

# Appendix A

Report No.:	CISRR240522140
FCC ID:	2BGLV-951
Product Name:	Bluetooth earphones
Model No.:	951
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

## Conducted Peak Output Power

### Test Result

#### Left

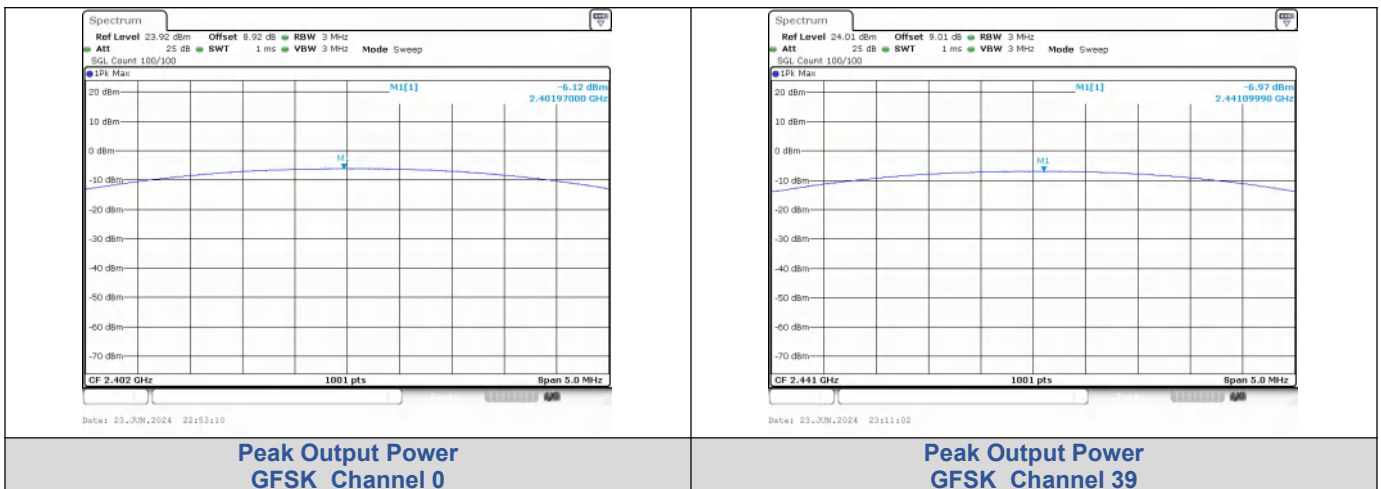
Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	-6.12	0.24	30	PASS
		39	-6.97	0.20		PASS
		78	-6.05	0.25		PASS
$\pi$ /4DQPSK	2-DH5	0	-5.89	0.26	20.97	PASS
		39	-6.66	0.22		PASS
		78	-5.60	0.28		PASS

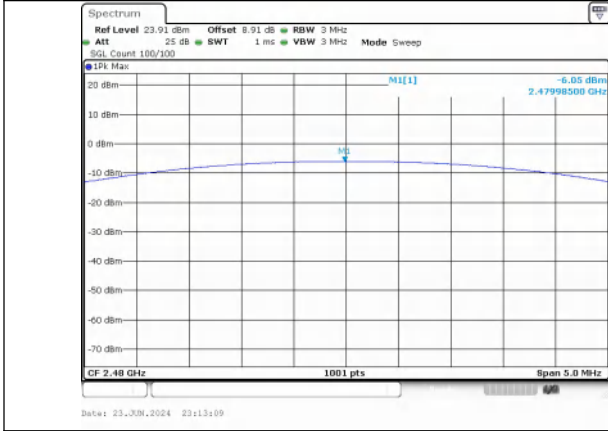
#### Right

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	-6.15	0.24	30	PASS
		39	-6.96	0.20		PASS
		78	-6.11	0.24		PASS
$\pi$ /4DQPSK	2-DH5	0	-5.79	0.26	20.97	PASS
		39	-6.52	0.22		PASS
		78	-5.55	0.28		PASS

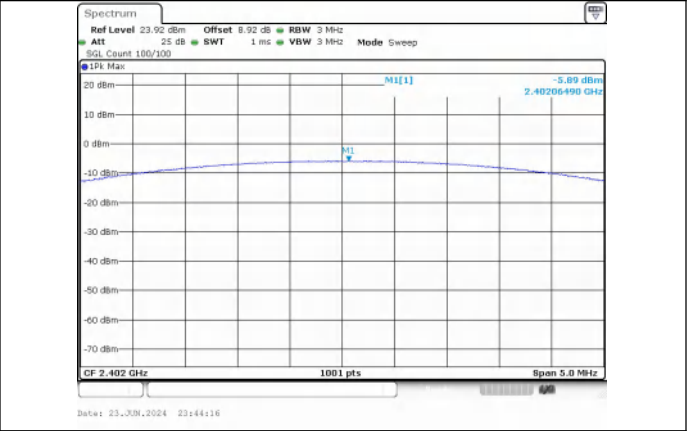
### Test Graphs

#### Left

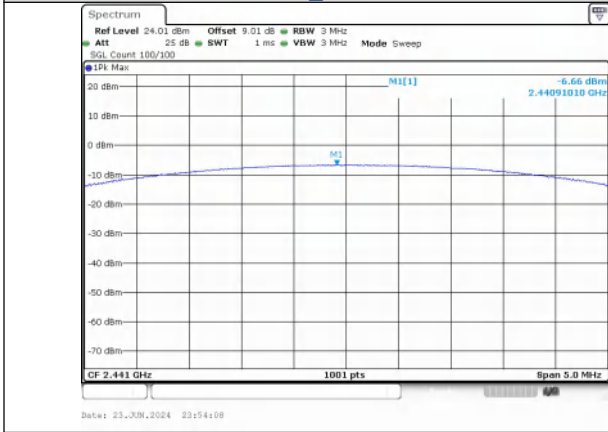




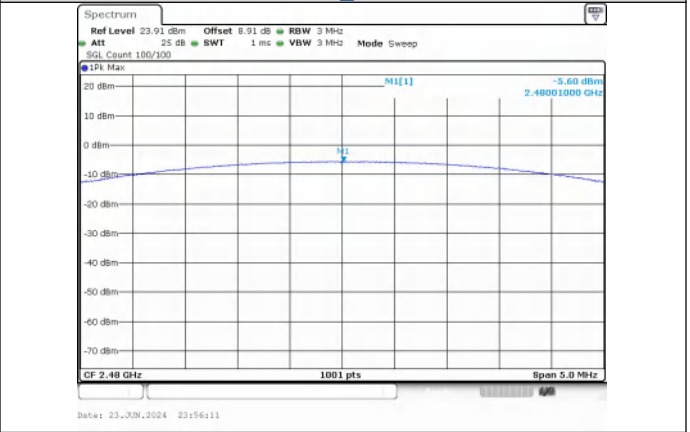
**Peak Output Power  
GFSK\_Channel 78**



**Peak Output Power  
 $\pi/4$ DQPSK\_Channel 0**

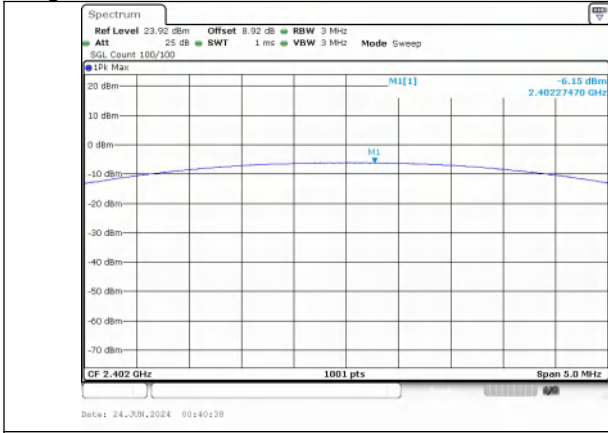


**Peak Output Power  
 $\pi/4$ DQPSK\_Channel 39**

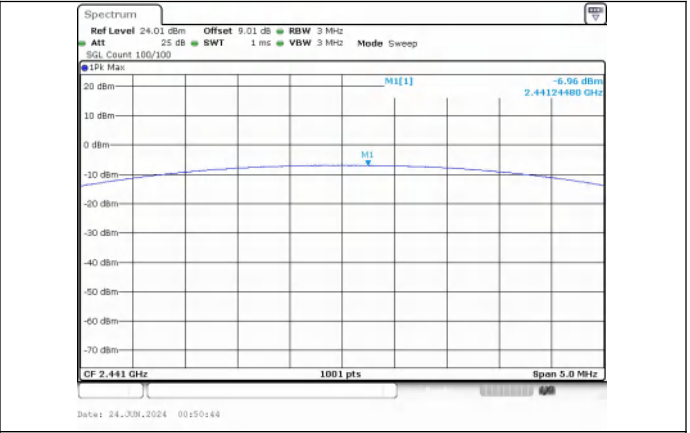


**Peak Output Power  
 $\pi/4$ DQPSK\_Channel 78**

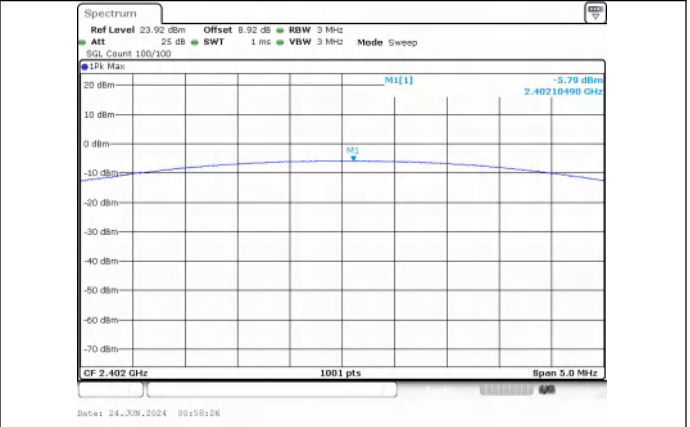
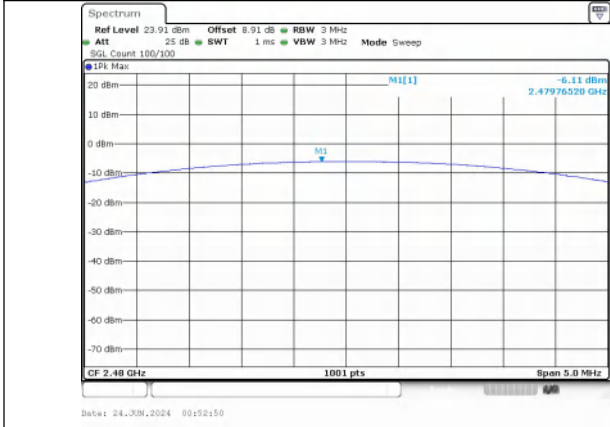
Right



**Peak Output Power  
GFSK\_Channel 0**

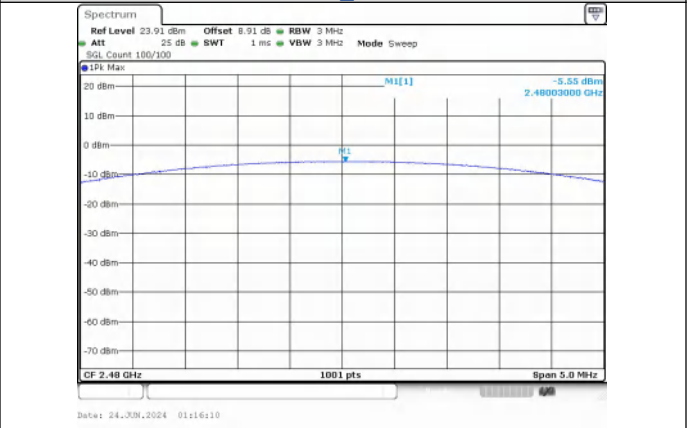
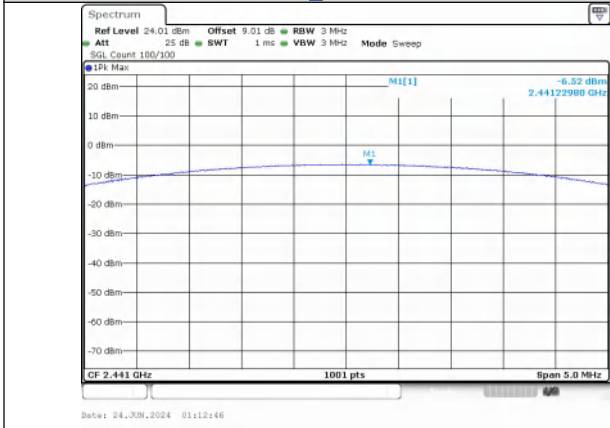


