

Appendix A

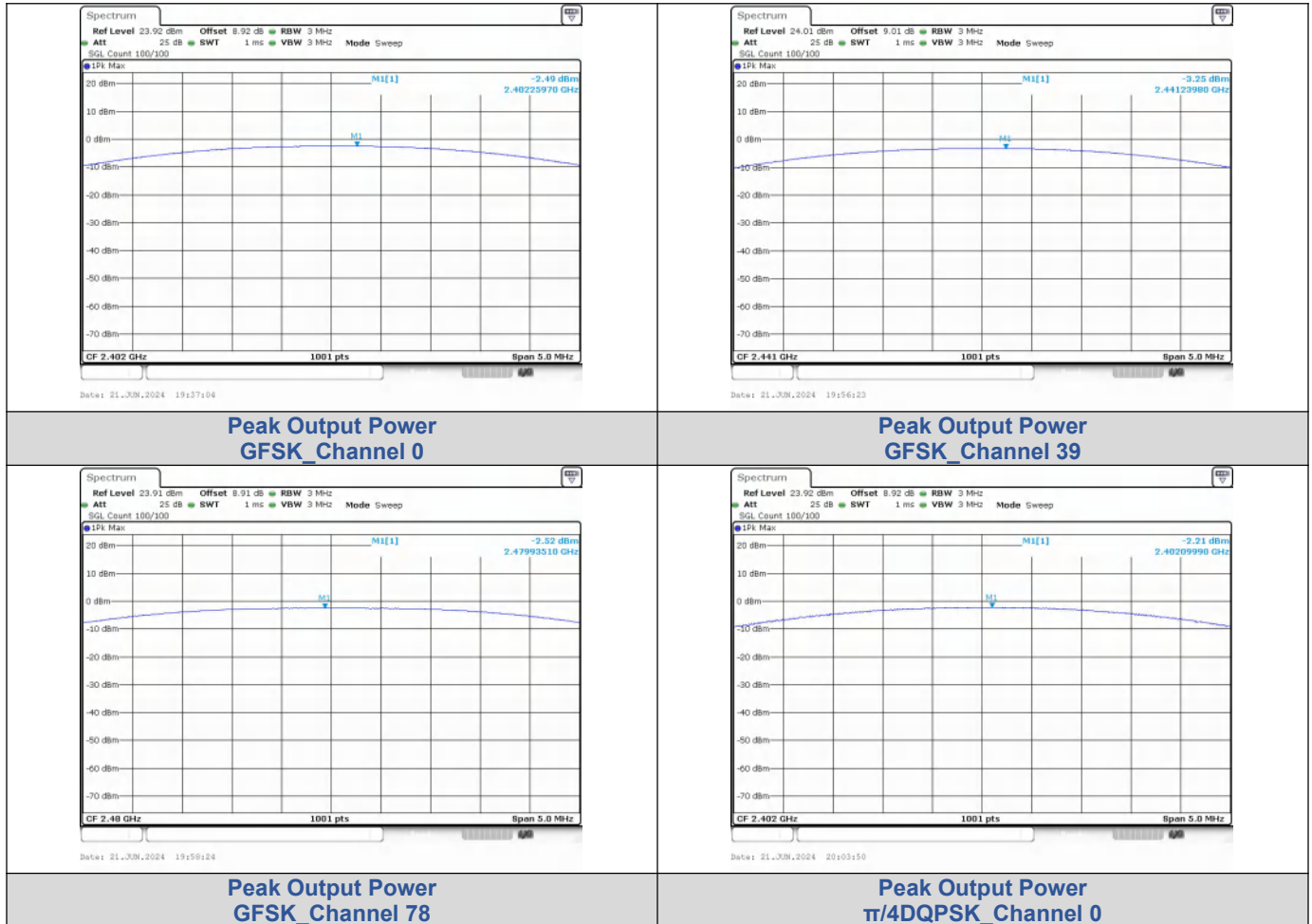
Report No.:	CISRR240617132
FCC ID:	2A5TA-K50
Product Name:	Wireless speaker
Model No.:	K50
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

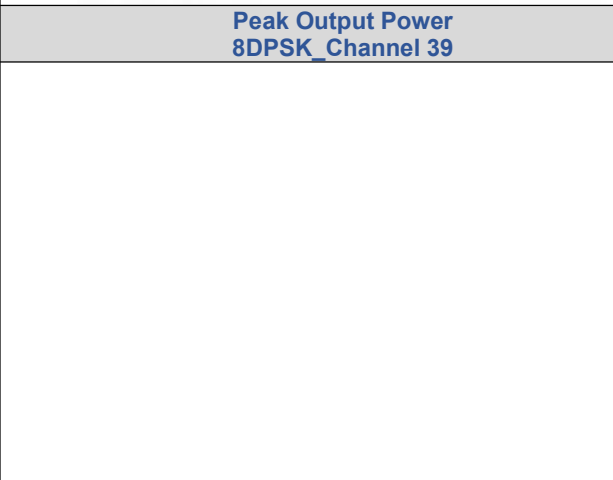
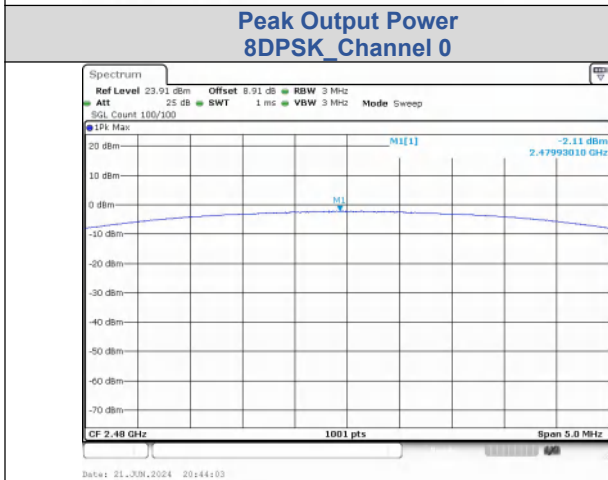
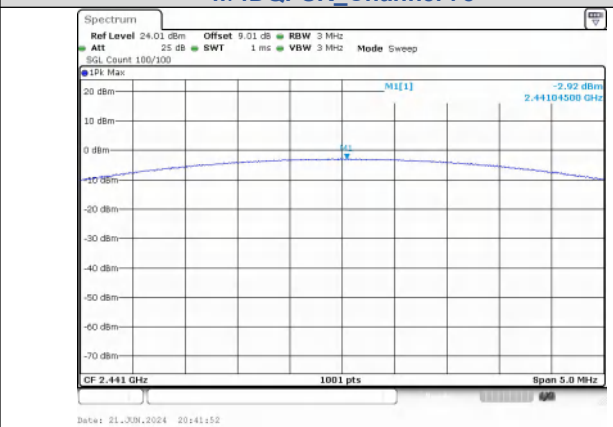
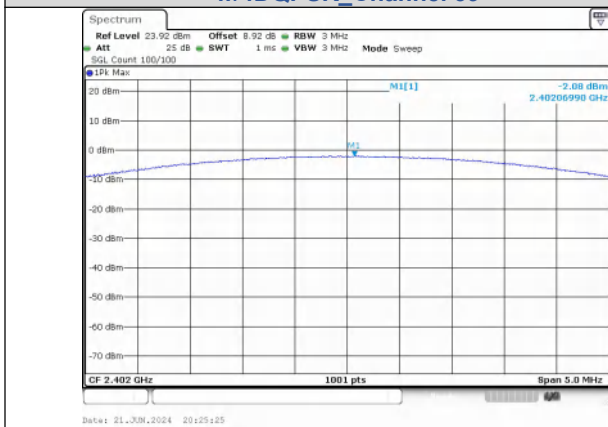
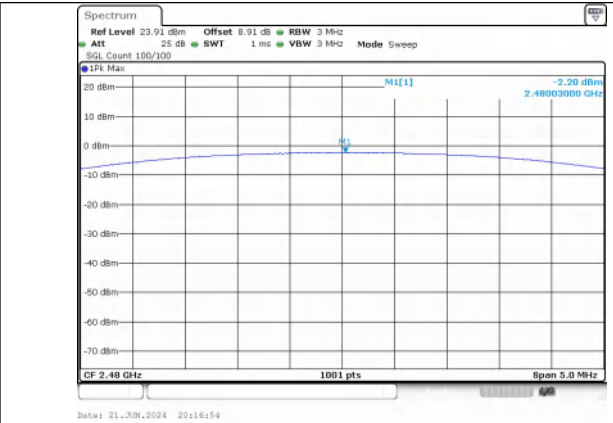
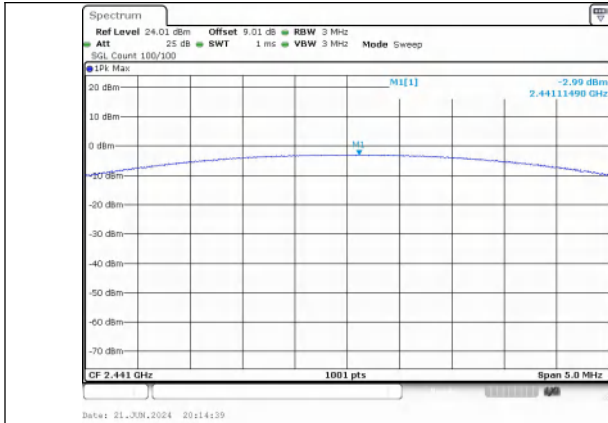
Conducted Peak Output Power

Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	-2.49	0.56	30	PASS
		39	-3.25	0.47		PASS
		78	-2.52	0.56		PASS
π /4DQPSK	2-DH5	0	-2.21	0.60	20.97	PASS
		39	-2.99	0.50		PASS
		78	-2.20	0.60		PASS
8DPSK	3-DH5	0	-2.08	0.62		PASS
		39	-2.92	0.51		PASS
		78	-2.11	0.62		PASS

