

Appendix Report

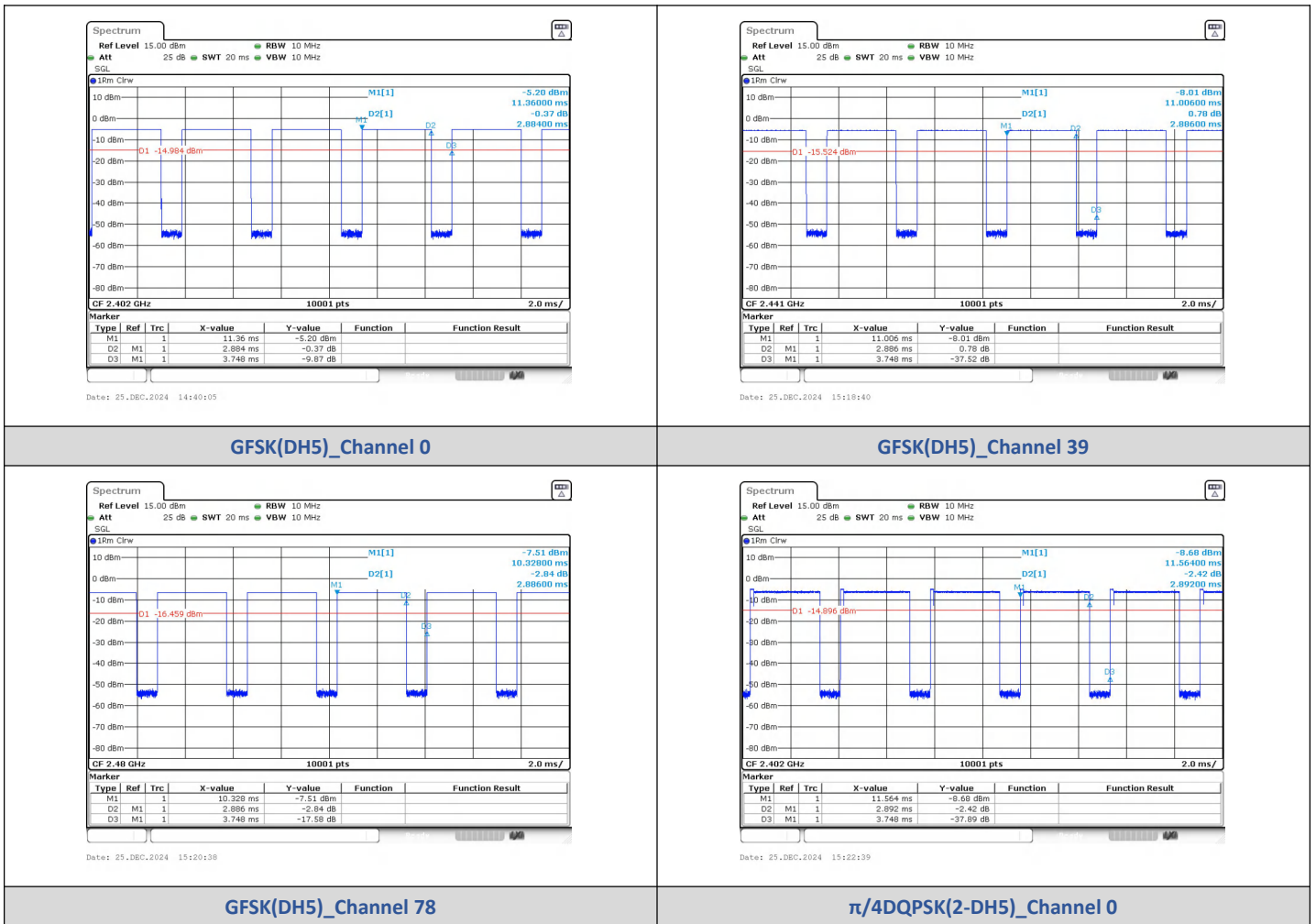
Report No.:	CISRR241225201
Test Engineer:	Mark Fu
Supervised by:	Rory Huang

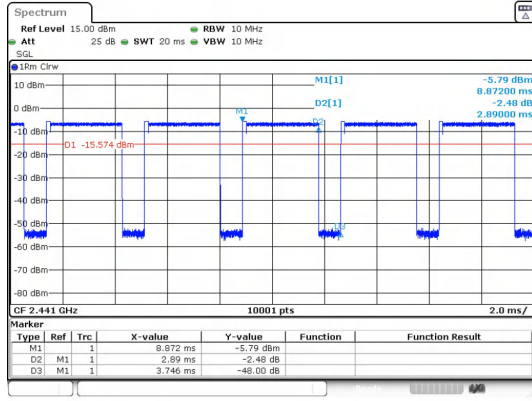
1) Duty Cycle

Test Result

Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.884	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	2.892	3.748	77.16	0.7716	1.1261	0.3458
		39	2.890	3.746	77.15	0.7715	1.1266	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	2.894	3.748	77.21	0.7721	1.1233	0.3455
		78	2.894	3.748	77.21	0.7721	1.1233	0.3455

