

# Appendix A

Report No.:	CISRR24041308101
FCC ID:	2BFZ7-ZX-C
Product Name:	Levitating Bluetooth speaker
Model No.:	ZX-C
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

## Conducted Peak Output Power

### Test Result

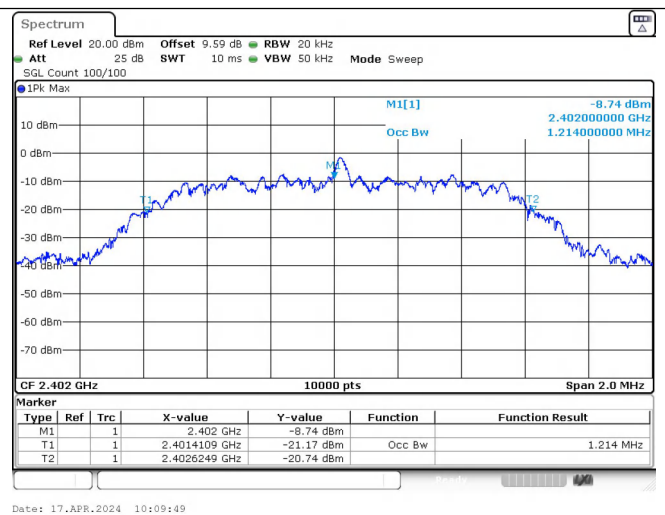
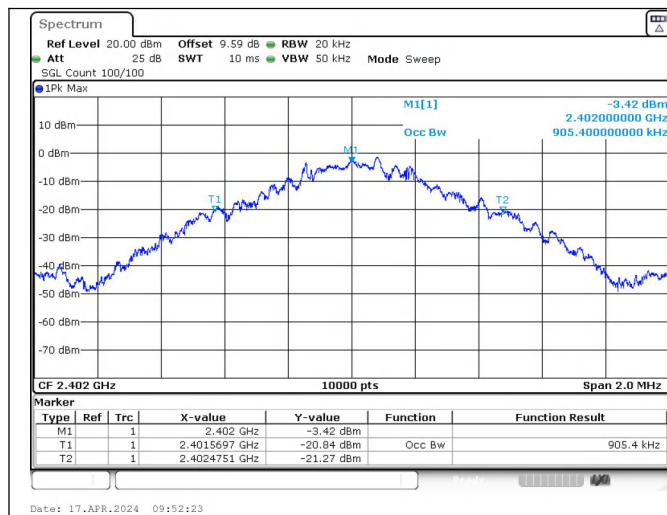
Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	2.382	1.730	30	PASS
		39	1.299	1.349		PASS
		78	1.201	1.319		PASS
$\pi/4$ DQPSK	2-DH5	0	2.039	1.599	20.97	PASS
		39	1.865	1.536		PASS
		78	1.808	1.516		PASS

## 99% Bandwidth

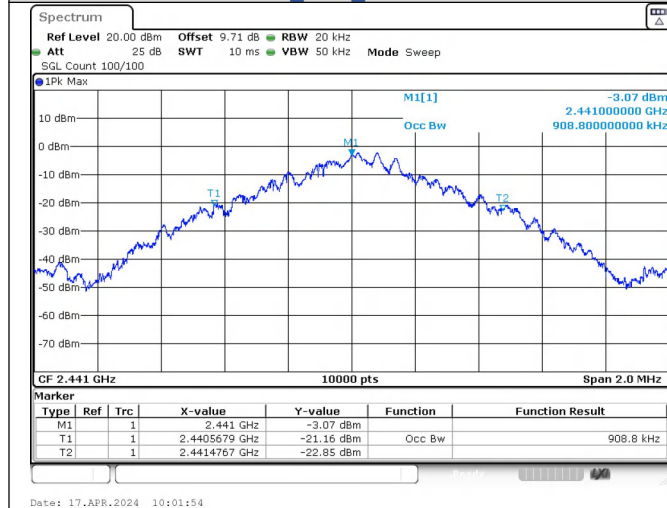
### Test Result

Modulation	Channel	99% BW (MHz)
GFSK	0	0.90540
	39	0.90880
	78	0.89380
$\pi$ /4DQPSK	0	1.2140
	39	1.2110
	78	1.2060

