

APPENDIX REPORT

Project No.	SHT2203065703EW	Radio Specification	WIFI 2.4G
Test sample No.	YPHT22030657001	Model No.	MS100
Start test date	2022-04-02	Finish date	2022-04-02
Temperature	23.8℃	Humidity	36%
Test Engineer	Xiaoqin Li	Auditor	Xiaodong Zheo

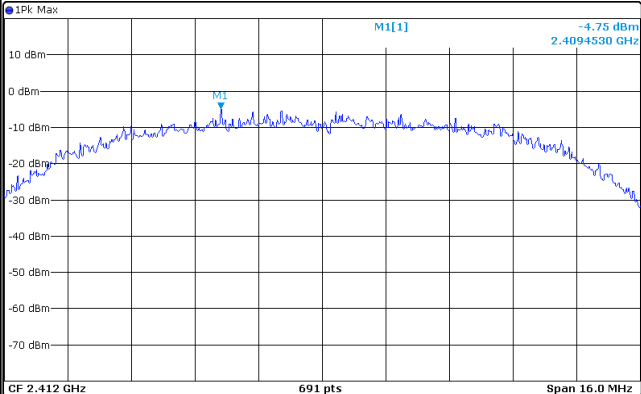
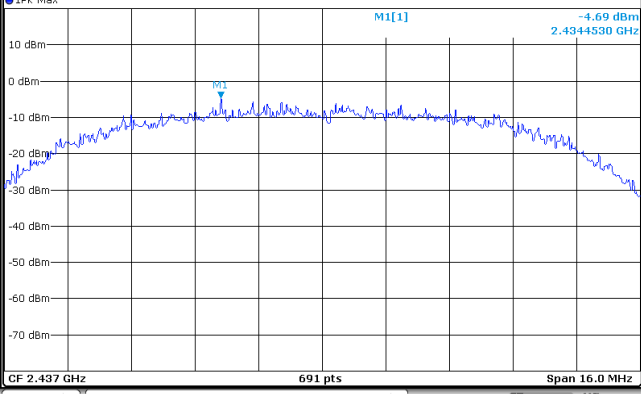
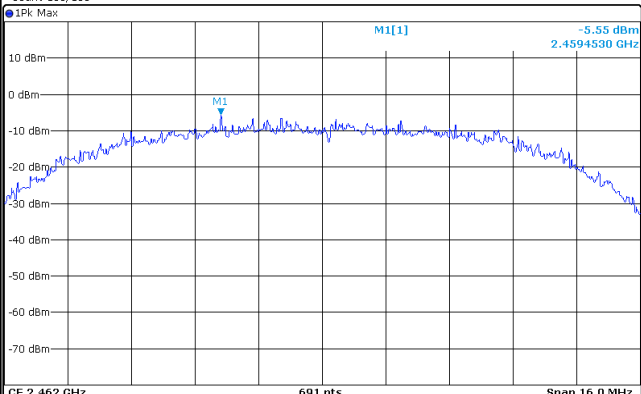
Appendix clause	Test item	Result
A	Conducted Peak Output Power	PASS
B	Power Spectral Density	PASS
C	6 dB Bandwidth	PASS
D	99% Occupied Bandwidth	PASS
E	Duty Cycle	PASS
F	Band edge and Spurious Emissions (conducted)	PASS

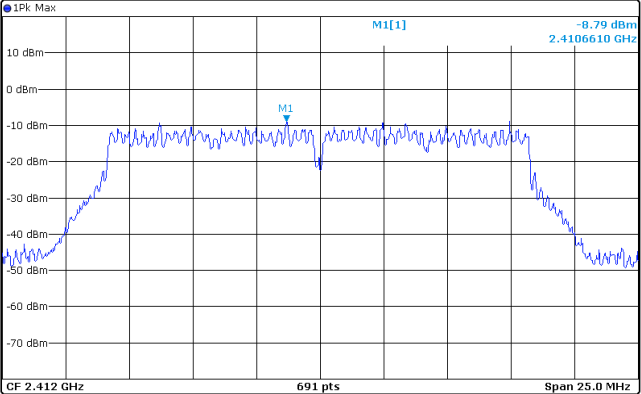
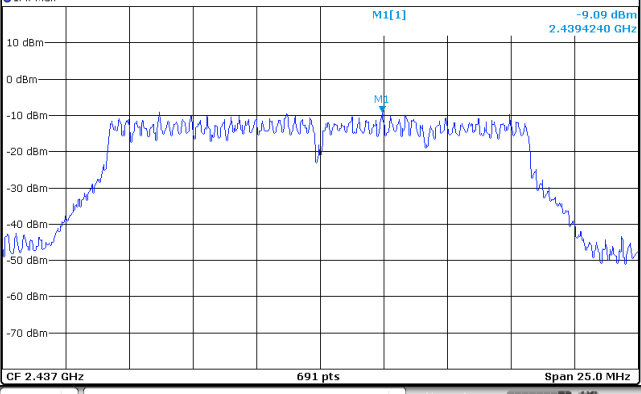
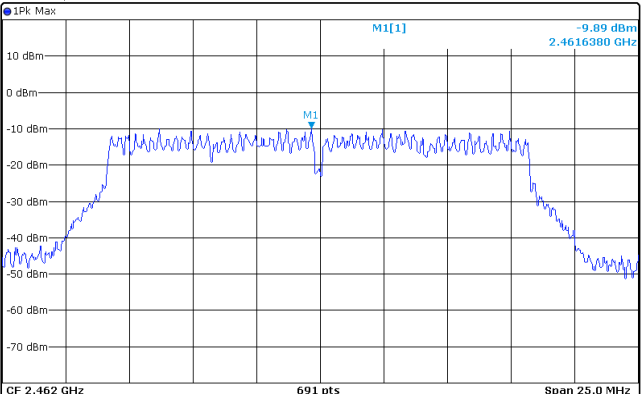
Appendix A: Conducted Peak Output Power

