

Appendix A

Report No.:	CISRR24041913101
FCC ID:	2BF2Q-KW03
Product Name:	White noise speaker
Model No.:	KW03
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

Conducted Peak Output Power

Test Result

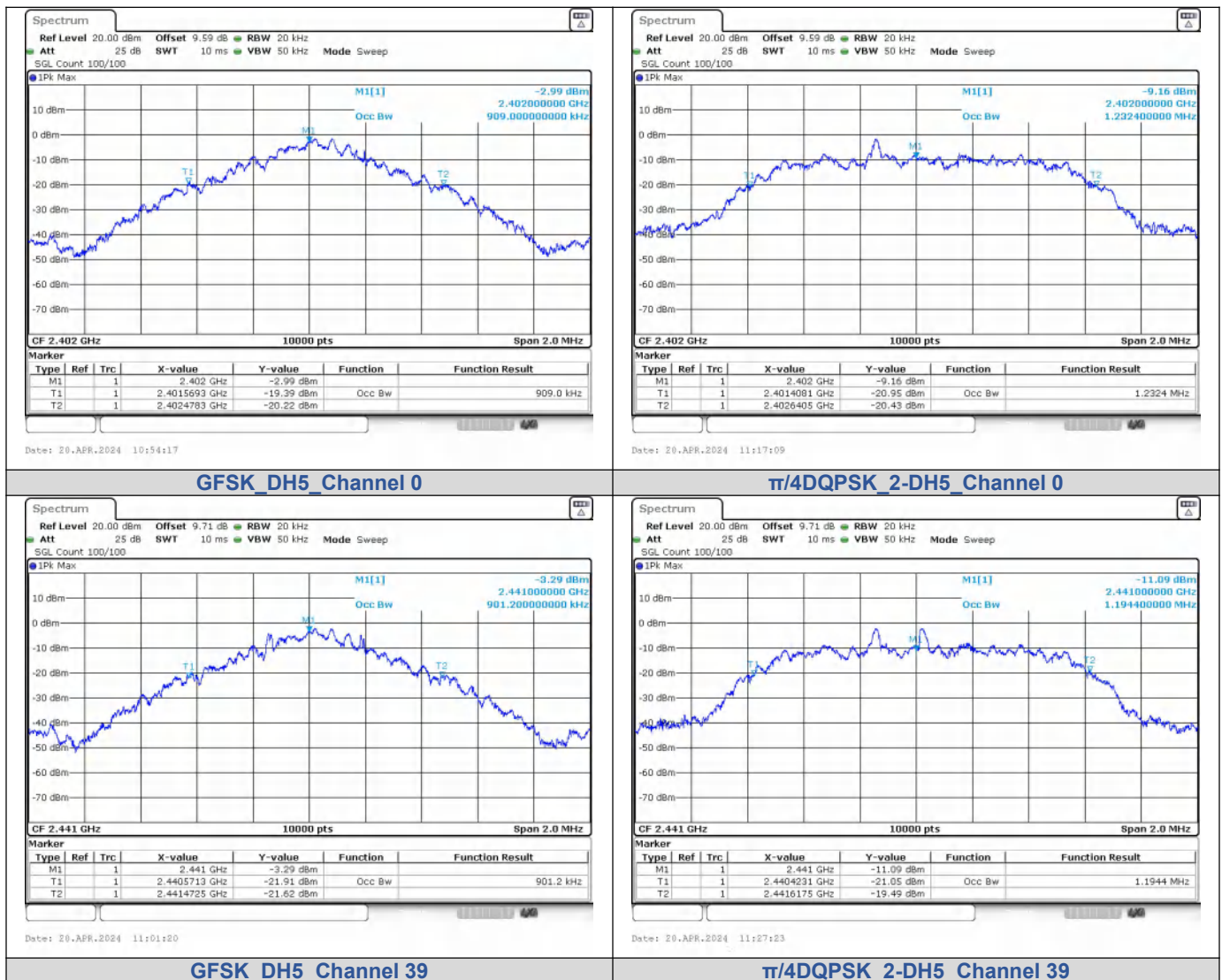
Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	2.022	1.593	30	PASS
		39	2.655	1.843		PASS
		78	2.148	1.640		PASS
$\pi/4$ DQPSK	2-DH5	0	2.532	1.791	20.97	PASS
		39	2.010	1.589		PASS
		78	2.022	1.593		PASS
8DPSK	3-DH5	0	1.368	1.370		PASS
		39	1.341	1.362		PASS
		78	2.153	1.642		PASS

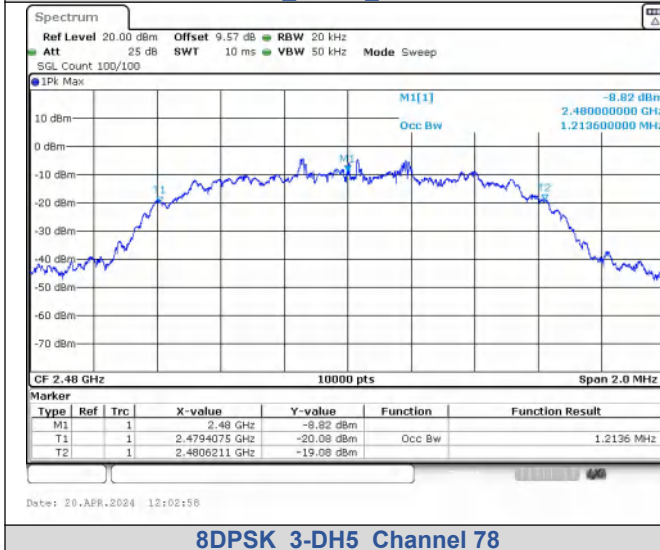
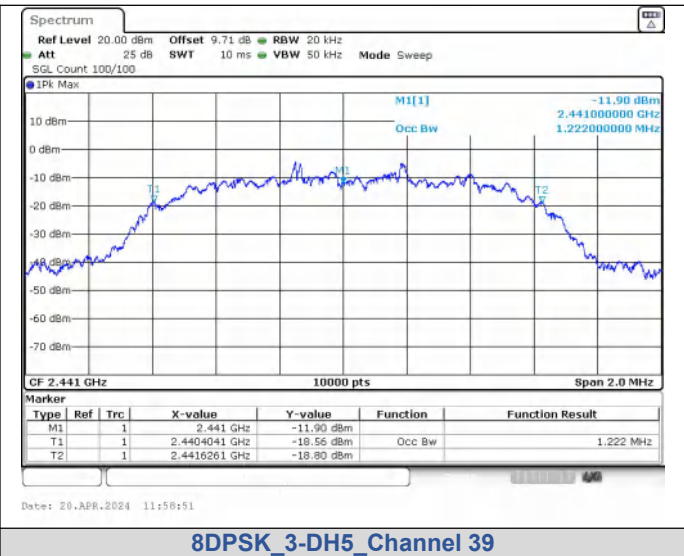
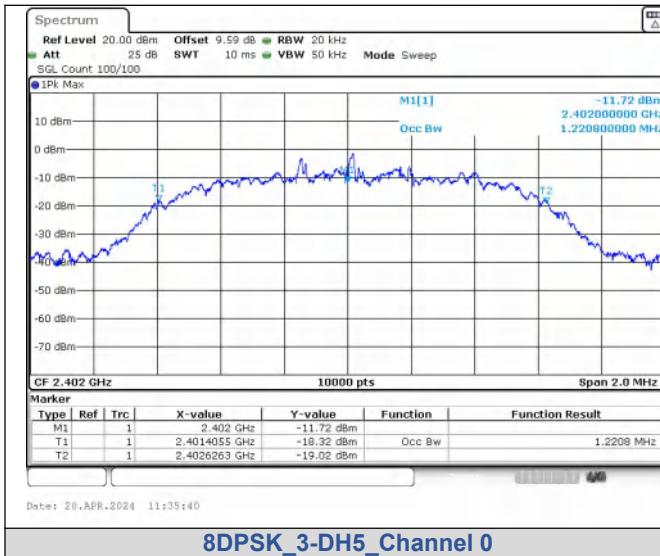
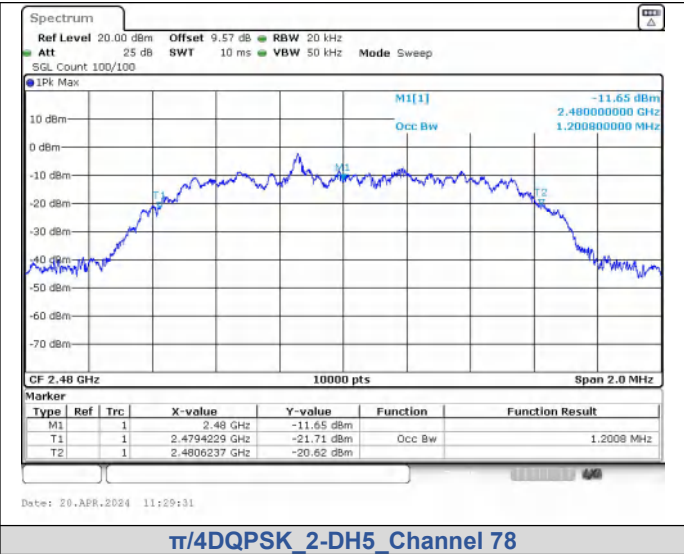
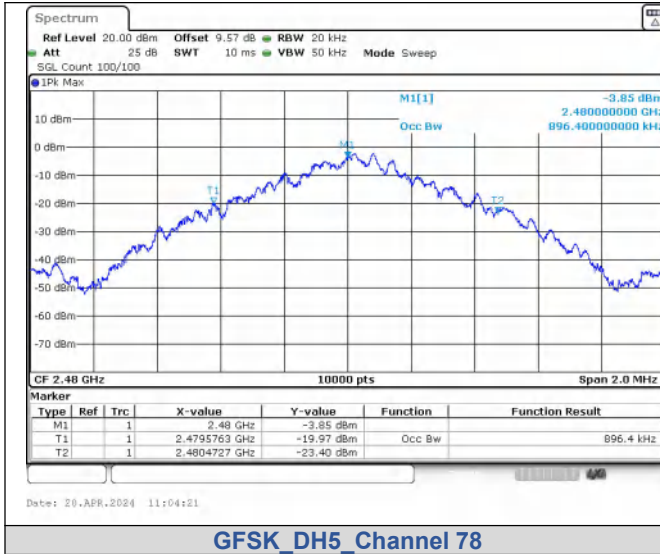
99% Bandwidth

Test Result

Modulation	Channel	99% BW (MHz)
GFSK	0	0.90900
	39	0.90120
	78	0.89640
$\pi/4$ DQPSK	0	1.2320
	39	1.1940
	78	1.2010
8DPSK	0	1.2210
	39	1.2220
	78	1.2140

