Appendix A

Report No.:	CISRR24060403901
FCC ID:	2BGWM-DUPODS-S108
Product Name:	Xiaodu Smart open headphones
Model No.:	DuPods S108
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

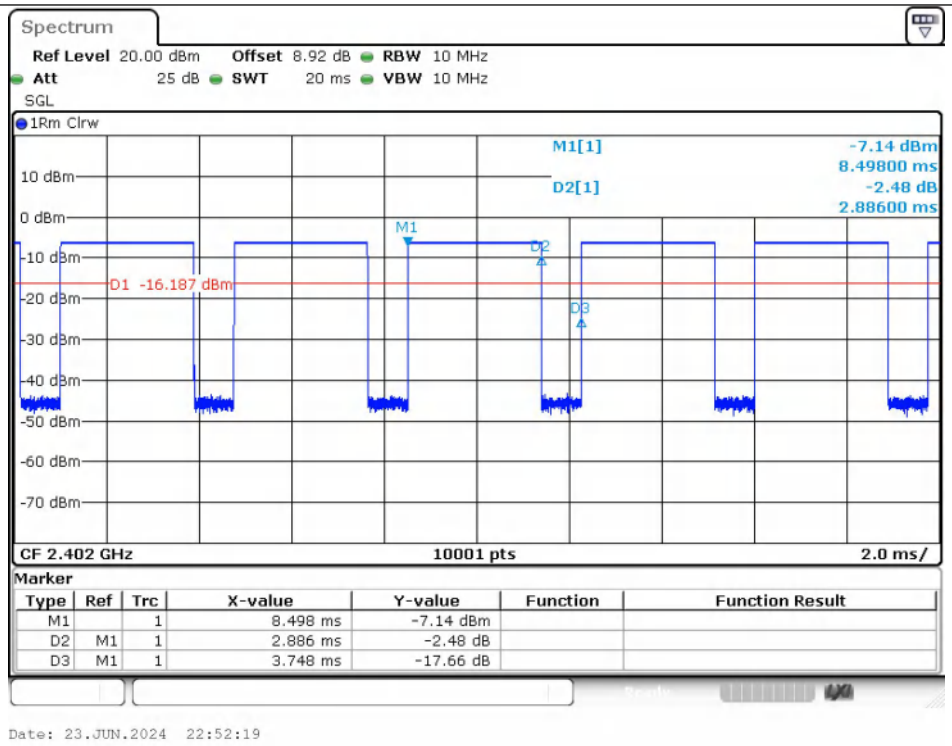
Duty Cycle

Left

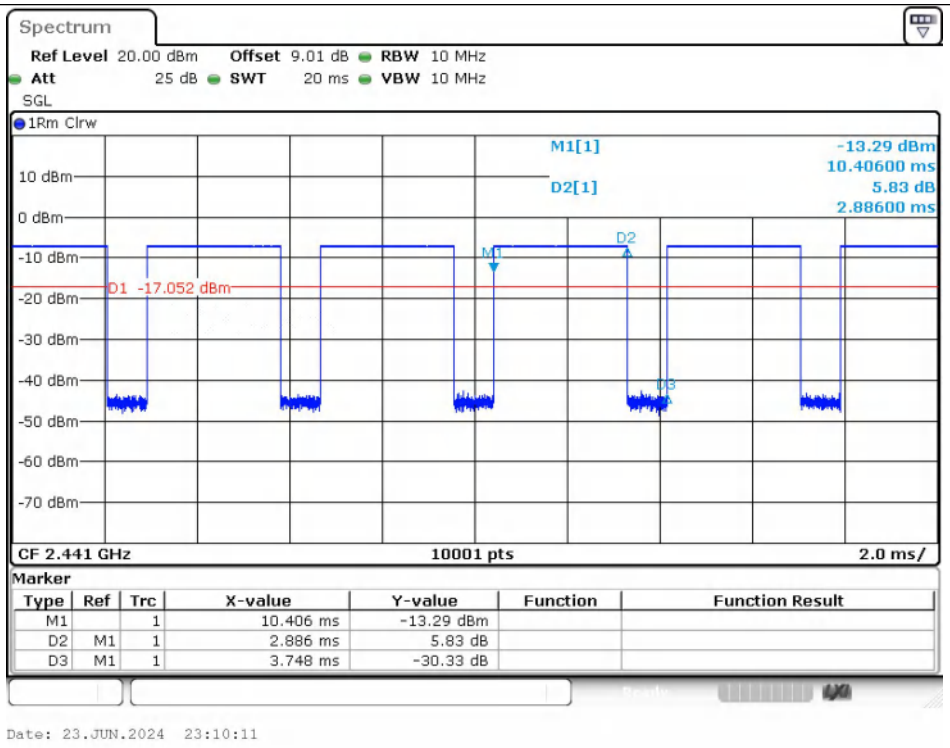
Test Result

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	2.890	3.748	77.11	0.7711	1.1289	0.35
8DPSK	3-DH5	0	2.894	3.748	77.21	0.7721	1.1233	0.35
		39	2.892	3.748	77.16	0.7716	1.1261	0.35
		78	2.894	3.748	77.21	0.7721	1.1233	0.35

