Appendix A _ Conducted Test Data

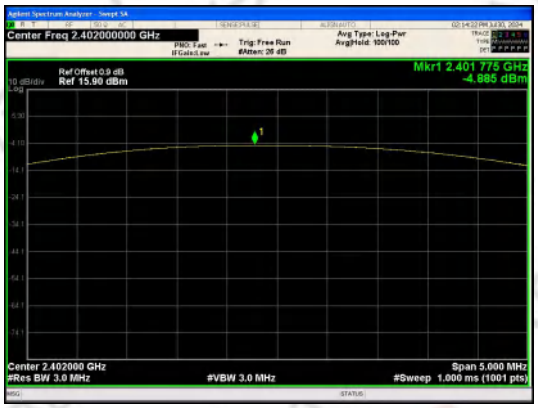
Appendix A 1. Conducted Output Power

Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Max. Avg. Power (dBm)	Limit (dBm)	Result
GFSK	DH5	0	-4.885	0.325	None	≤30	PASS
		39	-4.214	0.379	None		PASS
		78	-4.247	0.376	None		PASS
π/4DQPSK	2-DH5	0	-3.876	0.410	None	≤20.97	PASS
		39	-3.252	0.473	None		PASS
		78	-3.308	0.467	None		PASS
8DPSK	3-DH5	0	-3.490	0.448	None		PASS
		39	-2.865	0.517	None		PASS
		78	-2.889	0.514	None		PASS

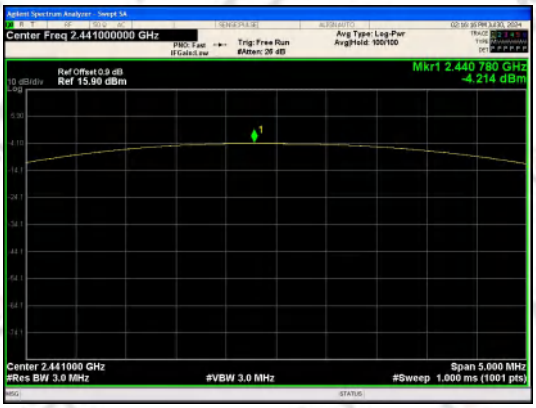
Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Power Limit (dBm)	ISED EIRP (dBm)	ISED EIRP Limit (dBm)	Max. Avg. Power (dBm)	Result
GFSK	DH5	0	-4.885	≤30	-5.465	≤36.02	None	PASS
		39	-4.214	≤30	-4.794	≤36.02	None	PASS
		78	-4.247	≤30	-4.827	≤36.02	None	PASS
π/4DQPSK	2-DH5	0	-3.876	≤20.97	-4.456	≤36.02	None	PASS
		39	-3.252	≤20.97	-3.832	≤36.02	None	PASS
		78	-3.308	≤20.97	-3.888	≤36.02	None	PASS
8DPSK	3-DH5	0	-3.490	≤20.97	-4.070	≤36.02	None	PASS
		39	-2.865	≤20.97	-3.445	≤36.02	None	PASS
		78	-2.889	≤20.97	-3.469	≤36.02	None	PASS

Test Graphs



Peak Output Power

GFSK_Channel 0



Peak Output Power

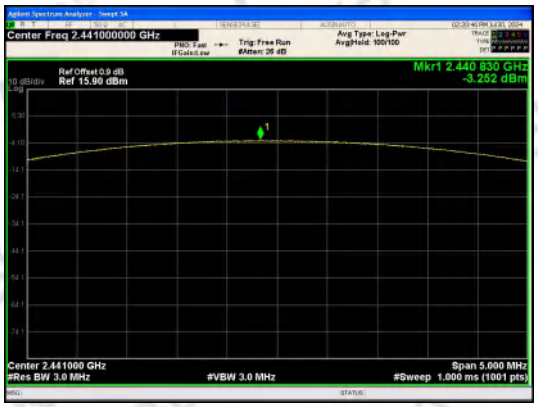
GFSK_Channel 39

Peak Output Power

GFSK_Channel 78

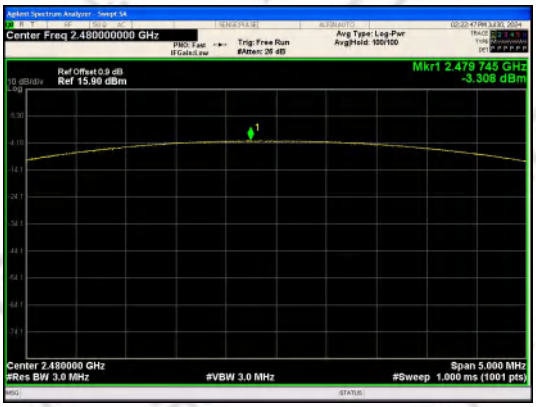
Peak Output Power

π/4DQPSK_Channel 0



Peak Output Power

π/4DQPSK_Channel 39

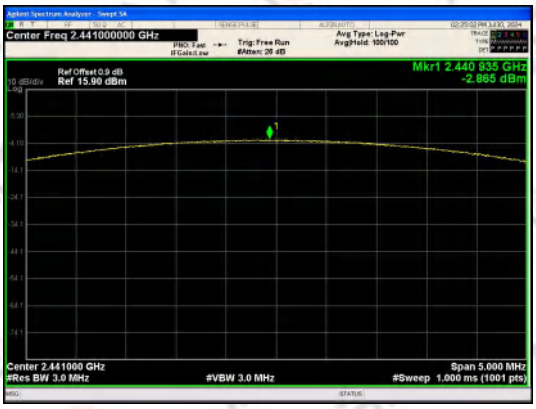


Peak Output Power

π/4DQPSK_Channel 78

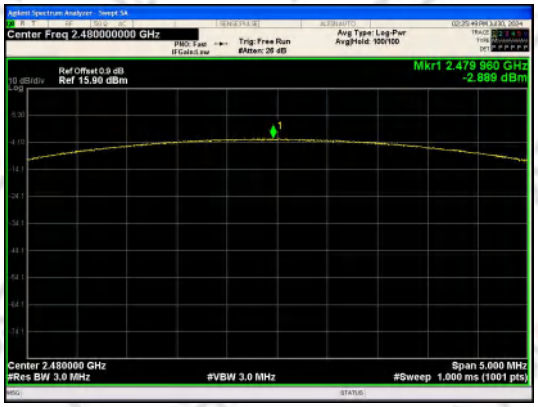
Peak Output Power

8DPSK_Channel 0



Peak Output Power

8DPSK_Channel 39



Peak Output Power

8DPSK_Channel 78

Appendix A 2. 99% Bandwidth and 20dB Bandwidth

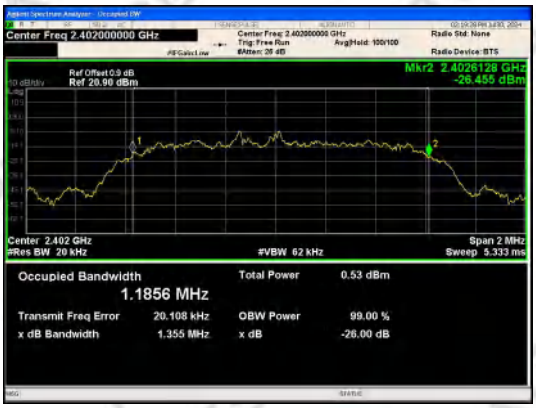
99% Bandwidth

Test Result

Modulation	Channel	Center Frequency (MHz)	99% BW (MHz)
GFSK	0	2402	0.85673
	39	2441	0.86102
	78	2480	0.87723
π/4DQPSK	0	2402	1.1856
	39	2441	1.1944
	78	2480	1.1844
8DPSK	0	2402	1.1868
	39	2441	1.1857
	78	2480	1.1810