**Peak Output Power  
GFSK\_Channel 39**



**Peak Output Power GFSK\_Channel 78**

**Peak Output Power  $\pi/4$ DQPSK\_Channel 0**



**Peak Output Power  $\pi/4$ DQPSK\_Channel 39**

**Peak Output Power  $\pi/4$ DQPSK\_Channel 78**

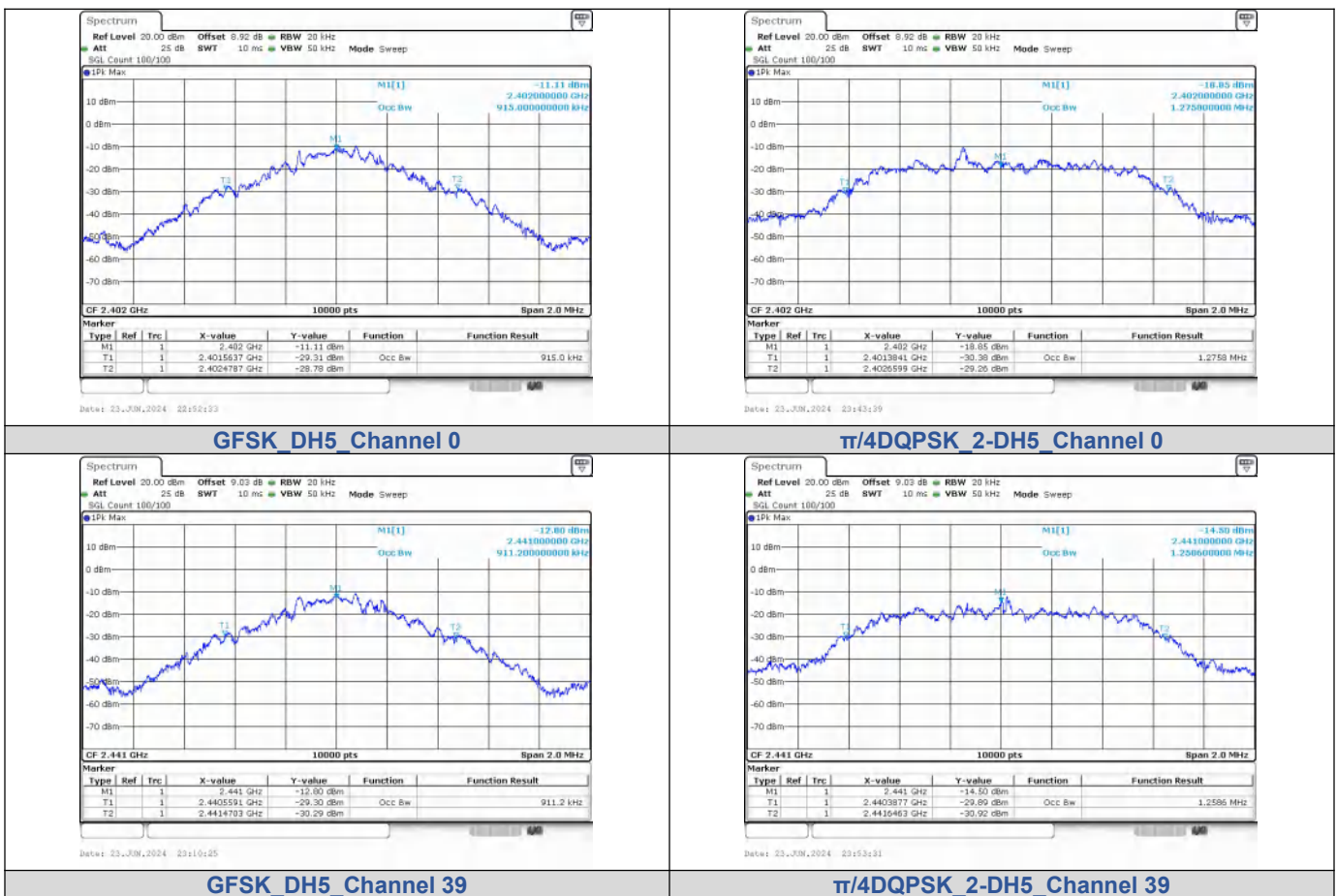
## 99% Bandwidth

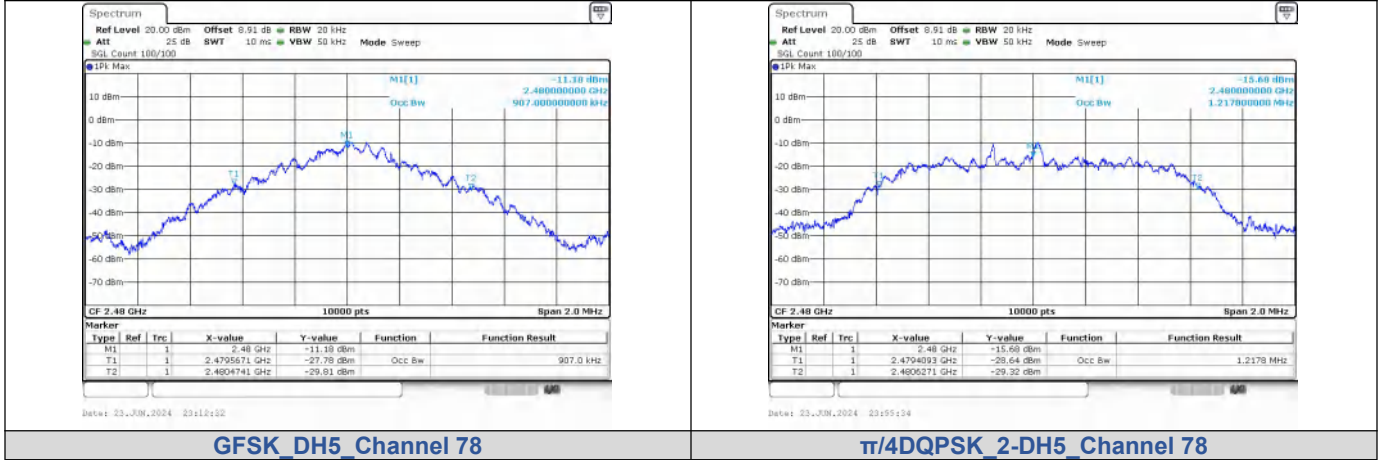
### Test Result

Left

Modulation	Channel	Center Frequency (MHz)	99% BW (MHz)
GFSK	0	2402	0.9150
	39	2441	0.9112
	78	2480	0.9070
$\pi/4$ DQPSK	0	2402	1.2758
	39	2441	1.2586
	78	2480	1.2178

### Test Graphs



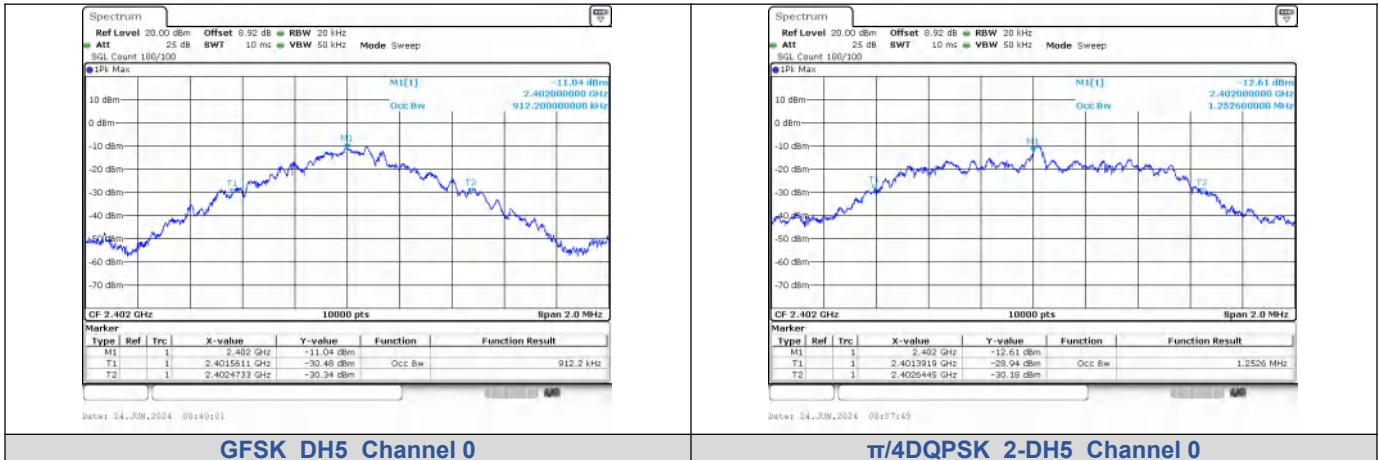


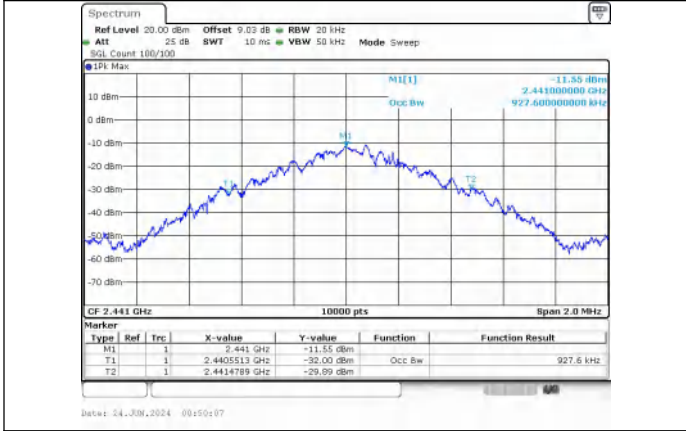
Right

**Test Result**

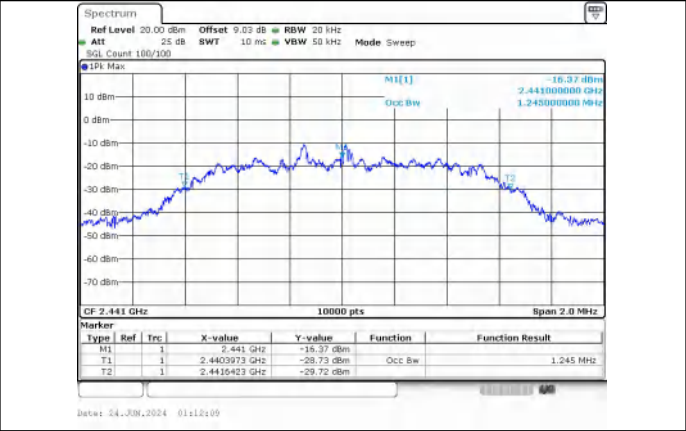
Modulation	Channel	Center Frequency (MHz)	99% BW (MHz)
GFSK	0	2402	0.9122
	39	2441	0.9276
	78	2480	0.9062
$\pi/4$ DQPSK	0	2402	1.2526
	39	2441	1.2450
	78	2480	1.2162

**Test Graphs**

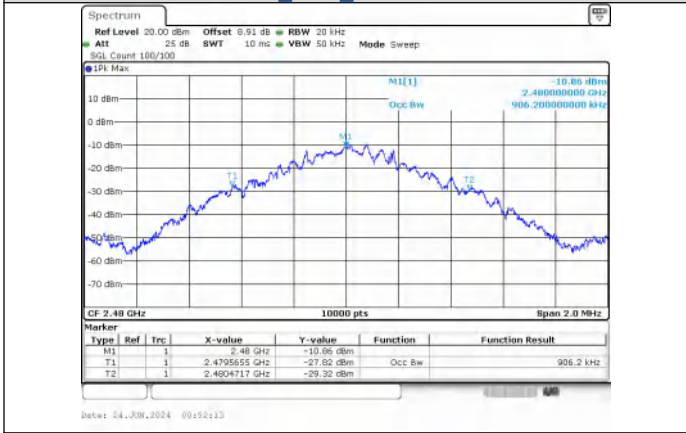




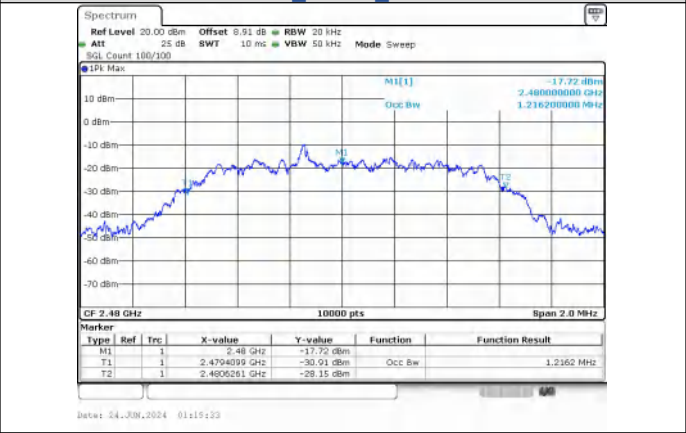
**GFSK\_DH5\_Channel 39**



**$\pi/4$ DQPSK\_2-DH5\_Channel 39**



**GFSK\_DH5\_Channel 78**



**$\pi/4$ DQPSK\_2-DH5\_Channel 78**



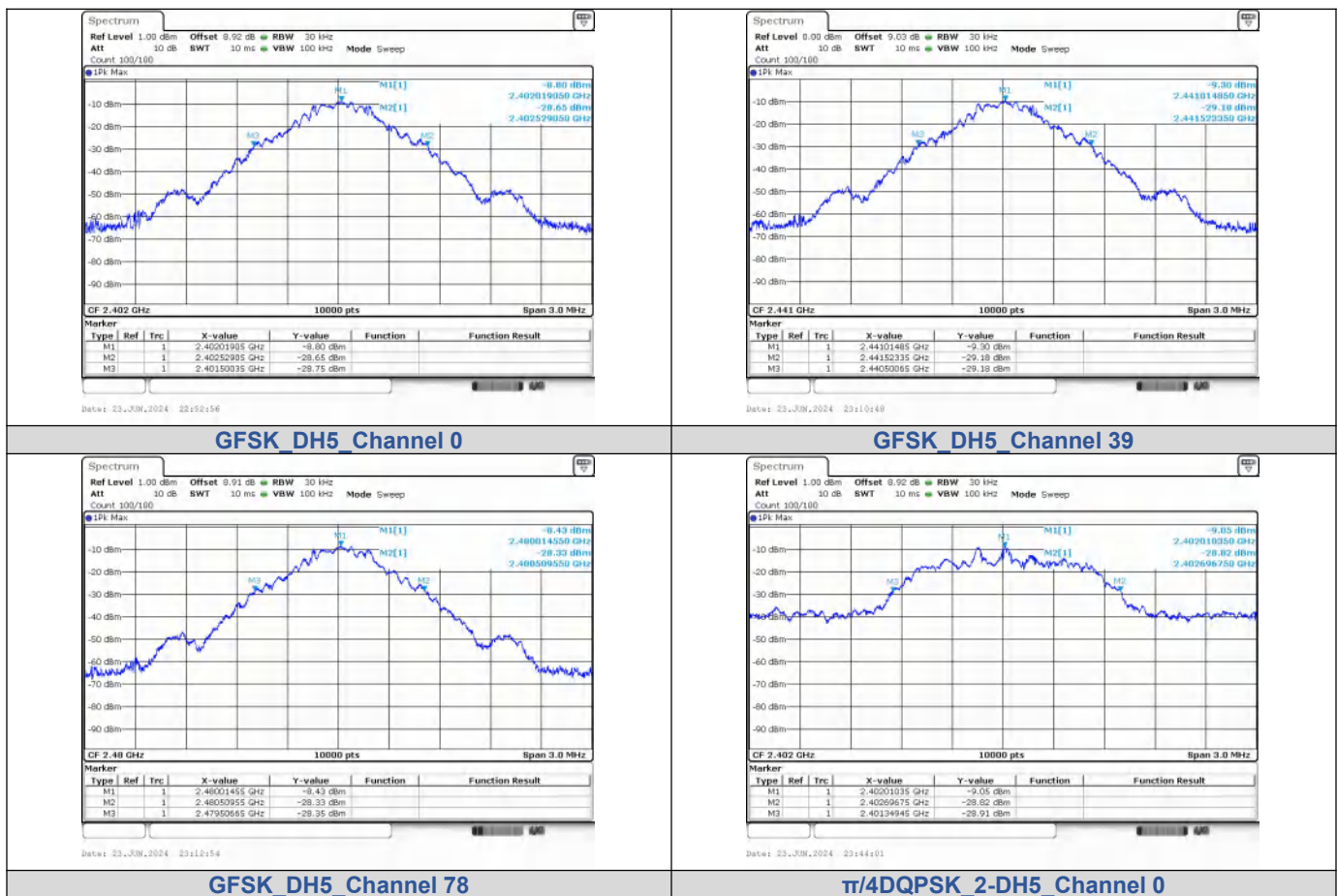
## 20dB Bandwidth

### Test Result

Left

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.030
	39	2441 MHz	1.020
	78	2480 MHz	1.000
$\pi/4$ DQPSK	0	2402 MHz	1.350
	39	2441 MHz	1.330
	78	2480 MHz	1.310

