

Appendix A

Report No.:	CISRR24041609001
FCC ID:	2BFZC-OWS2
Product Name:	OPEN EAR HOOK Pro
Model No.:	ows2
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

Conducted Peak Output Power

Test Result

Left

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	2.697	1.861	30	PASS
		39	2.464	1.760		PASS
		78	2.379	1.730		PASS
$\pi/4$ DQPSK	2-DH5	0	2.507	1.781	20.97	PASS
		39	2.067	1.609		PASS
		78	2.049	1.603		PASS
8DPSK	3-DH5	0	2.026	1.594		PASS
		39	2.284	1.692		PASS
		78	2.327	1.709		PASS

Right

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	2.655	1.843	30	PASS
		39	2.368	1.730		PASS
		78	2.341	1.710		PASS
$\pi/4$ DQPSK	2-DH5	0	2.532	1.791	20.97	PASS
		39	2.010	1.589		PASS
		78	2.022	1.593		PASS
8DPSK	3-DH5	0	2.022	1.593		PASS
		39	2.148	1.640		PASS
		78	2.153	1.642		PASS

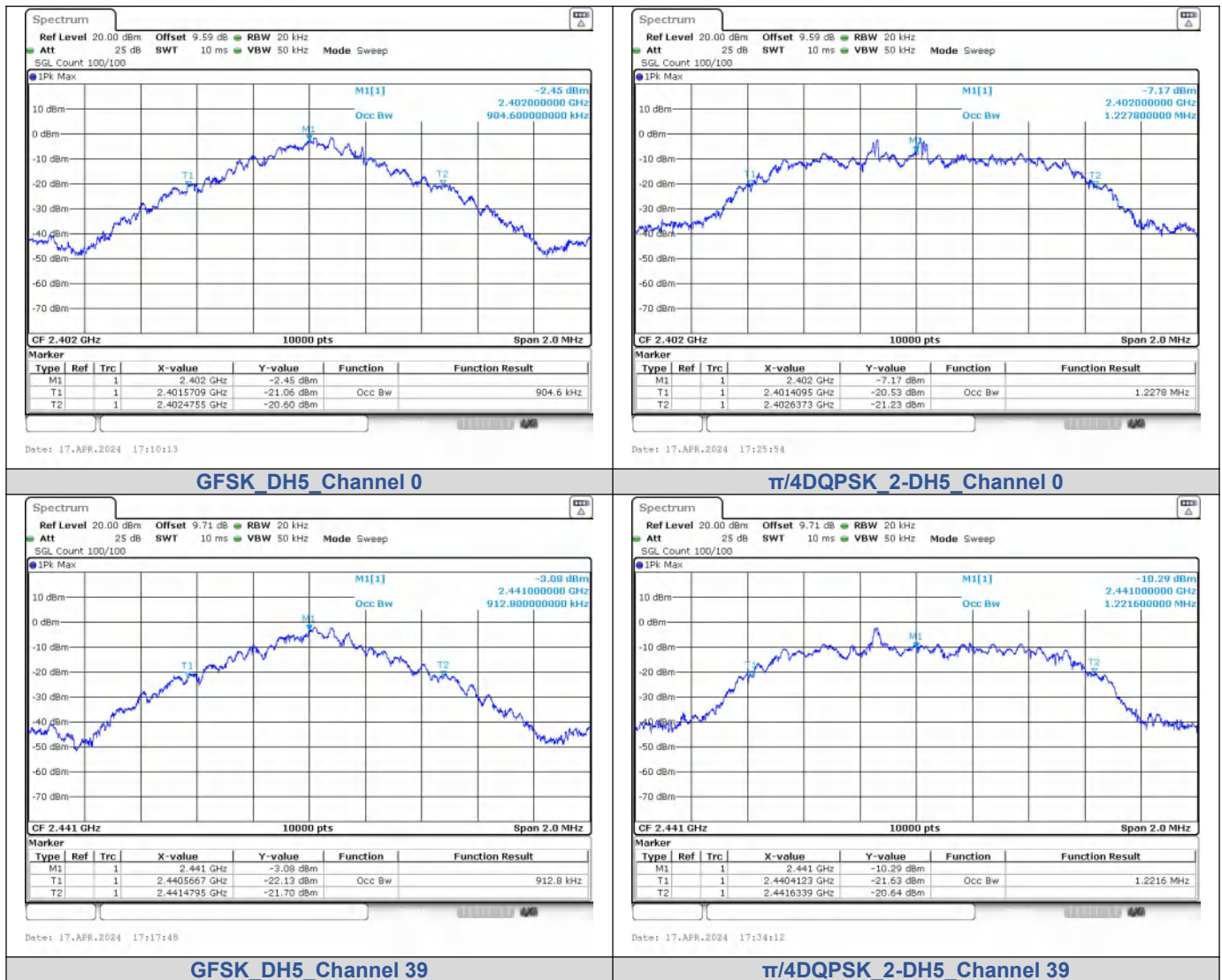
99% Bandwidth

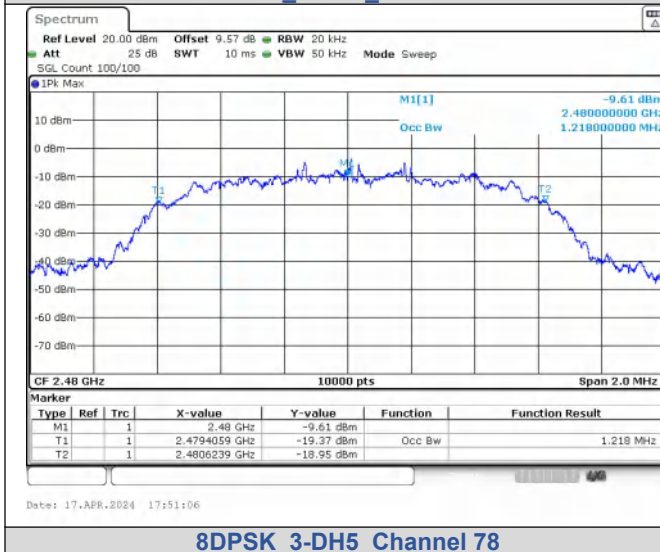
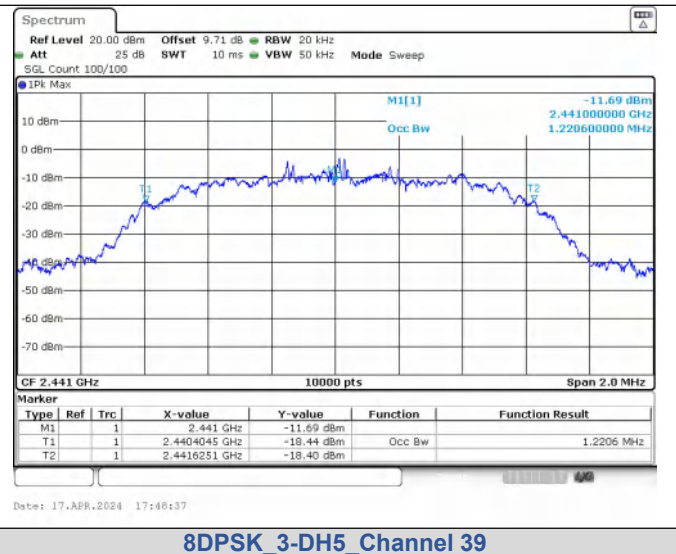
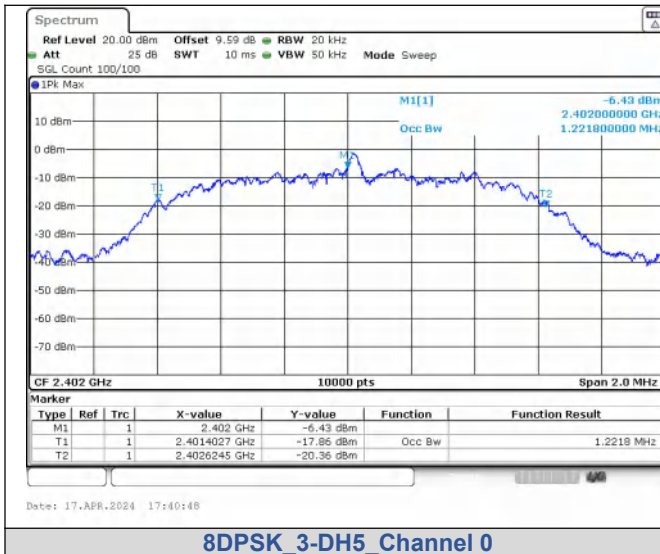
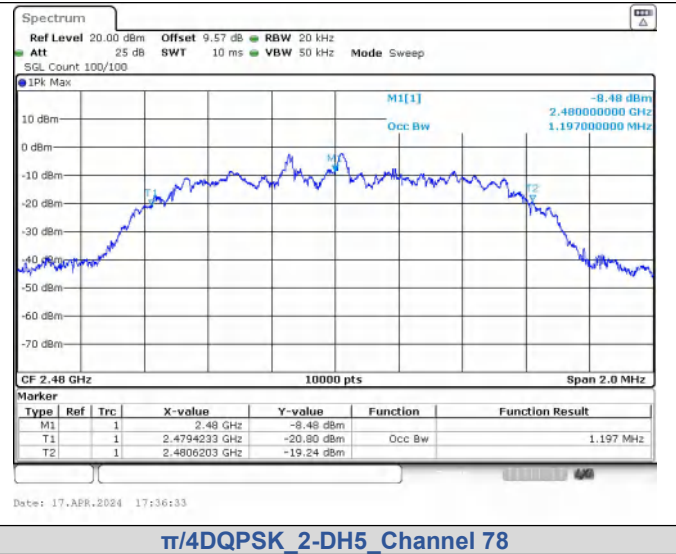
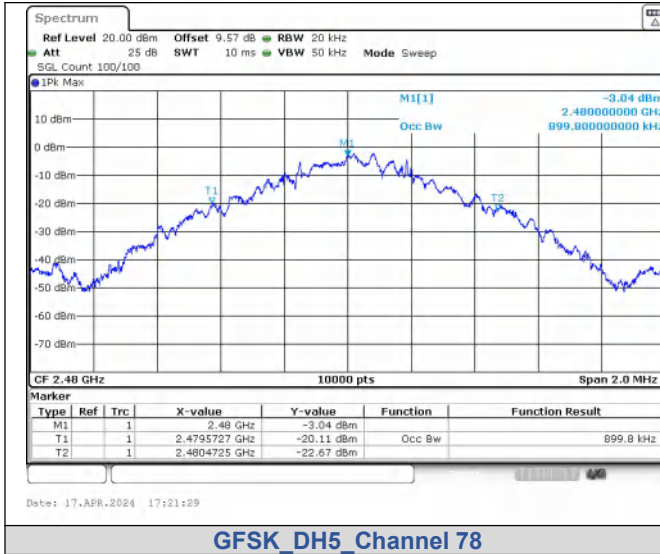
Test Result

Left

Modulation	Channel	99% BW (MHz)
GFSK	0	0.90460
	39	0.91280
	78	0.89980
$\pi/4$ DQPSK	0	1.2280
	39	1.2220
	78	1.1970
8DPSK	0	1.2220
	39	1.2210
	78	1.2180

Test Graphs



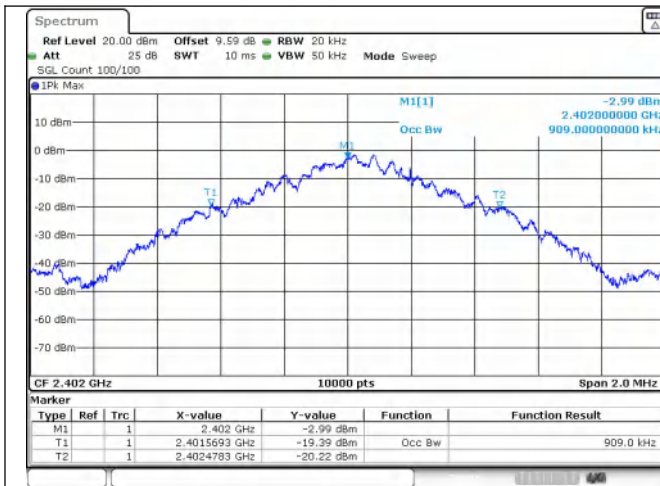


Right

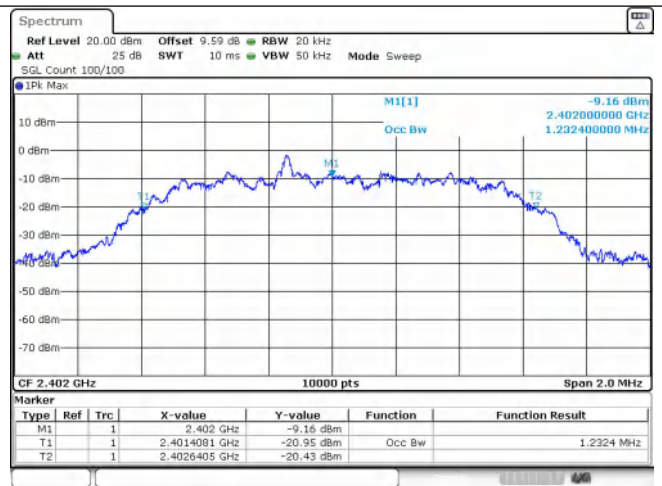
Test Result

Modulation	Channel	99% BW (MHz)
GFSK	0	0.90900
	39	0.90120
	78	0.89640
$\pi/4$ DQPSK	0	1.2320
	39	1.1940
	78	1.2010
8DPSK	0	1.2210
	39	1.2220
	78	1.2140

Test Graphs

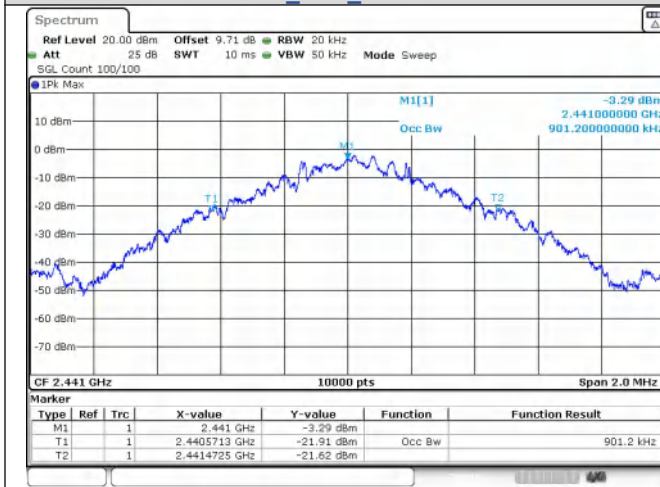


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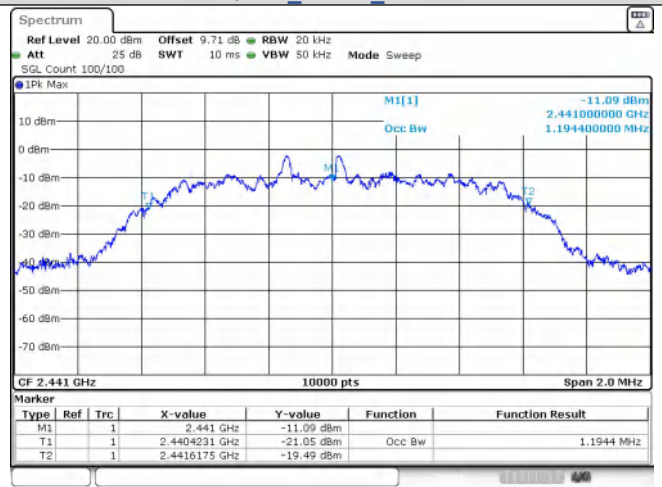
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GFSK_DH5_Channel 0



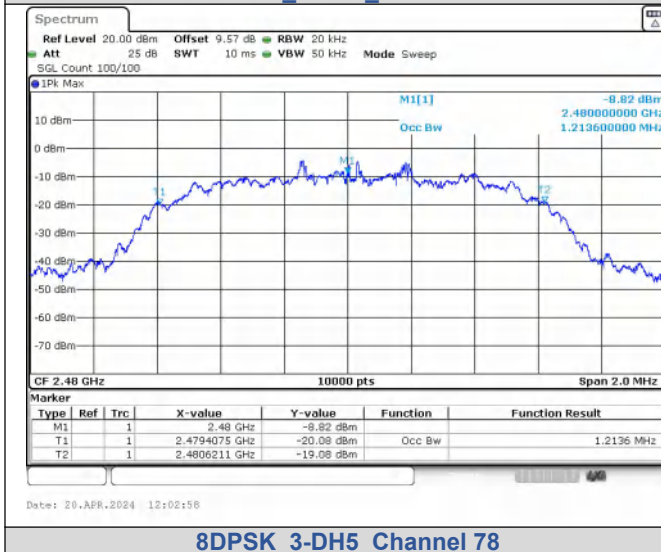
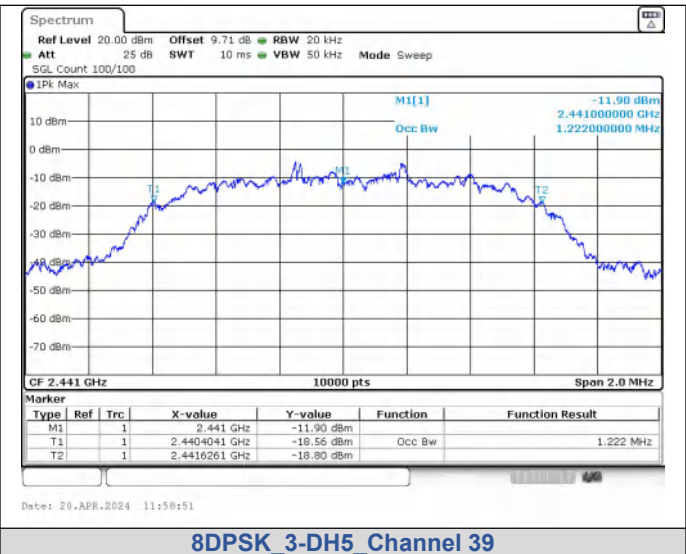
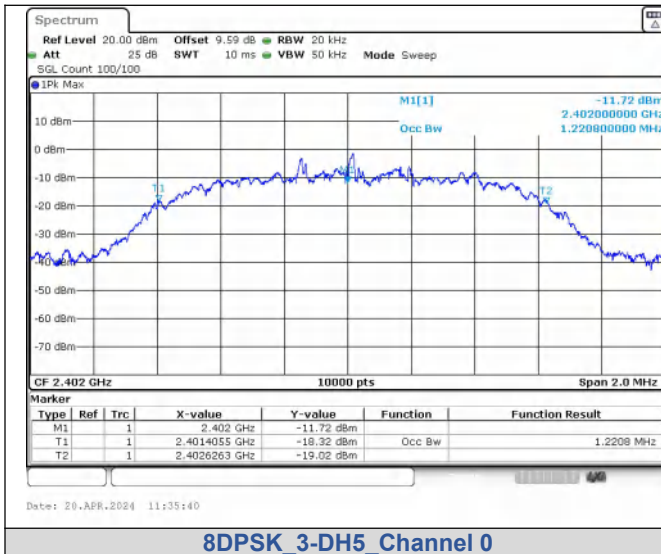
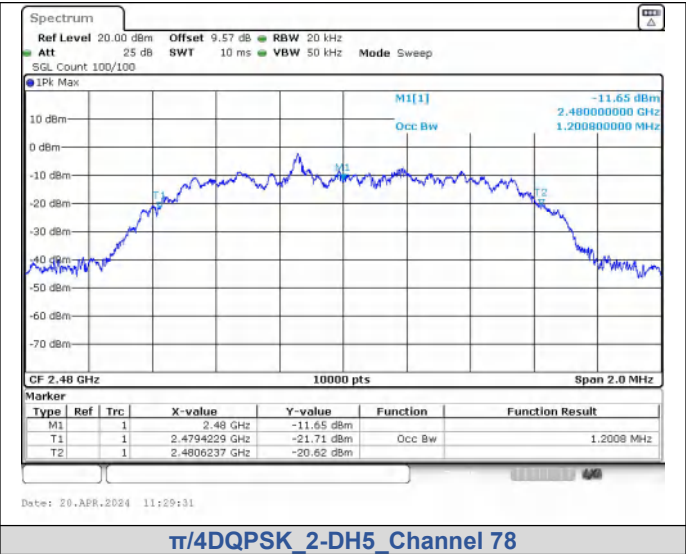
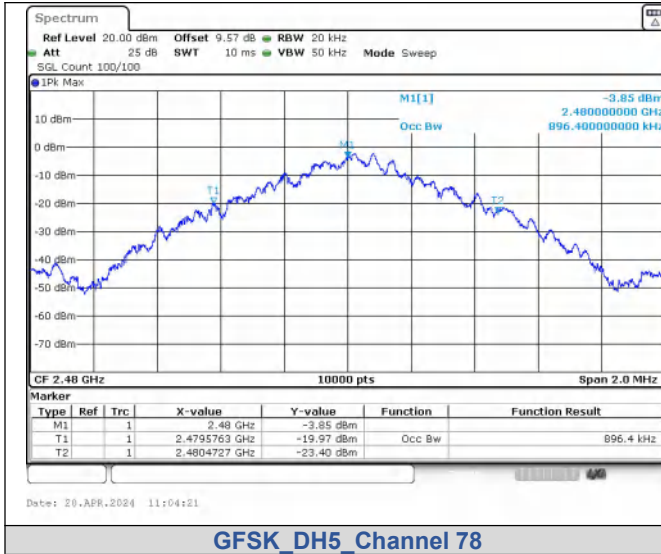
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GFSK_DH5_Channel 39



