



Shenzhen CTL Testing Technology Co., Ltd.

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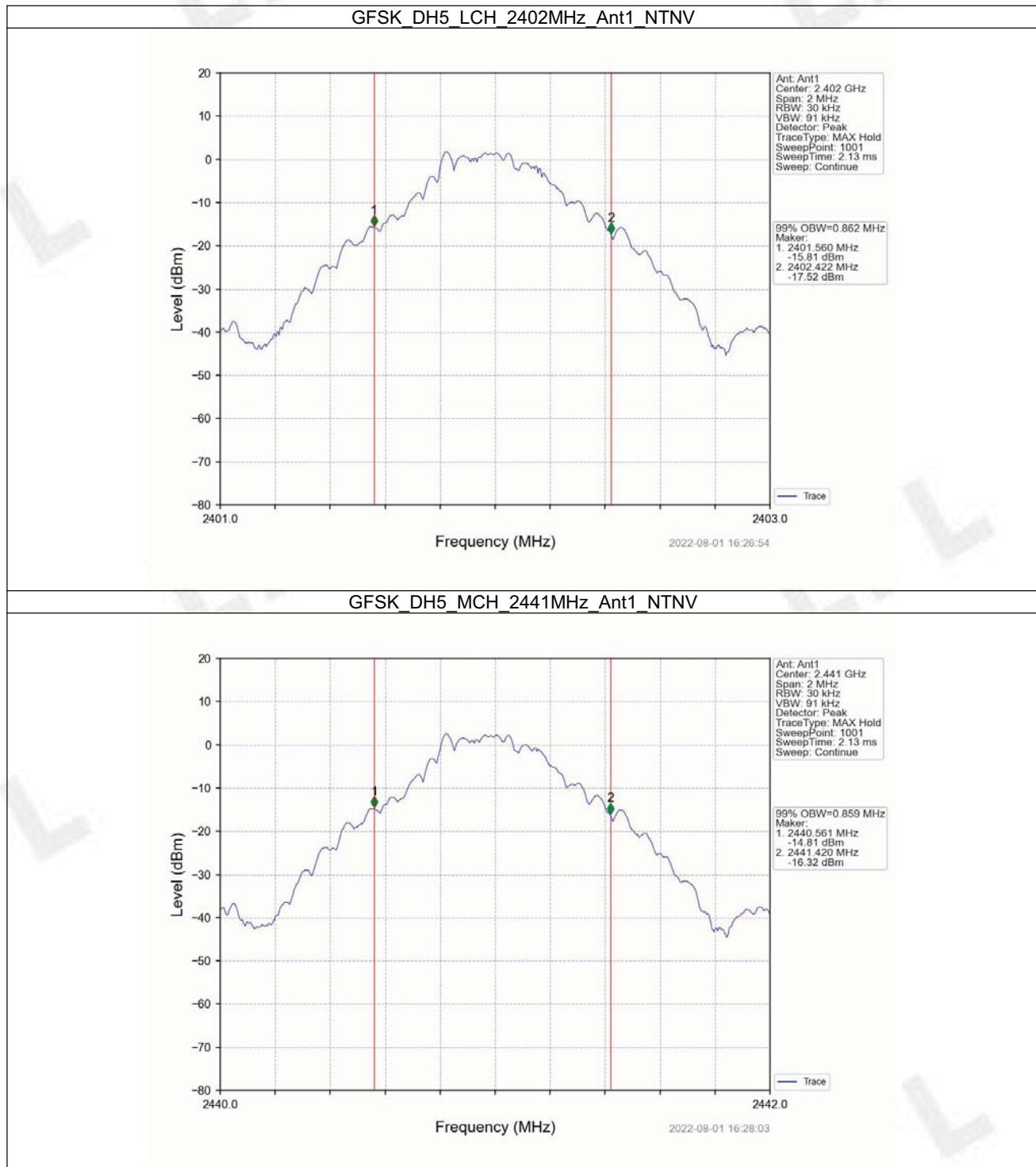
## 1. Bandwidth

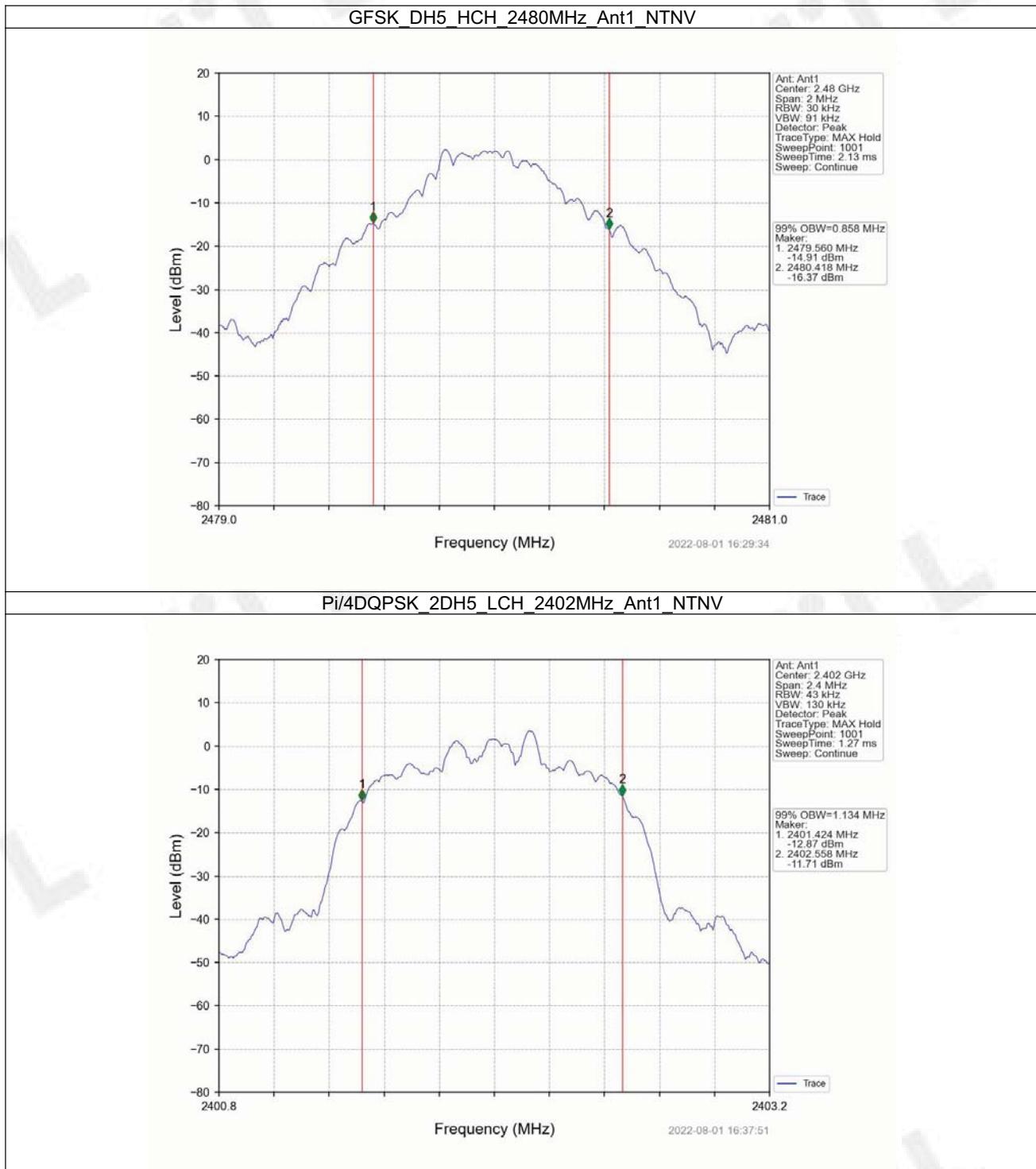
### 1.1 OBW

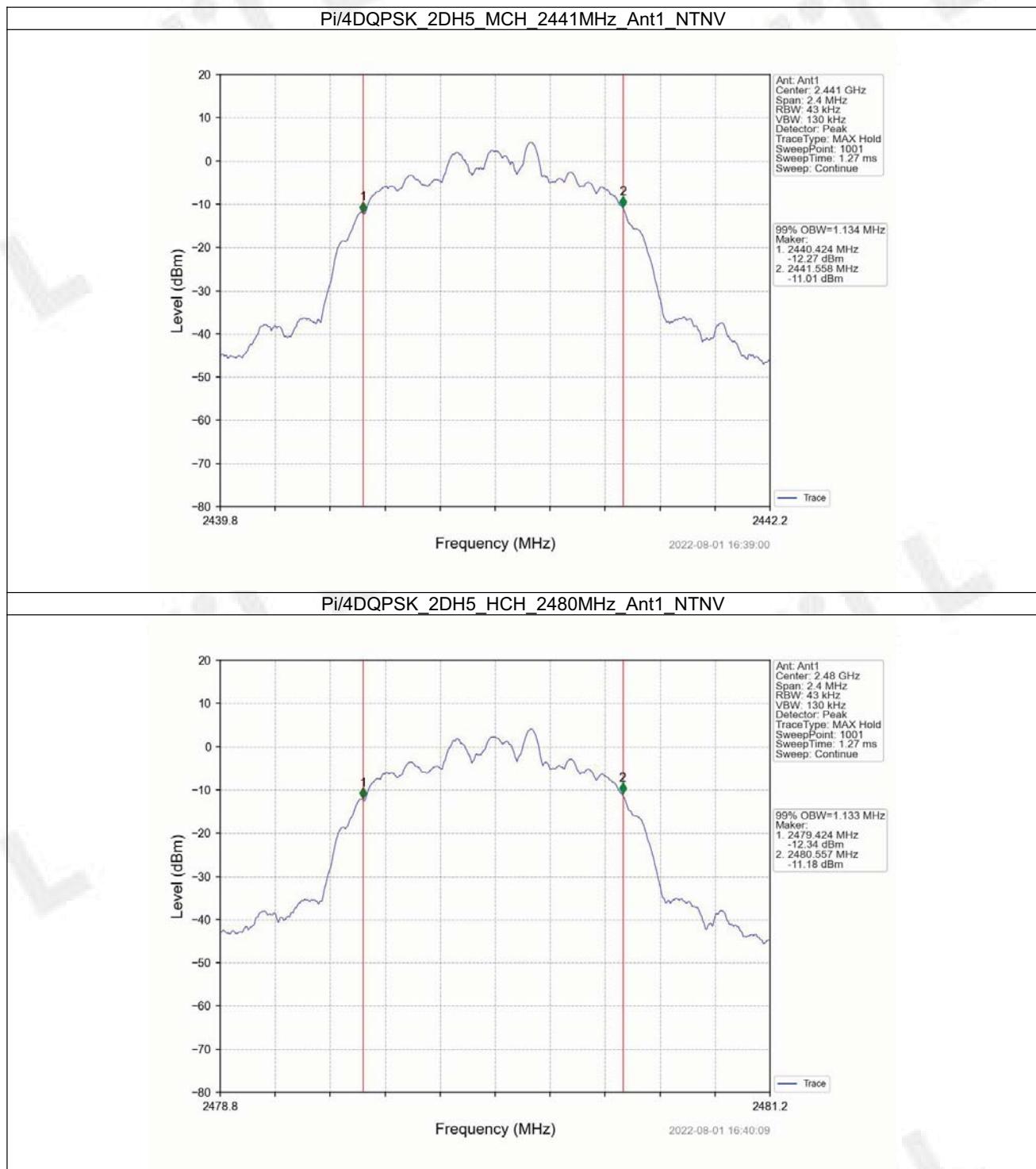
#### 1.1.1 Test Result

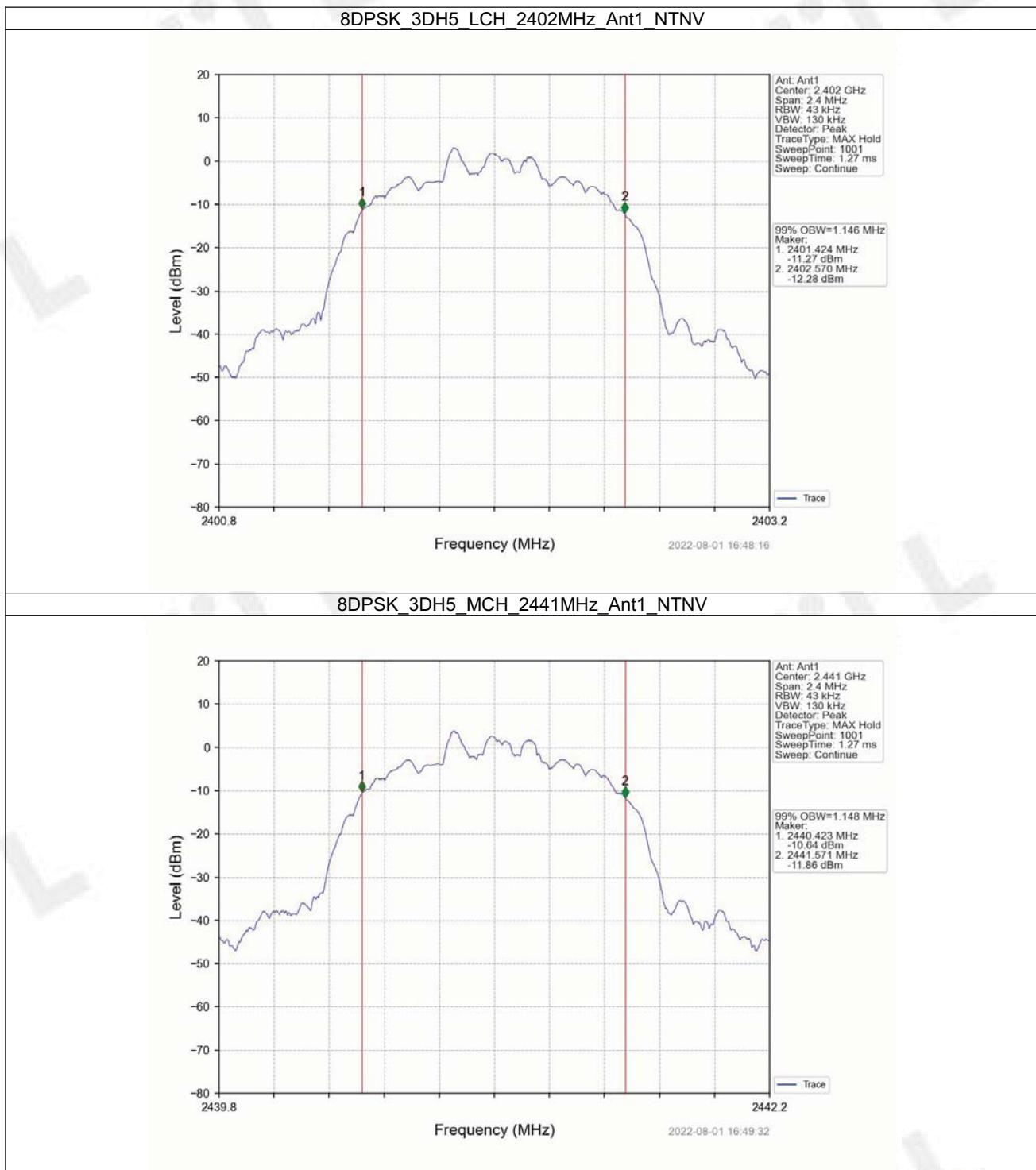
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	99% Occupied Bandwidth (MHz)		Verdict
					Result		
GFSK	SISO	2402	DH5	1	0.862		Pass
		2441	DH5	1	0.859		Pass
		2480	DH5	1	0.858		Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.134		Pass
		2441	2DH5	1	1.134		Pass
		2480	2DH5	1	1.133		Pass
8DPSK	SISO	2402	3DH5	1	1.146		Pass
		2441	3DH5	1	1.148		Pass
		2480	3DH5	1	1.146		Pass

