Appendix A

Report No.:	CISRR240301001
FCC ID:	2BAUD-C99
Product Name:	Wireless Bluetooth earphones
Model No.:	C99
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

1) Conducted Peak Output Power

Test Result

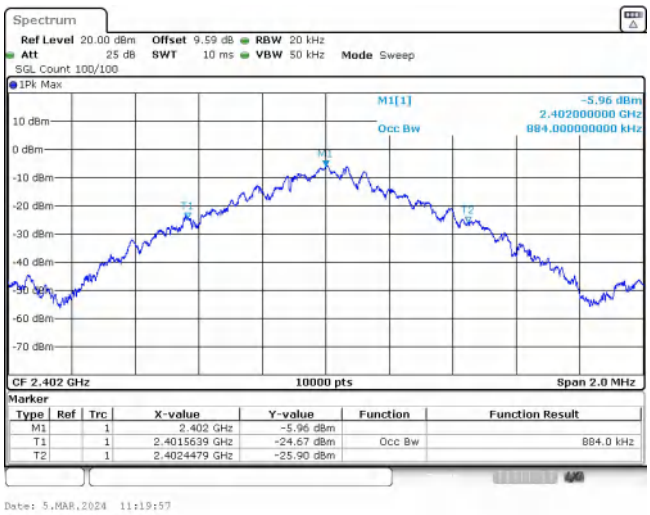
Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	-2.182	0.605	30	PASS
		39	-1.161	0.765		PASS
		78	-1.072	0.781		PASS
π/4DQPSK	2-DH5	0	-1.229	0.754	20.97	PASS
		39	-0.301	0.933		PASS
		78	-0.224	0.950		PASS
8DPSK	3-DH5	0	-0.008	0.998		PASS
		39	1.050	1.274		PASS
		78	1.705	1.481		PASS

2) 99% Bandwidth

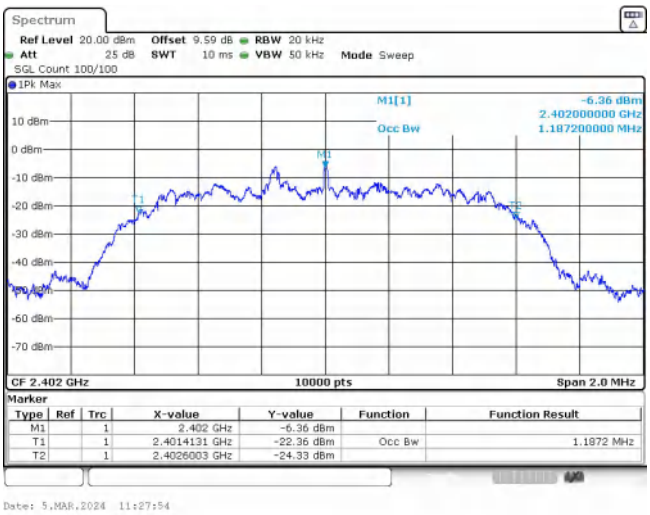
Test Result

Modulation	Channel	99% BW (MHz)
GFSK	0	0.88400
	39	0.88840
	78	0.88960
π/4DQPSK	0	1.1870
	39	1.1930
	78	1.1880
8DPSK	0	1.2000
	39	1.1920
	78	1.1930

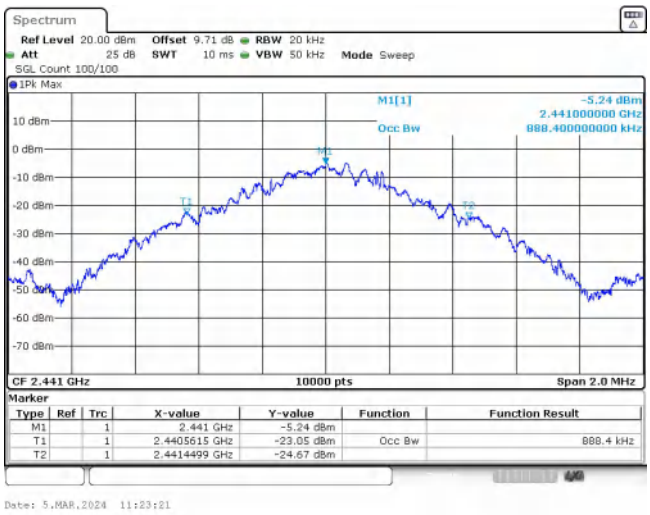
Test Graphs



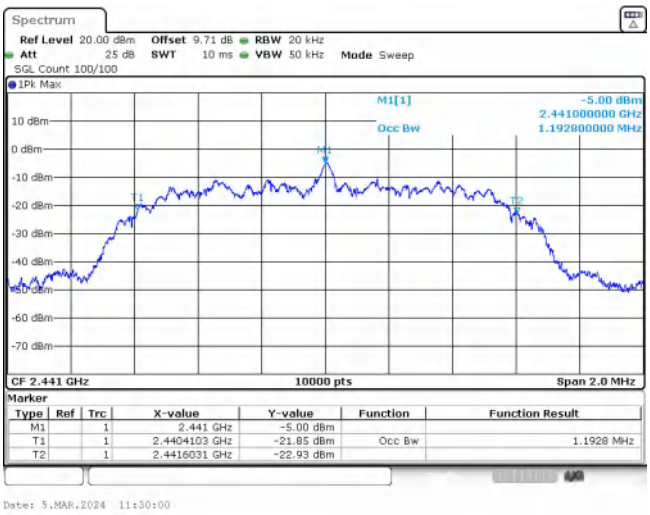
GFSK_DH5_Channel 0



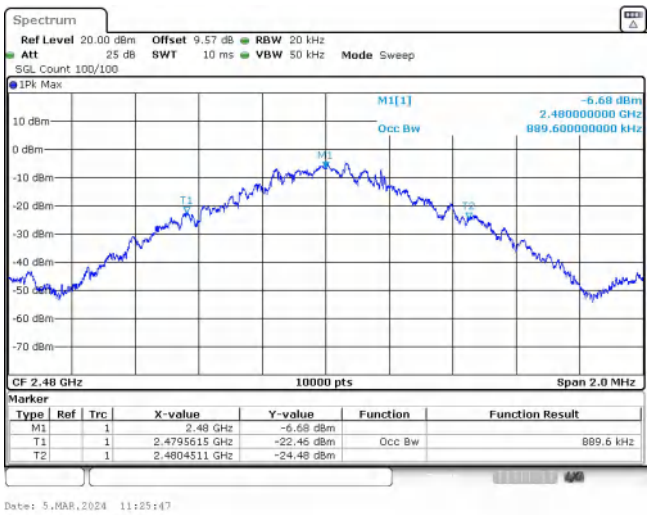
π/4DQPSK_2-DH5_Channel 0



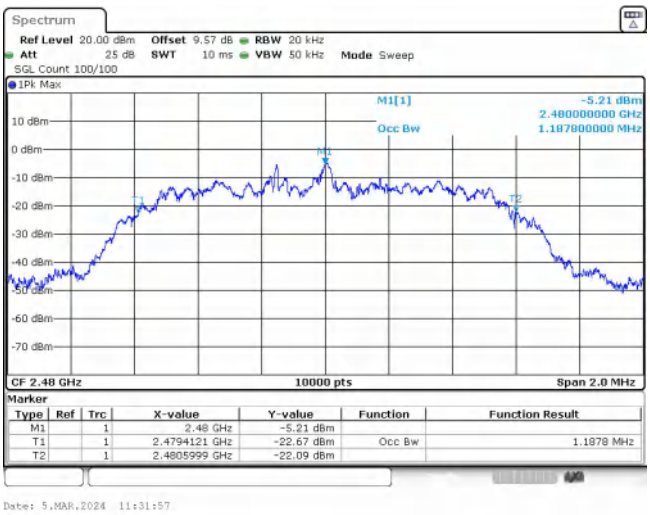
GFSK_DH5_Channel 39



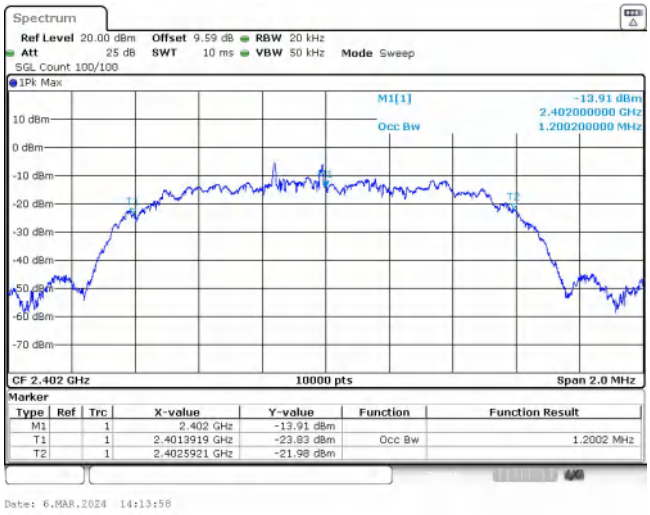
π/4DQPSK_2-DH5_Channel 39



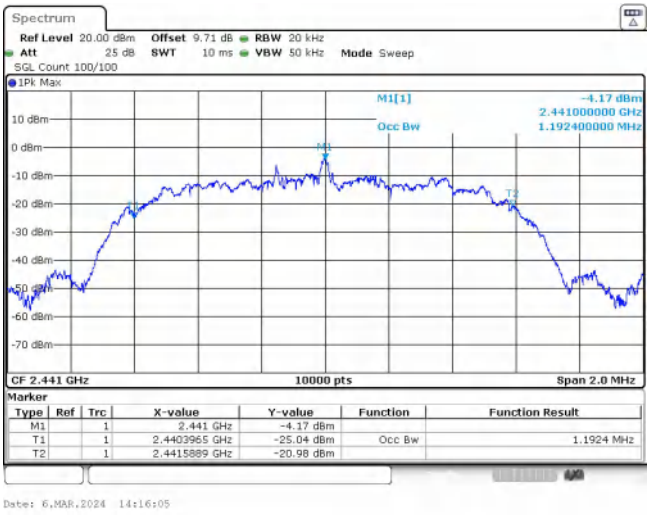
GFSK_DH5_Channel 78



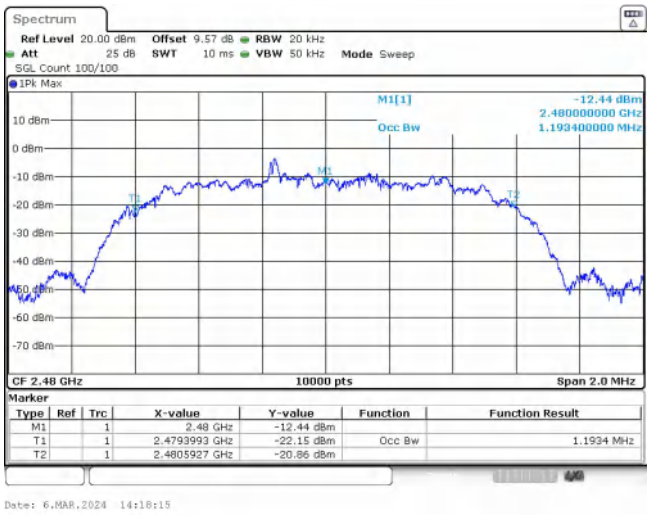
π/4DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



