Appendix A

Report No.:	CISRR24041308101
FCC ID:	2BFZ7-ZX-C
Product Name:	Levitating Bluetooth speaker
Model No.:	ZX-C
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

Conducted Peak Output Power

Test Result

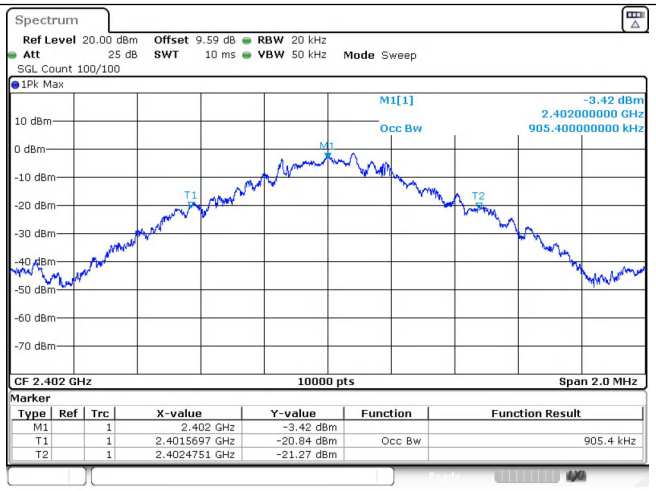
Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	2.382	1.730	30	PASS
		39	1.299	1.349		PASS
		78	1.201	1.319		PASS
π/4DQPSK	2-DH5	0	2.039	1.599	20.97	PASS
		39	1.865	1.536		PASS
		78	1.808	1.516		PASS

99% Bandwidth

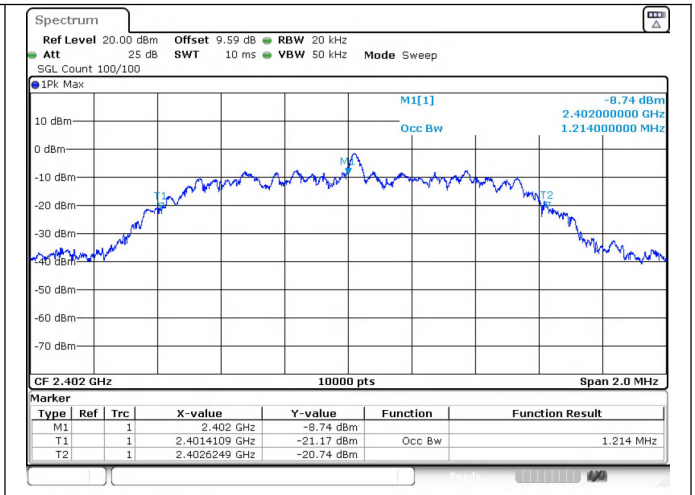
Test Result

Modulation	Channel	99% BW (MHz)
GFSK	0	0.90540
	39	0.90880
	78	0.89380
π/4DQPSK	0	1.2140
	39	1.2110
	78	1.2060

