

Appendix Report

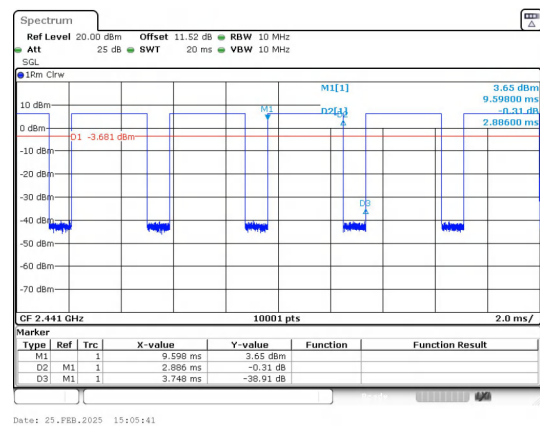
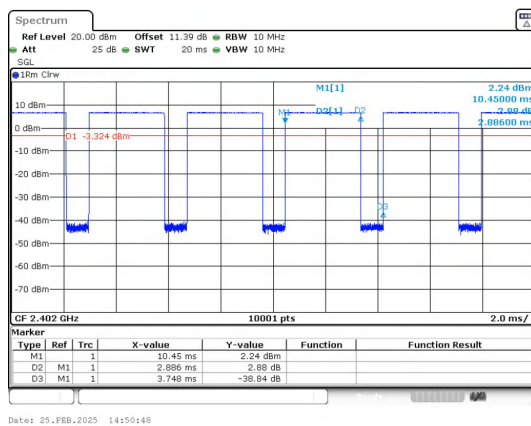
Report No.:	CISRR250220079
Test Engineer:	Mark Fu
Supervised by:	Rory Huang

1) Duty Cycle

Test Result

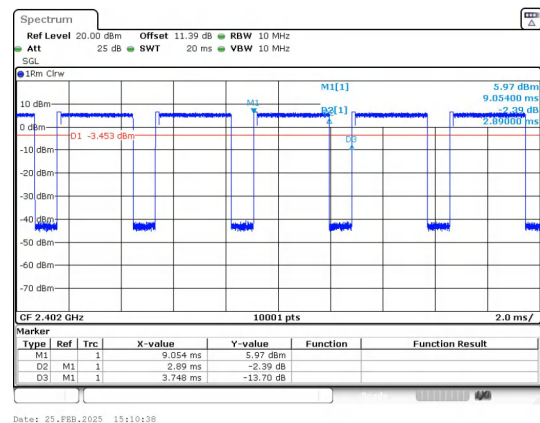
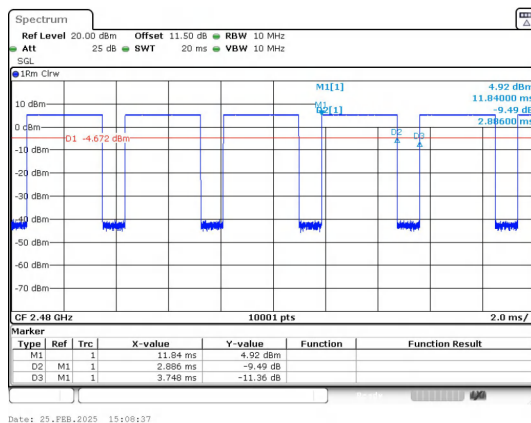
Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.886	3.748	77.00	0.7700	1.1351	0.3465
		39	2.886	3.748	77.00	0.7700	1.1351	0.3465
		78	2.886	3.748	77.00	0.7700	1.1351	0.3465
$\pi/4$ DQPSK	2-DH5	0	2.890	3.748	77.11	0.7711	1.1289	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