8DPSK_3-DH5_Channel 78

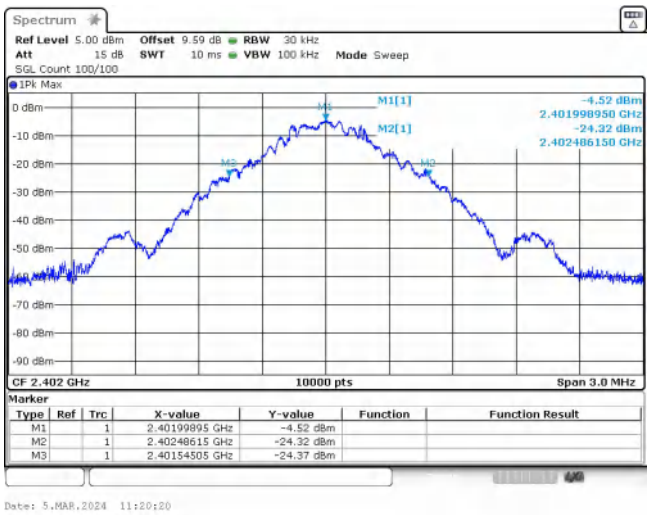
Void

3) 20dB Bandwidth

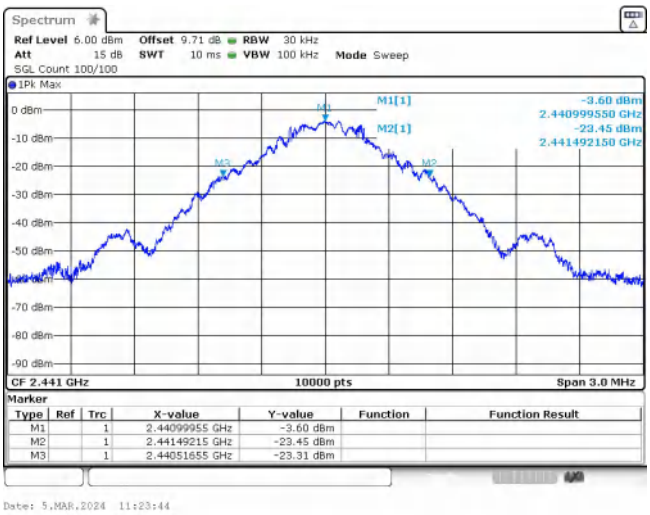
Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	0.9400
	39	2441 MHz	0.9700
	78	2480 MHz	1.010
π/4DQPSK	0	2402 MHz	1.280
	39	2441 MHz	1.310
	78	2480 MHz	1.310
8DPSK	0	2402 MHz	1.280
	39	2441 MHz	1.290
	78	2480 MHz	1.290

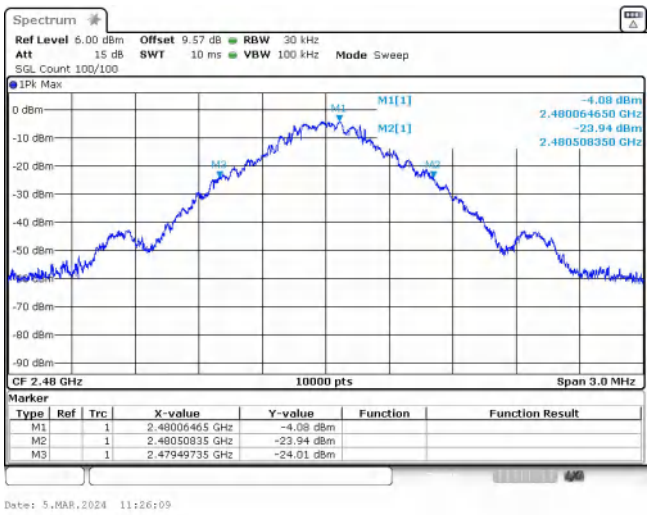
Test Graphs



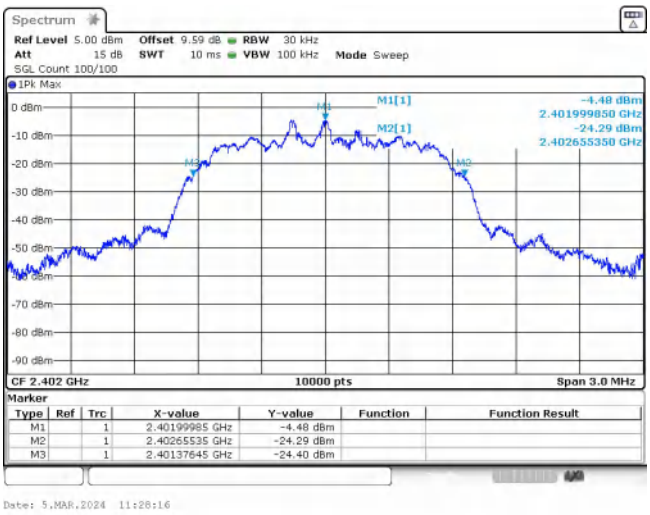
GFSK_DH5_Channel 0



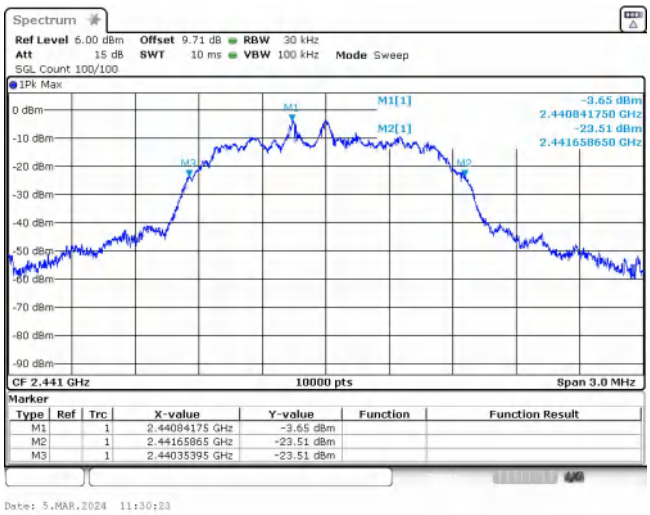
GFSK_DH5_Channel 39



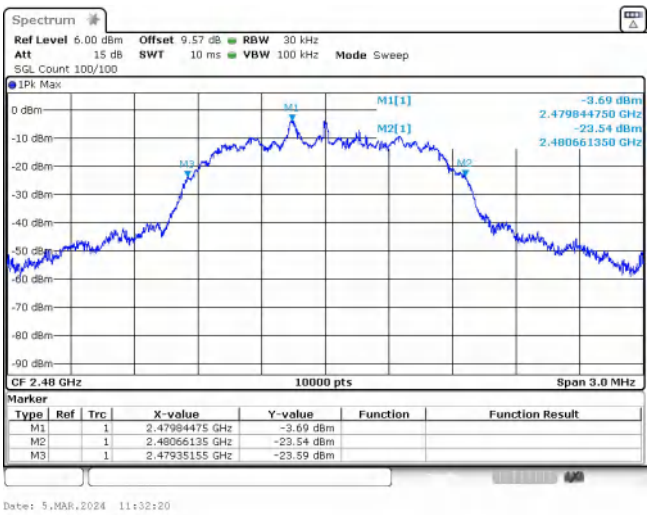
GFSK_DH5_Channel 78



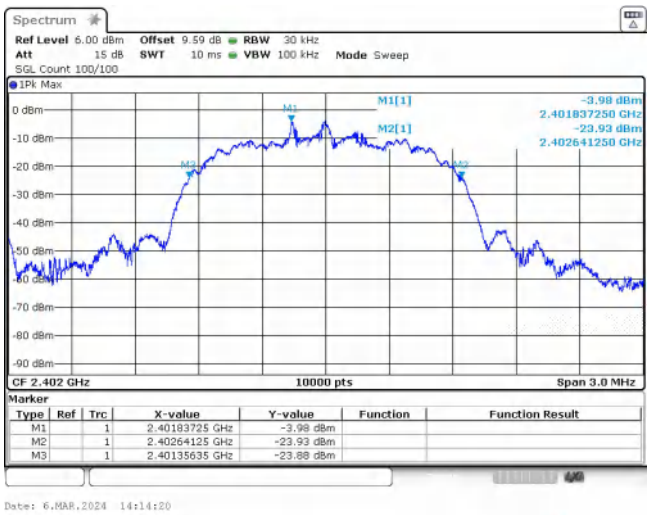
π/4DQPSK_2-DH5_Channel 0



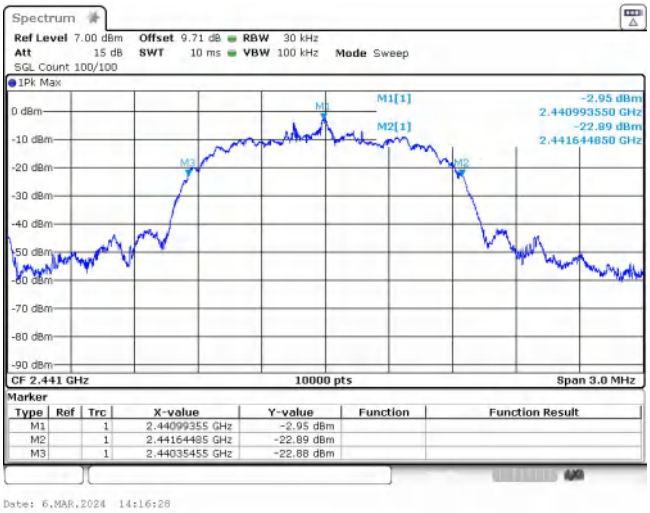
π/4DQPSK_2-DH5_Channel 39



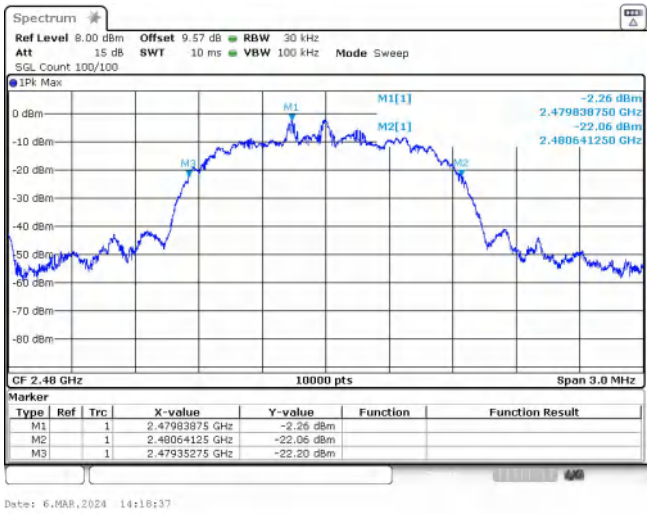
π/4DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



8DPSK_3-DH5_Channel 78

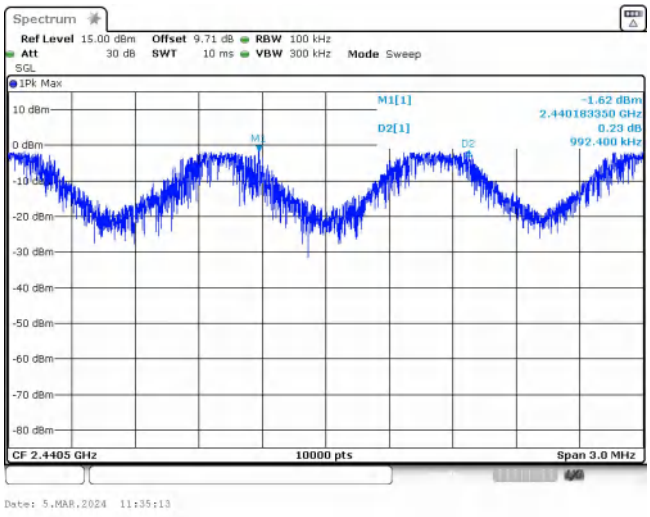
Void

4) Carrier Frequencies Separation

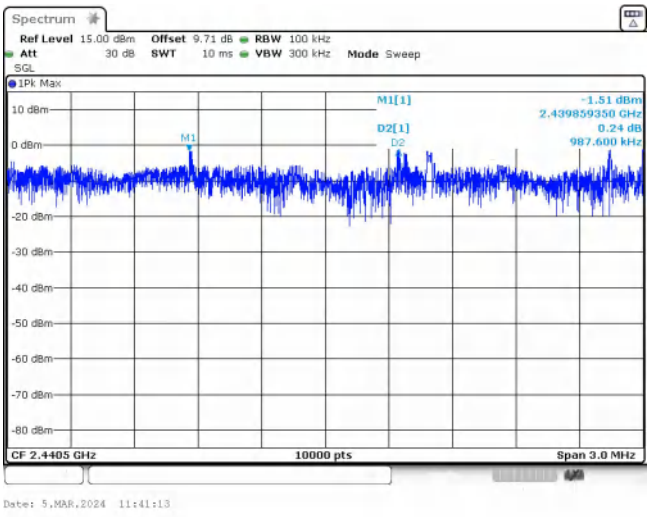
Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2440.1833	2441.1757	0.9924	0.627	PASS
π/4DQPSK	2-DH5	2439.8594	2440.847	0.9876	0.853	PASS
8DPSK	3-DH5	2439.8324	2440.9889	1.1565	0.853	PASS

