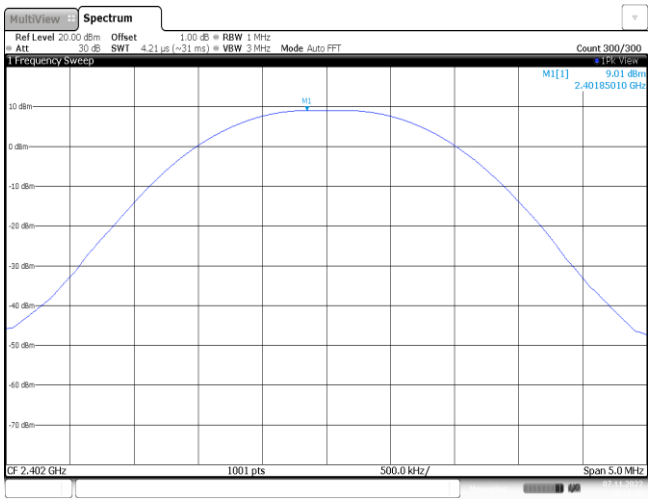
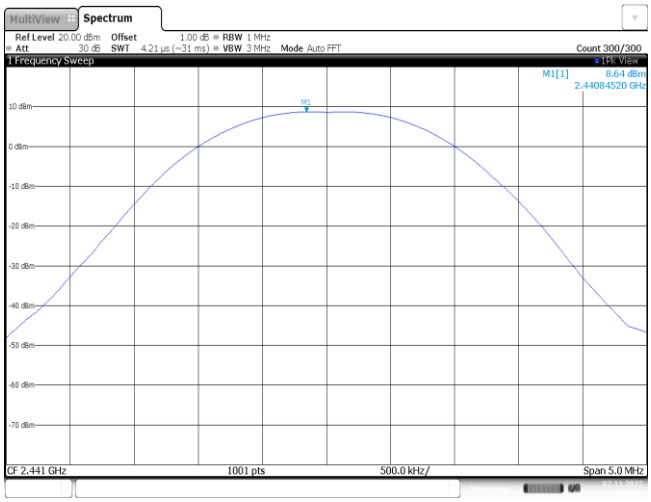
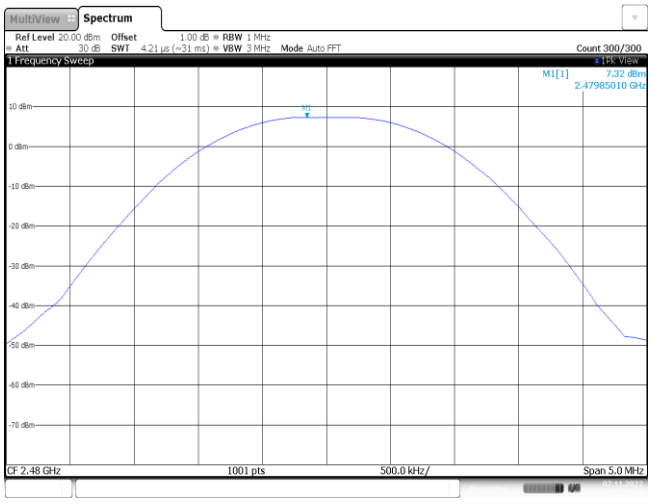
APPENDIX REPORT

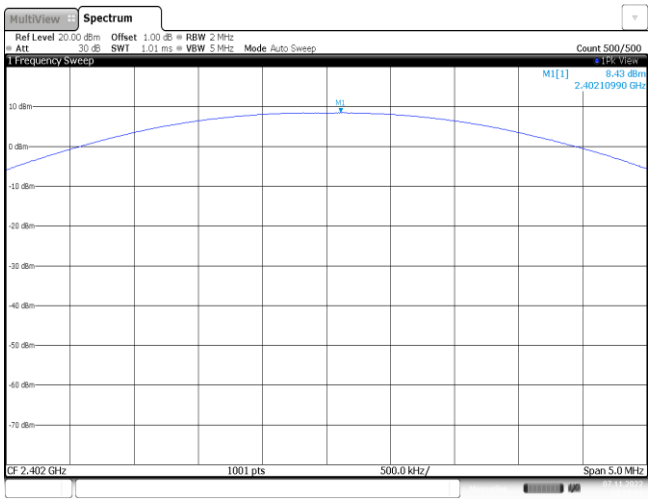
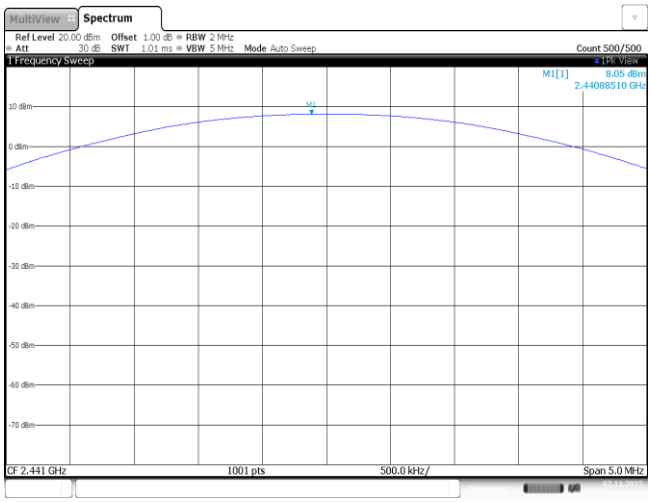
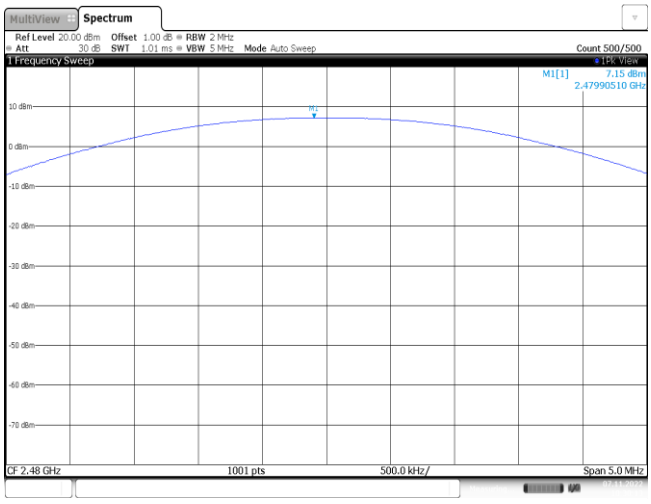
Project No.	SHT2204124301EW	Radio Specification	Bluetooth EDR
Test sample No.	YPHT22041243002	Model No.	HX320
Start test date	2022-11-07	Finish date	2022-11-07
Temperature	24.6℃	Humidity	36%
Test Engineer	Xiaoxiao Li	Auditor	Xiaodong Zhao

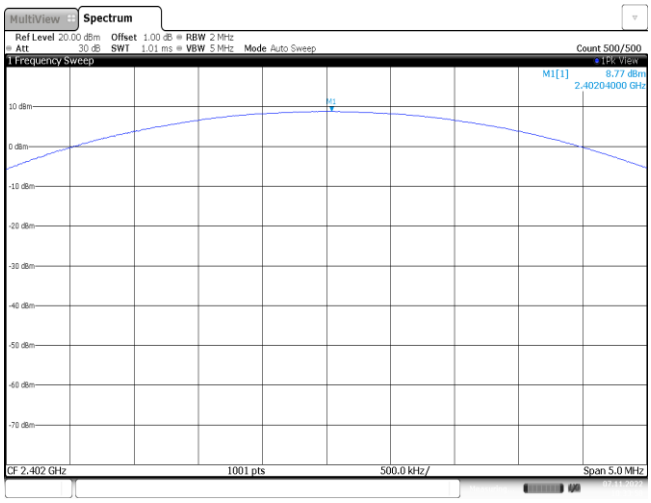
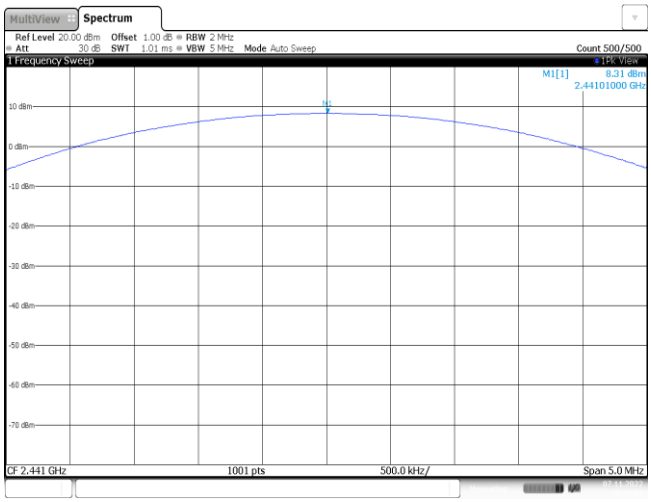
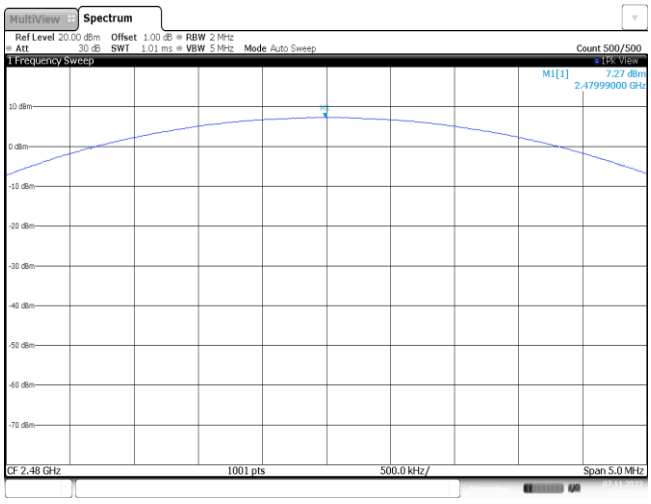
Appendix clause	Test item	Result
A	Peak Output Power	PASS
B	20 dB Bandwidth	PASS
C	99% Occupied Bandwidth	PASS
D	Carrier Frequencies Separation	PASS
E	Hopping Channel Number	PASS
F	Dwell Time	PASS
G	Duty Cycle Correction Factor (DCCF)	PASS
H	Band edge and Spurious Emissions(coducted)	PASS

Appendix A：Peak Output Power

Modulation type	Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
GFSK	00	9.01	8.72	≤ 30.00	Pass
	39	8.64	8.35		
	78	7.32	7.24		
π/4DQPSK	00	8.43	8.02	≤ 21.00	Pass
	39	8.05	7.71		
	78	7.15	6.71		
8DPSK	00	8.77	8.42	≤ 21.00	Pass
	39	8.31	7.70		
	78	7.27	6.81		

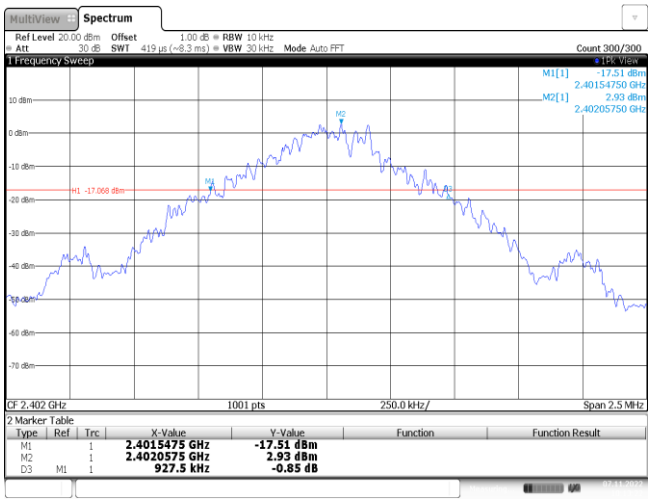
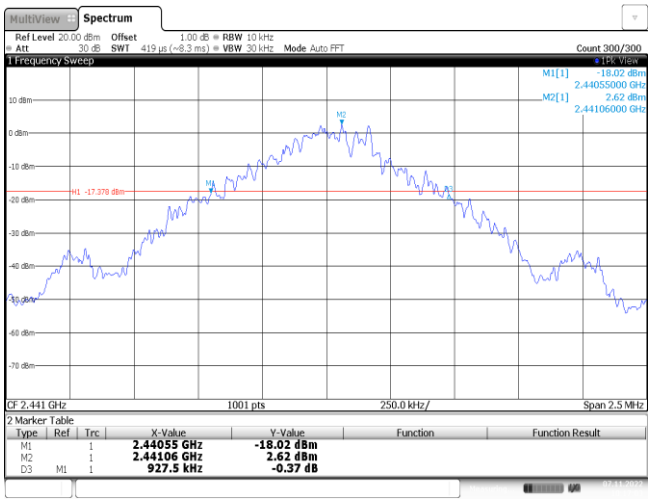
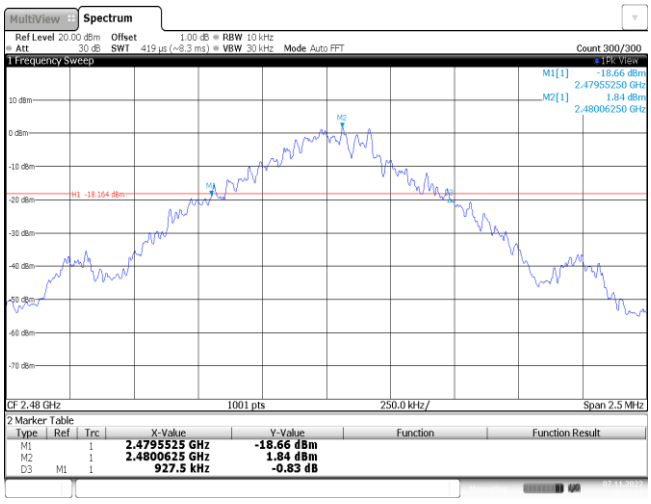
Modulation Type:	**GFSK**
CH00	
CH39	
CH78	