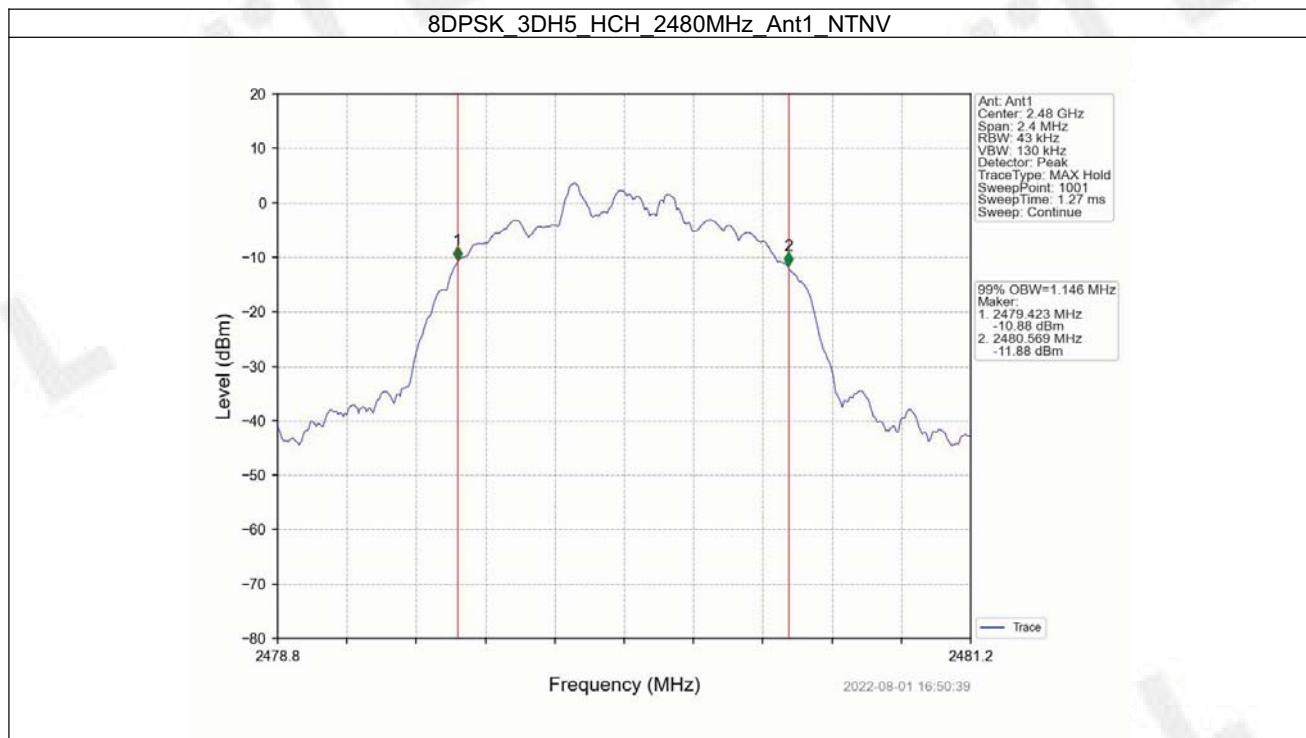
### 1.1.2 Test Graph









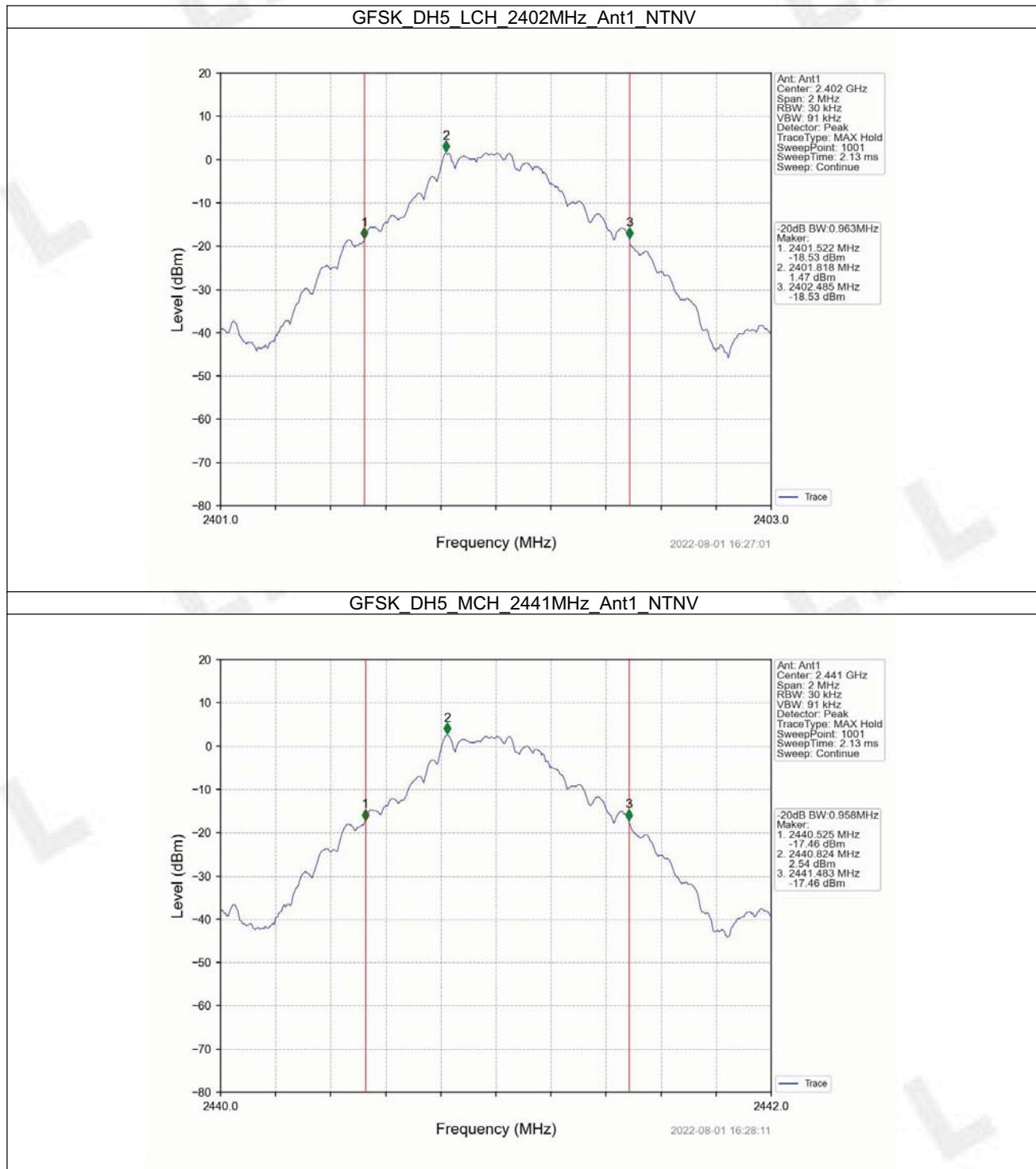


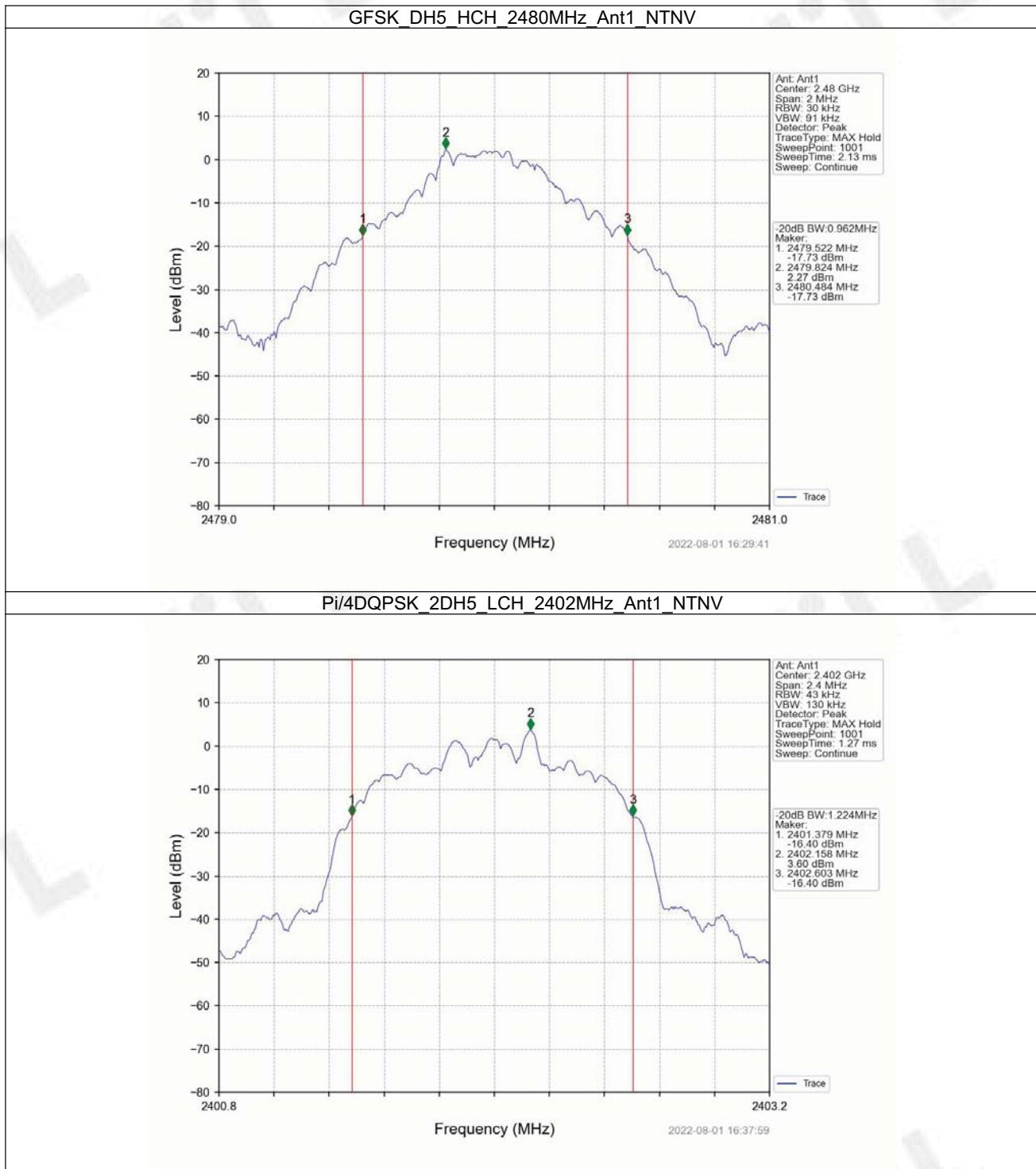
## 1.2 20dB BW

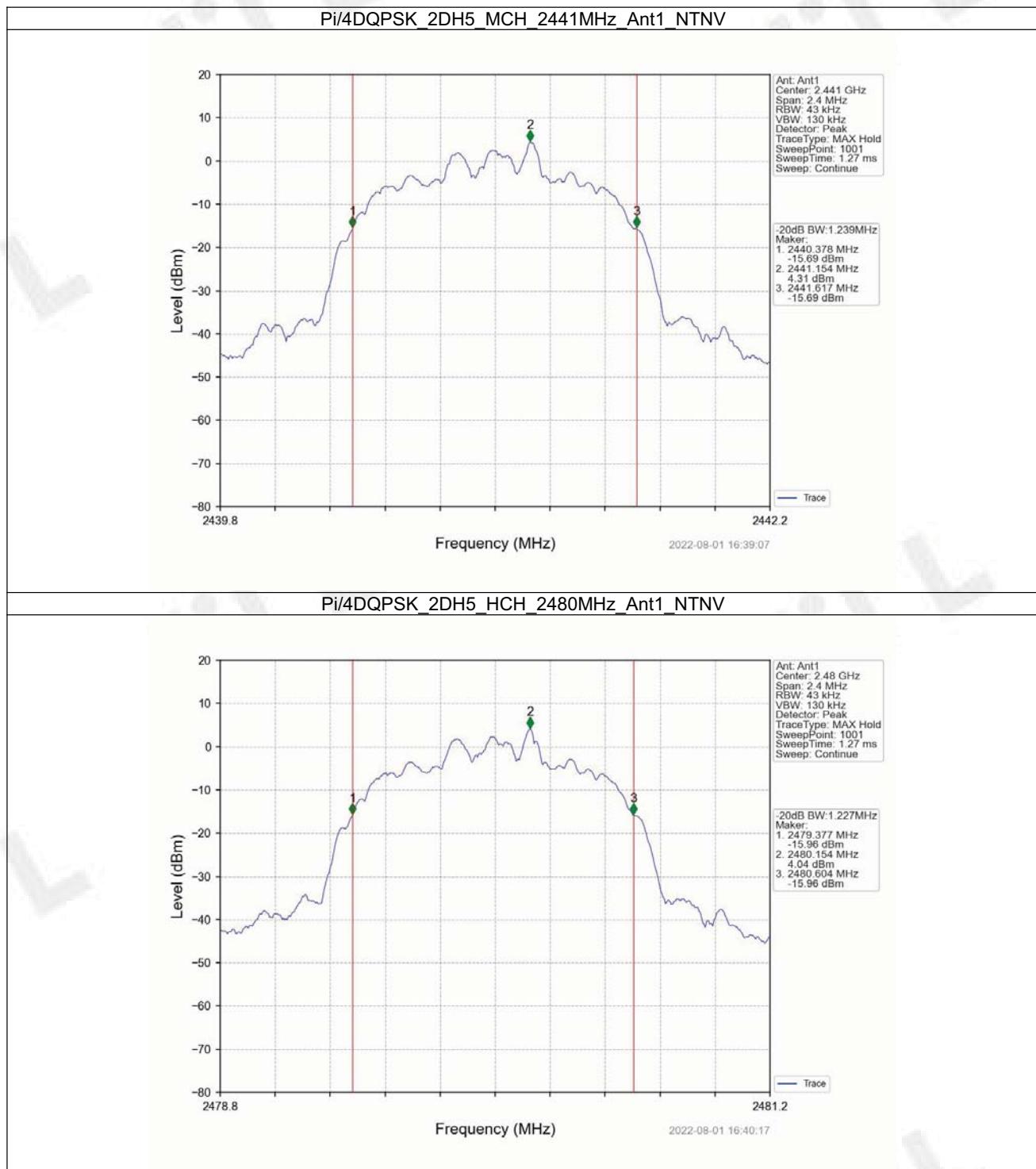
### 1.2.1 Test Result

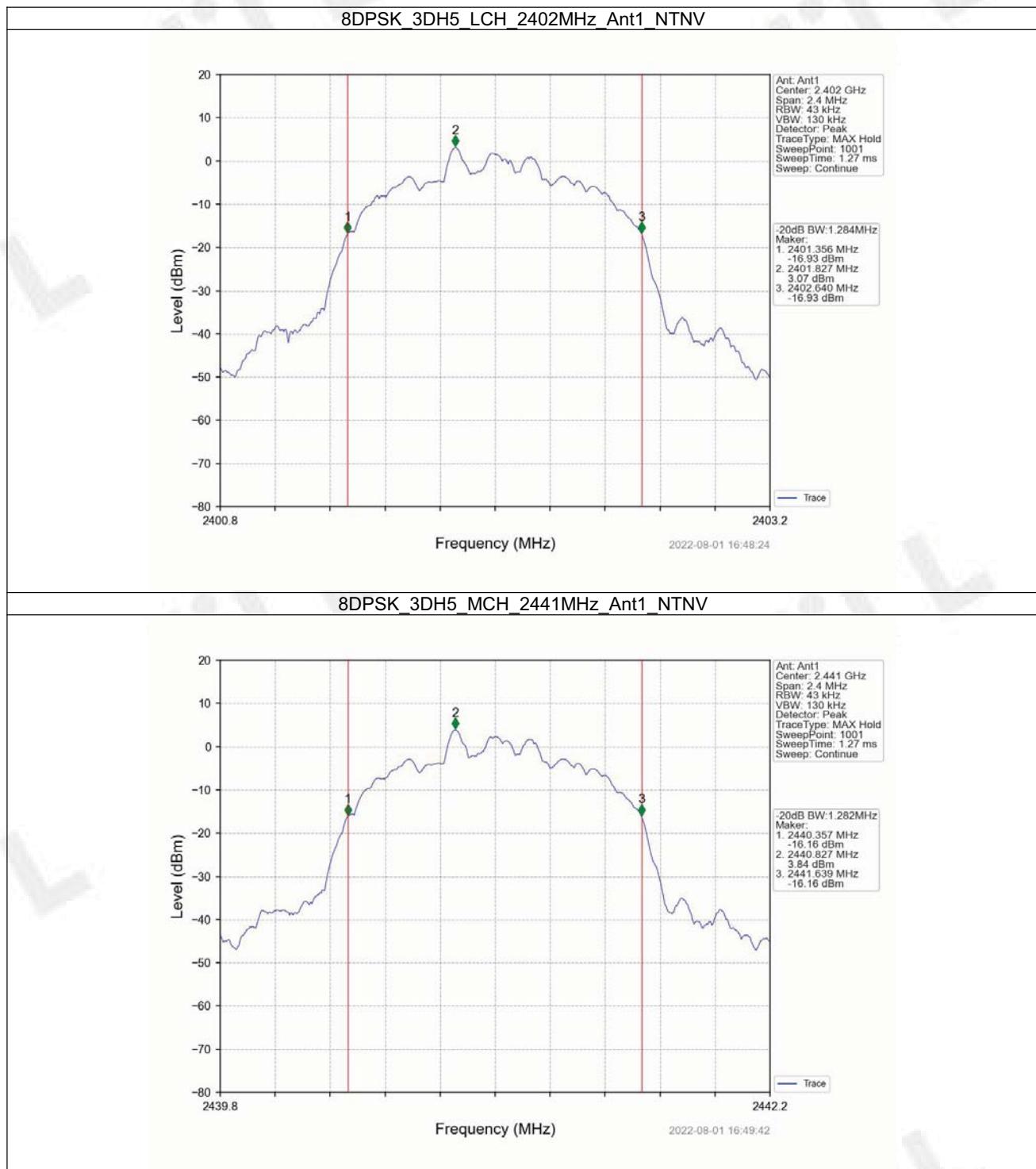
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	20dB Bandwidth (MHz)	Verdict
					Result	
GFSK	SISO	2402	DH5	1	0.963	Pass
		2441	DH5	1	0.958	Pass
		2480	DH5	1	0.962	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	1.224	Pass
		2441	2DH5	1	1.239	Pass
		2480	2DH5	1	1.227	Pass
8DPSK	SISO	2402	3DH5	1	1.284	Pass
		2441	3DH5	1	1.282	Pass
		2480	3DH5	1	1.276	Pass