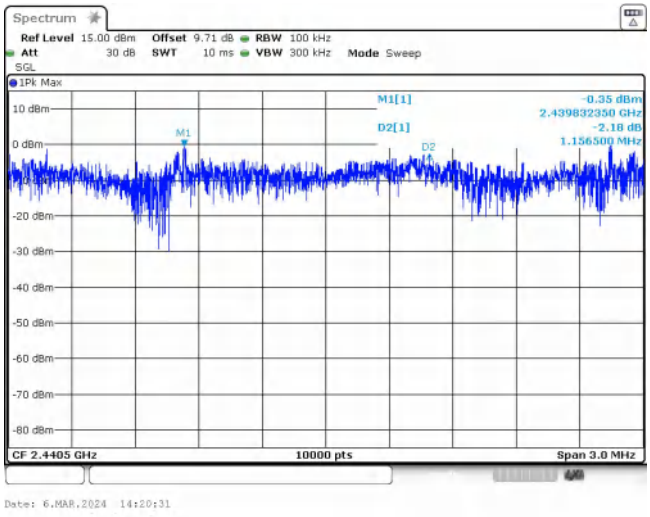
Test Graphs



GFSK



π/4DQPSK



8DPSK

Void

5) Conducted Out Of Band Emission

Test Result

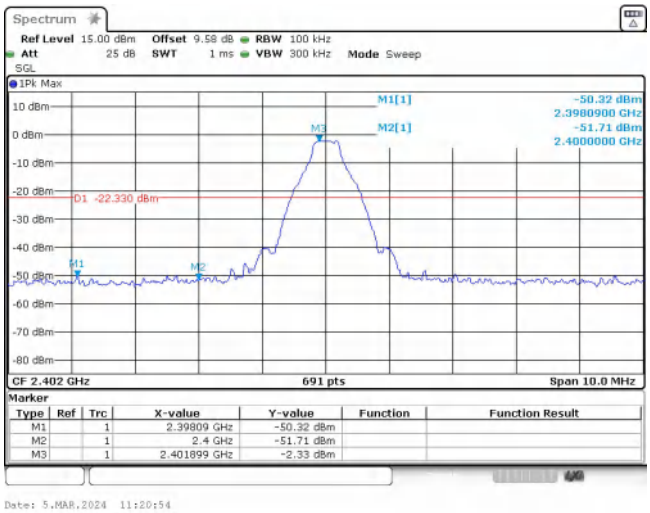
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-51.710	-22.33	-29.380	PASS
			2398.09	-50.319	-22.33	-27.989	PASS
			9608.10	-43.940	-22.33	-21.610	PASS
		39	9763.72	-44.404	-21.37	-23.034	PASS
		78	2483.50	-51.919	-21.25	-30.669	PASS
			9920.20	-44.781	-21.25	-23.531	PASS
π/4DQPSK	2-DH5	0	2400.00	-50.895	-22.21	-28.684	PASS
			9608.08	-43.755	-22.21	-21.545	PASS
		39	9763.72	-43.802	-21.5	-22.302	PASS
		78	2483.50	-52.007	-21.19	-30.817	PASS
			9920.20	-44.103	-21.19	-22.913	PASS
8DPSK	3-DH5	0	2400.00	-49.766	-21.51	-28.256	PASS
			2399.00	-44.300	-21.51	-22.790	PASS
			96.20	-47.234	-21.51	-25.724	PASS
		39	96.17	-30.858	-20.52	-10.338	PASS
		78	2483.50	-49.012	-19.7	-29.312	PASS
			96.17	-31.094	-19.7	-11.394	PASS

Hopping

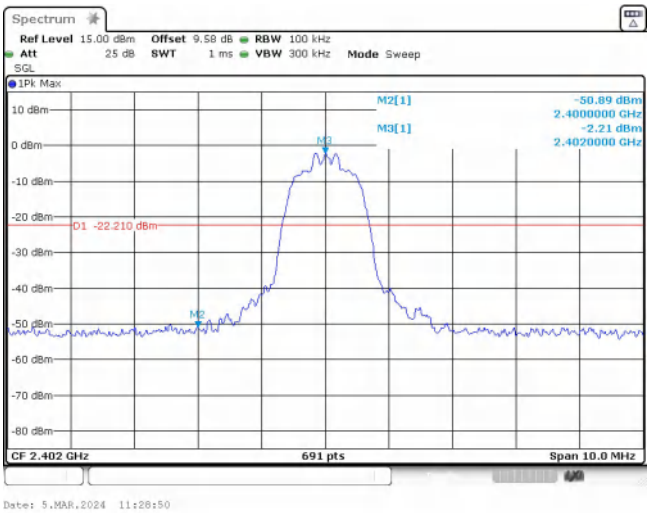
Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2398.05	-49.907	-22.47	-27.437	PASS
			2400.00	-50.308	-22.47	-27.838	PASS
			2483.50	-52.046	-21.74	-30.306	PASS
			2396.50	-49.549	-22.44	-27.109	PASS
			2400.00	-50.684	-22.44	-28.244	PASS
			2483.50	-52.380	-21.3	-31.080	PASS
π/4DQPSK	2-DH5		2395.24	-49.821	-22.48	-27.341	PASS
			2400.00	-51.175	-22.48	-28.695	PASS
			2483.50	-50.097	-21.37	-28.727	PASS
			2397.61	-49.616	-23.42	-26.196	PASS
			2400.00	-50.965	-23.42	-27.545	PASS
			2483.50	-50.138	-22.18	-27.958	PASS
8DPSK	3-DH5		2400.00	-46.282	-21.44	-24.842	PASS
			2483.50	-50.050	-20.91	-29.140	PASS
			2400.00	-46.542	-22.9	-23.642	PASS
			2483.50	-50.172	-21.46	-28.712	PASS

