



Appendix A

RF Test Data for BT(BDR/EDR) (Conducted Measurement)

Product Name: Dual 6.5 inches Wireless Speaker with Lights

Trade Mark: BOYI

Test Model: BOYI GMK67

Environmental Conditions

Temperature:	25.2°C
Relative Humidity:	51.2%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen



Contents

Page

COVER PAGE

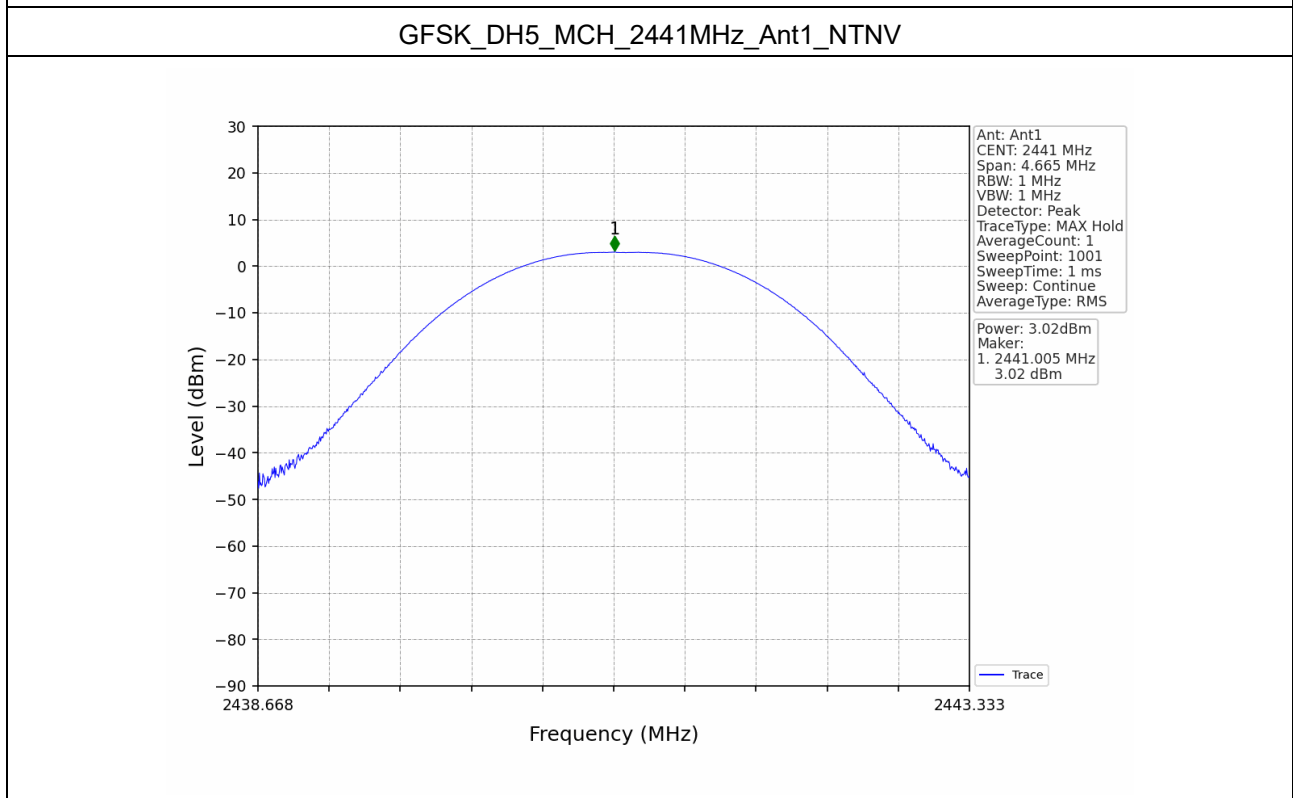
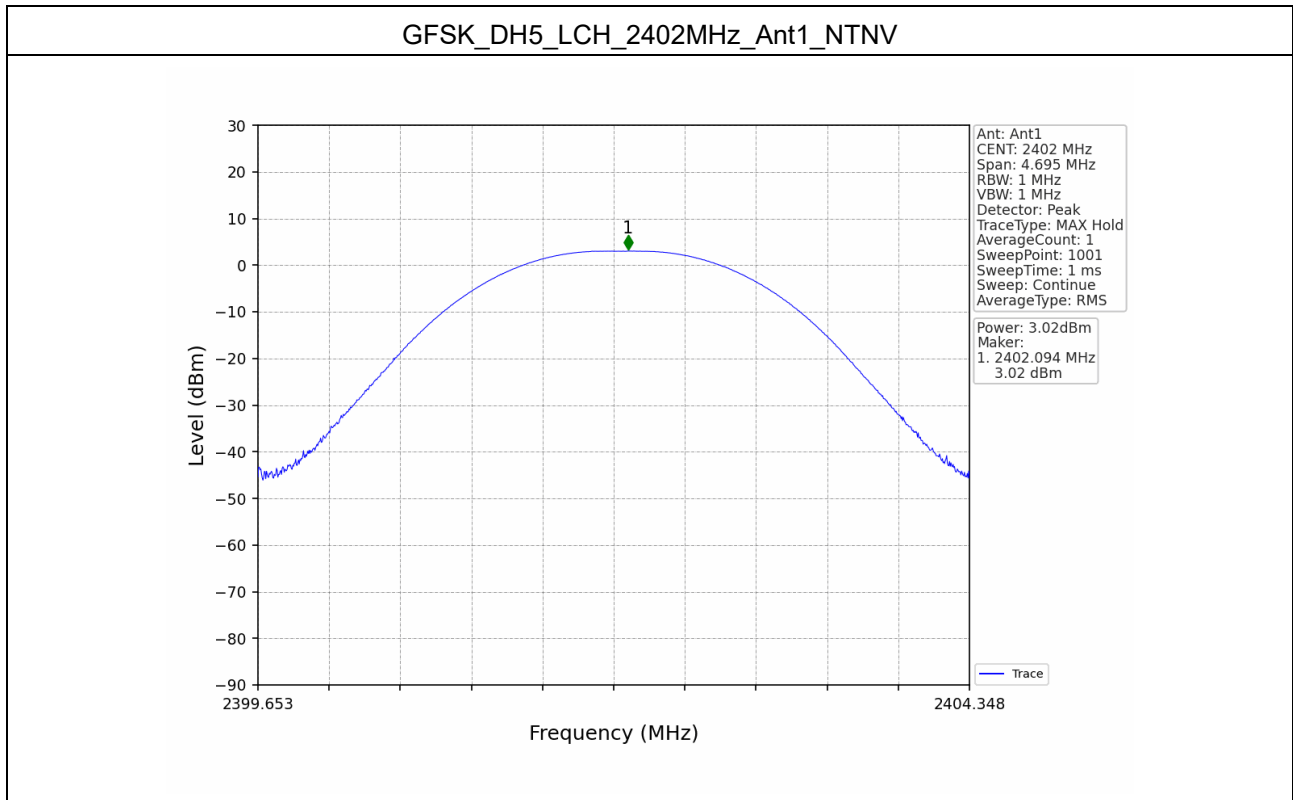
1	Maximum Conducted Peak Output Power	3
1.1	Test Result.....	3
1.2	Test Graphs	4
3	20dB Bandwidth	7
3.1	Test Result.....	7
3.2	Test Graphs	8
4	Carrier Frequency Separation	11
4.1	Test Result.....	11
4.2	Test Graphs	12
5	Hopping Channel Number.....	13
5.1	Test Result.....	13
5.2	Test Graphs	14
6	Dwell Time.....	15
6.1	Test Result.....	15
6.2	Test Graphs	16
7	Conducted Spurious Emissions and Band Edges Test	22
7.1	Test Result.....	22
7.2	Test Graphs	23
8	Band-edge for RF Conducted Emissions	33
8.1	Test Result.....	33

1 Maximum Conducted Peak Output Power

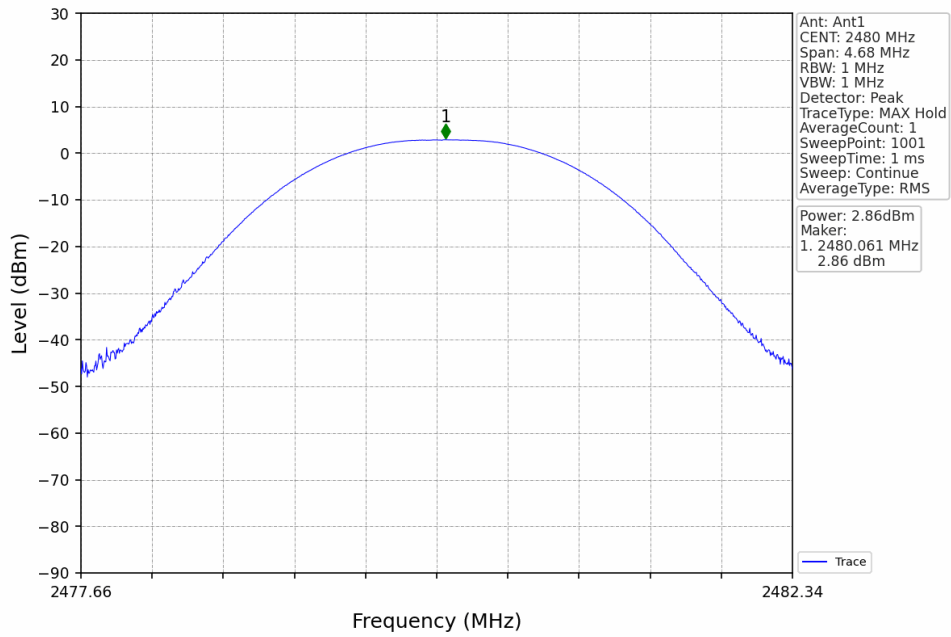
1.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.02	21	Pass
	MCH	3.02	21	Pass
	HCH	2.86	21	Pass
$\pi/4$ -DQPSK	LCH	5.22	21	Pass
	MCH	5.31	21	Pass
	HCH	4.95	21	Pass

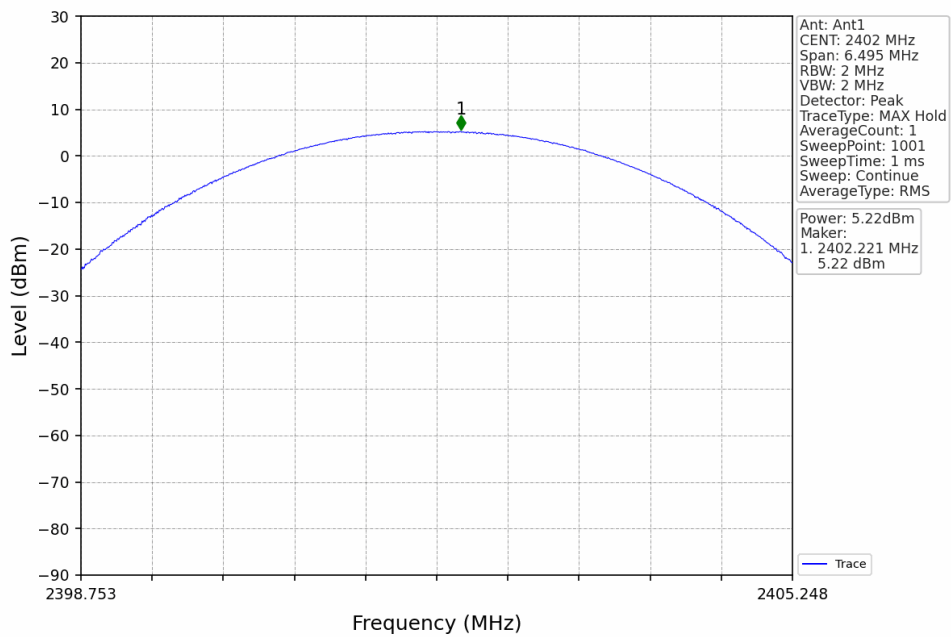
1.2 Test Graphs



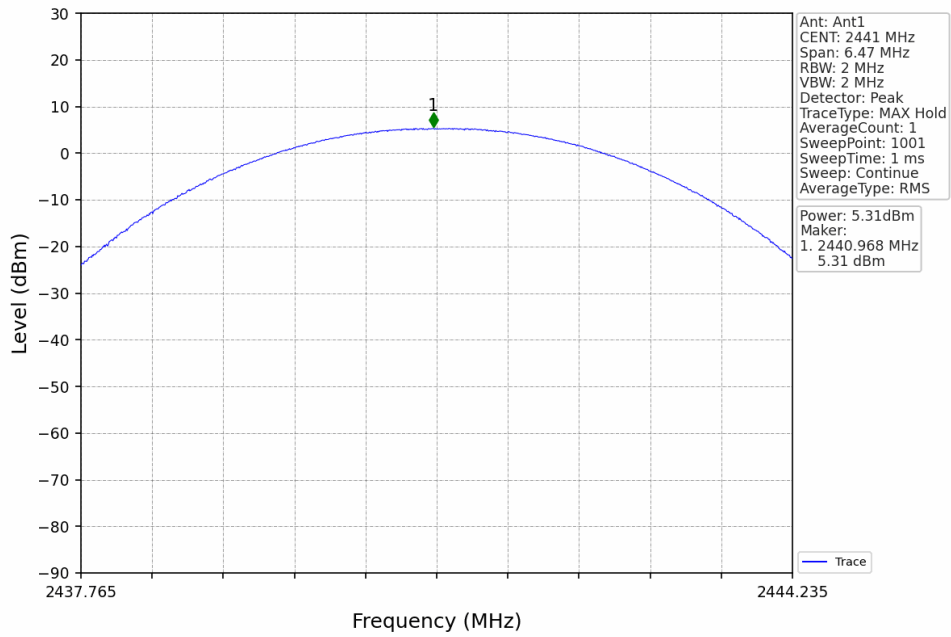
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