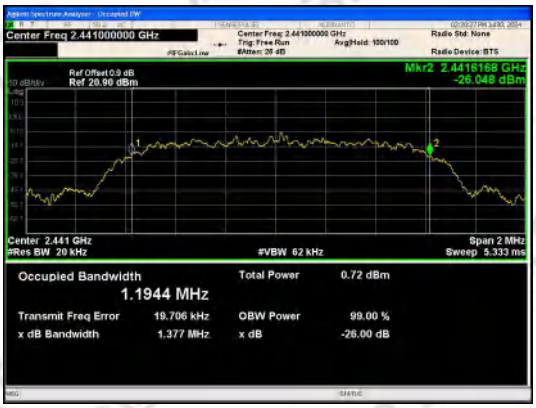
Test Graphs

GFSK_DH5_Channel 0



π/4DQPSK_2-DH5_Channel 0

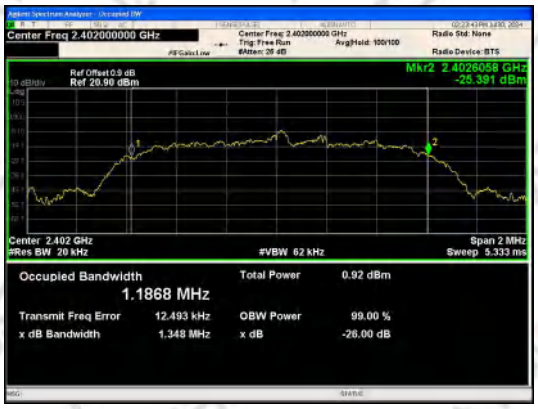
GFSK_DH5_Channel 39



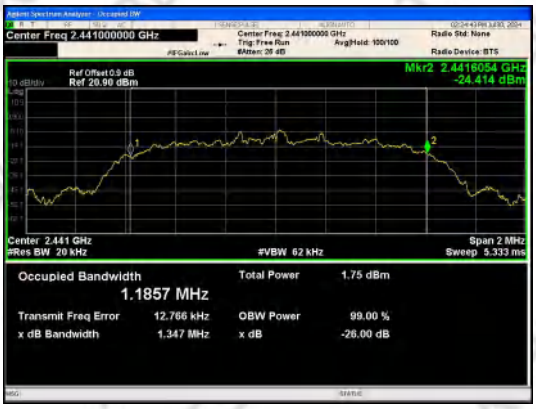
π/4DQPSK_2-DH5_Channel 39

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

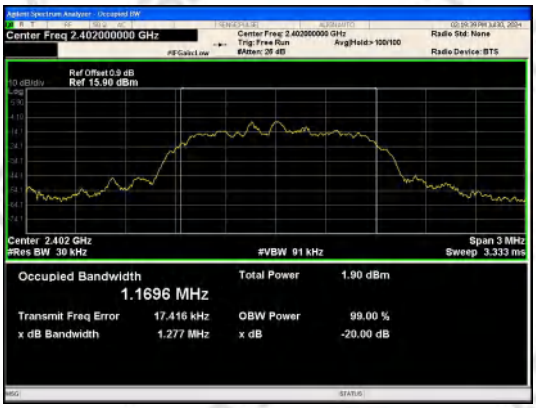
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	0.9554
	39	2441 MHz	0.9495
	78	2480 MHz	0.9438
π/4DQPSK	0	2402 MHz	1.277
	39	2441 MHz	1.304
	78	2480 MHz	1.275
8DPSK	0	2402 MHz	1.288
	39	2441 MHz	1.289
	78	2480 MHz	1.289

Test Graphs

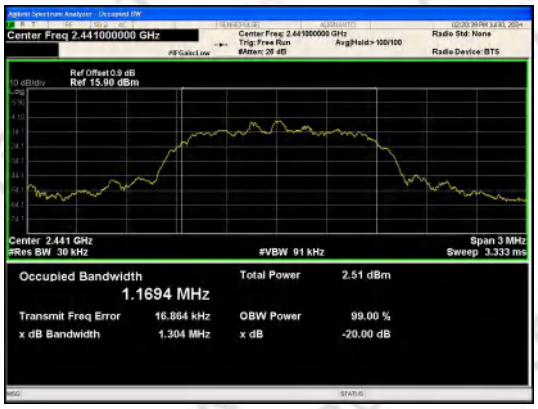
GFSK_DH5_Channel 0

GFSK_DH5_Channel 39

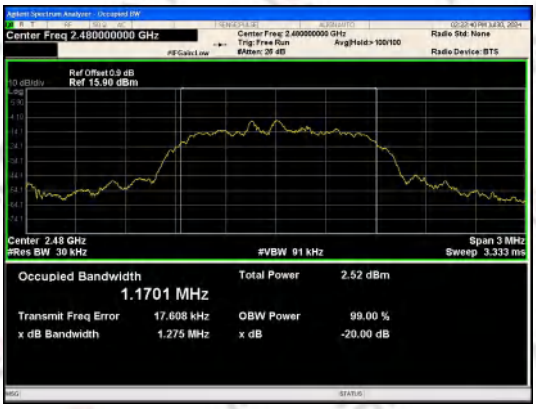
GFSK_DH5_Channel 78



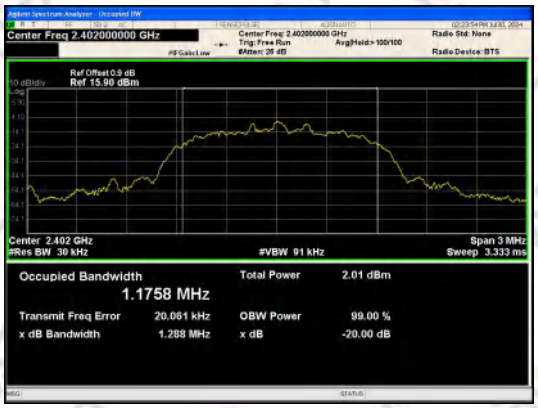
π/4DQPSK_2-DH5_Channel 0



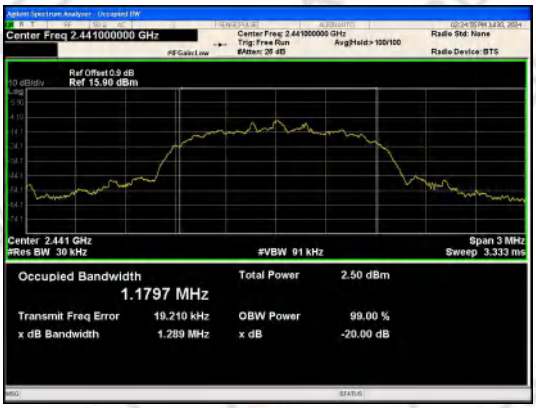
π/4DQPSK_2-DH5_Channel 39



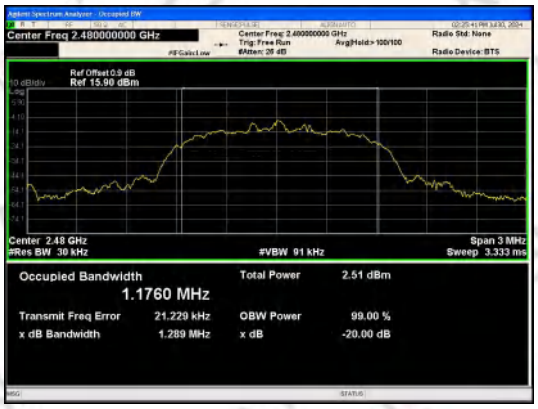
π/4DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



