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Annex for Bluetooth

Test Report No.: CTL2507158031-WF01

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FCC ID: 2ASQI-362350

1. Duty Cycle

1.1 Test Result

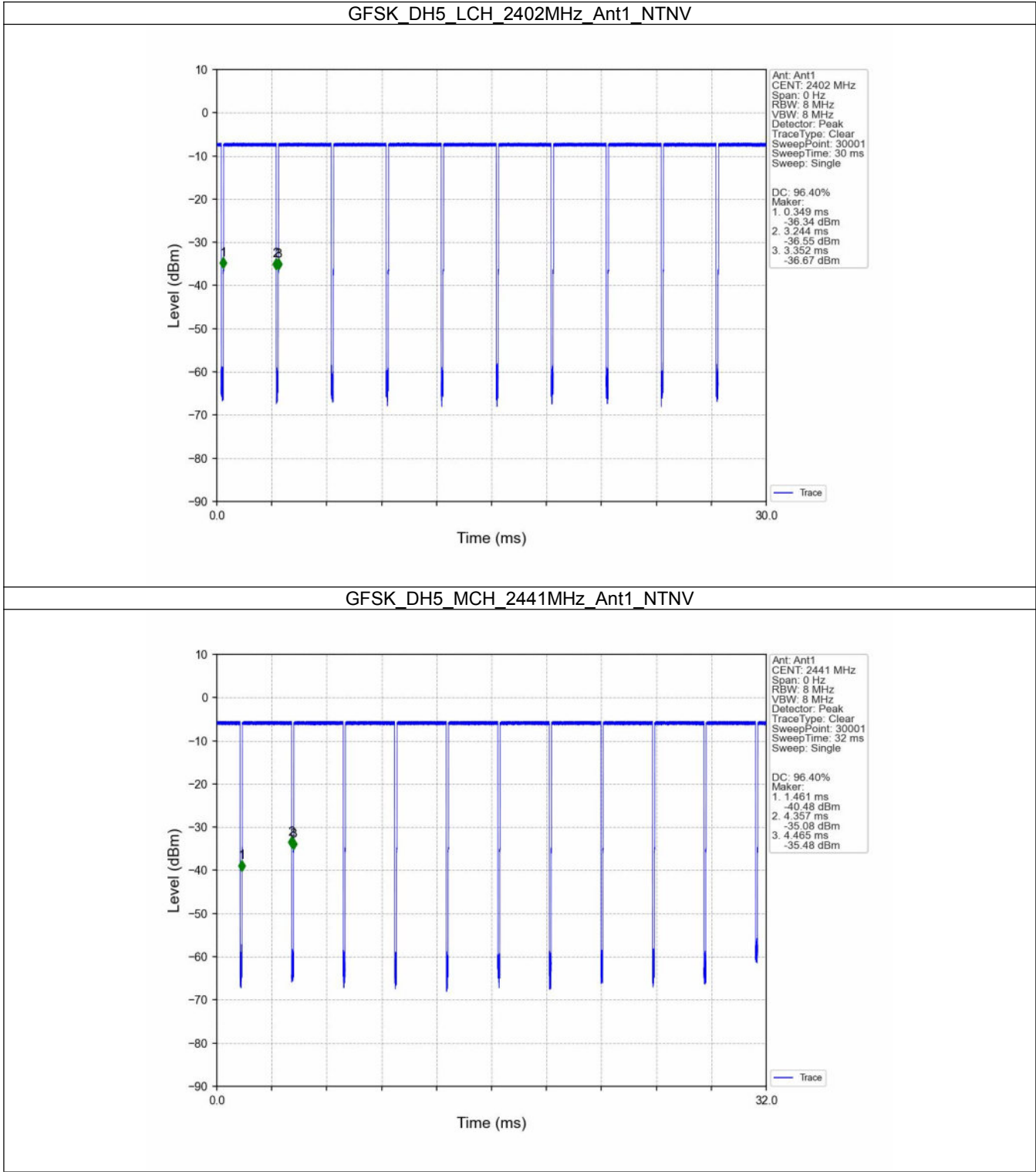
1.1.1 Ant1

Ant1								
Mode	TX Type	Frequency (MHz)	Packet Type	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
GFSK	SISO	2402	DH5	2.895	3.003	96.40	0.16	0.03
		2441	DH5	2.896	3.004	96.40	0.16	0.07
		2480	DH5	2.896	3.004	96.40	0.16	0.07
Pi/4DQPSK	SISO	2402	2DH5	2.907	3.225	90.14	0.45	0.03
		2441	2DH5	2.907	3.226	90.11	0.45	0.04
		2480	2DH5	2.907	3.226	90.11	0.45	0.04
8DPSK	SISO	2402	3DH5	2.909	3.452	84.27	0.74	0.06
		2441	3DH5	2.909	3.451	84.29	0.74	0.06
		2480	3DH5	2.908	3.450	84.29	0.74	0.06

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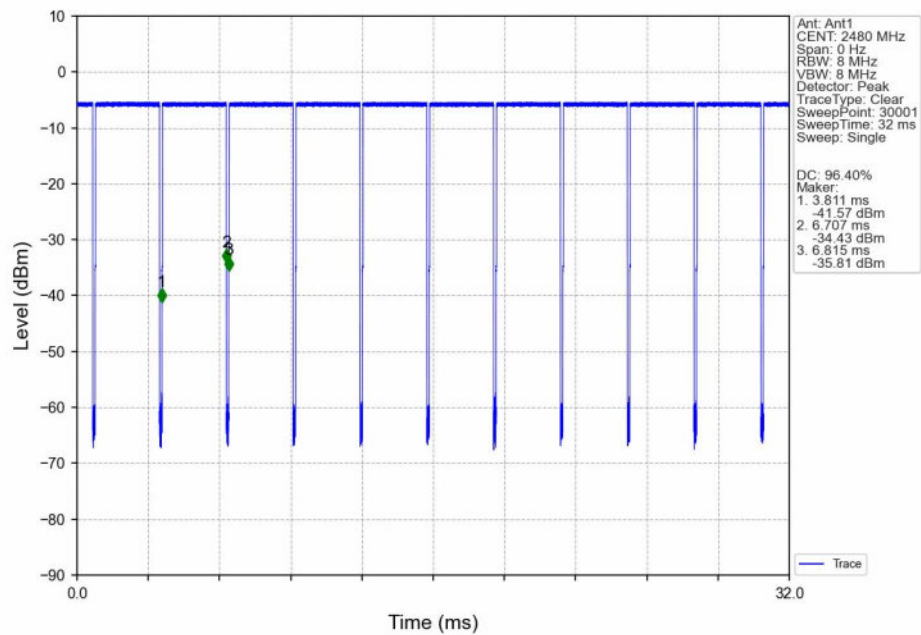
1.2 Test Graph

1.2.1 Ant1

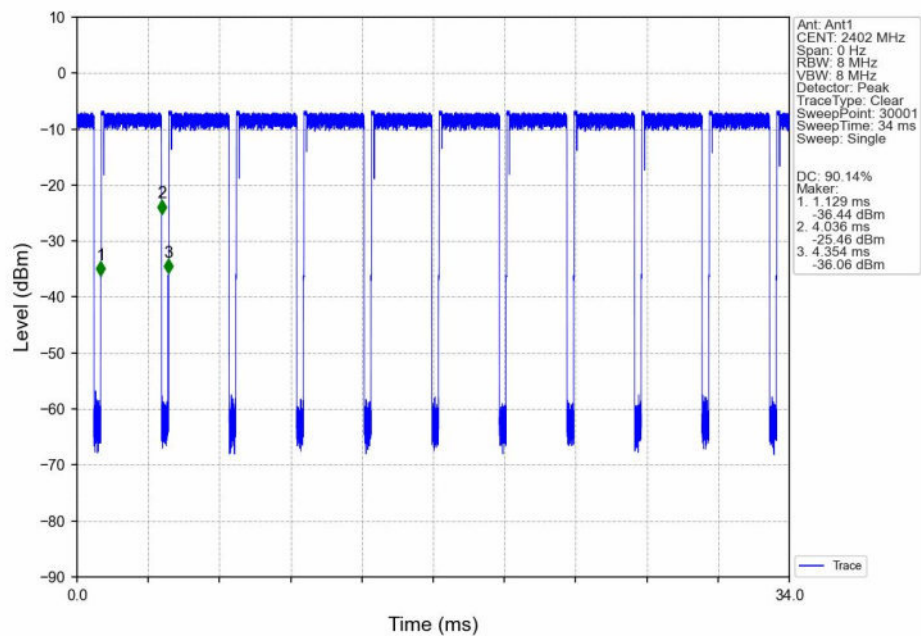


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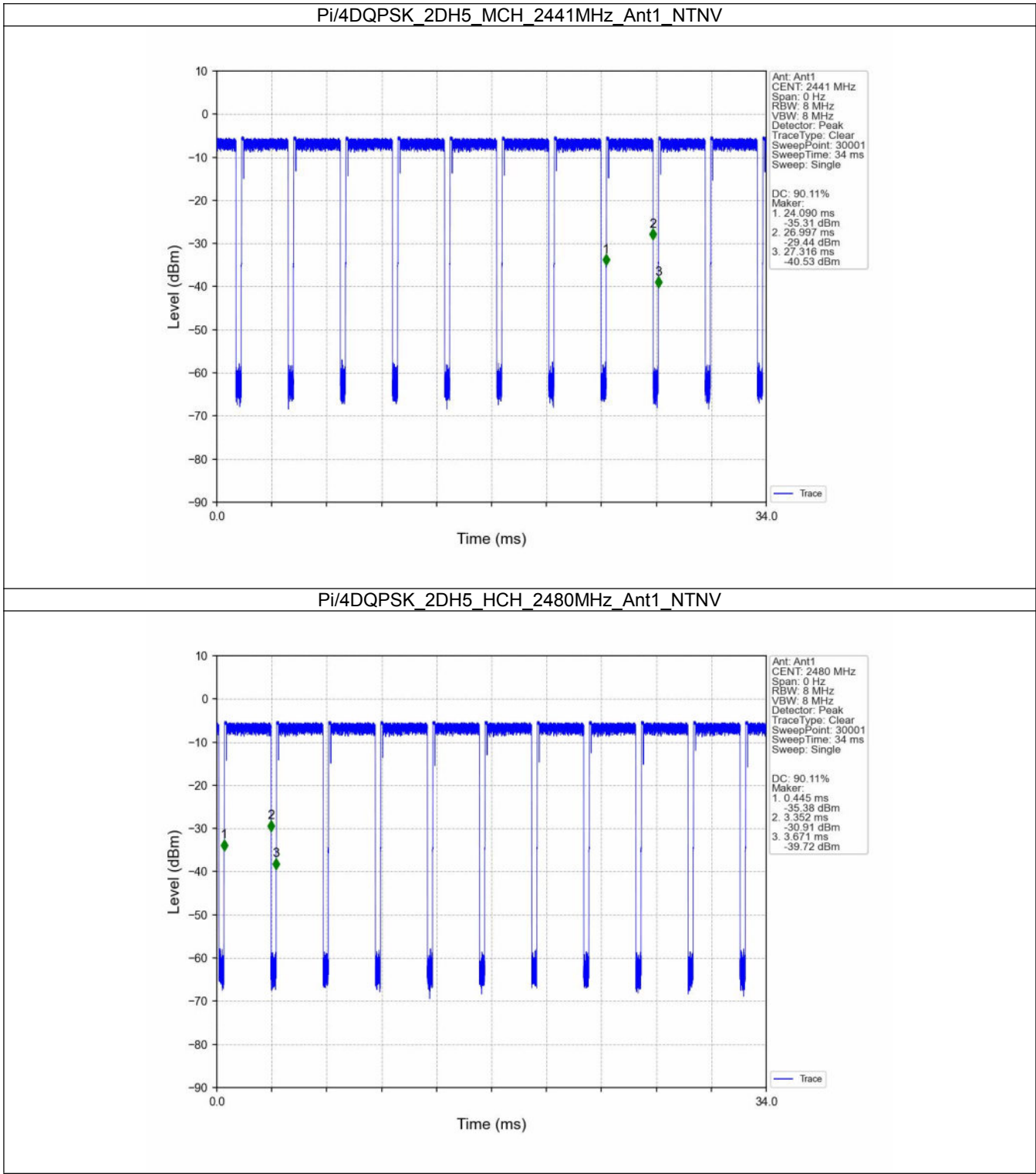
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV

