Appendix A

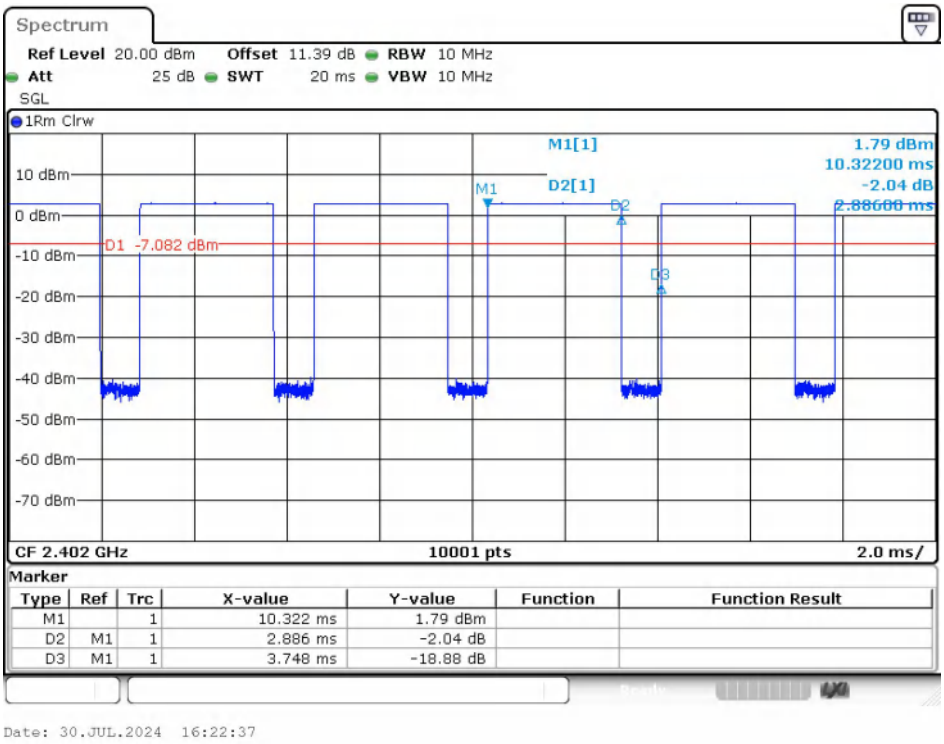
Report No.:	CISRR240730137
FCC ID:	UN9-ITALK-PRO
Product Name:	USB-Bluetooth Conference Speaker
Model No.:	iTalk PRO
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

1) Duty Cycle

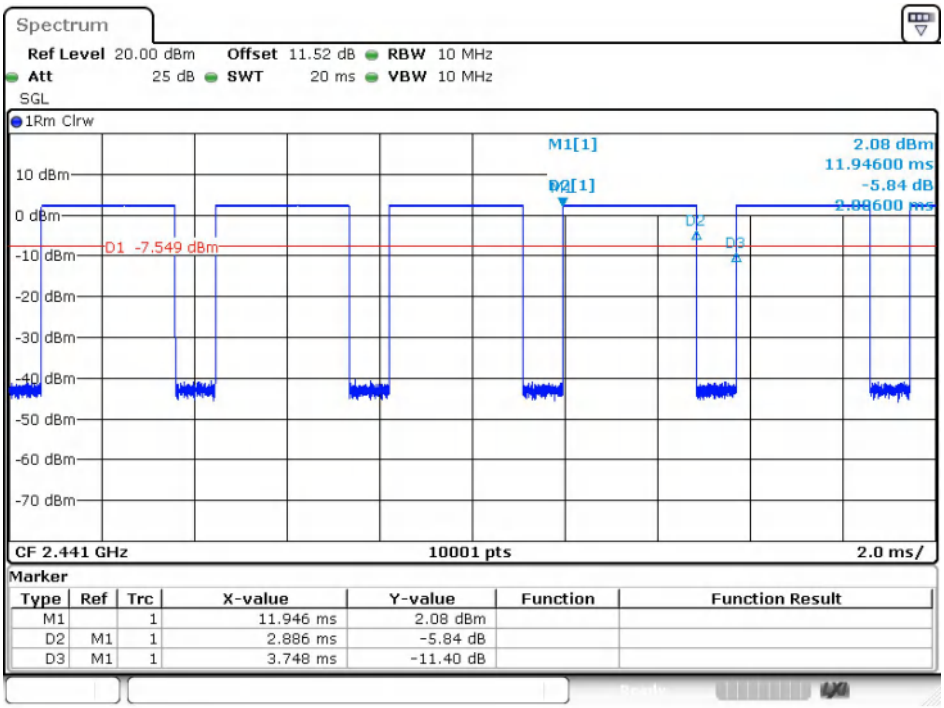
Test Result

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	2.888	3.748	77.05	0.7705	1.1323	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	2.894	3.748	77.21	0.7721	1.1233	0.35
		39	2.894	3.748	77.21	0.7721	1.1233	0.35
		78	2.894	3.748	77.21	0.7721	1.1233	0.35

