

Appendix A

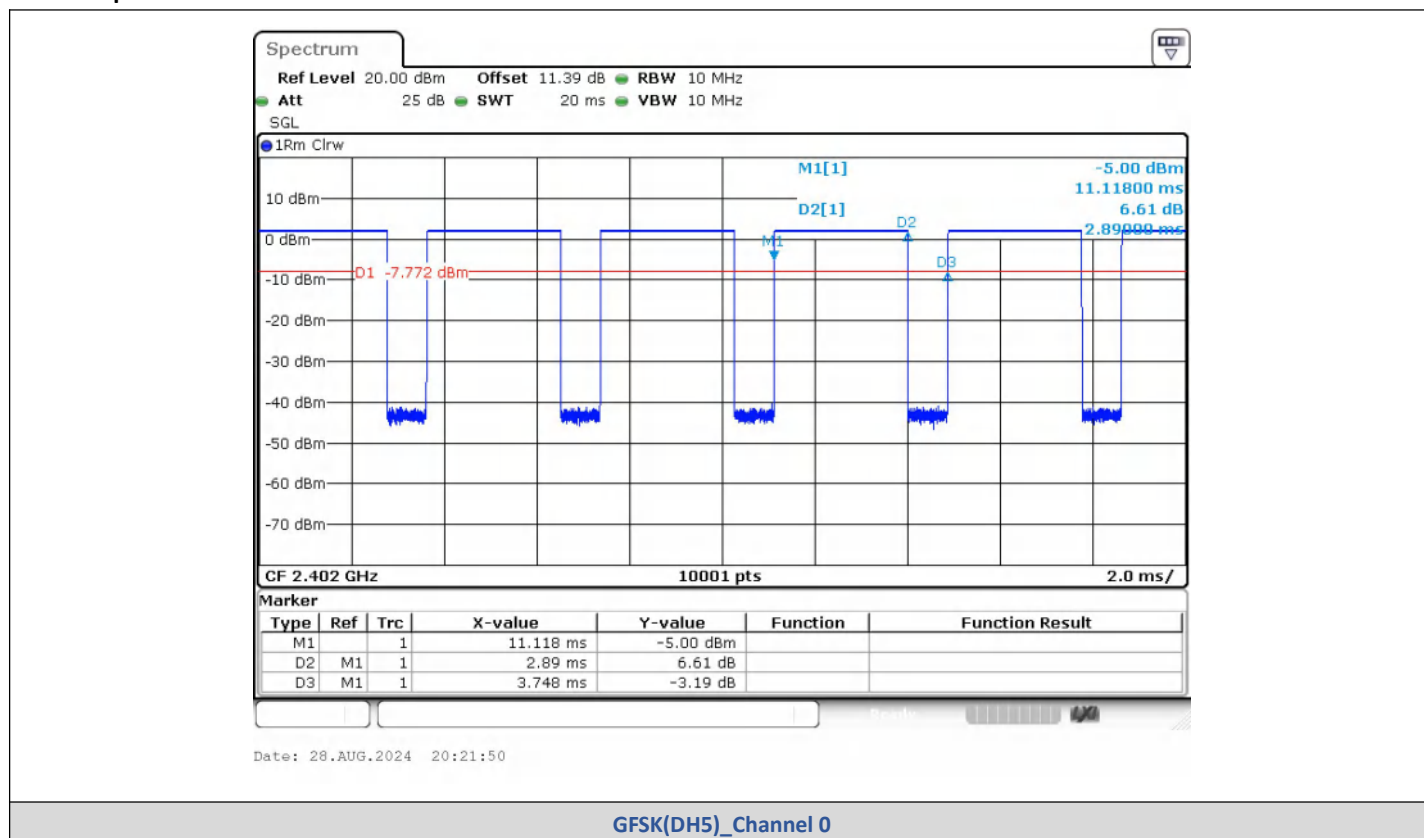
Report No.:	CISRR24082416801
FCC ID:	2BKN9-860011003823
Product Name:	Sinister Speaker
Model No.:	860011003823
Test Engineer:	Mark Fu
Supervised by:	Rory Huang

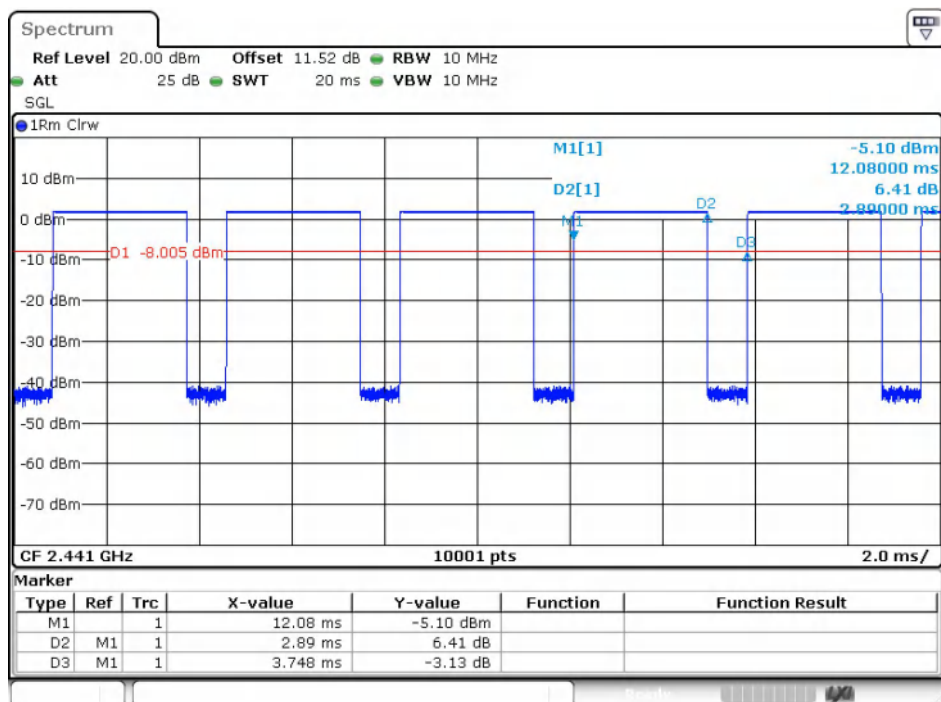
1) Duty Cycle

Test Result

Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.890	3.748	77.11	0.7711	1.1289	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
$\pi/4$ DQPSK	2-DH5	0	2.898	3.748	77.32	0.7732	1.1171	0.35
		39	2.896	3.748	77.27	0.7727	1.1199	0.35
		78	2.896	3.748	77.27	0.7727	1.1199	0.35
8DPSK	3-DH5	0	2.900	3.748	77.37	0.7737	1.1143	0.34
		39	2.900	3.748	77.37	0.7737	1.1143	0.34
		78	2.900	3.748	77.37	0.7737	1.1143	0.34

