Appendix A

Report No.:	CISRR24031406801
FCC ID:	2BFFH-MINISO
Product Name:	Smart Audio Glasses
Model No.:	MINISO-088
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

Conducted Peak Output Power

Test Result
Left

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	2.704	1.864	30	PASS
		39	2.482	1.771		PASS
		78	1.797	1.513		PASS
π/4DQPSK	2-DH5	0	3.483	2.230	20.97	PASS
		39	3.273	2.125		PASS
		78	2.621	1.829		PASS
8DPSK	3-DH5	0	3.774	2.385		PASS
		39	3.572	2.276		PASS
		78	3.045	2.016		PASS

Right

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	2.615	1.83	30	PASS
		39	2.417	1.74		PASS
		78	1.931	1.56		PASS
π/4DQPSK	2-DH5	0	3.264	2.12	20.97	PASS
		39	3.148	2.06		PASS
		78	2.364	1.72		PASS
8DPSK	3-DH5	0	3.634	2.31		PASS
		39	3.508	2.24		PASS
		78	3.007	2.00		PASS

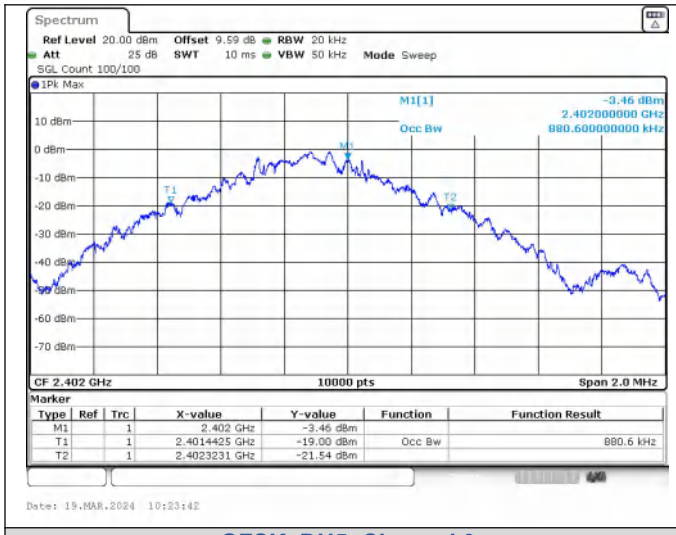
99% Bandwidth

Test Result

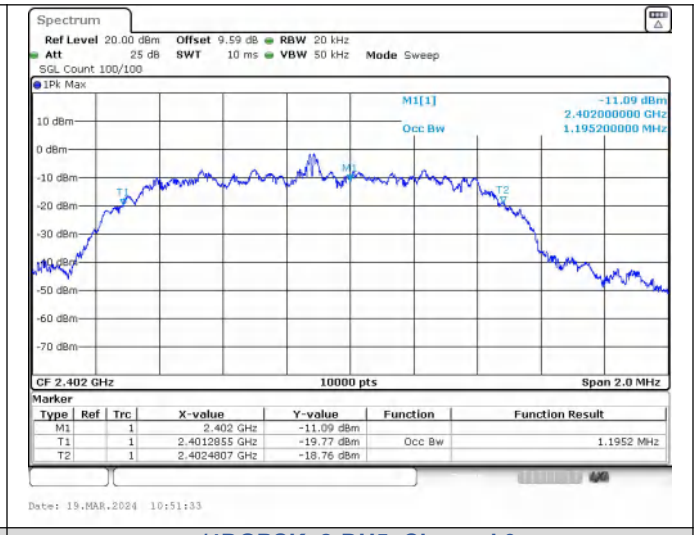
Left

Modulation	Channel	99% BW (MHz)
GFSK	0	0.88060
	39	0.89840
	78	0.87880
π/4DQPSK	0	1.1950
	39	1.1920
	78	1.1940
8DPSK	0	1.2020
	39	1.2080
	78	1.2020

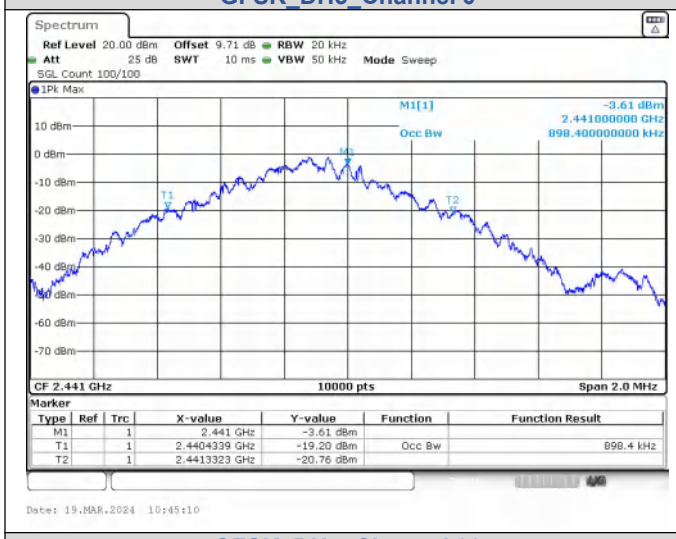
Test Graphs



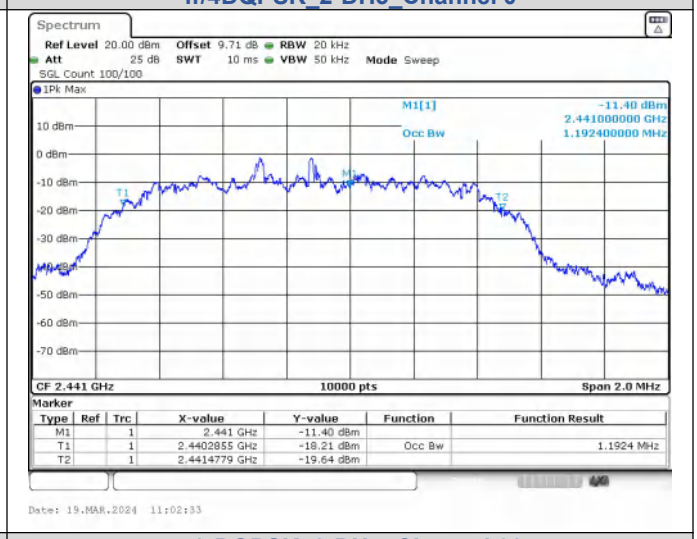
GFSK_DH5_Channel 0



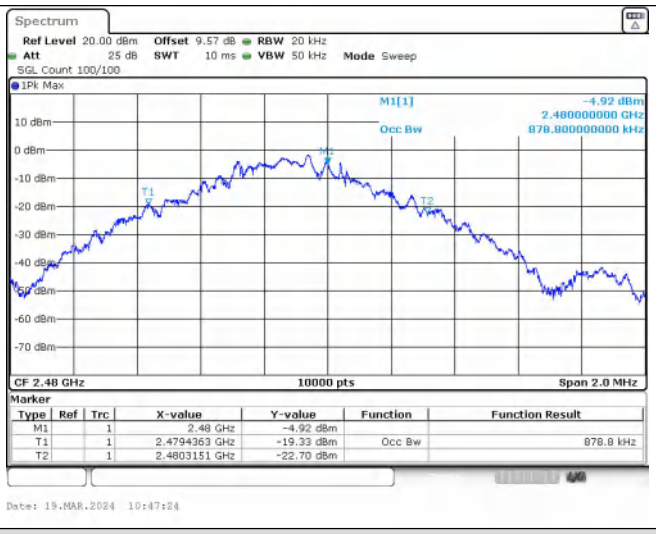
π/4DQPSK_2-DH5_Channel 0



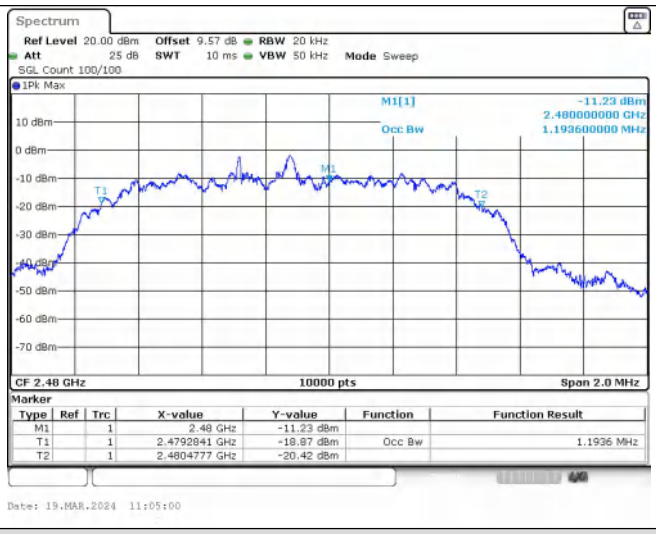
GFSK_DH5_Channel 39



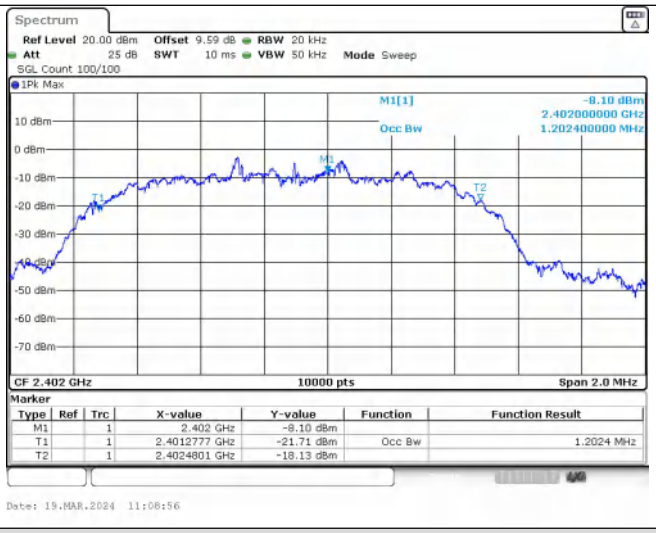
π/4DQPSK_2-DH5_Channel 39



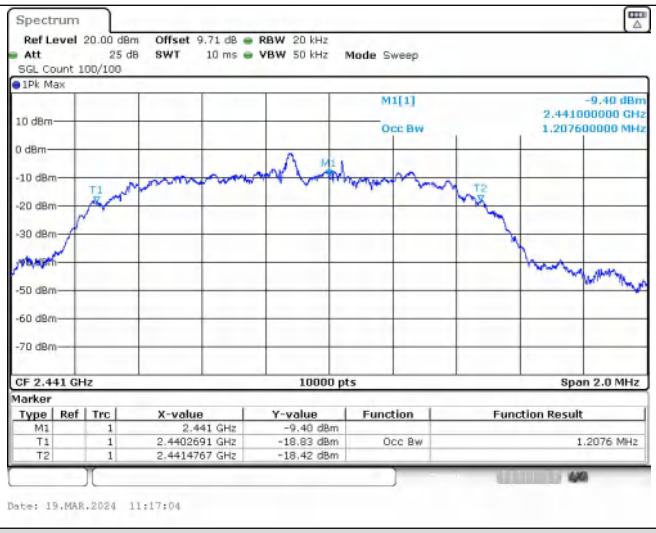
GFSK_DH5_Channel 78



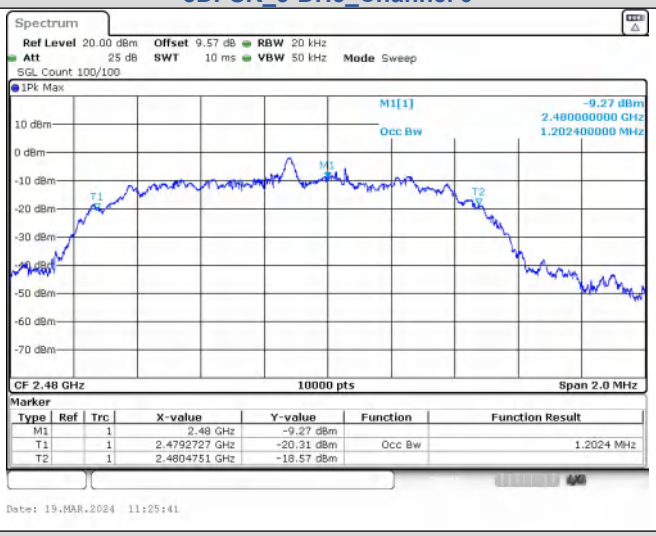
π/4DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39

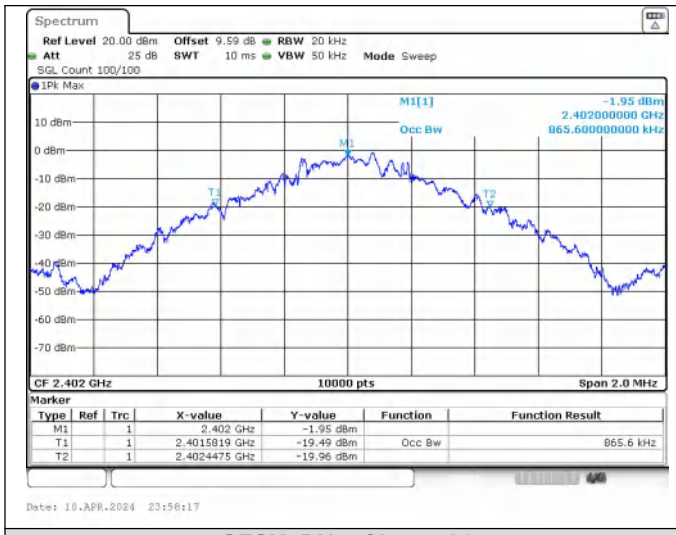


8DPSK_3-DH5_Channel 78

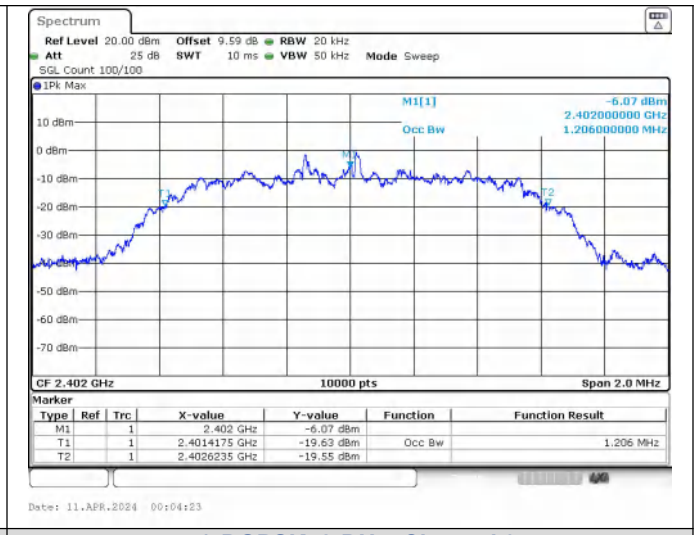
Right

Modulation	Channel	99% BW (MHz)
GFSK	0	0.86560
	39	0.88080
	78	0.87100
π/4DQPSK	0	1.2060
	39	1.1930
	78	1.1890
8DPSK	0	1.2120
	39	1.2040
	78	1.2050

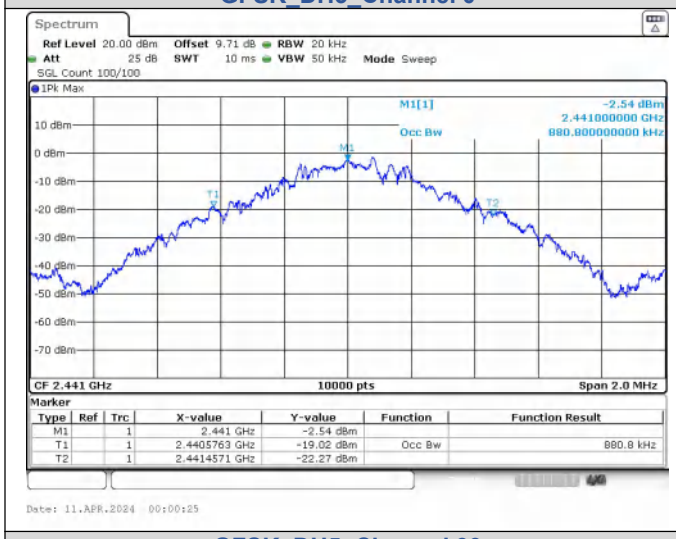
Test Graphs



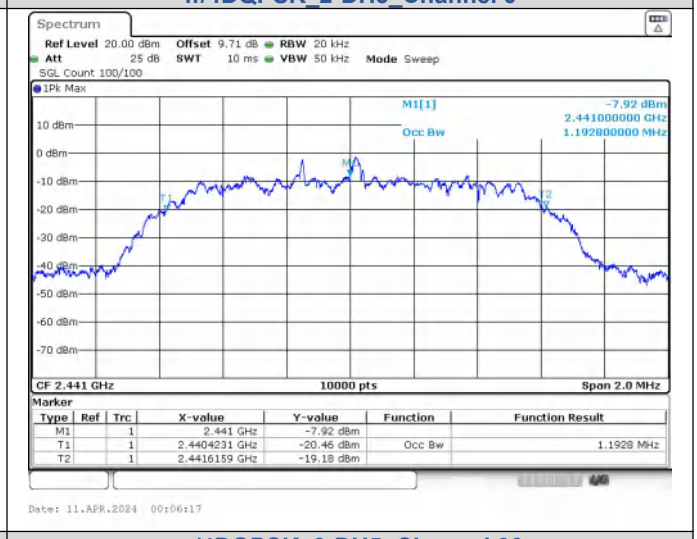
GFSK_DH5_Channel 0



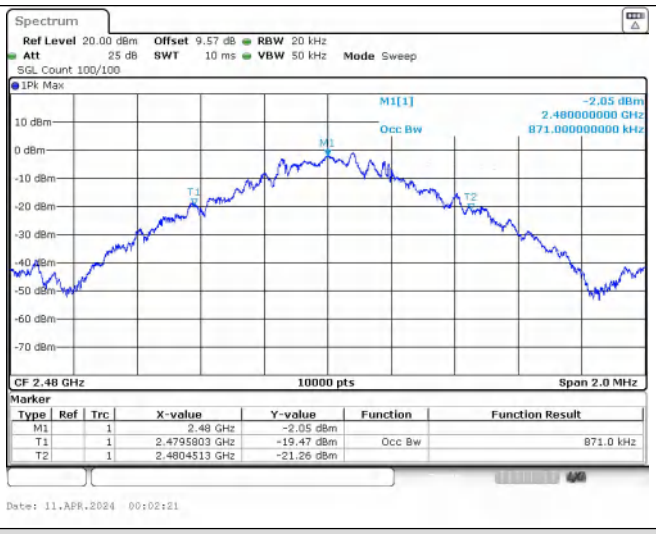
π/4DQPSK_2-DH5_Channel 0



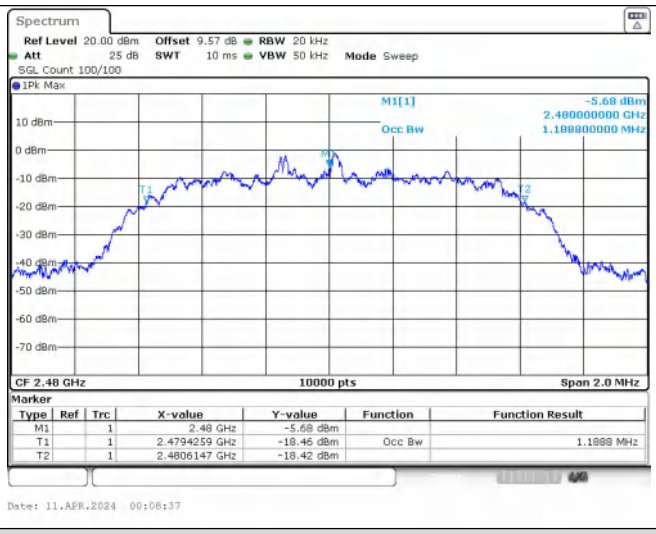
GFSK_DH5_Channel 39



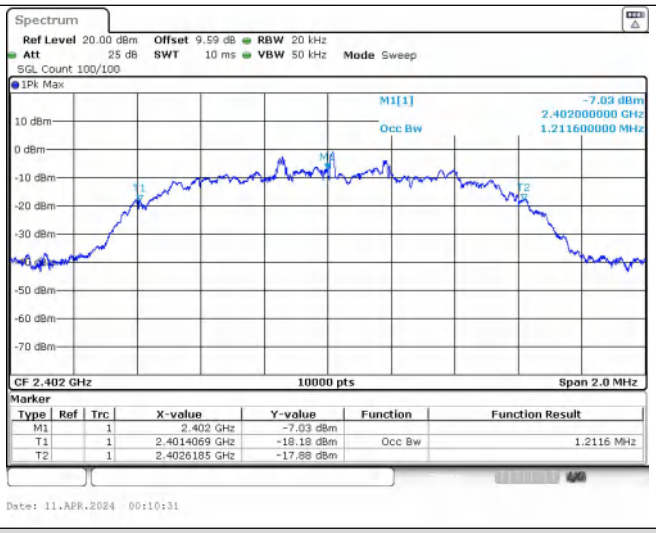
π/4DQPSK_2-DH5_Channel 39



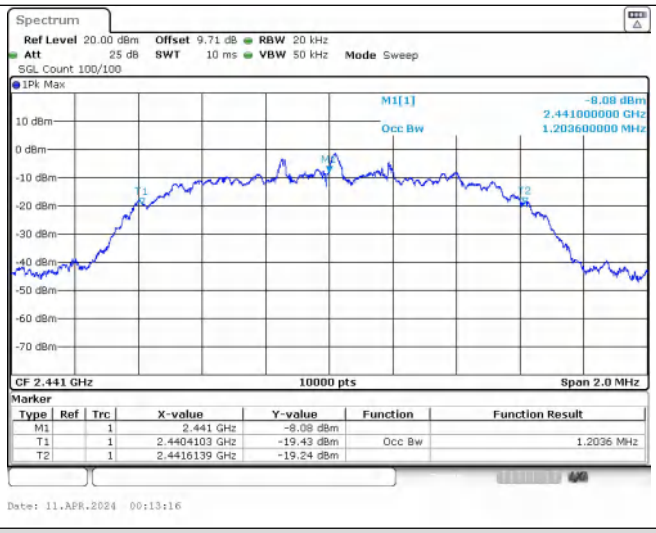
GFSK_DH5_Channel 78



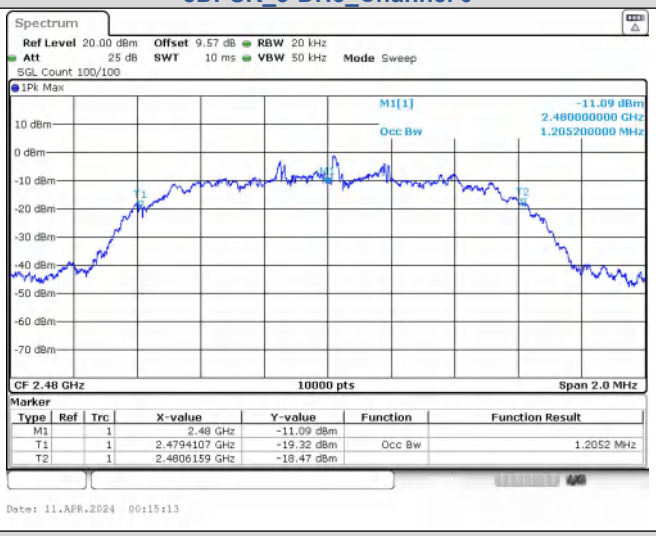
π/4DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



8DPSK_3-DH5_Channel 78

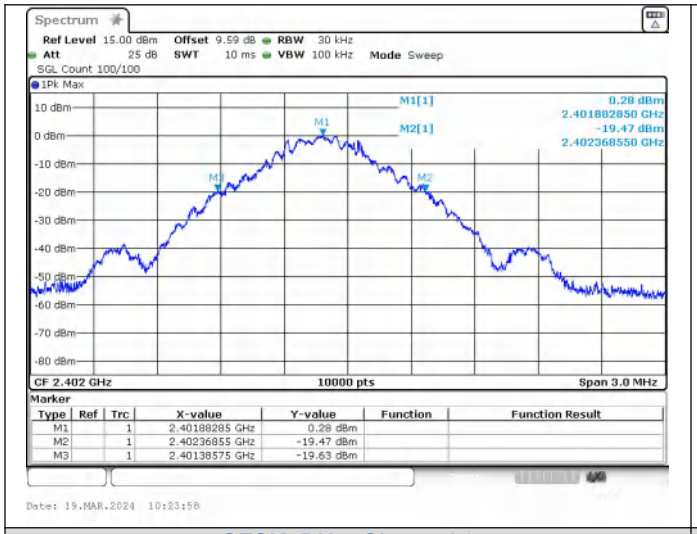
20dB Bandwidth

Test Result

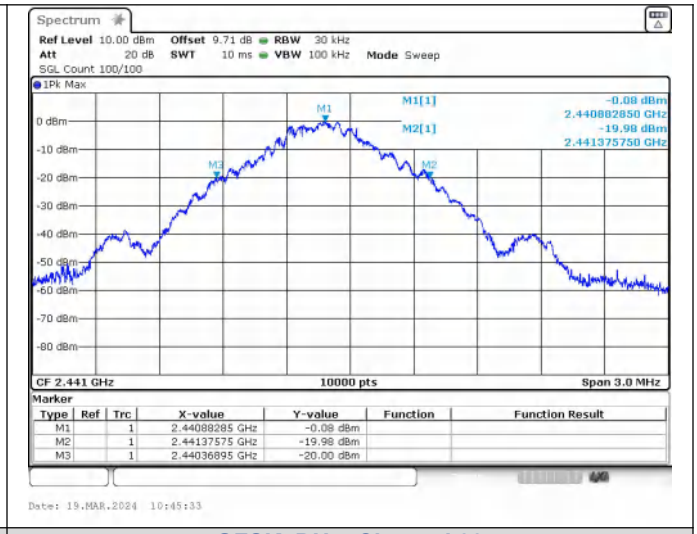
Left

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	0.9800
	39	2441 MHz	1.010
	78	2480 MHz	0.9900
π/4DQPSK	0	2402 MHz	1.290
	39	2441 MHz	1.310
	78	2480 MHz	1.300
8DPSK	0	2402 MHz	1.290
	39	2441 MHz	1.290
	78	2480 MHz	1.290

