

Appendix A

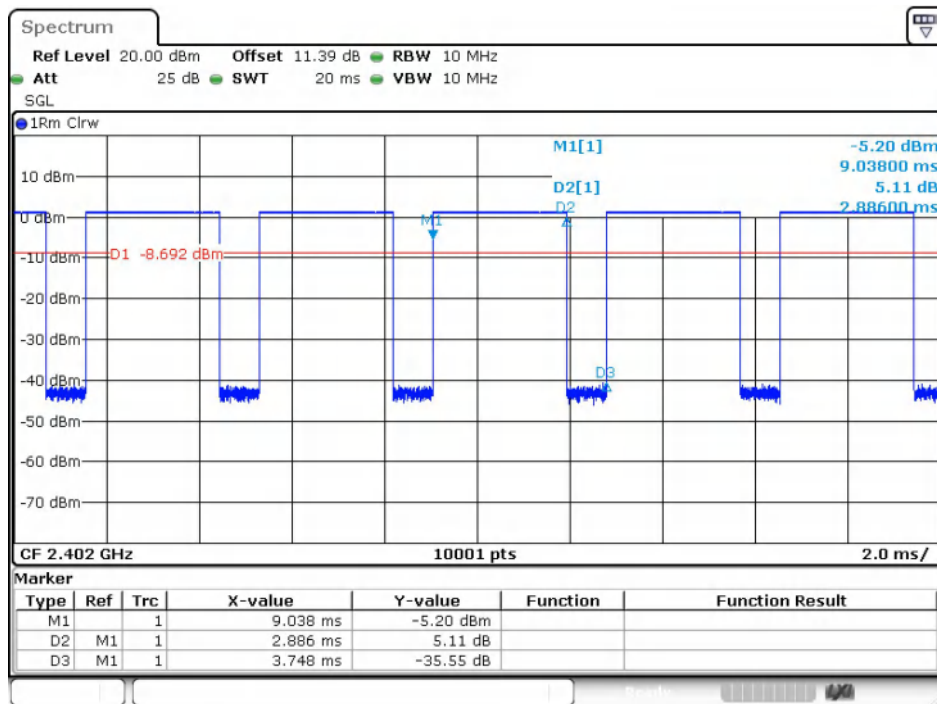
Report No.:	CISRR24082215101
FCC ID:	2A3VP-Q13
Product Name:	Mobile Game Controller
Model No.:	Q13
Test Engineer:	Jimmy Huang
Supervised by:	Rory Huang

1) Duty Cycle

Test Result

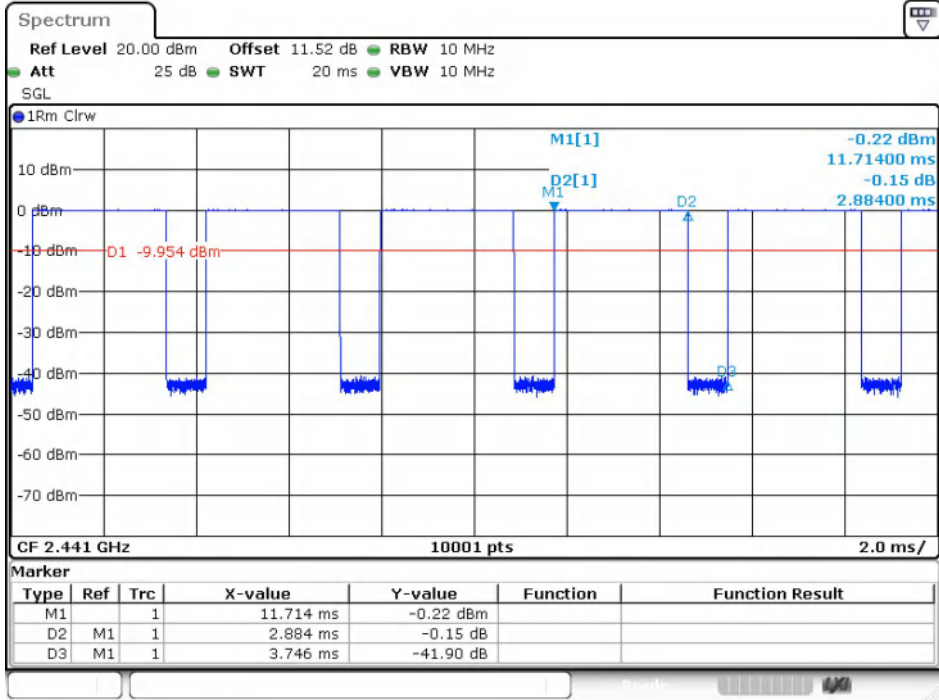
Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.886	3.748	77.00	0.7700	1.1351	0.35
		39	2.884	3.746	76.99	0.7699	1.1357	0.35
		78	2.886	3.748	77.00	0.7700	1.1351	0.35
$\pi/4$ DQPSK	2-DH5	0	2.890	3.748	77.11	0.7711	1.1289	0.35
		39	2.892	3.748	77.16	0.7716	1.1261	0.35
		78	2.890	3.748	77.11	0.7711	1.1289	0.35
8DPSK	3-DH5	0	2.892	3.748	77.16	0.7716	1.1261	0.35
		39	2.892	3.748	77.16	0.7716	1.1261	0.35
		78	2.892	3.748	77.16	0.7716	1.1261	0.35

