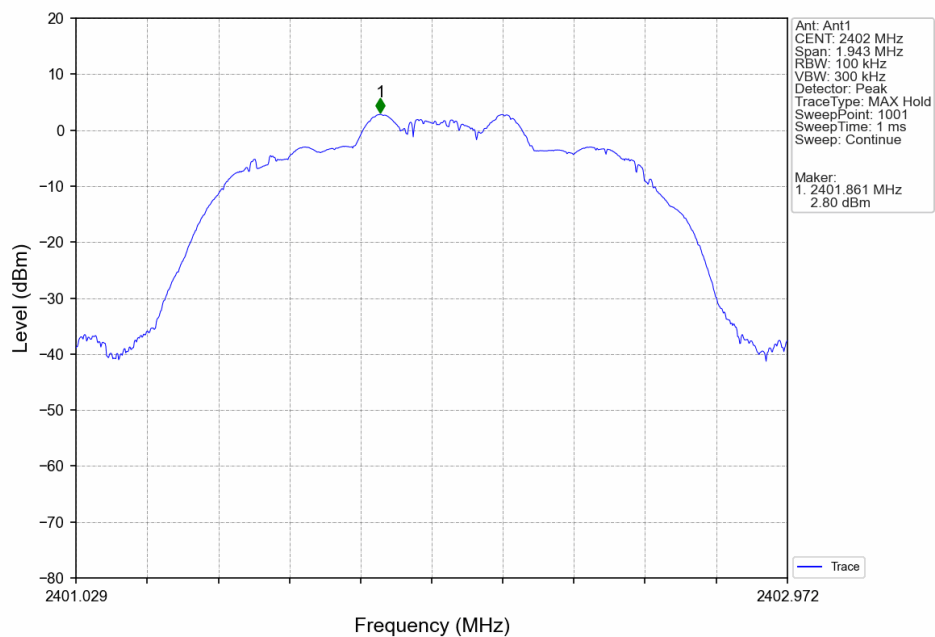


Pi/4DQPSK 2DH5 HCH 2480MHz Ant1 NTN

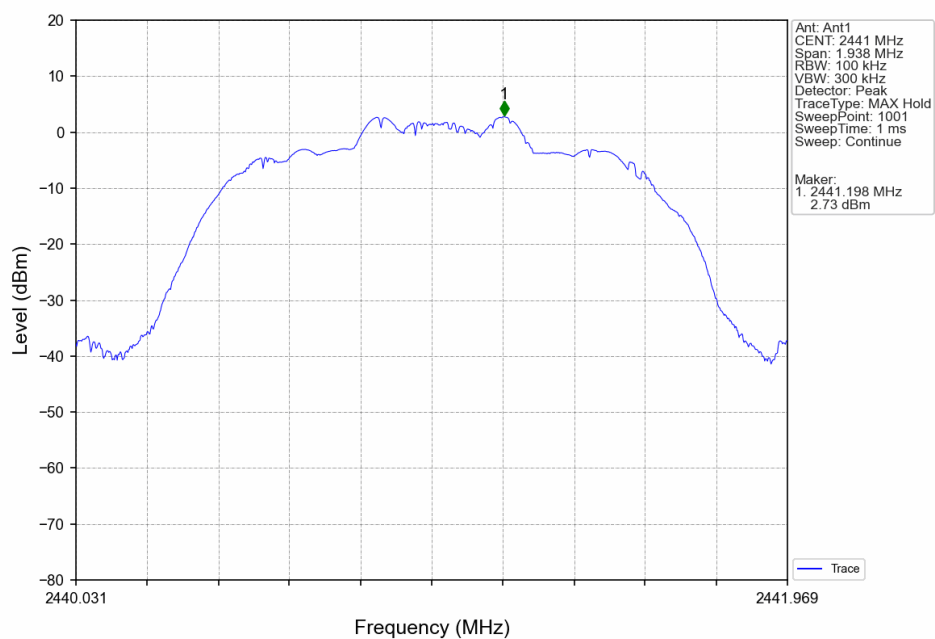


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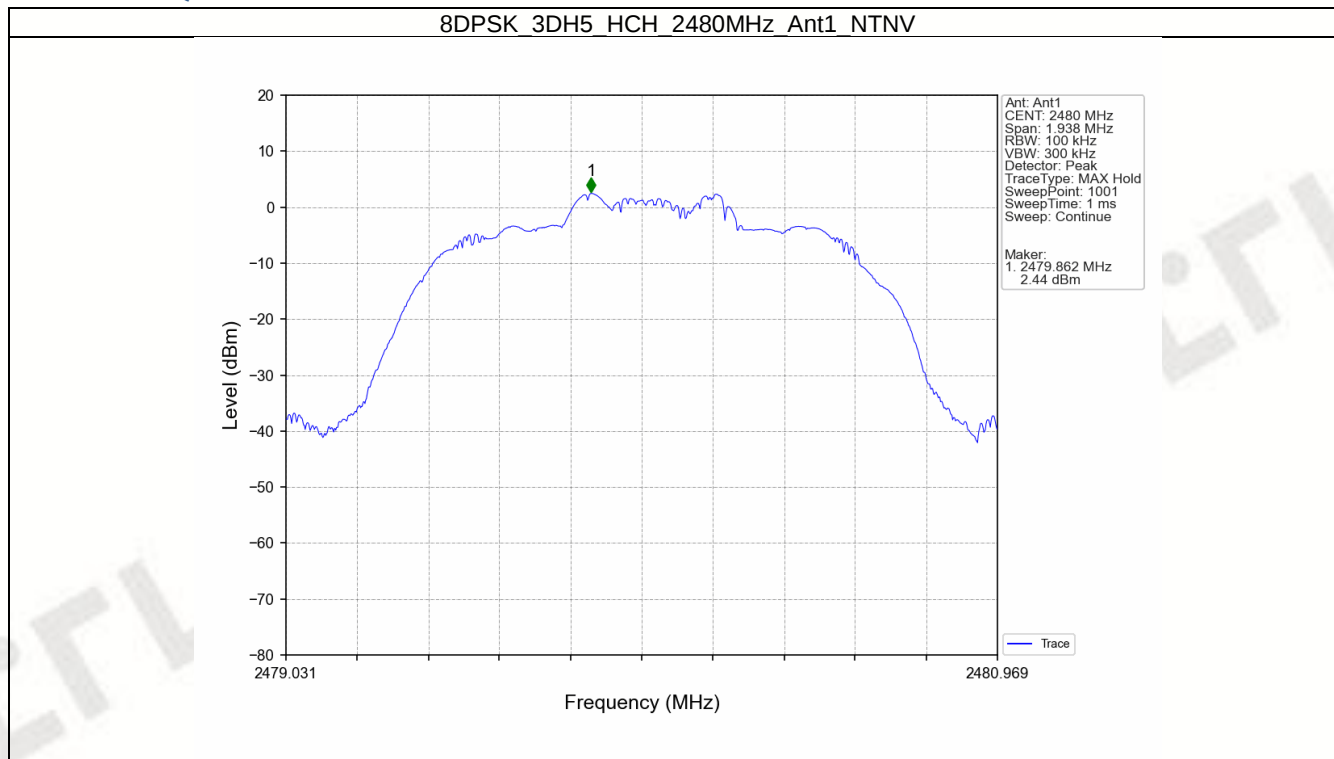
8DPSK 3DH5 LCH 2402MHz Ant1 NTN



