

Appendix Test Data

Project No.:	18220WC10147601	Test Date:	2021.7.2
Test Engineer:	<i>Tony He</i>	Auditor:	<i>Edward Pan</i>
Temperature:	24.5°C	Relative Humidity:	56.4%
Pressure:	1012 hPa		

1. Bandwidth

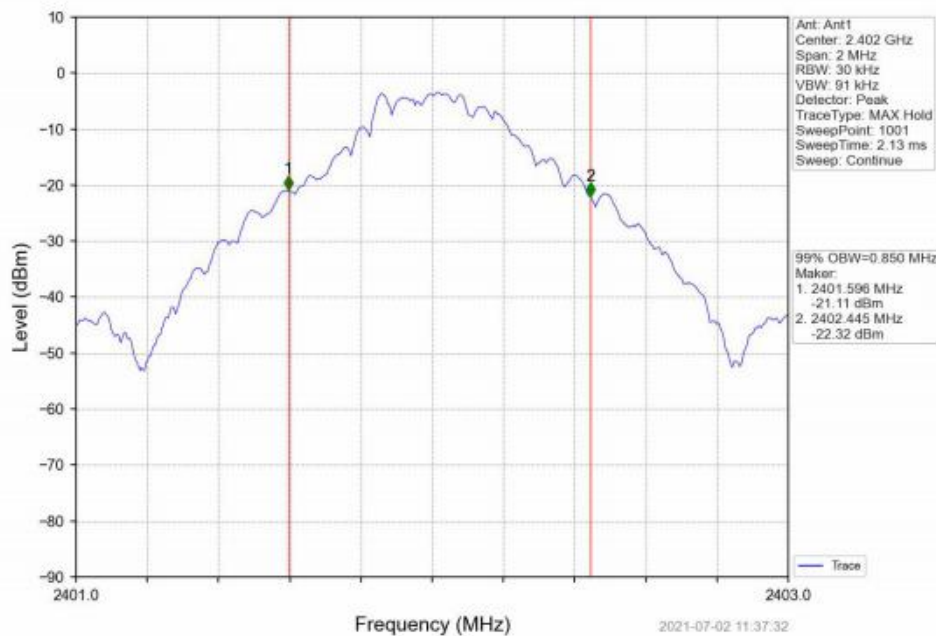
1.1 OBW

1.1.1 Test Result

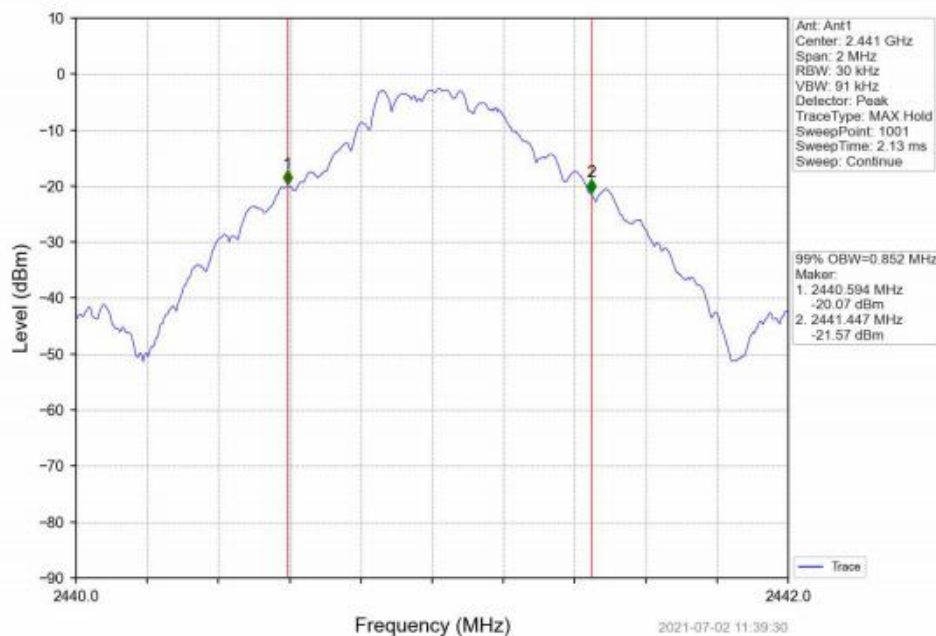
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Ant	99% Occupied Bandwidth (MHz)	Limit	Verdict
NTNV	GFSK	SISO	2402	DH5	1	0.85	/	Pass
			2441	DH5	1	0.85	/	Pass
			2480	DH5	1	0.85	/	Pass
	Pi/4DQPSK	SISO	2402	2DH5	1	1.17	/	Pass
			2441	2DH5	1	1.17	/	Pass
			2480	2DH5	1	1.17	/	Pass
	8DPSK	SISO	2402	3DH5	1	1.74	/	Pass
			2441	3DH5	1	1.18	/	Pass
			2480	3DH5	1	1.18	/	Pass

1.1.2 Test Graph

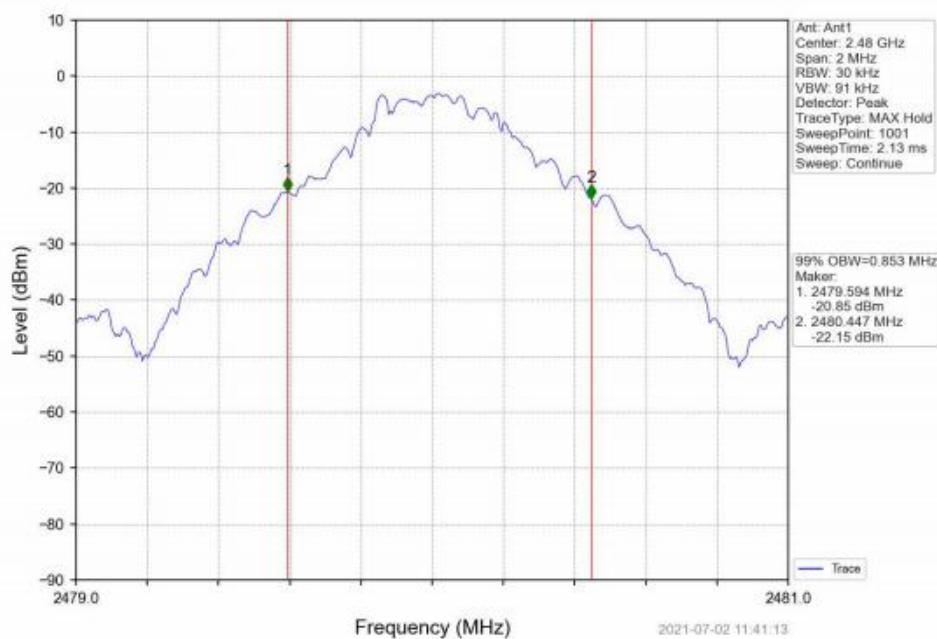
GFSK_DH5_LCH_2402MHz_Ant1_NTNV



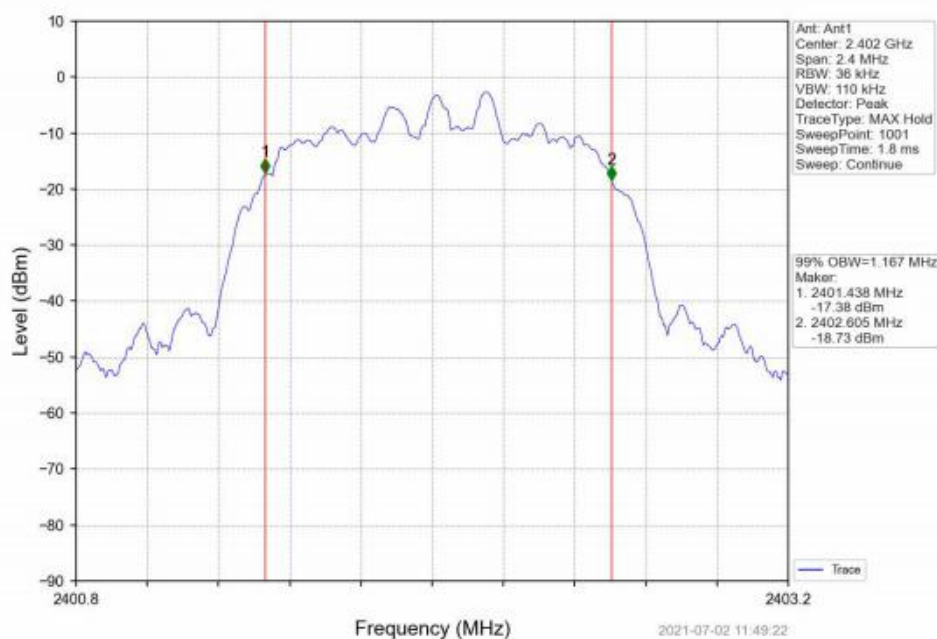
GFSK_DH5_MCH_2441MHz_Ant1_NTNV



GFSK_DH5_HCH_2480MHz_Ant1_NTNV



PI/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



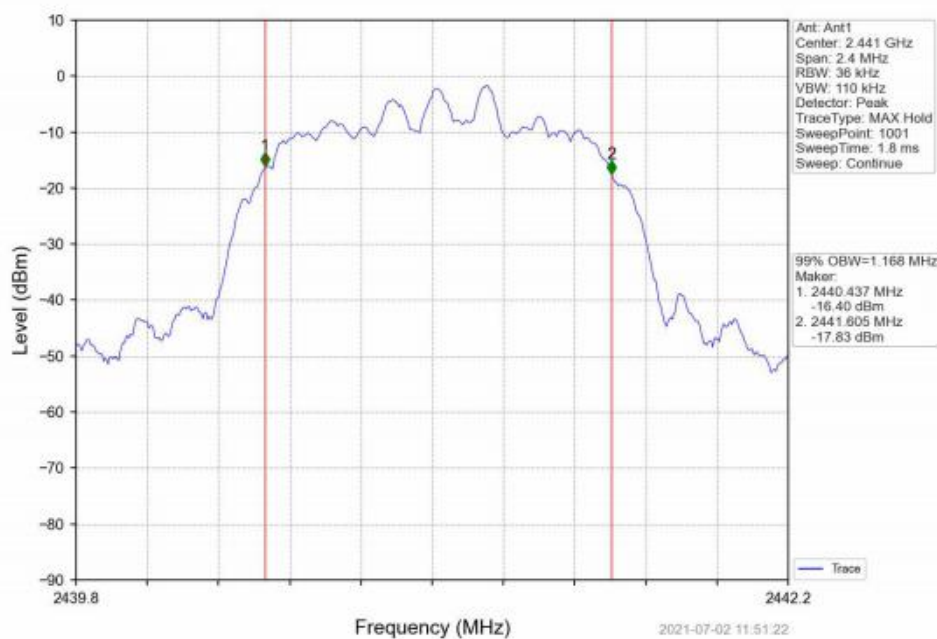
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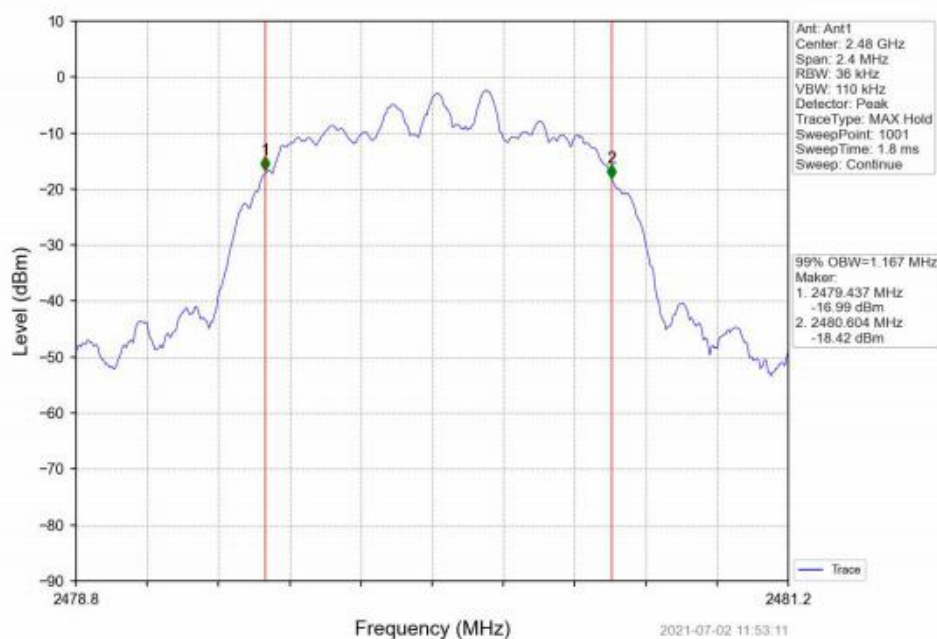
Tel: (86) 755-26066440 Fax: (86) 755-26014772 Email: service@anbotech.com

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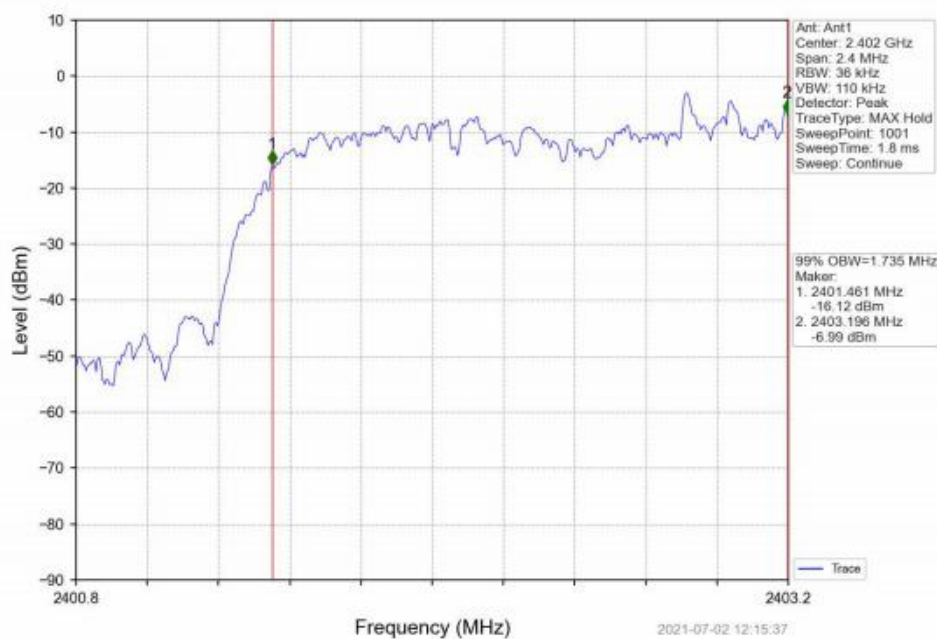
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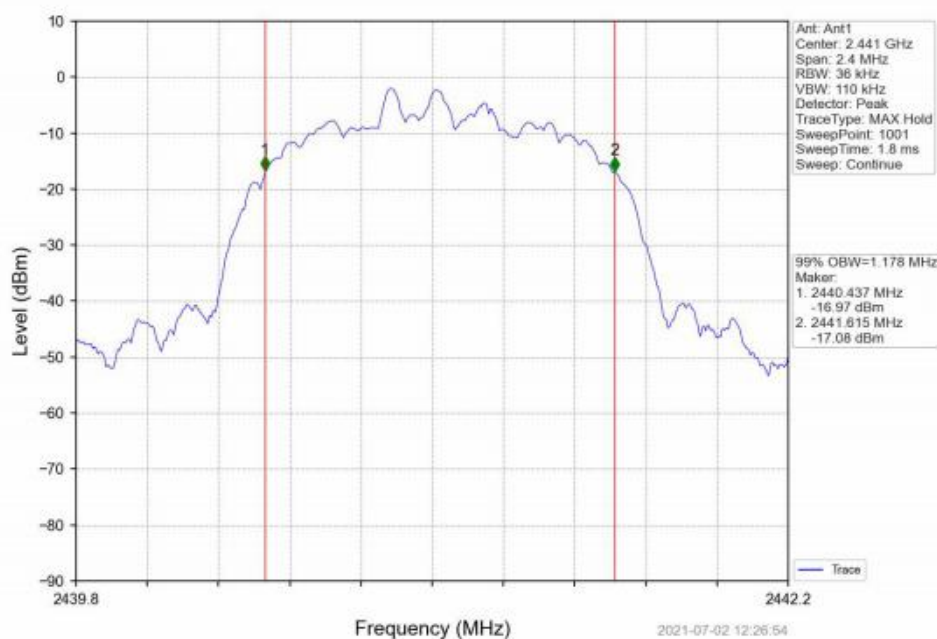
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV

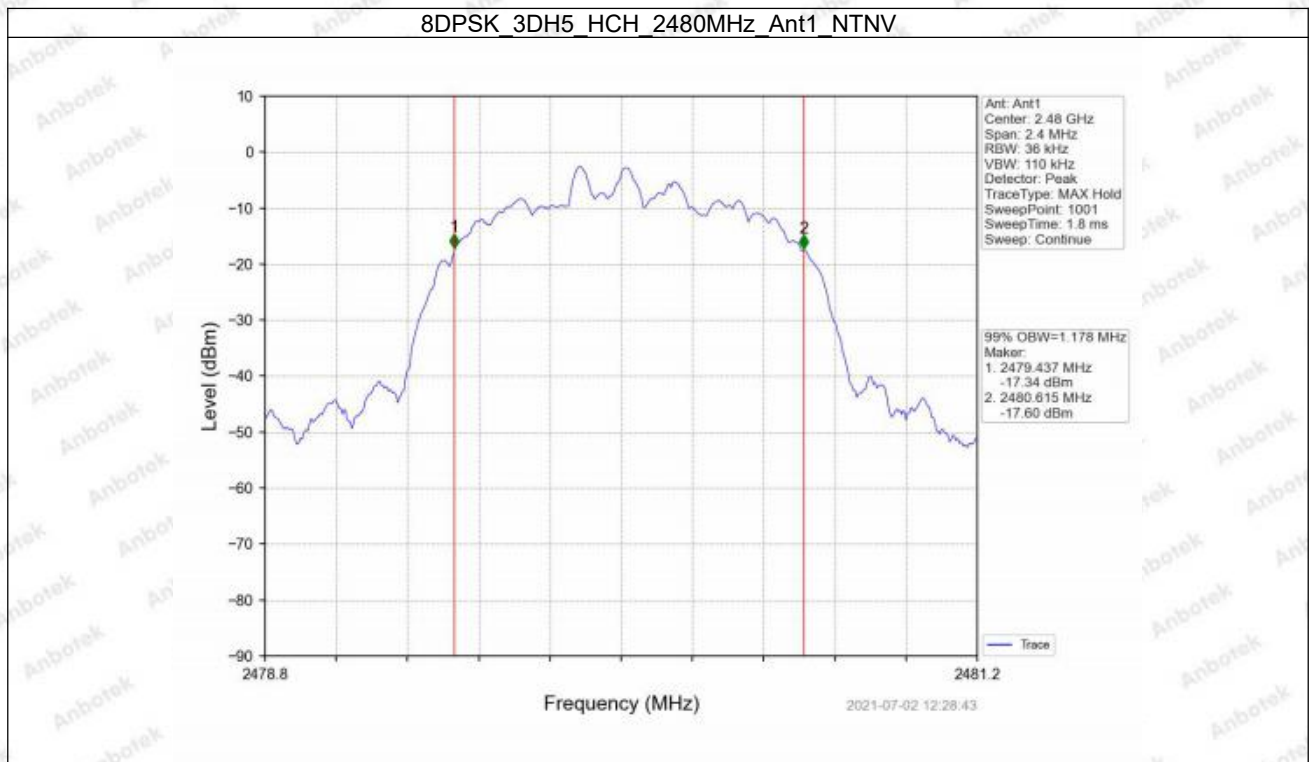


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1.2 20dB BW

1.2.1 Test Result

ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Ant	20dB Bandwidth (MHz)	Limit	Verdict
NTNV	GFSK	SISO	2402	DH5	1	0.95	/	Pass
			2441	DH5	1	0.96	/	Pass
			2480	DH5	1	0.95	/	Pass
	Pi/4DQPSK	SISO	2402	2DH5	1	1.28	/	Pass
			2441	2DH5	1	1.28	/	Pass
			2480	2DH5	1	1.31	/	Pass
	8DPSK	SISO	2402	3DH5	1	1.31	/	Pass
			2441	3DH5	1	1.31	/	Pass
			2480	3DH5	1	1.31	/	Pass