Test Graphs



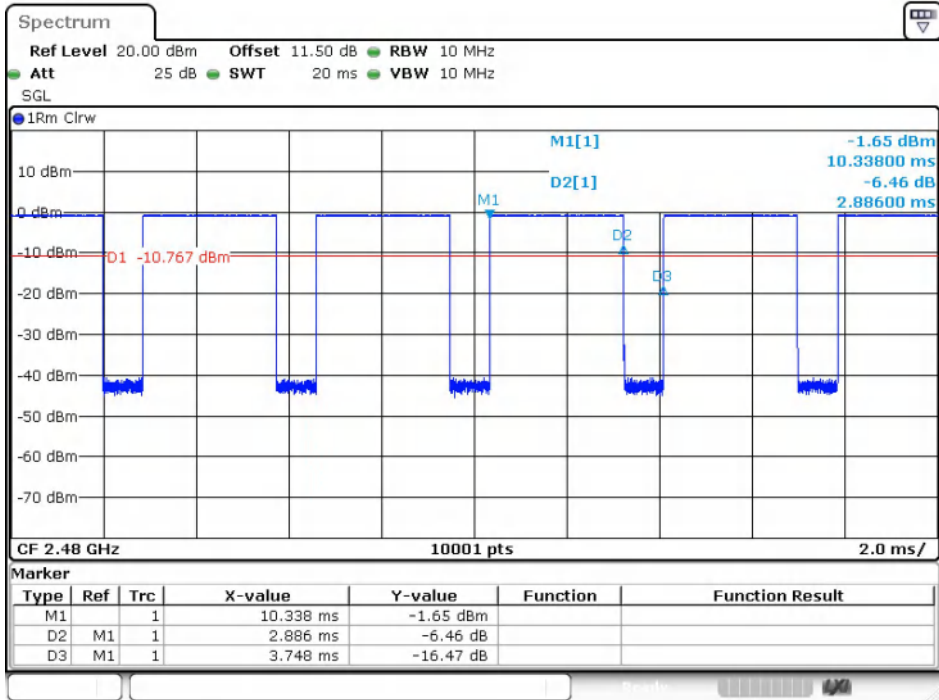
Date: 3.SEP.2024 18:46:03

GFSK(DH5)_Channel 0



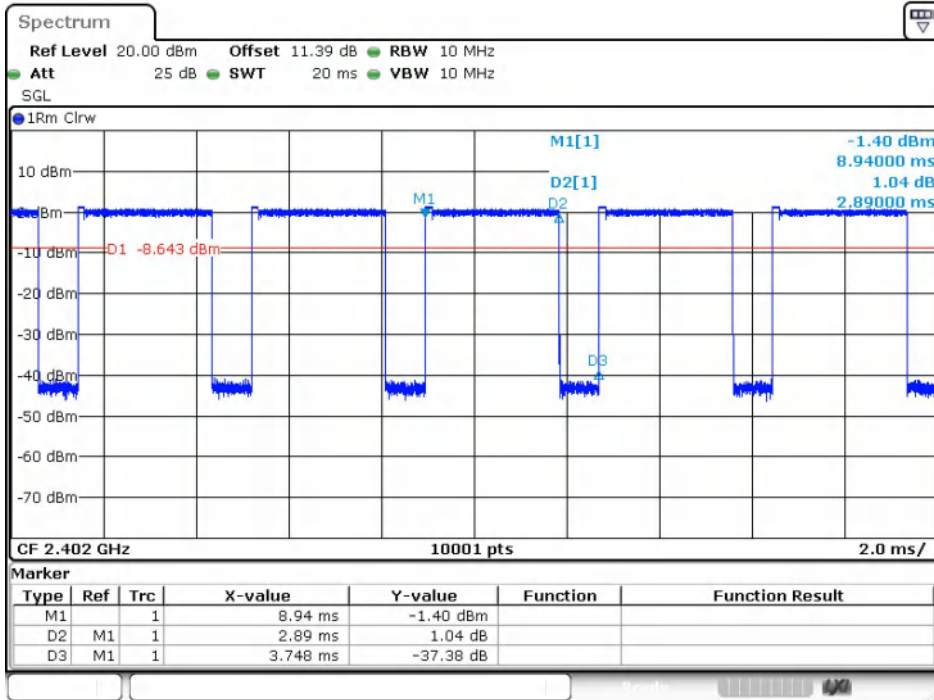
Date: 3.SEP.2024 18:54:09

GFSK(DH5)_Channel 39



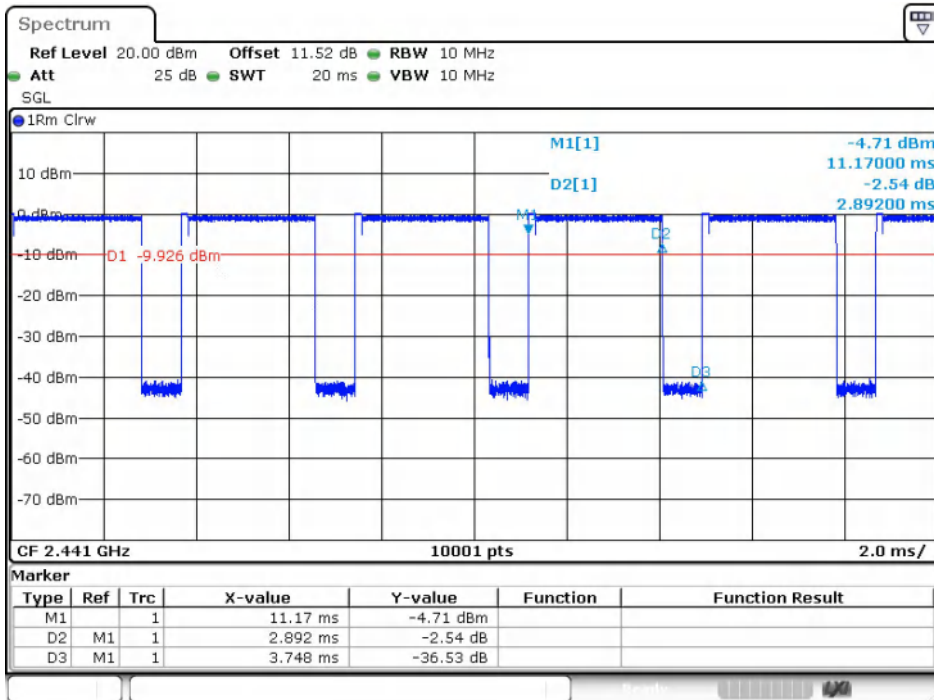
Date: 3.SEP.2024 18:56:26

GFSK(DH5)_Channel 78



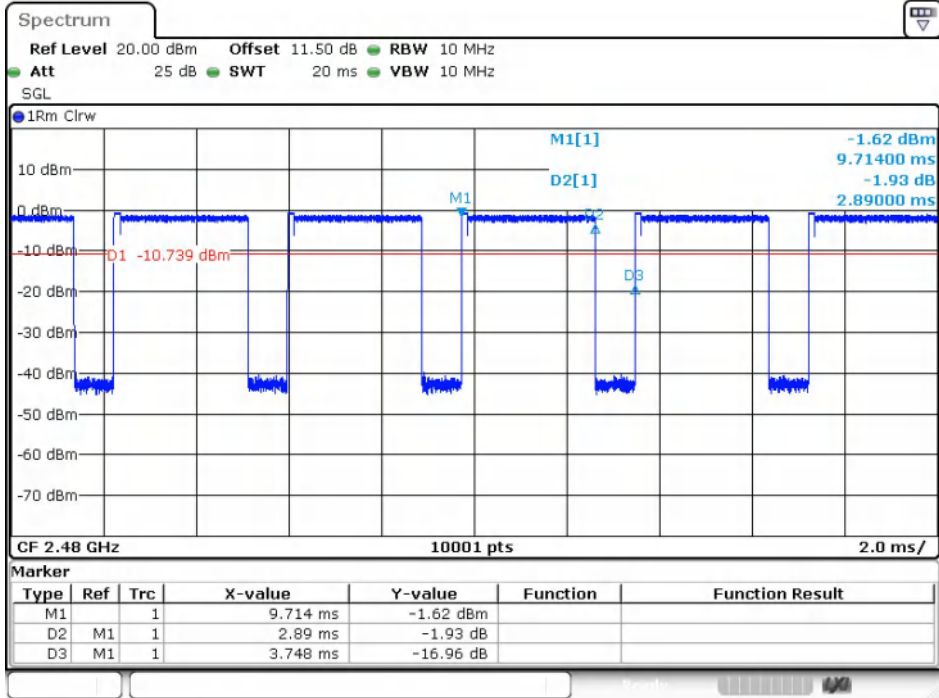
Date: 3.SEP.2024 18:58:50

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



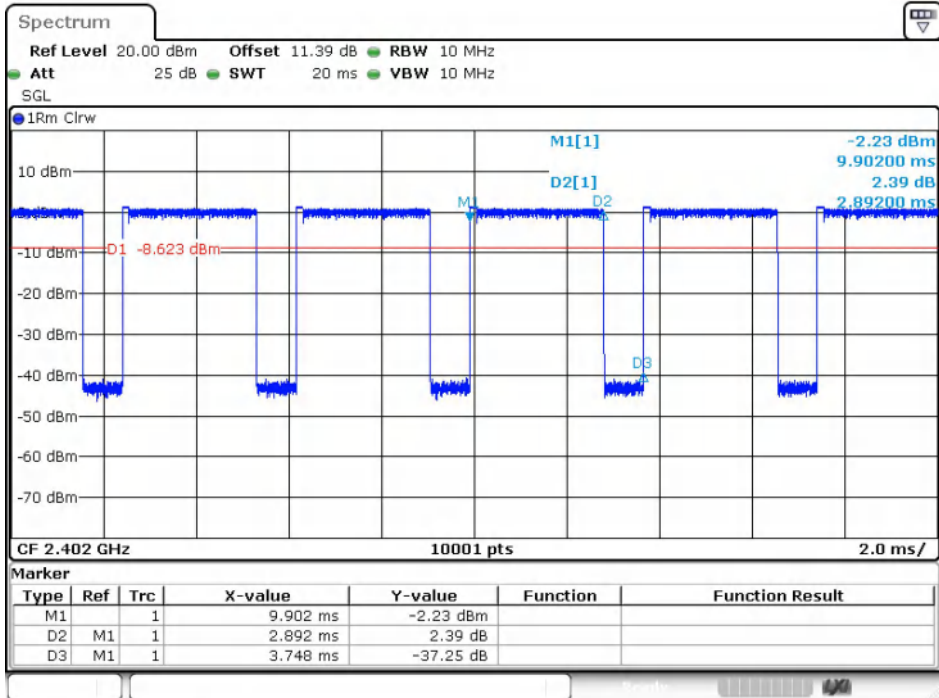
Date: 3.SEP.2024 19:04:25

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



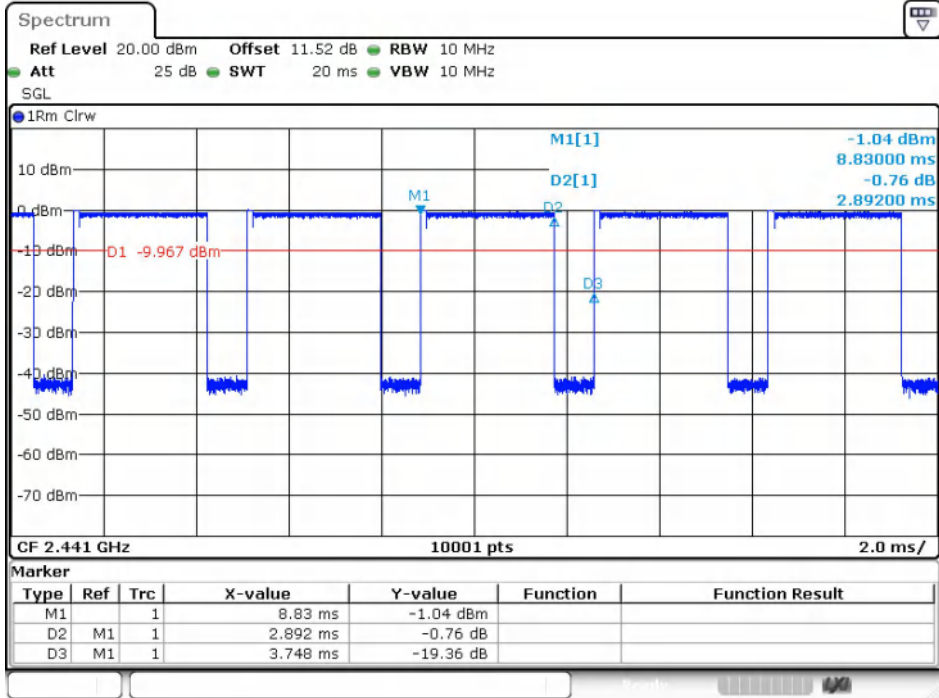
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$\pi/4$ DQPSK(2-DH5)_Channel 78