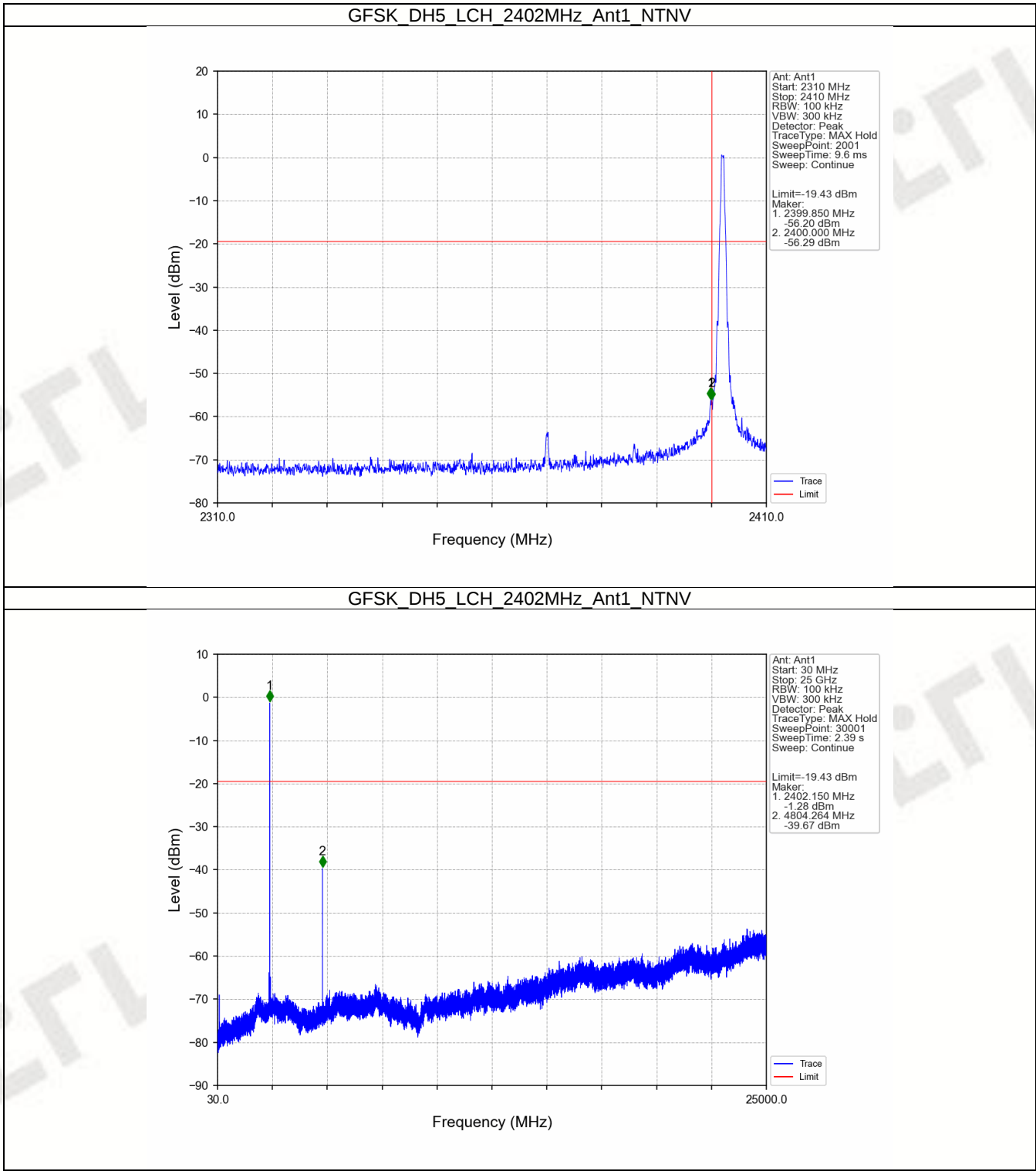
8DPSK 3DH5 MCH 2441MHz Ant1 NTN



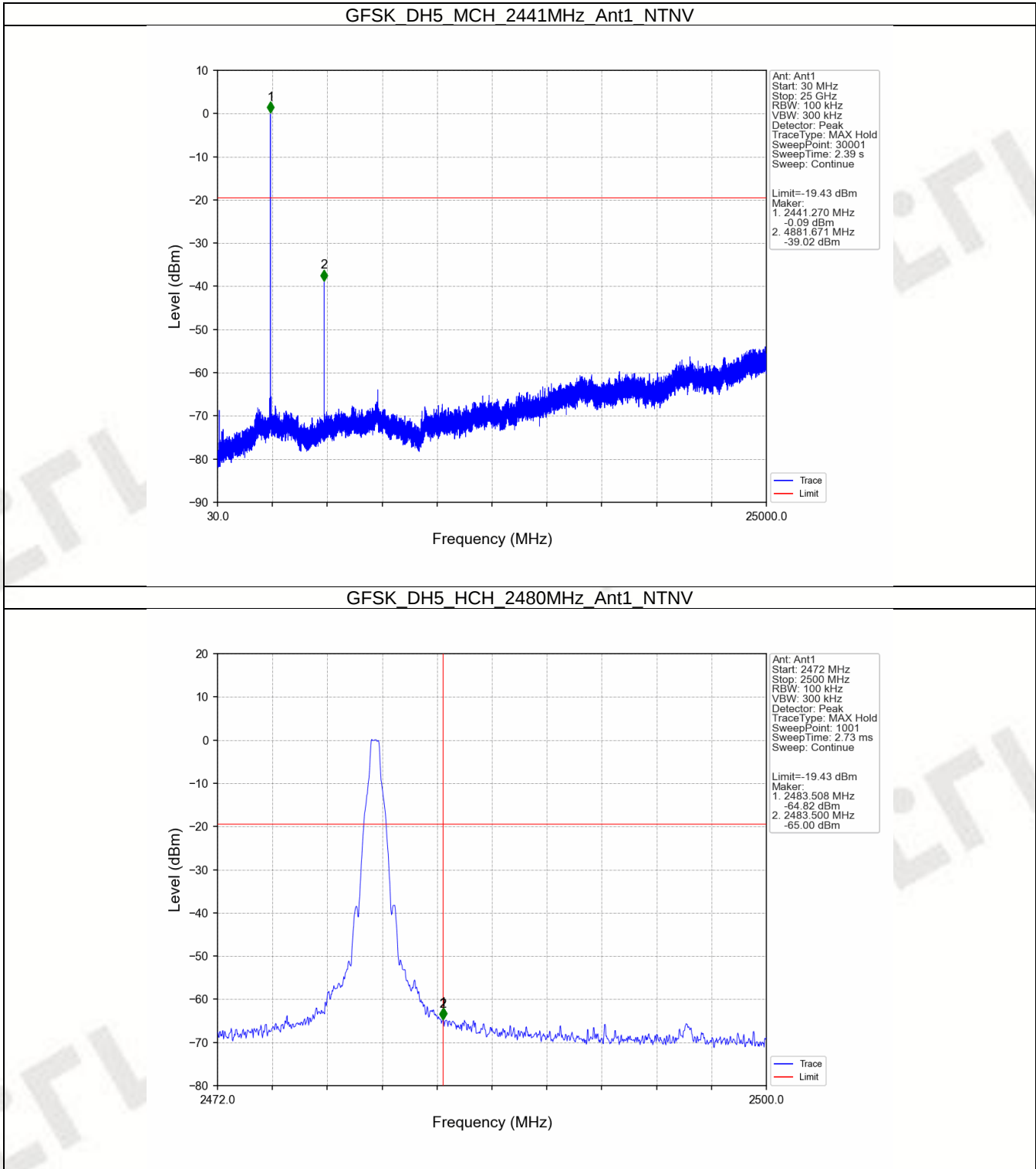
FCCID: SMQ-UWM3



