

Appendix Report

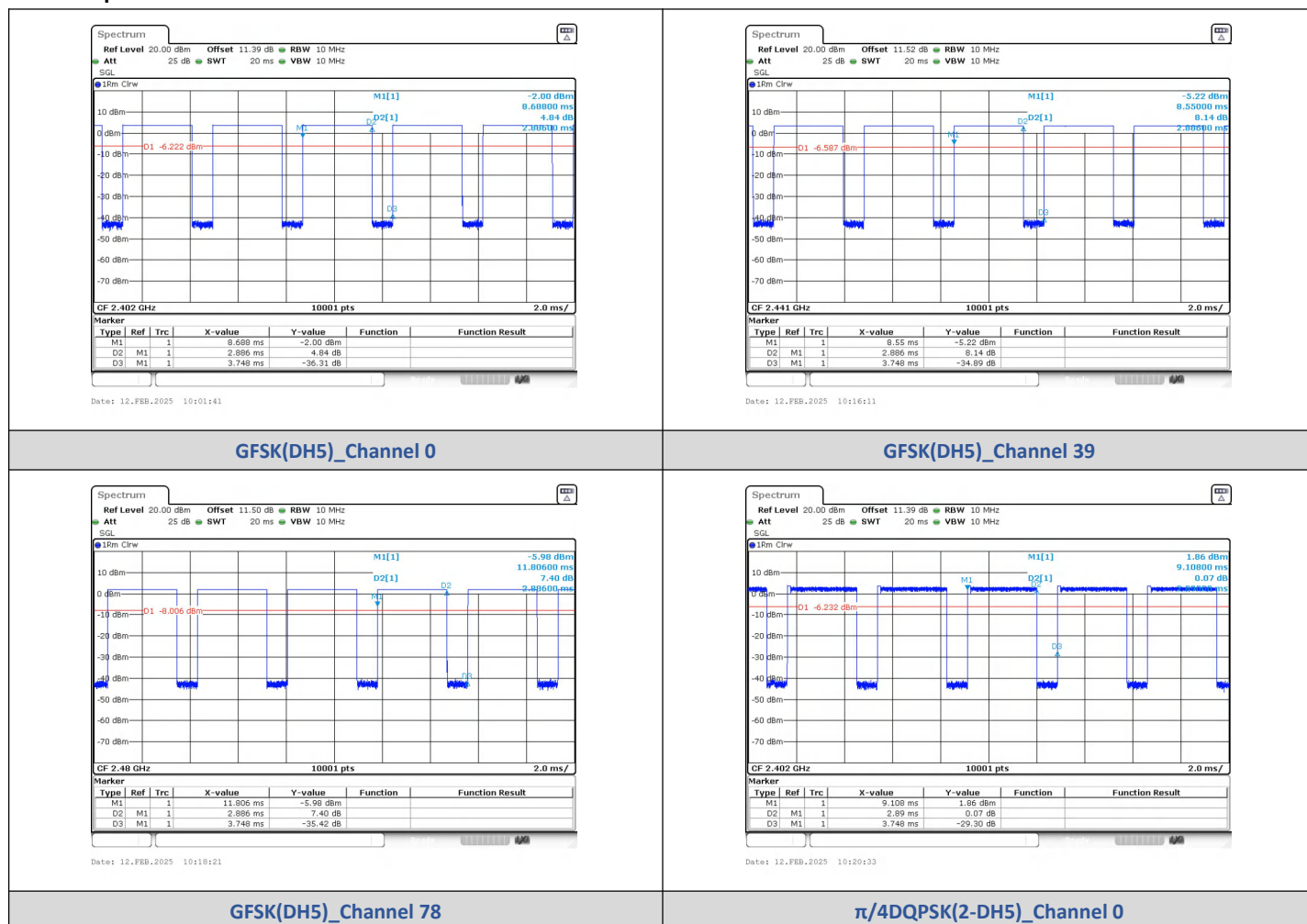
Report No.:	CISRR25021103304
Test Engineer:	Mark Fu
Supervised by:	Rory Huang

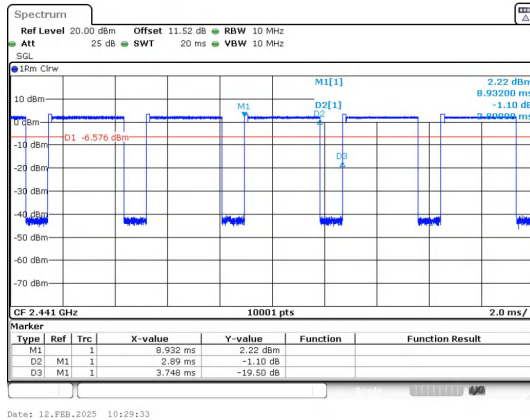
1) Duty Cycle

Test Result

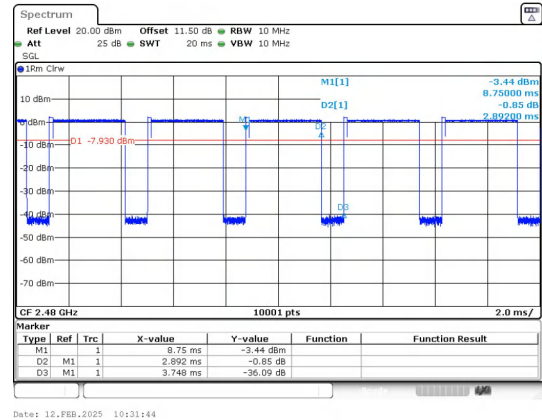
Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.886	3.748	77.00	0.7700	1.1351	0.3465
		39	2.886	3.748	77.00	0.7700	1.1351	0.3465
		78	2.886	3.748	77.00	0.7700	1.1351	0.3465
$\pi/4$ DQPSK	2-DH5	0	2.890	3.748	77.11	0.7711	1.1289	0.3460
		39	2.890	3.748	77.11	0.7711	1.1289	0.3460
		78	2.892	3.748	77.16	0.7716	1.1261	0.3458
8DPSK	3-DH5	0	2.892	3.748	77.16	0.7716	1.1261	0.3458
		39	2.894	3.748	77.21	0.7721	1.1233	0.3455
		78	2.894	3.748	77.21	0.7721	1.1233	0.3455

