

Appendix Report

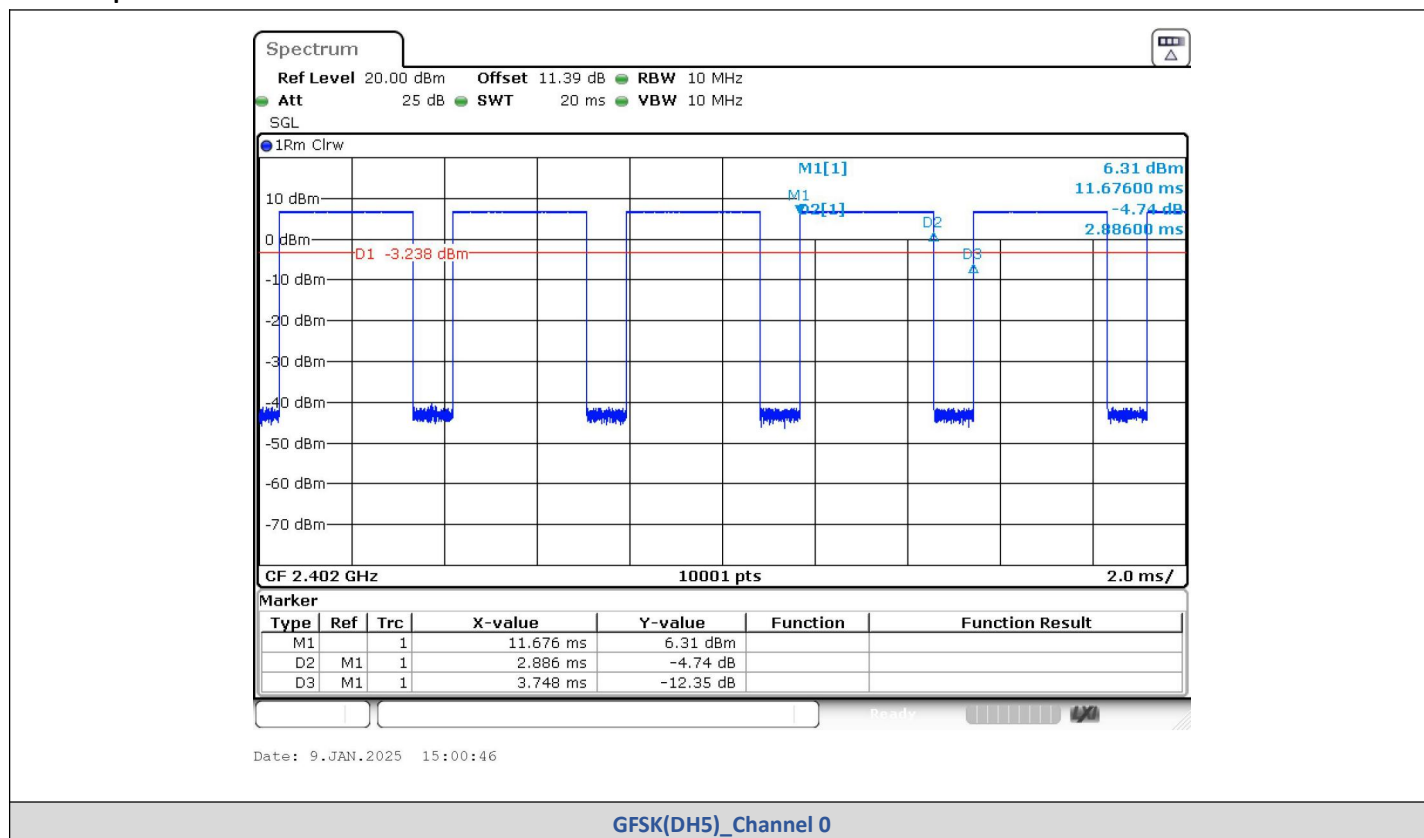
Report No.:	CISRR25010702601
Test Engineer:	Mark Fu
Supervised by:	Rory Huang

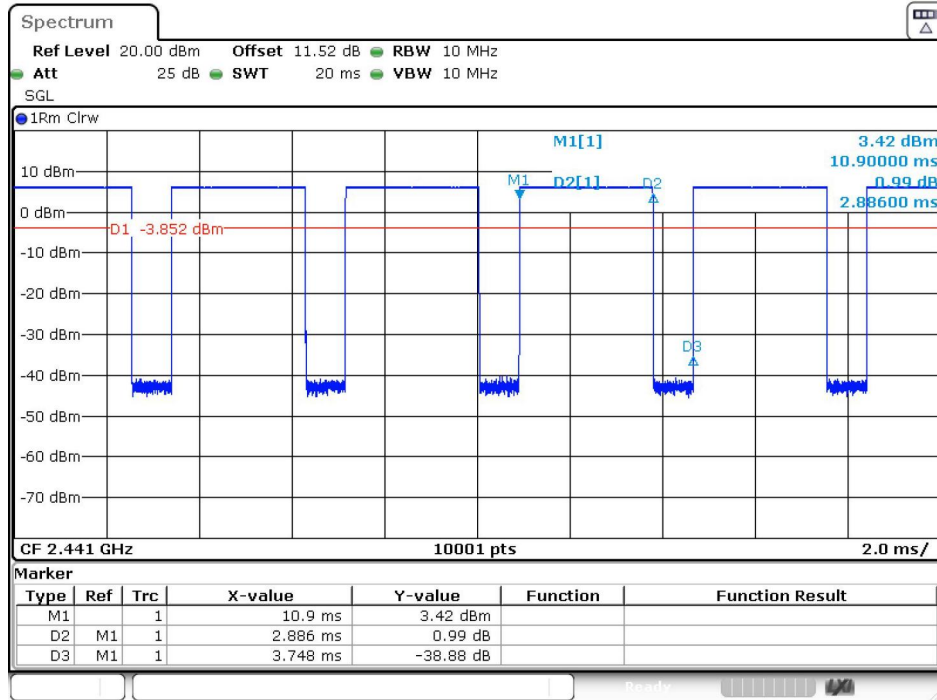
1) Duty Cycle

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	2.888	3.748	77.05	0.7705	1.1323	0.3463
$\pi/4$ 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	2.892	3.748	77.16	0.7716	1.1261	0.3458