Test Graphs



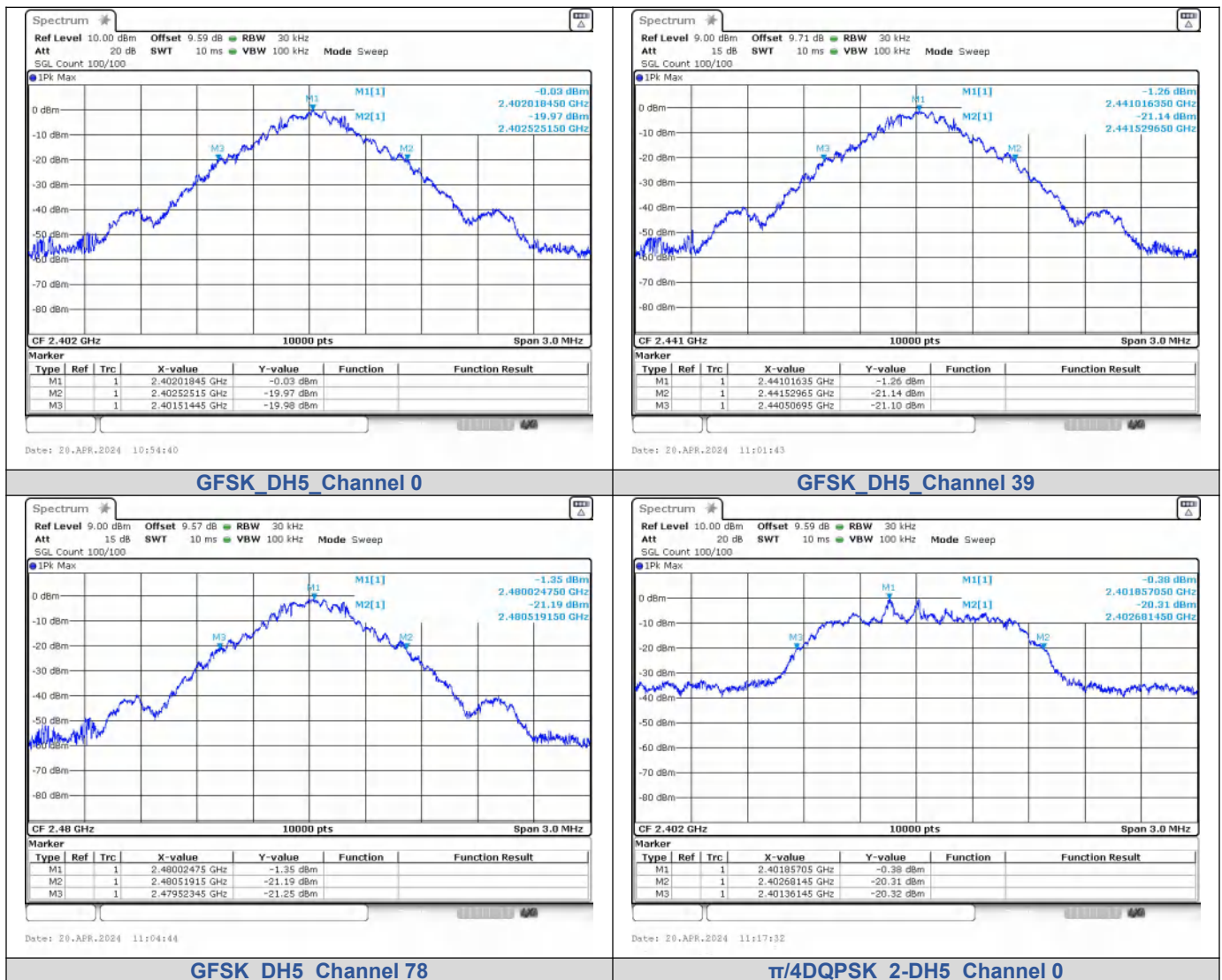


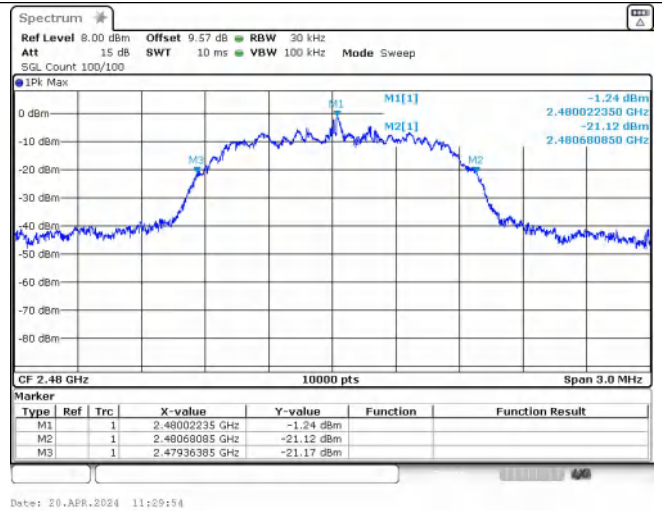
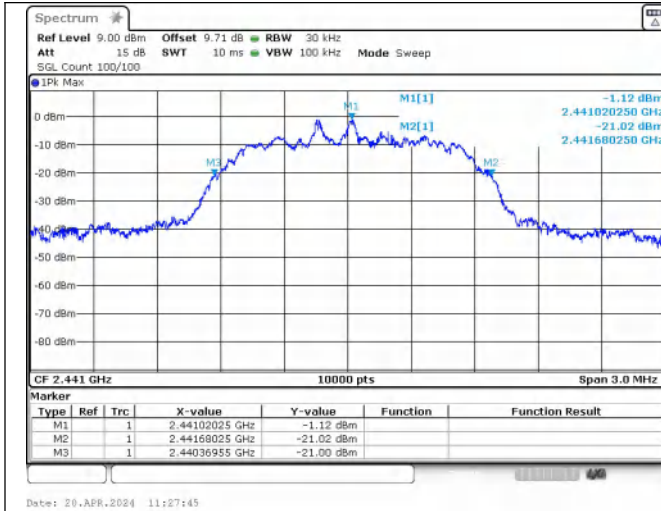
20dB Bandwidth

Test Result

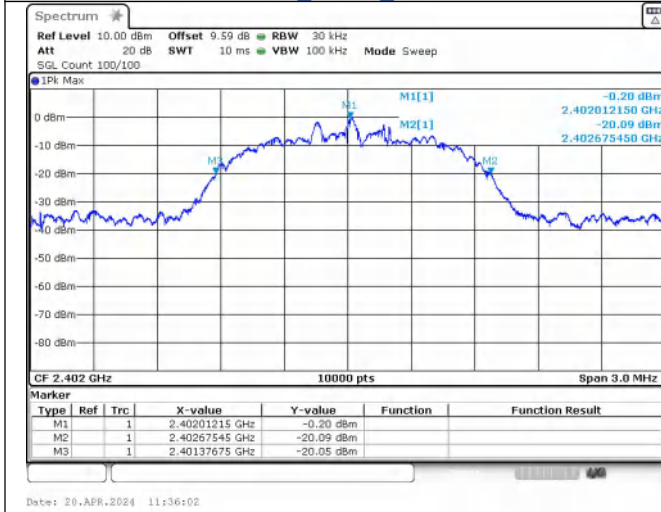
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.020
	39	2441 MHz	1.020
	78	2480 MHz	1.000
$\pi/4$ DQPSK	0	2402 MHz	1.320
	39	2441 MHz	1.310
	78	2480 MHz	1.320
8DPSK	0	2402 MHz	1.300
	39	2441 MHz	1.290
	78	2480 MHz	1.290

Test Graphs

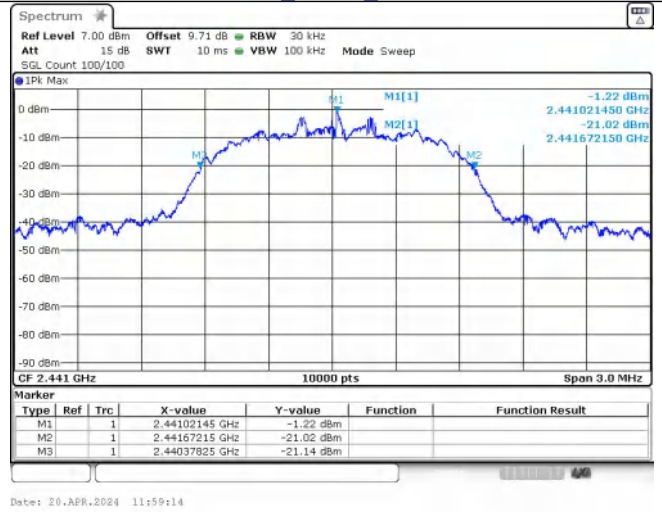




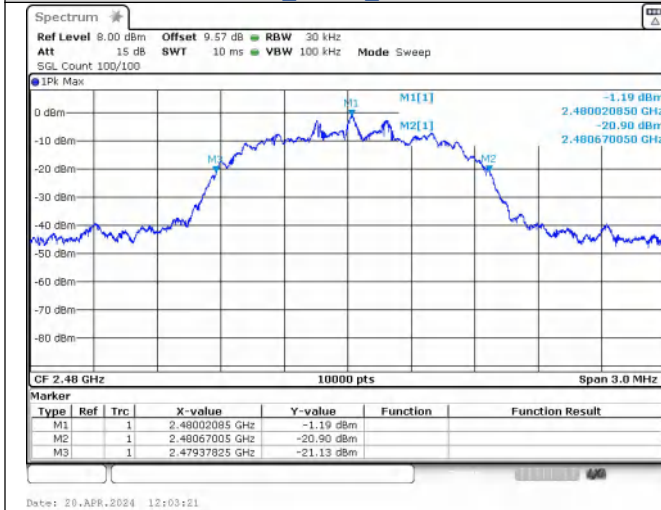
$\pi/4$ DQPSK_2-DH5_Channel 39



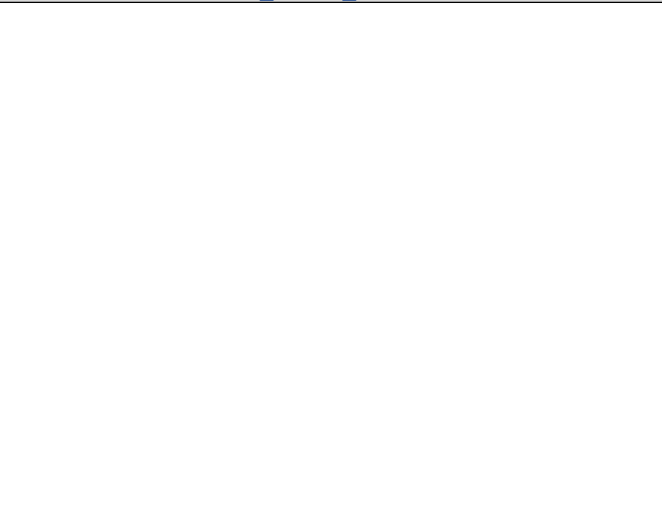
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



