

APPENDIX REPORT

Project No.	SHT2204077915EW		
Test sample No.	YPHT22040779020	Model No.	SM9116 main unit
Start test date	2023-05-12	Finish date	2023-05-12
Temperature	24.4℃	Humidity	48%
Test Engineer	Xiaoqin Li	Auditor	Xiaodong Zheo

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

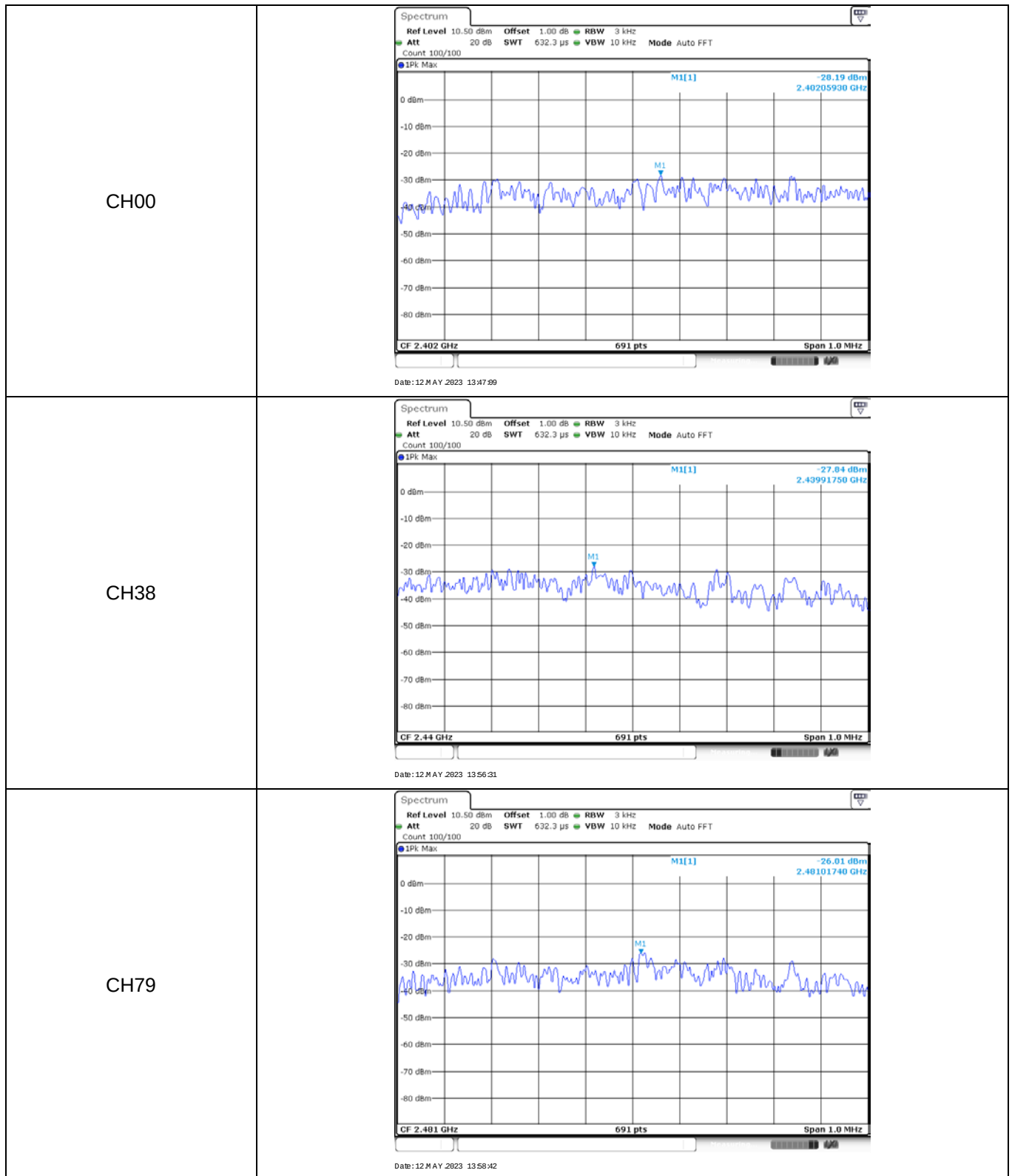
Appendix A: Peak Output Power

Type	Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
FSK	00	-13.16	-13.20	≤ 30.00	Pass
	38	-11.07	-11.15		
	79	-9.69	-9.72		

