Appendix A

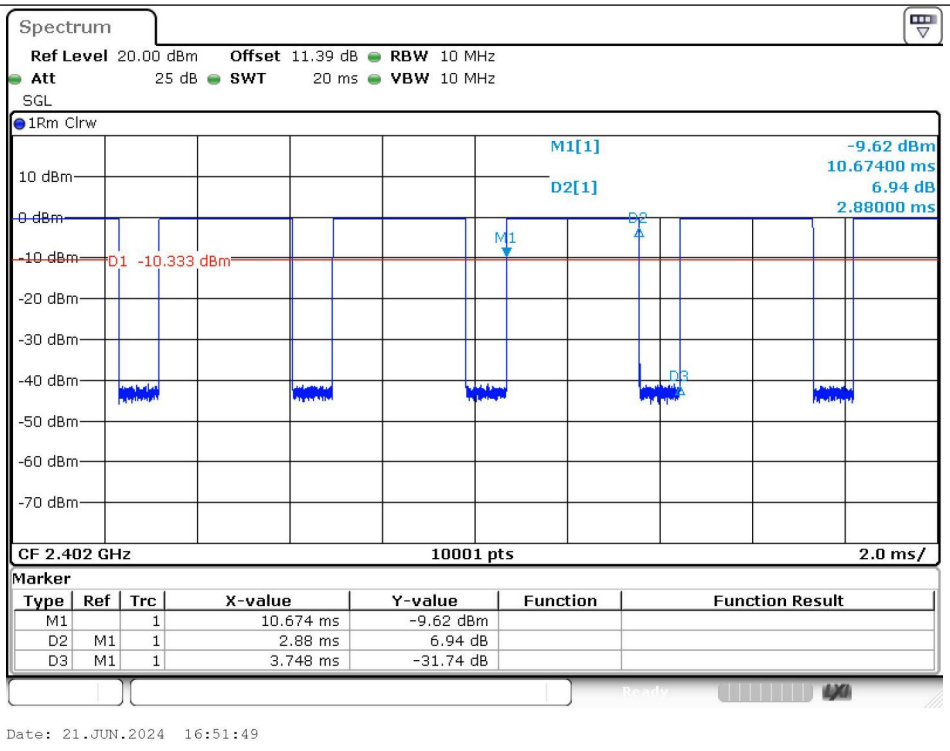
Report No.:	CISRR240611063
FCC ID:	2BGZH-T10
Product Name:	bluetooth speaker
Model No.:	T10
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

Duty Cycle

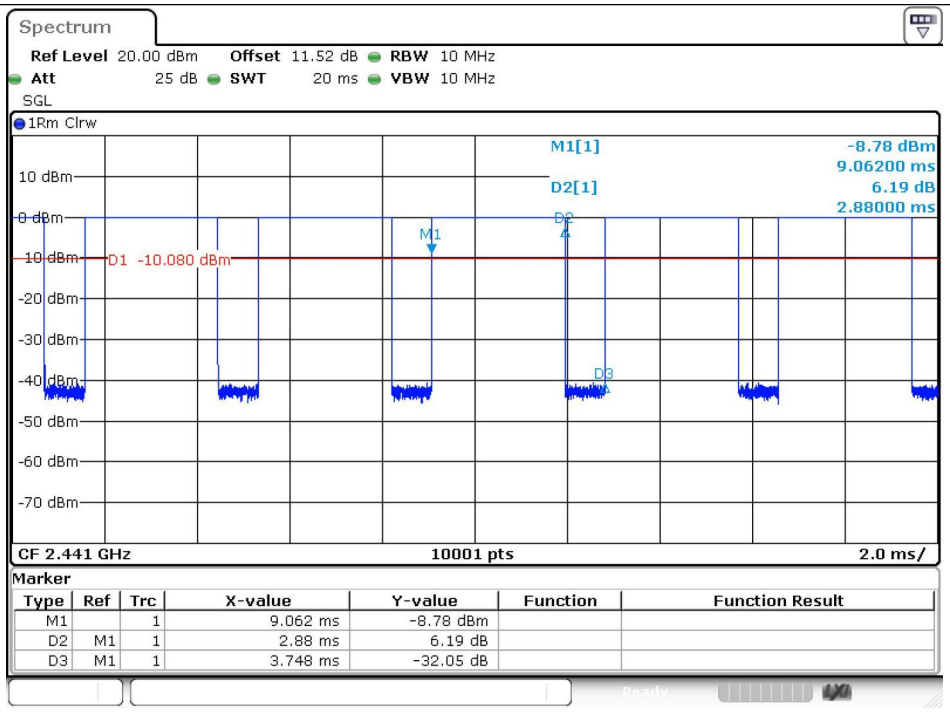
Test Result

Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.880	3.748	76.84	0.7684	1.1441	0.35
		39	2.880	3.748	76.84	0.7684	1.1441	0.35
		78	2.880	3.748	76.84	0.7684	1.1441	0.35
π/4DQPSK	2-DH5	0	2.884	3.748	76.95	0.7695	1.1379	0.35
		39	2.884	3.748	76.95	0.7695	1.1379	0.35
		78	2.886	3.748	77.00	0.7700	1.1351	0.35
8DPSK	3-DH5	0	2.888	3.748	77.05	0.7705	1.1323	0.35
		39	2.888	3.748	77.05	0.7705	1.1323	0.35
		78	2.886	3.748	77.00	0.7700	1.1351	0.35

