

Appendix Report

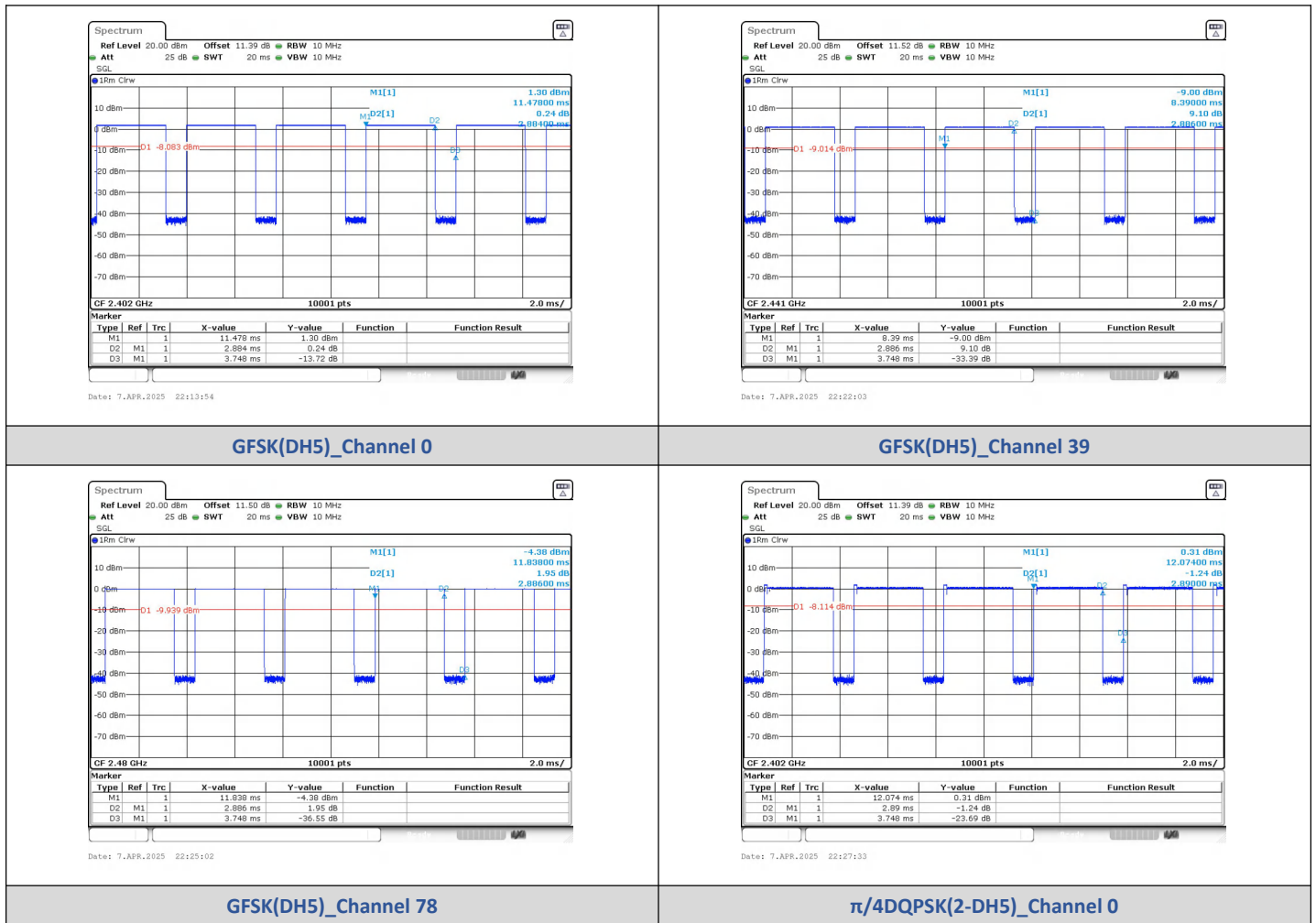
Project No.:	CISR250401015
Test Engineer:	James Wang
Supervised by:	Rory Huang

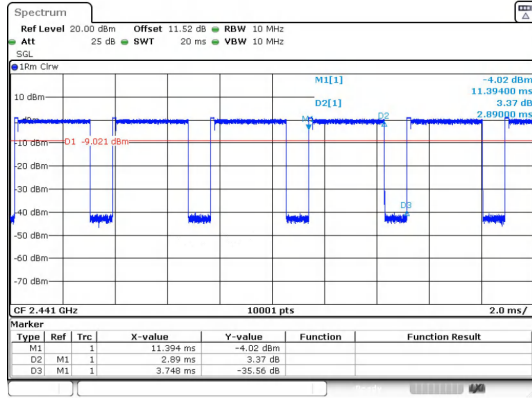
1) Duty Cycle

Test Result

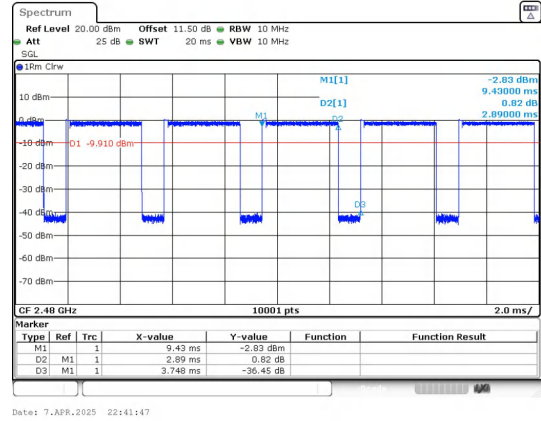
Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.884	3.748	76.95	0.7695	1.1379	0.3467
		39	2.886	3.748	77.00	0.7700	1.1351	0.3465
		78	2.886	3.748	77.00	0.7700	1.1351	0.3465
$\pi/4$ DQPSK	2-DH5	0	2.890	3.748	77.11	0.7711	1.1289	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	2.892	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

