

Appendix A

Report No.:	CISRR24011810601
FCC ID:	2BEQK-QXS-001
Product Name:	Bluetooth remote control
Model No.:	QXS-001
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

Conducted Peak Output Power

Test Result

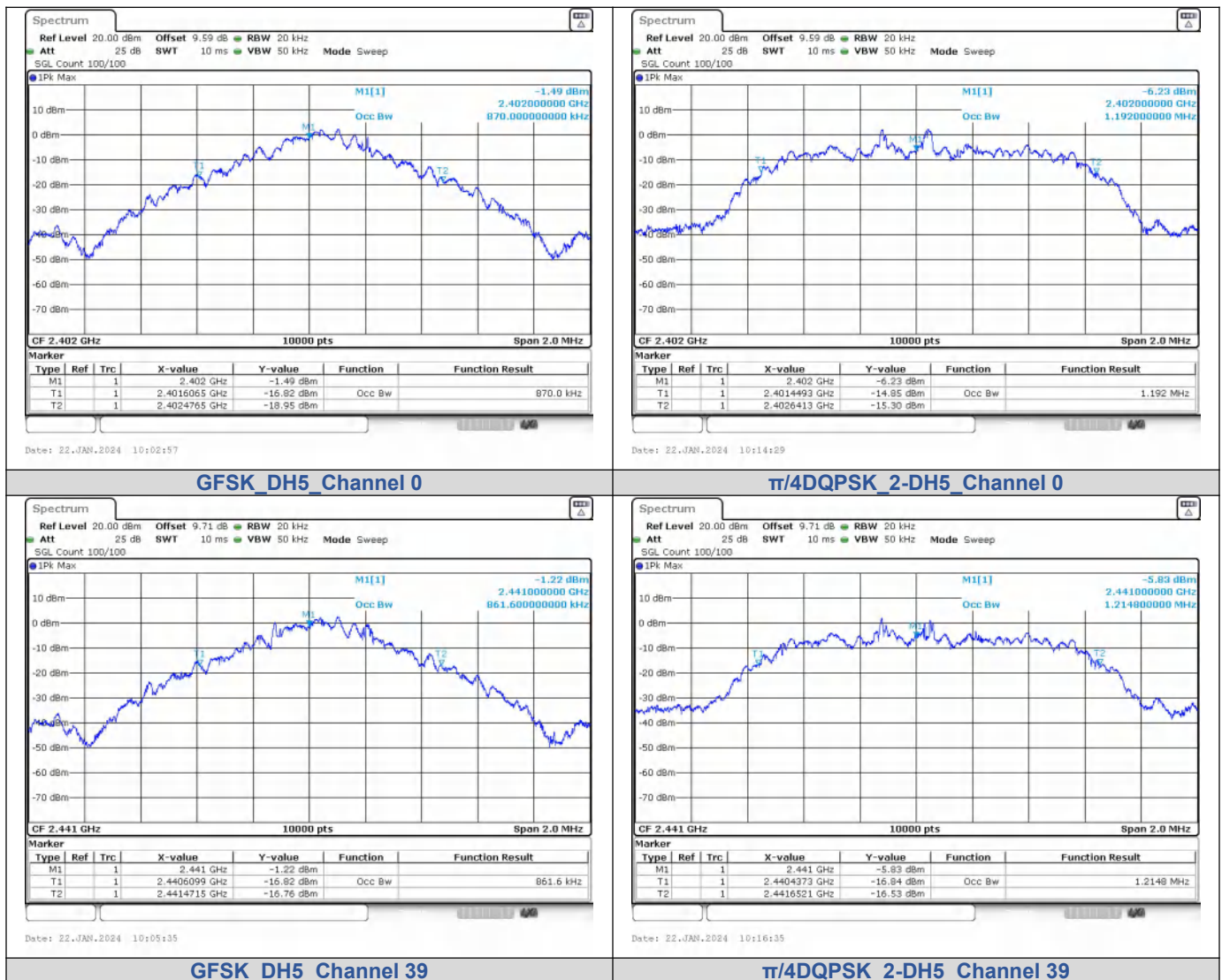
Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	5.833	3.831	30	PASS
		39	5.950	3.936		PASS
		78	5.288	3.379		PASS
$\pi/4$ DQPSK	2-DH5	0	6.452	4.417	20.97	PASS
		39	6.483	4.449		PASS
		78	5.844	3.841		PASS
8DPSK	3-DH5	0	6.759	4.741		PASS
		39	6.691	4.667		PASS
		78	6.048	4.025		PASS

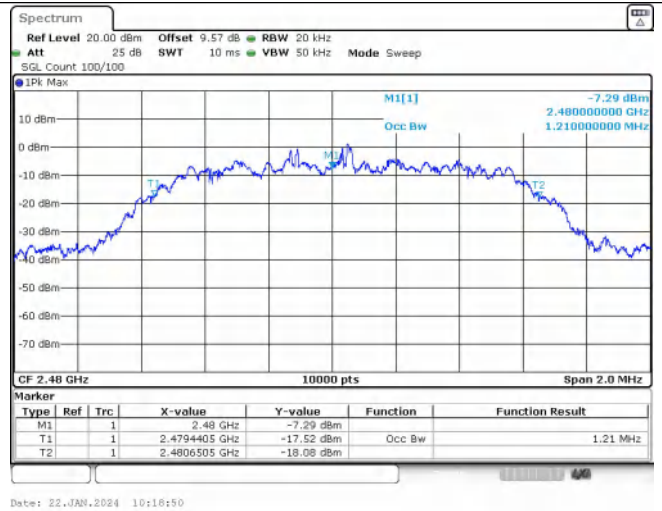
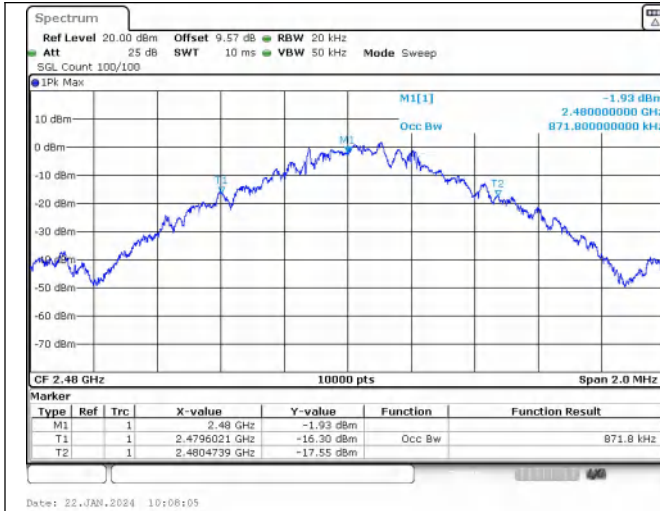
99% Bandwidth

Test Result

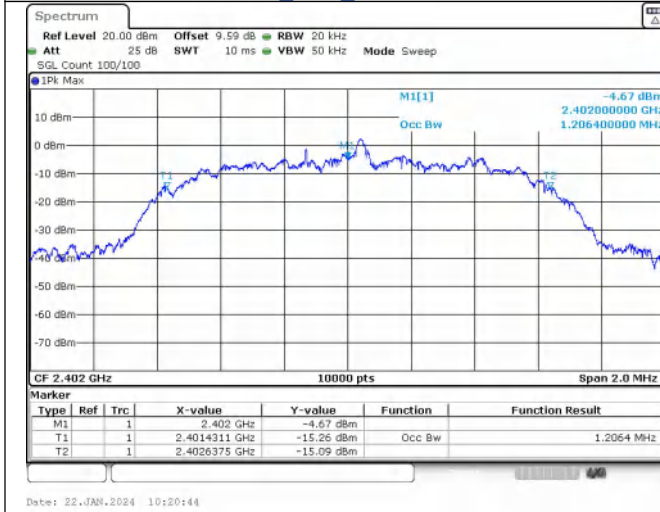
Modulation	Channel	99% BW (MHz)
GFSK	0	0.87000
	39	0.86160
	78	0.87180
$\pi/4$ DQPSK	0	1.1920
	39	1.2150
	78	1.2100
8DPSK	0	1.2060
	39	1.2150
	78	1.2210