Test Graphs



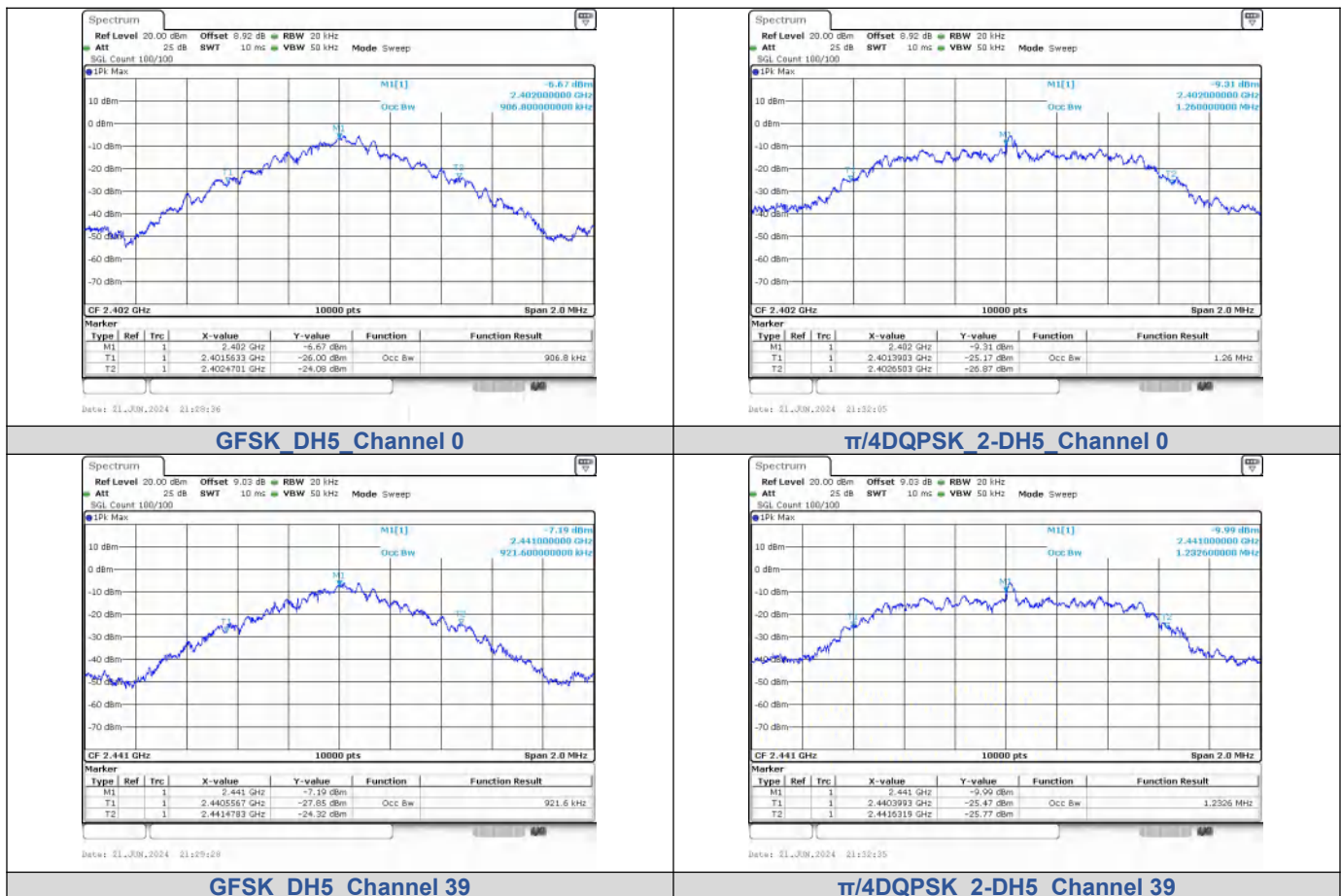


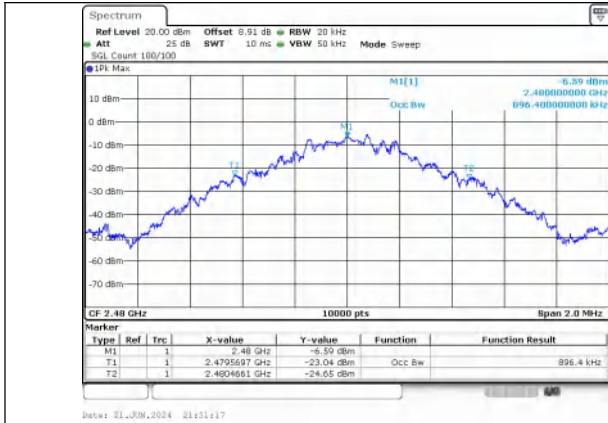
99% Bandwidth

Test Result

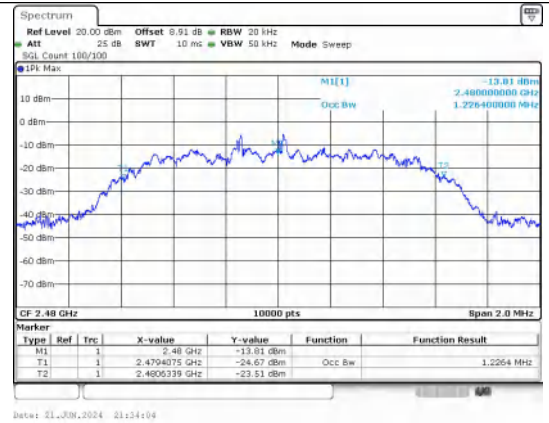
Modulation	Channel	Center Frequency (MHz)	99% BW (MHz)
GFSK	0	2402	0.9068
	39	2441	0.9216
	78	2480	0.8964
$\pi/4$ DQPSK	0	2402	1.2600
	39	2441	1.2326
	78	2480	1.2264
8DPSK	0	2402	1.2440
	39	2441	1.2302
	78	2480	1.2188

Test Graphs





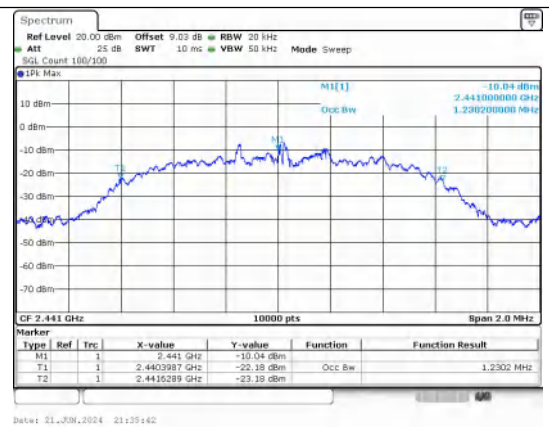
GFSK_DH5_Channel 78



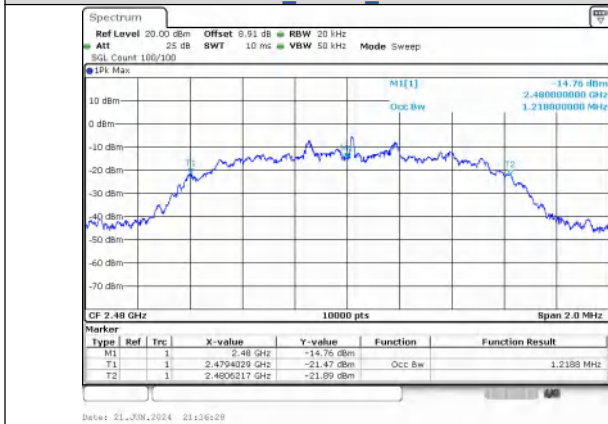
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



