

Appendix Report

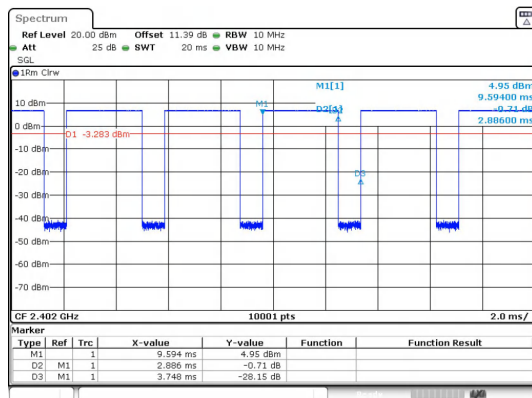
Report No.:	CISRR25022110704
Test Engineer:	Mark Fu
Supervised by:	Rory Huang

1) Duty Cycle

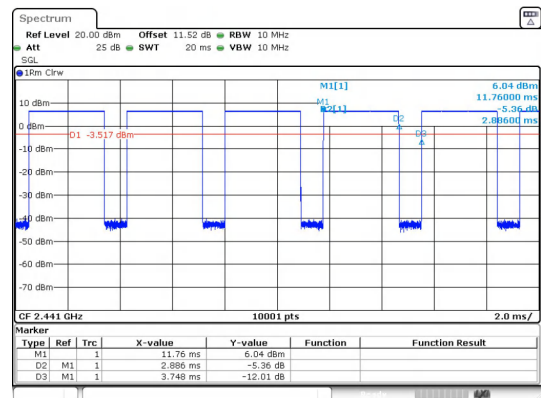
Test Result

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	2.892	3.748	77.16	0.7716	1.1261	0.3458
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