Date: 20.APR.2024 11:27:23

$\pi/4$ DQPSK_2-DH5_Channel 39



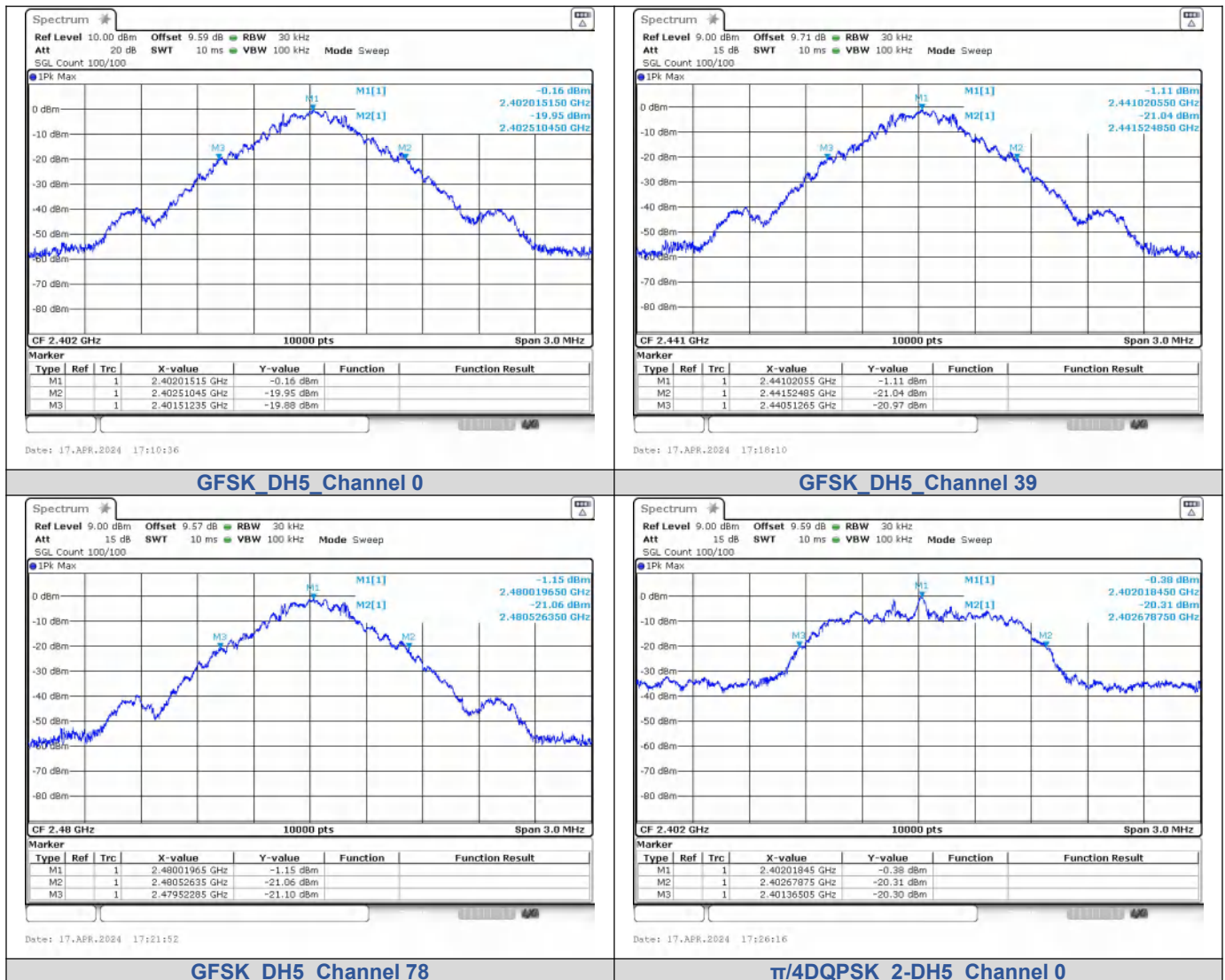
20dB Bandwidth

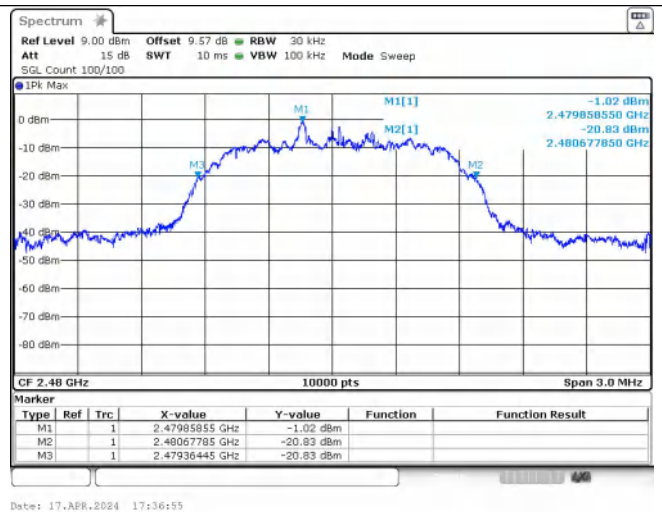
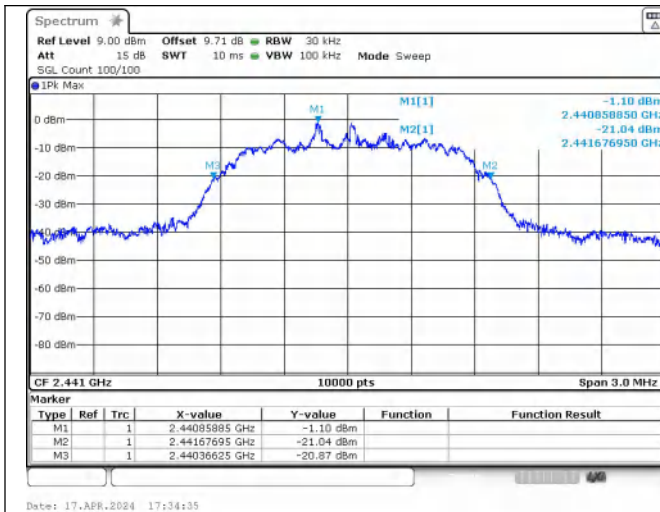
Test Result

Left

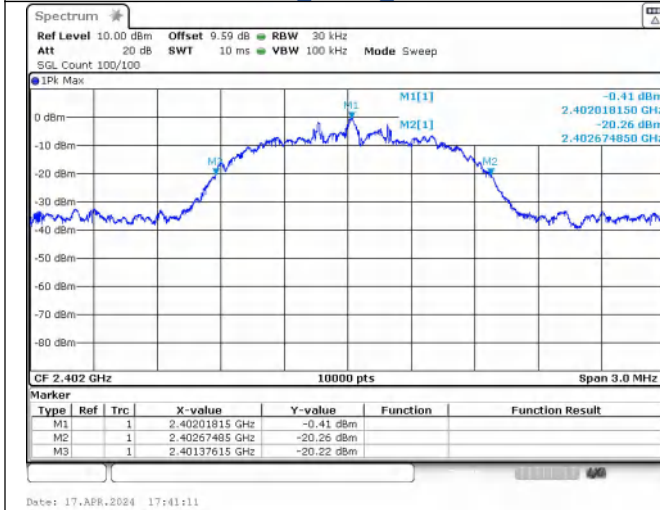
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.000
	39	2441 MHz	1.010
	78	2480 MHz	1.010
$\pi/4$ DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.310
	78	2480 MHz	1.320
8DPSK	0	2402 MHz	1.290
	39	2441 MHz	1.290
	78	2480 MHz	1.300

Test Graphs

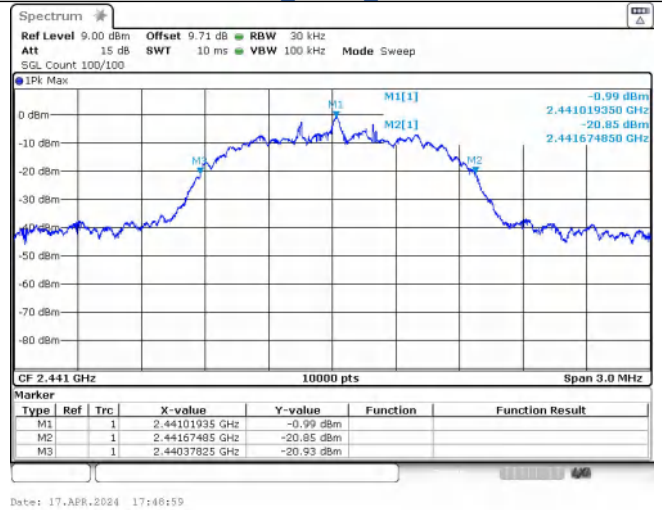




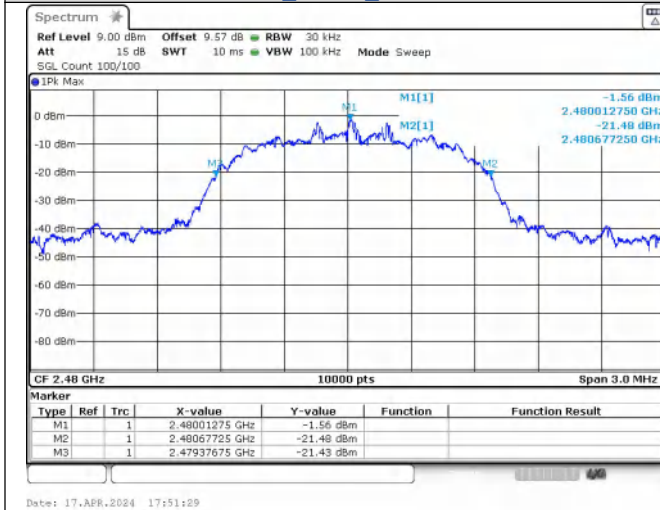
$\pi/4$ DQPSK_2-DH5_Channel 39



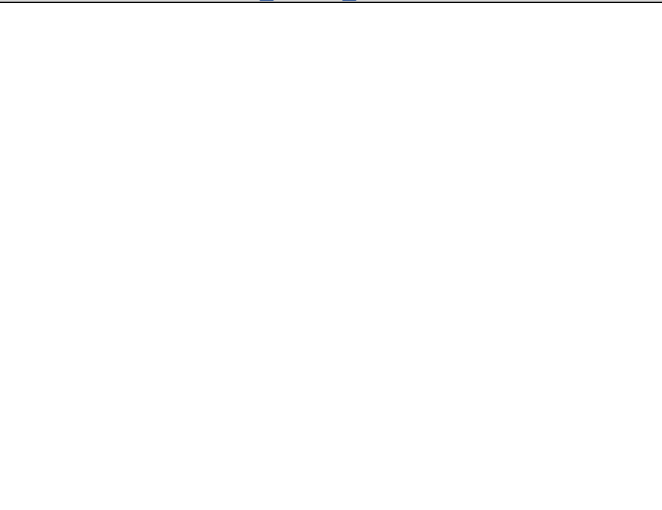
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



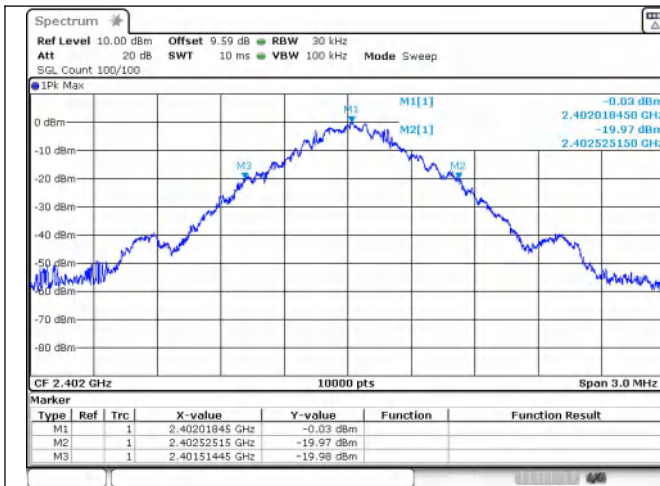
8DPSK_3-DH5_Channel 78

Right

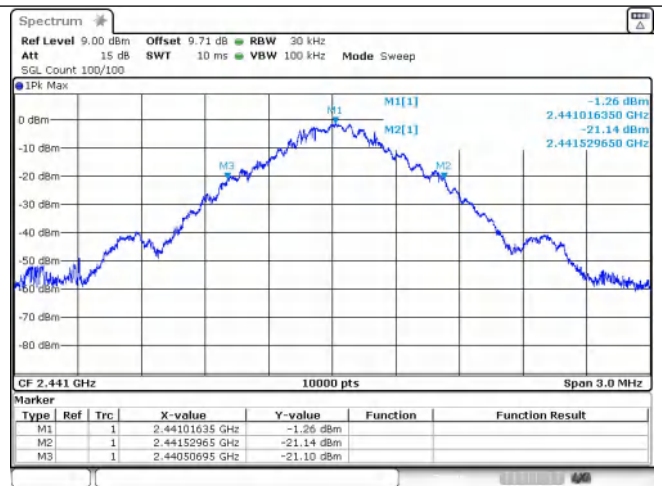
Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.020
	39	2441 MHz	1.020
	78	2480 MHz	1.000
$\pi/4$ DQPSK	0	2402 MHz	1.320
	39	2441 MHz	1.310
	78	2480 MHz	1.320
8DPSK	0	2402 MHz	1.300
	39	2441 MHz	1.290
	78	2480 MHz	1.290

Test Graphs

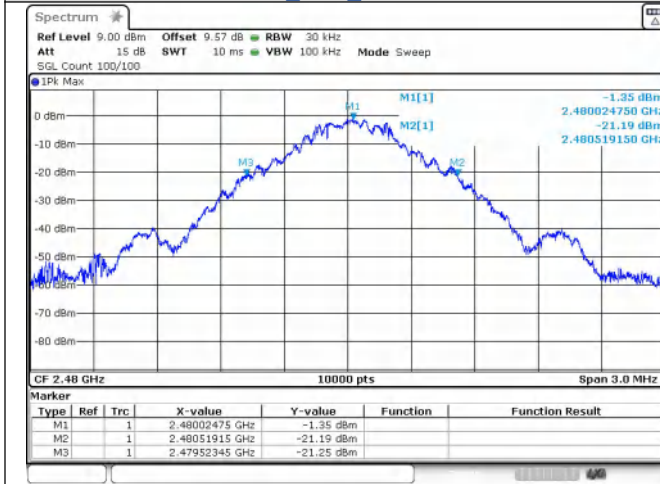


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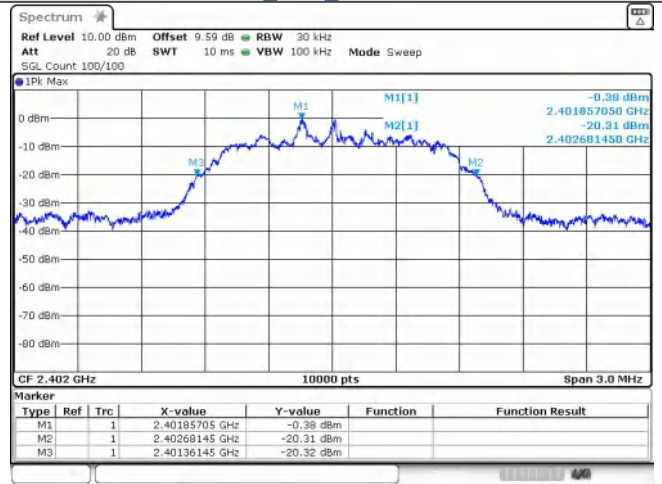
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GFSK_DH5_Channel 0



Date: 20.APR.2024 11:04:44

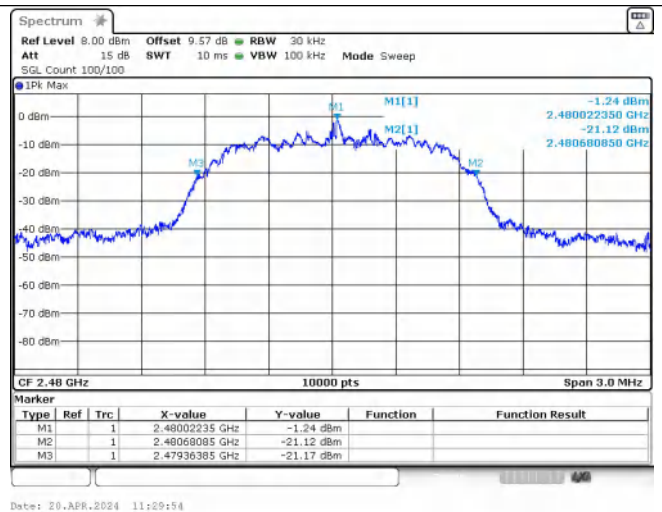
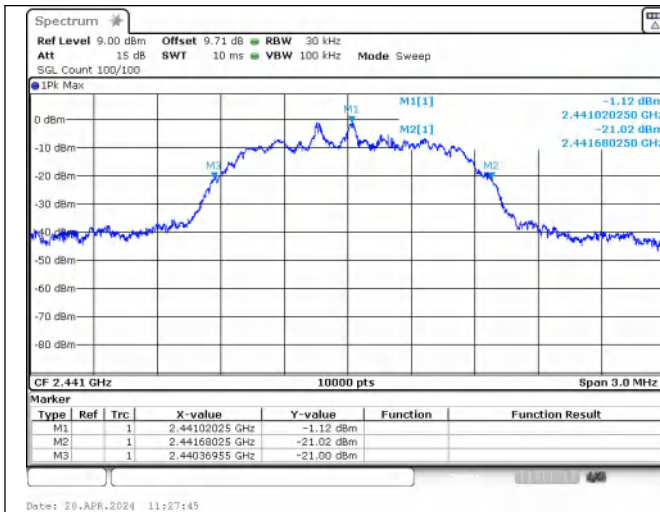
GFSK_DH5_Channel 39



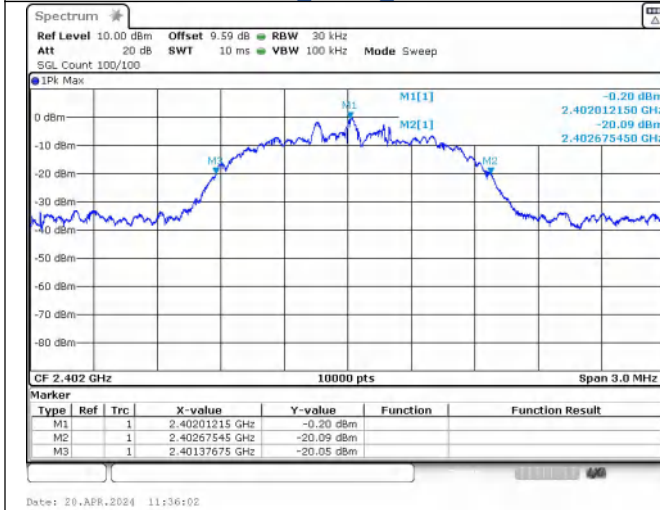
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GFSK_DH5_Channel 78

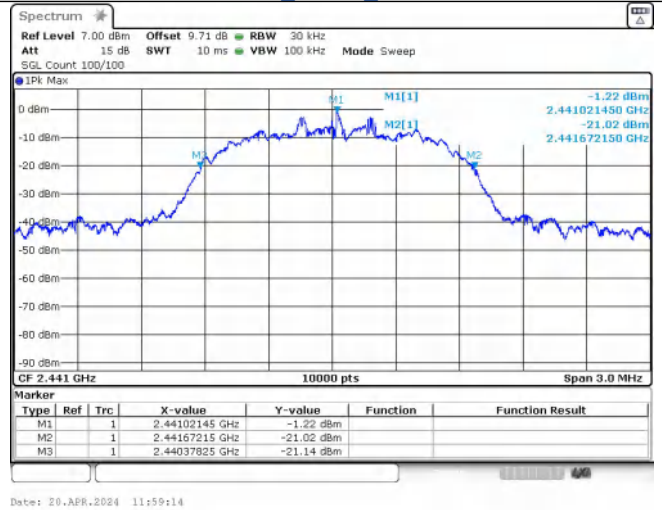
$\pi/4$ DQPSK_2-DH5_Channel 0



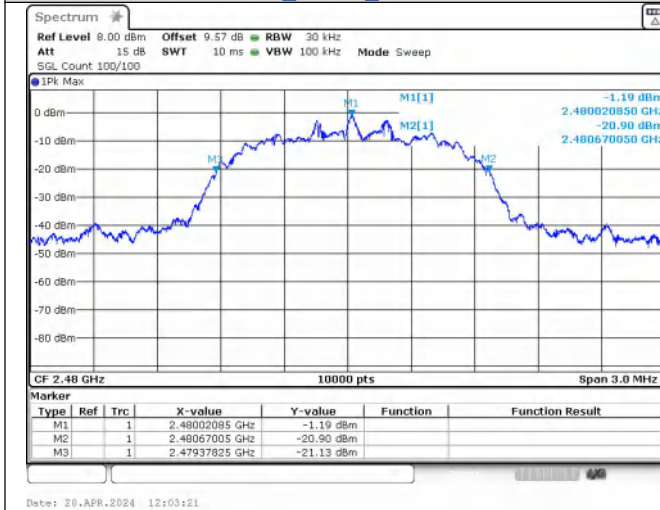
$\pi/4$ DQPSK_2-DH5_Channel 39



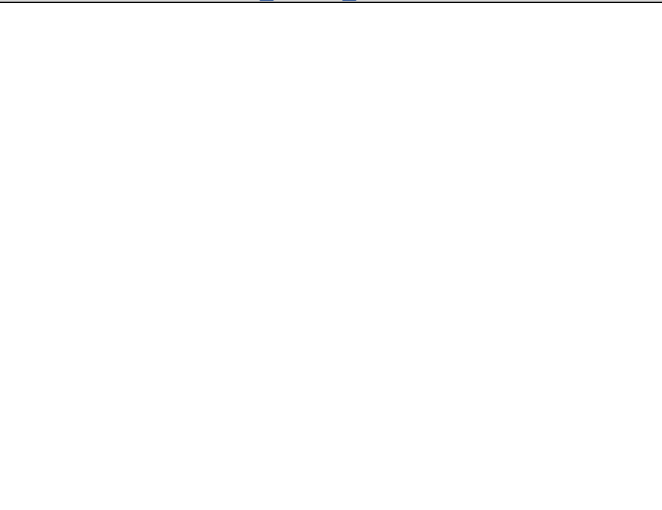
$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



8DPSK_3-DH5_Channel 78

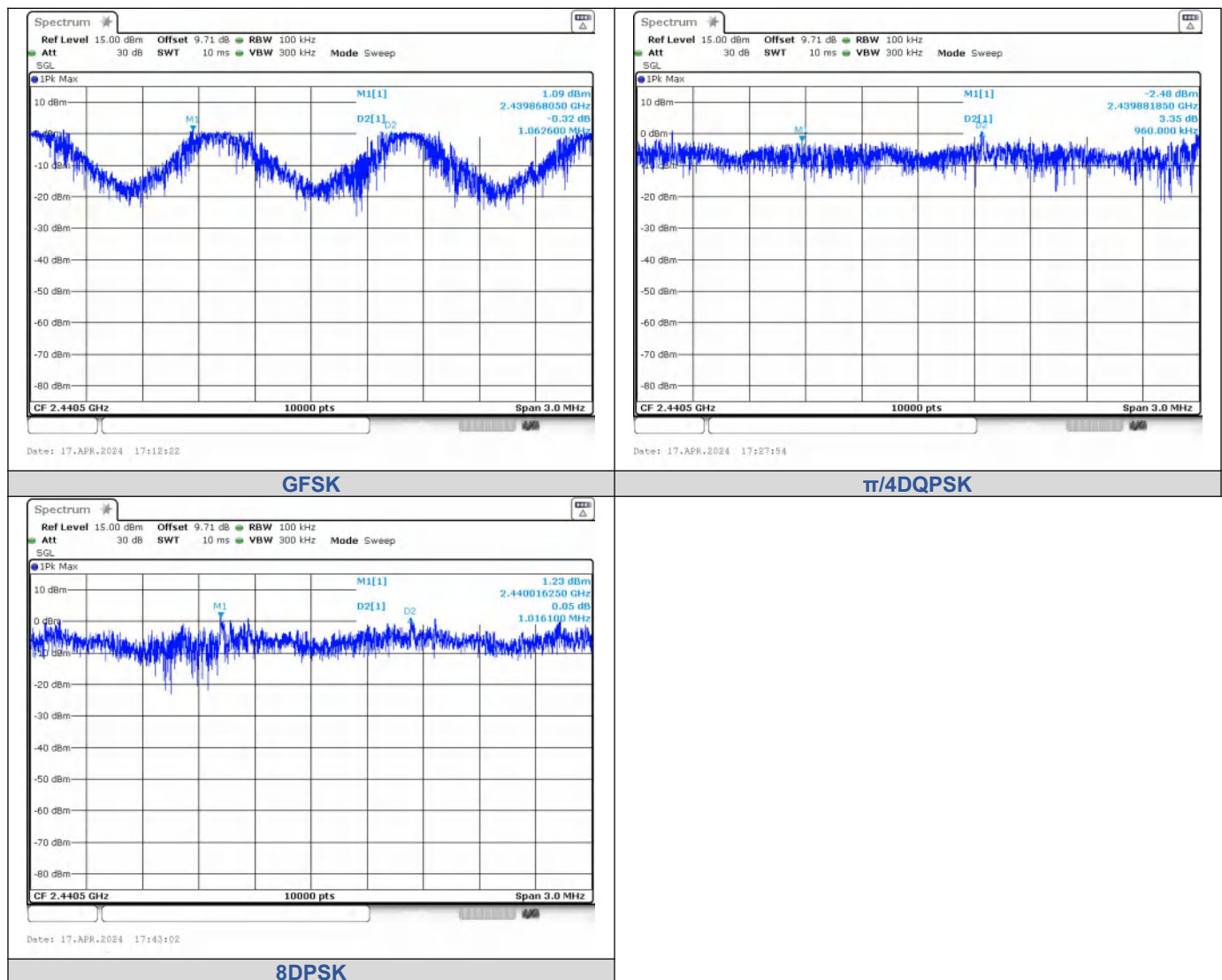
Carrier Frequencies Separation

Test Result

Left

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.8681	2440.9306	1.0626	0.667	PASS
$\pi/4$ DQPSK	2-DH5	2439.8819	2440.8418	0.9600	0.873	PASS
8DPSK	3-DH5	2440.0163	2441.0323	1.0161	0.86	PASS