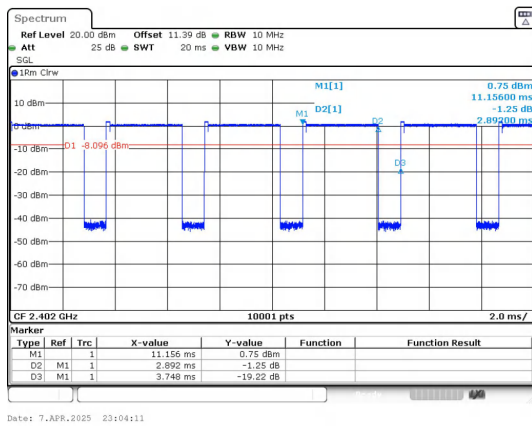




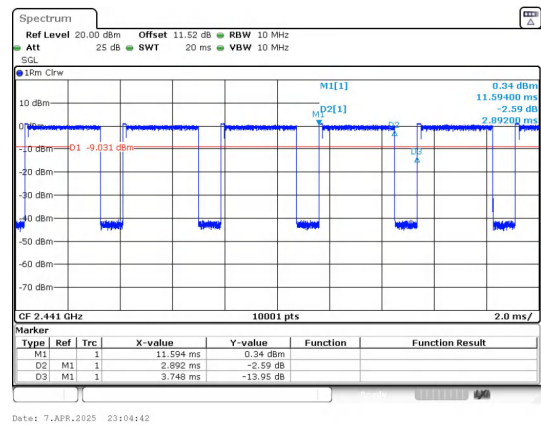
$\pi/4$ DQPSK(2-DH5)_Channel 39



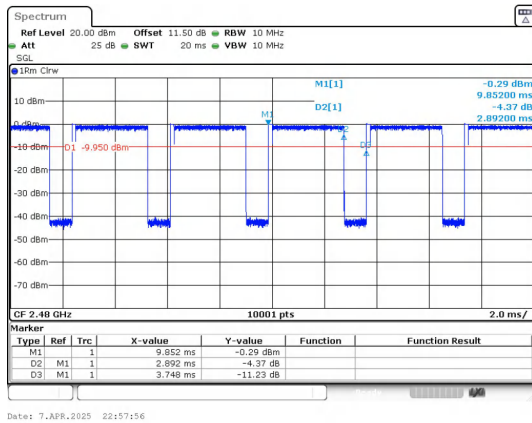
$\pi/4$ DQPSK(2-DH5)_Channel 78



8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39



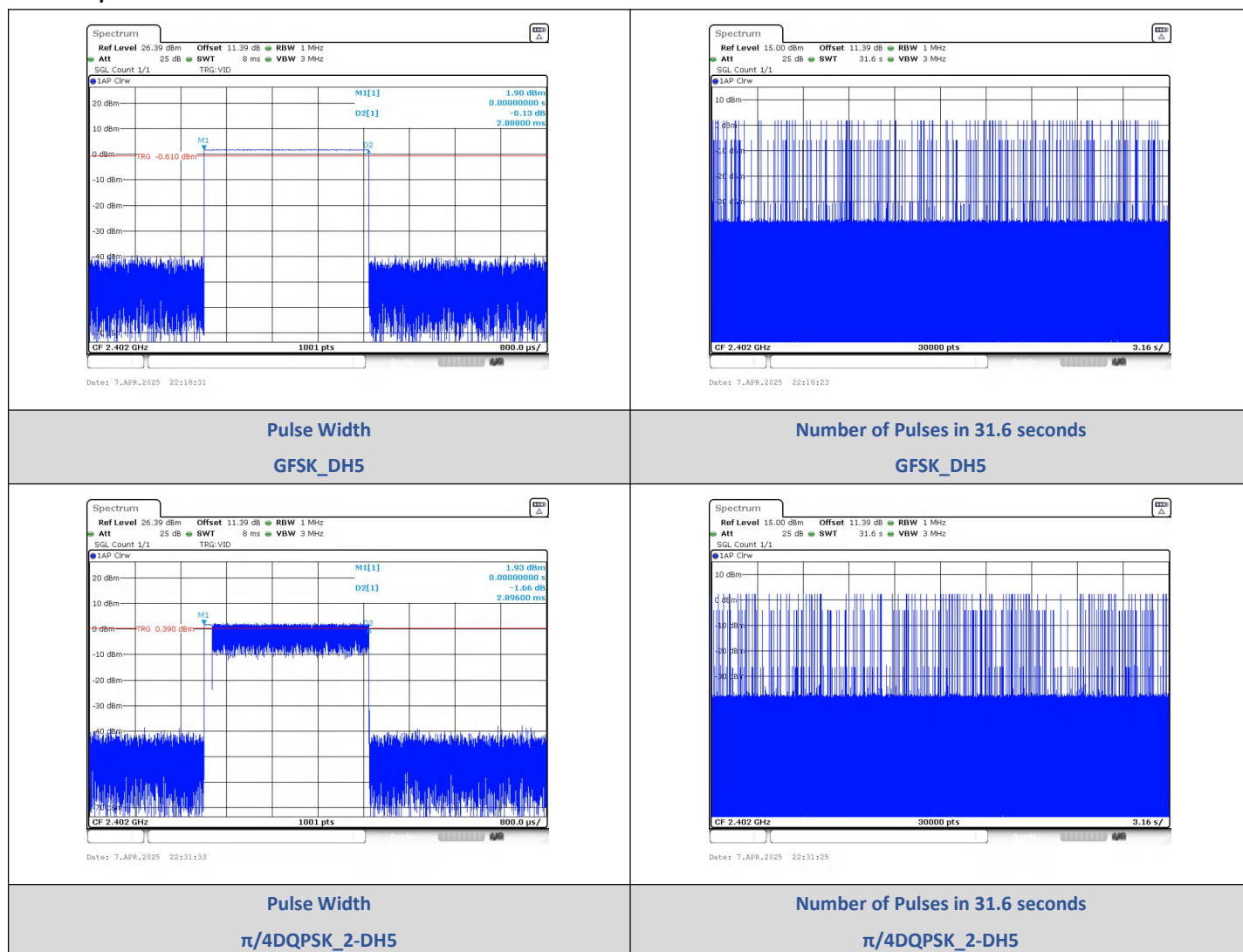
8DPSK(3-DH5)_Channel 78

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	98	283.02	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	112	324.35		PASS
8DPSK	3-DH5		2.896	106	306.98		PASS

