

Appendix Report

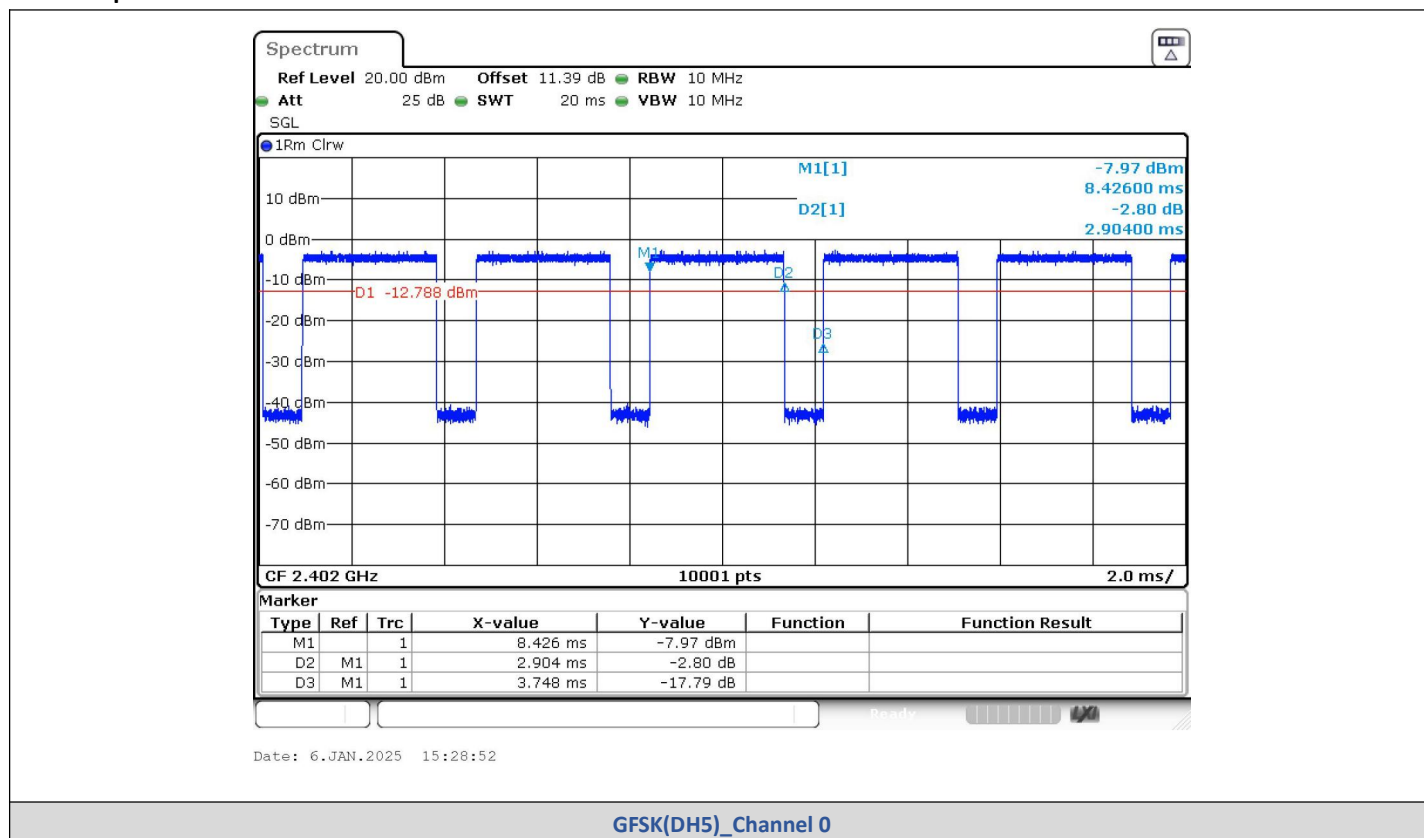
Report No.:	CISRR25010401604
Test Engineer:	Mark Fu
Supervised by:	Rory Huang

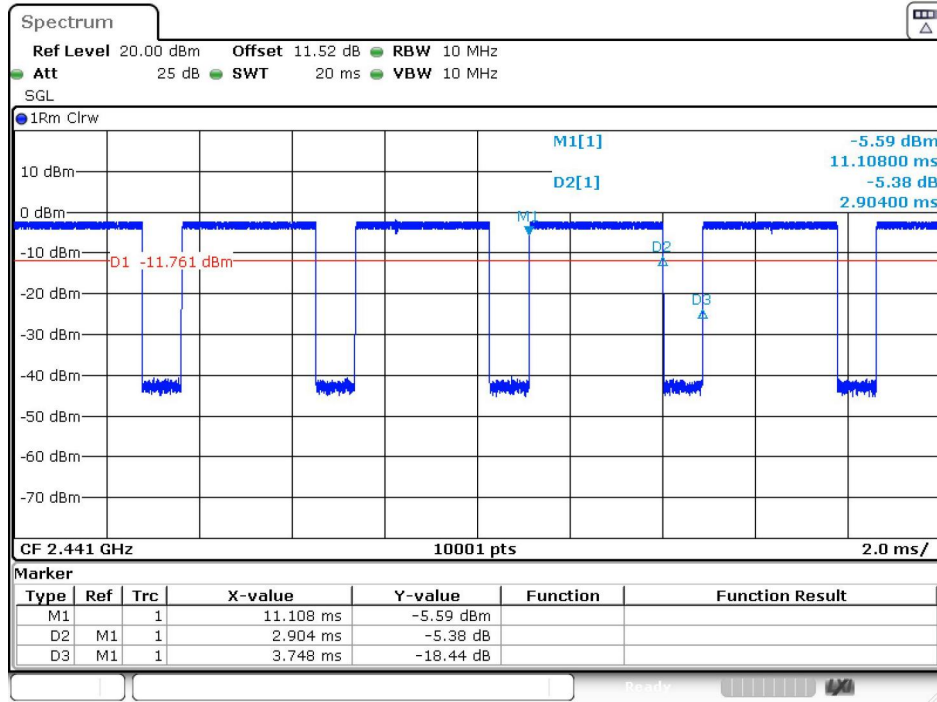
1) Duty Cycle

Test Result

Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.904	3.748	77.48	0.7748	1.1081	0.3444
		39	2.904	3.748	77.48	0.7748	1.1081	0.3444
		78	2.904	3.748	77.48	0.7748	1.1081	0.3444
$\pi/4$ DQPSK	2-DH5	0	2.910	3.748	77.64	0.7764	1.0991	0.3436
		39	2.908	3.748	77.59	0.7759	1.1019	0.3439
		78	2.910	3.748	77.64	0.7764	1.0991	0.3436
8DPSK	3-DH5	0	2.910	3.748	77.64	0.7764	1.0991	0.3436
		39	2.910	3.748	77.64	0.7764	1.0991	0.3436
		78	2.910	3.748	77.64	0.7764	1.0991	0.3436