Type	Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
802.11b	01	15.10	13.06	≤ 30.00	Pass
	06	14.97	12.82		
	11	14.29	12.21		
802.11g	01	15.17	12.18	≤ 30.00	Pass
	06	15.19	12.20		
	11	14.33	11.46		
802.11n (HT20)	01	15.10	12.24	≤ 30.00	Pass
	06	14.81	12.06		
	11	14.22	11.52		

Appendix B: Power Spectral Density

Type	Channel	Power Spectral Density (dBm/30KHz)	Limit (dBm/3KHz)	Result
802.11b	01	-4.75	≤8.00	Pass
	06	-4.69		
	11	-5.55		
802.11g	01	-8.79	≤8.00	Pass
	06	-9.09		
	11	-9.89		
802.11n(HT20)	01	-9.56	≤8.00	Pass
	06	-8.66		
	11	-9.77		

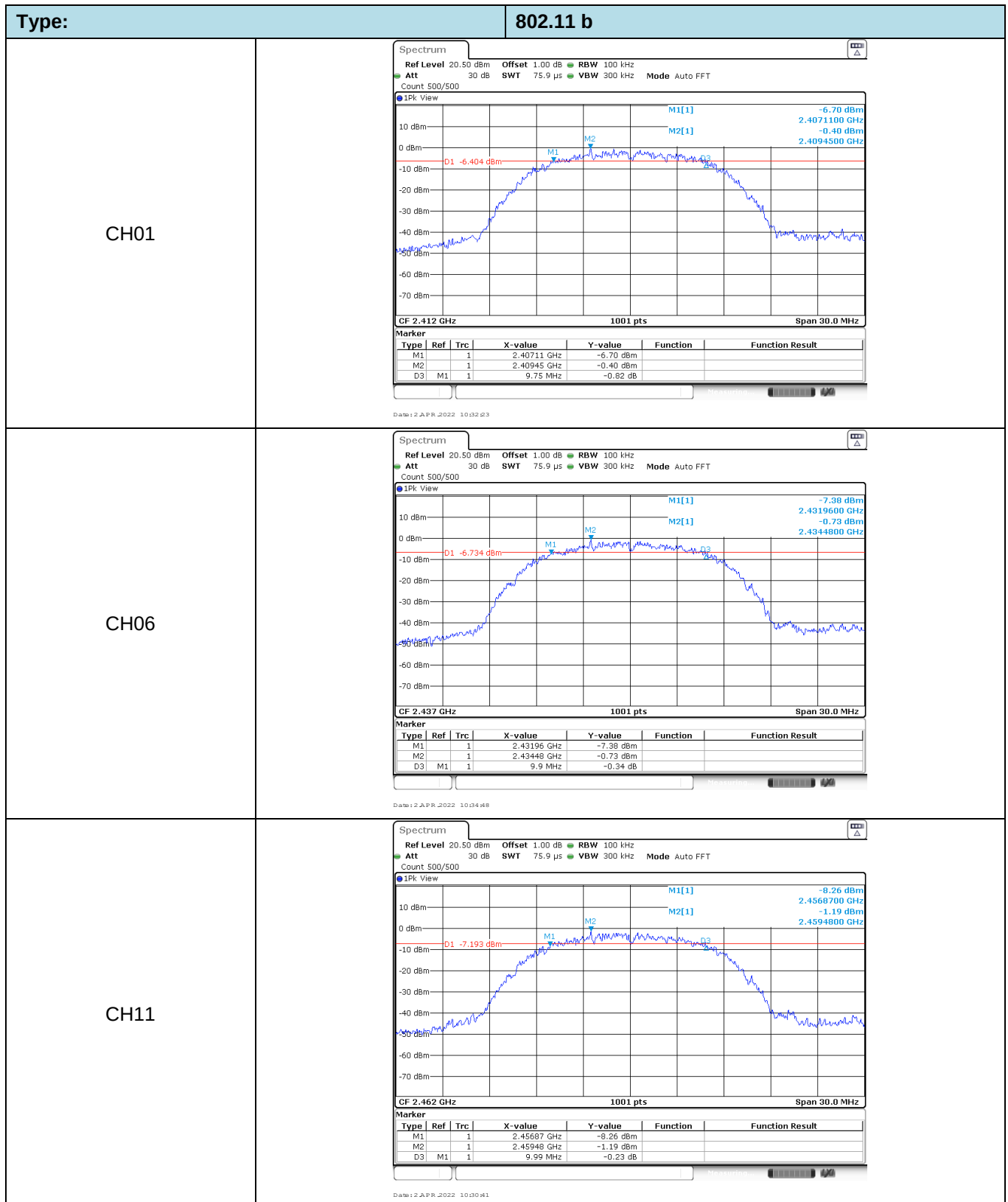
Type:		802.11 b
CH01	Spectrum Ref Level 20.00 dBm Att 30 dB Count 100/100 Offset 1.00 dB SWT 126.4 μs RBW 30 kHz VBW 100 kHz Mode Auto FFT 1Pk Max M1[1] -4.75 dBm 2.4094530 GHz  CF 2.412 GHz 691 pts Span 16.0 MHz Date: 2.APR.2022 10:32:36	
CH06	Spectrum Ref Level 20.00 dBm Att 30 dB Count 100/100 Offset 1.00 dB SWT 126.4 μs RBW 30 kHz VBW 100 kHz Mode Auto FFT 1Pk Max M1[1] -4.69 dBm 2.4344530 GHz  CF 2.437 GHz 691 pts Span 16.0 MHz Date: 2.APR.2022 10:35:01	
CH11	Spectrum Ref Level 20.00 dBm Att 30 dB Count 100/100 Offset 1.00 dB SWT 126.4 μs RBW 30 kHz VBW 100 kHz Mode Auto FFT 1Pk Max M1[1] -5.55 dBm 2.4594530 GHz  CF 2.462 GHz 691 pts Span 16.0 MHz Date: 2.APR.2022 10:30:54	