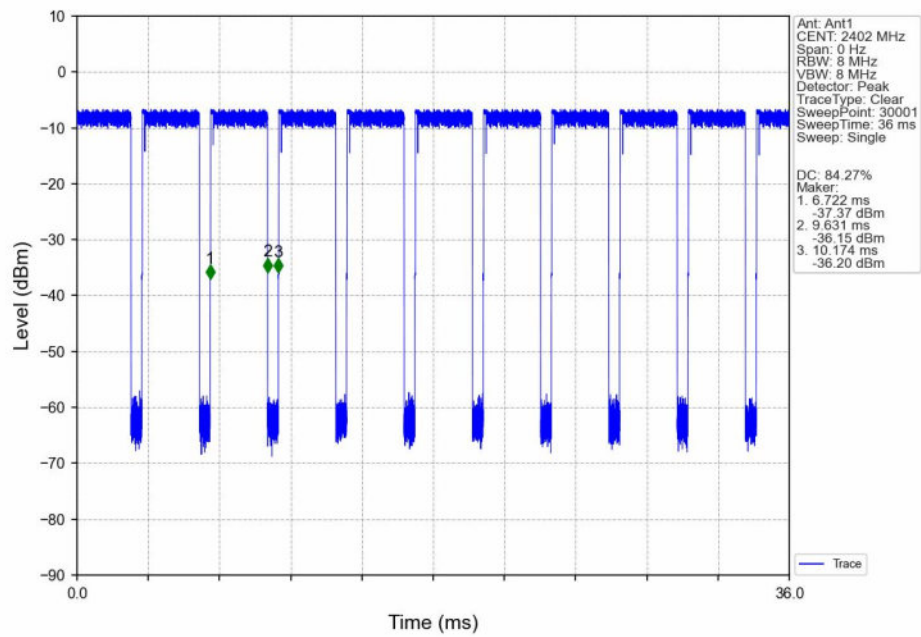


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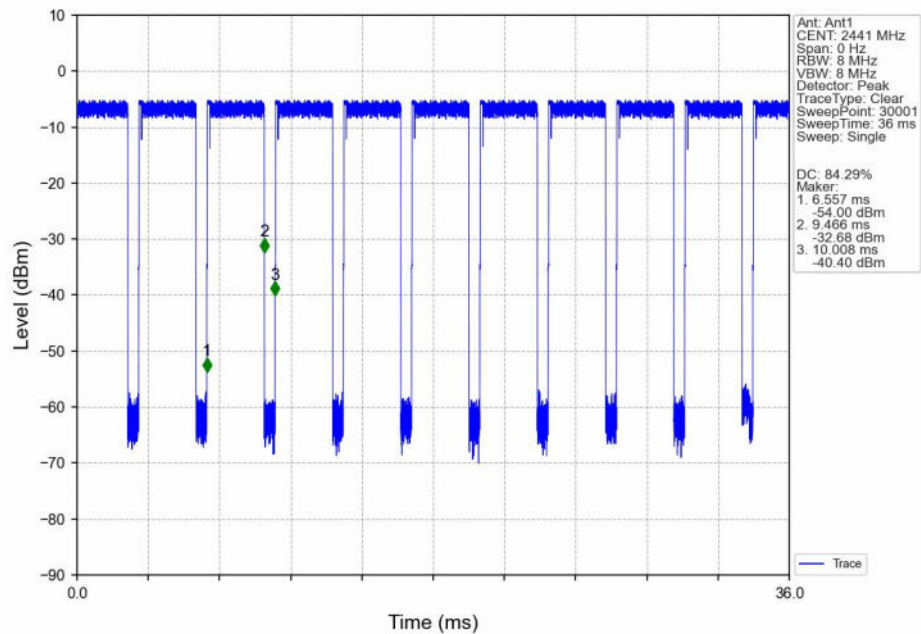


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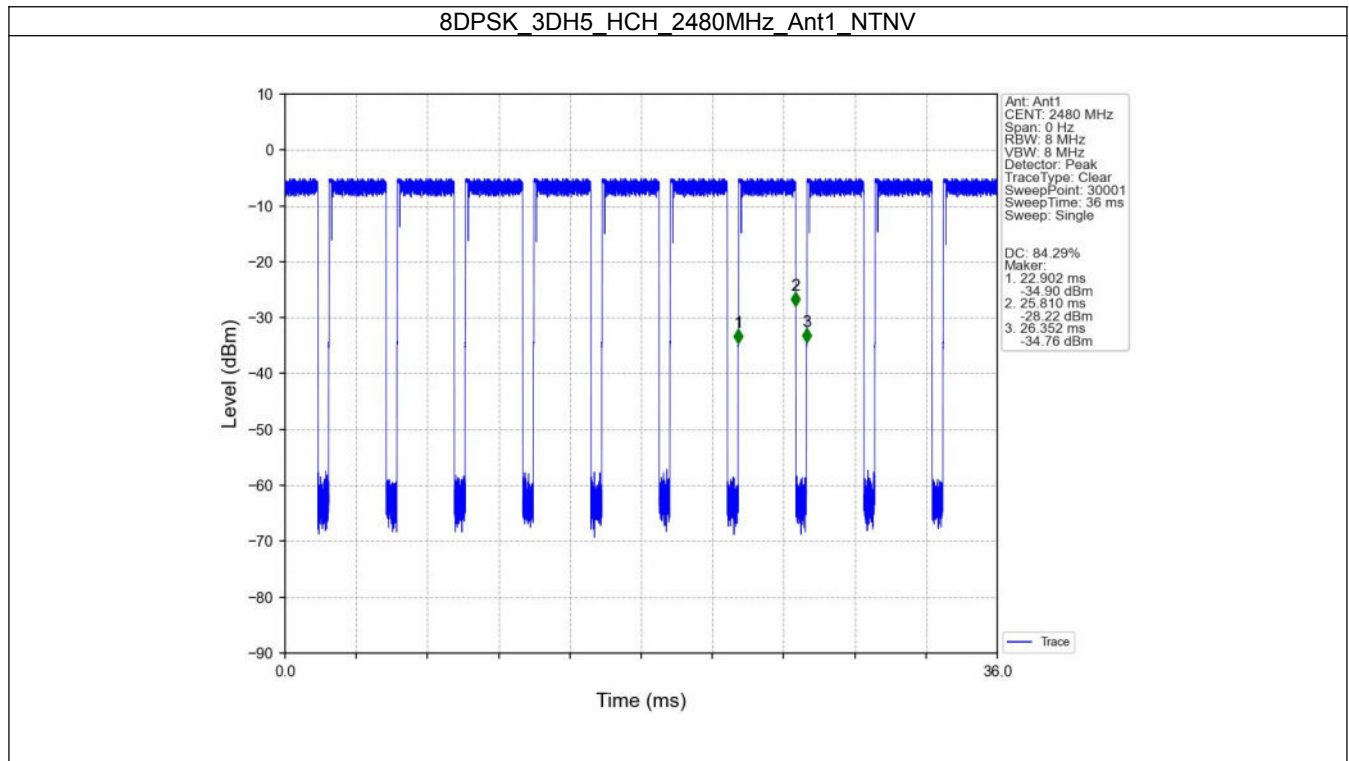
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



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2. Bandwidth

2.1 Test Result

2.1.1 OBW

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.839	/	Pass
		2441	DH5	1	0.841	/	Pass
		2480	DH5	1	0.842	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.153	/	Pass
		2441	2DH5	1	1.156	/	Pass
		2480	2DH5	1	1.153	/	Pass
8DPSK	SISO	2402	3DH5	1	1.145	/	Pass
		2441	3DH5	1	1.144	/	Pass
		2480	3DH5	1	1.146	/	Pass

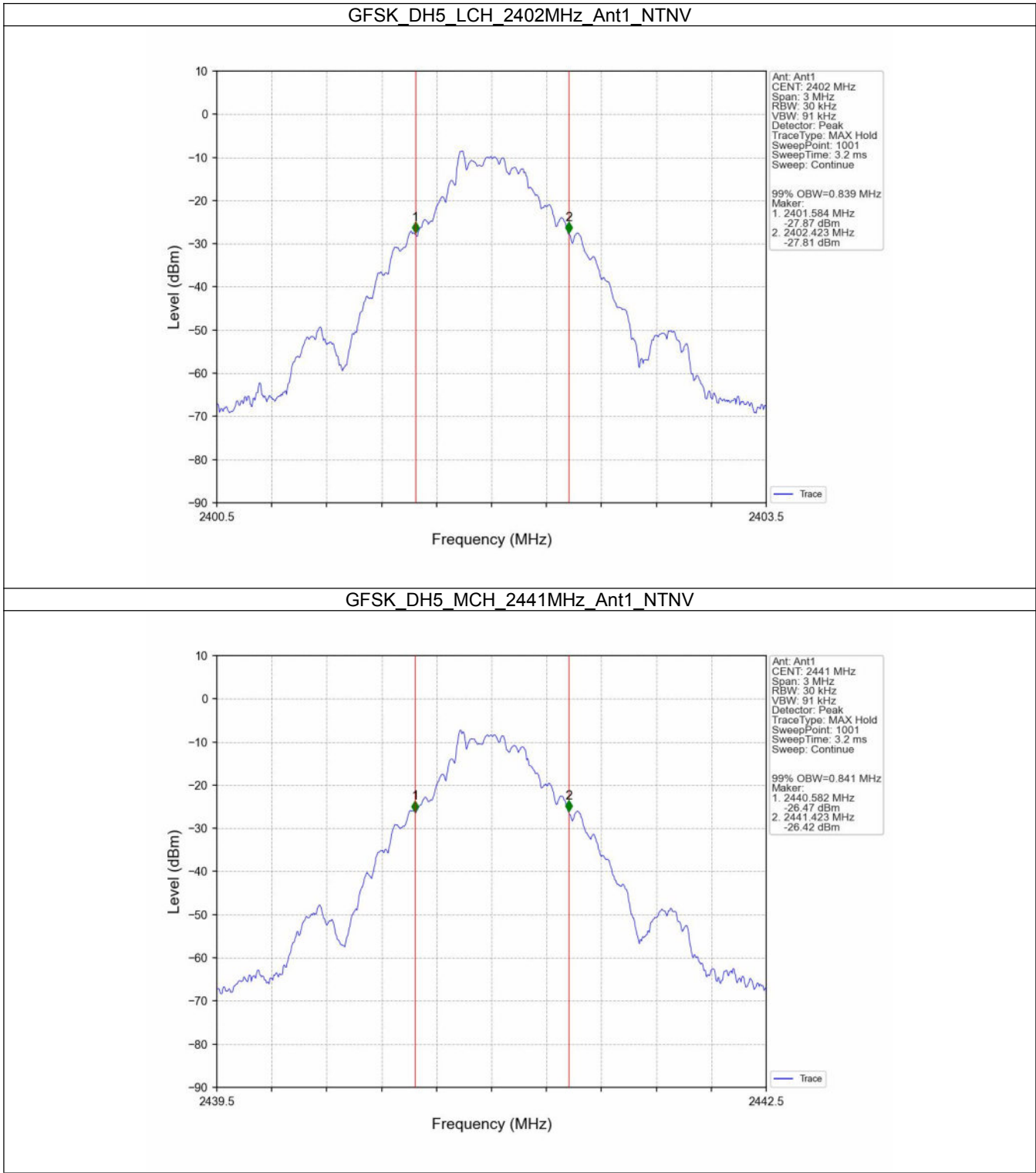
2.1.2 20dB BW

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.947	/	Pass
		2441	DH5	1	0.941	/	Pass
		2480	DH5	1	0.935	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.260	/	Pass
		2441	2DH5	1	1.260	/	Pass
		2480	2DH5	1	1.262	/	Pass
8DPSK	SISO	2402	3DH5	1	1.223	/	Pass
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		2480	3DH5	1	1.218	/	Pass

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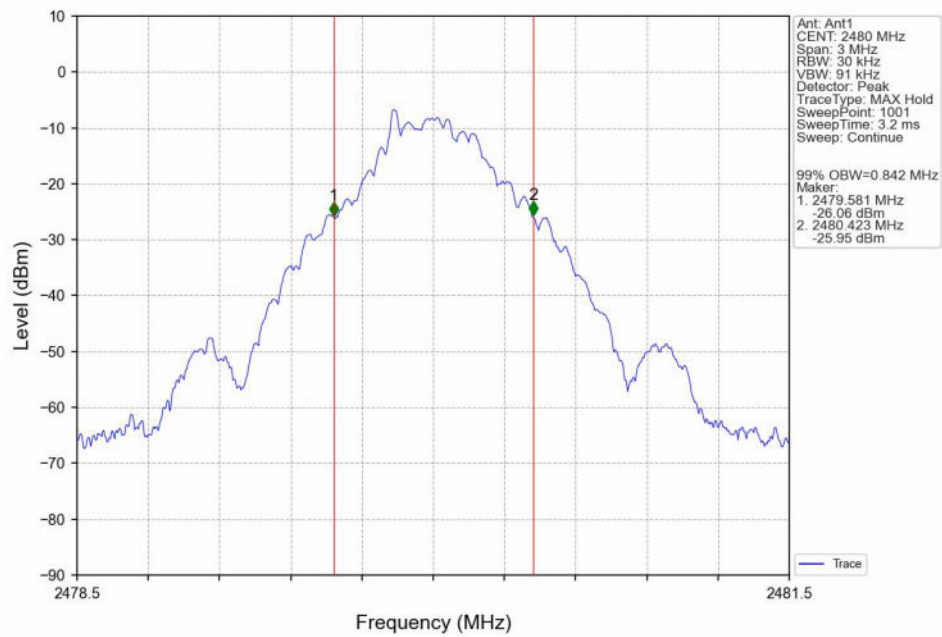
2.2 Test Graph

2.2.1 OBW

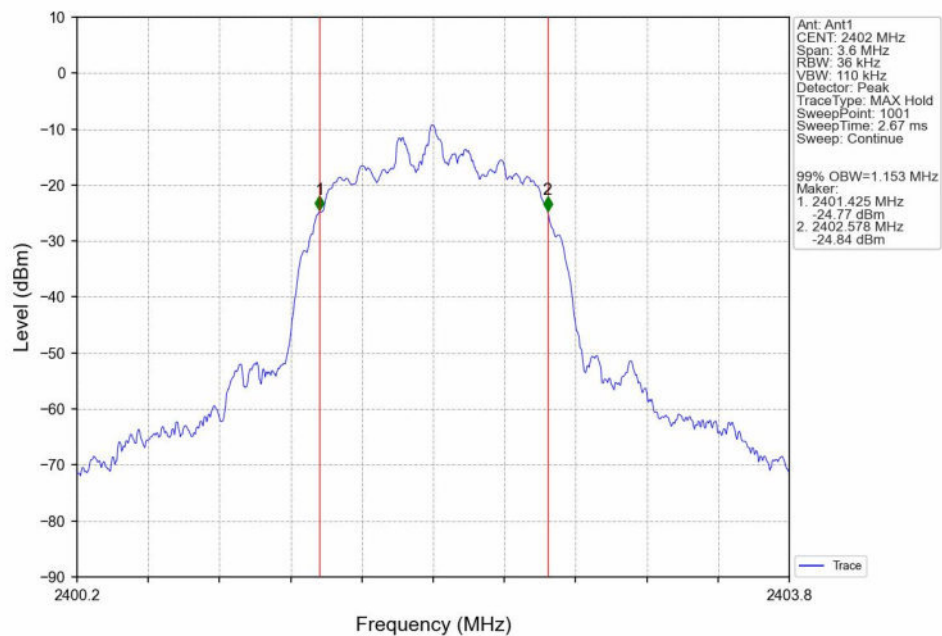


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GFSK_DH5_HCH_2480MHz_Ant1_NTNV

