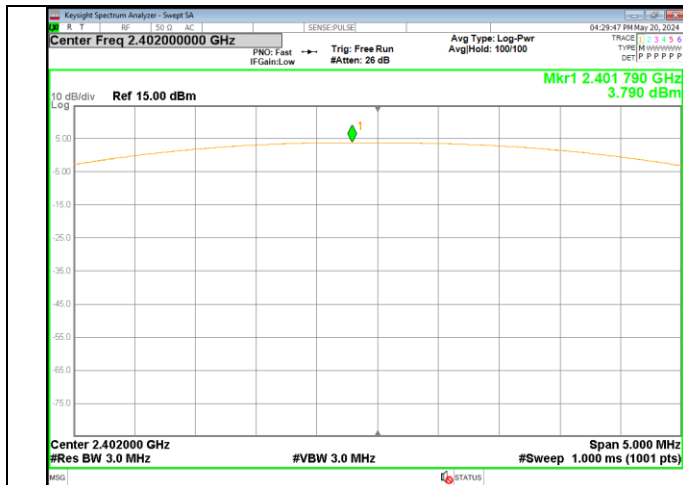




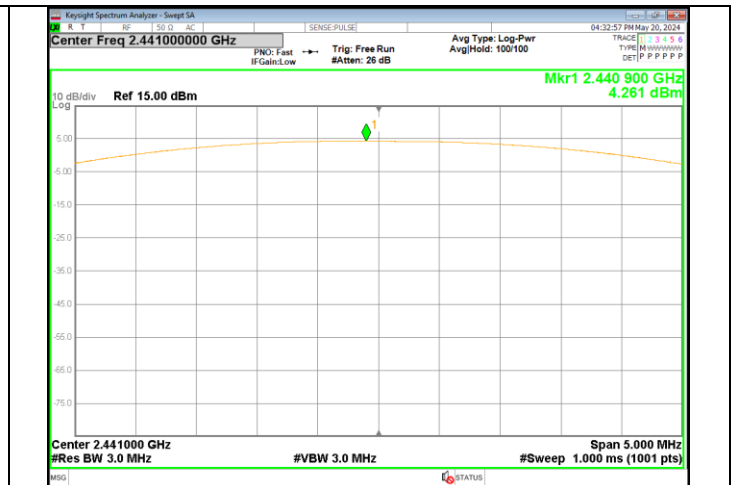
## Conducted Output Power Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Max. Avg. Power (dBm)	Limit (dBm)	Result
GFSK	DH5	0	3.790	2.393	None	30	PASS
		39	4.261	2.667	None		PASS
		78	4.267	2.671	None		PASS
$\pi/4$ DQPSK	2-DH5	0	4.485	2.809	None	20.97	PASS
		39	4.830	3.041	None		PASS
		78	4.686	2.942	None		PASS
8DPSK	3-DH5	0	4.770	2.999	None	20.97	PASS
		39	5.039	3.191	None		PASS
		78	4.838	3.046	None		PASS

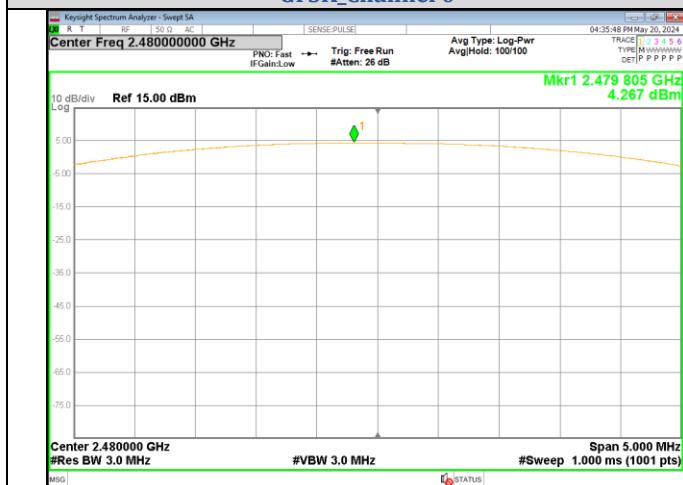
## Test Graphs



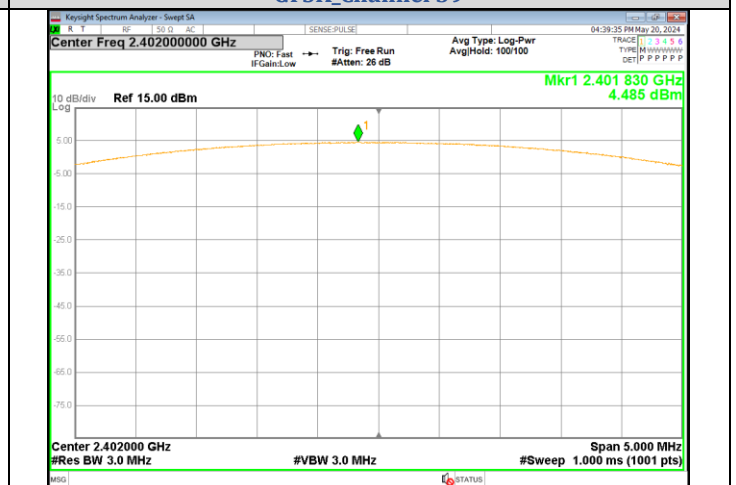
Peak Output Power  
GFSK\_Channel 0



Peak Output Power  
GFSK\_Channel 39



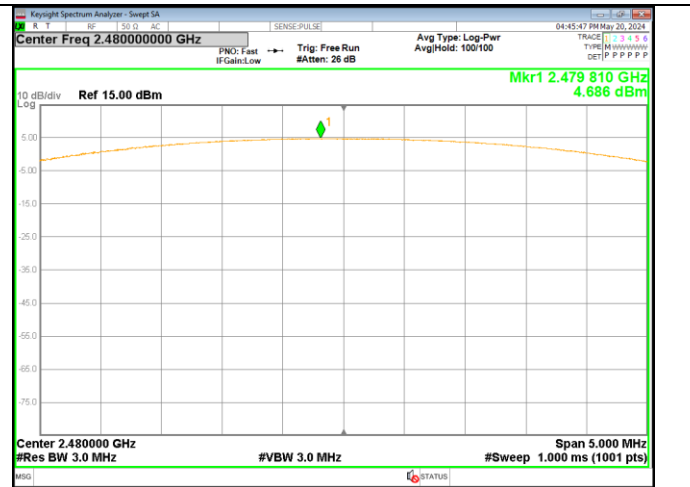
Peak Output Power  
GFSK\_Channel 78



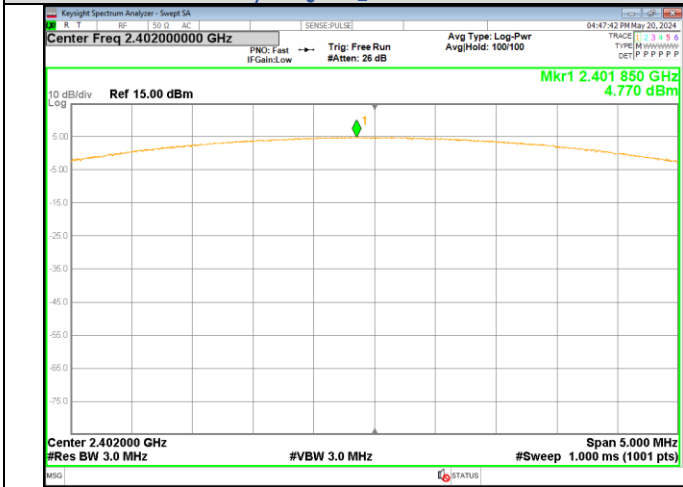
Peak Output Power  
 $\pi/4$ DQPSK\_Channel 0



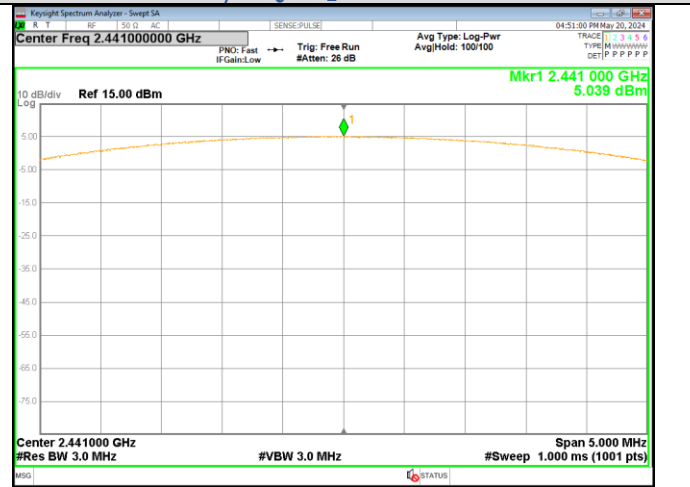
Peak Output Power  
 $\pi/4$ DQPSK\_Channel 39



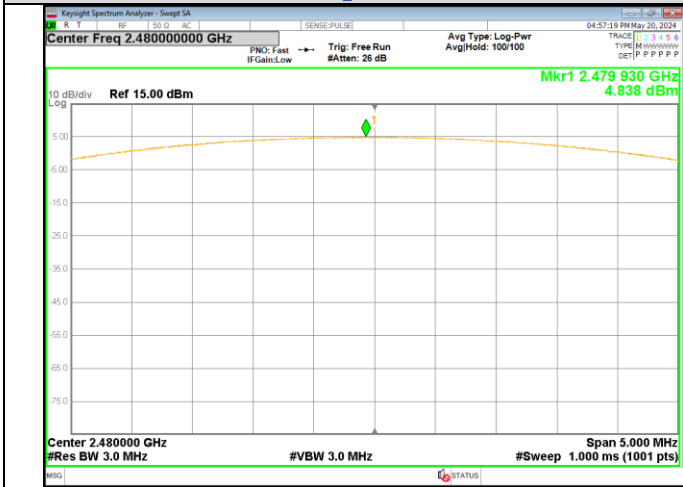
Peak Output Power  
 $\pi/4$ DQPSK\_Channel 78



