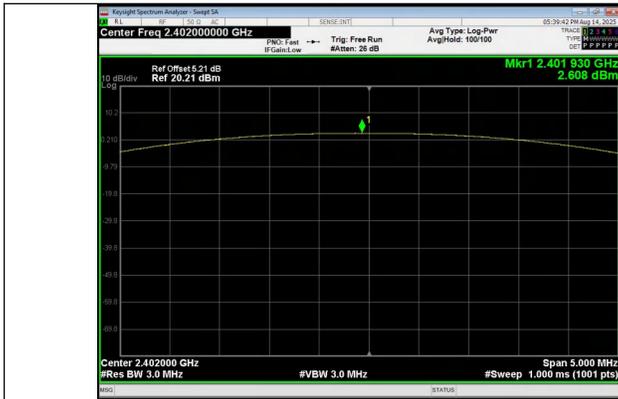## Appendix A:Test Results of Bluetooth BR & EDR

Conducted Output Power
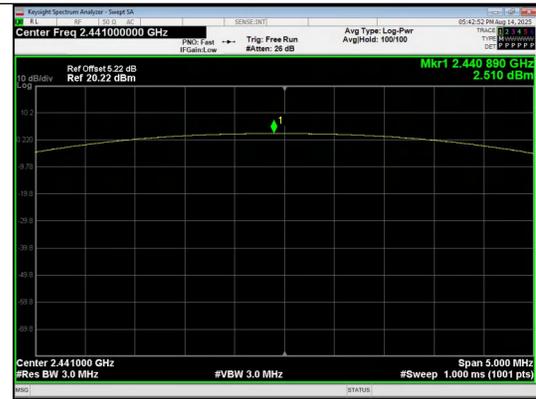**Test Result**

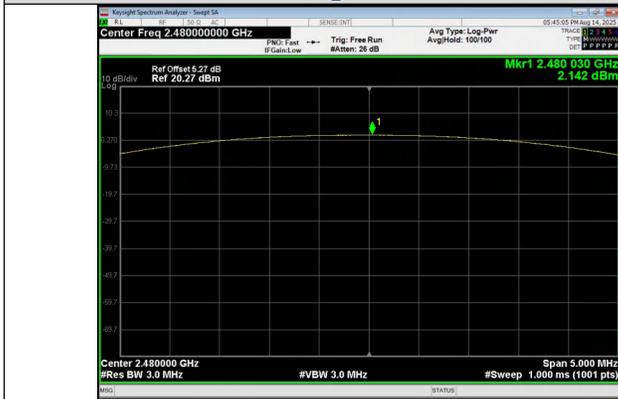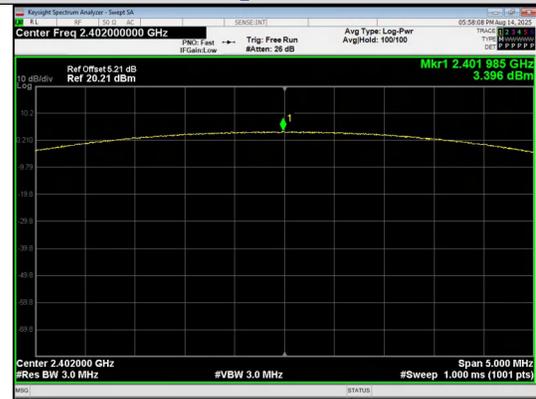| Modulation	Packet Type	Channel	Peak Output Power (dBm)	Limit (dBm)	Result
GFSK	DH5	0	2.61		PASS
		39	2.51		PASS
		78	2.14		PASS
π/4DQPSK	2-DH5	0	3.40	≤20.97	PASS
		39	3.31		PASS
		78	2.96		PASS
8DPSK	3-DH5	0	4.01		PASS
		39	3.94		PASS
		78	3.57		PASS