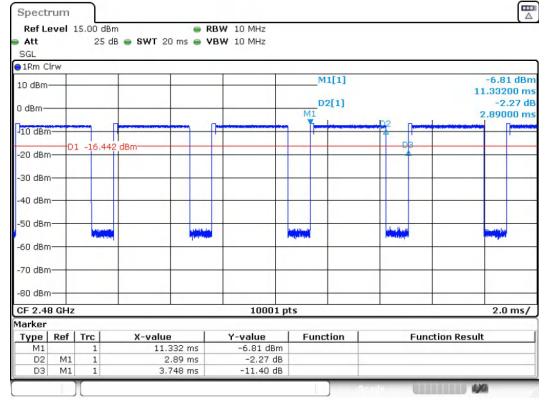
Test Graphs





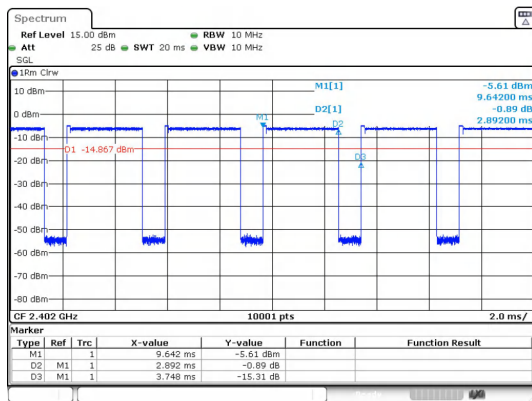
Date: 25.DEC.2024 15:35:18

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



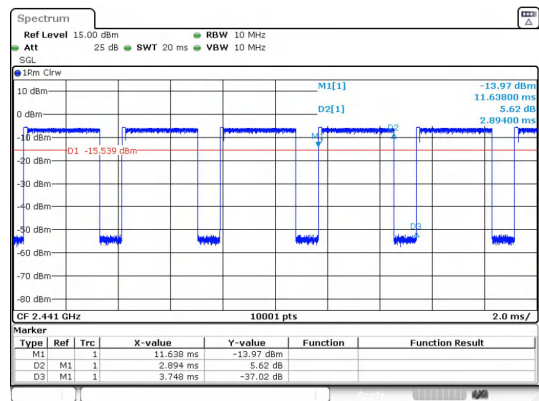
Date: 25.DEC.2024 15:41:10

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



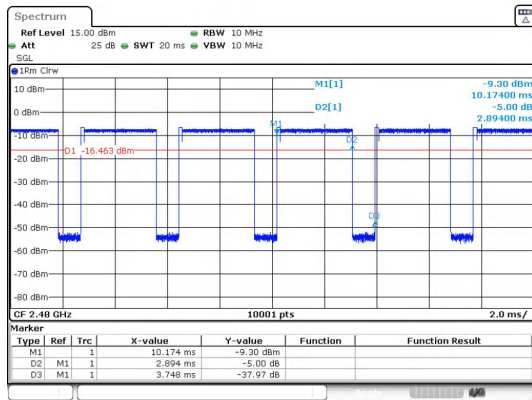
Date: 25.DEC.2024 15:43:22

8DPSK(3-DH5)_Channel 30



Date: 25.DEC.2024 16:45:01

8DPSK(3-DH5)_Channel 39



Date: 25.DEC.2024 16:47:52

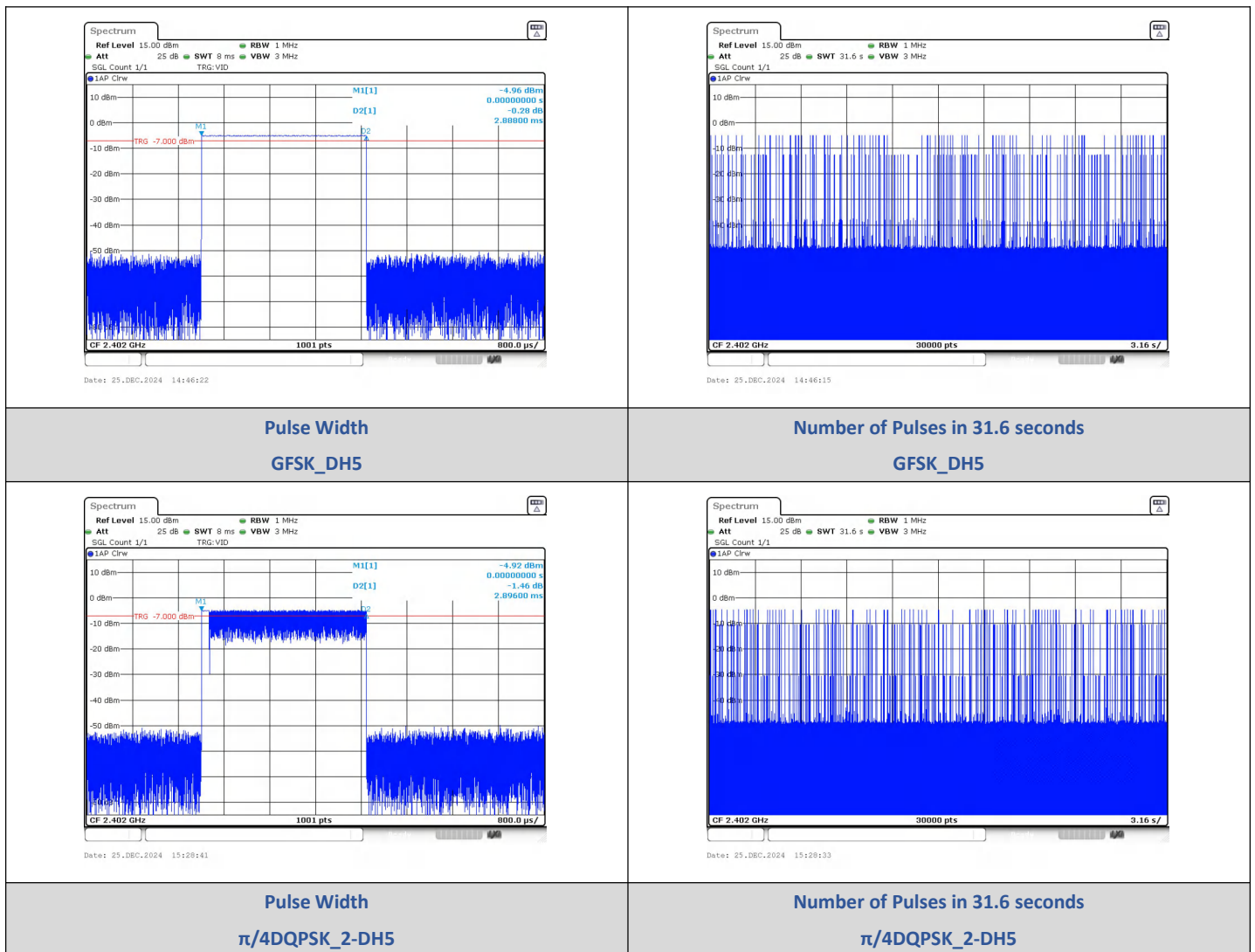
8DPSK(3-DH5)_Channel 78

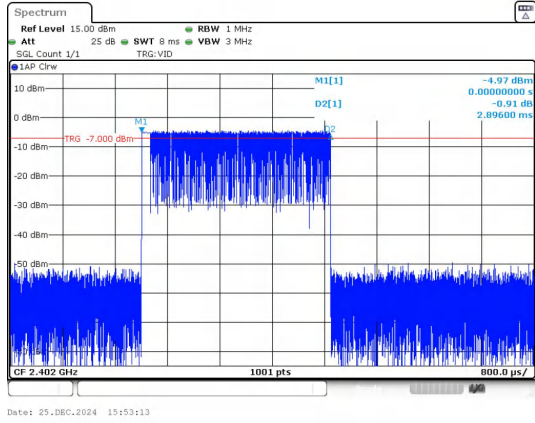
2) Dwell Time

Test Result

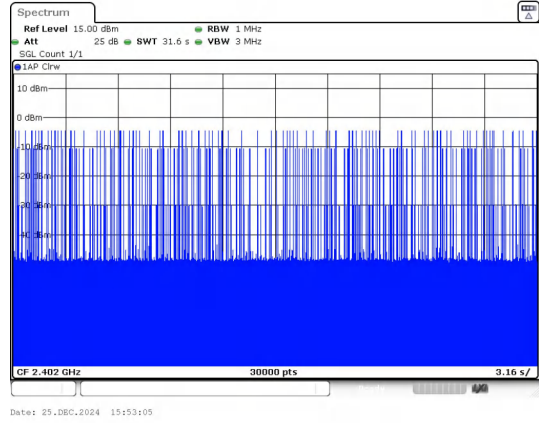
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CHO (2402MHz)	2.888	99	285.91	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	99	286.7		PASS
8DPSK	3-DH5		2.896	106	306.98		PASS