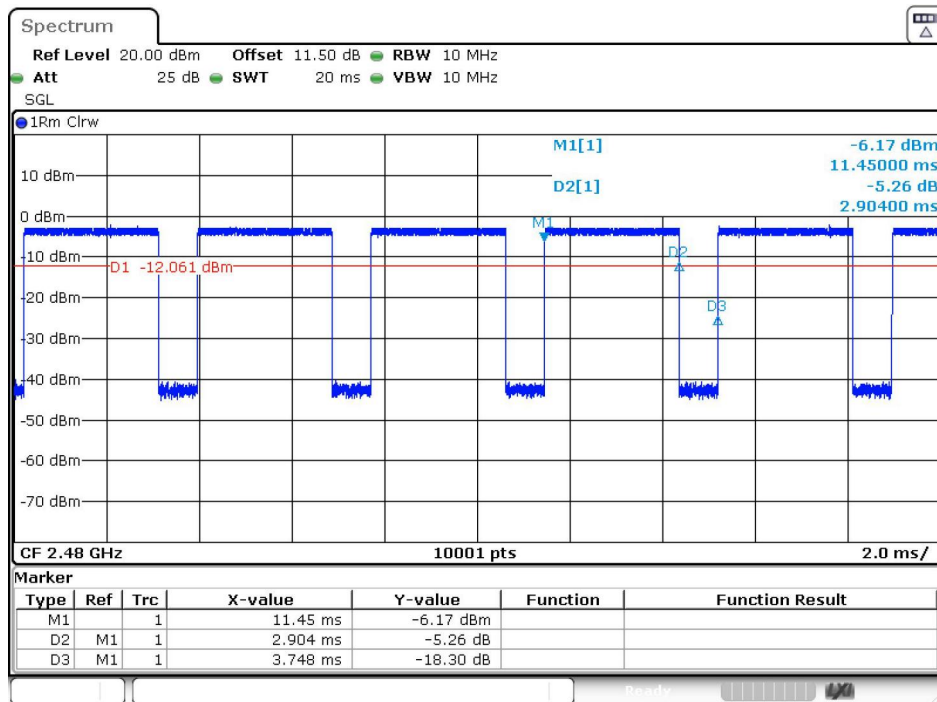
Test Graphs





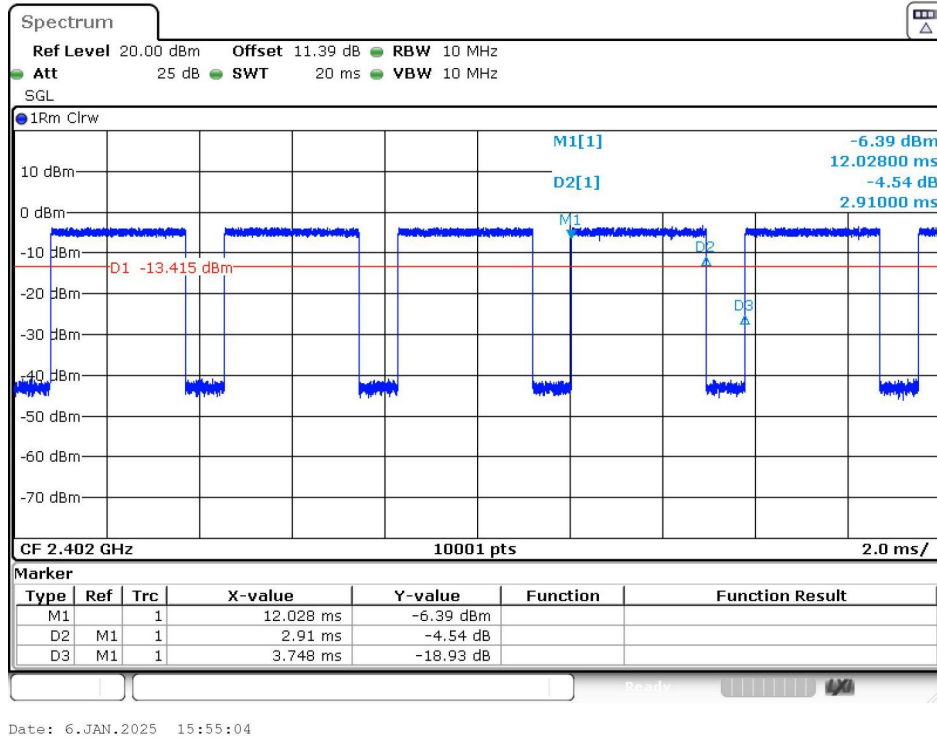
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GFSK(DH5)_Channel 39

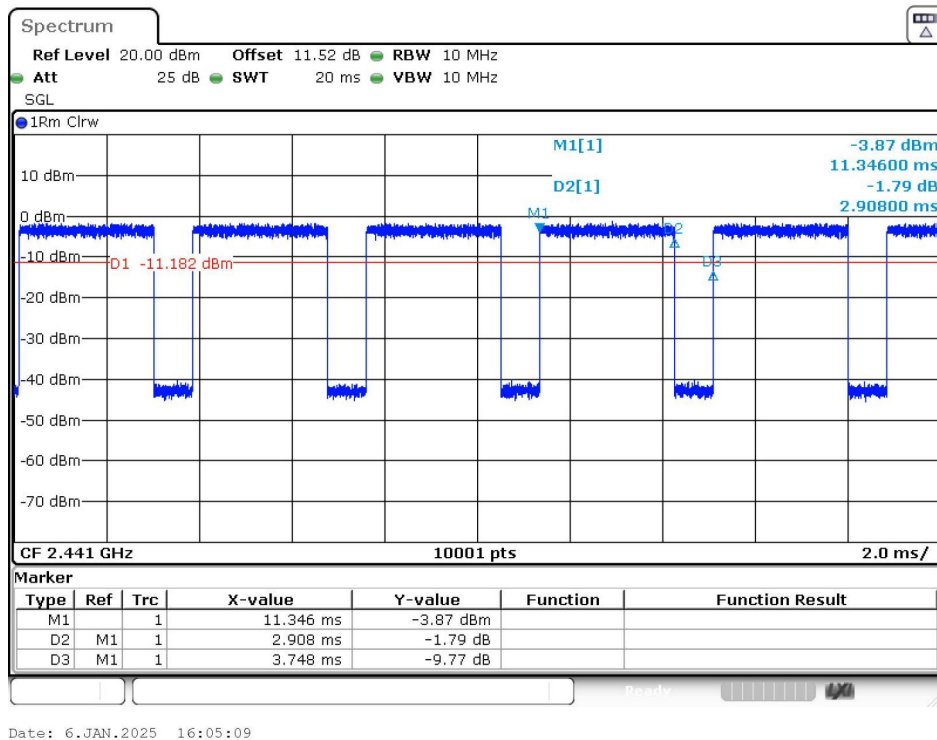


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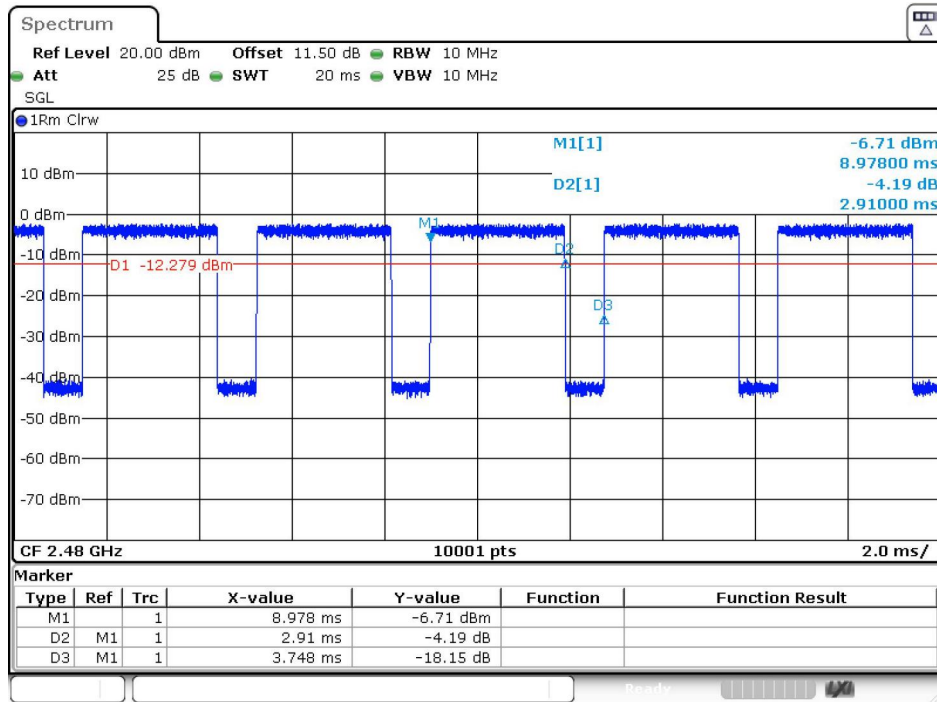
GFSK(DH5)_Channel 78



