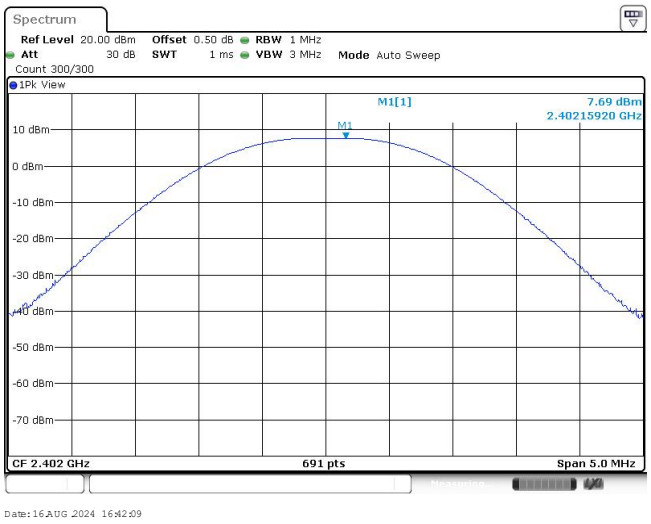
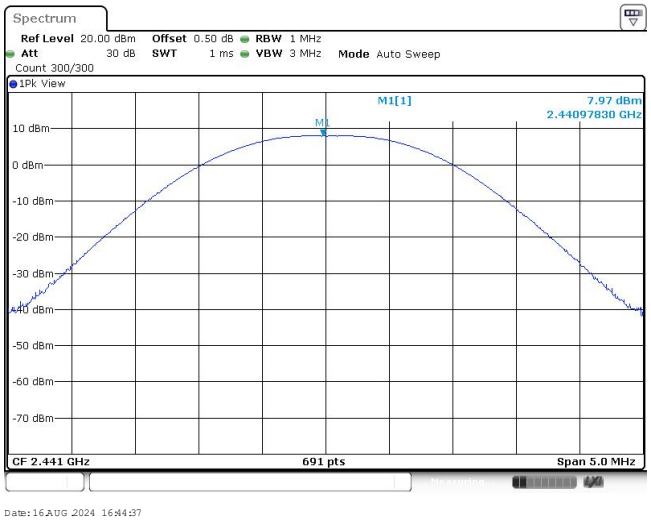
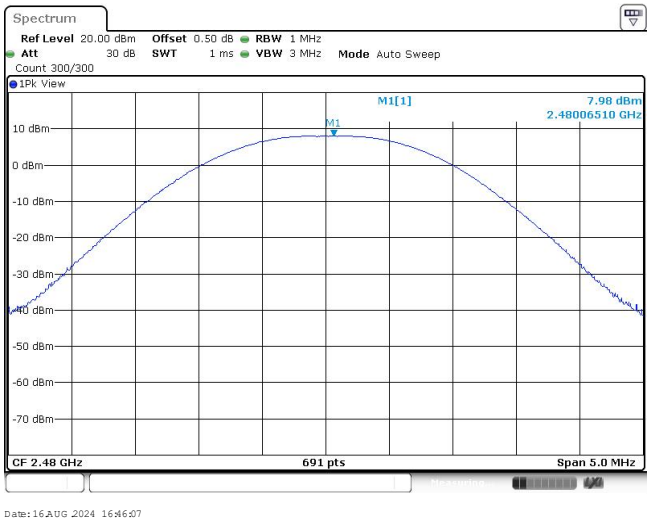
APPENDIX REPORT

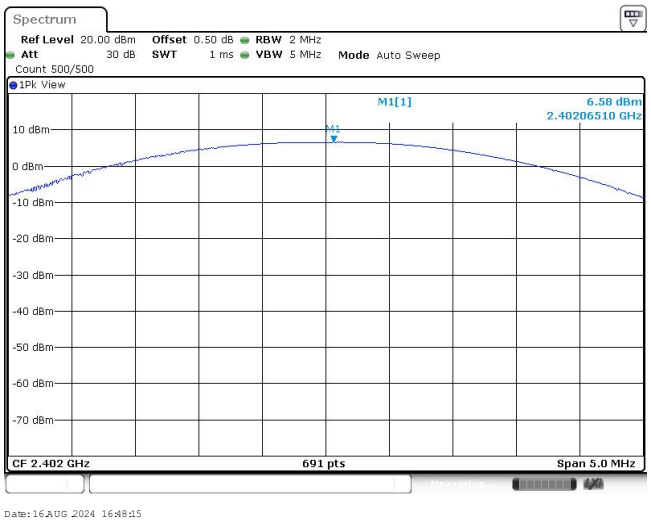
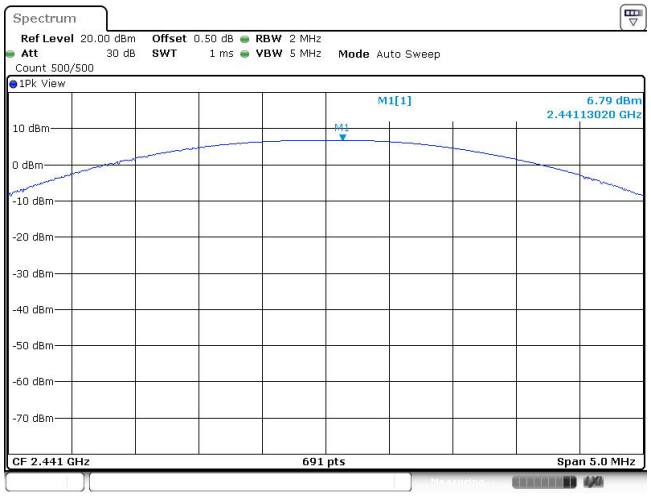
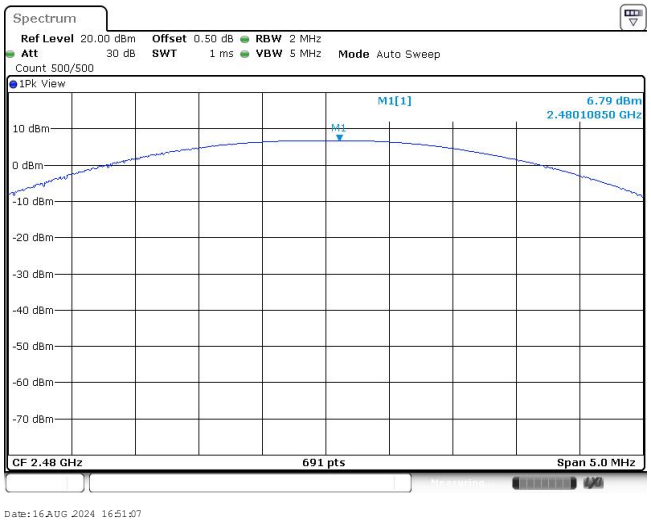
Project No.	SHT2407056602W	Radio Specification	Bluetooth EDR
Test sample No.	YPHT24070566001	Model No.	Q-3588S
Start test date	2024-08-16	Finish date	2024-08-19
Temperature	24.5℃	Humidity	55%
Test Engineer	Chenxin Ling	Auditor	Xiaodong Zhao

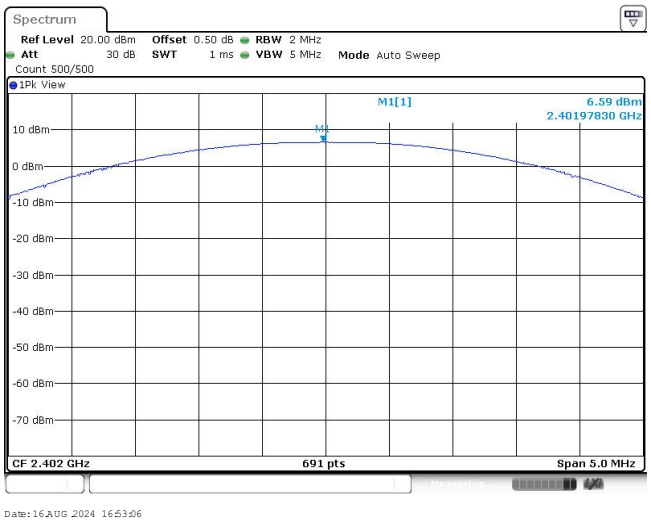
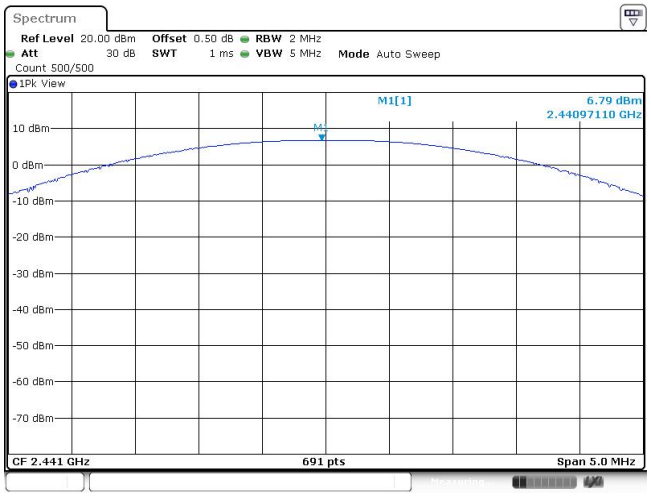
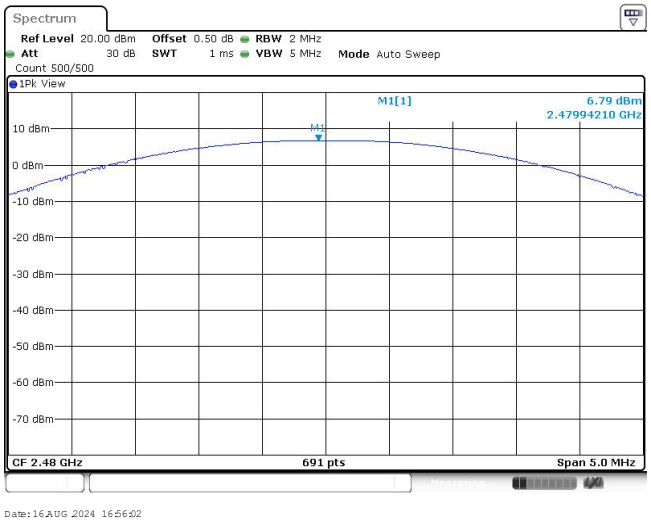
Appendix clause	Test item	Result
A	Peak Output Power	Pass
B	20 dB Bandwidth	Pass
C	99% Occupied Bandwidth	Pass
D	Carrier Frequencies Separation	Pass
E	Hopping Channel Number	Pass
F	Dwell Time	Pass
G	Duty Cycle Correction Factor (DCCF)	Pass
H	Band edge and Spurious Emissions(coducted)	Pass

