

Appendix Report

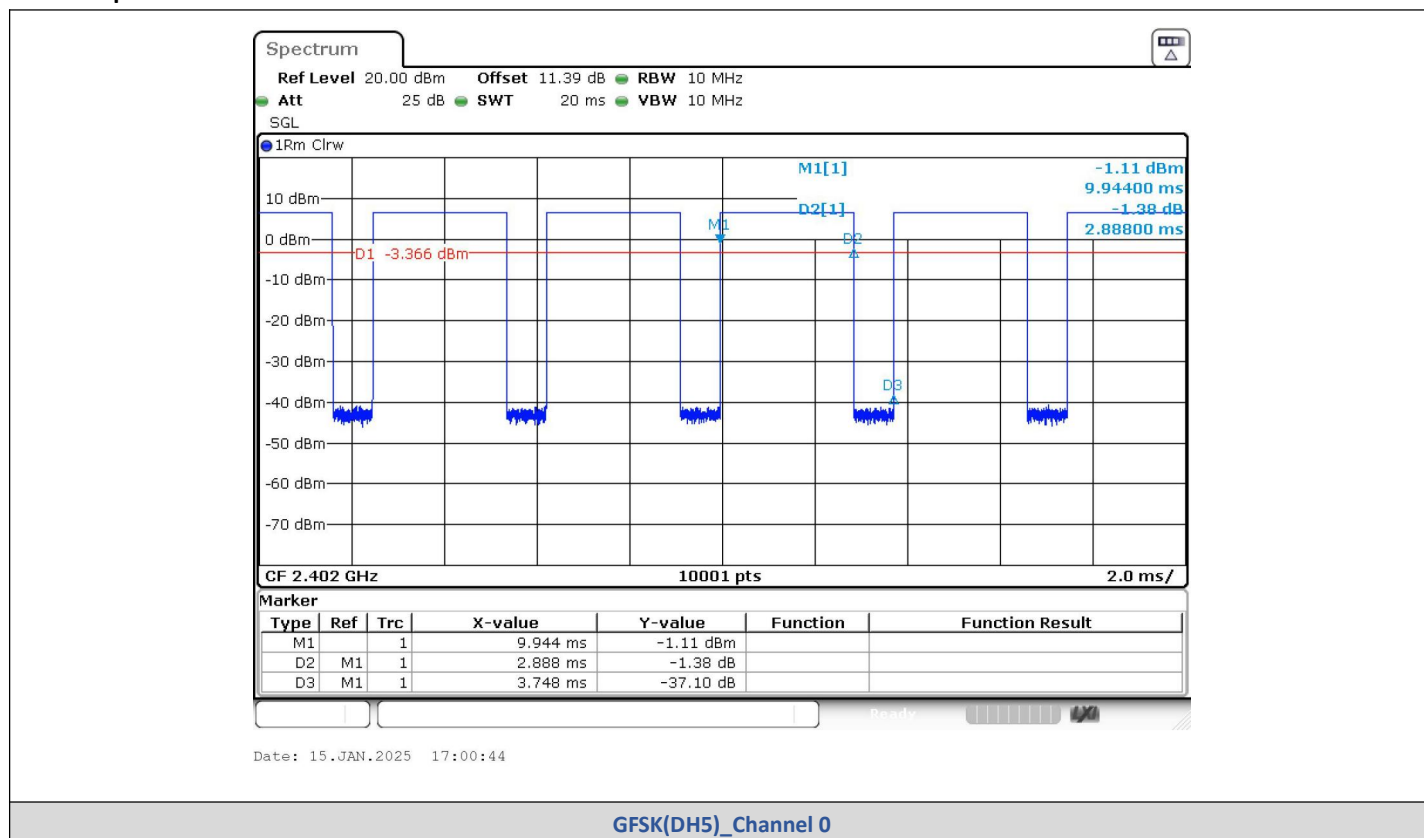
Report No.:	CISRR24122823301
Test Engineer:	Mark Fu
Supervised by:	Rory Huang

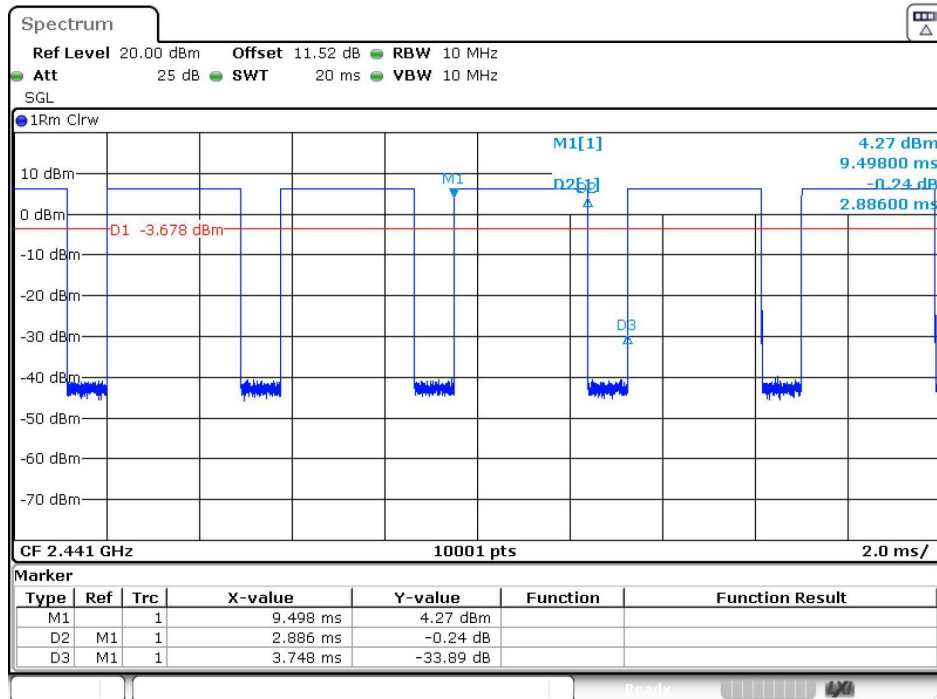
1) Duty Cycle

Test Result

Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.888	3.748	77.05	0.7705	1.1323	0.3463
		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	2.890	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	2.892	3.748	77.16	0.7716	1.1261	0.3458
		78	2.892	3.748	77.16	0.7716	1.1261	0.3458