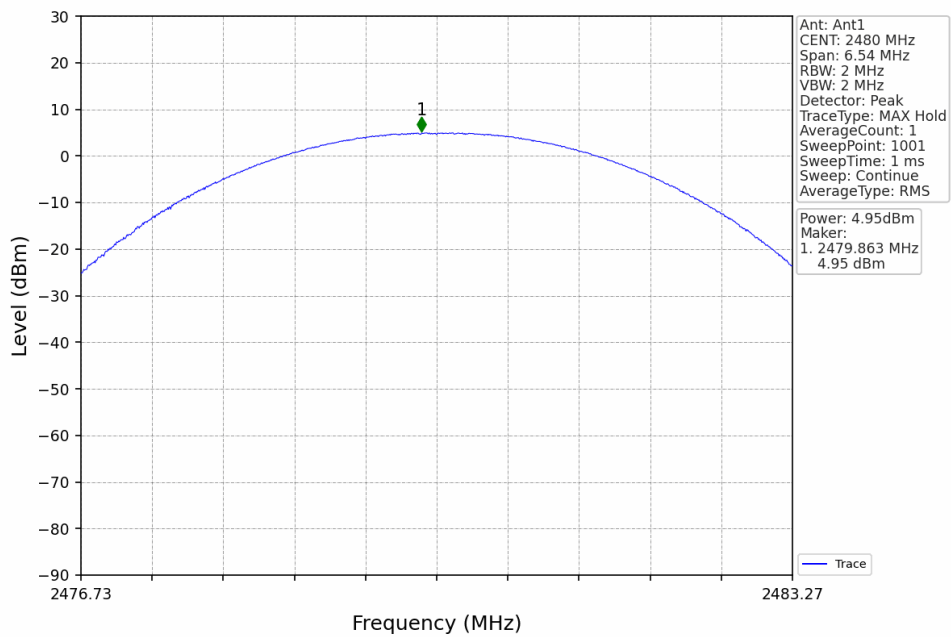
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

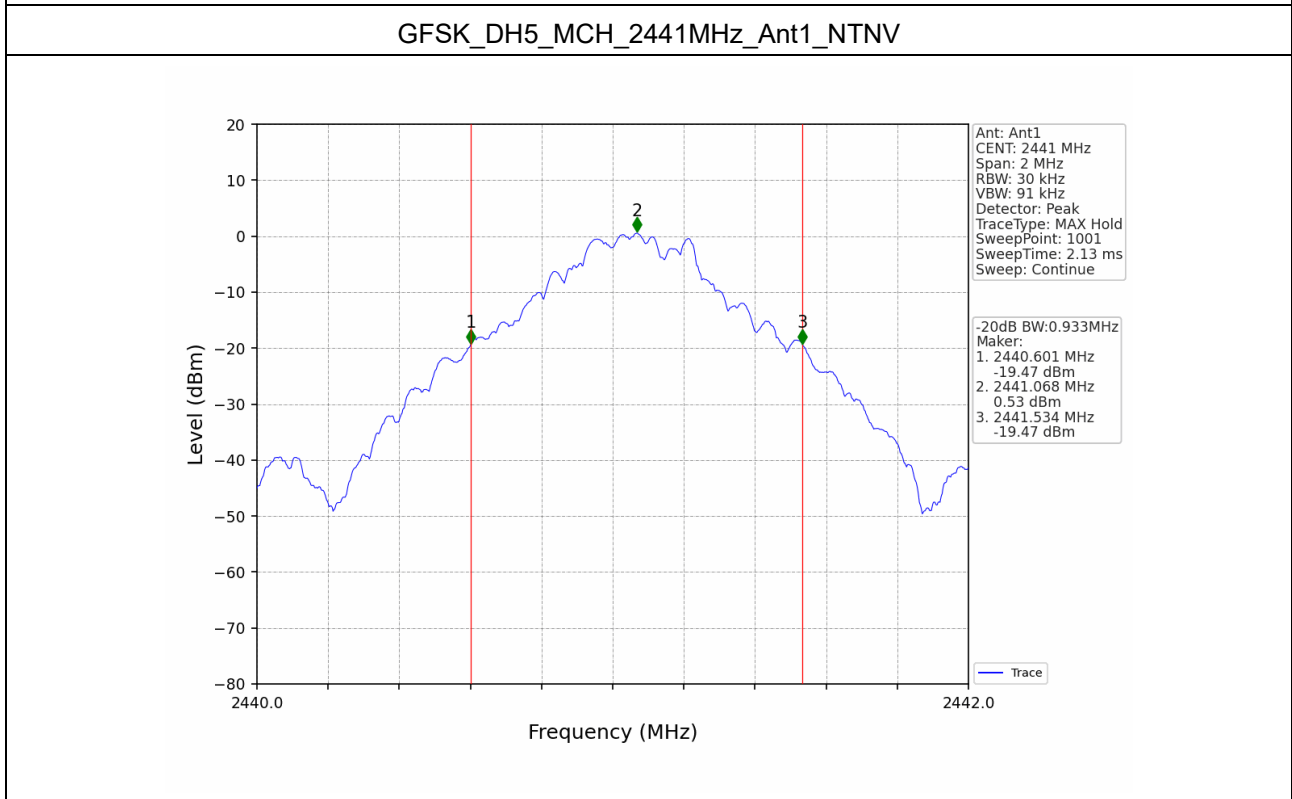
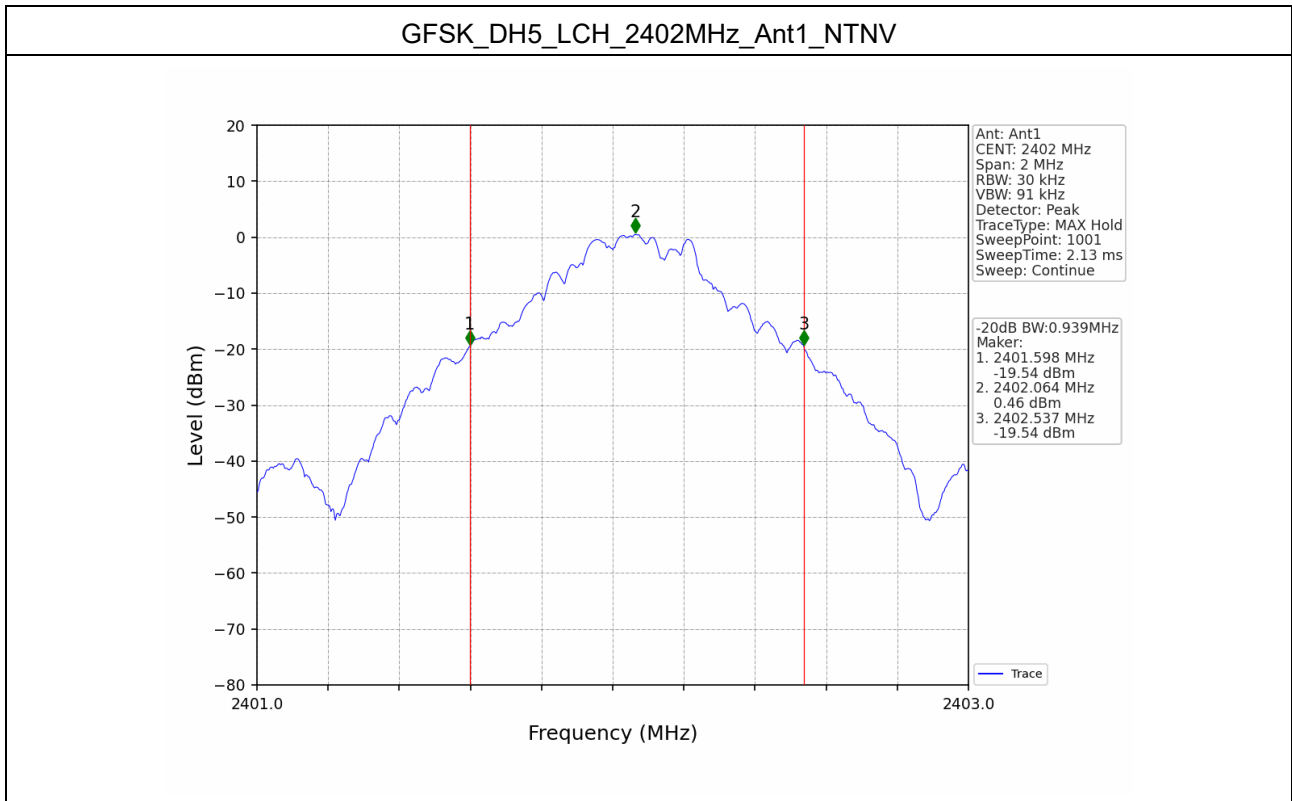


2 20dB Bandwidth

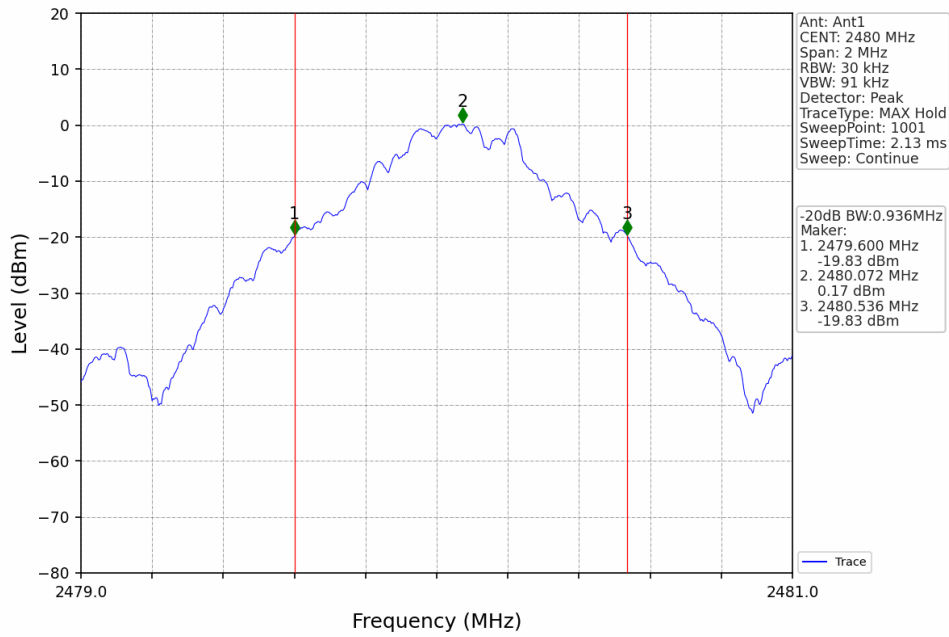
2.1 Test Result

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.939	Not Specified	Pass
	MCH	0.933	Not Specified	Pass
	HCH	0.936	Not Specified	Pass
$\pi/4$ -DQPSK	LCH	1.299	Not Specified	Pass
	MCH	1.294	Not Specified	Pass
	HCH	1.308	Not Specified	Pass

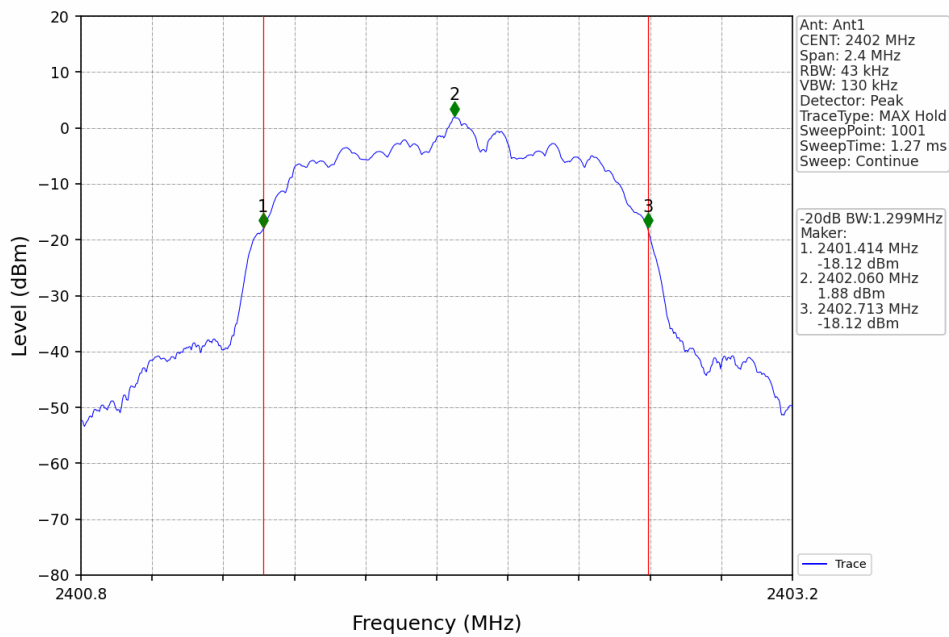
2.2 Test Graphs



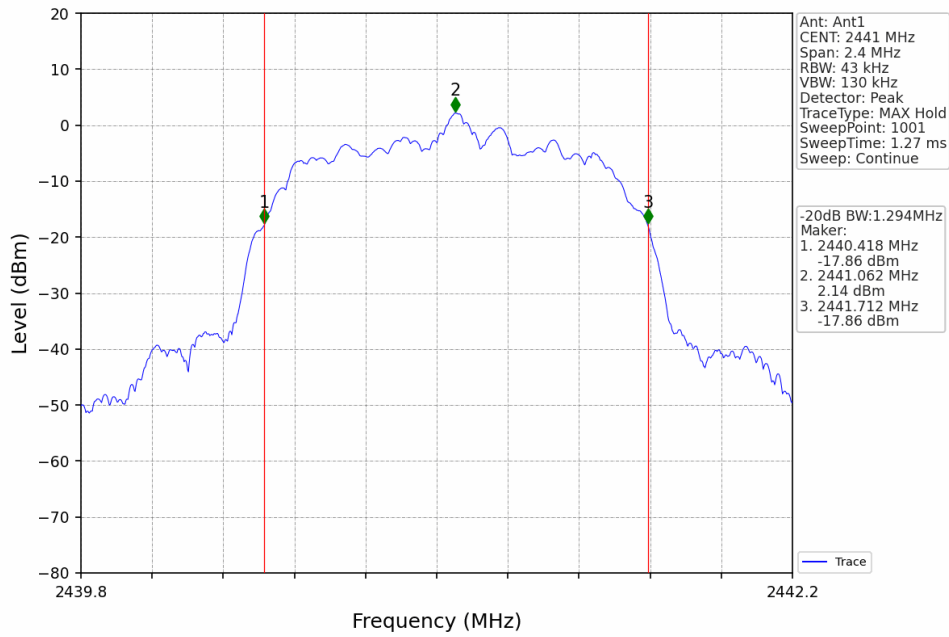
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



