

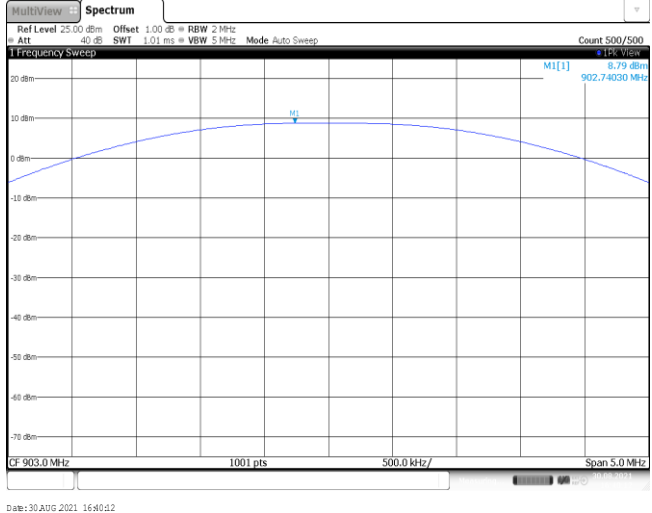
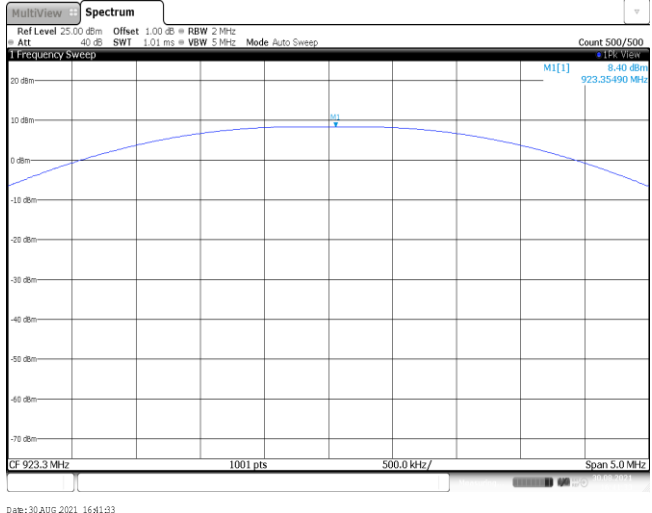
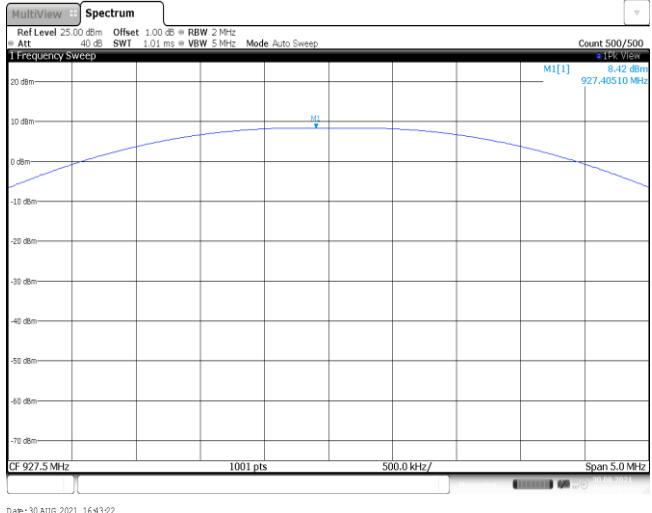
APPENDIX REPORT

Project No.	SHT2107068301EW	Radio Specification	LORA
Test sample No.	YPHT21070683002	Model No.	E22-900M22S
Start test date	2021-08-31	Finish date	2021-08-31
Temperature	25.8°C	Humidity	32%
Test Engineer	Hailey Chen	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

