

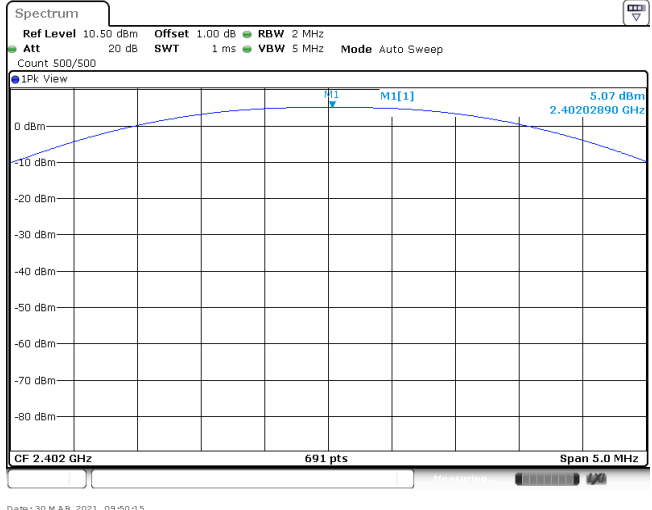
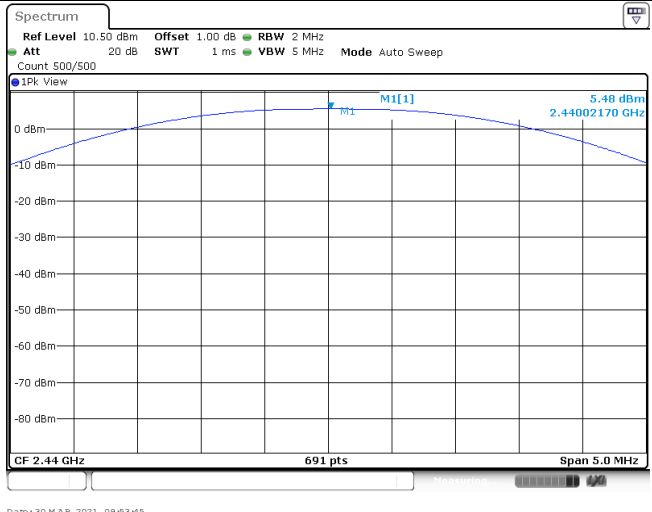
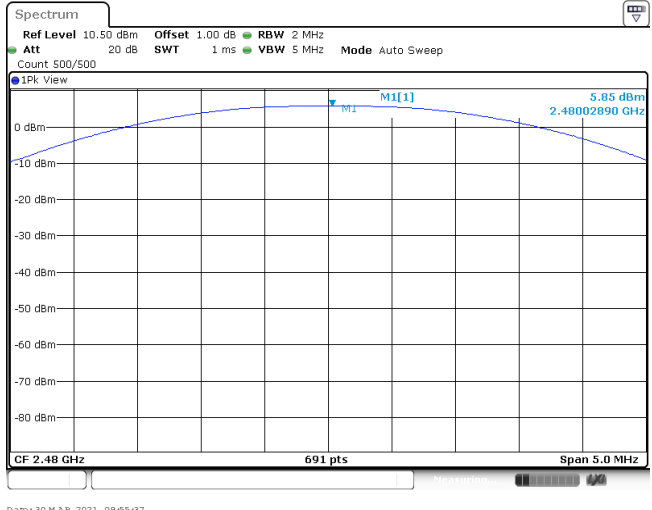
# APPENDIX REPORT

Project No.	SHT2102011314EW	Radio Specification	Bluetooth BLE
Test sample No.	YPHT21020113009	Model No.	ABX00042
Start test date	2021-03-30	Finish date	2021-03-30
Temperature	24.6°C	Humidity	45%
Test Engineer	Qizhi Zhang	Auditor	Xiaodong Zhu