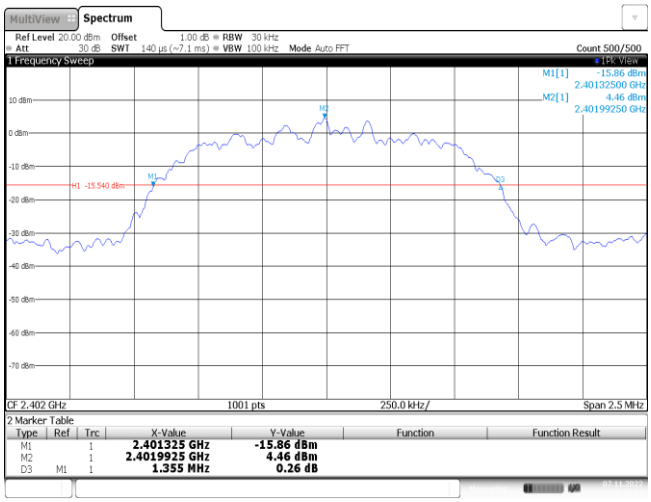
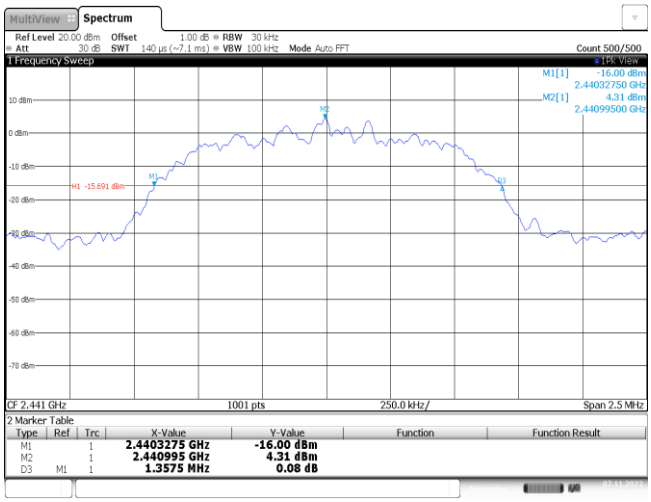
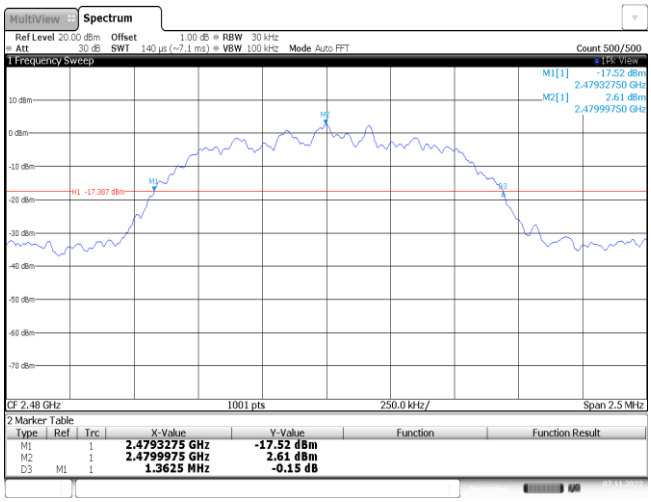
Modulation Type:	**π/4DQPSK**
CH00	
CH39	
CH78	

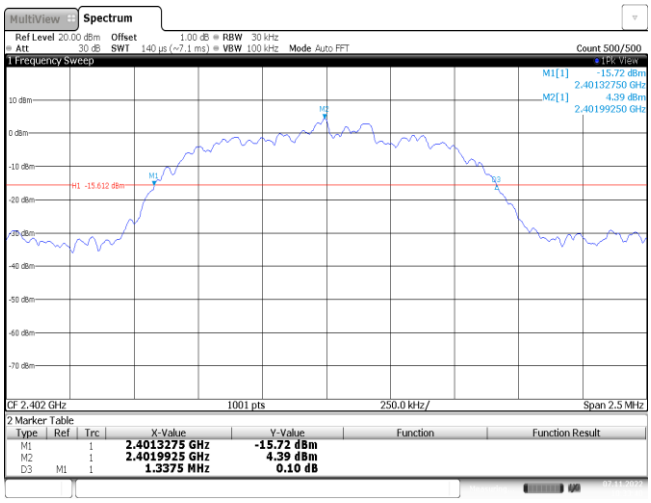
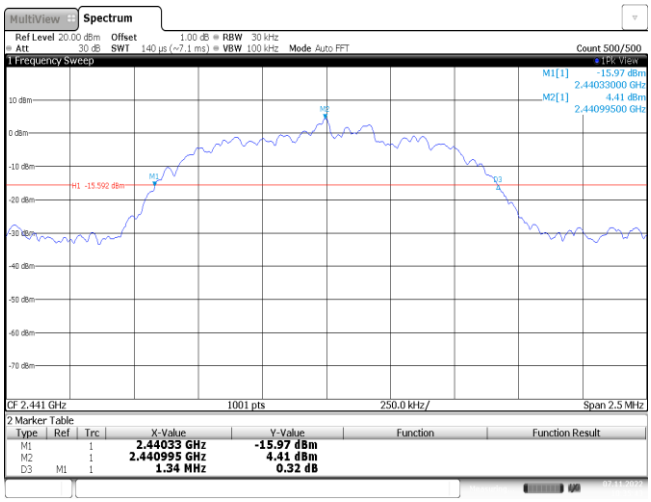
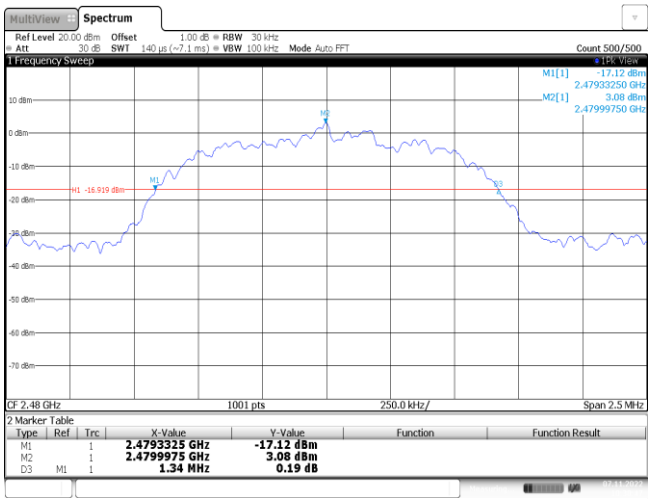
Modulation Type:	**8DPSK**
CH00	
CH39	
CH78	

Appendix B : 20 dB Bandwidth

Modulation type	Channel	20 dB Bandwidth (kHz)	Limit (kHz)	Result
GFSK	00	927.50	-	Pass
	39	927.50		
	78	927.50		
π/4DQPSK	00	1355.00	-	Pass
	39	1357.50		
	78	1362.50		
8DPSK	00	1337.50	-	Pass
	39	1340.00		
	78	1340.00		

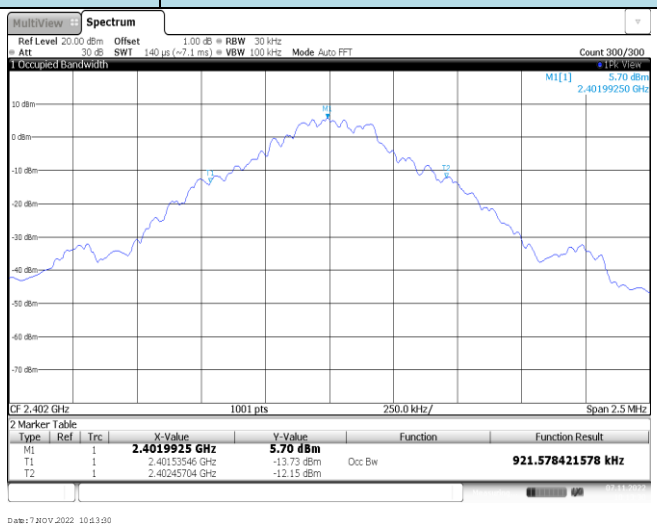
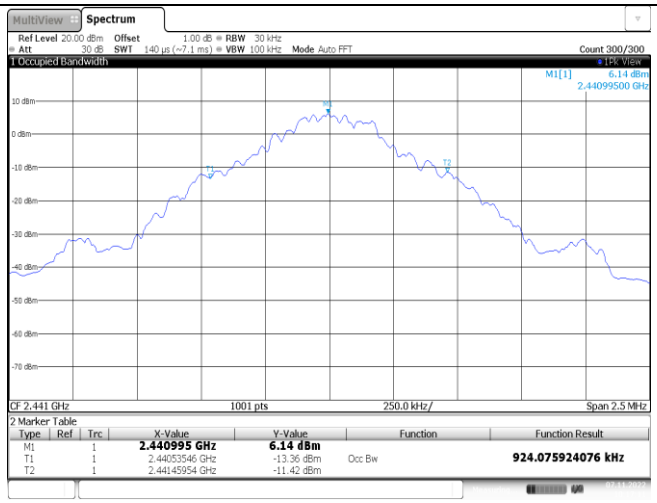
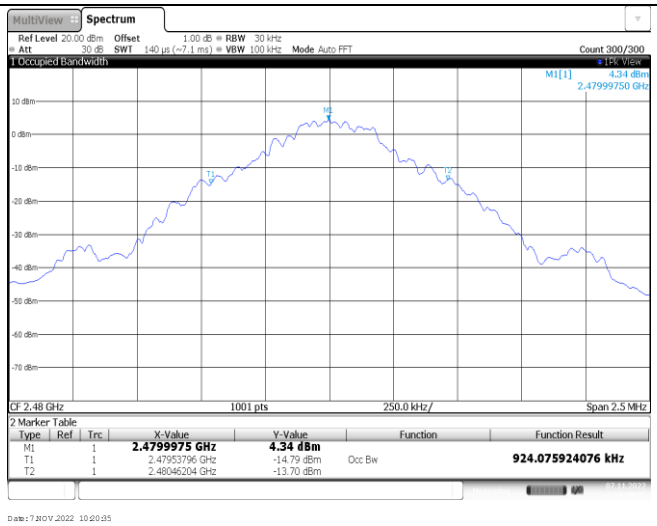
Modulation Type:	GFSK
CH00	
CH39	
CH78	

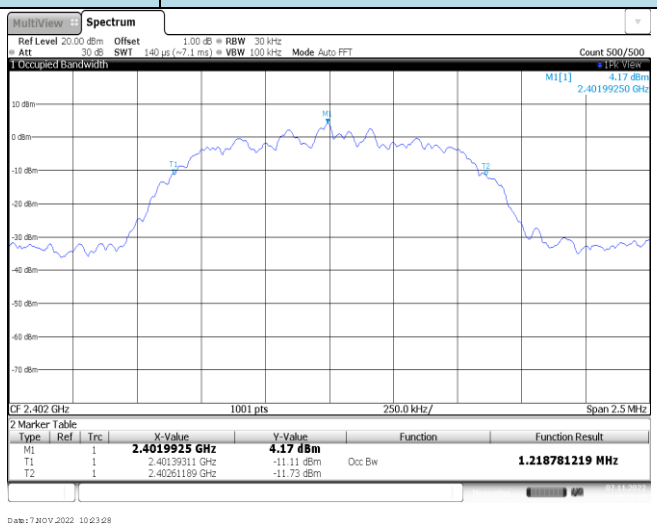
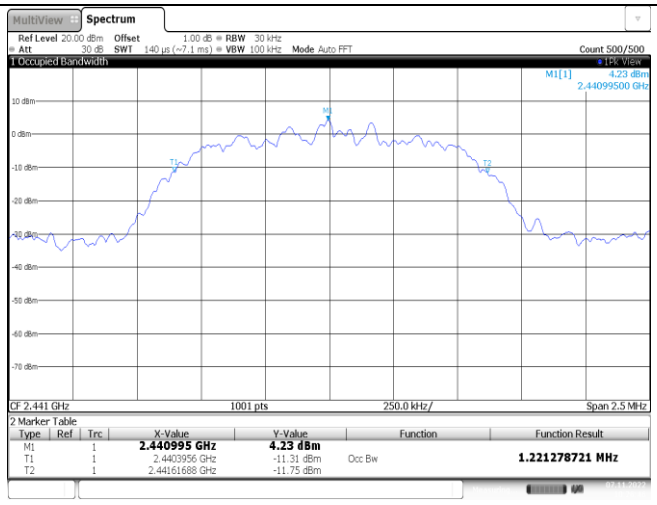
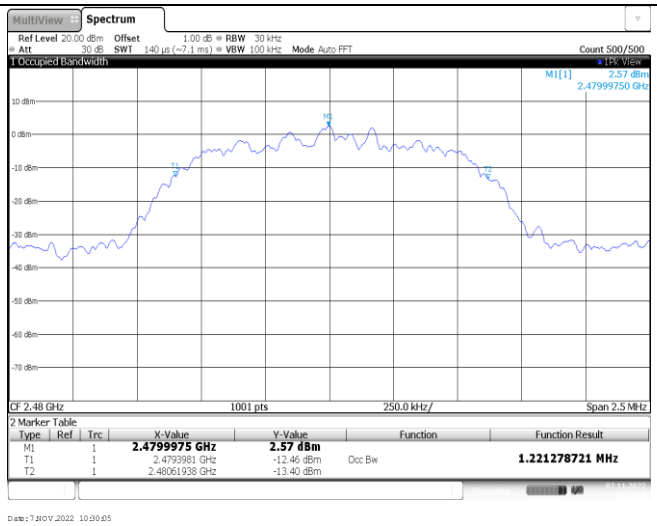
Modulation Type:	**π/4DQPSK**
CH00	
CH39	
CH78	