Peak Output Power  
 8DPSK\_Channel 0



Peak Output Power  
 8DPSK\_Channel 39



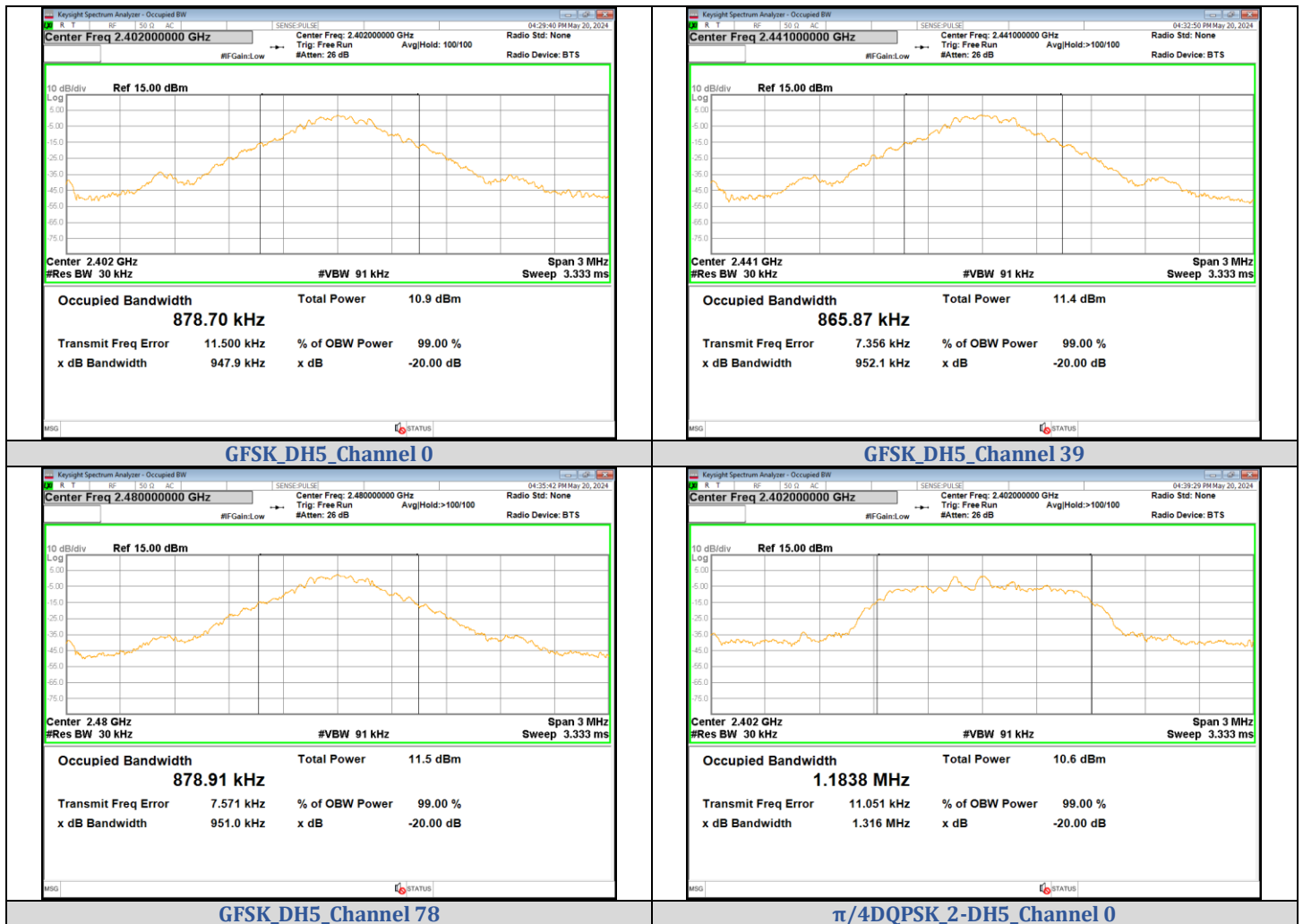
Peak Output Power  
 8DPSK\_Channel 78

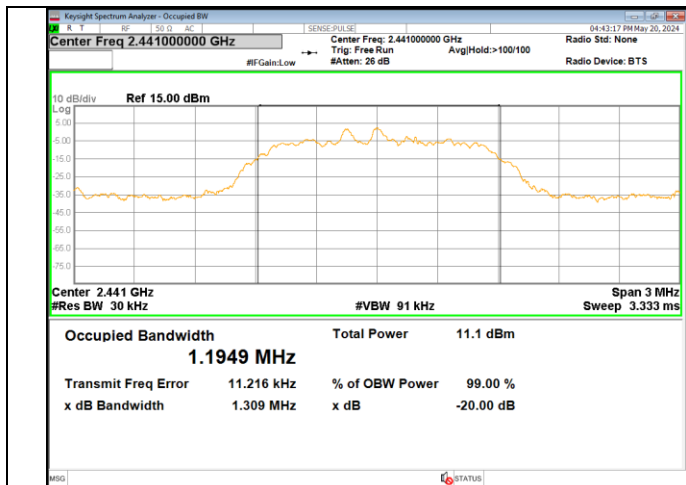
# 20dB Bandwidth

## Test Result

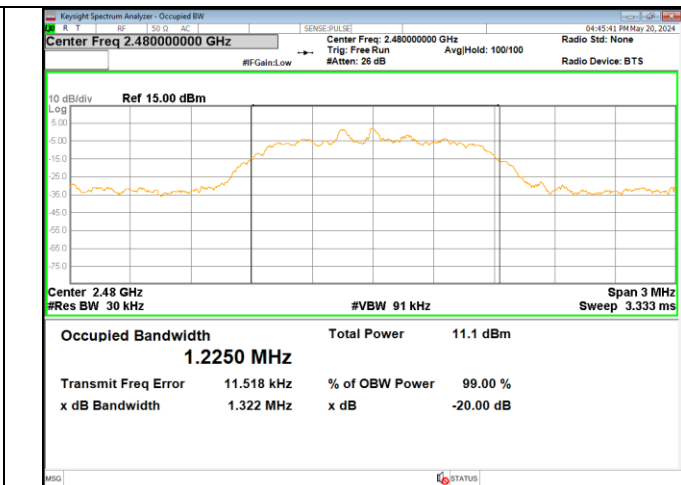
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	0.9479
	39	2441 MHz	0.9521
	78	2480 MHz	0.9510
$\pi/4$ DQPSK	0	2402 MHz	1.316
	39	2441 MHz	1.309
	78	2480 MHz	1.322
8DPSK	0	2402 MHz	1.304
	39	2441 MHz	1.298
	78	2480 MHz	1.318

## Test Graphs

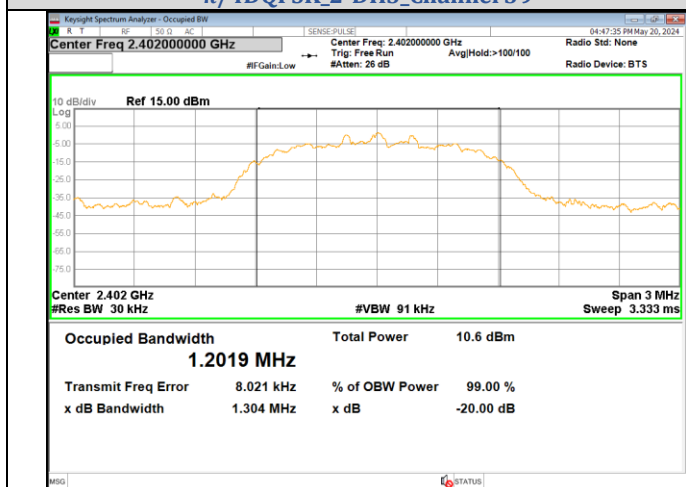




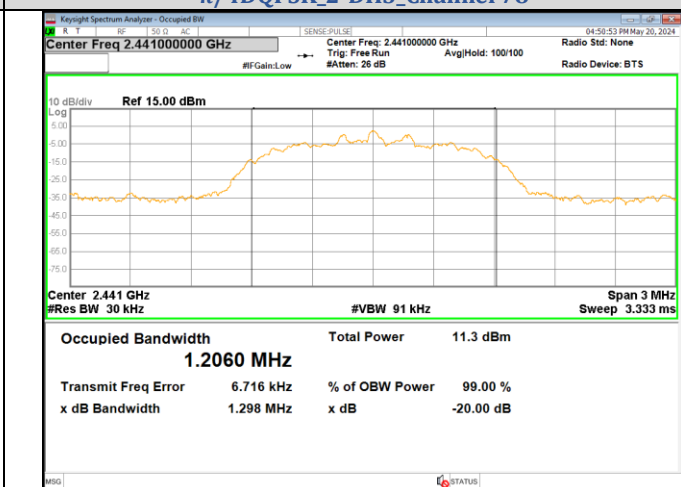
$\pi/4$ DQPSK\_2-DH5\_Channel 39



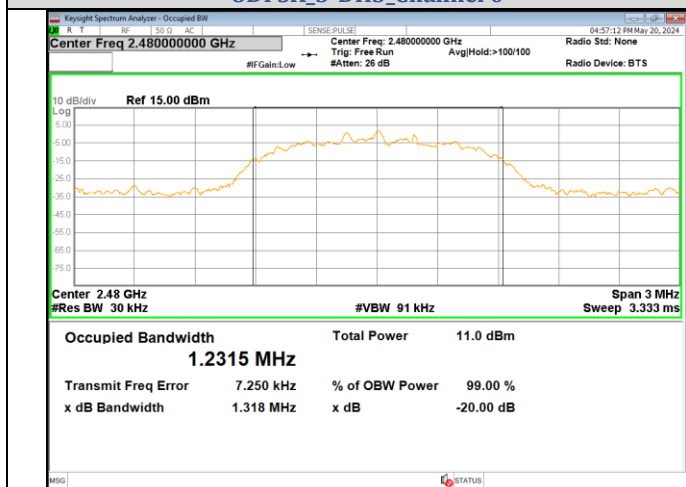
$\pi/4$ DQPSK\_2-DH5\_Channel 78



8DPSK\_3-DH5\_Channel 0



8DPSK\_3-DH5\_Channel 39



8DPSK\_3-DH5\_Channel 78

# Carrier Frequencies Separation

## Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2440.0027	2441.0042	1.0015	0.634	PASS
$\pi/4$ DQPSK	2-DH5	2439.8506	2440.8554	1.0048	0.881	PASS
8DPSK	3-DH5	2440.1833	2440.8461	1	0.879	PASS

