

Appendix Report

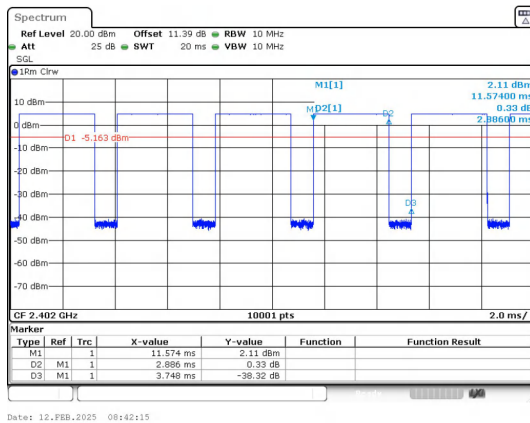
Report No.:	CISRR25021002104
Test Engineer:	Mark Fu
Supervised by:	Rory Huang

1) Duty Cycle

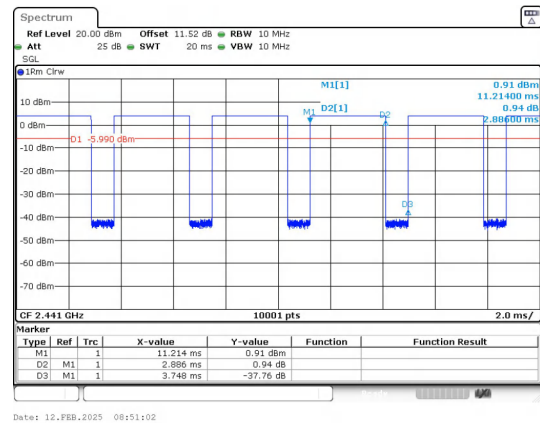
Test Result

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	2.892	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	2.892	3.748	77.16	0.7716	1.1261	0.3458
		39	2.892	3.748	77.16	0.7716	1.1261	0.3458
		78	2.892	3.748	77.16	0.7716	1.1261	0.3458