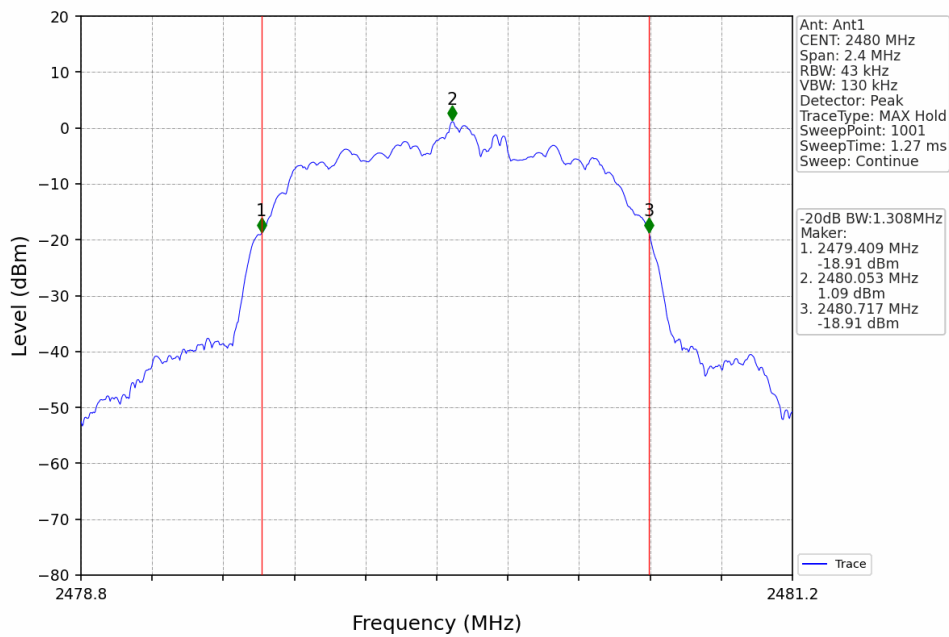
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

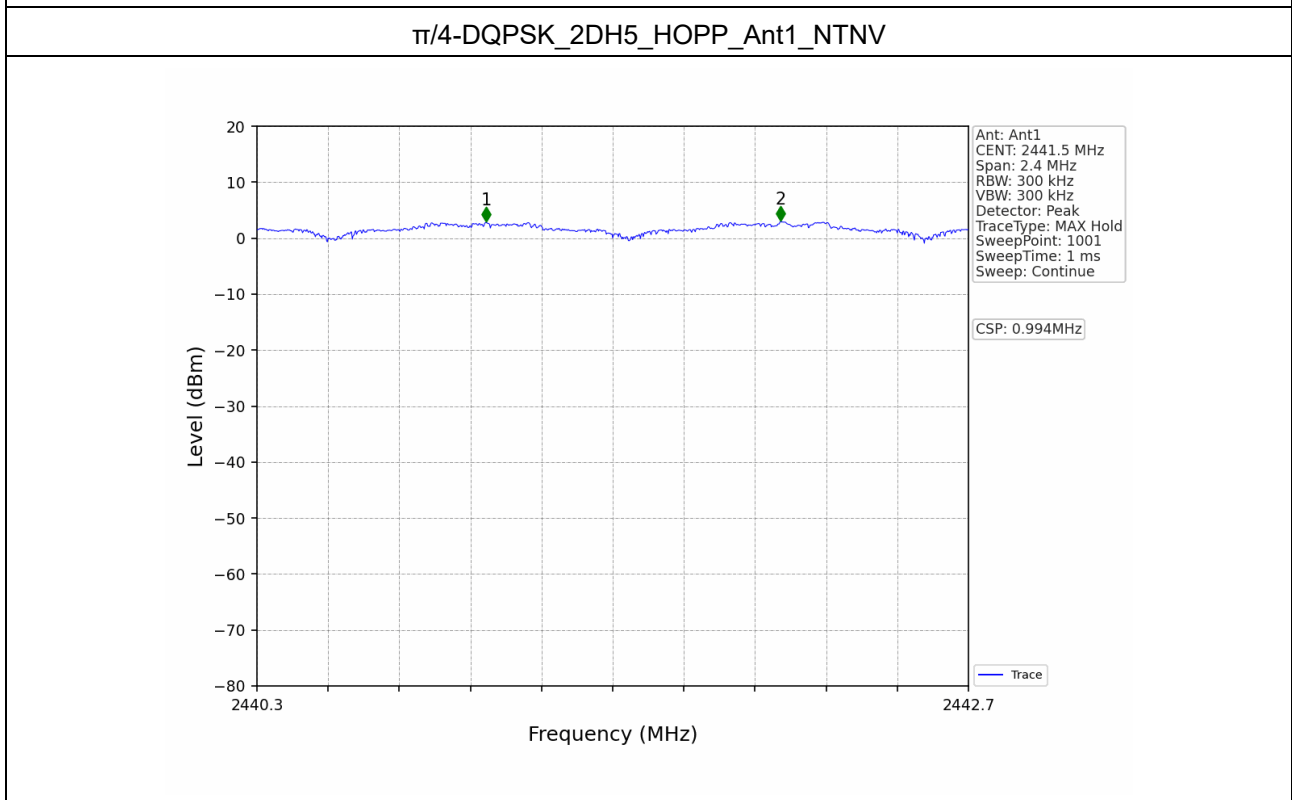
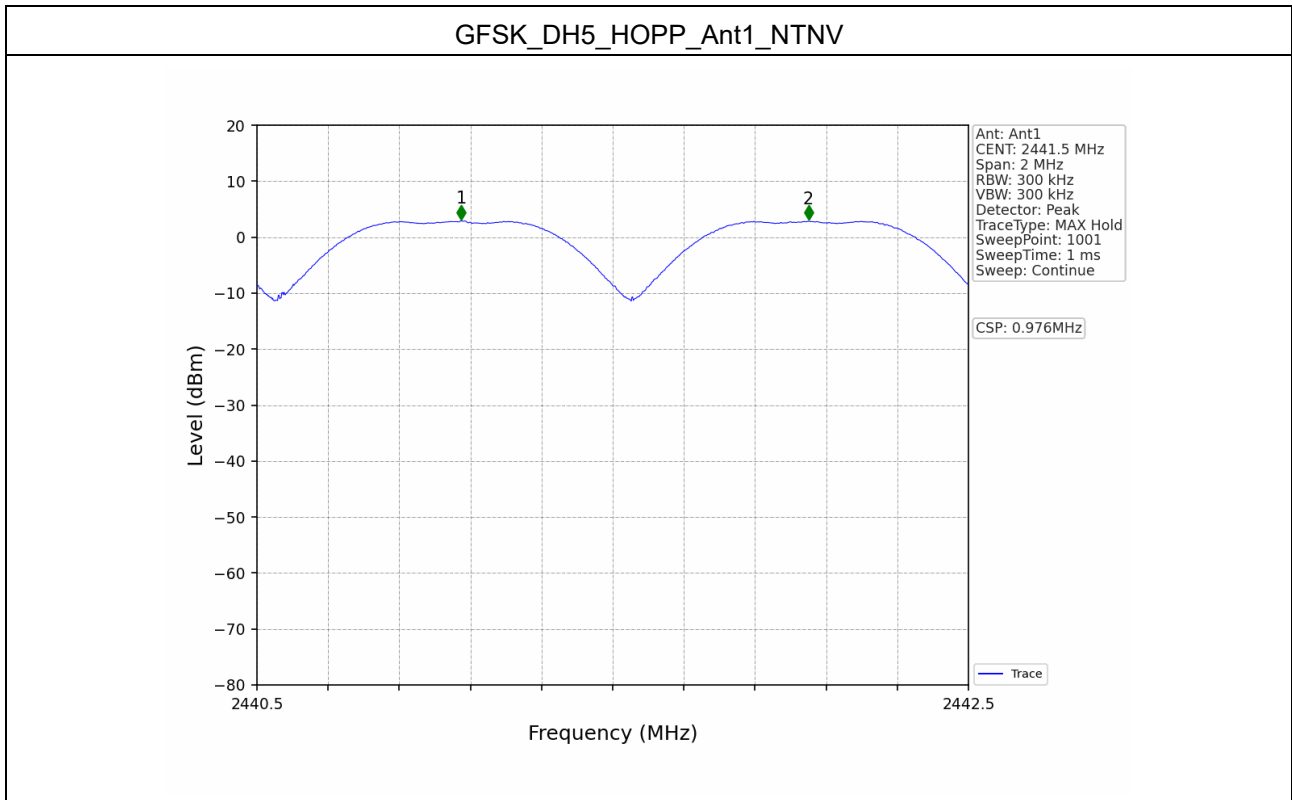


3 Carrier Frequency Separation

3.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	20dB Bandwidth (MHz)	Limit [MHz]	Verdict
GFSK	MCH	0.976	0.939	≥ 0.939	Pass
$\pi/4$ -DQPSK	MCH	0.994	1.308	≥ 0.872	Pass

3.2 Test Graphs

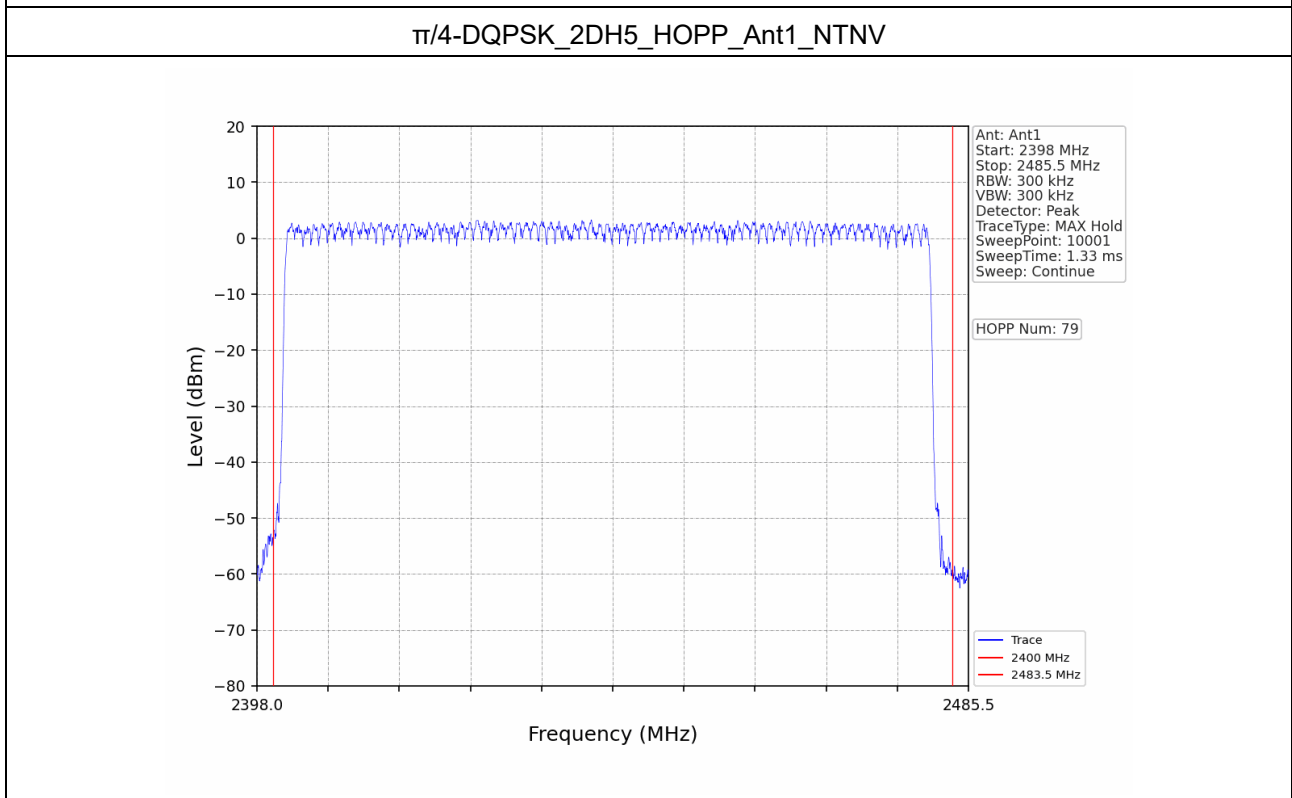
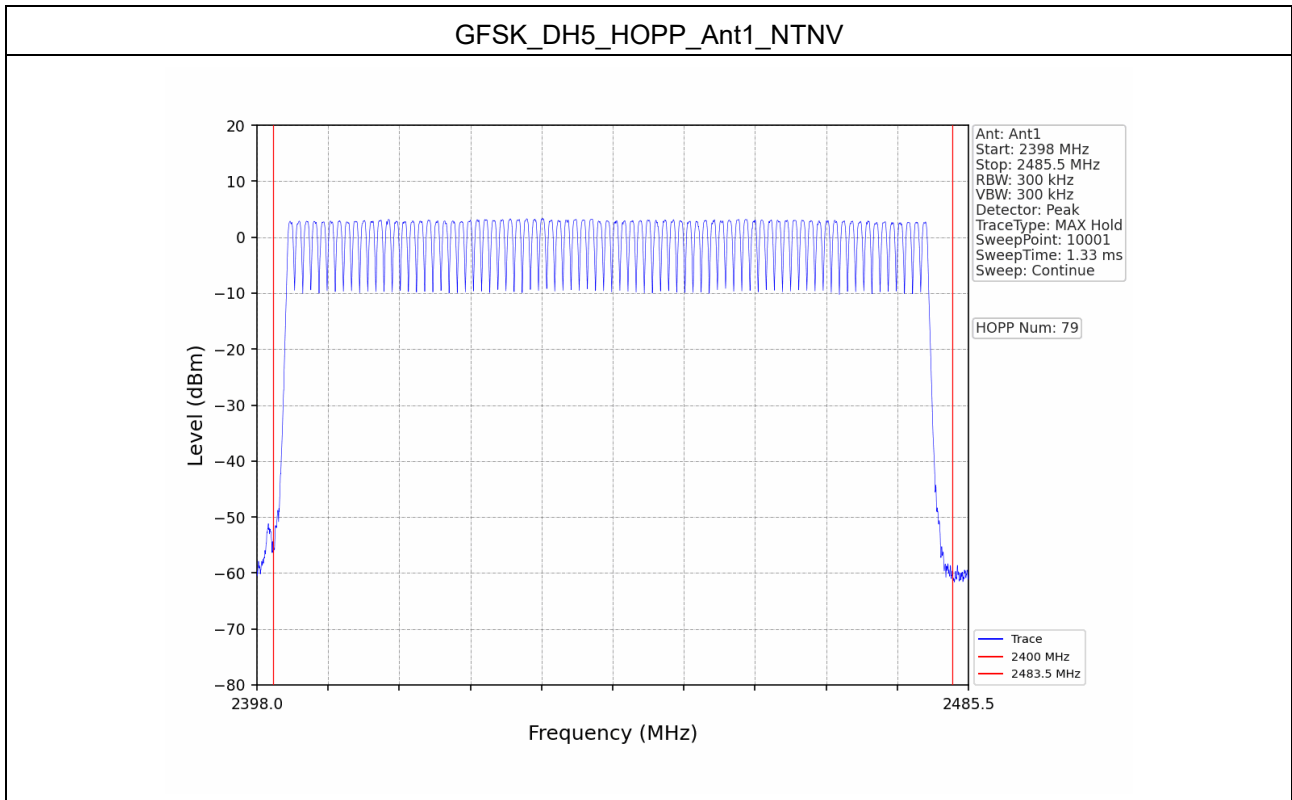