## Test Graphs



## 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	-37.556	-16.38	-21.177	PASS
			2400.00	-43.789	-16.38	-27.409	PASS
			2593.90	-42.131	-16.38	-25.751	PASS
			4803.80	-50.447	-16.38	-34.067	PASS
			7205.90	-63.648	-16.38	-47.268	PASS
		9607.50	-66.195	-16.38	-49.816	PASS	
		39	2633.19	-44.000	-15.89	-28.110	PASS
			4881.79	-47.934	-15.89	-32.044	PASS
			7323.30	-61.207	-15.89	-45.317	PASS
			9764.80	-65.086	-15.89	-49.196	PASS
		78	2287.97	-43.755	-15.87	-27.885	PASS
			2483.50	-43.901	-15.87	-28.031	PASS
			4960.45	-46.490	-15.87	-30.620	PASS
			7439.41	-60.985	-15.87	-45.115	PASS
			9920.24	-63.185	-15.87	-47.315	PASS
$\pi/4$ DQPSK	2-DH5	0	2399.00	-37.269	-16.38	-20.889	PASS
			2400.00	-43.328	-16.38	-26.948	PASS
			2594.50	-43.461	-16.38	-27.081	PASS
			4803.80	-55.424	-16.38	-39.044	PASS
			7205.30	-64.346	-16.38	-47.966	PASS
		9608.70	-64.919	-16.38	-48.539	PASS	
		39	2632.56	-46.973	-15.81	-31.163	PASS
			4881.79	-53.376	-15.81	-37.566	PASS
			7323.30	-62.522	-15.81	-46.712	PASS
			9763.55	-65.409	-15.81	-49.599	PASS
		78	2483.50	-44.452	-15.84	-28.612	PASS
			2671.89	-46.704	-15.84	-30.864	PASS
			4959.83	-52.196	-15.84	-36.356	PASS
			7440.03	-63.095	-15.84	-47.255	PASS
			9920.24	-61.455	-15.84	-45.615	PASS
8DPSK	3-DH5	0	2399.00	-37.690	-16.44	-21.250	PASS
			2400.00	-44.297	-16.44	-27.857	PASS
			2593.90	-43.756	-16.44	-27.316	PASS
			4803.80	-54.603	-16.44	-38.163	PASS
			7206.60	-62.652	-16.44	-46.212	PASS
		9608.10	-66.711	-16.44	-50.271	PASS	
		39	2633.19	-46.310	-15.89	-30.420	PASS
			4881.79	-48.306	-15.89	-32.416	PASS
			7323.30	-62.444	-15.89	-46.554	PASS
			9764.80	-66.029	-15.89	-50.139	PASS
		78	2483.50	-43.969	-15.91	-28.059	PASS
			4959.83	-46.352	-15.91	-30.442	PASS
			7439.41	-64.111	-15.91	-48.201	PASS
			9919.62	-65.441	-15.91	-49.531	PASS

# Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2400.00	-61.084	-20.12	-40.964	PASS
			2483.50	-61.403	-17.35	-44.053	PASS
$\pi/4$ DQPSK	2-DH5		2400.00	-39.288	-16.22	-23.068	PASS
			2483.50	-45.341	-15.86	-29.481	PASS
8DPSK	3-DH5		2400.00	-39.332	-16.19	-23.142	PASS
			2483.50	-48.278	-15.8	-32.478	PASS

# Test Graphs

**In-Band Reference Level  
GFSK\_DH5\_Channel 0**

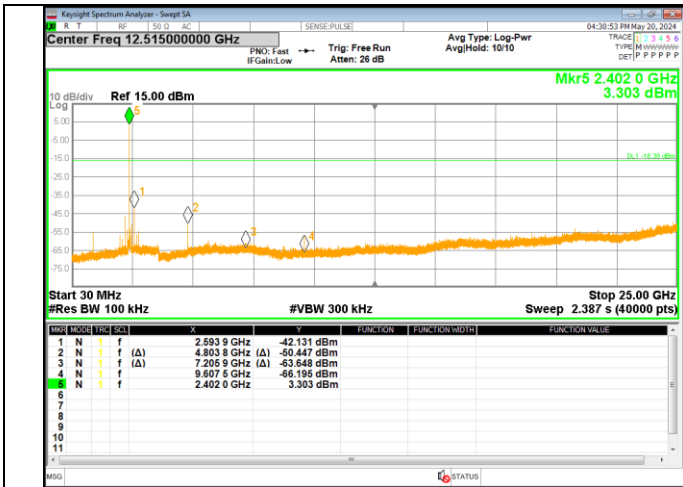
**In-Band Reference Level  
 $\pi/4$ DQPSK\_2-DH5\_Channel 0**

MKR	MODE	TRC	SCN	X	Y	FUNCTION	FUNCTION MOD	FUNCTION VALUE
2	N	1	f	(Δ)	2.400 00 GHz (Δ)	-43.789 dBm		

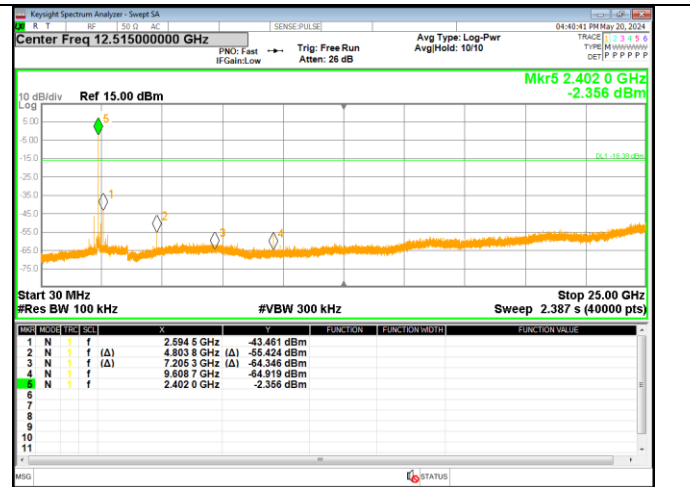
**Out Of Band Emission  
GFSK\_DH5\_Channel 0**

MKR	MODE	TRC	SCN	X	Y	FUNCTION	FUNCTION MOD	FUNCTION VALUE
2	N	1	f	(Δ)	2.400 00 GHz (Δ)	-43.328 dBm		

**Out Of Band Emission  
 $\pi/4$ DQPSK\_2-DH5\_Channel 0**



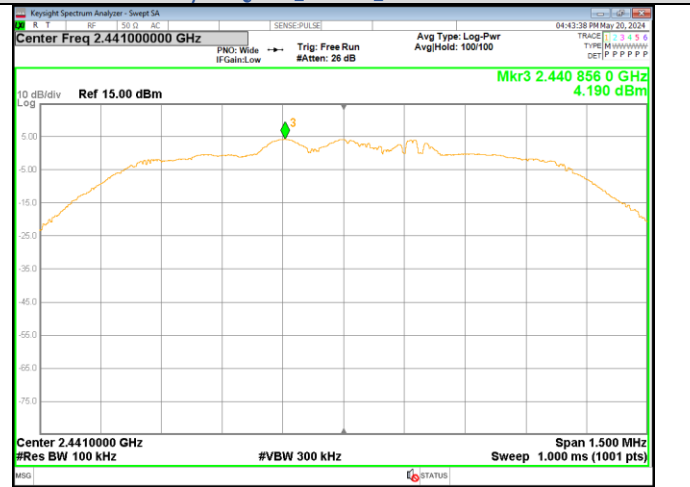
30.0 MHz - 25000.0 MHz  
GFSK\_DH5\_Channel 0



30.0 MHz - 25000.0 MHz  
 $\pi/4$ DQPSK\_2-DH5\_Channel 0



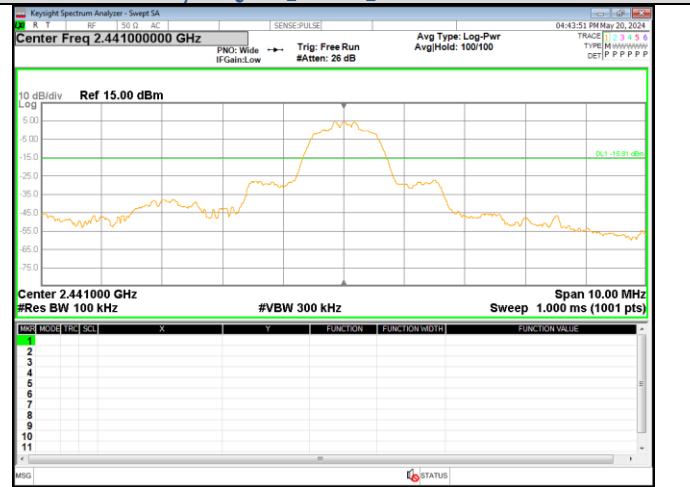
In-Band Reference Level  
GFSK\_DH5\_Channel 39



In-Band Reference Level  
 $\pi/4$ DQPSK\_2-DH5\_Channel 39

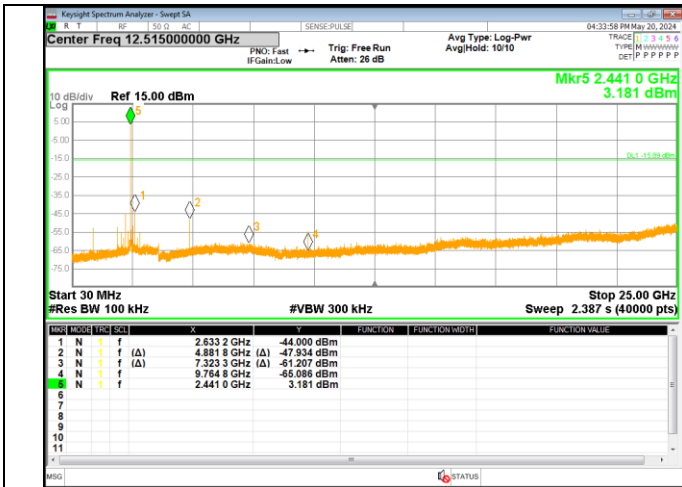


Out Of Band Emission  
GFSK\_DH5\_Channel 39

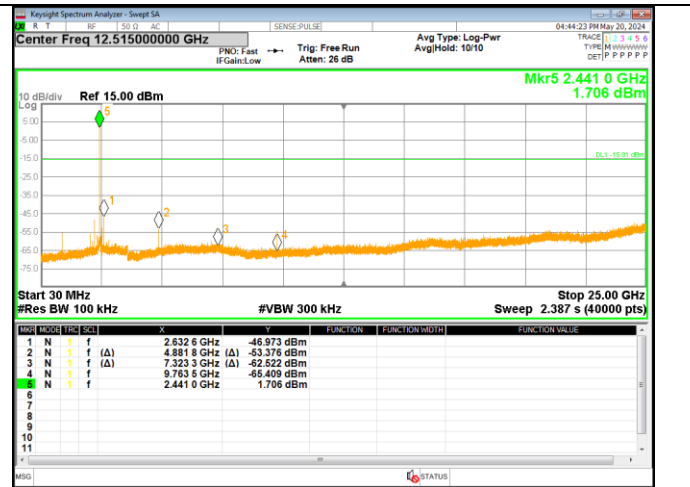


Out Of Band Emission  
 $\pi/4$ DQPSK\_2-DH5\_Channel 39





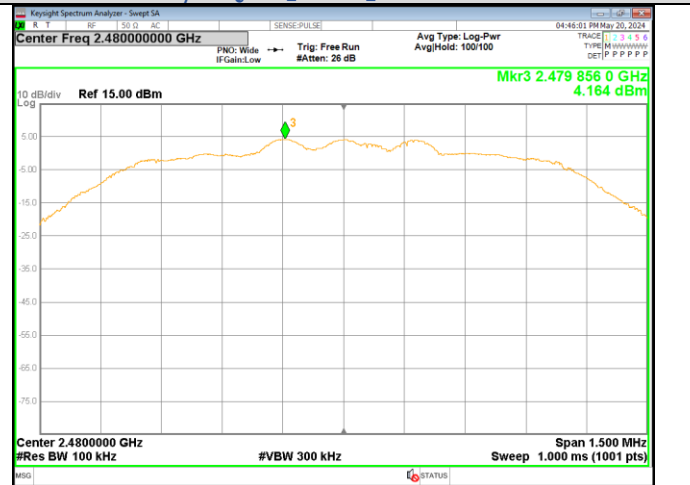
30.0 MHz - 25000.0 MHz  
GFSK\_DH5\_Channel 39