Test Graphs

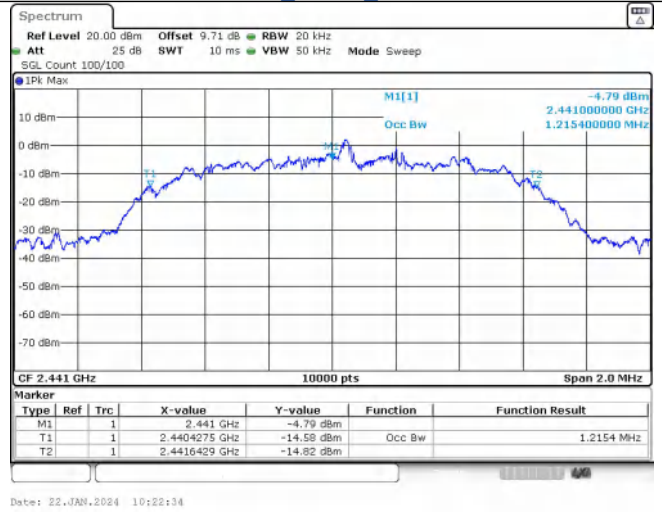




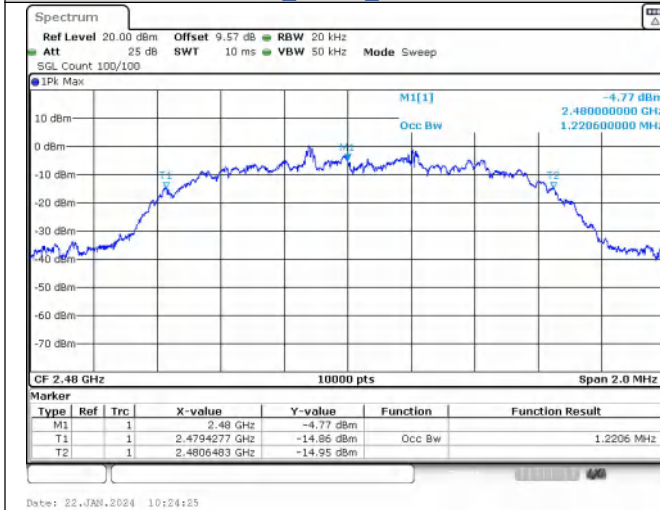
GFSK_DH5_Channel 78



$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39

Void

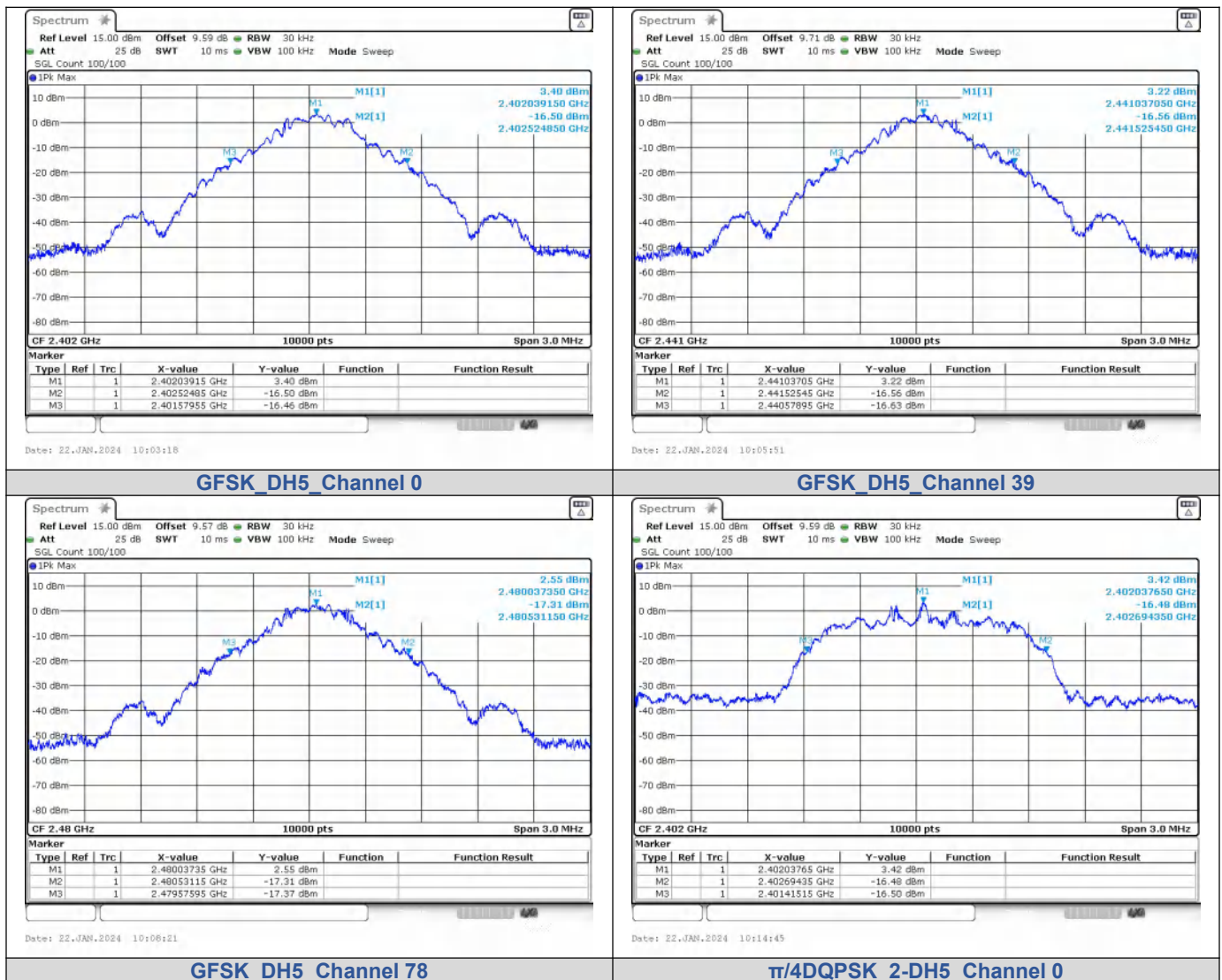
8DPSK_3-DH5_Channel 78

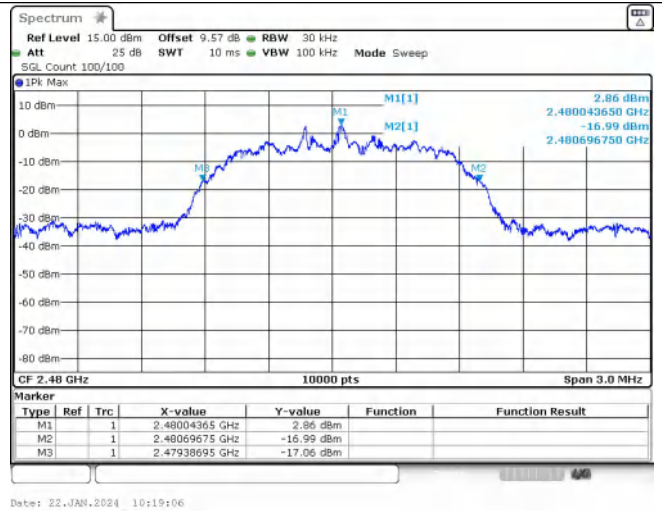
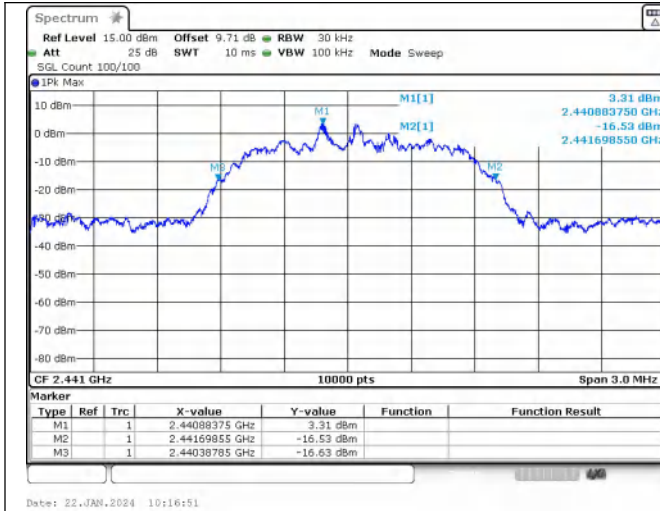
20dB Bandwidth

Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	0.9400
	39	2441 MHz	0.9500
	78	2480 MHz	0.9500
$\pi/4$ DQPSK	0	2402 MHz	1.270
	39	2441 MHz	1.310
	78	2480 MHz	1.310
8DPSK	0	2402 MHz	1.290
	39	2441 MHz	1.290
	78	2480 MHz	1.300

Test Graphs

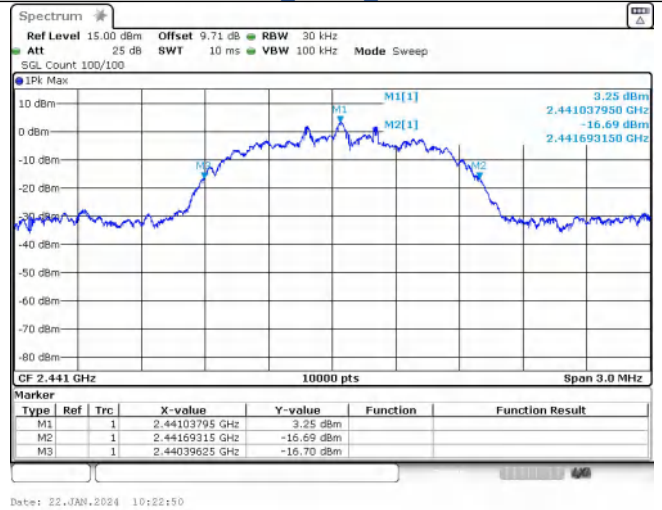




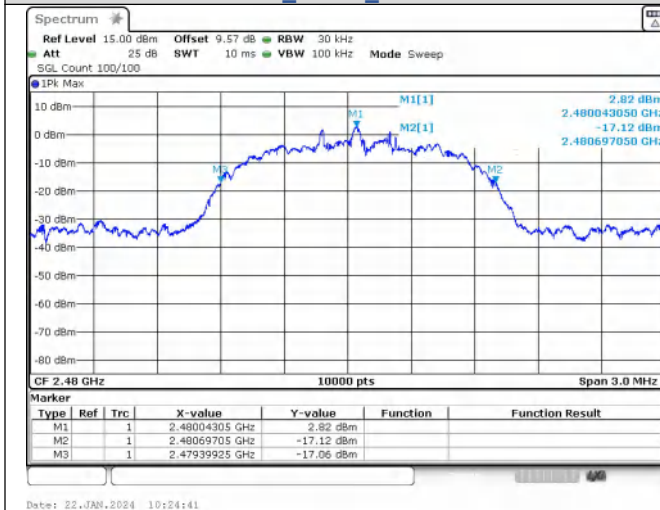
$\pi/4$ DQPSK_2-DH5_Channel 39



$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 78

Void

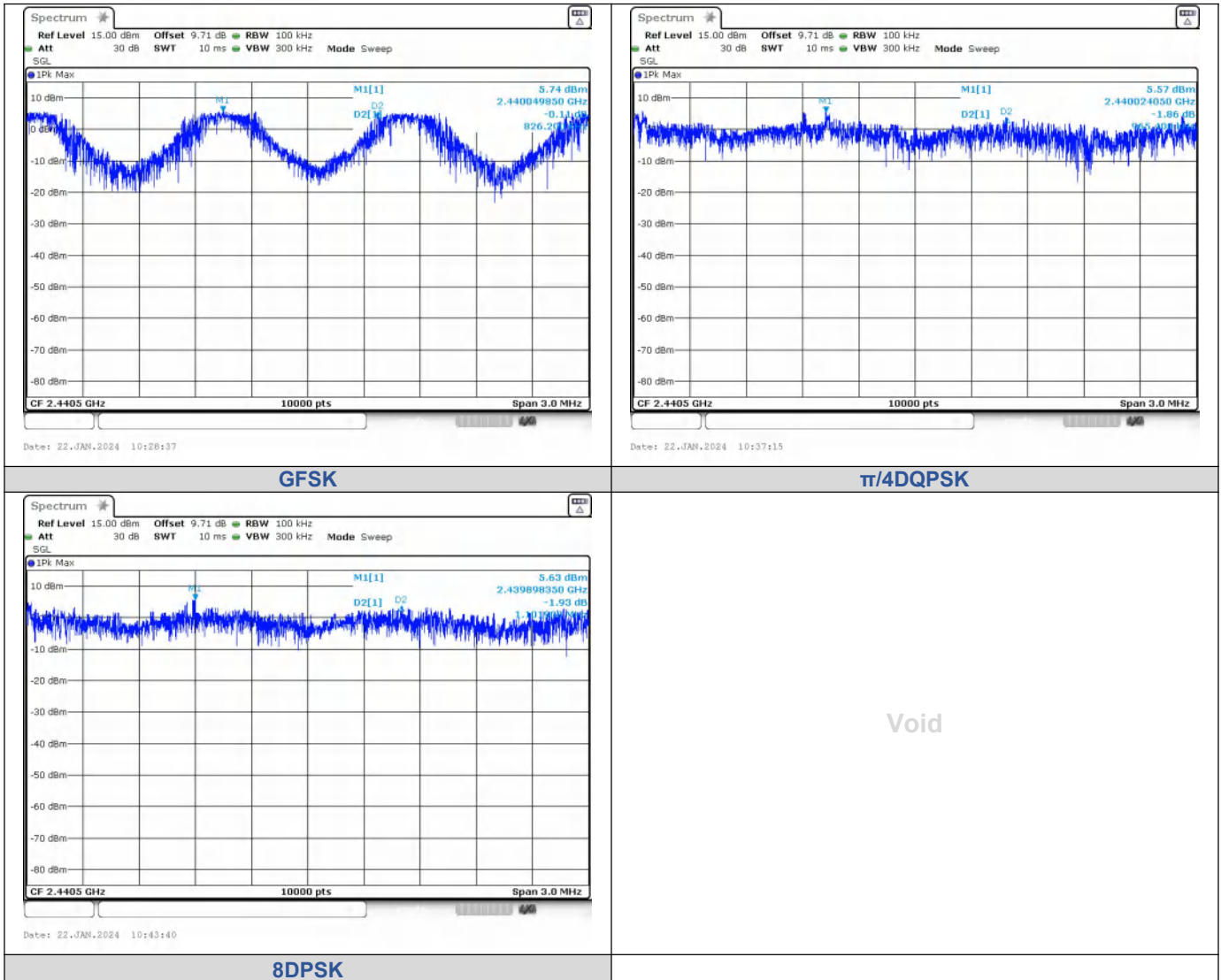
8DPSK_3-DH5_Channel 78

Carrier Frequencies Separation

Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2440.0498	2440.876	0.8262	0.627	PASS
$\pi/4$ DQPSK	2-DH5	2440.024	2440.9895	0.9654	0.847	PASS
8DPSK	3-DH5	2439.8983	2441.0003	1.1019	0.86	PASS