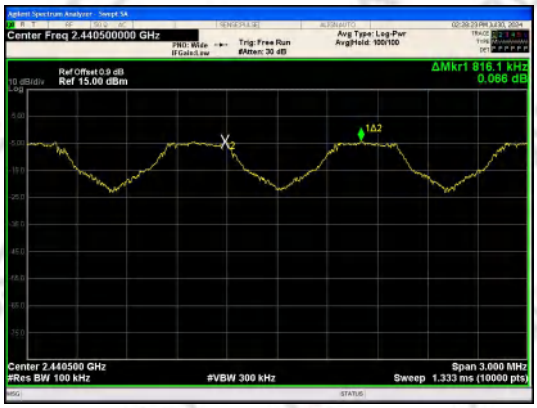
8DPSK_3-DH5_Channel 78

Appendix A 3. Carrier Frequencies Separation

Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2440.186	2441.0021	0.8161	0.637	PASS
π/4DQPSK	2-DH5	2439.8512	2441.1833	1.3321	0.851	PASS
8DPSK	3-DH5	2440.1797	2441.1788	0.9991	0.859	PASS

Test Graphs



GFSK

π/4DQPSK

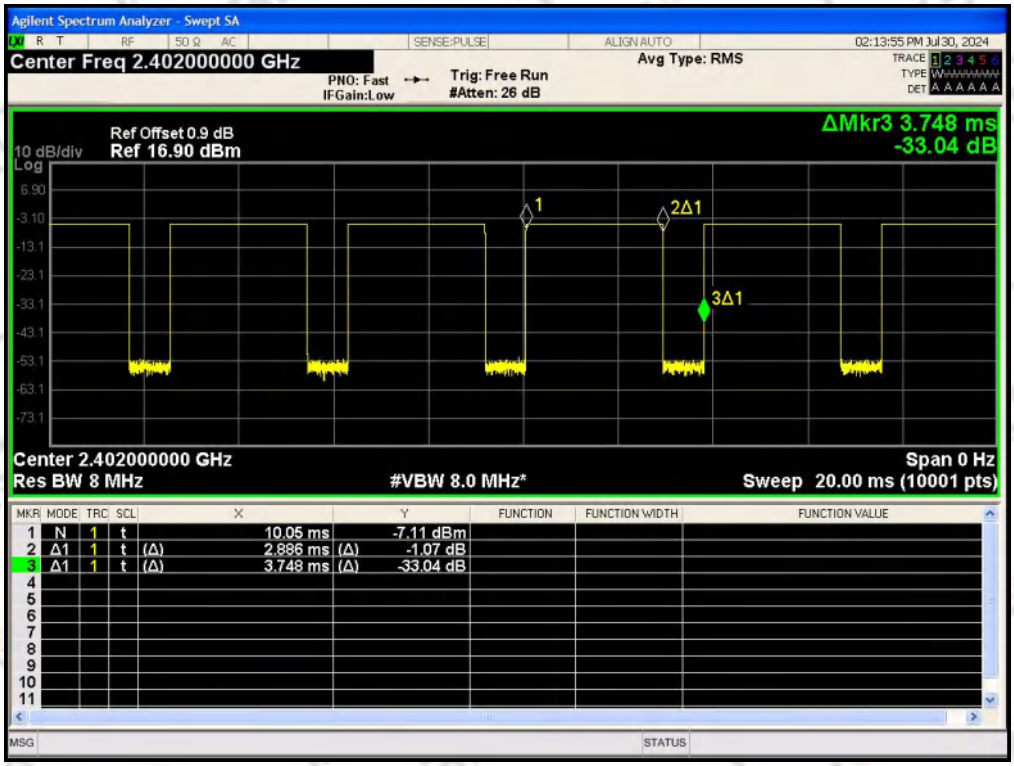
8DPSK

Appendix A 4. Duty Cycle

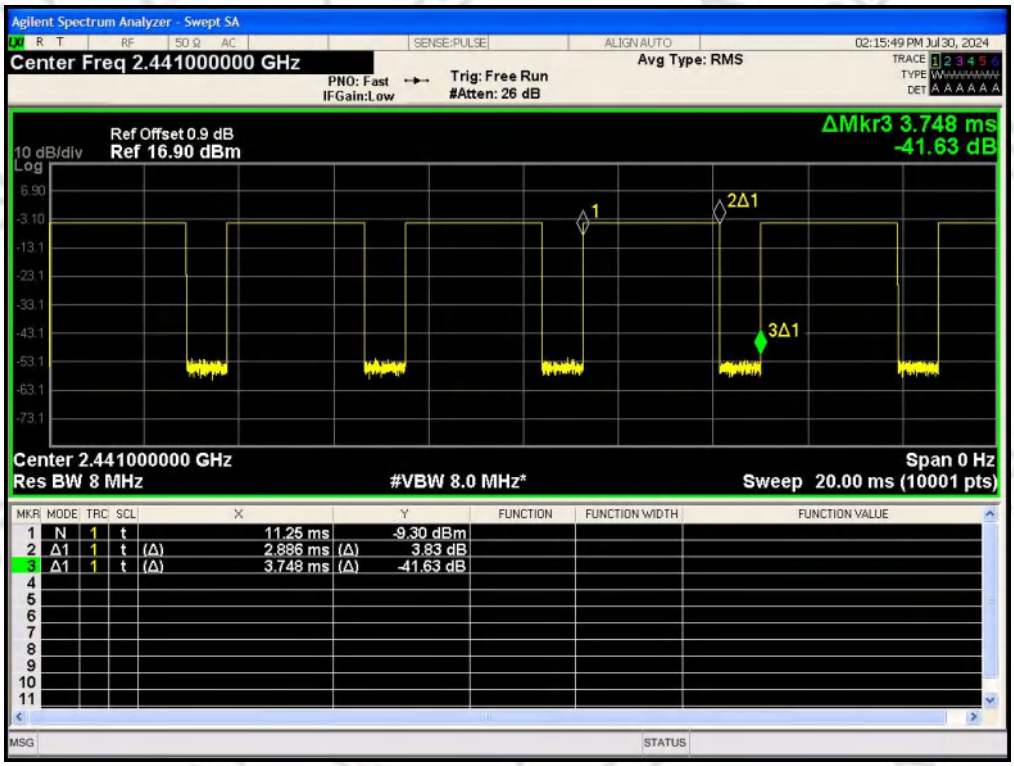
Test Result

Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)
GFSK	DH5	0	2.886	3.748	77.00	0.7700	1.1351
		39	2.886	3.748	77.00	0.7700	1.1351
		78	2.886	3.748	77.00	0.7700	1.1351
π/4DQPSK	2-DH5	0	2.890	3.748	77.11	0.7711	1.1289
		39	2.890	3.748	77.11	0.7711	1.1289
		78	2.890	3.748	77.11	0.7711	1.1289
8DPSK	3-DH5	0	2.892	3.748	77.16	0.7716	1.1261
		39	2.892	3.748	77.16	0.7716	1.1261
		78	2.894	3.748	77.21	0.7721	1.1233