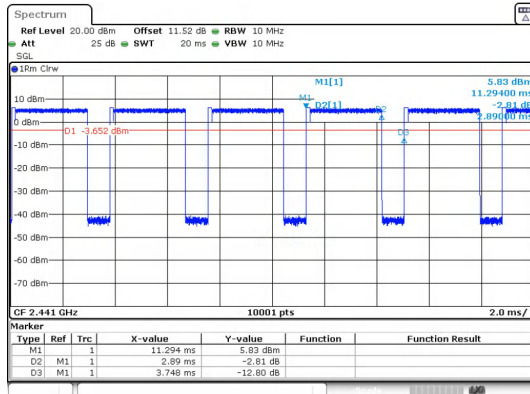
GFSK(DH5)_Channel 0

GFSK(DH5)_Channel 39

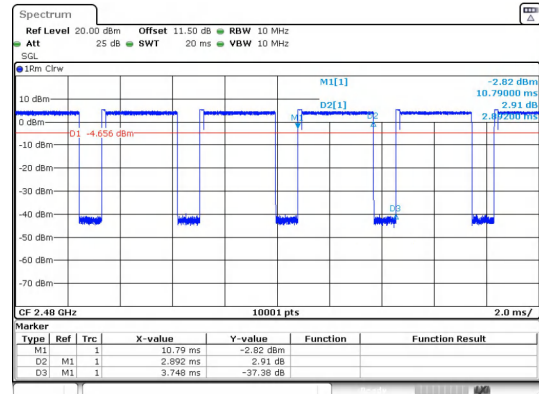


GFSK(DH5)_Channel 78

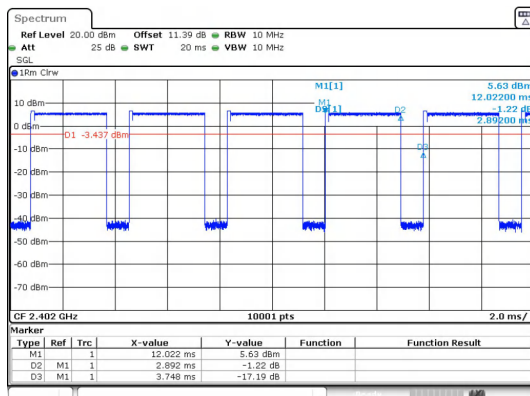
 $\pi/4$ DQPSK(2-DH5)_Channel 0



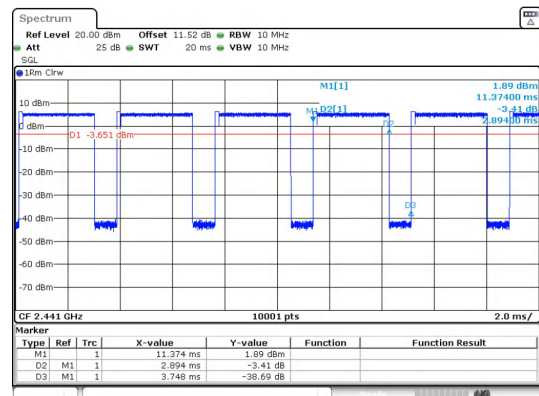
$\pi/4$ DQPSK(2-DH5)_Channel 39



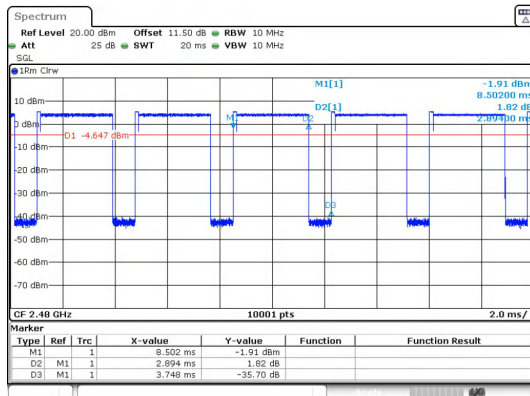
$\pi/4$ DQPSK(2-DH5)_Channel 78



8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39



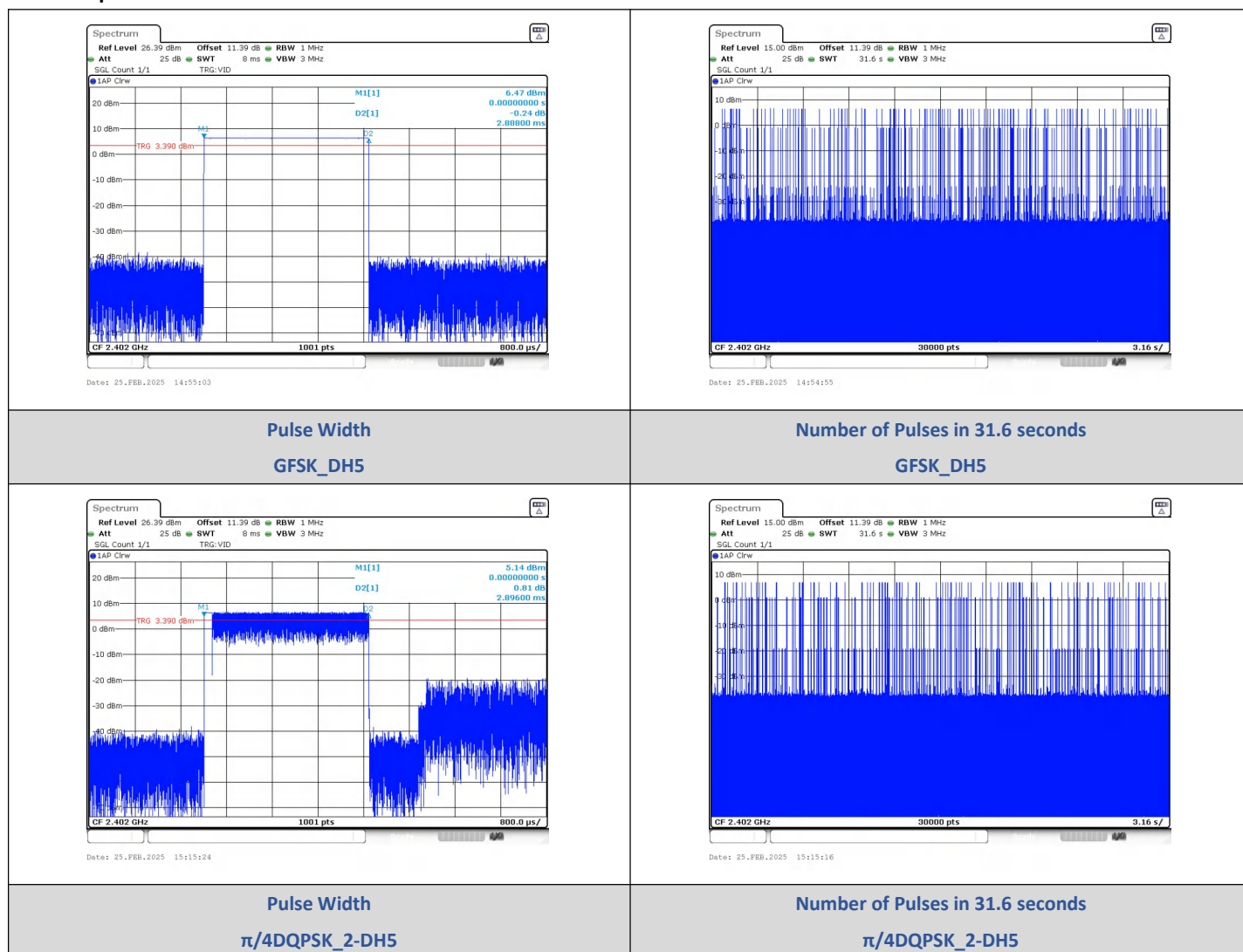
8DPSK(3-DH5)_Channel 78

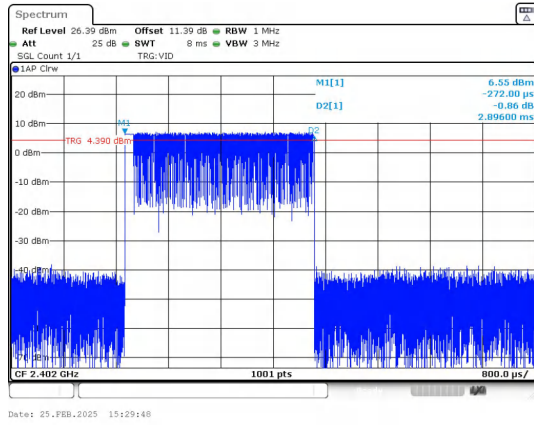
2) Dwell Time

Test Result

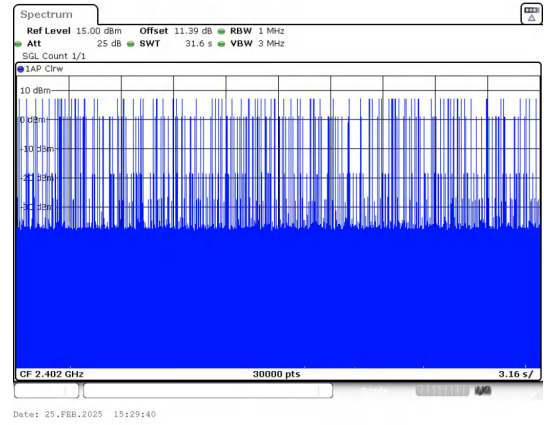
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.888	115	332.12	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	99	286.7		PASS
8DPSK	3-DH5		2.896	98	283.81		PASS