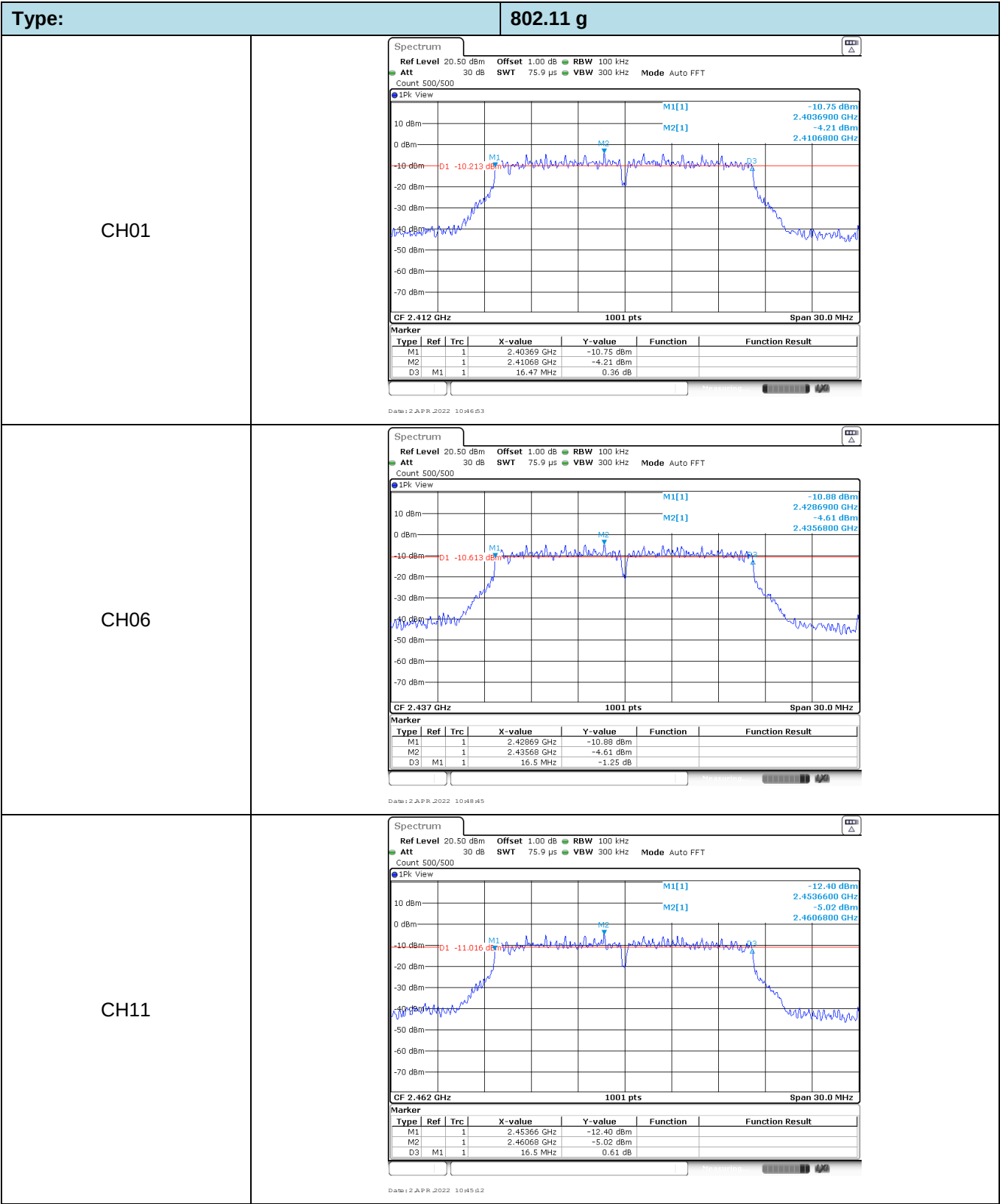
Type:		802.11 g
CH01	Spectrum Ref Level 20.00 dBm Att 30 dB Count 100/100 Offset 1.00 dB SWT 189.6 μs RBW 30 kHz VBW 100 kHz Mode Auto FFT 1Pk Max M1 M1[1] -9.79 dBm 2.4106610 GHz  CF 2.412 GHz691 ptsSpan 25.0 MHz Date: 2.APR.2022 10:47:06	
CH06	Spectrum Ref Level 20.00 dBm Att 30 dB Count 100/100 Offset 1.00 dB SWT 189.6 μs RBW 30 kHz VBW 100 kHz Mode Auto FFT 1Pk Max M1 M1[1] -9.09 dBm 2.4394240 GHz  CF 2.437 GHz691 ptsSpan 25.0 MHz Date: 2.APR.2022 10:48:08	
CH11	Spectrum Ref Level 20.00 dBm Att 30 dB Count 100/100 Offset 1.00 dB SWT 189.6 μs RBW 30 kHz VBW 100 kHz Mode Auto FFT 1Pk Max M1 M1[1] -9.89 dBm 2.4616380 GHz  CF 2.462 GHz691 ptsSpan 25.0 MHz Date: 2.APR.2022 10:45:04	

