

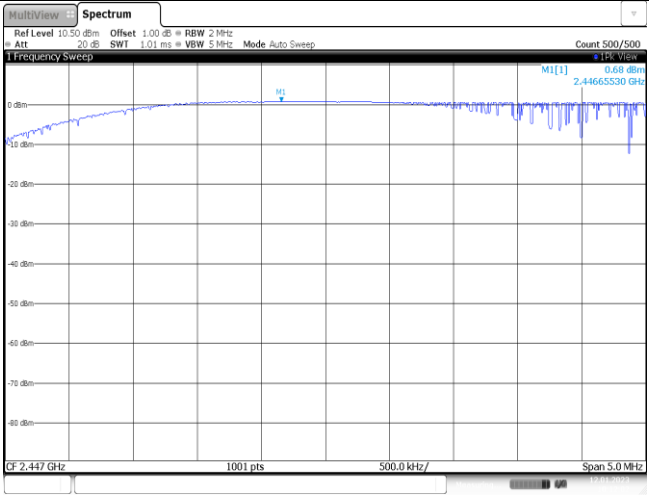
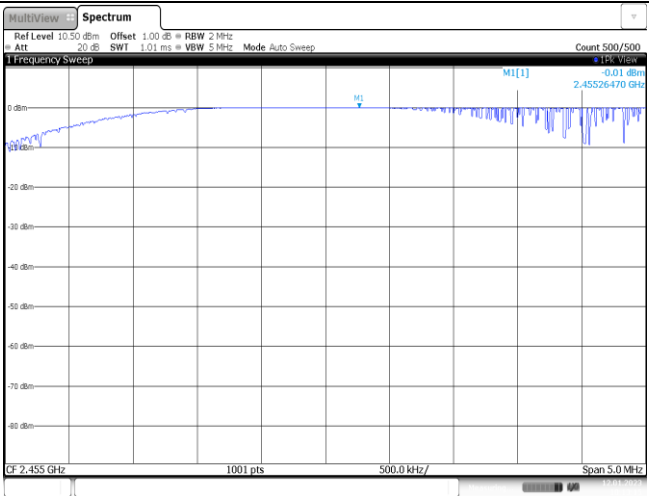
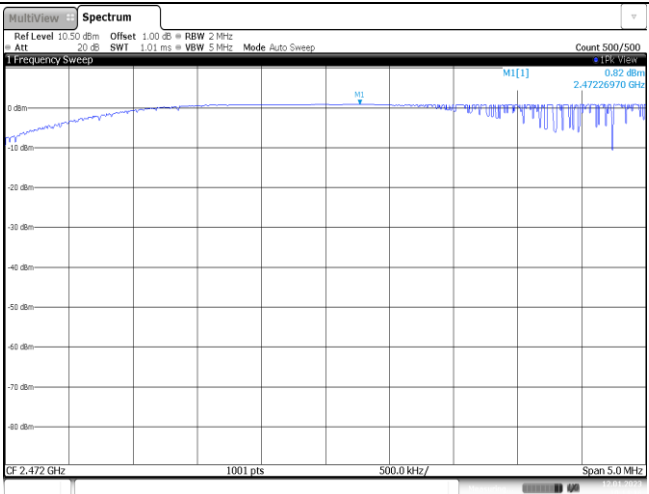
APPENDIX REPORT

Project No.	SHT2211080301EW	Radio Specification	GFSK
Test sample No.	YPHT22110803002	Model No.	HD-19A
Start test date	2023-01-12	Finish date	2023-01-30
Temperature	24.1℃	Humidity	64%
Test Engineer	Xiaoxiao Li	Auditor	Xiaodong Zhuo

Appendix clause	Test item	Result
A	Peak Output Power	PASS
B	Power Spectral Density	PASS
C	6 dB Bandwidth	PASS
D	99% Occupied Bandwidth	PASS
E	Duty cycle	PASS
F	Band edge and Spurious Emissions (conducted)	PASS