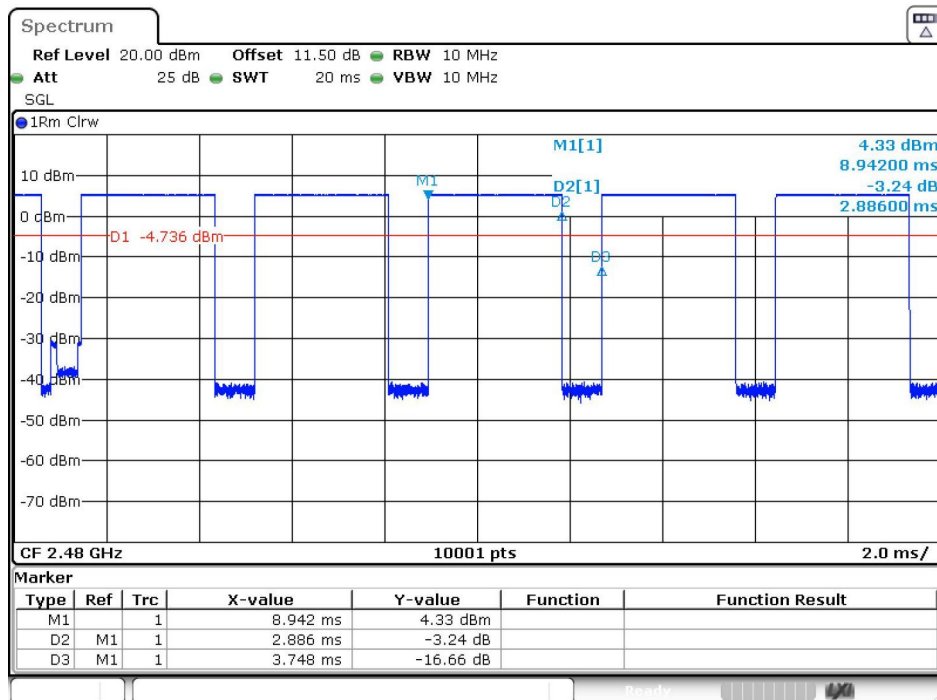
Test Graphs





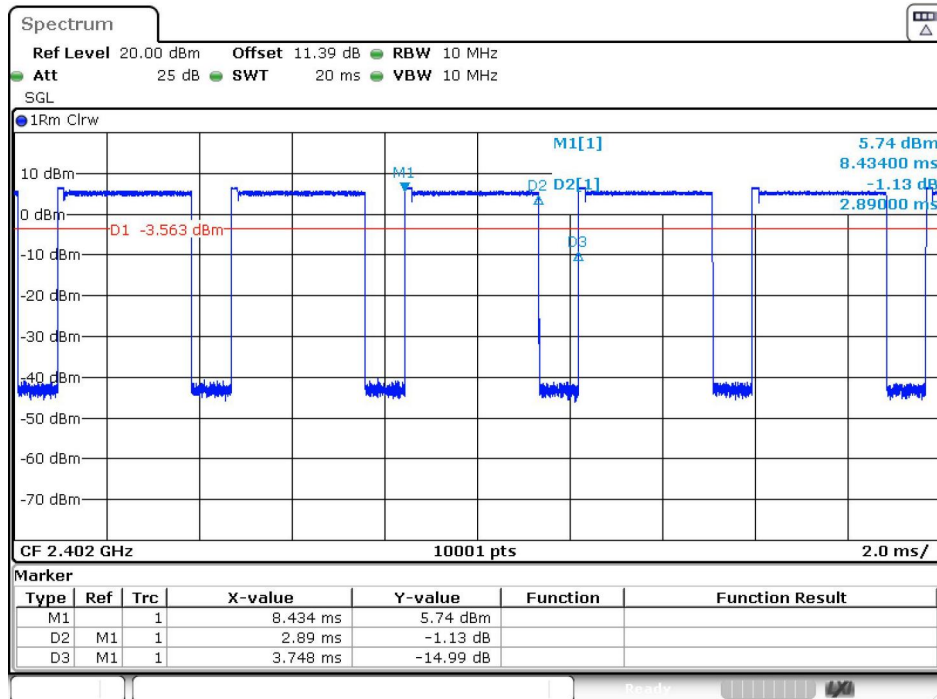
Date: 15.JAN.2025 17:15:27

GFSK(DH5)_Channel 39



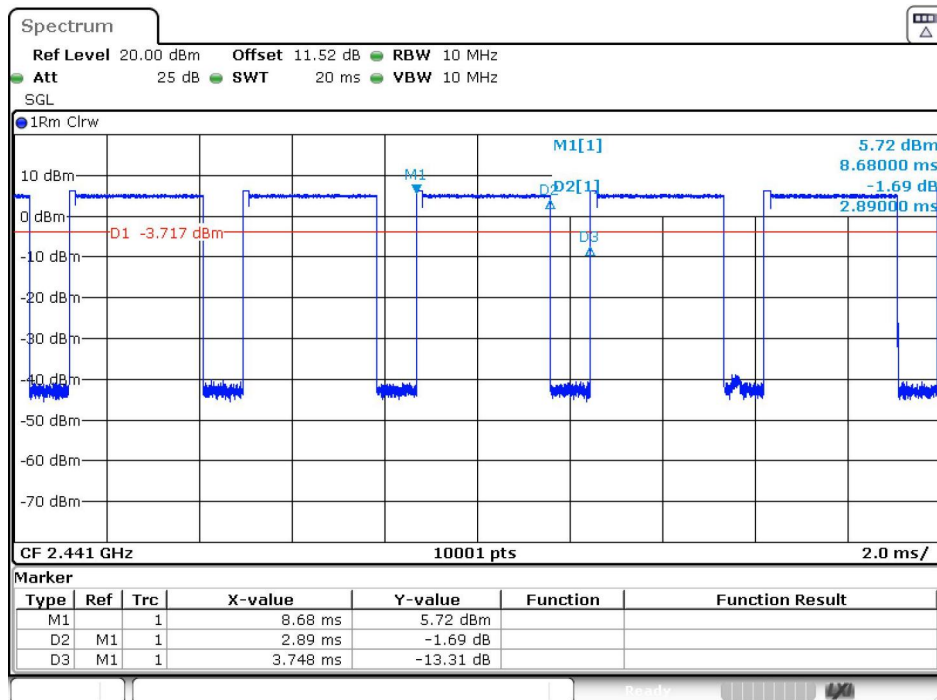
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GFSK(DH5)_Channel 78



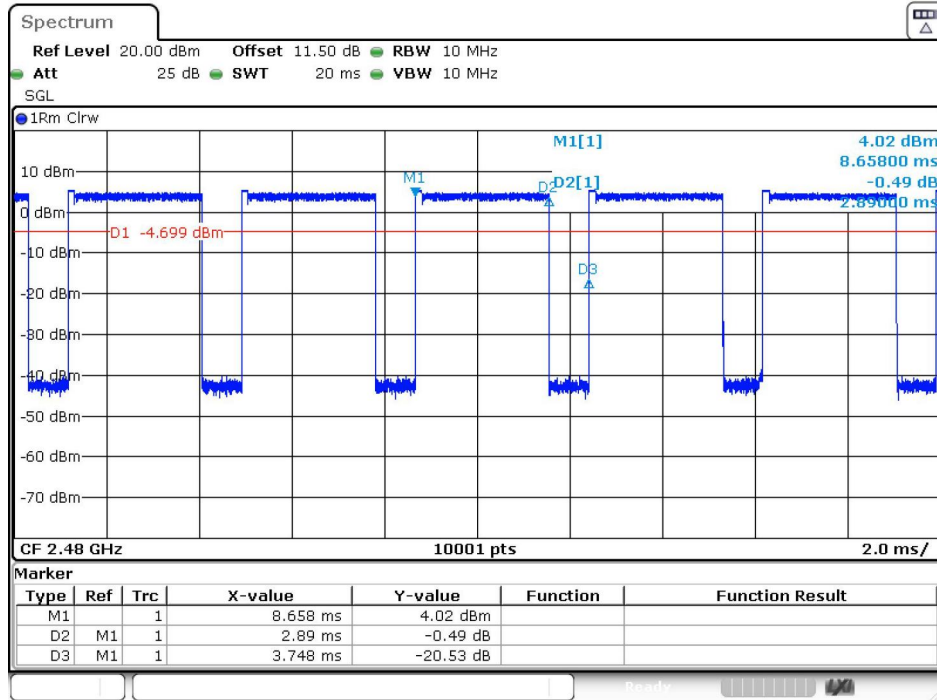
Date: 15, JAN, 2025 17:19:59

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



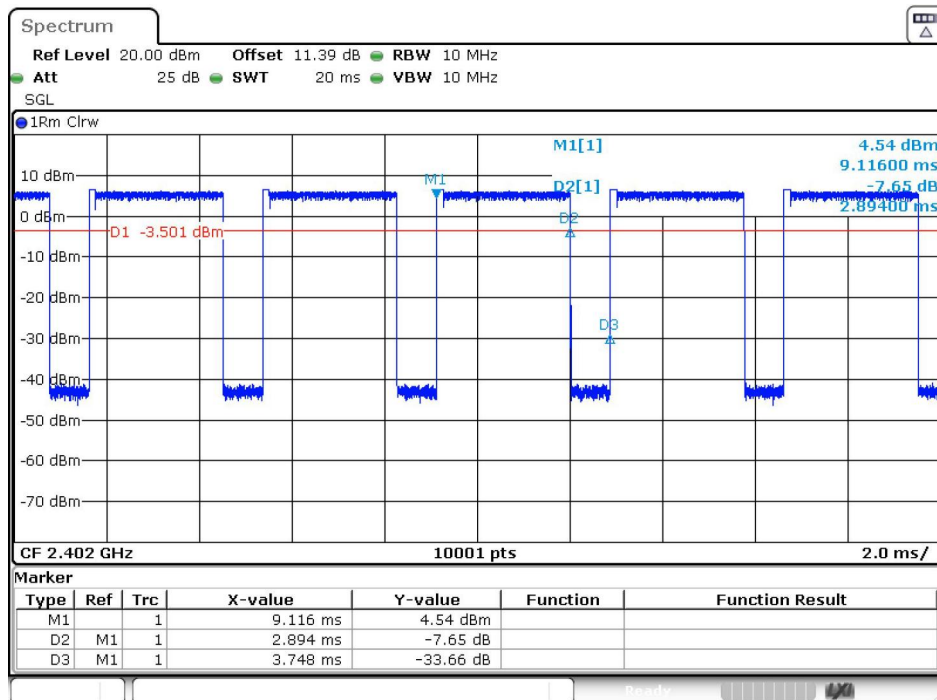
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$\pi/4$ DQPSK(2-DH5)_Channel 39