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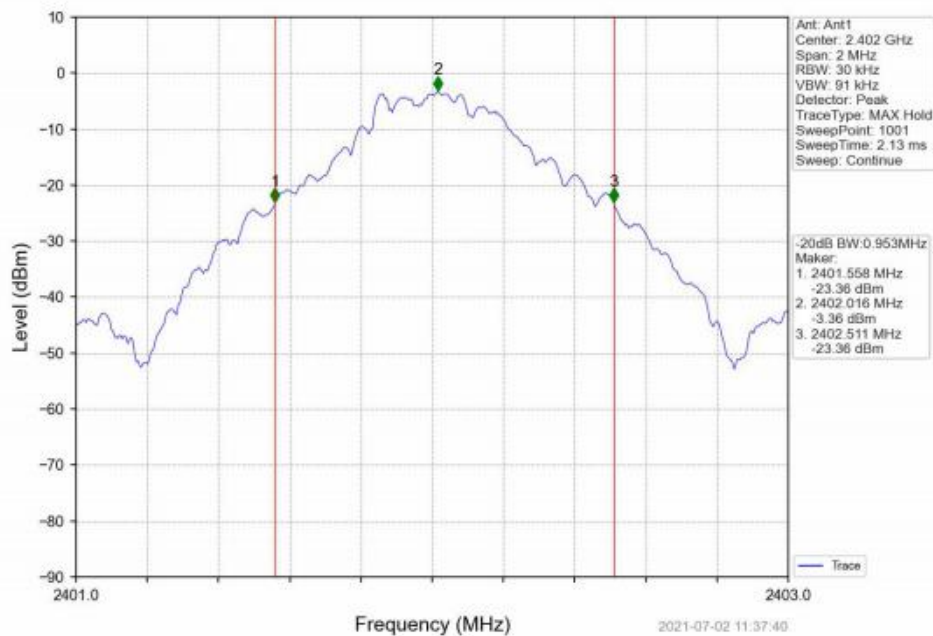
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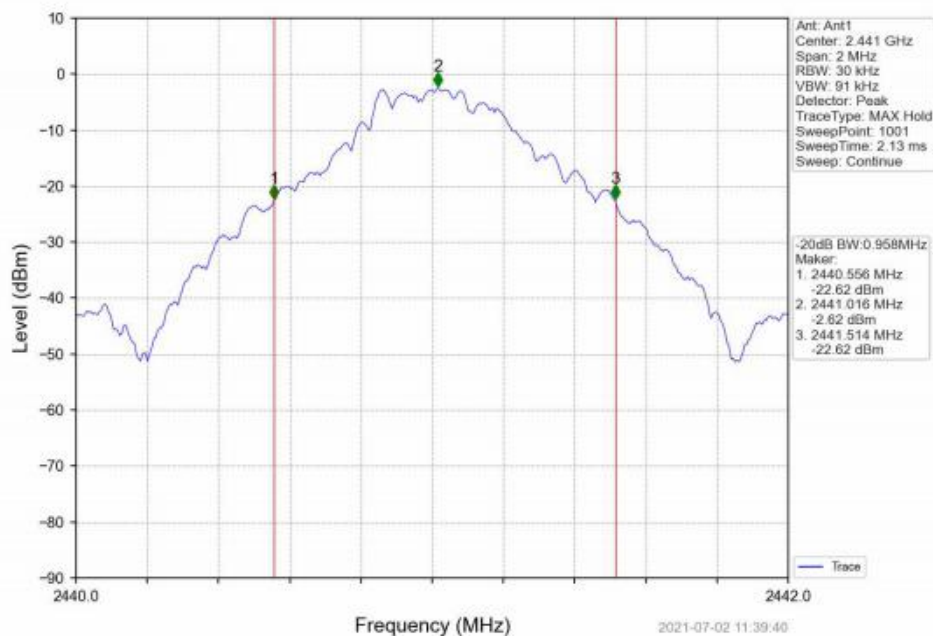
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1.2.2 Test Graph

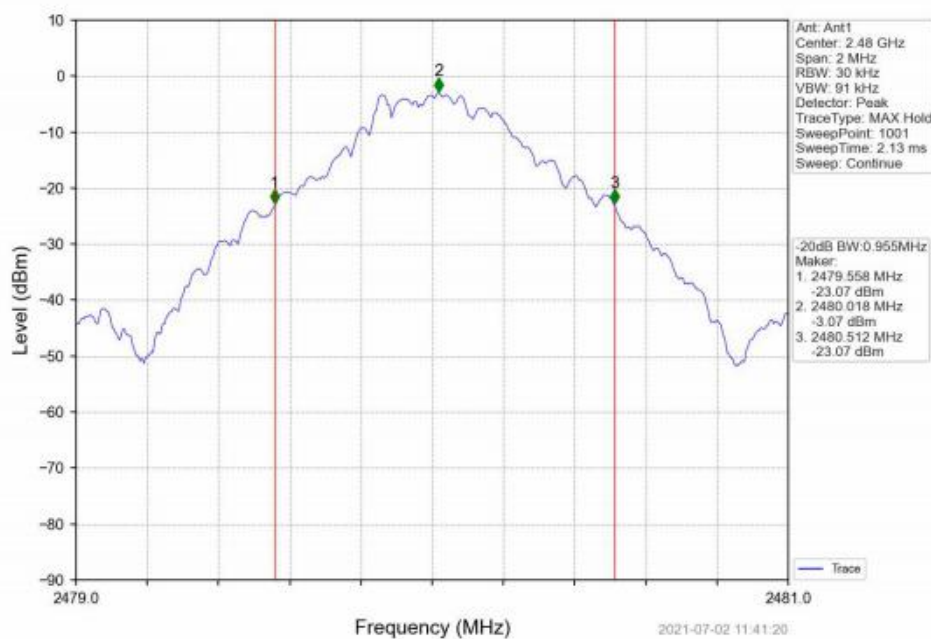
GFSK_DH5_LCH_2402MHz_Ant1_NTNV



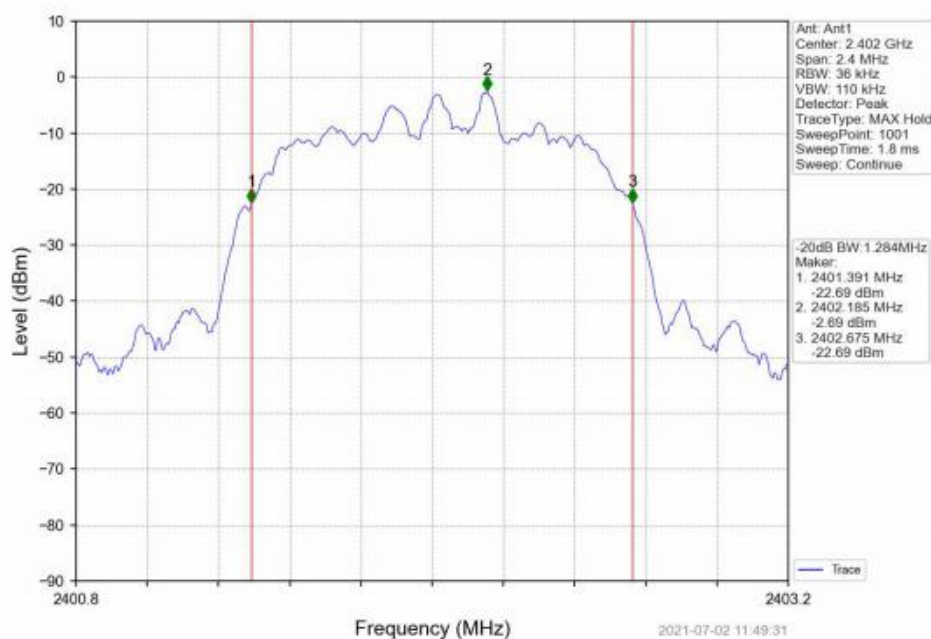
GFSK_DH5_MCH_2441MHz_Ant1_NTNV



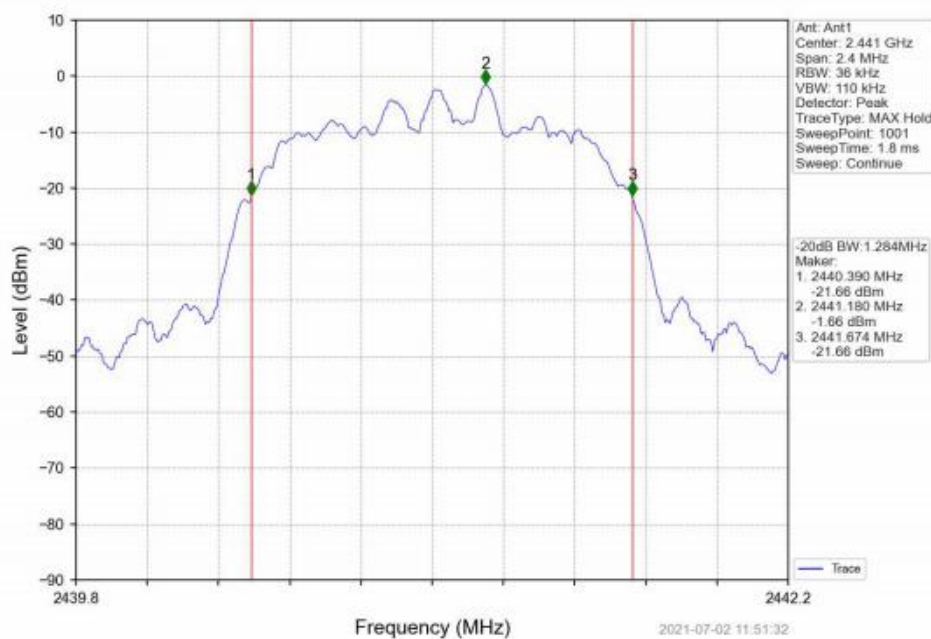
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



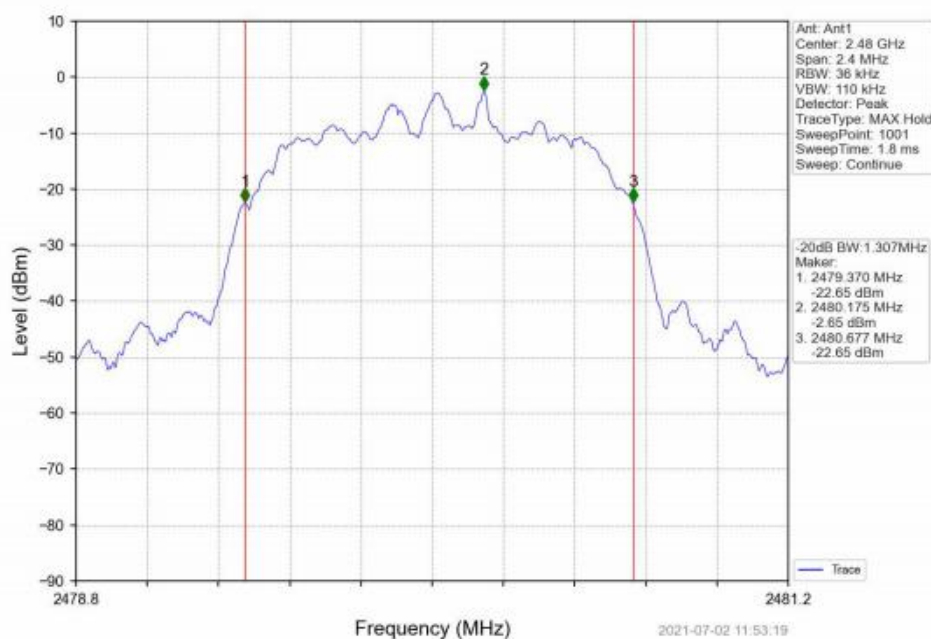
PI/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



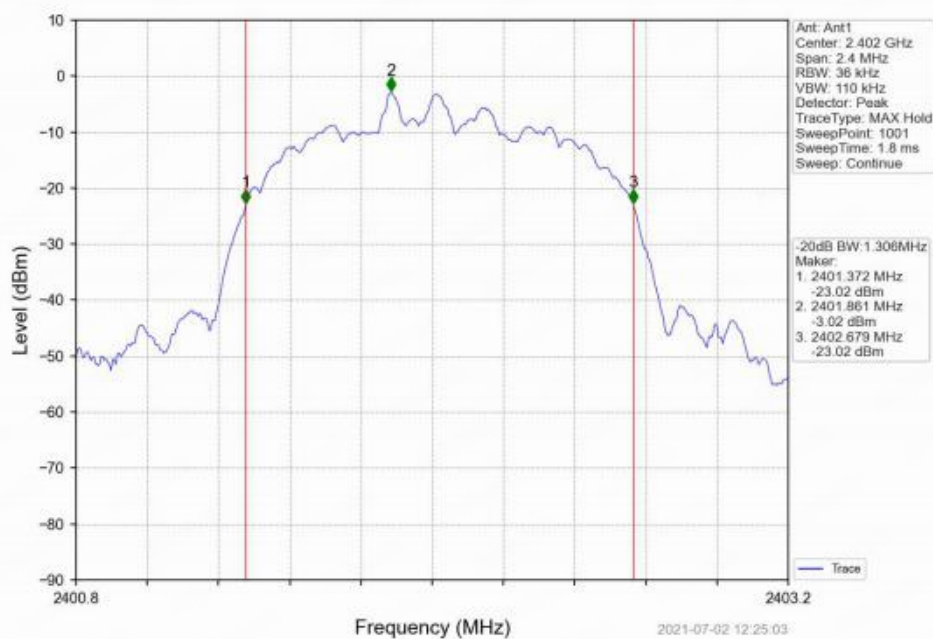
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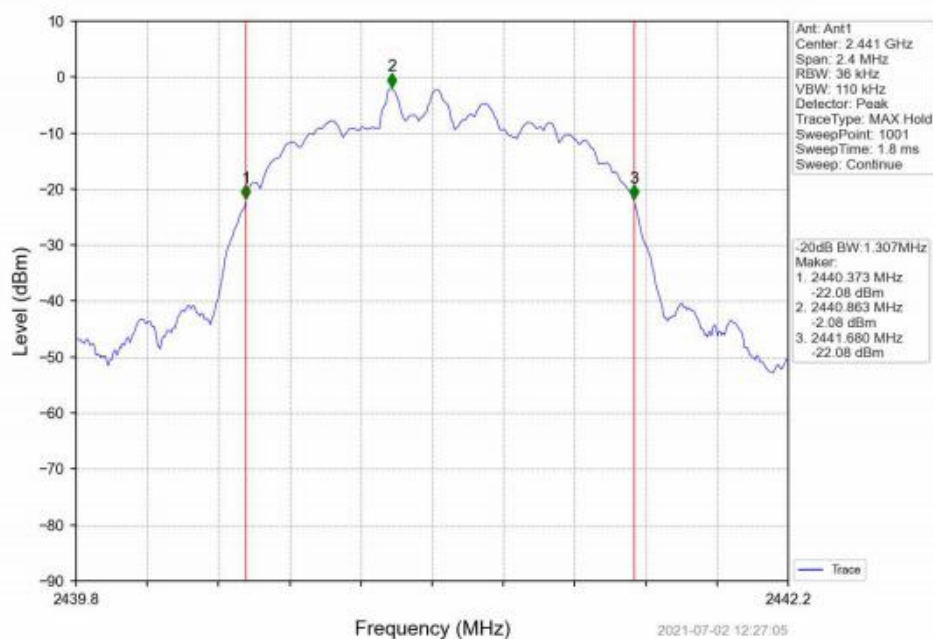
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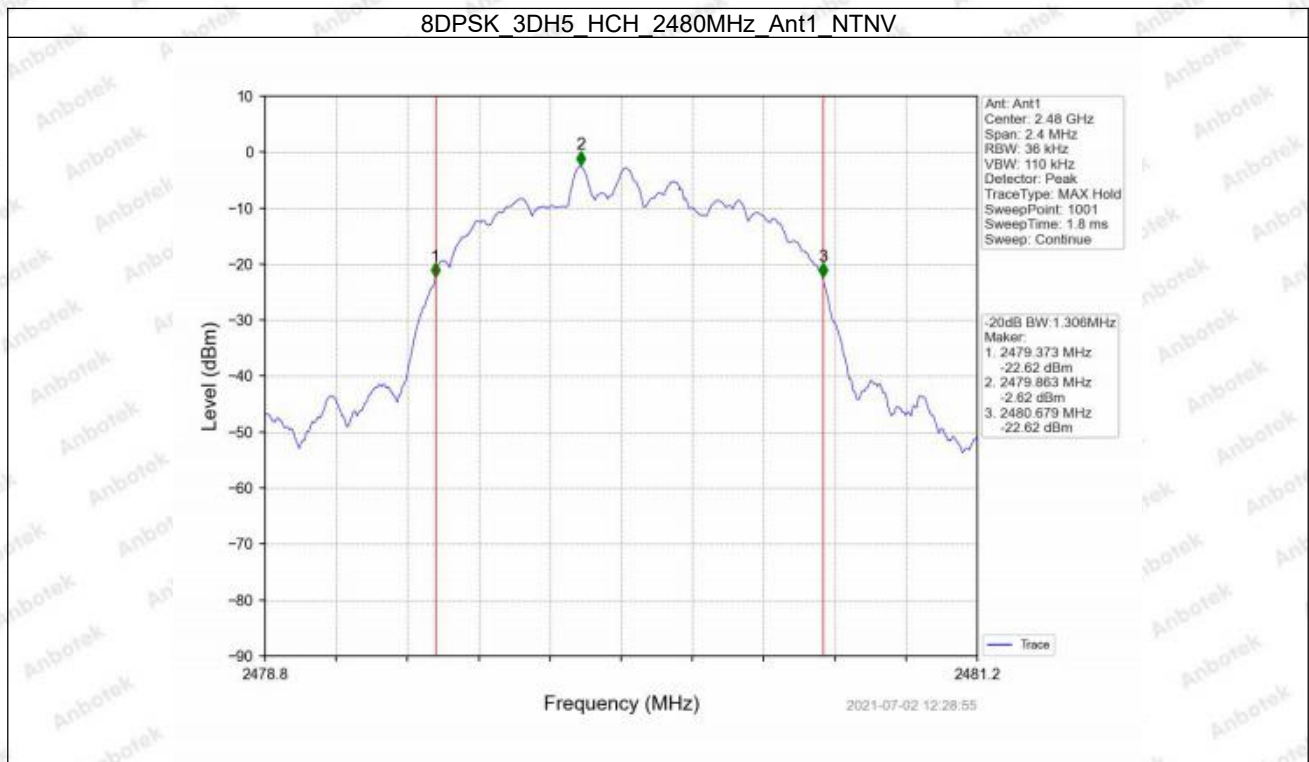


8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



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2. Maximum Conducted Output Power

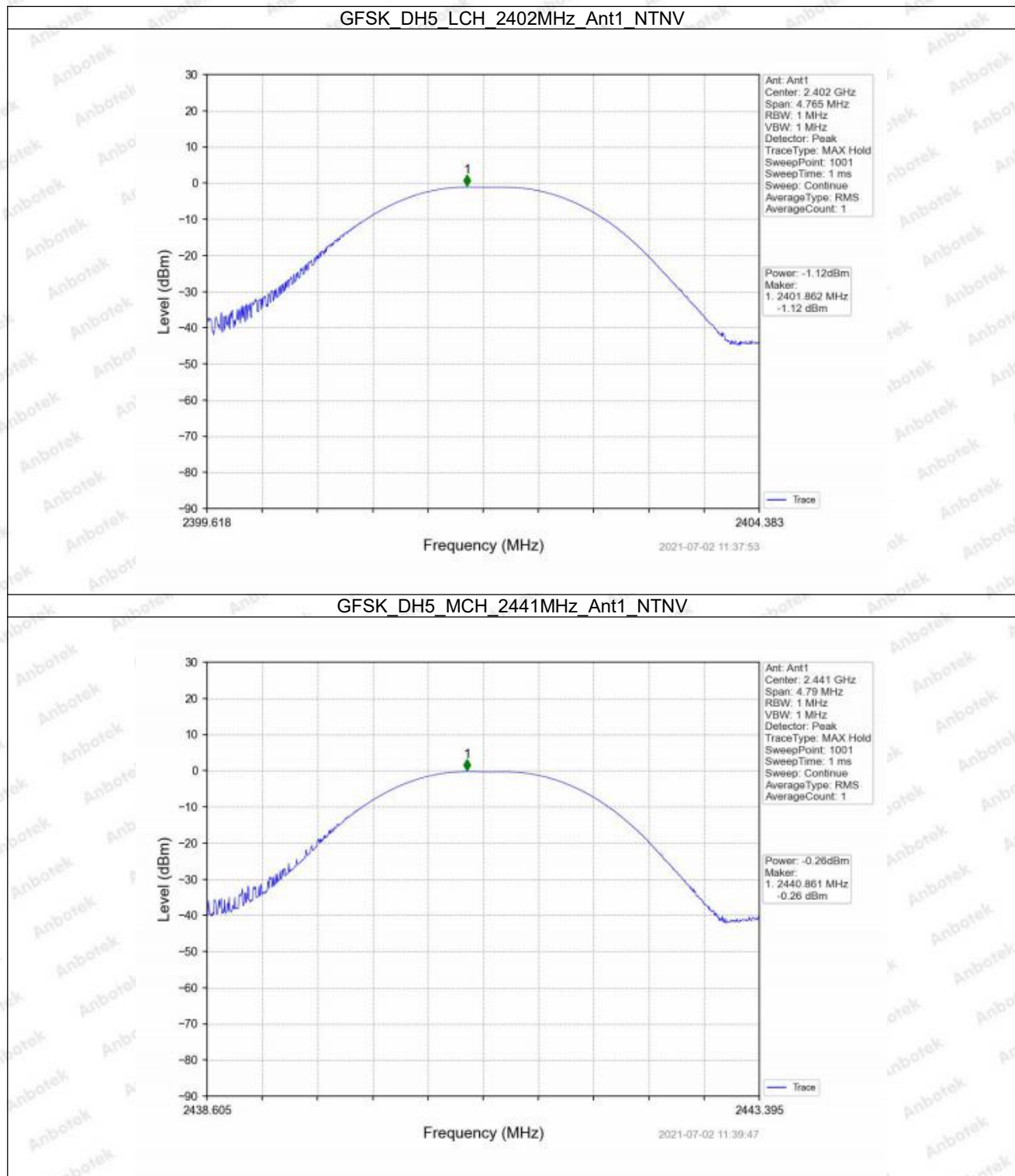
2.1 Power

2.1.1 Test Result

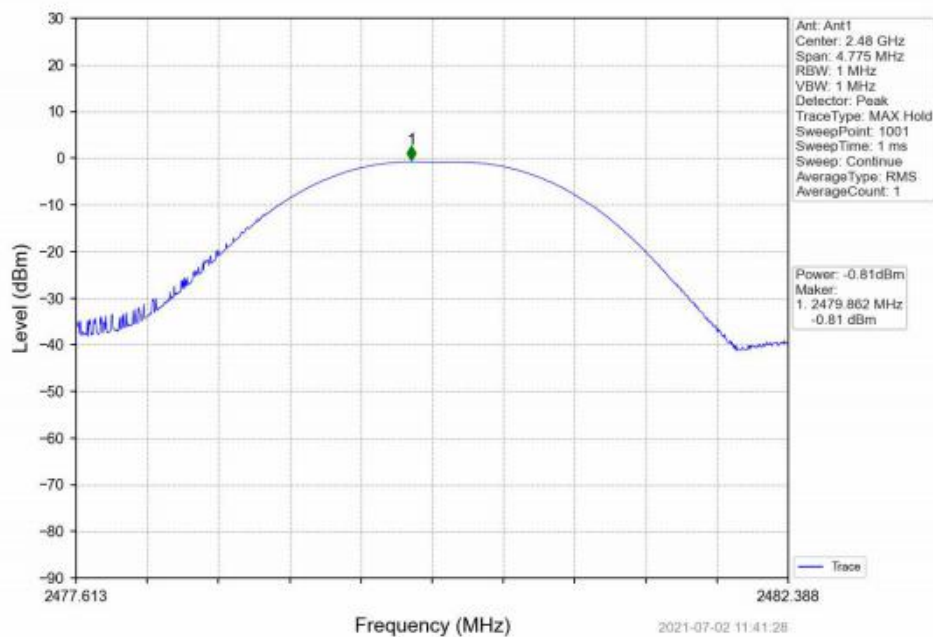
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Measured Peak Output Power (dBm)		Verdict
					Ant1	Limit	
NTNV	GFSK	SISO	2402	DH5	-1.12	<=30	Pass
			2441	DH5	-0.26	<=30	Pass
			2480	DH5	-0.81	<=30	Pass
	Pi/4DQPSK	SISO	2402	2DH5	-0.13	<=20.97	Pass
			2441	2DH5	0.80	<=20.97	Pass
			2480	2DH5	0.13	<=20.97	Pass
	8DPSK	SISO	2402	3DH5	0.27	<=20.97	Pass
			2441	3DH5	1.17	<=20.97	Pass
			2480	3DH5	0.61	<=20.97	Pass