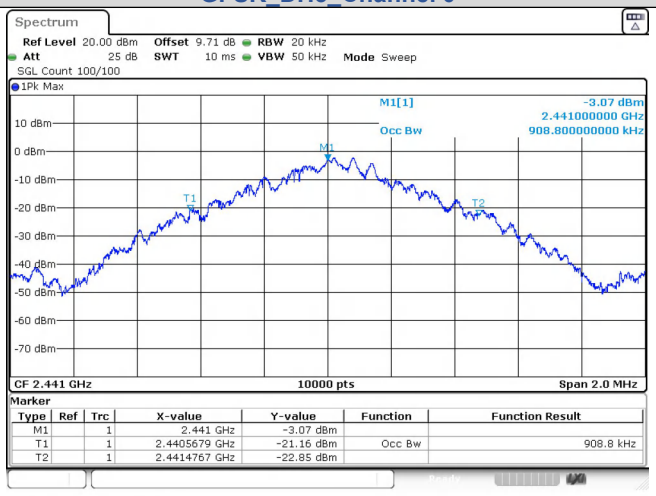
Test Graphs



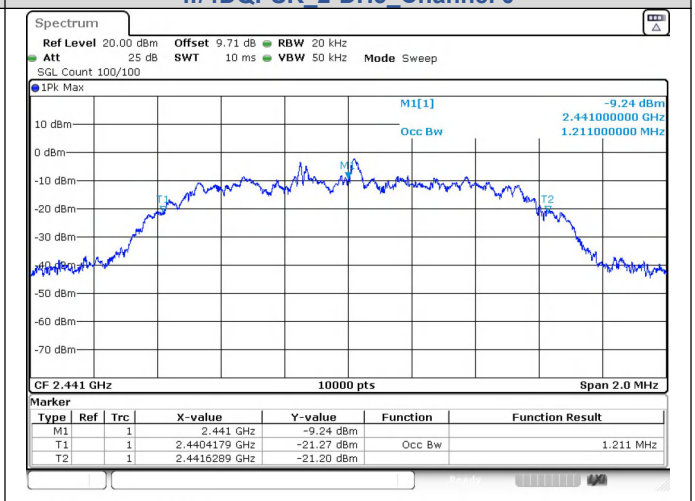
GFSK_DH5_Channel 0



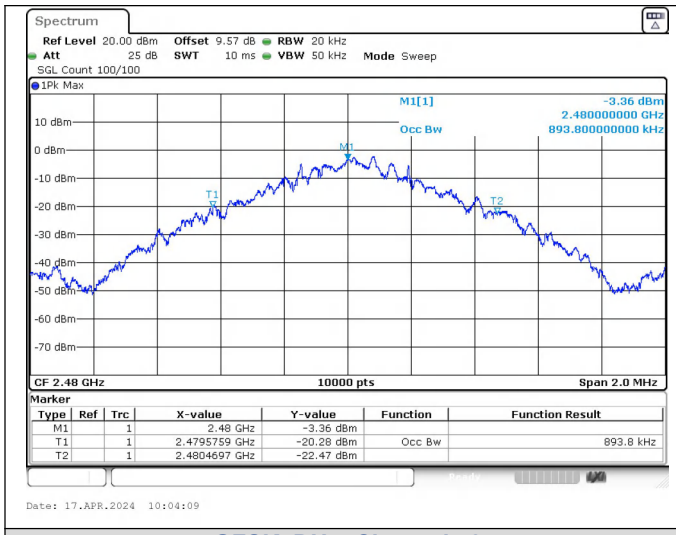
π/4DQPSK_2-DH5_Channel 0



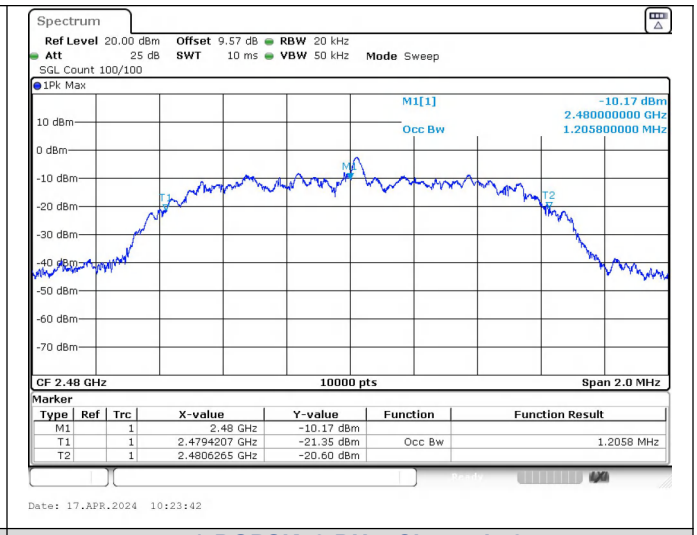
GFSK_DH5_Channel 39



π/4DQPSK_2-DH5_Channel 39



GFSK_DH5_Channel 78



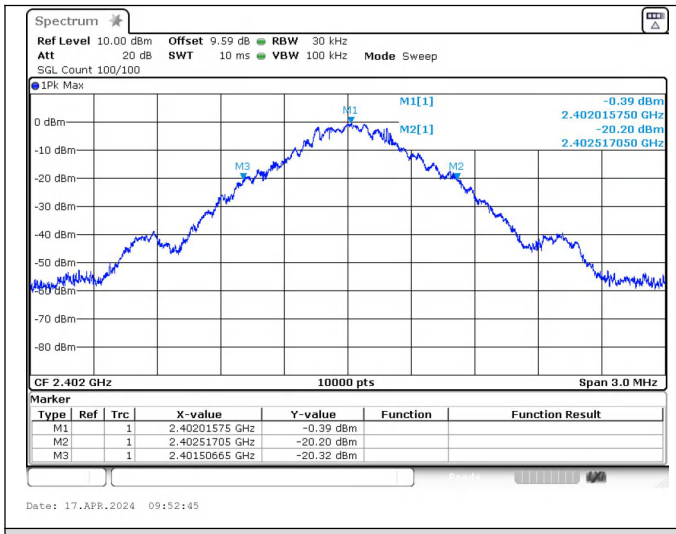
π/4DQPSK_2-DH5_Channel 78

20dB Bandwidth

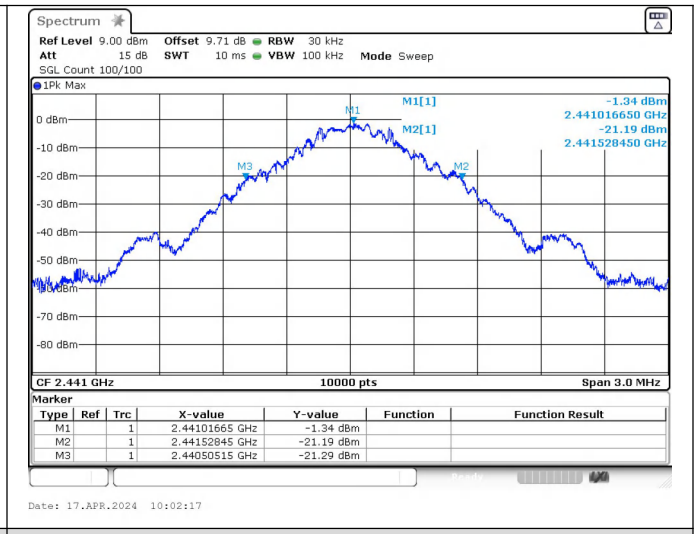
Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.010
	39	2441 MHz	1.020
	78	2480 MHz	1.000
π/4DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.310
	78	2480 MHz	1.310

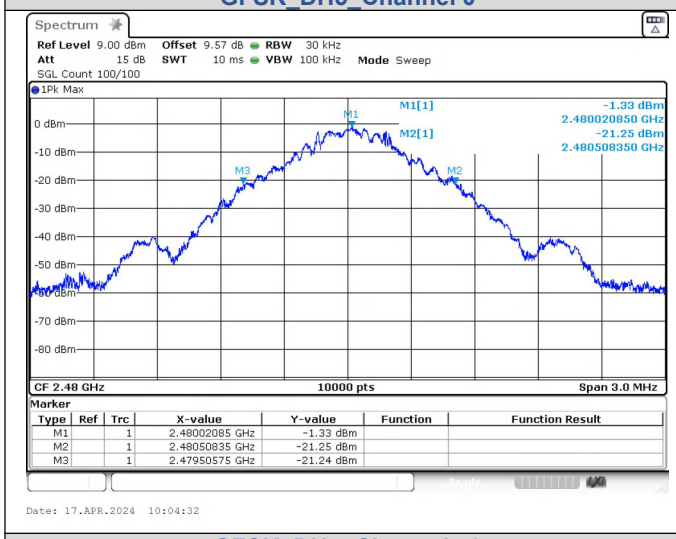
Test Graphs



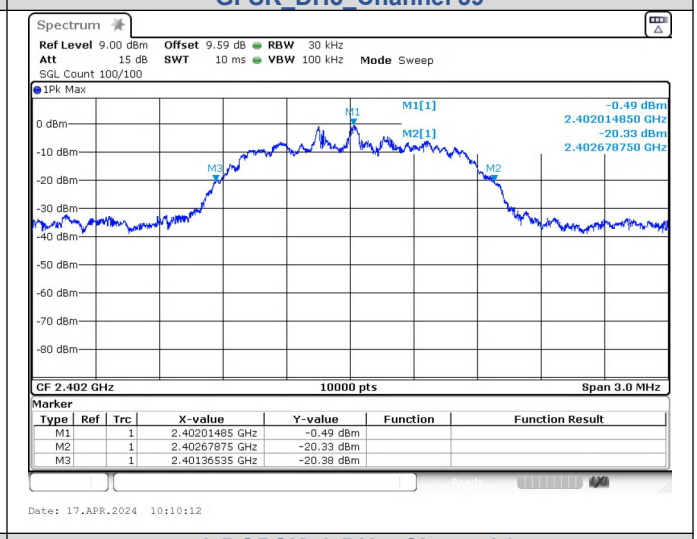
GFSK_DH5_Channel 0



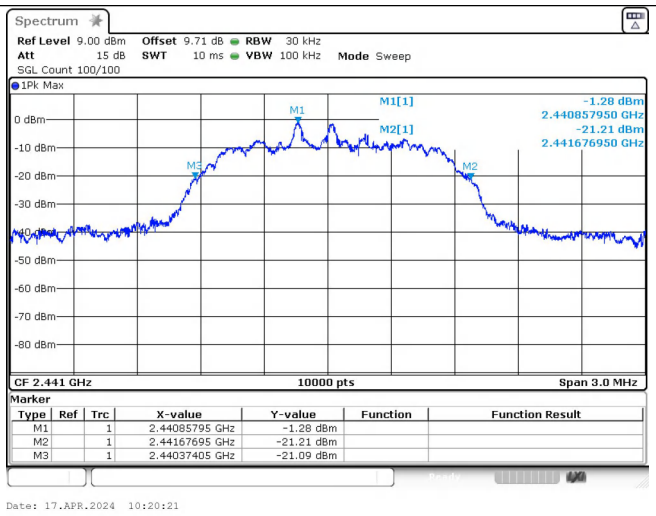
GFSK_DH5_Channel 39



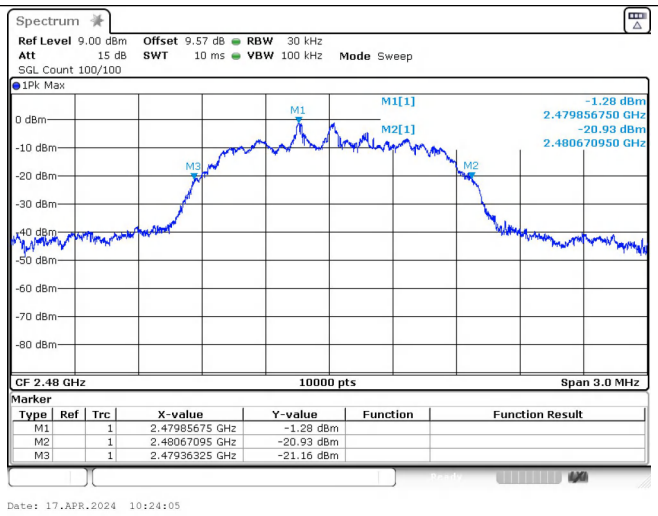
GFSK_DH5_Channel 78



π/4DQPSK_2-DH5_Channel 0



π/4DQPSK_2-DH5_Channel 39



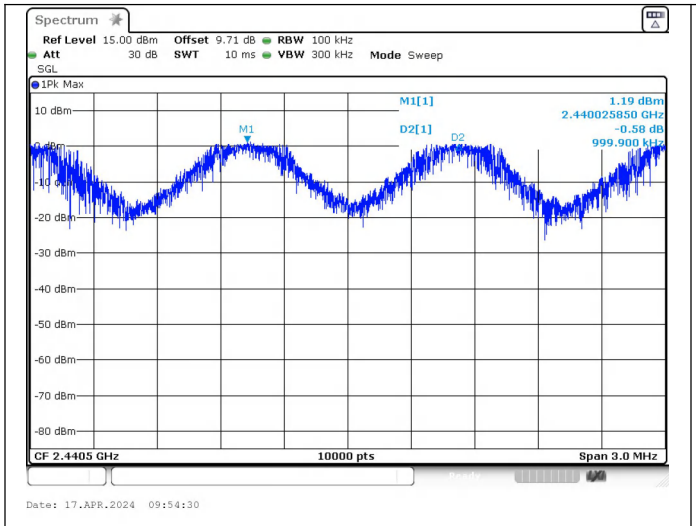
π/4DQPSK_2-DH5_Channel 78

Carrier Frequencies Separation

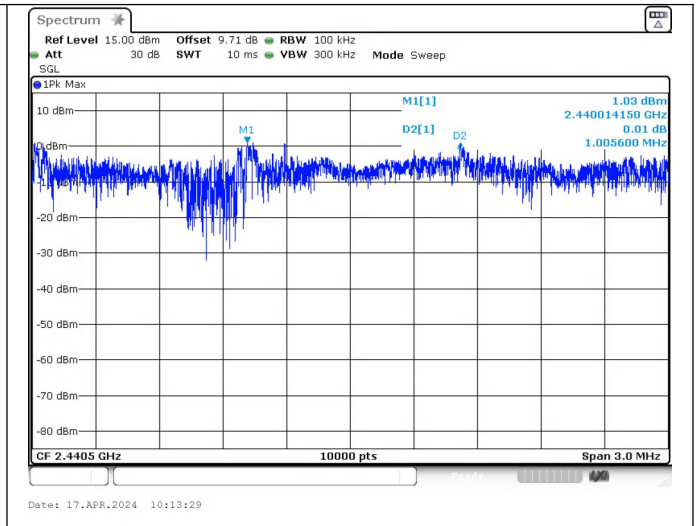
Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2440.0258	2441.0257	0.9999	0.673	PASS
π/4DQPSK	2-DH5	2440.0141	2441.0197	1.0056	0.873	PASS