Test Graphs





Pulse Width
8DPSK_3-DH5



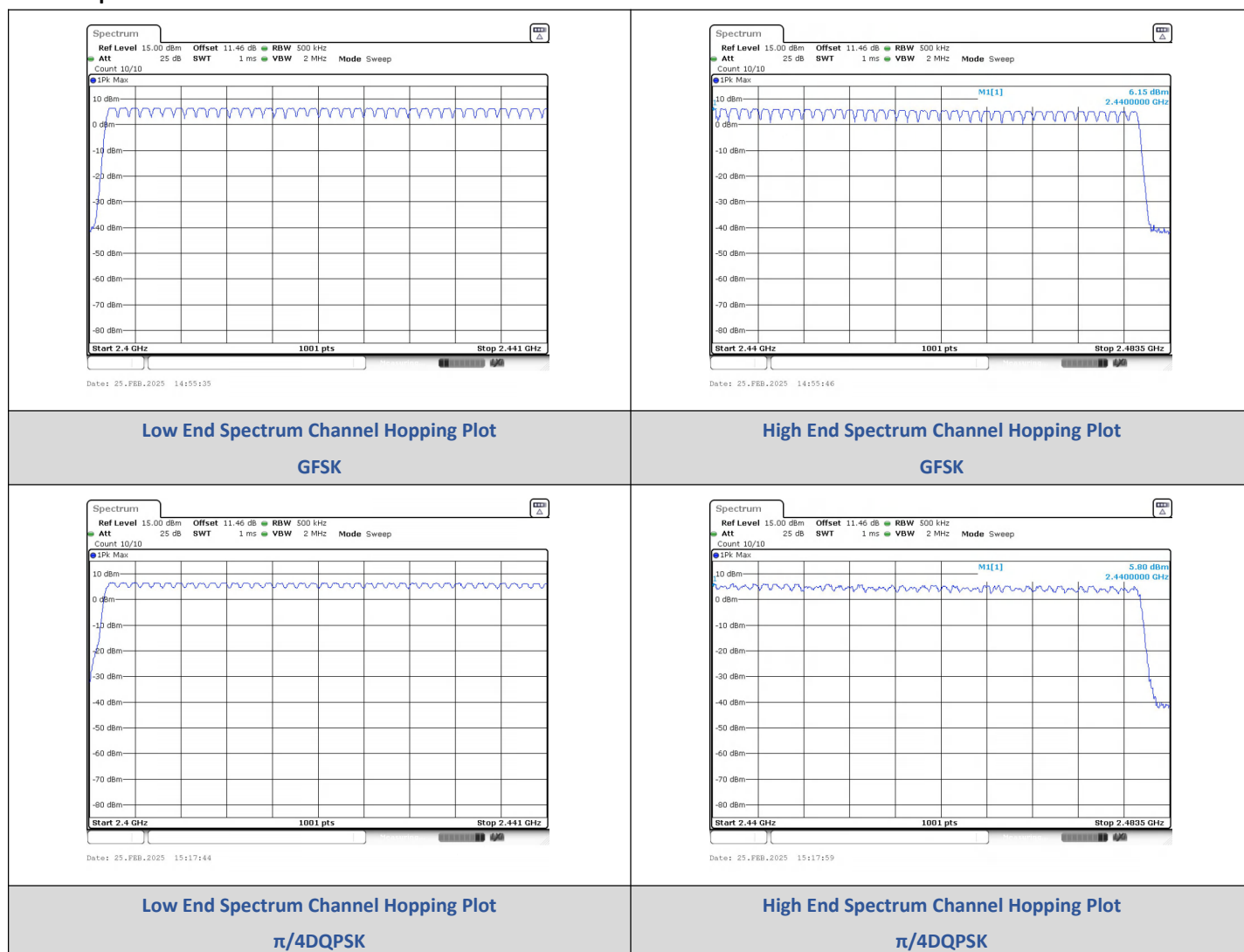
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

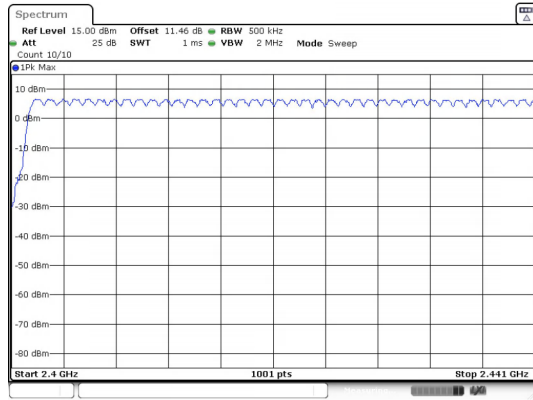
3) Number Of Hopping Channel

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

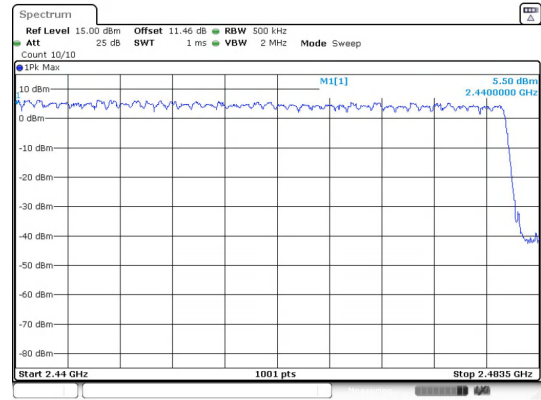
Test Graphs





Date: 25.FEB.2025 15:30:41

Low End Spectrum Channel Hopping Plot
8DPSK



Date: 25.FEB.2025 15:30:53

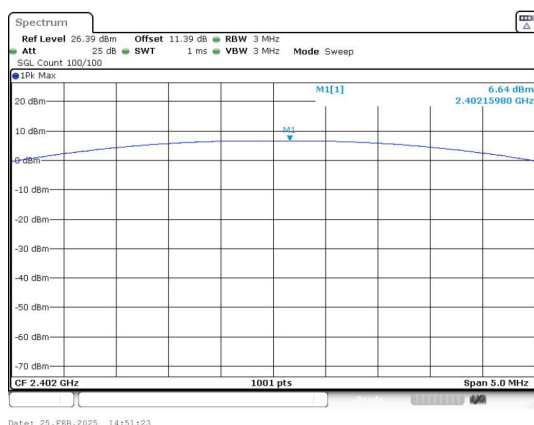
High End Spectrum Channel Hopping Plot
8DPSK

4) Conducted Output Power

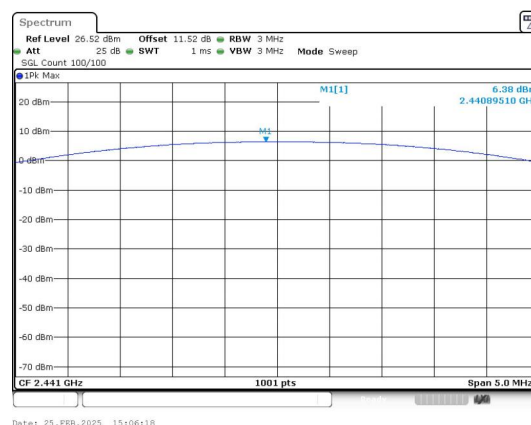
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	6.64	4.61	≤30	PASS
		39	6.38	4.35		PASS
		78	5.38	3.45		PASS
$\pi/4$ DQPSK	2-DH5	0	7.17	5.21	≤20.97	PASS
		39	7.09	5.12		PASS
		78	6.08	4.06		PASS
8DPSK	3-DH5	0	7.41	5.51		PASS
		39	7.26	5.32		PASS
		78	6.32	4.29		PASS