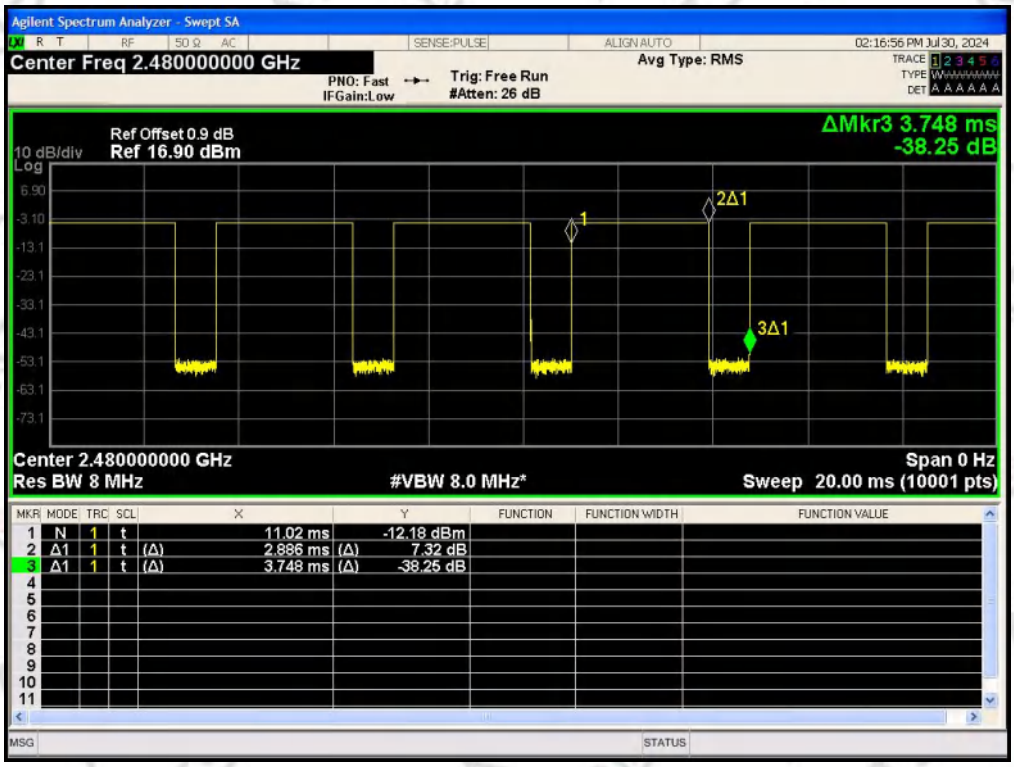
Test Graphs



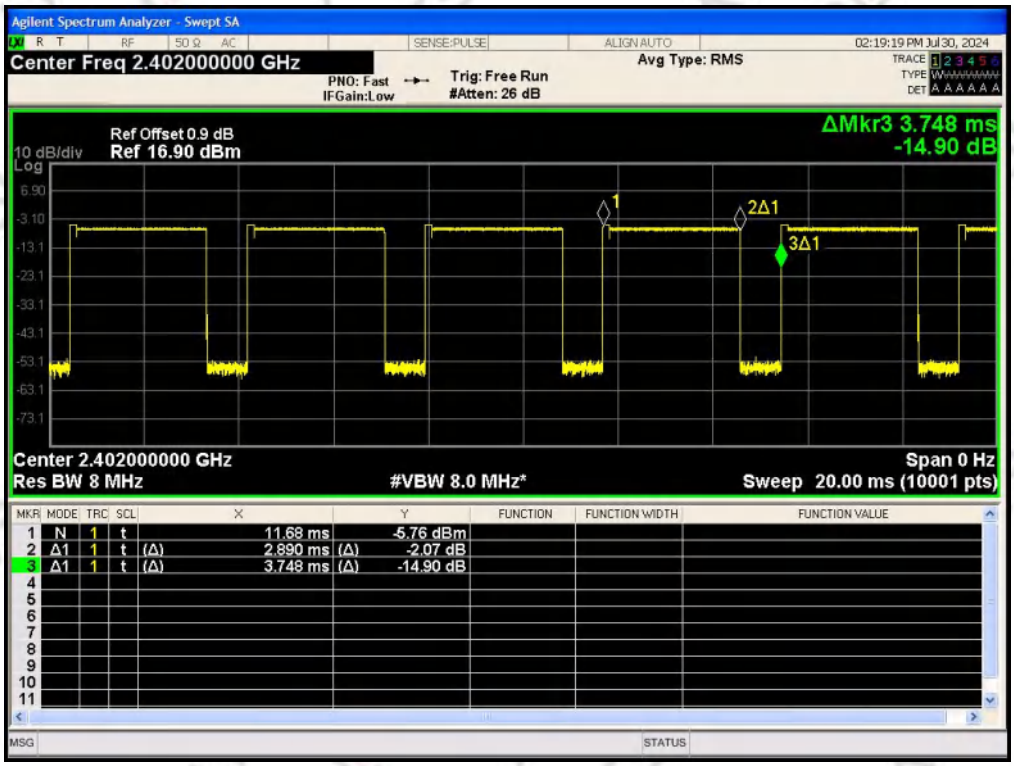
GFSK(DH5)_Channel 0



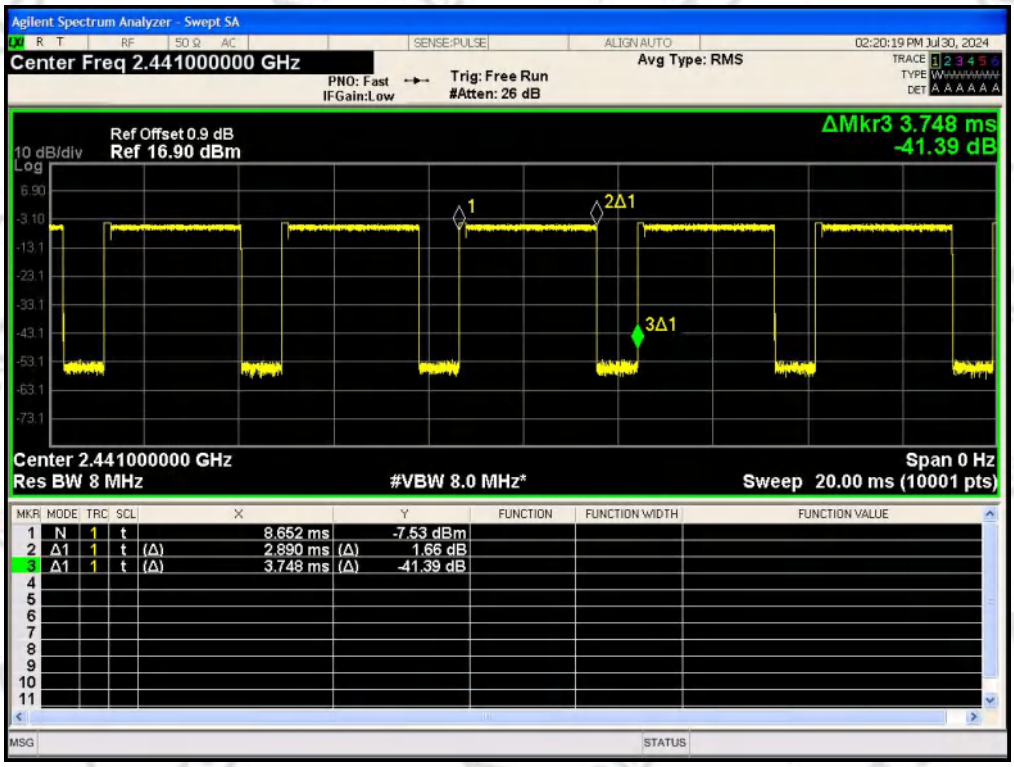
GFSK(DH5)_Channel 39



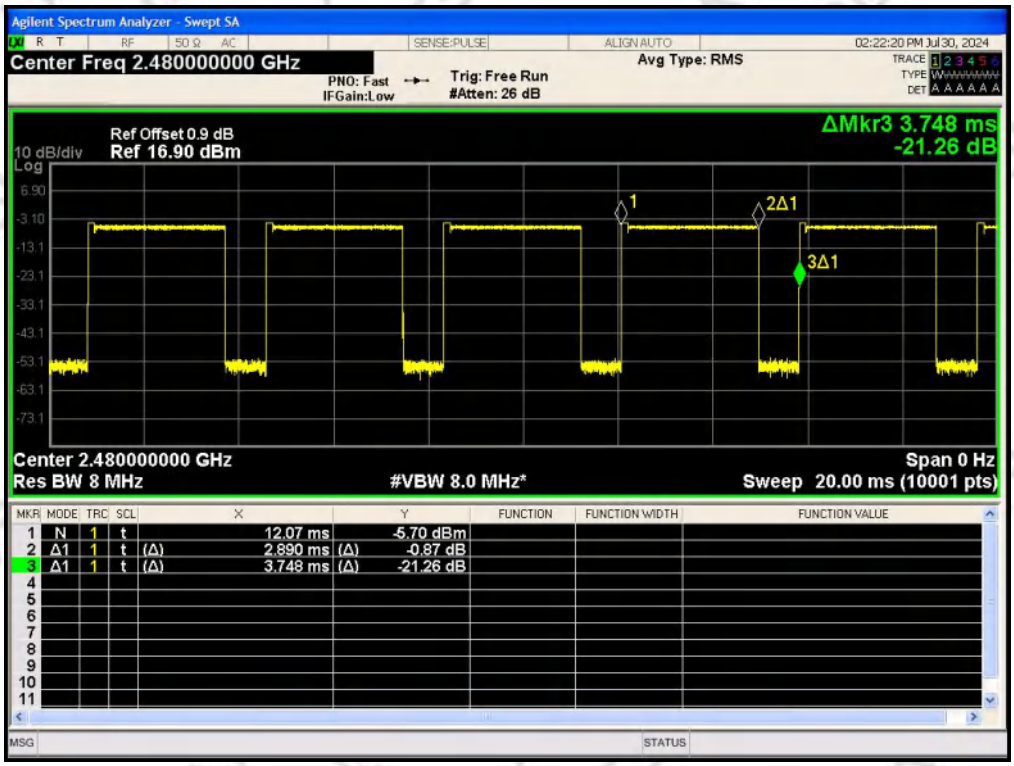
GFSK(DH5)_Channel 78



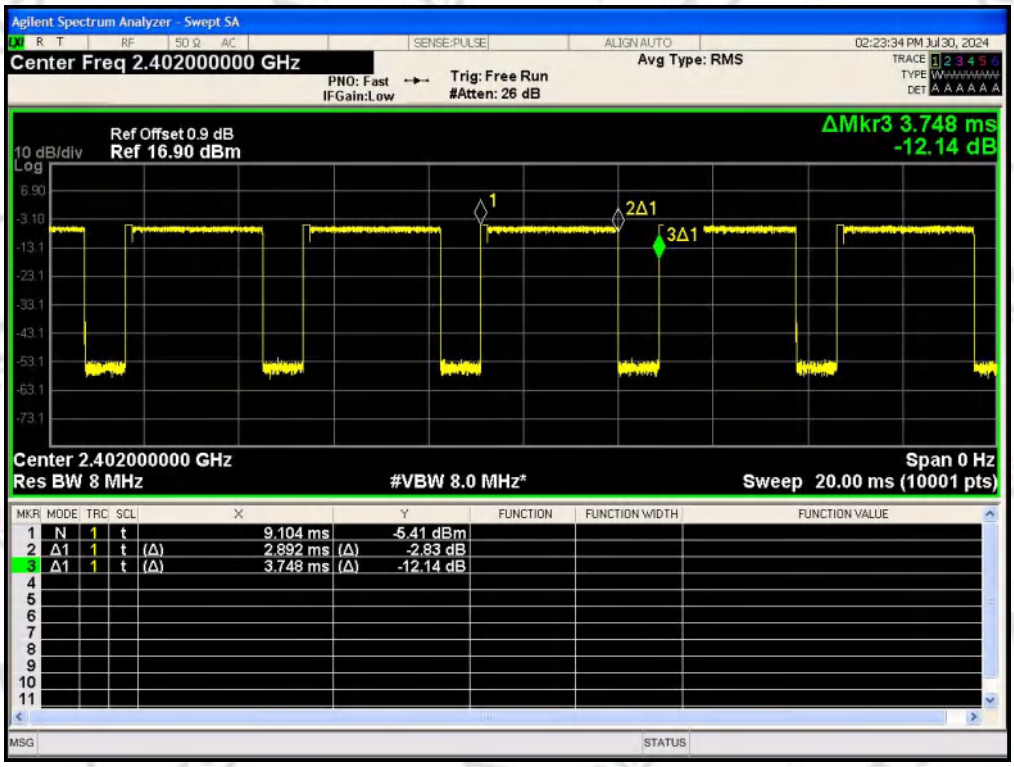
π/4DQPSK(2-DH5)_Channel 0



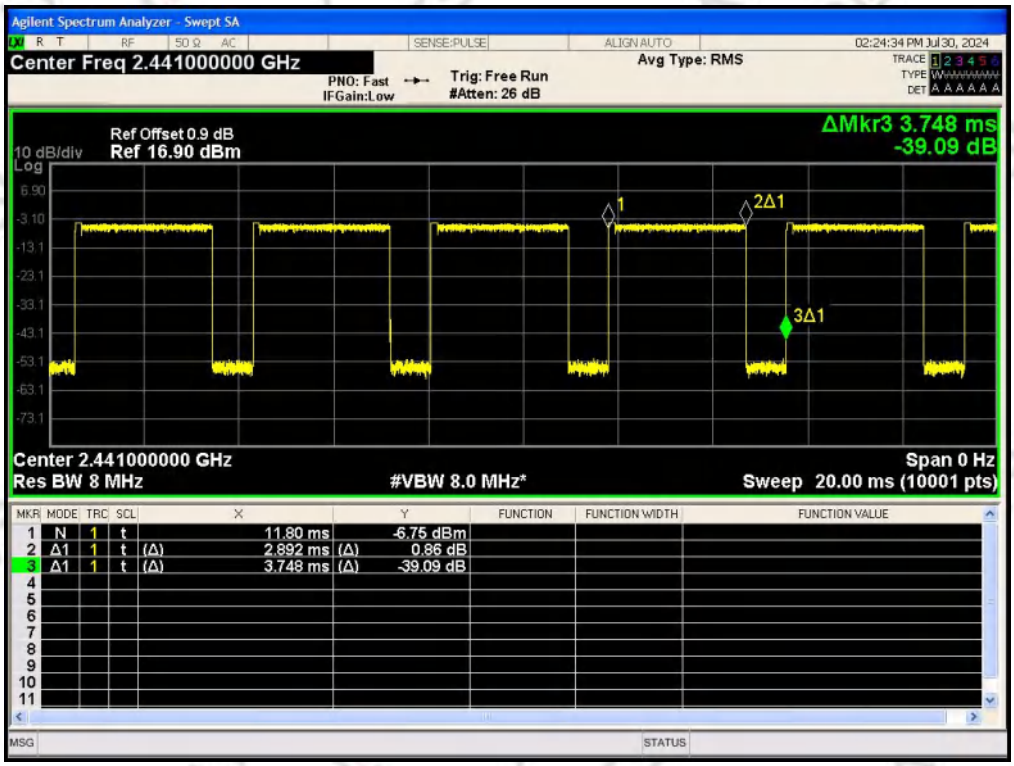