Test Graphs



GFSK



π/4DQPSK

Conducted Out Of Band Emission

Test Result

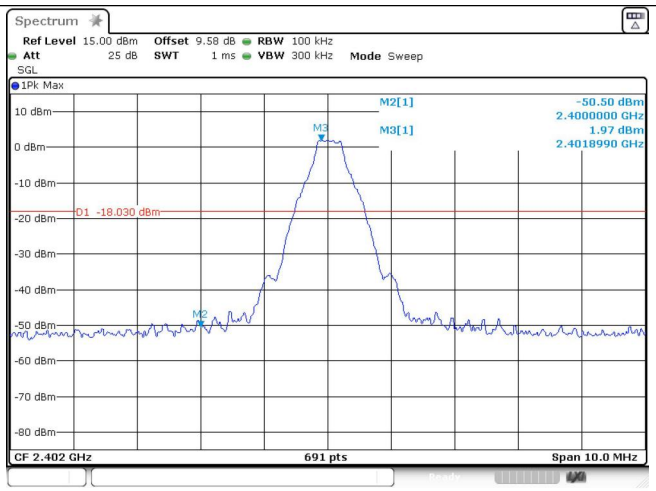
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-50.504	-18.03	-32.474	PASS
			7205.96	-38.992	-18.03	-20.962	PASS
		39	9764.55	-41.346	-18.75	-22.596	PASS
		78	2483.50	-50.870	-18.9	-31.970	PASS
			9920.20	-40.246	-18.9	-21.346	PASS
π/4DQPSK	2-DH5	0	2400.00	-46.911	-18.39	-28.521	PASS
			7205.96	-38.394	-18.39	-20.004	PASS
		39	9763.72	-41.514	-18.88	-22.634	PASS
		78	2483.50	-52.492	-18.98	-33.512	PASS
			9920.20	-40.273	-18.98	-21.293	PASS

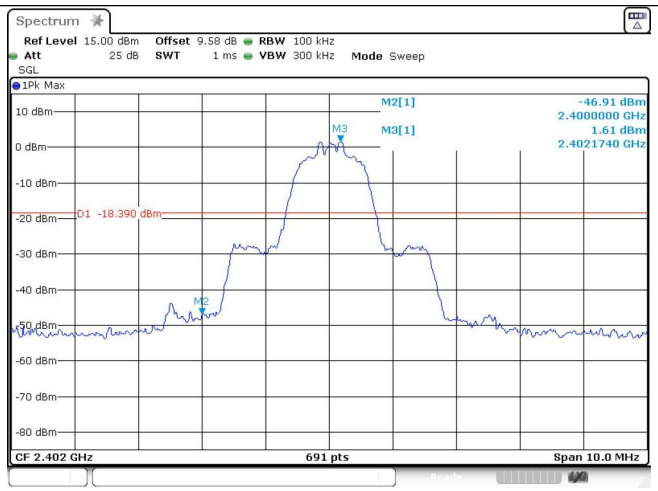
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2400.00	-49.610	-17.88	-31.730	PASS
			2483.50	-49.950	-18.94	-31.010	PASS
			2398.47	-50.276	-18.08	-32.196	PASS
			2400.00	-51.072	-18.08	-32.992	PASS
			2483.50	-51.005	-18.96	-32.045	PASS
π/4DQPSK	2-DH5		2400.00	-49.778	-18.21	-31.568	PASS
			2483.50	-50.149	-19.05	-31.099	PASS
			2400.00	-46.362	-18.07	-28.292	PASS
			2483.50	-50.641	-19.08	-31.561	PASS

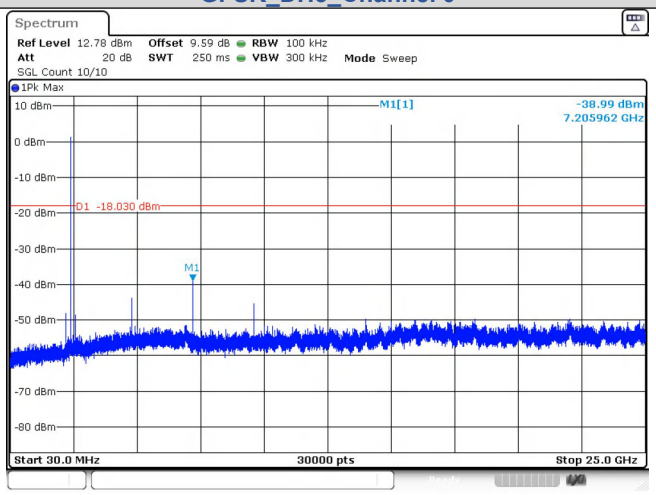
Test Graphs



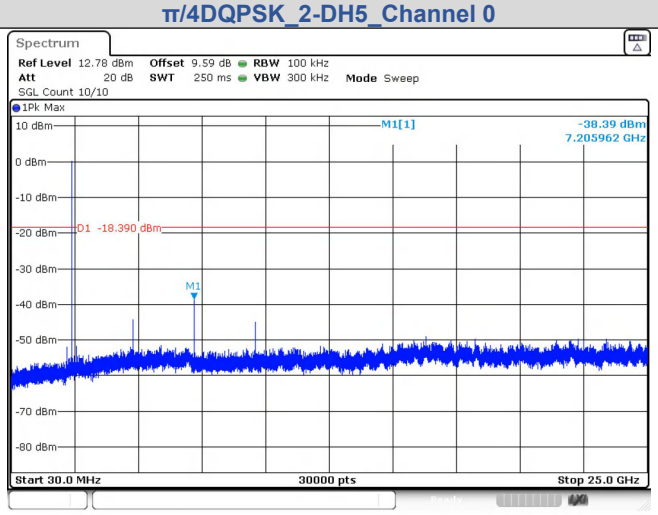
Out Of Band Emission
GFSK_DH5_Channel 0



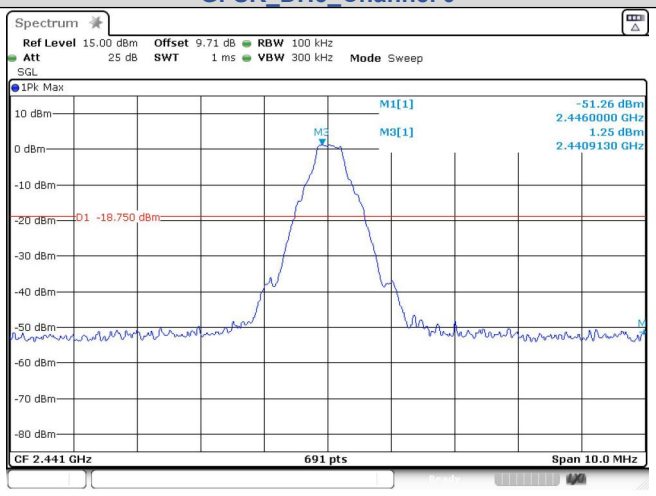
Out Of Band Emission
π/4DQPSK_2-DH5_Channel 0