Test Graphs





8DPSK 3-DH5



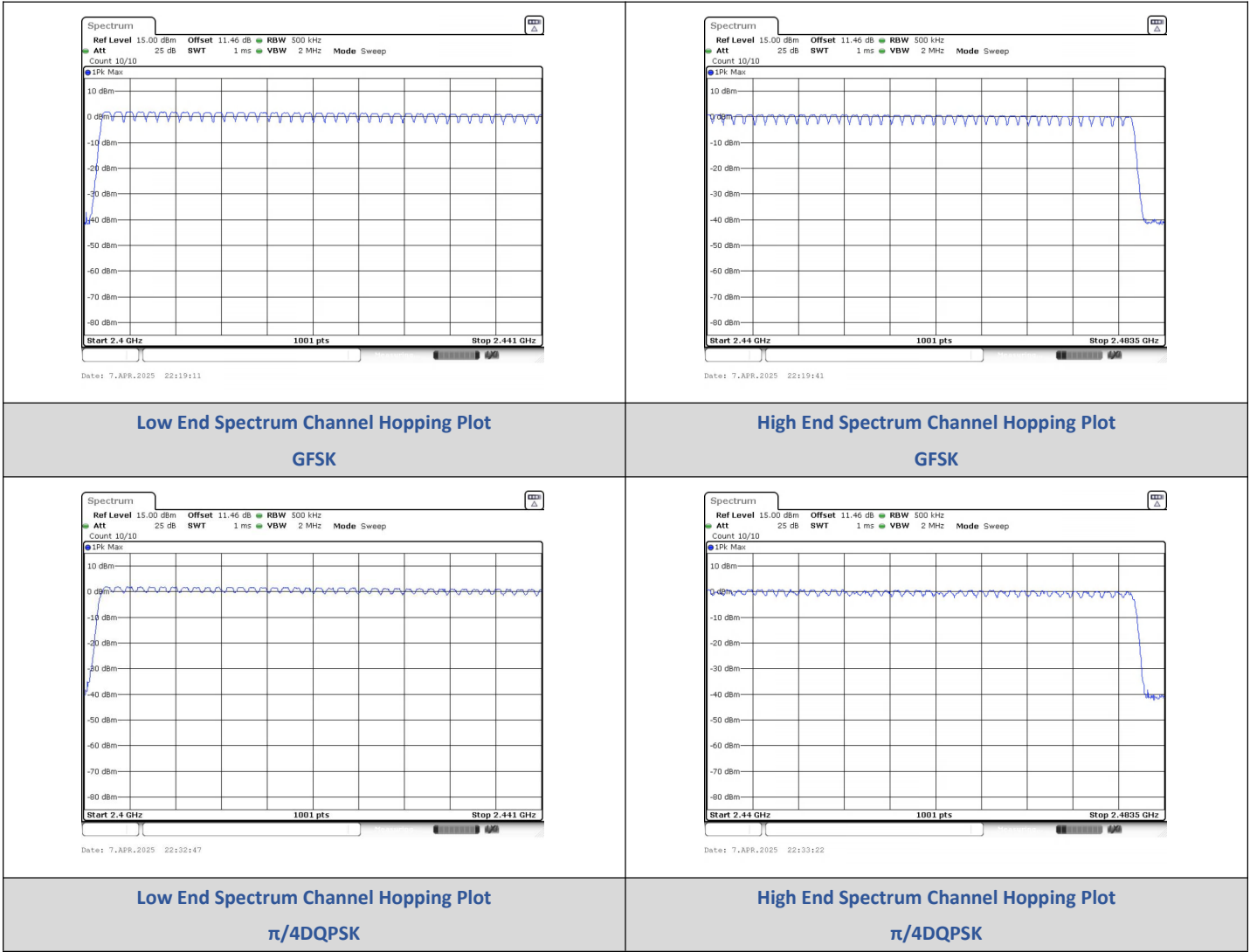
8DPSK 3-DH5

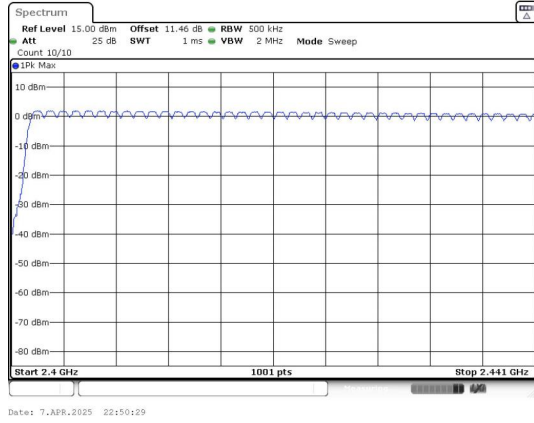
3) Number Of Hopping Channel

Test Result

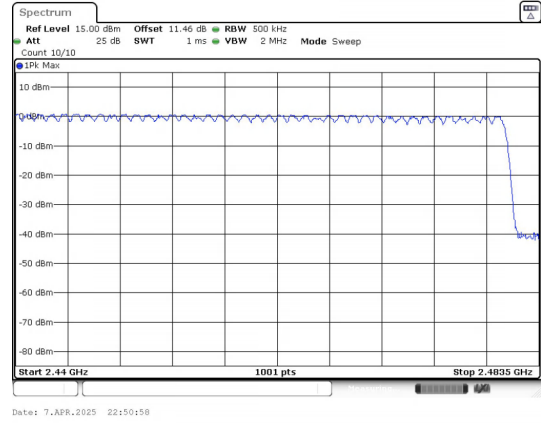
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





Low End Spectrum Channel Hopping Plot
8DPSK



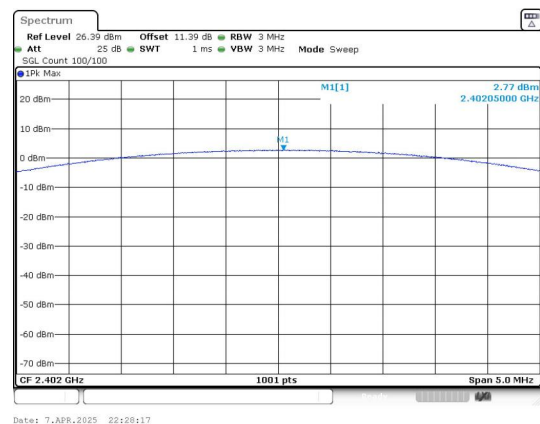
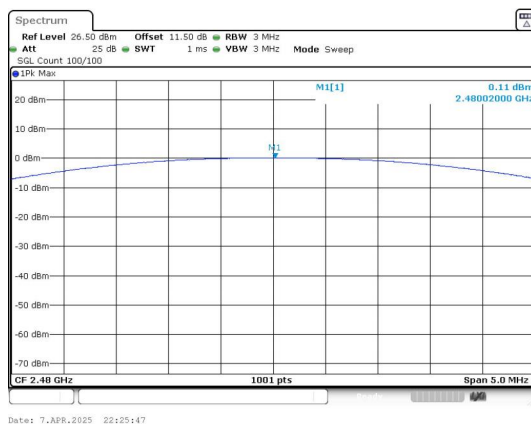
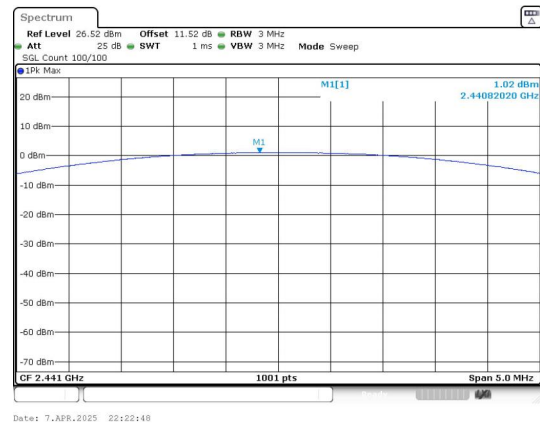
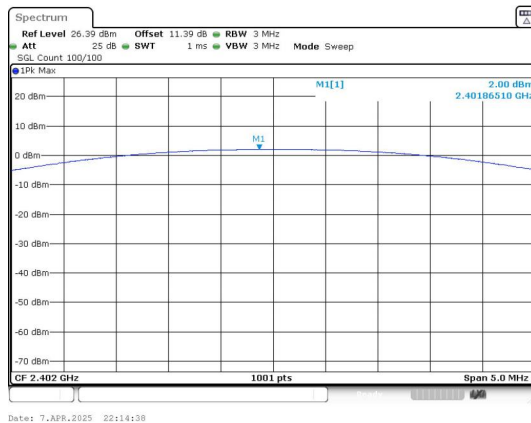
High End Spectrum Channel Hopping Plot
8DPSK