6.2.2 CSE

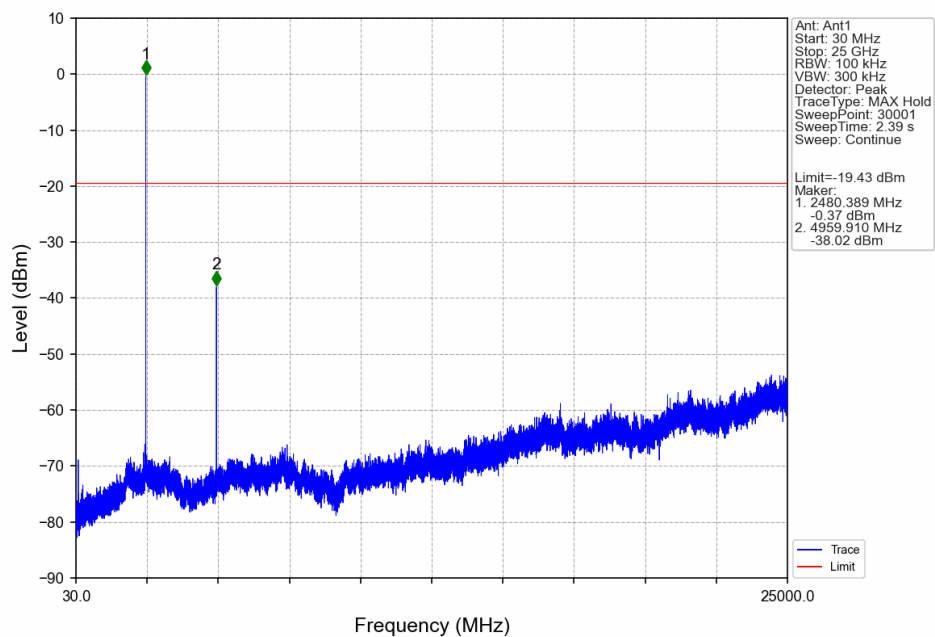


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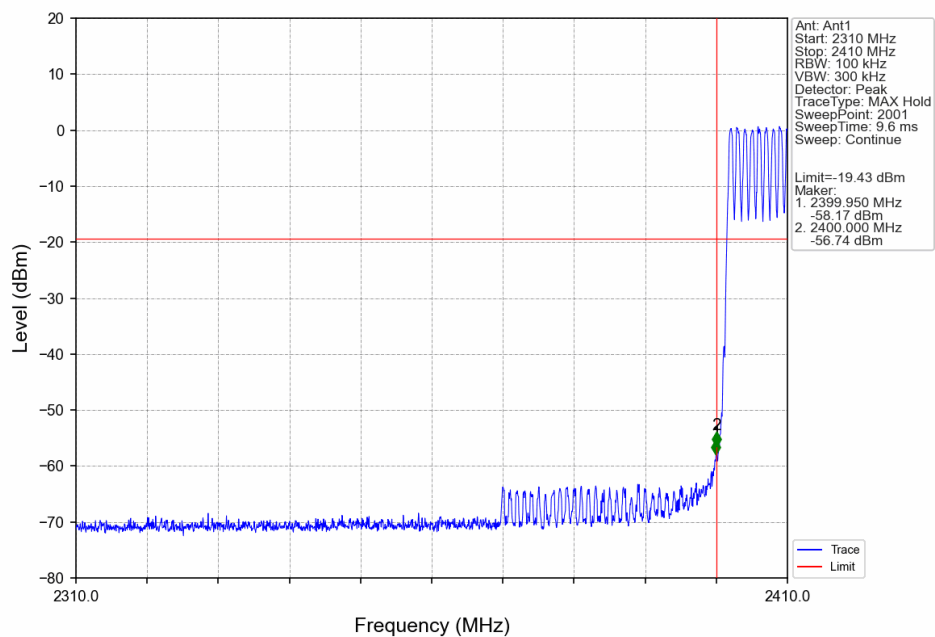