Test Graphs



Conducted Out Of Band Emission

Test Result

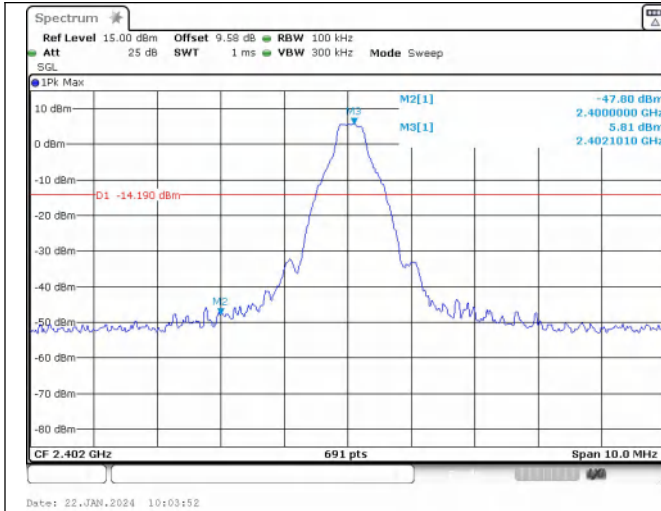
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-47.804	-14.19	-33.614	PASS
			7206.79	-39.675	-14.19	-25.485	PASS
		39	7323.32	-34.007	-14.08	-19.927	PASS
		78	2483.50	-51.249	-14.76	-36.489	PASS
			7439.85	-37.573	-14.76	-22.813	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-47.431	-14.38	-33.051	PASS
			9608.08	-40.780	-14.38	-26.400	PASS
		39	9764.55	-36.866	-14.17	-22.696	PASS
		78	2483.50	-52.381	-14.76	-37.621	PASS
			9920.20	-38.858	-14.76	-24.098	PASS
8DPSK	3-DH5	0	2400.00	-44.554	-14.3	-30.254	PASS
			9608.08	-41.363	-14.3	-27.063	PASS
		39	7322.49	-36.206	-14.76	-21.446	PASS
		78	2483.50	-51.020	-14.86	-36.160	PASS
			9920.20	-39.515	-14.86	-24.655	PASS

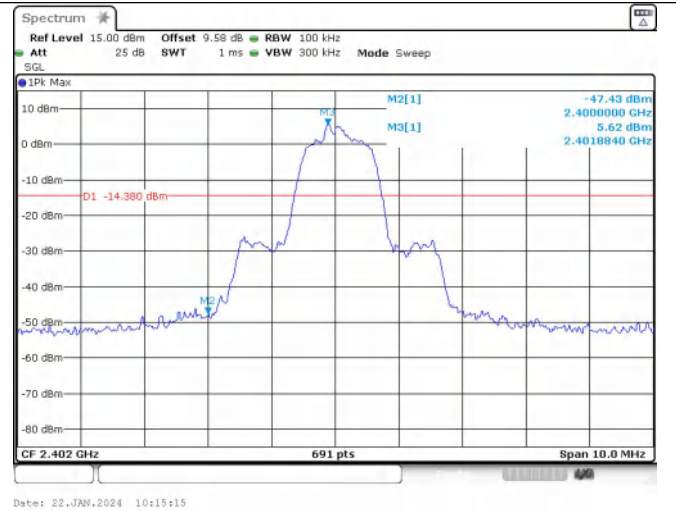
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2398.05	-49.362	-14.51	-34.852	PASS
			2400.00	-51.640	-14.51	-37.130	PASS
			2483.50	-51.653	-14.95	-36.703	PASS
			2398.38	-49.472	-14.32	-35.152	PASS
			2400.00	-50.117	-14.32	-35.797	PASS
			2483.50	-52.506	-14.92	-37.586	PASS
π/4DQPSK	2-DH5		2398.68	-48.983	-14.22	-34.763	PASS
			2400.00	-51.765	-14.22	-37.545	PASS
			2483.50	-51.529	-15.24	-36.289	PASS
			2395.15	-49.443	-14.2	-35.243	PASS
			2400.00	-50.718	-14.2	-36.518	PASS
			2483.50	-51.266	-15.21	-36.056	PASS
8DPSK	3-DH5		2400.00	-48.854	-14.45	-34.404	PASS
			2483.50	-51.206	-14.74	-36.466	PASS
			2395.01	-49.399	-14.7	-34.699	PASS
			2400.00	-49.424	-14.7	-34.724	PASS
			2483.50	-51.316	-17.66	-33.656	PASS

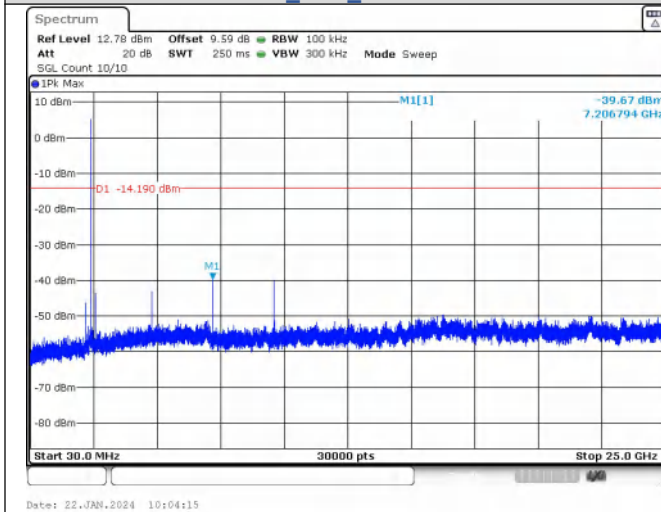
Test Graphs



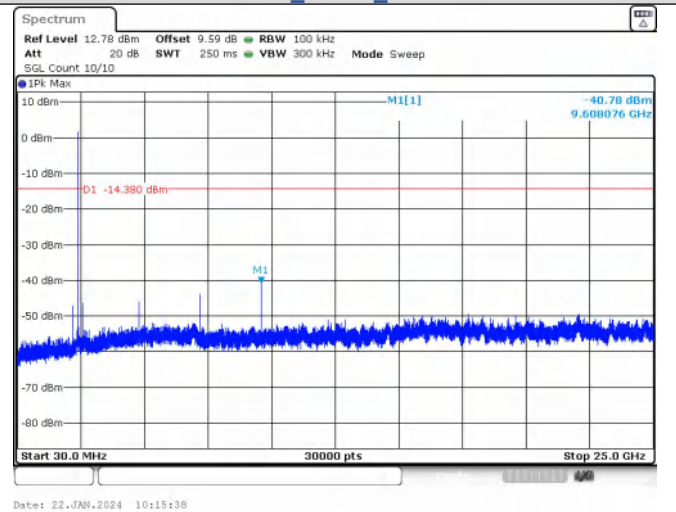
**Out Of Band Emission
GFSK_DH5_Channel 0**



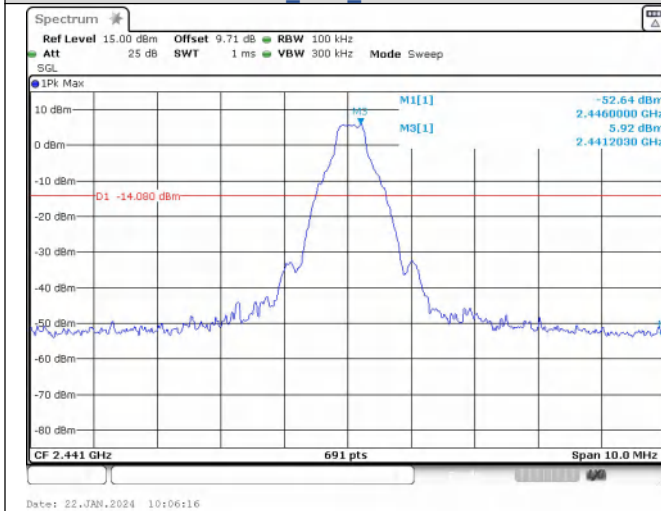
**Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0**



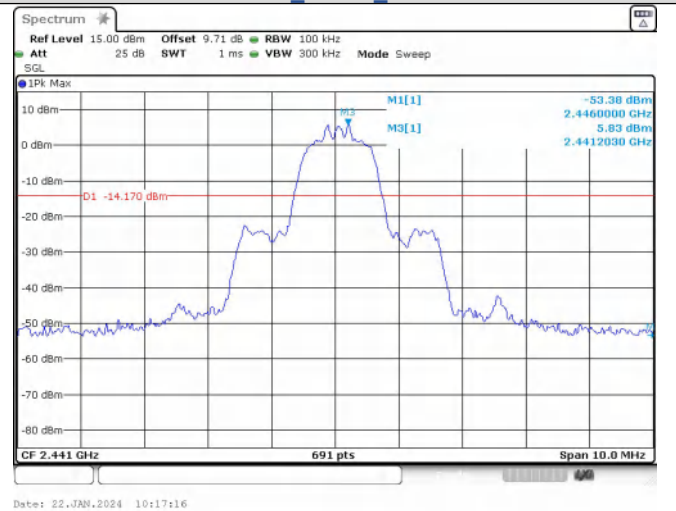
**Spurious Emission
GFSK_DH5_Channel 0**



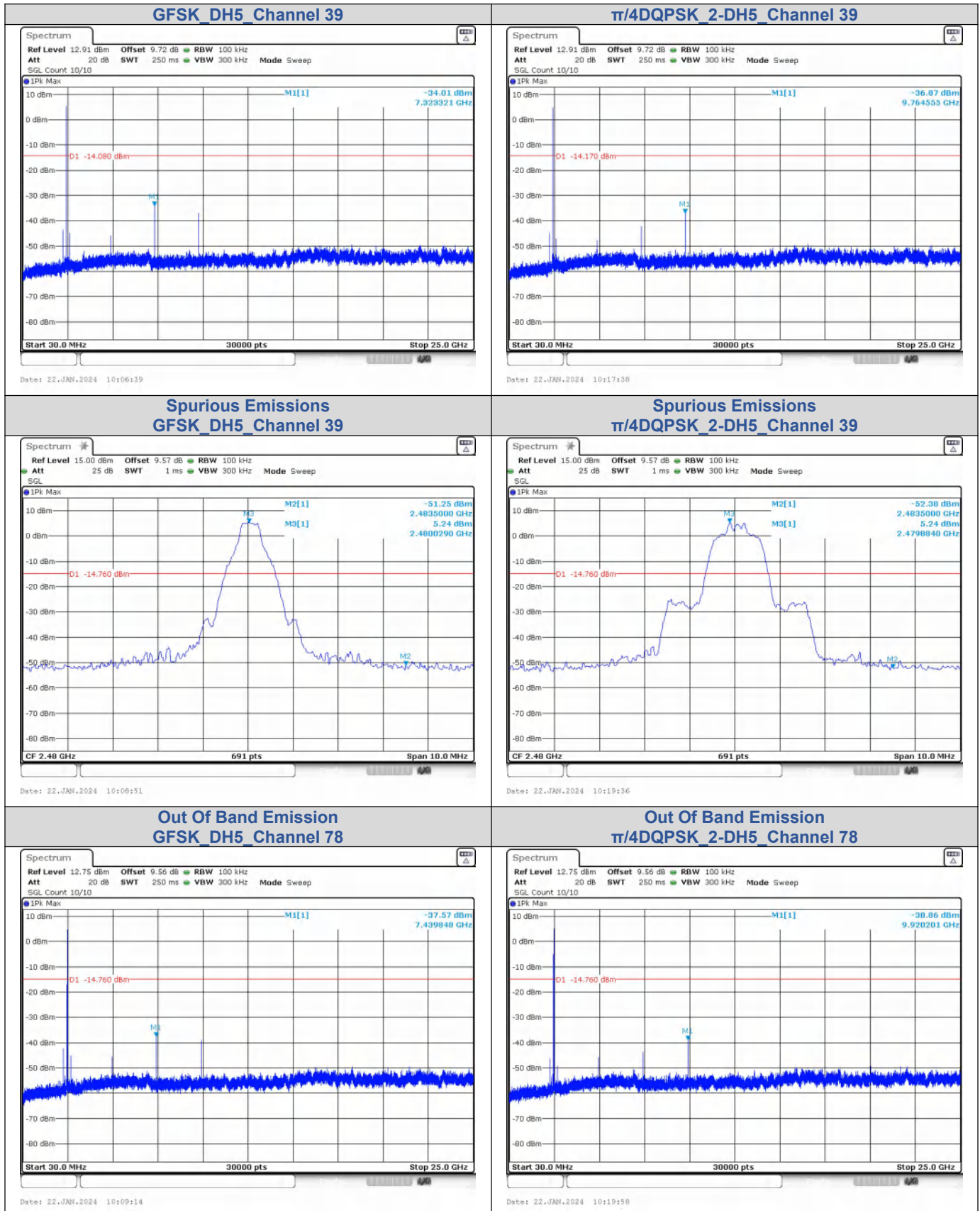
**Spurious Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0**