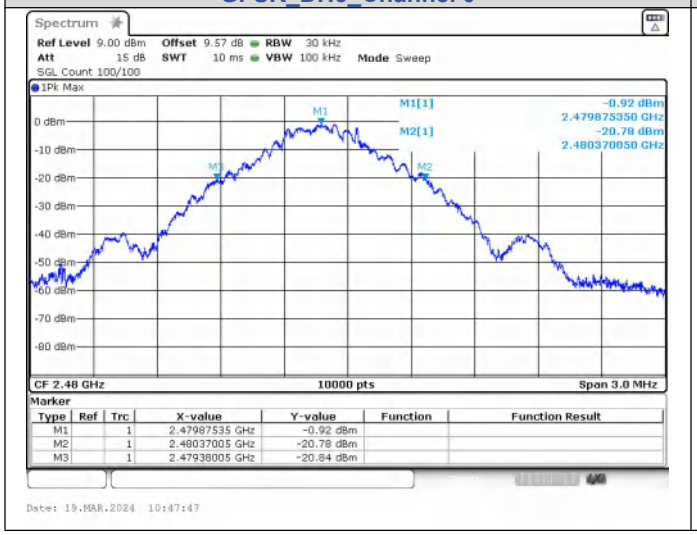
Test Graphs



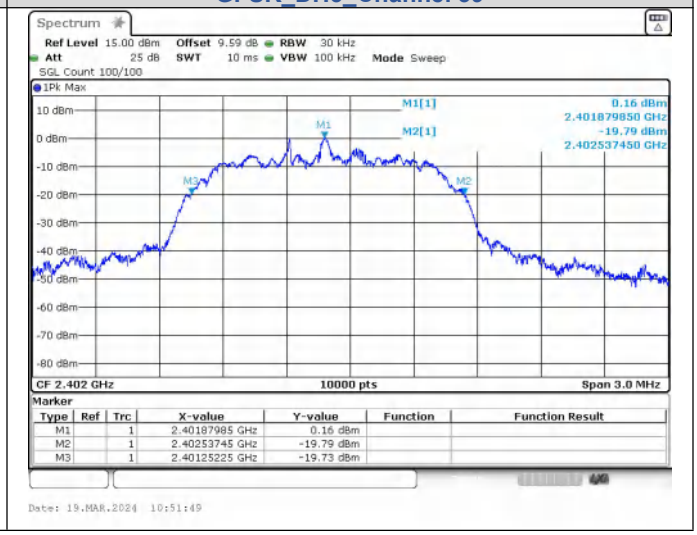
GFSK_DH5_Channel 0



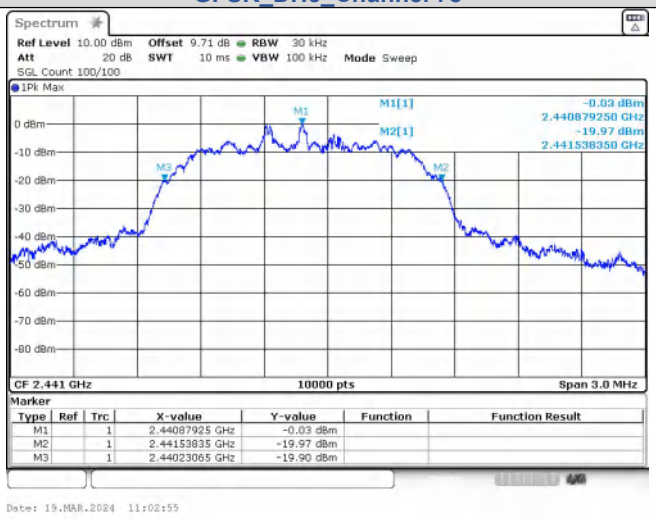
GFSK_DH5_Channel 39



GFSK_DH5_Channel 78



GFSK_DH5_Channel 78



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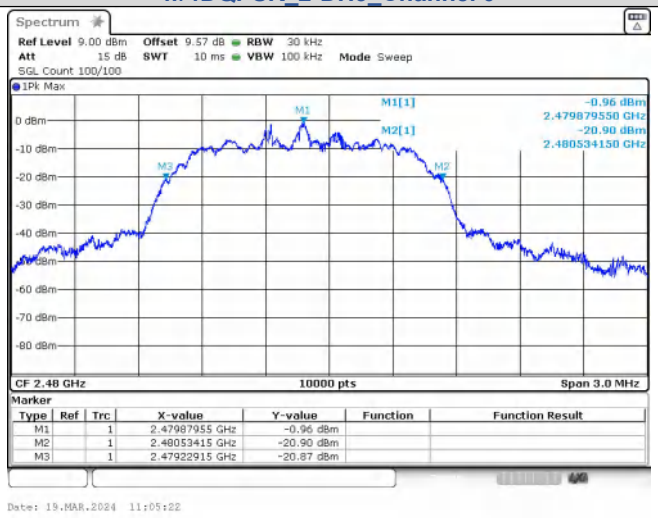
π/4DQPSK_2-DH5_Channel 0



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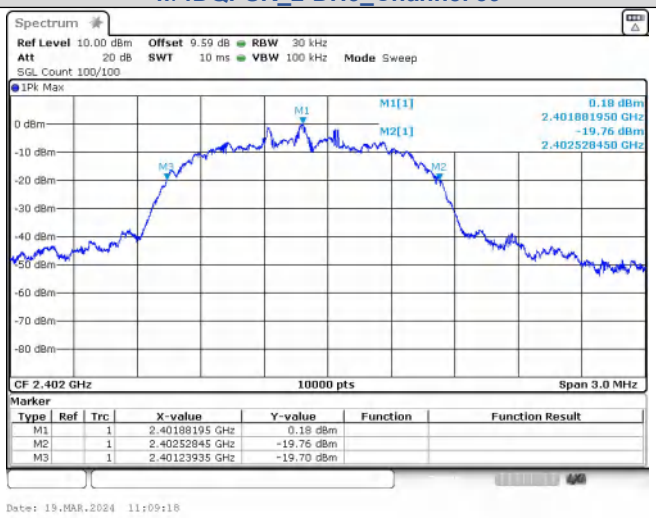

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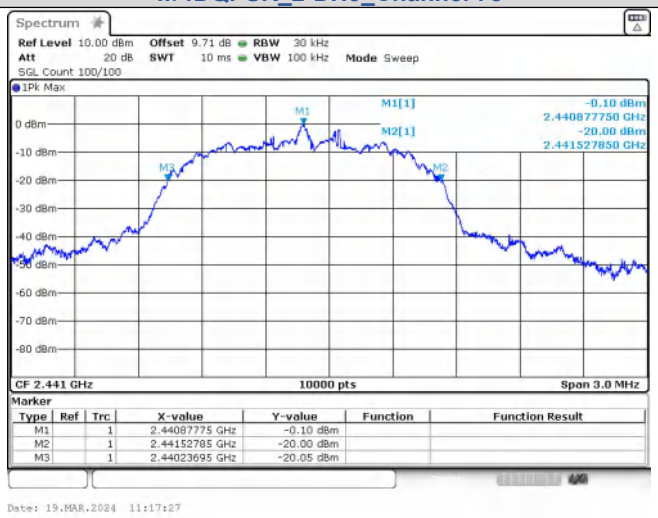
π/4DQPSK_2-DH5_Channel 78



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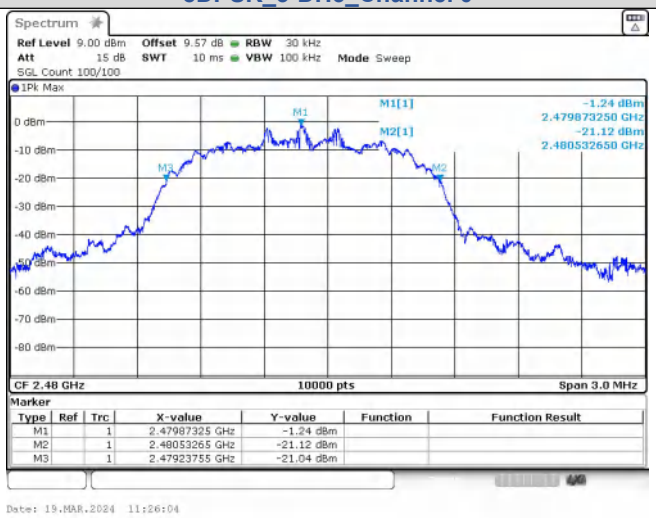
8DPSK_3-DH5_Channel 0



Date: 19.MAR.2024 11:26:04

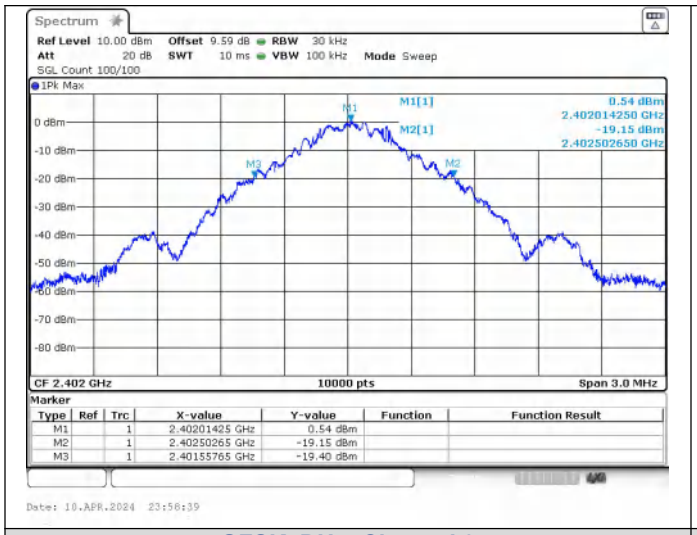
8DPSK_3-DH5_Channel 39

8DPSK_3-DH5_Channel 78

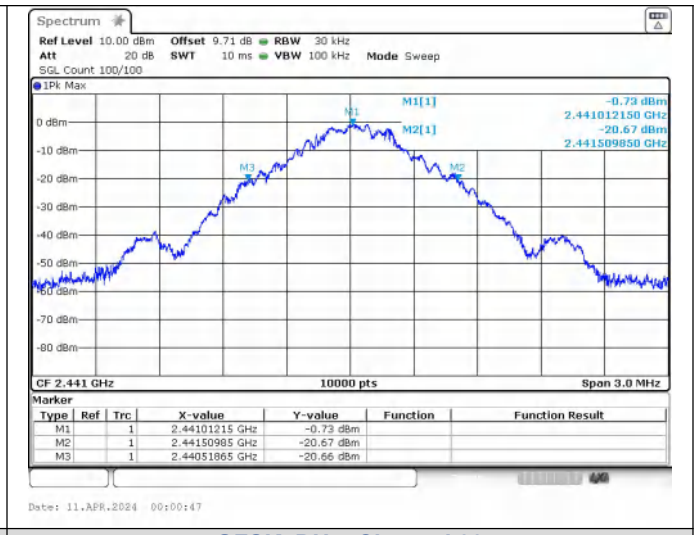
Right

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	0.9400
	39	2441 MHz	0.9900
	78	2480 MHz	0.9500
π/4DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.310
	78	2480 MHz	1.300
8DPSK	0	2402 MHz	1.280
	39	2441 MHz	1.290
	78	2480 MHz	1.300

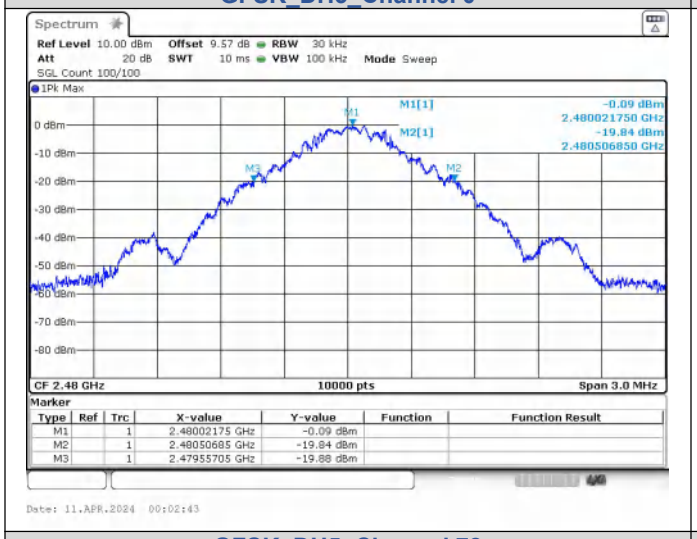
Test Graphs



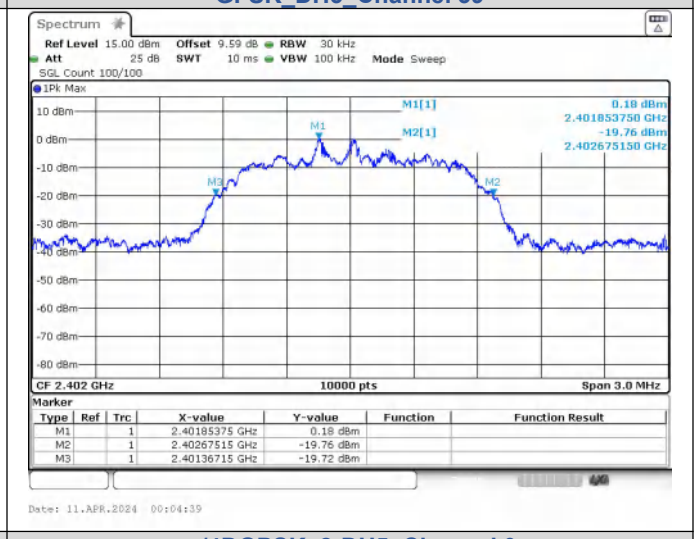
GFSK_DH5_Channel 0



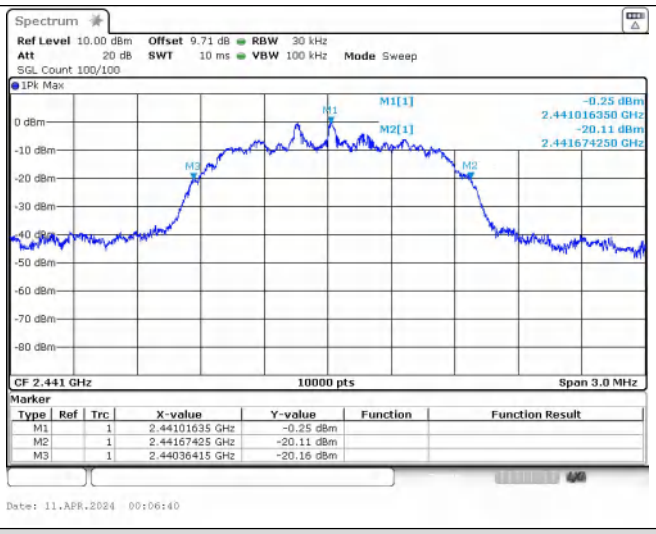
GFSK_DH5_Channel 39



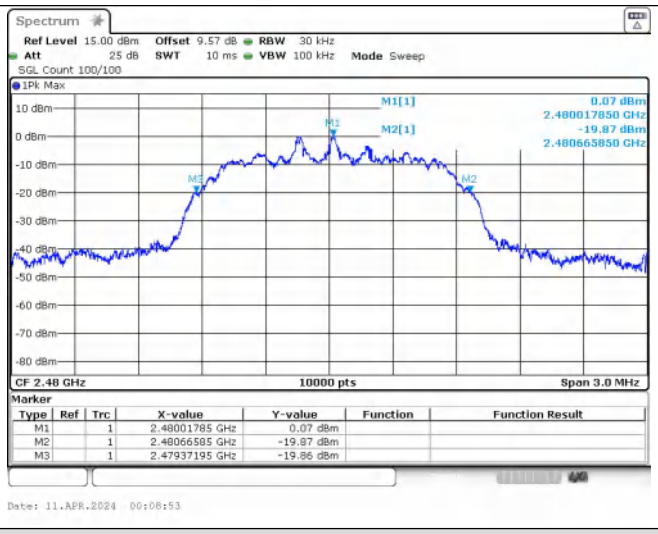
GFSK_DH5_Channel 78



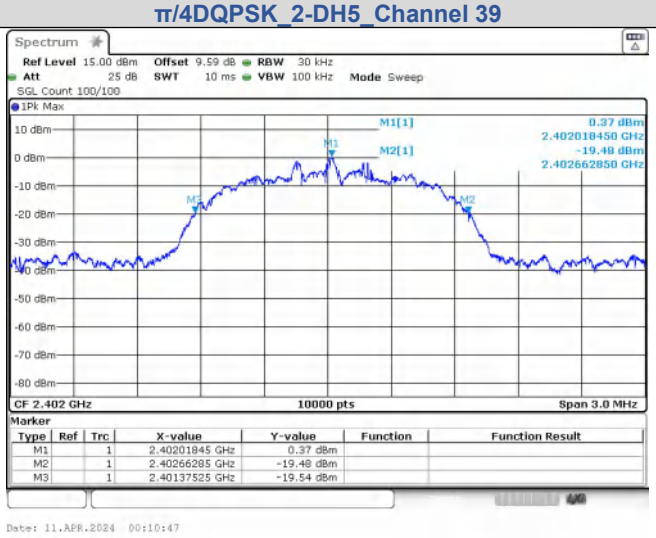
π/4DQPSK_2-DH5_Channel 0



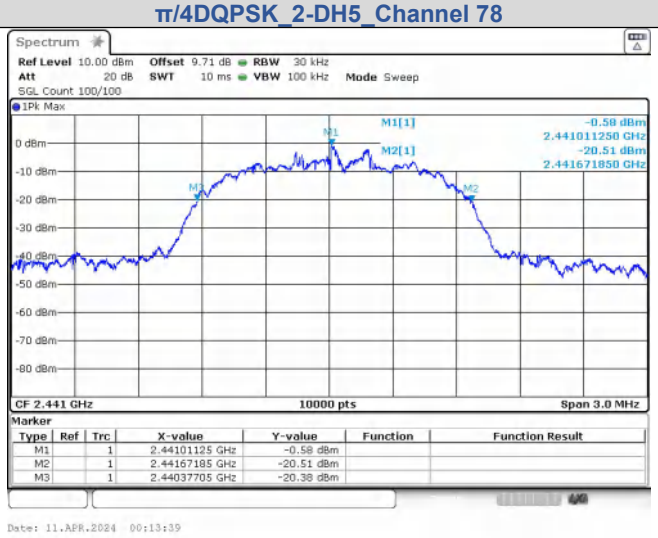
π/4DQPSK_2-DH5_Channel 39



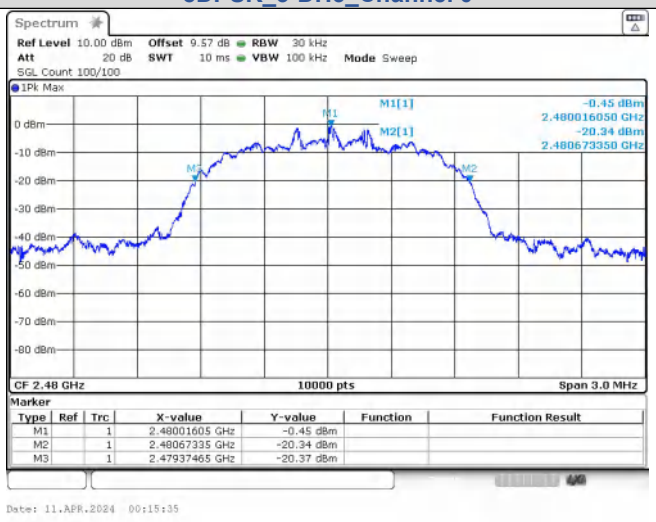
π/4DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



8DPSK_3-DH5_Channel 78

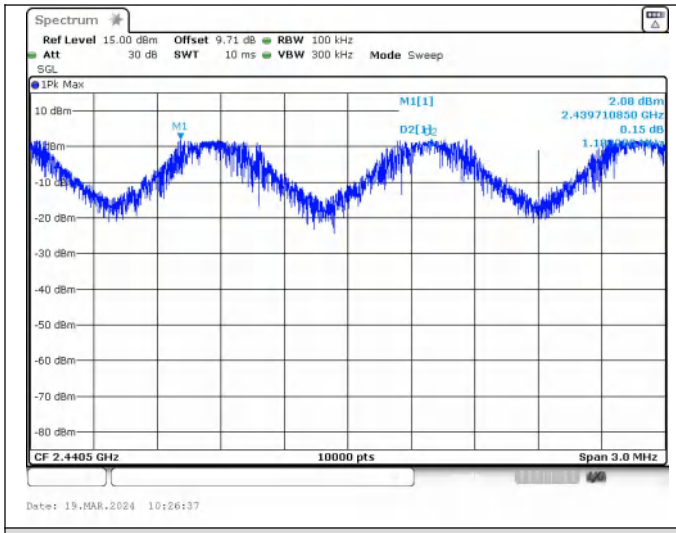
Carrier Frequencies Separation

Test Result

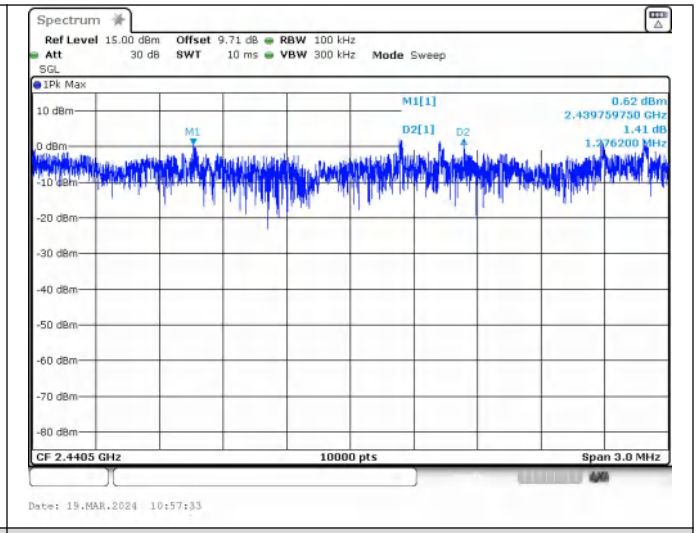
Left

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.7108	2440.894	1.1832	0.653	PASS
π/4DQPSK	2-DH5	2439.7598	2441.0359	1.2762	0.86	PASS
8DPSK	3-DH5	2439.8077	2440.867	1.0593	0.86	PASS