Test Graphs



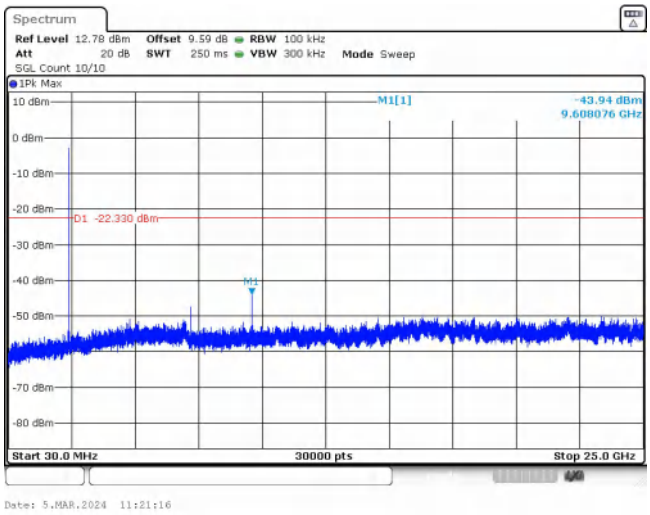
Out Of Band Emission

GFSK_DH5_Channel 0



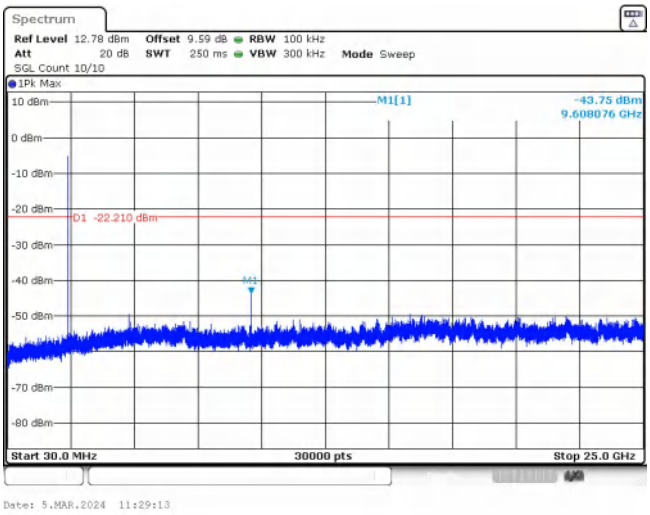
Out Of Band Emission

π/4DQPSK_2-DH5_Channel 0



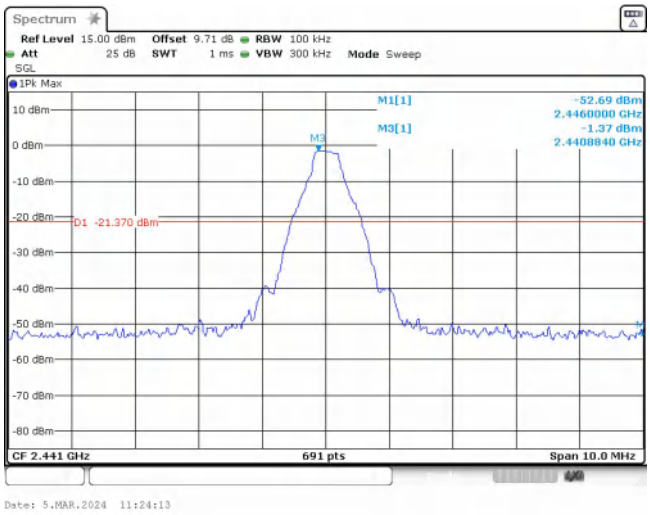
Spurious Emission

GFSK_DH5_Channel 0

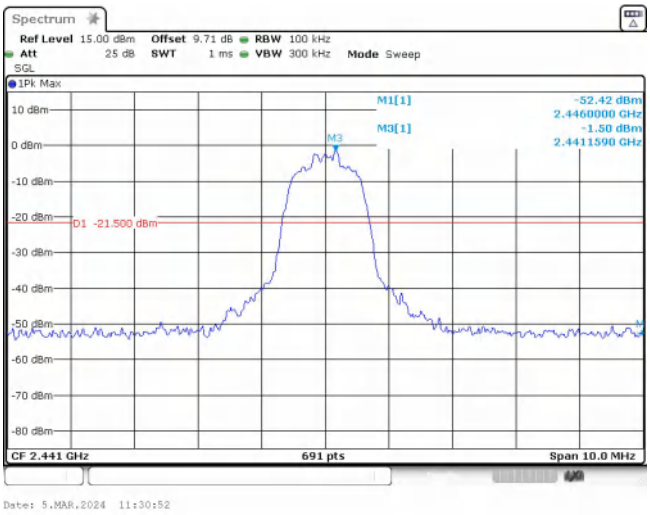


Spurious Emission

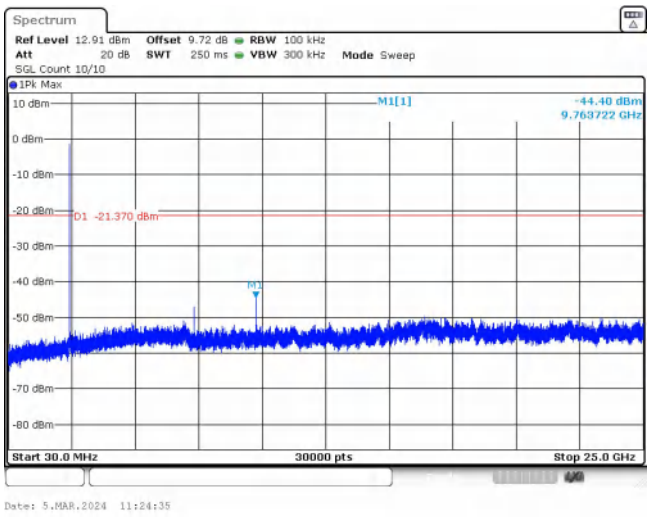
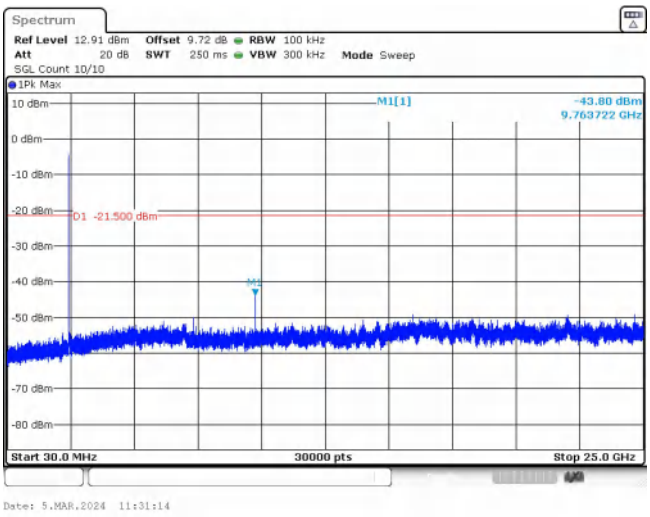
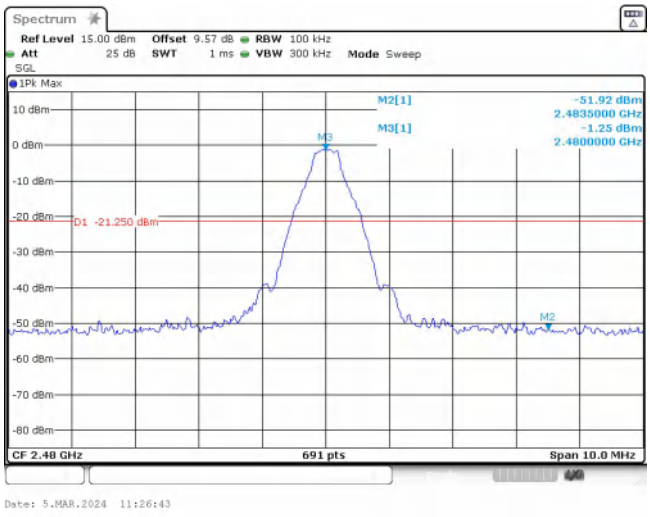
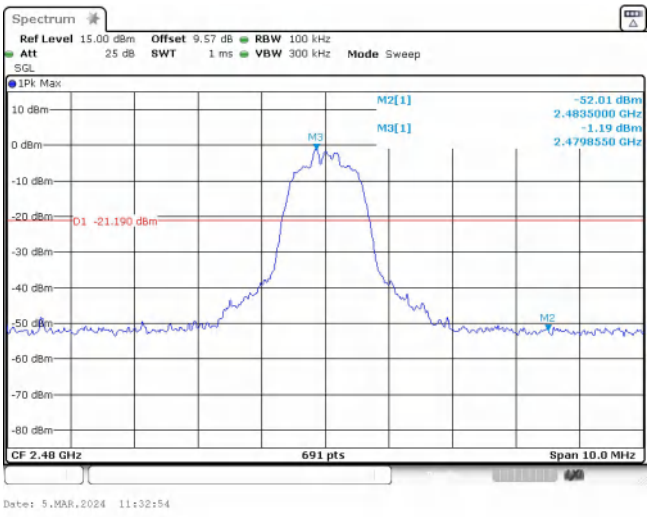
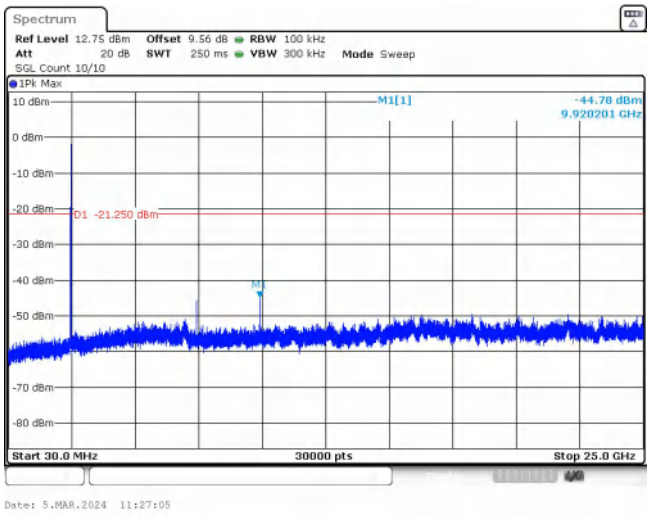
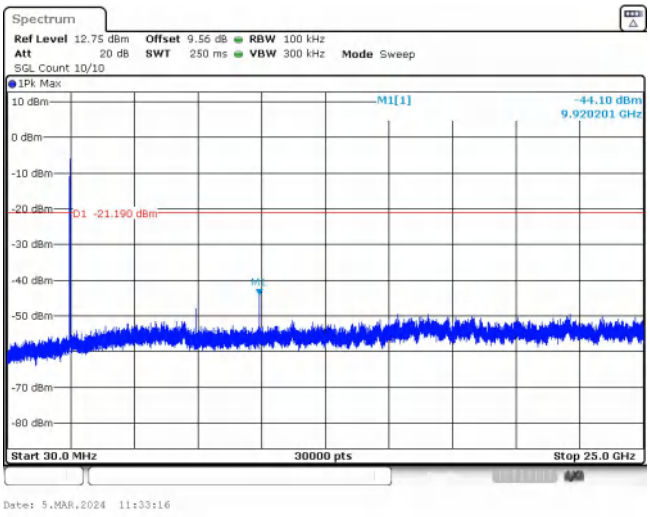
π/4DQPSK_2-DH5_Channel 0

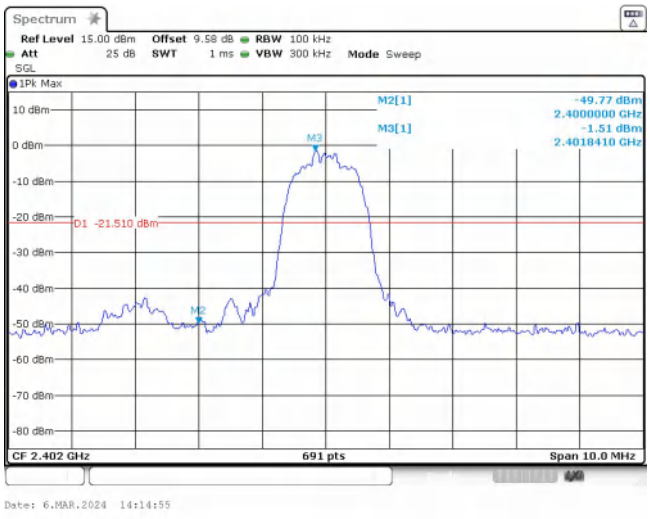


Out Of Band Emission



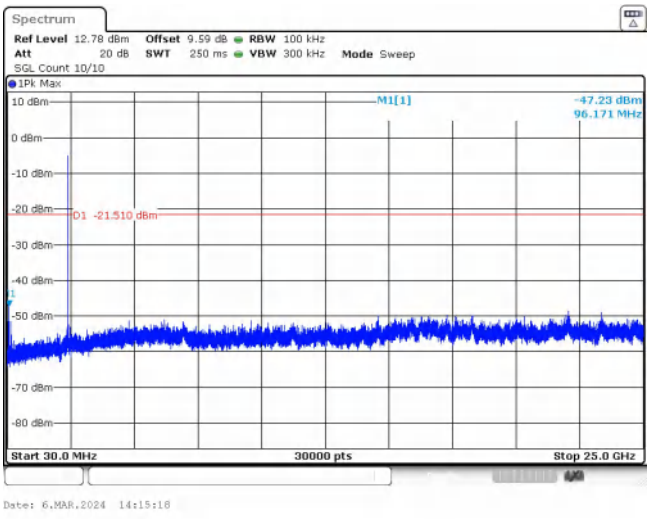
Out Of Band Emission

GFSK_DH5_Channel 39	π/4DQPSK_2-DH5_Channel 39
	
Spurious Emissions GFSK_DH5_Channel 39	Spurious Emissions π/4DQPSK_2-DH5_Channel 39
	
Out Of Band Emission GFSK_DH5_Channel 78	Out Of Band Emission π/4DQPSK_2-DH5_Channel 78
	
Spurious Emission GFSK_DH5_Channel 78	Spurious Emission π/4DQPSK_2-DH5_Channel 78