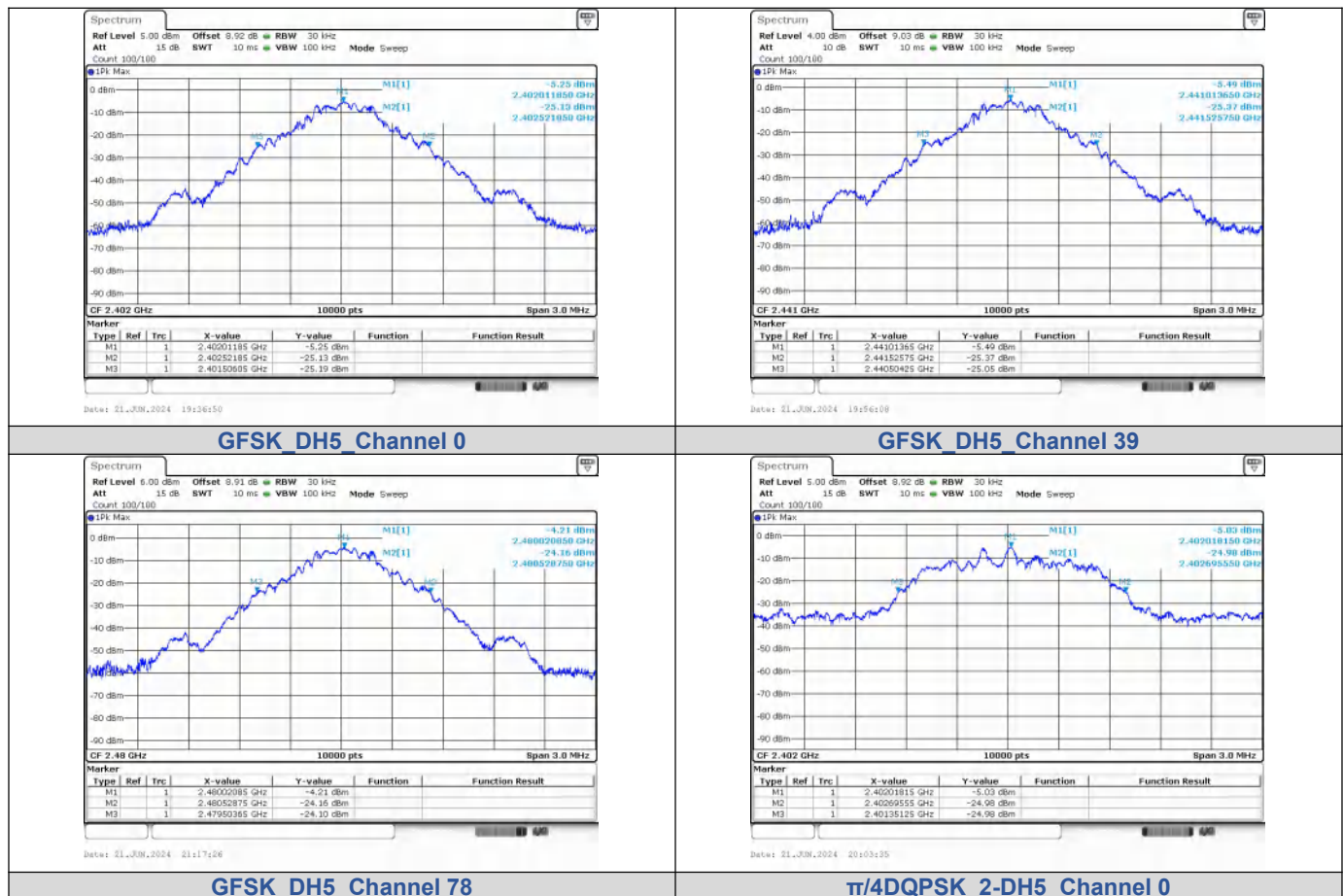
8DPSK_3-DH5_Channel 78

20dB Bandwidth

Test Result

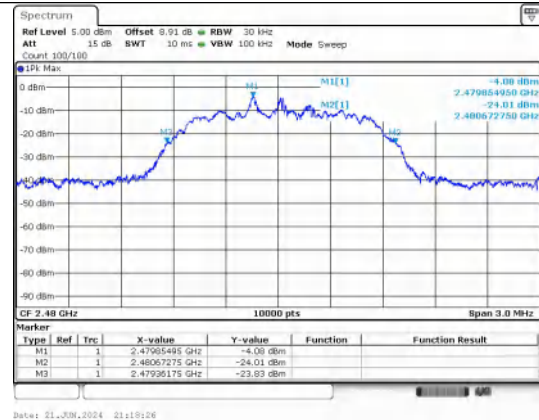
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.010
	39	2441 MHz	1.030
	78	2480 MHz	1.030
$\pi/4$ DQPSK	0	2402 MHz	1.350
	39	2441 MHz	1.330
	78	2480 MHz	1.310
8DPSK	0	2402 MHz	1.290
	39	2441 MHz	1.310
	78	2480 MHz	1.310

Test Graphs

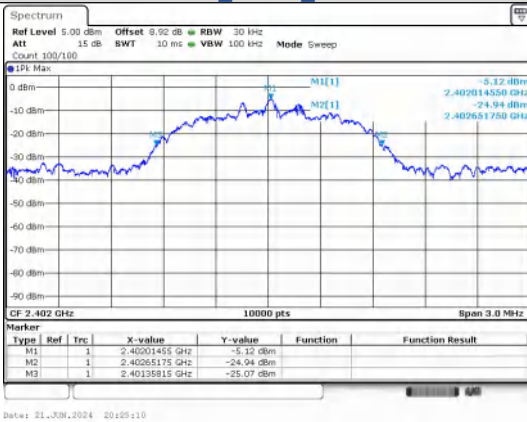




$\pi/4$ DQPSK_2-DH5_Channel 39



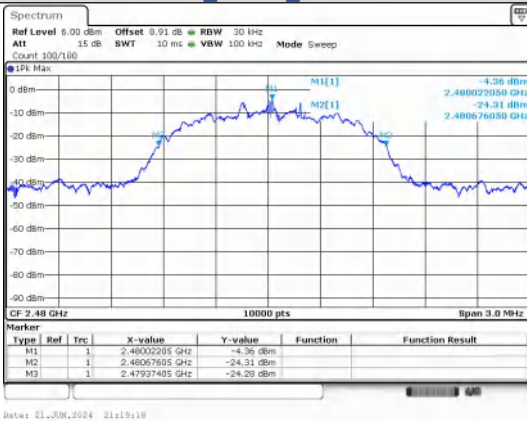
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



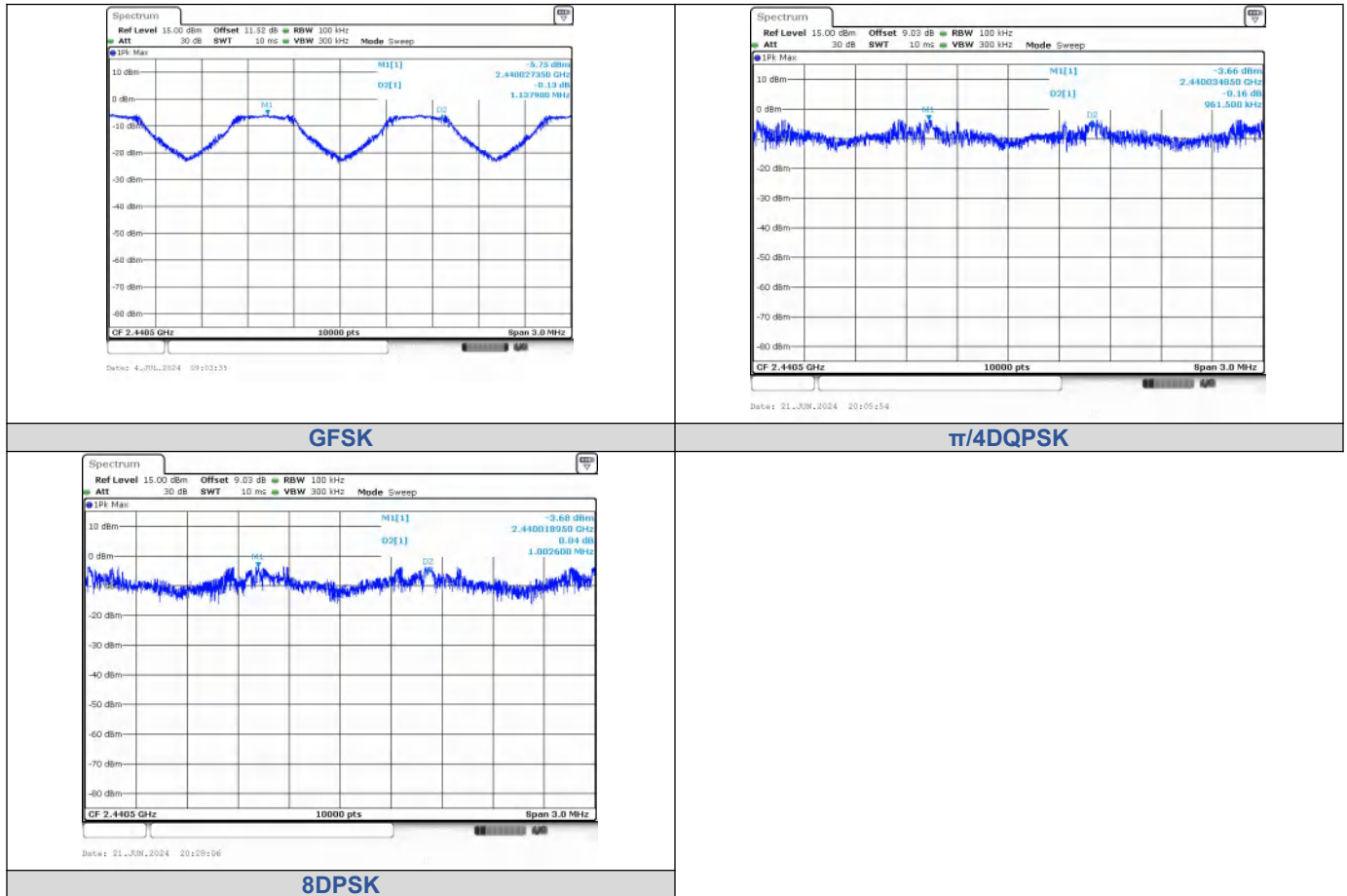
8DPSK_3-DH5_Channel 78

Carrier Frequencies Separation

Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2440.0273	2441.1653	1.1379	1.03	PASS
$\pi/4$ DQPSK	2-DH5	2440.0349	2440.9963	0.9615	0.9	PASS
8DPSK	3-DH5	2440.019	2441.0215	1.0026	0.86	PASS

Test Graphs



Conducted Out Of Band Emission

Test Result

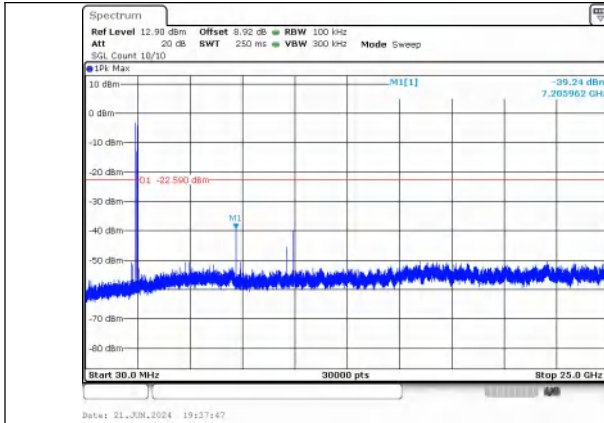
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2398.08	-51.643	-22.59	-29.053	PASS
			2400.00	-52.086	-22.59	-29.496	PASS
			7206.00	-39.237	-22.59	-16.647	PASS
		39	9920.20	-39.749	-23.37	-16.379	PASS
		78	2483.50	-53.452	-22.74	-30.712	PASS
			9920.20	-39.465	-22.74	-16.725	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-43.442	-22.69	-20.752	PASS
			7205.96	-39.280	-22.69	-16.590	PASS
		39	9920.20	-40.126	-23.54	-16.586	PASS
			2483.50	-52.173	-22.86	-29.313	PASS
		78	9920.20	-39.862	-22.86	-17.002	PASS
			2483.50	-52.243	-23.02	-29.223	PASS
8DPSK	3-DH5	0	2400.00	-42.645	-22.61	-20.035	PASS
			9920.20	-40.641	-22.61	-18.031	PASS
		39	9920.20	-39.637	-23.61	-16.027	PASS
			2483.50	-52.243	-23.02	-29.223	PASS
		78	9920.20	-40.253	-23.02	-17.233	PASS
			2483.50	-52.243	-23.02	-29.223	PASS