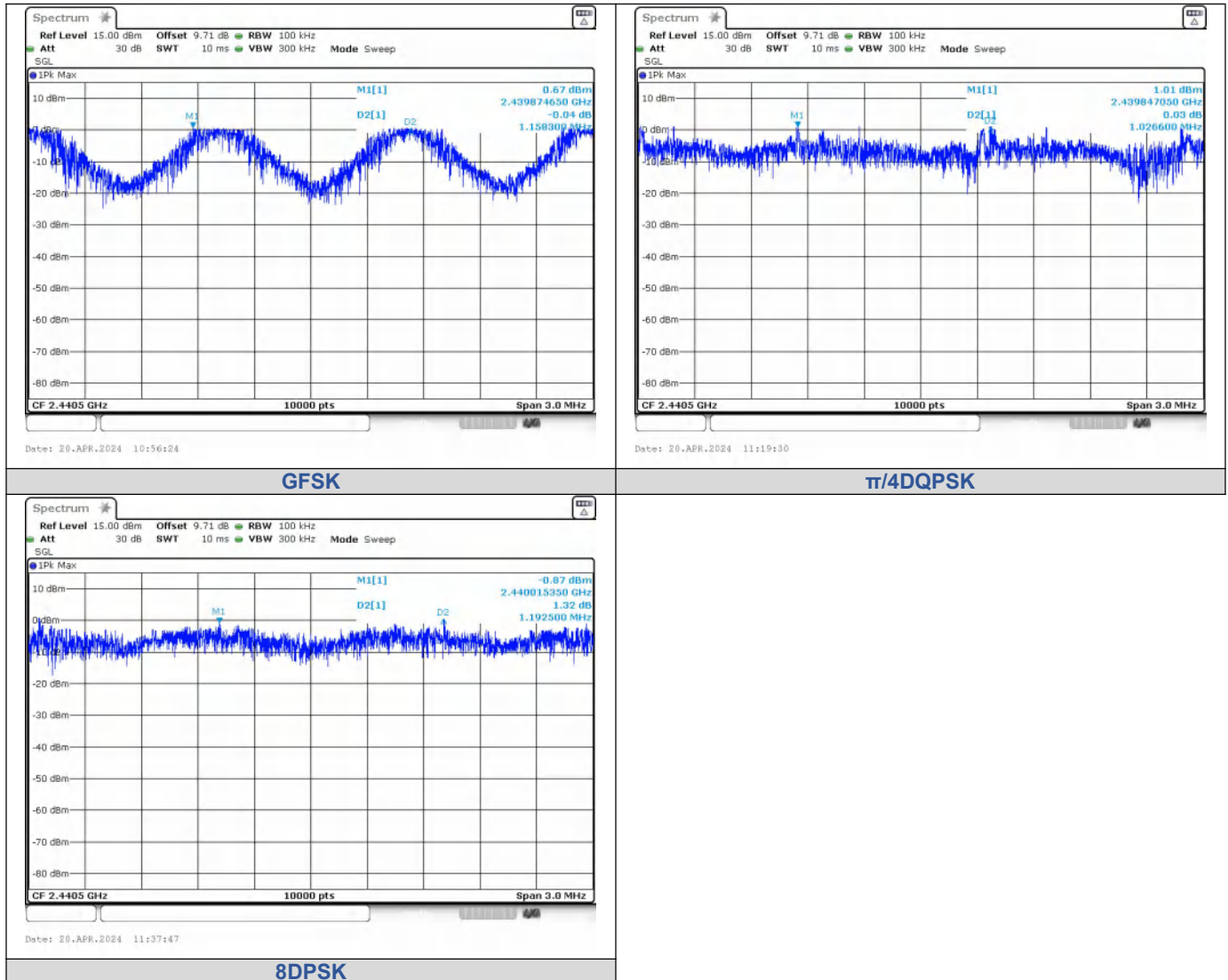
8DPSK_3-DH5_Channel 78

Carrier Frequencies Separation

Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.8747	2441.0329	1.1583	0.68	PASS
$\pi/4$ DQPSK	2-DH5	2439.847	2440.8736	1.0266	0.88	PASS
8DPSK	3-DH5	2440.0154	2441.2078	1.1925	0.867	PASS

Test Graphs



Conducted Out Of Band Emission

Test Result

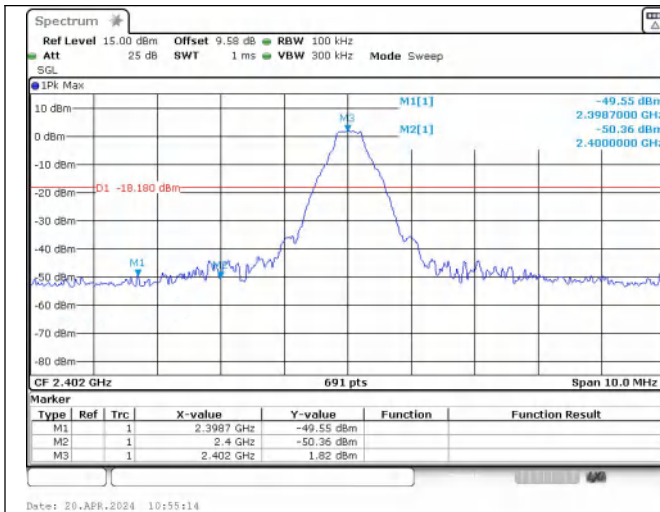
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-50.361	-18.18	-32.181	PASS
			2398.70	-49.555	-18.18	-31.375	PASS
			7206.80	-39.619	-18.18	-21.439	PASS
		39	9763.72	-42.789	-18.74	-24.049	PASS
		78	2483.50	-52.403	-18.74	-33.663	PASS
			9920.20	-40.743	-18.74	-22.003	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-45.252	-18.25	-27.002	PASS
			5240.82	-41.699	-18.25	-23.449	PASS
		39	9763.72	-42.208	-18.79	-23.418	PASS
		78	2483.50	-51.840	-18.77	-33.070	PASS
			9920.20	-40.519	-18.77	-21.749	PASS
8DPSK	3-DH5	0	2400.00	-47.000	-18.09	-28.910	PASS
			7205.96	-44.504	-18.09	-26.414	PASS
		39	9764.55	-41.668	-19.43	-22.238	PASS
		78	2483.50	-51.904	-18.9	-33.004	PASS
			9920.20	-40.366	-18.9	-21.466	PASS

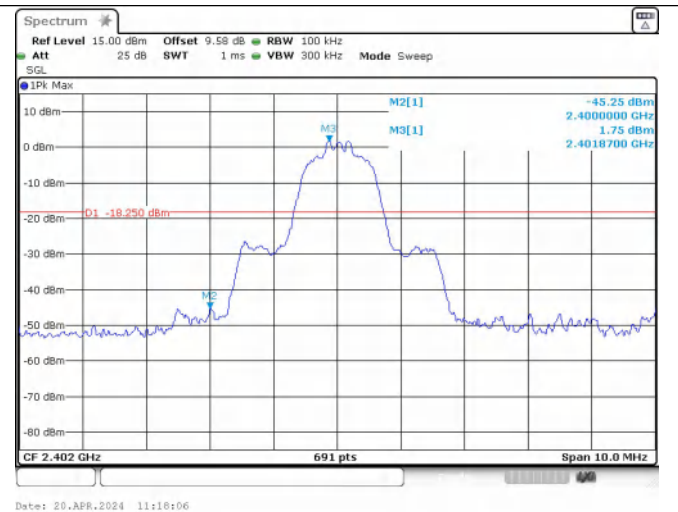
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2395.28	-49.295	-17.92	-31.375	PASS
			2400.00	-51.735	-17.92	-33.815	PASS
			2483.50	-52.007	-19.32	-32.687	PASS
			2398.93	-47.370	-17.84	-29.530	PASS
			2400.00	-49.231	-17.84	-31.391	PASS
π/4DQPSK	2-DH5		2483.50	-51.653	-18.75	-32.903	PASS
			2400.00	-46.398	-18.12	-28.278	PASS
			2483.50	-51.379	-20.13	-31.249	PASS
			2400.00	-48.182	-18.24	-29.942	PASS
8DPSK	3-DH5		2483.50	-50.102	-18.75	-31.352	PASS
			2400.00	-49.702	-18.51	-31.192	PASS
			2483.50	-50.089	-18.94	-31.149	PASS
			2400.00	-47.438	-18.04	-29.398	PASS
				2483.50	-51.116	-19.23	-31.886

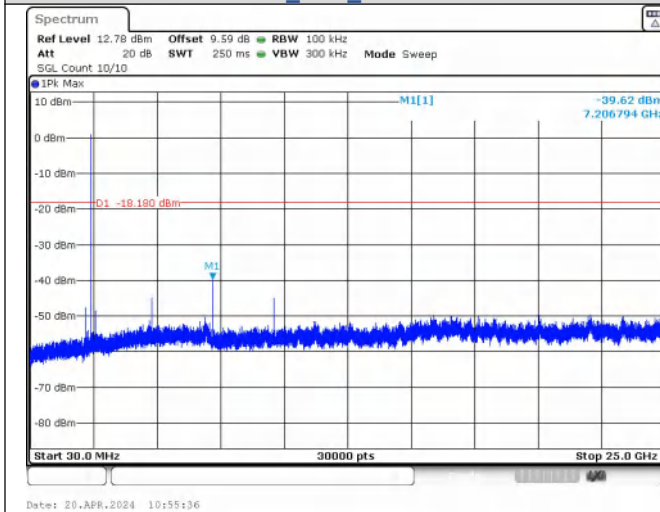
Test Graphs



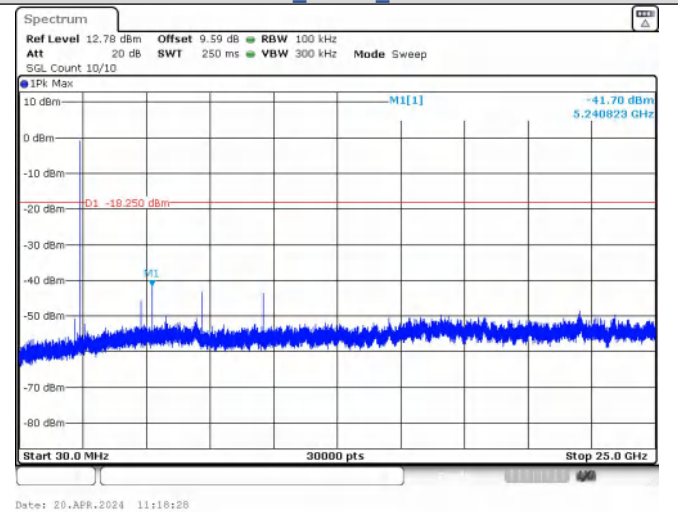
**Out Of Band Emission
GFSK_DH5_Channel 0**



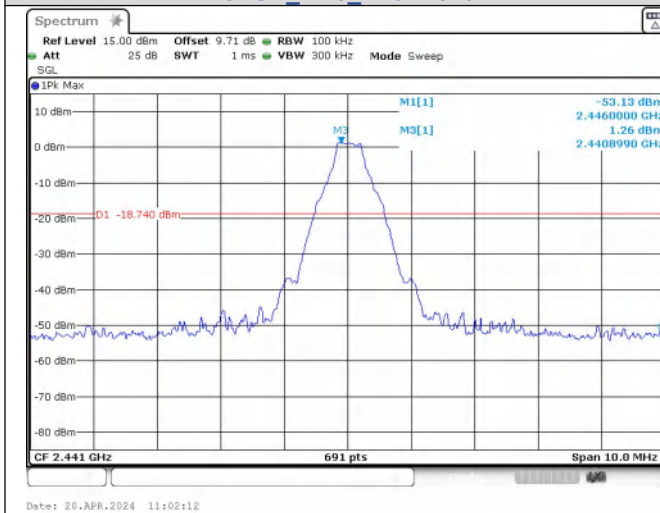
**Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0**



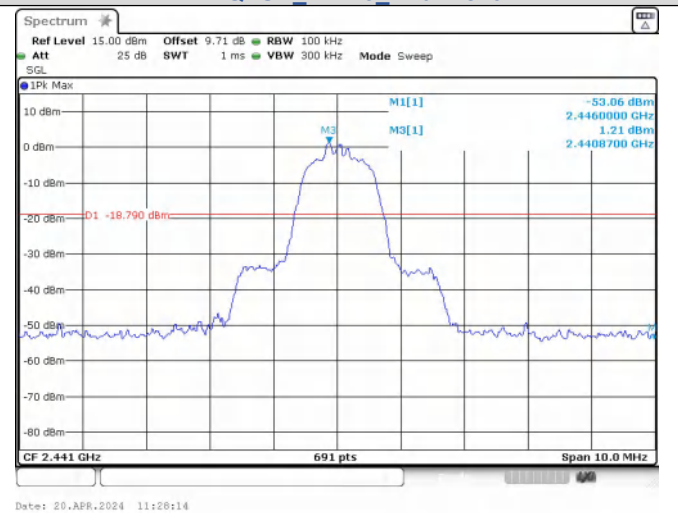
**Spurious Emission
GFSK_DH5_Channel 0**