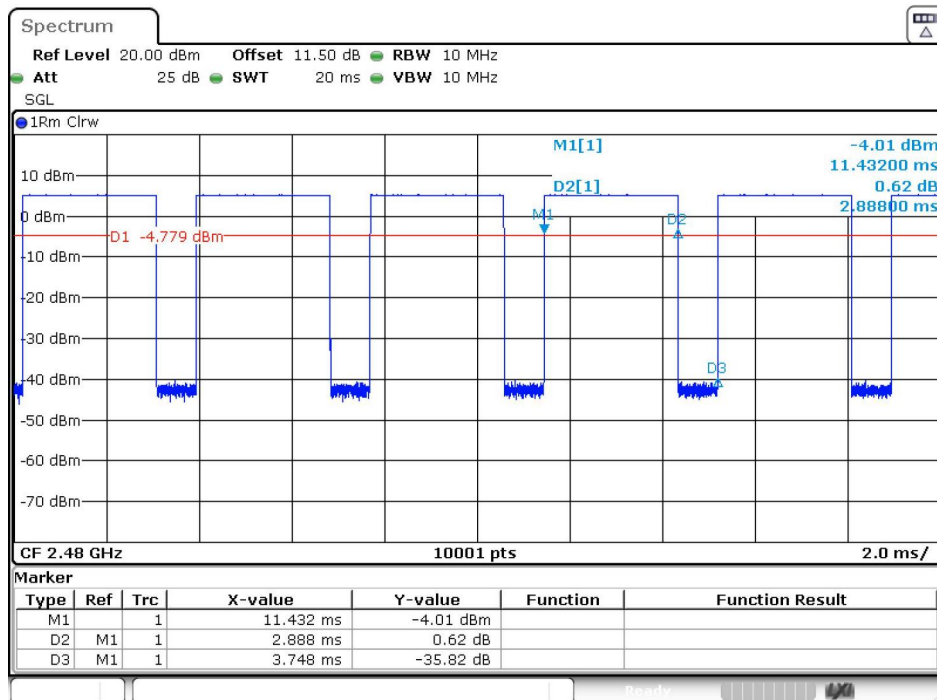
Test Graphs





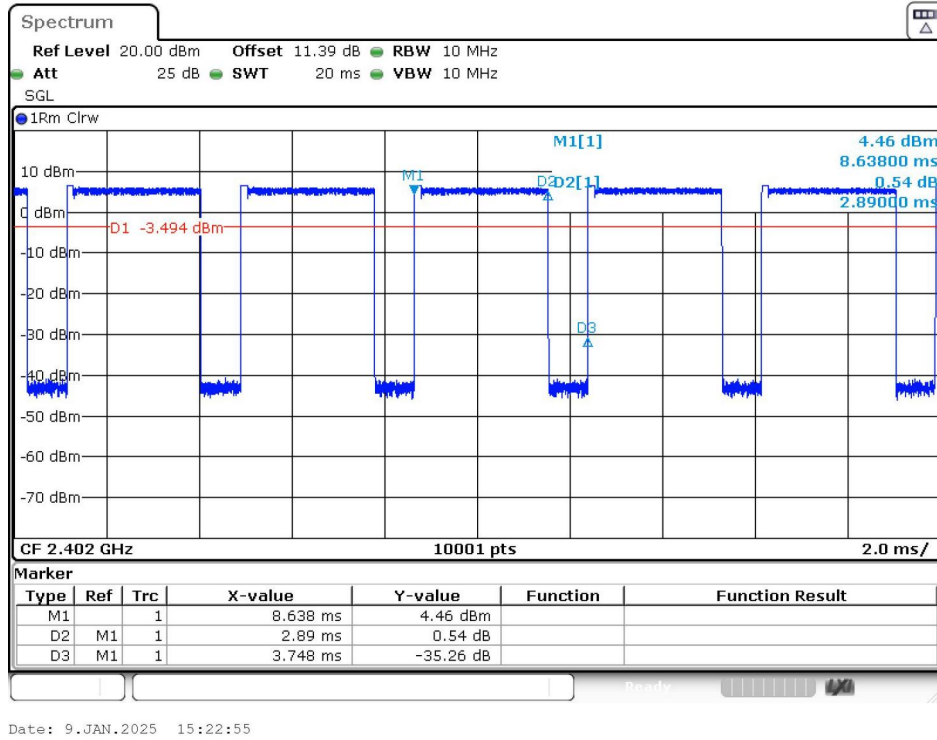
Date: 9.JAN.2025 15:17:51

GFSK(DH5)_Channel 39

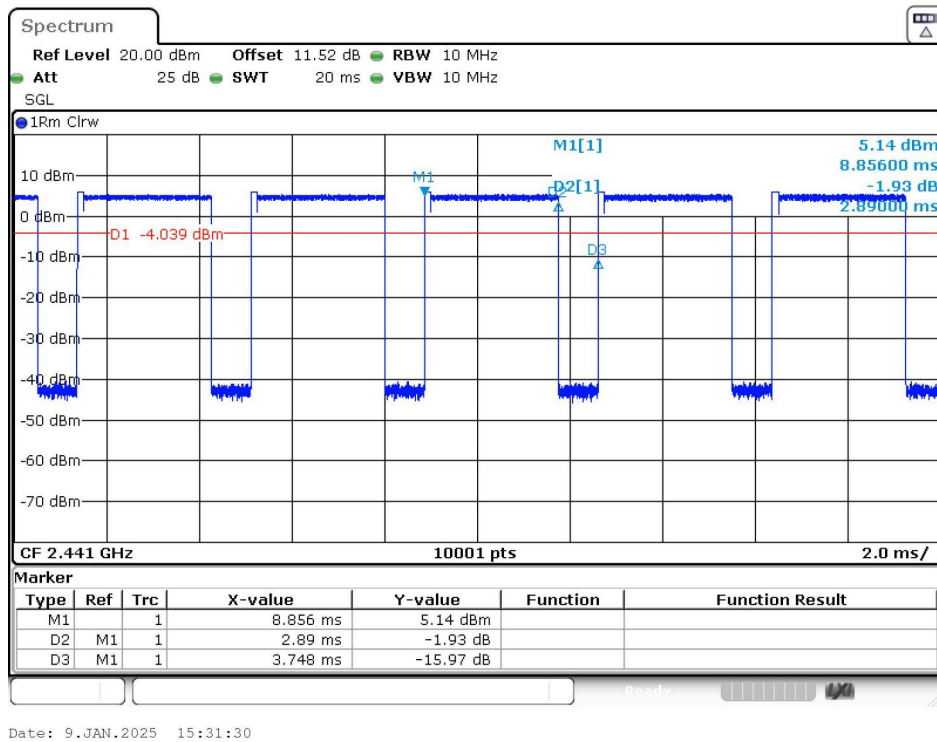


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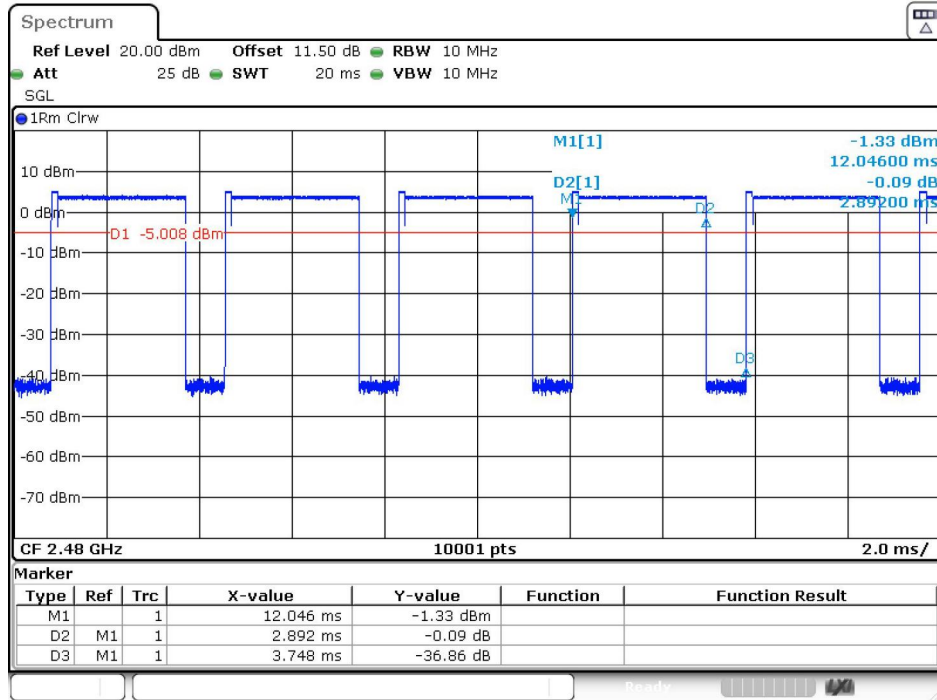
GFSK(DH5)_Channel 78



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

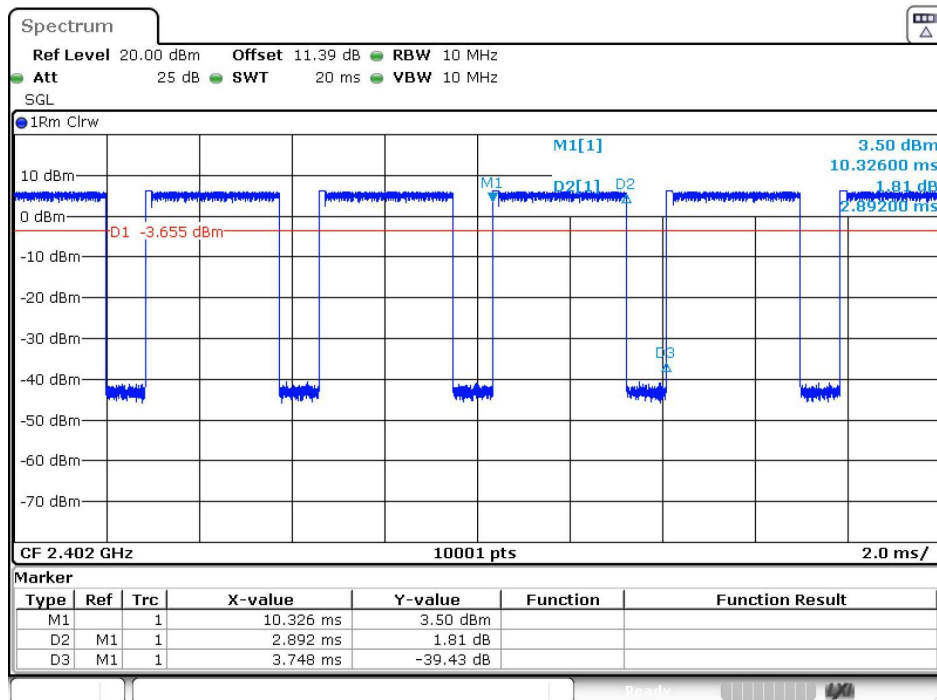


$\pi/4$ DQPSK(2-DH5)_Channel 39



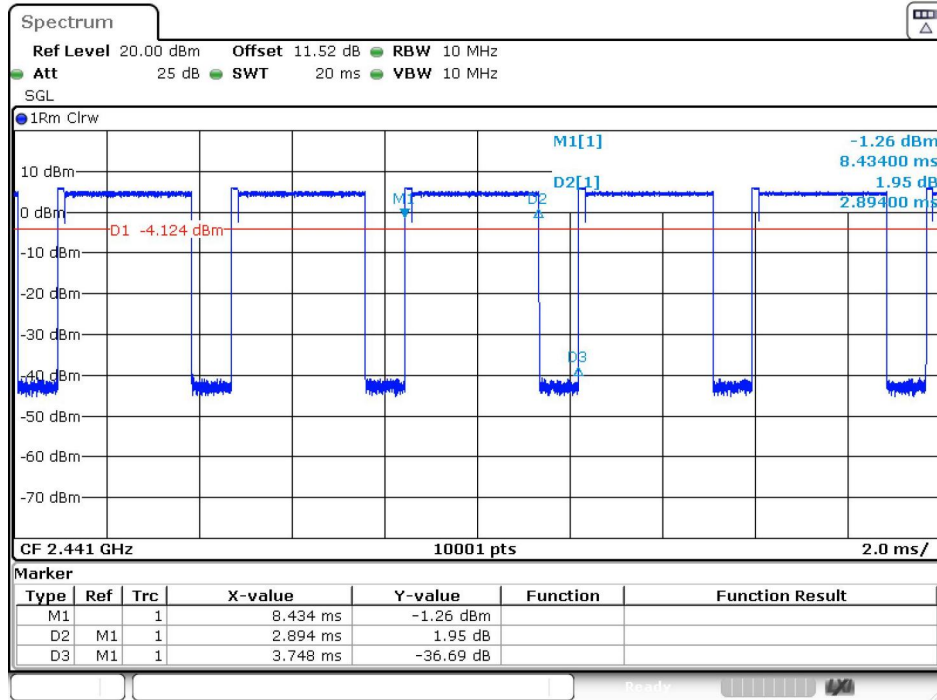
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$\pi/4$ DQPSK(2-DH5)_Channel 78