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

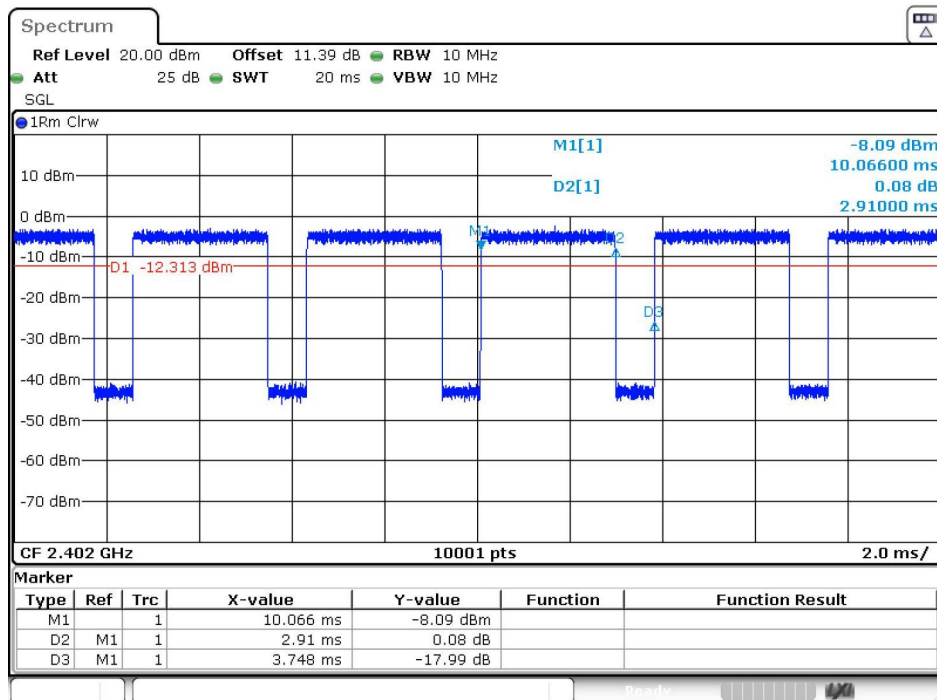


$\pi/4$ QPSK(2-DH5)_Channel 39



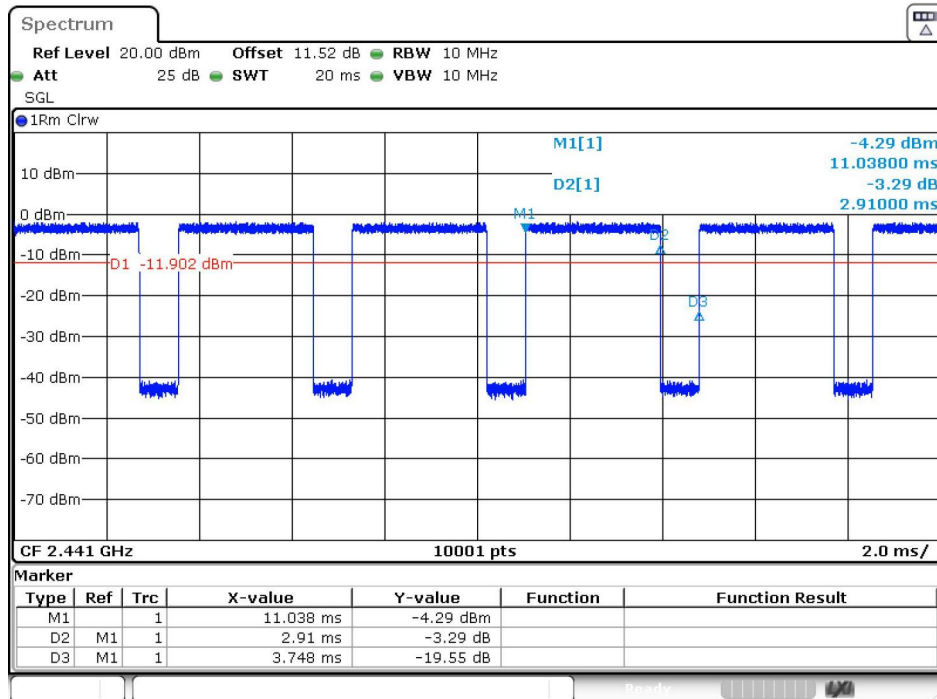
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$\pi/4$ DQPSK(2-DH5)_Channel 78



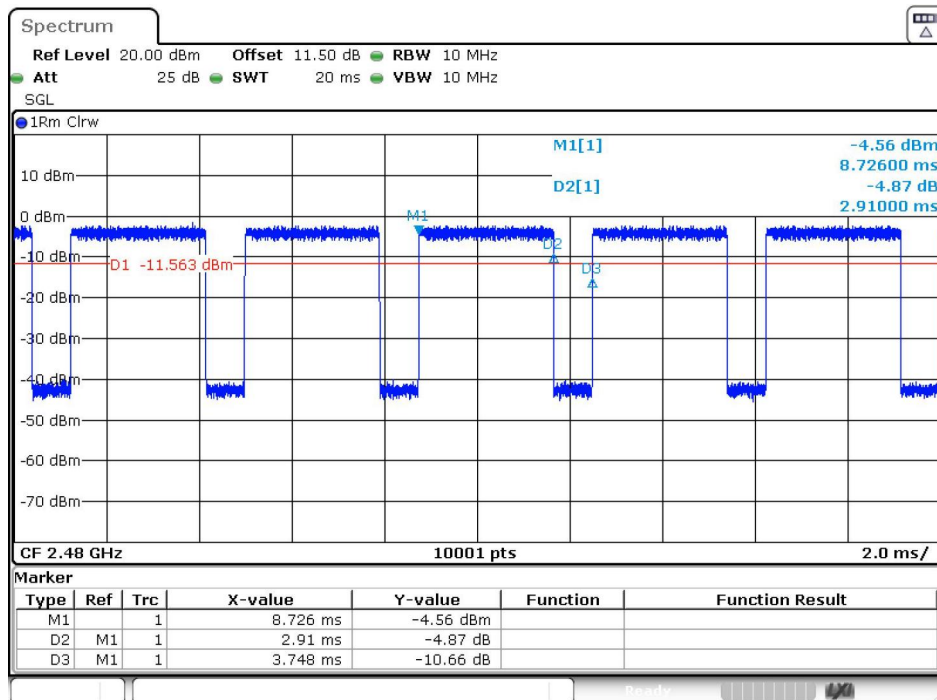
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8DPSK(3-DH5)_Channel 0



Date: 6.JAN.2025 16:27:38

8DPSK(3-DH5)_Channel 39



Date: 6.JAN.2025 16:30:16

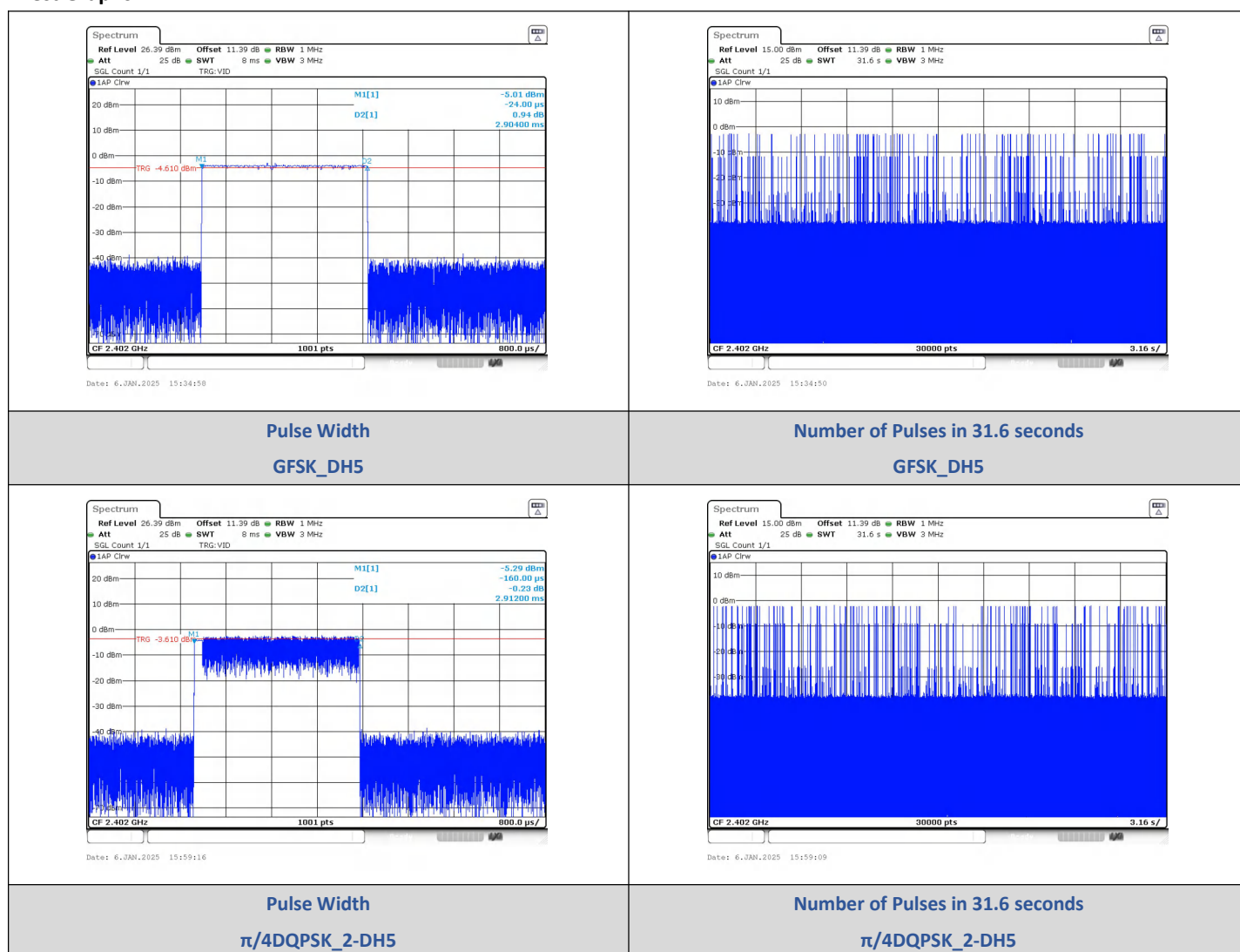
8DPSK(3-DH5)_Channel 78

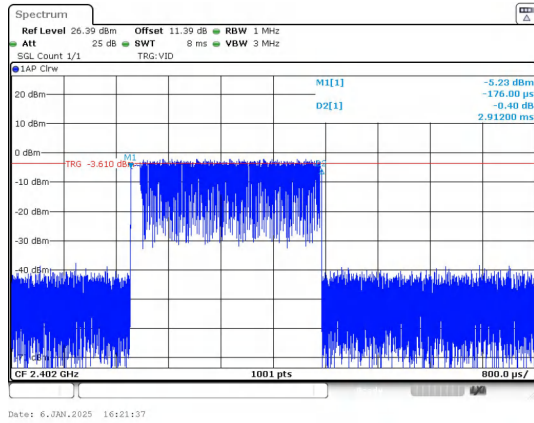
2) Dwell Time

Test Result

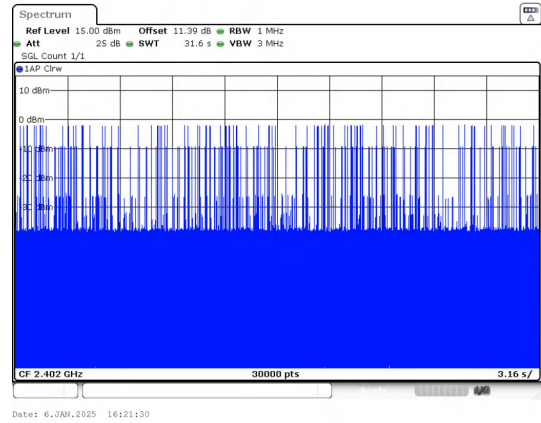
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.904	97	281.69	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.912	116	337.79		PASS
8DPSK	3-DH5		2.912	98	285.38		PASS