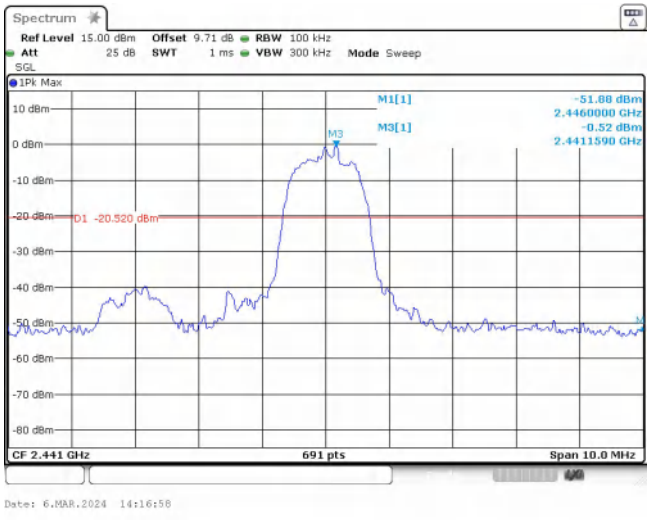
Out Of Band Emission

8DPSK_3-DH5_Channel 0



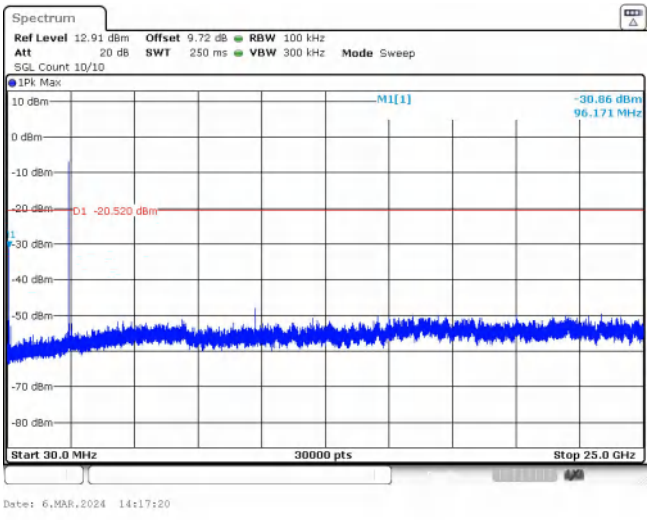
Spurious Emission

8DPSK_3-DH5_Channel 0



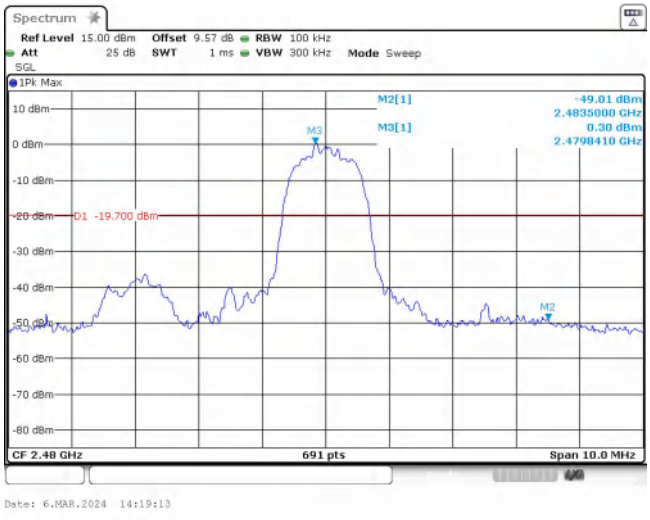
Out Of Band Emission

8DPSK_3-DH5_Channel 39



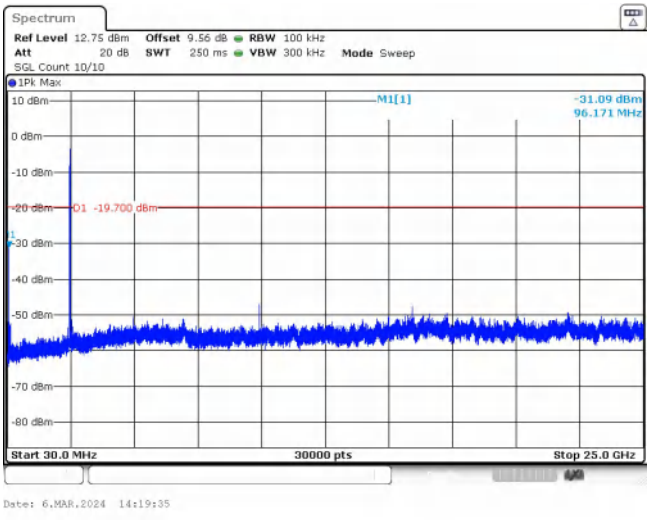
Spurious Emissions

8DPSK_3-DH5_Channel 39



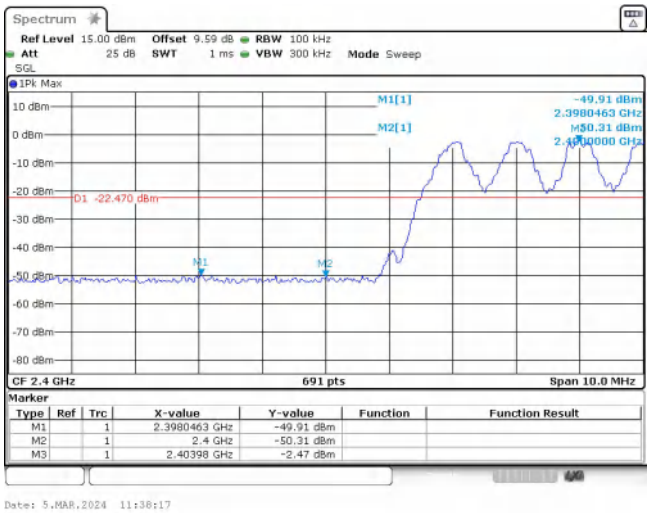
Out Of Band Emission

8DPSK_3-DH5_Channel 78



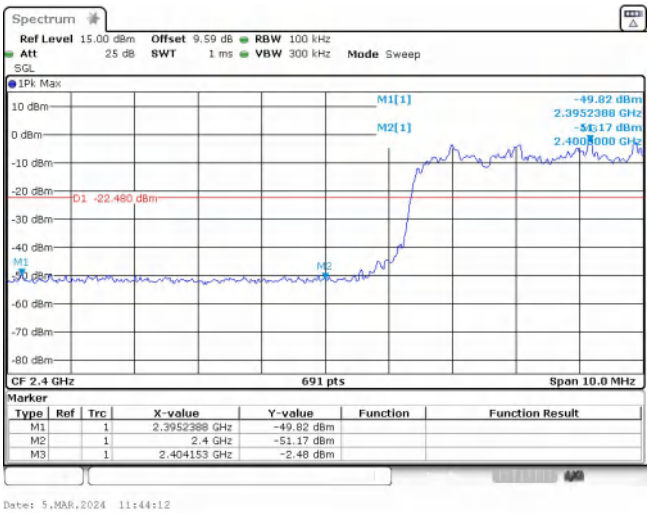
Spurious Emission

8DPSK_3-DH5_Channel 78



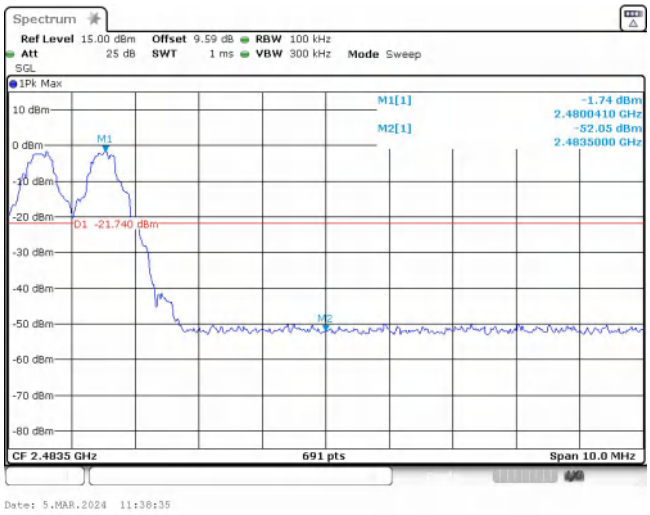
Out Of Band Emission(Left)

GFSK_DH5_Channel Hopping



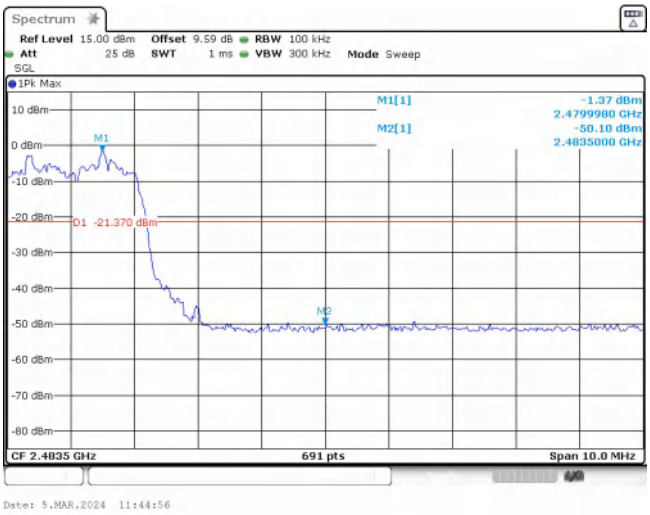
Out Of Band Emission(Left)

π/4DQPSK_2-DH5_Channel Hopping



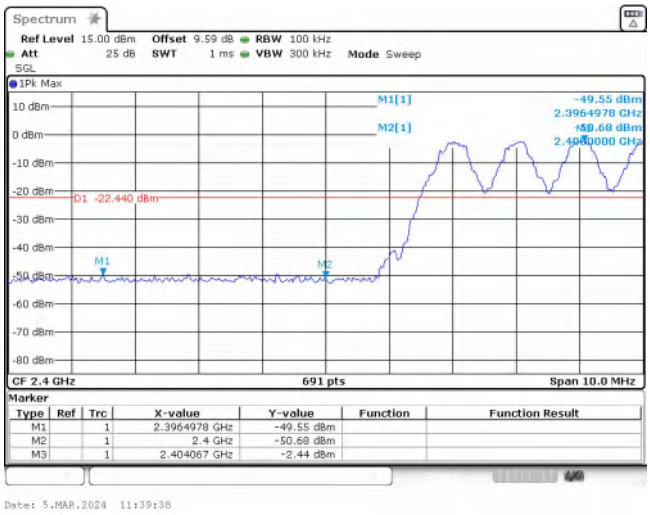
Out Of Band Emission(Right)

GFSK_DH5_Channel Hopping

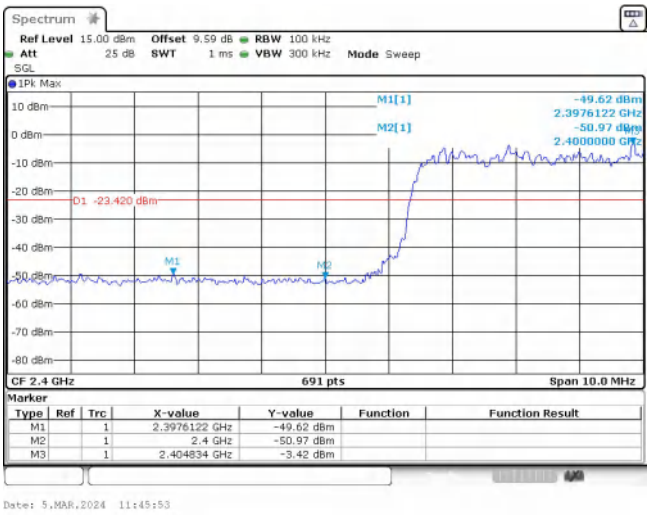


Out Of Band Emission(Right)

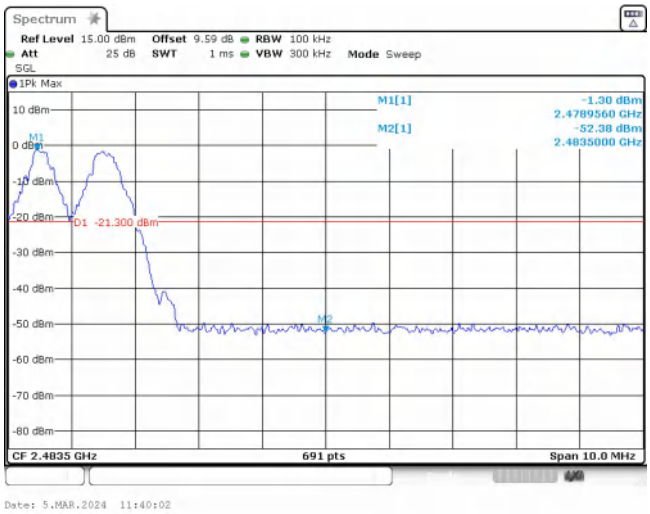
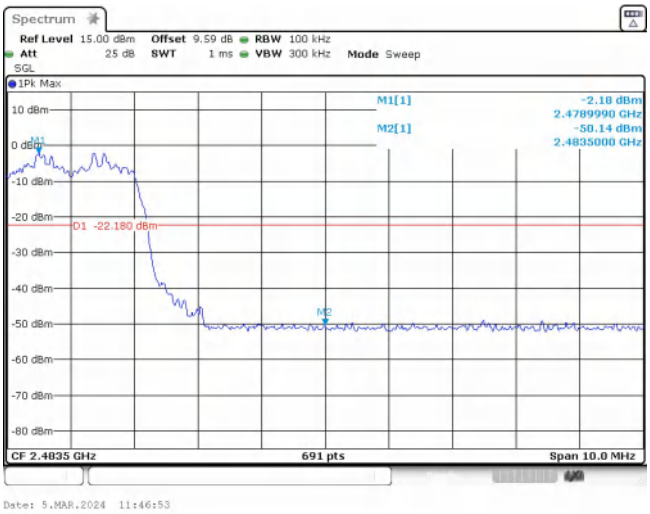
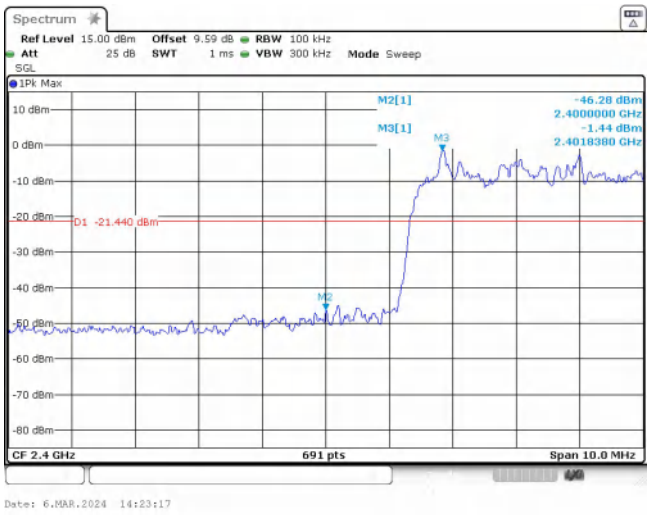
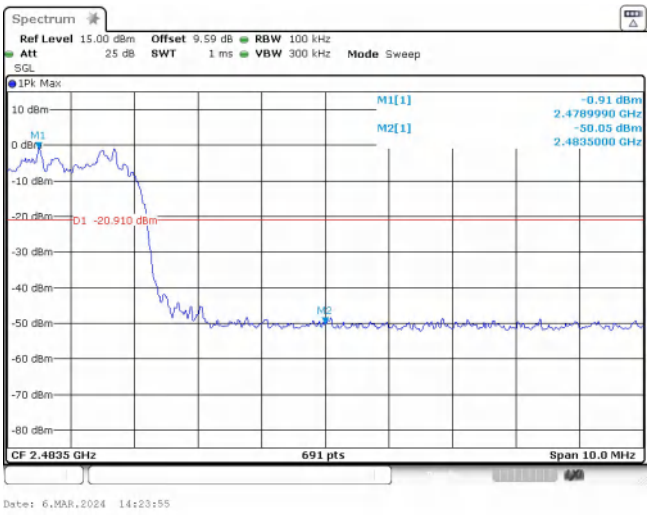
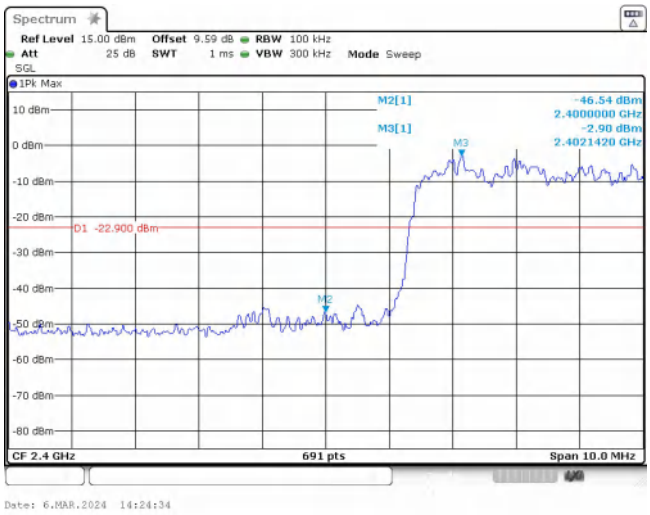
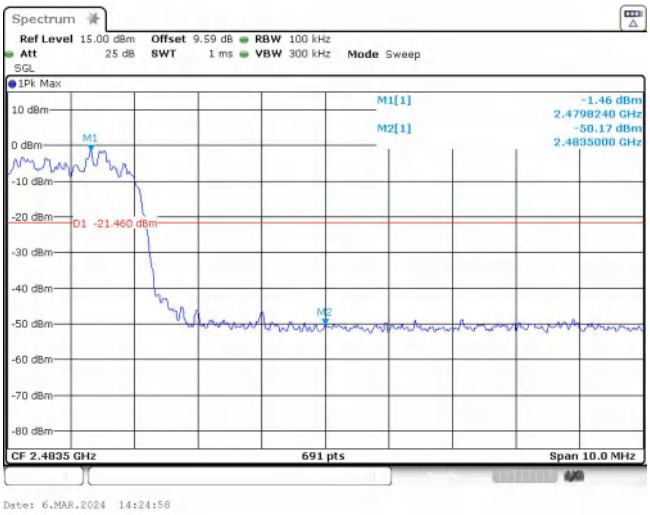
π/4DQPSK_2-DH5_Channel Hopping