Test Graphs

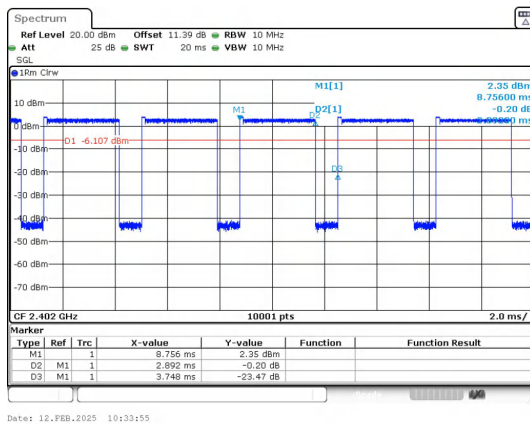




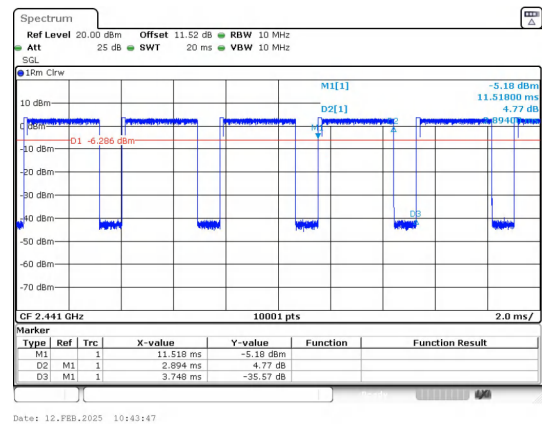
$\pi/4$ DQPSK(2-DH5)_Channel 39



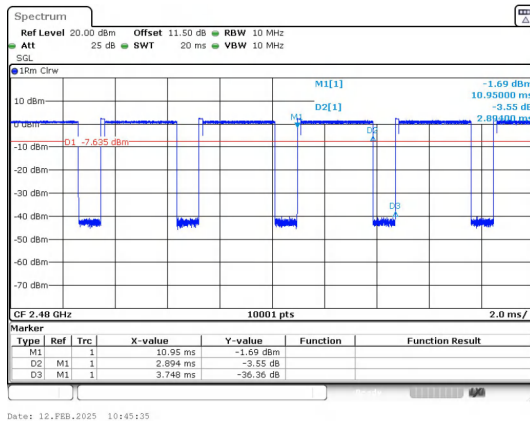
$\pi/4$ DQPSK(2-DH5)_Channel 78



8DPSK(3-DH5)_Channel 39



8DPSK(3-DH5)_Channel 78



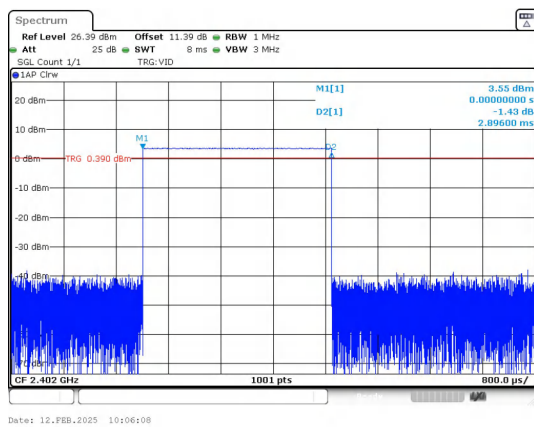
8DPSK(3-DH5)_Channel 78

2) Dwell Time

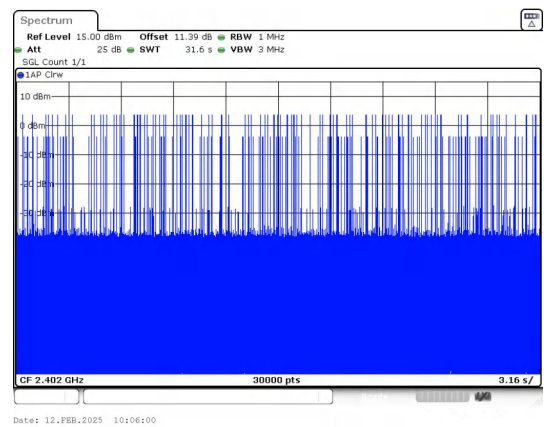
Test Result

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	105	304.08	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	116	335.94		PASS
8DPSK	3-DH5		2.896	96	278.02		PASS

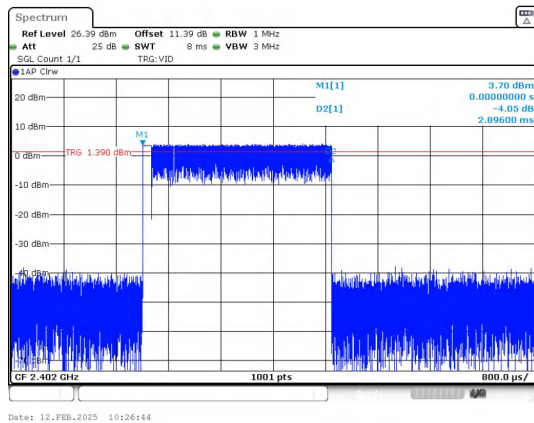
Test Graphs



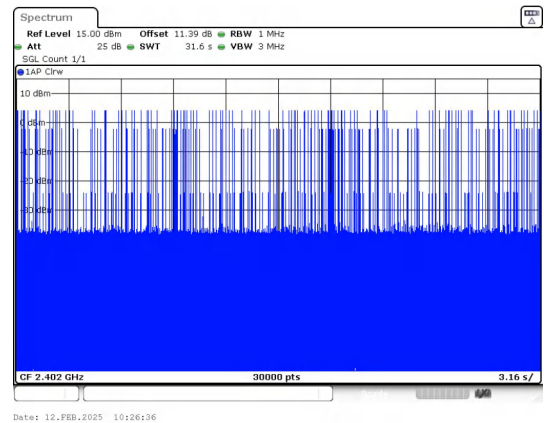
Pulse Width
GFSK_DH5



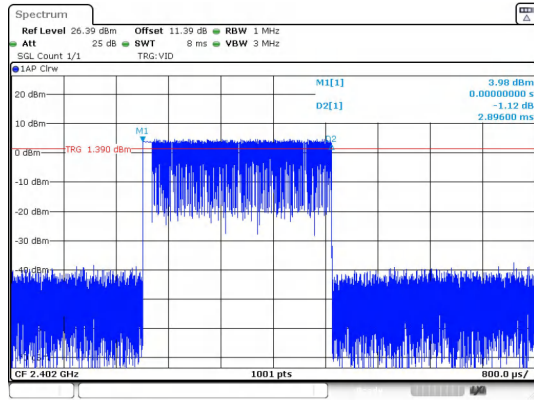
Number of Pulses in 31.6 seconds
GFSK_DH5