CH00	Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 3 MHz Att 20 dB SWT 1 ms VBW 10 MHz Mode Auto Sweep Count 500/500 IPk View CF 2.402 GHz 691 pts Span 10.0 MHz Date: 12 MAY 2023 13:46:55 <tr><td>CH38</td><td> Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 3 MHz Att 20 dB SWT 1 ms VBW 10 MHz Mode Auto Sweep Count 500/500 IPk View CF 2.44 GHz 691 pts Span 10.0 MHz Date: 12 MAY 2023 13:56:17 <tr><td>CH79</td><td> Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 3 MHz Att 20 dB SWT 1 ms VBW 10 MHz Mode Auto Sweep Count 500/500 IPk View CF 2.401 GHz 691 pts Span 10.0 MHz Date: 12 MAY 2023 13:58:27 </td></tr></td></tr>	CH38	Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 3 MHz Att 20 dB SWT 1 ms VBW 10 MHz Mode Auto Sweep Count 500/500 IPk View CF 2.44 GHz 691 pts Span 10.0 MHz Date: 12 MAY 2023 13:56:17 <tr><td>CH79</td><td> Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 3 MHz Att 20 dB SWT 1 ms VBW 10 MHz Mode Auto Sweep Count 500/500 IPk View CF 2.401 GHz 691 pts Span 10.0 MHz Date: 12 MAY 2023 13:58:27 </td></tr>	CH79	Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 3 MHz Att 20 dB SWT 1 ms VBW 10 MHz Mode Auto Sweep Count 500/500 IPk View CF 2.401 GHz 691 pts Span 10.0 MHz Date: 12 MAY 2023 13:58:27
CH38	Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 3 MHz Att 20 dB SWT 1 ms VBW 10 MHz Mode Auto Sweep Count 500/500 IPk View CF 2.44 GHz 691 pts Span 10.0 MHz Date: 12 MAY 2023 13:56:17 <tr><td>CH79</td><td> Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 3 MHz Att 20 dB SWT 1 ms VBW 10 MHz Mode Auto Sweep Count 500/500 IPk View CF 2.401 GHz 691 pts Span 10.0 MHz Date: 12 MAY 2023 13:58:27 </td></tr>	CH79	Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 3 MHz Att 20 dB SWT 1 ms VBW 10 MHz Mode Auto Sweep Count 500/500 IPk View CF 2.401 GHz 691 pts Span 10.0 MHz Date: 12 MAY 2023 13:58:27		
CH79	Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 3 MHz Att 20 dB SWT 1 ms VBW 10 MHz Mode Auto Sweep Count 500/500 IPk View CF 2.401 GHz 691 pts Span 10.0 MHz Date: 12 MAY 2023 13:58:27				

Appendix B: Power Spectral Density

Type	Channel	Power Spectral Density(dBm/3KHz)	Limit (dBm/3KHz)	Result
FSK	00	-28.19	≤8.00	Pass
	38	-27.84		
	79	-26.01		