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

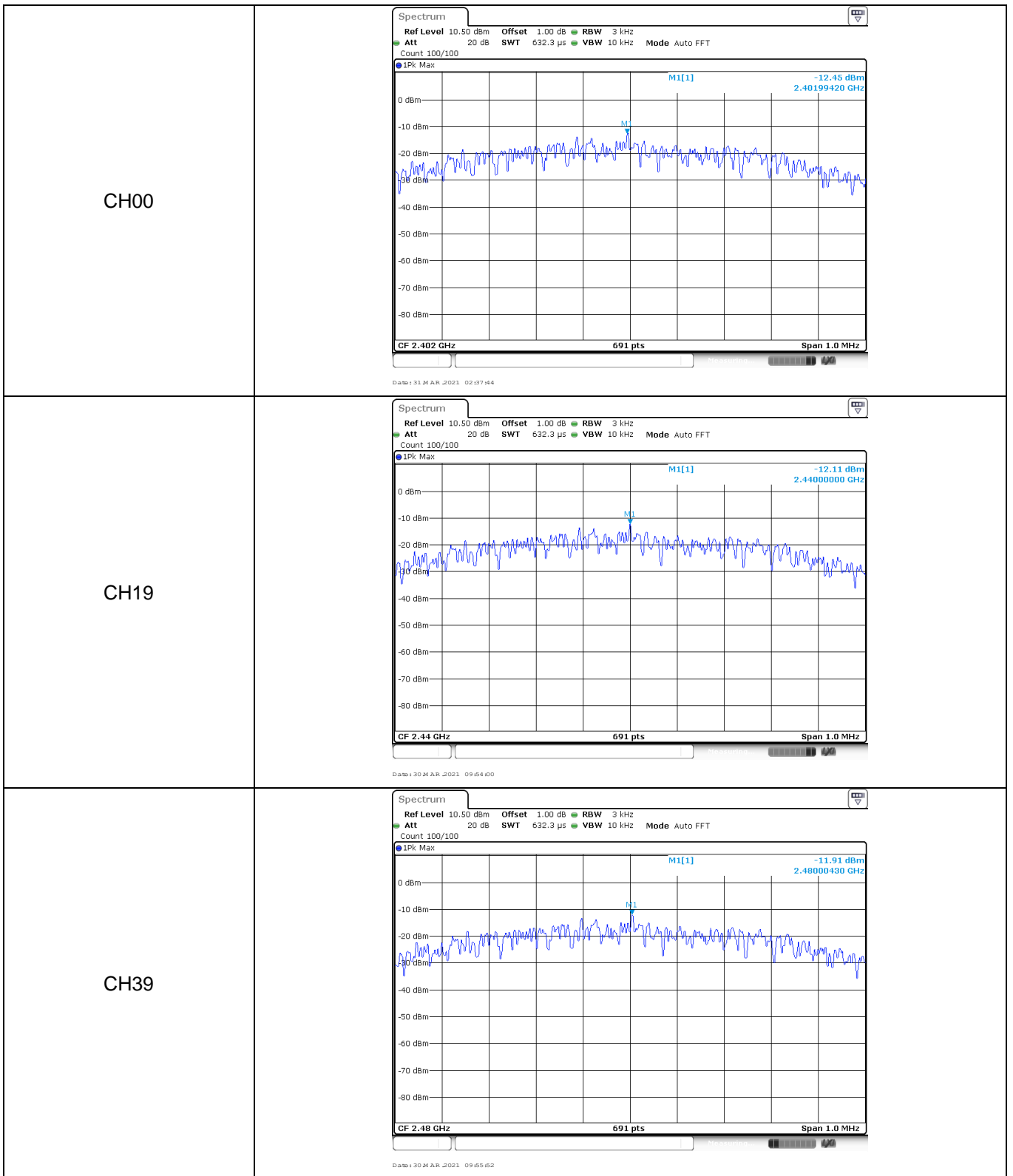
**Appendix A: Peak Output Power**

Type	Channel	Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
BT-BLE	00	5.07	5.06	≤ 30.00	Pass
	19	5.48	5.47		
	39	5.85	5.84		