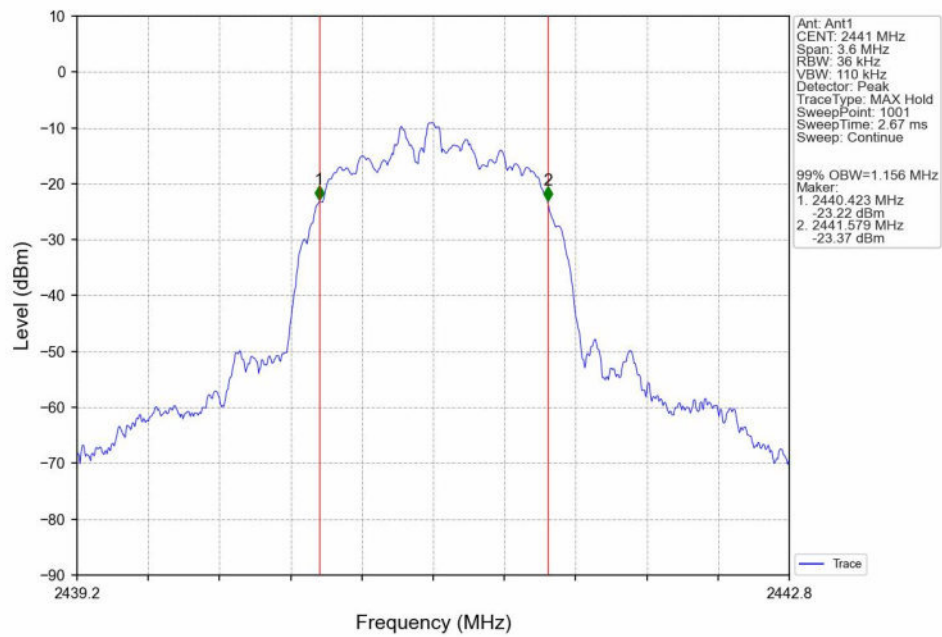


Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV

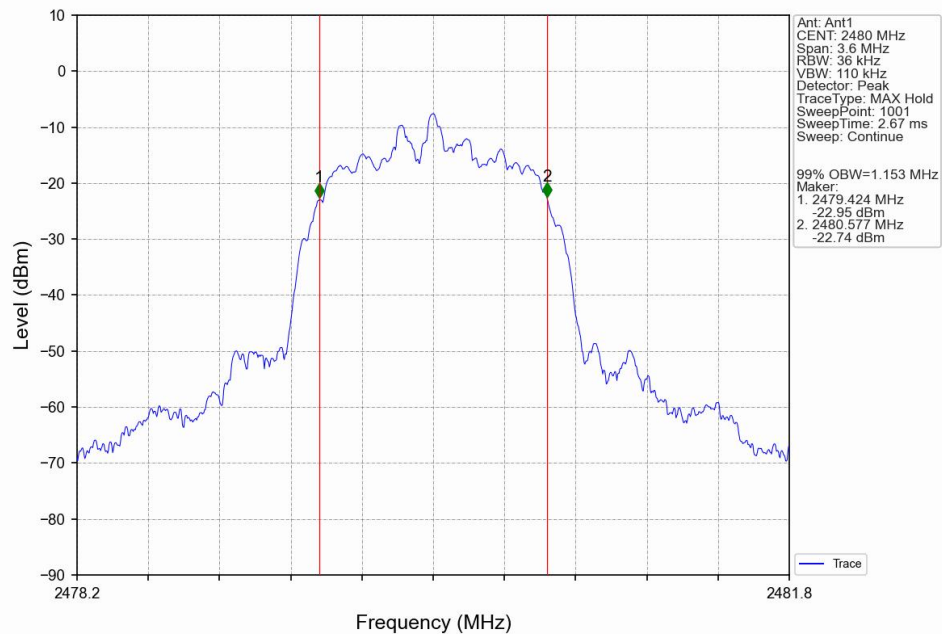


FCC ID: 2ASQI-362350

Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV

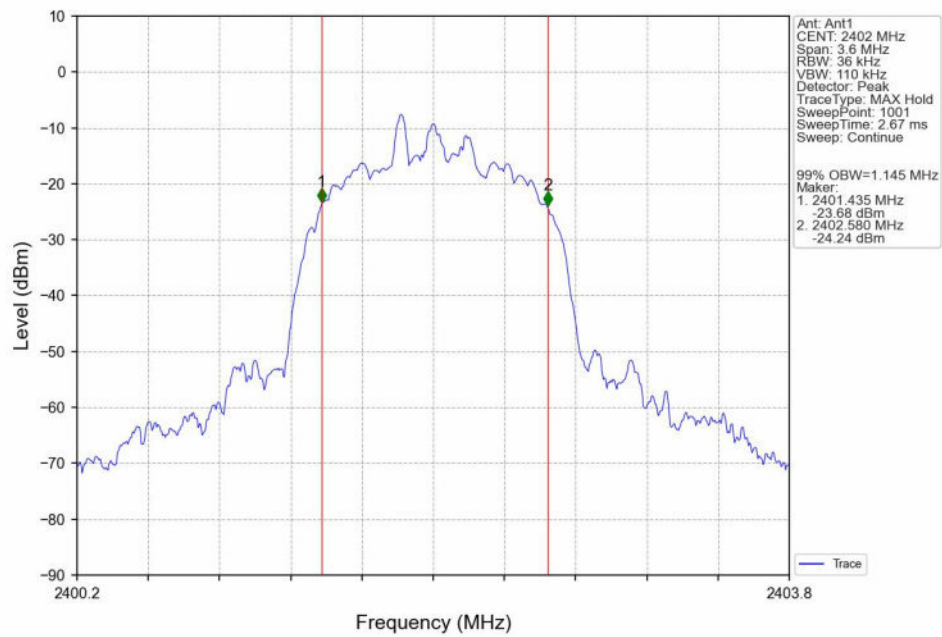


Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

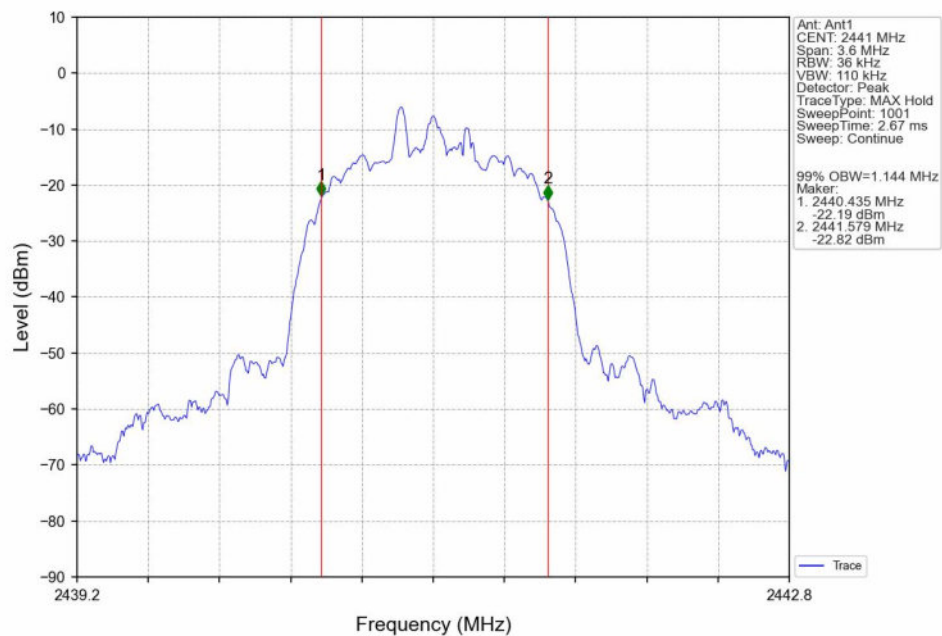


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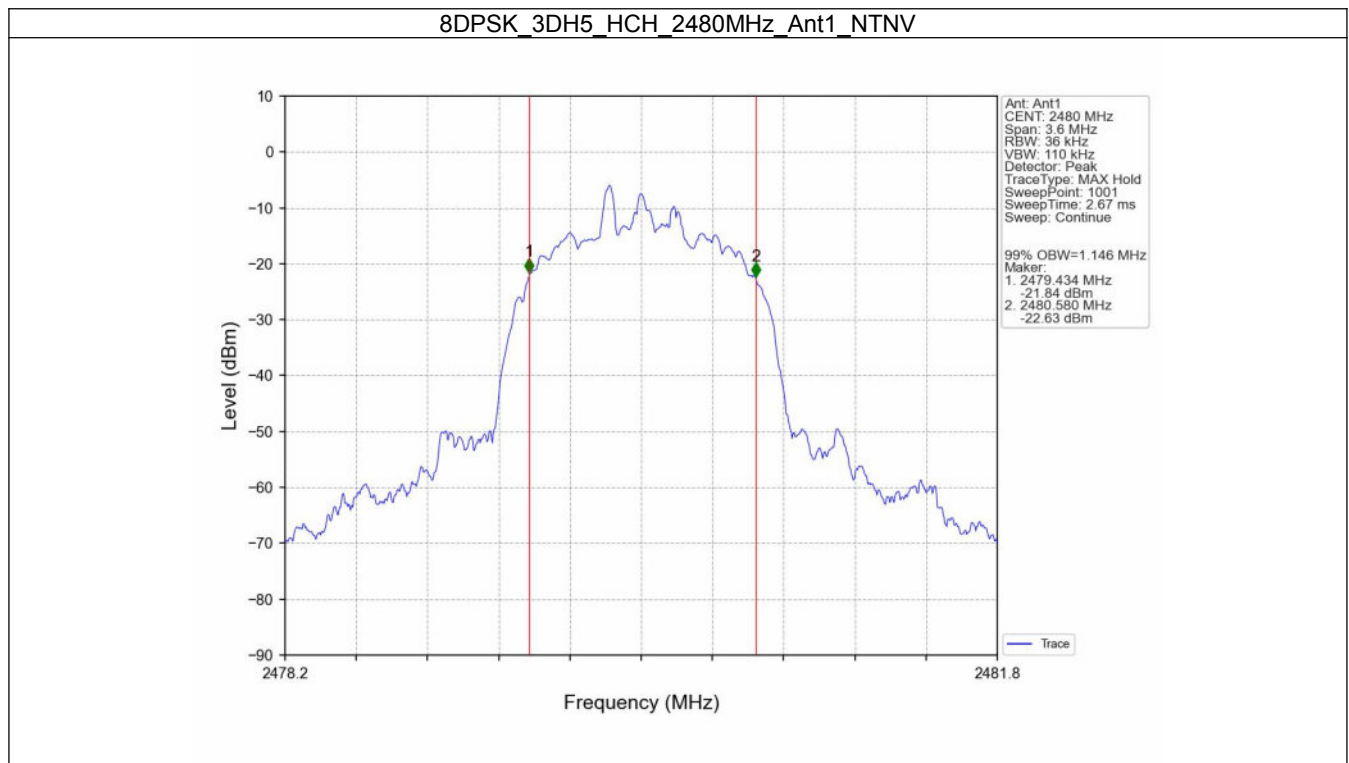
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV

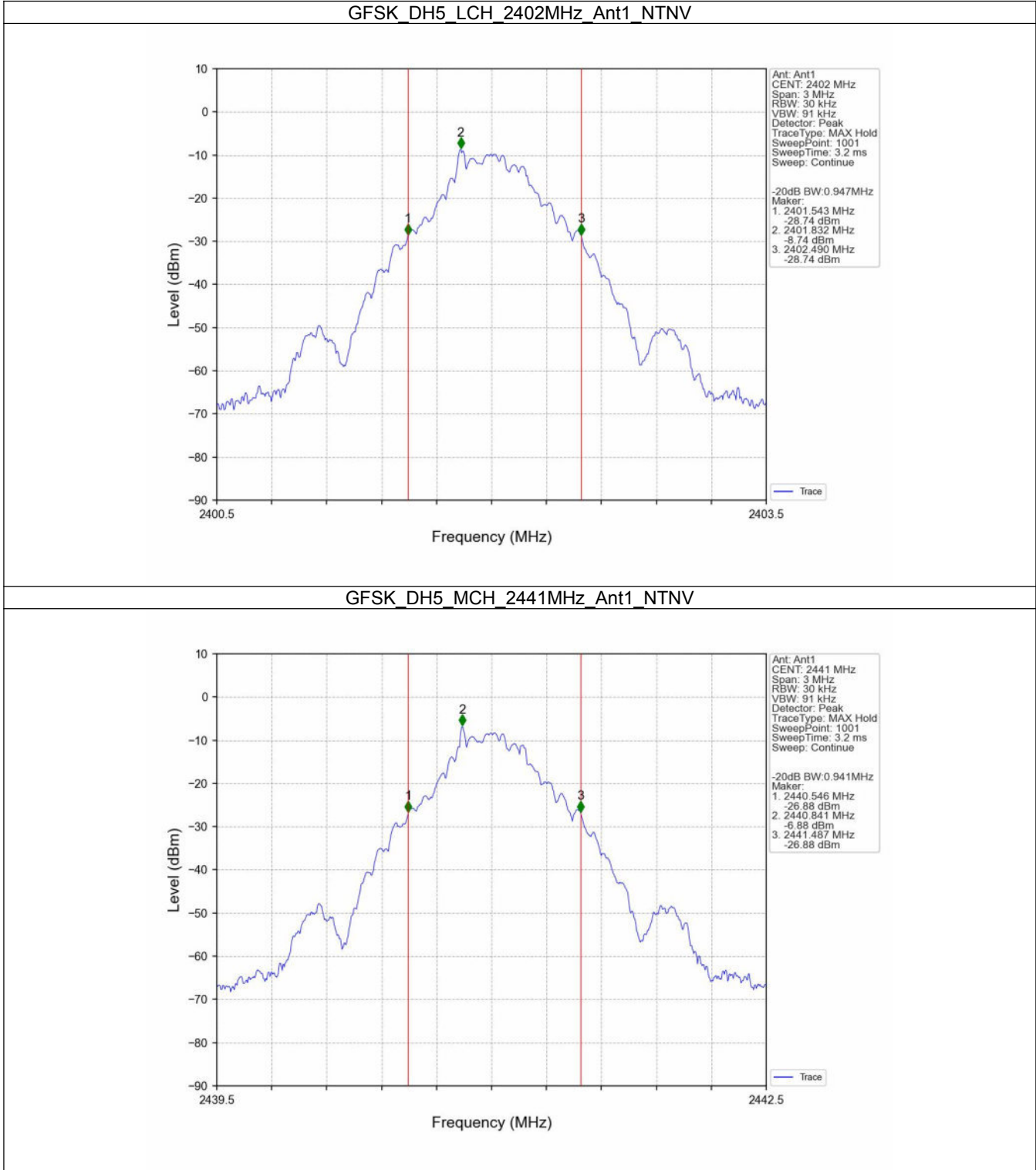


FCC ID: 2ASQI-362350



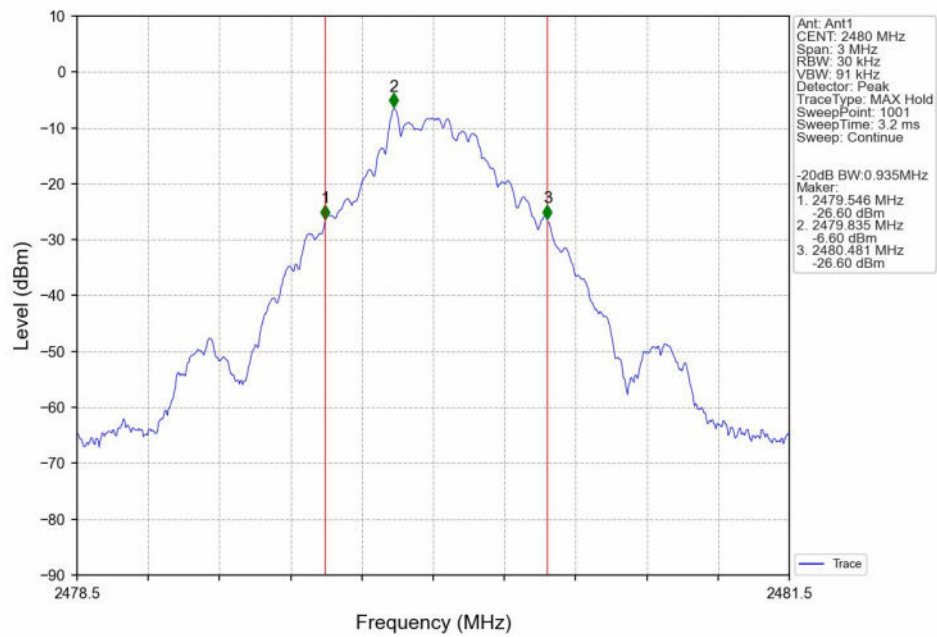
FCC ID: 2ASQI-362350

2.2.2 20dB BW

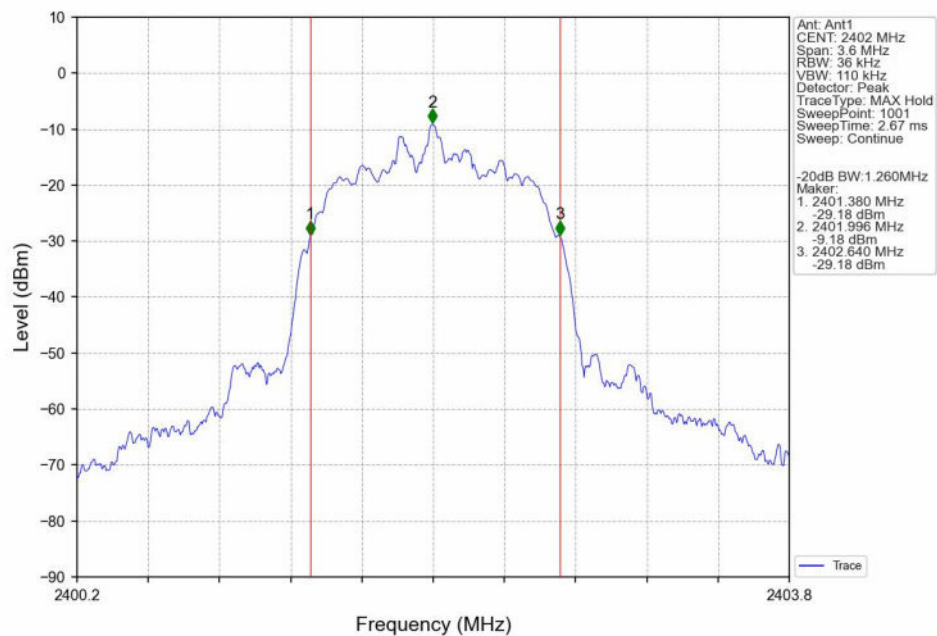


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GFSK_DH5_HCH_2480MHz_Ant1_NTNV

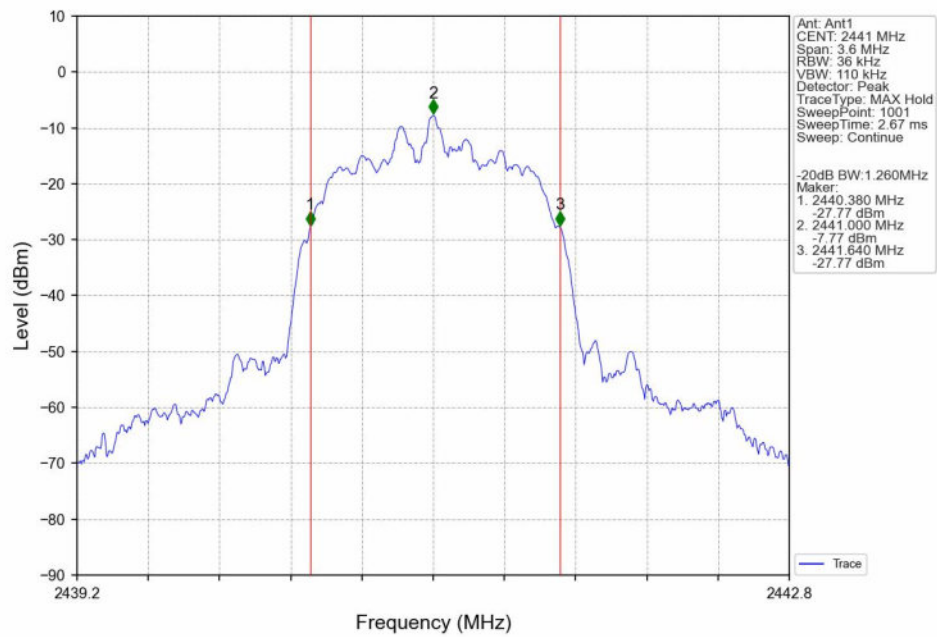


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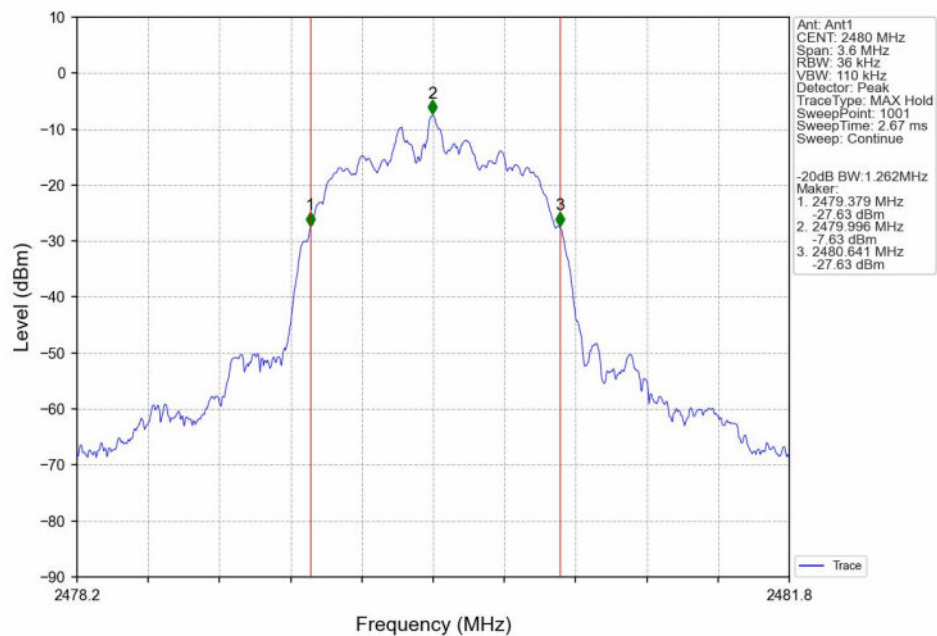


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Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV

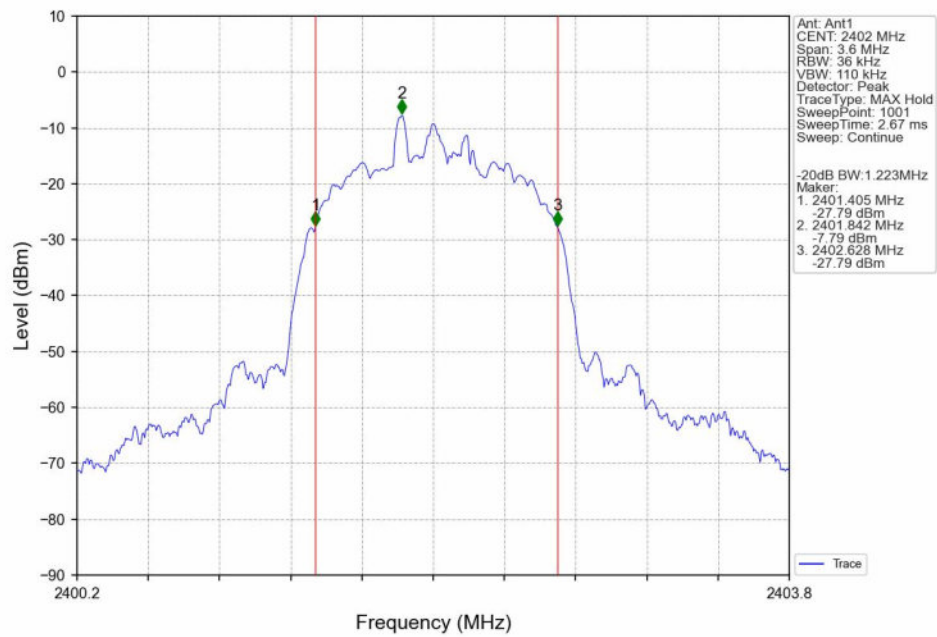


Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

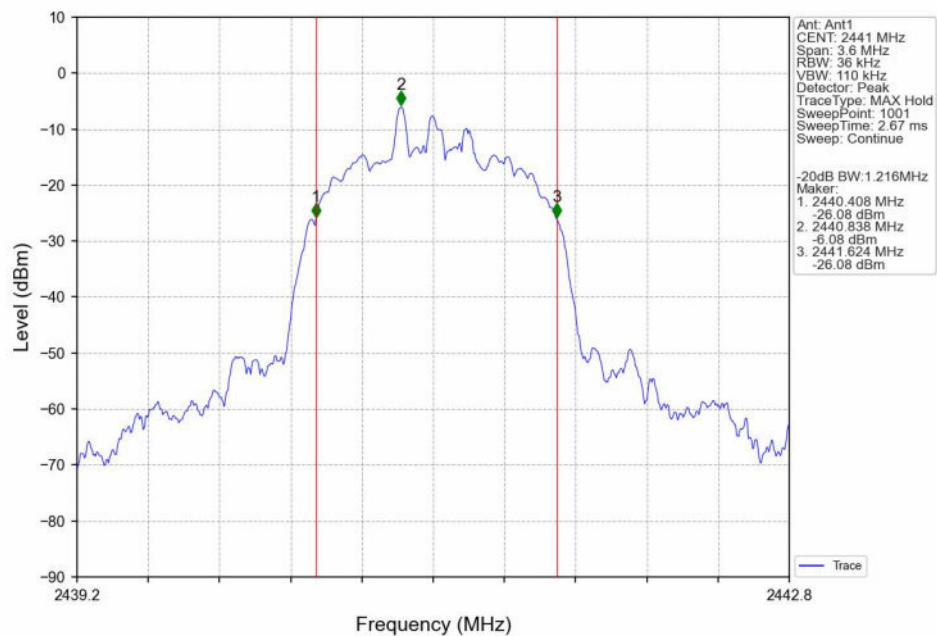


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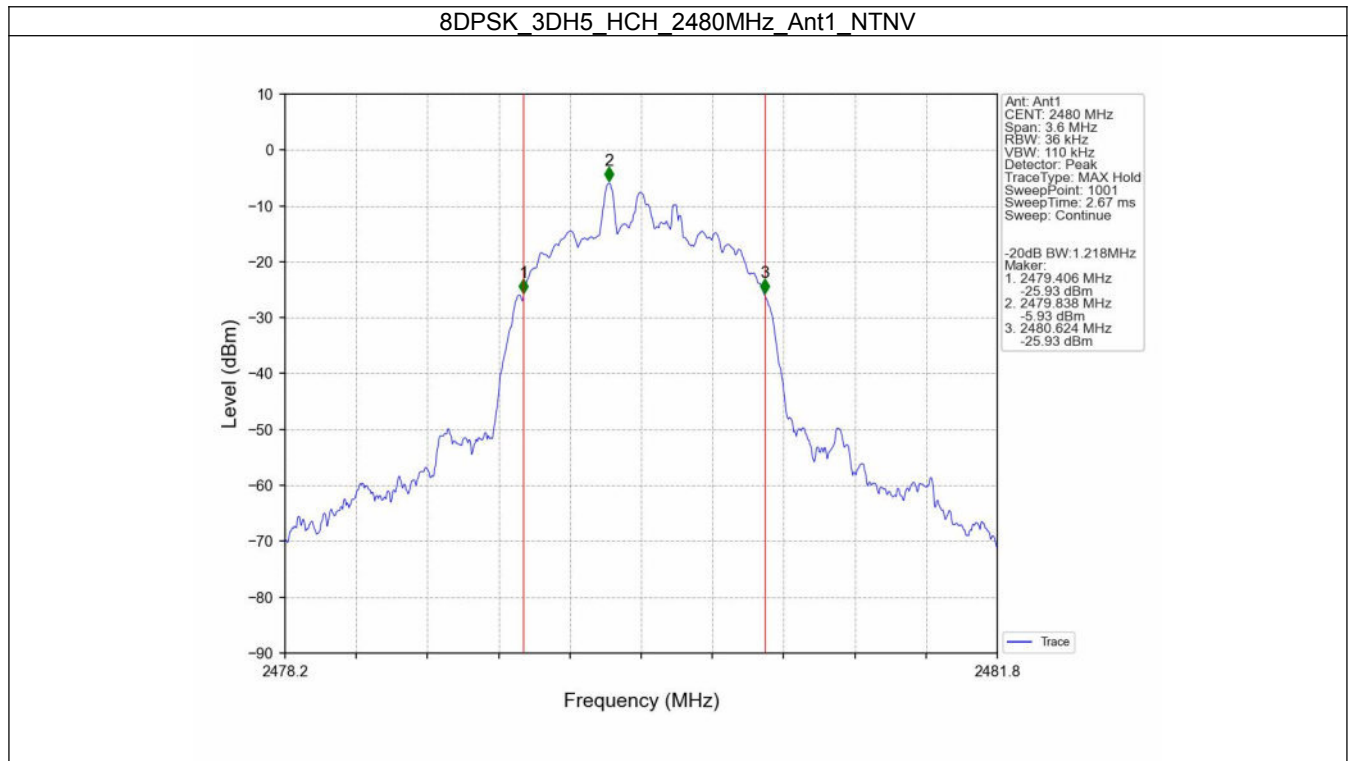
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