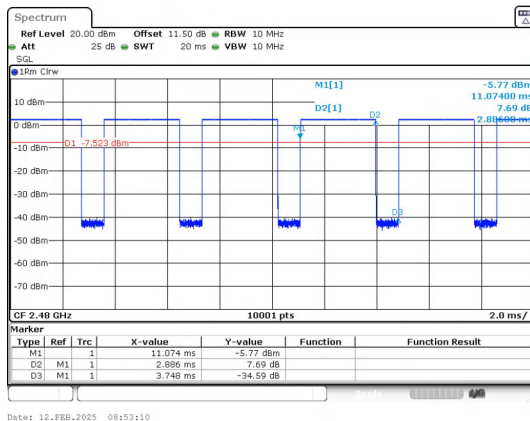
Test Graphs



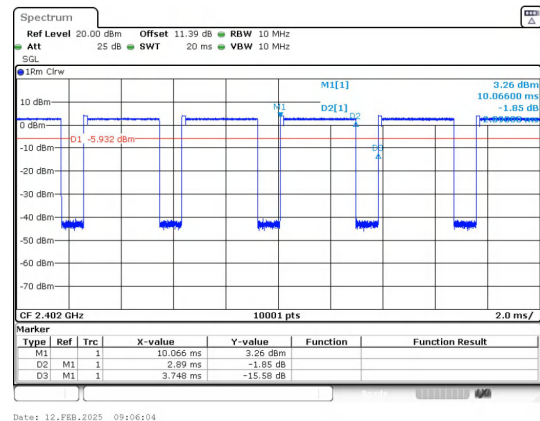
GFSK(DH5)_Channel 0

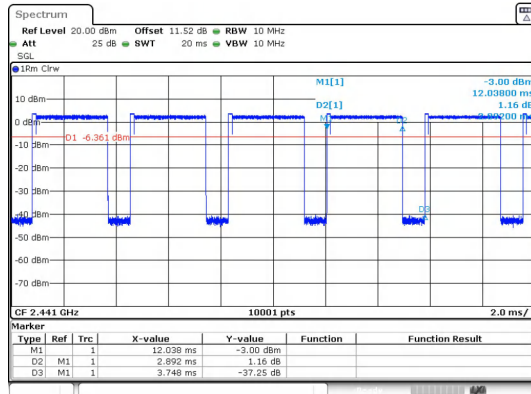


GFSK(DH5)_Channel 39

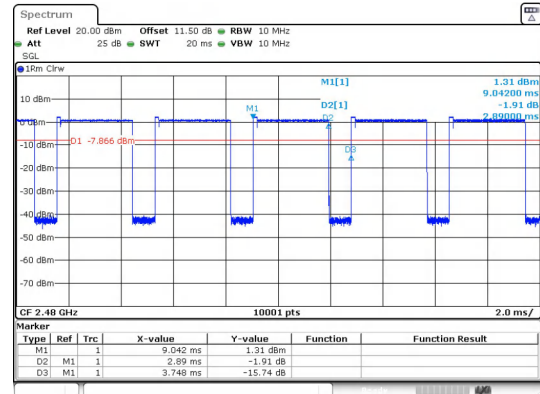


GFSK(DH5)_Channel 78

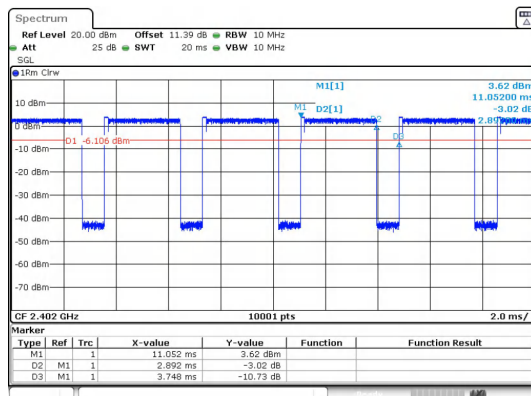

 $\pi/4$ DQPSK(2-DH5)_Channel 0



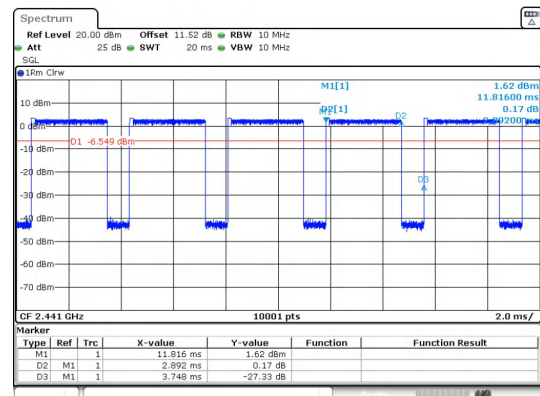
$\pi/4$ DQPSK(2-DH5)_Channel 39



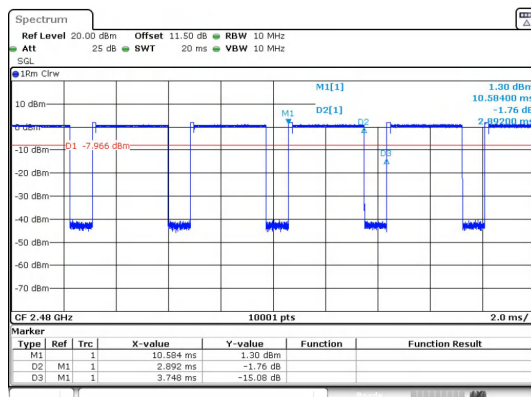
$\pi/4$ DQPSK(2-DH5)_Channel 78



8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39



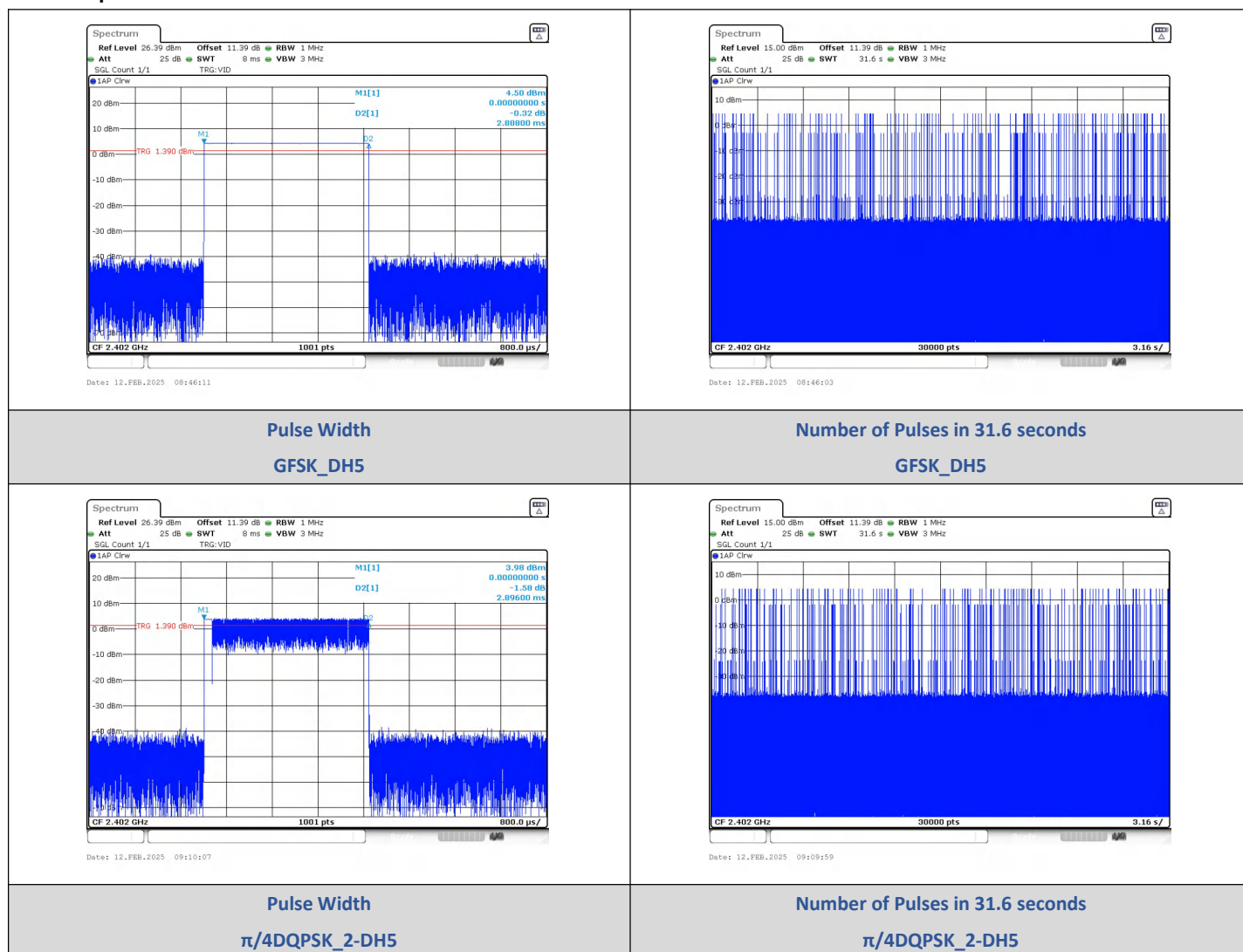
8DPSK(3-DH5)_Channel 78

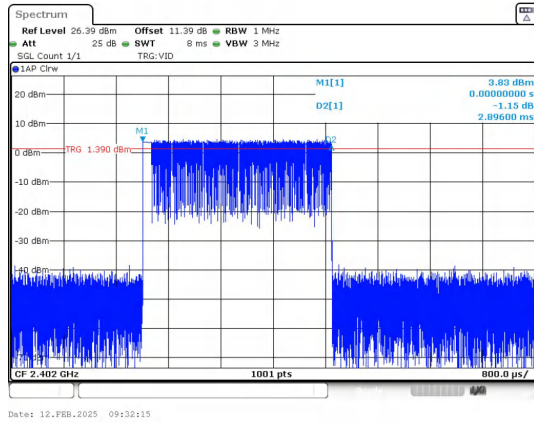
2) Dwell Time

Test Result

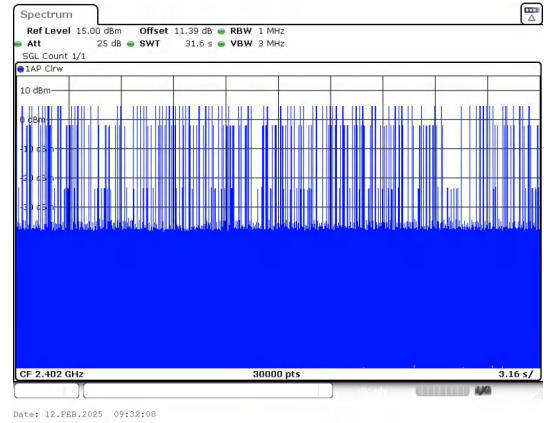
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.888	114	329.23	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	115	333.04		PASS
8DPSK	3-DH5		2.896	113	327.25		PASS