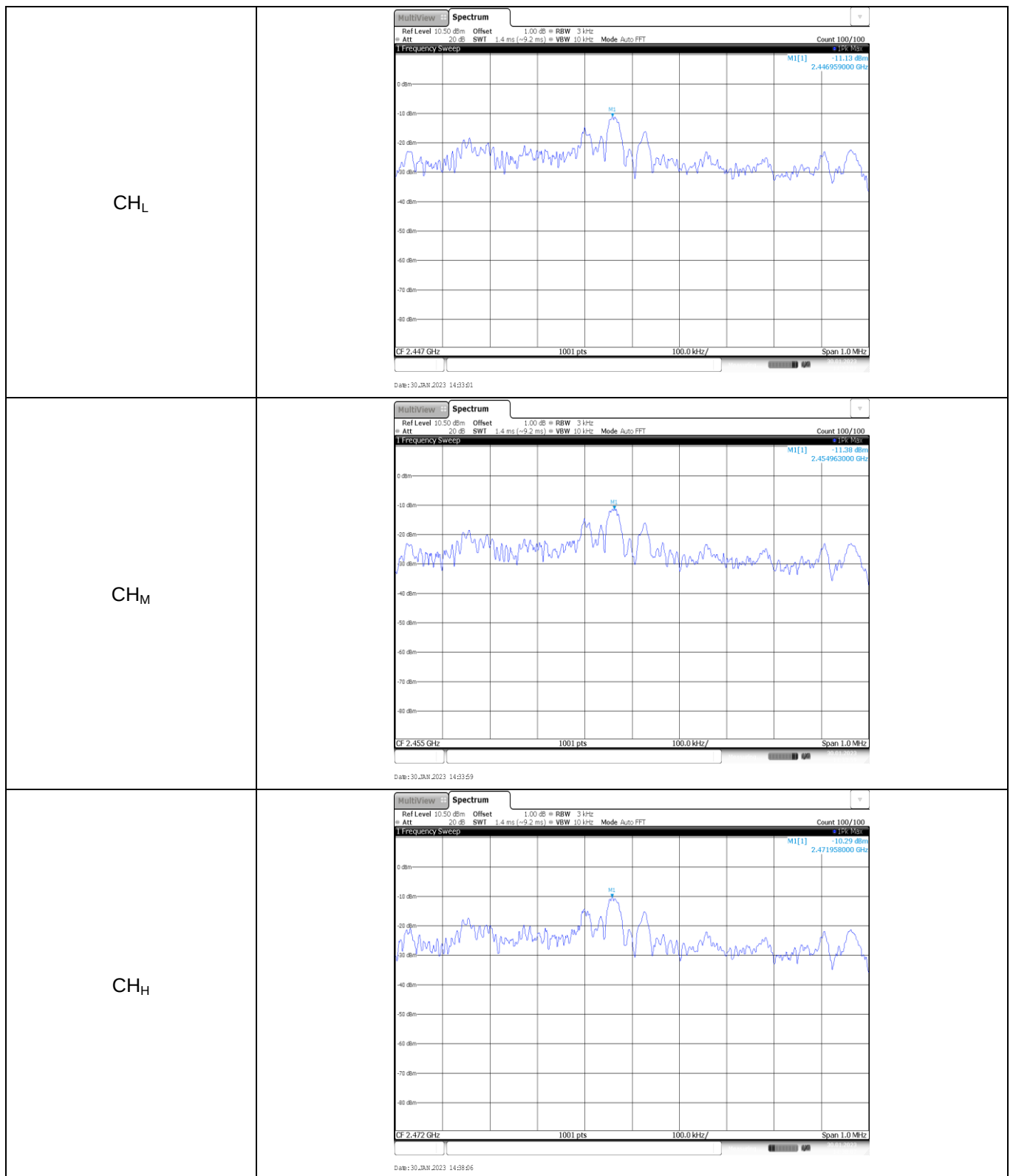
Appendix A: Peak Output Power

Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
CH _L	0.68	0.67	≤ 30.00	Pass
CH _M	-0.01	-0.04		
CH _H	0.82	0.80		