Test Graphs





Pulse Width
8DPSK_3-DH5



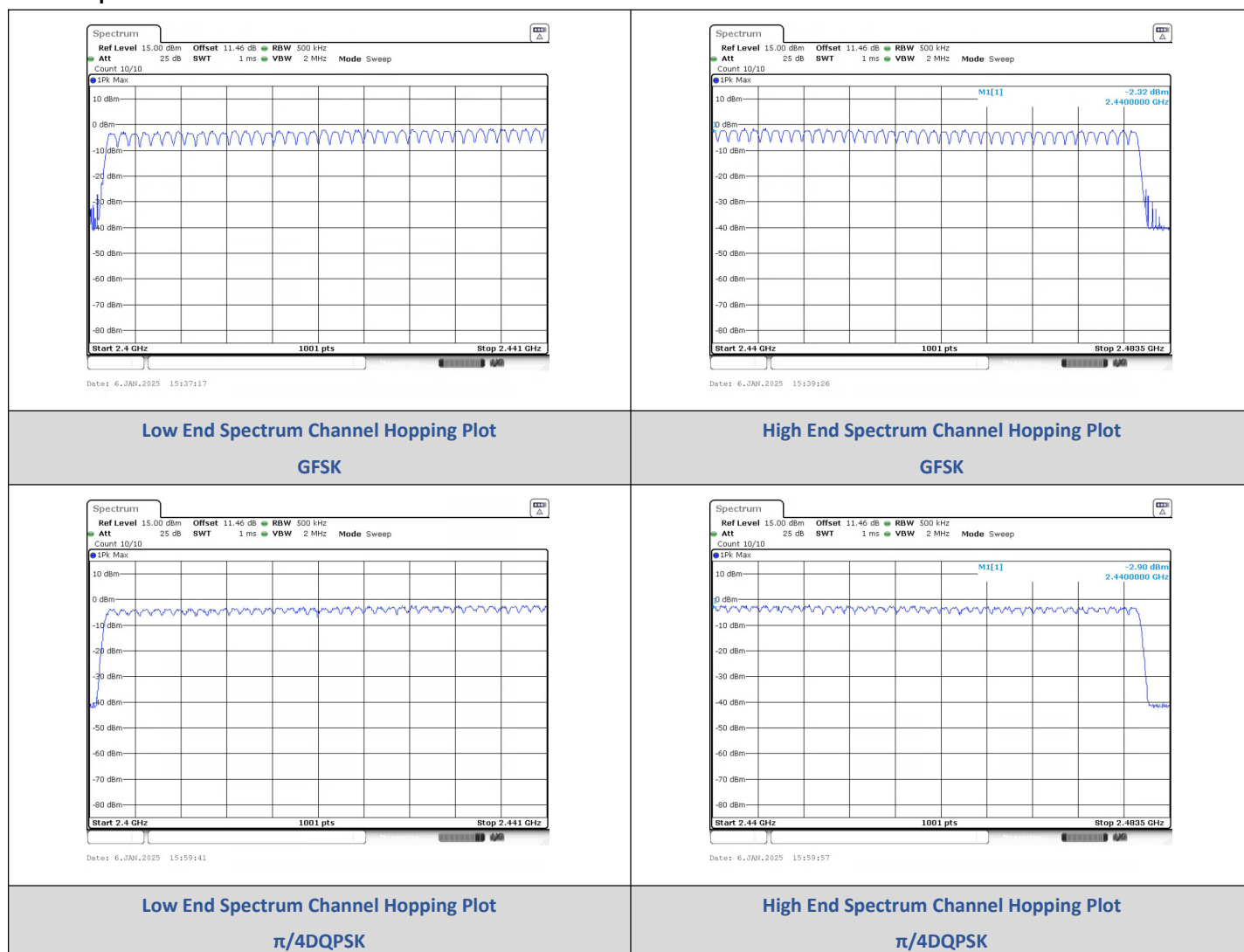
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

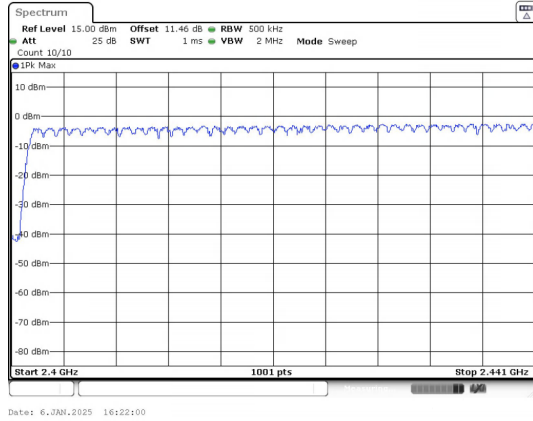
3) Number Of Hopping Channel

Test Result

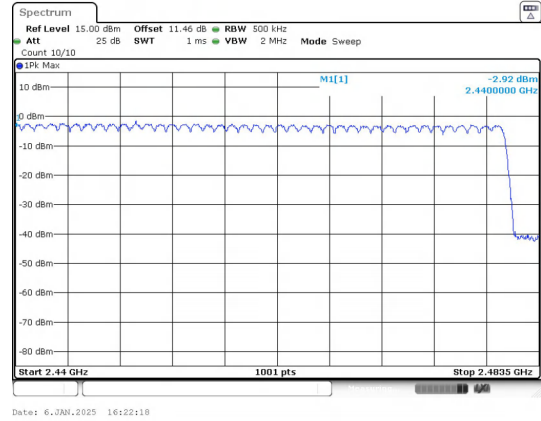
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





Low End Spectrum Channel Hopping Plot
8DPSK



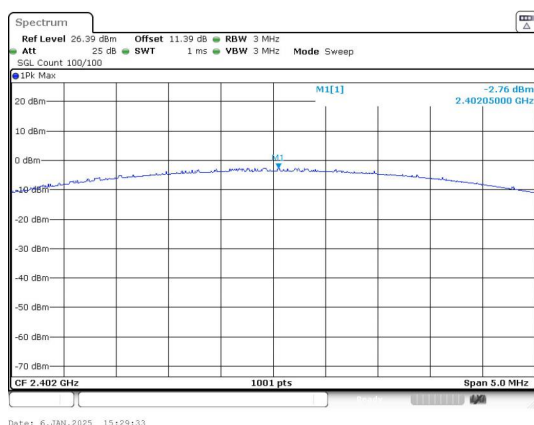
High End Spectrum Channel Hopping Plot
8DPSK

4) Conducted Output Power

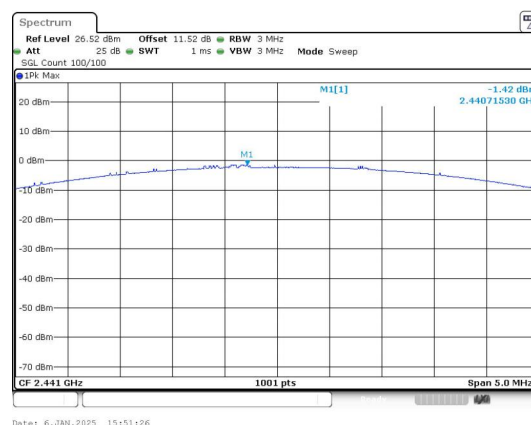
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	-2.76	0.53	≤30	PASS
		39	-1.42	0.72		PASS
		78	-1.96	0.64		PASS
$\pi/4$ DQPSK	2-DH5	0	-1.54	0.70	≤20.97	PASS
		39	-0.21	0.95		PASS
		78	-0.29	0.94		PASS
8DPSK	3-DH5	0	-1.44	0.72		PASS
		39	0.26	1.06		PASS
		78	-0.27	0.94		PASS