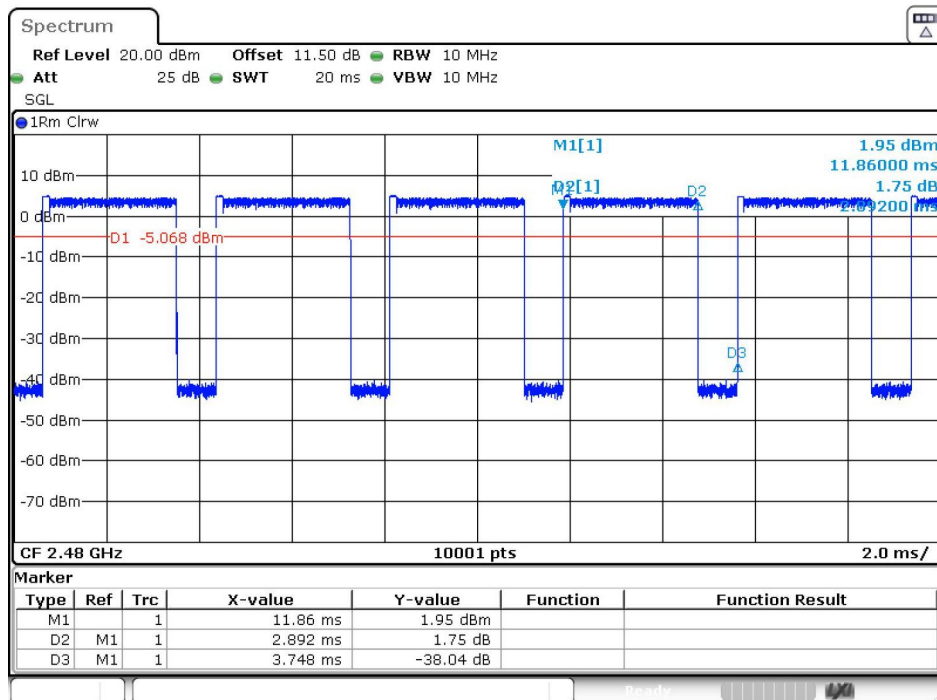
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8DPSK(3-DH5)_Channel 0



Date: 9.JAN.2025 15:52:53

8DPSK(3-DH5)_Channel 39



Date: 9.JAN.2025 15:54:52

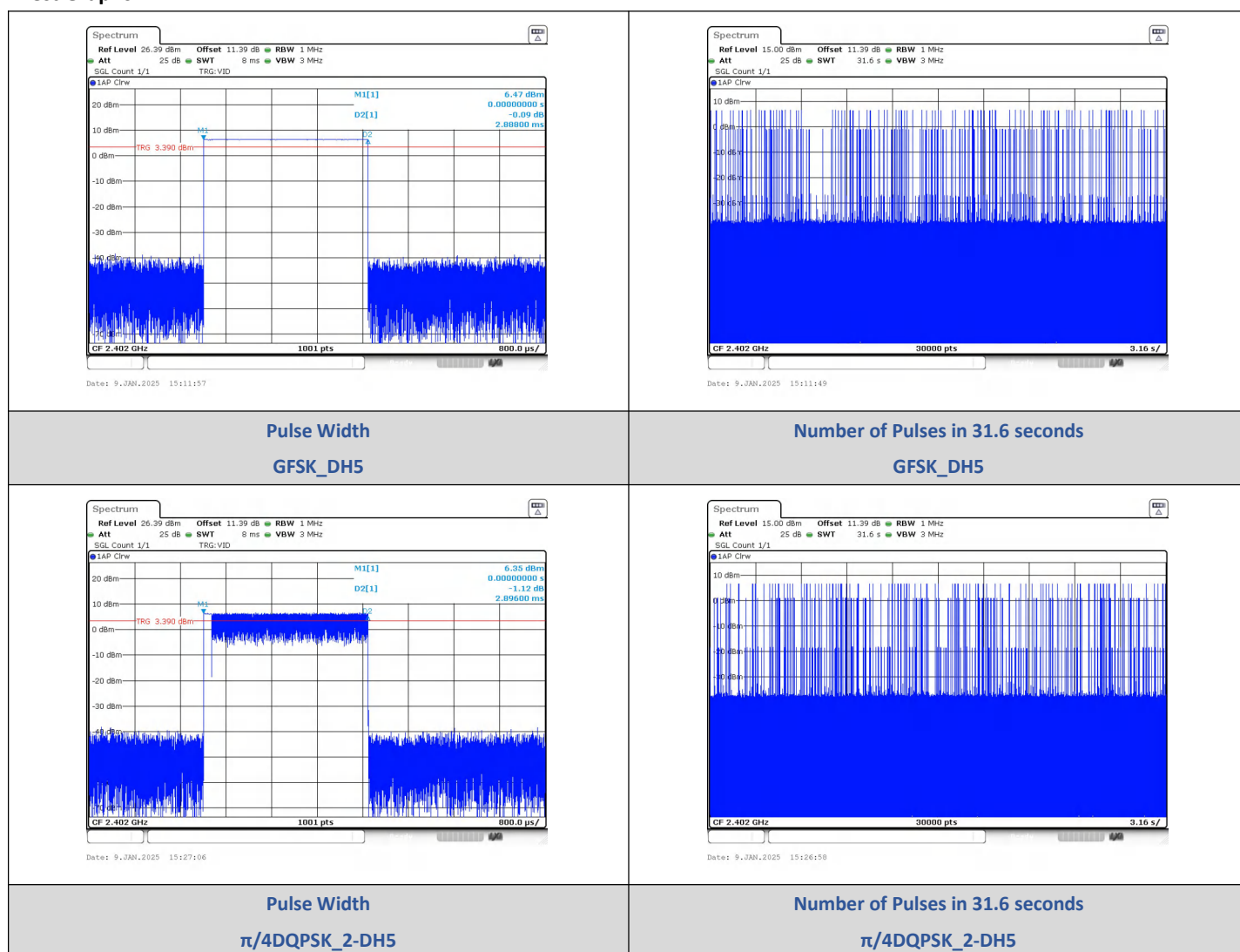
8DPSK(3-DH5)_Channel 78

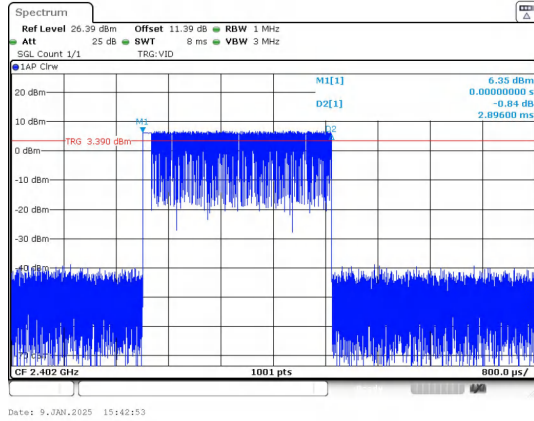
2) Dwell Time

Test Result

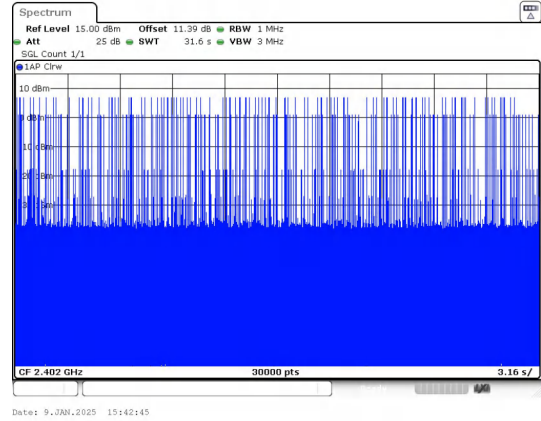
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.888	105	303.24	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	109	315.66		PASS
8DPSK	3-DH5		2.896	113	327.25		PASS