FCC ID: 2ASQI-362350



FCC ID: 2ASQI-362350

3. Maximum Conducted Output Power

3.1 Test Result

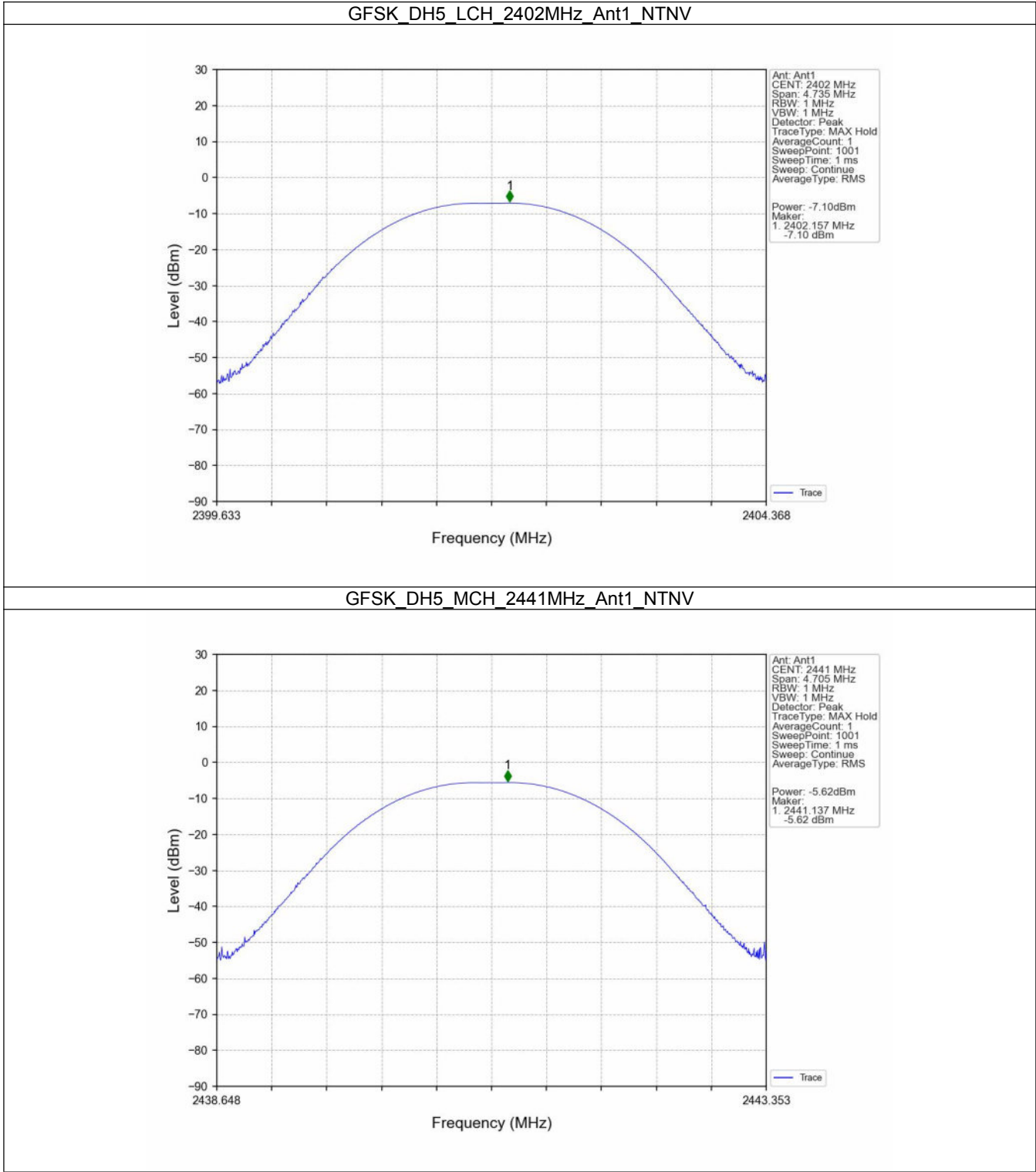
3.1.1 Power

Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	-7.10	<=30	Pass
		2441	DH5	-5.62	<=30	Pass
		2480	DH5	-5.49	<=30	Pass
Pi/4DQPSK	SISO	2402	2DH5	-6.80	<=20.97	Pass
		2441	2DH5	-5.30	<=20.97	Pass
		2480	2DH5	-5.19	<=20.97	Pass
8DPSK	SISO	2402	3DH5	-6.78	<=20.97	Pass
		2441	3DH5	-5.28	<=20.97	Pass
		2480	3DH5	-5.18	<=20.97	Pass
Note1: Antenna Gain: Ant1: 2.39dBi;						