4 Hopping Channel Number

4.1 Test Result

Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ -DQPSK	Hop	79	≥ 15	PASS

4.2 Test Graphs

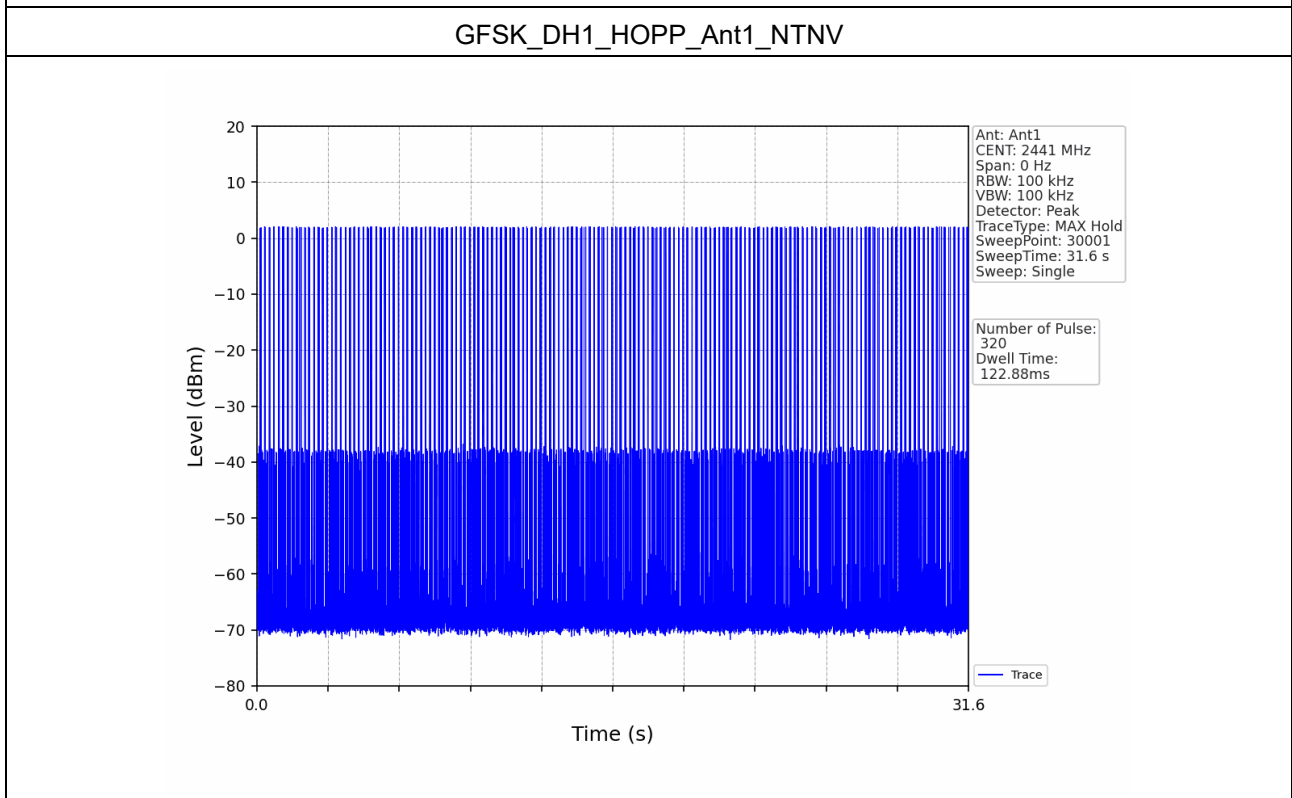
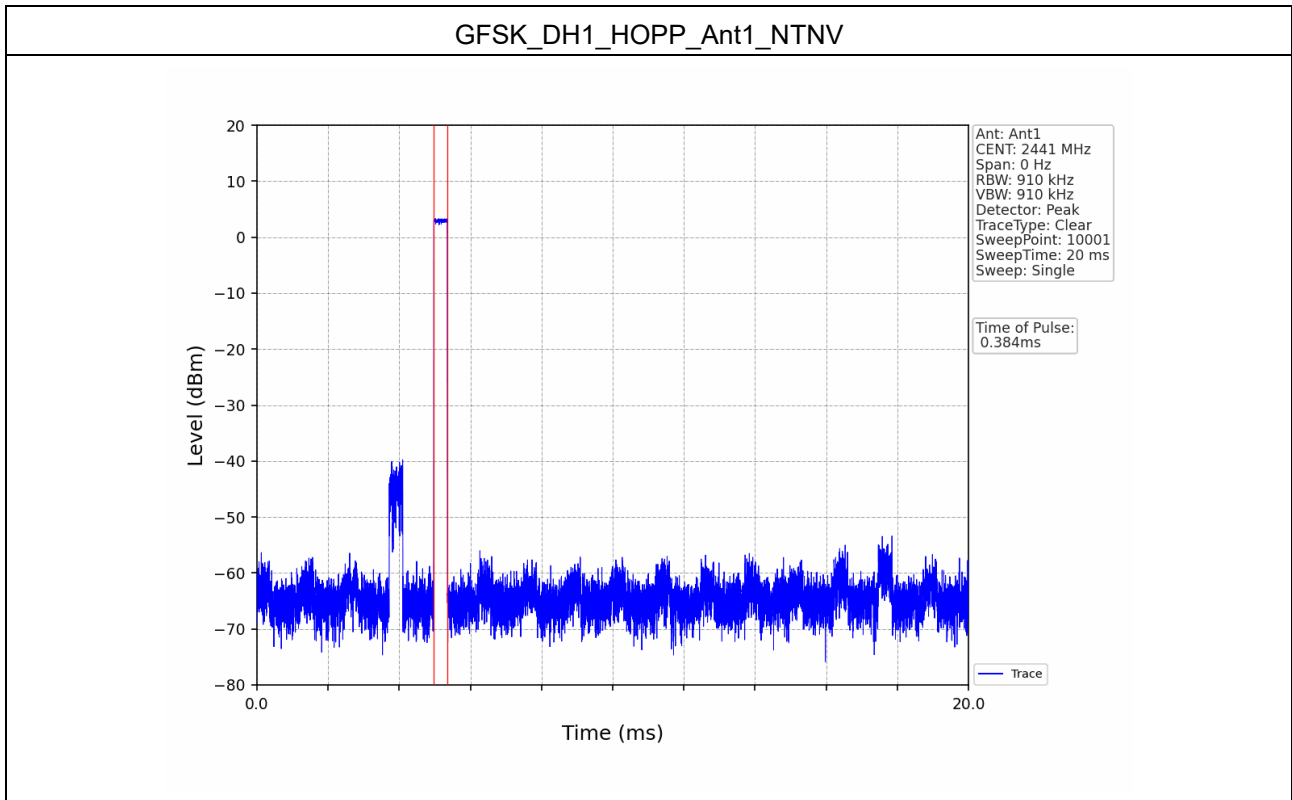


5 Dwell Time

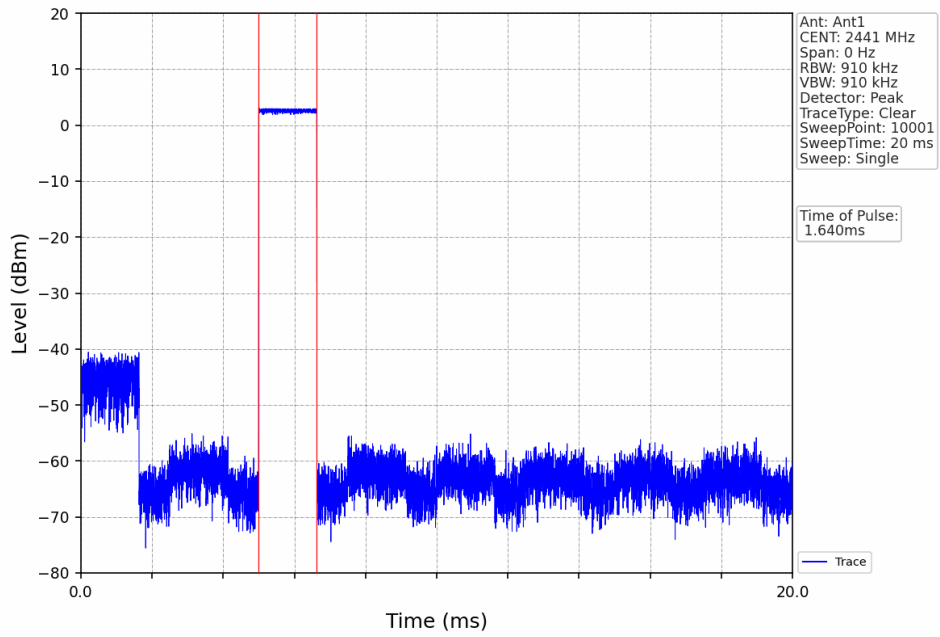
5.1 Test Result

Mode	Packet	Channel	Duration of Single Pulse (ms)	Observation Period (s)	Num of Pulse in Observation Period	Dwell Time (ms)	Limit (ms)	Verdict
GFSK	DH5	LCH	0.384	31.600	320	122.880	<=400	Pass
		MCH	1.640	31.600	152	249.280	<=400	Pass
		HCH	2.888	31.600	101	291.688	<=400	Pass
$\pi/4$ -DQPSK	2DH5	LCH	0.396	31.600	320	126.720	<=400	Pass
		MCH	1.650	31.600	155	255.750	<=400	Pass
		HCH	2.898	31.600	99	286.902	<=400	Pass