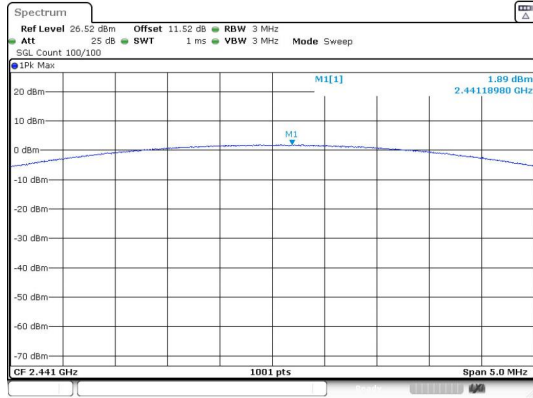
4) Conducted Output Power

Test Result

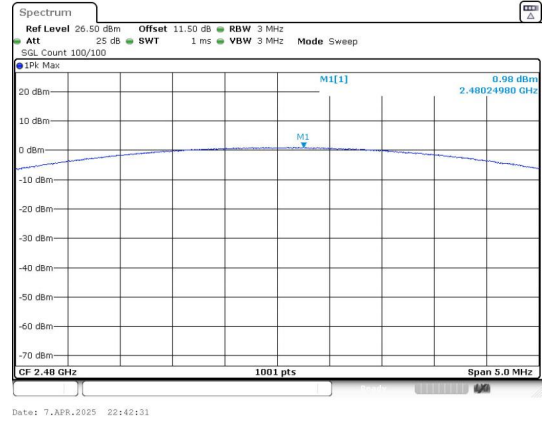
Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	2.00	1.58	≤30	PASS
		39	1.02	1.26		PASS
		78	0.11	1.03		PASS
$\pi/4$ DQPSK	2-DH5	0	2.77	1.89	≤20.97	PASS
		39	1.89	1.55		PASS
		78	0.98	1.25		PASS
8DPSK	3-DH5	0	3.10	2.04		PASS
		39	2.24	1.67		PASS
		78	1.31	1.35		PASS

Test Graphs

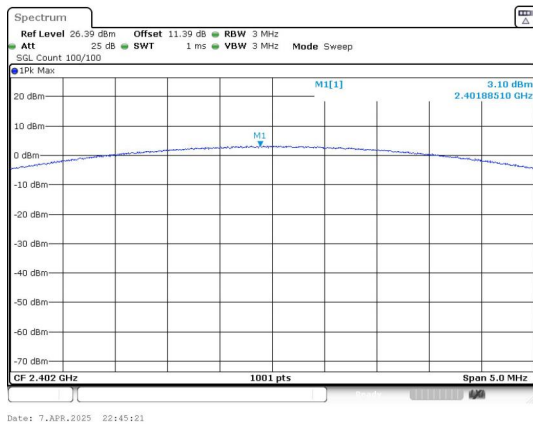




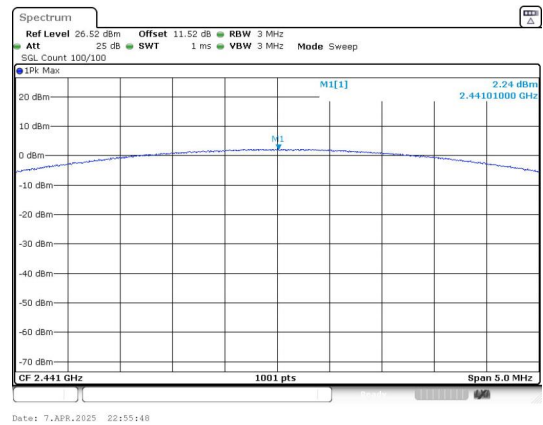
Peak Output Power
 $\pi/4$ DQPSK_Channel 39



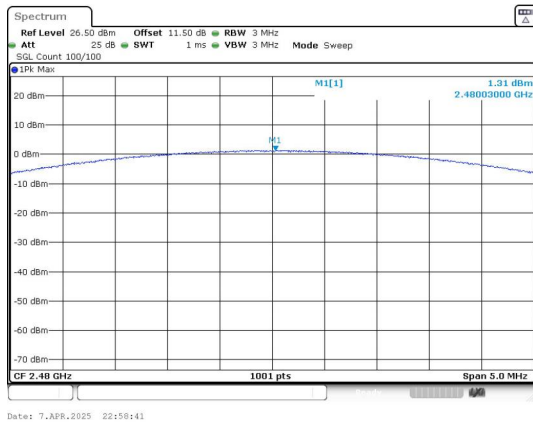
Peak Output Power
 $\pi/4$ DQPSK_Channel 78



Peak Output Power
8DPSK_Channel 0



Peak Output Power
8DPSK_Channel 39



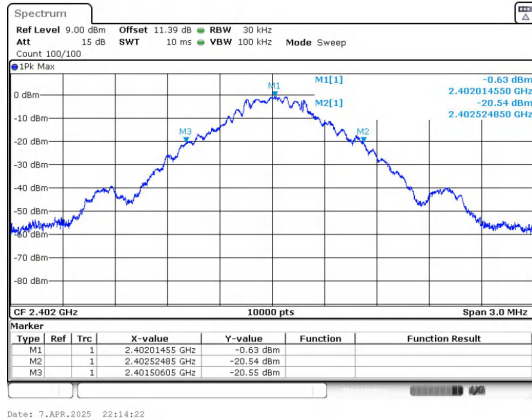
Peak Output Power
8DPSK_Channel 78

5) 20dB Bandwidth

Test Result

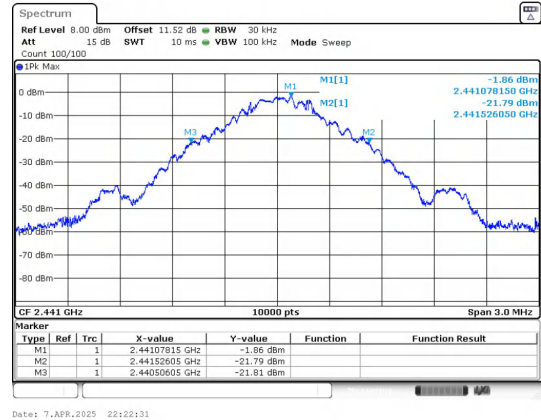
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.02
	39	2441 MHz	1.02
	78	2480 MHz	1.02
$\pi/4$ DQPSK	0	2402 MHz	1.280
	39	2441 MHz	1.290
	78	2480 MHz	1.320
8DPSK	0	2402 MHz	1.290
	39	2441 MHz	1.290
	78	2480 MHz	1.290

Test Graphs



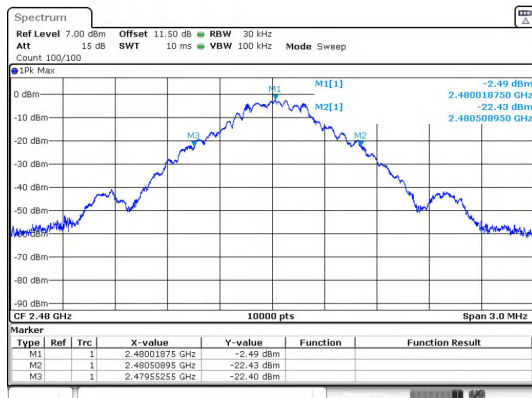
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GFSK_DH5_Channel 0



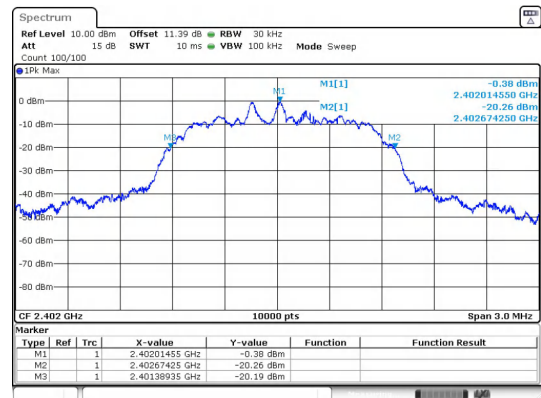
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GFSK_DH5_Channel 39