Test Graphs





Pulse Width
8DPSK_3-DH5



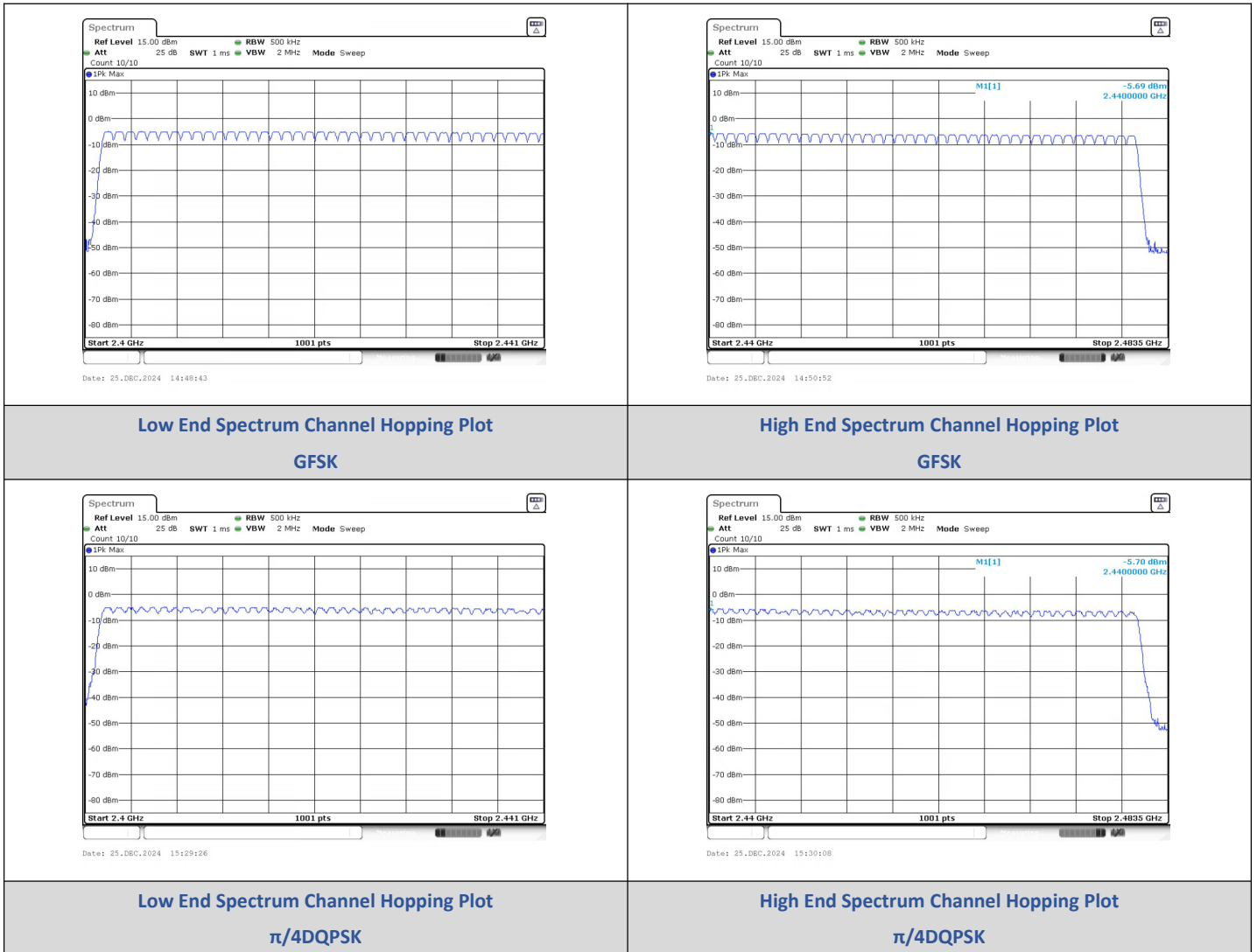
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

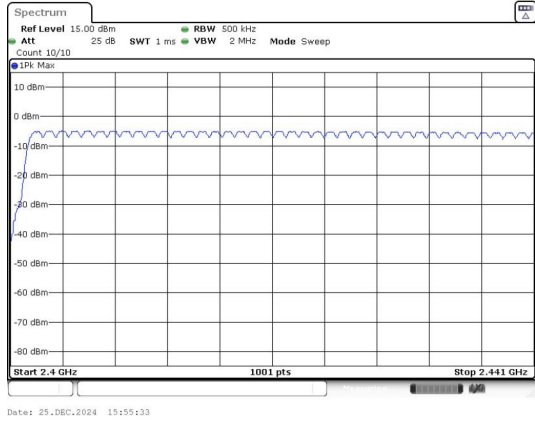
3) Number Of Hopping Channel

Test Result

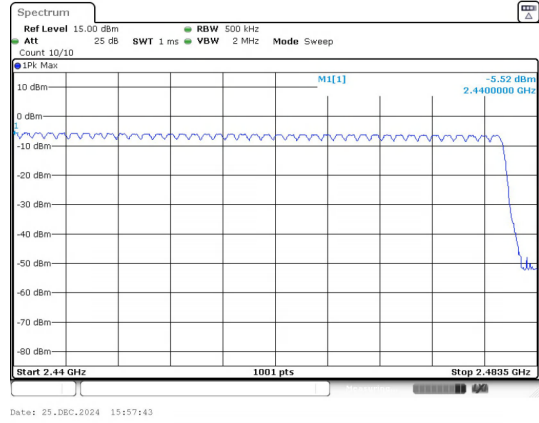
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





Low End Spectrum Channel Hopping Plot
8DPSK



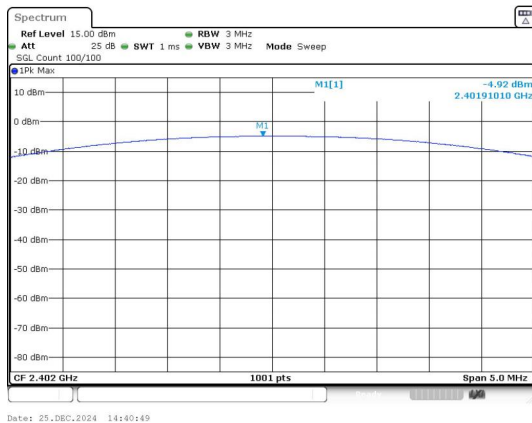
High End Spectrum Channel Hopping Plot
8DPSK

4) Conducted Output Power

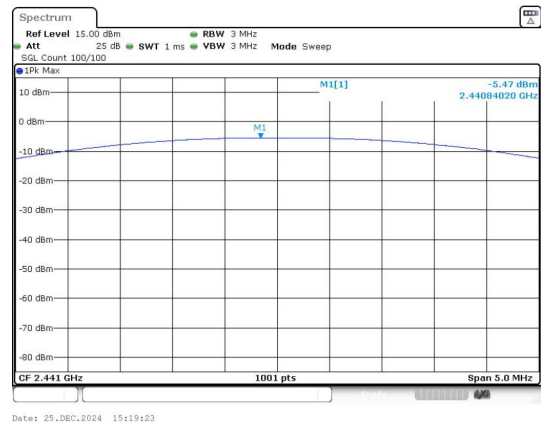
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	-4.92	0.32	≤30	PASS
		39	-5.47	0.28		PASS
		78	-6.42	0.23		PASS
π/4DQPSK	2-DH5	0	-4.25	0.38	≤20.97	PASS
		39	-4.98	0.32		PASS
		78	-5.75	0.27		PASS
8DPSK	3-DH5	0	-4.03	0.40	≤20.97	PASS
		39	-4.75	0.33		PASS
		78	-5.60	0.28		PASS