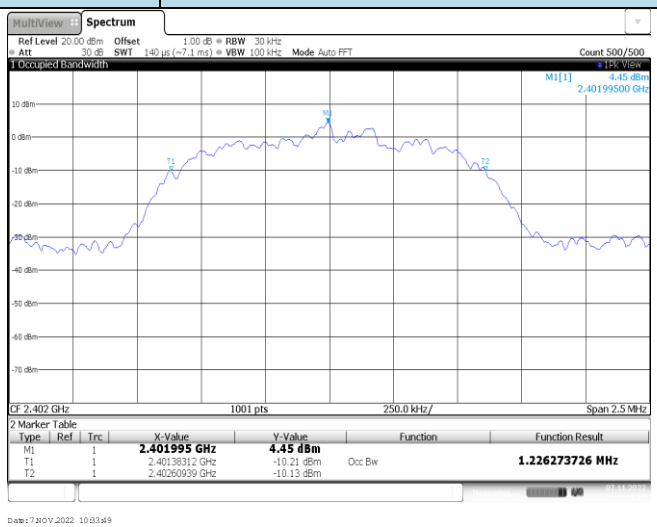
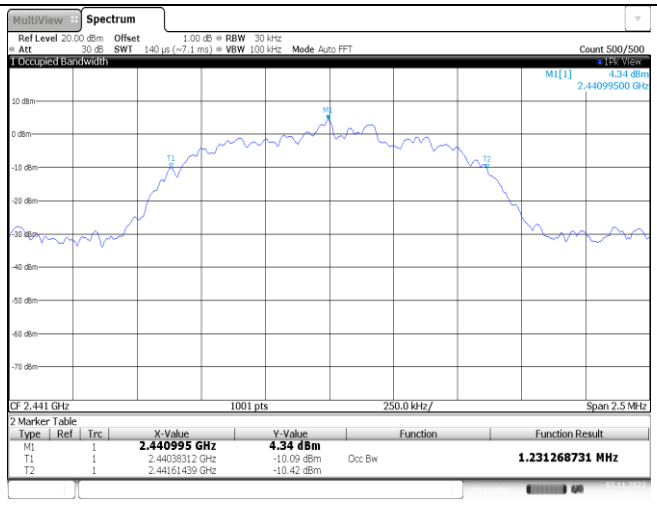
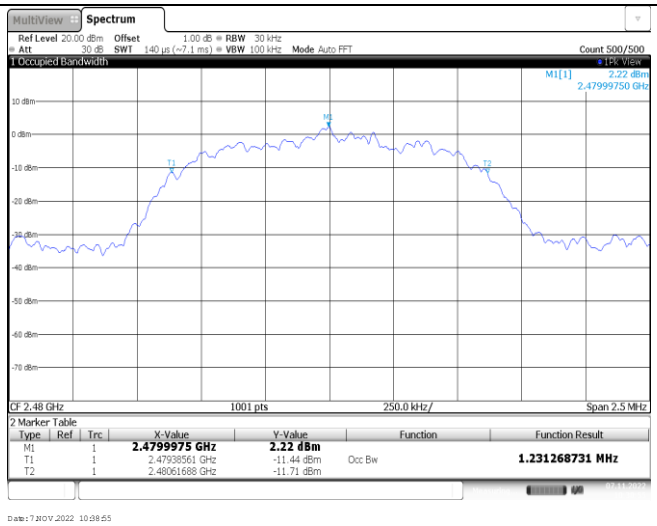
Modulation Type:	**8DPSK**
CH00	
CH39	
CH78	

Appendix C：99% Occupied Bandwidth

Modulation type	Channel	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
GFSK	00	0.92	-	Pass
	39	0.92		
	78	0.92		
π/4DQPSK	00	1.22	-	Pass
	39	1.22		
	78	1.22		
8DPSK	00	1.23	-	Pass
	39	1.23		
	78	1.23		

Modulation Type:	GFSK
CH00	
CH39	
CH78	

Modulation Type:	π/4DQPSK
CH00	
CH39	
CH78	

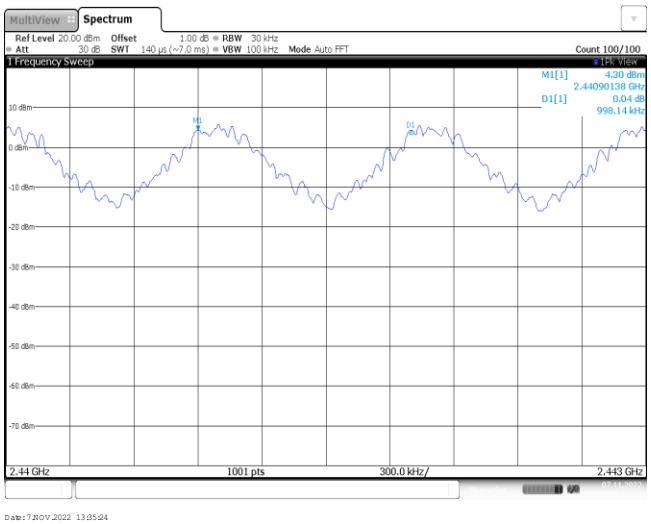
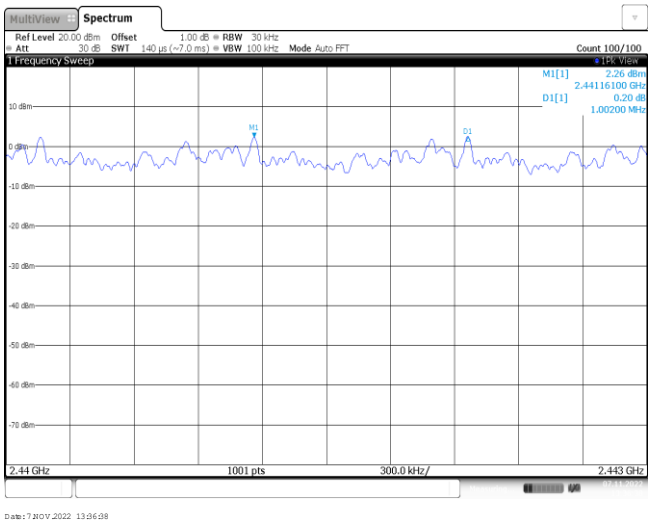
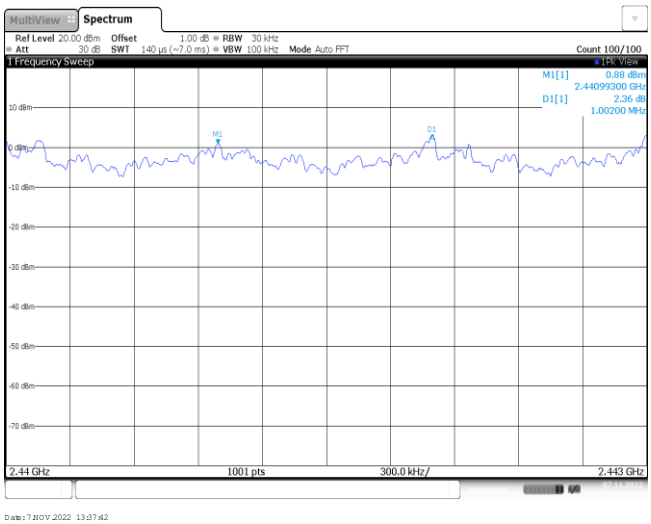
Modulation Type:	8DPSK
CH00	
CH39	
CH78	

Appendix D：Carrier Frequencies Separation

Modulation type	Channel	Carrier Frequencies Separation (MHz)	Limit (kHz) *	Result
GFSK	39	1.00	≥927.50	Pass
π/4DQPSK	39	1.00	≥908.33	Pass
8DPSK	39	1.00	≥893.33	Pass

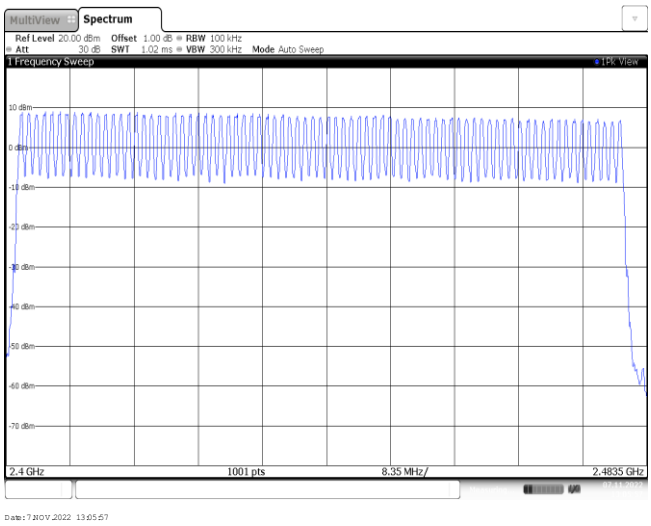
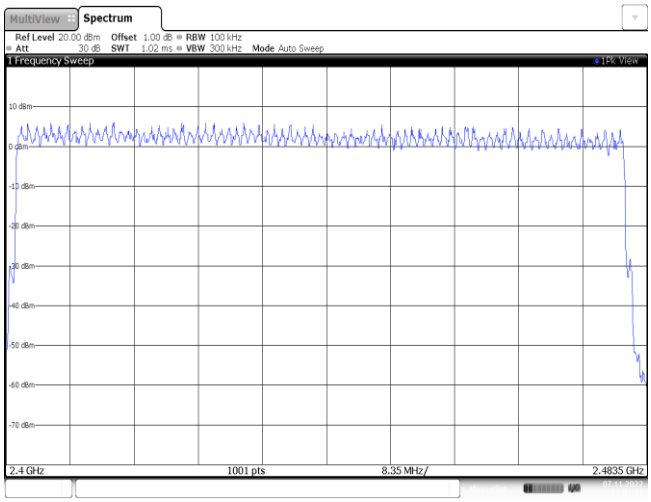
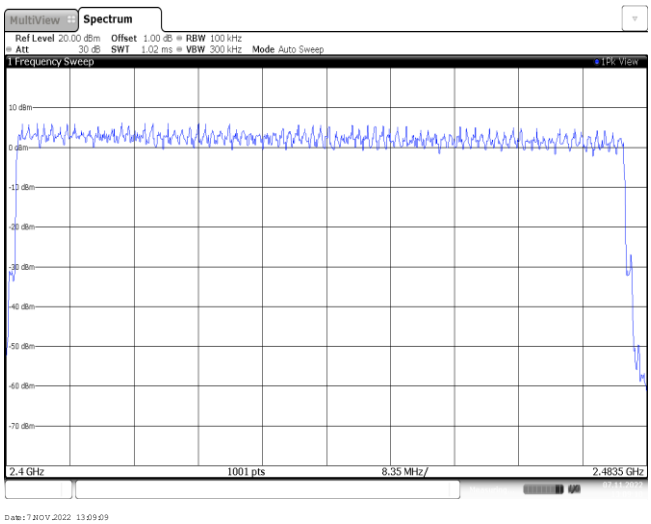
Note:

*: 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	

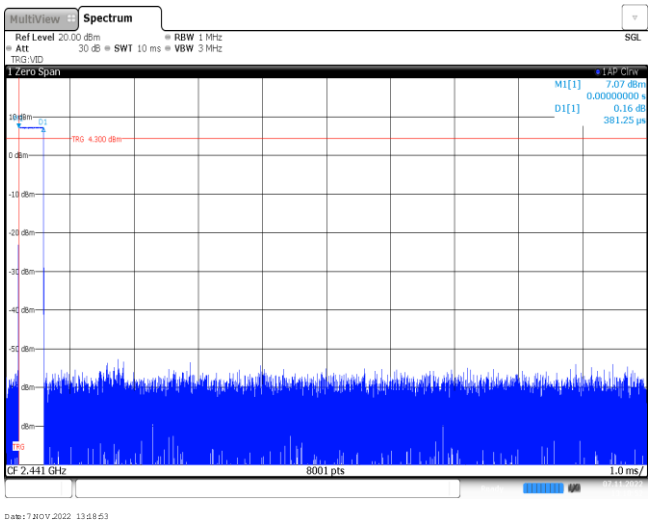
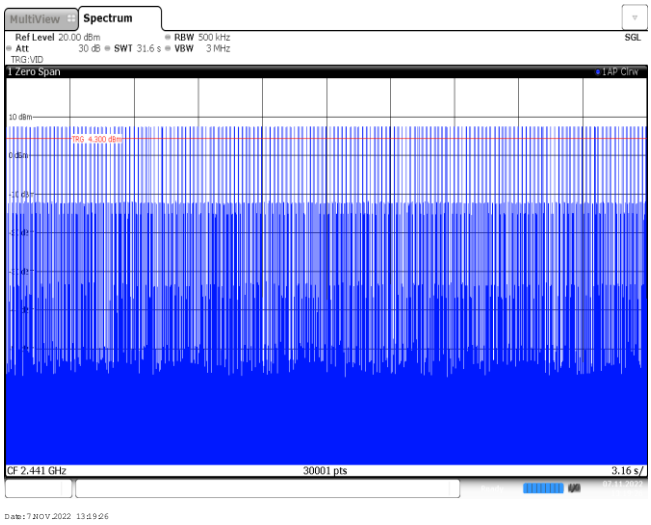
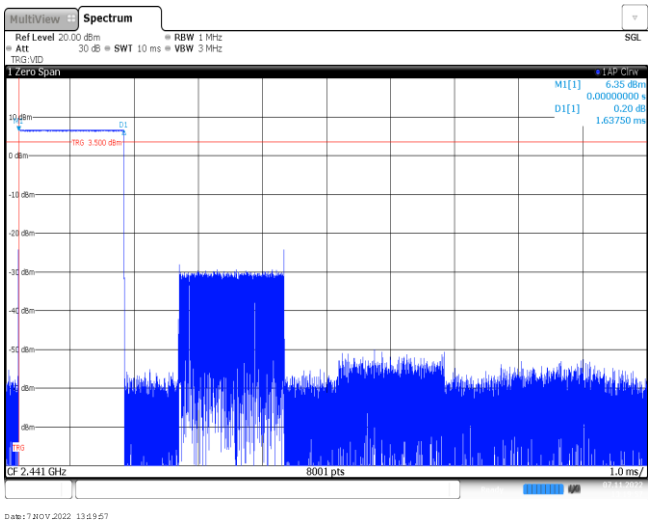
Appendix E：Hopping Channel Number

