

Appendix Report

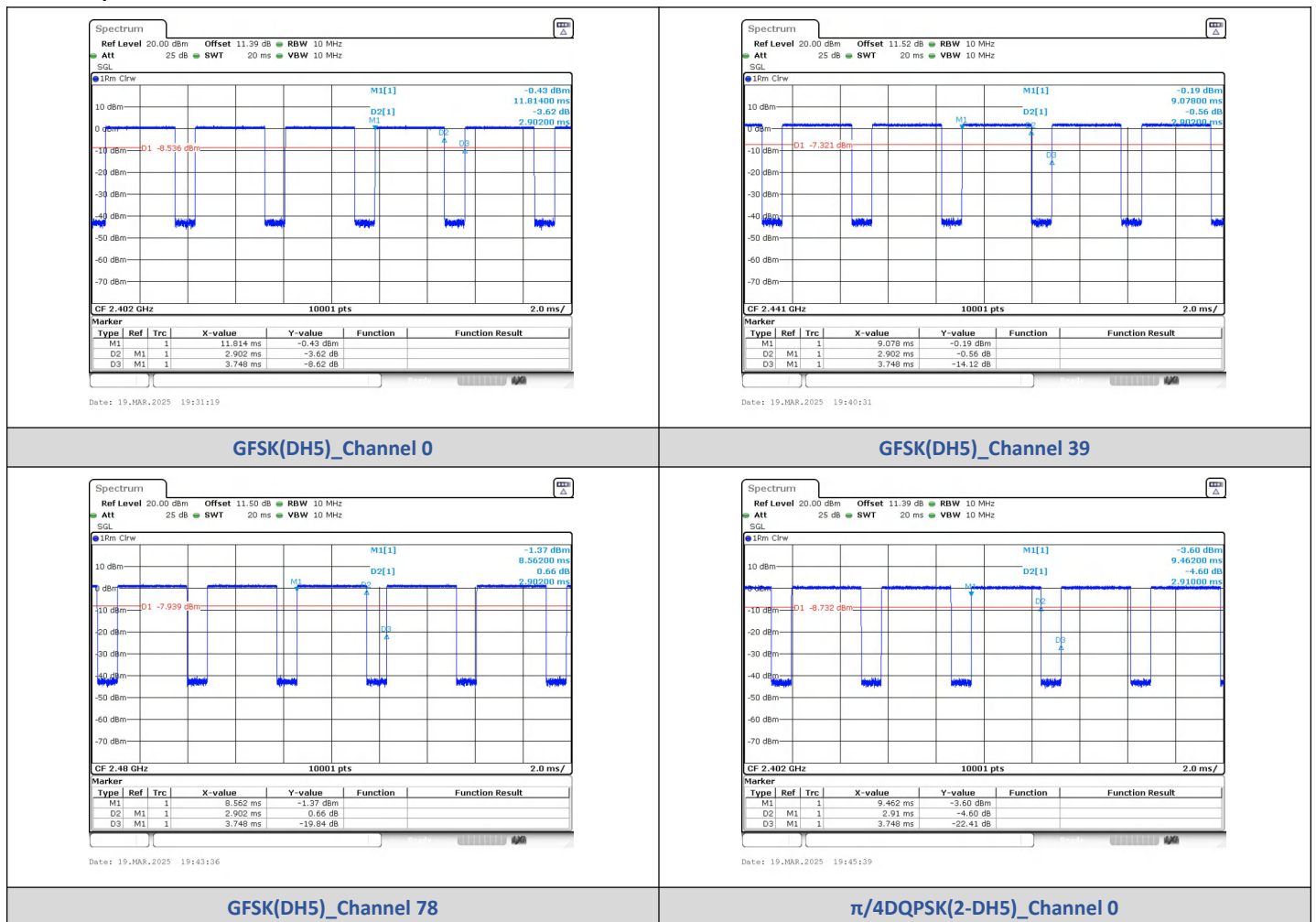
Report No.:	CISRR250319146
Test Engineer:	Mark Fu
Supervised by:	Rory Huang

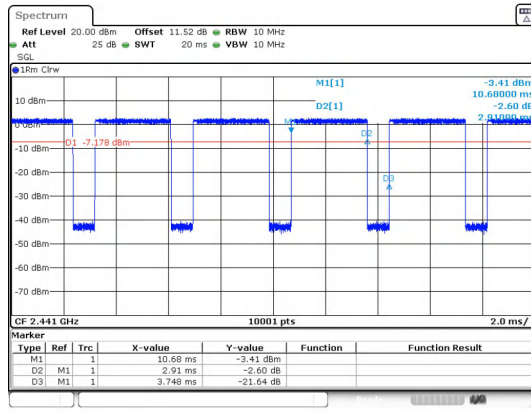
1) Duty Cycle

Test Result

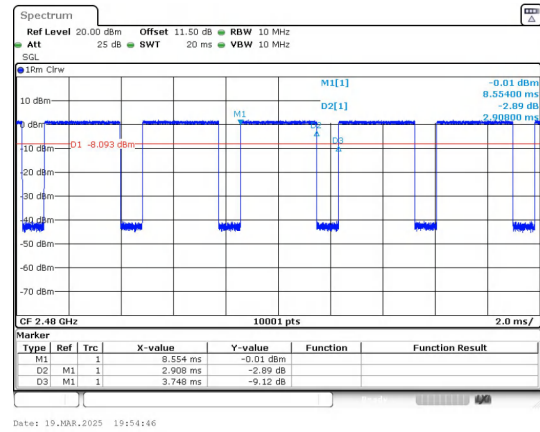
Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.902	3.748	77.43	0.7743	1.1109	0.3446
		39	2.902	3.748	77.43	0.7743	1.1109	0.3446
		78	2.902	3.748	77.43	0.7743	1.1109	0.3446
$\pi/4$ DQPSK	2-DH5	0	2.910	3.748	77.64	0.7764	1.0991	0.3436
		39	2.910	3.748	77.64	0.7764	1.0991	0.3436
		78	2.908	3.748	77.59	0.7759	1.1019	0.3439
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	2.908	3.748	77.59	0.7759	1.1019	0.3439

