

Appendix A

RF Test Data for BR_EDR(Conducted Measurement)

Product Name: Bluetooth headset for smartphone-Black
Trade Mark: ETECH
Test Model: EBP-E-C78, 02362

Environmental Conditions

Temperature:	24.6°C
Relative Humidity:	51.4%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

Contents

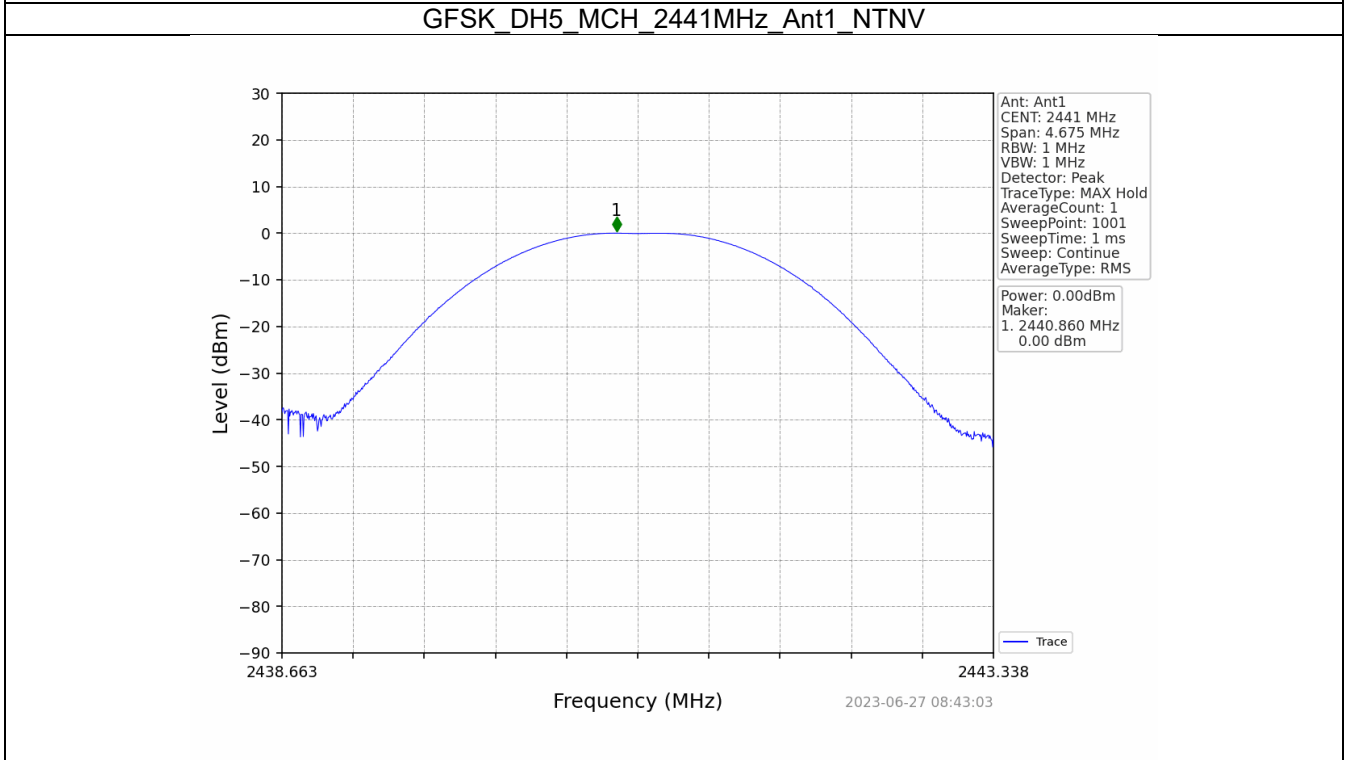
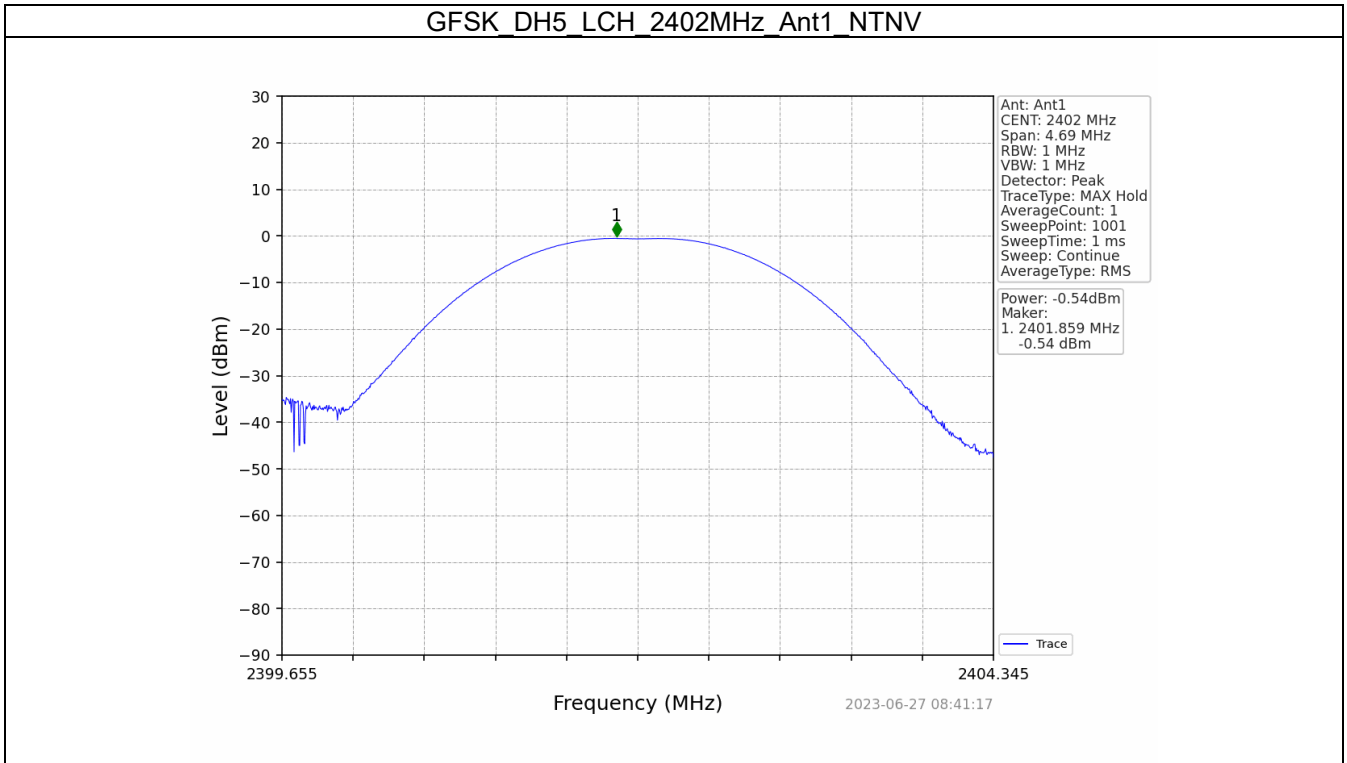
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1 Maximum Conducted Peak Output Power

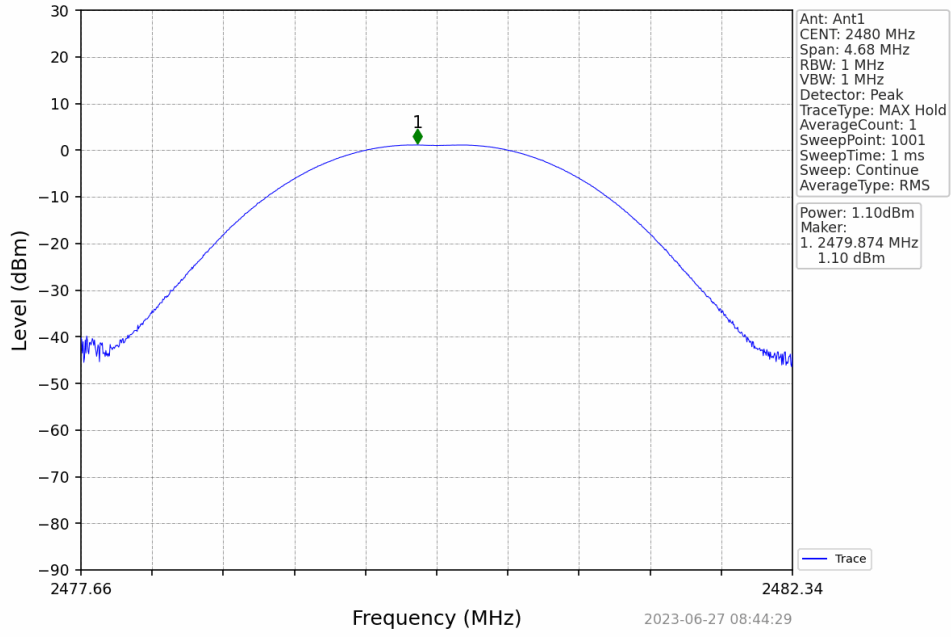
1.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.54	≤ 30	Pass
	MCH	0.00	≤ 30	Pass
	HCH	1.10	≤ 30	Pass
$\pi/4$ -DQPSK	LCH	1.96	≤ 20.97	Pass
	MCH	2.60	≤ 20.97	Pass
	HCH	3.92	≤ 20.97	Pass

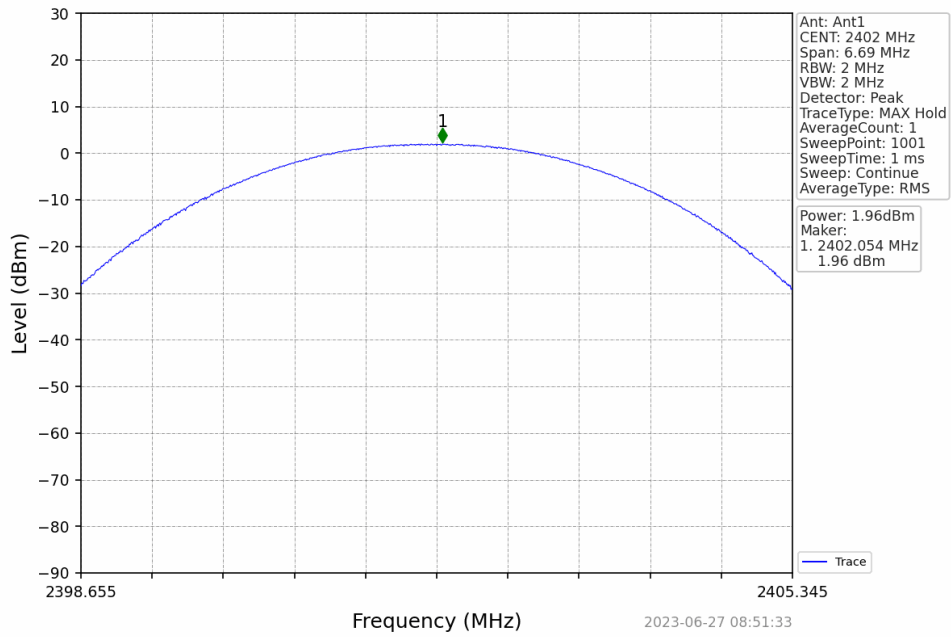
1.2 Test Graphs



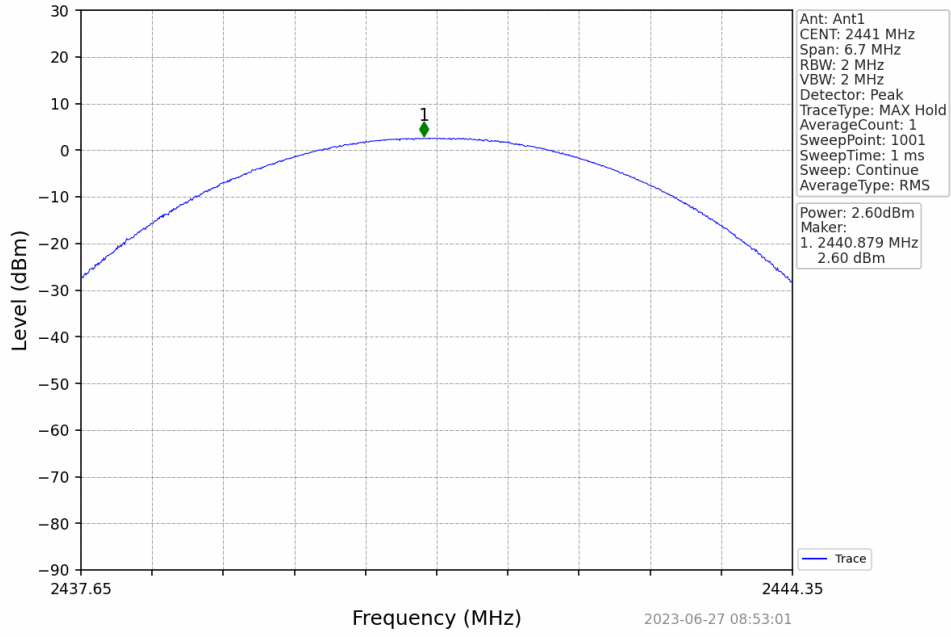
GFSK DH5 HCH 2480MHz Ant1 NTV



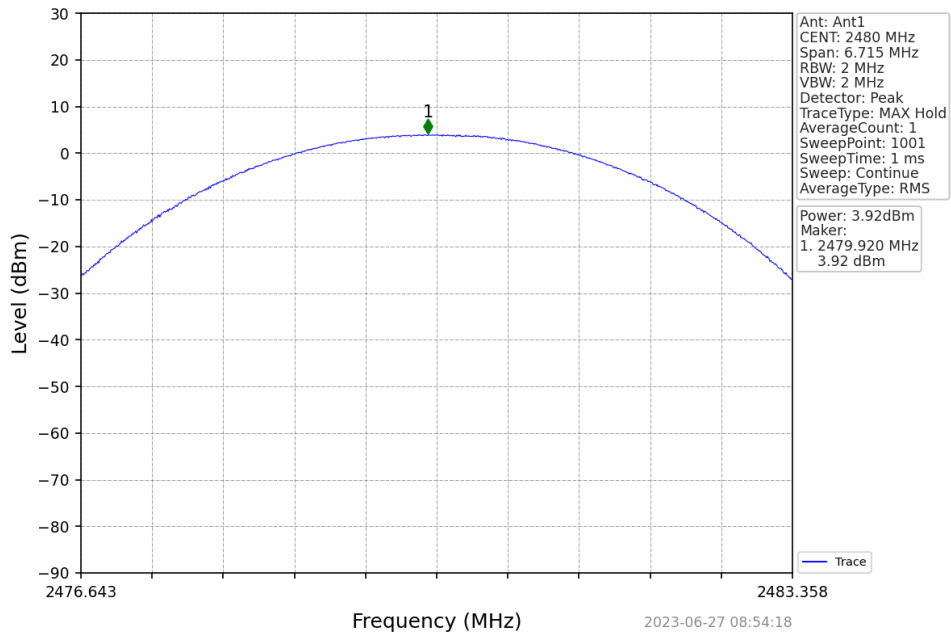
$\pi/4$ -DQPSK 2DH5 LCH 2402MHz Ant1 NTV