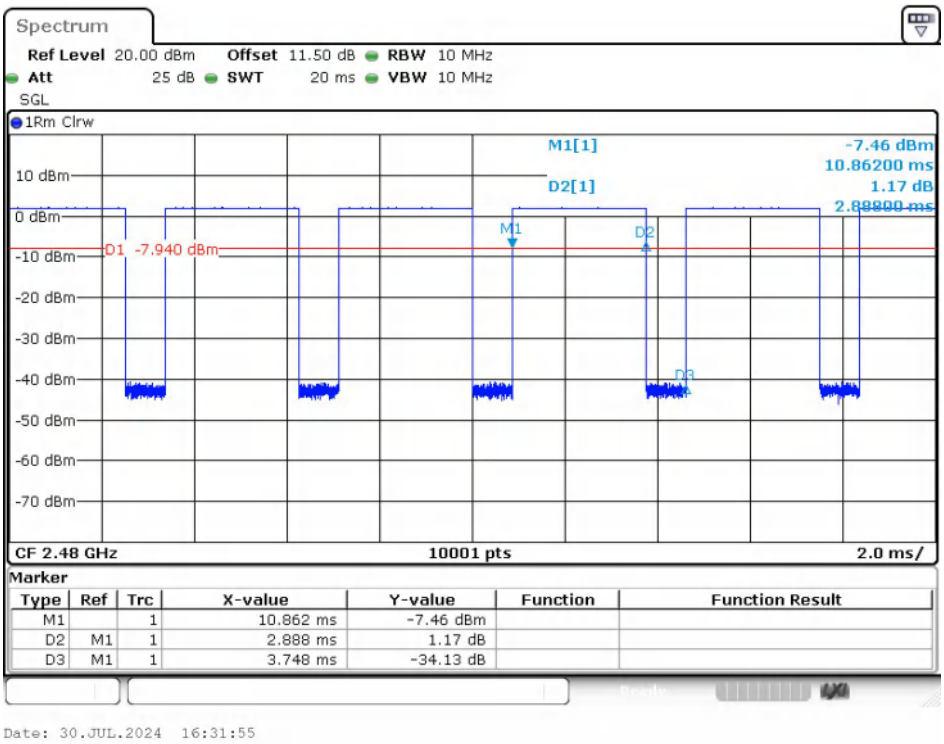
Test Graphs



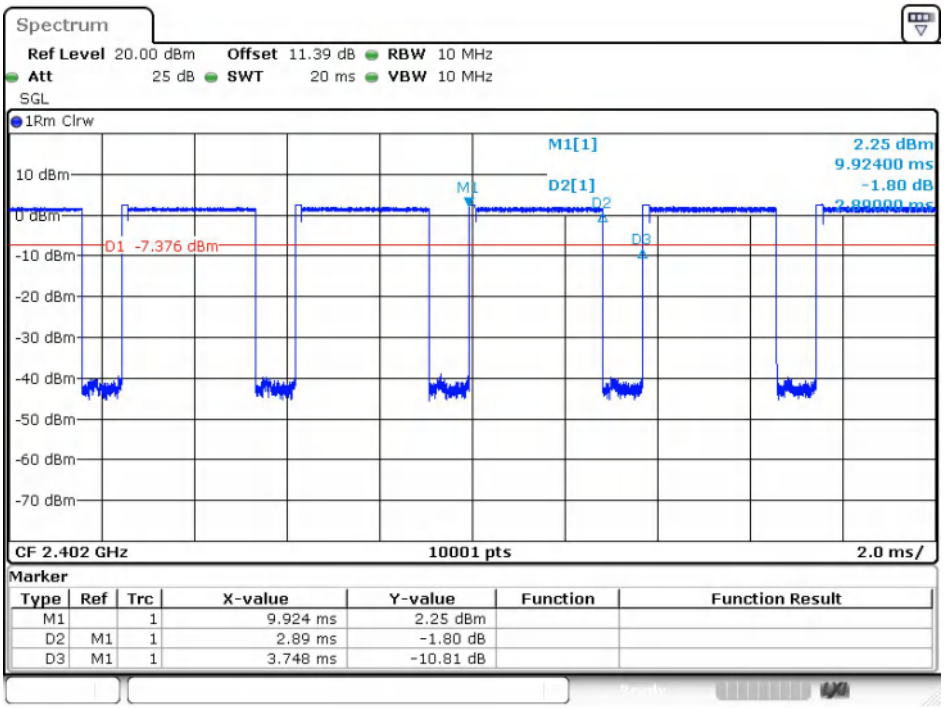
GFSK(DH5)_Channel 0



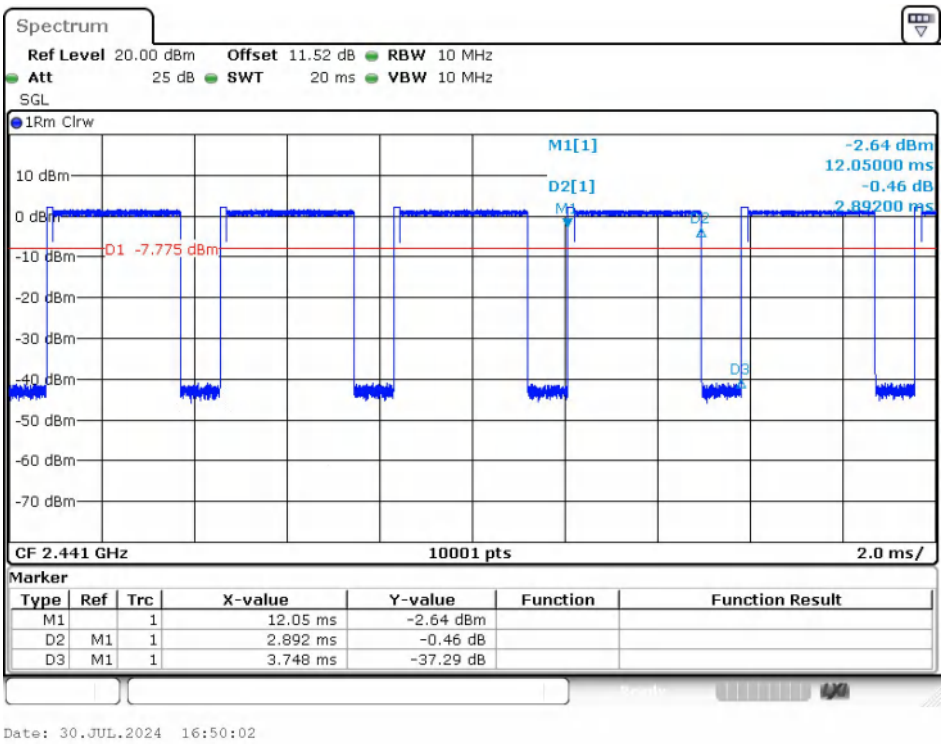
GFSK(DH5)_Channel 39



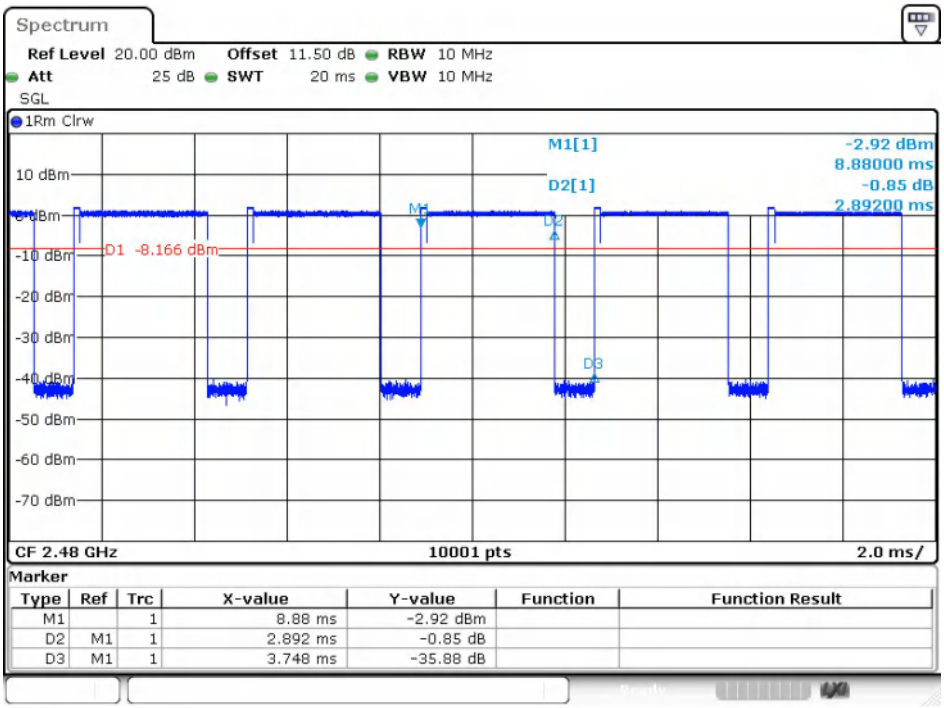
GFSK(DH5)_Channel 78



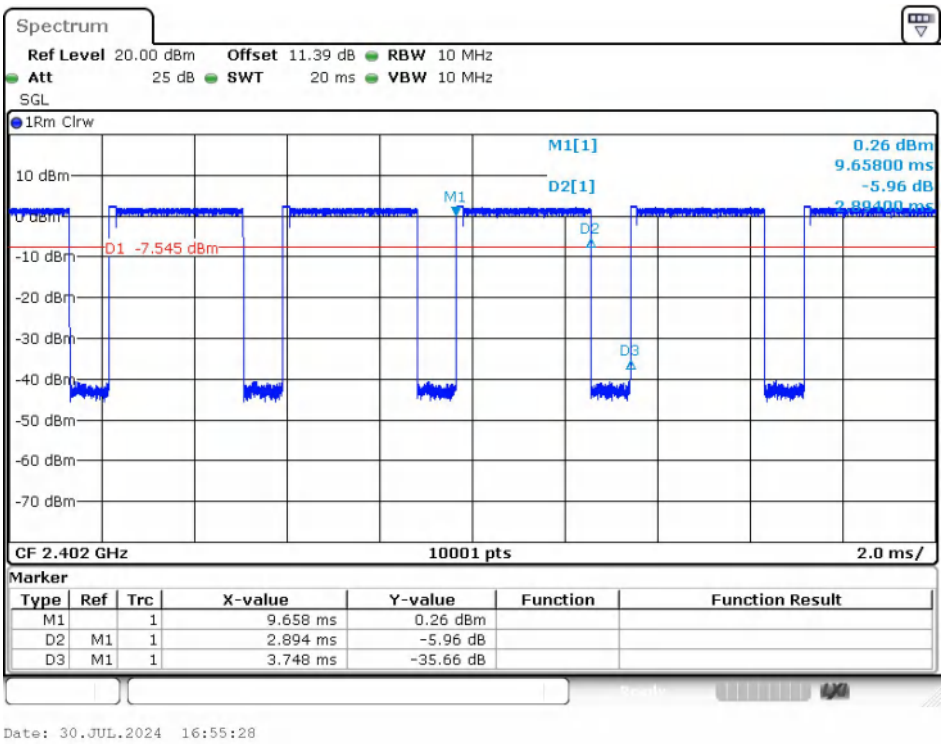
π/4DQPSK(2-DH5)_Channel 0



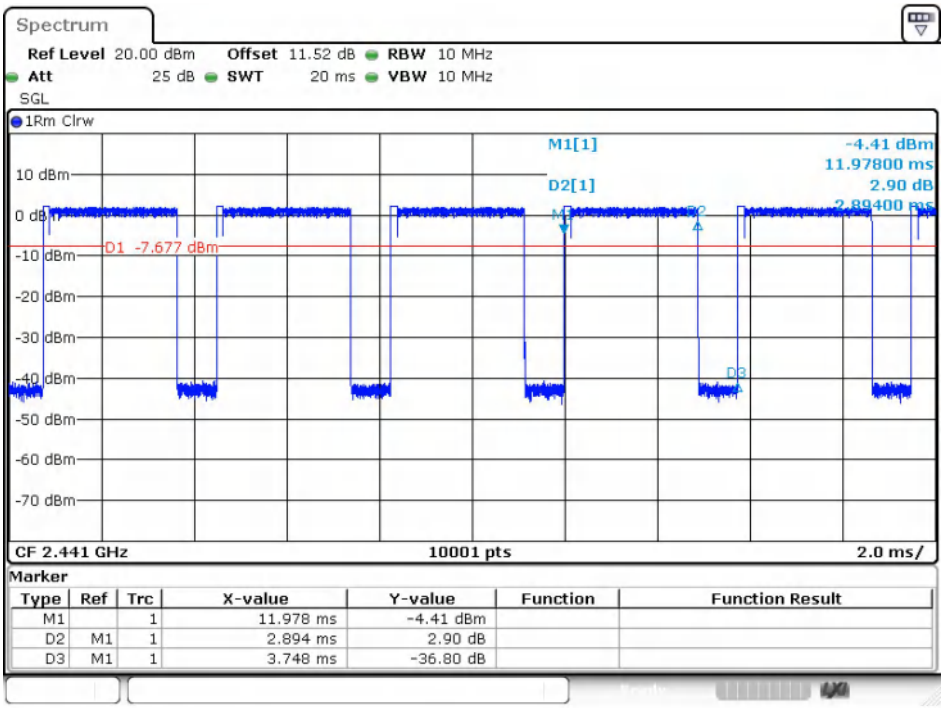
π/4DQPSK(2-DH5)_Channel 39



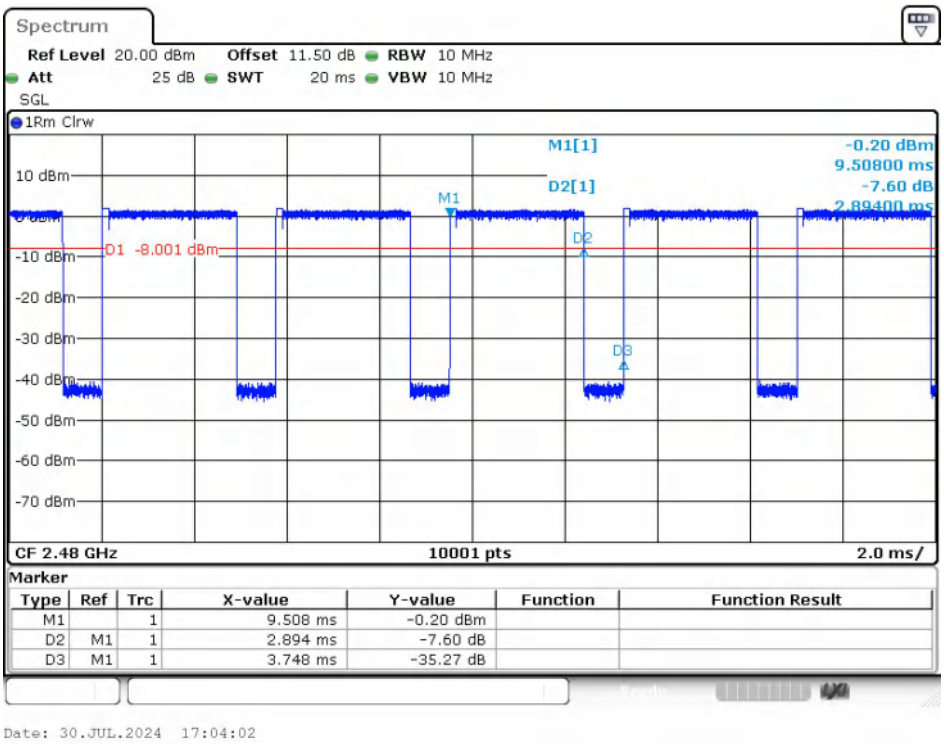
π/4DQPSK(2-DH5)_Channel 78



8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39



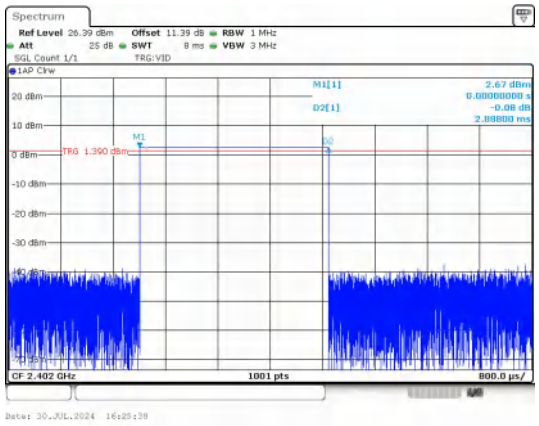
8DPSK(3-DH5)_Channel 78

2) Dwell Time

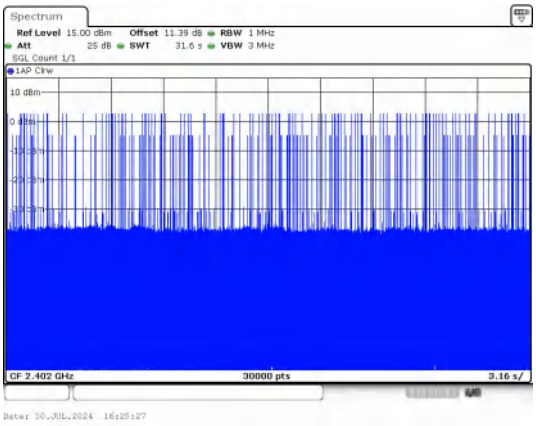
Test Result

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	112	323.46	< 400	PASS
π/4DQPSK	2-DH5		2.896	112	324.35		PASS
8DPSK	3-DH5		2.896	99	286.7		PASS