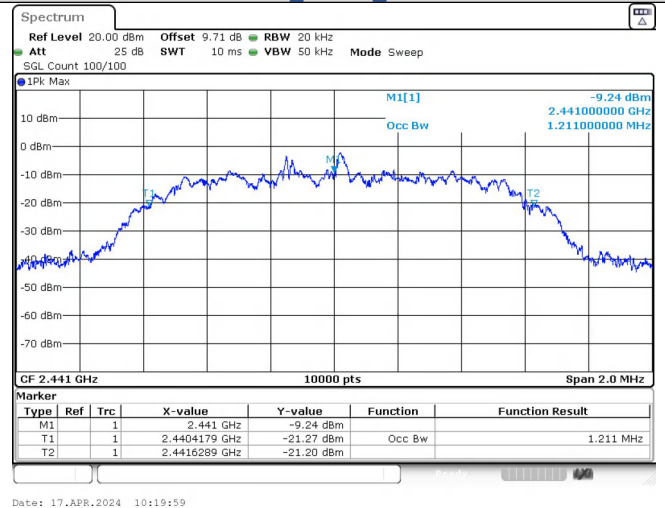
### Test Graphs



### GFSK\_DH5\_Channel 0

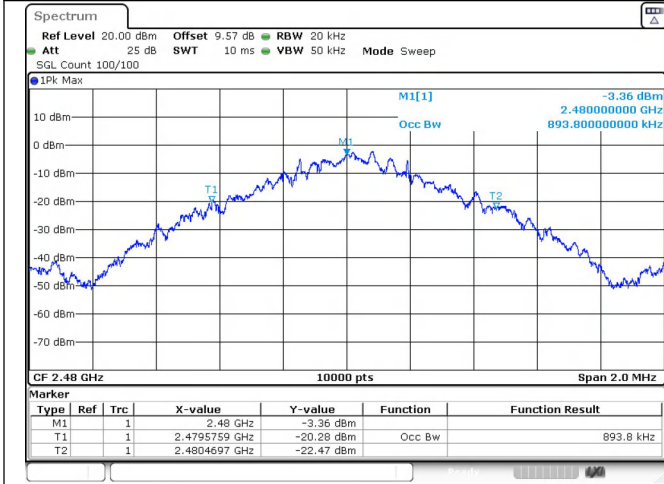


### $\pi$ /4DQPSK\_2-DH5\_Channel 0



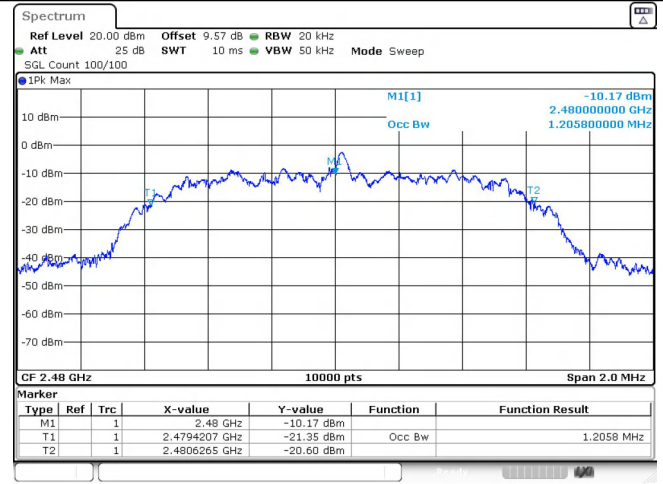
### GFSK\_DH5\_Channel 39

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



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**GFSK\_DH5\_Channel 78**



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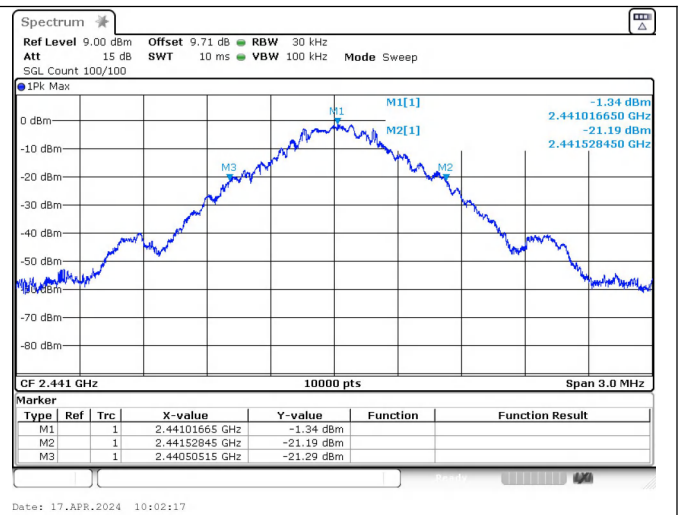
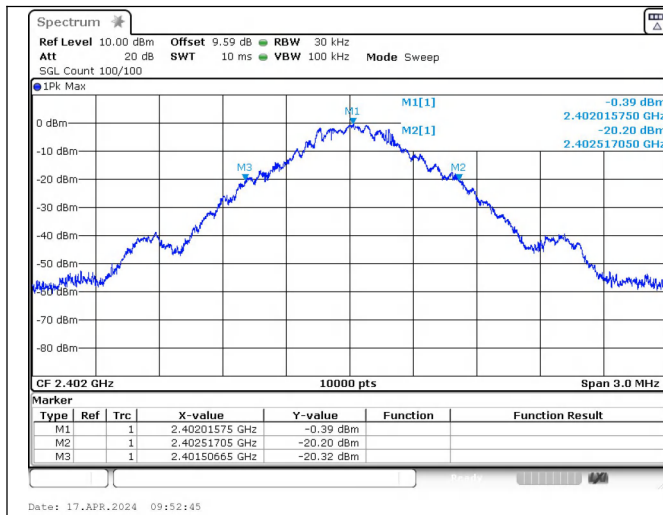
**$\pi/4$ DQPSK\_2-DH5\_Channel 78**

## 20dB Bandwidth

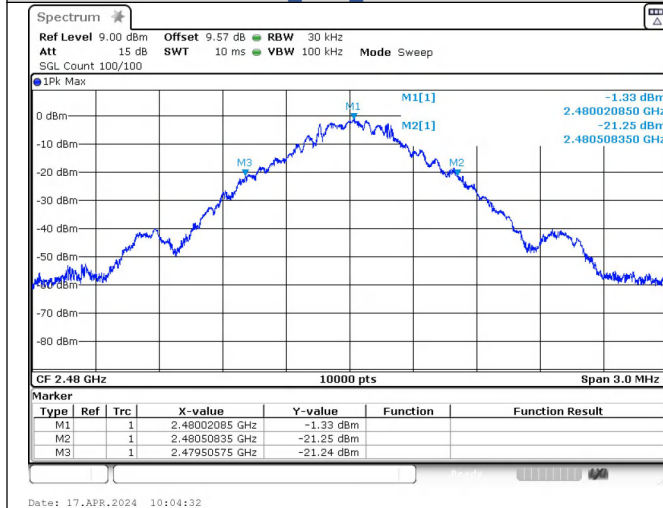
### Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.010
	39	2441 MHz	1.020
	78	2480 MHz	1.000
$\pi/4$ DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.310
	78	2480 MHz	1.310