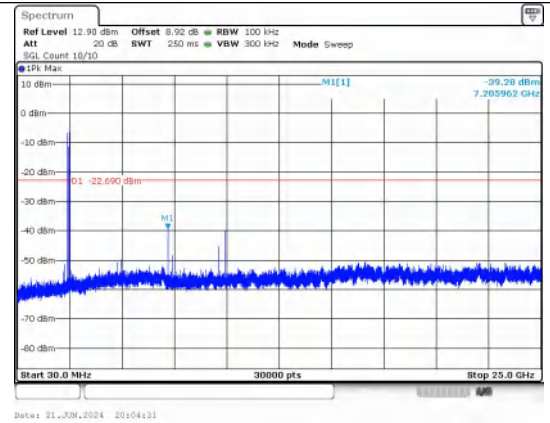
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2396.87	-50.442	-22.61	-27.832	PASS
			2400.00	-52.532	-22.61	-29.922	PASS
			2483.50	-52.366	-22.93	-29.436	PASS
			2396.09	-51.085	-23.0	-28.085	PASS
			2400.00	-52.057	-23.0	-29.057	PASS
			2483.50	-51.570	-22.76	-28.810	PASS
π/4DQPSK	2-DH5		2400.00	-47.092	-22.73	-24.362	PASS
			2483.50	-51.863	-23.13	-28.733	PASS
			2400.00	-45.307	-22.71	-22.597	PASS
			2483.50	-52.384	-22.87	-29.514	PASS
8DPSK	3-DH5		2400.00	-44.295	-22.61	-21.685	PASS
			2483.50	-51.467	-22.93	-28.537	PASS
			2400.00	-42.942	-22.68	-20.262	PASS
			2483.50	-50.839	-23.27	-27.569	PASS

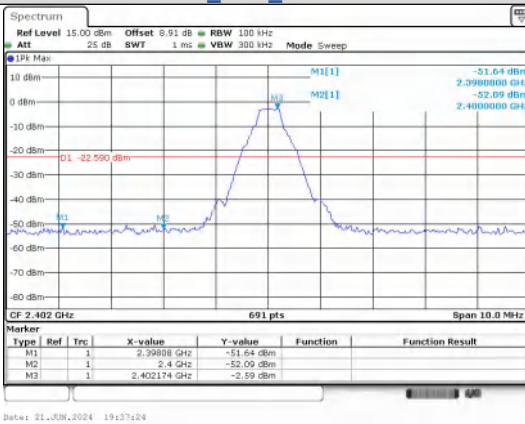
Test Graphs



30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



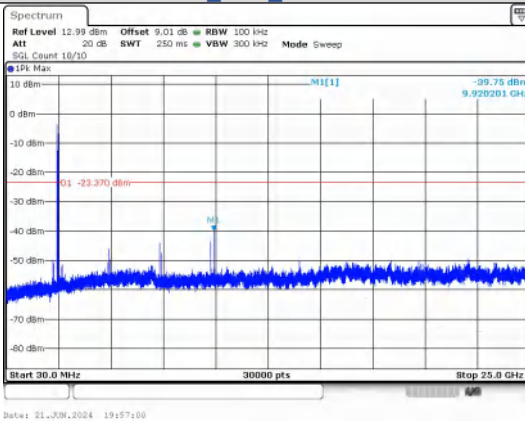
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 0



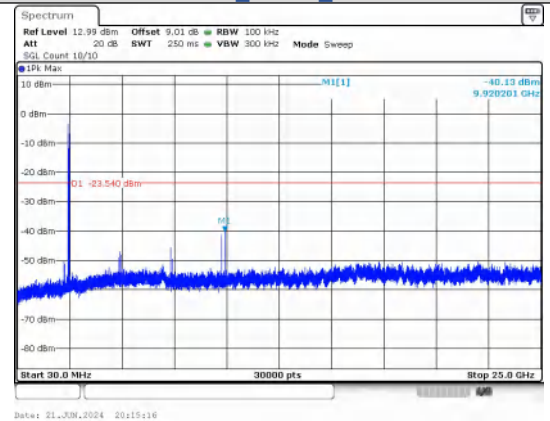
Out Of Band Emission
GFSK_DH5_Channel 0



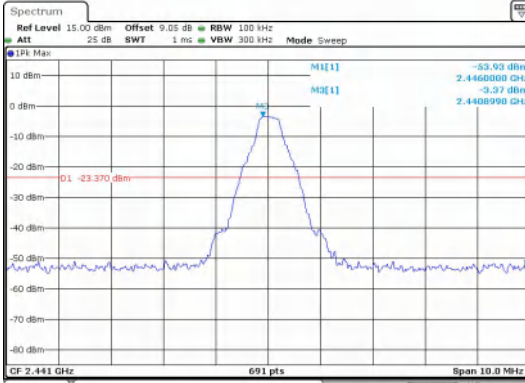
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0



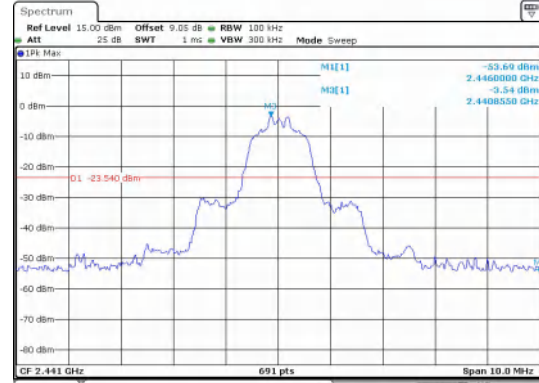
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



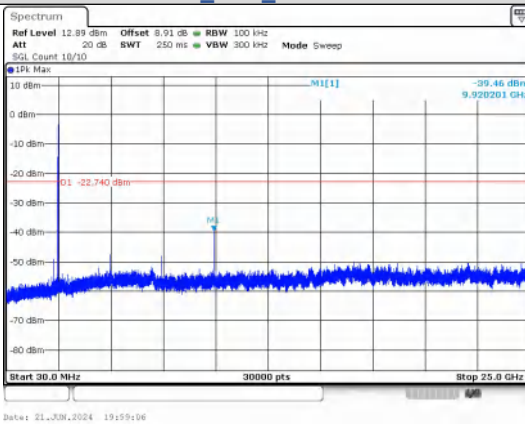
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 39



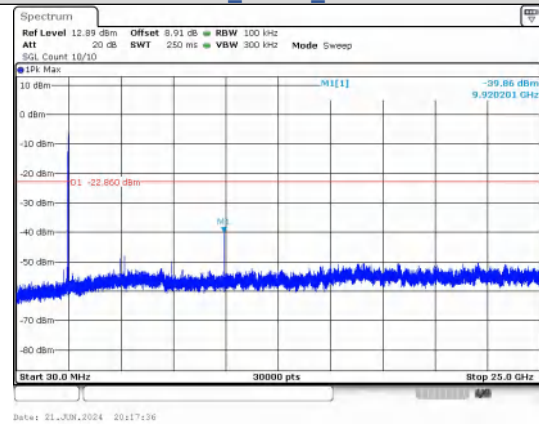
**Out Of Band Emission
GFSK_DH5_Channel 39**



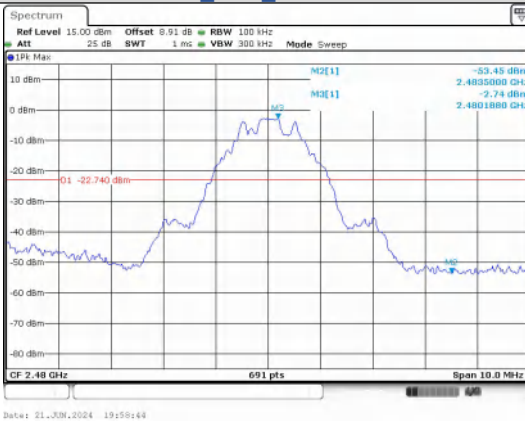
**Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 39**



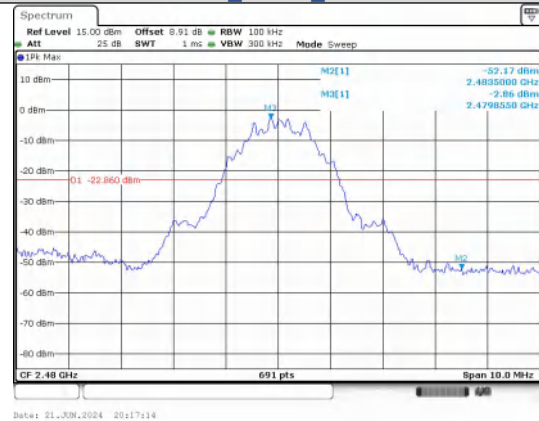
**30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78**



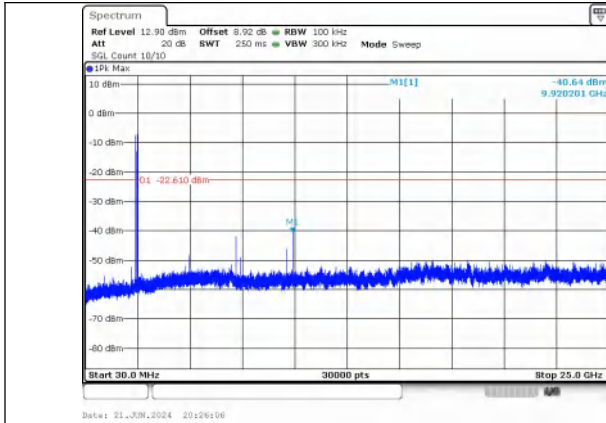
**30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 78**