$\pi/4$ -DQPSK 2DH5 MCH 2441MHz Ant1 NTN



$\pi/4$ -DQPSK 2DH5 HCH 2480MHz Ant1 NTN

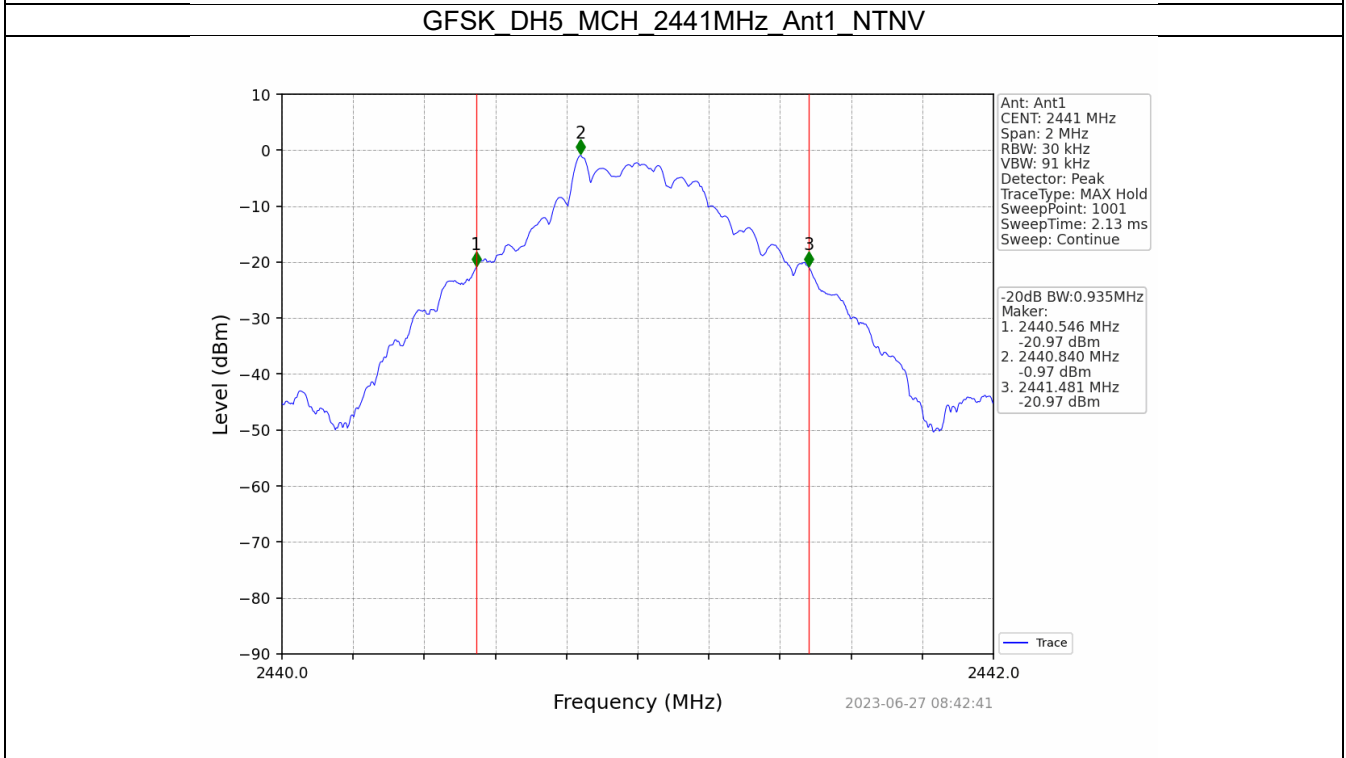
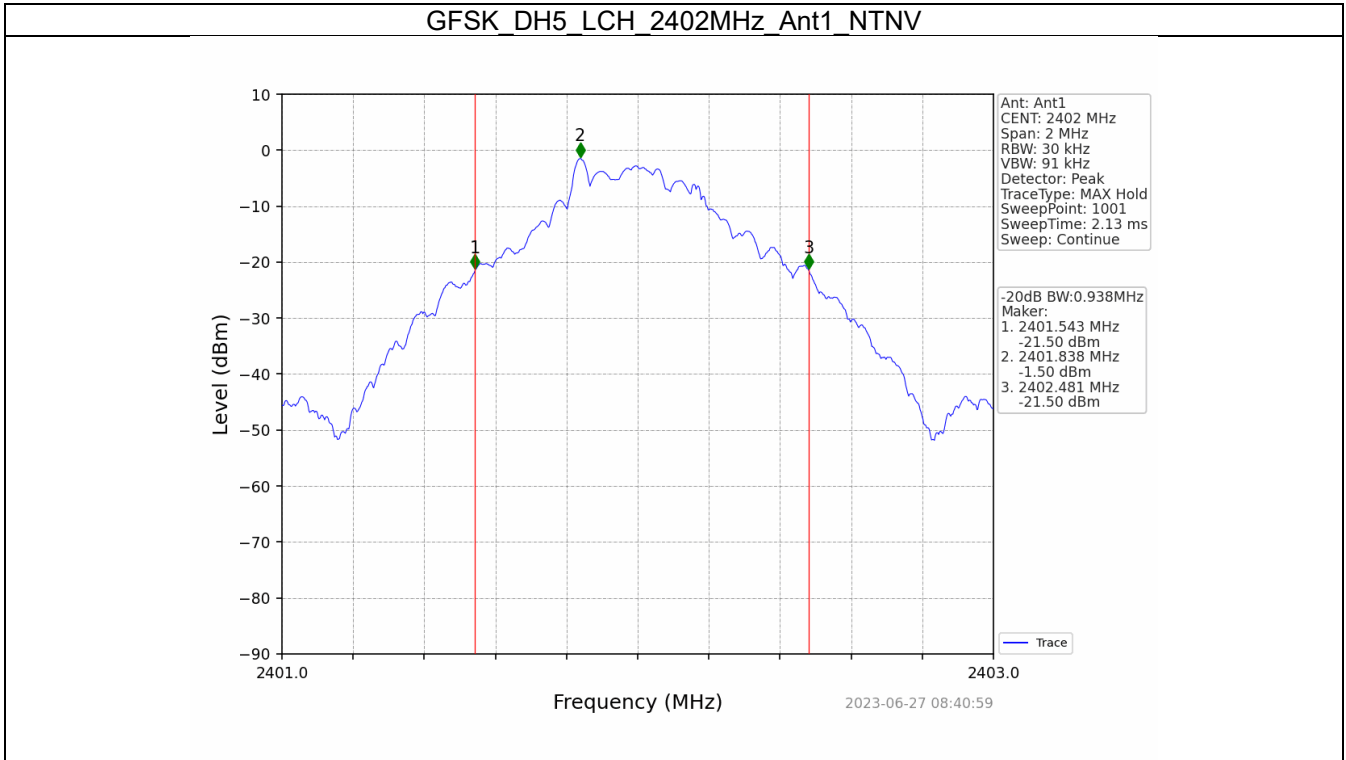


2 20dB Bandwidth

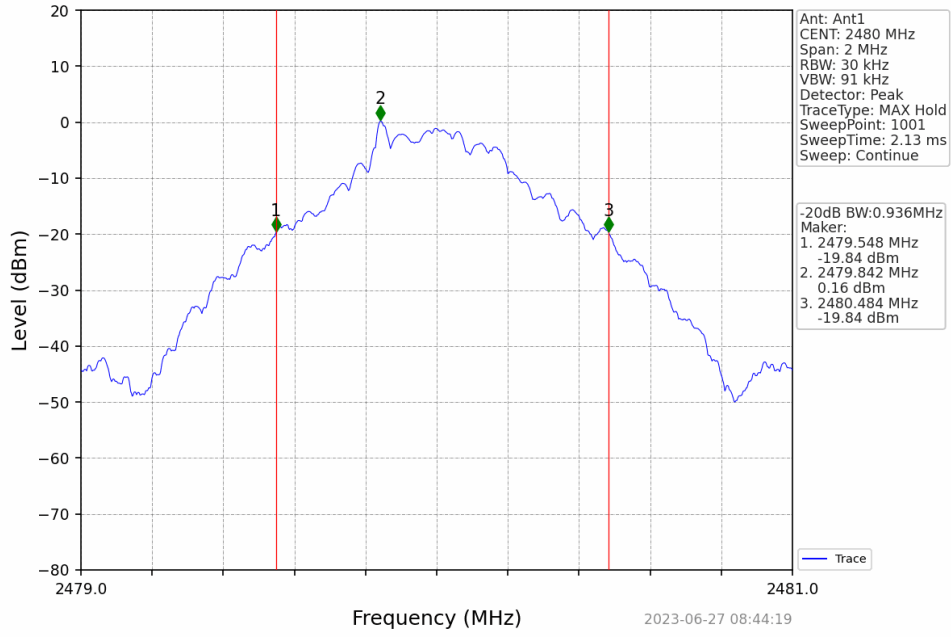
2.1 Test Result

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.938	Not Specified	Pass
	MCH	0.935	Not Specified	Pass
	HCH	0.936	Not Specified	Pass
$\pi/4$ -DQPSK	LCH	1.338	Not Specified	Pass
	MCH	1.340	Not Specified	Pass
	HCH	1.343	Not Specified	Pass

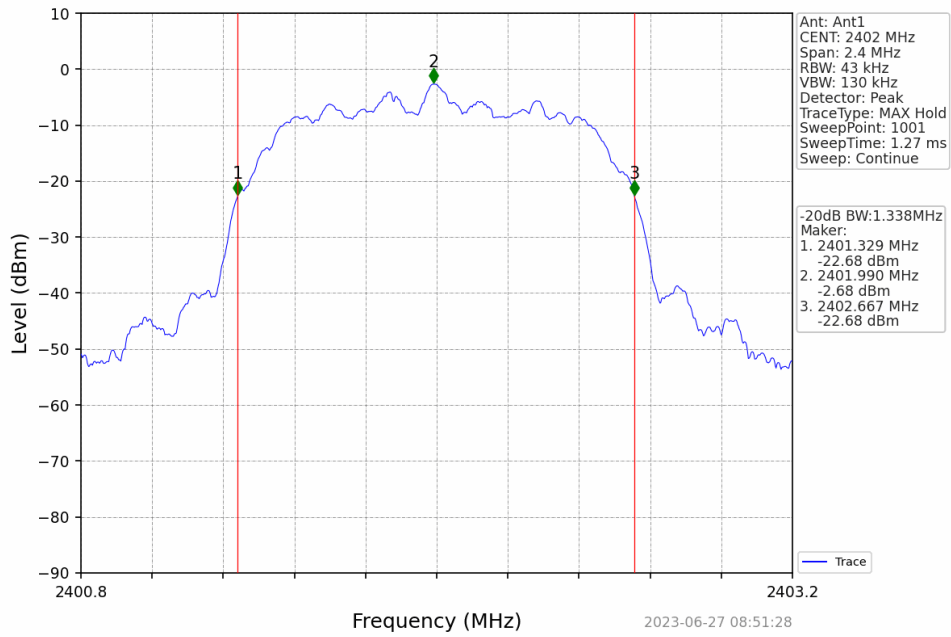
2.2 Test Graphs



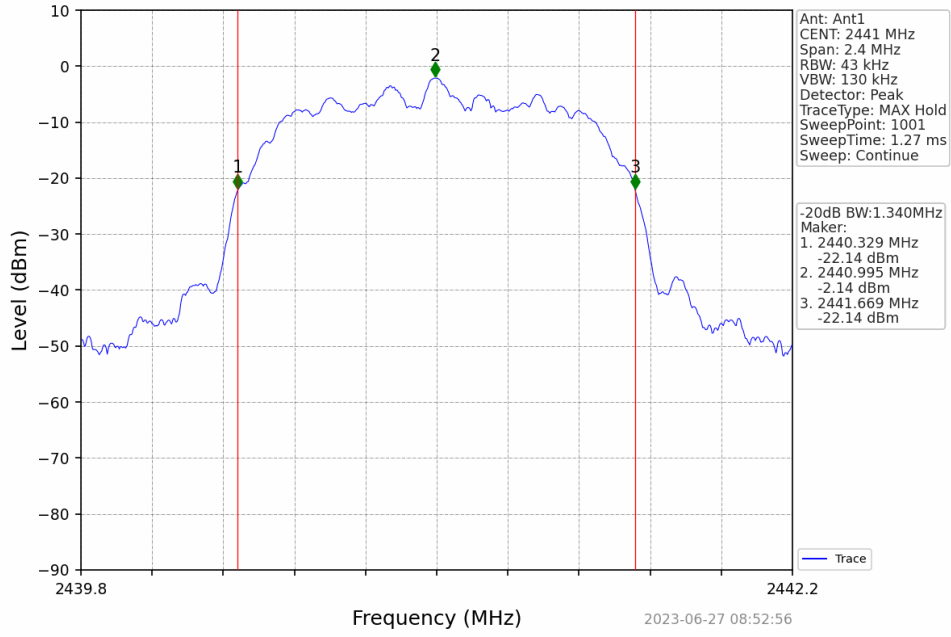
GFSK DH5 HCH 2480MHz Ant1 NTV



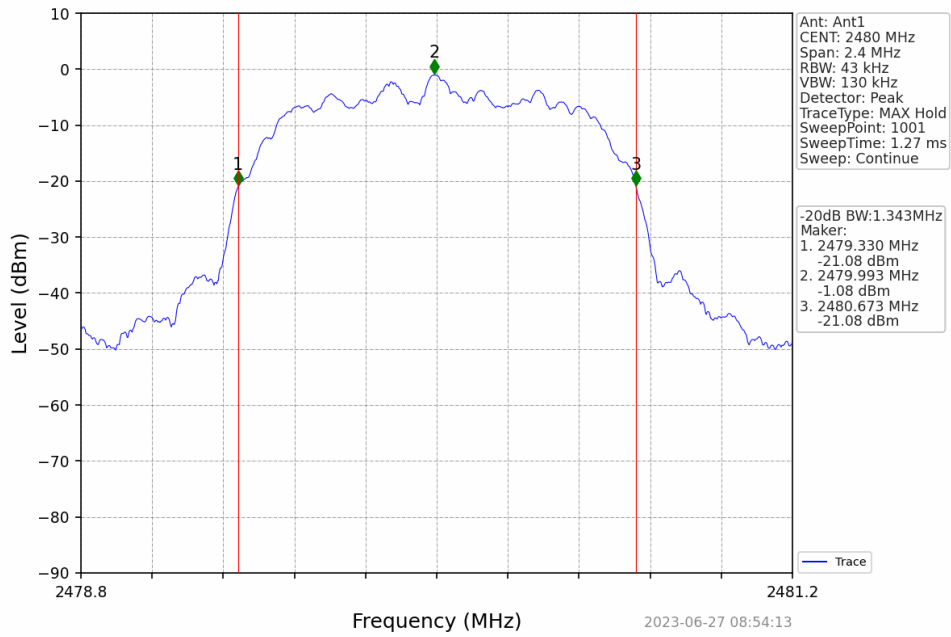
$\pi/4$ -DQPSK 2DH5 LCH 2402MHz Ant1 NTV