30.0 MHz - 25000.0 MHz  
π/4QPSK\_2-DH5\_Channel 39



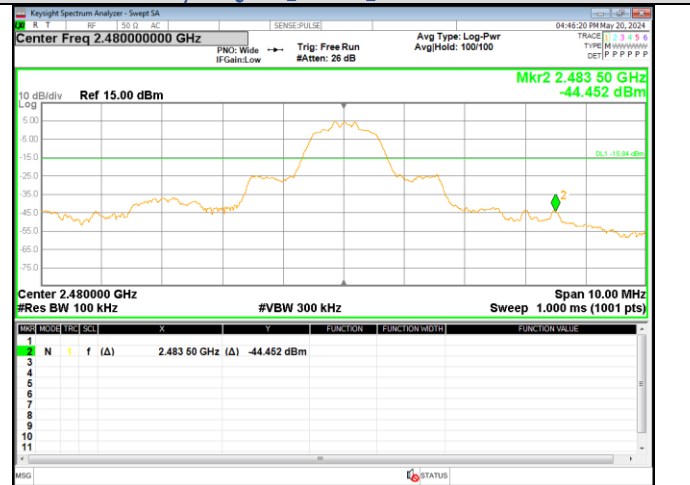
In-Band Reference Level  
GFSK\_DH5\_Channel 78



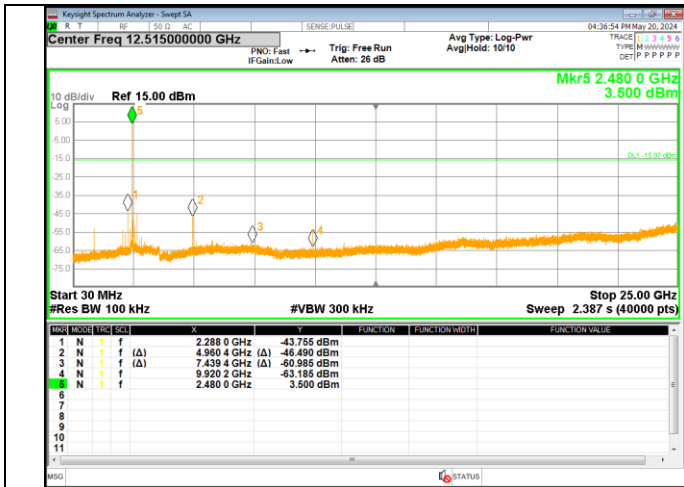
In-Band Reference Level  
π/4QPSK\_2-DH5\_Channel 78



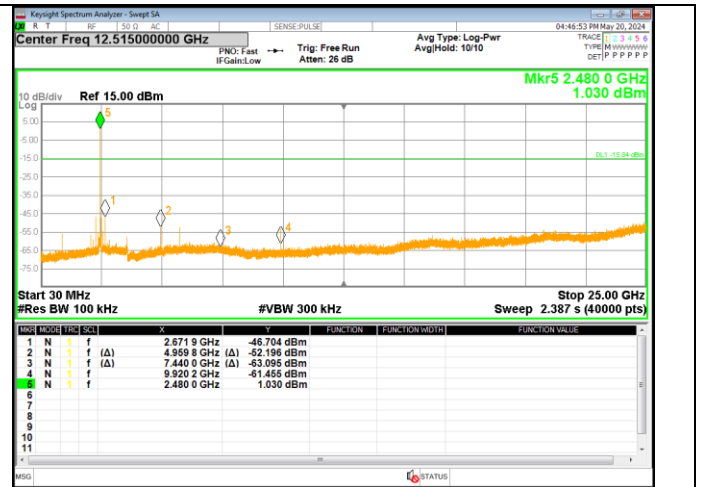
Out Of Band Emission  
GFSK\_DH5\_Channel 78



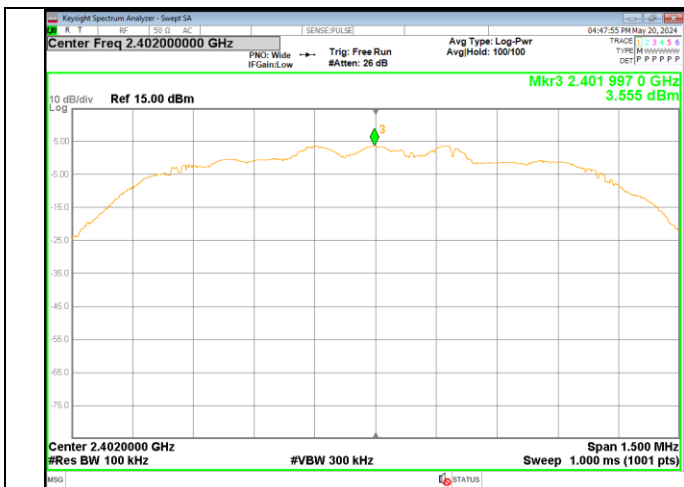
Out Of Band Emission  
π/4QPSK\_2-DH5\_Channel 78



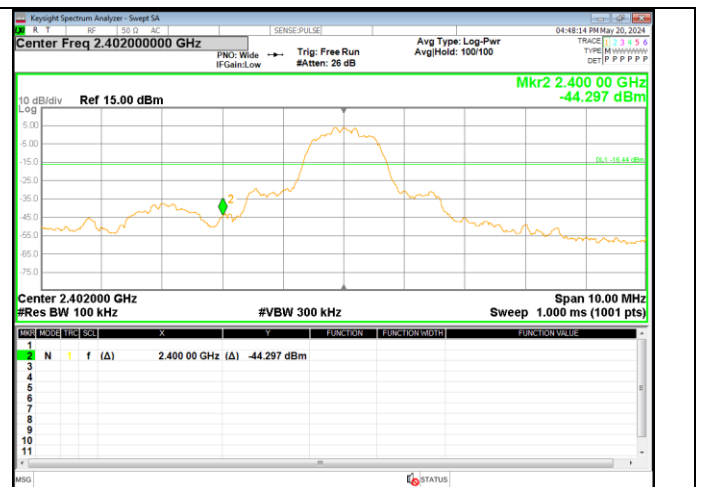
30.0 MHz - 25000.0 MHz  
GFSK\_DH5\_Channel 78



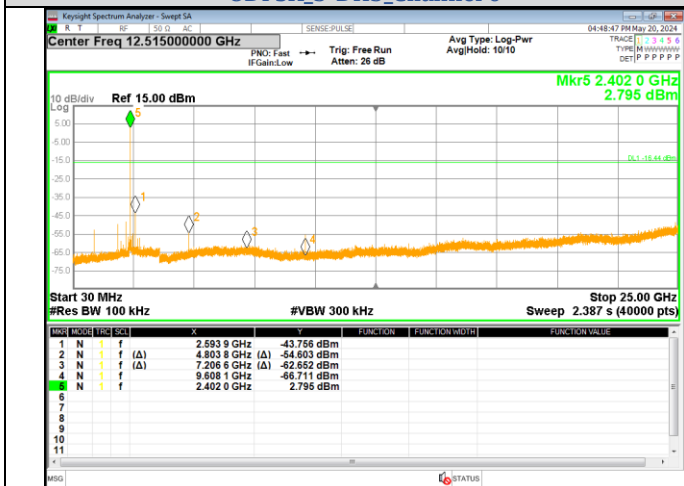
30.0 MHz - 25000.0 MHz  
 $\pi/4$ DQPSK\_2-DH5\_Channel 78



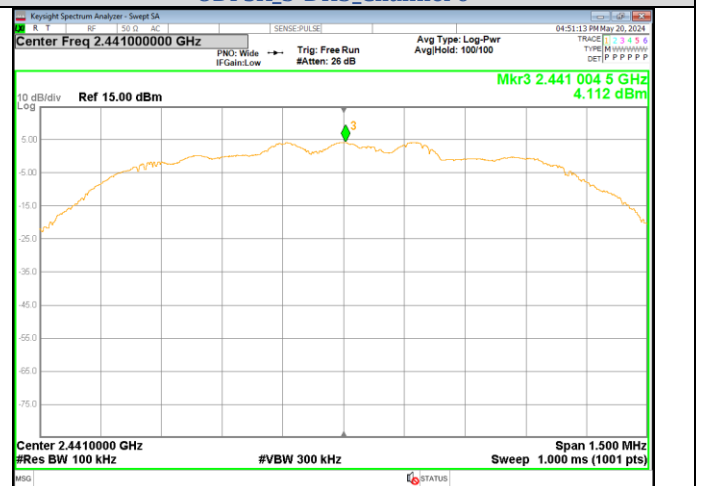
In-Band Reference Level  
8DPSK\_3-DH5\_Channel 0



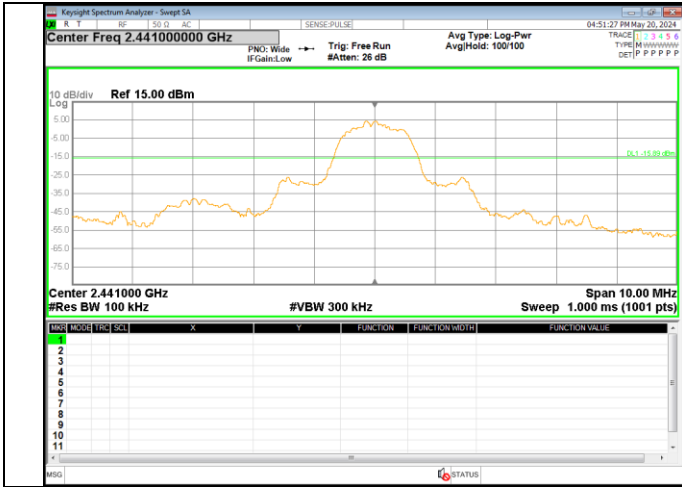
Out Of Band Emission  
8DPSK\_3-DH5\_Channel 0