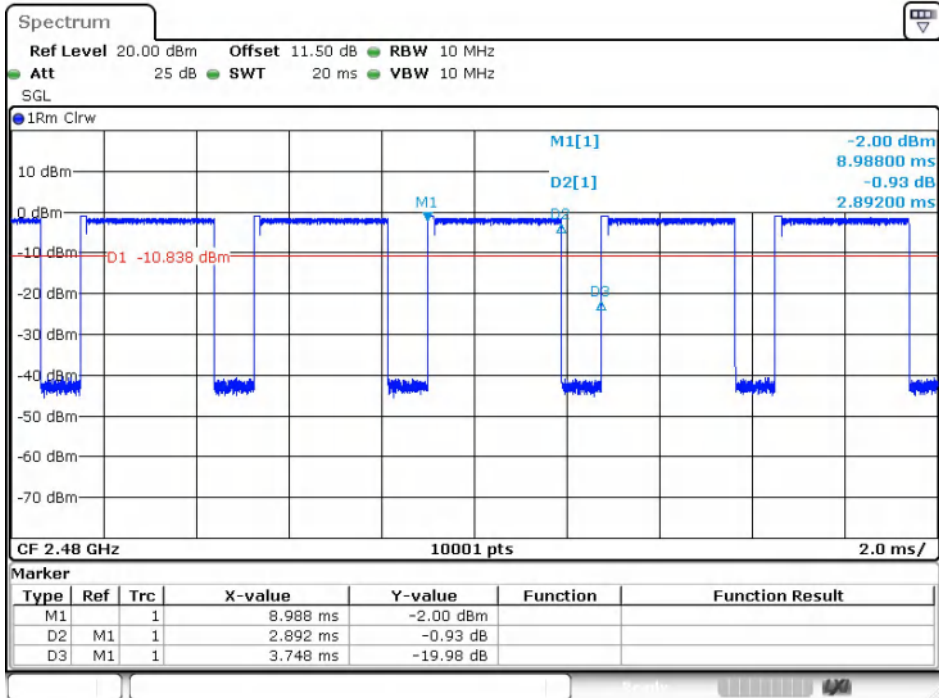
Date: 3.SEP.2024 19:09:29

8DPSK(3-DH5)_Channel 0



Date: 3.SEP.2024 19:15:49

8DPSK(3-DH5)_Channel 39



Date: 3.SEP.2024 19:19:58

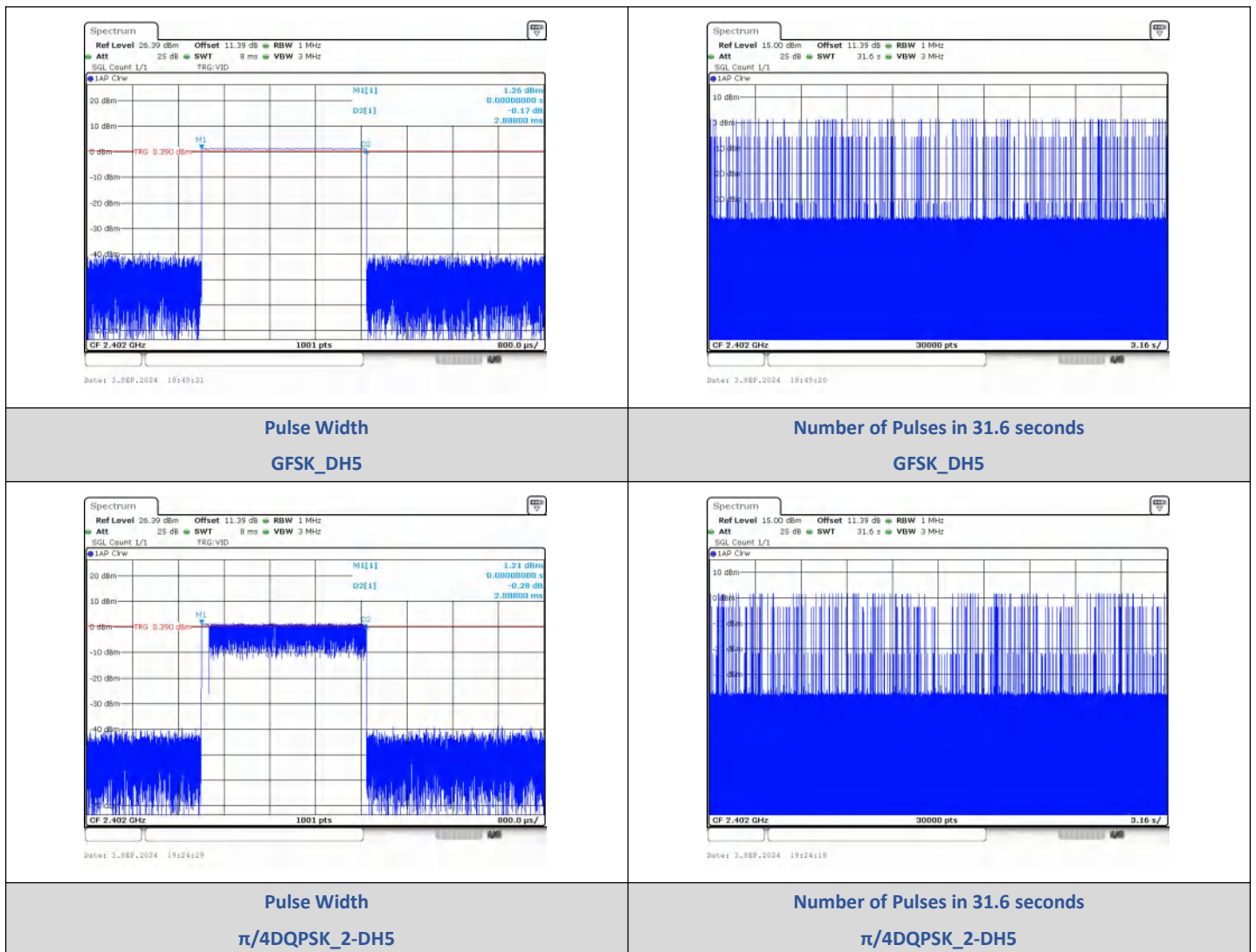
8DPSK(3-DH5)_Channel 78

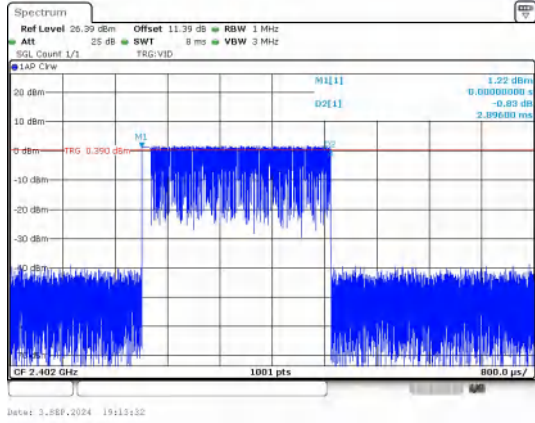
2) Dwell Time

Test Result

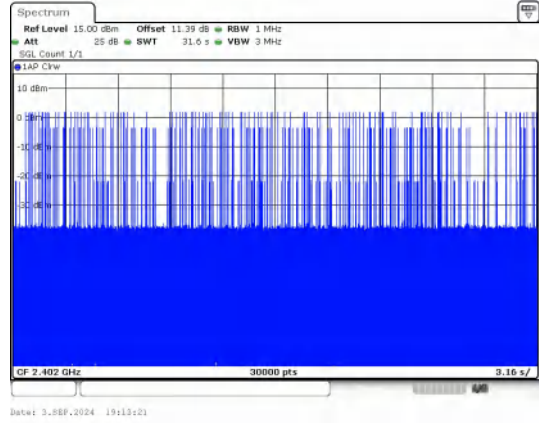
Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CHO (2402MHz)	2.888	102	294.58	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.888	104	300.35		PASS
8DPSK	3-DH5		2.896	114	330.14		PASS

Test Graphs





Pulse Width
8DPSK_3-DH5



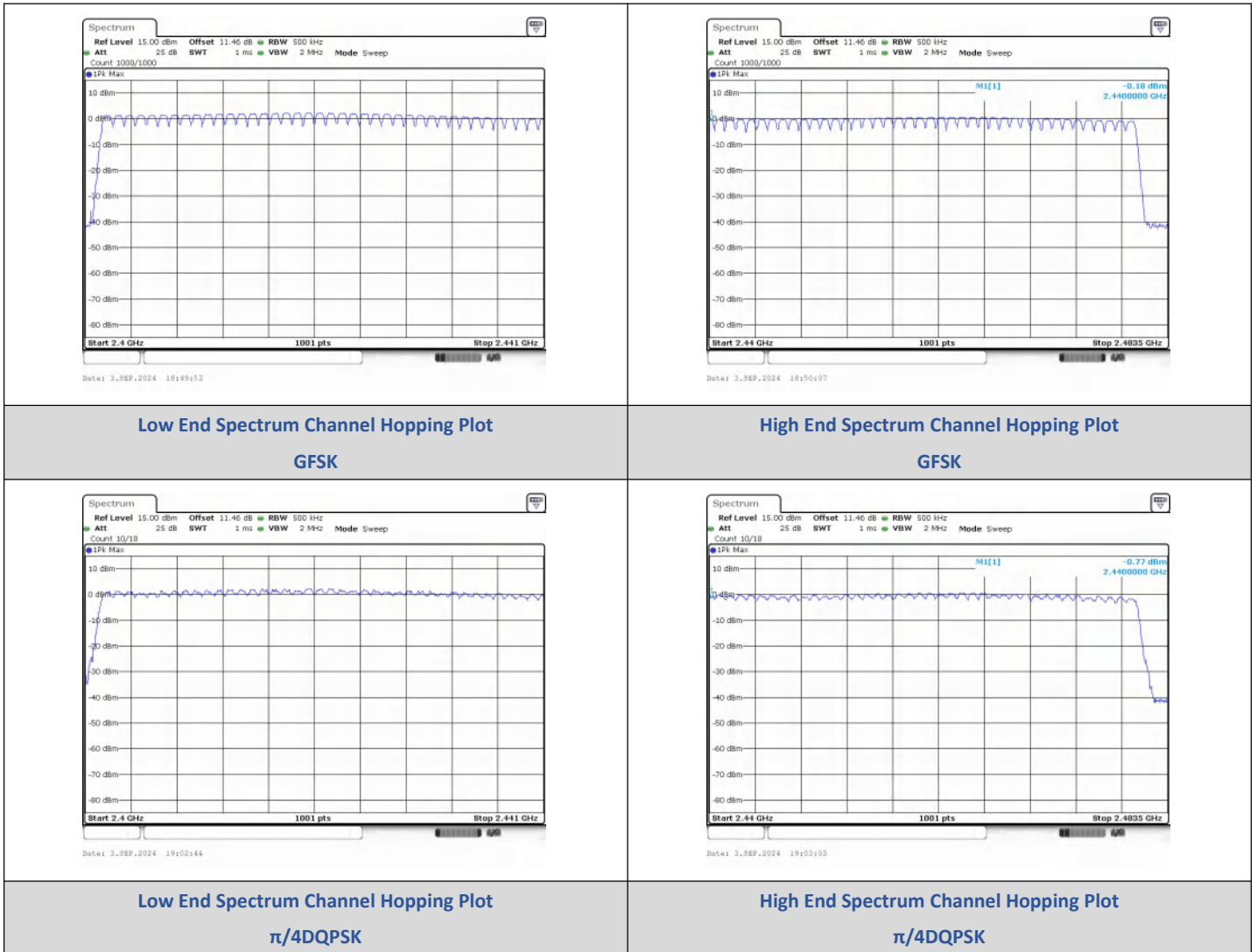
Number of Pulses in 31.6 seconds
8DPSK_3-DH5