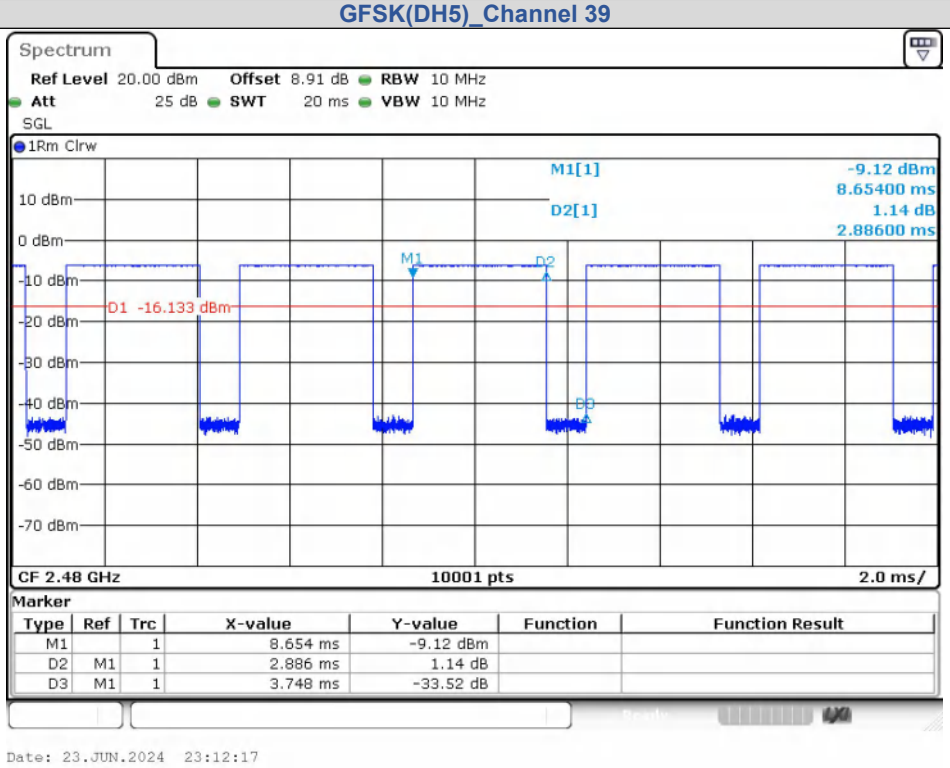
Test Graphs



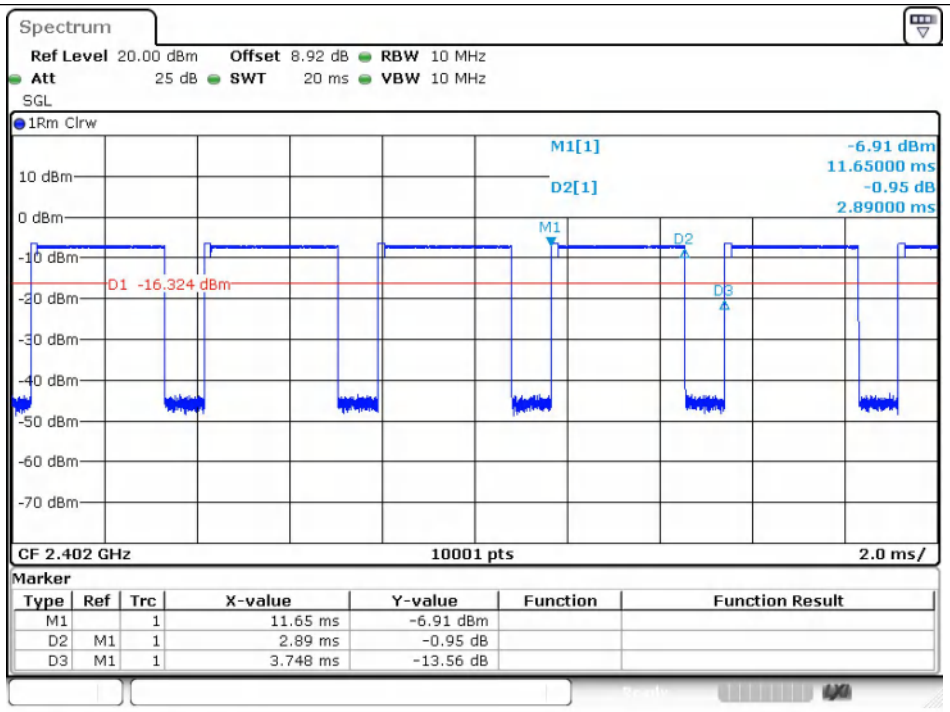
GFSK(DH5)_Channel 0



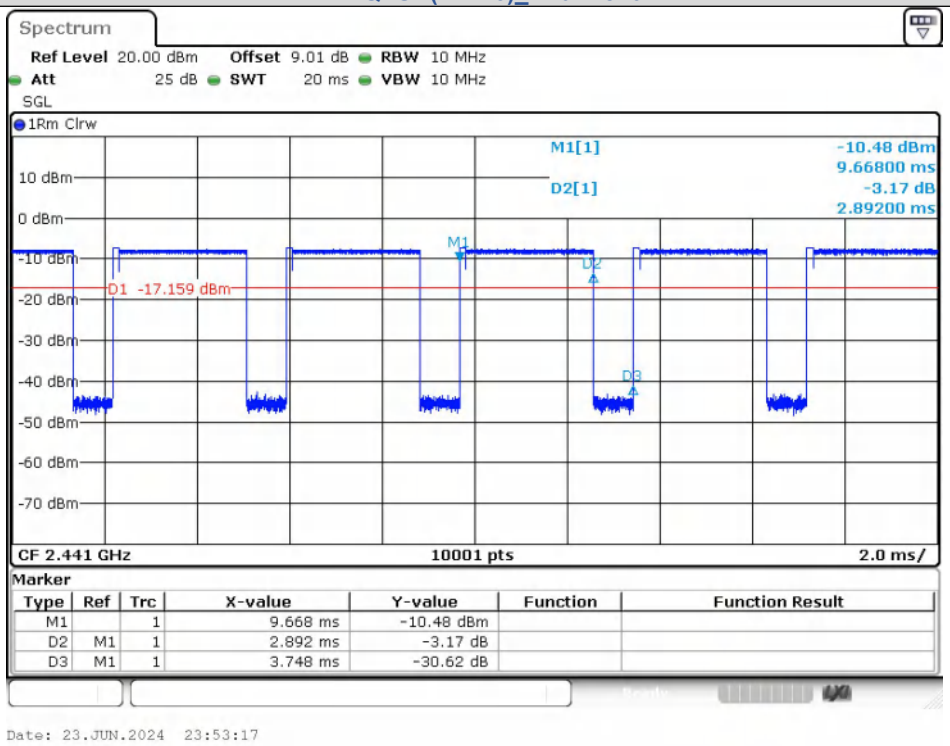
GFSK(DH5)_Channel 39



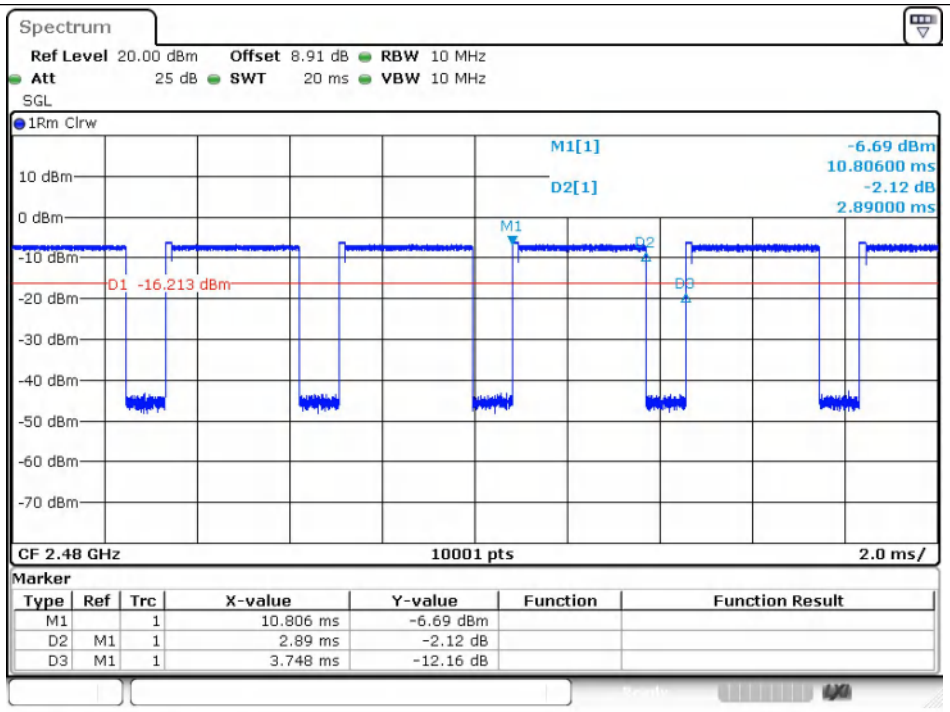
GFSK(DH5)_Channel 78



π/4DQPSK(2-DH5)_Channel 0

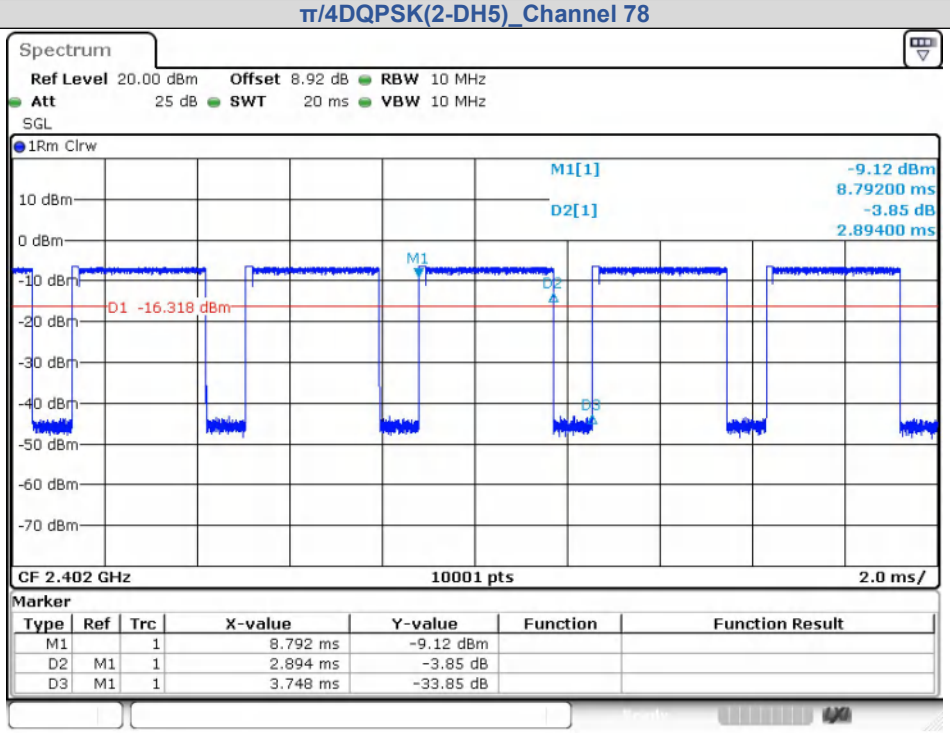


π/4DQPSK(2-DH5)_Channel 39



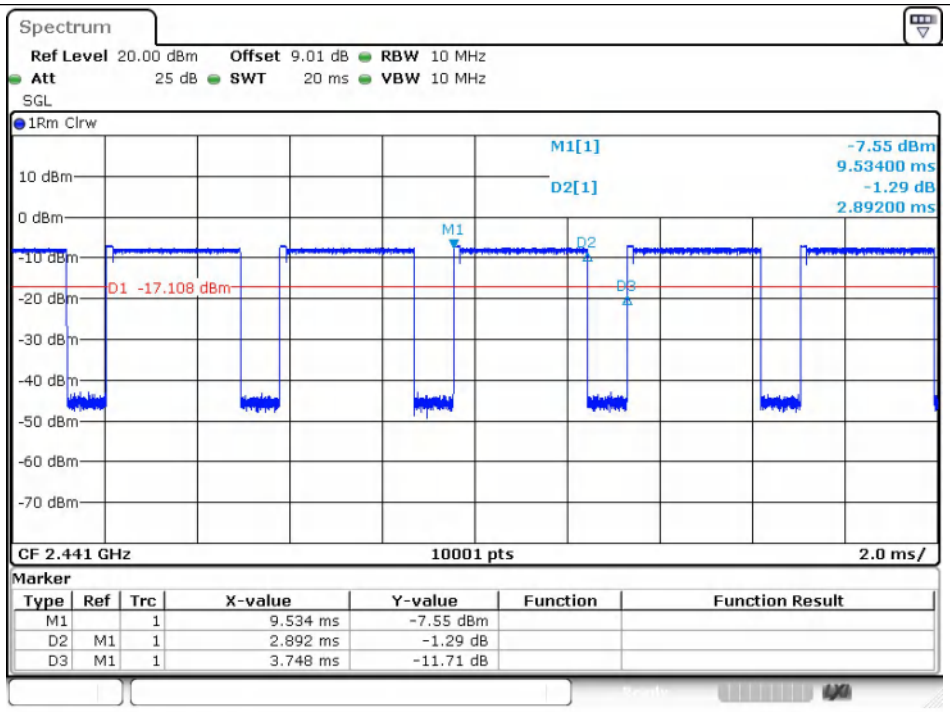
Date: 23.JUN.2024 23:55:20

π/4DQPSK(2-DH5)_Channel 78

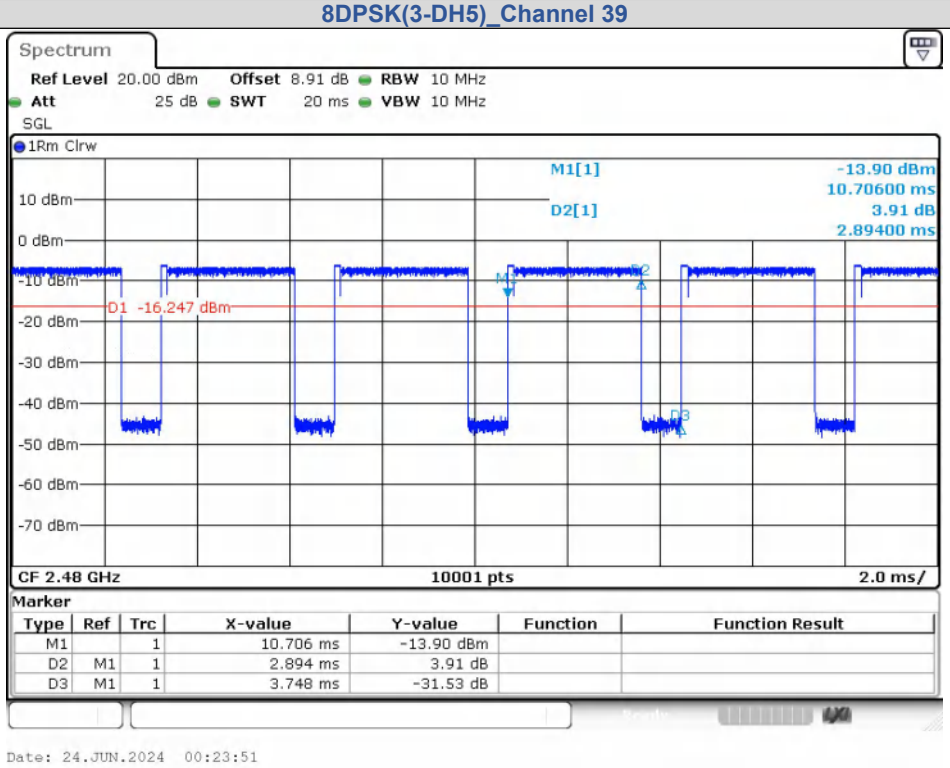


Date: 24.JUN.2024 00:00:00

8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39



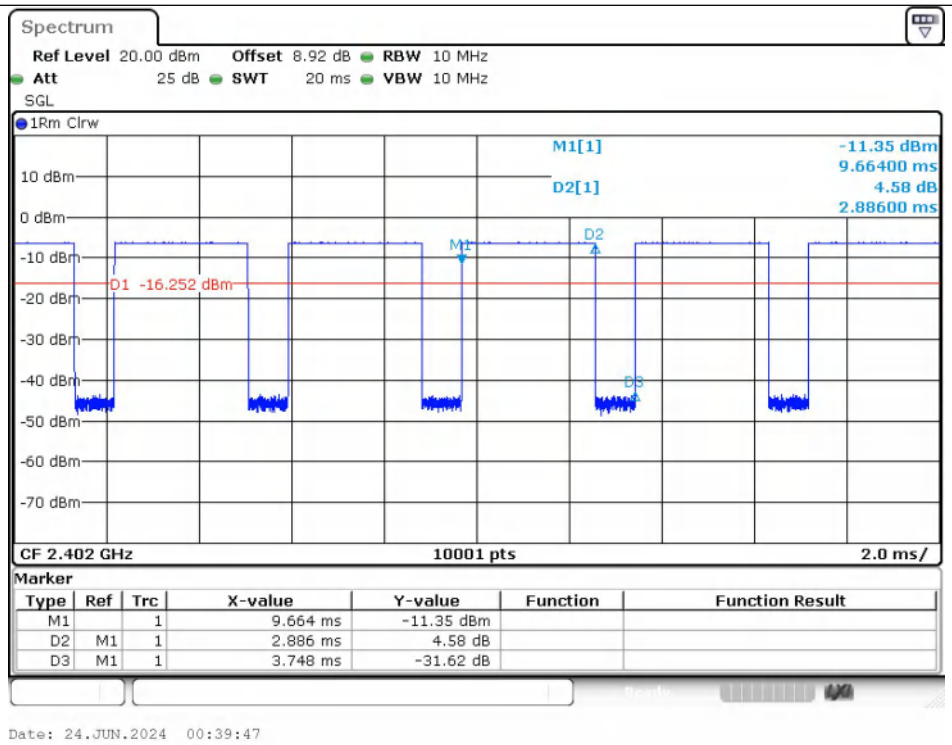
8DPSK(3-DH5)_Channel 78

Right

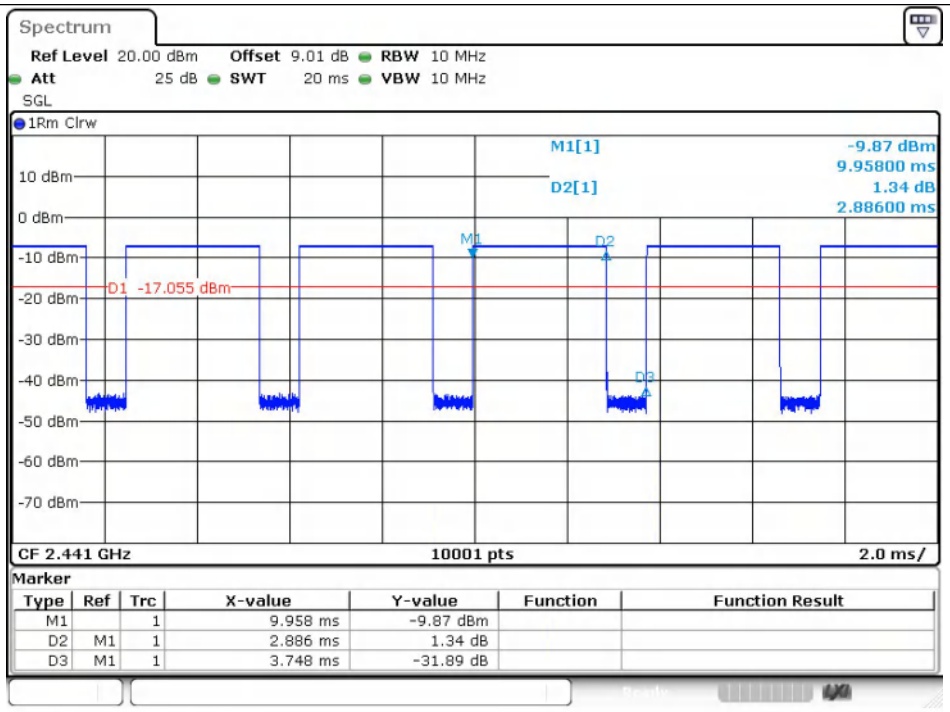
Test Result

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	2.890	3.748	77.11	0.7711	1.1289	0.35
8DPSK	3-DH5	0	2.894	3.748	77.21	0.7721	1.1233	0.35
		39	2.892	3.748	77.16	0.7716	1.1261	0.35
		78	2.894	3.748	77.21	0.7721	1.1233	0.35

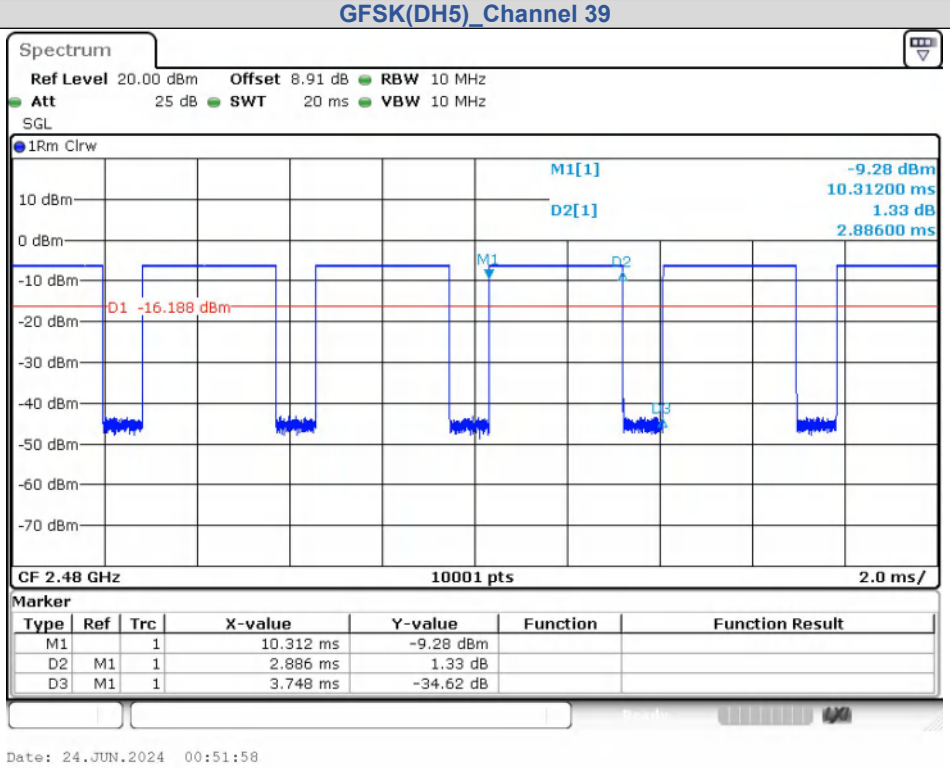
Test Graphs



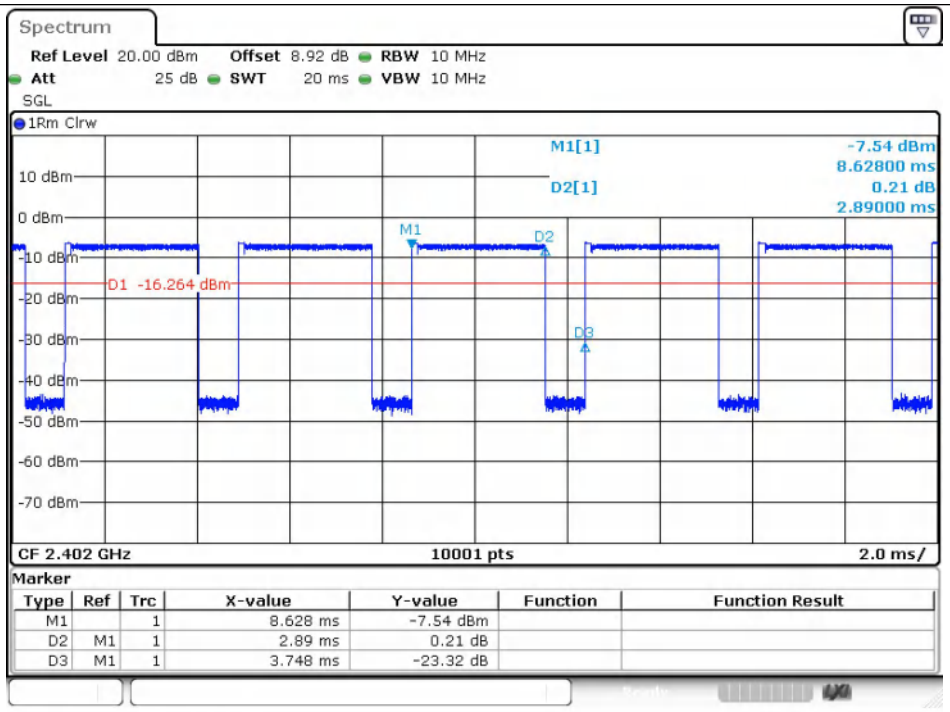
GFSK(DH5)_Channel 0



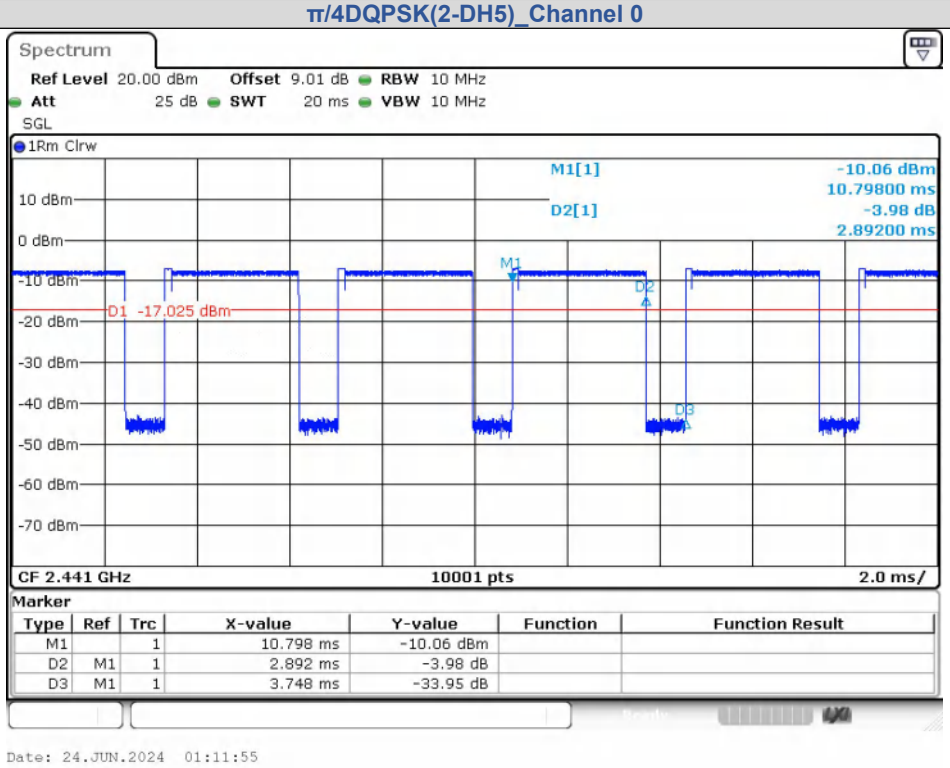
GFSK(DH5)_Channel 39



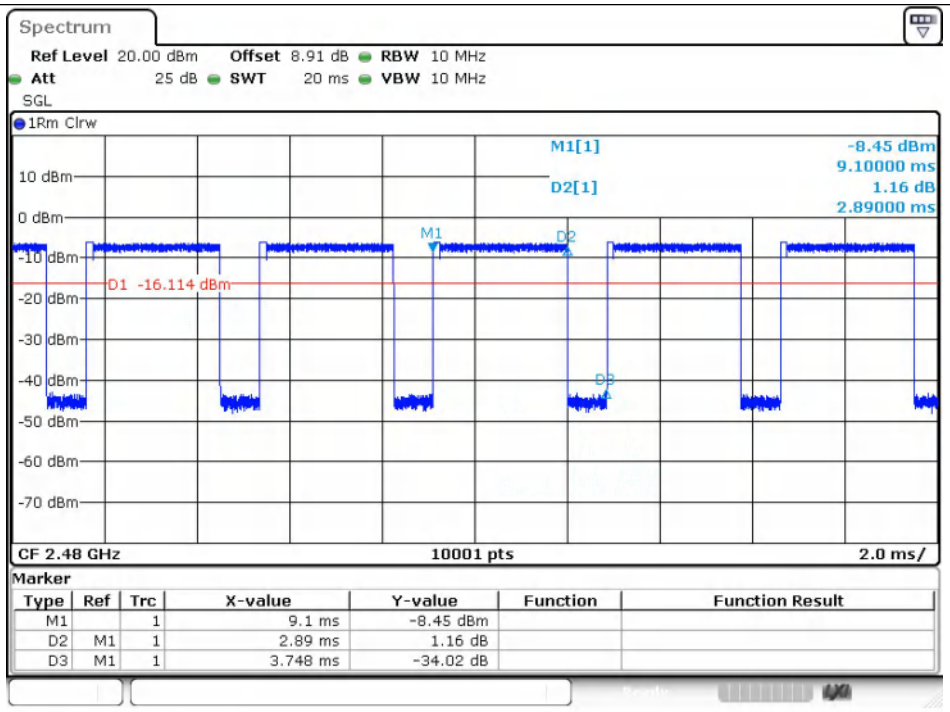
GFSK(DH5)_Channel 78



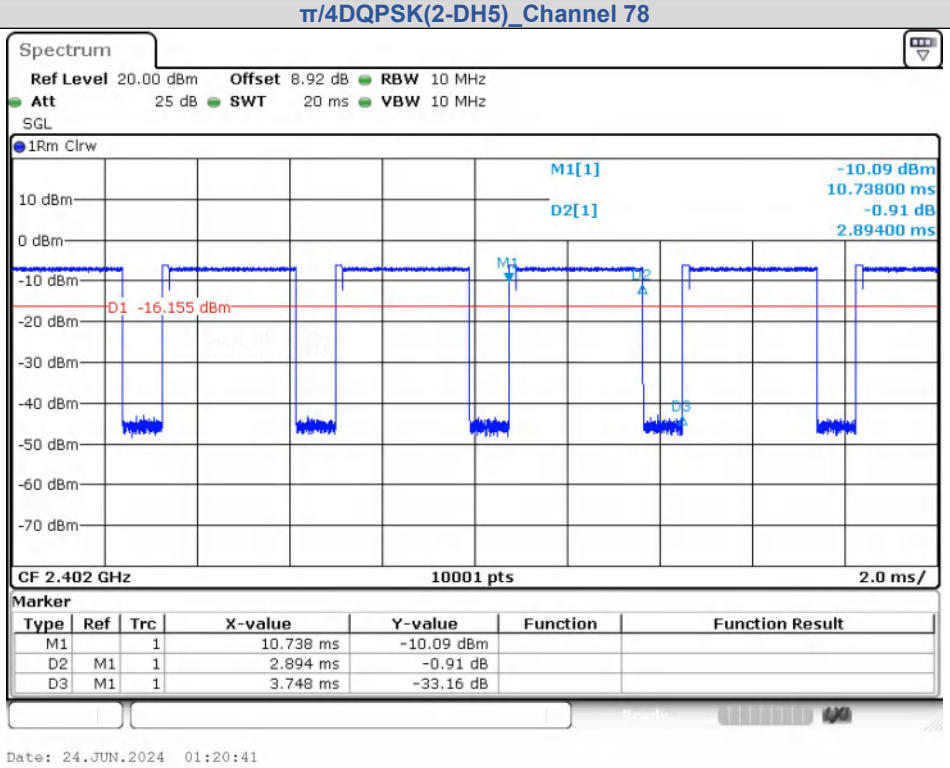
π/4DQPSK(2-DH5)_Channel 0



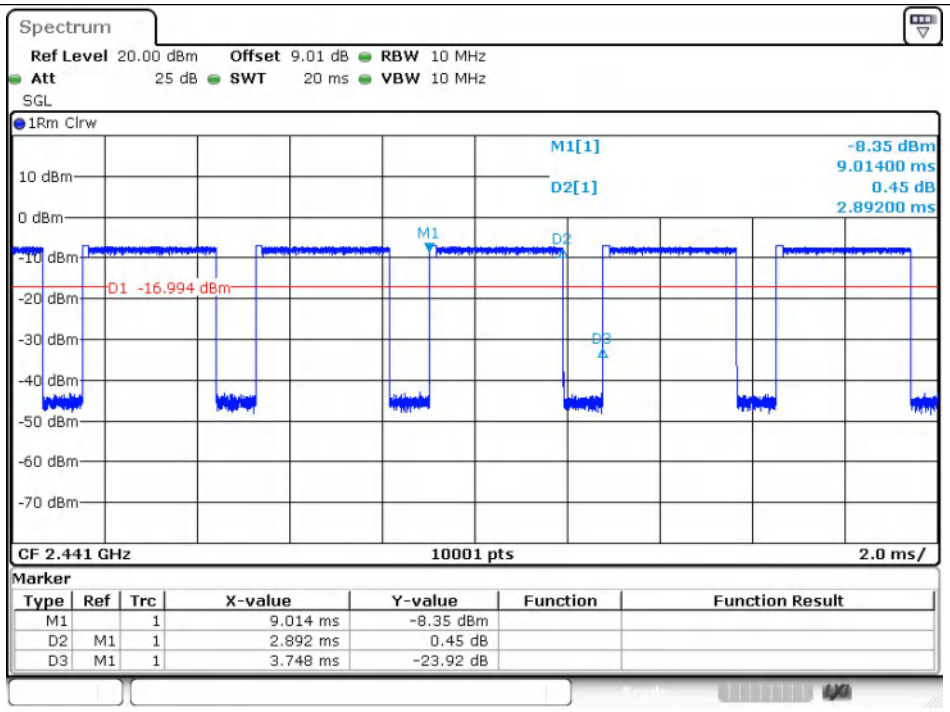
π/4DQPSK(2-DH5)_Channel 39



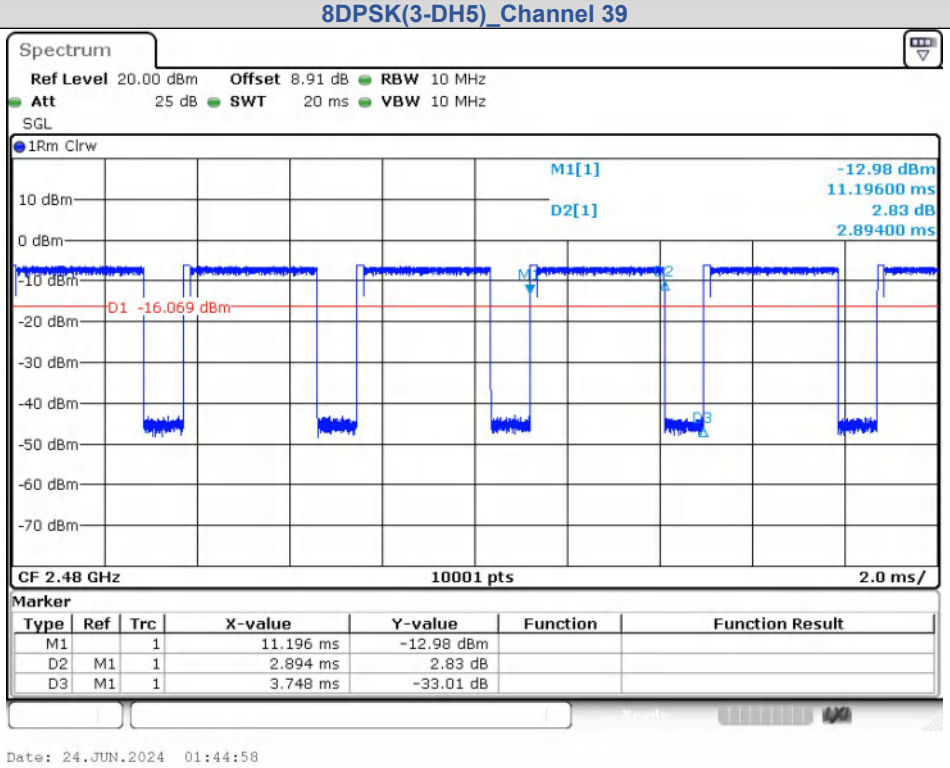
π/4DQPSK(2-DH5)_Channel 78



8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39



8DPSK(3-DH5)_Channel 78

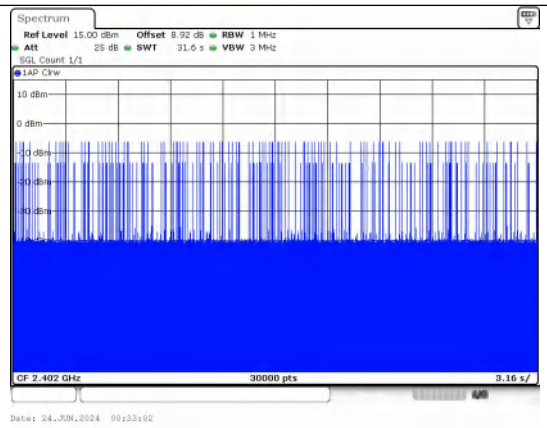
Dwell Time

Left

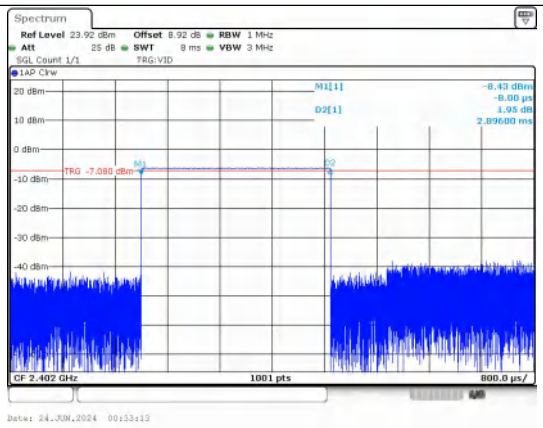
Test Result

Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.896	99	286.7	< 400	PASS
π/4DQPSK	2-DH5		2.896	118	341.73		PASS
8DPSK	3-DH5		2.896	101	292.5		PASS