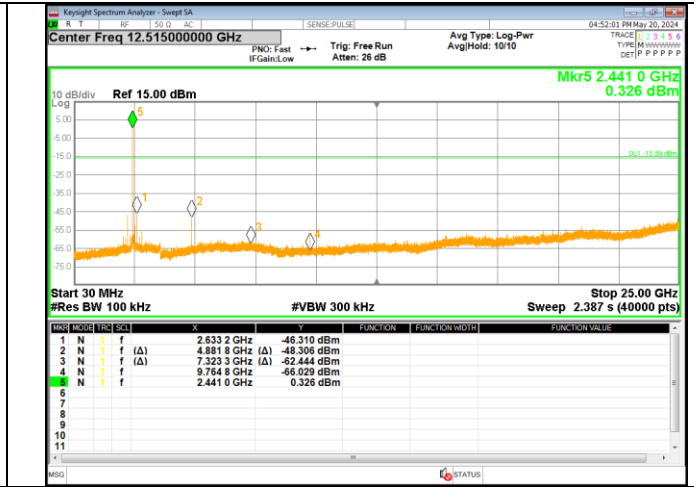
30.0 MHz - 25000.0 MHz  
8DPSK\_3-DH5\_Channel 0



In-Band Reference Level  
8DPSK\_3-DH5\_Channel 39



Out Of Band Emission  
8DPSK\_3-DH5\_Channel 39



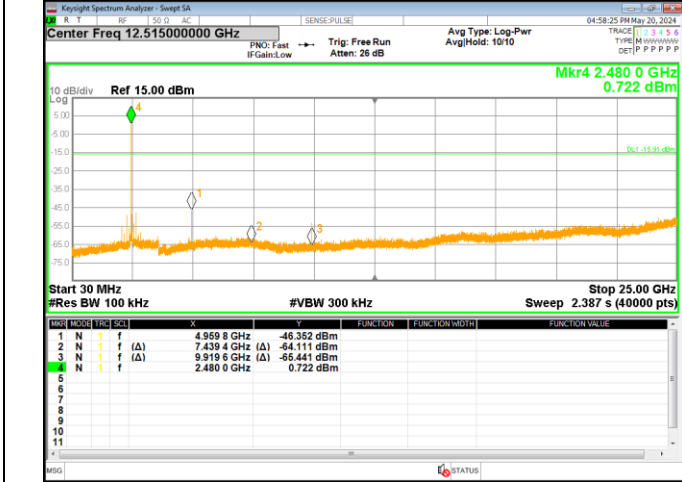
30.0 MHz - 25000.0 MHz  
8DPSK\_3-DH5\_Channel 39



In-Band Reference Level  
8DPSK\_3-DH5\_Channel 78



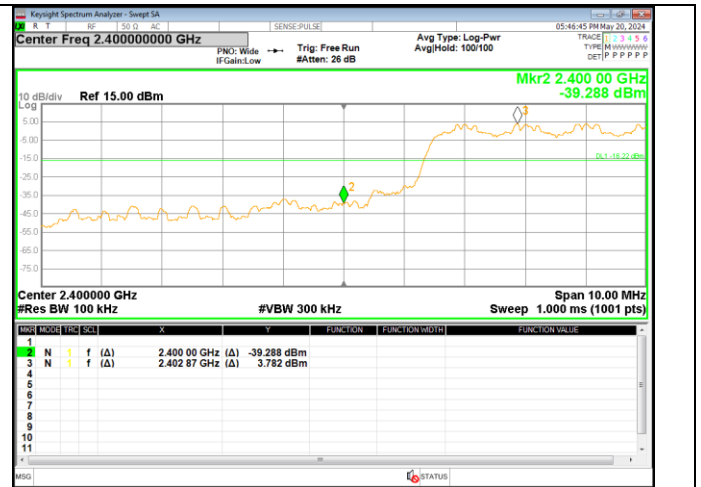
Out Of Band Emission  
8DPSK\_3-DH5\_Channel 78



30.0 MHz - 25000.0 MHz  
8DPSK\_3-DH5\_Channel 78



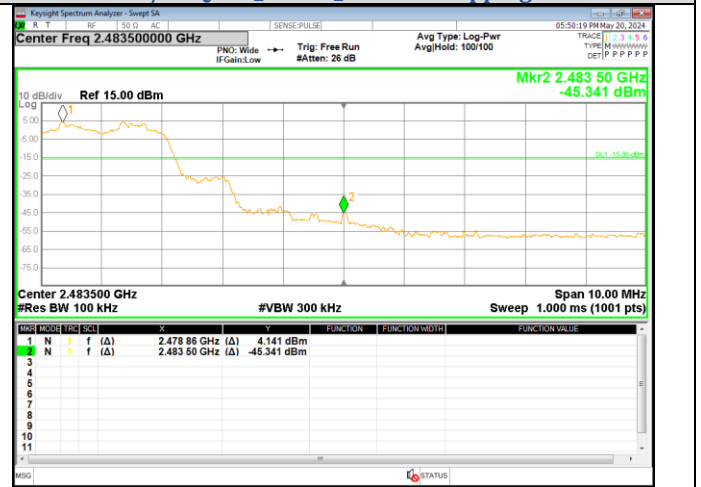
Out Of Band Emission(Left)  
GFSK\_DH5\_Channel Hopping



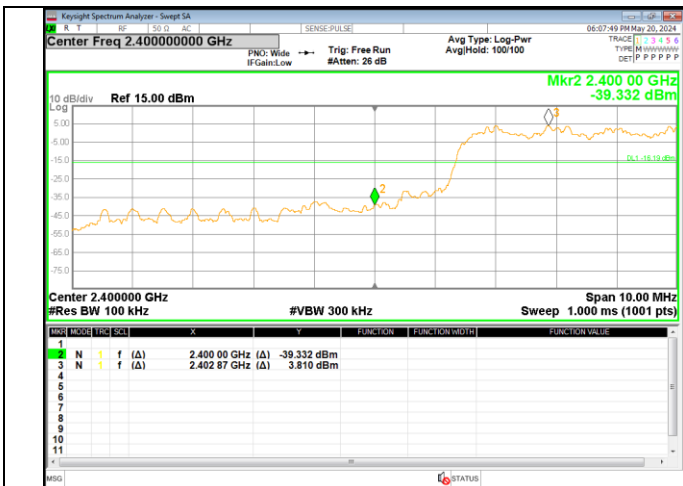
Out Of Band Emission(Left)  
 $\pi/4$ QPSK\_2-DH5\_Channel Hopping



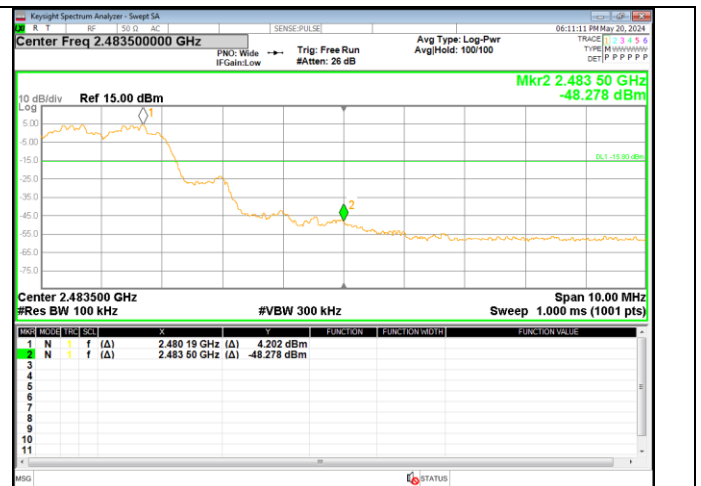
Out Of Band Emission(Right)  
GFSK\_DH5\_Channel Hopping



Out Of Band Emission(Right)  
 $\pi/4$ QPSK\_2-DH5\_Channel Hopping



Out Of Band Emission(Left)  
8DPSK\_3-DH5\_Channel Hopping



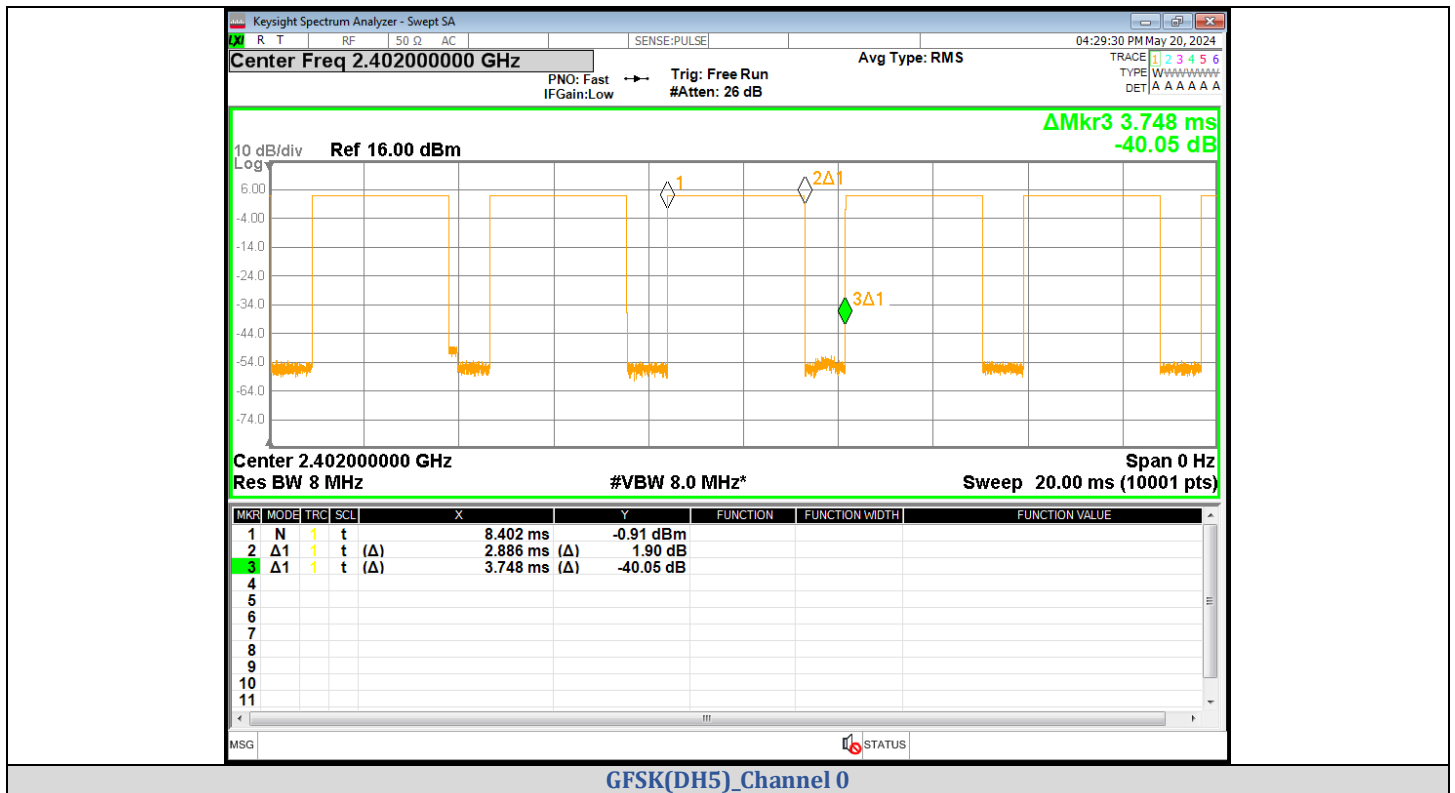
Out Of Band Emission(Right)  
8DPSK\_3-DH5\_Channel Hopping