Note1: Antenna Gain: Ant1: 3.30dBi;

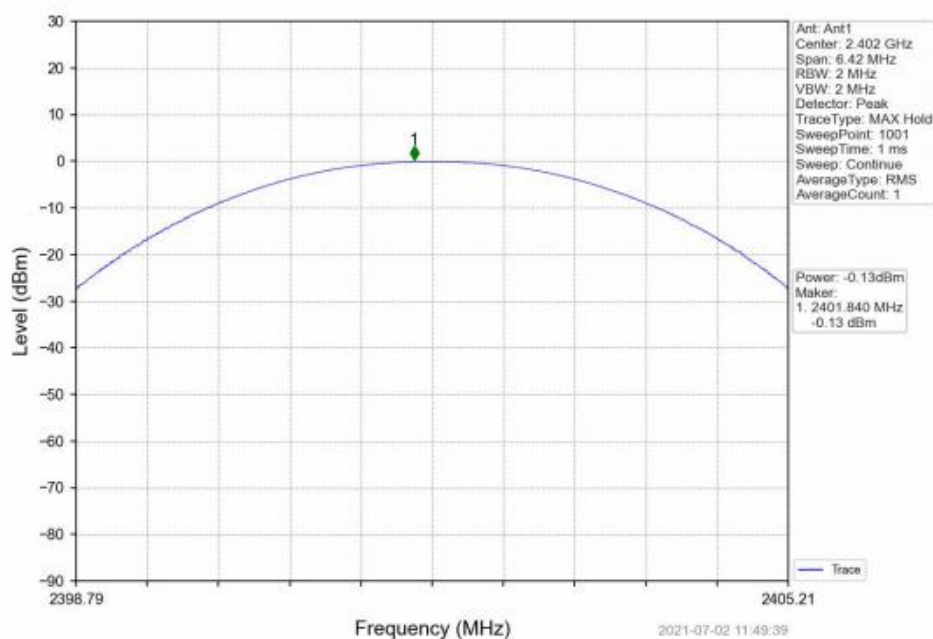
2.1.2 Test Graph



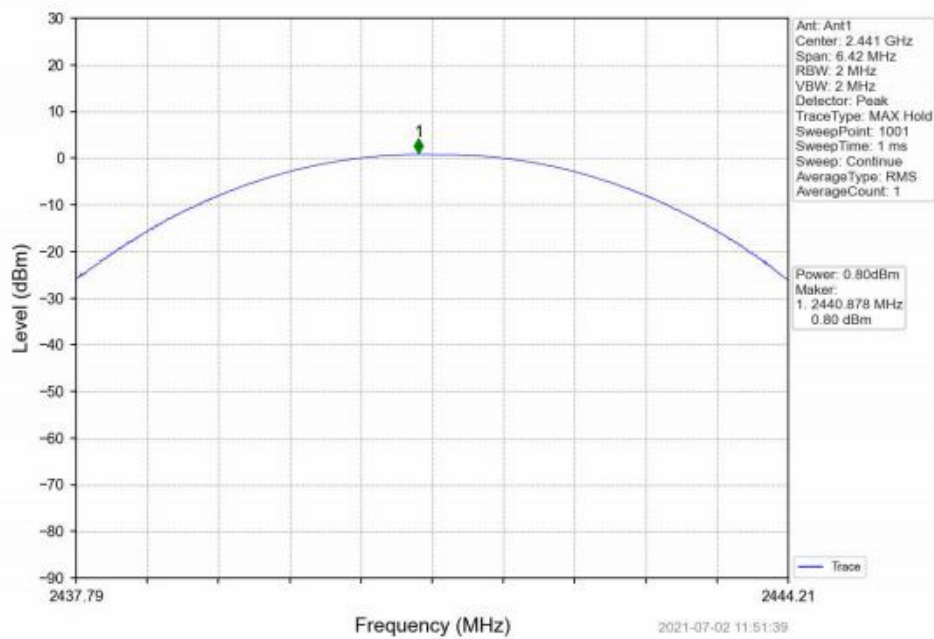
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



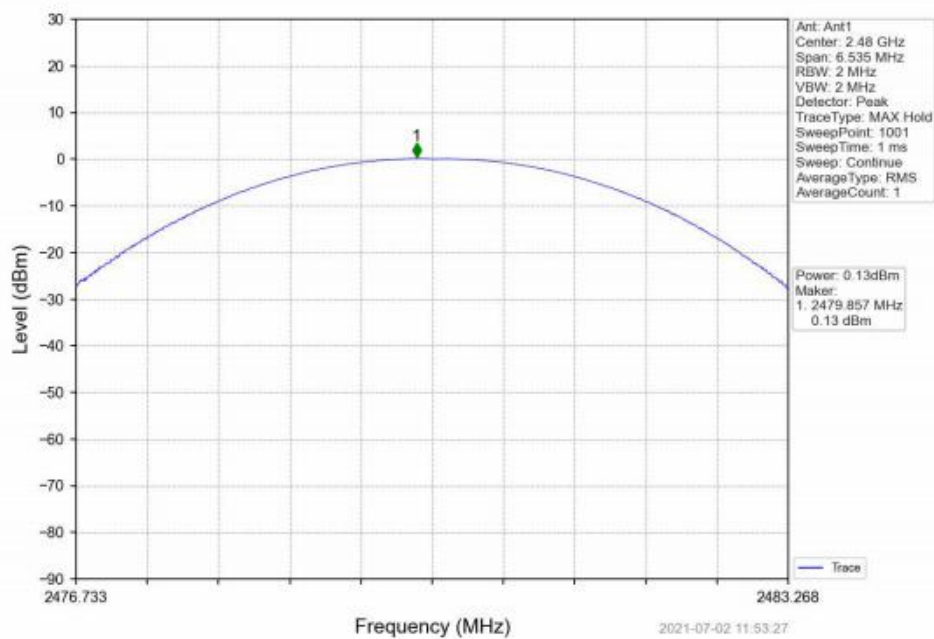
PI/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



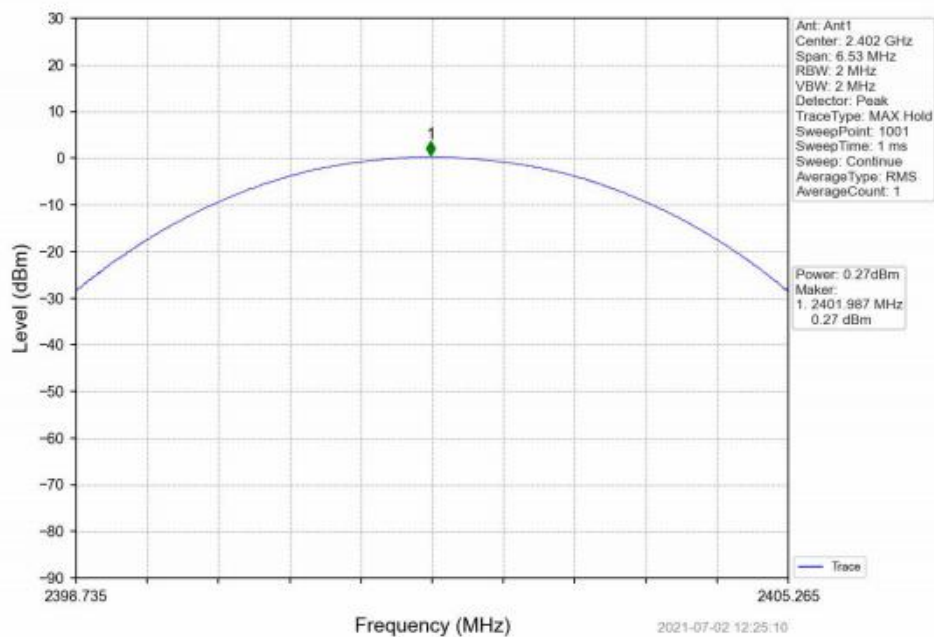
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



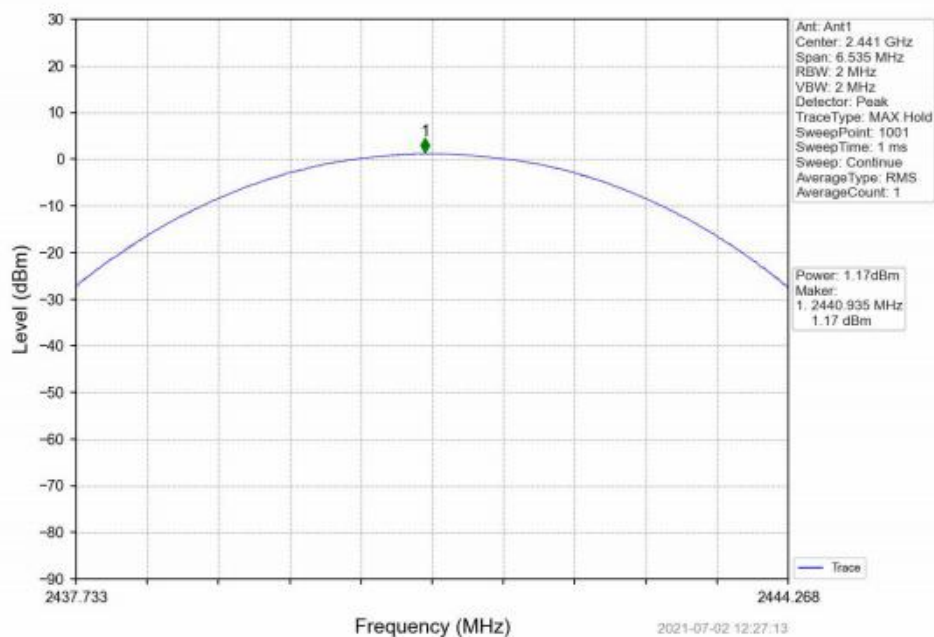
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV

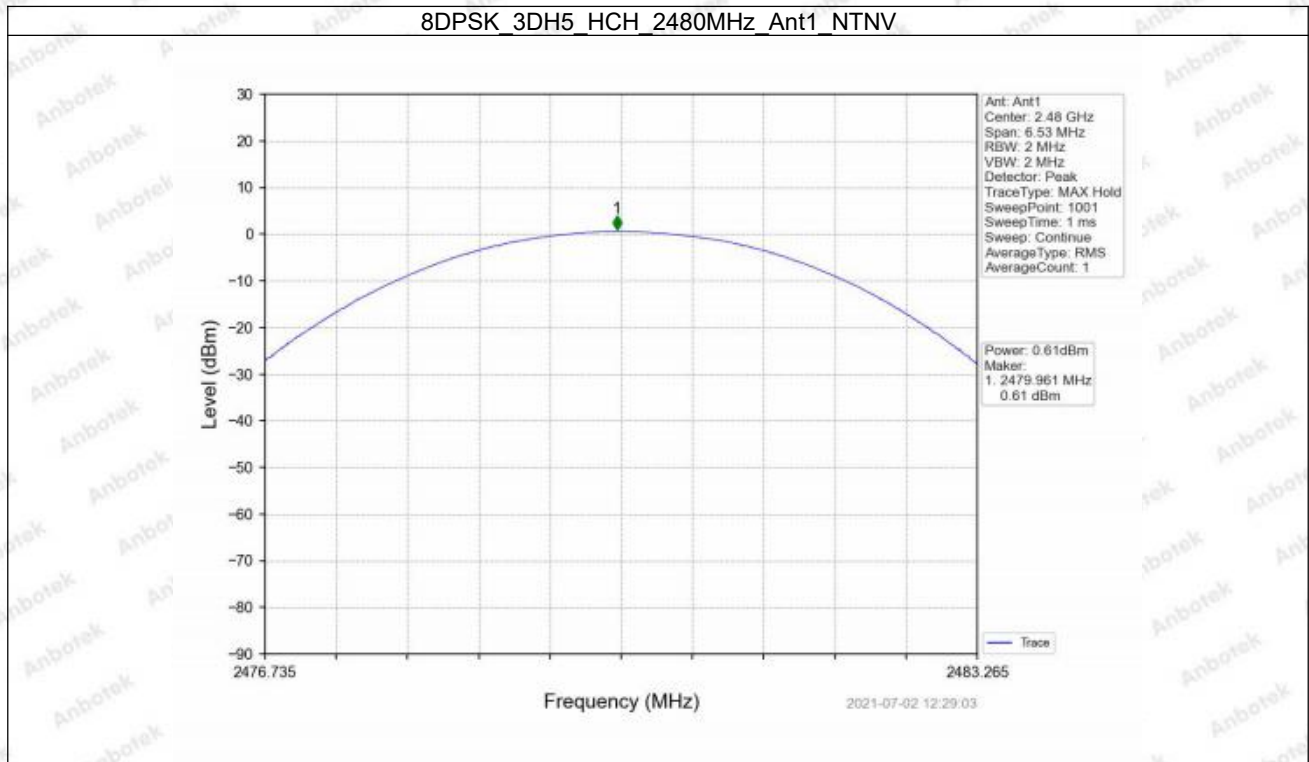


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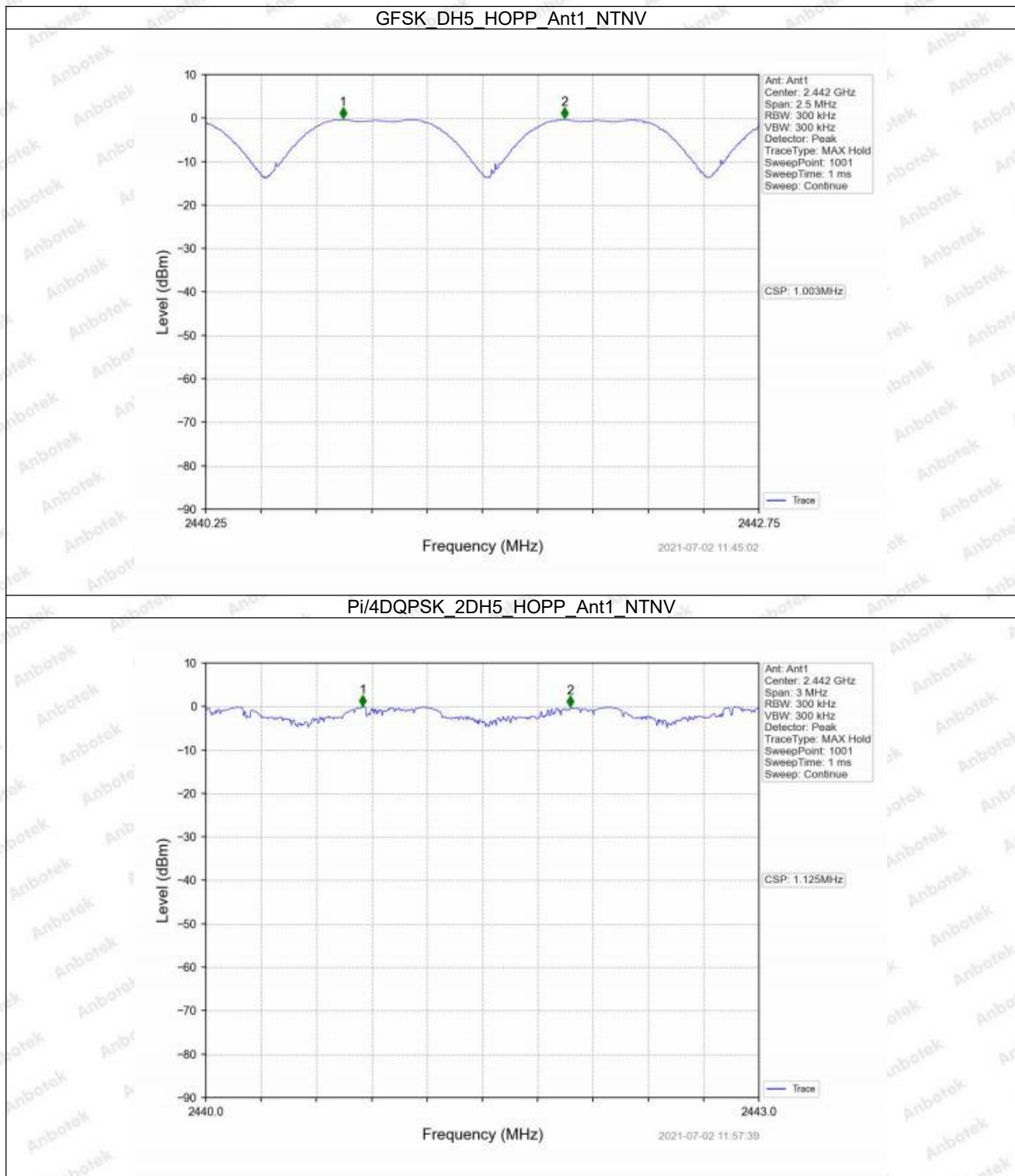
3. Carrier Frequency Separation

3.1 Ant1

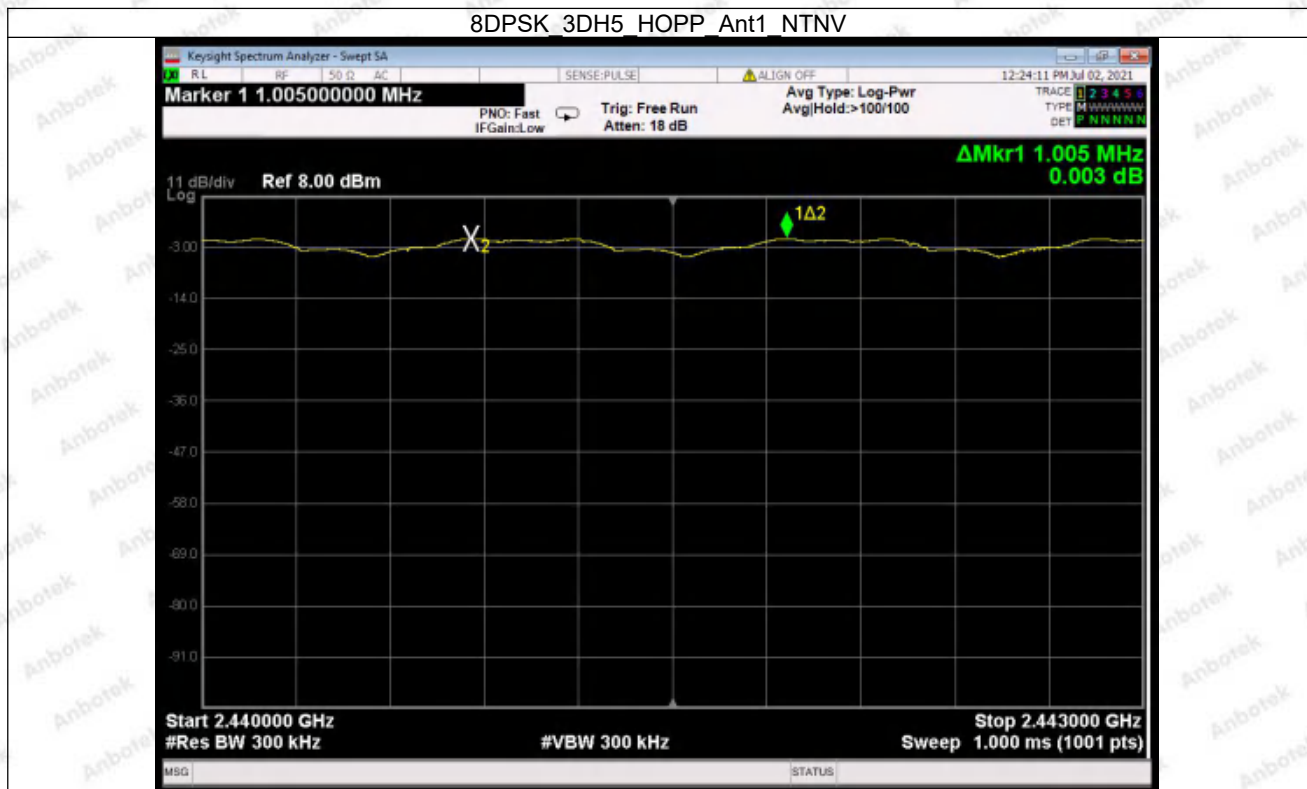
3.1.1 Test Result

Ant1								
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
NTNV	GFSK	SISO	HOPP	DH5	1.00	0.95	≥ 0.953	Pass
	Pi/4DQPSK	SISO	HOPP	2DH5	1.12	1.28	≥ 0.856	Pass
	8DPSK	SISO	HOPP	3DH5	1.005	1.31	≥ 0.873	Pass