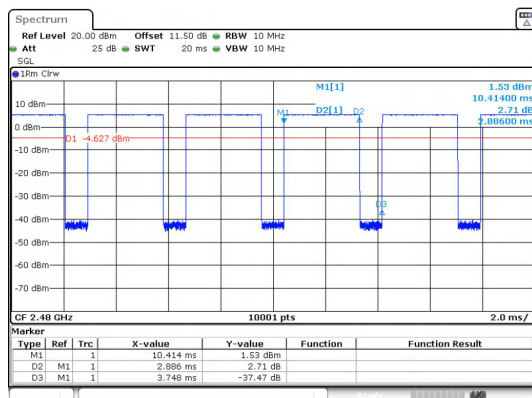
Test Graphs



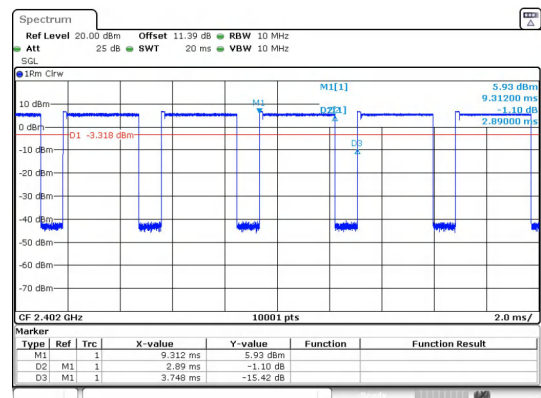
GFSK(DH5)_Channel 0

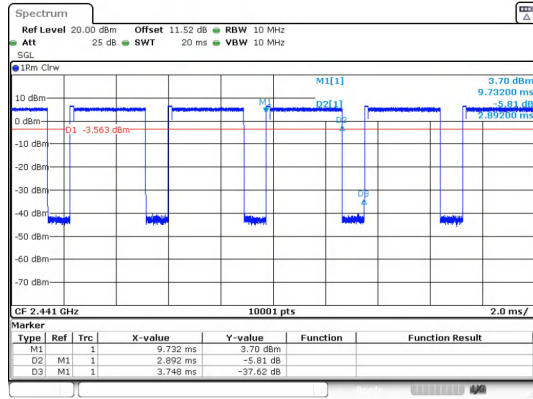


GFSK(DH5)_Channel 39

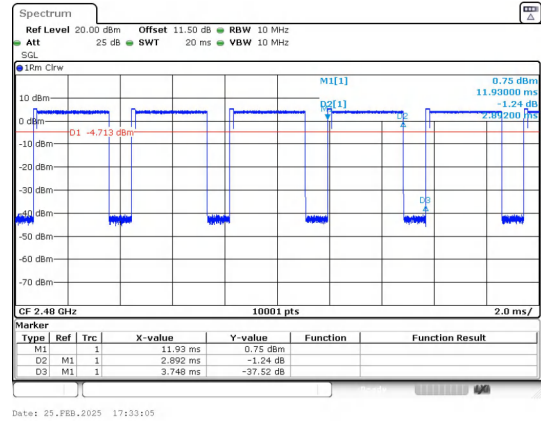


GFSK(DH5)_Channel 78

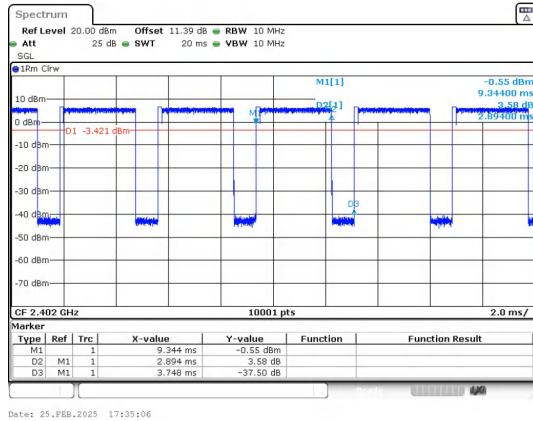

 $\pi/4$ DQPSK(2-DH5)_Channel 0



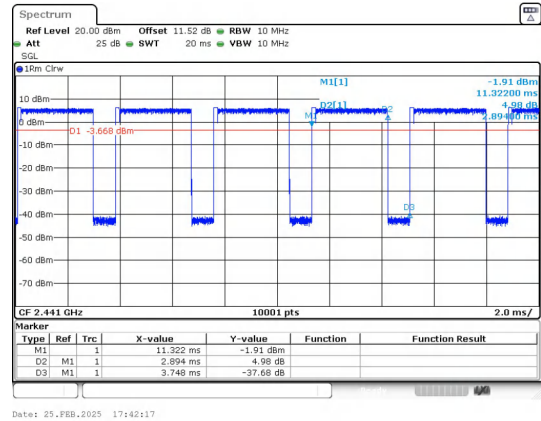
$\pi/4$ DQPSK(2-DH5)_Channel 39



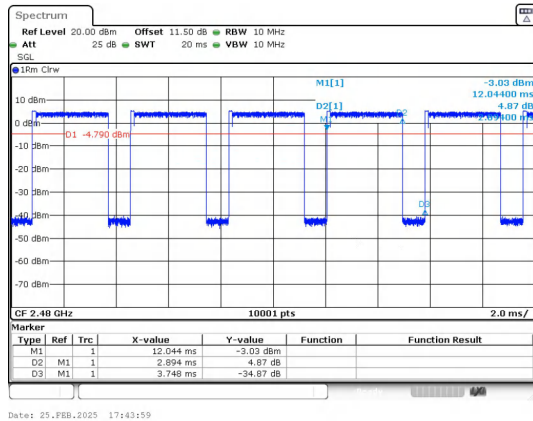
$\pi/4$ DQPSK(2-DH5)_Channel 78



8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39



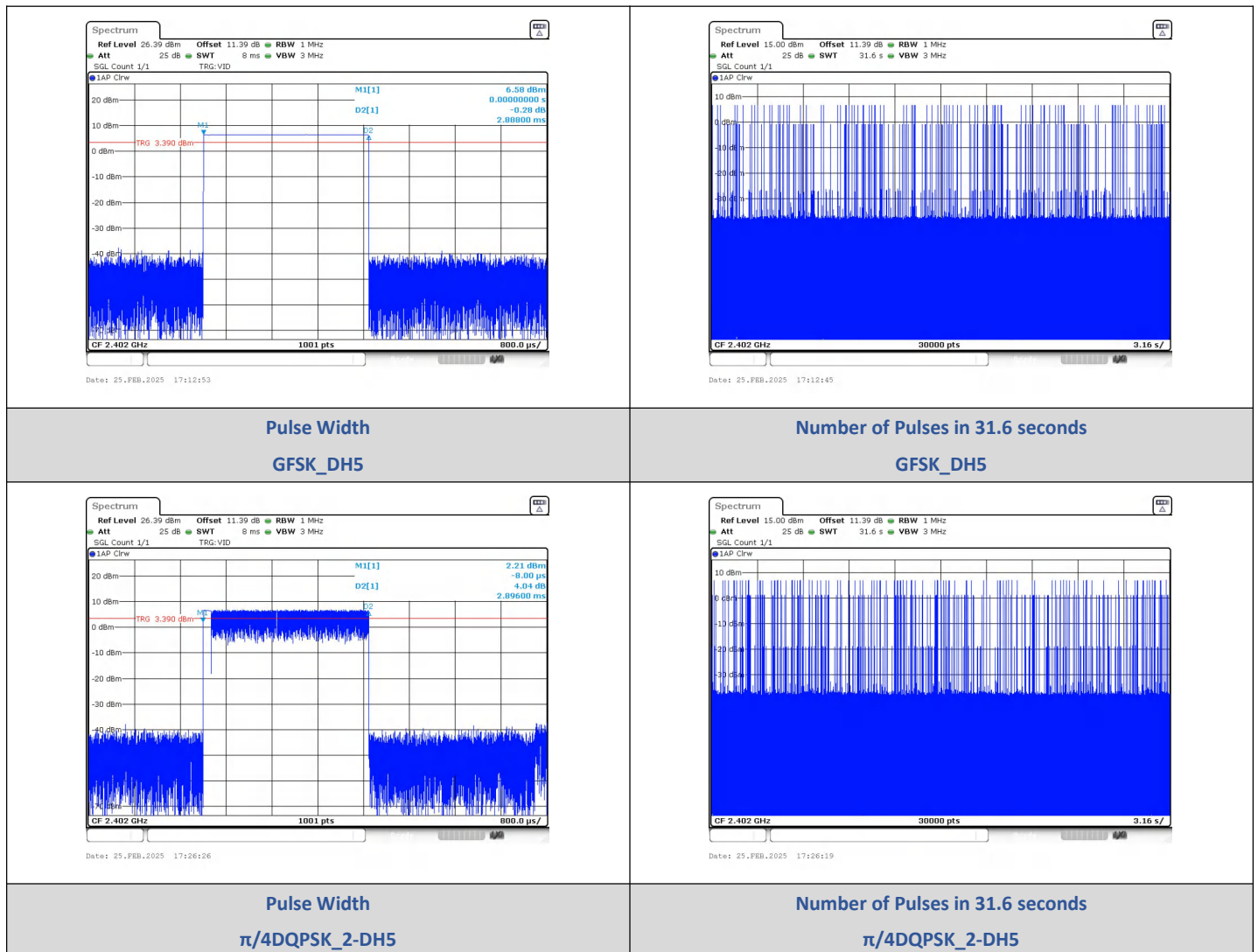
8DPSK(3-DH5)_Channel 78

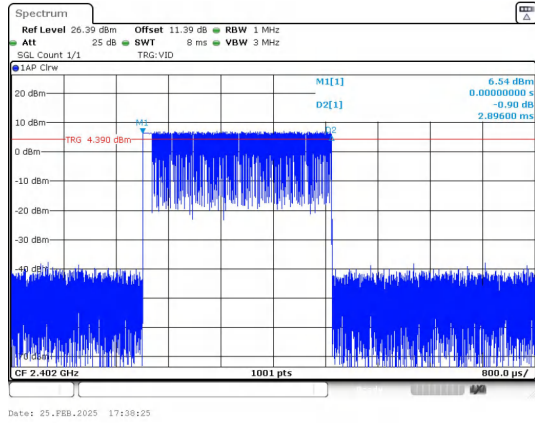
2) Dwell Time

Test Result

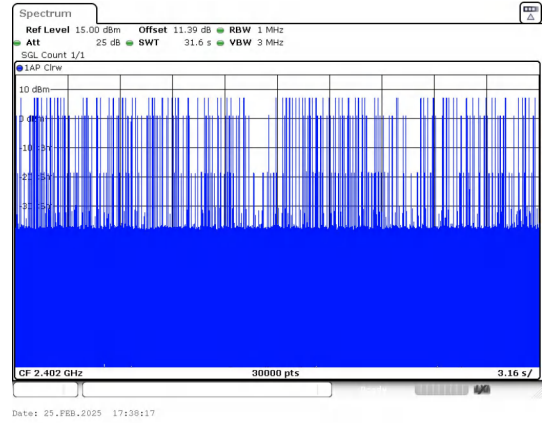
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.888	97	280.14	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	112	324.35		PASS
8DPSK	3-DH5		2.896	103	298.29		PASS

