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Annex for Bluetooth

Test Report No.: CTL2602022061-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	0.851	/	Pass
		2441	DH5	1	0.842	/	Pass
		2480	DH5	1	0.859	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.186	/	Pass
		2441	2DH5	1	1.192	/	Pass
		2480	2DH5	1	1.188	/	Pass

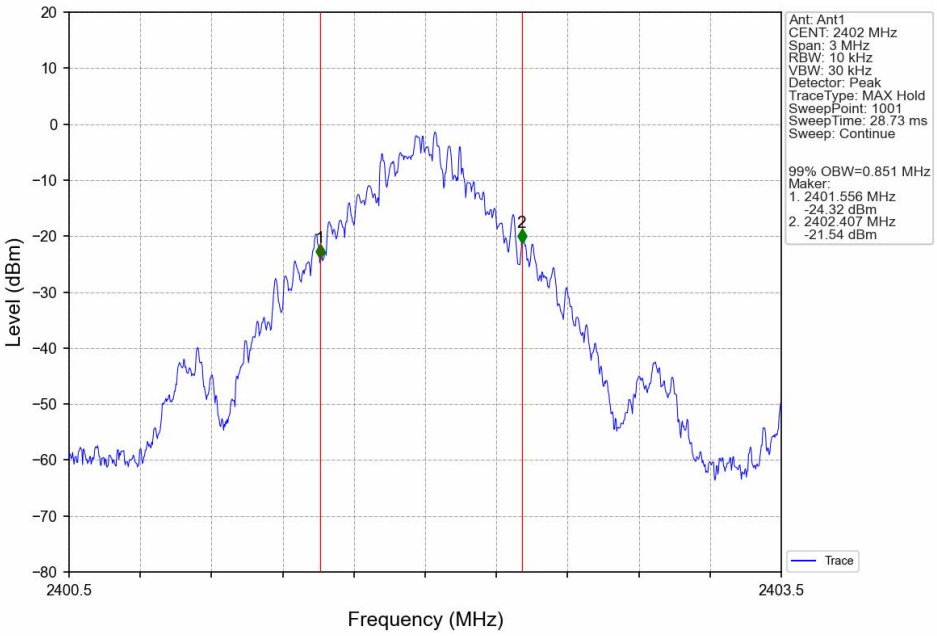
1.1.2 20dB BW

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)		Verdict
					Result	Limit	
GFSK	SISO	2402	DH5	1	0.885	/	Pass
		2441	DH5	1	0.920	/	Pass
		2480	DH5	1	0.880	/	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.282	/	Pass
		2441	2DH5	1	1.284	/	Pass
		2480	2DH5	1	1.287	/	Pass

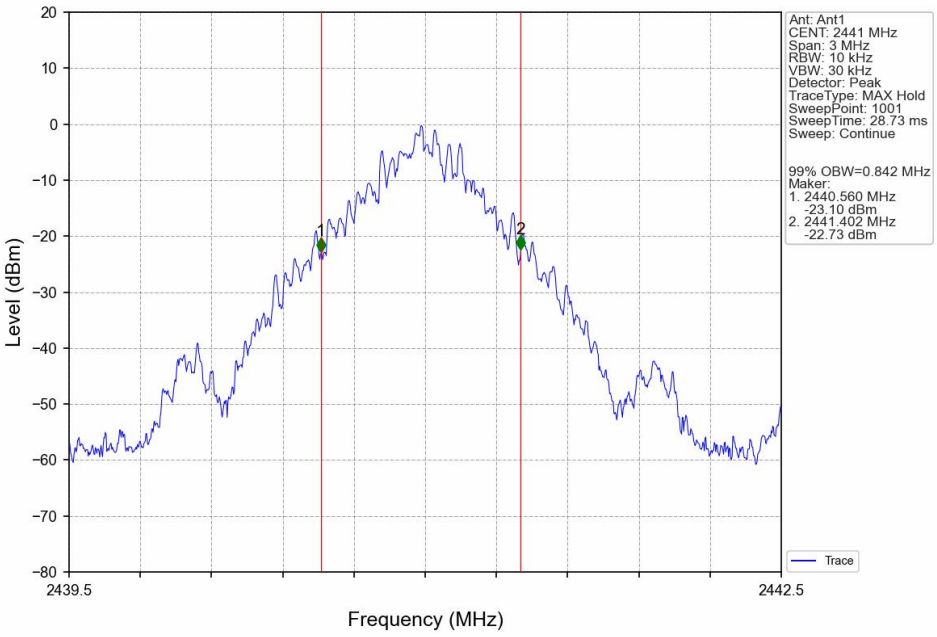
1.2 Test Graph

1.2.1 OBW

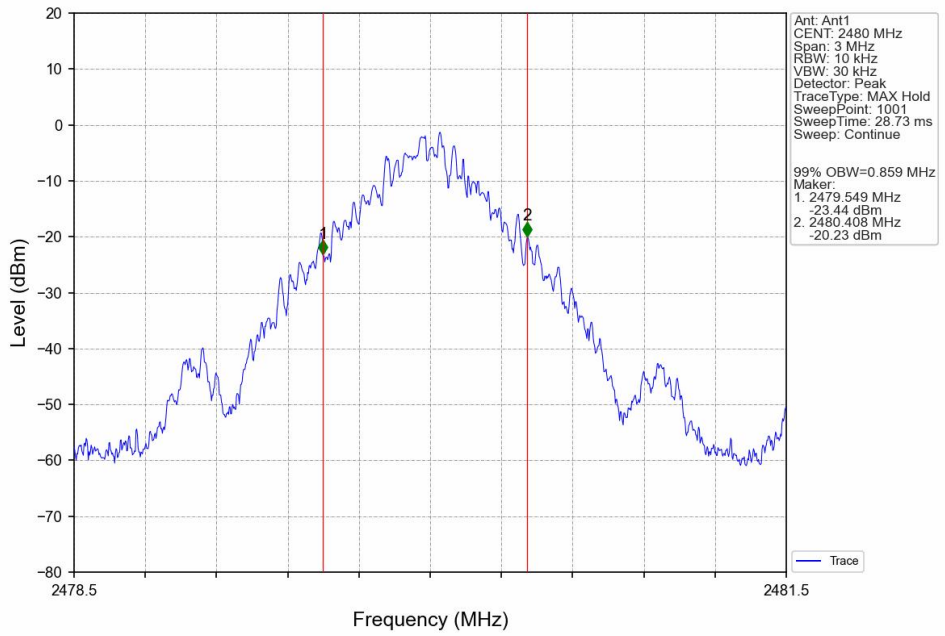
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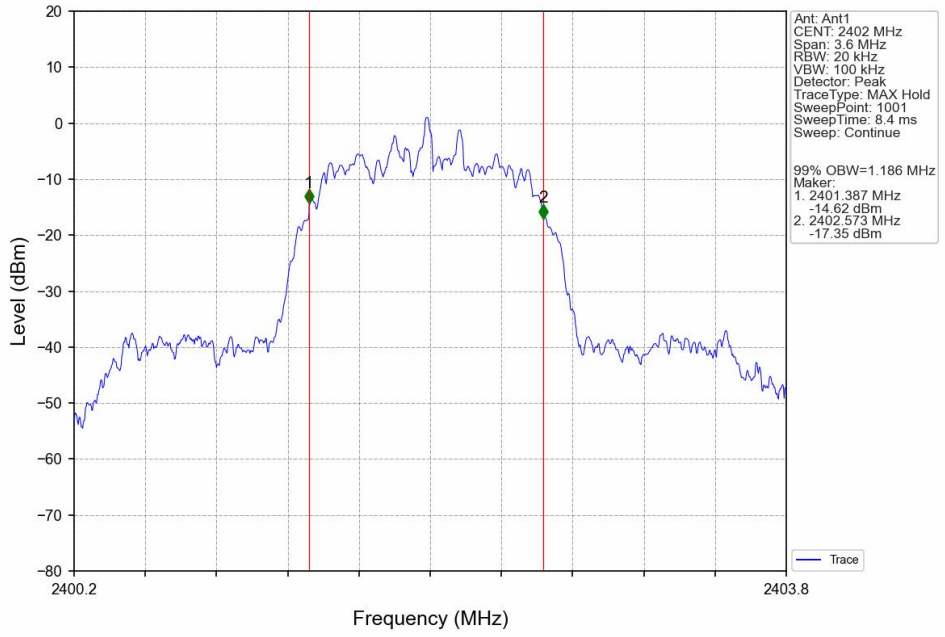
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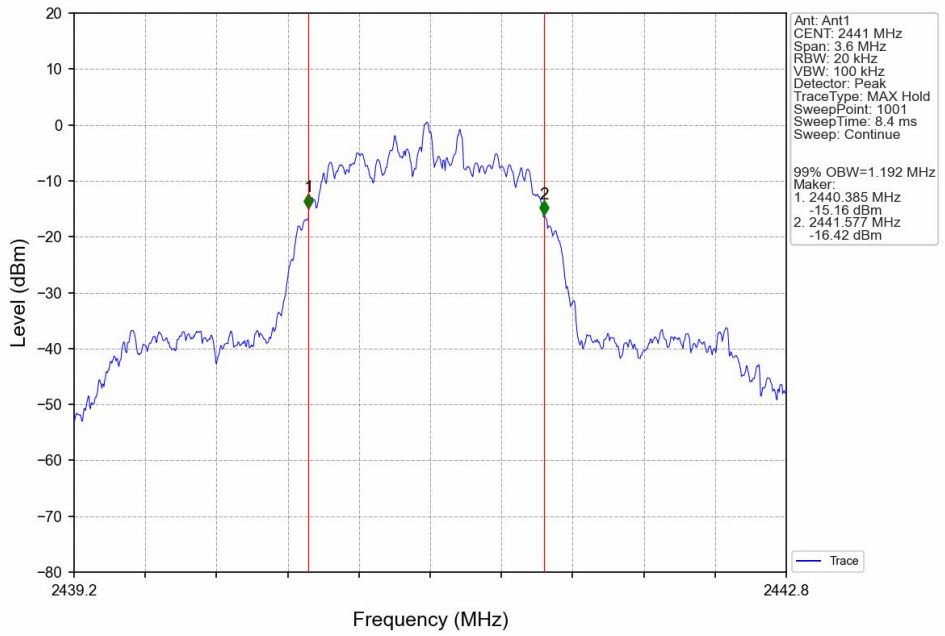
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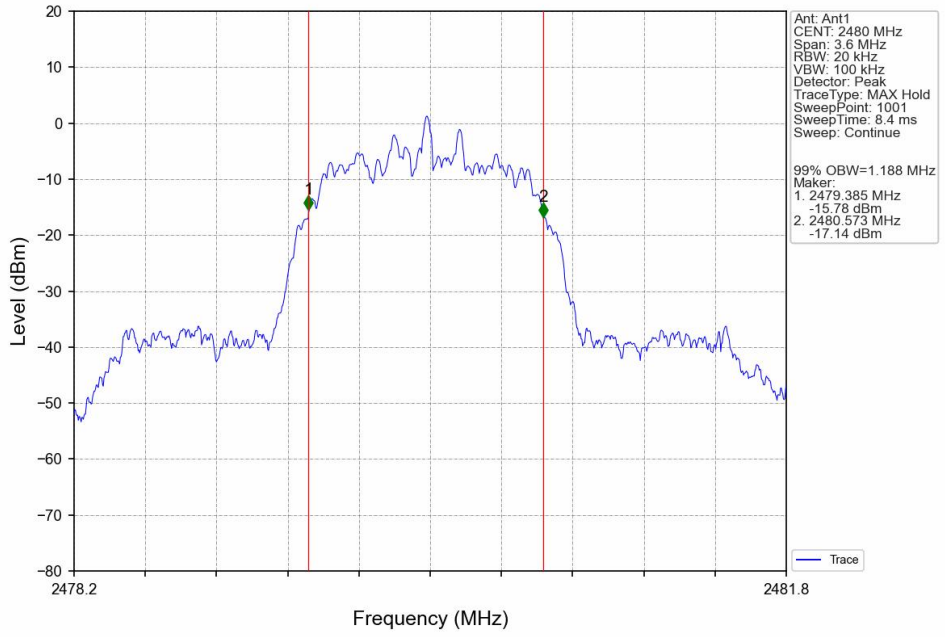
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Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV

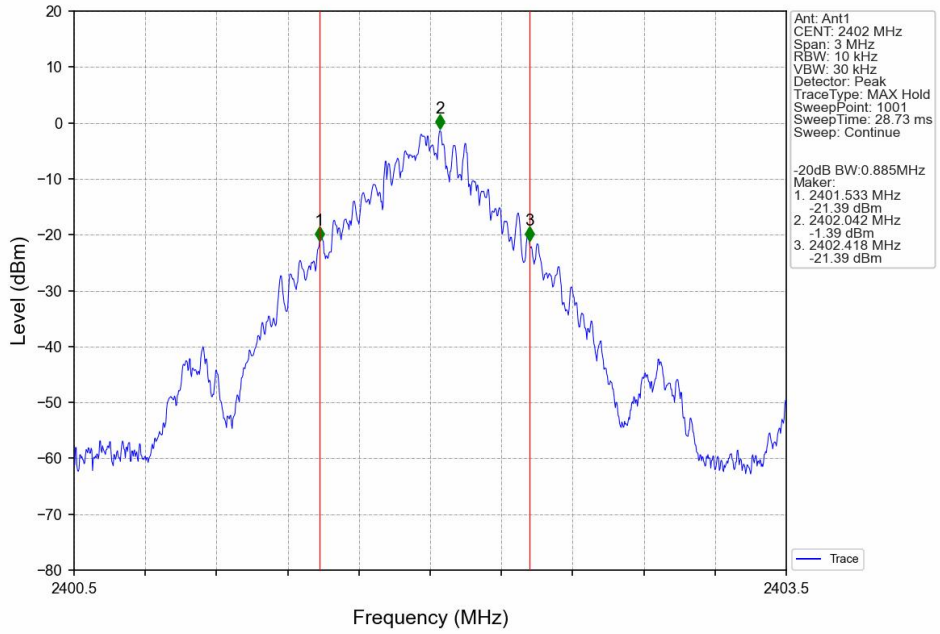


Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

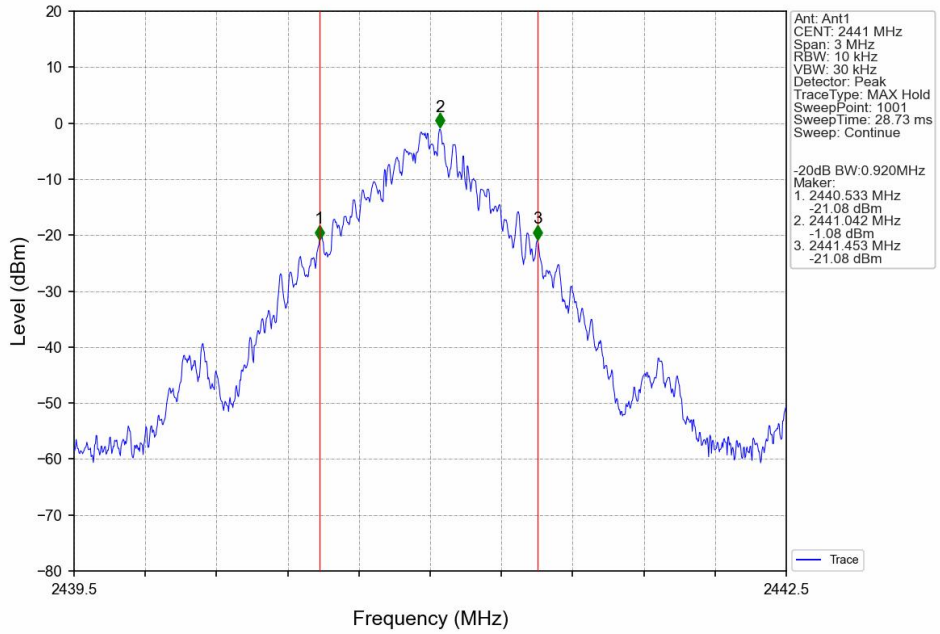


1.2.2 20dB BW

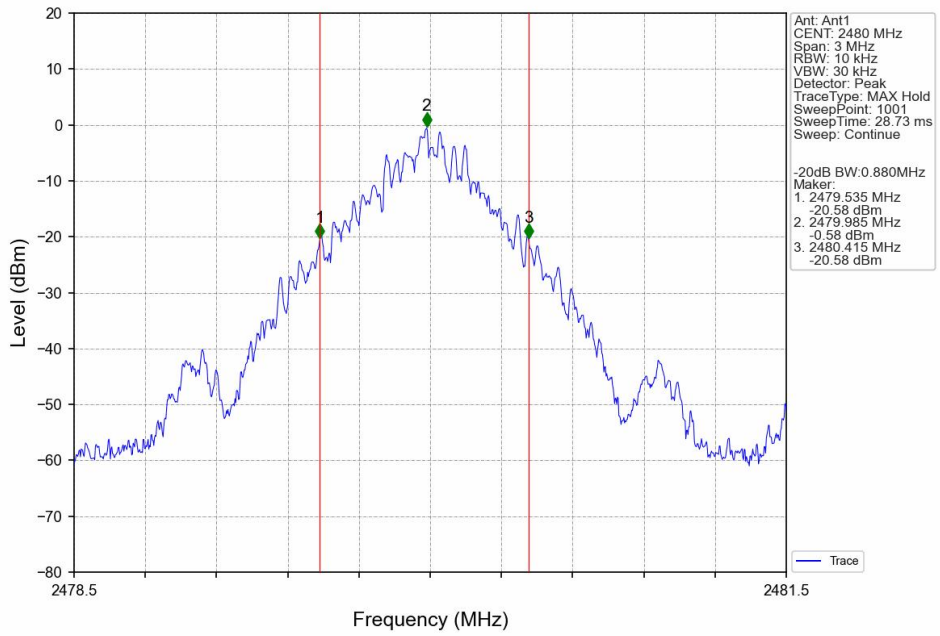
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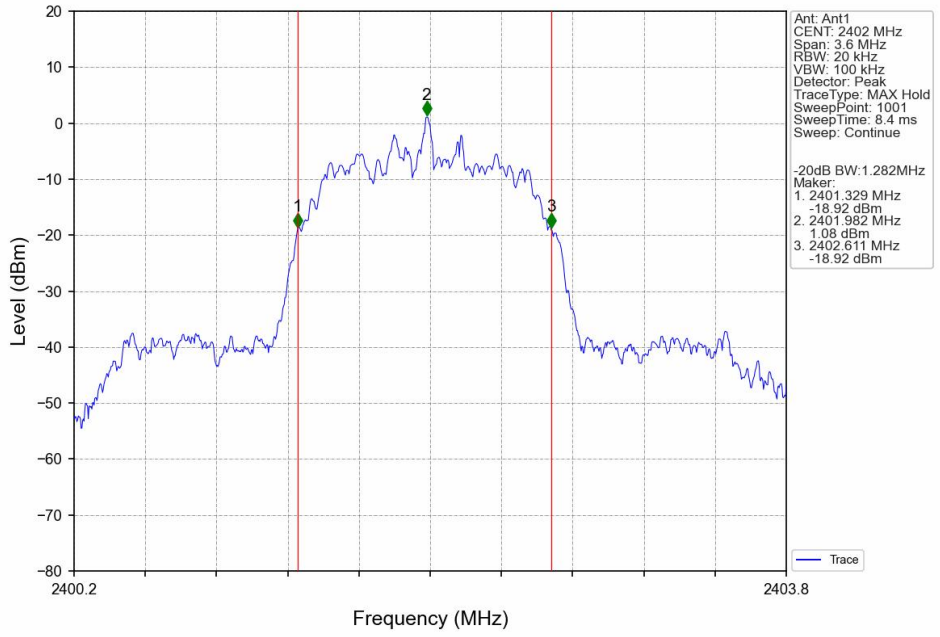
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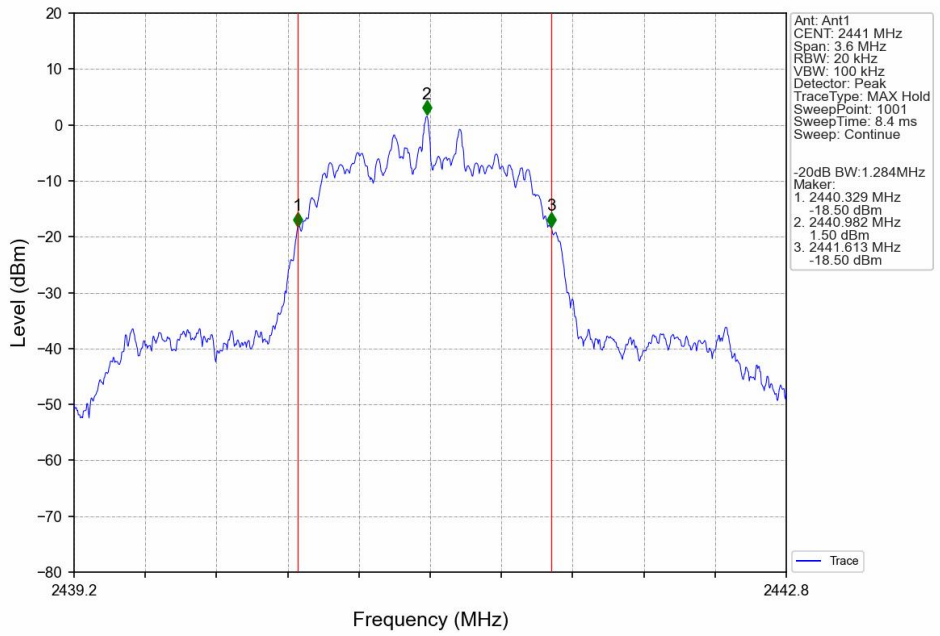
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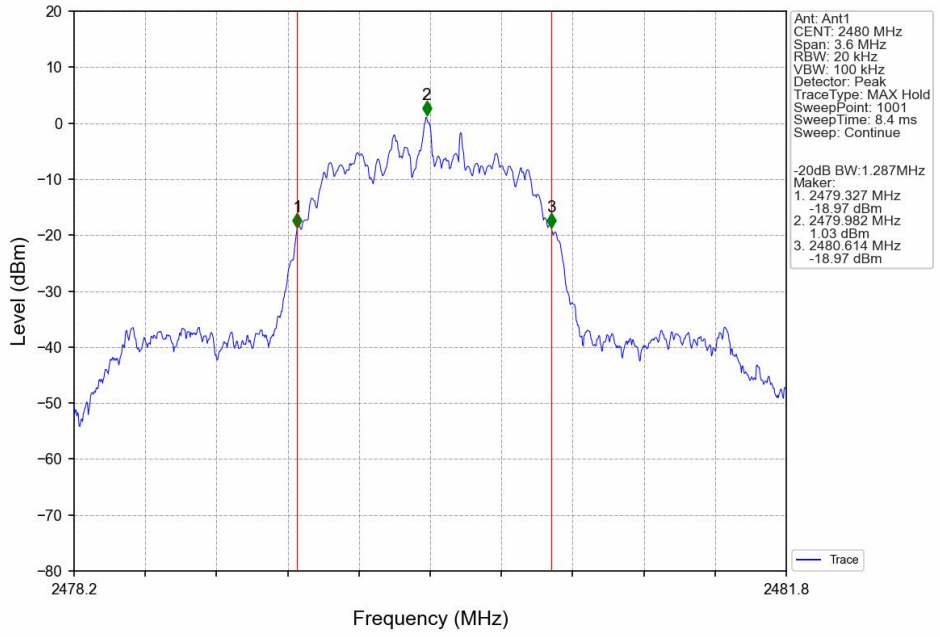
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



2. Maximum Conducted Output Power

2.1 Test Result

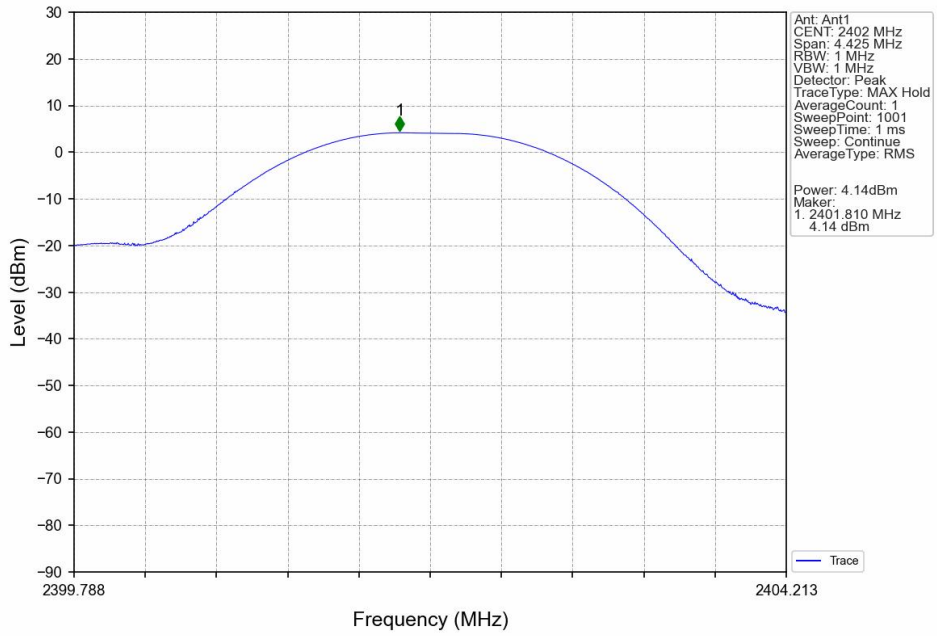
2.1.1 Power

Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	4.14	<=30	Pass
		2441	DH5	4.53	<=30	Pass
		2480	DH5	4.23	<=30	Pass
Pi/4DQPSK	SISO	2402	2DH5	4.93	<=20.97	Pass
		2441	2DH5	5.29	<=20.97	Pass
		2480	2DH5	4.97	<=20.97	Pass
Note1: Antenna Gain: Ant1: -0.68dBi;						