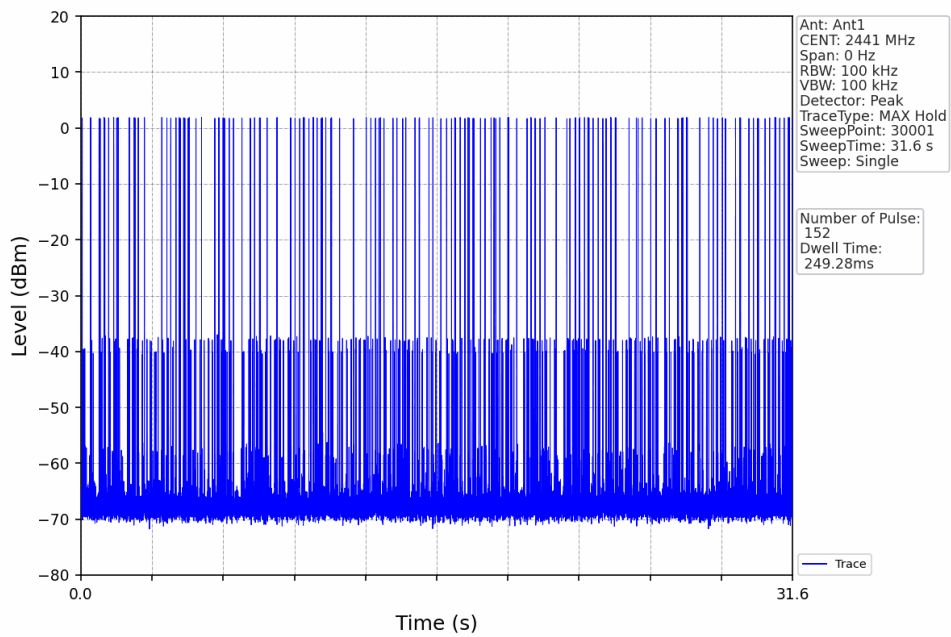
5.2 Test Graphs



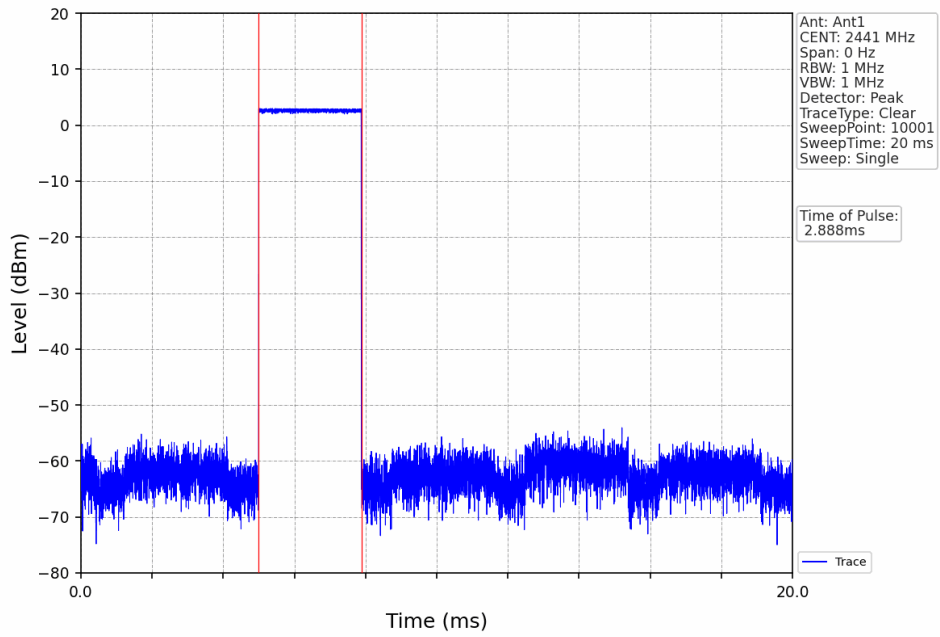
GFSK_DH3_HOPP_Ant1_NTNV



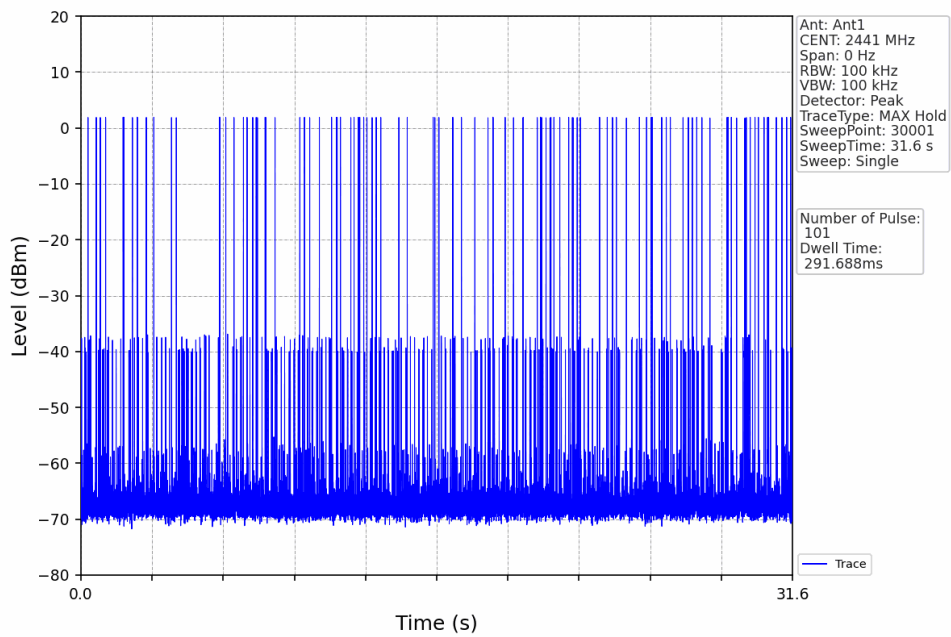
GFSK_DH3_HOPP_Ant1_NTNV



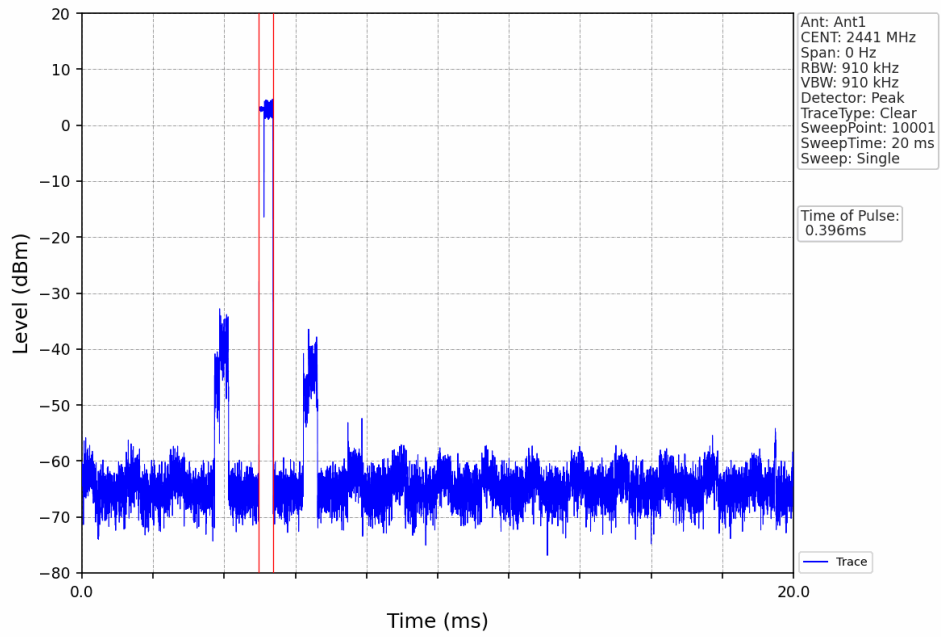
GFSK_DH5_HOPP_Ant1_NTNV



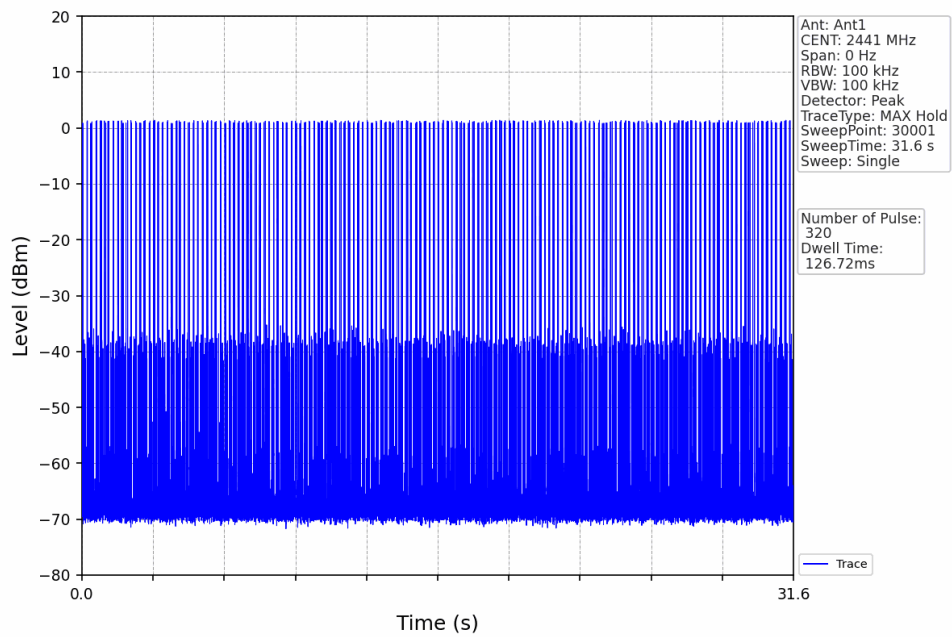
GFSK_DH5_HOPP_Ant1_NTNV



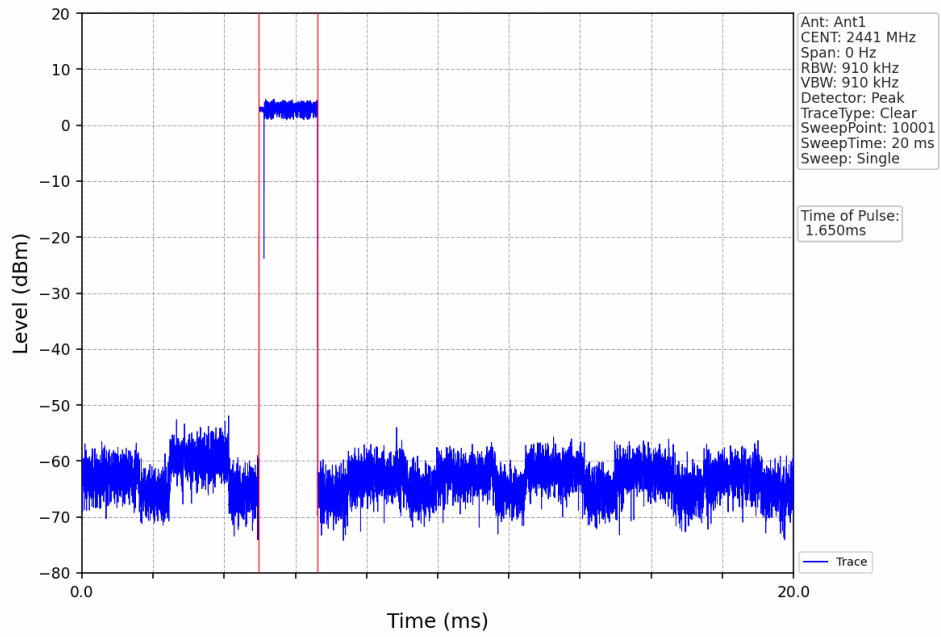
$\pi/4$ -DQPSK_2DH1_HOPP_Ant1_NTNV



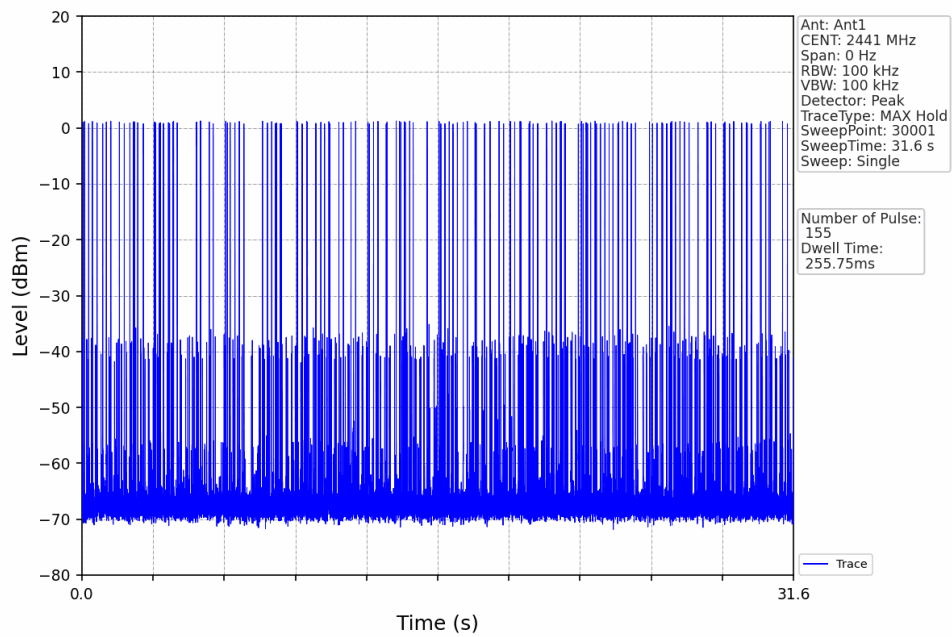
$\pi/4$ -DQPSK_2DH1_HOPP_Ant1_NTNV



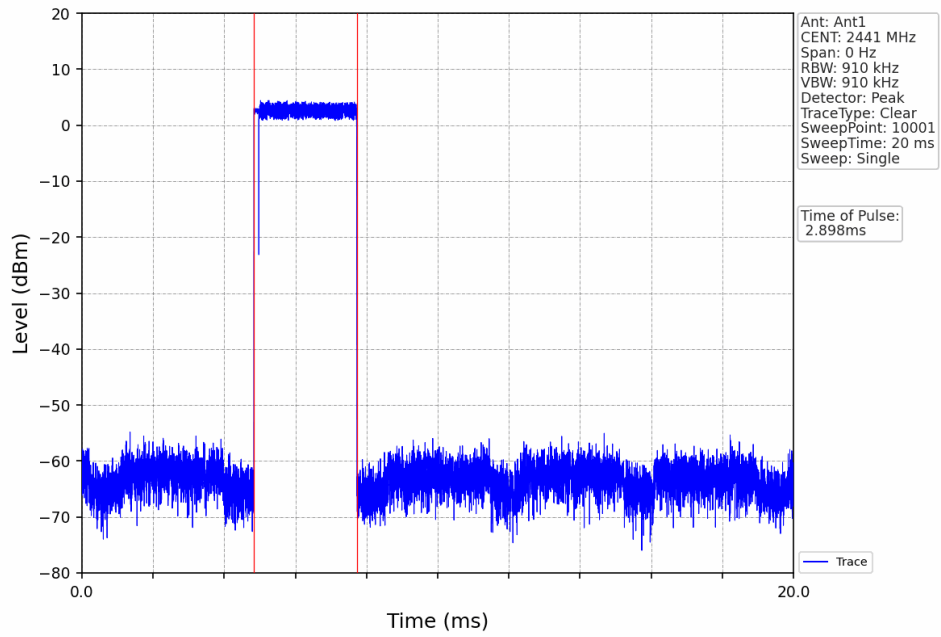
$\pi/4$ -DQPSK_2DH3_HOPP_Ant1_NTNV



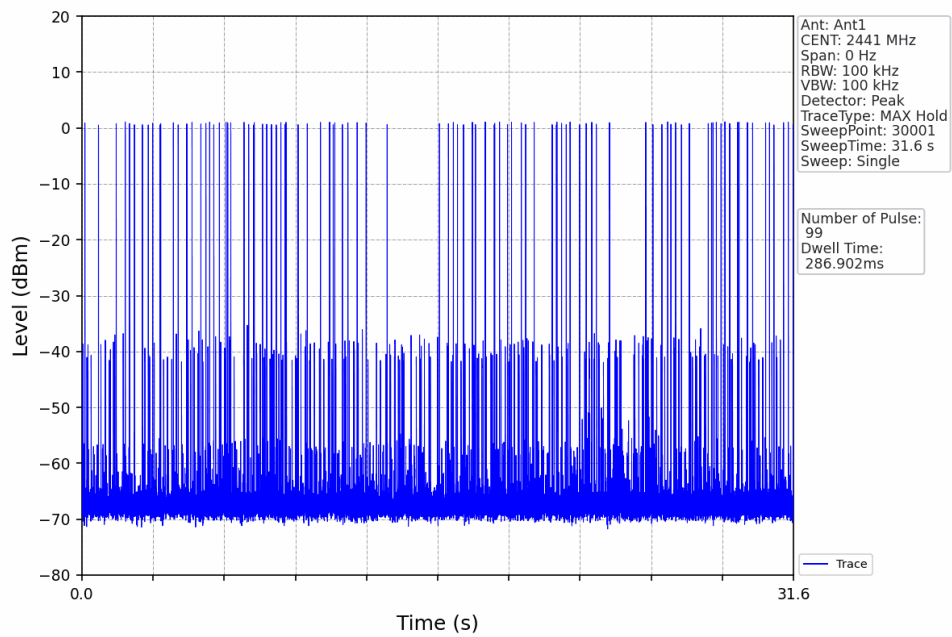
$\pi/4$ -DQPSK_2DH3_HOPP_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_HOPP_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_HOPP_Ant1_NTNV