Test Graphs





Pulse Width
8DPSK_3-DH5



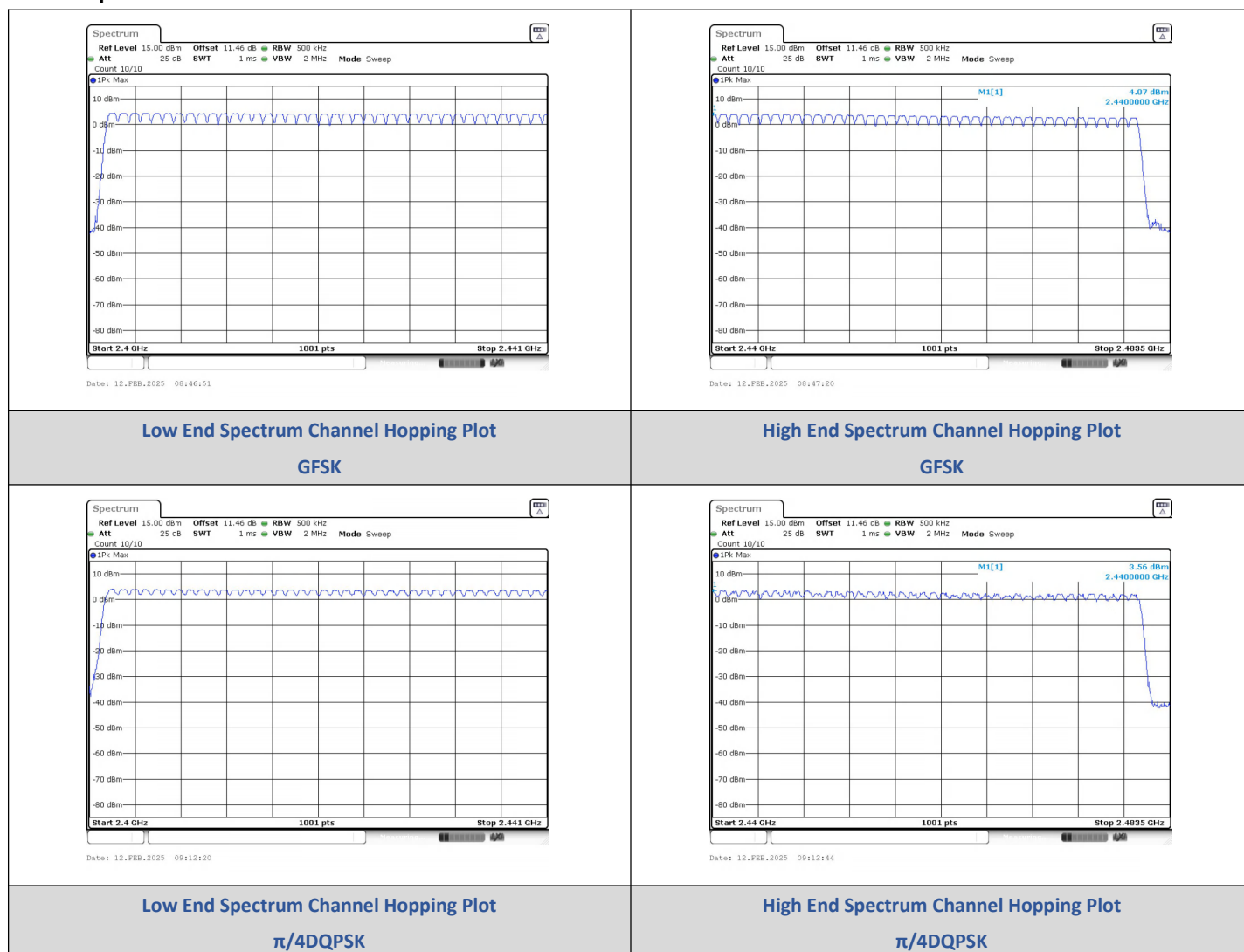
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

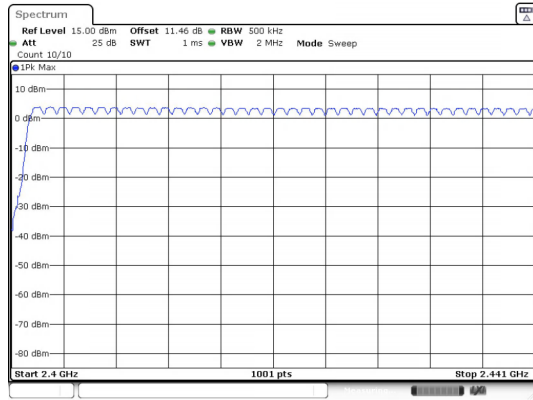
3) Number Of Hopping Channel

Test Result

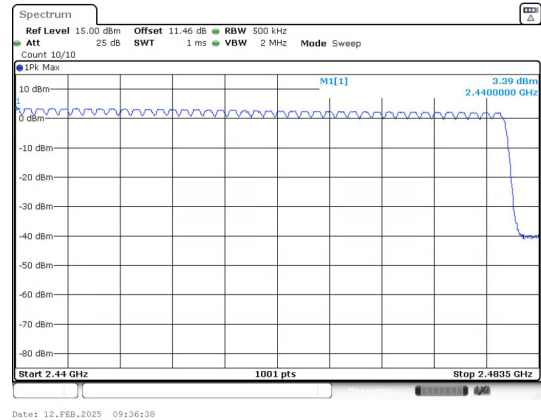
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





Low End Spectrum Channel Hopping Plot
8DPSK



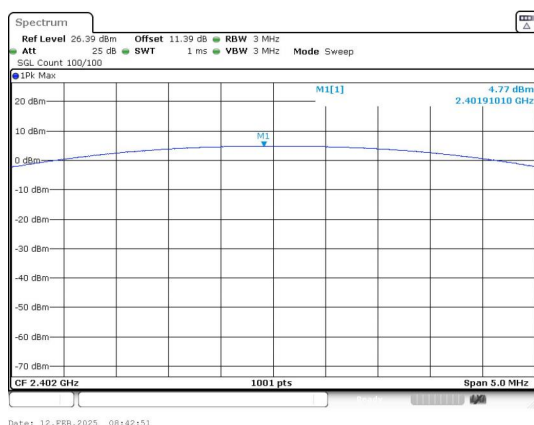
High End Spectrum Channel Hopping Plot
8DPSK