**Out Of Band Emission
GFSK_DH5_Channel 78**



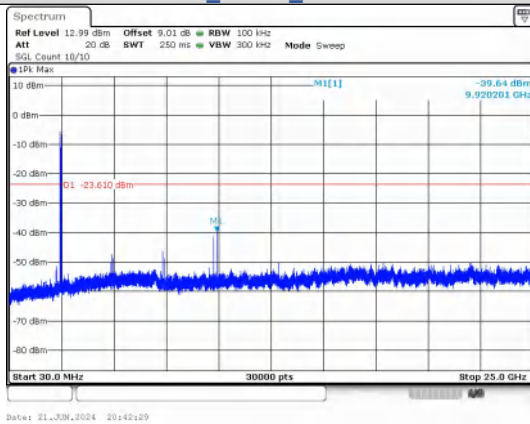
**Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78**



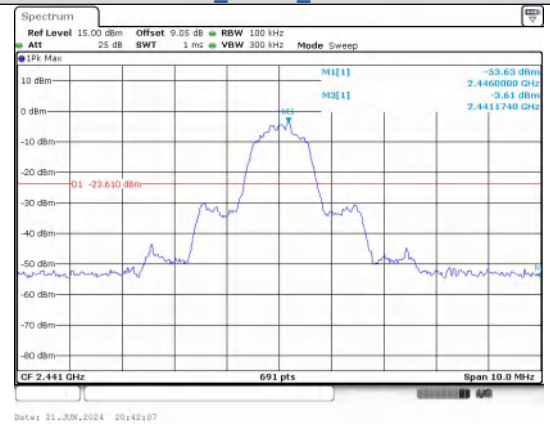
**30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0**



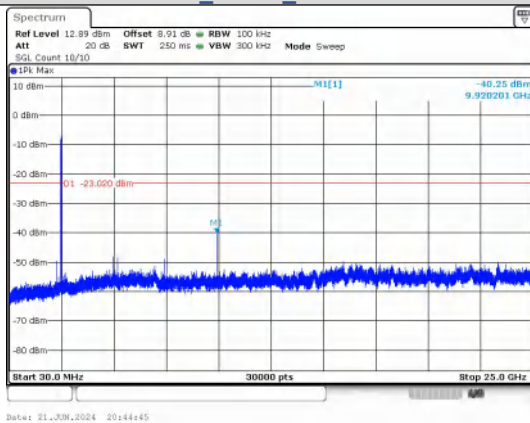
**Out Of Band Emission
8DPSK_3-DH5_Channel 0**



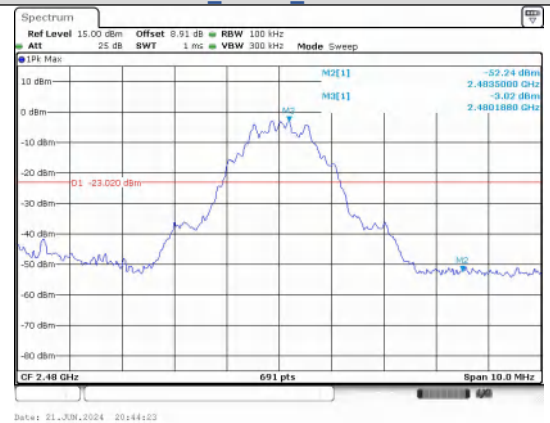
**30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39**



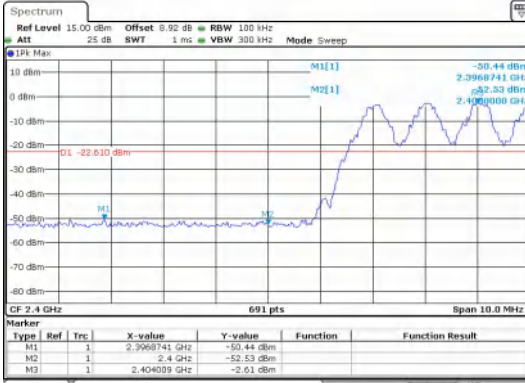
**Out Of Band Emission
8DPSK_3-DH5_Channel 39**



**30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78**

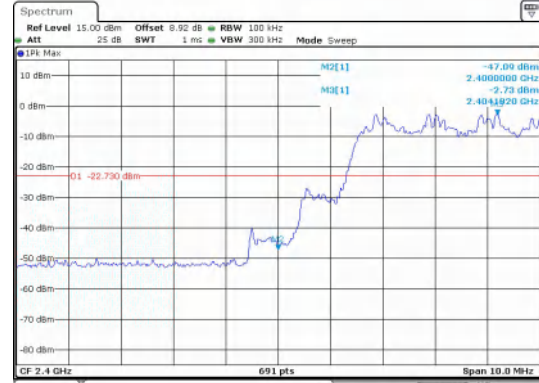


**Out Of Band Emission
8DPSK_3-DH5_Channel 78**



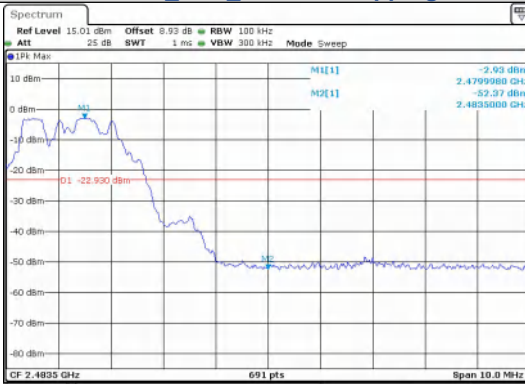
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**Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping**



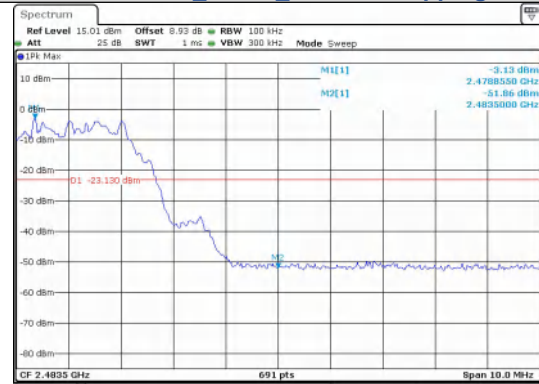
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**Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping**



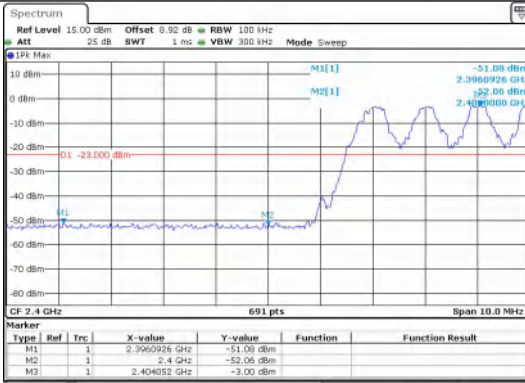
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**Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping**



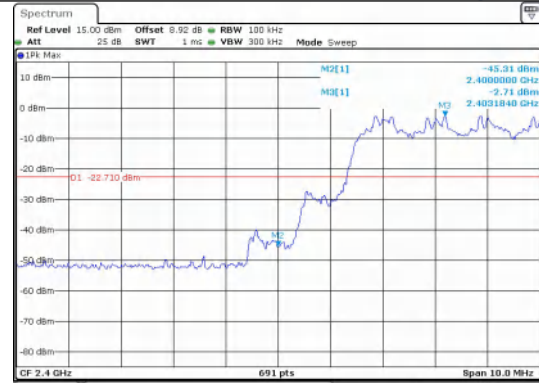
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**Out Of Band Emission(Right)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping**



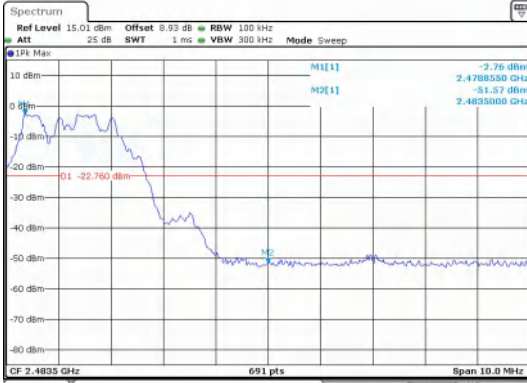
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**Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping**

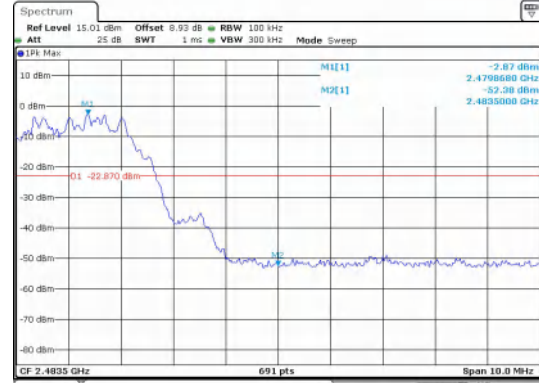


Date: 21_JUN_2024 20:22:53

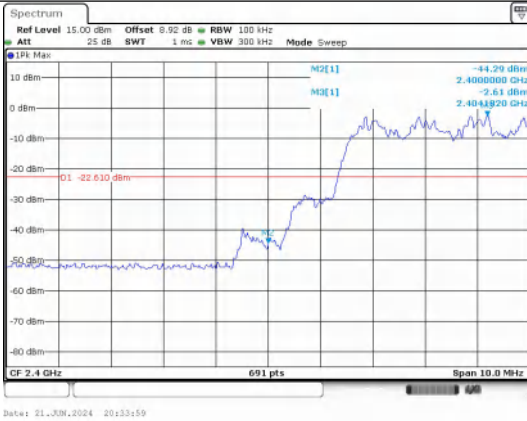
**Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping**