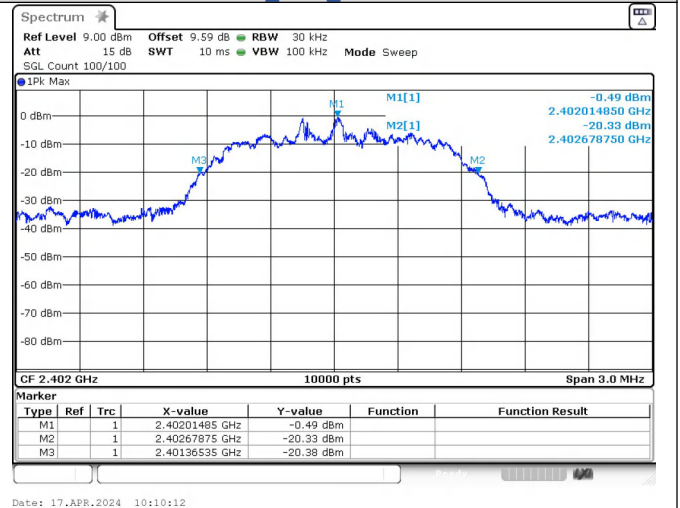
### Test Graphs



#### GFSK\_DH5\_Channel 0

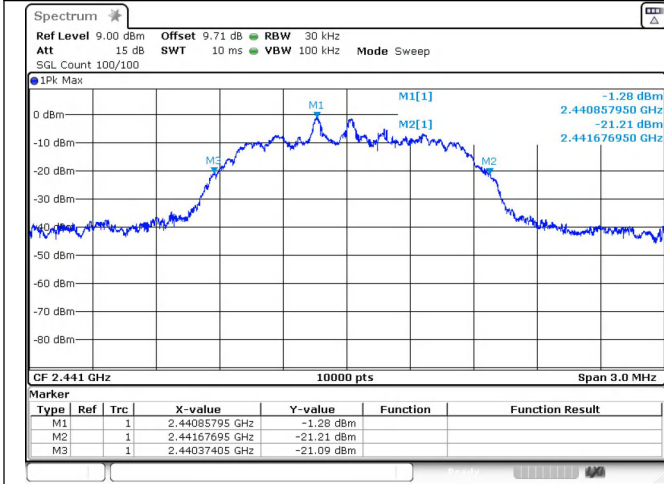


#### GFSK\_DH5\_Channel 39



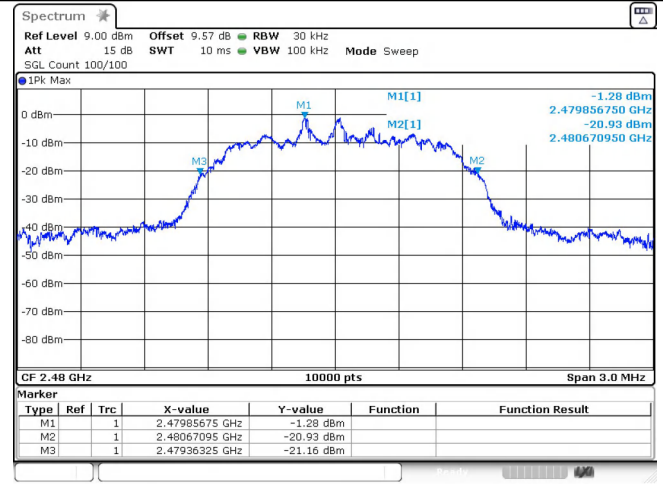
#### GFSK\_DH5\_Channel 78

#### $\pi/4$ DQPSK\_2-DH5\_Channel 0



Date: 17.APR.2024 10:20:21

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



Date: 17.APR.2024 10:24:05

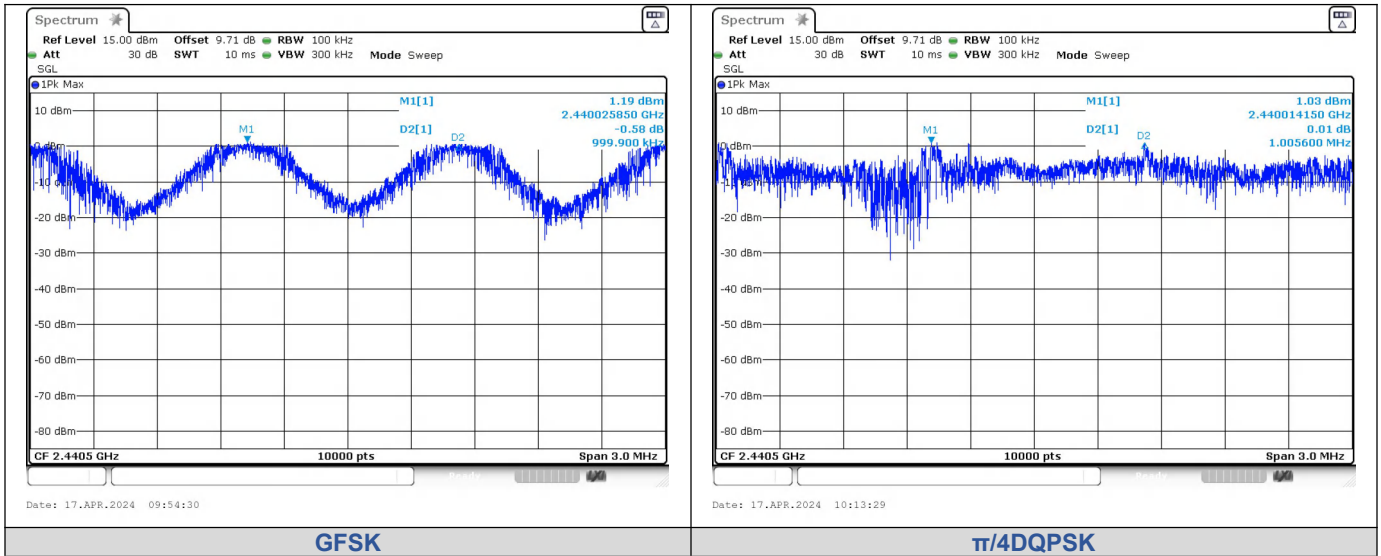
**$\pi$ /4DQPSK\_2-DH5\_Channel 78**

## 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	2441.0257	0.9999	0.673	PASS
$\pi$ /4DQPSK	2-DH5	2440.0141	2441.0197	1.0056	0.873	PASS

### Test Graphs



## Conducted Out Of Band Emission

### Test Result

#### Non-Hopping

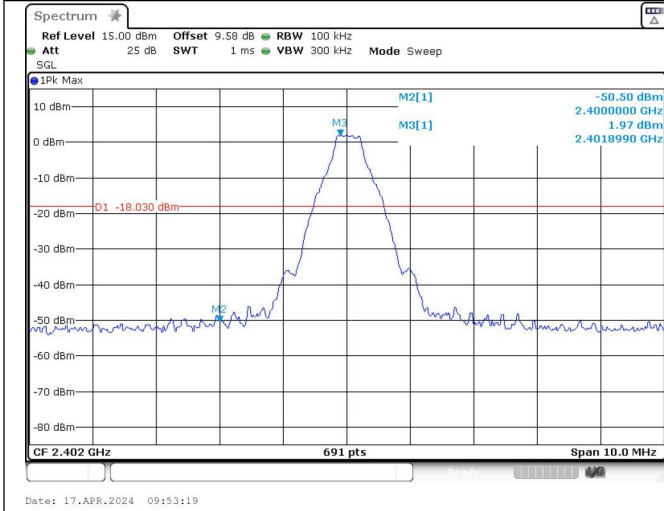
Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	
GFSK	DH5	0	2400.00	-50.504	-18.03	-32.474	PASS	
			7205.96	-38.992	-18.03	-20.962	PASS	
		39	9764.55	-41.346	-18.75	-22.596	PASS	
			78	2483.50	-50.870	-18.9	-31.970	PASS
				9920.20	-40.246	-18.9	-21.346	PASS
π/4DQPSK	2-DH5	0	2400.00	-46.911	-18.39	-28.521	PASS	
			7205.96	-38.394	-18.39	-20.004	PASS	
		39	9763.72	-41.514	-18.88	-22.634	PASS	
			78	2483.50	-52.492	-18.98	-33.512	PASS
				9920.20	-40.273	-18.98	-21.293	PASS

#### Hopping

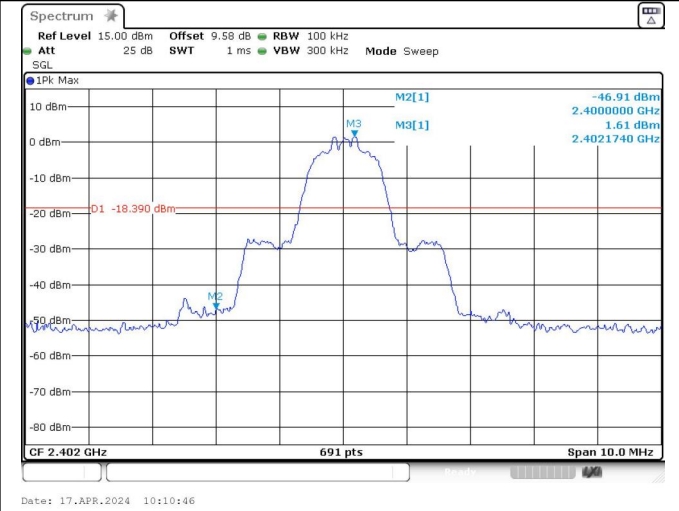
Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2400.00	-49.610	-17.88	-31.730	PASS
			2483.50	-49.950	-18.94	-31.010	PASS
			2398.47	-50.276	-18.08	-32.196	PASS
			2400.00	-51.072	-18.08	-32.992	PASS
			2483.50	-51.005	-18.96	-32.045	PASS
π/4DQPSK	2-DH5		2400.00	-49.778	-18.21	-31.568	PASS
			2483.50	-50.149	-19.05	-31.099	PASS
			2400.00	-46.362	-18.07	-28.292	PASS
			2483.50	-50.641	-19.08	-31.561	PASS

### Test Graphs

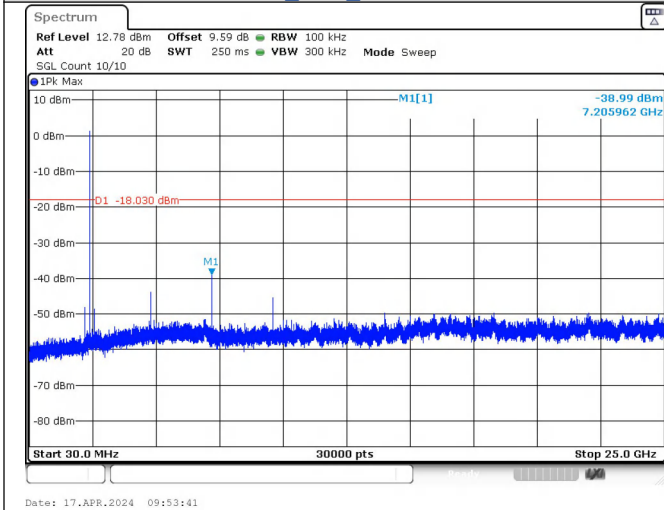




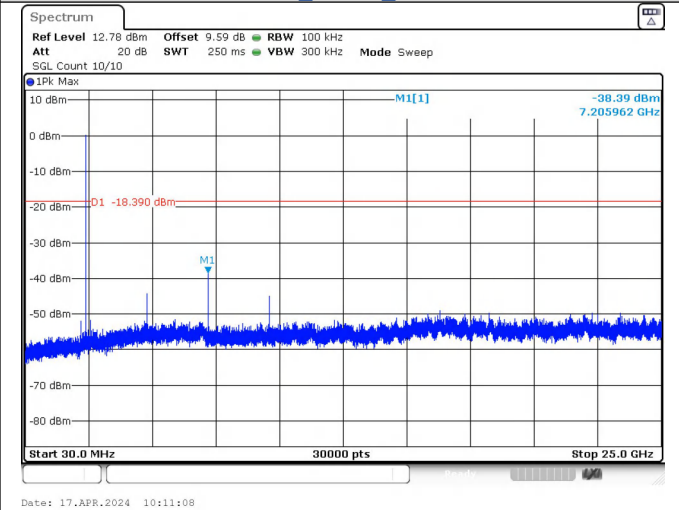
**Out Of Band Emission  
GFSK\_DH5\_Channel 0**