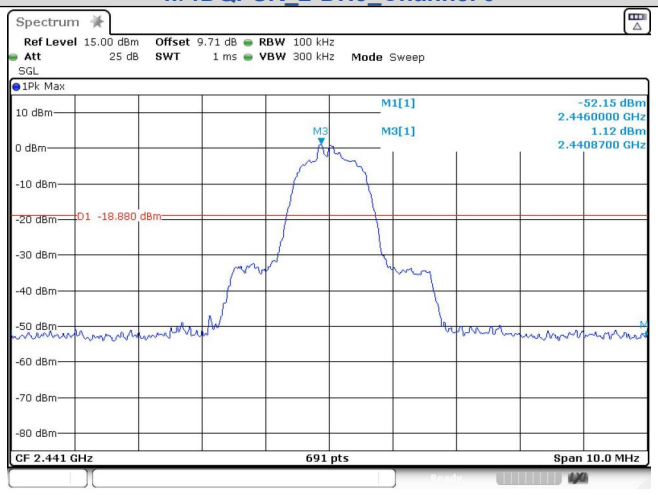
Spurious Emission
GFSK_DH5_Channel 0



Spurious Emission
π/4DQPSK_2-DH5_Channel 0

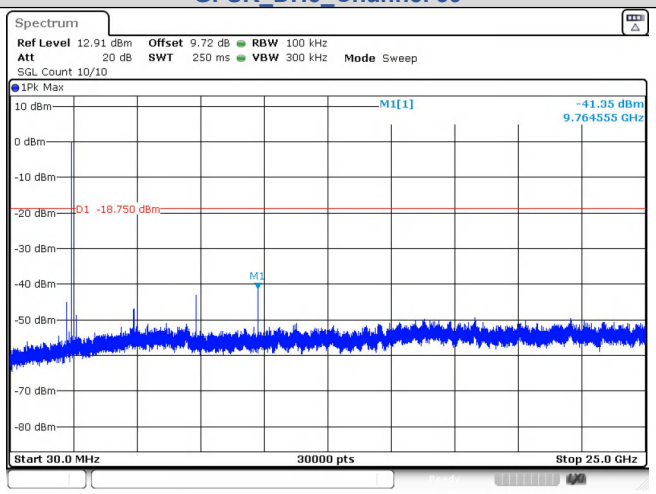


Out Of Band Emission



Out Of Band Emission

GFSK_DH5_Channel 39



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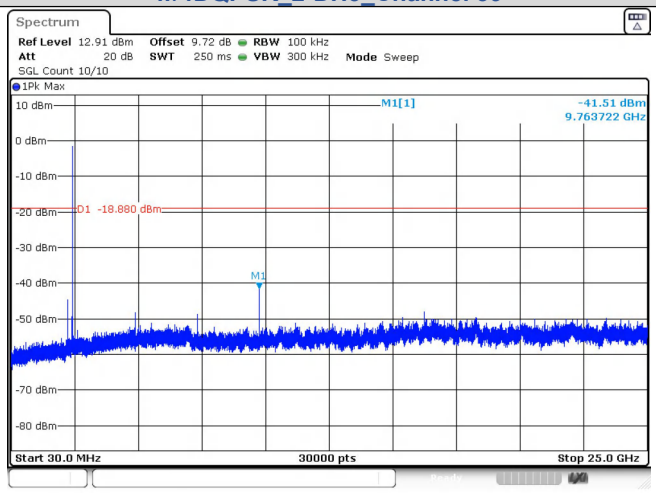
π/4DQPSK_2-DH5_Channel 39



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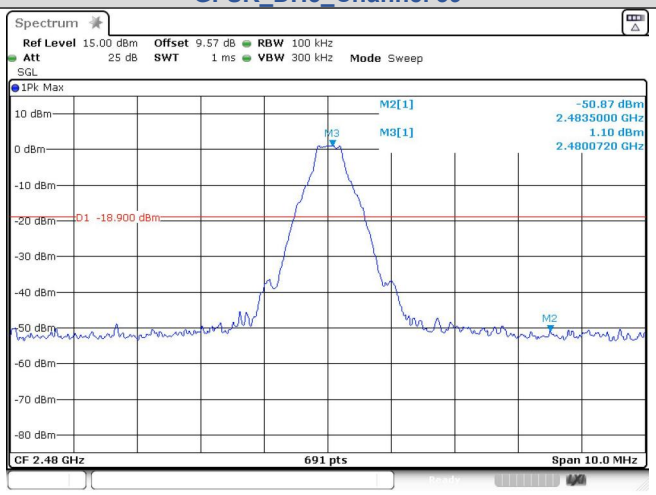
Spurious Emissions GFSK_DH5_Channel 39



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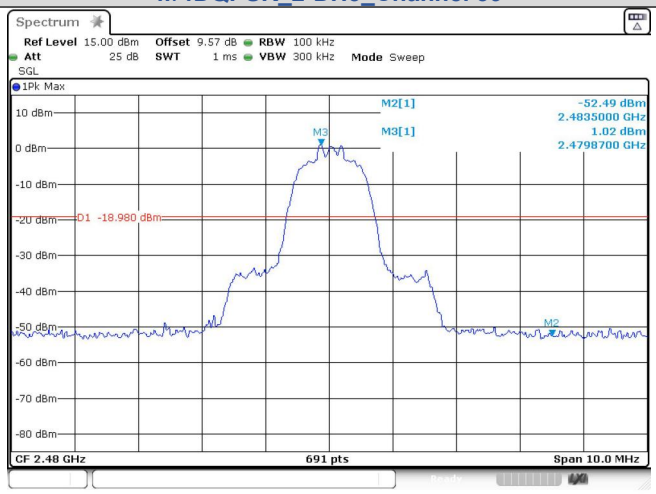
Spurious Emissions π/4DQPSK_2-DH5_Channel 39



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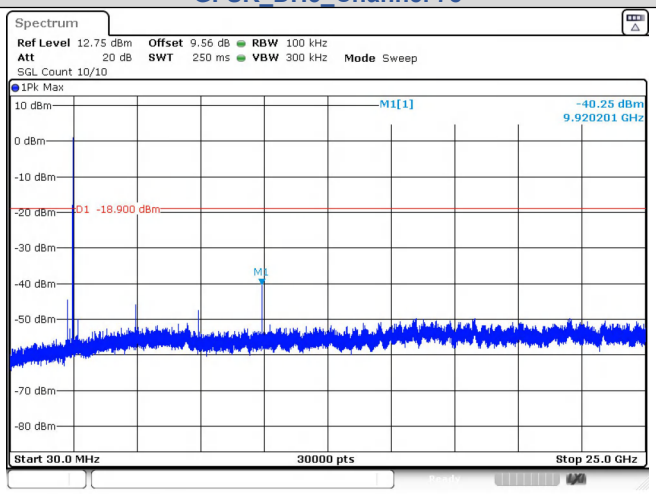
Out Of Band Emission GFSK_DH5_Channel 78



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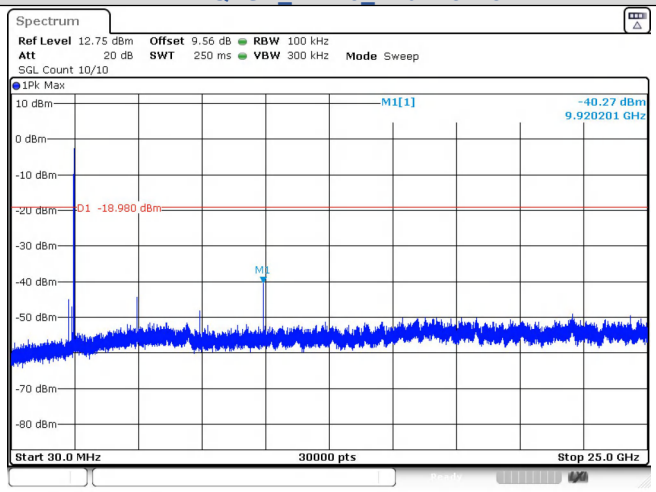
Out Of Band Emission π/4DQPSK_2-DH5_Channel 78