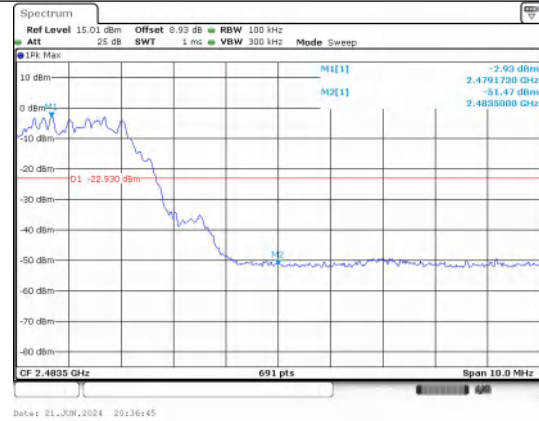
**Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping**



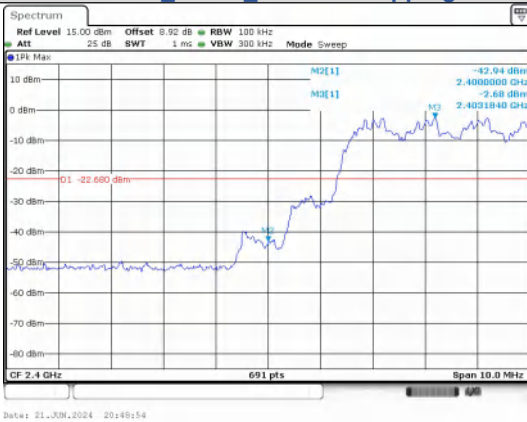
**Out Of Band Emission(Right)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping**



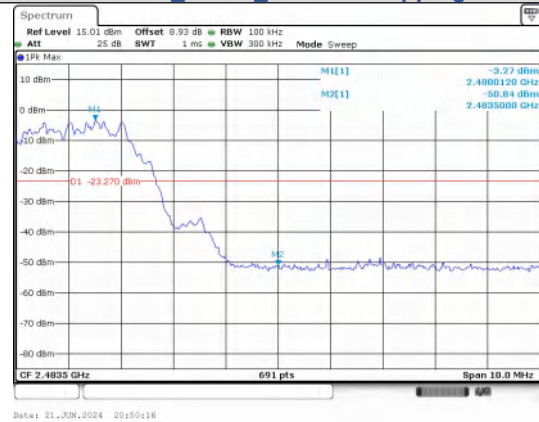
**Out Of Band Emission(Left)
8DPSK_3-DH5_Channel Hopping**



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



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



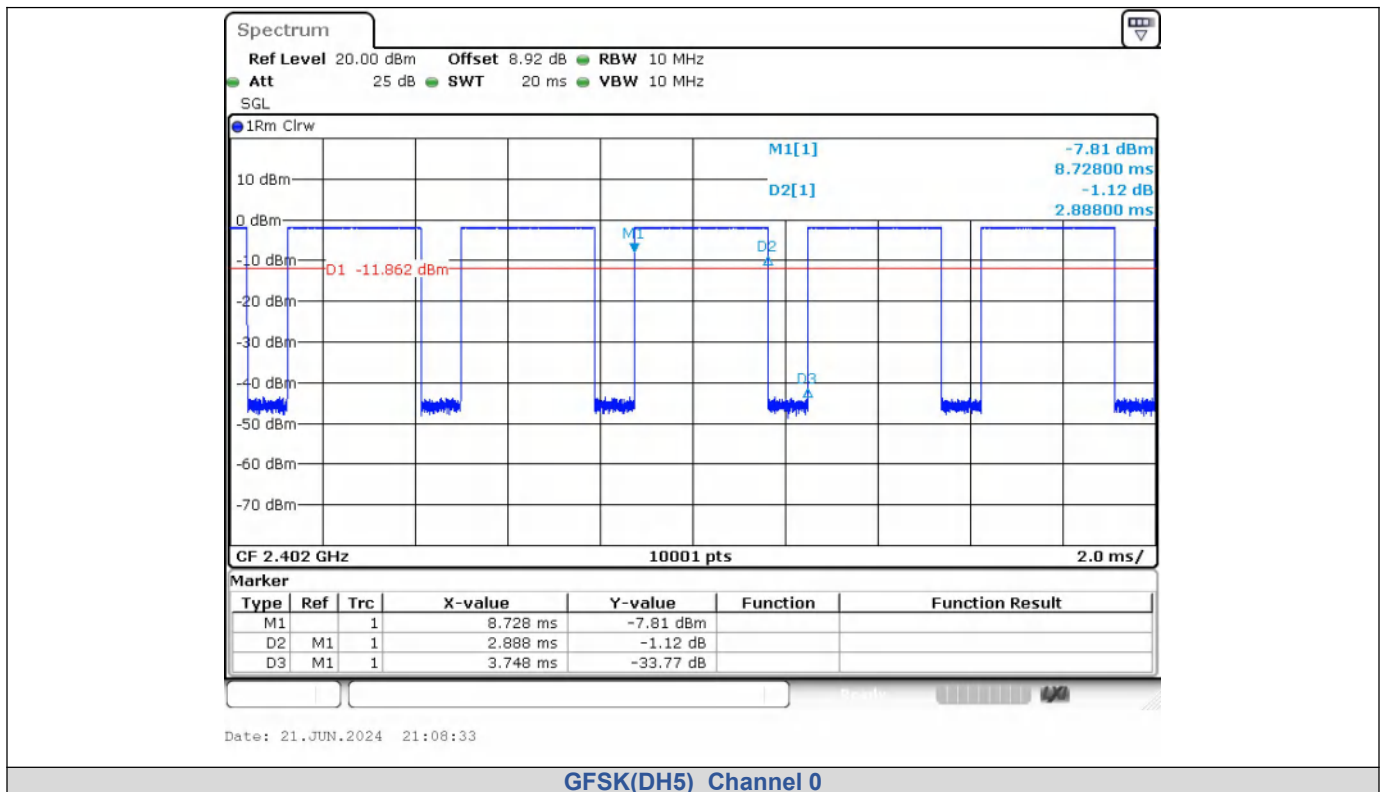
**Out Of Band Emission(Right)
8DPSK_3-DH5_Channel Hopping**

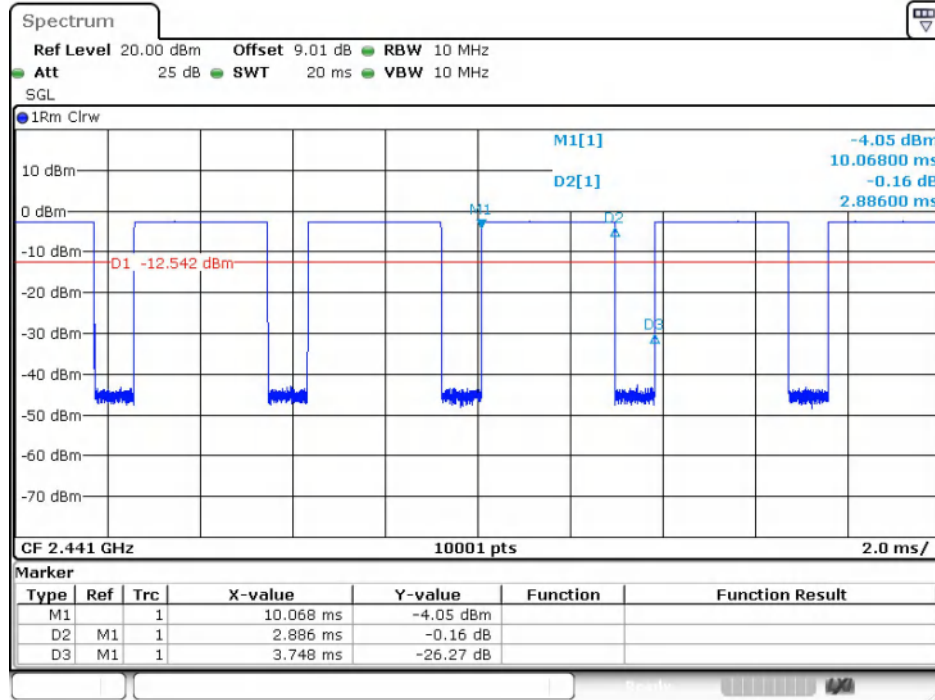
Duty Cycle

Test Result

Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.888	3.748	77.05	0.7705	1.1323	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	2.892	3.748	77.16	0.7716	1.1261	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