Test Graphs

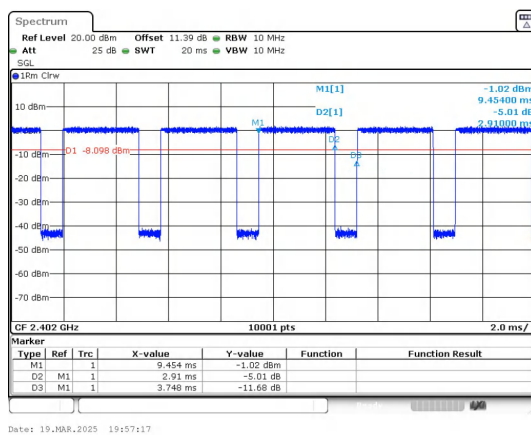




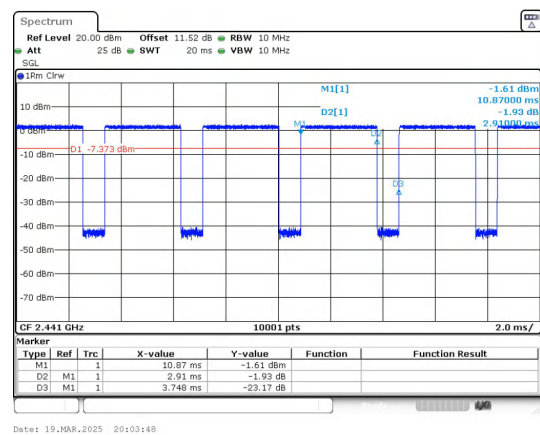
$\pi/4$ DQPSK(2-DH5)_Channel 39



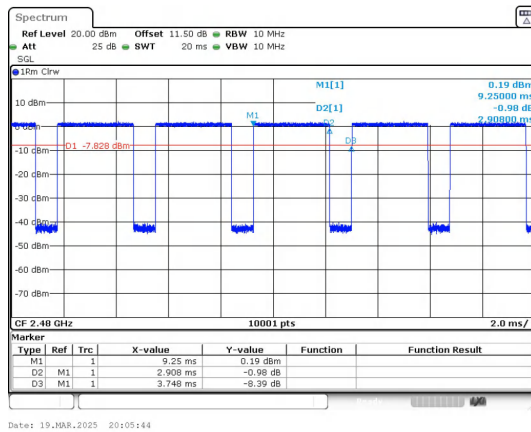
$\pi/4$ DQPSK(2-DH5)_Channel 78



8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39



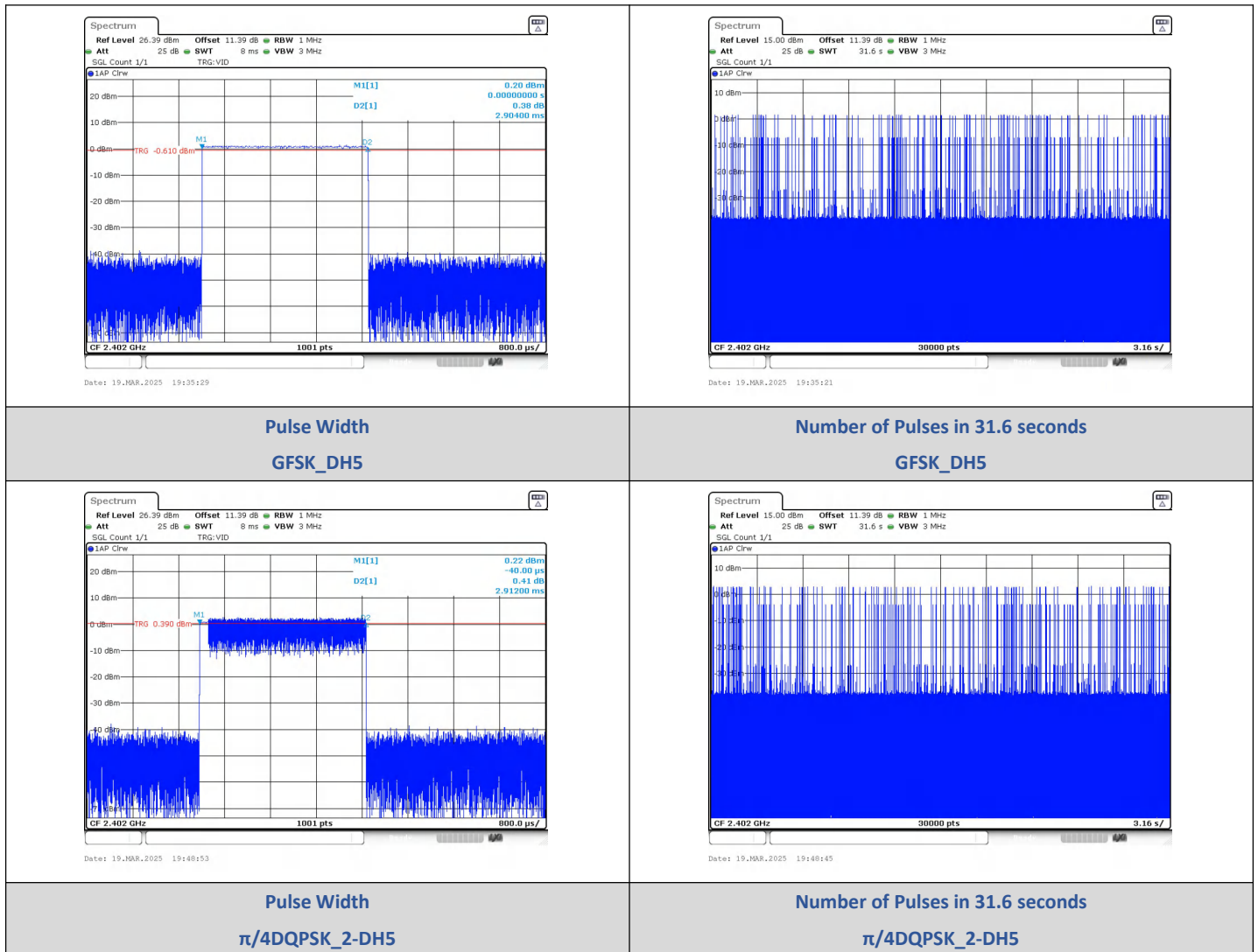
8DPSK(3-DH5)_Channel 78

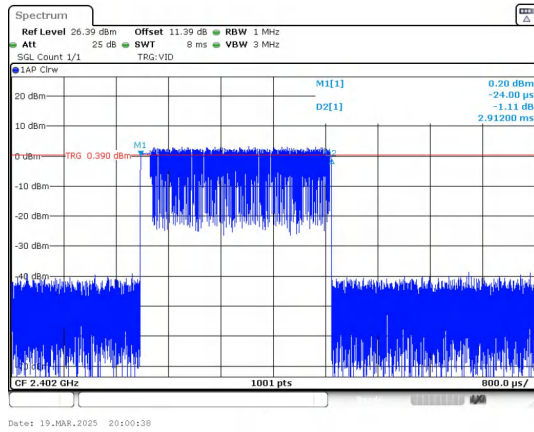
2) Dwell Time

Test Result

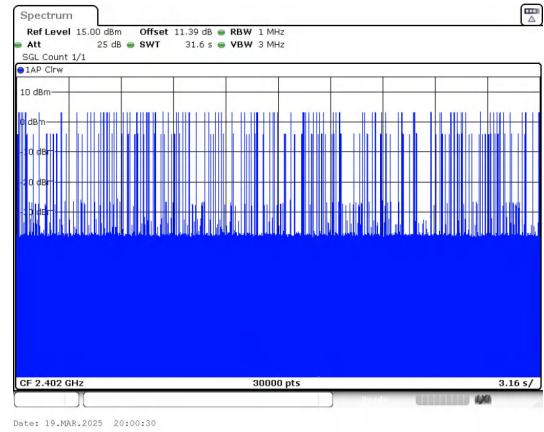
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.904	109	316.54	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.912	114	331.97		PASS
8DPSK	3-DH5		2.912	110	320.32		PASS