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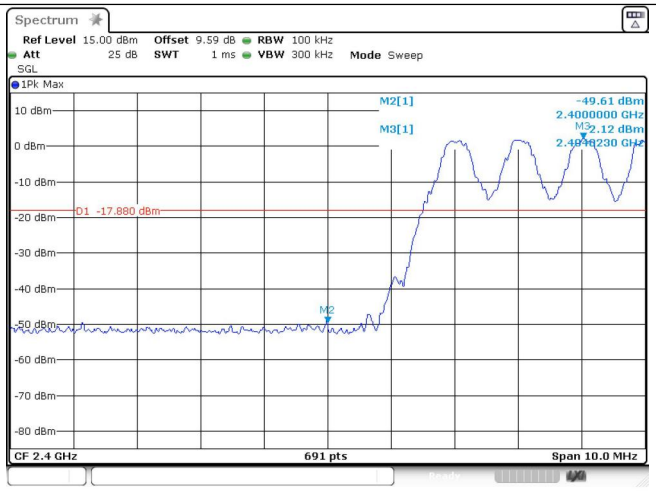
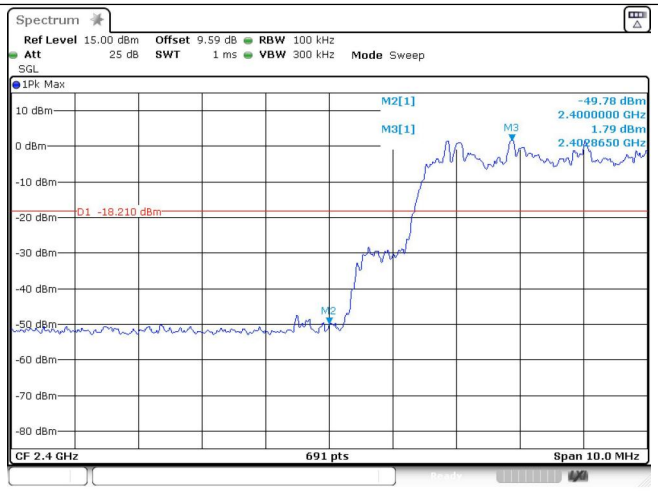
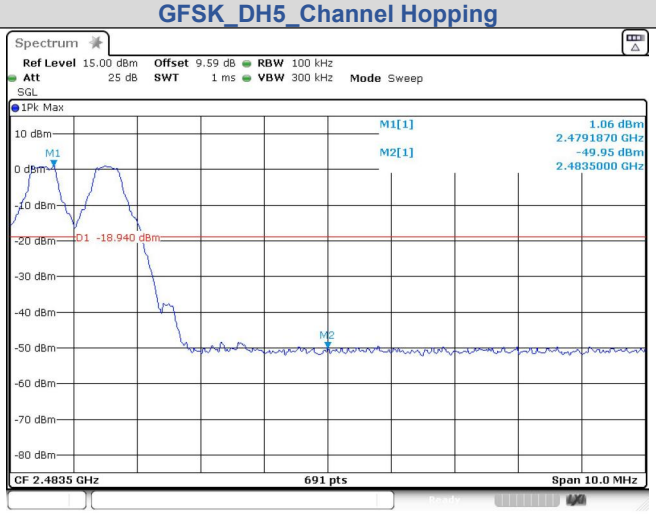
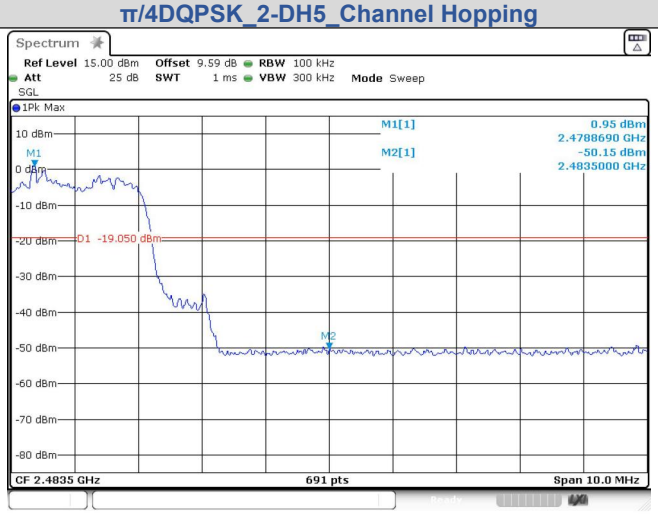
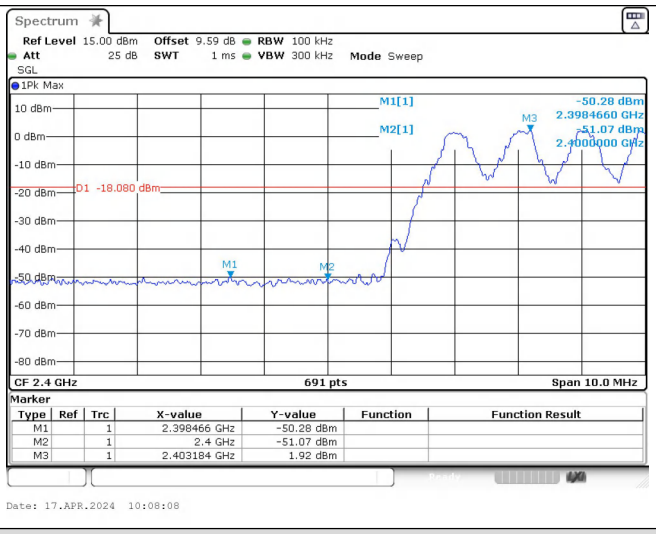
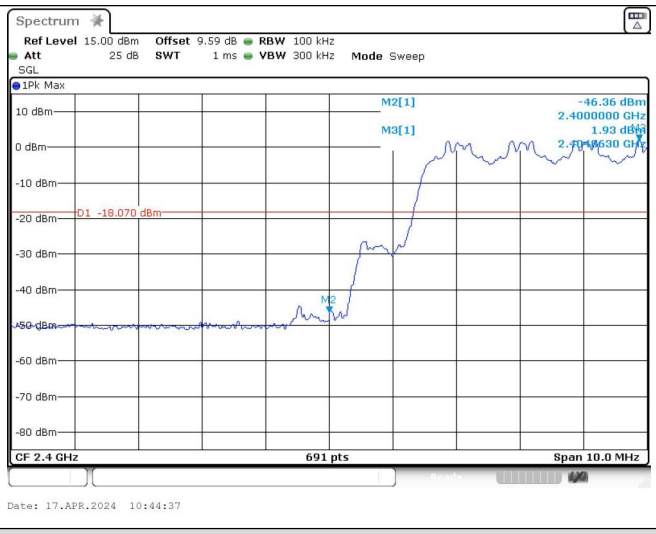
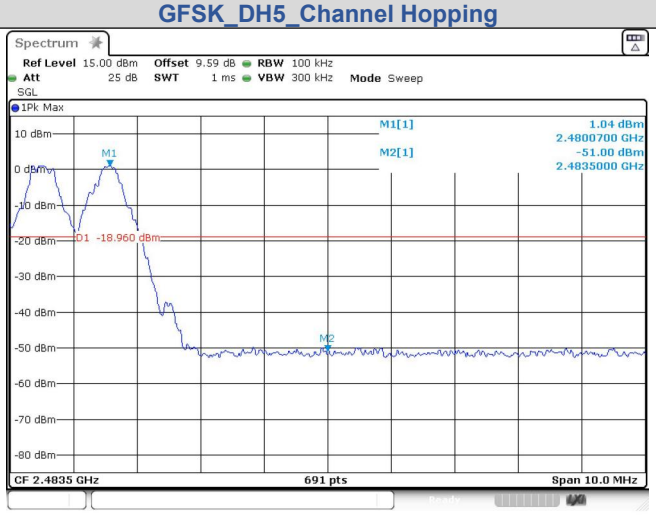
Spurious Emission GFSK_DH5_Channel 78	Spurious Emission π/4DQPSK_2-DH5_Channel 78
	
Out Of Band Emission(Left) GFSK_DH5_Channel Hopping	**Out Of Band Emission(Left) π/4DQPSK_2-DH5_Channel Hopping**
	
Out Of Band Emission(Right) GFSK_DH5_Channel Hopping	**Out Of Band Emission(Right) π/4DQPSK_2-DH5_Channel Hopping**



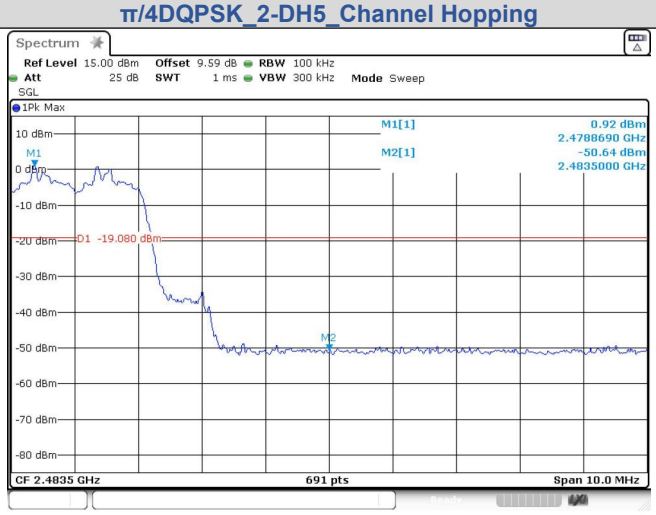
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