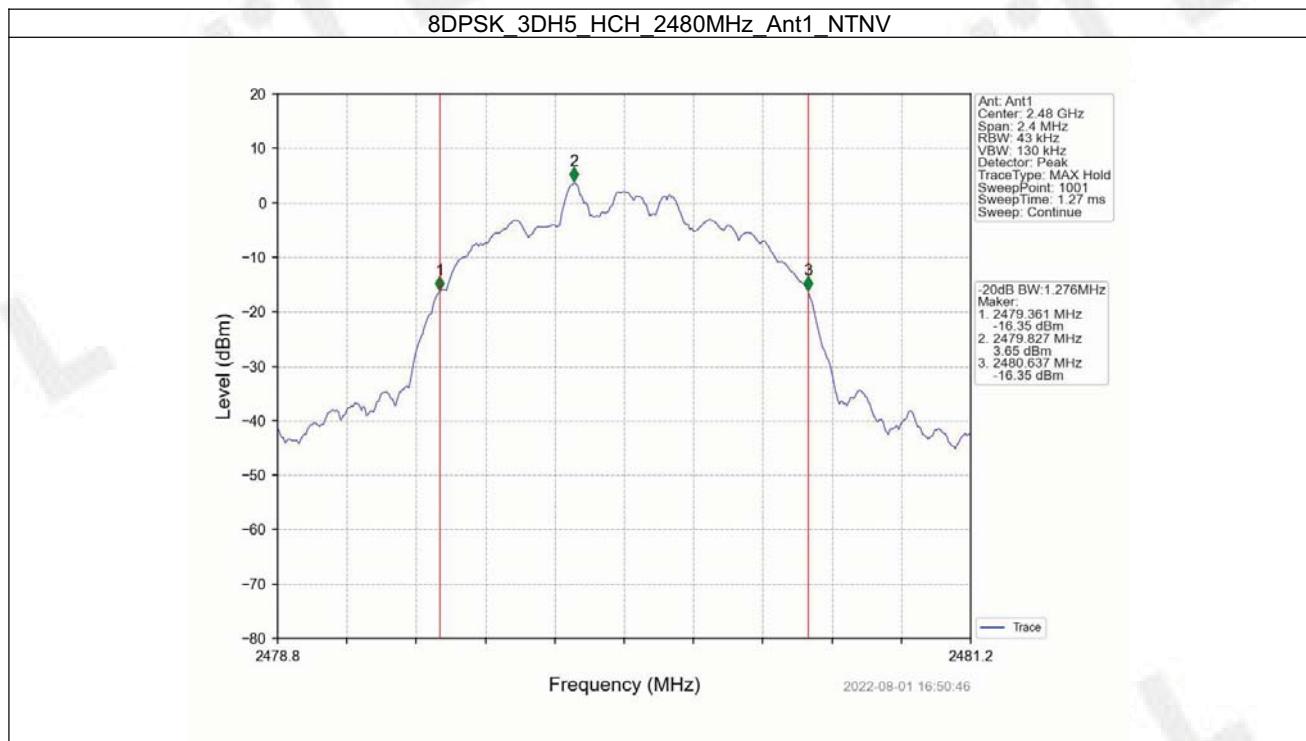
## 1.2.2 Test Graph











## 2. Maximum Conducted Output Power

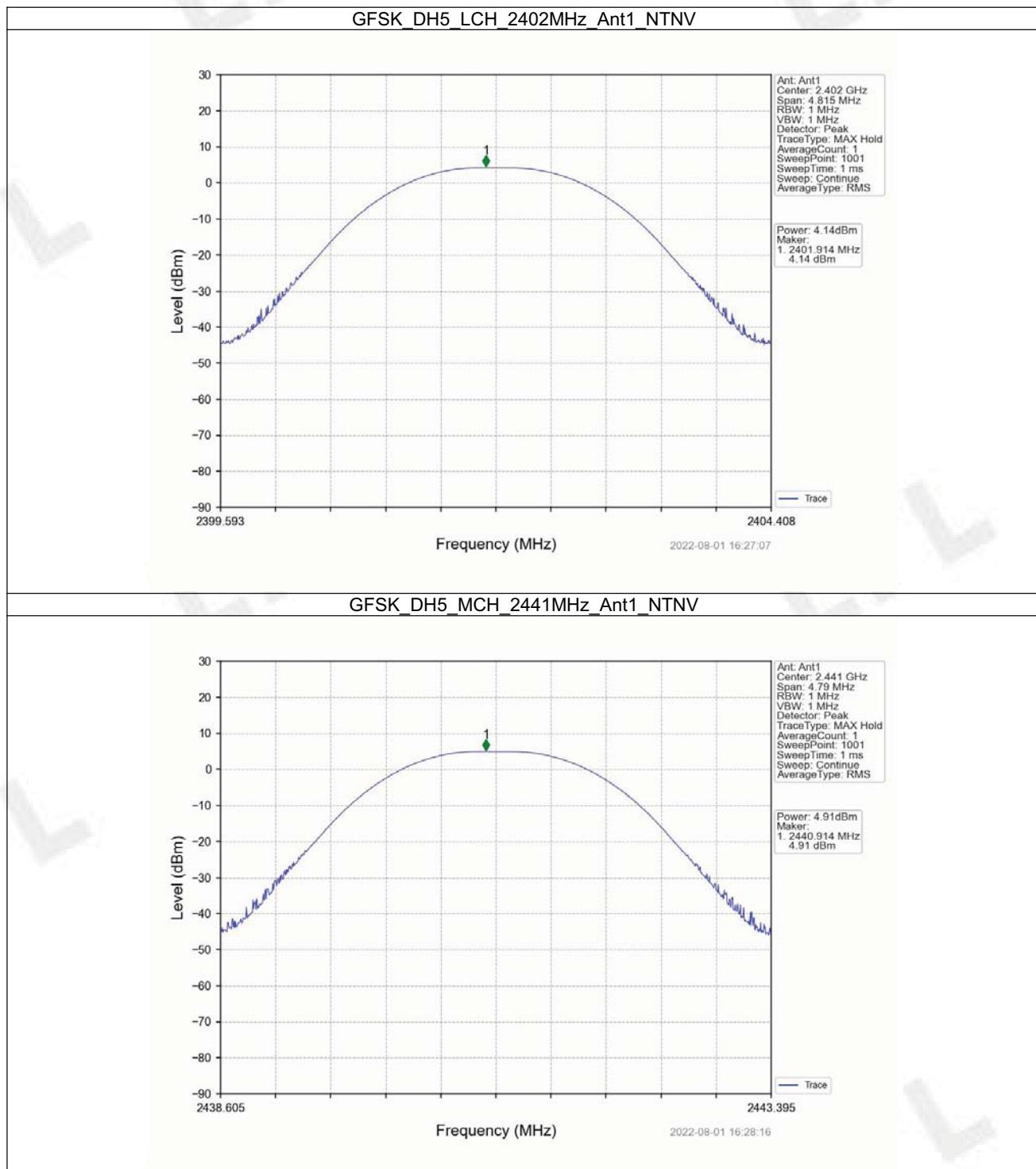
### 2.1 Power

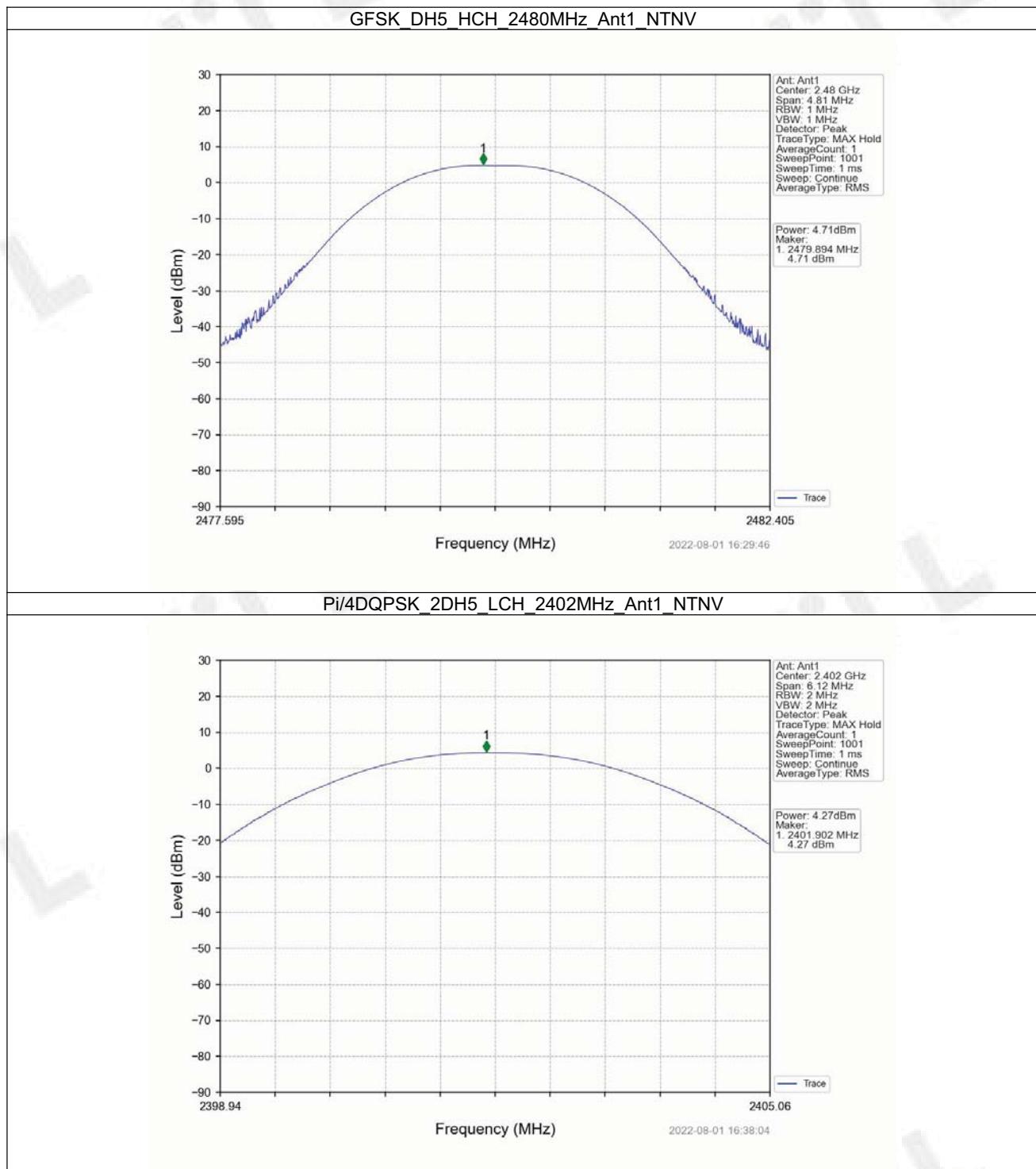
#### 2.1.1 Test Result

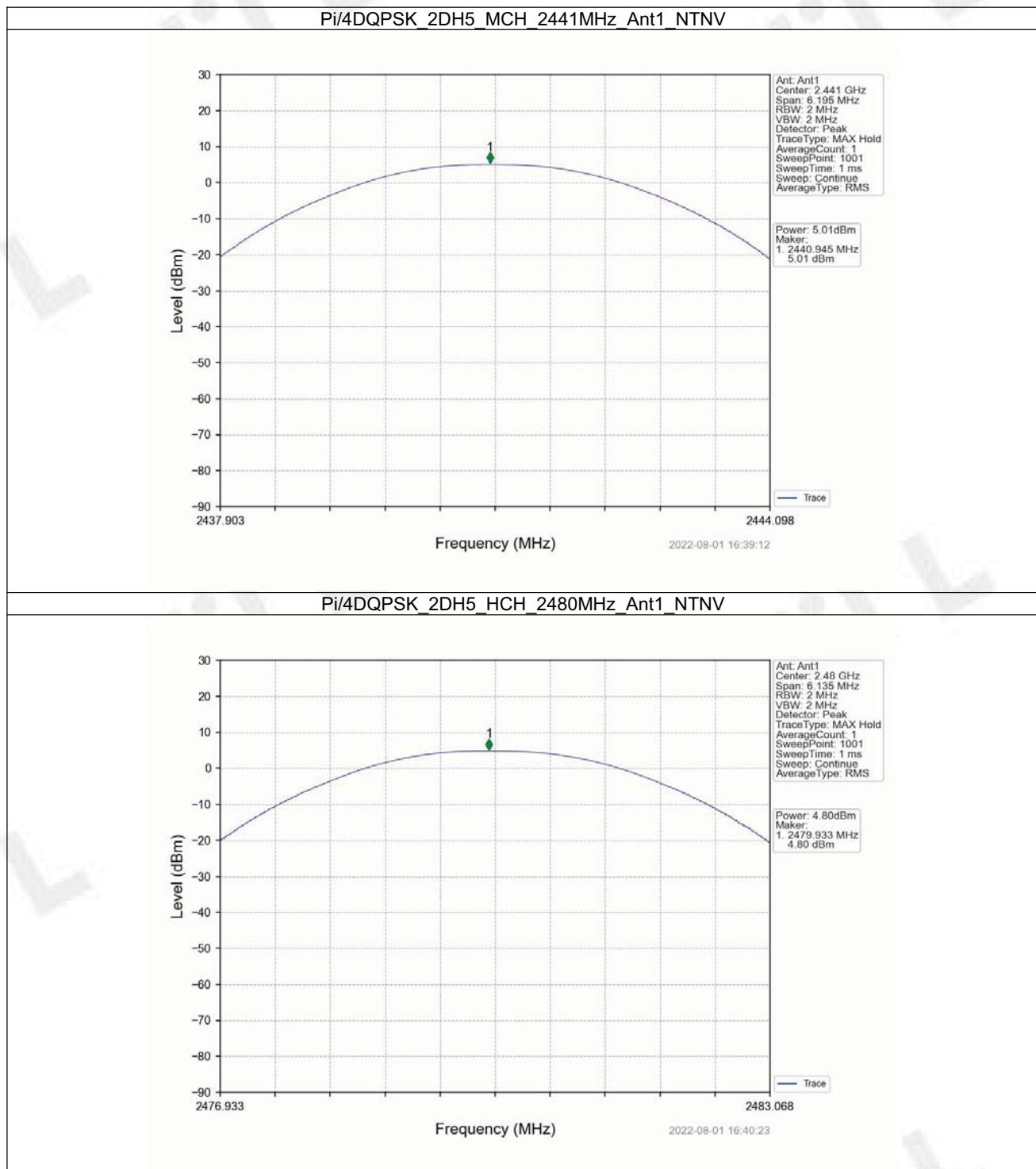
Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	4.14	<=30	Pass
		2441	DH5	4.91	<=30	Pass
		2480	DH5	4.71	<=30	Pass
Pi/4DQPSK	SISO	2402	2DH5	4.27	<=20.97	Pass
		2441	2DH5	5.01	<=20.97	Pass
		2480	2DH5	4.80	<=20.97	Pass
8DPSK	SISO	2402	3DH5	4.67	<=20.97	Pass
		2441	3DH5	5.44	<=20.97	Pass
