

APPENDIX REPORT

Project No.	SHT2012123404EW	Radio Specification	Bluetooth EDR
Test sample No.	YPHT20121234003	Model No.	T780
Start test date	2021-11-23	Finish date	2021-11-23
Temperature	23.7℃	Humidity	39%
Test Engineer	Xiaoqin Li	Auditor	Xiaodong Zheo

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

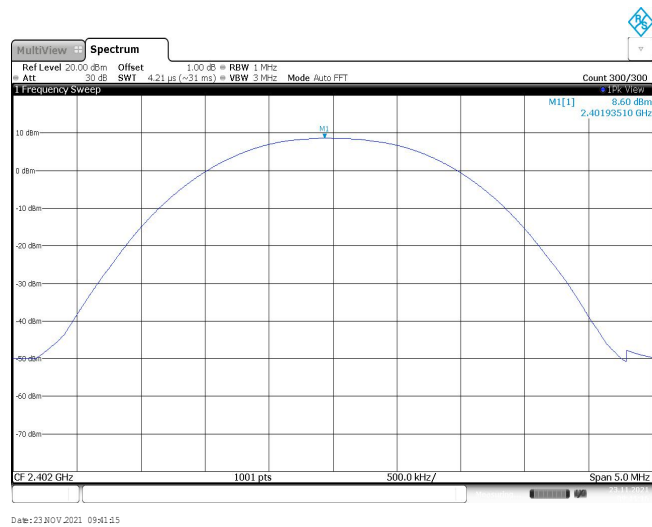
Appendix A: Peak Output Power

Modulation type	Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
GFSK	00	8.60	8.58	≤ 30.00	Pass
	39	8.18	8.17		
	78	8.81	8.78		
$\pi/4$ DQPSK	00	7.78	7.72	≤ 21.00	Pass
	39	7.58	7.52		
	78	8.32	8.27		
8DPSK	00	7.87	7.78	≤ 21.00	Pass
	39	7.66	7.61		
	78	8.39	8.31		

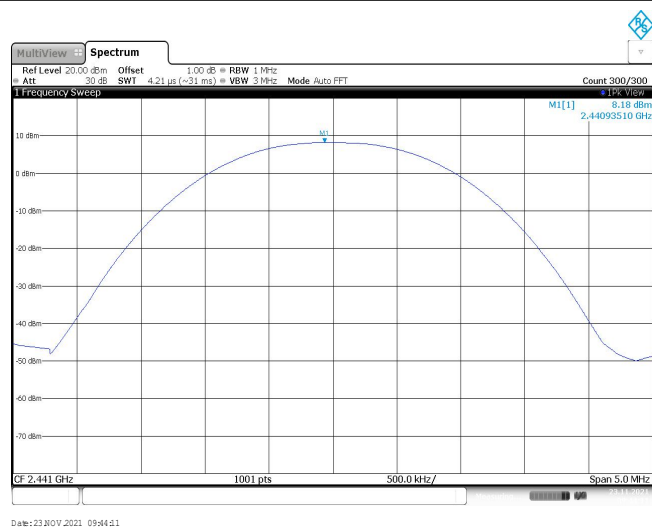
Modulation Type:

GFSK

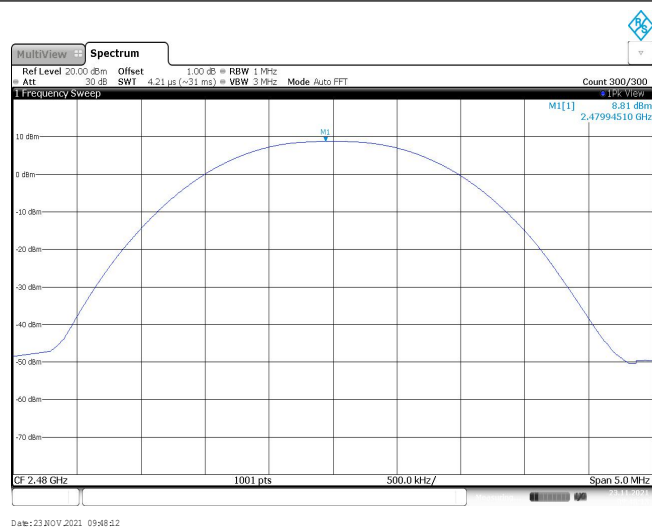
CH00



CH39



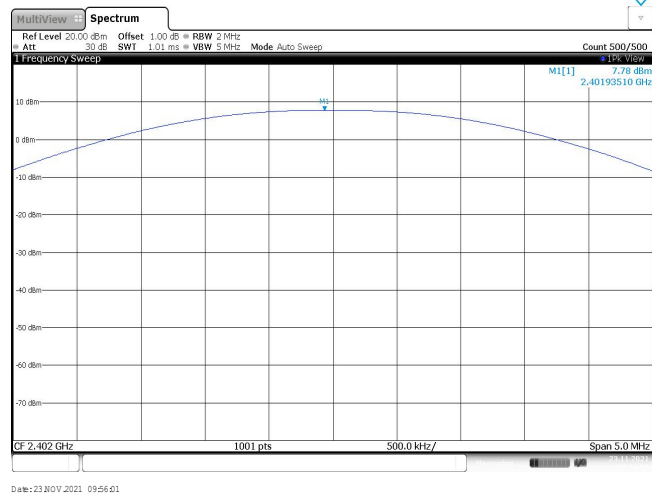
CH78



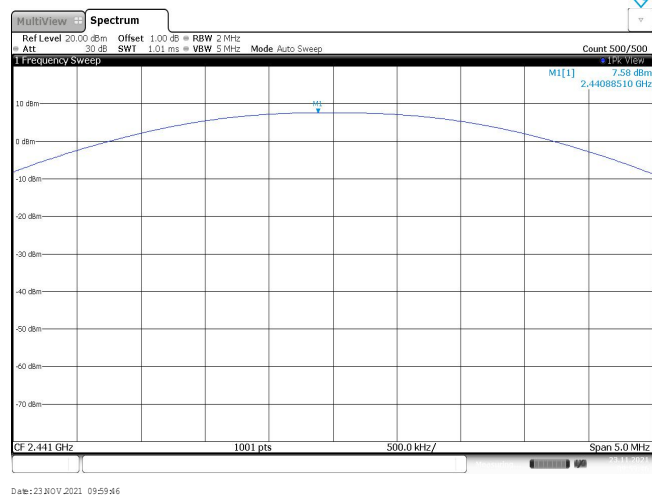
Modulation Type:

 $\pi/4$ DQPSK

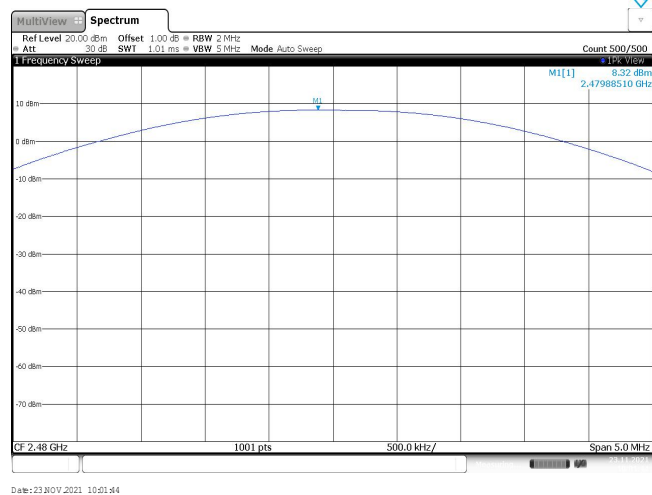
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CH39



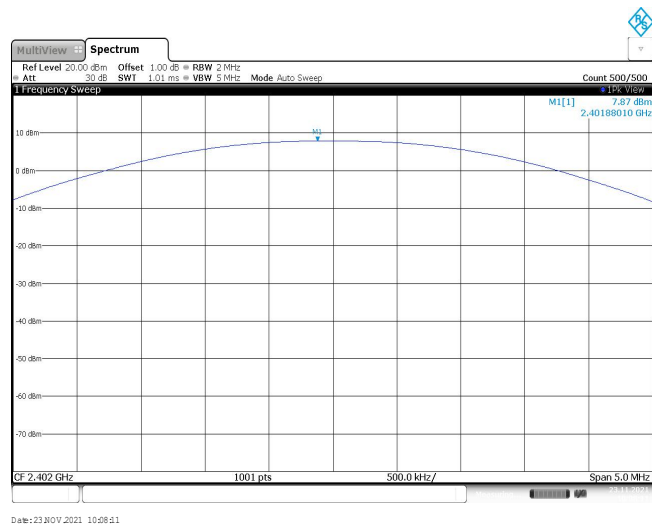
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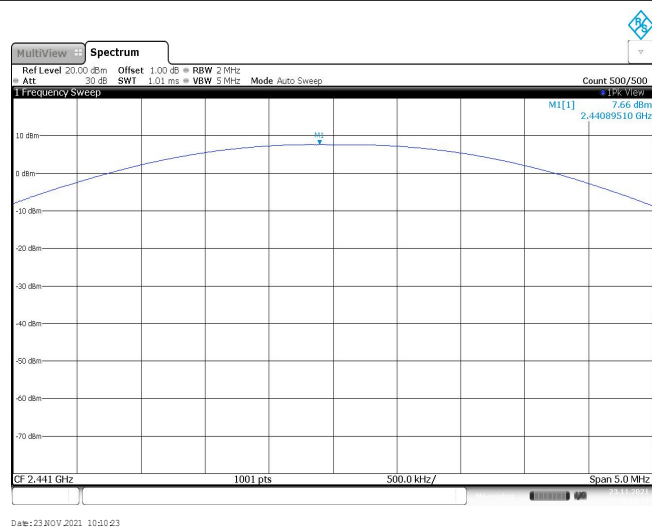
Modulation Type:

8DPSK

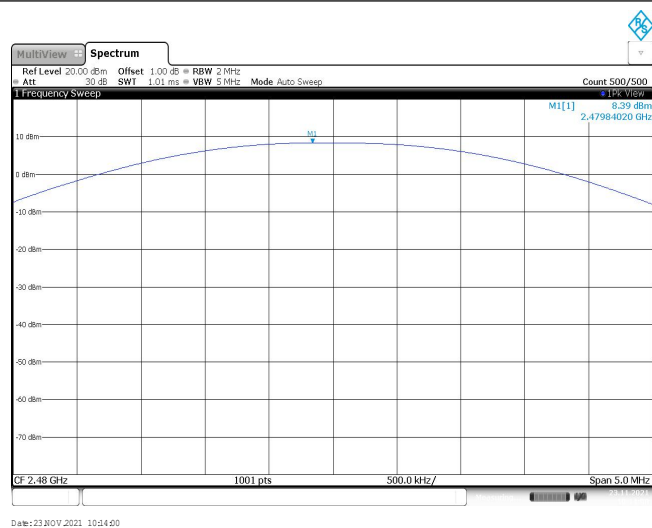
CH00



CH39



CH78



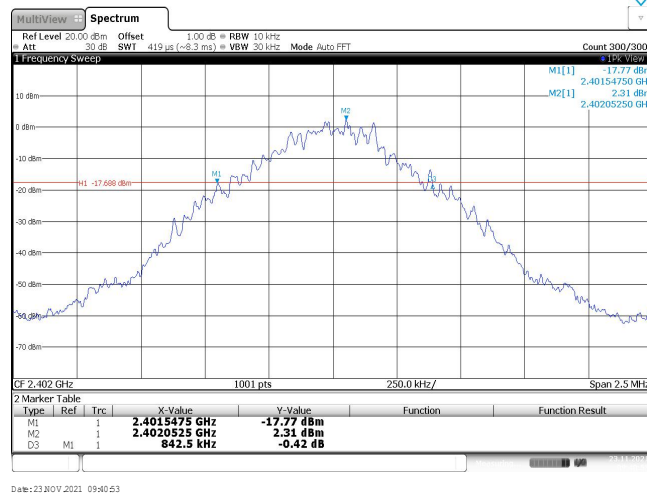
Appendix B : 20 dB Bandwidth

Modulation type	Channel	20 dB Bandwidth (kHz)	Limit (kHz)	Result
GFSK	00	842.50	-	Pass
	39	842.50		
	78	792.50		
$\pi/4$ DQPSK	00	1270.00	-	Pass
	39	1272.50		
	78	1262.50		
8DPSK	00	1270.00	-	Pass
	39	1265.00		
	78	1282.50		

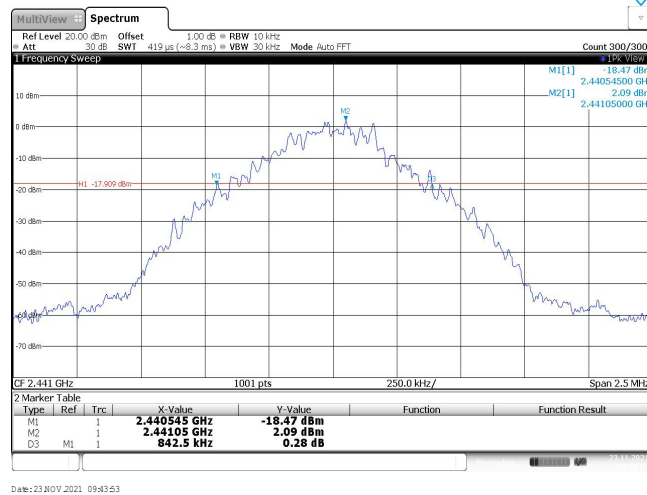
Modulation Type:

GFSK

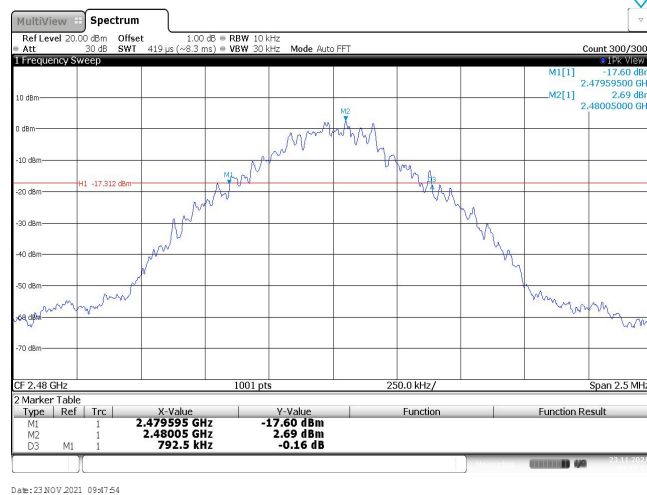
CH00



CH39



CH78

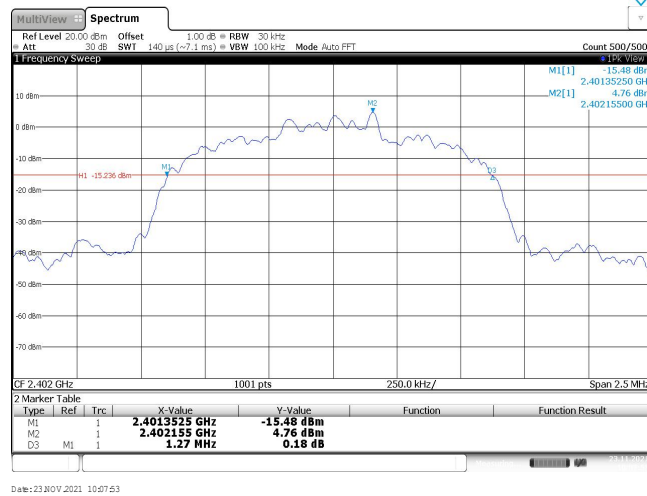


Modulation Type:		$\pi/4$ DQPSK
CH00		

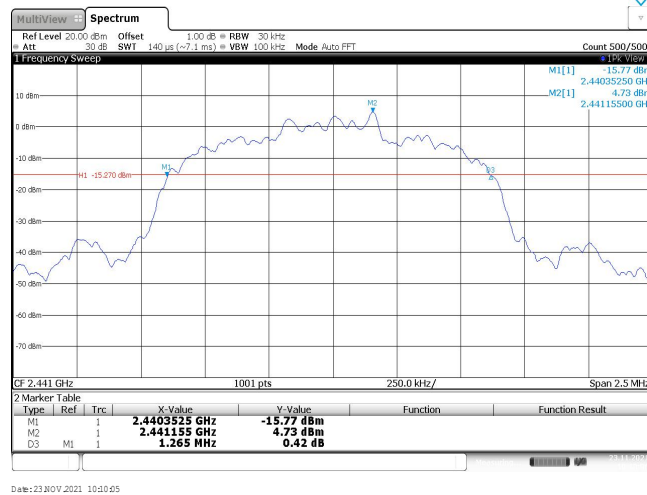
Modulation Type:

8DPSK

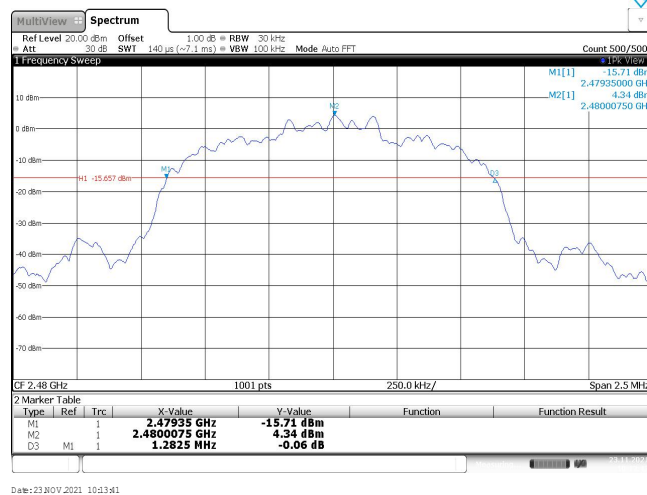
CH00



CH39



CH78



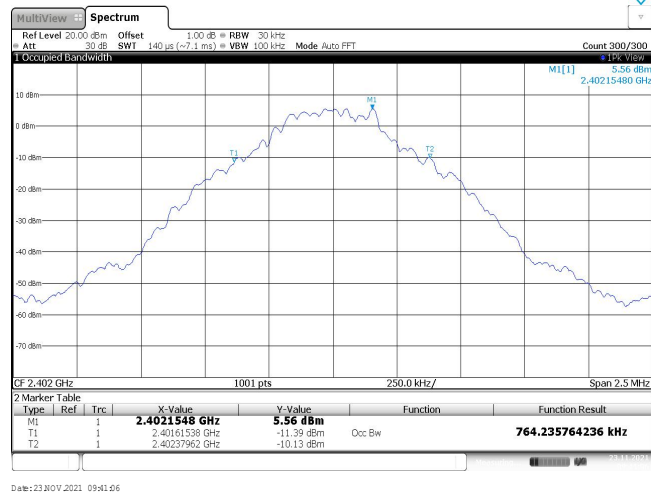
Appendix C: 99% Occupied Bandwidth

Modulation type	Channel	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
GFSK	00	0.76	-	Pass
	39	0.76		
	78	0.76		
$\pi/4$ DQPSK	00	1.15	-	Pass
	39	1.15		
	78	1.15		
8DPSK	00	1.15	-	Pass
	39	1.15		
	78	1.15		

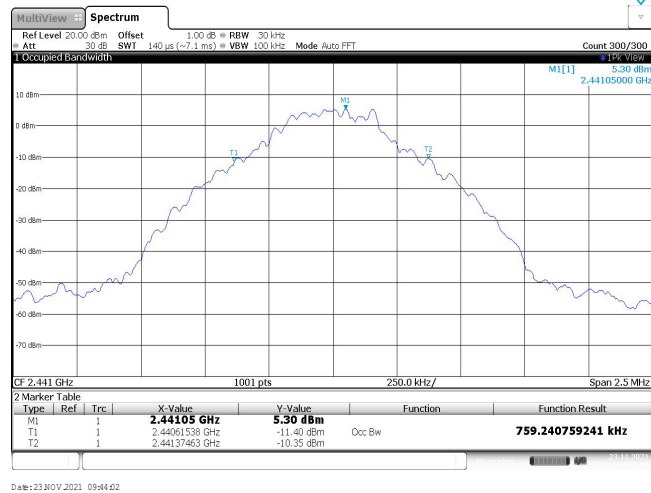
Modulation Type:

GFSK

CH00



CH39



CH78



Modulation Type:

 π /4DQPSK

CH00



CH39



CH78



Modulation Type:

8DPSK

CH00



Date: 23 NOV 2021 10:58:01

CH39



Date: 23 NOV 2021 10:30:14

CH78



Date: 23 NOV 2021 10:33:50

Appendix D: Carrier Frequencies Separation

Modulation type	Channel	Carrier Frequencies Separation (MHz)	Limit (kHz) *	Result
GFSK	39	1.00	≥842.50	Pass
π/4DQPSK	39	1.00	≥848.33	Pass
8DPSK	39	1.00	≥855.00	Pass

