

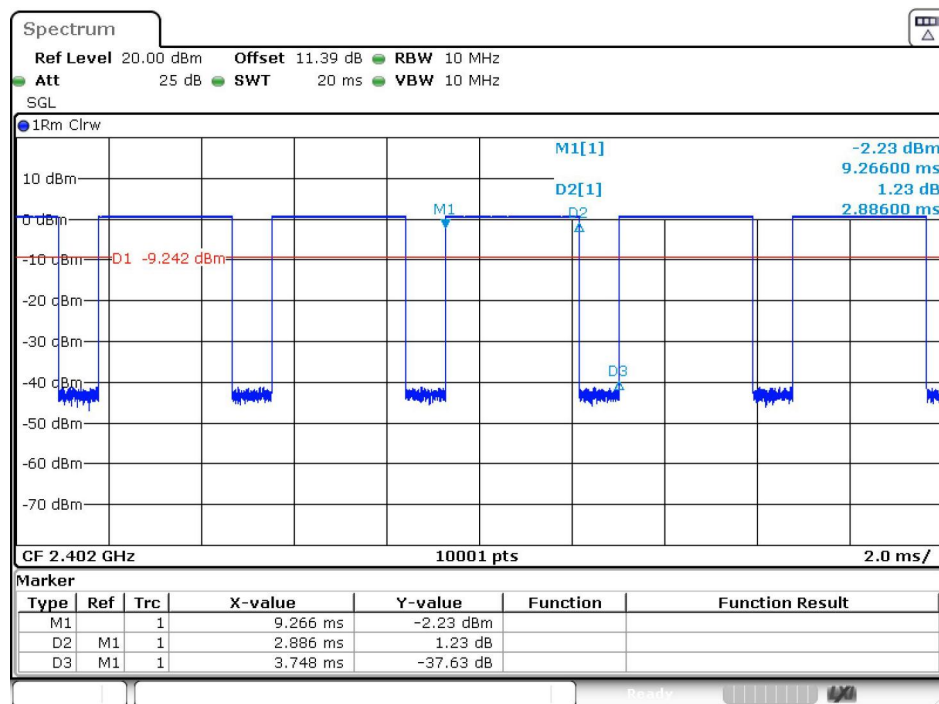
Appendix Report

Report No.:	CISRR25010702504
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

1) Duty Cycle

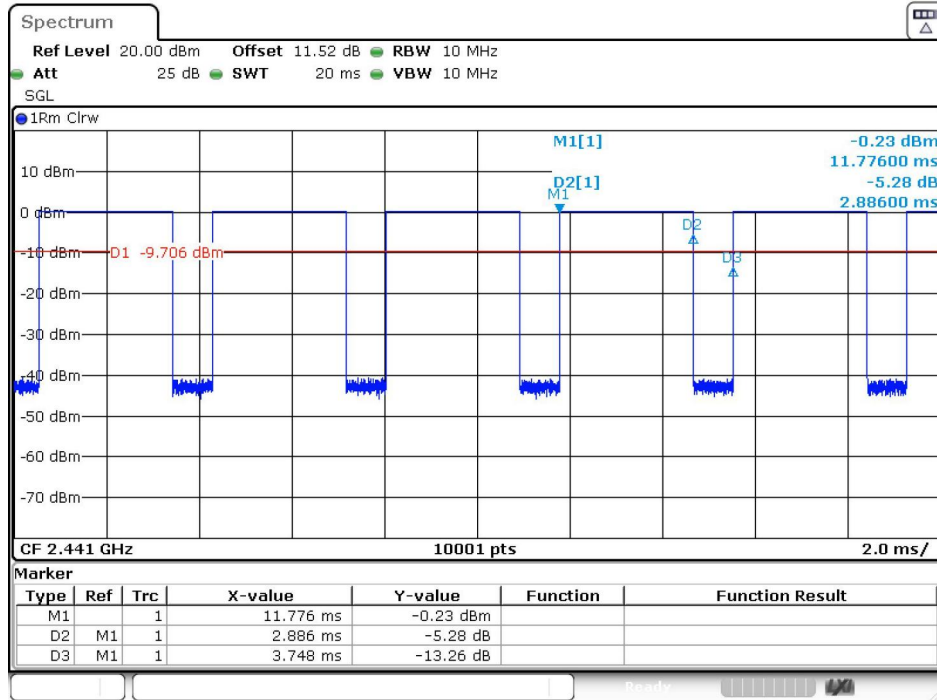
Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.886	3.748	77.00	0.7700	1.1351	0.3465
		39	2.886	3.748	77.00	0.7700	1.1351	0.3465
		78	2.886	3.748	77.00	0.7700	1.1351	0.3465
$\pi/4$ DQPSK	2-DH5	0	2.892	3.748	77.16	0.7716	1.1261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



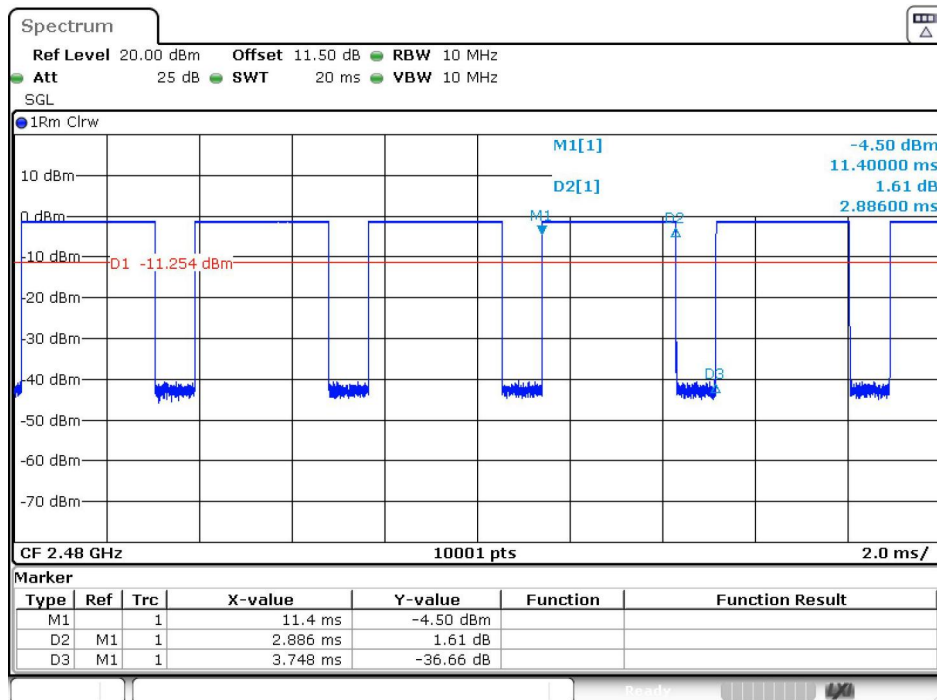
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GFSK(DH5)_Channel 0