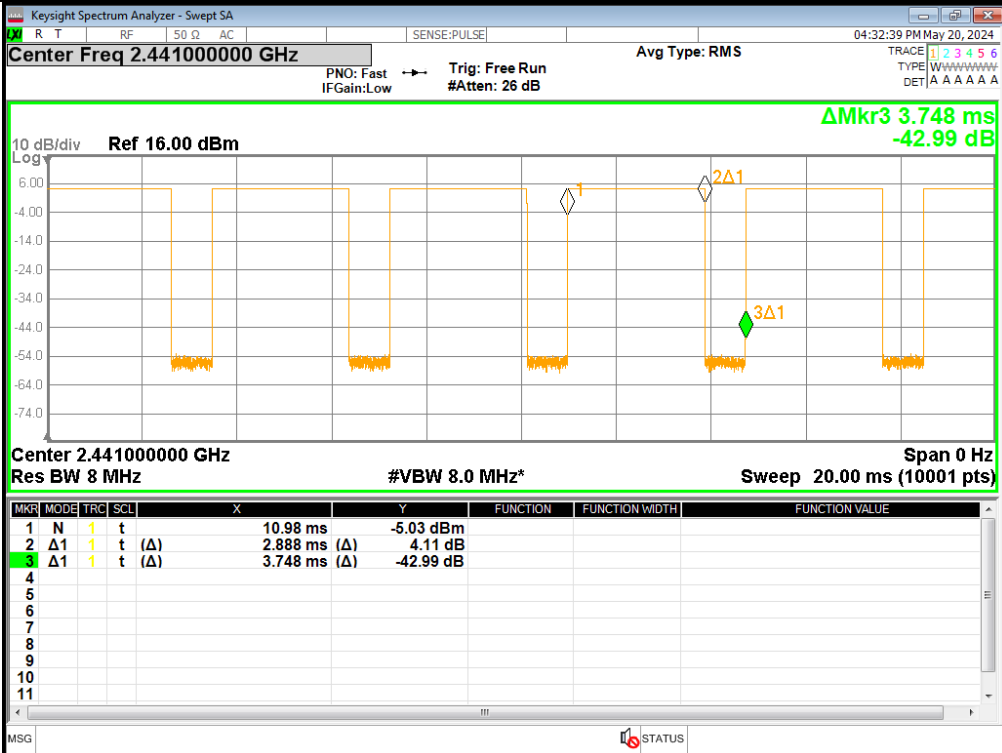
# Duty Cycle

## Test Result

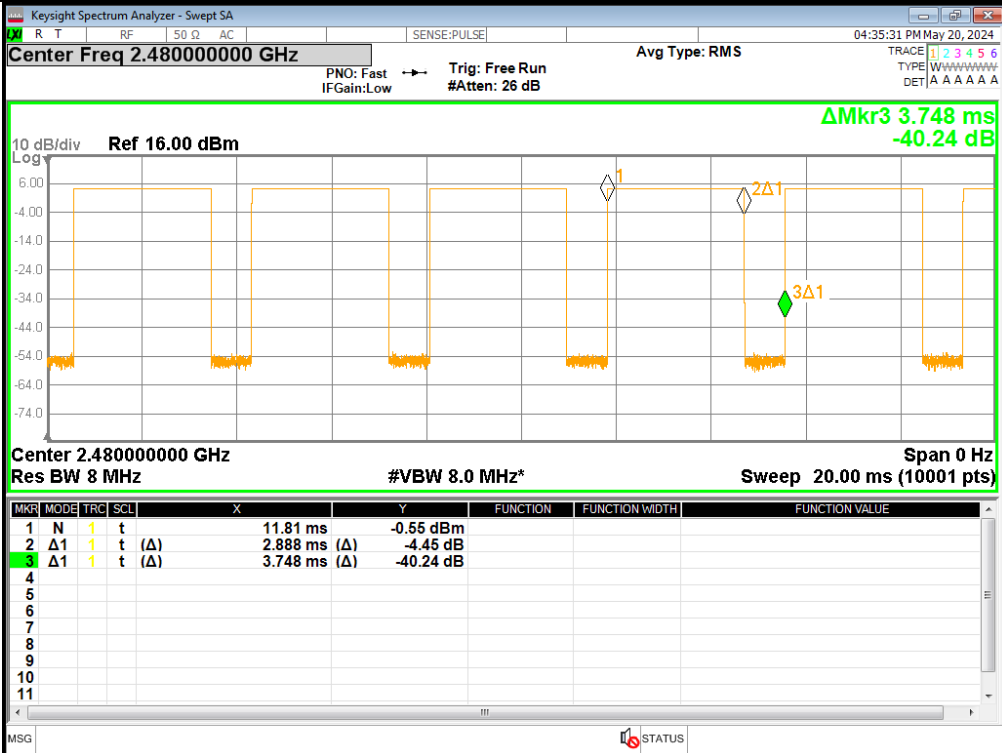
Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)
GFSK	DH5	0	2.886	3.748	77.00	0.7700	1.1351
		39	2.888	3.748	77.05	0.7705	1.1323
		78	2.888	3.748	77.05	0.7705	1.1323
$\pi/4$ DQPSK	2-DH5	0	2.890	3.748	77.11	0.7711	1.1289
		39	2.892	3.748	77.16	0.7716	1.1261
		78	2.892	3.748	77.16	0.7716	1.1261
8DPSK	3-DH5	0	2.892	3.748	77.16	0.7716	1.1261
		39	2.894	3.748	77.21	0.7721	1.1233
		78	2.894	3.748	77.21	0.7721	1.1233