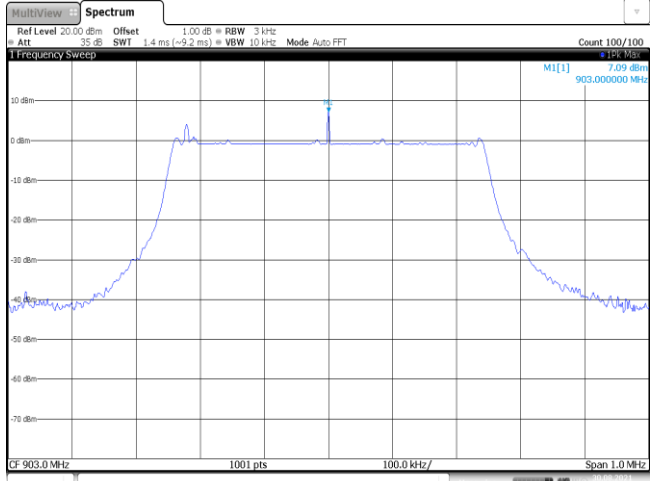
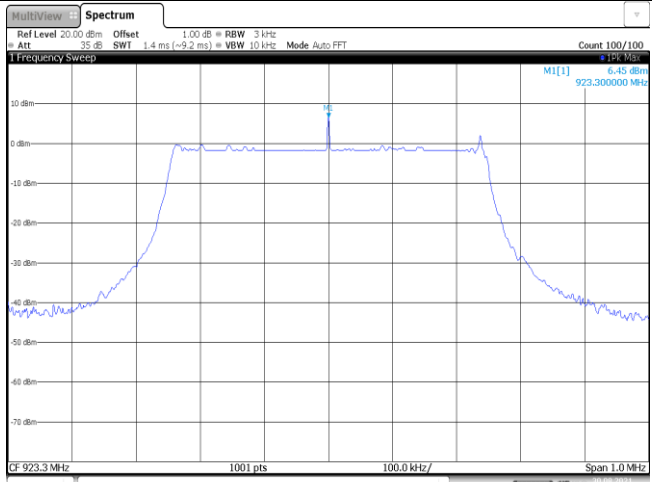
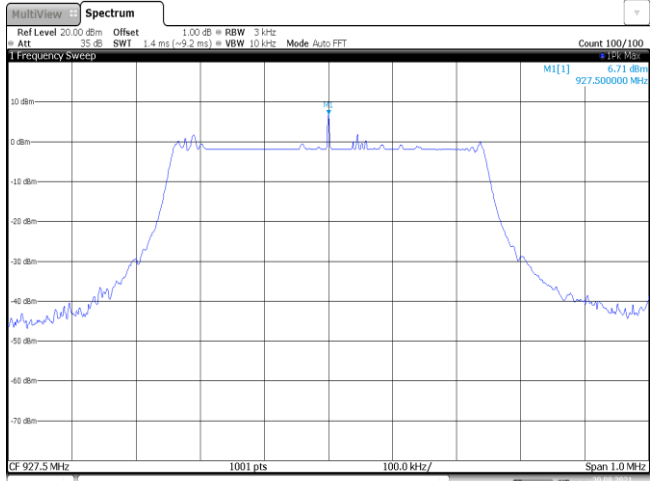
Appendix A: Peak Output Power

Type	Channel	Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
LORA	CH _L	8.79	8.76	≤ 30.00	Pass
	CH _M	8.40	8.38		
	CH _H	8.42	8.40		

<p>CH_L</p>	 <p>Ref Level 25.00 dBm Offset 1.00 dB RBW 2 MHz Att 40 dB SWF 1.01 ms VBW 5 MHz Mode Auto Sweep Count 500/500 M[1] 8.79 dBm 902.74030 MHz CF 903.0 MHz 1001 pts 500.0 kHz/ Span 5.0 MHz Date: 30 AUG 2021 16:40:22</p>
<p>CH_M</p>	 <p>Ref Level 25.00 dBm Offset 1.00 dB RBW 2 MHz Att 40 dB SWF 1.01 ms VBW 5 MHz Mode Auto Sweep Count 500/500 M[1] 8.40 dBm 923.35490 MHz CF 923.3 MHz 1001 pts 500.0 kHz/ Span 5.0 MHz Date: 30 AUG 2021 16:41:33</p>
<p>CH_H</p>	 <p>Ref Level 25.00 dBm Offset 1.00 dB RBW 2 MHz Att 40 dB SWF 1.01 ms VBW 5 MHz Mode Auto Sweep Count 500/500 M[1] 8.42 dBm 927.40510 MHz CF 927.5 MHz 1001 pts 500.0 kHz/ Span 5.0 MHz Date: 30 AUG 2021 16:43:22</p>