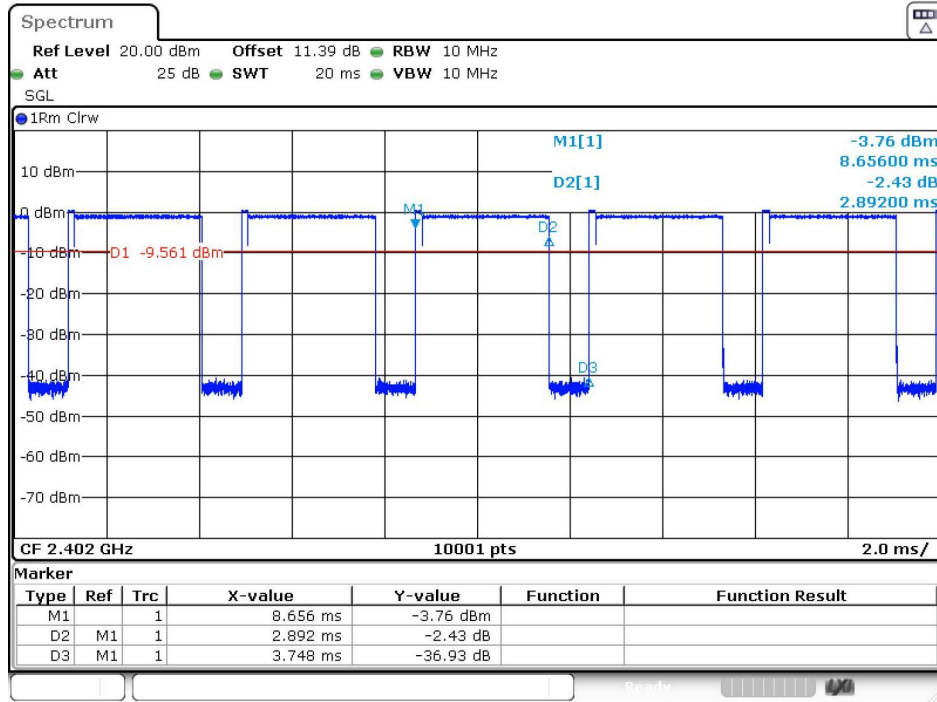
Date: 8.JAN.2025 19:38:13

GFSK(DH5)_Channel 39



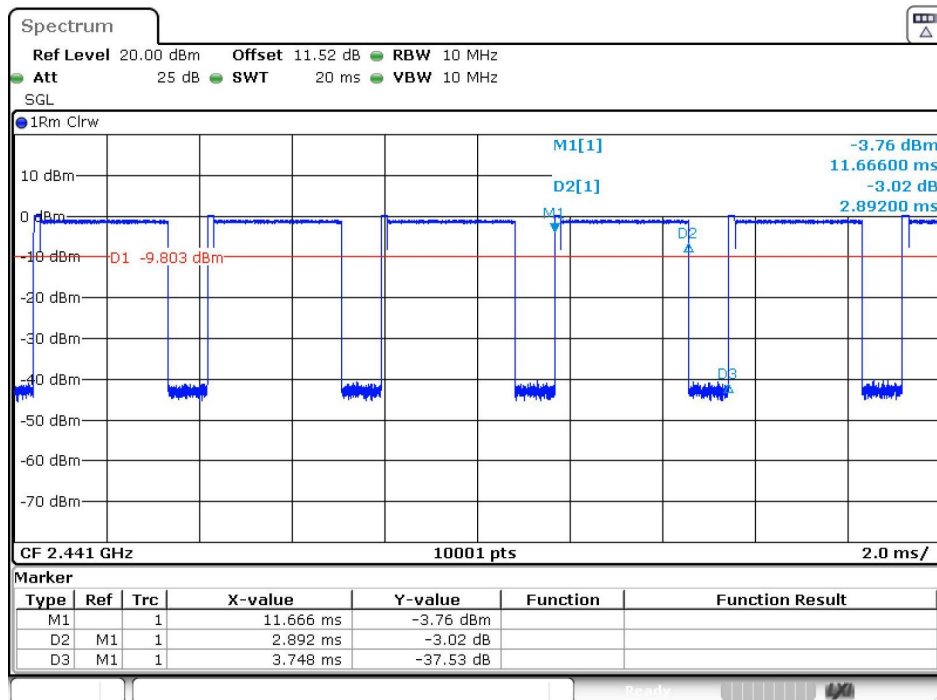
Date: 8.JAN.2025 19:41:33

GFSK(DH5)_Channel 78



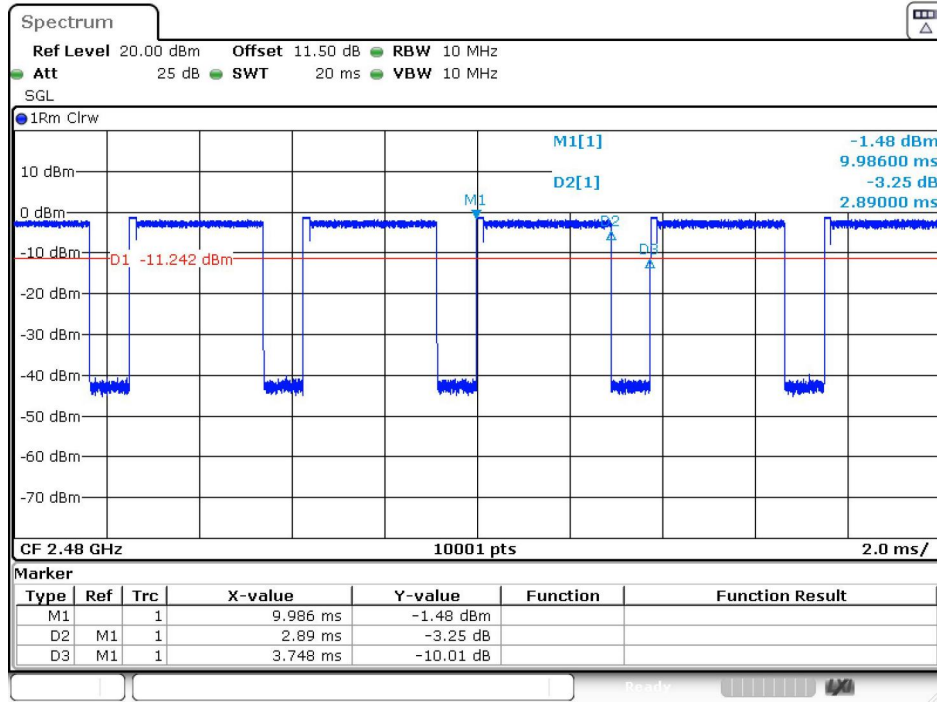
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$\pi/4$ DQPSK(2-DH5)_Channel 0



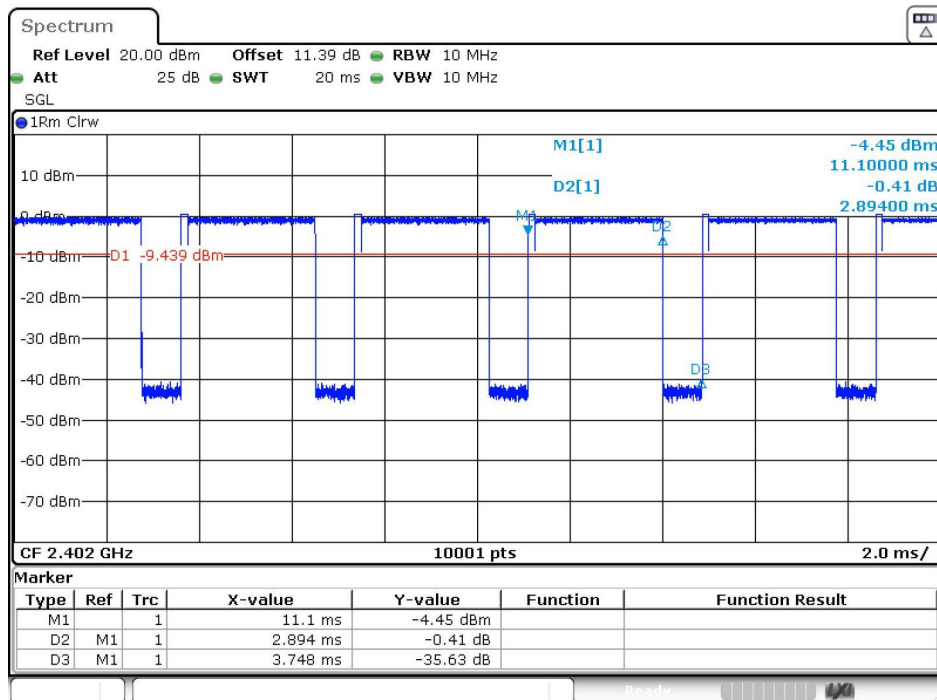
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$\pi/4$ DQPSK(2-DH5)_Channel 39



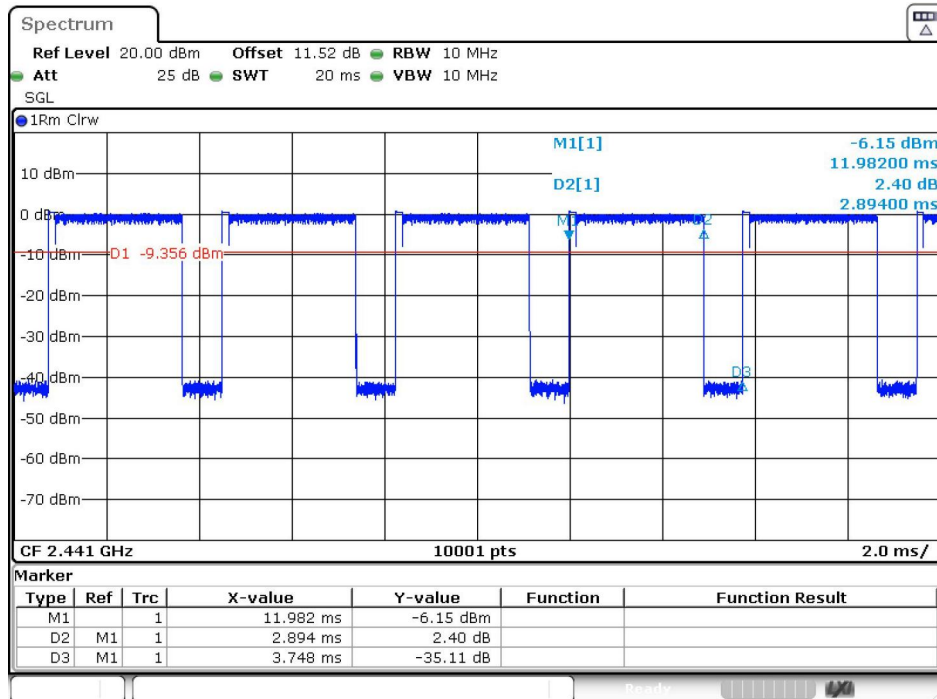
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$\pi/4$ DQPSK(2-DH5)_Channel 78