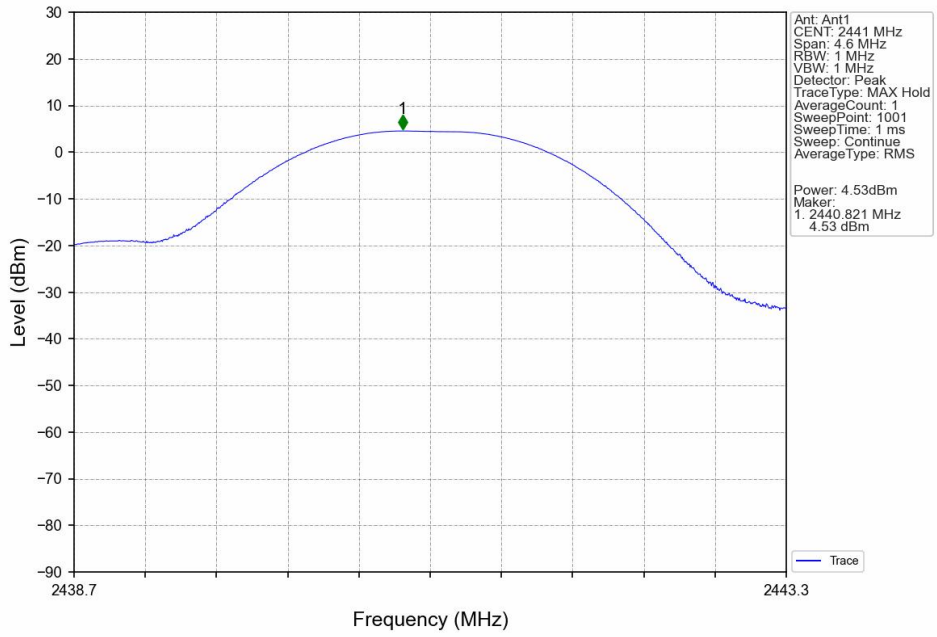
2.2 Test Graph

2.2.1 Power

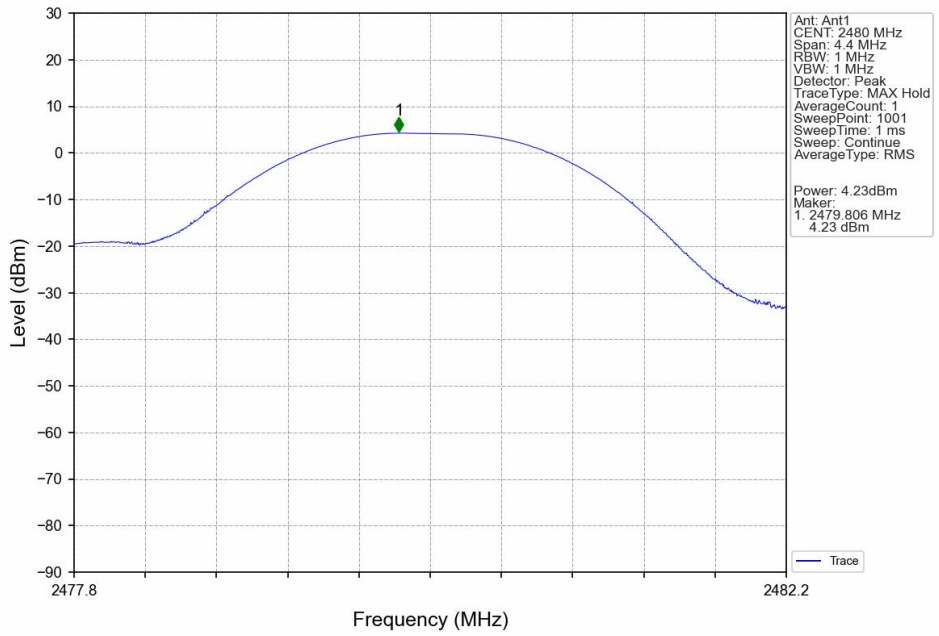
GFSK_DH5_LCH_2402MHz_Ant1_NTNV



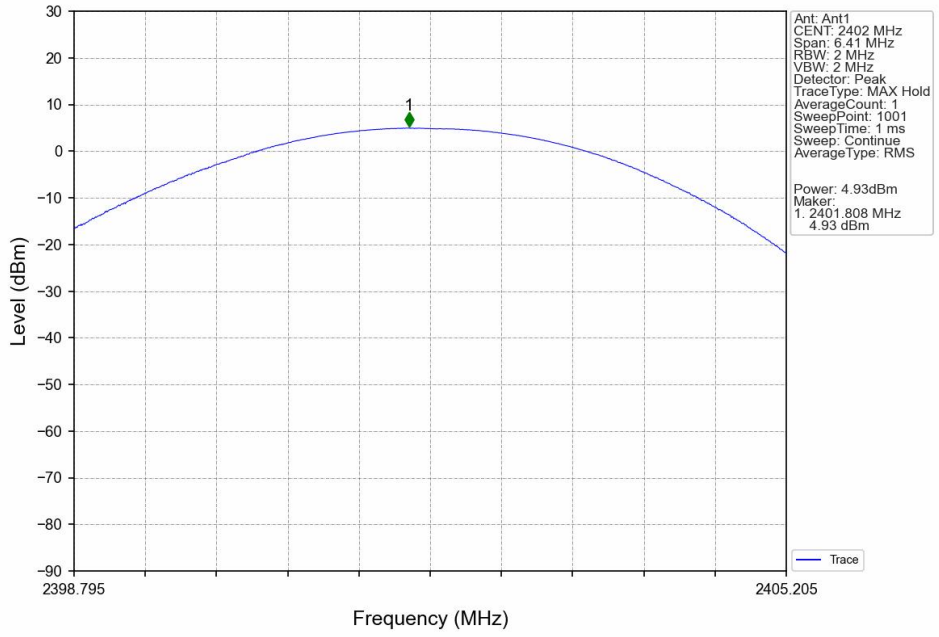
GFSK_DH5_MCH_2441MHz_Ant1_NTNV



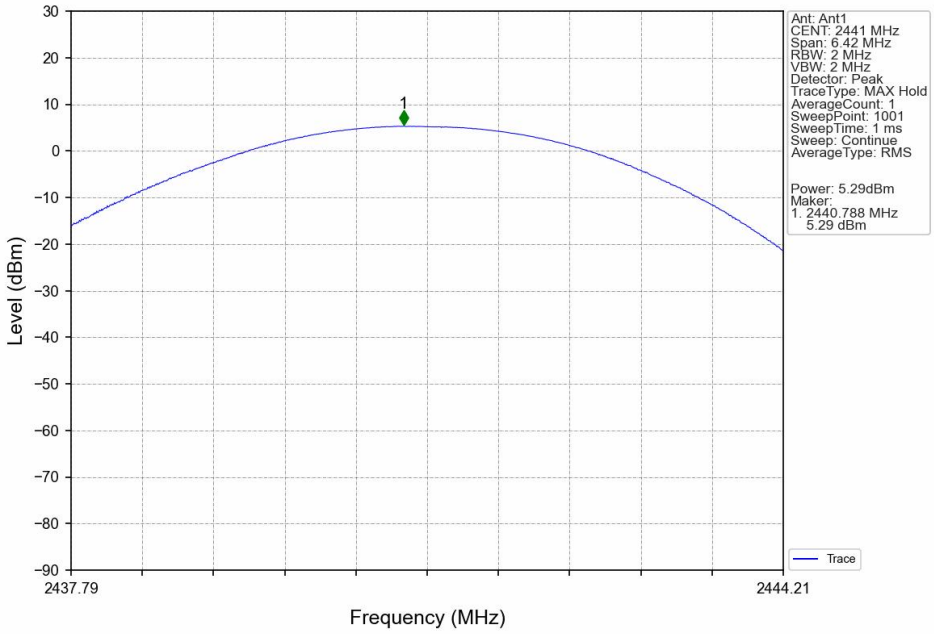
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



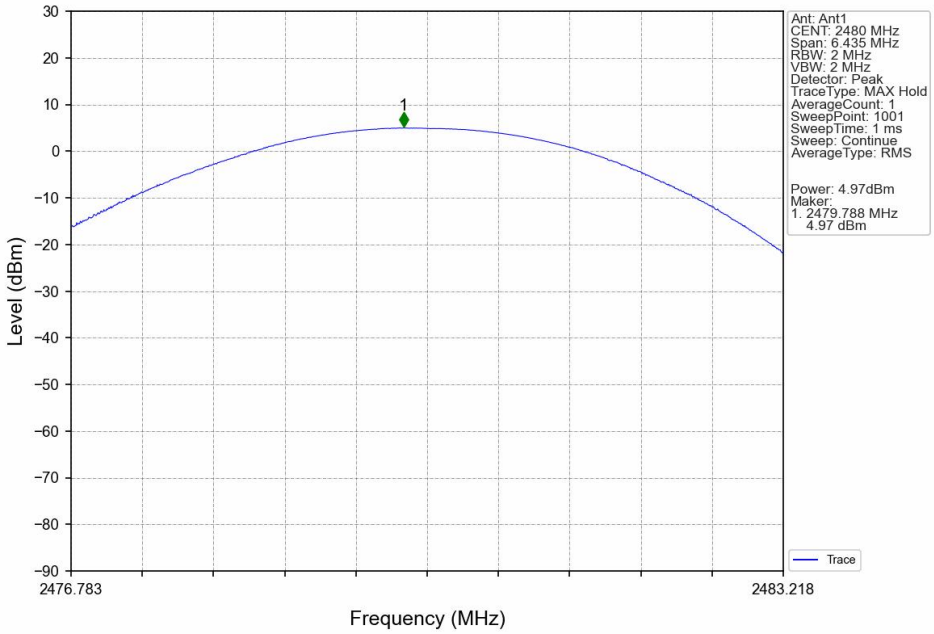
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



3. Carrier Frequency Separation

3.1 Test Result

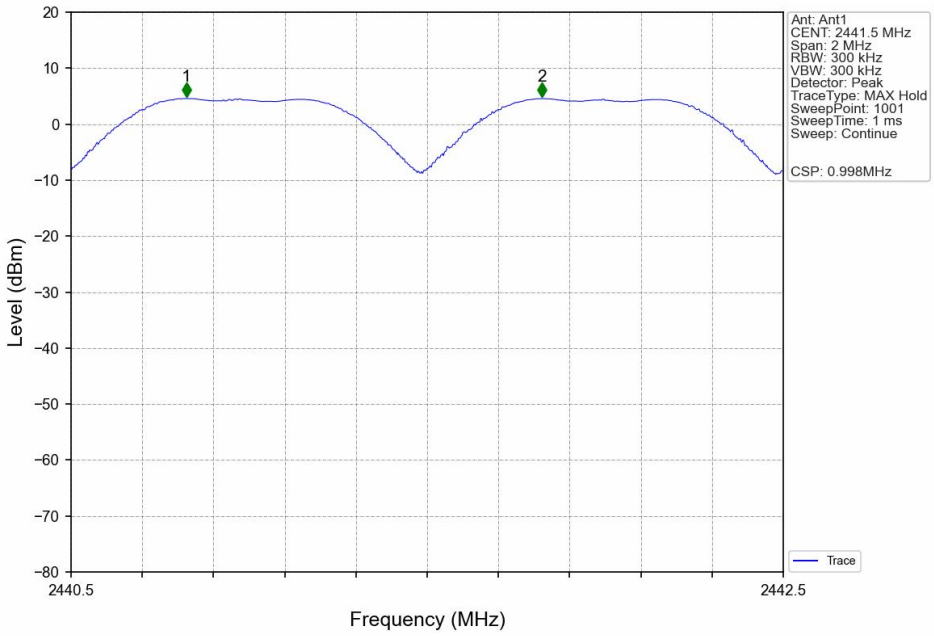
3.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	0.998	0.920	>=0.92	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	1.001	1.287	>=0.858	Pass