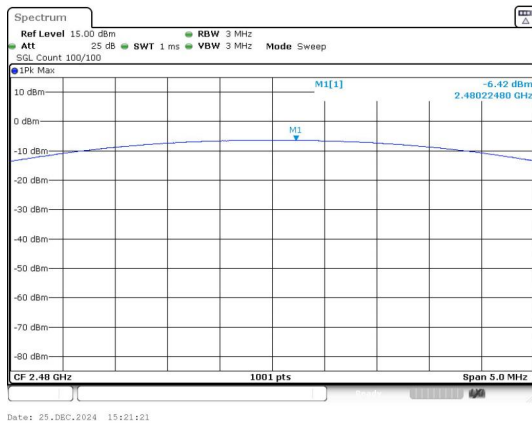
Test Graphs



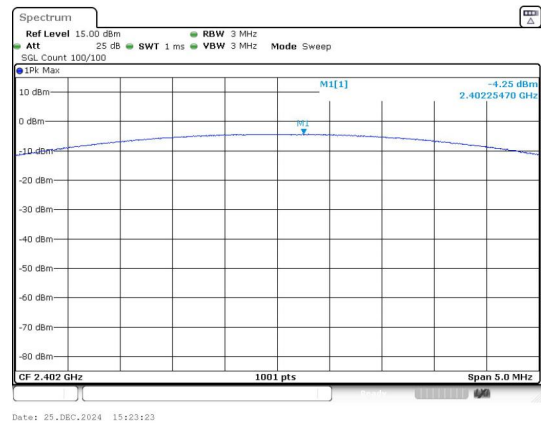
Peak Output Power
GFSK_Channel 0



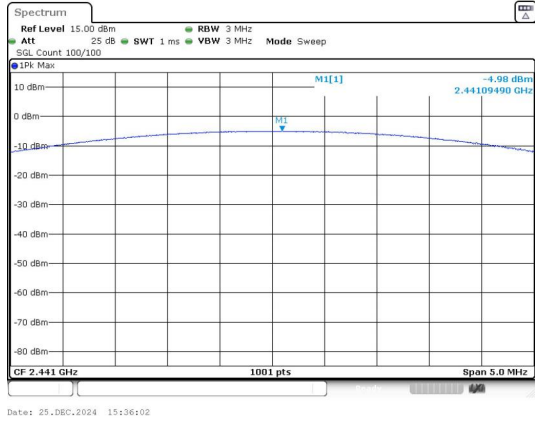
Peak Output Power
GFSK_Channel 39



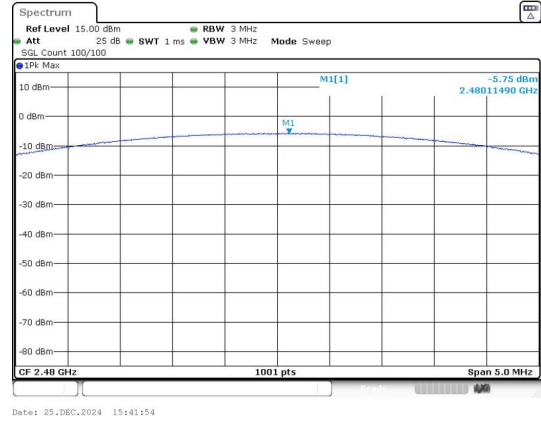
Peak Output Power
GFSK_Channel 78



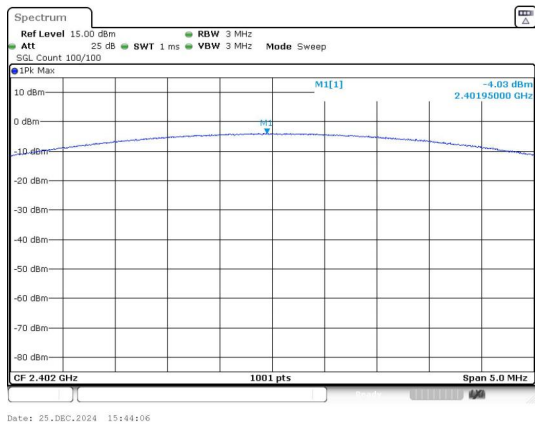
Peak Output Power
π/4DQPSK_Channel 0



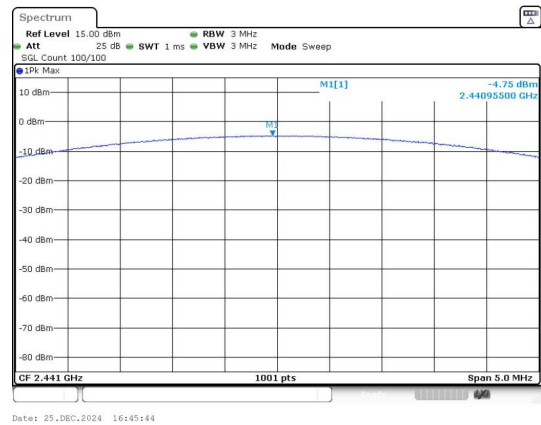
Peak Output Power
π/4DQPSK_Channel 39



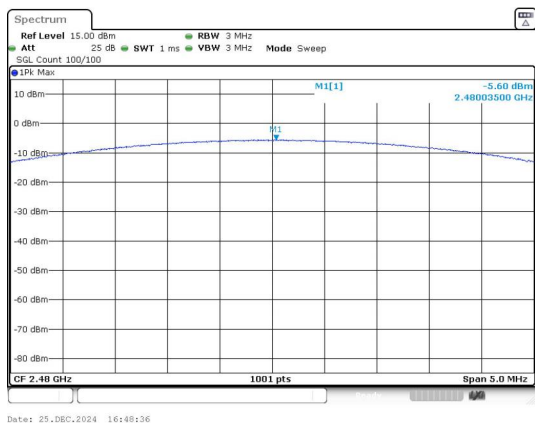
Peak Output Power
π/4DQPSK_Channel 78



Peak Output Power
8DPSK_Channel 0



Peak Output Power
8DPSK_Channel 39



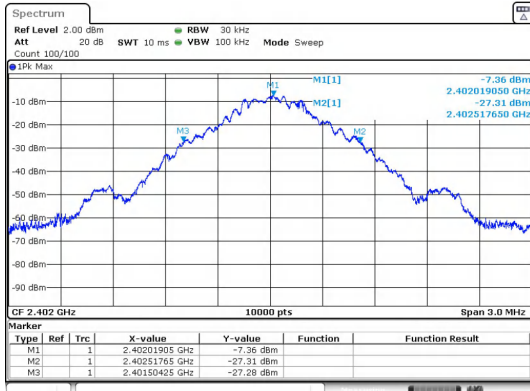
Peak Output Power
8DPSK_Channel 78

5) 20dB Bandwidth

Test Result

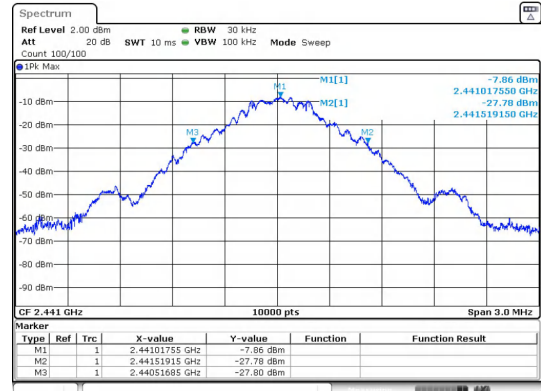
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.020
	39	2441 MHz	1.000
	78	2480 MHz	1.000
$\pi/4$ DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.310
	78	2480 MHz	1.310
8DPSK	0	2402 MHz	1.300
	39	2441 MHz	1.300
	78	2480 MHz	1.290