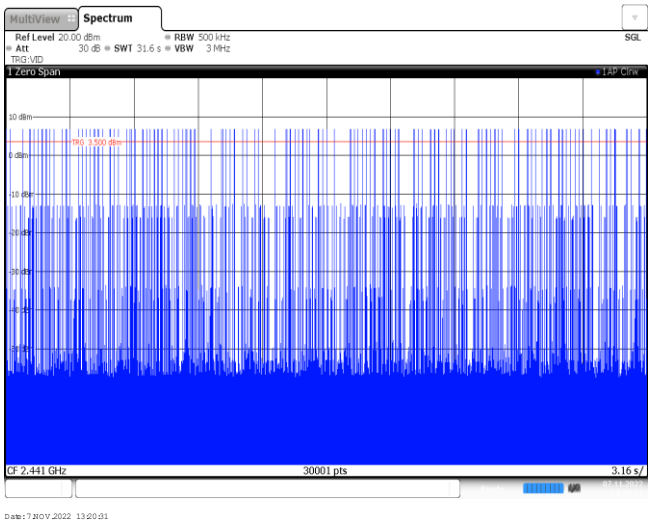
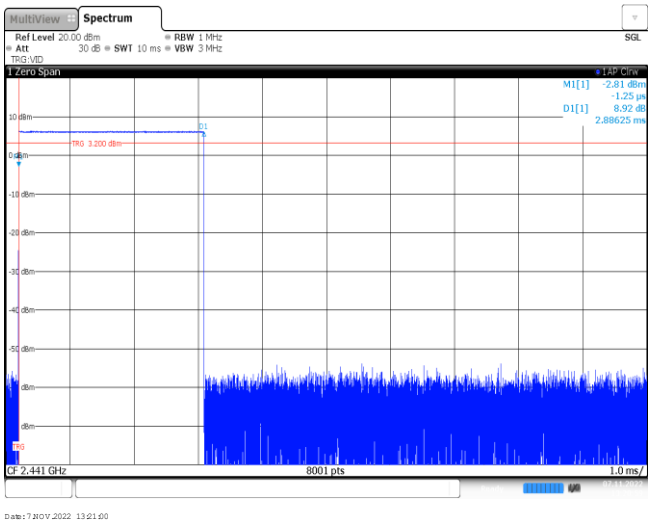
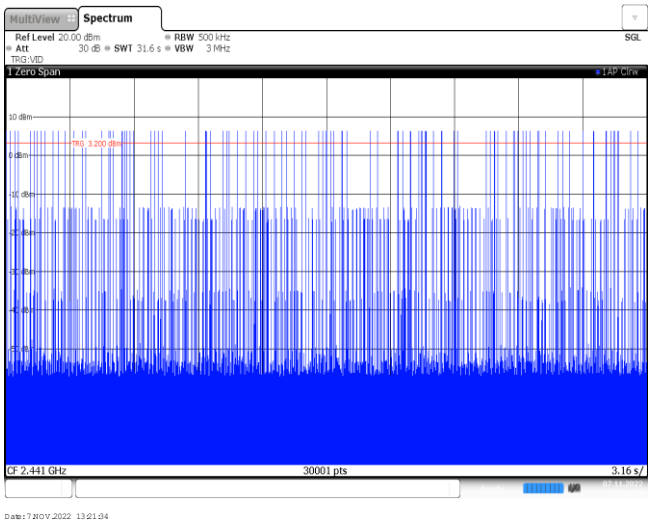
Modulation type	Channel number	Limit	Result
GFSK	79	≥15.00	Pass
π/4DQPSK	79		
8DPSK	79		

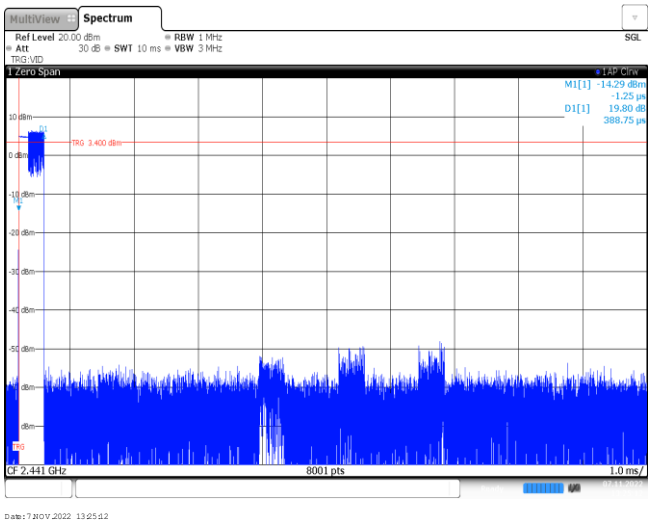
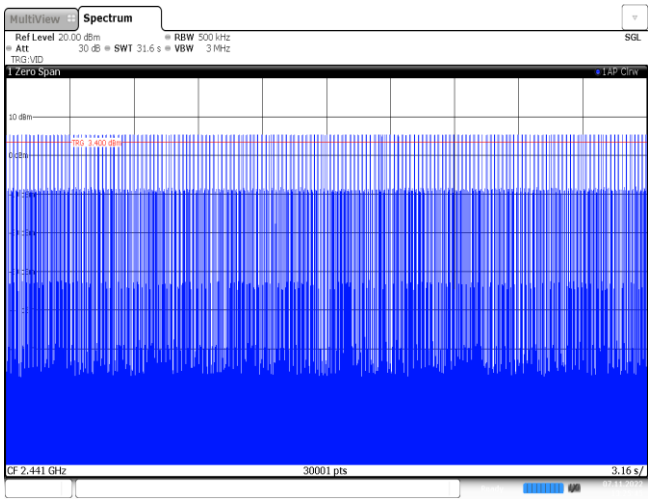
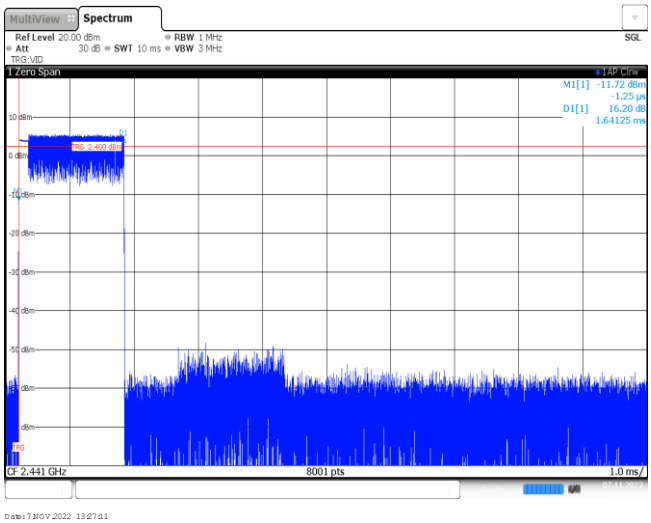
GFSK	
π/4DQPSK	
8DPSK	

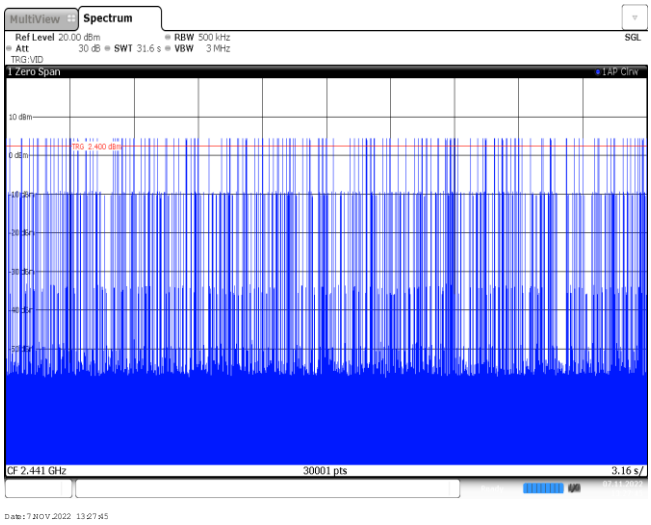
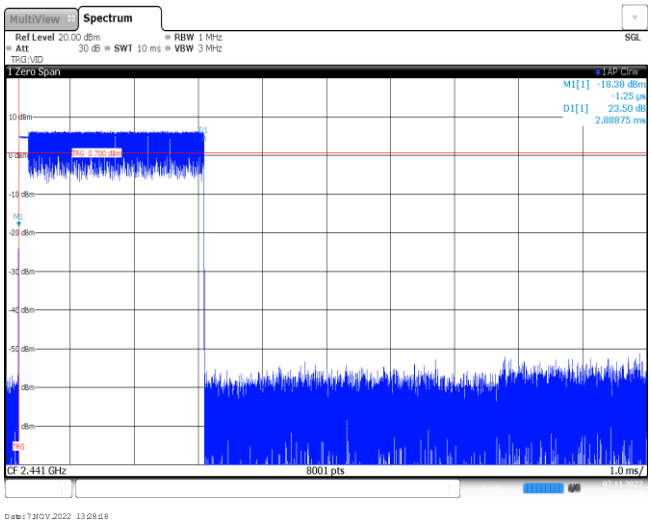
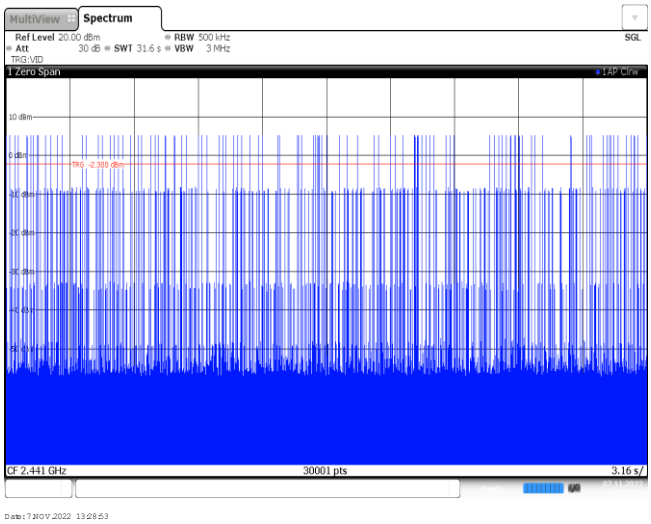
Appendix F：Dwell Time

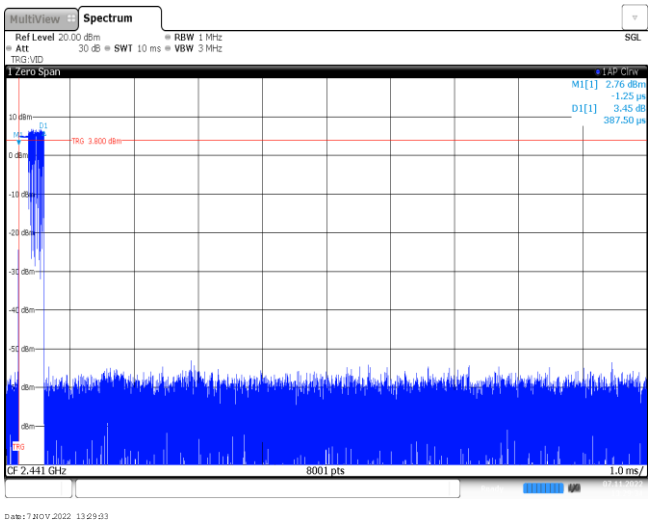
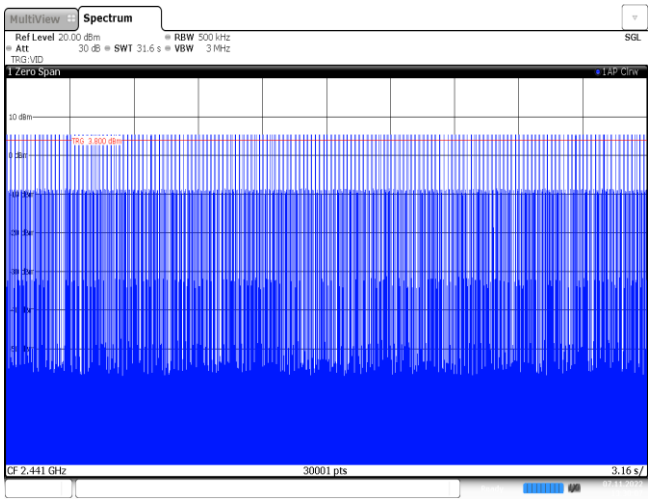
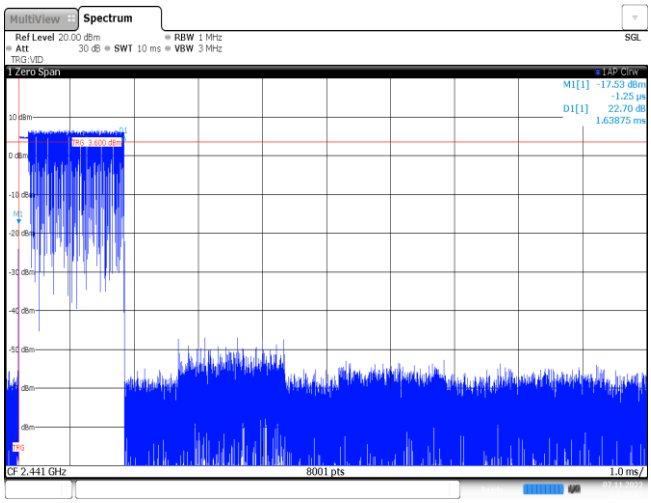
Modulation type	Packet	Burst Width [ms]	Total Hops[hop*ch]	Dwell time (Second)	Limit (Second)	Result
GFSK	DH1	0.38	319	0.12	≤ 0.40	Pass
	DH3	1.64	156	0.26		
	DH5	2.89	99	0.29		
π/4DQPSK	2DH1	0.39	320	0.12	≤ 0.40	Pass
	2DH3	1.64	164	0.27		
	2DH5	2.89	101	0.29		
8DPSK	3DH1	0.39	318	0.12	≤ 0.40	Pass
	3DH3	1.64	161	0.26		
	3DH5	2.89	102	0.30		