Test Graphs





Pulse Width
8DPSK_3-DH5



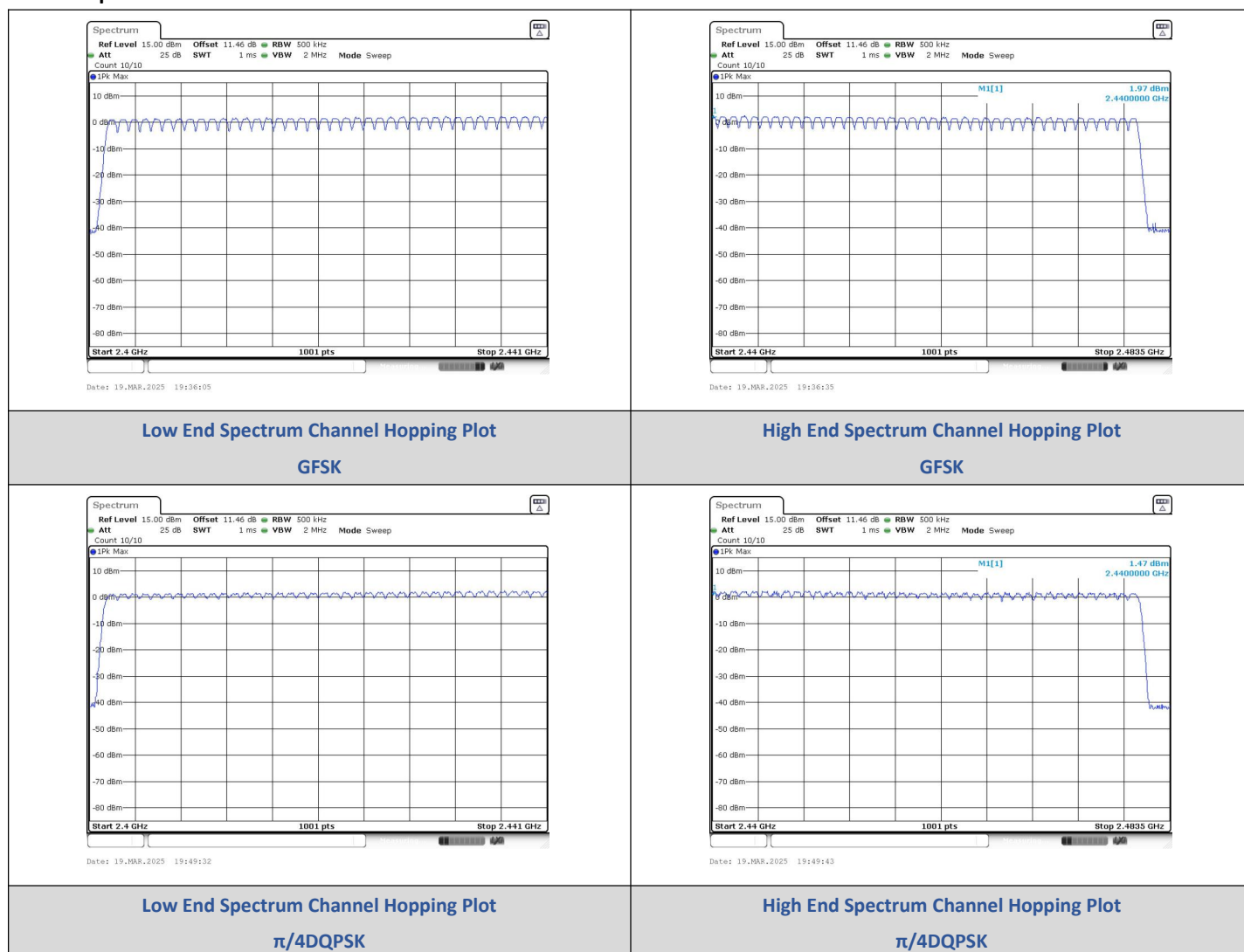
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

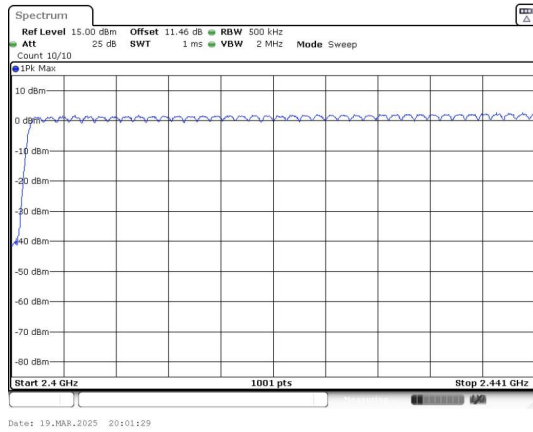
3) Number Of Hopping Channel

Test Result

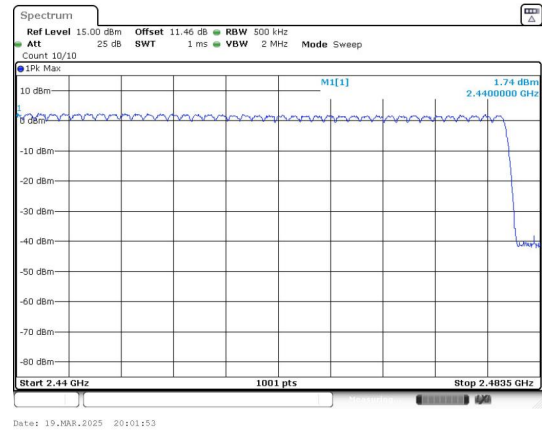
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





Low End Spectrum Channel Hopping Plot
8DPSK



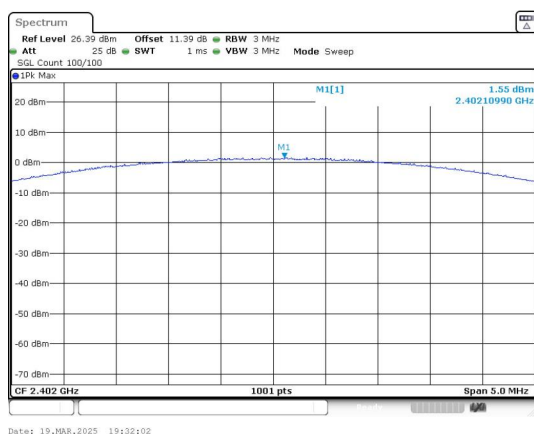
High End Spectrum Channel Hopping Plot
8DPSK

4) Conducted Output Power

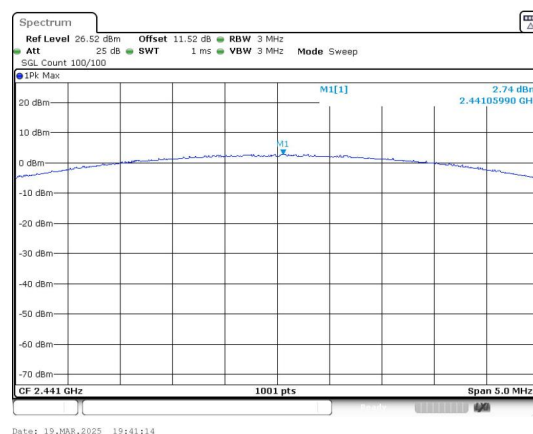
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	1.55	1.43	≤30	PASS
		39	2.74	1.88		PASS
		78	2.06	1.61		PASS
$\pi/4$ DQPSK	2-DH5	0	3.47	2.22	≤20.97	PASS
		39	4.83	3.04		PASS
		78	4.16	2.61		PASS
8DPSK	3-DH5	0	3.67	2.33		PASS
		39	4.85	3.05		PASS
		78	4.30	2.69		PASS