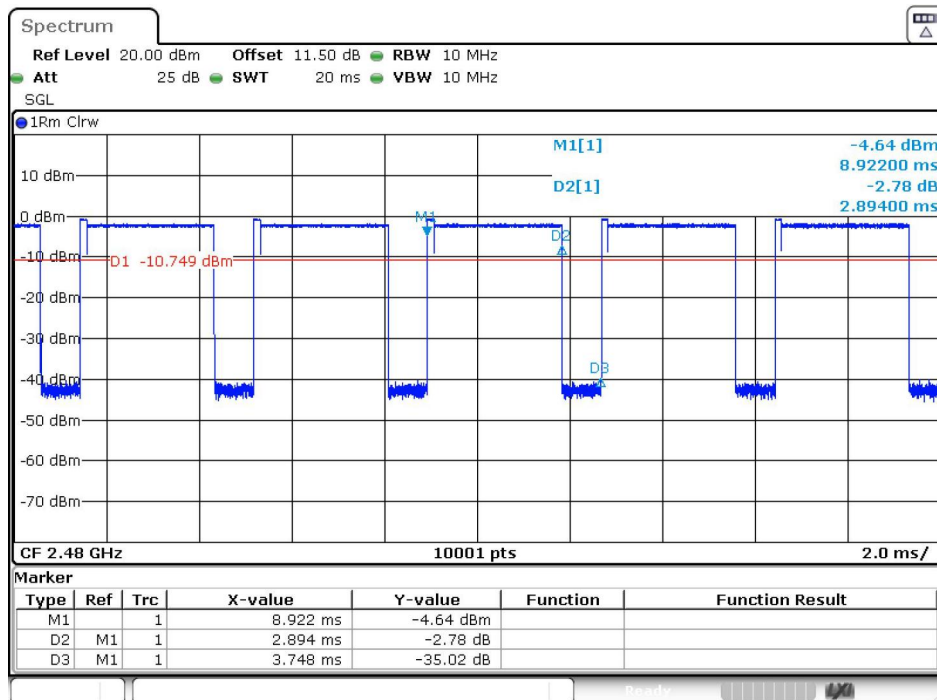
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8DPSK(3-DH5)_Channel 0



Date: 8.JAN.2025 20:19:40

8DPSK(3-DH5)_Channel 39



Date: 8.JAN.2025 20:22:34

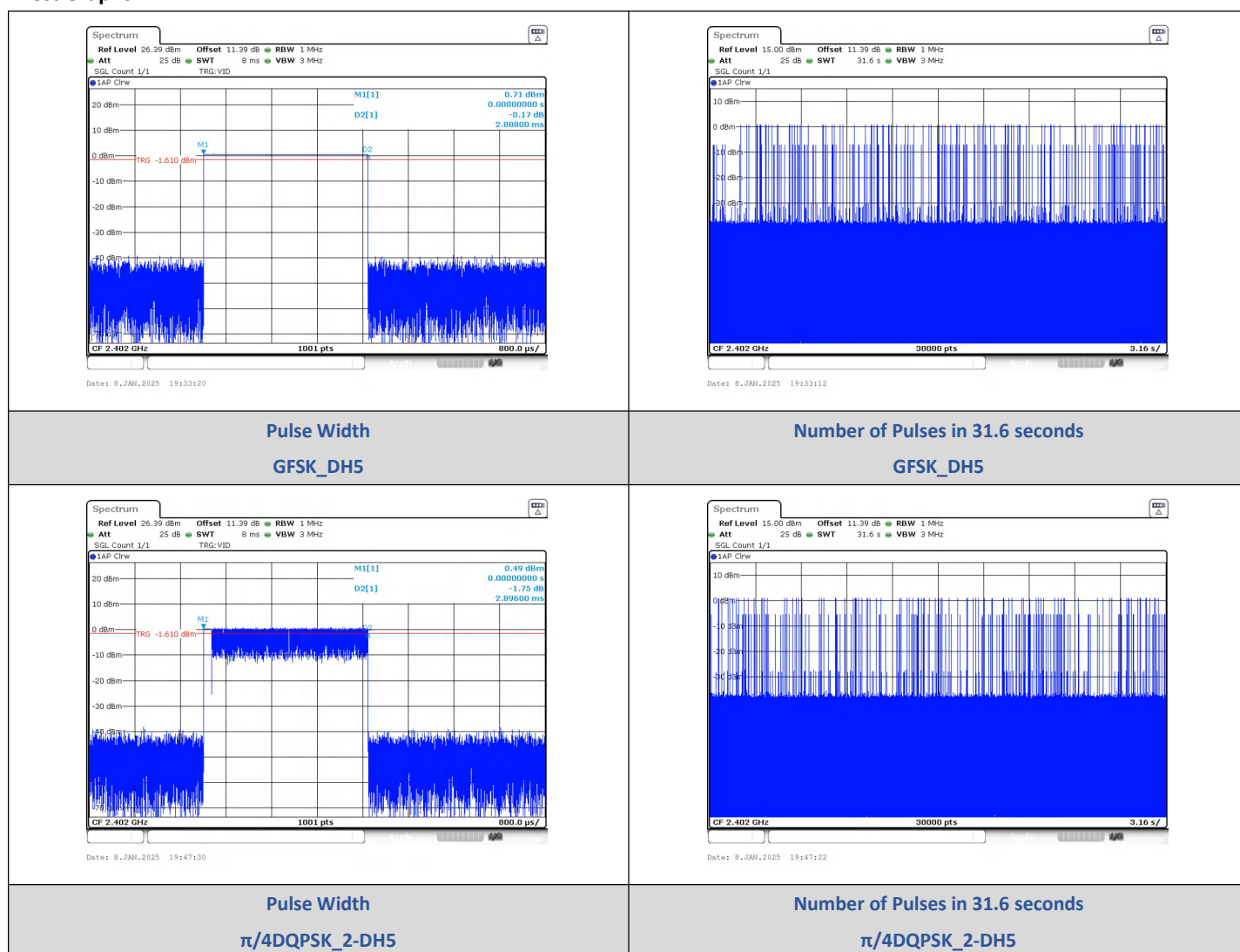
8DPSK(3-DH5)_Channel 78

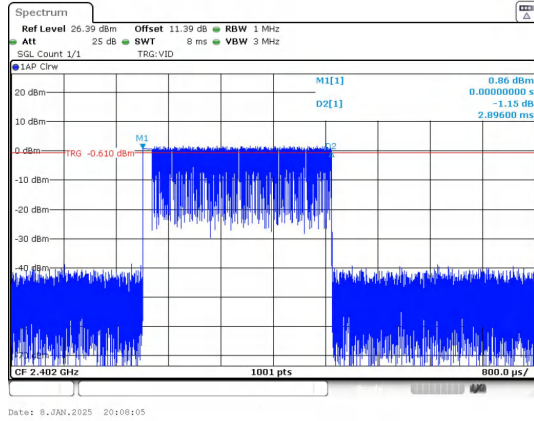
2) Dwell Time

Test Result

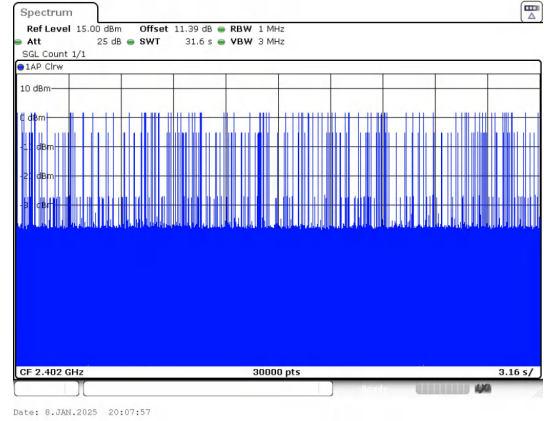
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.888	105	303.24	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	96	278.02		PASS
8DPSK	3-DH5		2.896	94	272.22		PASS