π/4DQPSK(2-DH5)_Channel 39



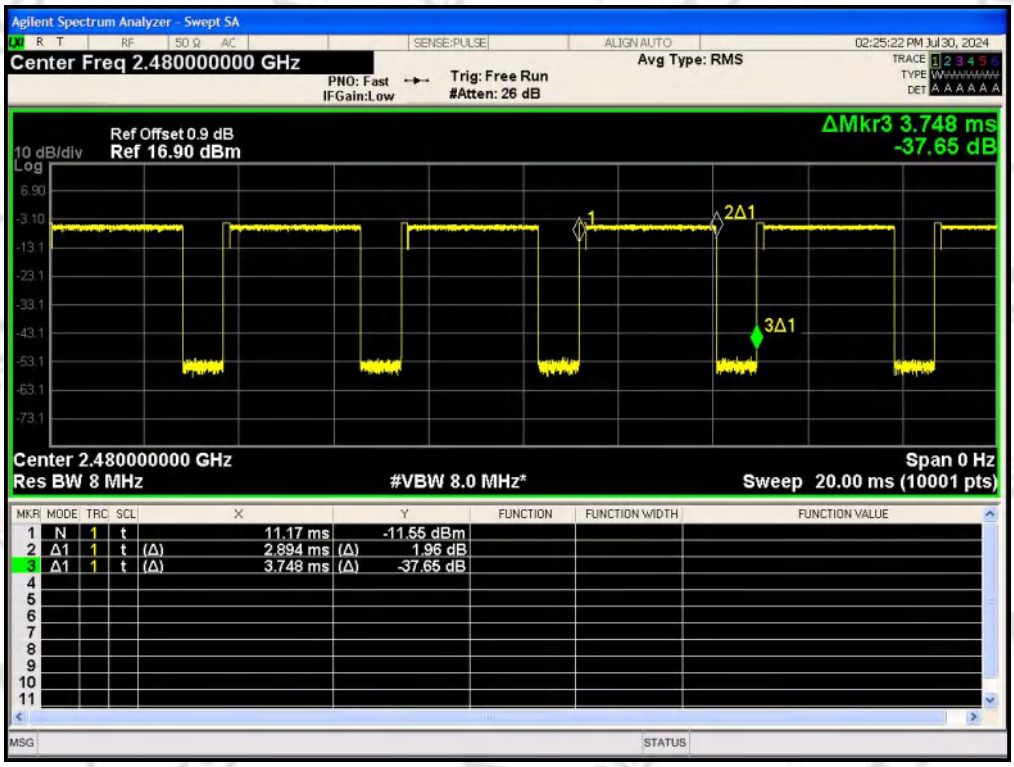
π/4DQPSK(2-DH5)_Channel 78



8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39



8DPSK(3-DH5)_Channel 78

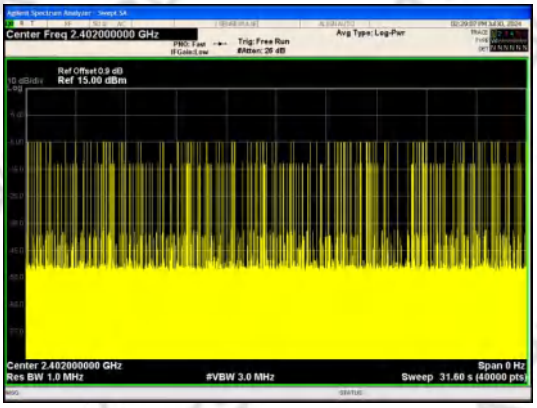
Appendix A 5. Dwell Time

Test Result

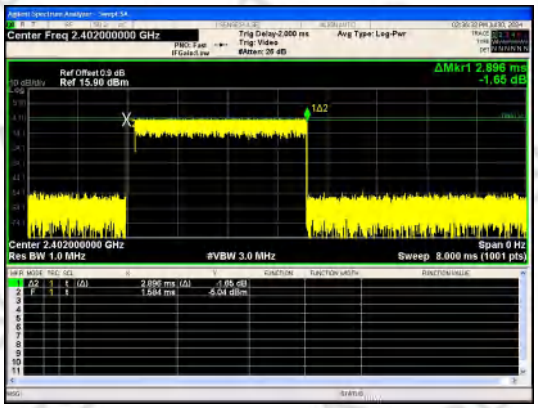