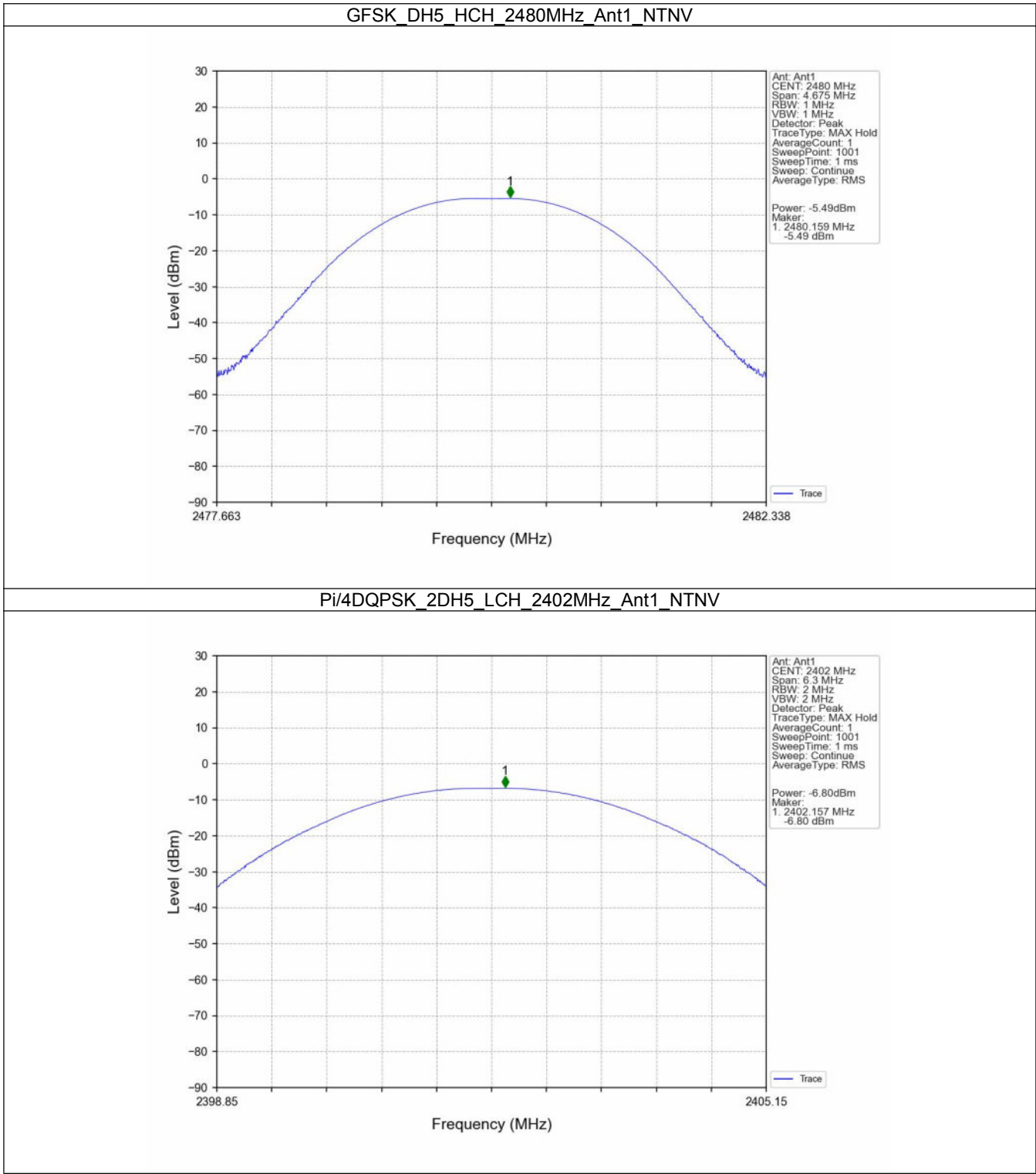
FCC ID: 2ASQI-362350

3.2 Test Graph

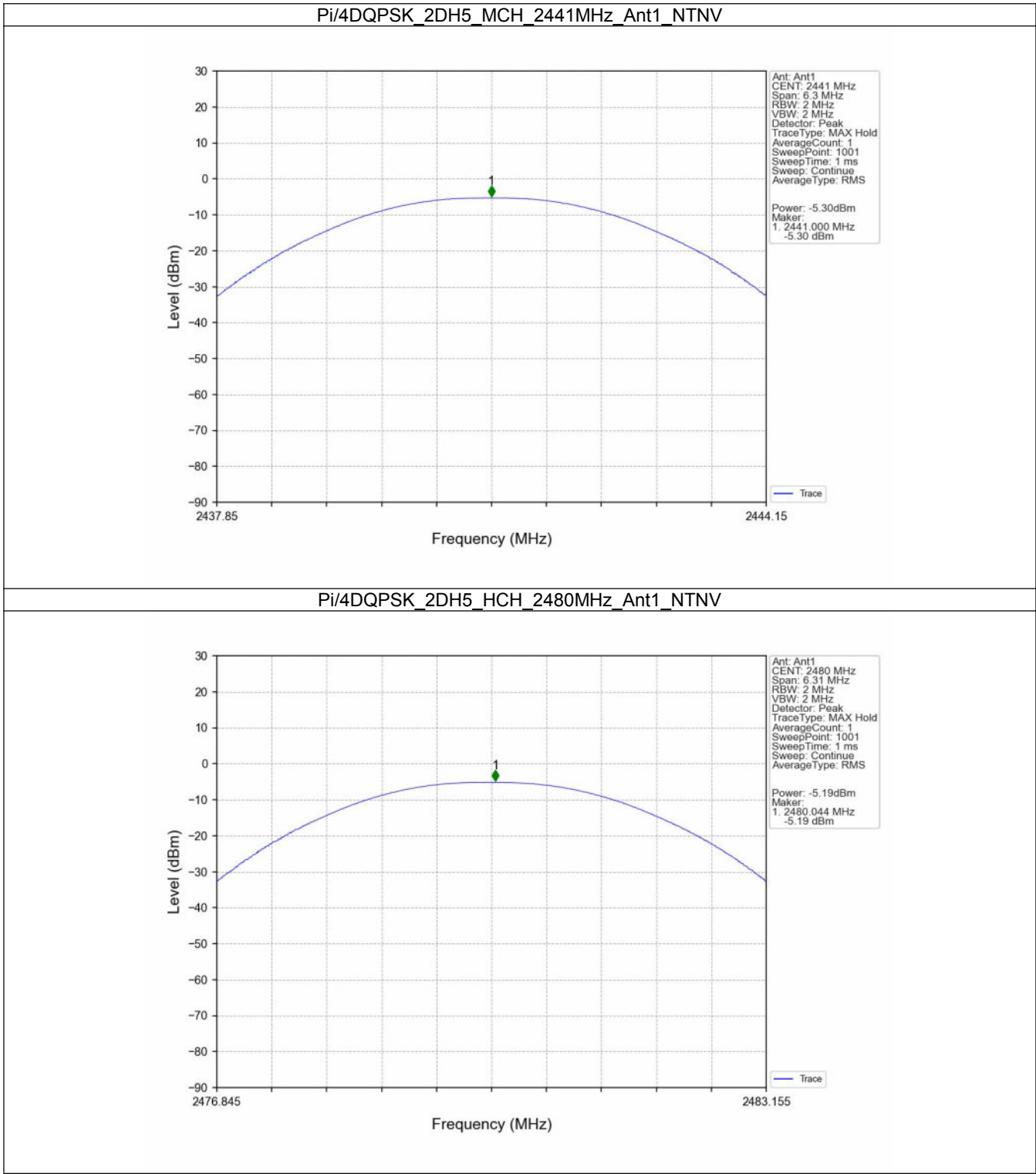
3.2.1 Power



FCC ID: 2ASQI-362350

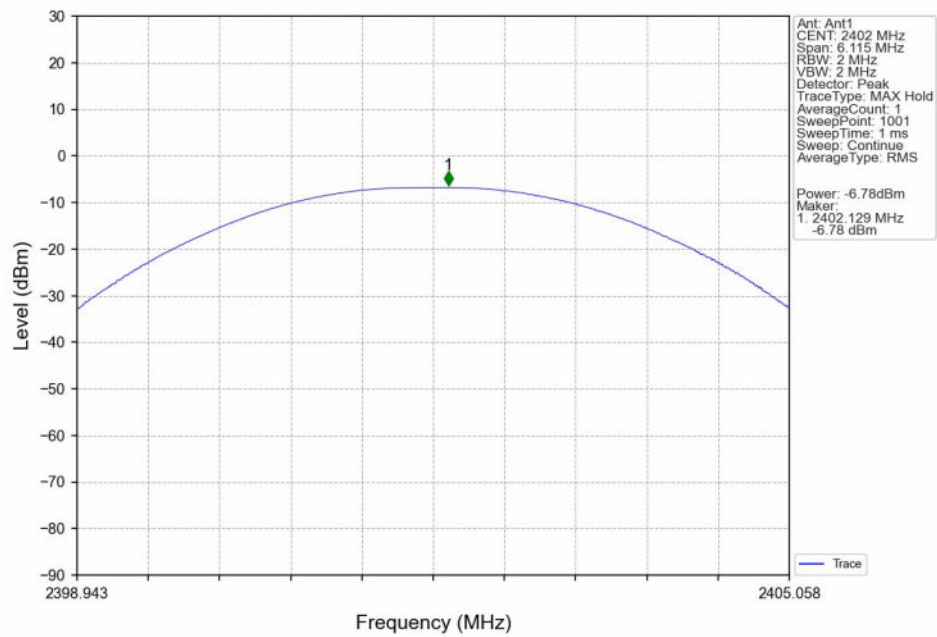


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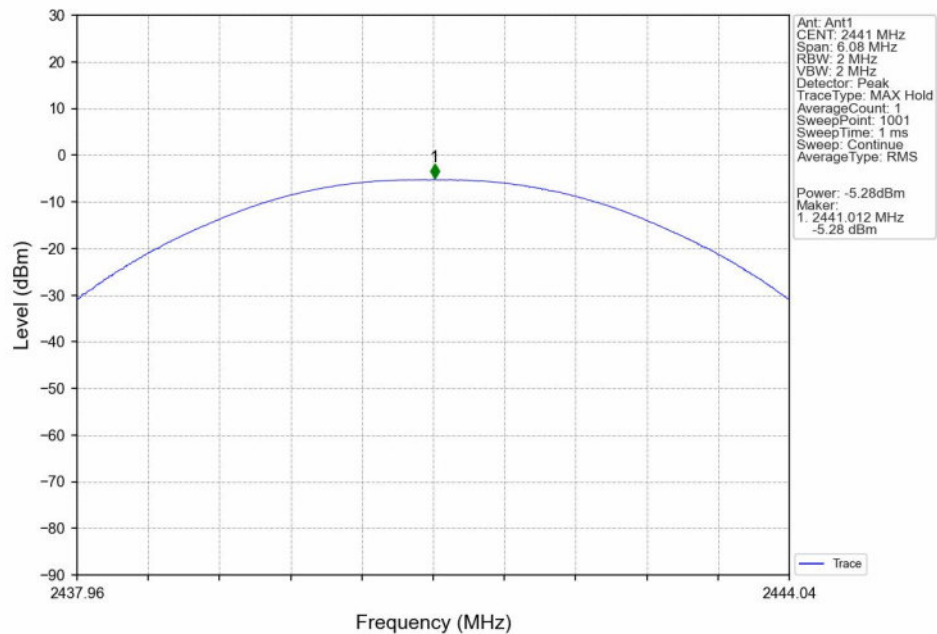


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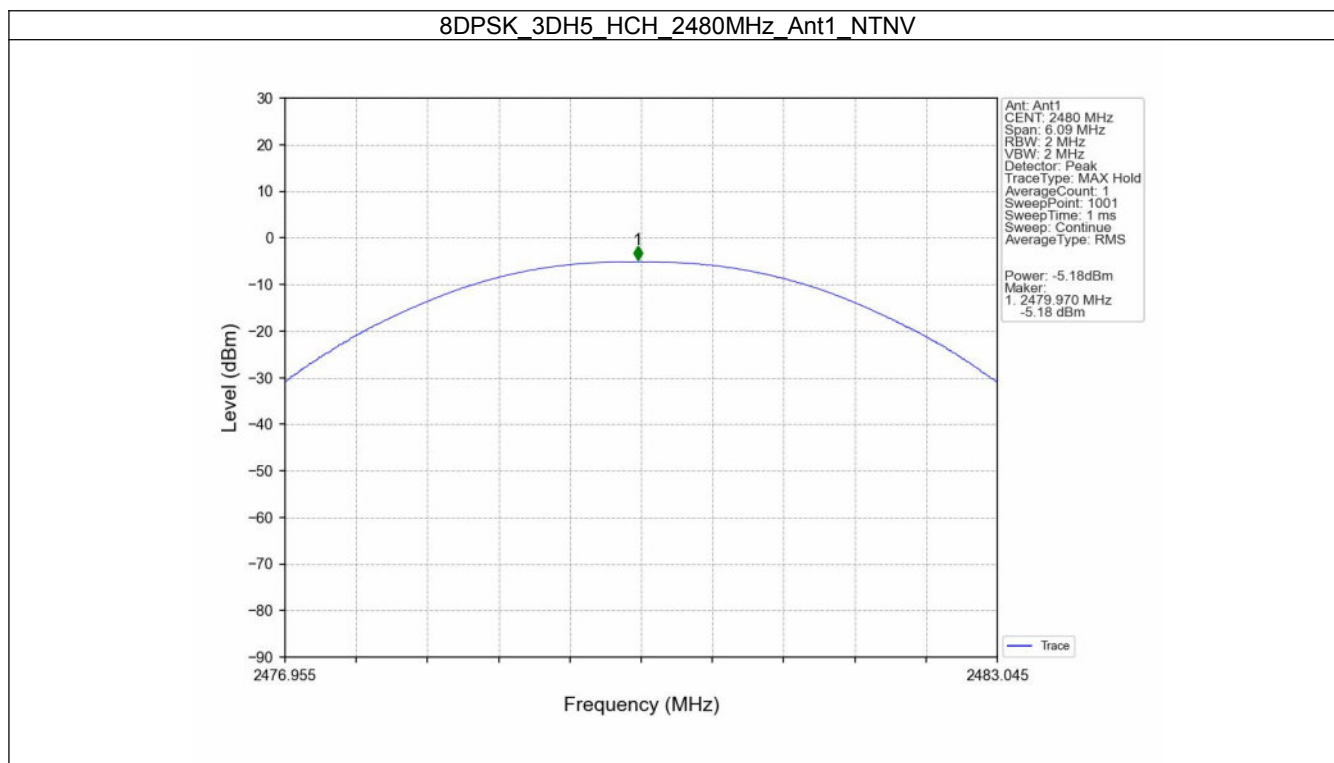
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



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4. Carrier Frequency Separation

4.1 Test Result

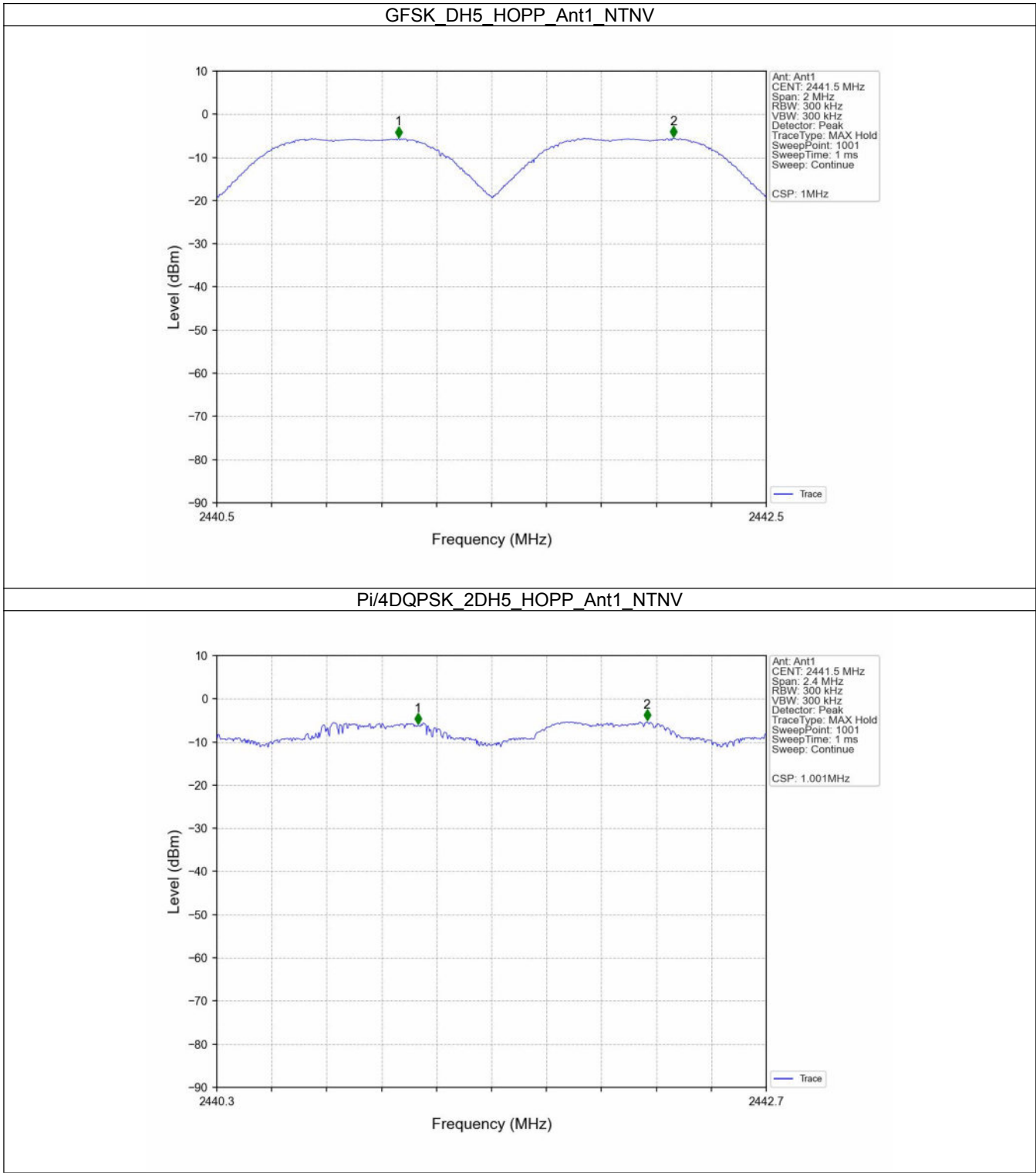
4.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	1.000	0.947	≥ 0.947	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	1.001	1.262	≥ 0.841	Pass
8DPSK	SISO	HOPP	3DH5	1.008	1.223	≥ 0.815	Pass