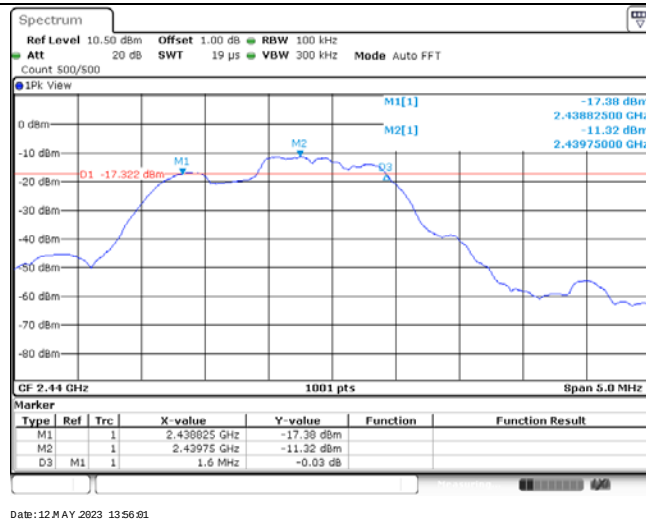
Appendix C: 6dB bandwidth

Type	Channel	6dB Bandwidth(kHz)	Limit (kHz)	Result
FSK	00	1070.00	≥500	Pass
	38	1600.00		
	79	840.00		

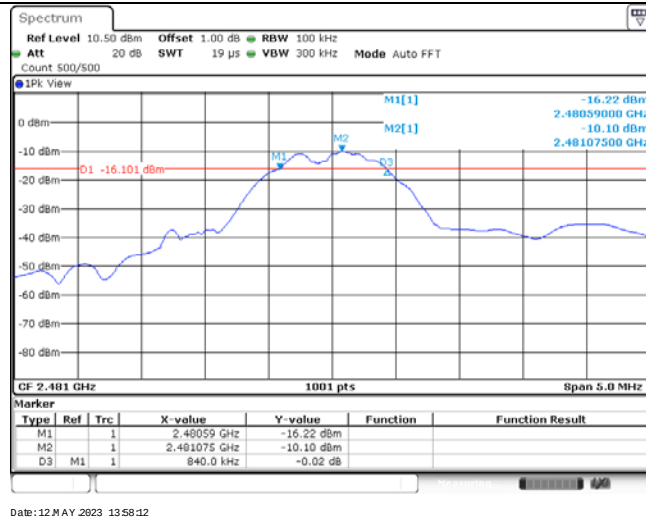
CH00



CH38



CH79



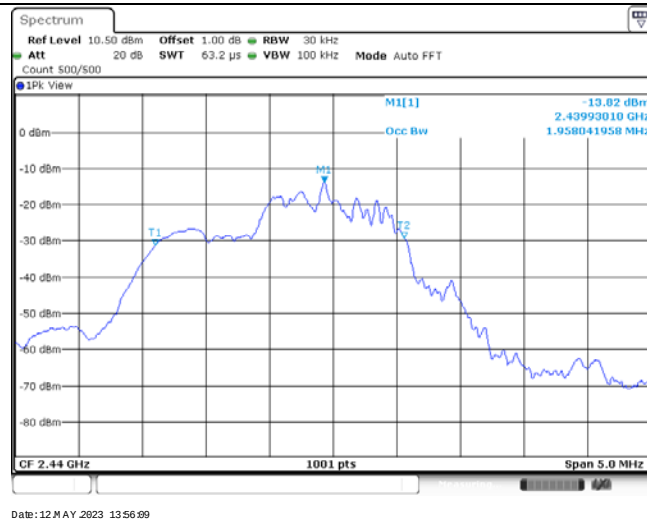
Appendix D: 99% Occupied Bandwidth

Type	Channel	99% Occupied Bandwidth(MHz)	Limit (kHz)	Result
FSK	00	1.43	-	Pass
	38	1.96		
	79	1.23		