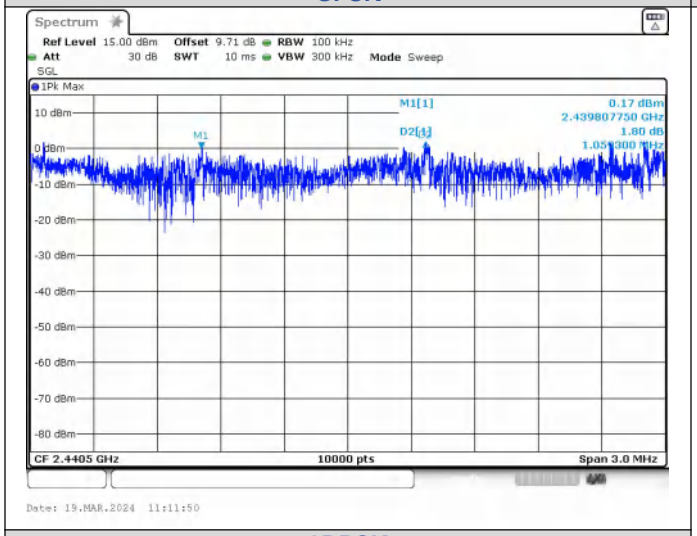
Test Graphs



GFSK



π/4DQPSK

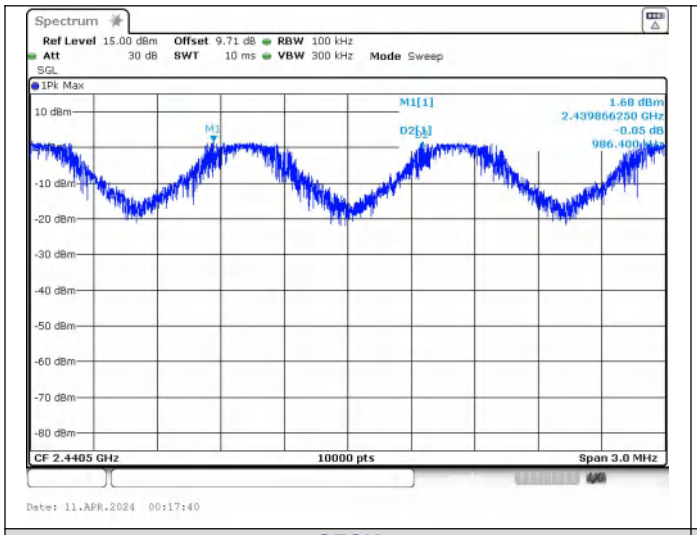


8DPSK

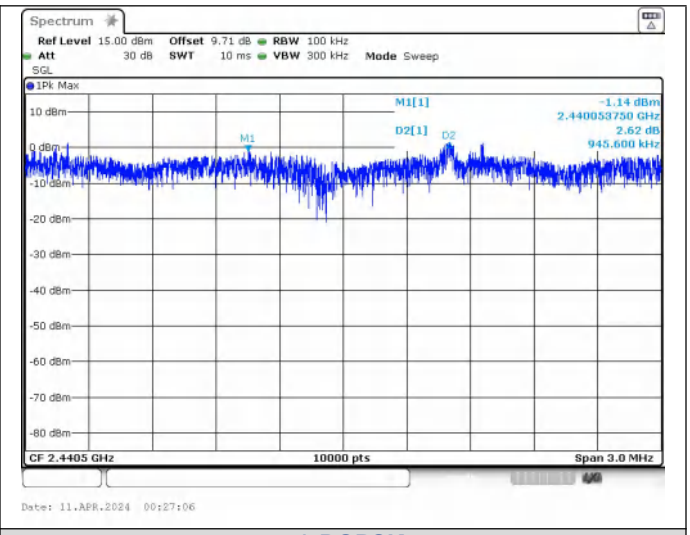
Right

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.8663	2440.8526	0.9864	0.627	PASS
π/4DQPSK	2-DH5	2440.0538	2440.9994	0.9456	0.873	PASS
8DPSK	3-DH5	2439.8819	2440.9016	1.0197	0.853	PASS

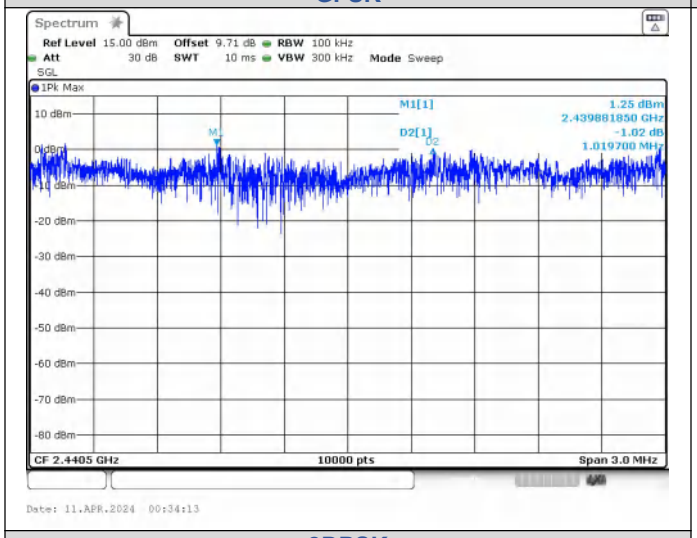
Test Graphs



GFSK



π/4DQPSK



8DPSK

Conducted Out Of Band Emission

Test Result

Left

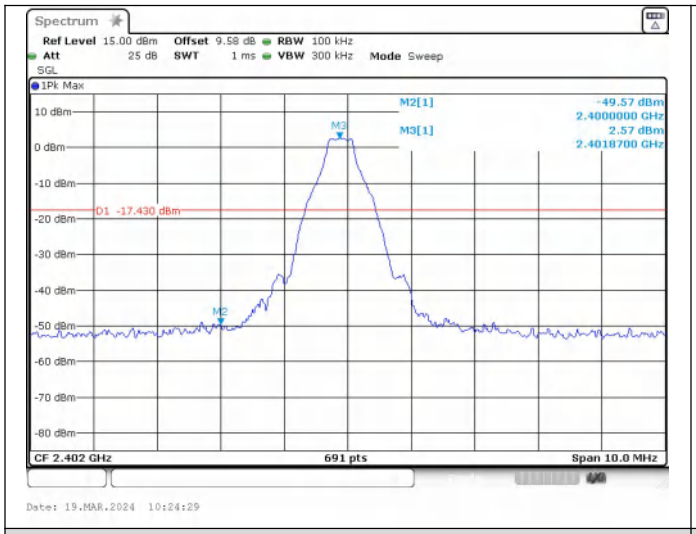
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-49.569	-17.43	-32.139	PASS
			9607.24	-35.659	-17.43	-18.229	PASS
		39	9763.72	-35.321	-17.69	-17.631	PASS
		78	2483.50	-51.969	-18.33	-33.639	PASS
			9919.37	-36.230	-18.33	-17.900	PASS
π/4DQPSK	2-DH5	0	2400.00	-48.135	-17.57	-30.565	PASS
			9607.24	-35.442	-17.57	-17.872	PASS
		39	9763.72	-35.279	-17.81	-17.469	PASS
		78	2483.50	-52.701	-18.57	-34.131	PASS
			9919.37	-35.769	-18.57	-17.199	PASS
8DPSK	3-DH5	0	2400.00	-50.959	-17.7	-33.259	PASS
			2397.21	-50.890	-17.7	-33.190	PASS
			9607.20	-35.302	-17.7	-17.602	PASS
		39	9763.72	-35.280	-17.87	-17.410	PASS
		78	2483.50	-52.837	-18.51	-34.327	PASS
			9919.37	-36.097	-18.51	-17.587	PASS

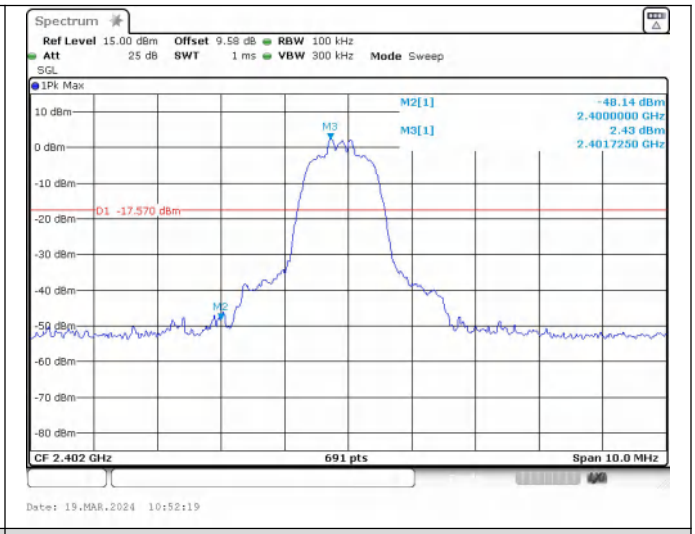
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2396.90	-49.634	-17.44	-32.194	PASS
			2400.00	-50.818	-17.44	-33.378	PASS
			2483.50	-52.452	-18.36	-34.092	PASS
			2395.40	-50.367	-17.67	-32.697	PASS
			2400.00	-52.331	-17.67	-34.661	PASS
			2483.50	-52.170	-18.62	-33.550	PASS
π/4DQPSK	2-DH5		2396.71	-49.670	-18.23	-31.440	PASS
			2400.00	-51.114	-18.23	-32.884	PASS
			2483.50	-52.274	-19.62	-32.654	PASS
			2397.31	-50.433	-18.76	-31.673	PASS
			2400.00	-51.735	-18.76	-32.975	PASS
			2483.50	-52.628	-18.75	-33.878	PASS
8DPSK	3-DH5		2396.96	-49.624	-18.01	-31.614	PASS
			2400.00	-52.091	-18.01	-34.081	PASS
			2483.50	-52.136	-21.6	-30.536	PASS
			2396.08	-49.570	-17.94	-31.630	PASS
			2400.00	-51.724	-17.94	-33.784	PASS
			2483.50	-51.178	-18.34	-32.838	PASS

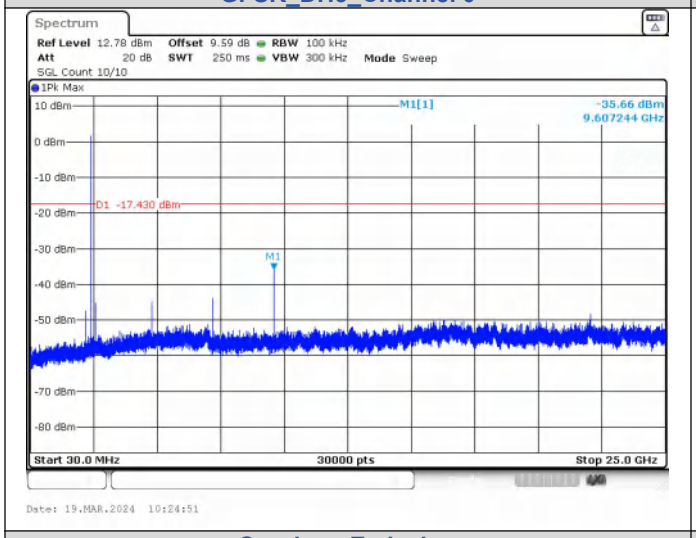
Test Graphs



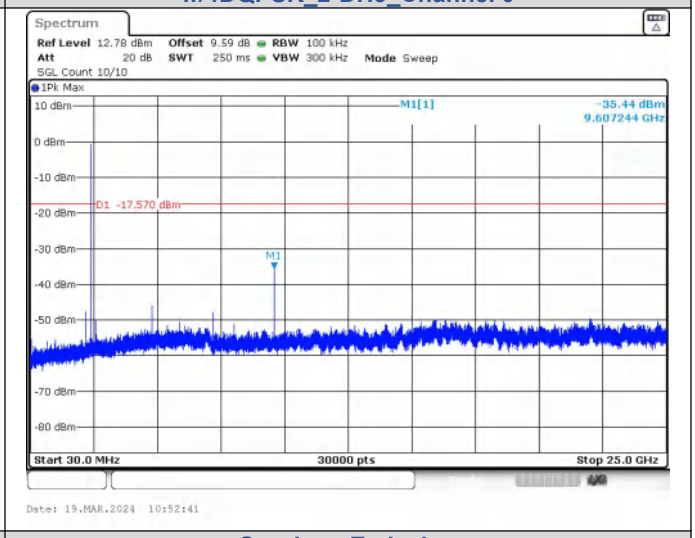
Out Of Band Emission
GFSK_DH5_Channel 0



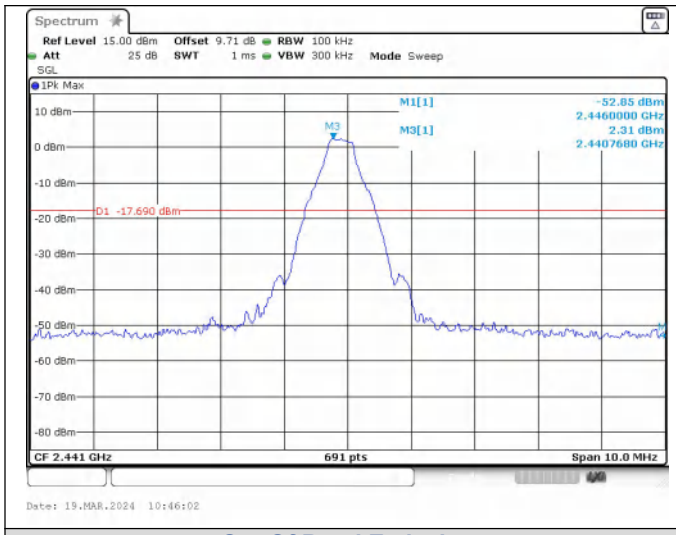
Out Of Band Emission
π/4DQPSK_2-DH5_Channel 0



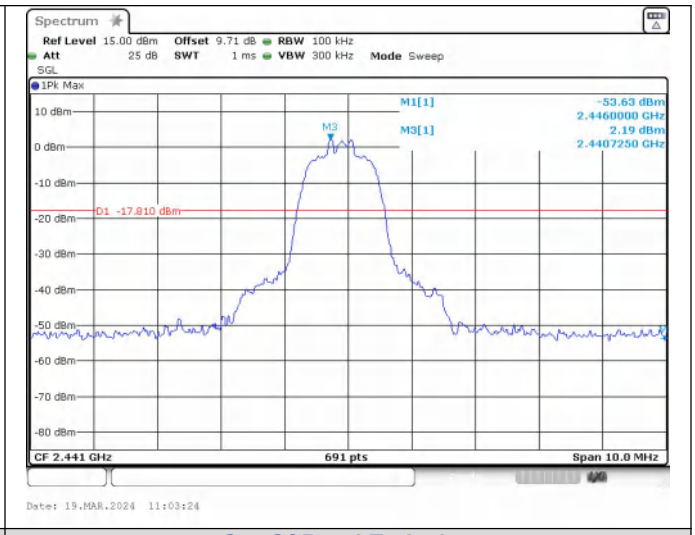
Spurious Emission
GFSK_DH5_Channel 0



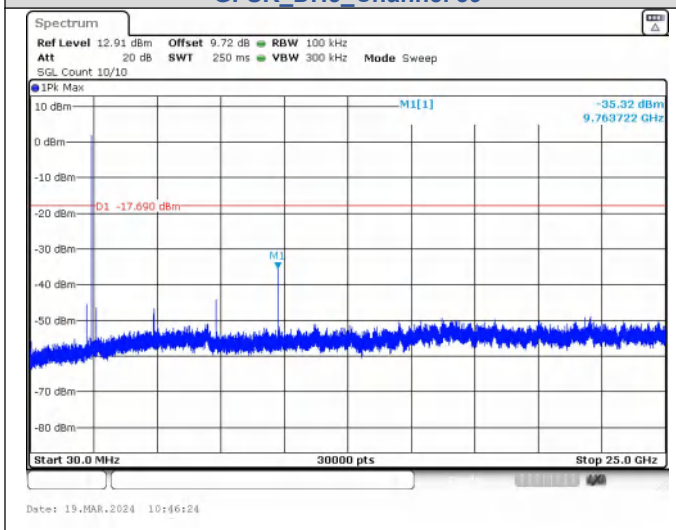
Spurious Emission
π/4DQPSK_2-DH5_Channel 0



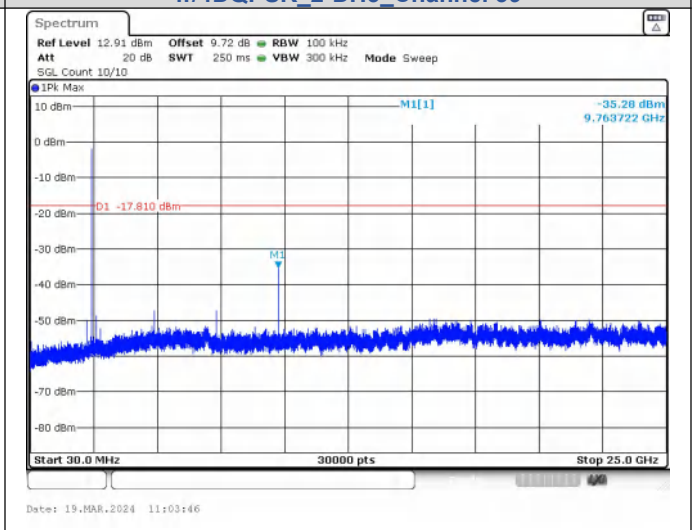
Out Of Band Emission
GFSK_DH5_Channel 39



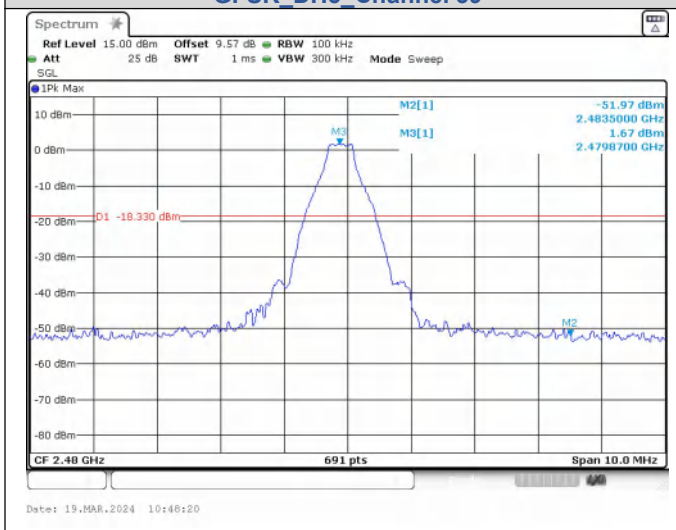
Out Of Band Emission
π/4DQPSK_2-DH5_Channel 39



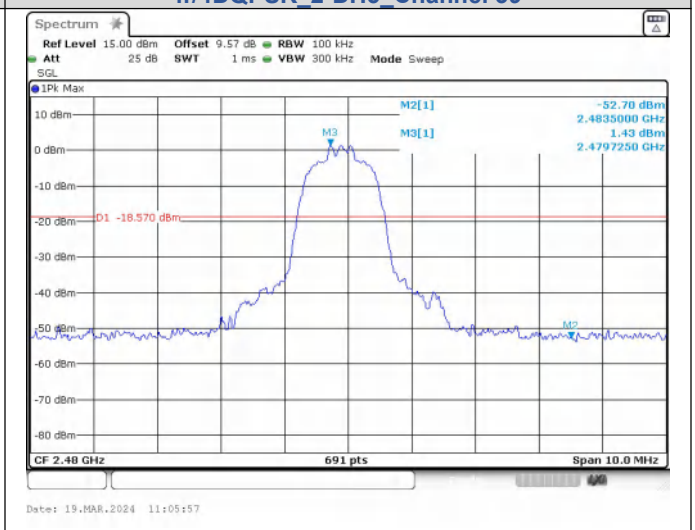
Spurious Emissions
GFSK_DH5_Channel 39



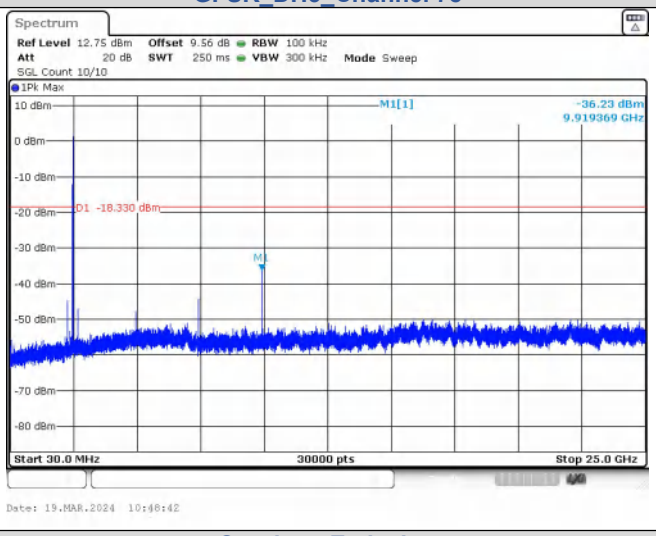
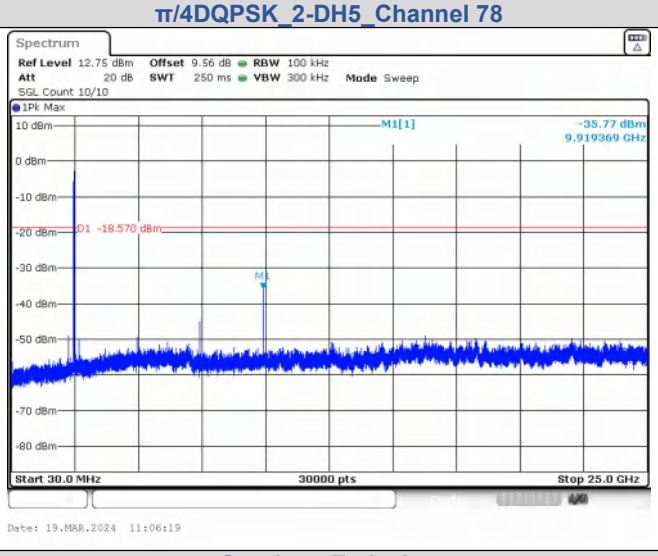
Spurious Emissions
π/4DQPSK_2-DH5_Channel 39

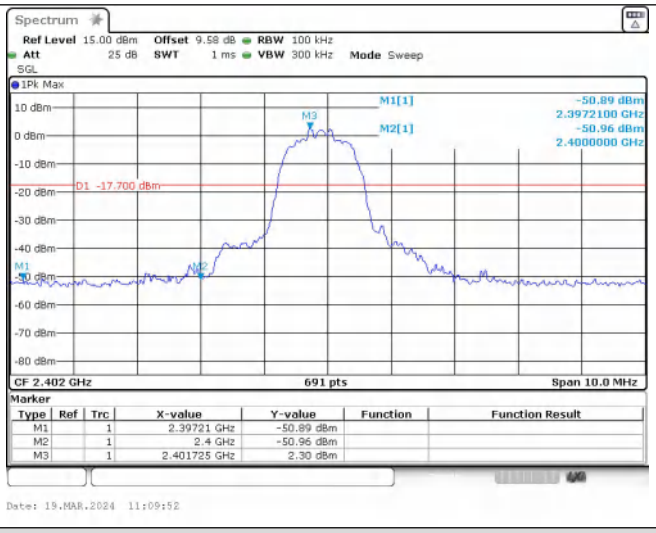
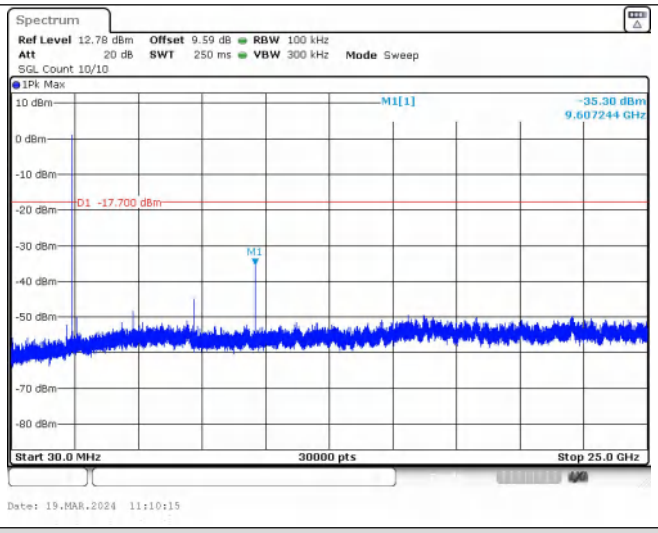


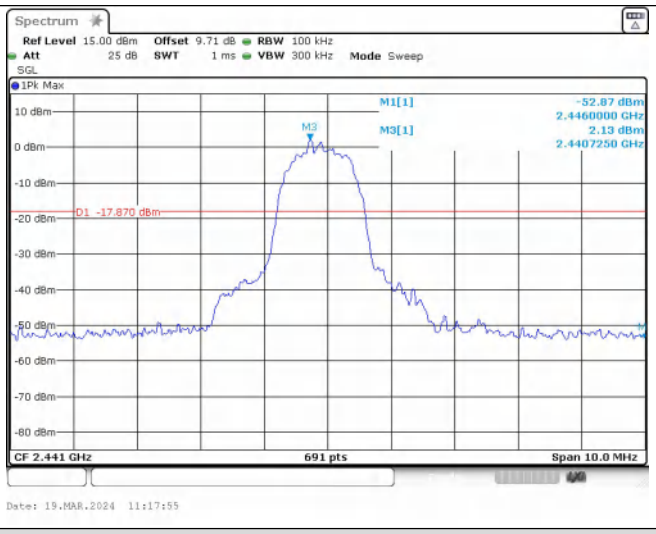
Out Of Band Emission



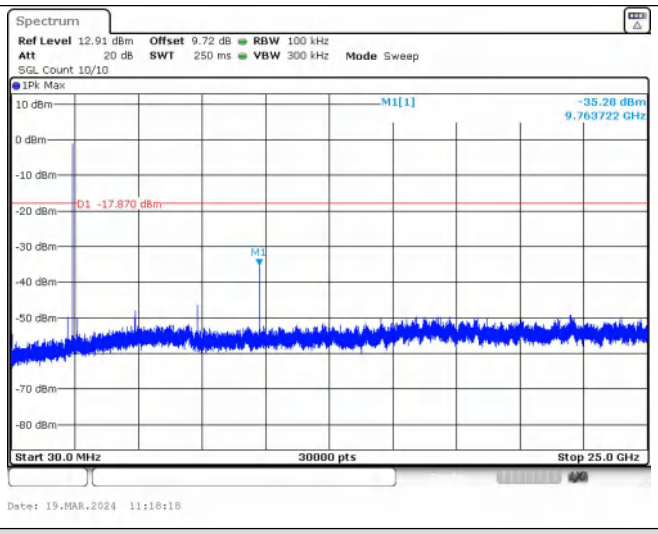
Out Of Band Emission

GFSK_DH5_Channel 78	π/4DQPSK_2-DH5_Channel 78
	
Spurious Emission GFSK_DH5_Channel 78	Spurious Emission π/4DQPSK_2-DH5_Channel 78