<p>CH00</p>	 <p>Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 2 MHz Att 20 dB SWT 1 ms VBW 5 MHz Mode Auto Sweep Count 500/500 IPK View 5.07 dBm 2.40202890 GHz M1[1] CF 2.402 GHz 691 pts Span 5.0 MHz Date: 30 MAR 2021 09:50:15</p>
<p>CH19</p>	 <p>Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 2 MHz Att 20 dB SWT 1 ms VBW 5 MHz Mode Auto Sweep Count 500/500 IPK View 5.48 dBm 2.44002170 GHz M1[1] CF 2.44 GHz 691 pts Span 5.0 MHz Date: 30 MAR 2021 09:53:45</p>
<p>CH39</p>	 <p>Spectrum Ref Level 10.50 dBm Offset 1.00 dB RBW 2 MHz Att 20 dB SWT 1 ms VBW 5 MHz Mode Auto Sweep Count 500/500 IPK View 5.95 dBm 2.48002890 GHz M1[1] CF 2.48 GHz 691 pts Span 5.0 MHz Date: 30 MAR 2021 09:55:27</p>

**Appendix B: Power Spectral Density**

Type	Channel	Power Spectral Density(dBm/3KHz)	Limit (dBm/3KHz)	Result
BT-BLE	00	-12.45	≤8.00	Pass
	19	-12.11		
	39	-11.91		



**Appendix C: 6dB bandwidth**

Type	Channel	6dB Bandwidth(kHz)	Limit (kHz)	Result
BT-BLE	00	718.00	≥500	Pass
	19	716.00		
	39	718.00		

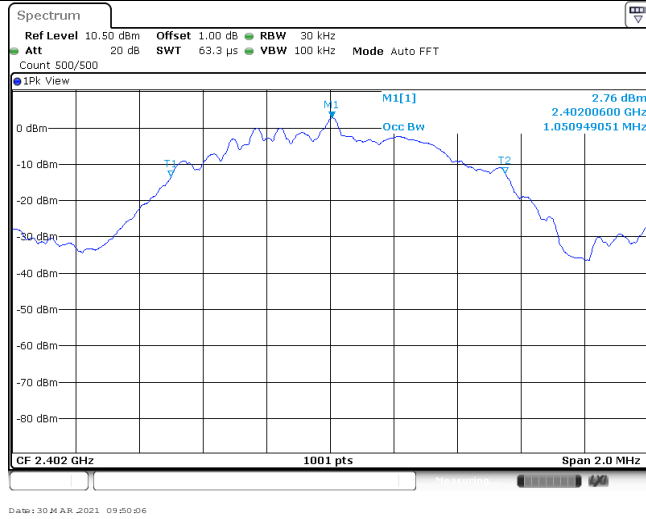
<p>CH00</p>	<p>Spectrum</p> <p>Ref Level 10.50 dBm Offset 1.00 dB RBW 100 kHz          Att 20 dB SWT 19.1 μs VBW 300 kHz Mode Auto FFT          Count 500/500</p> <p>IPK View</p> <p>0 dBm -1.591 dBm -1.60 dBm -4.41 dBm</p> <p>M1 M2 M1[1] M2[1] D3</p> <p>2.40165400 GHz -1.60 dBm          2.40199800 GHz -4.41 dBm          2.40199800 GHz</p> <p>CF 2.402 GHz 1001 pts Span 2.0 MHz</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>2.401654 GHz</td> <td>-1.60 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td>2.401998 GHz</td> <td>-4.41 dBm</td> <td></td> <td></td> </tr> <tr> <td>D3</td> <td>M1</td> <td>1</td> <td>718.0 kHz</td> <td>-0.00 dB</td> <td></td> <td></td> </tr> </tbody> </table> <p>Date: 30 MAR 2021 09:49:55</p>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.401654 GHz	-1.60 dBm			M2	1		2.401998 GHz	-4.41 dBm			D3	M1	1	718.0 kHz	-0.00 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																							
M1	1		2.401654 GHz	-1.60 dBm																									
M2	1		2.401998 GHz	-4.41 dBm																									
D3	M1	1	718.0 kHz	-0.00 dB																									
<p>CH19</p>	<p>Spectrum</p> <p>Ref Level 10.50 dBm Offset 1.00 dB RBW 100 kHz          Att 20 dB SWT 19.1 μs VBW 300 kHz Mode Auto FFT          Count 500/500</p> <p>IPK View</p> <p>0 dBm -1.223 dBm -1.25 dBm 4.78 dBm</p> <p>M1 M2 M1[1] M2[1] D3</p> <p>2.43966200 GHz -1.25 dBm          2.44000600 GHz 4.78 dBm          2.44000600 GHz</p> <p>CF 2.44 GHz 1001 pts Span 2.0 MHz</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>2.439662 GHz</td> <td>-1.25 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td>2.440006 GHz</td> <td>4.78 dBm</td> <td></td> <td></td> </tr> <tr> <td>D3</td> <td>M1</td> <td>1</td> <td>716.0 kHz</td> <td>0.02 dB</td> <td></td> <td></td> </tr> </tbody> </table> <p>Date: 30 MAR 2021 09:53:29</p>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.439662 GHz	-1.25 dBm			M2	1		2.440006 GHz	4.78 dBm			D3	M1	1	716.0 kHz	0.02 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																							
M1	1		2.439662 GHz	-1.25 dBm																									
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D3	M1	1	716.0 kHz	0.02 dB																									
<p>CH39</p>	<p>Spectrum</p> <p>Ref Level 10.50 dBm Offset 1.00 dB RBW 100 kHz          Att 20 dB SWT 19.1 μs VBW 300 kHz Mode Auto FFT          Count 500/500</p> <p>IPK View</p> <p>0 dBm -0.93 dBm -0.93 dBm 5.11 dBm</p> <p>M1 M2 M1[1] M2[1] D3</p> <p>2.47966600 GHz -0.93 dBm          2.48000800 GHz 5.11 dBm          2.48000800 GHz</p> <p>CF 2.48 GHz 1001 pts Span 2.0 MHz</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>2.479666 GHz</td> <td>-0.93 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td>2.480008 GHz</td> <td>5.11 dBm</td> <td></td> <td></td> </tr> <tr> <td>D3</td> <td>M1</td> <td>1</td> <td>718.0 kHz</td> <td>-0.02 dB</td> <td></td> <td></td> </tr> </tbody> </table> <p>Date: 30 MAR 2021 09:55:21</p>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.479666 GHz	-0.93 dBm			M2	1		2.480008 GHz	5.11 dBm			D3	M1	1	718.0 kHz	-0.02 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																							
M1	1		2.479666 GHz	-0.93 dBm																									
M2	1		2.480008 GHz	5.11 dBm																									
D3	M1	1	718.0 kHz	-0.02 dB																									