CH00



CH38

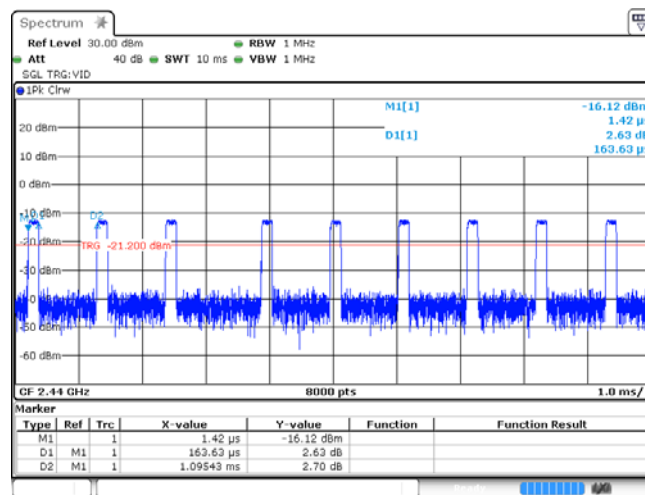


CH79



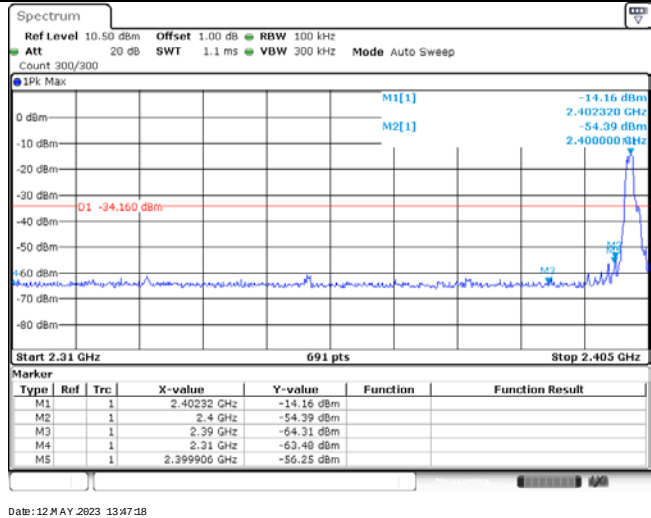
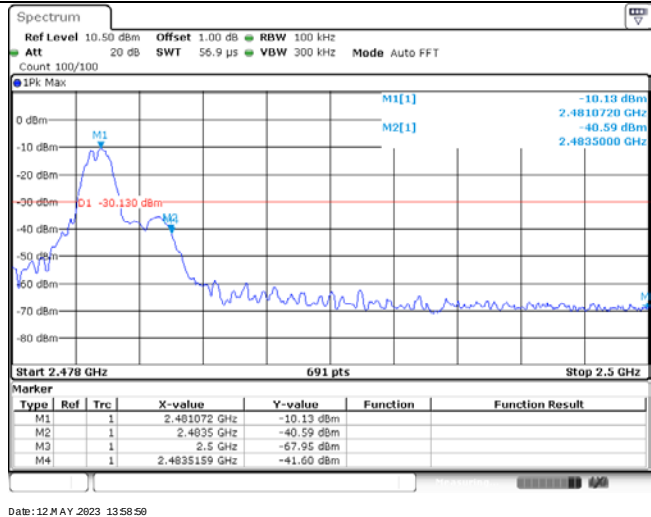
Appendix E: Duty cycle