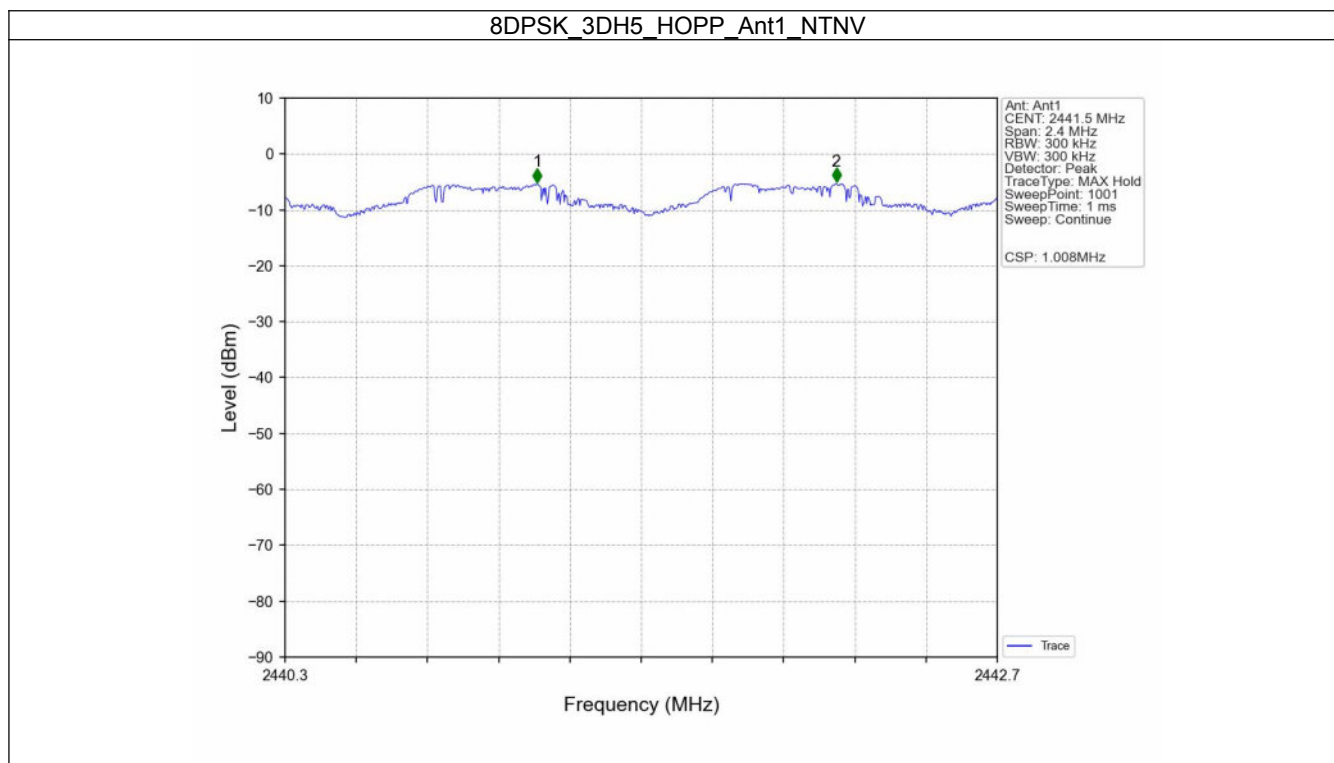
FCC ID: 2ASQI-362350

4.2 Test Graph

4.2.1 Ant1



FCC ID: 2ASQI-362350



FCC ID: 2ASQI-362350

5. Number of Hopping Frequencies

5.1 Test Result

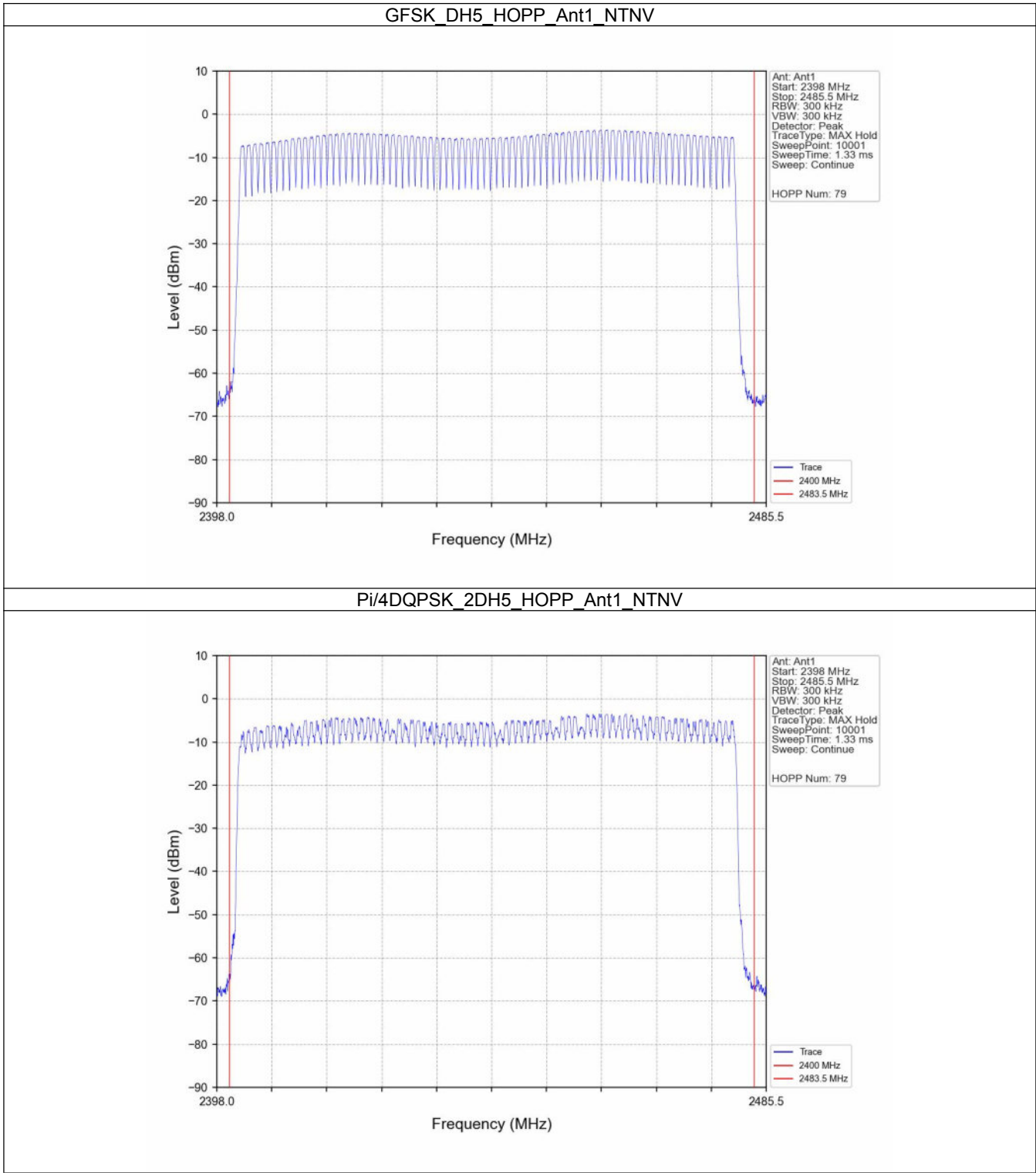
5.1.1 HoppNum

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

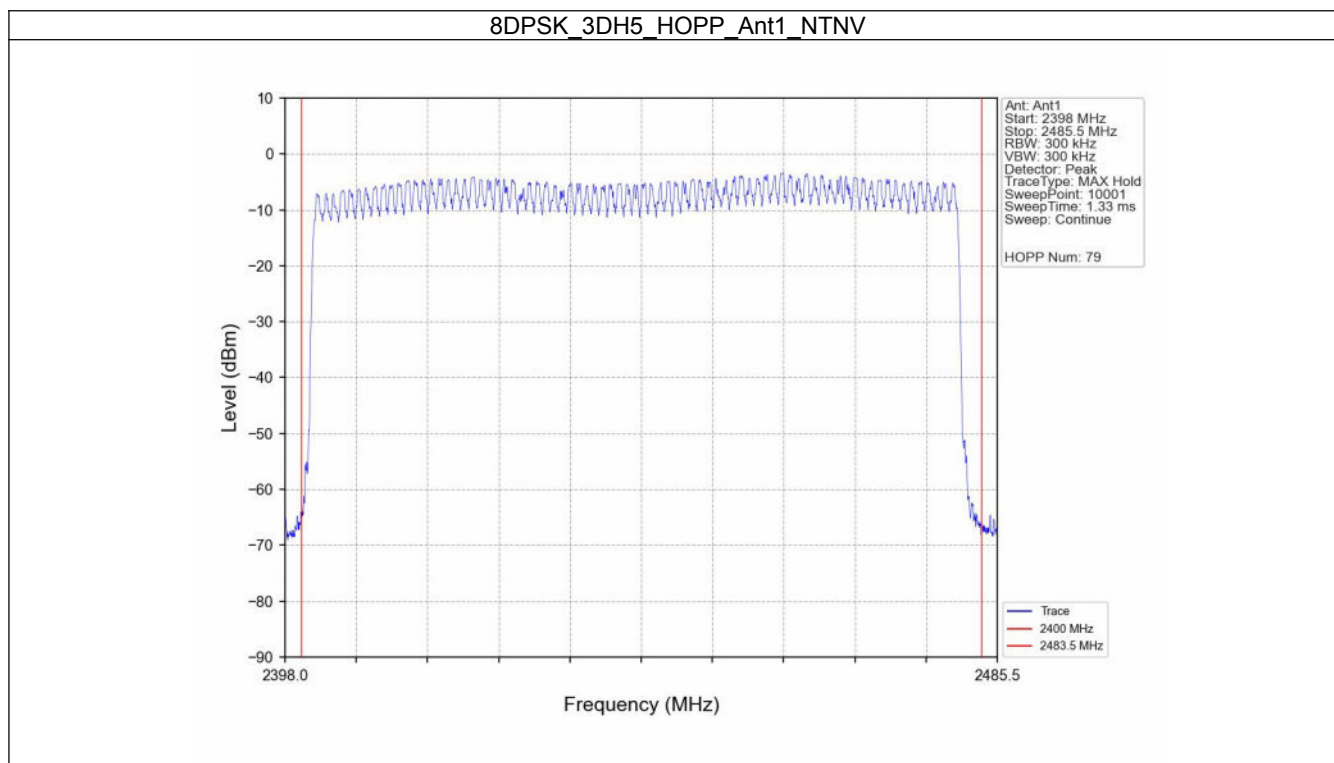
FCC ID: 2ASQI-362350

5.2 Test Graph

5.2.1 HoppNum



FCC ID: 2ASQI-362350



FCC ID: 2ASQI-362350

6. Time of Occupancy (Dwell Time)

6.1 Test Result

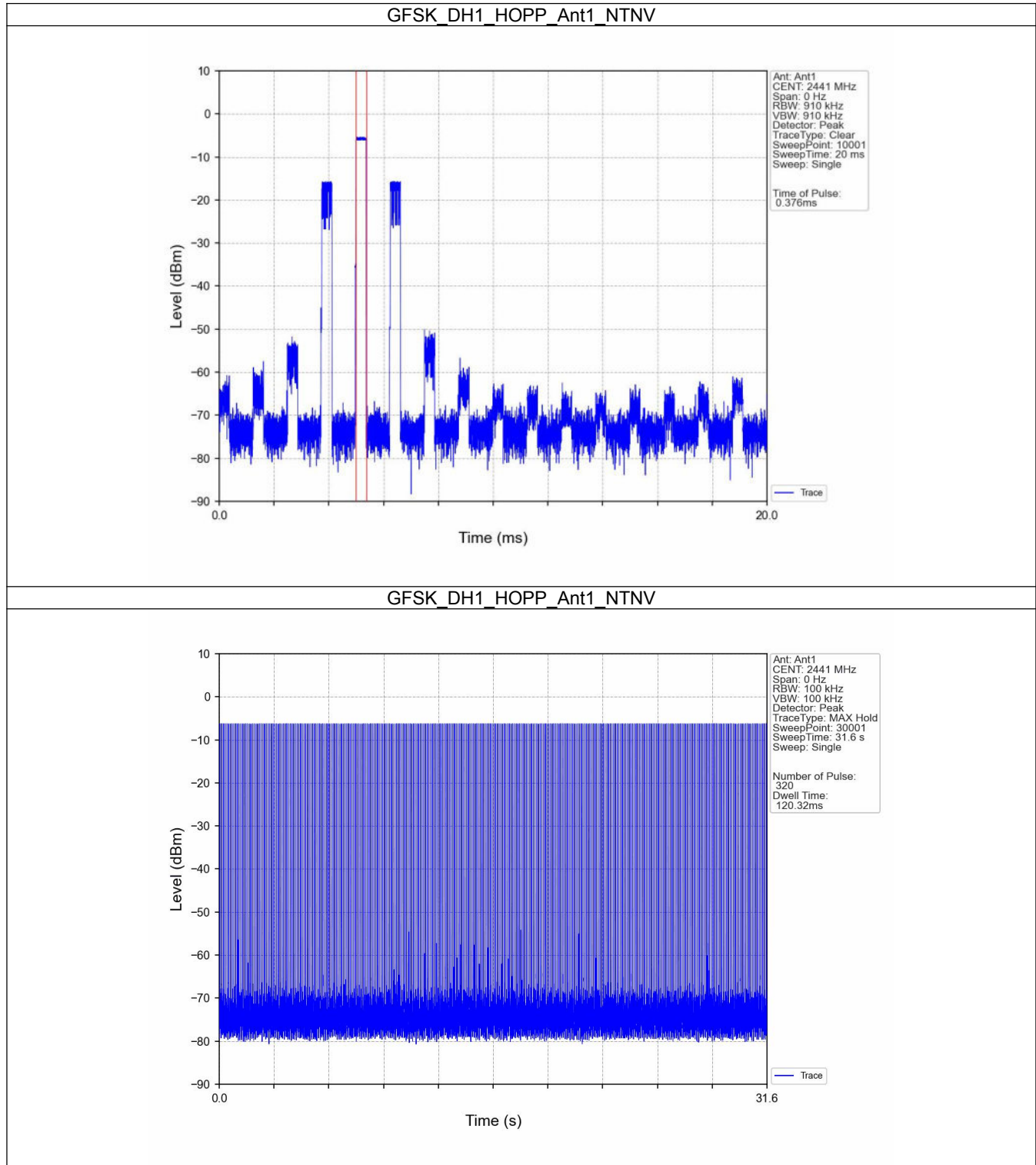
6.1.1 Ant1

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	0.376	31.600	320	120.320	<=400	Pass
			DH3	1.650	31.600	160	264.000	<=400	Pass
			DH5	2.900	31.600	106	307.400	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.382	31.600	320	122.240	<=400	Pass
			2DH3	1.664	31.600	160	266.240	<=400	Pass
			2DH5	2.912	31.600	106	308.672	<=400	Pass
8DPSK	SISO	HOPP	3DH1	0.380	31.600	320	121.600	<=400	Pass
			3DH3	1.660	31.600	160	265.600	<=400	Pass
			3DH5	2.910	31.600	107	311.370	<=400	Pass