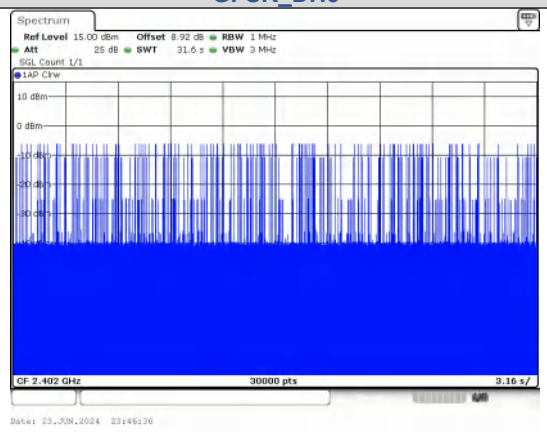
Test Graphs



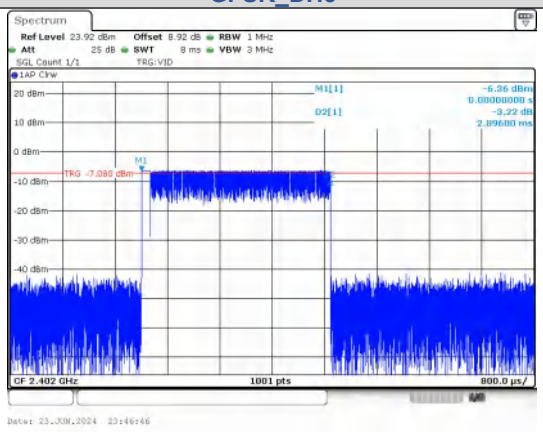
Number of Pulses in 31.6 seconds
GFSK_DH5



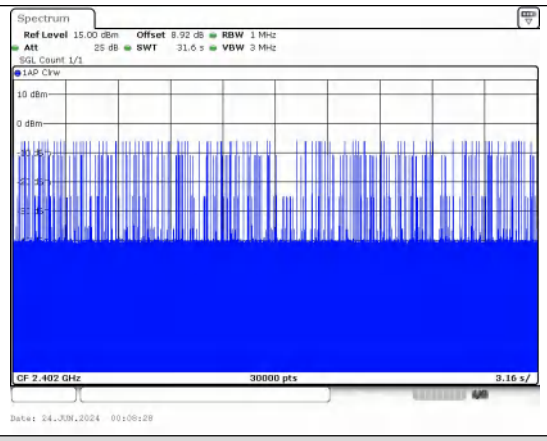
Pulse Width
GFSK_DH5



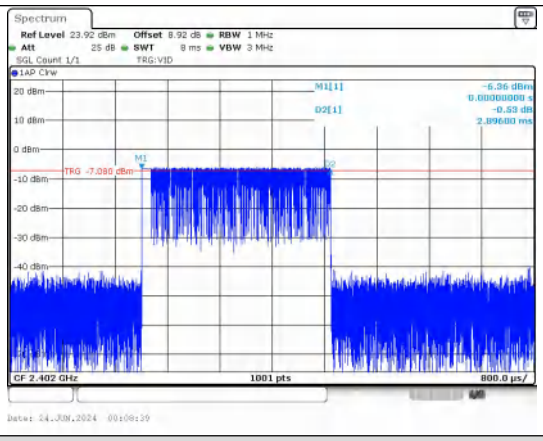
Number of Pulses in 31.6 seconds
π/4DQPSK_2-DH5



Pulse Width
π/4DQPSK_2-DH5



Number of Pulses in 31.6 seconds
8DPSK_3-DH5



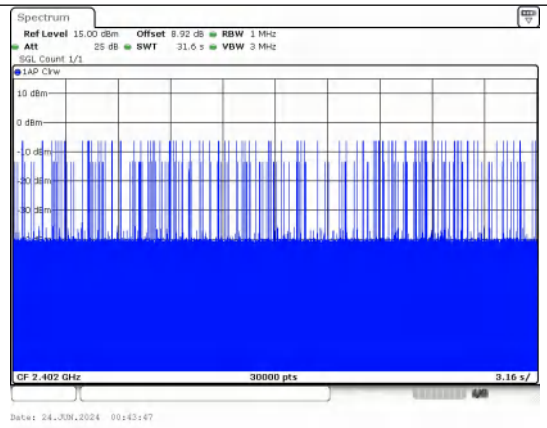
Pulse Width
8DPSK_3-DH5

Right

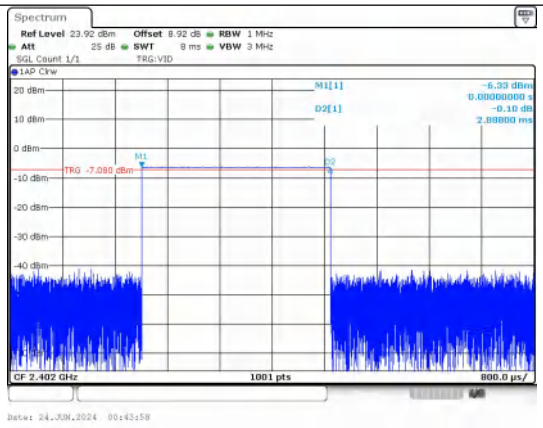
Test Result

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	97	280.14	< 400	PASS
π/4DQPSK	2-DH5		2.888	101	291.69		PASS
8DPSK	3-DH5		2.896	106	306.98		PASS

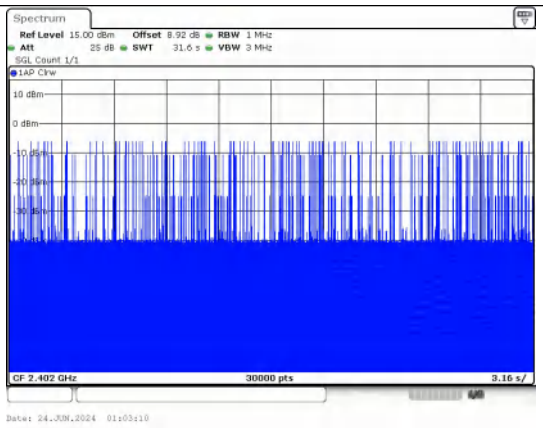
Test Graphs



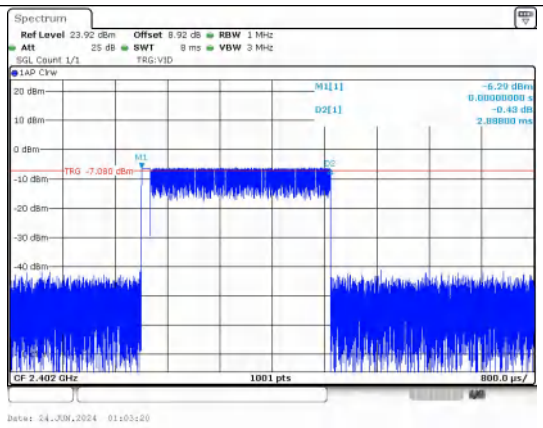
Number of Pulses in 31.6 seconds
GFSK_DH5



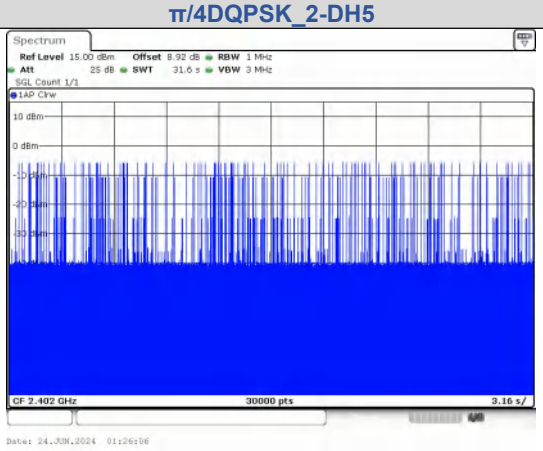
Pulse Width
GFSK_DH5



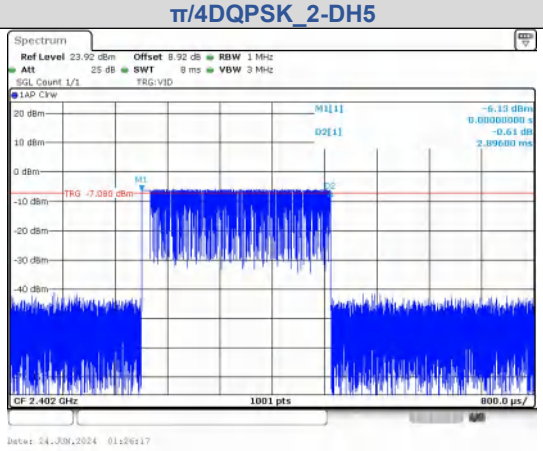
Number of Pulses in 31.6 seconds
π/4DQPSK_2-DH5



Pulse Width
π/4DQPSK_2-DH5



Number of Pulses in 31.6 seconds
8DPSK_3-DH5



Pulse Width
8DPSK_3-DH5

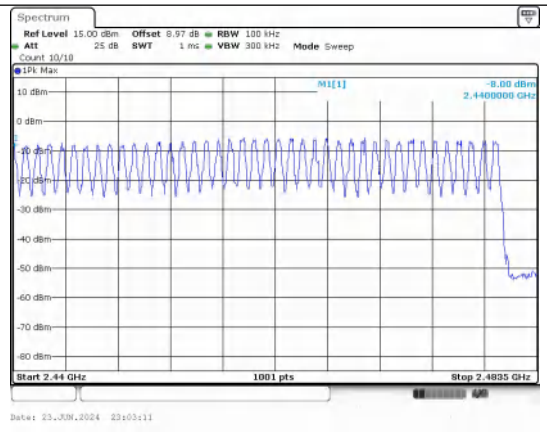
Number Of Hopping Channel

Left

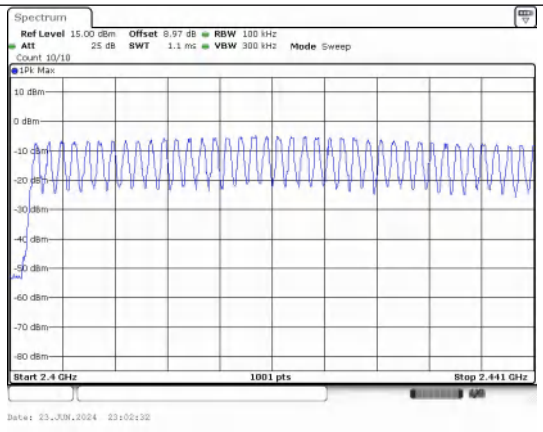
Test Result

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

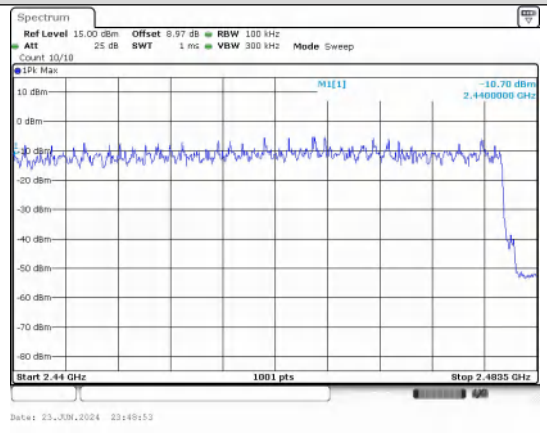
Test Graphs



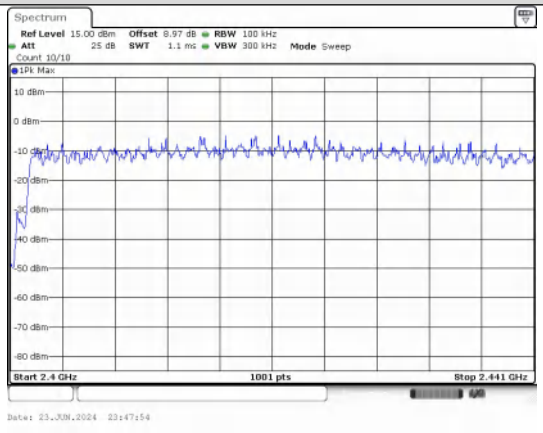
High End Spectrum Channel Hopping Plot
GFSK



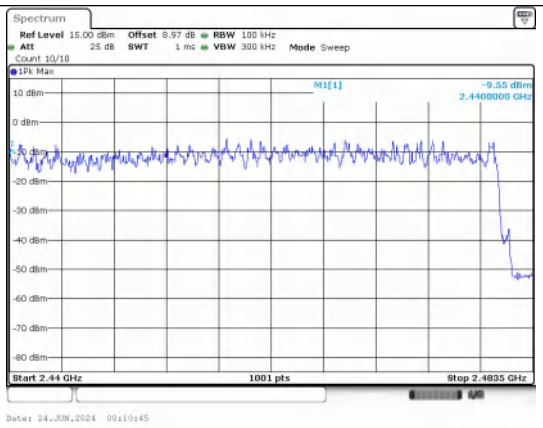
Low End Spectrum Channel Hopping Plot
GFSK



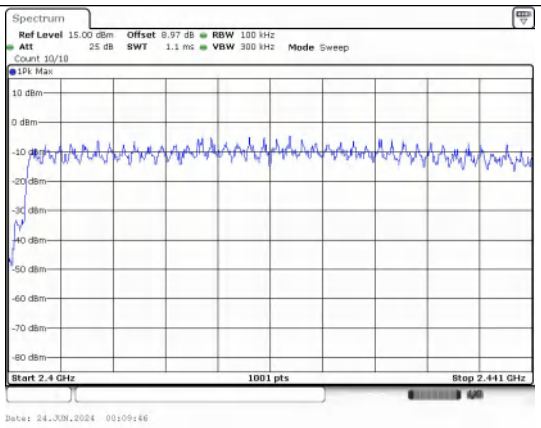
High End Spectrum Channel Hopping Plot
π/4DQPSK



Low End Spectrum Channel Hopping Plot
π/4DQPSK



High End Spectrum Channel Hopping Plot
8DPSK



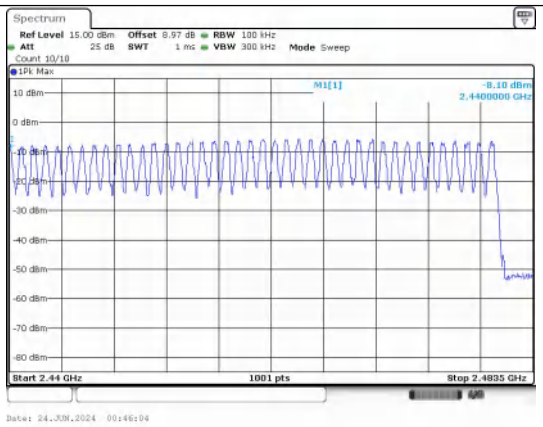
Low End Spectrum Channel Hopping Plot
8DPSK

Right

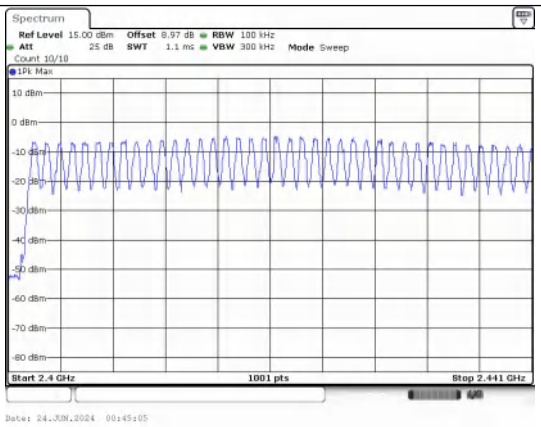
Test Result

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

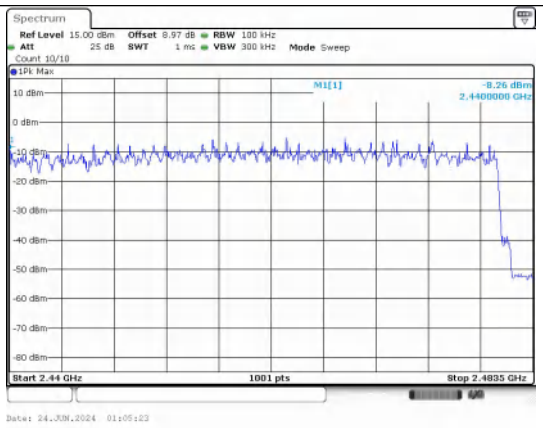
Test Graphs



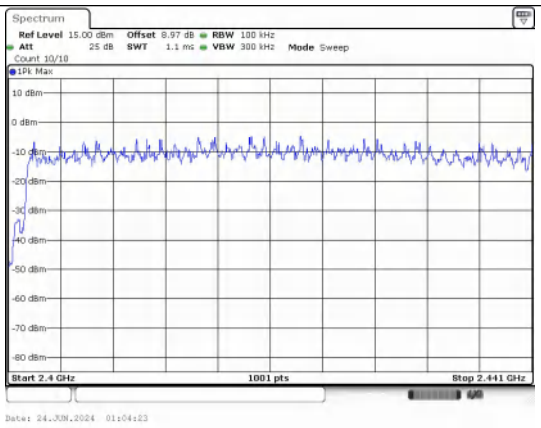
High End Spectrum Channel Hopping Plot
GFSK



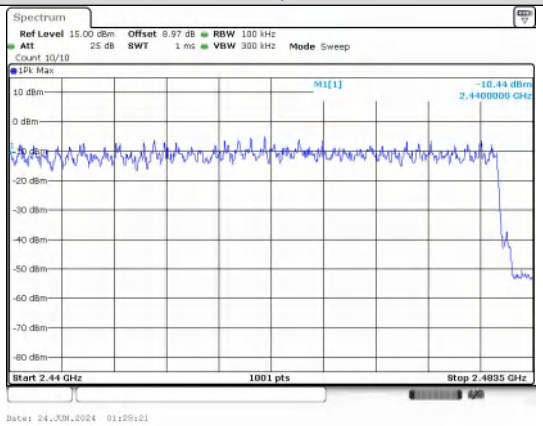
Low End Spectrum Channel Hopping Plot
GFSK



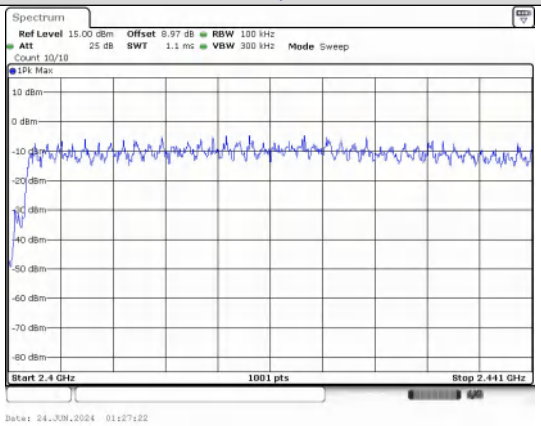
High End Spectrum Channel Hopping Plot
π/4DQPSK



Low End Spectrum Channel Hopping Plot
π/4DQPSK



High End Spectrum Channel Hopping Plot
8DPSK



Low End Spectrum Channel Hopping Plot
8DPSK

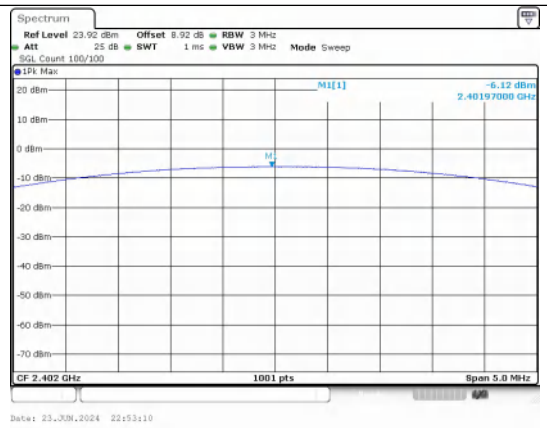
Conducted Peak Output Power

Left

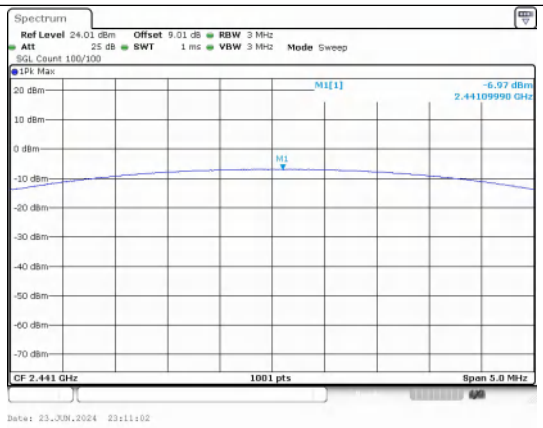
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	-6.12	0.24	≤30	PASS
		39	-6.97	0.20		PASS
		78	-6.05	0.25		PASS
π/4DQPSK	2-DH5	0	-5.89	0.26	≤20.97	PASS
		39	-6.67	0.22		PASS
		78	-5.60	0.28		PASS
8DPSK	3-DH5	0	-5.69	0.27		PASS
		39	-6.47	0.23		PASS
		78	-5.50	0.28		PASS