Test Graphs

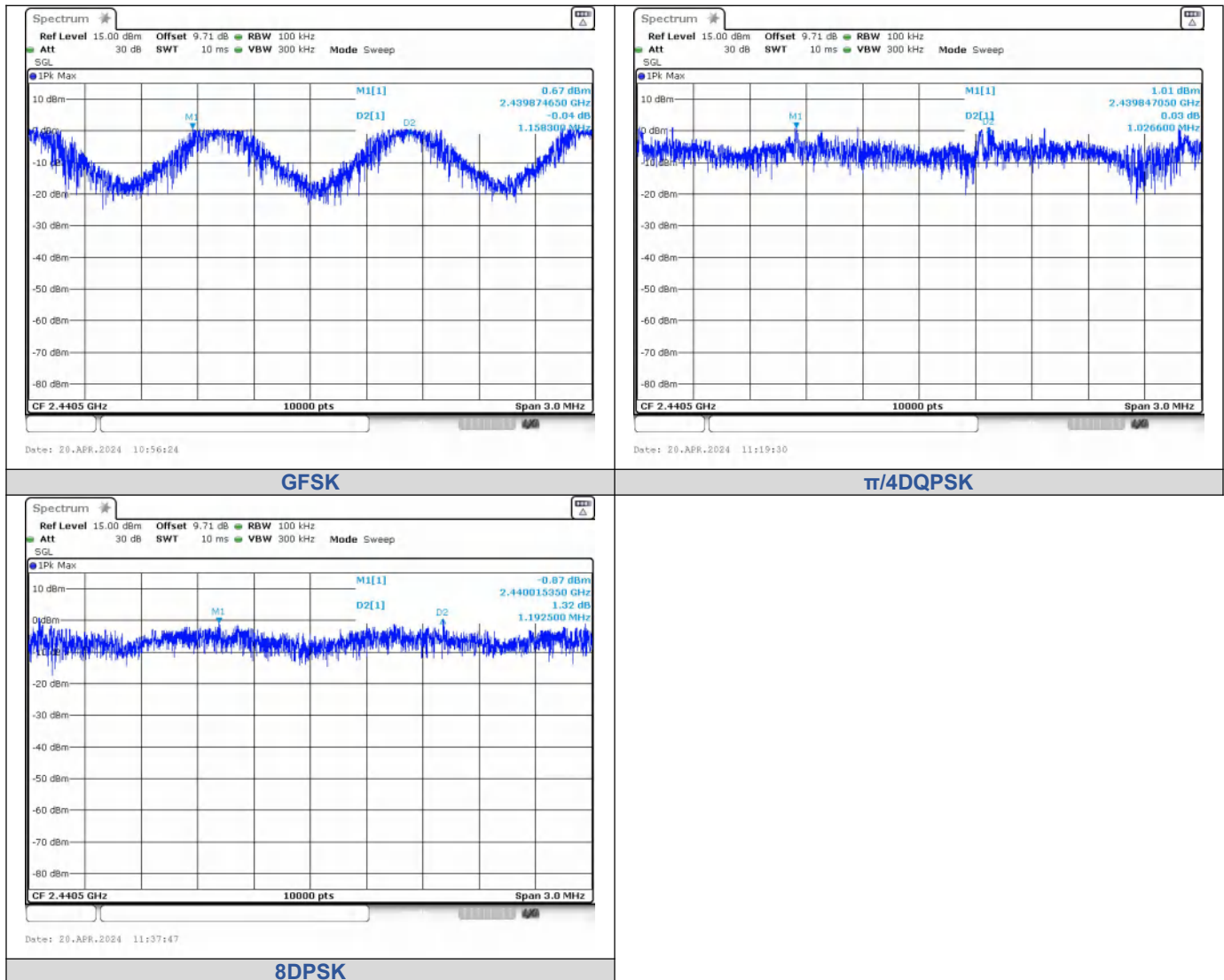


Right

Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.8747	2441.0329	1.1583	0.68	PASS
$\pi/4$ DQPSK	2-DH5	2439.847	2440.8736	1.0266	0.88	PASS
8DPSK	3-DH5	2440.0154	2441.2078	1.1925	0.867	PASS

Test Graphs



Conducted Out Of Band Emission

Test Result

Left

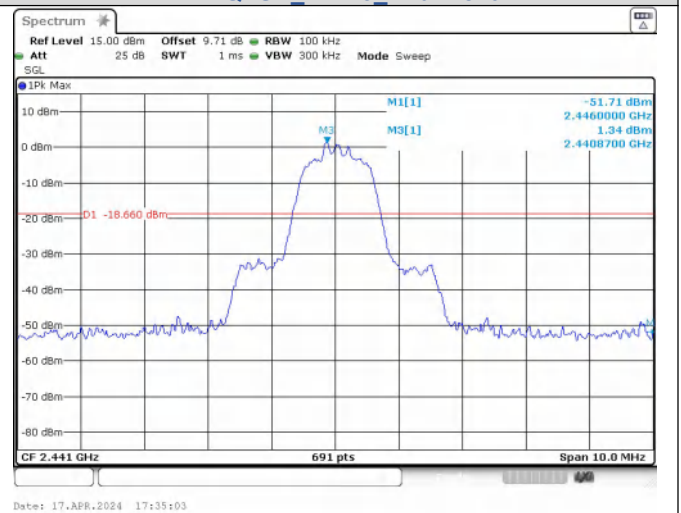
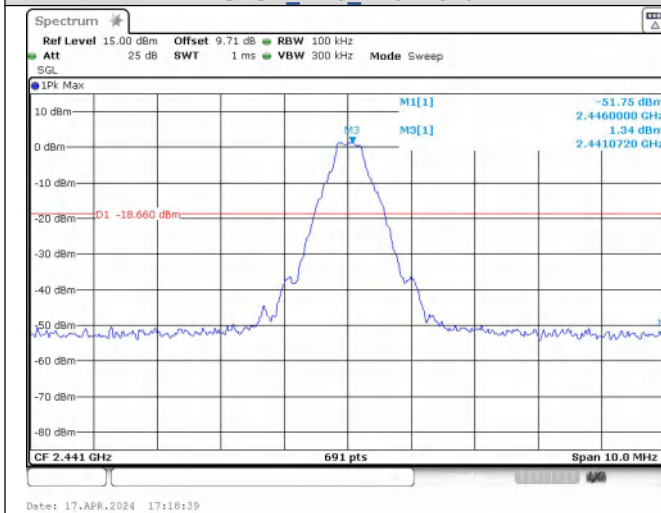
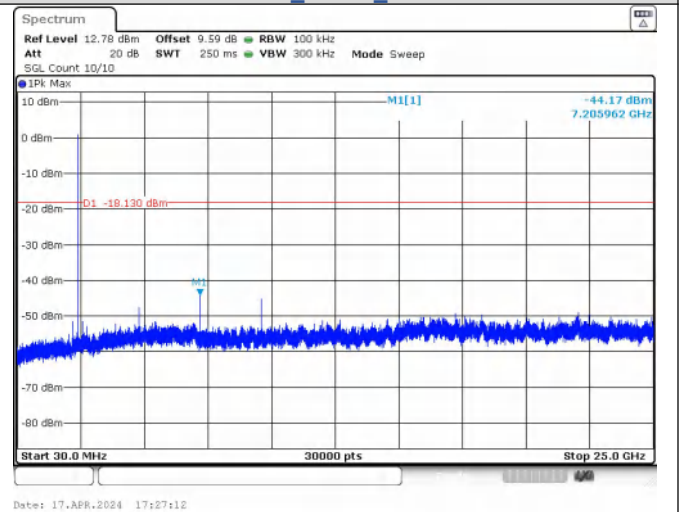
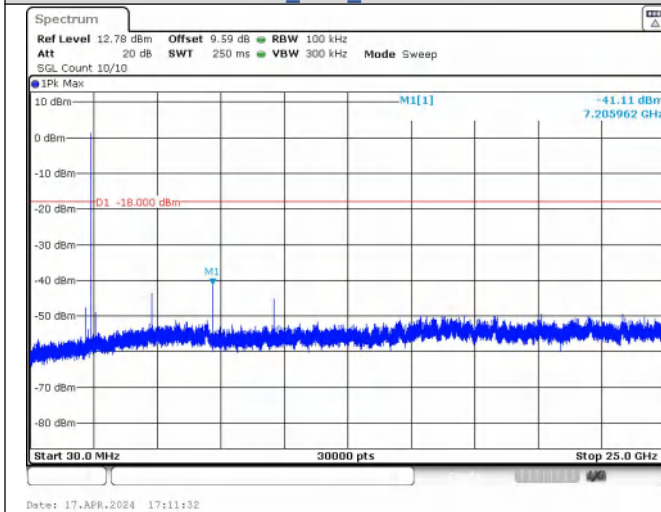
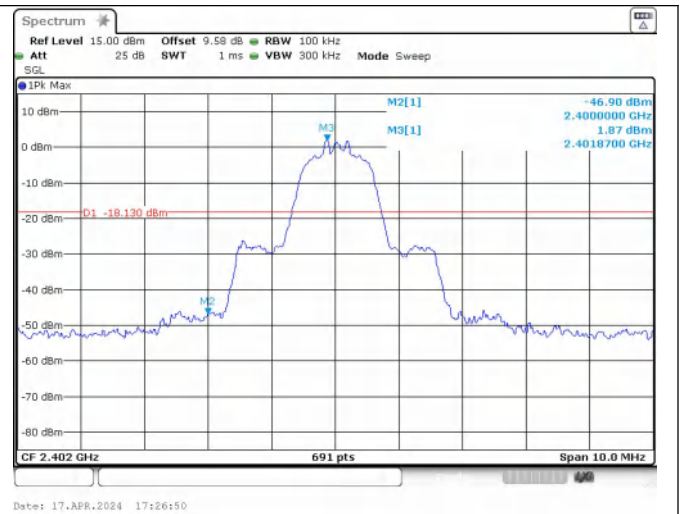
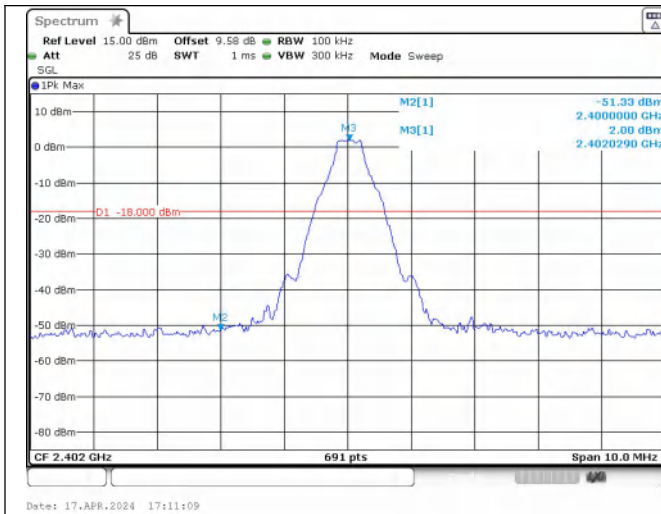
Non-Hopping

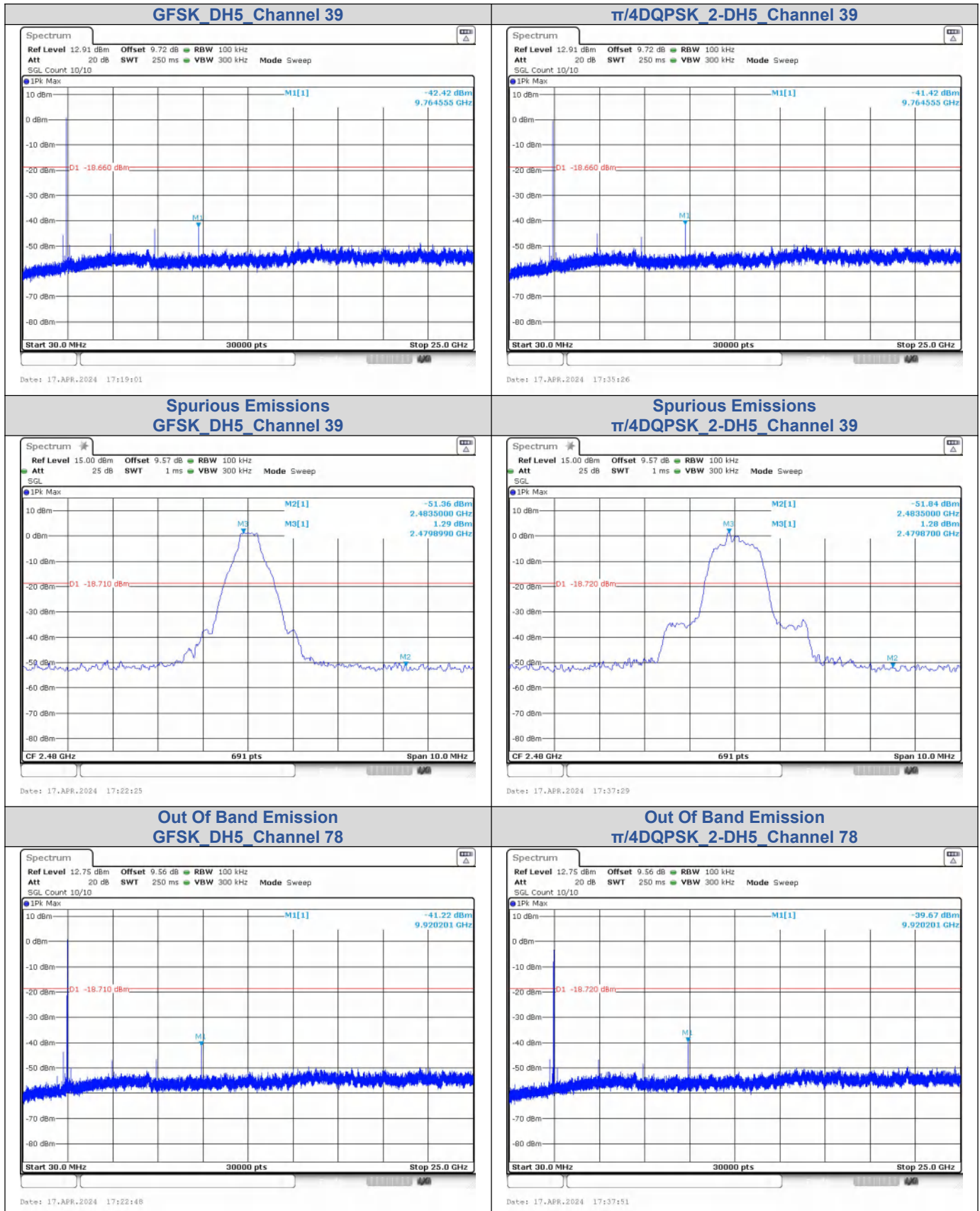
Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-51.329	-18.0	-33.329	PASS
			2399.00	-50.813	-18.0	-32.813	PASS
			7206.00	-41.108	-18.0	-23.108	PASS
		39	9764.55	-42.417	-18.66	-23.757	PASS
		78	2483.50	-51.364	-18.71	-32.654	PASS
			9920.20	-41.223	-18.71	-22.513	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-46.895	-18.13	-28.765	PASS
			7205.96	-44.168	-18.13	-26.038	PASS
		39	9764.55	-41.415	-18.66	-22.755	PASS
			2483.50	-51.838	-18.72	-33.118	PASS
		78	9920.20	-39.673	-18.72	-20.953	PASS
			2483.50	-51.564	-18.73	-32.834	PASS
8DPSK	3-DH5	0	2400.00	-47.034	-18.18	-28.854	PASS
			7205.96	-44.029	-18.18	-25.849	PASS
		39	9763.72	-41.437	-19.12	-22.317	PASS
			2483.50	-51.564	-18.73	-32.834	PASS
		78	9920.20	-39.971	-18.73	-21.241	PASS
			2483.50	-51.564	-18.73	-32.834	PASS

Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2396.05	-50.072	-17.83	-32.242	PASS
			2400.00	-52.588	-17.83	-34.758	PASS
			2483.50	-52.047	-18.87	-33.177	PASS
			2396.31	-49.576	-17.96	-31.616	PASS
			2400.00	-51.979	-17.96	-34.019	PASS
π/4DQPSK	2-DH5		2483.50	-50.964	-18.73	-32.234	PASS
			2400.00	-49.024	-18.48	-30.544	PASS
			2483.50	-51.272	-19.18	-32.092	PASS
			2400.00	-48.743	-18.26	-30.483	PASS
8DPSK	3-DH5		2483.50	-52.347	-18.71	-33.637	PASS
			2400.00	-49.765	-18.54	-31.225	PASS
			2483.50	-51.380	-19.22	-32.160	PASS
			2400.00	-48.416	-18.19	-30.226	PASS
				2483.50	-51.341	-18.98	-32.361

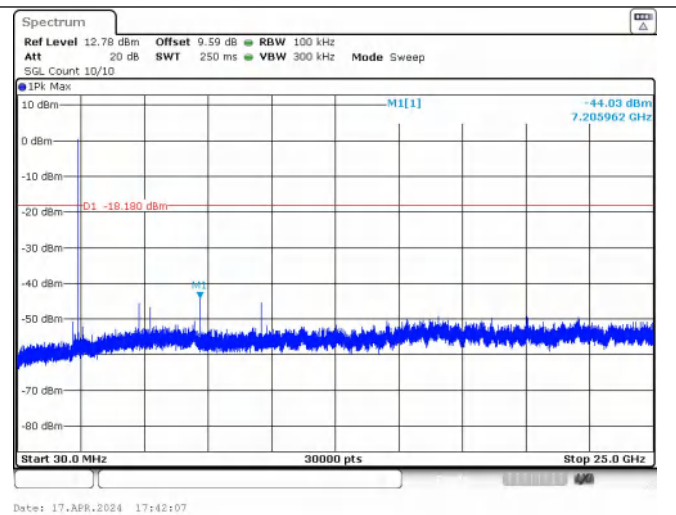
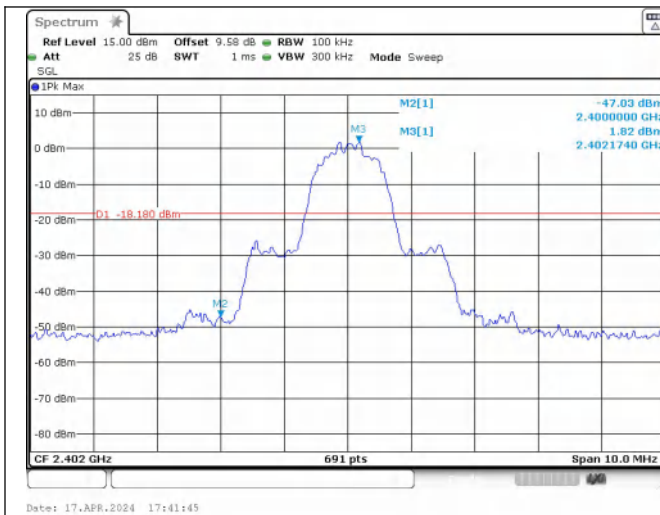
Test Graphs





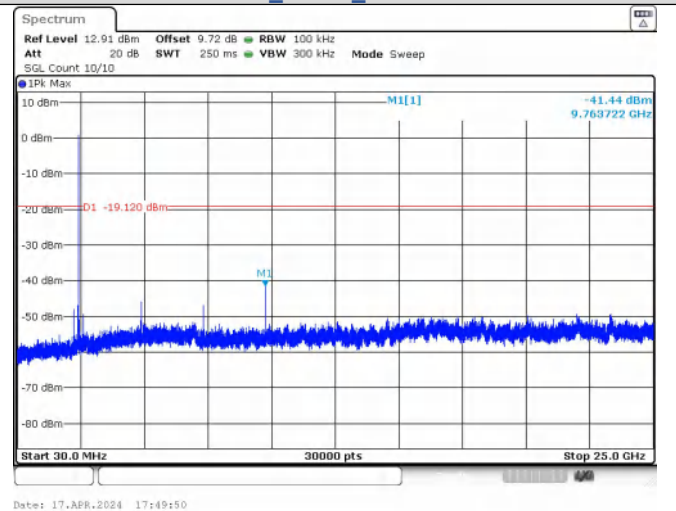
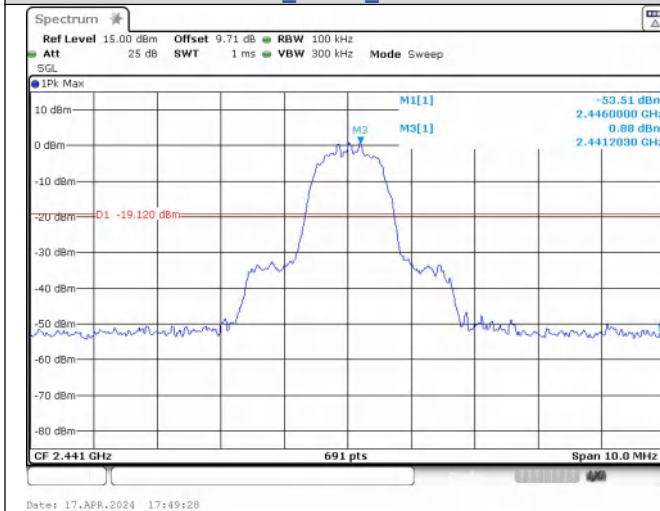
Spurious Emission
GFSK_DH5_Channel 78

Spurious Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78



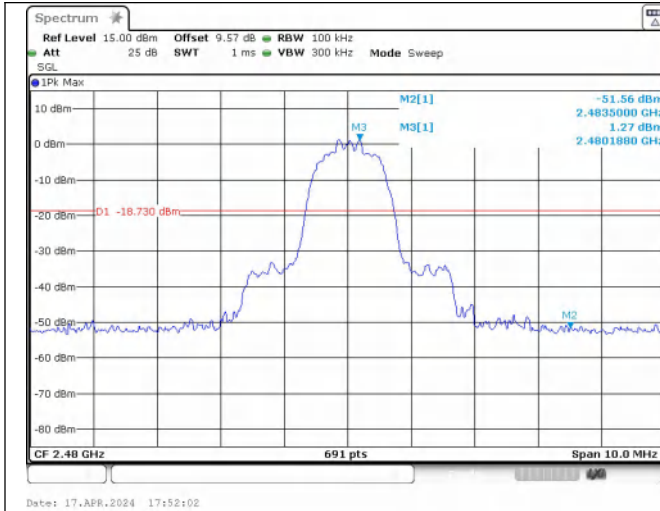
Out Of Band Emission
8DPSK_3-DH5_Channel 0