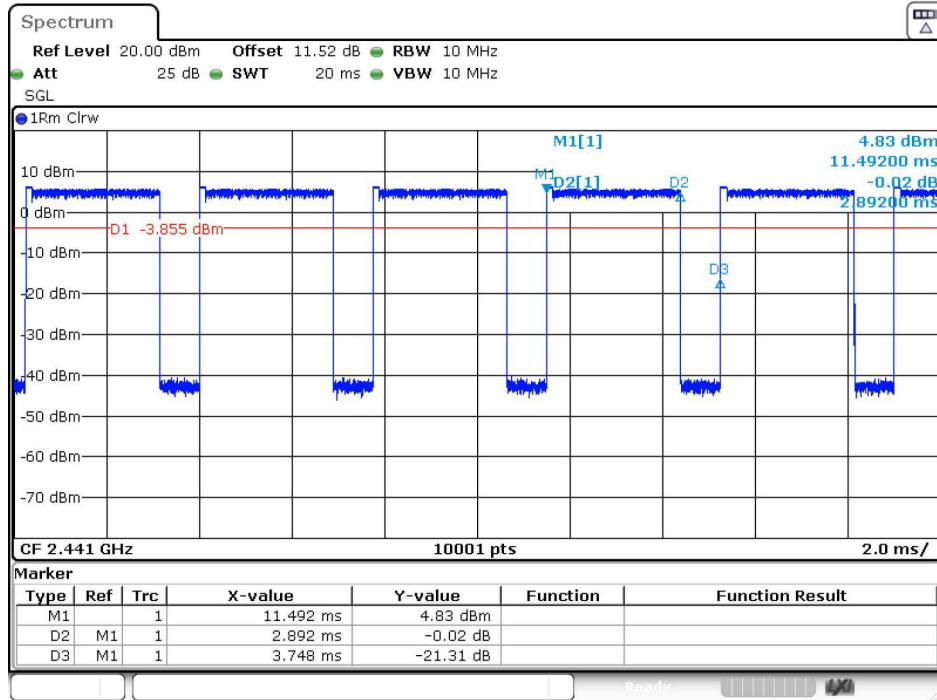
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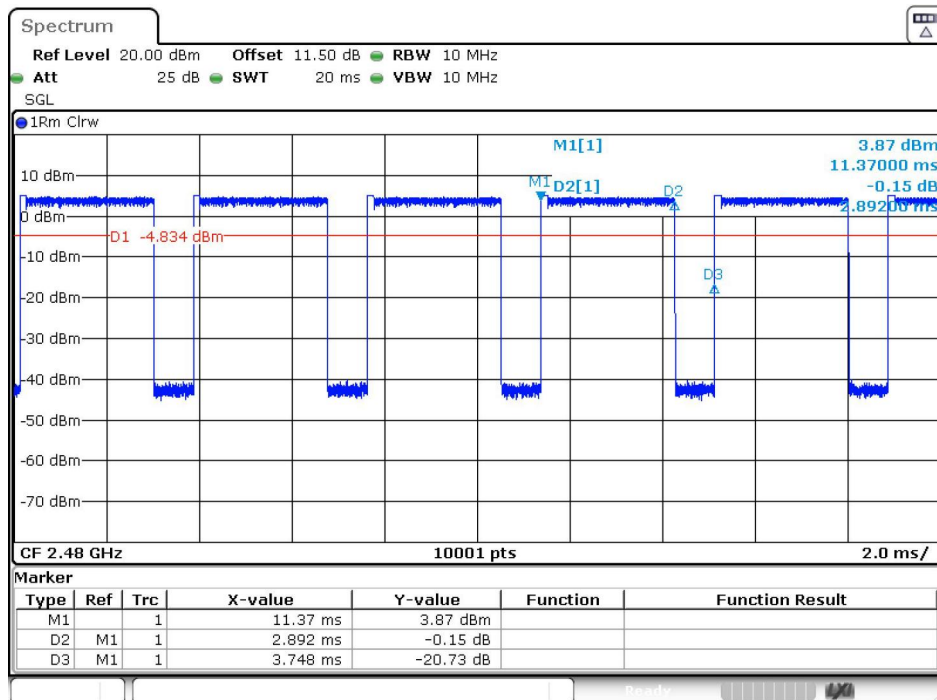
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8DPSK(3-DH5)_Channel 0



Date: 15.JAN.2025 17:37:17

8DPSK(3-DH5)_Channel 39



Date: 15.JAN.2025 17:38:59

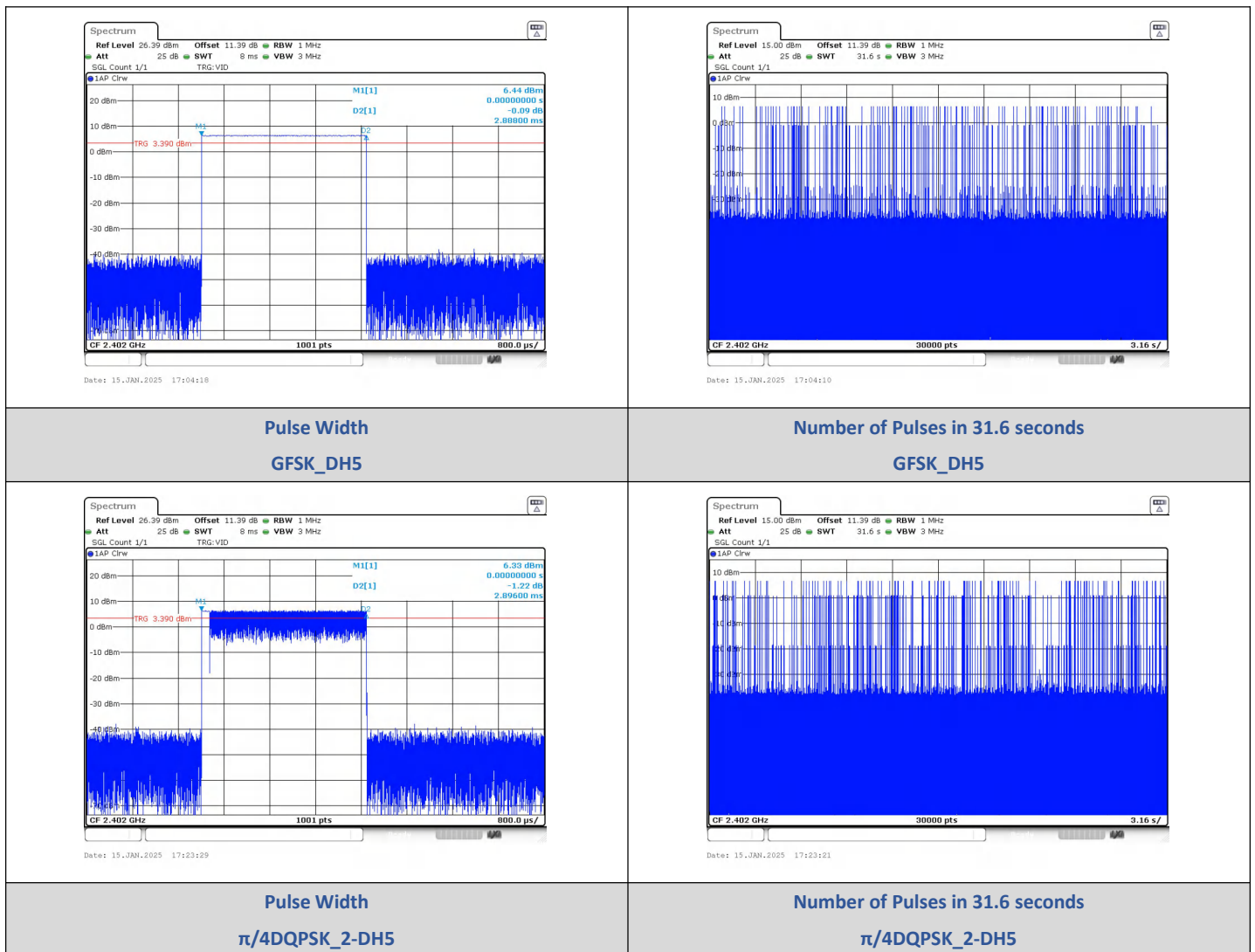
8DPSK(3-DH5)_Channel 78

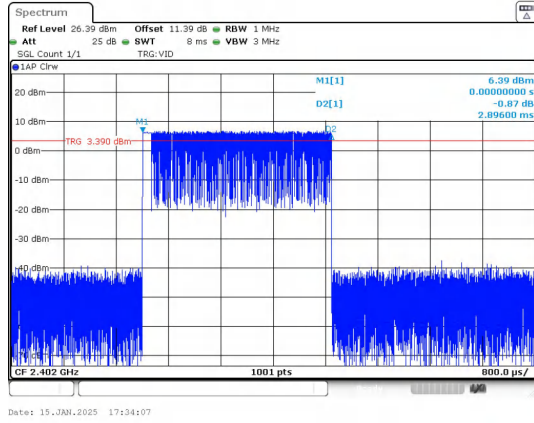
2) Dwell Time

Test Result

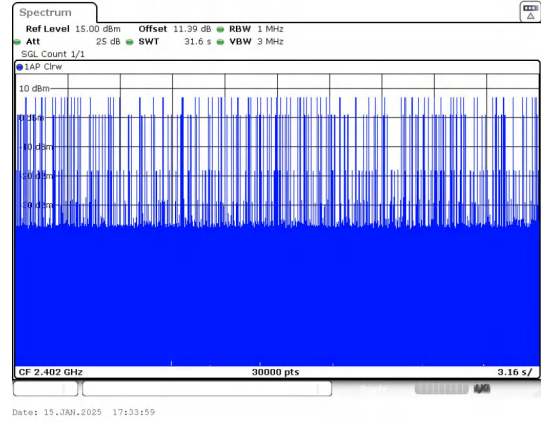
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.888	112	323.46	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	112	324.35		PASS
8DPSK	3-DH5		2.896	95	275.12		PASS