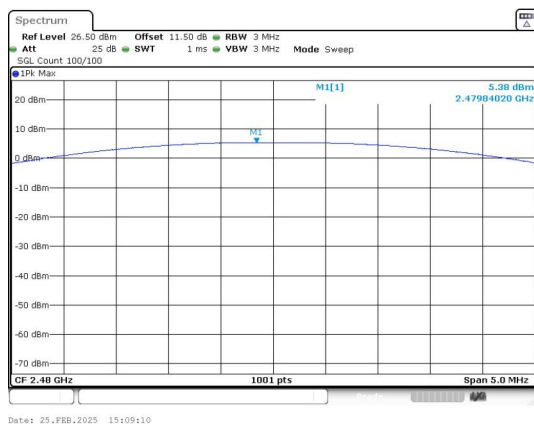
Test Graphs



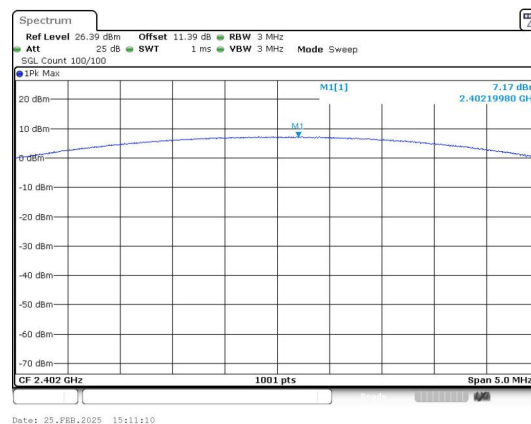
Peak Output Power
GFSK_Channel 0



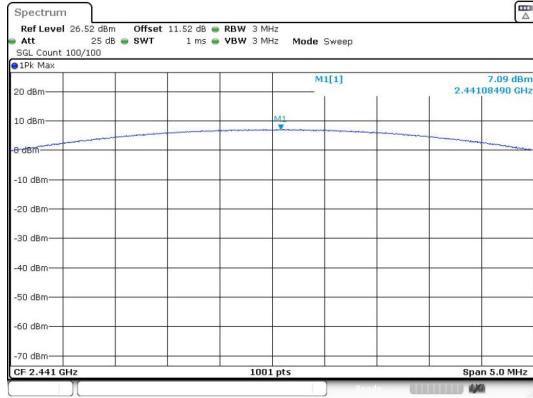
Peak Output Power
GFSK_Channel 39



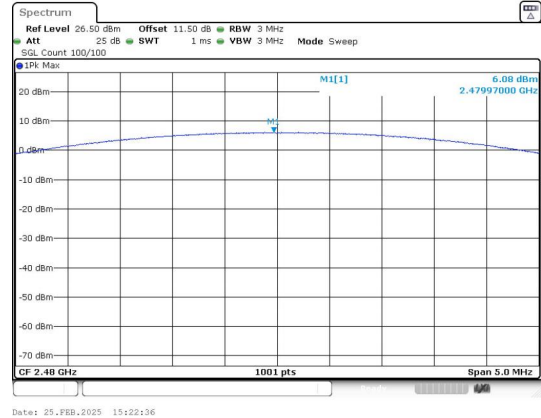
Peak Output Power
GFSK_Channel 78



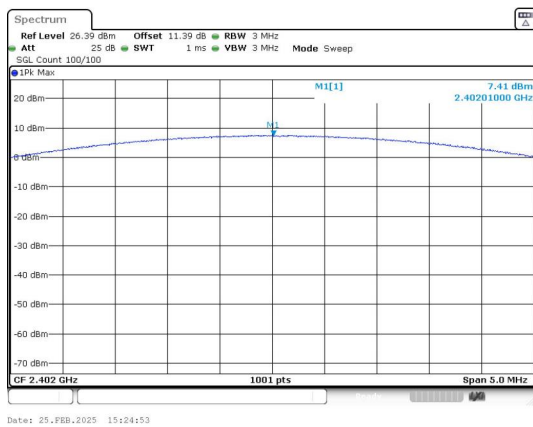
Peak Output Power
 $\pi/4$ DQPSK_Channel 0



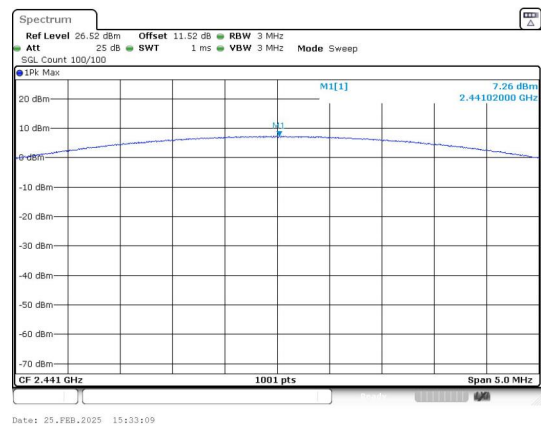
Peak Output Power
 $\pi/4$ DQPSK_Channel 39



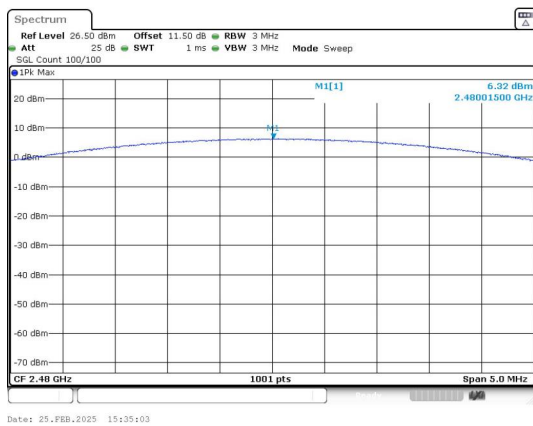
Peak Output Power
 $\pi/4$ DQPSK_Channel 78



Peak Output Power
8DPSK_Channel 0



Peak Output Power
8DPSK_Channel 39



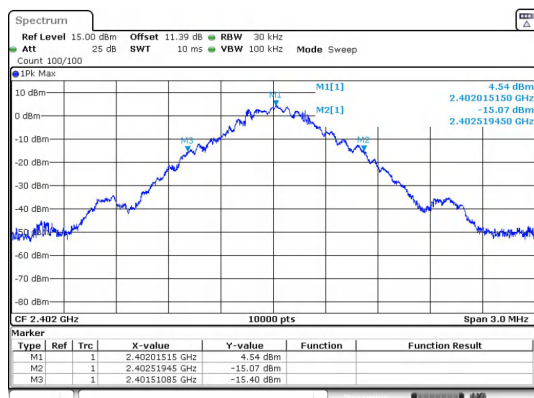
Peak Output Power
8DPSK_Channel 78

5) 20dB Bandwidth

Test Result

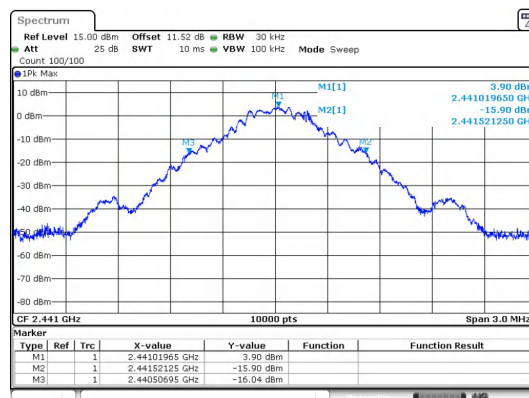
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.010
	39	2441 MHz	1.010
	78	2480 MHz	1.010
$\pi/4$ DQPSK	0	2402 MHz	1.320
	39	2441 MHz	1.310
	78	2480 MHz	1.310
8DPSK	0	2402 MHz	1.290
	39	2441 MHz	1.300
	78	2480 MHz	1.290

Test Graphs



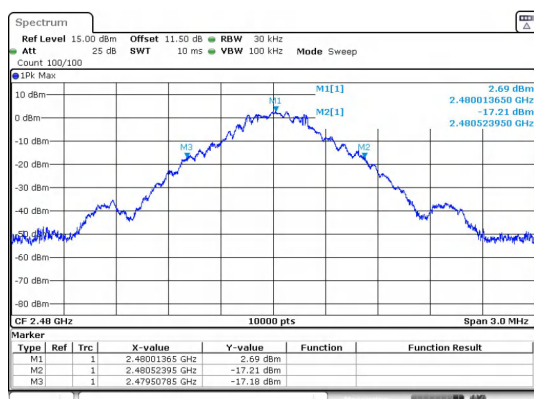
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GFSK_DH5_Channel 0