Out Of Band Emission

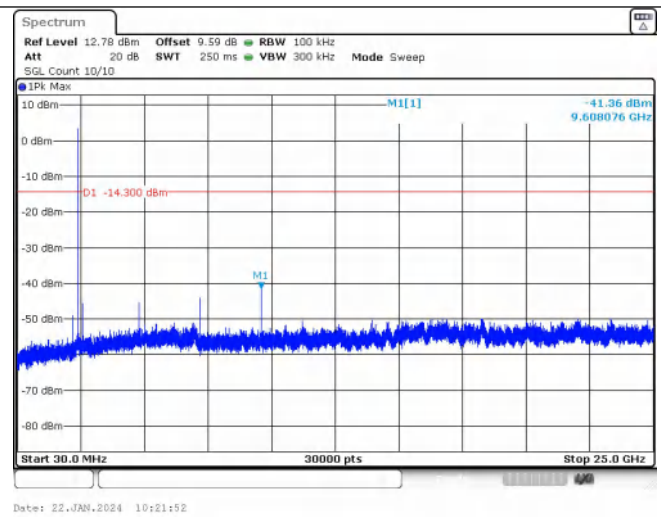
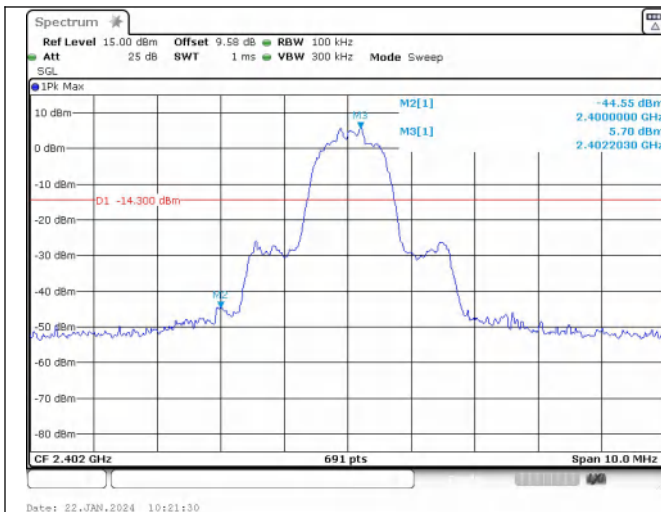


Out Of Band Emission



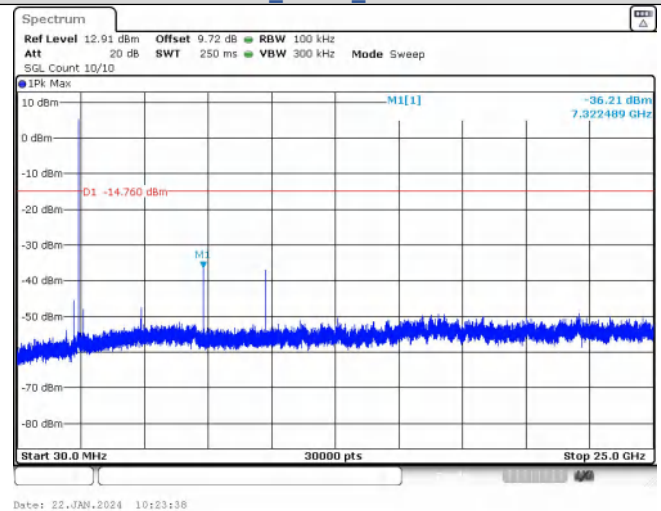
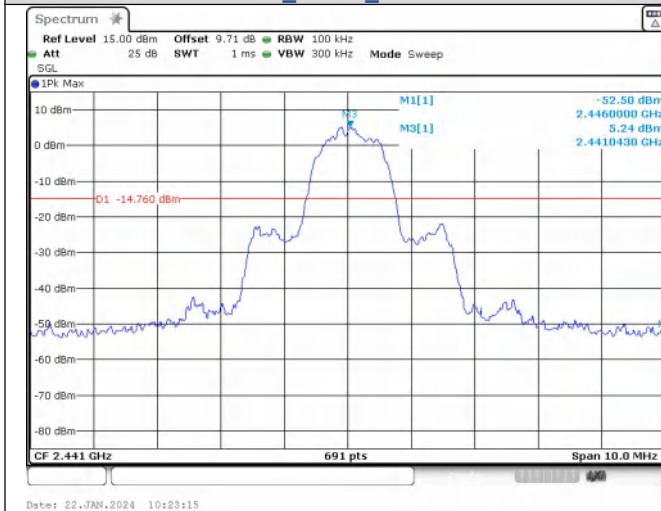
Spurious Emission GFSK_DH5_Channel 78

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



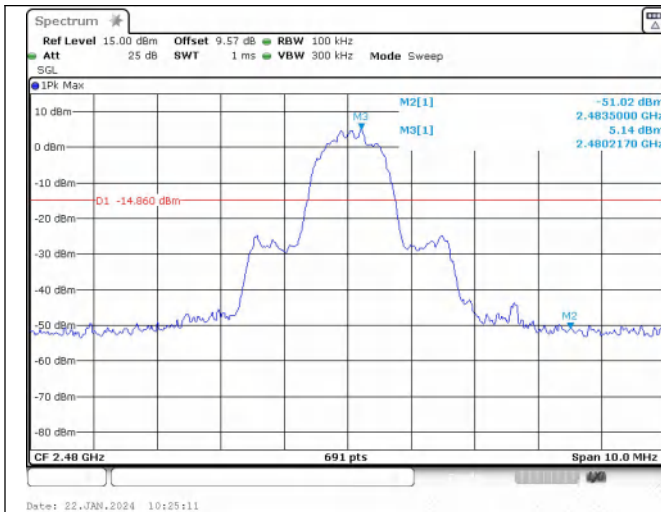
Out Of Band Emission 8DPSK_3-DH5_Channel 0

Spurious Emission 8DPSK_3-DH5_Channel 0

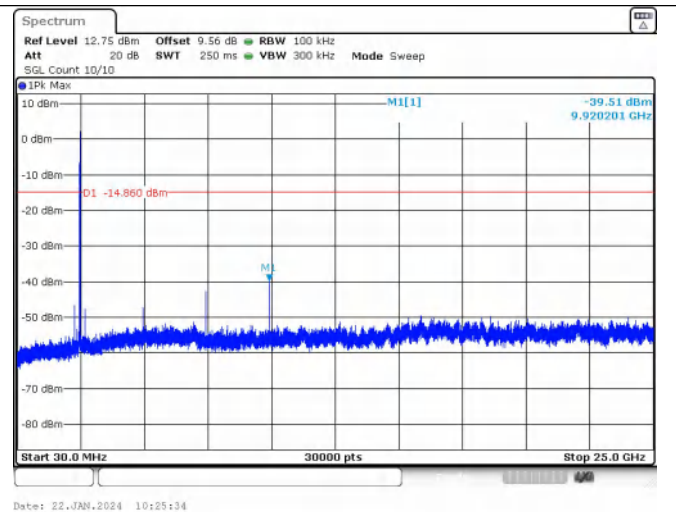


Out Of Band Emission 8DPSK_3-DH5_Channel 39

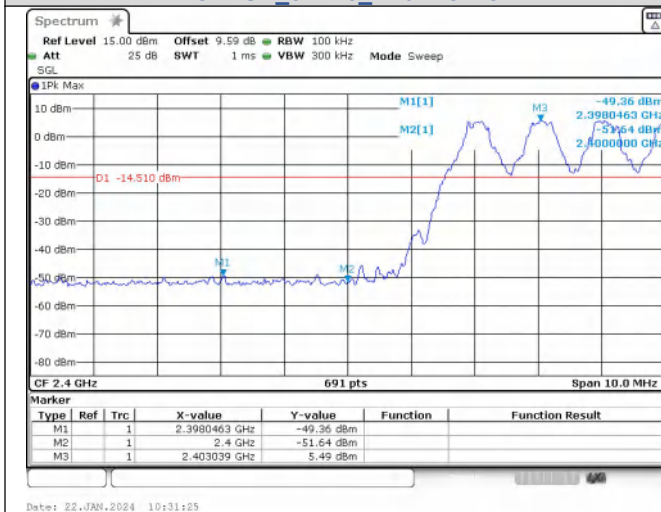
Spurious Emissions 8DPSK_3-DH5_Channel 39



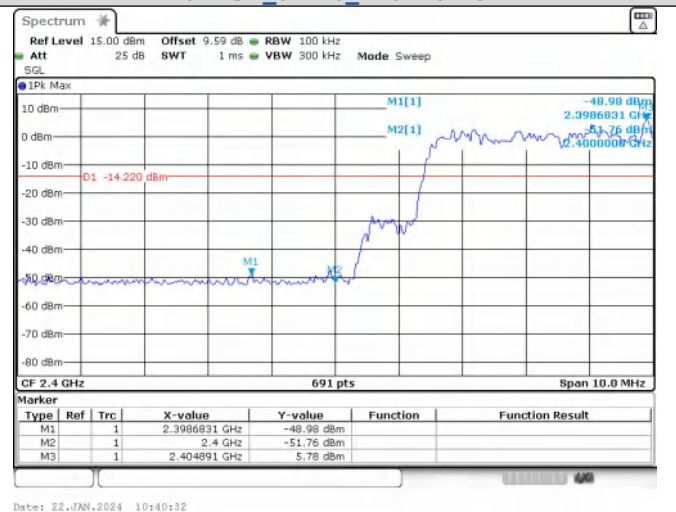
**Out Of Band Emission
8DPSK_3-DH5_Channel 78**



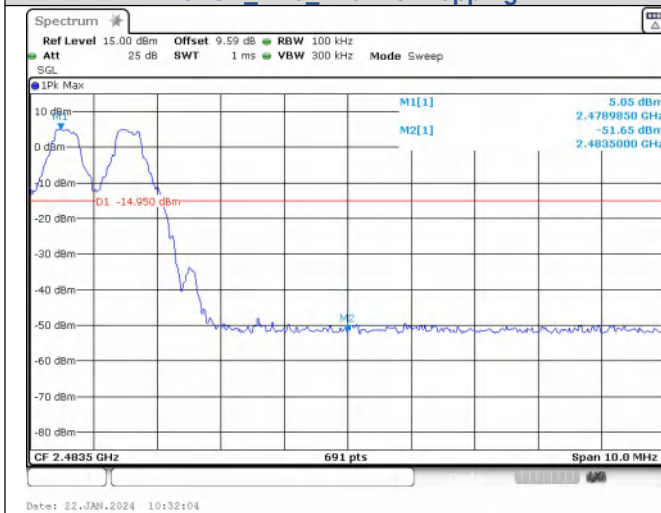
**Spurious Emission
8DPSK_3-DH5_Channel 78**