Test Graphs





Pulse Width
8DPSK_3-DH5



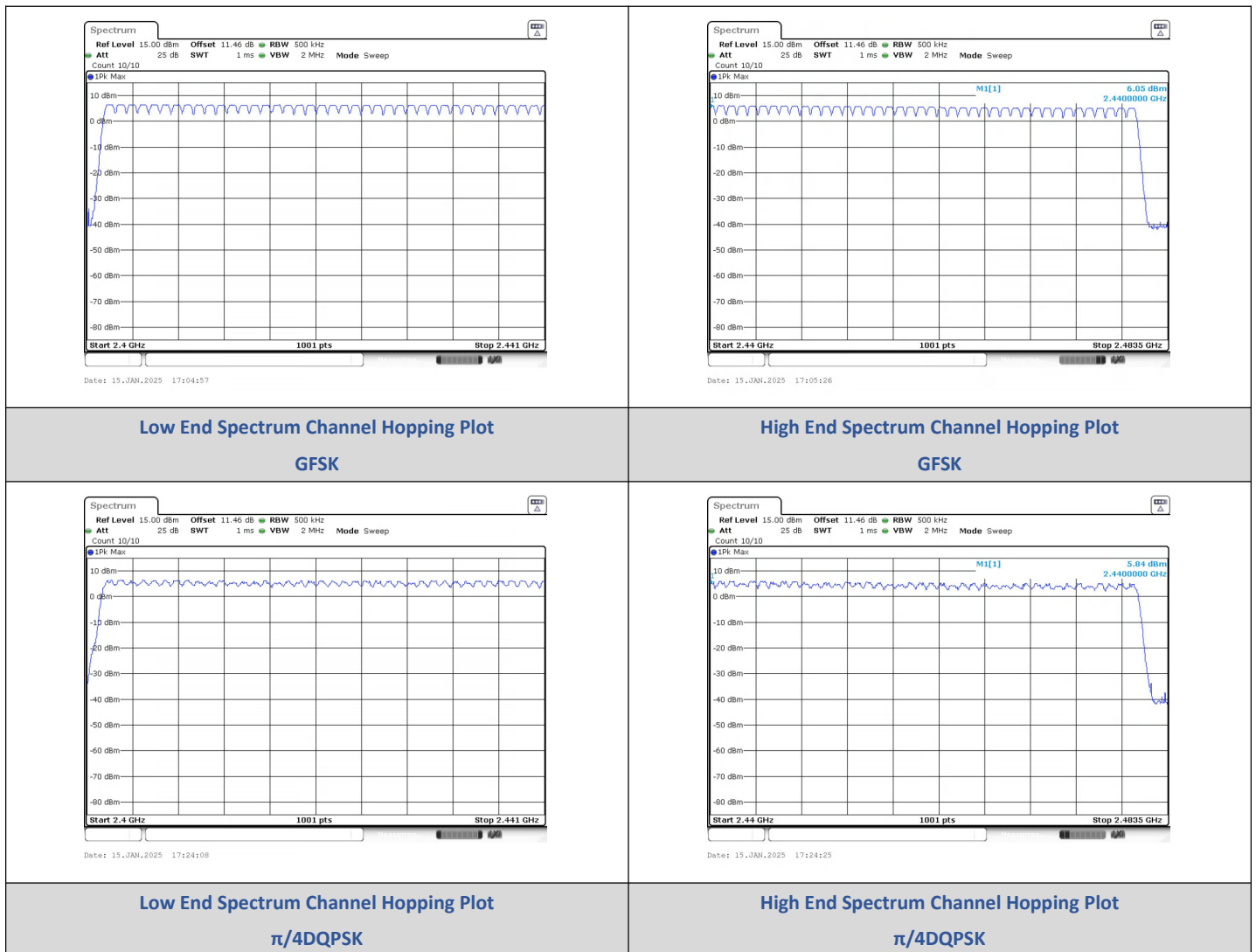
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

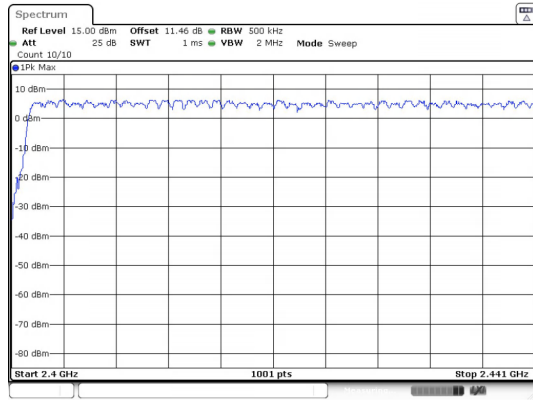
3) Number Of Hopping Channel

Test Result

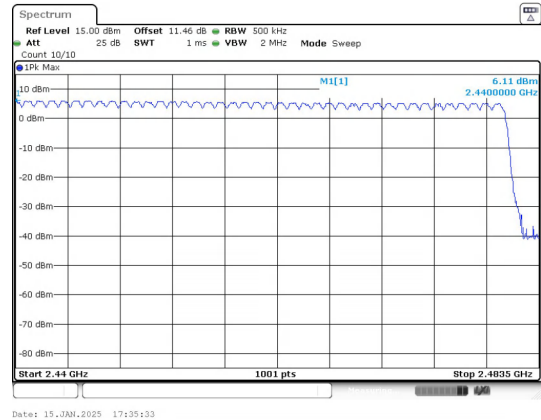
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





Low End Spectrum Channel Hopping Plot
8DPSK



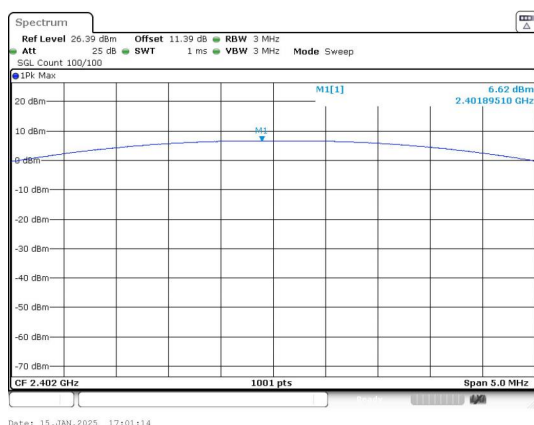
High End Spectrum Channel Hopping Plot
8DPSK

4) Conducted Output Power

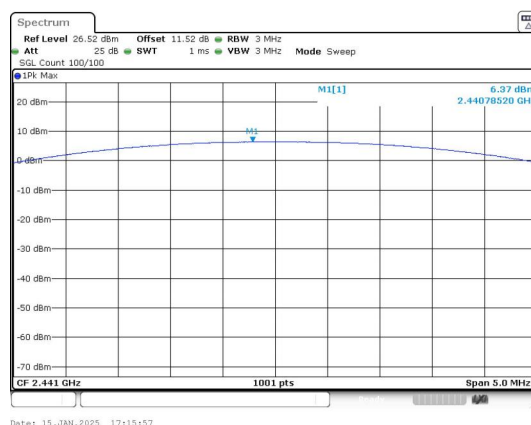
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	6.62	4.59	≤30	PASS
		39	6.37	4.34		PASS
		78	5.30	3.39		PASS
$\pi/4$ DQPSK	2-DH5	0	7.06	5.08	≤20.97	PASS
		39	6.99	5.00		PASS
		78	6.03	4.01		PASS
8DPSK	3-DH5	0	7.30	5.37		PASS
		39	7.05	5.07		PASS
		78	6.16	4.13		PASS