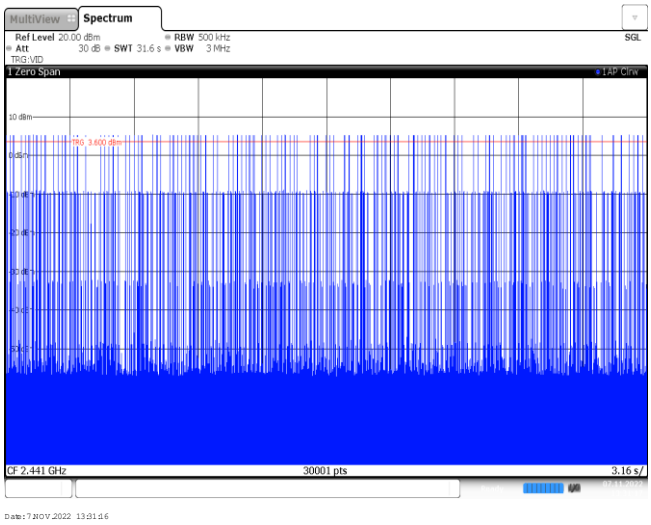
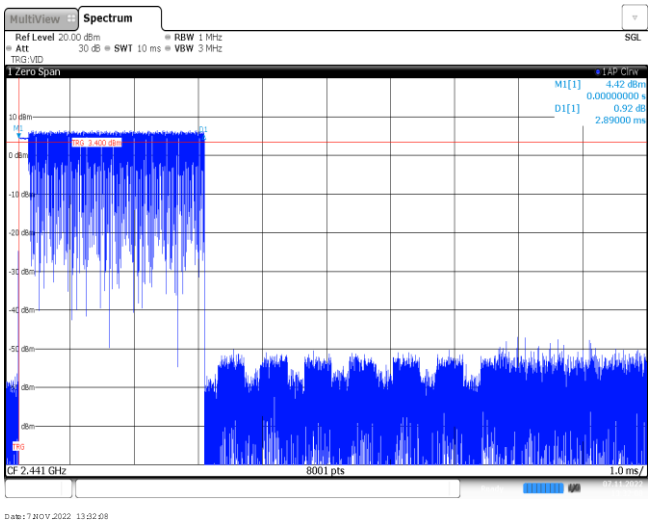
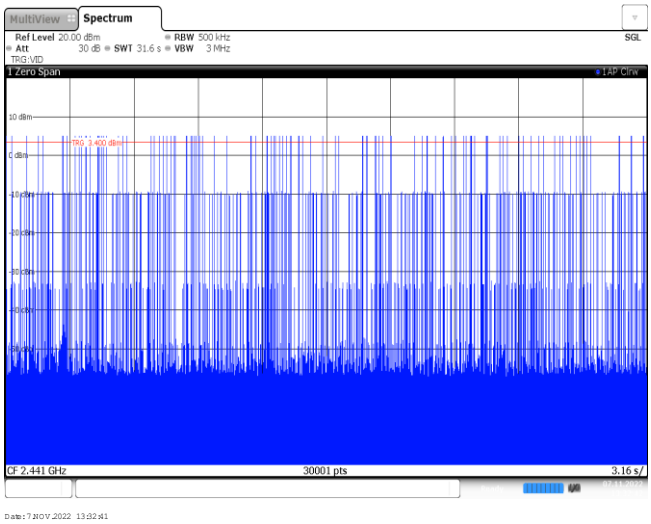
Modulation Type:	**GFSK**
DH1 Burst width	
DH1 Burst number	
DH3 Burst width	

DH3 Burst number	
DH5 Burst width	
DH5 Burst number	

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

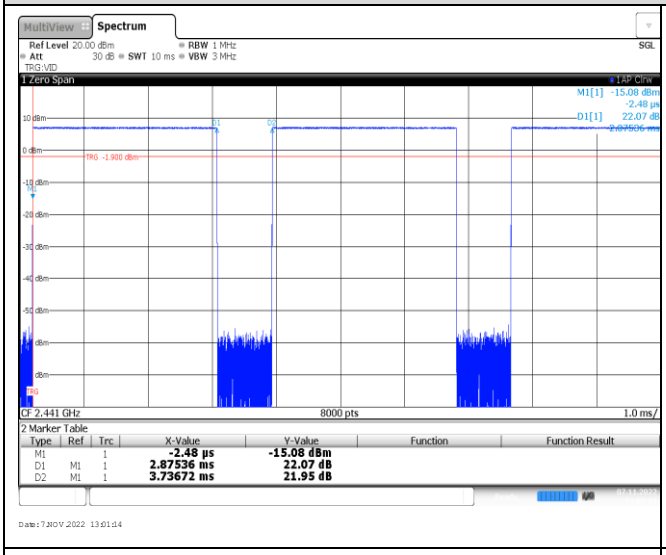
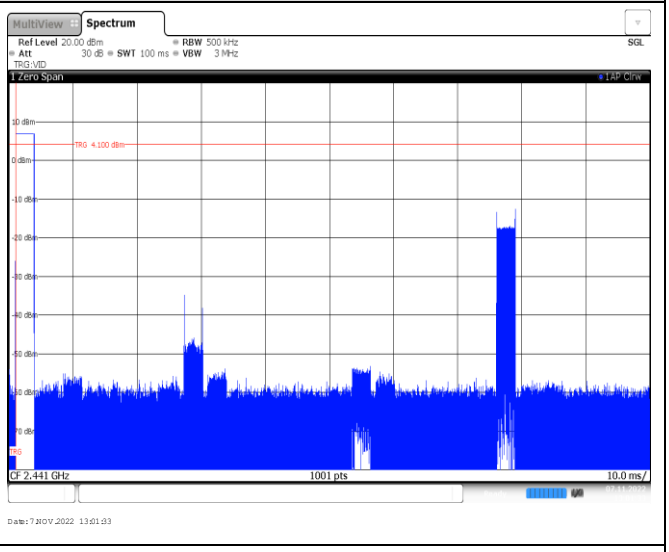
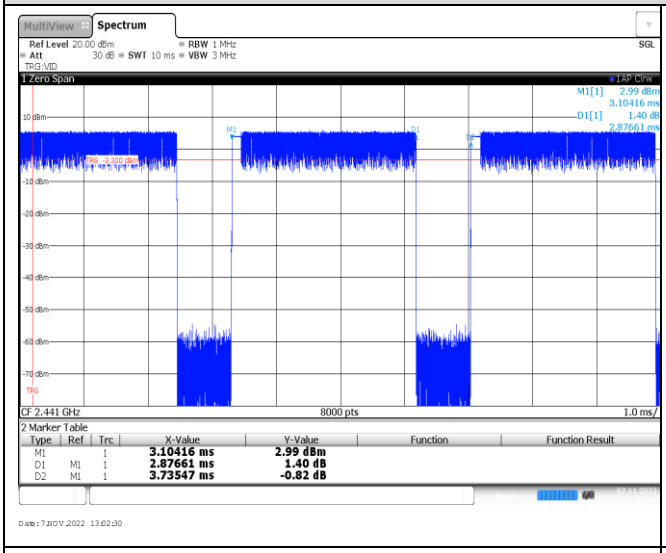
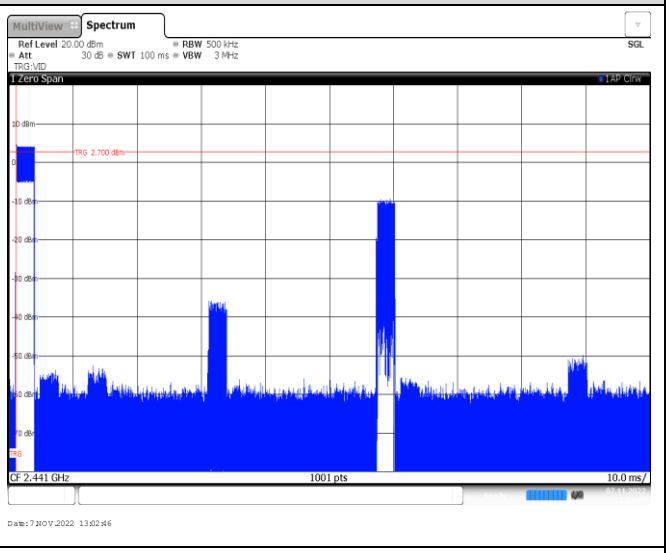
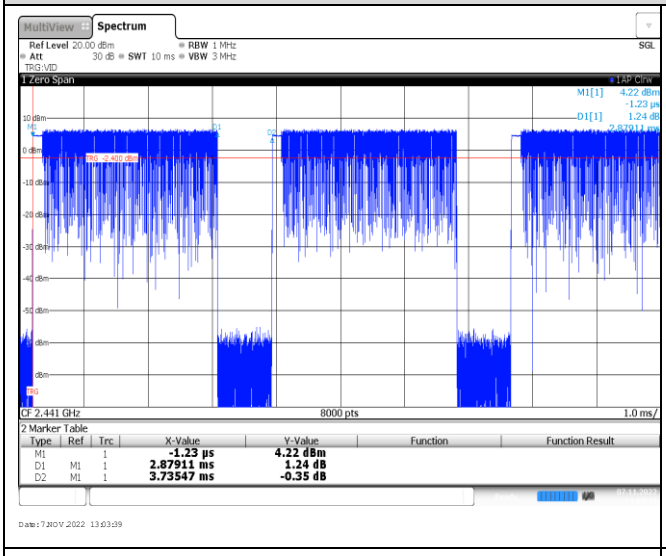
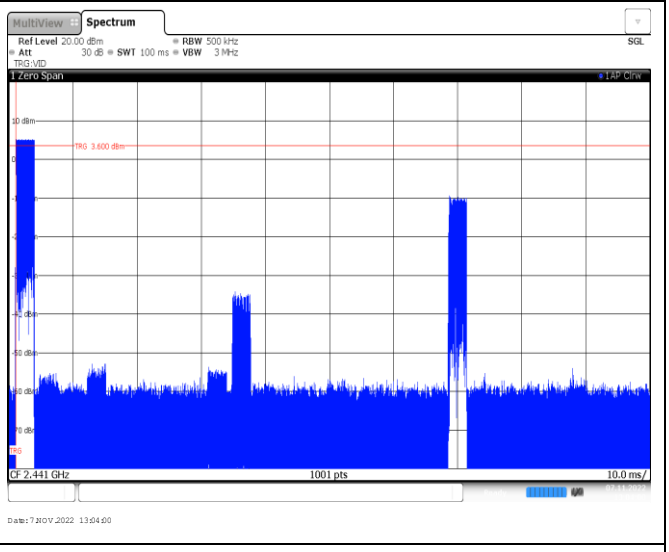
2DH3 Burst number	
2DH5 Burst width	
2DH5 Burst number	

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

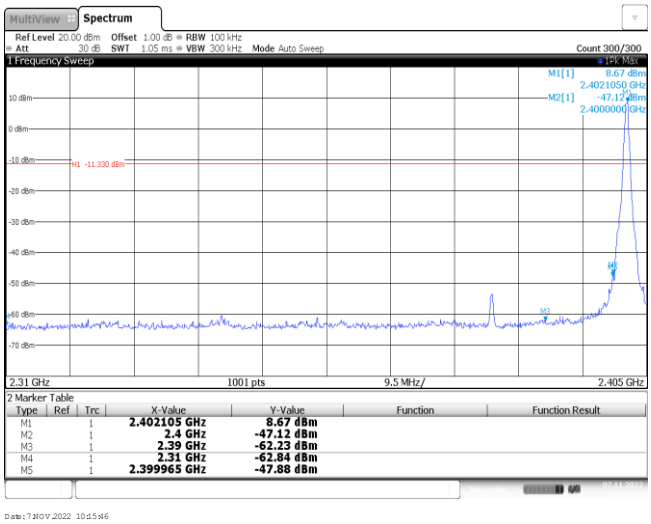
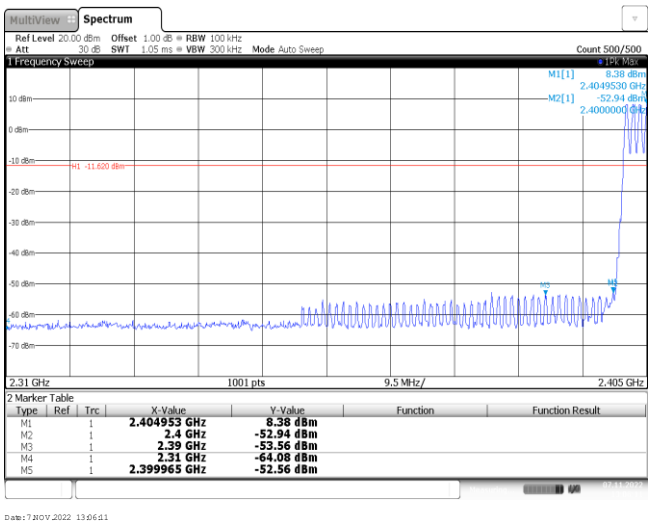
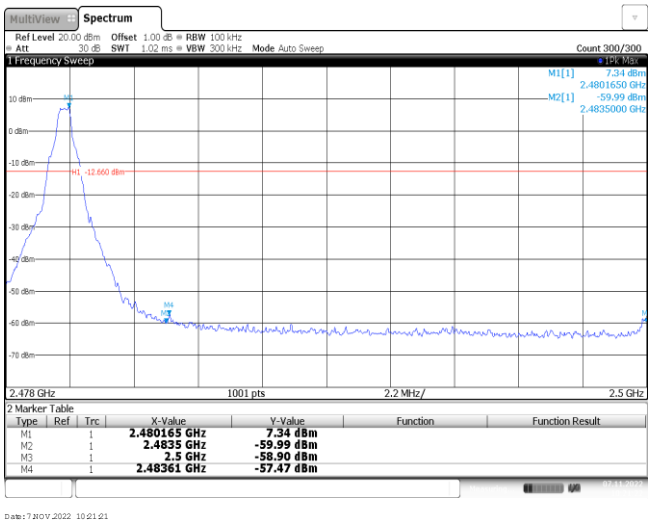
3DH3 Burst number	
3DH5 Burst width	
3DH5 Burst number	