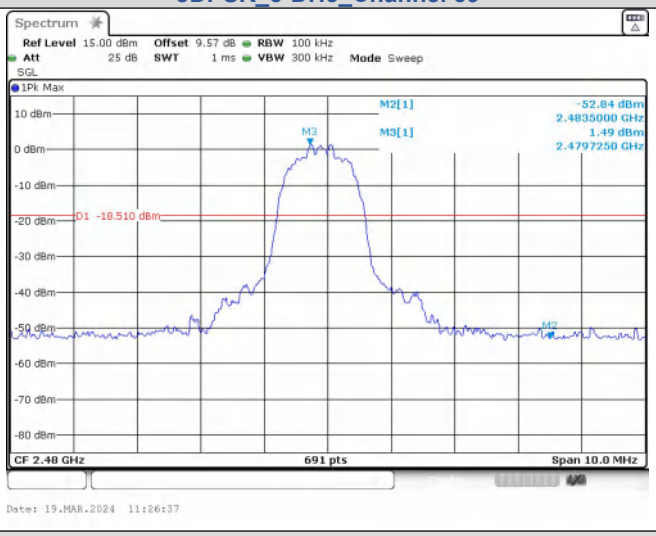
	
Out Of Band Emission 8DPSK_3-DH5_Channel 0	Spurious Emission 8DPSK_3-DH5_Channel 0



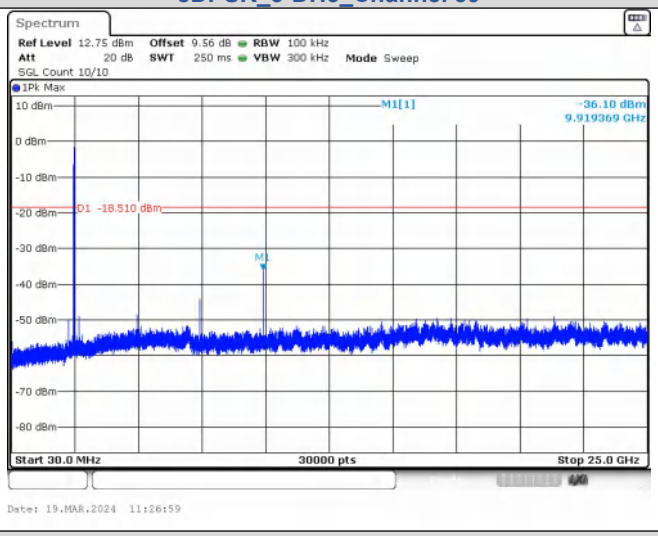
Out Of Band Emission
8DPSK_3-DH5_Channel 39



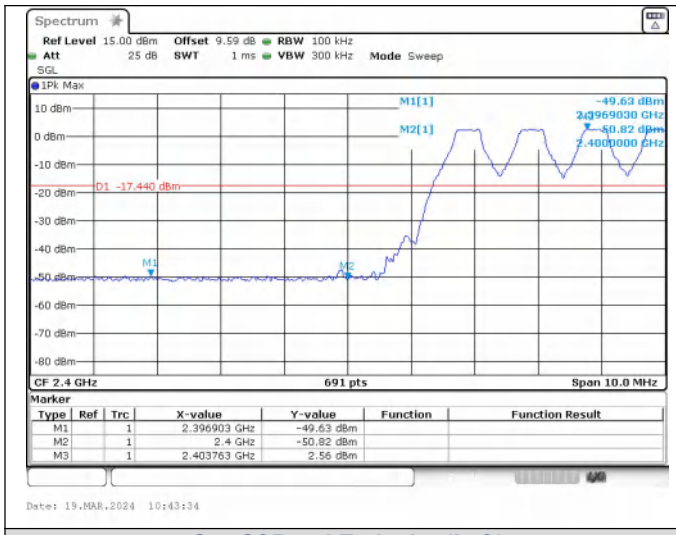
Spurious Emissions
8DPSK_3-DH5_Channel 39



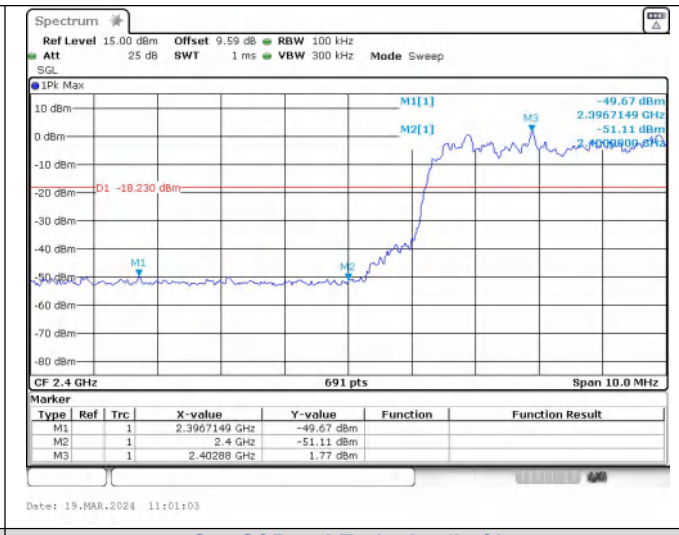
Out Of Band Emission
8DPSK_3-DH5_Channel 78



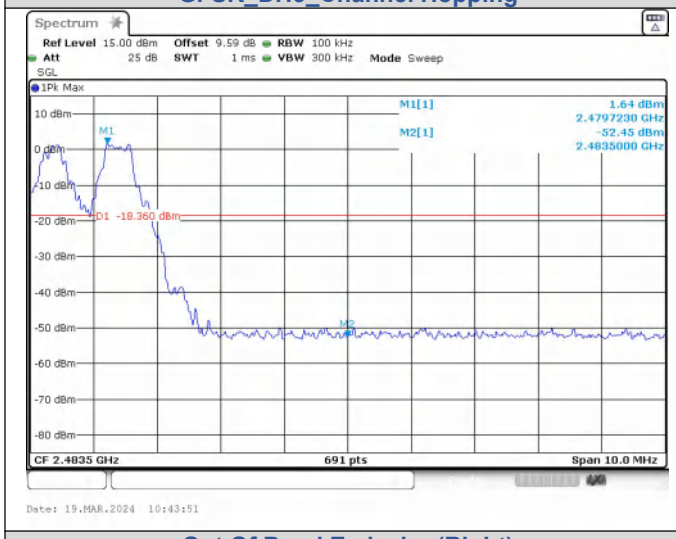
Spurious Emission
8DPSK_3-DH5_Channel 78



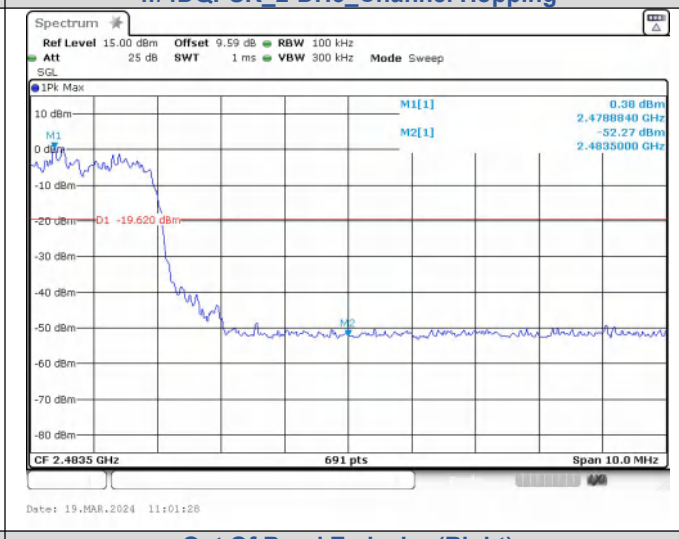
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



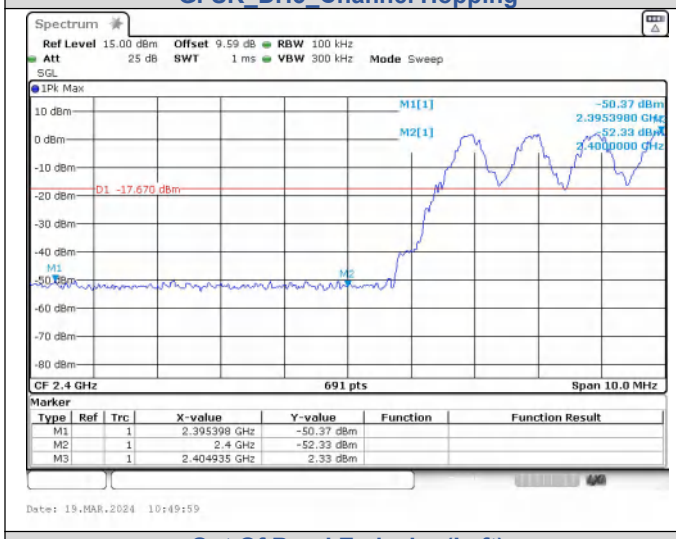
Out Of Band Emission(Left)
π/4DQPSK_2-DH5_Channel Hopping



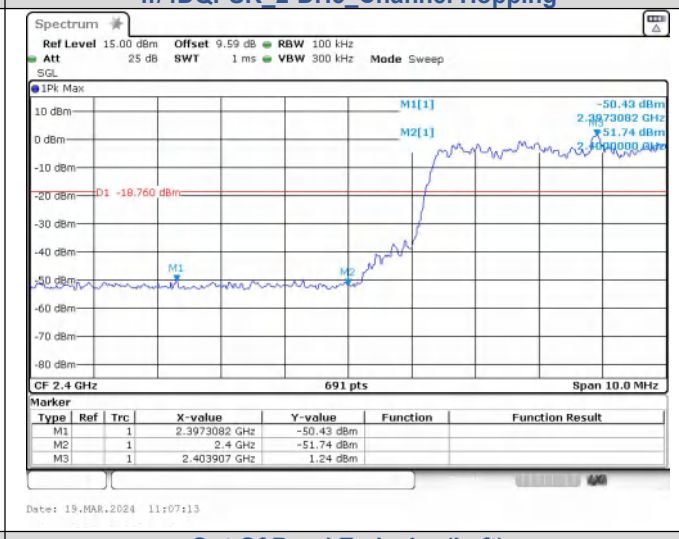
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



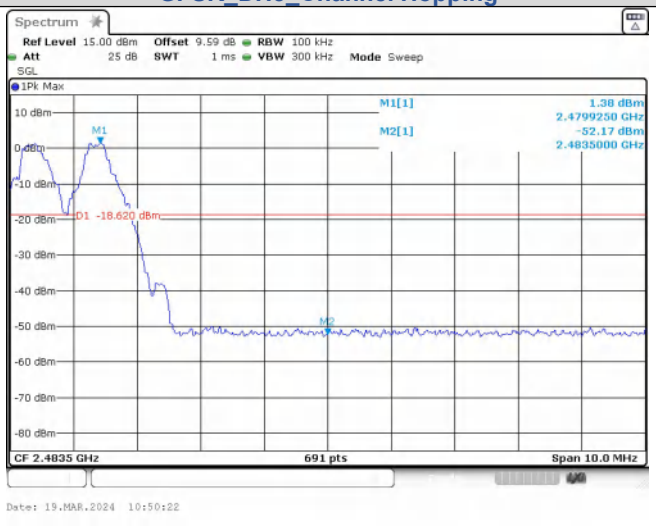
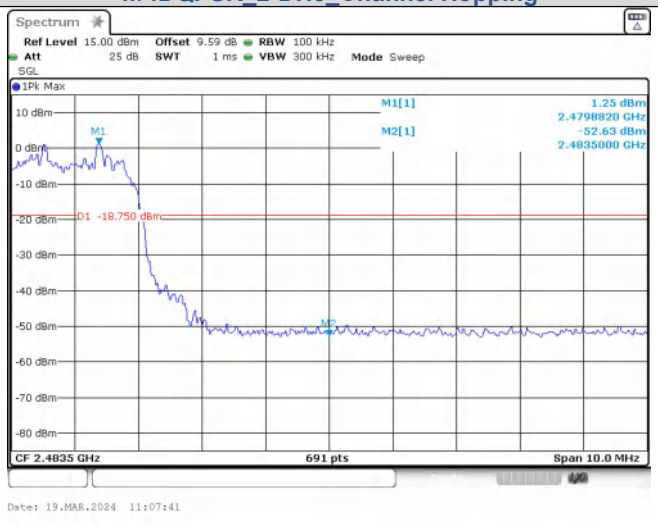
Out Of Band Emission(Right)
π/4DQPSK_2-DH5_Channel Hopping

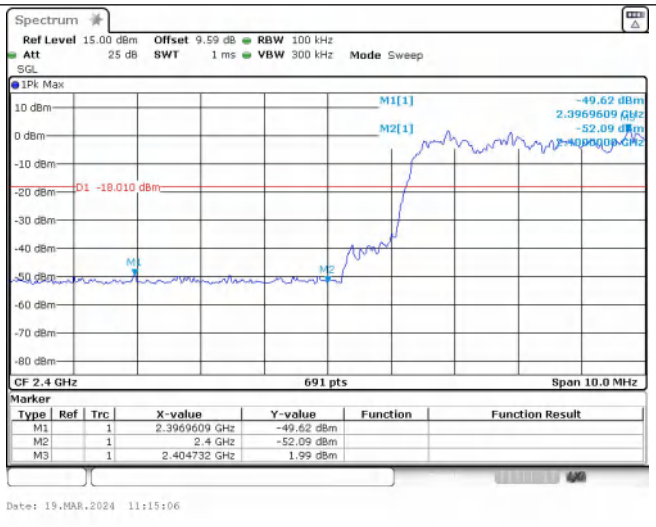


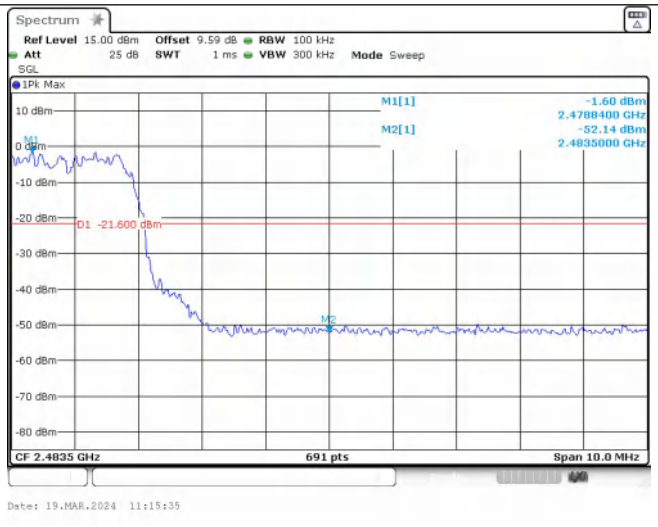
Out Of Band Emission(Left)



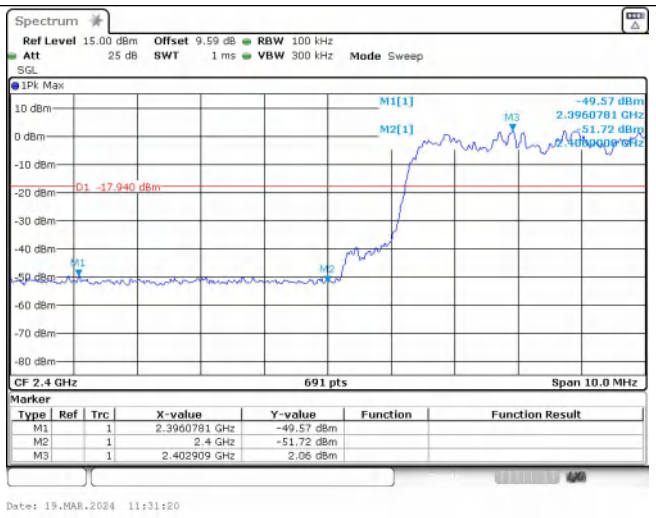
Out Of Band Emission(Left)

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

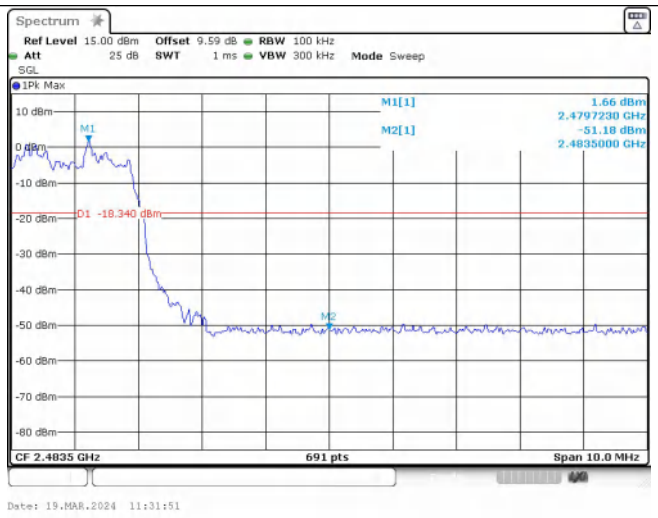




Out Of Band Emission(Left) 8DPSK_3-DH5_Channel Hopping	Out Of Band Emission(Right) 8DPSK_3-DH5_Channel Hopping



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



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

Right

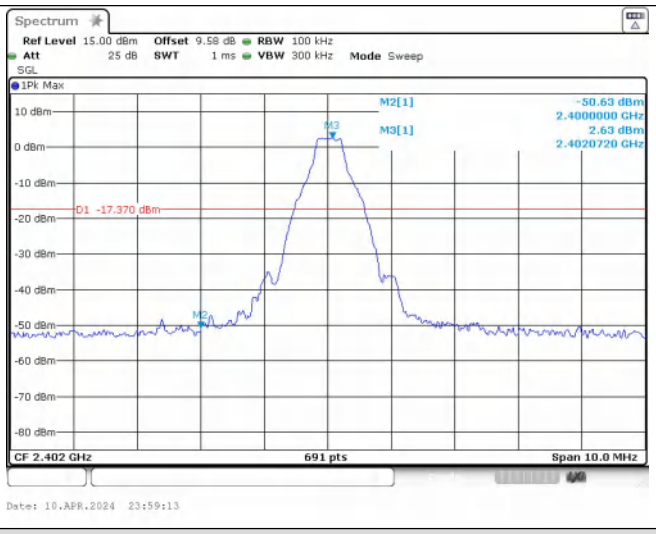
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-50.626	-17.37	-33.256	PASS
			7206.79	-39.086	-17.37	-21.716	PASS
		39	9763.72	-40.096	-18.19	-21.906	PASS
		78	2483.50	-52.386	-17.57	-34.816	PASS
			9920.20	-40.568	-17.57	-22.998	PASS
π/4DQPSK	2-DH5	0	2400.00	-48.439	-17.49	-30.949	PASS
			7205.96	-39.044	-17.49	-21.554	PASS
		39	9763.72	-39.365	-18.09	-21.275	PASS
		78	2483.50	-52.244	-17.61	-34.634	PASS
			9920.20	-40.150	-17.61	-22.540	PASS
8DPSK	3-DH5	0	2400.00	-49.081	-17.4	-31.681	PASS
			9608.08	-39.587	-17.4	-22.187	PASS
		39	9763.72	-40.053	-18.25	-21.803	PASS
		78	2483.50	-52.732	-17.71	-35.022	PASS
			9920.20	-40.090	-17.71	-22.380	PASS

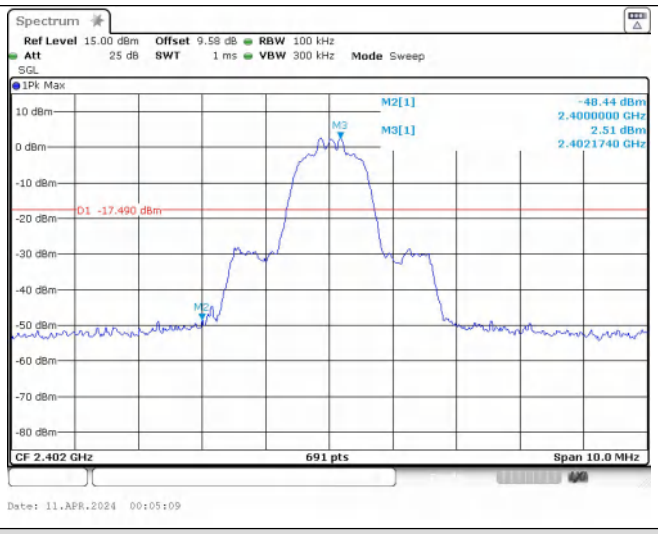
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2395.09	-50.168	-17.45	-32.718	PASS
			2400.00	-50.375	-17.45	-32.925	PASS
			2483.50	-50.746	-17.77	-32.976	PASS
			2396.93	-50.230	-17.47	-32.760	PASS
			2400.00	-52.053	-17.47	-34.583	PASS
			2483.50	-51.740	-17.8	-33.940	PASS
π/4DQPSK	2-DH5		2398.77	-50.157	-18.3	-31.857	PASS
			2400.00	-52.388	-18.3	-34.088	PASS
			2483.50	-52.184	-18.87	-33.314	PASS
			2395.79	-50.559	-19.17	-31.389	PASS
			2400.00	-51.517	-19.17	-32.347	PASS
			2483.50	-52.819	-17.55	-35.269	PASS
8DPSK	3-DH5		2397.48	-49.674	-17.88	-31.794	PASS
			2400.00	-52.093	-17.88	-34.213	PASS
			2483.50	-51.594	-20.03	-31.564	PASS
			2395.37	-50.886	-17.68	-33.206	PASS
			2400.00	-51.765	-17.68	-34.085	PASS
			2483.50	-52.367	-18.47	-33.897	PASS

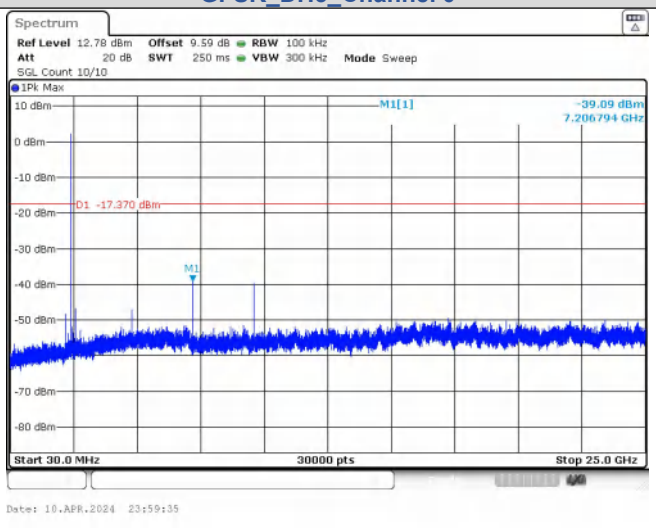
Test Graphs



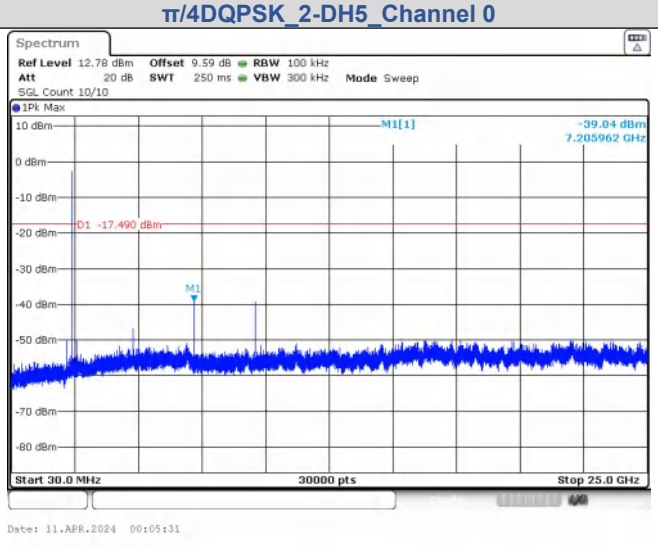
Out Of Band Emission
GFSK_DH5_Channel 0



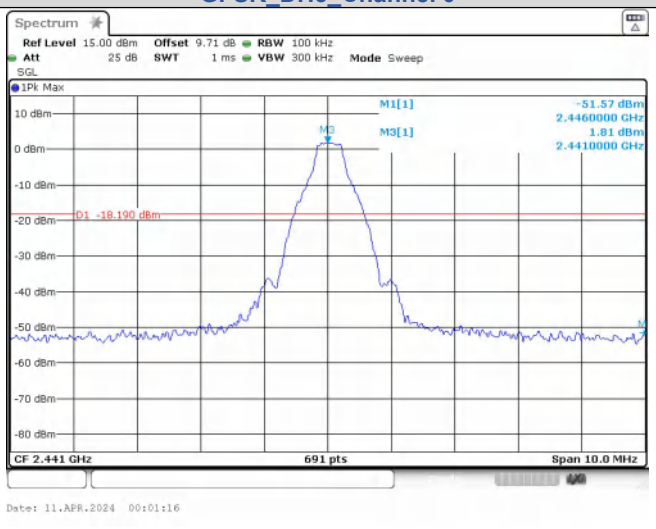
Out Of Band Emission
π/4DQPSK_2-DH5_Channel 0