CH _L	 Ref Level 10.50 dBm Offset 1.00 dB RBW 2 MHz Att 20 dB SWF 1.01 ms VBW 5 kHz Mode Auto Sweep Count 500/500 M1[1] 0.68 dBm 2.4465330 GHz CF 2.447 GHz 1001 pts 500.0 kHz/ Span 5.0 MHz Date: 12_JAN 2023 10:12:02
CH _M	 Ref Level 10.50 dBm Offset 1.00 dB RBW 2 MHz Att 20 dB SWF 1.01 ms VBW 5 kHz Mode Auto Sweep Count 500/500 M1[1] -0.01 dBm 2.45526470 GHz CF 2.455 GHz 1001 pts 500.0 kHz/ Span 5.0 MHz Date: 12_JAN 2023 10:13:04
CH _H	 Ref Level 10.50 dBm Offset 1.00 dB RBW 2 MHz Att 20 dB SWF 1.01 ms VBW 5 kHz Mode Auto Sweep Count 500/500 M1[1] 0.82 dBm 2.47226970 GHz CF 2.472 GHz 1001 pts 500.0 kHz/ Span 5.0 MHz Date: 12_JAN 2023 10:14:05

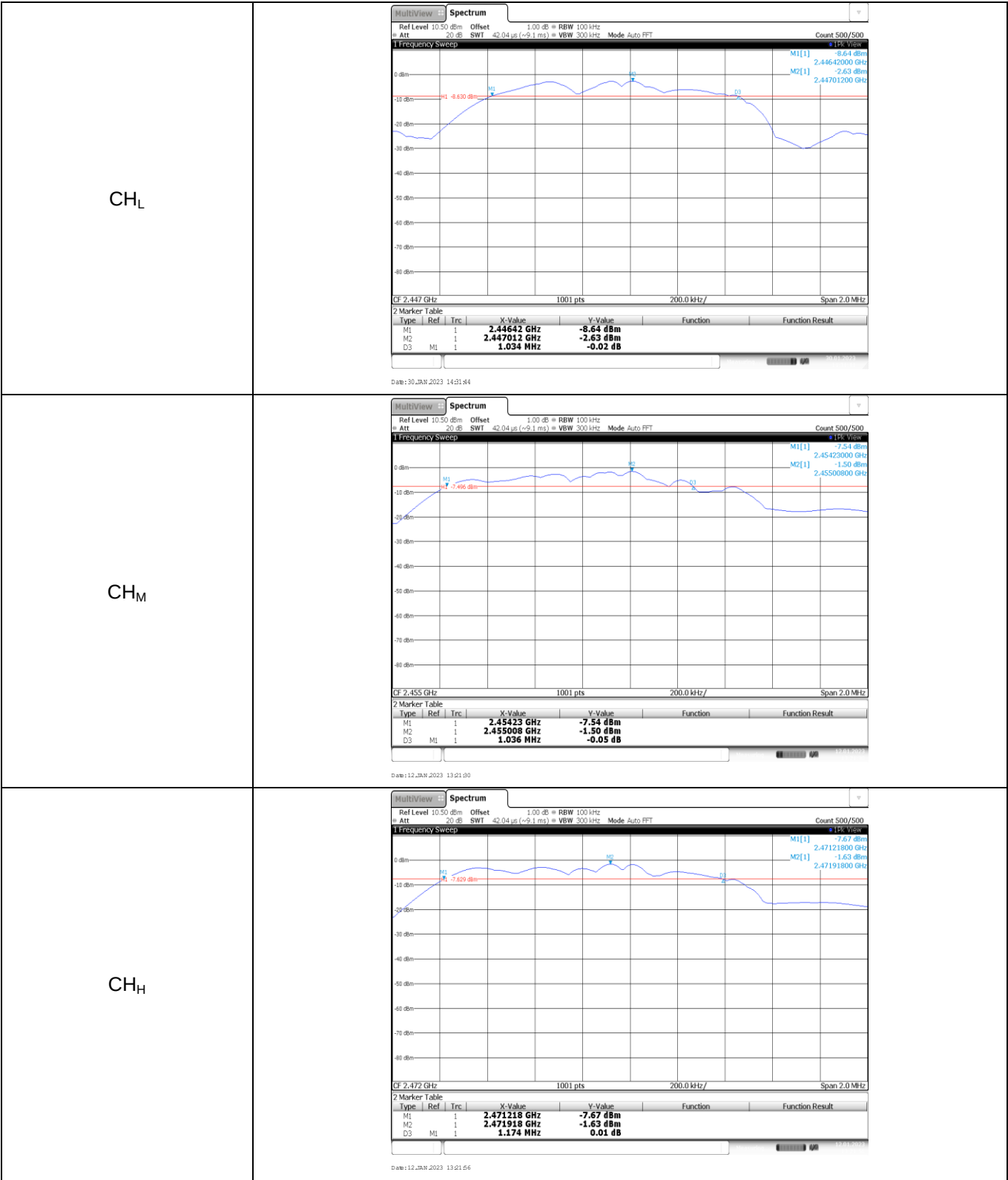
Appendix B: Power Spectral Density

Channel	Power Spectral Density(dBm/3KHz)	Limit (dBm/3KHz)	Result
CH _L	-11.13	≤8.00	Pass
CH _M	-11.38		
CH _H	-10.29		



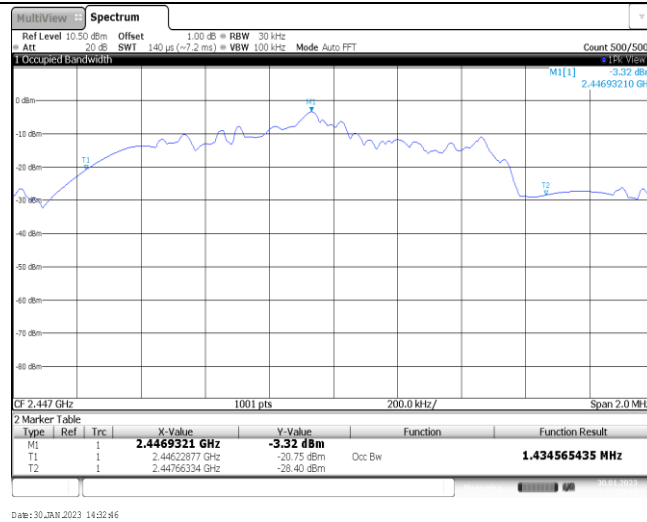
Appendix C: 6dB bandwidth

Channel	6dB Bandwidth(kHz)	Limit (kHz)	Result
CH _L	1034.00	≥500	Pass
CH _M	1036.00		
CH _H	1174.00		



Appendix D: 99% Occupied Bandwidth

Channel	99% Occupied Bandwidth(MHz)	Limit (kHz)	Result
CH _L	1.44	-	Pass
CH _M	1.41		
CH _H	1.50		