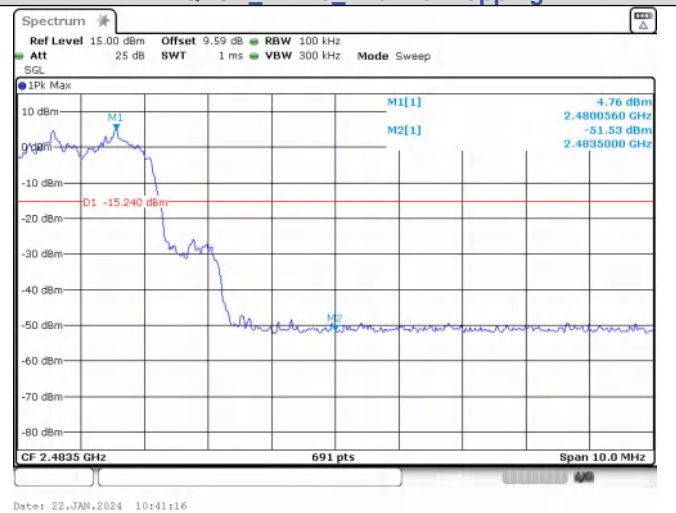
**Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping**



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

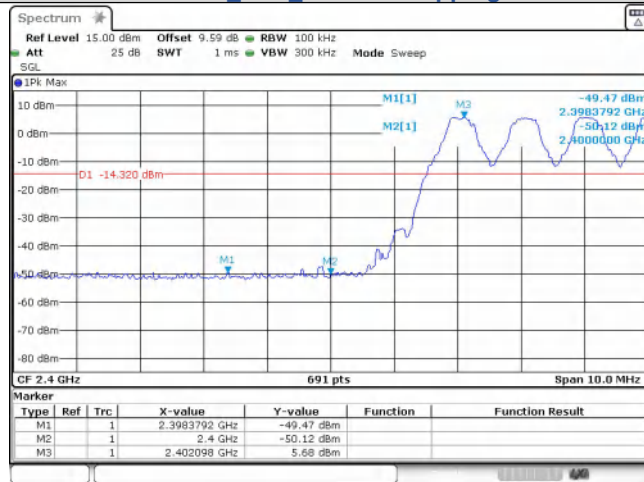


Out Of Band Emission(Right)



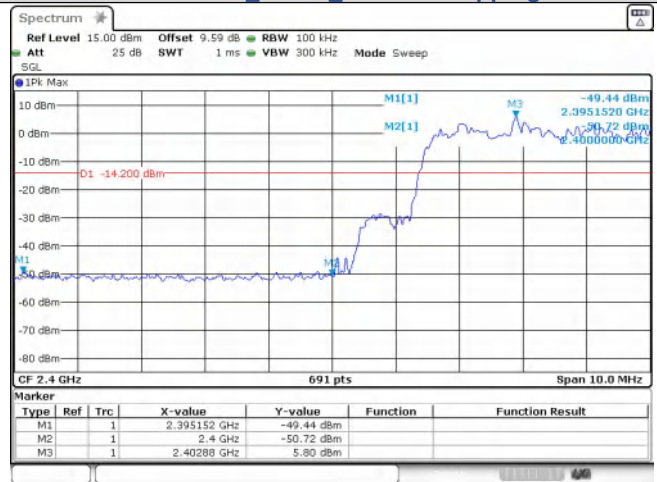
Out Of Band Emission(Right)

GFSK_DH5_Channel Hopping



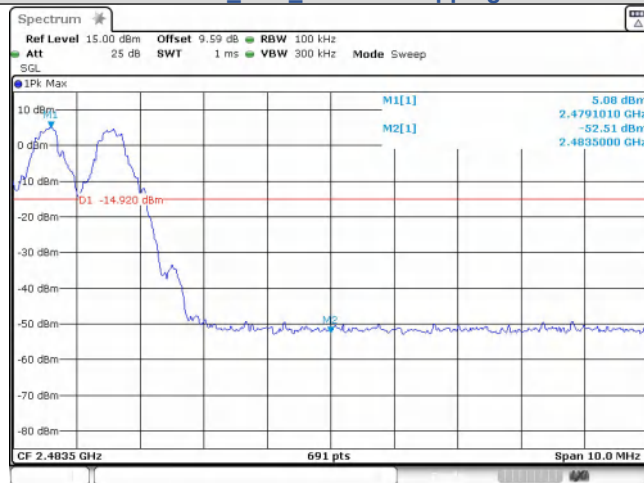
Date: 22.JAN.2024 10:34:48

$\pi/4$ DQPSK_2-DH5_Channel Hopping



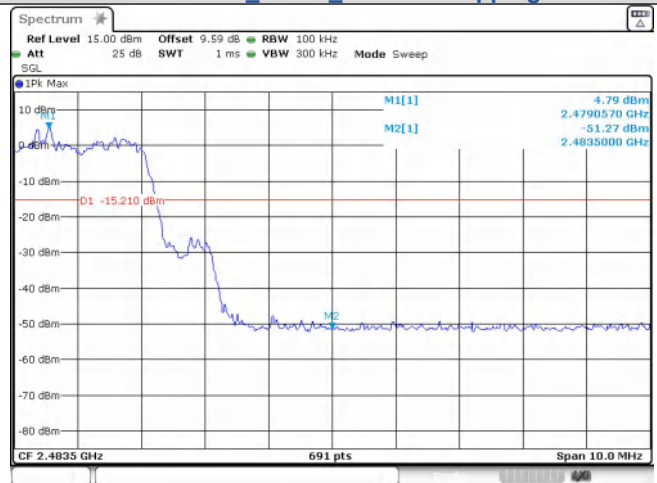
Date: 22.JAN.2024 10:42:13

Out Of Band Emission(Left) GFSK_DH5_Channel Hopping



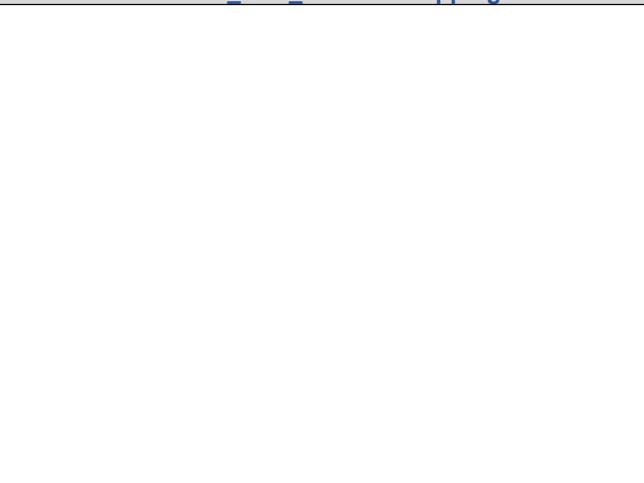
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Out Of Band Emission(Left) $\pi/4$ DQPSK_2-DH5_Channel Hopping



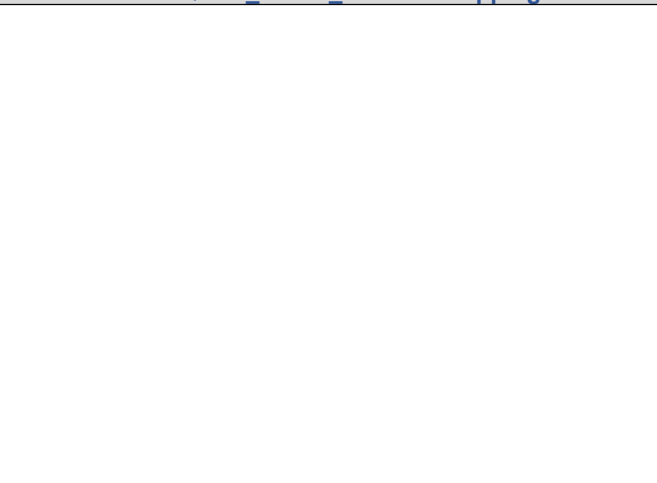
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Out Of Band Emission(Right) GFSK_DH5_Channel Hopping

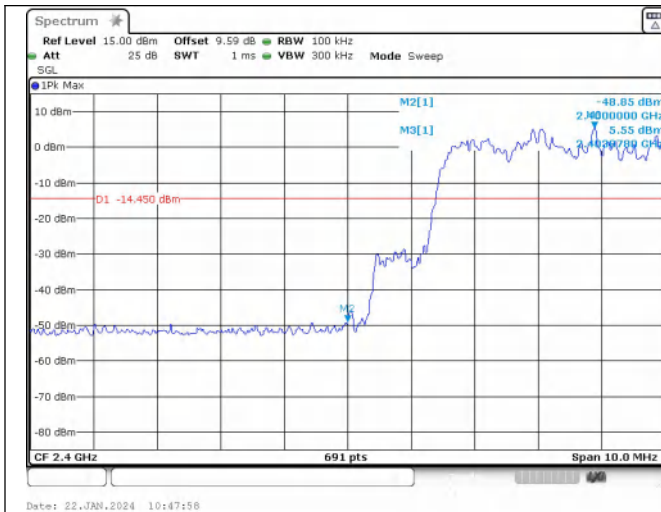


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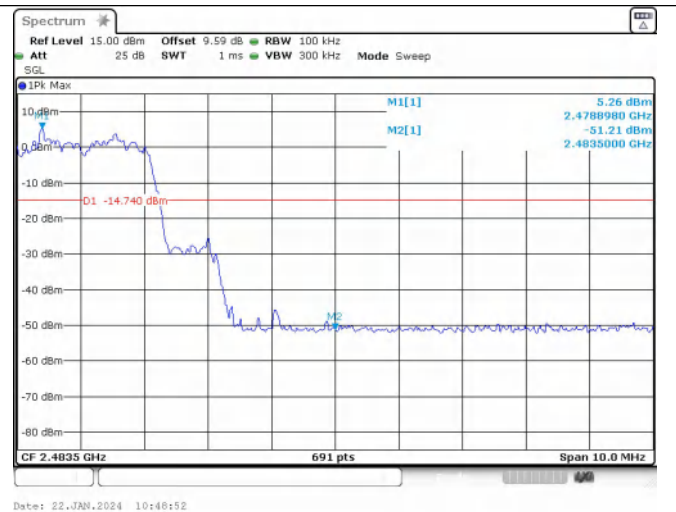
Out Of Band Emission(Right) $\pi/4$ DQPSK_2-DH5_Channel Hopping



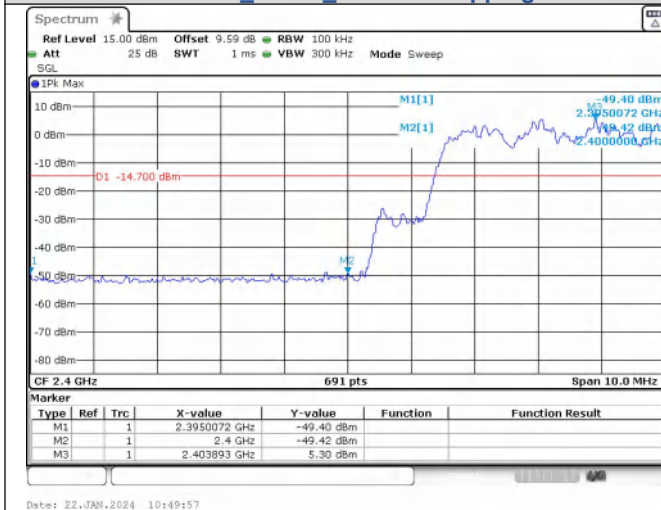
Date: 22.JAN.2024 10:42:55



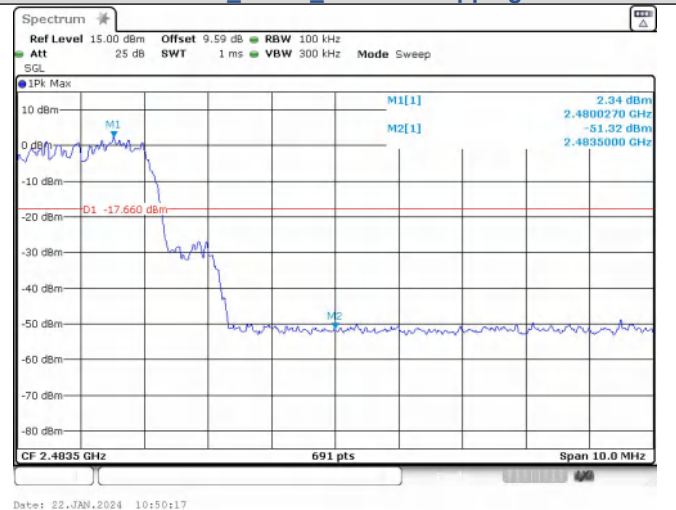
**Out Of Band Emission(Left)
8DPSK_3-DH5_Channel Hopping**