Appendix A：Peak Output Power

Modulation type	Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
GFSK	00	7.69	7.45	≤ 30.00	Pass
	39	7.97	7.72		
	78	7.98	7.73		
π/4DQPSK	00	6.58	6.36	≤ 21.00	Pass
	39	6.79	6.54		
	78	6.79	6.55		
8DPSK	00	6.59	6.38	≤ 21.00	Pass
	39	6.79	6.57		
	78	6.79	6.57		

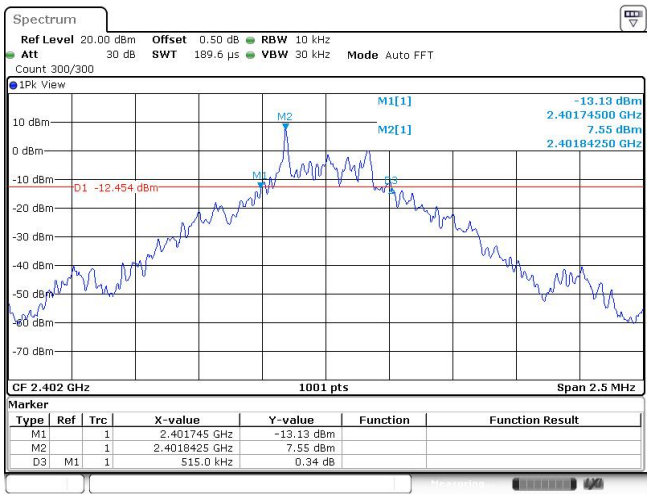
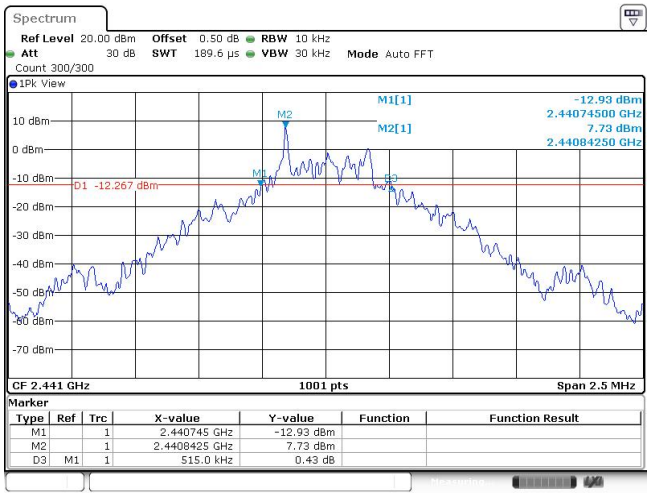
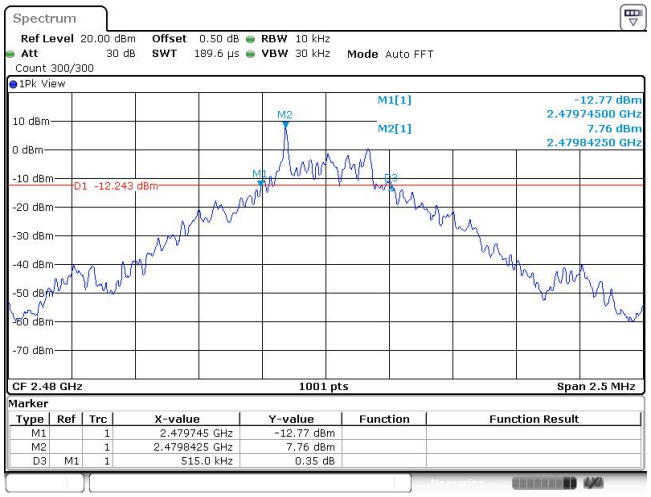
Modulation Type:	GFSK
CH00	
CH39	
CH78	

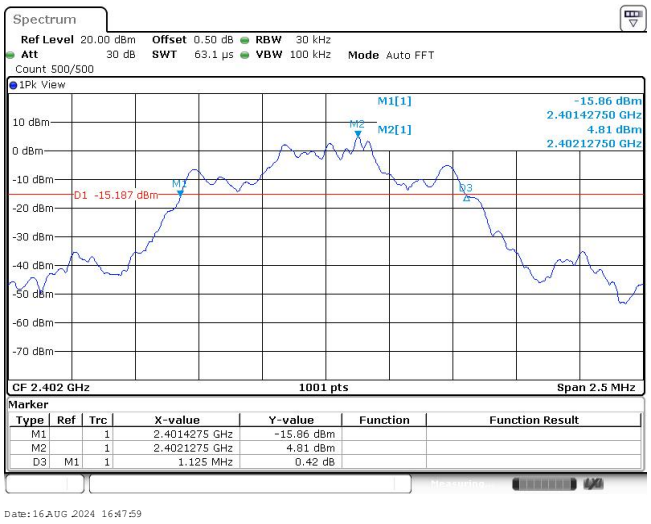
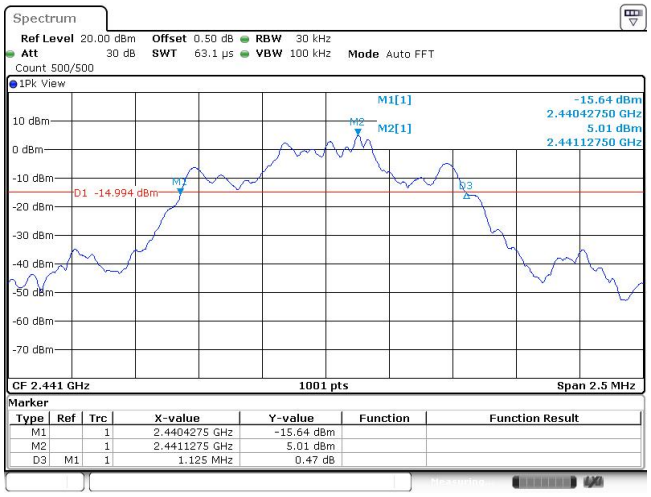
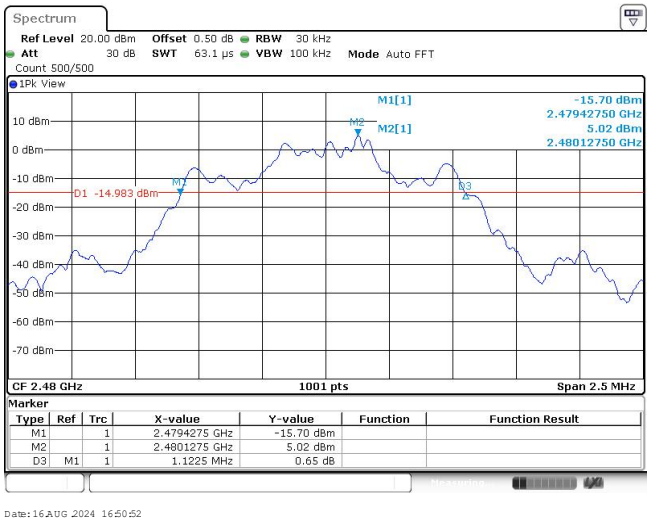
Modulation Type:	π/4DQPSK
CH00	
CH39	
CH78	

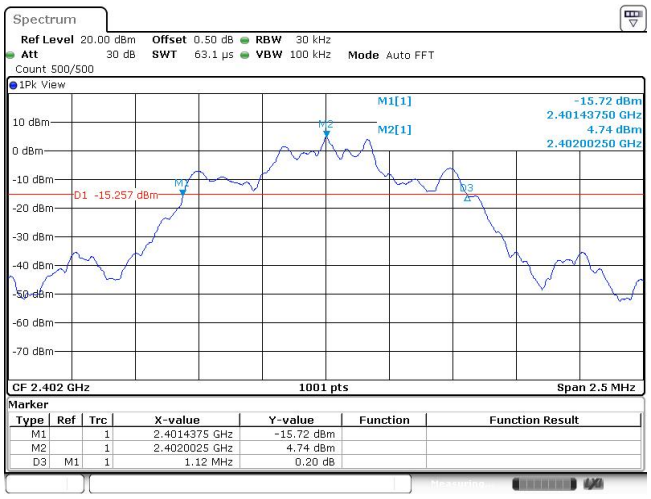
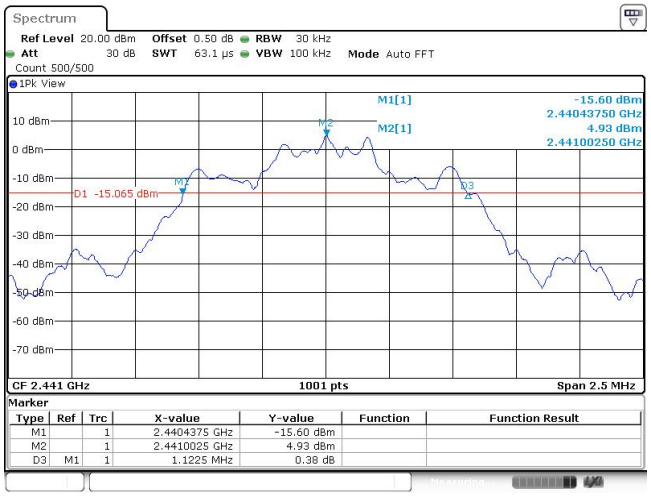
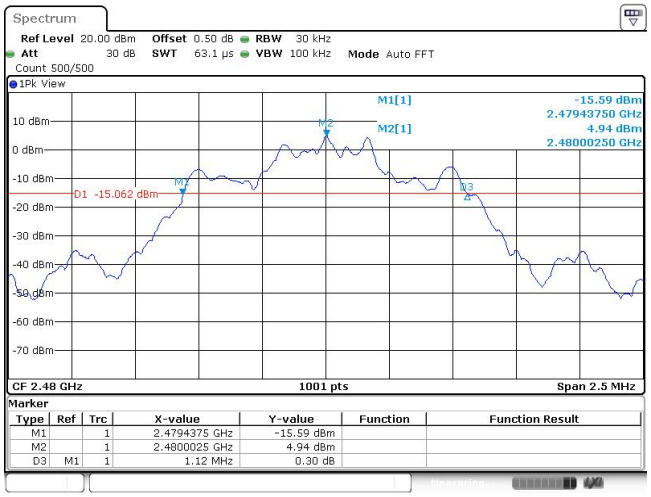
Modulation Type:	8DPSK
CH00	
CH39	
CH78	