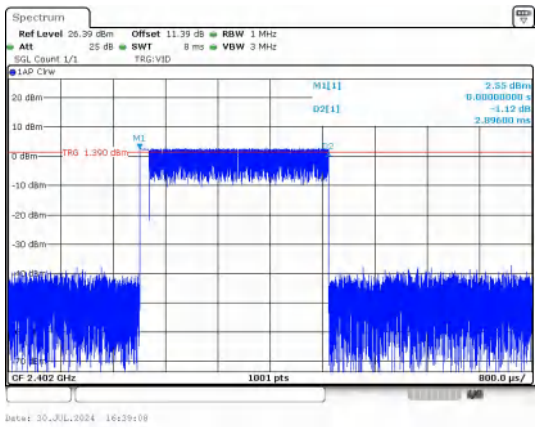
Test Graphs



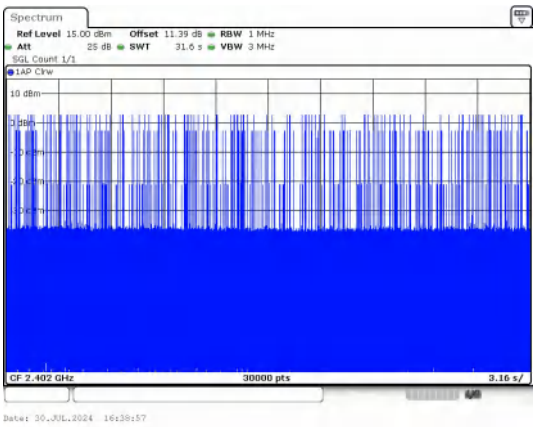
Pulse Width
GFSK_DH5



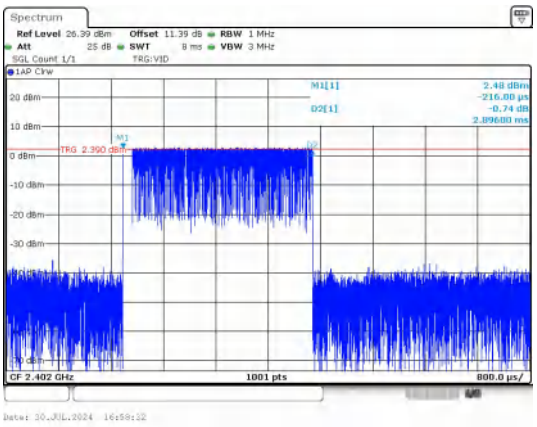
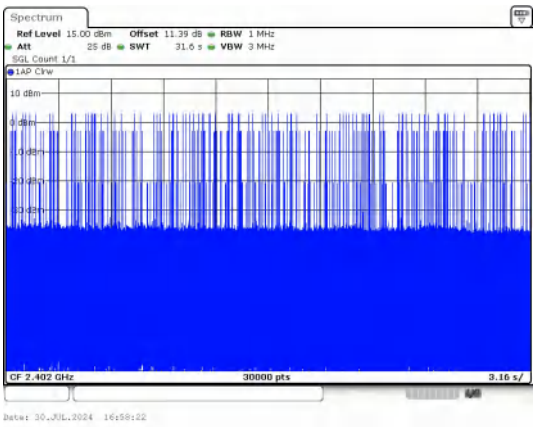
Number of Pulses in 31.6 seconds
GFSK_DH5



Pulse Width
π/4DQPSK_2-DH5



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

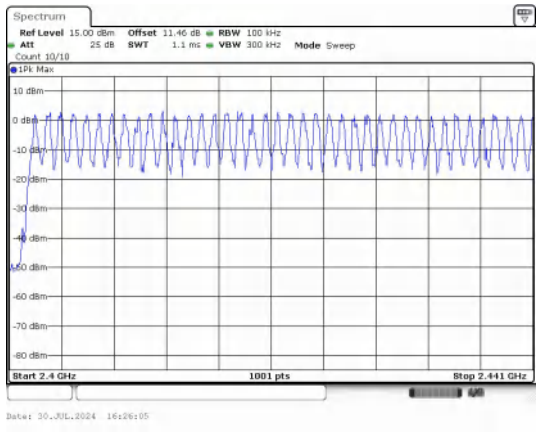
	
Pulse Width **8DPSK_3-DH5**	**Number of Pulses in 31.6 seconds** **8DPSK_3-DH5**

3) Number Of Hopping Channel

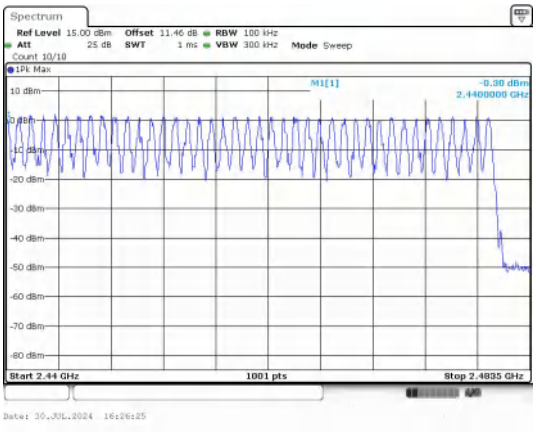
Test Result

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

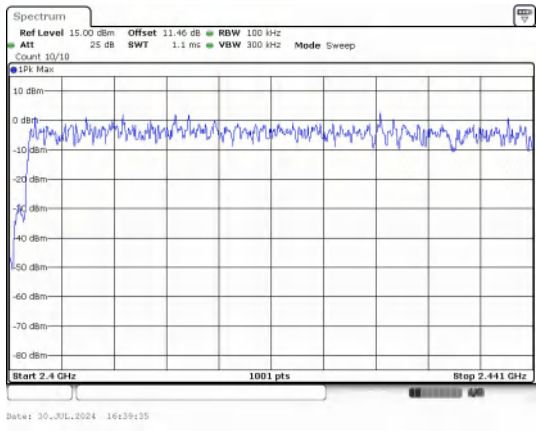
Test Graphs



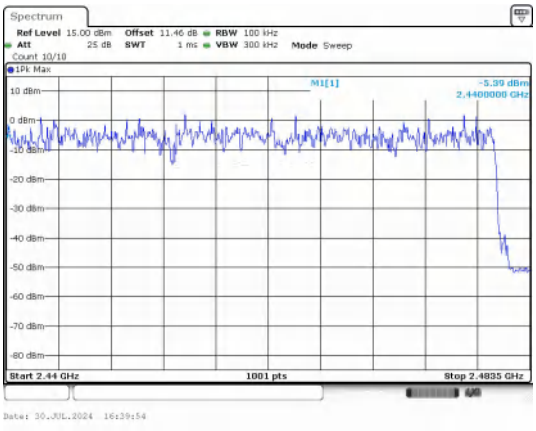
Low End Spectrum Channel Hopping Plot
GFSK



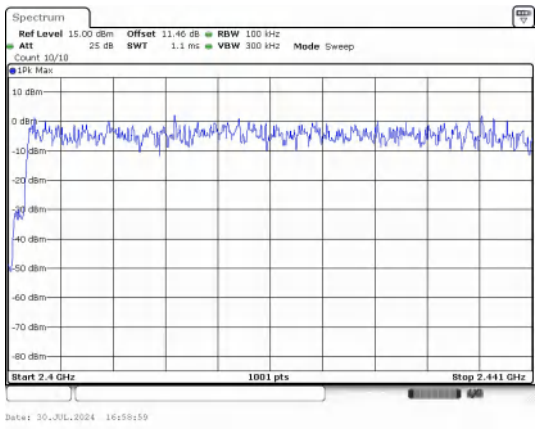
High End Spectrum Channel Hopping Plot
GFSK



Low End Spectrum Channel Hopping Plot
π/4DQPSK

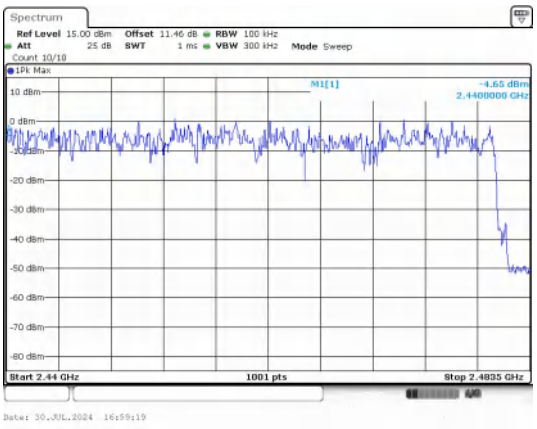


High End Spectrum Channel Hopping Plot
π/4DQPSK



Low End Spectrum Channel Hopping Plot

8DPSK



High End Spectrum Channel Hopping Plot

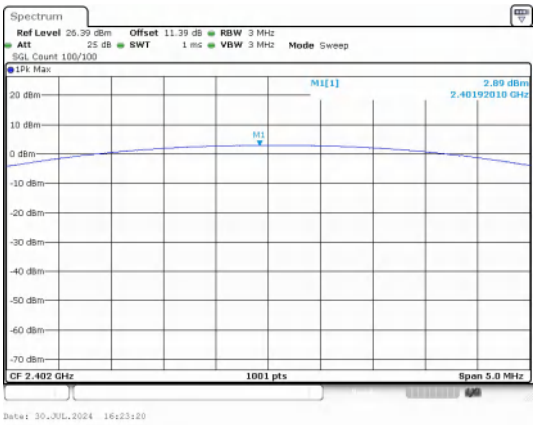
8DPSK

4) Conducted Peak Output Power

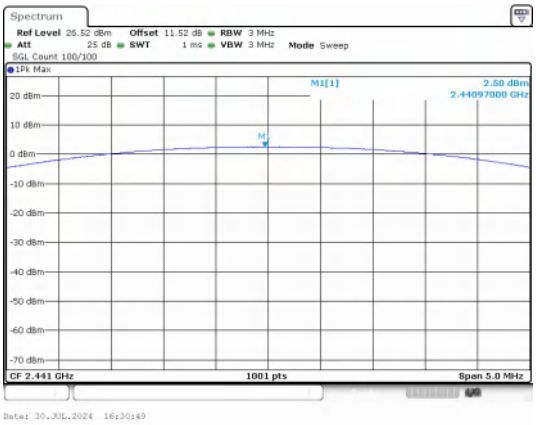
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	2.89	1.95	≤30	PASS
		39	2.50	1.78		PASS
		78	2.09	1.62		PASS
π/4DQPSK	2-DH5	0	3.17	2.08	≤20.97	PASS
		39	2.92	1.96		PASS
		78	2.57	1.81		PASS
8DPSK	3-DH5	0	3.21	2.09		PASS
		39	3.26	2.12		PASS
		78	2.96	1.98		PASS