Spurious Emission
8DPSK_3-DH5_Channel 0

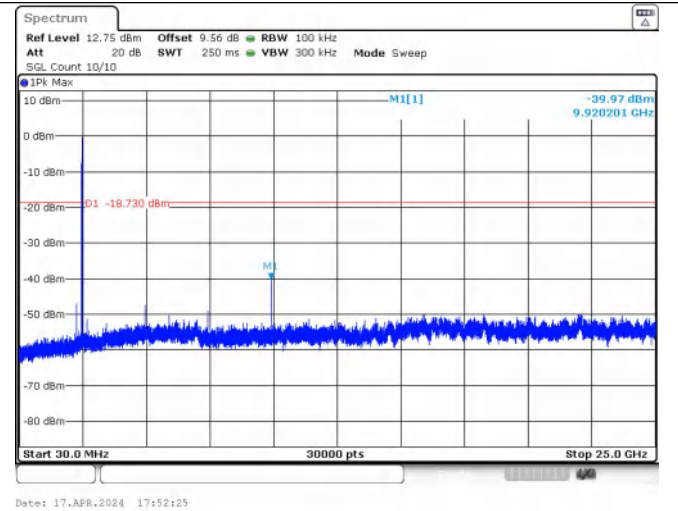


Out Of Band Emission
8DPSK_3-DH5_Channel 39

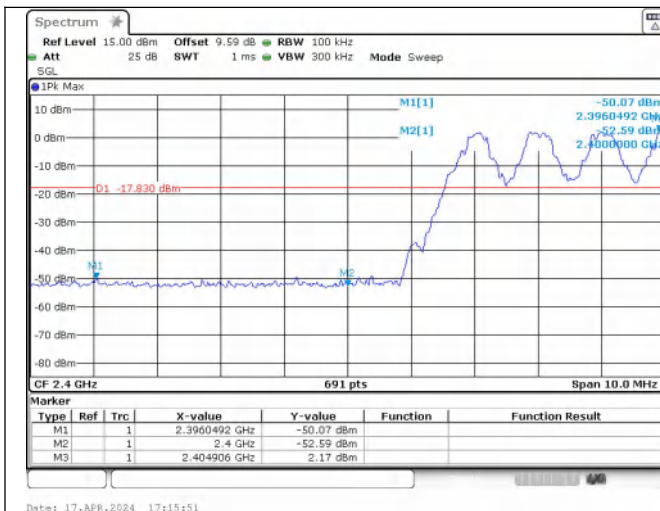
Spurious Emissions
8DPSK_3-DH5_Channel 39



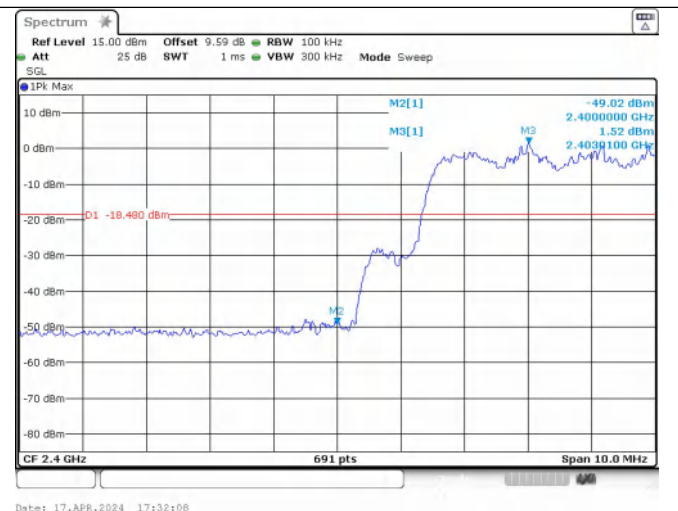
**Out Of Band Emission
8DPSK_3-DH5_Channel 78**



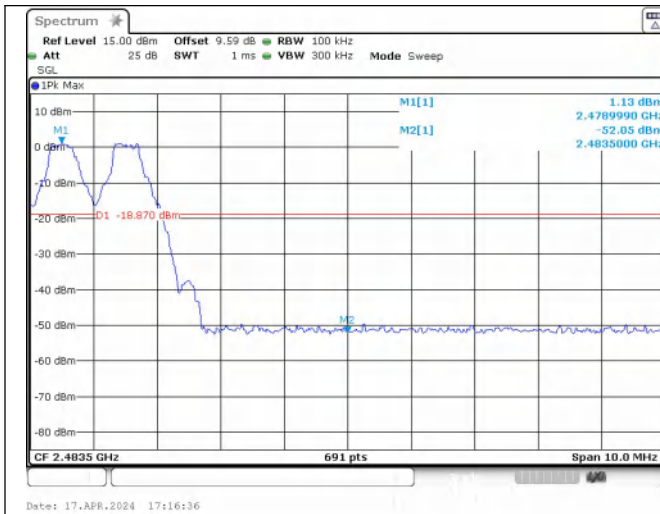
**Spurious Emission
8DPSK_3-DH5_Channel 78**



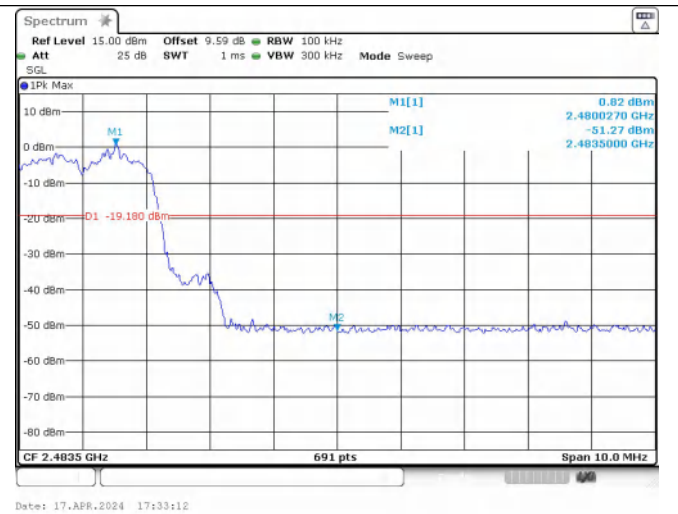
**Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping**



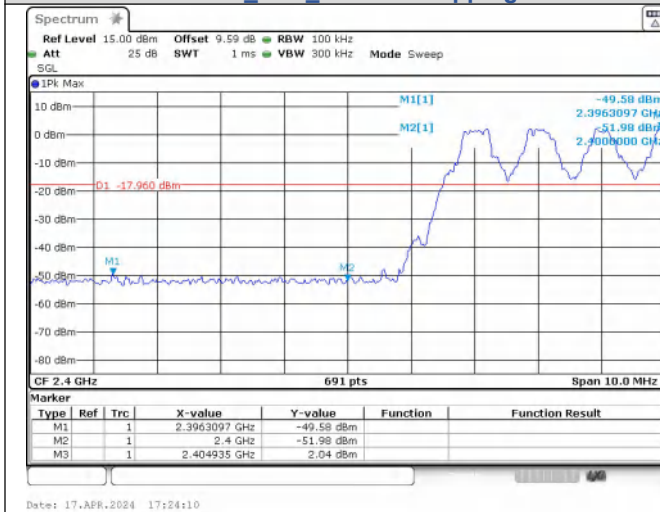
**Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping**



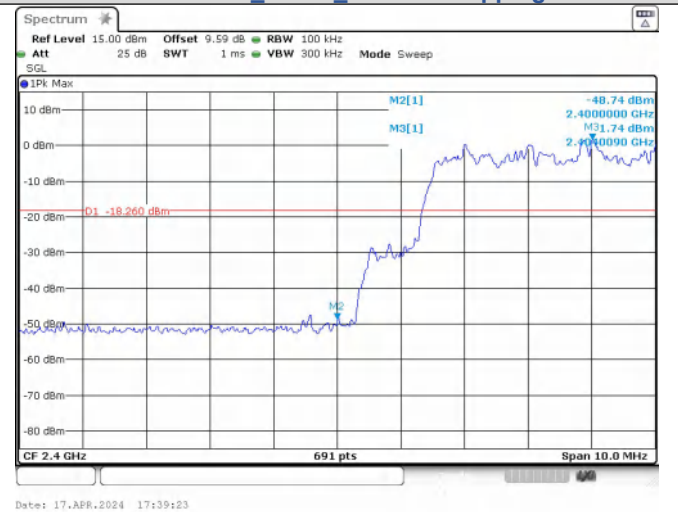
Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



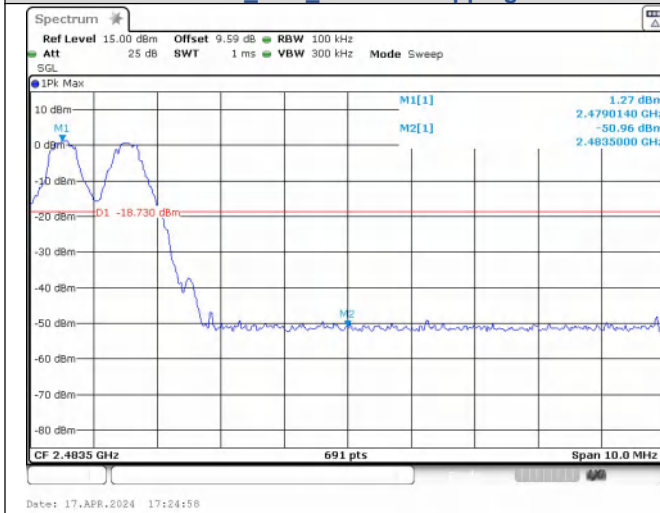
Out Of Band Emission(Right)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping



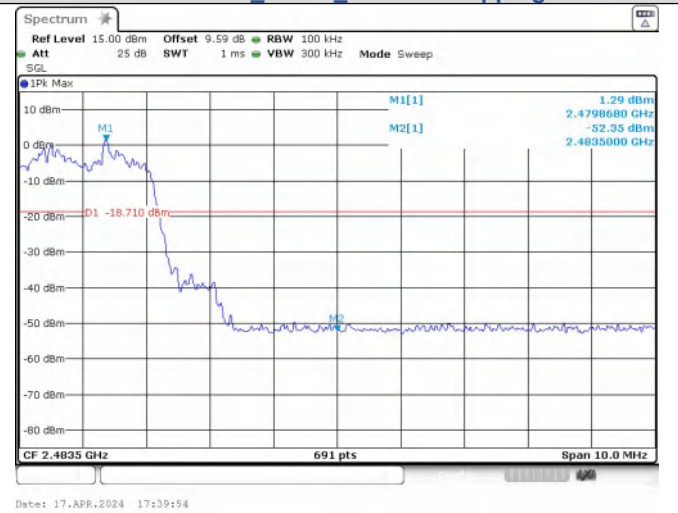
Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



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



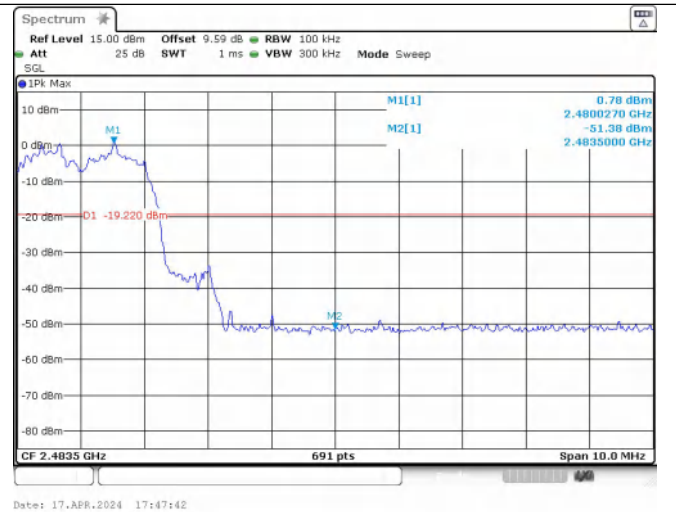
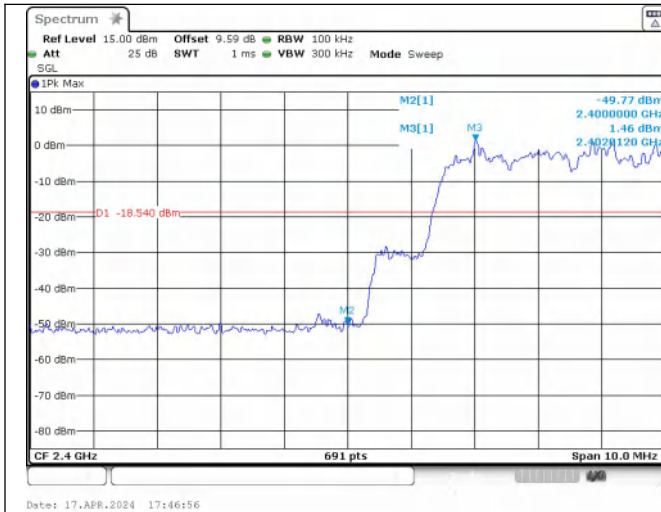
Out Of Band Emission(Right)



Out Of Band Emission(Right)

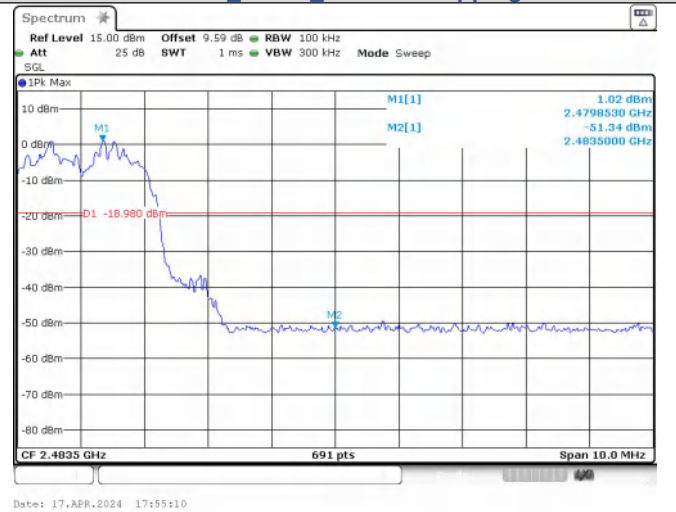
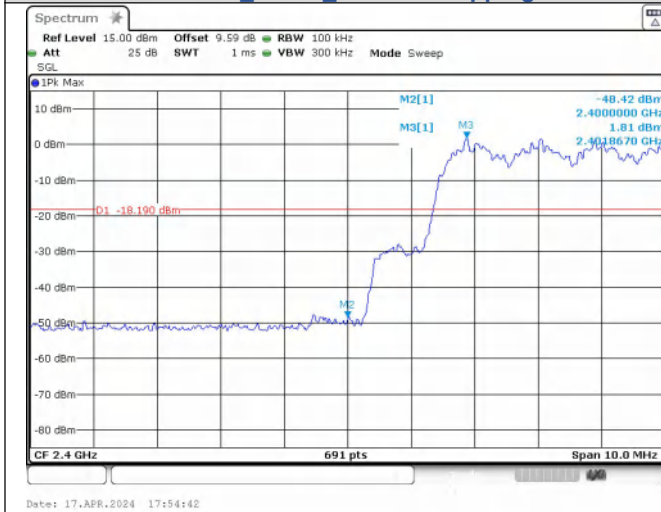
GFSK_DH5_Channel Hopping

π /4DQPSK_2-DH5_Channel Hopping



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

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



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

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

Right

Test Result

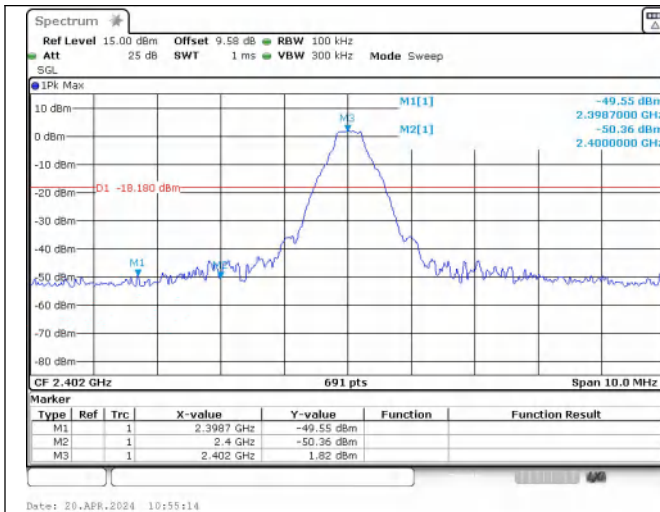
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-50.361	-18.18	-32.181	PASS
			2398.70	-49.555	-18.18	-31.375	PASS
			7206.80	-39.619	-18.18	-21.439	PASS
		39	9763.72	-42.789	-18.74	-24.049	PASS
		78	2483.50	-52.403	-18.74	-33.663	PASS
			9920.20	-40.743	-18.74	-22.003	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-45.252	-18.25	-27.002	PASS
			5240.82	-41.699	-18.25	-23.449	PASS
		39	9763.72	-42.208	-18.79	-23.418	PASS
		78	2483.50	-51.840	-18.77	-33.070	PASS
			9920.20	-40.519	-18.77	-21.749	PASS
8DPSK	3-DH5	0	2400.00	-47.000	-18.09	-28.910	PASS
			7205.96	-44.504	-18.09	-26.414	PASS
		39	9764.55	-41.668	-19.43	-22.238	PASS
		78	2483.50	-51.904	-18.9	-33.004	PASS
			9920.20	-40.366	-18.9	-21.466	PASS

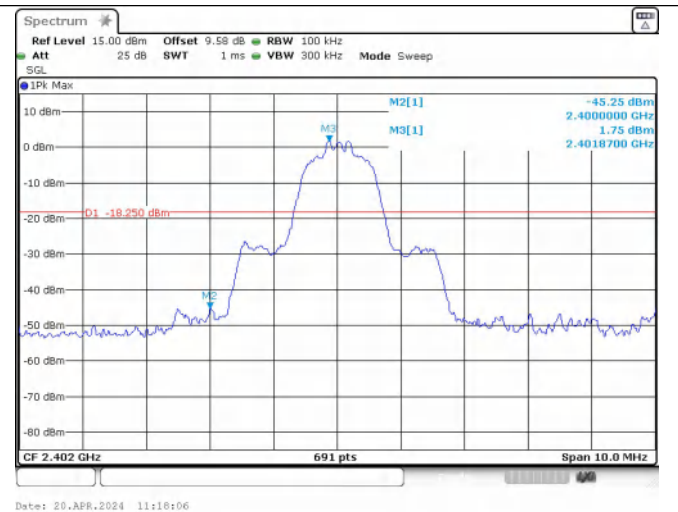
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2395.28	-49.295	-17.92	-31.375	PASS
			2400.00	-51.735	-17.92	-33.815	PASS
			2483.50	-52.007	-19.32	-32.687	PASS
			2398.93	-47.370	-17.84	-29.530	PASS
			2400.00	-49.231	-17.84	-31.391	PASS
			2483.50	-51.653	-18.75	-32.903	PASS
π/4DQPSK	2-DH5		2400.00	-46.398	-18.12	-28.278	PASS
			2483.50	-51.379	-20.13	-31.249	PASS
			2400.00	-48.182	-18.24	-29.942	PASS
			2483.50	-50.102	-18.75	-31.352	PASS
			2400.00	-49.702	-18.51	-31.192	PASS
8DPSK	3-DH5		2483.50	-50.089	-18.94	-31.149	PASS
			2400.00	-47.438	-18.04	-29.398	PASS
			2483.50	-51.116	-19.23	-31.886	PASS

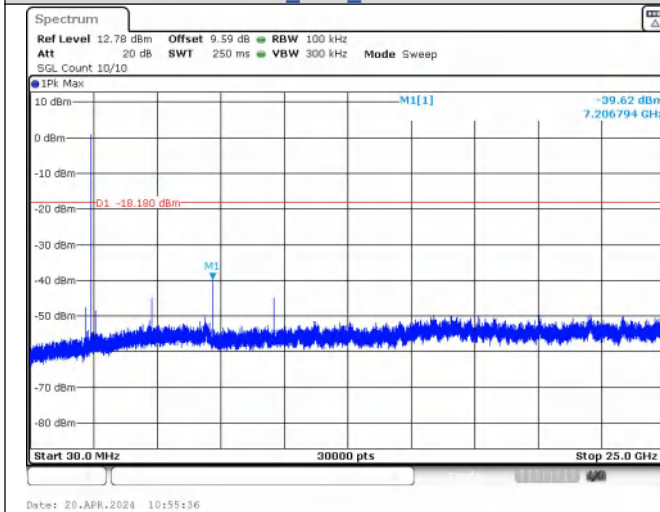
Test Graphs



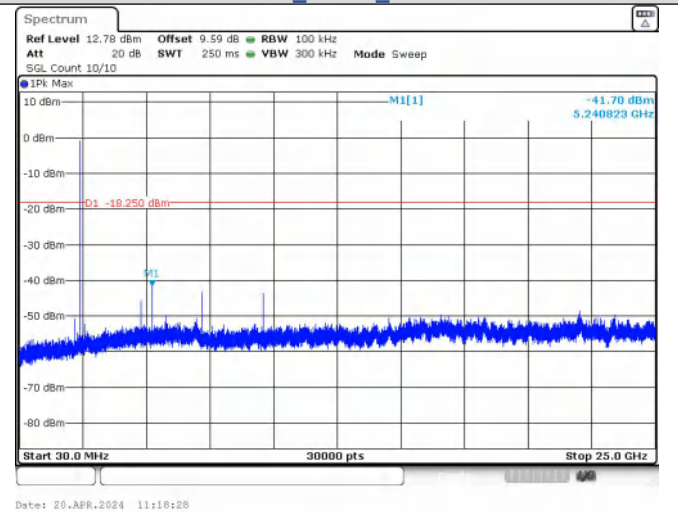
**Out Of Band Emission
GFSK_DH5_Channel 0**



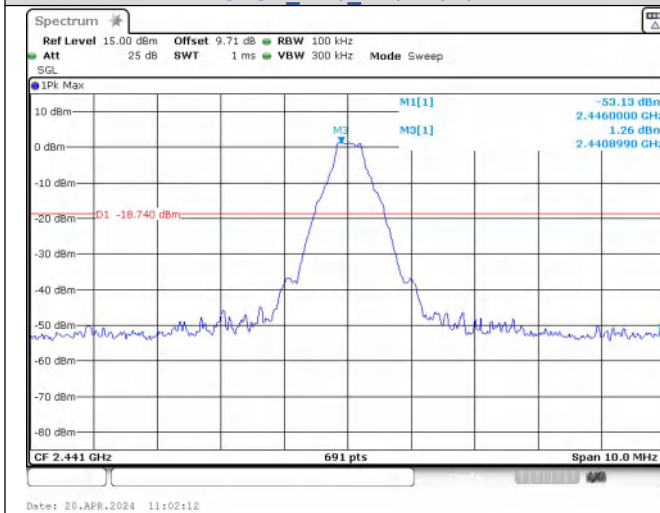
**Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0**