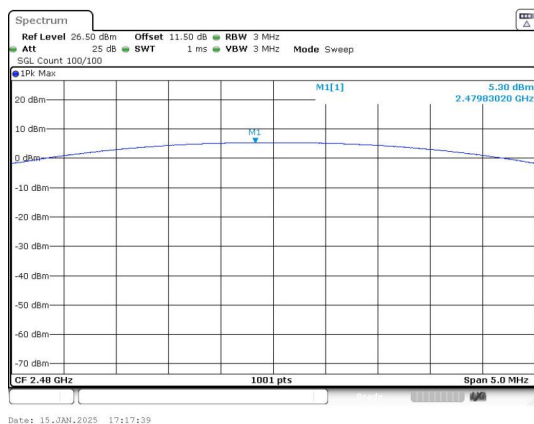
Test Graphs



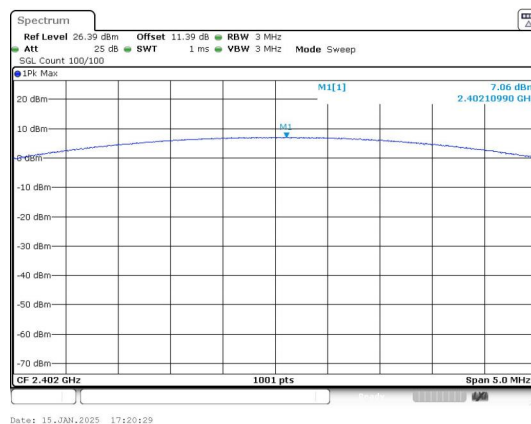
Peak Output Power
GFSK_Channel 0



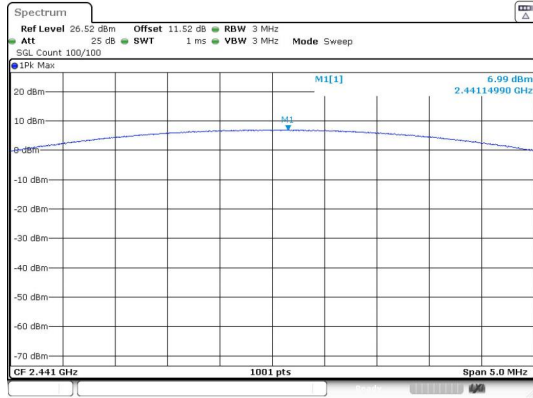
Peak Output Power
GFSK_Channel 39



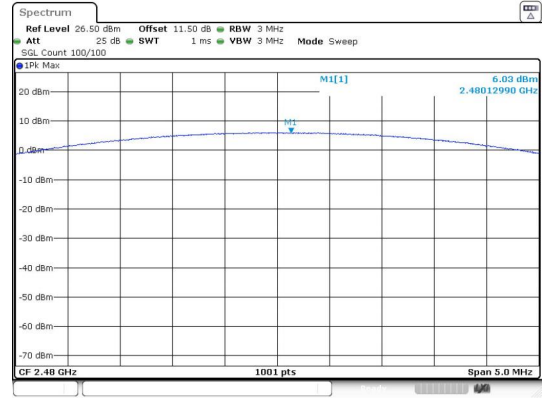
Peak Output Power
GFSK_Channel 78



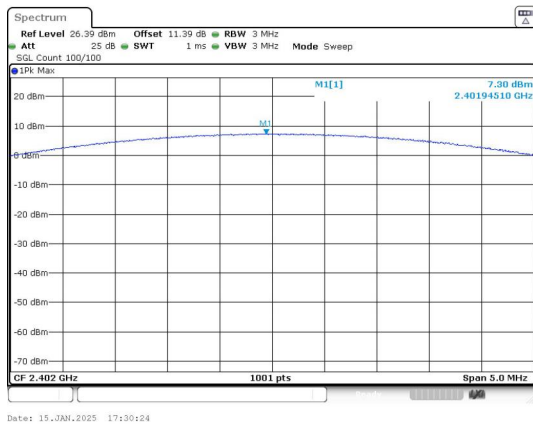
Peak Output Power
 $\pi/4$ DQPSK_Channel 0



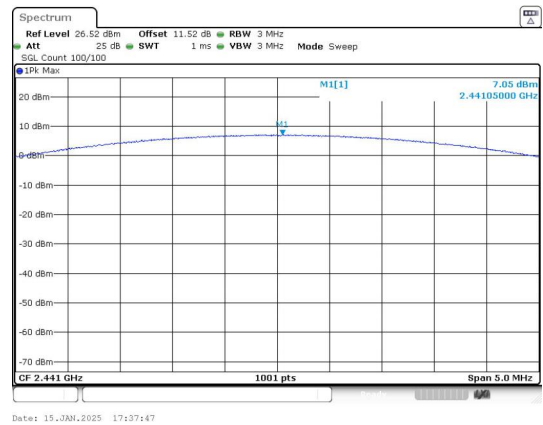
Peak Output Power
 $\pi/4$ DQPSK_Channel 39



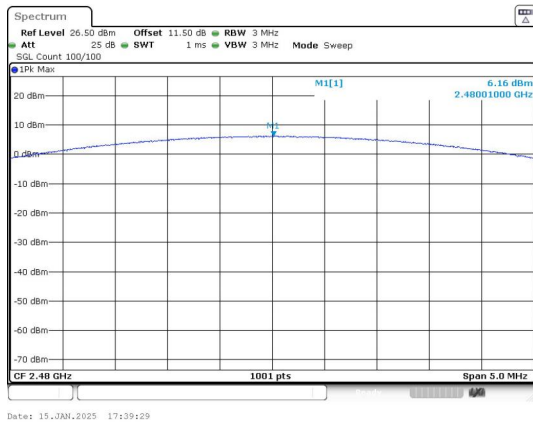
Peak Output Power
 $\pi/4$ DQPSK_Channel 78



Peak Output Power
8DPSK_Channel 0



Peak Output Power
8DPSK_Channel 39



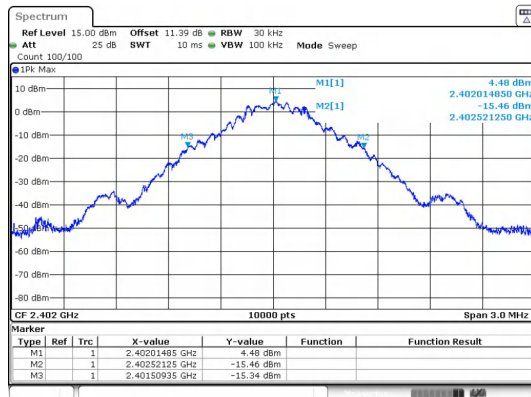
Peak Output Power
8DPSK_Channel 78

5) 20dB Bandwidth

Test Result

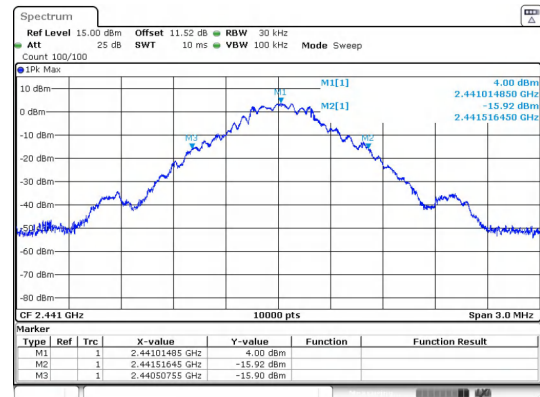
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.010
	39	2441 MHz	1.010
	78	2480 MHz	1.010
$\pi/4$ DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.320
	78	2480 MHz	1.310
8DPSK	0	2402 MHz	1.310
	39	2441 MHz	1.290
	78	2480 MHz	1.300

Test Graphs



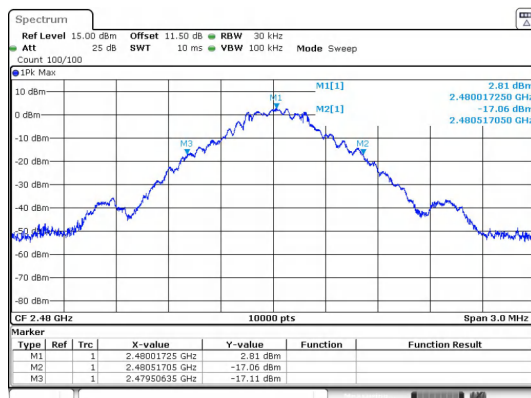
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GFSK_DH5_Channel 0



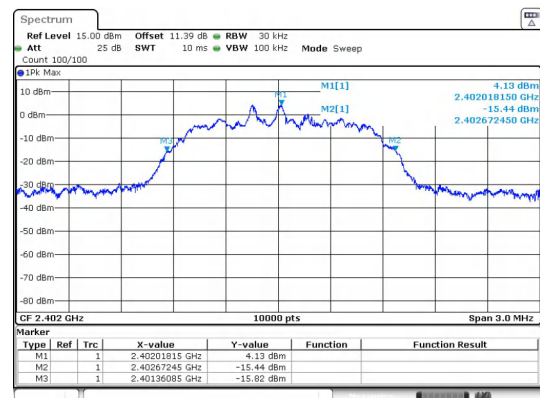
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GFSK_DH5_Channel 39



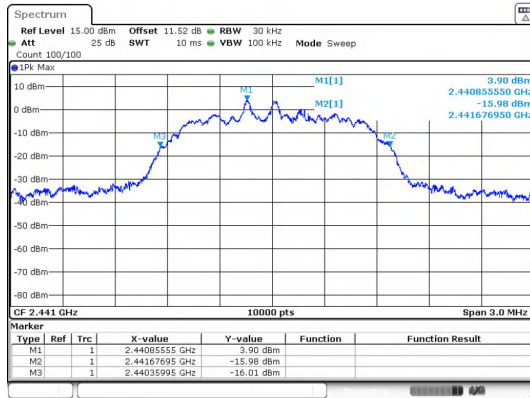
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GFSK_DH5_Channel 78