		2480	3DH5	5.27	<=20.97	Pass

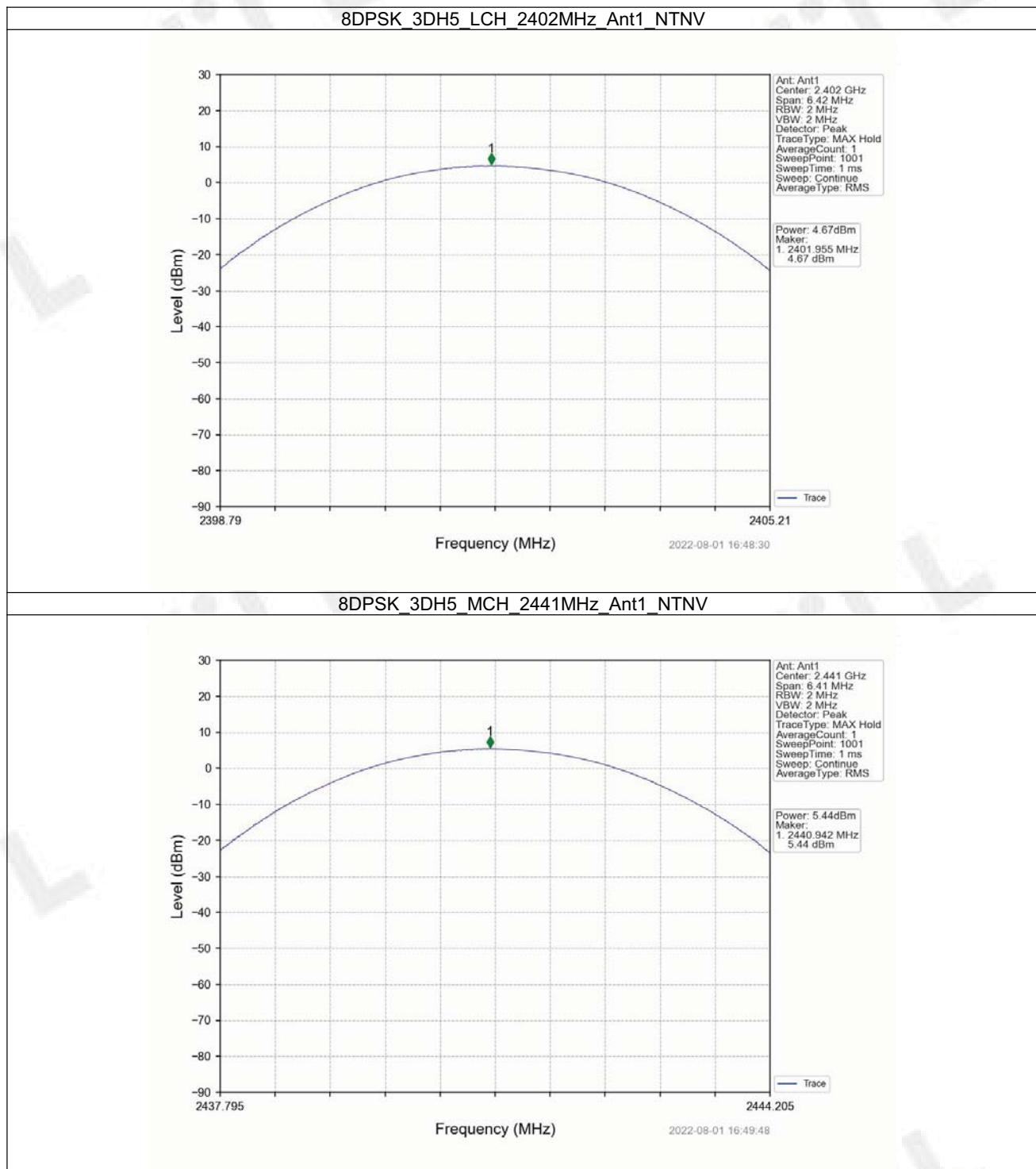
Note1: Antenna Gain: Ant1: 0.00dBi;

### 2.1.2 Test Graph











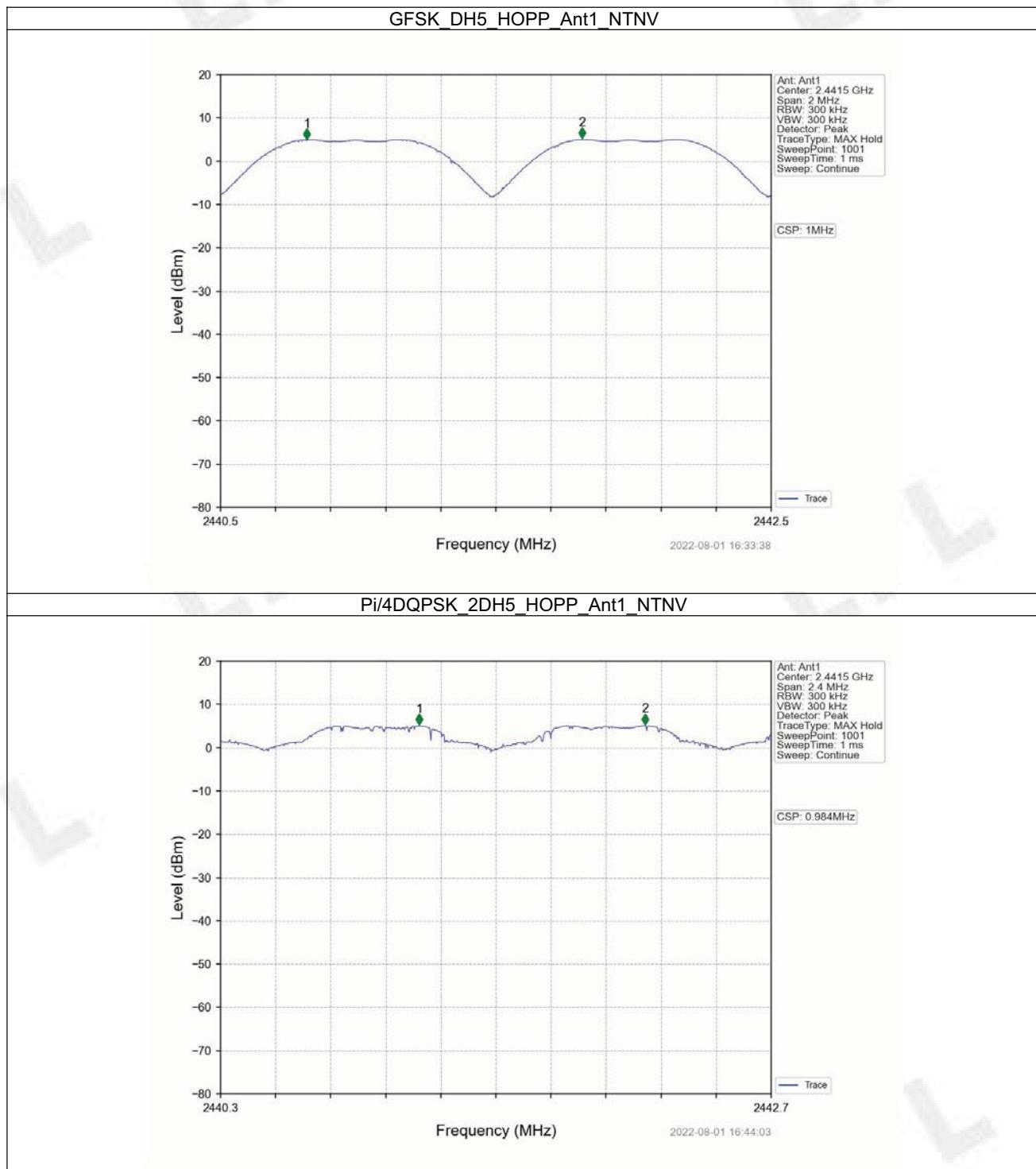
### 3. Carrier Frequency Separation

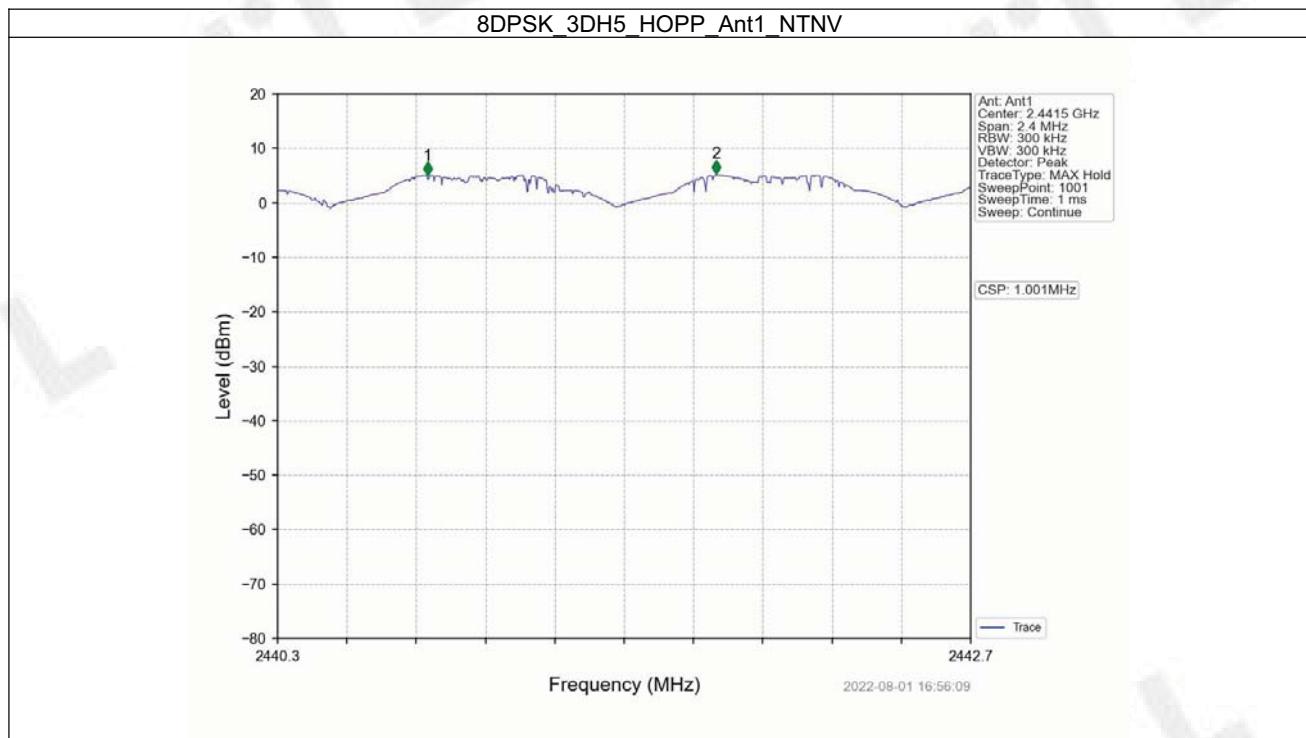
#### 3.1 Ant1

##### 3.1.1 Test Result

Ant1							
Mode	TX Type	Frequency (MHz)	Packet Type	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
GFSK	SISO	HOPP	DH5	1.000	0.963	>=0.963	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	0.984	1.239	>=0.826	Pass
8DPSK	SISO	HOPP	3DH5	1.001	1.284	>=0.856	Pass