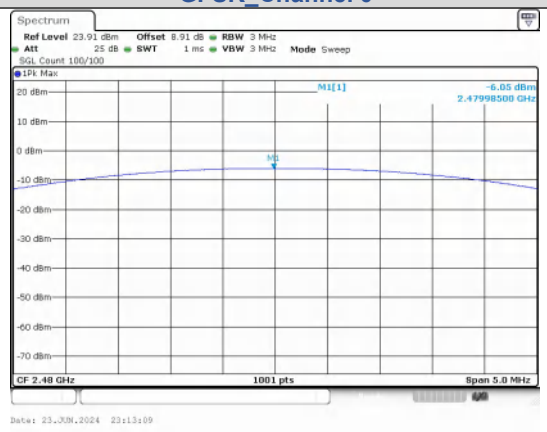
Test Graphs



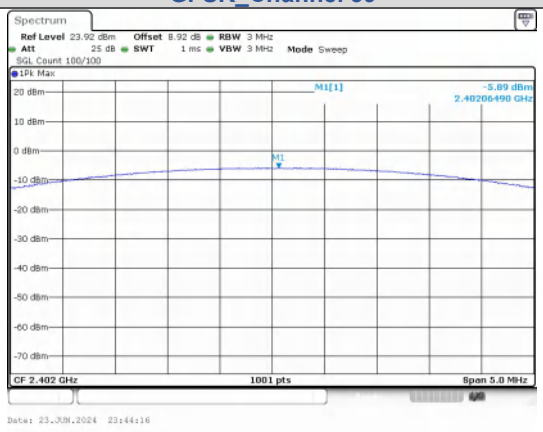
Peak Output Power GFSK_Channel 0



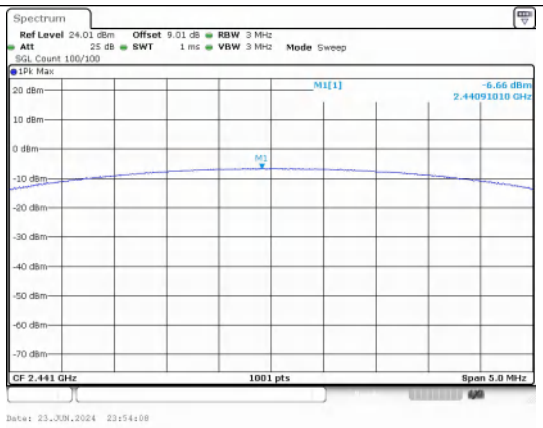
Peak Output Power GFSK_Channel 39



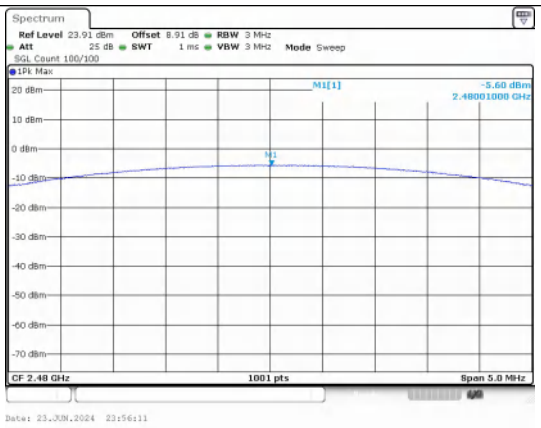
Peak Output Power GFSK_Channel 78



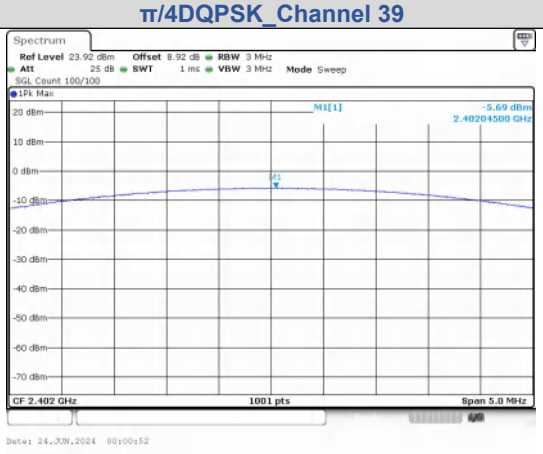
Peak Output Power π/4DQPSK_Channel 0



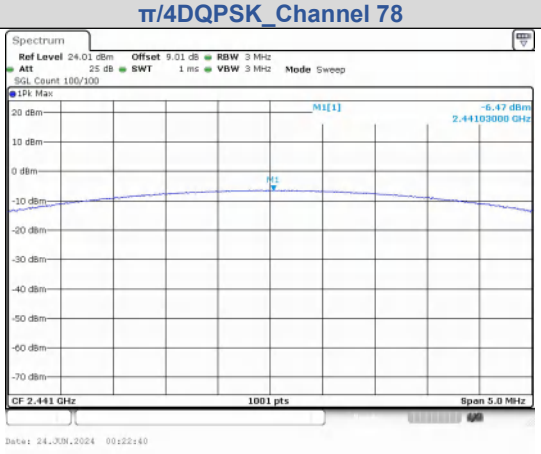
Peak Output Power
π/4DQPSK_Channel 39



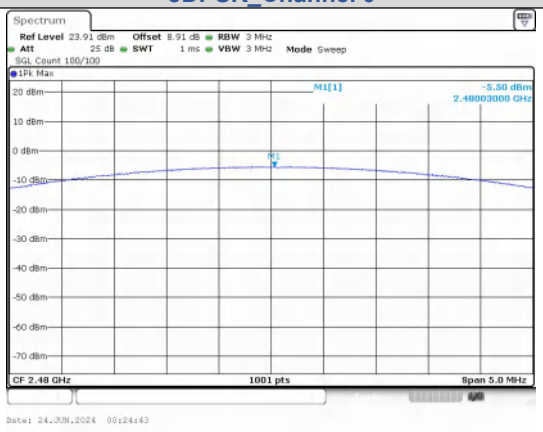
Peak Output Power
π/4DQPSK_Channel 78



Peak Output Power
8DPSK_Channel 0



Peak Output Power
8DPSK_Channel 39



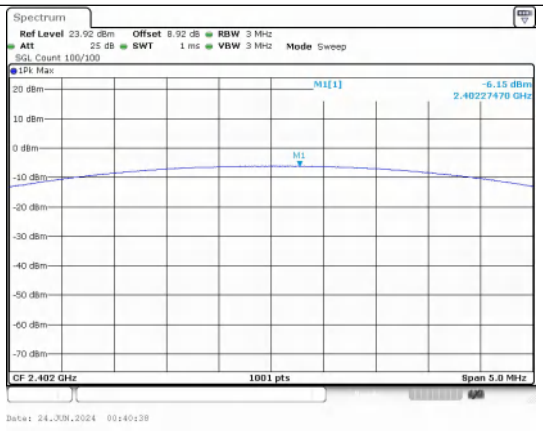
Peak Output Power
8DPSK_Channel 78

Right

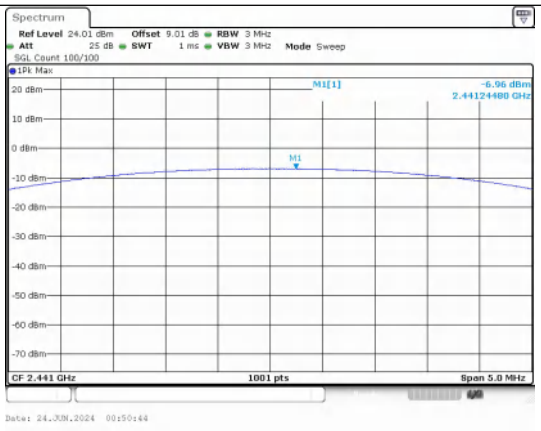
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	-6.15	0.24	≤30	PASS
		39	-6.96	0.20		PASS
		78	-6.11	0.24		PASS
π/4DQPSK	2-DH5	0	-5.79	0.26	≤20.97	PASS
		39	-6.53	0.22		PASS
		78	-5.55	0.28		PASS
8DPSK	3-DH5	0	-5.53	0.28		PASS
		39	-6.36	0.23		PASS
		78	-5.30	0.30		PASS

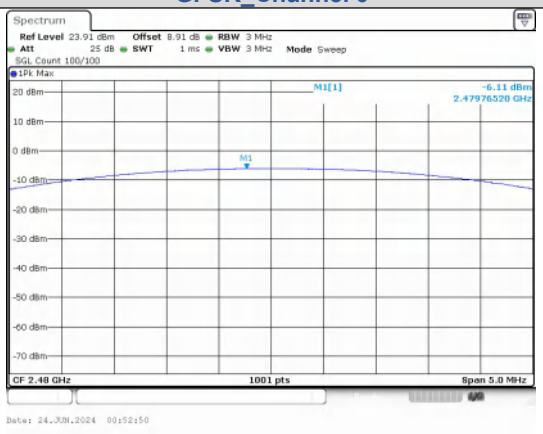
Test Graphs



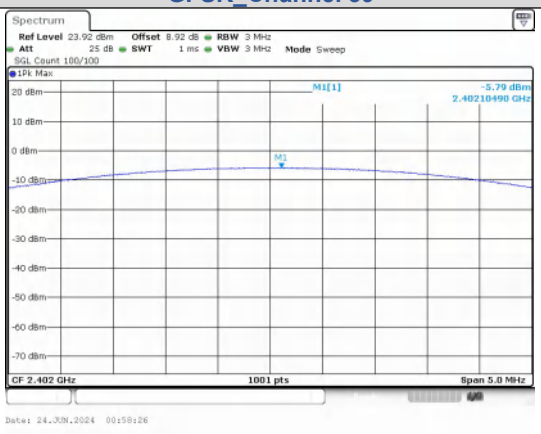
Peak Output Power
GFSK_Channel 0



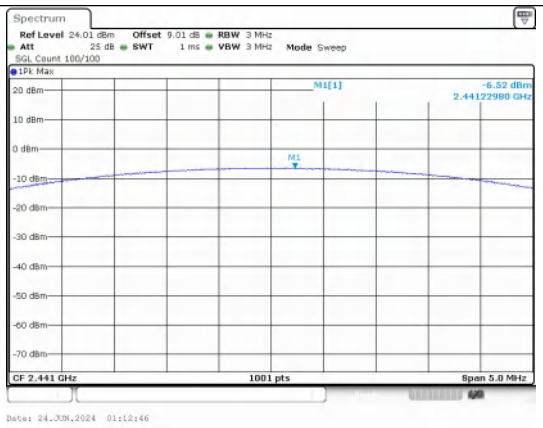
Peak Output Power
GFSK_Channel 39



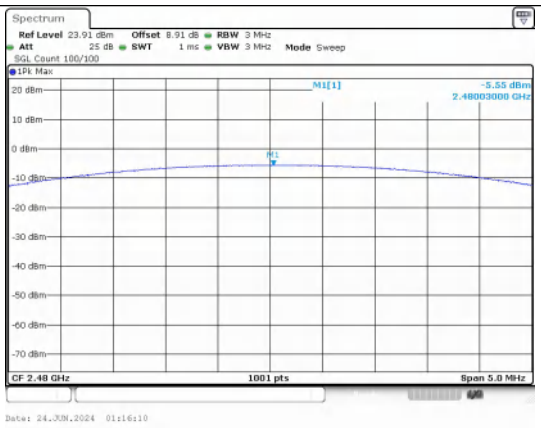
Peak Output Power
GFSK_Channel 78



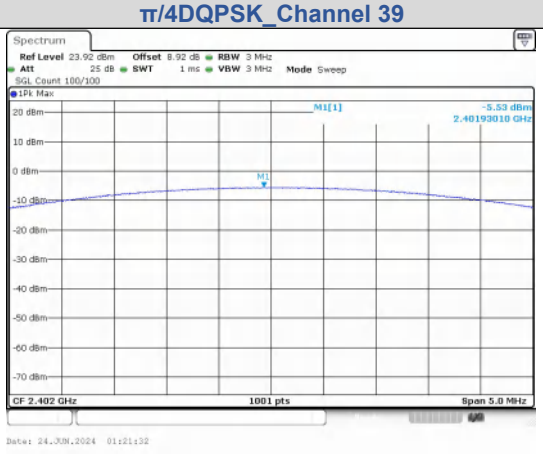
Peak Output Power
π/4DQPSK_Channel 0



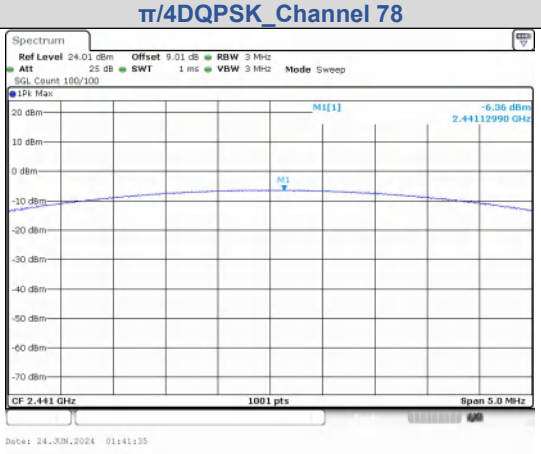
Peak Output Power
π/4DQPSK_Channel 39



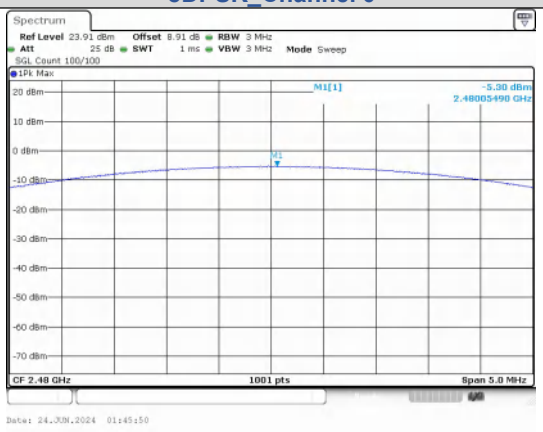
Peak Output Power
π/4DQPSK_Channel 78



Peak Output Power
8DPSK_Channel 0



Peak Output Power
8DPSK_Channel 39



Peak Output Power
8DPSK_Channel 78

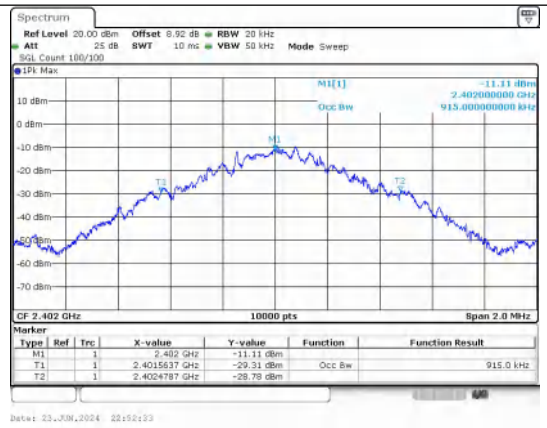
99% Bandwidth

Left

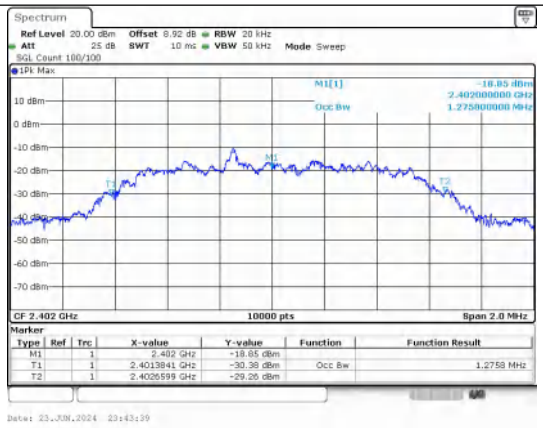
Test Result

Modulation	Channel	Center Frequency (MHz)	99% BW (MHz)
GFSK	0	2402	0.91500
	39	2441	0.91120
	78	2480	0.90700
π/4DQPSK	0	2402	1.2758
	39	2441	1.2586
	78	2480	1.2178
8DPSK	0	2402	1.2350
	39	2441	1.2380
	78	2480	1.2262

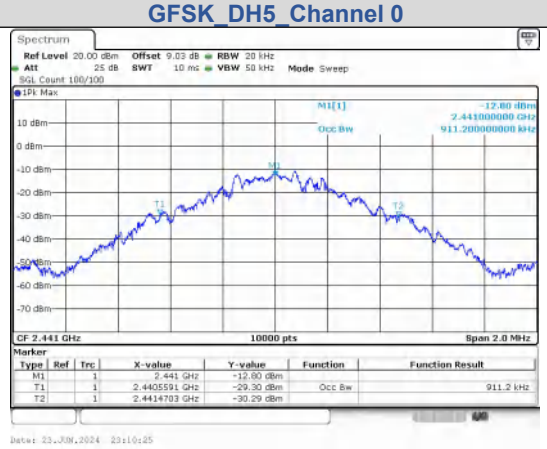
Test Graphs



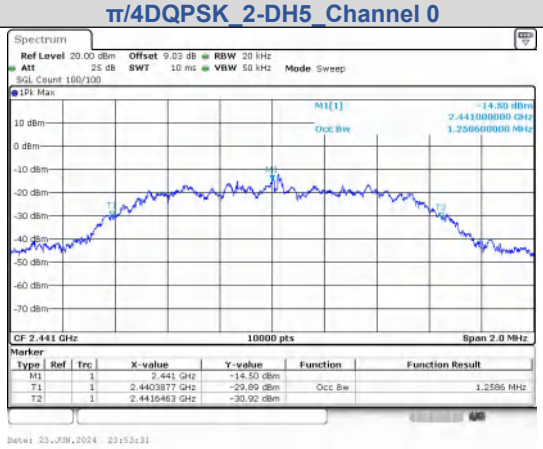
GFSK_DH5_Channel 0



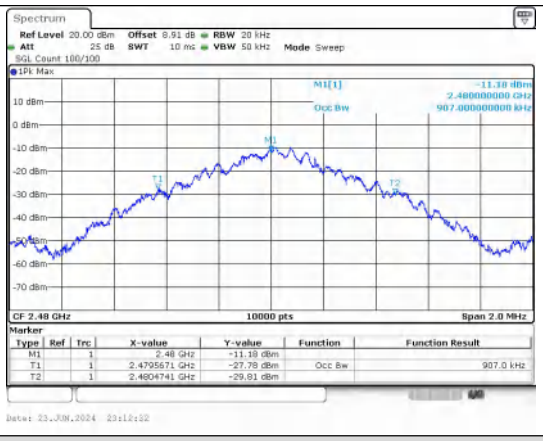
π/4DQPSK_2-DH5_Channel 0



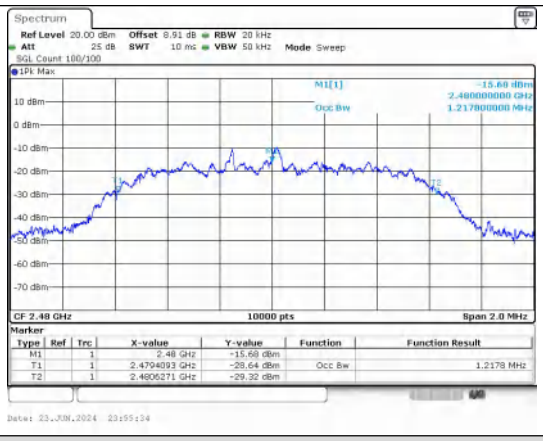
GFSK_DH5_Channel 39



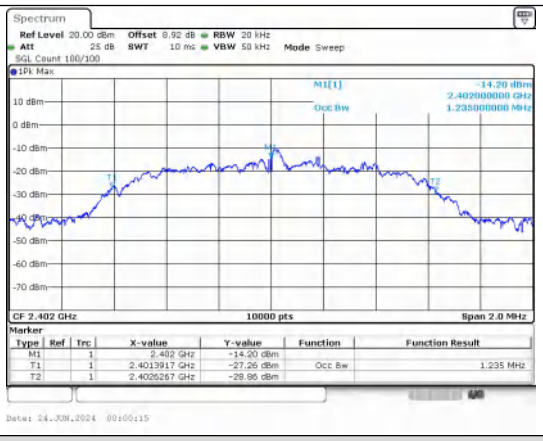
π/4DQPSK_2-DH5_Channel 39



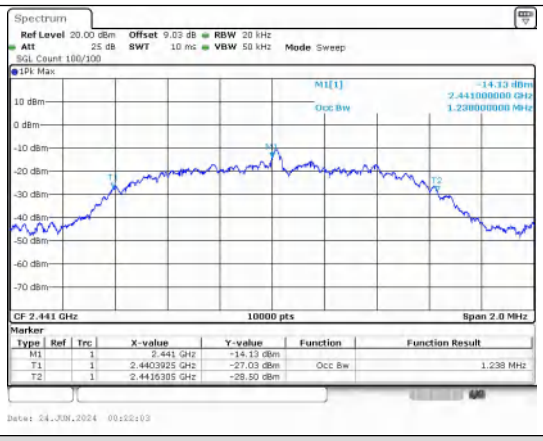
GFSK_DH5_Channel 78



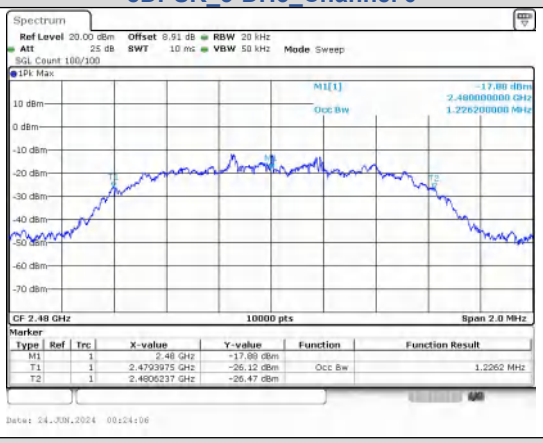
π/4DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