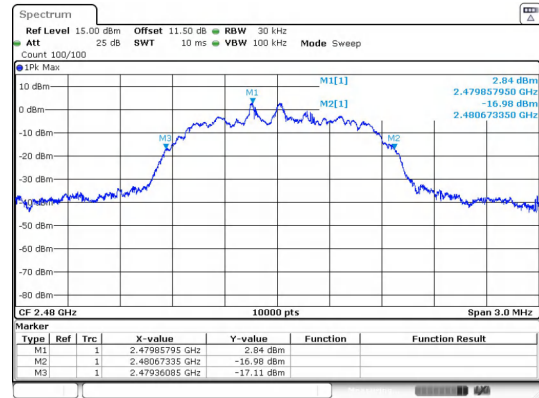


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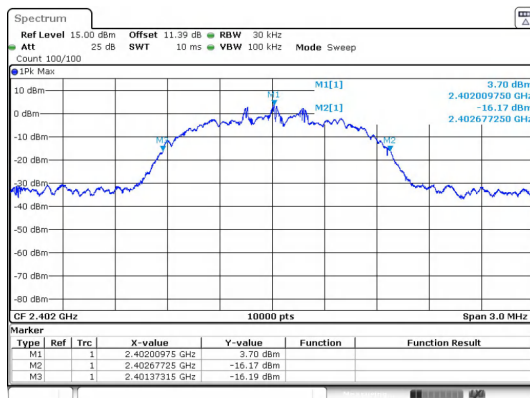
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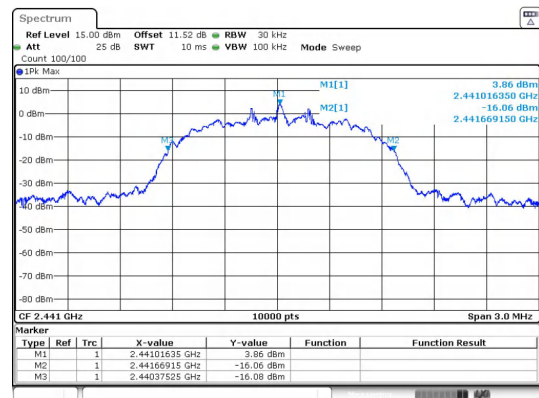
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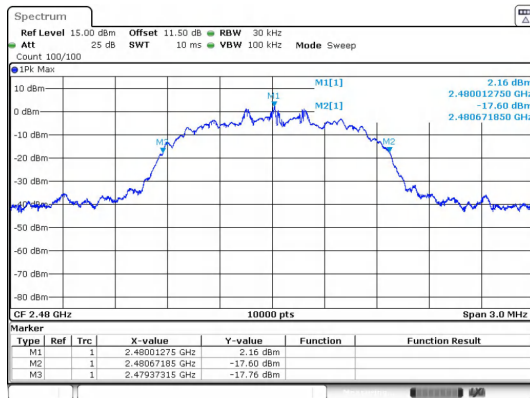
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



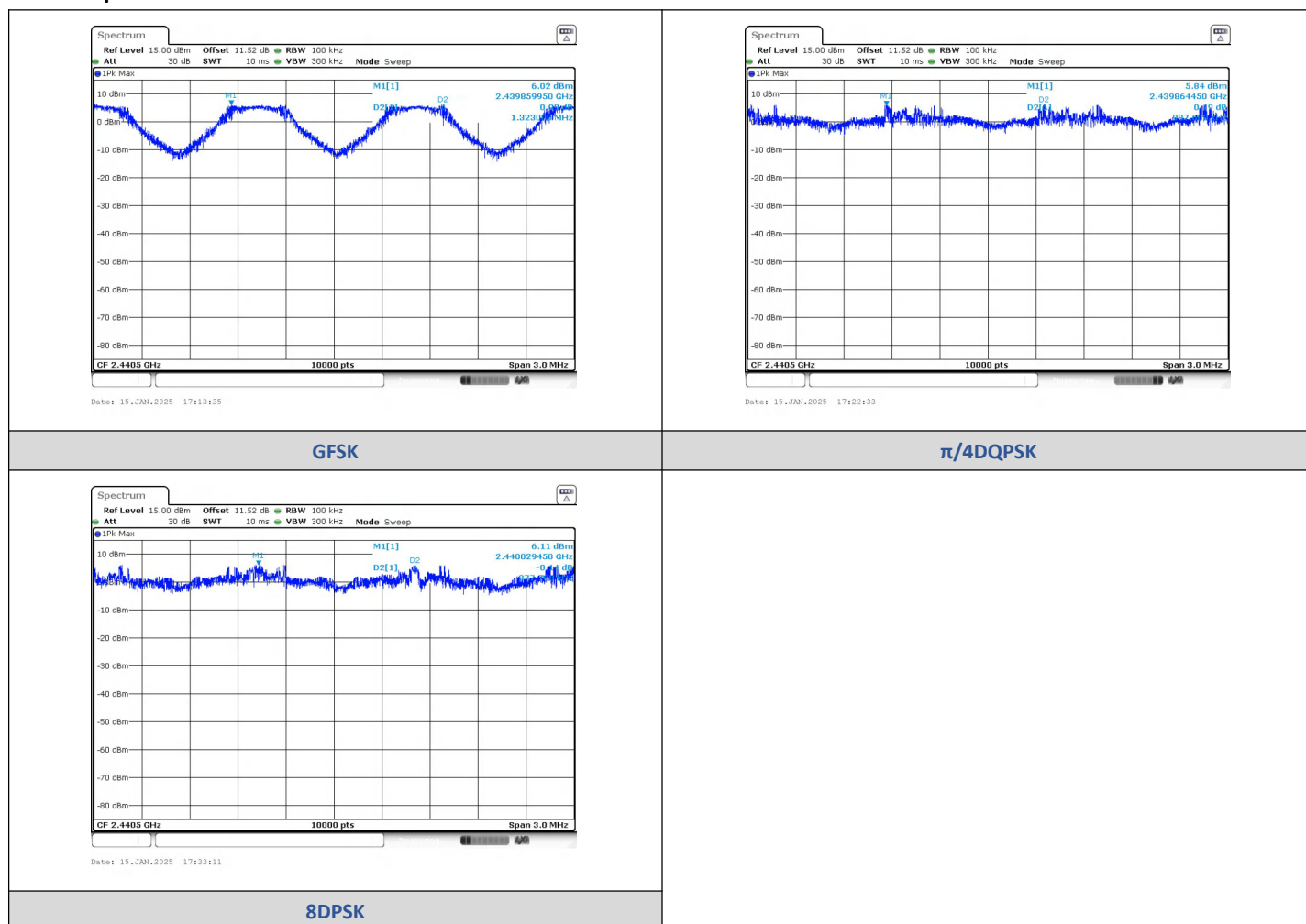
8DPSK_3-DH5_Channel 78

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	2439.86	2441.1829	1.3230	1.01	PASS
$\pi/4$ DQPSK	2-DH5	2439.8645	2440.852	0.9876	0.873	PASS
8DPSK	3-DH5	2440.0294	2441.0071	0.9777	0.873	PASS

Test Graphs



7) Conducted Out Of Band Emission

Test Result

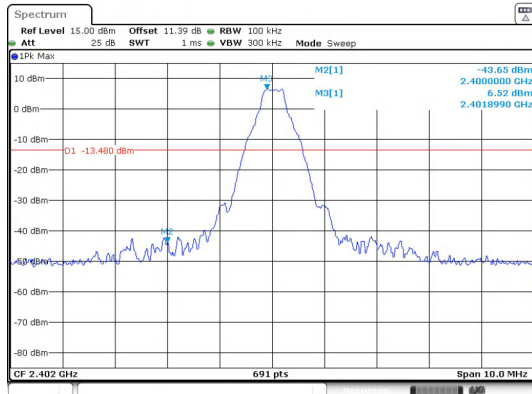
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	833.62	-32.114	-13.48	-18.634	PASS
			2400.00	-43.650	-13.48	-30.170	PASS
		39	2249.42	-40.942	-13.78	-27.162	PASS
		78	826.13	-40.241	-14.85	-25.391	PASS
			2483.50	-50.670	-14.85	-35.820	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-46.120	-13.73	-32.390	PASS
			5737.73	-42.344	-13.73	-28.614	PASS
		39	823.63	-36.338	-13.8	-22.538	PASS
		78	823.63	-38.496	-14.82	-23.676	PASS
			2483.50	-50.170	-14.82	-35.350	PASS
8DPSK	3-DH5	0	823.63	-34.193	-13.61	-20.583	PASS
			2400.00	-41.890	-13.61	-28.280	PASS
		39	4882.09	-41.591	-13.98	-27.611	PASS
		78	1765.83	-34.144	-14.95	-19.194	PASS
			2483.50	-48.510	-14.95	-33.560	PASS