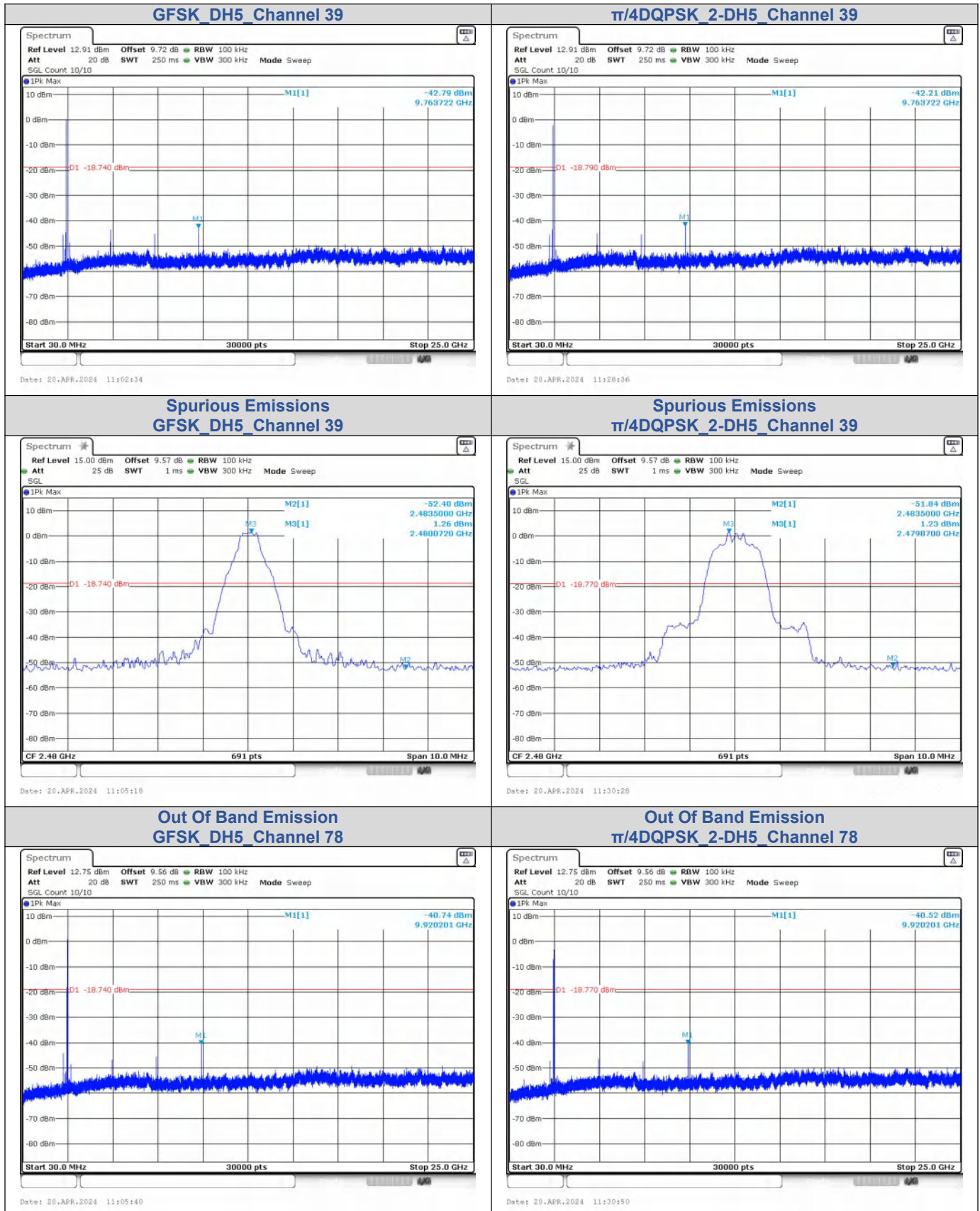
**Spurious Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0**



Out Of Band Emission

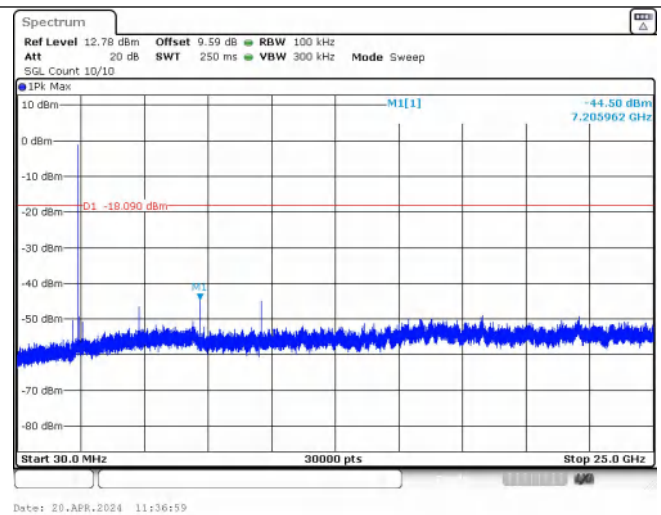
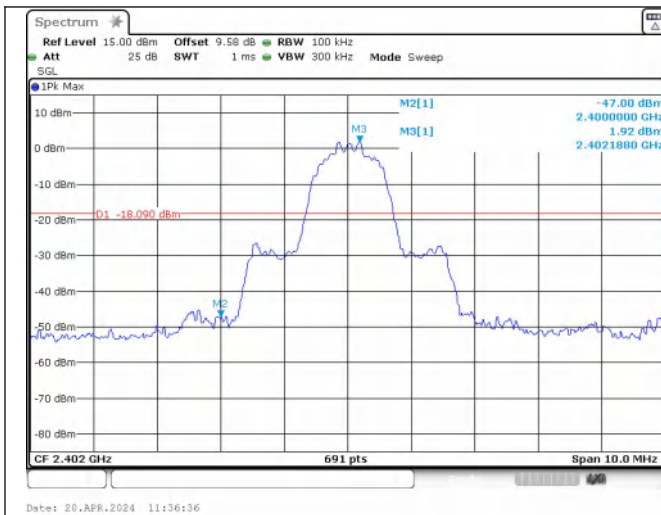


Out Of Band Emission



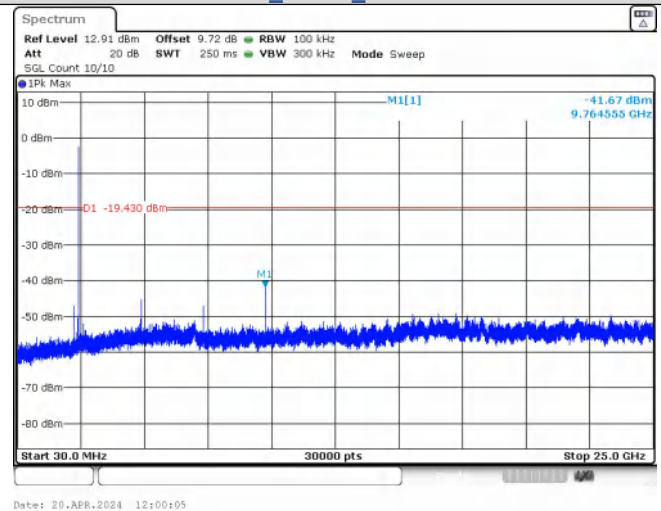
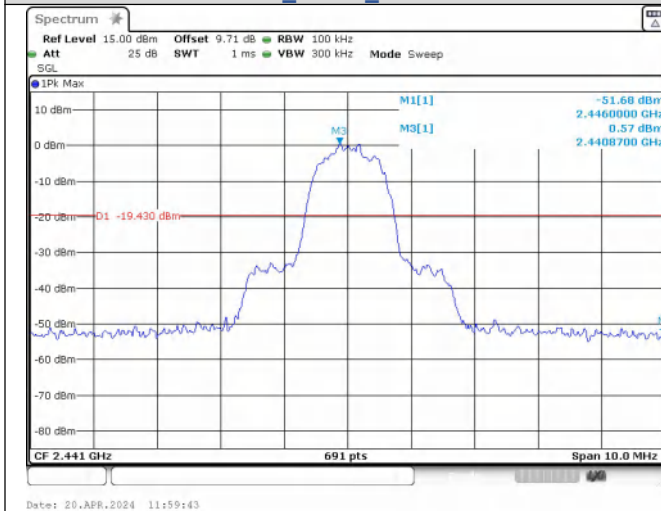
Spurious Emission
GFSK_DH5_Channel 78

Spurious Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78



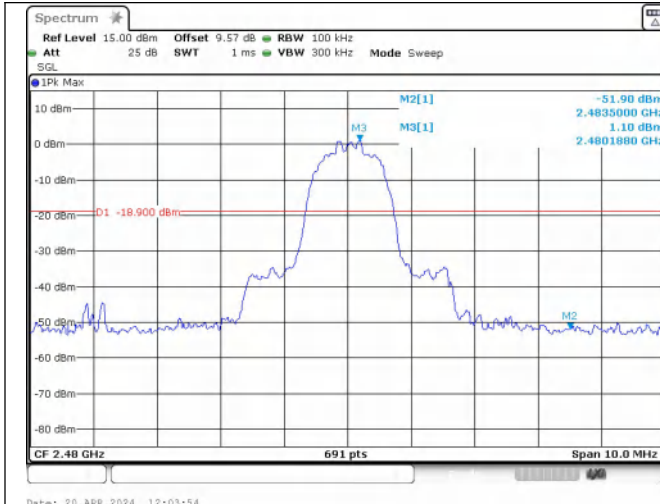
Out Of Band Emission
8DPSK_3-DH5_Channel 0

Spurious Emission
8DPSK_3-DH5_Channel 0

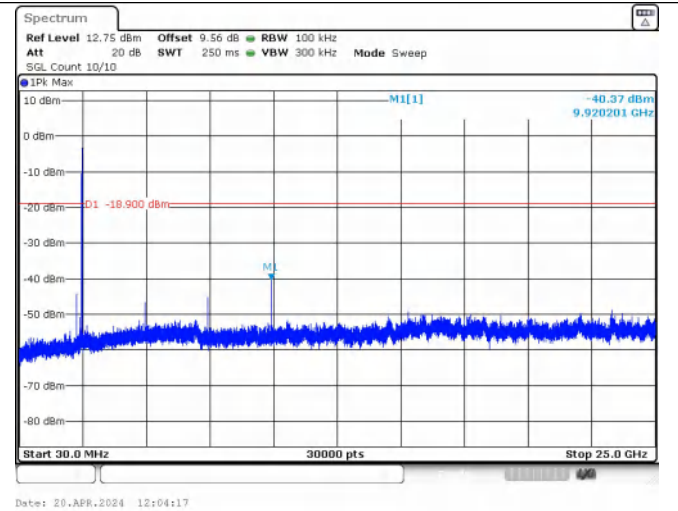


Out Of Band Emission
8DPSK_3-DH5_Channel 39

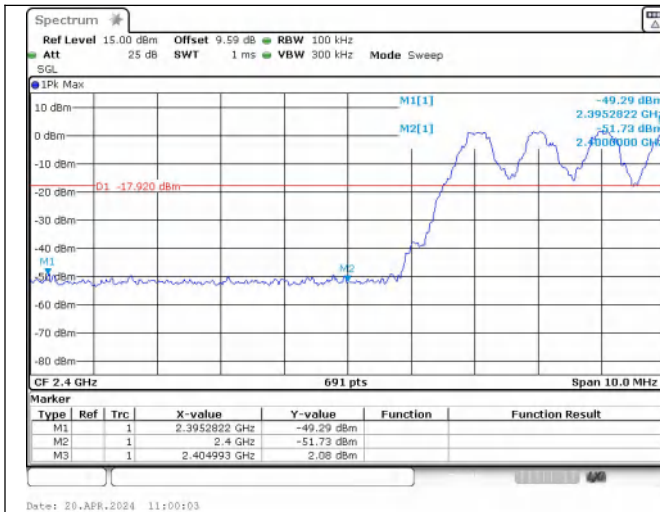
Spurious Emissions
8DPSK_3-DH5_Channel 39