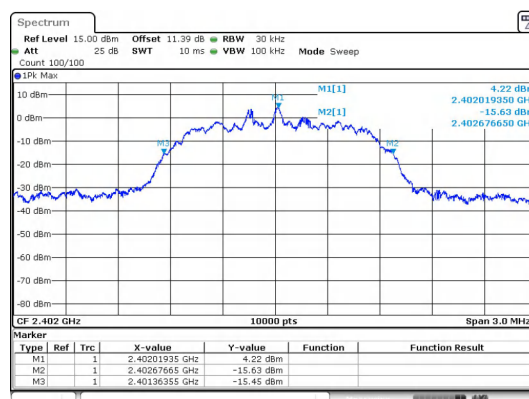
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GFSK_DH5_Channel 39



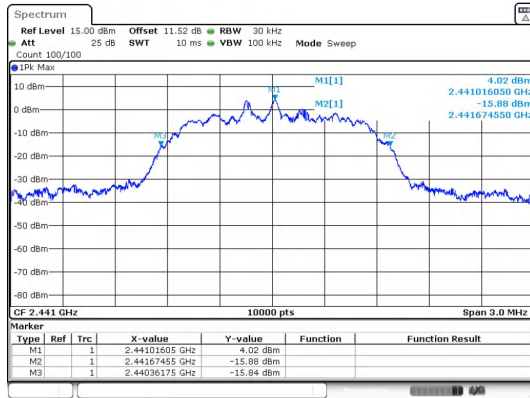
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GFSK_DH5_Channel 78

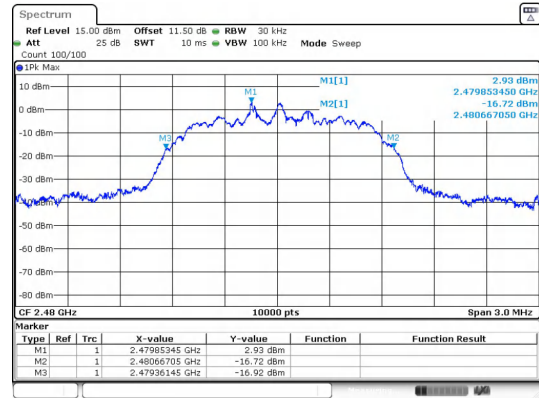


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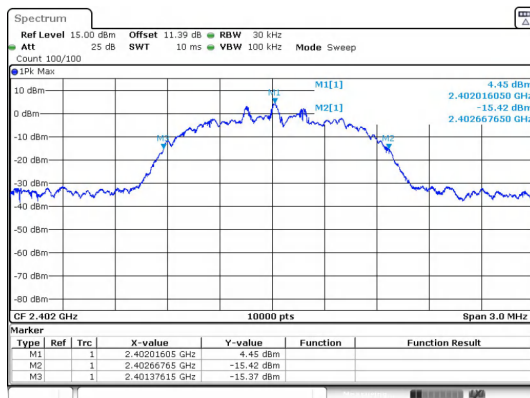
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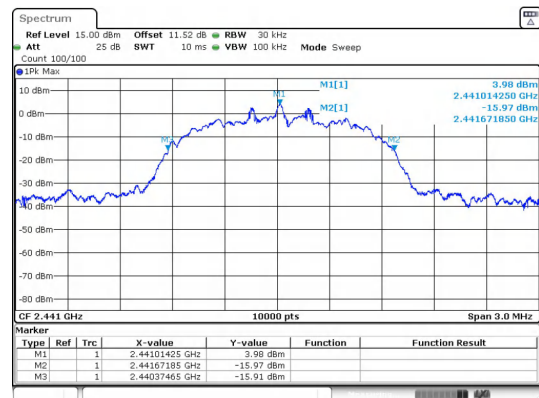
$\pi/4$ DQPSK_2-DH5_Channel 39



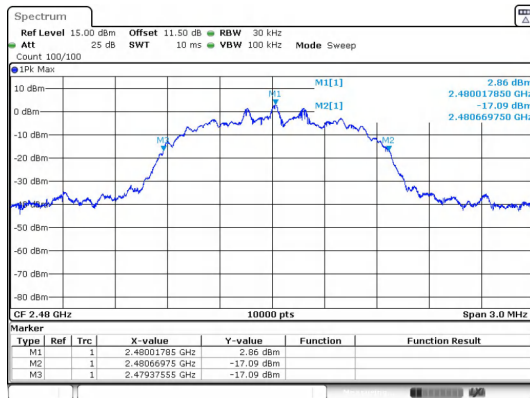
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8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