4) Conducted Output Power

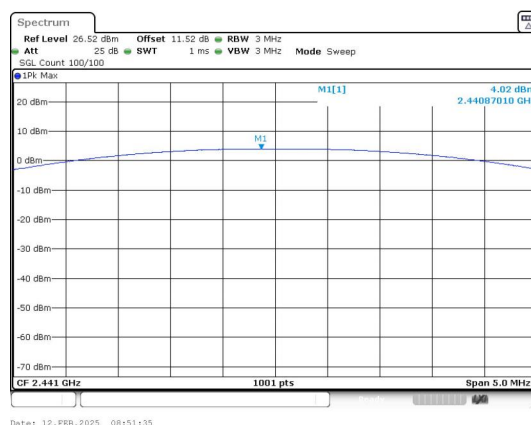
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	4.77	3.00	≤30	PASS
		39	4.02	2.52		PASS
		78	2.50	1.78		PASS
$\pi/4$ DQPSK	2-DH5	0	4.87	3.07	≤20.97	PASS
		39	4.51	2.82		PASS
		78	3.01	2.00		PASS
8DPSK	3-DH5	0	4.98	3.15		PASS
		39	4.64	2.91		PASS
		78	3.24	2.11		PASS

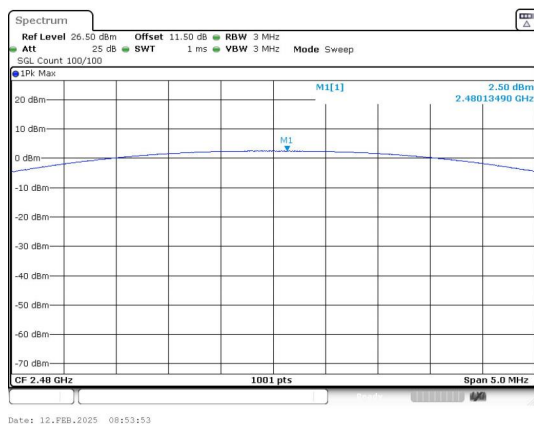
Test Graphs



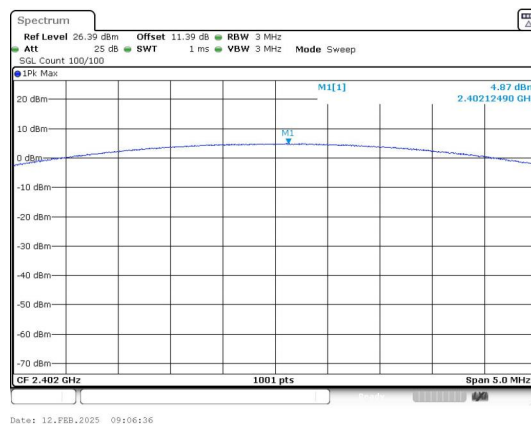
Peak Output Power
GFSK_Channel 0



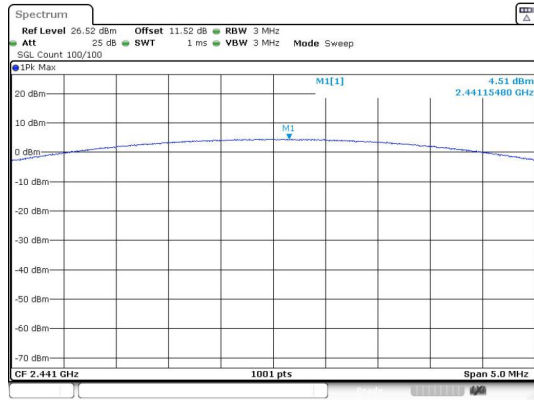
Peak Output Power
GFSK_Channel 39



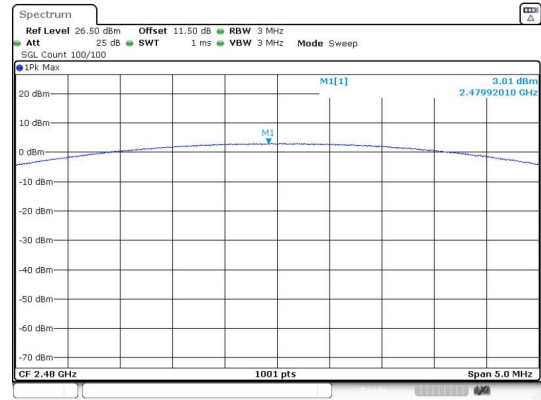
Peak Output Power
GFSK_Channel 78



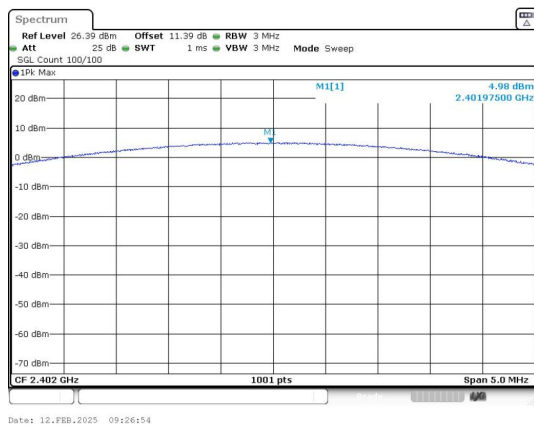
Peak Output Power
 $\pi/4$ DQPSK_Channel 0



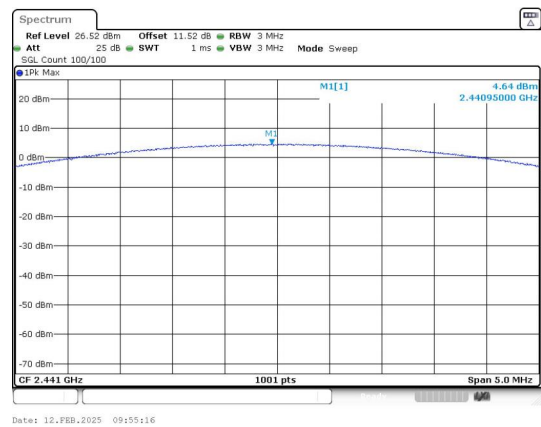
Peak Output Power
 $\pi/4$ DQPSK_Channel 39



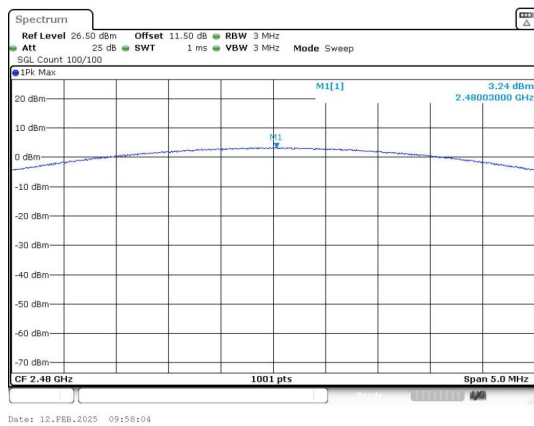
Peak Output Power
 $\pi/4$ DQPSK_Channel 78