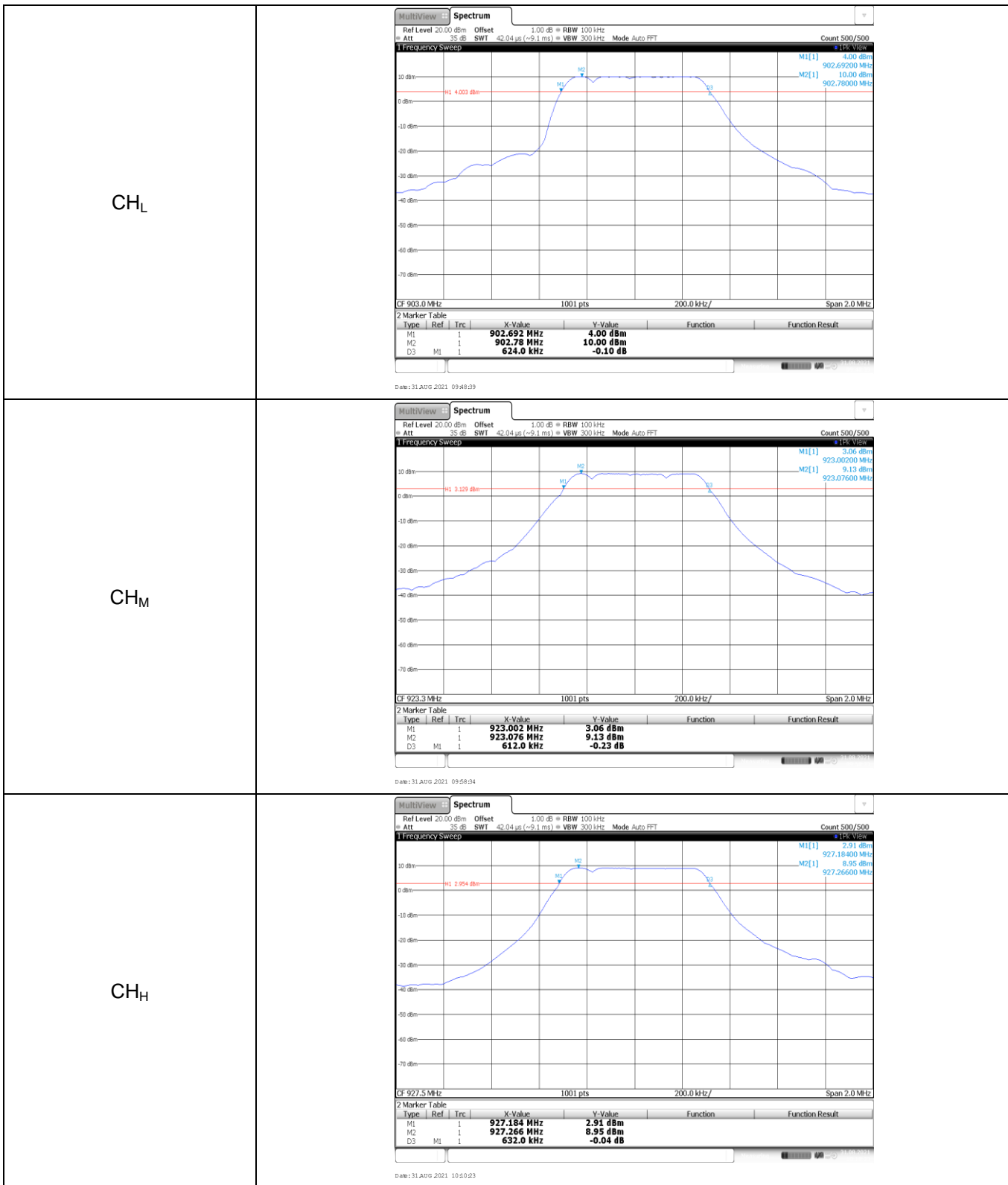
Appendix B: Power Spectral Density

Type	Channel	Power Spectral Density(dBm/3KHz)	Limit (dBm/3KHz)	Result
LORA	CH _L	7.09	≤8.00	Pass
	CH _M	6.45		
	CH _H	6.71		