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.880	117	336.96	< 400	PASS
π/4DQPSK	2-DH5		2.896	116	335.94		PASS
8DPSK	3-DH5		2.896	110	318.56		PASS

Test Graphs

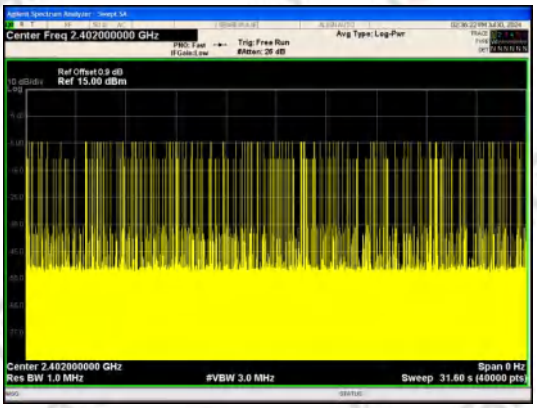
Pulse Width
GFSK_DH5



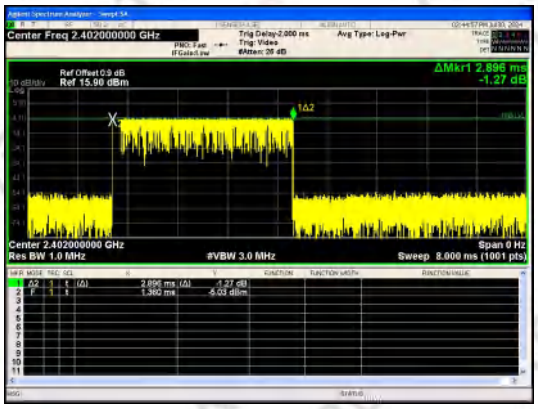
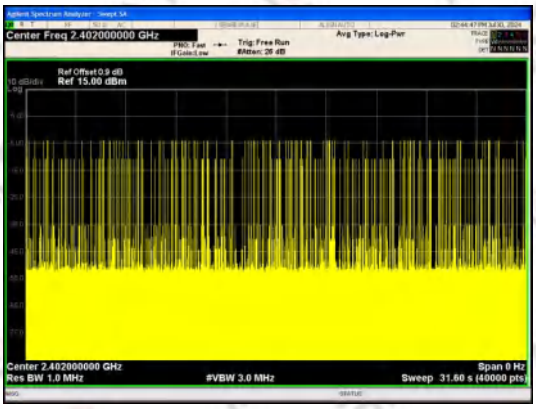
Number of Pulses in 31.6 seconds
GFSK_DH5