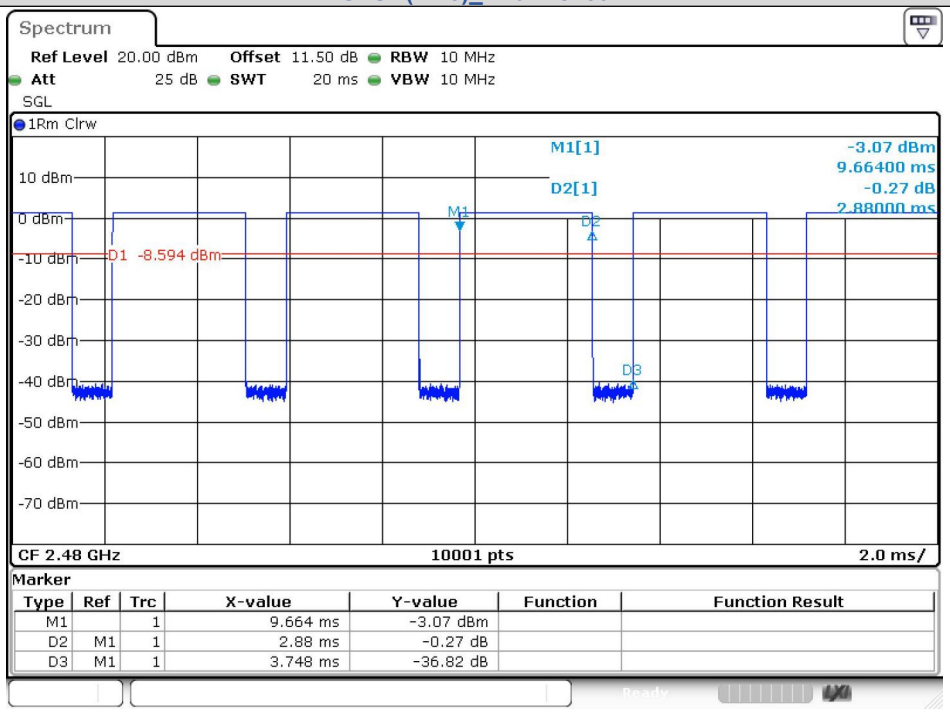
Test Graphs



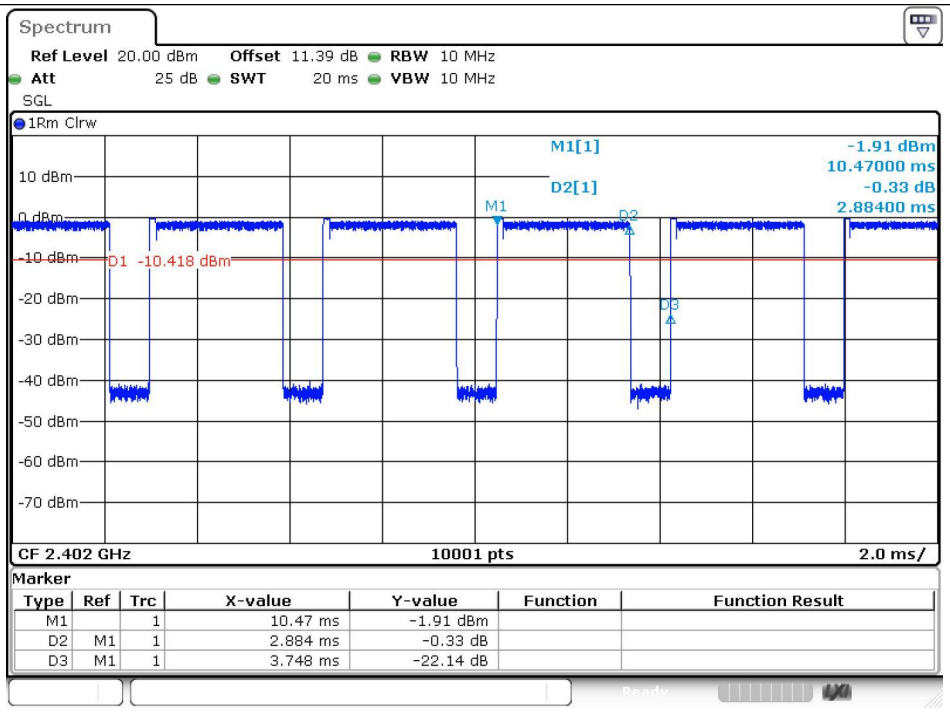
GFSK(DH5)_Channel 0



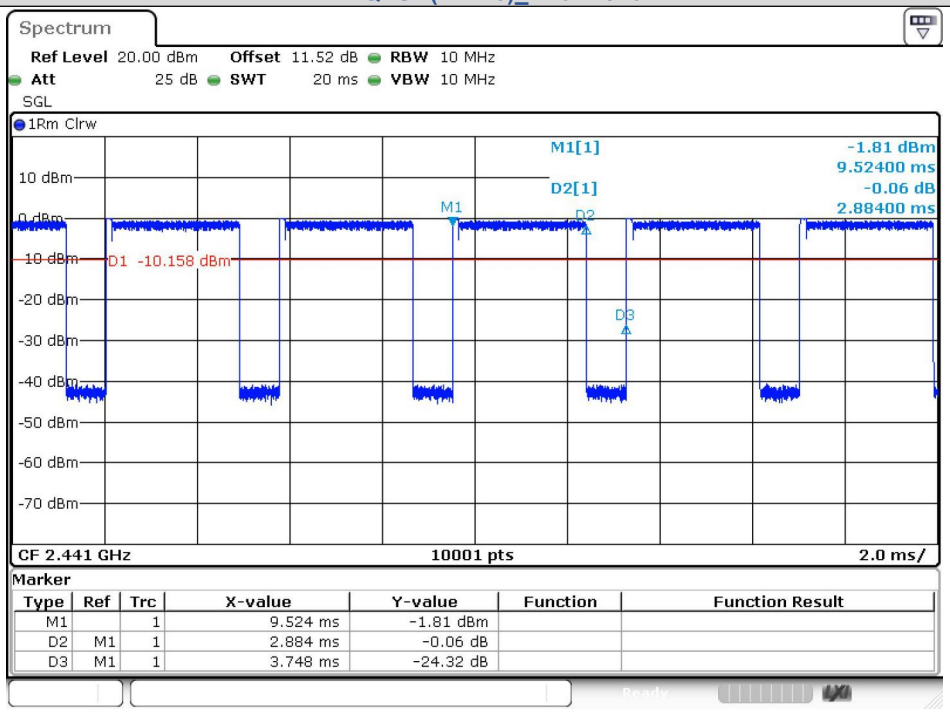
GFSK(DH5)_Channel 39



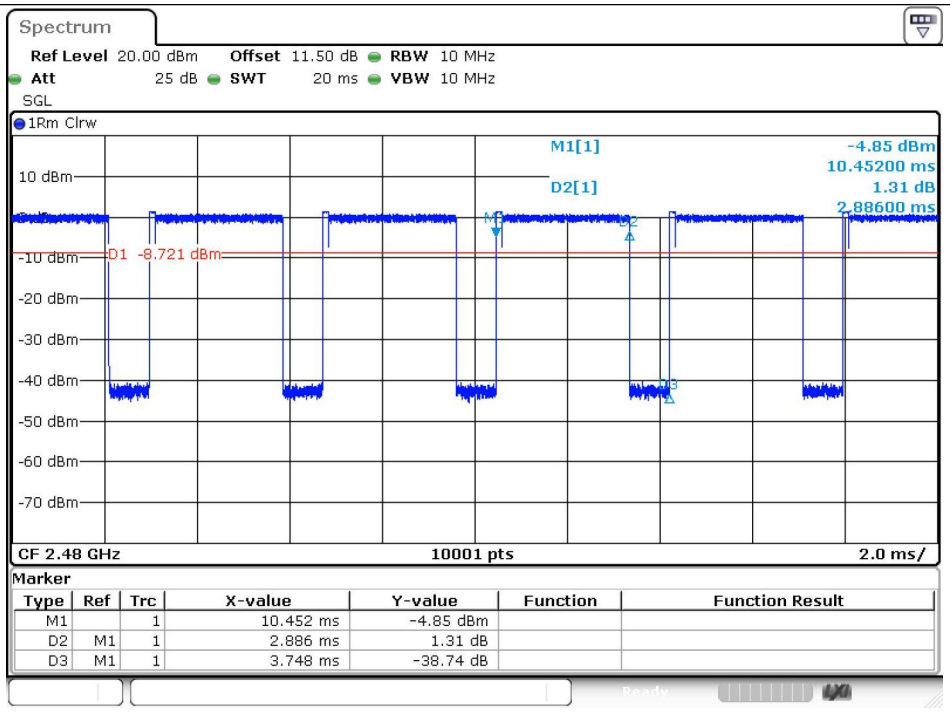
GFSK(DH5)_Channel 78



π/4DQPSK(2-DH5)_Channel 0

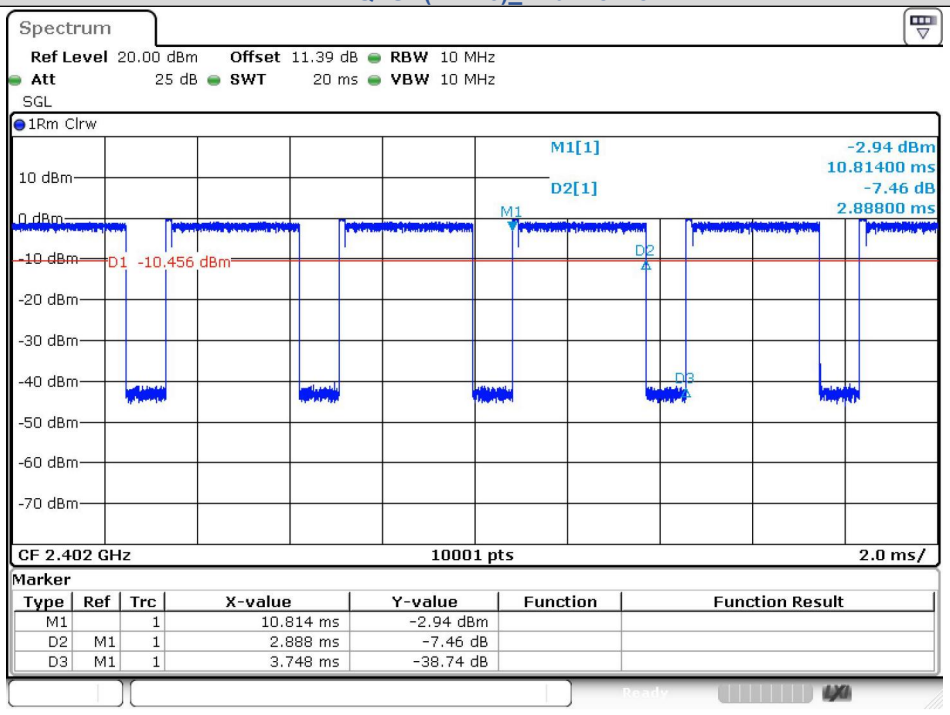


π/4DQPSK(2-DH5)_Channel 39



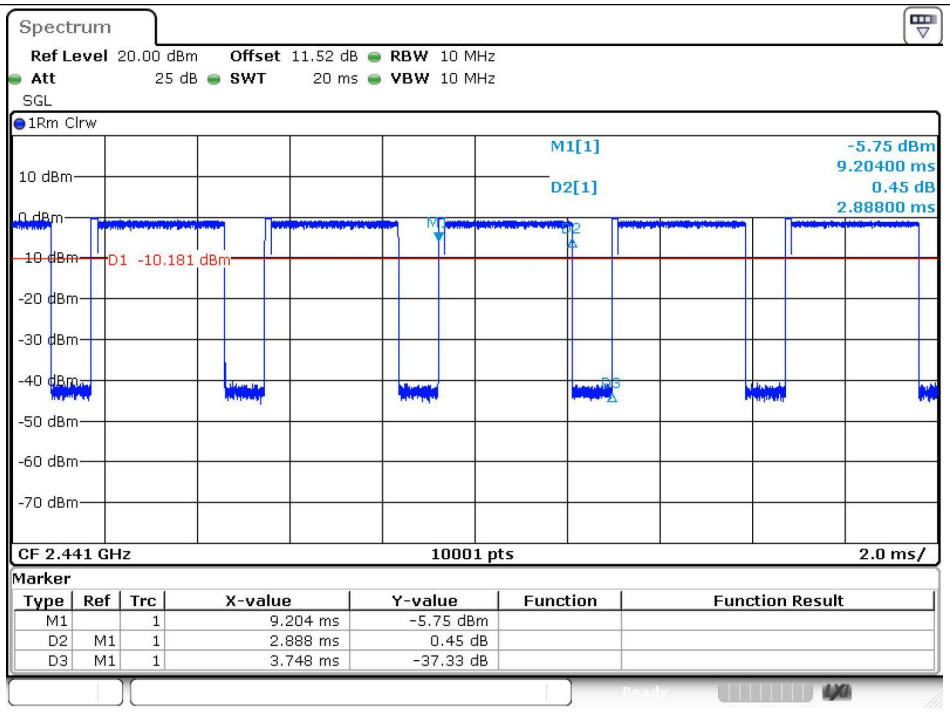
Date: 21.JUN.2024 15:52:47

π/4DQPSK(2-DH5)_Channel 78

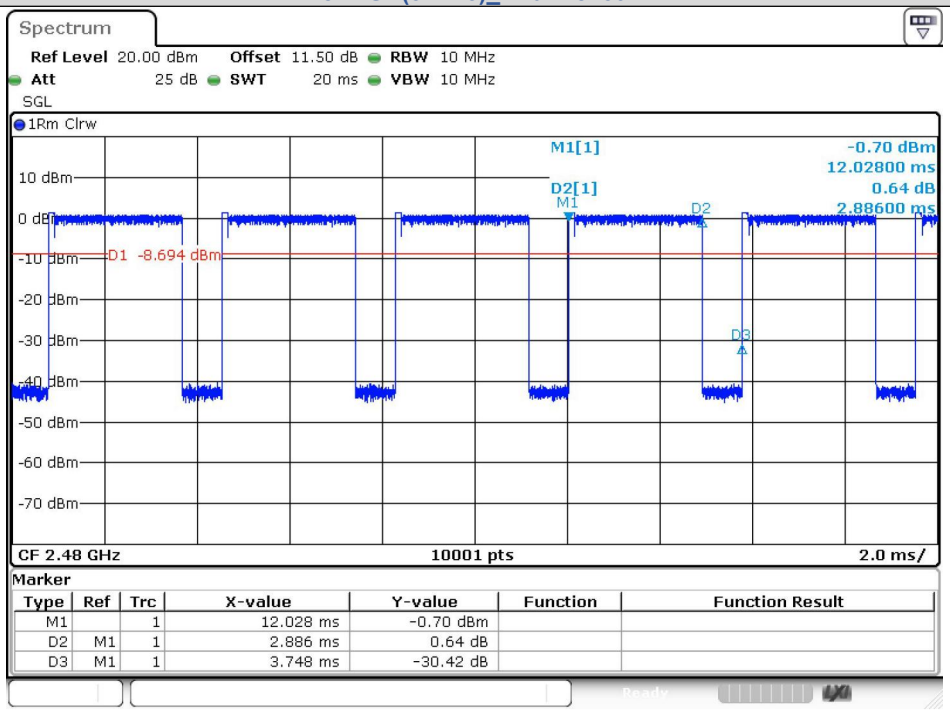


Date: 21.JUN.2024 16:02:49

8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39



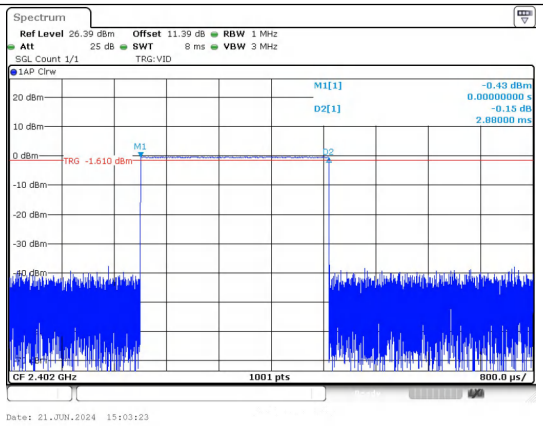
8DPSK(3-DH5)_Channel 78

Dwell Time

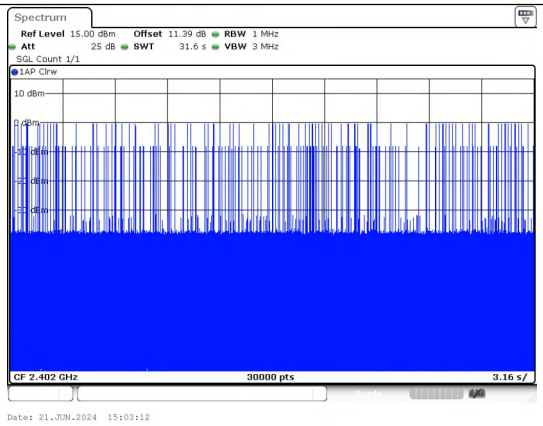
Test Result

Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.880	102	293.76	< 400	PASS
π/4DQPSK	2-DH5		2.888	99	285.91		PASS
8DPSK	3-DH5		2.896	98	283.81		PASS

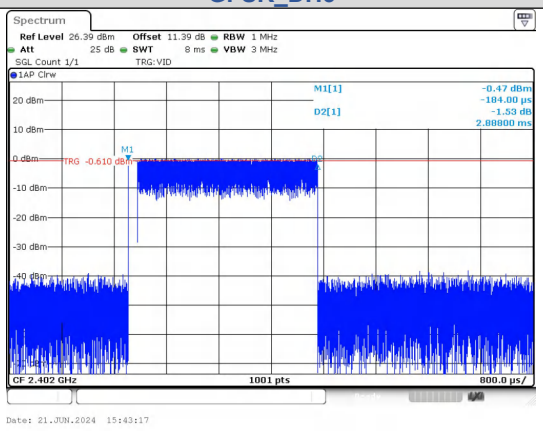