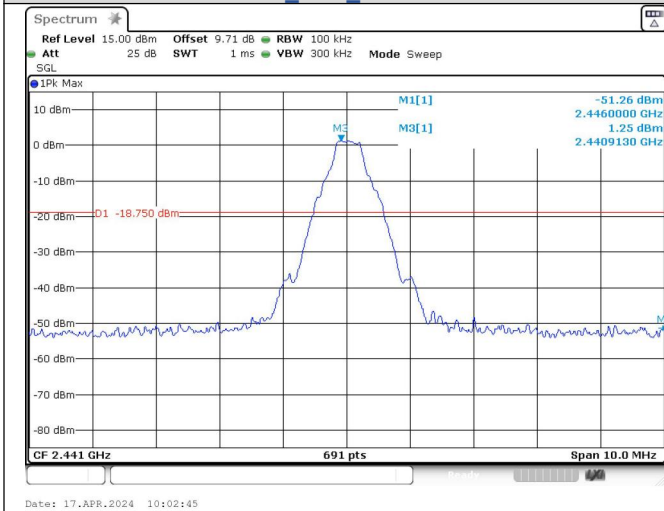
**Out Of Band Emission  
 $\pi/4$ DQPSK\_2-DH5\_Channel 0**



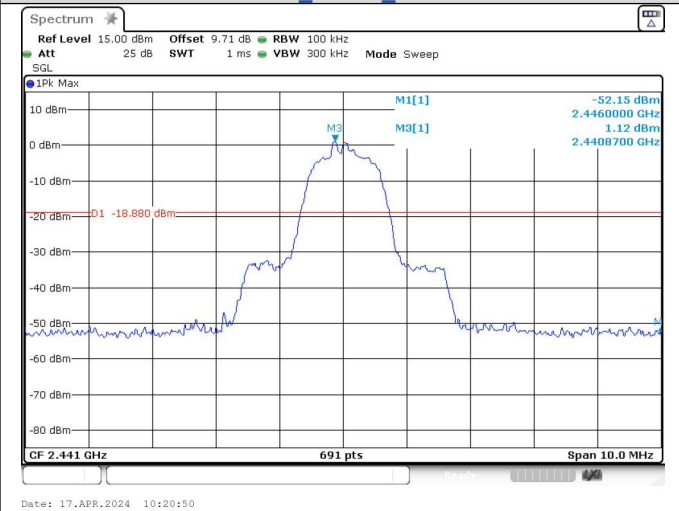
**Spurious Emission  
GFSK\_DH5\_Channel 0**



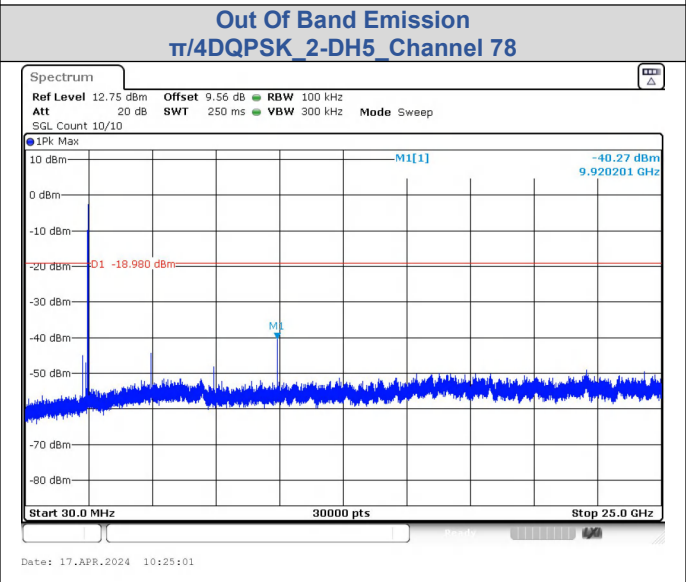
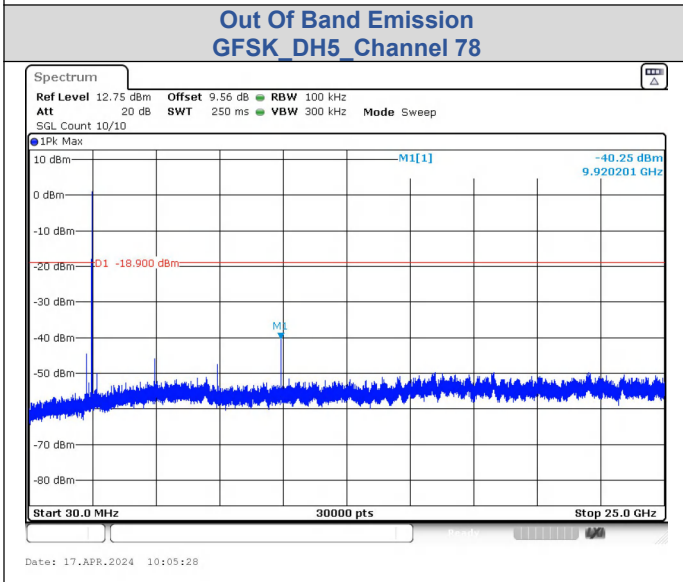
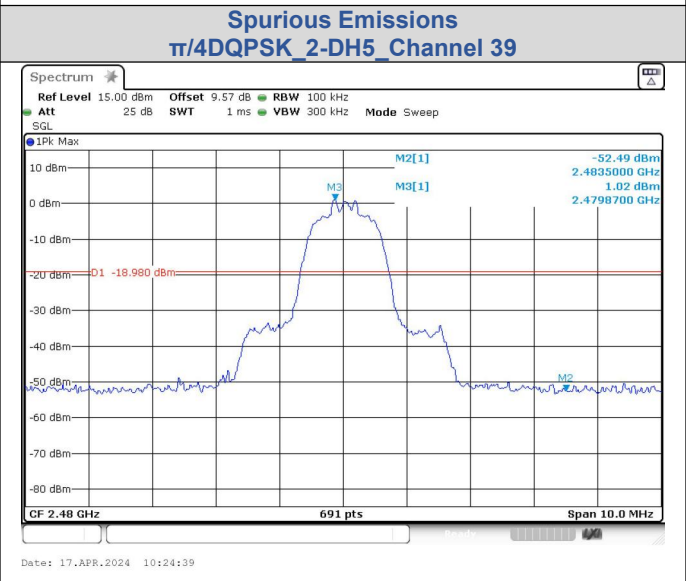
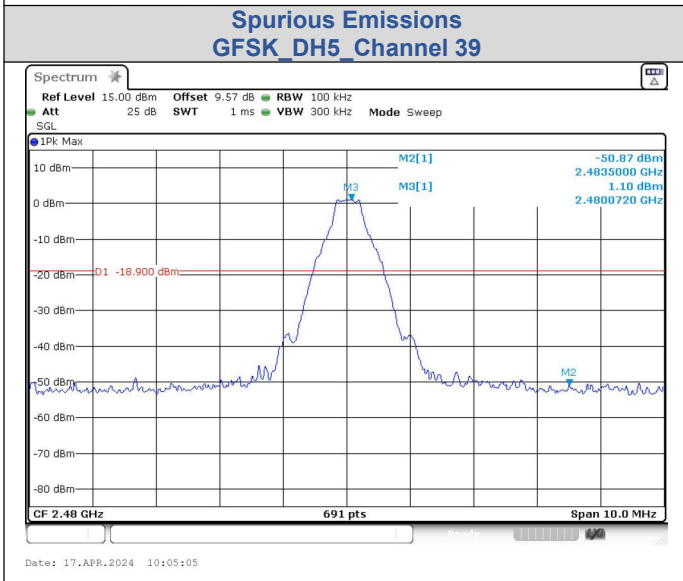
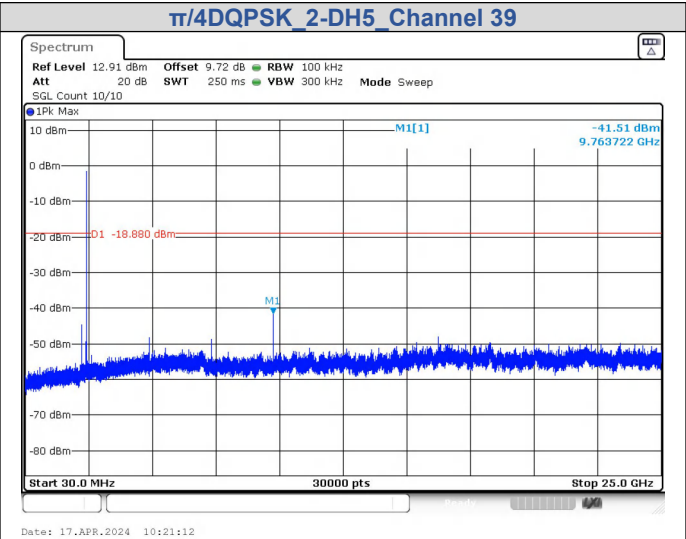
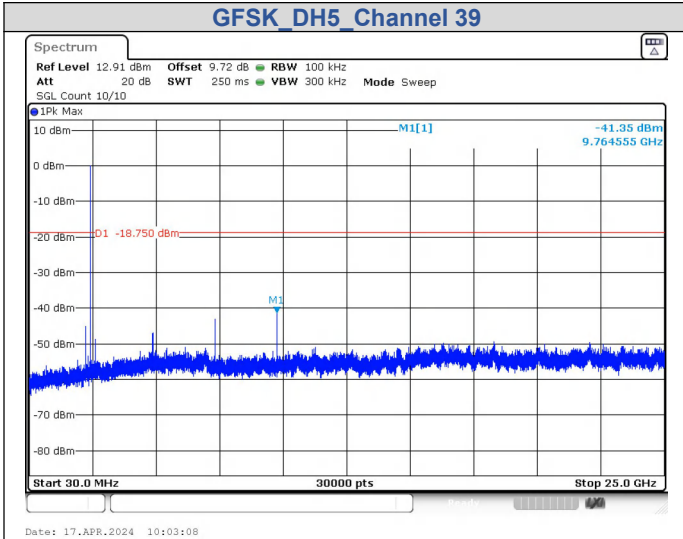
**Spurious Emission  
 $\pi/4$ DQPSK\_2-DH5\_Channel 0**