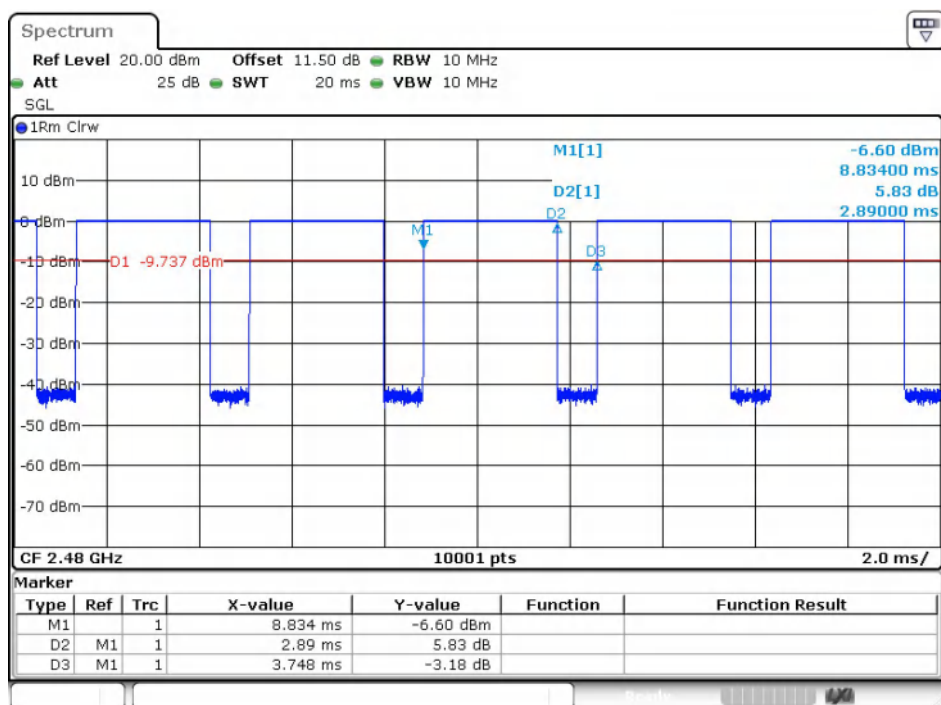
Test Graphs





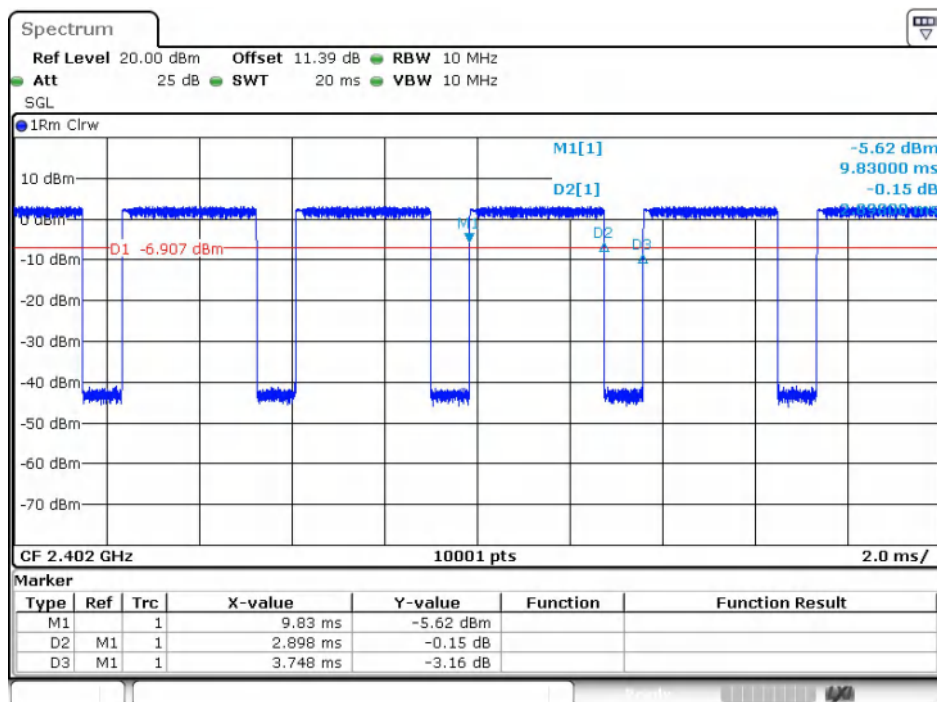
Date: 28.AUG.2024 20:33:28

GFSK(DH5)_Channel 39



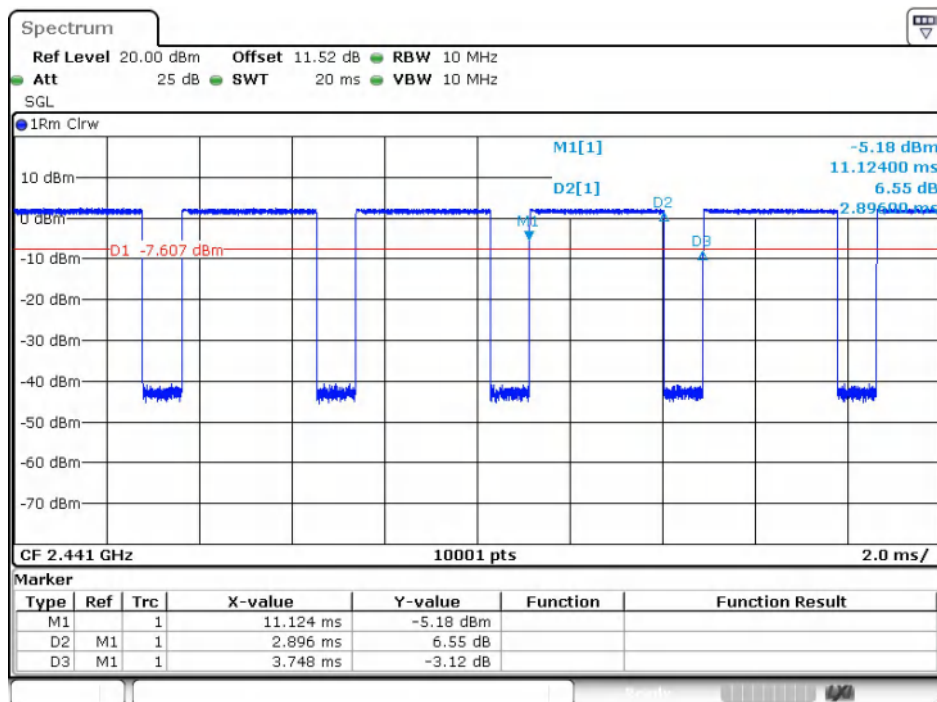
Date: 28.AUG.2024 20:35:49

GFSK(DH5)_Channel 78



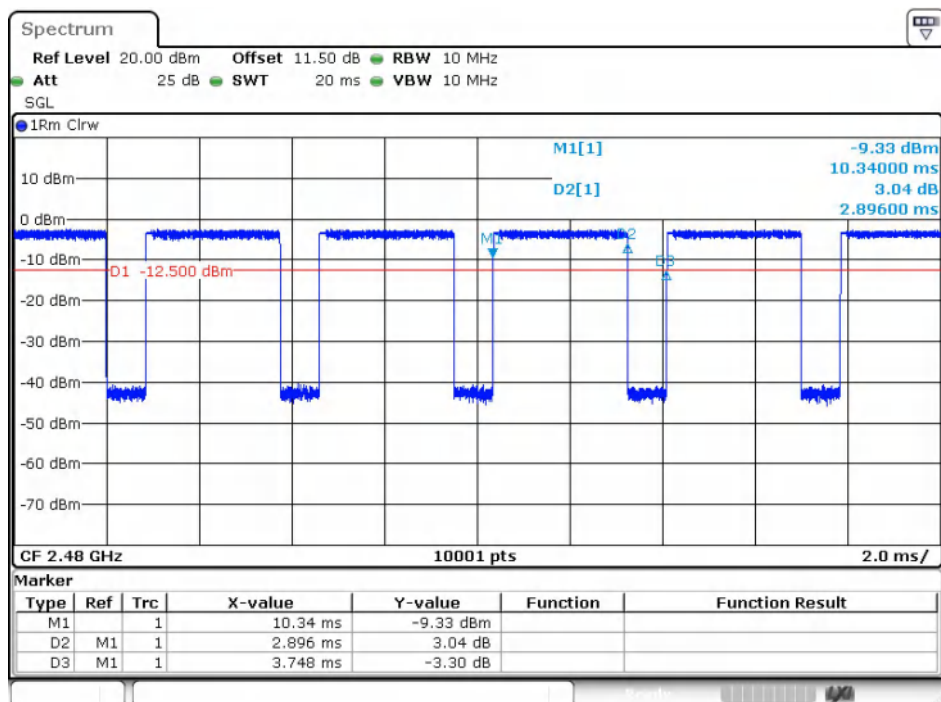
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$\pi/4$ QPSK(2-DH5)_Channel 0



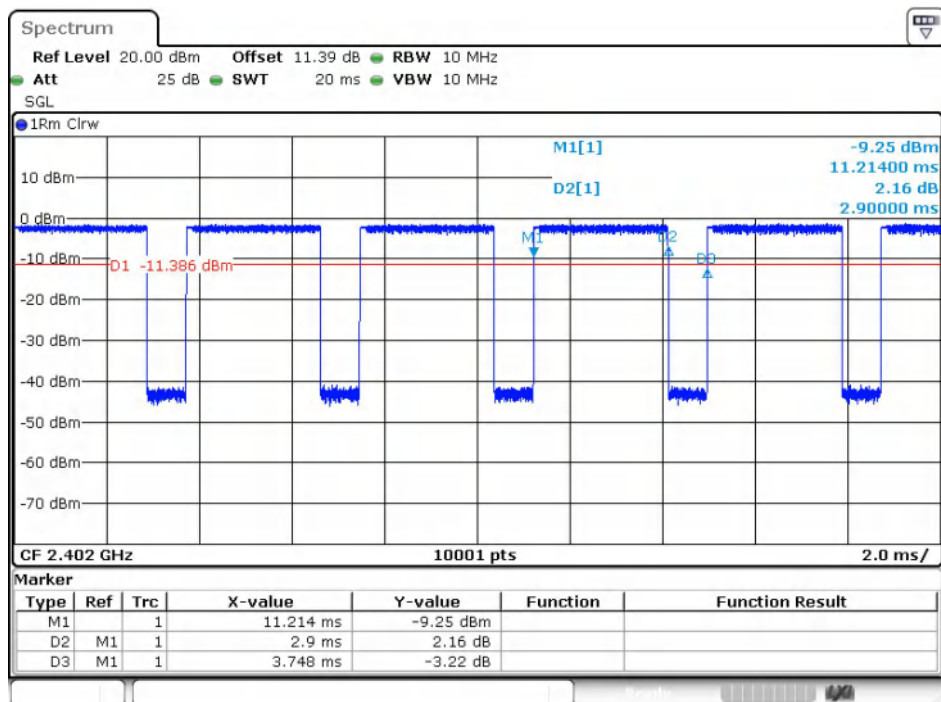
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$\pi/4$ QPSK(2-DH5)_Channel 39



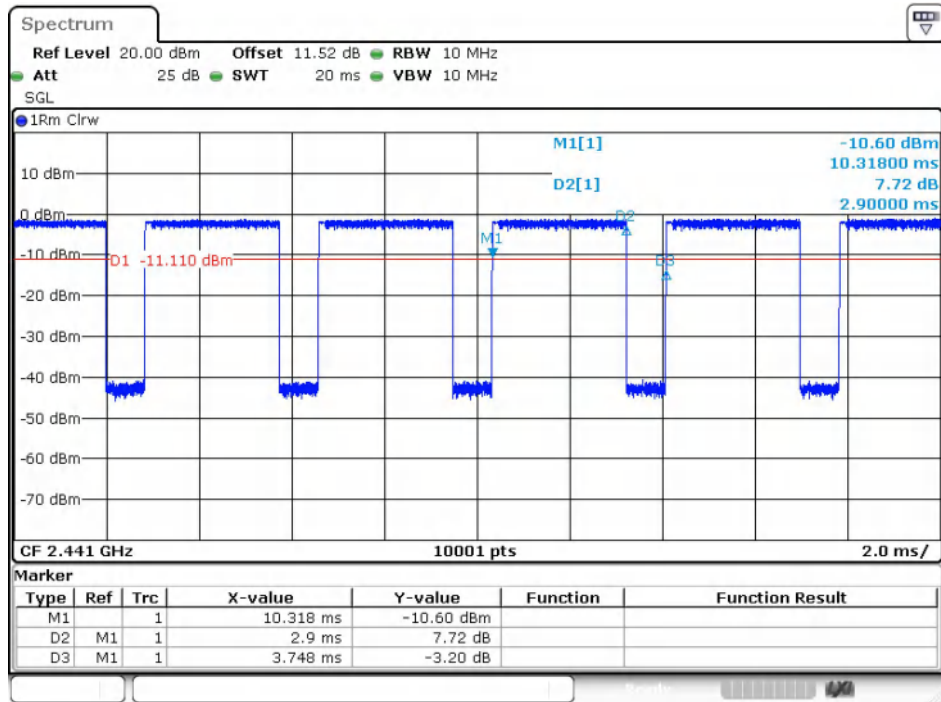
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$\pi/4$ DQPSK(2-DH5)_Channel 78