Test Graphs





Pulse Width
8DPSK_3-DH5



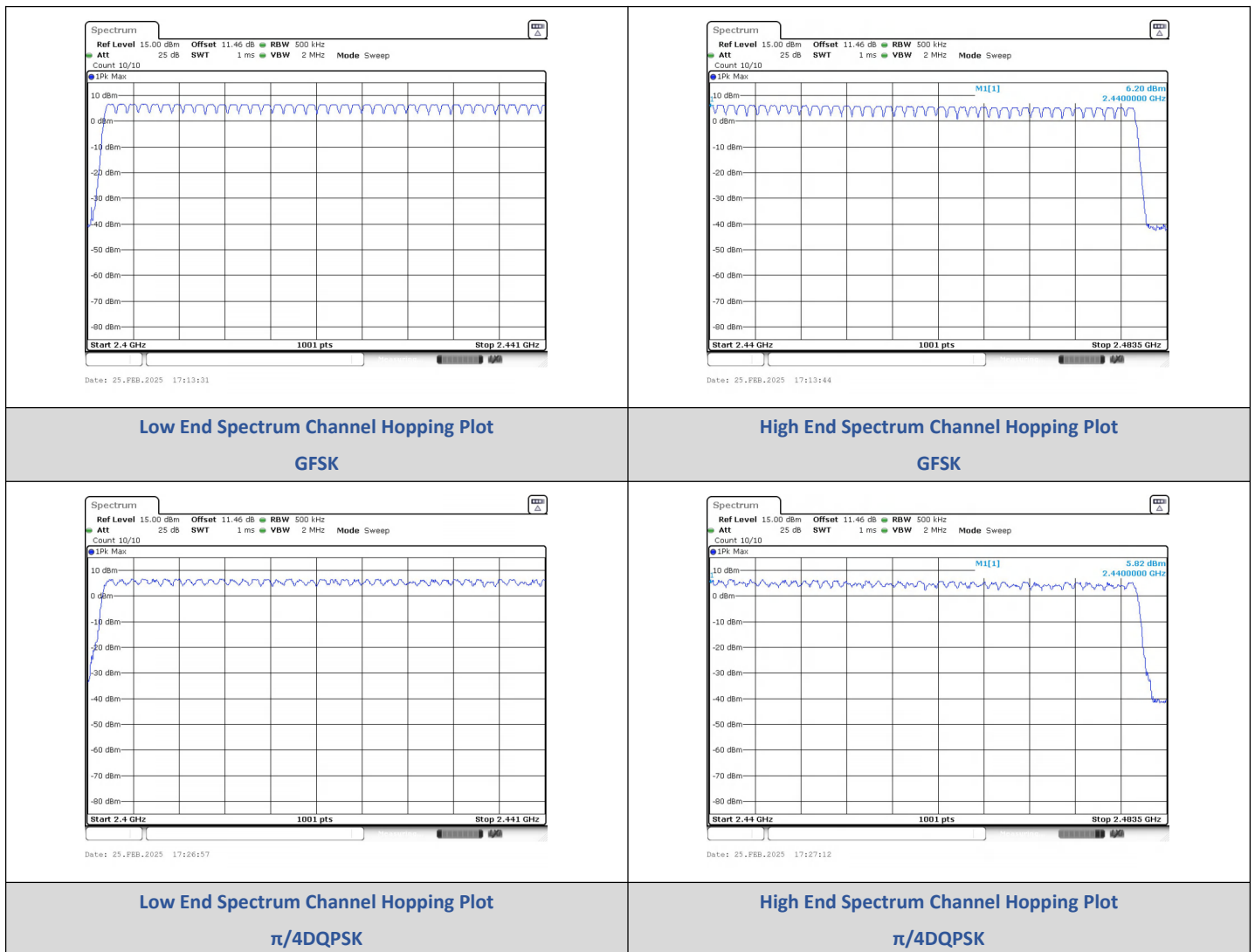
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

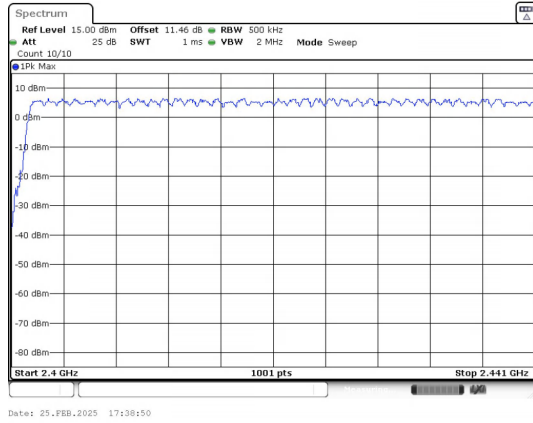
3) Number Of Hopping Channel

Test Result

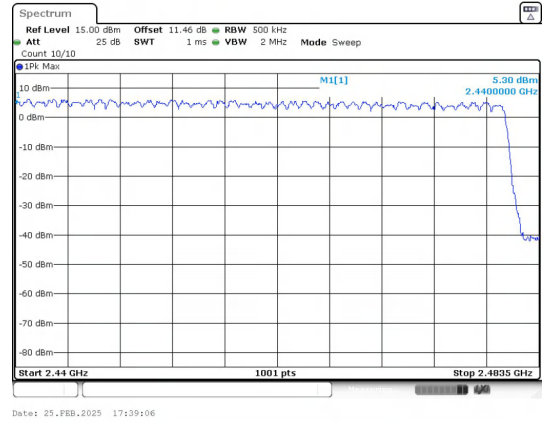
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





Low End Spectrum Channel Hopping Plot
8DPSK



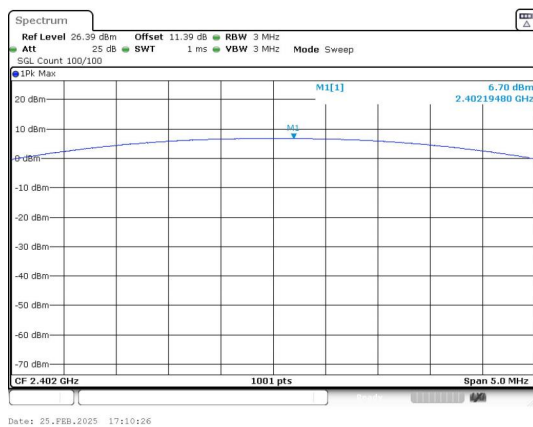
High End Spectrum Channel Hopping Plot
8DPSK

4) Conducted Output Power

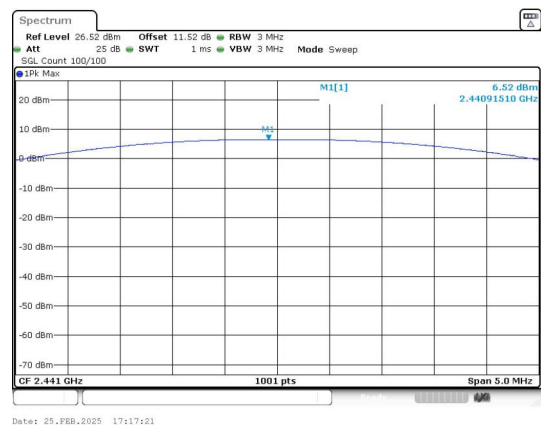
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	6.70	4.68	≤30	PASS
		39	6.52	4.49		PASS
		78	5.42	3.48		PASS
$\pi/4$ DQPSK	2-DH5	0	7.33	5.41	≤20.97	PASS
		39	7.13	5.16		PASS
		78	6.02	4.00		PASS
8DPSK	3-DH5	0	7.42	5.52		PASS
		39	7.23	5.28		PASS
		78	6.15	4.12		PASS