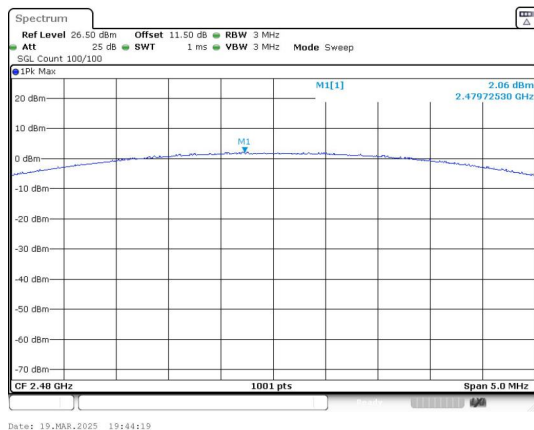
Test Graphs



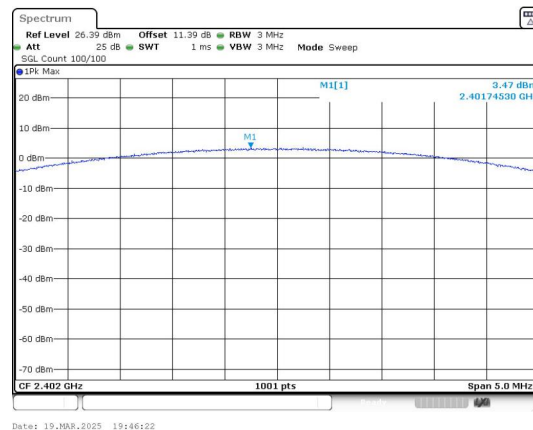
Peak Output Power
GFSK_Channel 0



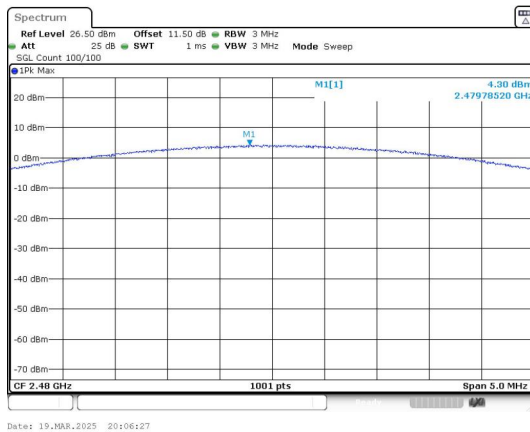
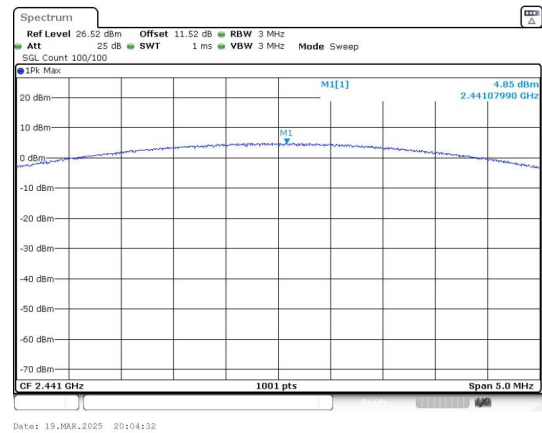
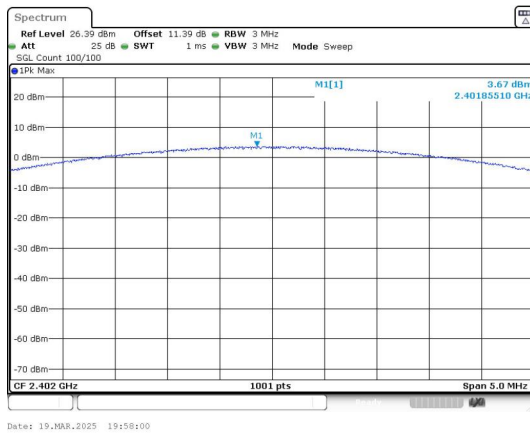
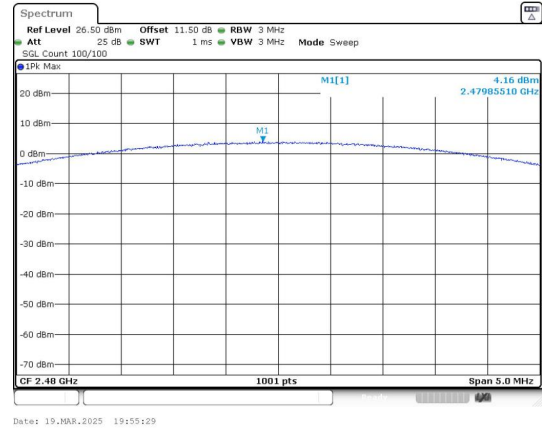
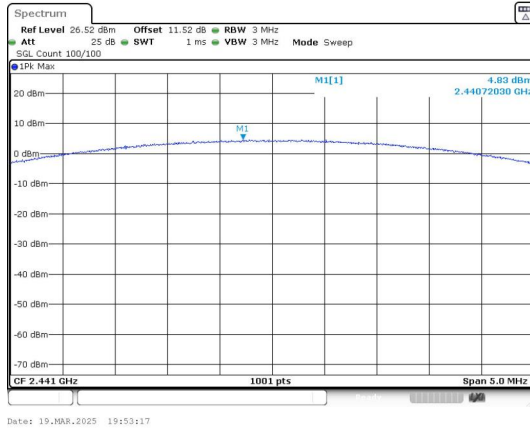
Peak Output Power
GFSK_Channel 39