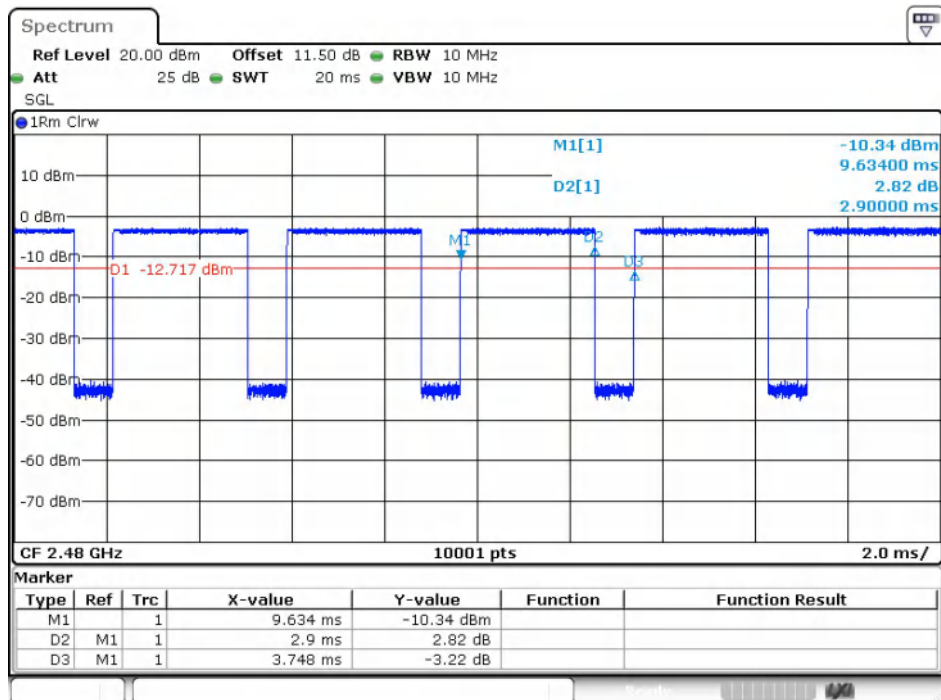
Date: 28.AUG.2024 21:09:31

8DPSK(3-DH5)_Channel 0



Date: 28.AUG.2024 21:18:36

8DPSK(3-DH5)_Channel 39



Date: 28.AUG.2024 21:23:09

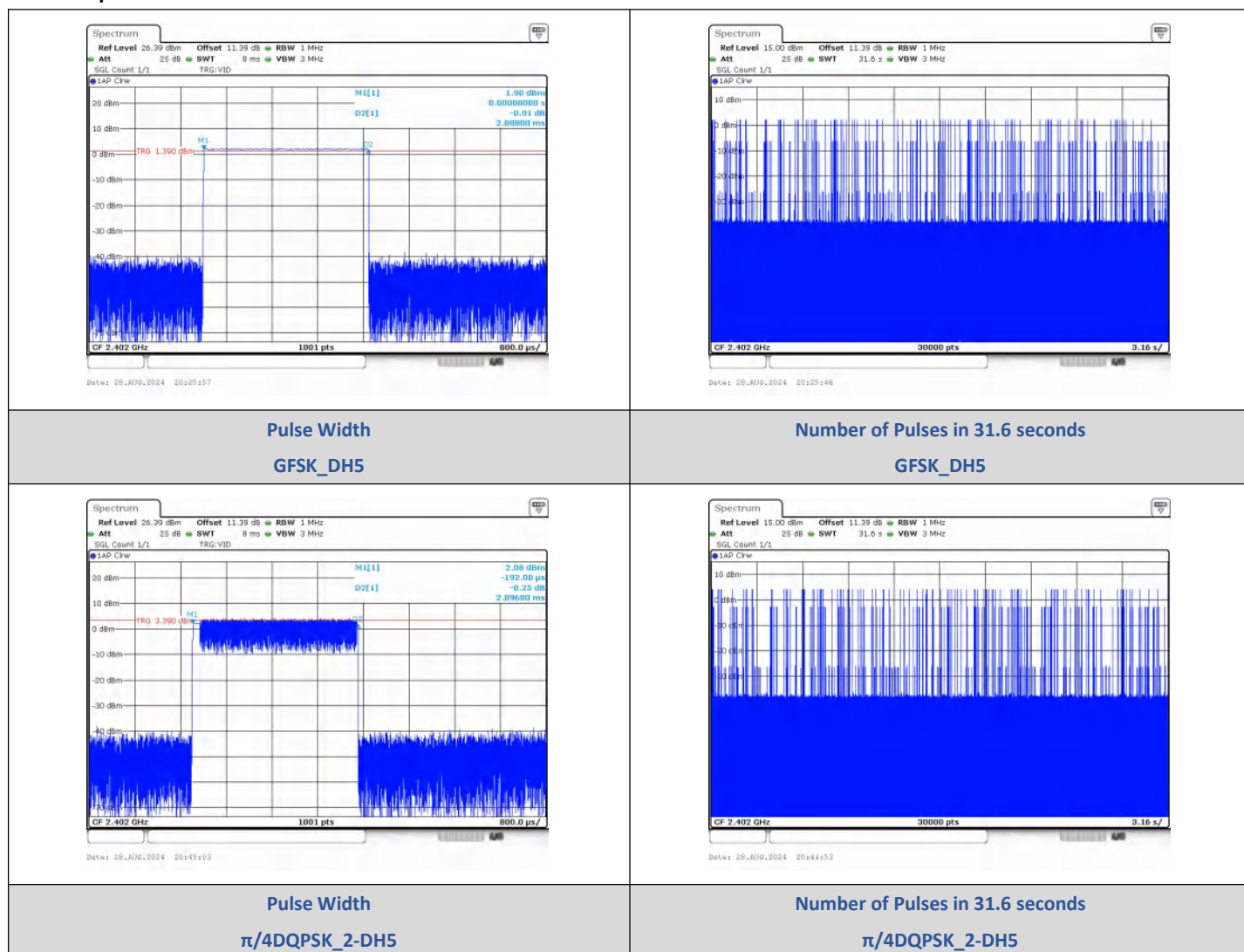
8DPSK(3-DH5)_Channel 78

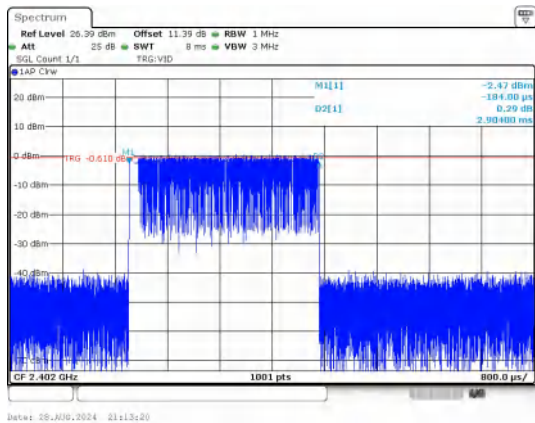
2) Dwell Time

Test Result

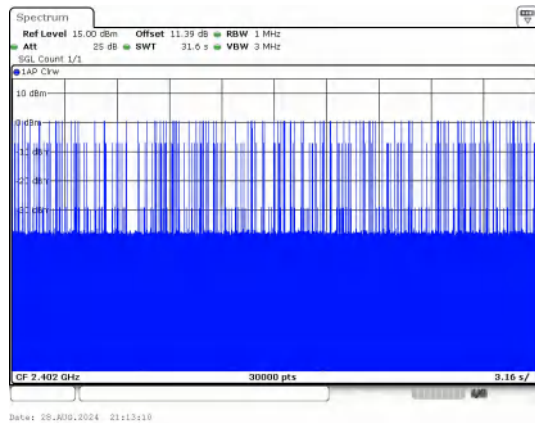
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.888	99	285.91	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	101	292.5		PASS
8DPSK	3-DH5		2.904	112	325.25		PASS