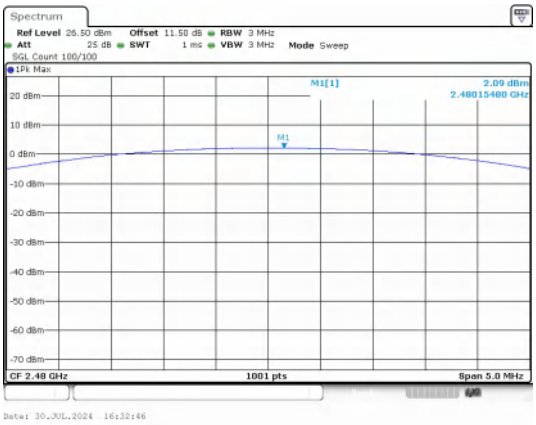
Test Graphs



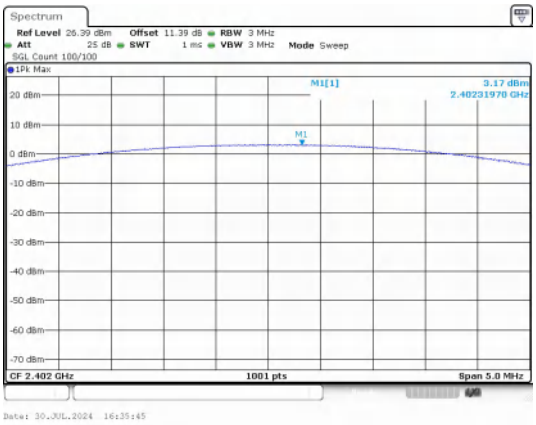
Peak Output Power
GFSK_Channel 0



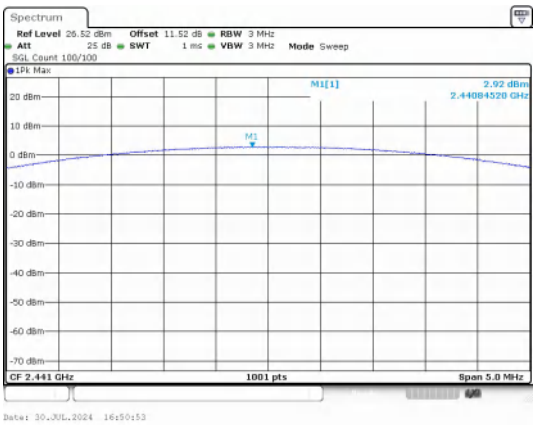
Peak Output Power
GFSK_Channel 39



Peak Output Power
GFSK_Channel 78

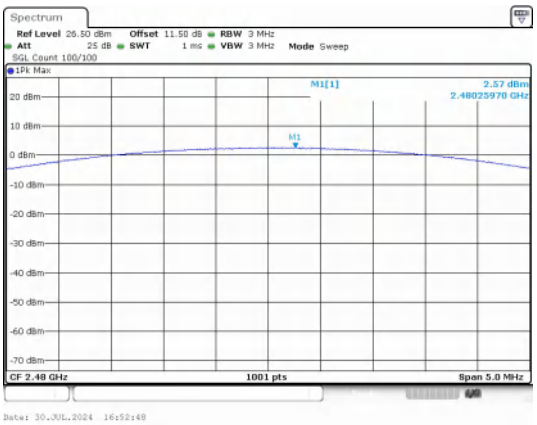


Peak Output Power
π/4DQPSK_Channel 0



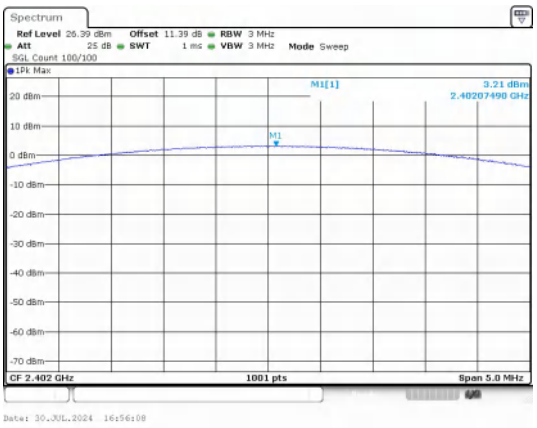
Peak Output Power

π/4DQPSK_Channel 39



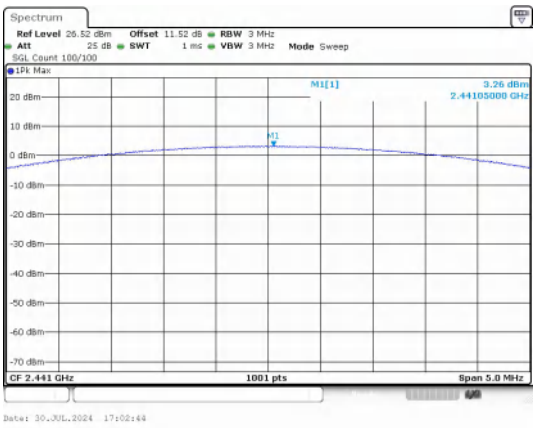
Peak Output Power

π/4DQPSK_Channel 78



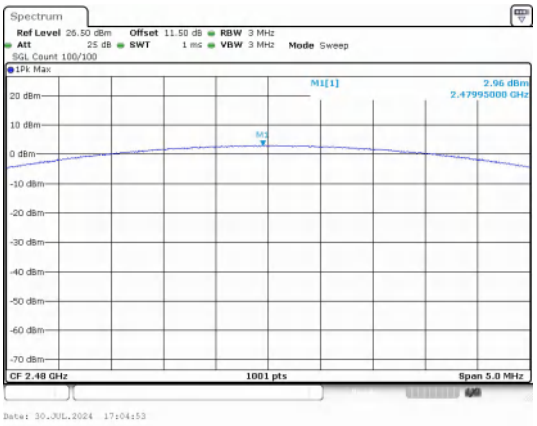
Peak Output Power

8DPSK_Channel 0



Peak Output Power

8DPSK_Channel 39



Peak Output Power

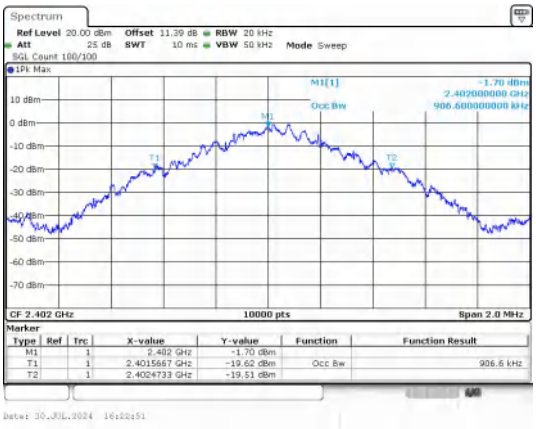
8DPSK_Channel 78

5) 99% Bandwidth

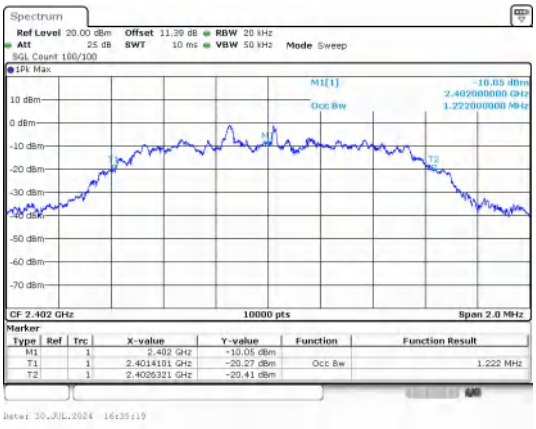
Test Result

Modulation	Channel	Center Frequency (MHz)	99% BW (MHz)
GFSK	0	2402	0.90660
	39	2441	0.90480
	78	2480	0.89900
π/4DQPSK	0	2402	1.2220
	39	2441	1.2100
	78	2480	1.1936
8DPSK	0	2402	1.2238
	39	2441	1.2160
	78	2480	1.2102