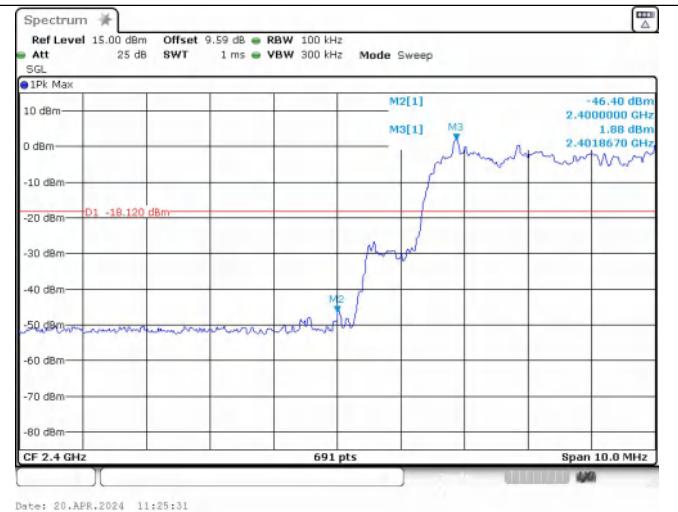
**Out Of Band Emission
8DPSK_3-DH5_Channel 78**



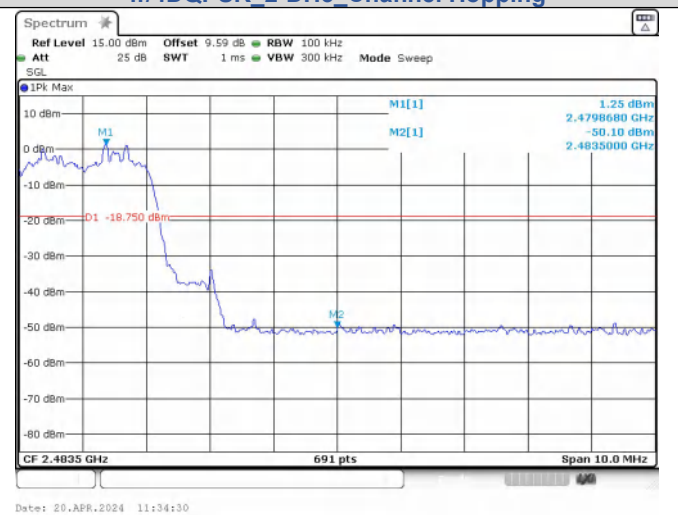
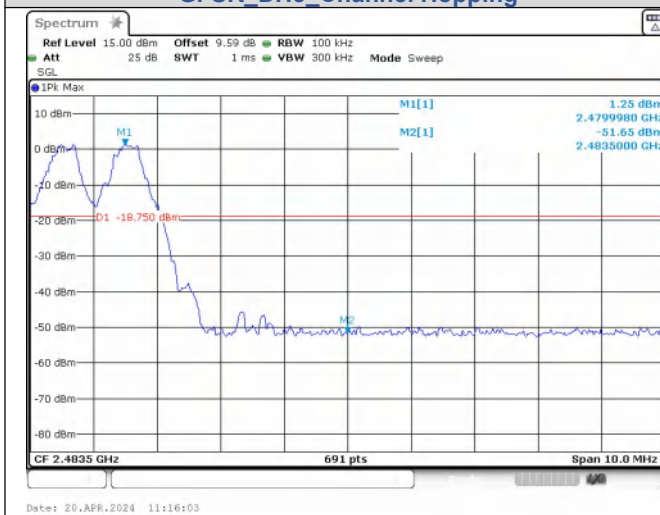
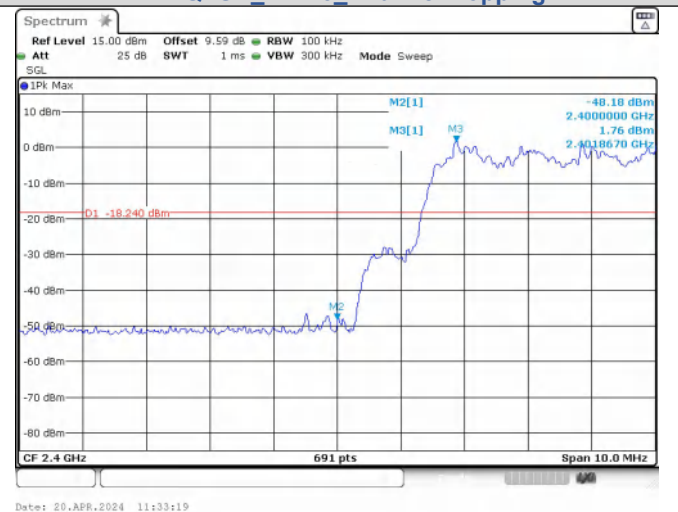
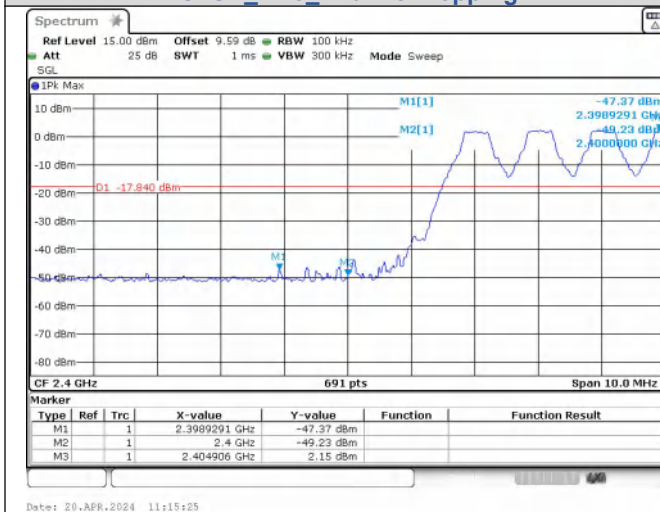
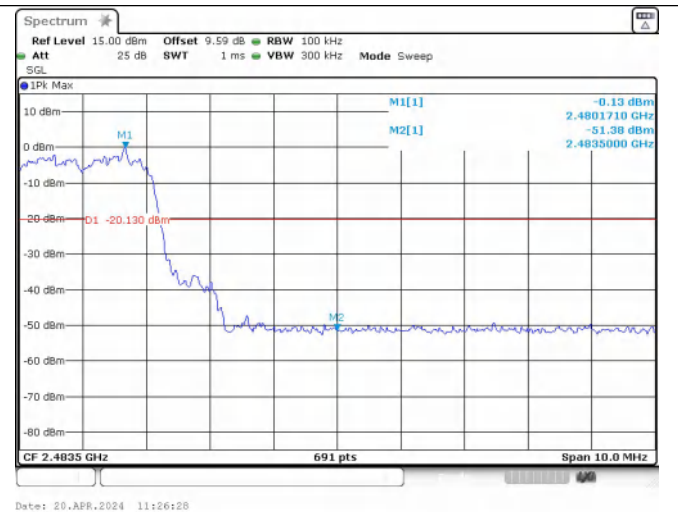
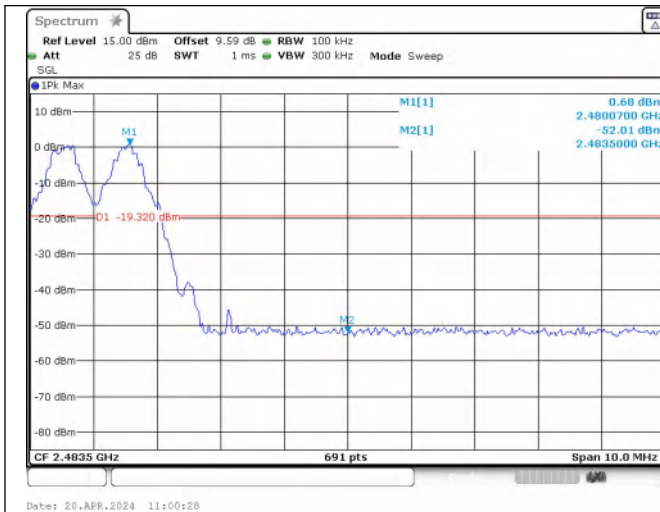
**Spurious Emission
8DPSK_3-DH5_Channel 78**



**Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping**



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

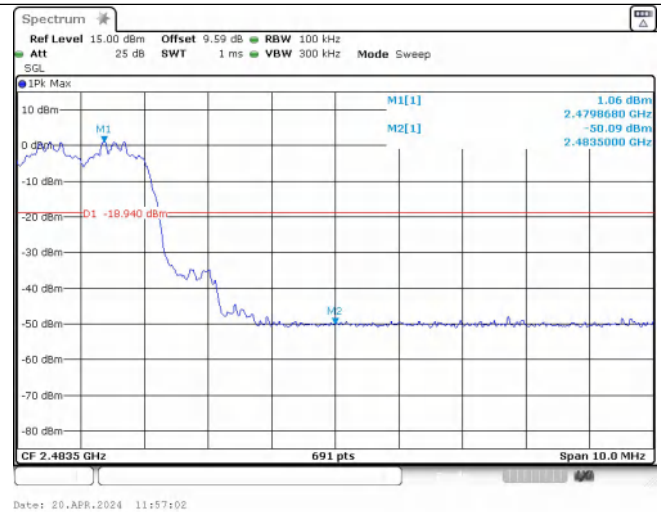
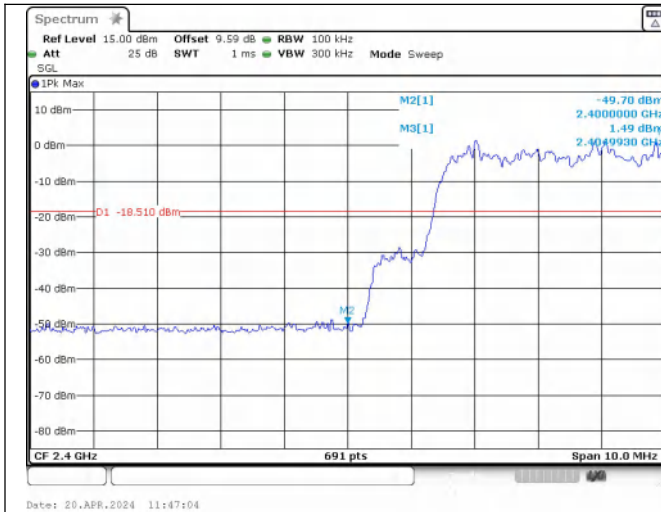


Out Of Band Emission(Right)

Out Of Band Emission(Right)

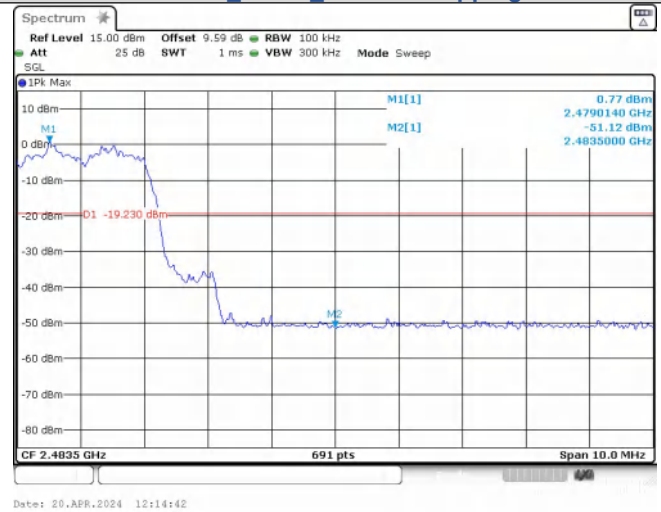
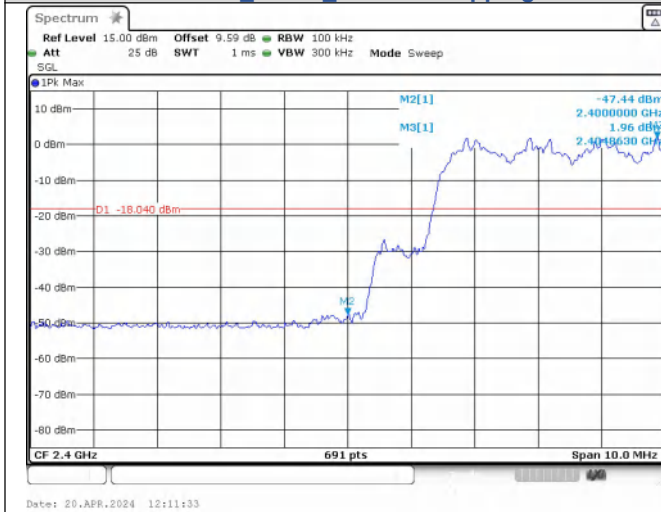
GFSK_DH5_Channel Hopping