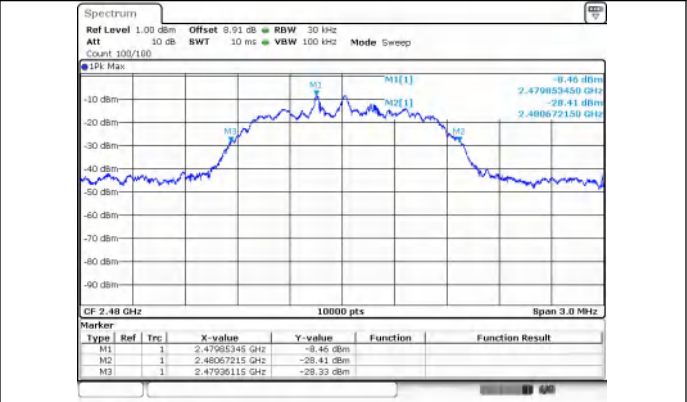
### Test Graphs







$\pi/4$ DQPSK\_2-DH5\_Channel 39

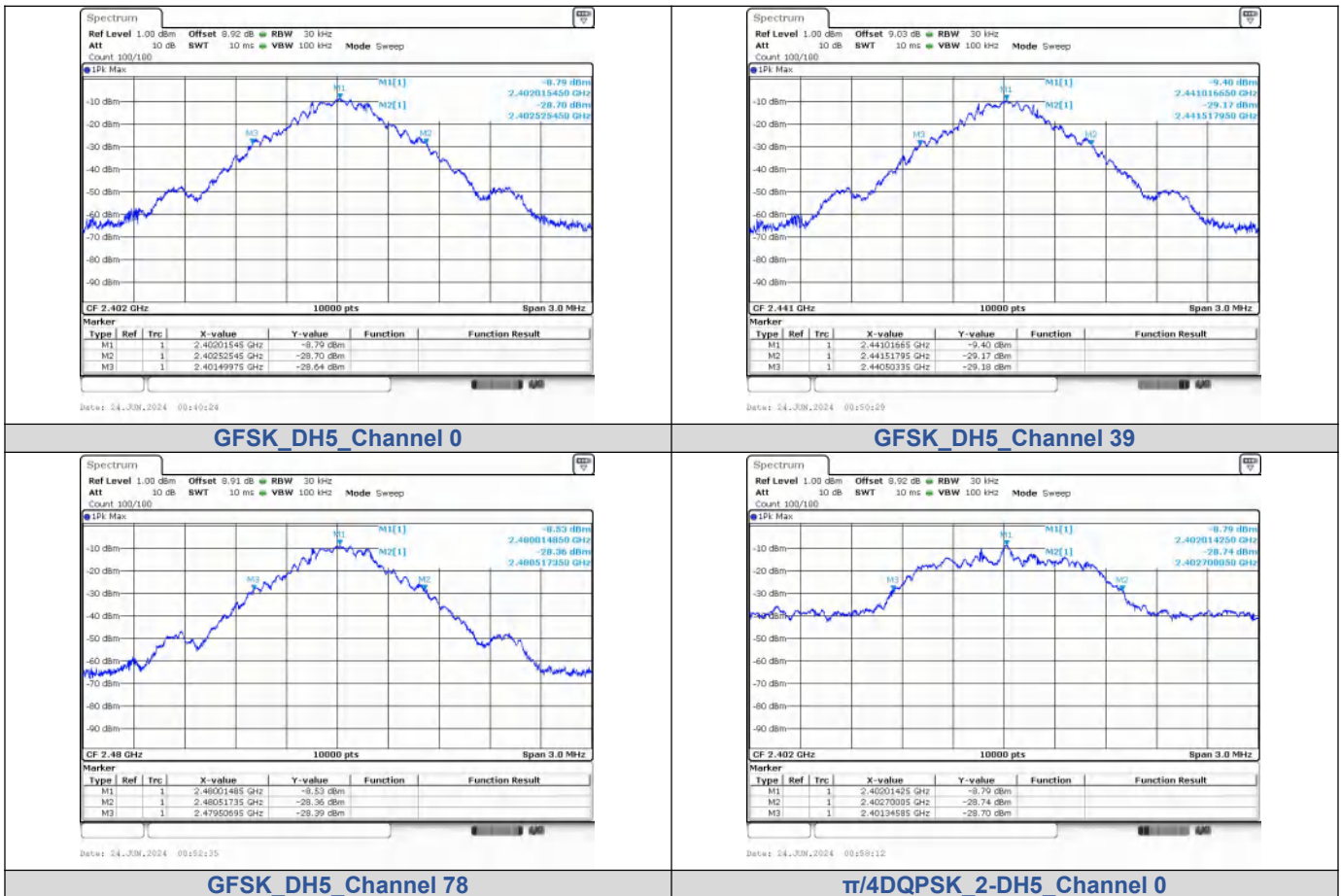


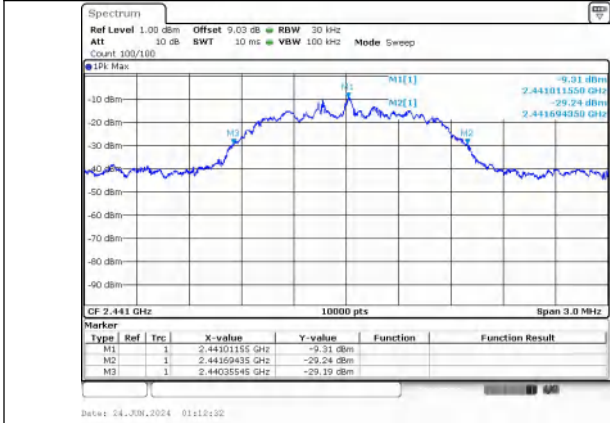
$\pi/4$ DQPSK\_2-DH5\_Channel 78

Right

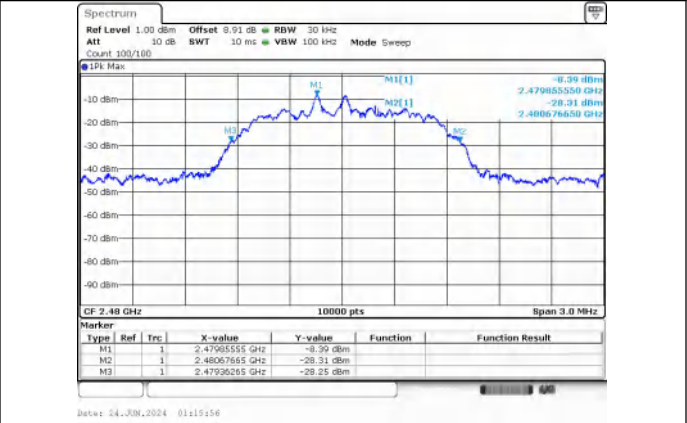
**Test Result**

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.030
	39	2441 MHz	1.020
	78	2480 MHz	1.010
$\pi/4$ DQPSK	0	2402 MHz	1.350
	39	2441 MHz	1.330
	78	2480 MHz	1.320

**Test Graphs**




$\pi/4$ DQPSK\_2-DH5\_Channel 39



$\pi/4$ DQPSK\_2-DH5\_Channel 78

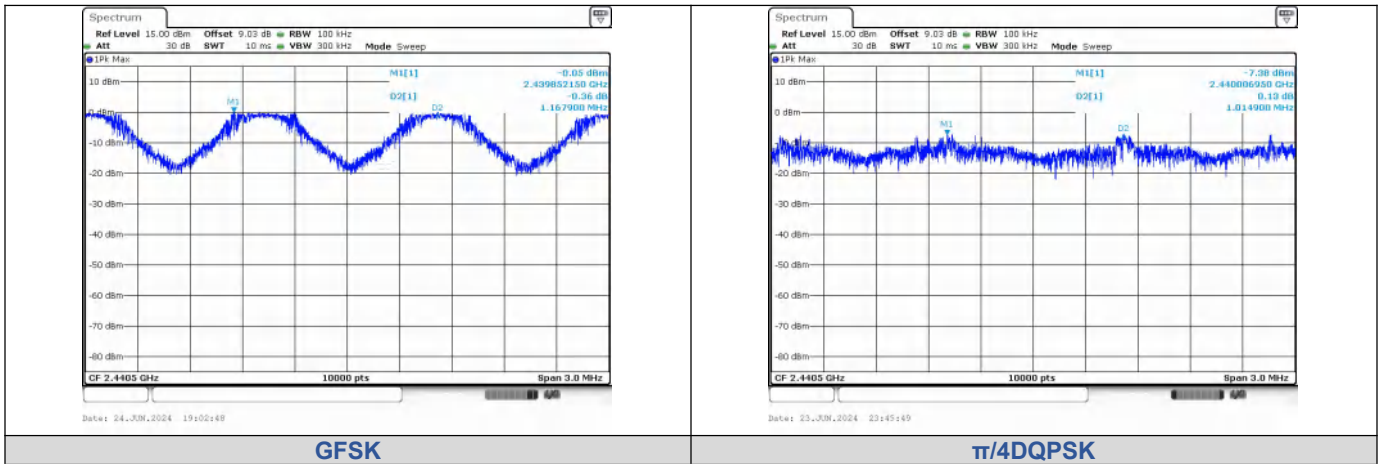
## Carrier Frequencies Separation

### Test Result

Left

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.8522	2441.0201	1.1679	1.030	PASS
$\pi$ /4DQPSK	2-DH5	2440.0069	2441.0219	1.0149	0.9	PASS

### Test Graphs

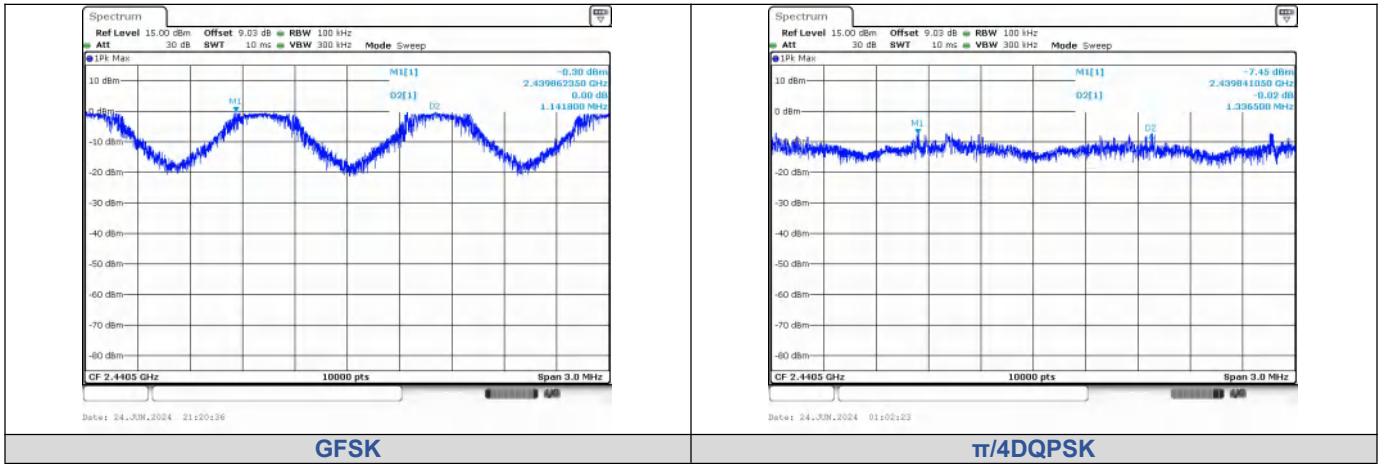


Right

**Test Result**

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.8623	2441.0042	1.1418	1.030	PASS
$\pi/4$ DQPSK	2-DH5	2439.841	2441.1775	1.3365	0.9	PASS

**Test Graphs**



## Conducted Out Of Band Emission

### Test Result

Left

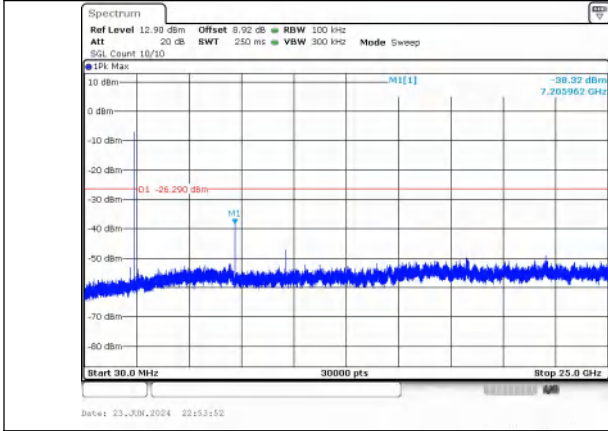
Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	
GFSK	DH5	0	2397.90	-52.160	-26.29	-25.870	PASS	
			2400.00	-52.311	-26.29	-26.021	PASS	
			7206.00	-38.317	-26.29	-12.027	PASS	
		39	9763.72	-42.147	-27.05	-15.097	PASS	
			78	2483.50	-52.739	-26.21	-26.529	PASS
				9920.20	-42.096	-26.21	-15.886	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-47.268	-26.55	-20.718	PASS	
			7205.96	-41.889	-26.55	-15.339	PASS	
		39	9763.72	-41.912	-27.35	-14.562	PASS	
		78	2483.50	-54.290	-26.33	-27.960	PASS	
			9920.20	-41.042	-26.33	-14.712	PASS	

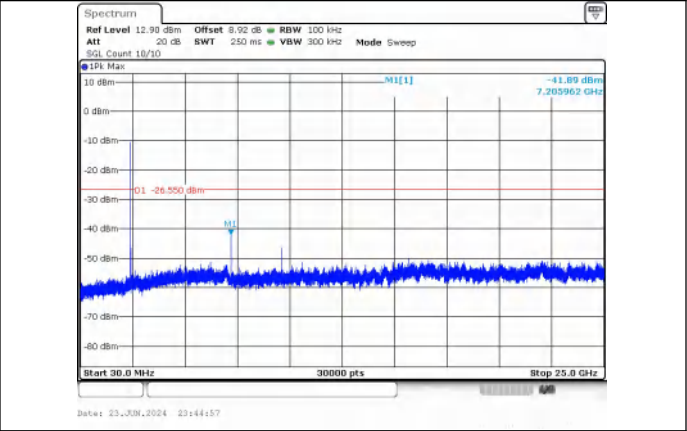
Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2398.19	-50.543	-26.41	-24.133	PASS
			2400.00	-52.752	-26.41	-26.342	PASS
			2483.50	-52.209	-26.26	-25.949	PASS
			2396.11	-50.997	-26.22	-24.777	PASS
			2400.00	-52.541	-26.22	-26.321	PASS
			2483.50	-52.249	-26.56	-25.689	PASS
$\pi/4$ DQPSK	2-DH5		2400.00	-50.278	-26.97	-23.308	PASS
			2483.50	-51.141	-26.34	-24.801	PASS
			2400.00	-48.683	-26.39	-22.293	PASS
			2483.50	-52.224	-26.49	-25.734	PASS

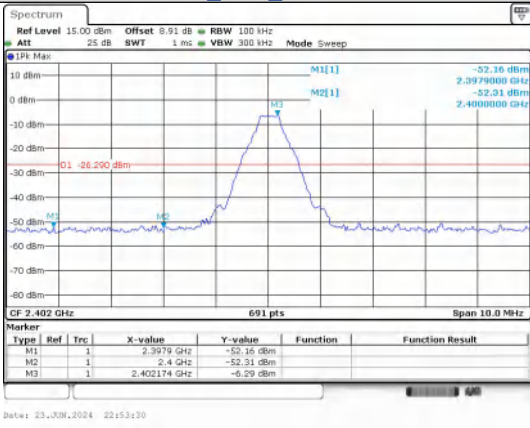
Test Graphs



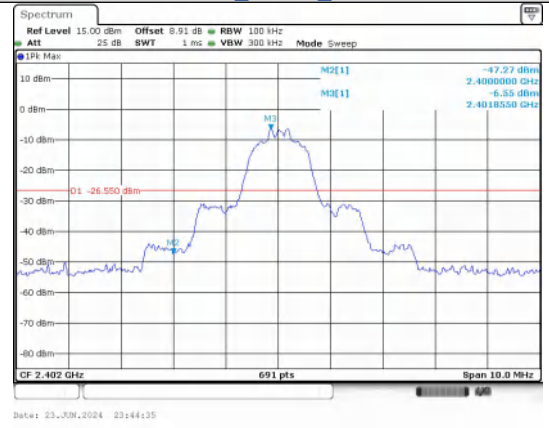
30.0 MHz - 25000.0 MHz  
GFSK\_DH5\_Channel 0