Test Graphs

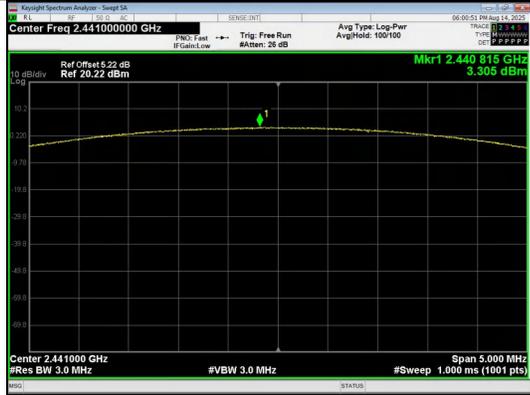**Peak Output Power GFSK_Channel 0**

Peak Output Power GFSK_Channel 39

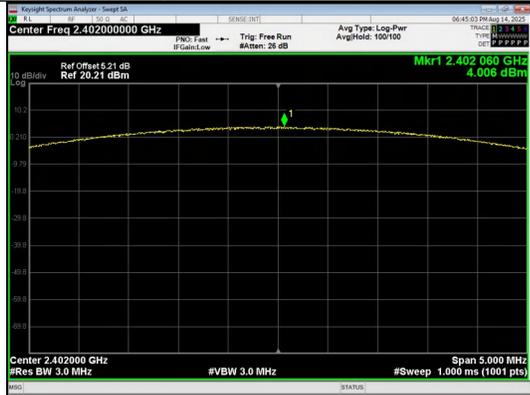**Peak Output Power GFSK_Channel 78**
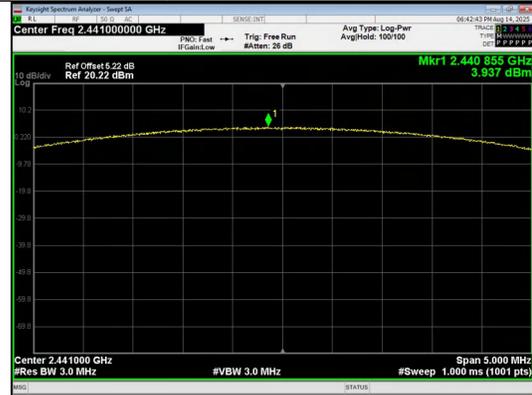

Peak Output Power π/4DQPSK_Channel 0
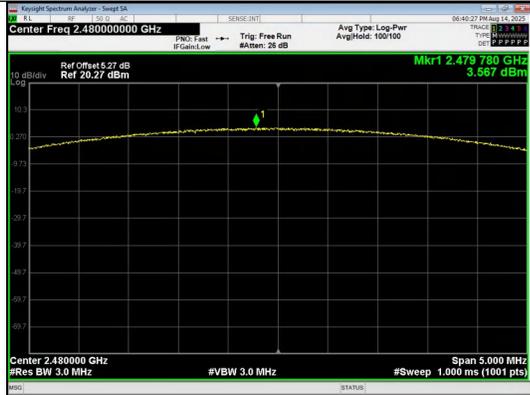
**Peak Output Power
π/4DQPSK_Channel 39**

**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	0.85423
	39	2441	0.86116
	78	2480	0.86040
π/4DQPSK	0	2402	1.1656
	39	2441	1.1744
	78	2480	1.1696
8DPSK	0	2402	1.1697
	39	2441	1.1656
	78	2480	1.1736