Test Graphs



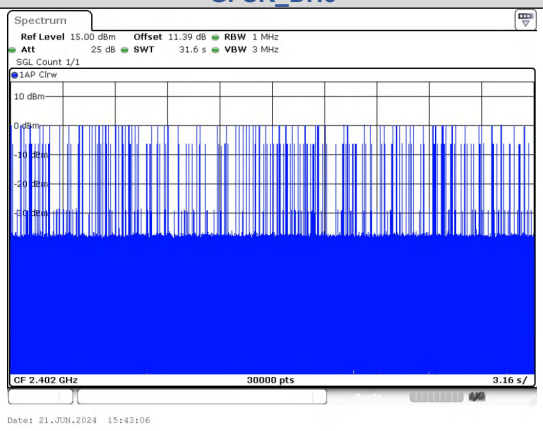
Pulse Width
GFSK_DH5



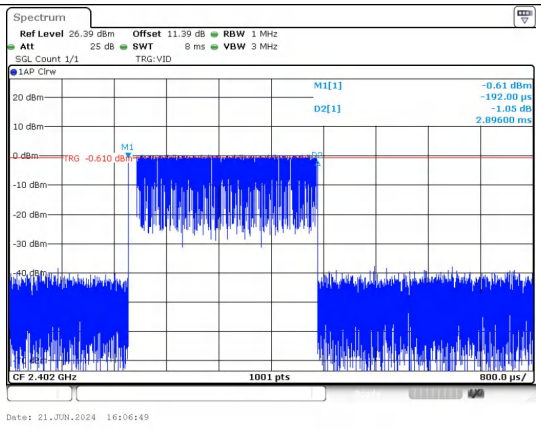
Number of Pulses in 31.6 seconds
GFSK_DH5



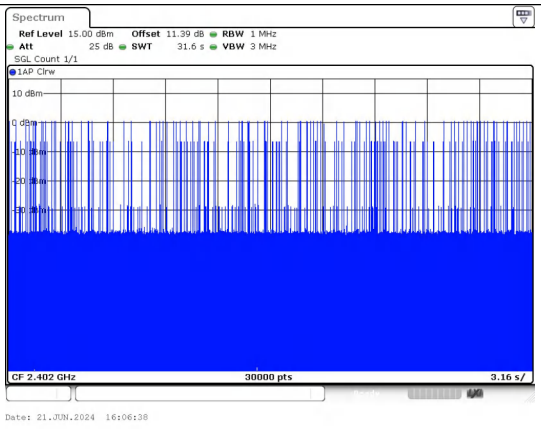
Pulse Width
π/4DQPSK_2-DH5



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



Pulse Width
8DPSK_3-DH5



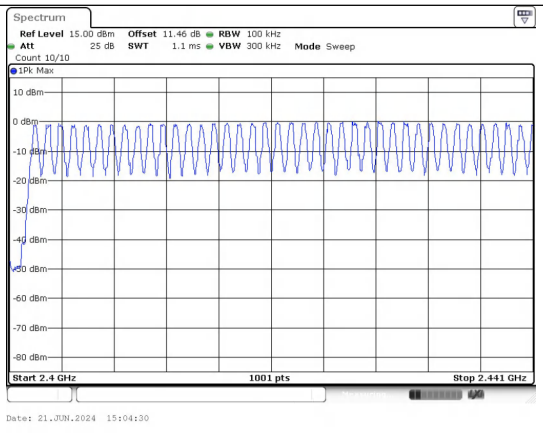
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

Number Of Hopping Channel

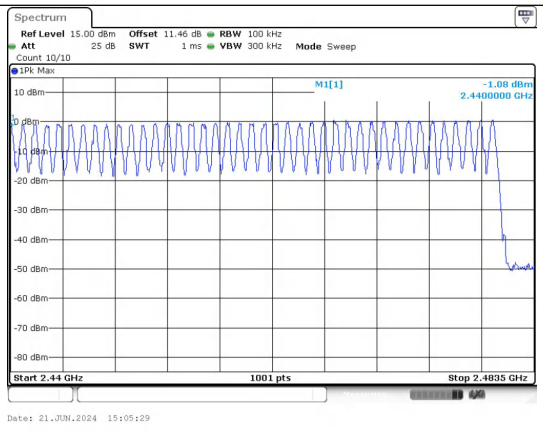
Test Result

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

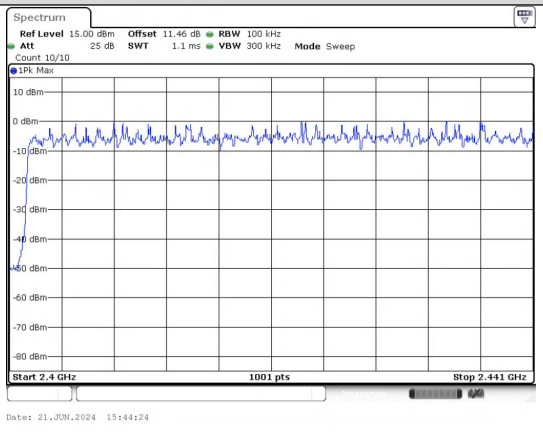
Test Graphs



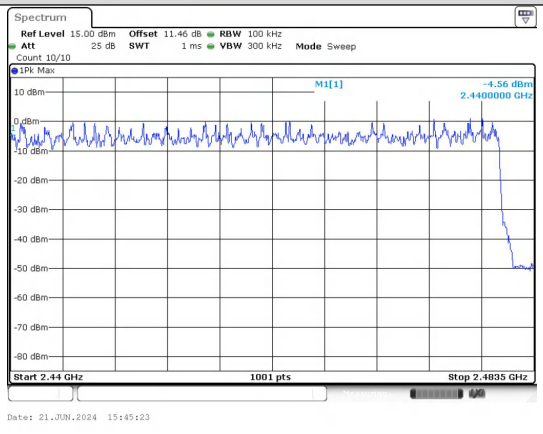
Low End Spectrum Channel Hopping Plot
GFSK



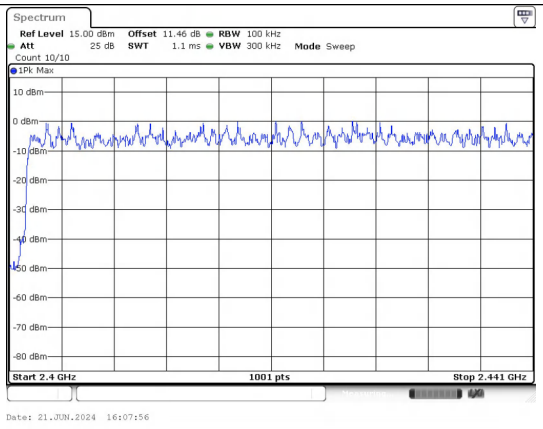
High End Spectrum Channel Hopping Plot
GFSK



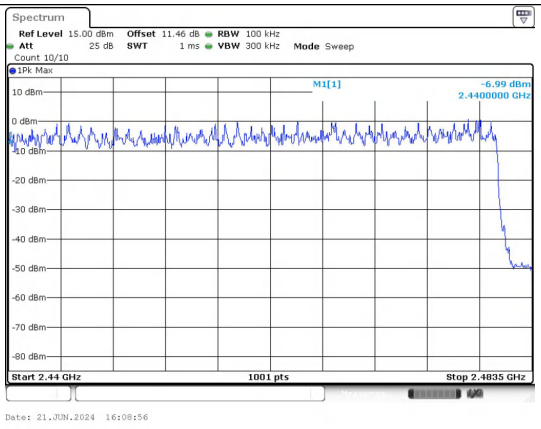
Low End Spectrum Channel Hopping Plot
π/4DQPSK