Pulse Width
π/4DQPSK_2-DH5



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

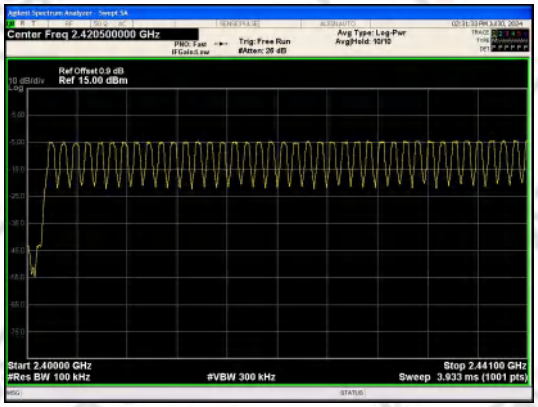
	
Pulse Width 8DPSK_3-DH5	Number of Pulses in 31.6 seconds 8DPSK_3-DH5

Appendix A 6. Number Of Hopping Channel

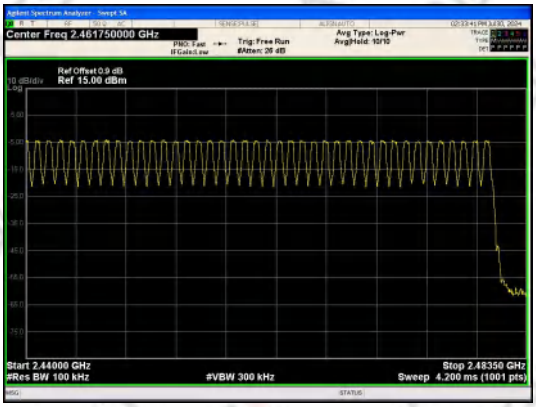
Test Result

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

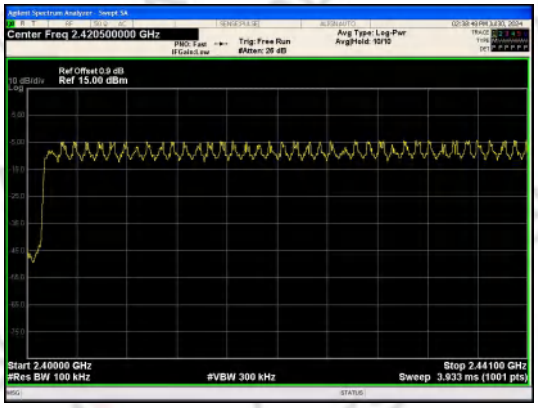
Test Graphs



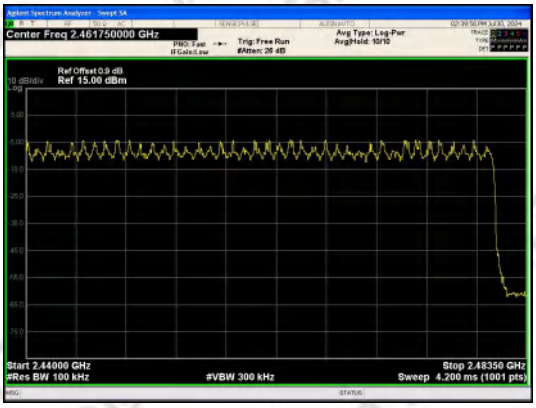
Low End Spectrum Channel Hopping Plot
GFSK



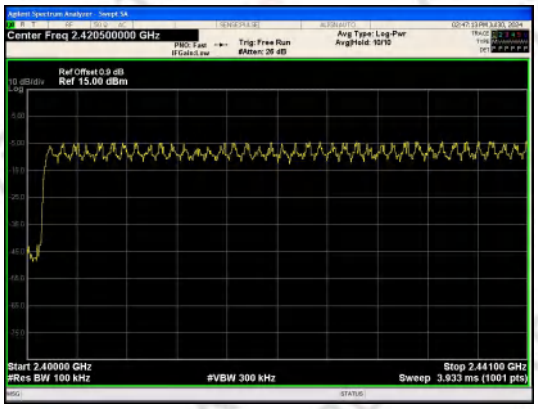
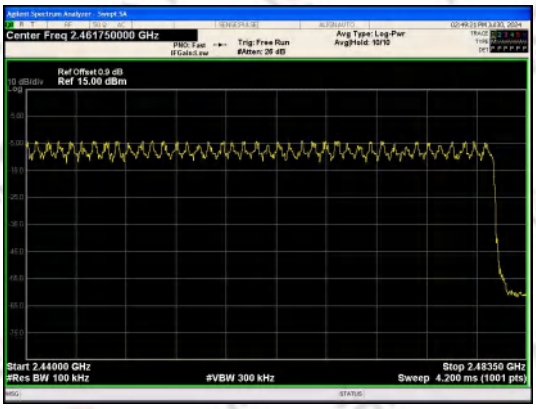
High End Spectrum Channel Hopping Plot
GFSK



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

Appendix A 7. 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	2400.00	-61.802	-25.18	-36.622	PASS
			4803.02	-65.121	-25.18	-39.941	PASS
			7206.38	-62.920	-25.18	-37.740	PASS
			9607.87	-65.061	-25.18	-39.881	PASS
			24993.1	-46.727	-25.18	-21.547	PASS
		39	4881.67	-63.763	-24.19	-39.573	PASS
			7322.49	-63.121	-24.19	-38.931	PASS
			9763.93	-65.164	-24.19	-40.974	PASS
			24988.8	-47.218	-24.19	-23.028	PASS
		78	2483.50	-62.570	-24.82	-37.750	PASS
			4960.33	-62.879	-24.82	-38.059	PASS
			7440.47	-63.926	-24.82	-39.106	PASS
			9920.62	-64.147	-24.82	-39.327	PASS
			24968.2	-46.337	-24.82	-21.517	PASS
π/4DQPSK	2-DH5	0	2398.96	-61.516	-24.77	-36.746	PASS
			2400.00	-62.334	-24.77	-37.564	PASS
			4804.30	-64.810	-24.77	-40.040	PASS
			7205.80	-61.111	-24.77	-36.341	PASS
			9607.20	-65.186	-24.77	-40.416	PASS
			24986.9	-45.855	-24.77	-21.085	PASS
		39	4882.92	-63.585	-23.72	-39.865	PASS
			7323.74	-63.340	-23.72	-39.620	PASS
			9763.31	-65.040	-23.72	-41.320	PASS
			24975.7	-47.189	-23.72	-23.469	PASS
		78	2483.50	-63.356	-24.29	-39.066	PASS
			4960.95	-62.742	-24.29	-38.452	PASS
			7440.47	-63.091	-24.29	-38.801	PASS
			9919.37	-64.642	-24.29	-40.352	PASS
			24939.5	-46.934	-24.29	-22.644	PASS
8DPSK	3-DH5	0	2398.86	-61.143	-24.58	-36.563	PASS
			2400.00	-62.643	-24.58	-38.063	PASS
			4804.30	-64.895	-24.58	-40.315	PASS
			7206.40	-63.526	-24.58	-38.946	PASS
			9608.50	-64.329	-24.58	-39.749	PASS
			24970.7	-46.929	-24.58	-22.349	PASS
		39	4882.30	-64.236	-23.25	-40.986	PASS

			7322.49	-63.769	-23.25	-40.519	PASS
			9763.31	-65.554	-23.25	-42.304	PASS
			24971.9	-47.229	-23.25	-23.979	PASS
		78	2483.50	-63.237	-24.2	-39.037	PASS
			4960.33	-64.402	-24.2	-40.202	PASS
			7440.47	-63.877	-24.2	-39.677	PASS
			9919.99	-64.903	-24.2	-40.703	PASS
			24955.7	-47.417	-24.2	-23.217	PASS

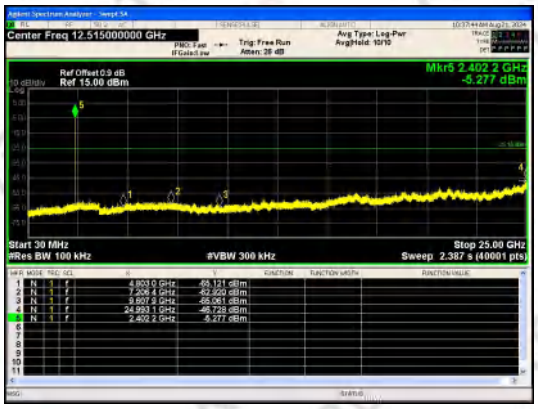
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2396.77	-60.608	-24.83	-35.778	PASS
			2400.00	-61.318	-24.83	-36.488	PASS
			2483.50	-60.750	-24.82	-35.930	PASS
π/4DQPSK	2-DH5		2397.42	-61.248	-24.43	-36.819	PASS
			2400.00	-62.578	-24.43	-38.148	PASS
			2483.50	-62.800	-24.1	-38.700	PASS
8DPSK	3-DH5		2396.65	-60.812	-23.91	-36.901	PASS
			2400.00	-62.077	-23.91	-38.167	PASS
			2483.50	-61.789	-24.27	-37.519	PASS