### 3.1.2 Test Graph





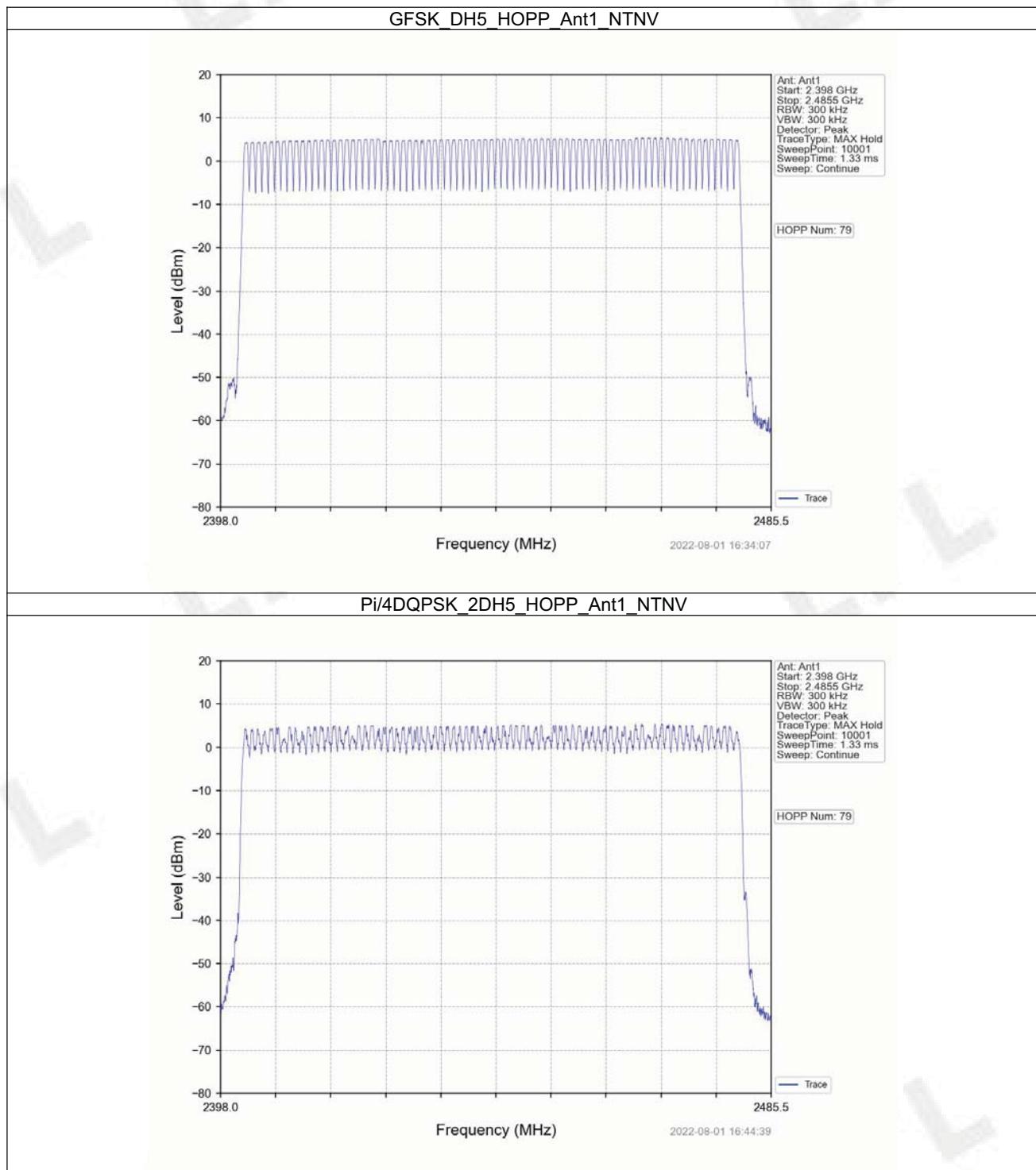
## 4. Number of Hopping Frequencies

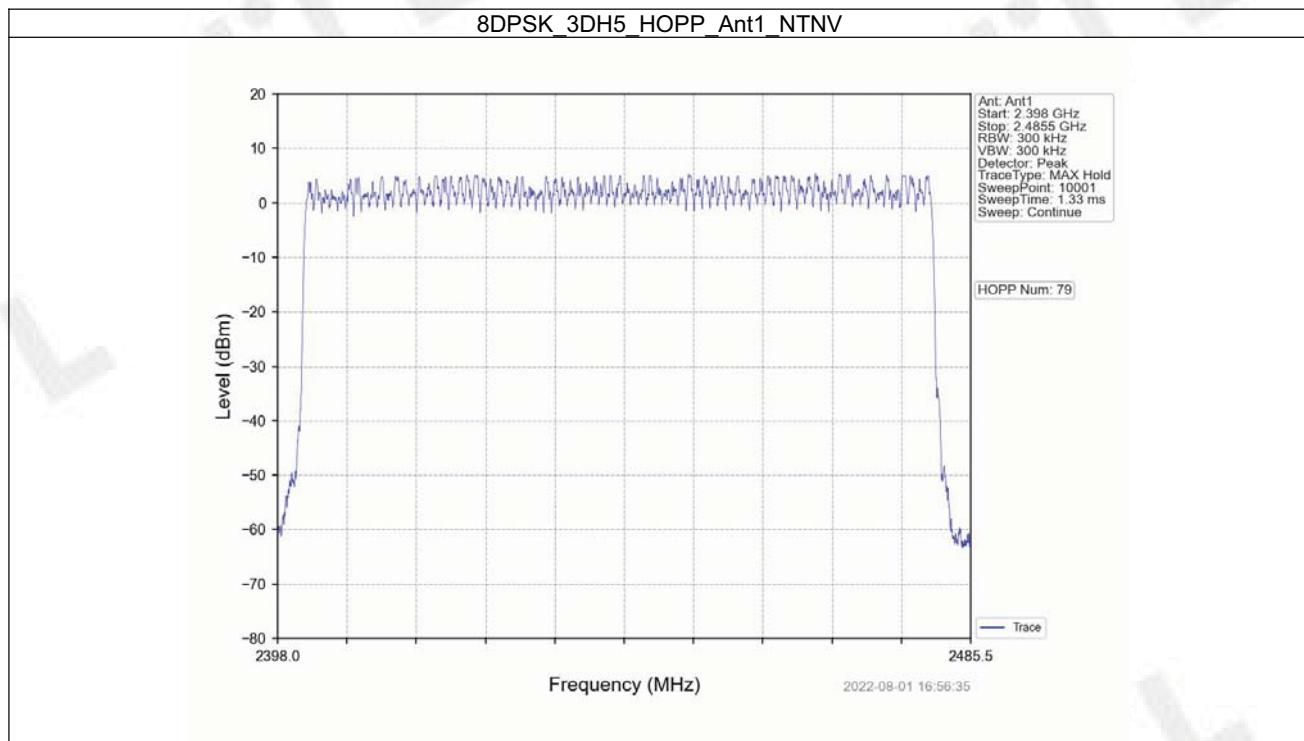
### 4.1 HoppNum

#### 4.1.1 Test Result

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

#### 4.1.2 Test Graph





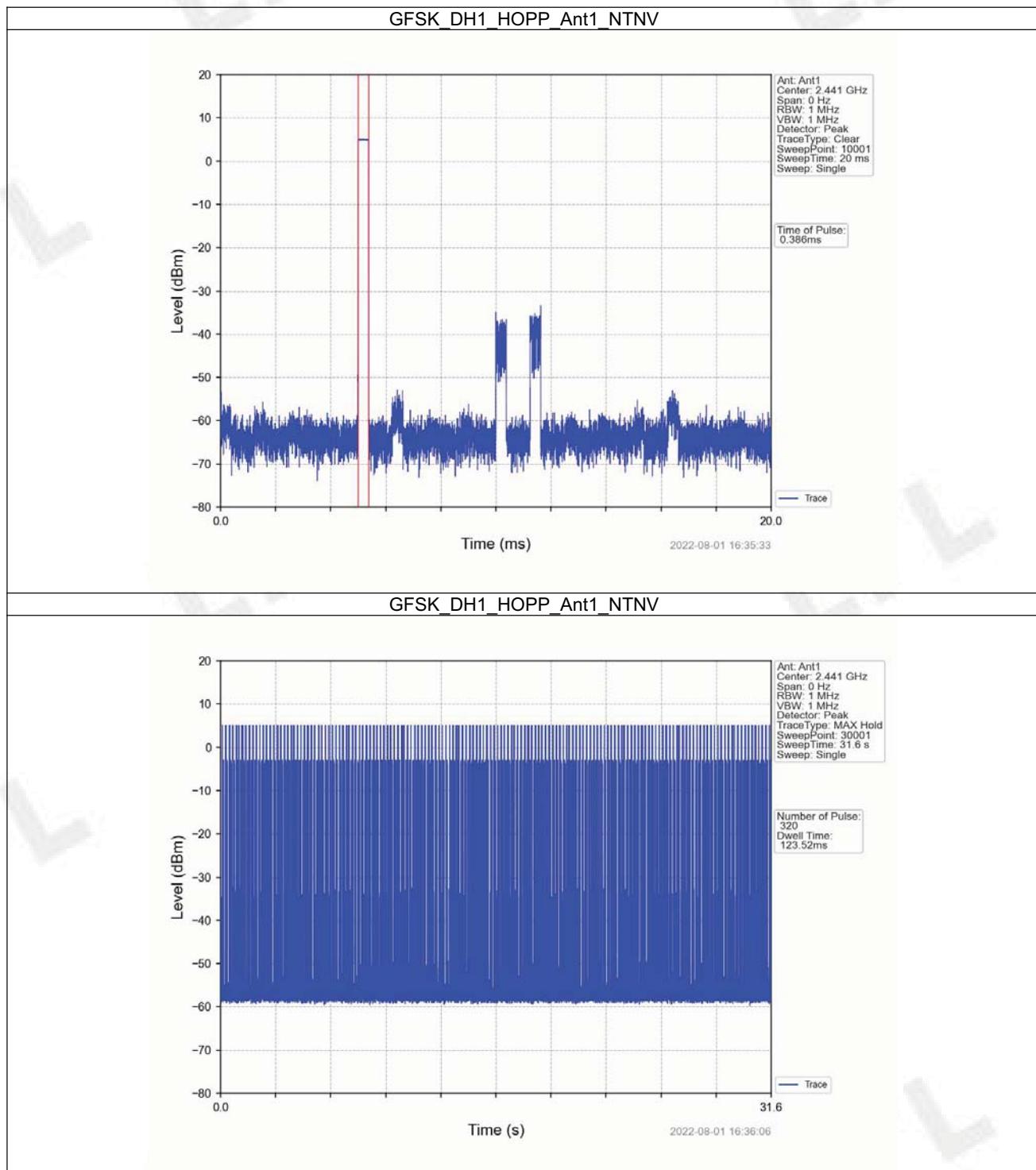
## 5. Time of Occupancy (Dwell Time)