Test Graphs

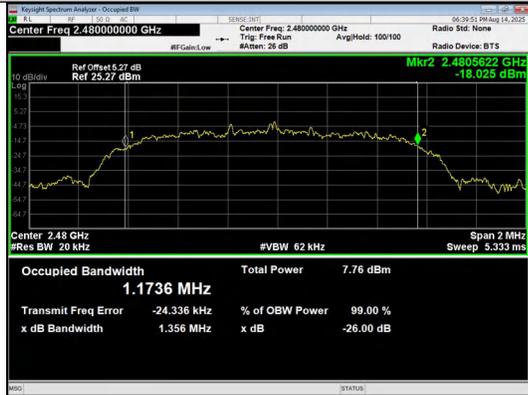GFSK_DH5_Channel 0

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	0.9500
	39	2441 MHz	0.9500
	78	2480 MHz	0.9500
π/4DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.260
	78	2480 MHz	1.270
8DPSK	0	2402 MHz	1.280
	39	2441 MHz	1.280
	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
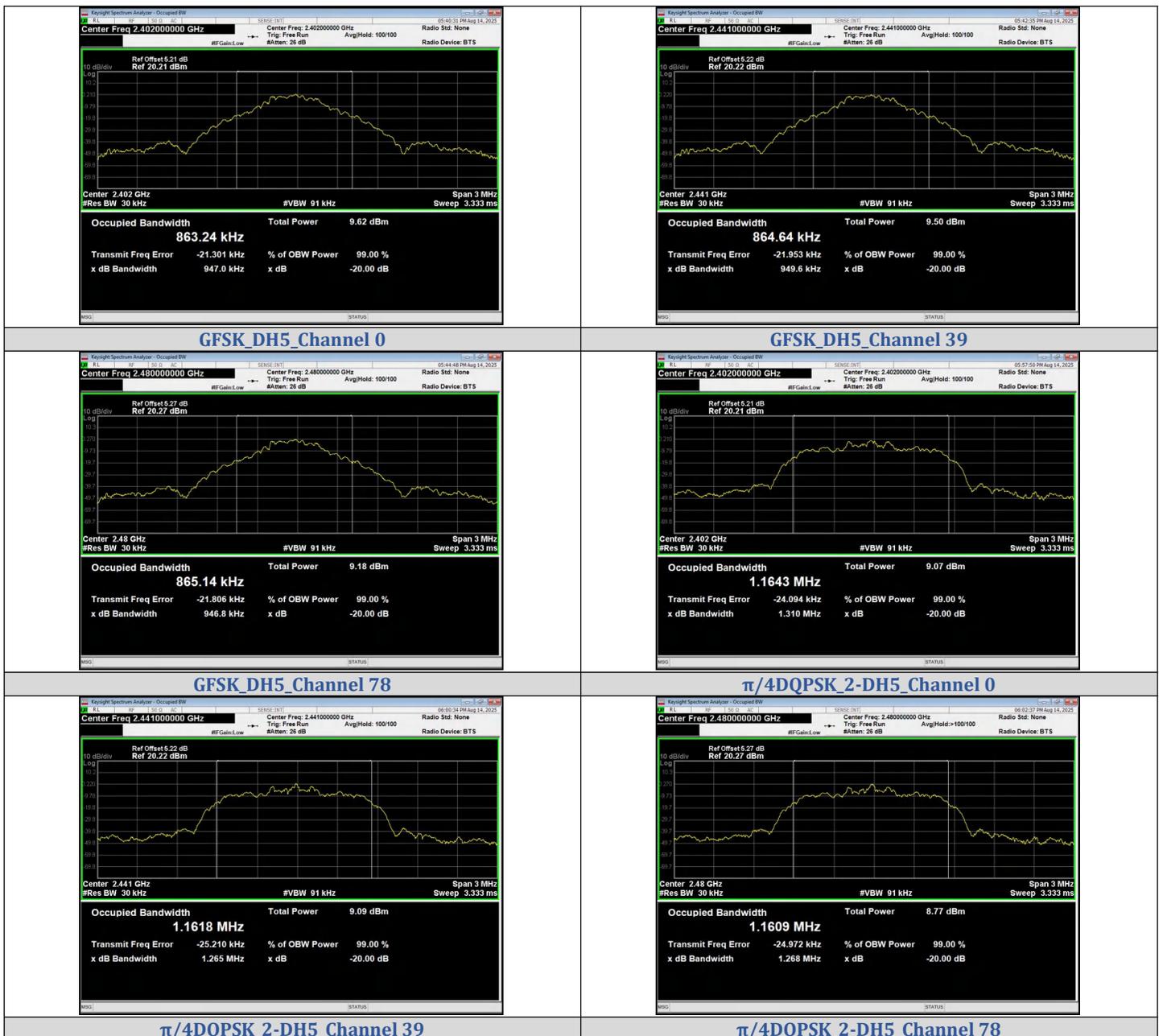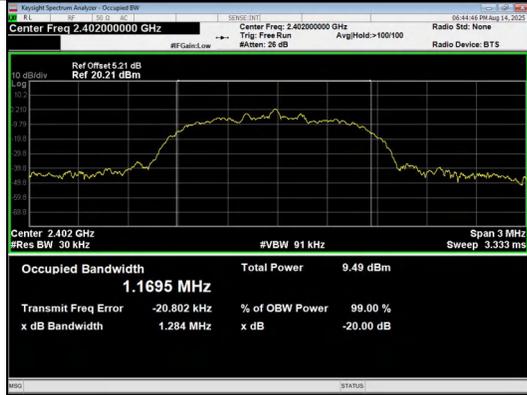
8DPSK_3-DH5_Channel 0

8DPSK_3-DH5_Channel 39
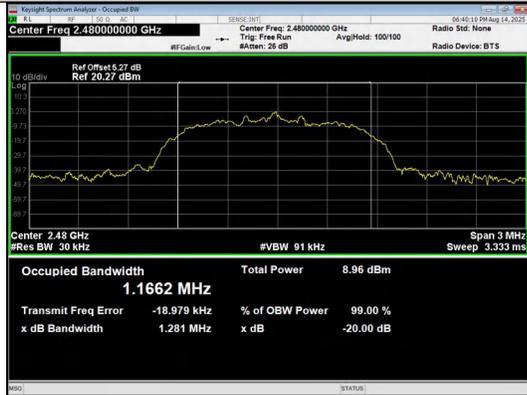

8DPSK_3-DH5_Channel 78

Carrier Frequencies Separation

Test Result

Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.8128	2440.9775	1.1647	0.633	PASS
π/4DQPSK	2-DH5	2439.8194	2440.9838	1.1644	0.873	PASS
8DPSK	3-DH5	2439.9796	2441.159	1.1794	0.853	PASS