3.1.2 Test Graph



8DPSK 3DH5 HOPP Ant1 NTV



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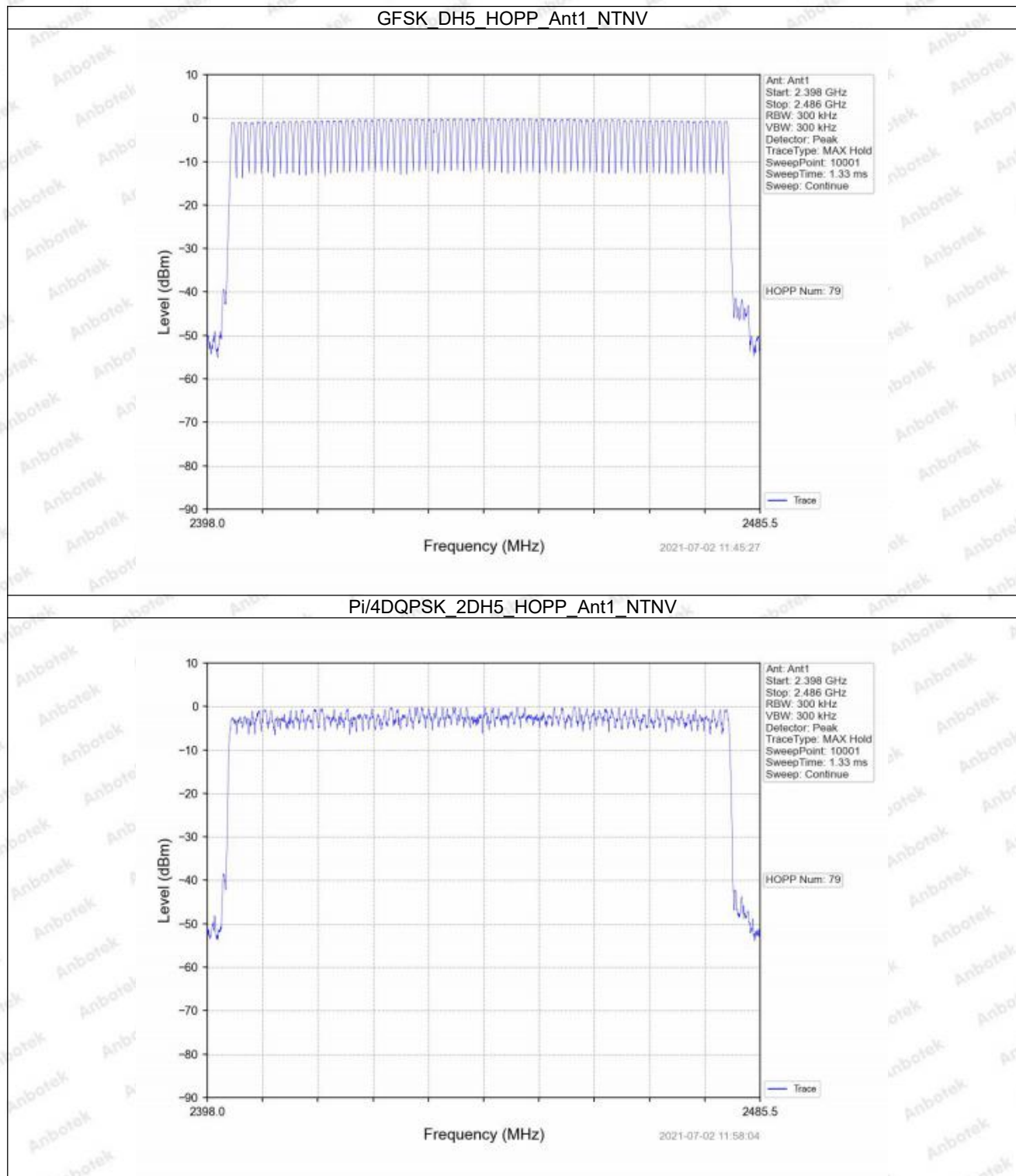
4. Number of Hopping Frequencies

4.1 HopNum

4.1.1 Test Result

ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Num of Hopping Frequencies		Verdict
					Ant1	Limit	
NTNV	GFSK	SISO	HOPP	DH5	79	≥ 15	Pass
	Pi/4DQPSK	SISO	HOPP	2DH5	79	≥ 15	Pass
	8DPSK	SISO	HOPP	3DH5	79	≥ 15	Pass

4.1.2 Test Graph

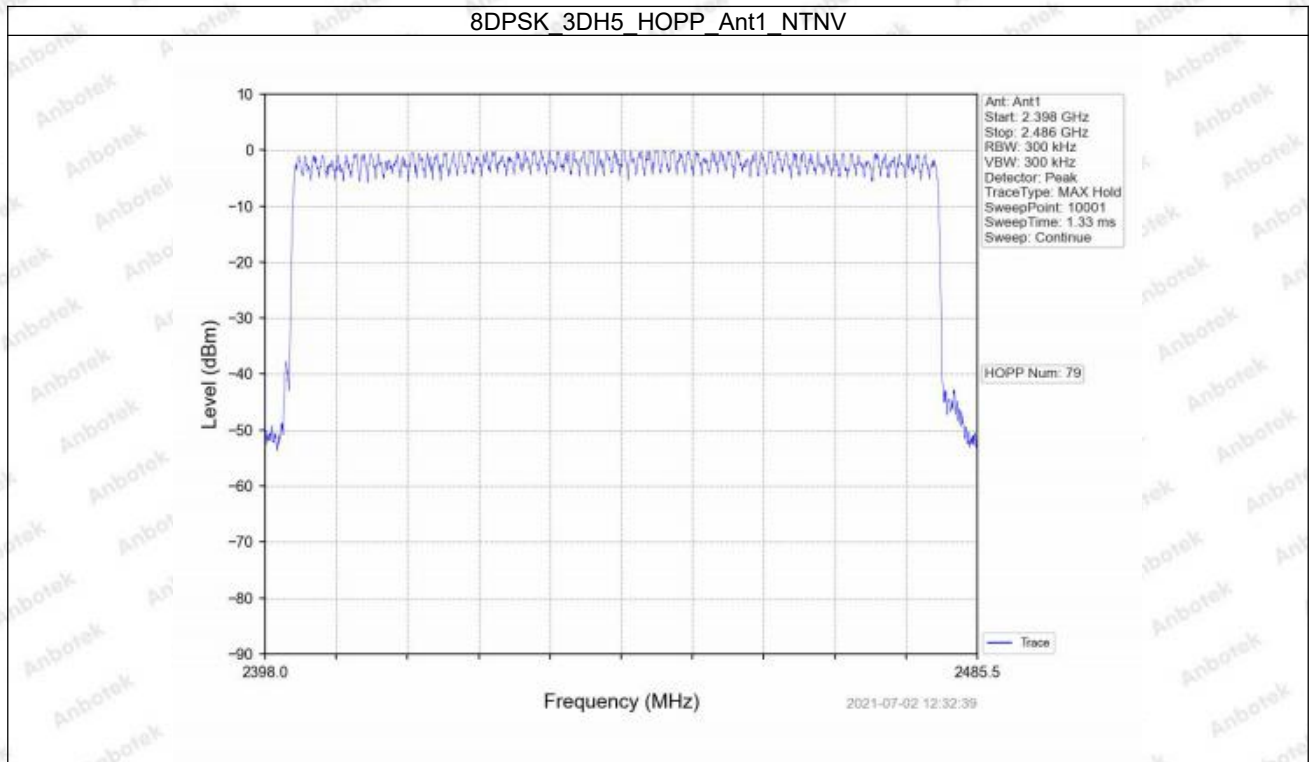


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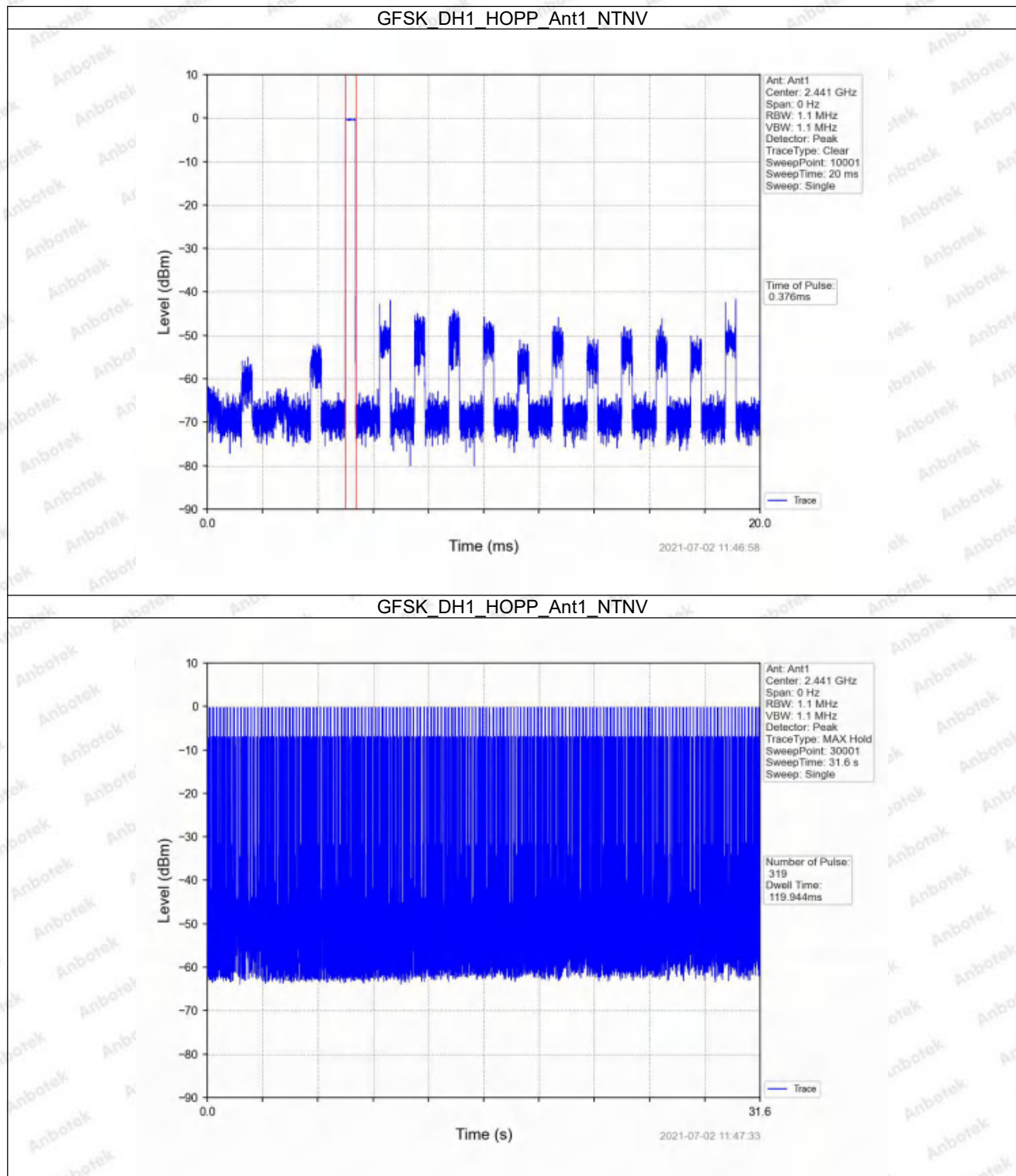
5. Time of Occupancy (Dwell Time)

5.1 Ant1

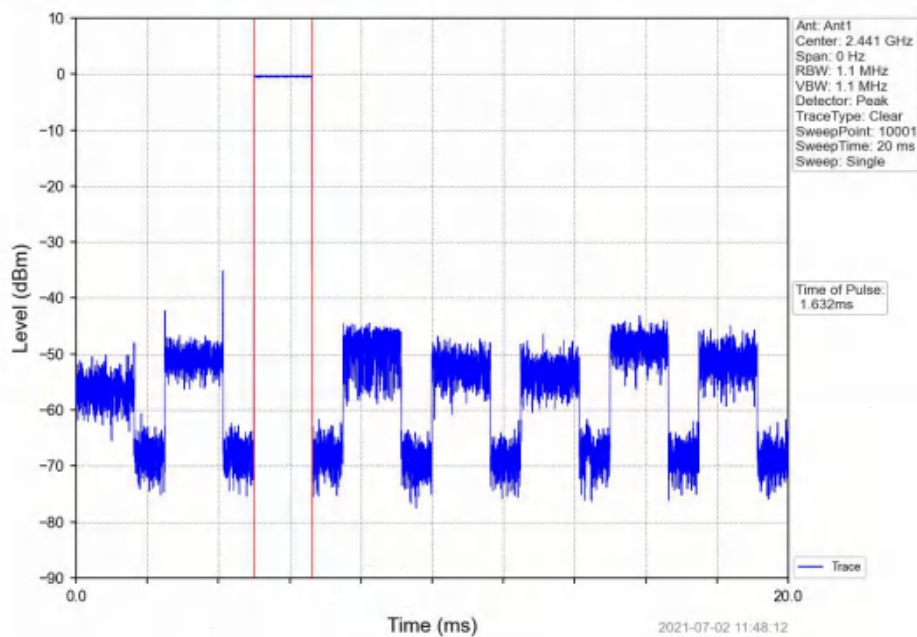
5.1.1 Test Result

Ant1										
ENV	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
NTNVPi	GFSK	SISO	HOPP	DH1	0.38	31.60	319	119.94	<=400	Pass
				DH3	1.63	31.60	154	251.33	<=400	Pass
				DH5	2.88	31.60	105	302.61	<=400	Pass
	Pi/4DQPSK	SISO	HOPP	2DH1	0.39	31.60	319	123.13	<=400	Pass
				2DH3	1.64	31.60	154	252.56	<=400	Pass
				2DH5	2.89	31.60	88	253.97	<=400	Pass
	8DPSK	SISO	HOPP	3DH1	0.39	31.60	319	123.77	<=400	Pass
				3DH3	1.64	31.60	159	260.44	<=400	Pass
				3DH5	2.89	31.60	101	291.69	<=400	Pass