Out Of Band Emission(Left)
π/4DQPSK_2-DH5_Channel Hopping



Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



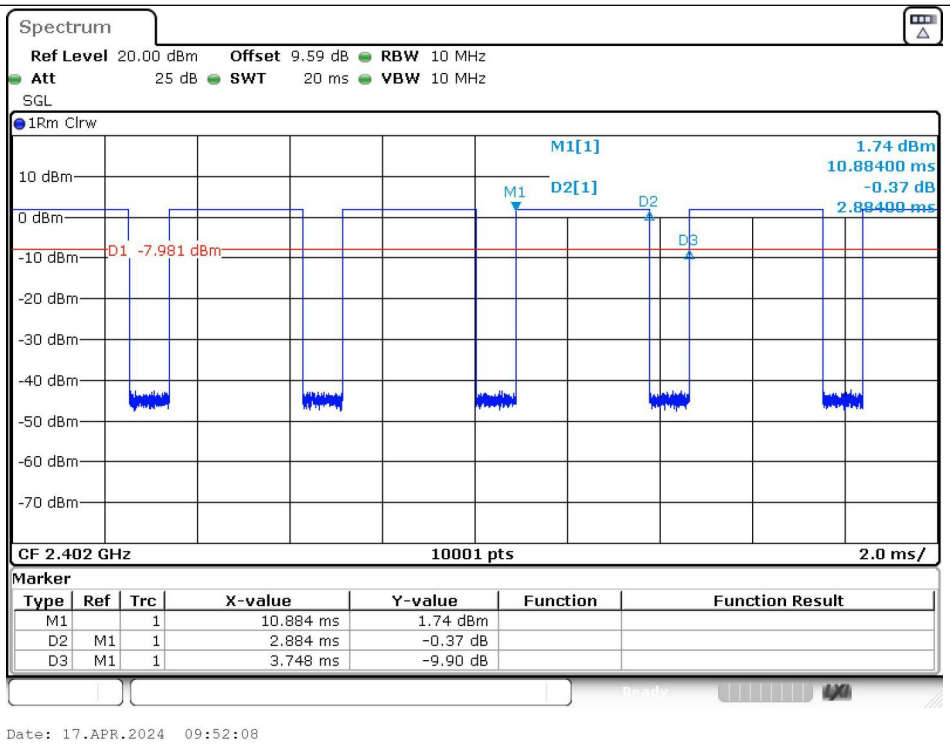
Out Of Band Emission(Right)
π/4DQPSK_2-DH5_Channel Hopping

Duty Cycle

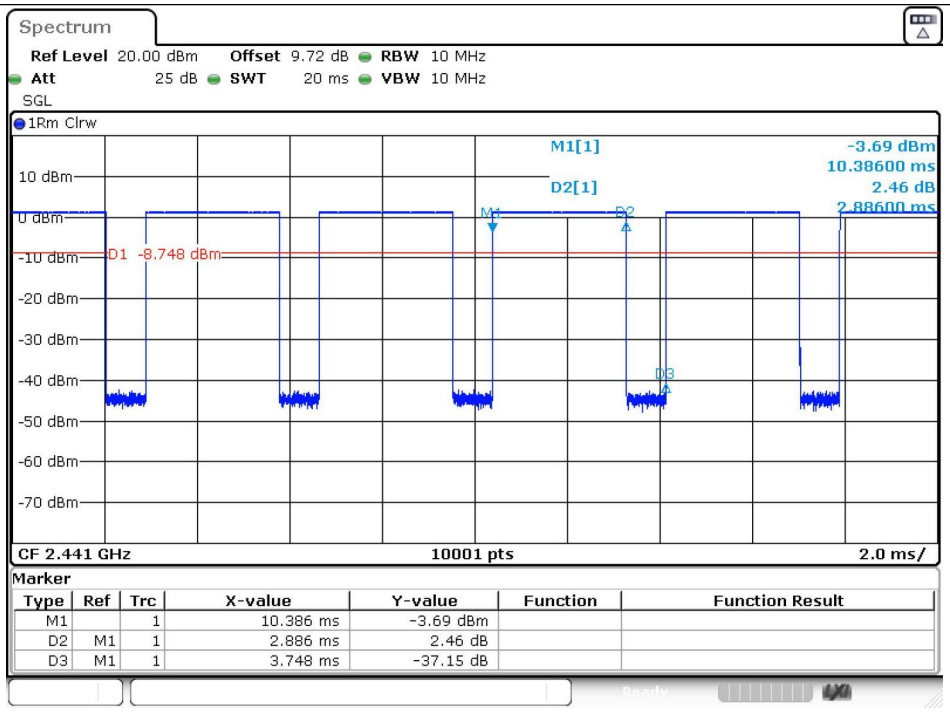
Test Result

Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.884	3.748	76.95	0.7695	1.1379	0.35
		39	2.886	3.748	77.00	0.7700	1.1351	0.35
		78	2.886	3.748	77.00	0.7700	1.1351	0.35
π/4DQPSK	2-DH5	0	2.890	3.748	77.11	0.7711	1.1289	0.35
		39	2.892	3.748	77.16	0.7716	1.1261	0.35
		78	2.892	3.748	77.16	0.7716	1.1261	0.35

Test Graphs



GFSK(DH5)_Channel 0



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	10.386 ms	-3.69 dBm		
D2	M1	1	2.886 ms	2.46 dB		
D3	M1	1	3.748 ms	-37.15 dB		

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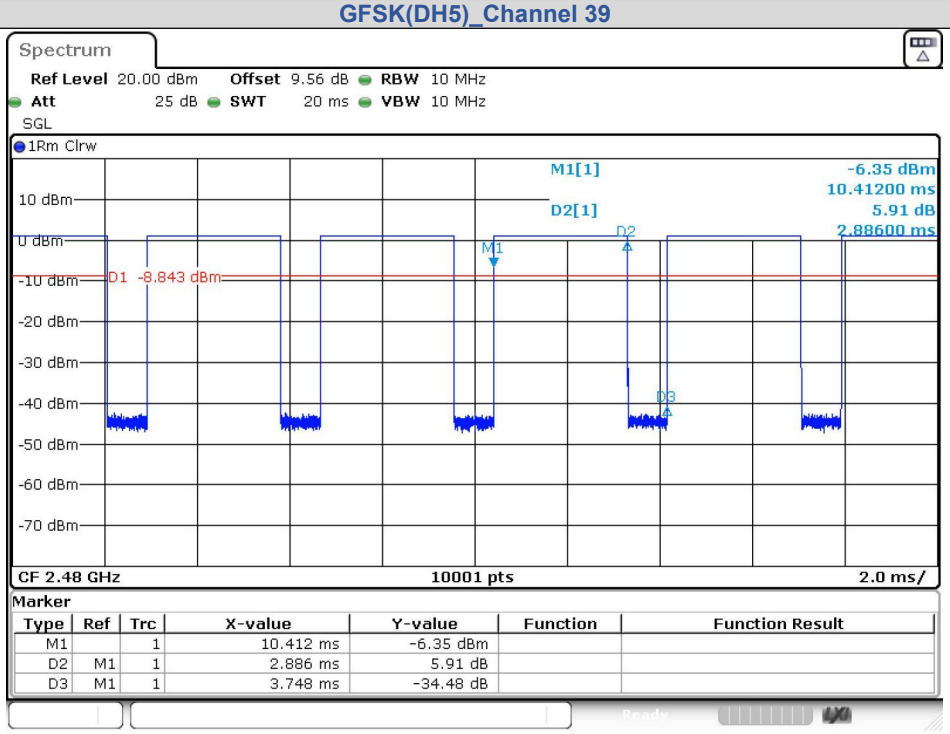
GFSK(DH5)_Channel 39



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	10.412 ms	-6.35 dBm		
D2	M1	1	2.886 ms	5.91 dB		
D3	M1	1	3.748 ms	-34.48 dB		