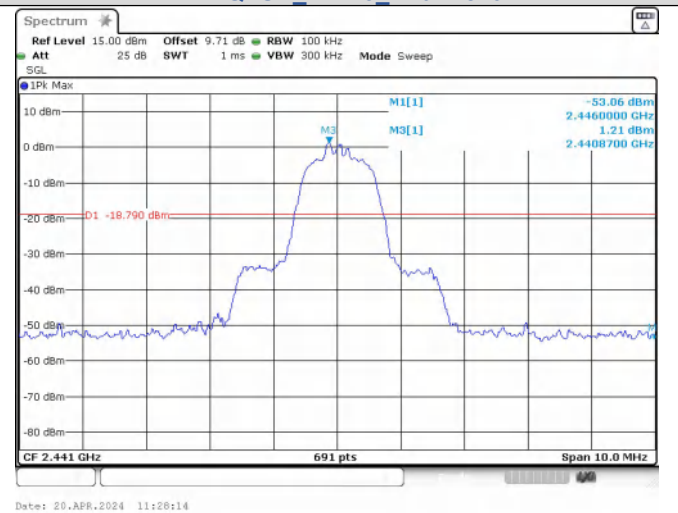
**Spurious Emission
GFSK_DH5_Channel 0**



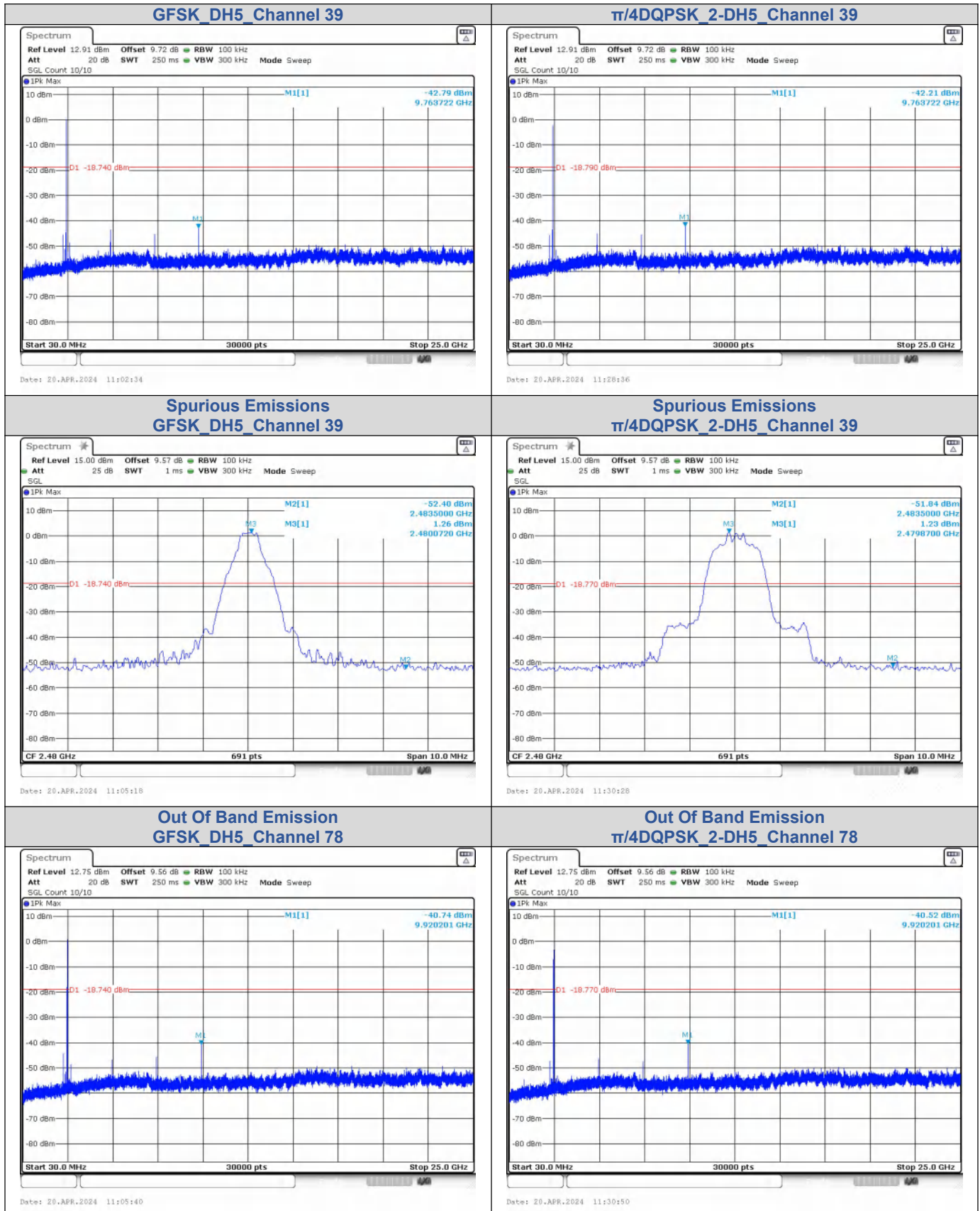
**Spurious Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0**



Out Of Band Emission

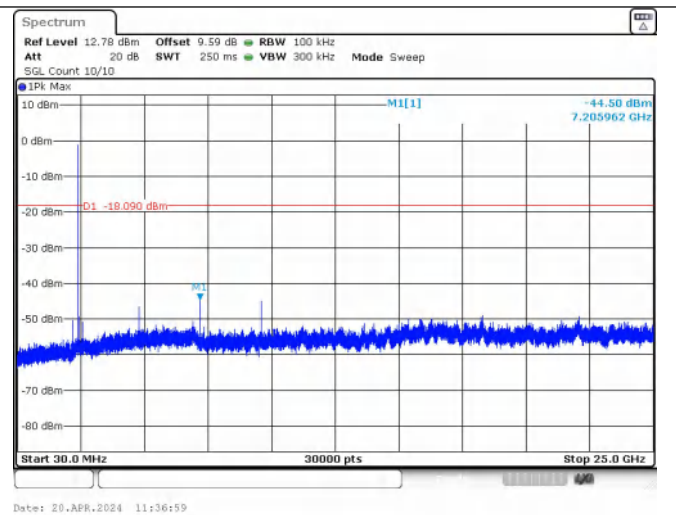
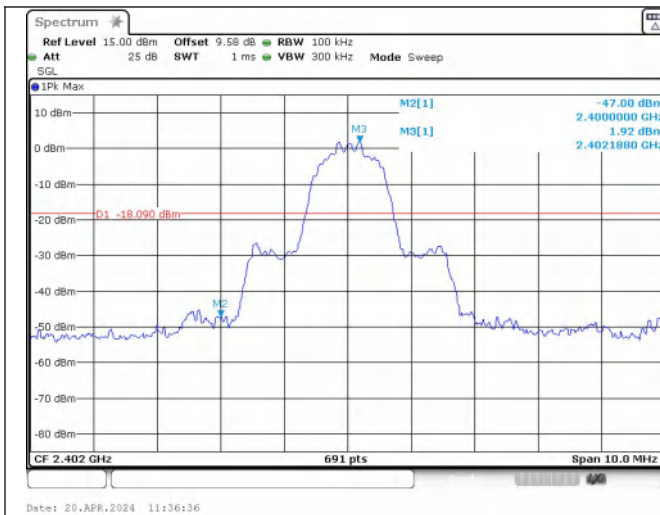


Out Of Band Emission



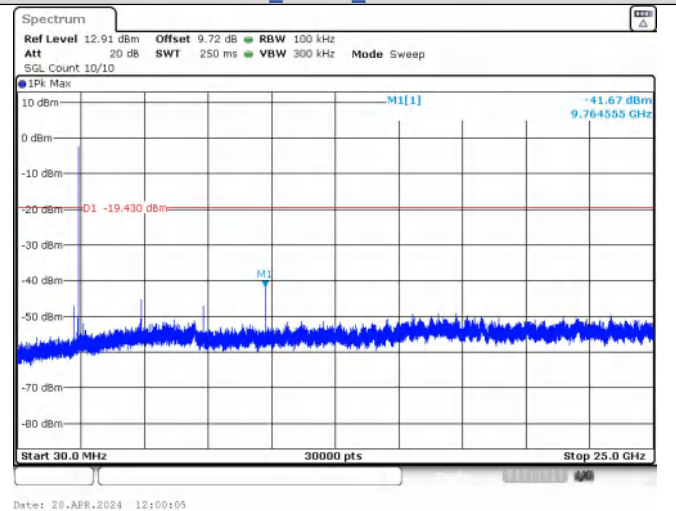
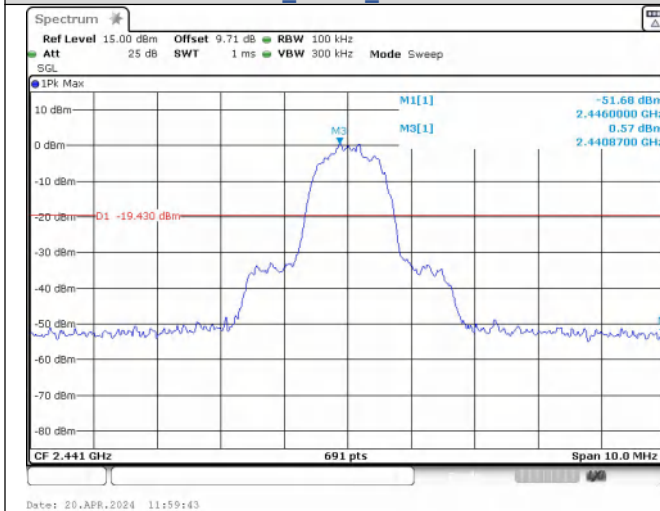
Spurious Emission GFSK_DH5_Channel 78

Spurious Emission $\pi/4$ DQPSK_2-DH5_Channel 78



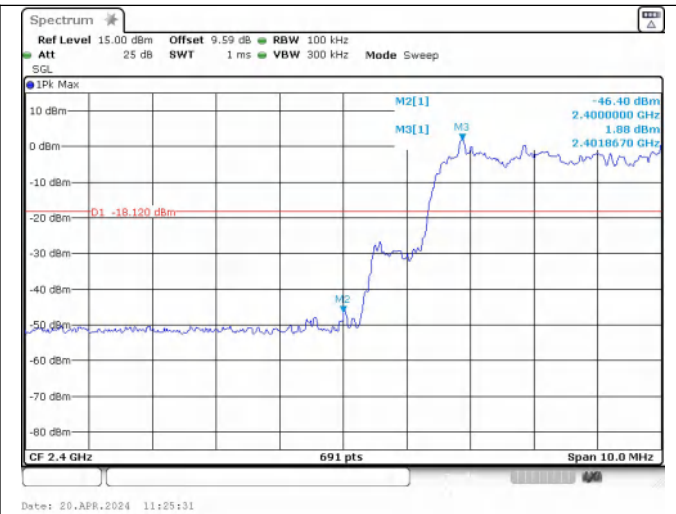
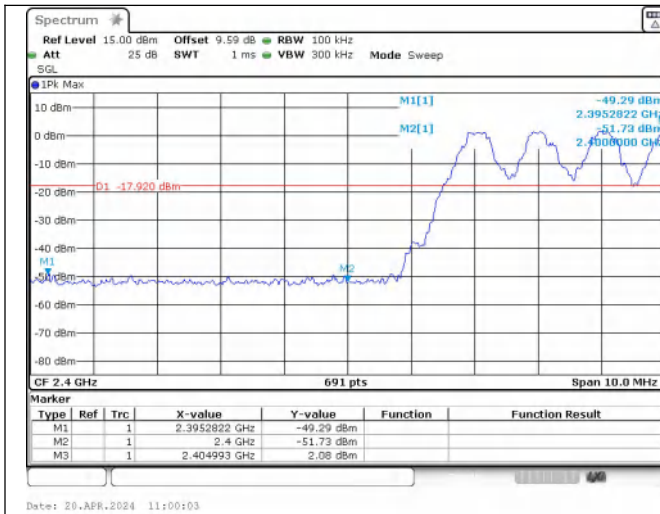
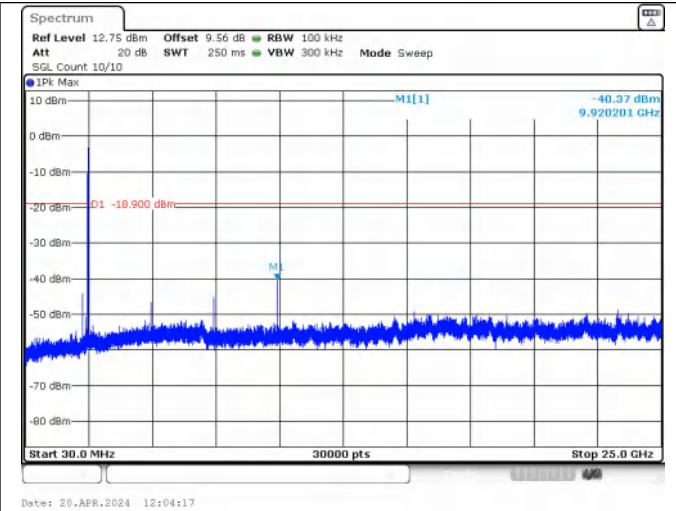
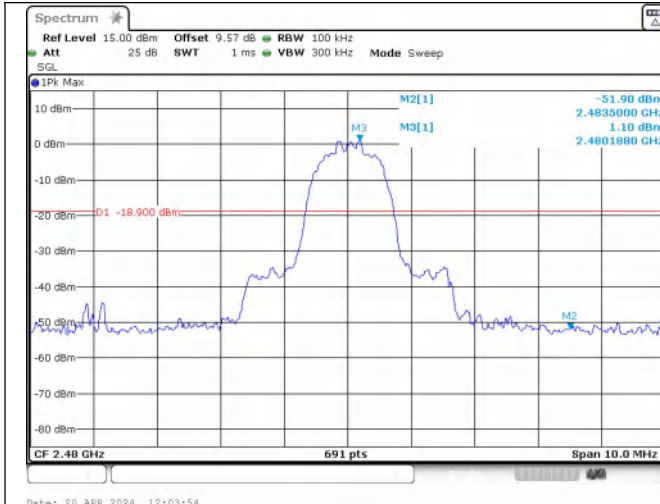
Out Of Band Emission 8DPSK_3-DH5_Channel 0

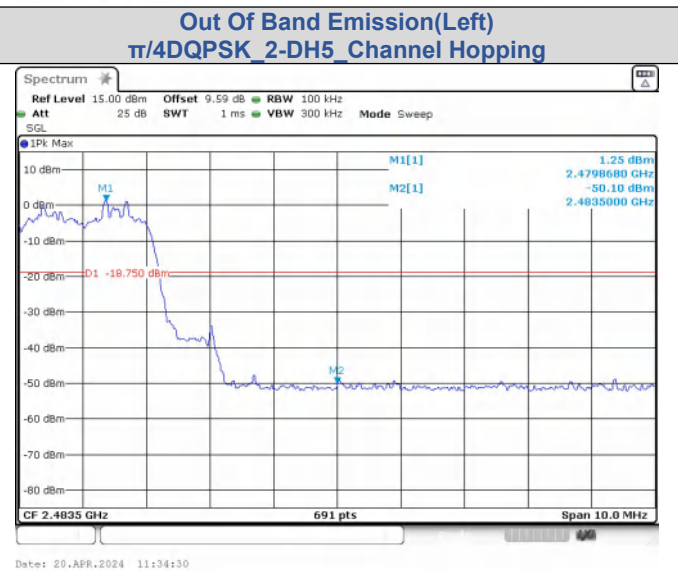
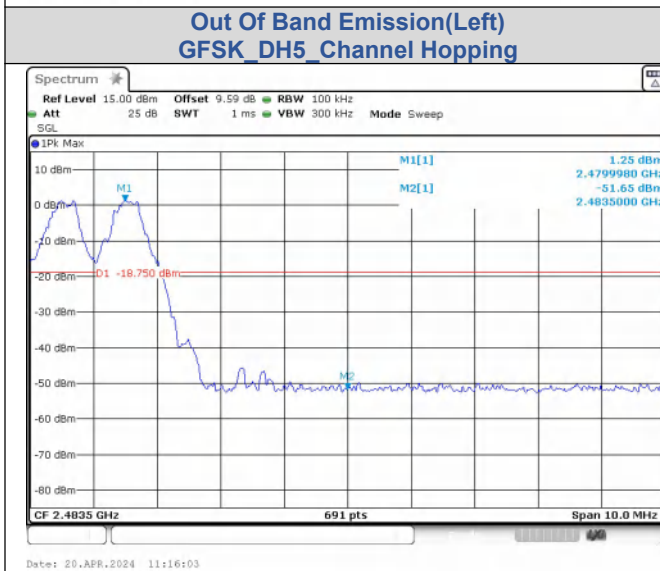
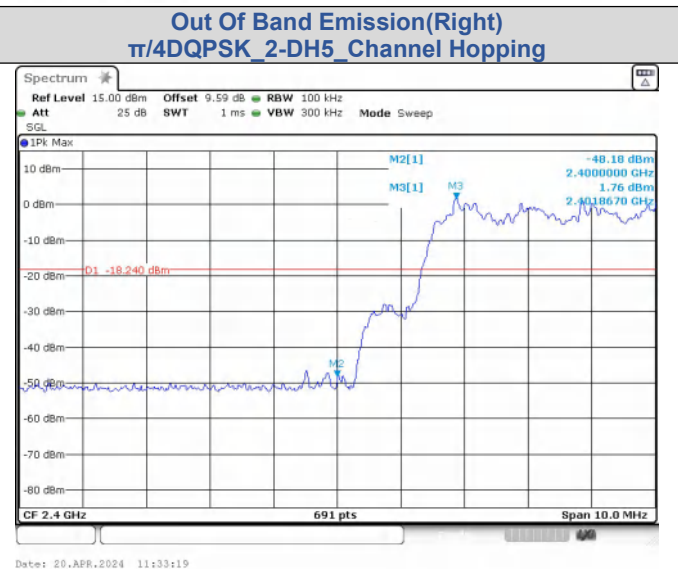
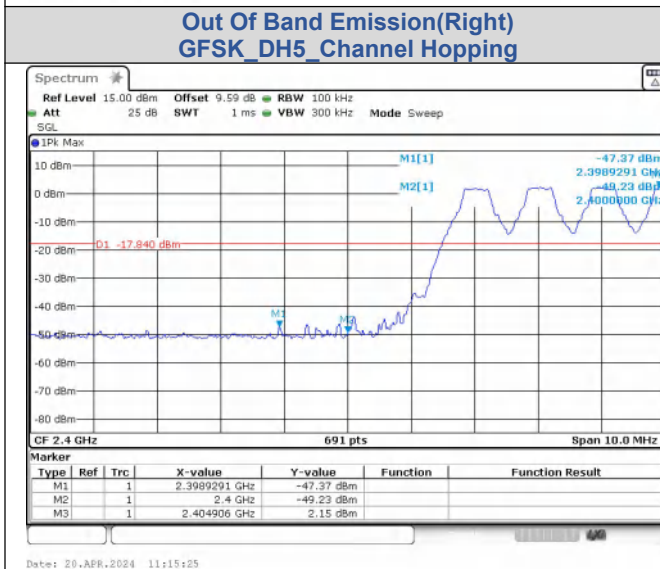
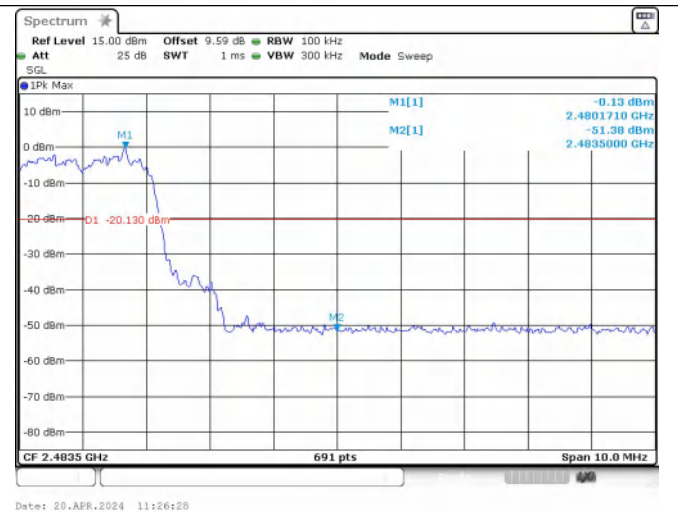
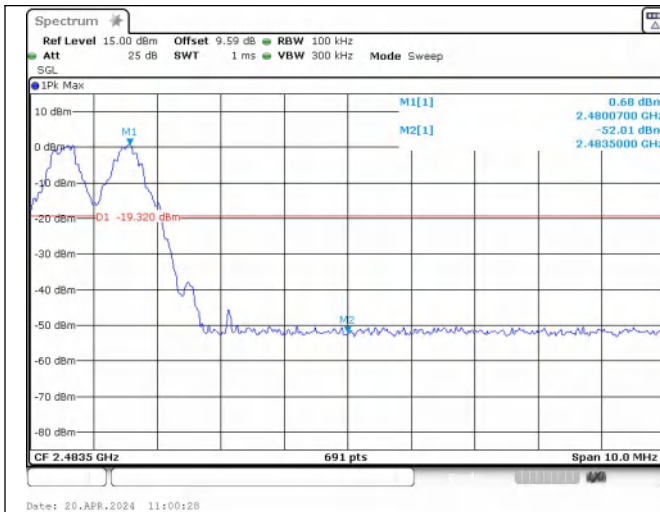
Spurious Emission 8DPSK_3-DH5_Channel 0



Out Of Band Emission 8DPSK_3-DH5_Channel 39

Spurious Emissions 8DPSK_3-DH5_Channel 39



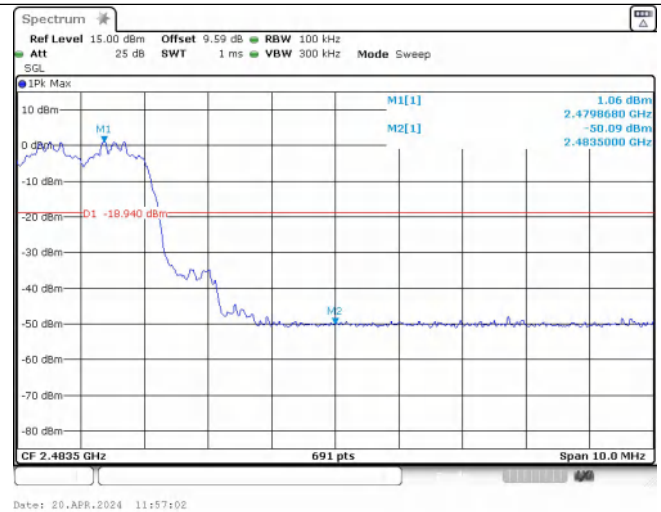
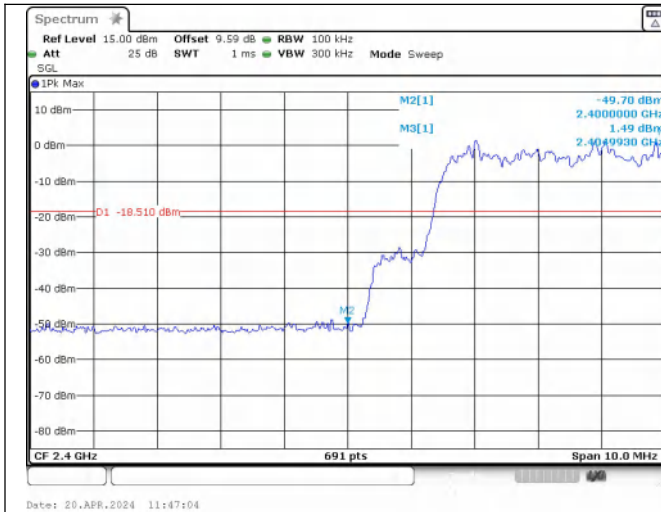


Out Of Band Emission(Right)

Out Of Band Emission(Right)