Test Graphs





Pulse Width
8DPSK_3-DH5



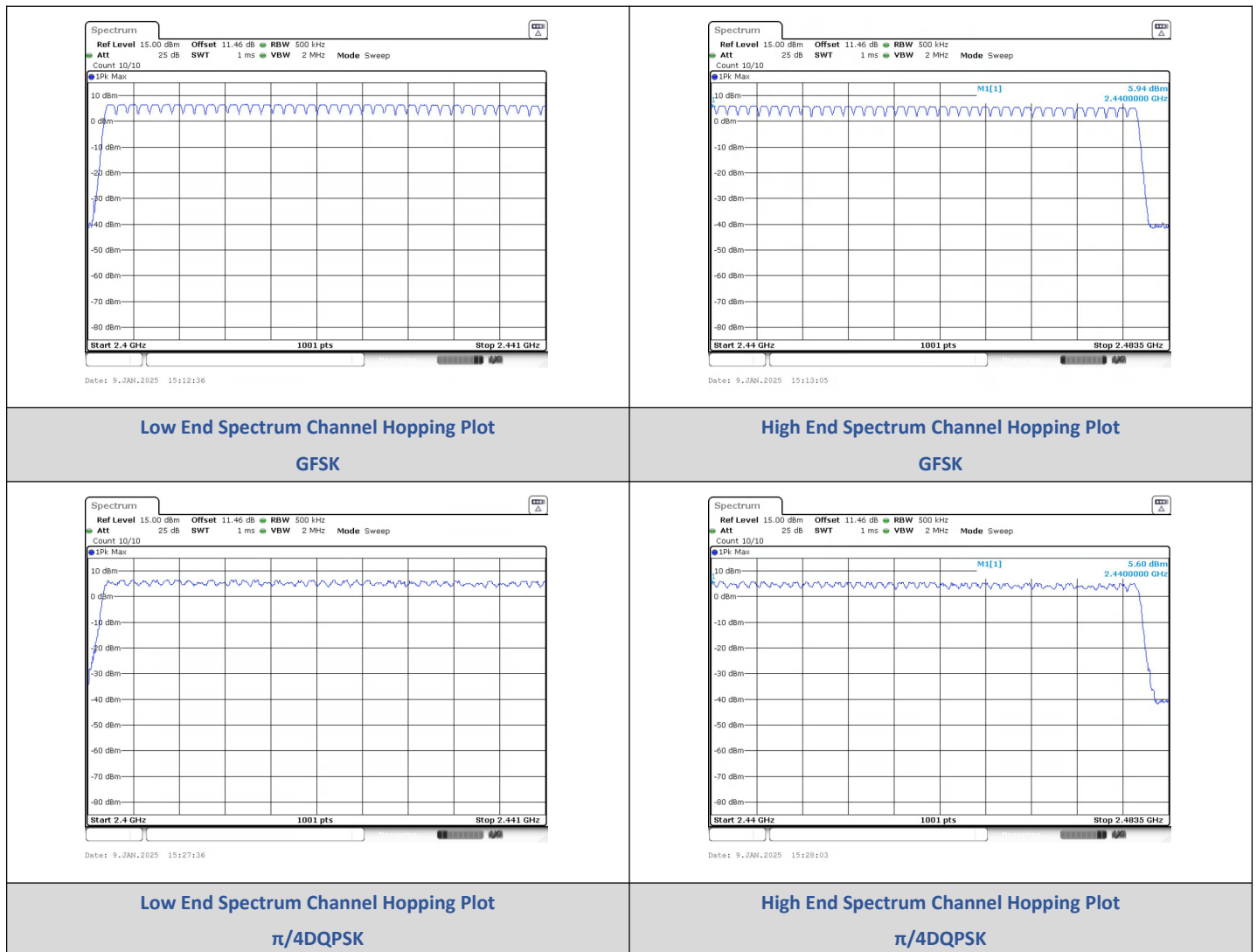
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

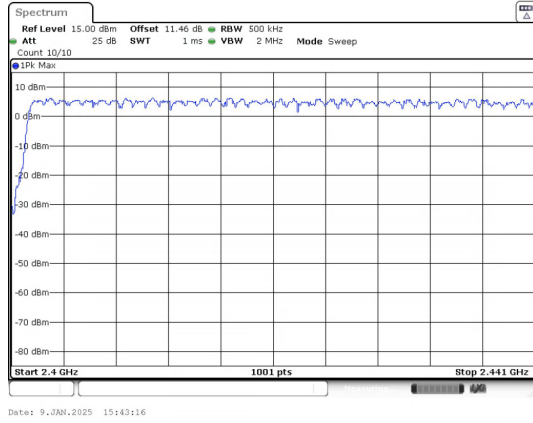
3) Number Of Hopping Channel

Test Result

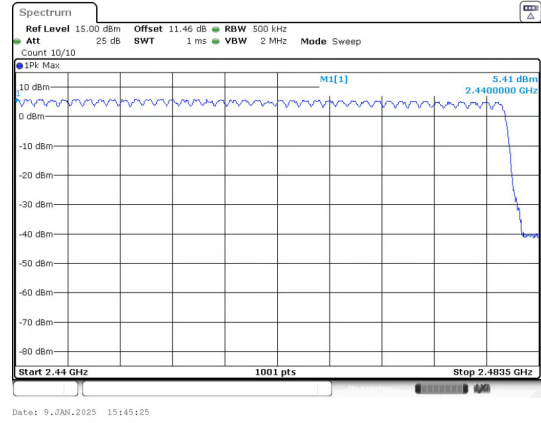
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





Low End Spectrum Channel Hopping Plot
8DPSK



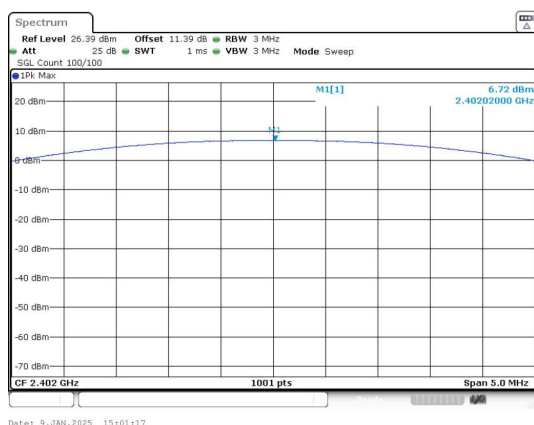
High End Spectrum Channel Hopping Plot
8DPSK

4) Conducted Output Power

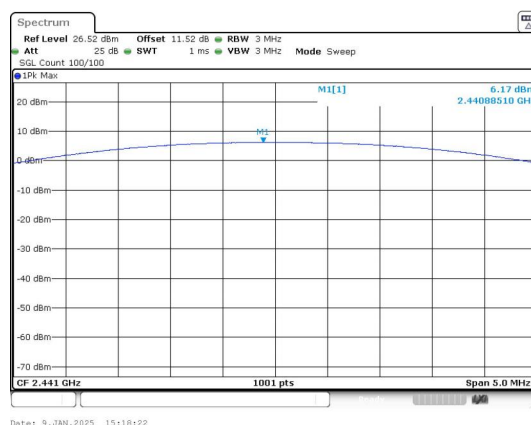
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	6.72	4.70	≤30	PASS
		39	6.17	4.14		PASS
		78	5.21	3.32		PASS
$\pi/4$ DQPSK	2-DH5	0	7.05	5.07	≤20.97	PASS
		39	6.64	4.61		PASS
		78	5.74	3.75		PASS
8DPSK	3-DH5	0	7.14	5.18		PASS
		39	6.74	4.72		PASS
		78	5.87	3.86		PASS