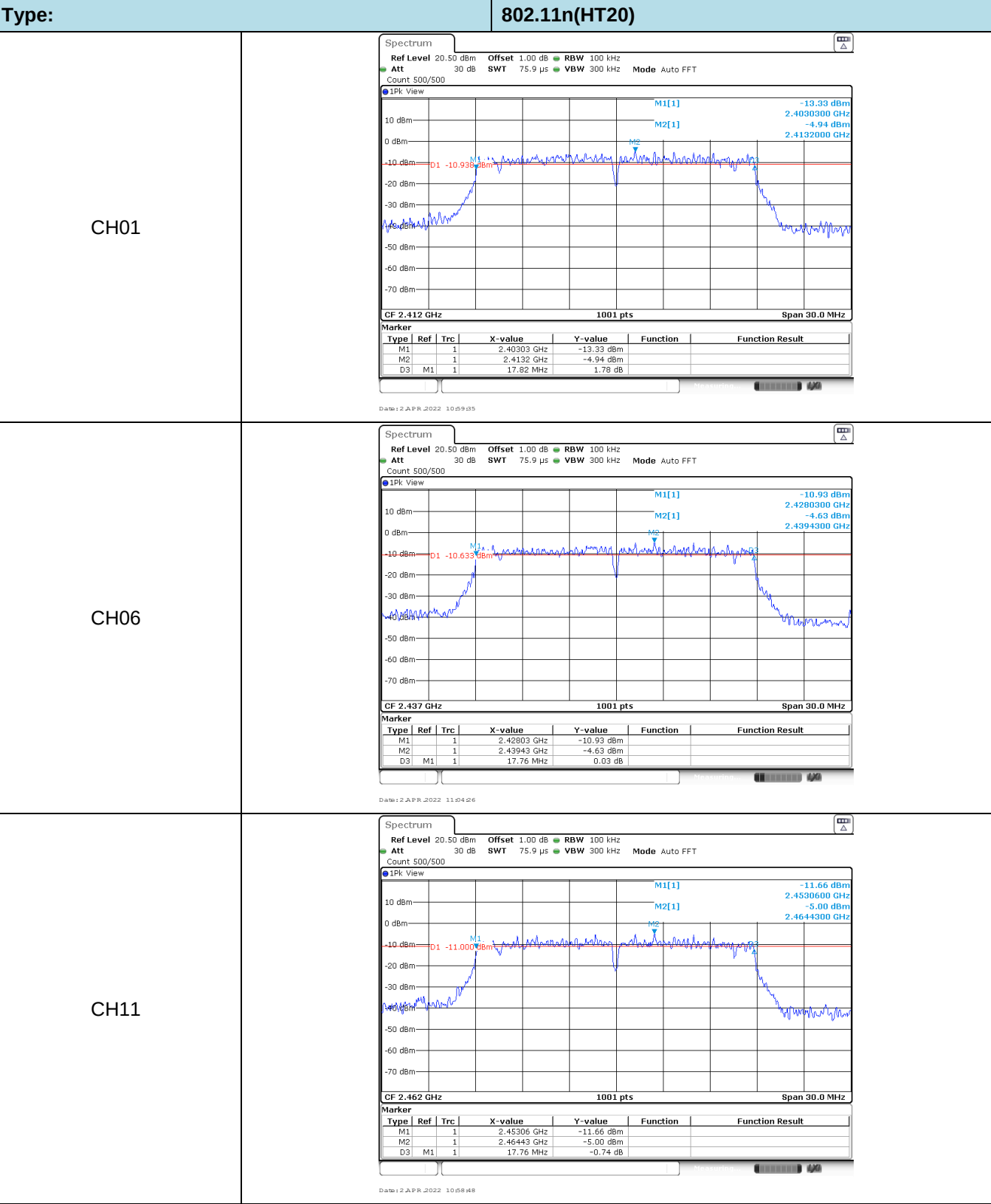
Type:		802.11n(HT20)
CH01	Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 30 kHz Att 30 dB SWT 189.6 μs VBW 100 kHz Mode Auto FFT Count 100/100 1Pk Max M1 M1[1] -9.56 dBm 2.4059580 GHz CF 2.412 GHz 691 pts Span 25.0 MHz Date: 2 APR 2022 10:09:48	
CH06	Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 30 kHz Att 30 dB SWT 189.6 μs VBW 100 kHz Mode Auto FFT Count 100/100 1Pk Max M1 M1[1] -8.66 dBm 2.4356610 GHz CF 2.437 GHz 691 pts Span 25.0 MHz Date: 2 APR 2022 11:02:03	
CH11	Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 30 kHz Att 30 dB SWT 189.6 μs VBW 100 kHz Mode Auto FFT Count 100/100 1Pk Max M1 M1[1] -9.77 dBm 2.4606610 GHz CF 2.462 GHz 691 pts Span 25.0 MHz Date: 2 APR 2022 10:07:36	

Appendix C: 6dB bandwidth

Type	Channel	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11b	01	9.75	≥0.5	Pass
	06	9.90		
	11	9.99		
802.11g	01	16.47	≥0.5	Pass
	06	16.50		
	11	16.50		
802.11n(HT20)	01	17.82	≥0.5	Pass
	06	17.76		
	11	17.76		