$\pi/4$ -DQPSK 2DH5 MCH 2441MHz Ant1 NTV



$\pi/4$ -DQPSK 2DH5 HCH 2480MHz Ant1 NTV

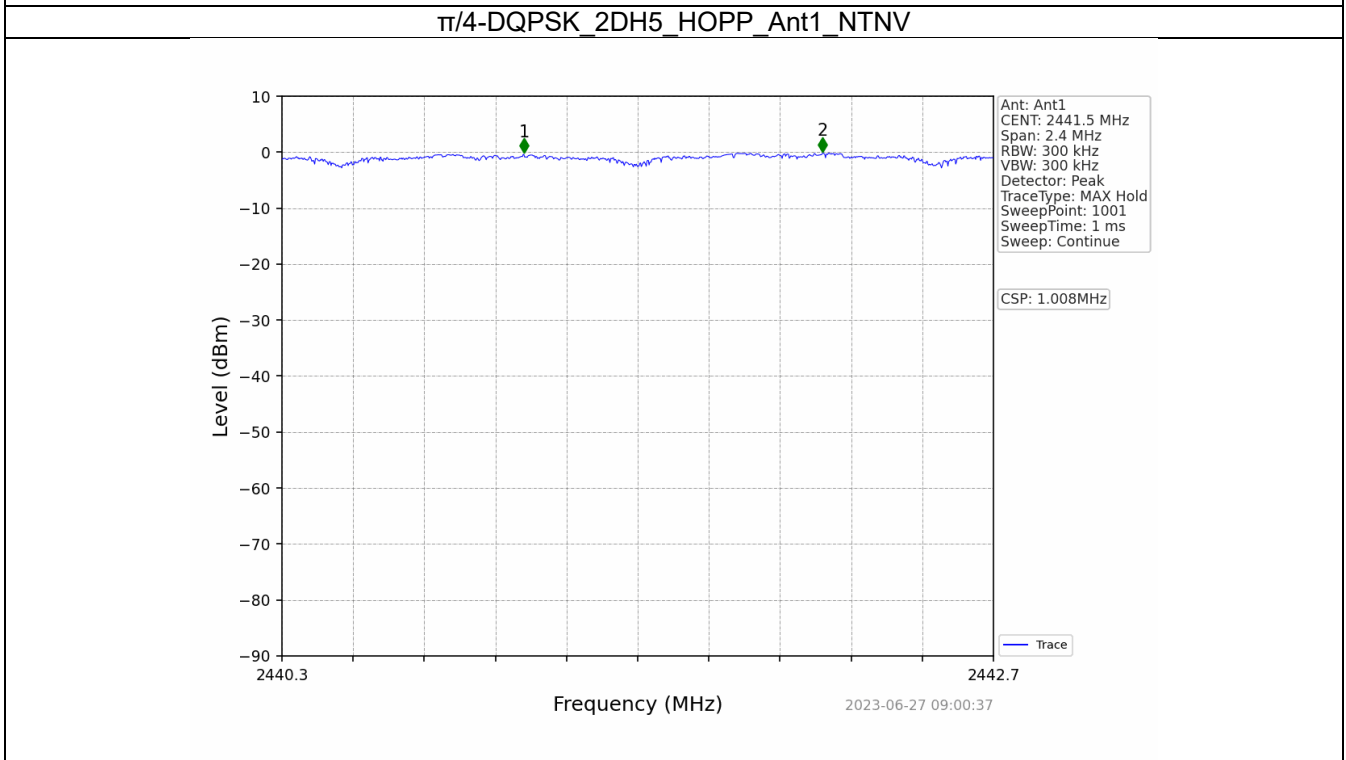
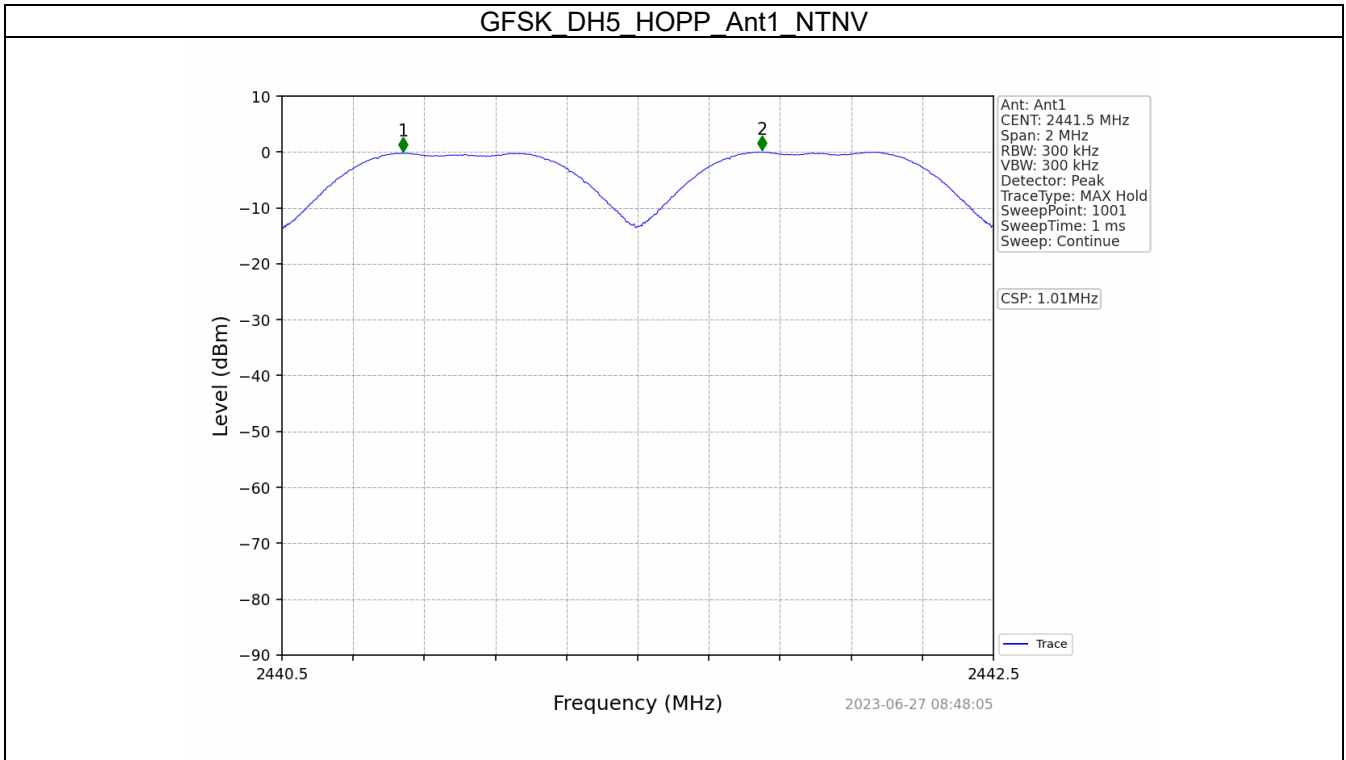


3 Carrier Frequency Separation

3.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	20dB Bandwidth (MHz)	Limit [MHz]	Verdict
GFSK	MCH	1.010	0.938	≥ 0.938	Pass
$\pi/4$ -DQPSK	MCH	1.008	1.343	≥ 0.895	Pass