Test Graphs





Pulse Width
8DPSK_3-DH5



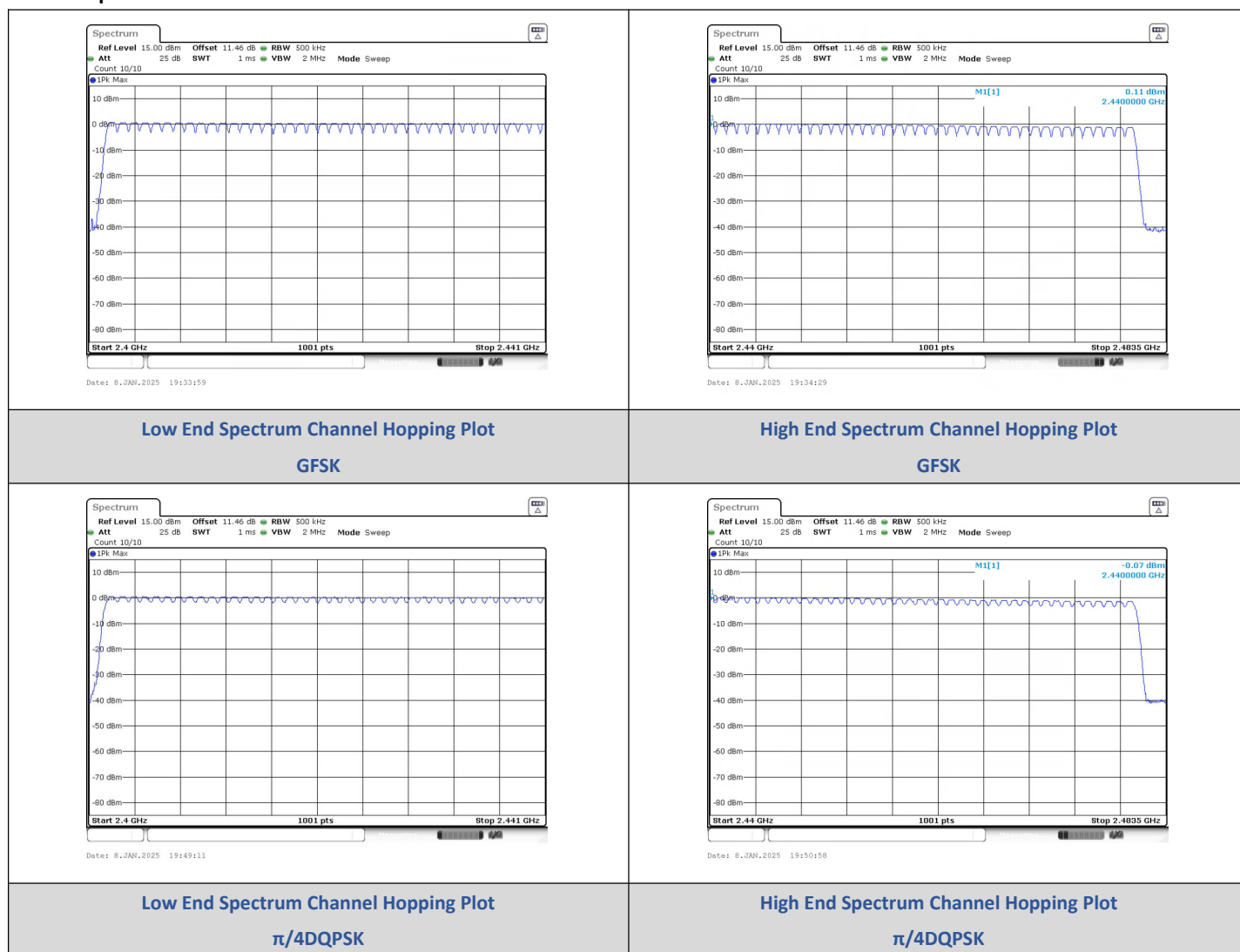
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

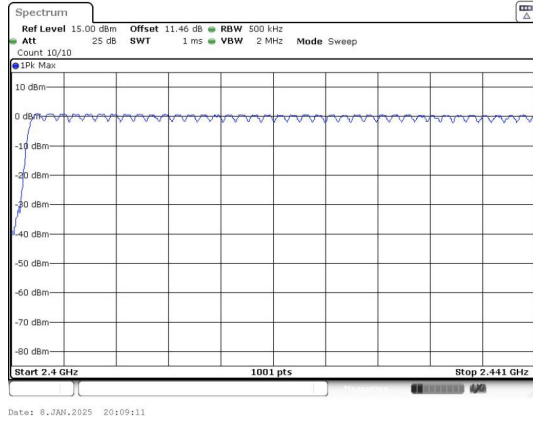
3) Number Of Hopping Channel

Test Result

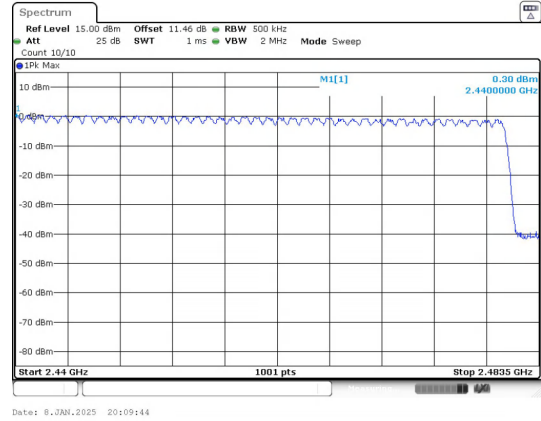
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





Low End Spectrum Channel Hopping Plot
8DPSK



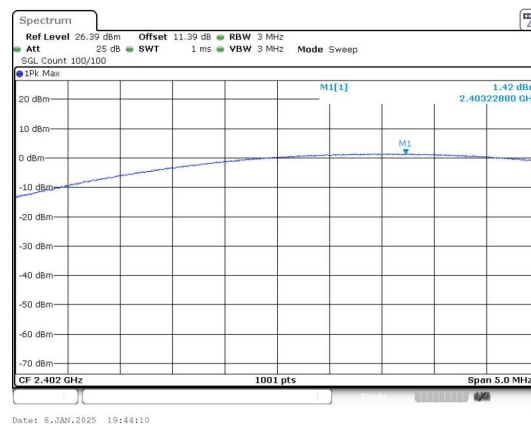
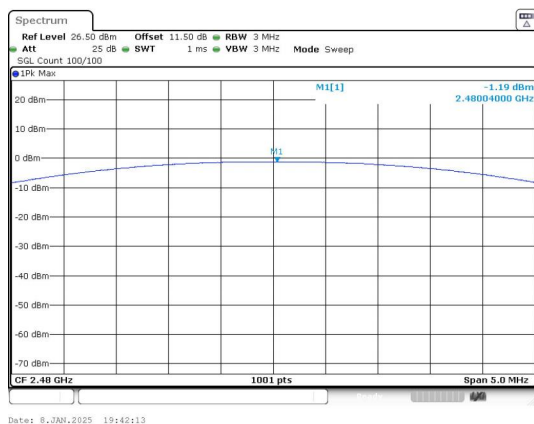
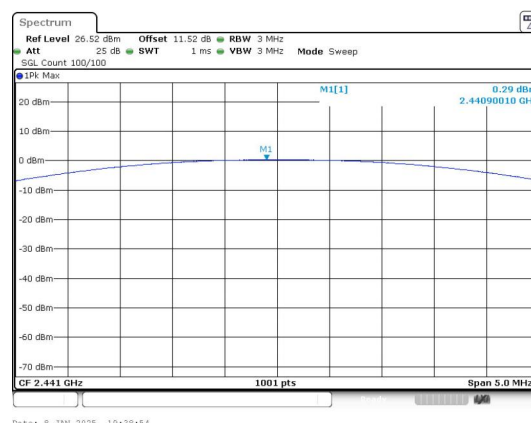
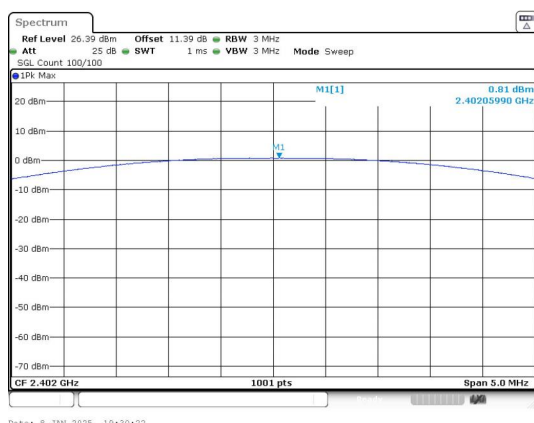
High End Spectrum Channel Hopping Plot
8DPSK