Peak Output Power
8DPSK_Channel 0



Peak Output Power
8DPSK_Channel 39



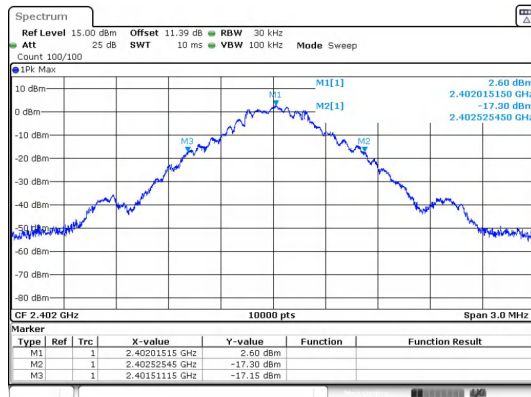
Peak Output Power
8DPSK_Channel 78

5) 20dB Bandwidth

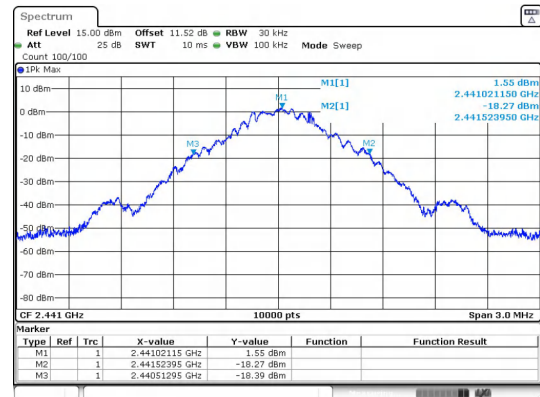
Test Result

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

Test Graphs



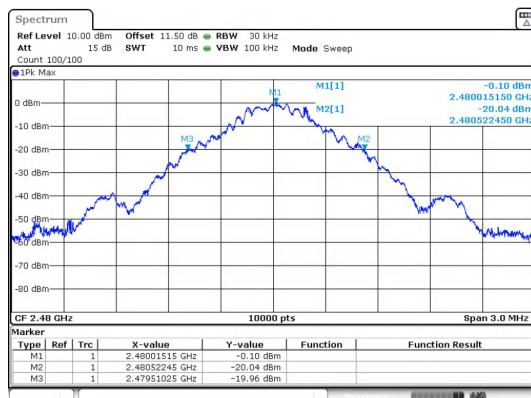
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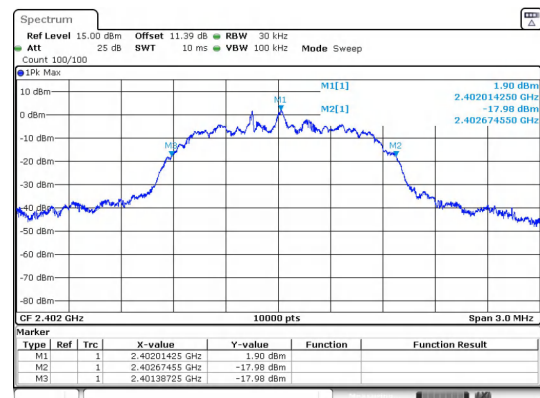
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GFSK_DH5_Channel 0

GFSK_DH5_Channel 39



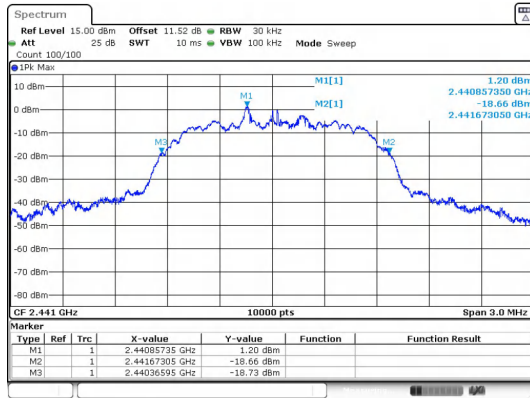
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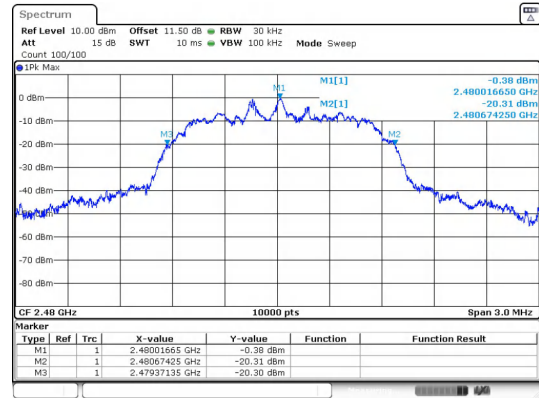
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GFSK_DH5_Channel 78

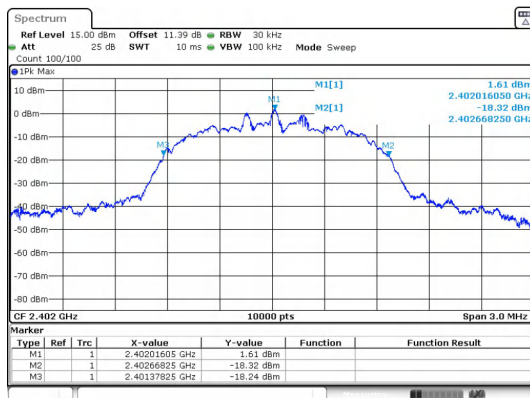
 $\pi/4$ DQPSK_2-DH5_Channel 0



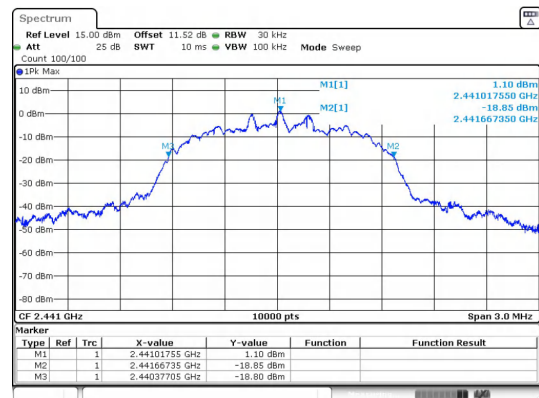
$\pi/4$ DQPSK_2-DH5_Channel 39



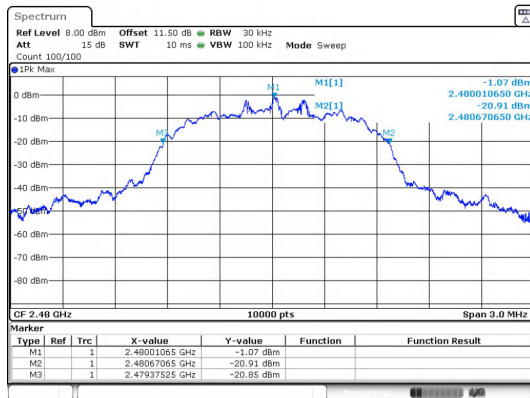
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