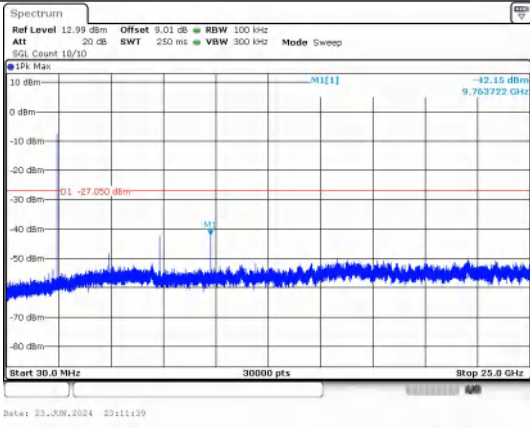
30.0 MHz - 25000.0 MHz  
 $\pi/4$ DQPSK\_2-DH5\_Channel 0



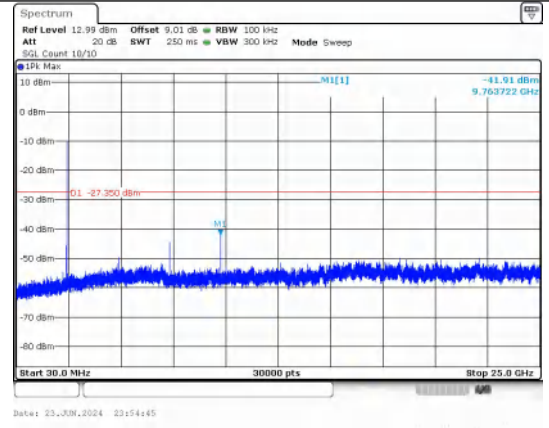
Out Of Band Emission  
GFSK\_DH5\_Channel 0



Out Of Band Emission  
 $\pi/4$ DQPSK\_2-DH5\_Channel 0

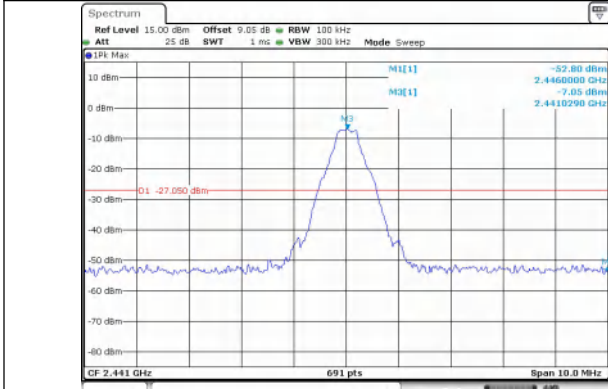


30.0 MHz - 25000.0 MHz  
GFSK\_DH5\_Channel 39



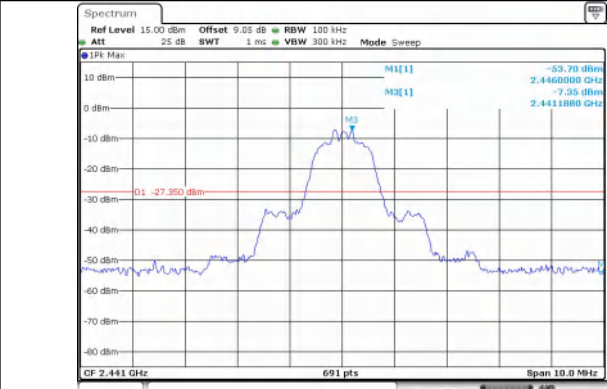
30.0 MHz - 25000.0 MHz  
 $\pi/4$ DQPSK\_2-DH5\_Channel 39





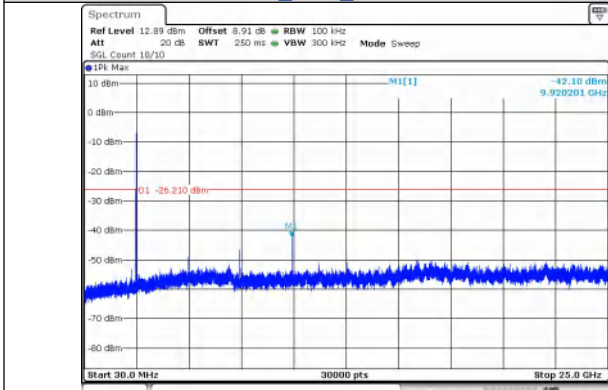
Date: 23\_JUN\_2024 23:11:17

**Out Of Band Emission  
GFSK\_DH5\_Channel 39**



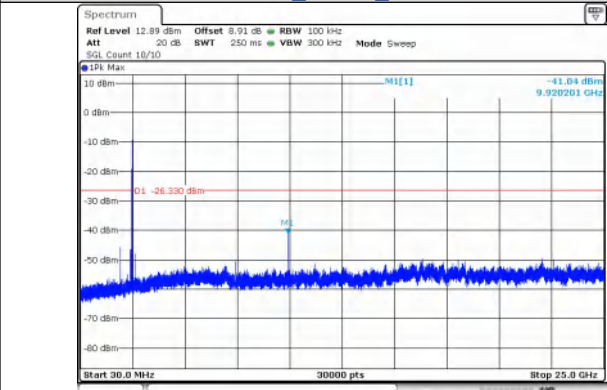
Date: 23\_JUN\_2024 23:14:23

**Out Of Band Emission  
π/4DQPSK\_2-DH5\_Channel 39**



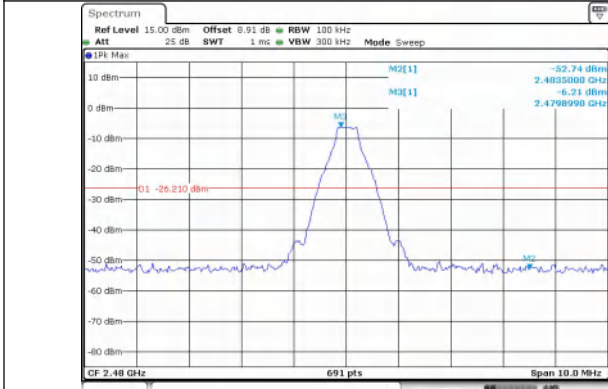
Date: 23\_JUN\_2024 23:13:50

**30.0 MHz - 25000.0 MHz  
GFSK\_DH5\_Channel 78**



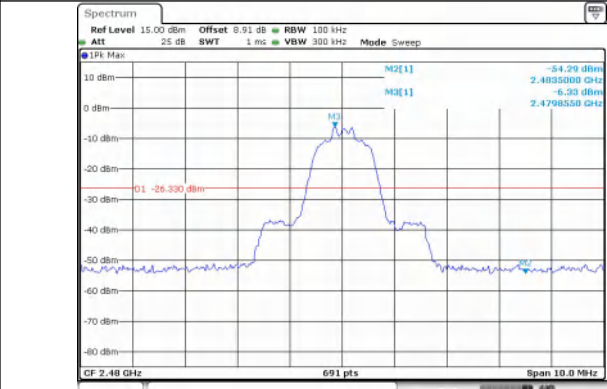
Date: 23\_JUN\_2024 23:15:53

**30.0 MHz - 25000.0 MHz  
π/4DQPSK\_2-DH5\_Channel 78**



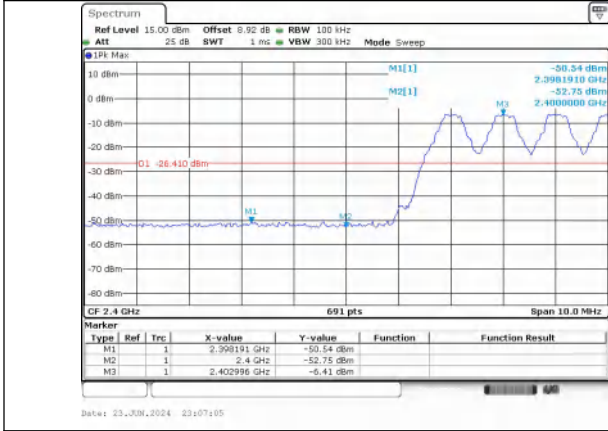
Date: 23\_JUN\_2024 23:13:28

**Out Of Band Emission  
GFSK\_DH5\_Channel 78**

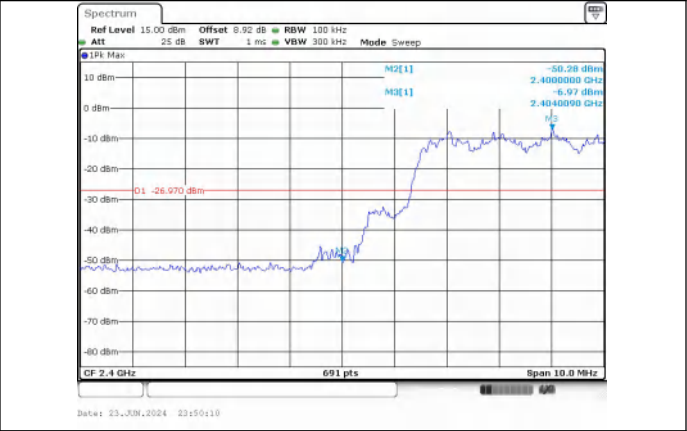


Date: 23\_JUN\_2024 23:15:31

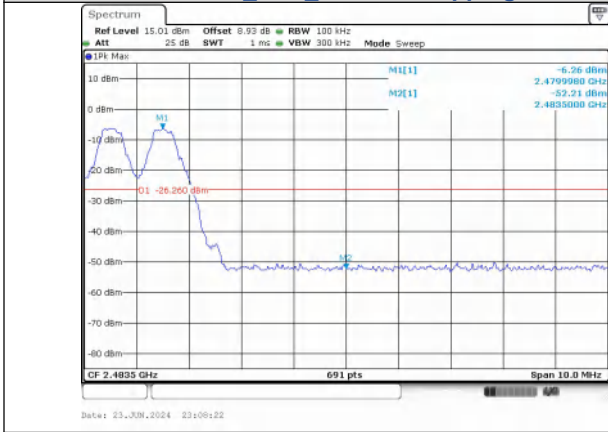
**Out Of Band Emission  
π/4DQPSK\_2-DH5\_Channel 78**



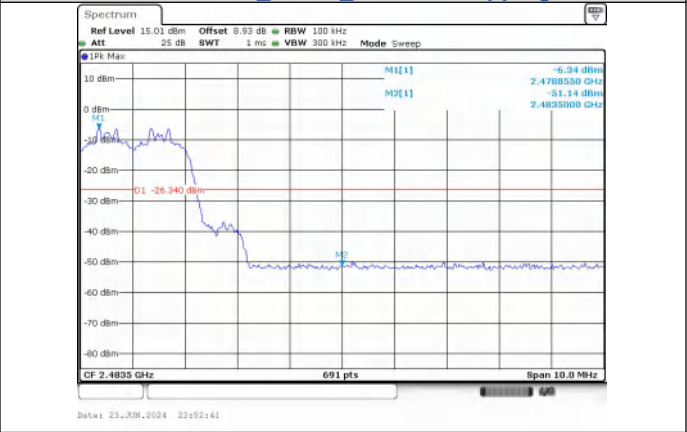
**Out Of Band Emission(Left)  
GFSK\_DH5\_Channel Hopping**



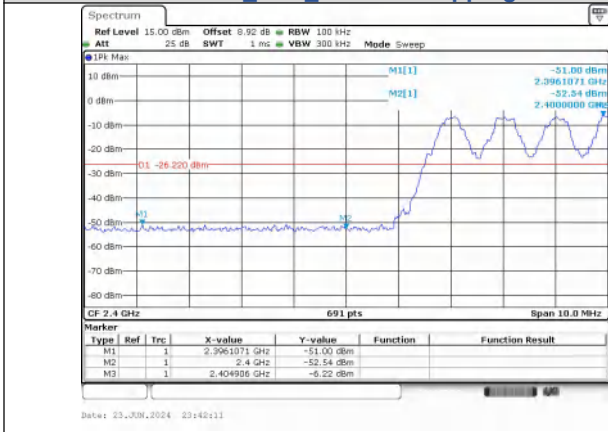
**Out Of Band Emission(Left)  
 $\pi/4$ DQPSK\_2-DH5\_Channel Hopping**



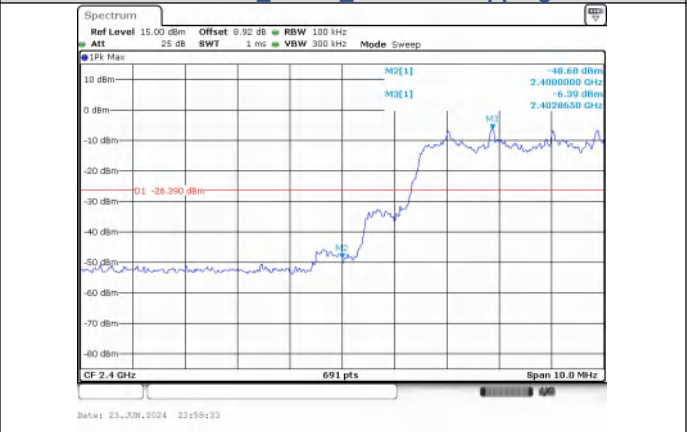
**Out Of Band Emission(Right)  
GFSK\_DH5\_Channel Hopping**



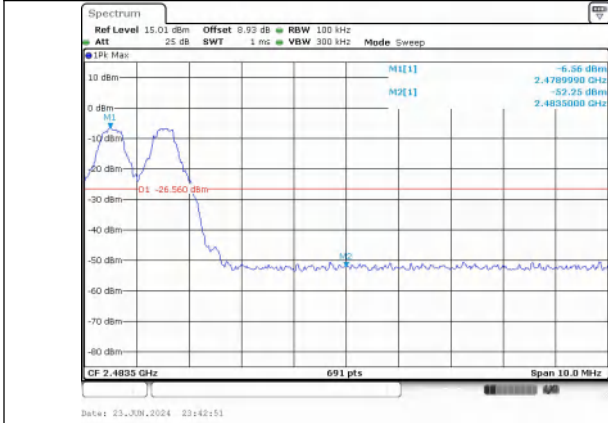
**Out Of Band Emission(Right)  
 $\pi/4$ DQPSK\_2-DH5\_Channel Hopping**