Appendix B : 20 dB Bandwidth

Modulation type	Channel	20 dB Bandwidth (kHz)	Limit (kHz)	Result
GFSK	00	515.00	-	Pass
	39	515.00		
	78	515.00		
π/4DQPSK	00	1125.00	-	Pass
	39	1125.00		
	78	1123.00		
8DPSK	00	1120.00	-	Pass
	39	1122.00		
	78	1120.00		

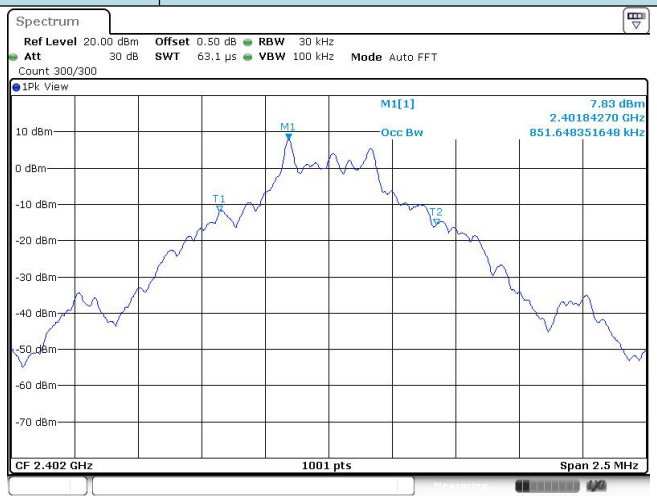
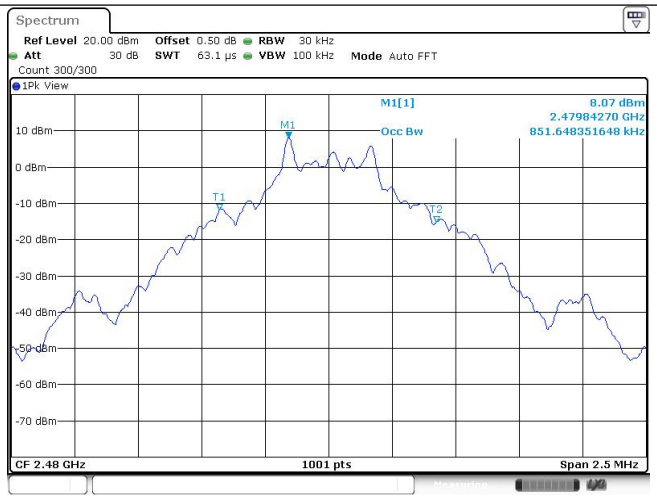
Modulation Type:	GFSK
CH00	
CH39	
CH78	

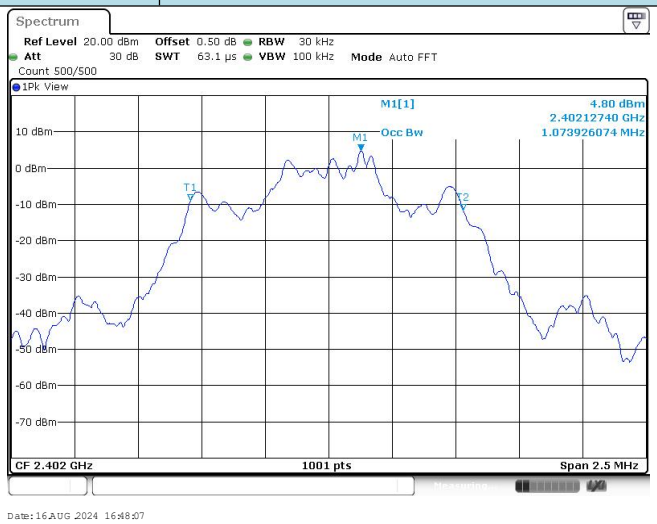
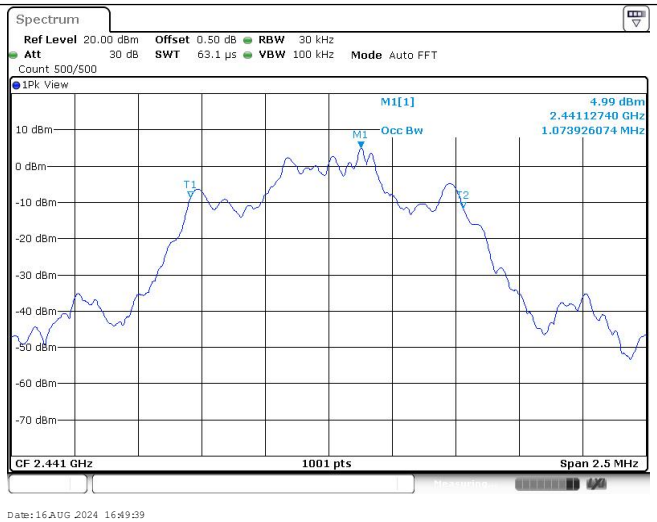
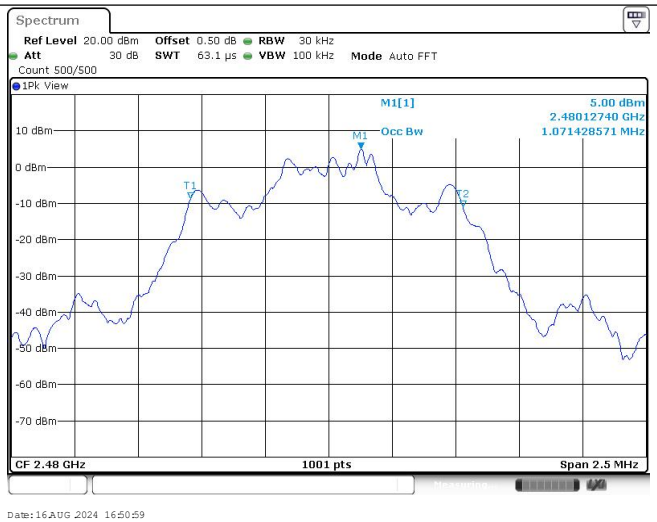
Modulation Type:	π/4DQPSK
CH00	
CH39	
CH78	

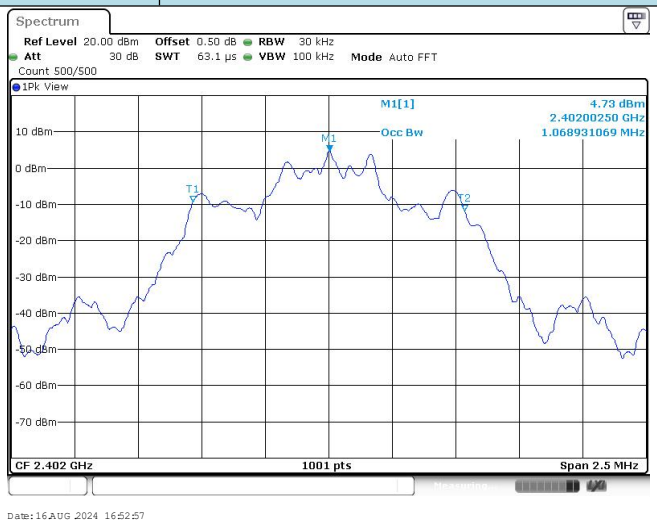
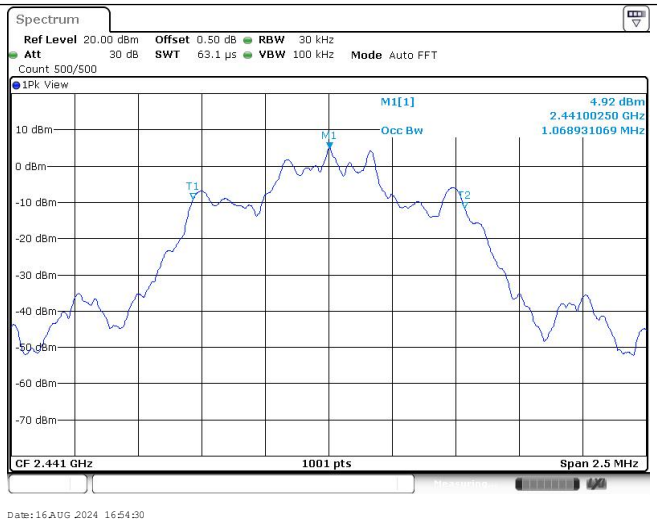
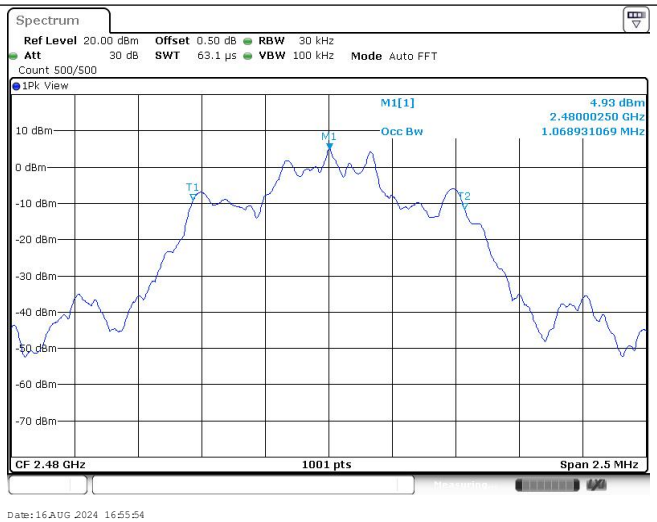
Modulation Type:	8DPSK
CH00	
CH39	
CH78	