6 Conducted Spurious Emissions and Band Edges Test

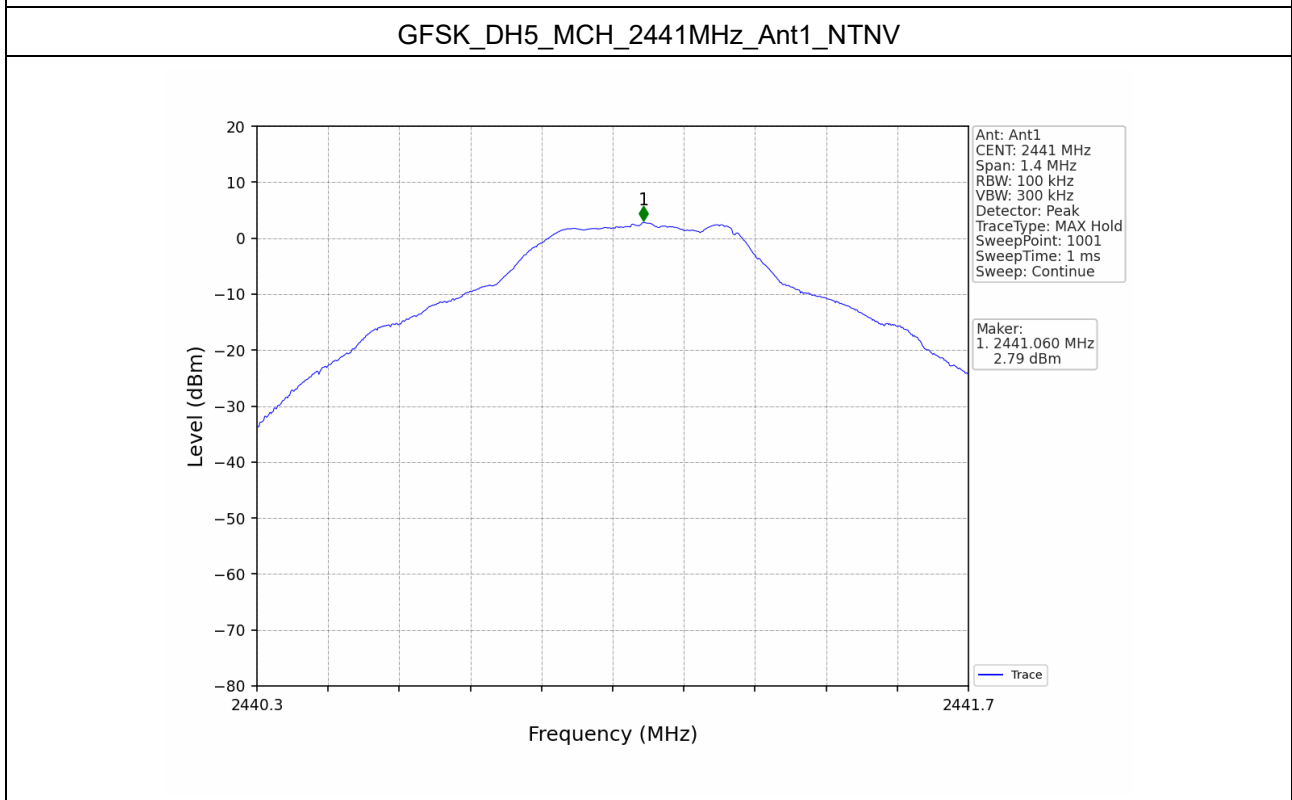
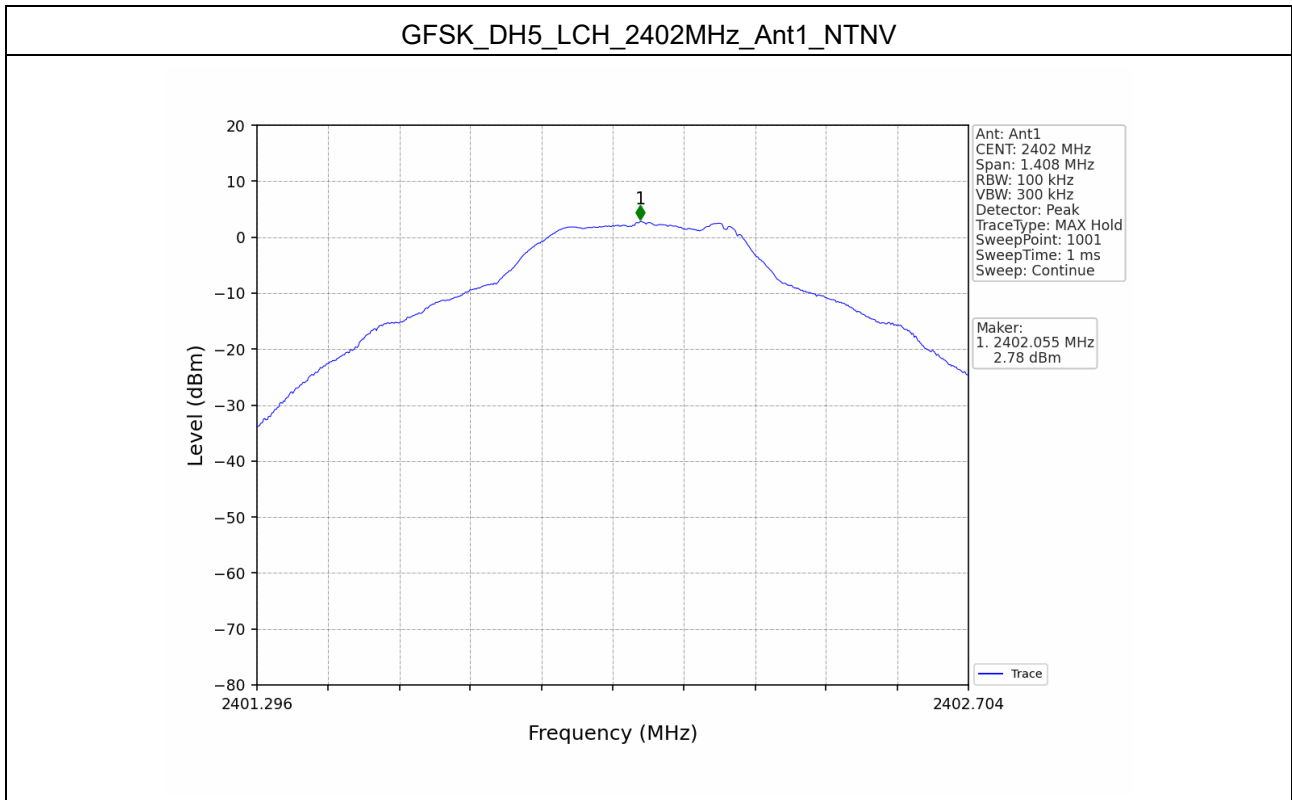
6.1 Test Result

Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2.78	-20	Pass
	MCH	2.79	-20	Pass
	HCH	2.64	-20	Pass
$\pi/4$ -DQPSK	LCH	2.71	-20	Pass
	MCH	2.73	-20	Pass
	HCH	2.57	-20	Pass

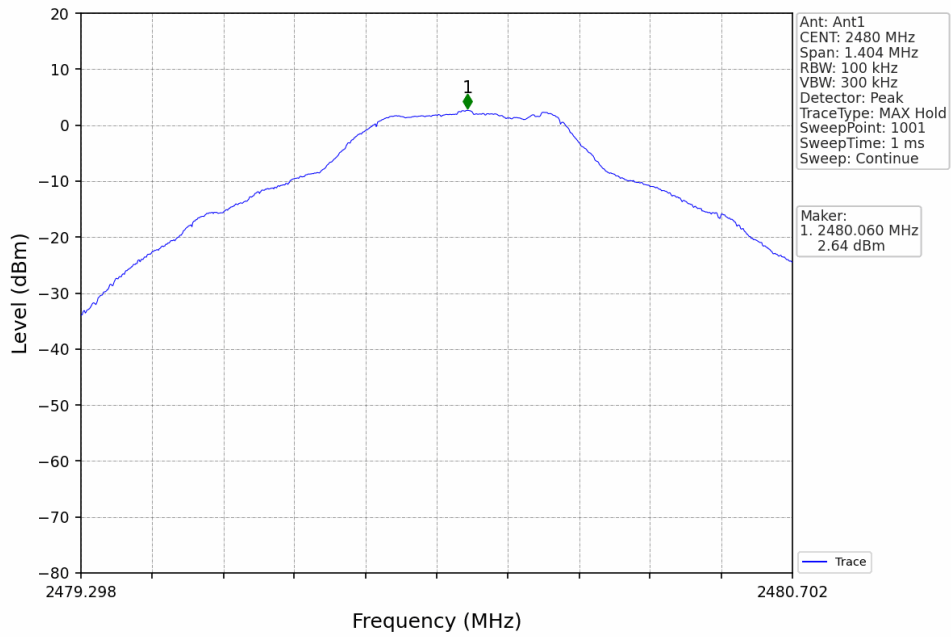
Mode	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
GFSK	2402	DH5	1	2.79	-17.21	Pass
	2441	DH5	1	2.79	-17.21	Pass
	2480	DH5	1	2.79	-17.21	Pass
	HOPP	DH5	1	2.79	-17.21	Pass
$\pi/4$ -DQPSK	2402	2DH5	1	2.73	-17.27	Pass
	2441	2DH5	1	2.73	-17.27	Pass
	2480	2DH5	1	2.73	-17.27	Pass
	HOPP	2DH5	1	2.73	-17.27	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.

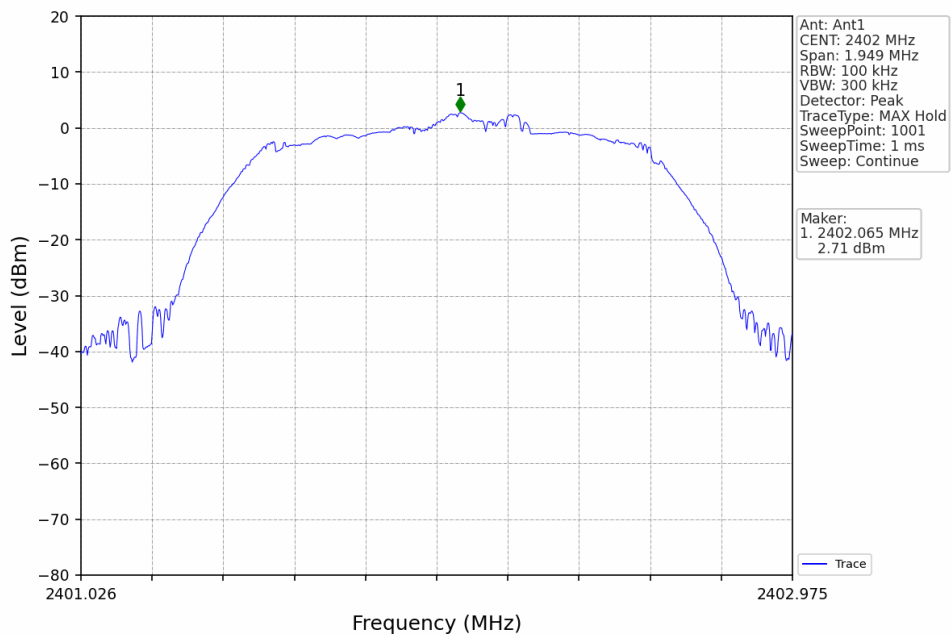
6.2 Test Graphs



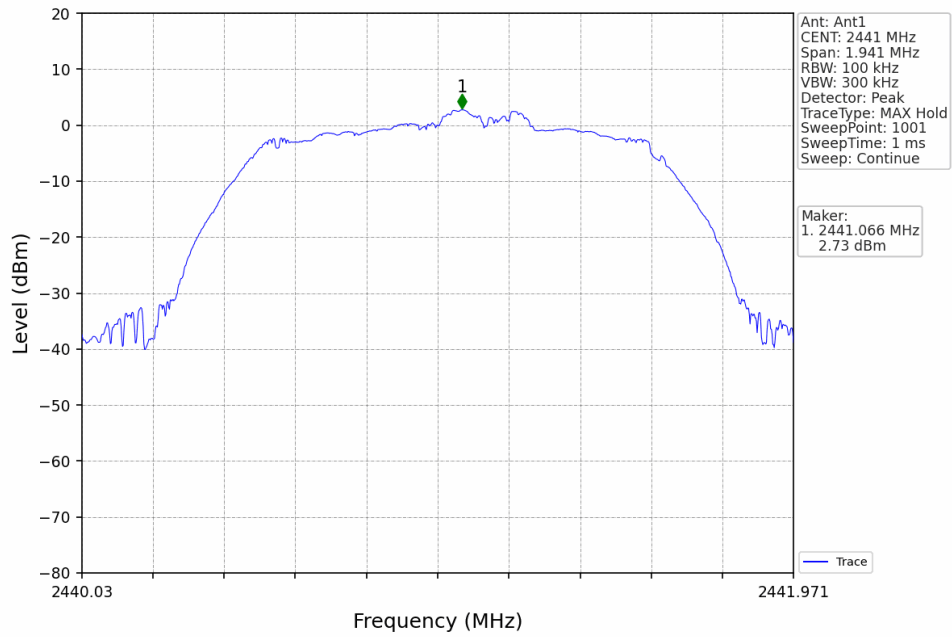
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



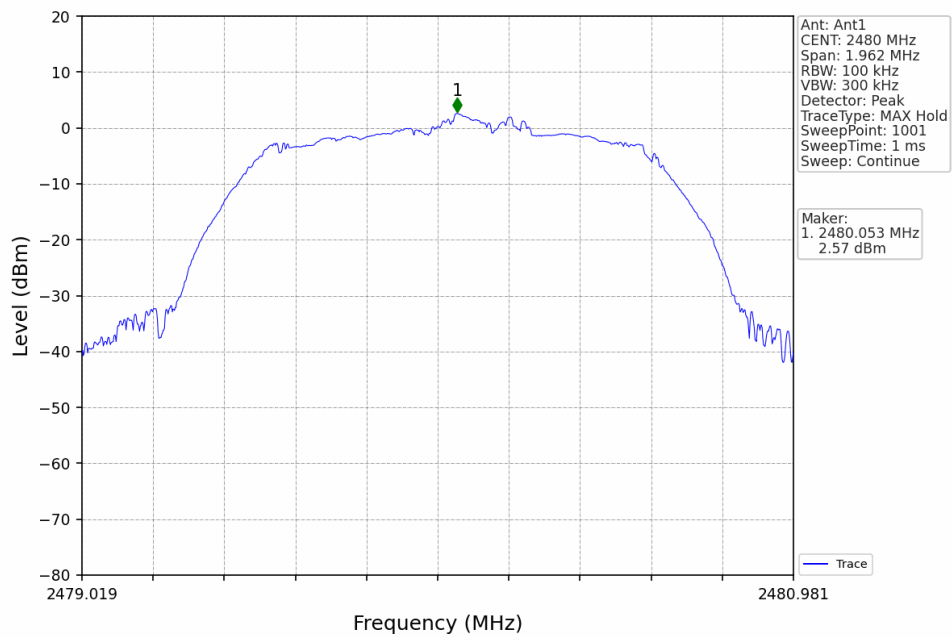
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV

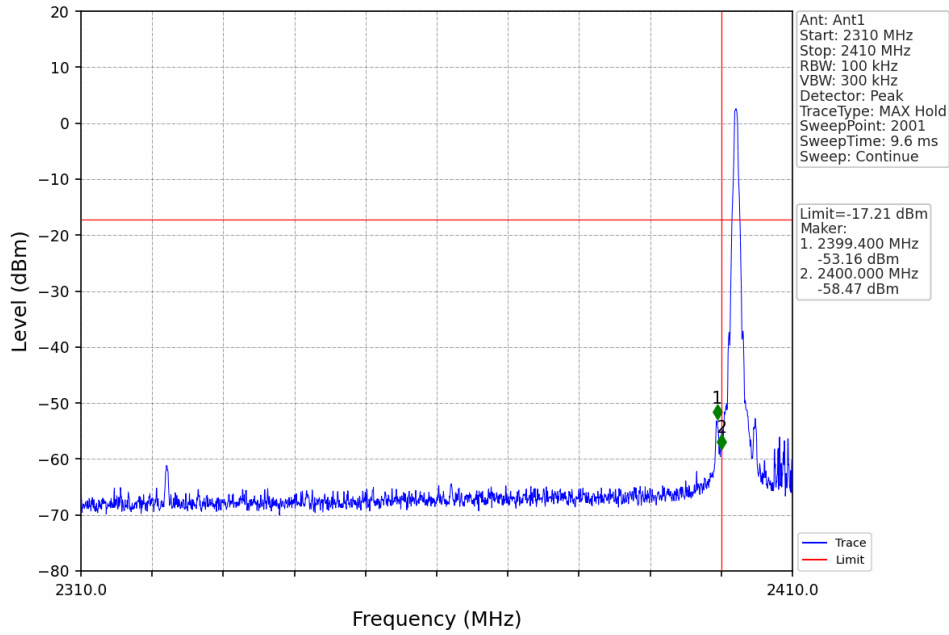


$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV

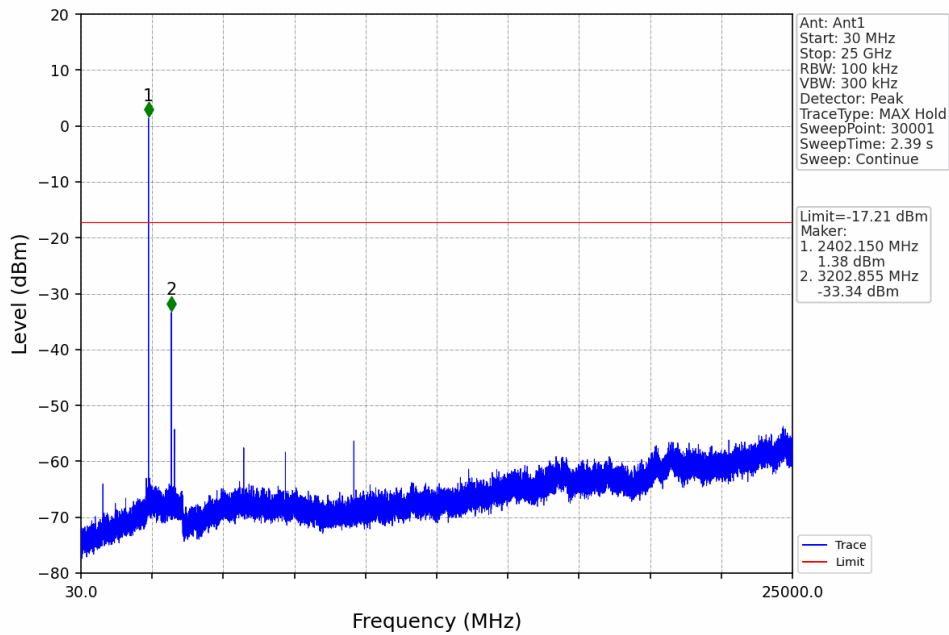


CSE

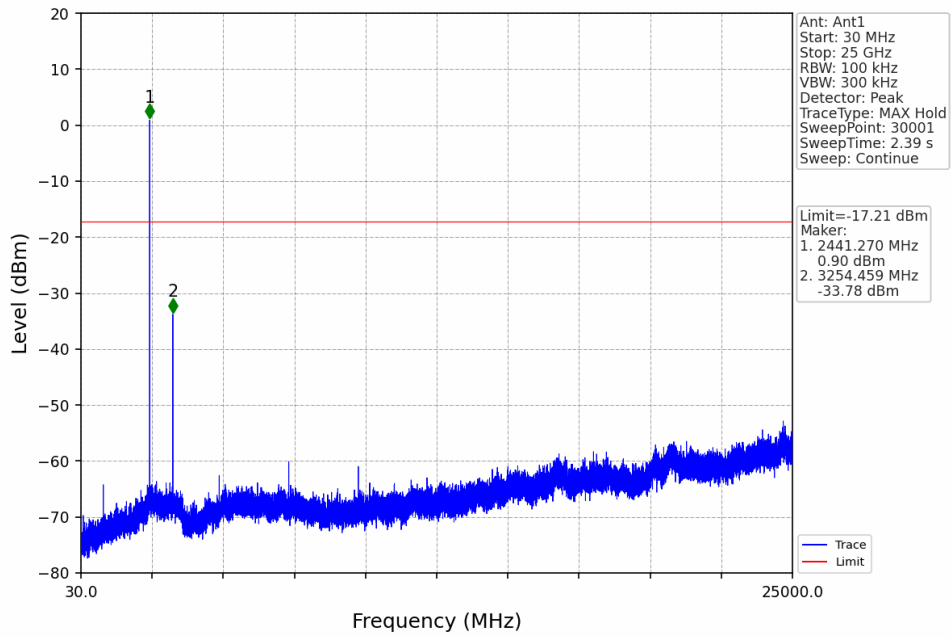
GFSK_DH5_LCH_2402MHz_Ant1_NTNV



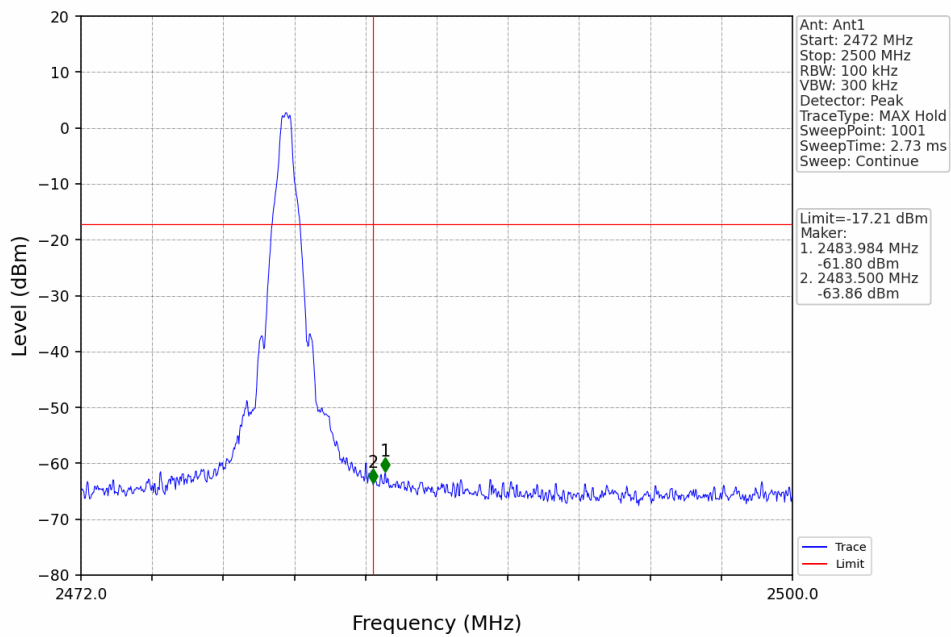
GFSK_DH5_LCH_2402MHz_Ant1_NTNV



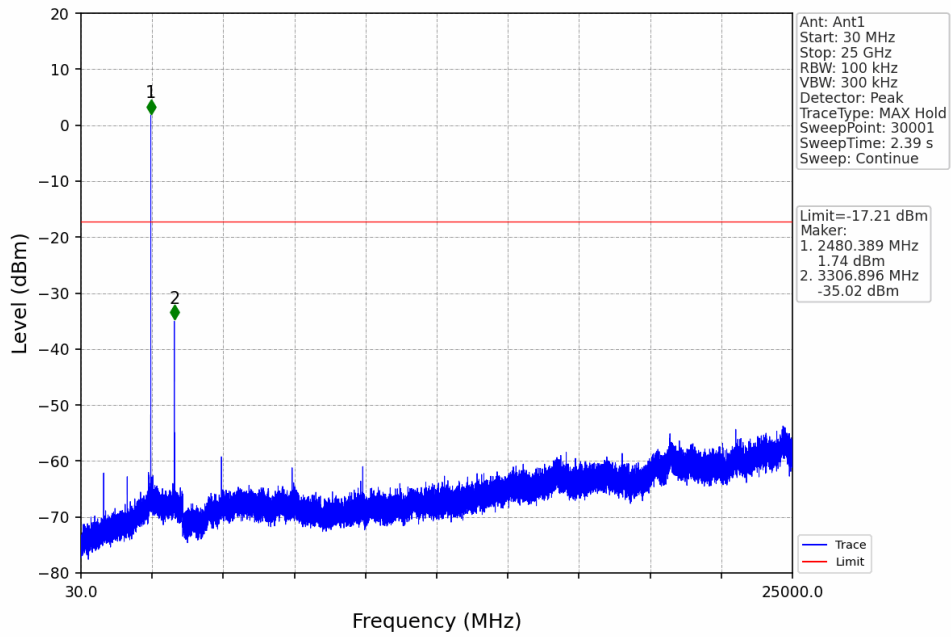
GFSK_DH5_MCH_2441MHz_Ant1_NTNV



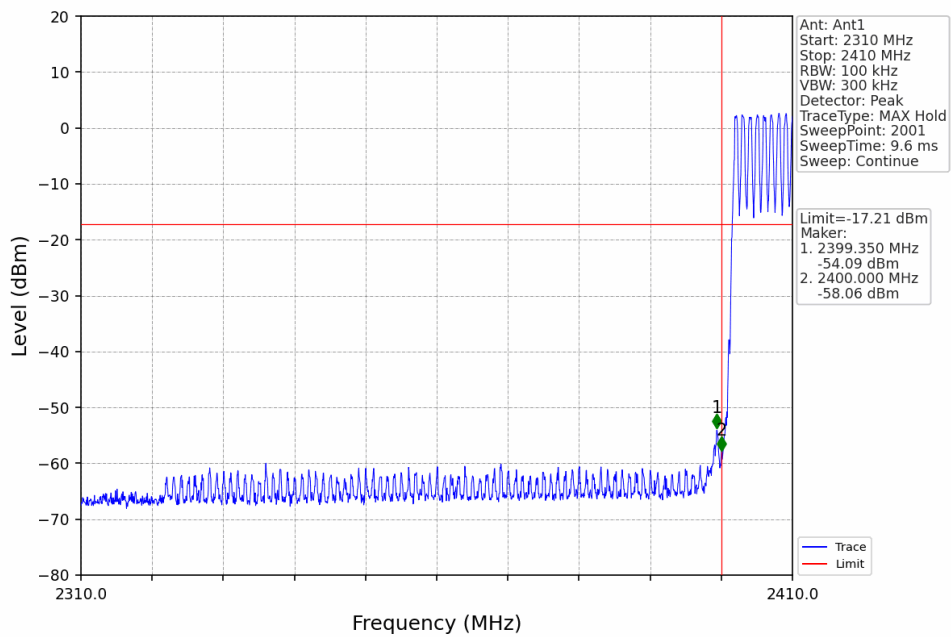
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



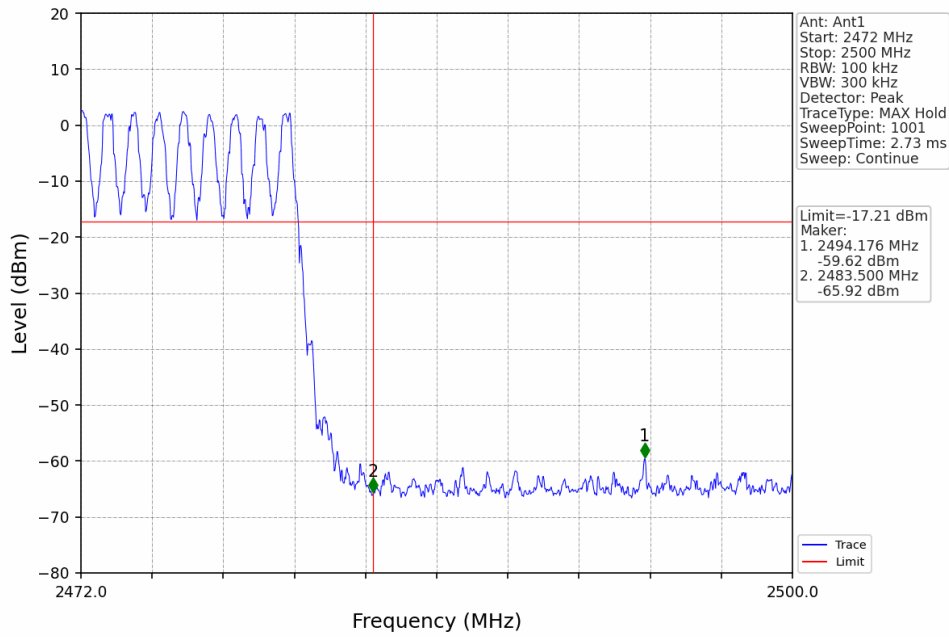
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