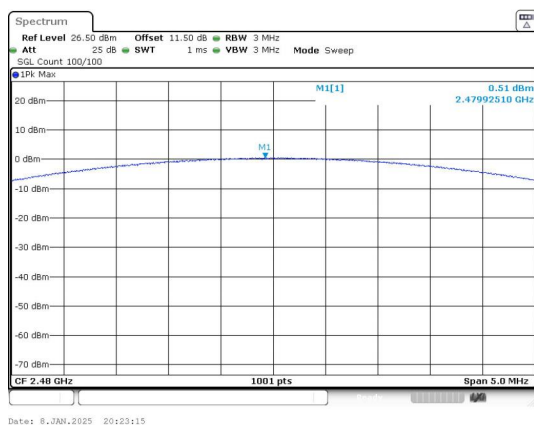
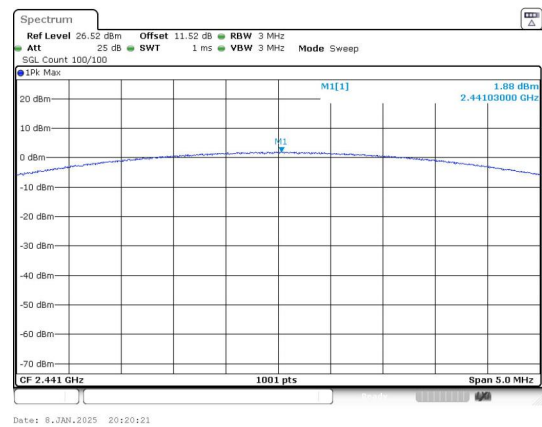
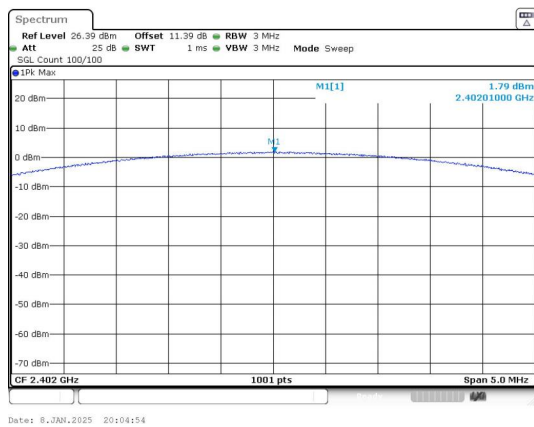
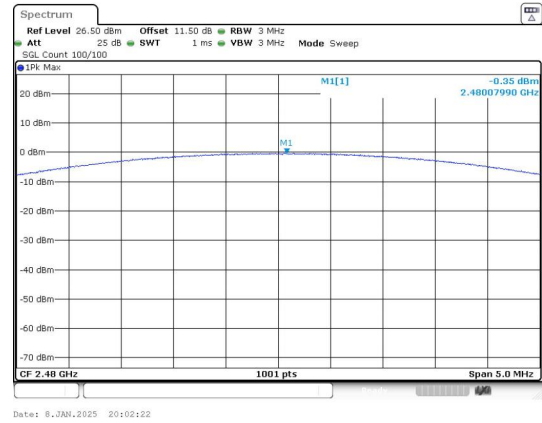
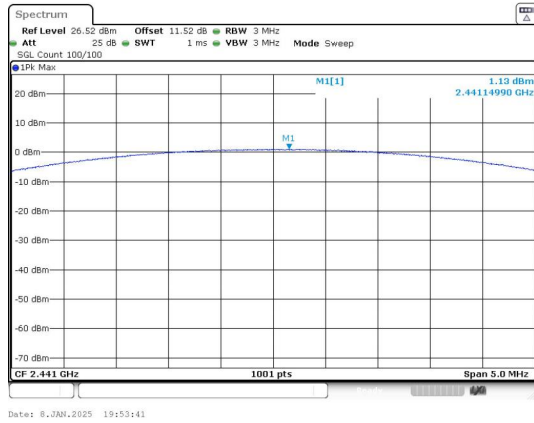
4) Conducted Peak Output Power

Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	0.81	1.21	≤30	PASS
		39	0.29	1.07		PASS
		78	-1.19	0.76		PASS
$\pi/4$ DQPSK	2-DH5	0	1.42	1.39	≤20.97	PASS
		39	1.13	1.30		PASS
		78	-0.35	0.92		PASS
8DPSK	3-DH5	0	1.79	1.51		PASS
		39	1.88	1.54		PASS
		78	0.51	1.12		PASS

Test Graphs



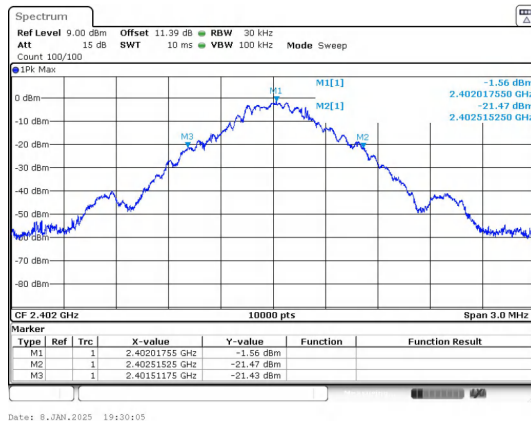


5) 20dB Bandwidth

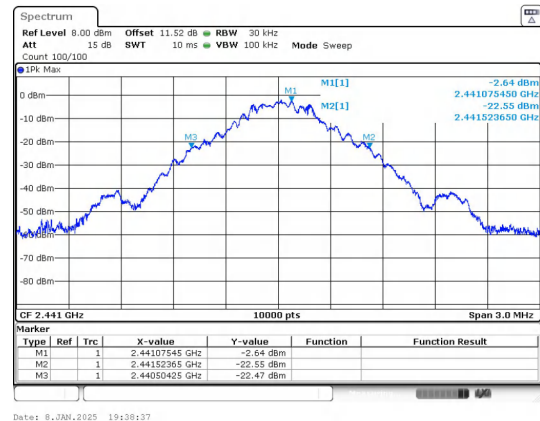
Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.010
	39	2441 MHz	1.020
	78	2480 MHz	0.9500
$\pi/4$ DQPSK	0	2402 MHz	1.110
	39	2441 MHz	1.280
	78	2480 MHz	1.300
8DPSK	0	2402 MHz	1.290
	39	2441 MHz	1.290
	78	2480 MHz	1.290

Test Graphs



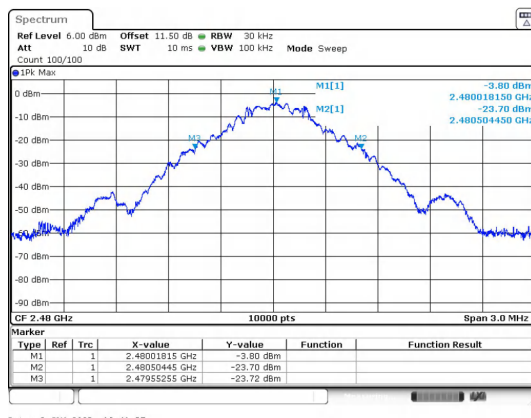
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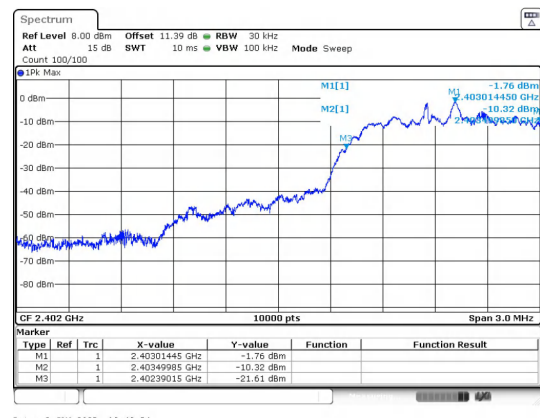
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GFSK_DH5_Channel 0

GFSK_DH5_Channel 39



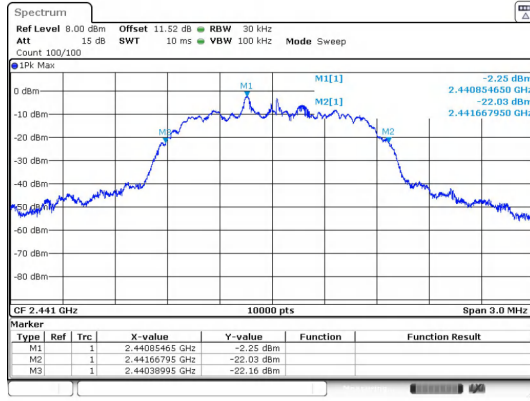
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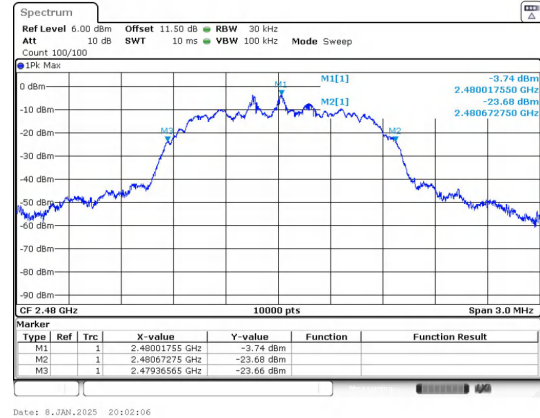
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GFSK_DH5_Channel 78