Test Graphs





Pulse Width
8DPSK_3-DH5



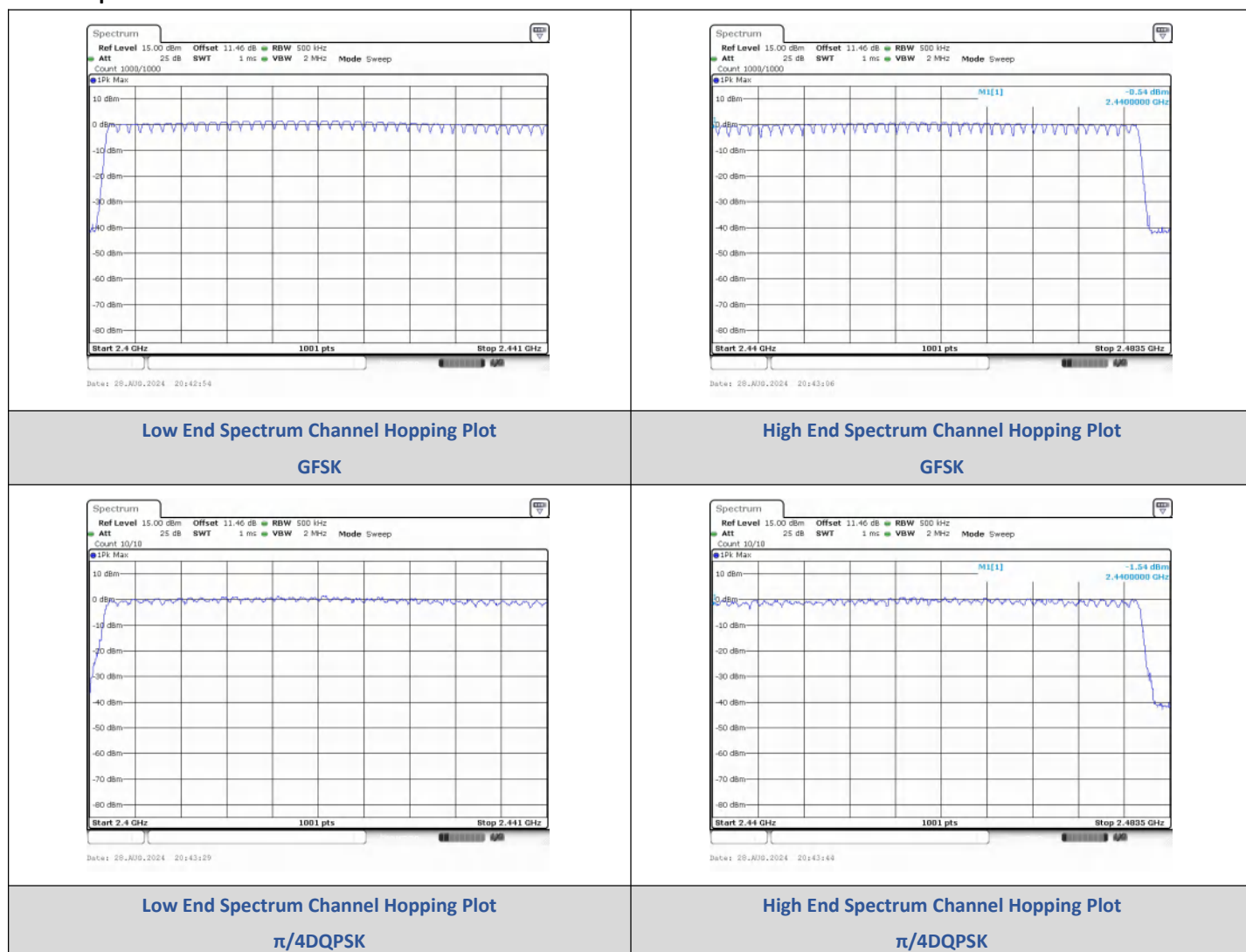
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

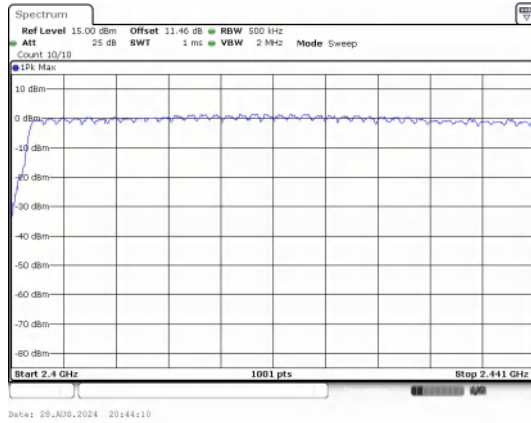
3) Number Of Hopping Channel

Test Result

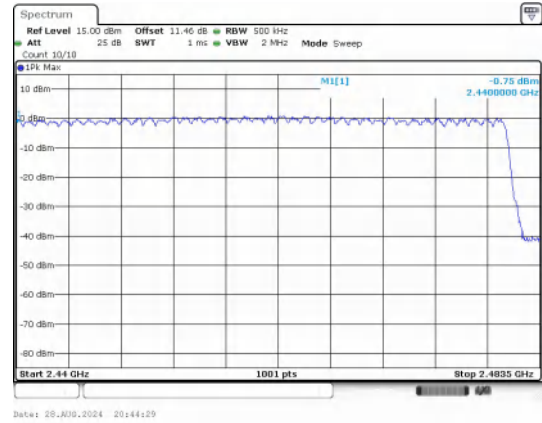
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





Low End Spectrum Channel Hopping Plot
8DPSK



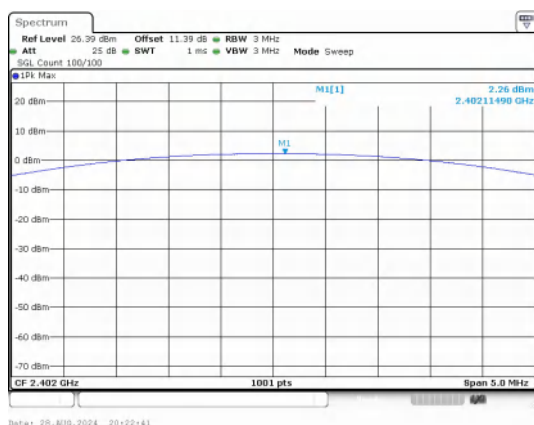
High End Spectrum Channel Hopping Plot
8DPSK

4) Conducted Peak Output Power

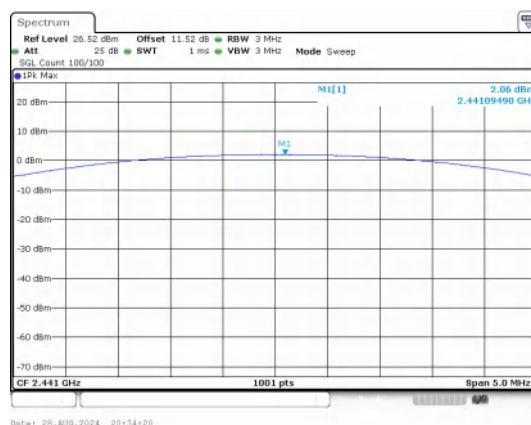
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	2.26	1.68	≤30	PASS
		39	2.06	1.61		PASS
		78	0.33	1.08		PASS
$\pi/4$ DQPSK	2-DH5	0	3.72	2.36	≤20.97	PASS
		39	4.01	2.52		PASS
		78	3.41	2.19		PASS
8DPSK	3-DH5	0	3.77	2.38		PASS
		39	4.07	2.55		PASS
		78	3.47	2.22		PASS

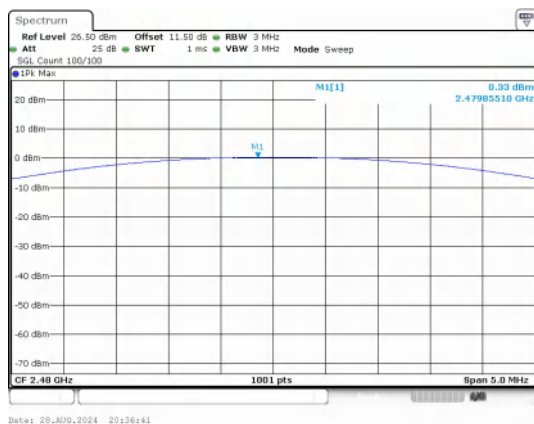
Test Graphs



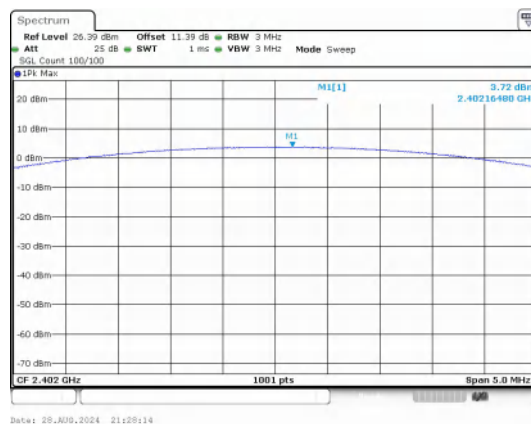
Peak Output Power
GFSK_Channel 0



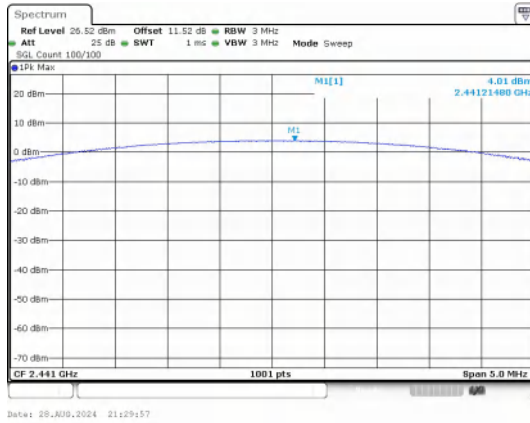
Peak Output Power
GFSK_Channel 39



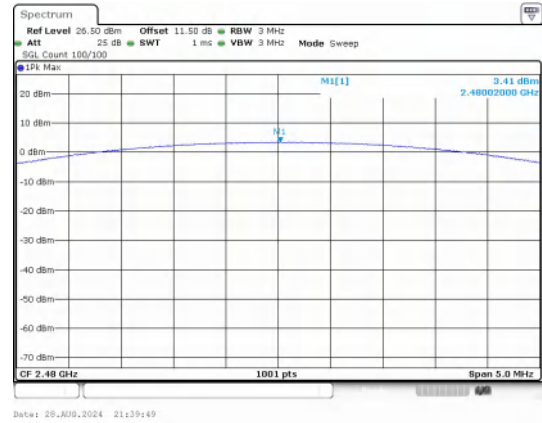
Peak Output Power
GFSK_Channel 78



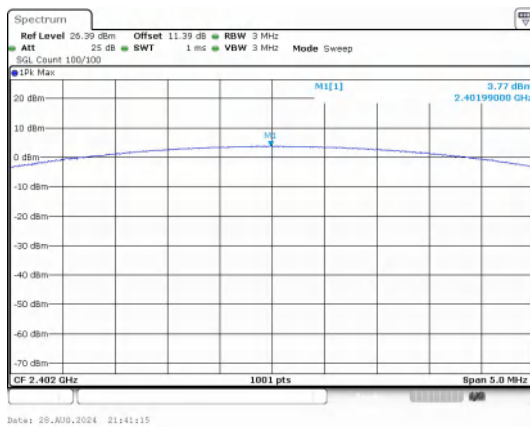
Peak Output Power
 $\pi/4$ DQPSK_Channel 0