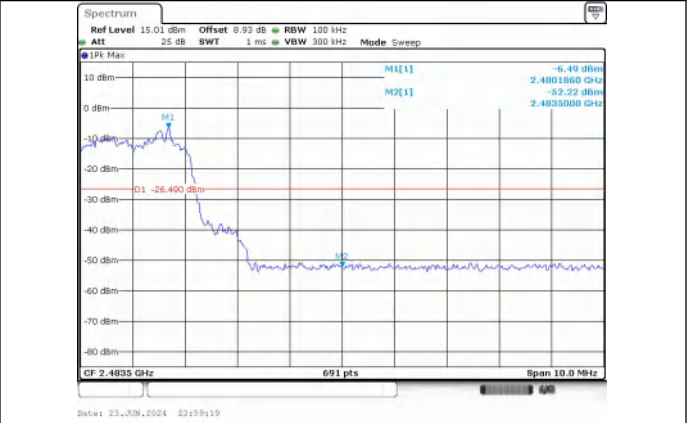
**Out Of Band Emission(Left)  
GFSK\_DH5\_Channel Hopping**



**Out Of Band Emission(Left)  
 $\pi/4$ DQPSK\_2-DH5\_Channel Hopping**



**Out Of Band Emission(Right)  
GFSK\_DH5\_Channel Hopping**



**Out Of Band Emission(Right)  
 $\pi/4$ DQPSK\_2-DH5\_Channel Hopping**

Right

**Test Result**

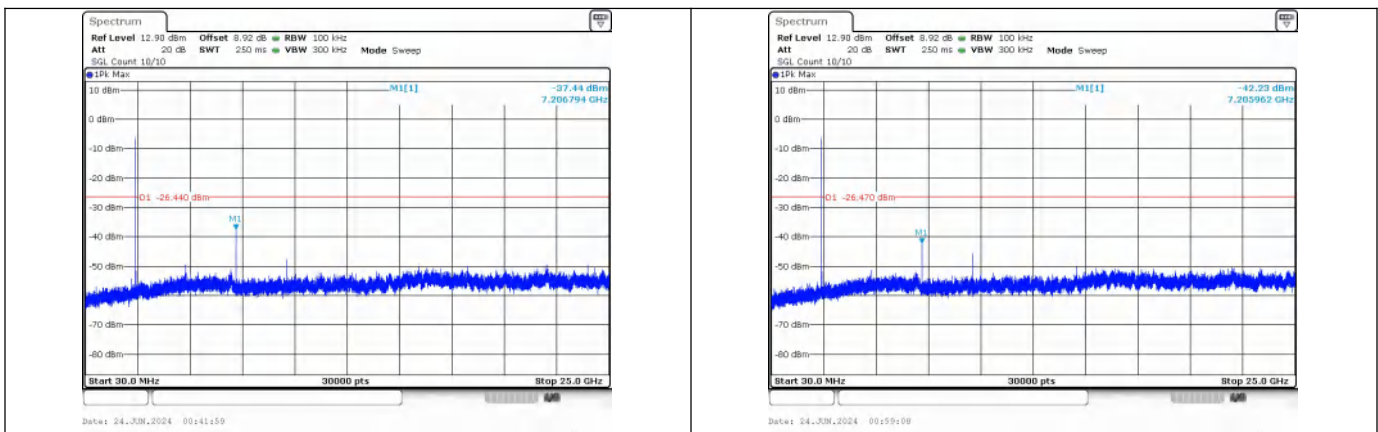
Non-Hopping

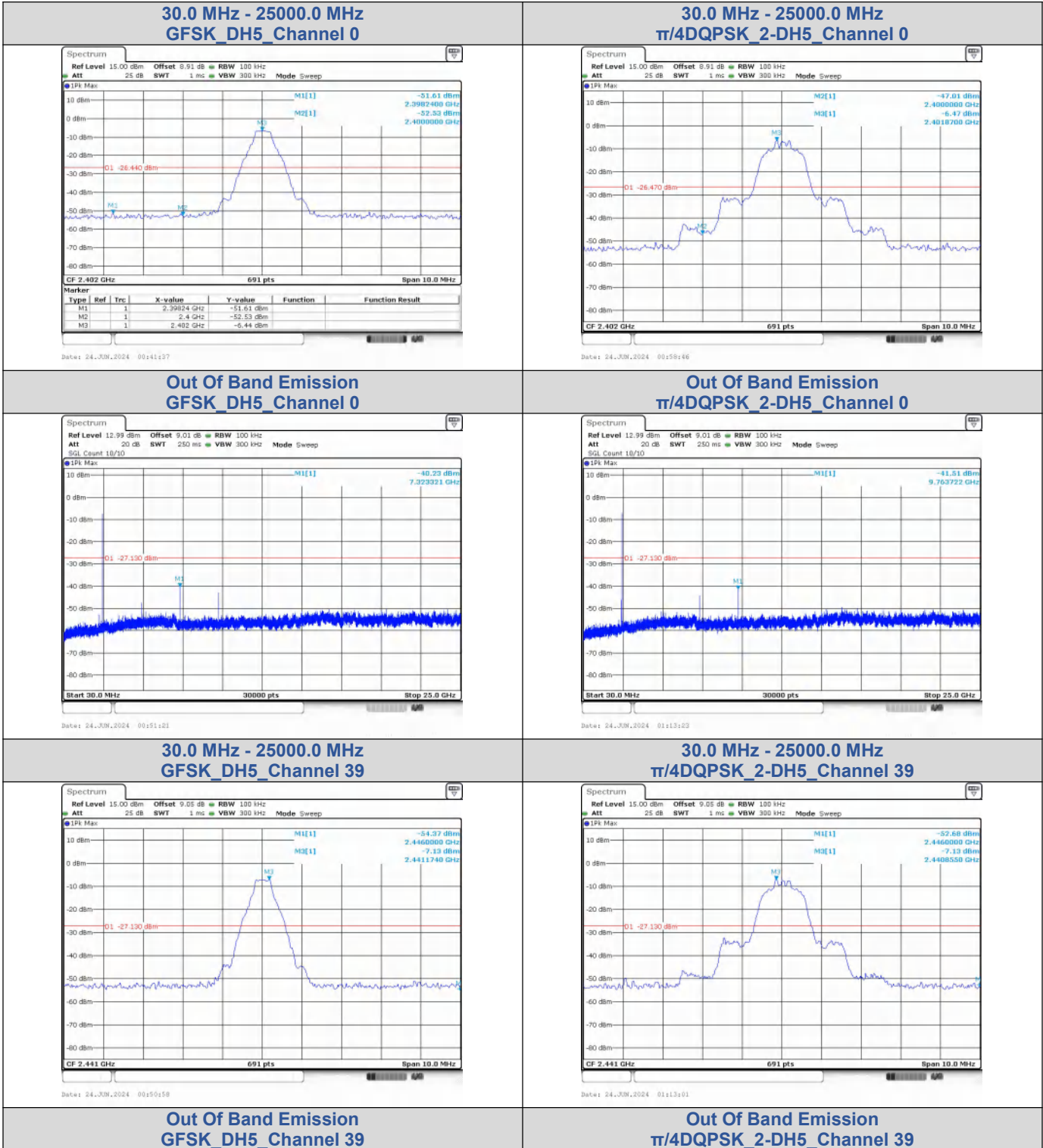
Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	
GFSK	DH5	0	2398.24	-51.606	-26.44	-25.166	PASS	
			2400.00	-52.531	-26.44	-26.091	PASS	
			7206.80	-37.444	-26.44	-11.004	PASS	
		39	7323.32	-40.232	-27.13	-13.102	PASS	
			78	2483.50	-53.542	-26.33	-27.212	PASS
				9920.20	-41.325	-26.33	-14.995	PASS
$\pi$ /4DQPSK	2-DH5	0	2400.00	-47.008	-26.47	-20.538	PASS	
			7205.96	-42.225	-26.47	-15.755	PASS	
		39	9763.72	-41.515	-27.13	-14.385	PASS	
			2483.50	-52.620	-26.25	-26.370	PASS	
		78	9920.20	-40.927	-26.25	-14.677	PASS	

Hopping

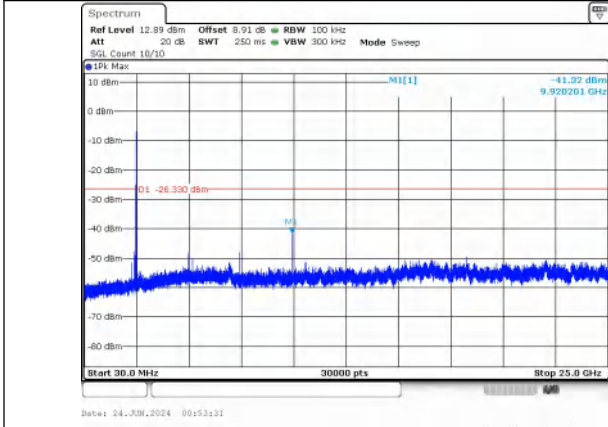
Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2397.13	-50.265	-26.55	-23.715	PASS
			2400.00	-52.007	-26.55	-25.457	PASS
			2483.50	-51.425	-26.76	-24.665	PASS
			2396.66	-50.040	-26.28	-23.760	PASS
			2400.00	-53.345	-26.28	-27.065	PASS
			2483.50	-52.248	-26.36	-25.888	PASS
$\pi$ /4DQPSK	2-DH5	Hopping	2400.00	-46.876	-26.3	-20.576	PASS
			2483.50	-51.383	-26.31	-25.073	PASS
			2400.00	-47.524	-26.23	-21.294	PASS
			2483.50	-52.108	-26.5	-25.608	PASS

**Test Graphs**

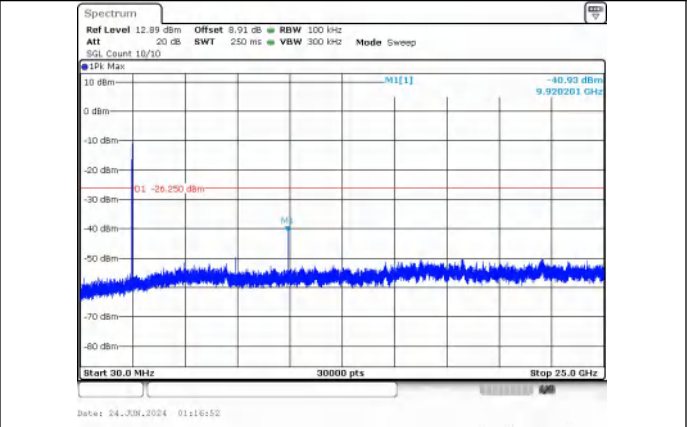




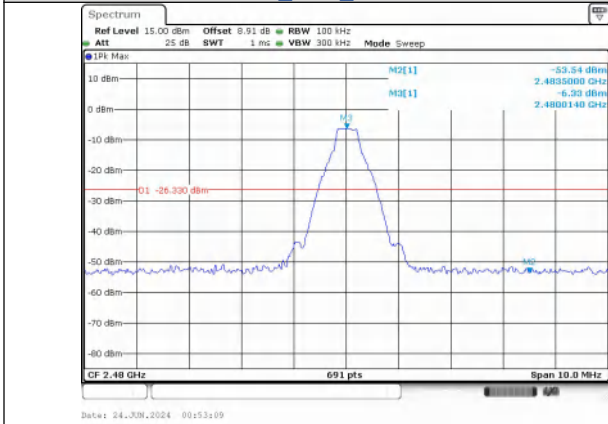




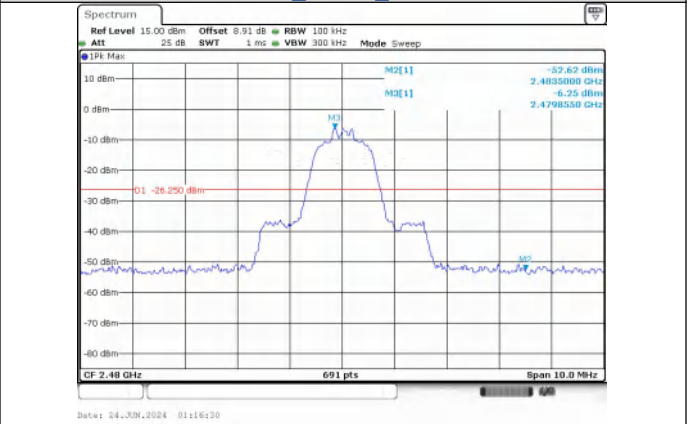
**30.0 MHz - 25000.0 MHz  
GFSK\_DH5\_Channel 78**



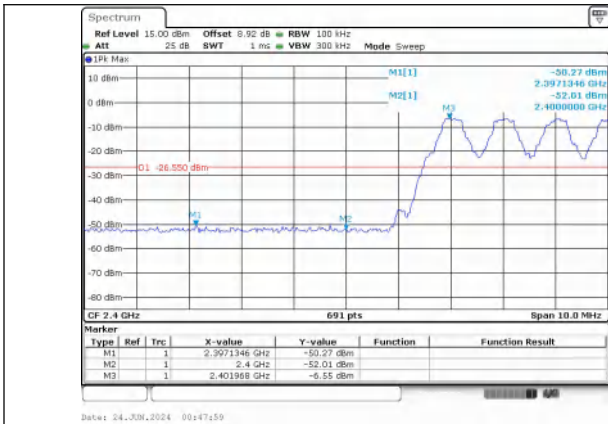
**30.0 MHz - 25000.0 MHz  
π/4DQPSK\_2-DH5\_Channel 78**



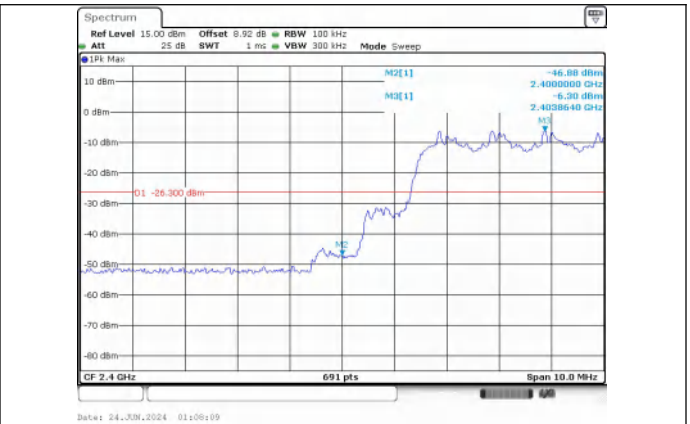
**Out Of Band Emission  
GFSK\_DH5\_Channel 78**



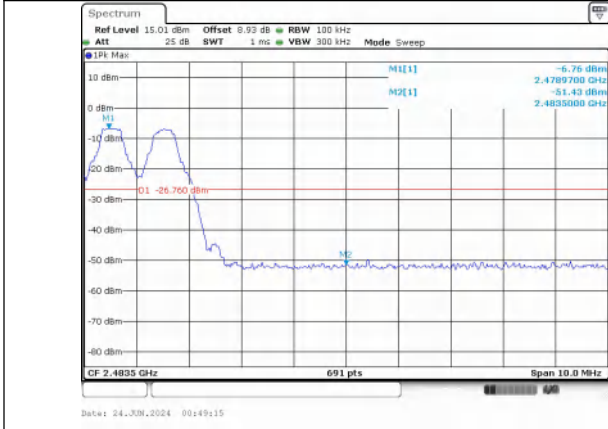
**Out Of Band Emission  
π/4DQPSK\_2-DH5\_Channel 78**