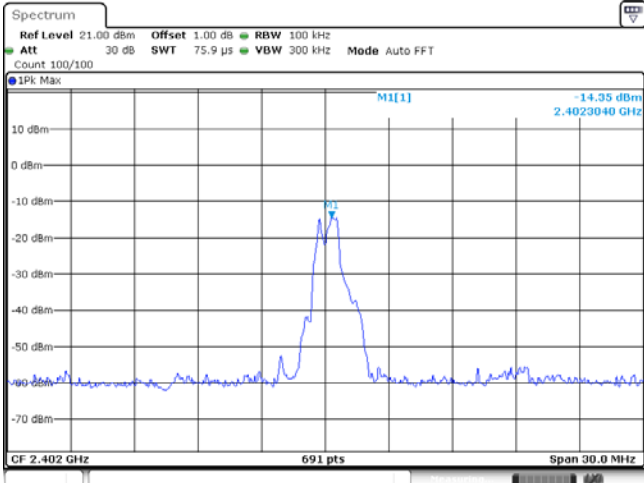
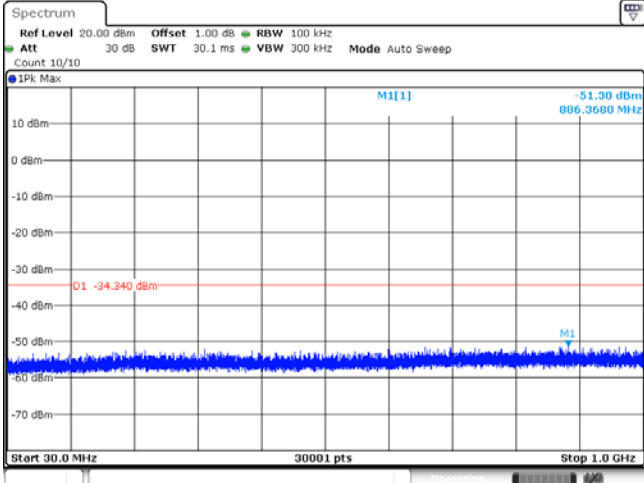
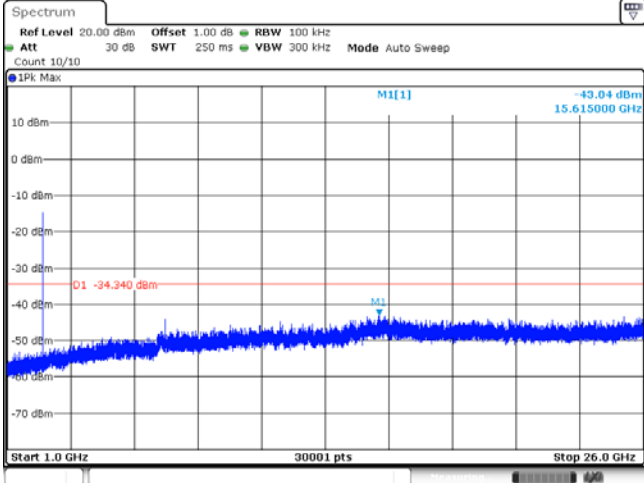
Test Frequency (MHz)	T _{on} time for single burst (ms)	T _{period} (ms)	Duty cycle	1/T _{on} time (kHz)
2440	0.16	1.10	14.5%	6.25

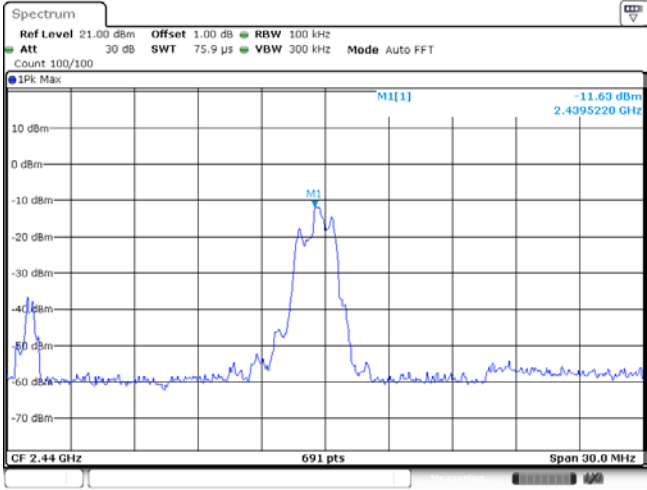
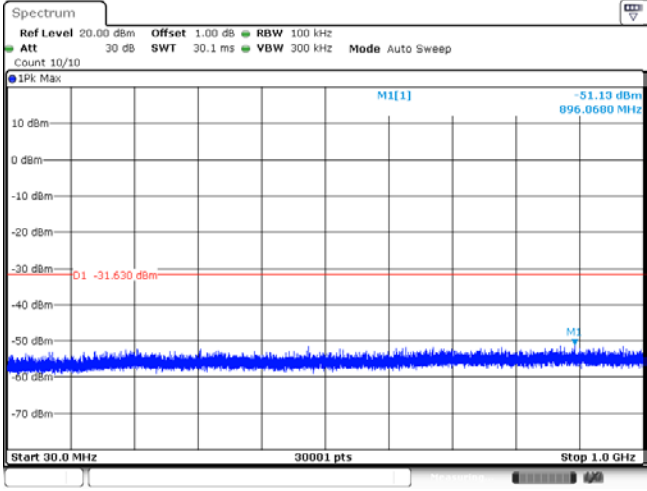
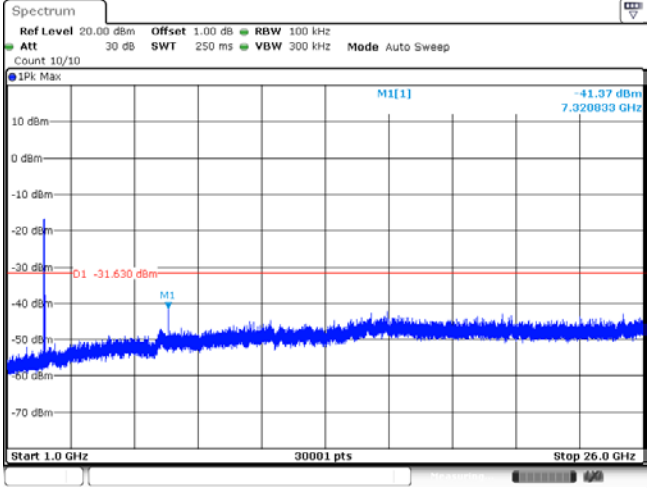