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



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



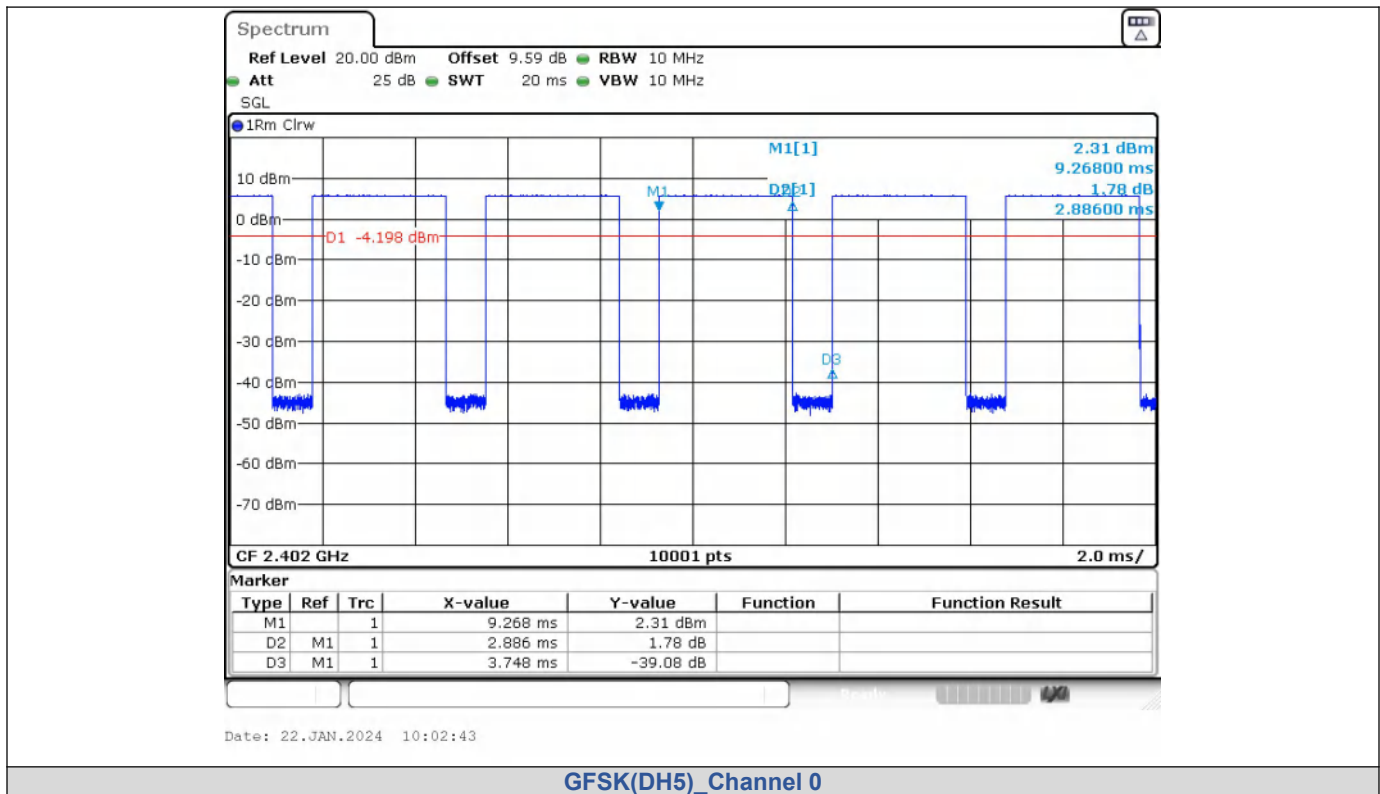
**Out Of Band Emission(Right)
8DPSK_3-DH5_Channel Hopping**

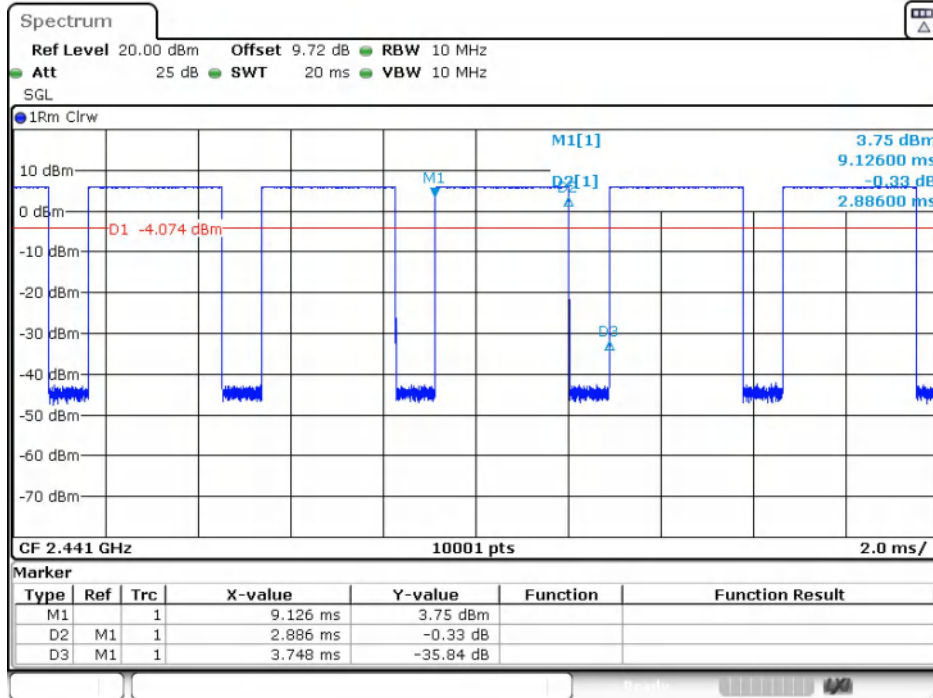
Duty Cycle

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	2.890	3.748	77.11	0.7711	1.1289	0.35
		78	2.890	3.748	77.11	0.7711	1.1289	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

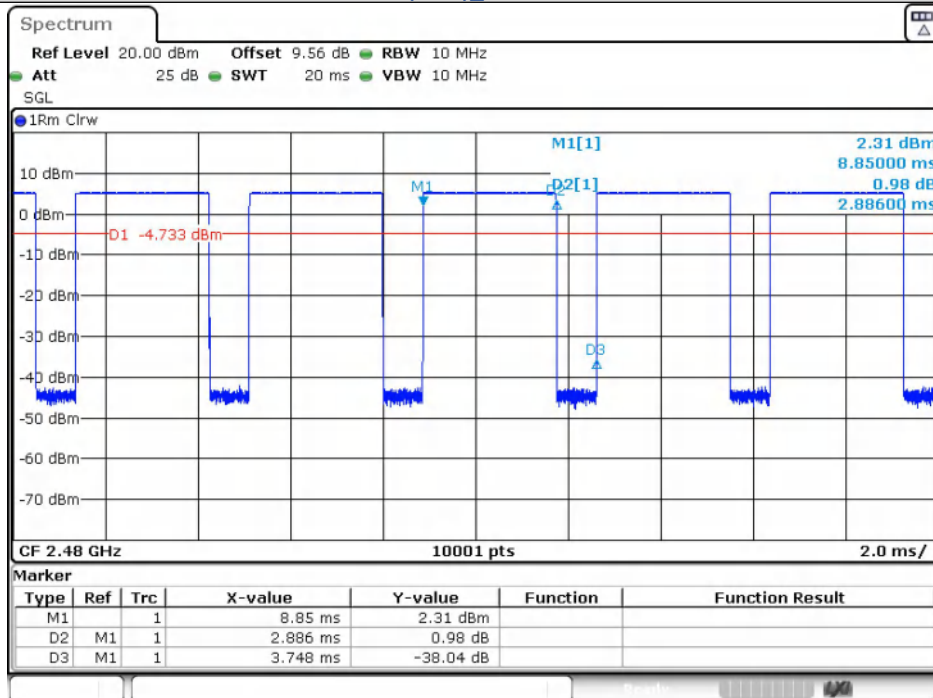
Test Graphs





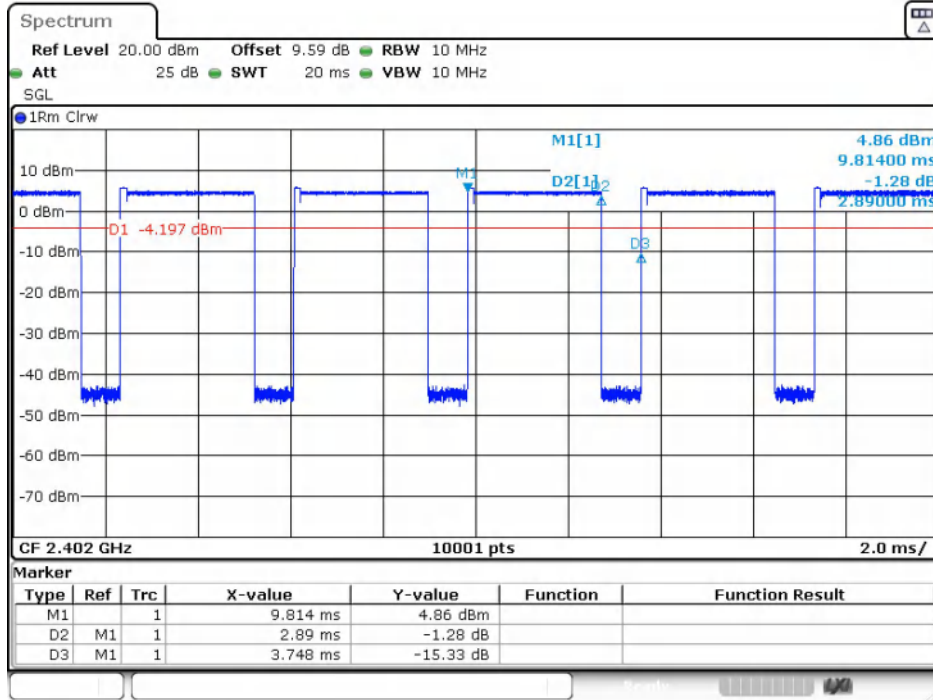
Date: 22.JAN.2024 10:05:19

GFSK(DH5)_Channel 39



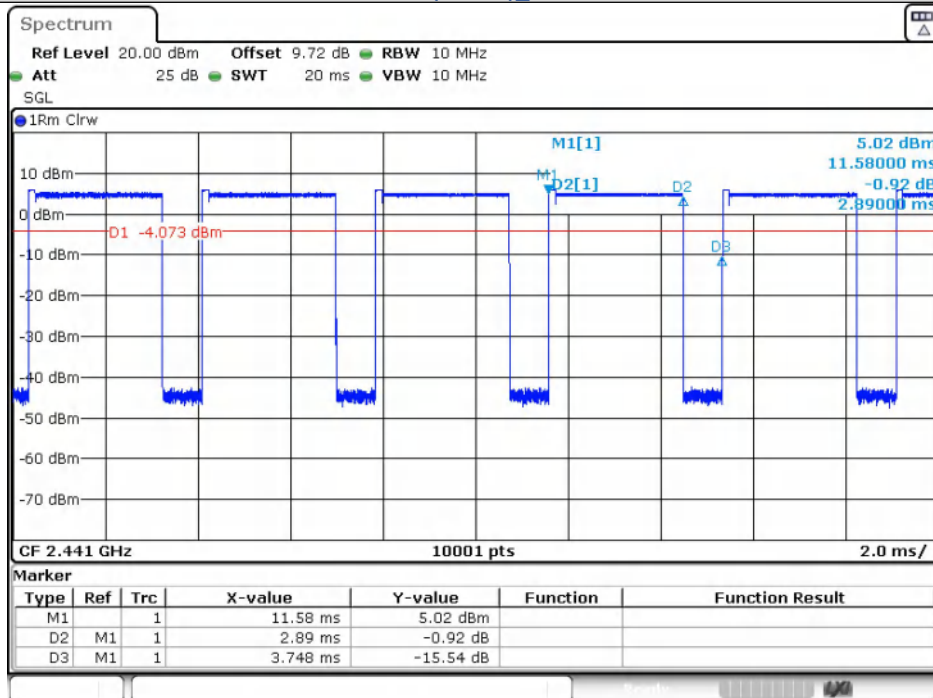
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GFSK(DH5)_Channel 78