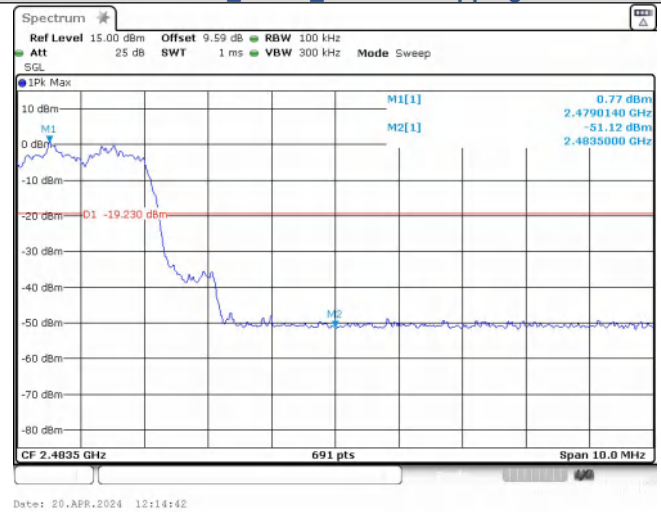
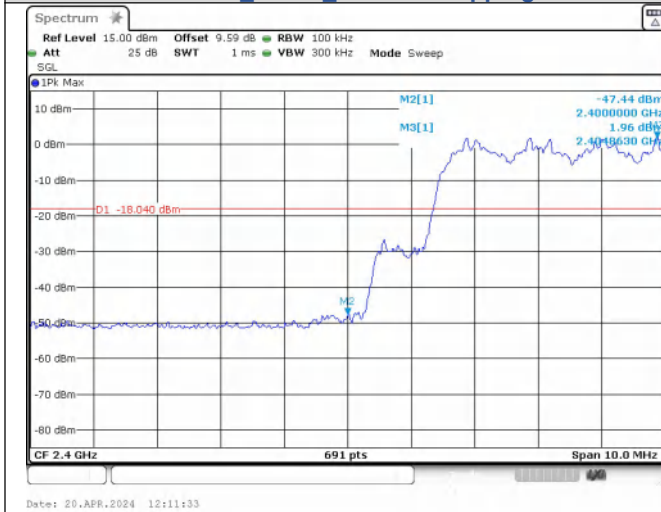
GFSK_DH5_Channel Hopping

π /4DQPSK_2-DH5_Channel Hopping



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

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



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

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

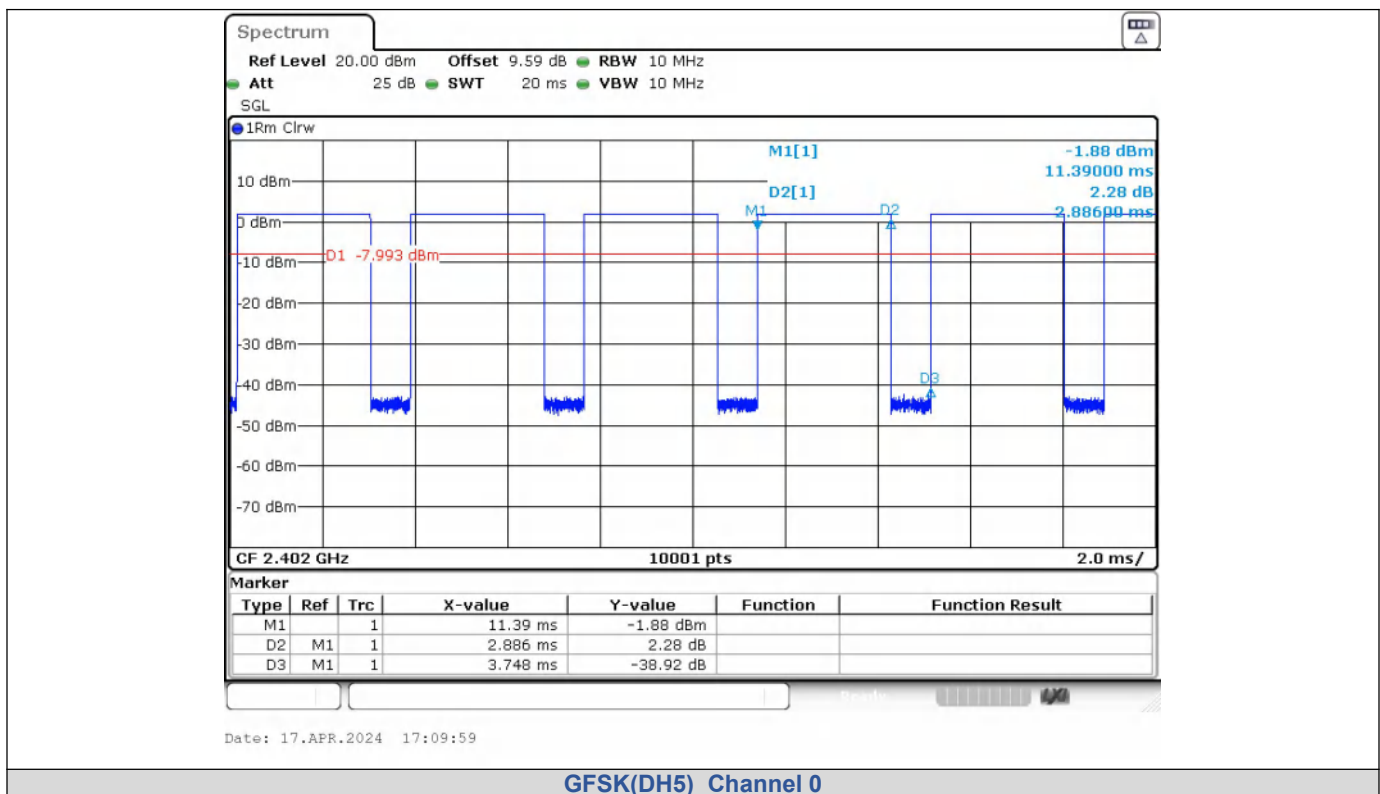
Duty Cycle

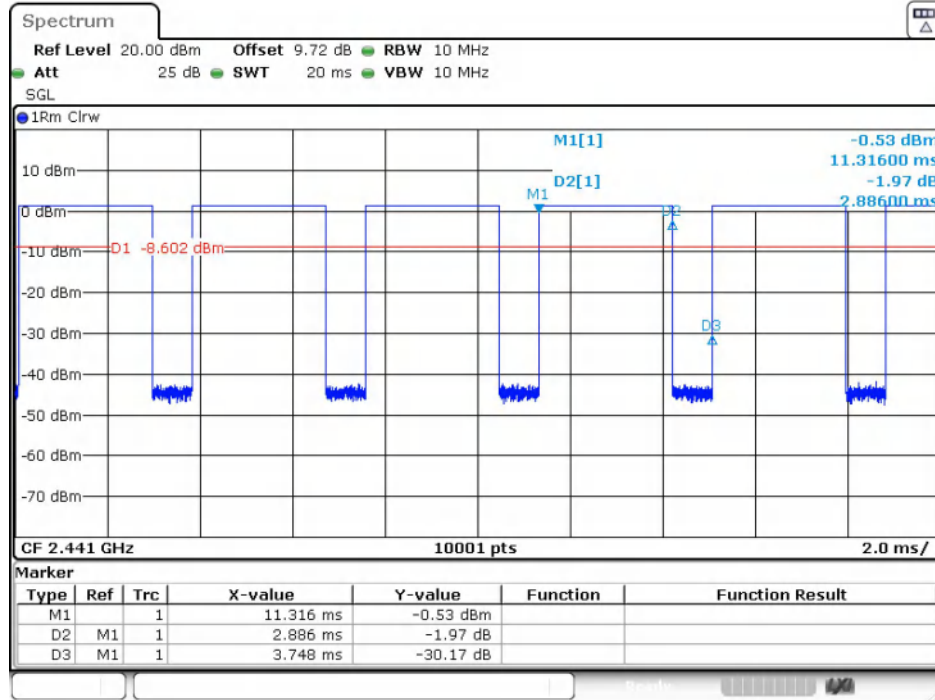
Left

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	2.886	3.748	77.00	0.7700	1.1351	0.35
		78	2.886	3.748	77.00	0.7700	1.1351	0.35
$\pi/4$ DQPSK	2-DH5	0	2.892	3.748	77.16	0.7716	1.1261	0.35
		39	2.890	3.748	77.11	0.7711	1.1289	0.35
		78	2.890	3.748	77.11	0.7711	1.1289	0.35
8DPSK	3-DH5	0	2.894	3.748	77.21	0.7721	1.1233	0.35
		39	2.892	3.748	77.16	0.7716	1.1261	0.35
		78	2.892	3.746	77.20	0.7720	1.1238	0.35