FCC ID: 2ASQI-362350

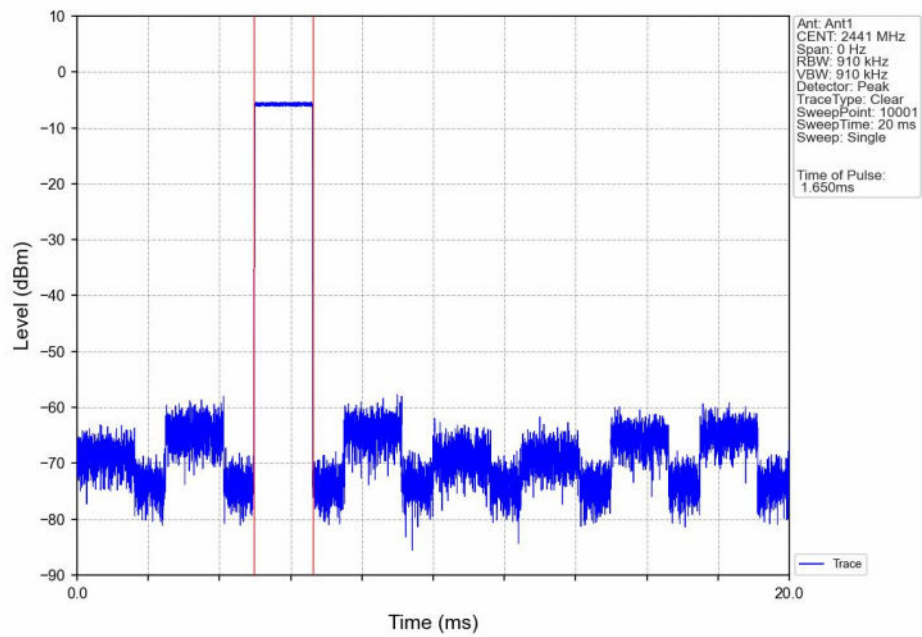
6.2 Test Graph

6.2.1 Ant1

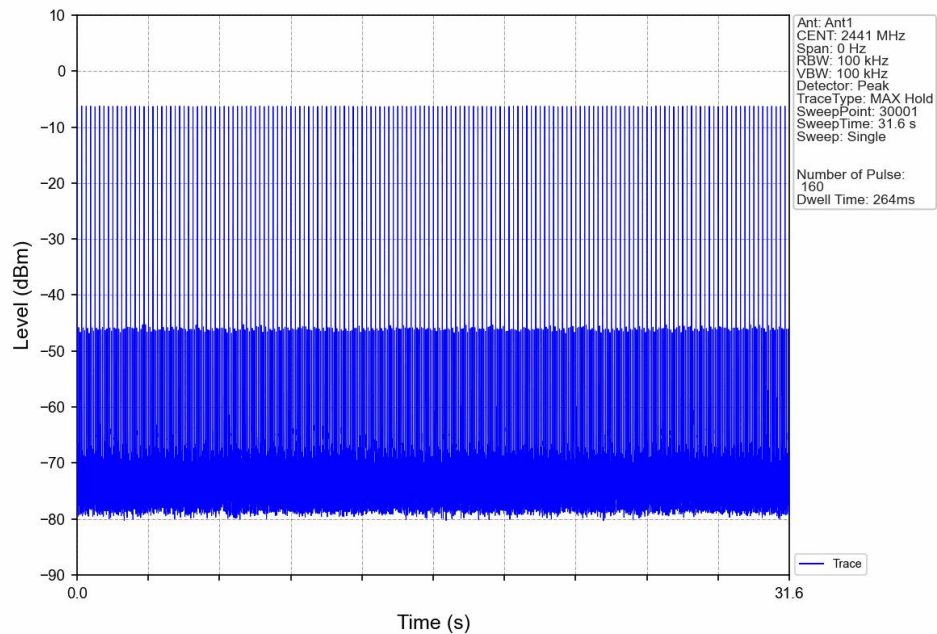


FCC ID: 2ASQI-362350

GFSK_DH3_HOPP_Ant1_NTNV

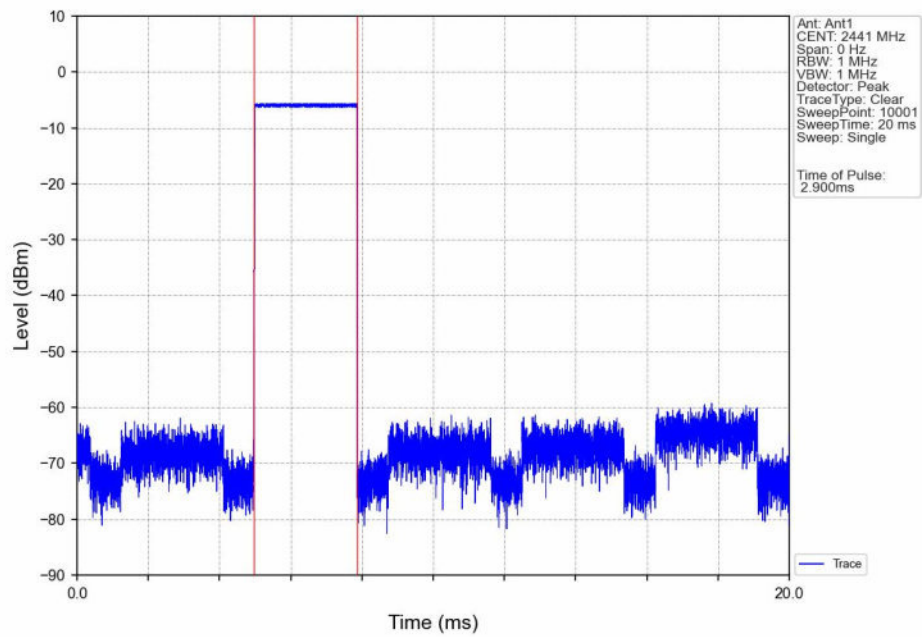


GFSK_DH3_HOPP_Ant1_NTNV

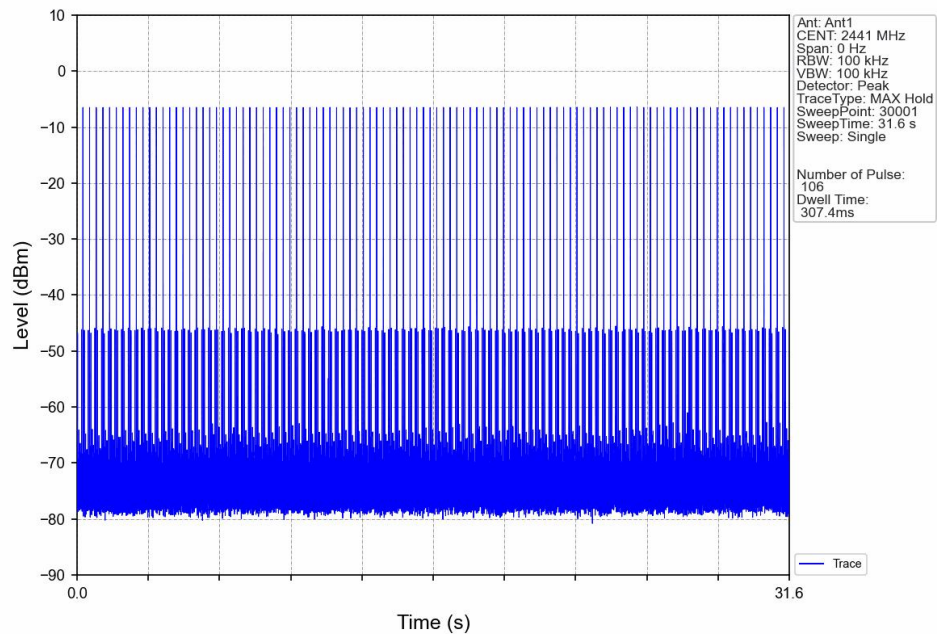


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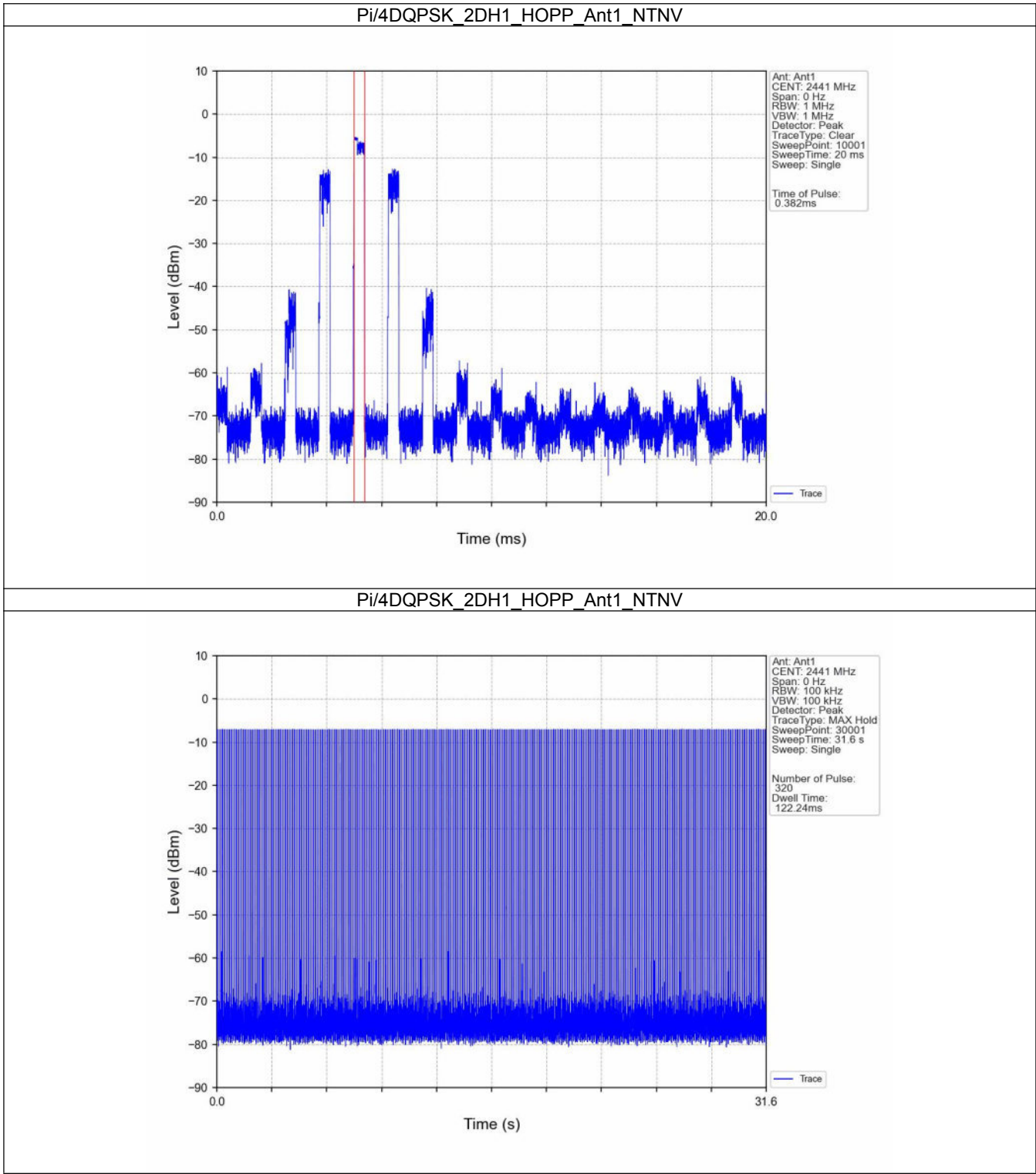
GFSK_DH5_HOPP_Ant1_NTNV



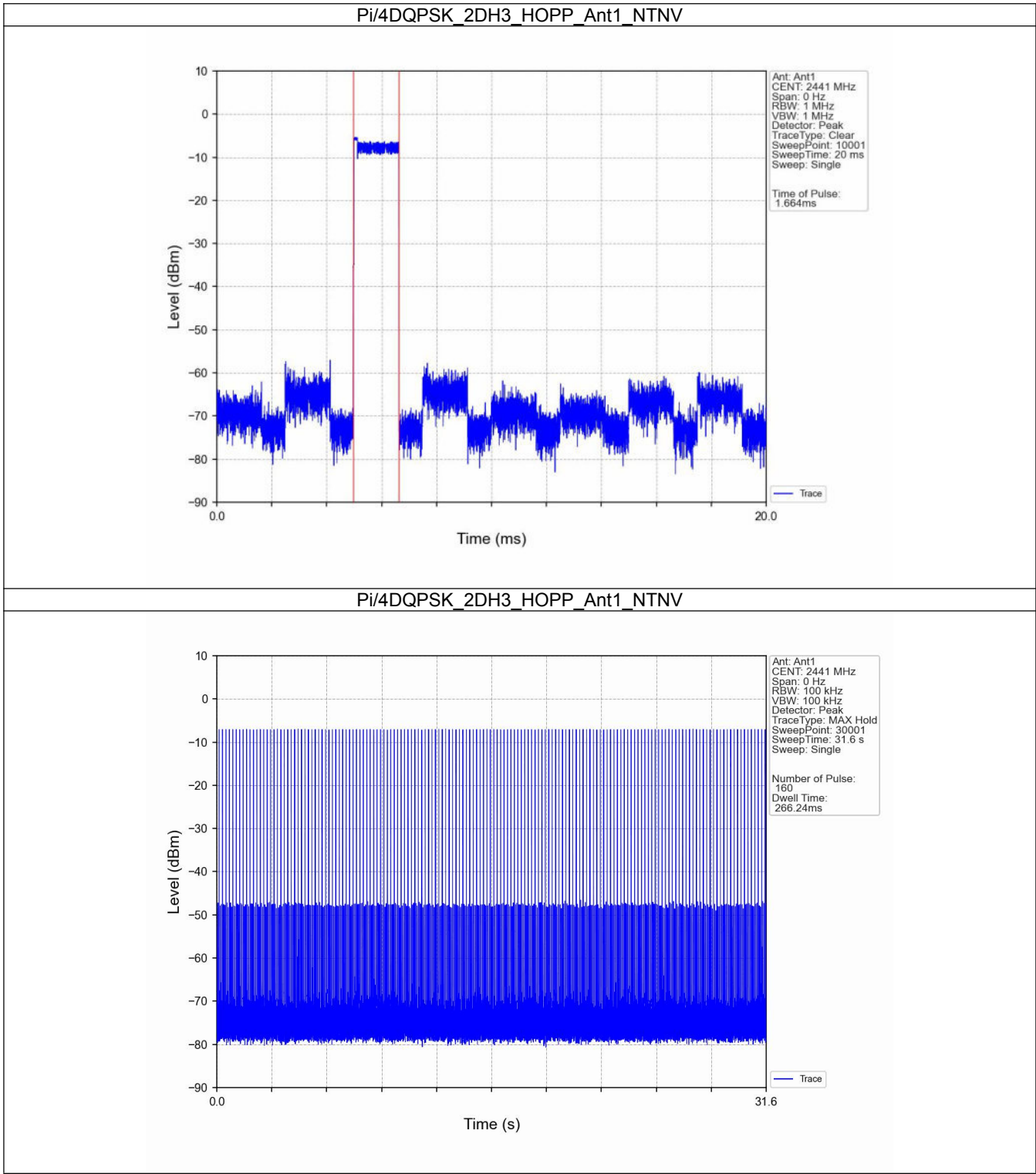
GFSK_DH5_HOPP_Ant1_NTNV



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