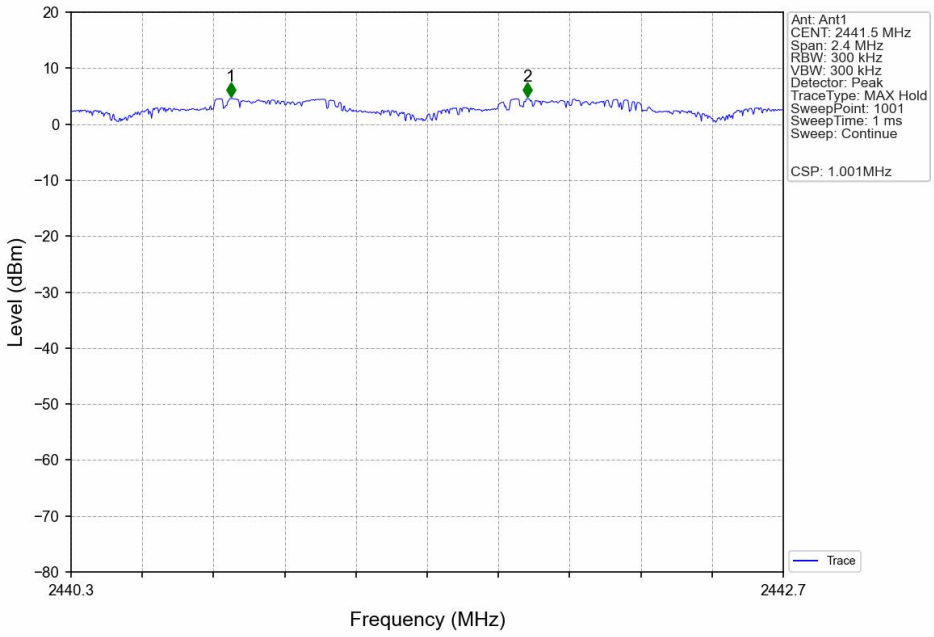
3.2 Test Graph

3.2.1 Ant1

GFSK_DH5_HOPP_Ant1_NTNV



Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



4. Number of Hopping Frequencies

4.1 Test Result

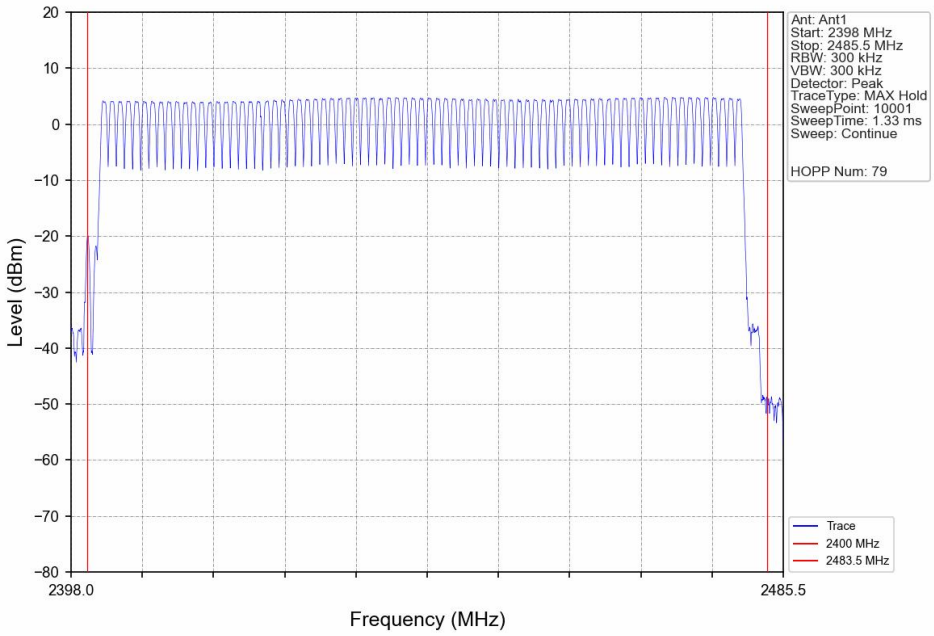
4.1.1 HoppNum

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

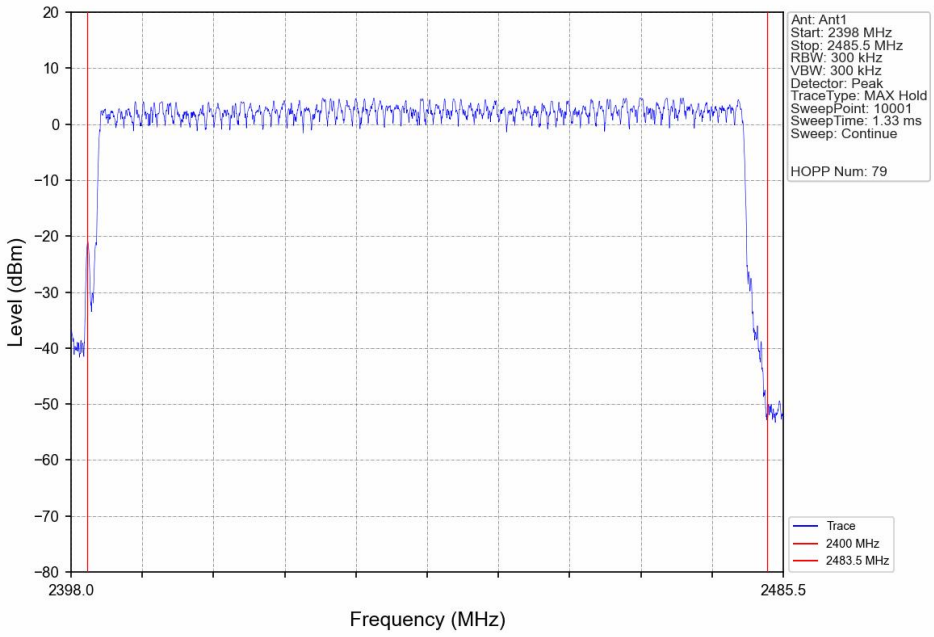
4.2 Test Graph

4.2.1 HoppNum

GFSK_DH5_HOPP_Ant1_NTNV



Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



5. Time of Occupancy (Dwell Time)

5.1 Test Result

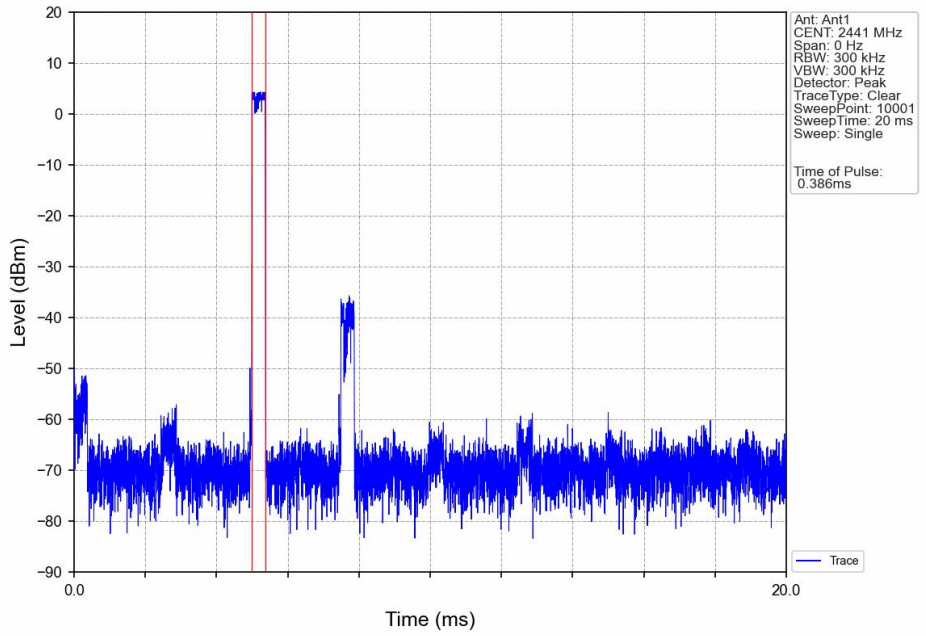
5.1.1 Ant1

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	0.386	31.600	319	123.134	<=400	Pass
			DH3	1.640	31.600	151	247.640	<=400	Pass
			DH5	2.884	31.600	102	294.168	<=400	Pass
Pi/4DQPSK	SISO	HOPP	2DH1	0.390	31.600	319	124.410	<=400	Pass
			2DH3	1.642	31.600	161	264.362	<=400	Pass
			2DH5	2.890	31.600	94	271.660	<=400	Pass