<p>CH_L</p>	 <p>MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 3 kHz Count 100/100 Att 35 dB SWF 1.4 ms (->2.0 ms) VBW 10 kHz Mode Auto FFT 1 Frequency Sweep M[1] 7.09 dBm 903.000000 MHz CF 903.0 MHz 1001 pts 100.0 kHz/ Span 1.0 MHz Date: 30 AUG 2021 16:40:23</p>
<p>CH_M</p>	 <p>MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 3 kHz Count 100/100 Att 35 dB SWF 1.4 ms (->2.0 ms) VBW 10 kHz Mode Auto FFT 1 Frequency Sweep M[1] 6.45 dBm 923.300000 MHz CF 923.3 MHz 1001 pts 100.0 kHz/ Span 1.0 MHz Date: 30 AUG 2021 16:42:18</p>
<p>CH_H</p>	 <p>MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 3 kHz Count 100/100 Att 35 dB SWF 1.4 ms (->2.0 ms) VBW 10 kHz Mode Auto FFT 1 Frequency Sweep M[1] 6.71 dBm 927.500000 MHz CF 927.5 MHz 1001 pts 100.0 kHz/ Span 1.0 MHz Date: 30 AUG 2021 16:43:24</p>

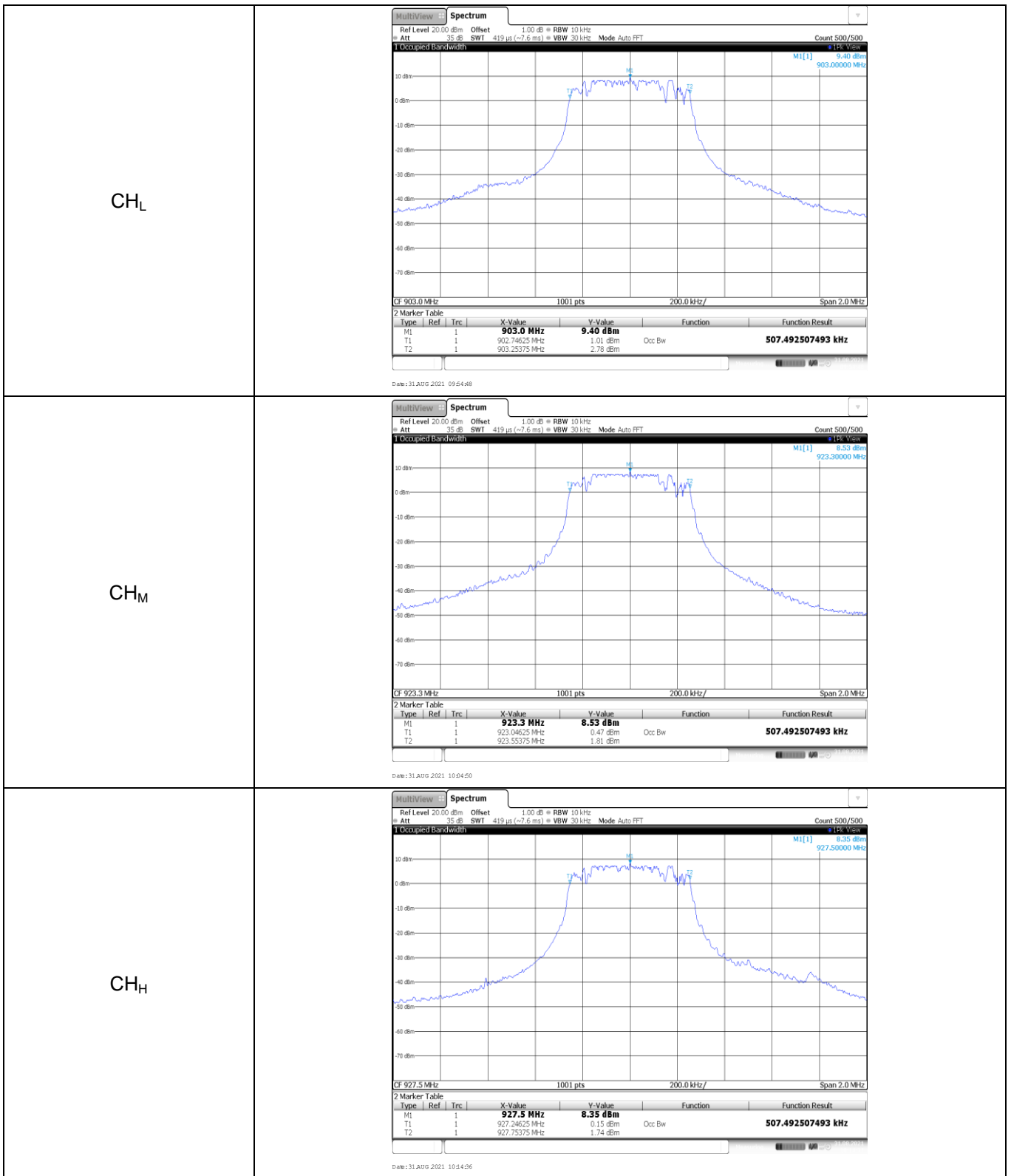
Appendix C: 6dB bandwidth

Type	Channel	6dB Bandwidth(kHz)	Limit (kHz)	Result
LORA	CH _L	624.00	≥500	Pass
	CH _M	612.00		
	CH _H	632.00		