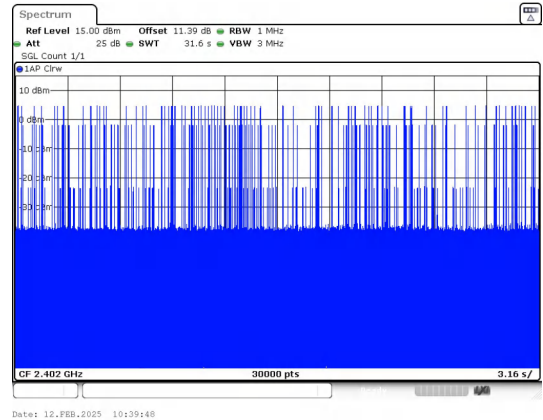
Pulse Width
 $\pi/4$ DQPSK_2-DH5



Number of Pulses in 31.6 seconds
 $\pi/4$ DQPSK_2-DH5



Pulse Width
8DPSK_3-DH5



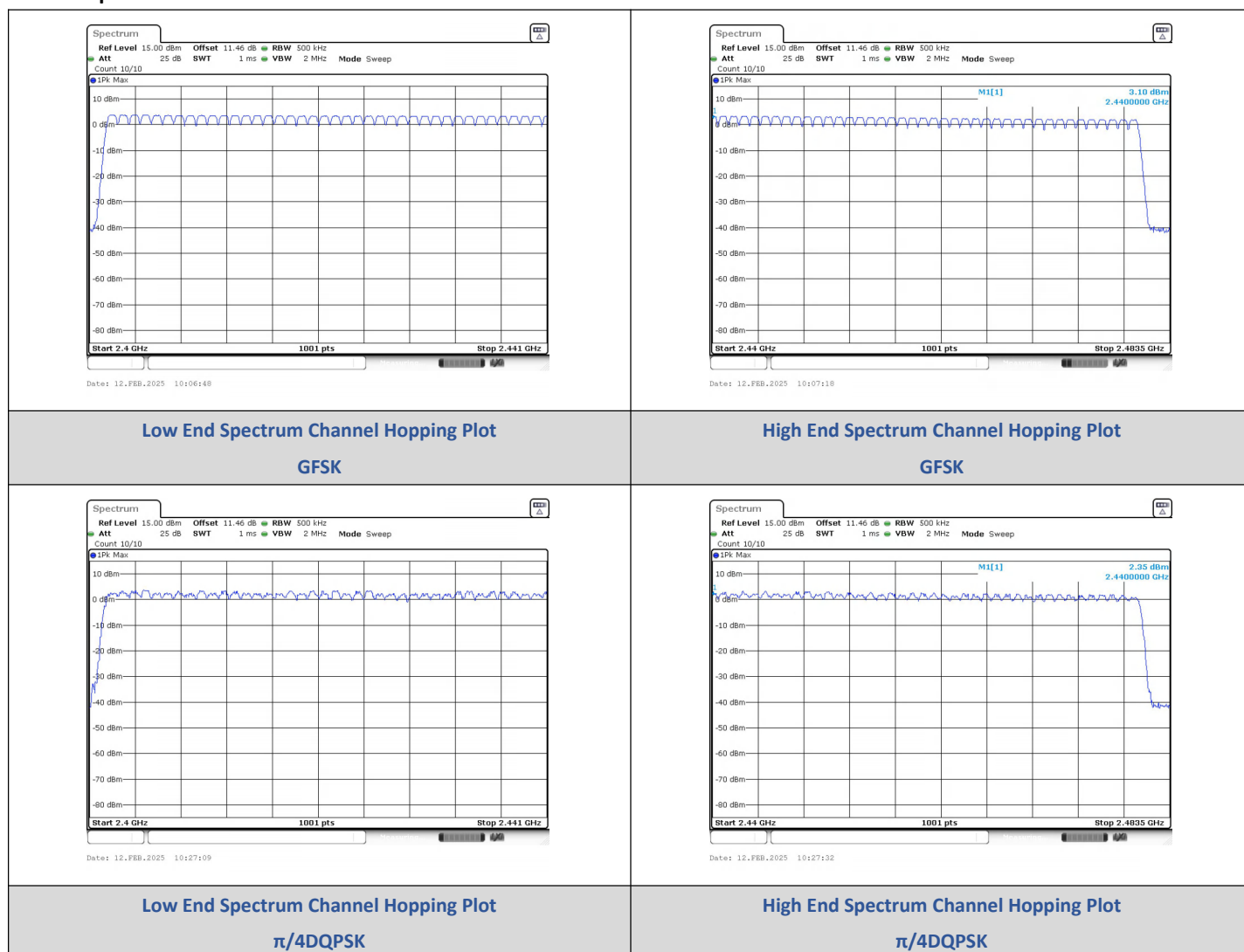
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

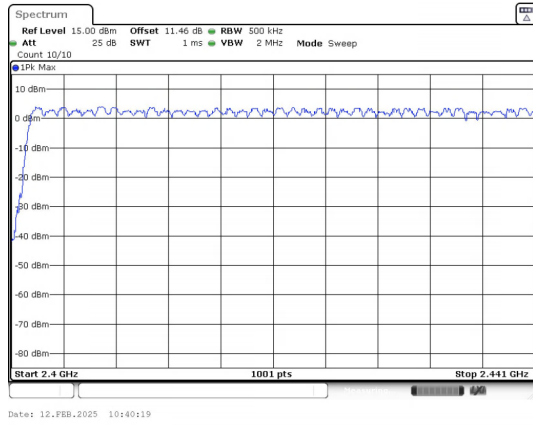
3) Number Of Hopping Channel

Test Result

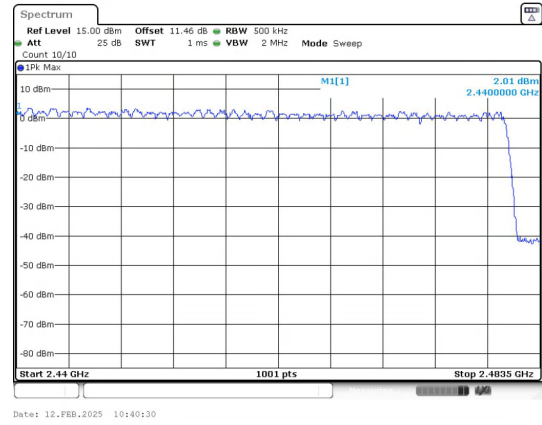
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





Low End Spectrum Channel Hopping Plot
8DPSK



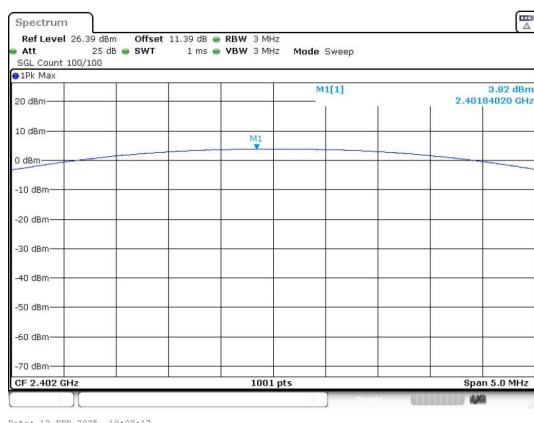
High End Spectrum Channel Hopping Plot
8DPSK

4) Conducted Output Power

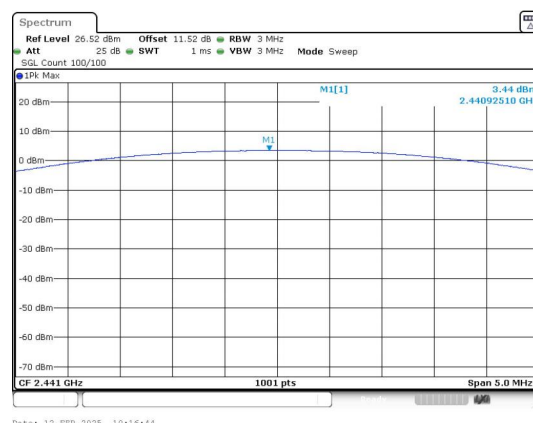
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	3.82	2.41	≤30	PASS
		39	3.44	2.21		PASS
		78	2.02	1.59		PASS
$\pi/4$ DQPSK	2-DH5	0	4.59	2.88	≤20.97	PASS
		39	4.31	2.70		PASS
		78	2.95	1.97		PASS
8DPSK	3-DH5	0	5.03	3.18		PASS
		39	4.93	3.11		PASS
		78	3.59	2.29		PASS