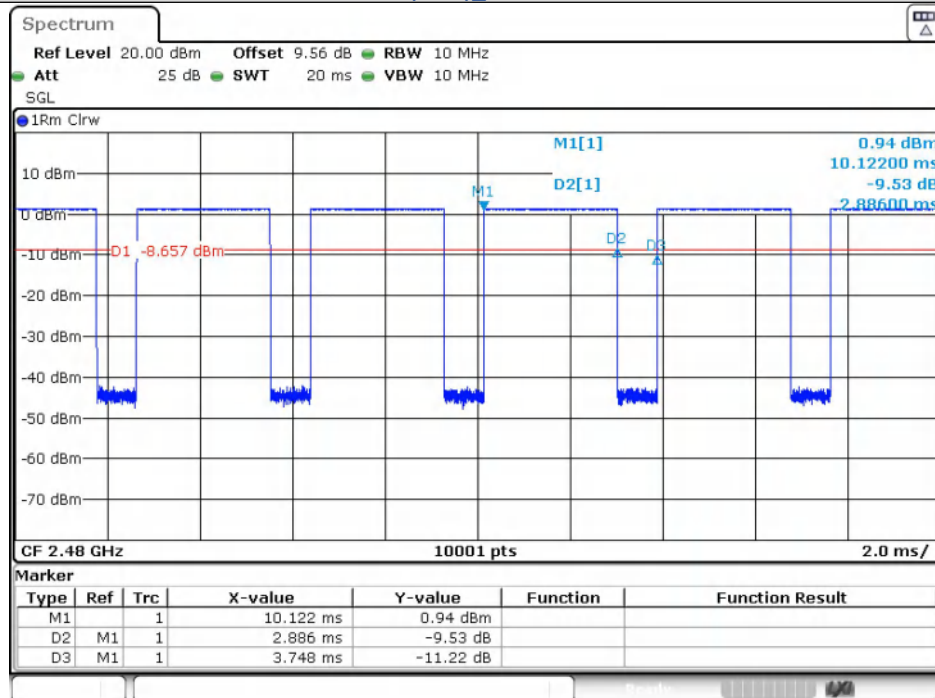
Test Graphs





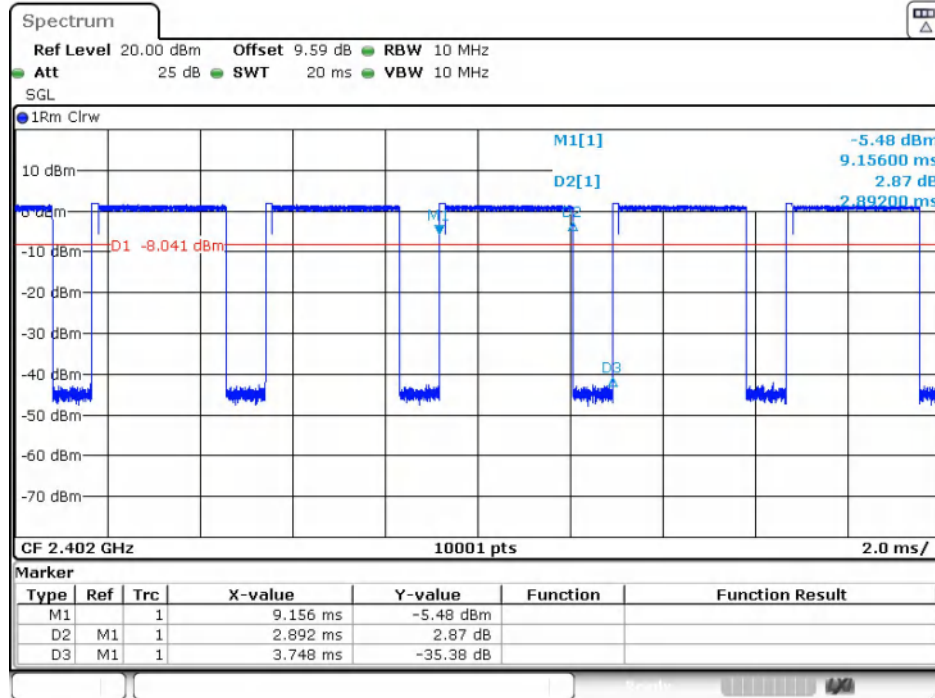
Date: 17.APR.2024 17:17:34

GFSK(DH5)_Channel 39



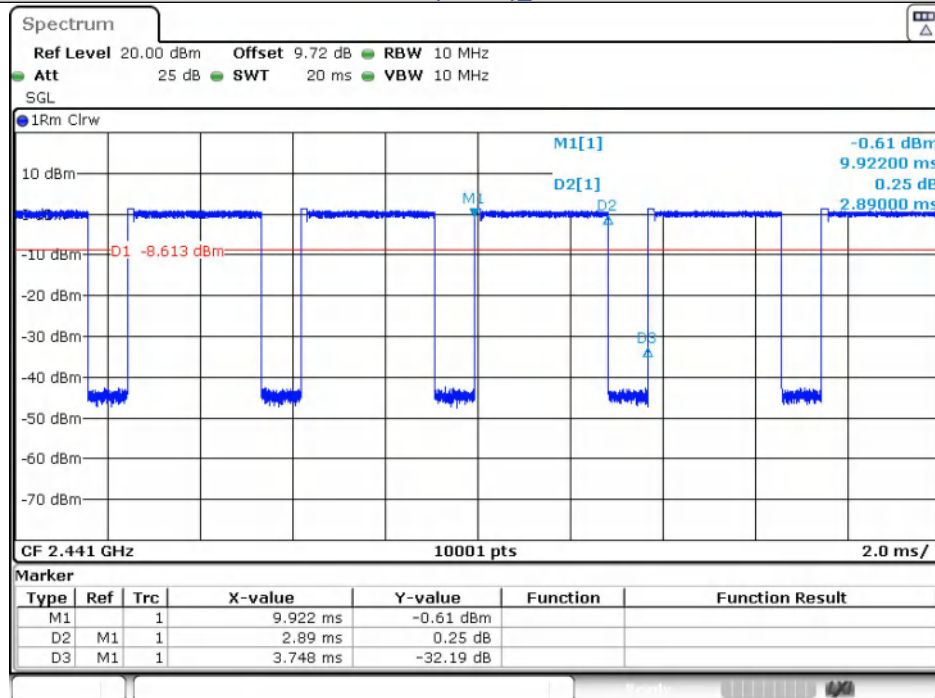
Date: 17.APR.2024 17:21:15

GFSK(DH5)_Channel 78



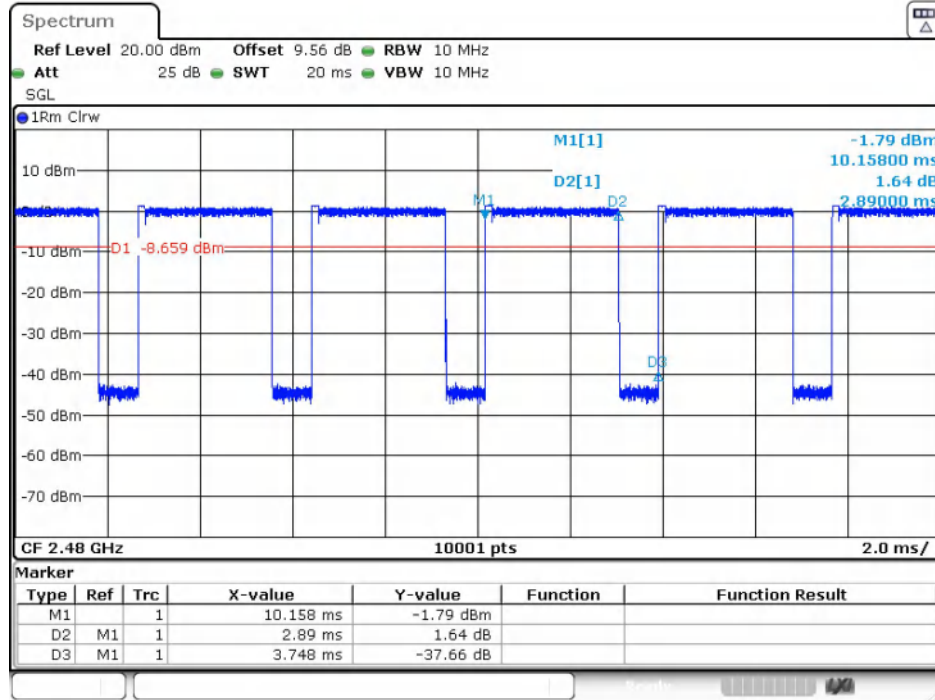
Date: 17.APR.2024 17:25:40

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



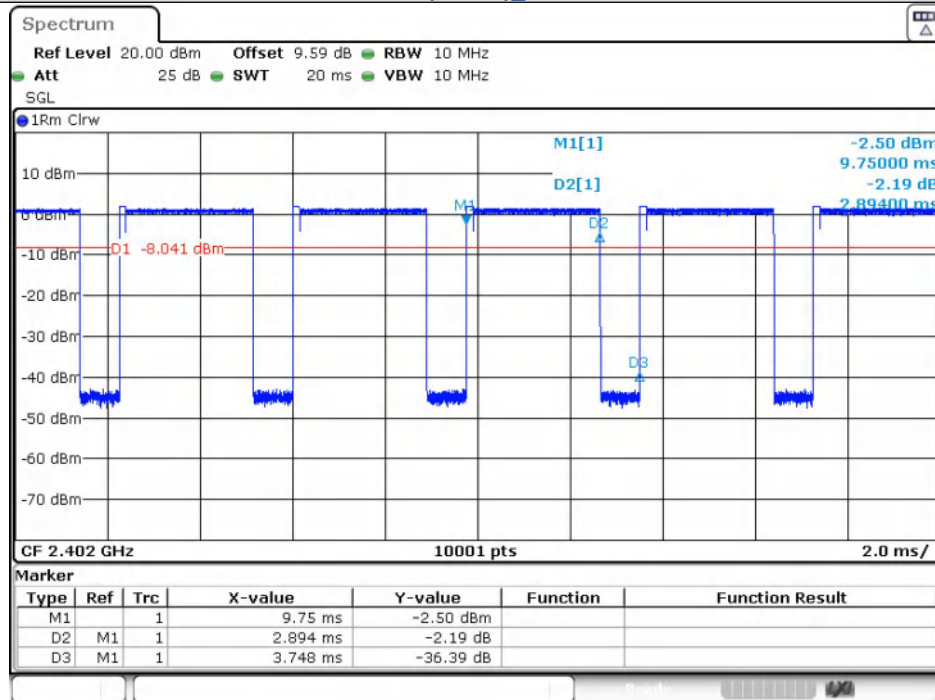
Date: 17.APR.2024 17:33:58

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



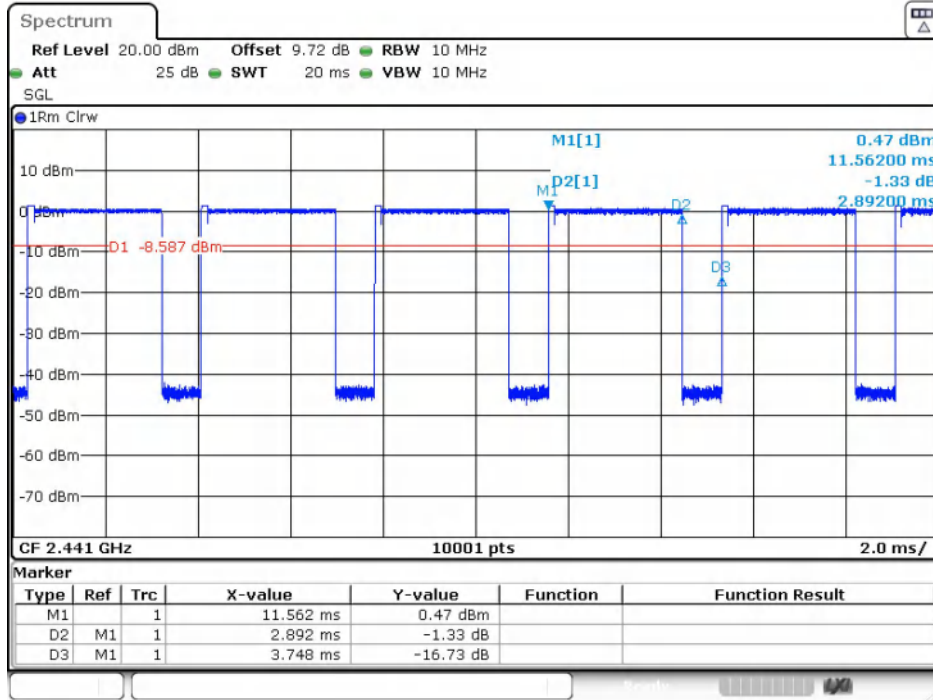
Date: 17.APR.2024 17:36:19

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



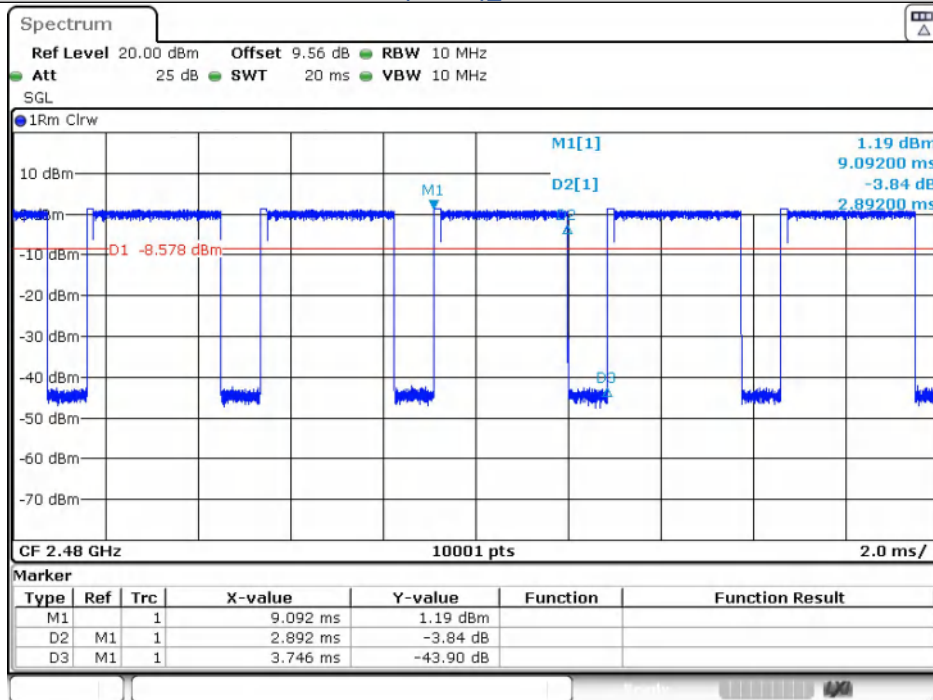
Date: 17.APR.2024 17:40:34

8DPSK(3-DH5)_Channel 0



Date: 17.APR.2024 17:48:23

8DPSK(3-DH5)_Channel 39



Date: 17.APR.2024 17:50:52

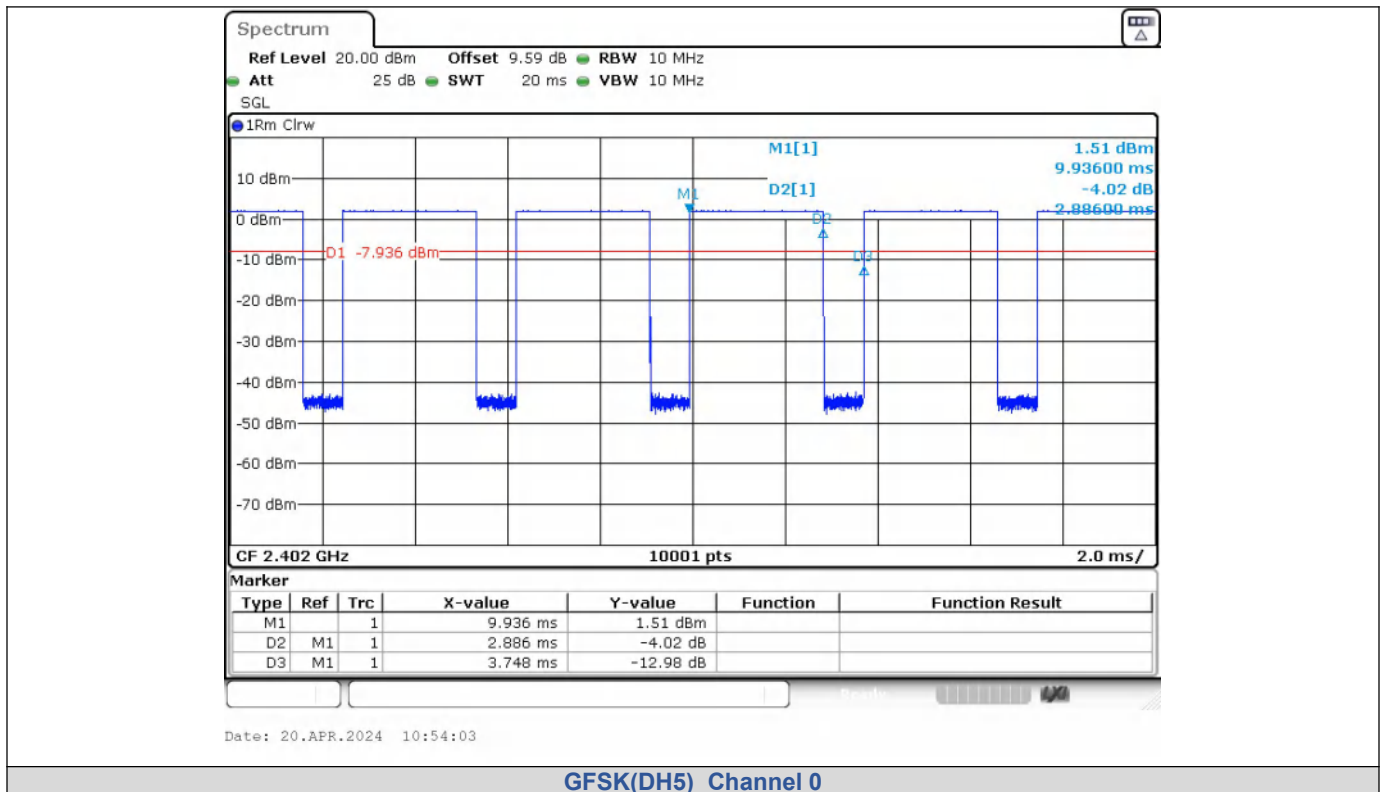
8DPSK(3-DH5)_Channel 78

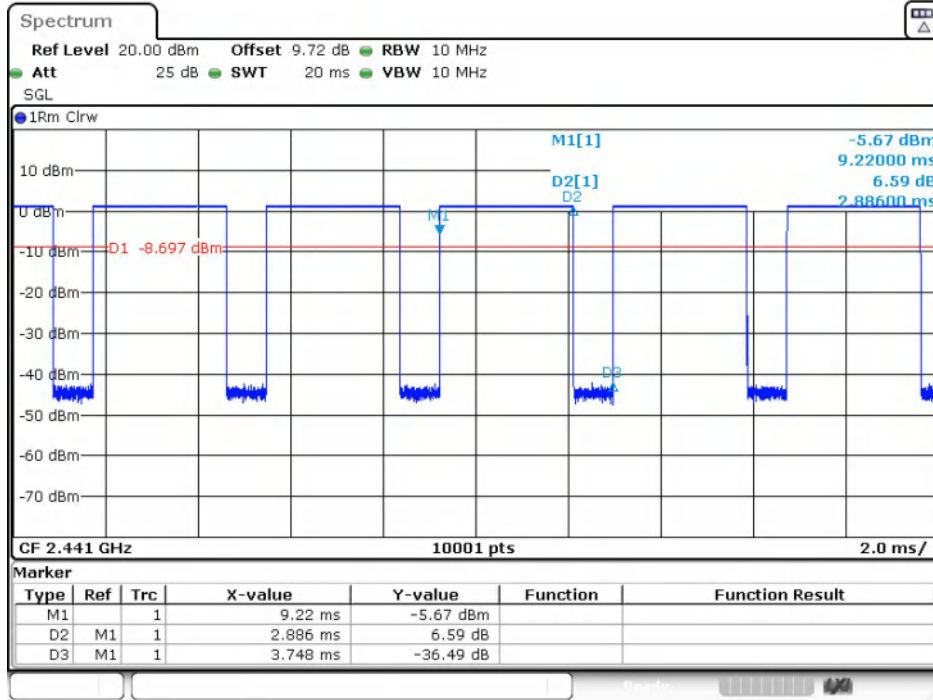
Right

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	2.886	3.748	77.00	0.7700	1.1351	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	2.892	3.748	77.16	0.7716	1.1261	0.35
8DPSK	3-DH5	0	2.894	3.748	77.21	0.7721	1.1233	0.35
		39	2.894	3.748	77.21	0.7721	1.1233	0.35
		78	2.894	3.748	77.21	0.7721	1.1233	0.35

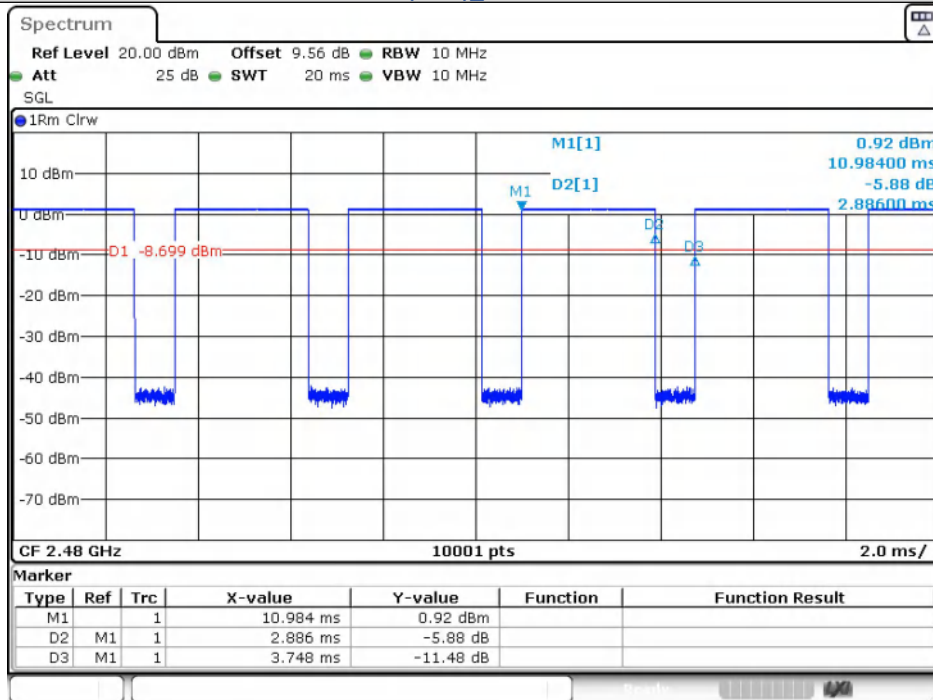
Test Graphs





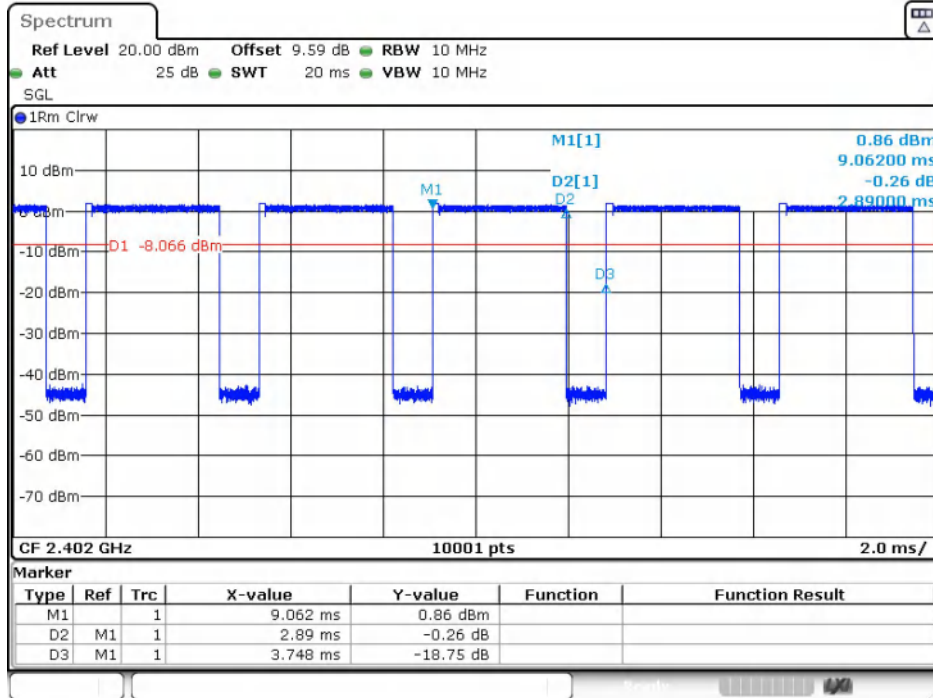
Date: 20.APR.2024 11:01:06

GFSK(DH5)_Channel 39



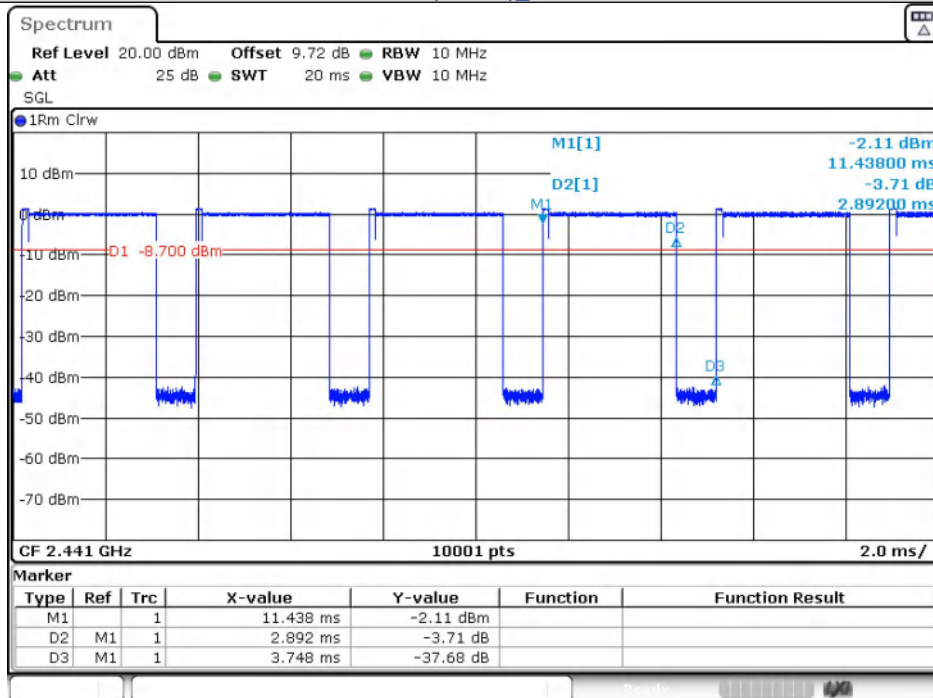
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GFSK(DH5)_Channel 78