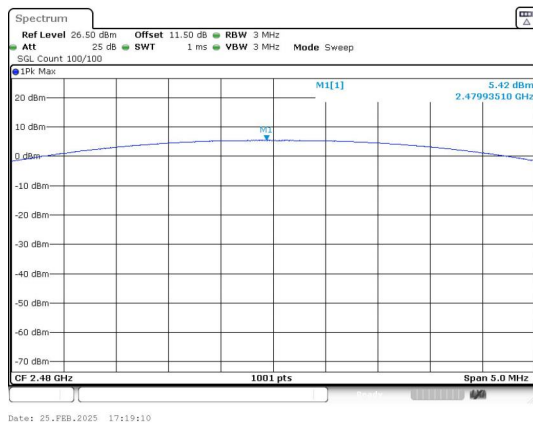
Test Graphs



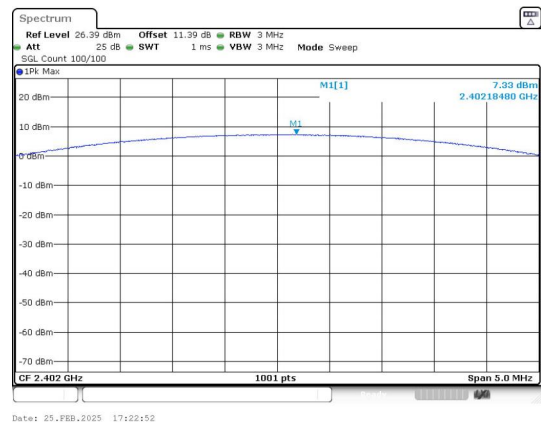
Peak Output Power
GFSK_Channel 0



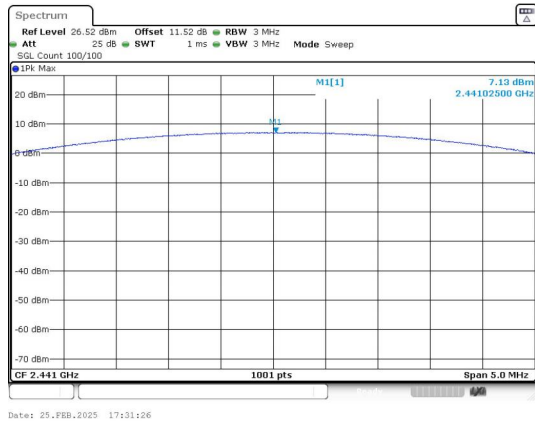
Peak Output Power
GFSK_Channel 39



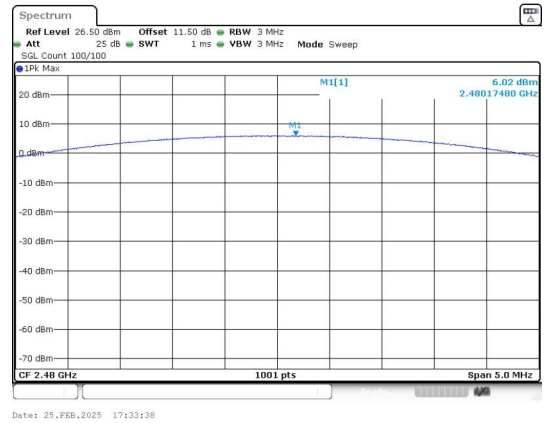
Peak Output Power
GFSK_Channel 78



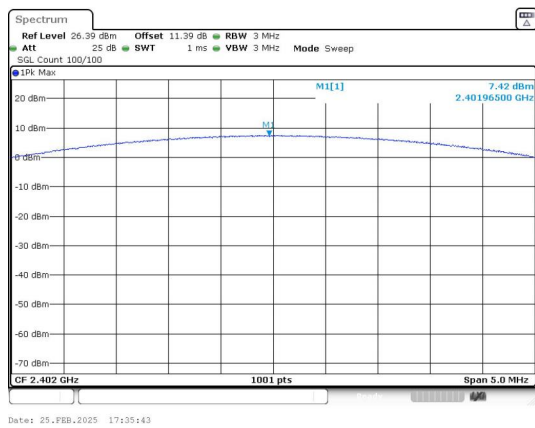
Peak Output Power
 $\pi/4$ DQPSK_Channel 0



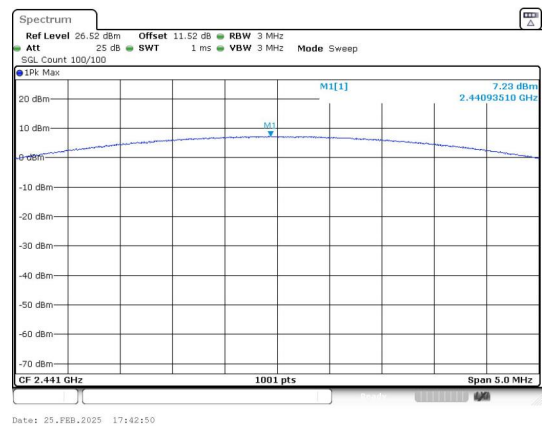
Peak Output Power
 $\pi/4$ DQPSK_Channel 39



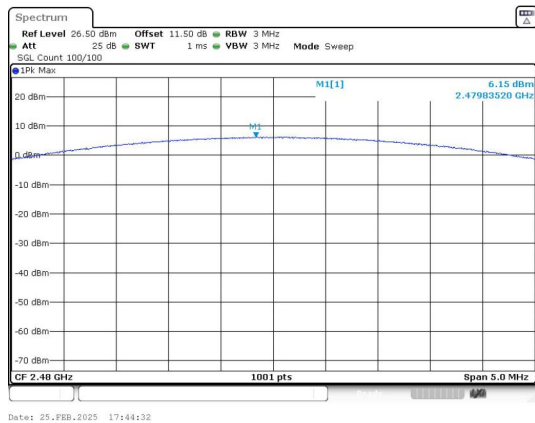
Peak Output Power
 $\pi/4$ DQPSK_Channel 78