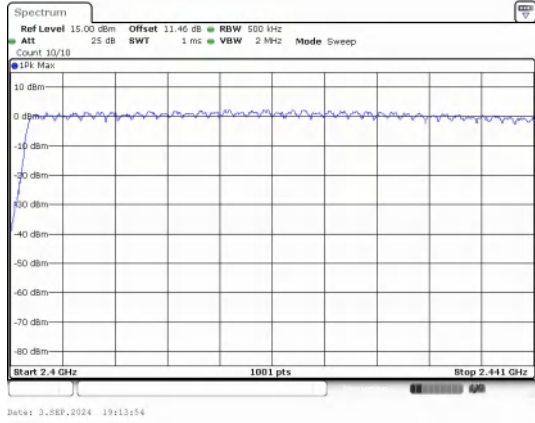
3) Number Of Hopping Channel

Test Result

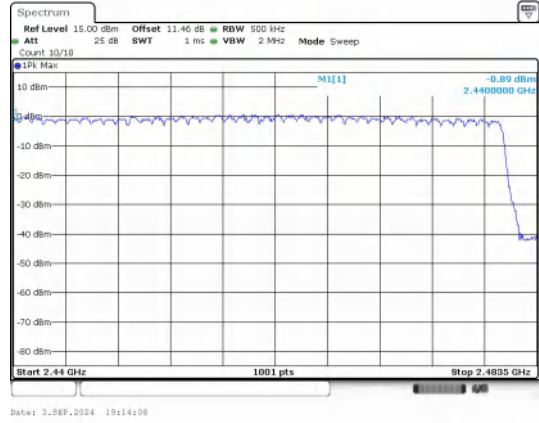
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





Low End Spectrum Channel Hopping Plot
8DPSK



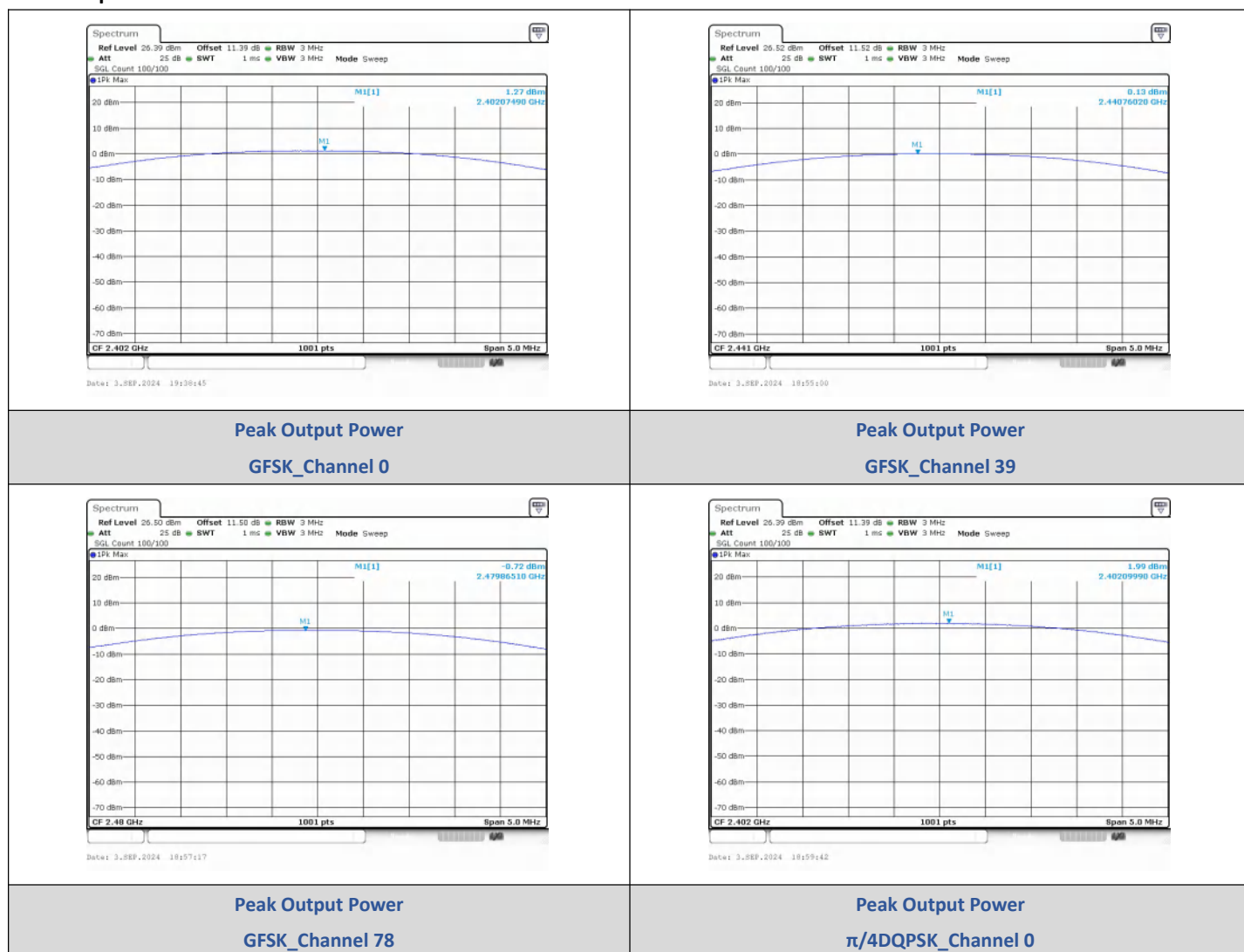
High End Spectrum Channel Hopping Plot
8DPSK

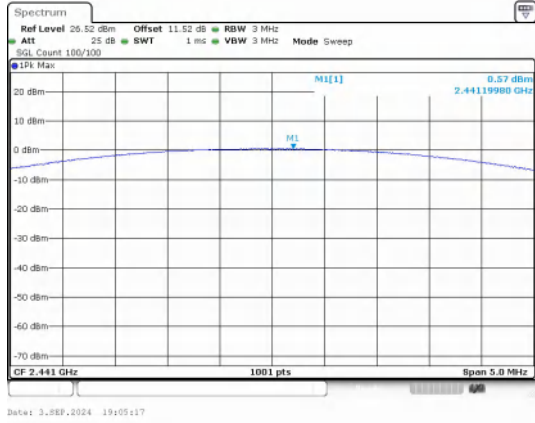
4) Conducted Peak Output Power

Test Result

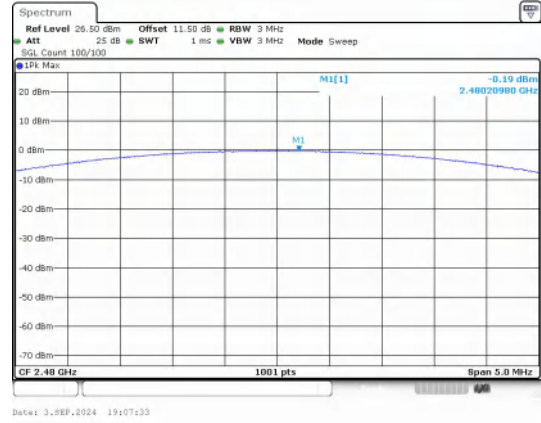
Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	1.27	1.34	≤30	PASS
		39	0.13	1.03		PASS
		78	-0.72	0.85		PASS
π/4DQPSK	2-DH5	0	1.99	1.58	≤20.97	PASS
		39	0.57	1.14		PASS
		78	-0.19	0.96		PASS
8DPSK	3-DH5	0	2.19	1.66	≤20.97	PASS
		39	0.65	1.16		PASS
		78	-0.13	0.97		PASS

Test Graphs

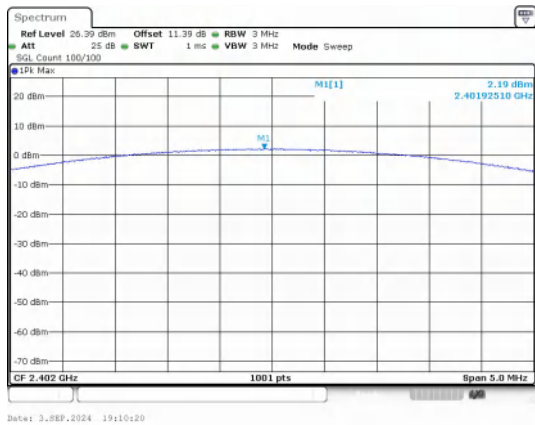




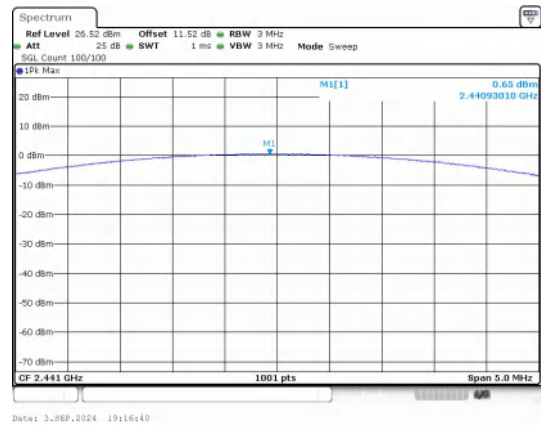
Peak Output Power
 $\pi/4$ DQPSK_Channel 39



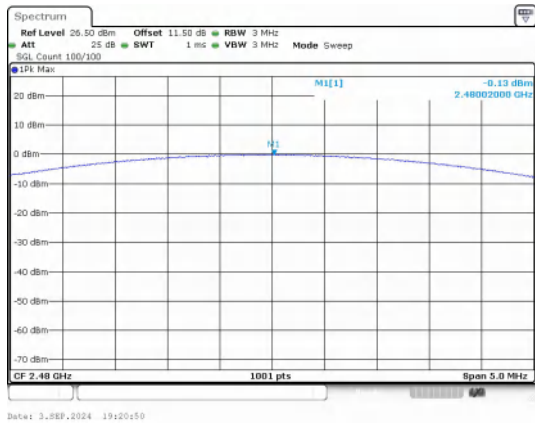
Peak Output Power
 $\pi/4$ DQPSK_Channel 78