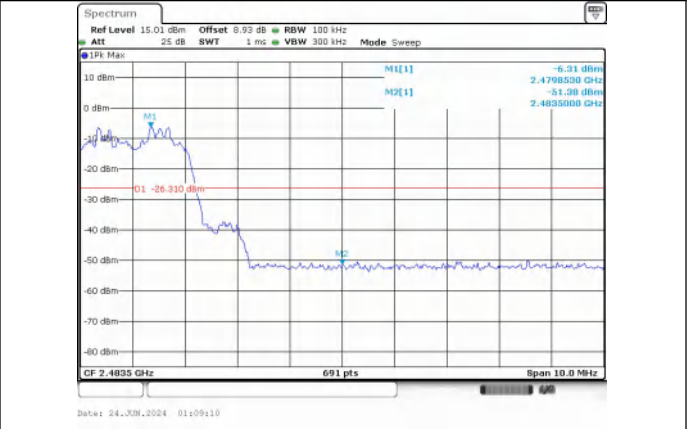
**Out Of Band Emission(Left)  
GFSK\_DH5\_Channel Hopping**



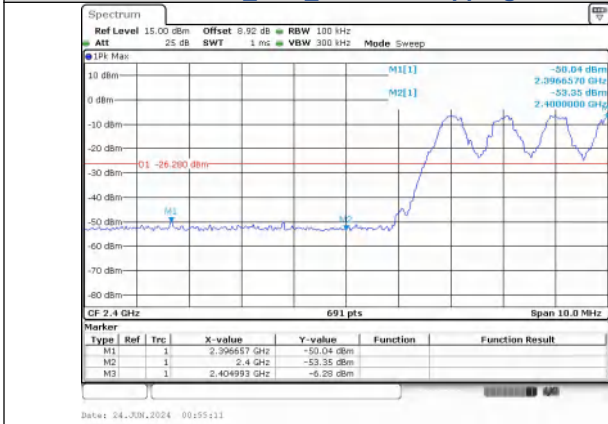
**Out Of Band Emission(Left)  
π/4DQPSK\_2-DH5\_Channel Hopping**



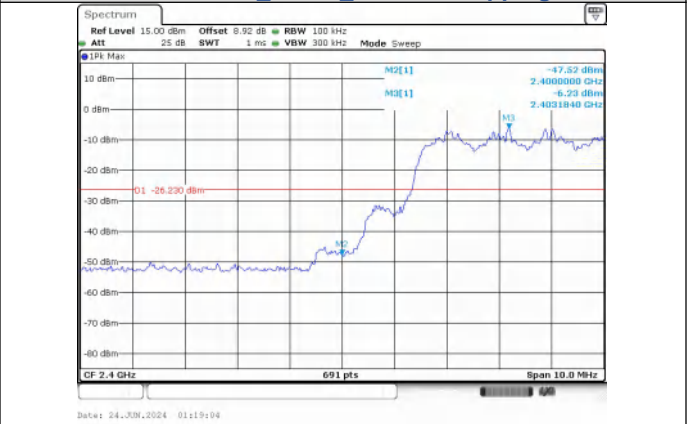
**Out Of Band Emission(Right)  
GFSK\_DH5\_Channel Hopping**



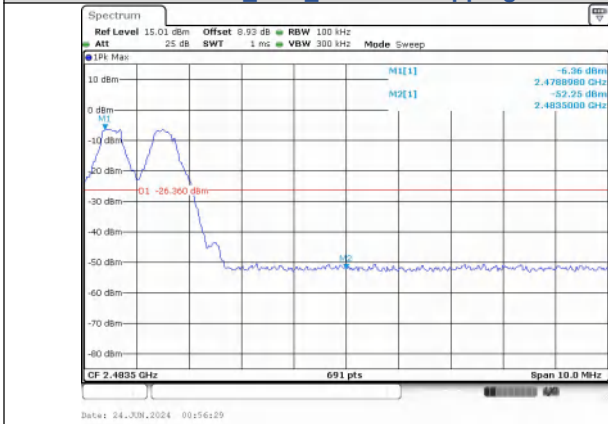
**Out Of Band Emission(Right)  
 $\pi/4$ DQPSK\_2-DH5\_Channel Hopping**



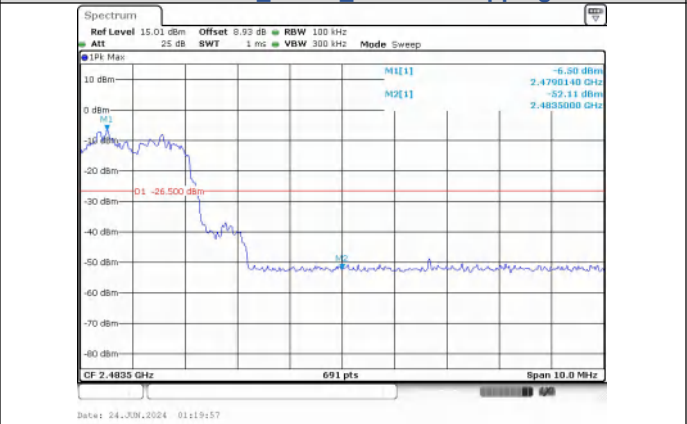
**Out Of Band Emission(Left)  
GFSK\_DH5\_Channel Hopping**