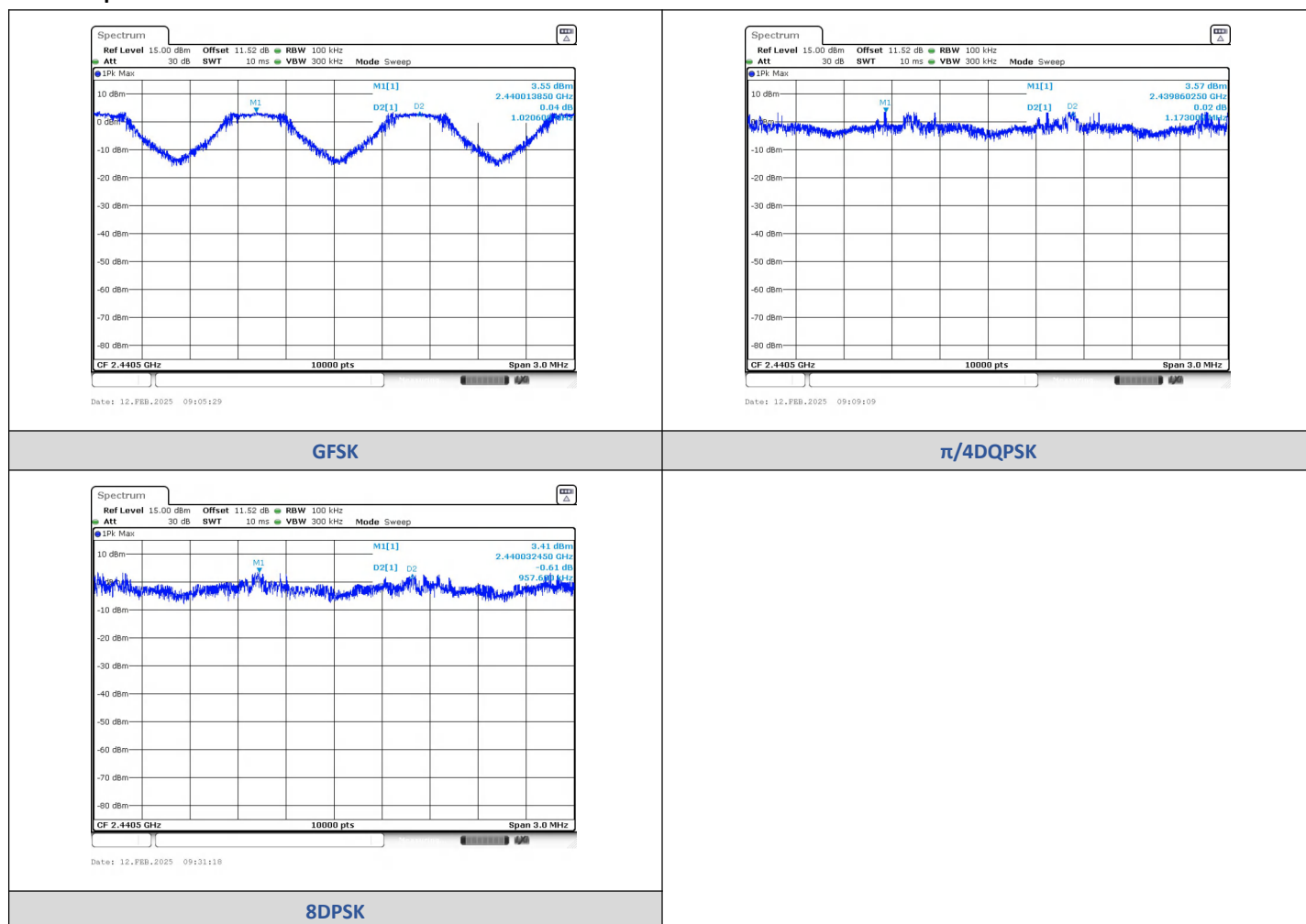
8DPSK_3-DH5_Channel 78

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	2440.0138	2441.0345	1.0206	1.02	PASS
$\pi/4$ DQPSK	2-DH5	2439.8603	2441.0332	1.1730	0.853	PASS
8DPSK	3-DH5	2440.0325	2440.99	0.9576	0.86	PASS

Test Graphs



7) Conducted Out Of Band Emission

Test Result

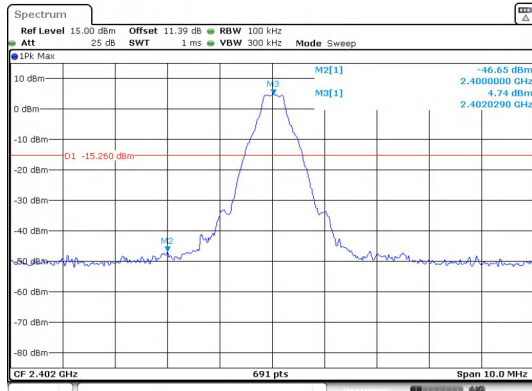
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-46.650	-15.26	-31.390	PASS
			9608.08	-43.286	-15.26	-28.026	PASS
		39	9763.72	-42.464	-16.17	-26.294	PASS
		78	2483.50	-50.870	-17.62	-33.250	PASS
			9920.20	-39.405	-17.62	-21.785	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-47.420	-16.51	-30.910	PASS
			9608.08	-43.576	-16.51	-27.066	PASS
		39	1784.14	-37.385	-16.51	-20.875	PASS
		78	2483.50	-49.560	-18.19	-31.370	PASS
			9920.20	-39.239	-18.19	-21.049	PASS
8DPSK	3-DH5	0	2400.00	-45.670	-16.28	-29.390	PASS
			9608.08	-44.267	-16.28	-27.987	PASS
		39	4882.09	-41.148	-17.19	-23.958	PASS
		78	2483.50	-50.220	-18.12	-32.100	PASS
			9920.20	-39.611	-18.12	-21.491	PASS