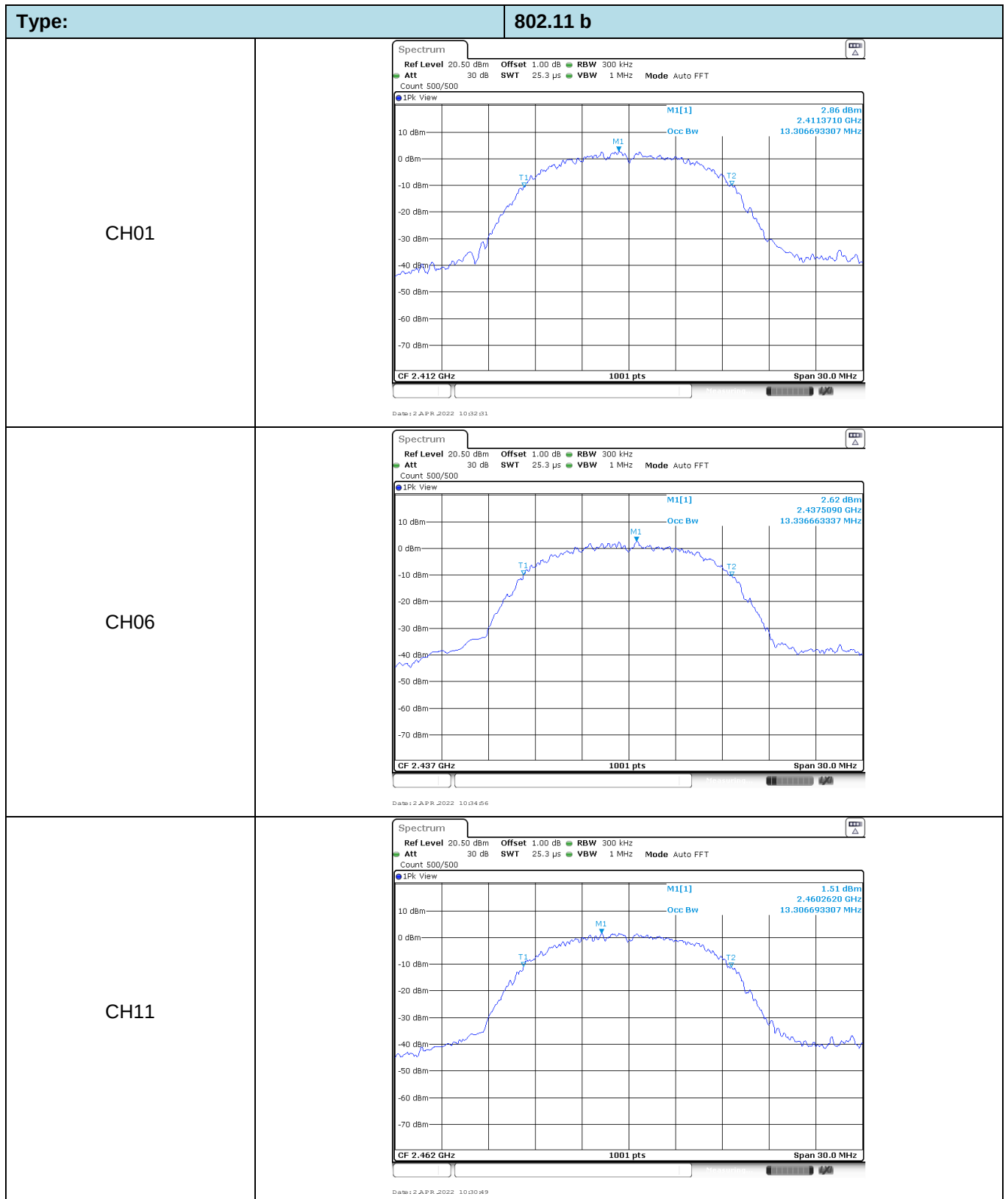






Appendix D: 99% Occupied Bandwidth

Type	Channel	99% Bandwidth (MHz)	Limit (MHz)	Result
802.11b	01	13.31	-	Pass
	06	13.34		
	11	13.31		
802.11g	01	16.69	-	Pass
	06	16.57		
	11	16.66		
802.11n(HT20)	01	17.86	-	Pass
	06	17.83		
	11	17.77		



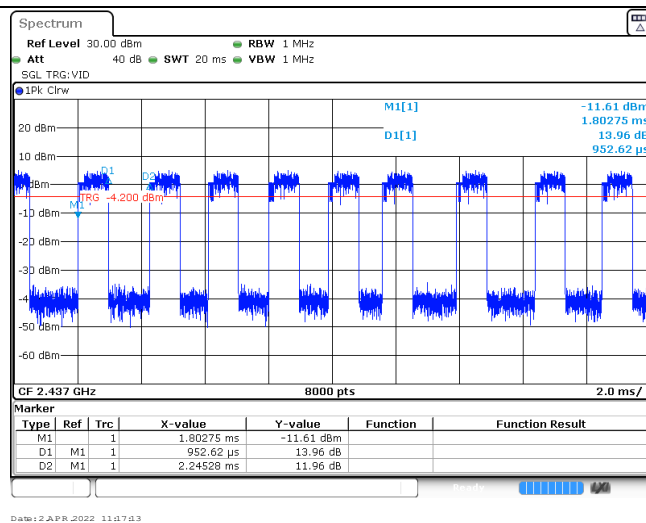
Type:		802.11 g
CH01	Spectrum Ref Level 20.50 dBm Att 30 dB Count 500/500 Offset 1.00 dB SWT 25.3 μs RBW 300 kHz VBW 1 MHz Mode Auto FFT 1Pk View M1[1] -1.44 dBm 2.4106810 GHz 16.693306693 MHz Occ Bw M1 M2 CF 2.412 GHz 1001 pts Span 30.0 MHz Date: 2.APR.2022 10:47:00	
CH06	Spectrum Ref Level 20.50 dBm Att 30 dB Count 500/500 Offset 1.00 dB SWT 25.3 μs RBW 300 kHz VBW 1 MHz Mode Auto FFT 1Pk View M1[1] -1.66 dBm 2.4387380 GHz 16.573426573 MHz Occ Bw M1 M2 CF 2.437 GHz 1001 pts Span 30.0 MHz Date: 2.APR.2022 10:48:03	
CH11	Spectrum Ref Level 20.50 dBm Att 30 dB Count 500/500 Offset 1.00 dB SWT 25.3 μs RBW 300 kHz VBW 1 MHz Mode Auto FFT 1Pk View M1[1] -3.00 dBm 2.4643380 GHz 16.663336663 MHz Occ Bw M1 M2 CF 2.462 GHz 1001 pts Span 30.0 MHz Date: 2.APR.2022 10:49:19	