Out Of Band Emission(Left)



Out Of Band Emission(Left)

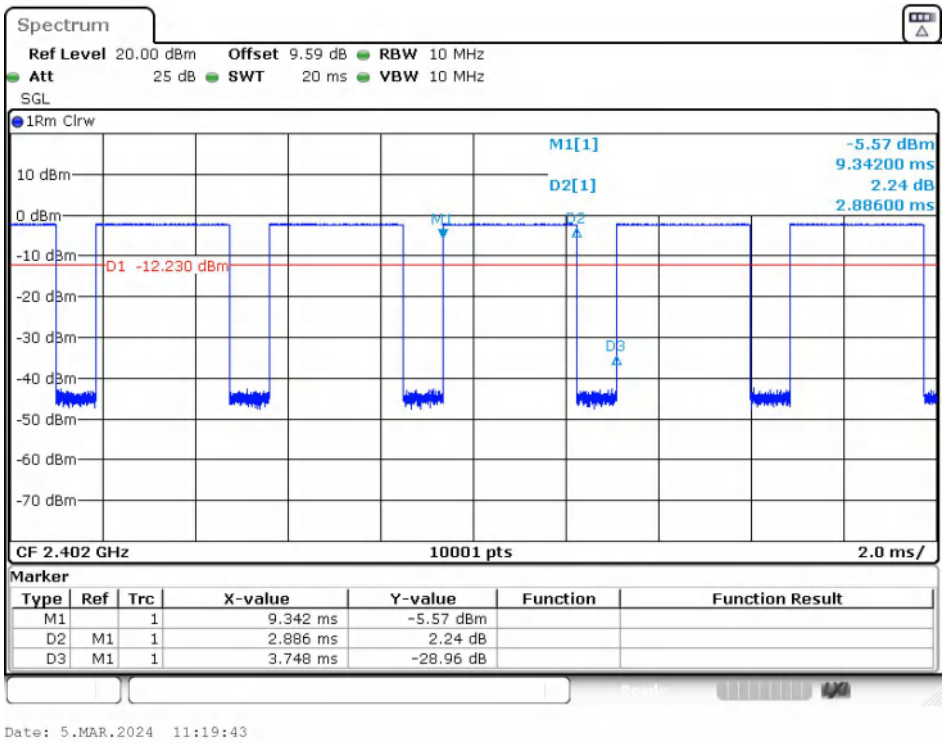
GFSK_DH5_Channel Hopping	π/4DQPSK_2-DH5_Channel Hopping
	
Out Of Band Emission(Right) **GFSK_DH5_Channel Hopping**	**Out Of Band Emission(Right)** **π/4DQPSK_2-DH5_Channel Hopping**
	
Out Of Band Emission(Left) **8DPSK_3-DH5_Channel Hopping**	**Out Of Band Emission(Right)** **8DPSK_3-DH5_Channel Hopping**
	
Out Of Band Emission(Left) **8DPSK_3-DH5_Channel Hopping**	**Out Of Band Emission(Right)** **8DPSK_3-DH5_Channel Hopping**

6) Duty Cycle

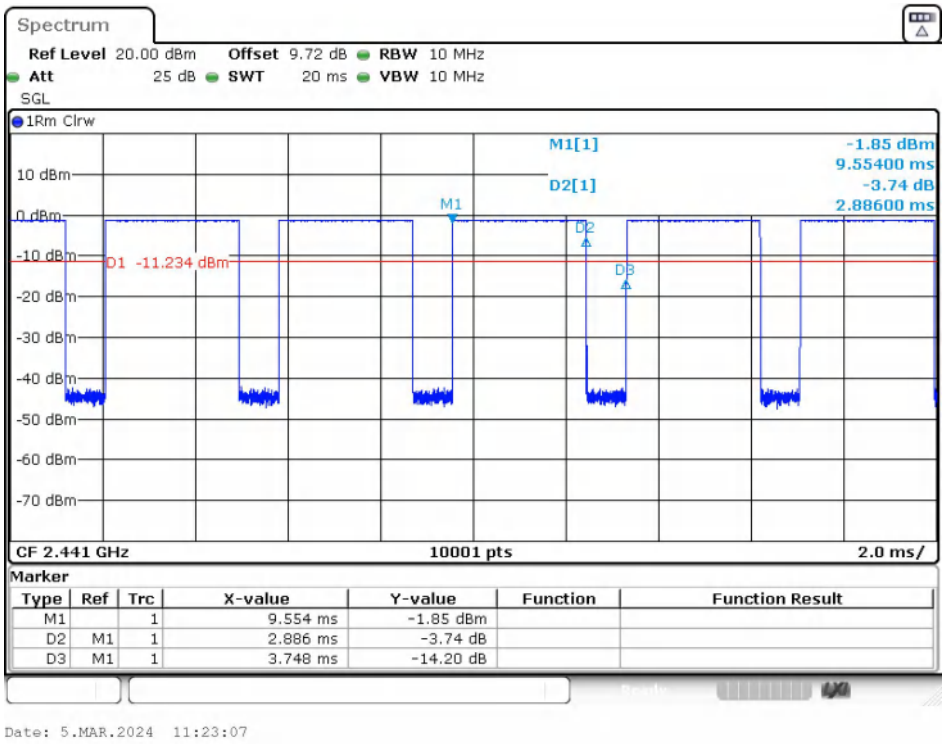
Test Result

Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.886	3.748	77.00	0.7700	1.1351	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
8DPSK	3-DH5	0	2.886	3.748	77.00	0.7700	1.1351	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