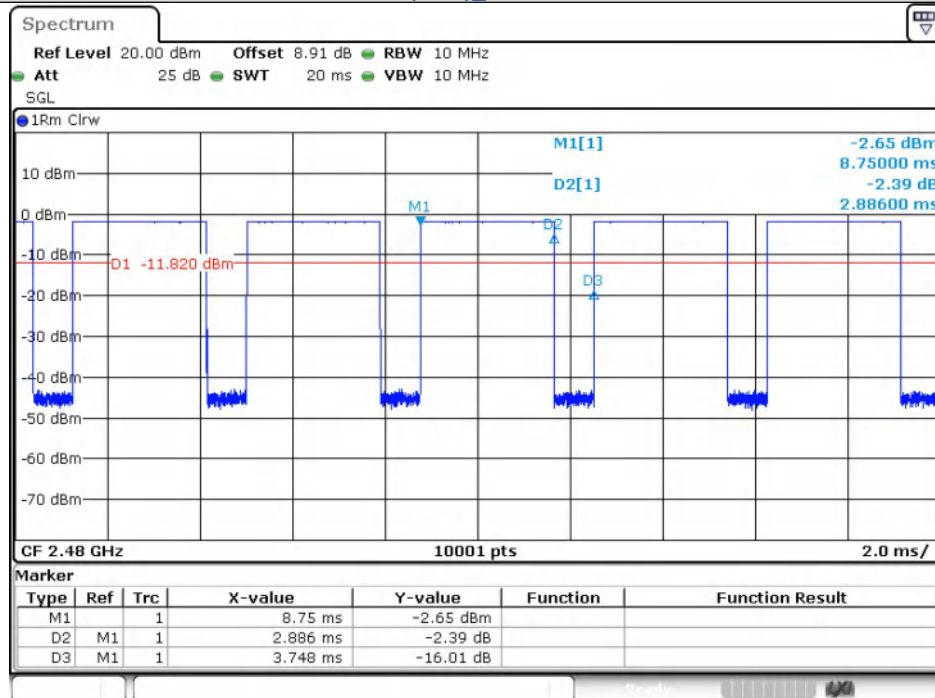
Test Graphs





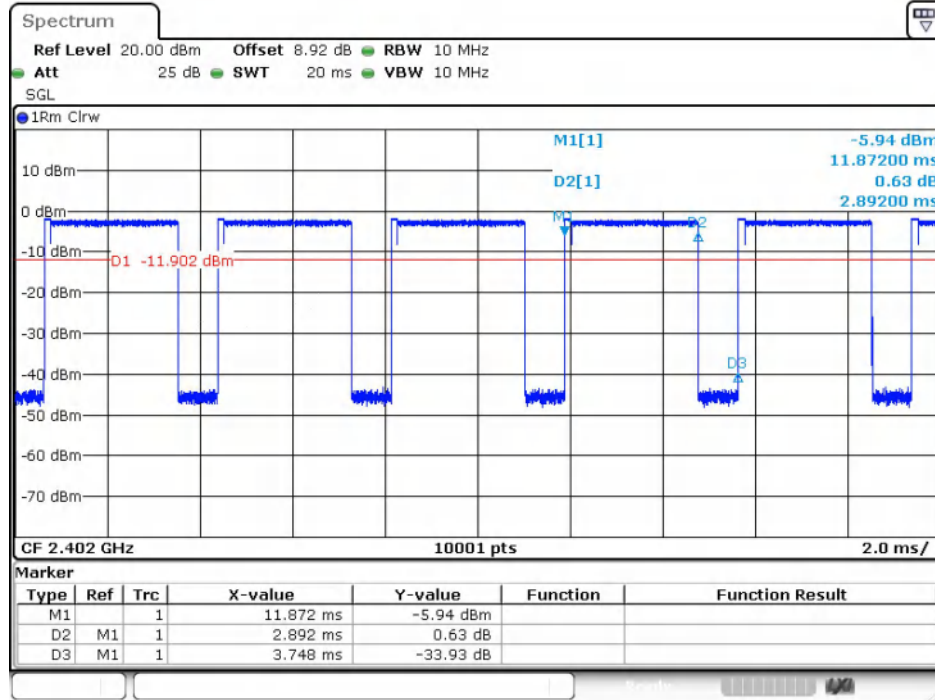
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GFSK(DH5)_Channel 39



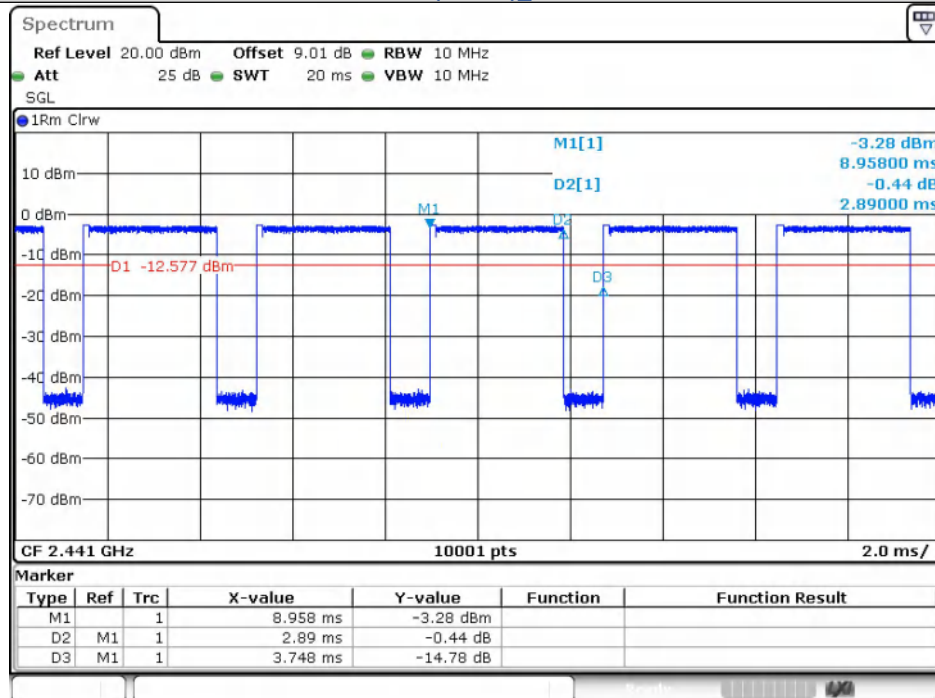
Date: 21.JUN.2024 21:10:18

GFSK(DH5)_Channel 78



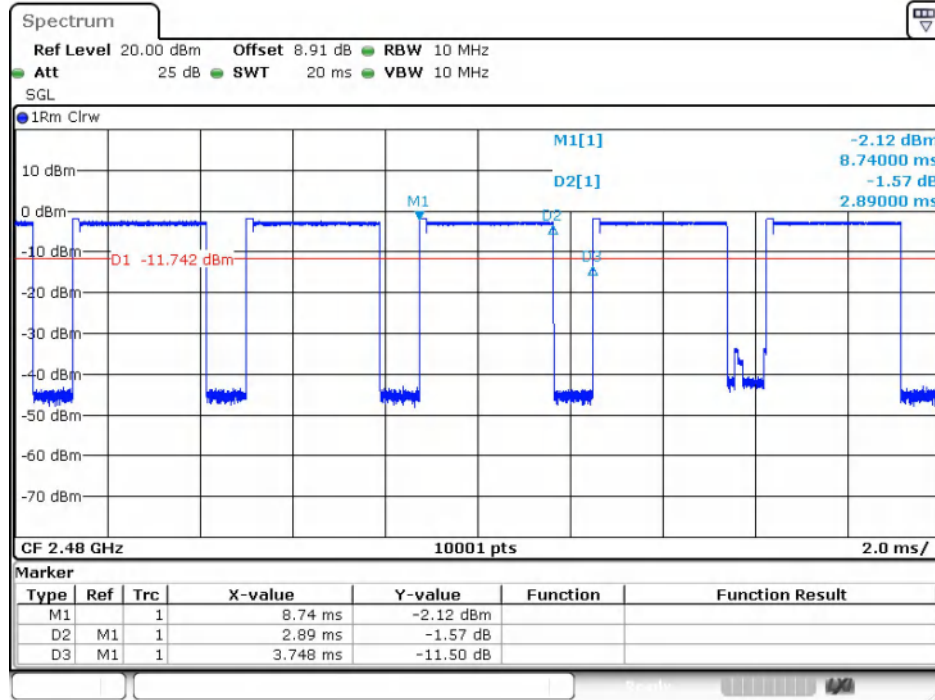
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$\pi/4$ DQPSK(2-DH5)_Channel 0



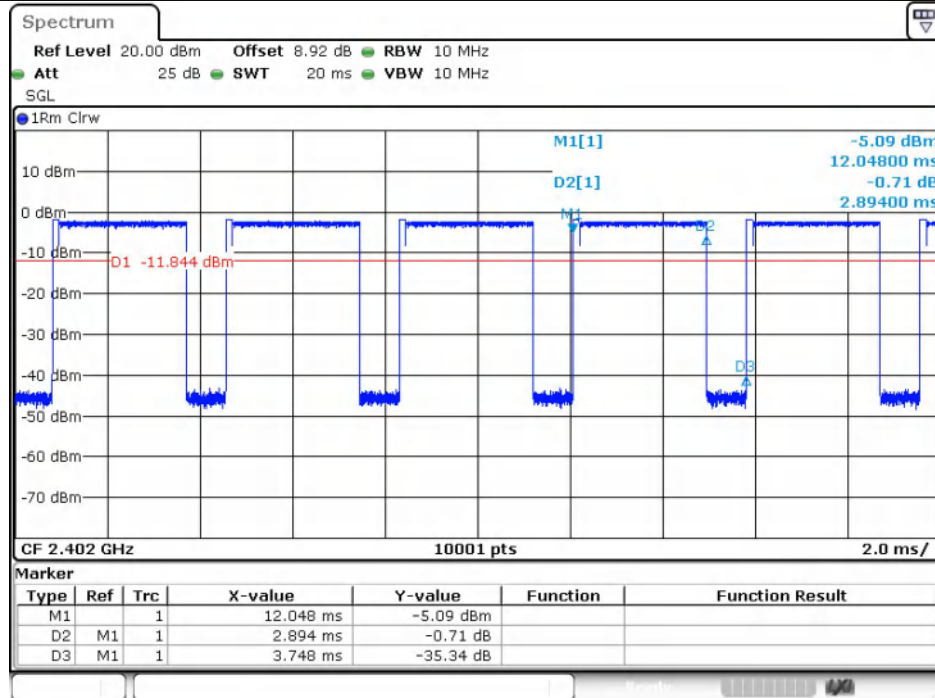
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$\pi/4$ DQPSK(2-DH5)_Channel 39