Type:		802.11n(HT20)
CH01	Spectrum Ref Level 20.50 dBm Att 30 dB Offset 1.00 dB SWT 25.3 μs RBW 300 kHz VBW 1 MHz Mode Auto FFT Count 500/500 1Pk View M1[1] -2.10 dBm 2.4127490 GHz Occ Bw 17.862137862 MHz M1 -10 dBm 2.4127490 GHz T2 -10 dBm 2.4127490 GHz CF 2.412 GHz 1001 pts Span 30.0 MHz Date: 2.APR.2022 10:59:42	
CH06	Spectrum Ref Level 20.50 dBm Att 30 dB Offset 1.00 dB SWT 25.3 μs RBW 300 kHz VBW 1 MHz Mode Auto FFT Count 500/500 1Pk View M1[1] -1.90 dBm 2.4403570 GHz Occ Bw 17.832167832 MHz M1 -10 dBm 2.4403570 GHz T2 -10 dBm 2.4403570 GHz CF 2.437 GHz 1001 pts Span 30.0 MHz Date: 2.APR.2022 11:02:48	
CH11	Spectrum Ref Level 20.50 dBm Att 30 dB Offset 1.00 dB SWT 25.3 μs RBW 300 kHz VBW 1 MHz Mode Auto FFT Count 500/500 1Pk View M1[1] -3.42 dBm 2.4625090 GHz Occ Bw 17.772227772 MHz M1 -10 dBm 2.4625090 GHz T2 -10 dBm 2.4625090 GHz CF 2.462 GHz 1001 pts Span 30.0 MHz Date: 2.APR.2022 10:57:50	

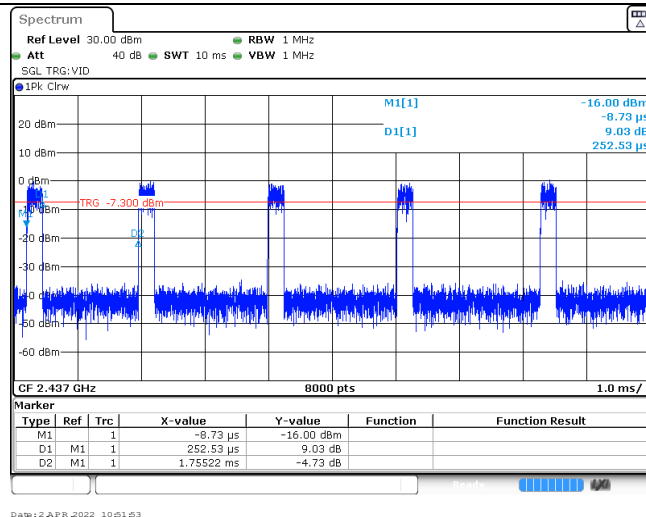
Appendix E: Duty Cycle

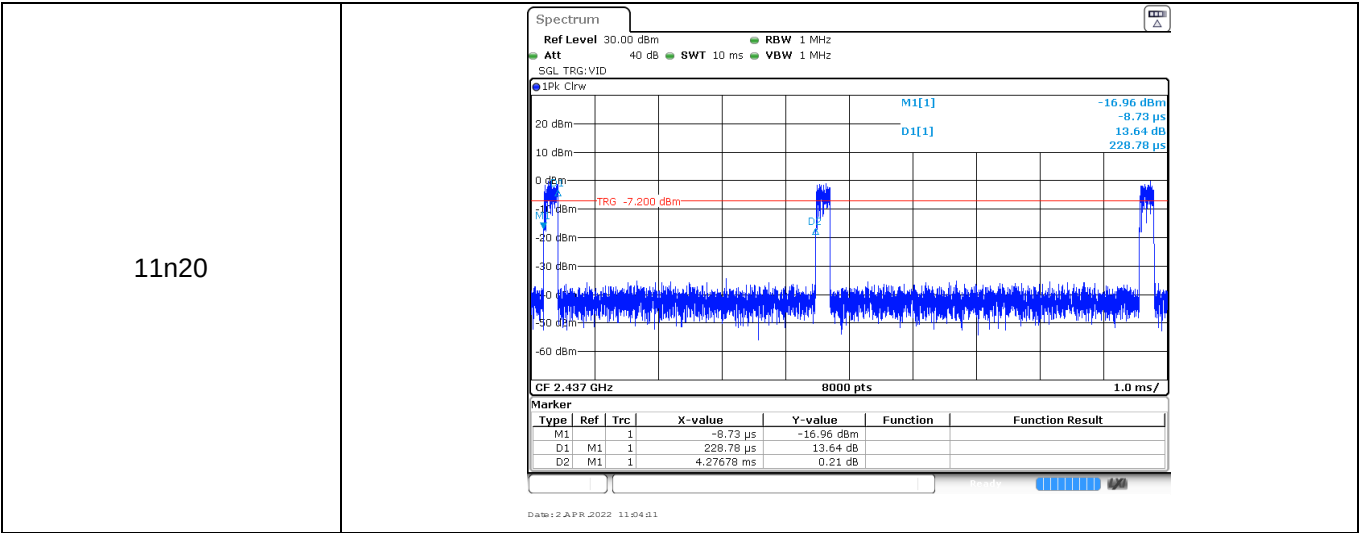
Modulation Type	Test Frequency (MHz)	T _{on time} for single burst (ms)	T _{period} (ms)	Duty cycle	1/T _{on time} (kHz)
11b	2437	0.95	2.25	42.2%	1.1
11g	2437	0.25	1.76	14.2%	4.0
11n20	2437	0.23	4.28	5.4%	4.3

11b



11g





Appendix F: Band edge and Spurious Emissions (conducted)