High End Spectrum Channel Hopping Plot
π/4DQPSK



Low End Spectrum Channel Hopping Plot
8DPSK



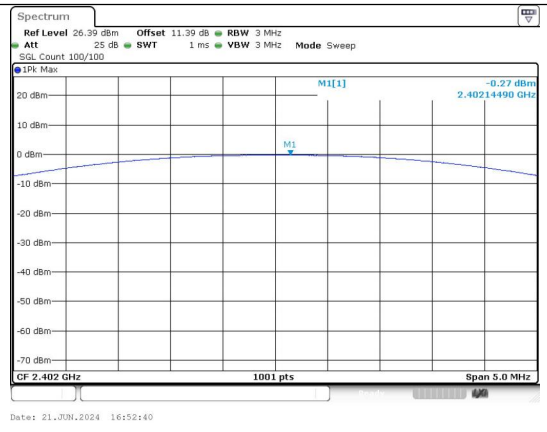
High End Spectrum Channel Hopping Plot
8DPSK

Conducted Peak Output Power

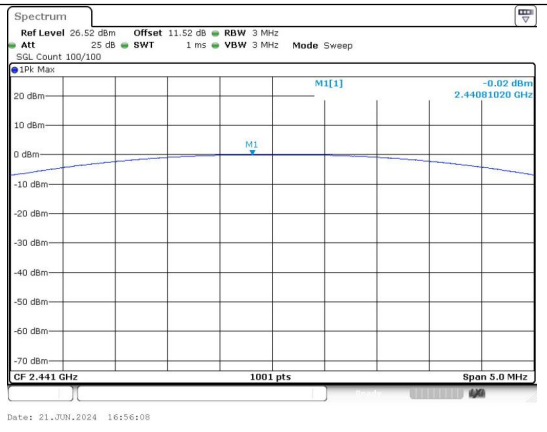
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	-0.27	0.94	≤30	PASS
		39	-0.02	1.00		PASS
		78	1.46	1.40		PASS
π/4DQPSK	2-DH5	0	0.54	1.13	≤20.97	PASS
		39	0.78	1.20		PASS
		78	2.12	1.63		PASS
8DPSK	3-DH5	0	0.86	1.22		PASS
		39	1.20	1.32		PASS
		78	2.55	1.80		PASS

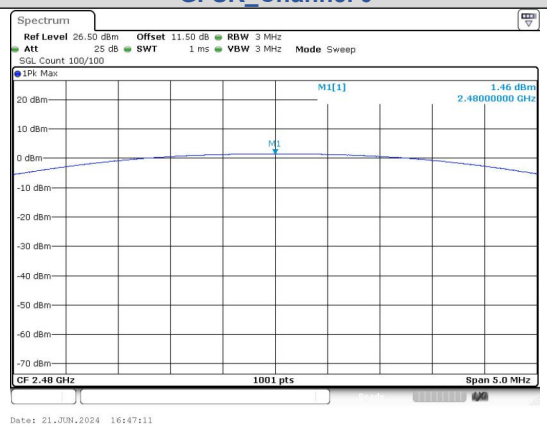
Test Graphs



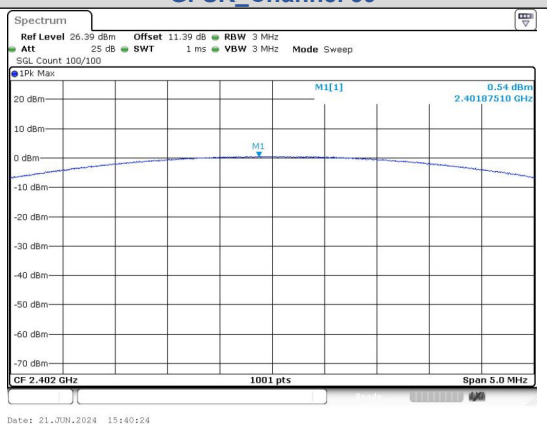
Peak Output Power
GFSK_Channel 0



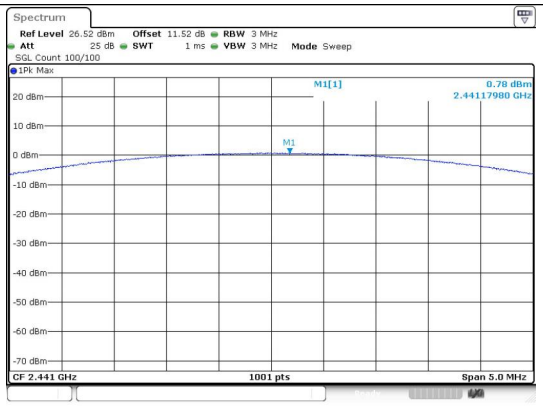
Peak Output Power
GFSK_Channel 39



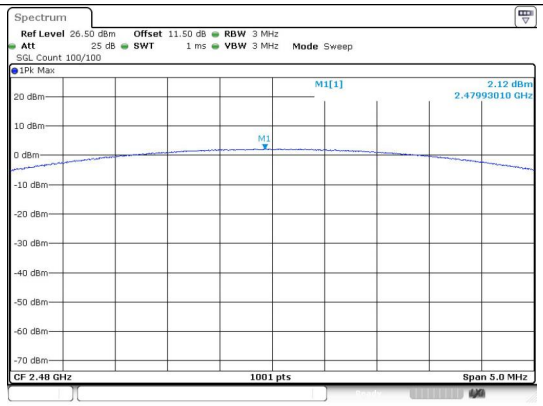
Peak Output Power
GFSK_Channel 78



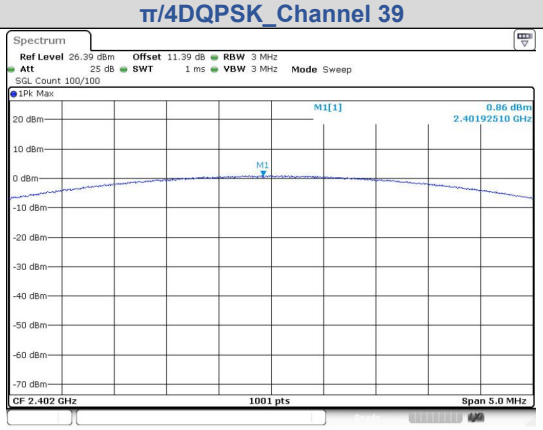
Peak Output Power
π/4DQPSK_Channel 0



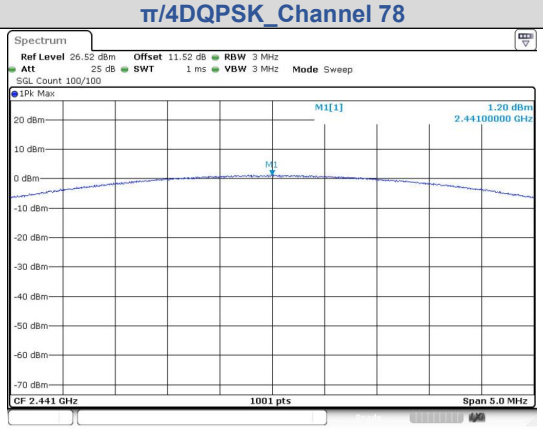
Peak Output Power
π/4DQPSK_Channel 39



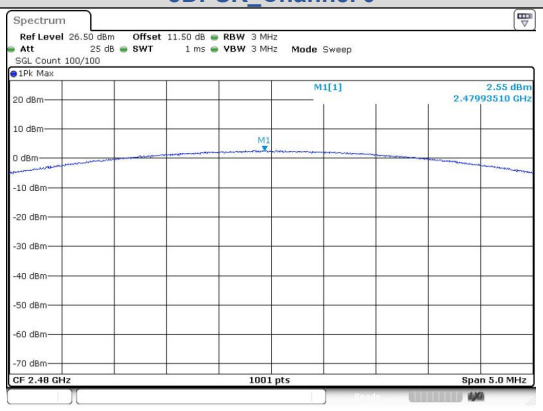
Peak Output Power
π/4DQPSK_Channel 78



Peak Output Power
8DPSK_Channel 0



Peak Output Power
8DPSK_Channel 39



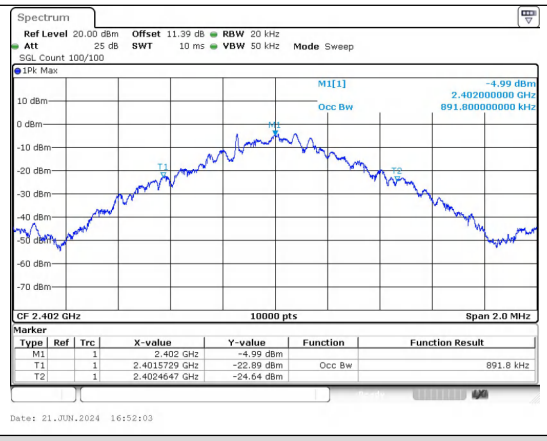
Peak Output Power
8DPSK_Channel 78

99% Bandwidth

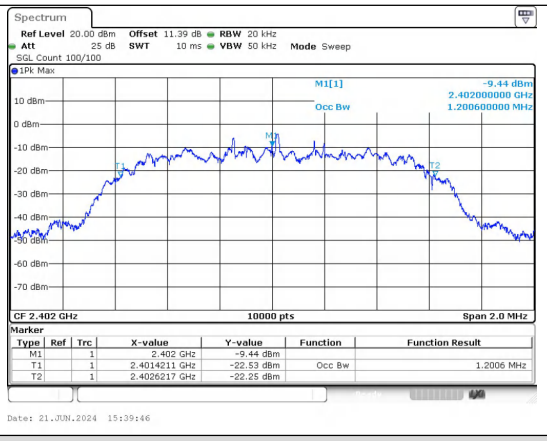
Test Result

Modulation	Channel	Center Frequency (MHz)	99% BW (MHz)
GFSK	0	2402	0.89180
	39	2441	0.89060
	78	2480	0.92180
π/4DQPSK	0	2402	1.2010
	39	2441	1.1970
	78	2480	1.1960
8DPSK	0	2402	1.2090
	39	2441	1.2060
	78	2480	1.2080