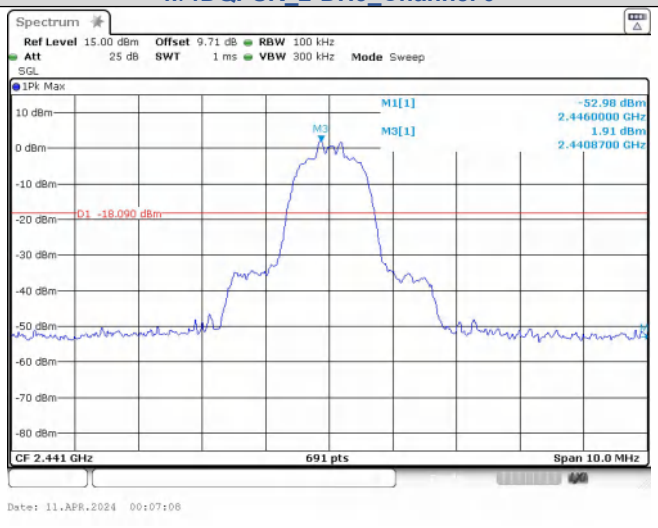
Spurious Emission
GFSK_DH5_Channel 0



Spurious Emission
π/4DQPSK_2-DH5_Channel 0

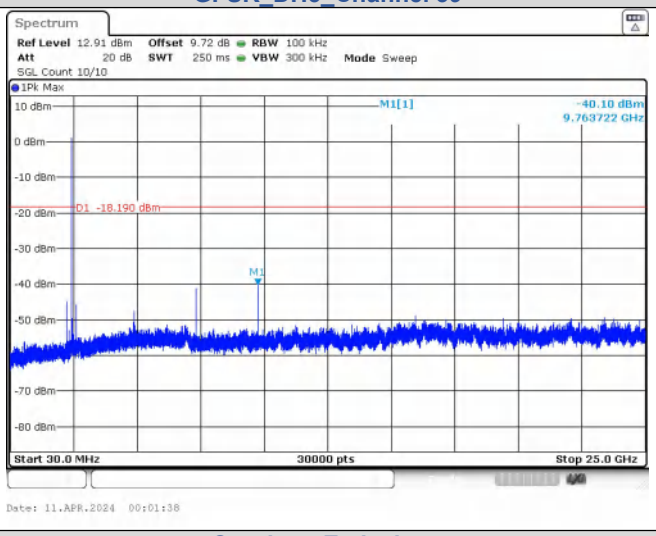


Out Of Band Emission

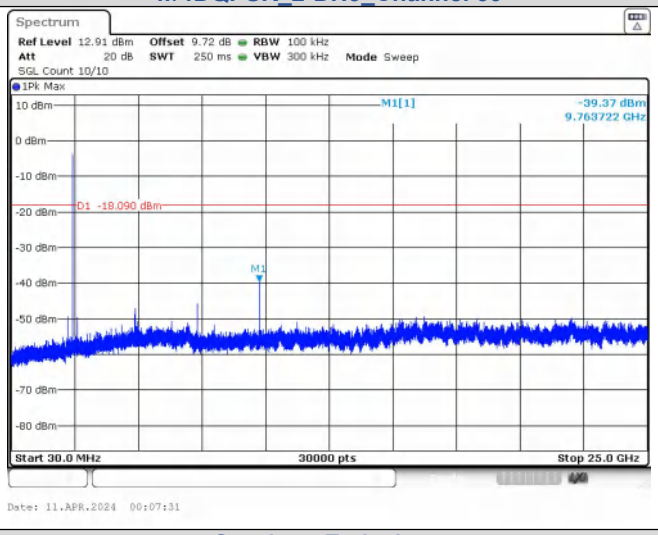


Out Of Band Emission

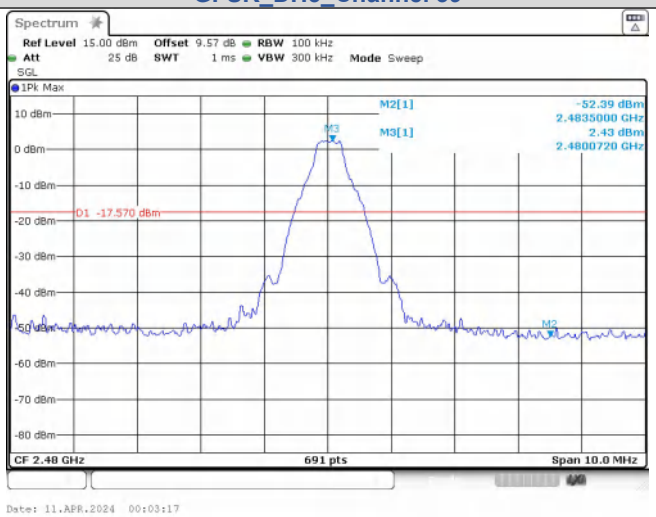
GFSK_DH5_Channel 39



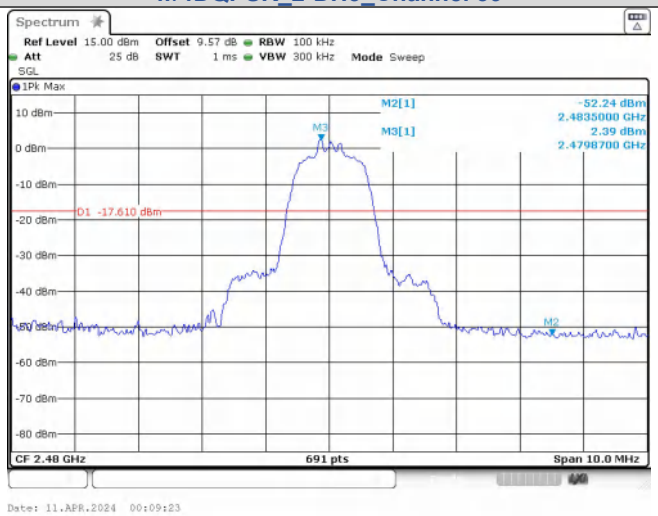
π/4DQPSK_2-DH5_Channel 39



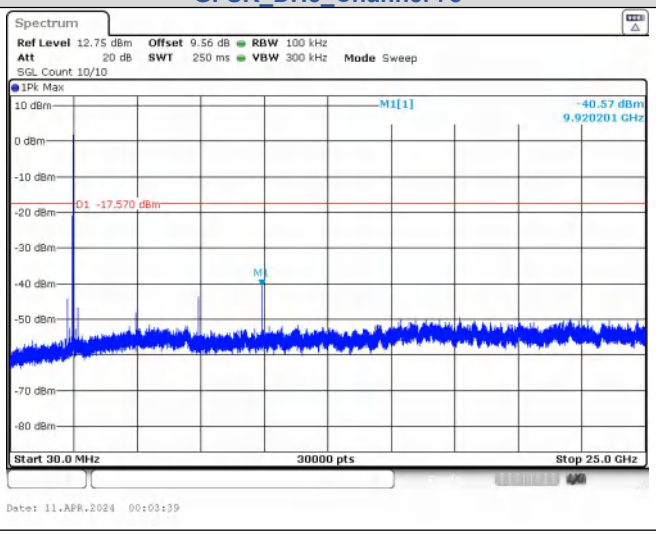
Spurious Emissions GFSK_DH5_Channel 39



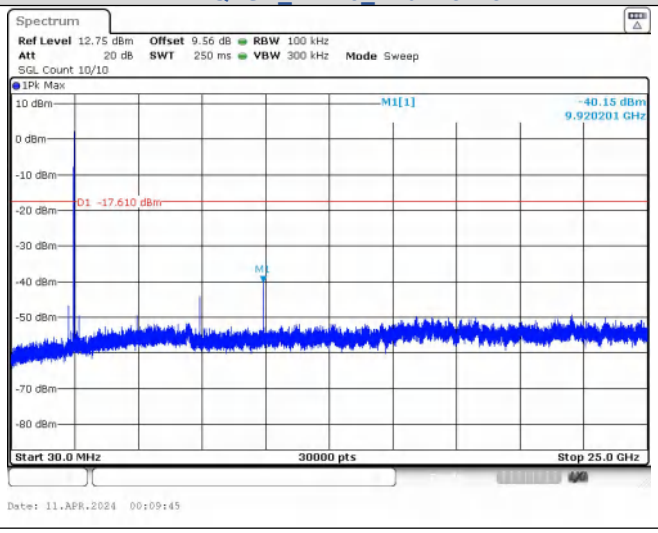
Spurious Emissions π/4DQPSK_2-DH5_Channel 39

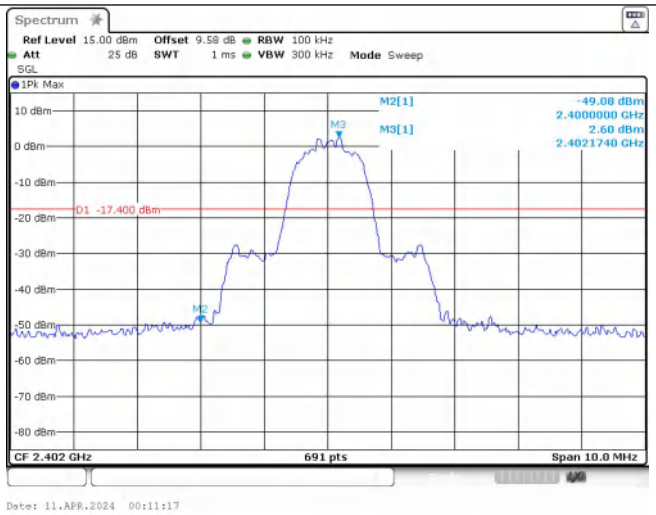
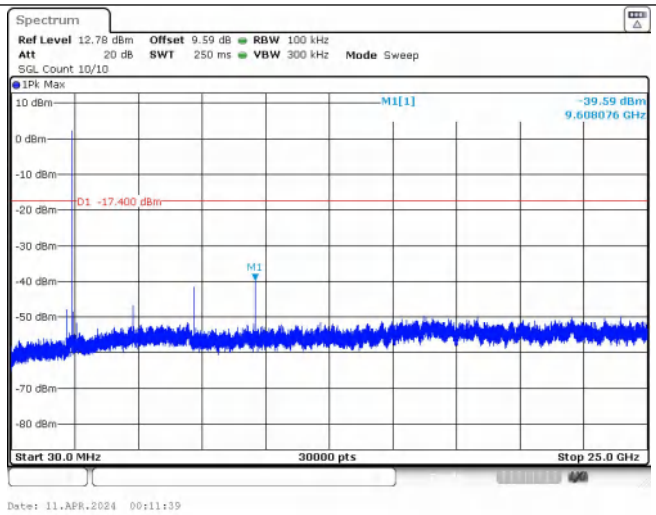
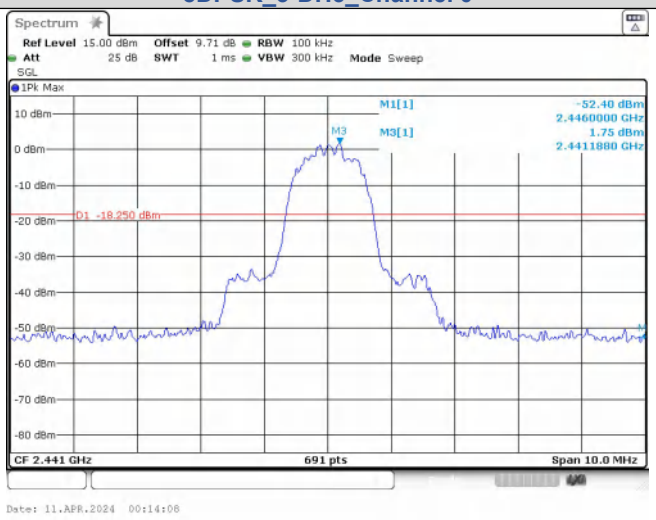
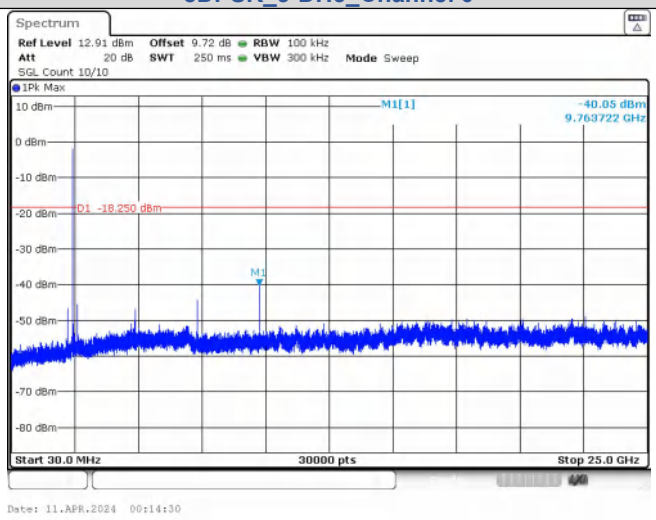


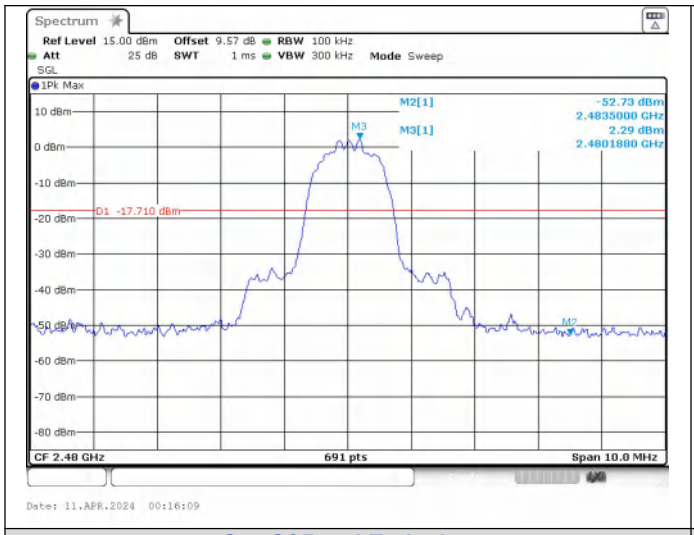
Out Of Band Emission GFSK_DH5_Channel 78



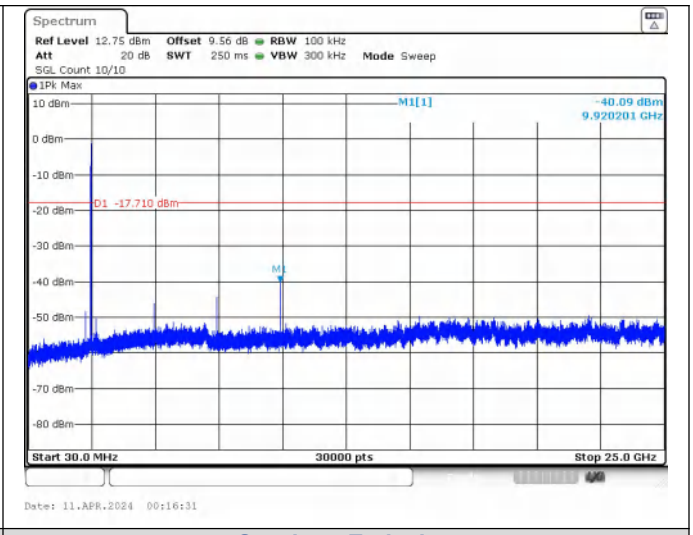
Out Of Band Emission π/4DQPSK_2-DH5_Channel 78



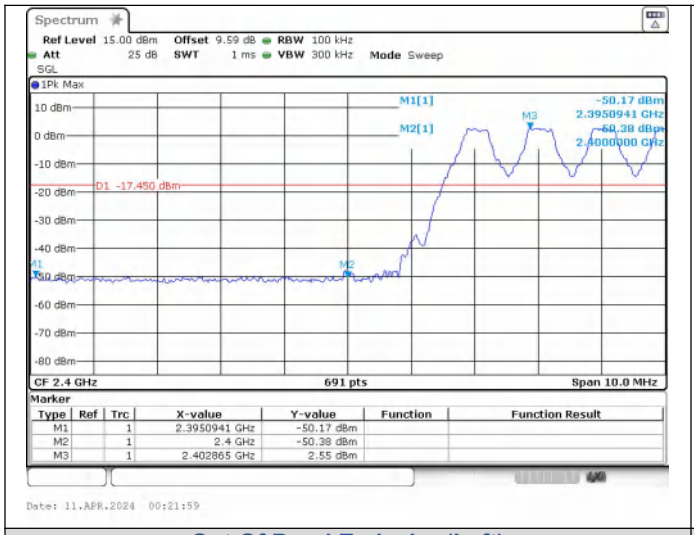
Spurious Emission GFSK_DH5_Channel 78	Spurious Emission π/4DQPSK_2-DH5_Channel 78
	
Out Of Band Emission 8DPSK_3-DH5_Channel 0	**Spurious Emission 8DPSK_3-DH5_Channel 0**
	
Out Of Band Emission 8DPSK_3-DH5_Channel 39	**Spurious Emissions 8DPSK_3-DH5_Channel 39**



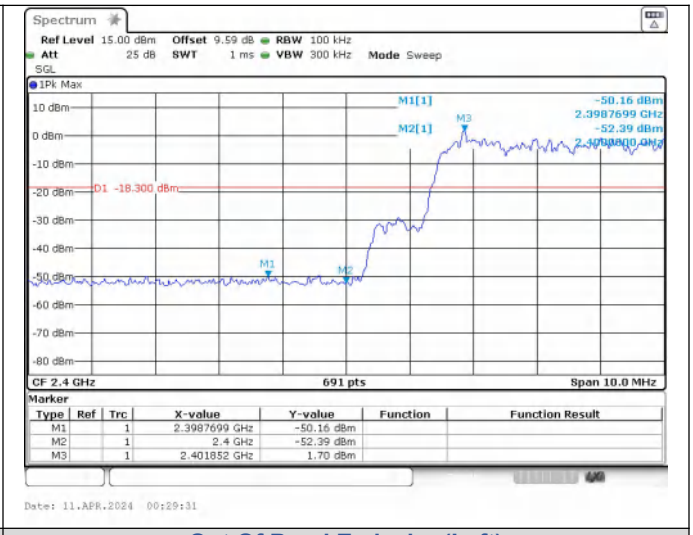
Out Of Band Emission
8DPSK_3-DH5_Channel 78



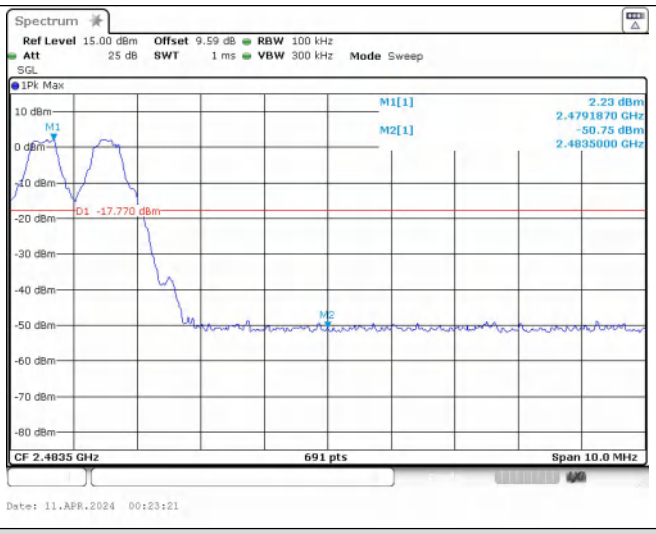
Spurious Emission
8DPSK_3-DH5_Channel 78



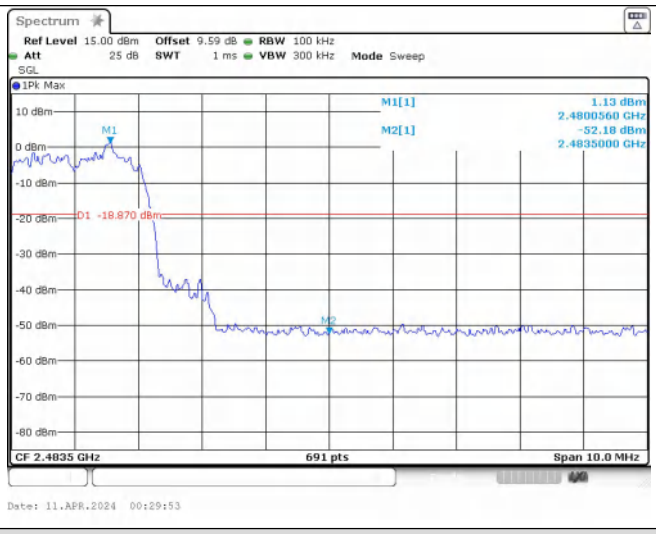
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



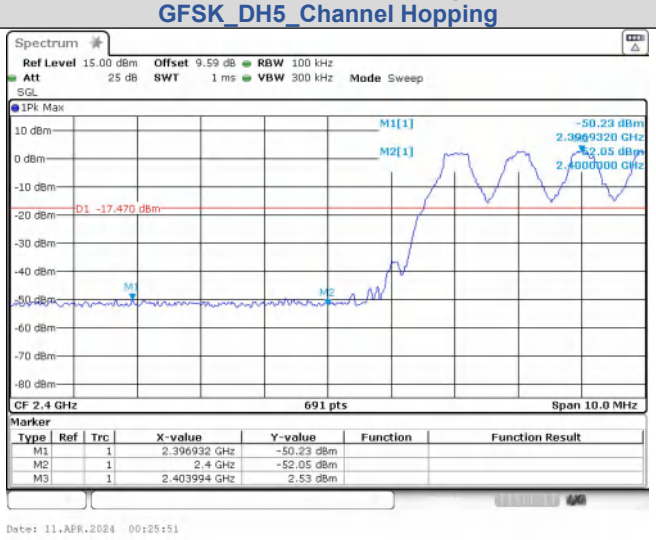
Out Of Band Emission(Left)
π/4DQPSK_2-DH5_Channel Hopping



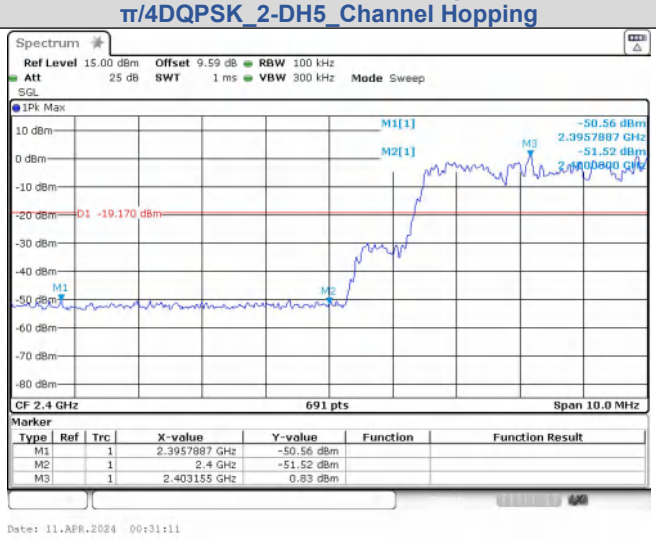
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



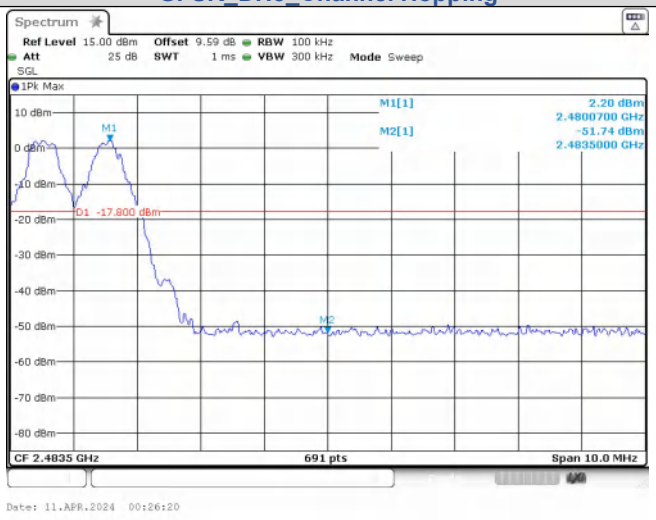
Out Of Band Emission(Right)
π/4DQPSK_2-DH5_Channel Hopping



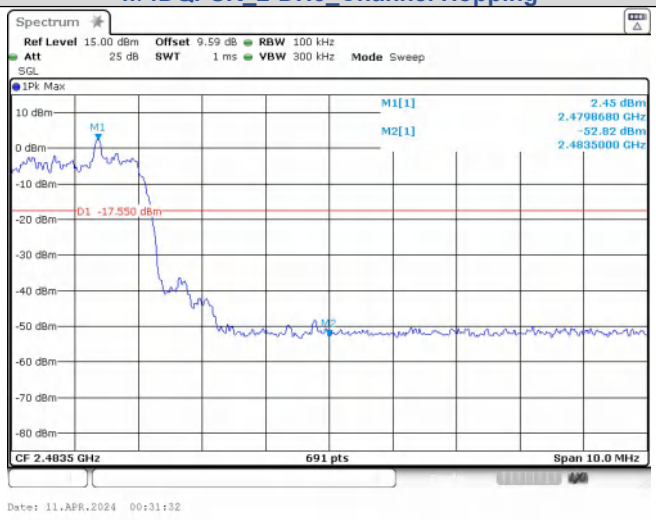
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