Appendix C：99% Occupied Bandwidth

Modulation type	Channel	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
GFSK	00	0.85	-	Pass
	39	0.85		
	78	0.85		
π/4DQPSK	00	1.07	-	Pass
	39	1.07		
	78	1.07		
8DPSK	00	1.07	-	Pass
	39	1.07		
	78	1.07		

Modulation Type:	GFSK
CH00	
CH39	
CH78	

Modulation Type:	π/4DQPSK
CH00	
CH39	
CH78	

Modulation Type:	8DPSK
CH00	
CH39	
CH78	

Appendix D：Carrier Frequencies Separation

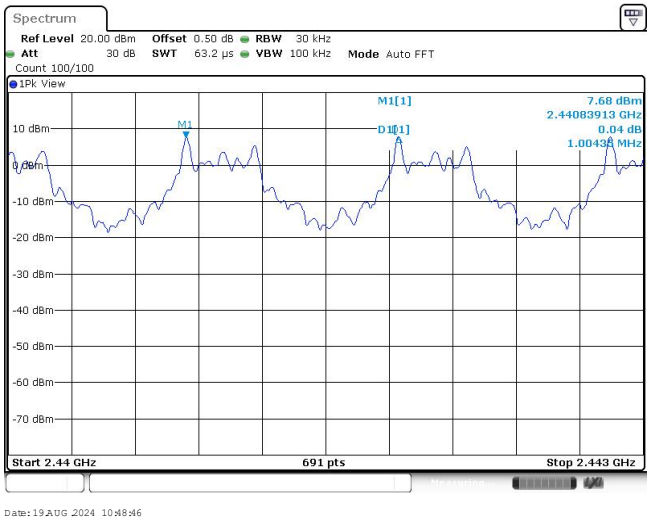
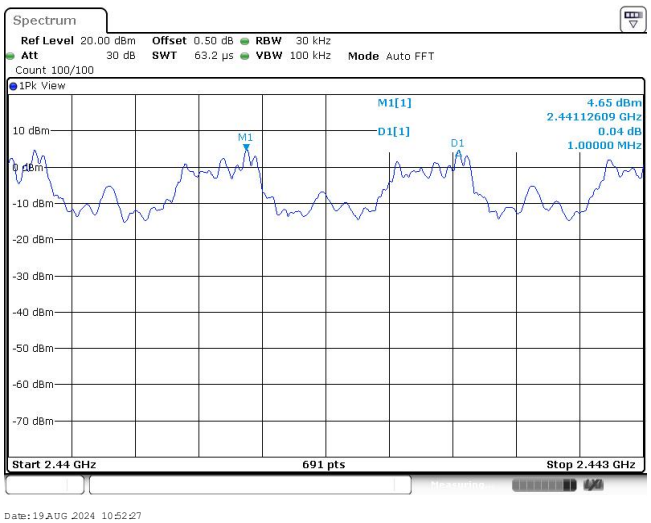
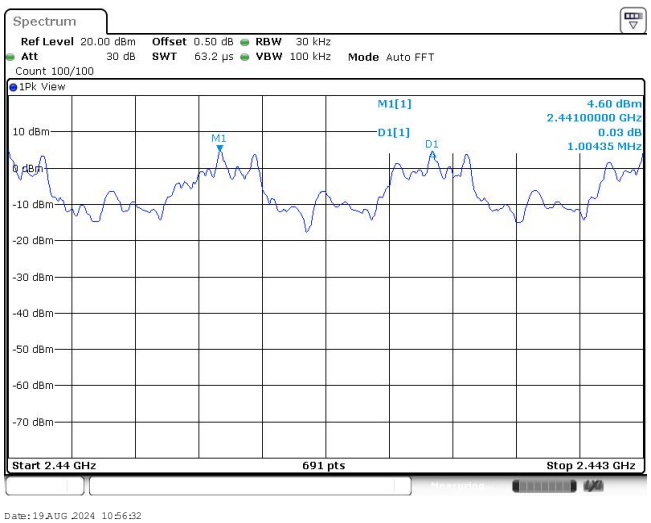
Modulation type	Channel	Carrier Frequencies Separation (MHz)	Limit (kHz) *	Result
GFSK	39	1.00	≥515	Pass
π/4DQPSK	39	1.00	≥750	Pass
8DPSK	39	1.00	≥748	Pass

Note:

*: GFSK limit = The maximum 20 dB Bandwidth for GFSK modulation on the appendix B.

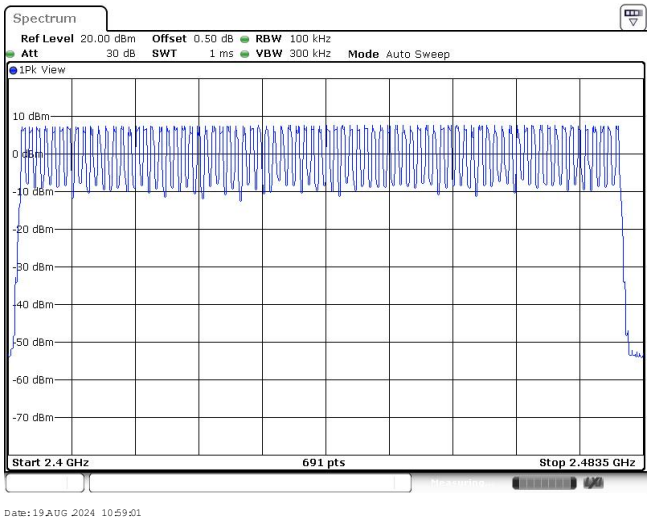
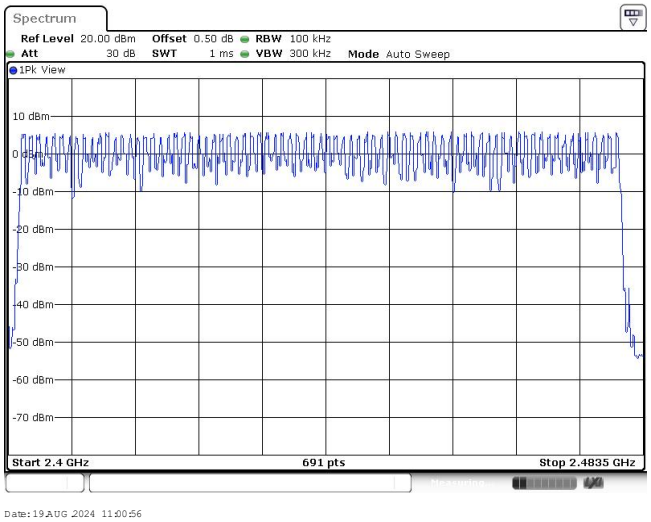
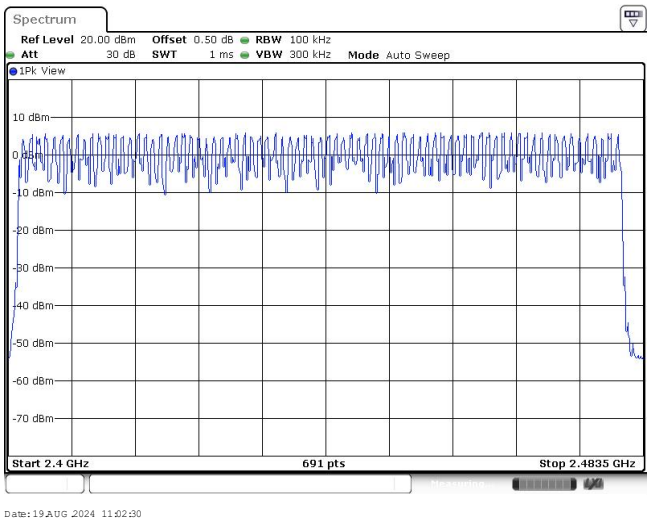
π/4DQPSK limit = 2/3 * The maximum 20 dB Bandwidth for π/4DQPSK modulation on the appendix B.

8DPSK limit = 2/3 * The maximum 20 dB Bandwidth for 8DPSK modulation on the appendix B