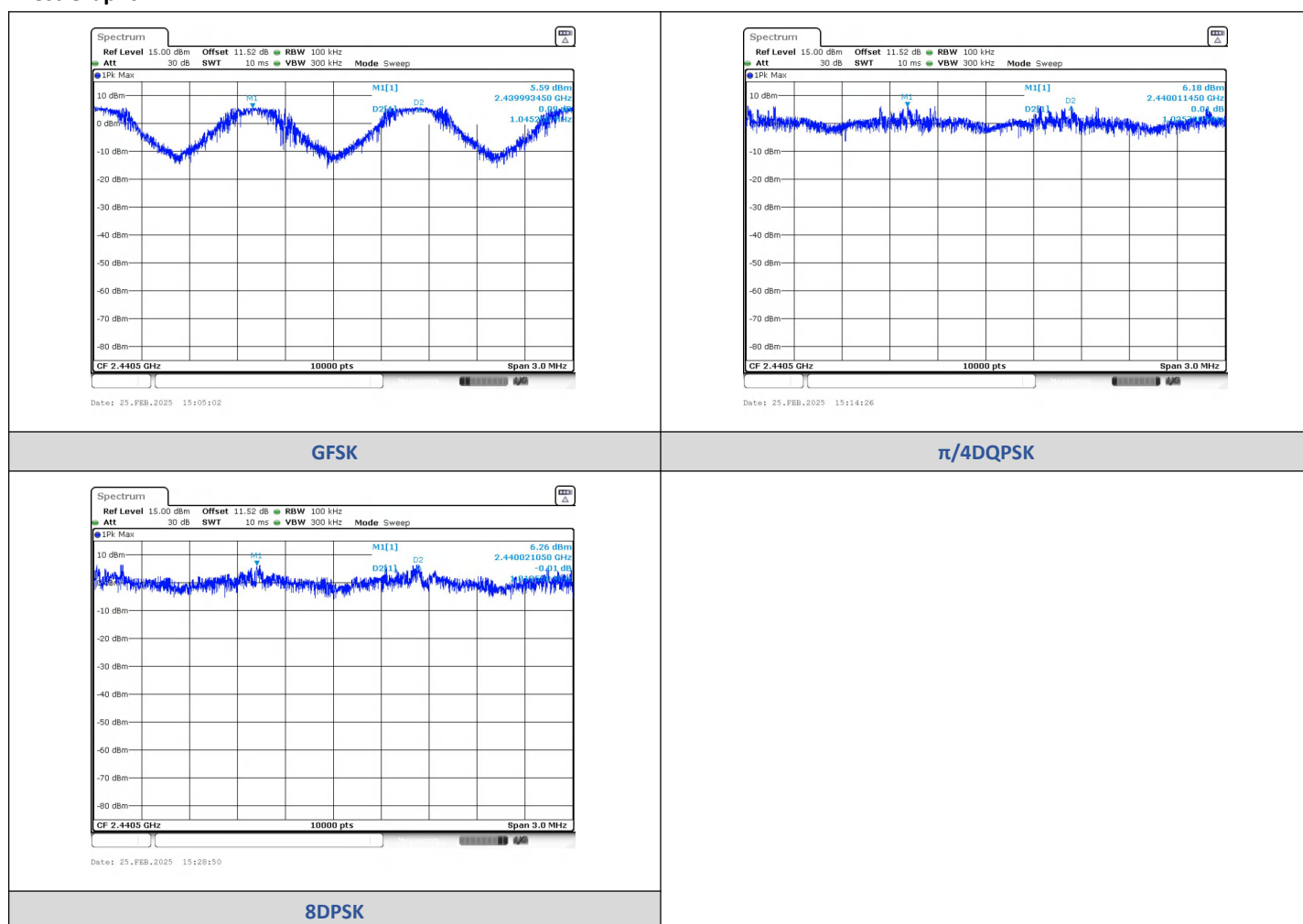
8DPSK_3-DH5_Channel 78

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	2439.9934	2441.0386	1.0452	1.01	PASS
$\pi/4$ DQPSK	2-DH5	2440.0114	2441.0372	1.0257	0.88	PASS
8DPSK	3-DH5	2440.021	2441.0336	1.0125	0.86	PASS

Test Graphs



7) Conducted Out Of Band Emission

Test Result

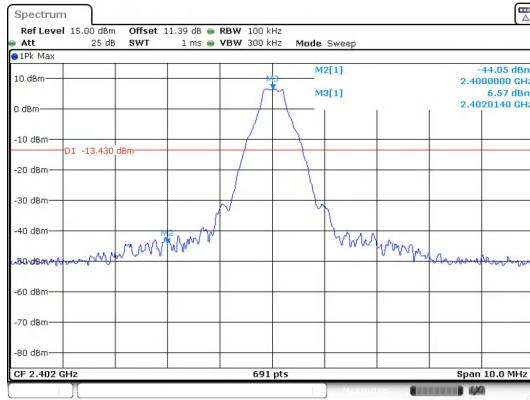
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-44.050	-13.43	-30.620	PASS
			4803.85	-41.181	-13.43	-27.751	PASS
		39	4882.09	-38.393	-13.75	-24.643	PASS
		78	1737.53	-35.503	-14.69	-20.813	PASS
			2483.50	-48.260	-14.69	-33.570	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-43.210	-13.48	-29.730	PASS
			5828.45	-41.174	-13.48	-27.694	PASS
		39	9763.72	-40.436	-13.7	-26.736	PASS
		78	2483.50	-49.810	-14.7	-35.110	PASS
			9920.20	-36.930	-14.7	-22.230	PASS
8DPSK	3-DH5	0	2400.00	-41.940	-13.42	-28.520	PASS
			9608.08	-42.219	-13.42	-28.799	PASS
		39	9763.72	-40.262	-14.02	-26.242	PASS
		78	2483.50	-49.580	-15.08	-34.500	PASS
			9920.20	-36.731	-15.08	-21.651	PASS

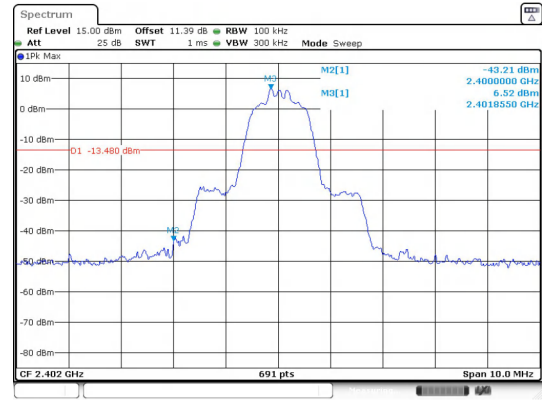
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2397.92	-48.109	-13.81	-34.299	PASS
			2400.00	-50.300	-13.81	-36.490	PASS
			2483.50	-49.750	-14.98	-34.770	PASS
$\pi/4$ DQPSK	2-DH5		2395.96	-48.303	-13.92	-34.383	PASS
			2400.00	-48.500	-13.92	-34.580	PASS
			2483.50	-48.770	-14.99	-33.780	PASS
8DPSK	3-DH5		2395.27	-48.160	-14.65	-33.510	PASS
			2400.00	-48.480	-14.65	-33.830	PASS
			2483.50	-49.470	-14.87	-34.600	PASS

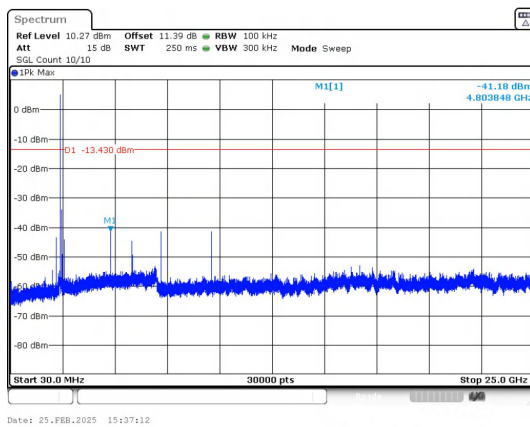
Test Graphs



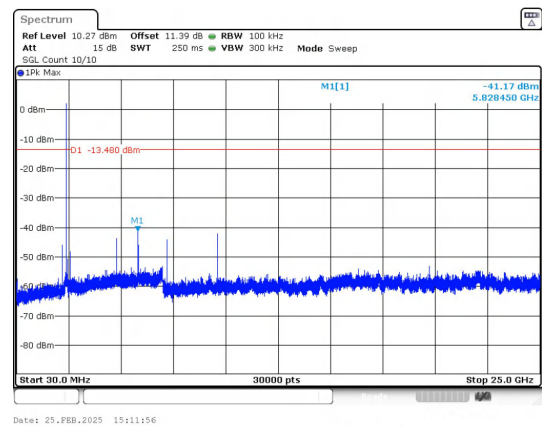
Out Of Band Emission
GFSK_DH5_Channel 0



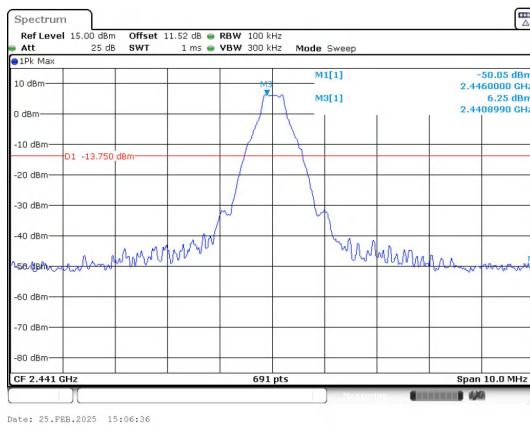
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0



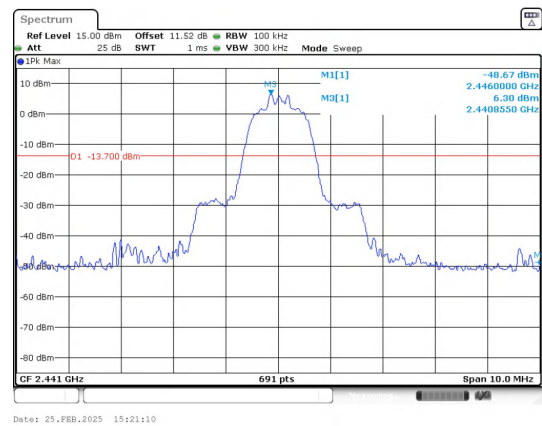
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