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

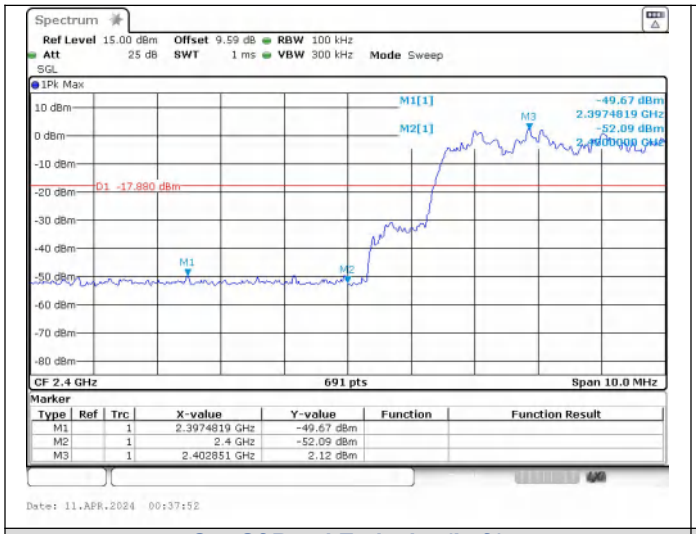


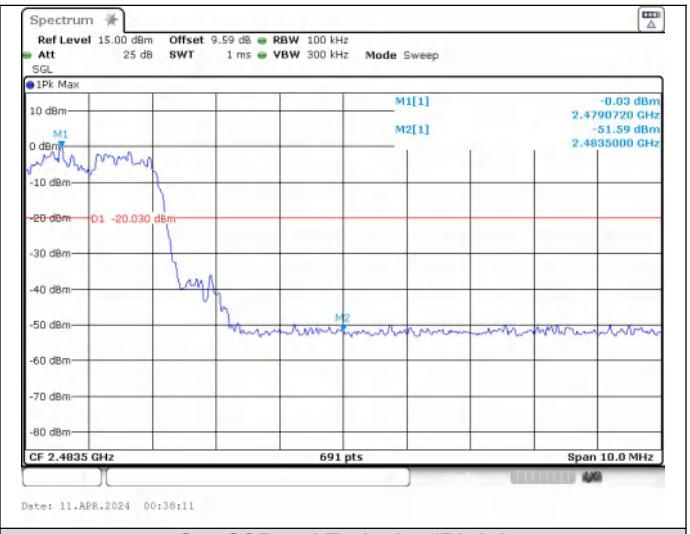
Out Of Band Emission(Right)



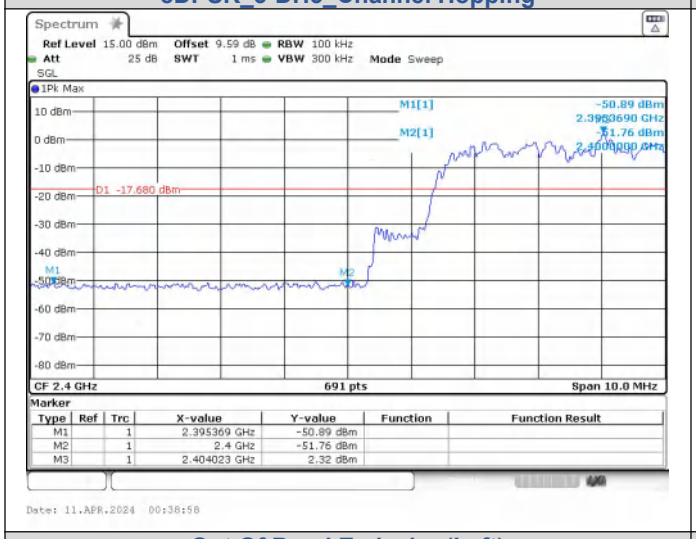
Out Of Band Emission(Right)

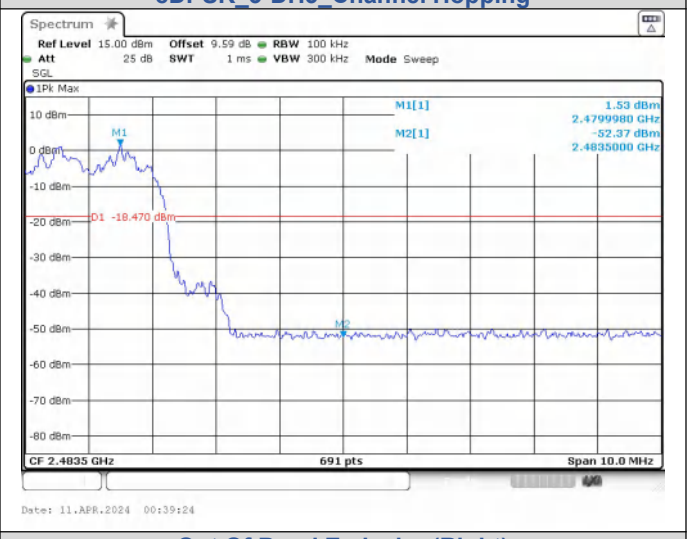
GFSK_DH5_Channel Hopping	π/4DQPSK_2-DH5_Channel Hopping





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

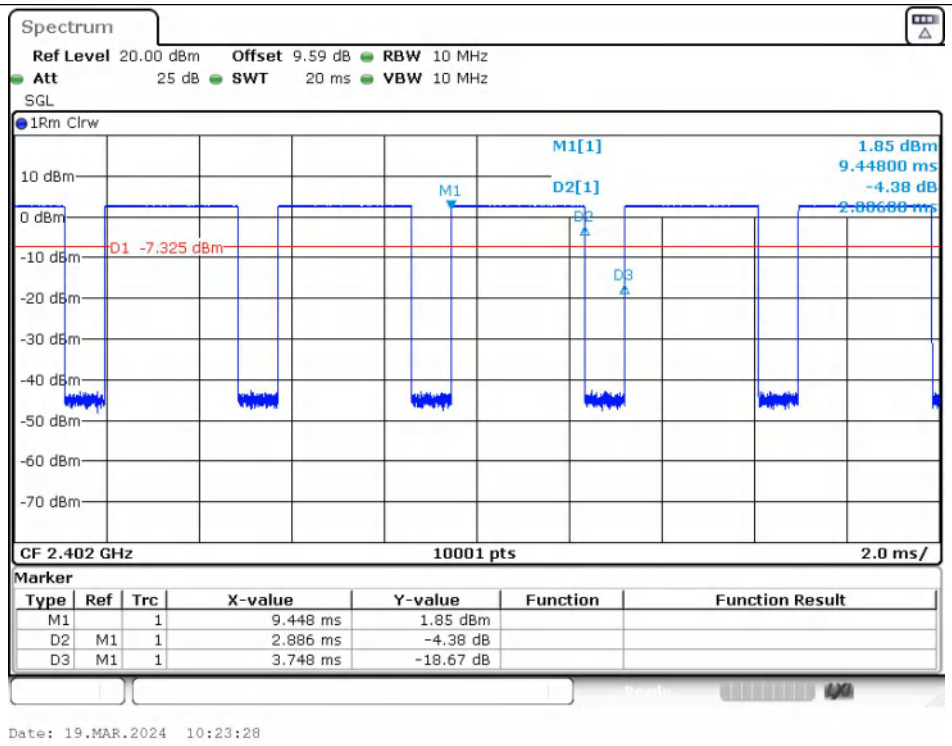
Duty Cycle

Test Result

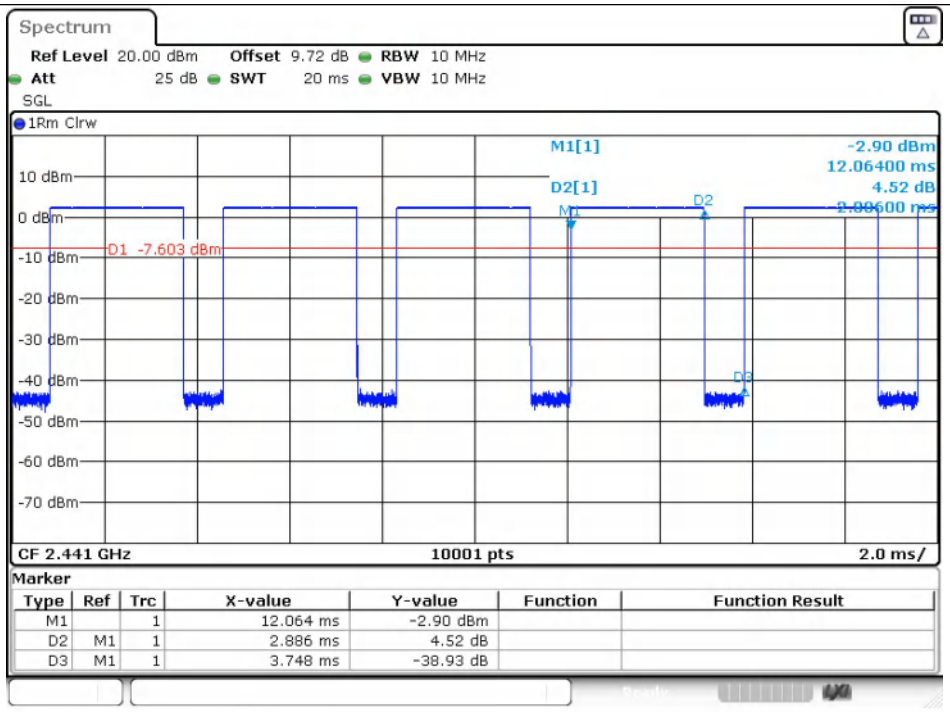
Left

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	2.892	3.748	77.16	0.7716	1.1261	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	2.892	3.748	77.16	0.7716	1.1261	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