3.2 Test Graphs

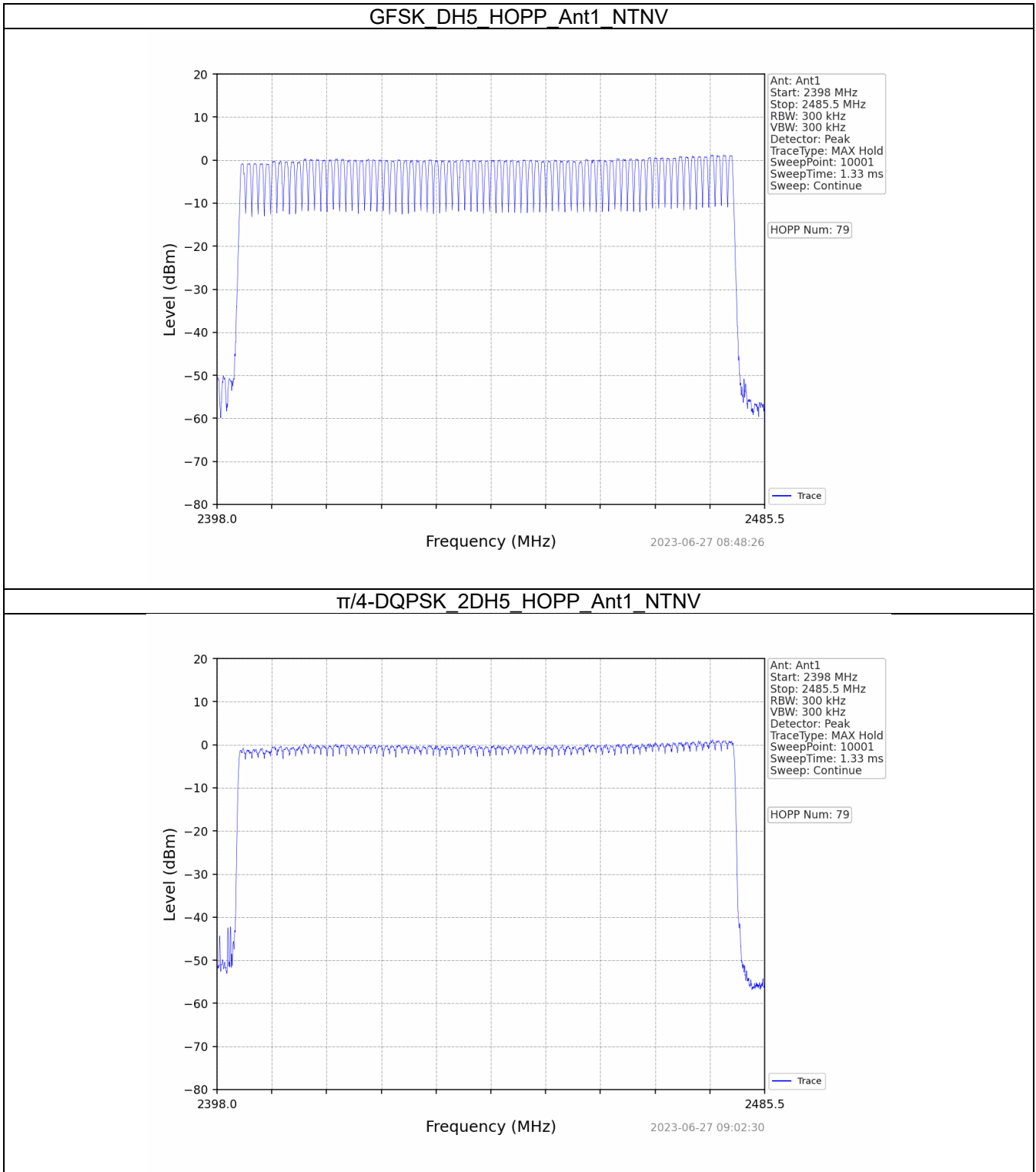


4 Hopping Channel Number

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

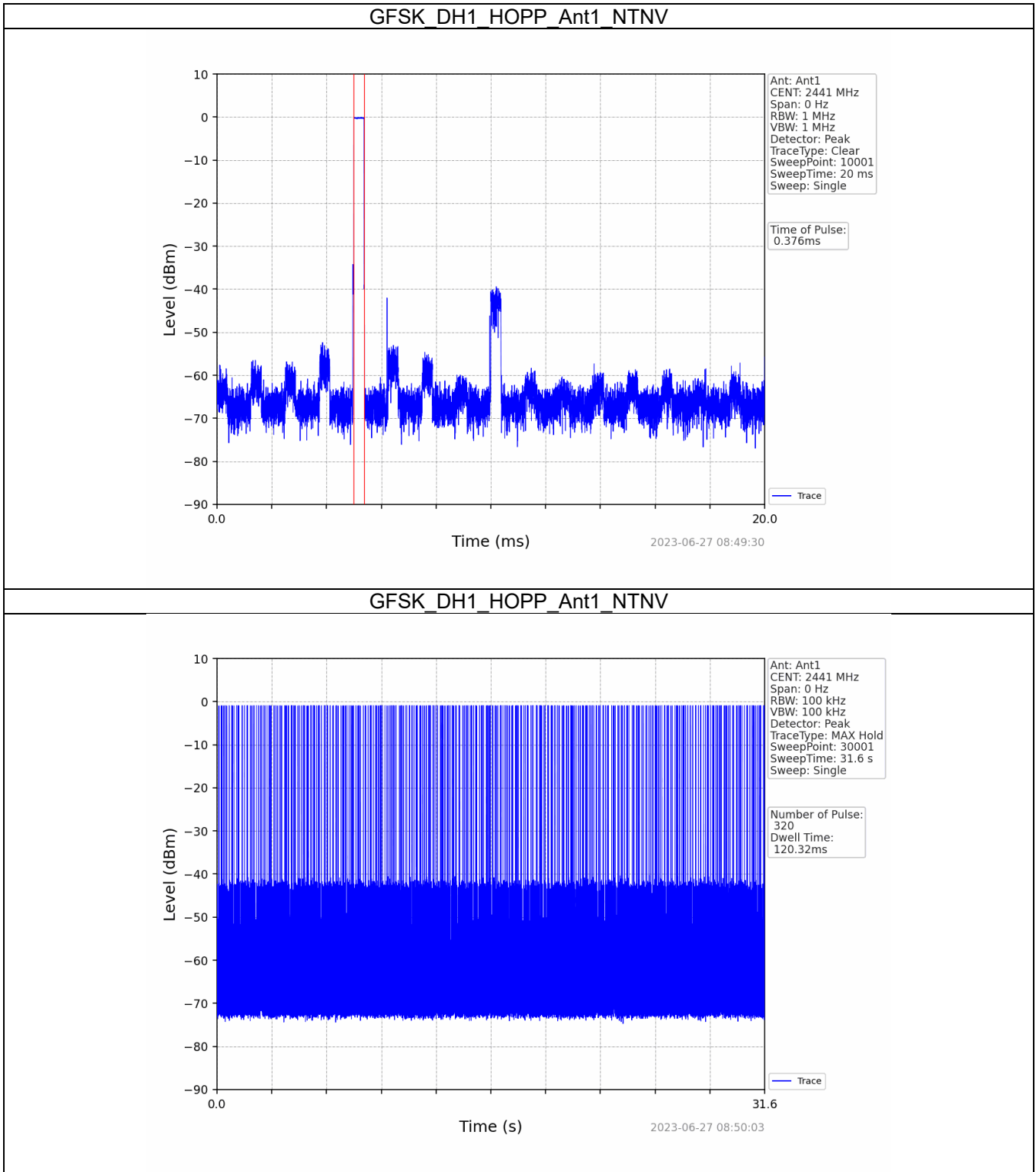


5 Dwell Time

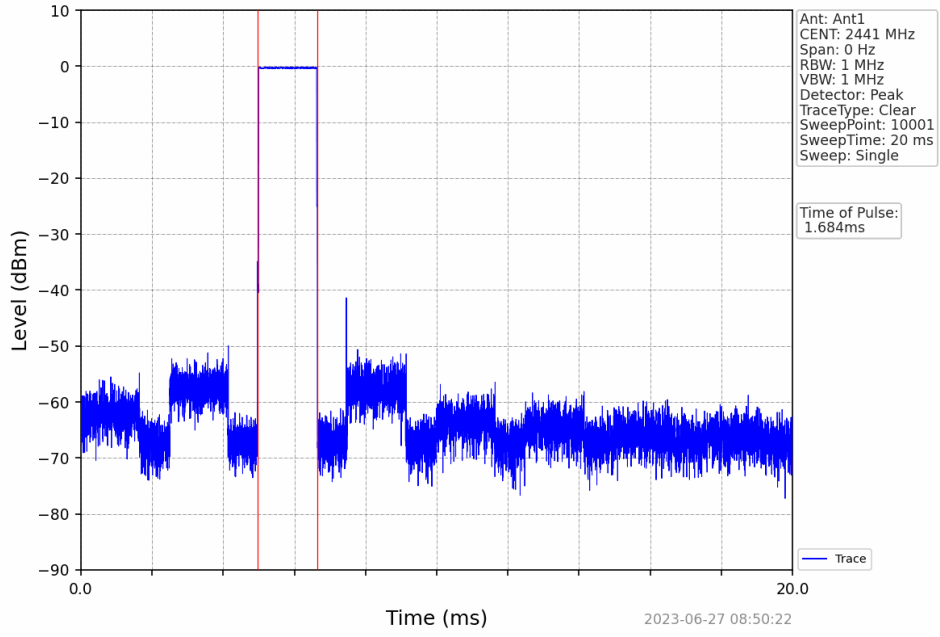
5.1 Test Result

Mode	Packet	Channel	Duration of Single Pulse (ms)	Observation Period (s)	Num of Pulse in Observation Period	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	LCH	0.376	31.600	320	120.320	0.4	Pass
		MCH	1.684	31.600	161	271.124	0.4	Pass
		HCH	2.932	31.600	106	310.792	0.4	Pass
$\pi/4$ -DQPSK	2DH5	LCH	0.386	31.600	320	123.520	0.4	Pass
		MCH	1.638	31.600	160	262.080	0.4	Pass
		HCH	2.886	31.600	106	305.916	0.4	Pass

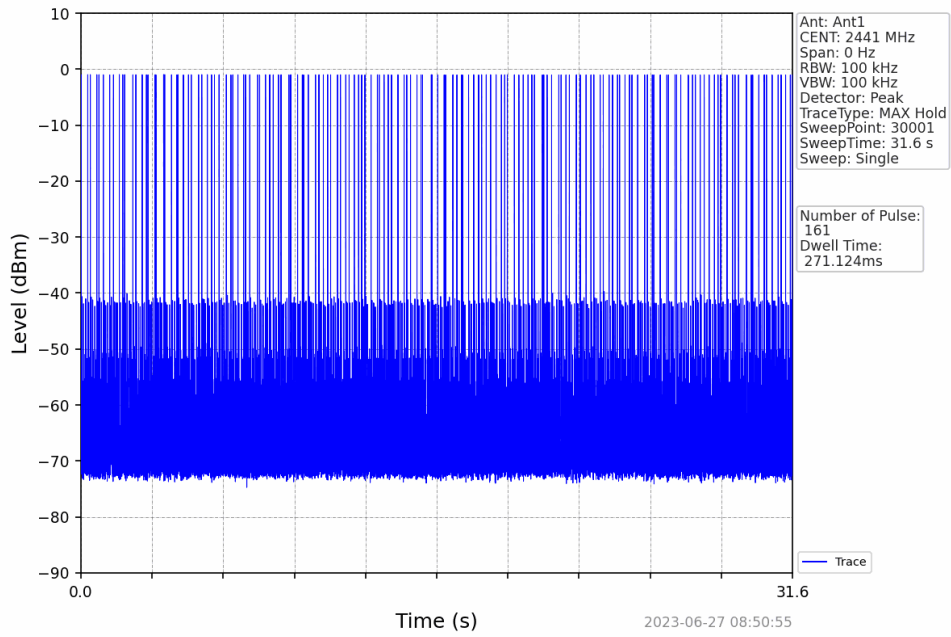
5.2 Test Graphs



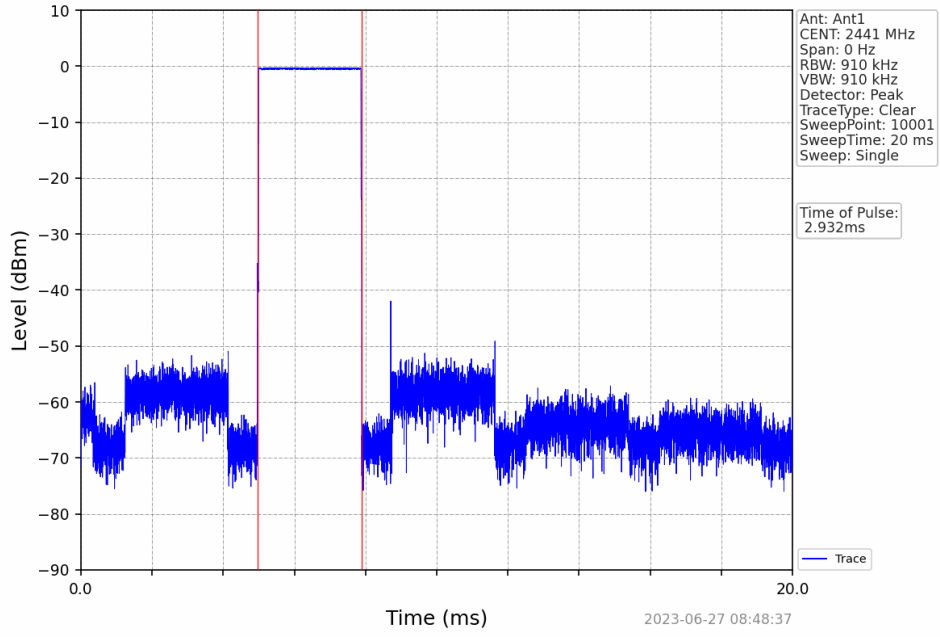
GFSK DH3 HOPP Ant1 NTV



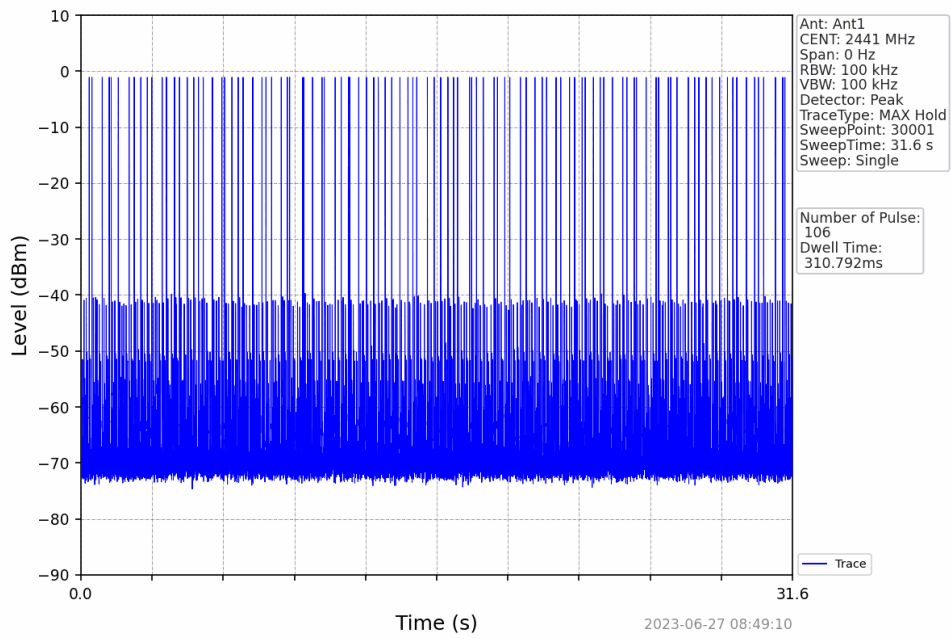
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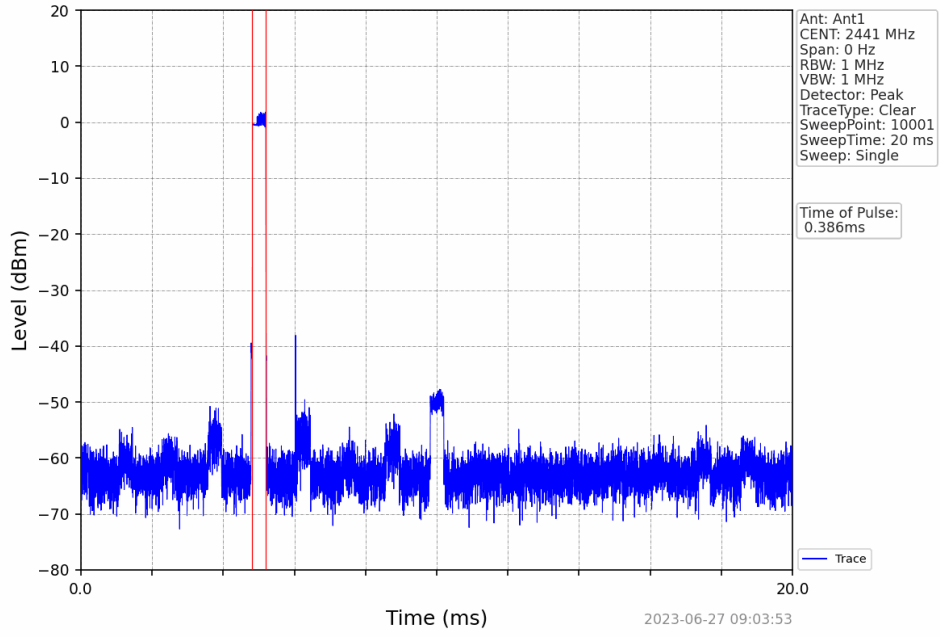
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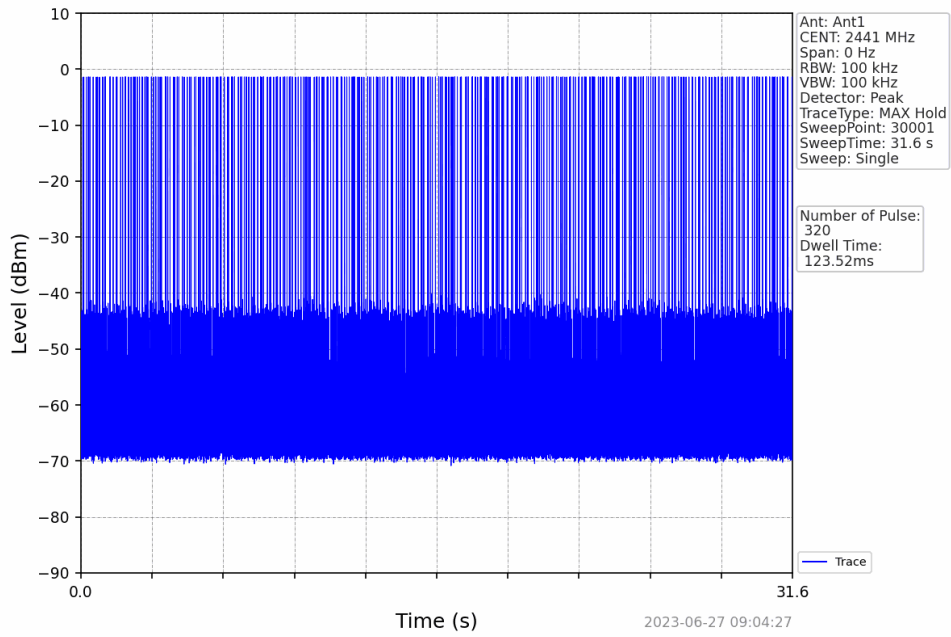
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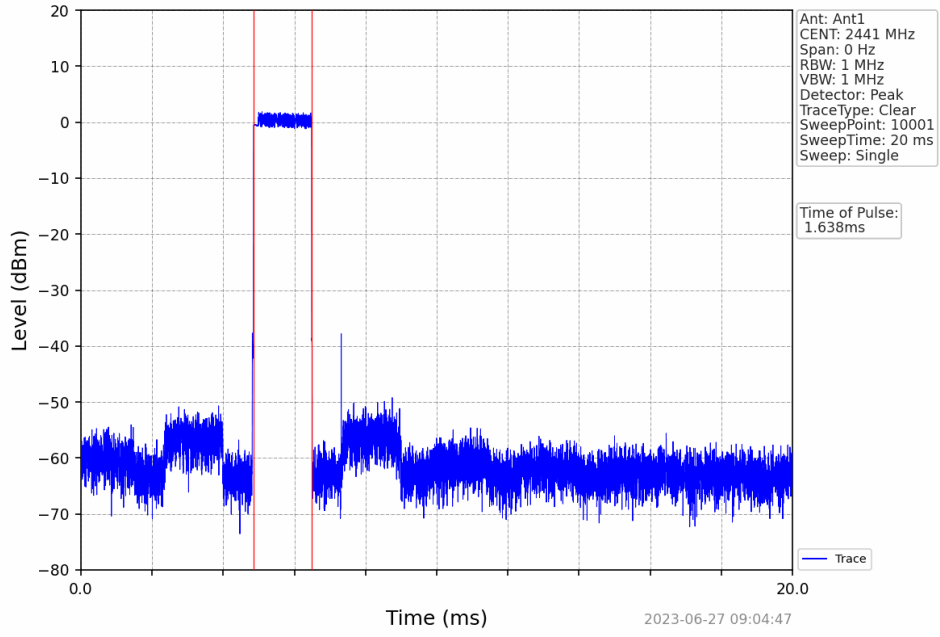
$\pi/4$ -DQPSK 2DH1 HOPP Ant1 NTV