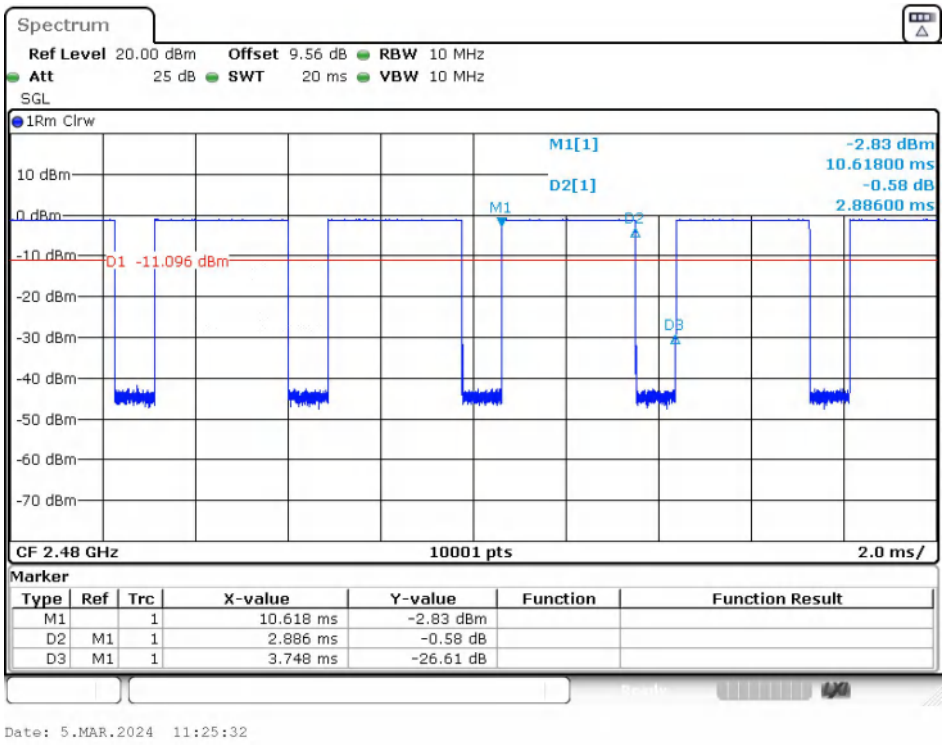
Test Graphs



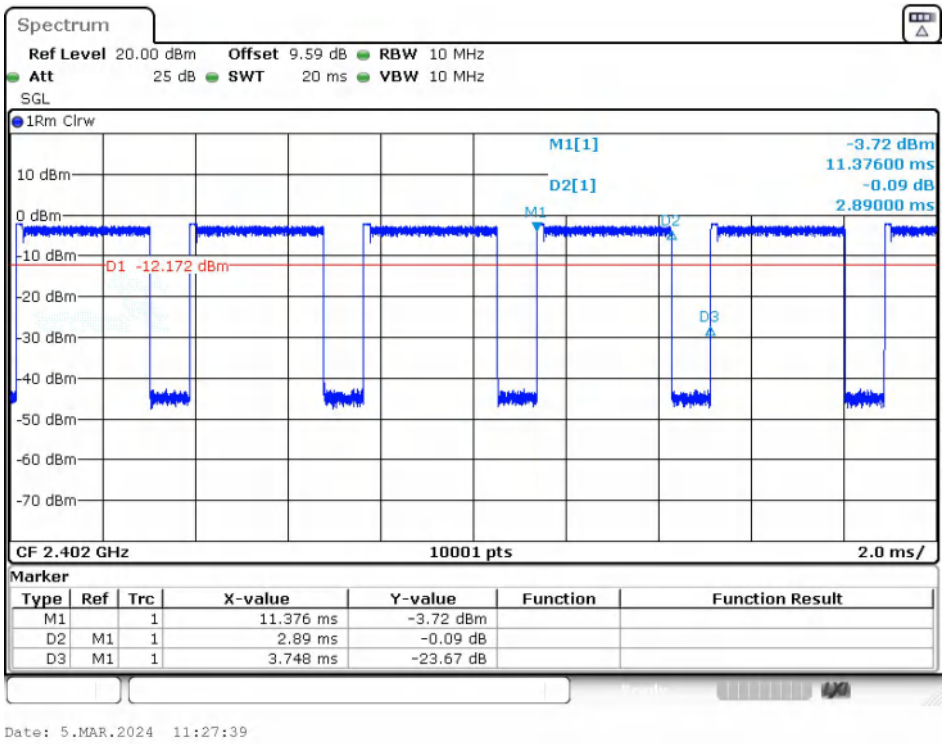
GFSK(DH5)_Channel 0



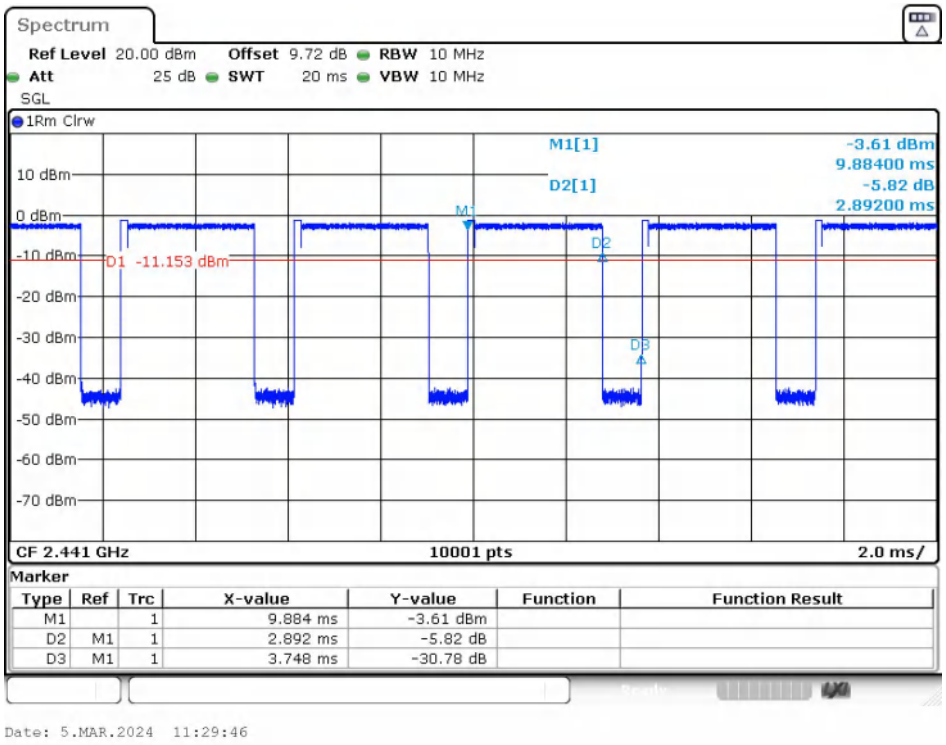
GFSK(DH5)_Channel 39



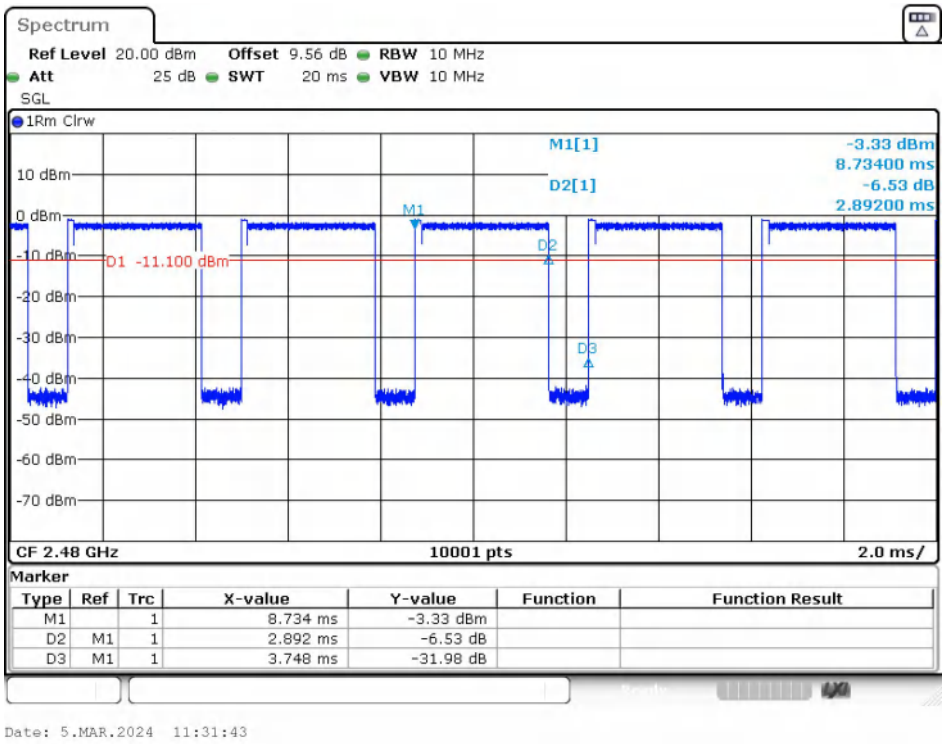
GFSK(DH5)_Channel 78



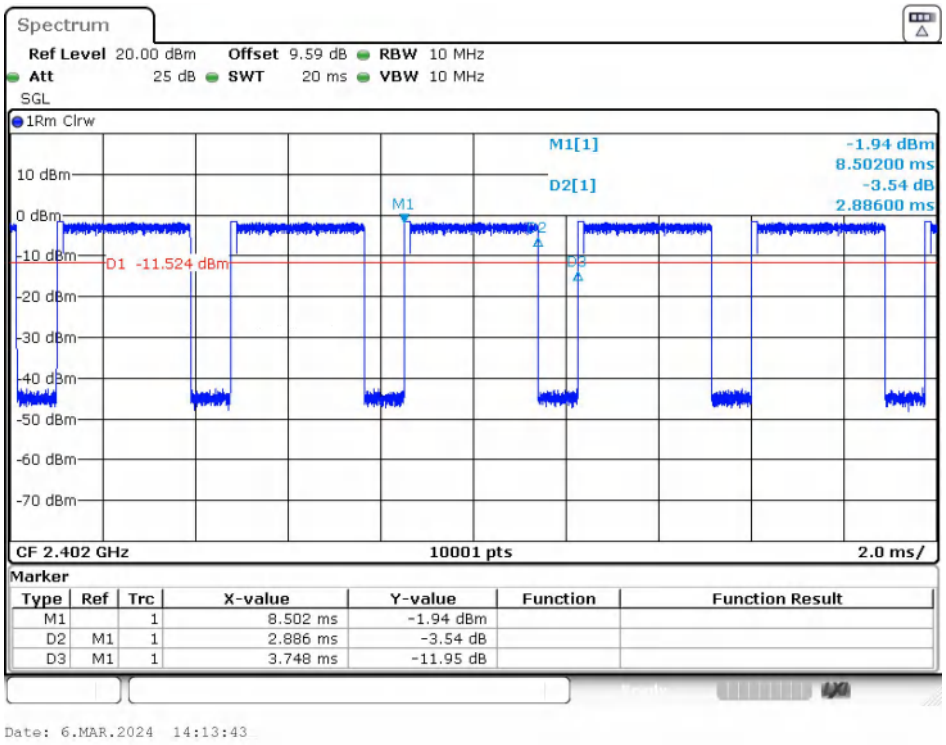
π/4DQPSK(2-DH5)_Channel 0



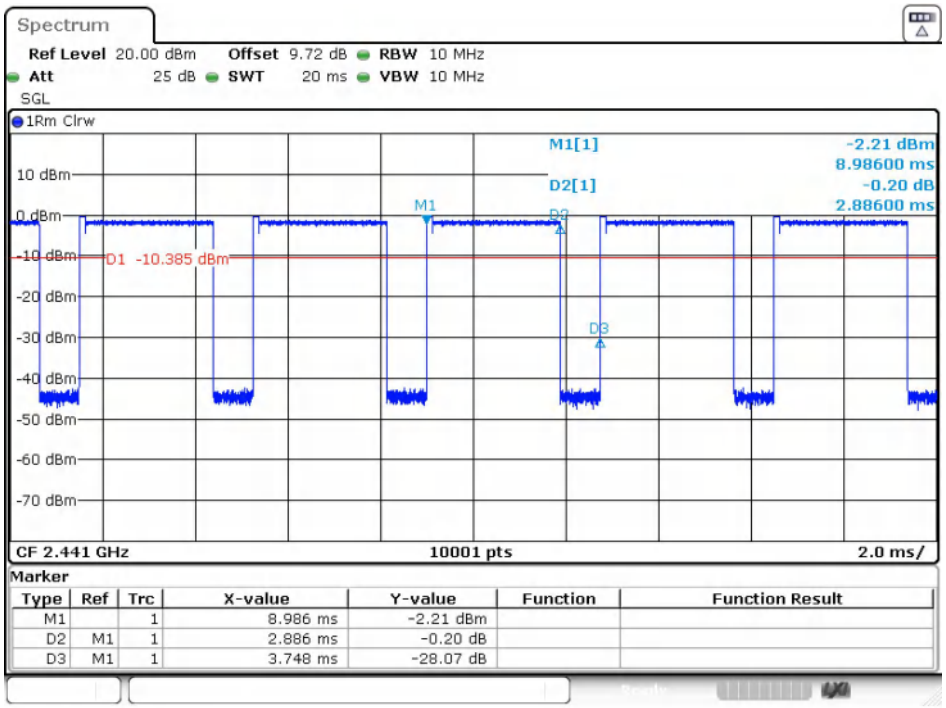
π/4DQPSK(2-DH5)_Channel 39



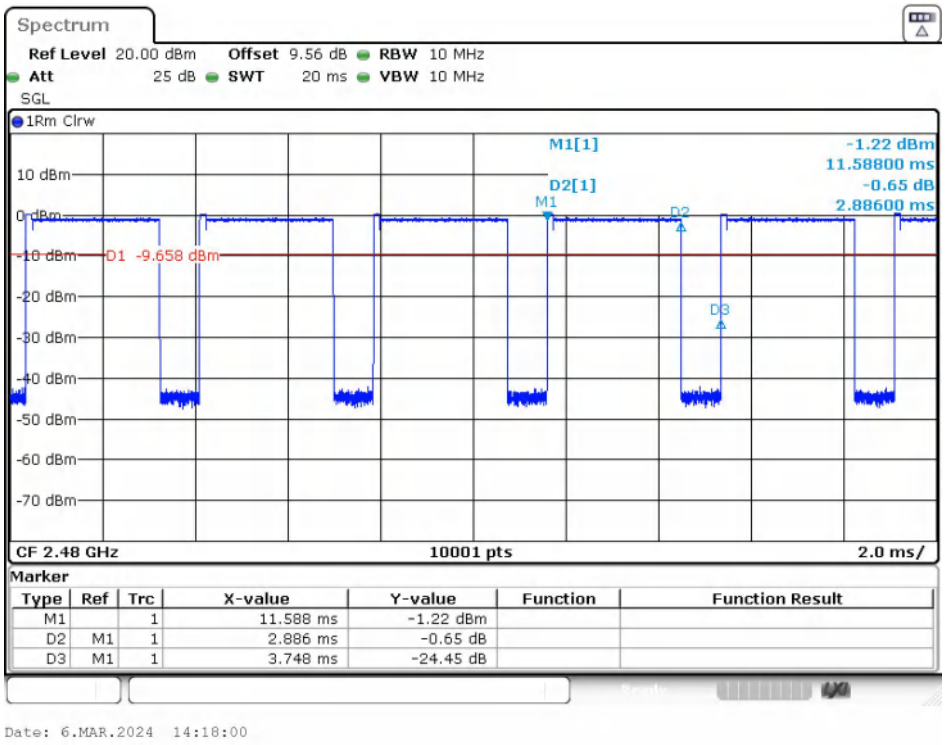
π/4DQPSK(2-DH5)_Channel 78



8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39



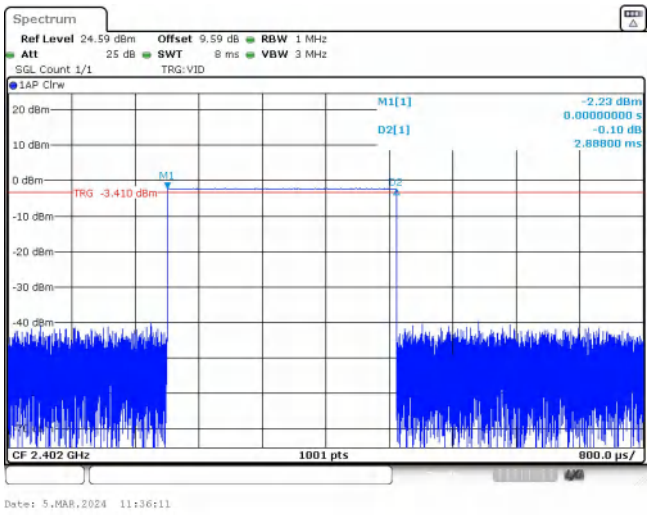
8DPSK(3-DH5)_Channel 78

7) Dwell Time

Test Result

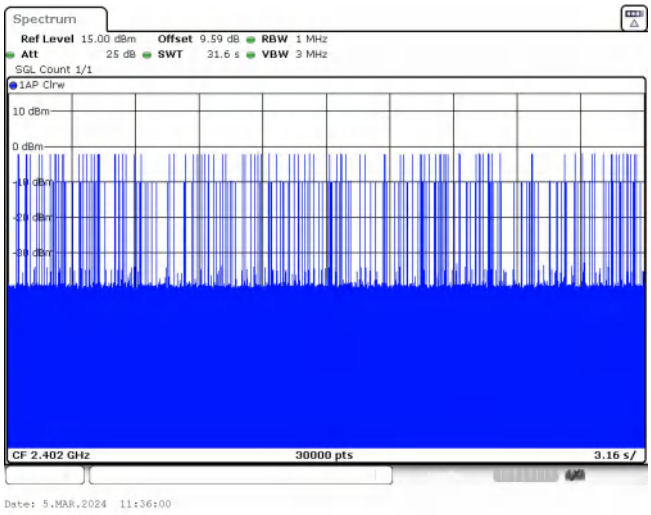
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.888	99	285.91	< 400	PASS
π/4DQPSK	2-DH5		2.896	105	304.08		PASS
8DPSK	3-DH5		2.888	98	283.02		PASS