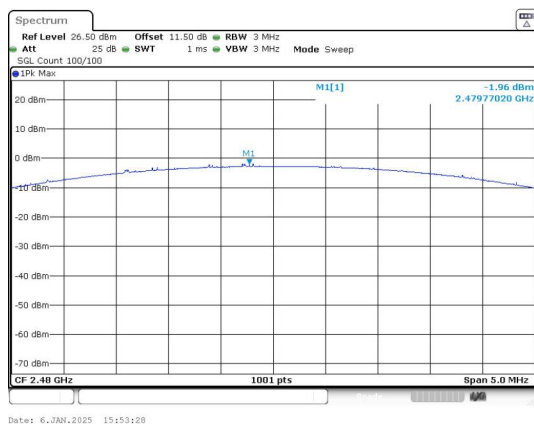
Test Graphs



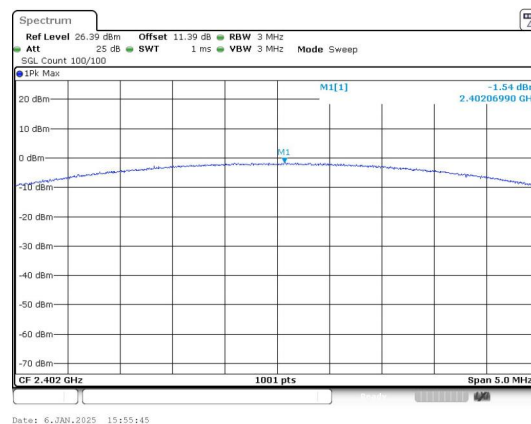
Peak Output Power
GFSK_Channel 0



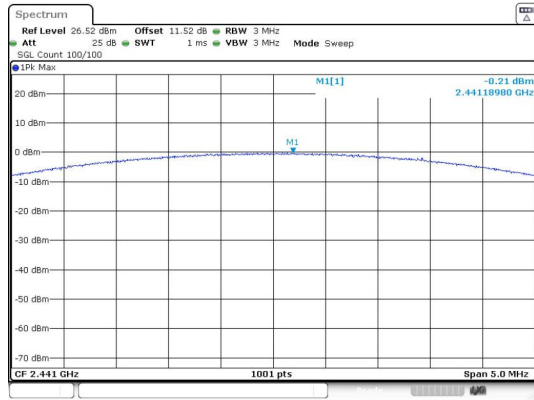
Peak Output Power
GFSK_Channel 39



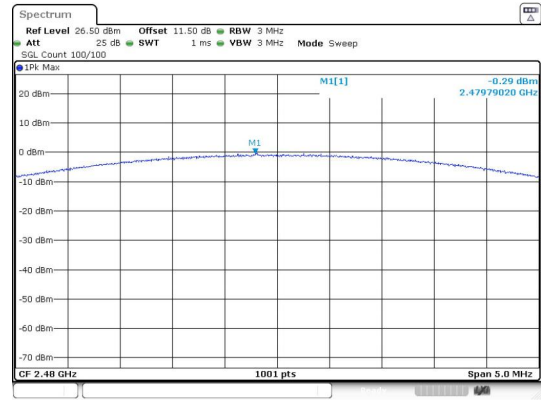
Peak Output Power
GFSK_Channel 78



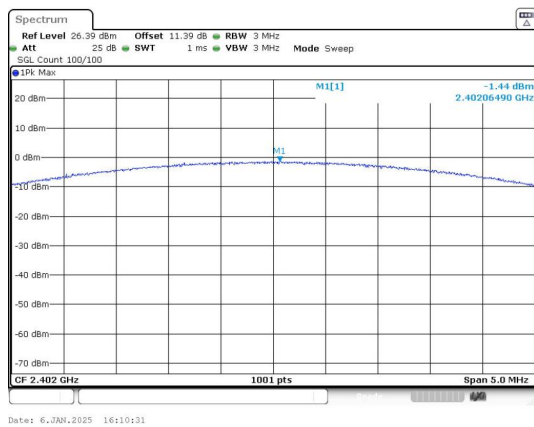
Peak Output Power
 $\pi/4$ DQPSK_Channel 0



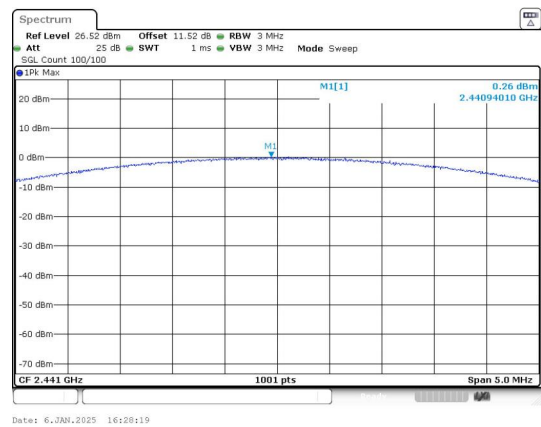
Peak Output Power
 $\pi/4$ DQPSK_Channel 39



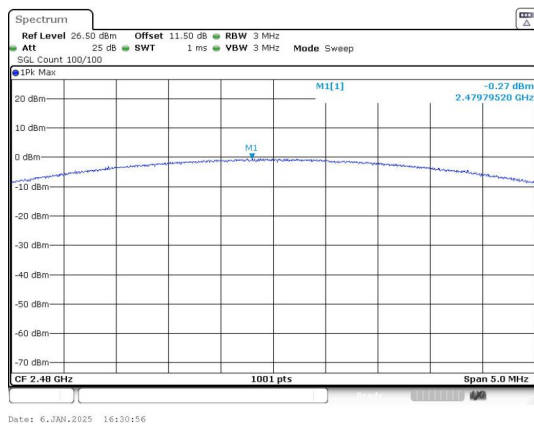
Peak Output Power
 $\pi/4$ DQPSK_Channel 78



Peak Output Power
8DPSK_Channel 0



Peak Output Power
8DPSK_Channel 39



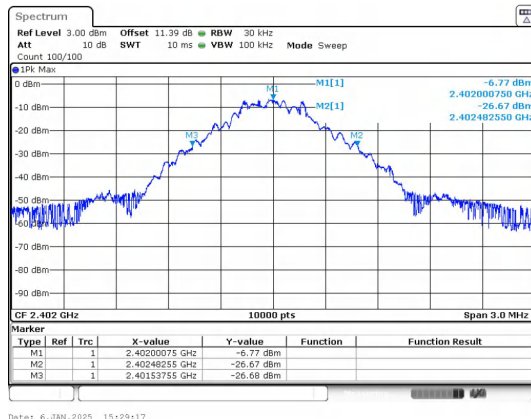
Peak Output Power
8DPSK_Channel 78

5) 20dB Bandwidth

Test Result

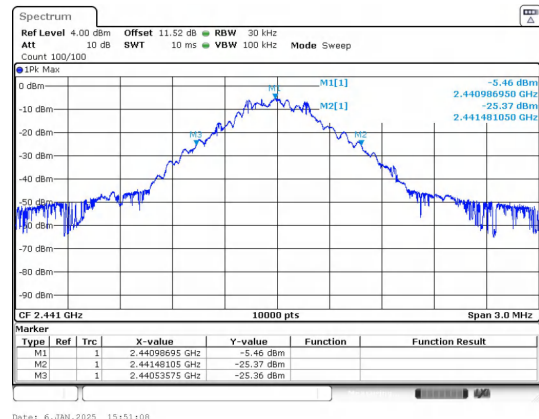
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	0.9400
	39	2441 MHz	0.9400
	78	2480 MHz	0.9400
$\pi/4$ DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.310
	78	2480 MHz	1.310
8DPSK	0	2402 MHz	1.300
	39	2441 MHz	1.300
	78	2480 MHz	1.300

Test Graphs



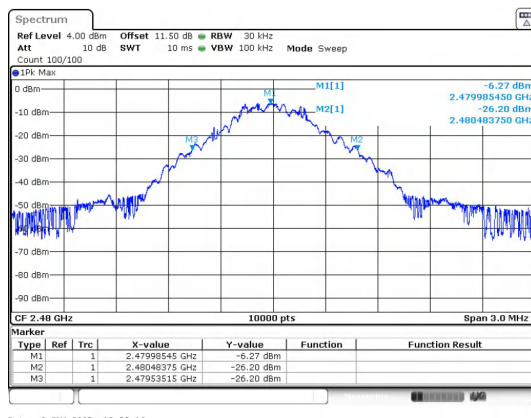
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GFSK_DH5_Channel 0



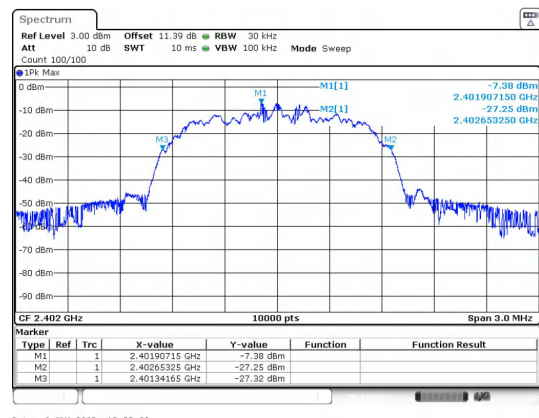
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GFSK_DH5_Channel 39