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**

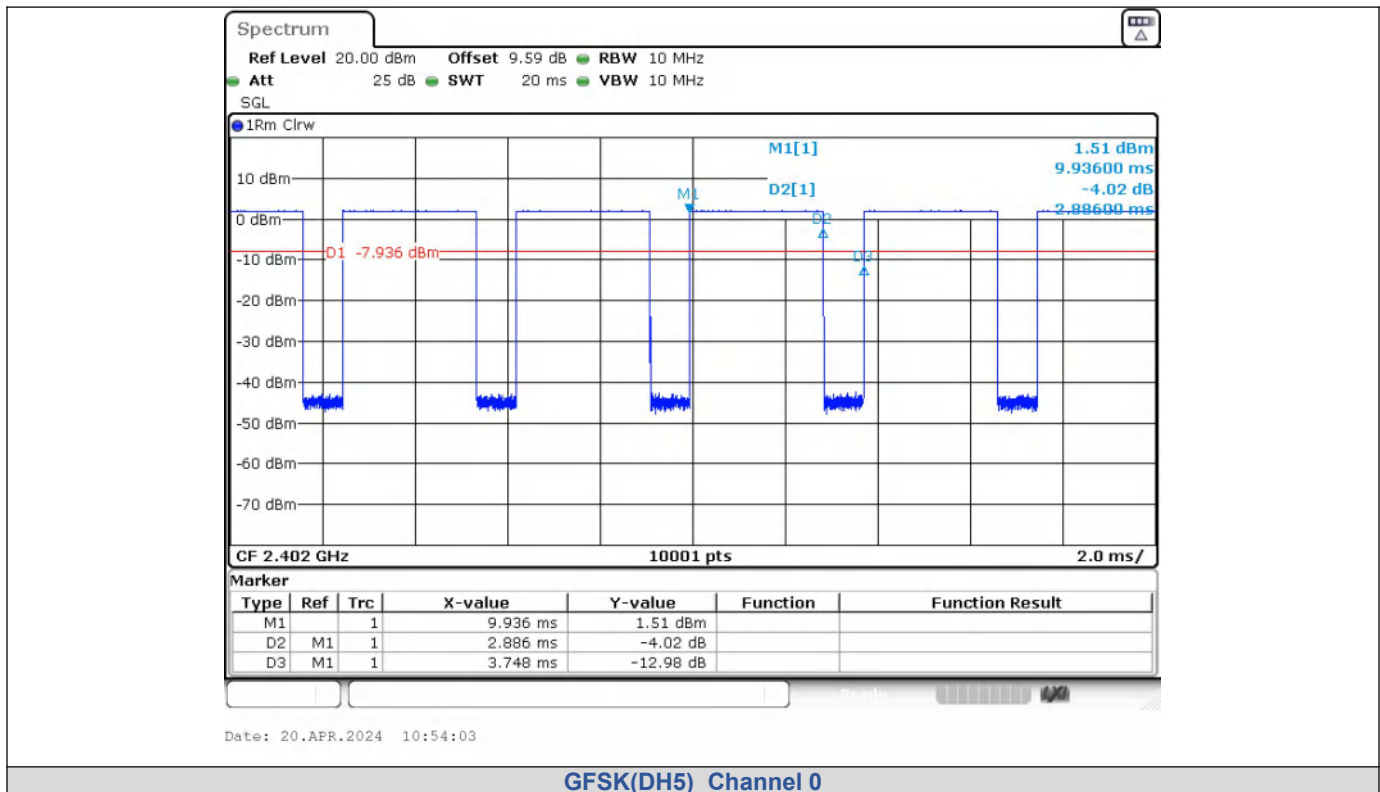
**Out Of Band Emission(Right)
8DPSK_3-DH5_Channel Hopping**

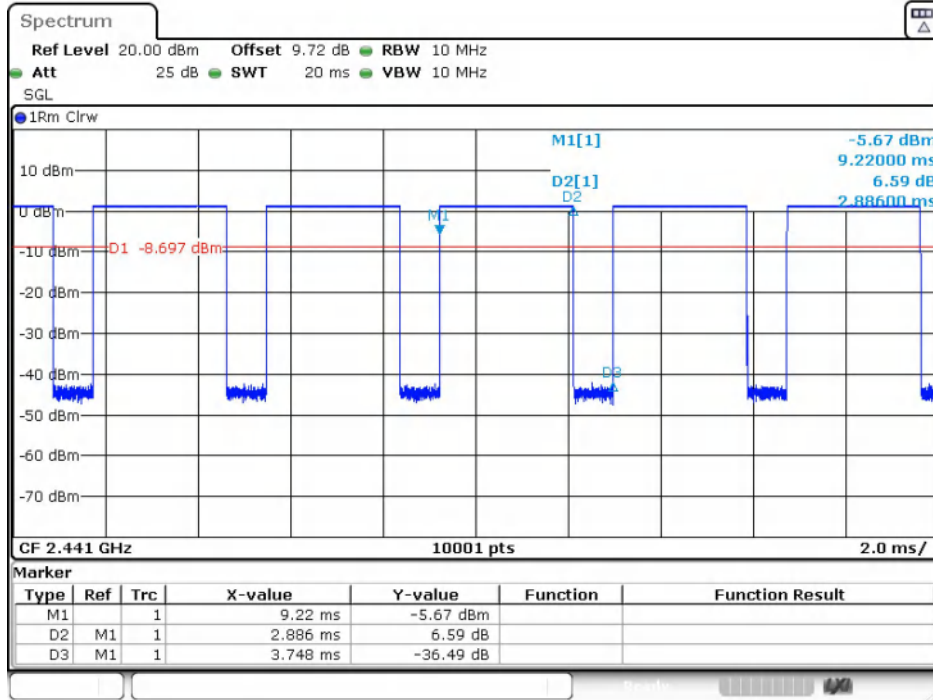
Duty Cycle

Test Result

Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.886	3.748	77.00	0.7700	1.1351	0.35
		39	2.886	3.748	77.00	0.7700	1.1351	0.35
		78	2.886	3.748	77.00	0.7700	1.1351	0.35
$\pi/4$ DQPSK	2-DH5	0	2.890	3.748	77.11	0.7711	1.1289	0.35
		39	2.892	3.748	77.16	0.7716	1.1261	0.35
		78	2.892	3.748	77.16	0.7716	1.1261	0.35
8DPSK	3-DH5	0	2.894	3.748	77.21	0.7721	1.1233	0.35
		39	2.894	3.748	77.21	0.7721	1.1233	0.35
		78	2.894	3.748	77.21	0.7721	1.1233	0.35

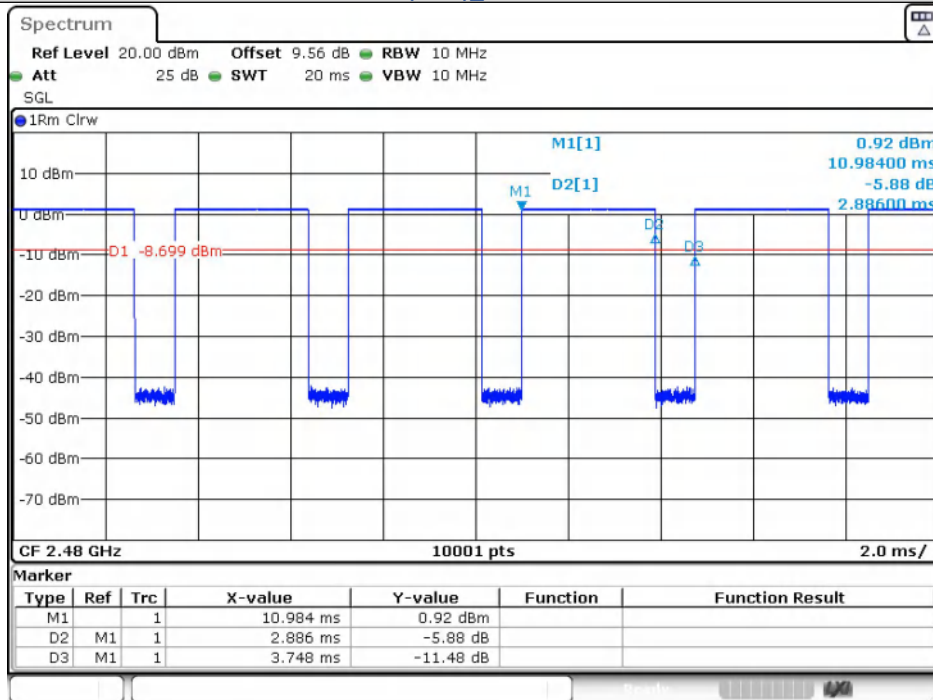
Test Graphs





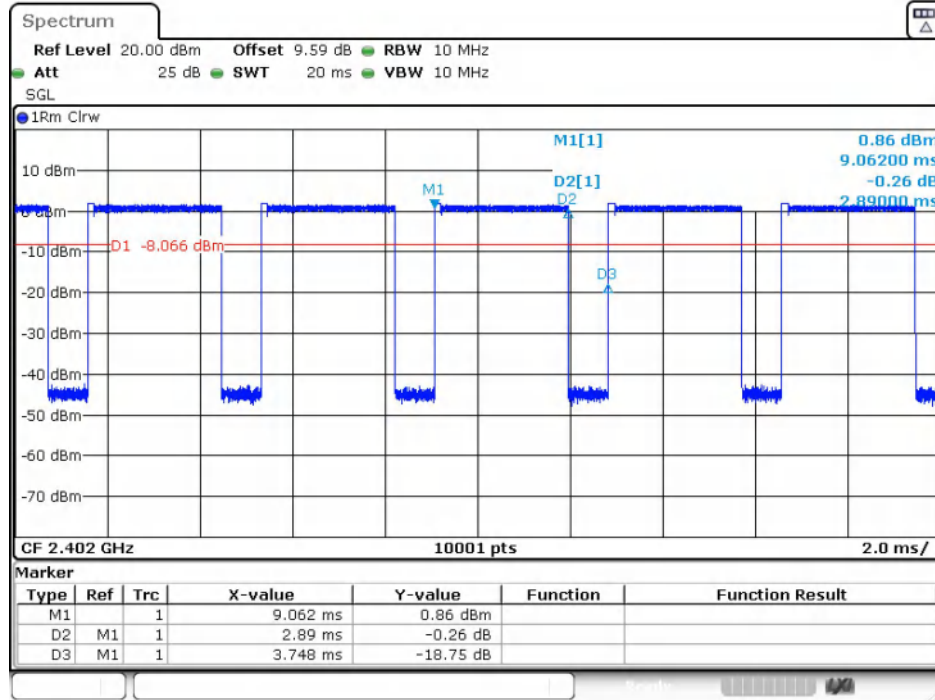
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GFSK(DH5)_Channel 39