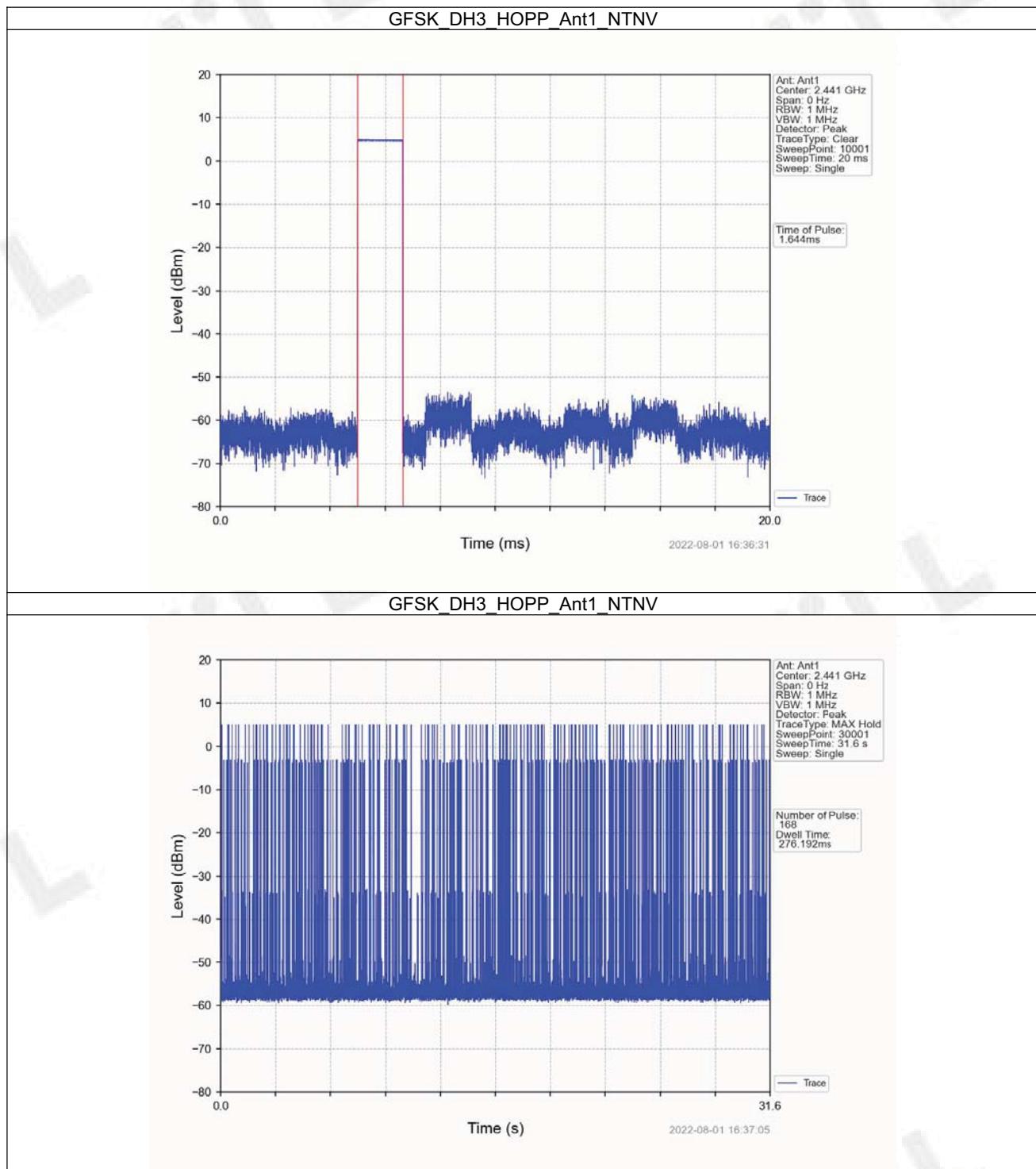
### 5.1 Ant1

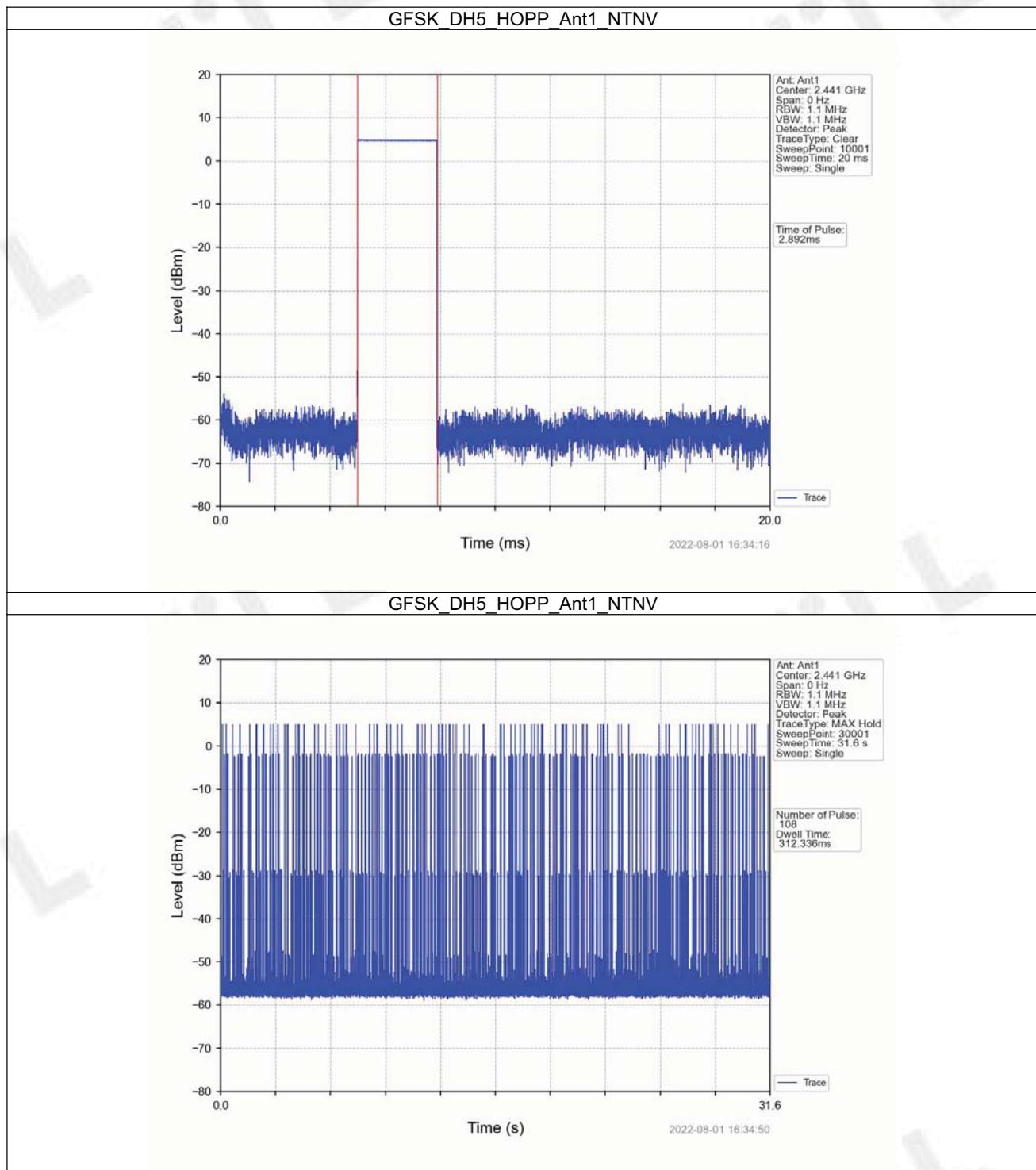
#### 5.1.1 Test Result

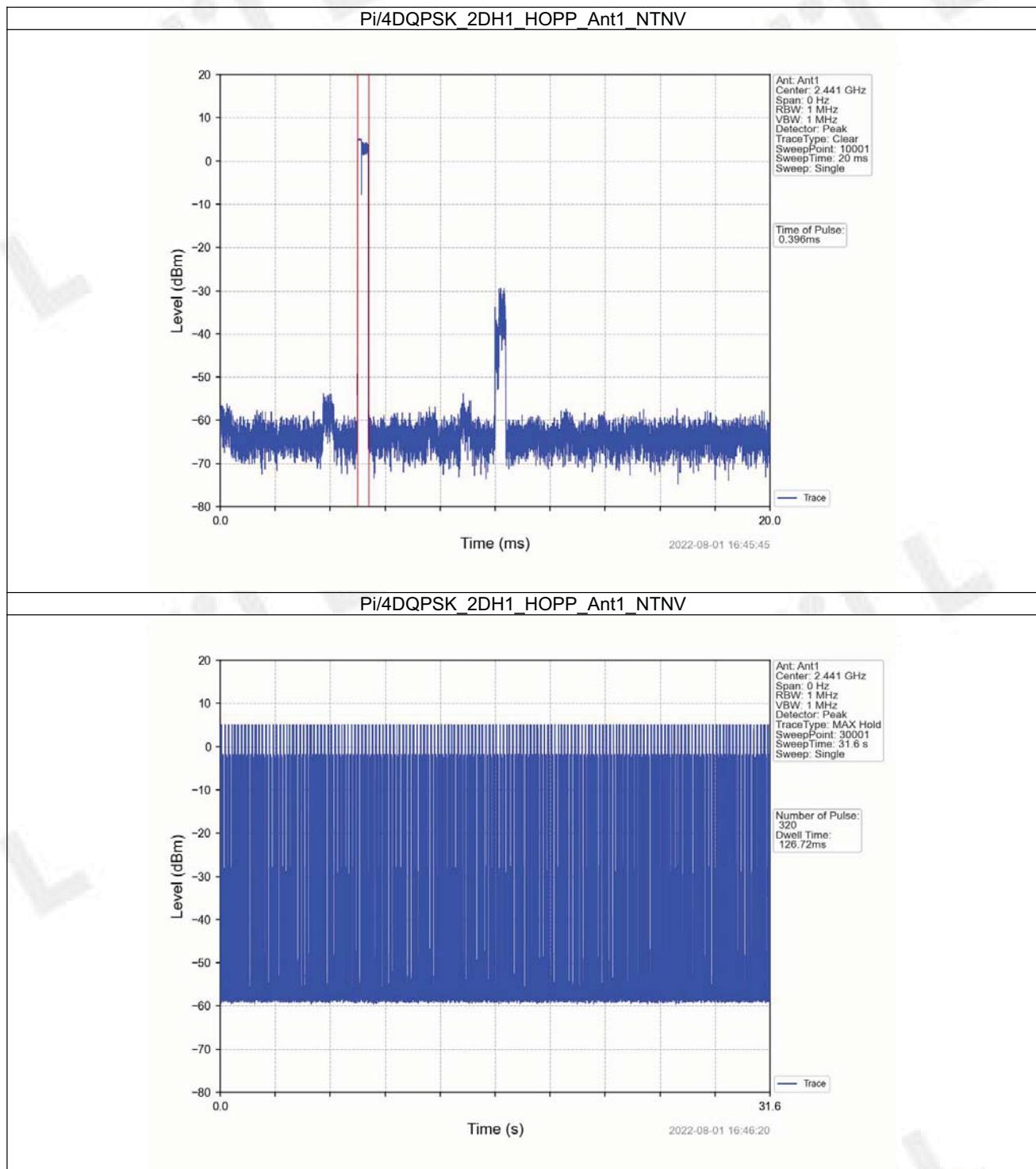
Ant1										
Mode	TX Type	Frequency (MHz)	Packet Type	Duration of Single Pulse (ms)	Observation Period (s)	Num of Pulse in Observation Period	Dwell Time (ms)	Limit (ms)	Verdict	
GFSK	SISO	HOPP	DH1	0.386	31.600	320	123.520	<=400	Pass	
			DH3	1.644	31.600	168	276.192	<=400	Pass	
			DH5	2.892	31.600	108	312.336	<=400	Pass	
Pi/4DQPSK	SISO	HOPP	2DH1	0.396	31.600	320	126.720	<=400	Pass	
			2DH3	1.646	31.600	156	256.776	<=400	Pass	
			2DH5	2.898	31.600	113	327.474	<=400	Pass	
8DPSK	SISO	HOPP	3DH1	0.394	31.600	320	126.080	<=400	Pass	
			3DH3	1.648	31.600	158	260.384	<=400	Pass	
			3DH5	2.900	31.600	116	336.400	<=400	Pass	