Test Graphs



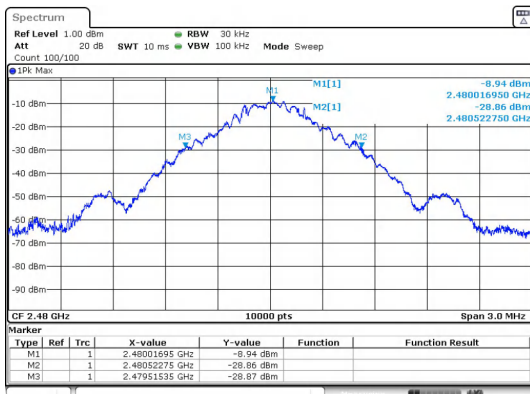
Date: 25.DEC.2024 14:40:131

GFSK_DH5_Channel 0



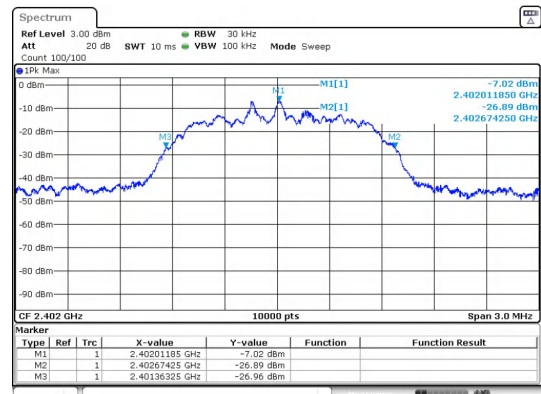
Date: 25.DEC.2024 15:19:05

GFSK_DH5_Channel 39



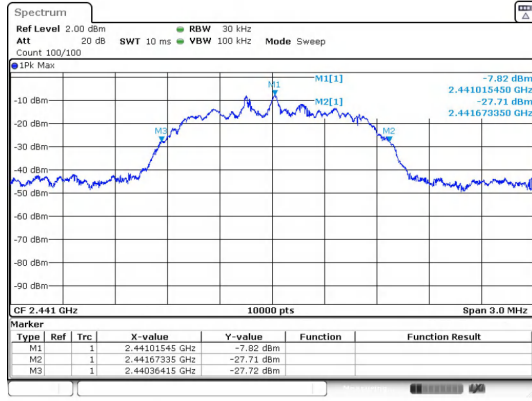
Date: 25.DEC.2024 15:21:04

GFSK_DH5_Channel 78



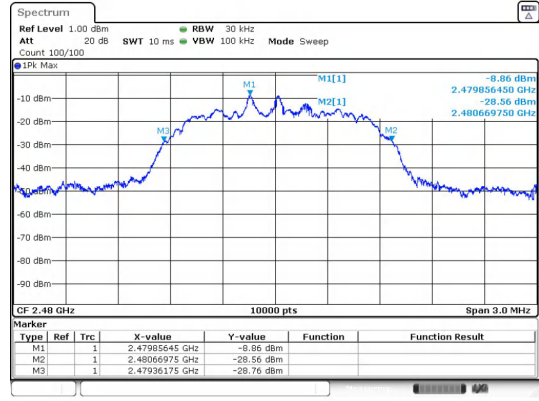
Date: 25.DEC.2024 15:23:05

$\pi/4$ DQPSK_2-DH5_Channel 0



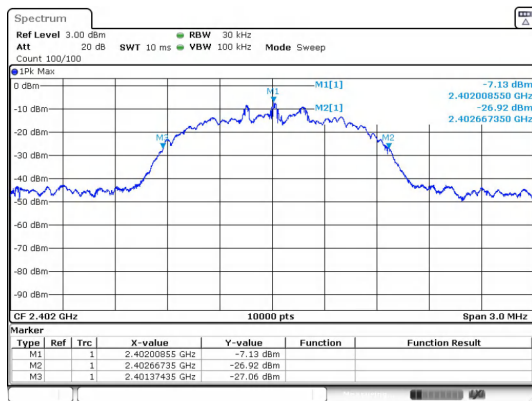
Date: 25.DEC.2024 15:35:44

$\pi/4$ DQPSK_2-DH5_Channel 39



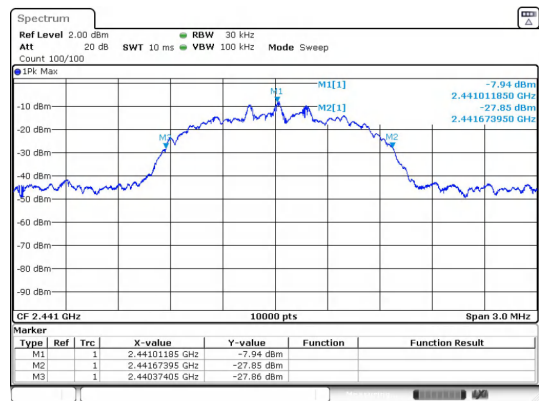
Date: 25.DEC.2024 15:41:36

$\pi/4$ DQPSK_2-DH5_Channel 78



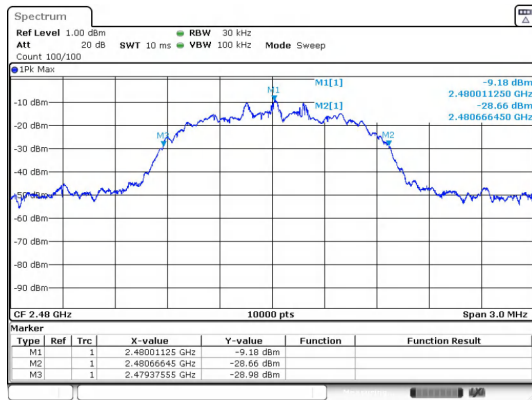
Date: 25.DEC.2024 15:43:48

8DPSK_3-DH5_Channel 0



Date: 25.DEC.2024 16:45:27

8DPSK_3-DH5_Channel 39



Date: 25.DEC.2024 16:48:18

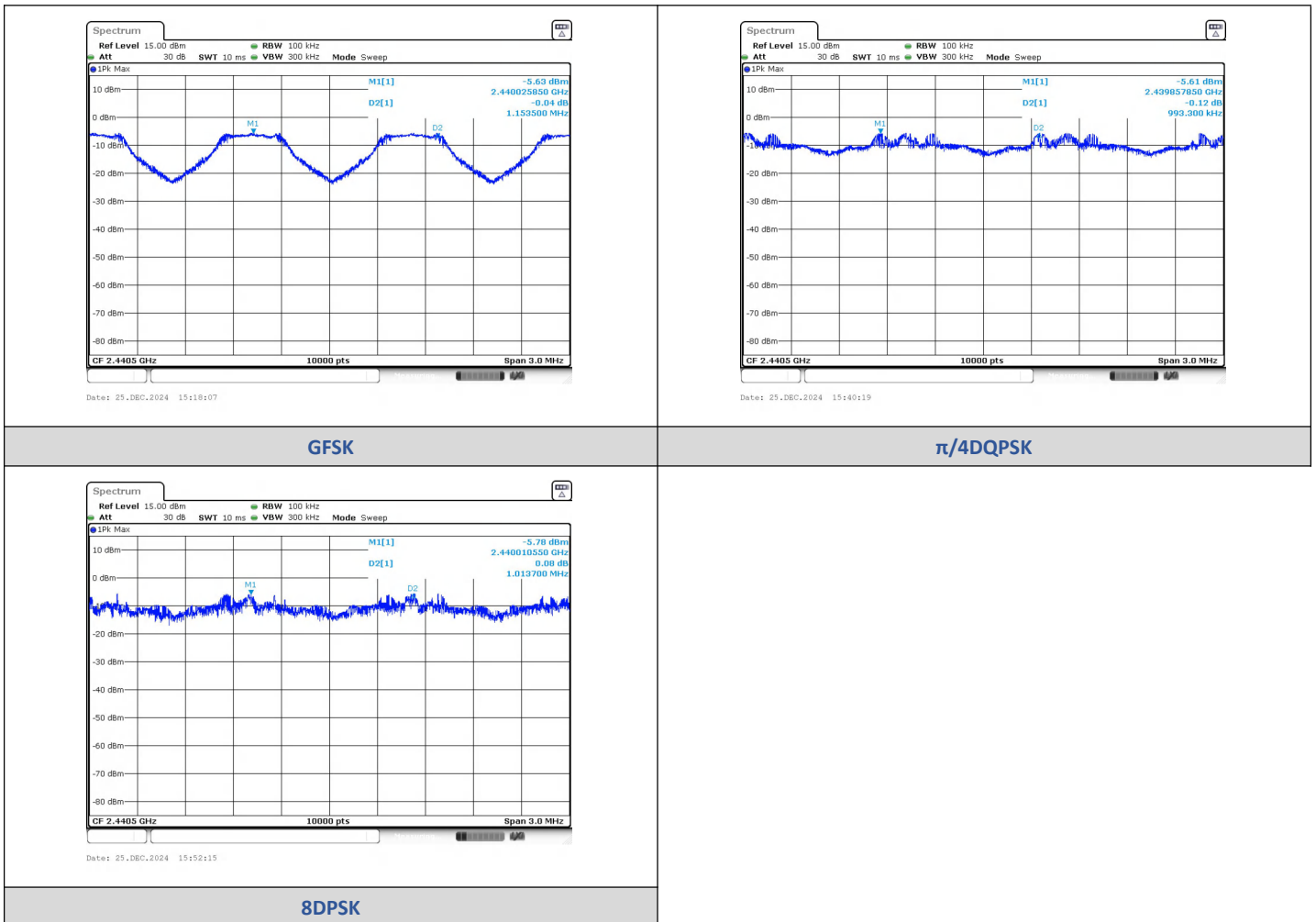
8DPSK_3-DH5_Channel 78

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	2440.0258	2441.1793	1.1535	1.02	PASS
$\pi/4$ DQPSK	2-DH5	2439.8578	2440.8511	0.9933	0.873	PASS
8DPSK	3-DH5	2440.0105	2441.0242	1.0137	0.867	PASS

Test Graphs



7) Conducted Out Of Band Emission

Test Result

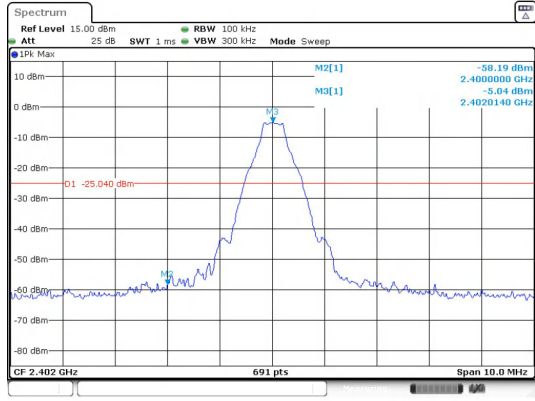
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-58.190	-25.04	-33.150	PASS
			6944.61	-44.287	-25.04	-19.247	PASS