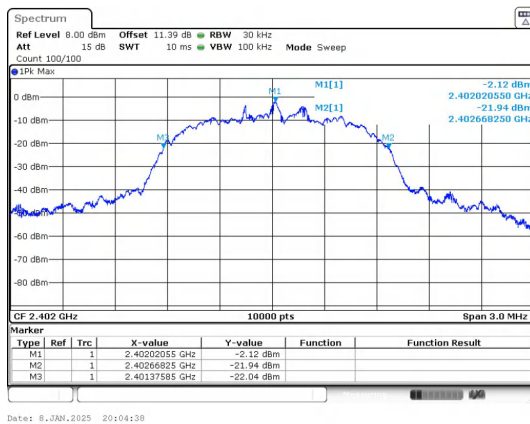
 $\pi/4$ DQPSK_2-DH5_Channel 0



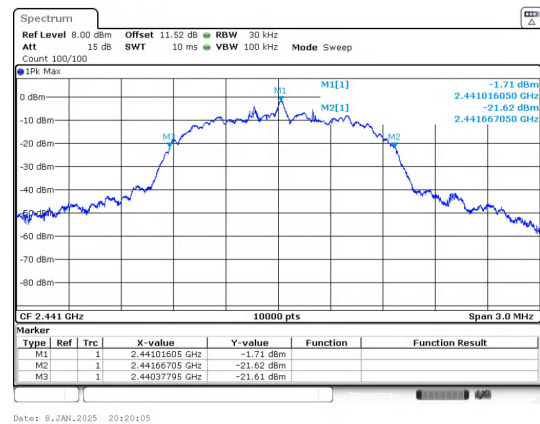
$\pi/4$ DQPSK_2-DH5_Channel 39



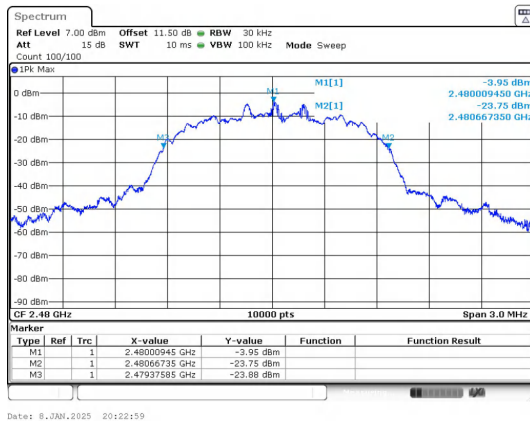
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



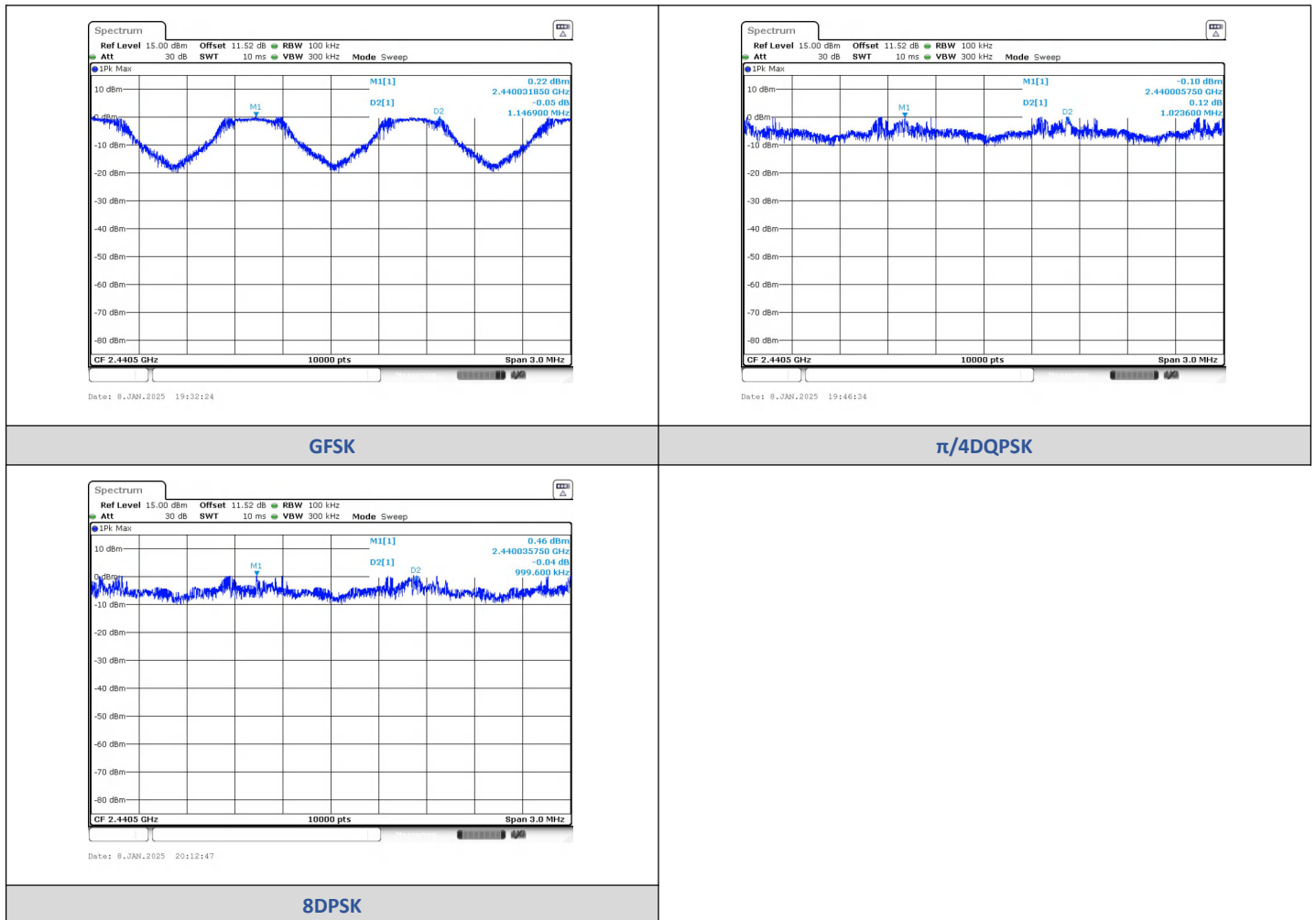
8DPSK_3-DH5_Channel 78

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	2440.0318	2441.1788	1.1469	1.01	PASS
$\pi/4$ DQPSK	2-DH5	2440.0057	2441.0293	1.0236	0.74	PASS
8DPSK	3-DH5	2440.0358	2441.0354	0.9996	0.86	PASS

Test Graphs



7) Conducted Out Of Band Emission

Test Result

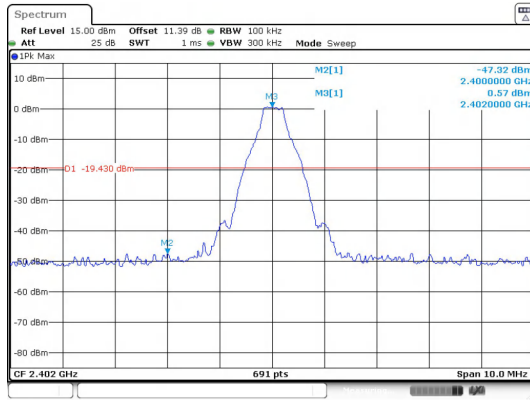
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-47.320	-19.43	-27.890	PASS
			9608.08	-45.598	-19.43	-26.168	PASS
		39	9763.72	-42.551	-19.95	-22.601	PASS
		78	2483.50	-51.000	-21.44	-29.560	PASS
			9920.20	-40.598	-21.44	-19.158	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-48.500	-18.96	-29.540	PASS
			9608.08	-43.655	-18.96	-24.695	PASS
		39	9763.72	-42.594	-19.97	-22.624	PASS
		78	2483.50	-51.570	-21.42	-30.150	PASS
			9920.20	-40.242	-21.42	-18.822	PASS
8DPSK	3-DH5	0	2400.00	-47.000	-19.0	-28.000	PASS
			9608.08	-44.700	-19.0	-25.700	PASS
		39	9763.72	-42.784	-19.72	-23.064	PASS
		78	2483.50	-49.930	-21.11	-28.820	PASS
			9920.20	-40.286	-21.11	-19.176	PASS

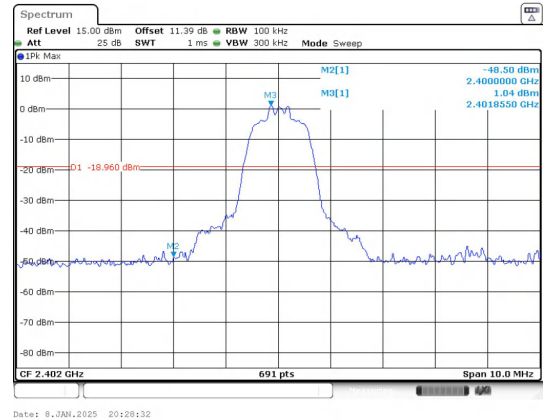
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2396.58	-48.126	-19.51	-28.616	PASS
			2400.00	-50.100	-19.51	-30.590	PASS
			2483.50	-48.460	-21.34	-27.120	PASS
$\pi/4$ DQPSK	2-DH5		2395.88	-48.020	-20.69	-27.330	PASS
			2400.00	-50.360	-20.69	-29.670	PASS
			2483.50	-48.980	-21.43	-27.550	PASS
8DPSK	3-DH5		2398.91	-48.288	-20.36	-27.928	PASS
			2400.00	-48.350	-20.36	-27.990	PASS
			2483.50	-47.400	-23.82	-23.580	PASS