**Out Of Band Emission**

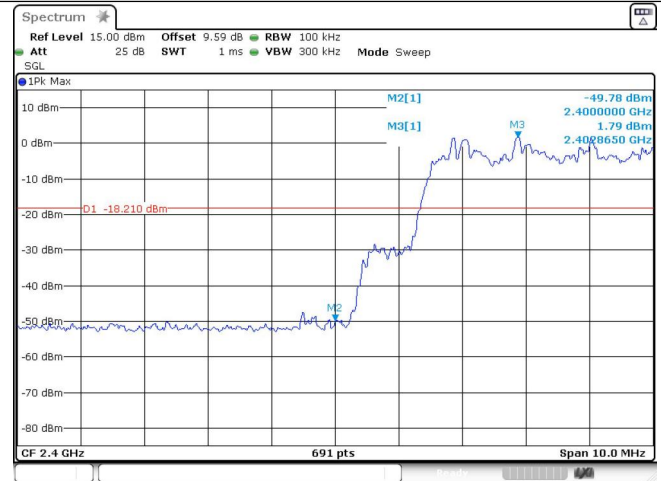
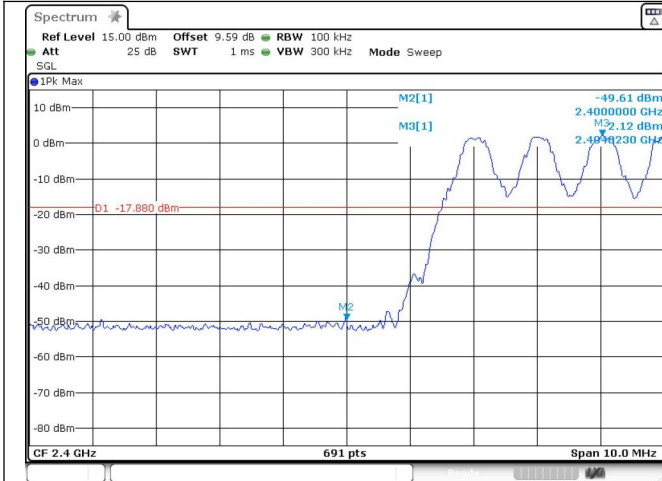


**Out Of Band Emission**



**Spurious Emission**  
GFSK\_DH5\_Channel 78

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

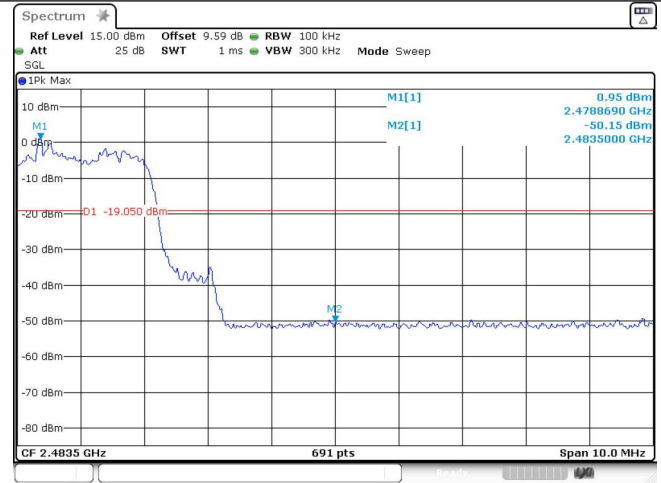
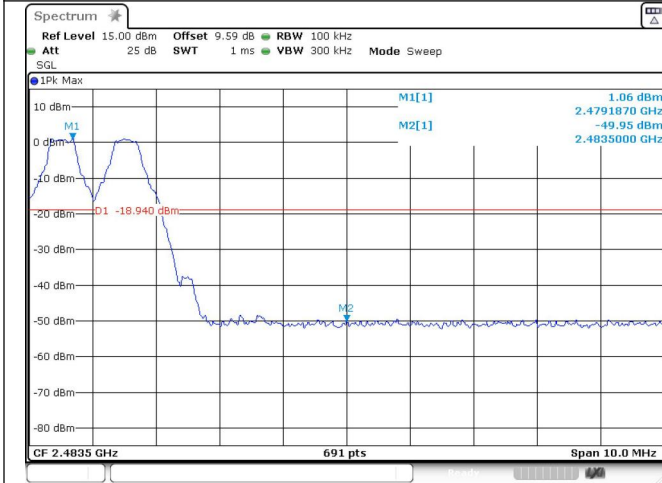


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**Out Of Band Emission(Left)**  
GFSK\_DH5\_Channel Hopping