		39	6897.17	-44.480	-25.69	-18.790	PASS
		78	2483.50	-61.880	-26.56	-35.320	PASS
			17298.0	-44.760	-26.56	-18.200	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-54.690	-24.99	-29.700	PASS
			5825.12	-44.977	-24.99	-19.987	PASS
		39	9763.72	-44.307	-25.79	-18.517	PASS
		78	2483.50	-61.170	-26.58	-34.590	PASS
			6930.46	-44.577	-26.58	-17.997	PASS
8DPSK	3-DH5	0	2400.00	-57.270	-24.93	-32.340	PASS
			6917.14	-45.027	-24.93	-20.097	PASS
		39	6992.05	-44.519	-25.62	-18.899	PASS
		78	2483.50	-61.860	-26.93	-34.930	PASS
			6896.33	-44.068	-26.93	-17.138	PASS

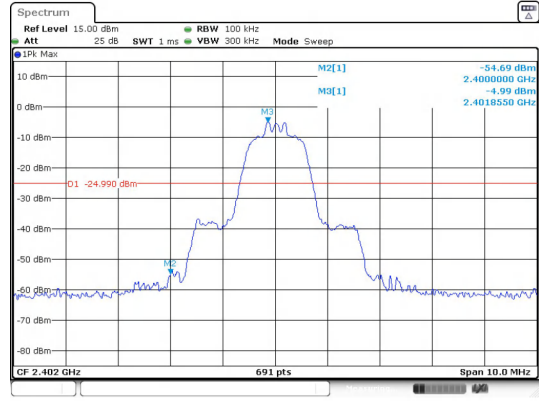
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2398.60	-58.208	-25.02	-33.188	PASS
			2400.00	-60.020	-25.02	-35.000	PASS
			2483.50	-59.720	-26.51	-33.210	PASS
$\pi/4$ DQPSK	2-DH5		2397.45	-58.961	-25.35	-33.611	PASS
			2400.00	-60.160	-25.35	-34.810	PASS
			2483.50	-60.990	-26.56	-34.430	PASS
8DPSK	3-DH5		2400.00	-58.660	-24.95	-33.710	PASS
		2483.50	-59.950	-26.57	-33.380	PASS	

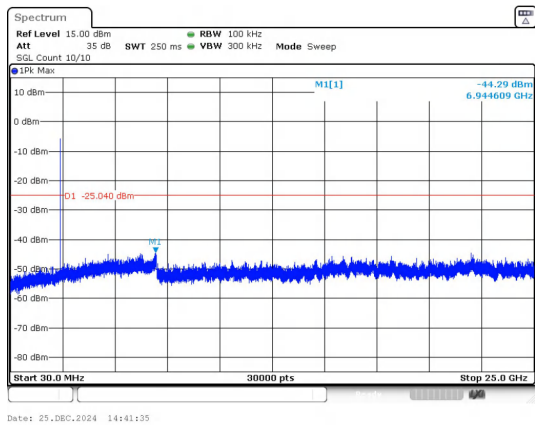
Test Graphs



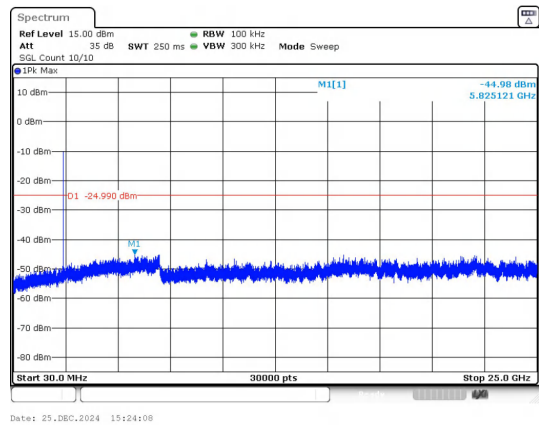
**Out Of Band Emission
GFSK_DH5_Channel 0**



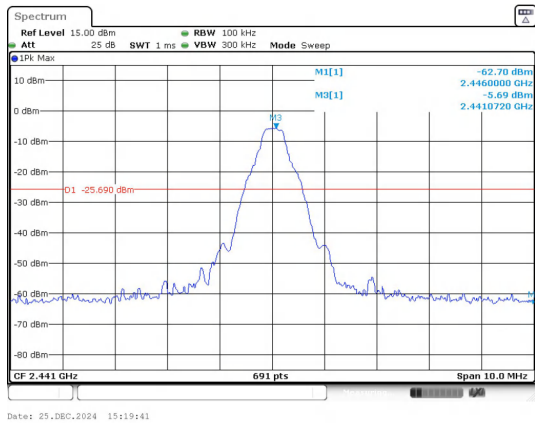
**Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0**