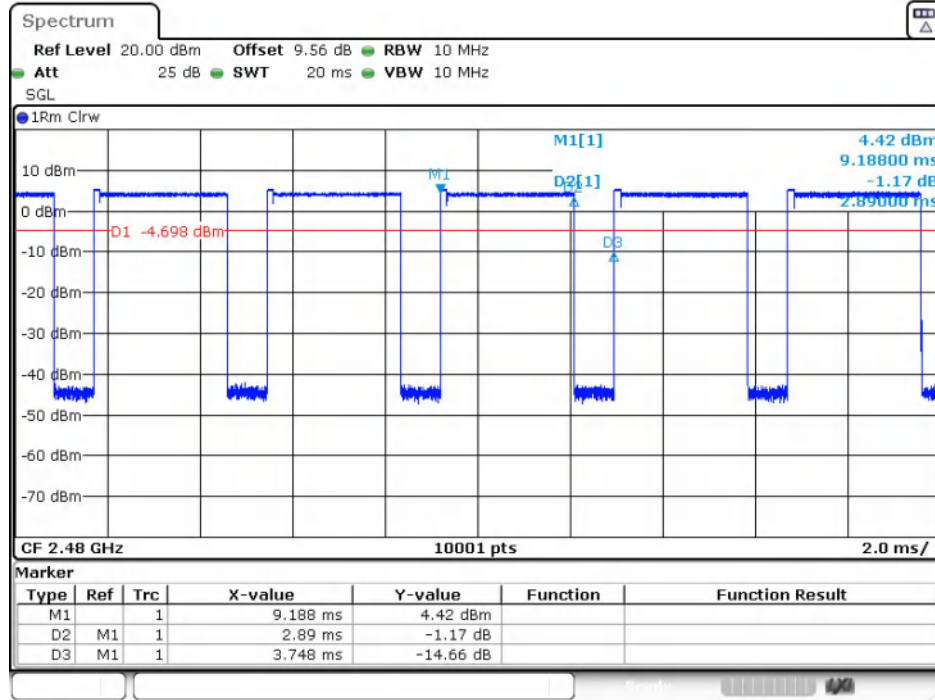
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$\pi/4$ DQPSK(2-DH5)_Channel 0