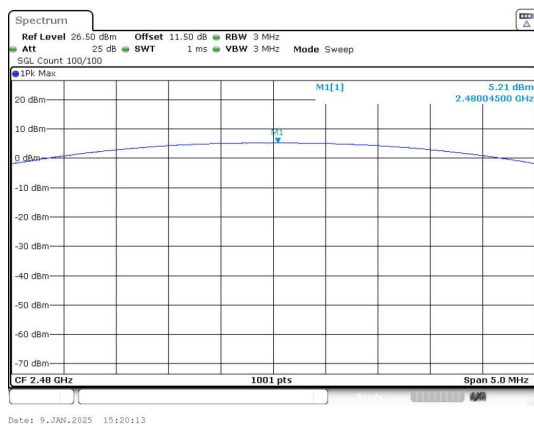
Test Graphs



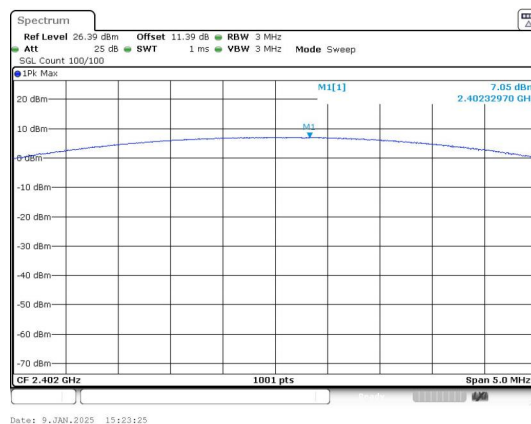
Peak Output Power
GFSK_Channel 0



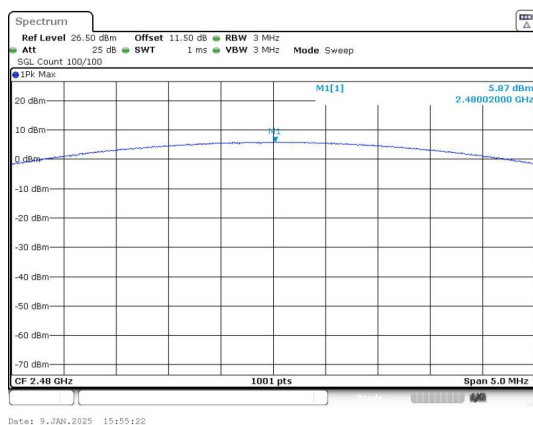
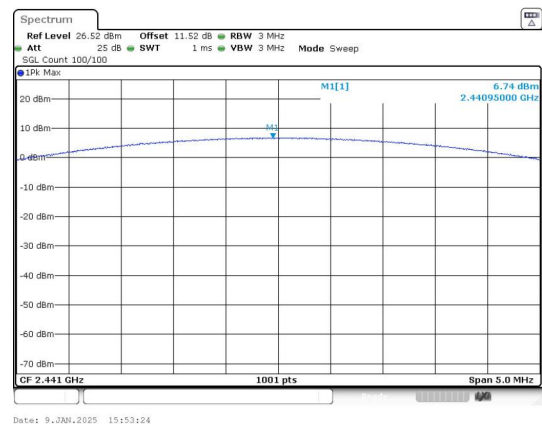
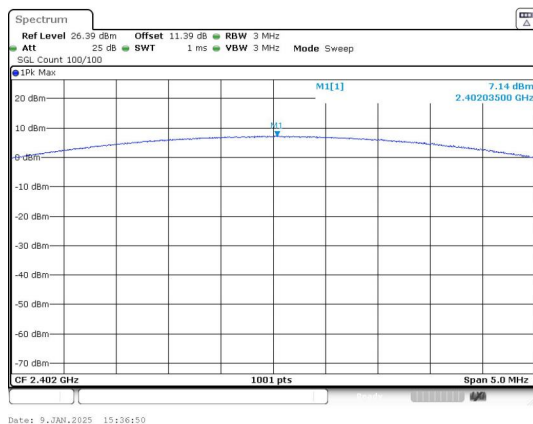
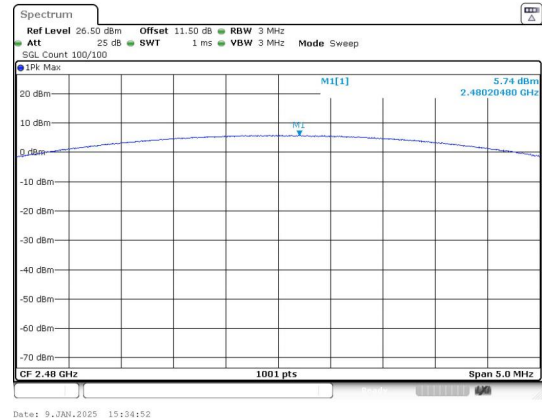
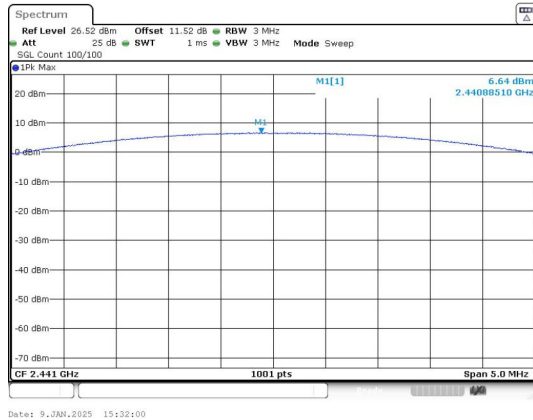
Peak Output Power
GFSK_Channel 39



Peak Output Power
GFSK_Channel 78



Peak Output Power
 $\pi/4$ DQPSK_Channel 0

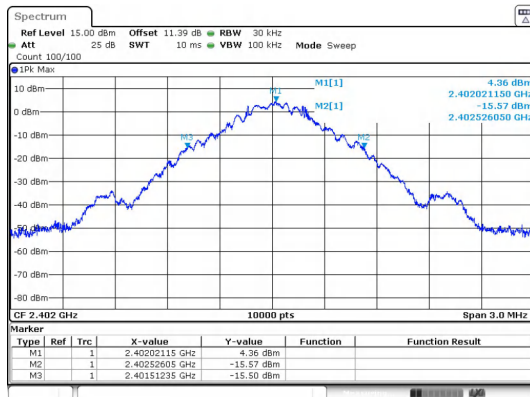


5) 20dB Bandwidth

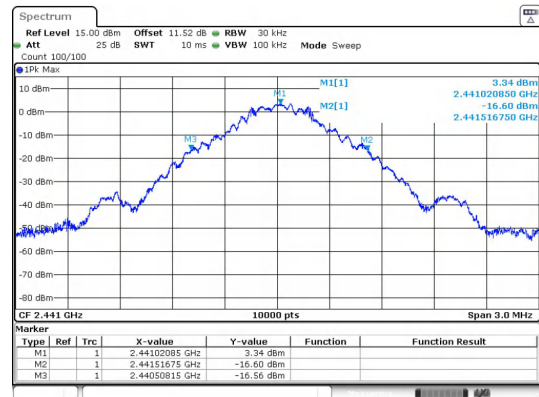
Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.020
	39	2441 MHz	1.010
	78	2480 MHz	0.9900
$\pi/4$ DQPSK	0	2402 MHz	1.300
	39	2441 MHz	1.310
	78	2480 MHz	1.310
8DPSK	0	2402 MHz	1.300
	39	2441 MHz	1.290
	78	2480 MHz	1.290