Peak Output Power
8DPSK_Channel 0



Peak Output Power
8DPSK_Channel 39



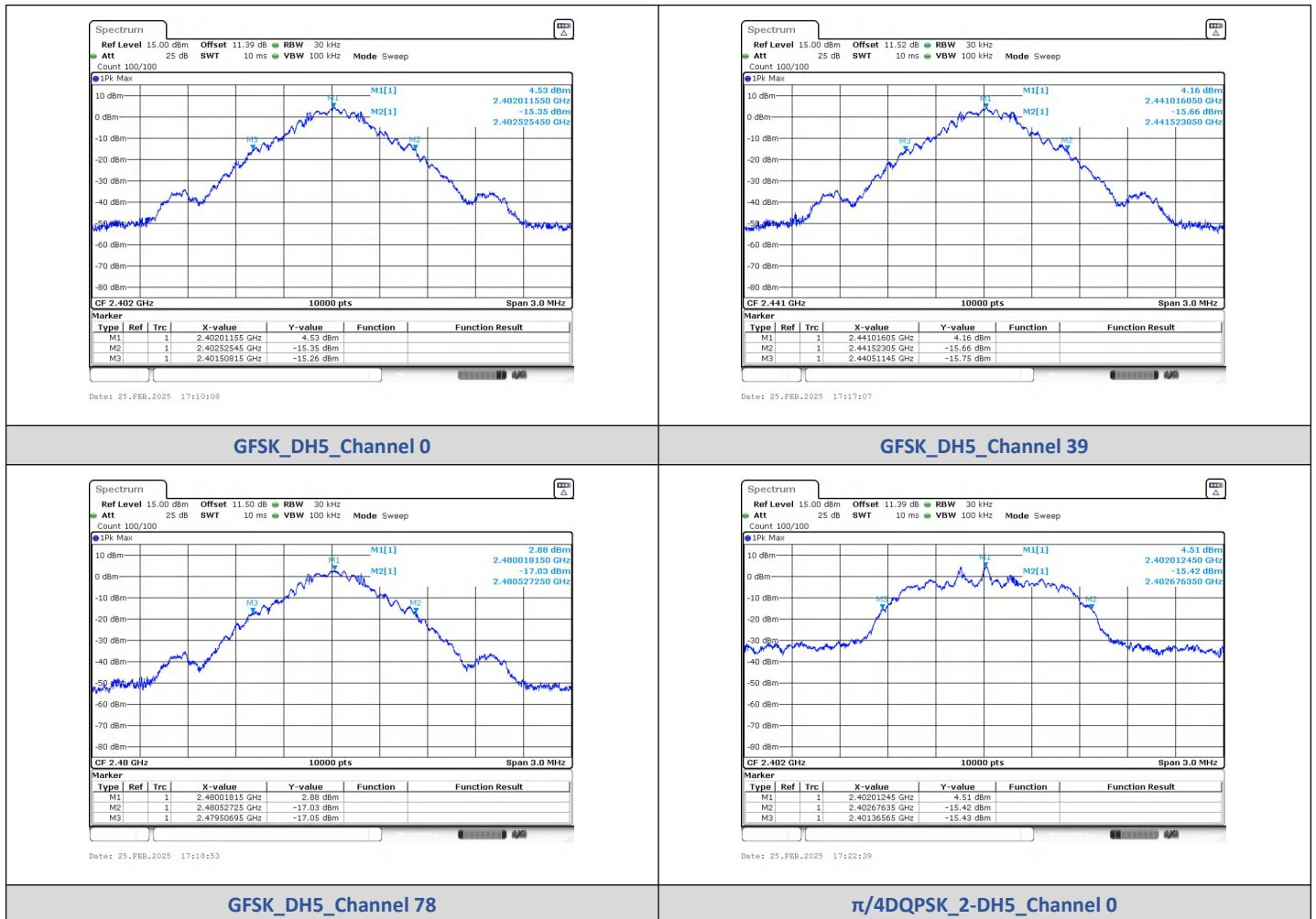
Peak Output Power
8DPSK_Channel 78

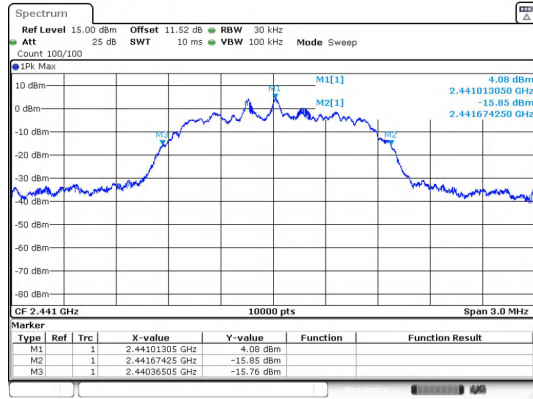
5) 20dB Bandwidth

Test Result

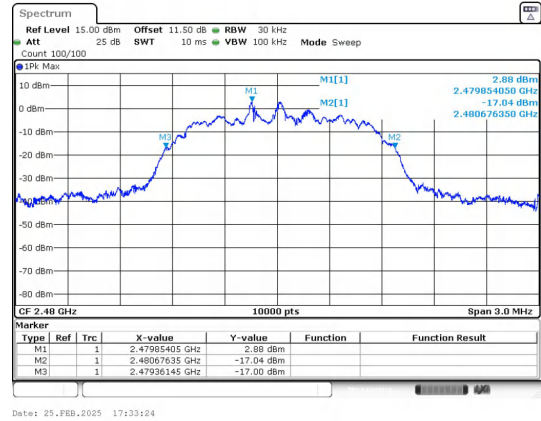
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.020
	39	2441 MHz	1.010
	78	2480 MHz	1.020
$\pi/4$ DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.300
	78	2480 MHz	1.320
8DPSK	0	2402 MHz	1.290
	39	2441 MHz	1.300
	78	2480 MHz	1.290