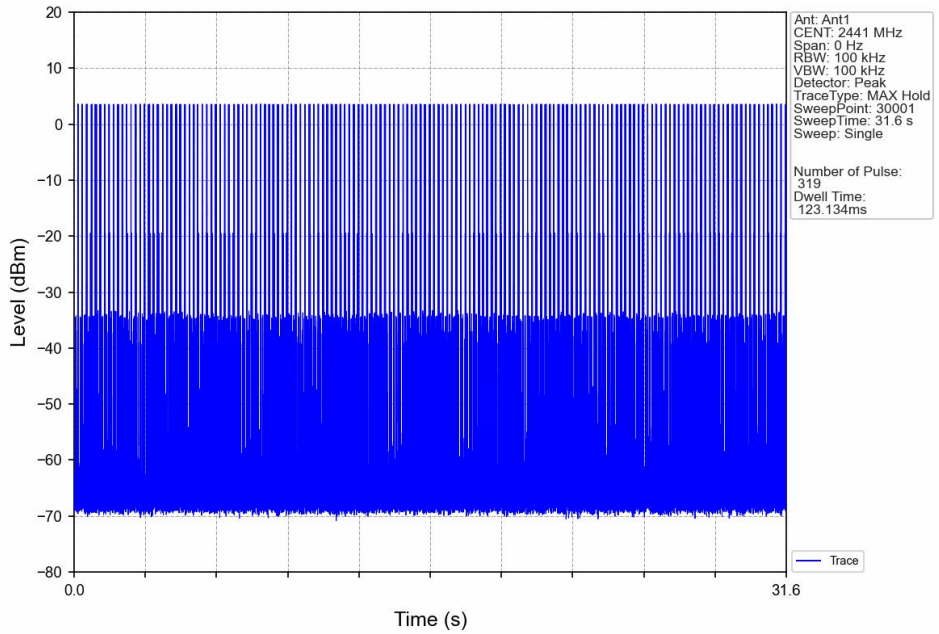
5.2 Test Graph

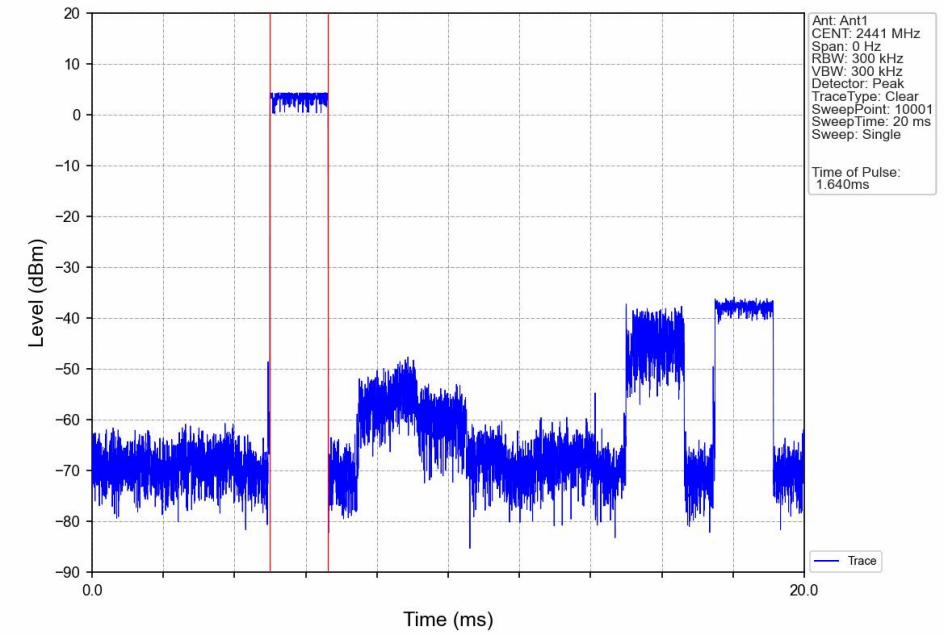
5.2.1 Ant1

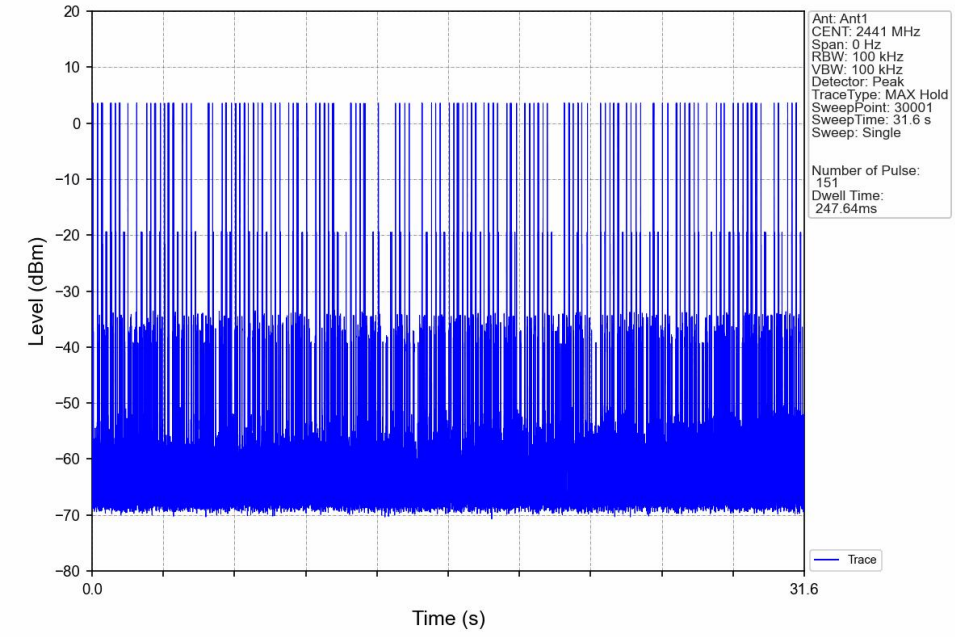
GFSK_DH1_HOPP_Ant1_NTNV



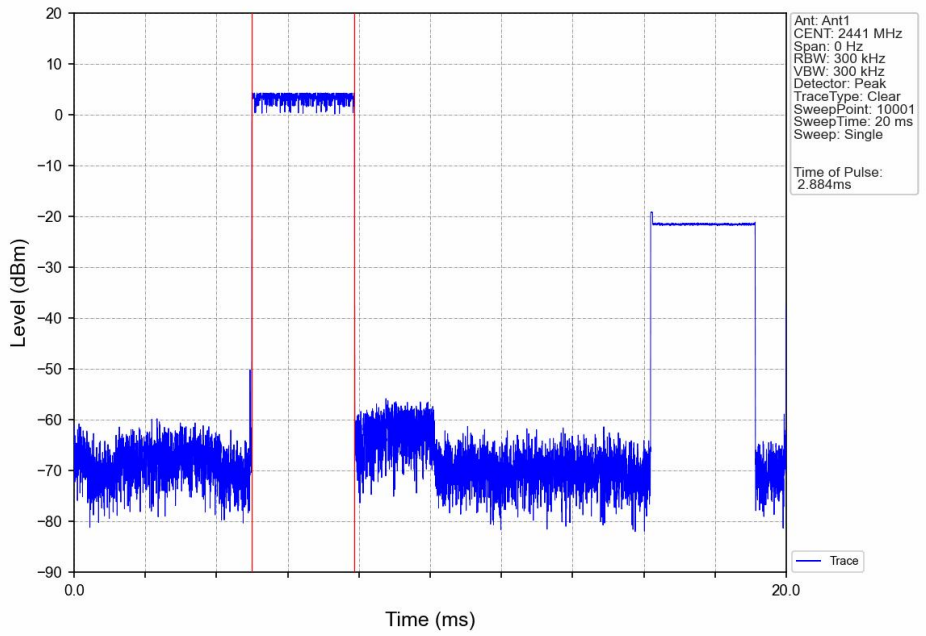
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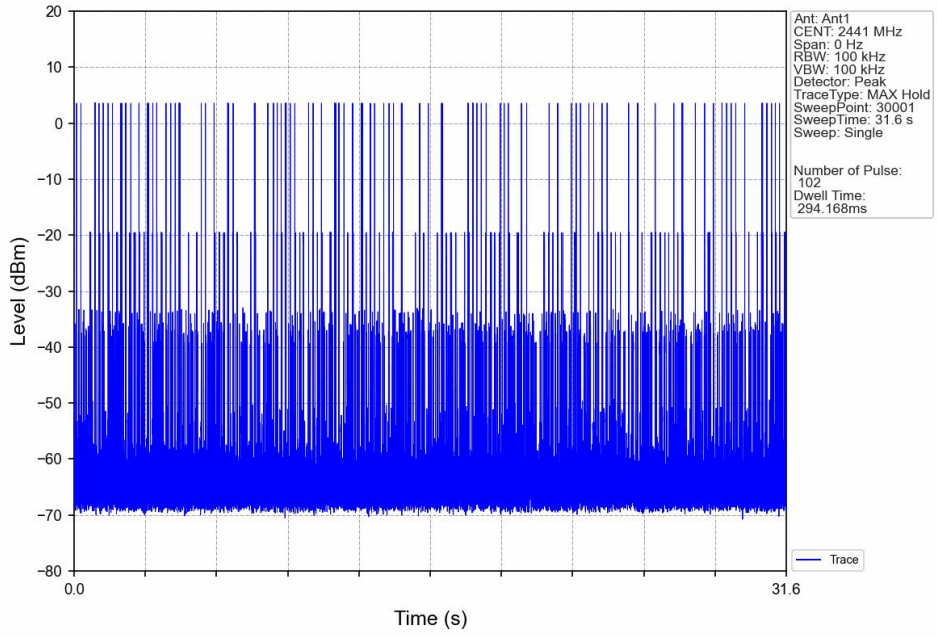
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GFSK_DH3_HOPP_Ant1_NTNV


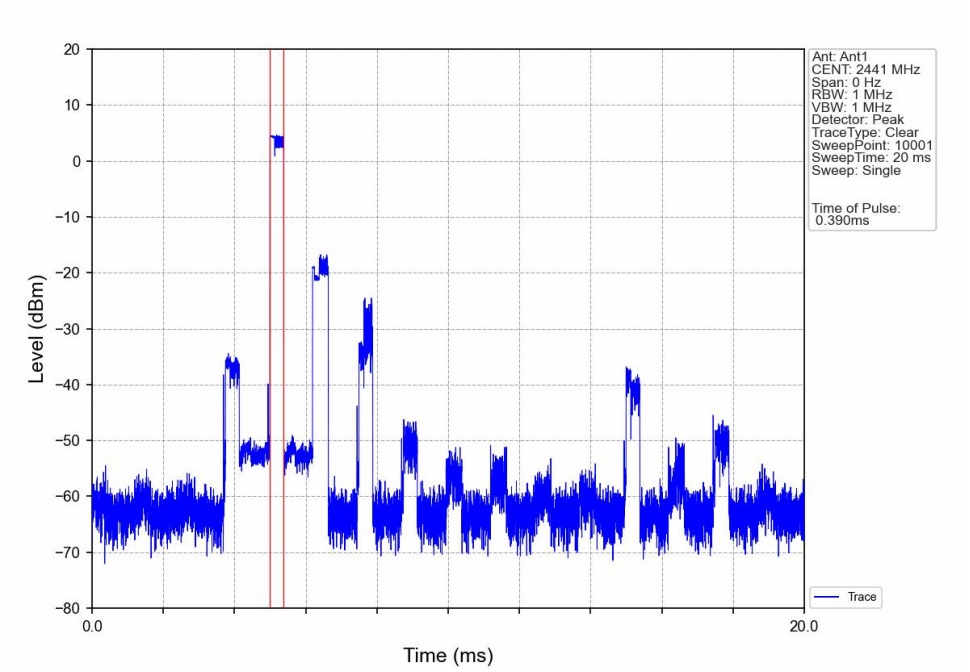
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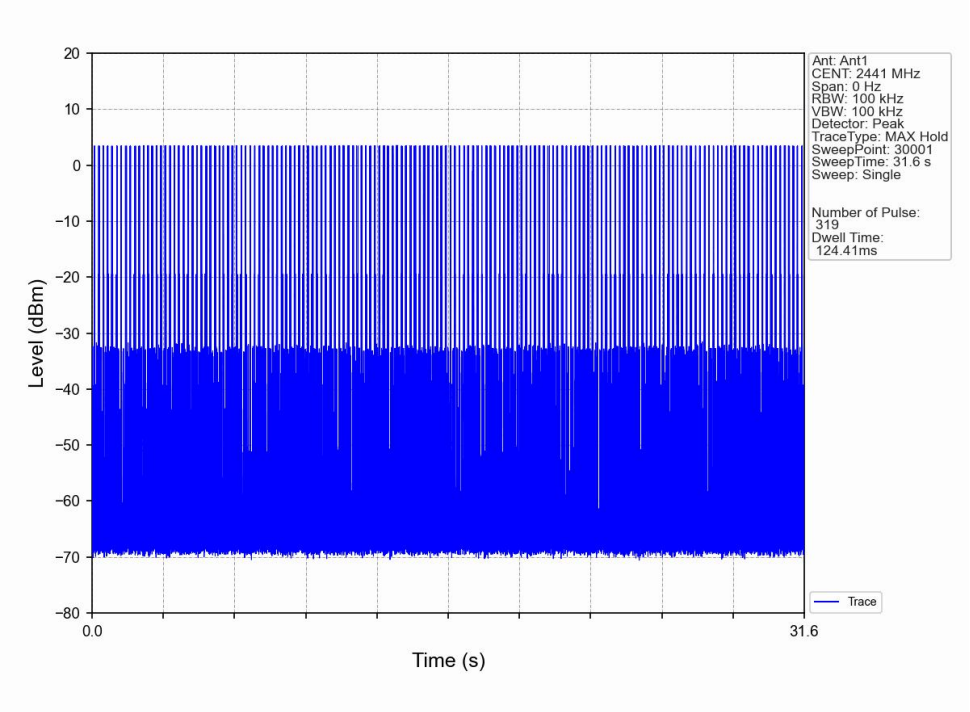
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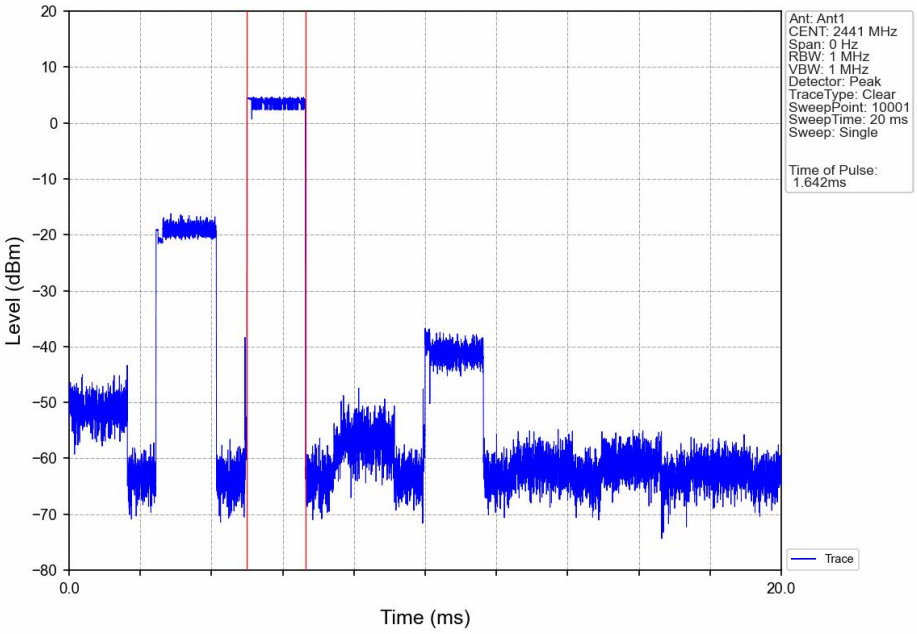


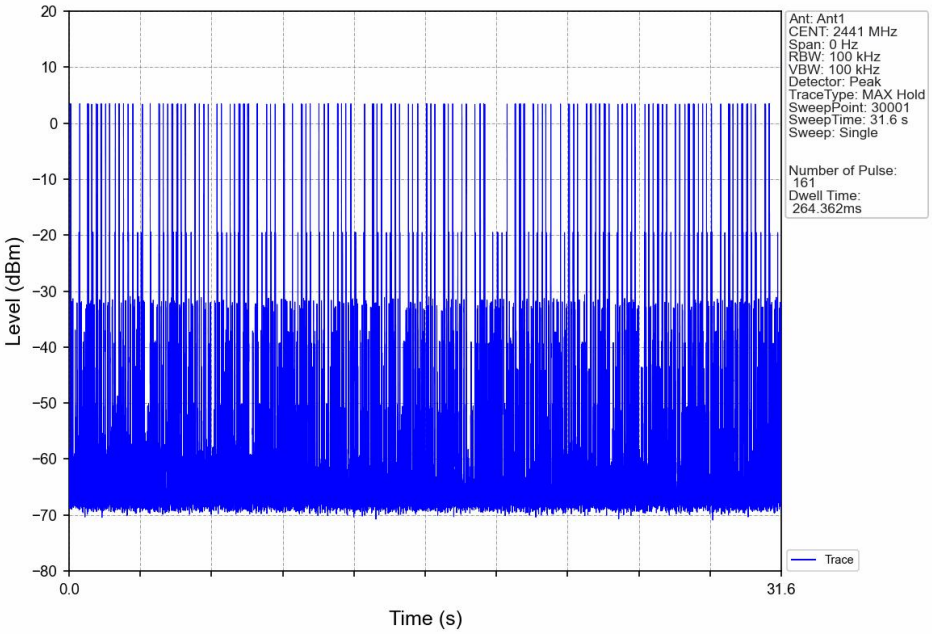
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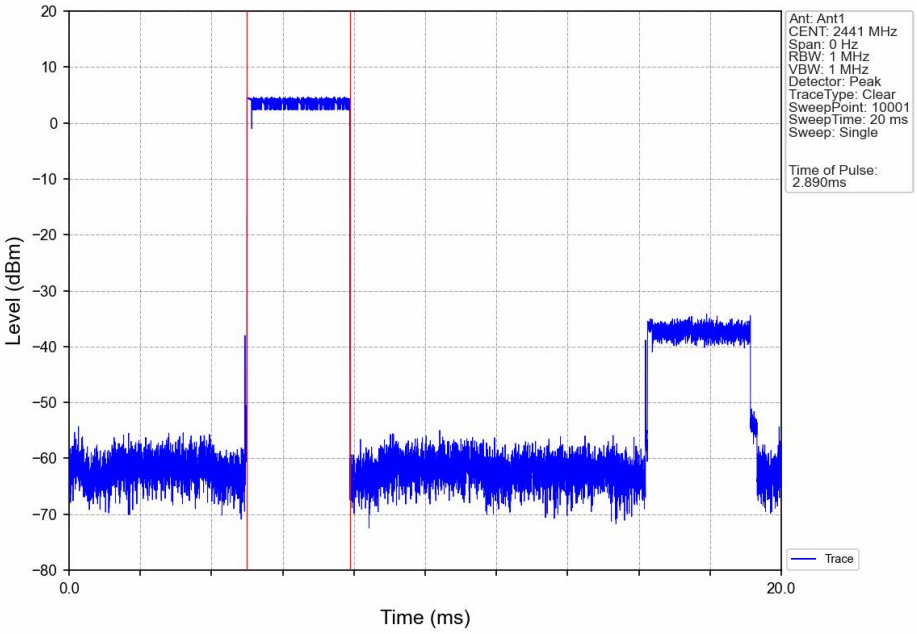
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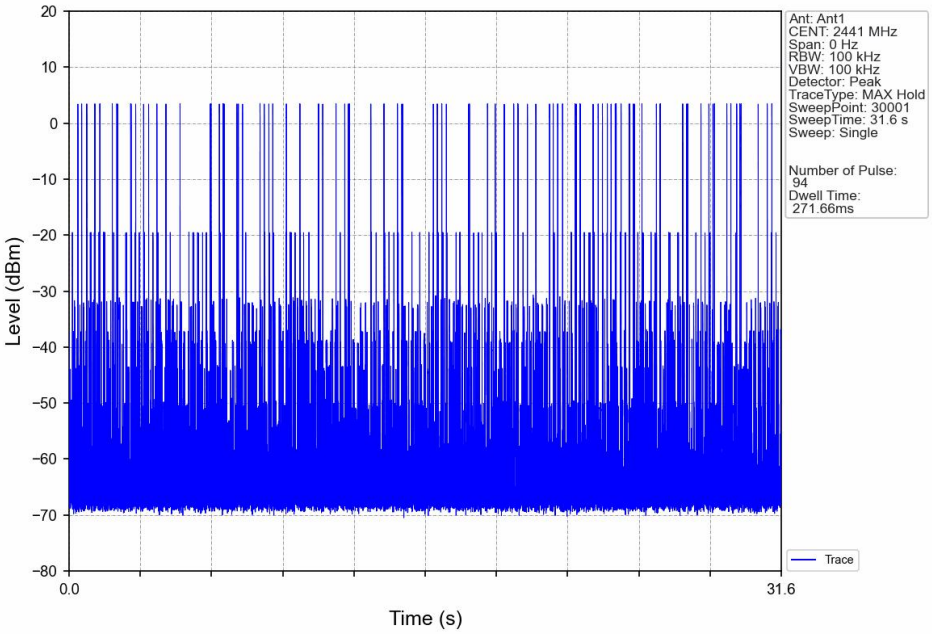
Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV


Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV


Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



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	3.83
		2441	DH5	1	4.26
		2480	DH5	1	3.95
Pi/4DQPSK	SISO	2402	2DH5	1	4.04
		2441	2DH5	1	4.41
		2480	2DH5	1	4.10

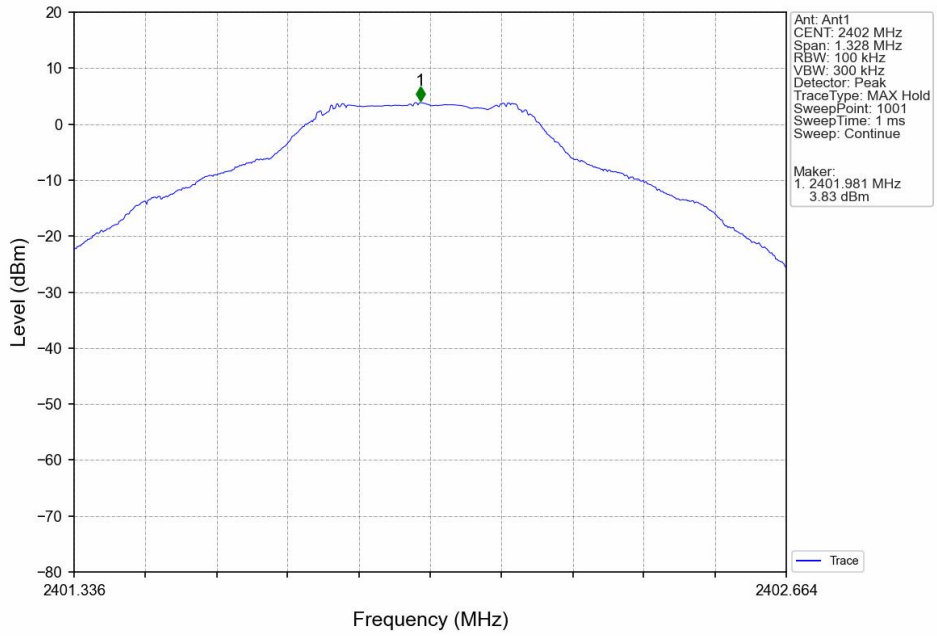
6.1.2 CSE

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	4.26	-15.74	Pass
		2441	DH5	1	4.26	-15.74	Pass
		2480	DH5	1	4.26	-15.74	Pass
		HOPP	DH5	1	4.26	-15.74	Pass
					4.26	-15.74	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	4.41	-15.59	Pass
		2441	2DH5	1	4.41	-15.59	Pass
		2480	2DH5	1	4.41	-15.59	Pass
		HOPP	2DH5	1	4.41	-15.59	Pass
					4.41	-15.59	Pass

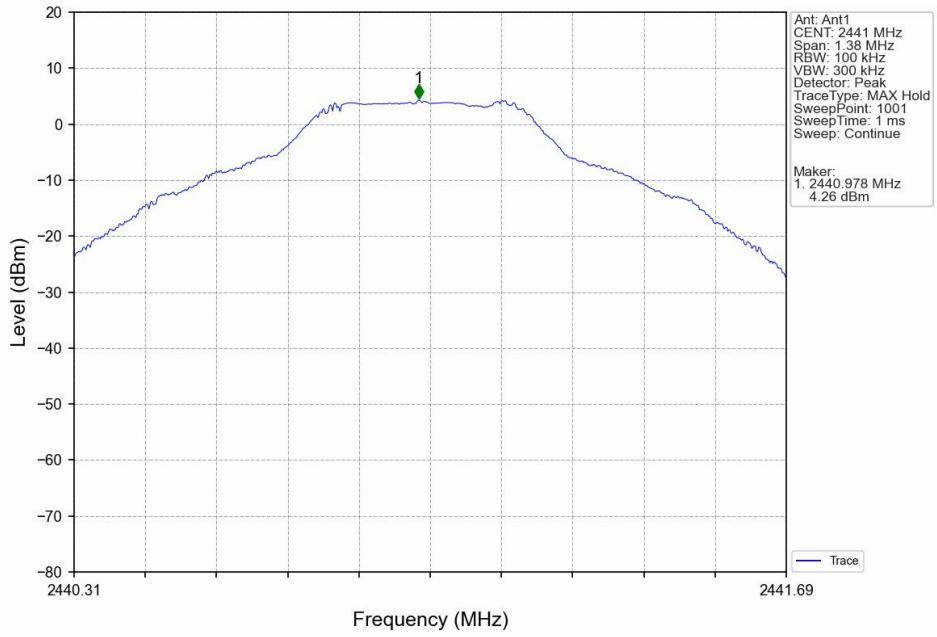
6.2 Test Graph

6.2.1 Ref

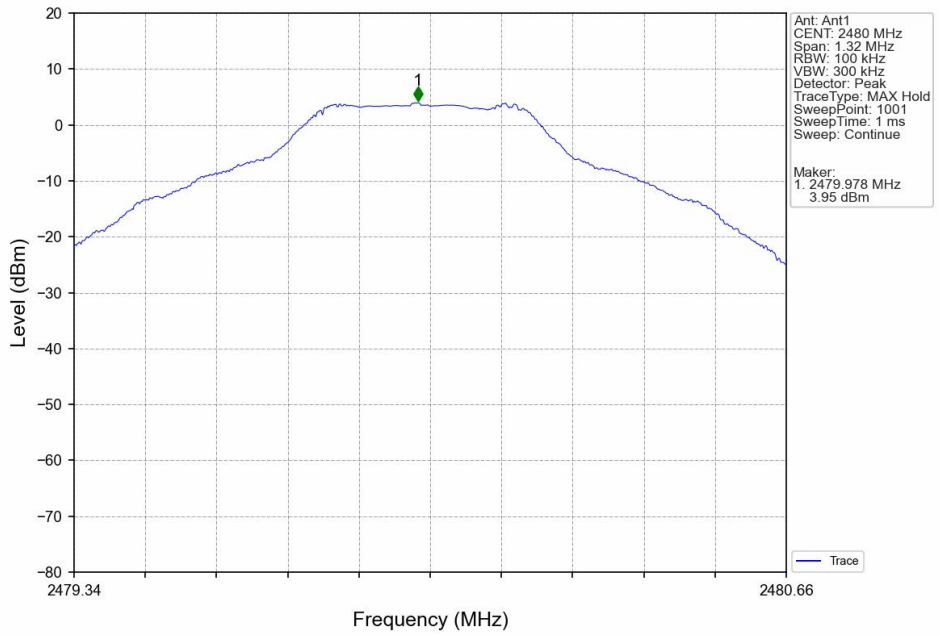
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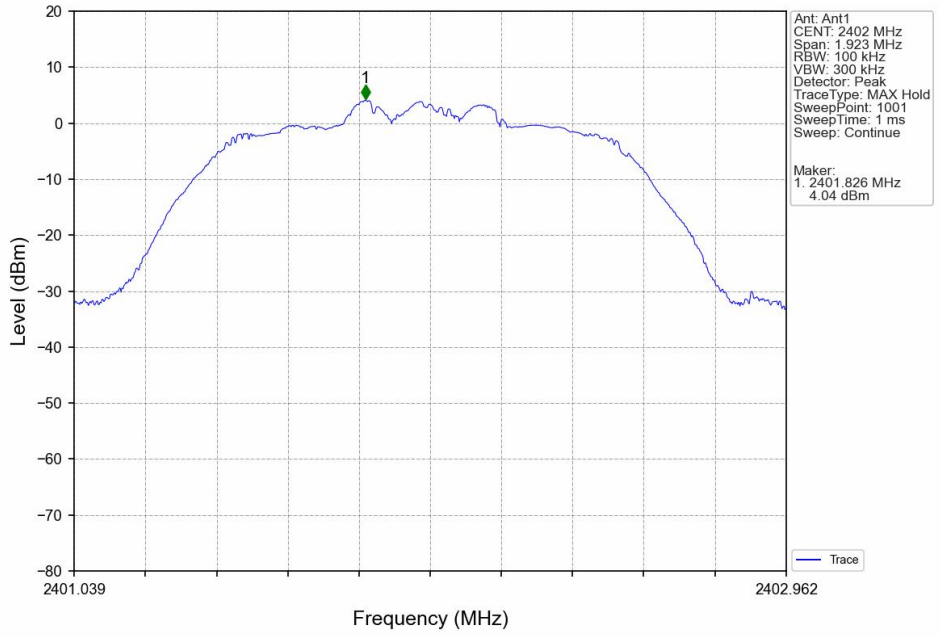
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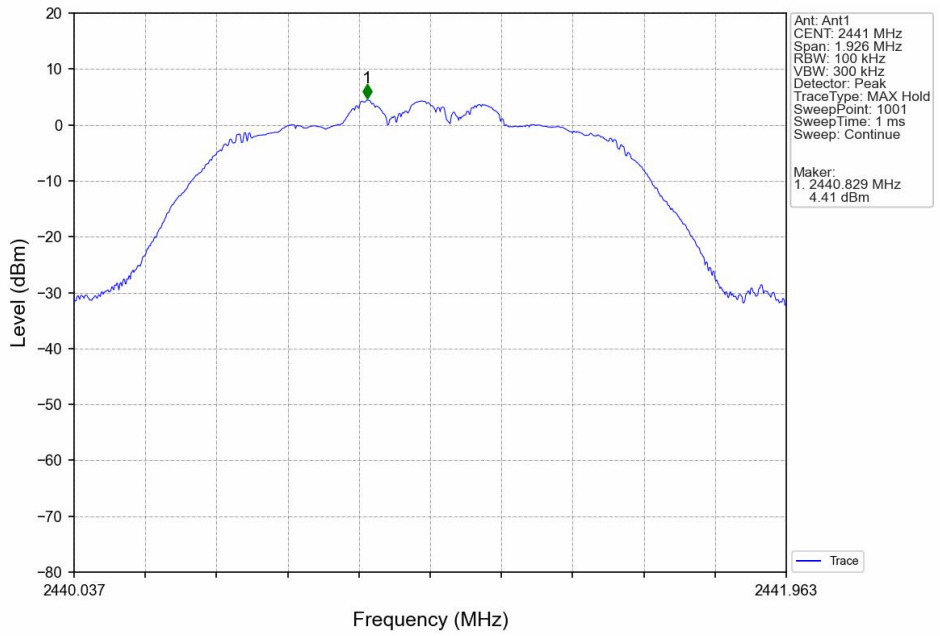
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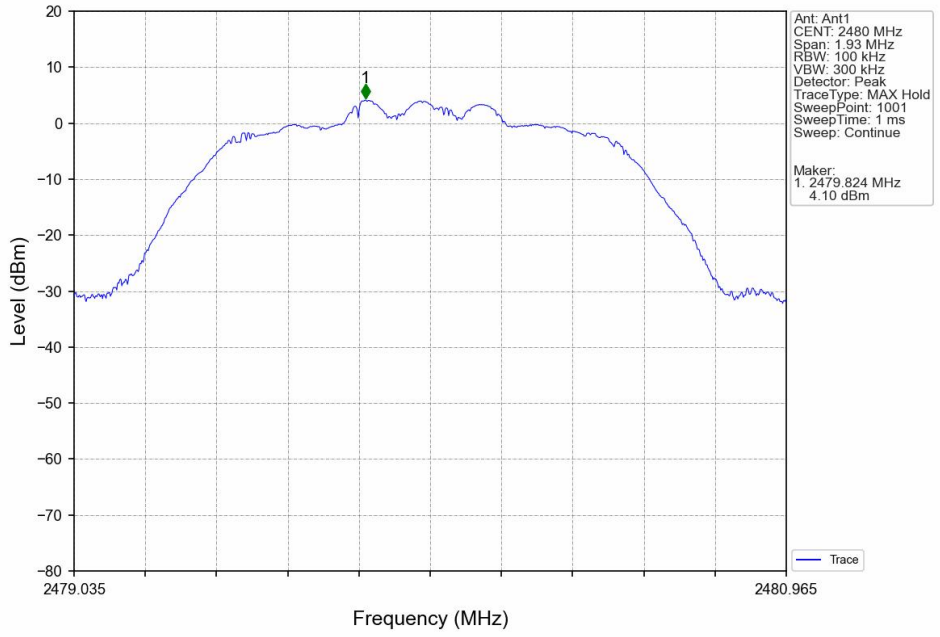
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Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV

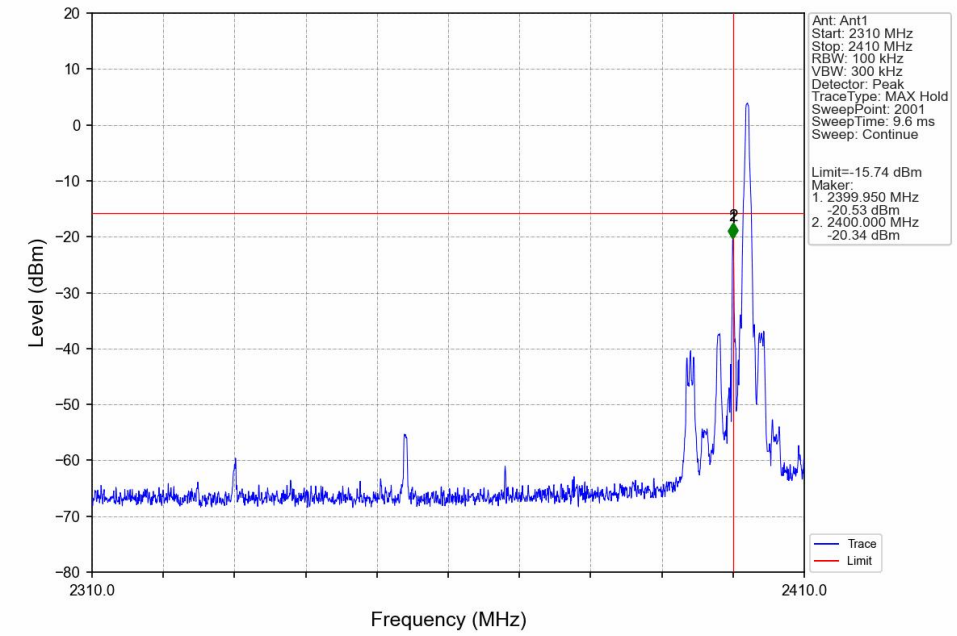


Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

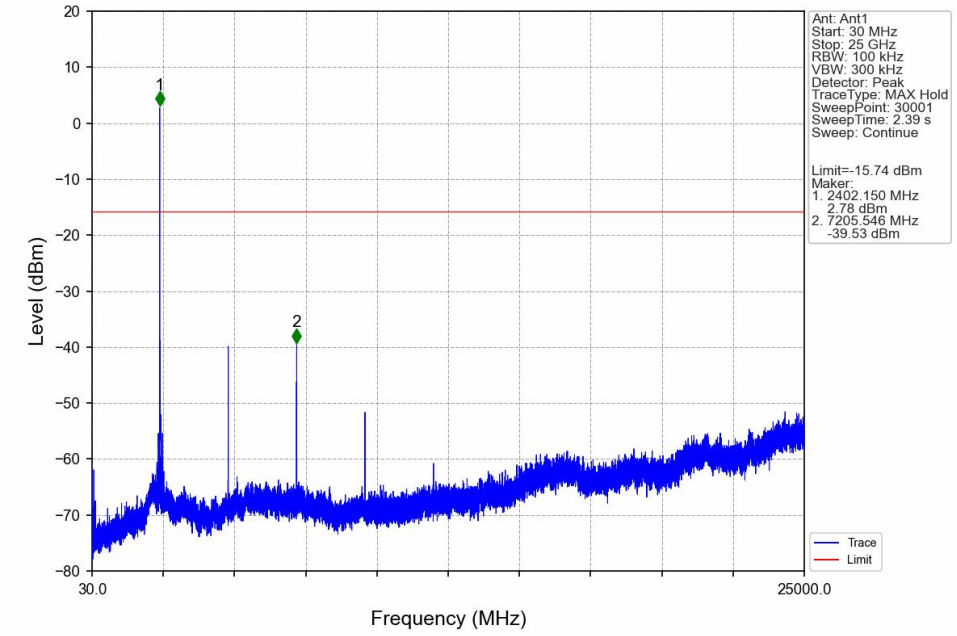


6.2.2 CSE

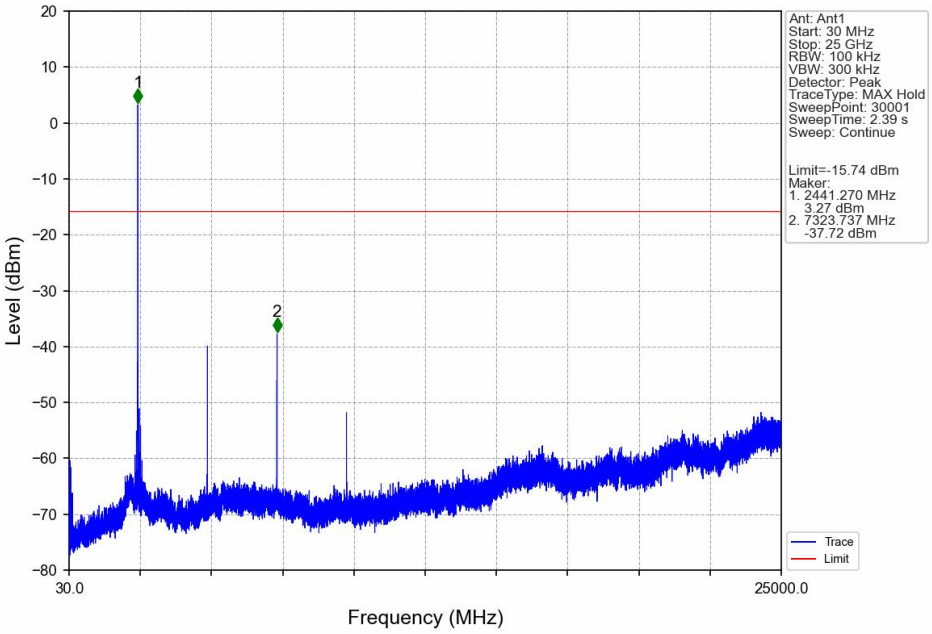
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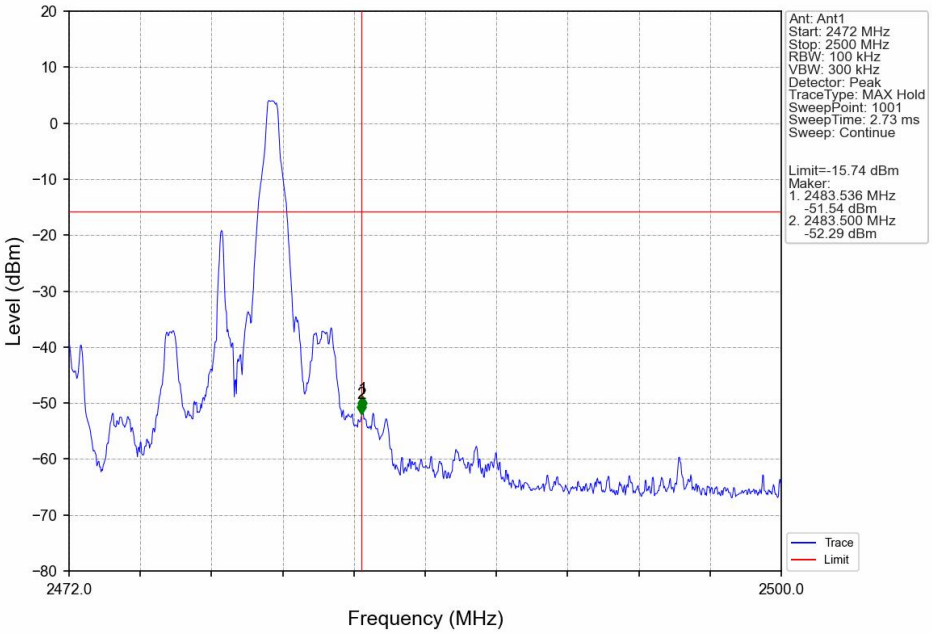
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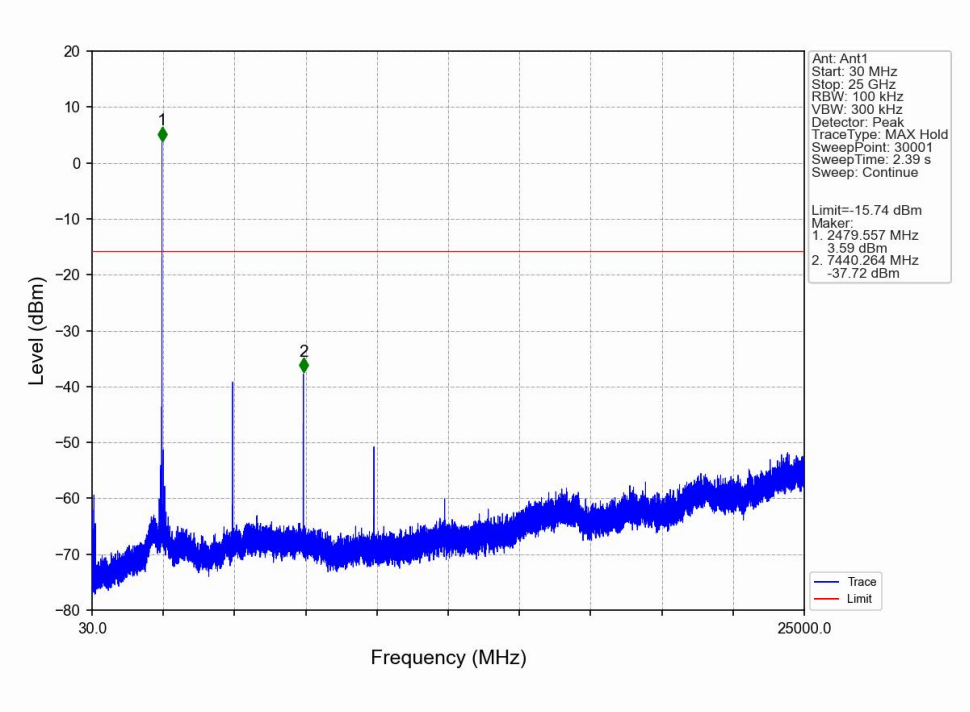
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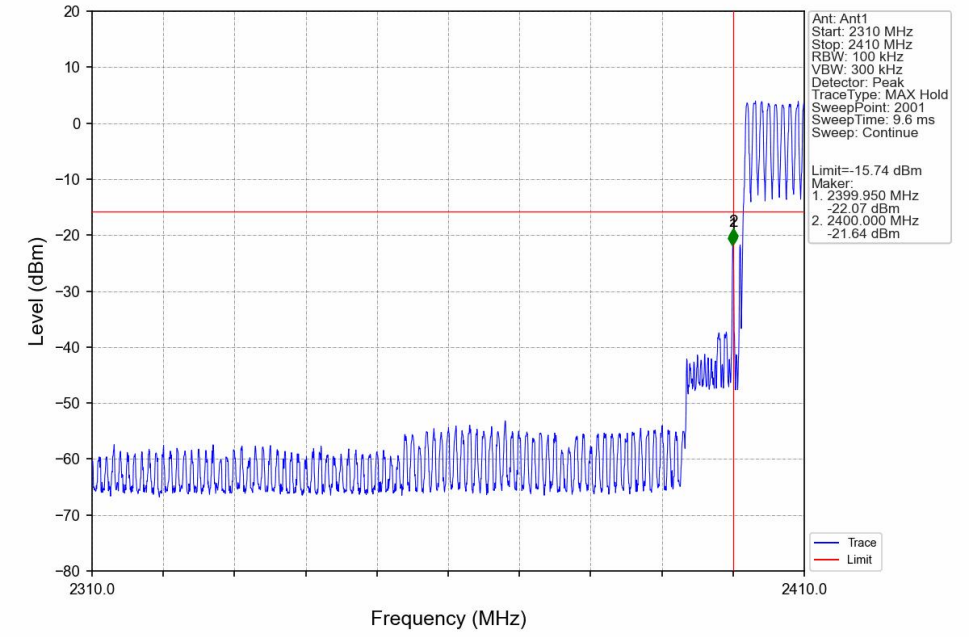
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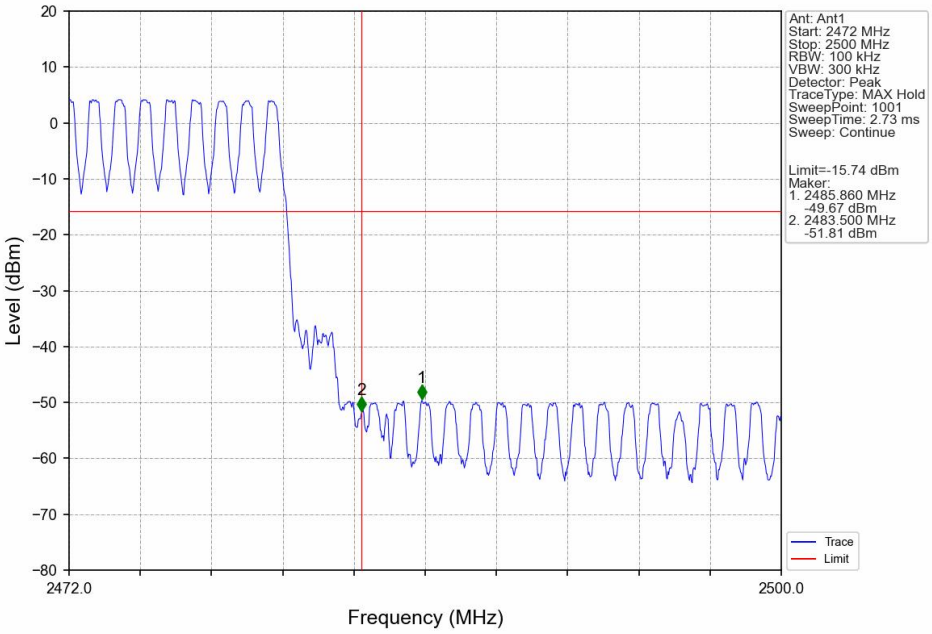
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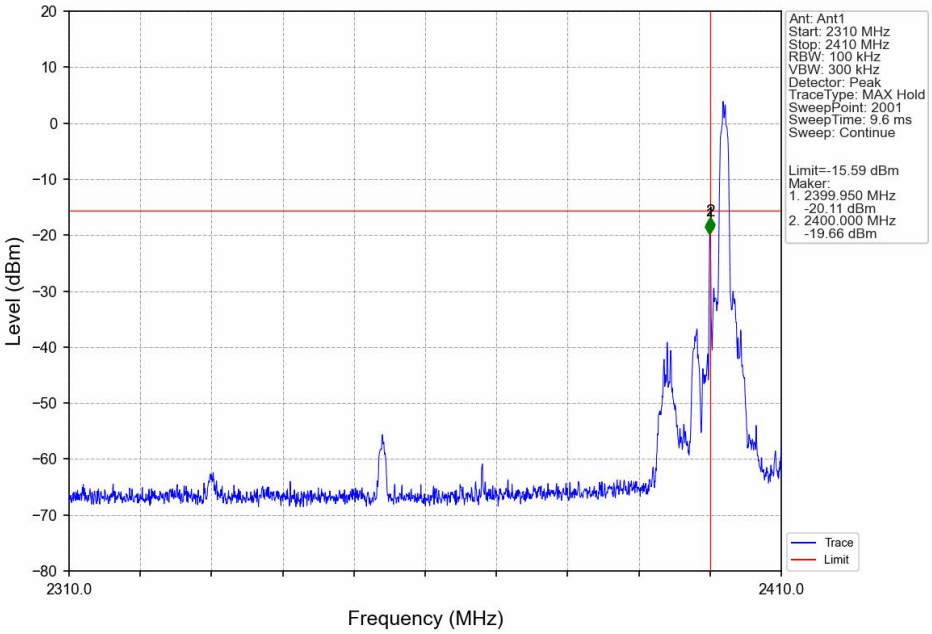