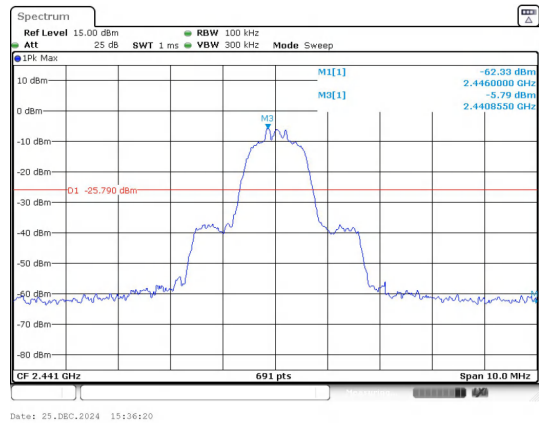
**30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0**



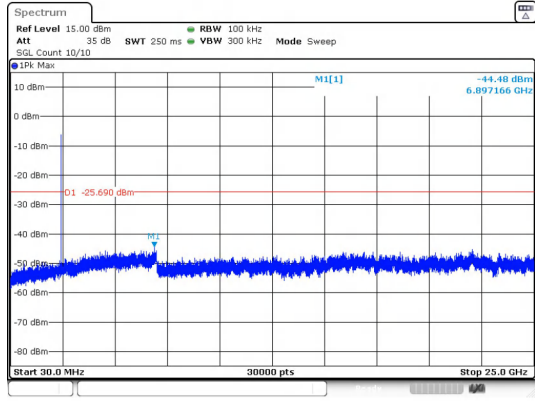
**30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 0**



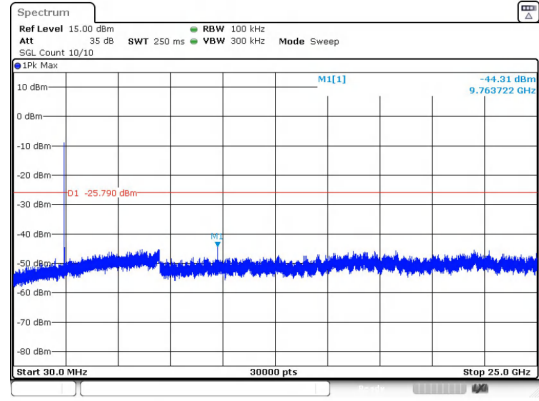
**Out Of Band Emission
GFSK_DH5_Channel 39**



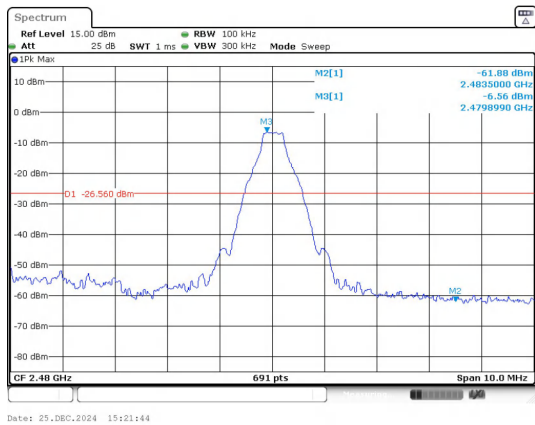
**Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 39**



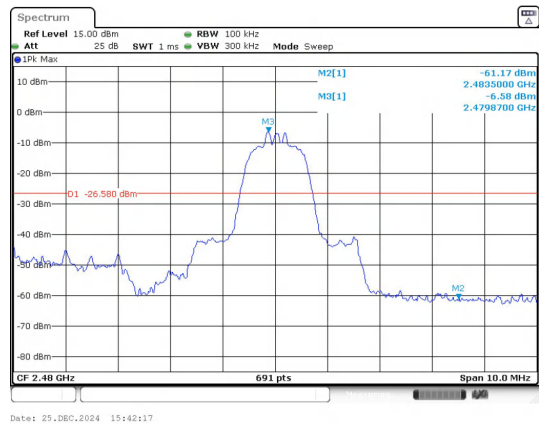
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



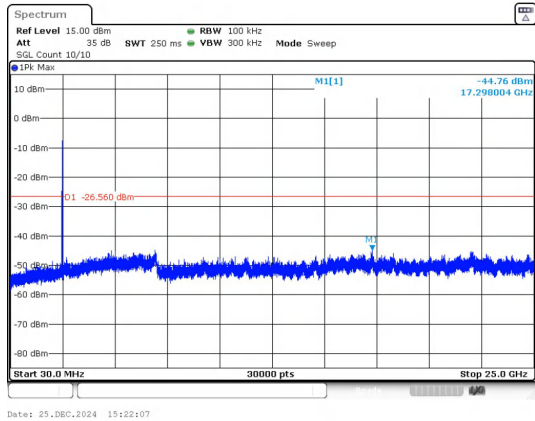
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 39



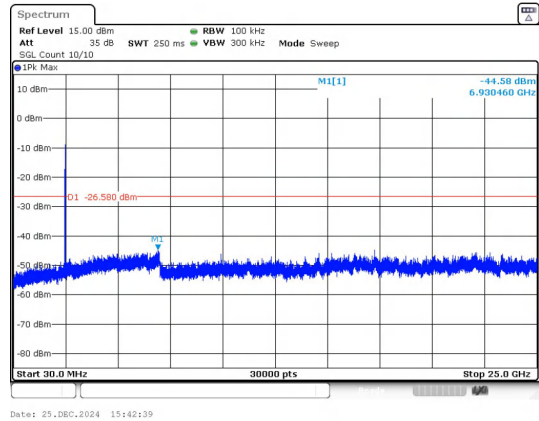
Out Of Band Emission
GFSK_DH5_Channel 78