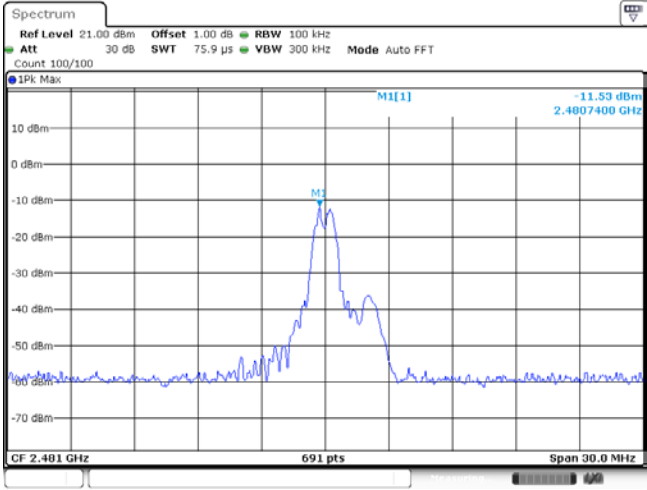
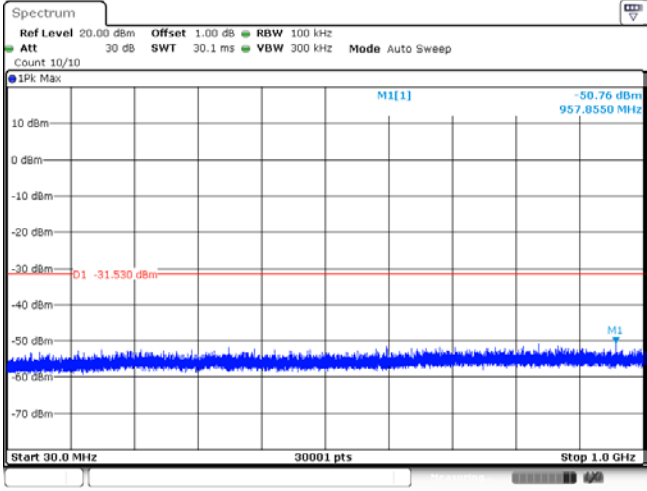
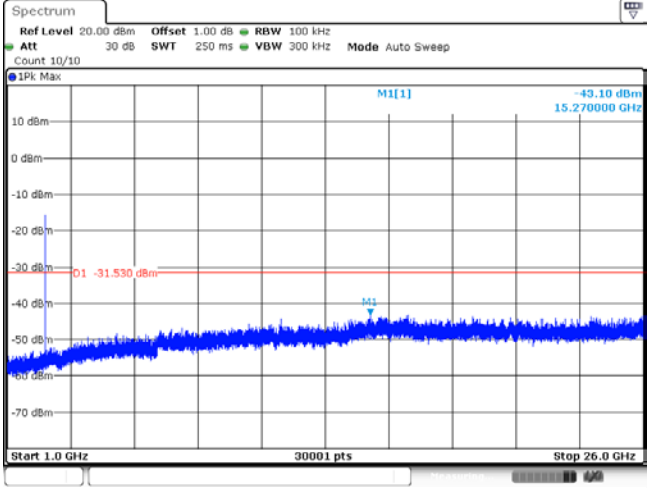
Date: 12 MAY 2023 13:55:29