$$\text{CH}_L$$


Date: 30 JAN 2023 14:32:46

$$\text{CH}_M$$

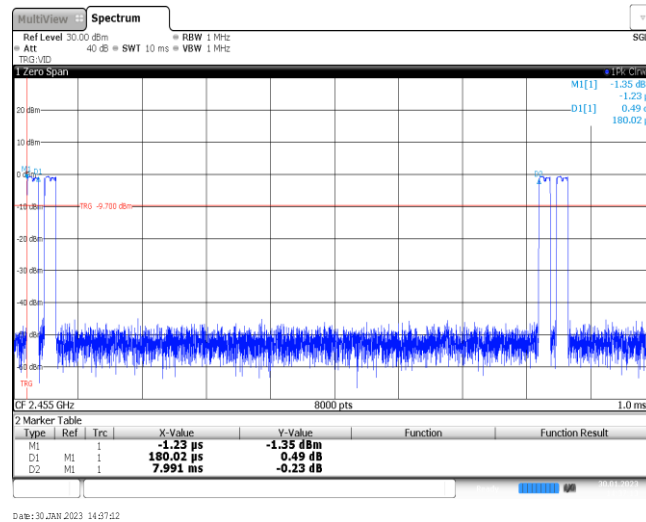

Date: 30 JAN 2023 14:33:44

$$\text{CH}_H$$


Date: 30 JAN 2023 14:37:52

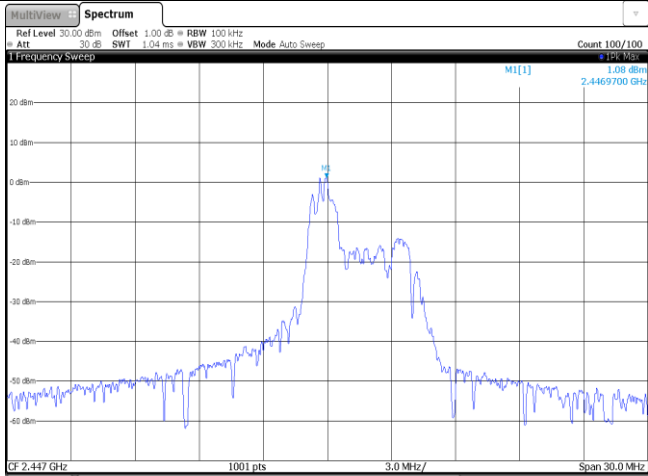
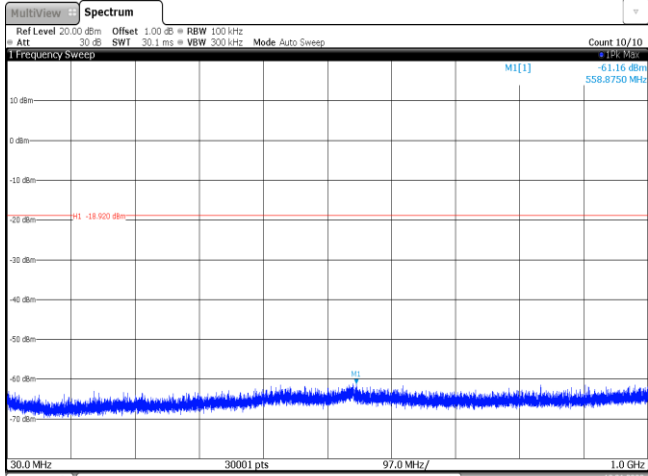
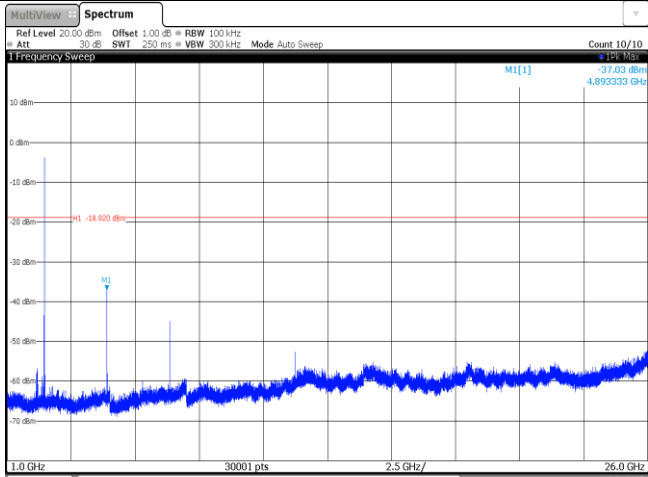
Appendix E: Duty cycle