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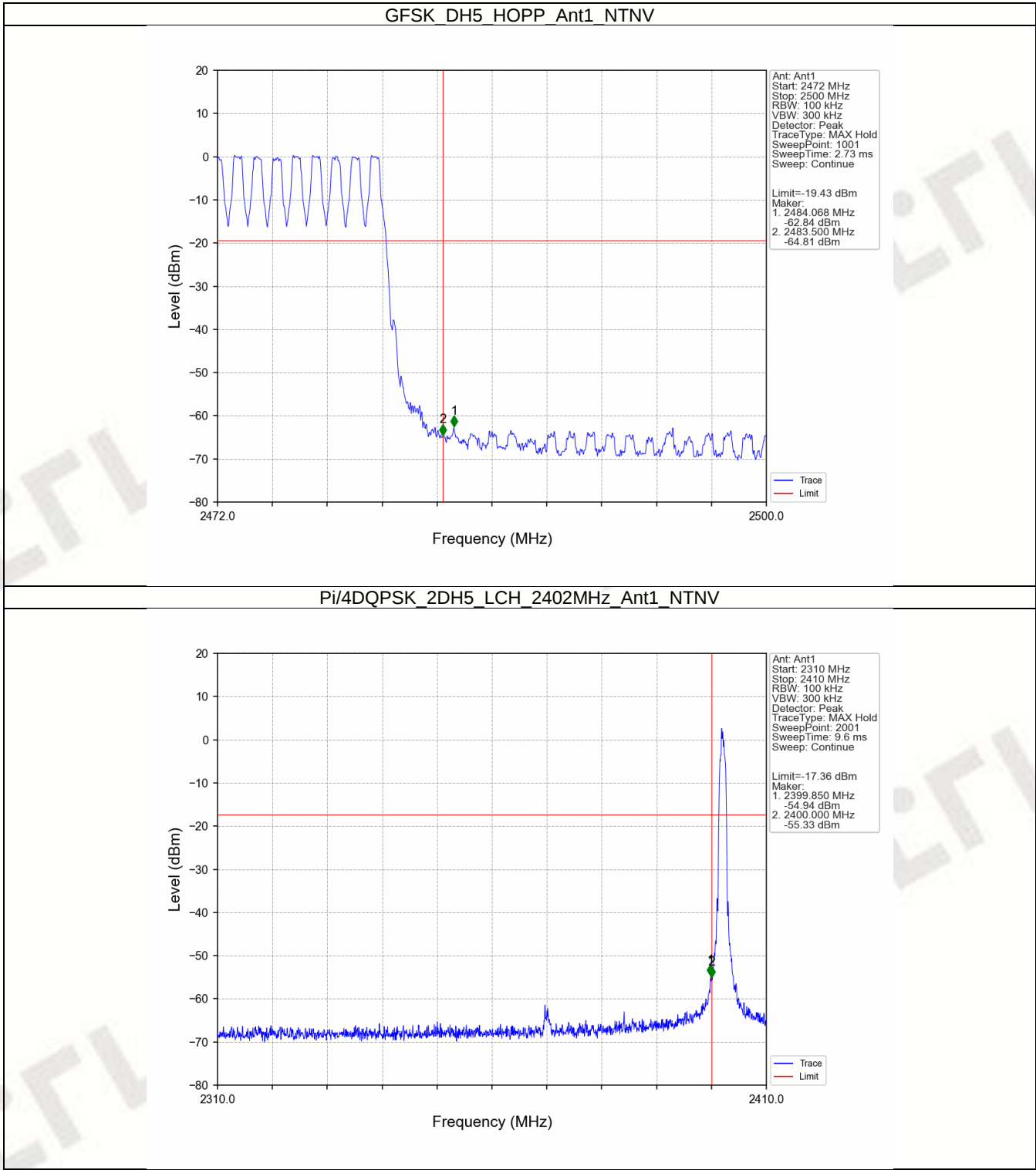
GFSK DH5 HCH 2480MHz Ant1 NTN