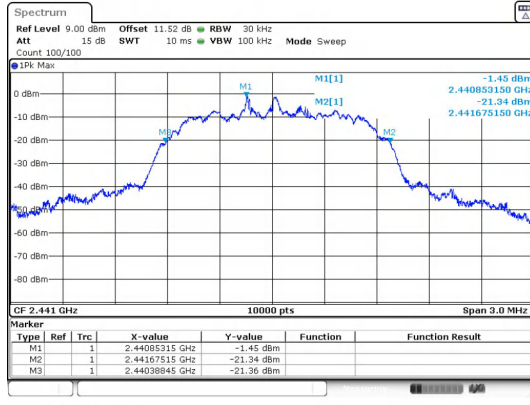
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GFSK_DH5_Channel 78

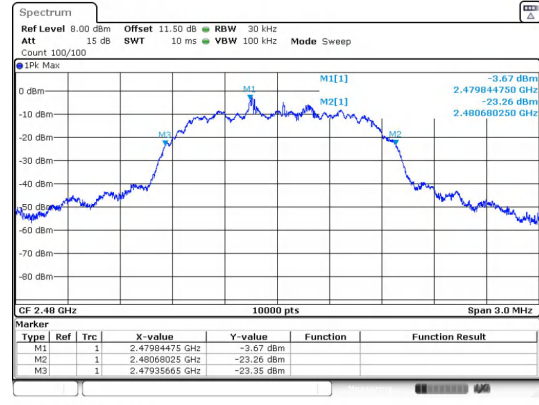


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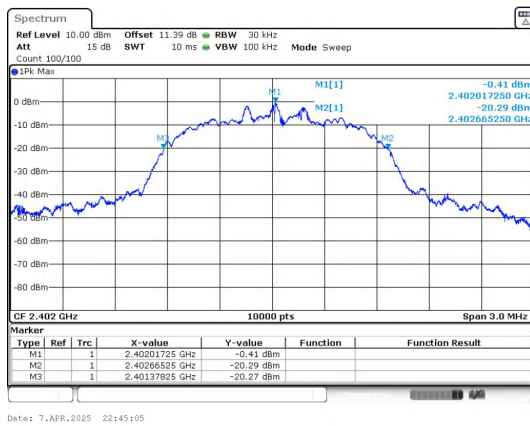
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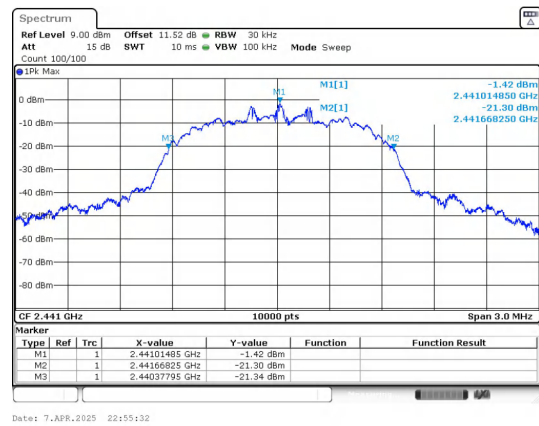
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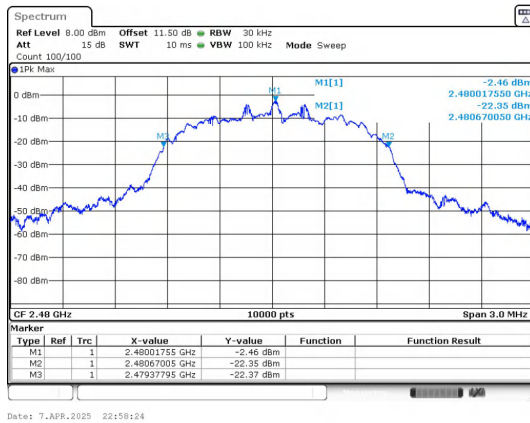
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8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



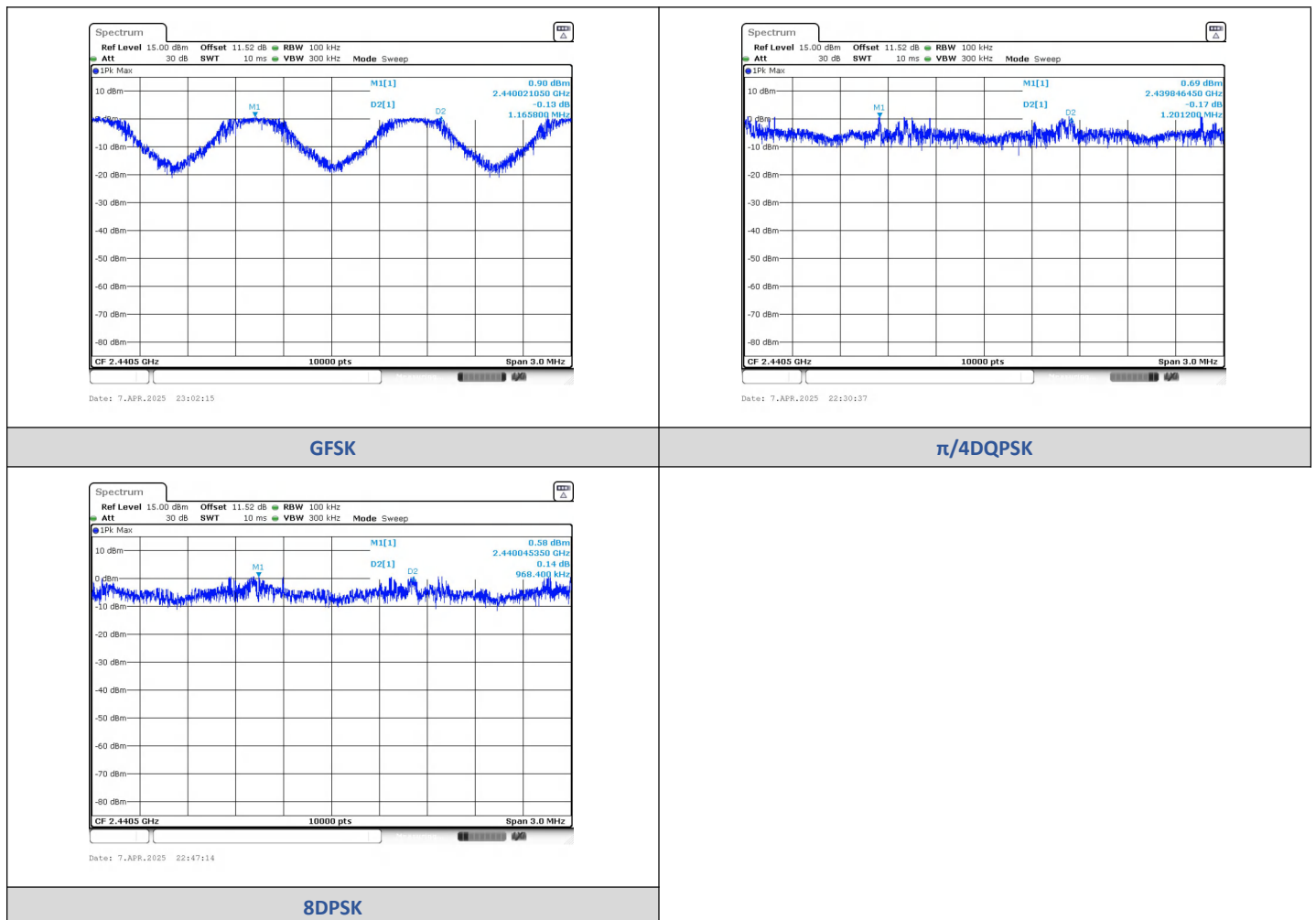
8DPSK_3-DH5_Channel 78

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	2440.021	2441.1869	1.1658	1.02	PASS
$\pi/4$ DQPSK	2-DH5	2439.8465	2441.0476	1.2012	0.853	PASS
8DPSK	3-DH5	2440.0453	2441.0138	0.9684	0.86	PASS