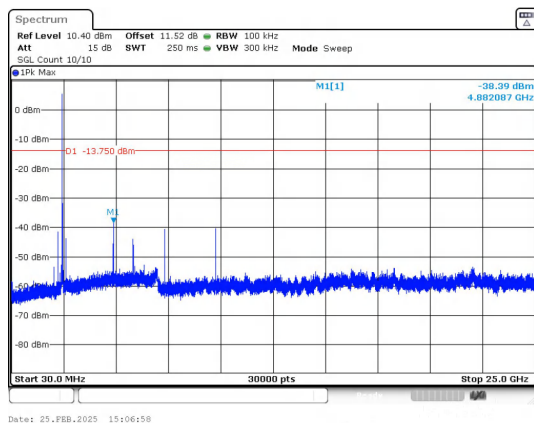
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 0



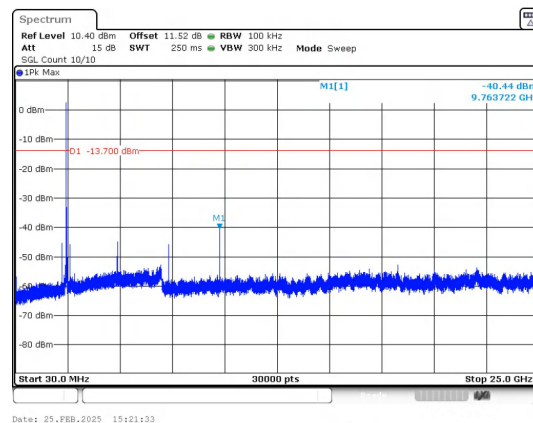
Out Of Band Emission
GFSK_DH5_Channel 39



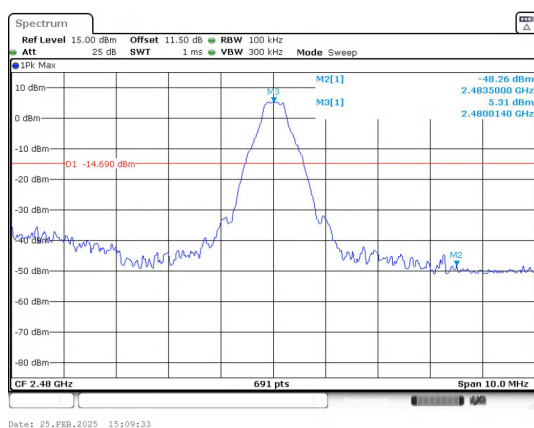
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 39



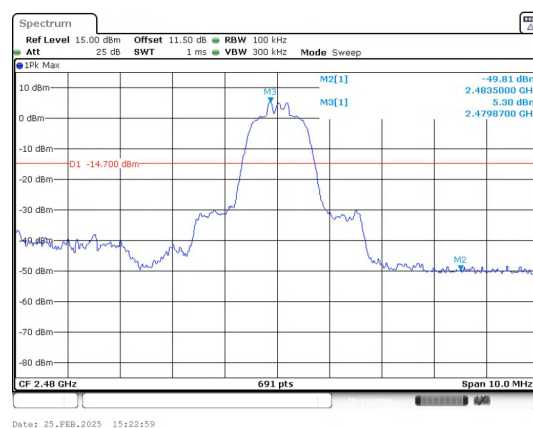
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GFSK_DH5_Channel 39



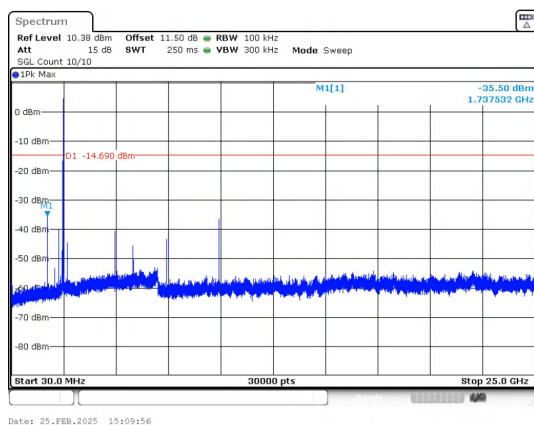
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 39



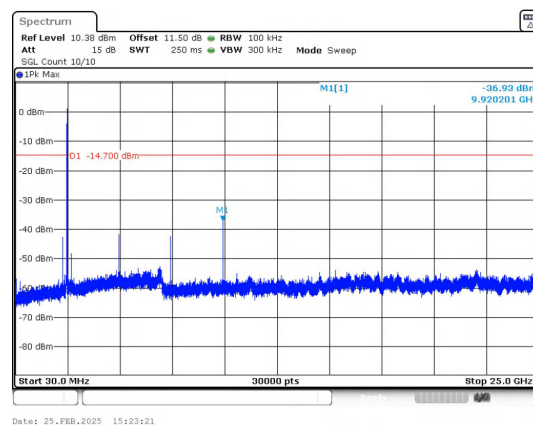
Out Of Band Emission
GFSK_DH5_Channel 78



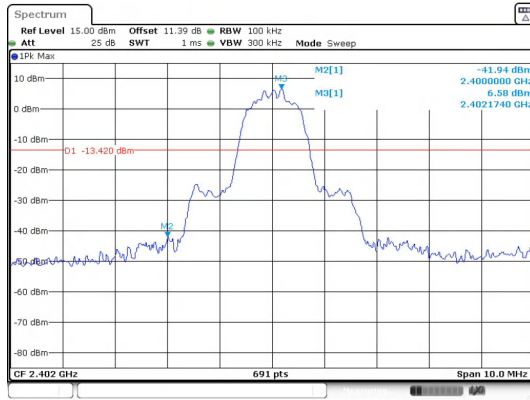
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78



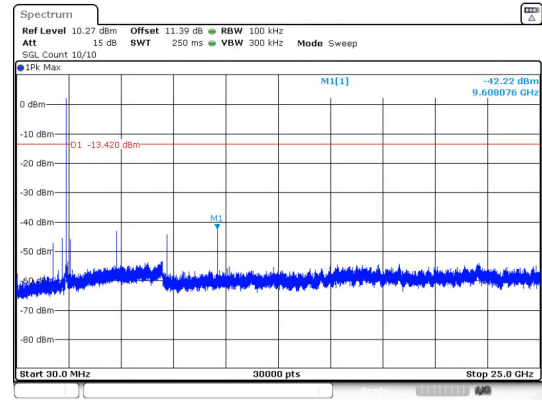
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



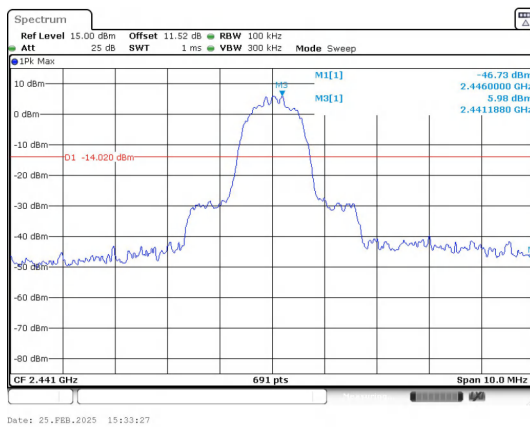
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 78