Peak Output Power
 8DPSK_Channel 0



Peak Output Power
 8DPSK_Channel 39



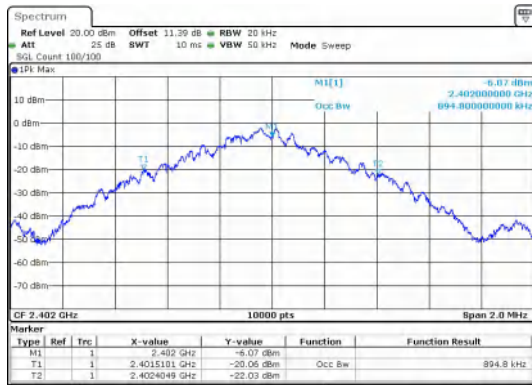
Peak Output Power
 8DPSK_Channel 78

5) 99% Bandwidth

Test Result

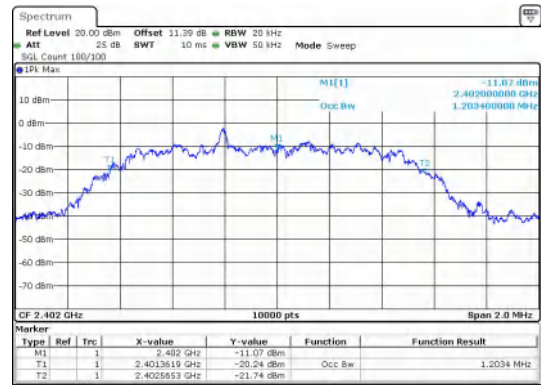
Modulation	Channel	Center Frequency (MHz)	99% BW (MHz)
GFSK	0	2402	0.89480
	39	2441	0.87100
	78	2480	0.87840
$\pi/4$ DQPSK	0	2402	1.2034
	39	2441	1.2374
	78	2480	1.2092
8DPSK	0	2402	1.2182
	39	2441	1.2232
	78	2480	1.2222

Test Graphs



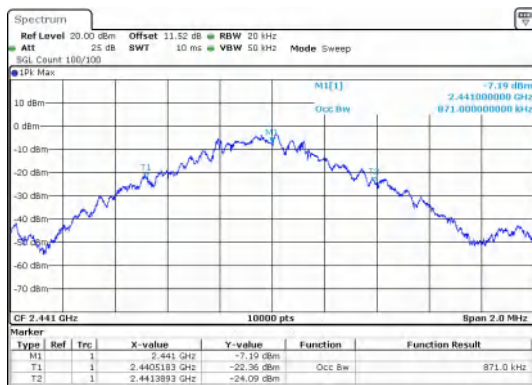
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GFSK_DH5_Channel 0



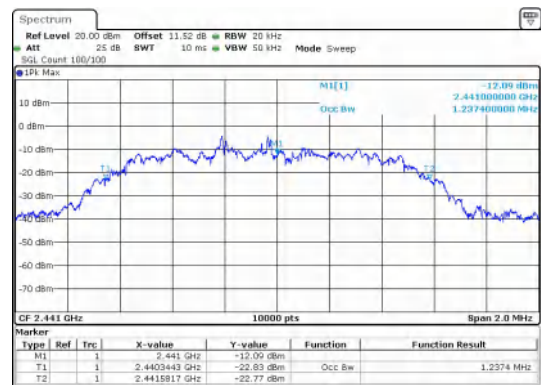
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$\pi/4$ DQPSK_2-DH5_Channel 0



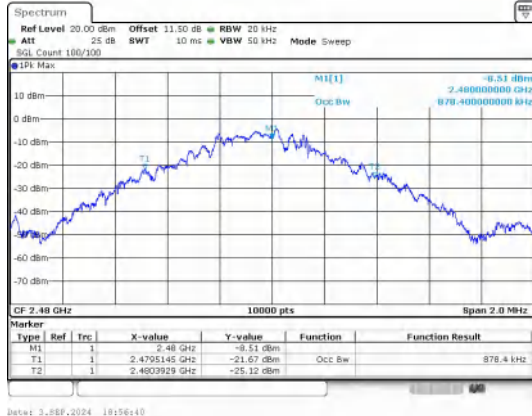
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GFSK_DH5_Channel 39

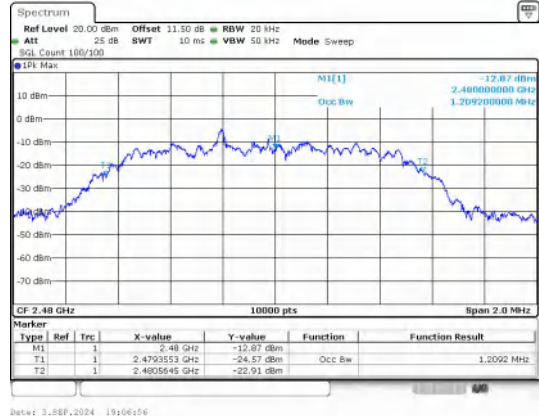


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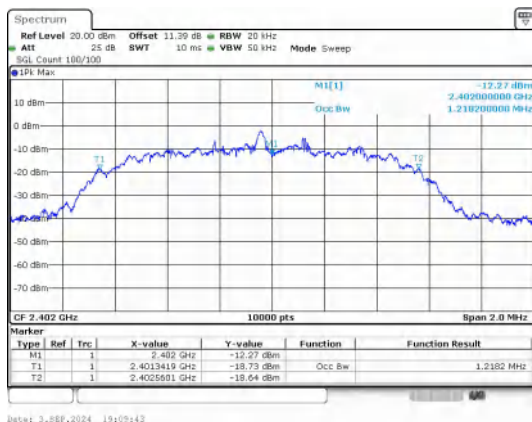
$\pi/4$ DQPSK_2-DH5_Channel 39



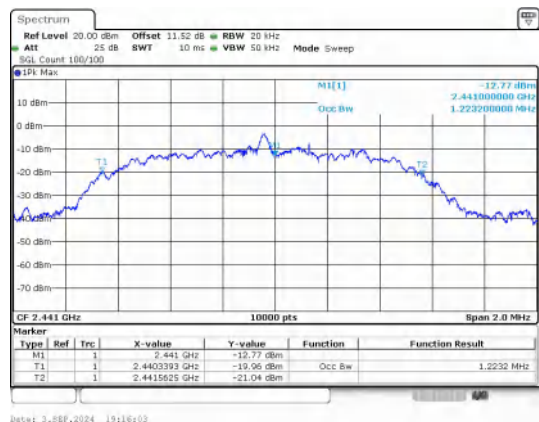
GFSK_DH5_Channel 78



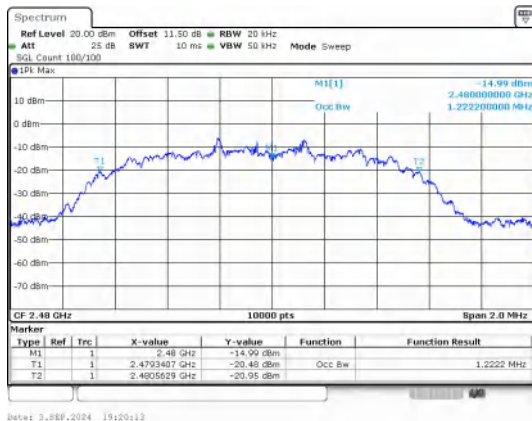
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