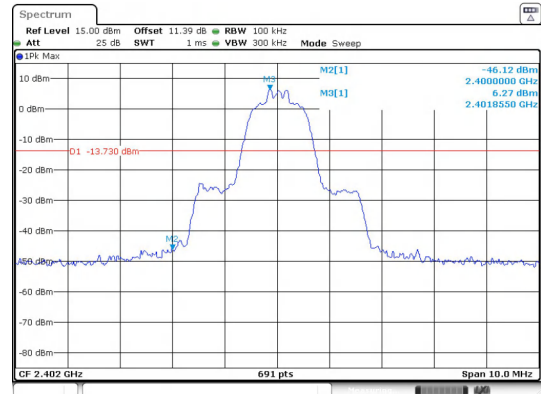
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2397.97	-47.521	-14.04	-33.481	PASS
			2400.00	-50.130	-14.04	-36.090	PASS
			2483.50	-48.630	-15.25	-33.380	PASS
$\pi/4$ DQPSK	2-DH5		2396.61	-47.425	-13.74	-33.685	PASS
			2400.00	-47.860	-13.74	-34.120	PASS
			2483.50	-49.730	-14.83	-34.900	PASS
8DPSK	3-DH5		2396.58	-47.747	-14.4	-33.347	PASS
			2400.00	-49.610	-14.4	-35.210	PASS
			2483.50	-49.880	-16.42	-33.460	PASS

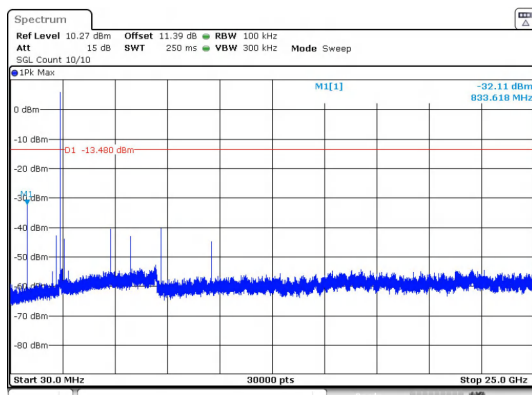
Test Graphs



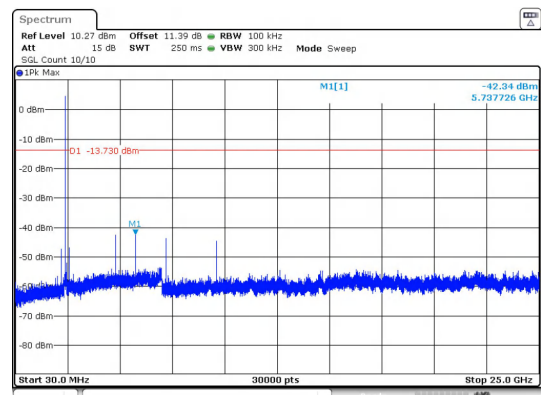
Out Of Band Emission
GFSK_DH5_Channel 0



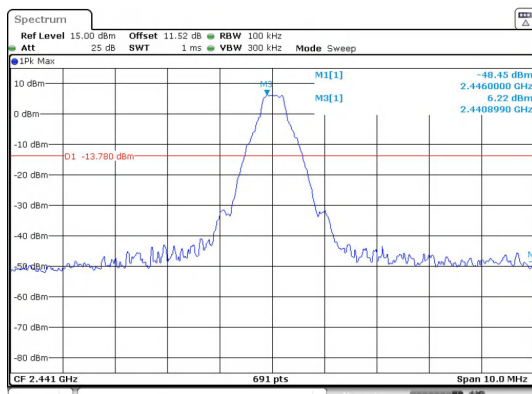
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0



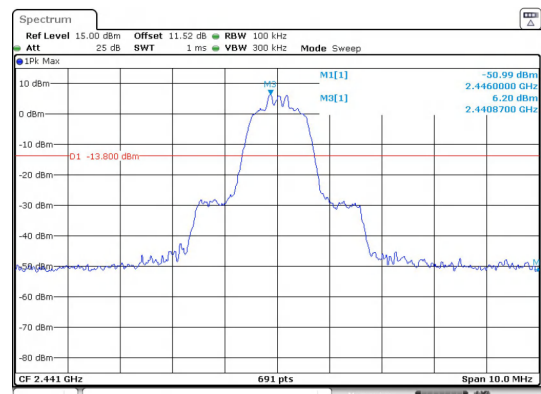
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



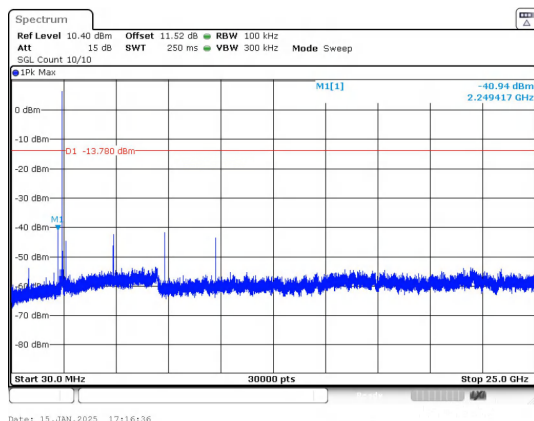
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 0



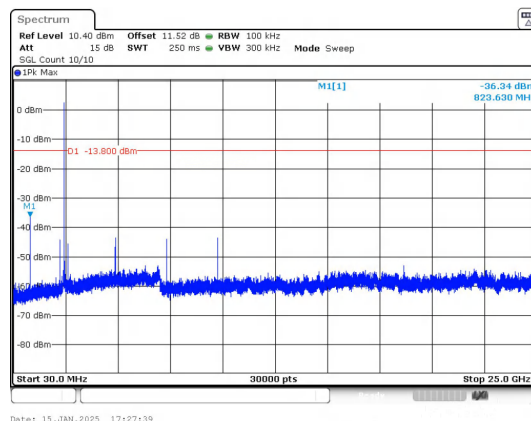
Out Of Band Emission
GFSK_DH5_Channel 39



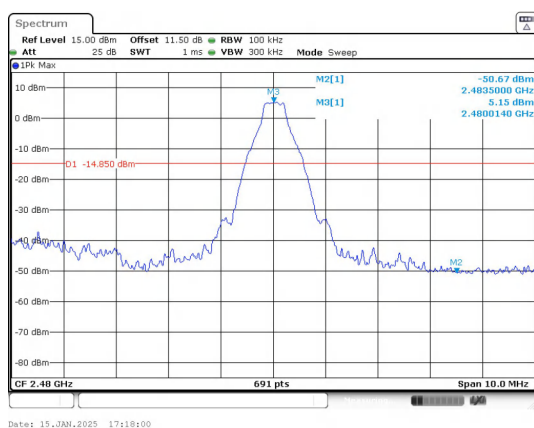
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 39



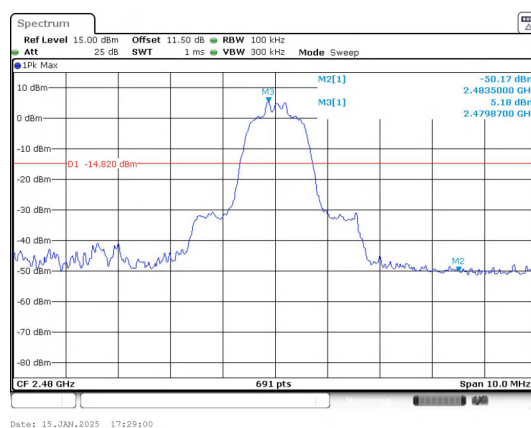
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



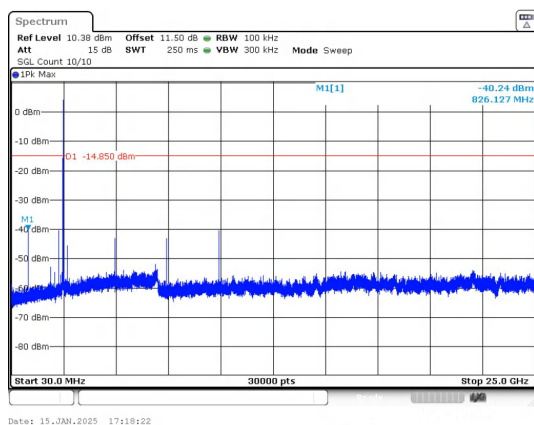
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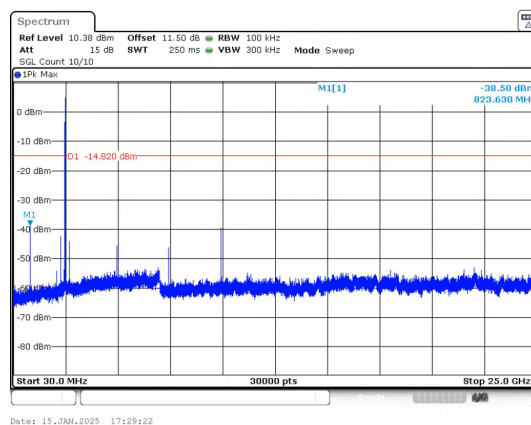
Out Of Band Emission
GFSK_DH5_Channel 78