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

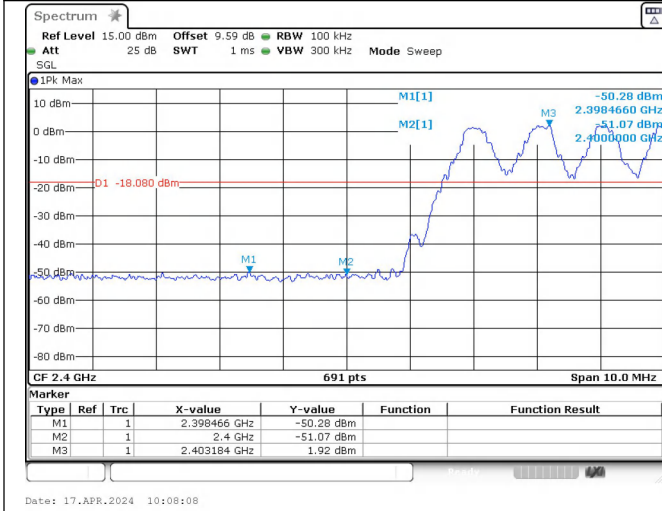


Date: 17.APR.2024 10:00:40

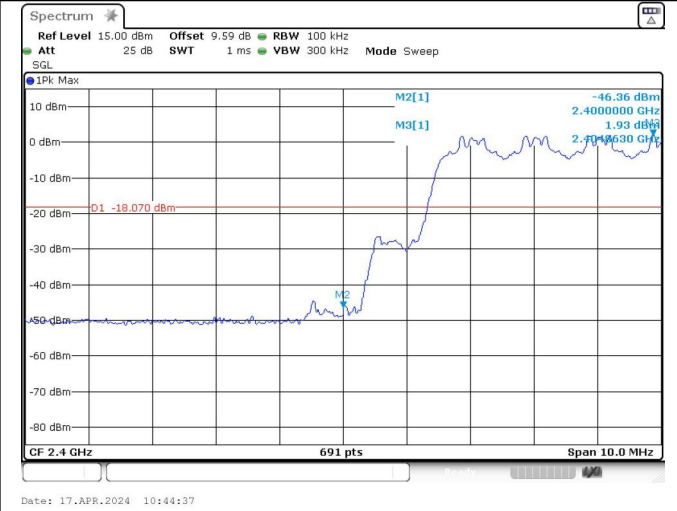
Date: 17.APR.2024 10:18:18

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

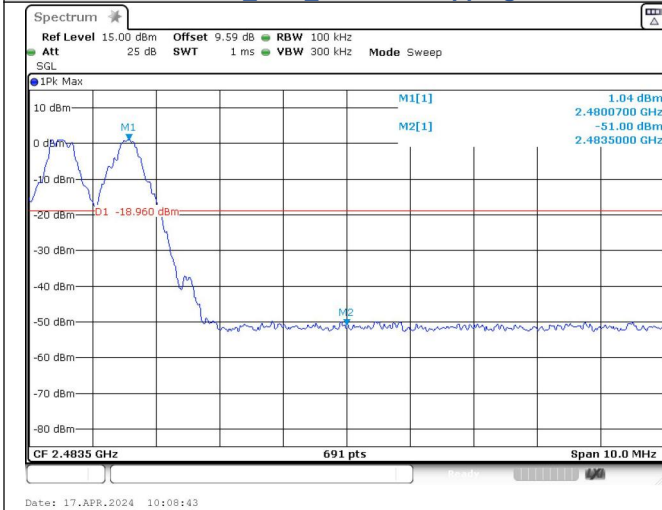
**Out Of Band Emission(Right)**  
 $\pi/4$ DQPSK\_2-DH5\_Channel Hopping



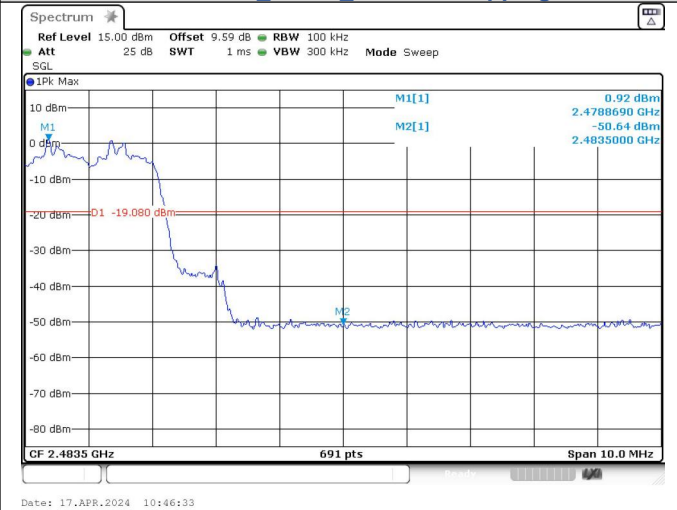
**Out Of Band Emission(Left)  
GFSK\_DH5\_Channel Hopping**



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



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



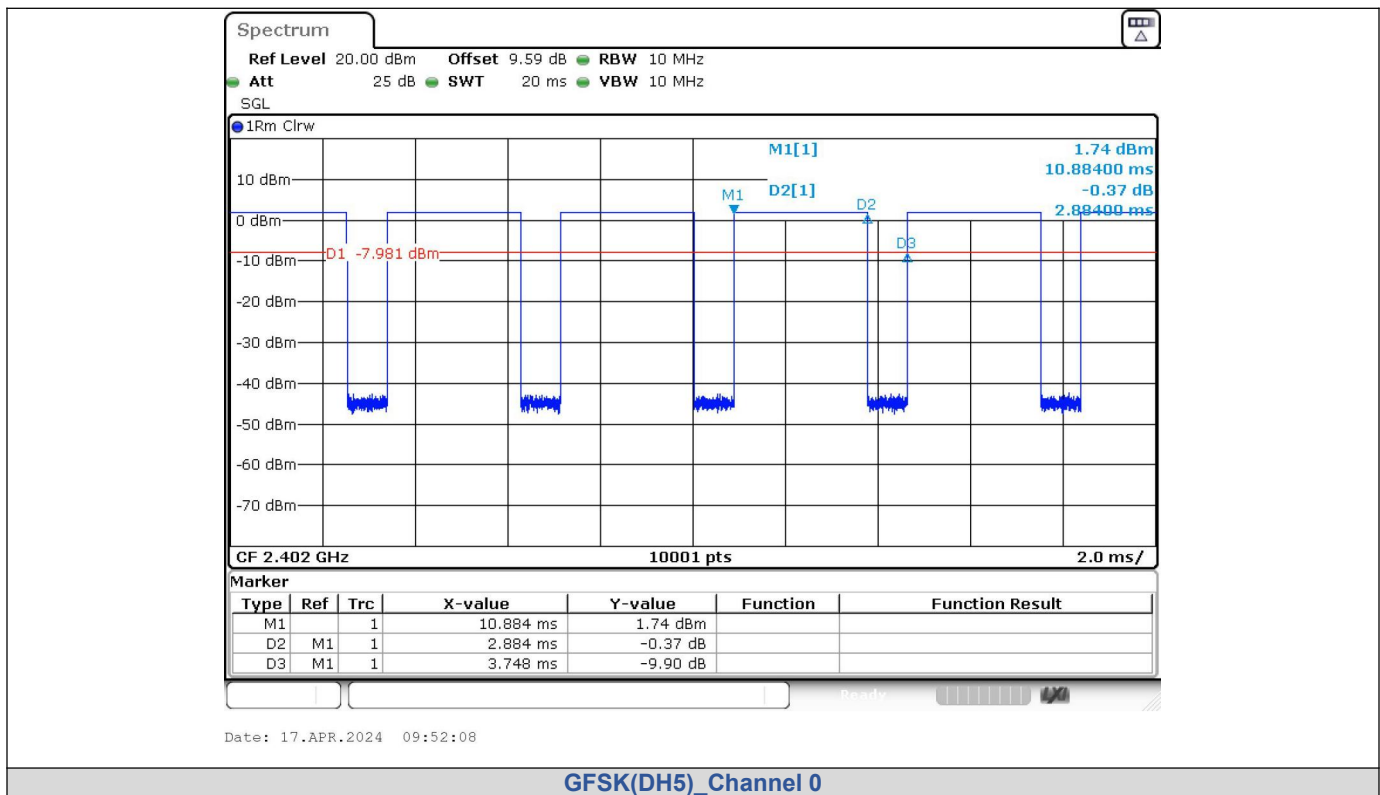
**Out Of Band Emission(Right)  
 $\pi/4$ DQPSK\_2-DH5\_Channel Hopping**