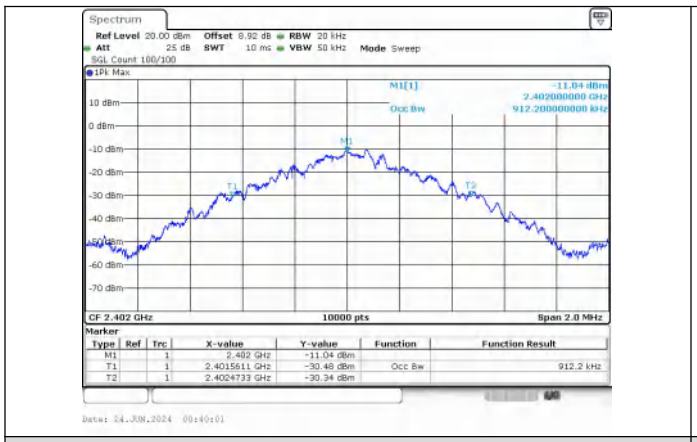
8DPSK_3-DH5_Channel 78

Right

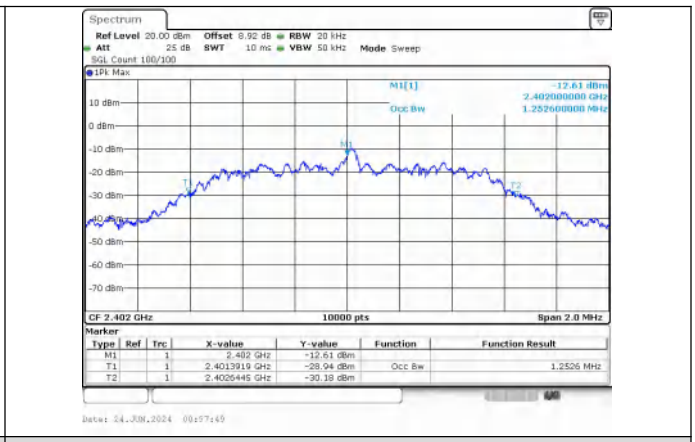
Test Result

Modulation	Channel	Center Frequency (MHz)	99% BW (MHz)
GFSK	0	2402	0.91220
	39	2441	0.92760
	78	2480	0.90620
π/4DQPSK	0	2402	1.2526
	39	2441	1.2450
	78	2480	1.2162
8DPSK	0	2402	1.2418
	39	2441	1.2430
	78	2480	1.2236

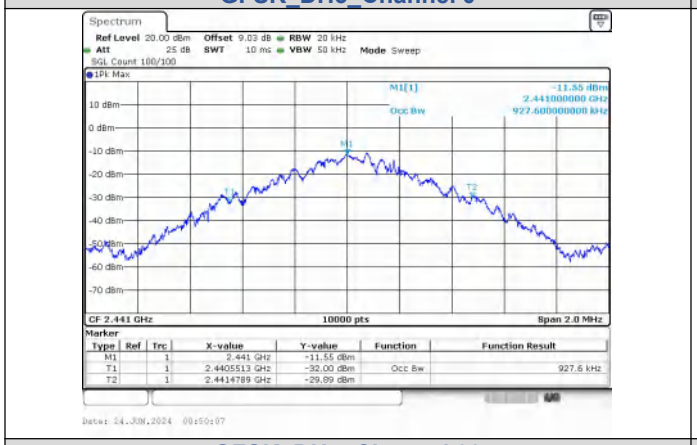
Test Graphs



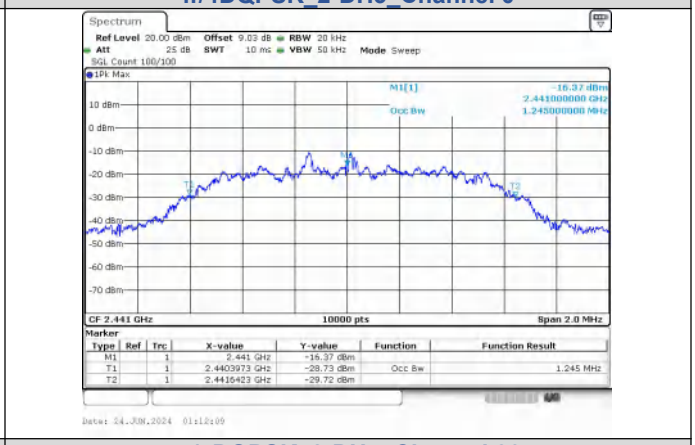
GFSK_DH5_Channel 0



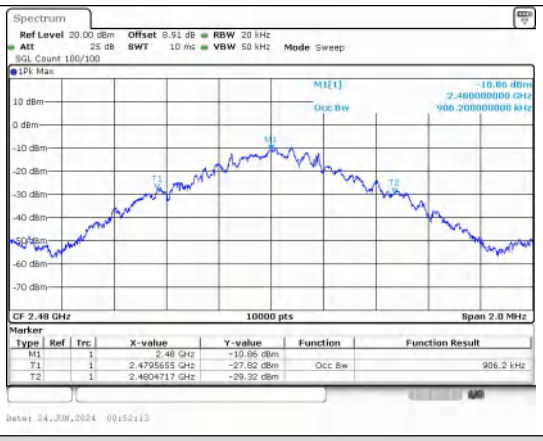
π/4DQPSK_2-DH5_Channel 0



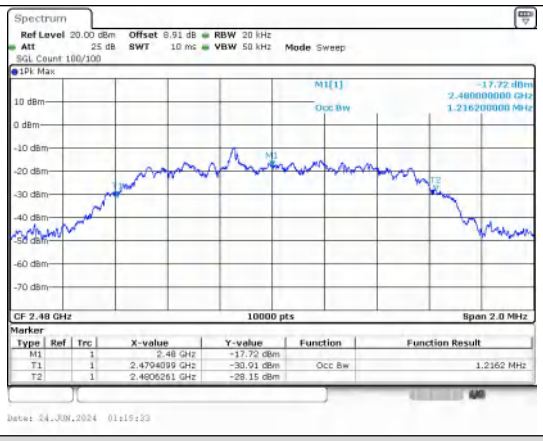
GFSK_DH5_Channel 39



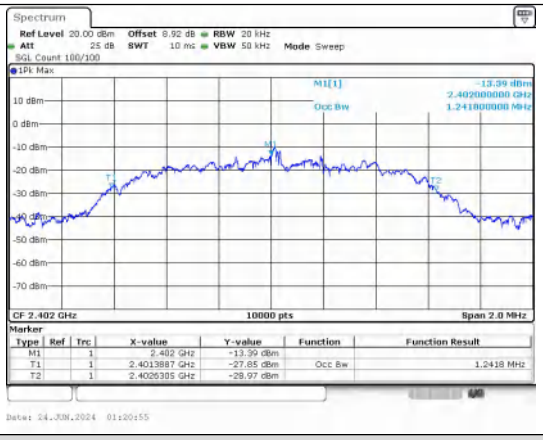
π/4DQPSK_2-DH5_Channel 39



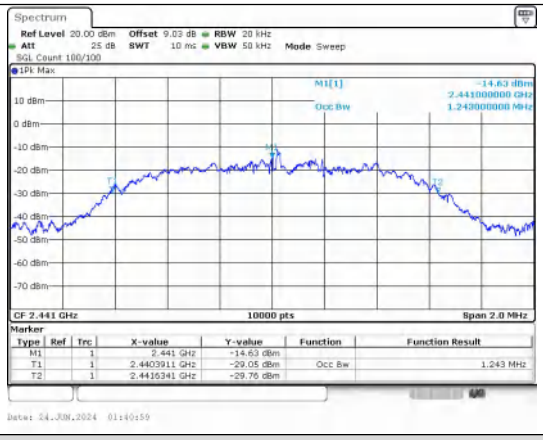
GFSK_DH5_Channel 78



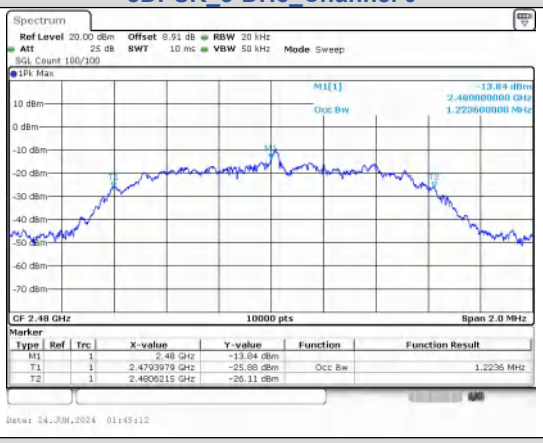
π/4DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



8DPSK_3-DH5_Channel 78

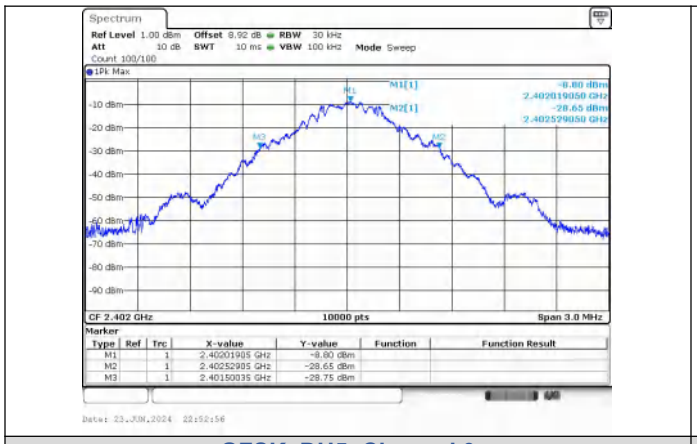
20dB Bandwidth

Left

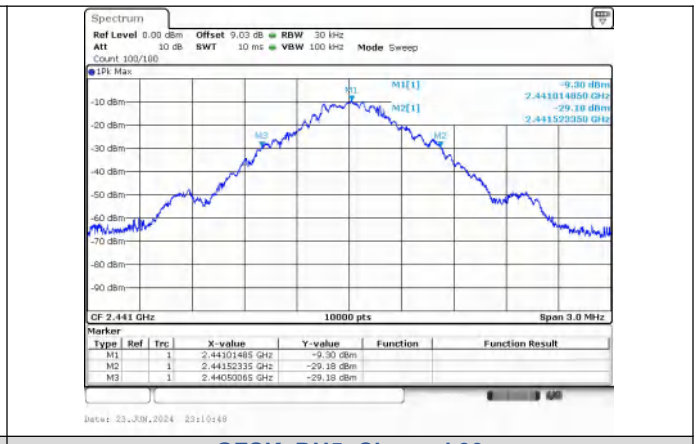
Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.030
	39	2441 MHz	1.020
	78	2480 MHz	1.000
π/4DQPSK	0	2402 MHz	1.350
	39	2441 MHz	1.330
	78	2480 MHz	1.310
8DPSK	0	2402 MHz	1.300
	39	2441 MHz	1.310
	78	2480 MHz	1.310

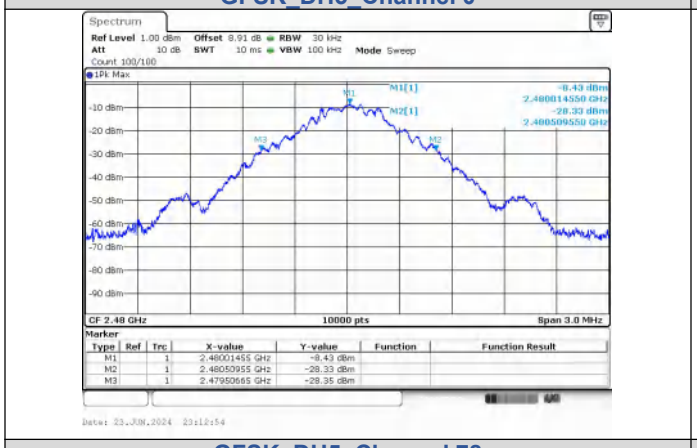
Test Graphs



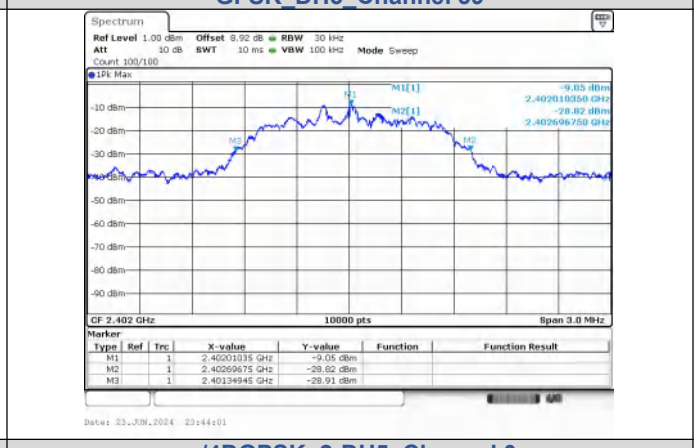
GFSK_DH5_Channel 0



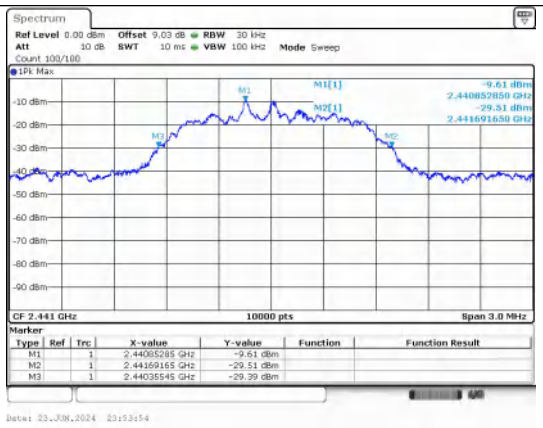
GFSK_DH5_Channel 39



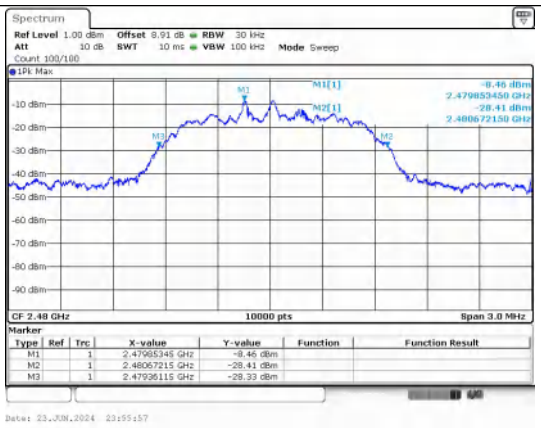
GFSK_DH5_Channel 78



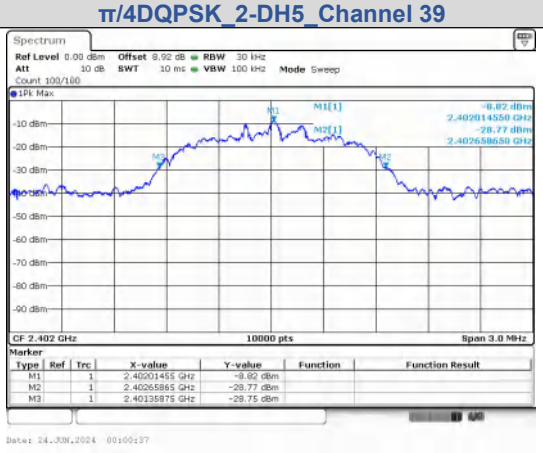
π/4DQPSK_2-DH5_Channel 0



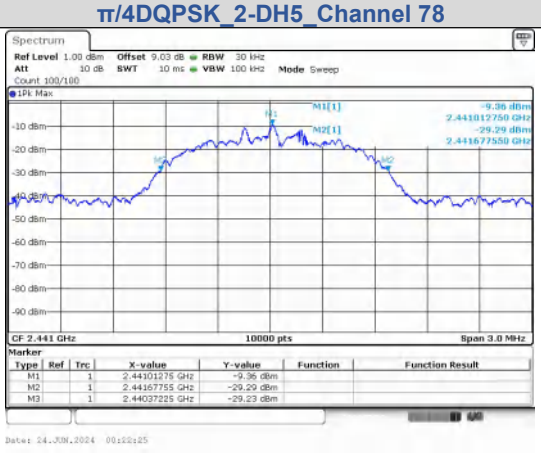
π/4DQPSK_2-DH5_Channel 39



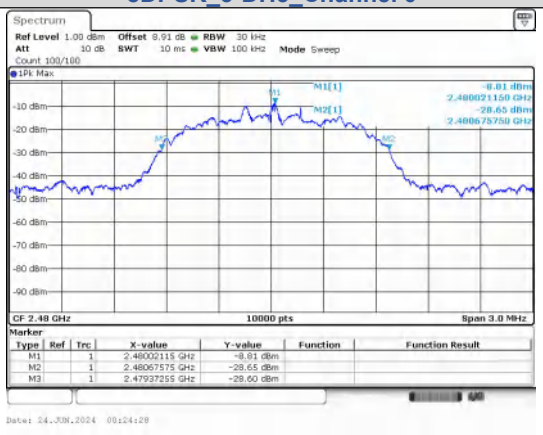
π/4DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



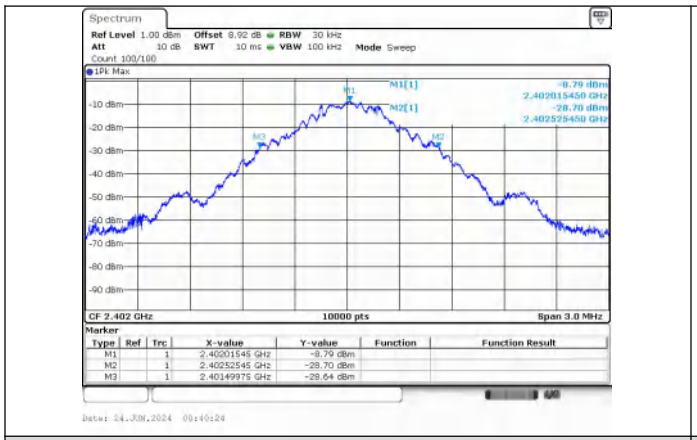
8DPSK_3-DH5_Channel 78

Right

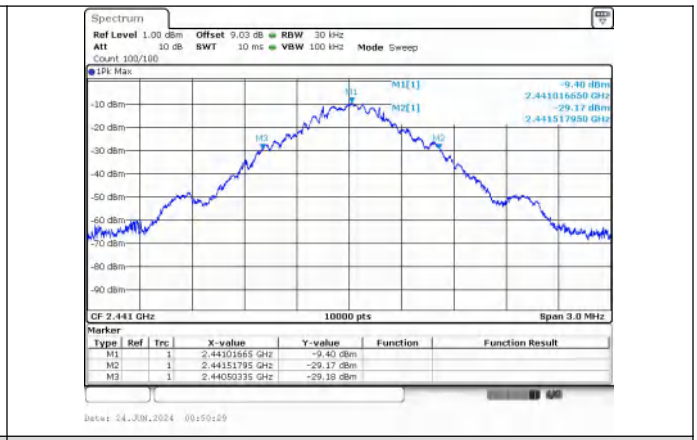
Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.030
	39	2441 MHz	1.020
	78	2480 MHz	1.010
π/4DQPSK	0	2402 MHz	1.350
	39	2441 MHz	1.330
	78	2480 MHz	1.320
8DPSK	0	2402 MHz	1.300
	39	2441 MHz	1.350
	78	2480 MHz	1.310