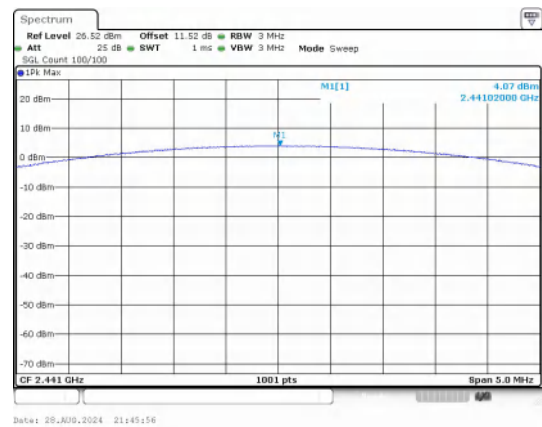
Peak Output Power
 $\pi/4$ DQPSK_Channel 39



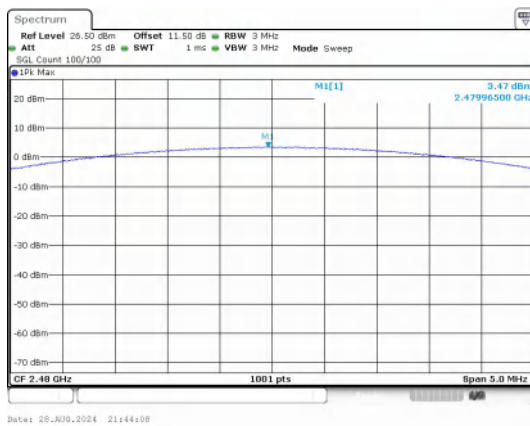
Peak Output Power
 $\pi/4$ DQPSK_Channel 78



Peak Output Power
8DPSK_Channel 0



Peak Output Power
8DPSK_Channel 39



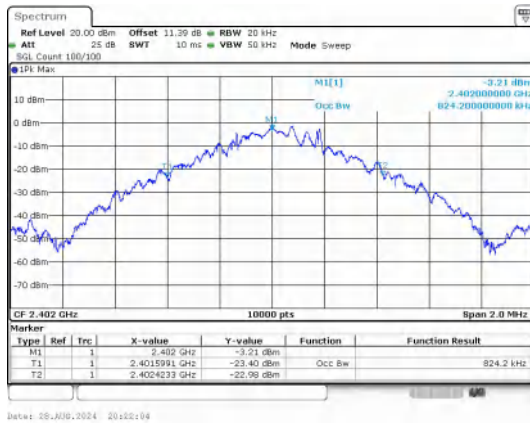
Peak Output Power
8DPSK_Channel 78

5) 99% Bandwidth

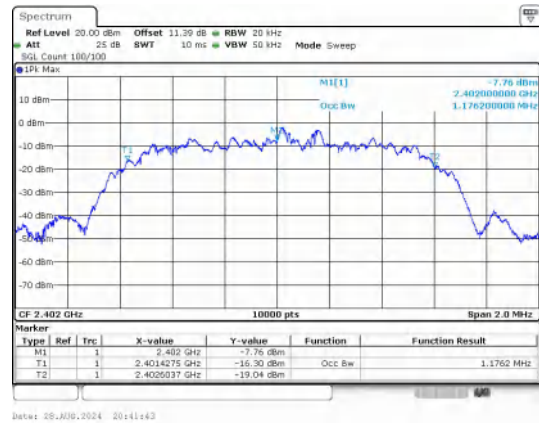
Test Result

Modulation	Channel	Center Frequency (MHz)	99% BW (MHz)
GFSK	0	2402	0.82420
	39	2441	0.83440
	78	2480	0.81780
$\pi/4$ DQPSK	0	2402	1.1762
	39	2441	1.1792
	78	2480	1.1738
8DPSK	0	2402	1.1796
	39	2441	1.1786
	78	2480	1.1780

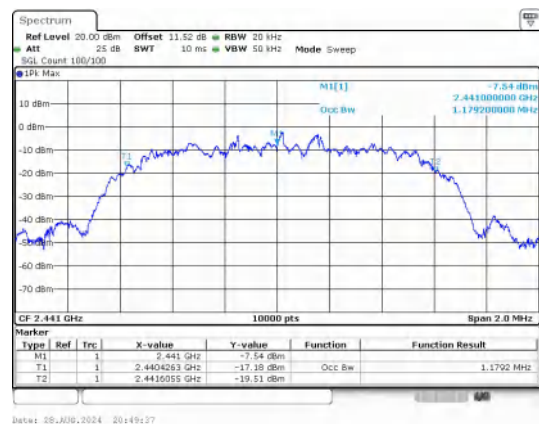
Test Graphs

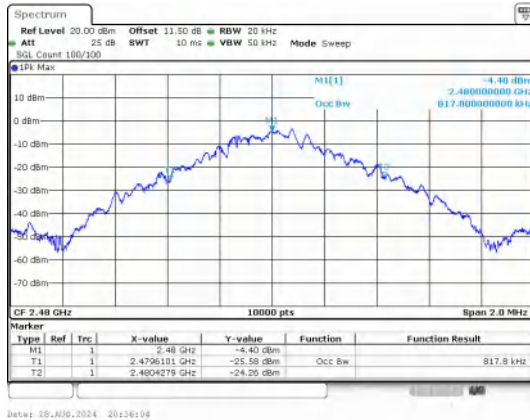


GFSK_DH5_Channel 0


 $\pi/4$ DQPSK_2-DH5_Channel 0


GFSK_DH5_Channel 39

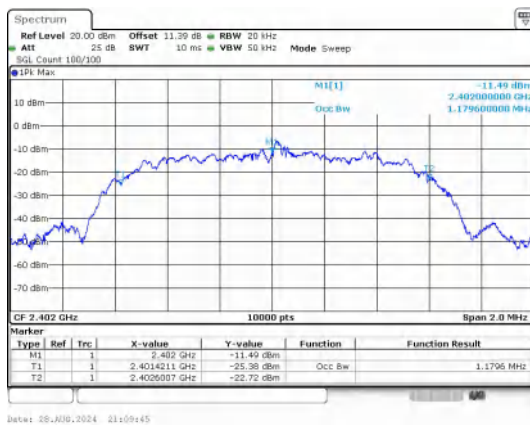

 $\pi/4$ DQPSK_2-DH5_Channel 39



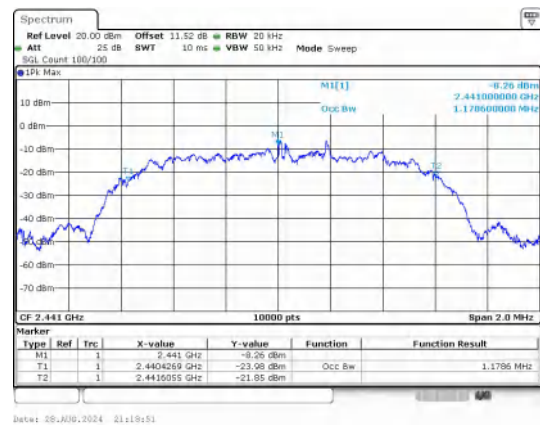
GFSK_DH5_Channel 78



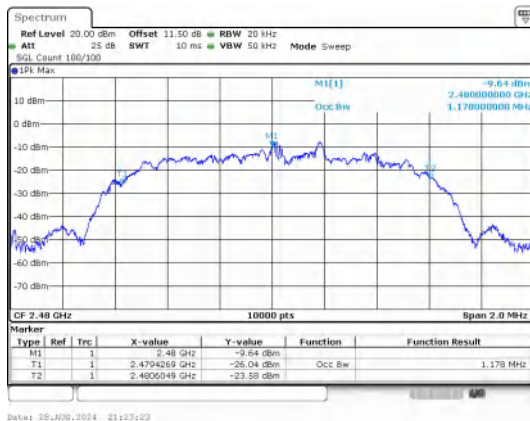
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