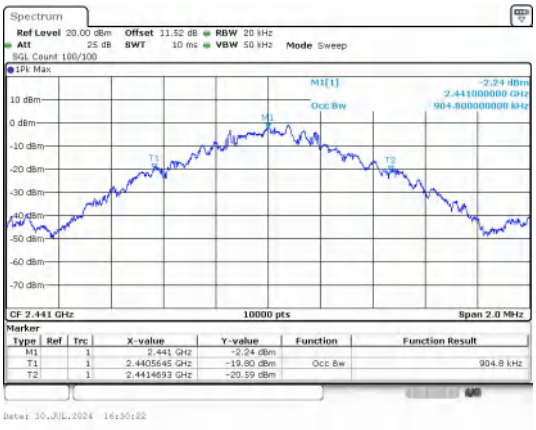
Test Graphs



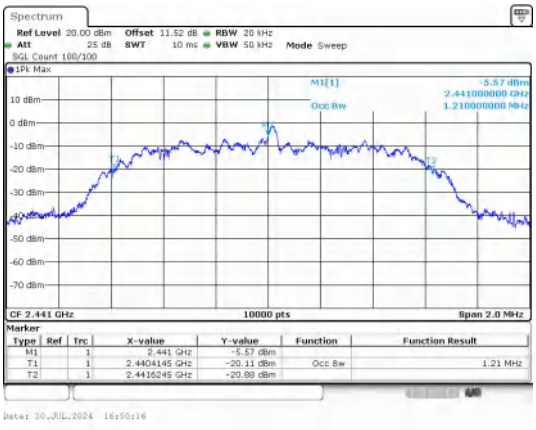
GFSK_DH5_Channel 0



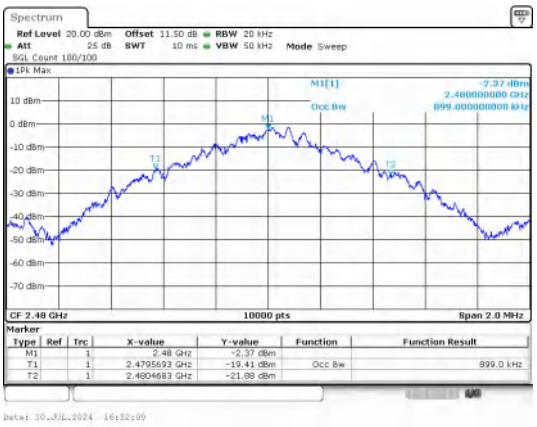
π/4DQPSK_2-DH5_Channel 0



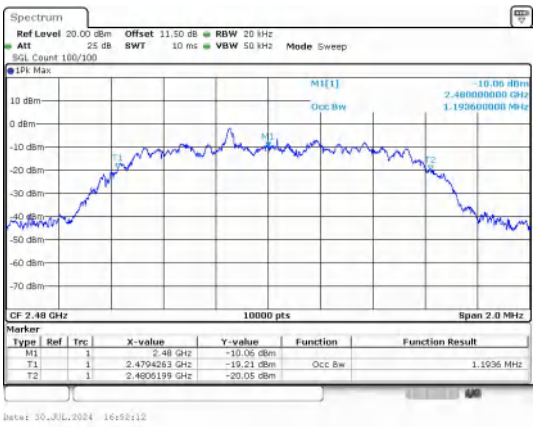
GFSK_DH5_Channel 39



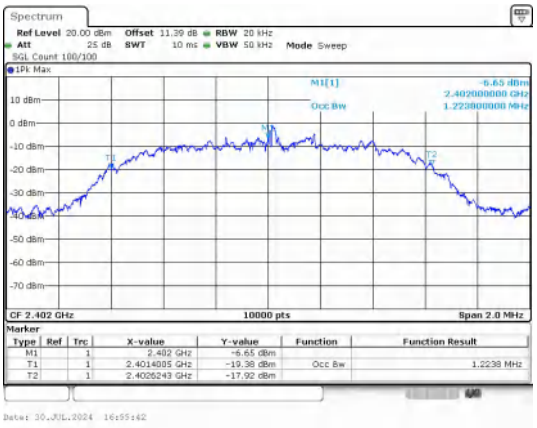
π/4DQPSK_2-DH5_Channel 39



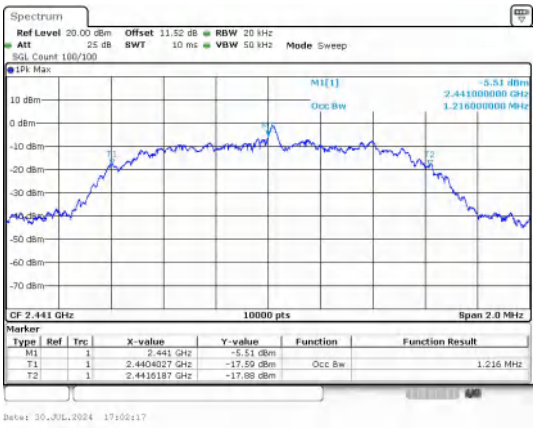
GFSK_DH5_Channel 78



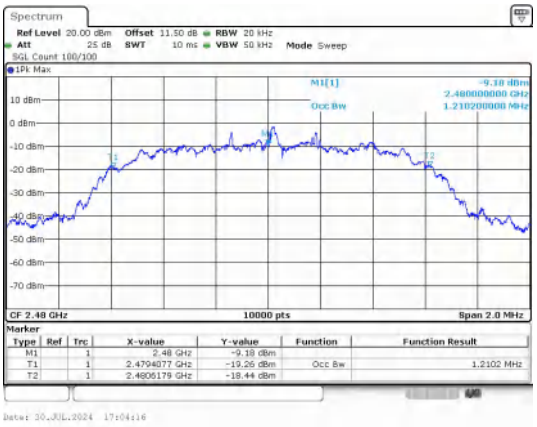
π/4DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



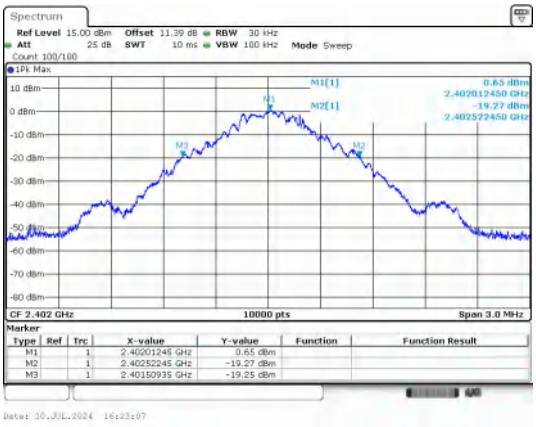
8DPSK_3-DH5_Channel 78

6) 20dB Bandwidth

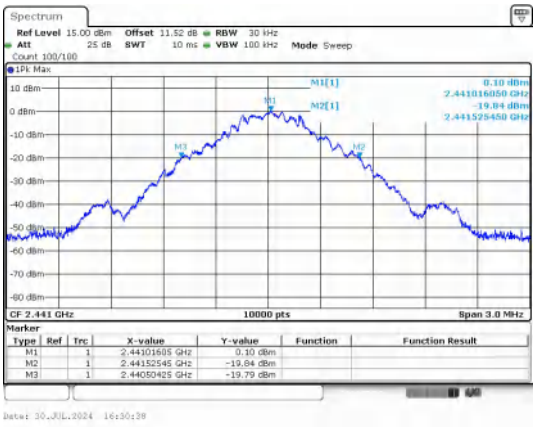
Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.010
	39	2441 MHz	1.030
	78	2480 MHz	1.010
π/4DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.310
	78	2480 MHz	1.310
8DPSK	0	2402 MHz	1.300
	39	2441 MHz	1.290
	78	2480 MHz	1.300

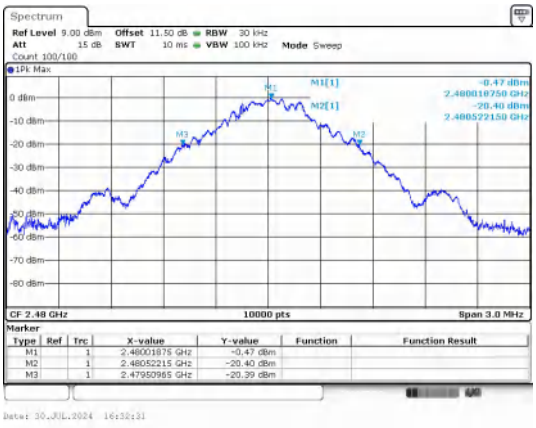
Test Graphs



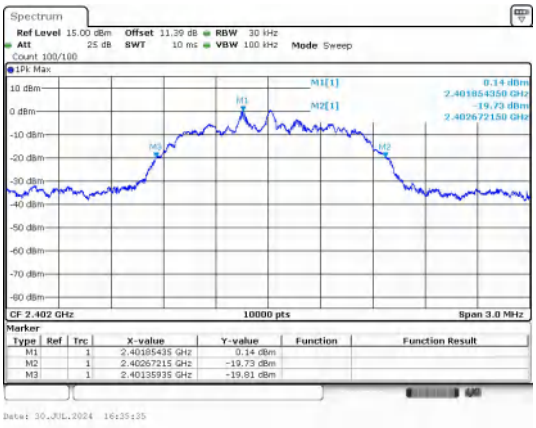
GFSK_DH5_Channel 0



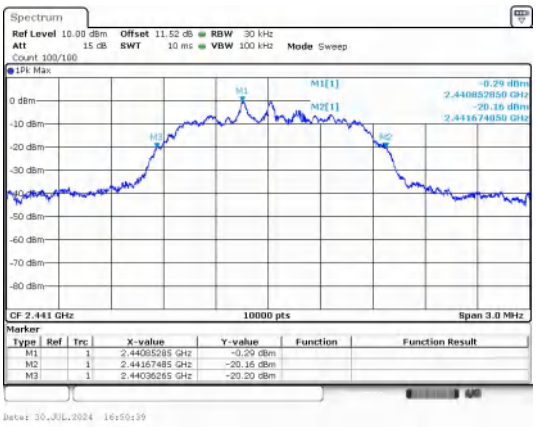
GFSK_DH5_Channel 39



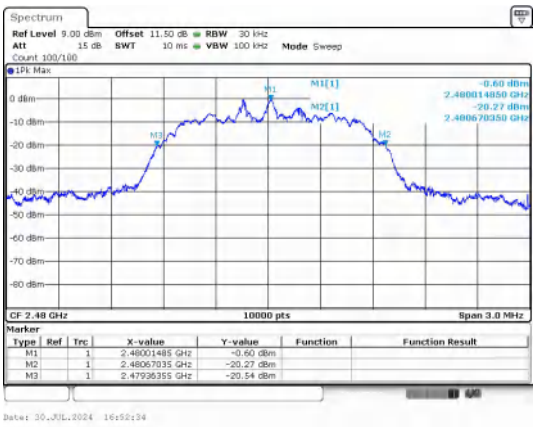
GFSK_DH5_Channel 78



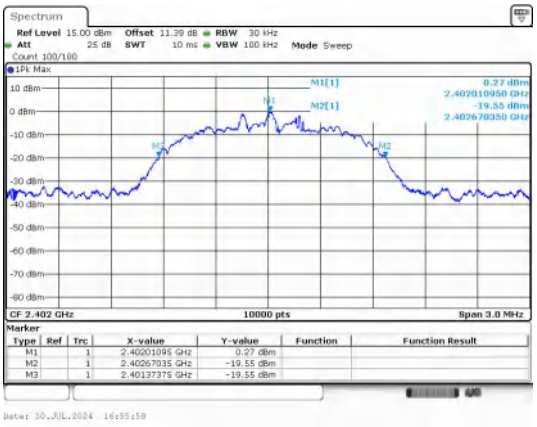
π/4DQPSK_2-DH5_Channel 0



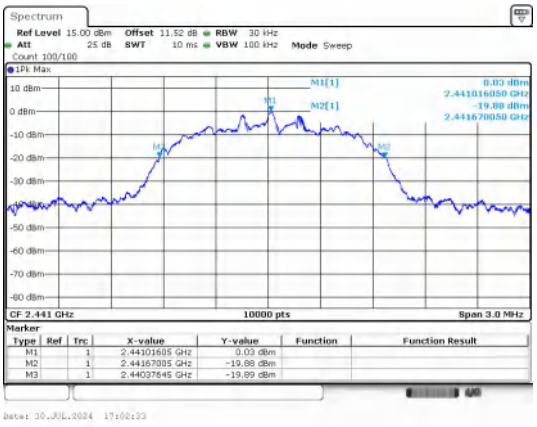
π/4DQPSK_2-DH5_Channel 39



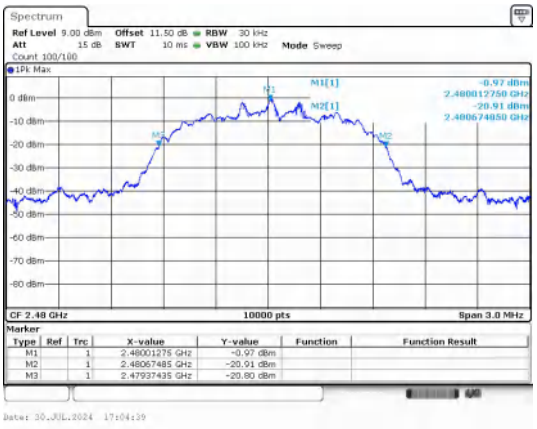
π/4DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