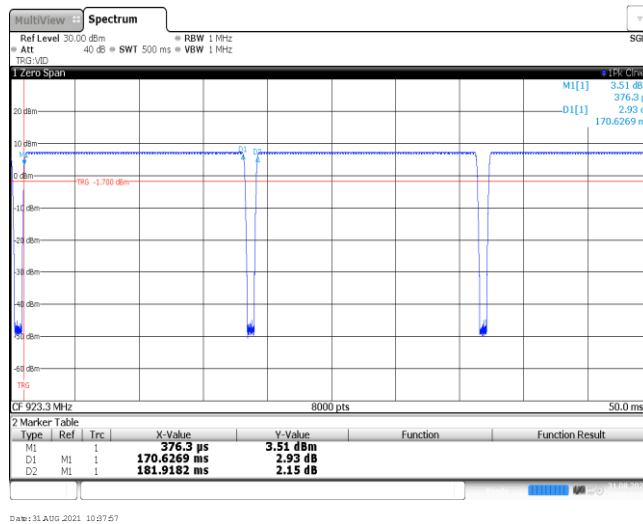
Appendix D: 99% Occupied Bandwidth

Type	Channel	99% Occupied Bandwidth(MHz)	Limit (kHz)	Result
LORA	CH _L	0.51	-	Pass
	CH _M	0.51		
	CH _H	0.51		



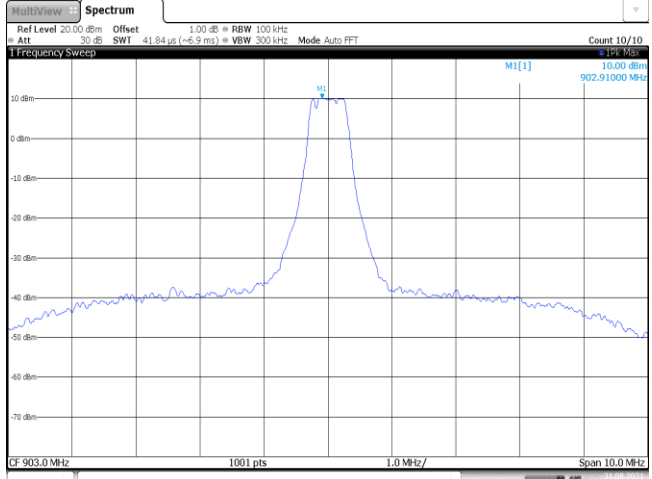
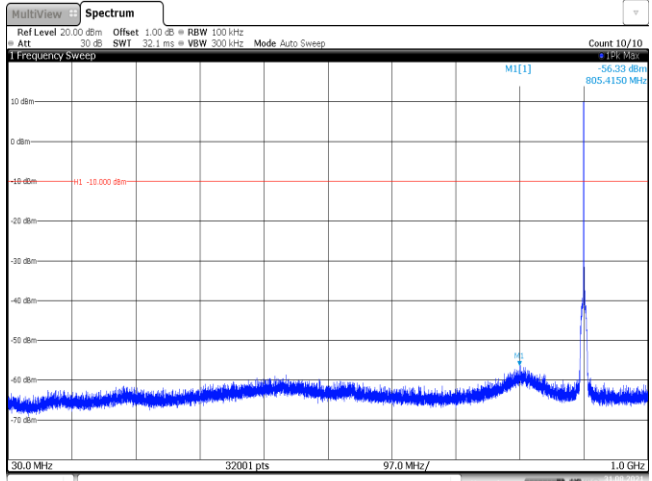
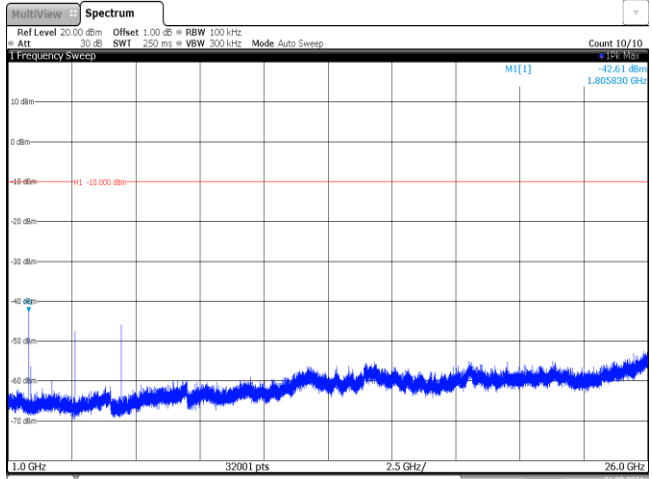
Appendix E: Duty cycle