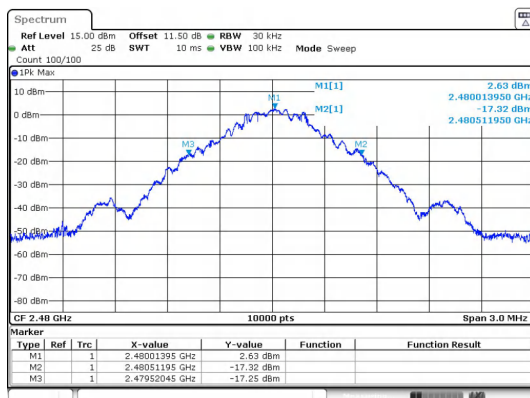
Test Graphs



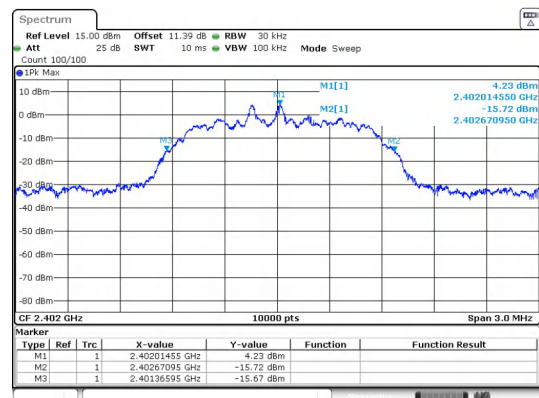
GFSK_DH5_Channel 0

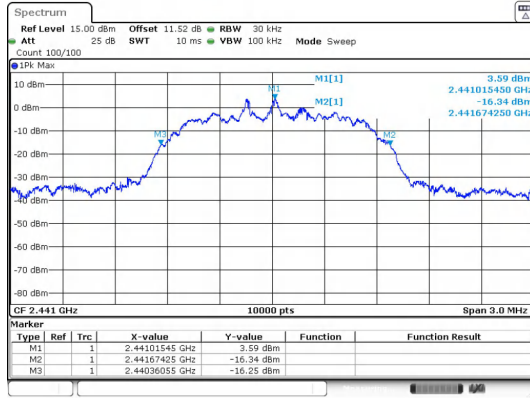


GFSK_DH5_Channel 39

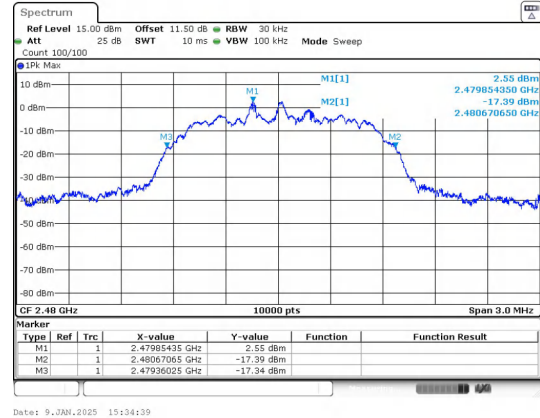


GFSK_DH5_Channel 78

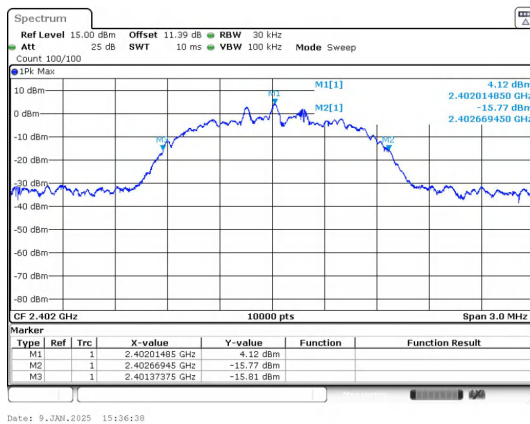

 $\pi/4$ DQPSK_2-DH5_Channel 0



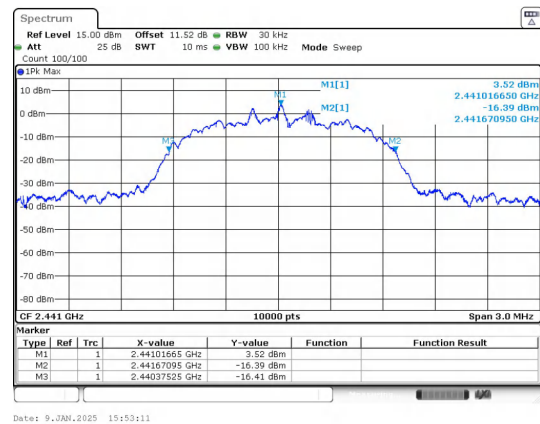
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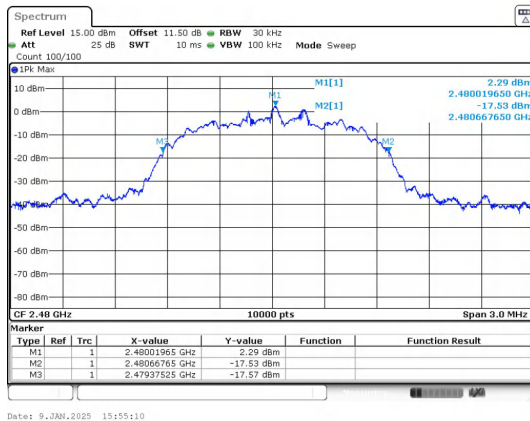
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8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



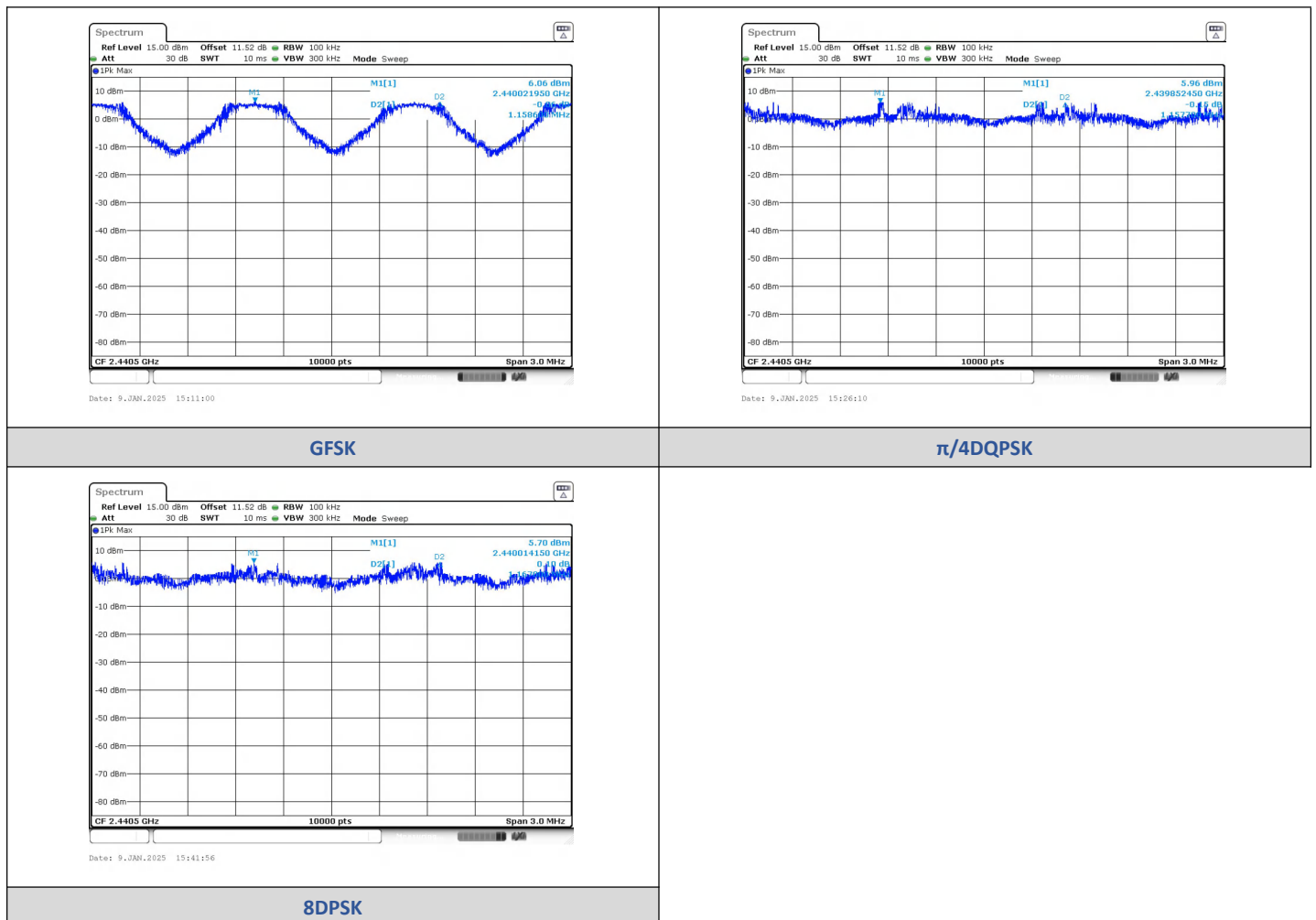
8DPSK_3-DH5_Channel 78

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	2440.0219	2441.1806	1.1586	1.02	PASS
$\pi/4$ DQPSK	2-DH5	2439.8524	2441.0102	1.1577	0.867	PASS
8DPSK	3-DH5	2440.0141	2441.1811	1.1670	0.867	PASS

Test Graphs



7) Conducted Out Of Band Emission

Test Result

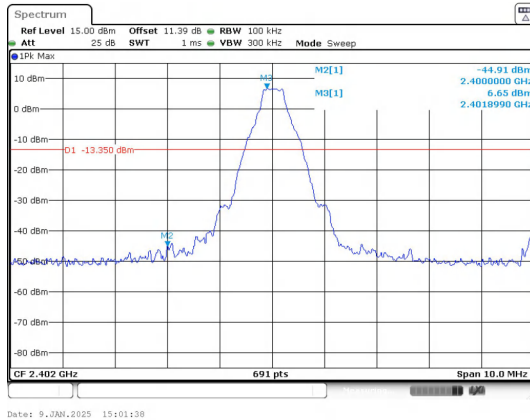
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-44.910	-13.35	-31.560	PASS
			7205.96	-39.347	-13.35	-25.997	PASS
		39	9763.72	-39.208	-13.87	-25.338	PASS
		78	2483.50	-49.650	-14.91	-34.740	PASS
			9920.20	-38.512	-14.91	-23.602	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-41.810	-13.63	-28.180	PASS
			7205.96	-35.864	-13.63	-22.234	PASS
		39	9763.72	-39.947	-14.15	-25.797	PASS
		78	2483.50	-50.320	-15.12	-35.200	PASS
			9920.20	-37.498	-15.12	-22.378	PASS
8DPSK	3-DH5	0	2400.00	-42.540	-13.79	-28.750	PASS
			9608.08	-41.405	-13.79	-27.615	PASS
		39	9763.72	-39.618	-14.43	-25.188	PASS
		78	2483.50	-50.770	-15.86	-34.910	PASS
			9920.20	-37.732	-15.86	-21.872	PASS

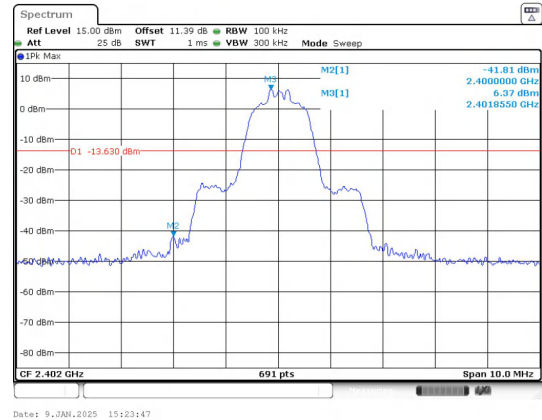
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2398.00	-47.088	-13.6	-33.488	PASS
			2400.00	-47.680	-13.6	-34.080	PASS
			2483.50	-47.990	-14.8	-33.190	PASS
$\pi/4$ DQPSK	2-DH5		2400.00	-47.960	-14.24	-33.720	PASS
			2483.50	-49.310	-15.27	-34.040	PASS
8DPSK	3-DH5		2396.01	-47.626	-13.73	-33.896	PASS
			2400.00	-48.900	-13.73	-35.170	PASS
			2483.50	-49.510	-15.37	-34.140	PASS