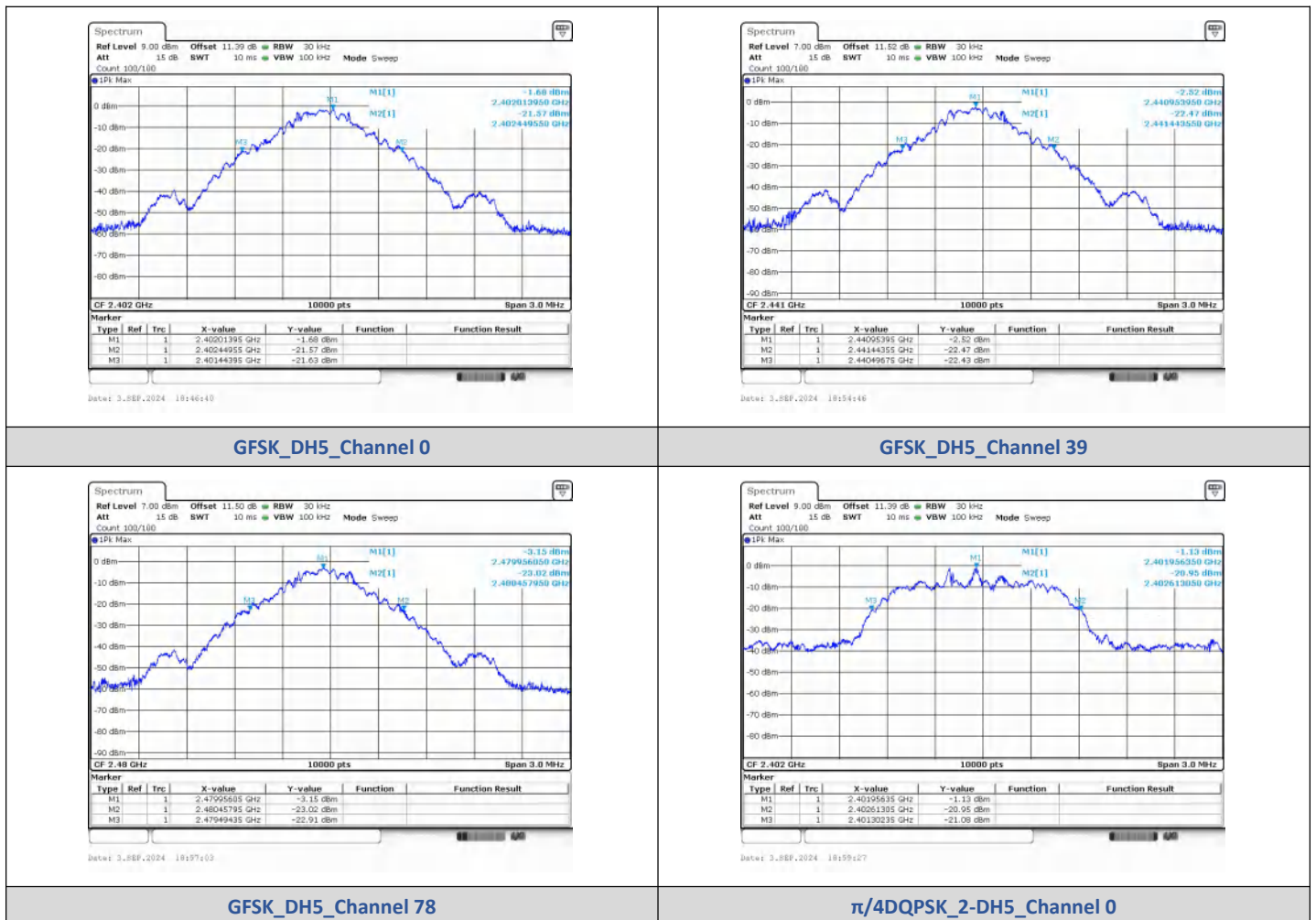
8DPSK_3-DH5_Channel 78

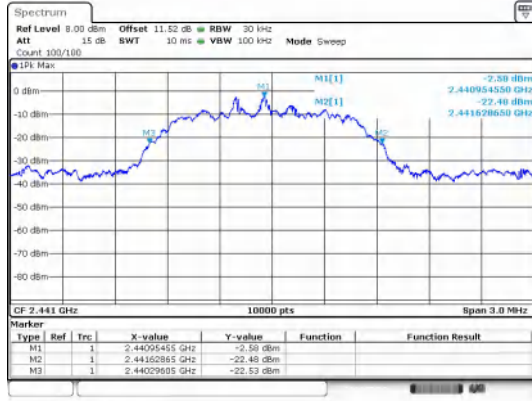
6) 20dB Bandwidth

Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.010
	39	2441 MHz	0.9400
	78	2480 MHz	0.9700
$\pi/4$ DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.330
	78	2480 MHz	1.310
8DPSK	0	2402 MHz	1.320
	39	2441 MHz	1.300
	78	2480 MHz	1.300

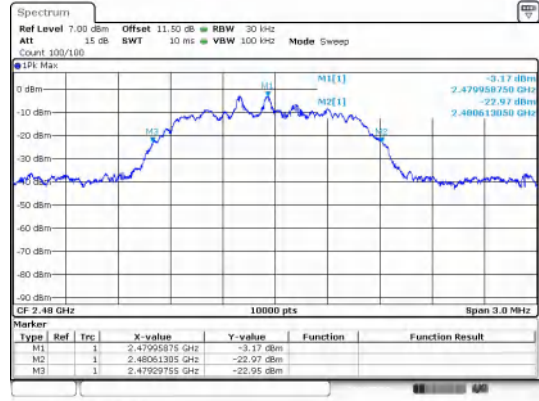
Test Graphs





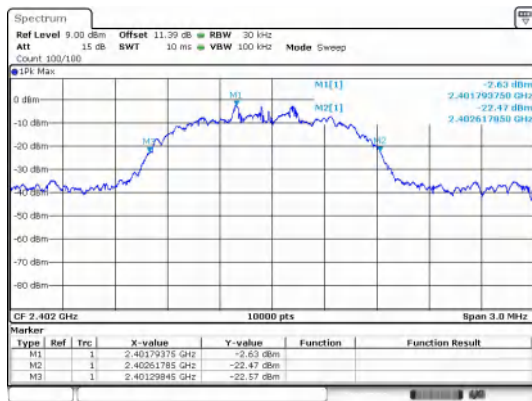
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$\pi/4$ DQPSK_2-DH5_Channel 39



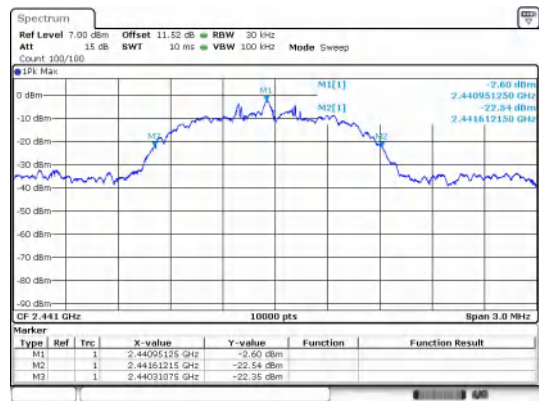
Date: 3. SEP. 2024 19:07:19

$\pi/4$ DQPSK_2-DH5_Channel 78



Date: 3. SEP. 2024 19:10:06

8DPSK_3-DH5_Channel 30



Date: 3. SEP. 2024 19:16:26

8DPSK_3-DH5_Channel 39



Date: 3. SEP. 2024 19:20:35

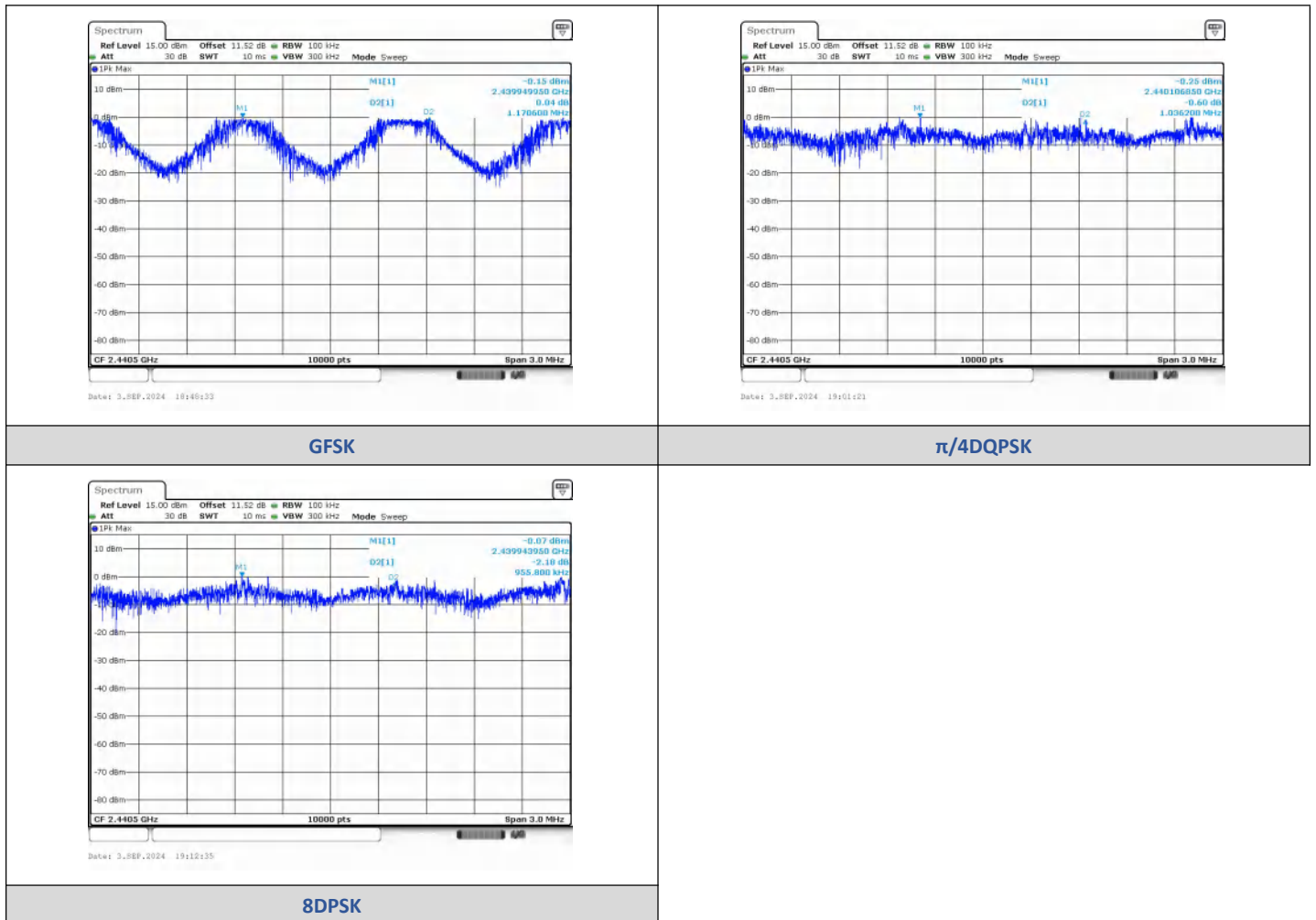
8DPSK_3-DH5_Channel 78

7) Carrier Frequencies Separation

Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.95	2441.1206	1.1706	1.010	PASS
$\pi/4$ DQPSK	2-DH5	2440.1069	2441.1431	1.0362	0.873	PASS
8DPSK	3-DH5	2439.9439	2440.8998	0.9558	0.88	PASS

Test Graphs



8) Conducted Out Of Band Emission

Test Result

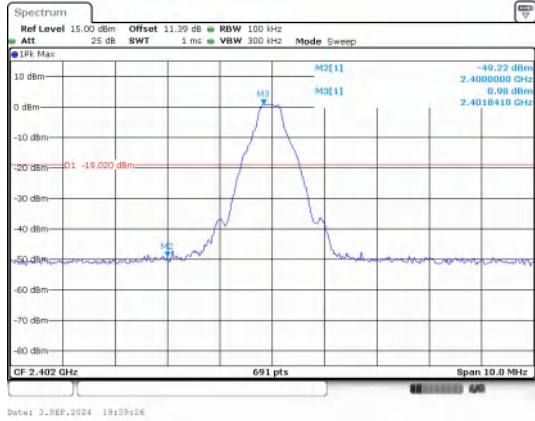
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-49.217	-19.02	-30.197	PASS
			7205.96	-38.008	-19.02	-18.988	PASS
		39	7322.49	-36.709	-20.1	-16.609	PASS
		78	2483.50	-50.258	-20.91	-29.348	PASS
			7439.02	-44.602	-20.91	-23.692	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-48.313	-18.78	-29.533	PASS
			7205.96	-42.342	-18.78	-23.562	PASS
		39	7322.49	-35.475	-19.93	-15.545	PASS
		78	2483.50	-51.267	-20.84	-30.427	PASS
			9920.20	-45.955	-20.84	-25.115	PASS
8DPSK	3-DH5	0	2400.00	-48.678	-18.8	-29.878	PASS
			7205.96	-41.022	-18.8	-22.222	PASS
		39	7323.32	-43.122	-20.32	-22.802	PASS
		78	2483.50	-48.974	-20.98	-27.994	PASS
			9920.20	-46.378	-20.98	-25.398	PASS