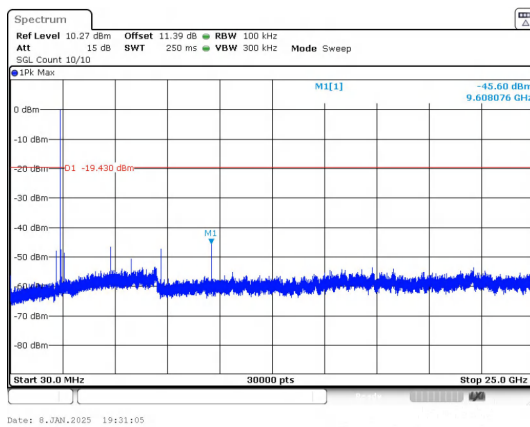
Test Graphs



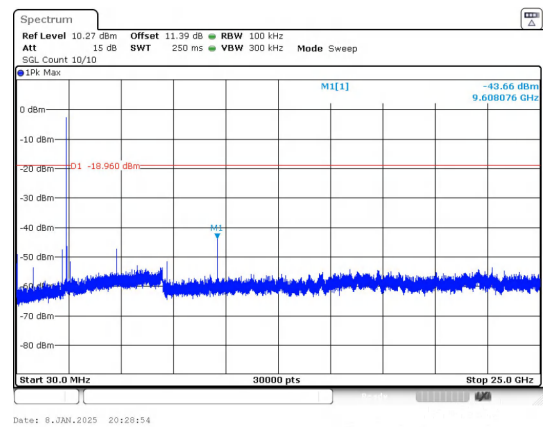
Out Of Band Emission
GFSK_DH5_Channel 0



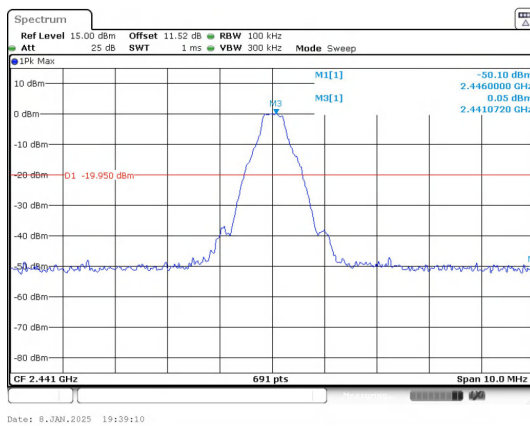
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0



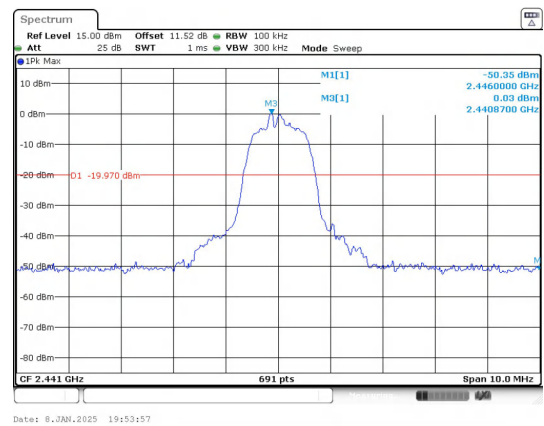
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



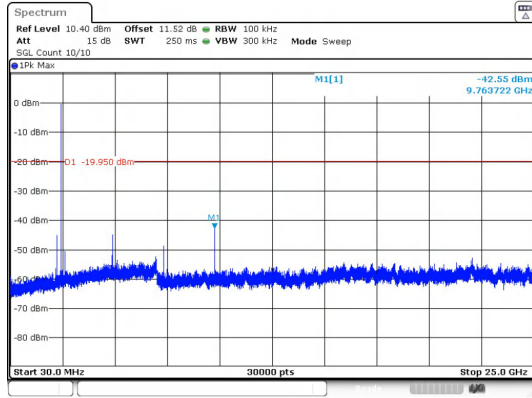
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 0



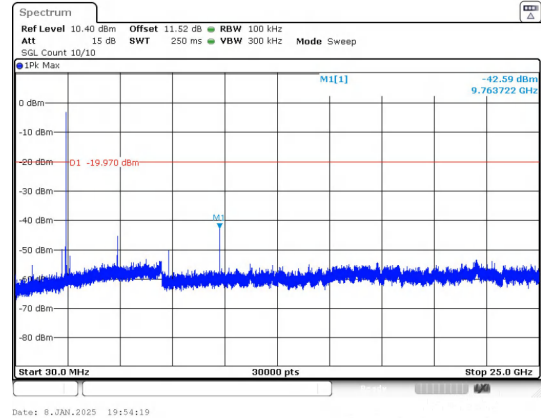
Out Of Band Emission
GFSK_DH5_Channel 39



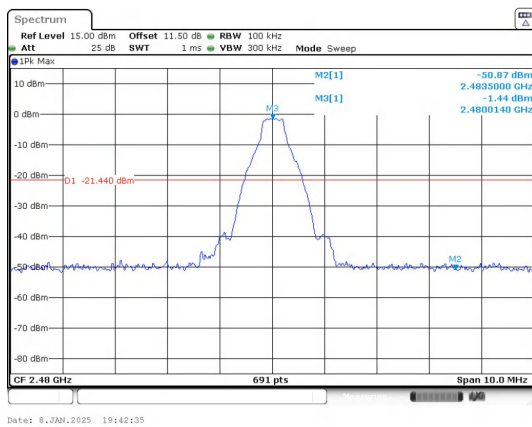
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 39



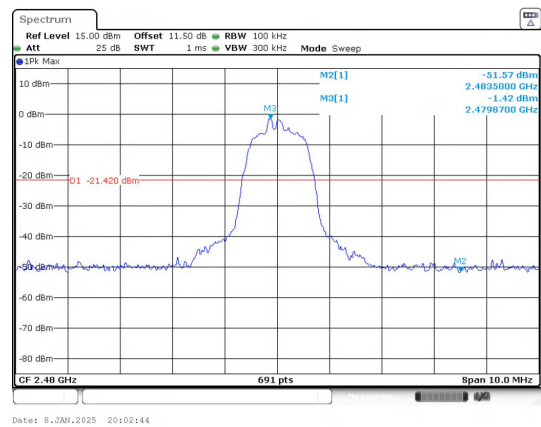
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



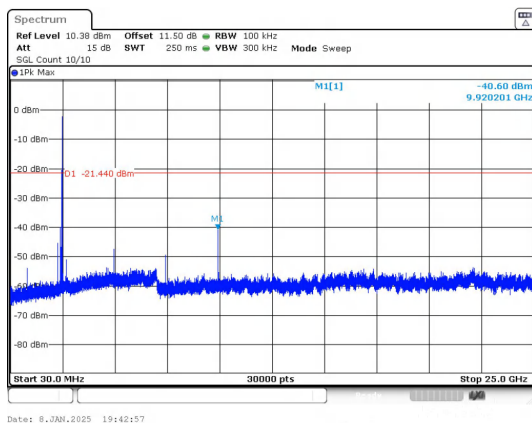
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 39



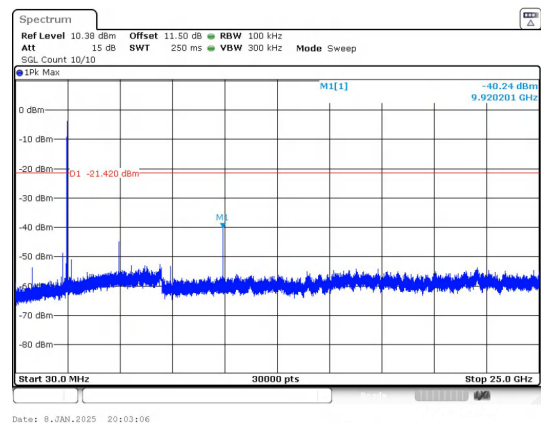
Out Of Band Emission
GFSK_DH5_Channel 78



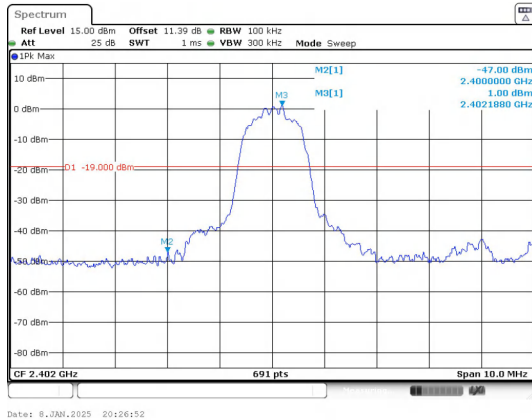
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78