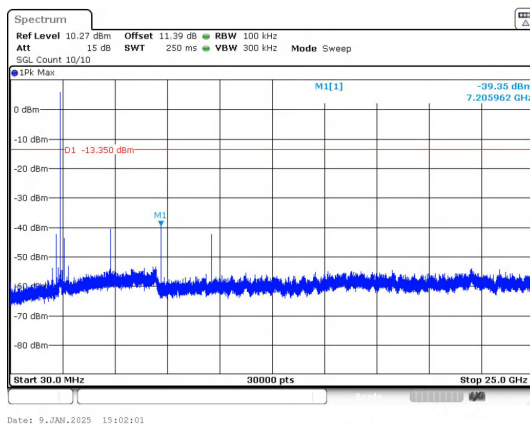
Test Graphs



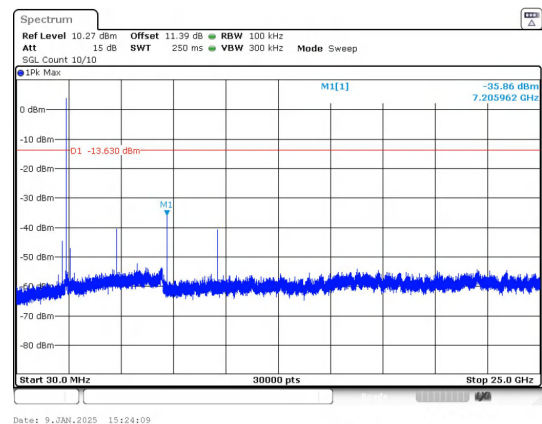
Out Of Band Emission
GFSK_DH5_Channel 0



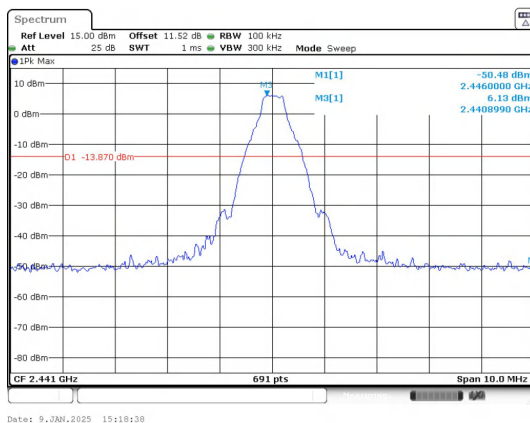
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0



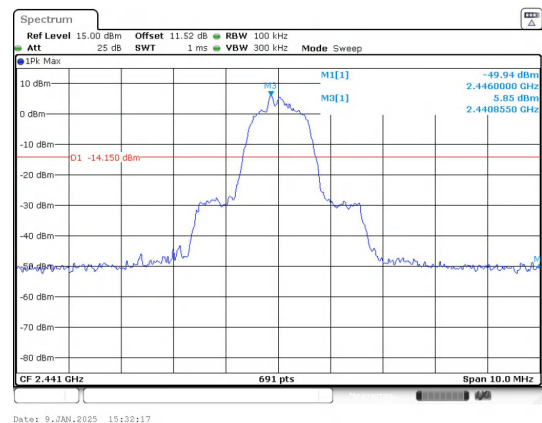
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



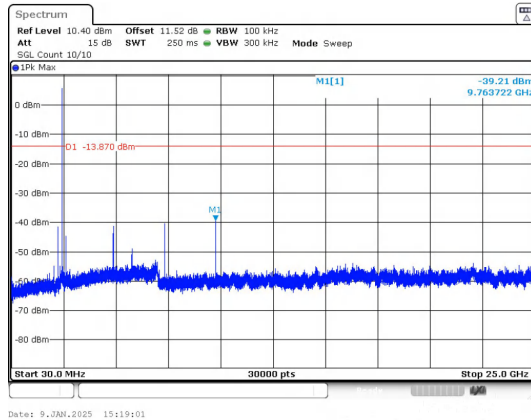
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 0



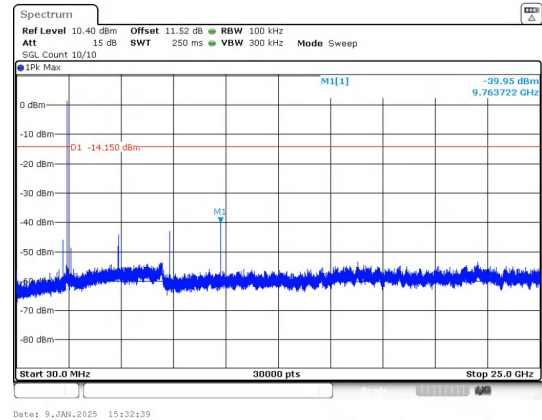
Out Of Band Emission
GFSK_DH5_Channel 39



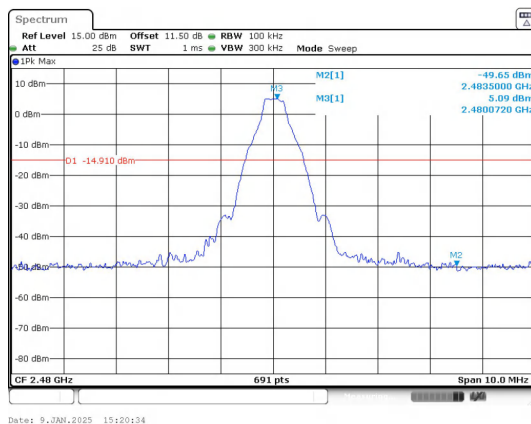
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 39



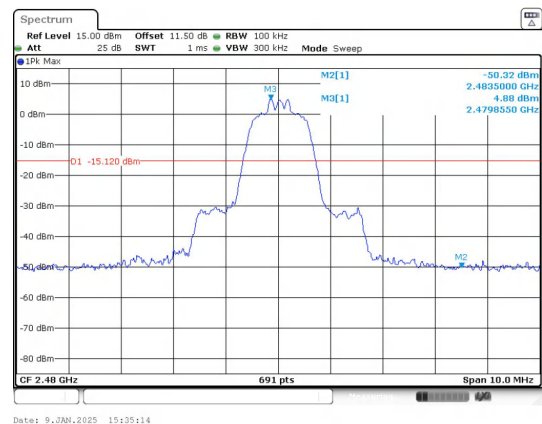
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



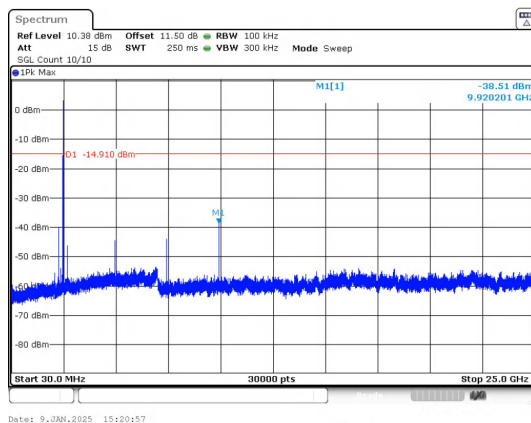
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 $\pi/4$ DQPSK_2-DH5_Channel 39



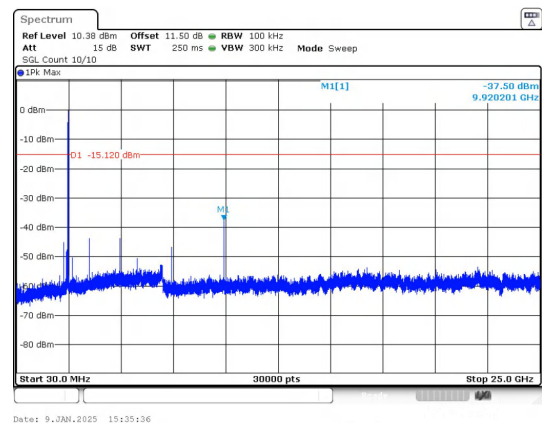
Out Of Band Emission
GFSK_DH5_Channel 78



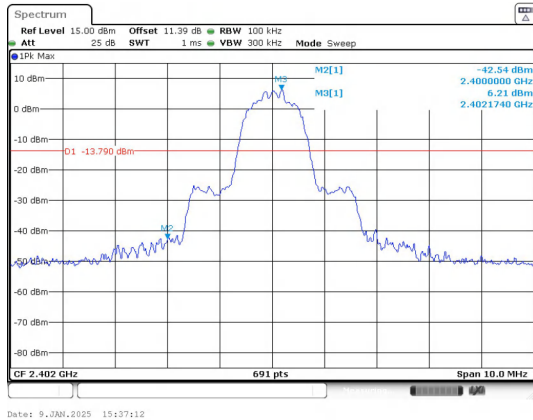
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78