GFSK_DH5_HOPP_Ant1_NTN

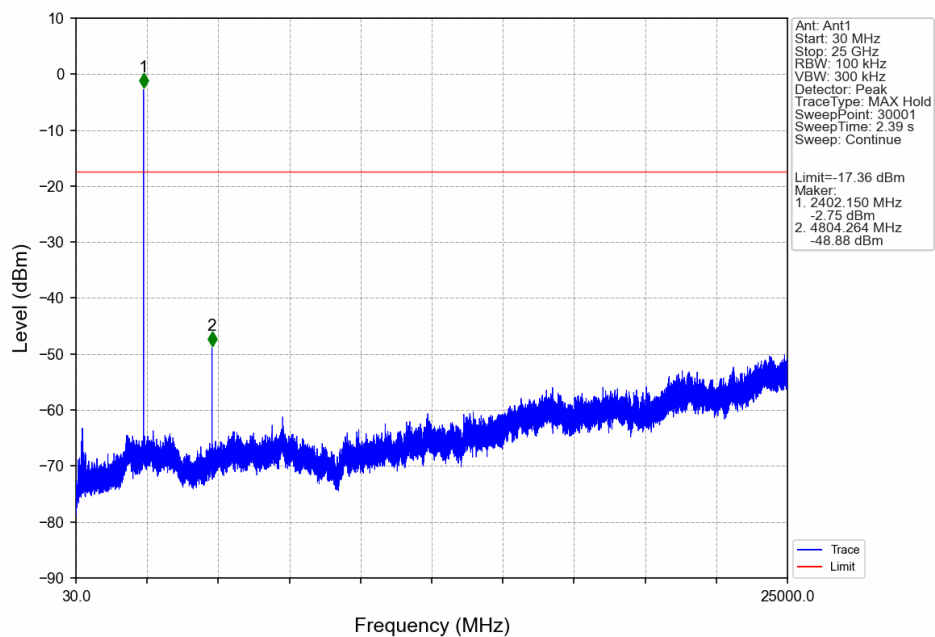


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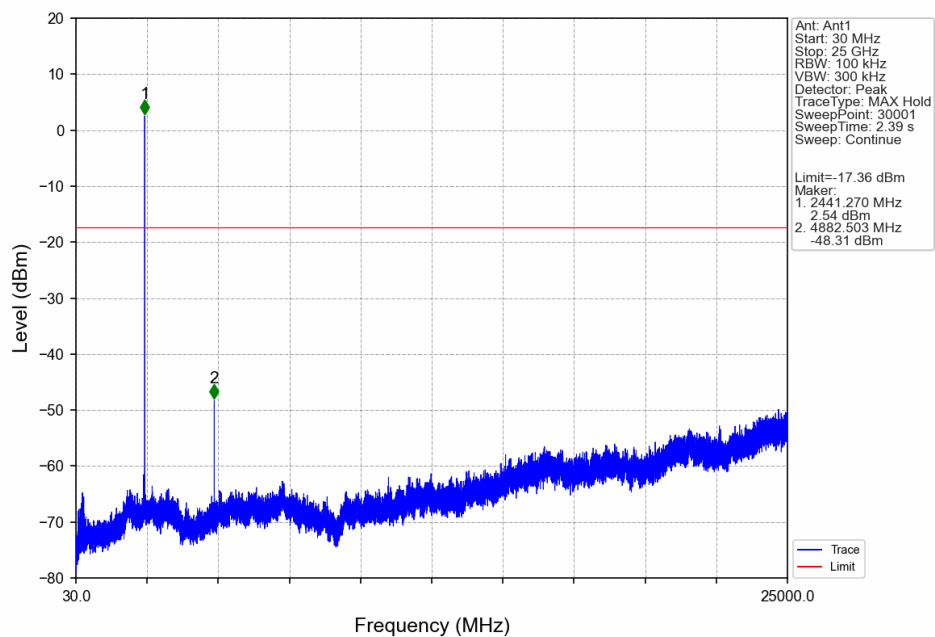


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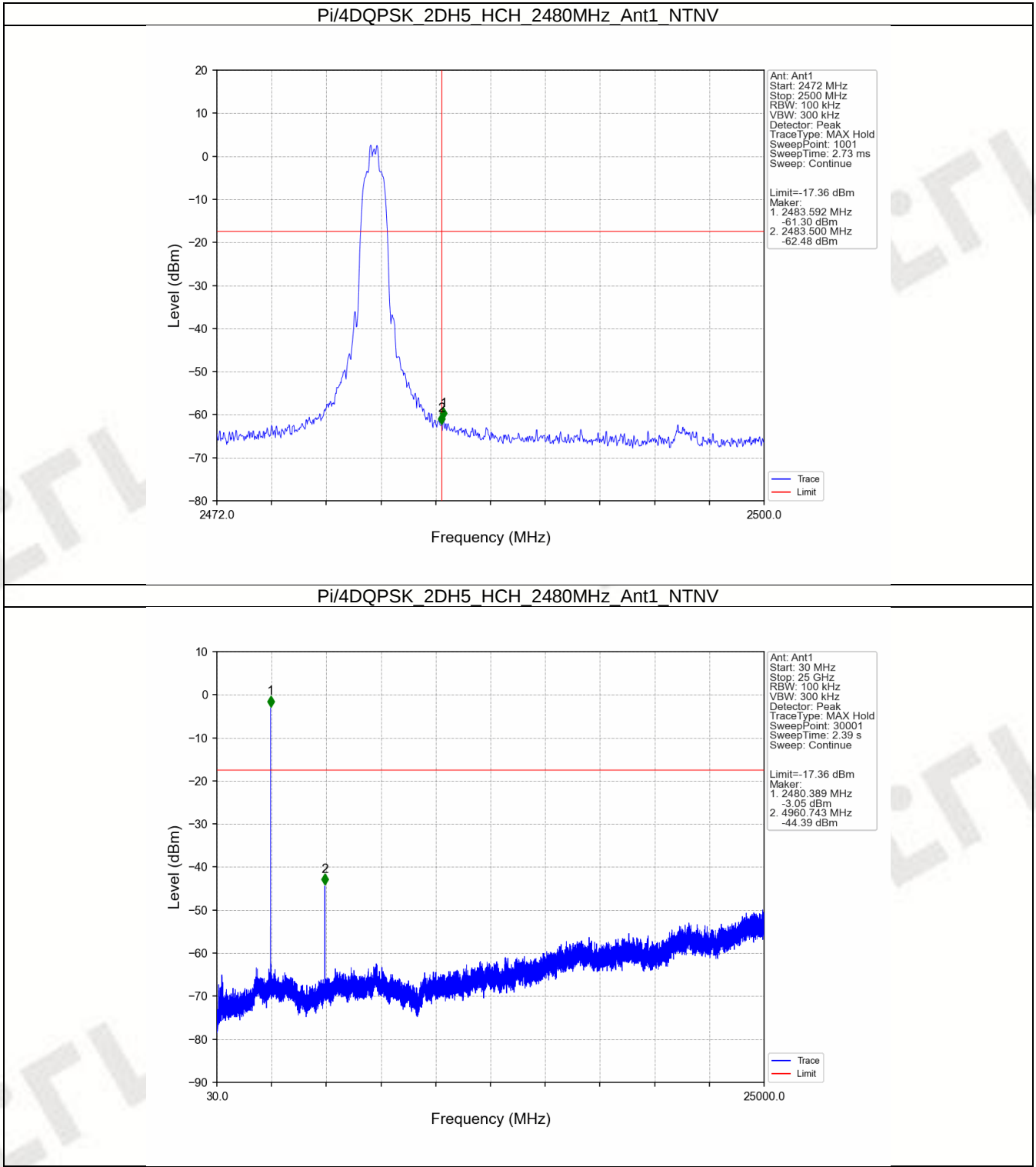
Pi/4DQPSK 2DH5 LCH 2402MHz Ant1 NTN