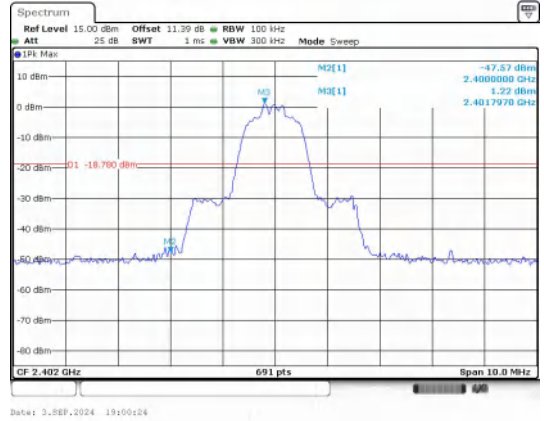
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2396.40	-48.595	-18.95	-29.645	PASS
			2400.00	-51.440	-18.95	-32.490	PASS
			2483.50	-51.302	-21.73	-29.572	PASS
$\pi/4$ DQPSK	2-DH5		2396.50	-48.830	-21.73	-27.100	PASS
			2400.00	-50.482	-21.73	-28.752	PASS
			2483.50	-50.163	-21.57	-28.593	PASS
8DPSK	3-DH5		2398.16	-48.713	-20.16	-28.553	PASS
			2400.00	-50.938	-20.16	-30.778	PASS
			2483.50	-50.200	-22.95	-27.250	PASS

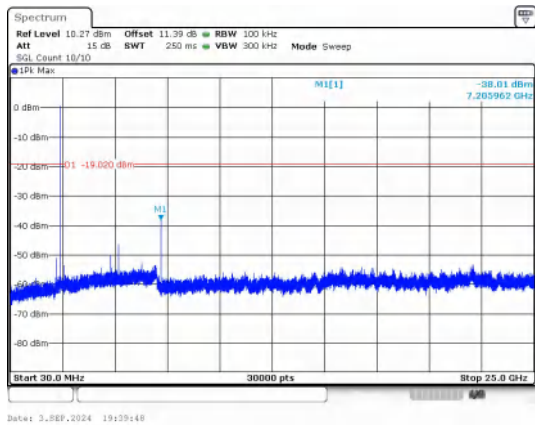
Test Graphs



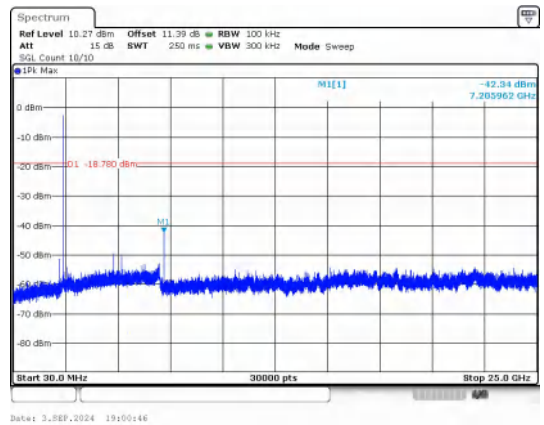
Out Of Band Emission
GFSK_DH5_Channel 0



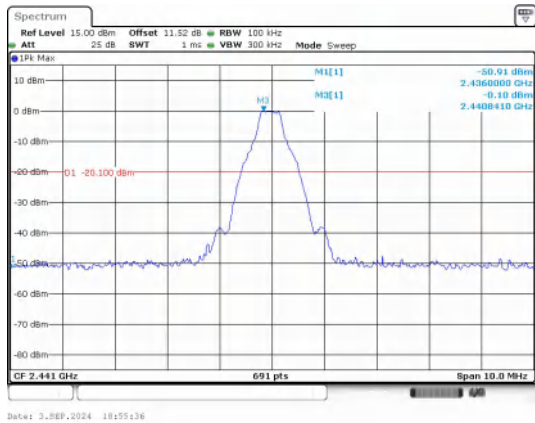
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0



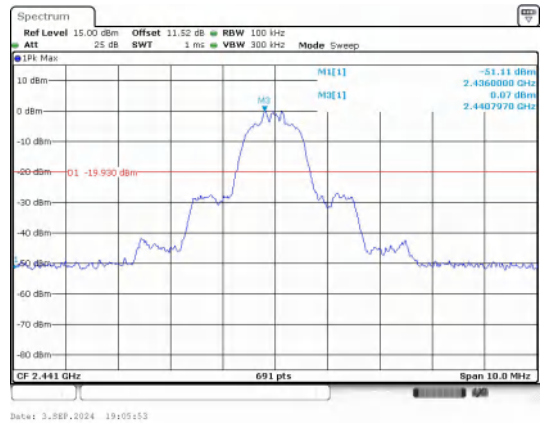
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



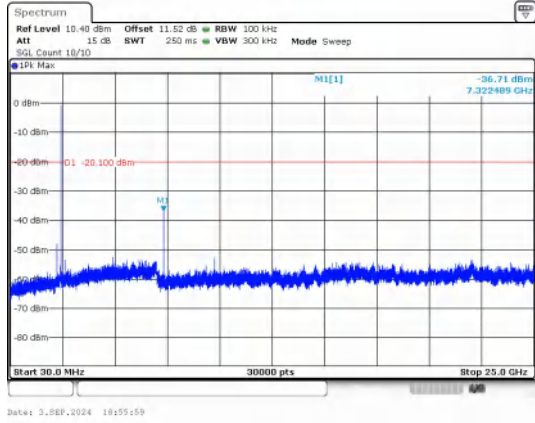
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 0



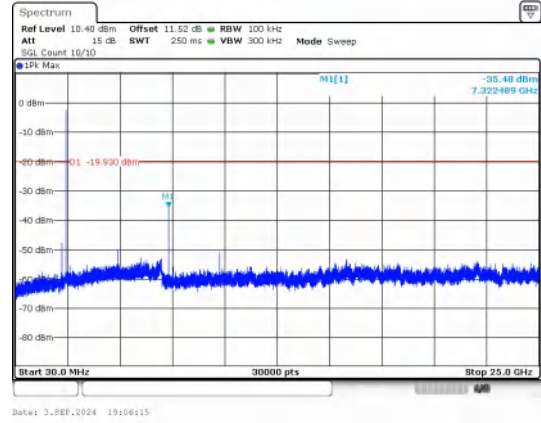
Out Of Band Emission
GFSK_DH5_Channel 39



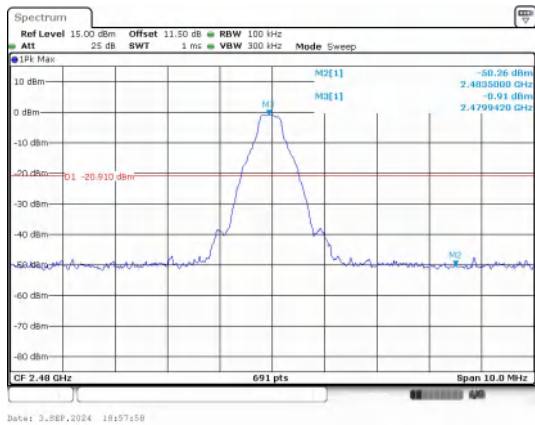
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 39



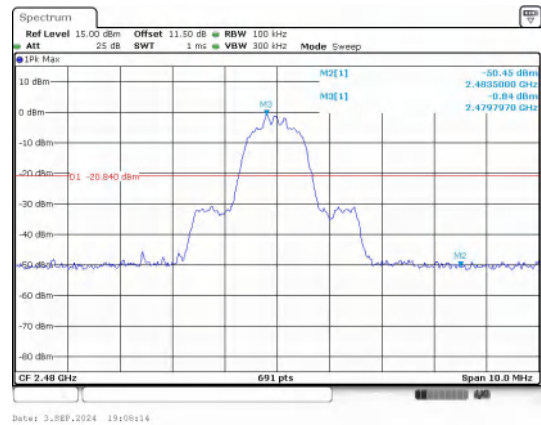
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



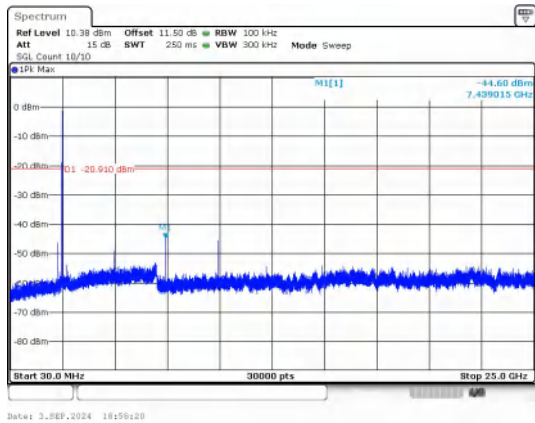
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 39



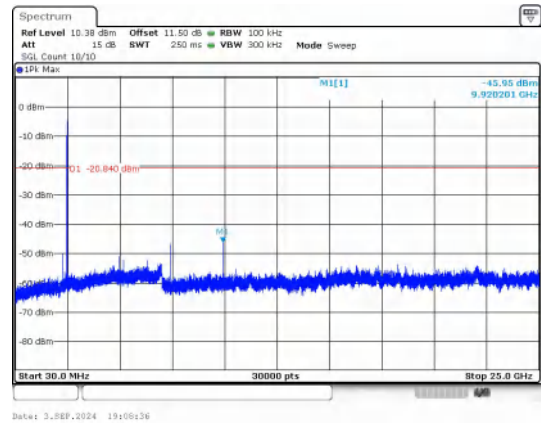
Out Of Band Emission
GFSK_DH5_Channel 78