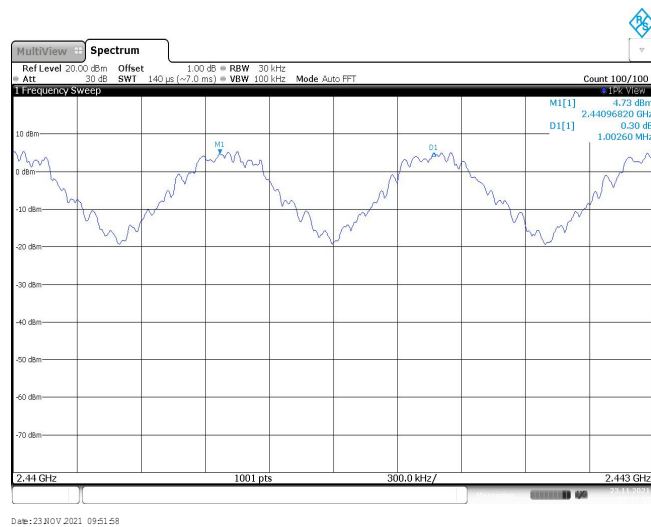
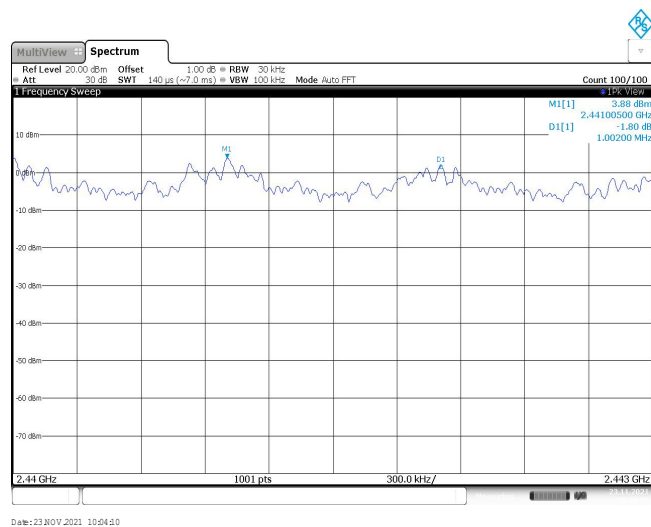
Note:

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

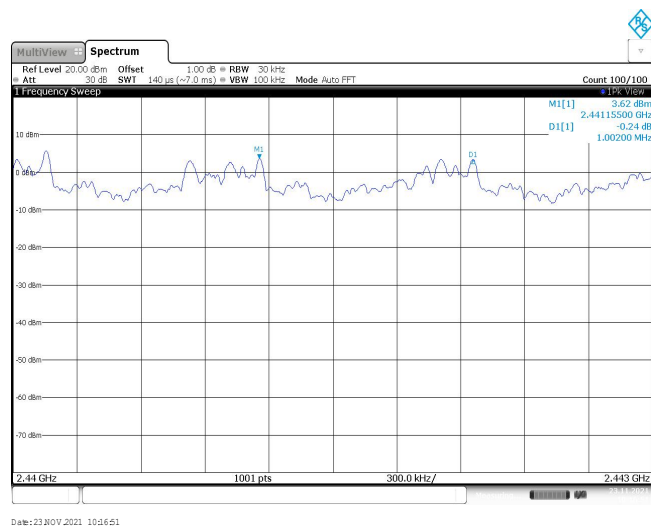
π/4DQPSK limit = $\frac{2}{3}$ * The maximum 20 dB Bandwidth for π/4DQPSK modulation on the appendix B.

8DPSK limit = $\frac{2}{3}$ * The maximum 20 dB Bandwidth for 8DPSK modulation on the appendix B

GFSK

 $\pi/4$ DQPSK

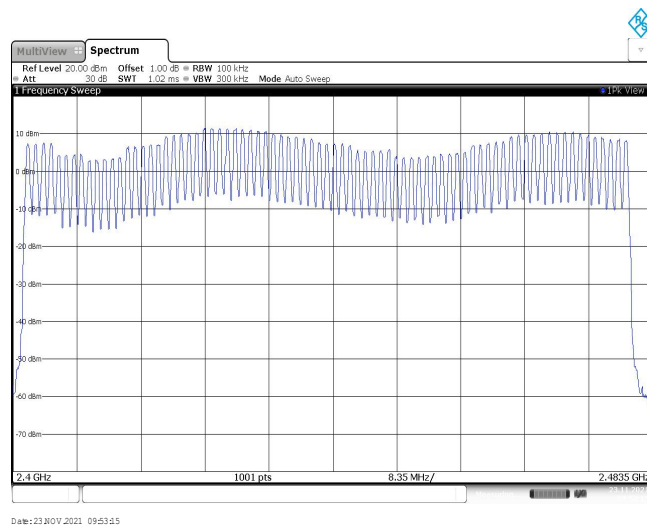
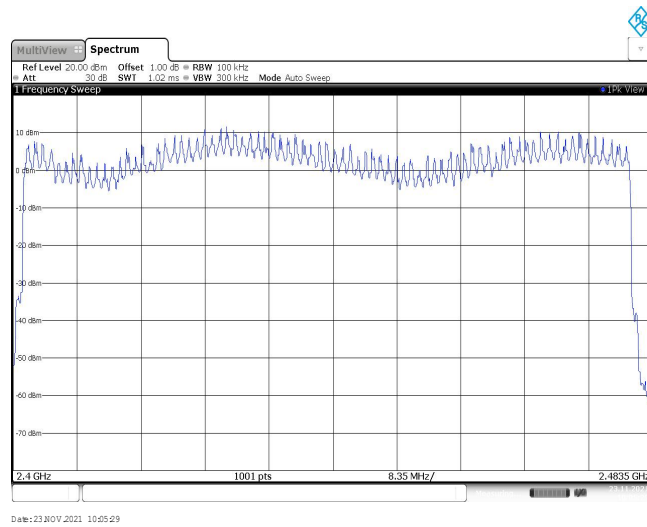
8DPSK