Test Graphs

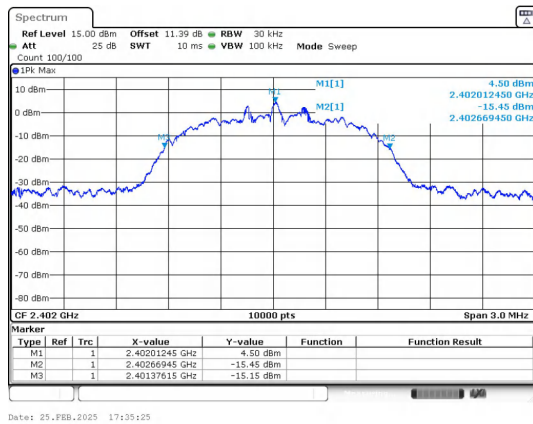




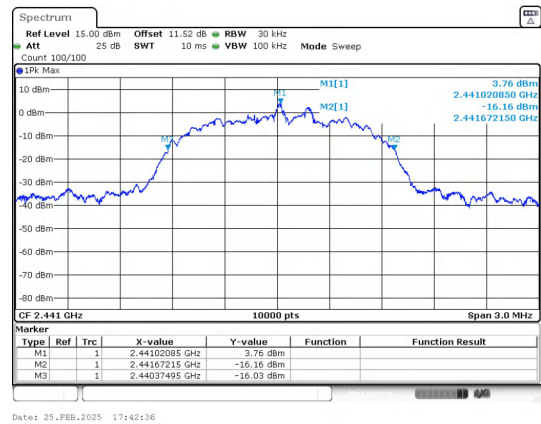
$\pi/4$ DQPSK_2-DH5_Channel 39



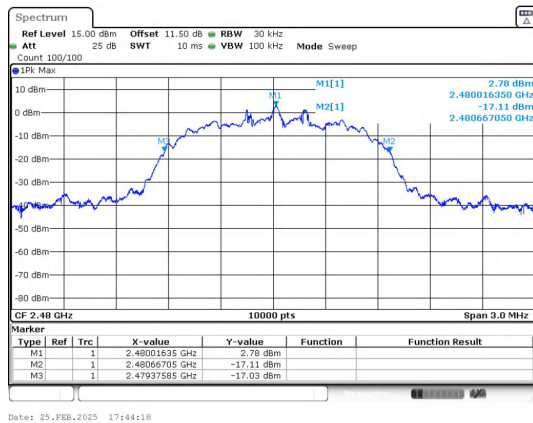
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



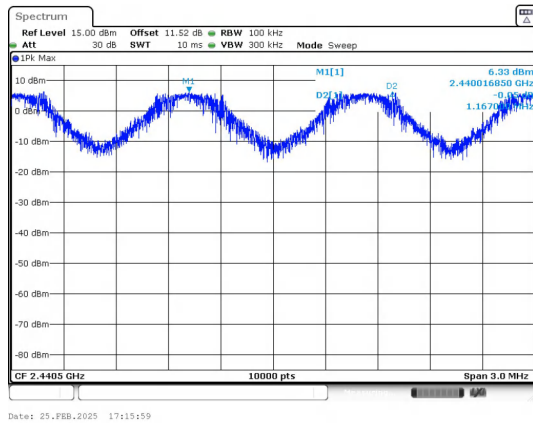
8DPSK_3-DH5_Channel 78

6) Carrier Frequencies Separation

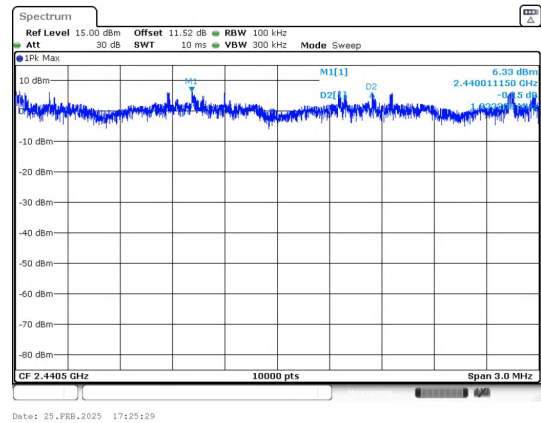
Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2440.0168	2441.1838	1.1670	1.020	PASS
$\pi/4$ DQPSK	2-DH5	2440.0111	2441.0444	1.0332	0.873	PASS
8DPSK	3-DH5	2439.8618	2440.8391	0.9774	0.86	PASS

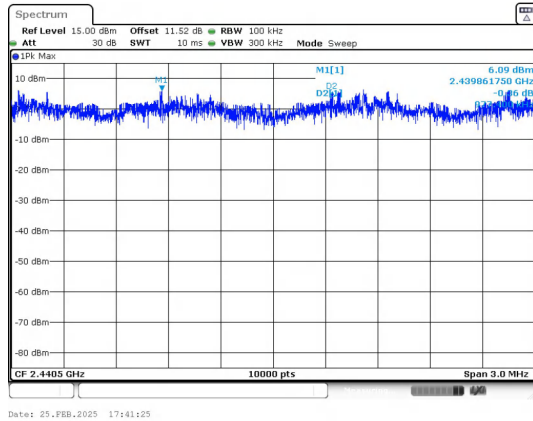
Test Graphs



GFSK



$\pi/4$ DQPSK



8DPSK

7) Conducted Out Of Band Emission

Test Result

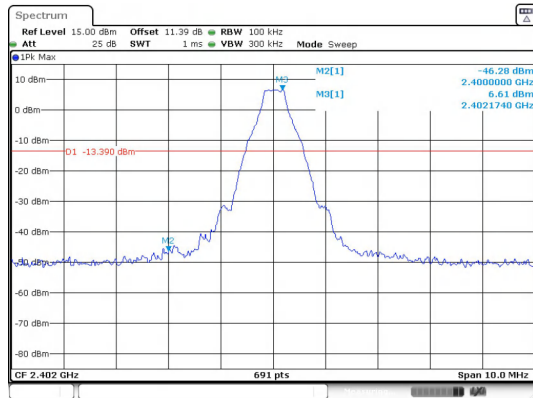
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-46.280	-13.39	-32.890	PASS
			7205.96	-39.941	-13.39	-26.551	PASS
		39	9763.72	-40.931	-13.64	-27.291	PASS
		78	2483.50	-49.180	-14.63	-34.550	PASS
			9920.20	-37.153	-14.63	-22.523	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-43.110	-13.38	-29.730	PASS
			4803.85	-41.666	-13.38	-28.286	PASS
		39	9763.72	-39.986	-13.74	-26.246	PASS
		78	2483.50	-50.880	-14.77	-36.110	PASS
			9920.20	-37.005	-14.77	-22.235	PASS
8DPSK	3-DH5	0	2400.00	-45.750	-13.47	-32.280	PASS
			9608.08	-42.020	-13.47	-28.550	PASS
		39	9763.72	-40.823	-13.79	-27.033	PASS
		78	2483.50	-50.030	-14.9	-35.130	PASS
			9920.20	-36.847	-14.9	-21.947	PASS

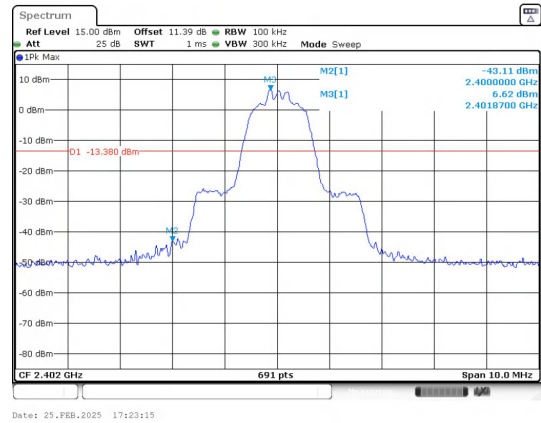
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2395.02	-47.601	-13.59	-34.011	PASS
			2400.00	-49.620	-13.59	-36.030	PASS
			2483.50	-49.380	-14.9	-34.480	PASS
$\pi/4$ DQPSK	2-DH5		2395.09	-48.453	-13.5	-34.953	PASS
			2400.00	-50.160	-13.5	-36.660	PASS
			2483.50	-49.270	-14.74	-34.530	PASS
8DPSK	3-DH5		2397.13	-48.298	-15.06	-33.238	PASS
			2400.00	-49.880	-15.06	-34.820	PASS
			2483.50	-50.230	-16.12	-34.110	PASS