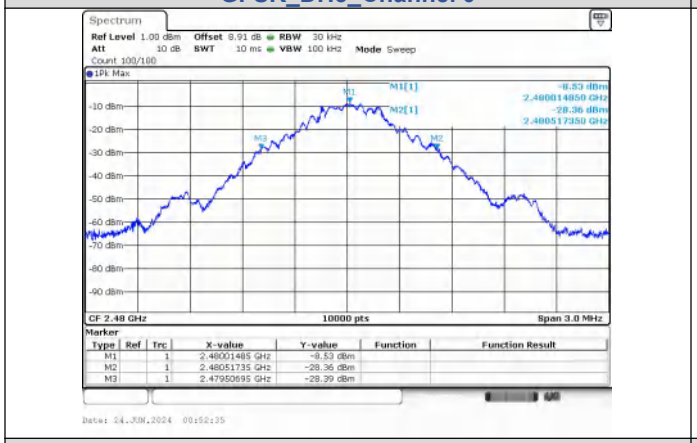
Test Graphs



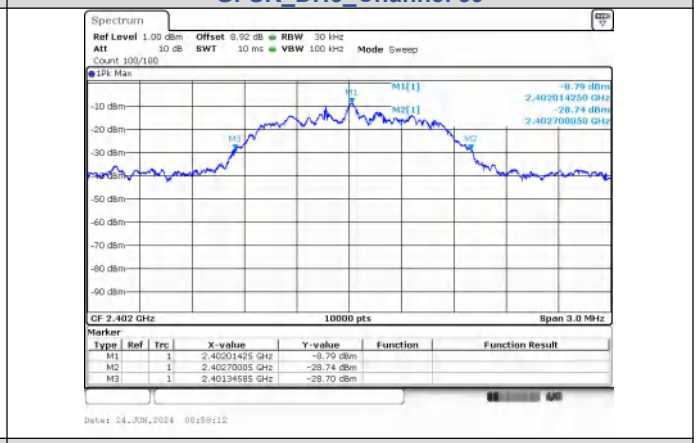
GFSK_DH5_Channel 0



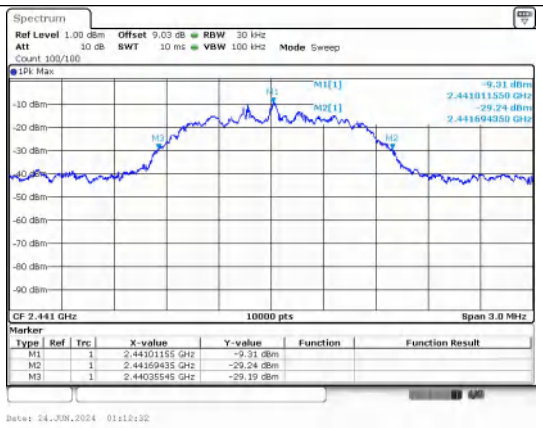
GFSK_DH5_Channel 39



GFSK_DH5_Channel 78



π/4DQPSK_2-DH5_Channel 0



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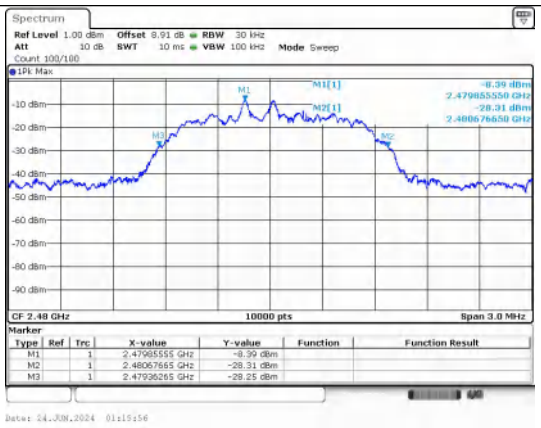

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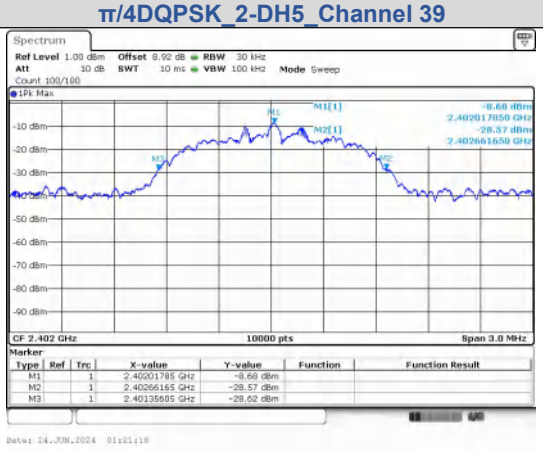
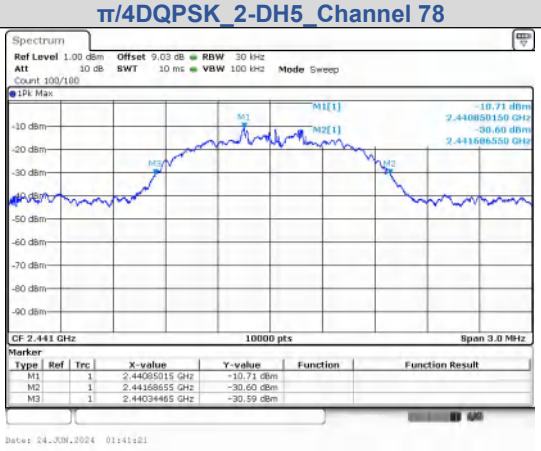
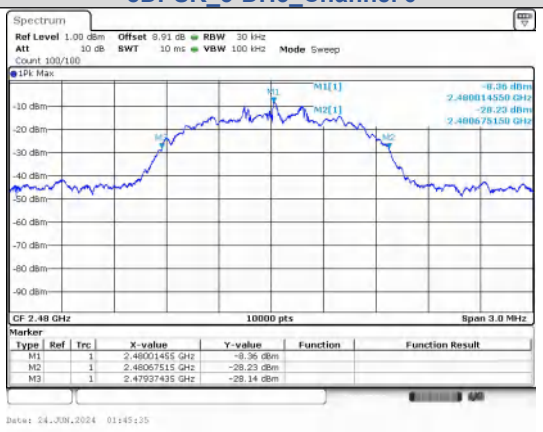


8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



8DPSK_3-DH5_Channel 78

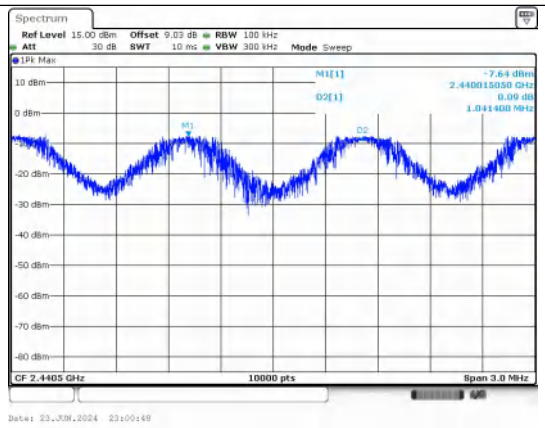
Carrier Frequencies Separation

Left

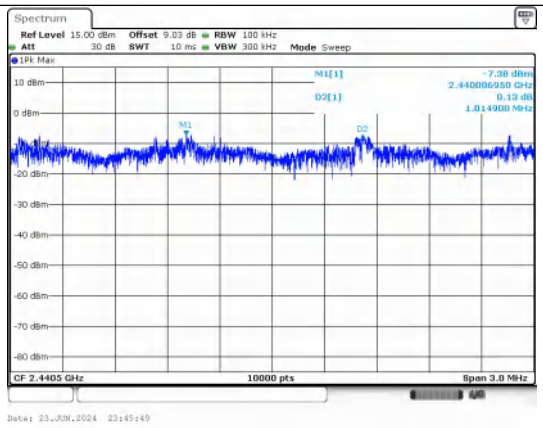
Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2440.015	2441.0165	1.0414	1.030	PASS
π/4DQPSK	2-DH5	2440.0069	2441.0219	1.0149	0.9	PASS
8DPSK	3-DH5	2439.8729	2440.852	0.9792	0.867	PASS

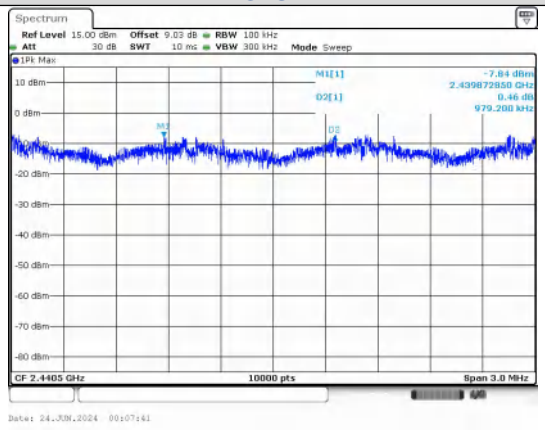
Test Graphs



GFSK



π/4DQPSK



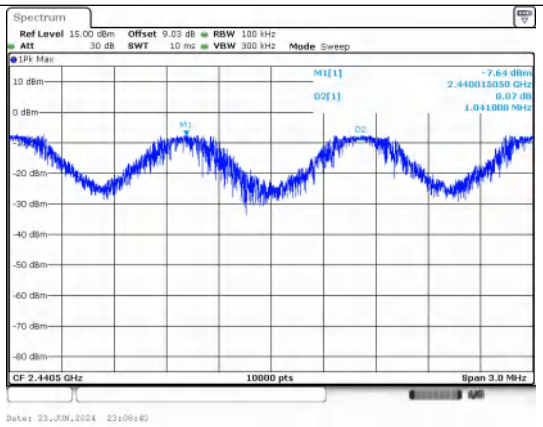
8DPSK

Right

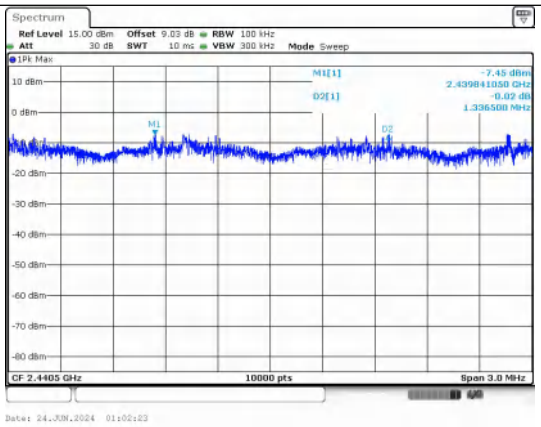
Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2440.015	2441.0165	1.0410	1.030	PASS
π/4DQPSK	2-DH5	2439.841	2441.1775	1.3365	0.9	PASS
8DPSK	3-DH5	2440.0276	2441.1743	1.1466	0.867	PASS

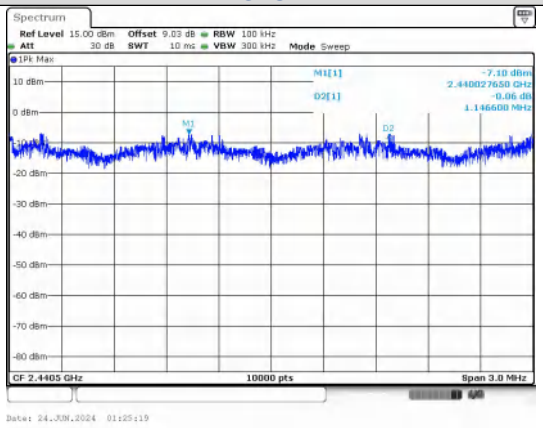
Test Graphs



GFSK



π/4DQPSK



8DPSK

Conducted Out Of Band Emission

Left

Test Result

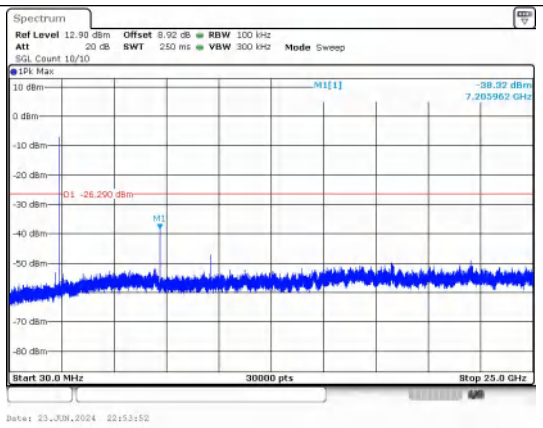
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2397.90	-52.160	-26.29	-25.870	PASS
			2400.00	-52.311	-26.29	-26.021	PASS
			7206.00	-38.317	-26.29	-12.027	PASS
		39	9763.72	-42.147	-27.05	-15.097	PASS
		78	2483.50	-52.739	-26.21	-26.529	PASS
			9920.20	-42.096	-26.21	-15.886	PASS
π/4DQPSK	2-DH5	0	2400.00	-47.268	-26.55	-20.718	PASS
			7205.96	-41.889	-26.55	-15.339	PASS
		39	9763.72	-41.912	-27.35	-14.562	PASS
		78	2483.50	-54.290	-26.33	-27.960	PASS
			9920.20	-41.042	-26.33	-14.712	PASS
8DPSK	3-DH5	0	2400.00	-45.451	-26.37	-19.081	PASS
			7205.96	-39.272	-26.37	-12.902	PASS
		39	9763.72	-42.137	-27.3	-14.837	PASS
		78	2483.50	-53.205	-26.46	-26.745	PASS
			9920.20	-41.125	-26.46	-14.665	PASS

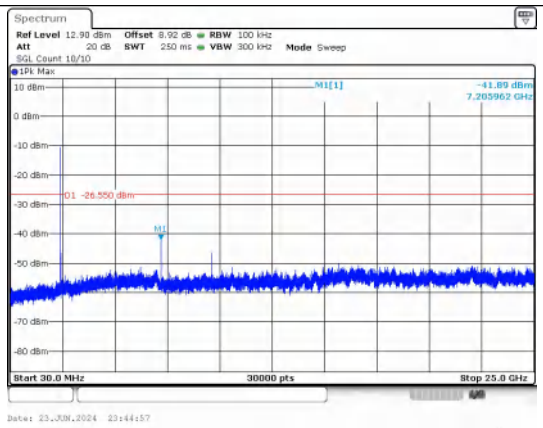
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2398.19	-50.543	-26.41	-24.133	PASS
			2400.00	-52.752	-26.41	-26.342	PASS
			2483.50	-52.209	-26.26	-25.949	PASS
			2396.11	-50.997	-26.22	-24.777	PASS
			2400.00	-52.541	-26.22	-26.321	PASS
			2483.50	-52.249	-26.56	-25.689	PASS
π/4DQPSK	2-DH5		2400.00	-50.278	-26.97	-23.308	PASS
			2483.50	-51.141	-26.34	-24.801	PASS
			2400.00	-48.683	-26.39	-22.293	PASS
			2483.50	-52.224	-26.49	-25.734	PASS
8DPSK	3-DH5		2400.00	-45.903	-26.31	-19.593	PASS
			2483.50	-51.609	-26.51	-25.099	PASS
			2400.00	-47.591	-26.81	-20.781	PASS
			2483.50	-51.825	-26.71	-25.115	PASS

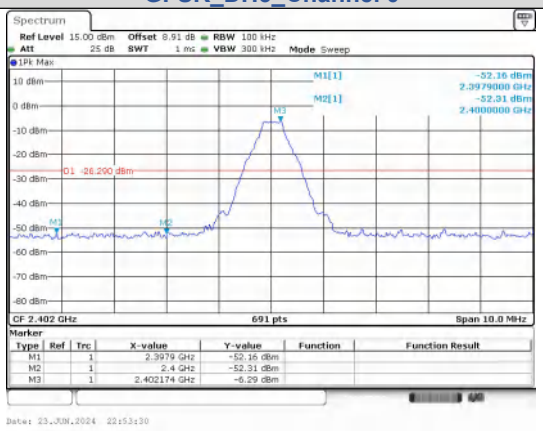
Test Graphs



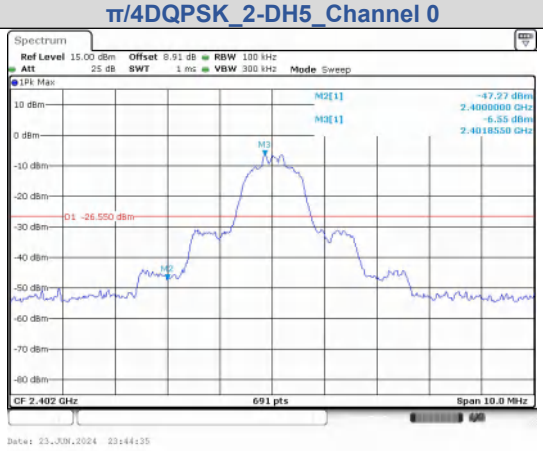
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



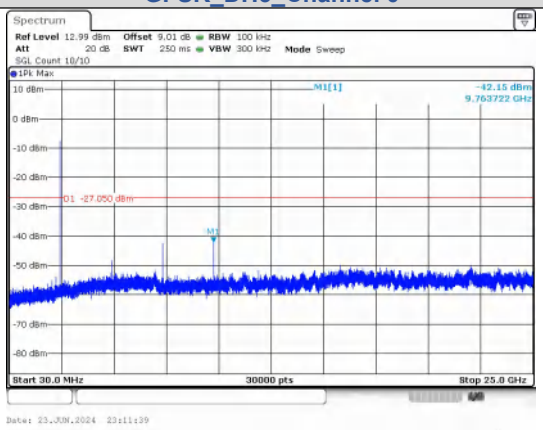
30.0 MHz - 25000.0 MHz
π/4DQPSK_2-DH5_Channel 0



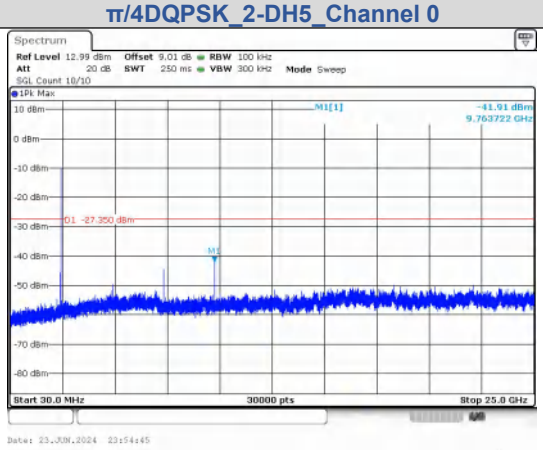
Out Of Band Emission
GFSK_DH5_Channel 0



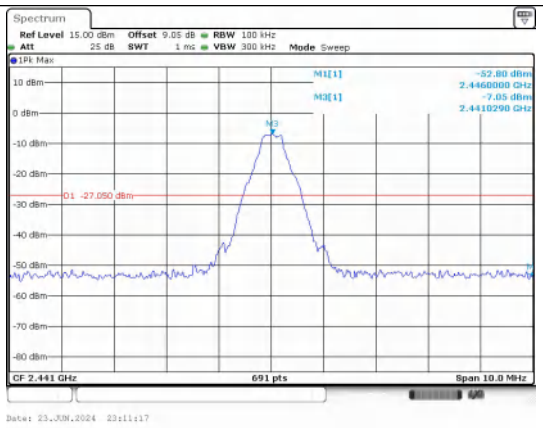
Out Of Band Emission
π/4DQPSK_2-DH5_Channel 0



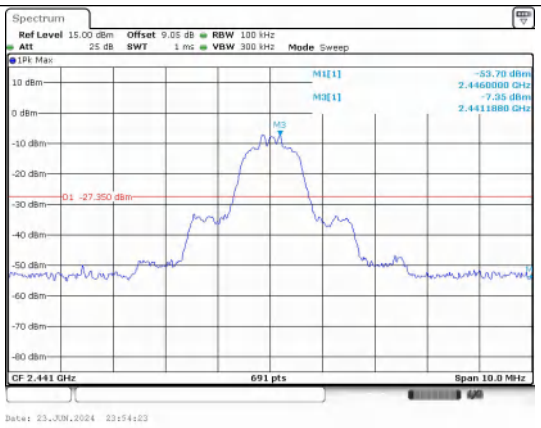
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



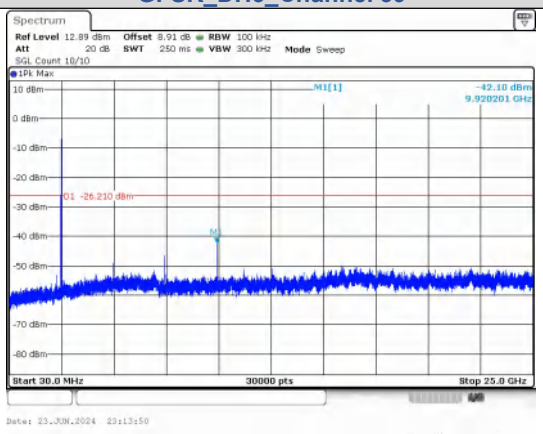
30.0 MHz - 25000.0 MHz
π/4DQPSK_2-DH5_Channel 39



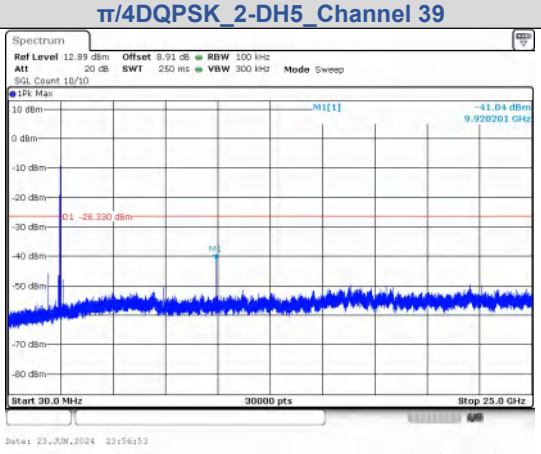
Out Of Band Emission
GFSK_DH5_Channel 39



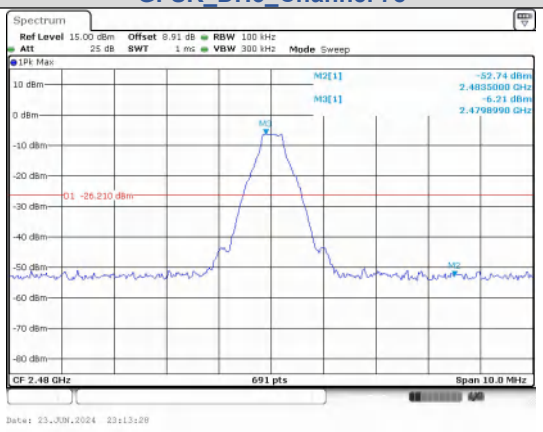
Out Of Band Emission
π/4DQPSK_2-DH5_Channel 39