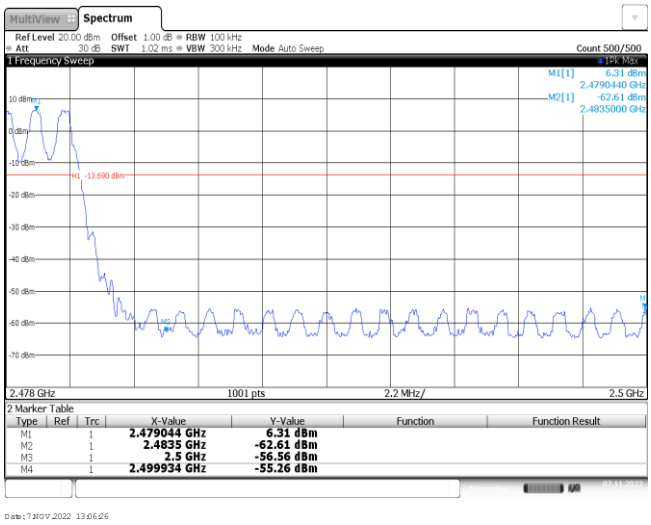
Appendix G：Duty Cycle Correction Factor (DCCF)

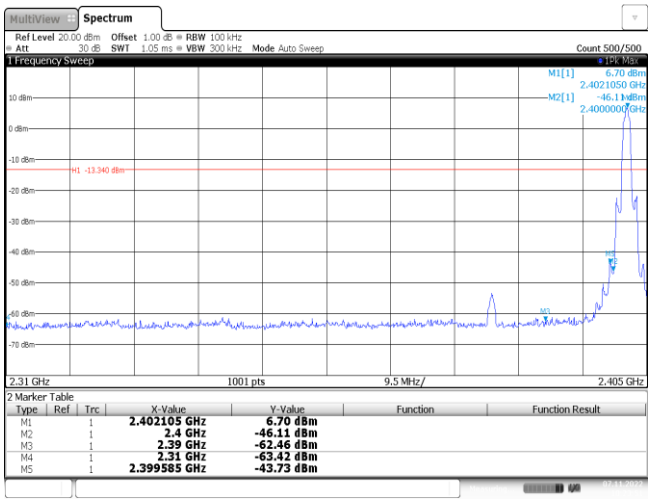
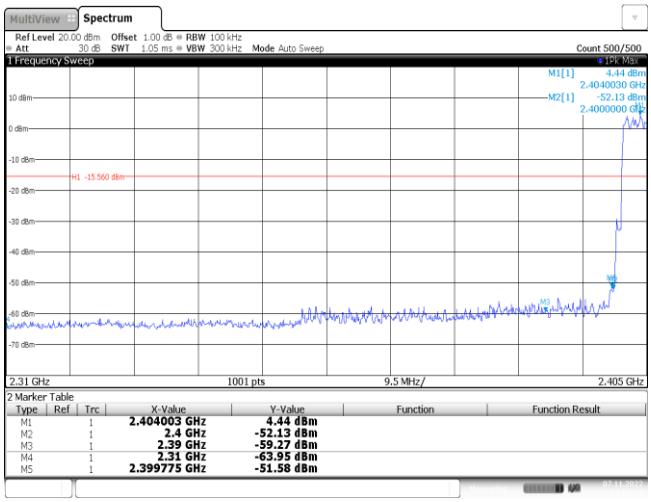
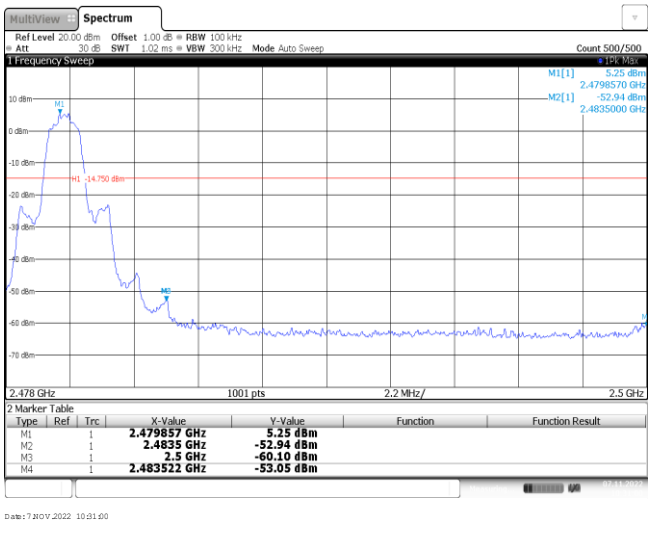
DCCF Calculate Formula					
DCCF=20 * Log(duty cycle) = 20 * Log($T_{on\ time}$ / T_{period})					
Modulation type	Test Frequency（MHz）	$T_{on\ time}$ for single burst [ms]	T_{period} [ms]	Burst Quantity	DCCF [dB]
GFSK	2441	2.88	100	2	-24.79
π/4 DQPSK	2441	2.88	100	2	-24.79
8DPSK	2441	2.88	100	2	-24.79

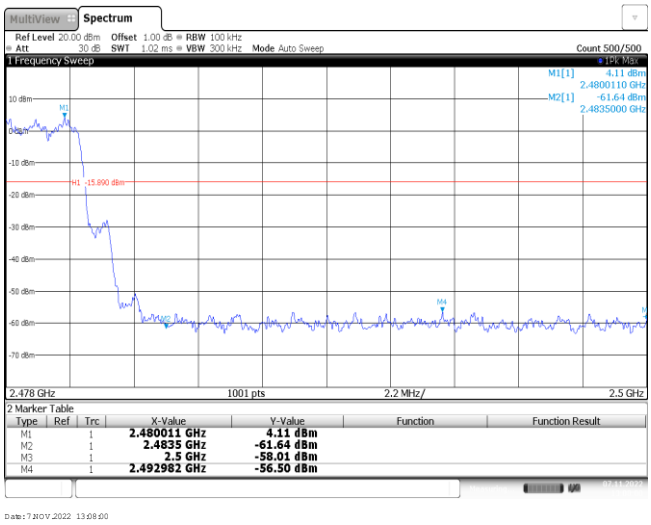
GFSK	
	
$T_{on\ time}$ for single burst	Burst Quantity
π /4 DQPSK	
	
$T_{on\ time}$ for single burst	Burst Quantity
8DPSK	
	
$T_{on\ time}$ for single burst	Burst Quantity

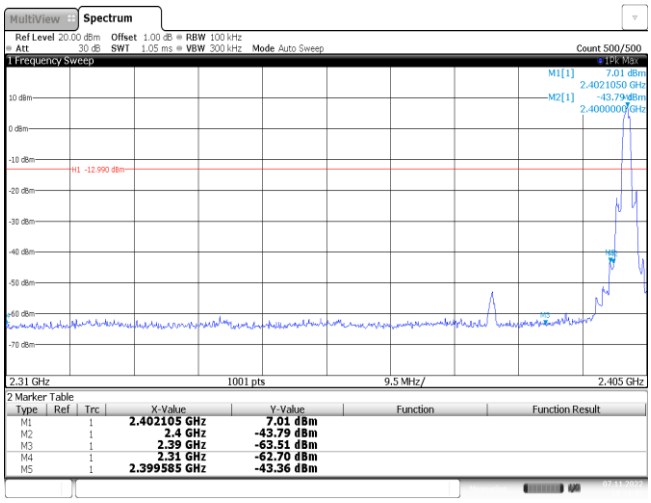
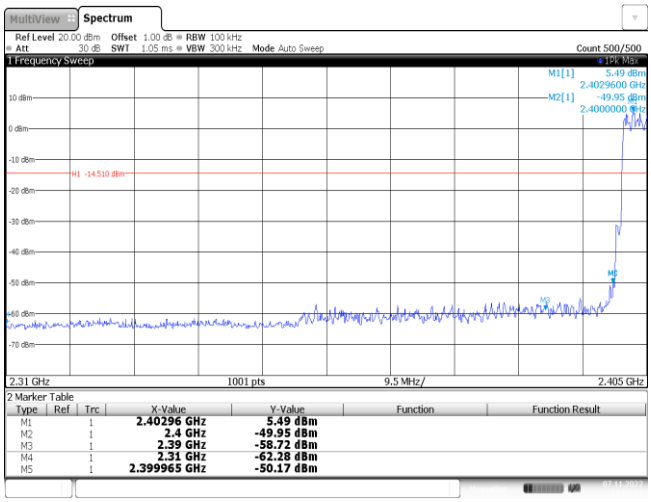
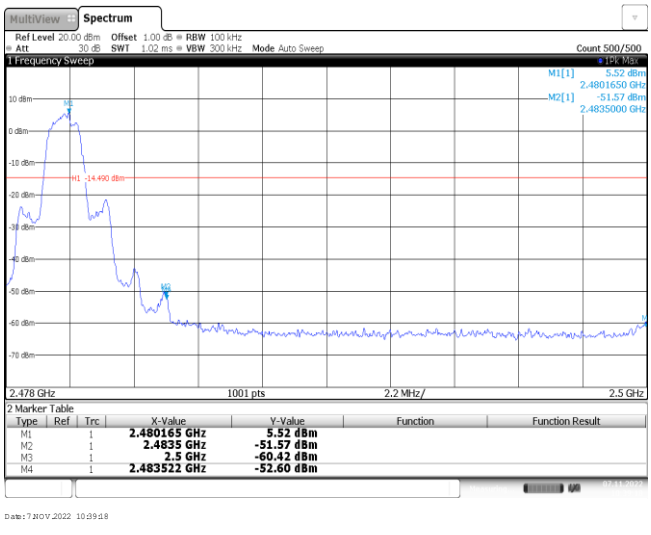
Appendix H：Band edge and Spurious Emissions (conducted)

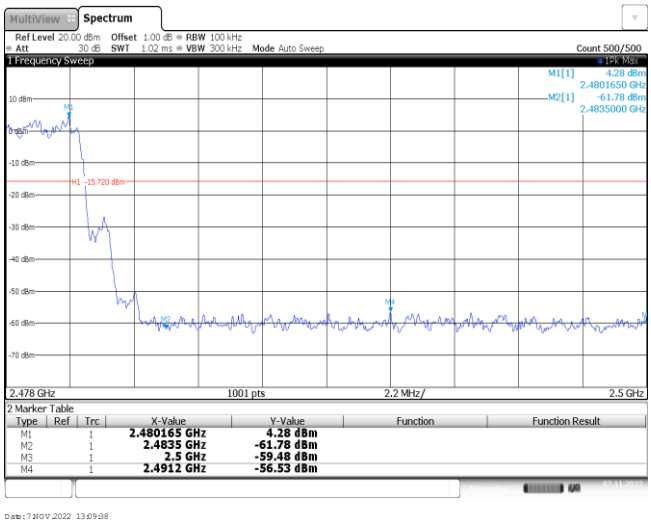
Test Item:	Band edge	Modulation type:	GFSK
CH00 No hopping mode			
CH00 Hopping mode			
CH78 No hopping mode			

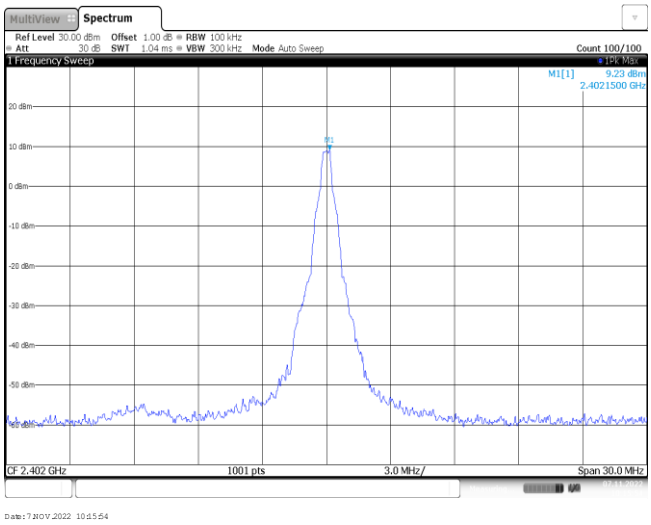
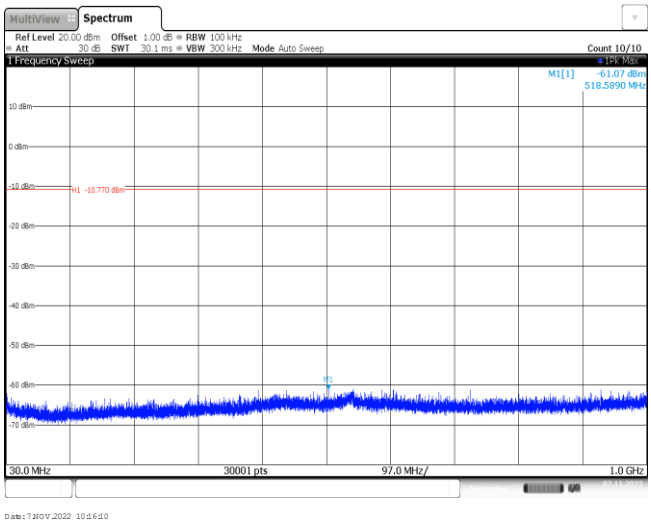
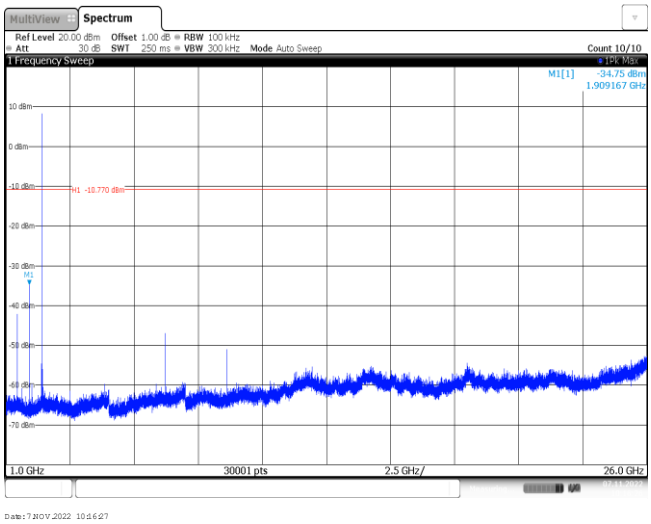
CH78 Hopping mode	