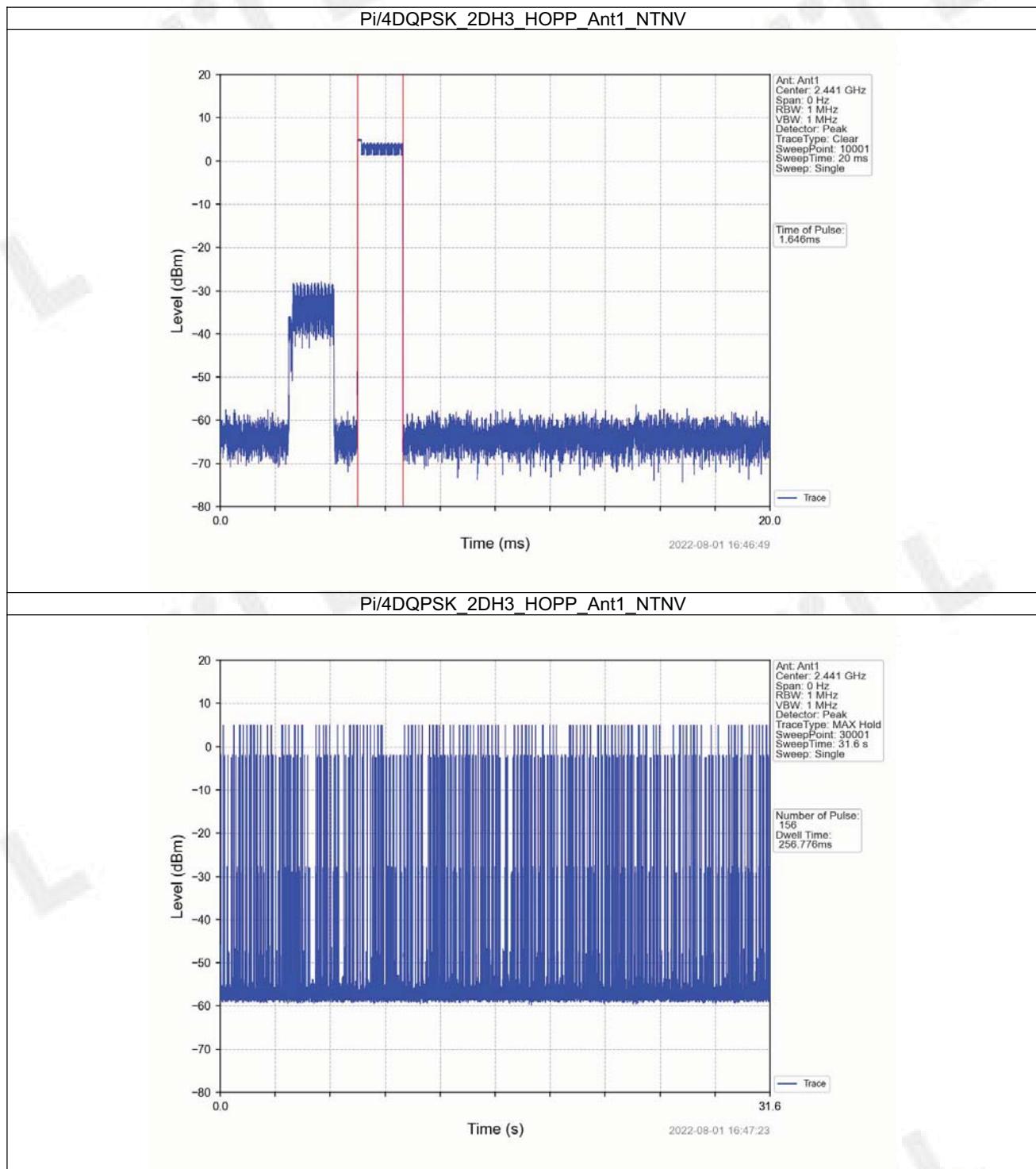
### 5.1.2 Test Graph

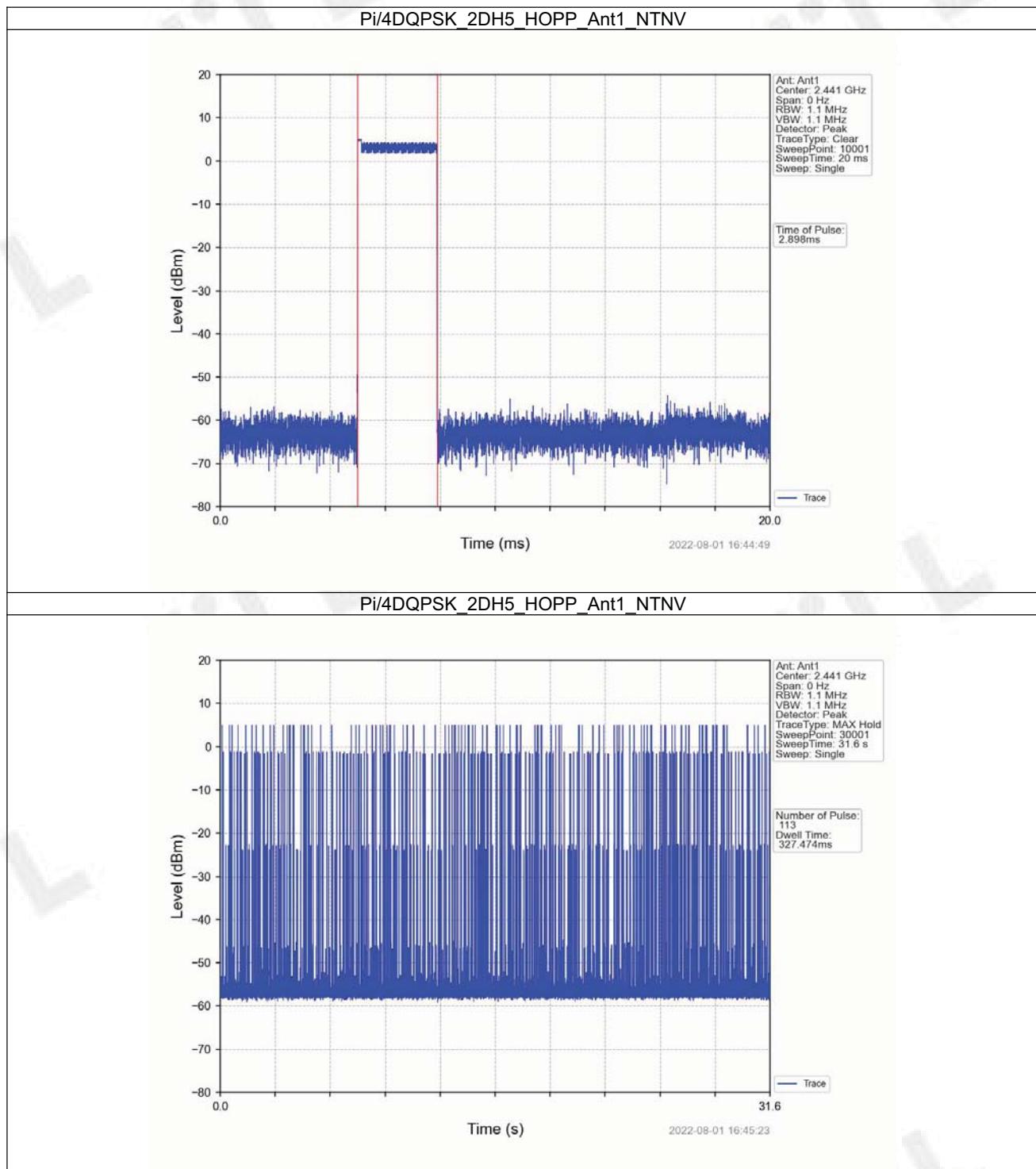


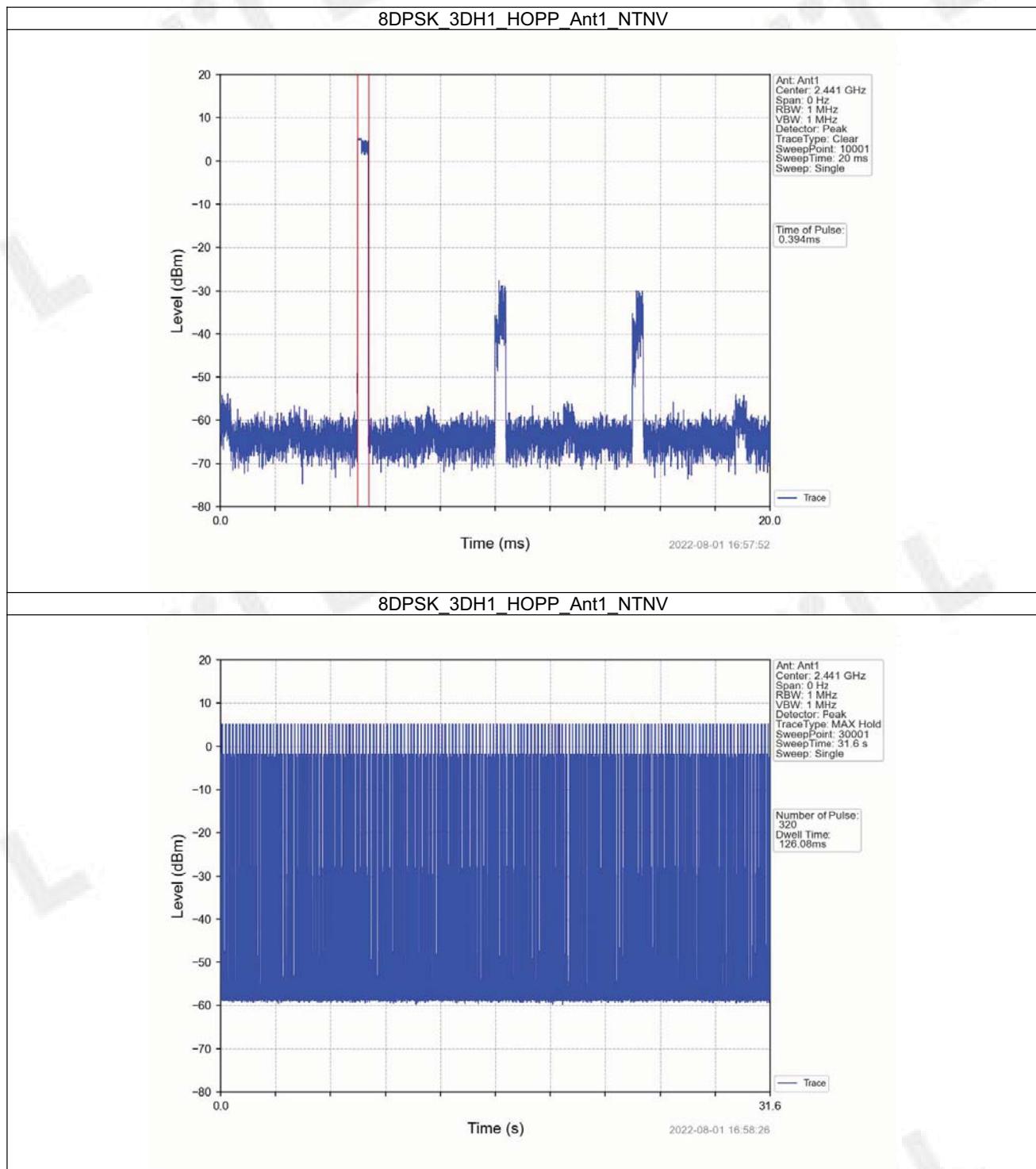


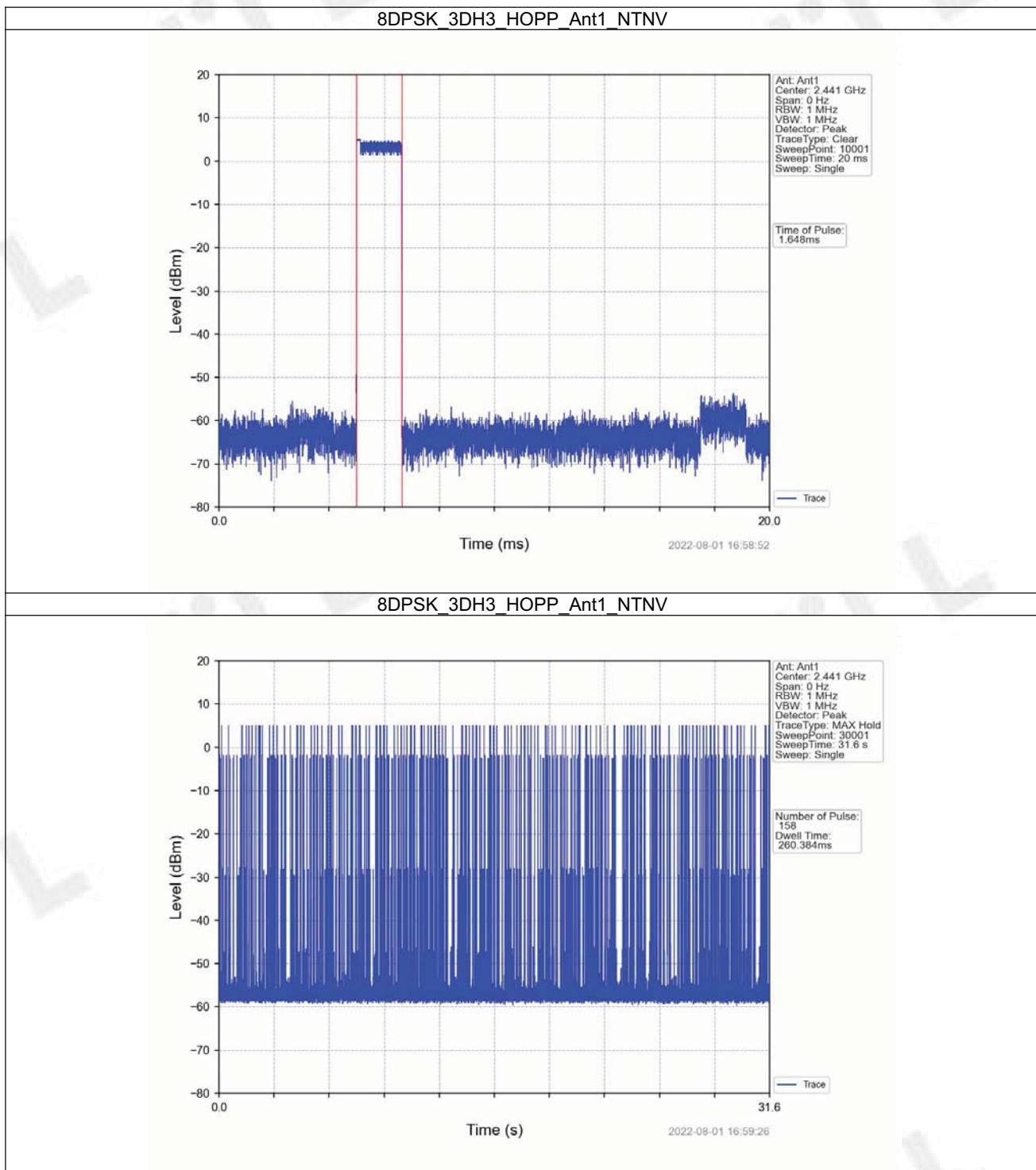


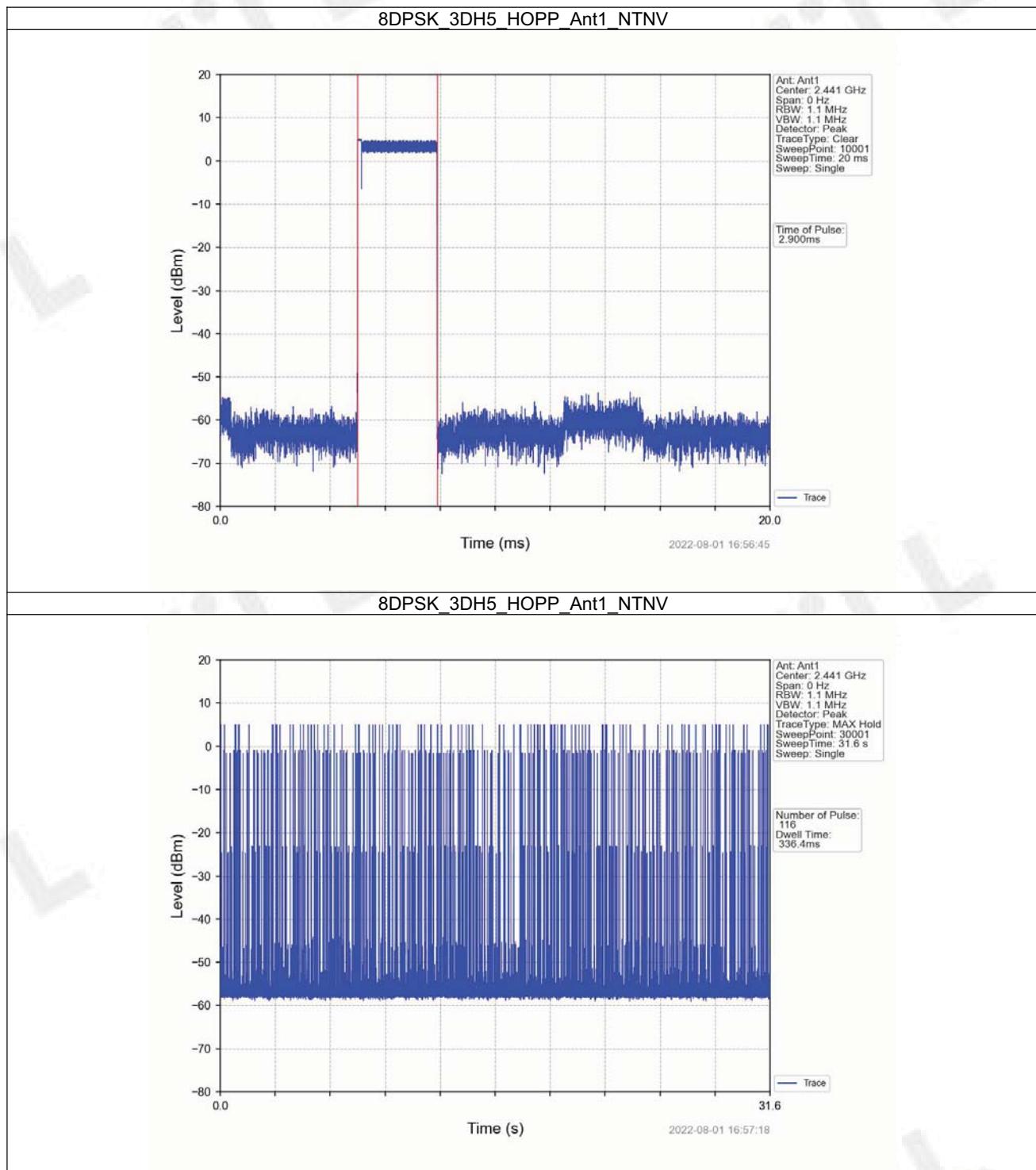












## 6. Unwanted Emissions InStandard Non-restricted Frequency Bands

### 6.1 Ref

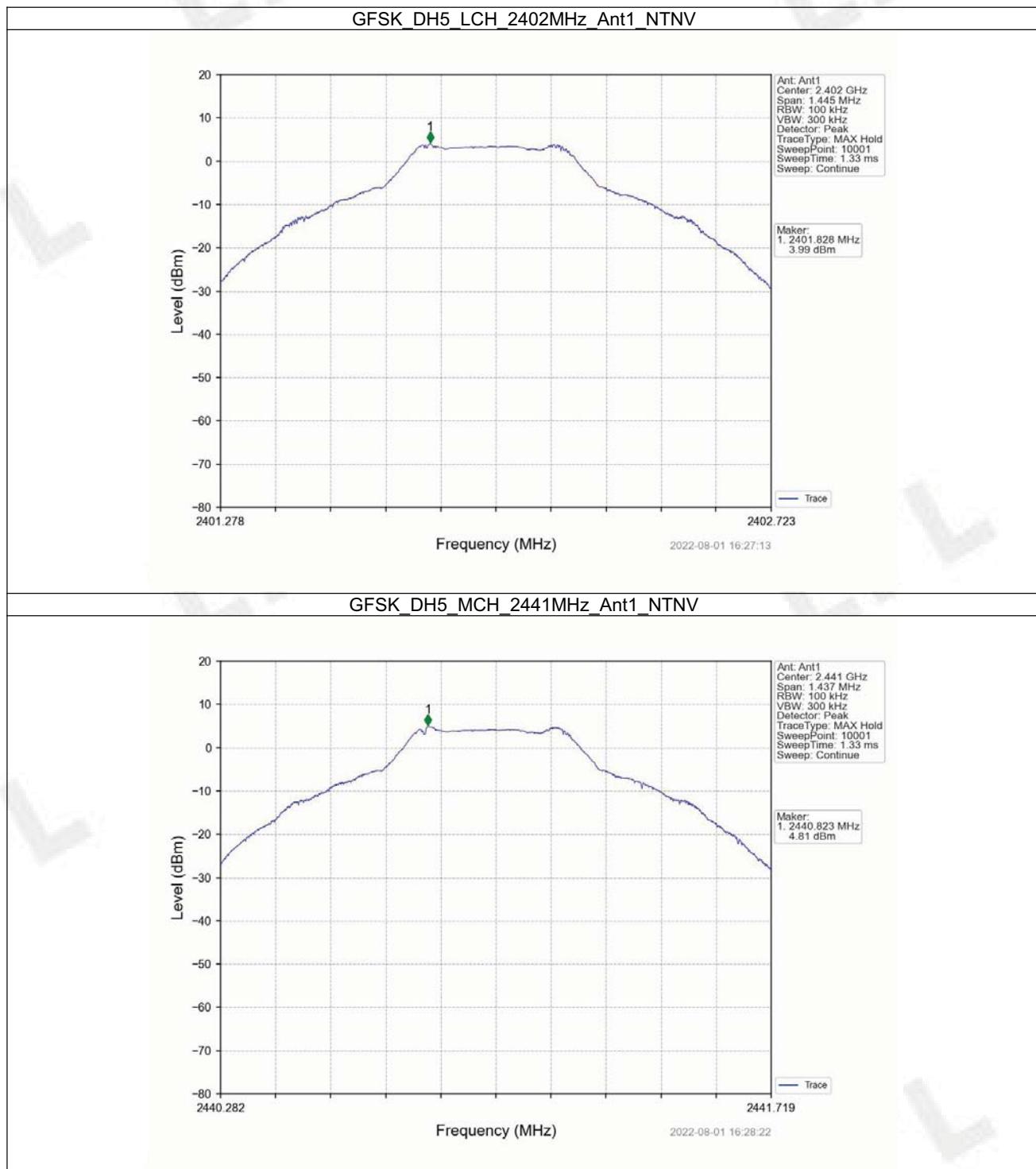
#### 6.1.1 Test Result

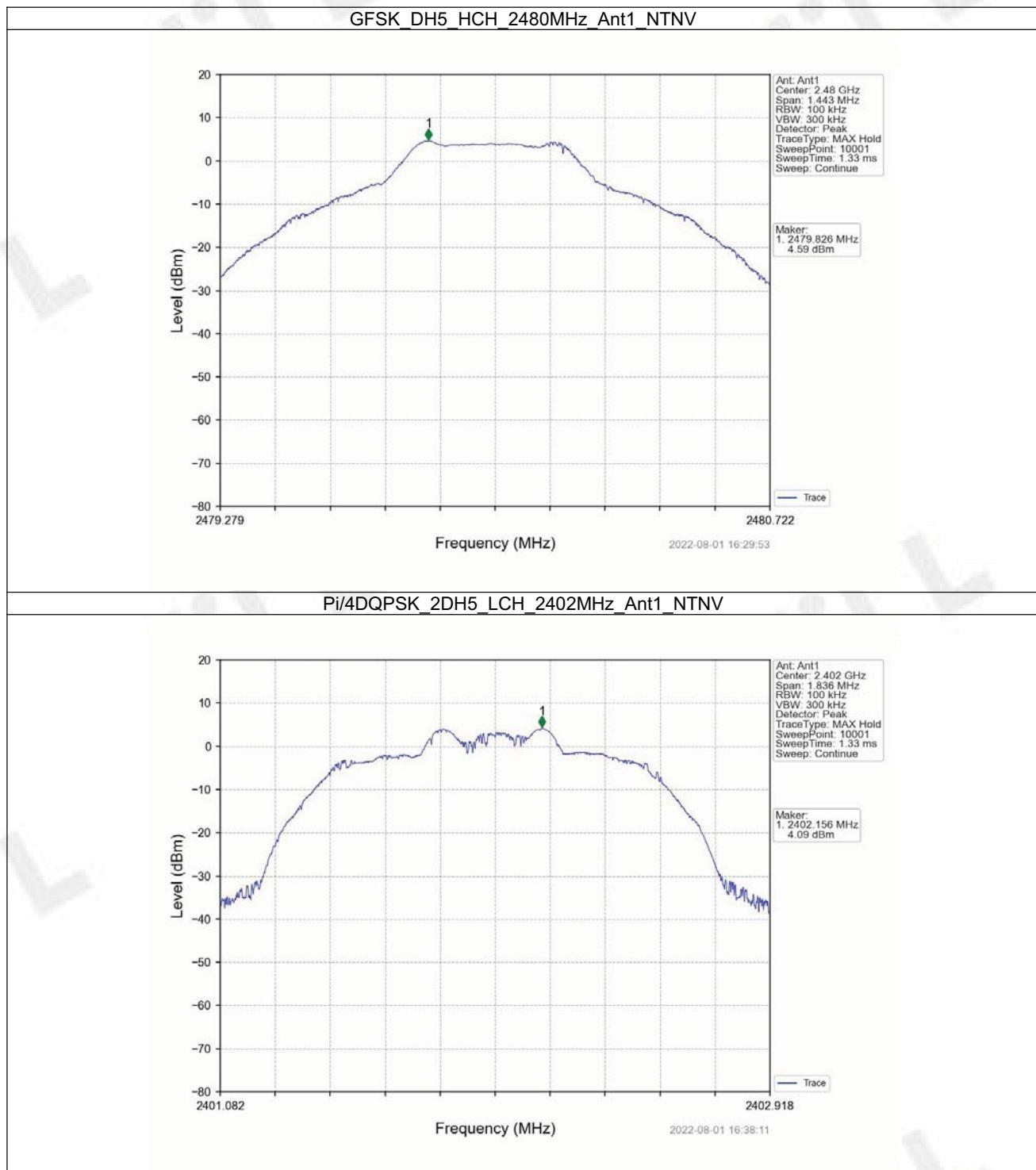
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
GFSK	SISO	2402	DH5	1	3.99
		2441	DH5	1	4.81
		2480	DH5	1	4.59
Pi/4DQPSK	SISO	2402	2DH5	1	4.09
		2441	2DH5	1	4.85
		2480	2DH5	1	4.61
8DPSK	SISO	2402	3DH5	1	4.08
		2441	3DH5	1	4.85
		2480	3DH5	1	4.65

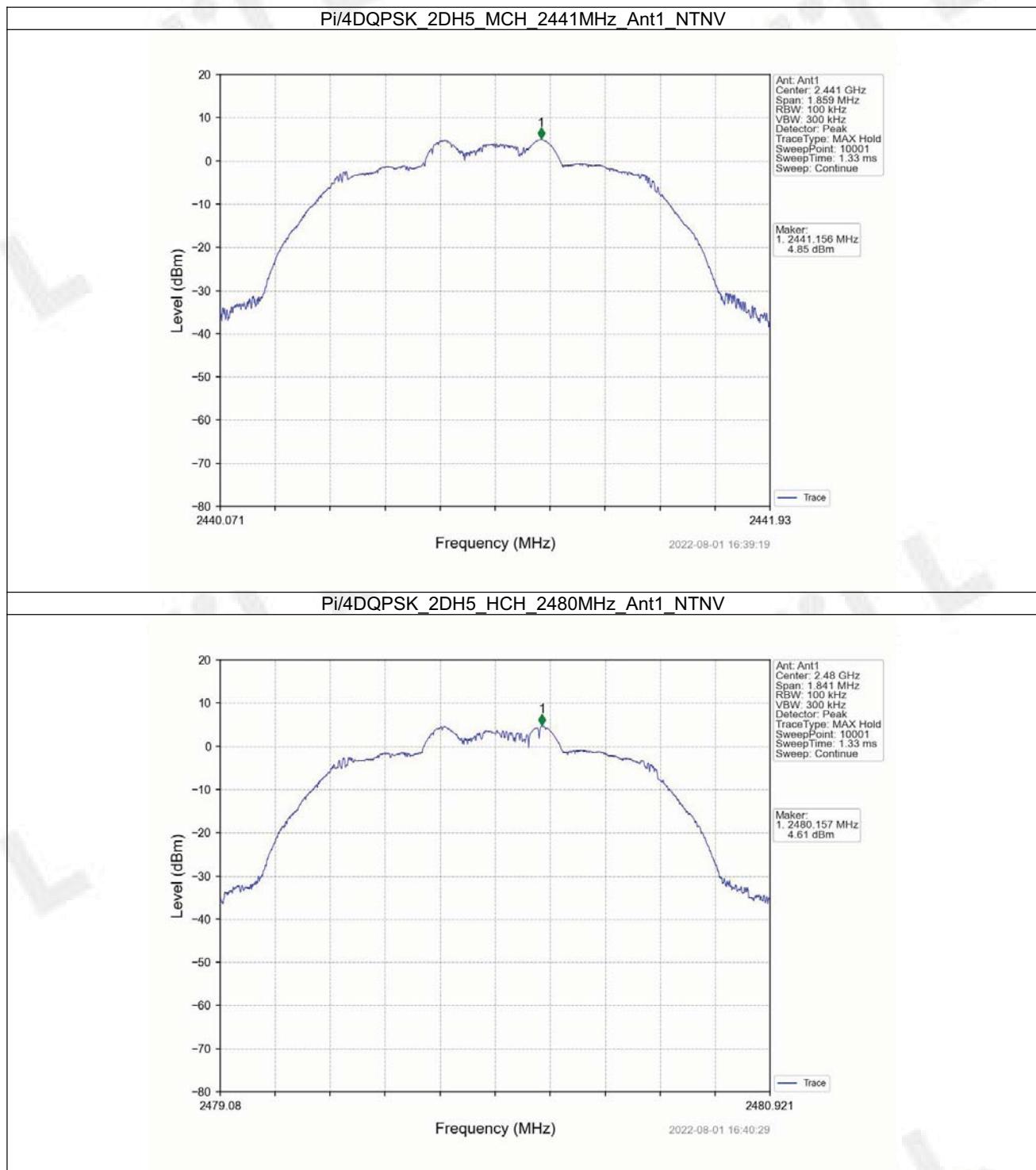
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