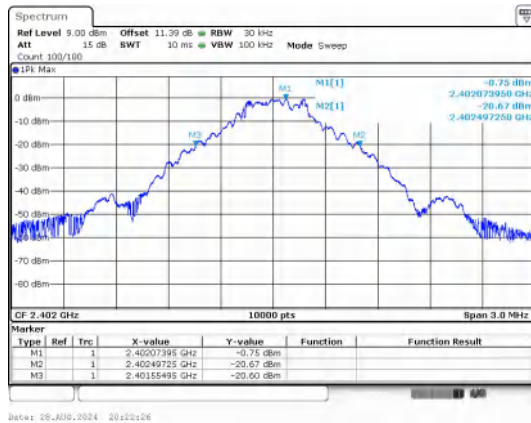
8DPSK_3-DH5_Channel 78

6) 20dB Bandwidth

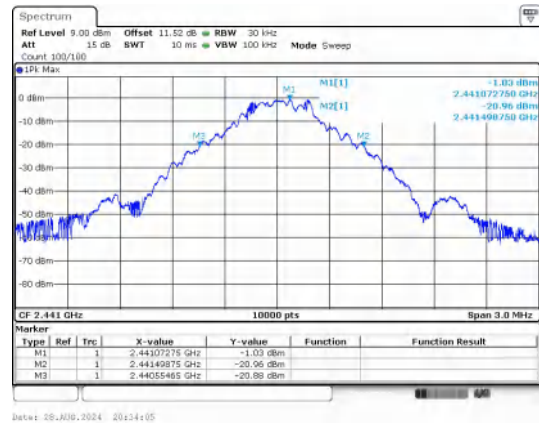
Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	0.9500
	39	2441 MHz	0.9500
	78	2480 MHz	0.9500
$\pi/4$ DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.320
	78	2480 MHz	1.310
8DPSK	0	2402 MHz	1.290
	39	2441 MHz	1.280
	78	2480 MHz	1.290

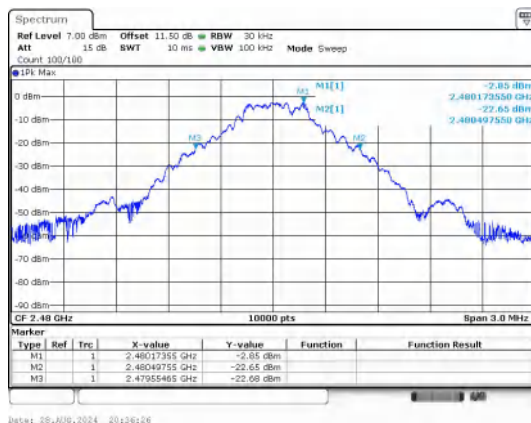
Test Graphs



GFSK_DH5_Channel 0

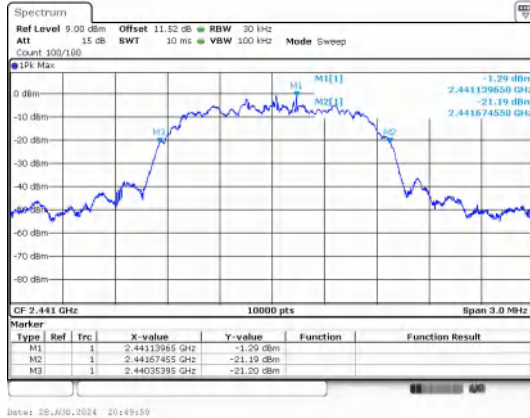


GFSK_DH5_Channel 39



GFSK_DH5_Channel 78

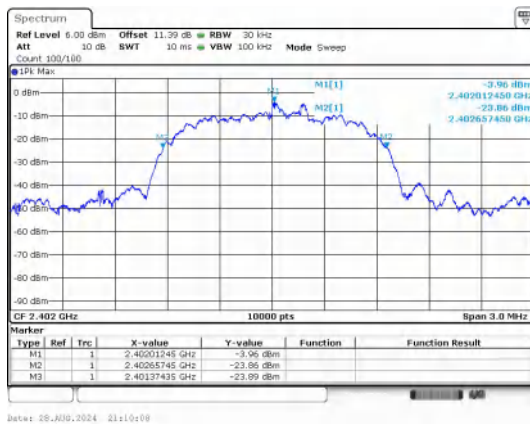

 $\pi/4$ DQPSK_2-DH5_Channel 0



$\pi/4$ DQPSK_2-DH5_Channel 39



$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



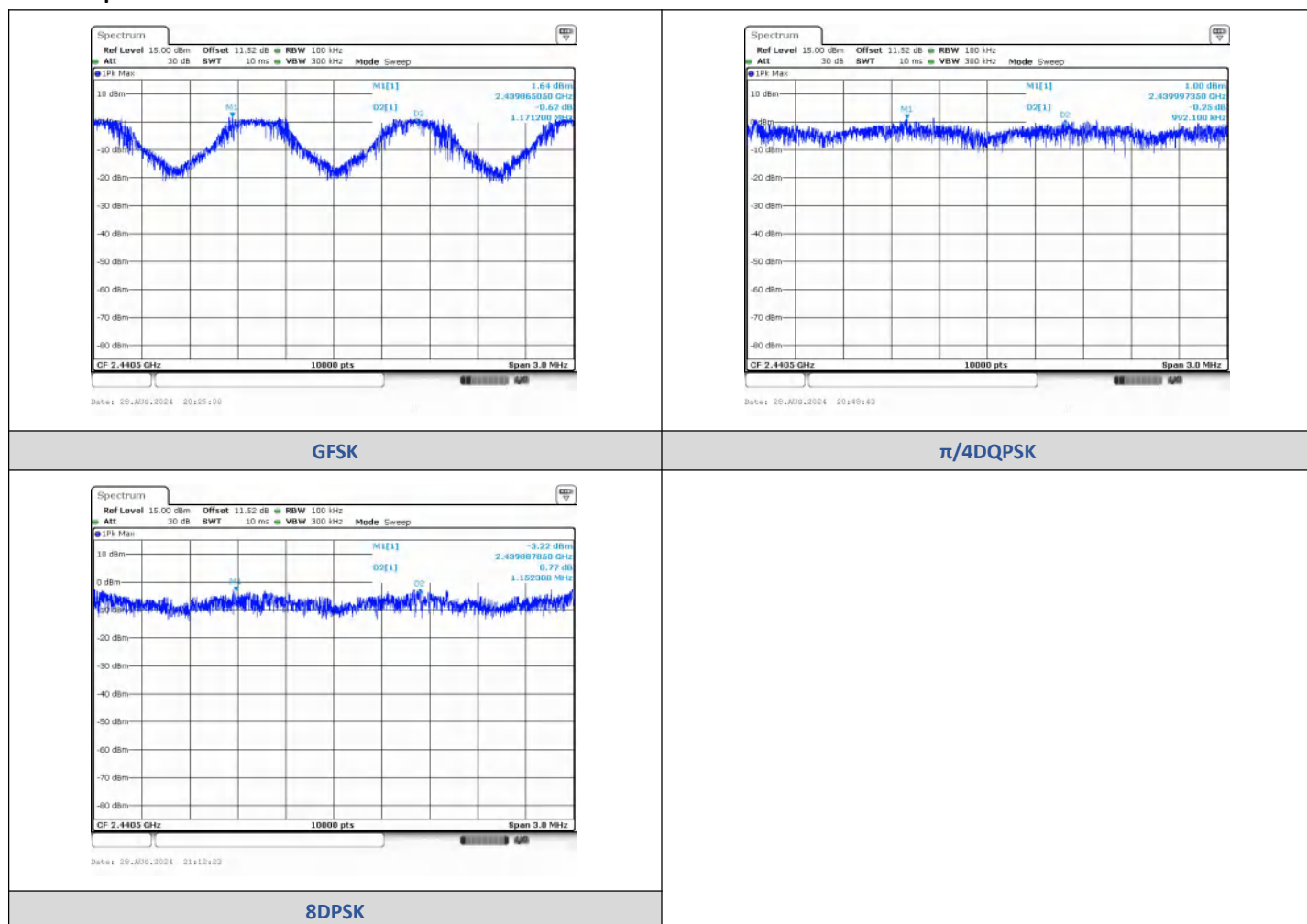
8DPSK_3-DH5_Channel 78

7) Carrier Frequencies Separation

Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.865	2441.0363	1.1712	0.9500	PASS
$\pi/4$ DQPSK	2-DH5	2439.9974	2440.9895	0.9921	0.873	PASS
8DPSK	3-DH5	2439.8879	2441.0401	1.1523	0.86	PASS

Test Graphs



8) Conducted Out Of Band Emission

Test Result

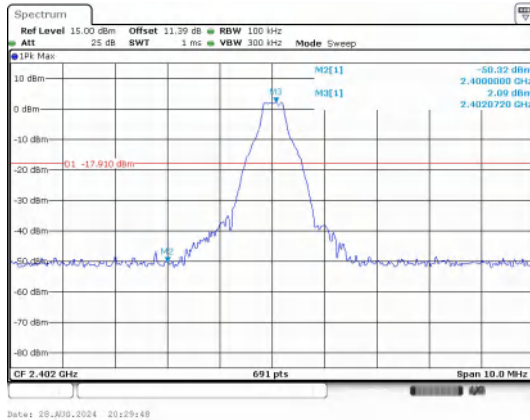
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2399.00	-48.527	-17.91	-30.617	PASS
			2400.00	-50.323	-17.91	-32.413	PASS
			4803.80	-41.606	-17.91	-23.696	PASS
		39	4882.09	-42.381	-18.17	-24.211	PASS
		78	2483.50	-49.629	-19.86	-29.769	PASS
			4959.49	-44.213	-19.86	-24.353	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-40.232	-16.8	-23.432	PASS
			7205.96	-37.566	-16.8	-20.766	PASS
		39	9764.55	-39.635	-16.78	-22.855	PASS
		78	2483.50	-50.291	-17.37	-32.921	PASS
			9920.20	-37.715	-17.37	-20.345	PASS
8DPSK	3-DH5	0	2400.00	-38.795	-16.82	-21.975	PASS
			7205.96	-39.517	-16.82	-22.697	PASS
		39	9763.72	-40.317	-16.78	-23.537	PASS
		78	2483.50	-50.363	-17.5	-32.863	PASS
			9920.20	-37.648	-17.5	-20.148	PASS