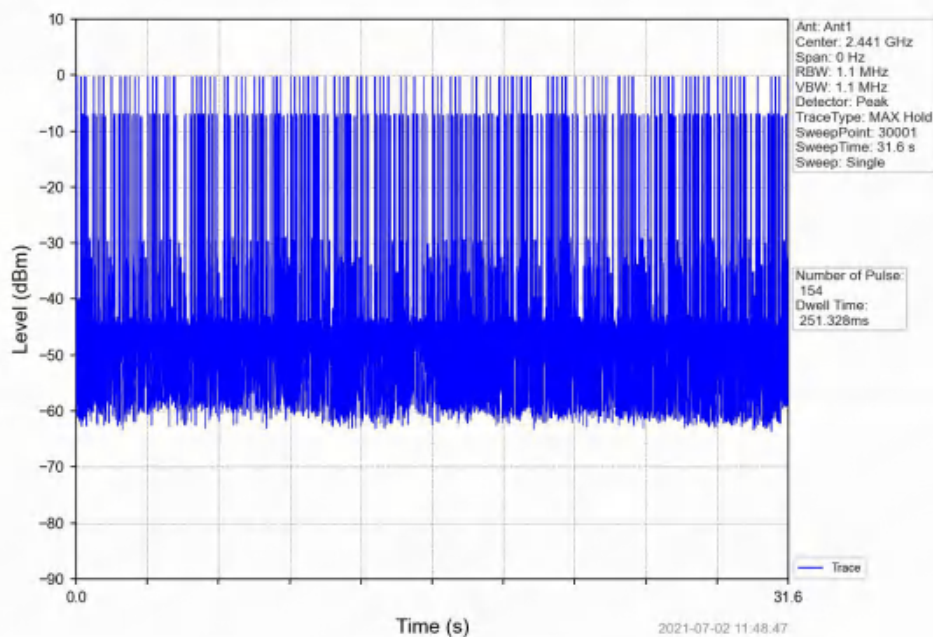
5.1.2 Test Graph



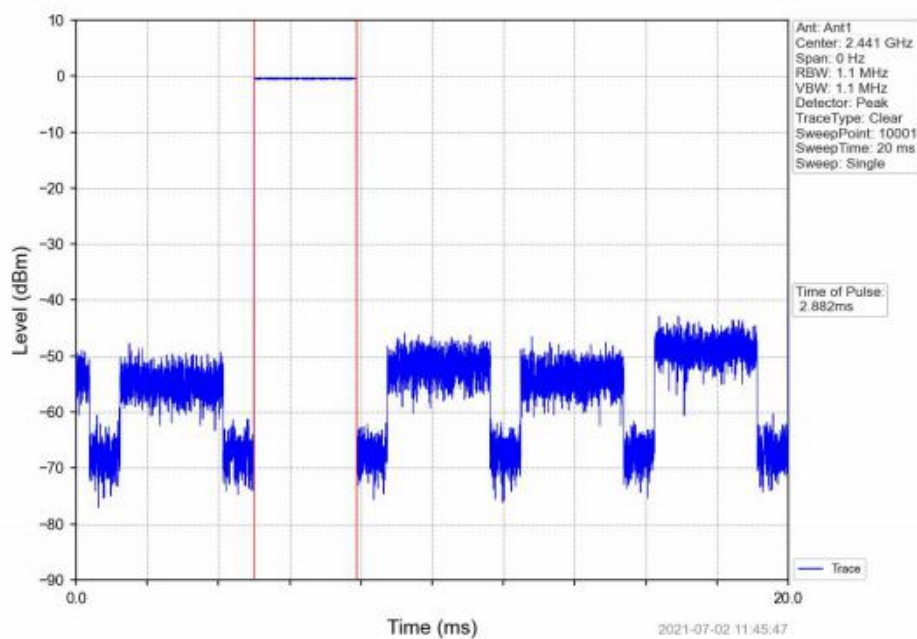
GFSK_DH3_HOPP_Ant1_NTNV



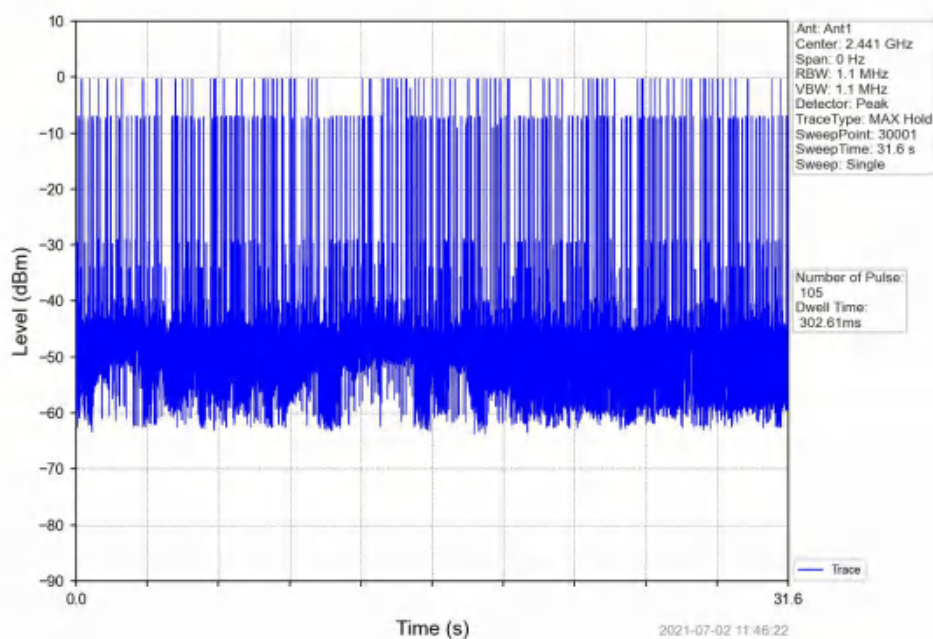
GFSK_DH3_HOPP_Ant1_NTNV



GFSK_DH5_HOPP_Ant1_NTNV



GFSK_DH5_HOPP_Ant1_NTNV



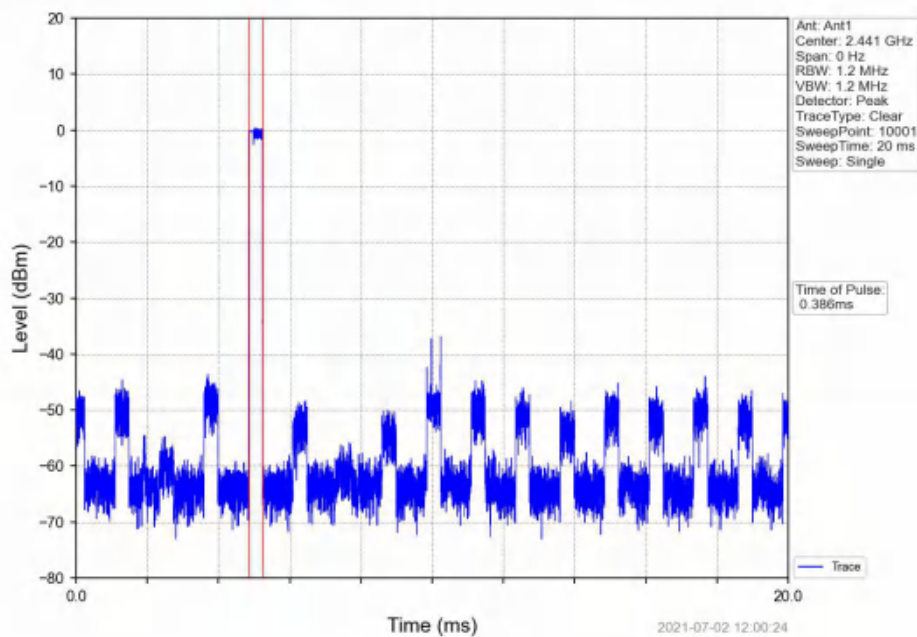
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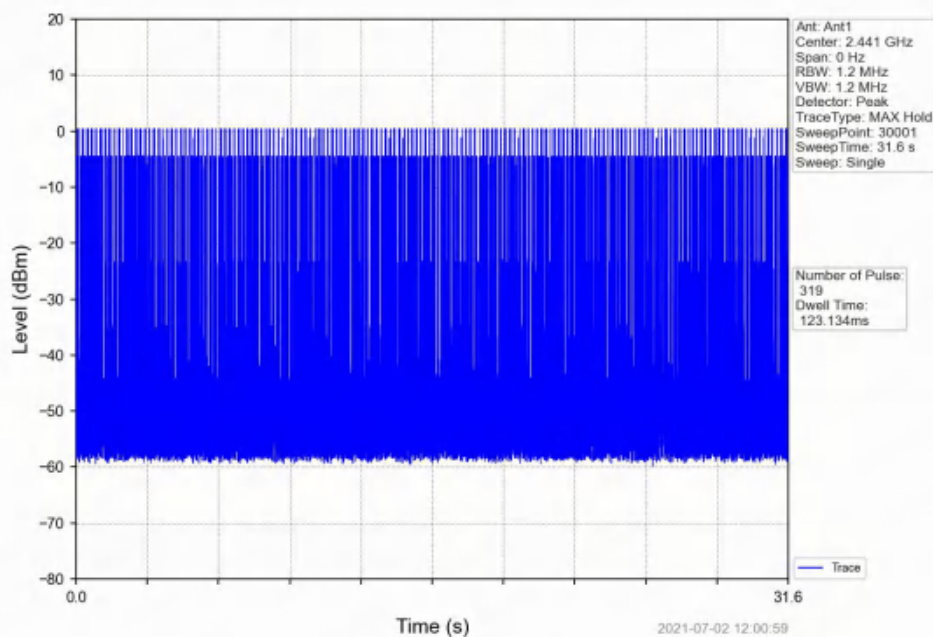
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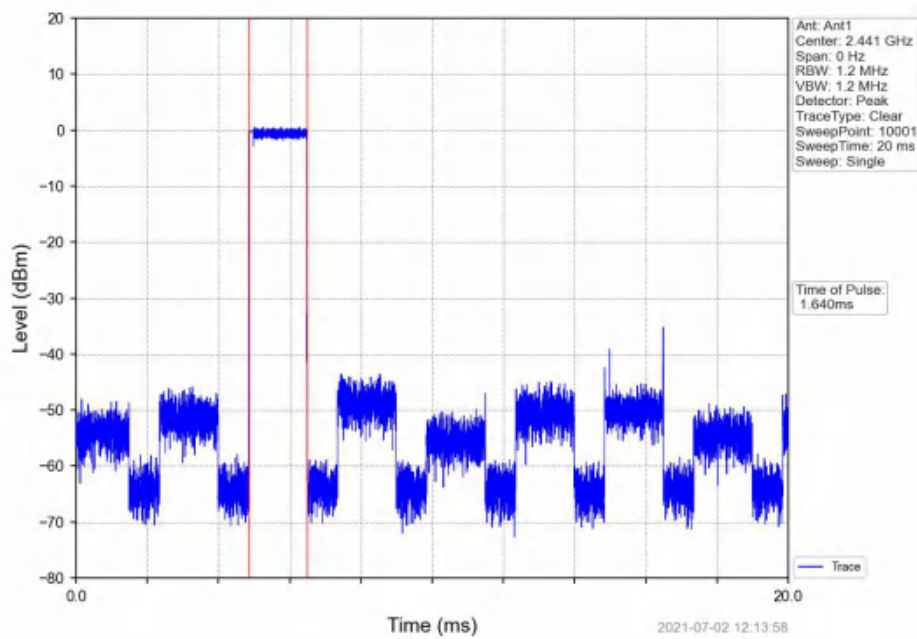
Pi/4DQPSK_2DH1_HOPP_Ant1_NTNV



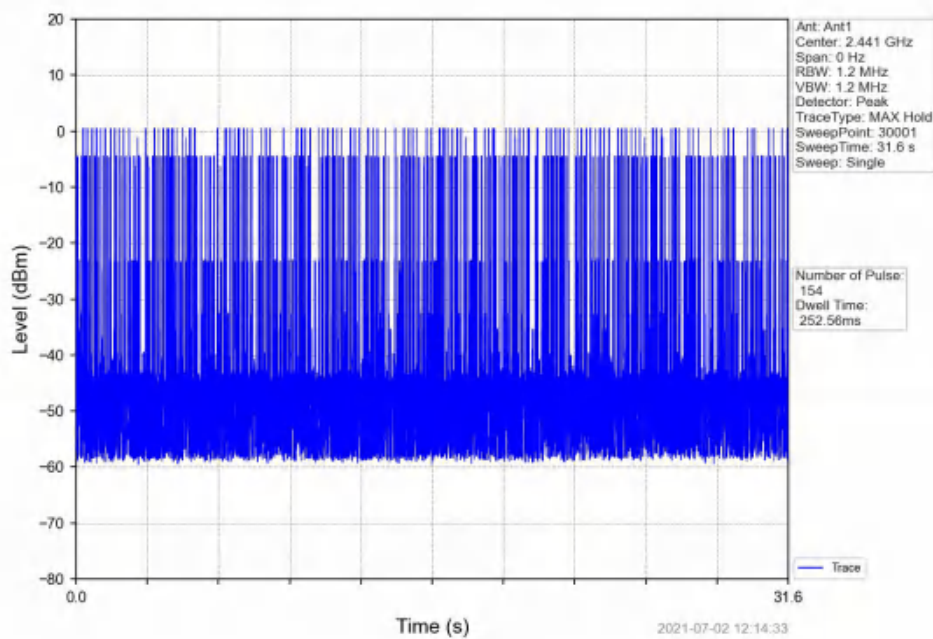
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Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV



Pi/4DQPSK_2DH3_HOPP_Ant1_NTNV



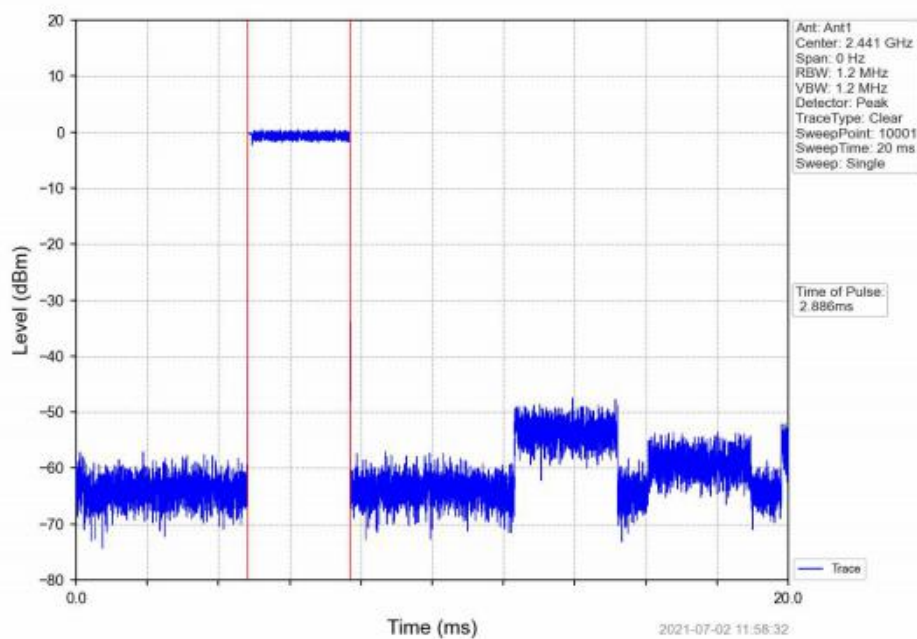
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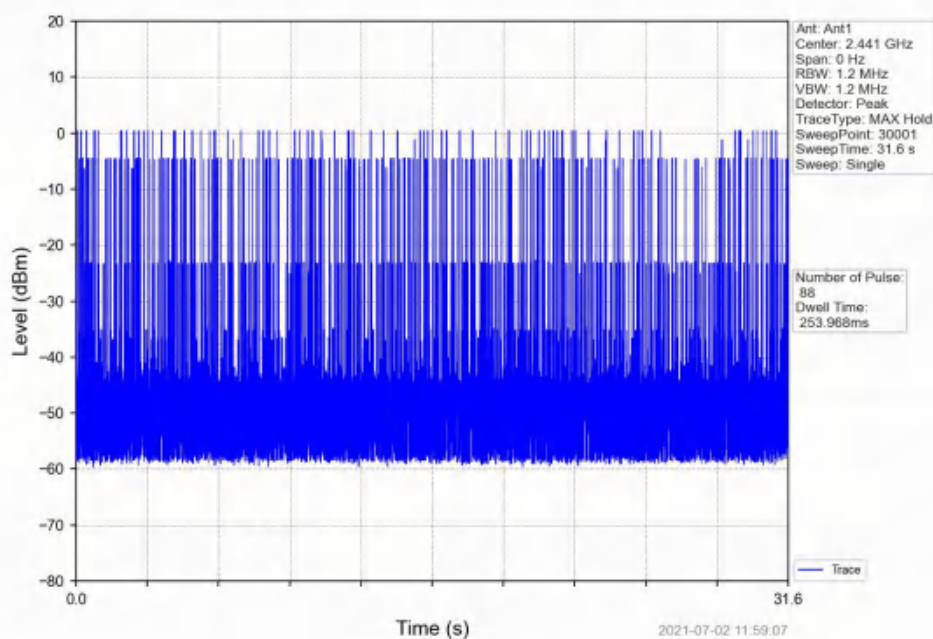
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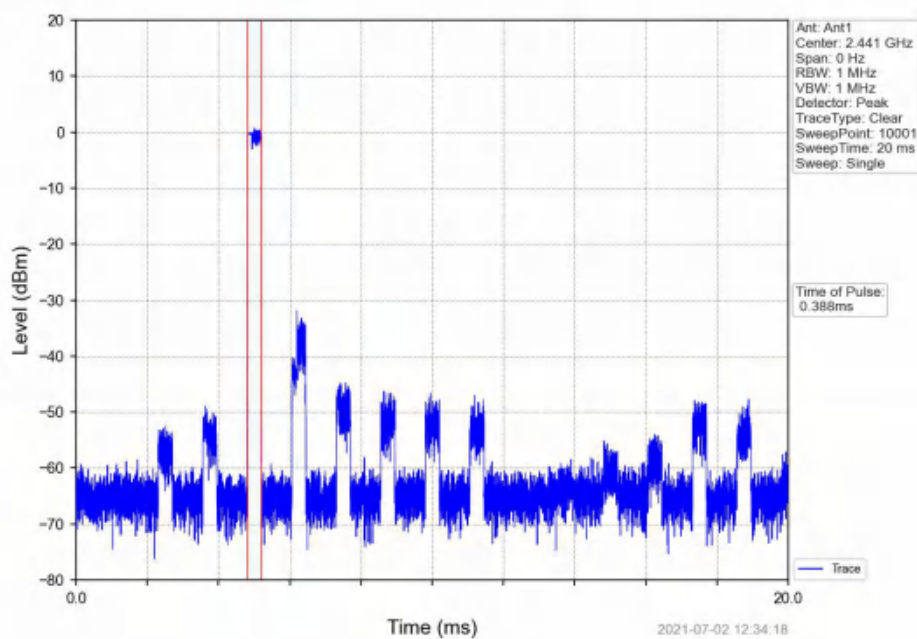
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



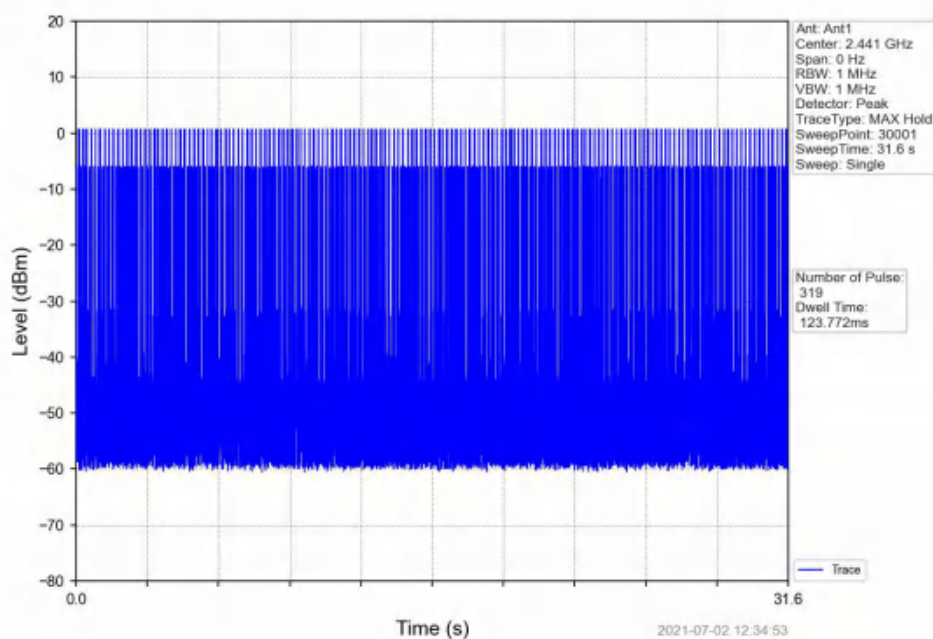
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



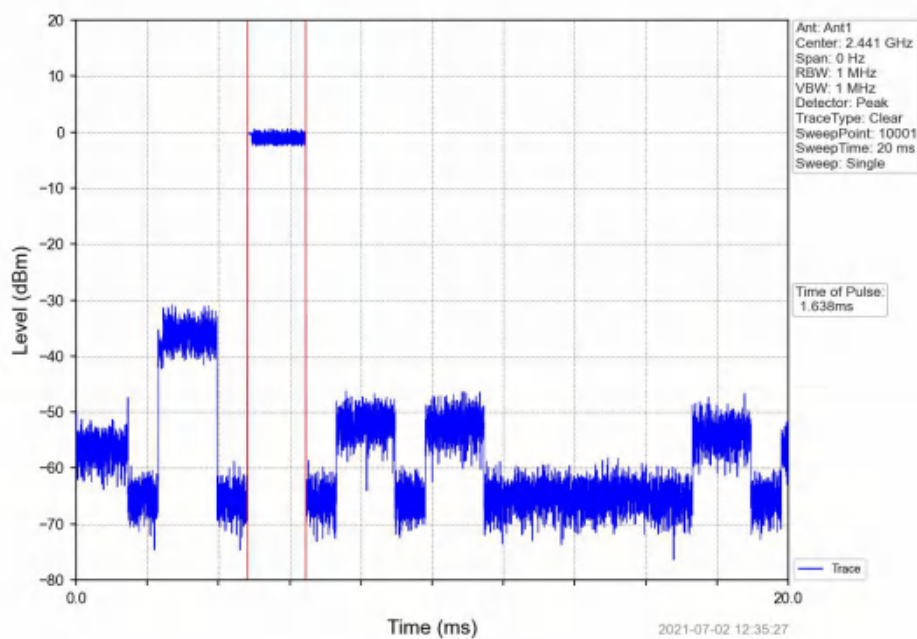
8DPSK_3DH1_HOPP_Ant1_NTNV



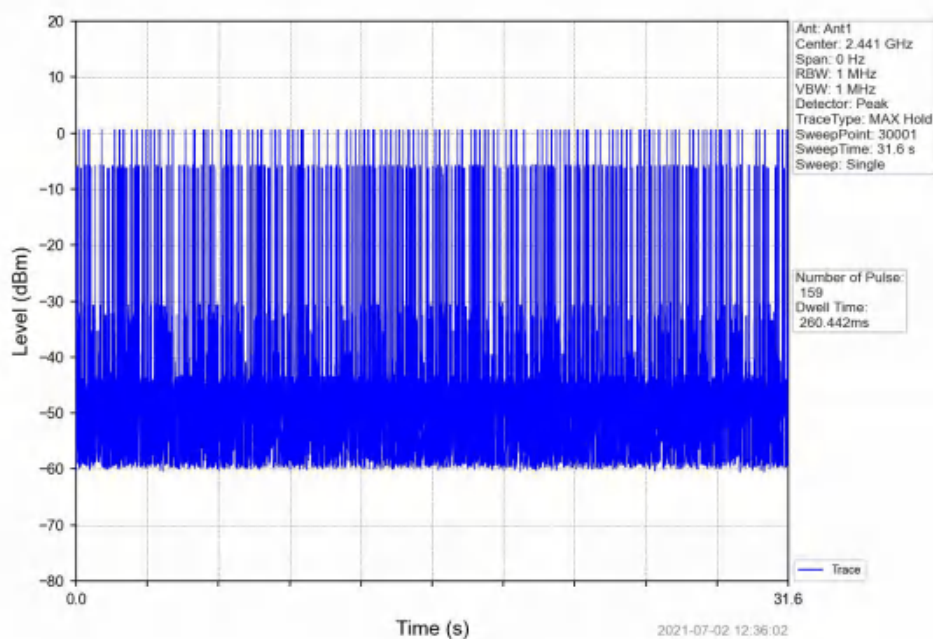
8DPSK_3DH1_HOPP_Ant1_NTNV



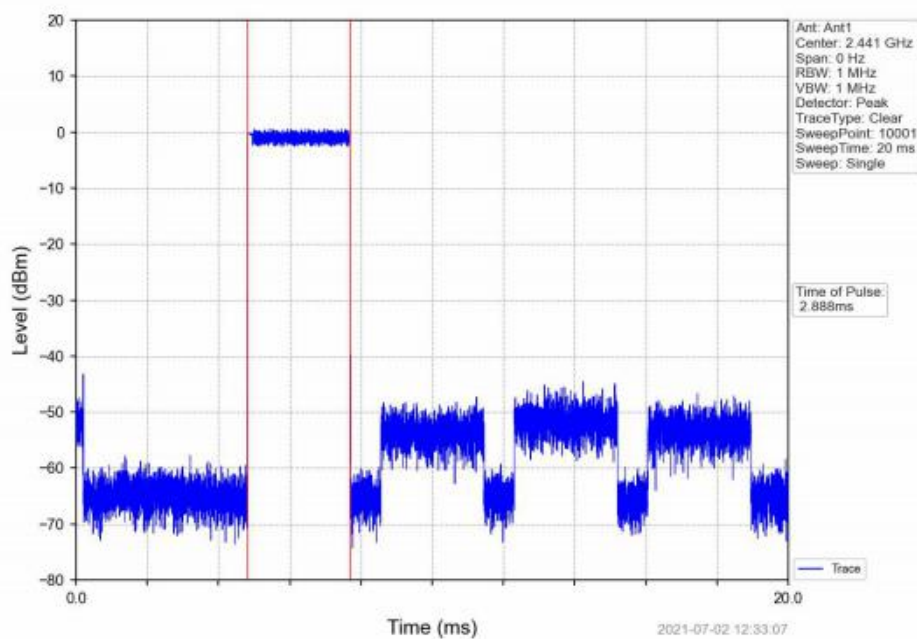
8DPSK_3DH3_HOPP_Ant1_NTNV



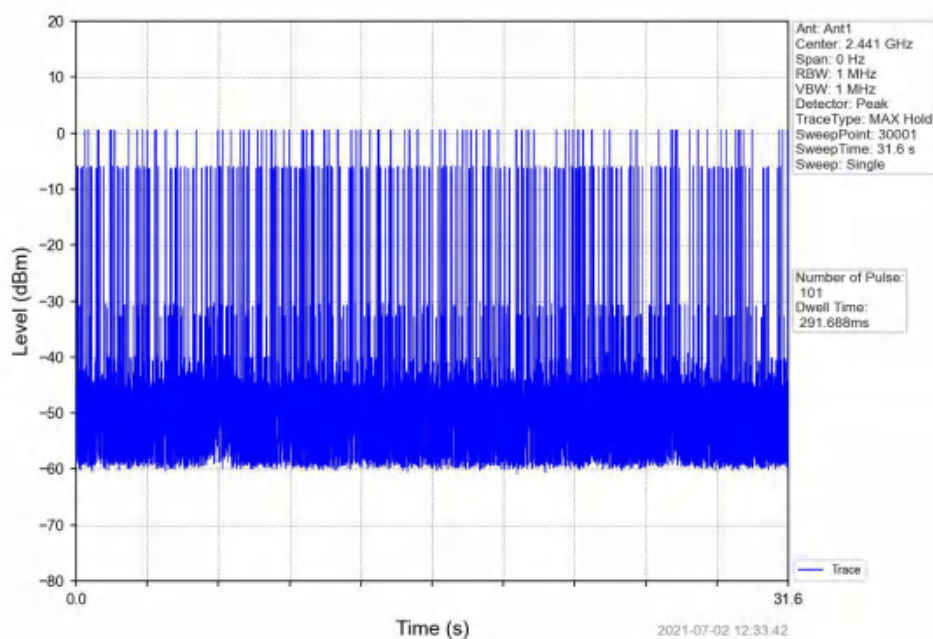
8DPSK_3DH3_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV



6. Unwanted Emissions In Non-restricted Frequency Bands

6.1 Ref

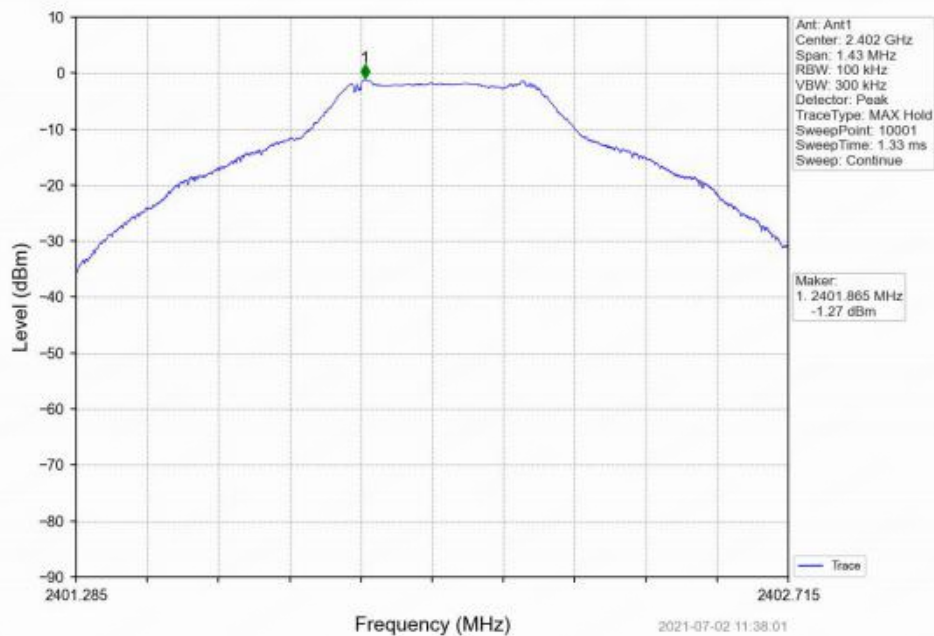
6.1.1 Test Result

ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Ant	Level of Reference (dBm)	Limit (dBm)	Verdict
NTNV	GFSK	SISO	2402	DH5	1	-1.27	/	/
			2441	DH5	1	-0.59	/	/
			2480	DH5	1	-0.95	/	/
	Pi/4DQPSK	SISO	2402	2DH5	1	-1.26	/	/
			2441	2DH5	1	-0.29	/	/
			2480	2DH5	1	-0.99	/	/
	8DPSK	SISO	2402	3DH5	1	-1.24	/	/
			2441	3DH5	1	-0.27	/	/
			2480	3DH5	1	-0.85	/	/

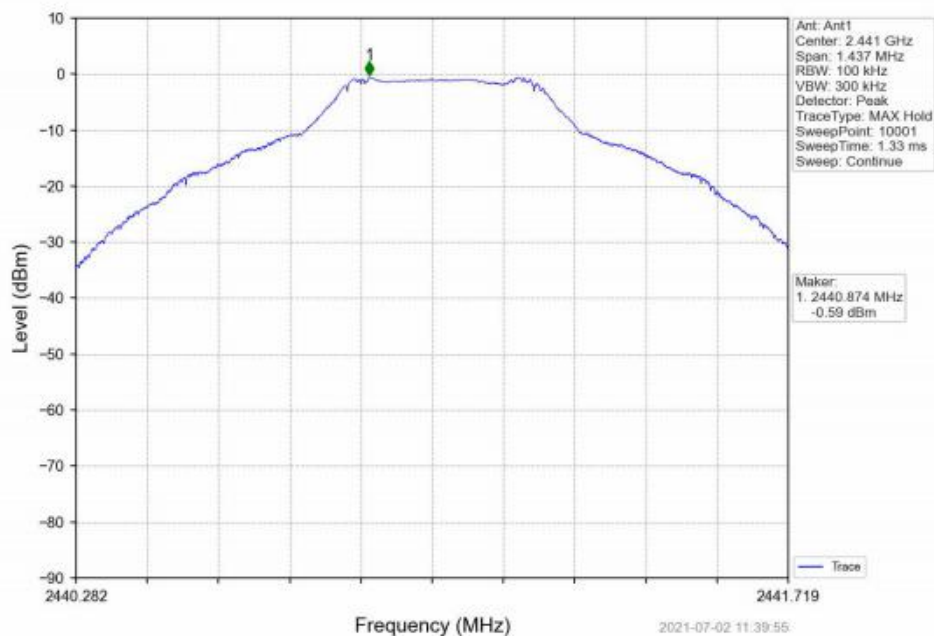
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

6.1.2 Test Graph

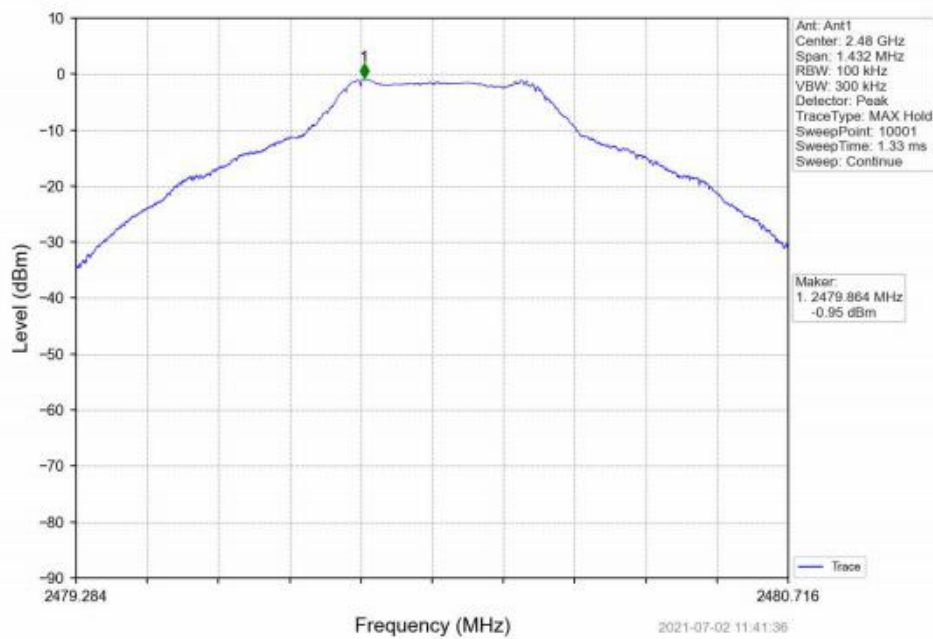
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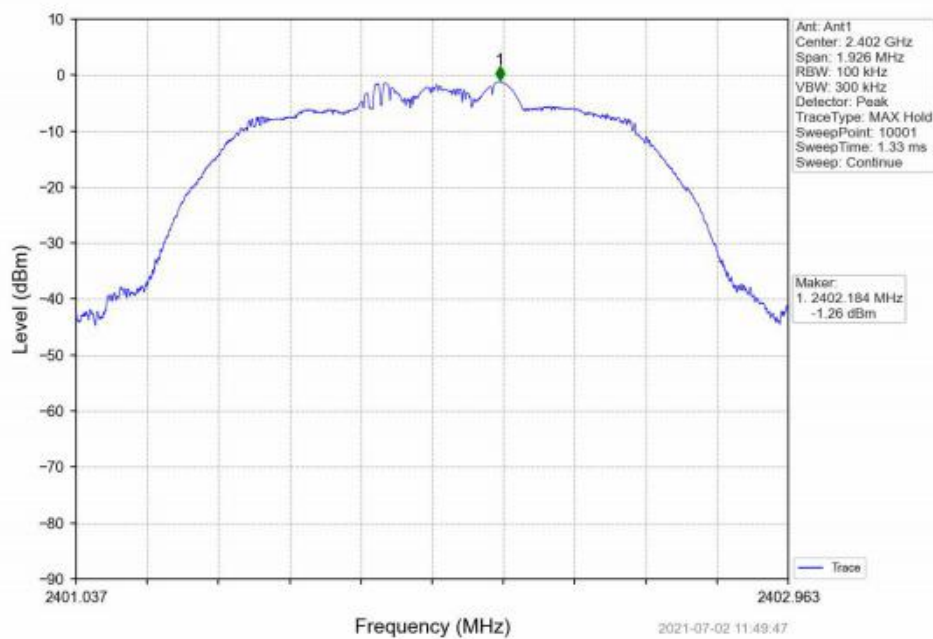
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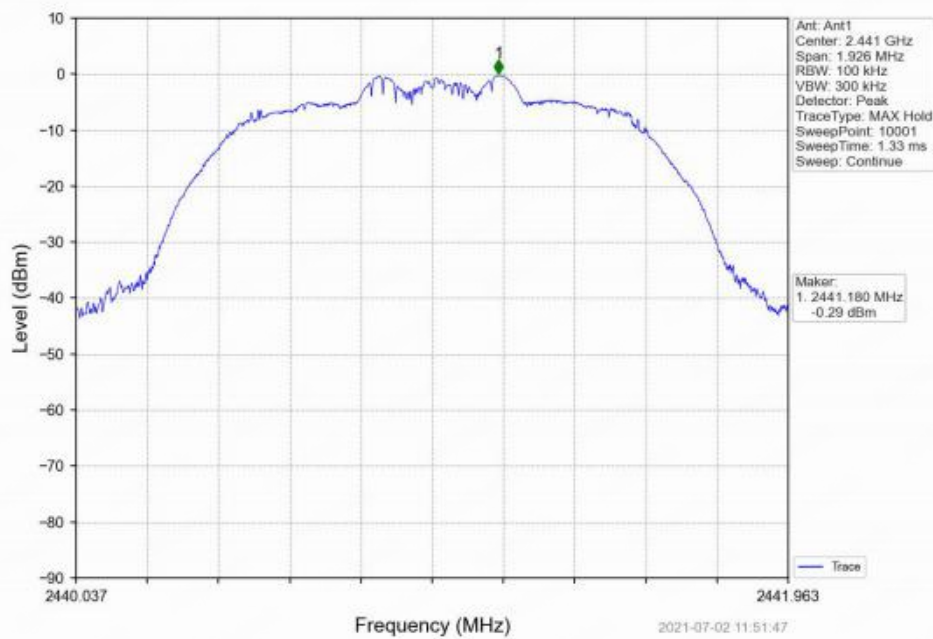
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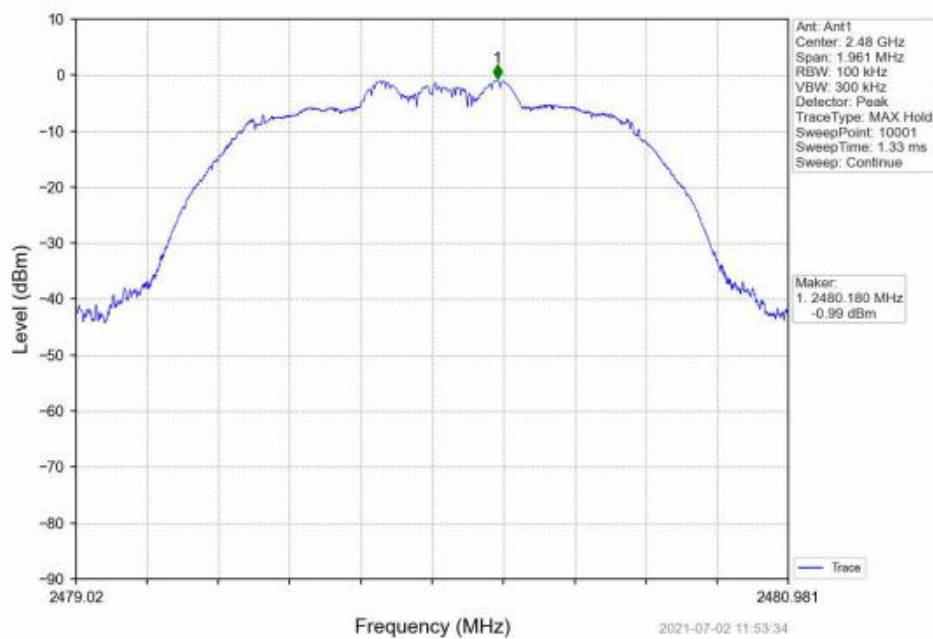
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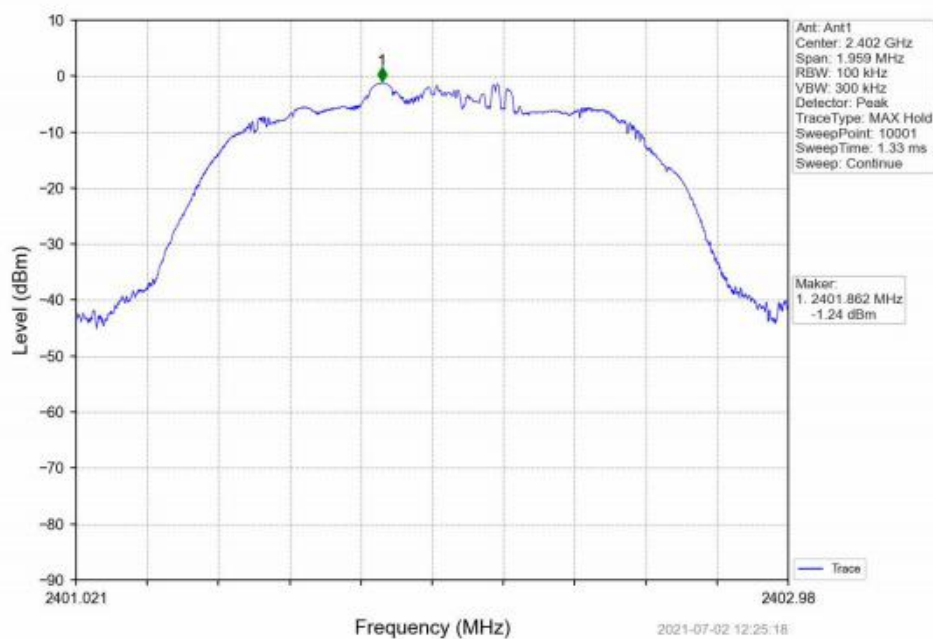
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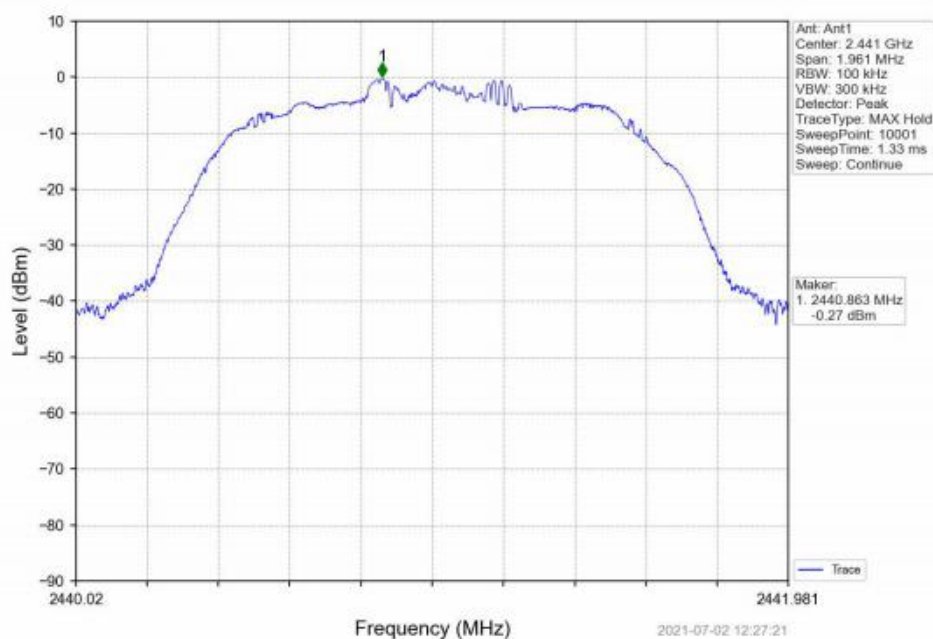
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV

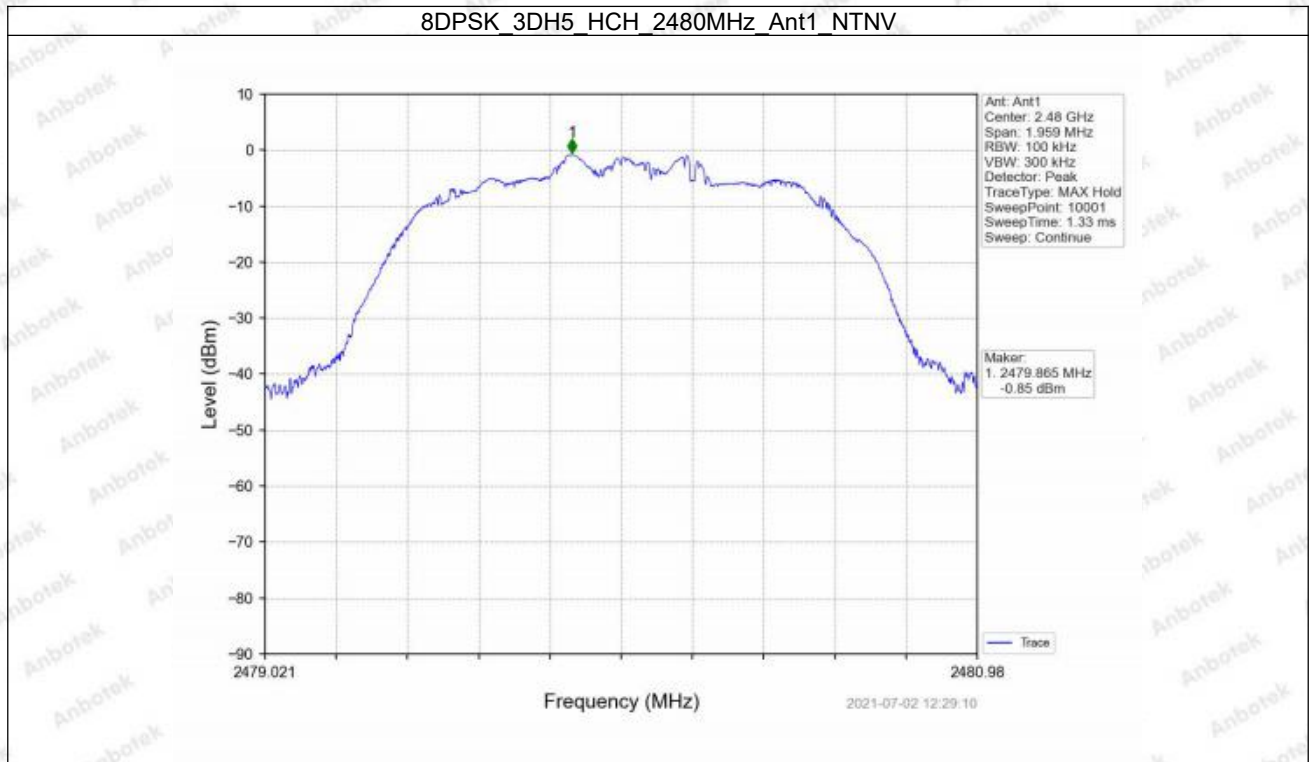


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6.2 CSE

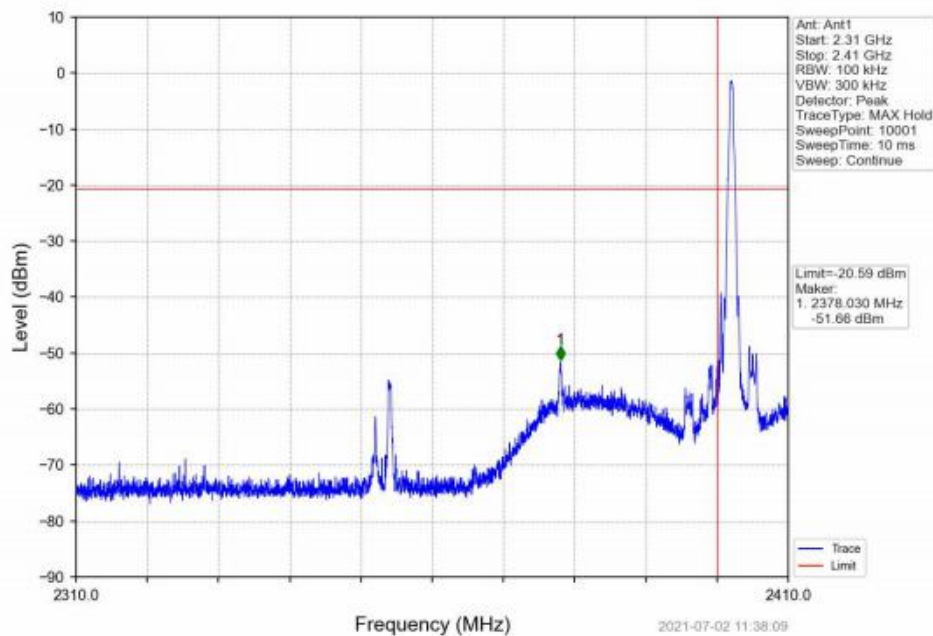
6.2.1 Test Result

ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Ant	Level of Reference (dBm)	Limit (dBm)	Verdict
NTNV	GFSK	SISO	2402	DH5	1	-0.59	-20.59	Pass
			2441	DH5	1	-0.59	-20.59	Pass
			2480	DH5	1	-0.59	-20.59	Pass
			HOPP	DH5	1	-0.59	-20.59	Pass
	Pi/4DQPSK	SISO	2402	2DH5	1	-0.29	-20.29	Pass
			2441	2DH5	1	-0.29	-20.29	Pass
			2480	2DH5	1	-0.29	-20.29	Pass
			HOPP	2DH5	1	-0.29	-20.29	Pass
	8DPSK	SISO	2402	3DH5	1	-0.27	-20.27	Pass
			2441	3DH5	1	-0.27	-20.27	Pass
			2480	3DH5	1	-0.27	-20.27	Pass
			HOPP	3DH5	1	-0.27	-20.27	Pass