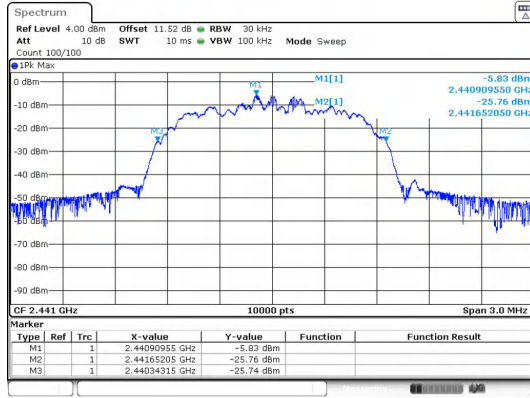
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GFSK_DH5_Channel 78

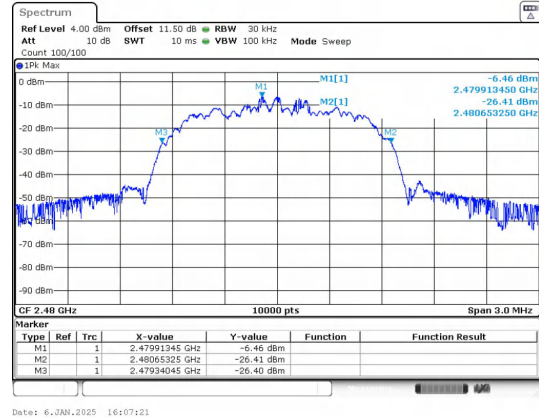


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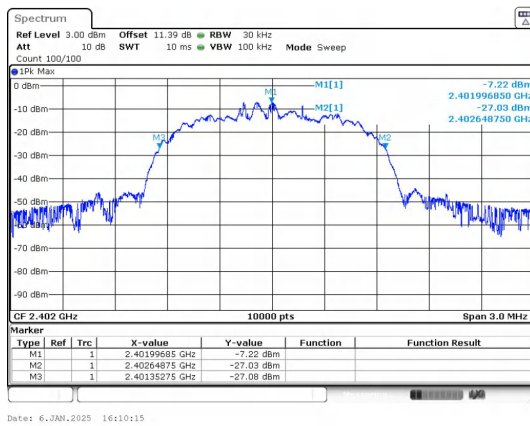
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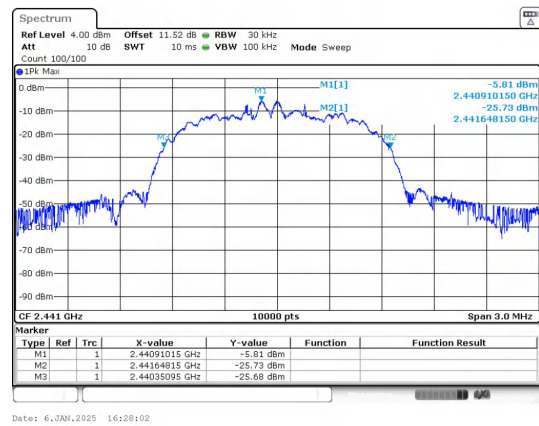
$\pi/4$ DQPSK_2-DH5_Channel 39



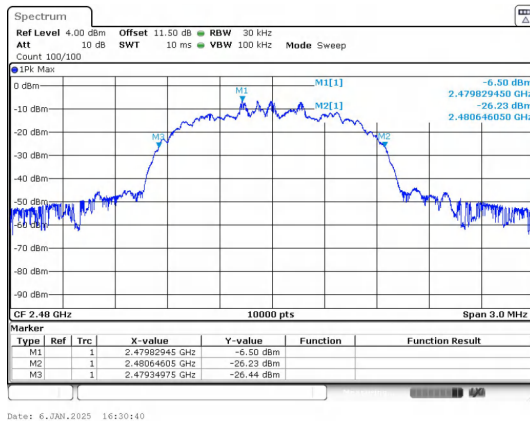
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



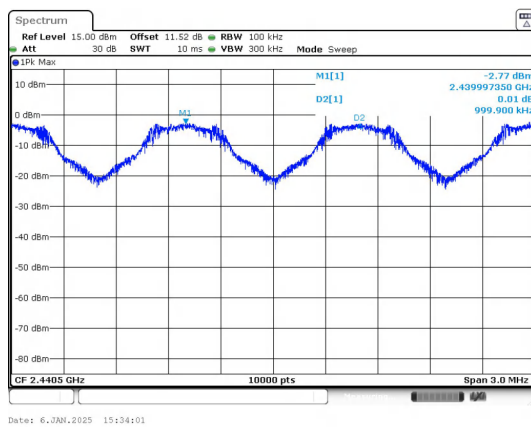
8DPSK_3-DH5_Channel 78

6) Carrier Frequencies Separation

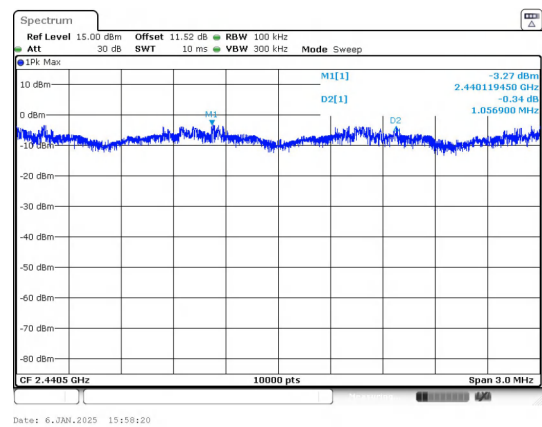
Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.9974	2440.9972	0.9999	0.94	PASS
$\pi/4$ QPSK	2-DH5	2440.1195	2441.1764	1.0569	0.873	PASS
8DPSK	3-DH5	2439.8389	2440.9769	1.1379	0.867	PASS

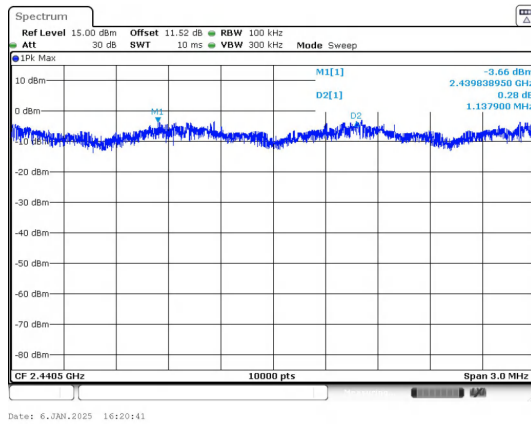
Test Graphs



GFSK



$\pi/4$ QPSK



8DPSK

7) Conducted Out Of Band Emission

Test Result

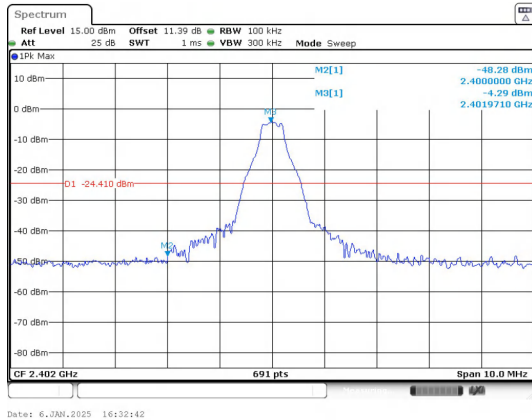
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	1885.69	-46.952	-24.41	-22.542	PASS
			2400.00	-48.280	-24.41	-23.870	PASS
		39	833.62	-50.598	-22.64	-27.958	PASS
		78	2483.50	-50.120	-23.17	-26.950	PASS
			6947.94	-53.415	-23.17	-30.245	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-47.520	-24.87	-22.650	PASS
			6292.89	-52.238	-24.87	-27.368	PASS
		39	6176.37	-53.107	-23.46	-29.647	PASS
		78	2483.50	-49.600	-23.9	-25.700	PASS
			6932.12	-52.595	-23.9	-28.695	PASS
8DPSK	3-DH5	0	1885.69	-44.824	-24.46	-20.364	PASS
			2400.00	-46.320	-24.46	-21.860	PASS
		39	6959.59	-53.177	-22.96	-30.217	PASS
		78	2483.50	-49.910	-23.74	-26.170	PASS
			17305.5	-52.578	-23.74	-28.838	PASS

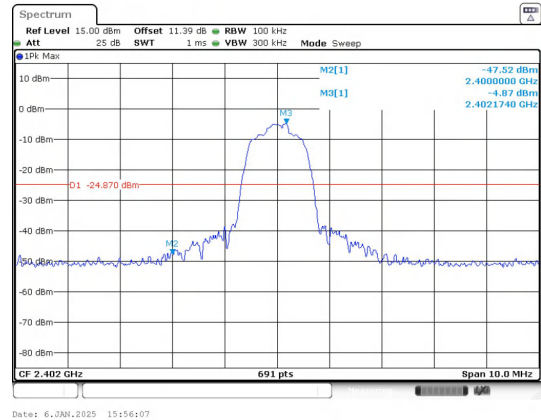
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2397.32	-47.805	-24.16	-23.645	PASS
			2400.00	-49.030	-24.16	-24.870	PASS
			2483.50	-49.140	-23.36	-25.780	PASS
$\pi/4$ DQPSK	2-DH5		2397.70	-47.833	-24.83	-23.003	PASS
			2400.00	-49.130	-24.83	-24.300	PASS
			2483.50	-49.670	-24.01	-25.660	PASS
8DPSK	3-DH5		2397.54	-47.440	-24.34	-23.100	PASS
			2400.00	-50.050	-24.34	-25.710	PASS
			2483.50	-48.450	-23.39	-25.060	PASS