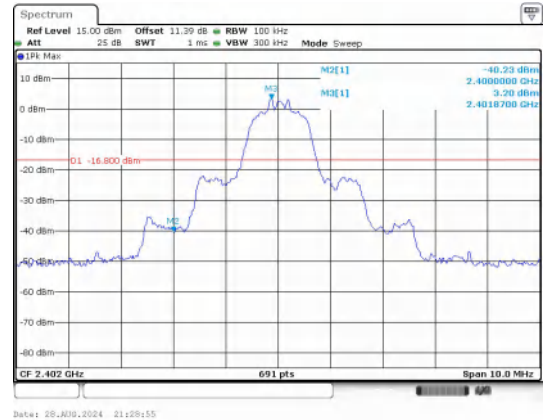
Hopping

Hopping							
Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2398.96	-49.232	-18.34	-30.892	PASS
			2400.00	-51.265	-18.34	-32.925	PASS
			2483.50	-49.056	-20.81	-28.246	PASS
$\pi/4$ DQPSK	2-DH5		2396.18	-47.908	-18.69	-29.218	PASS
			2400.00	-50.737	-18.69	-32.047	PASS
			2483.50	-50.203	-20.25	-29.953	PASS
8DPSK	3-DH5		2398.68	-48.581	-22.47	-26.111	PASS
			2400.00	-50.670	-22.47	-28.200	PASS
			2483.50	-49.372	-23.22	-26.152	PASS

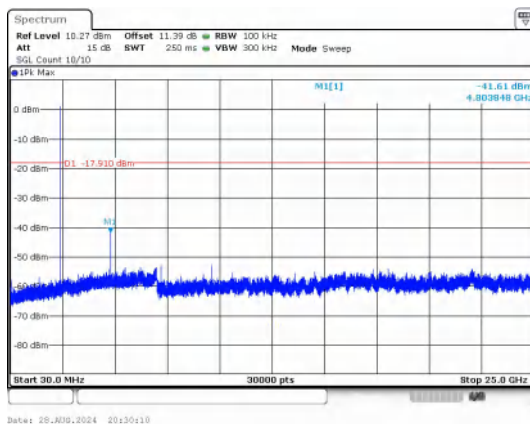
Test Graphs



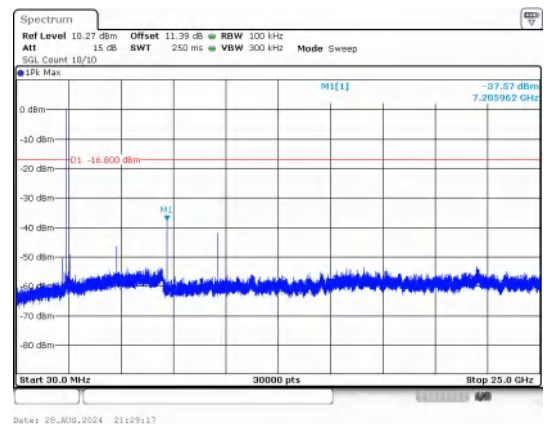
Out Of Band Emission
GFSK_DH5_Channel 0



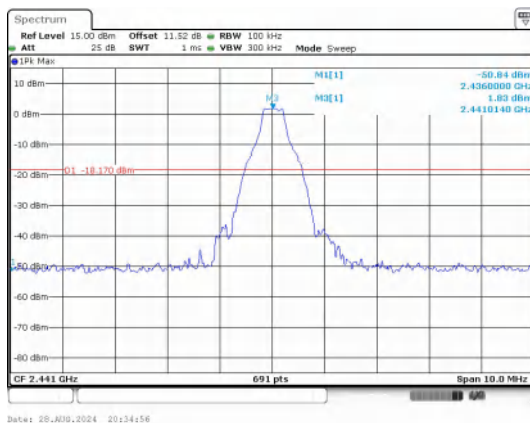
Out Of Band Emission
 $\pi/4$ QPSK_2-DH5_Channel 0



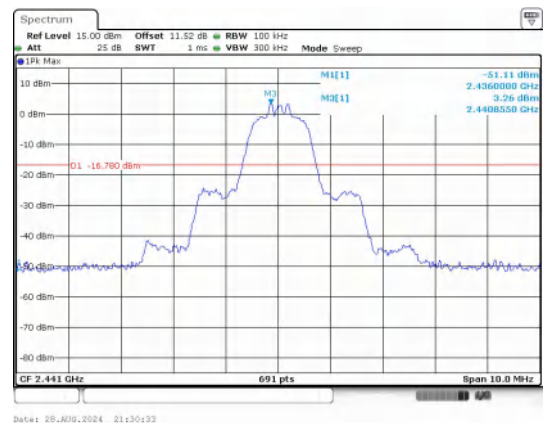
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



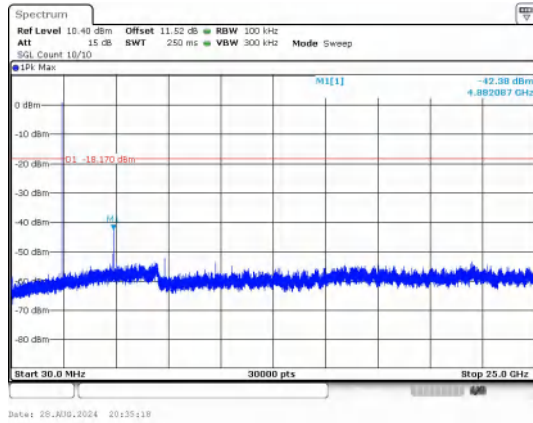
30.0 MHz - 25000.0 MHz
 $\pi/4$ QPSK_2-DH5_Channel 0



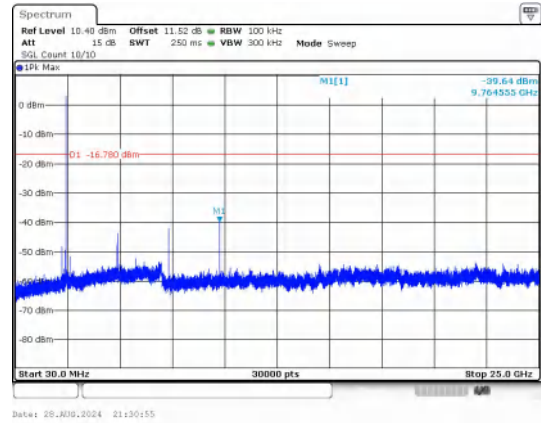
Out Of Band Emission
GFSK_DH5_Channel 39



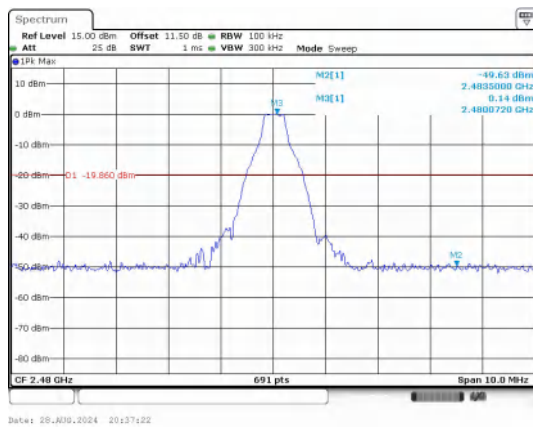
Out Of Band Emission
 $\pi/4$ QPSK_2-DH5_Channel 39



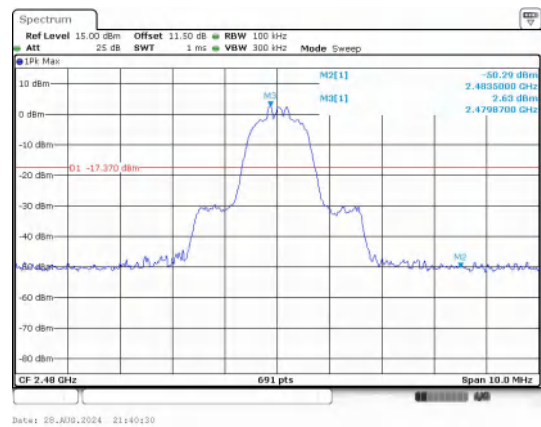
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



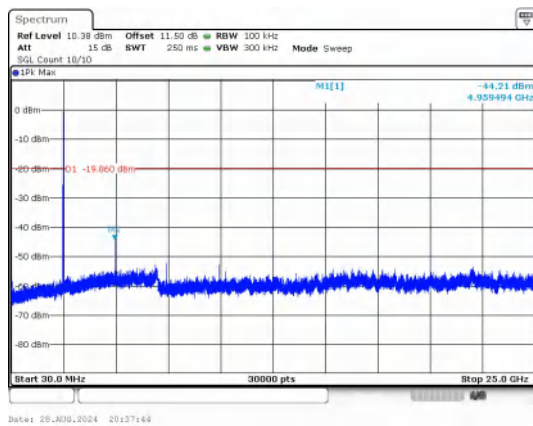
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 39



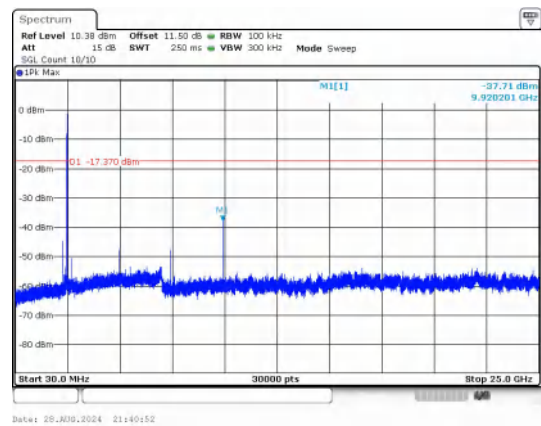
Out Of Band Emission
GFSK_DH5_Channel 78