GFSK	
π/4DQPSK	
8DPSK	

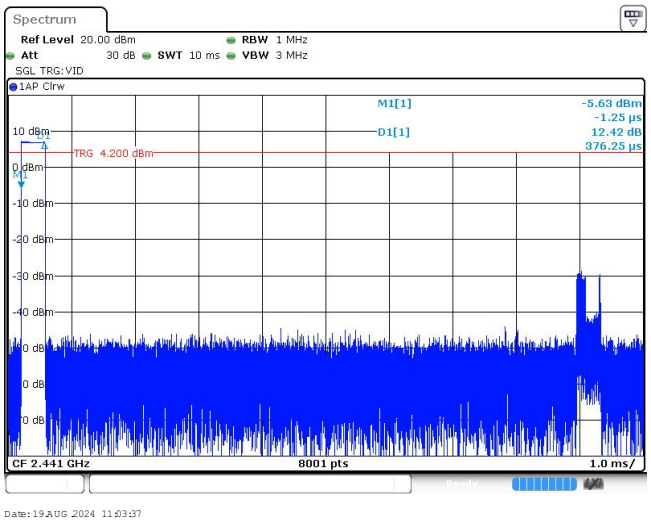
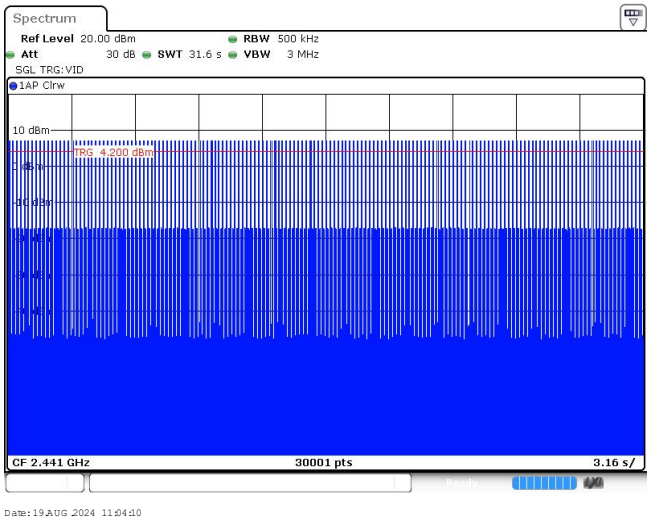
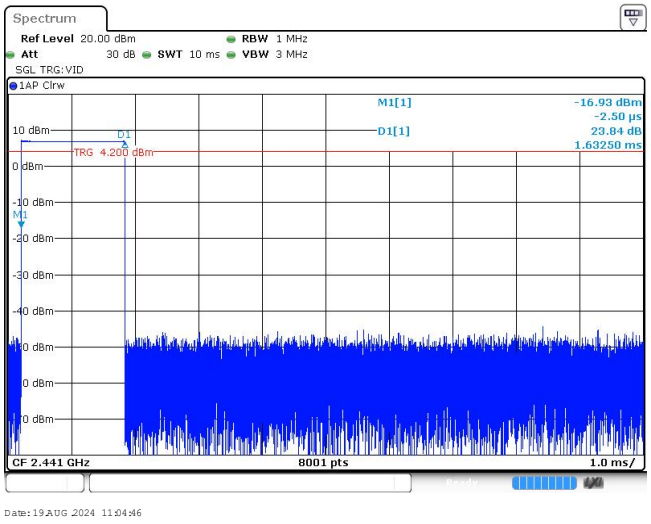
Appendix E：Hopping Channel Number

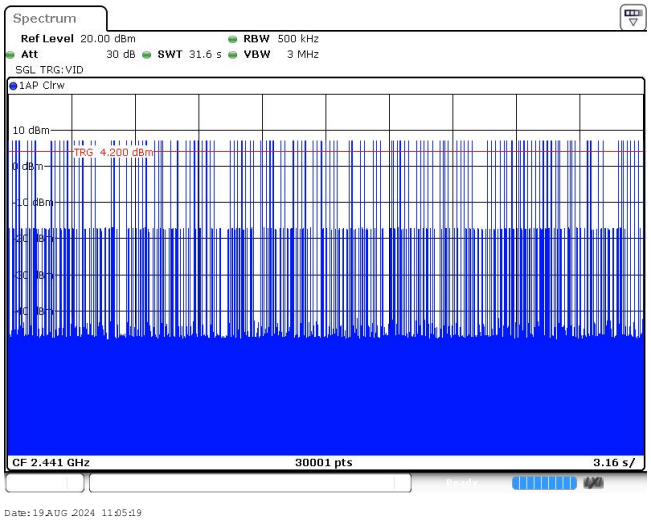
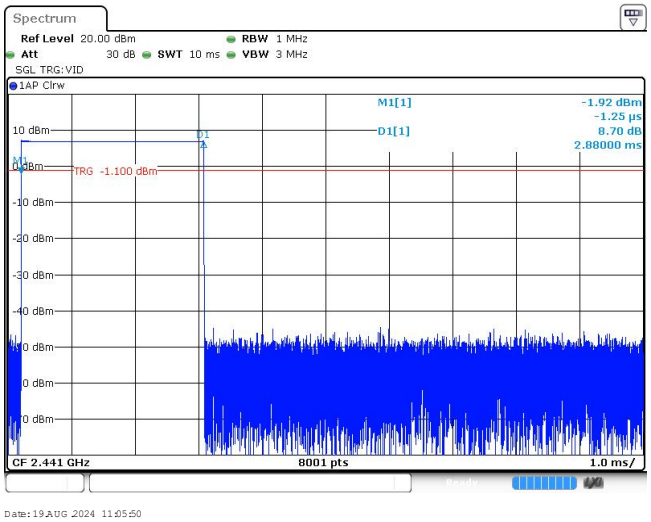
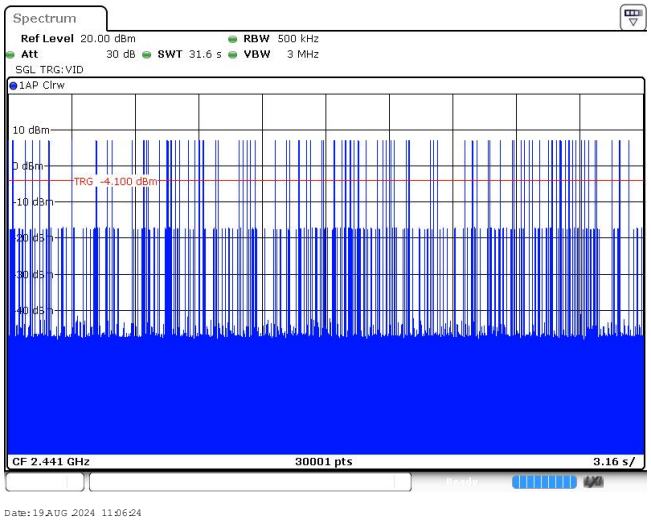
Modulation type	Channel number	Limit	Result
GFSK	79	≥15.00	Pass
π/4DQPSK	79		
8DPSK	79		

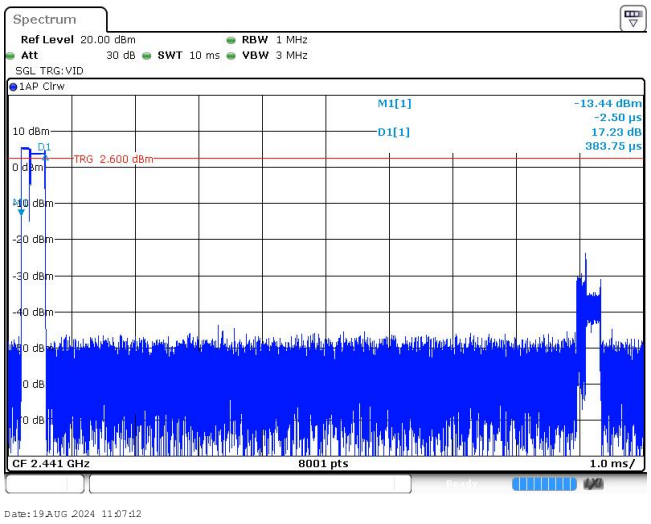
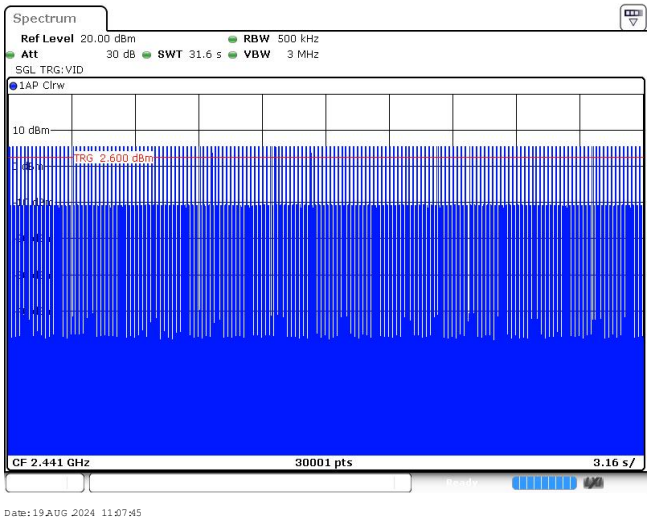
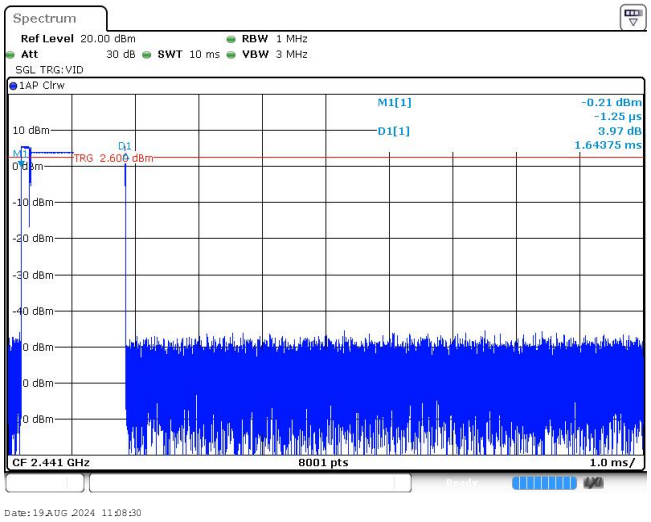
GFSK	
π/4DQPSK	
8DPSK	