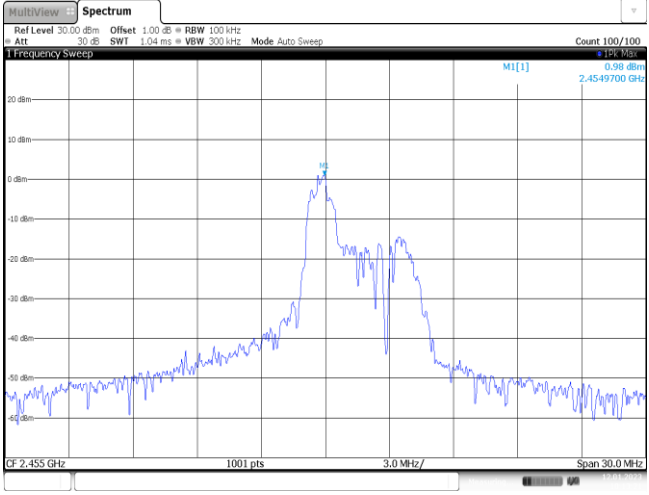
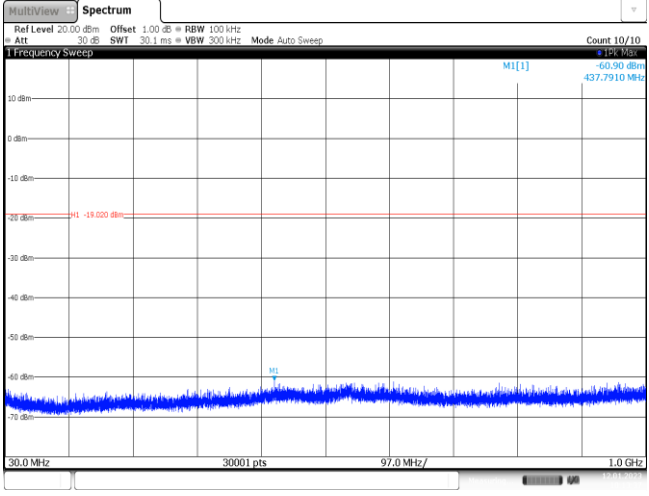
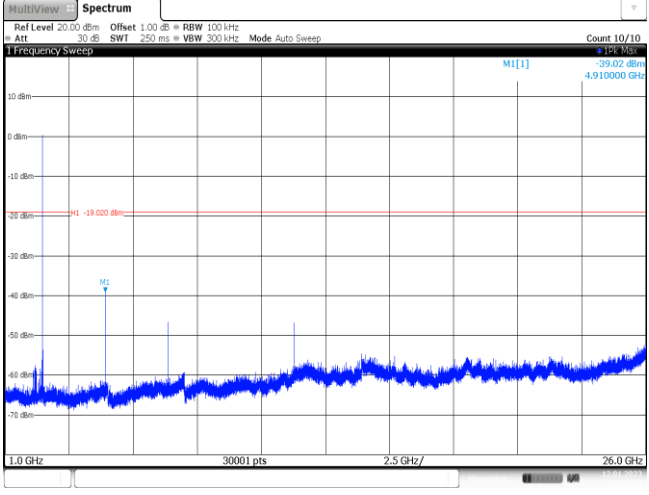
Test Frequency (MHz)	T _{on} time for single burst (ms)	T _{period} (ms)	Duty cycle	1/T _{on} time (kHz)
2455	0.36	7.99	4.5%	2.78