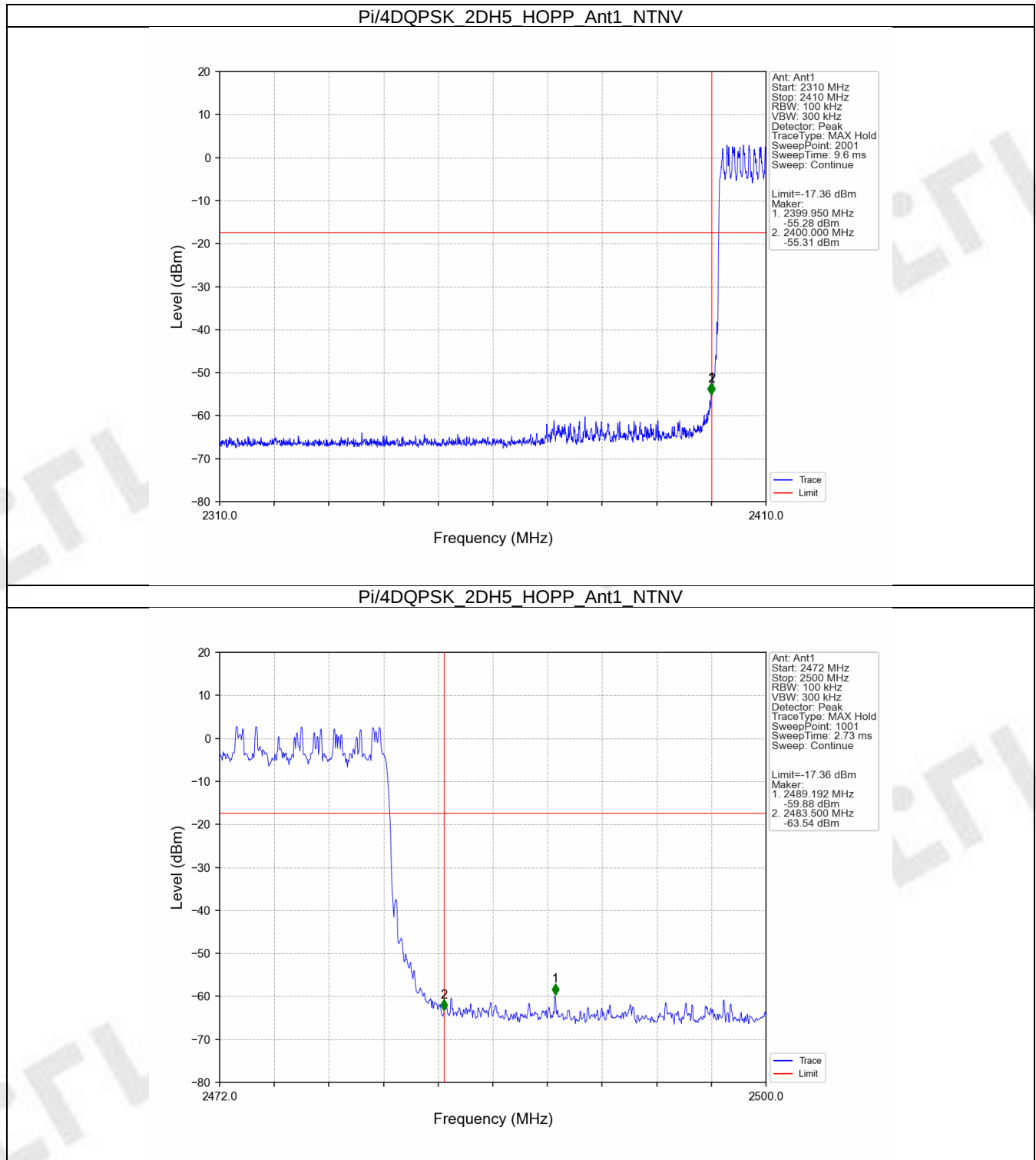
Pi/4DQPSK 2DH5_MCH_2441MHz_Ant1_NTN



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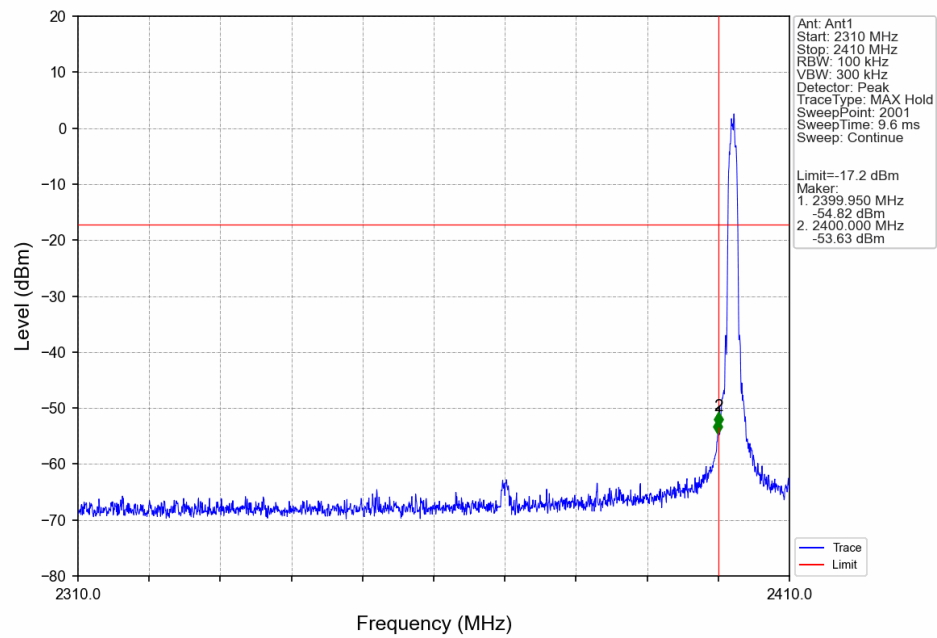