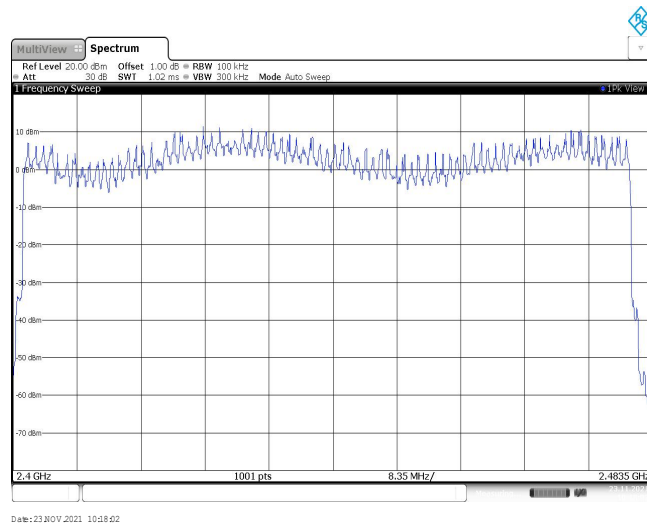
Appendix E: Hopping Channel Number

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

GFSK

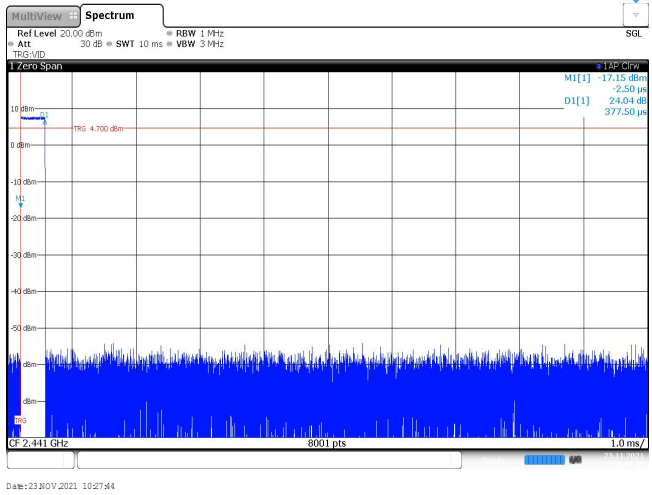
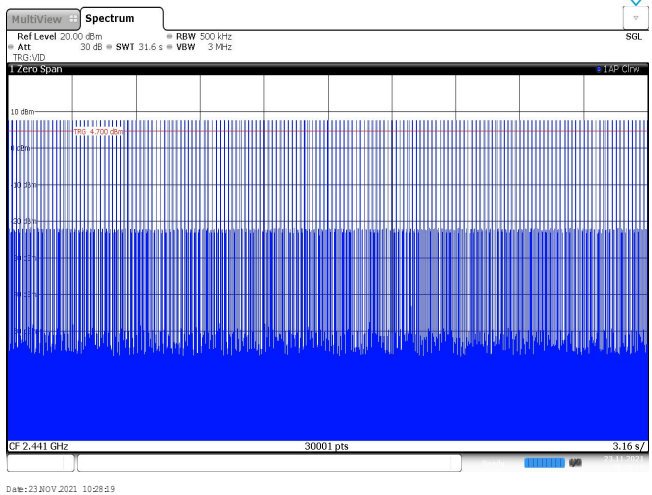
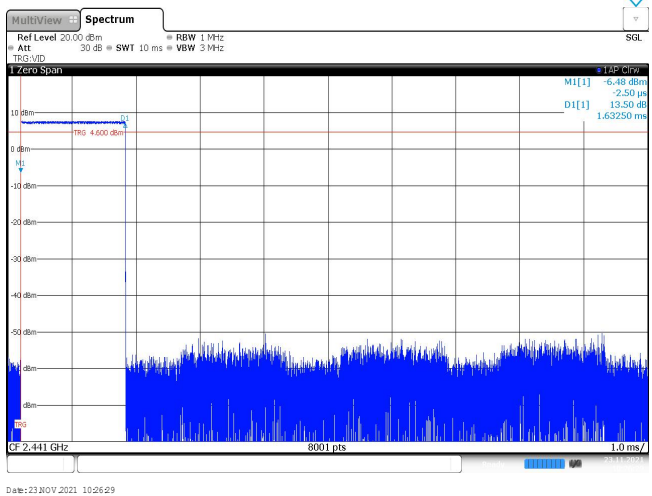
 $\pi/4$ DQPSK