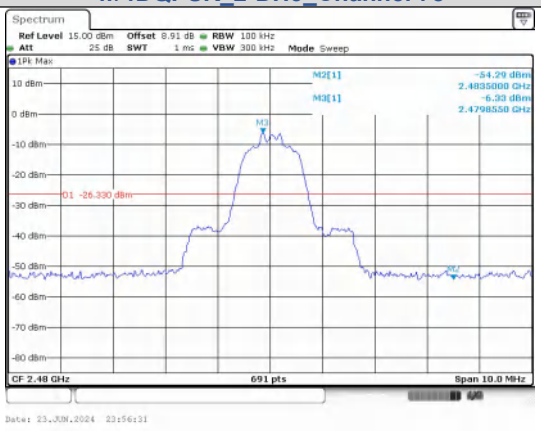
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



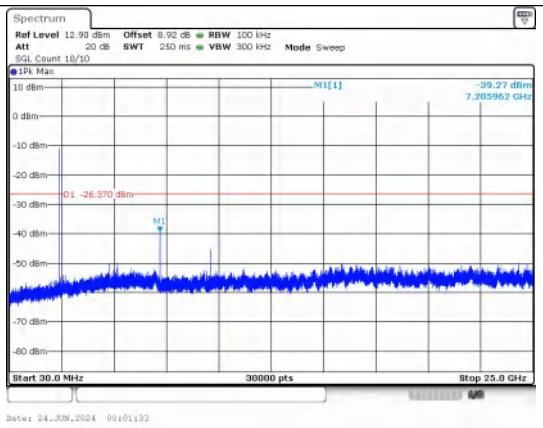
30.0 MHz - 25000.0 MHz
π/4DQPSK_2-DH5_Channel 78



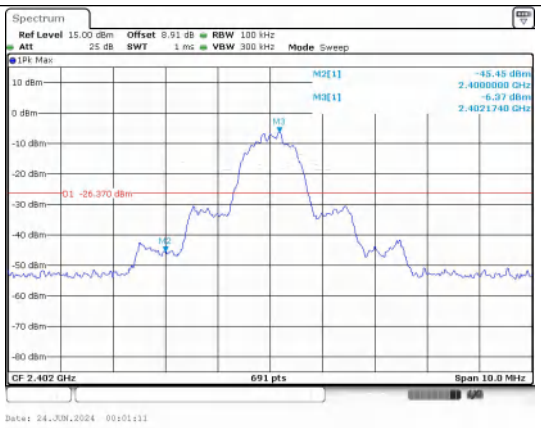
Out Of Band Emission
GFSK_DH5_Channel 78



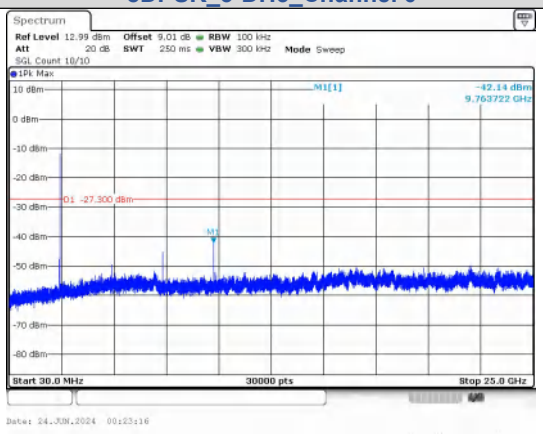
Out Of Band Emission
π/4DQPSK_2-DH5_Channel 78



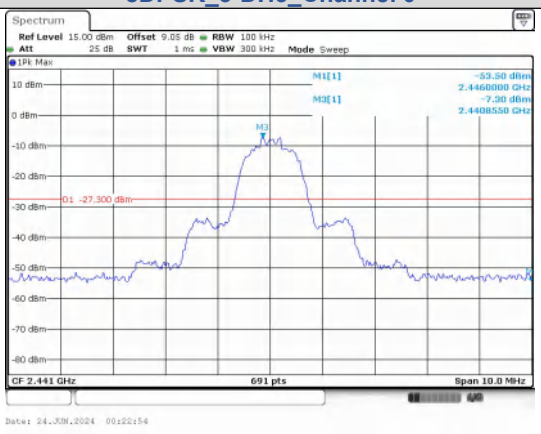
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0



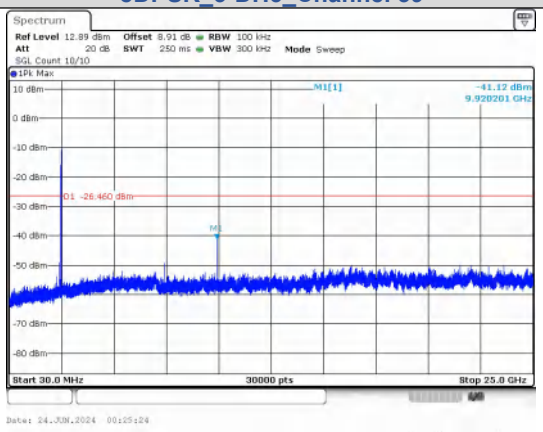
Out Of Band Emission
8DPSK_3-DH5_Channel 0



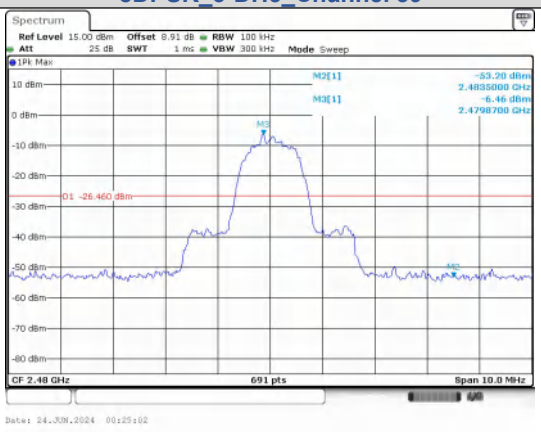
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



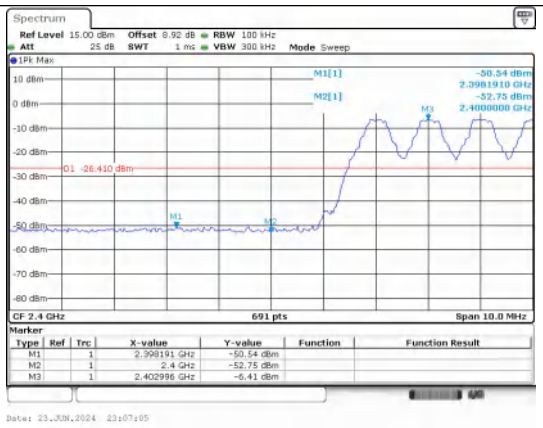
Out Of Band Emission
8DPSK_3-DH5_Channel 39



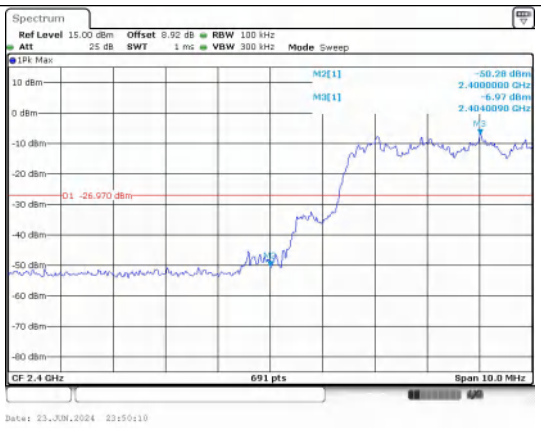
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



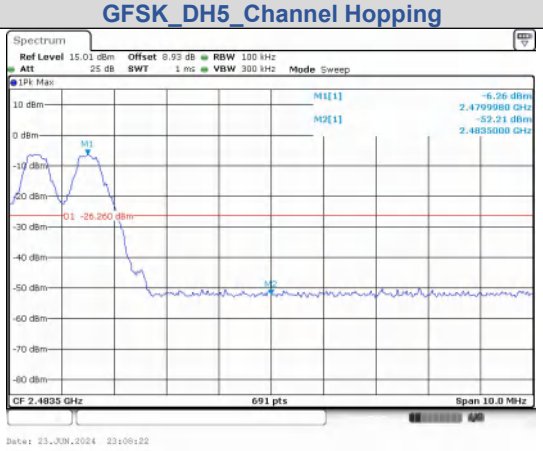
Out Of Band Emission
8DPSK_3-DH5_Channel 78



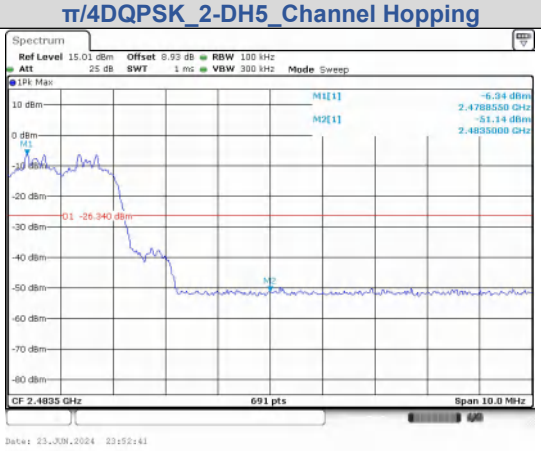
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



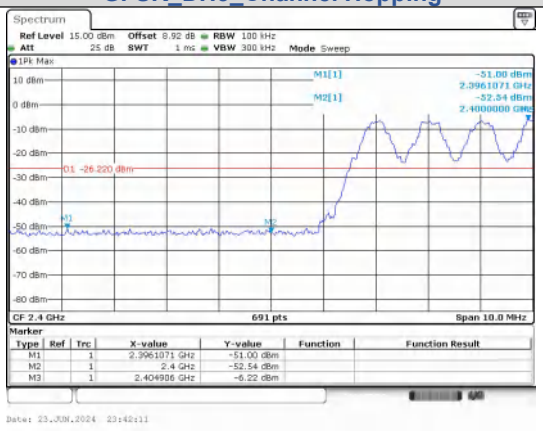
Out Of Band Emission(Left)
π/4DQPSK_2-DH5_Channel Hopping



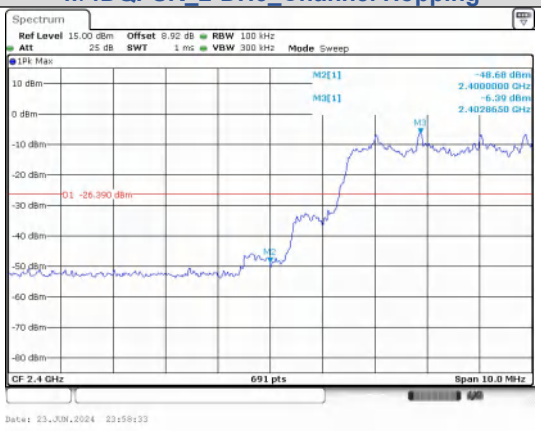
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



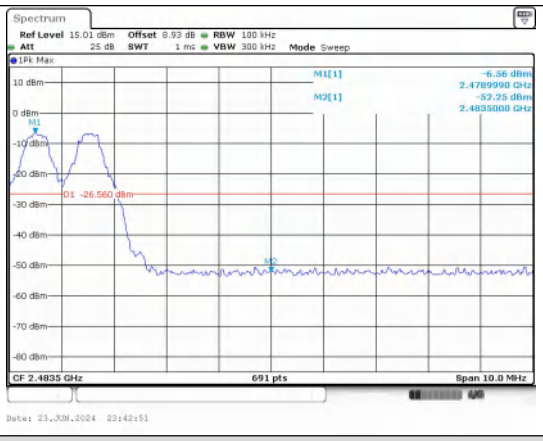
Out Of Band Emission(Right)
π/4DQPSK_2-DH5_Channel Hopping



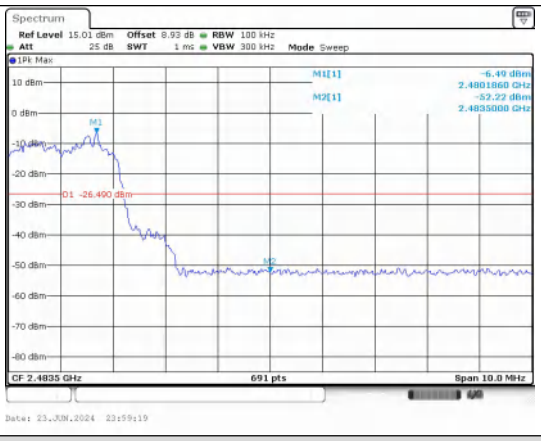
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



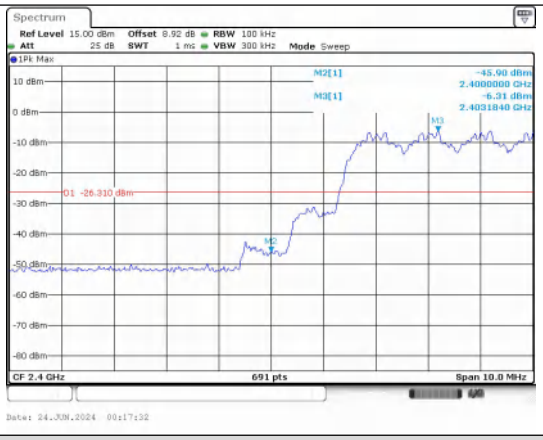
Out Of Band Emission(Left)
π/4DQPSK_2-DH5_Channel Hopping



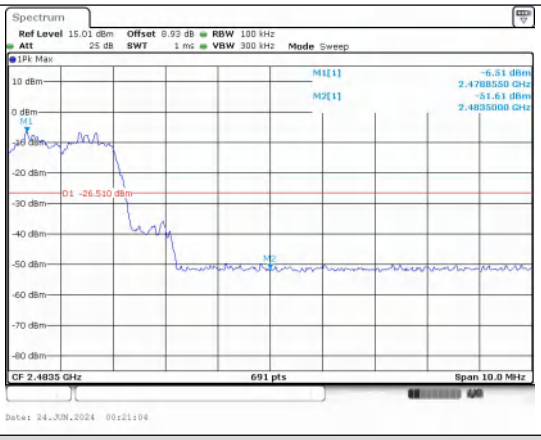
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



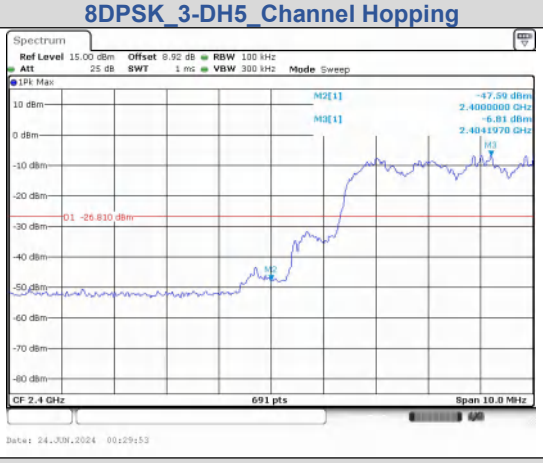
Out Of Band Emission(Right)
π/4DQPSK_2-DH5_Channel Hopping



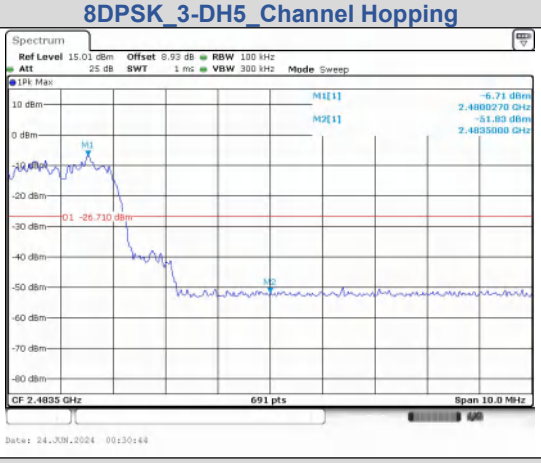
Out Of Band Emission(Left)
8DPSK_3-DH5_Channel Hopping



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

Right

Test Result

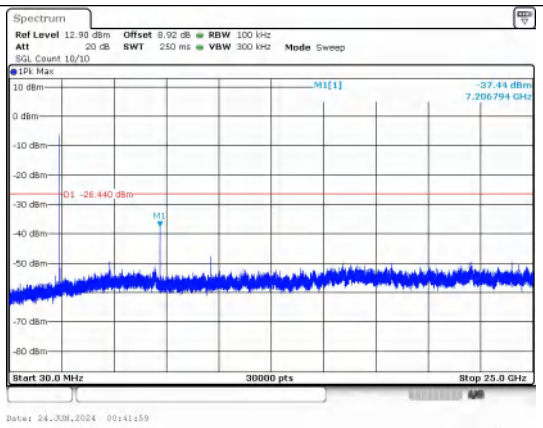
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2398.24	-51.606	-26.44	-25.166	PASS
			2400.00	-52.531	-26.44	-26.091	PASS
			7206.80	-37.444	-26.44	-11.004	PASS
		39	7323.32	-40.232	-27.13	-13.102	PASS
		78	2483.50	-53.542	-26.33	-27.212	PASS
			9920.20	-41.325	-26.33	-14.995	PASS
π/4DQPSK	2-DH5	0	2400.00	-47.008	-26.47	-20.538	PASS
			7205.96	-42.225	-26.47	-15.755	PASS
		39	9763.72	-41.515	-27.13	-14.385	PASS
		78	2483.50	-52.620	-26.25	-26.370	PASS
			9920.20	-40.927	-26.25	-14.677	PASS
8DPSK	3-DH5	0	2400.00	-45.599	-26.26	-19.339	PASS
			7205.96	-42.166	-26.26	-15.906	PASS
		39	9763.72	-41.761	-27.42	-14.341	PASS
		78	2483.50	-52.606	-26.27	-26.336	PASS
			9920.20	-41.108	-26.27	-14.838	PASS

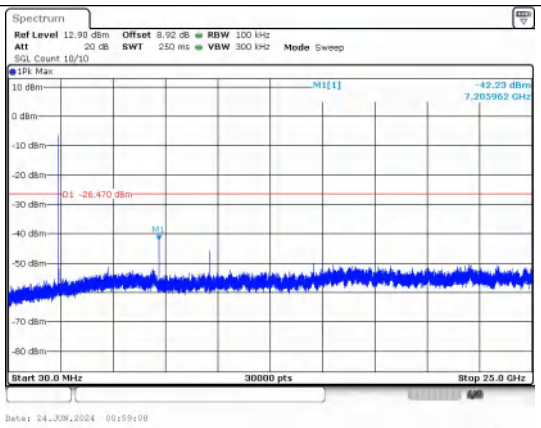
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2397.13	-50.265	-26.55	-23.715	PASS
			2400.00	-52.007	-26.55	-25.457	PASS
			2483.50	-51.425	-26.76	-24.665	PASS
			2396.66	-50.040	-26.28	-23.760	PASS
			2400.00	-53.345	-26.28	-27.065	PASS
			2483.50	-52.248	-26.36	-25.888	PASS
π/4DQPSK	2-DH5		2400.00	-46.876	-26.3	-20.576	PASS
			2483.50	-51.383	-26.31	-25.073	PASS
			2400.00	-47.524	-26.23	-21.294	PASS
			2483.50	-52.108	-26.5	-25.608	PASS
8DPSK	3-DH5		2400.00	-47.124	-26.06	-21.064	PASS
			2483.50	-51.365	-26.23	-25.135	PASS
			2400.00	-44.787	-26.06	-18.727	PASS
			2483.50	-52.629	-27.55	-25.079	PASS

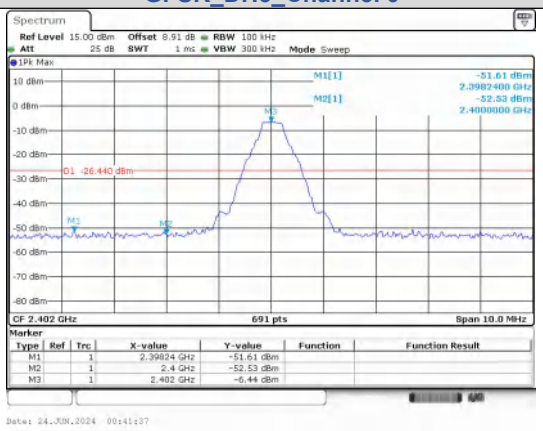
Test Graphs



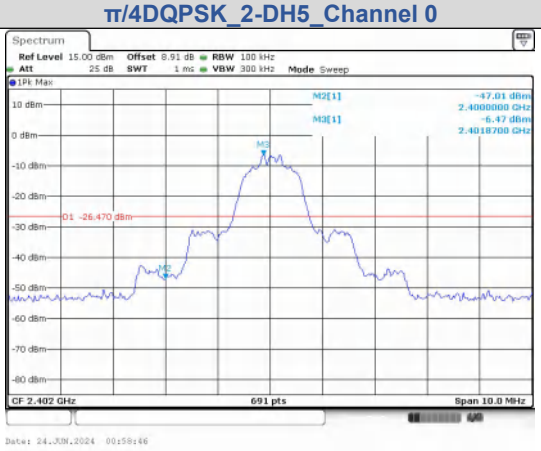
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



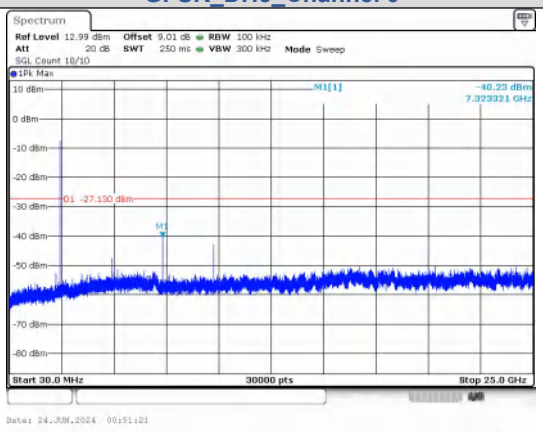
30.0 MHz - 25000.0 MHz
π/4DQPSK_2-DH5_Channel 0