Peak Output Power
GFSK_Channel 78



Peak Output Power
 $\pi/4$ DQPSK_Channel 0

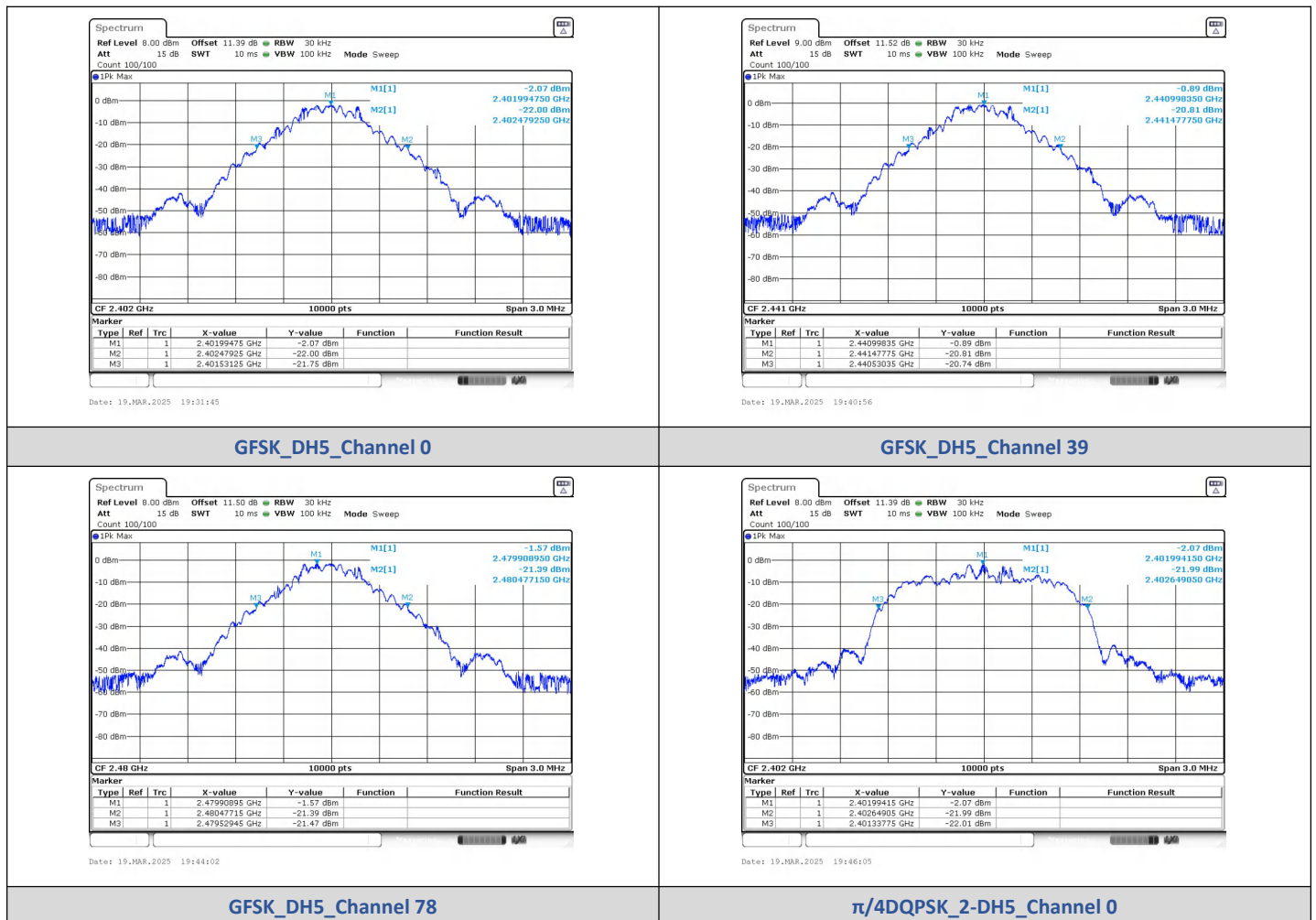


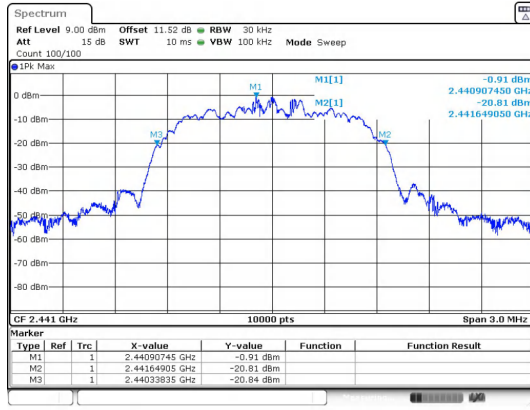
5) 20dB Bandwidth

Test Result

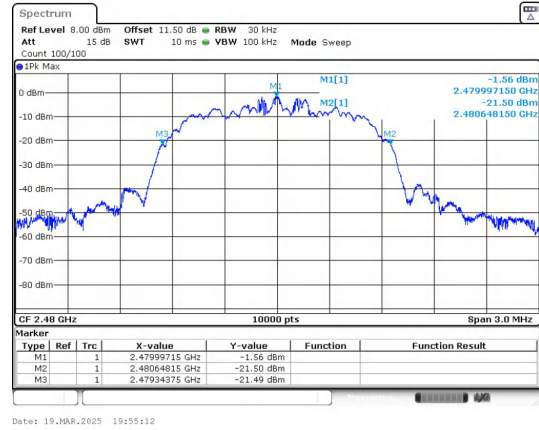
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	0.9500
	39	2441 MHz	0.9500
	78	2480 MHz	0.9500
$\pi/4$ DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.310
	78	2480 MHz	1.310
8DPSK	0	2402 MHz	1.300
	39	2441 MHz	1.290
	78	2480 MHz	1.290

Test Graphs

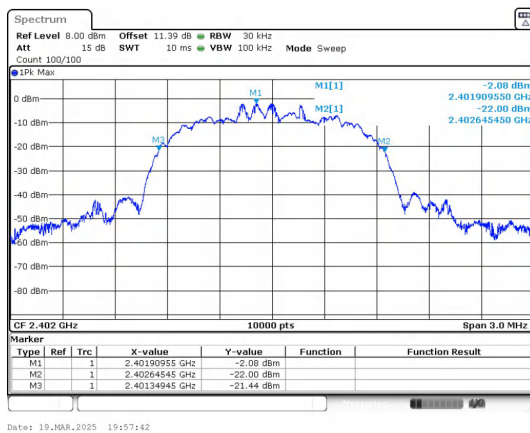




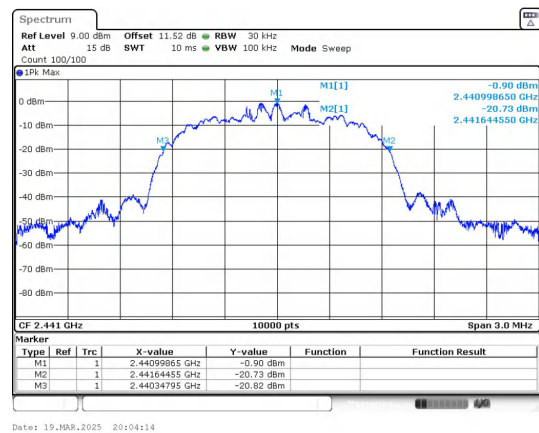
$\pi/4$ DQPSK_2-DH5_Channel 39



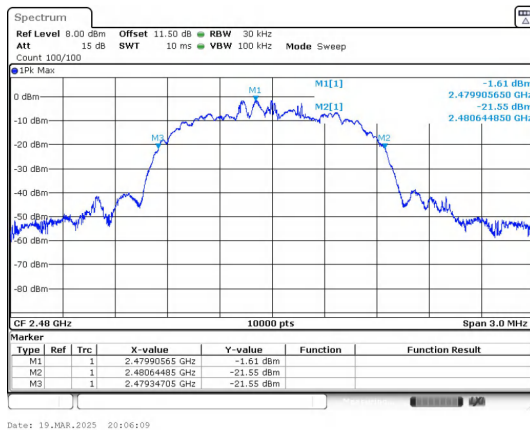
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