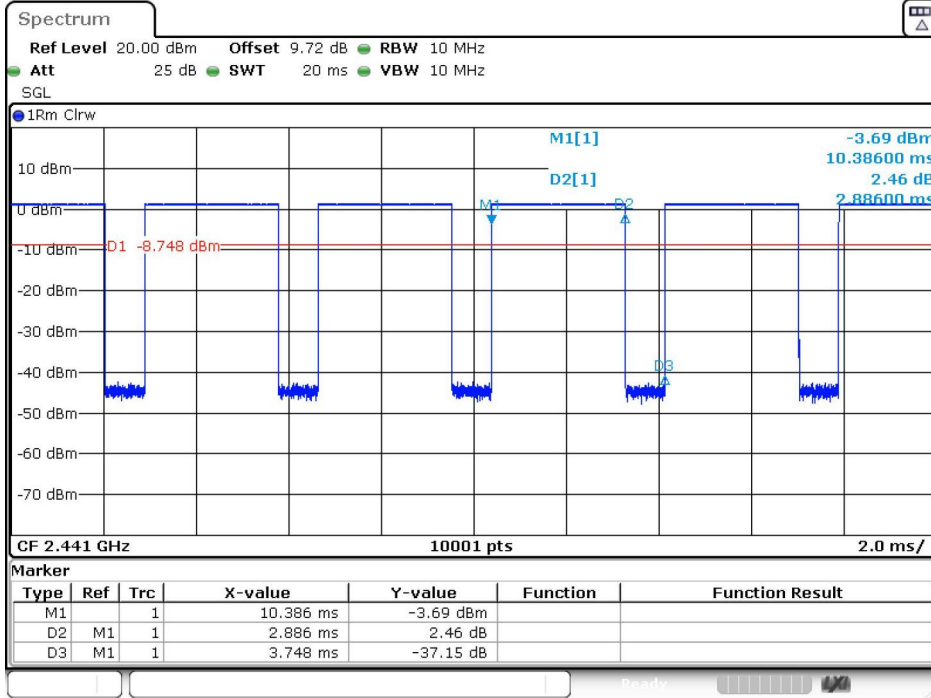
## Duty Cycle

### 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	0.35
		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

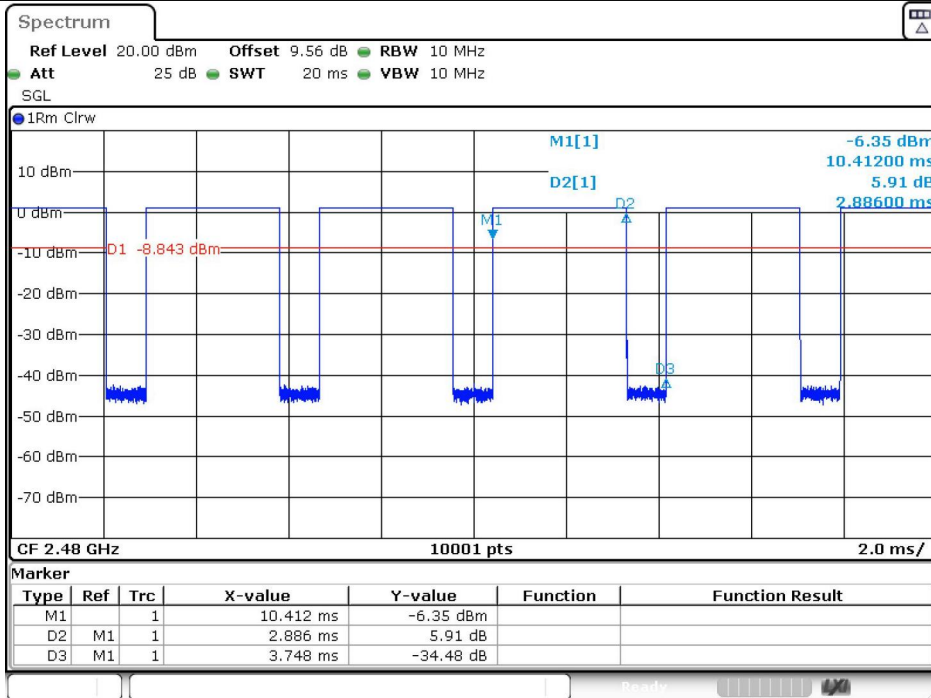
### Test Graphs





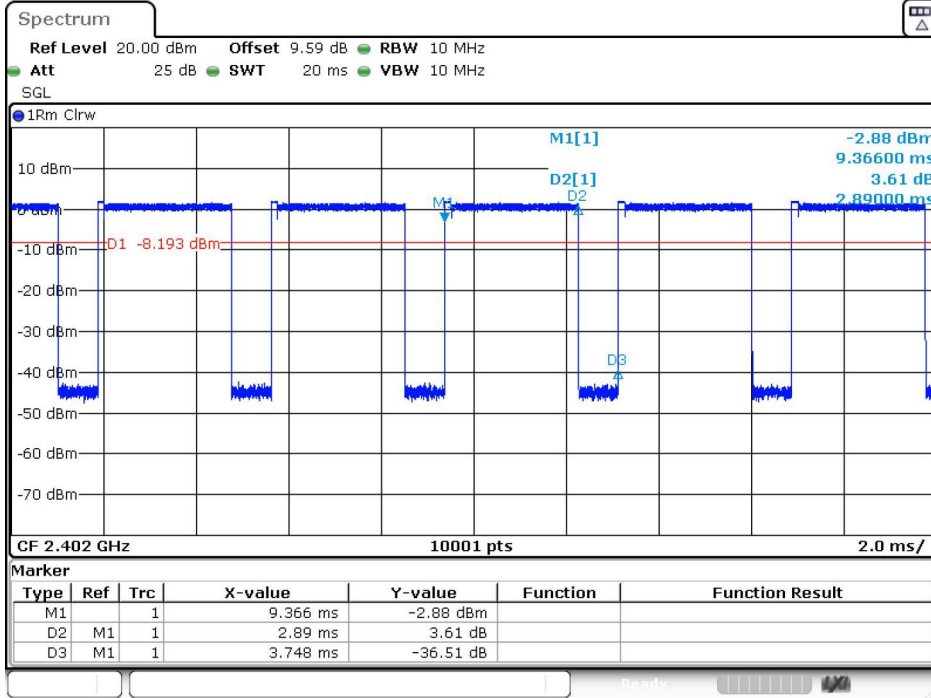
Date: 17.APR.2024 10:01:40

**GFSK(DH5)\_Channel 39**



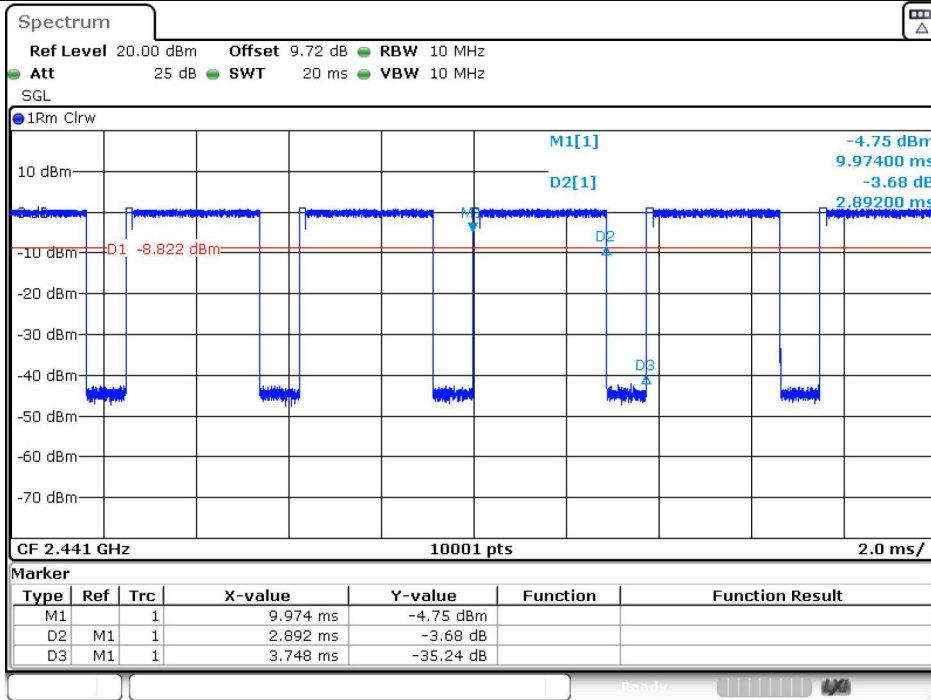
Date: 17.APR.2024 10:03:55

**GFSK(DH5)\_Channel 78**



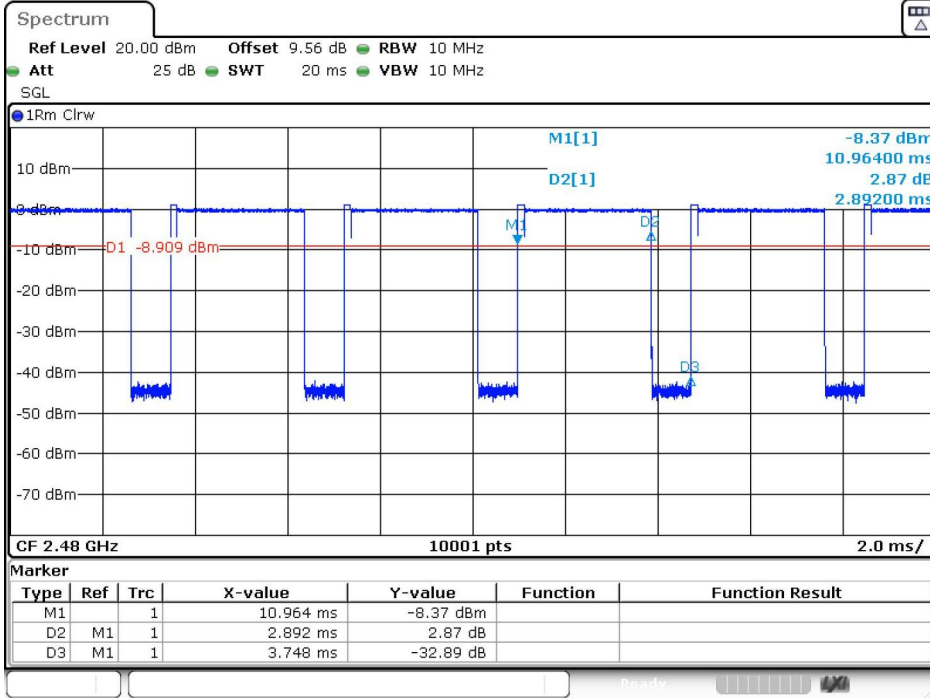
Date: 17.APR.2024 10:09:35

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



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