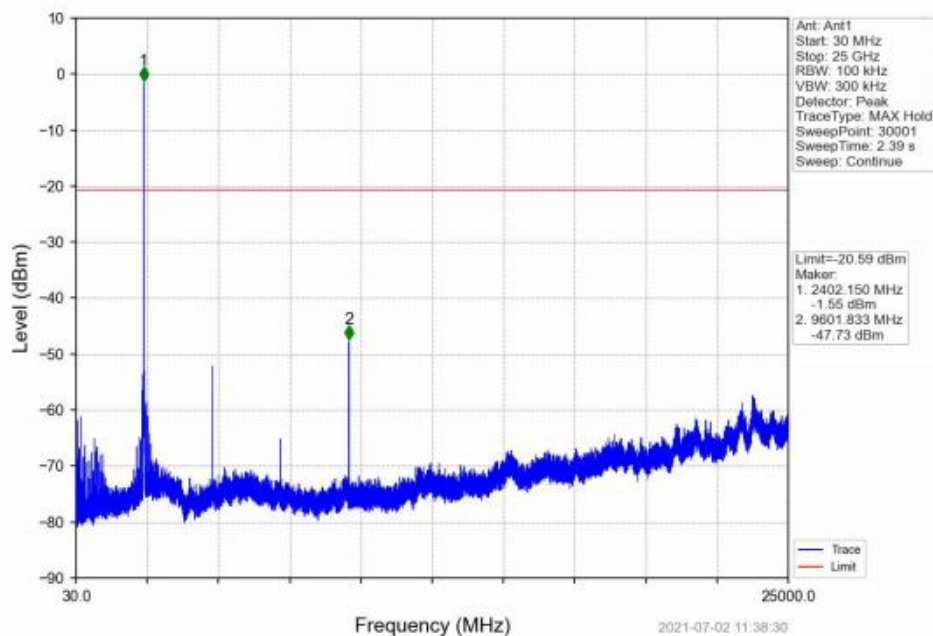
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

6.2.2 Test Graph

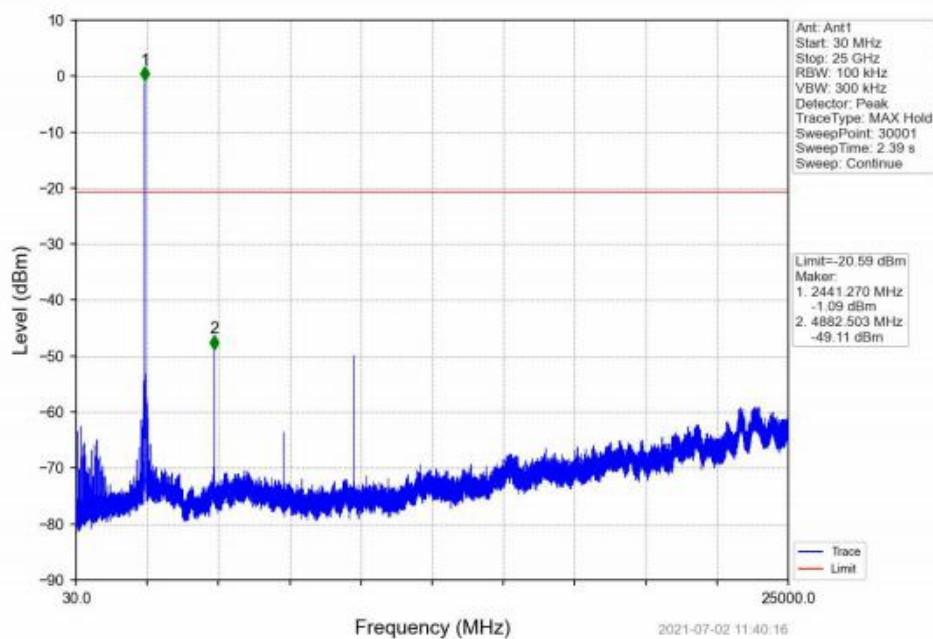
GFSK DH5 LCH_2402MHz Ant1 NTN



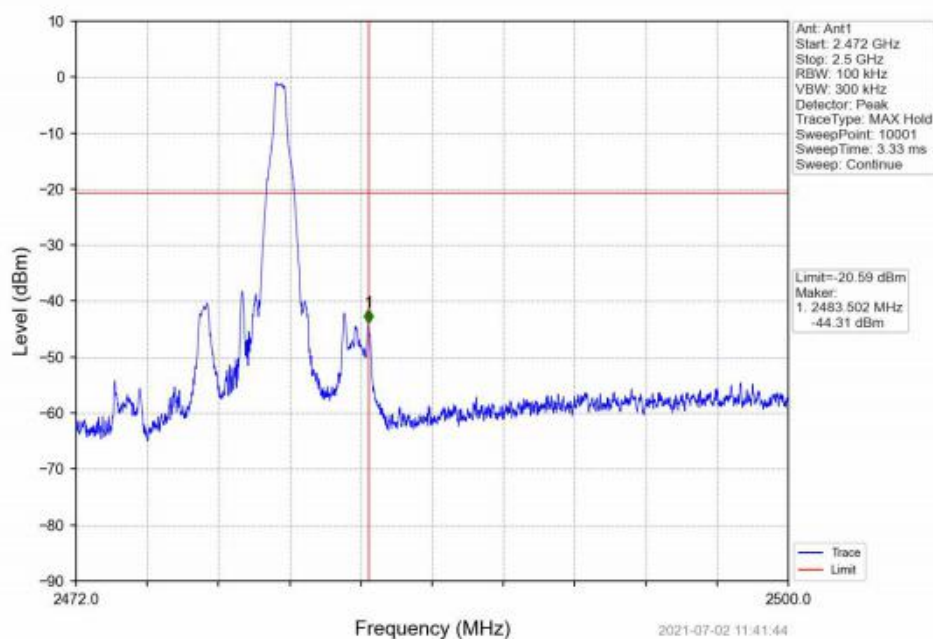
GFSK DH5 LCH_2402MHz Ant1 NTN



GFSK_DH5_MCH_2441MHz_Ant1_NTNV



GFSK_DH5_HCH_2480MHz_Ant1_NTNV



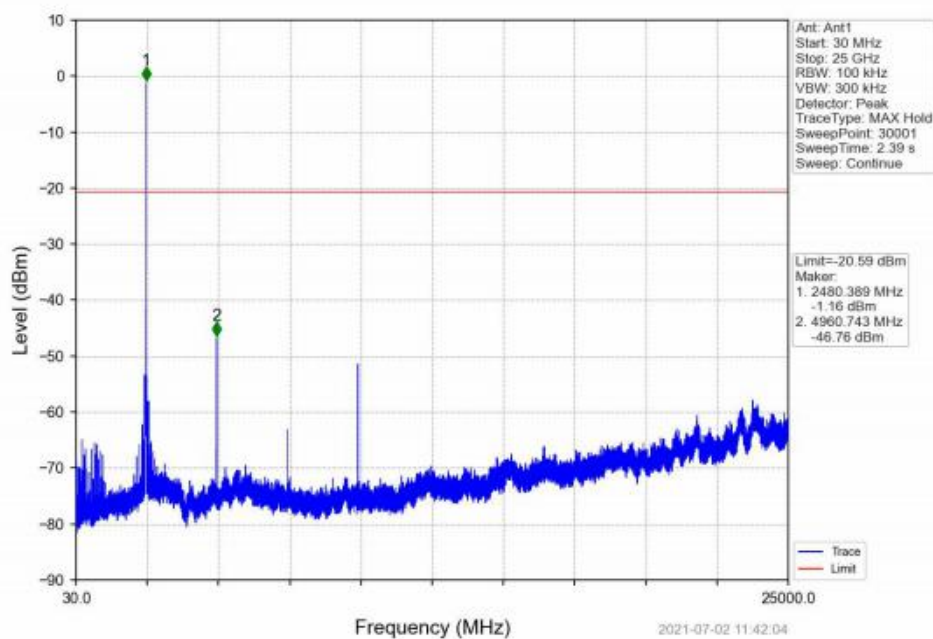
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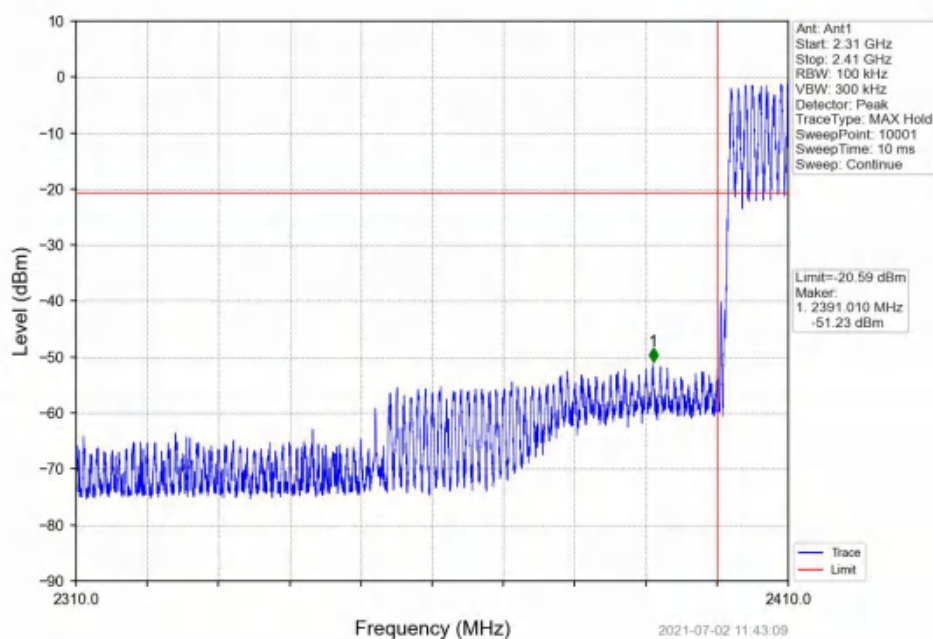
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GFSK_DH5_HCH_2480MHz_Ant1_NTNV



GFSK_DH5_HOPP_Ant1_NTNV



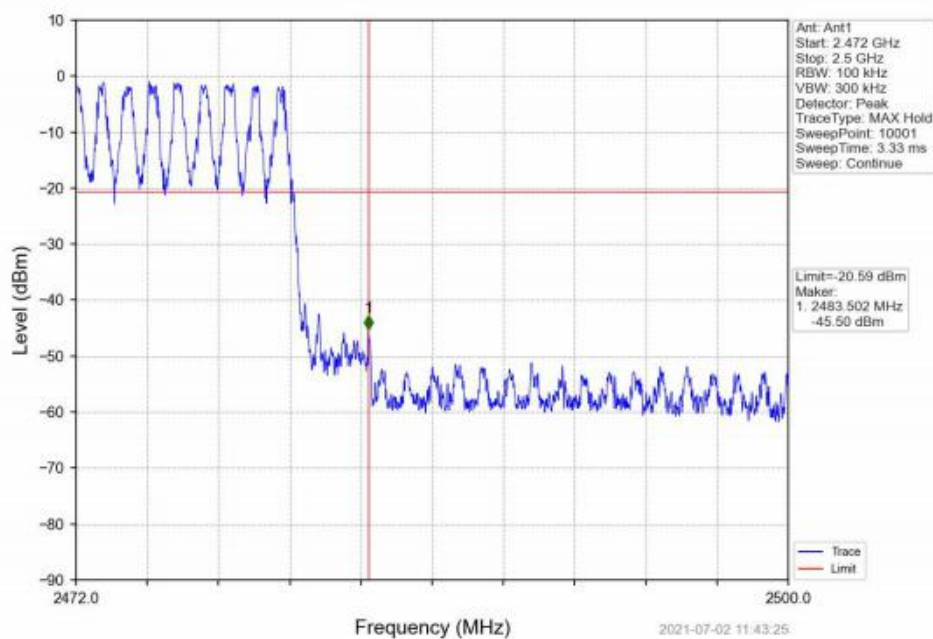
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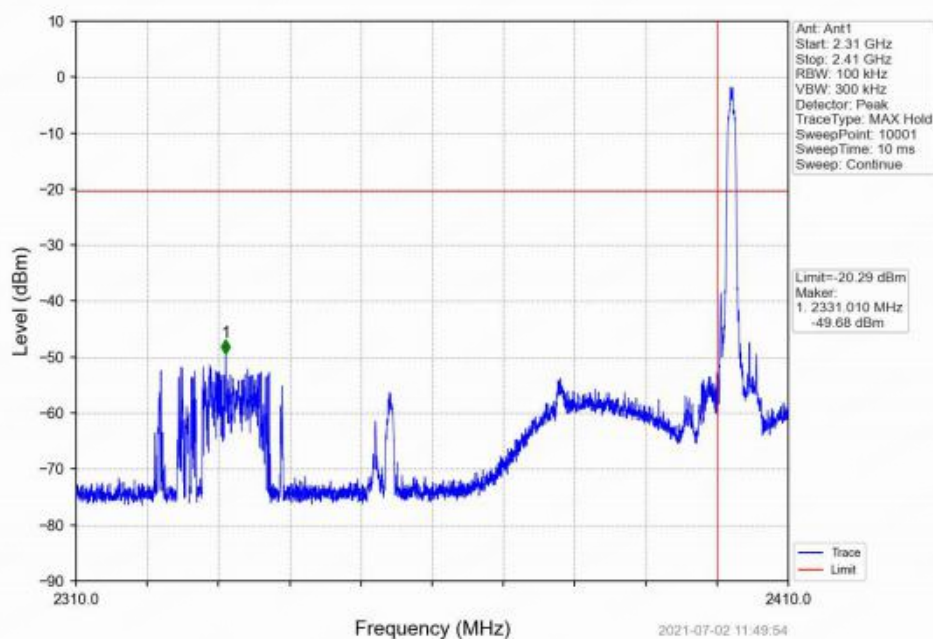
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Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV

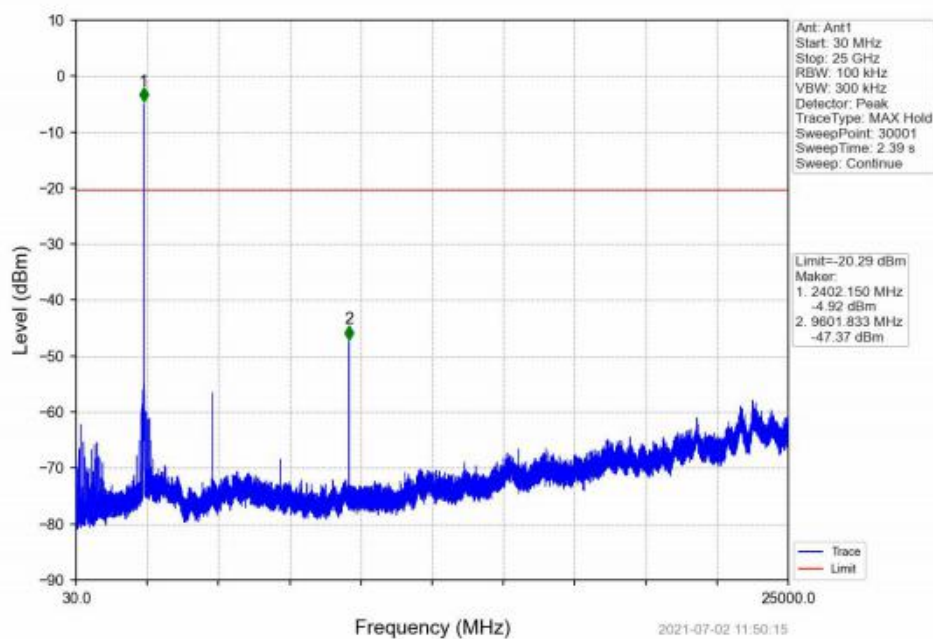
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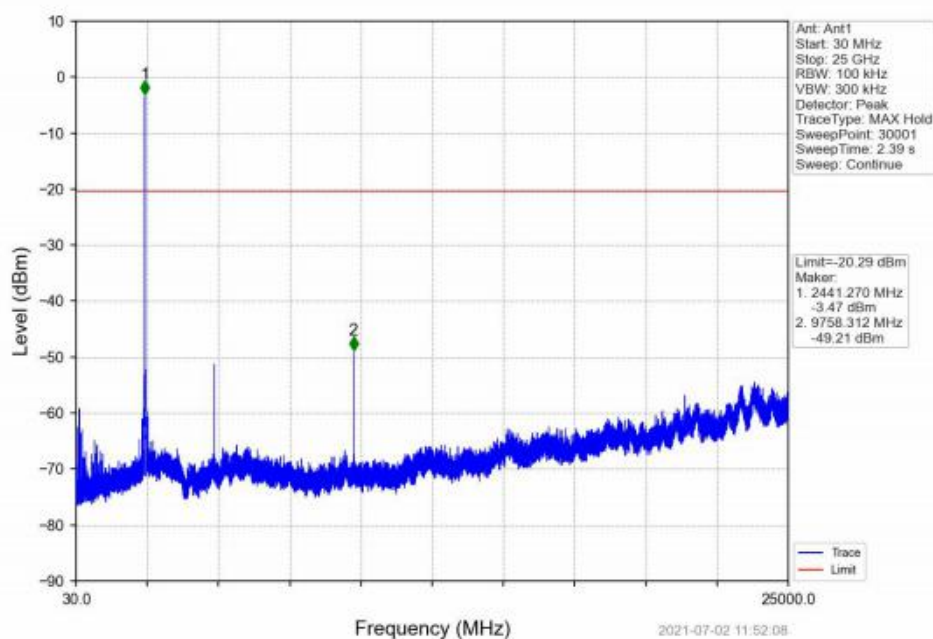
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Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV

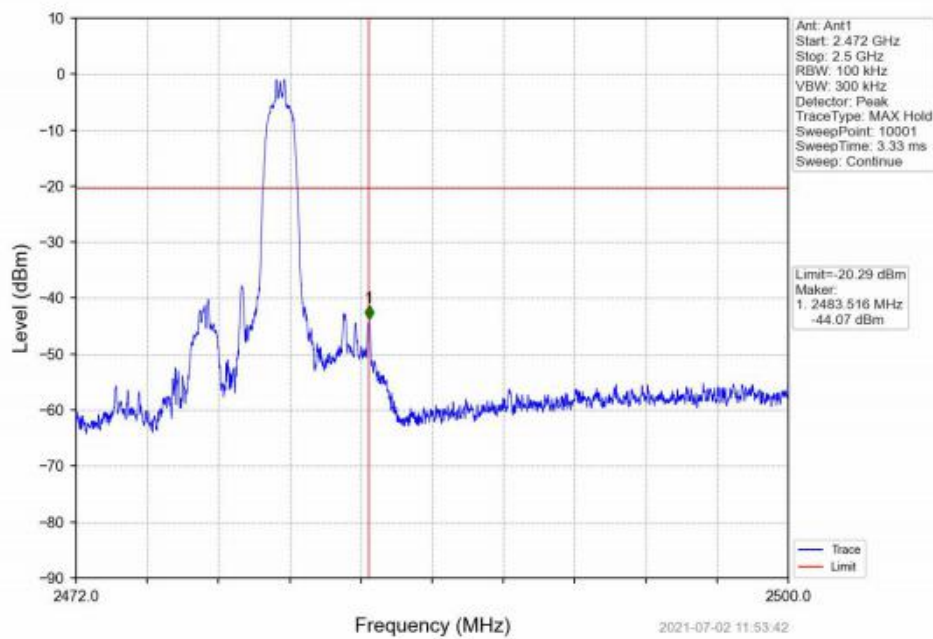
**Shenzhen Anbotek Compliance Laboratory Limited**