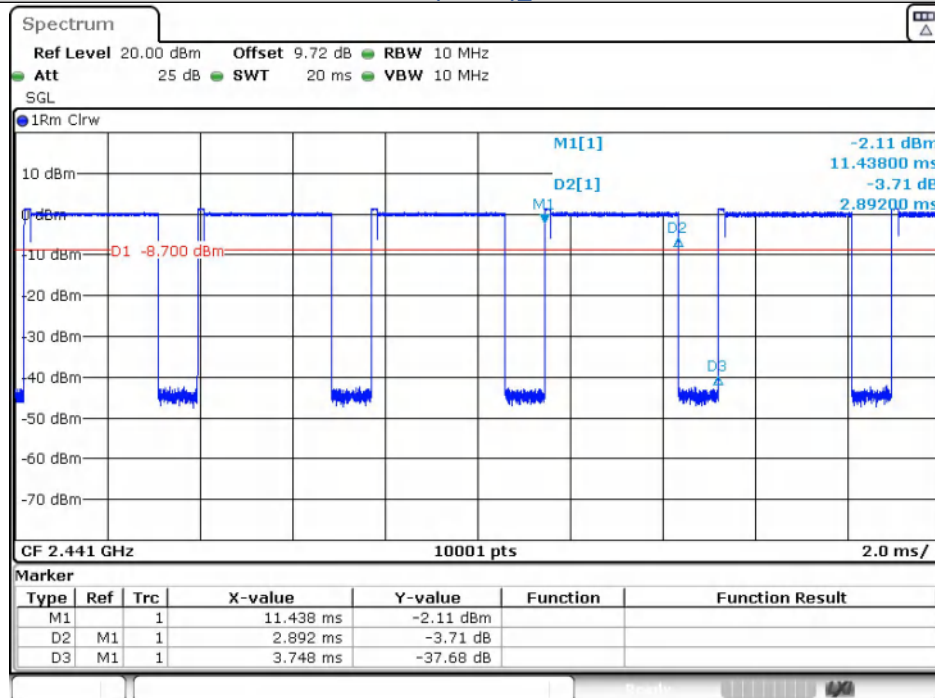
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GFSK(DH5)_Channel 78



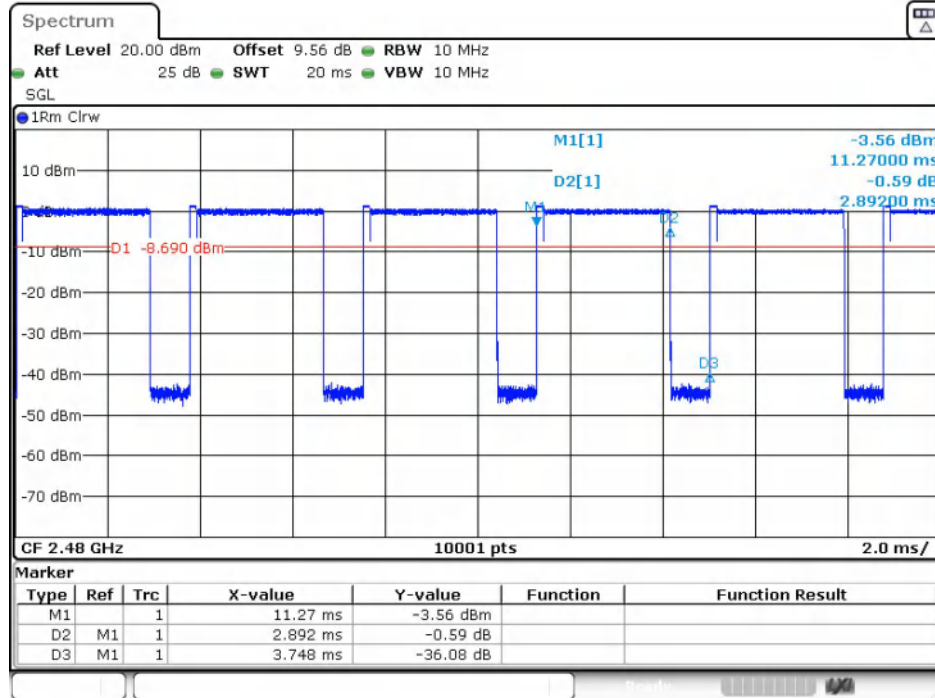
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$\pi/4$ DQPSK(2-DH5)_Channel 0



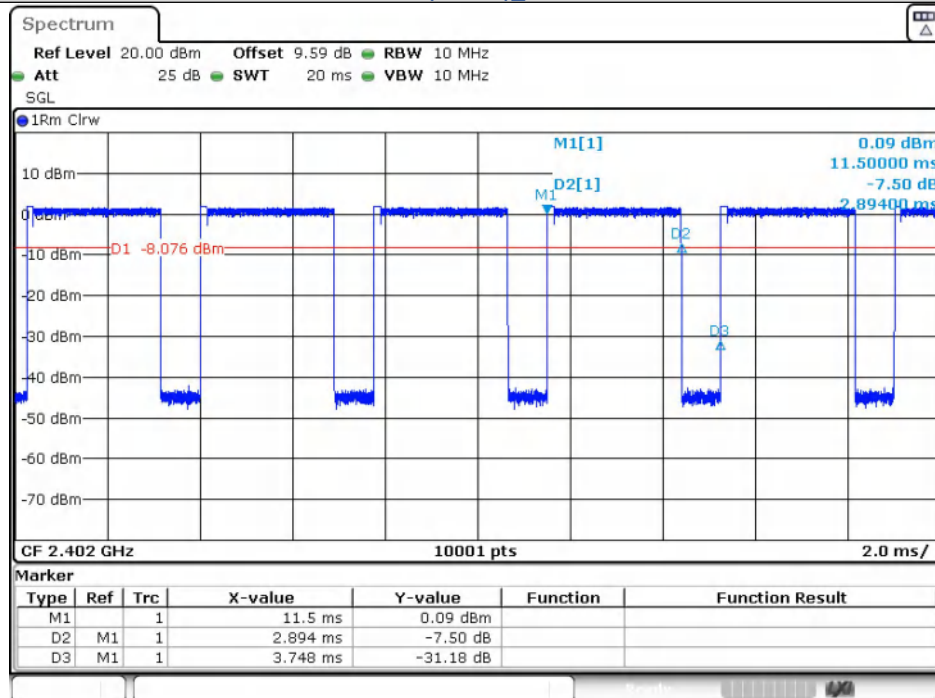
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$\pi/4$ DQPSK(2-DH5)_Channel 39



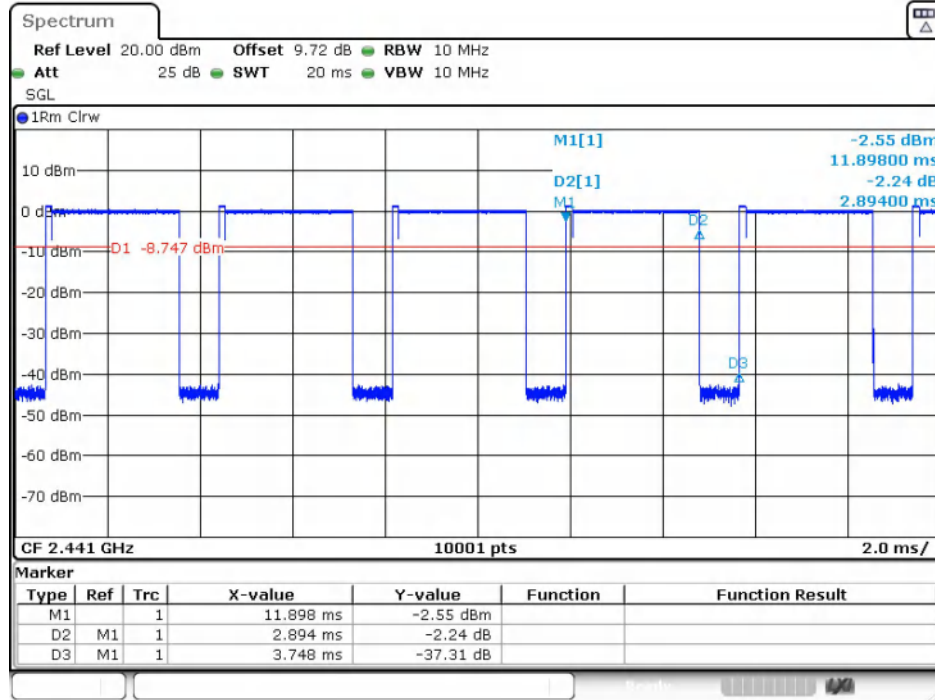
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$\pi/4$ DQPSK(2-DH5)_Channel 78