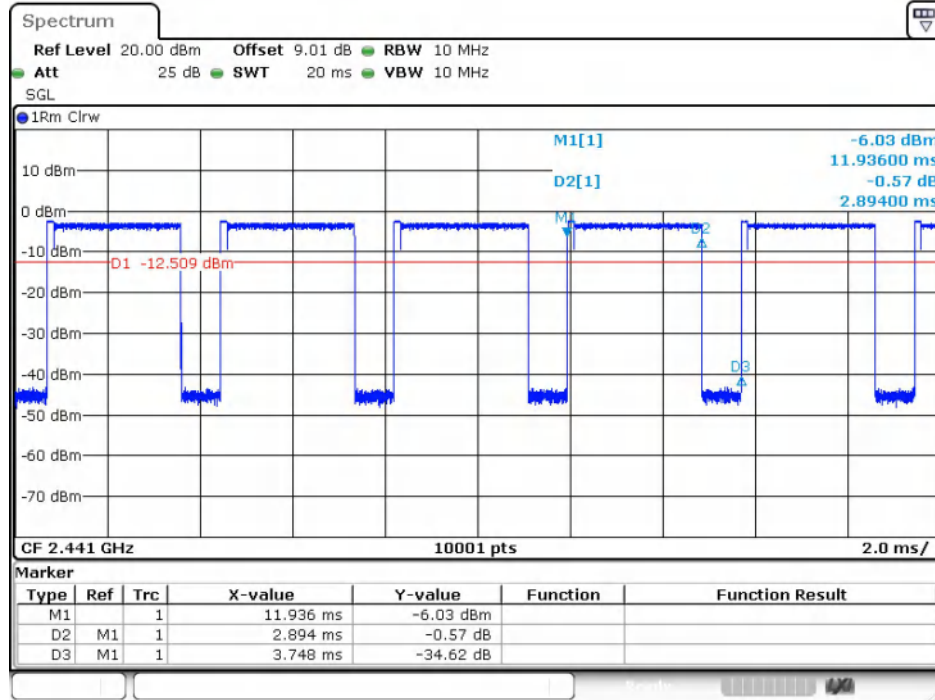
Date: 21.JUN.2024 21:03:51

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



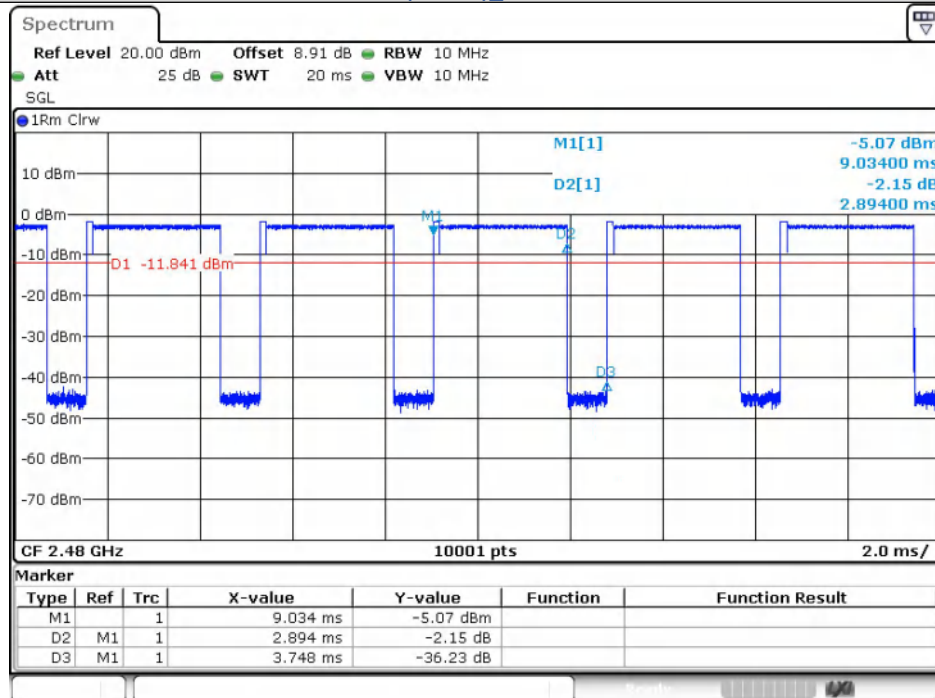
Date: 21.JUN.2024 21:04:35

8DPSK(3-DH5)_Channel 0



Date: 21.JUN.2024 21:05:08

8DPSK(3-DH5)_Channel 39



Date: 21.JUN.2024 21:07:41

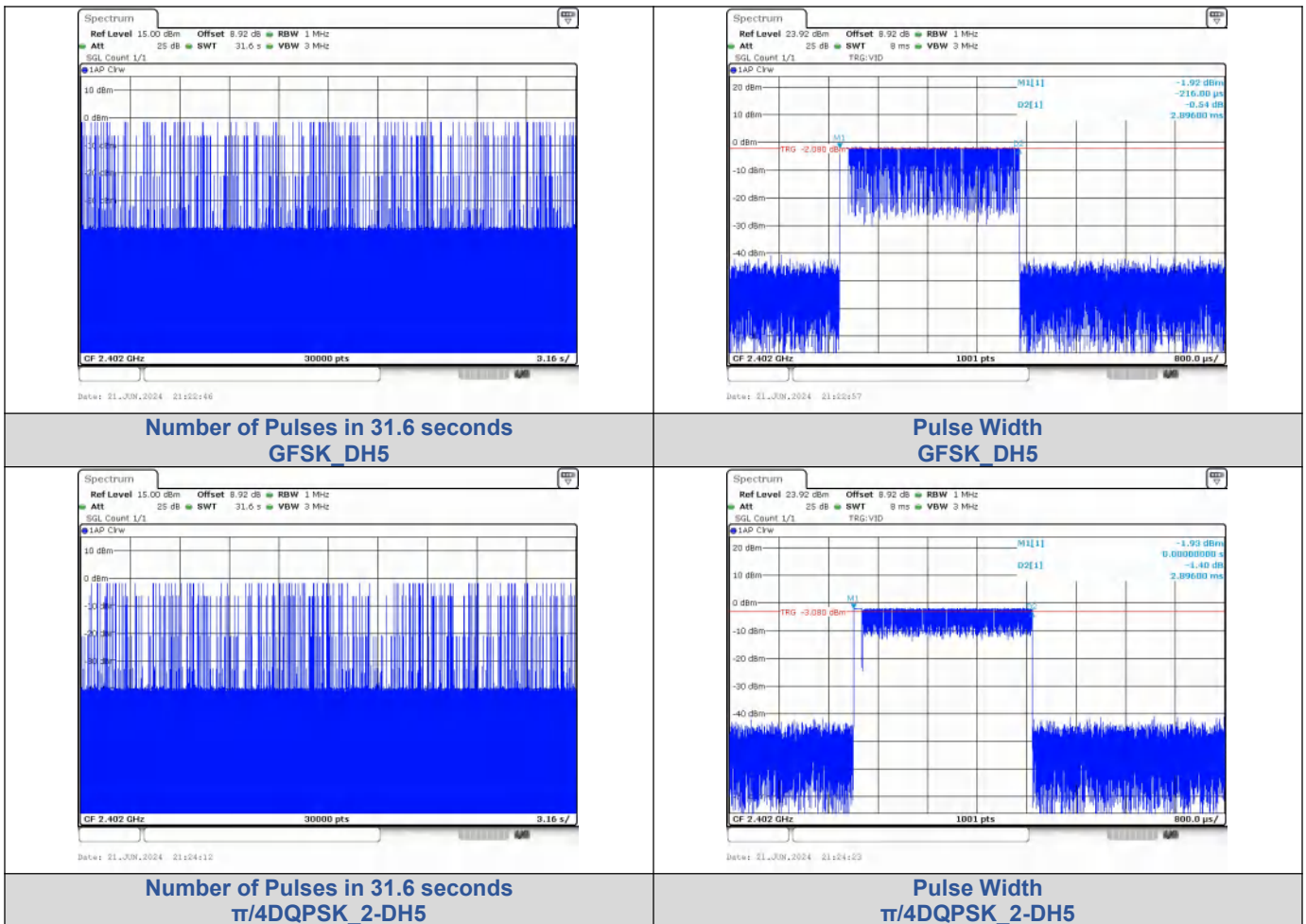
8DPSK(3-DH5)_Channel 78

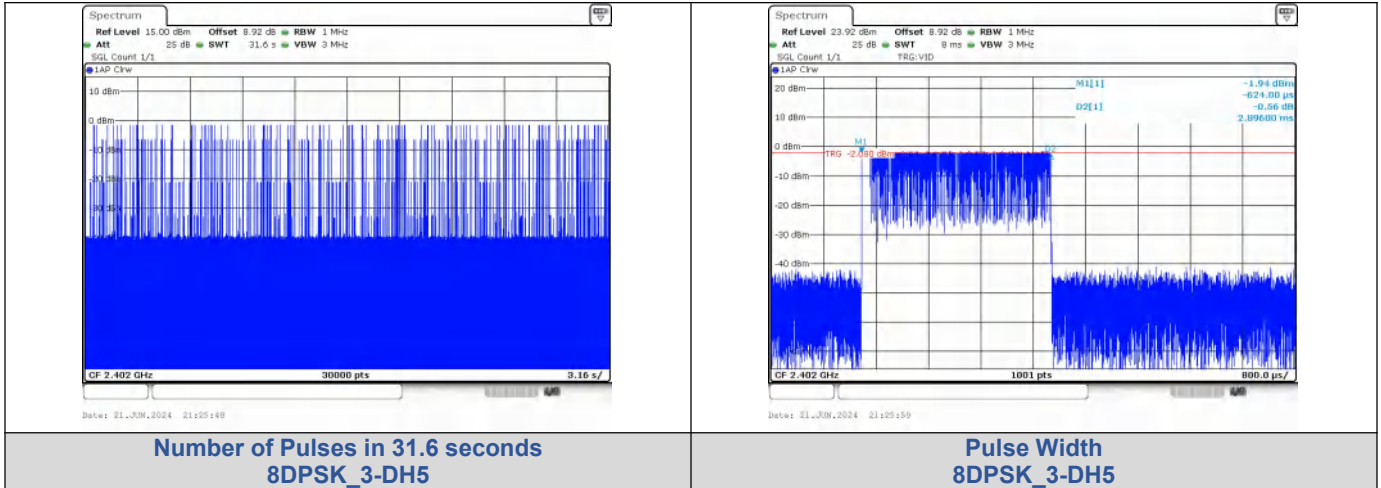
Dwell Time

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)	2.896	110	318.56	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	106	306.98		PASS
8DPSK	3-DH5		2.896	115	333.04		PASS

Test Graphs





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