**Out Of Band Emission(Left)  
 $\pi/4$ DQPSK\_2-DH5\_Channel Hopping**



**Out Of Band Emission(Right)  
GFSK\_DH5\_Channel Hopping**



**Out Of Band Emission(Right)  
 $\pi/4$ DQPSK\_2-DH5\_Channel Hopping**



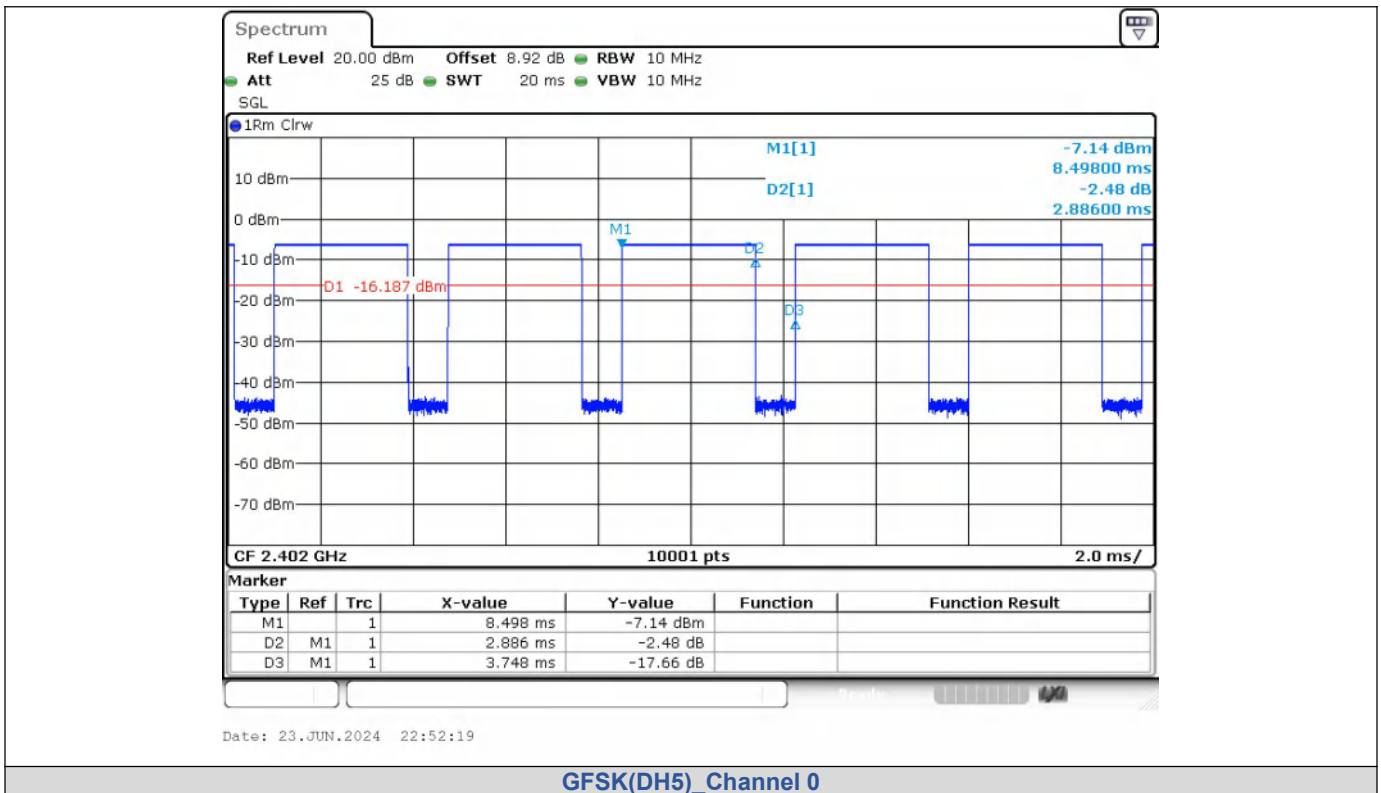
## Duty Cycle

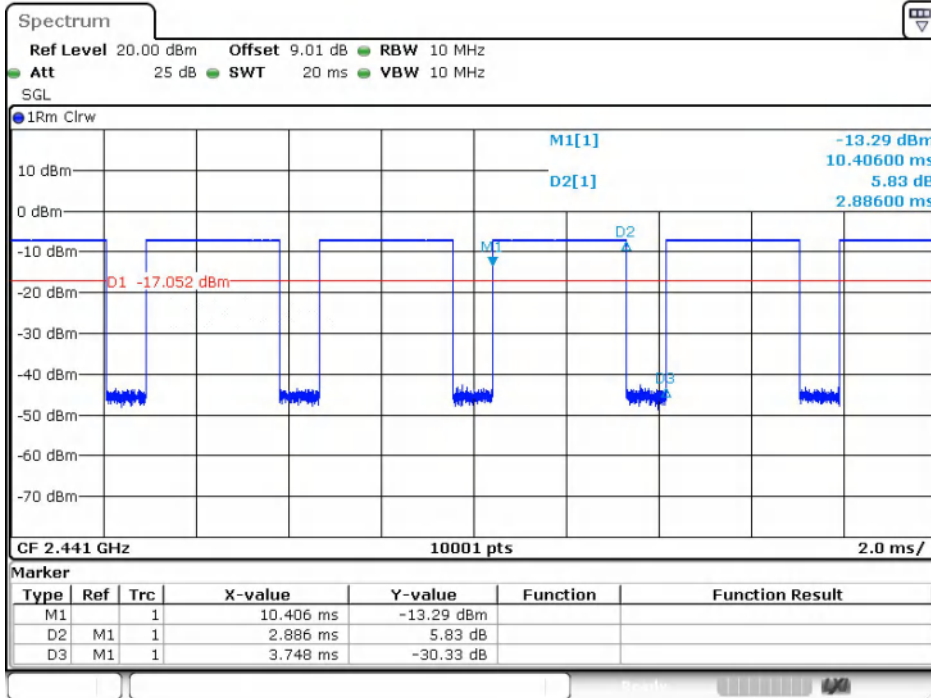
Left

### 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	2.890	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

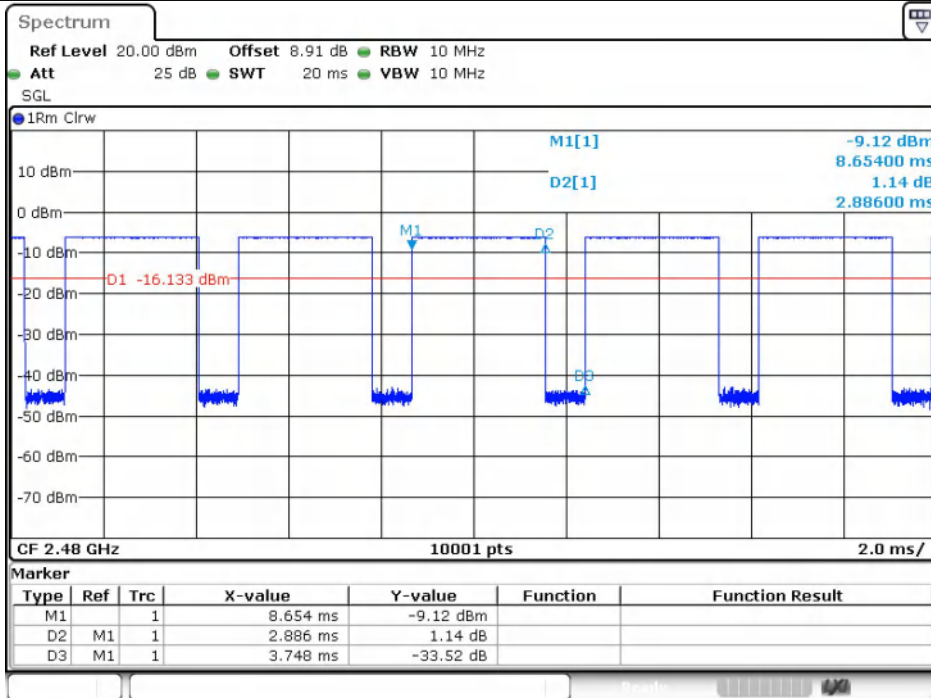
### Test Graphs





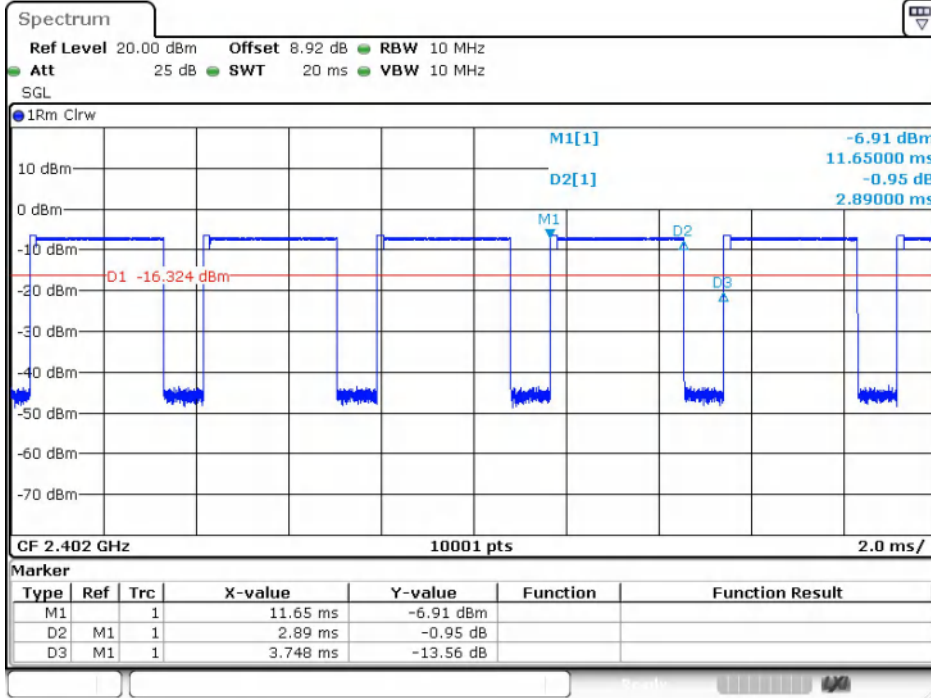
Date: 23.JUN.2024 23:10:11

GFSK(DH5)\_Channel 39



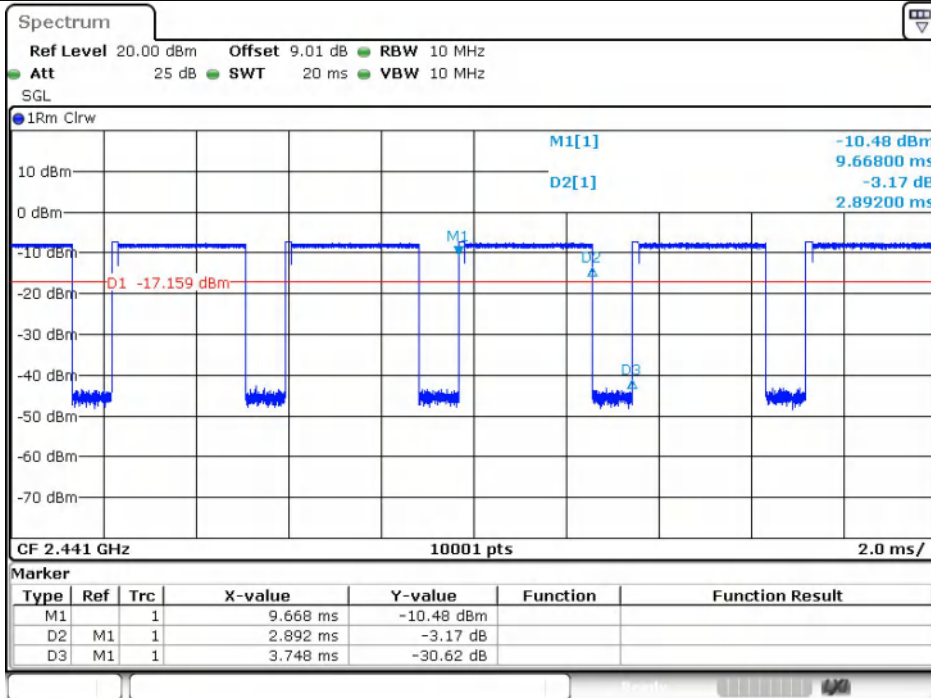
Date: 23.JUN.2024 23:12:17

GFSK(DH5)\_Channel 78



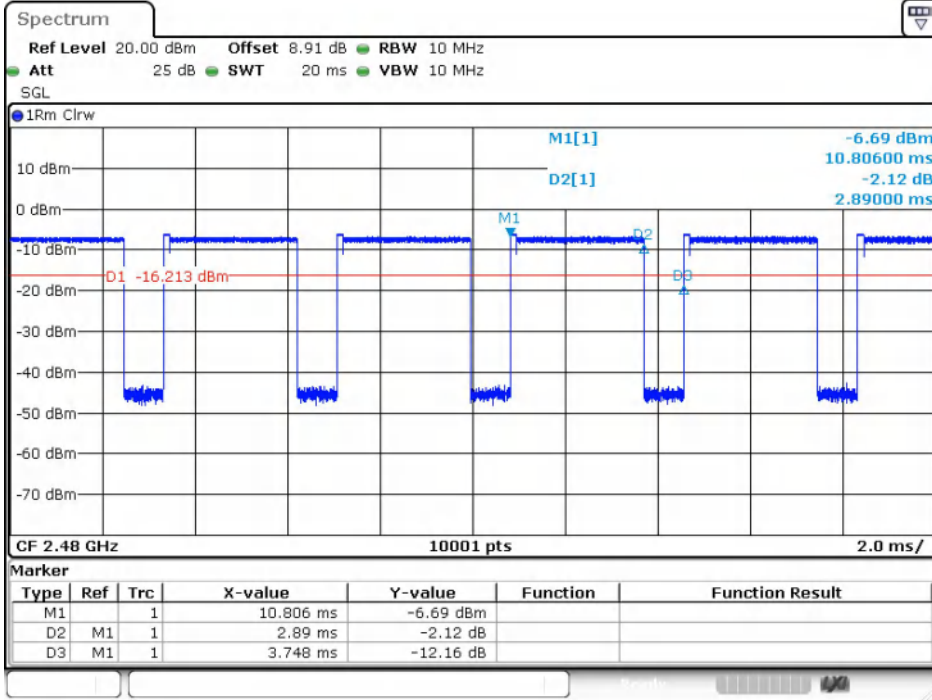
Date: 23.JUN.2024 23:43:24

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



Date: 23.JUN.2024 23:53:17

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



Date: 23.JUN.2024 23:55:20

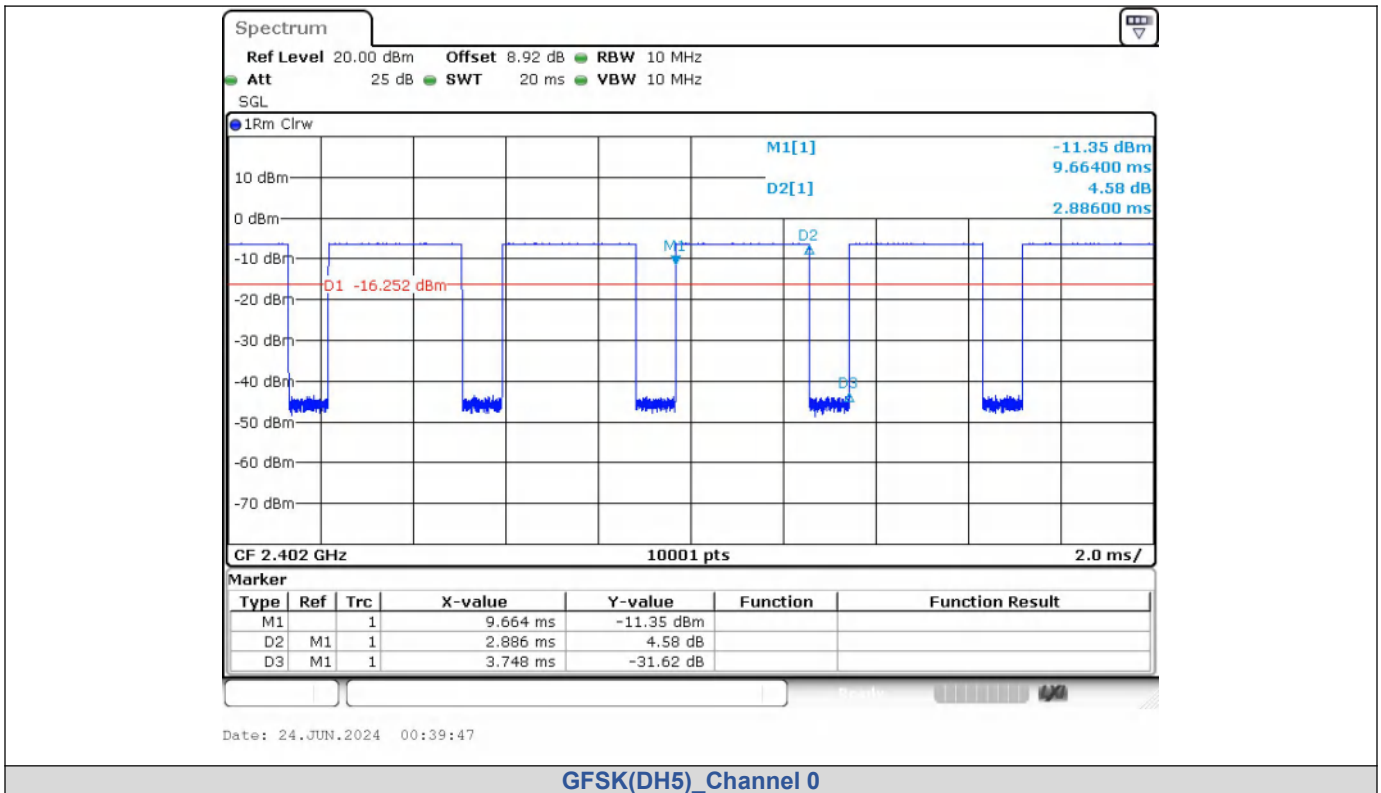
$\pi/4$ DQPSK(2-DH5)\_Channel 78

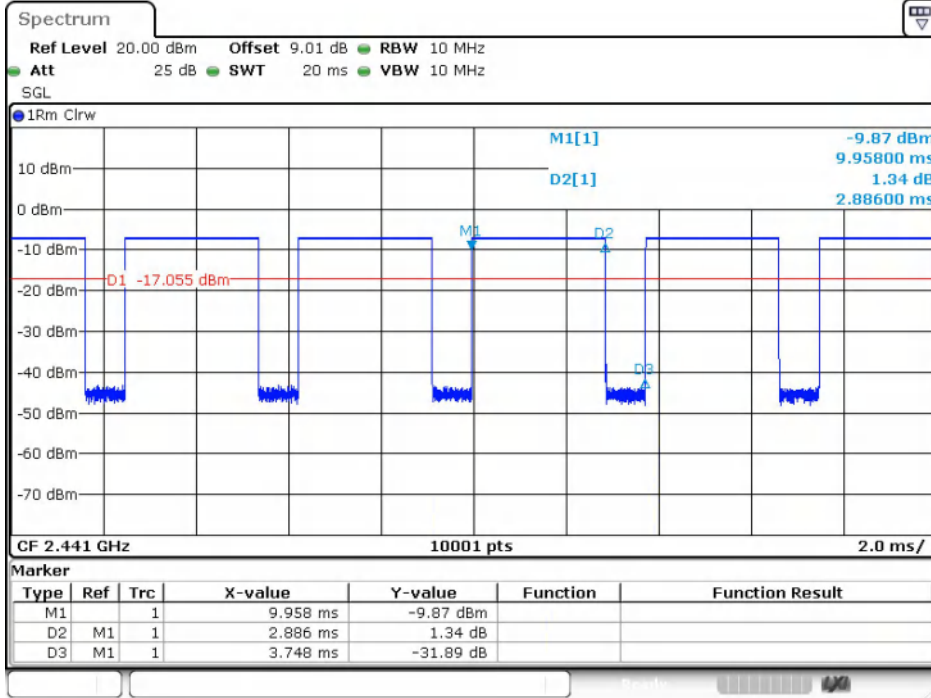
Right

**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	2.890	3.748	77.11	0.7711	1.1289	0.35

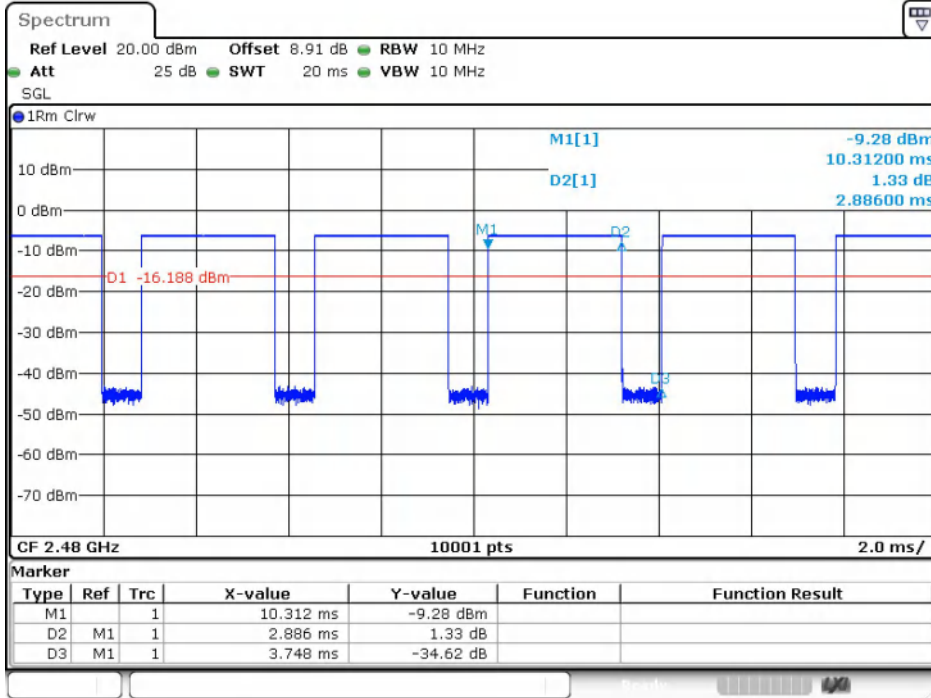