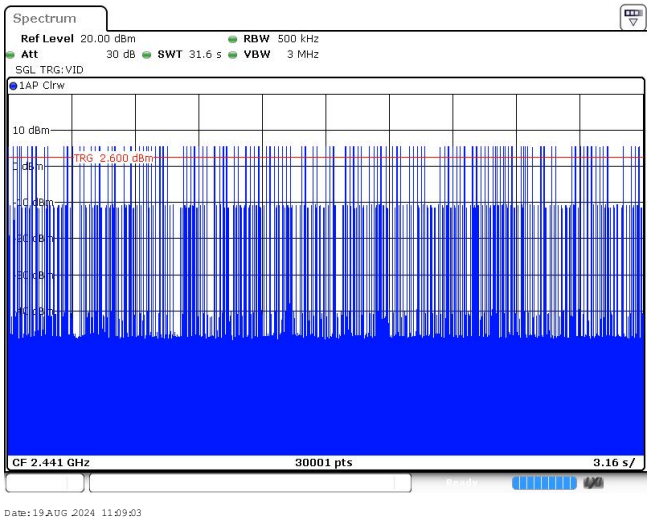
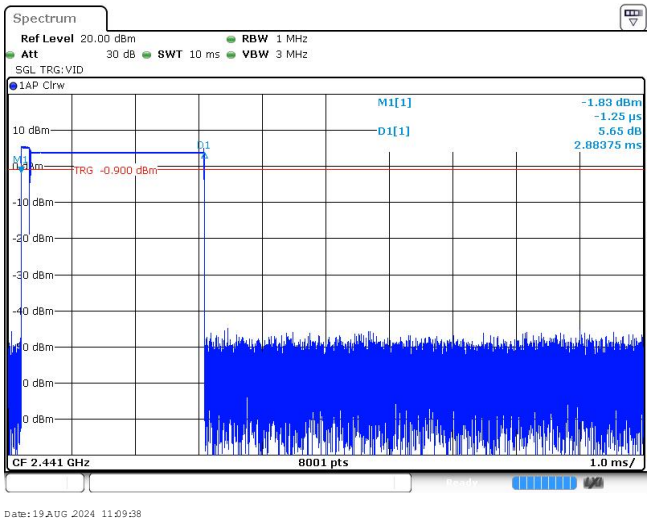
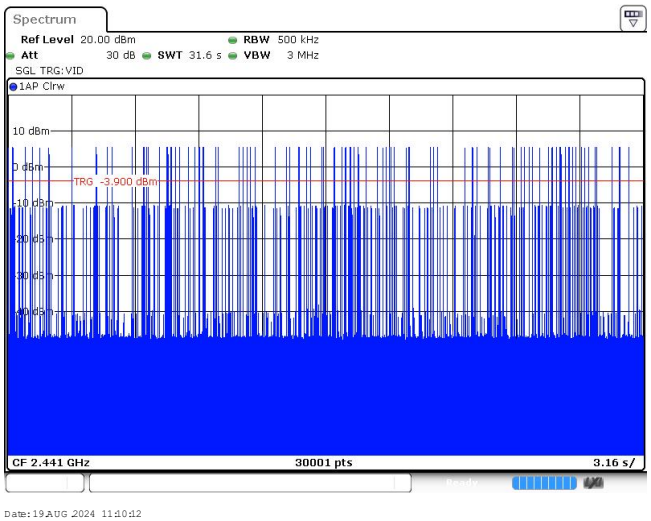
Appendix F：Dwell Time

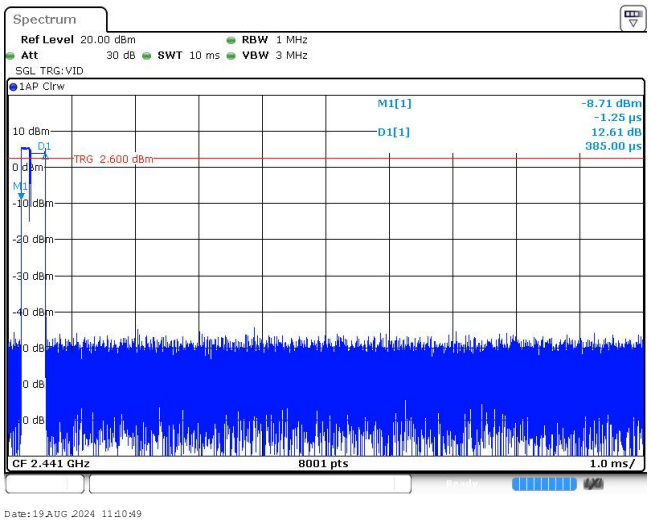
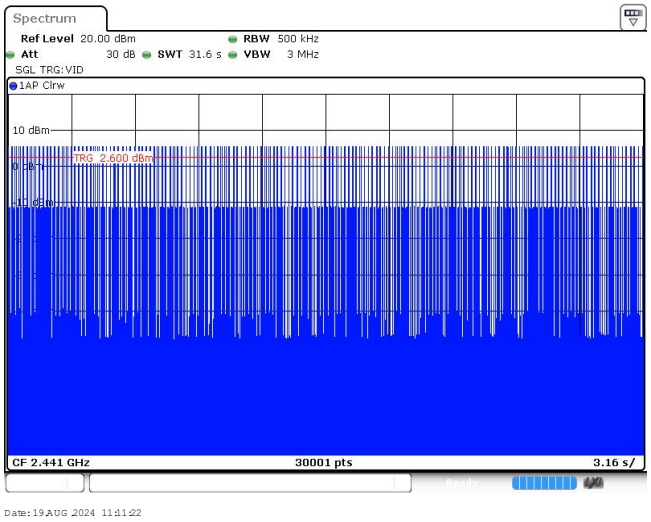
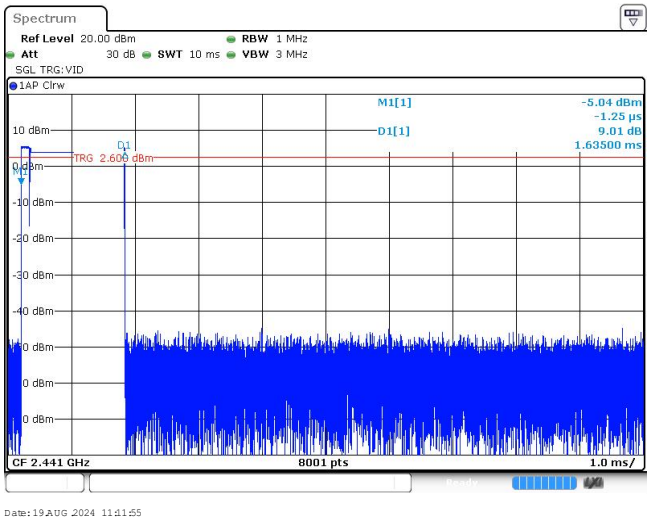
Modulation type	Packet	Burst Width [ms]	Total Hops[hop*ch]	Dwell time (Second)	Limit (Second)	Result
GFSK	DH1	0.38	313.00	0.12	≤ 0.40	Pass
	DH3	1.63	160.00	0.26		
	DH5	2.88	103.00	0.30		
π/4DQPSK	2DH1	0.38	313.00	0.12	≤ 0.40	Pass
	2DH3	1.64	158.00	0.26		
	2DH5	2.88	103.00	0.30		
8DPSK	3DH1	0.38	315.00	0.12	≤ 0.40	Pass
	3DH3	1.64	159.00	0.26		
	3DH5	2.89	106.00	0.31		

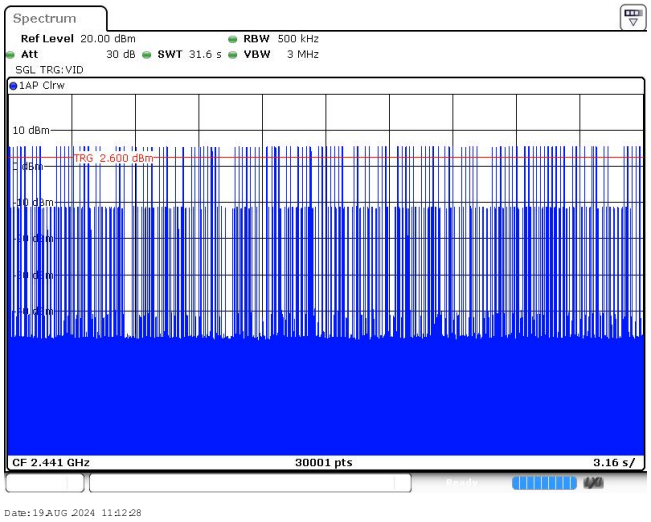
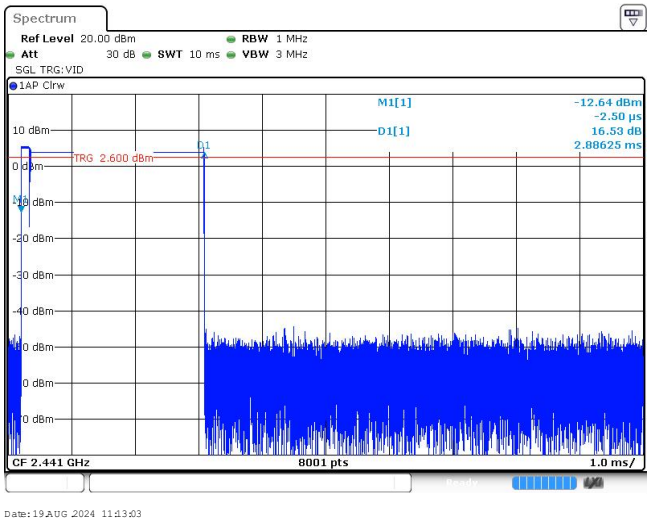
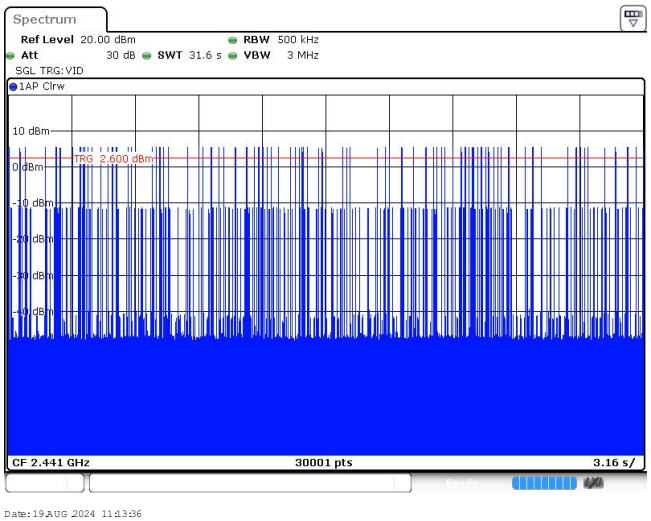
Modulation Type:	GFSK
DH1 Burst width	
DH1 Burst number	
DH3 Burst width	