Appendix F: Band edge and Spurious Emissions (conducted)

Test Item:	Band edge																																										
CH00	Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 100 kHz Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto Sweep Count 300/300 1Pk Max  Start 2.31 GHz 691 pts Stop 2.405 GHz <table><thead><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></thead><tbody><tr><td>M1</td><td>1</td><td></td><td>2.40232 GHz</td><td>-14.16 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-54.39 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-64.31 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-63.48 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.399906 GHz</td><td>-56.25 dBm</td><td></td><td></td></tr></tbody></table> Date: 12 MAY 2023 13:47:18	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.40232 GHz	-14.16 dBm			M2	1		2.4 GHz	-54.39 dBm			M3	1		2.39 GHz	-64.31 dBm			M4	1		2.31 GHz	-63.48 dBm			M5	1		2.399906 GHz	-56.25 dBm		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																					
M1	1		2.40232 GHz	-14.16 dBm																																							
M2	1		2.4 GHz	-54.39 dBm																																							
M3	1		2.39 GHz	-64.31 dBm																																							
M4	1		2.31 GHz	-63.48 dBm																																							
M5	1		2.399906 GHz	-56.25 dBm																																							
CH79	Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 100 kHz Att 20 dB SWT 56.9 μs VBW 300 kHz Mode Auto FFT Count 100/100 1Pk Max  Start 2.478 GHz 691 pts Stop 2.5 GHz <table><thead><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></thead><tbody><tr><td>M1</td><td>1</td><td></td><td>2.481072 GHz</td><td>-10.13 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-40.59 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-67.95 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.4835159 GHz</td><td>-41.60 dBm</td><td></td><td></td></tr></tbody></table> Date: 12 MAY 2023 13:58:59	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.481072 GHz	-10.13 dBm			M2	1		2.4835 GHz	-40.59 dBm			M3	1		2.5 GHz	-67.95 dBm			M4	1		2.4835159 GHz	-41.60 dBm									
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																					
M1	1		2.481072 GHz	-10.13 dBm																																							
M2	1		2.4835 GHz	-40.59 dBm																																							
M3	1		2.5 GHz	-67.95 dBm																																							
M4	1		2.4835159 GHz	-41.60 dBm																																							

Test Item:	SE
CH00 Reference level	 Date: 12 MAY 2023 13:51:05
CH00 30MHz~1000MHz	 Date: 12 MAY 2023 13:51:20
CH00 1GHz~26GHz	 Date: 12 MAY 2023 13:51:35

CH38 Reference level	 Date: 12 MAY 2023 13:56:37
CH38 30MHz~1000MHz	 Date: 12 MAY 2023 13:56:51
CH38 1GHz~26GHz	 Date: 12 MAY 2023 13:57:10

CH79 Reference level	 Spectrum Ref Level 21.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 75.9 μs VBW 300 kHz Mode Auto FFT Count 100/100 IPk Max M1[1] -11.53 dBm 2.4007400 GHz CF 2.401 GHz 691 pts Span 30.0 MHz Date: 12 MAY 2023 13:58:56
CH79 30MHz~1000MHz	 Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 30.1 ms VBW 300 kHz Mode Auto Sweep Count 10/10 IPk Max M1[1] -50.76 dBm 957.8550 MHz Start 30.0 MHz 30001 pts Stop 1.0 GHz Date: 12 MAY 2023 13:59:11
CH79 1GHz~26GHz	 Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 250 ms VBW 300 kHz Mode Auto Sweep Count 10/10 IPk Max M1[1] -43.10 dBm 15.270000 GHz Start 1.0 GHz 30001 pts Stop 26.0 GHz Date: 12 MAY 2023 13:59:26

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