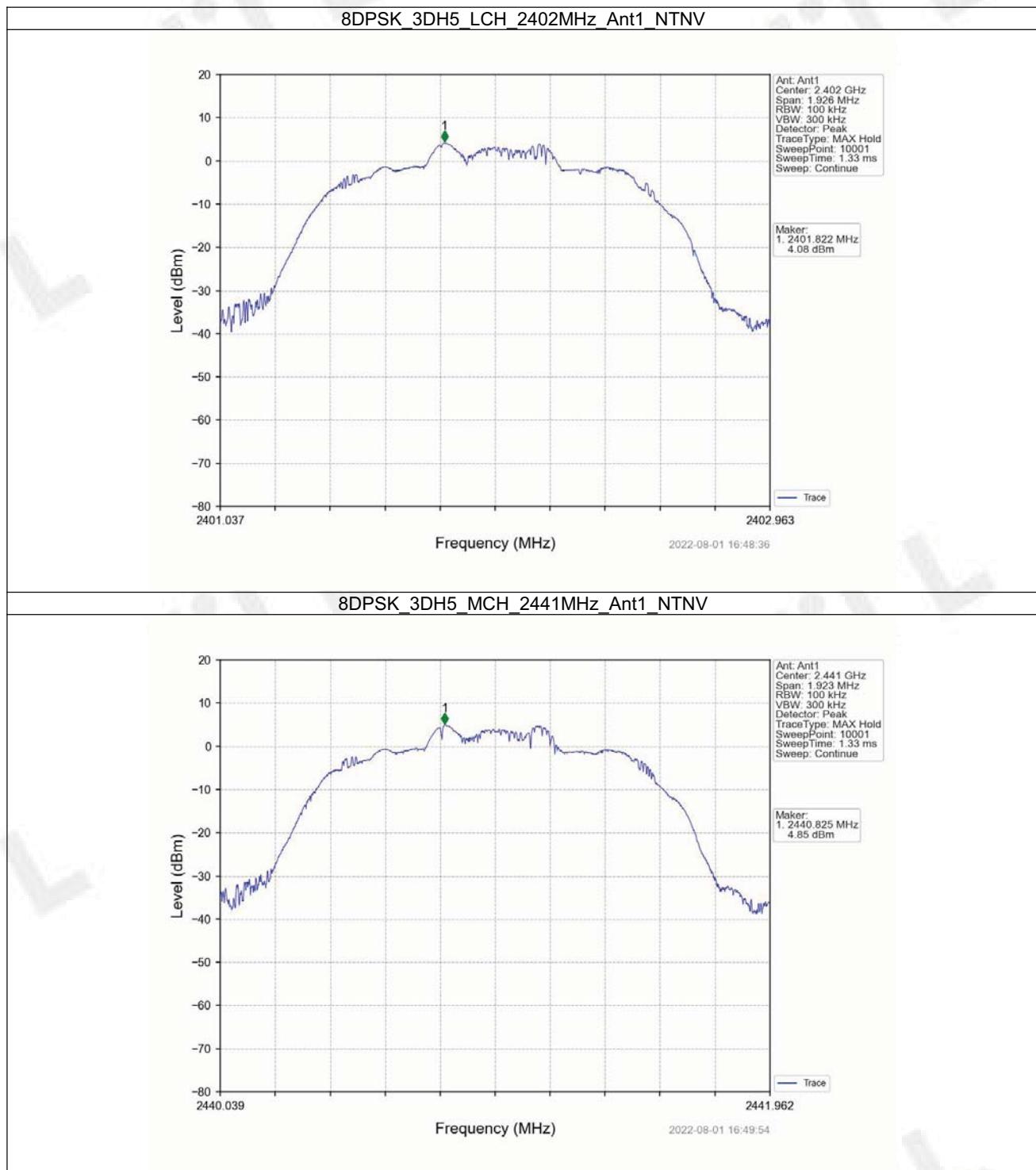
Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.

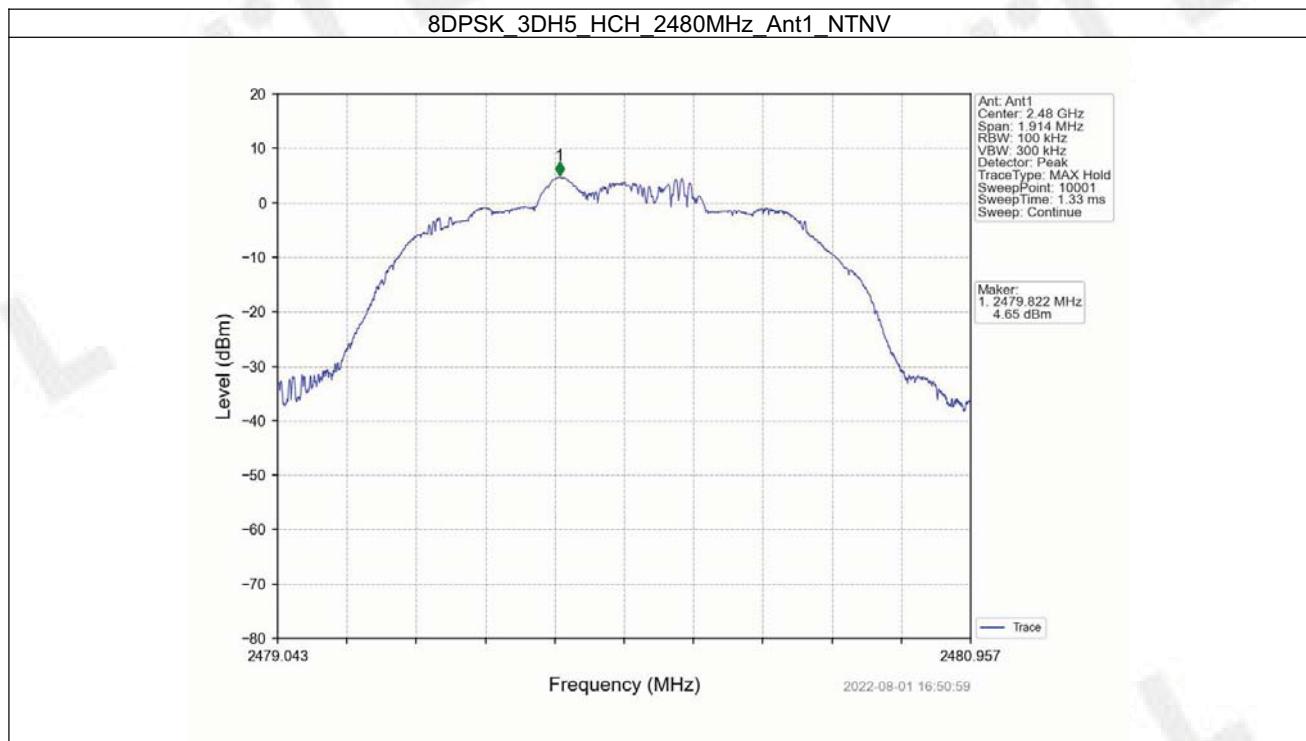
### 6.1.2 Test Graph











## 6.2 CSE

### 6.2.1 Test Result

Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	SISO	2402	DH5	1	4.81	-15.19	Pass
		2441	DH5	1	4.81	-15.19	Pass
		2480	DH5	1	4.81	-15.19	Pass
		HOPP	DH5	1	4.81	-15.19	Pass
Pi/4DQPSK	SISO	2402	2DH5	1	4.85	-15.15	Pass
		2441	2DH5	1	4.85	-15.15	Pass
		2480	2DH5	1	4.85	-15.15	Pass
		HOPP	2DH5	1	4.85	-15.15	Pass
8DPSK	SISO	2402	3DH5	1	4.85	-15.15	Pass
		2441	3DH5	1	4.85	-15.15	Pass
		2480	3DH5	1	4.85	-15.15	Pass
		HOPP	3DH5	1	4.85	-15.15	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.

Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.

### 6.2.2 Test Graph