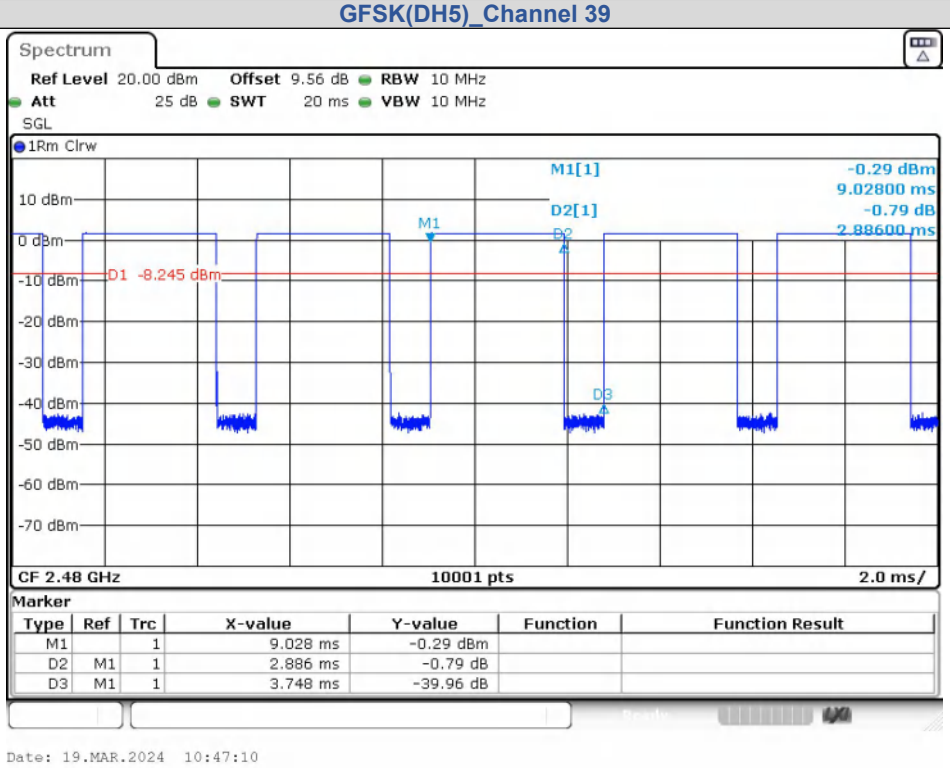
Test Graphs



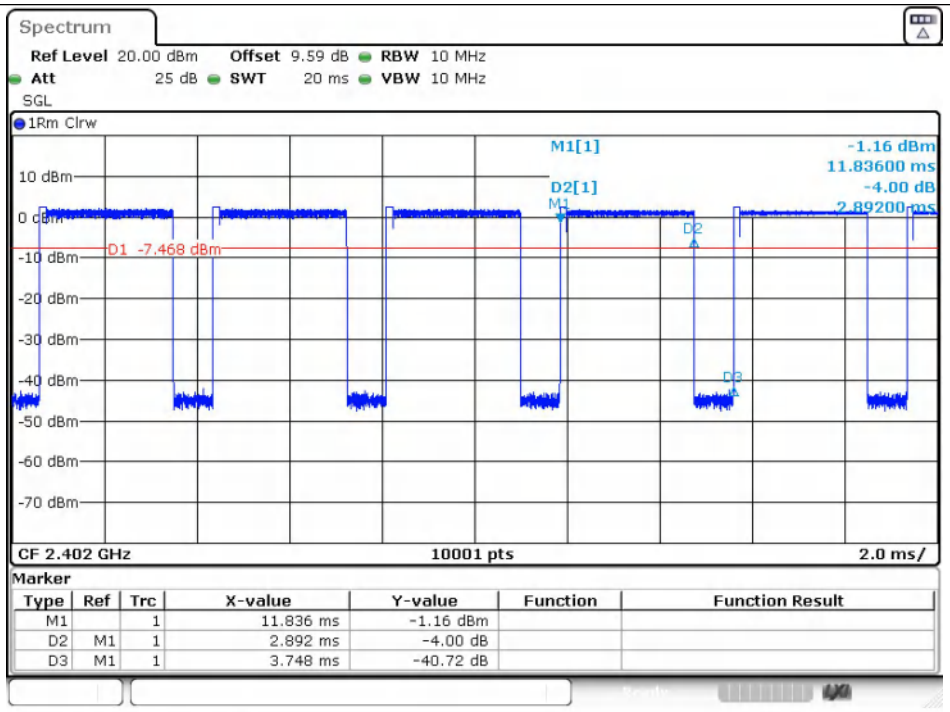
GFSK(DH5)_Channel 0



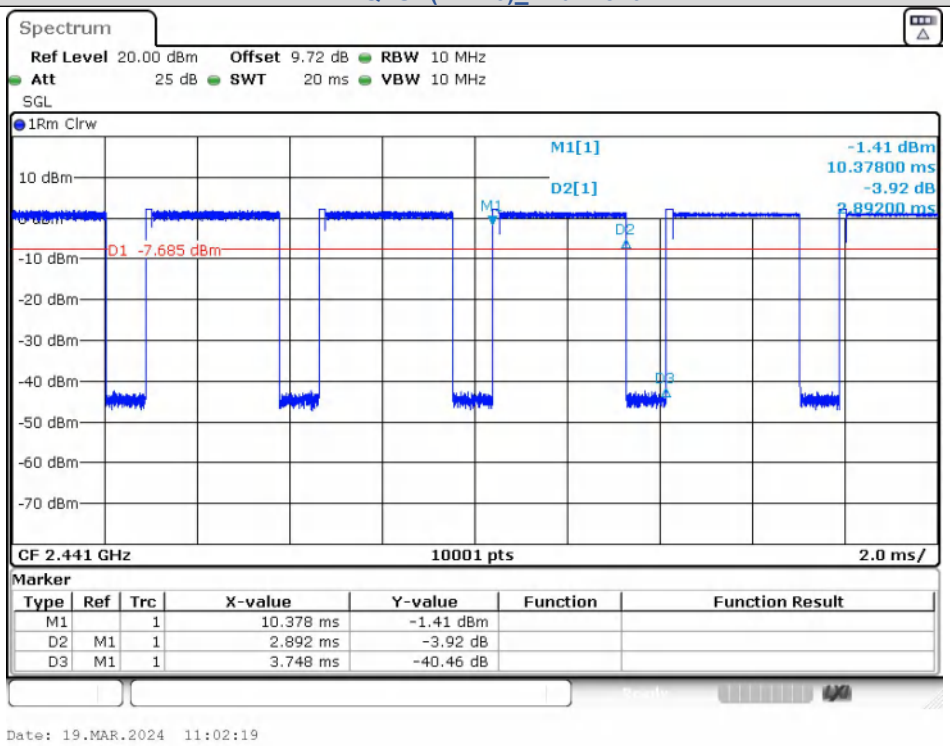
GFSK(DH5)_Channel 39



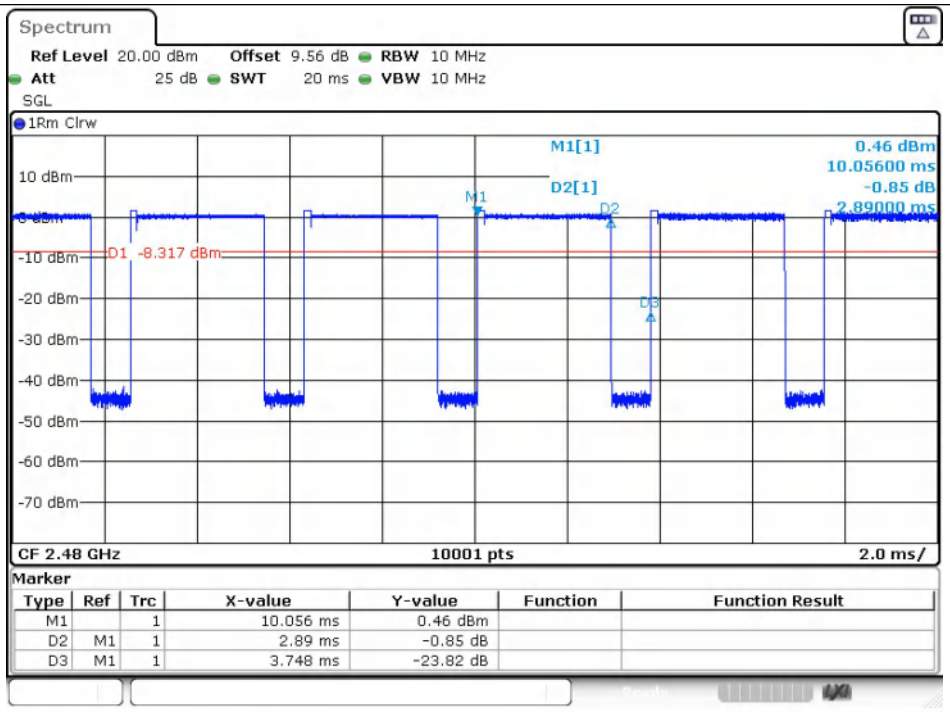
GFSK(DH5)_Channel 78



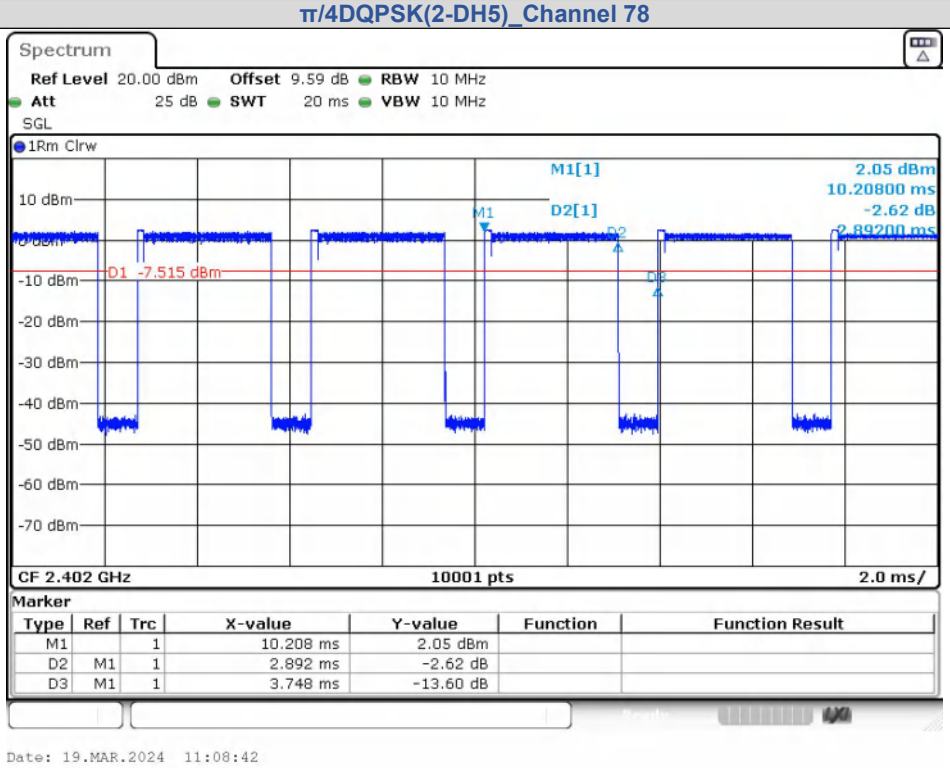
π/4DQPSK(2-DH5)_Channel 0



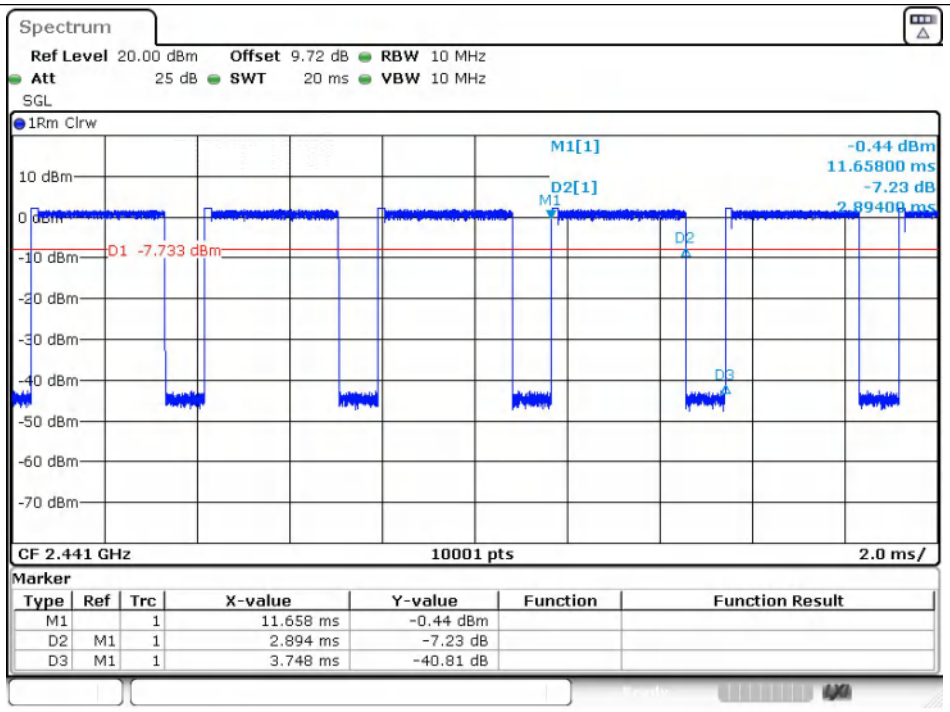
π/4DQPSK(2-DH5)_Channel 39



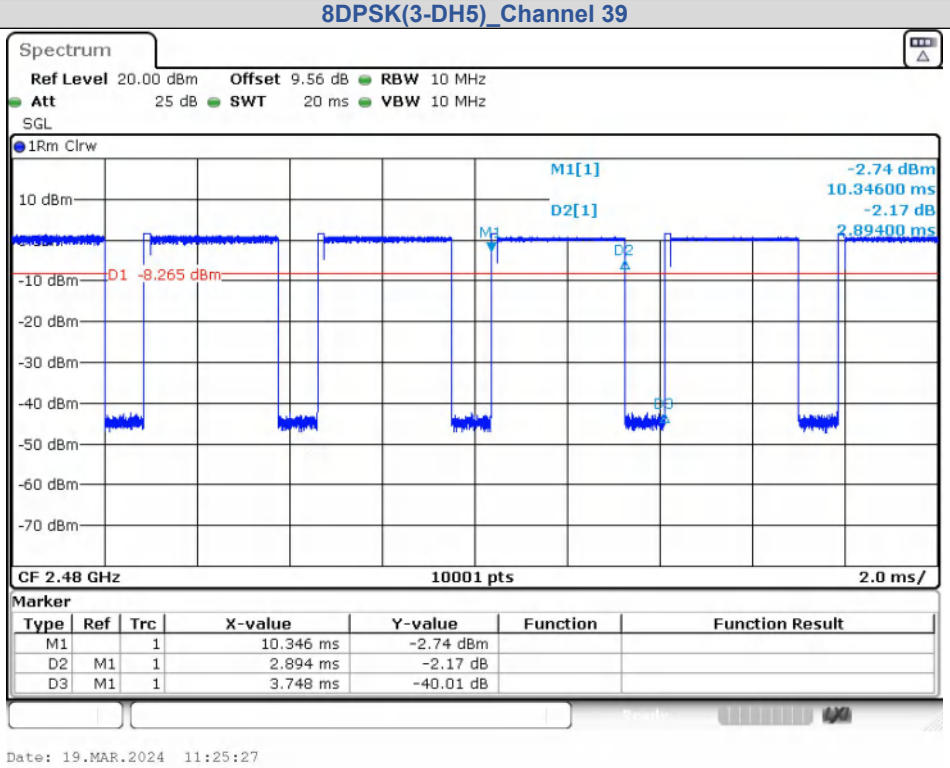
π/4DQPSK(2-DH5)_Channel 78



8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39

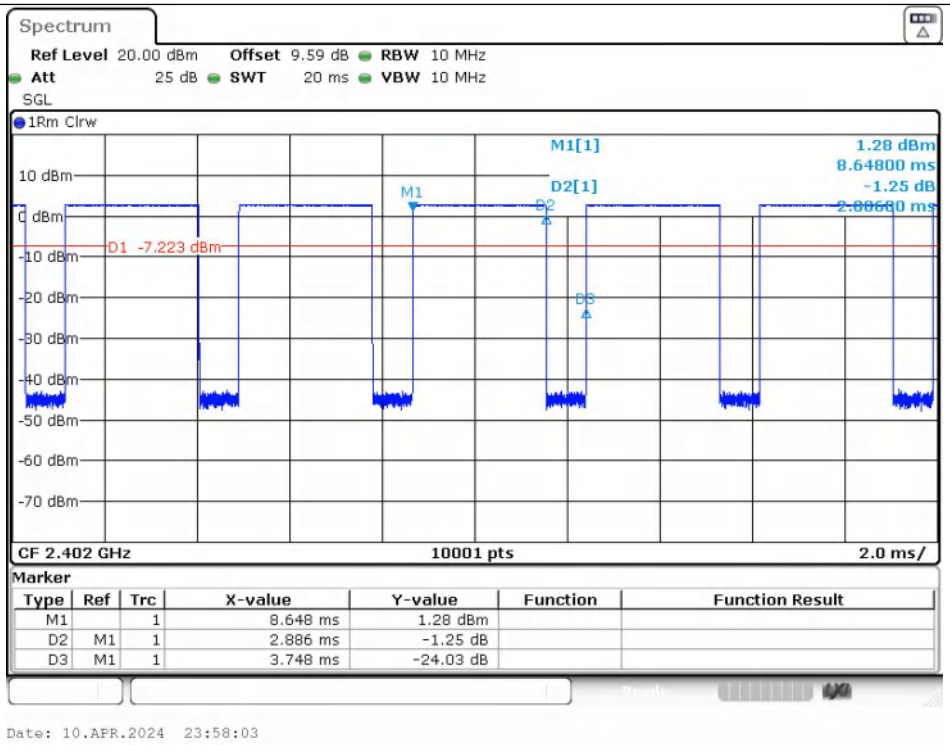


8DPSK(3-DH5)_Channel 78

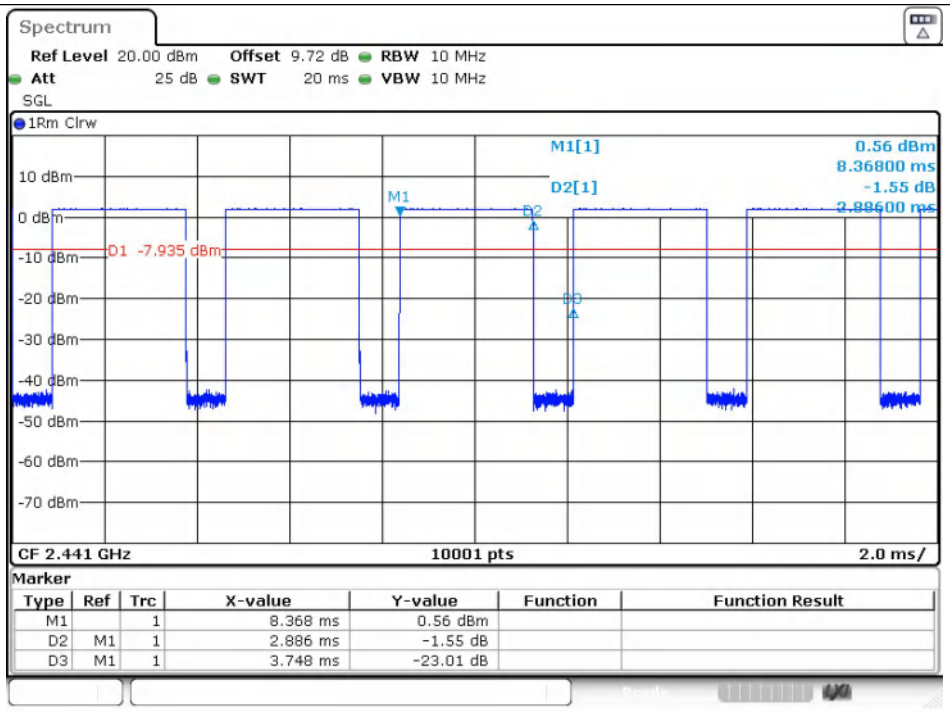
Right

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	2.892	3.748	77.16	0.7716	1.1261	0.35
		39	2.890	3.748	77.11	0.7711	1.1289	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

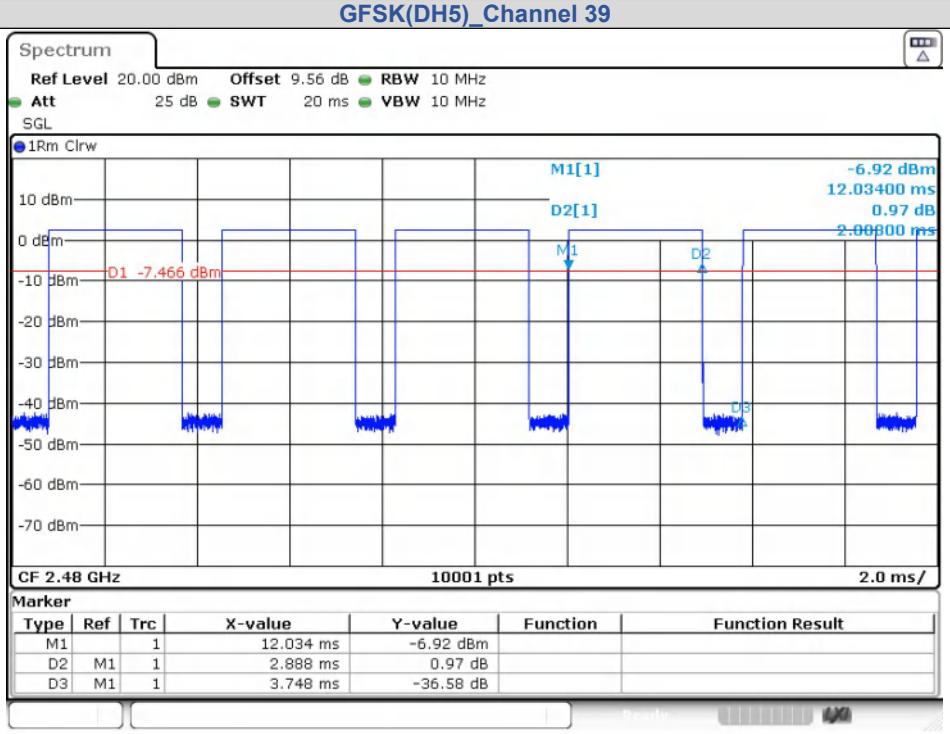
Test Graphs



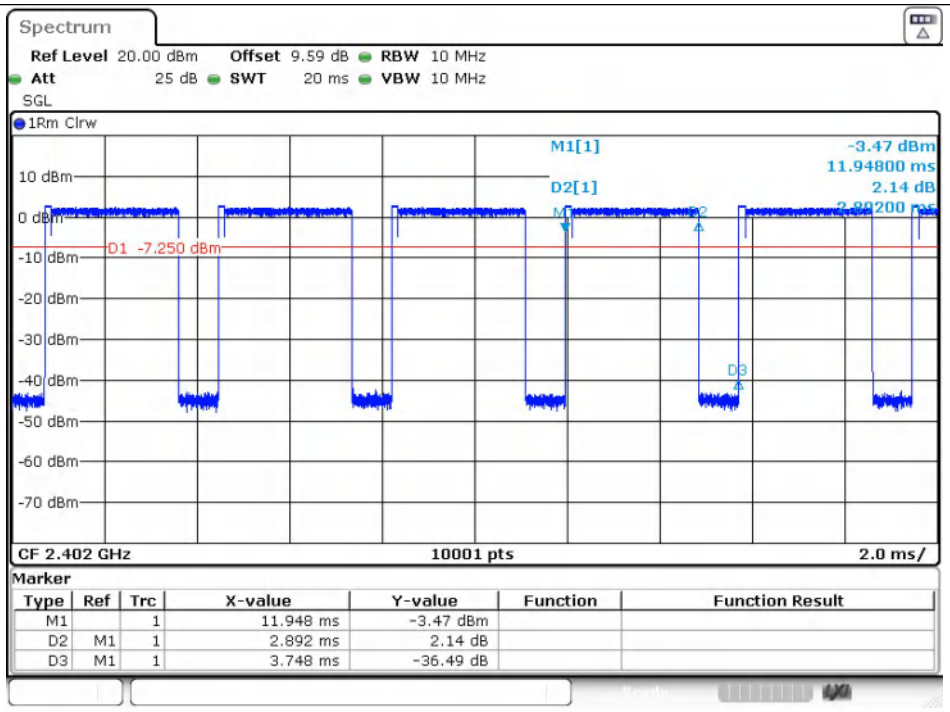
GFSK(DH5)_Channel 0



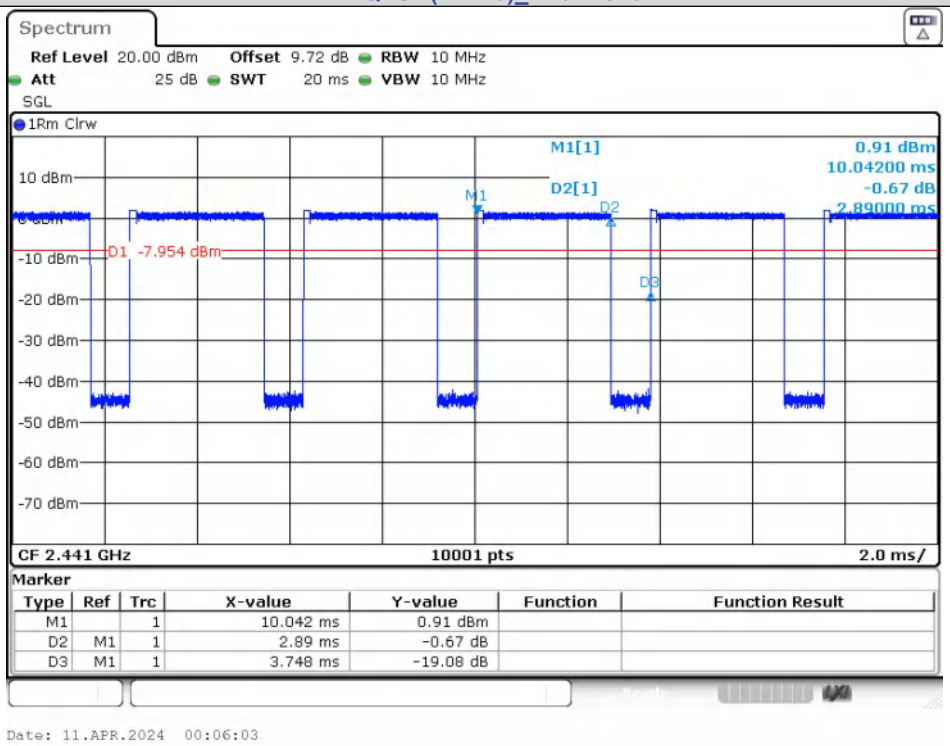
GFSK(DH5)_Channel 39



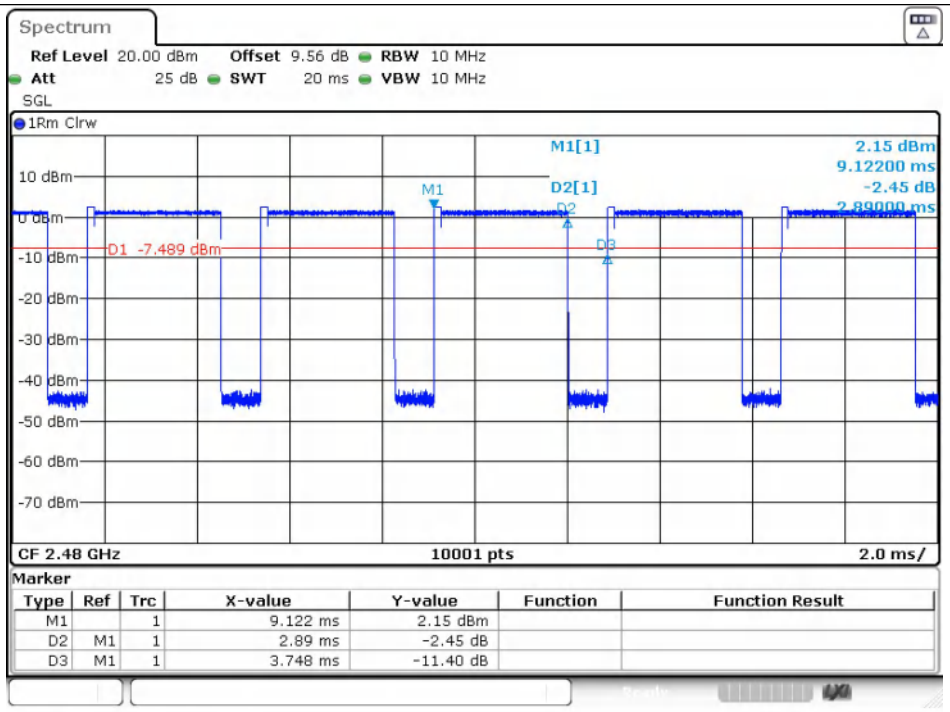
GFSK(DH5)_Channel 78



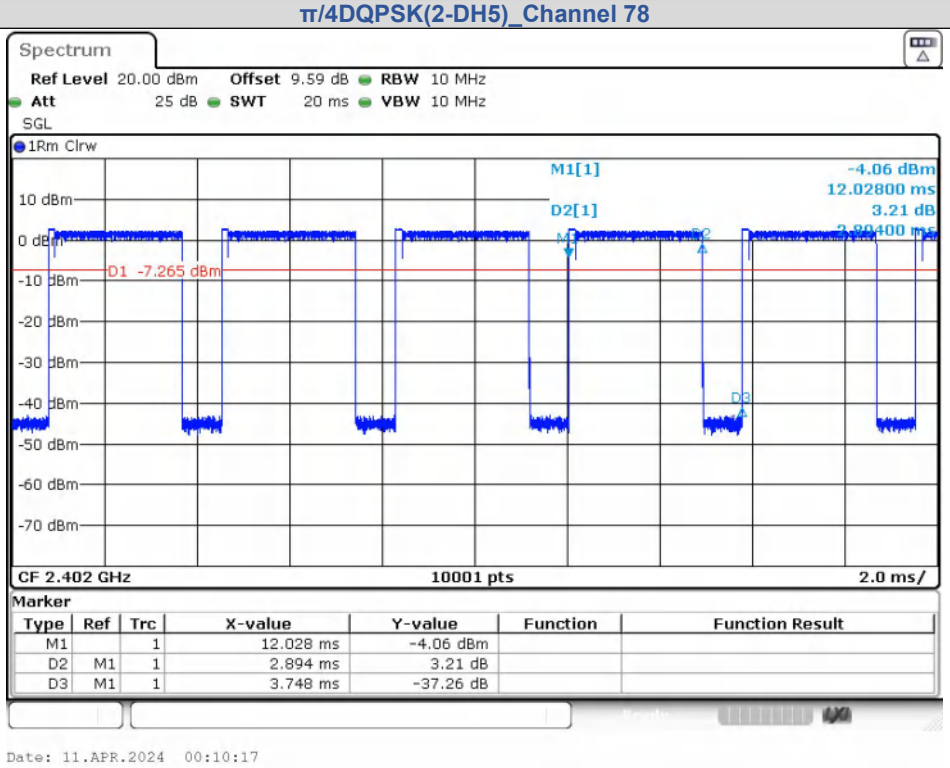
π/4DQPSK(2-DH5)_Channel 0



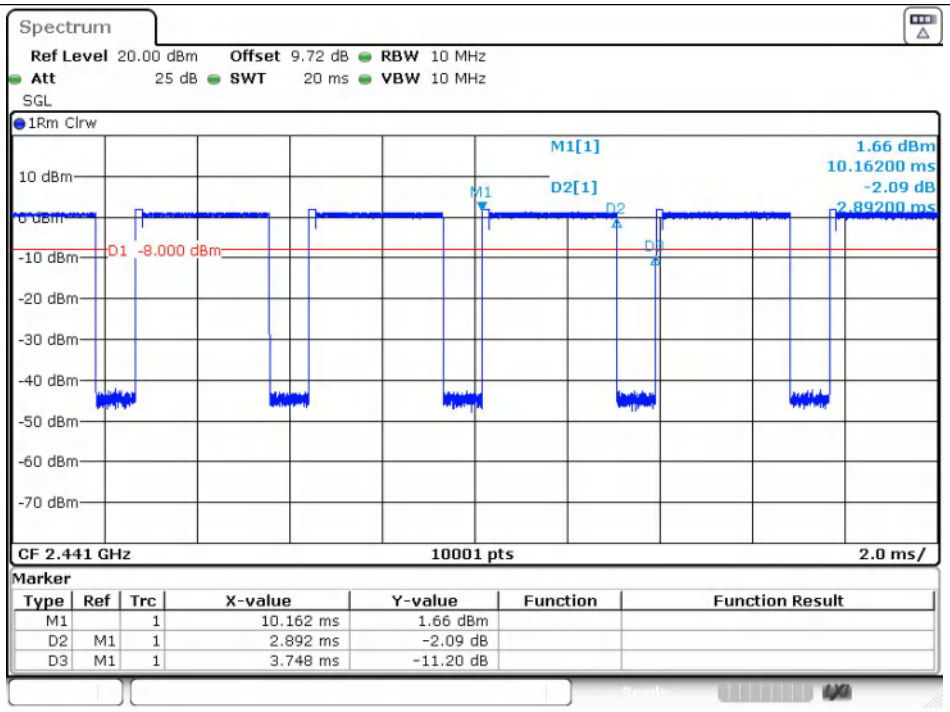
π/4DQPSK(2-DH5)_Channel 39



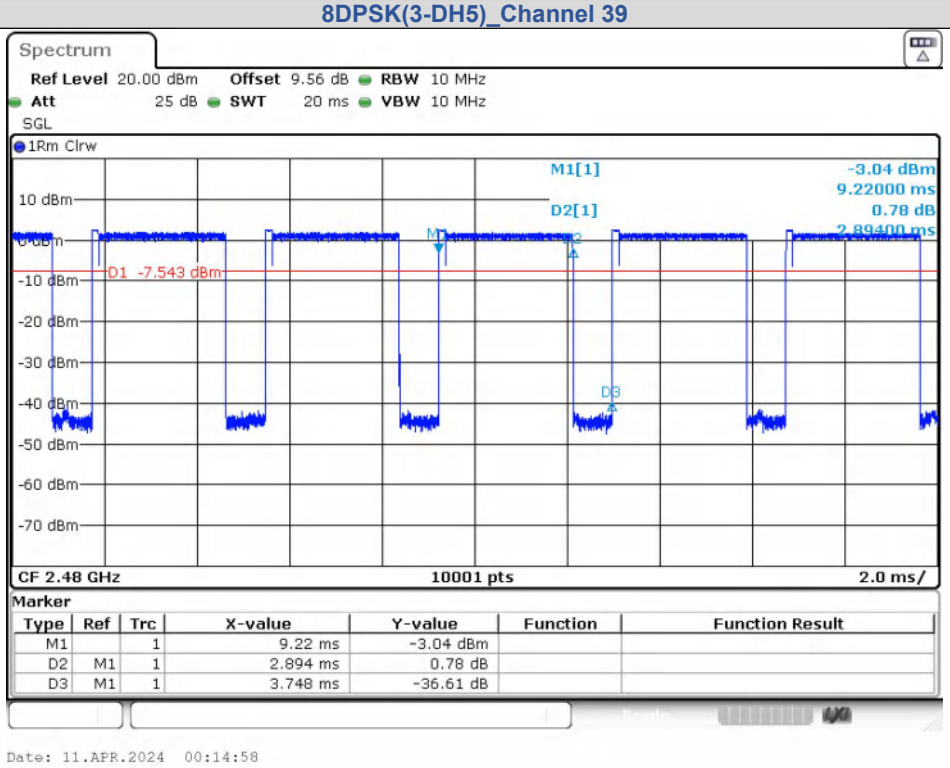
π/4DQPSK(2-DH5)_Channel 78



8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39



8DPSK(3-DH5)_Channel 78

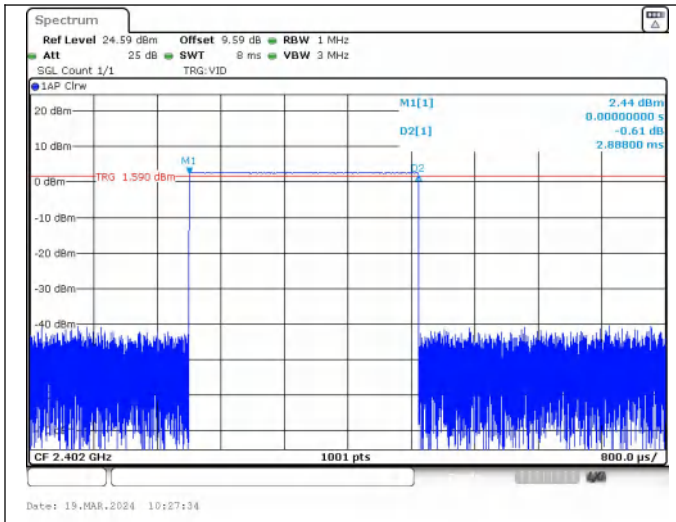
Dwell Time

Test Result

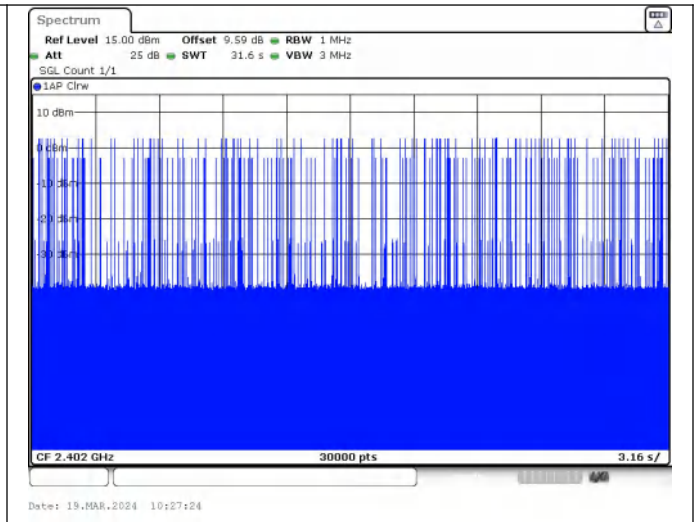
Left

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	101	291.69	< 400	PASS
π/4DQPSK	2-DH5		2.896	97	280.91		PASS
8DPSK	3-DH5		2.896	97	280.91		PASS

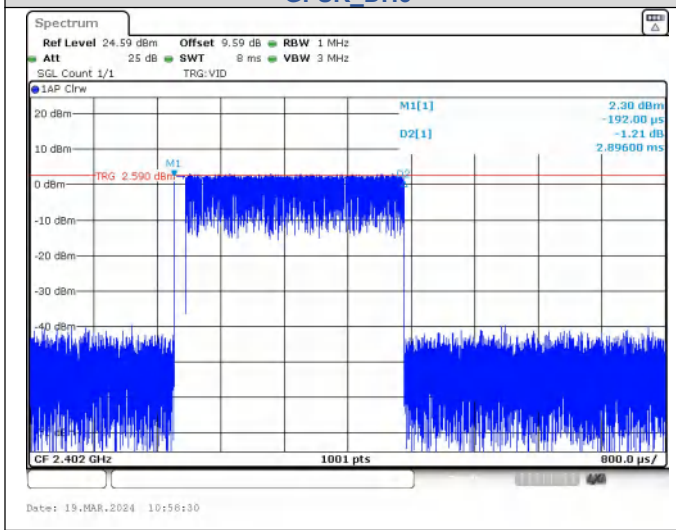
Test Graphs



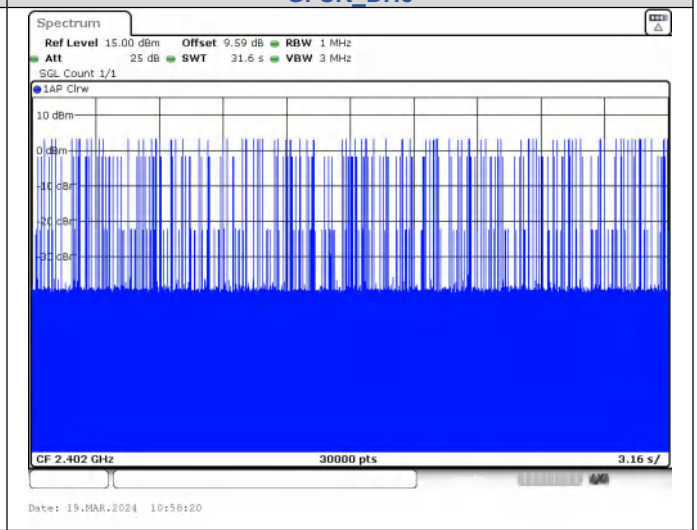
Pulse Width
GFSK_DH5



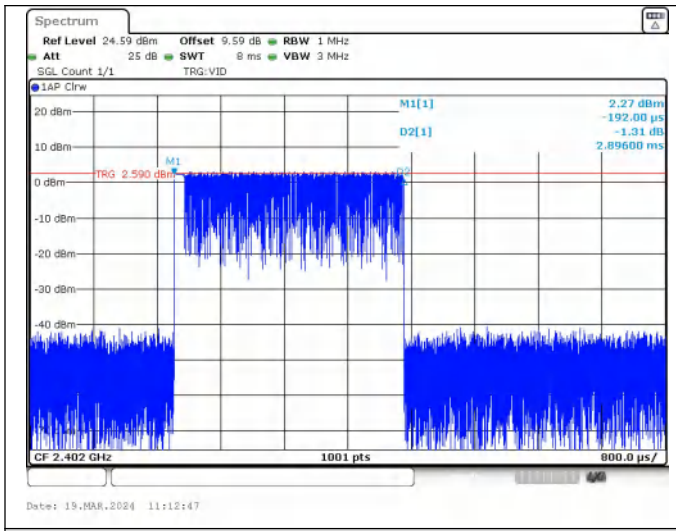
Number of Pulses in 31.6 seconds
GFSK_DH5