8DPSK

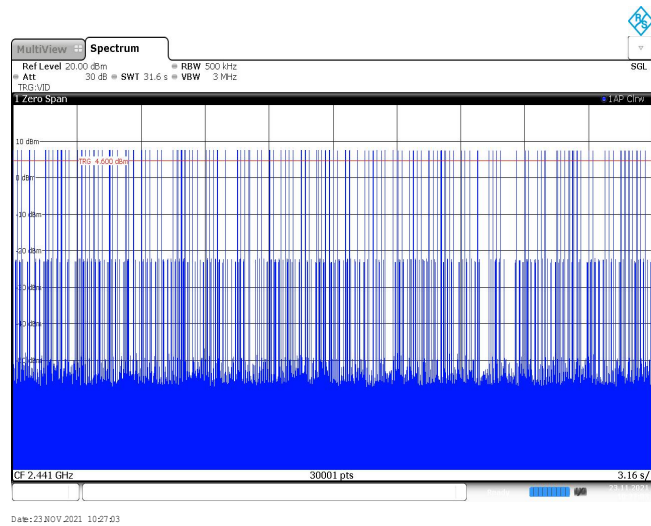


Appendix F: Dwell Time

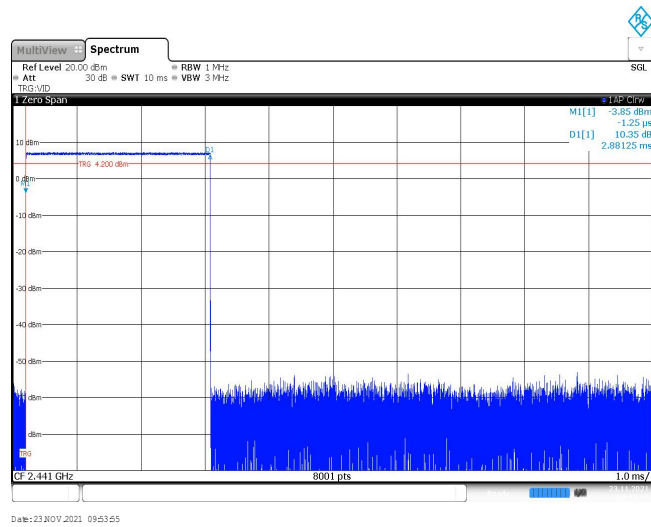
Modulation type	Packet	Burst Width [ms]	Total Hops[hop*ch]	Dwell time (Second)	Limit (Second)	Result
GFSK	DH1	0.38	315	0.12	≤ 0.40	Pass
	DH3	1.63	158	0.26		
	DH5	2.88	107	0.31		
π/4DQPSK	2DH1	0.38	314	0.12	≤ 0.40	Pass
	2DH3	1.64	153	0.25		
	2DH5	2.88	107	0.31		
8DPSK	3DH1	0.38	315	0.12	≤ 0.40	Pass
	3DH3	1.64	160	0.26		
	3DH5	2.89	105	0.30		

Modulation Type:	GFSK
DH1 Burst width	 The spectrum plot shows a single burst of signal at 2.441 GHz. The y-axis represents power in dBm, ranging from -50 to 10. The x-axis represents frequency in GHz, ranging from 2.440 to 2.442. A red trace shows the signal burst, which is approximately 4.700 dBm wide. The plot includes a 'Zero Span' view and a 'Spectrum' view. The 'Spectrum' view shows the signal burst with a peak at 2.441 GHz. The 'Zero Span' view shows the signal burst with a peak at 2.441 GHz. The plot includes a 'Zero Span' view and a 'Spectrum' view. The 'Spectrum' view shows the signal burst with a peak at 2.441 GHz. The 'Zero Span' view shows the signal burst with a peak at 2.441 GHz.
DH1 Burst number	 The spectrum plot shows a series of signal bursts at 2.441 GHz. The y-axis represents power in dBm, ranging from -50 to 10. The x-axis represents frequency in GHz, ranging from 2.440 to 2.442. A red trace shows the signal bursts, which are approximately 4.700 dBm wide. The plot includes a 'Zero Span' view and a 'Spectrum' view. The 'Spectrum' view shows the signal bursts with a peak at 2.441 GHz. The 'Zero Span' view shows the signal bursts with a peak at 2.441 GHz.
DH3 Burst width	 The spectrum plot shows a single burst of signal at 2.441 GHz. The y-axis represents power in dBm, ranging from -50 to 10. The x-axis represents frequency in GHz, ranging from 2.440 to 2.442. A red trace shows the signal burst, which is approximately 4.600 dBm wide. The plot includes a 'Zero Span' view and a 'Spectrum' view. The 'Spectrum' view shows the signal burst with a peak at 2.441 GHz. The 'Zero Span' view shows the signal burst with a peak at 2.441 GHz.