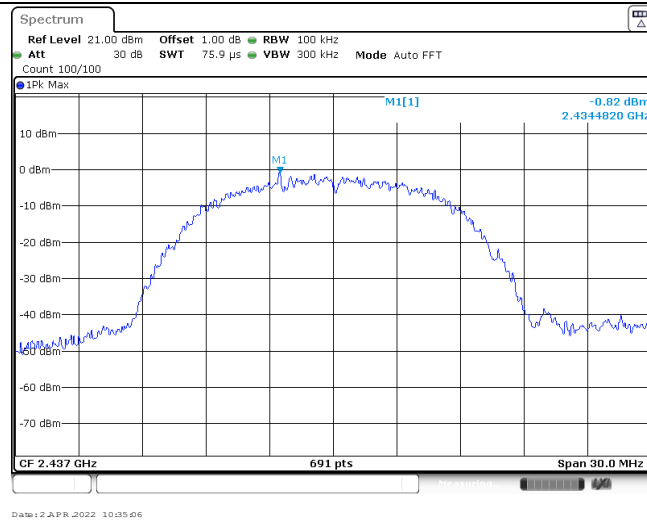
Test Item:	Bandedge	Type:	802.11 b
CH01	Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 246.5 μs VBW 300 kHz Mode Auto FFT Count 300/300 1Pk Max </		

Test Item:	Bandedge	Type:	802.11 g																																										
CH01	Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB RBW 100 kHz SWT 246.5 μs VBW 300 kHz Mode Auto FFT Count 300/300 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M3[1] M4[1] M5[1] -4.45 dBm 2.410740 GHz -39.43 dBm 2.400000 GHz -24.450 dBm Start 2.31 GHz 691 pts Stop 2.422 GHz Marker <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>2.41074 GHz</td><td>-4.45 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-39.43 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-48.57 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-59.23 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.399275 GHz</td><td>-39.63 dBm</td><td></td><td></td></tr></table> Date: 2.APR.2022 10:47:55			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.41074 GHz	-4.45 dBm			M2	1		2.4 GHz	-39.43 dBm			M3	1		2.39 GHz	-48.57 dBm			M4	1		2.31 GHz	-59.23 dBm			M5	1		2.399275 GHz	-39.63 dBm		
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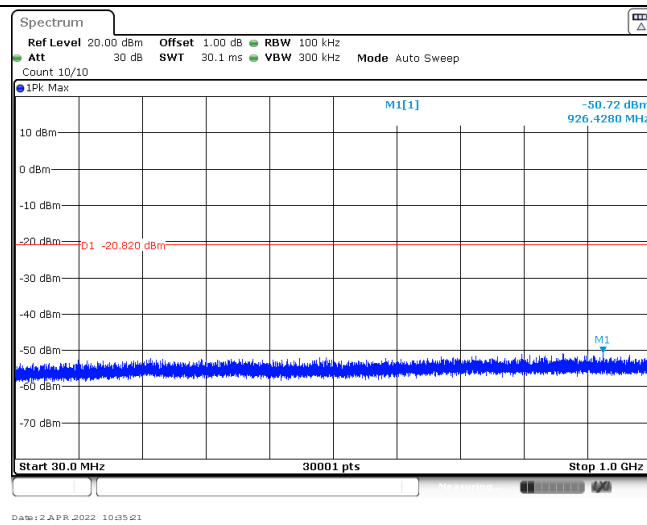
Test Item:	Bandedge	Type:	802.11 n(HT20)																																										
CH01	Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB RBW 100 kHz SWT 246.5 μs VBW 300 kHz Mode Auto FFT Count 300/300 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M1 M3 M2 -5.48 dBm 2.404410 GHz -37.11 dBm 2.400000 GHz D1 -25.480 dBm Start 2.31 GHz 691 pts Stop 2.422 GHz Marker <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>2.40441 GHz</td><td>-5.48 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-37.11 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-43.22 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-58.84 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.398626 GHz</td><td>-37.94 dBm</td><td></td><td></td></tr></table> Date: 2.APR.2022 11:00:02			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.40441 GHz	-5.48 dBm			M2	1		2.4 GHz	-37.11 dBm			M3	1		2.39 GHz	-43.22 dBm			M4	1		2.31 GHz	-58.84 dBm			M5	1		2.398626 GHz	-37.94 dBm		
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M2	1		2.4835 GHz	-44.71 dBm																																									
M3	1		2.5 GHz	-60.24 dBm																																									
M4	1		2.4837217 GHz	-43.48 dBm																																									

Test Item:	Spurious Emissions	Type:	802.11 b
CH01 Reference level	Spectrum Ref Level 21.00 dBm Att 30 dB Count 100/100 Offset 1.00 dB SWT 75.9 μs RBW 100 kHz VBW 300 kHz Mode Auto FFT 1Pk Max M1[1] -0.40 dBm 2.4094820 GHz 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 2.412 GHz 691 pts Span 30.0 MHz Date: 2 APR. 2022 10:32:51		
CH01 30MHz~1000MHz	Spectrum Ref Level 20.00 dBm Att 30 dB Count 10/10 Offset 1.00 dB SWT 30.1 ms RBW 100 kHz VBW 300 kHz Mode Auto Sweep 1Pk Max M1[1] -50.99 dBm 834.7980 MHz -20 dBm D1 -20.400 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm Start 30.0 MHz 30001 pts Stop 1.0 GHz Date: 2 APR. 2022 10:33:06		
CH01 1GHz~26GHz	Spectrum Ref Level 20.00 dBm Att 30 dB Count 10/10 Offset 1.00 dB SWT 250 ms RBW 100 kHz VBW 300 kHz Mode Auto Sweep 1Pk Max M1[1] -42.69 dBm 16.561667 GHz -20 dBm D1 -20.400 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm Start 1.0 GHz 30001 pts Stop 26.0 GHz Date: 2 APR. 2022 10:33:21		