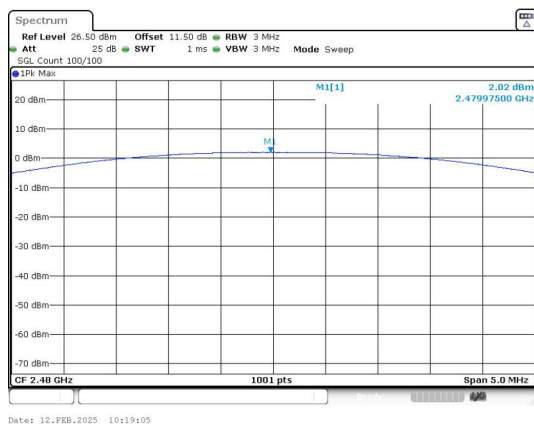
Test Graphs



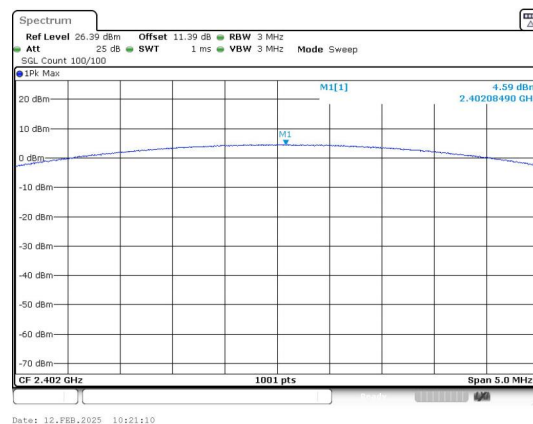
Peak Output Power
GFSK_Channel 0



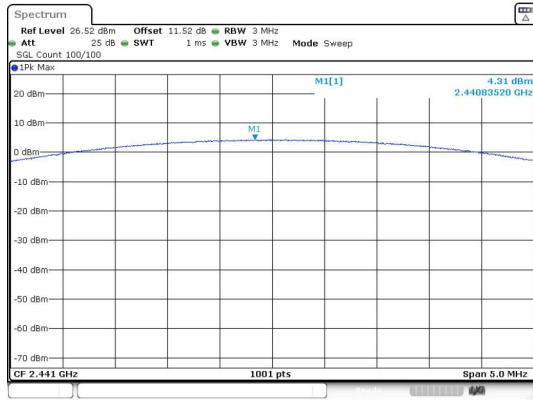
Peak Output Power
GFSK_Channel 39



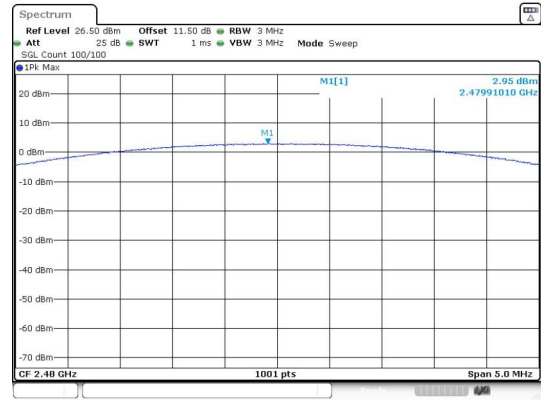
Peak Output Power
GFSK_Channel 78



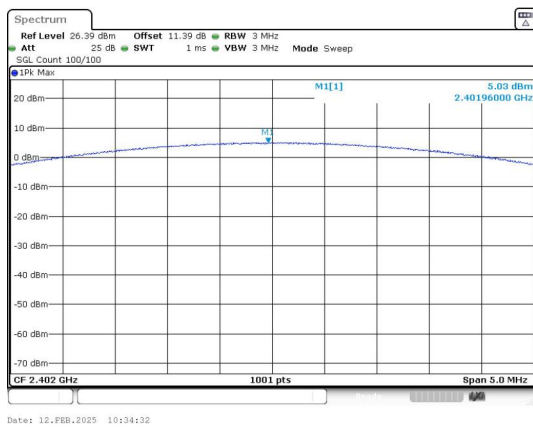
Peak Output Power
 $\pi/4$ DQPSK_Channel 0



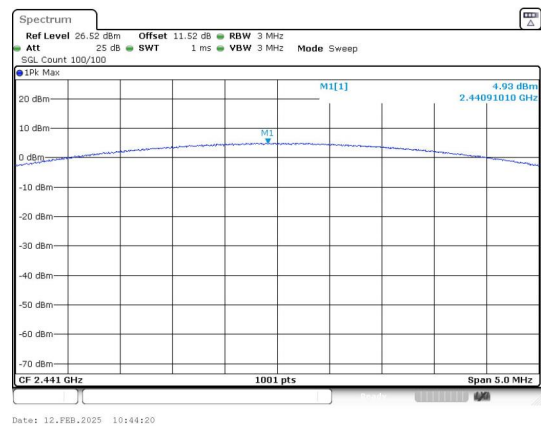
Peak Output Power
 $\pi/4$ DQPSK_Channel 39



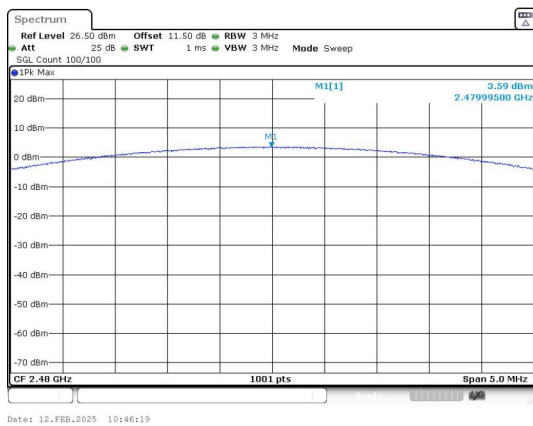
Peak Output Power
 $\pi/4$ DQPSK_Channel 78



Peak Output Power
8DPSK_Channel 0



Peak Output Power
8DPSK_Channel 39



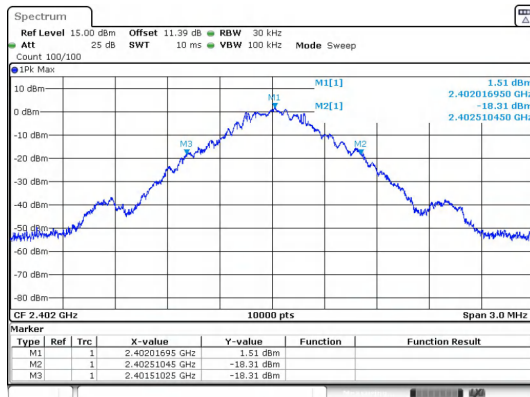
Peak Output Power
8DPSK_Channel 78

5) 20dB Bandwidth

Test Result

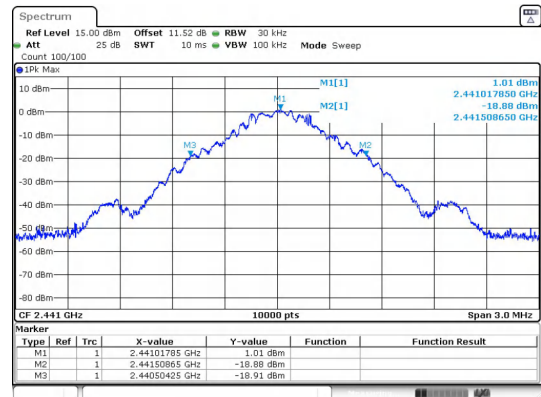
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.000
	39	2441 MHz	1.010
	78	2480 MHz	1.020
$\pi/4$ DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.310
	78	2480 MHz	1.280
8DPSK	0	2402 MHz	1.290
	39	2441 MHz	1.290
	78	2480 MHz	1.290

Test Graphs



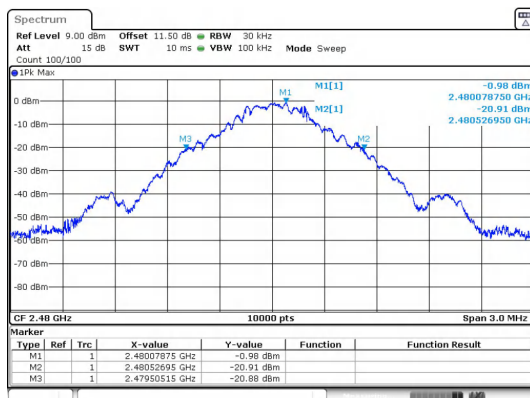
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GFSK_DH5_Channel 0