DH3 Burst number	
DH5 Burst width	
DH5 Burst number	

Modulation Type:	π/4DQPSK
2DH1 Burst width	
2DH1 Burst number	
2DH3 Burst width	

2DH3 Burst number	
2DH5 Burst width	
2DH5 Burst number	

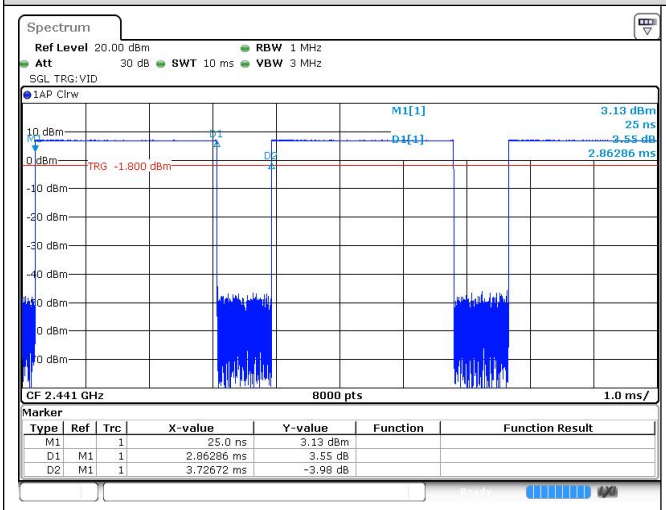
Modulation Type:	8DPSK
3DH1 Burst width	
3DH1 Burst number	
3DH3 Burst width	

3DH3 Burst number	
3DH5 Burst width	
3DH5 Burst number	

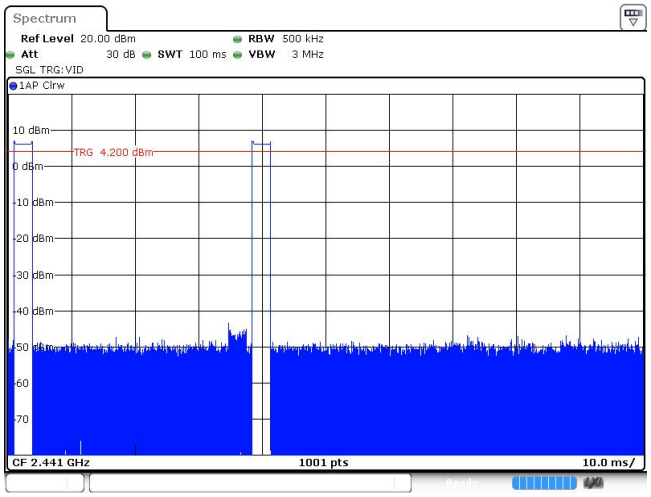
Appendix G: Duty Cycle Correction Factor (DCCF)

DCCF Calculate Formula					
DCCF=20 * Log(duty cycle) = 20 * Log($T_{on\ time}$ / T_{period})					
Modulation type	Test Frequency（MHz）	$T_{on\ time}$ for single burst [ms]	T_{period} [ms]	Burst Quantity	DCCF [dB]
GFSK	2441	2.86	100	2.00	-30.87
π/4 DQPSK	2441	2.87	100	2.00	-30.84
8DPSK	2441	2.87	100	2.00	-30.84

GFSK

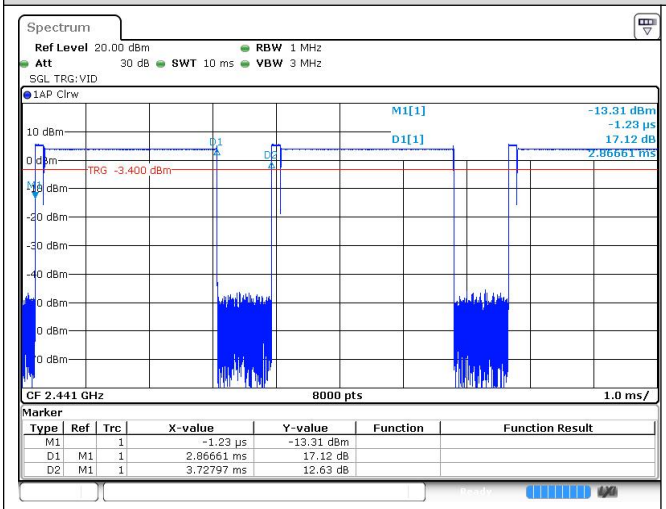


$T_{on\ time}$ for single burst

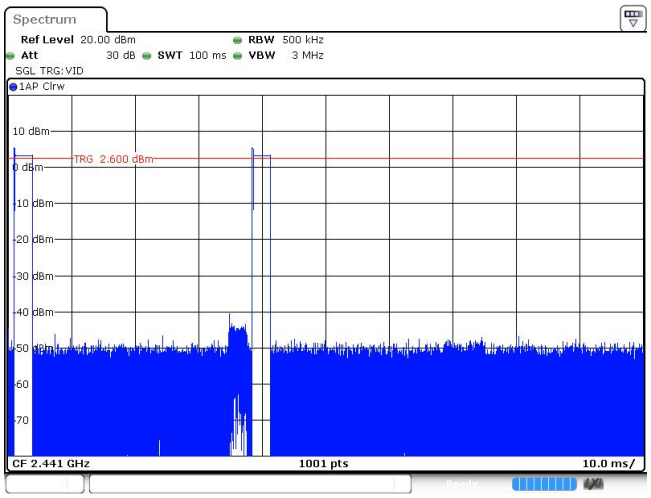


Burst Quantity

π/4 DQPSK

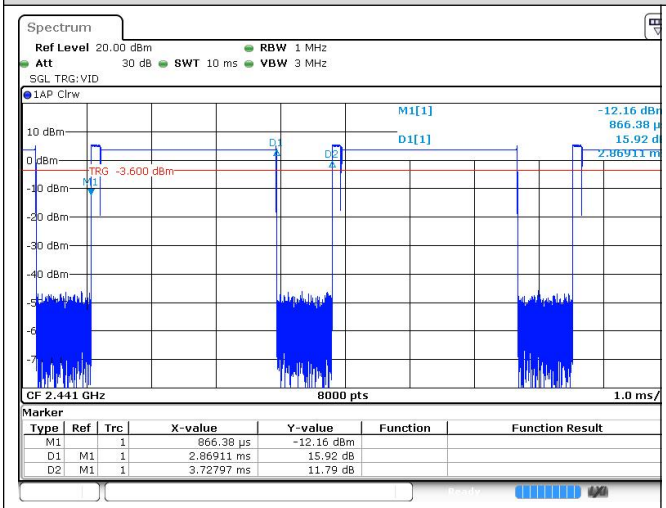


$T_{on\ time}$ for single burst

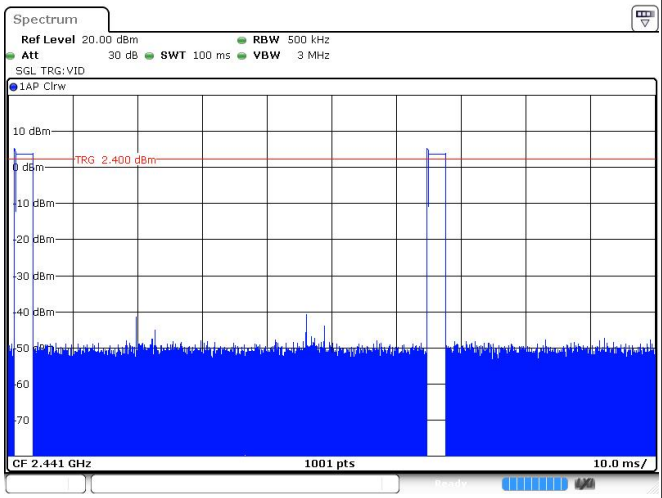


Burst Quantity

8DPSK

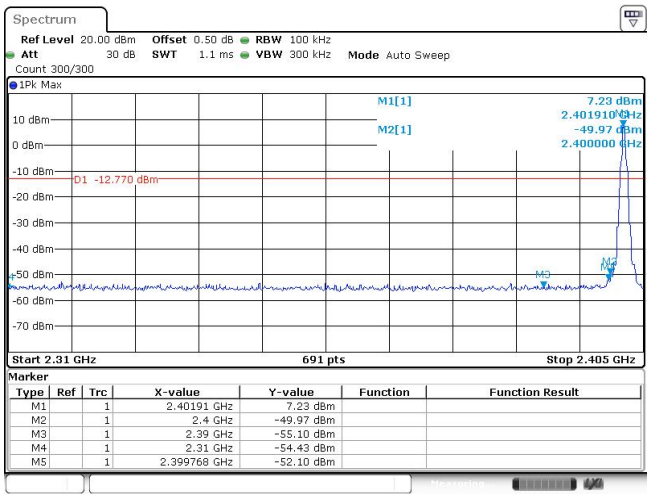
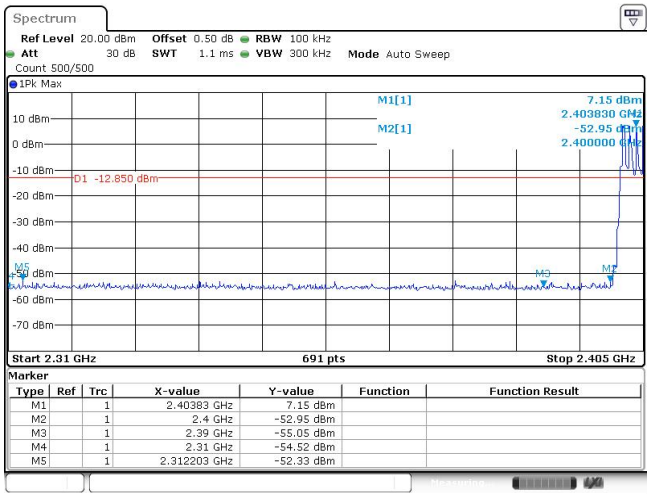
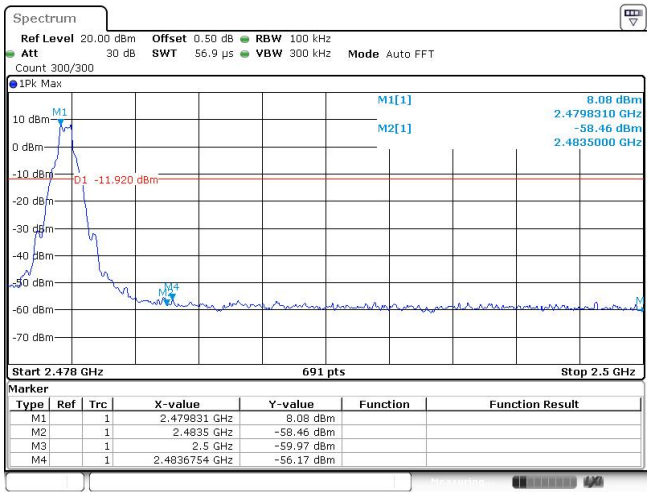