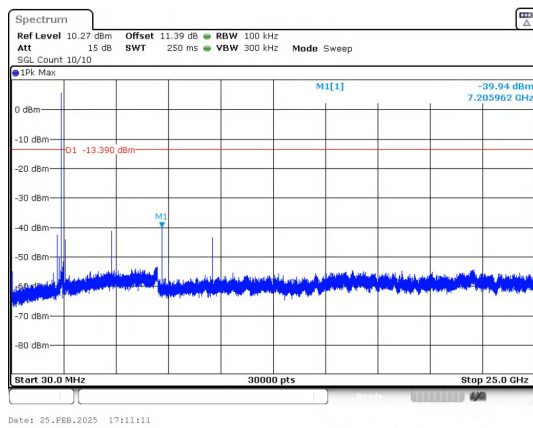
Test Graphs



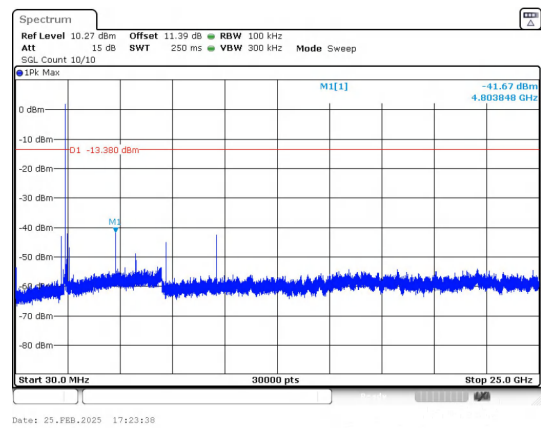
Out Of Band Emission
GFSK_DH5_Channel 0



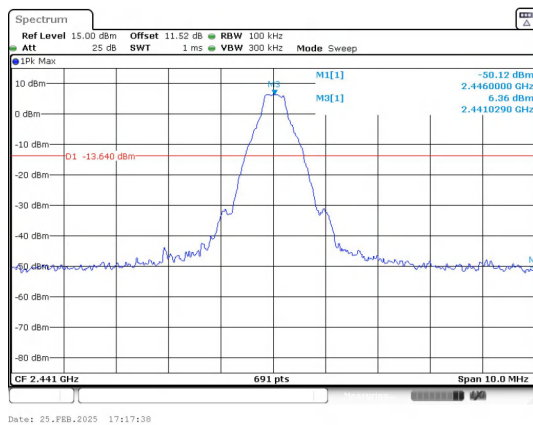
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0



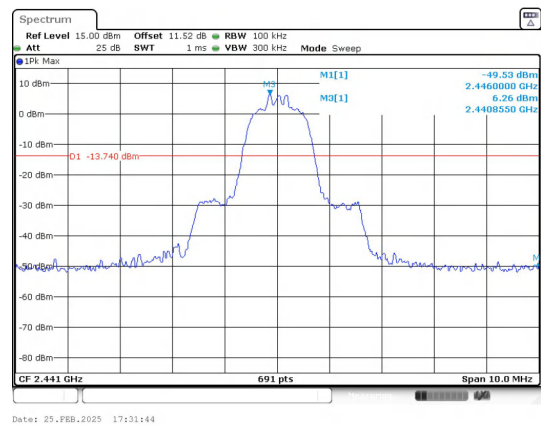
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



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



Out Of Band Emission

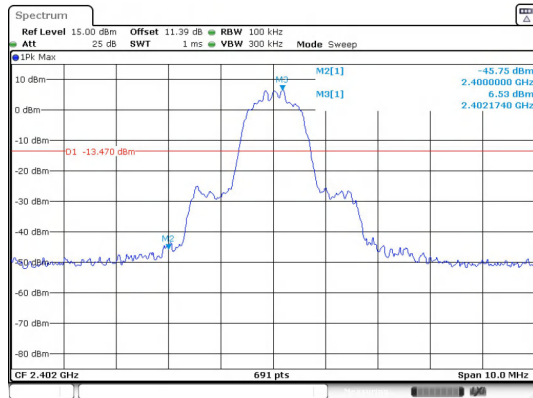


30.0 MHz - 25000.0 MHz

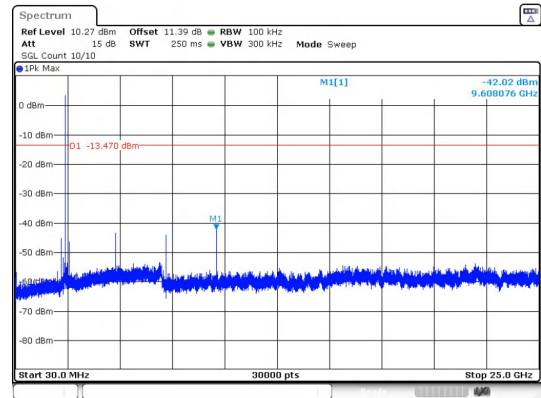
GFSK DH5 Channel 78



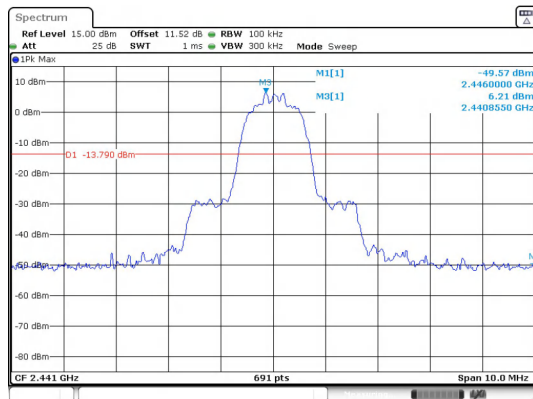
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK 2-DH5 Channel 78