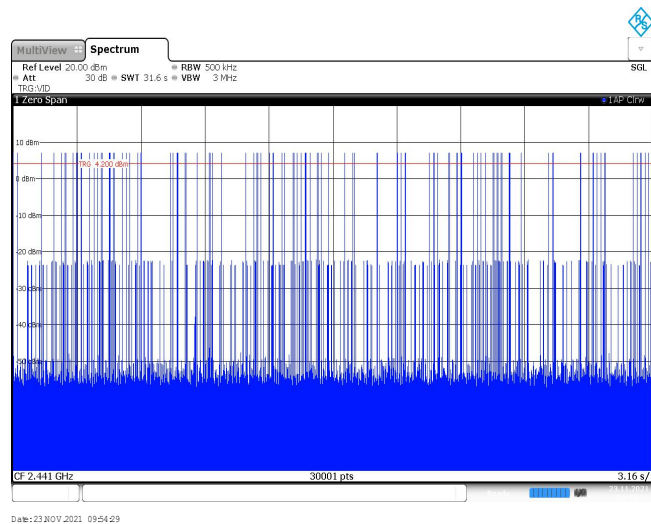
DH3
Burst number

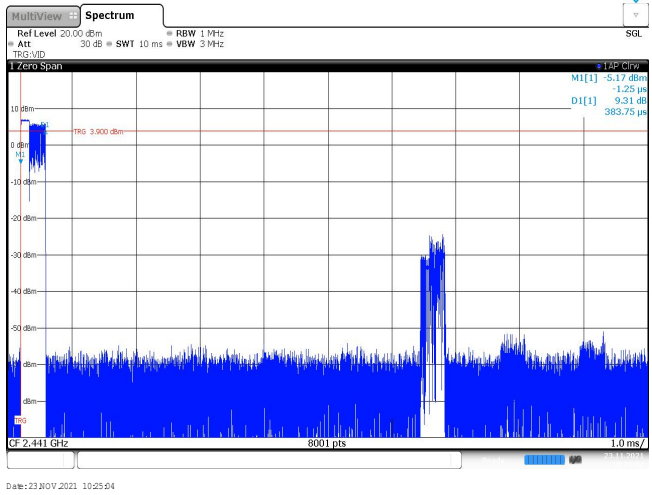
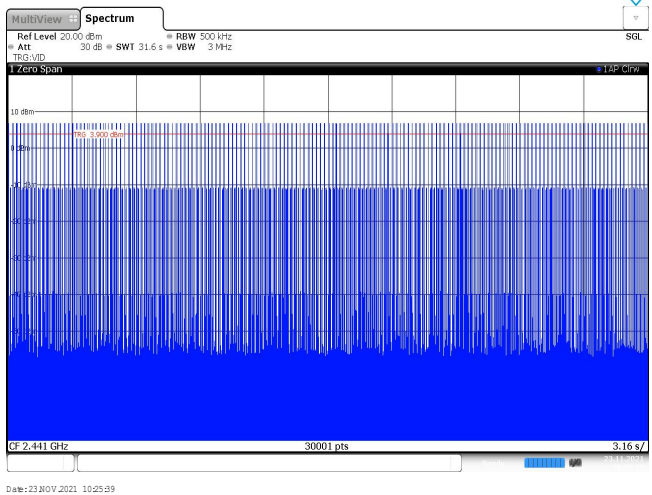
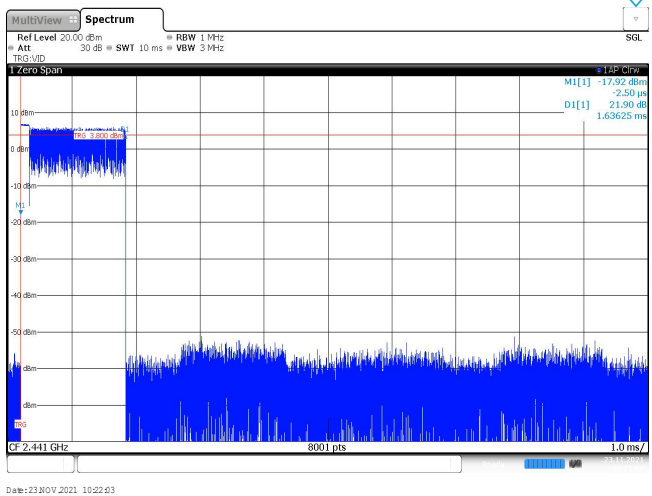


DH5
Burst width



DH5
Burst number



Modulation Type:	$\pi/4$ DQPSK
2DH1 Burst width	 The spectrum plot shows a signal at 2.441 GHz with a bandwidth of 8001 pts. The y-axis represents power in dBm, ranging from -50 to 10. The x-axis represents time in ms, ranging from 0 to 1.0. The plot shows a burst of signal at approximately 0.5 ms. The signal is labeled with M1[1] -5.17 dBm, D1[1] 9.31 dB, and 383.75 μs. The plot is titled 'Spectrum' and includes parameters: Ref Level 20.00 dBm, Att 30 dB, RBW 1 MHz, VSW 3 MHz, and Date: 23 NOV 2021 10:25:04.
2DH1 Burst number	 The spectrum plot shows a signal at 2.441 GHz with a bandwidth of 30001 pts. The y-axis represents power in dBm, ranging from -50 to 10. The x-axis represents time in s, ranging from 0 to 3.16. The plot shows a continuous signal. The signal is labeled with M1[1] -5.17 dBm, D1[1] 9.31 dB, and 383.75 μs. The plot is titled 'Spectrum' and includes parameters: Ref Level 20.00 dBm, Att 30 dB, RBW 500 kHz, VSW 3 MHz, and Date: 23 NOV 2021 10:25:39.
2DH3 Burst width	 The spectrum plot shows a signal at 2.441 GHz with a bandwidth of 8001 pts. The y-axis represents power in dBm, ranging from -50 to 10. The x-axis represents time in ms, ranging from 0 to 1.0. The plot shows a burst of signal at approximately 0.5 ms. The signal is labeled with M1[1] -17.92 dBm, D1[1] 21.90 dB, and 1.63625 ms. The plot is titled 'Spectrum' and includes parameters: Ref Level 20.00 dBm, Att 30 dB, RBW 1 MHz, VSW 3 MHz, and Date: 23 NOV 2021 10:22:43.