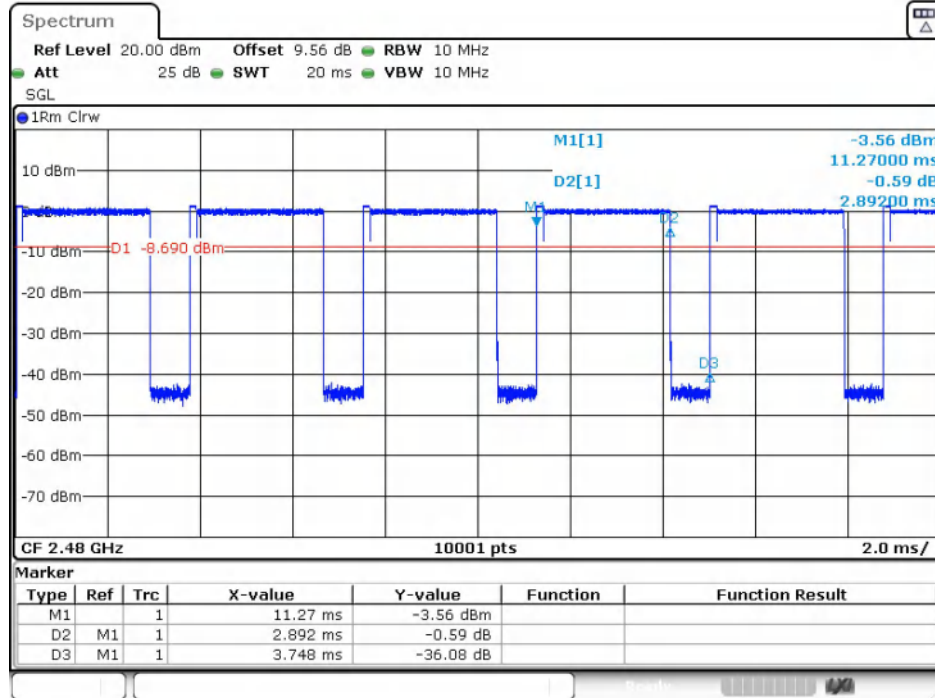
Date: 20.APR.2024 11:16:55

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



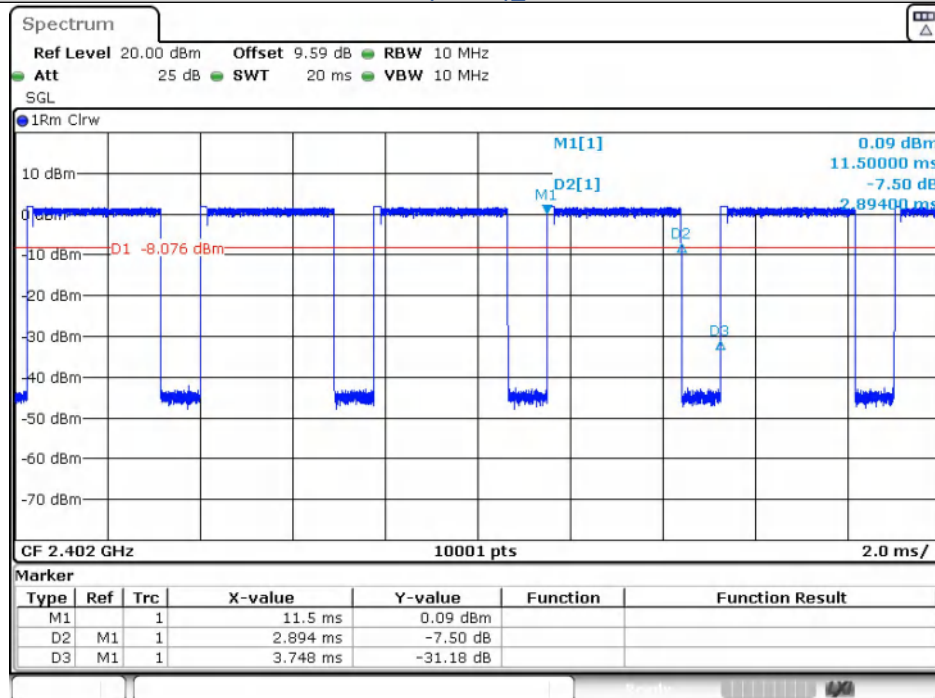
Date: 20.APR.2024 11:27:09

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



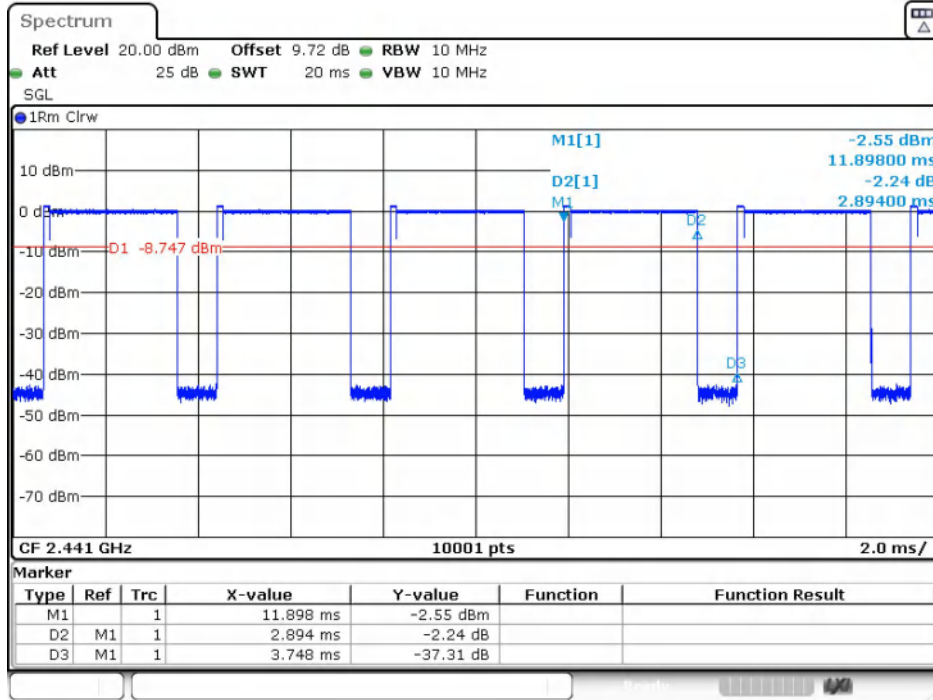
Date: 20.APR.2024 11:29:17

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



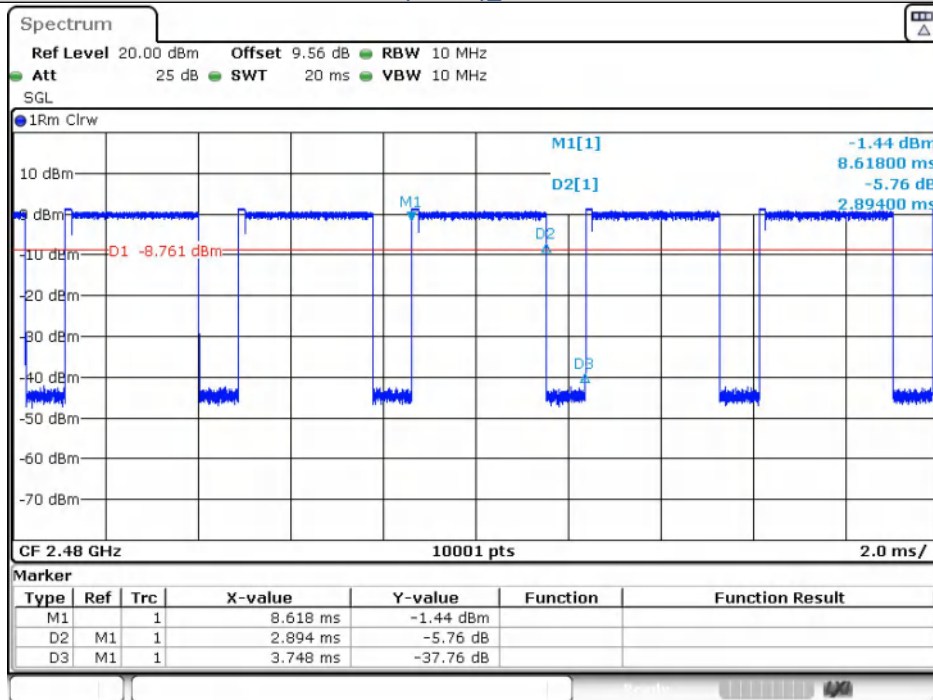
Date: 20.APR.2024 11:35:26

8DPSK(3-DH5)_Channel 0



Date: 20.APR.2024 11:58:37

8DPSK(3-DH5)_Channel 39



Date: 20.APR.2024 12:02:44

8DPSK(3-DH5)_Channel 78

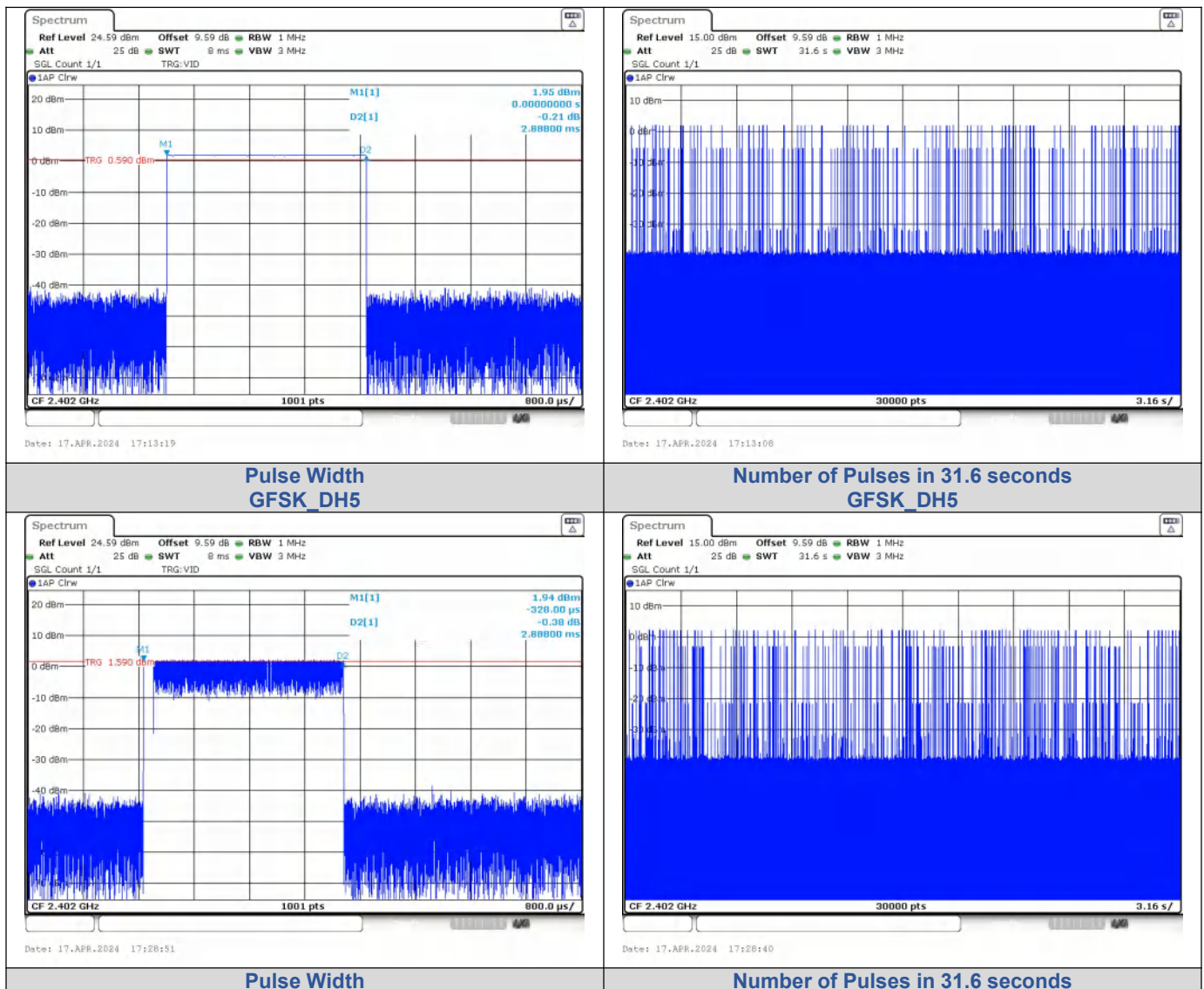
Dwell Time

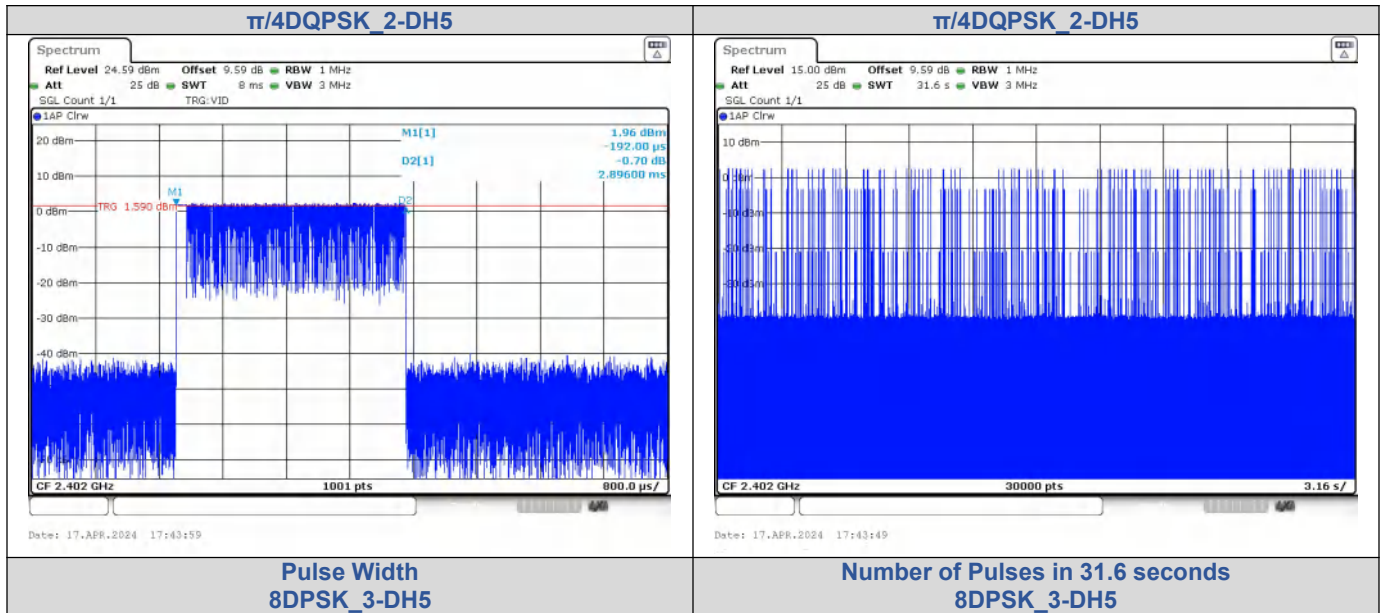
Left

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	95	274.36	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.888	124	358.11		PASS
8DPSK	3-DH5		2.896	110	318.56		PASS

Test Graphs



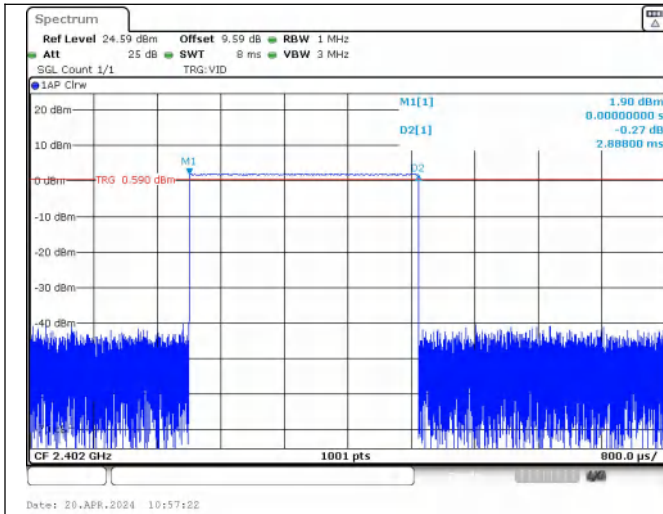


Right

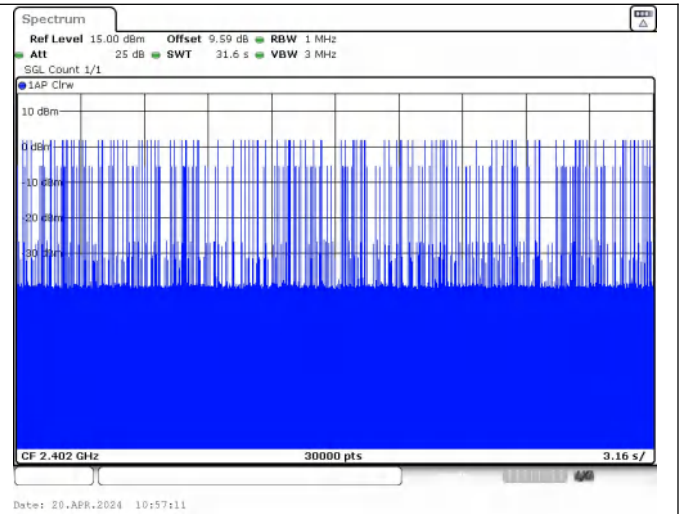
Test Result

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	111	320.57	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	99	286.7		PASS
8DPSK	3-DH5		2.896	108	312.77		PASS

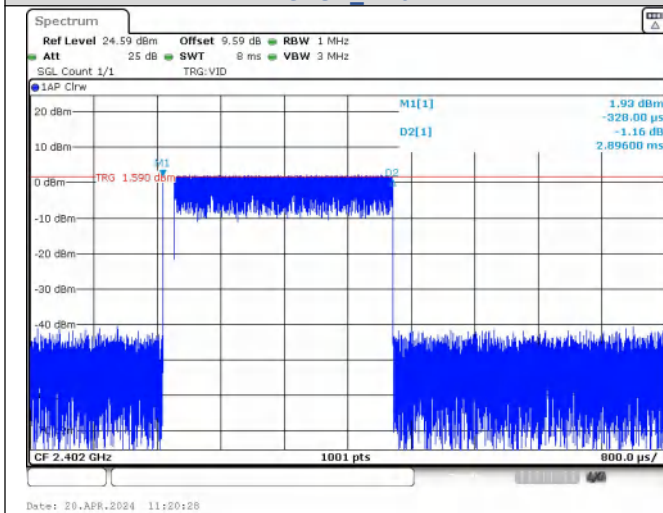
Test Graphs



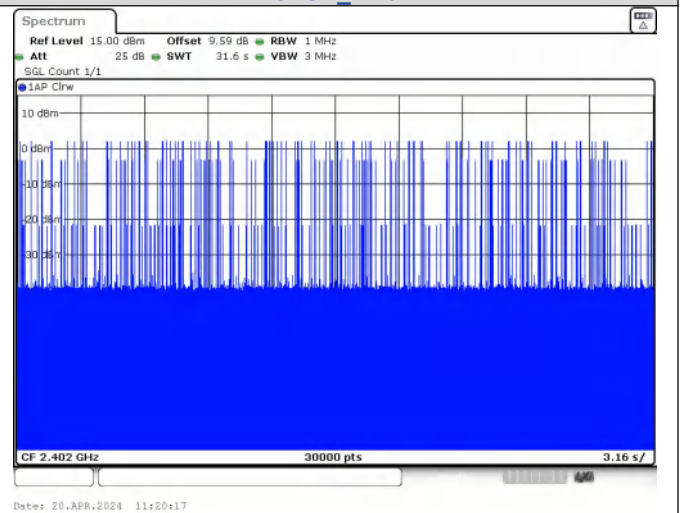
Pulse Width
GFSK_DH5



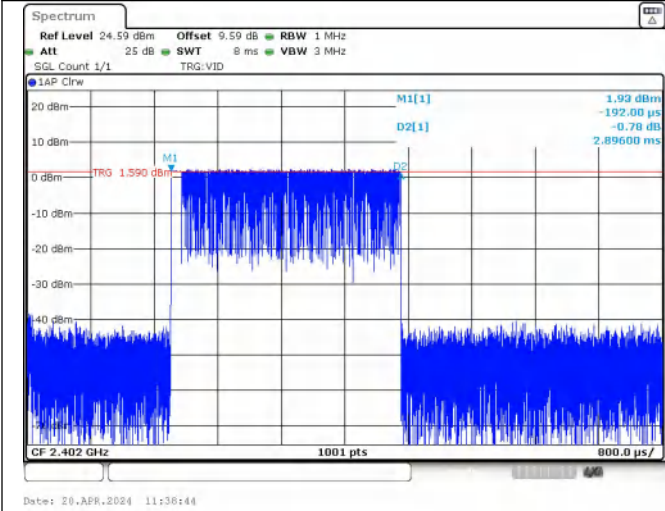
Number of Pulses in 31.6 seconds
GFSK_DH5



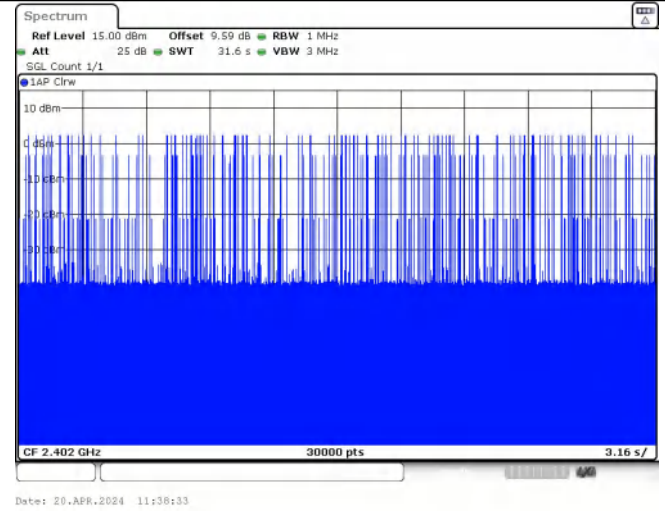
Pulse Width
 $\pi/4$ DQPSK_2-DH5



Number of Pulses in 31.6 seconds
 $\pi/4$ DQPSK_2-DH5



Pulse Width
8DPSK_3-DH5



Number of Pulses in 31.6 seconds
8DPSK_3-DH5

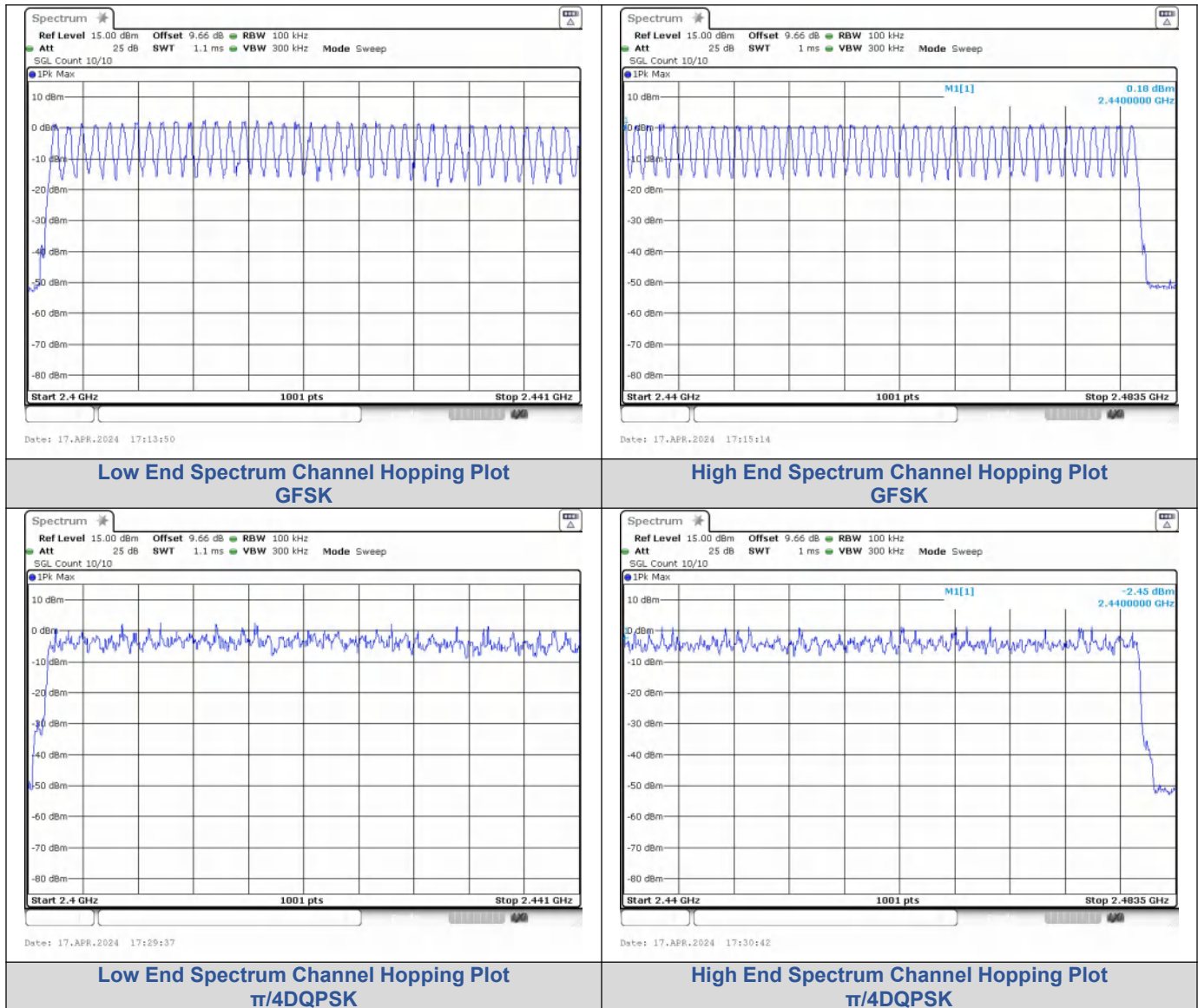
Number Of Hopping Channel

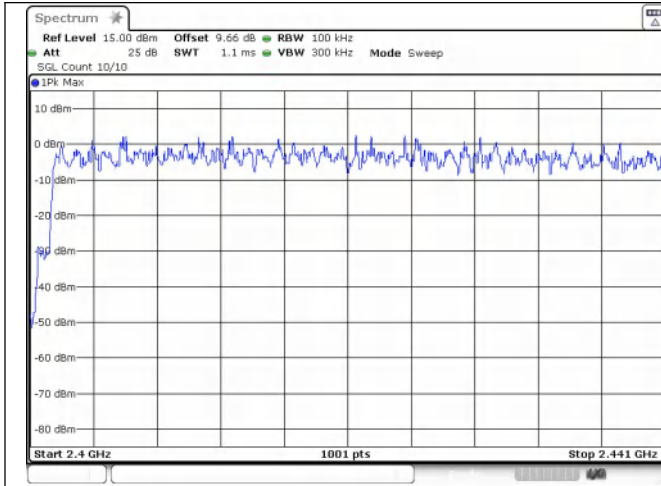
Left

Test Result

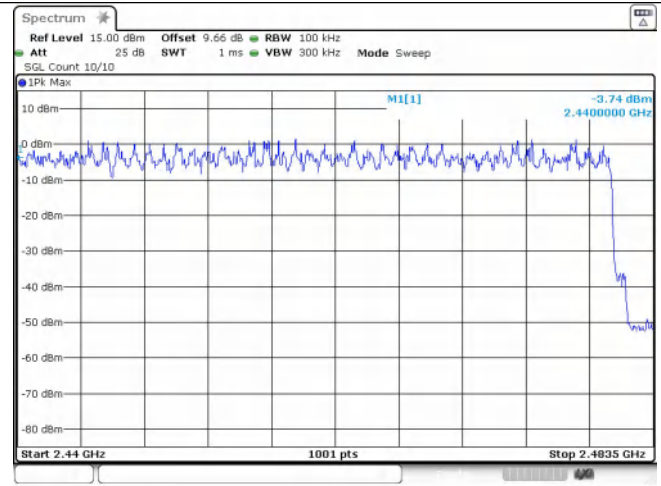
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





**Low End Spectrum Channel Hopping Plot
8DPSK**

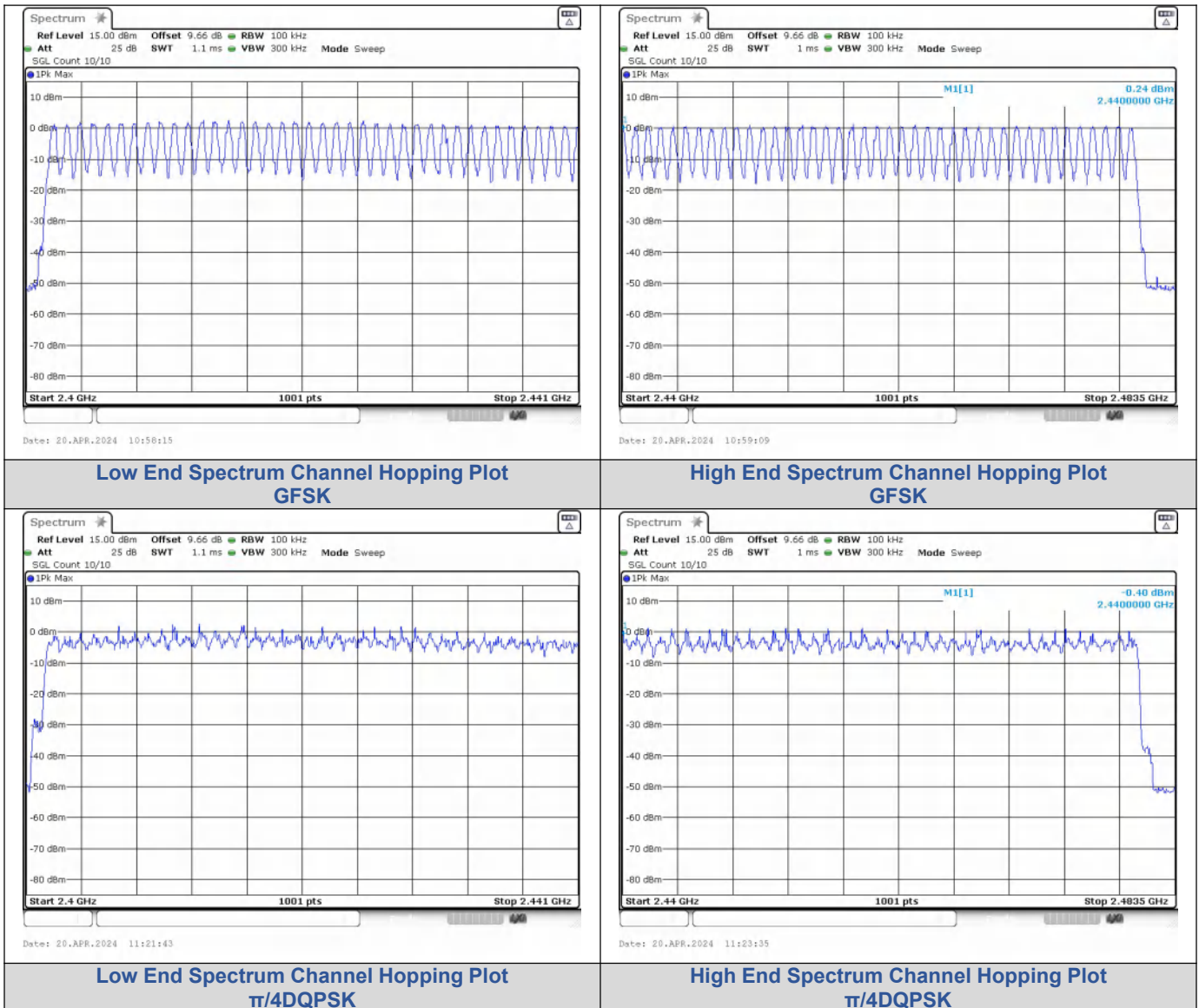


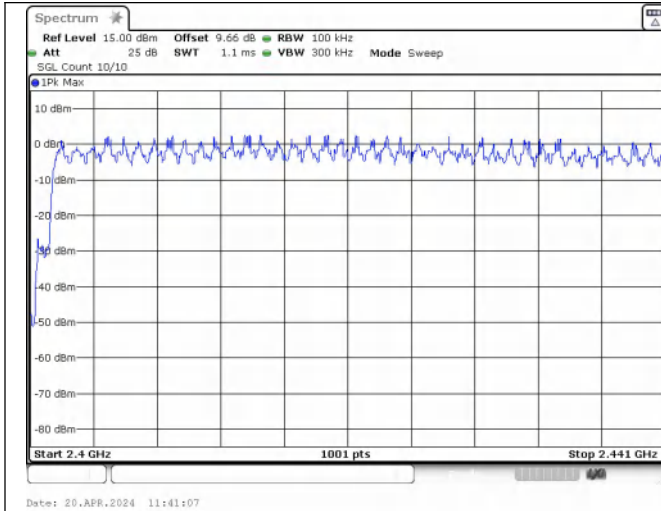
**High End Spectrum Channel Hopping Plot
8DPSK**

Right Test Result

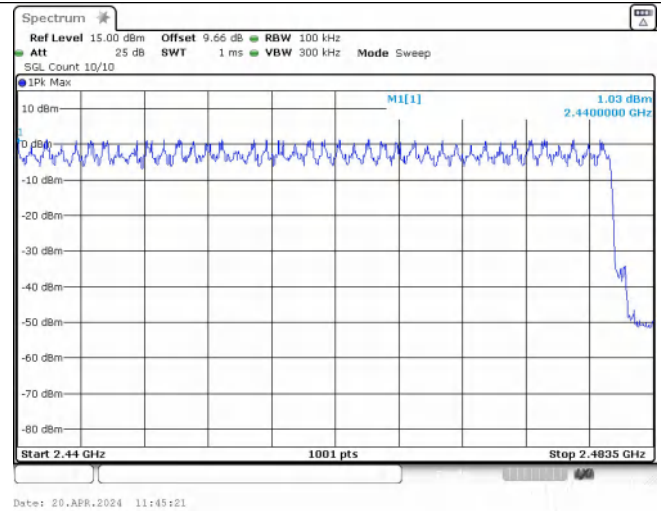
Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

Test Graphs





**Low End Spectrum Channel Hopping Plot
8DPSK**



**High End Spectrum Channel Hopping Plot
8DPSK**