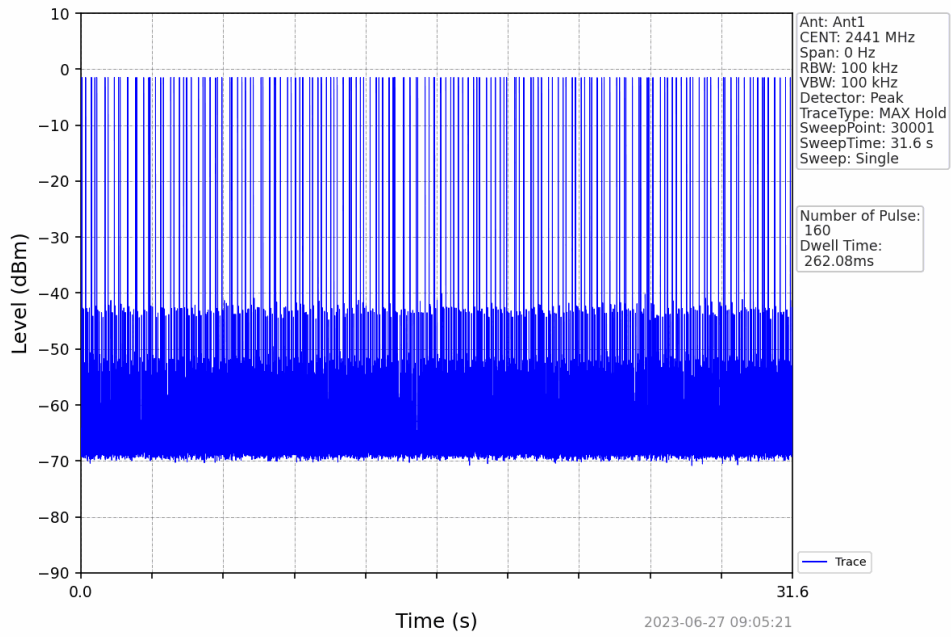
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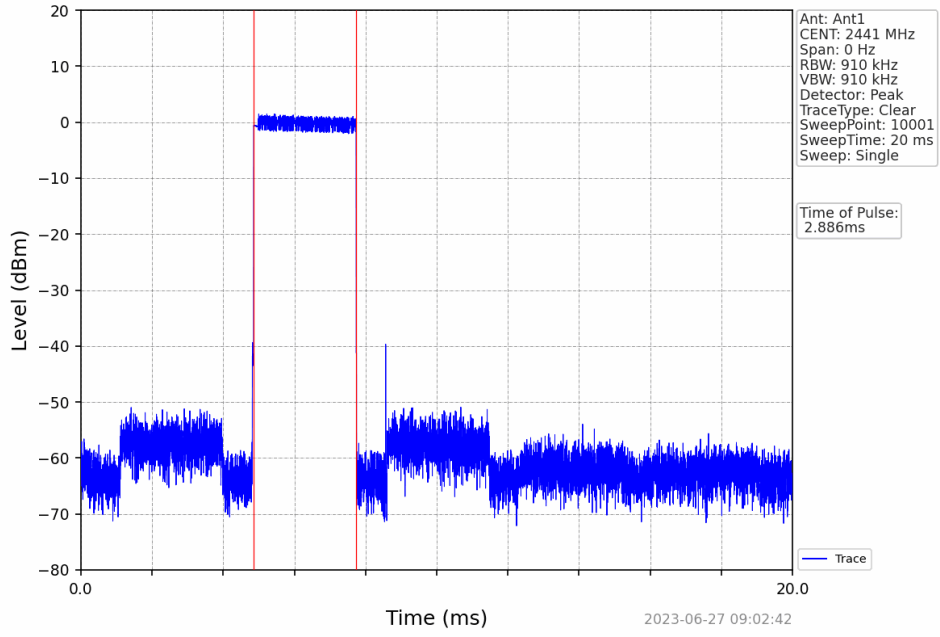
$\pi/4$ -DQPSK 2DH3 HOPP Ant1 NTV



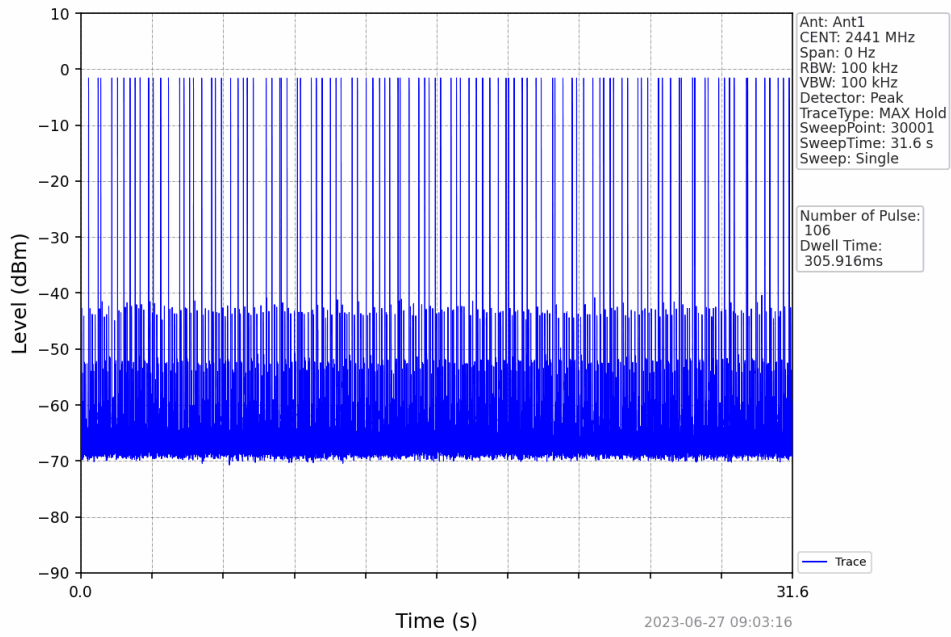
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$\pi/4$ -DQPSK 2DH5 HOPP Ant1 NTV



$\pi/4$ -DQPSK 2DH5 HOPP Ant1 NTV

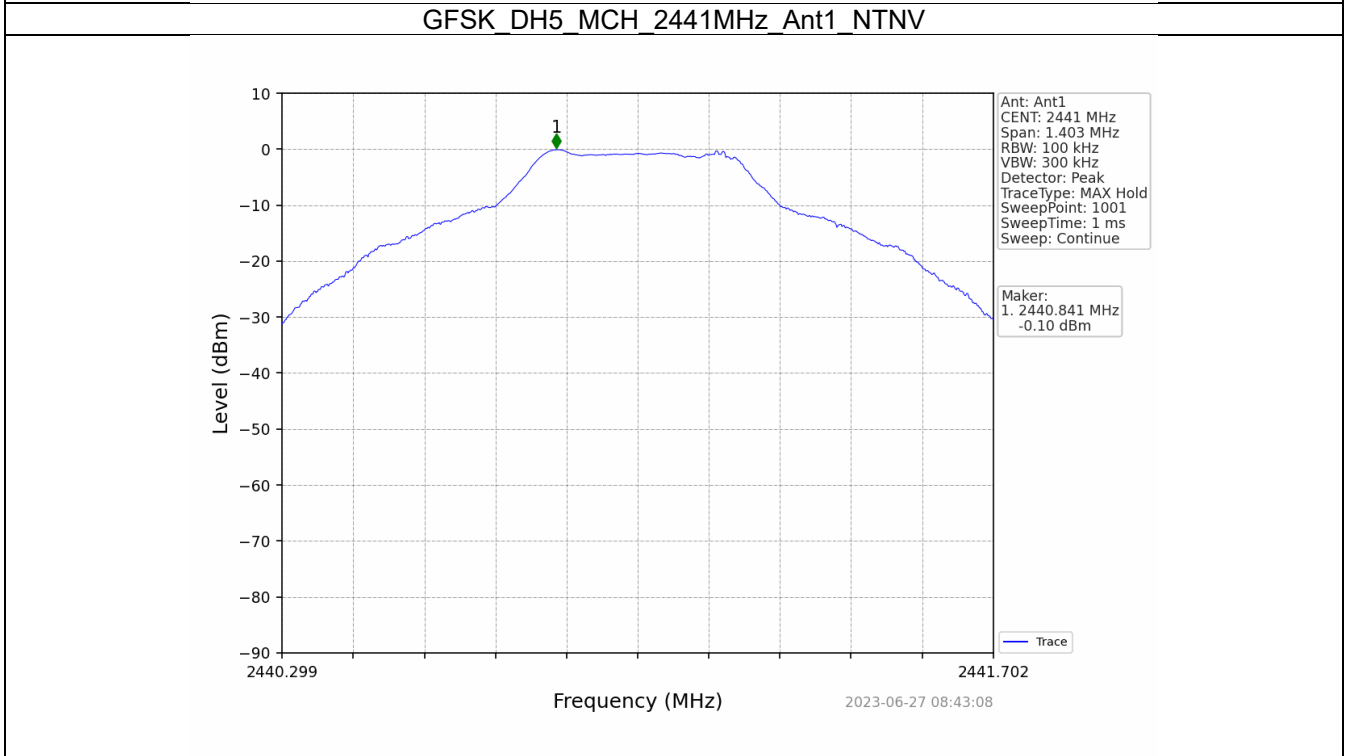
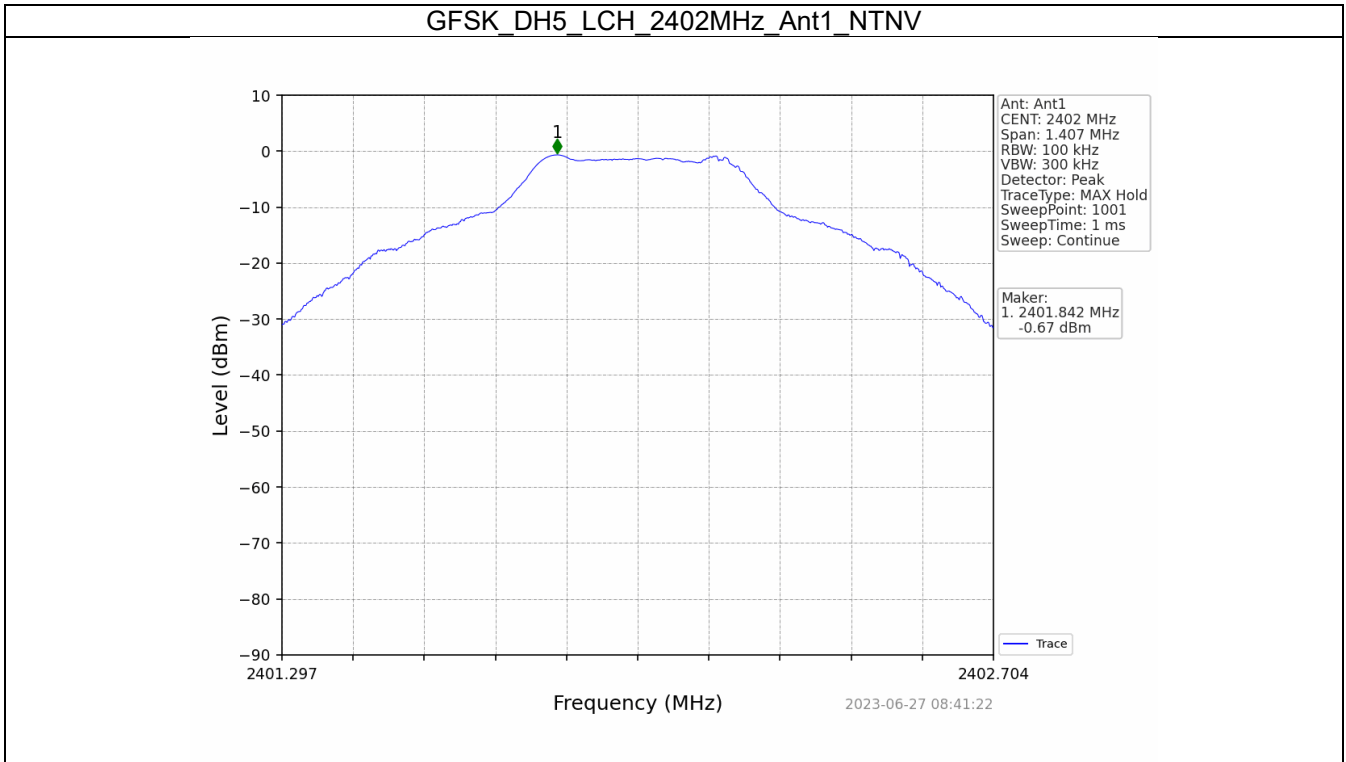