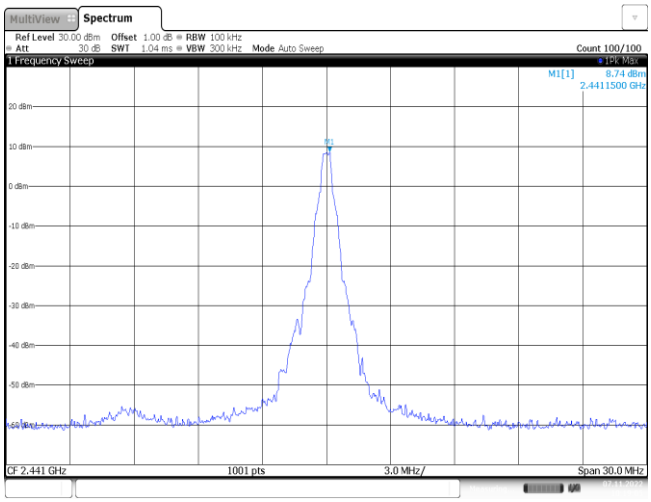
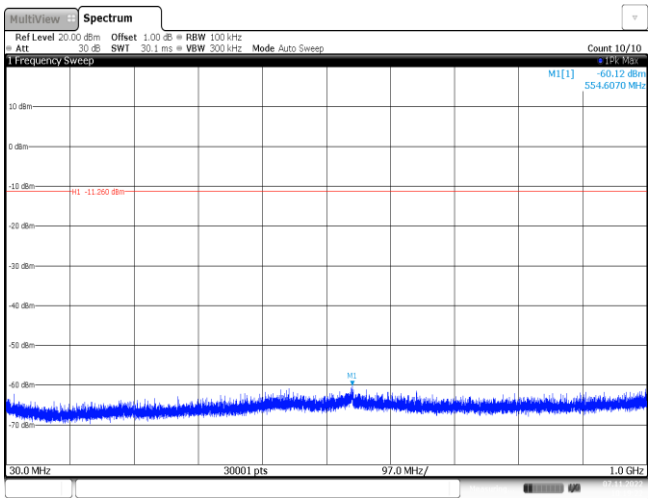
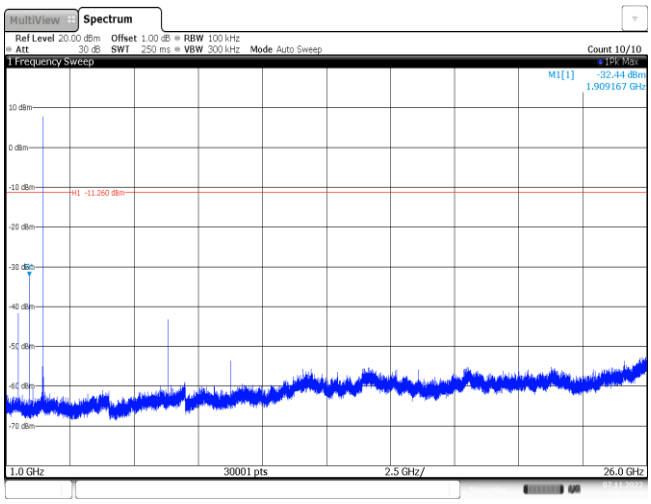
Test Item:	Band edge	Modulation type:	π/4DQPSK
CH00 No hopping mode			
CH00 Hopping mode			
CH78 No hopping mode			

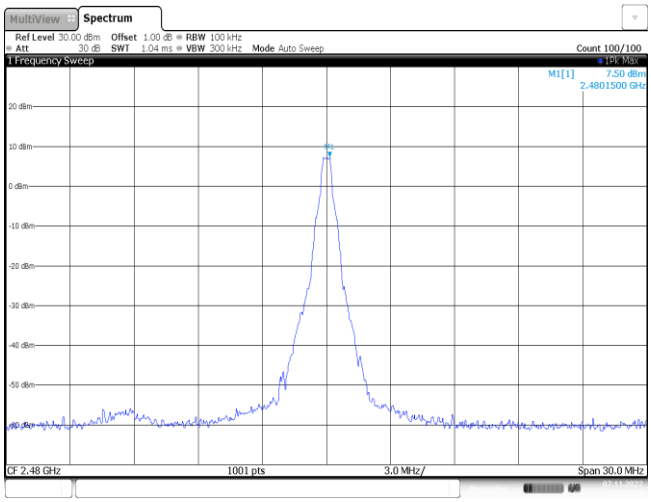
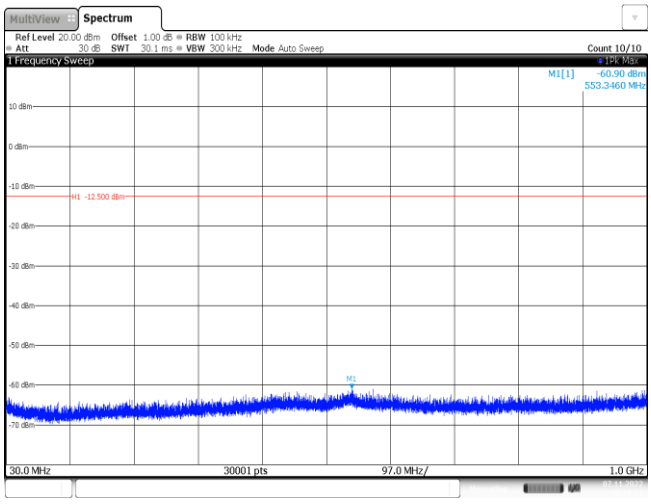
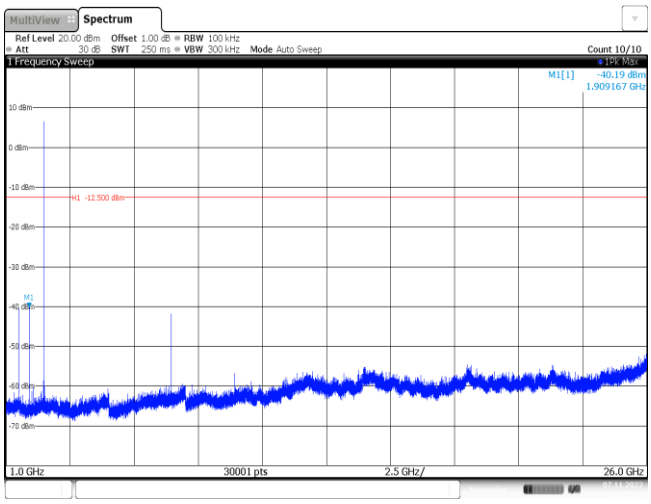
CH78 Hopping mode	

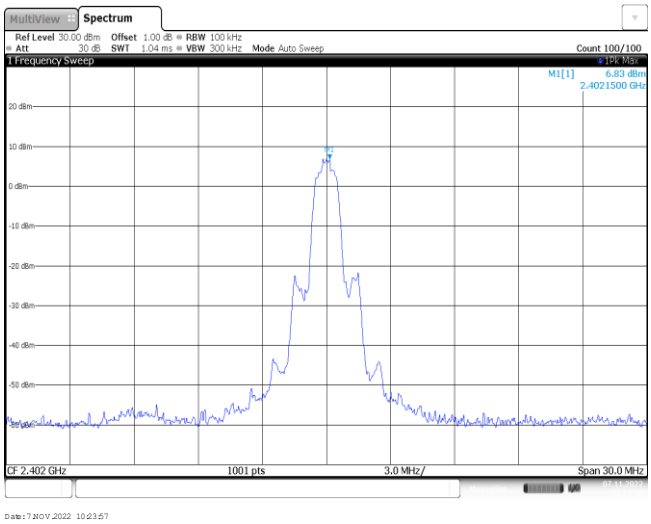
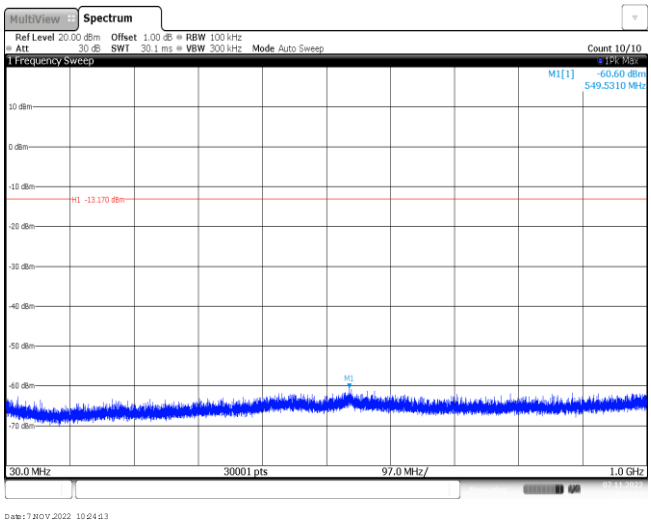
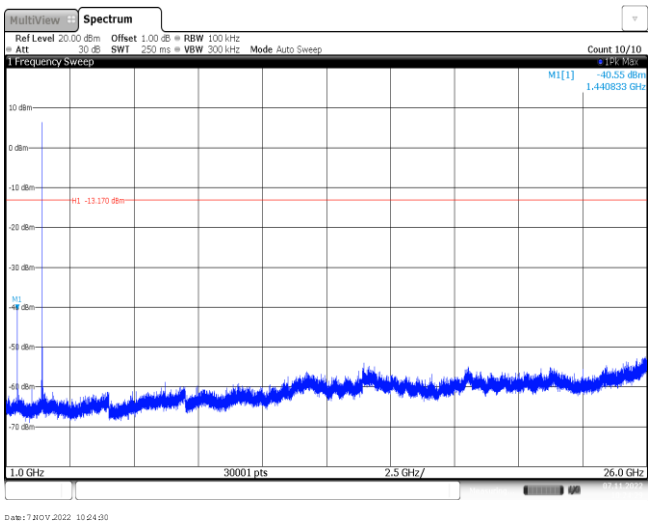
Test Item:	Band edge	Modulation type:	8DPSK
CH00 No hopping mode			
CH00 Hopping mode			
CH78 No hopping mode			

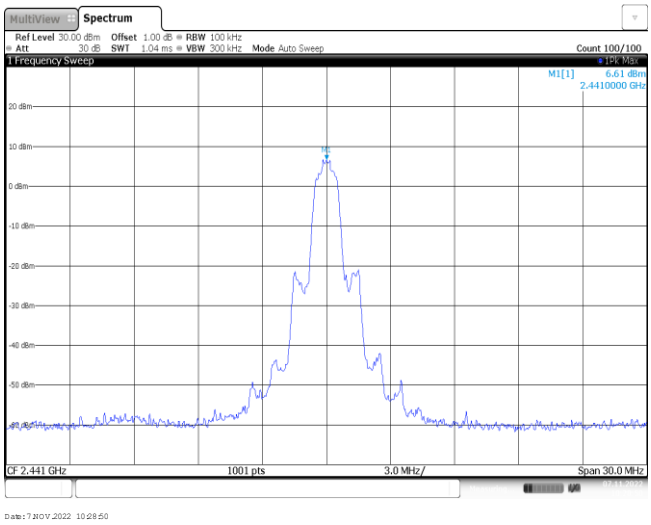
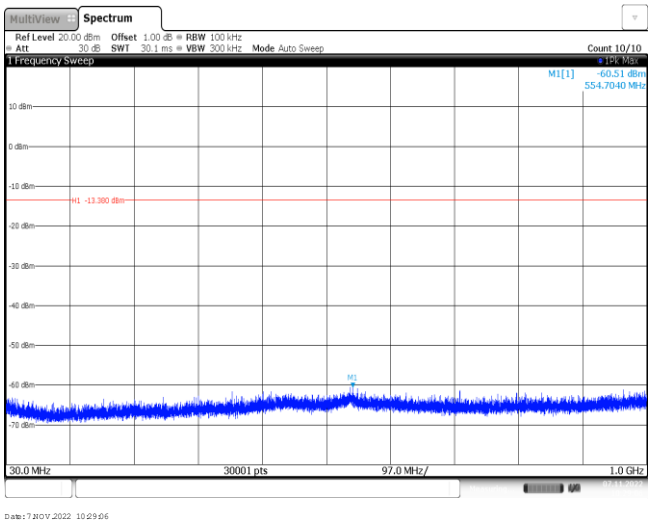
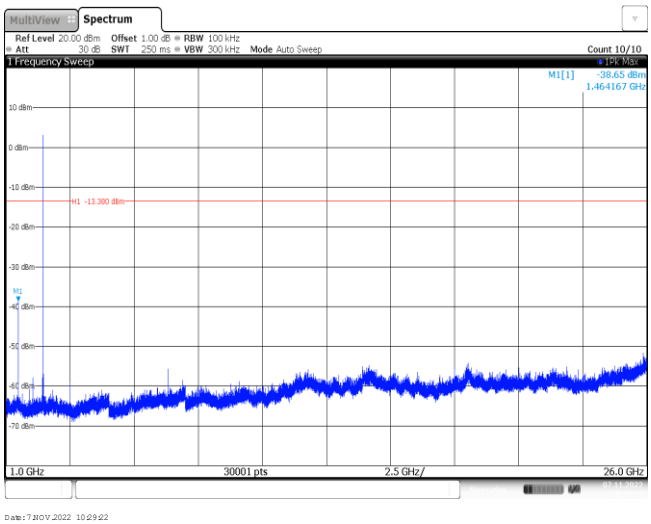
CH78 Hoppig mode	