**Appendix D: 99% Occupied Bandwidth**

Type	Channel	99% Occupied Bandwidth(MHz)	Limit (kHz)	Result
BT-BLE	00	1.05	-	Pass
	19	1.05		
	39	1.05		



CH00



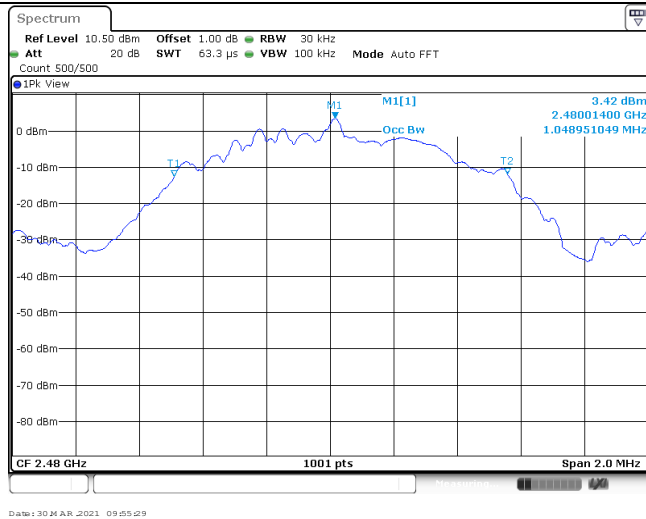
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CH19