## Test Graphs

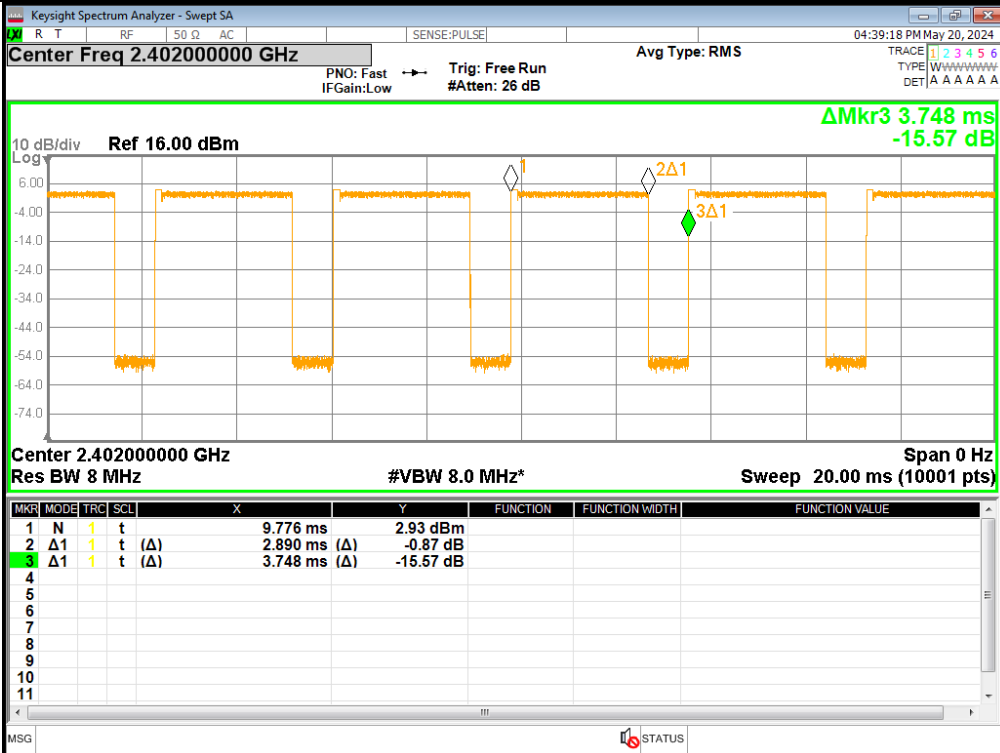




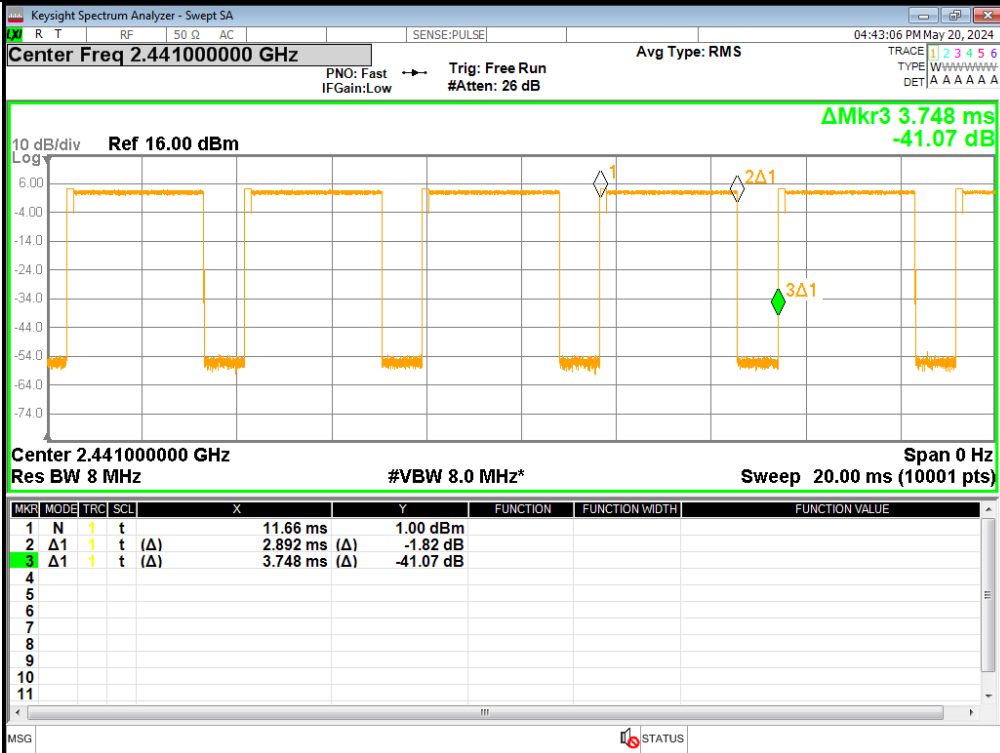
GFSK(DH5)\_Channel 39



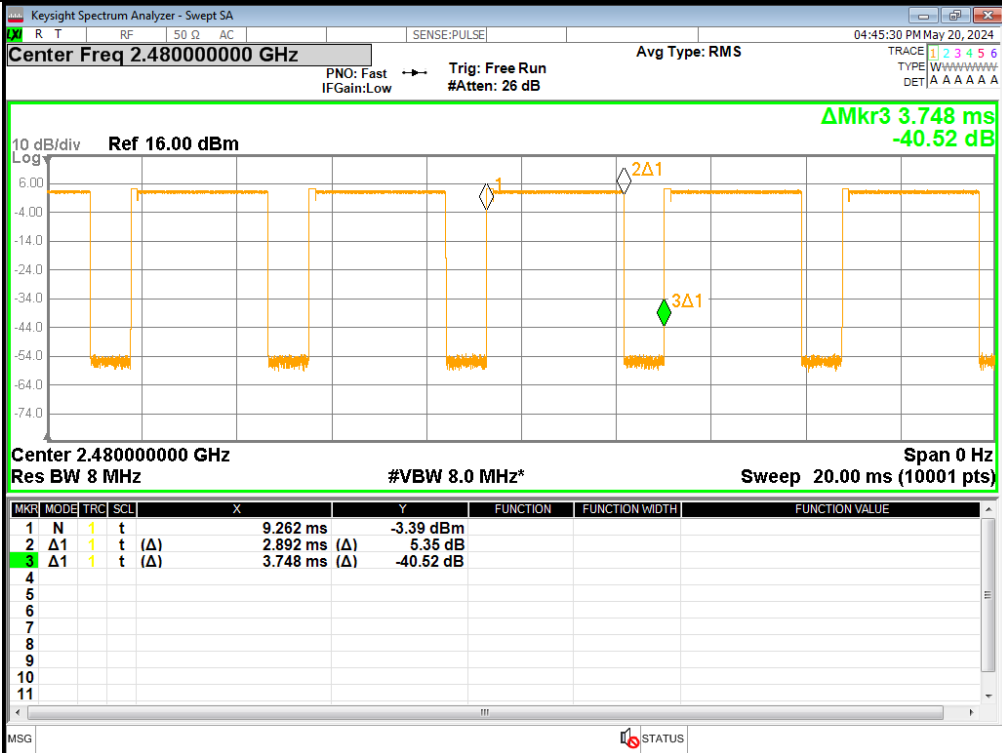
GFSK(DH5)\_Channel 78



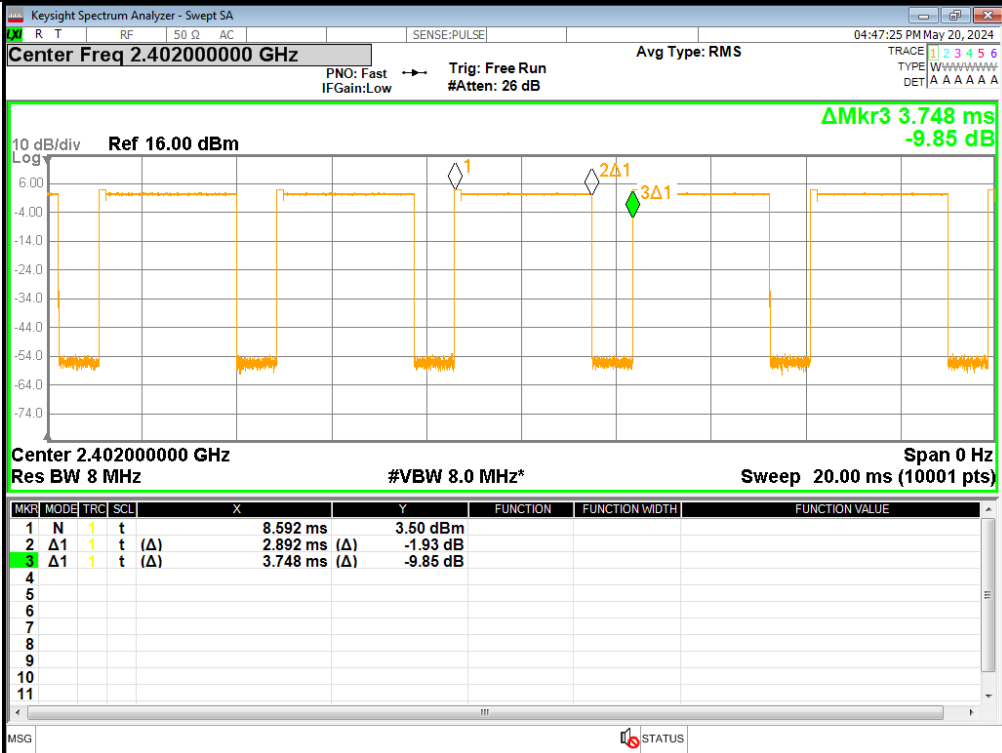
$\pi/4$ DQPSK(2-DH5)\_Channel 0



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

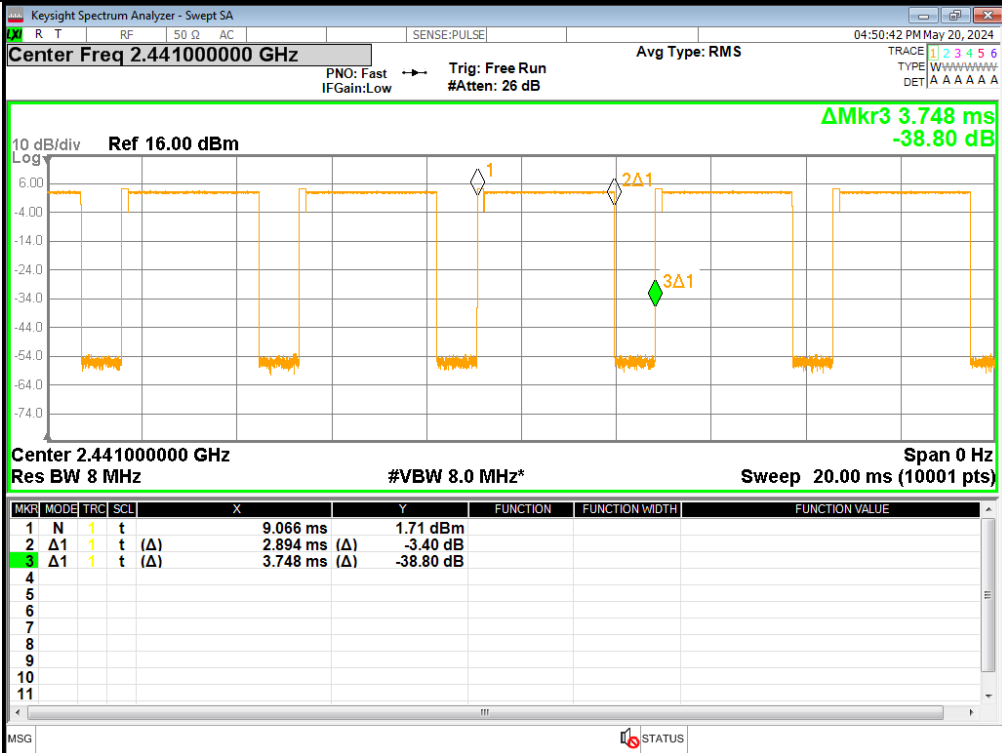


$\pi/4$ DQPSK(2-DH5)\_Channel 78

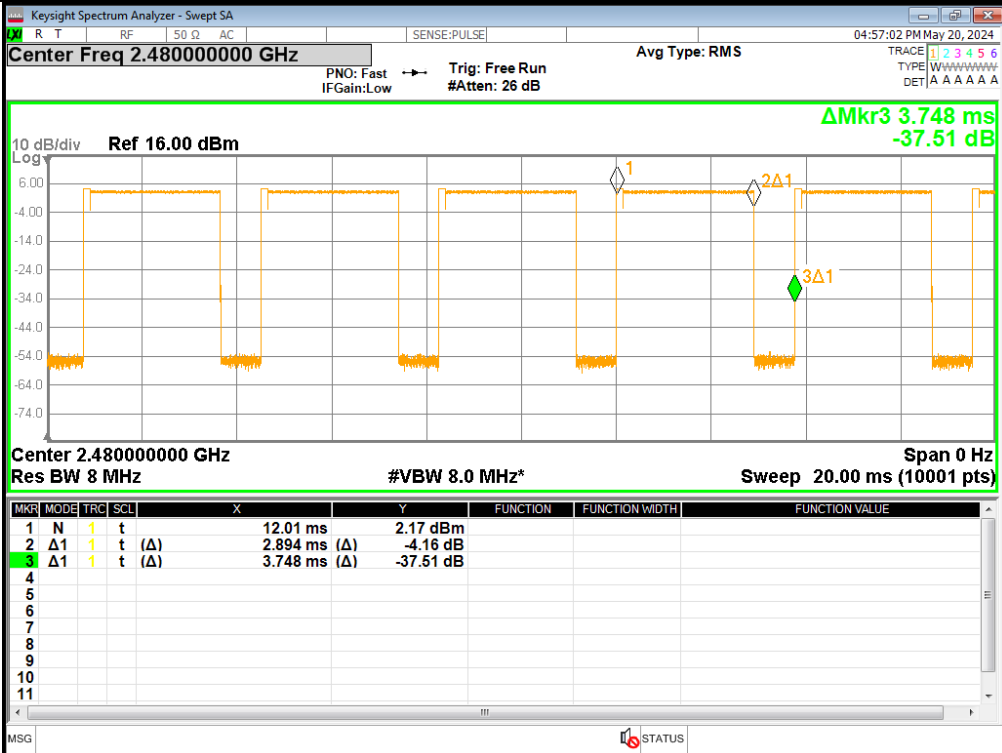


8DPSK(3-DH5)\_Channel 0





8DPSK(3-DH5)\_Channel 39



8DPSK(3-DH5)\_Channel 78

# Dwell Time

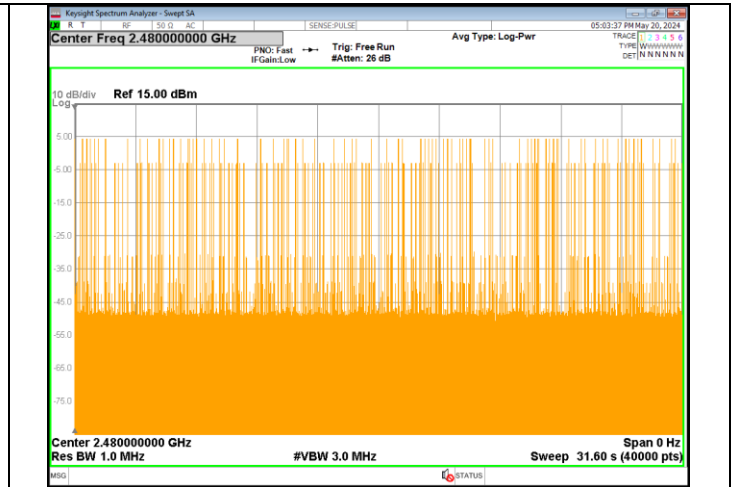
## Test Result

Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH78 (2480MHz)	2.872	98	281.46	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.880	111	319.68		PASS
8DPSK	3-DH5		2.880	91	262.08		PASS