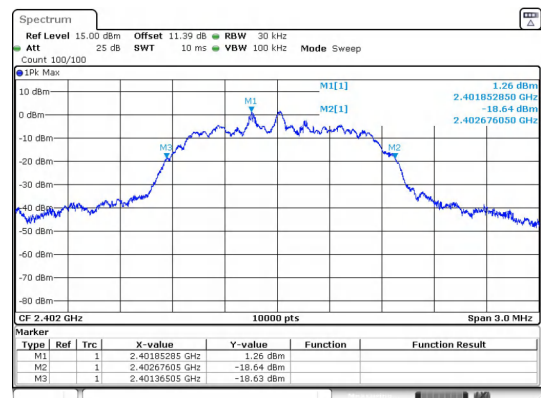
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GFSK_DH5_Channel 39



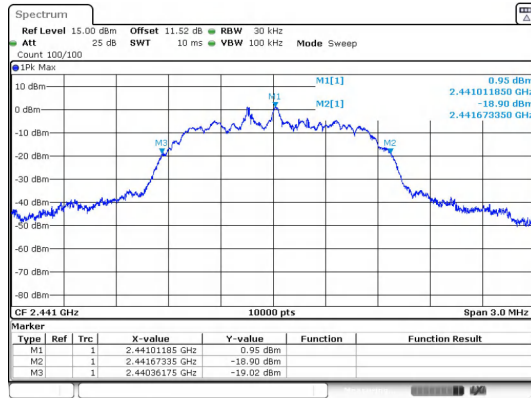
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GFSK_DH5_Channel 78

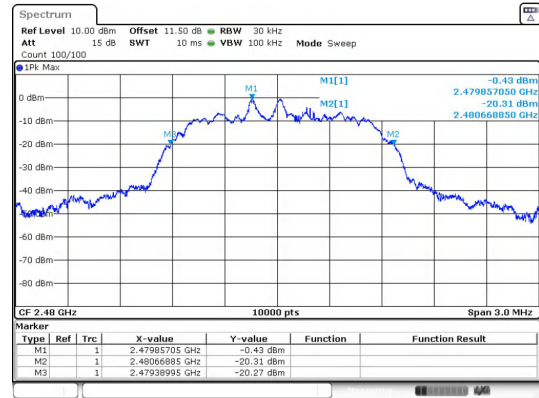


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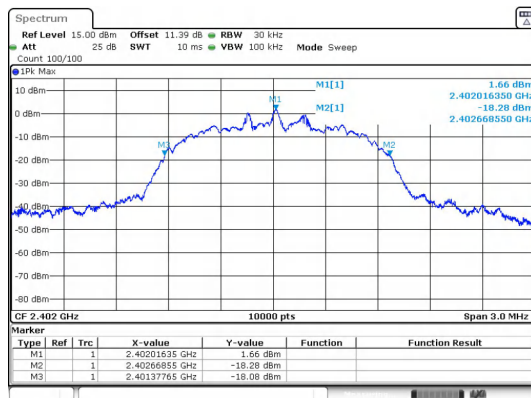
 $\pi/4$ DQPSK_2-DH5_Channel 0



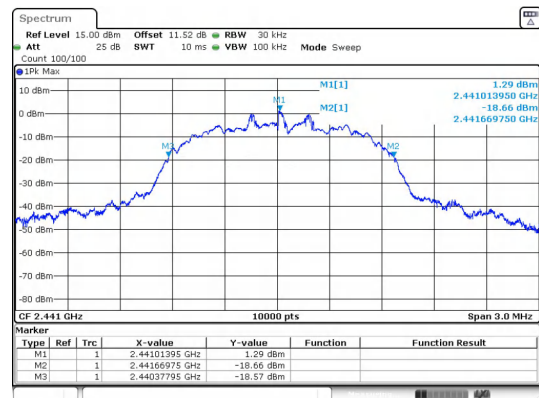
$\pi/4$ DQPSK_2-DH5_Channel 39



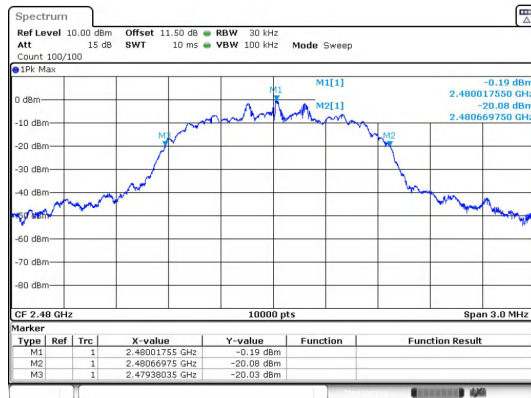
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