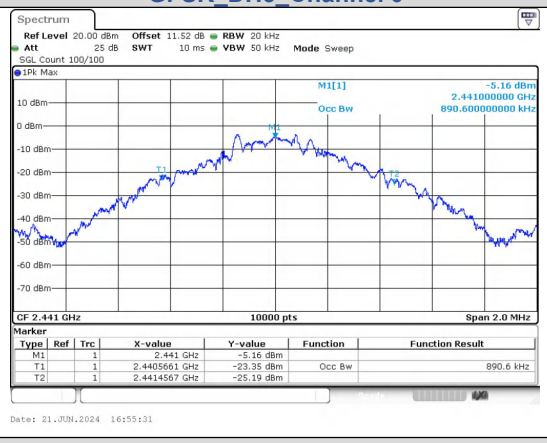
Test Graphs



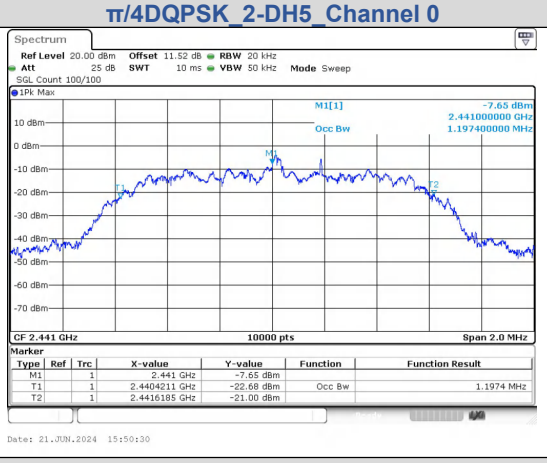
GFSK_DH5_Channel 0



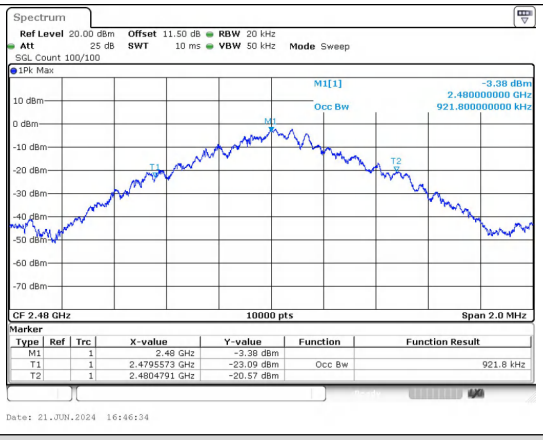
π/4DQPSK_2-DH5_Channel 0



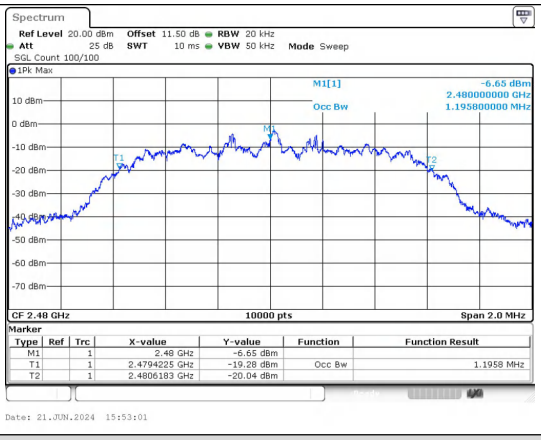
GFSK_DH5_Channel 39



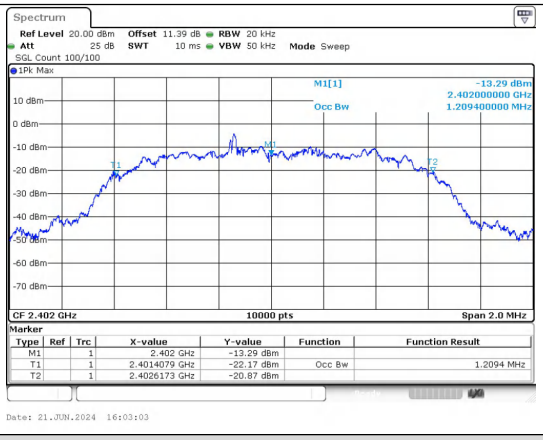
π/4DQPSK_2-DH5_Channel 39



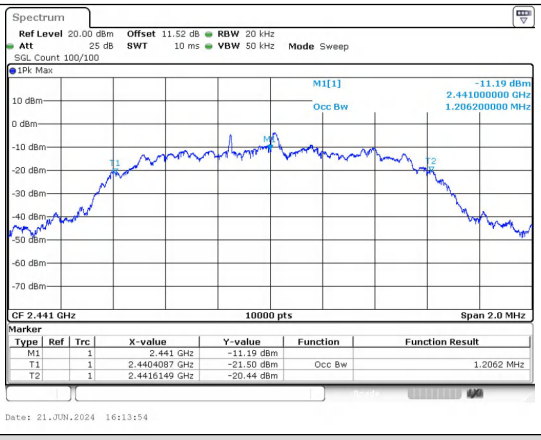
GFSK_DH5_Channel 78



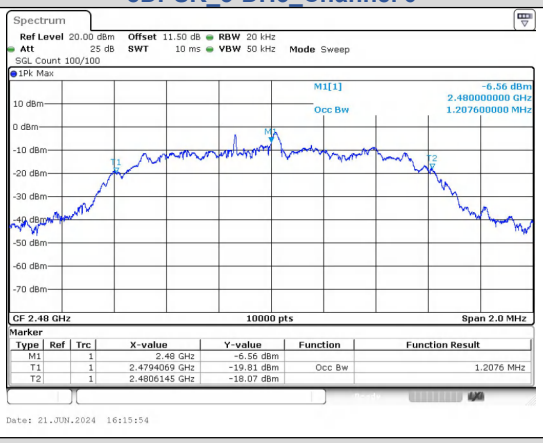
π/4DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



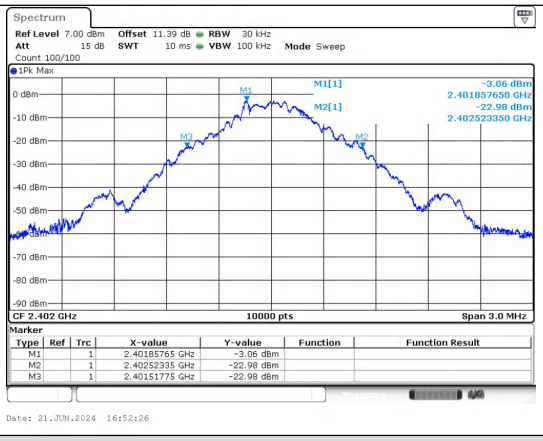
8DPSK_3-DH5_Channel 78

20dB Bandwidth

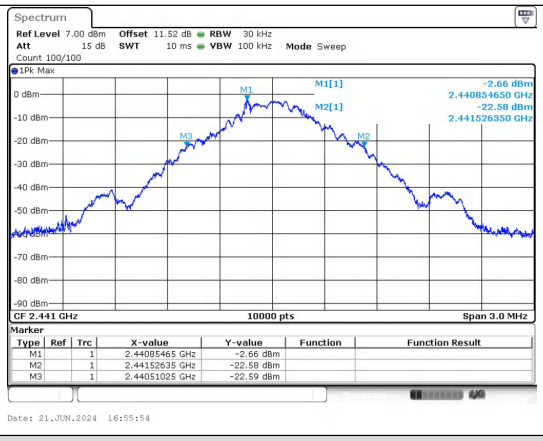
Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.000
	39	2441 MHz	1.020
	78	2480 MHz	1.020
π/4DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.320
	78	2480 MHz	1.320
8DPSK	0	2402 MHz	1.290
	39	2441 MHz	1.290
	78	2480 MHz	1.280