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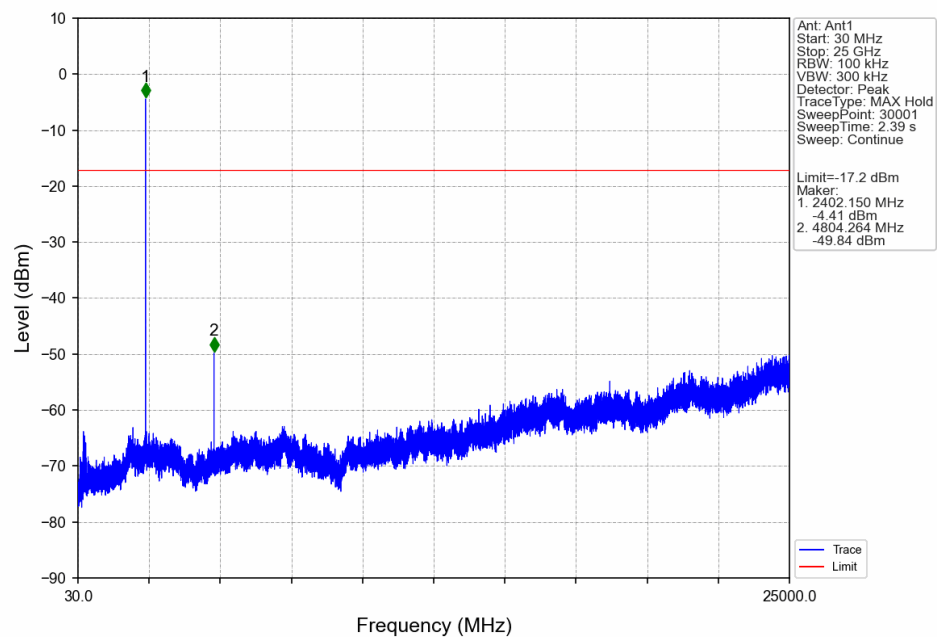


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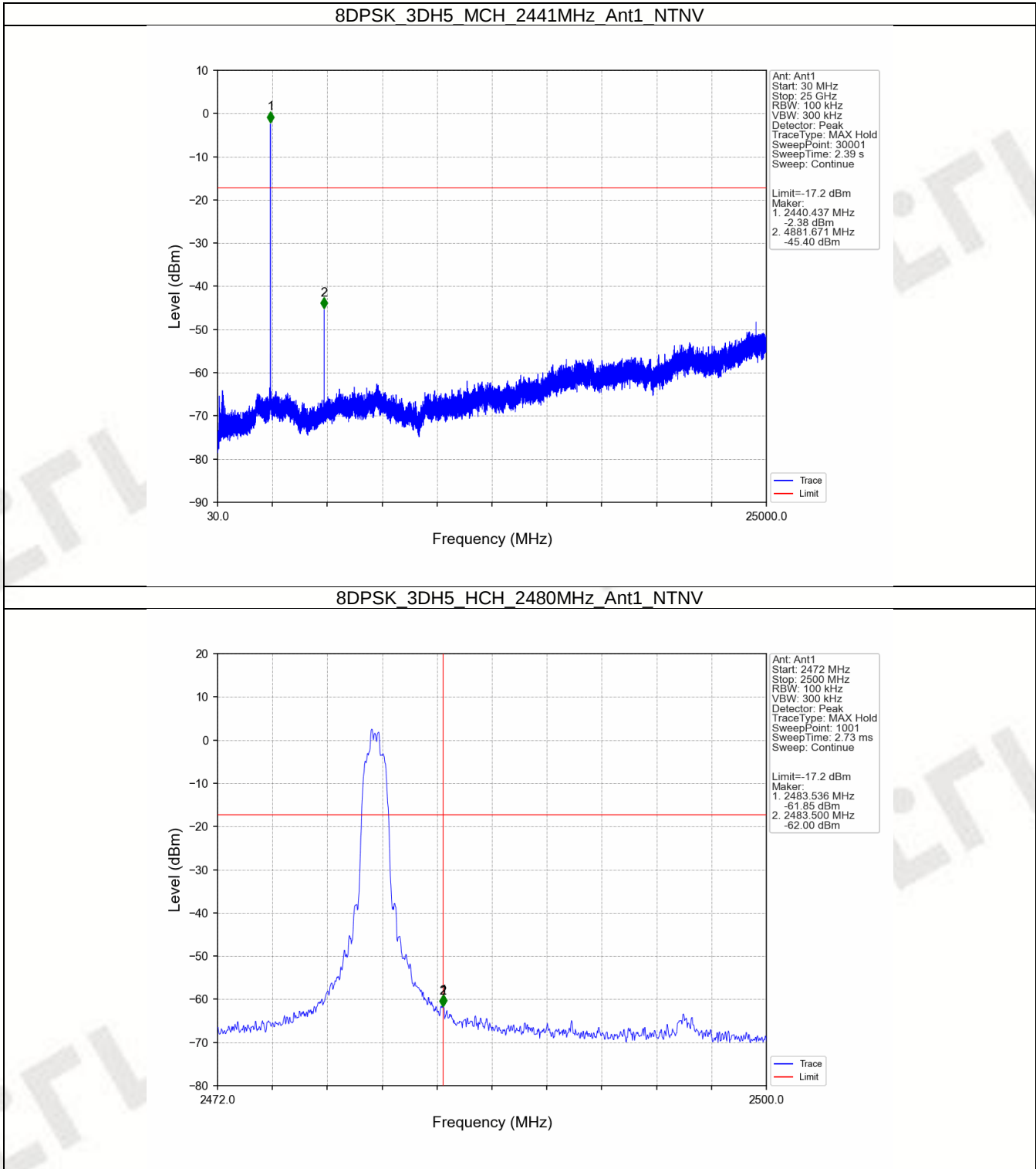
8DPSK 3DH5 LCH 2402MHz Ant1 NTN