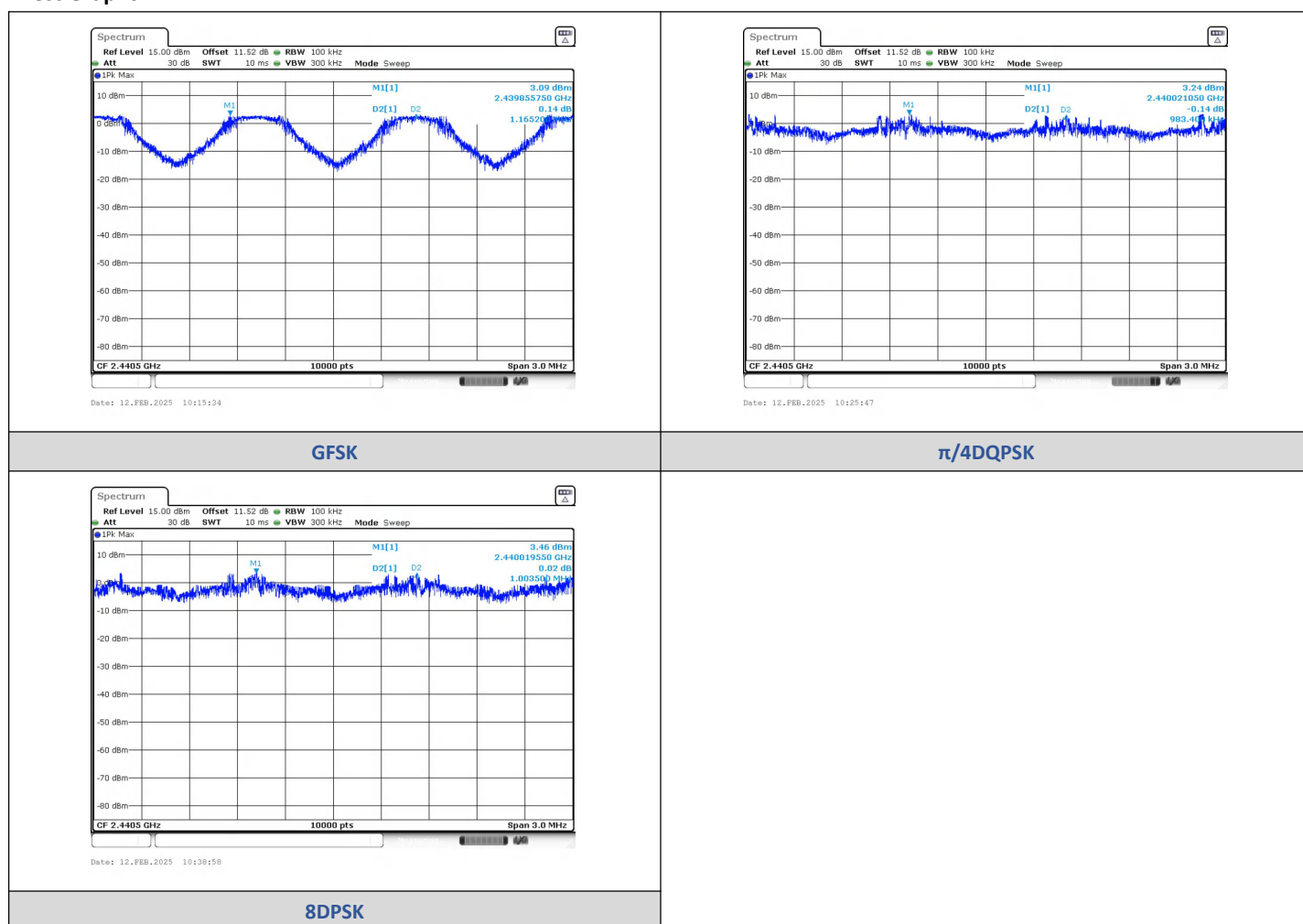
8DPSK_3-DH5_Channel 78

6) Carrier Frequencies Separation

Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.8558	2441.021	1.1652	1.0	PASS
$\pi/4$ DQPSK	2-DH5	2440.021	2441.0044	0.9834	0.873	PASS
8DPSK	3-DH5	2440.0195	2441.023	1.0035	0.86	PASS

Test Graphs



7) Conducted Out Of Band Emission

Test Result

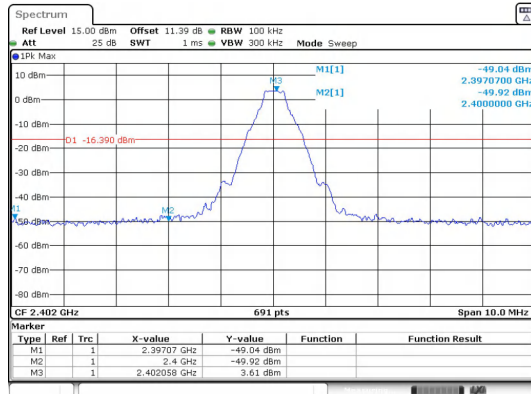
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2397.07	-49.039	-16.39	-32.649	PASS
			2400.00	-49.920	-16.39	-33.530	PASS
			4803.80	-42.885	-16.39	-26.495	PASS
		39	9763.72	-42.655	-16.9	-25.755	PASS
		78	2483.50	-49.940	-18.14	-31.800	PASS
			9920.20	-39.713	-18.14	-21.573	PASS
$\pi/4$ DQPSK	2-DH5	0	2397.07	-48.266	-16.45	-31.816	PASS
			2400.00	-48.550	-16.45	-32.100	PASS
			9608.10	-44.243	-16.45	-27.793	PASS
		39	9763.72	-41.941	-16.72	-25.221	PASS
		78	2483.50	-49.390	-18.13	-31.260	PASS
			9920.20	-39.480	-18.13	-21.350	PASS
8DPSK	3-DH5	0	2400.00	-45.730	-16.18	-29.550	PASS
			9608.08	-43.719	-16.18	-27.539	PASS
		39	9763.72	-41.892	-16.38	-25.512	PASS
		78	2483.50	-49.890	-17.77	-32.120	PASS
			9920.20	-38.934	-17.77	-21.164	PASS

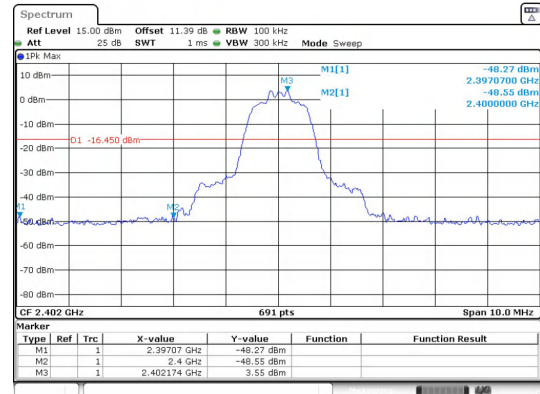
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2398.26	-47.594	-16.48	-31.114	PASS
			2400.00	-49.720	-16.48	-33.240	PASS
			2483.50	-49.600	-18.1	-31.500	PASS
$\pi/4$ DQPSK	2-DH5		2398.10	-48.699	-16.54	-32.159	PASS
			2400.00	-48.920	-16.54	-32.380	PASS
			2483.50	-50.080	-20.77	-29.310	PASS
8DPSK	3-DH5		2395.31	-47.626	-16.12	-31.506	PASS
			2400.00	-50.060	-16.12	-33.940	PASS
			2483.50	-49.120	-19.95	-29.170	PASS

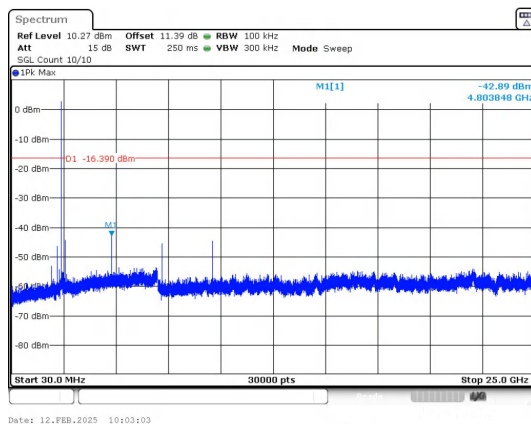
Test Graphs



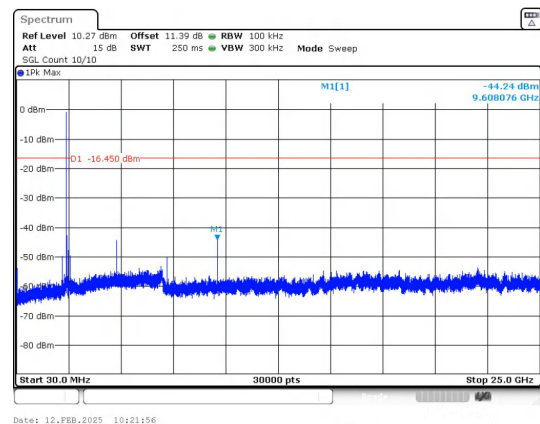
Out Of Band Emission
GFSK_DH5_Channel 0



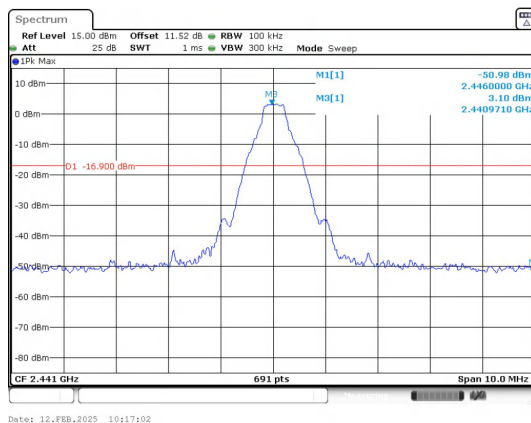
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0