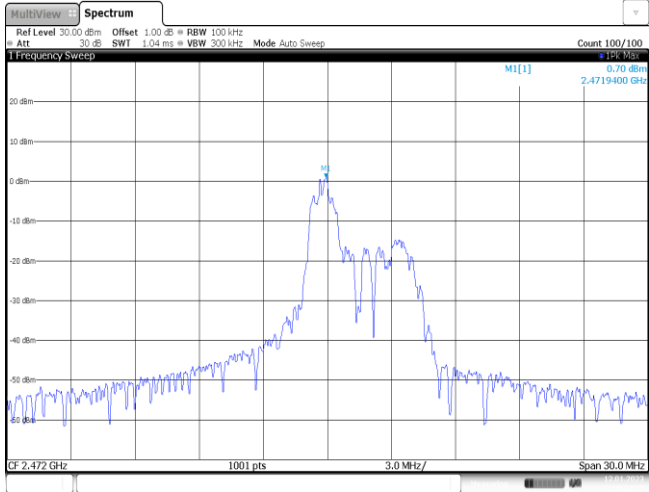
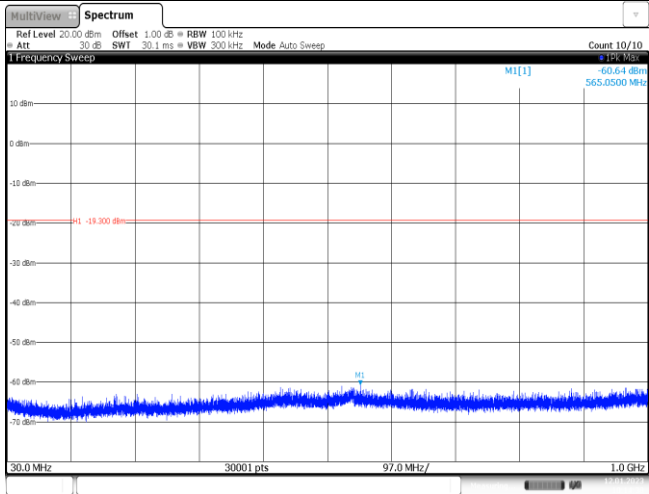
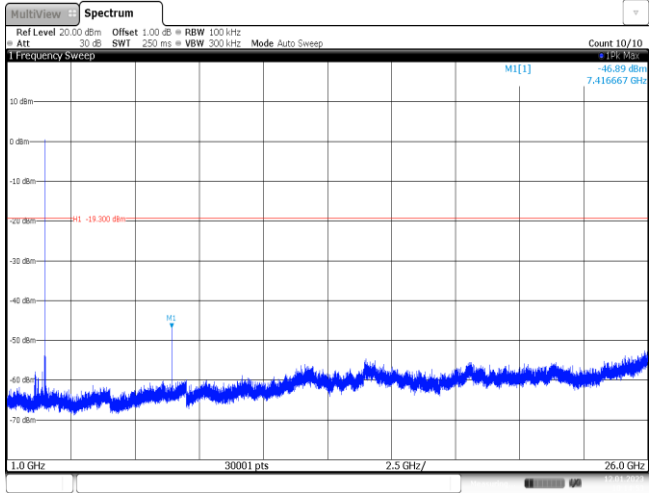


Appendix F: Band edge and Spurious Emissions (conducted)