6 Conducted Spurious Emissions and Band Edges Test

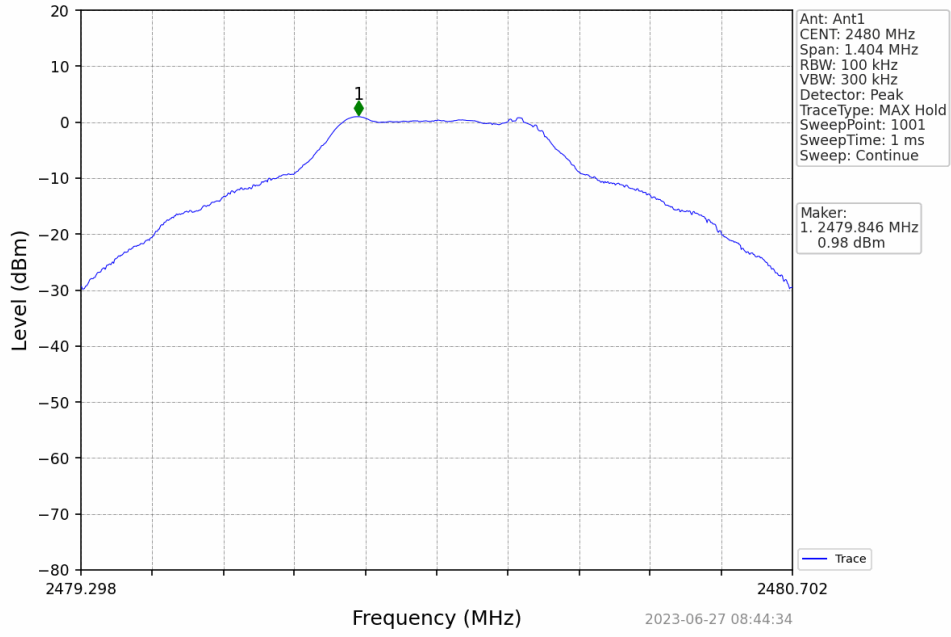
6.1 Test Result

Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-0.67	-20	Pass
	MCH	-0.10	-20	Pass
	HCH	0.98	-20	Pass
$\pi/4$ -DQPSK	LCH	-1.10	-20	Pass
	MCH	-0.45	-20	Pass
	HCH	0.80	-20	Pass

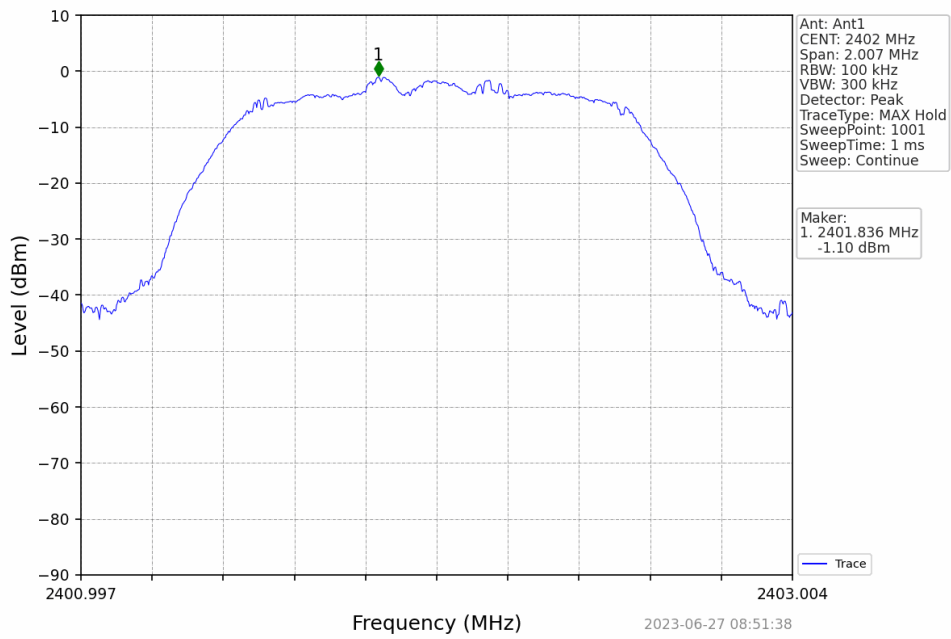
6.2 Test Graphs



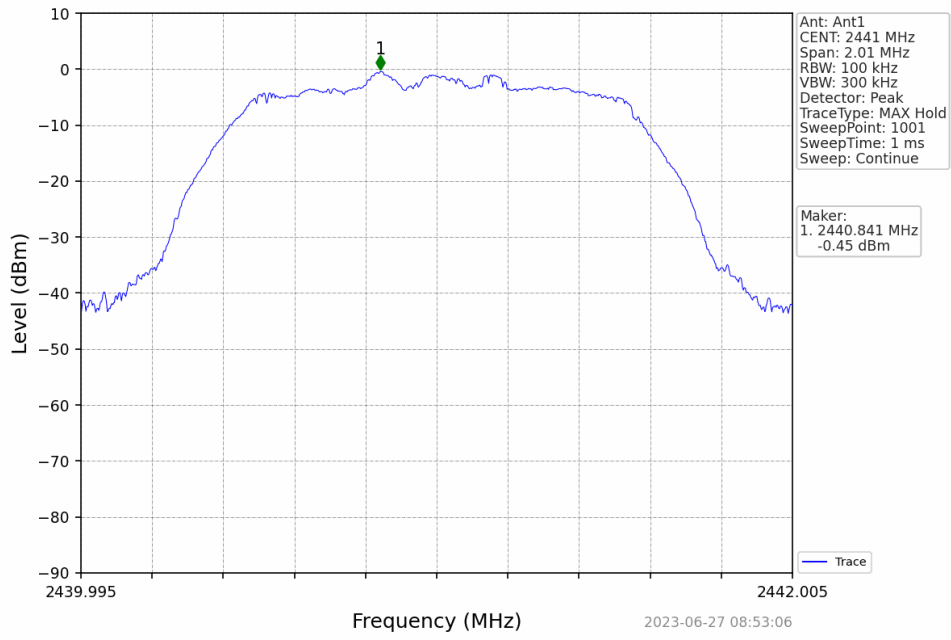
GFSK DH5 HCH 2480MHz Ant1 NTV



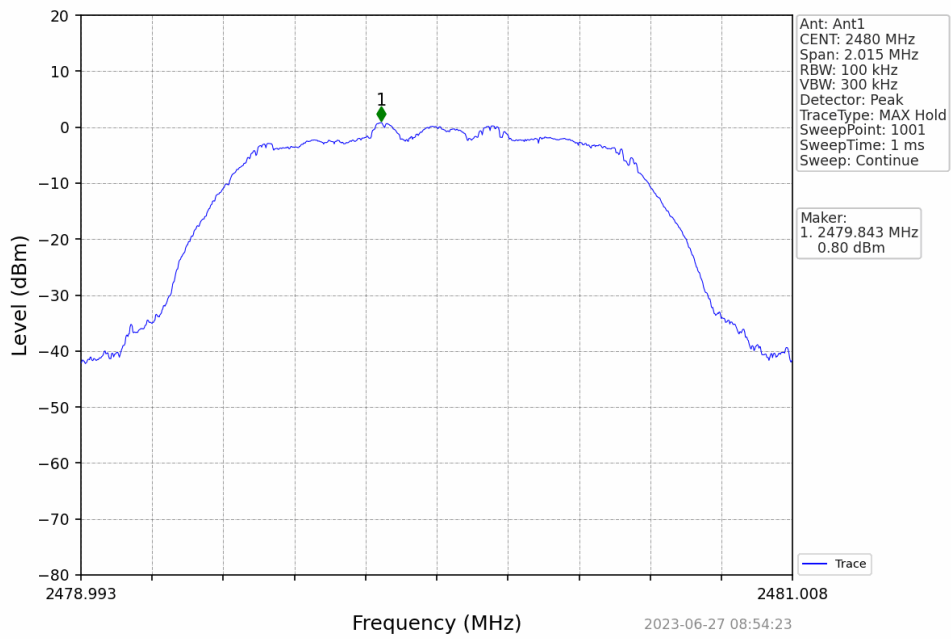
$\pi/4$ -DQPSK 2DH5 LCH 2402MHz Ant1 NTV



$\pi/4$ -DQPSK 2DH5 MCH 2441MHz Ant1 NTN



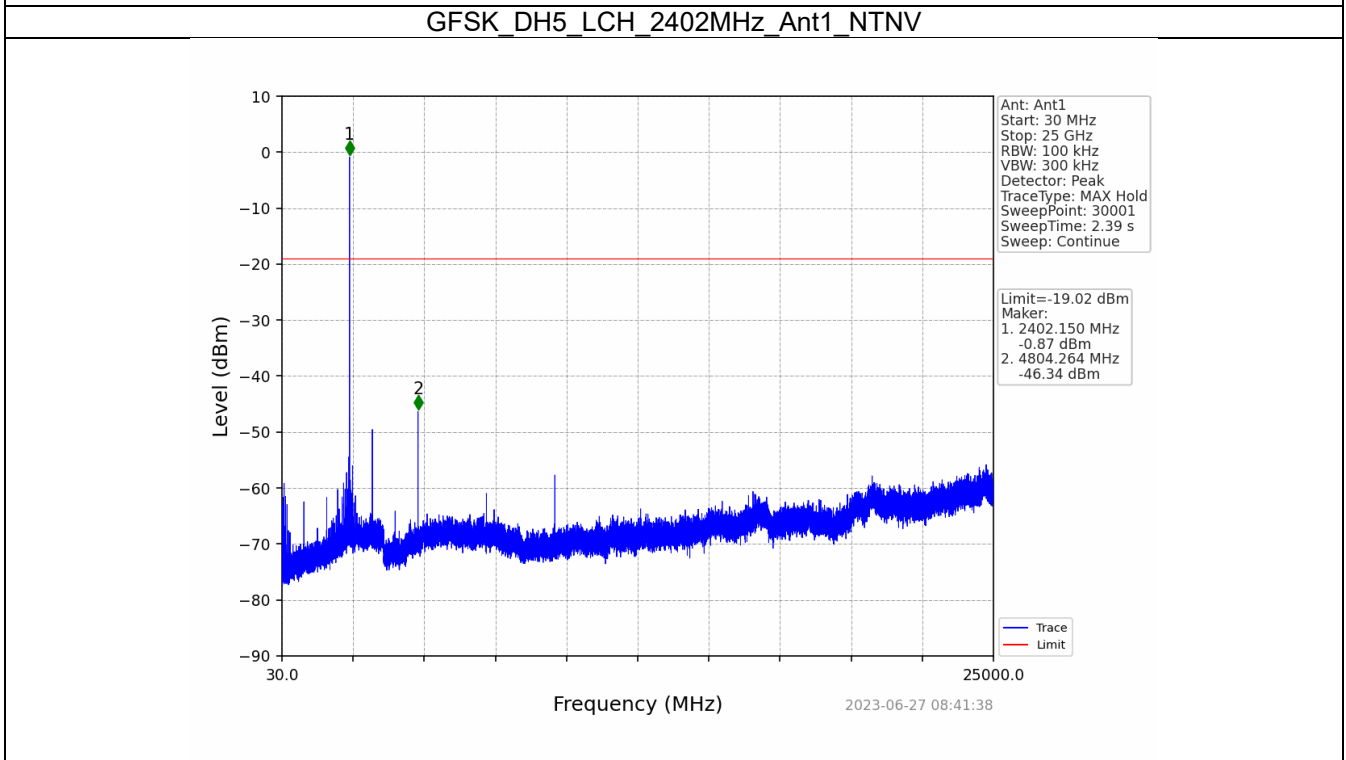
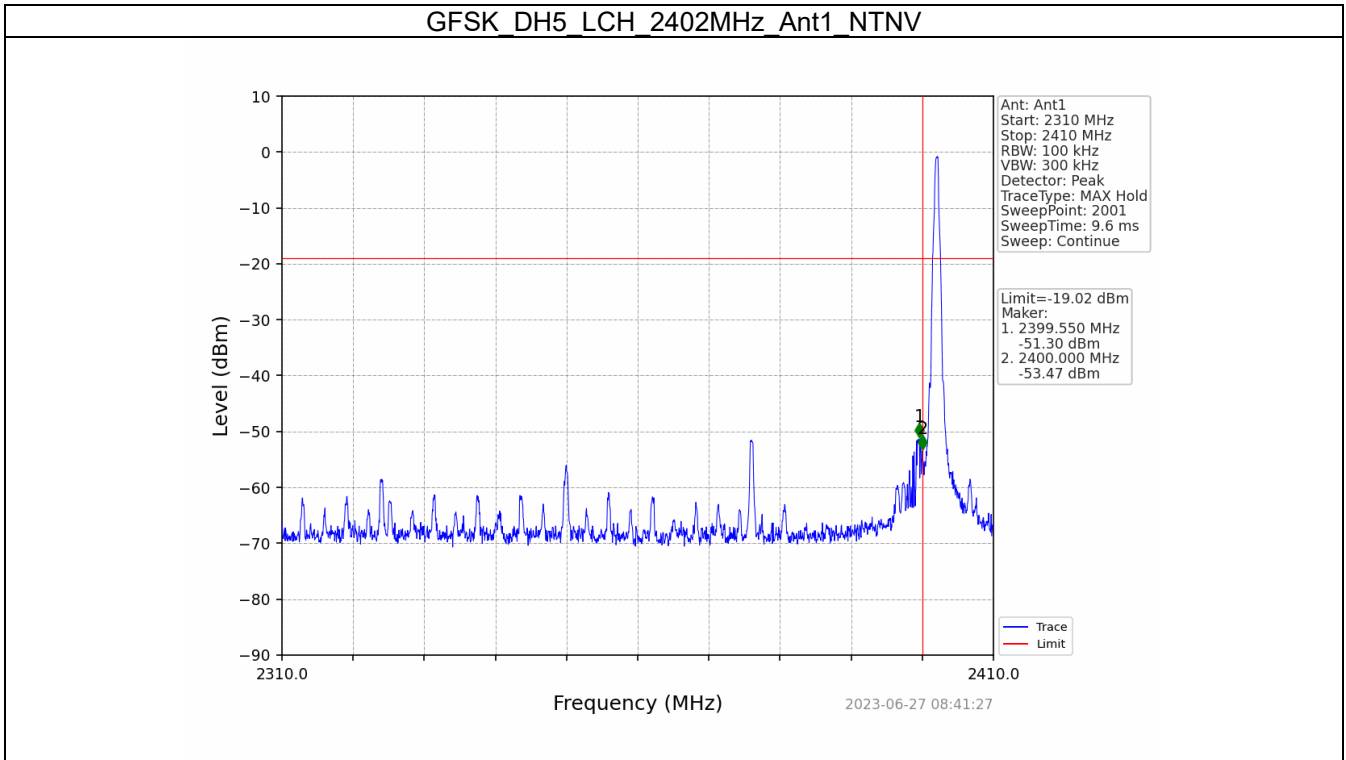
$\pi/4$ -DQPSK 2DH5 HCH 2480MHz Ant1 NTN