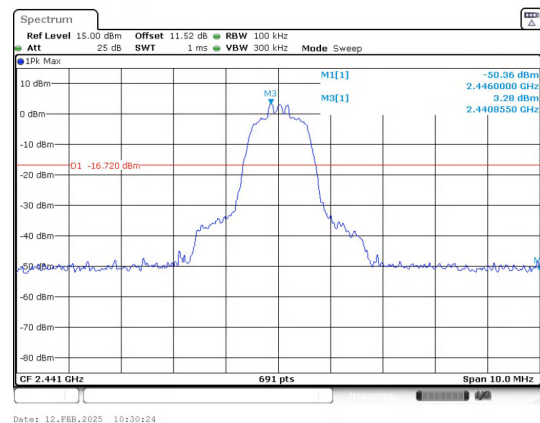
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



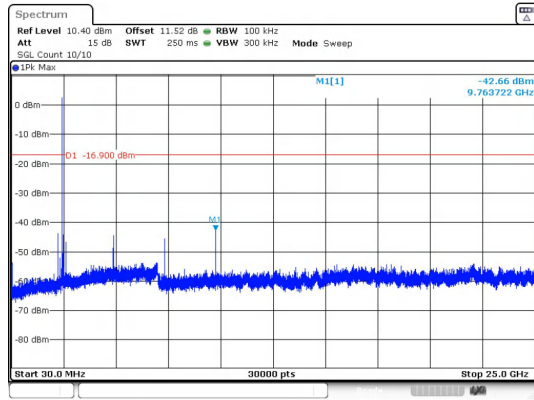
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 0



Out Of Band Emission
GFSK_DH5_Channel 39

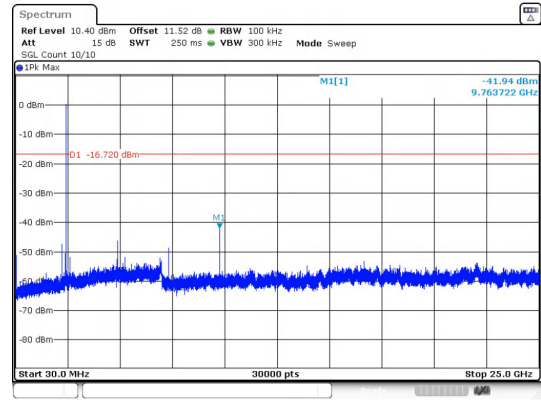


Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 39



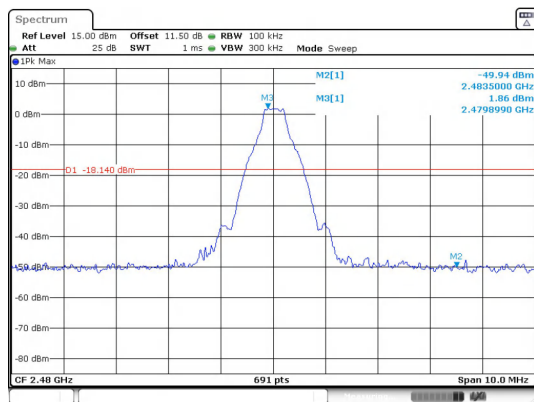
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30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



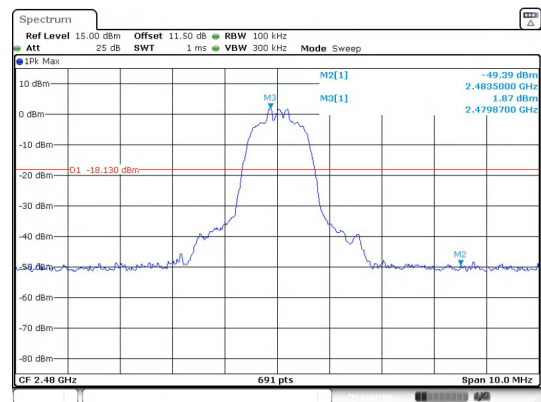
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30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 39



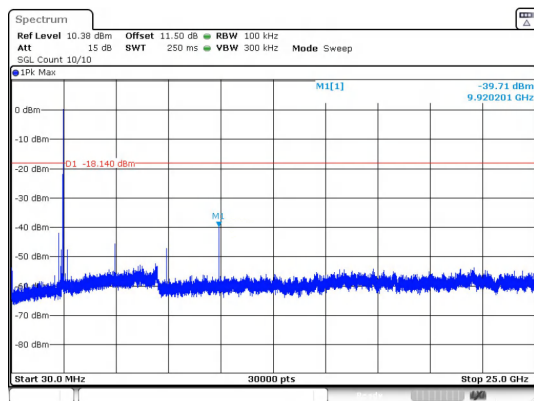
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Out Of Band Emission
GFSK_DH5_Channel 78



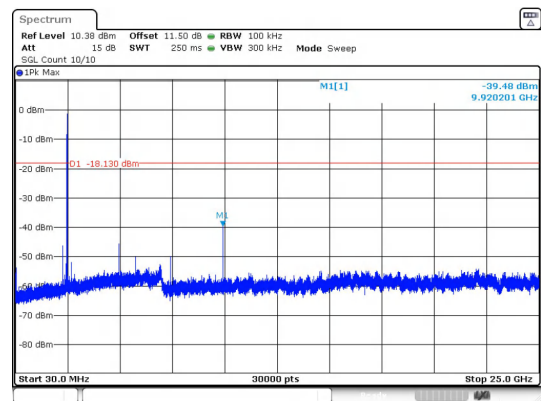
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Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78



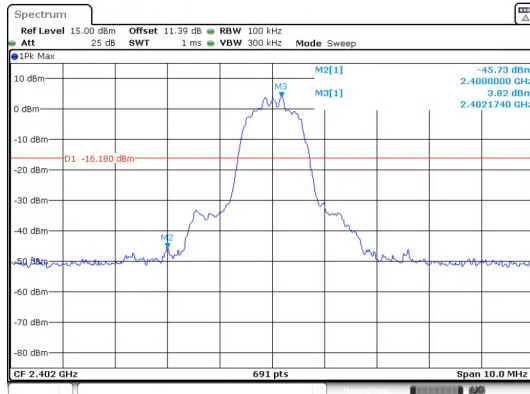
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30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



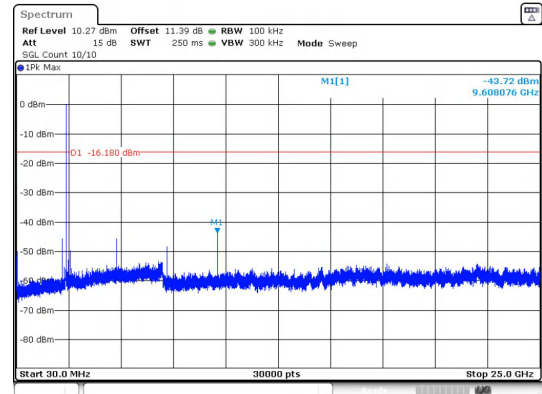
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30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 78



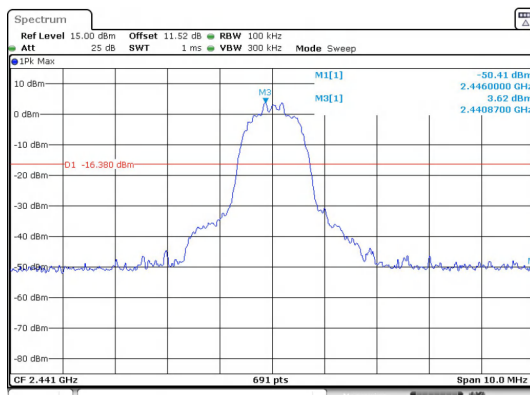
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Out Of Band Emission
8DPSK_3-DH5_Channel 0