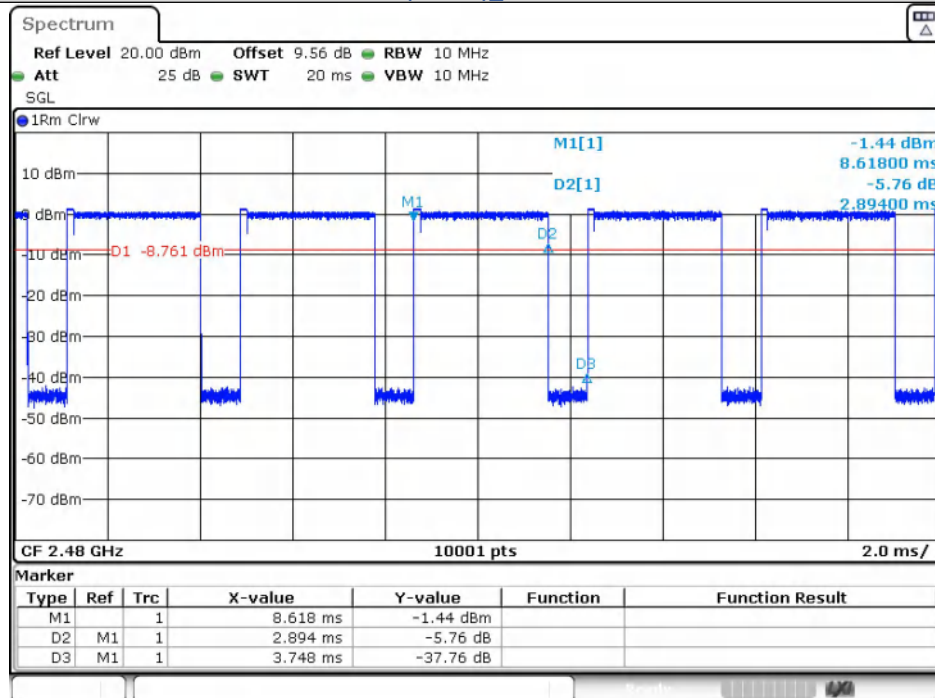
Date: 20.APR.2024 11:35:26

8DPSK(3-DH5)_Channel 0



Date: 20.APR.2024 11:58:37

8DPSK(3-DH5)_Channel 39



Date: 20.APR.2024 12:02:44

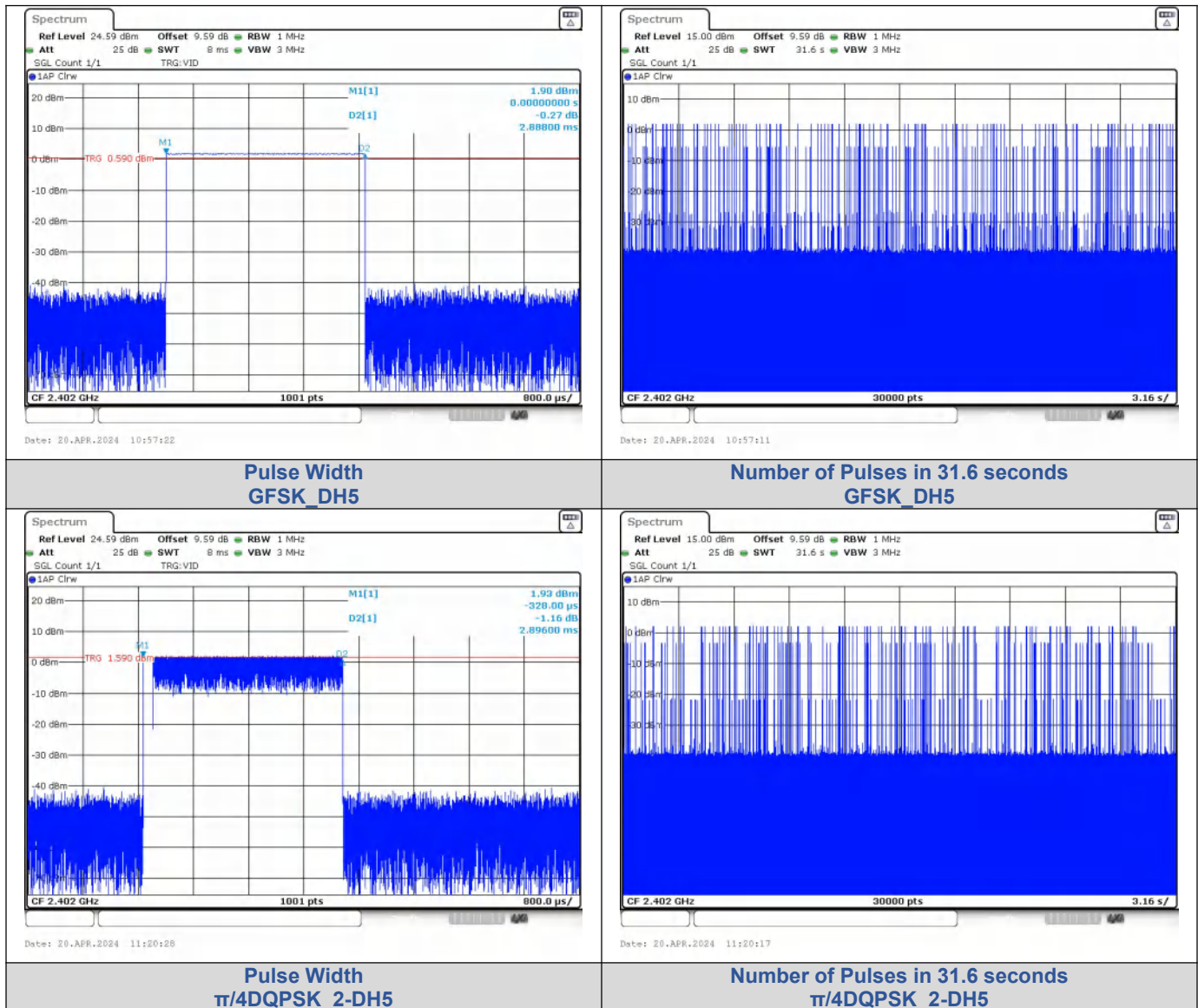
8DPSK(3-DH5)_Channel 78

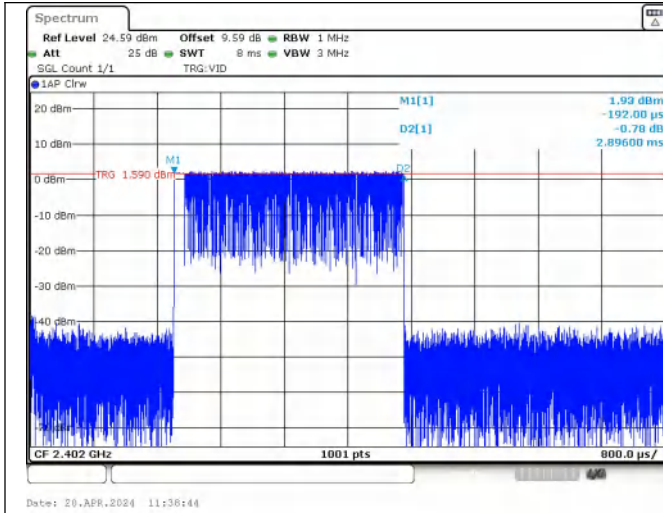
Dwell Time

Test Result

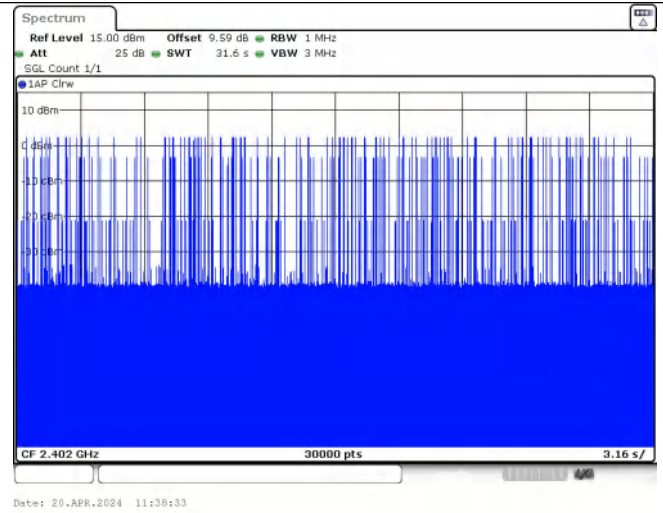
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.888	111	320.57	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	99	286.7		PASS
8DPSK	3-DH5		2.896	108	312.77		PASS

Test Graphs





Pulse Width
8DPSK_3-DH5



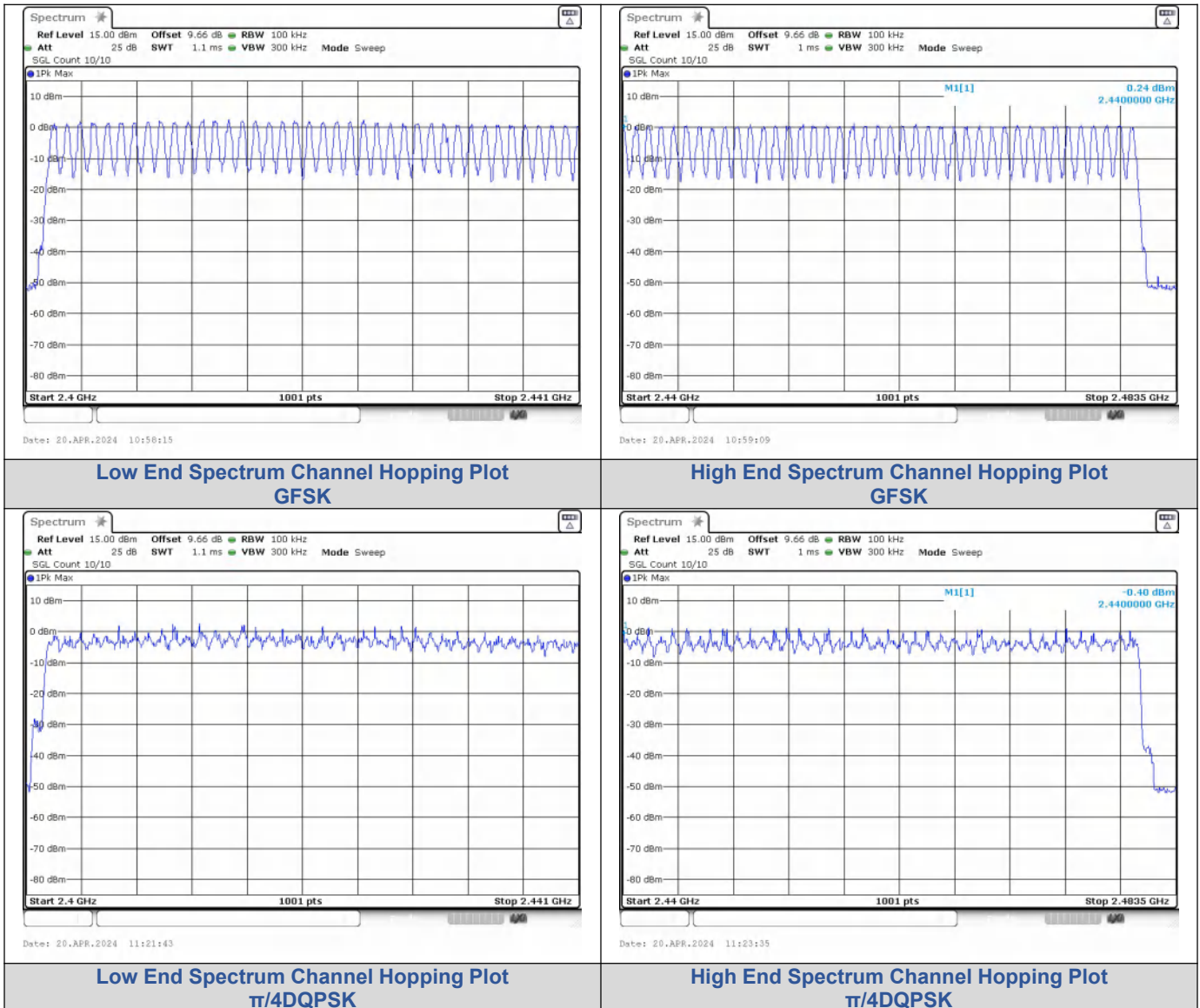
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

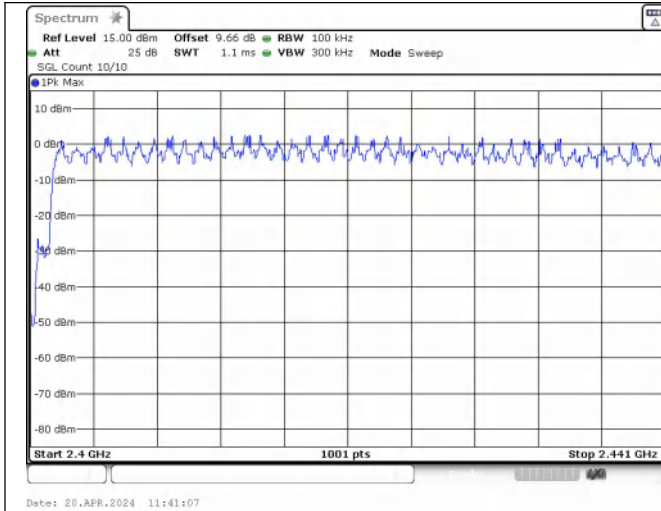
Number Of Hopping Channel

Test Result

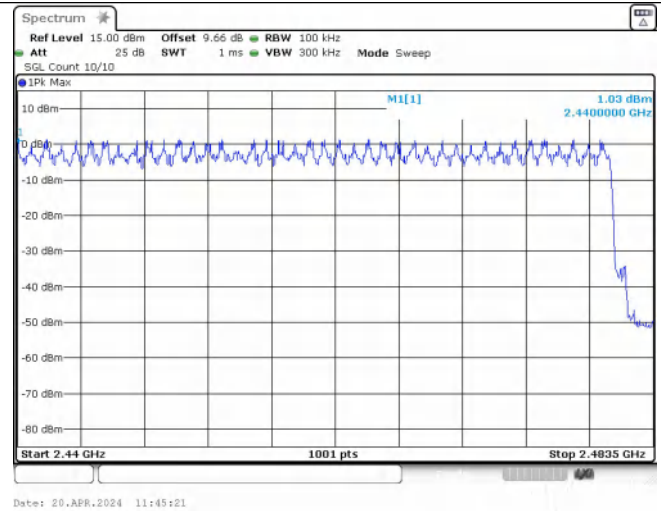
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





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



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