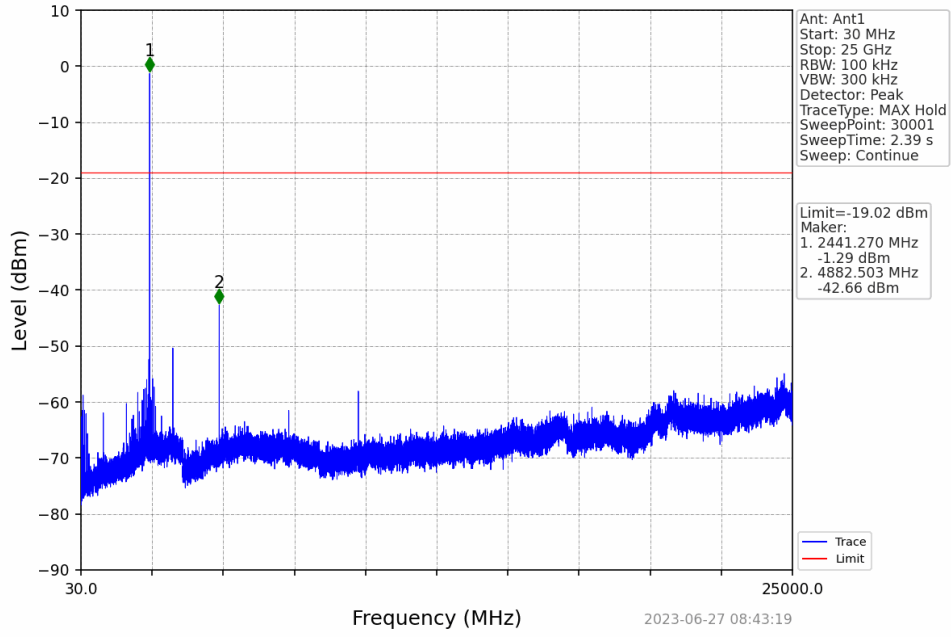
6.3 Conducted Spurious Emission

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	0.98	-19.02	Pass
	MCH	22440	On	0.98	-19.02	Pass
	HCH	2480	Off	0.98	-19.02	Pass
	HCH	HOPP	On	0.98	-19.02	Pass
$\pi/4$ -DQPSK	LCH	2402	Off	0.80	-19.20	Pass
	MCH	22440	On	0.80	-19.20	Pass
	HCH	2480	Off	0.80	-19.20	Pass
	HCH	HOPP	On	0.80	-19.20	Pass