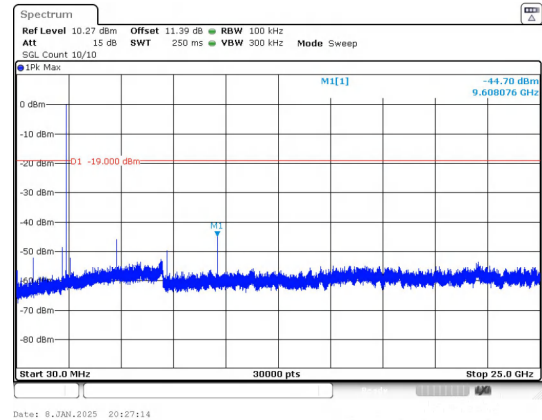
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



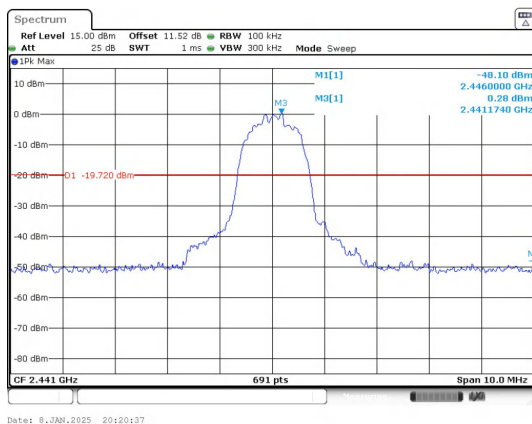
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 78



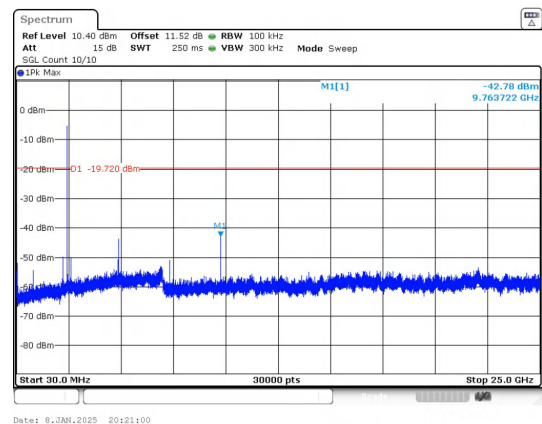
Out Of Band Emission
8DPSK_3-DH5_Channel 0



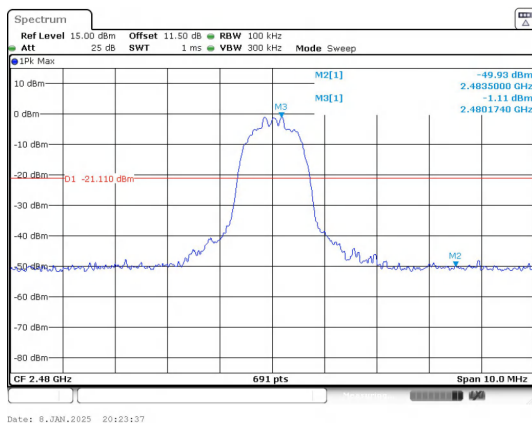
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0



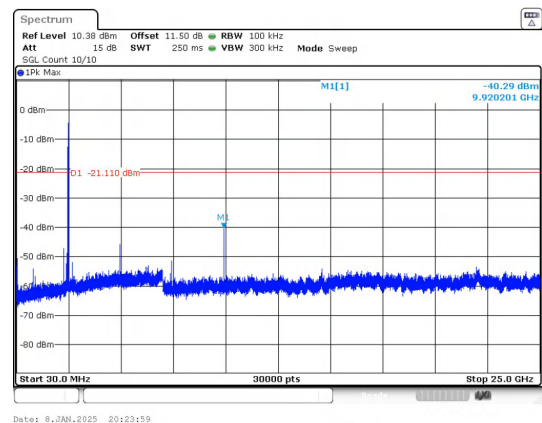
Out Of Band Emission
8DPSK_3-DH5_Channel 39



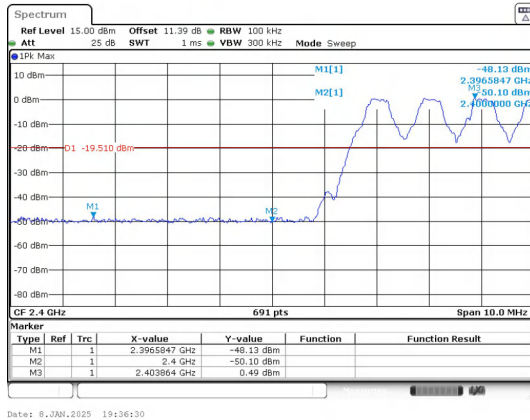
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



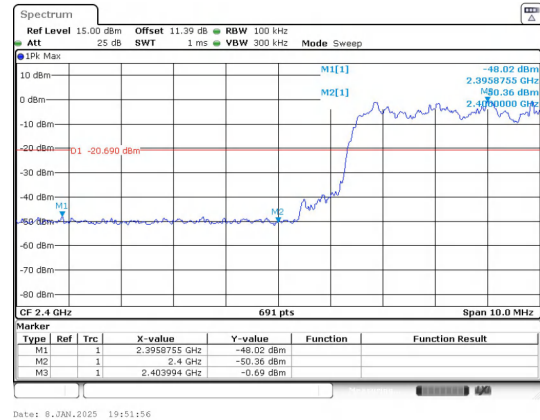
Out Of Band Emission
8DPSK_3-DH5_Channel 78



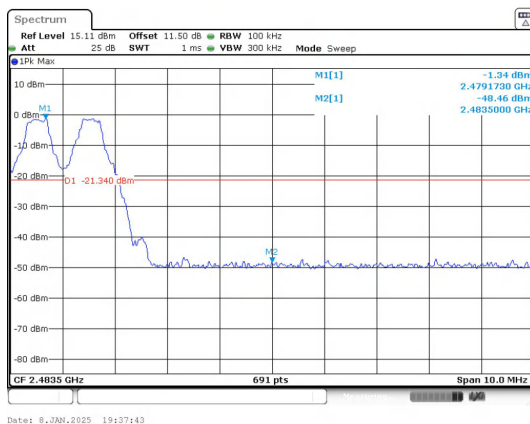
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



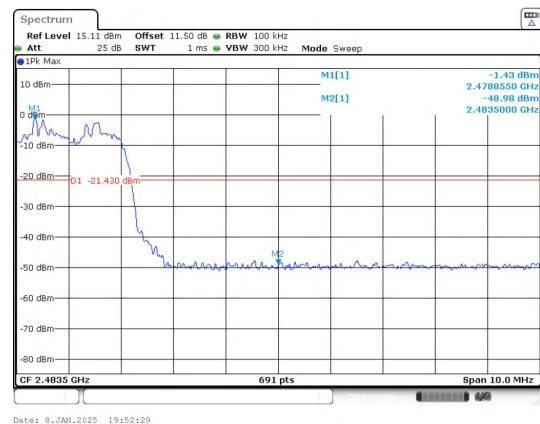
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



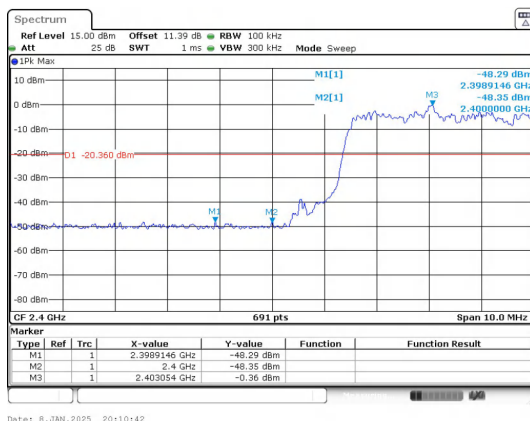
Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping



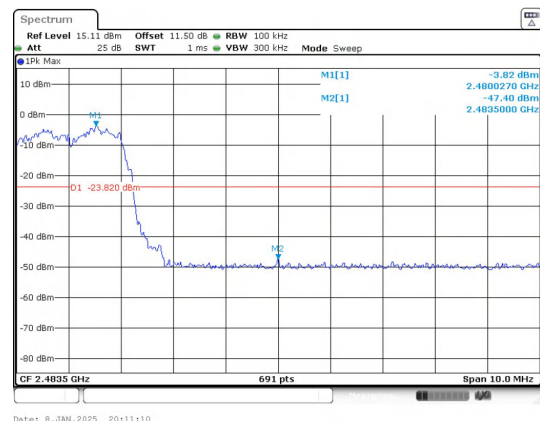
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



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-----