Date: 30 MAR 2021 09:53:37

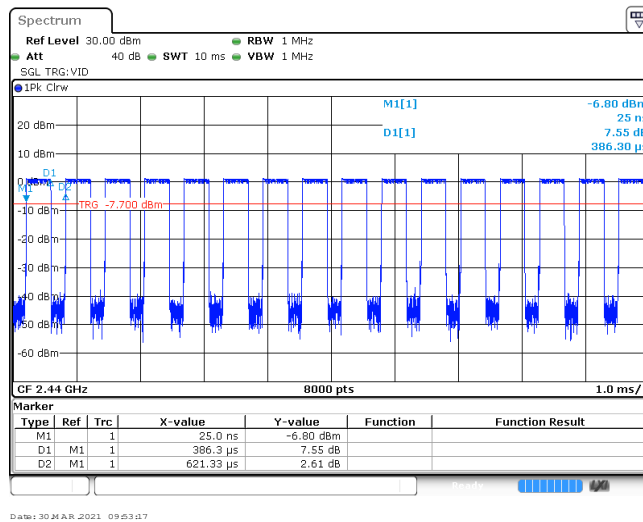
CH39



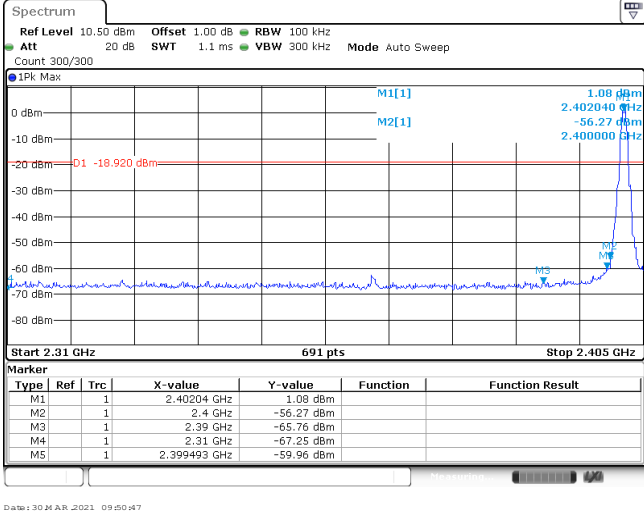
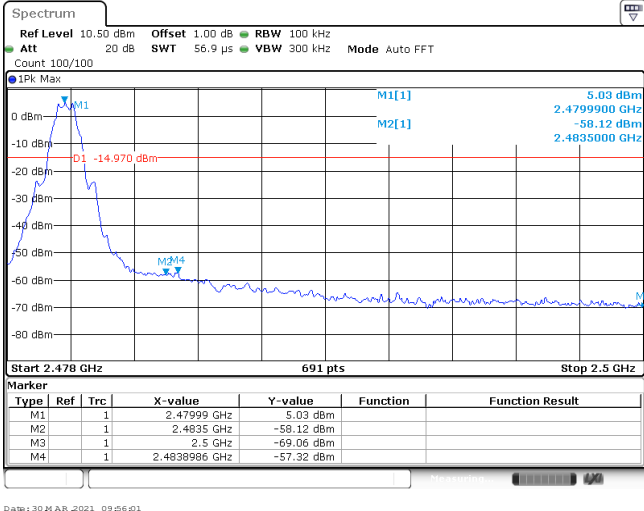
Date: 30 MAR 2021 09:55:29