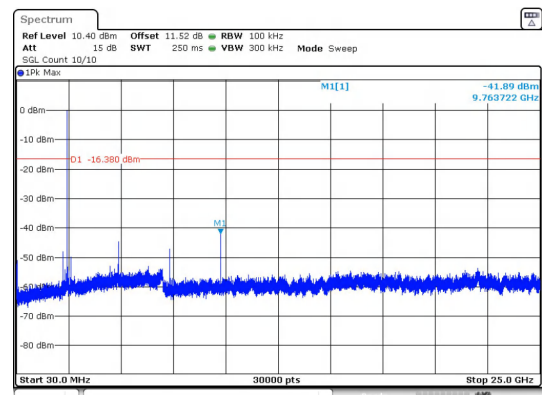
Date: 12.FEB.2025 10:35:17

30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0



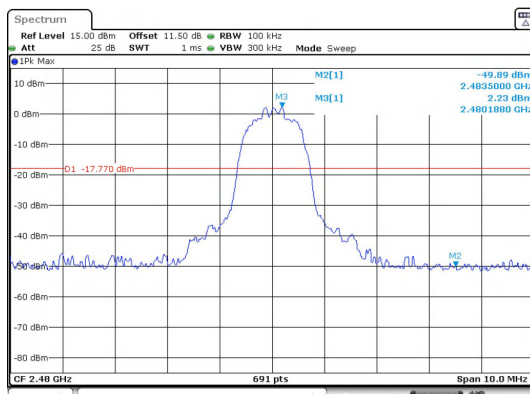
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Out Of Band Emission
8DPSK_3-DH5_Channel 39



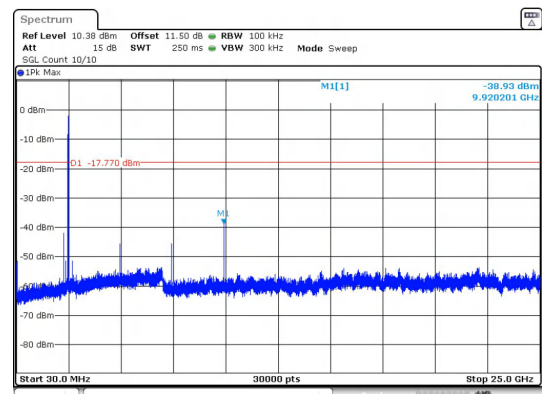
Date: 12.FEB.2025 10:45:00

30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



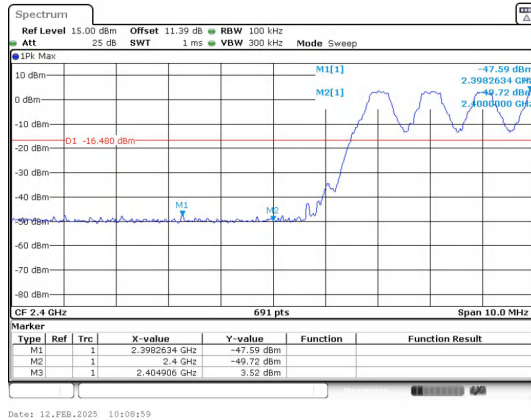
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Out Of Band Emission
8DPSK_3-DH5_Channel 78

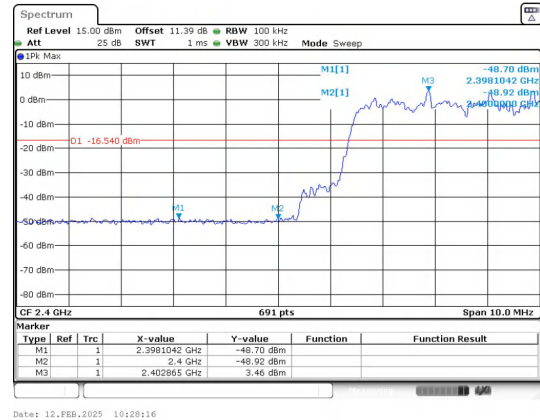


Date: 12.FEB.2025 10:47:04

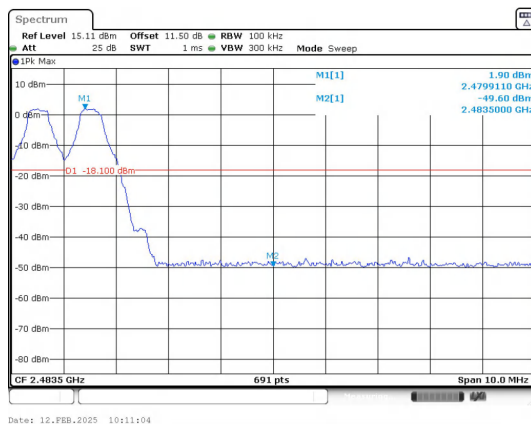
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



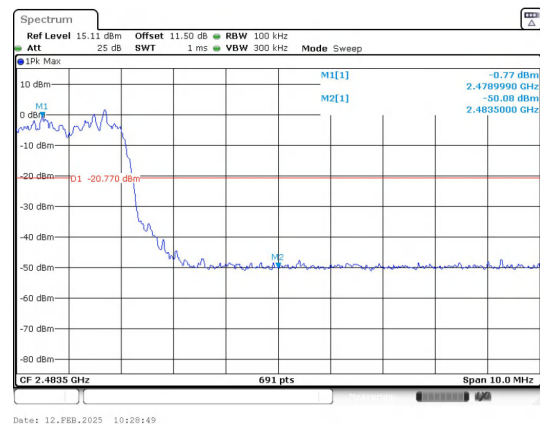
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



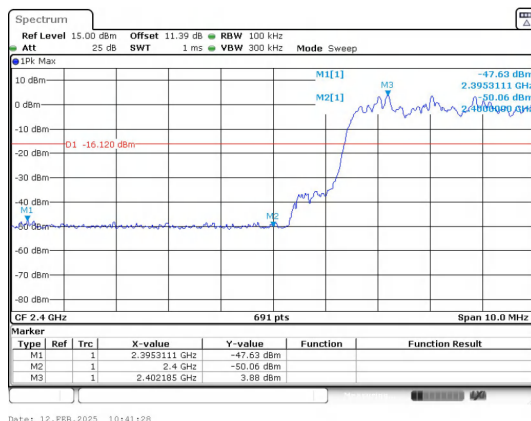
Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping



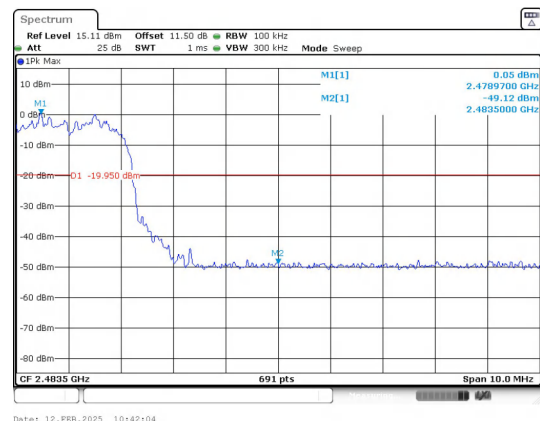
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



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

-----End of the report-----