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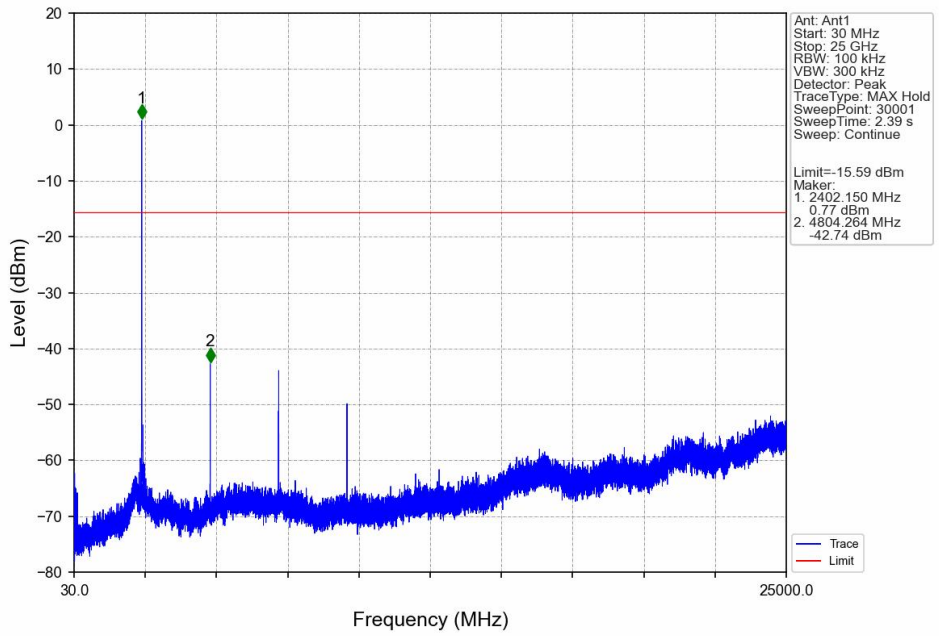
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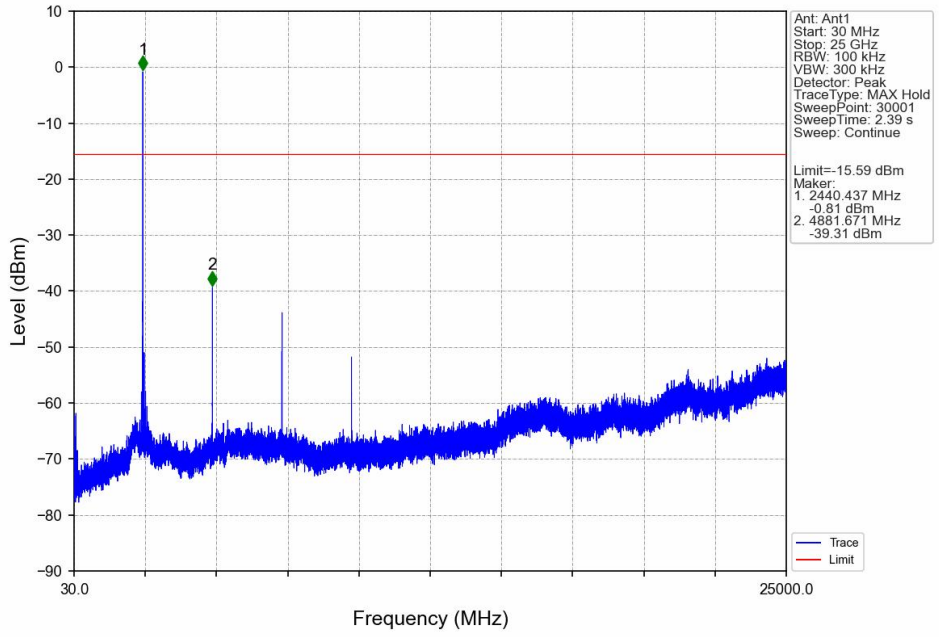
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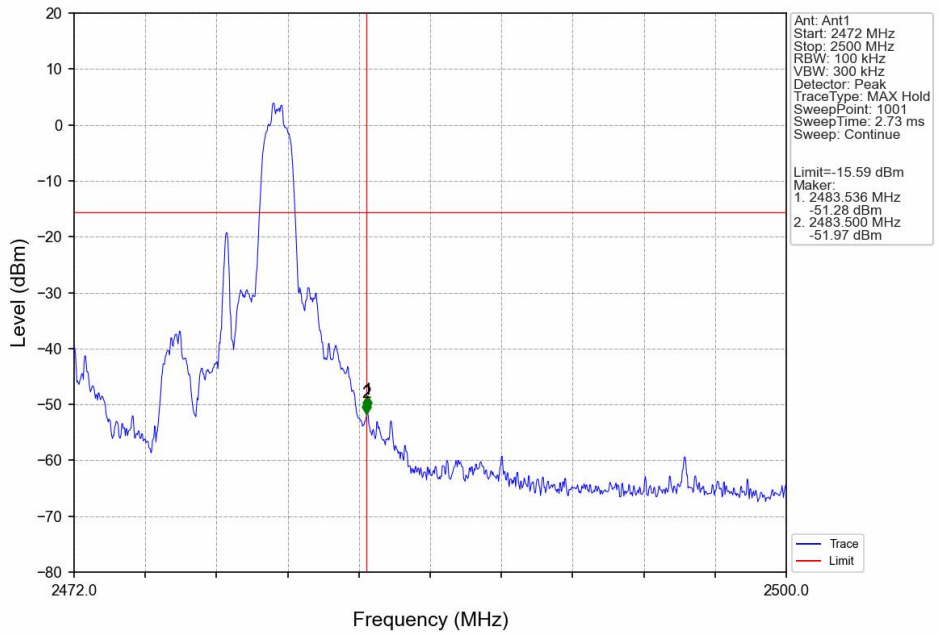
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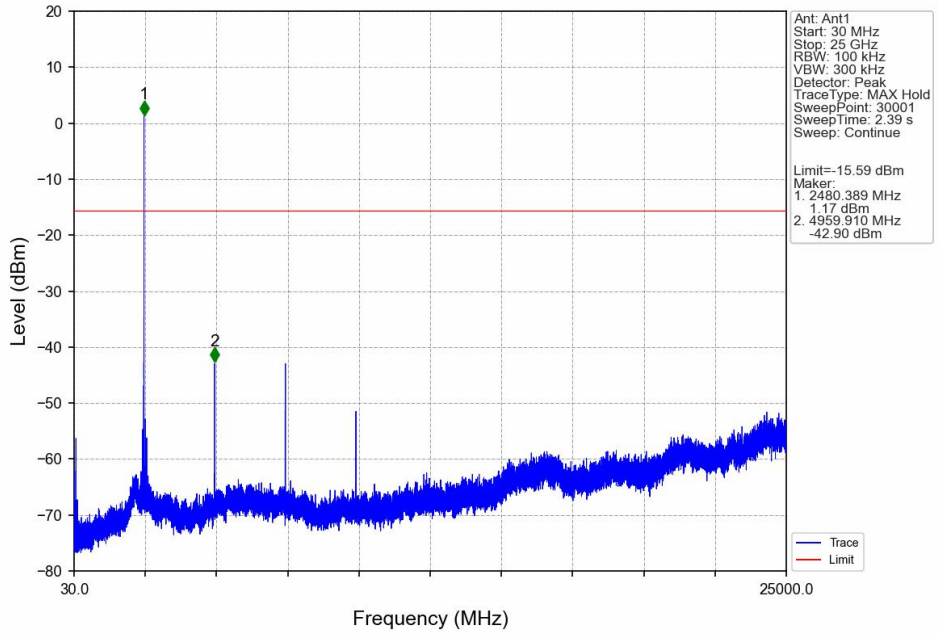
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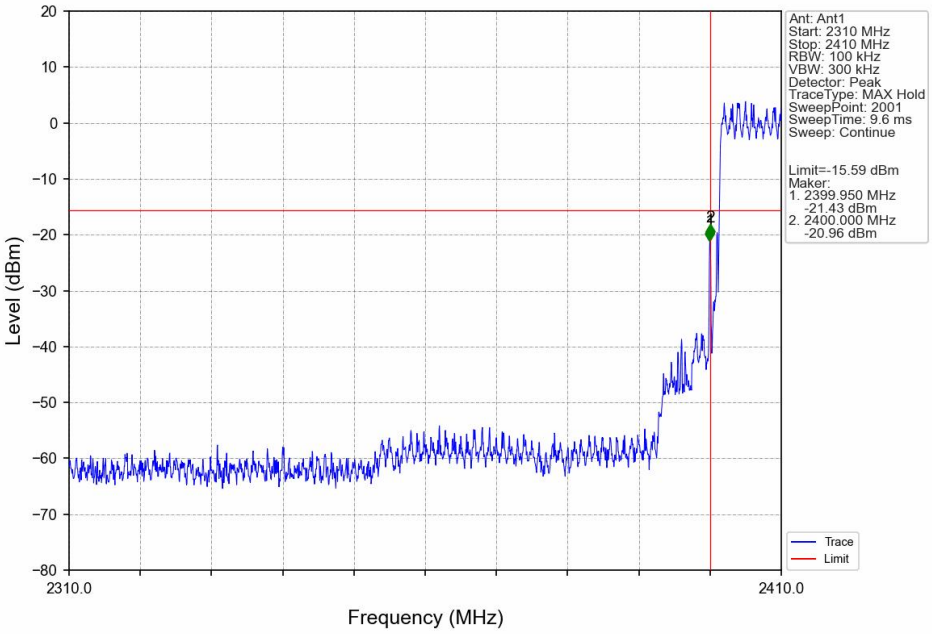
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Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV