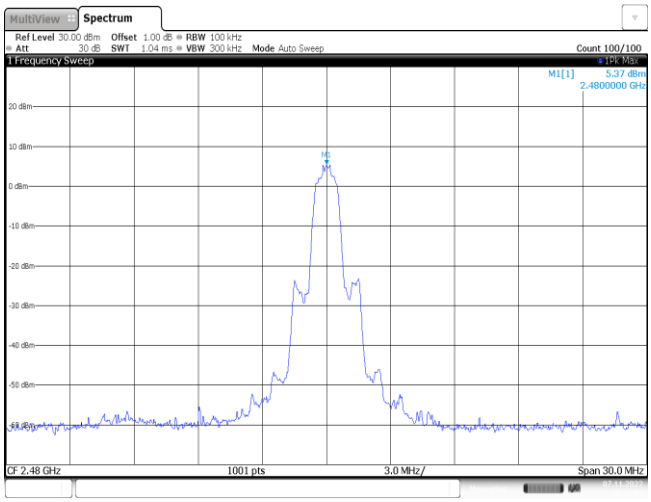
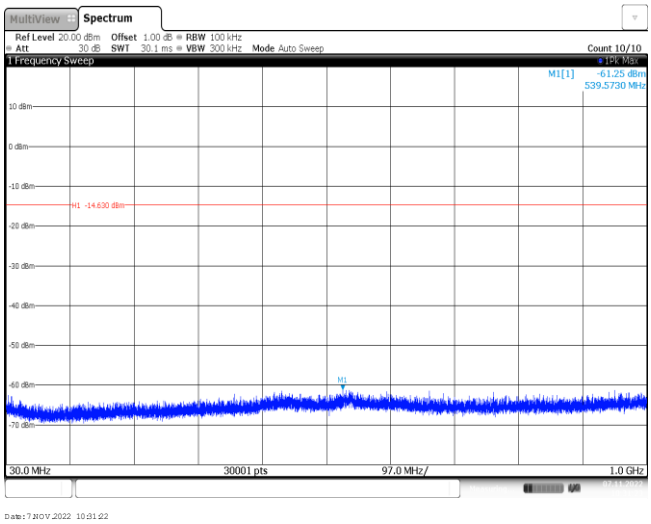
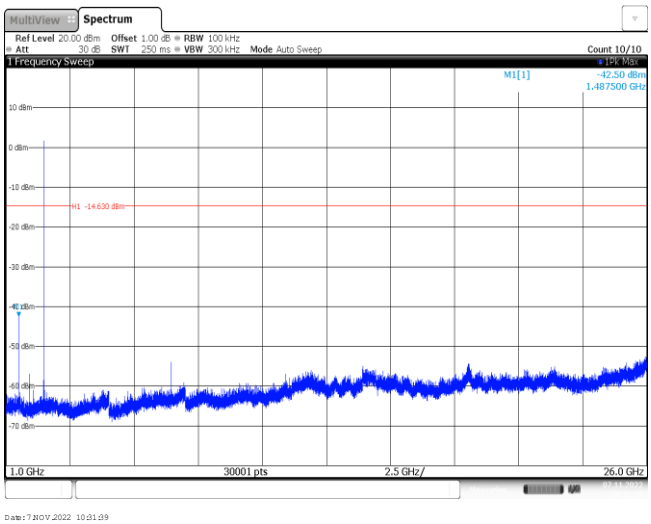
Test Item:	Spurious Emission	Modulation type:	GFSK
CH00 Reference level	
CH00 30MHz~1000MHz	
CH00 1GHz~26GHz	

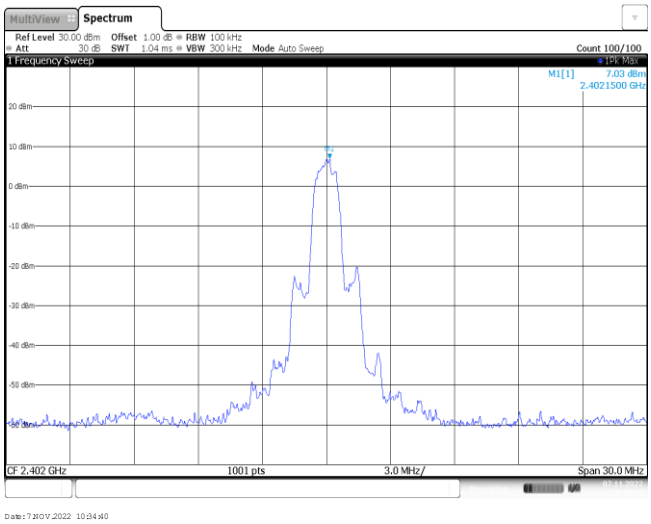
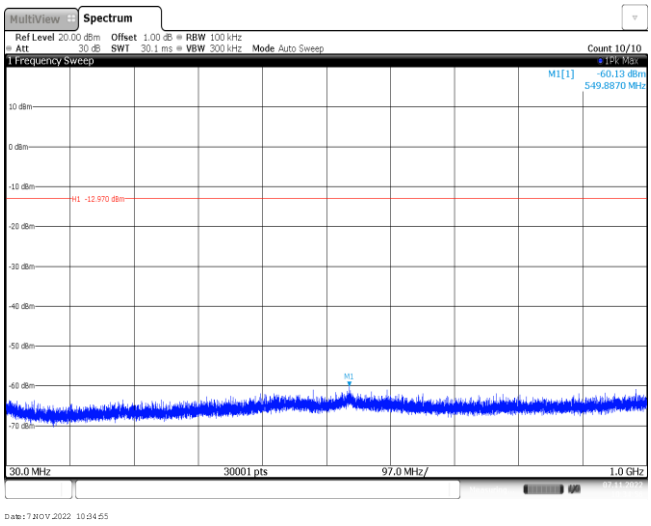
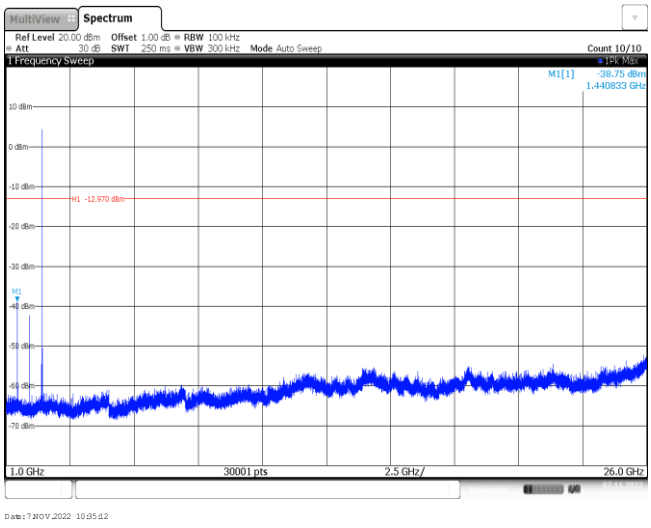
CH39 Reference level	
CH39 30MHz~1000MHz	
CH39 1GHz~26GHz	

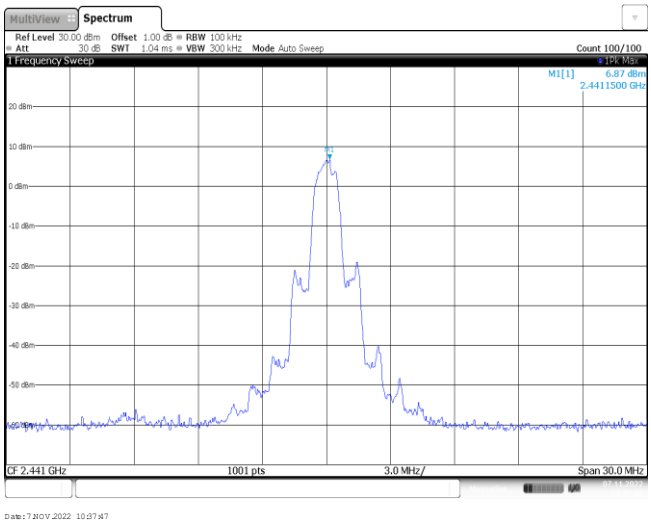
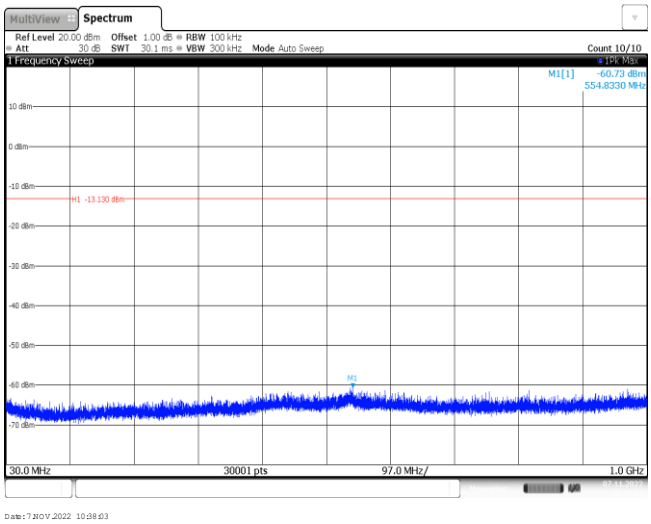
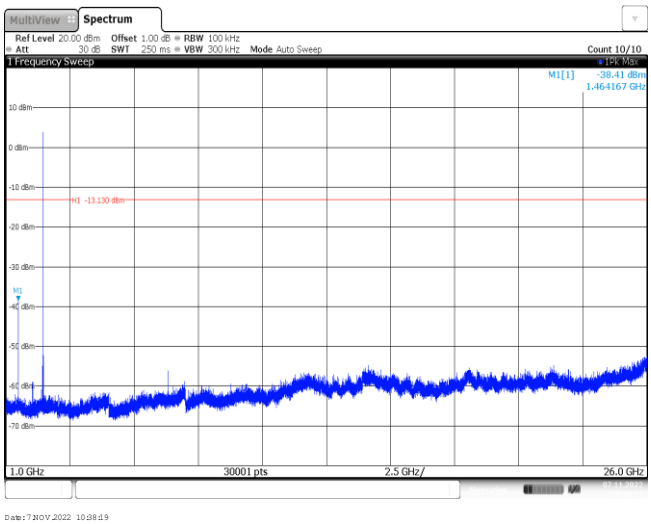
CH78 Reference level	
CH78 30MHz~1000MHz	
CH78 1GHz~26GHz	

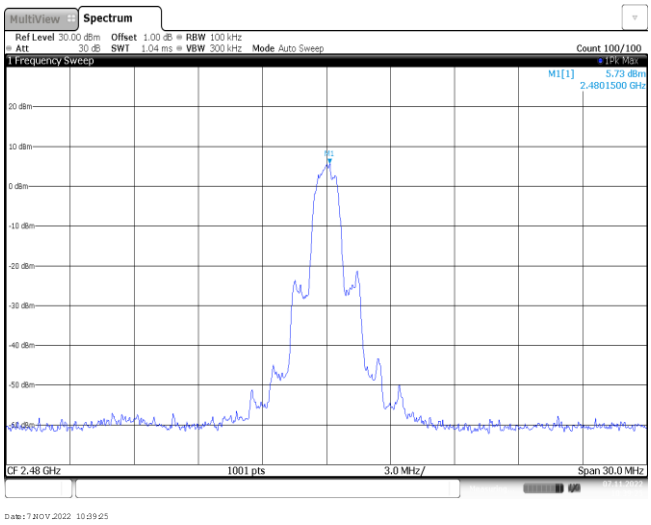
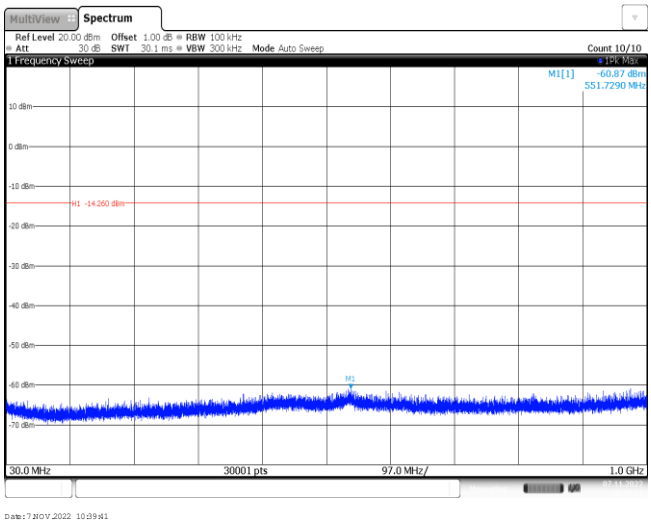
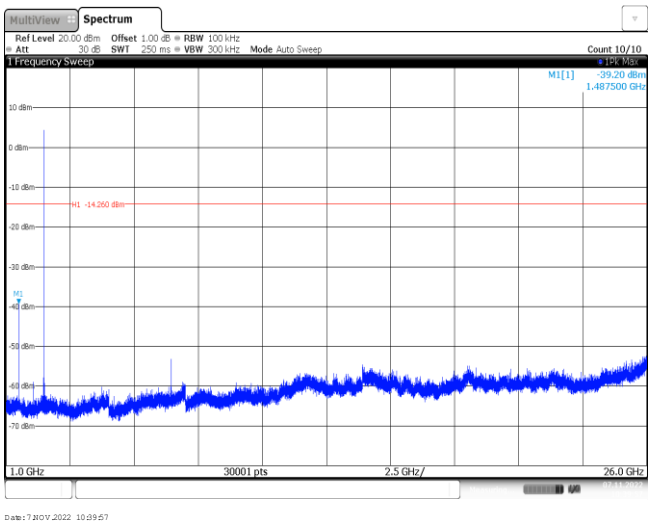
Test Item:	Spurious Emission	Modulation type:	π/4DQPSK
CH00 Reference level			
CH00 30MHz~1000MHz			
CH00 1GHz~26GHz			

CH39 Reference level	
CH39 30MHz~1000MHz	
CH39 1GHz~26GHz	

CH78 Reference level	
CH78 30MHz~1000MHz	
CH78 1GHz~26GHz	

Test Item:	Spurious Emission	Modulation type:	8DPSK
CH00 Reference level	
CH00 30MHz~1000MHz	
CH00 1GHz~26GHz	

CH39 Reference level	
CH39 30MHz~1000MHz	
CH39 1GHz~26GHz	

CH78 Reference level	
CH78 30MHz~1000MHz	
CH78 1GHz~26GHz	

--------End of Report--------