Test Graphs

GFSK

π/4DQPSK
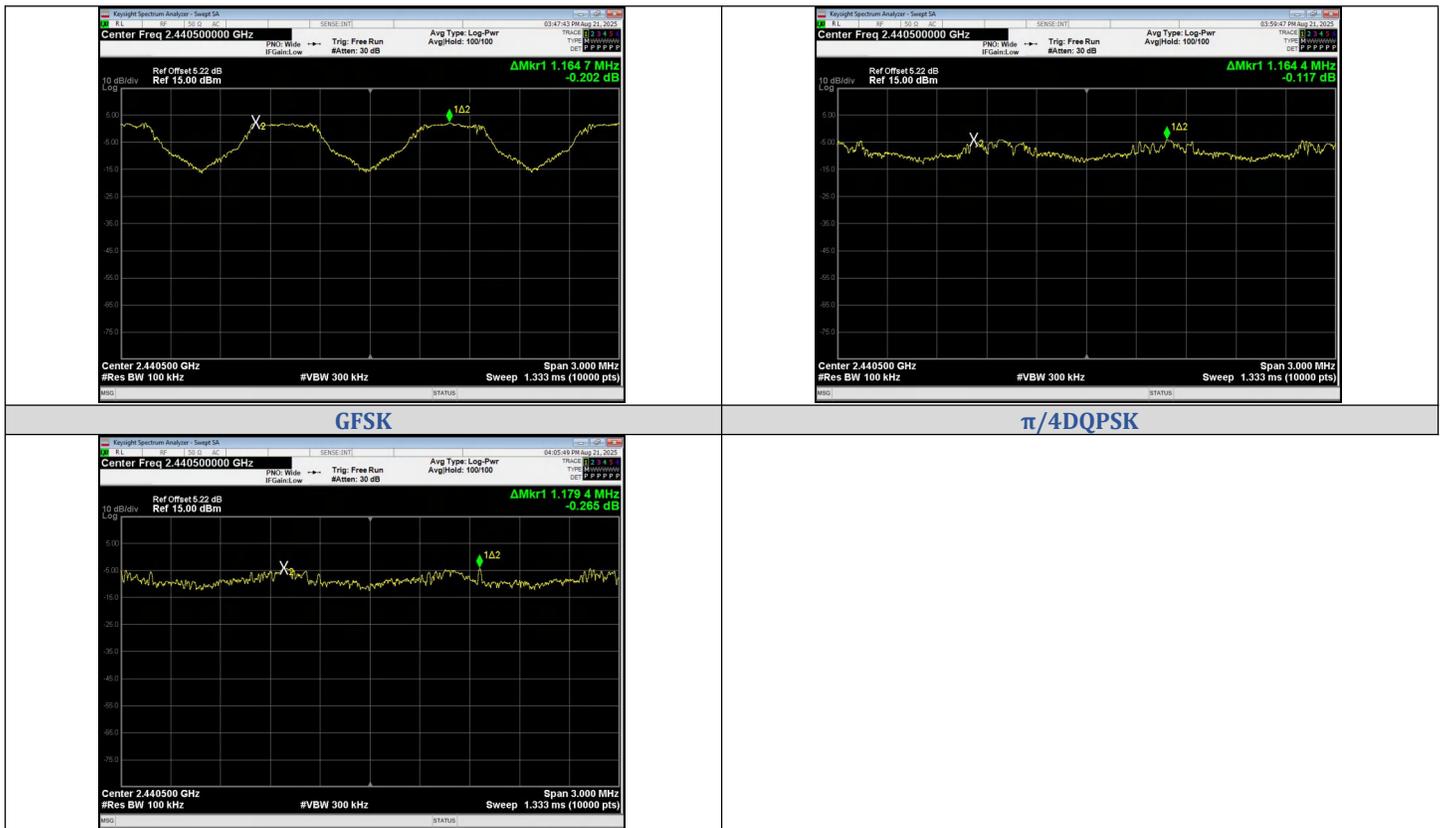
Conducted Out Of Band Emission

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	-52.470	-17.84	-34.630	PASS
			4803.64	-23.579	-17.84	-5.739	PASS
		39	4882.30	-23.908	-17.73	-6.178	PASS
		78	2483.50	-54.210	-18.17	-36.040	PASS
			4959.70	-24.424	-18.17	-6.254	PASS
π/4DQPSK	2-DH5	0	2400.00	-49.830	-17.74	-32.090	PASS
			4804.26	-28.444	-17.74	-10.704	PASS
		39	4881.67	-28.102	-17.77	-10.332	PASS
		78	2483.50	-56.370	-18.22	-38.150	PASS
			4960.33	-29.337	-18.22	-11.117	PASS
8DPSK	3-DH5	0	2400.00	-41.350	-17.87	-23.480	PASS
			4803.64	-25.505	-17.87	-7.635	PASS
		39	4881.67	-27.613	-17.95	-9.663	PASS
		78	2483.50	-46.150	-18.2	-27.950	PASS
			4959.70	-25.728	-18.2	-7.528	PASS

Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2397.02	-49.473	-11.37	-38.103	PASS
			2400.00	-49.990	-11.37	-38.620	PASS
			2483.50	-52.280	-11.94	-40.340	PASS
π/4DQPSK	2-DH5		2400.00	-53.730	-17.83	-35.900	PASS
			2483.50	-56.060	-18.28	-37.780	PASS
8DPSK	3-DH5		2398.91	-46.827	-17.84	-28.987	PASS
			2400.00	-52.240	-17.84	-34.400	PASS
			2483.50	-46.580	-18.29	-28.290	PASS

Test Graphs

**Out Of Band Emission
GFSK_DH5_Channel 0**

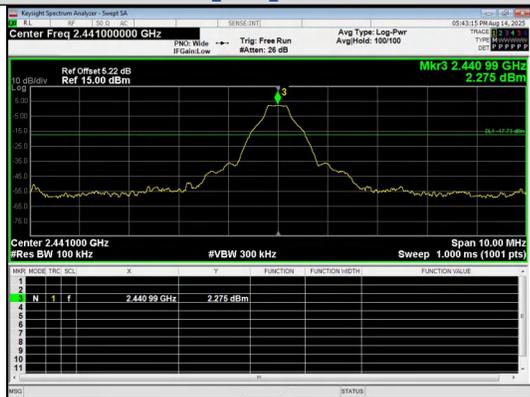**Out Of Band Emission
π/4DQPSK_2-DH5_Channel 0**
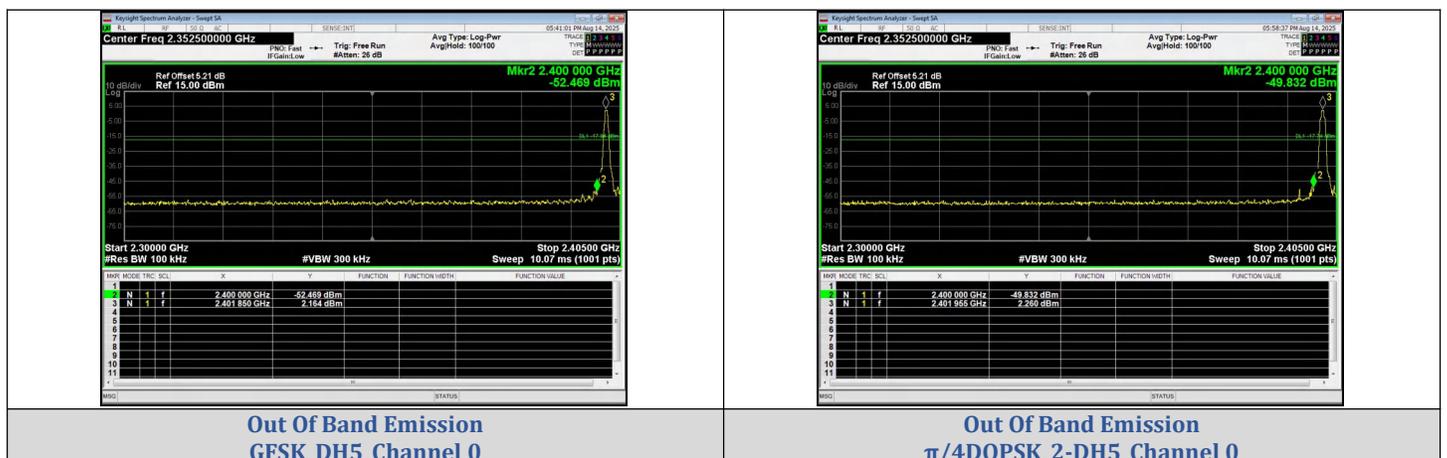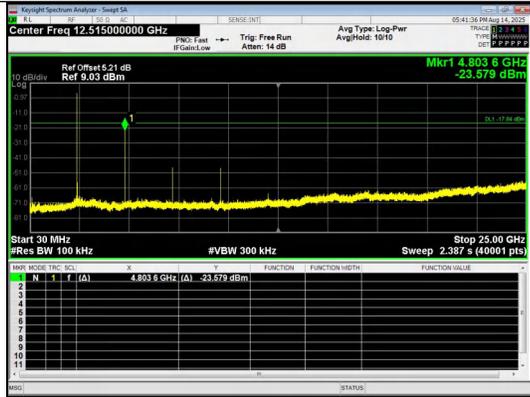
30.0 MHz - 25000.0 MHz
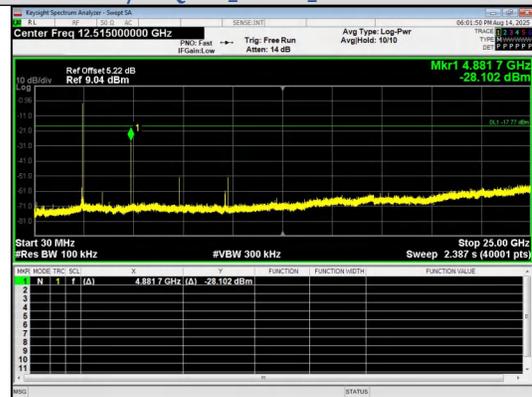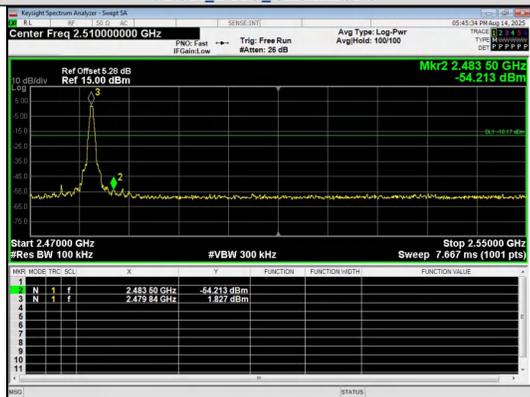**GFSK_DH5_Channel 0**
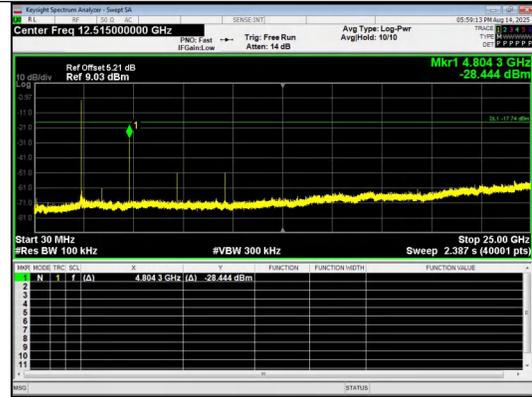
30.0 MHz - 25000.0 MHz
π/4DQPSK_2-DH5_Channel 0