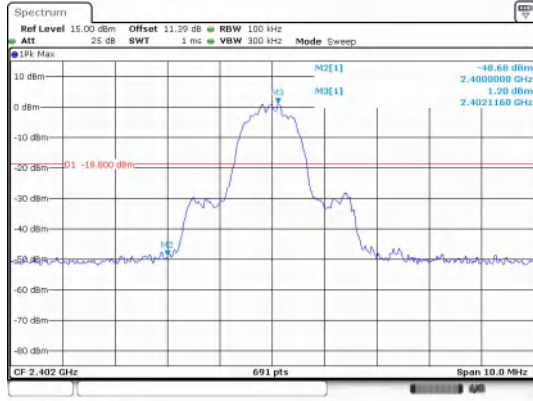
Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78



30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78

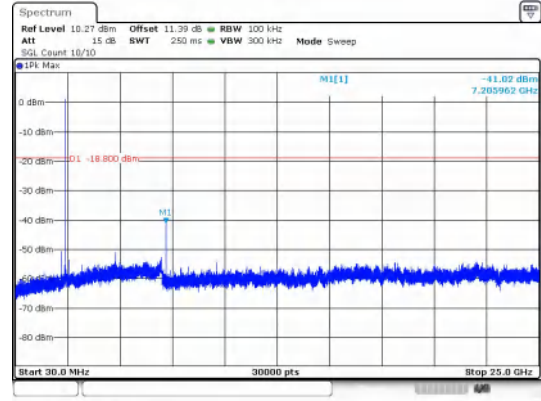


30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 78



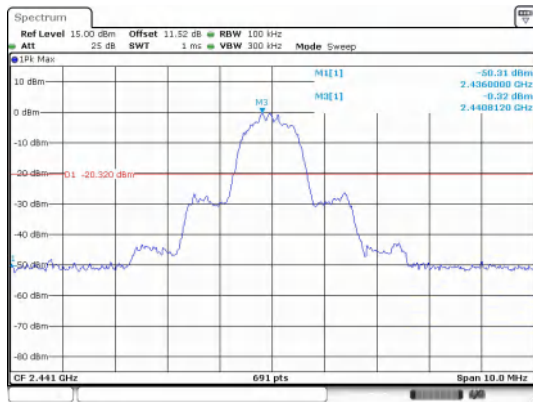
Date: 3.SEP.2024 19:11:01

Out Of Band Emission
8DPSK_3-DH5_Channel 0



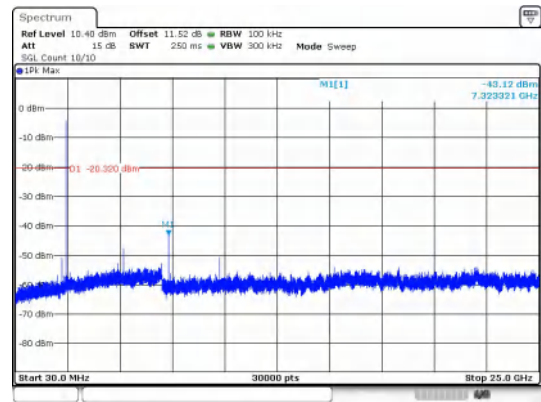
Date: 3.SEP.2024 19:11:04

30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0



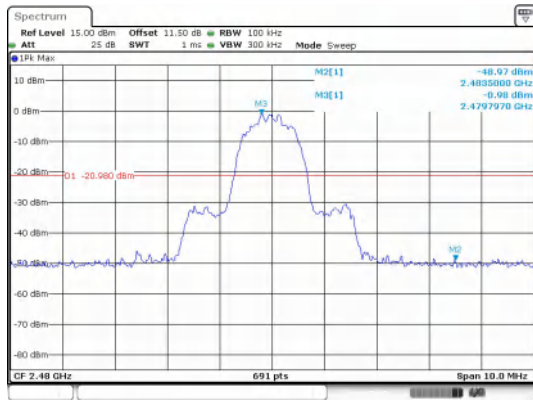
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Out Of Band Emission
8DPSK_3-DH5_Channel 39



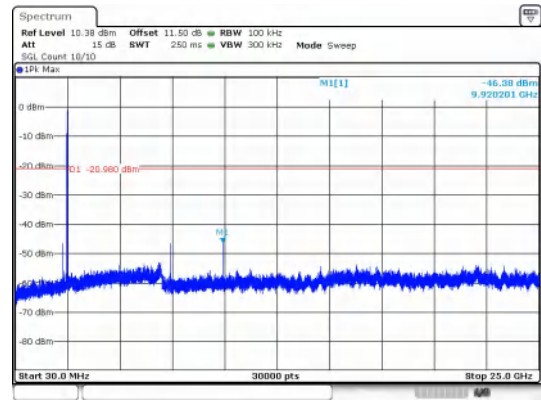
Date: 3.SEP.2024 19:17:39

30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



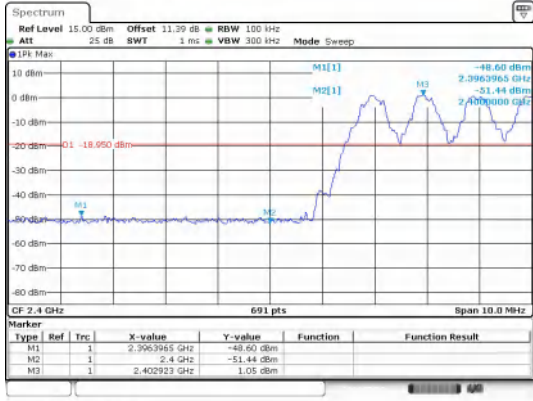
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Out Of Band Emission
8DPSK_3-DH5_Channel 78



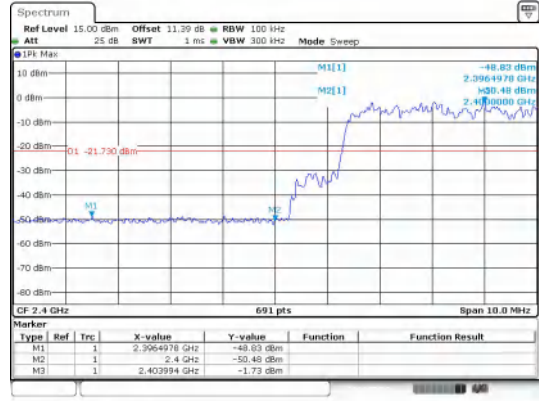
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30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78



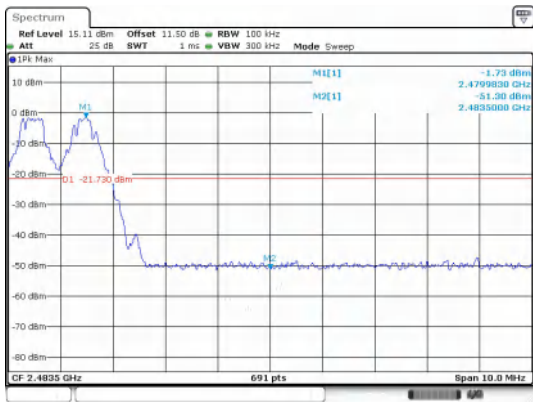
Date: 3. SEP. 2024 18:50:42

Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



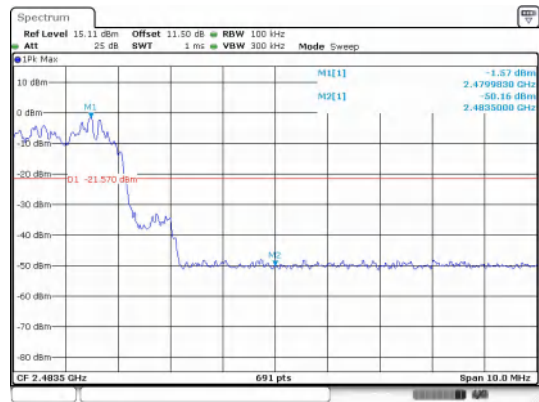
Date: 3. SEP. 2024 19:03:35

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



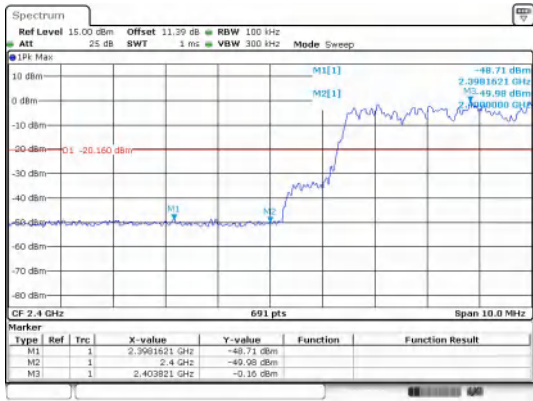
Date: 3. SEP. 2024 18:51:00

Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



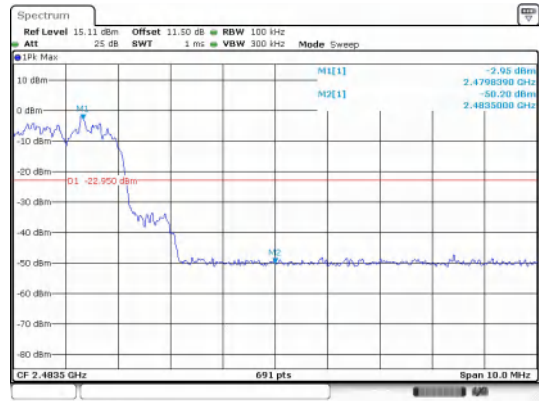
Date: 3. SEP. 2024 19:03:57

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



Date: 3. SEP. 2024 19:14:56

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



Date: 3. SEP. 2024 19:15:18

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