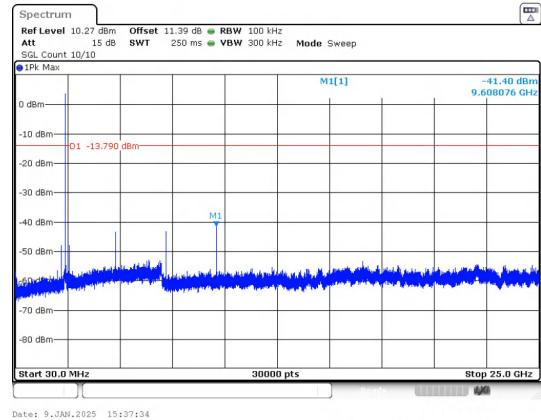
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



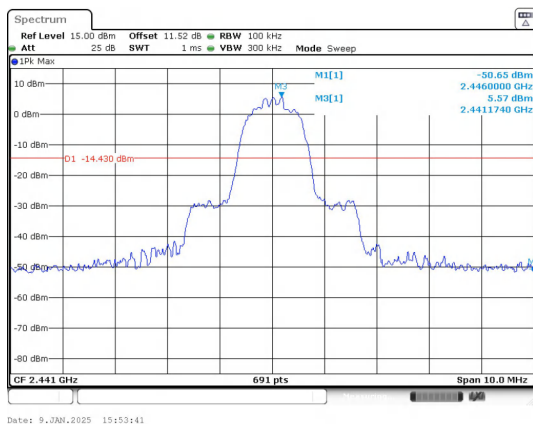
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 $\pi/4$ DQPSK_2-DH5_Channel 78



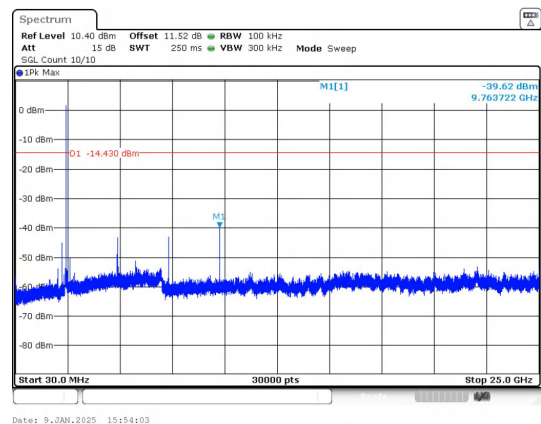
Out Of Band Emission
8DPSK_3-DH5_Channel 0



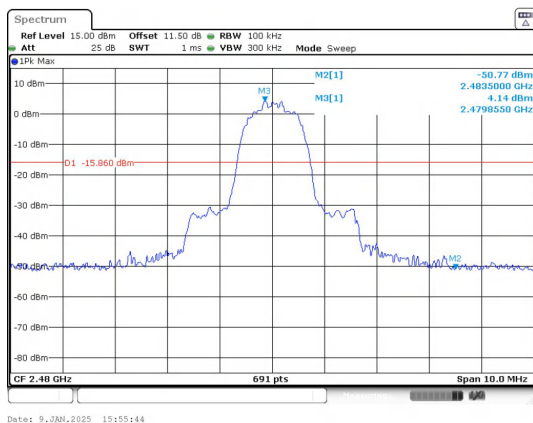
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8DPSK_3-DH5_Channel 0



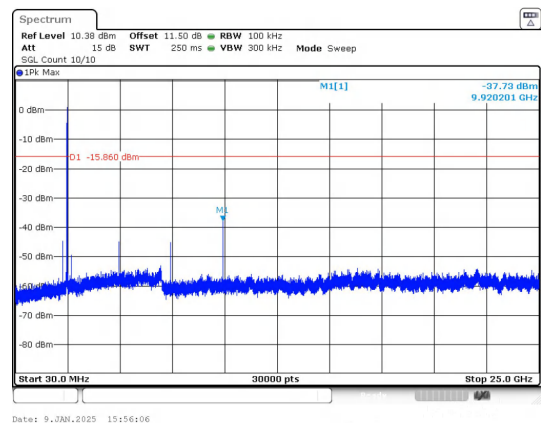
Out Of Band Emission
8DPSK_3-DH5_Channel 39



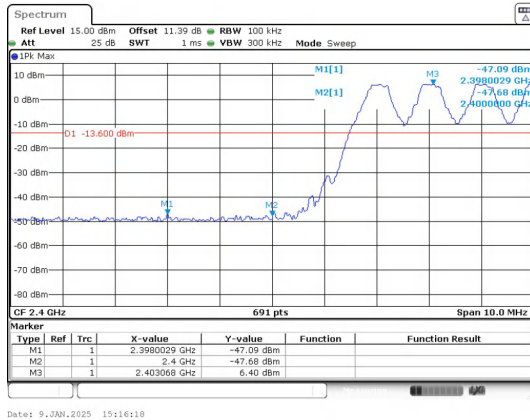
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



Out Of Band Emission
8DPSK_3-DH5_Channel 78

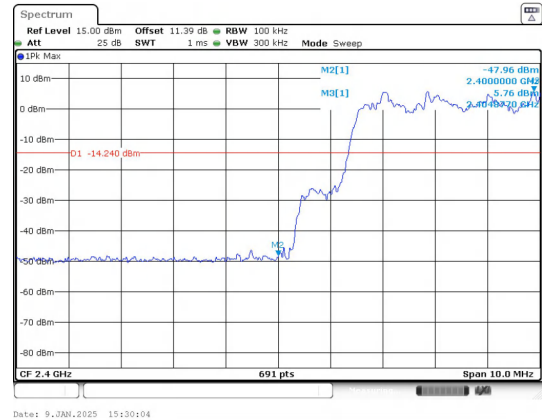


30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



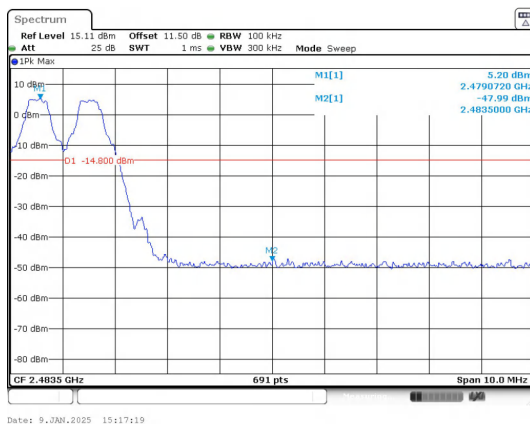
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Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



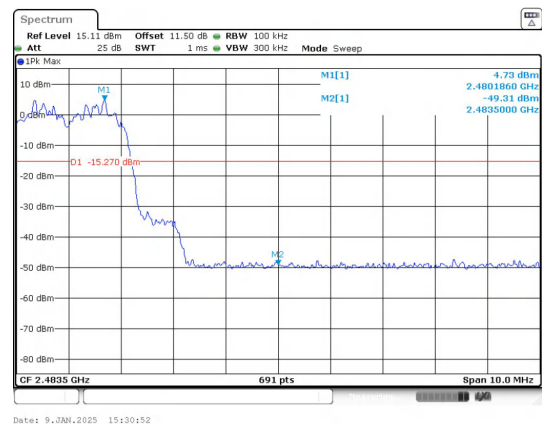
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Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping



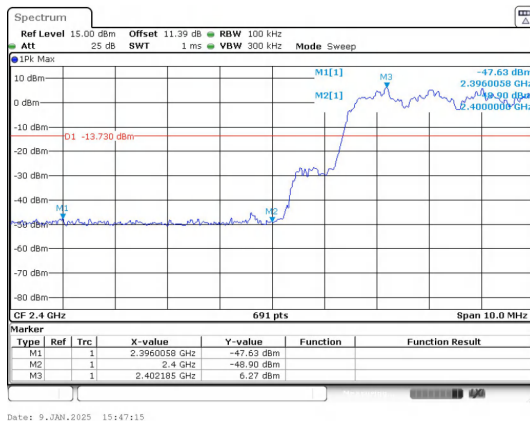
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Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



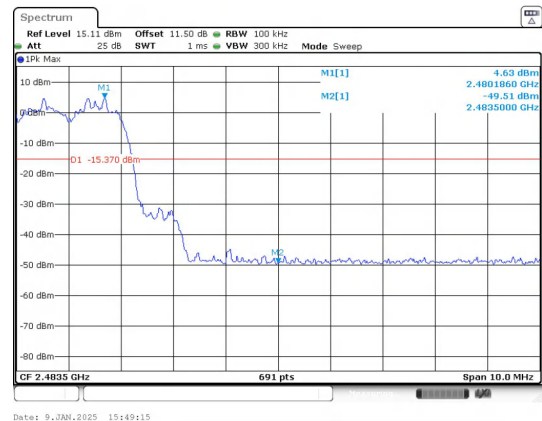
Date: 9.JAN.2025 15:30:52

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



Date: 9.JAN.2025 15:47:15

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



Date: 9.JAN.2025 15:49:15

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

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