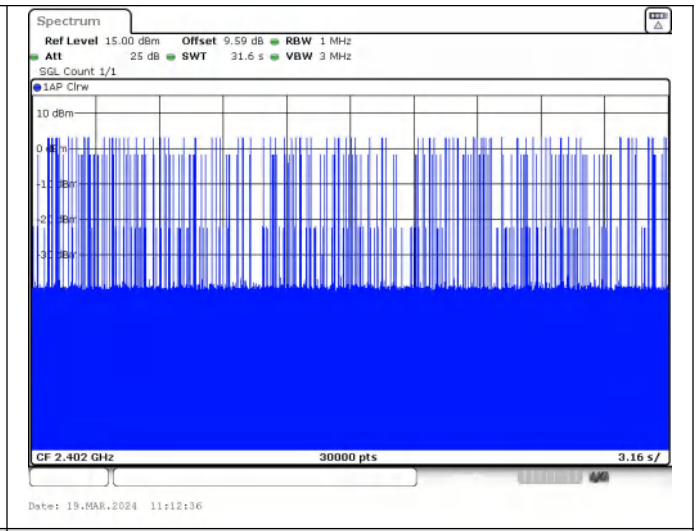
Pulse Width
π/4DQPSK_2-DH5



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



Pulse Width
8DPSK_3-DH5

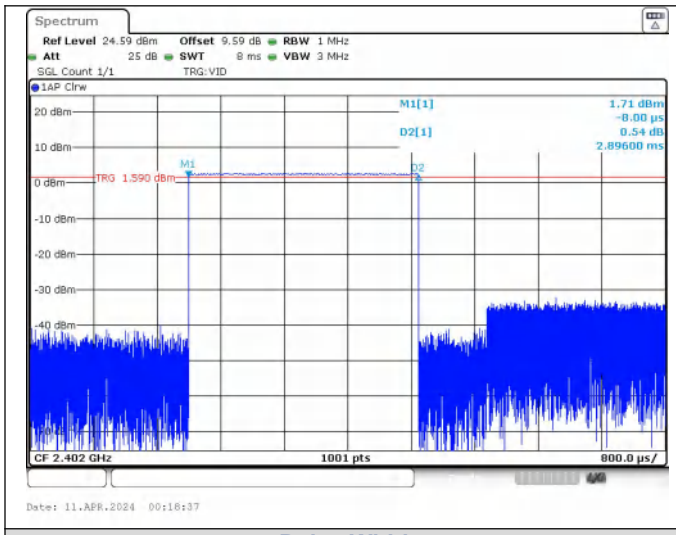


Number of Pulses in 31.6 seconds
8DPSK_3-DH5

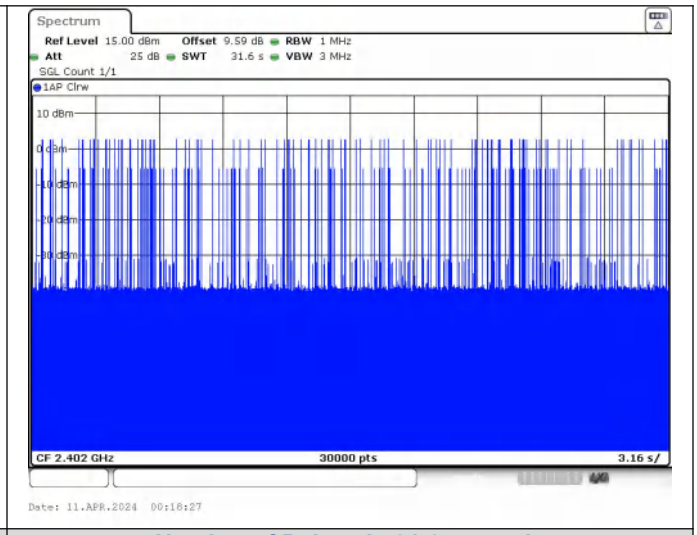
Right

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	108	312.77	< 400	PASS
π/4DQPSK	2-DH5		2.896	103	298.29		PASS
8DPSK	3-DH5		2.896	102	295.39		PASS

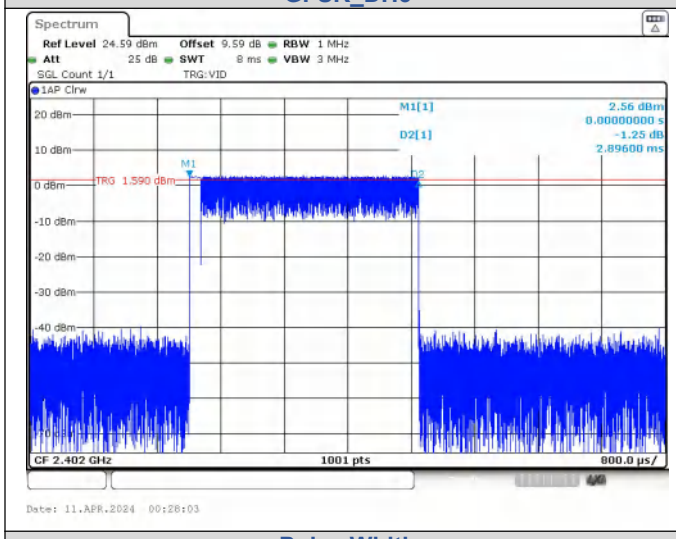
Test Graphs



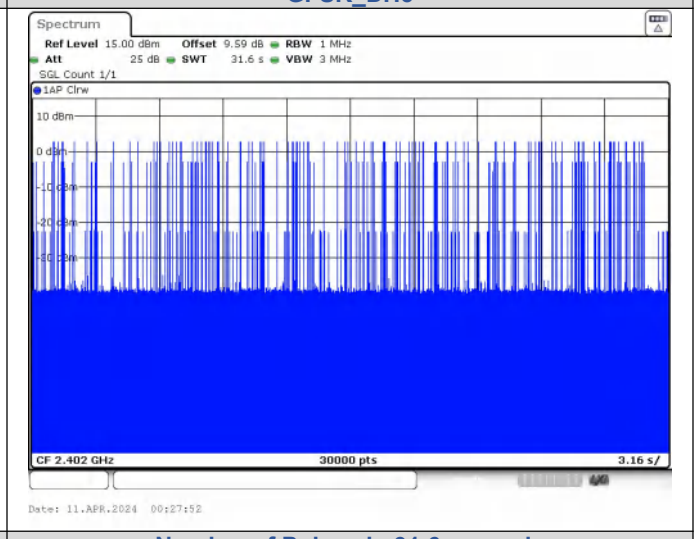
Pulse Width
GFSK_DH5



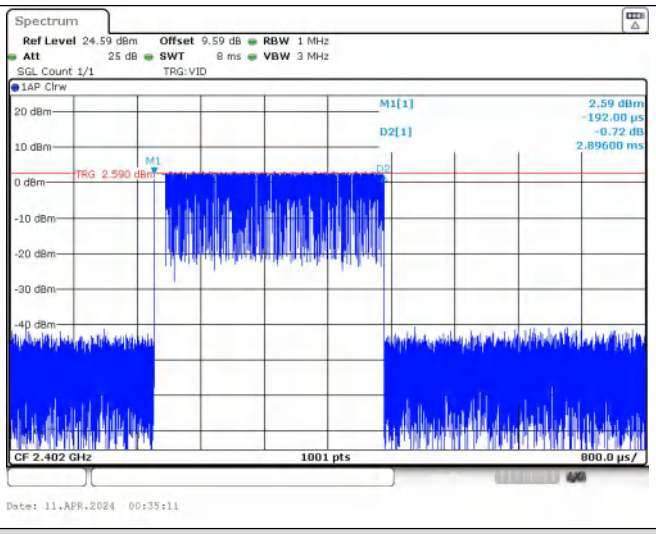
Number of Pulses in 31.6 seconds
GFSK_DH5



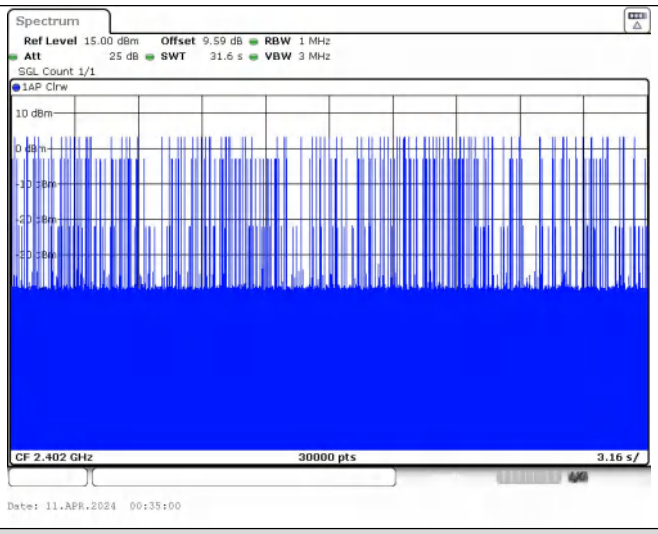
Pulse Width
π/4DQPSK_2-DH5



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



Pulse Width
8DPSK_3-DH5



Number of Pulses in 31.6 seconds
8DPSK_3-DH5

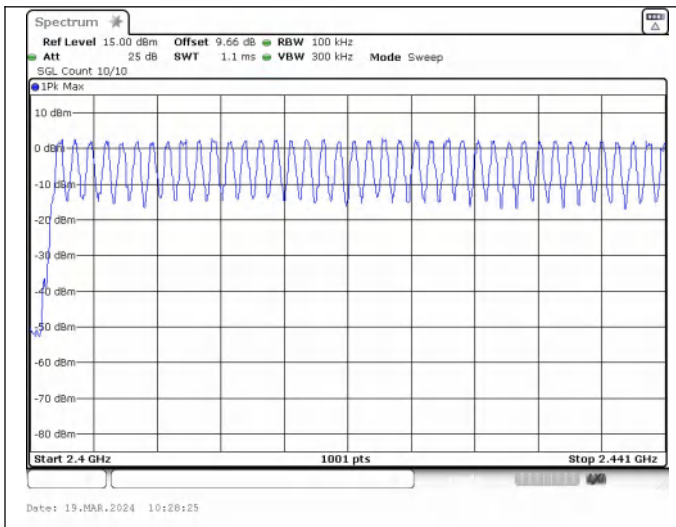
Number Of Hopping Channel

Test Result

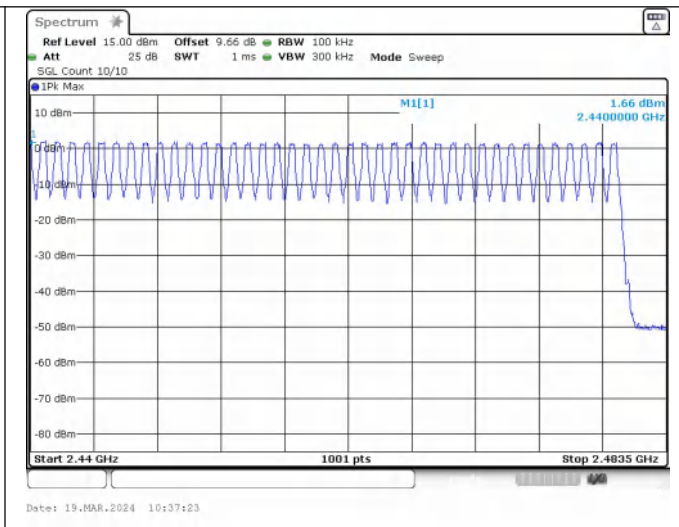
Left

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

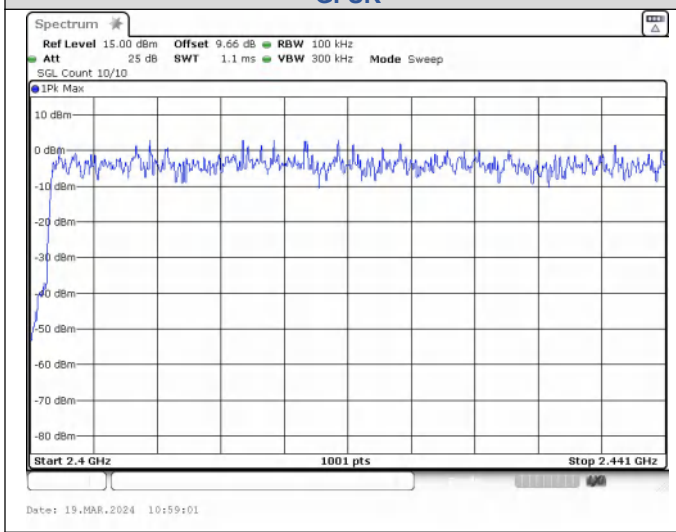
Test Graphs



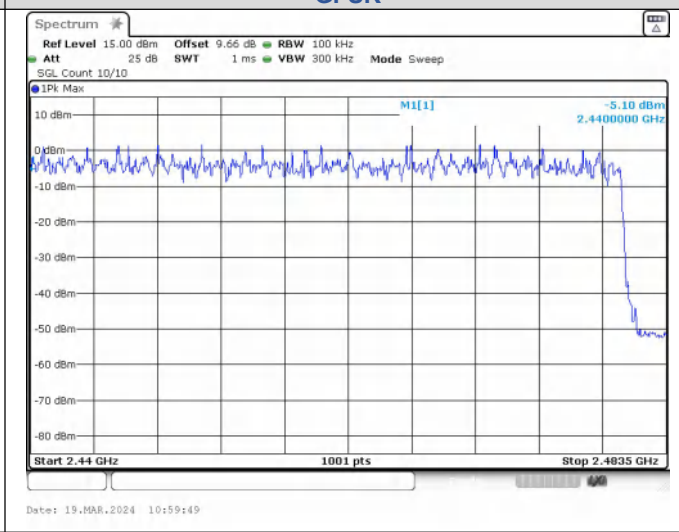
Low End Spectrum Channel Hopping Plot
GFSK



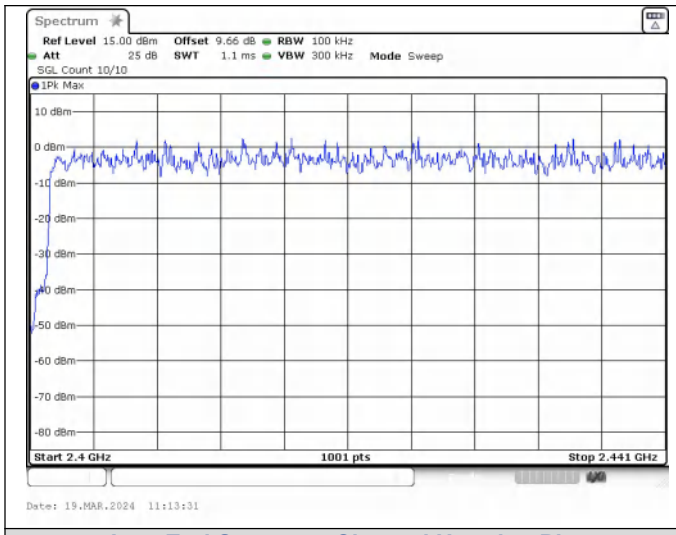
High End Spectrum Channel Hopping Plot
GFSK



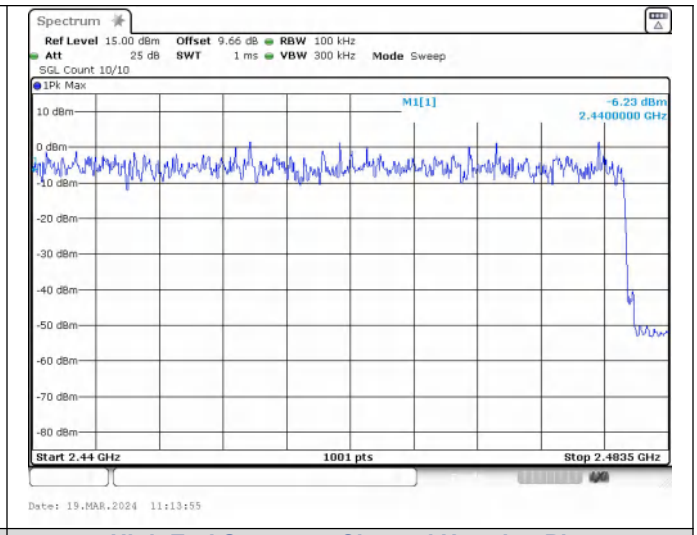
Low End Spectrum Channel Hopping Plot
π/4DQPSK



High End Spectrum Channel Hopping Plot
π/4DQPSK



Low End Spectrum Channel Hopping Plot
8DPSK

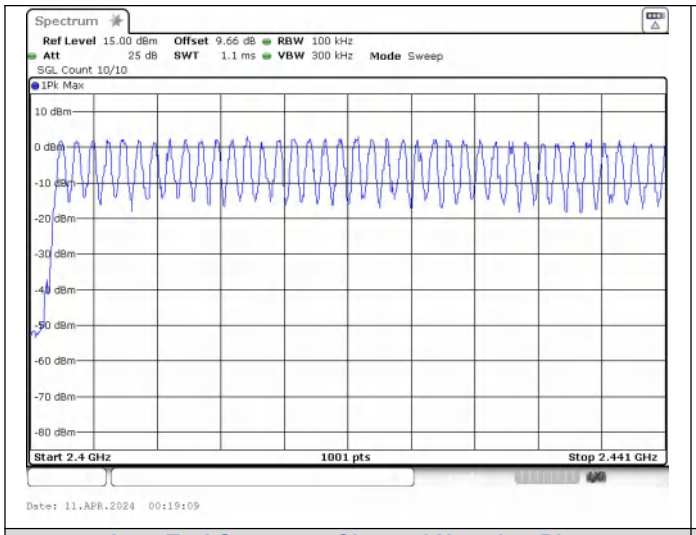


High End Spectrum Channel Hopping Plot
8DPSK

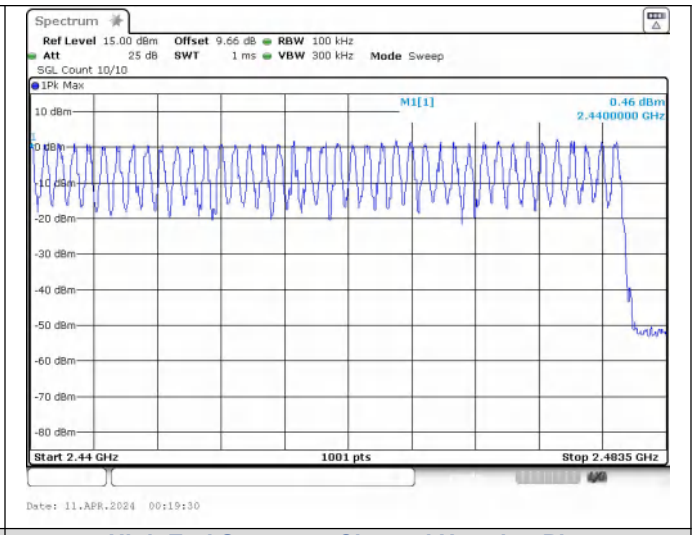
Right

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

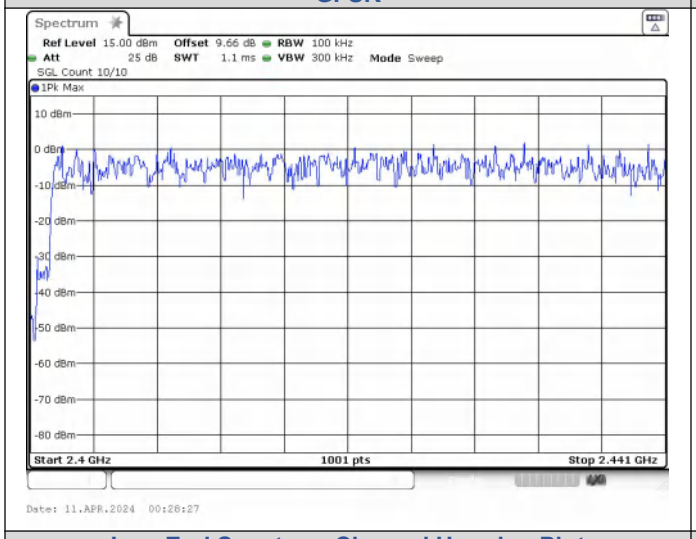
Test Graphs



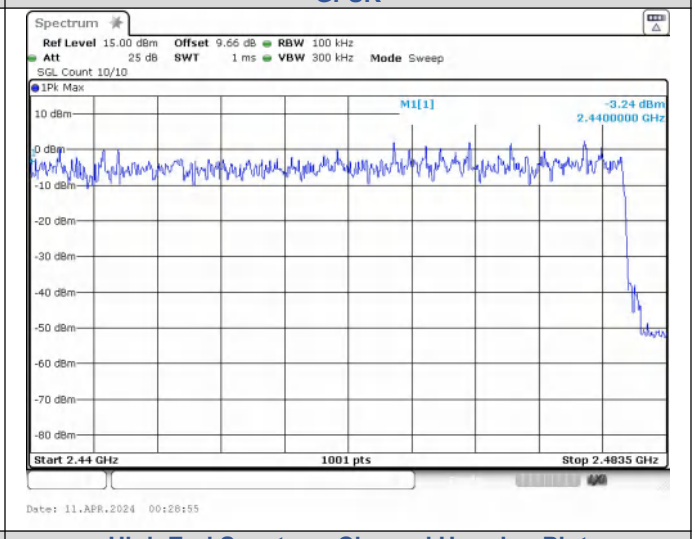
Low End Spectrum Channel Hopping Plot
GFSK



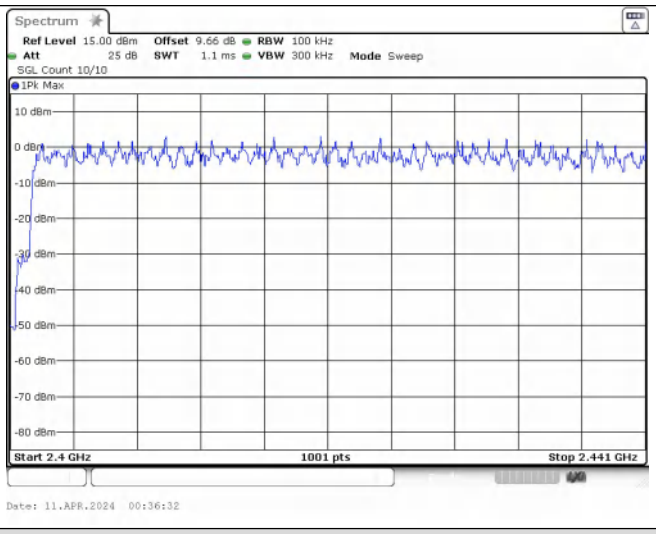
High End Spectrum Channel Hopping Plot
GFSK



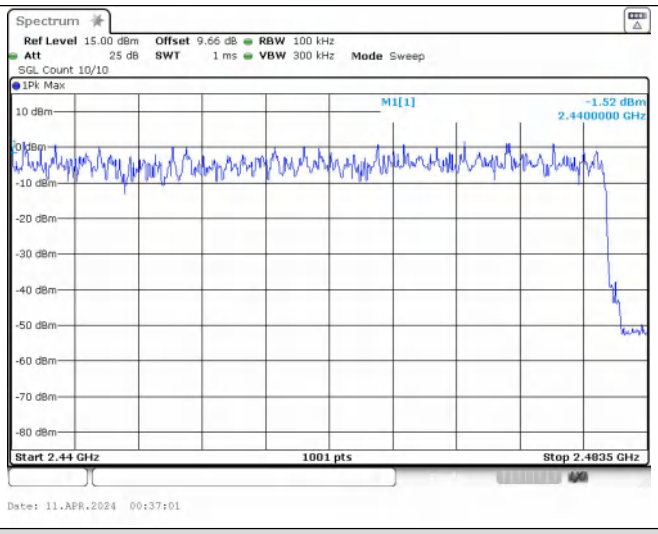
Low End Spectrum Channel Hopping Plot
π/4DQPSK



High End Spectrum Channel Hopping Plot
π/4DQPSK



Low End Spectrum Channel Hopping Plot
8DPSK



High End Spectrum Channel Hopping Plot
8DPSK