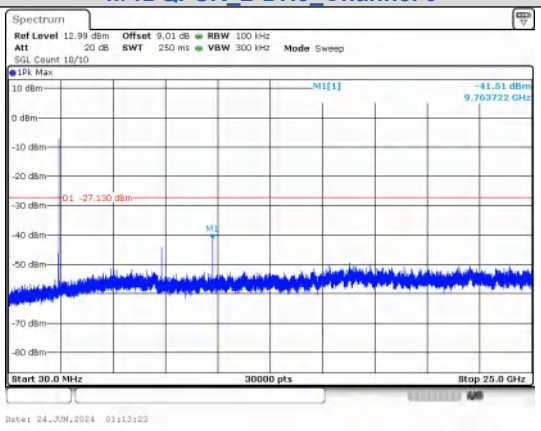
Out Of Band Emission
GFSK_DH5_Channel 0



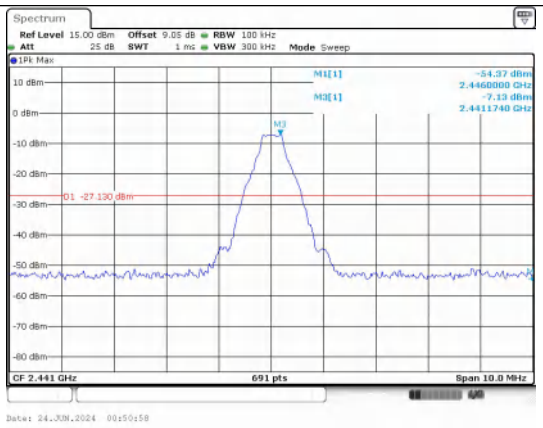
Out Of Band Emission
π/4DQPSK_2-DH5_Channel 0



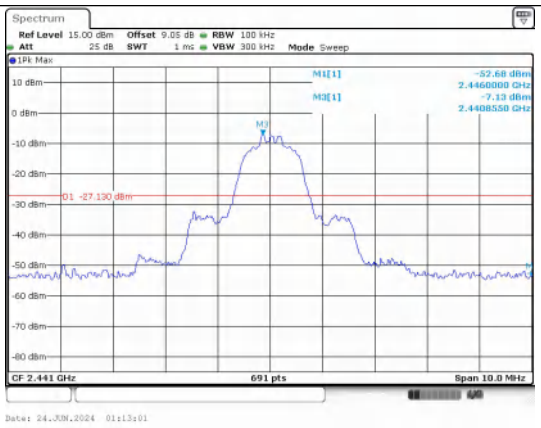
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



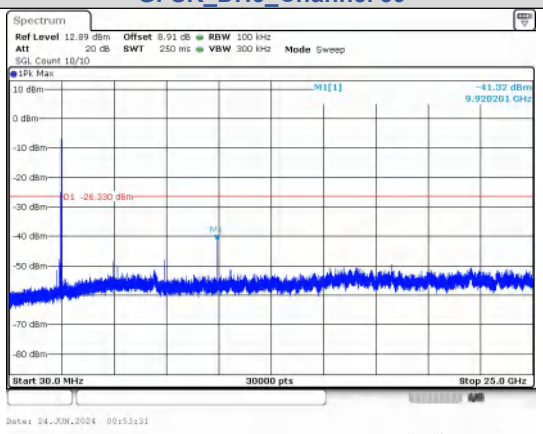
30.0 MHz - 25000.0 MHz
π/4DQPSK_2-DH5_Channel 39



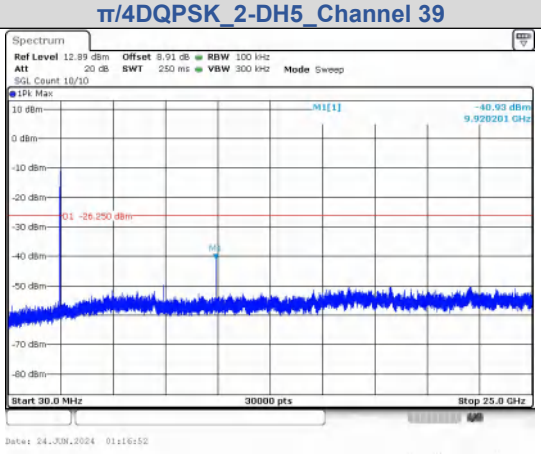
Out Of Band Emission
GFSK_DH5_Channel 39



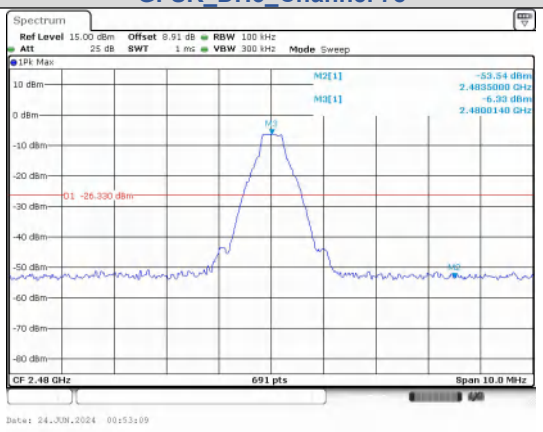
Out Of Band Emission
π/4DQPSK_2-DH5_Channel 39



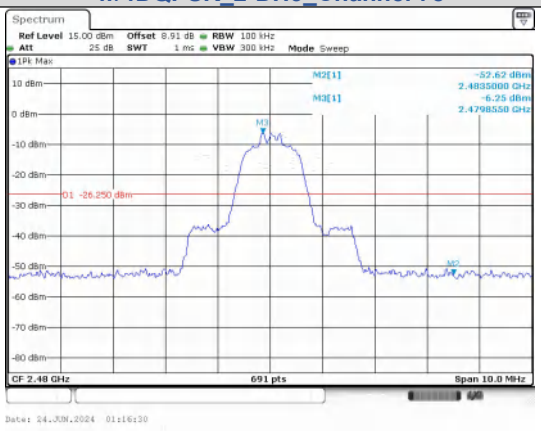
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



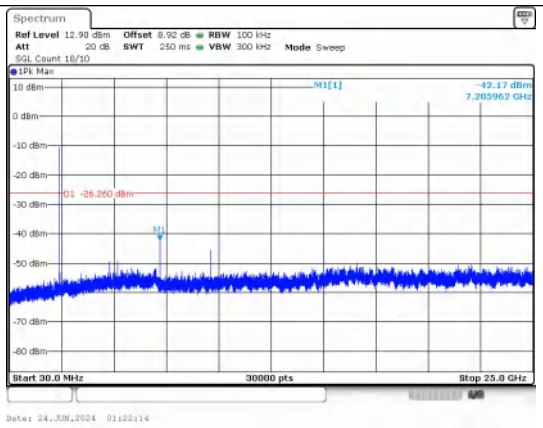
30.0 MHz - 25000.0 MHz
π/4DQPSK_2-DH5_Channel 78



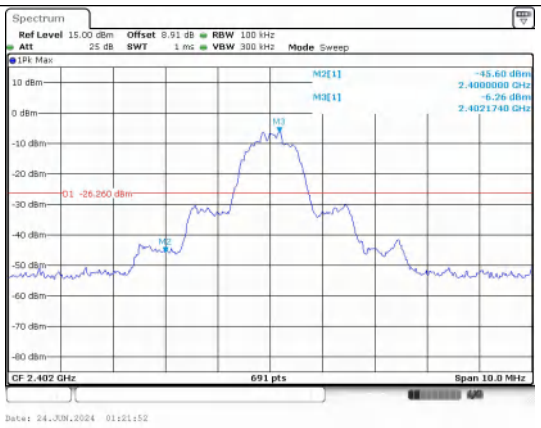
Out Of Band Emission
GFSK_DH5_Channel 78



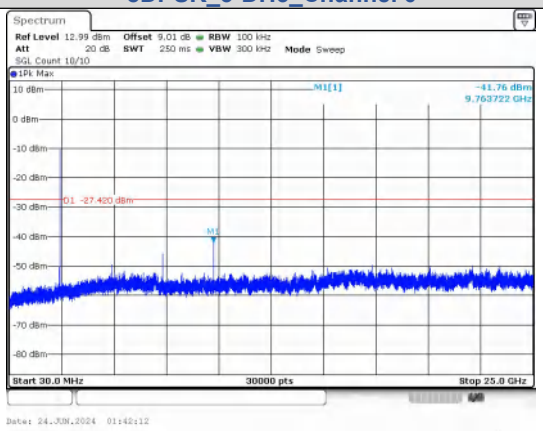
Out Of Band Emission
π/4DQPSK_2-DH5_Channel 78



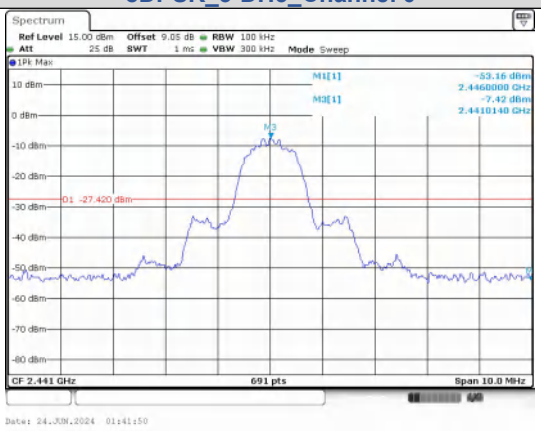
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0



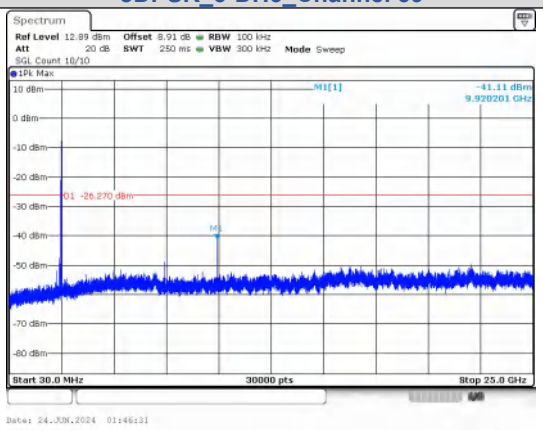
Out Of Band Emission
8DPSK_3-DH5_Channel 0



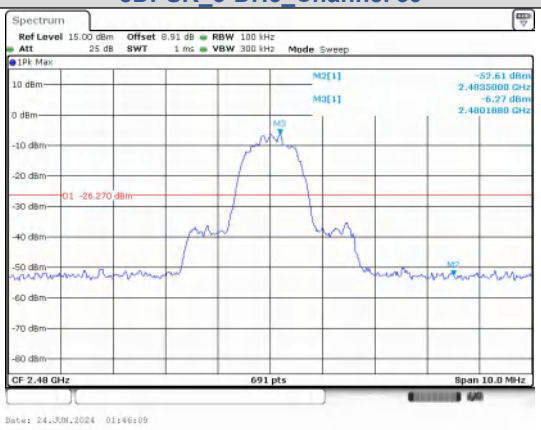
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



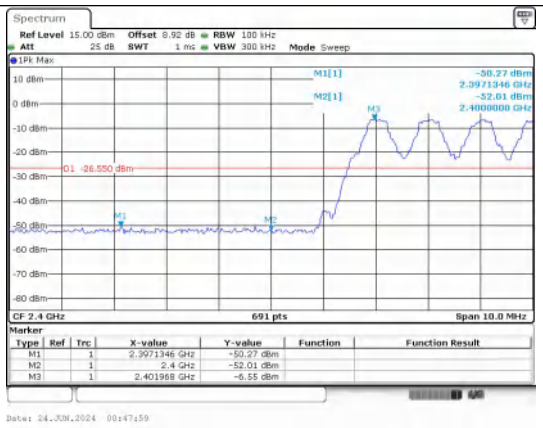
Out Of Band Emission
8DPSK_3-DH5_Channel 39



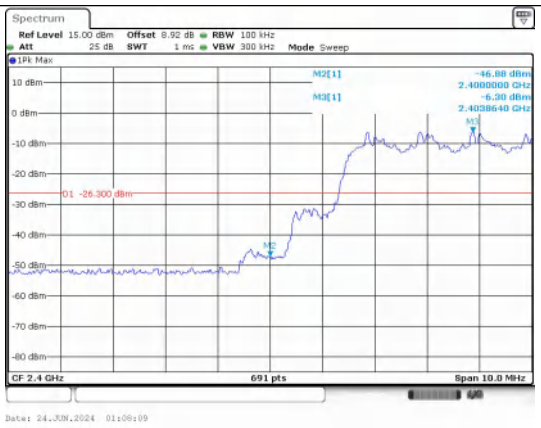
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



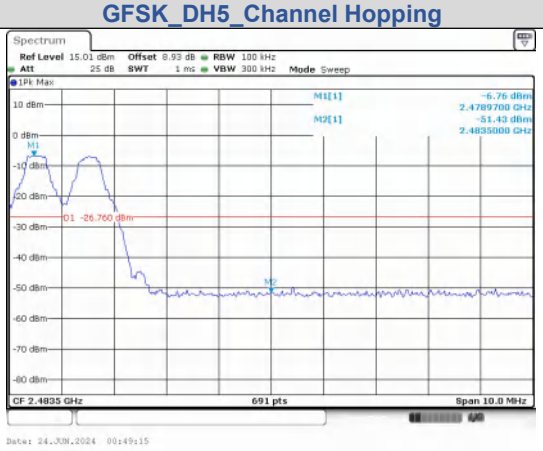
Out Of Band Emission
8DPSK_3-DH5_Channel 78



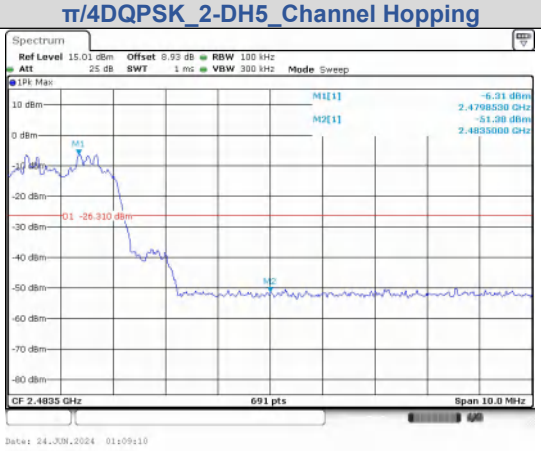
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



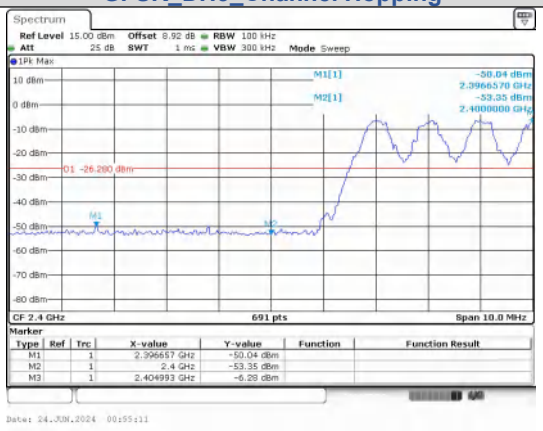
Out Of Band Emission(Left)
π/4DQPSK_2-DH5_Channel Hopping



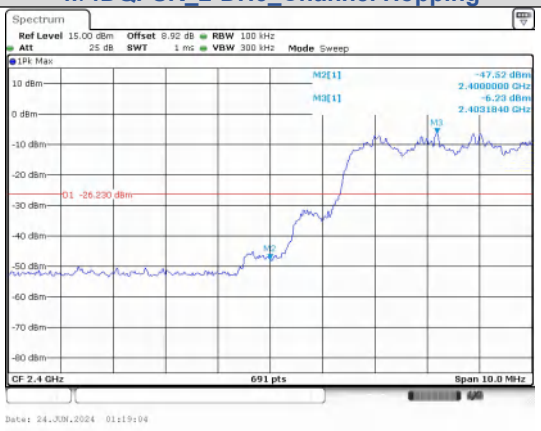
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



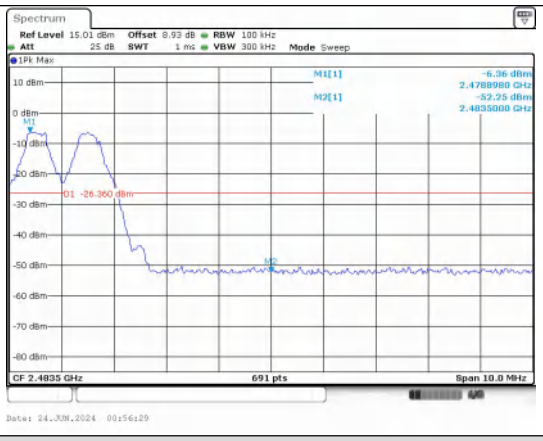
Out Of Band Emission(Right)
π/4DQPSK_2-DH5_Channel Hopping



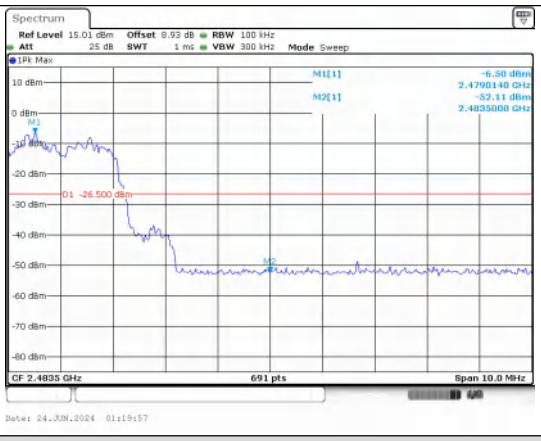
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



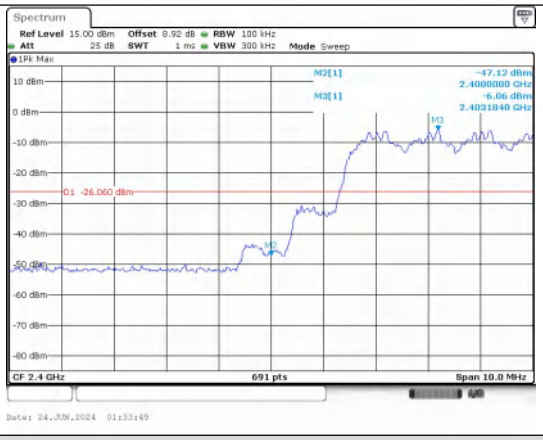
Out Of Band Emission(Left)
π/4DQPSK_2-DH5_Channel Hopping



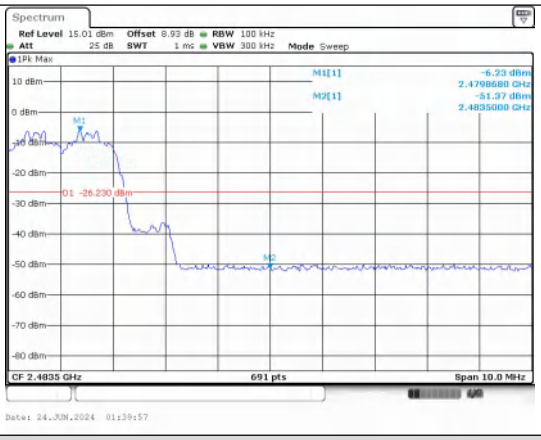
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



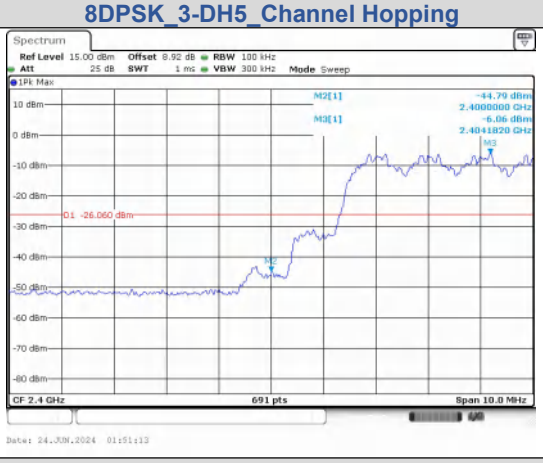
Out Of Band Emission(Right)
π/4DQPSK_2-DH5_Channel Hopping



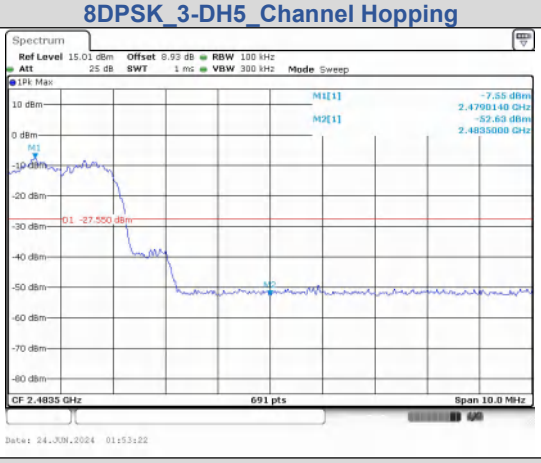
Out Of Band Emission(Left)
8DPSK_3-DH5_Channel Hopping



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