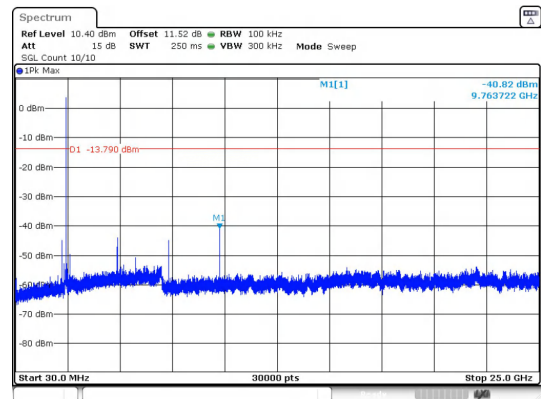
Out Of Band Emission
8DPSK_3-DH5_Channel 0



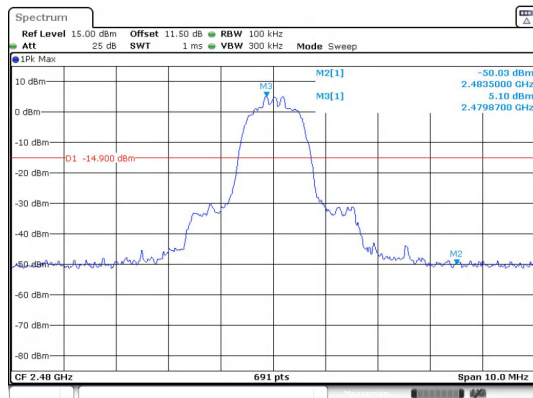
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0



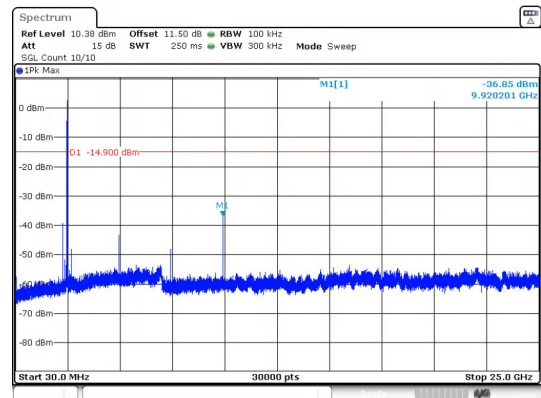
Out Of Band Emission
8DPSK_3-DH5_Channel 39



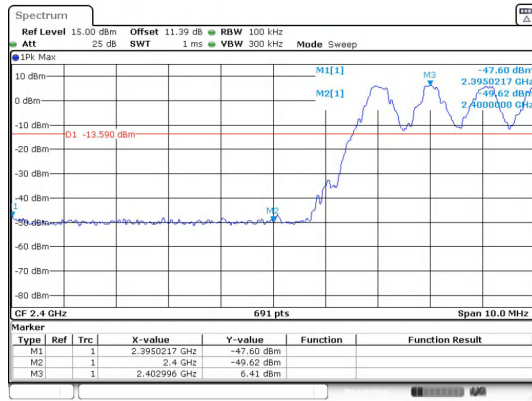
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



Out Of Band Emission
8DPSK_3-DH5_Channel 78

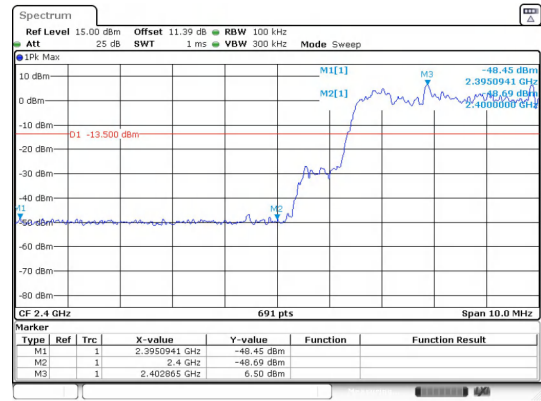


30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



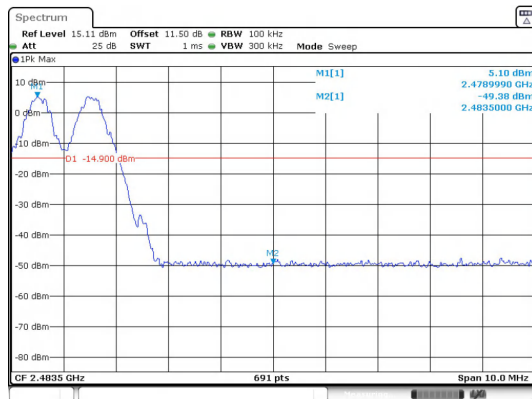
Date: 25.FEB.2025 17:14:32

Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



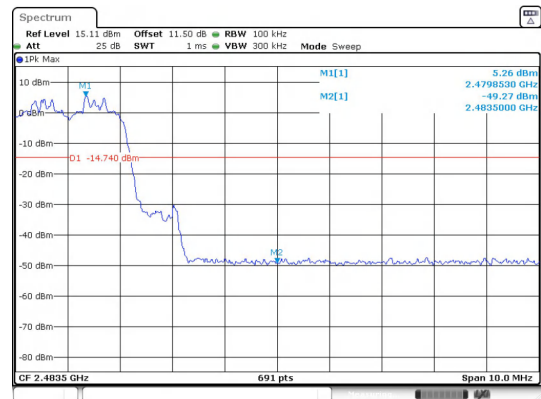
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Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping



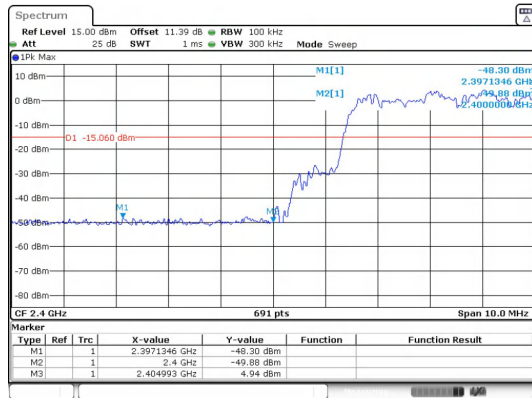
Date: 25.FEB.2025 17:14:59

Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



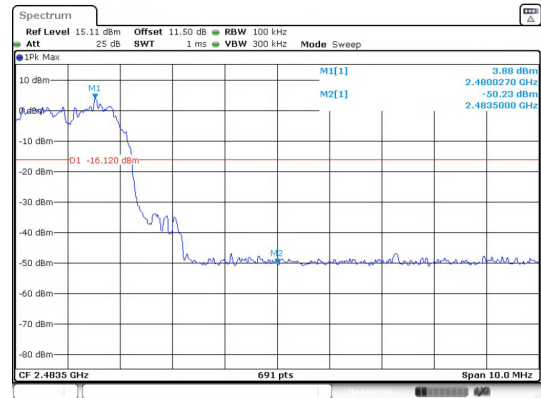
Date: 25.FEB.2025 17:30:23

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



Date: 25.FEB.2025 17:40:01

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



Date: 25.FEB.2025 17:40:28

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

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