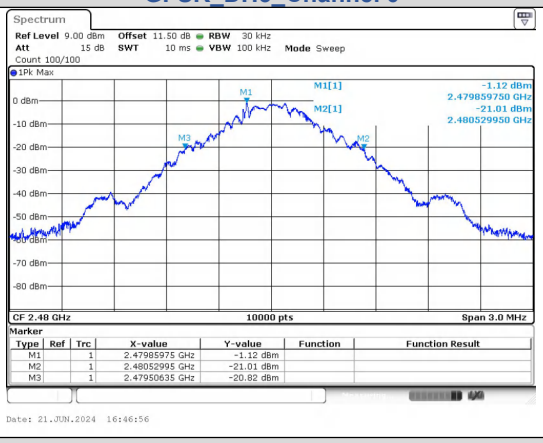
Test Graphs



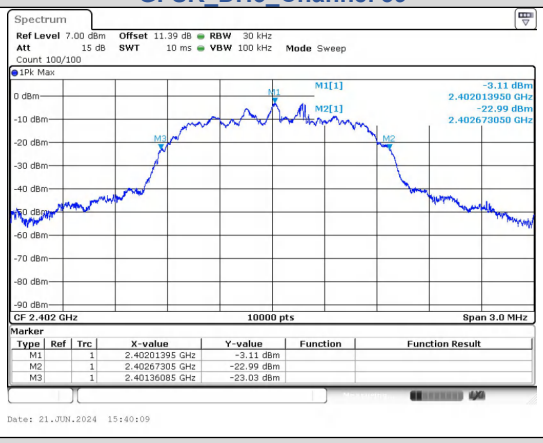
GFSK_DH5_Channel 0



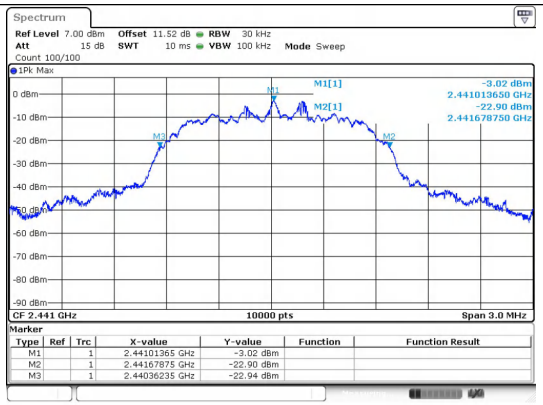
GFSK_DH5_Channel 39



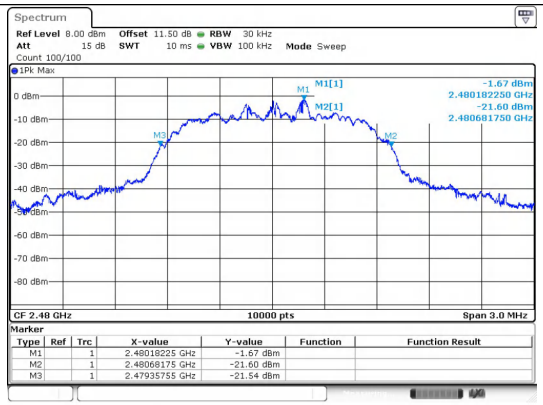
GFSK_DH5_Channel 78



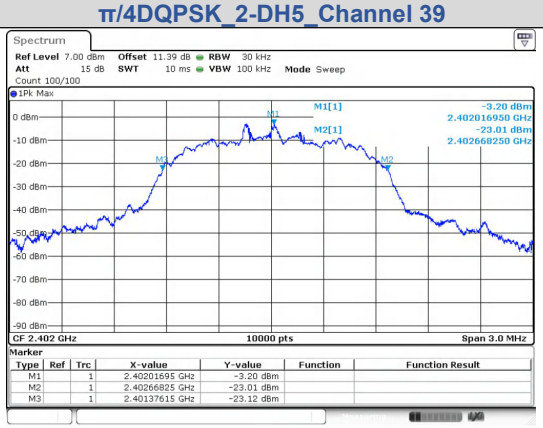
π/4DQPSK_2-DH5_Channel 0



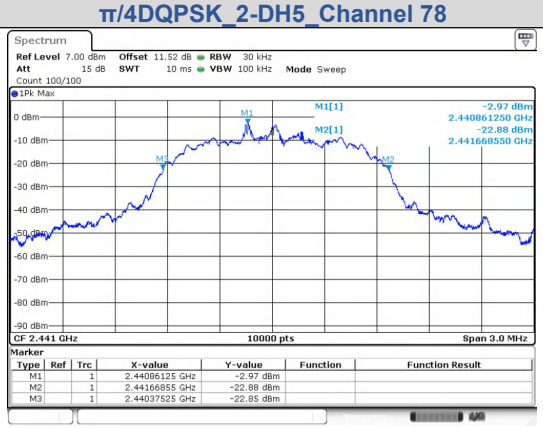
π/4DQPSK_2-DH5_Channel 39



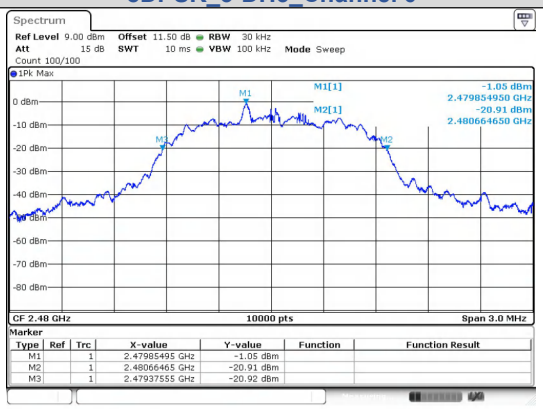
π/4DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



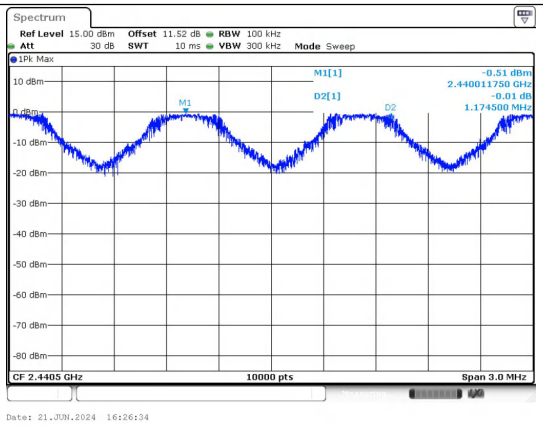
8DPSK_3-DH5_Channel 78

Carrier Frequencies Separation

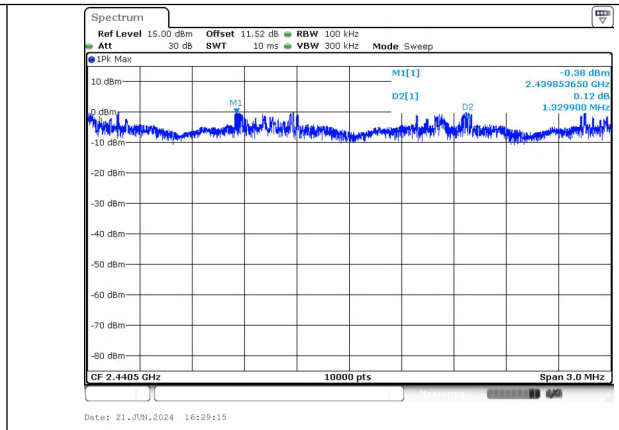
Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2440.0118	2441.1863	1.1745	1.020	PASS
π/4DQPSK	2-DH5	2439.8537	2441.1836	1.3299	0.873	PASS
8DPSK	3-DH5	2439.8654	2441.1797	1.3143	0.86	PASS

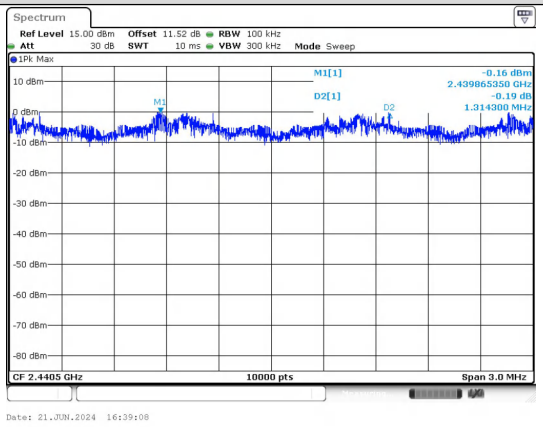
Test Graphs



GFSK



π/4DQPSK



8DPSK

Conducted Out Of Band Emission

Test Result

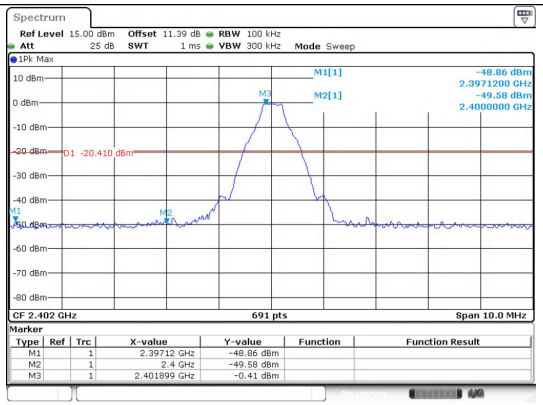
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2397.12	-48.861	-20.41	-28.451	PASS
			2400.00	-49.585	-20.41	-29.175	PASS
			2498.30	-46.355	-20.41	-25.945	PASS
		39	2536.57	-45.120	-20.22	-24.900	PASS
		78	2483.50	-51.230	-18.64	-32.590	PASS
			9920.20	-47.568	-18.64	-28.928	PASS
π/4DQPSK	2-DH5	0	2400.00	-48.467	-20.44	-28.027	PASS
			2498.28	-48.046	-20.44	-27.606	PASS
		39	9763.72	-47.738	-20.35	-27.388	PASS
		78	1958.93	-48.776	-18.91	-29.866	PASS
			2483.50	-51.060	-18.91	-32.150	PASS
8DPSK	3-DH5	0	2400.00	-49.482	-20.47	-29.012	PASS
			9608.08	-47.823	-20.47	-27.353	PASS
		39	2537.40	-47.680	-20.32	-27.360	PASS
		78	2483.50	-50.967	-18.78	-32.187	PASS
			5824.29	-48.265	-18.78	-29.485	PASS

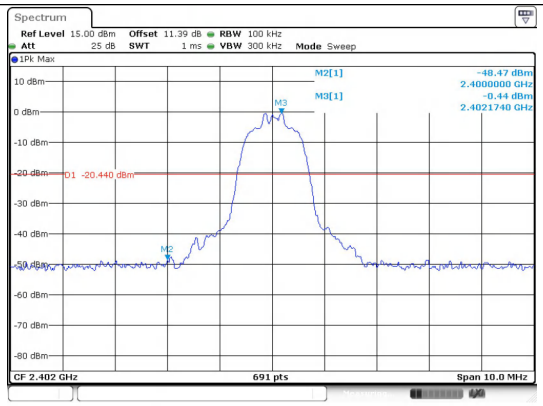
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2395.34	-46.527	-20.44	-26.087	PASS
			2400.00	-48.549	-20.44	-28.109	PASS
			2483.50	-48.537	-18.8	-29.737	PASS
π/4DQPSK	2-DH5		2396.06	-46.828	-20.52	-26.308	PASS
			2400.00	-49.395	-20.52	-28.875	PASS
			2483.50	-49.210	-19.03	-30.180	PASS
			2396.60	-48.057	-20.78	-27.277	PASS
			2400.00	-48.956	-20.78	-28.176	PASS
			2483.50	-49.507	-18.91	-30.597	PASS
8DPSK	3-DH5		2396.86	-47.695	-20.89	-26.805	PASS
			2400.00	-49.813	-20.89	-28.923	PASS
			2483.50	-49.249	-18.93	-30.319	PASS
			2396.24	-48.418	-20.55	-27.868	PASS
			2400.00	-48.641	-20.55	-28.091	PASS
			2483.50	-48.791	-19.01	-29.780	PASS
			2397.26	-47.633	-20.53	-27.103	PASS
			2400.00	-48.879	-20.53	-28.349	PASS
			2483.50	-49.281	-19.68	-29.601	PASS

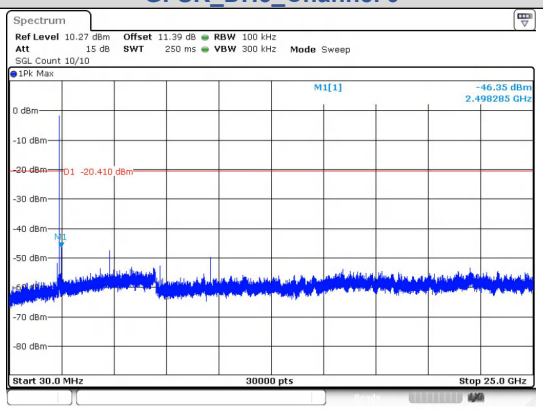
Test Graphs



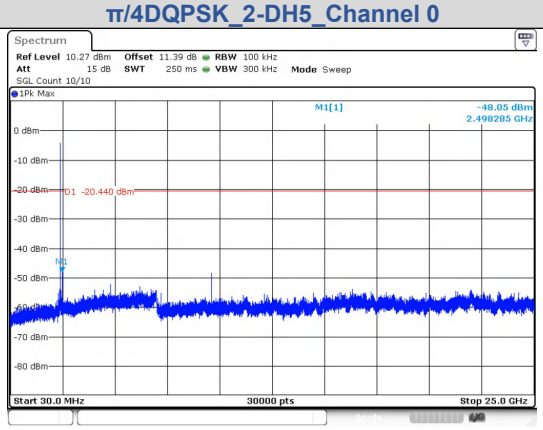
Out Of Band Emission
GFSK_DH5_Channel 0



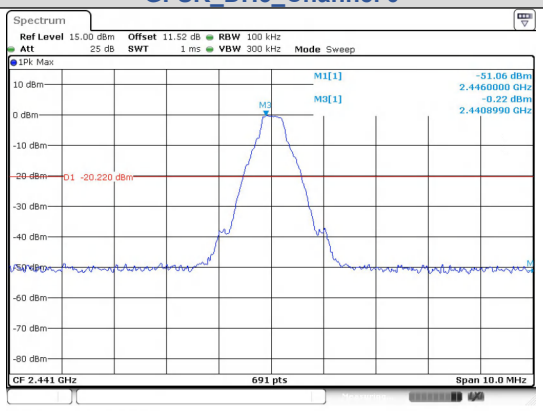
Out Of Band Emission
π/4DQPSK_2-DH5_Channel 0