**Test Graphs**





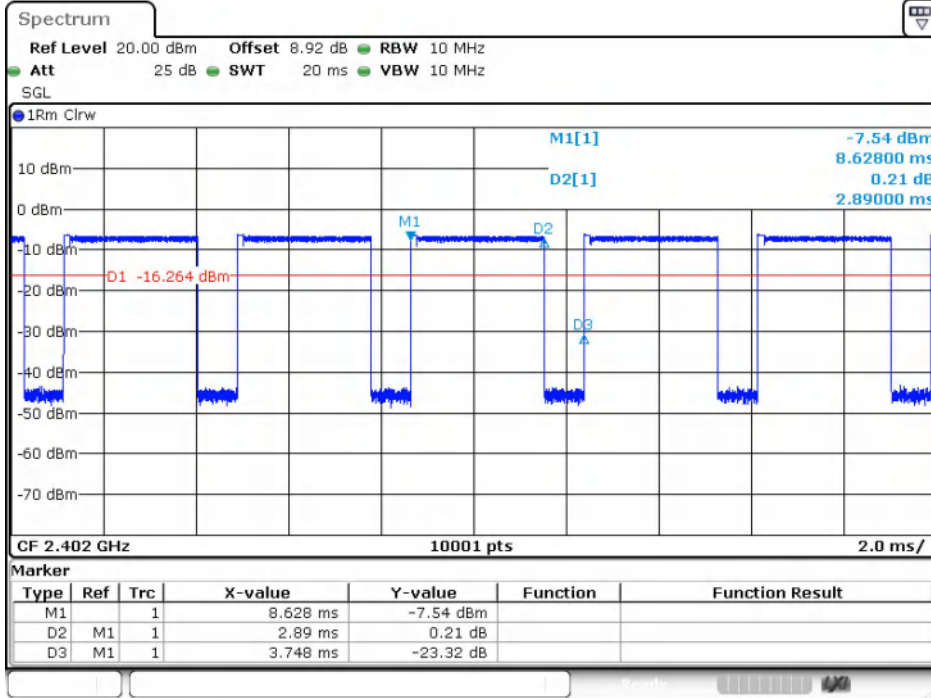
Date: 24.JUN.2024 00:49:53

**GFSK(DH5)\_Channel 39**



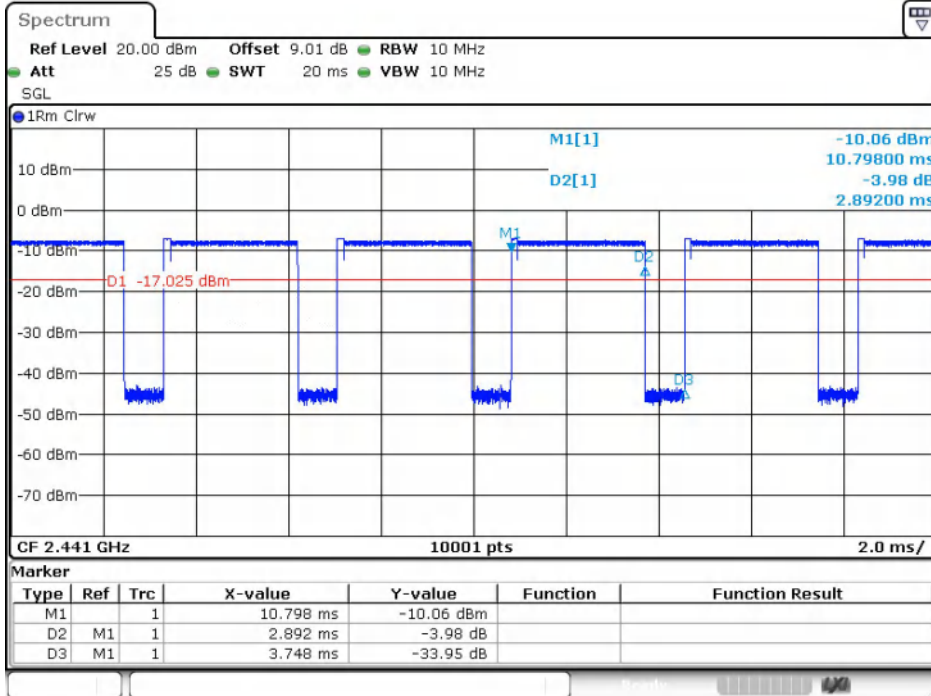
Date: 24.JUN.2024 00:51:58

**GFSK(DH5)\_Channel 78**



Date: 24.JUN.2024 00:57:35

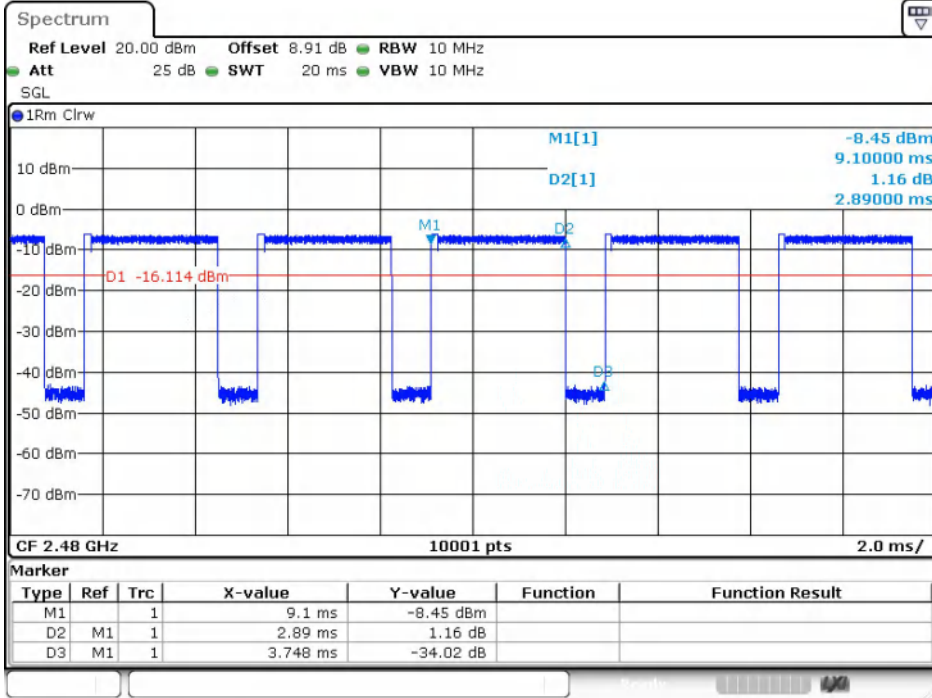
**$\pi/4$ DQPSK(2-DH5)\_Channel 0**



Date: 24.JUN.2024 01:11:55

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





Date: 24.JUN.2024 01:15:19

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

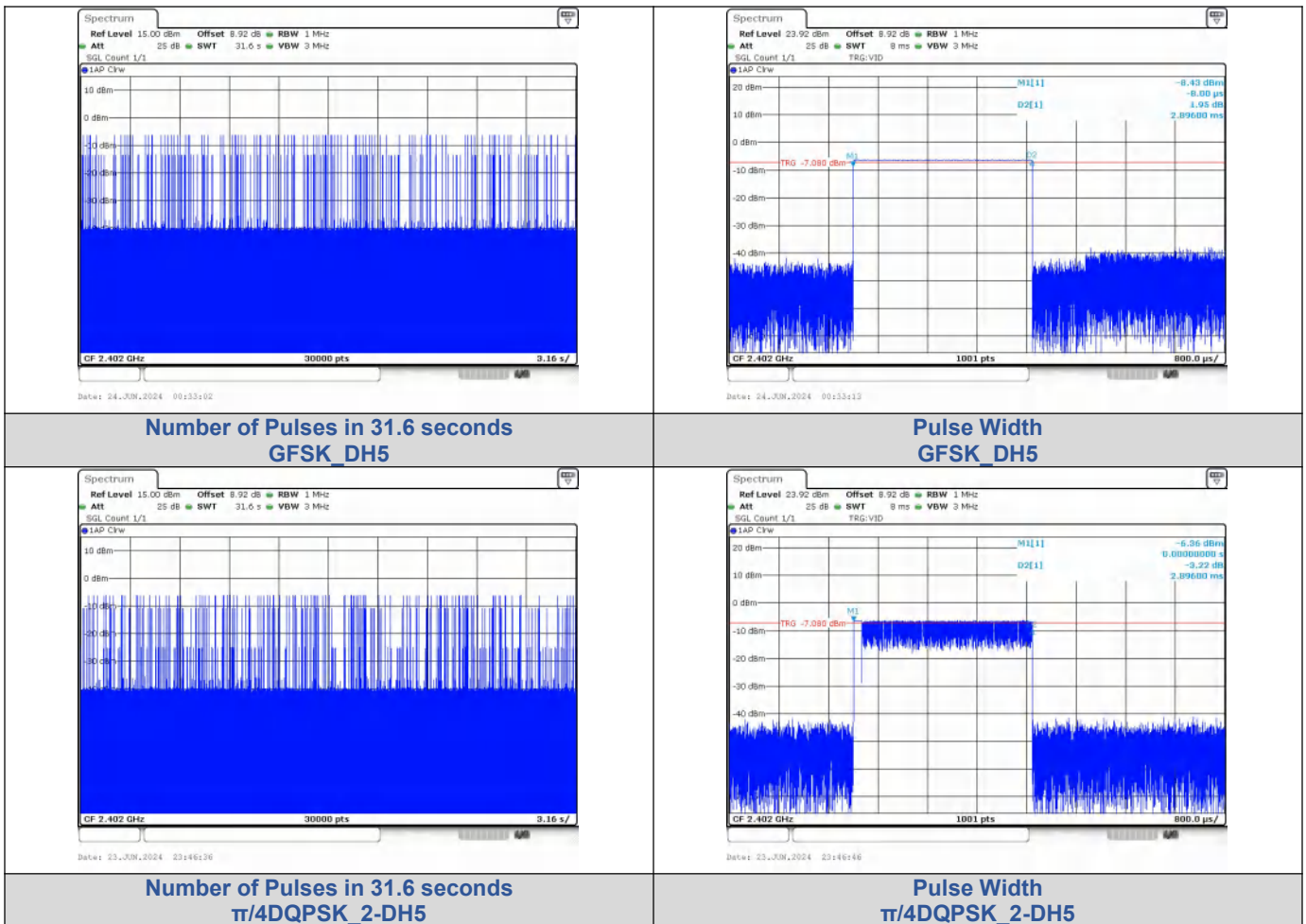
## Dwell Time

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)	2.896	99	286.7	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	118	341.73		PASS

### Test Graphs

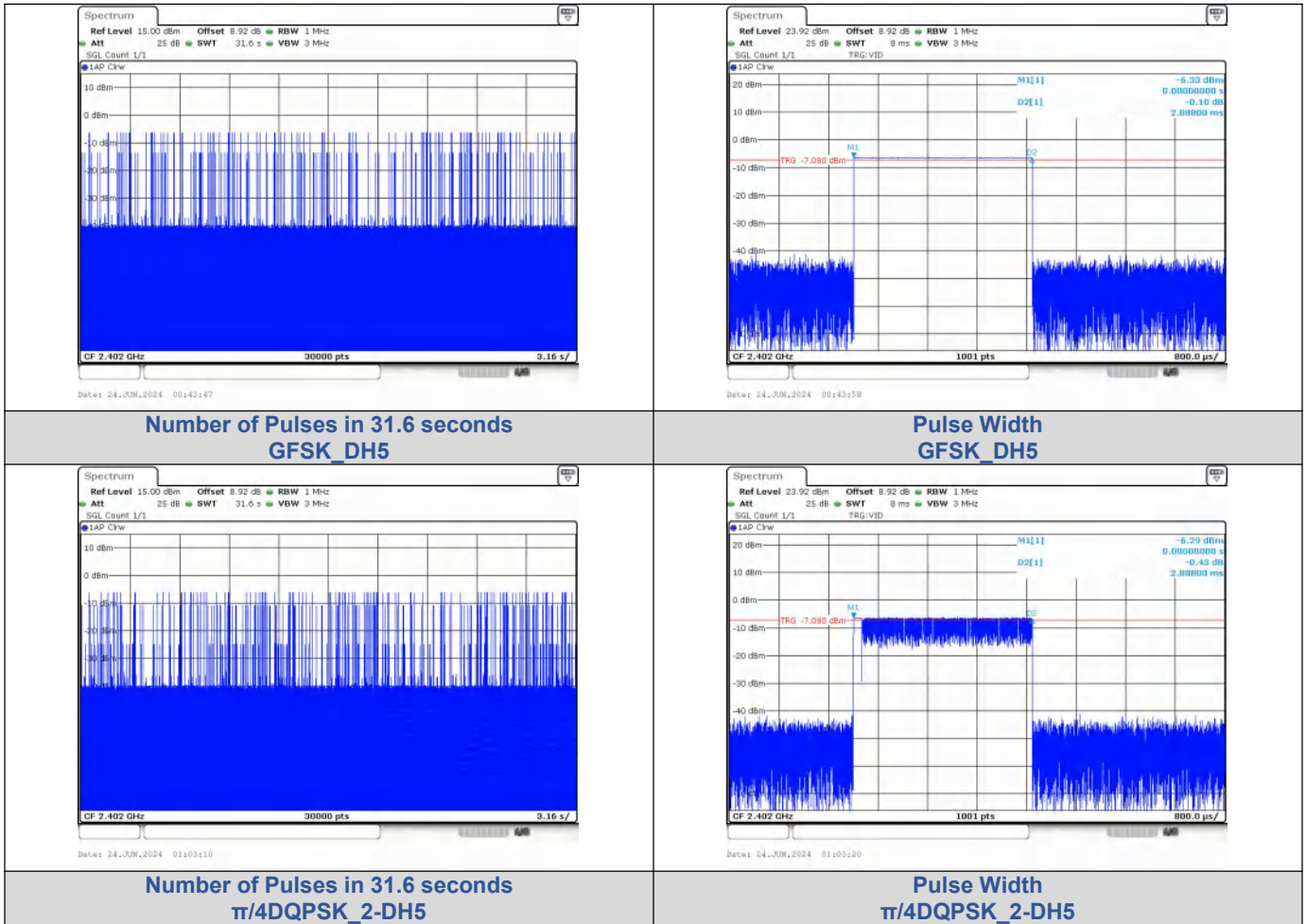


Right

**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	97	280.14	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.888	101	291.69		PASS

**Test Graphs**



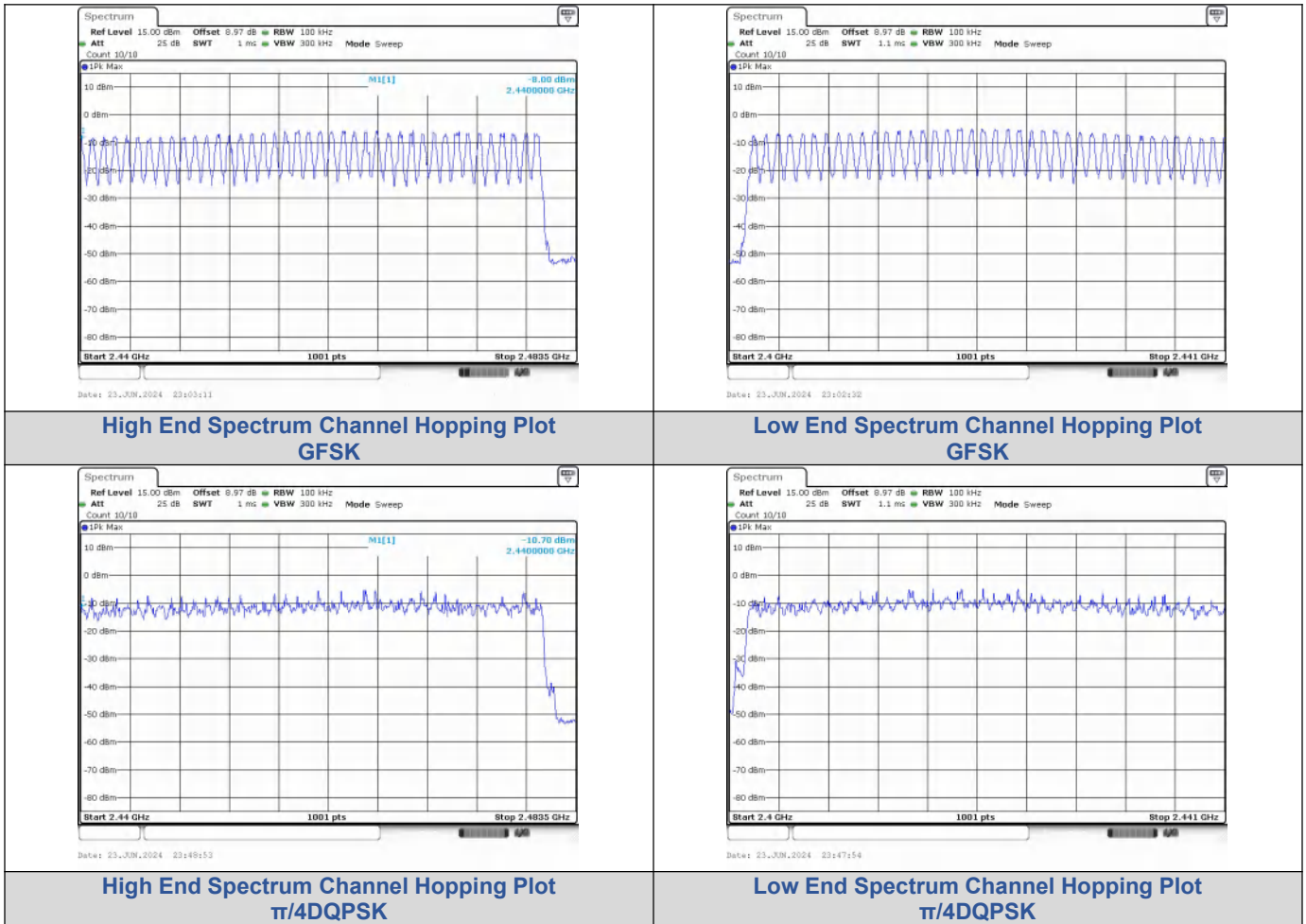
## Number Of Hopping Channel

Left

### Test Result

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

### Test Graphs



Right  
Test Result

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

Test Graphs