Test Item:	Band edge																																										
CH _L	MultiView Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 100 kHz Att 20 dB SWT 1.42 ms VBW 300 kHz Mode Auto Sweep Count 300/300 1 Frequency Sweep M1[1] -0.12 dBm M2[1] 2.44696 GHz M2[1] -63.44 dBm M2[1] 2.400000 GHz 2.31 GHz 1001 pts 14.2 MHz/ 2.452 GHz 2 Marker Table <table><tr><th>Type</th><th>Ref</th><th>Trc</th><th>X-Value</th><th>Y-Value</th><th>Function</th><th>Function Result</th></tr><tr><td>M1</td><td>1</td><td></td><td>2.44696 GHz</td><td>-0.12 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-63.44 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-64.22 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-70.08 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.350896 GHz</td><td>-57.89 dBm</td><td></td><td></td></tr></table> Date: 30 JAN 2023 14:33:11	Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.44696 GHz	-0.12 dBm			M2	1		2.4 GHz	-63.44 dBm			M3	1		2.39 GHz	-64.22 dBm			M4	1		2.31 GHz	-70.08 dBm			M5	1		2.350896 GHz	-57.89 dBm		
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CH _H	MultiView Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 100 kHz Att 20 dB SWT 1.04 ms VBW 300 kHz Mode Auto Sweep Count 100/100 1 Frequency Sweep M1[1] 1.23 dBm M2[1] 2.471963 GHz M2[1] -51.42 dBm M2[1] 2.4835000 GHz 2.47 GHz 1001 pts 3.0 MHz/ 2.5 GHz 2 Marker Table <table><tr><th>Type</th><th>Ref</th><th>Trc</th><th>X-Value</th><th>Y-Value</th><th>Function</th><th>Function Result</th></tr><tr><td>M1</td><td>1</td><td></td><td>2.471963 GHz</td><td>1.23 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-51.42 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-59.37 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.49046 GHz</td><td>-46.03 dBm</td><td></td><td></td></tr></table> Date: 30 JAN 2023 14:38:16	Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.471963 GHz	1.23 dBm			M2	1		2.4835 GHz	-51.42 dBm			M3	1		2.5 GHz	-59.37 dBm			M4	1		2.49046 GHz	-46.03 dBm									
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Test Item:	SE
CH _L Reference level	 CH_L Reference level
CH _L 30MHz~1000MHz	 CH_L 30MHz~1000MHz
CH _L 1GHz~26GHz	 CH_L 1GHz~26GHz

CH_M Reference level	 Ref Level 30.00 dBm Offset 1.00 dB BW 100 kHz Att 30 dB SW 1.04 ms VBW 300 kHz Mode Auto Sweep Count 100/100 M1[1] 0.98 dBm 2.4549700 GHz CF 2.455 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 12 JAN 2023 10:13:21
CH_M 30MHz~1000MHz	 Ref Level 20.00 dBm Offset 1.00 dB BW 100 kHz Att 30 dB SW 30.1 ms VBW 300 kHz Mode Auto Sweep Count 10/10 M1[1] -60.90 dBm 437.7910 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 12 JAN 2023 10:13:07
CH_M 1GHz~26GHz	 Ref Level 20.00 dBm Offset 1.00 dB BW 100 kHz Att 30 dB SW 250 ms VBW 300 kHz Mode Auto Sweep Count 10/10 M1[1] -39.02 dBm 4.910000 GHz 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 12 JAN 2023 10:13:53

CH_H Reference level	 The spectrum plot shows a signal centered at 2.472 GHz. The y-axis represents power in dBm, ranging from -80 to 20. The x-axis represents frequency in MHz, with a span of 30.0 MHz. A prominent peak is visible at 2.4719400 GHz, reaching approximately 0.70 dBm. The plot includes a grid and various measurement parameters such as Ref Level, Offset, and Span.
CH_H 30MHz~1000MHz	 The spectrum plot shows a signal spanning from 30.0 MHz to 1000 MHz. The y-axis represents power in dBm, ranging from -70 to 10. The x-axis represents frequency in MHz, with a span of 97.0 MHz. A horizontal line is drawn at -19.00 dBm. The plot includes a grid and various measurement parameters such as Ref Level, Offset, and Span.
CH_H 1GHz~26GHz	 The spectrum plot shows a signal spanning from 1.0 GHz to 26 GHz. The y-axis represents power in dBm, ranging from -70 to 10. The x-axis represents frequency in GHz, with a span of 2.5 GHz. A horizontal line is drawn at -19.00 dBm. The plot includes a grid and various measurement parameters such as Ref Level, Offset, and Span.

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