Out Of Band Emission
GFSK_DH5_Channel 39
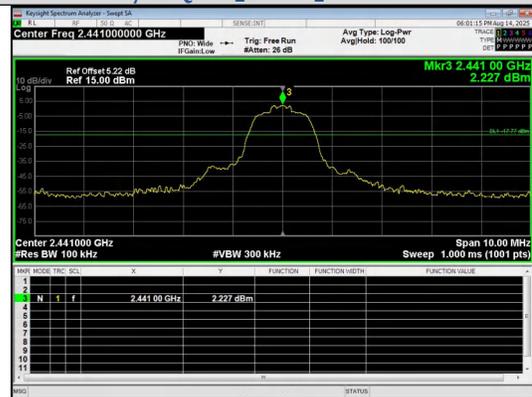
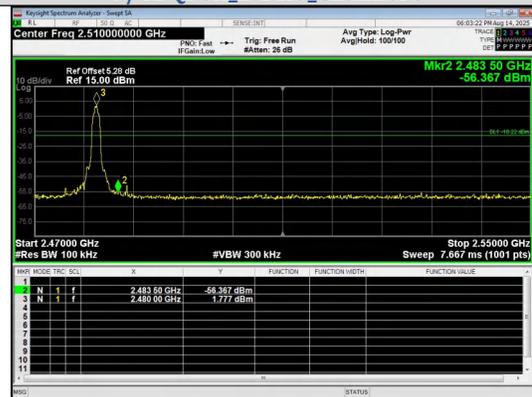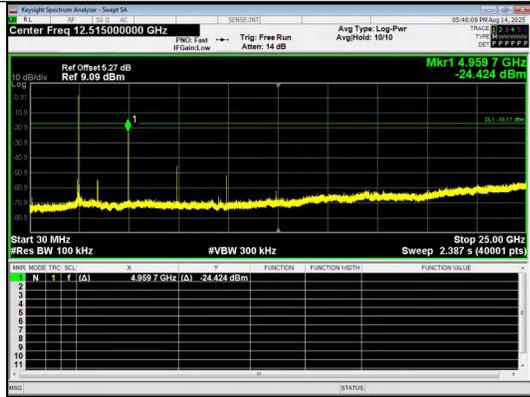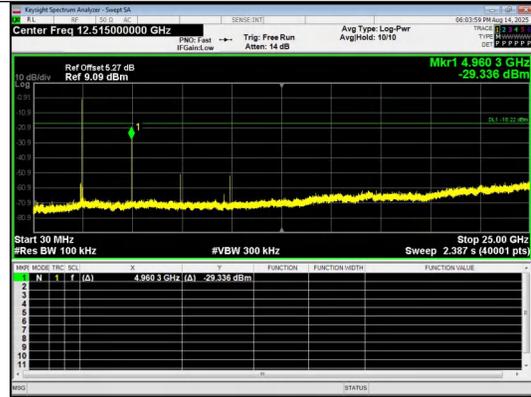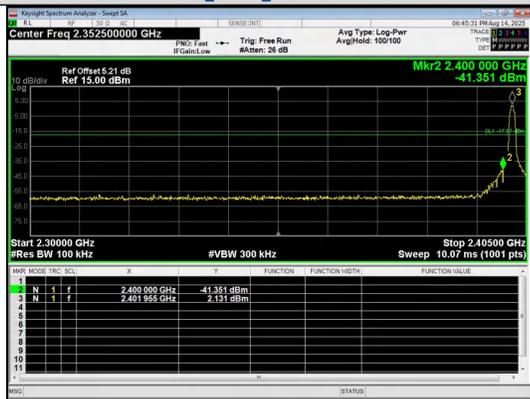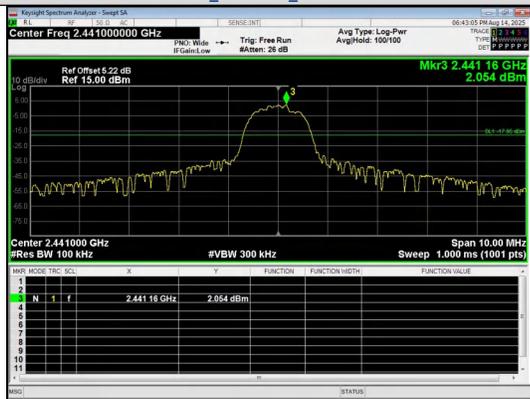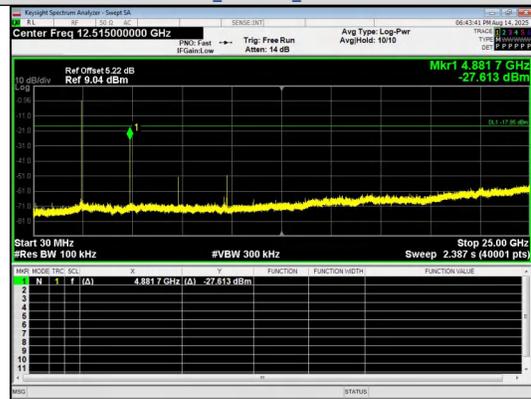**Out Of Band Emission**
π/4DQPSK_2-DH5_Channel 39
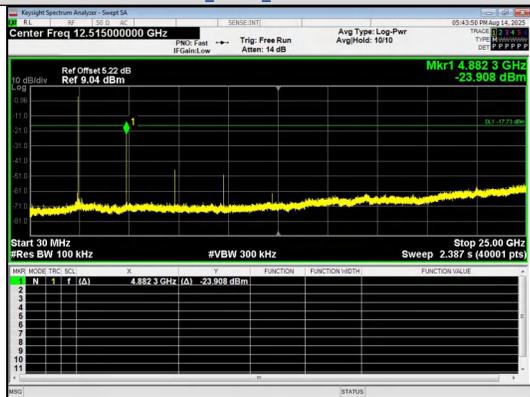
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39