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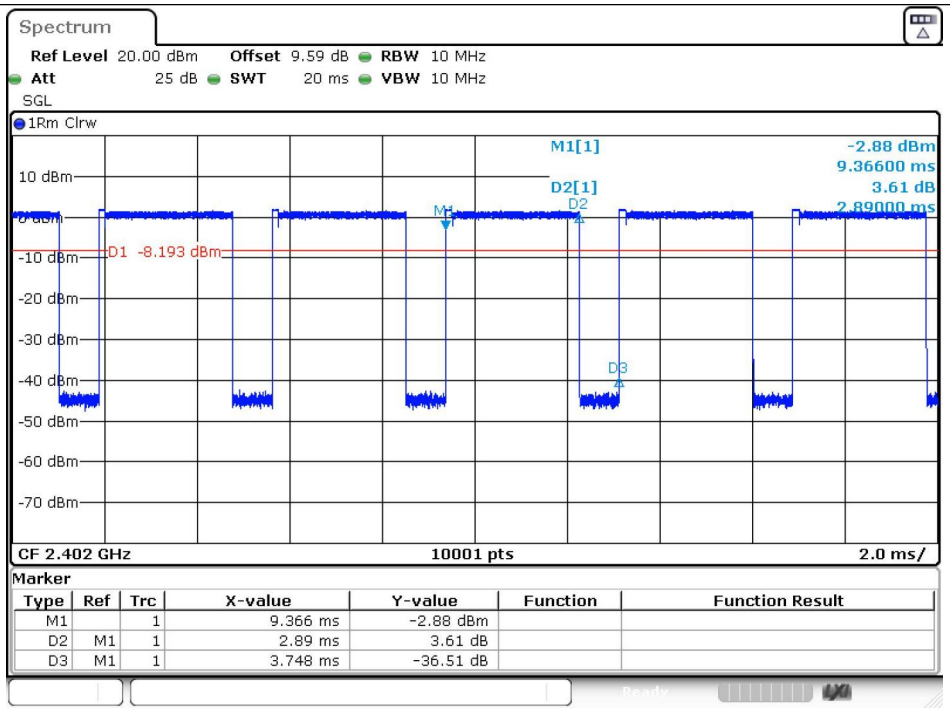
GFSK(DH5)_Channel 78



Marker						
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	9.366 ms	-2.88 dBm		
D2	M1	1	2.89 ms	3.61 dB		
D3	M1	1	3.748 ms	-36.51 dB		

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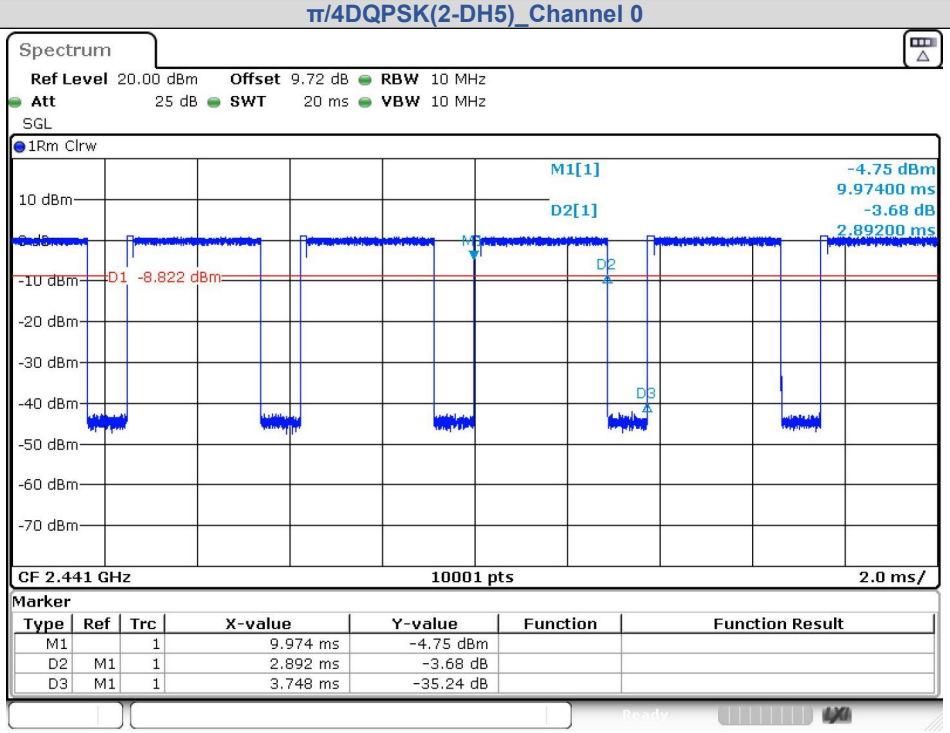
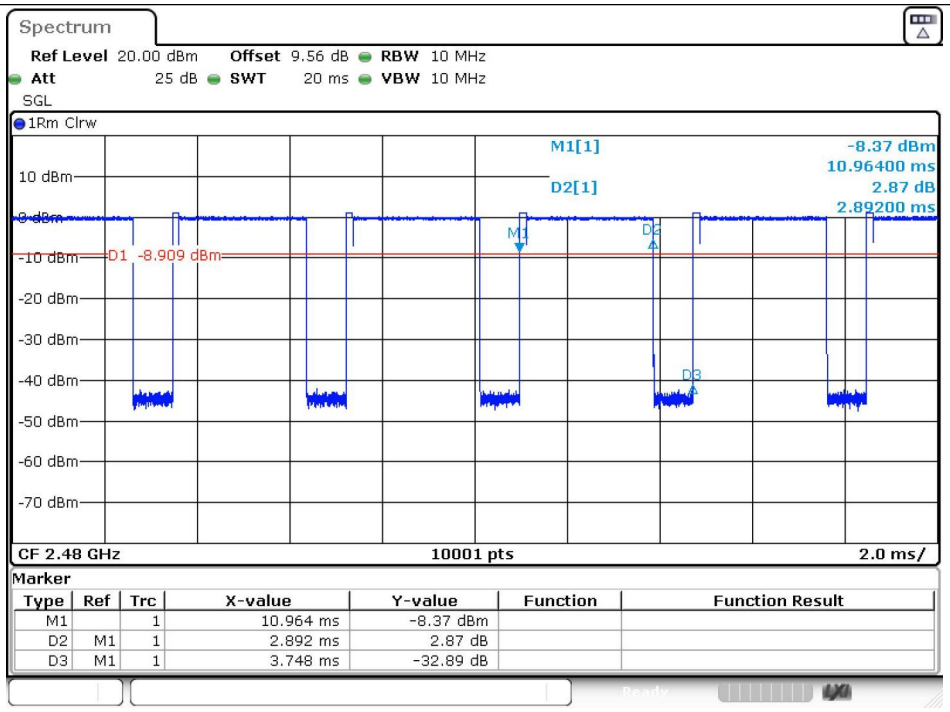
π/4DQPSK(2-DH5)_Channel 0



Marker						
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	9.974 ms	-4.75 dBm		
D2	M1	1	2.892 ms	-3.68 dB		
D3	M1	1	3.748 ms	-35.24 dB		

Date: 17.APR.2024 10:19:45

π/4DQPSK(2-DH5)_Channel 39



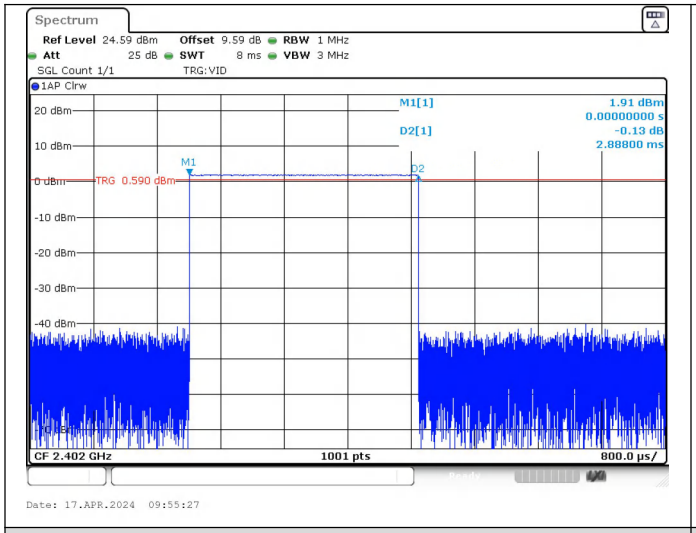
π/4DQPSK(2-DH5)_Channel 78

Dwell Time

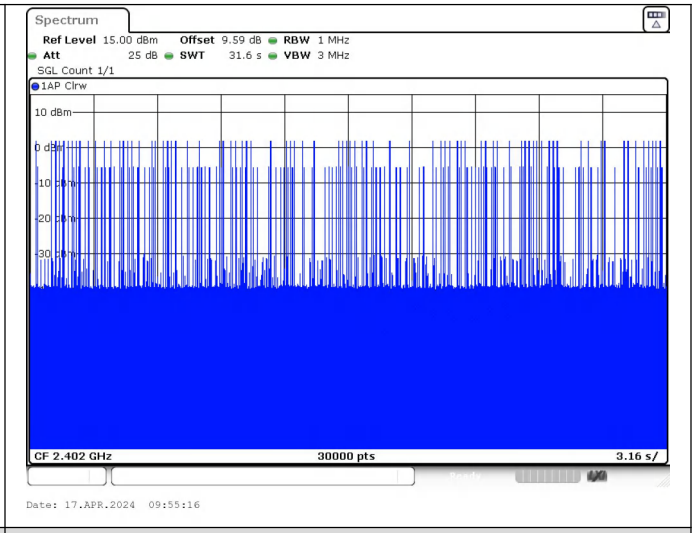
Test Result

Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.888	96	277.25	< 400	PASS
π/4DQPSK	2-DH5		2.896	102	295.39		PASS