Hopping

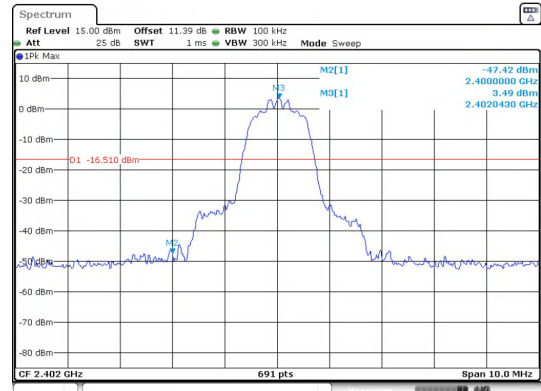
Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2398.51	-48.076	-15.74	-32.336	PASS
			2400.00	-48.300	-15.74	-32.560	PASS
			2483.50	-48.400	-17.63	-30.770	PASS
$\pi/4$ DQPSK	2-DH5		2397.66	-48.136	-16.35	-31.786	PASS
			2400.00	-50.440	-16.35	-34.090	PASS
			2483.50	-50.570	-18.08	-32.490	PASS
8DPSK	3-DH5		2400.00	-46.930	-16.3	-30.630	PASS
			2483.50	-49.290	-19.2	-30.090	PASS

Test Graphs



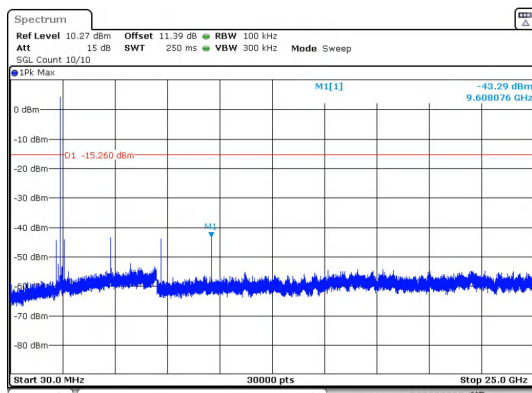
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Out Of Band Emission
GFSK_DH5_Channel 0



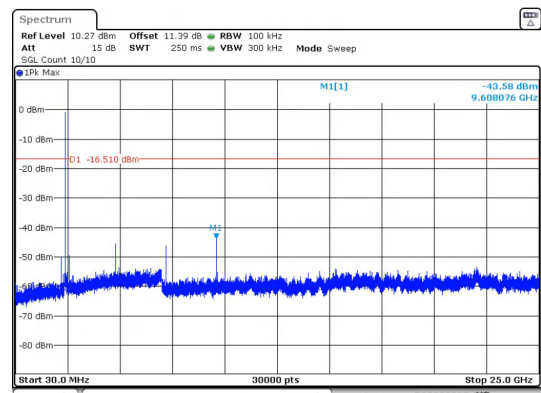
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Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0



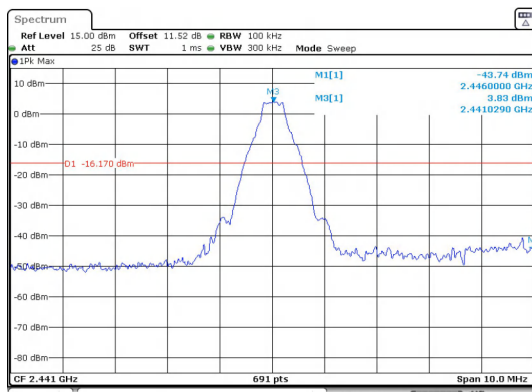
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30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



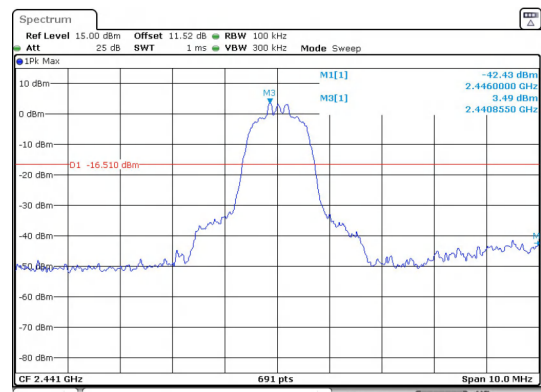
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30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 0



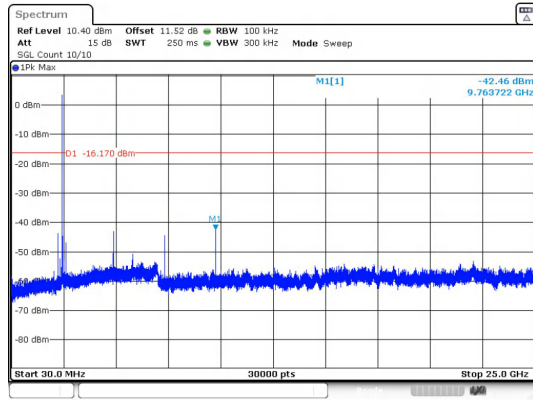
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Out Of Band Emission
GFSK_DH5_Channel 39

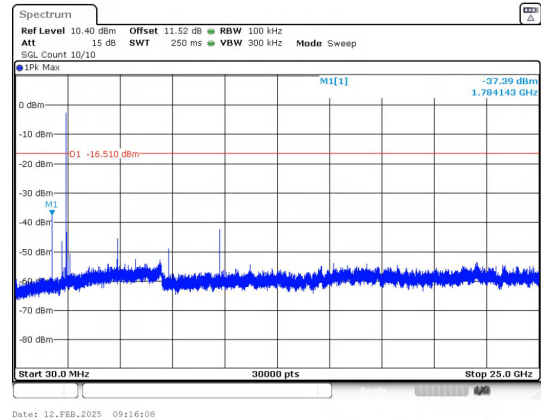


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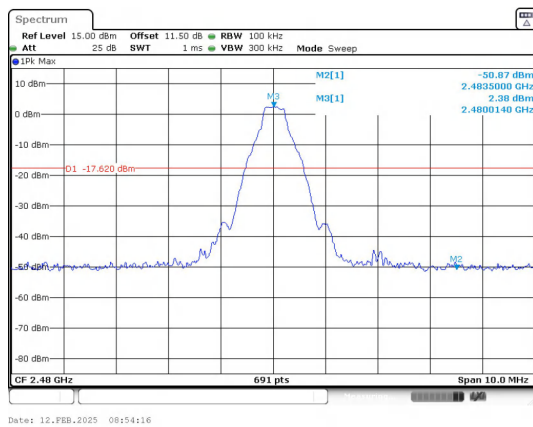
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 39



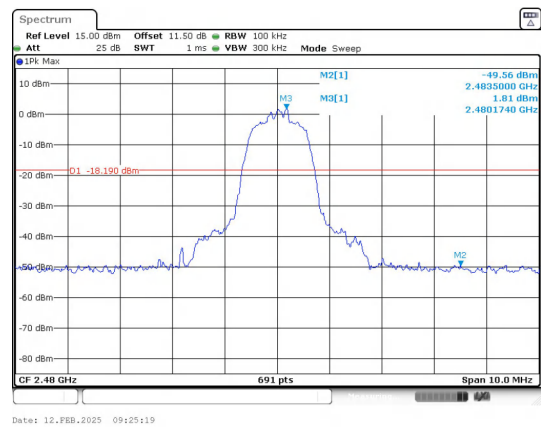
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