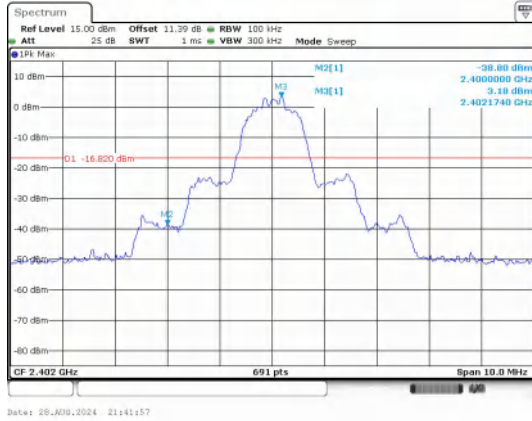
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78



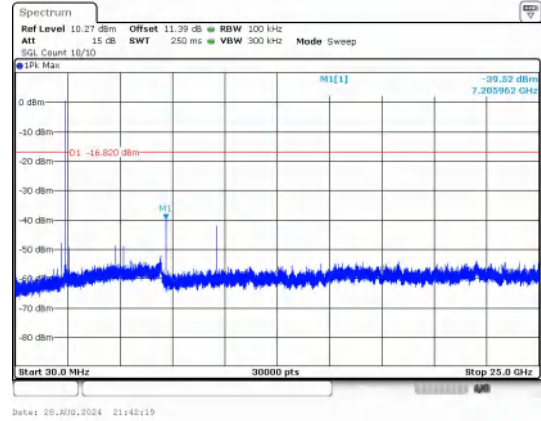
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



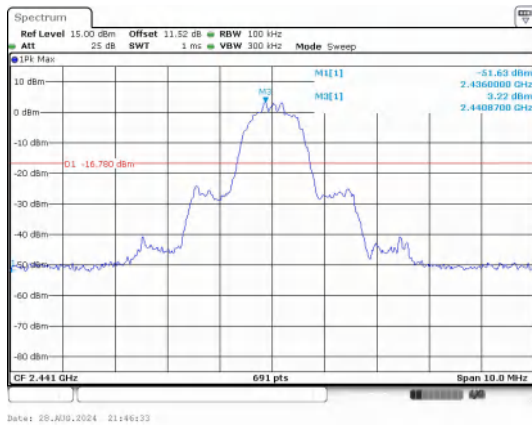
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 78



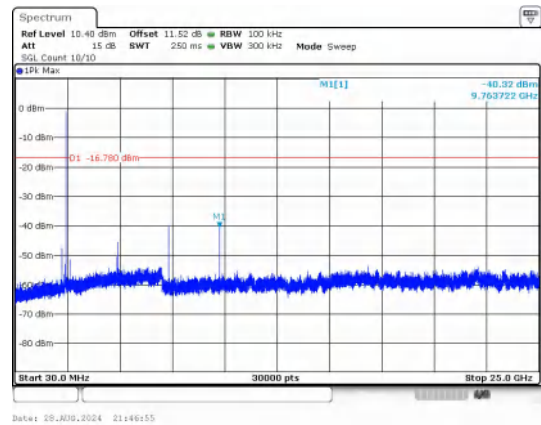
Out Of Band Emission
8DPSK_3-DH5_Channel 0



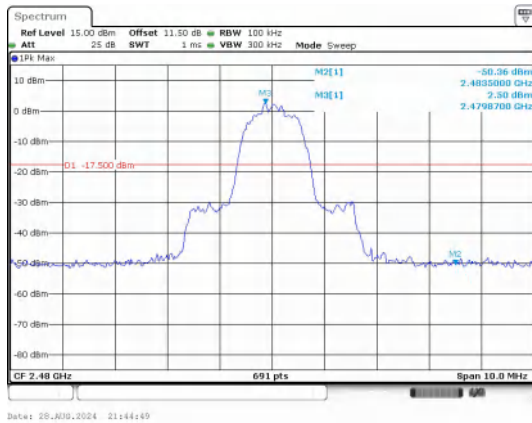
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0



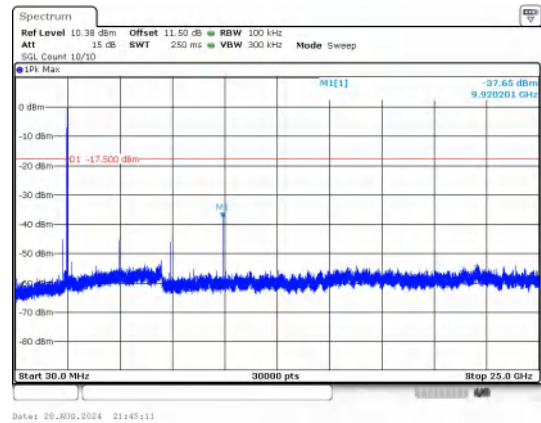
Out Of Band Emission
8DPSK_3-DH5_Channel 39



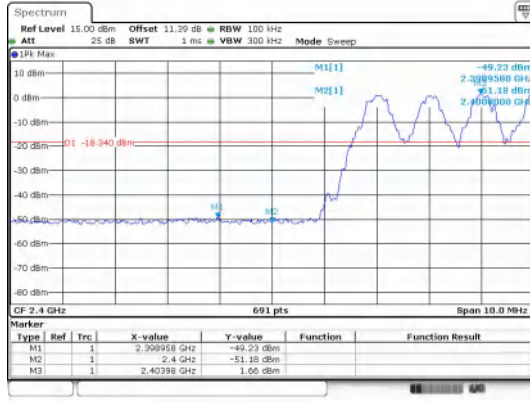
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



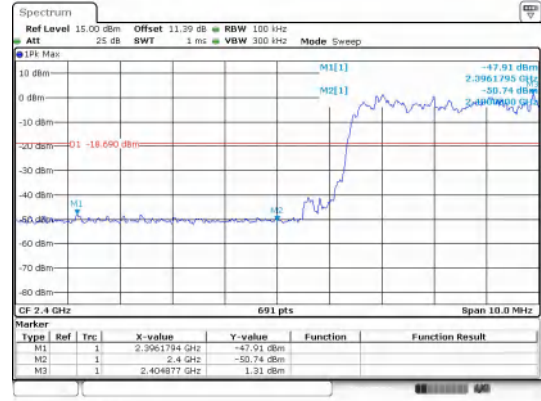
Out Of Band Emission
8DPSK_3-DH5_Channel 78



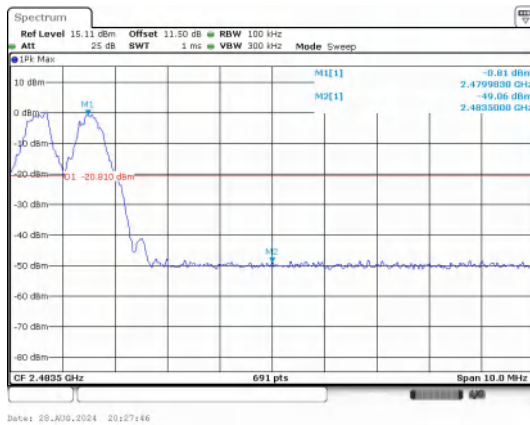
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



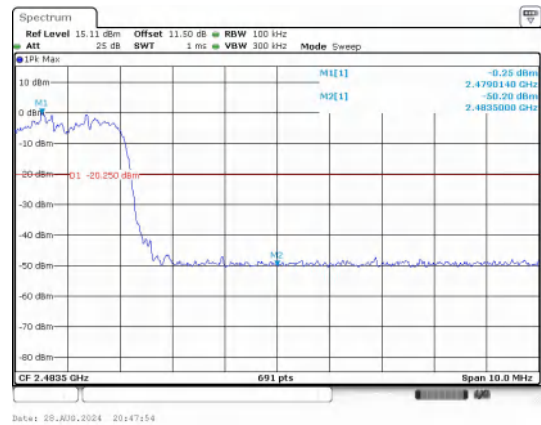
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



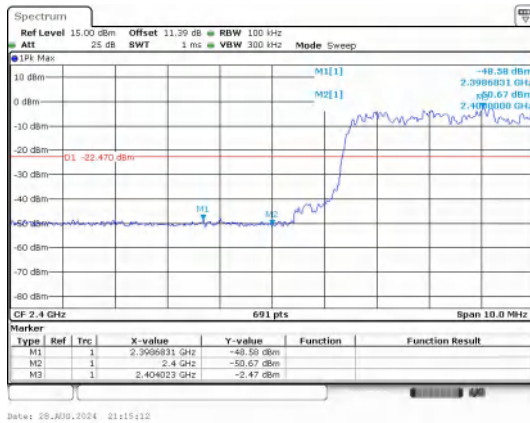
Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping



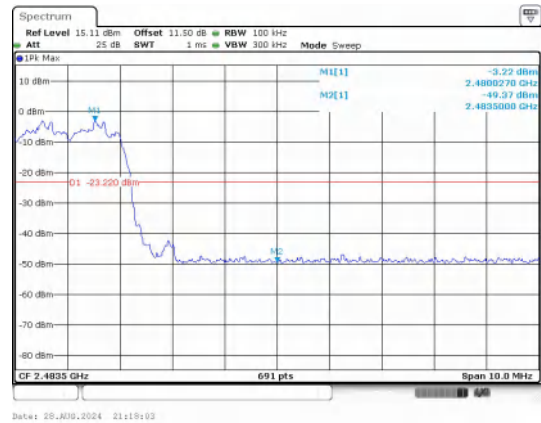
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



Out Of Band Emission(Right)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping



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



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