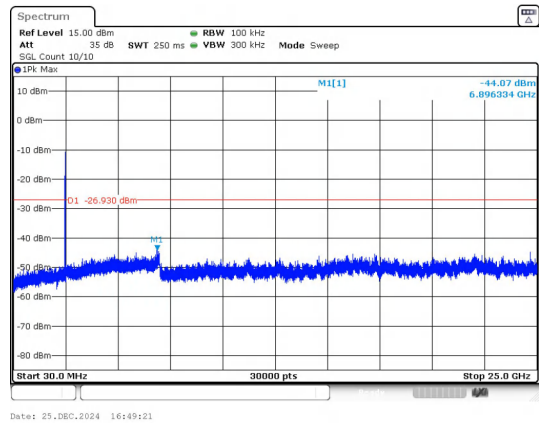
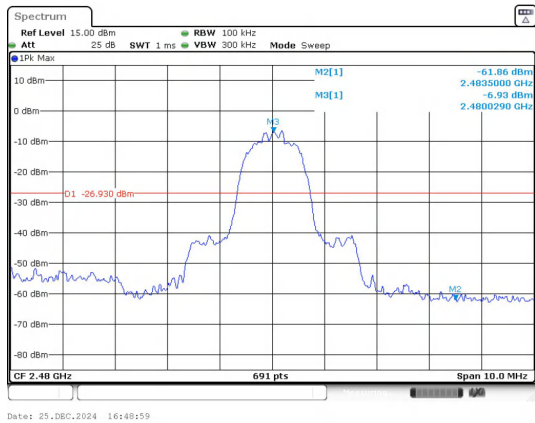
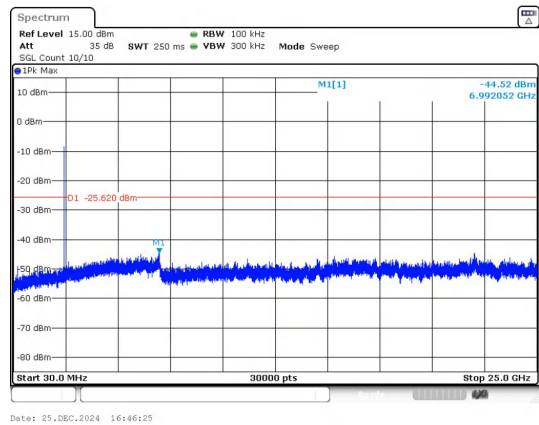
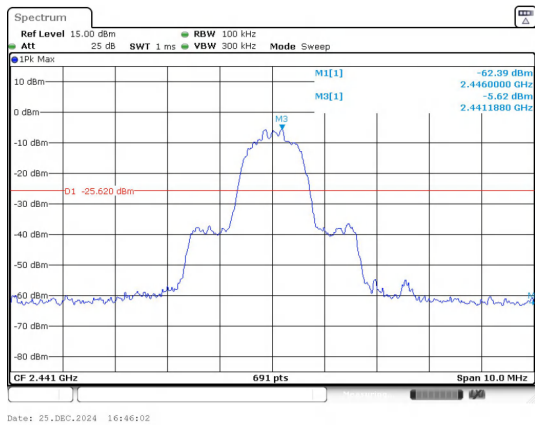
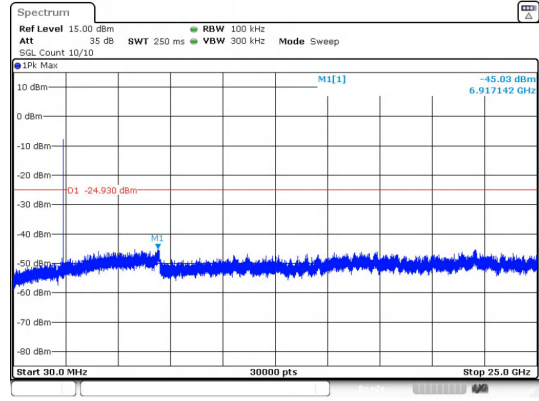
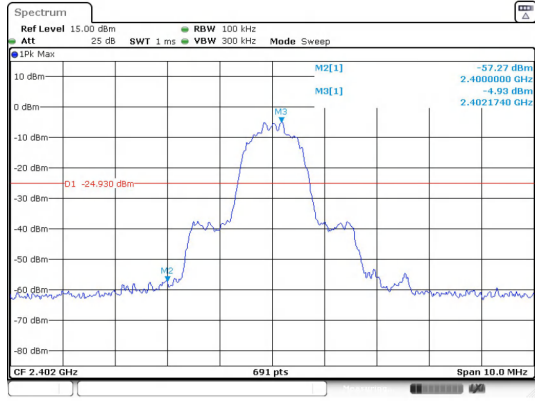
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78

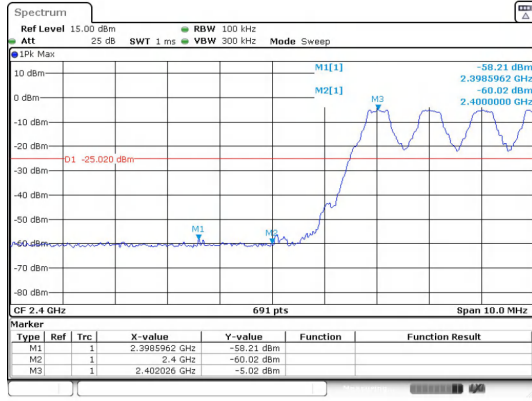


30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



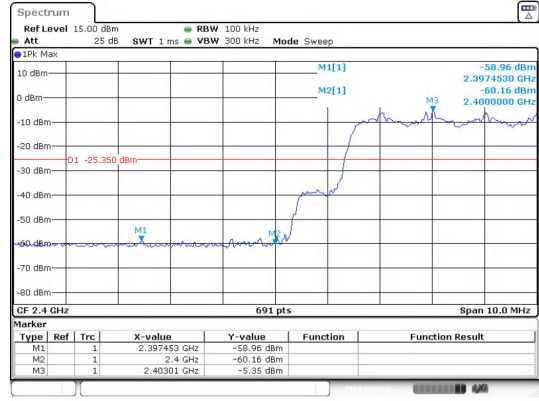
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 78





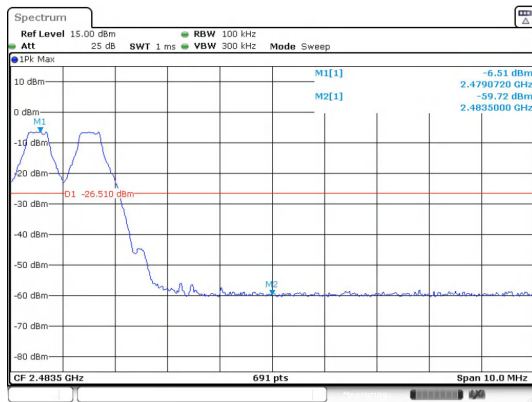
Date: 25.DEC.2024 14:54:09

Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



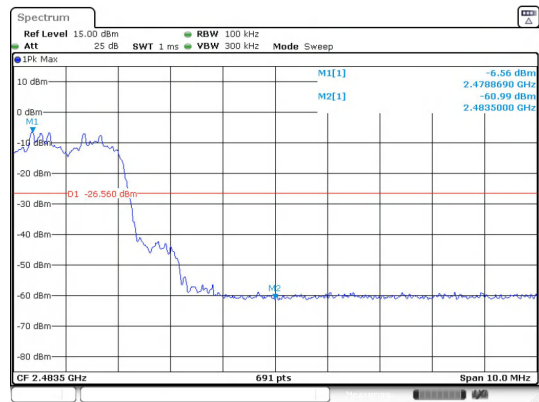
Date: 25.DEC.2024 15:32:35

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



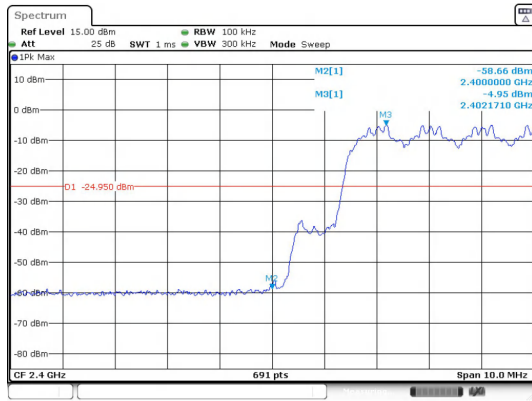
Date: 25.DEC.2024 15:08:40

Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



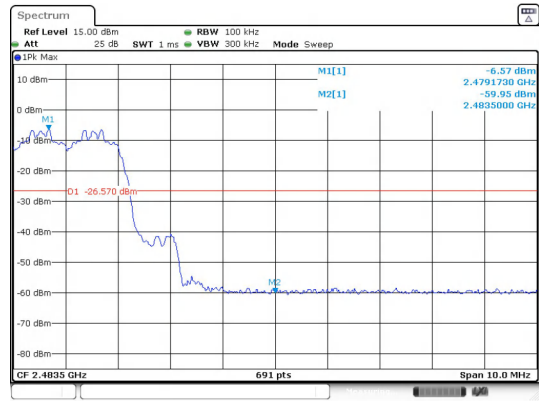
Date: 25.DEC.2024 15:34:45

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



Date: 25.DEC.2024 16:04:56

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



Date: 25.DEC.2024 16:19:16

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

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