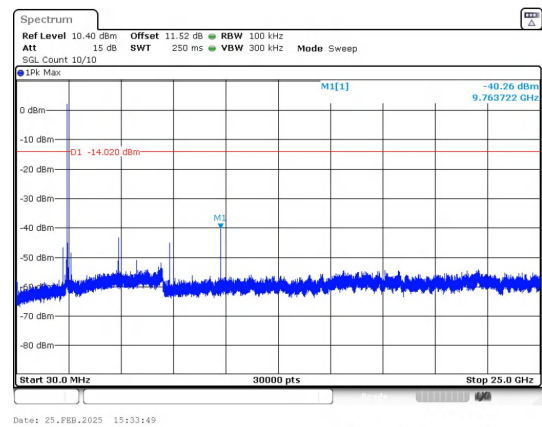
Out Of Band Emission
8DPSK_3-DH5_Channel 0



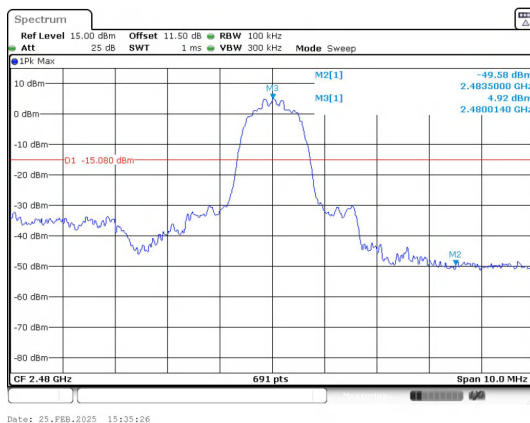
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0



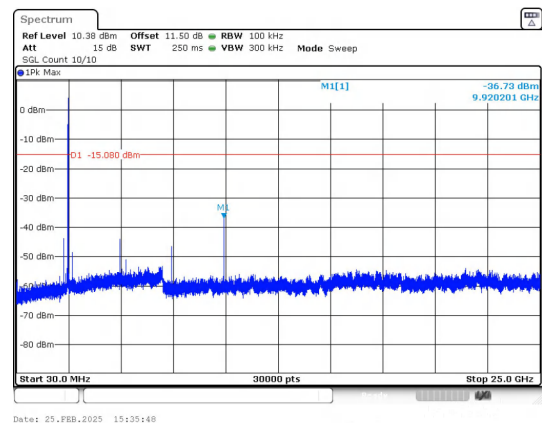
Out Of Band Emission
8DPSK_3-DH5_Channel 39



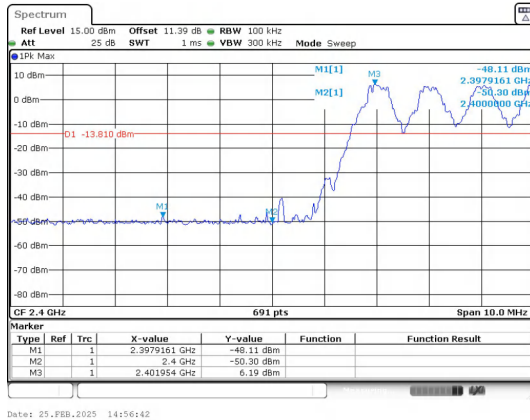
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



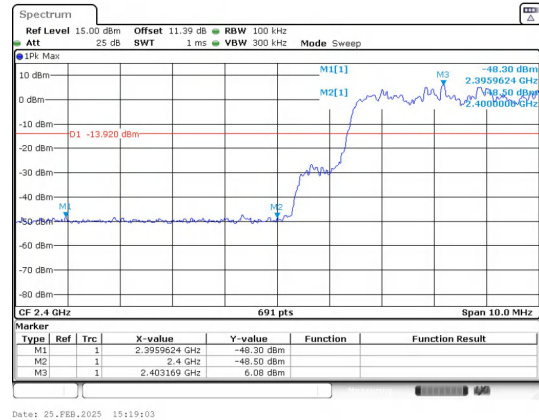
Out Of Band Emission
8DPSK_3-DH5_Channel 78



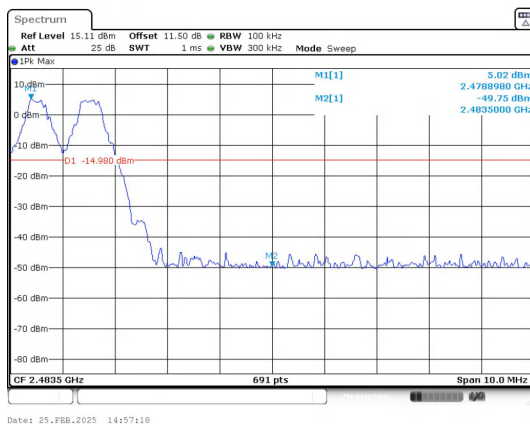
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



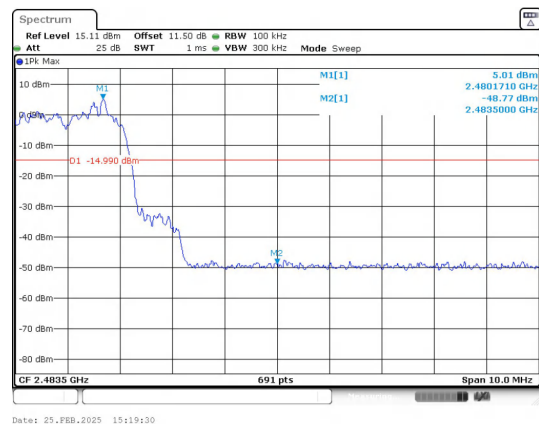
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



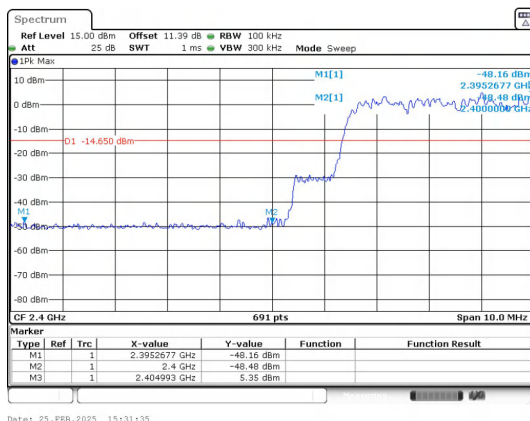
Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping



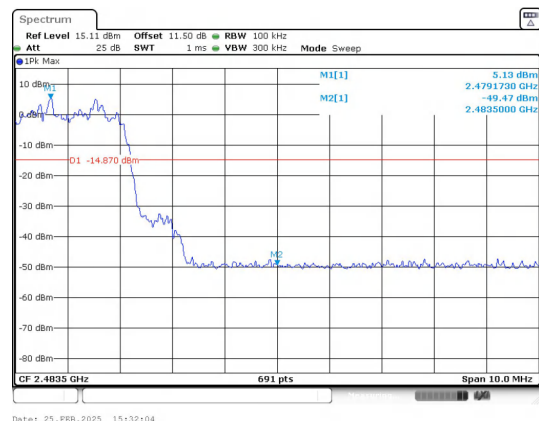
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



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-----