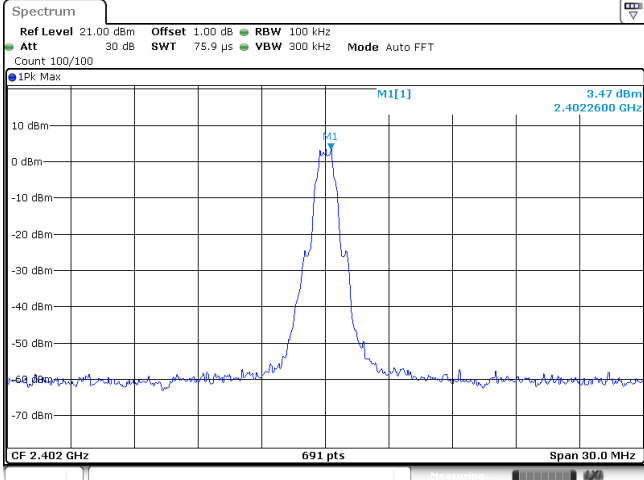
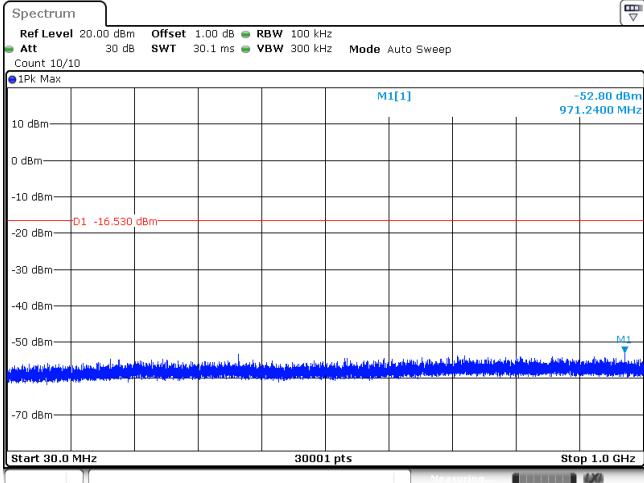
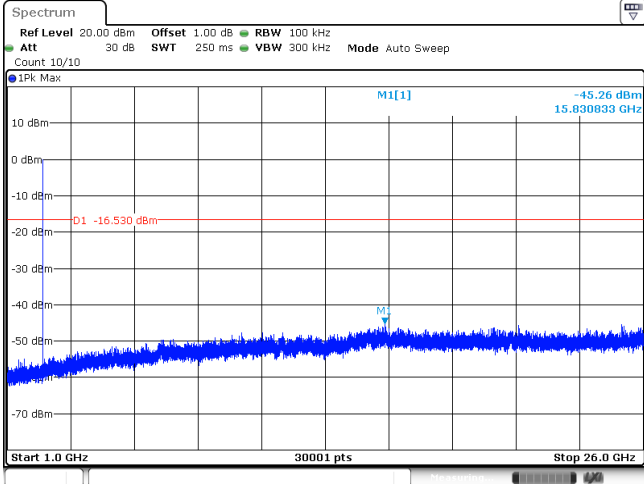
### Appendix E: Duty cycle

Test Frequency (MHz)	T <sub>on</sub> time for single burst (ms)	T <sub>period</sub> (ms)	Duty cycle	1/T <sub>on</sub> time (kHz)
2440	0.39	0.62	62.9%	2.6