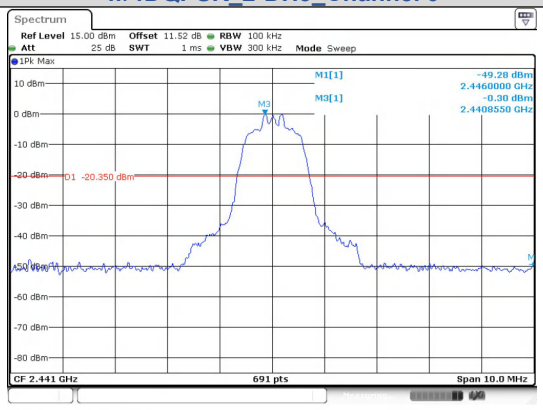
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



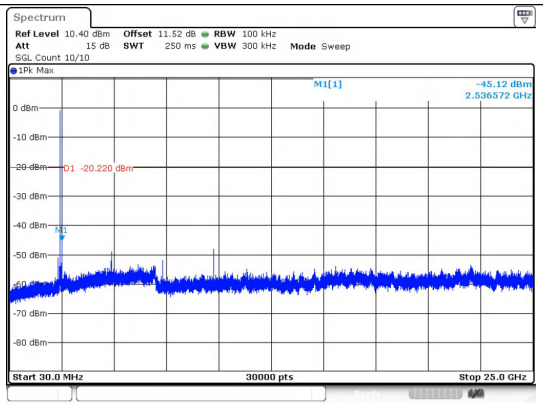
30.0 MHz - 25000.0 MHz
π/4DQPSK_2-DH5_Channel 0



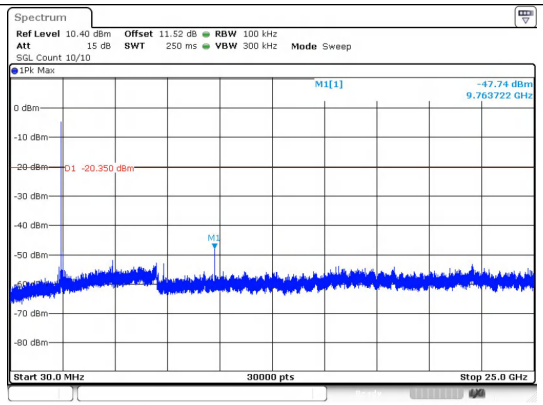
Out Of Band Emission
GFSK_DH5_Channel 39



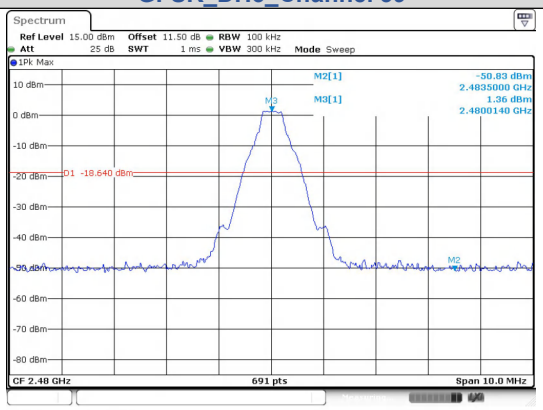
Out Of Band Emission
π/4DQPSK_2-DH5_Channel 39



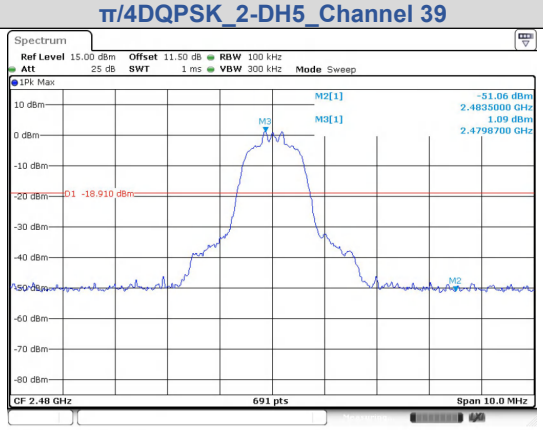
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



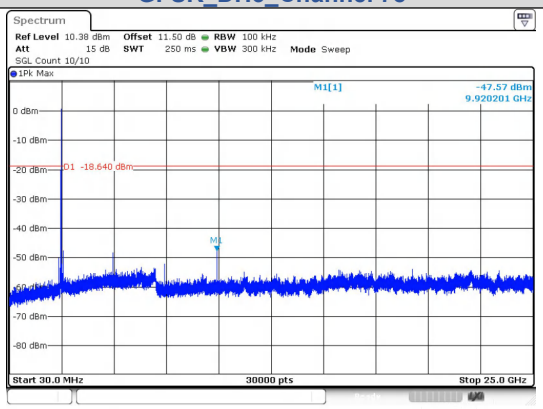
30.0 MHz - 25000.0 MHz
π/4DQPSK_2-DH5_Channel 39



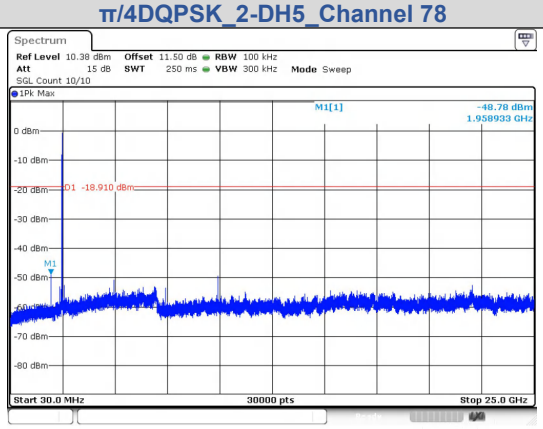
Out Of Band Emission
GFSK_DH5_Channel 78



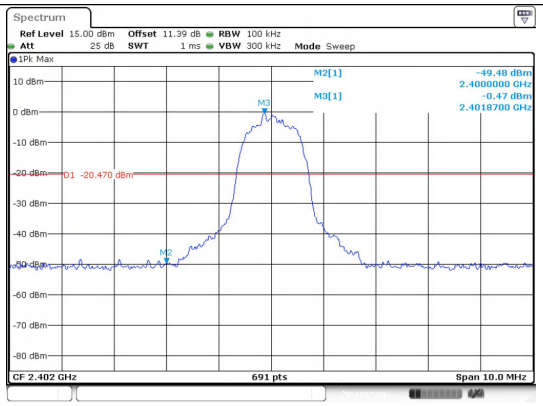
Out Of Band Emission
π/4DQPSK_2-DH5_Channel 78



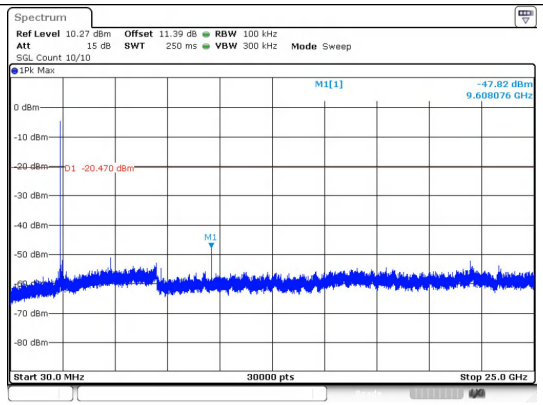
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



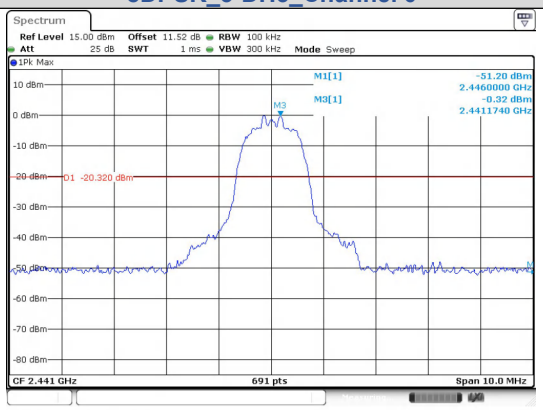
30.0 MHz - 25000.0 MHz
π/4DQPSK_2-DH5_Channel 78



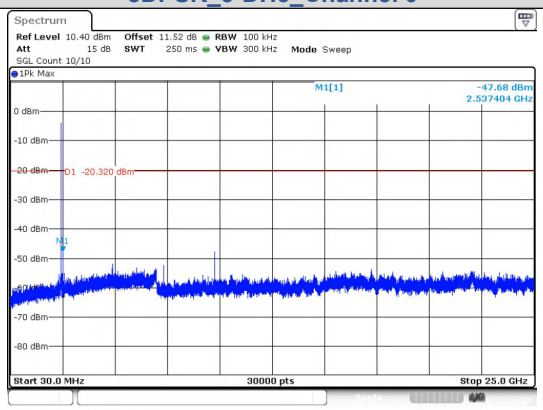
Out Of Band Emission
8DPSK_3-DH5_Channel 0



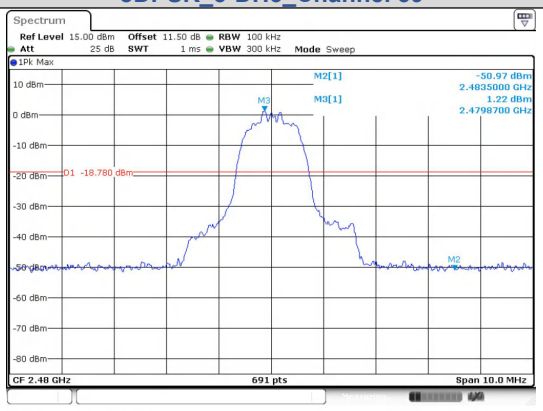
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0