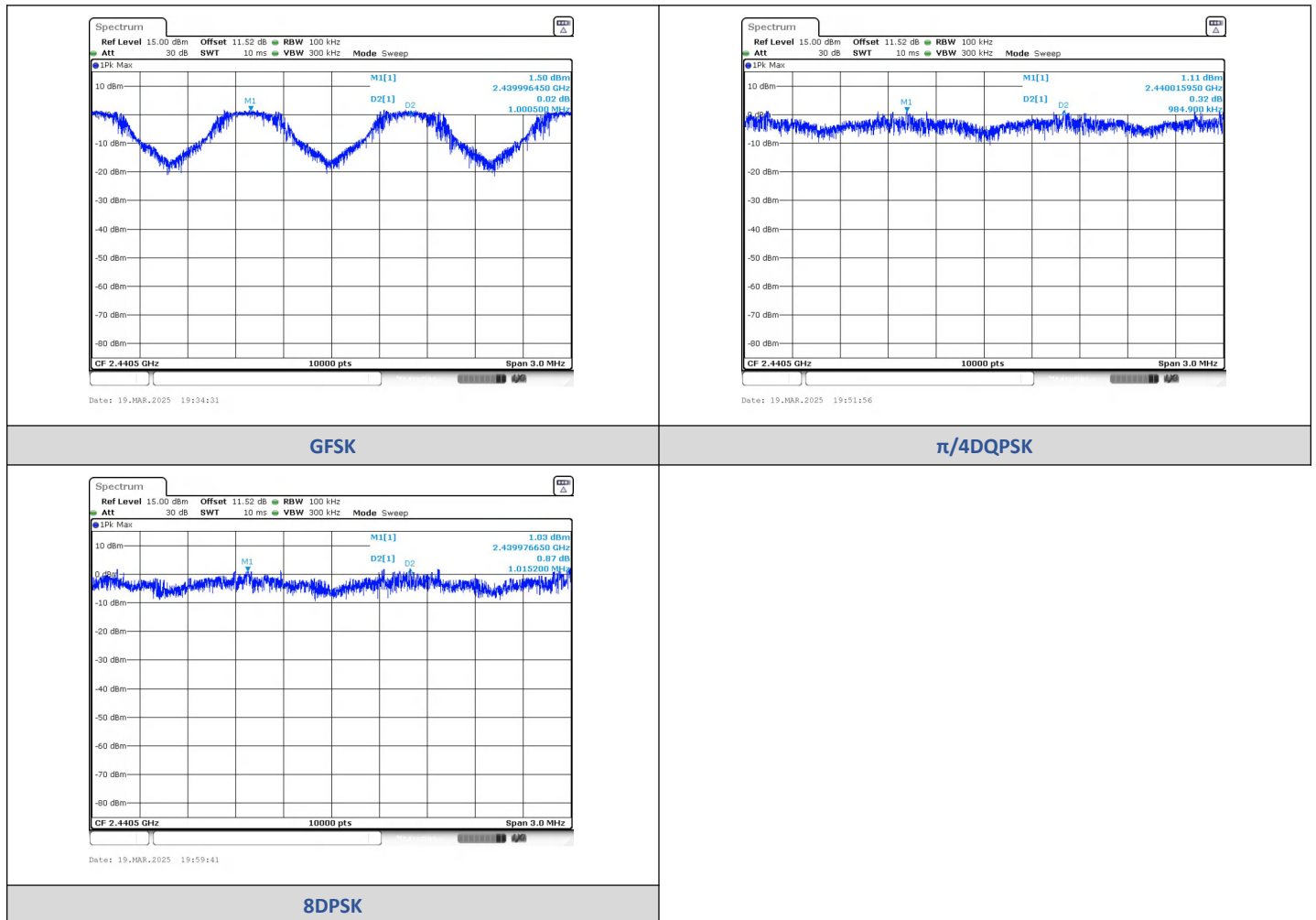
8DPSK_3-DH5_Channel 78

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	2439.9965	2440.997	1.0005	0.95	PASS
$\pi/4$ DQPSK	2-DH5	2440.0159	2441.0008	0.9849	0.873	PASS
8DPSK	3-DH5	2439.9767	2440.9918	1.0152	0.867	PASS

Test Graphs



7) Conducted Out Of Band Emission

Test Result

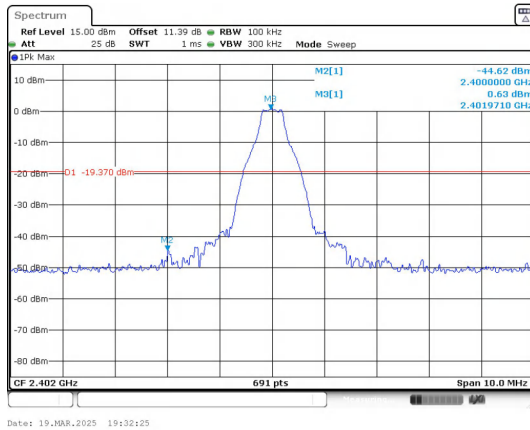
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-47.550	-19.37	-28.180	PASS
			4803.85	-48.742	-19.37	-29.372	PASS
		39	4882.09	-46.803	-18.15	-28.653	PASS
		78	2483.50	-50.940	-18.76	-32.180	PASS
			4960.33	-52.510	-18.76	-33.750	PASS
$\pi/4$ DQPSK	2-DH5	0	2398.82	-48.848	-19.64	-29.208	PASS
			2400.00	-49.910	-19.64	-30.270	PASS
			4803.80	-51.274	-19.64	-31.634	PASS
		39	4882.09	-47.303	-18.54	-28.763	PASS
		78	2483.50	-51.070	-19.15	-31.920	PASS
			4959.49	-52.655	-19.15	-33.505	PASS
8DPSK	3-DH5	0	2400.00	-49.280	-18.76	-30.520	PASS
			4803.85	-48.465	-18.76	-29.705	PASS
		39	4882.09	-47.788	-18.29	-29.498	PASS
		78	2483.50	-50.520	-18.79	-31.730	PASS
			6968.75	-52.744	-18.79	-33.954	PASS

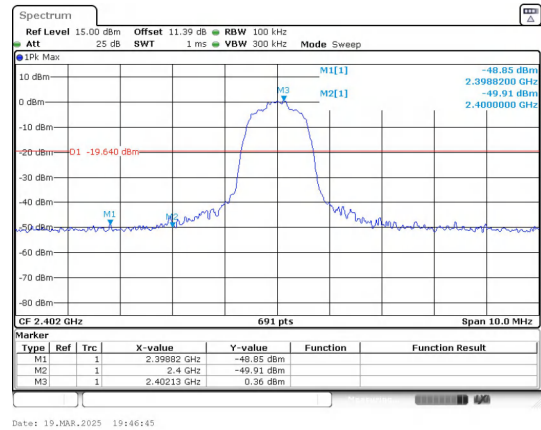
Hopping

Hopping							
Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2395.24	-48.873	-19.71	-29.163	PASS
			2400.00	-49.410	-19.71	-29.700	PASS
			2483.50	-50.490	-18.89	-31.600	PASS
$\pi/4$ DQPSK	2-DH5		2398.64	-48.618	-19.62	-28.998	PASS
			2400.00	-50.940	-19.62	-31.320	PASS
			2483.50	-50.090	-19.16	-30.930	PASS
8DPSK	3-DH5		2395.98	-48.064	-19.59	-28.474	PASS
			2400.00	-50.450	-19.59	-30.860	PASS
			2483.50	-49.880	-18.73	-31.150	PASS

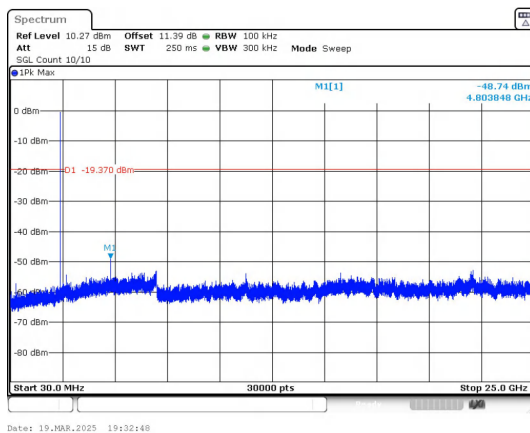
Test Graphs



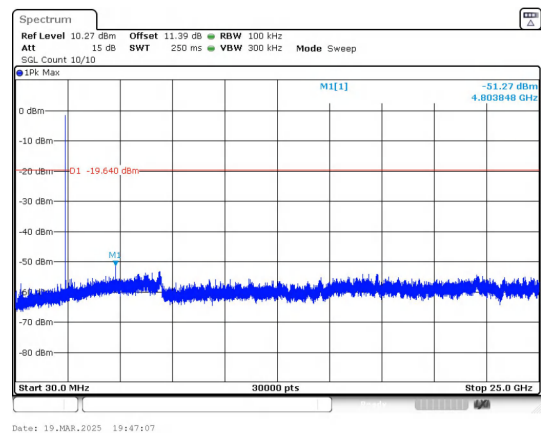
**Out Of Band Emission
GFSK_DH5_Channel 0**



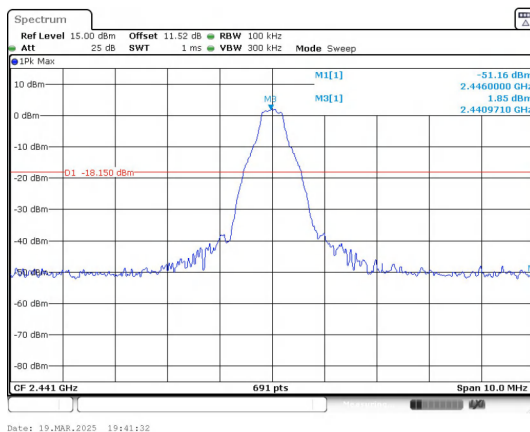
**Out Of Band Emission
 $\pi/4$ QPSK_2-DH5_Channel 0**