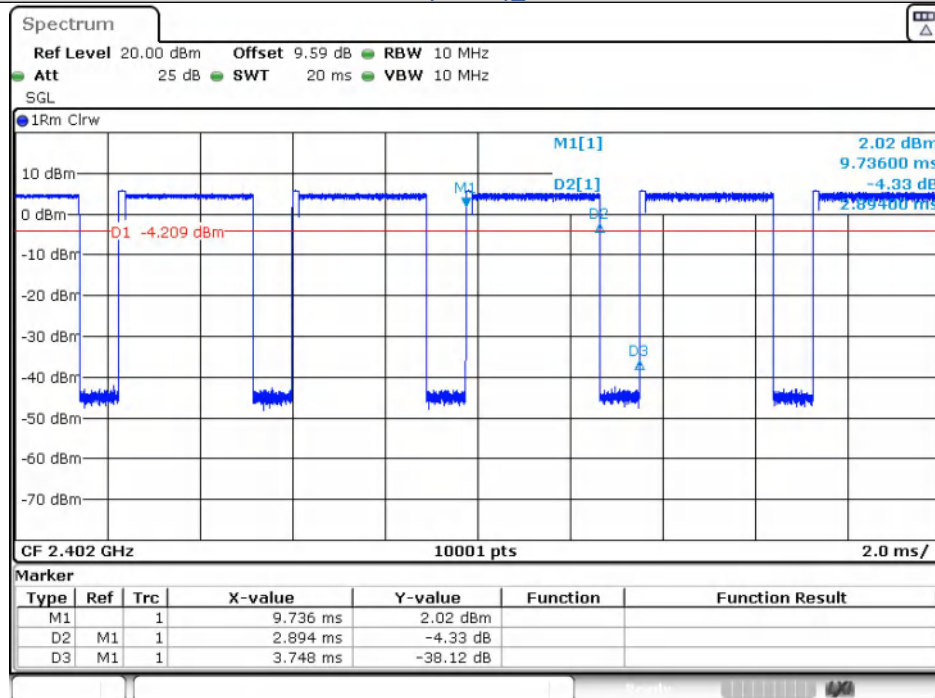
Date: 22.JAN.2024 10:16:20

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



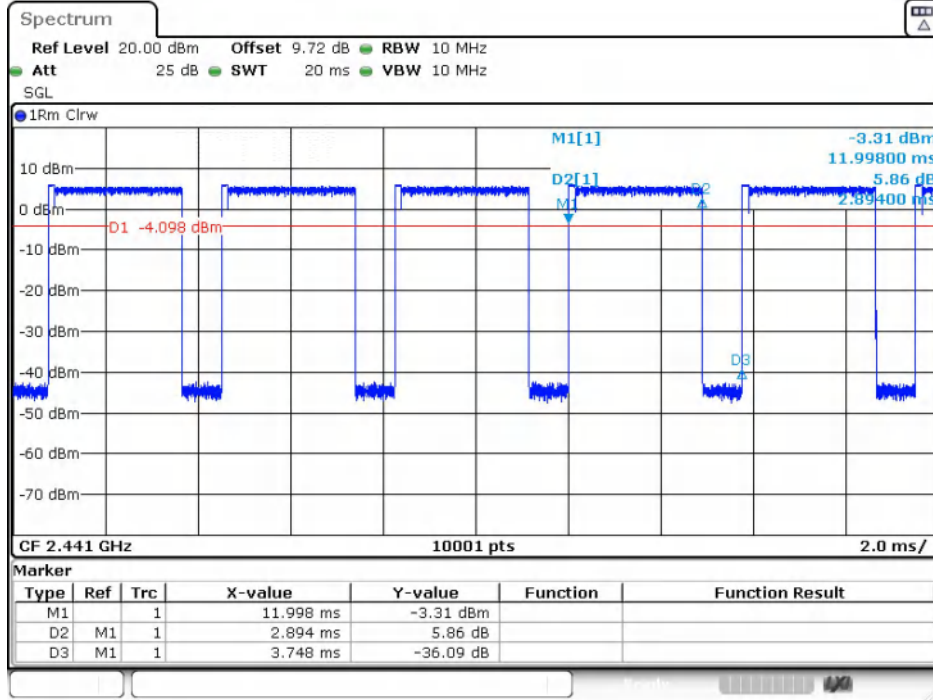
Date: 22.JAN.2024 10:18:35

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



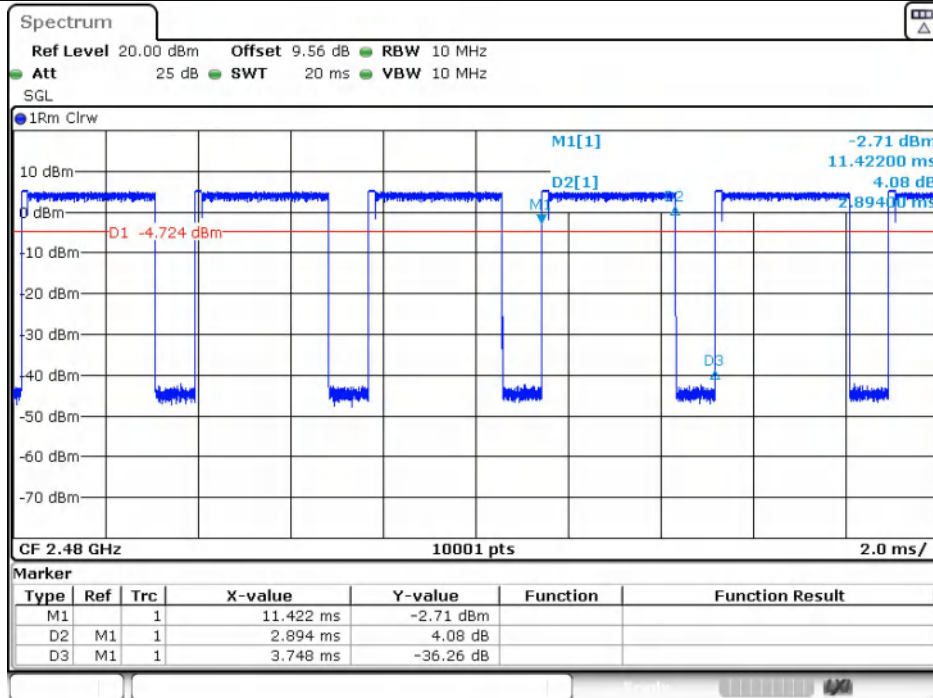
Date: 22.JAN.2024 10:20:30

8DPSK(3-DH5)_Channel 0



Date: 22.JAN.2024 10:22:20

8DPSK(3-DH5)_Channel 39



Date: 22.JAN.2024 10:24:11

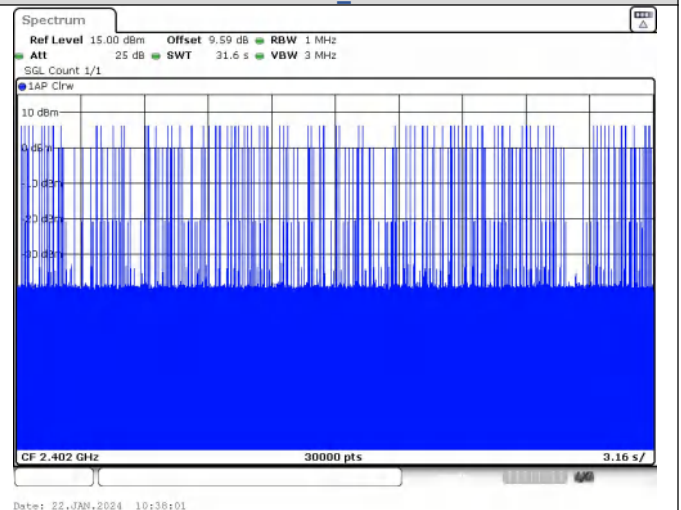
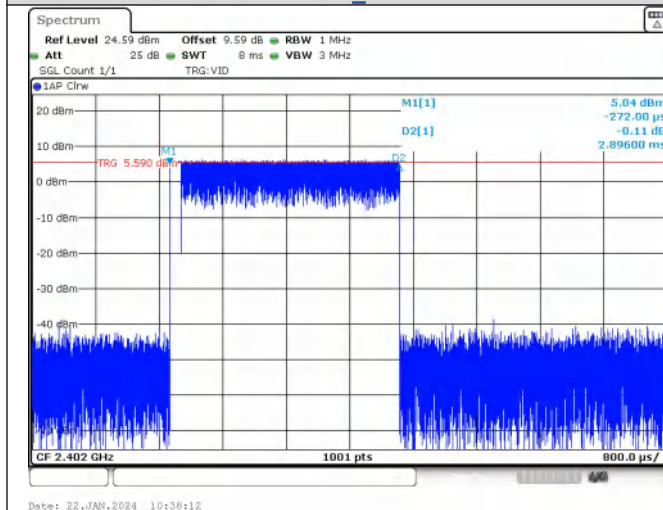
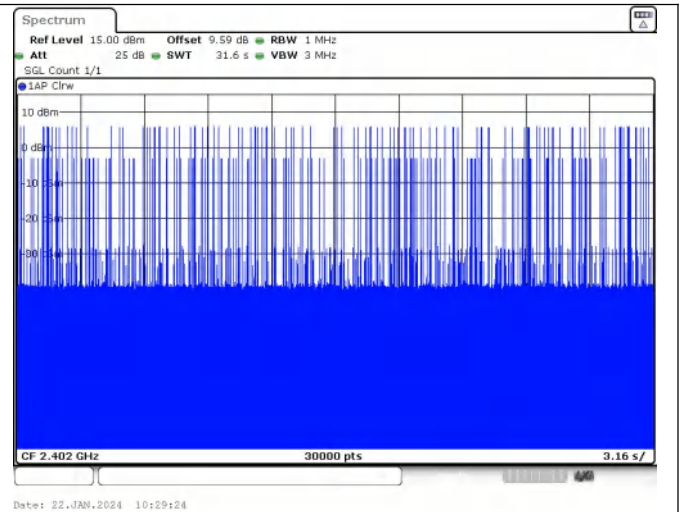
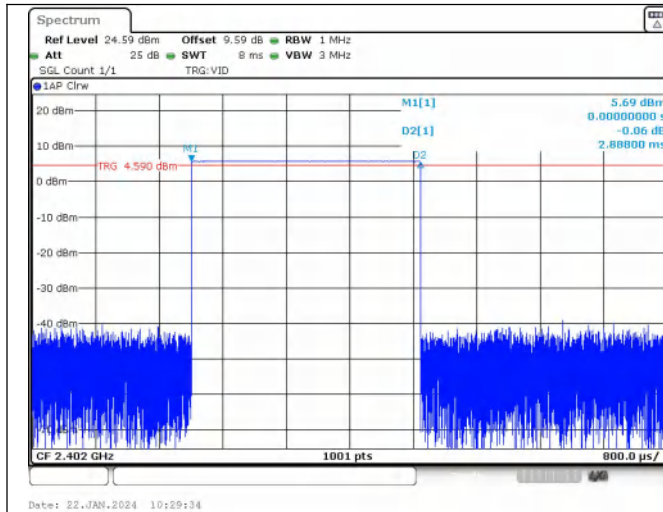
8DPSK(3-DH5)_Channel 78

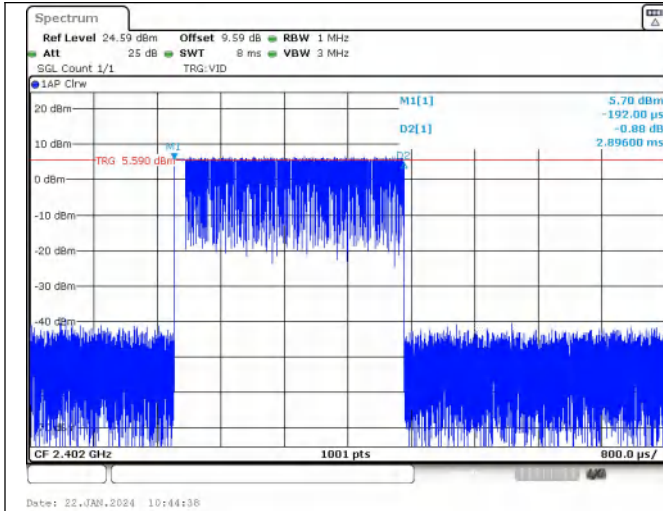
Dwell Time

Test Result

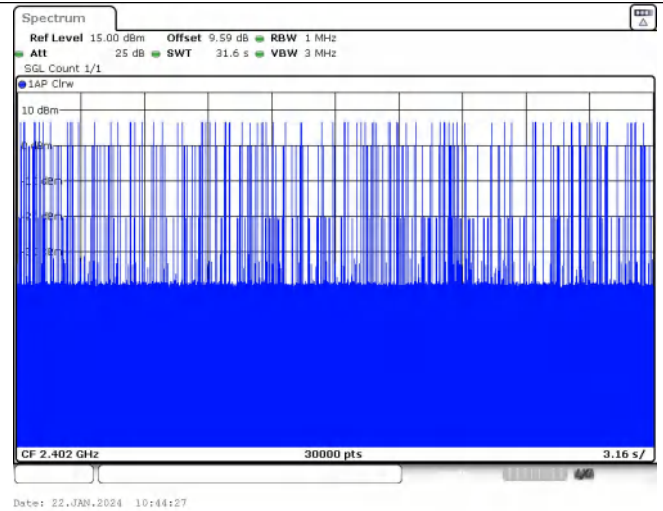
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.888	111	320.57	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	99	286.7		PASS
8DPSK	3-DH5		2.896	90	260.64		PASS

Test Graphs





Pulse Width
8DPSK_3-DH5



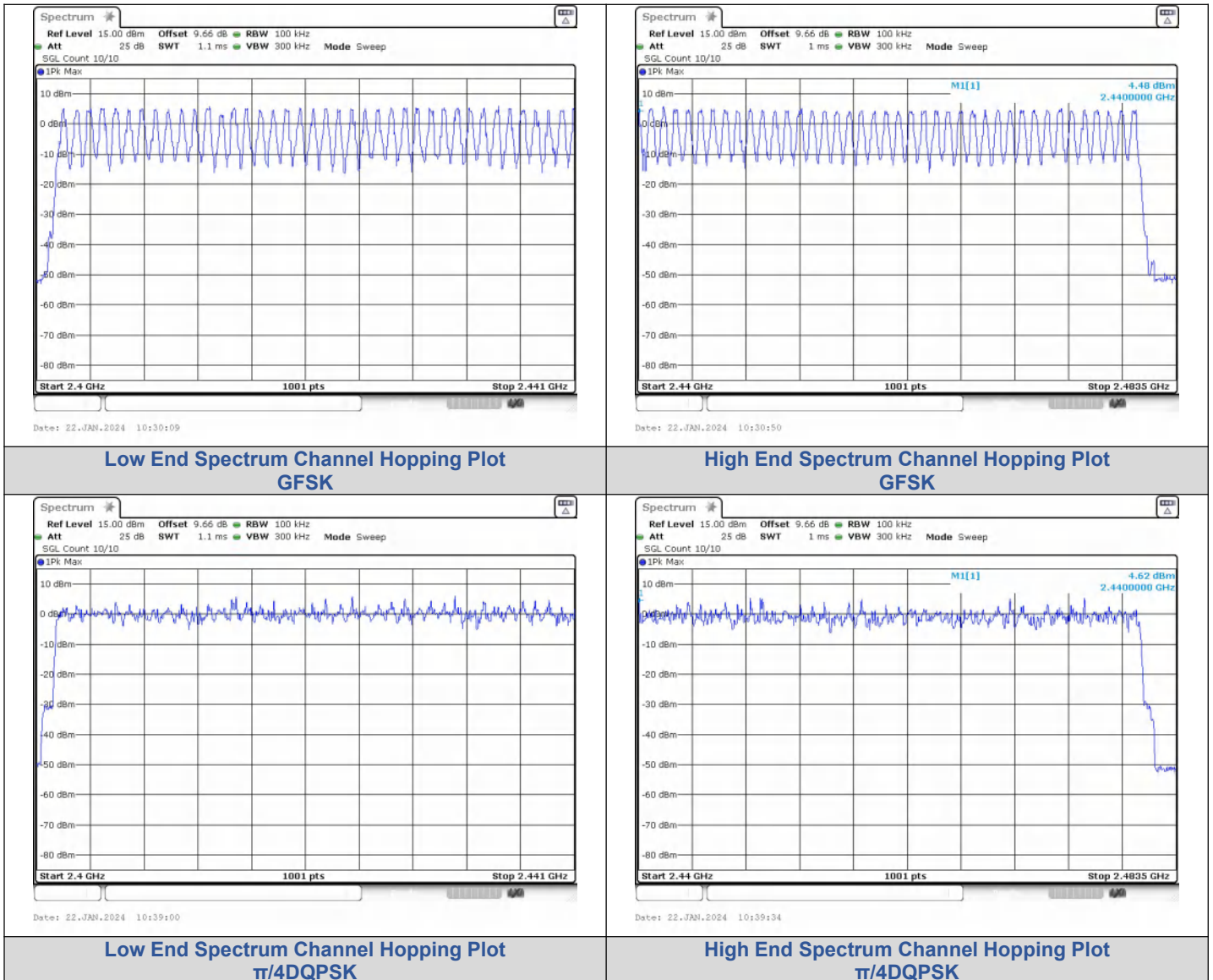
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

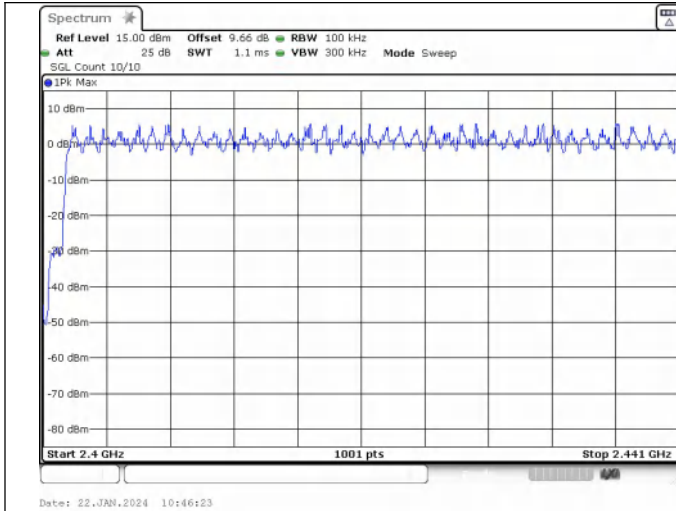
Number Of Hopping Channel

Test Result

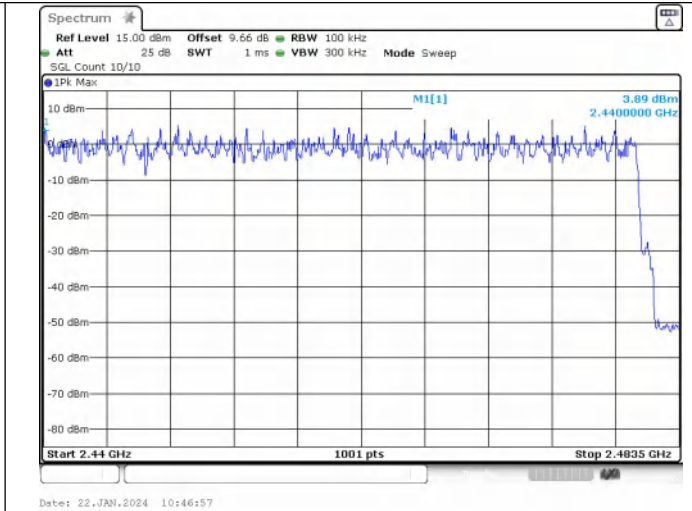
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





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



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