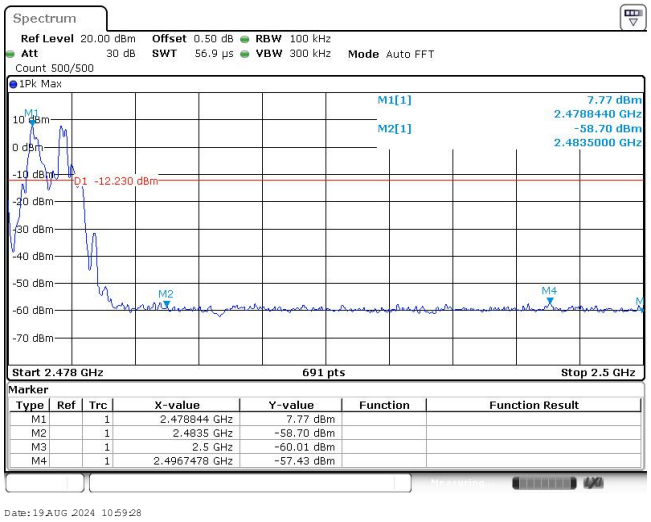
$T_{on\ time}$ for single burst

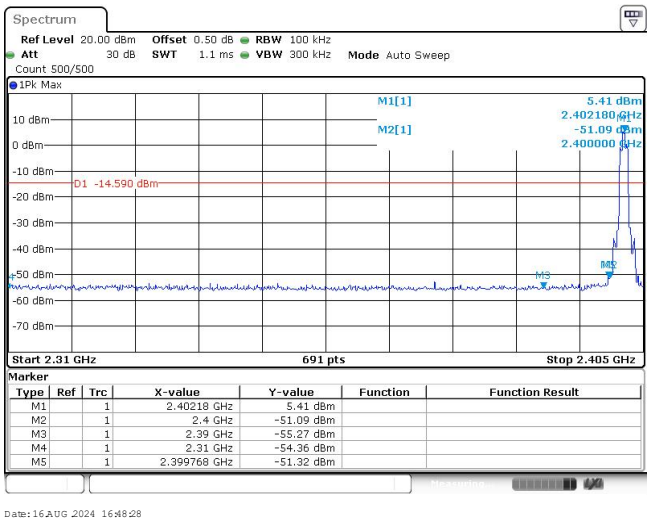
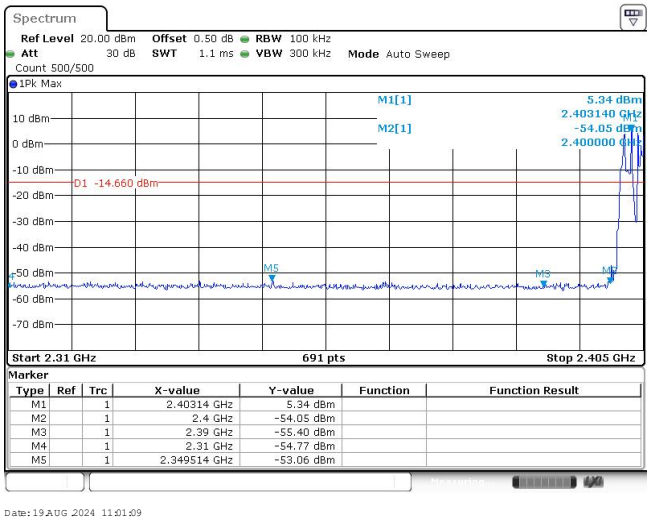
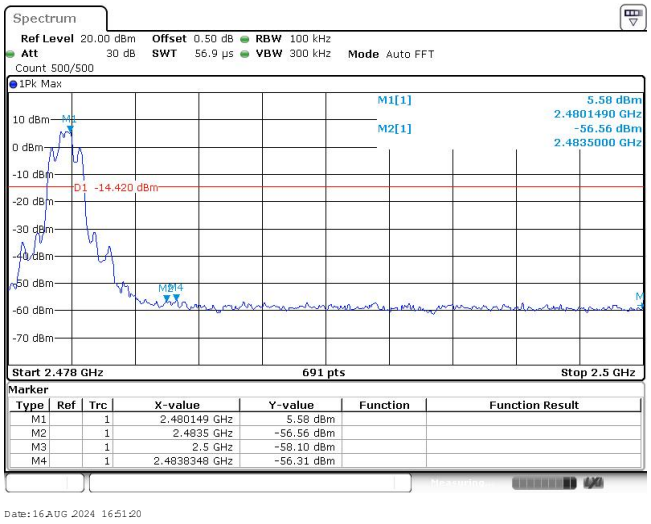


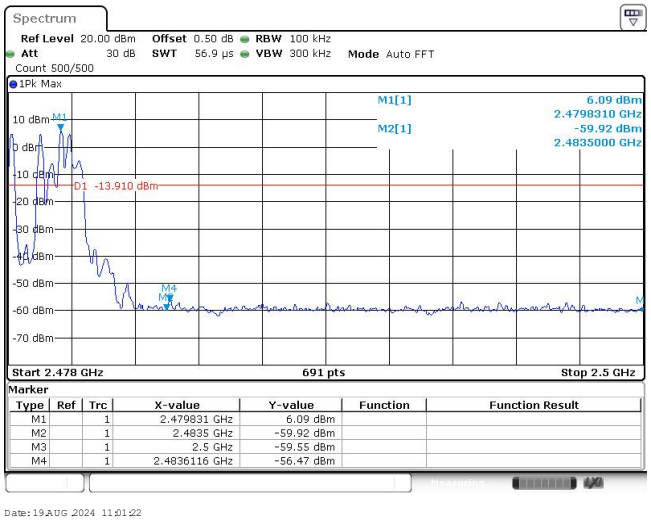
Burst Quantity

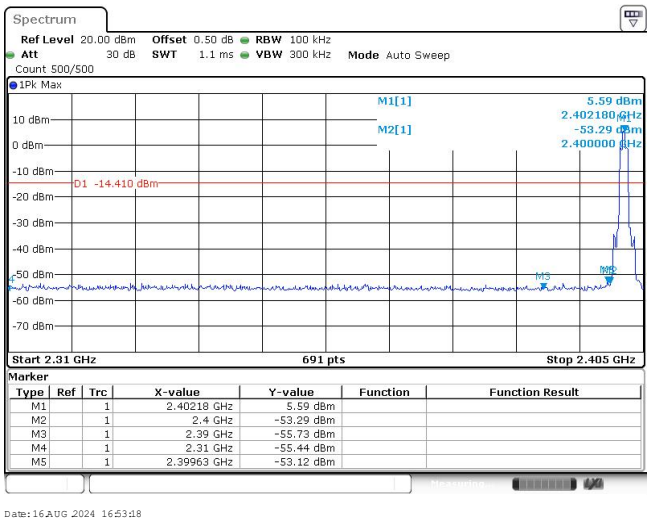
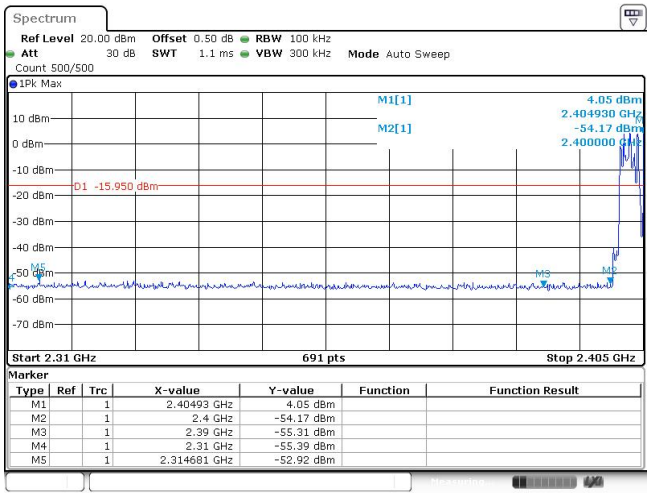
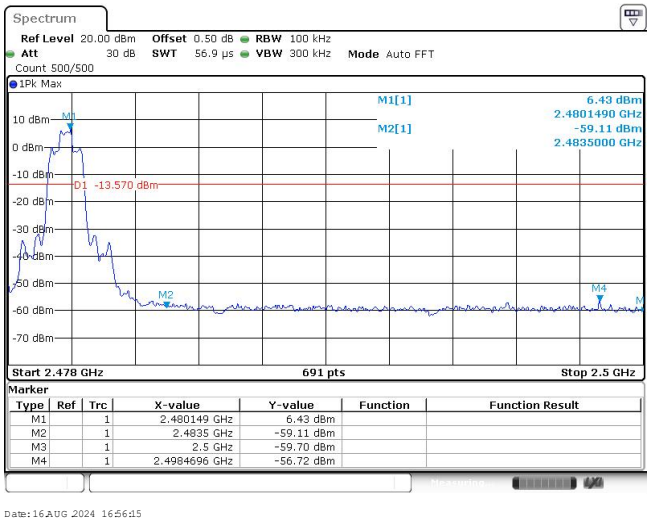
Appendix H：Band edge and Spurious Emissions (conducted)

Test Item:	Band edge	Modulation type:	GFSK
CH00 No hopping mode			
CH00 Hopping mode			
CH78 No hopping mode			

CH78 Hopping mode	

Test Item:	Band edge	Modulation type:	π/4DQPSK
CH00 No hopping mode			
CH00 Hopping mode			
CH78 No hopping mode			

CH78 Hopping mode	

Test Item:	Band edge	Modulation type:	8DPSK
CH00 No hopping mode			
CH00 Hopping mode			
CH78 No hopping mode			

CH78 Hoppig mode