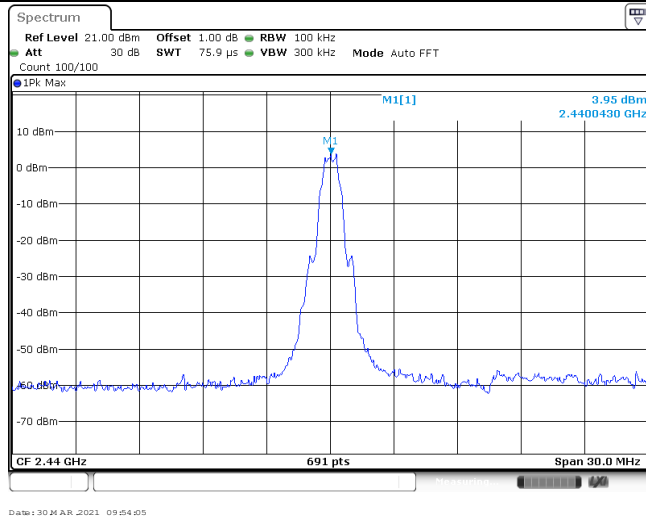


### Appendix F: Band edge and Spurious Emissions (conducted)

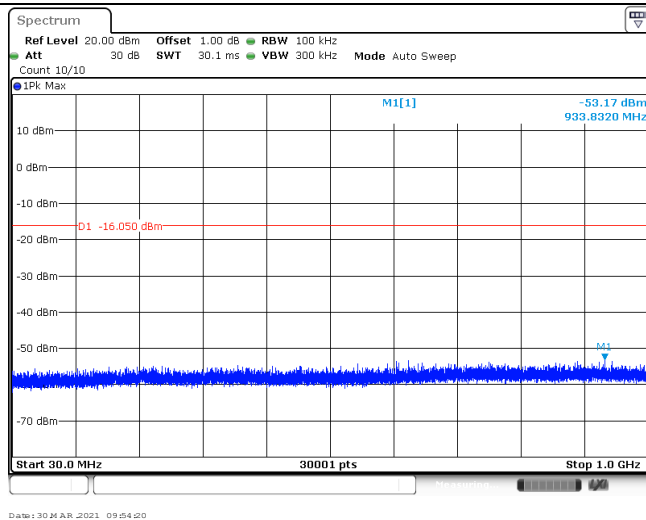
Test Item:	Band edge																																										
<p style="text-align: center;">CH00</p>	 <p><b>Spectrum</b>          Ref Level 10.50 dBm Offset 1.00 dB RBW 100 kHz          Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto Sweep          Count 300/300</p> <p>1Pk Max</p> <table border="1"> <thead> <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>2.40204 GHz</td> <td>1.08 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td>2.4 GHz</td> <td>-56.27 dBm</td> <td></td> <td></td> </tr> <tr> <td>M3</td> <td>1</td> <td></td> <td>2.39 GHz</td> <td>-65.76 dBm</td> <td></td> <td></td> </tr> <tr> <td>M4</td> <td>1</td> <td></td> <td>2.31 GHz</td> <td>-67.25 dBm</td> <td></td> <td></td> </tr> <tr> <td>M5</td> <td>1</td> <td></td> <td>2.399493 GHz</td> <td>-59.96 dBm</td> <td></td> <td></td> </tr> </tbody> </table> <p>Start 2.31 GHz 691 pts Stop 2.405 GHz</p> <p>Date: 30 MAR 2021 09:50:47</p>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.40204 GHz	1.08 dBm			M2	1		2.4 GHz	-56.27 dBm			M3	1		2.39 GHz	-65.76 dBm			M4	1		2.31 GHz	-67.25 dBm			M5	1		2.399493 GHz	-59.96 dBm		
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<p style="text-align: center;">CH39</p>	 <p><b>Spectrum</b>          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</p> <p>1Pk Max</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>2.47999 GHz</td> <td>5.03 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td>2.4835 GHz</td> <td>-58.12 dBm</td> <td></td> <td></td> </tr> <tr> <td>M3</td> <td>1</td> <td></td> <td>2.5 GHz</td> <td>-69.06 dBm</td> <td></td> <td></td> </tr> <tr> <td>M4</td> <td>1</td> <td></td> <td>2.483886 GHz</td> <td>-57.32 dBm</td> <td></td> <td></td> </tr> </tbody> </table> <p>Start 2.478 GHz 691 pts Stop 2.5 GHz</p> <p>Date: 30 MAR 2021 09:56:01</p>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.47999 GHz	5.03 dBm			M2	1		2.4835 GHz	-58.12 dBm			M3	1		2.5 GHz	-69.06 dBm			M4	1		2.483886 GHz	-57.32 dBm									
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M4	1		2.483886 GHz	-57.32 dBm																																							

Test Item:	SE
<p>CH00 Reference level</p>	 <p>Spectrum</p> <p>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</p> <p>1Pk Max M1[1] 9.47 dBm 2.4022600 GHz</p> <p>CF 2.402 GHz 691 pts Span 30.0 MHz</p> <p>Date: 30 MAR 2021 09:50:54</p>
<p>CH00 30MHz~1000MHz</p>	 <p>Spectrum</p> <p>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</p> <p>1Pk Max M1[1] -52.80 dBm 971.2400 MHz</p> <p>D1 -16.530 dBm</p> <p>Start 30.0 MHz 30001 pts Stop 1.0 GHz</p> <p>Date: 30 MAR 2021 09:51:09</p>
<p>CH00 1GHz~26GHz</p>	 <p>Spectrum</p> <p>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</p> <p>1Pk Max M1[1] -45.26 dBm 15.830833 GHz</p> <p>D1 -16.530 dBm</p> <p>Start 1.0 GHz 30001 pts Stop 26.0 GHz</p> <p>Date: 30 MAR 2021 09:51:25</p>