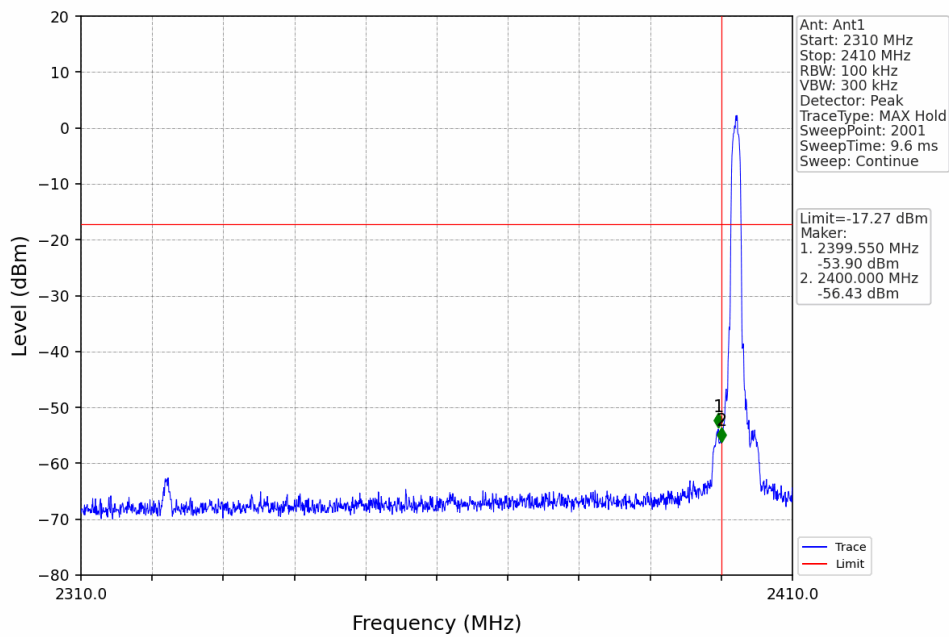
GFSK_DH5_HOPP_Ant1_NTNV



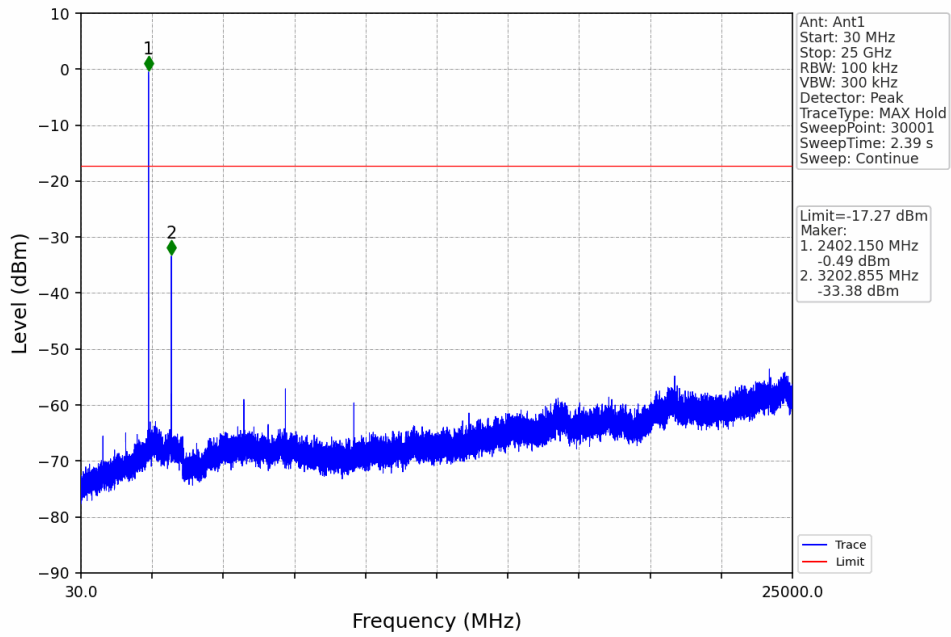
GFSK_DH5_HOPP_Ant1_NTNV



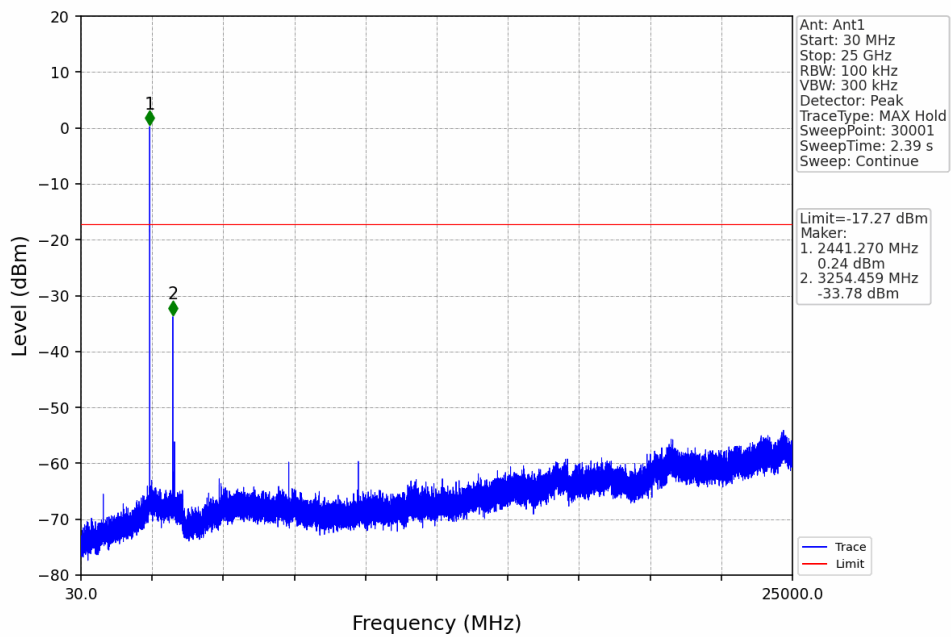
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



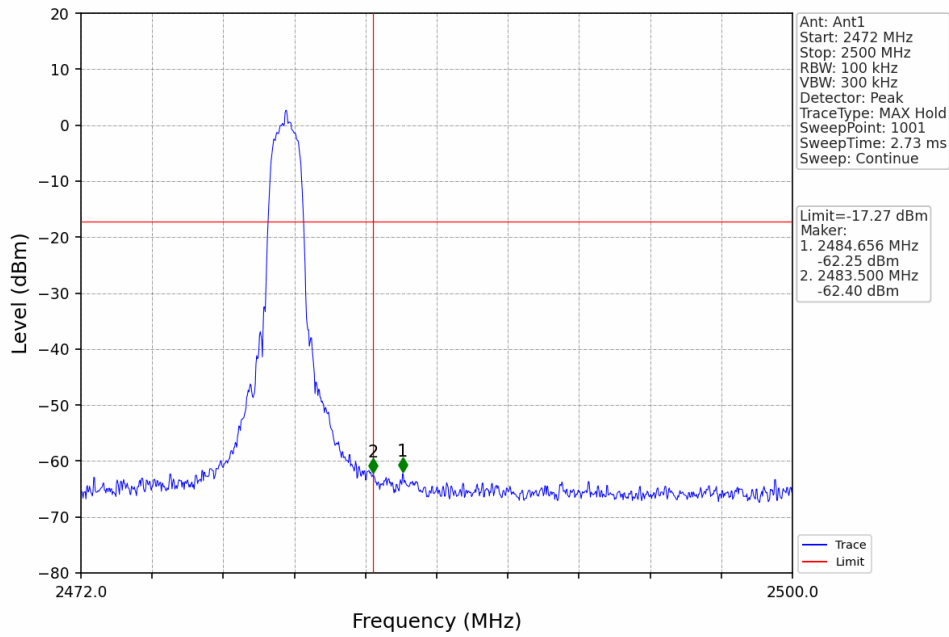
$\pi/4$ -DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



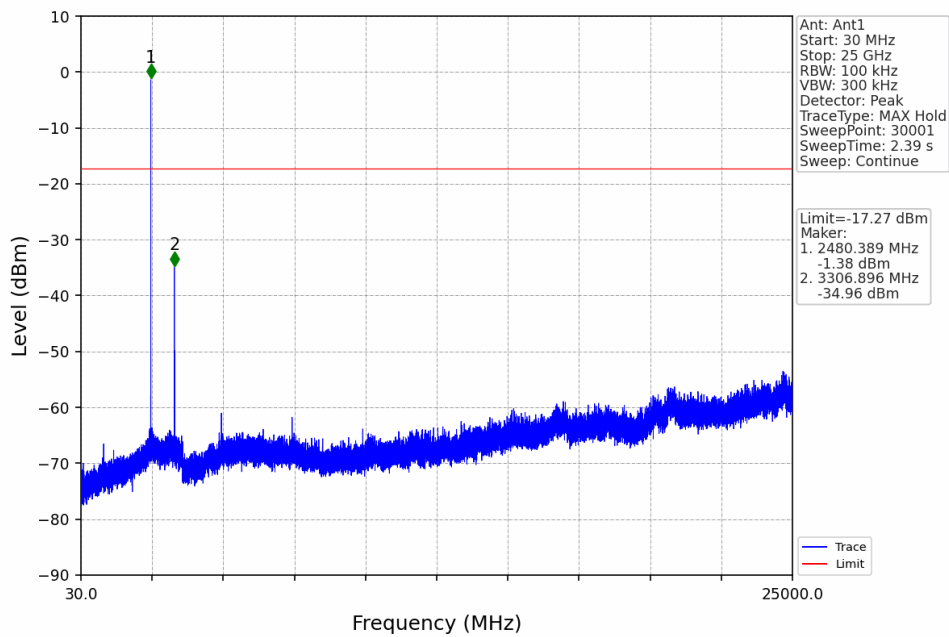
$\pi/4$ -DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



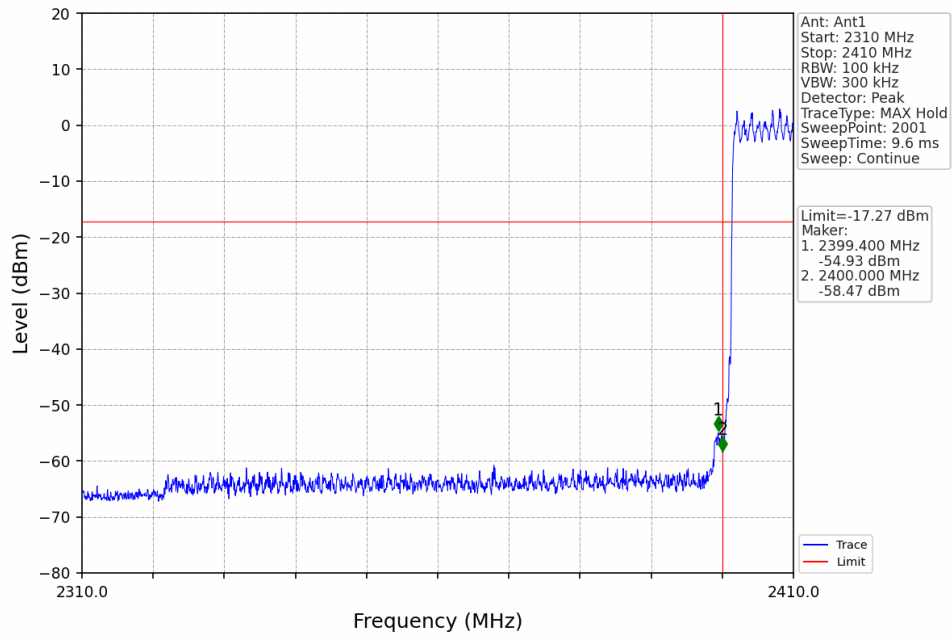
$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



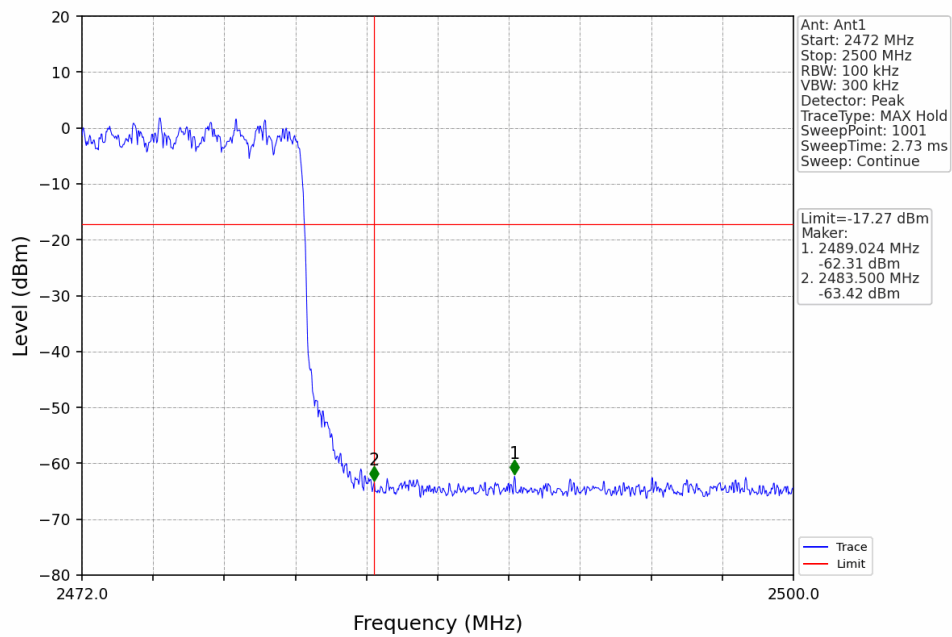
$\pi/4$ -DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_HOPP_Ant1_NTNV



$\pi/4$ -DQPSK_2DH5_HOPP_Ant1_NTNV



7 Band-edge for RF Conducted Emissions

7.1 Test Result

Test Mode: GFKS										
Pol.	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detect or Type	Result
Low Channel: 2402MHz										
H	2390.00	47.28	29.15	3.41	34.01	45.83	74.00	-28.17	PK	PASS
H	2400.00	64.70	29.16	3.43	34.01	63.28	74.00	-10.72	PK	PASS
V	2390.00	48.25	29.15	3.41	34.01	46.80	74.00	-27.20	PK	PASS
V	2400.00	67.21	29.16	3.43	34.01	65.79	74.00	-8.21	PK	PASS
H	2390.00	36.84	29.15	3.41	34.01	35.39	54.00	-18.61	AV	PASS
H	2400.00	48.34	29.16	3.43	34.01	46.92	54.00	-7.08	AV	PASS
V	2390.00	37.10	29.15	3.41	34.01	35.65	54.00	-18.35	AV	PASS
V	2400.00	50.40	29.16	3.43	34.01	48.98	54.00	-5.02	AV	PASS
High Channel: 2480MHz										
H	2483.50	49.91	29.28	3.53	34.03	48.69	74.00	-25.31	PK	PASS
H	2500.00	48.24	29.30	3.56	34.03	47.07	74.00	-26.93	PK	PASS
V	2483.50	51.49	29.28	3.53	34.03	50.27	74.00	-23.73	PK	PASS
V	2500.00	49.66	29.30	3.56	34.03	48.49	74.00	-25.51	PK	PASS
H	2483.50	39.72	29.28	3.53	34.03	38.50	54.00	-15.50	AV	PASS
H	2500.00	37.09	29.30	3.56	34.03	35.92	54.00	-18.08	AV	PASS
V	2483.50	41.30	29.28	3.53	34.03	40.08	54.00	-13.92	AV	PASS
V	2500.00	37.38	29.30	3.56	34.03	36.21	54.00	-17.79	AV	PASS



Test Mode: $\pi/4$ -DQPSK										
Pol.	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detect or Type	Result
Low Channel: 2402MHz										
H	2390.00	47.42	29.15	3.41	34.01	45.97	74.00	-28.03	PK	PASS
H	2400.00	64.85	29.16	3.43	34.01	63.43	74.00	-10.57	PK	PASS
V	2390.00	48.40	29.15	3.41	34.01	46.95	74.00	-27.05	PK	PASS
V	2400.00	67.38	29.16	3.43	34.01	65.96	74.00	-8.04	PK	PASS
H	2390.00	36.94	29.15	3.41	34.01	35.49	54.00	-18.51	AV	PASS
H	2400.00	48.45	29.16	3.43	34.01	47.03	54.00	-6.97	AV	PASS
V	2390.00	37.21	29.15	3.41	34.01	35.76	54.00	-18.24	AV	PASS
V	2400.00	50.53	29.16	3.43	34.01	49.11	54.00	-4.89	AV	PASS
High Channel: 2480MHz										
H	2483.50	50.06	29.28	3.53	34.03	48.84	74.00	-25.16	PK	PASS
H	2500.00	48.37	29.30	3.56	34.03	47.20	74.00	-26.80	PK	PASS
V	2483.50	51.66	29.28	3.53	34.03	50.44	74.00	-23.56	PK	PASS
V	2500.00	49.80	29.30	3.56	34.03	48.63	74.00	-25.37	PK	PASS
H	2483.50	39.82	29.28	3.53	34.03	38.60	54.00	-15.40	AV	PASS
H	2500.00	37.18	29.30	3.56	34.03	36.01	54.00	-17.99	AV	PASS
V	2483.50	41.41	29.28	3.53	34.03	40.19	54.00	-13.81	AV	PASS
V	2500.00	37.48	29.30	3.56	34.03	36.31	54.00	-17.69	AV	PASS

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit

-----End-----