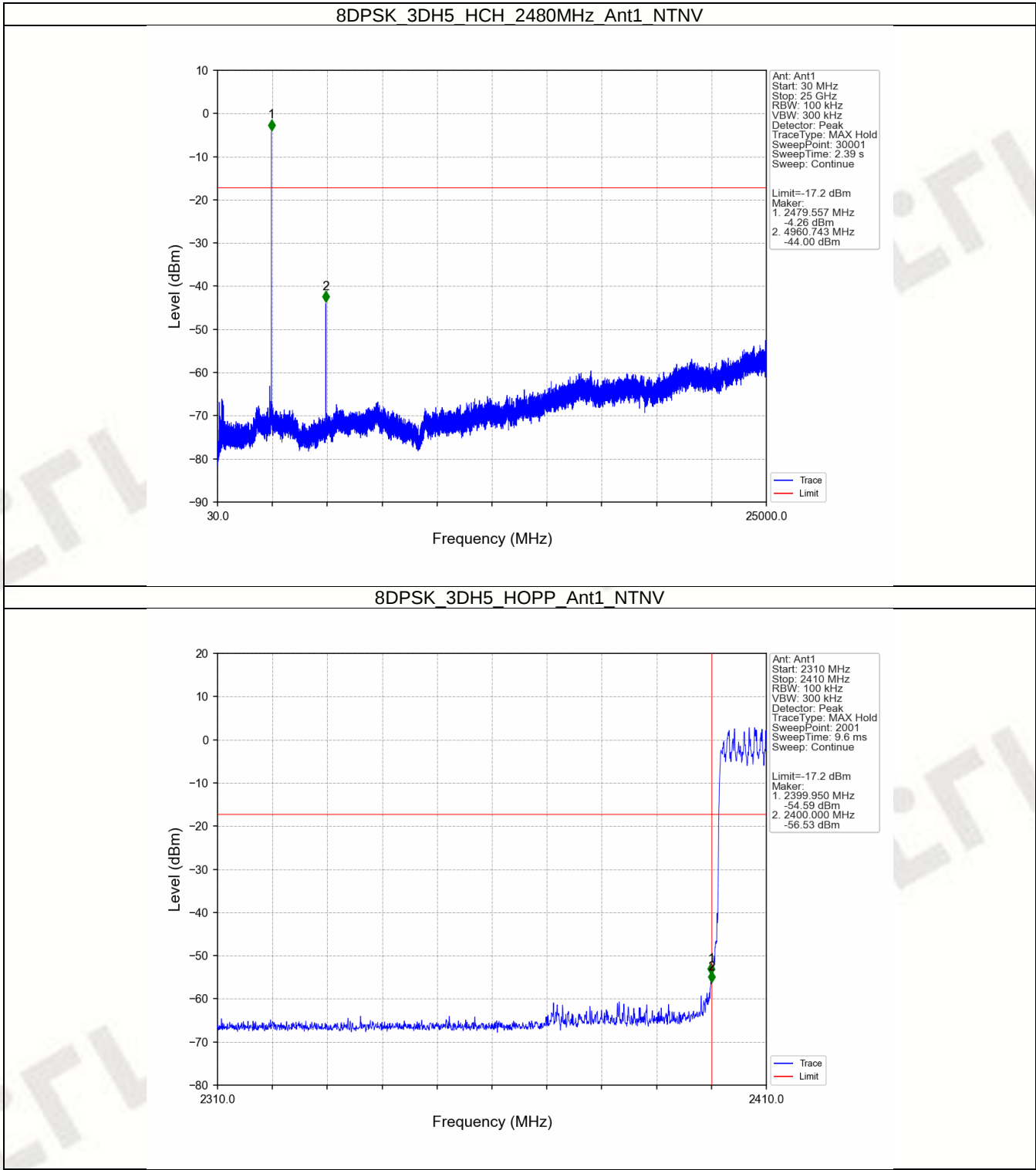
8DPSK 3DH5 LCH 2402MHz Ant1 NTN



FCCID: SMQ-UWM3



FCCID: SMQ-UWM3



FCCID: SMQ-UWM3