Date: 17.APR.2024 10:23:28

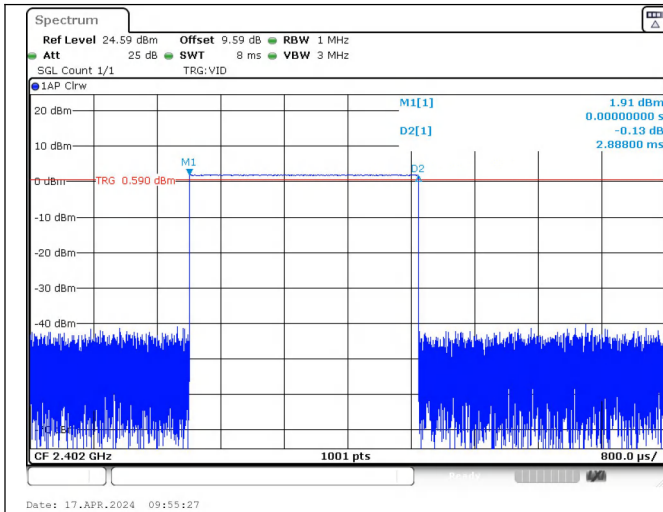
$\pi/4$ DQPSK(2-DH5)\_Channel 78



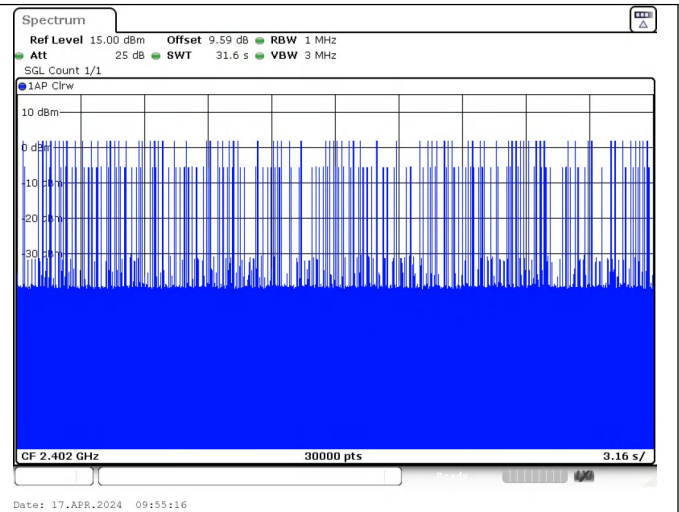
## Dwell Time Test Result

Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0 (2402MHz)	2.888	96	277.25	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	102	295.39		PASS

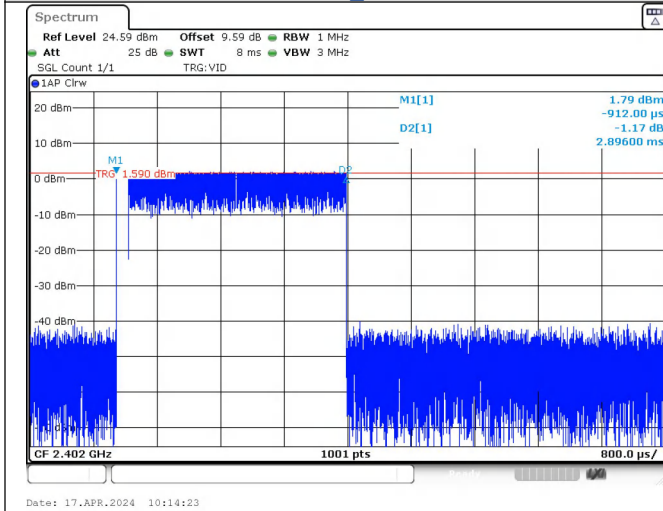
## Test Graphs



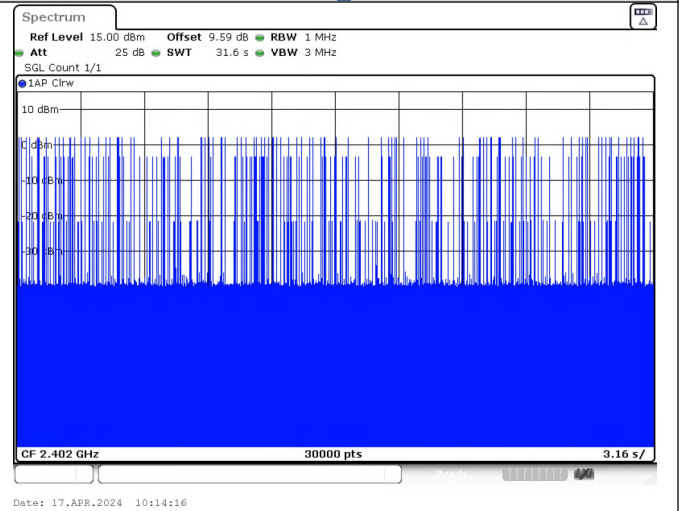
**Pulse Width  
GFSK\_DH5**



**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**

## 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

### Test Graphs