Test Graphs



7) Conducted Out Of Band Emission

Test Result

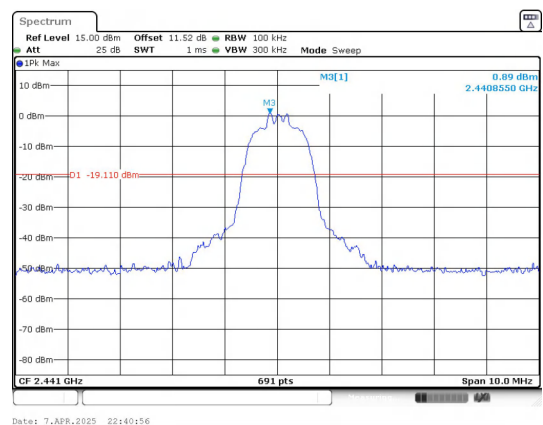
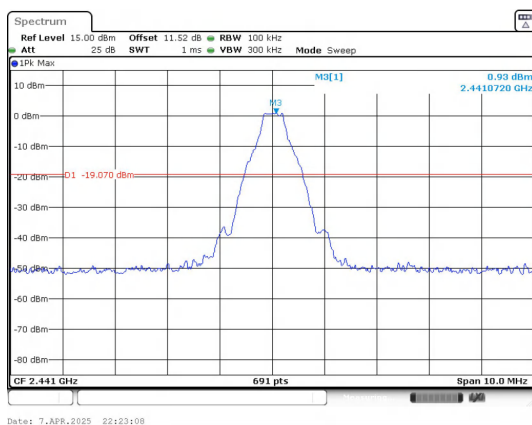
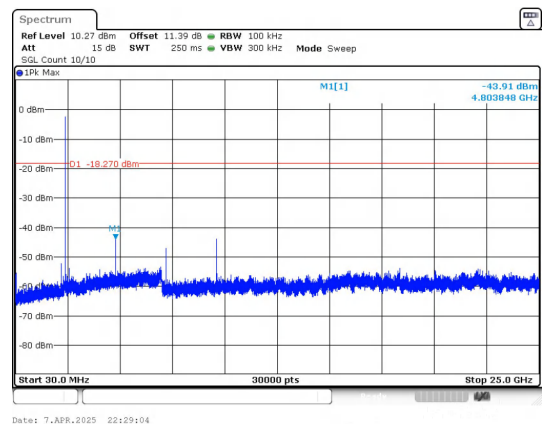
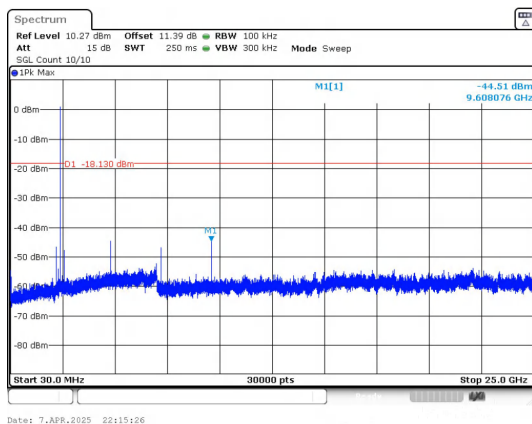
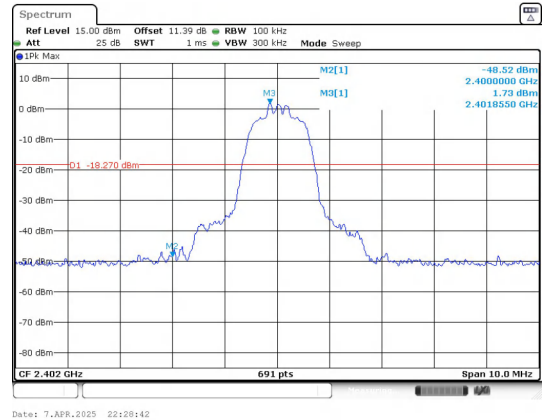
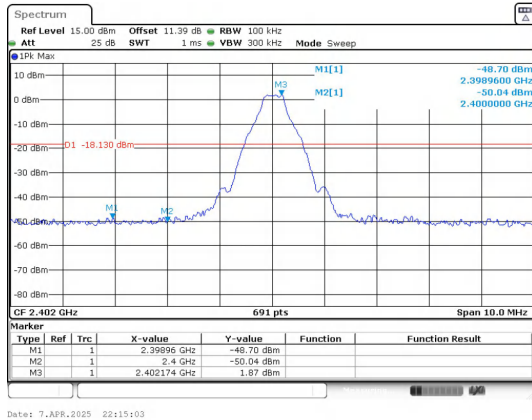
Non-Hopping

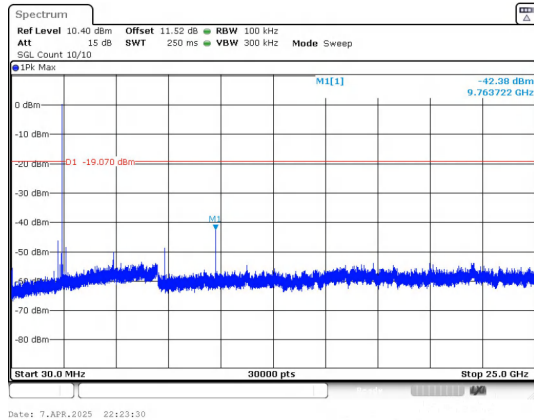
Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2398.96	-48.701	-18.13	-30.571	PASS
			2400.00	-50.040	-18.13	-31.910	PASS
			9608.10	-44.512	-18.13	-26.382	PASS
		39	9763.72	-42.381	-19.07	-23.311	PASS
		78	2483.50	-50.510	-20.09	-30.420	PASS
			9920.20	-39.177	-20.09	-19.087	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-48.520	-18.27	-30.250	PASS
			4803.85	-43.913	-18.27	-25.643	PASS
		39	9763.72	-41.239	-19.11	-22.129	PASS
		78	2483.50	-49.860	-20.05	-29.810	PASS
			9920.20	-39.313	-20.05	-19.263	PASS
8DPSK	3-DH5	0	2398.44	-47.531	-18.21	-29.321	PASS
			2400.00	-49.340	-18.21	-31.130	PASS
			9608.10	-44.555	-18.21	-26.345	PASS
		39	9763.72	-42.053	-19.3	-22.753	PASS
		78	2483.50	-49.020	-20.11	-28.910	PASS
			9920.20	-39.293	-20.11	-19.183	PASS