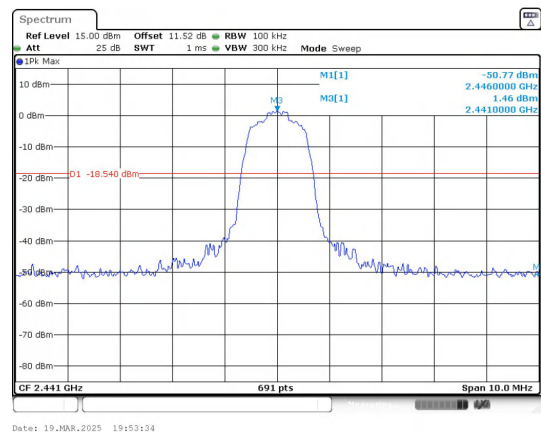
**30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0**



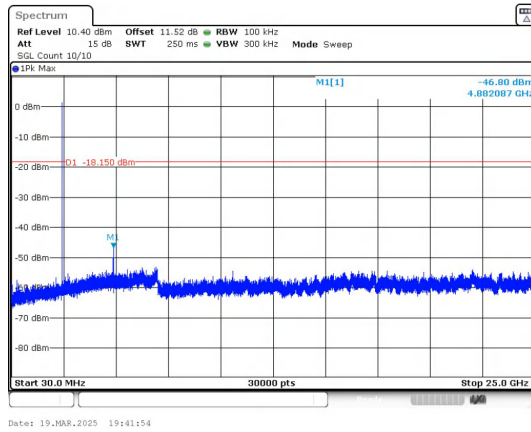
**30.0 MHz - 25000.0 MHz
 $\pi/4$ QPSK_2-DH5_Channel 0**



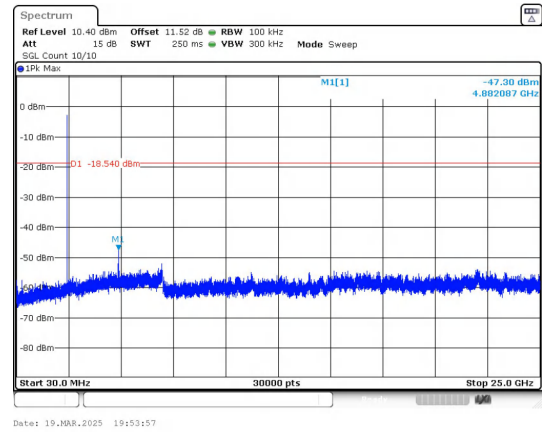
**Out Of Band Emission
GFSK_DH5_Channel 39**



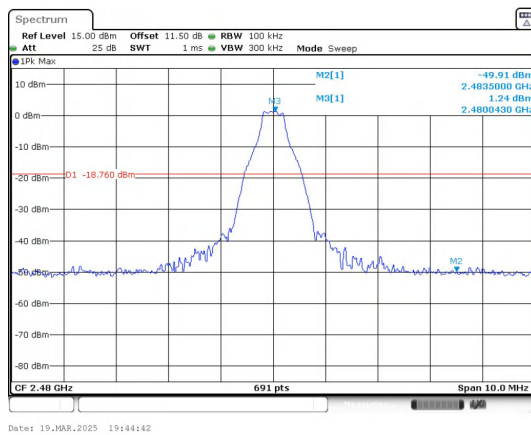
**Out Of Band Emission
 $\pi/4$ QPSK_2-DH5_Channel 39**



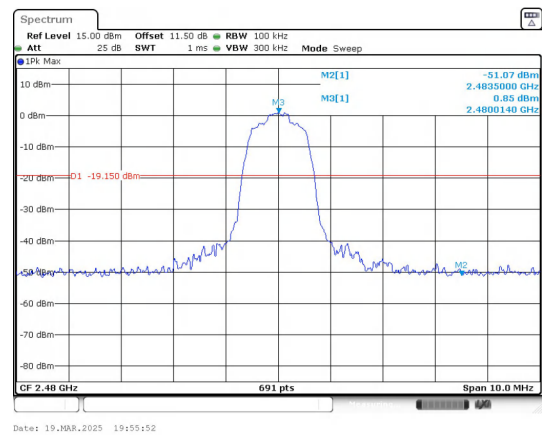
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



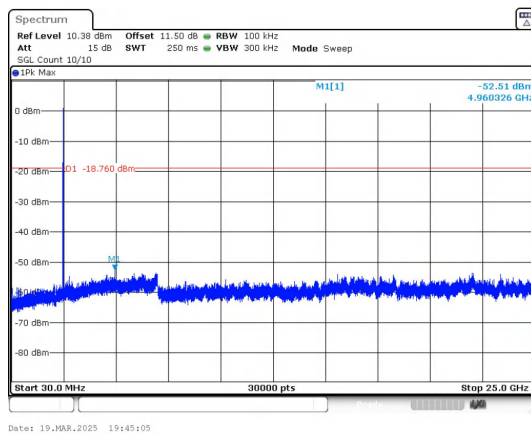
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 39



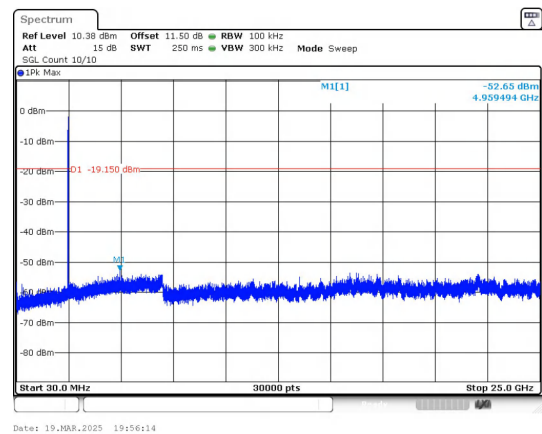
Out Of Band Emission
GFSK_DH5_Channel 78



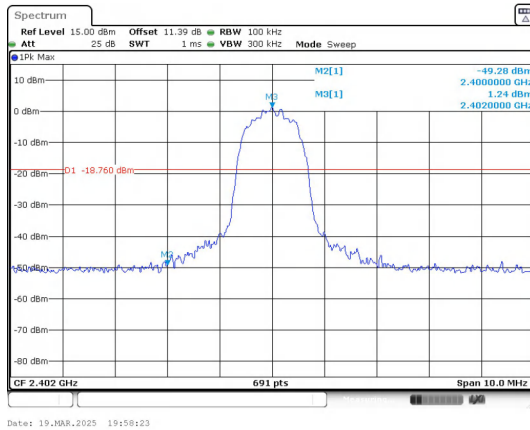
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78



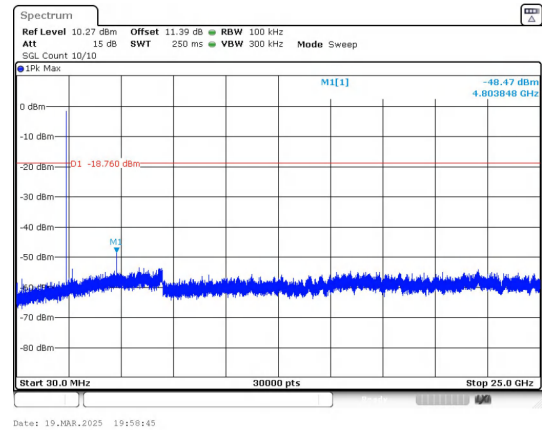
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