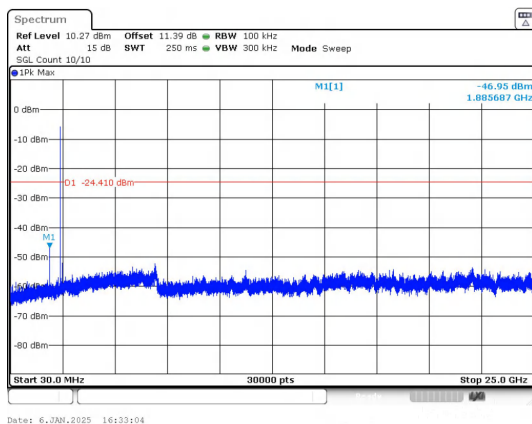
Test Graphs



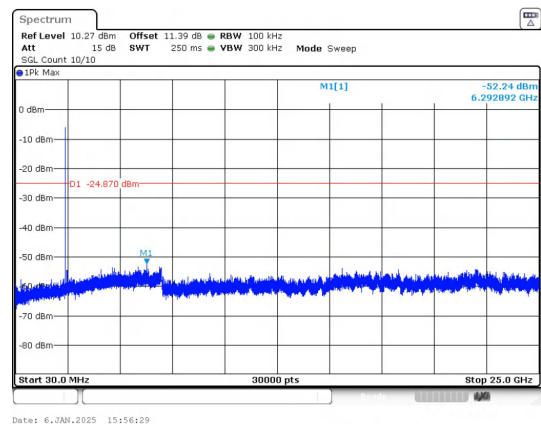
Out Of Band Emission
GFSK_DH5_Channel 0



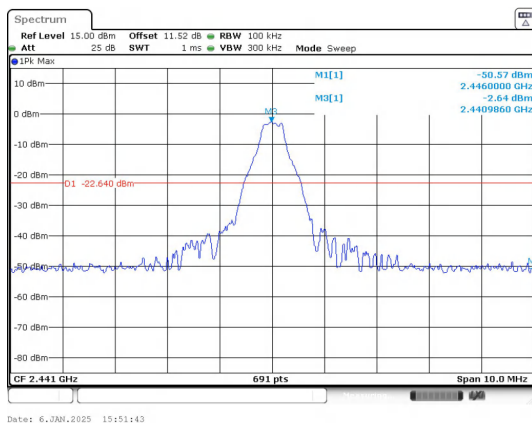
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0



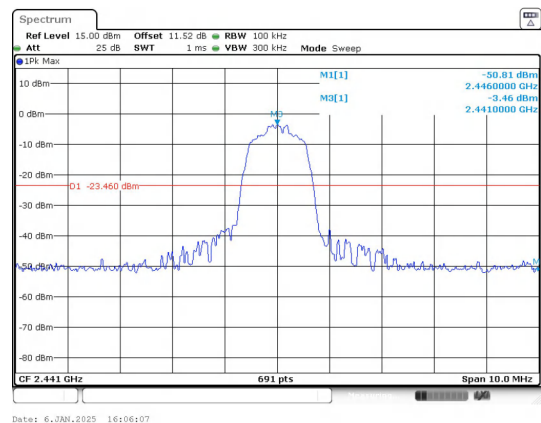
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



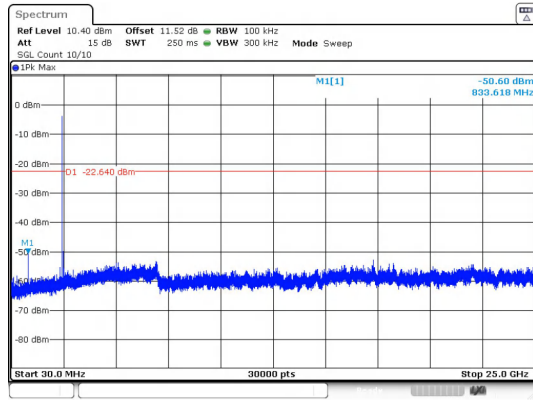
30.0 MHz - 25000.0 MHz
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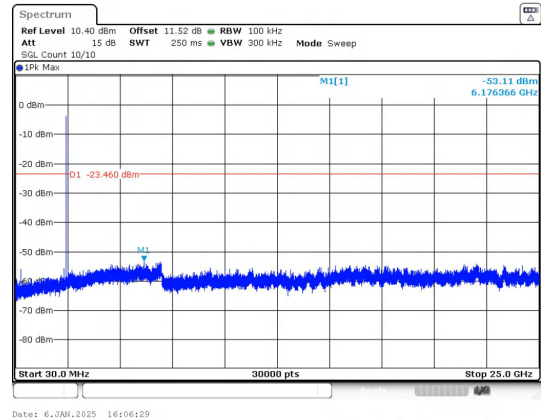
Out Of Band Emission
GFSK_DH5_Channel 39



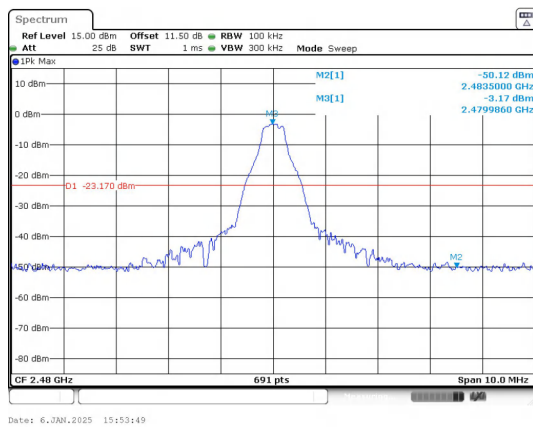
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 39



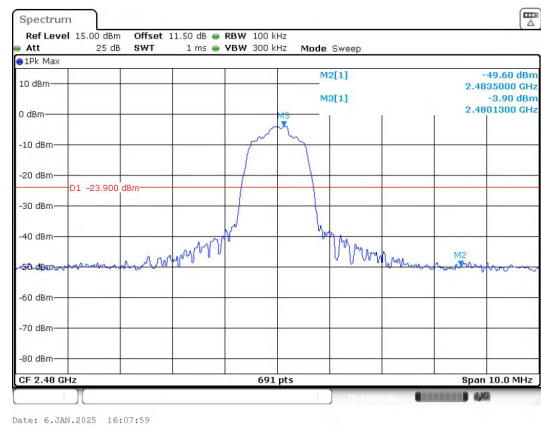
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



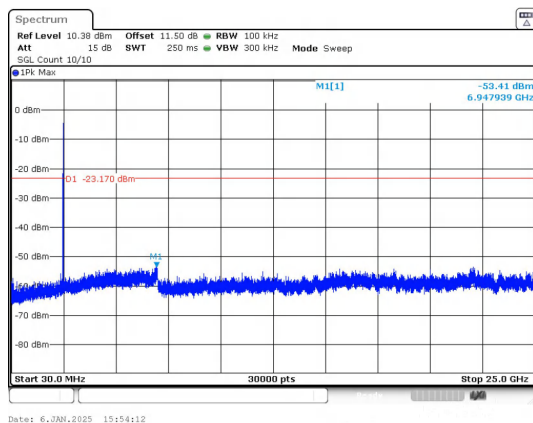
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 39



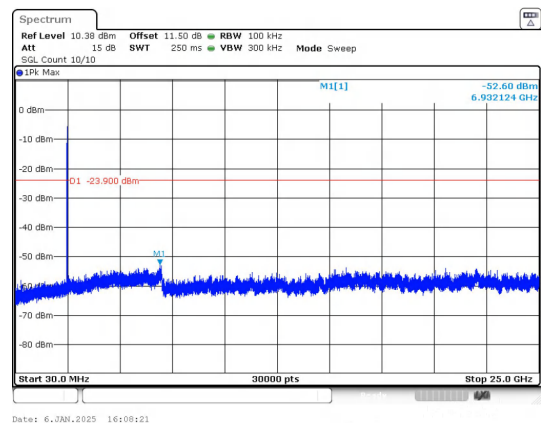
Out Of Band Emission
GFSK_DH5_Channel 78



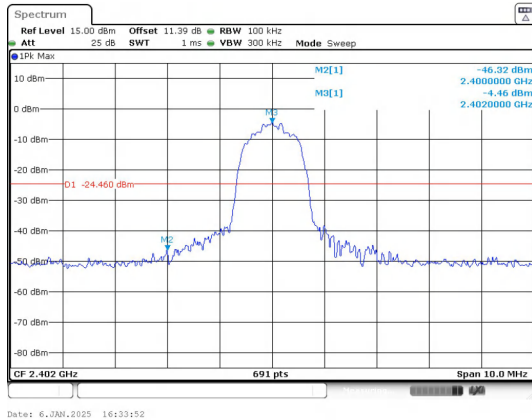
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78