Test Graphs

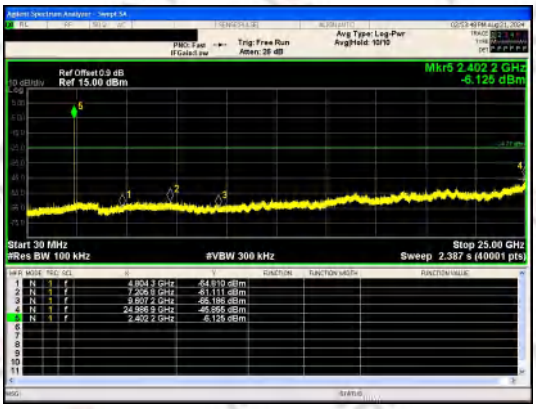
Out Of Band Emission
GFSK_DH5_Channel 0

Out Of Band Emission
π/4DQPSK_2-DH5_Channel 0



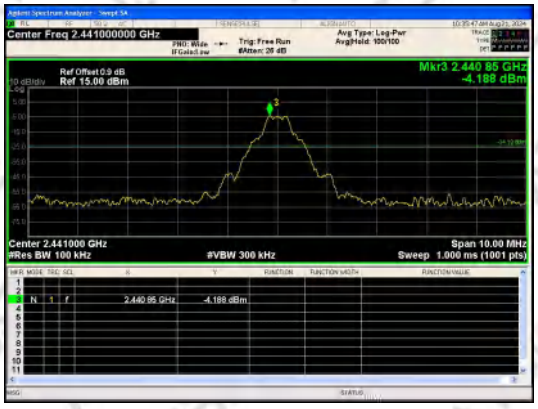
30.0 MHz - 25000.0 MHz

GFSK_DH5_Channel 0



30.0 MHz - 25000.0 MHz

π/4DQPSK_2-DH5_Channel 0

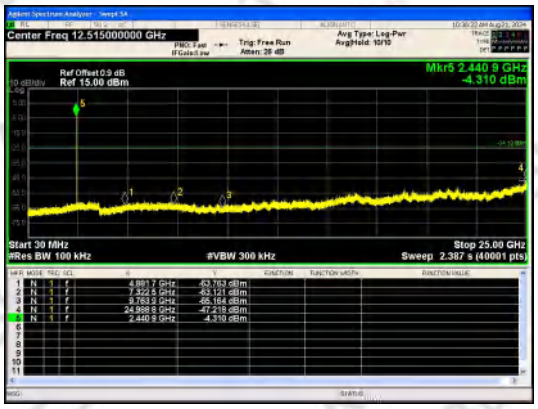


Out Of Band Emission

GFSK_DH5_Channel 39

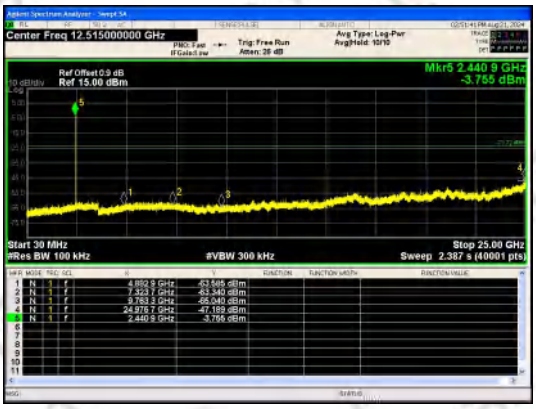
Out Of Band Emission

π/4DQPSK_2-DH5_Channel 39



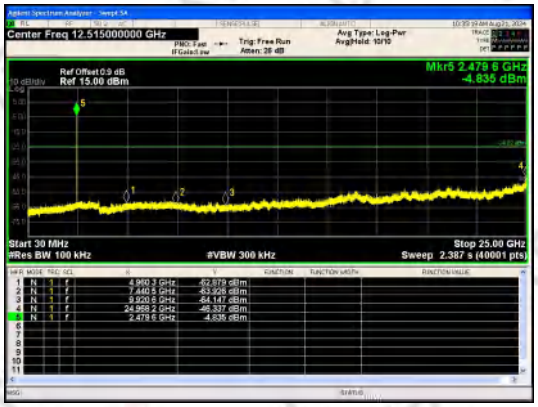
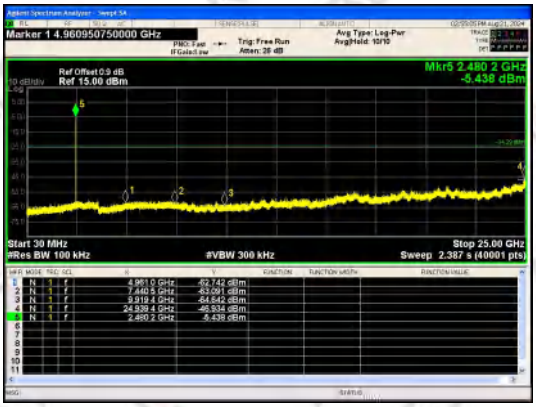
30.0 MHz - 25000.0 MHz

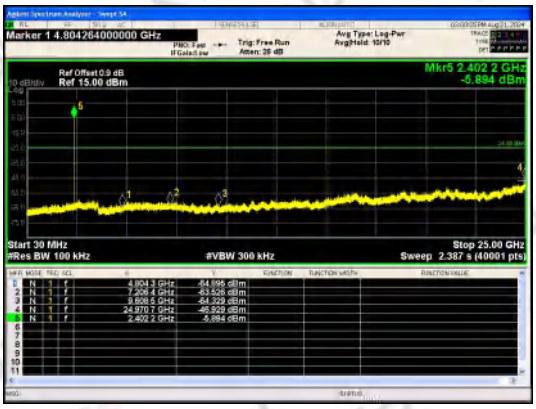
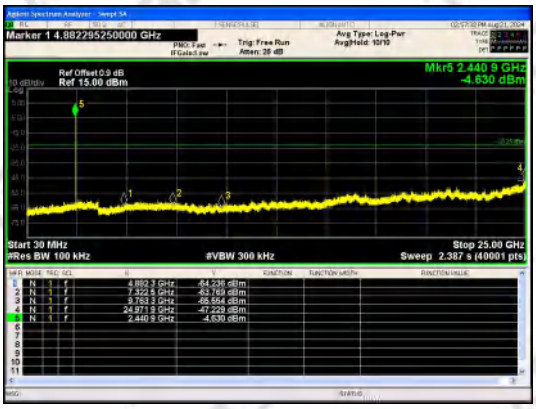
GFSK_DH5_Channel 39



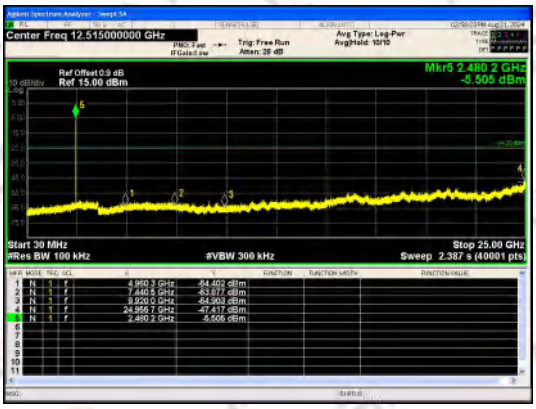
30.0 MHz - 25000.0 MHz

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

※※※※※END OF APPENDIX A※※※※※