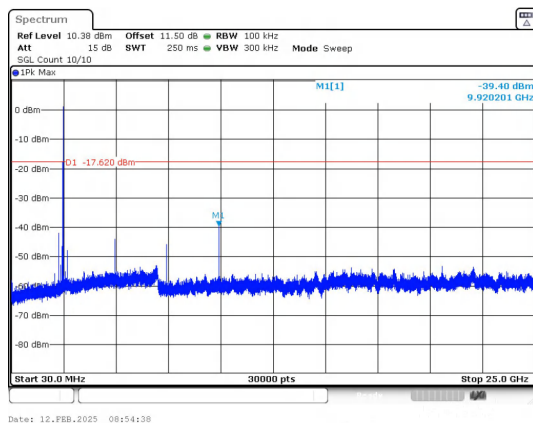
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 39



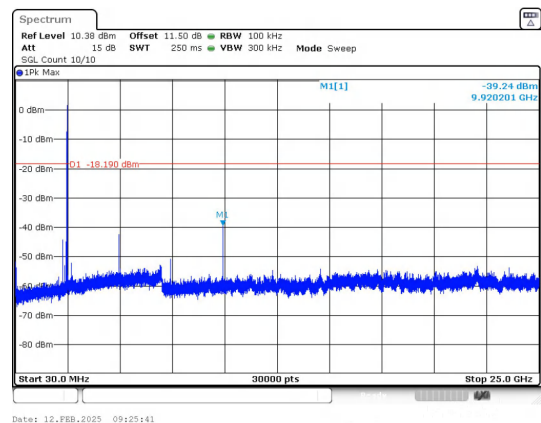
Out Of Band Emission
GFSK_DH5_Channel 78



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



30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



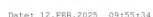
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 78



Out Of Band Emission



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

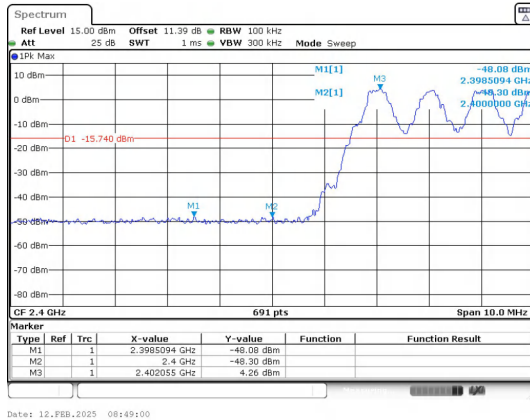


Out Of Band Emission

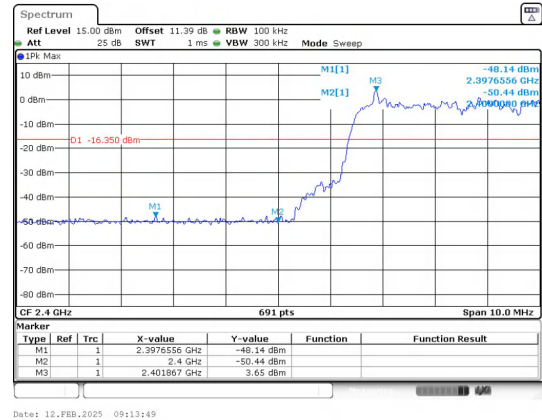
8DPSK 3-DH5 Channel 78



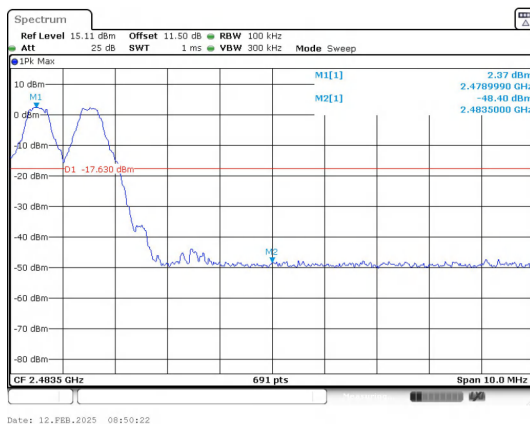
30.0 MHz - 25000.0 MHz
8DPSK 3-DH5 Channel 78



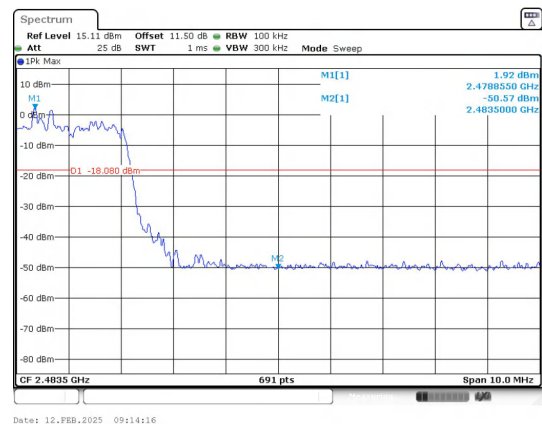
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



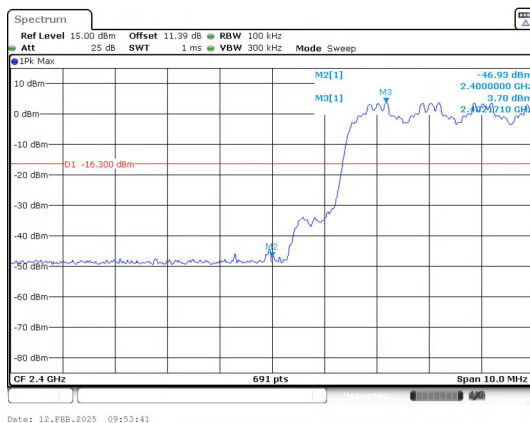
Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping



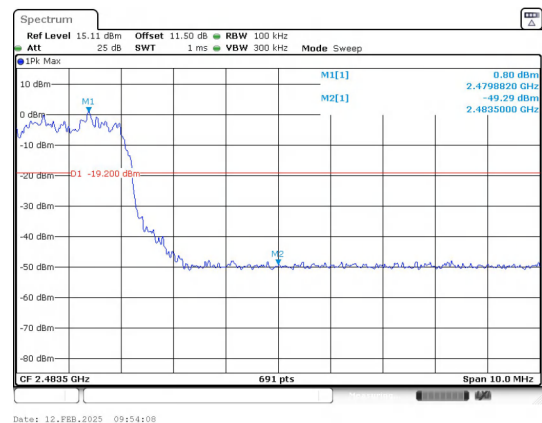
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



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-----