Test Frequency (MHz)	T _{on} time for single burst (ms)	T _{period} (ms)	Duty cycle	1/T _{on} time (kHz)
923.3	170.63	181.92	93.8%	0.01

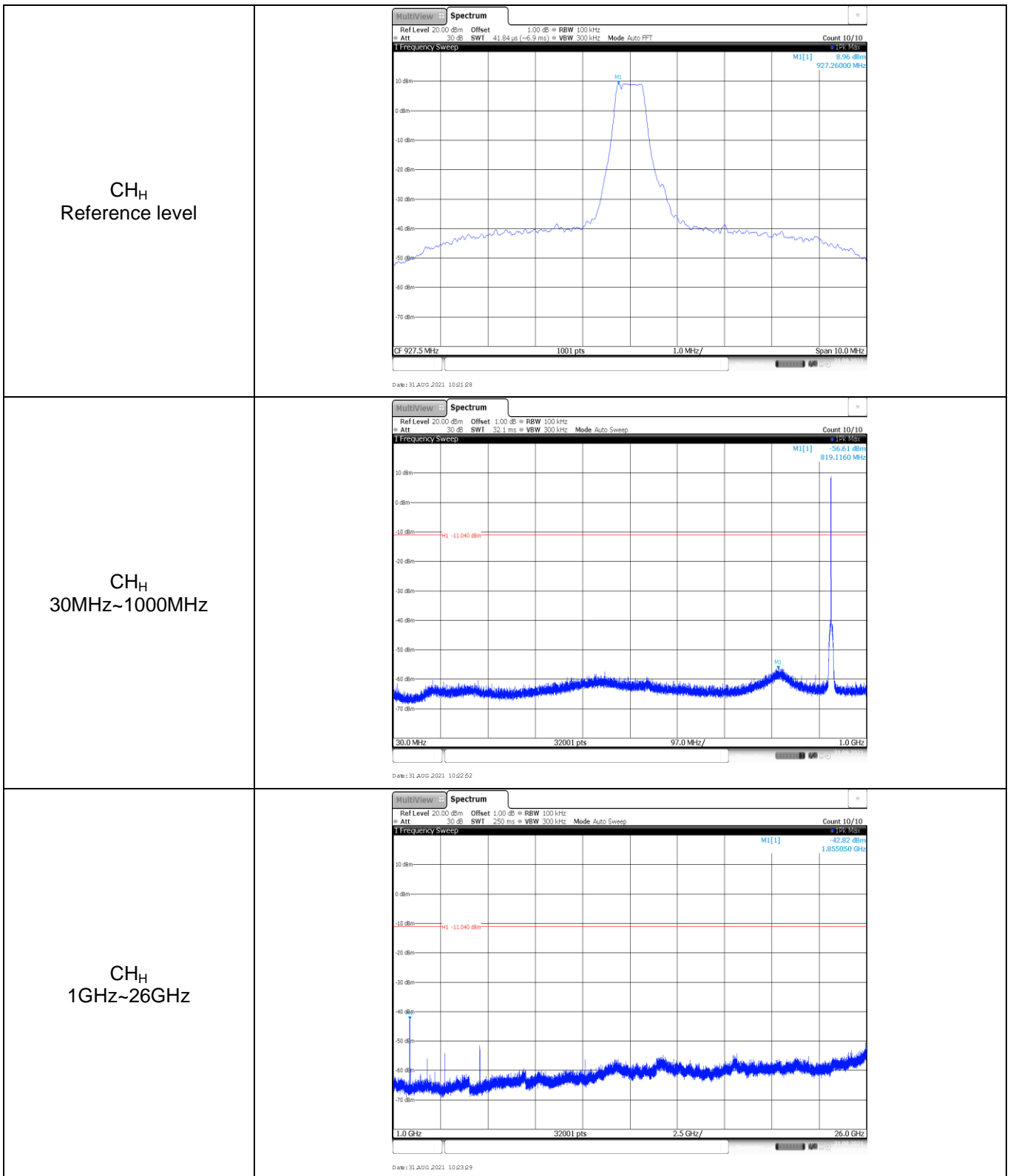


Appendix F: Band edge and Spurious Emissions (conducted)

Test Item:	Band edge																					
<p>CH_L</p>	<p>2 Marker Table</p> <table border="1"> <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>902.7612 MHz</td> <td>9.94 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td>902.0 MHz</td> <td>-35.64 dBm</td> <td></td> <td></td> </tr> </tbody> </table> <p>Date: 31.AUG 2021 10:29:04</p>	Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		902.7612 MHz	9.94 dBm			M2	1		902.0 MHz	-35.64 dBm		
Type	Ref	Trc	X-Value	Y-Value	Function	Function Result																
M1	1		902.7612 MHz	9.94 dBm																		
M2	1		902.0 MHz	-35.64 dBm																		
<p>CH_H</p>	<p>2 Marker Table</p> <table border="1"> <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>927.2687 MHz</td> <td>8.96 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td>928.0 MHz</td> <td>-18.42 dBm</td> <td></td> <td></td> </tr> </tbody> </table> <p>Date: 31.AUG 2021 10:19:06</p>	Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		927.2687 MHz	8.96 dBm			M2	1		928.0 MHz	-18.42 dBm		
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M1	1		927.2687 MHz	8.96 dBm																		
M2	1		928.0 MHz	-18.42 dBm																		

Test Item:	SE