Hopping

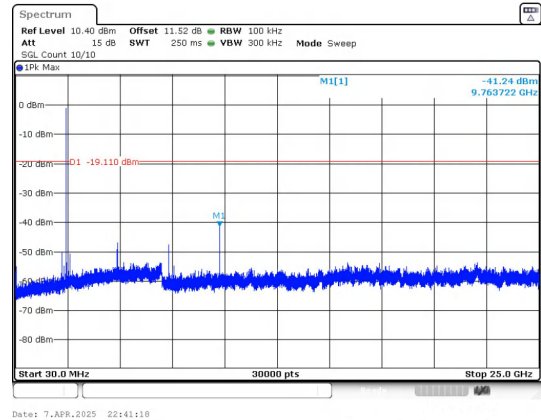
Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2397.32	-48.652	-18.4	-30.252	PASS
			2400.00	-50.000	-18.4	-31.600	PASS
			2483.50	-49.250	-20.17	-29.080	PASS
$\pi/4$ DQPSK	2-DH5		2395.11	-48.164	-18.32	-29.844	PASS
			2400.00	-49.820	-18.32	-31.500	PASS
			2483.50	-49.380	-19.97	-29.410	PASS
8DPSK	3-DH5		2396.37	-48.717	-18.87	-29.847	PASS
			2400.00	-50.700	-18.87	-31.830	PASS
			2483.50	-50.030	-20.37	-29.660	PASS

Test Graphs

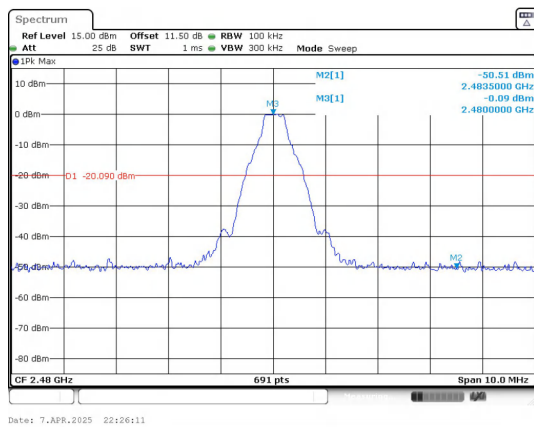




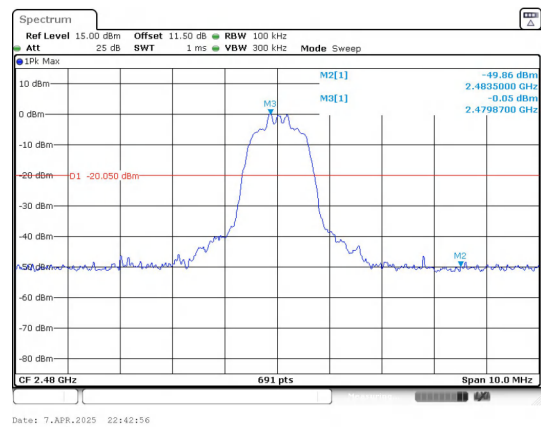
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



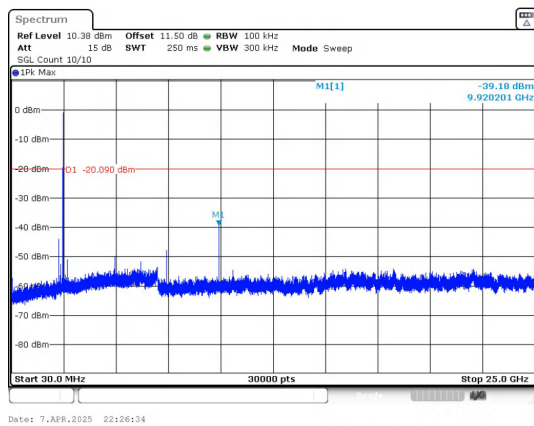
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 39



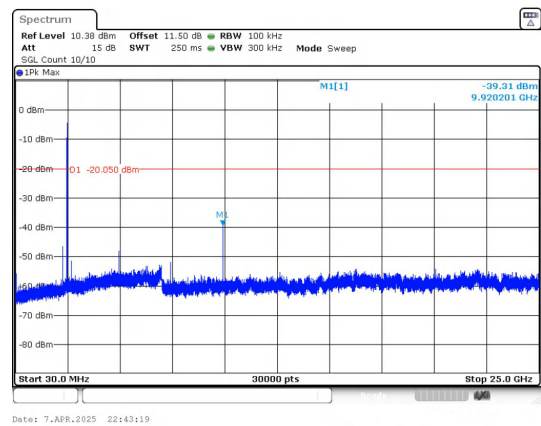
Out Of Band Emission
GFSK_DH5_Channel 78



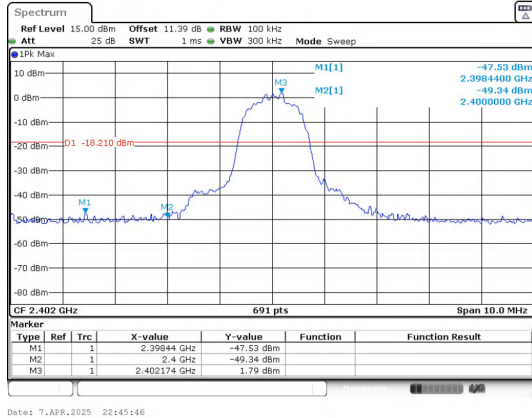
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78



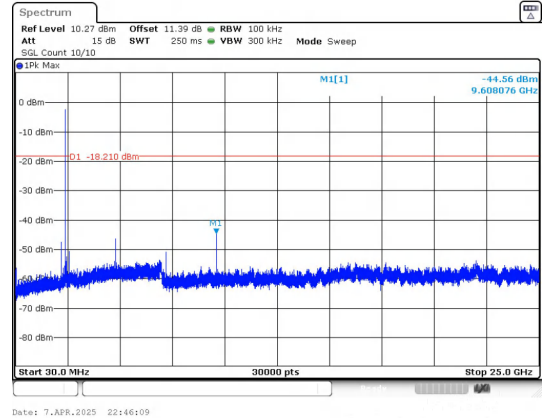
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



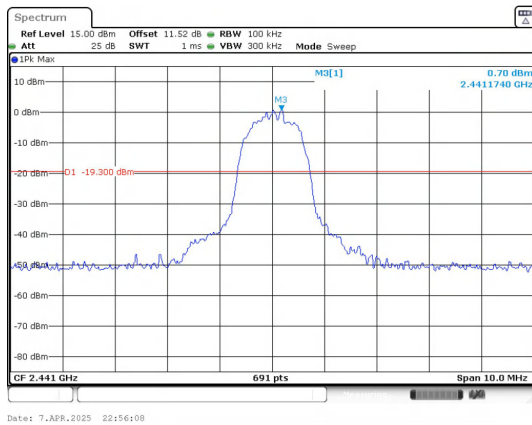
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 $\pi/4$ DQPSK_2-DH5_Channel 78