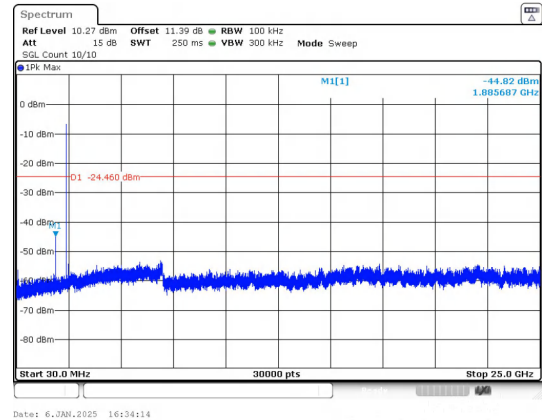
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



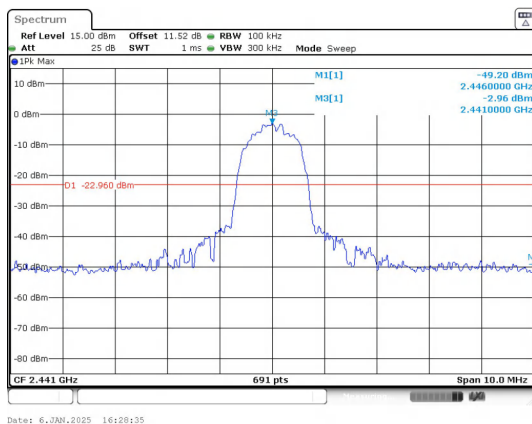
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 78



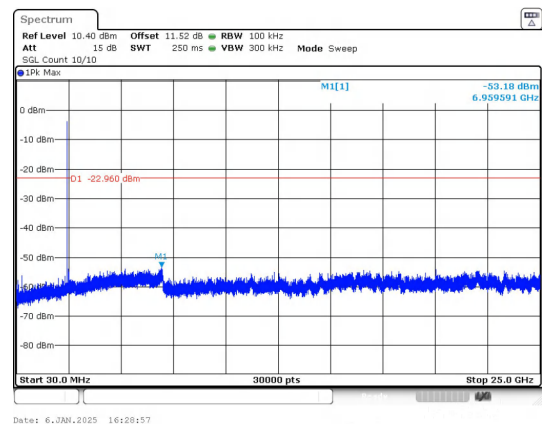
Out Of Band Emission
8DPSK_3-DH5_Channel 0



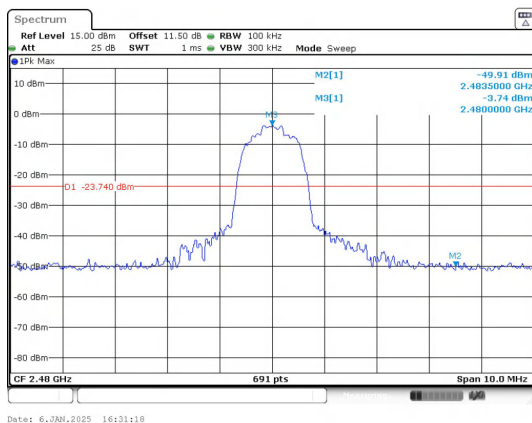
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0



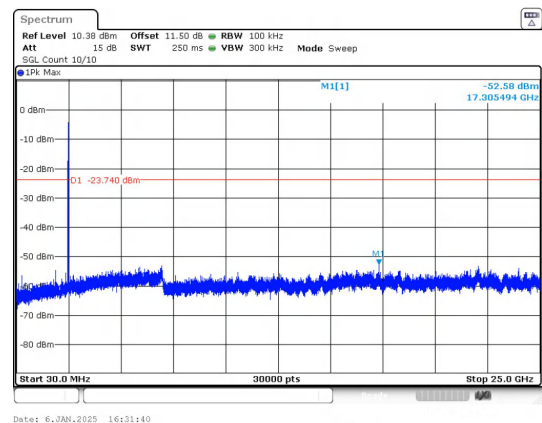
Out Of Band Emission
8DPSK_3-DH5_Channel 39



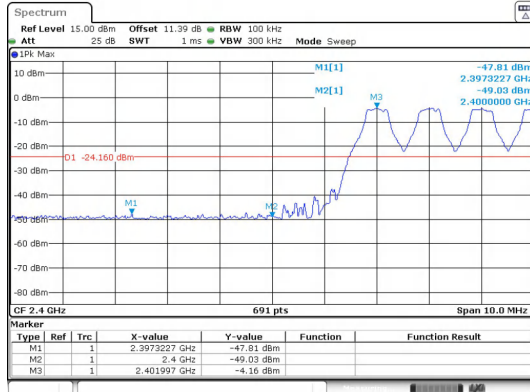
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



Out Of Band Emission
8DPSK_3-DH5_Channel 78

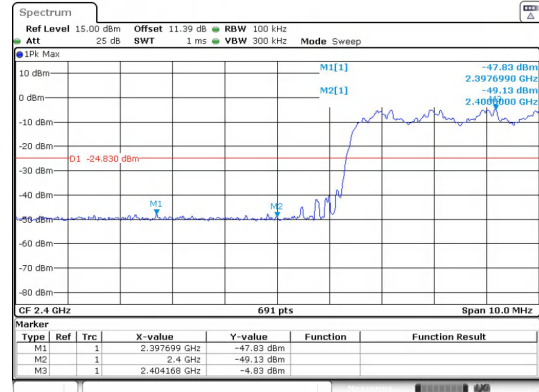


30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



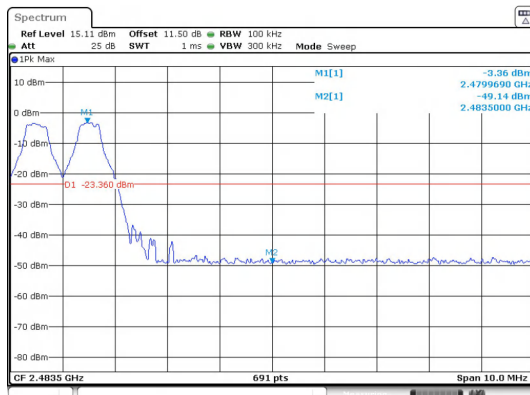
Date: 6.JAN.2025 15:45:25

Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



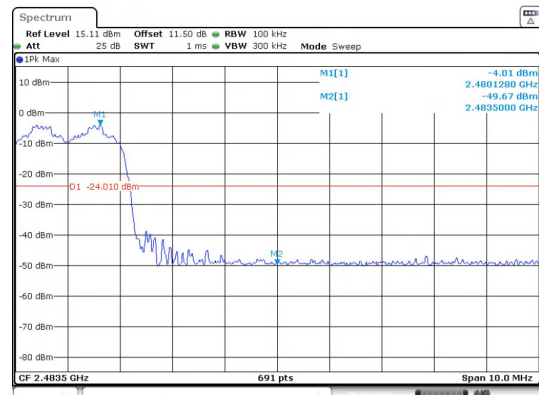
Date: 6.JAN.2025 16:02:29

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



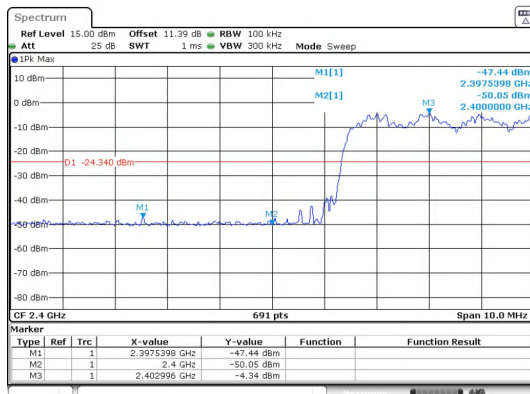
Date: 6.JAN.2025 15:50:05

Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



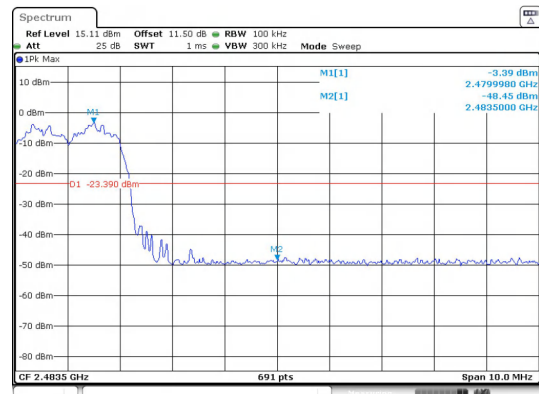
Date: 6.JAN.2025 16:04:39

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



Date: 6.JAN.2025 16:24:51

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



Date: 6.JAN.2025 16:27:04

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

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