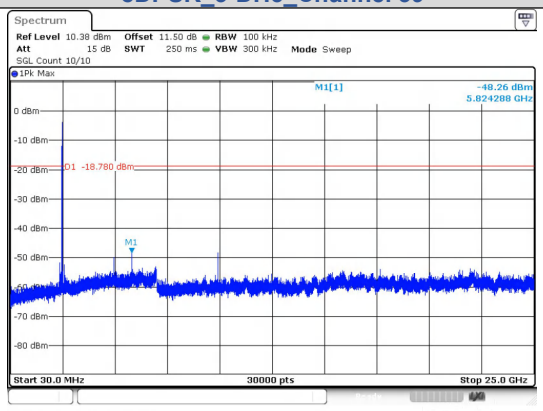
Out Of Band Emission
8DPSK_3-DH5_Channel 39



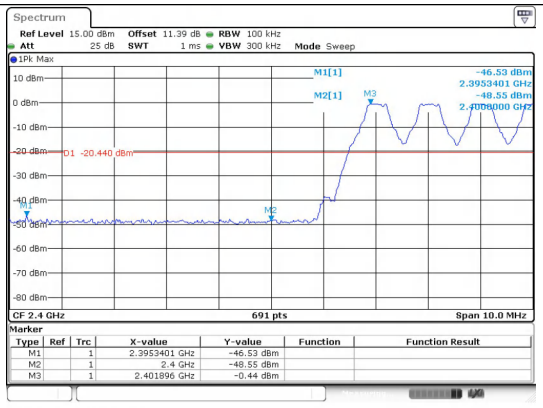
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



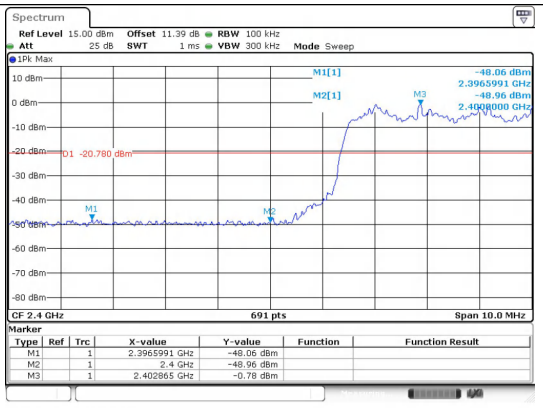
Out Of Band Emission
8DPSK_3-DH5_Channel 78



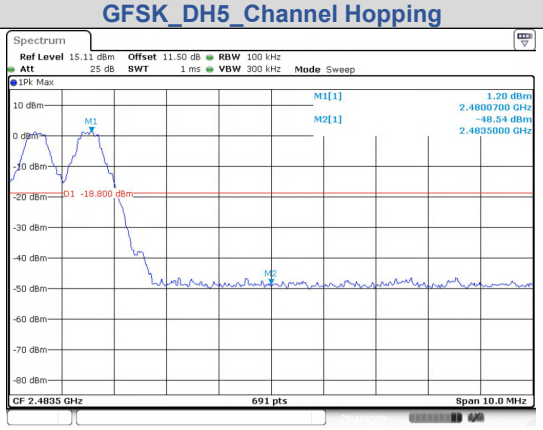
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



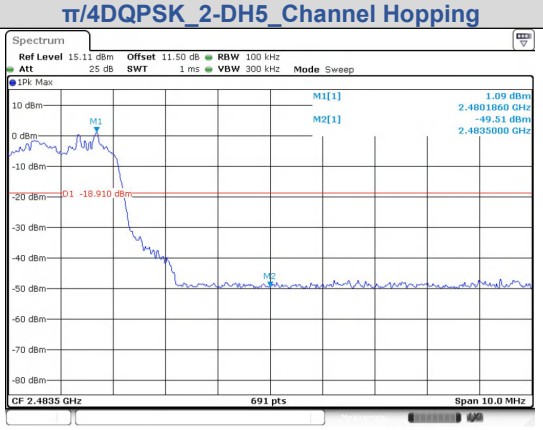
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



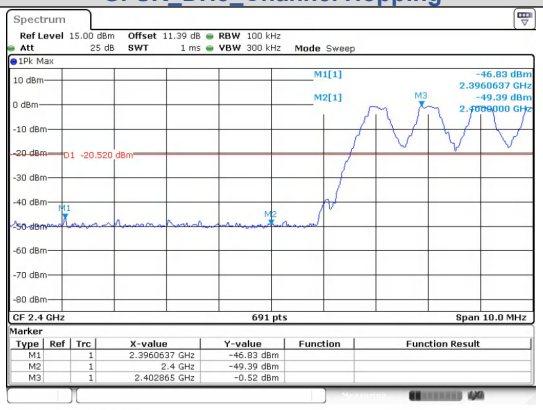
Out Of Band Emission(Left)
π/4DQPSK_2-DH5_Channel Hopping



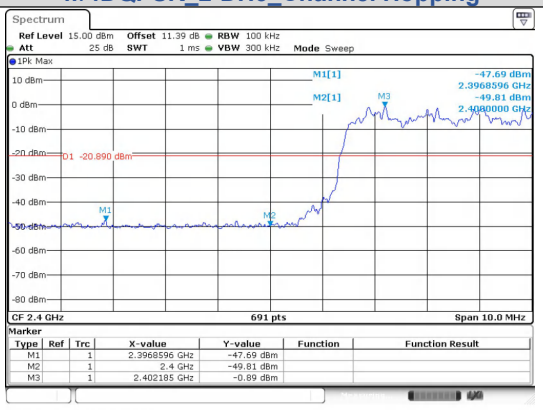
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



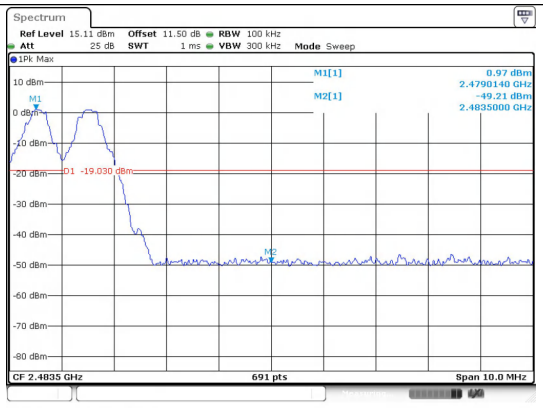
Out Of Band Emission(Right)
π/4DQPSK_2-DH5_Channel Hopping



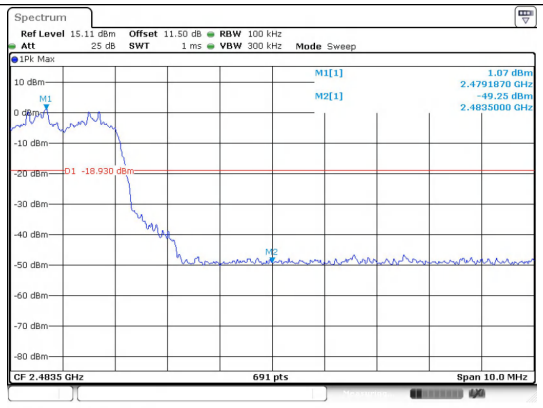
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



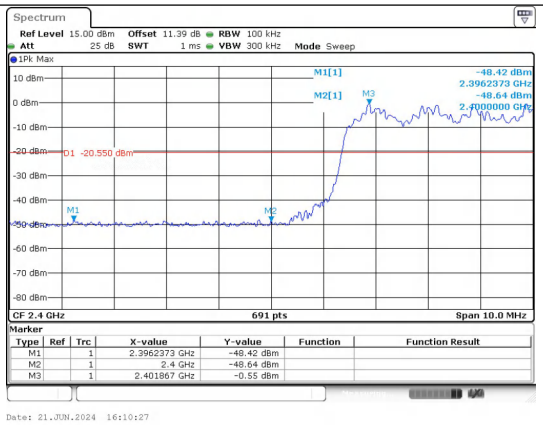
Out Of Band Emission(Left)
π/4DQPSK_2-DH5_Channel Hopping



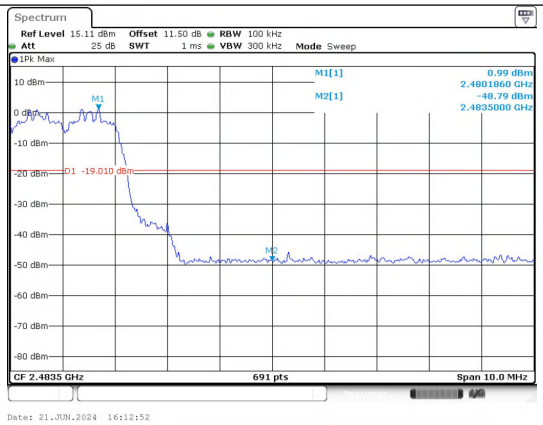
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



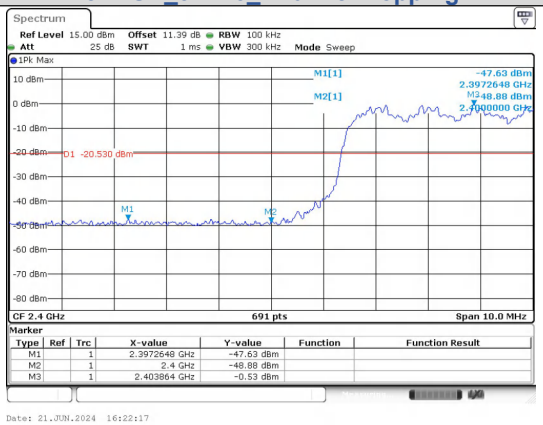
Out Of Band Emission(Right)
π/4DQPSK_2-DH5_Channel Hopping



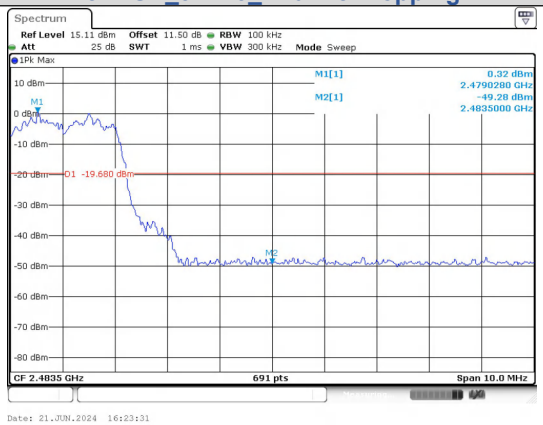
Out Of Band Emission(Left)
8DPSK_3-DH5_Channel Hopping



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



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



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