<p>CH_L Reference level</p>	 <p>The plot shows a single sharp peak at 903.0 MHz. The y-axis represents power in dBm, ranging from -70 to 10. The peak is labeled M1 and has a value of 10.00 dBm. The x-axis shows a span of 10.0 MHz with 1001 points.</p>
<p>CH_L 30MHz~1000MHz</p>	 <p>The plot shows a signal peak at 805.4150 MHz. The y-axis ranges from -70 to 10 dBm. The peak is labeled M1[1] and has a value of -56.33 dBm. A red horizontal line is drawn at -10.000 dBm. The x-axis shows a span of 97.0 MHz with 32001 points.</p>
<p>CH_L 1GHz~26GHz</p>	 <p>The plot shows a signal peak at 1.805830 GHz. The y-axis ranges from -70 to 10 dBm. The peak is labeled M1[1] and has a value of -42.61 dBm. A red horizontal line is drawn at -10.000 dBm. The x-axis shows a span of 26.0 GHz with 32001 points.</p>

<p>CH_M Reference level</p>	<p>Ref Level 20.00 dBm Offset 1.00 dB BW 100 kHz Count 10/10 Att -30 dB SWF 41.84 us (+/-9 ms) VBW 300 kHz Mode Auto FFT M1[1] 9.15 dBm 923.08000 MHz</p> <p>CF 923.3 MHz 1001 pts 1.0 MHz/ Span 10.0 MHz</p> <p>Date: 31 AUG 2021 10:31:52</p>
<p>CH_M 30MHz~1000MHz</p>	<p>Ref Level 20.00 dBm Offset 1.00 dB BW 100 kHz Count 10/10 Att -30 dB SWF 32.1 ms VBW 300 kHz Mode Auto Sweep M1[1] -55.73 dBm 819.9040 MHz</p> <p>30.0 MHz 32001 pts 97.0 MHz/ 1.0 GHz</p> <p>Date: 31 AUG 2021 10:32:53</p>
<p>CH_M 1GHz~26GHz</p>	<p>Ref Level 20.00 dBm Offset 1.00 dB BW 100 kHz Count 10/10 Att -30 dB SWF 250 ms VBW 300 kHz Mode Auto Sweep M1[1] -42.41 dBm 1.846460 GHz</p> <p>1.0 GHz 32001 pts 2.5 GHz/ 26.0 GHz</p> <p>Date: 31 AUG 2021 10:33:01</p>



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