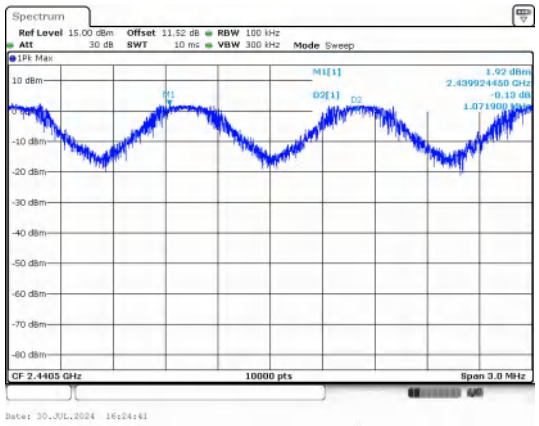
8DPSK_3-DH5_Channel 78

7) Carrier Frequencies Separation

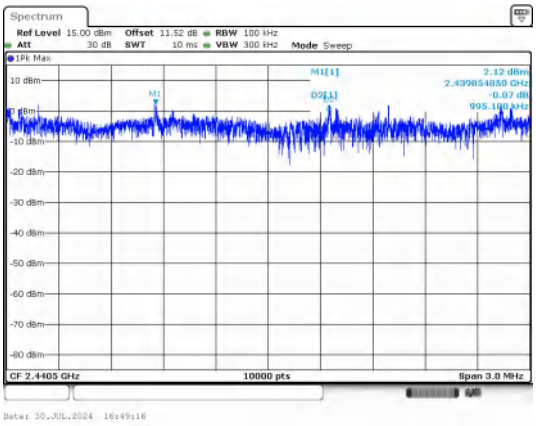
Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.9244	2440.9963	1.0719	1.030	PASS
π/4DQPSK	2-DH5	2439.8549	2440.8499	0.9951	0.873	PASS
8DPSK	3-DH5	2439.8848	2440.9931	1.1082	0.867	PASS

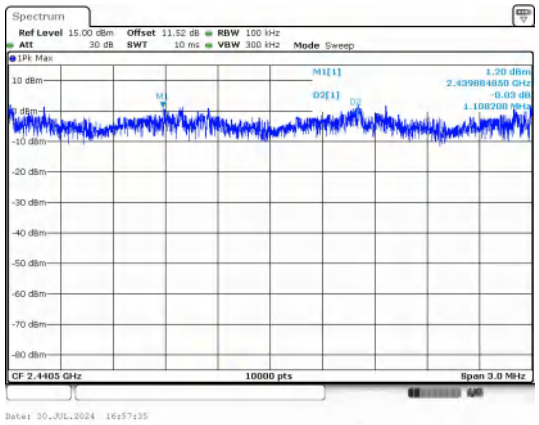
Test Graphs



GFSK



π/4DQPSK



8DPSK

8) Conducted Out Of Band Emission

Test Result

Non-Hopping

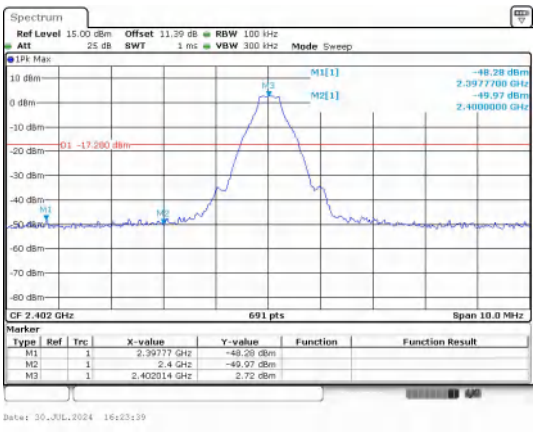
Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2397.77	-48.279	-17.28	-30.999	PASS
			2400.00	-49.968	-17.28	-32.688	PASS
			7206.00	-40.011	-17.28	-22.731	PASS
		39	9763.72	-39.625	-17.62	-22.005	PASS
		78	2483.50	-51.427	-18.1	-33.327	PASS
			9920.20	-39.390	-18.1	-21.290	PASS
π/4DQPSK	2-DH5	0	2400.00	-47.072	-17.75	-29.322	PASS
			7206.79	-43.045	-17.75	-25.295	PASS
		39	9763.72	-40.501	-17.92	-22.581	PASS
		78	2483.50	-49.368	-18.28	-31.088	PASS
			9920.20	-39.280	-18.28	-21.000	PASS
8DPSK	3-DH5	0	2400.00	-47.875	-17.75	-30.125	PASS
			7205.96	-43.009	-17.75	-25.259	PASS
		39	9763.72	-40.376	-18.05	-22.326	PASS
		78	2483.50	-50.024	-18.15	-31.874	PASS
			9920.20	-39.102	-18.15	-20.952	PASS

Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2396.22	-47.626	-17.41	-30.216	PASS
			2400.00	-49.351	-17.41	-31.941	PASS
			2483.50	-48.737	-18.23	-30.507	PASS
			2396.76	-48.484	-17.48	-31.004	PASS
			2400.00	-50.502	-17.48	-33.022	PASS
			2483.50	-49.001	-18.44	-30.561	PASS
π/4DQPSK	2-DH5		2396.21	-48.963	-18.81	-30.153	PASS
			2400.00	-49.892	-18.81	-31.082	PASS
			2483.50	-48.739	-18.16	-30.579	PASS
			2397.87	-49.125	-18.96	-30.165	PASS
			2400.00	-49.927	-18.96	-30.967	PASS
			2483.50	-49.284	-18.7	-30.584	PASS
8DPSK	3-DH5		2397.57	-47.790	-17.4	-30.390	PASS
			2400.00	-47.922	-17.4	-30.522	PASS
			2483.50	-48.813	-18.62	-30.193	PASS

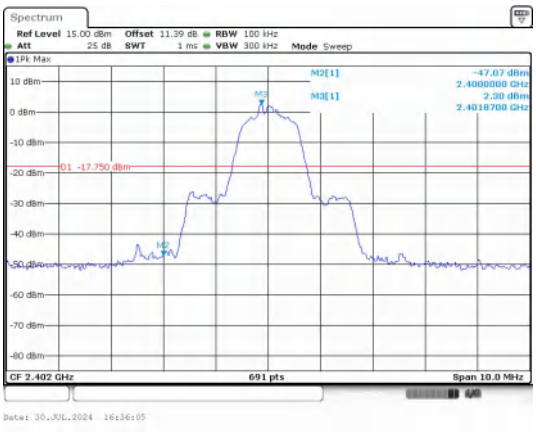
			2395.24	-48.794	-17.86	-30.934	PASS
			2400.00	-50.689	-17.86	-32.829	PASS
			2483.50	-49.643	-18.8	-30.843	PASS