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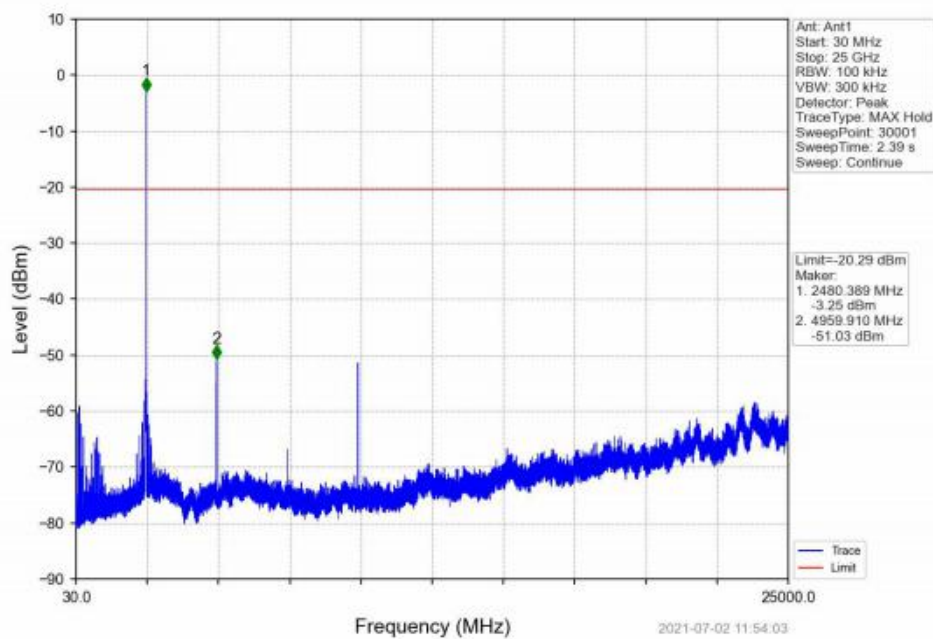
Tel: (86) 755-26066440 Fax: (86) 755-26014772 Email: service@anbotek.com

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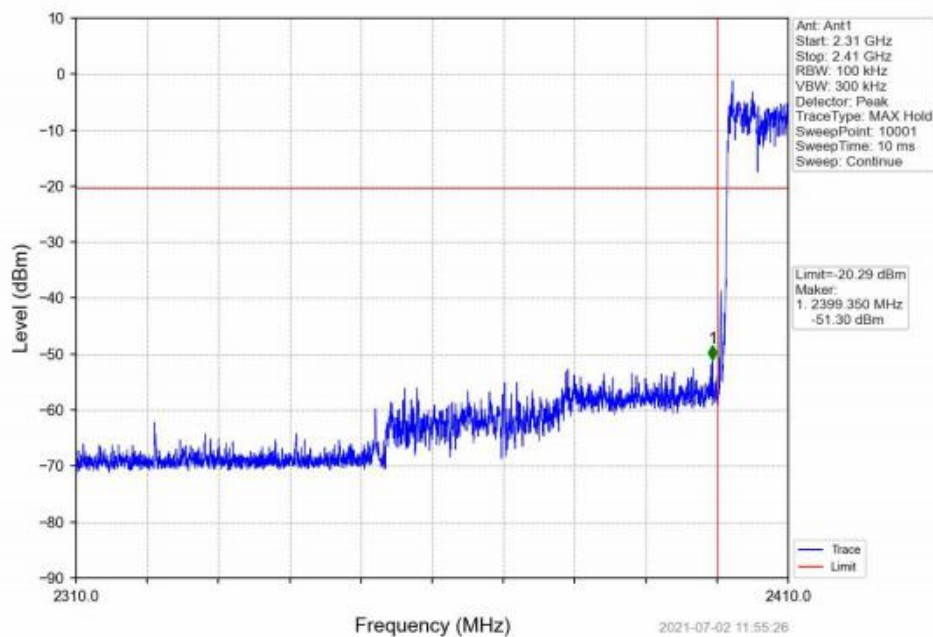
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



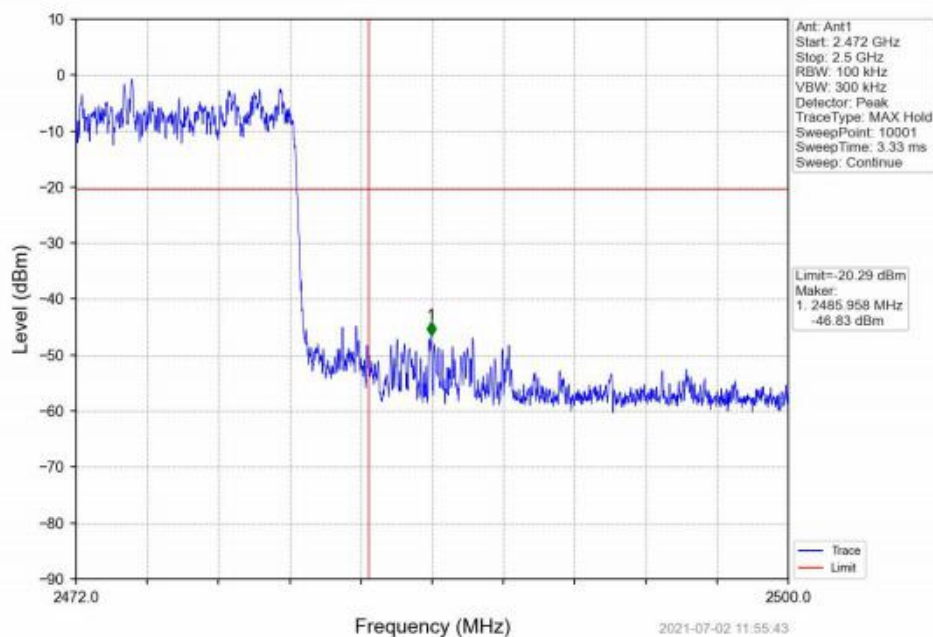
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



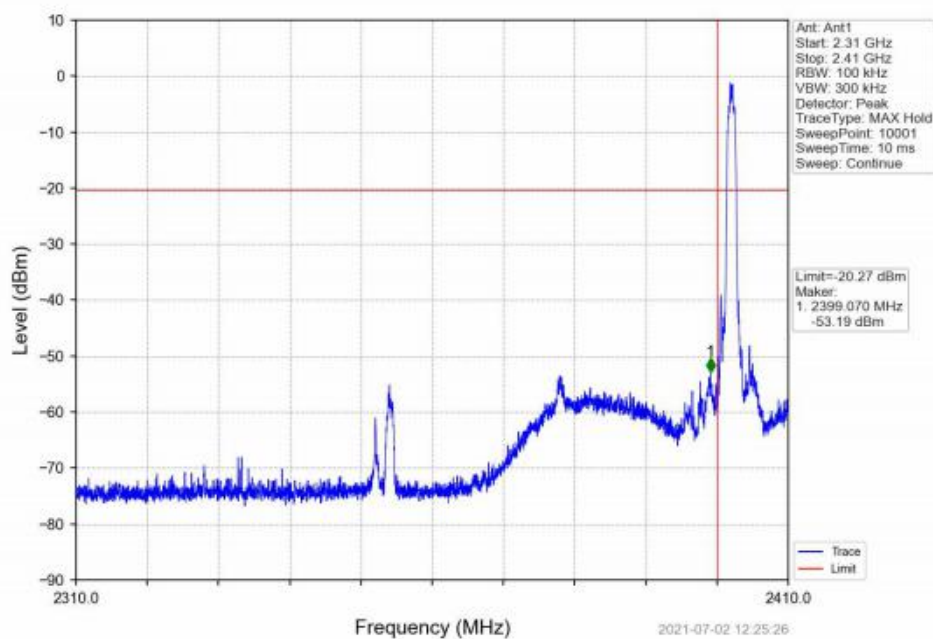
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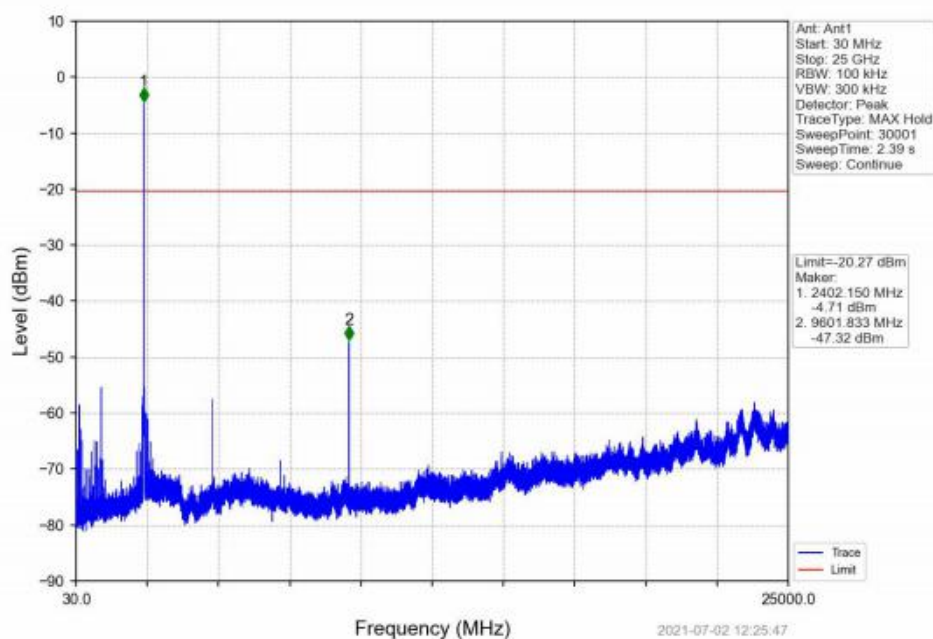
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8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV

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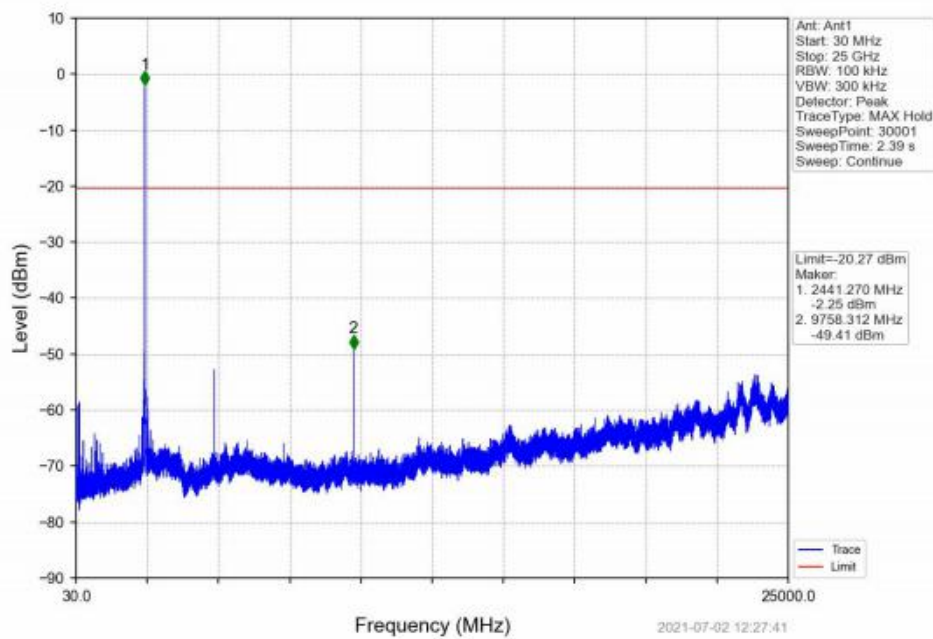


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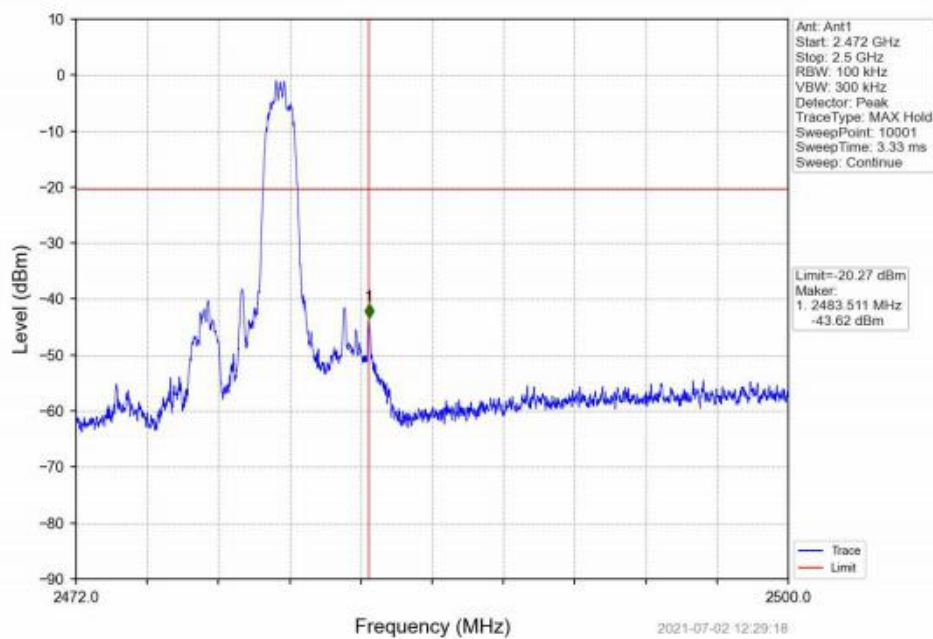
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8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV



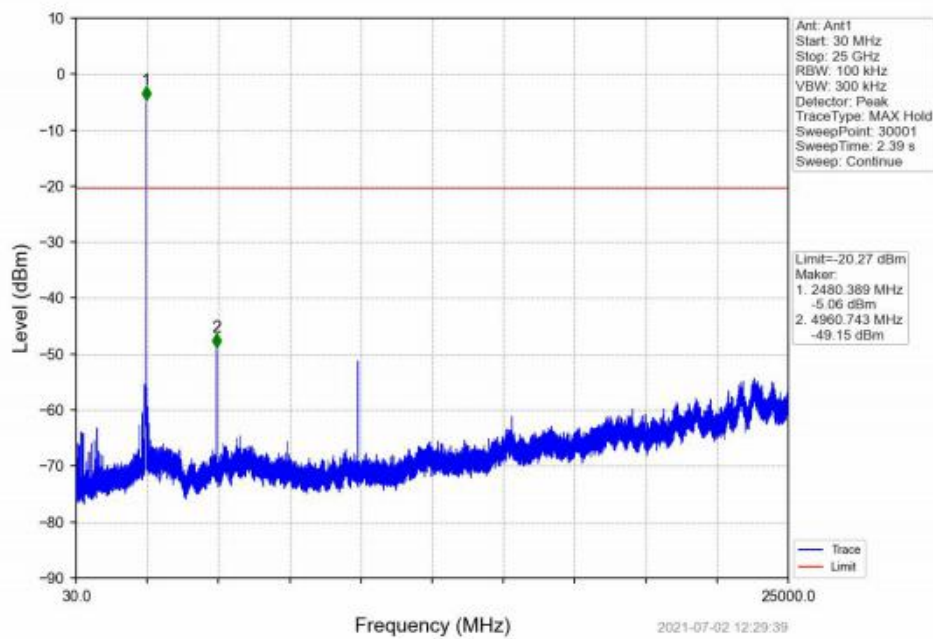
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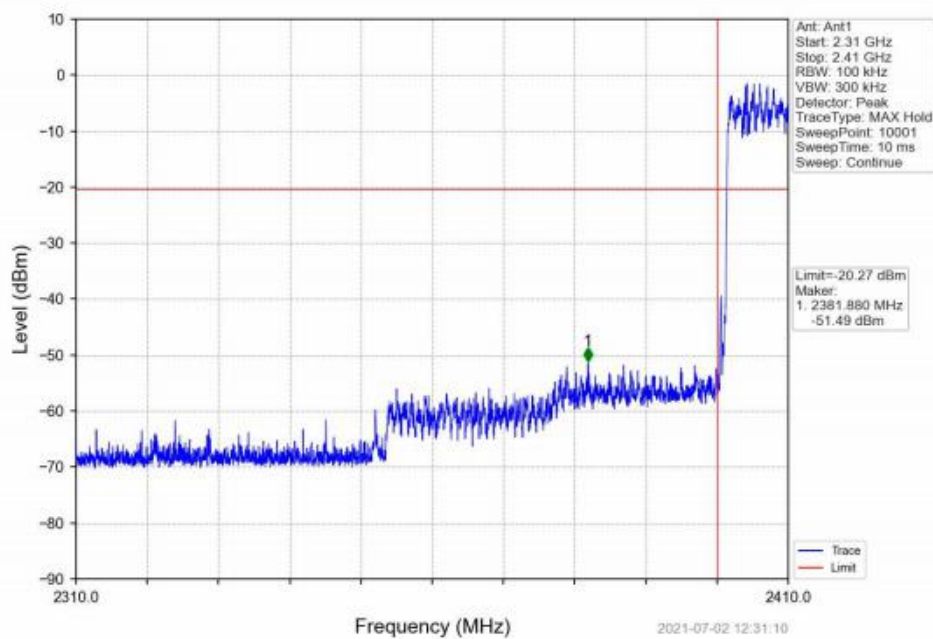
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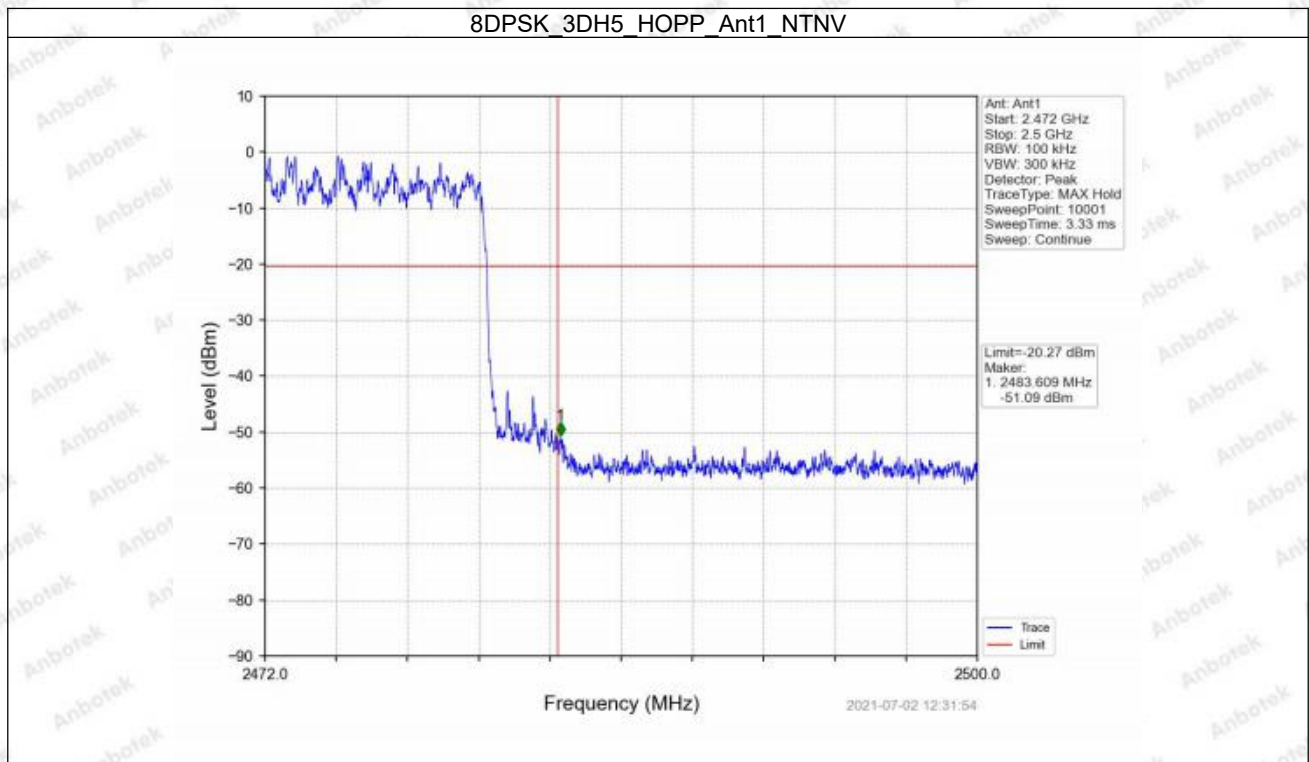
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8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV





---End---