Test Graphs



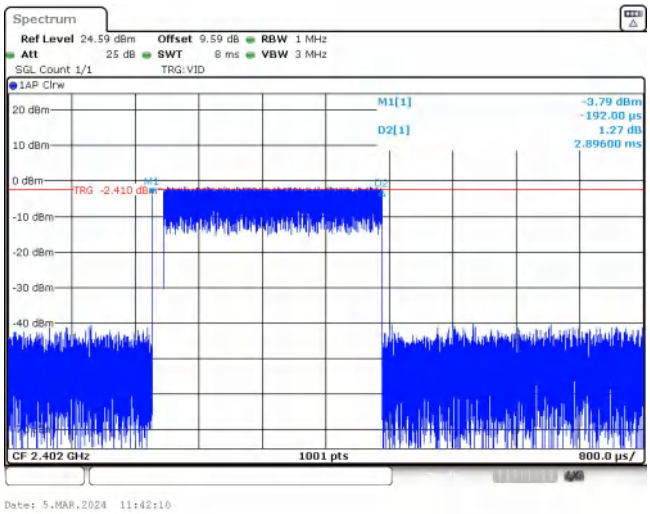
Pulse Width

GFSK_DH5



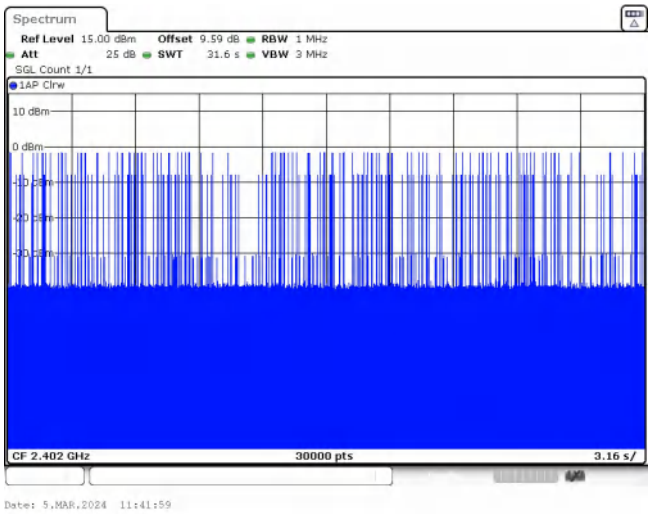
Number of Pulses in 31.6 seconds

GFSK_DH5



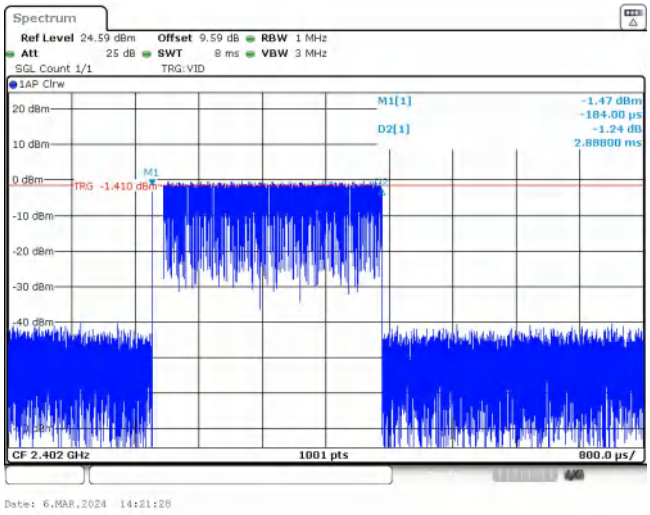
Pulse Width

π/4DQPSK_2-DH5



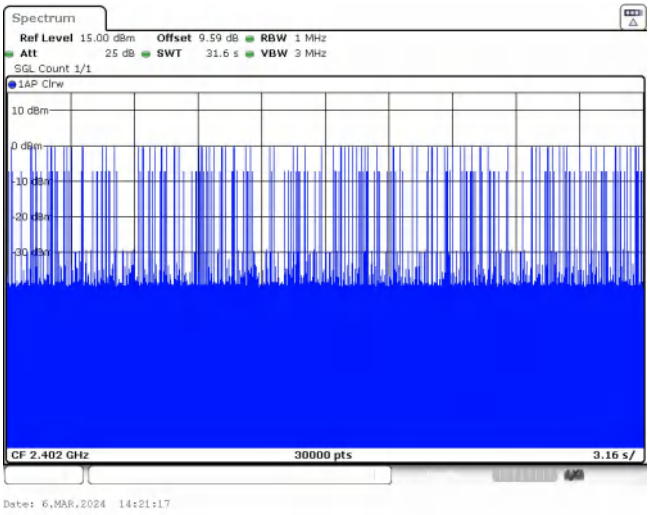
Number of Pulses in 31.6 seconds

π/4DQPSK_2-DH5



Pulse Width

8DPSK_3-DH5



Number of Pulses in 31.6 seconds

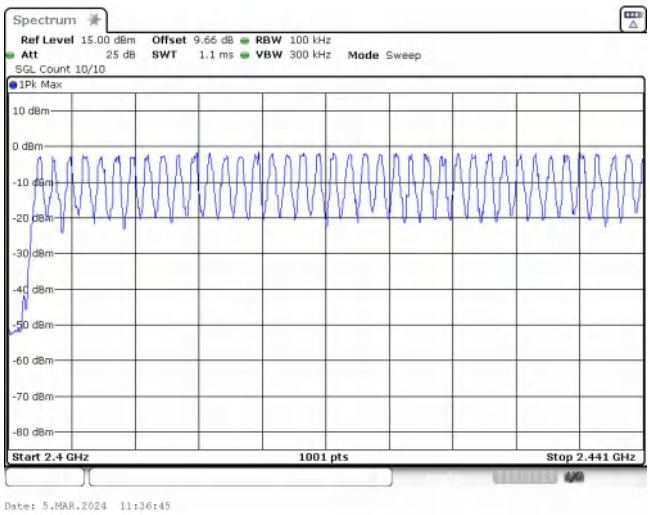
8DPSK_3-DH5

8) Number Of Hopping Channel

Test Result

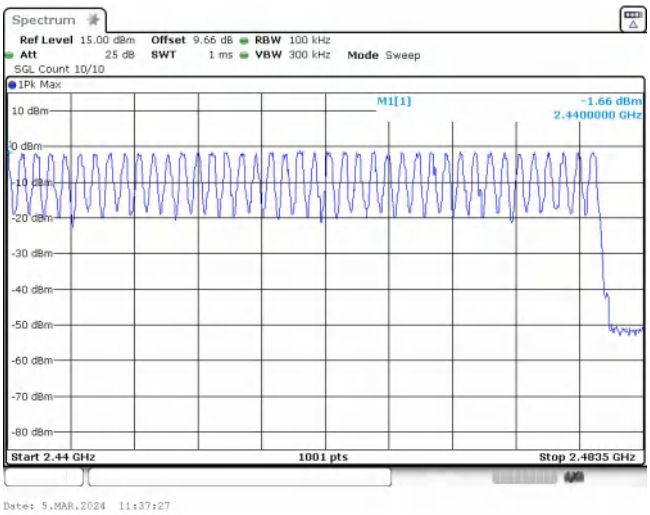
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
π/4DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs



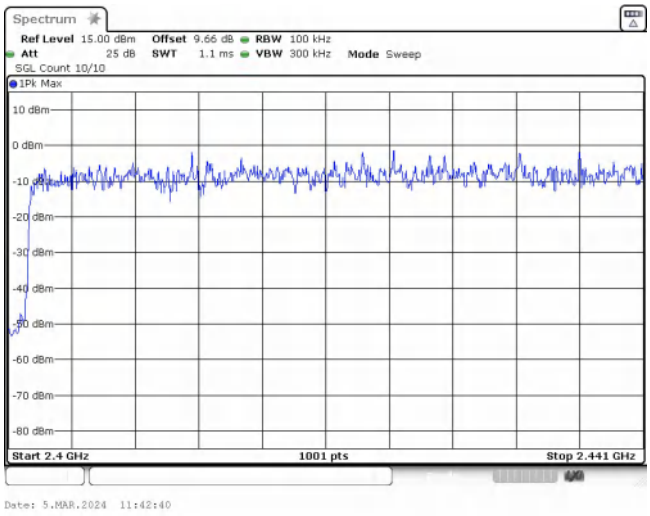
Low End Spectrum Channel Hopping Plot

GFSK



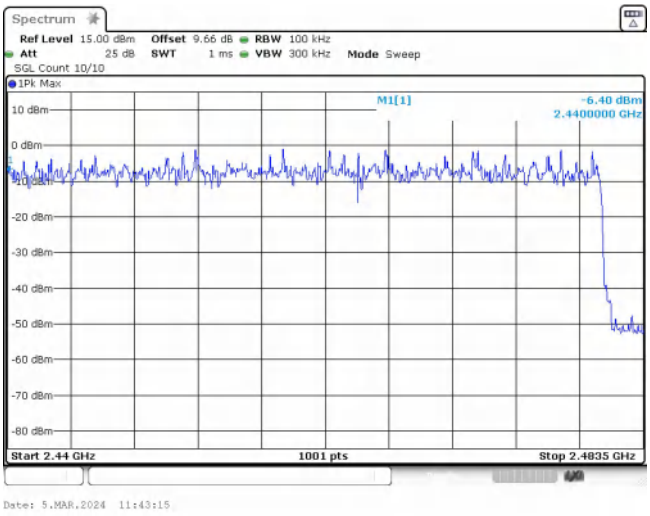
High End Spectrum Channel Hopping Plot

GFSK



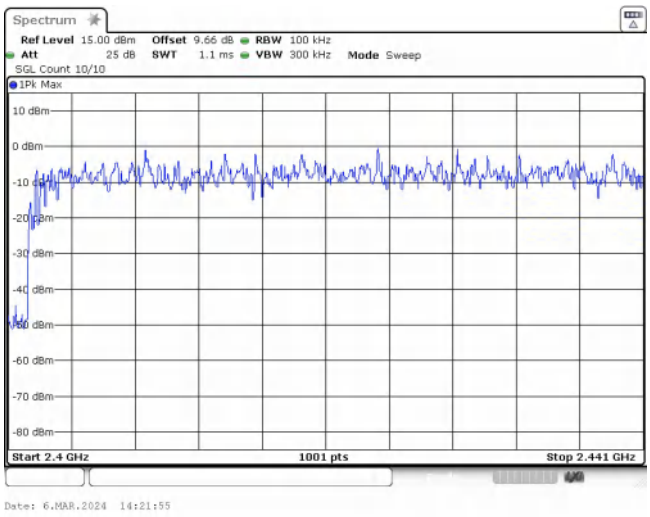
Low End Spectrum Channel Hopping Plot

π/4DQPSK



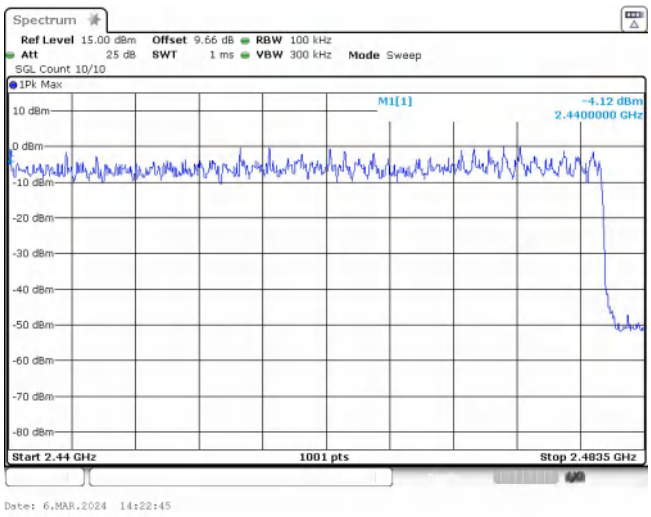
High End Spectrum Channel Hopping Plot

π/4DQPSK



Low End Spectrum Channel Hopping Plot

8DPSK



High End Spectrum Channel Hopping Plot

8DPSK