Test Graphs



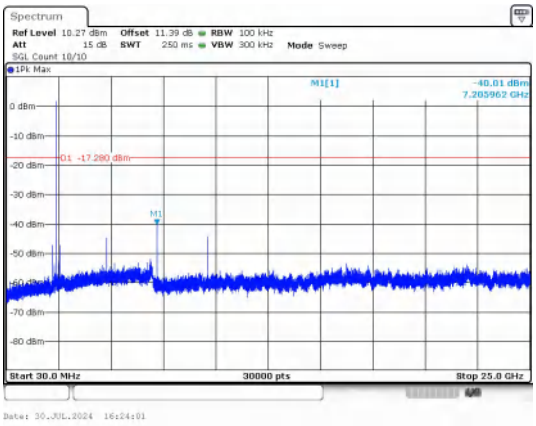
Out Of Band Emission

GFSK_DH5_Channel 0



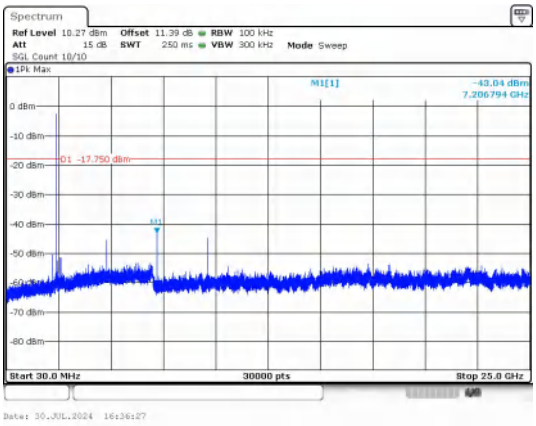
Out Of Band Emission

π/4DQPSK_2-DH5_Channel 0



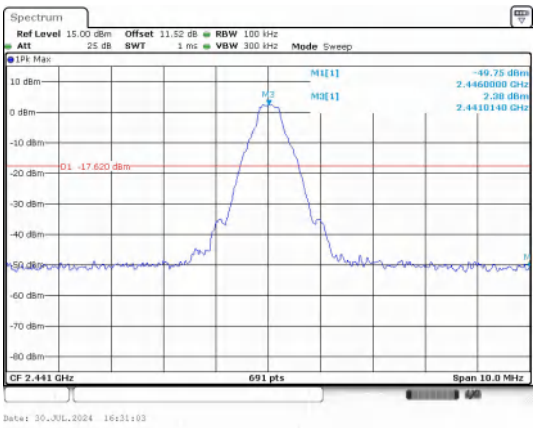
30.0 MHz - 25000.0 MHz

GFSK_DH5_Channel 0



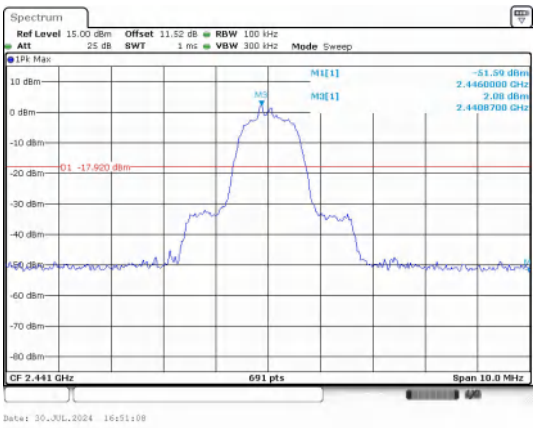
30.0 MHz - 25000.0 MHz

π/4DQPSK_2-DH5_Channel 0



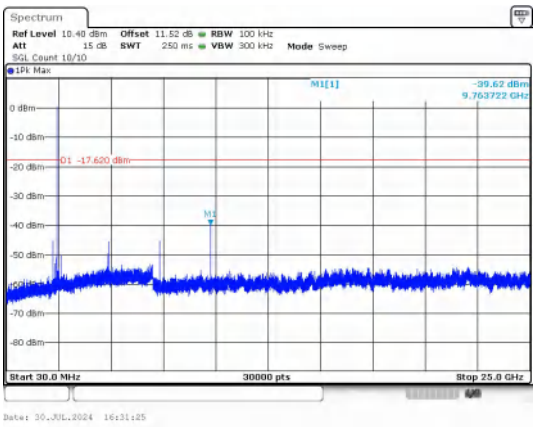
Out Of Band Emission

GFSK_DH5_Channel 39



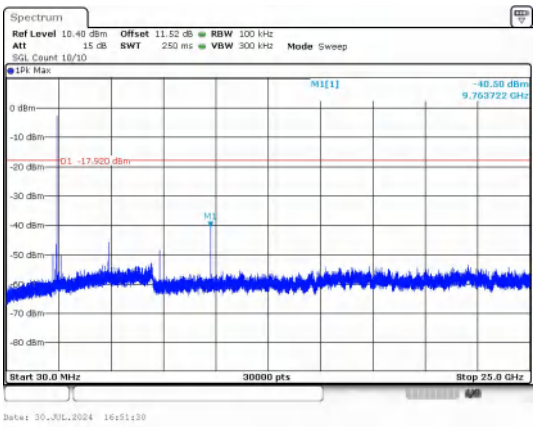
Out Of Band Emission

π/4DQPSK_2-DH5_Channel 39



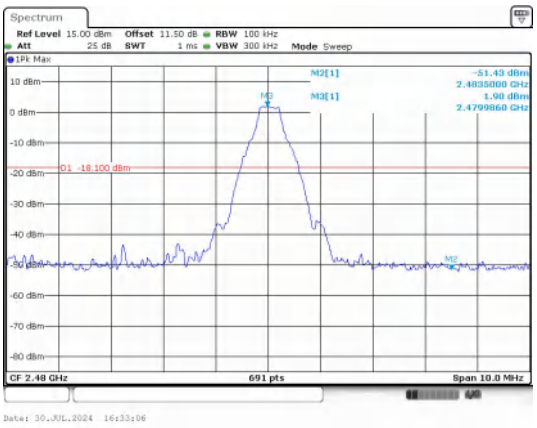
30.0 MHz - 25000.0 MHz

GFSK_DH5_Channel 39



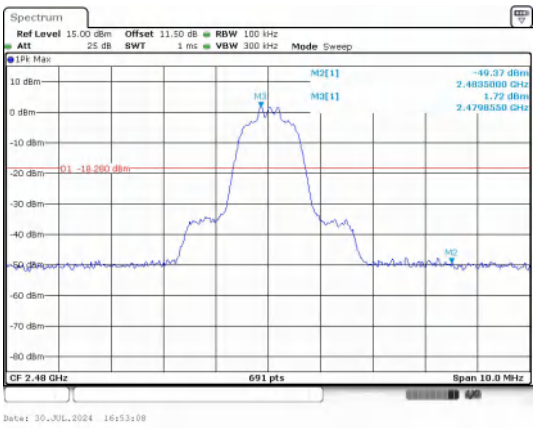
30.0 MHz - 25000.0 MHz

π/4DQPSK_2-DH5_Channel 39



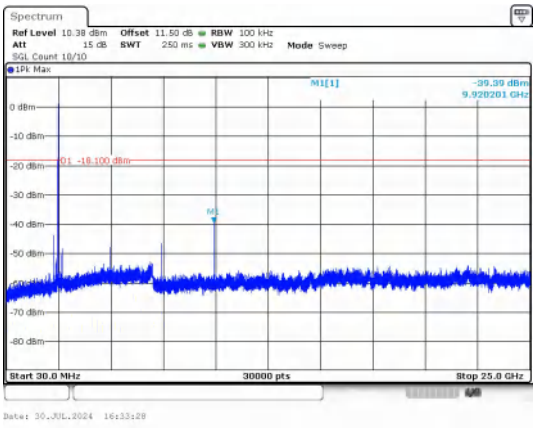
Out Of Band Emission

GFSK_DH5_Channel 78



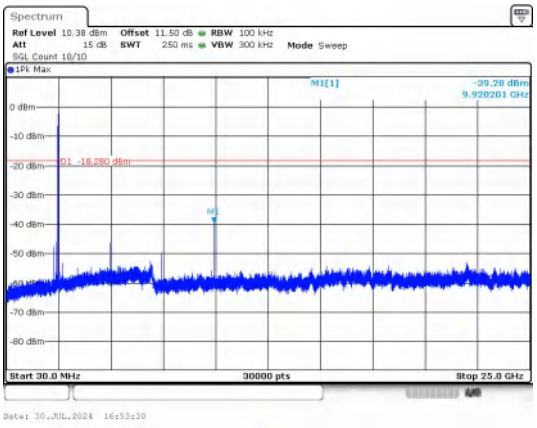
Out Of Band Emission

π/4DQPSK_2-DH5_Channel 78



30.0 MHz - 25000.0 MHz

GFSK_DH5_Channel 78



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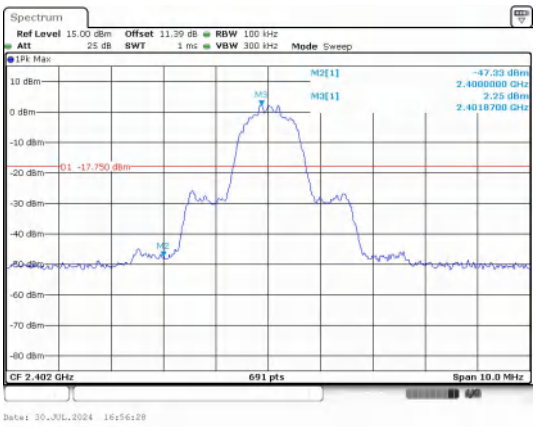
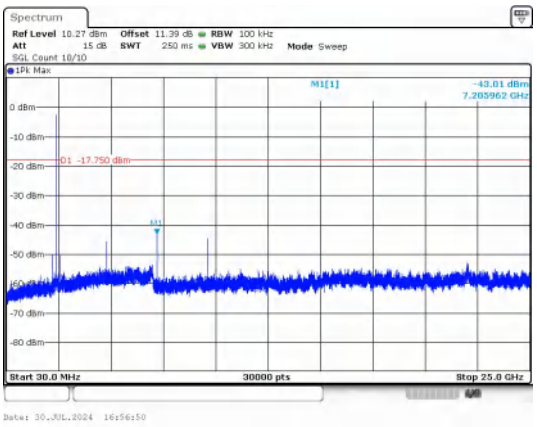