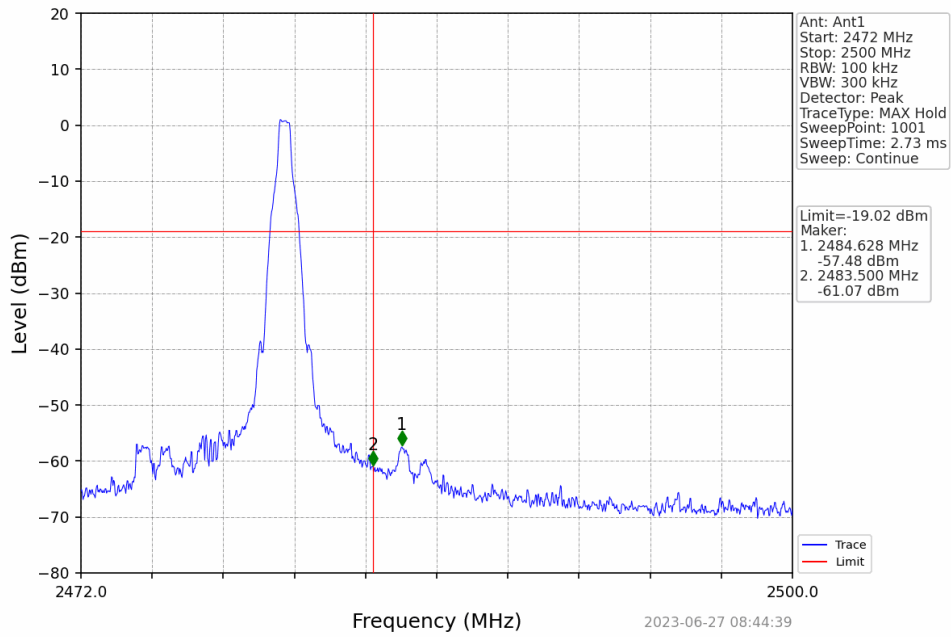
6.4 Test Graphs



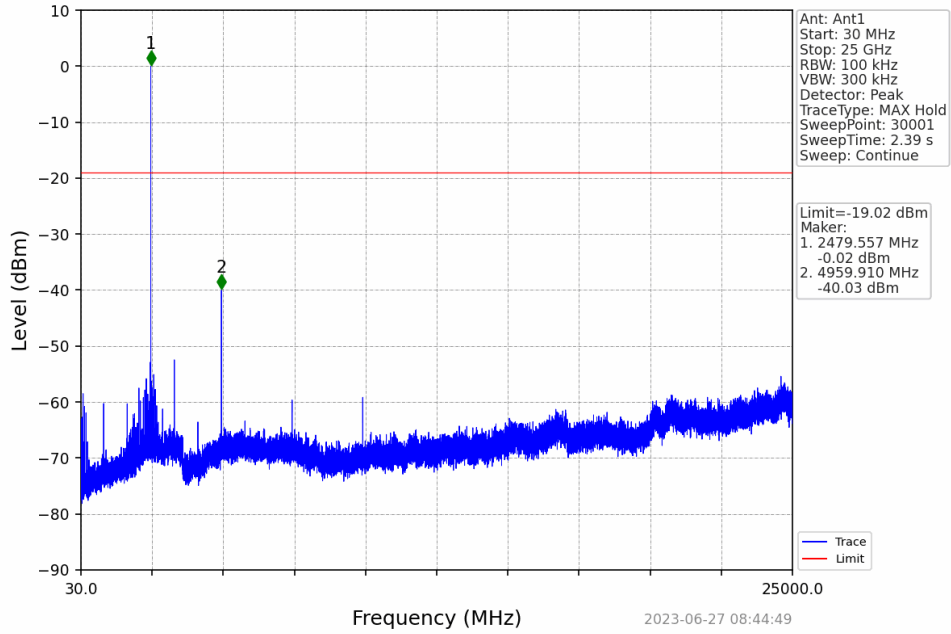
GFSK DH5 MCH 2441MHz Ant1 NTV



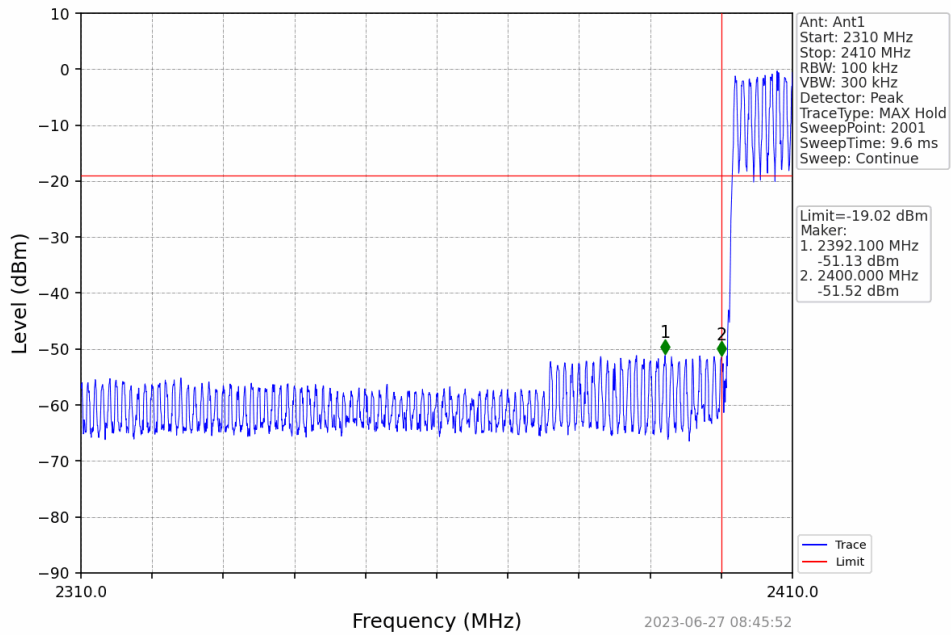
GFSK DH5 HCH 2480MHz Ant1 NTV



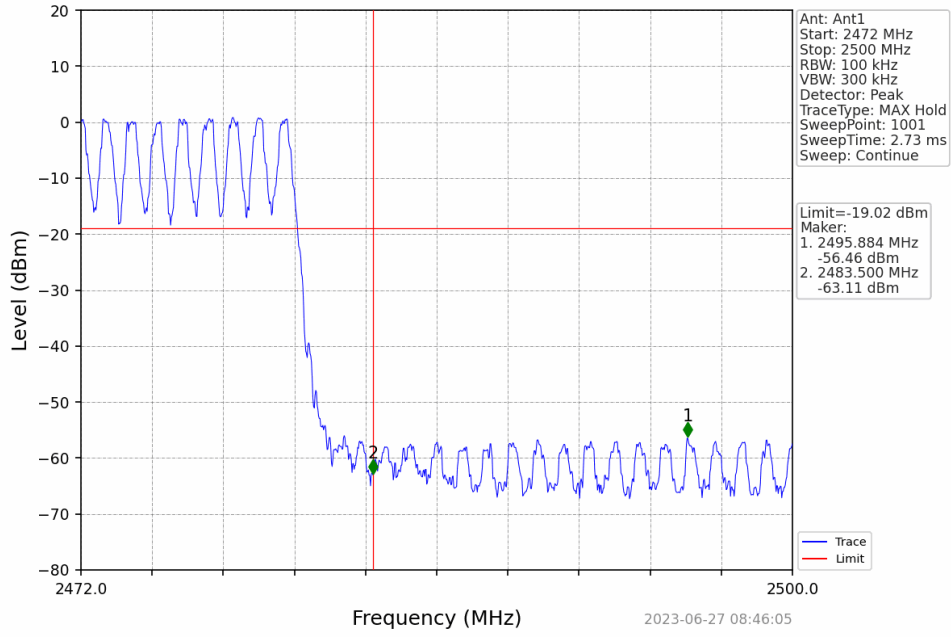
GFSK DH5 HCH 2480MHz Ant1 NTN



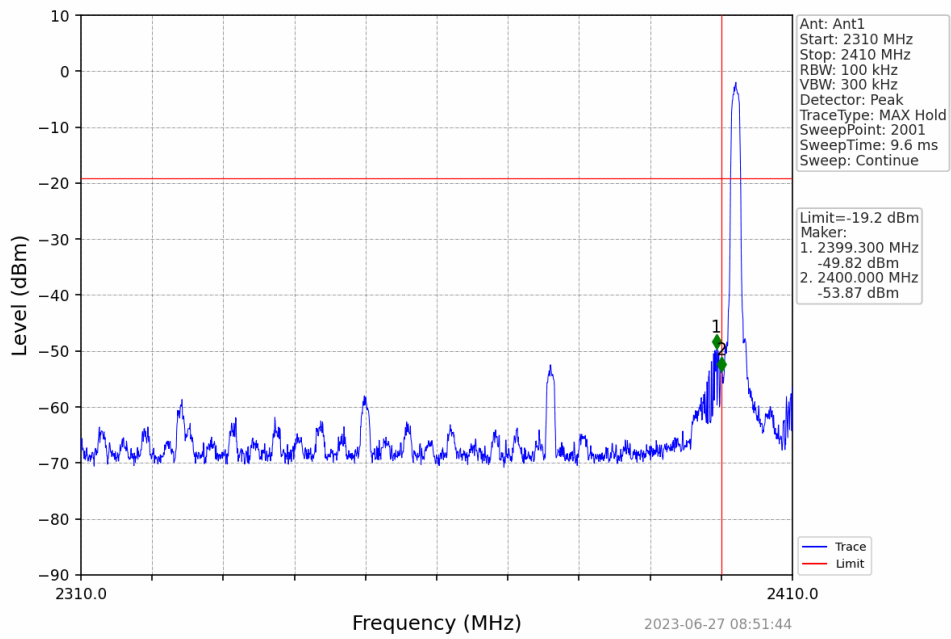
GFSK DH5 HOPP Ant1 NTN



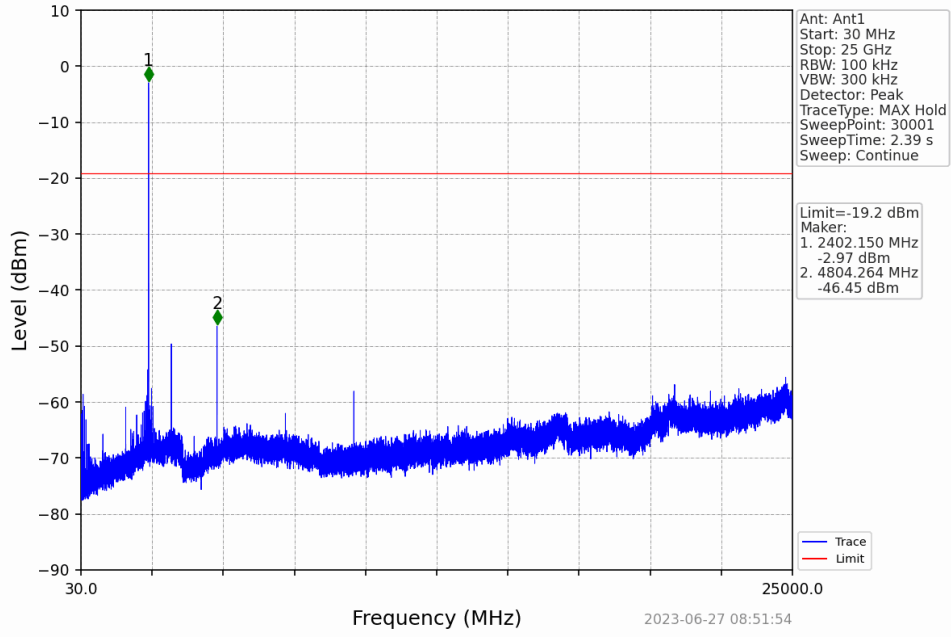
GFSK DH5 HOPP Ant1 NTNv



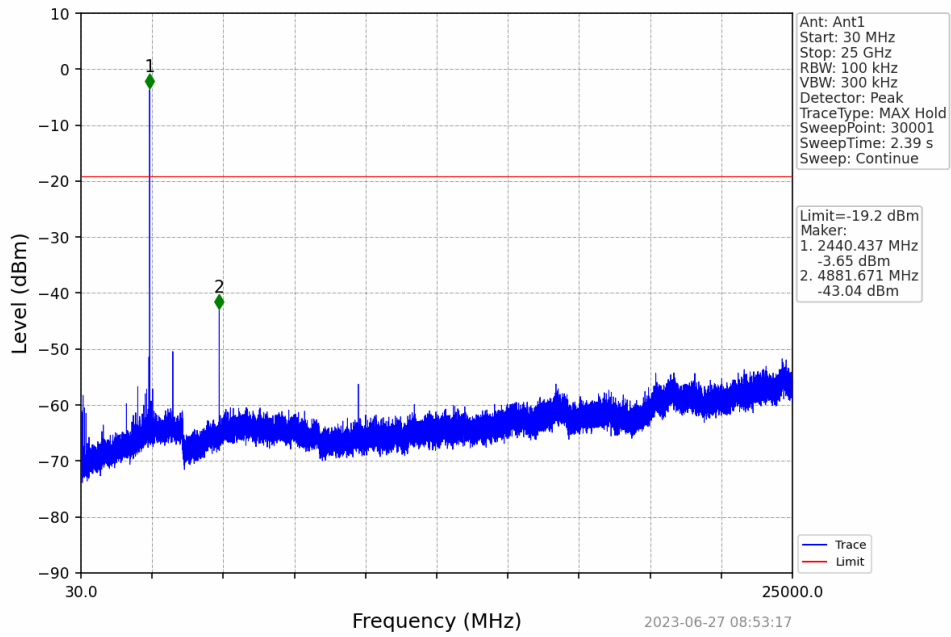
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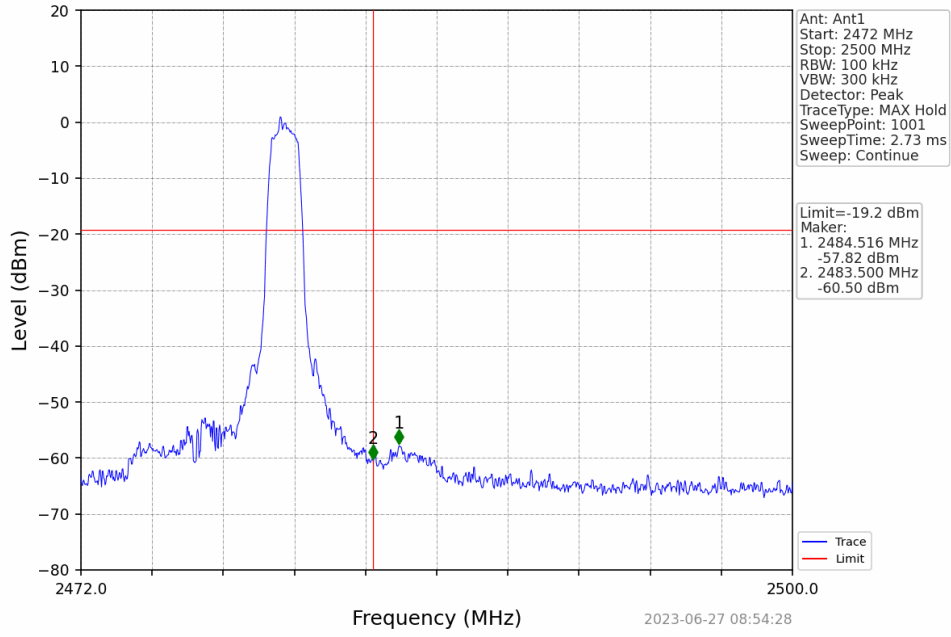
$\pi/4$ -DQPSK 2DH5 LCH 2402MHz Ant1 NTN



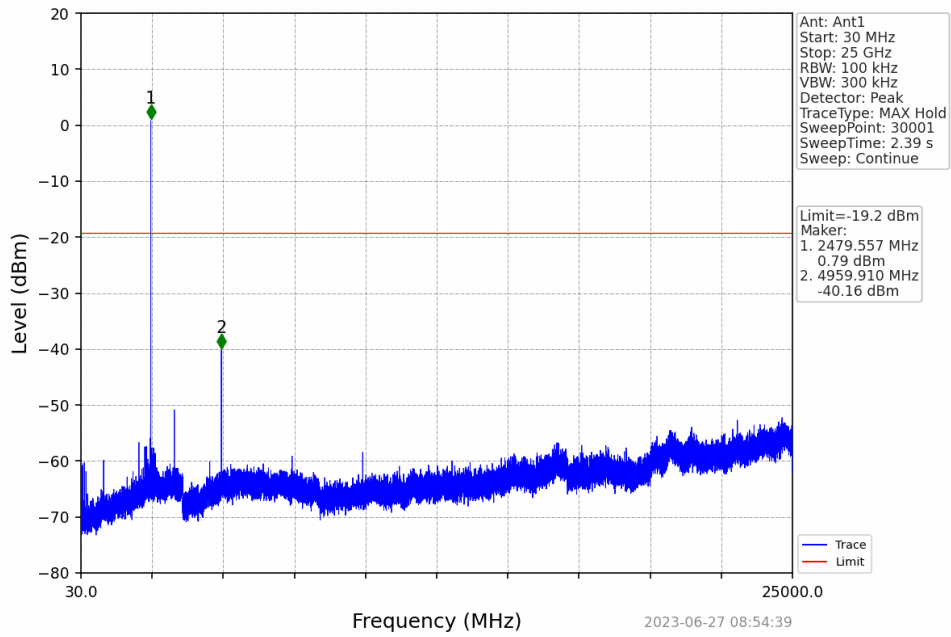
$\pi/4$ -DQPSK 2DH5 MCH 2441MHz Ant1 NTN



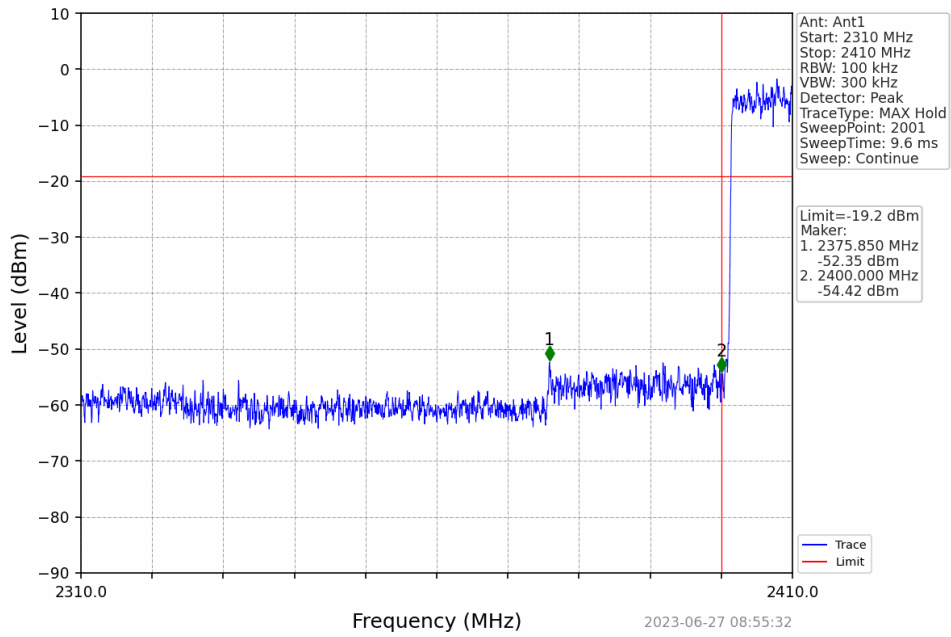
$\pi/4$ -DQPSK 2DH5 HCH 2480MHz Ant1 NTN



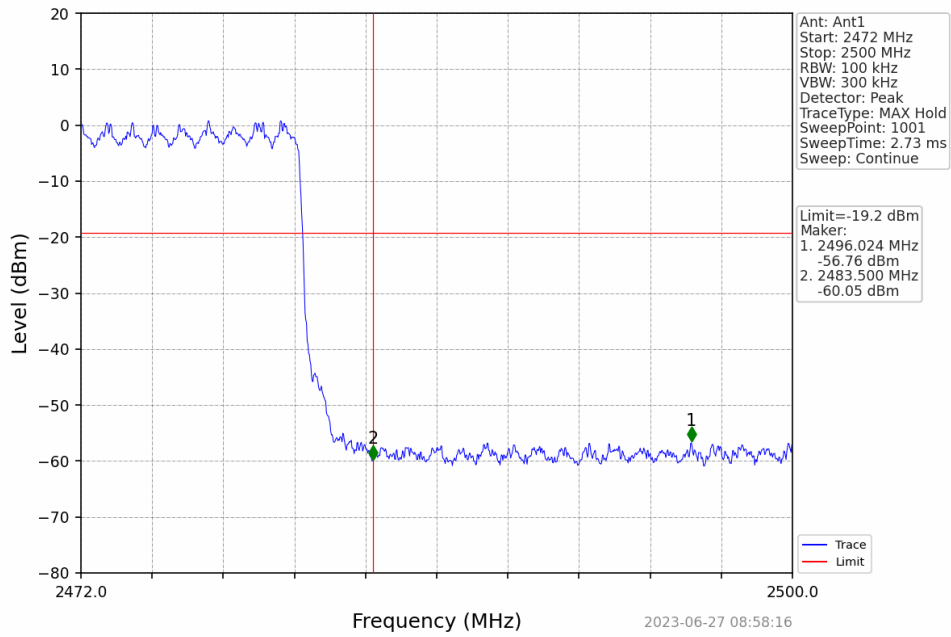
$\pi/4$ -DQPSK 2DH5 HCH 2480MHz Ant1 NTN



$\pi/4$ -DQPSK 2DH5 HOPP Ant1 NTN



$\pi/4$ -DQPSK 2DH5 HOPP Ant1 NTN



7 Restrict-band Band-edge Test

7.1 Test Result

Test Mode: GFKS										
Pol.	Frequen cy (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	46.01	29.15	3.41	34.01	44.56	74.00	-29.44	PK	PASS
H	2400.00	63.25	29.16	3.43	34.01	61.83	74.00	-12.17	PK	PASS
V	2390.00	46.86	29.15	3.41	34.01	45.41	74.00	-28.59	PK	PASS
V	2400.00	65.62	29.16	3.43	34.01	64.20	74.00	-9.80	PK	PASS
H	2390.00	35.86	29.15	3.41	34.01	34.41	54.00	-19.59	AV	PASS
H	2400.00	47.28	29.16	3.43	34.01	45.86	54.00	-8.14	AV	PASS
V	2390.00	36.02	29.15	3.41	34.01	34.57	54.00	-19.43	AV	PASS
V	2400.00	49.23	29.16	3.43	34.01	47.81	54.00	-6.19	AV	PASS
High Channel: 2480MHz										
H	2483.50	48.49	29.28	3.53	34.03	47.27	74.00	-26.73	PK	PASS
H	2500.00	47.07	29.30	3.56	34.03	45.90	74.00	-28.10	PK	PASS
V	2483.50	49.86	29.28	3.53	34.03	48.64	74.00	-25.36	PK	PASS
V	2500.00	48.36	29.30	3.56	34.03	47.19	74.00	-26.81	PK	PASS
H	2483.50	38.72	29.28	3.53	34.03	37.50	54.00	-16.50	AV	PASS
H	2500.00	36.27	29.30	3.56	34.03	35.10	54.00	-18.90	AV	PASS
V	2483.50	40.19	29.28	3.53	34.03	38.97	54.00	-15.03	AV	PASS
V	2500.00	36.46	29.30	3.56	34.03	35.29	54.00	-18.71	AV	PASS

Test Mode: π/4-DQPSK										
Pol.	Frequen cy (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	46.14	29.15	3.41	34.01	44.69	74.00	-29.31	PK	PASS
H	2400.00	63.40	29.16	3.43	34.01	61.98	74.00	-12.02	PK	PASS
V	2390.00	47.00	29.15	3.41	34.01	45.55	74.00	-28.45	PK	PASS
V	2400.00	65.78	29.16	3.43	34.01	64.36	74.00	-9.64	PK	PASS
H	2390.00	35.95	29.15	3.41	34.01	34.50	54.00	-19.50	AV	PASS
H	2400.00	47.38	29.16	3.43	34.01	45.96	54.00	-8.04	AV	PASS
V	2390.00	36.13	29.15	3.41	34.01	34.68	54.00	-19.32	AV	PASS
V	2400.00	49.34	29.16	3.43	34.01	47.92	54.00	-6.08	AV	PASS
High Channel: 2480MHz										
H	2483.50	48.63	29.28	3.53	34.03	47.41	74.00	-26.59	PK	PASS
H	2500.00	47.18	29.30	3.56	34.03	46.01	74.00	-27.99	PK	PASS
V	2483.50	50.02	29.28	3.53	34.03	48.80	74.00	-25.20	PK	PASS
V	2500.00	48.49	29.30	3.56	34.03	47.32	74.00	-26.68	PK	PASS
H	2483.50	38.82	29.28	3.53	34.03	37.60	54.00	-16.40	AV	PASS
H	2500.00	36.35	29.30	3.56	34.03	35.18	54.00	-18.82	AV	PASS
V	2483.50	40.30	29.28	3.53	34.03	39.08	54.00	-14.92	AV	PASS
V	2500.00	36.55	29.30	3.56	34.03	35.38	54.00	-18.62	AV	PASS

Remark:

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

.....End.....