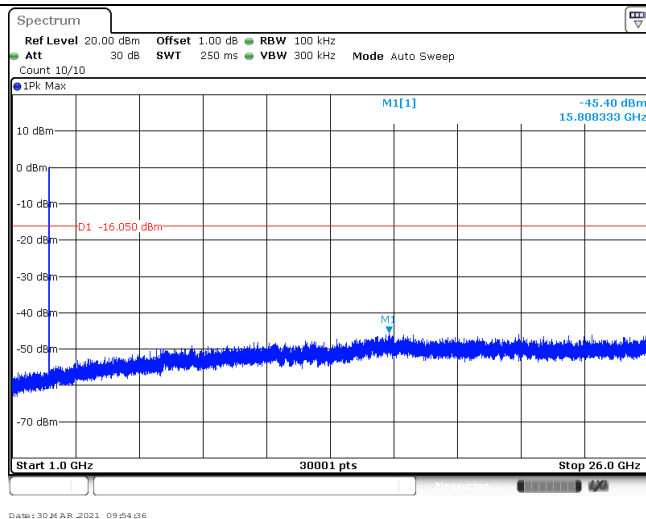
CH19  
Reference level



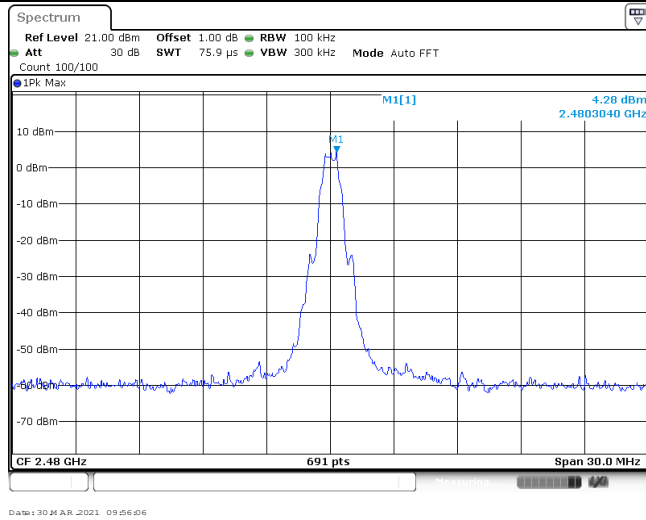
CH19  
30MHz~1000MHz



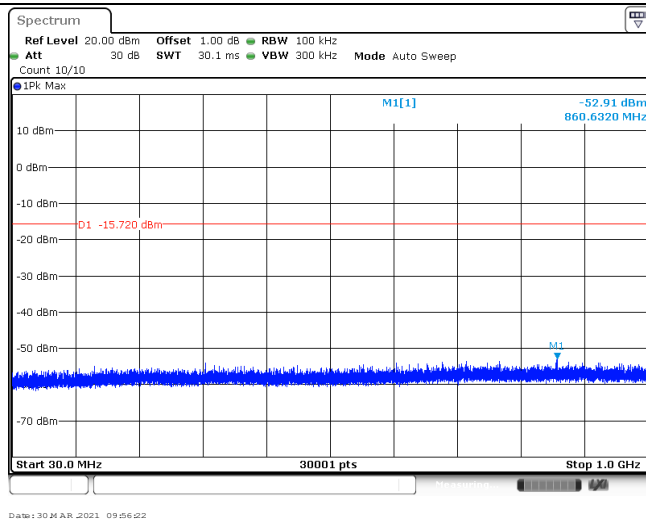
CH19  
1GHz~26GHz



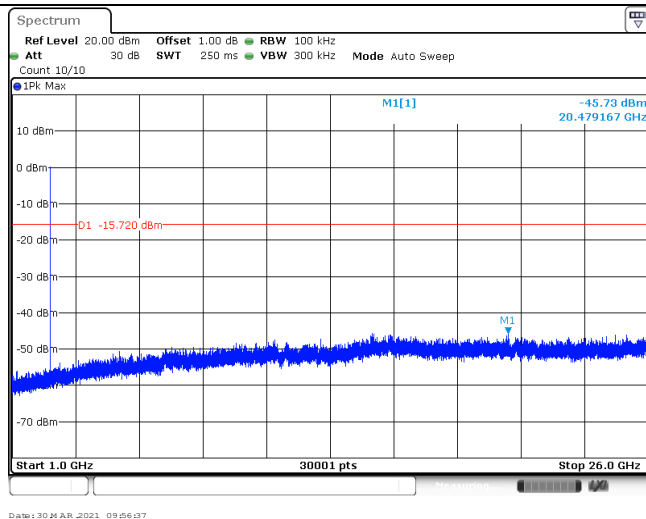
CH39  
Reference level



CH39  
30MHz~1000MHz



CH39  
1GHz~26GHz



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