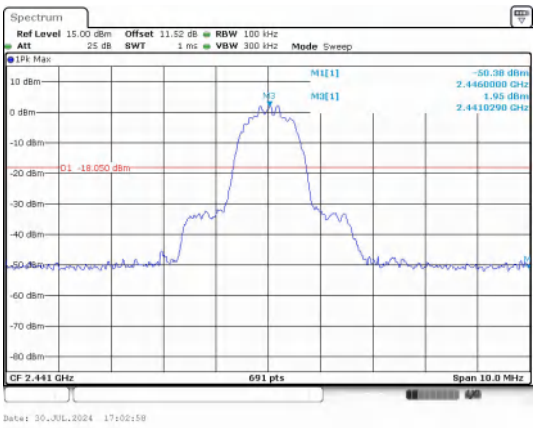
Out Of Band Emission

8DPSK_3-DH5_Channel 0



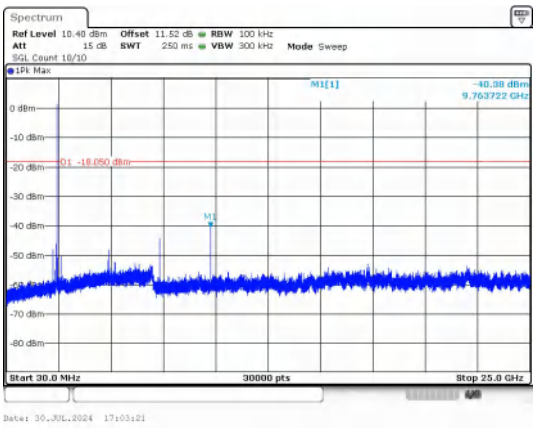
30.0 MHz - 25000.0 MHz

8DPSK_3-DH5_Channel 0



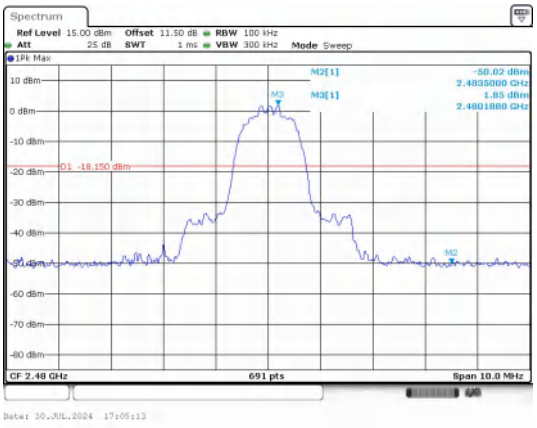
Out Of Band Emission

8DPSK_3-DH5_Channel 39



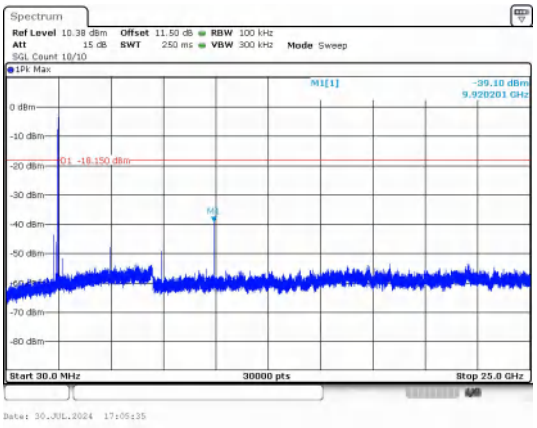
30.0 MHz - 25000.0 MHz

8DPSK_3-DH5_Channel 39



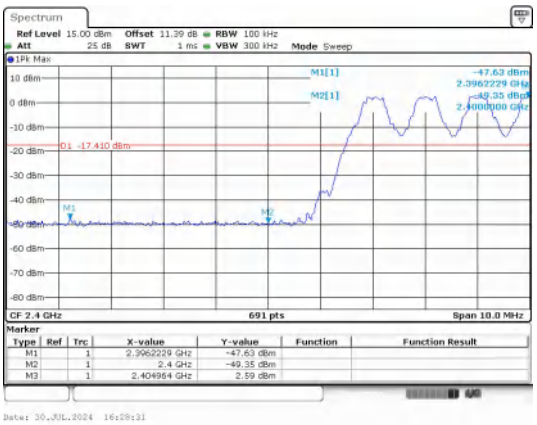
Out Of Band Emission

8DPSK_3-DH5_Channel 78



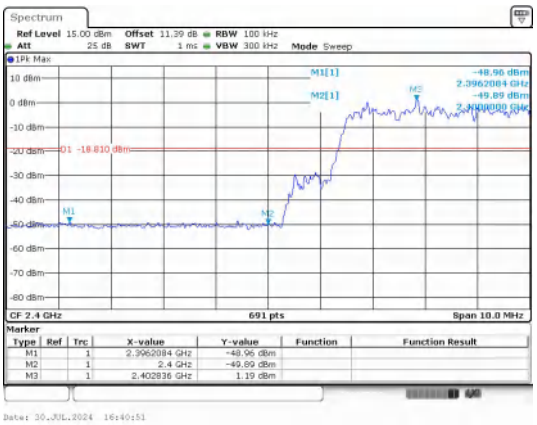
30.0 MHz - 25000.0 MHz

8DPSK_3-DH5_Channel 78



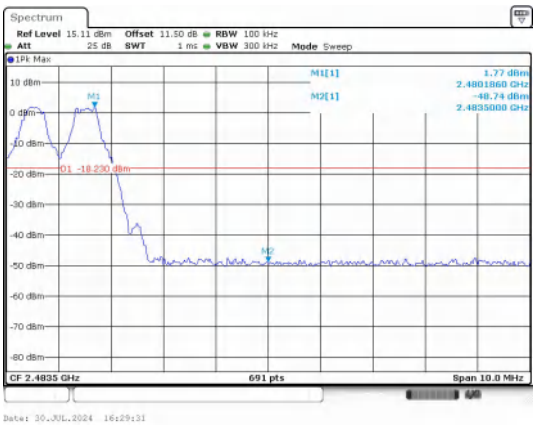
Out Of Band Emission(Left)

GFSK_DH5_Channel Hopping



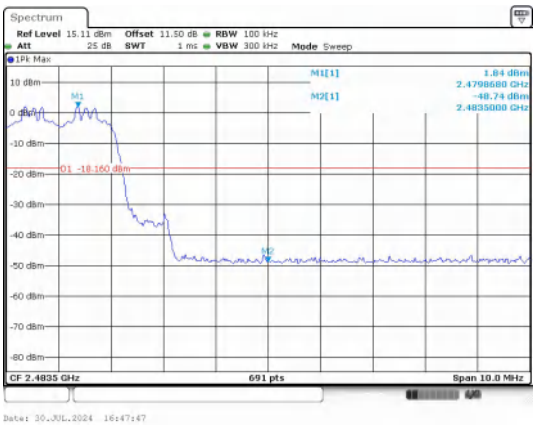
Out Of Band Emission(Left)

π/4DQPSK_2-DH5_Channel Hopping



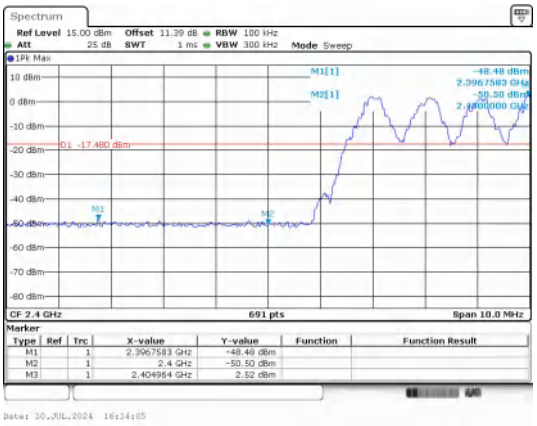
Out Of Band Emission(Right)

GFSK_DH5_Channel Hopping



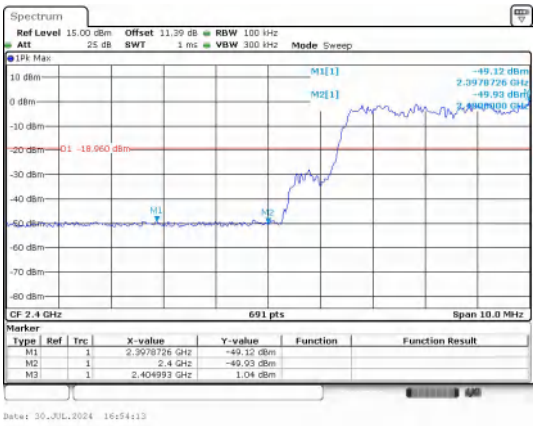
Out Of Band Emission(Right)

π/4DQPSK_2-DH5_Channel Hopping



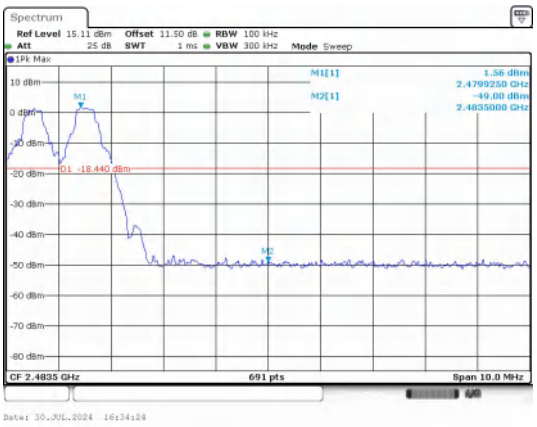
Out Of Band Emission(Left)

GFSK_DH5_Channel Hopping



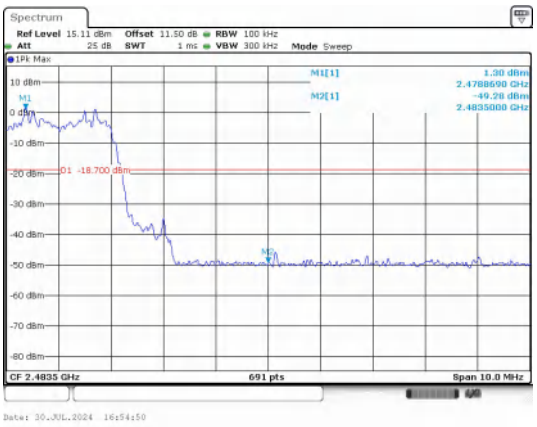
Out Of Band Emission(Left)

π/4DQPSK_2-DH5_Channel Hopping



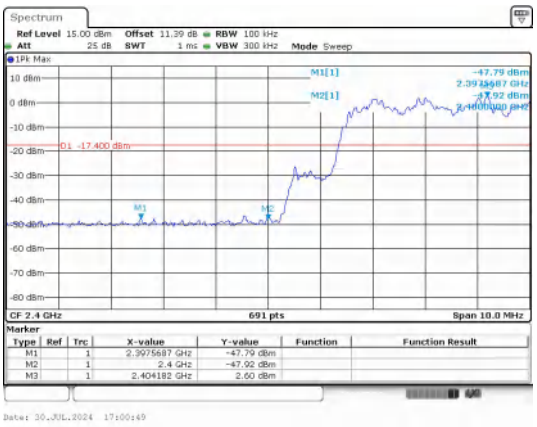
Out Of Band Emission(Right)

GFSK_DH5_Channel Hopping



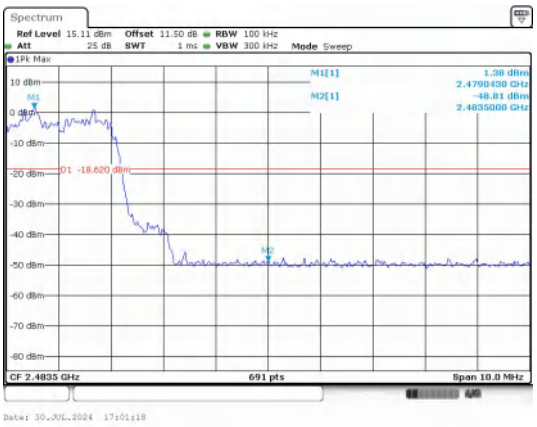
Out Of Band Emission(Right)

π/4DQPSK_2-DH5_Channel Hopping



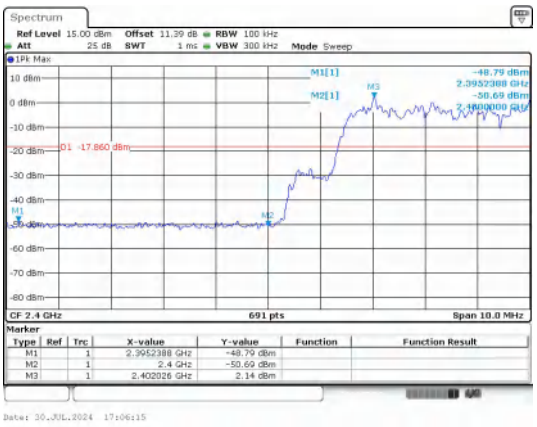
Out Of Band Emission(Left)

8DPSK_3-DH5_Channel Hopping



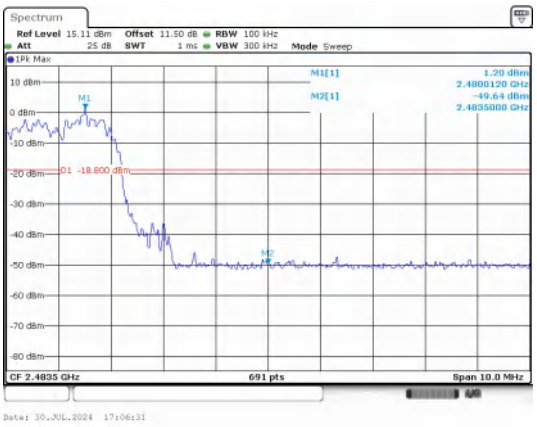
Out Of Band Emission(Right)

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