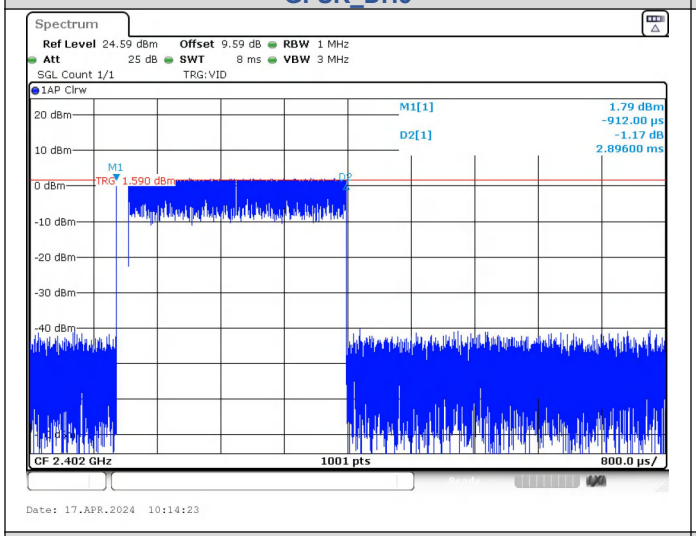
Test Graphs



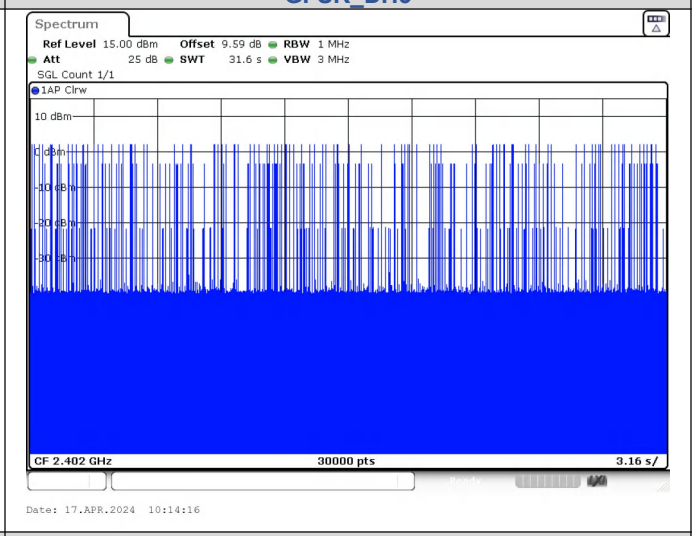
Pulse Width
GFSK_DH5



Number of Pulses in 31.6 seconds
GFSK_DH5



Pulse Width
π/4DQPSK_2-DH5



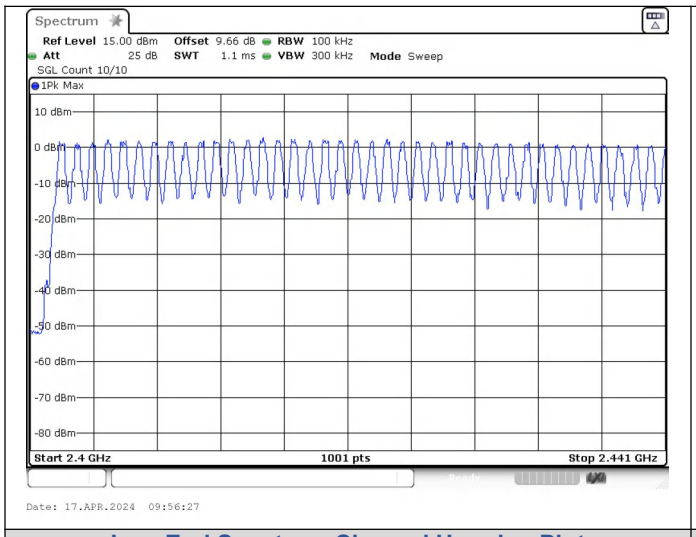
Number of Pulses in 31.6 seconds
π/4DQPSK_2-DH5

Number Of Hopping Channel

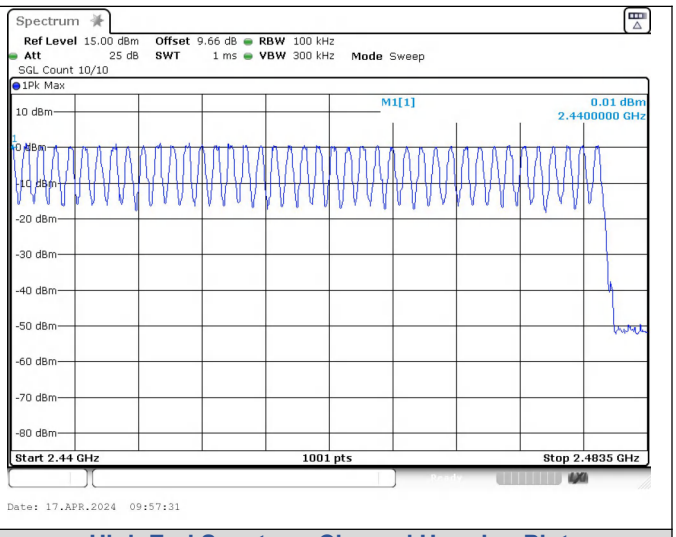
Test Result

Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
π/4DQPSK	2-DH5	79	15	PASS

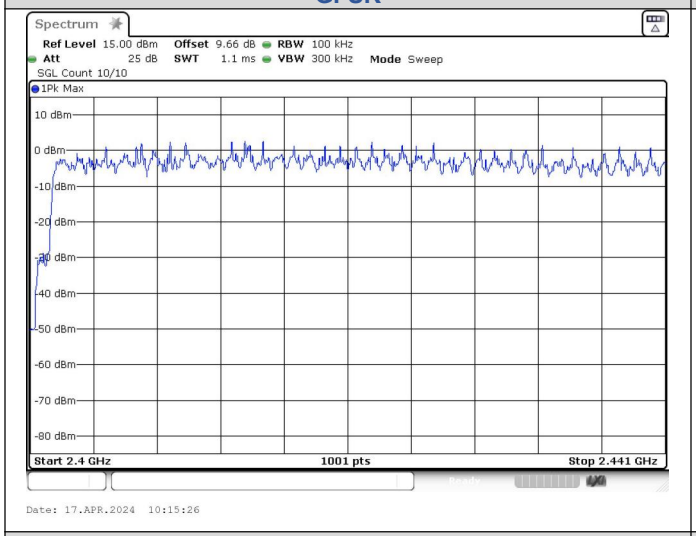
Test Graphs



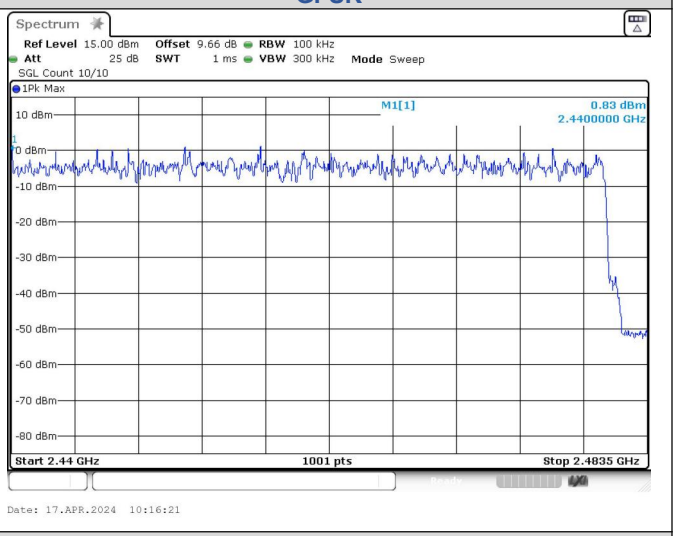
Low End Spectrum Channel Hopping Plot
GFSK



High End Spectrum Channel Hopping Plot
GFSK



Low End Spectrum Channel Hopping Plot
π/4DQPSK



High End Spectrum Channel Hopping Plot
π/4DQPSK