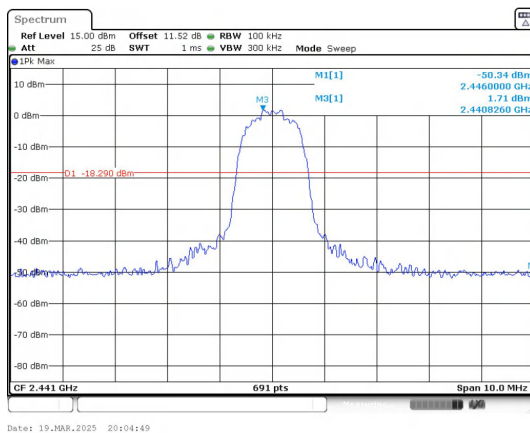
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 78



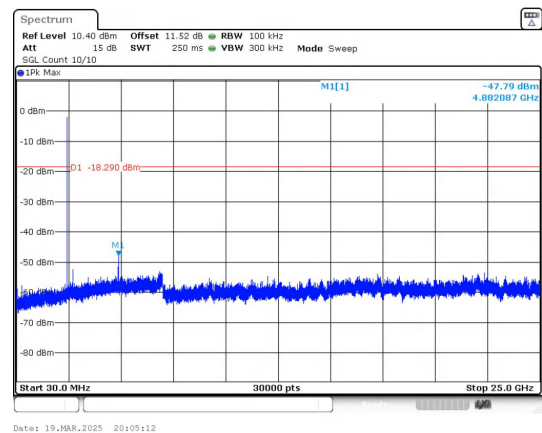
Out Of Band Emission
8DPSK_3-DH5_Channel 0



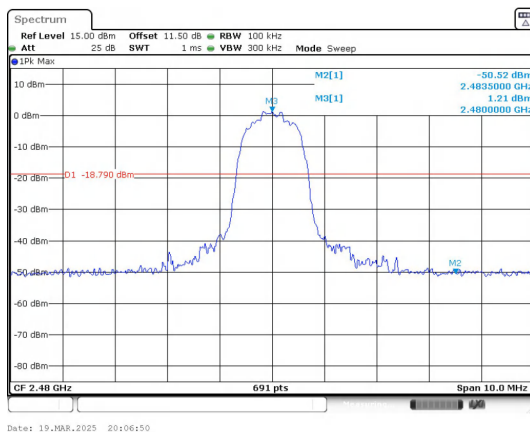
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0



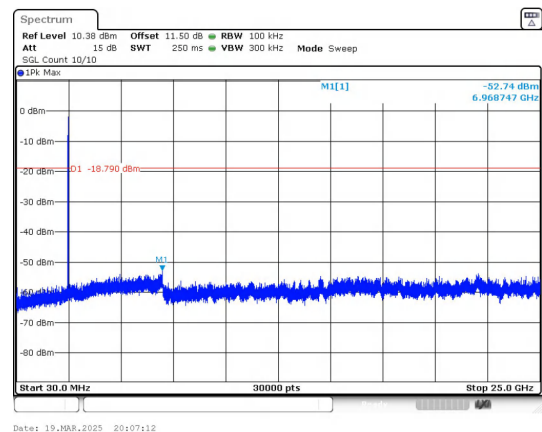
Out Of Band Emission
8DPSK_3-DH5_Channel 39



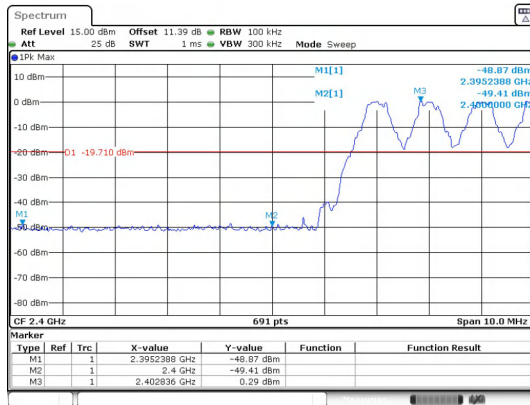
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



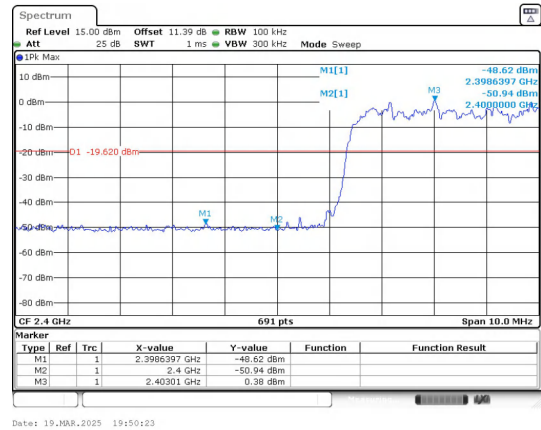
Out Of Band Emission
8DPSK_3-DH5_Channel 78



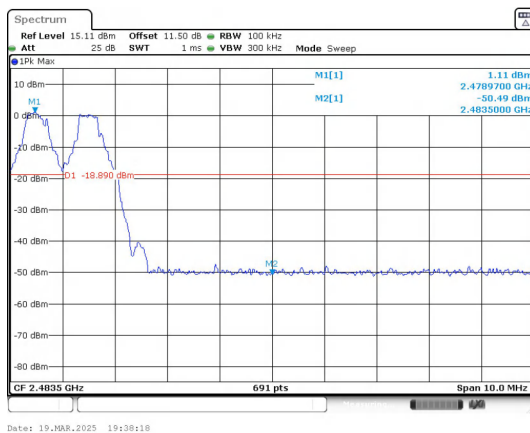
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



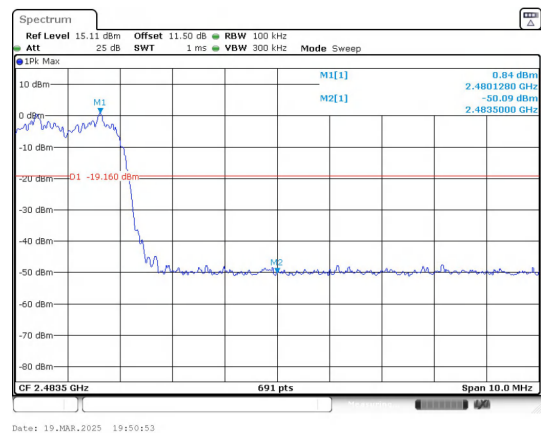
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



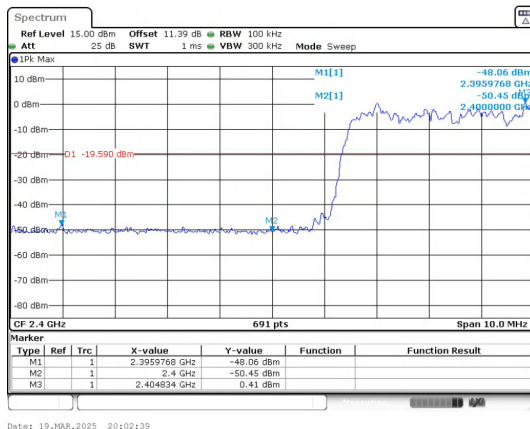
Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping



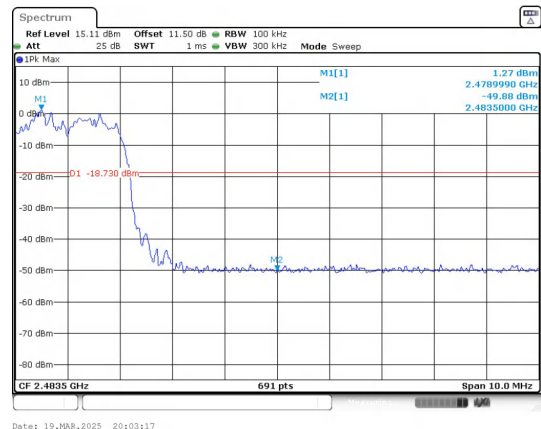
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



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-----