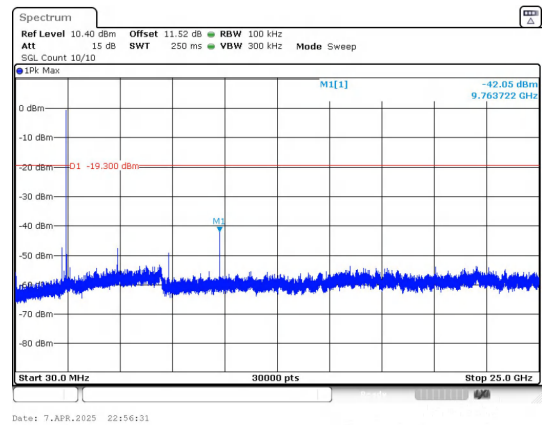
Out Of Band Emission
8DPSK_3-DH5_Channel 0



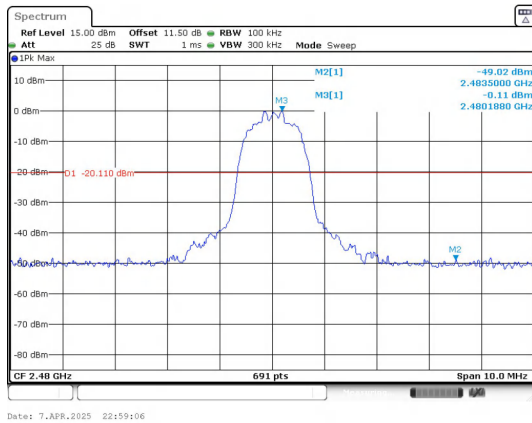
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0



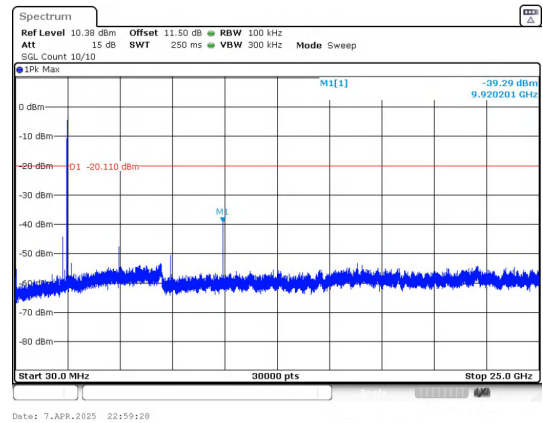
Out Of Band Emission
8DPSK_3-DH5_Channel 39



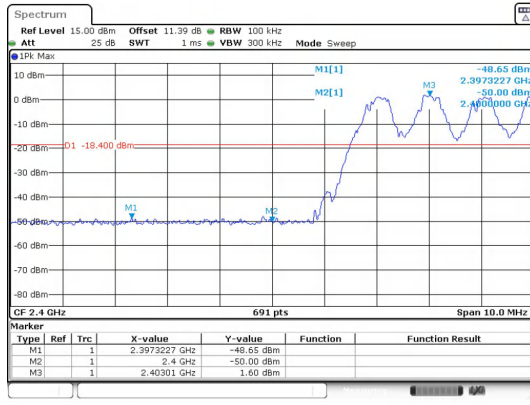
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



Out Of Band Emission
8DPSK_3-DH5_Channel 78

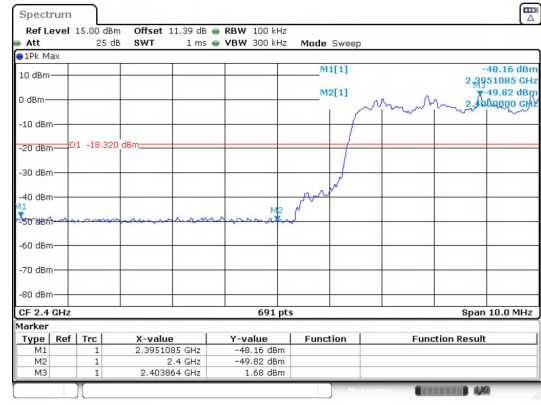


30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



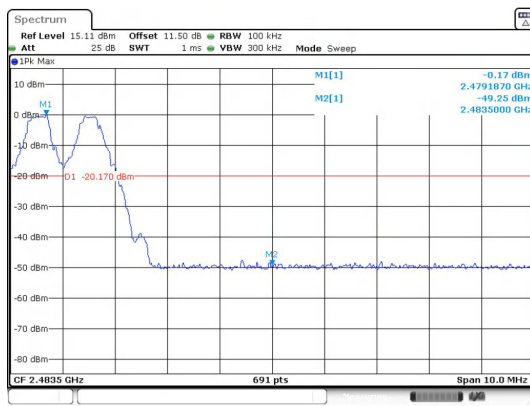
Date: 7.APR.2025 22:20:38

Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



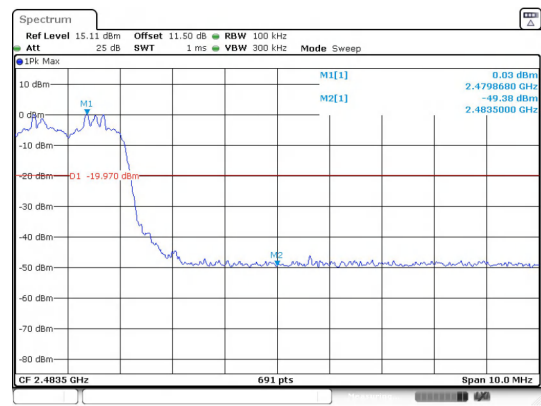
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Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping



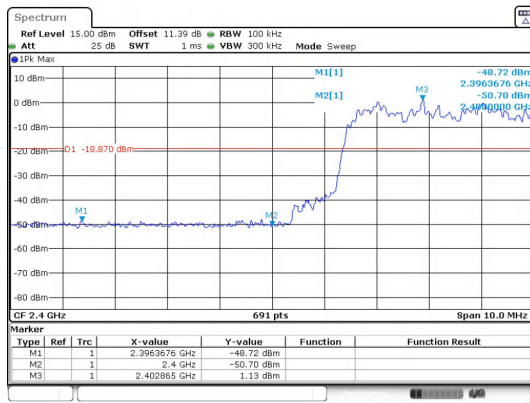
Date: 7.APR.2025 22:21:13

Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



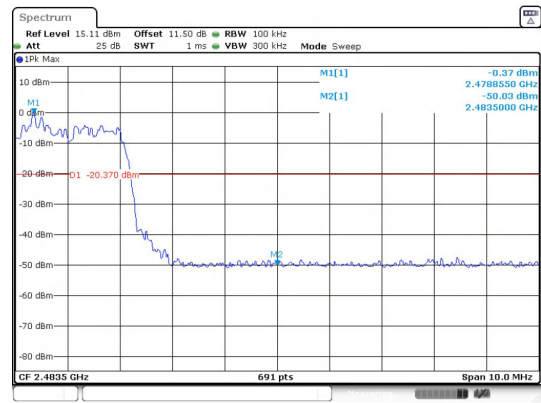
Date: 7.APR.2025 22:38:10

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



Date: 7.APR.2025 22:52:09

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



Date: 7.APR.2025 22:52:36

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

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