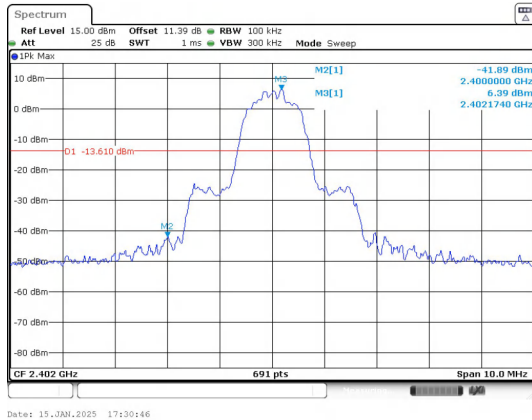
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78



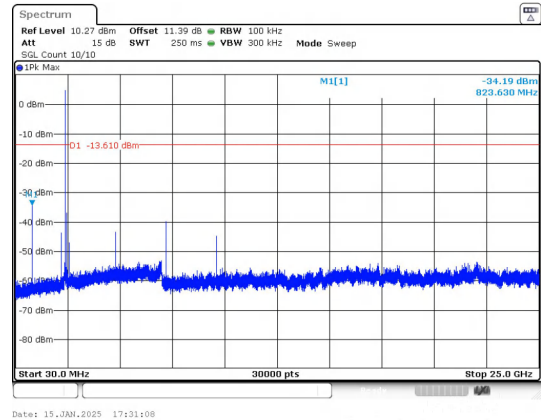
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



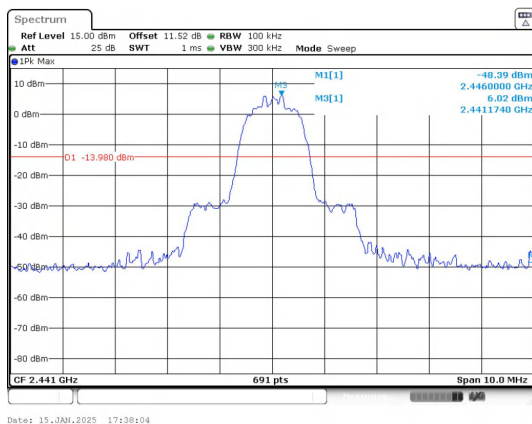
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 78



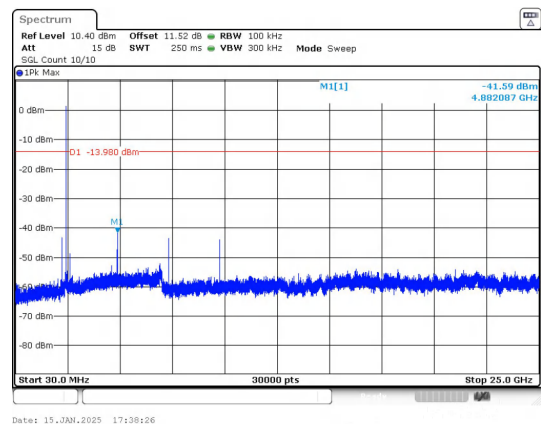
Out Of Band Emission
8DPSK_3-DH5_Channel 0



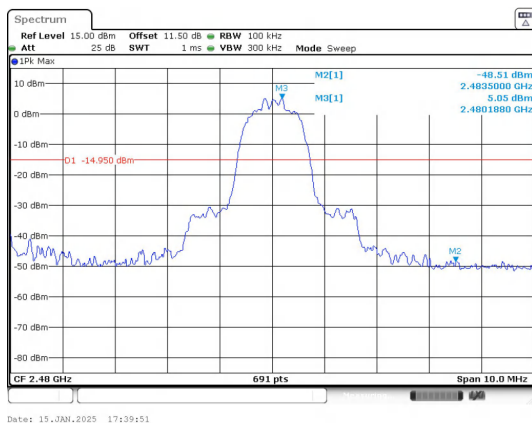
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8DPSK_3-DH5_Channel 0



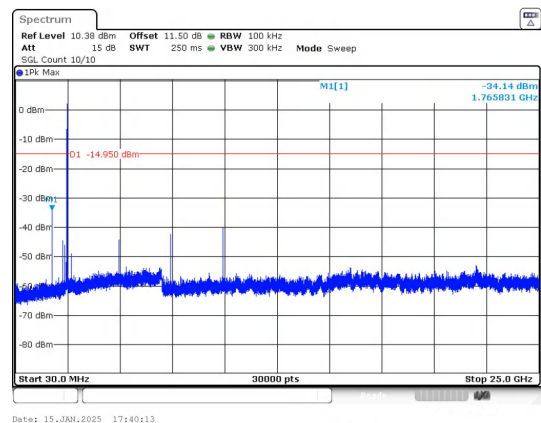
Out Of Band Emission
8DPSK_3-DH5_Channel 39



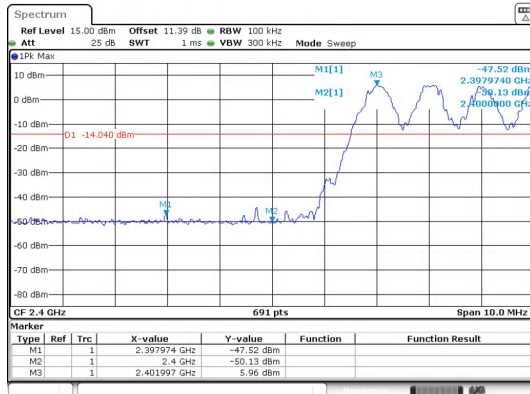
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



Out Of Band Emission
8DPSK_3-DH5_Channel 78



30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



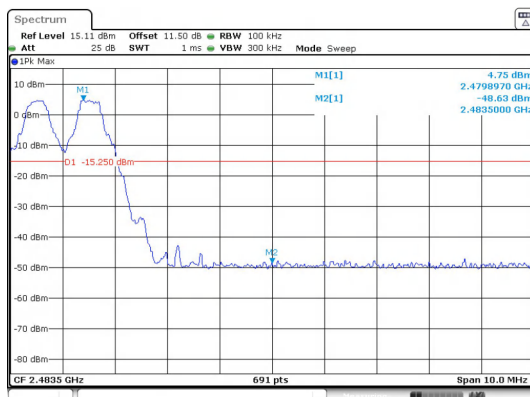
Date: 15.JAN.2025 17:06:20

Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



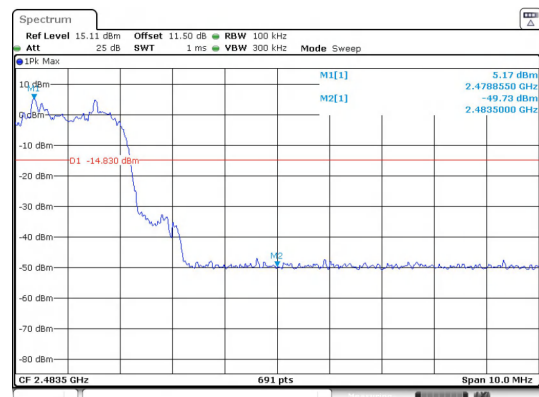
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Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping



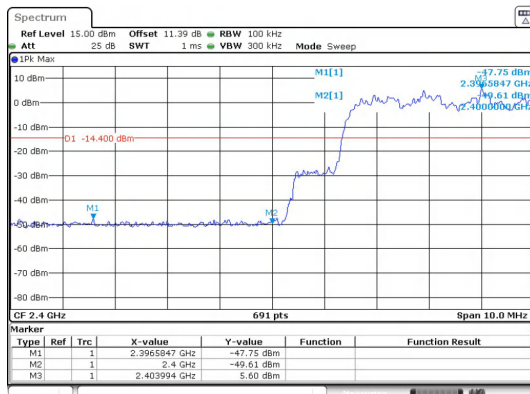
Date: 15.JAN.2025 17:07:02

Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



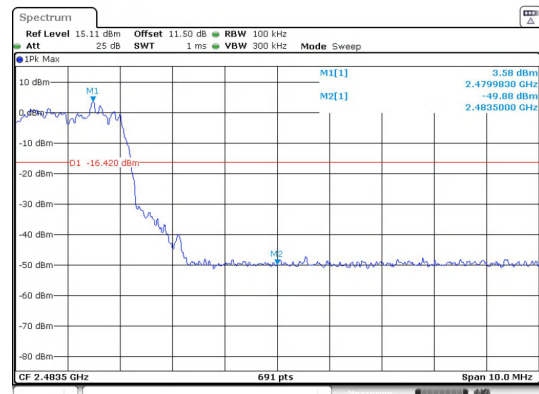
Date: 15.JAN.2025 17:26:00

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



Date: 15.JAN.2025 17:36:20

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



Date: 15.JAN.2025 17:36:47

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

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