## Test Graphs



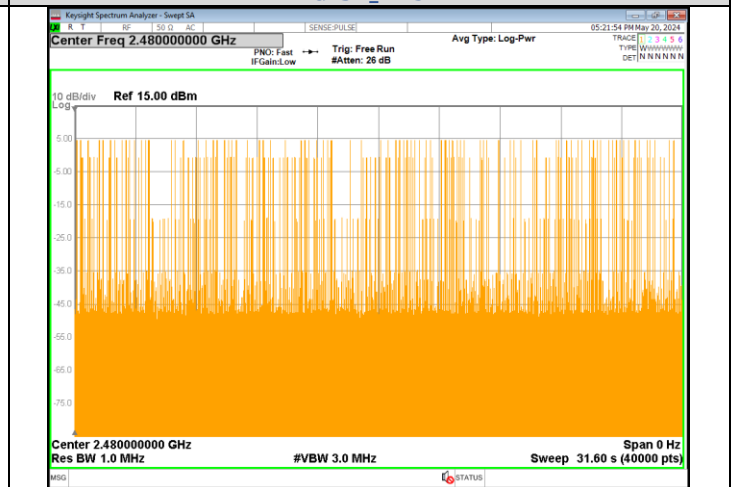
Pulse Width  
GFSK\_DH5



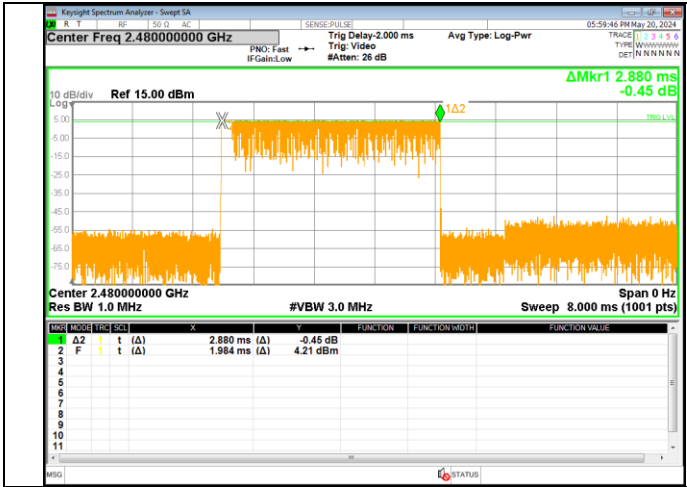
Number of Pulses in 31.6 seconds  
GFSK\_DH5



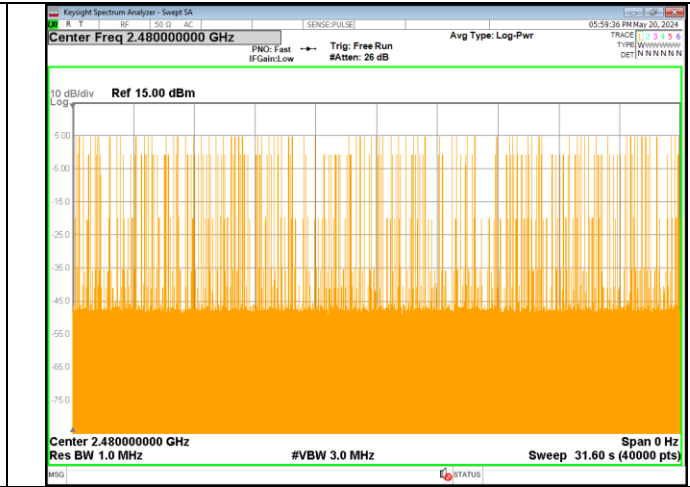
Pulse Width  
 $\pi/4$ DQPSK\_2-DH5



Number of Pulses in 31.6 seconds  
 $\pi/4$ DQPSK\_2-DH5



Pulse Width  
8DPSK\_3-DH5



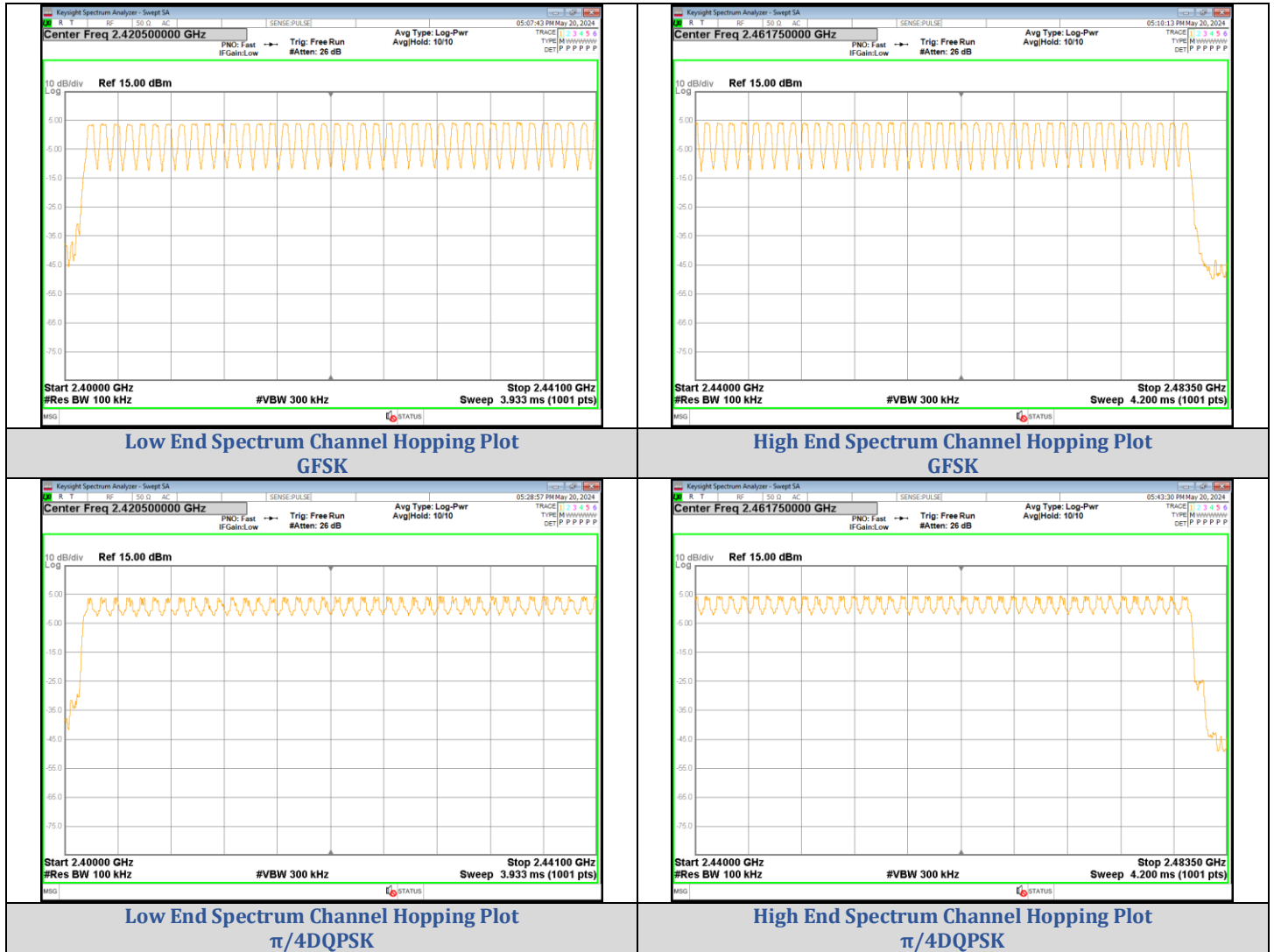
Number of Pulses in 31.6 seconds  
8DPSK\_3-DH5

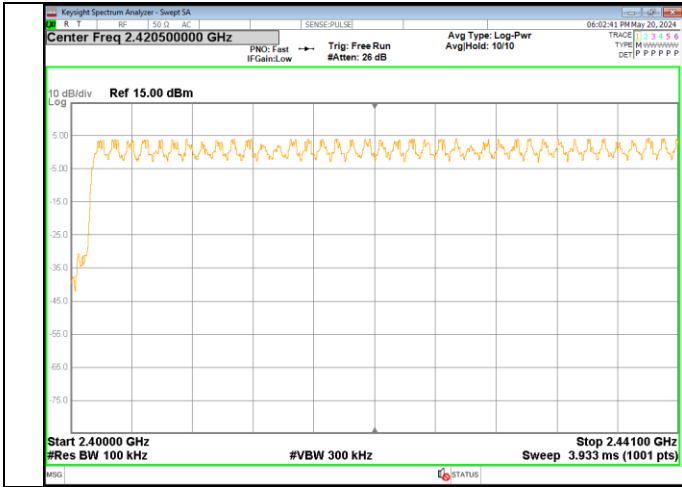
# Number Of Hopping Channel

## Test Result

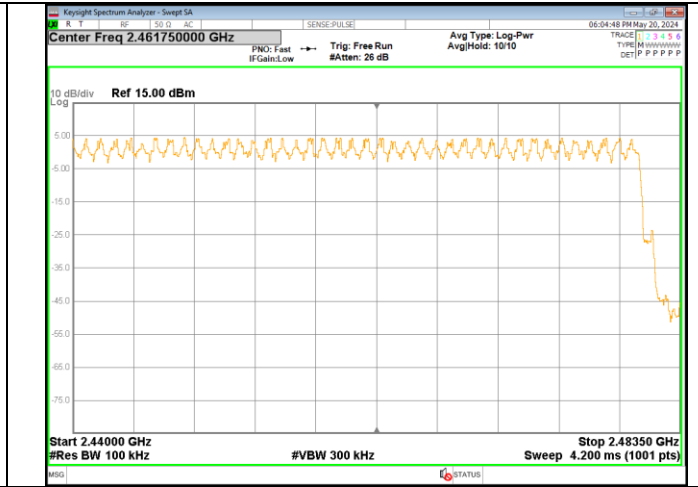
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

## Test Graphs





**Low End Spectrum Channel Hopping Plot  
8DPSK**



**High End Spectrum Channel Hopping Plot  
8DPSK**