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**
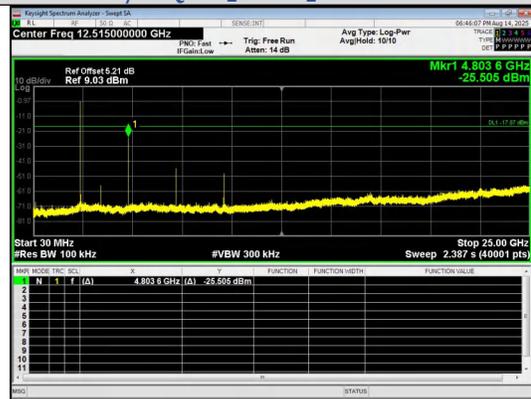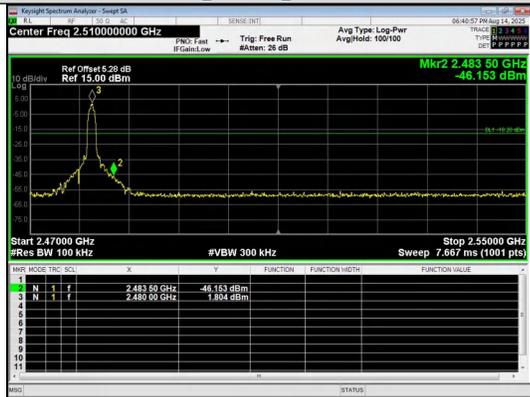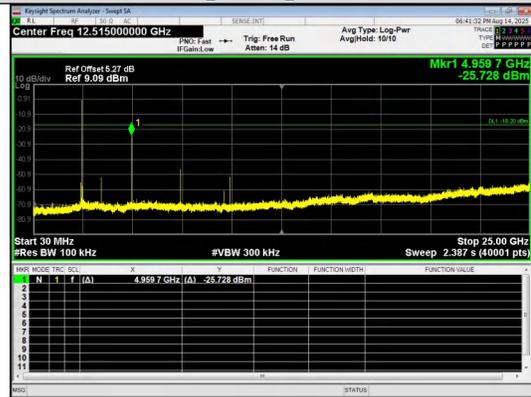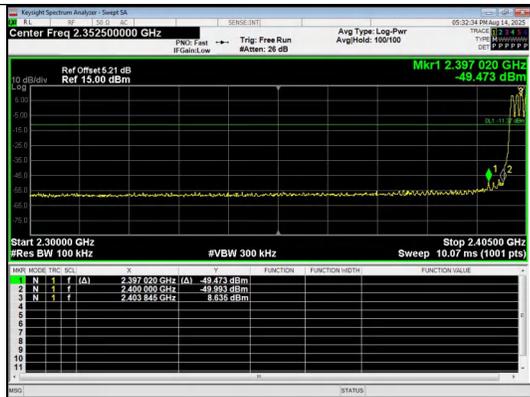
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping
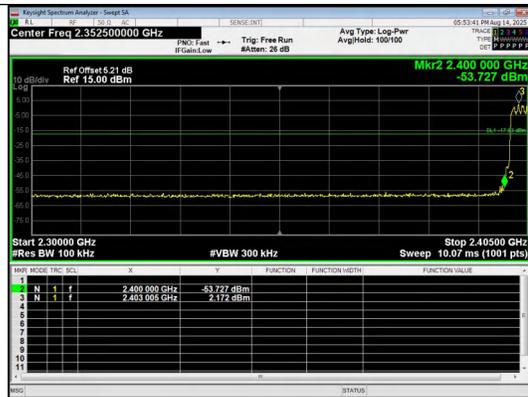
Out Of Band Emission(Left)
π/4DQPSK_2-DH5_Channel Hopping

Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping
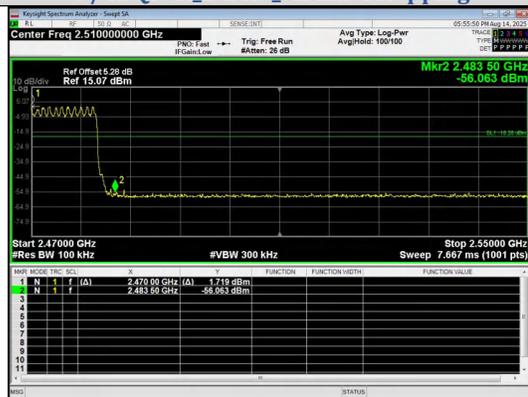
Out Of Band Emission(Right)
π/4DQPSK_2-DH5_Channel Hopping
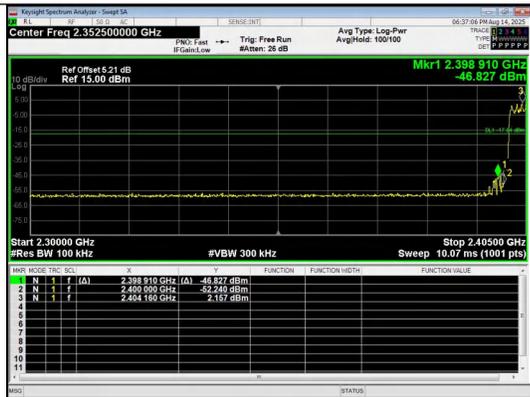
Out Of Band Emission(Left)
8DPSK_3-DH5_Channel Hopping

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

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		2.896	120	347.52		PASS
π/4DQPSK	2-DH5	Hopping	2.896	100	289.6	< 400	PASS
8DPSK	3-DH5		2.904	99	287.5		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