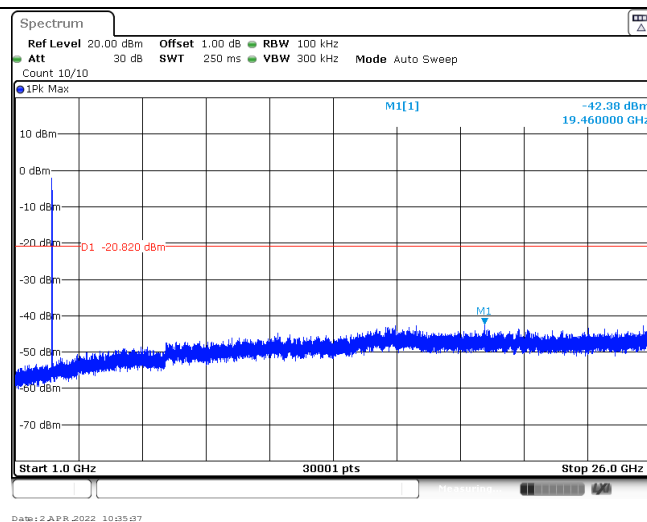
CH06
Reference level

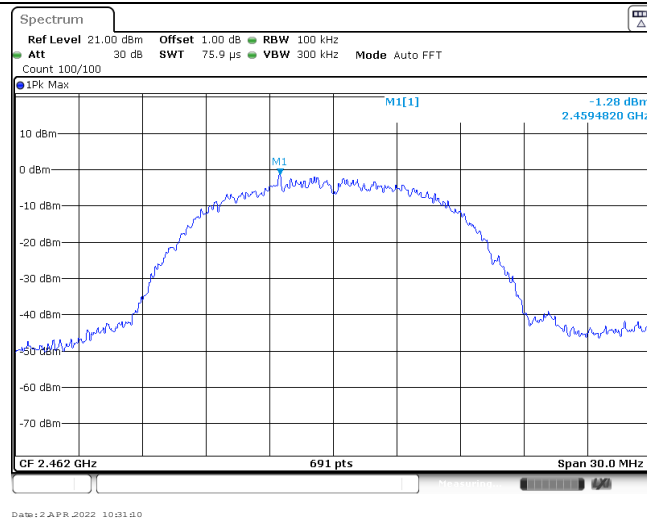
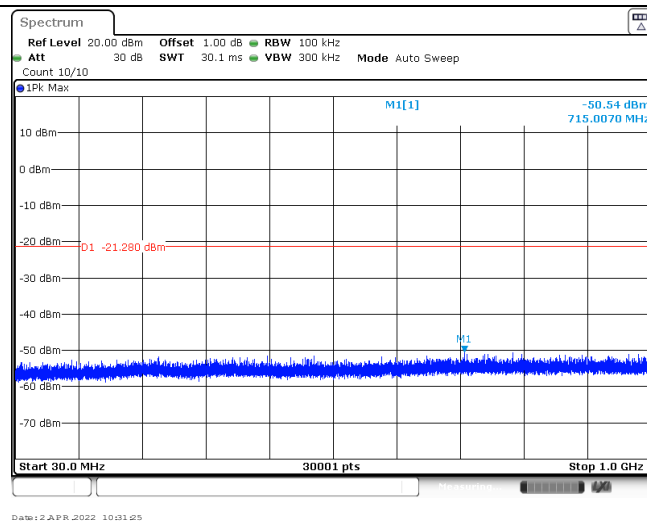
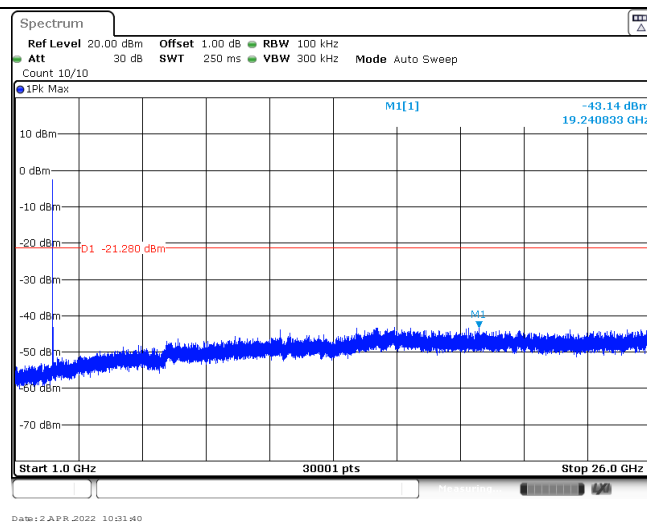


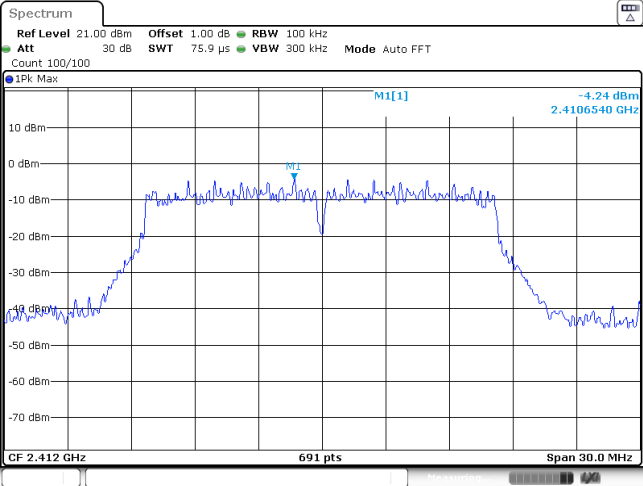
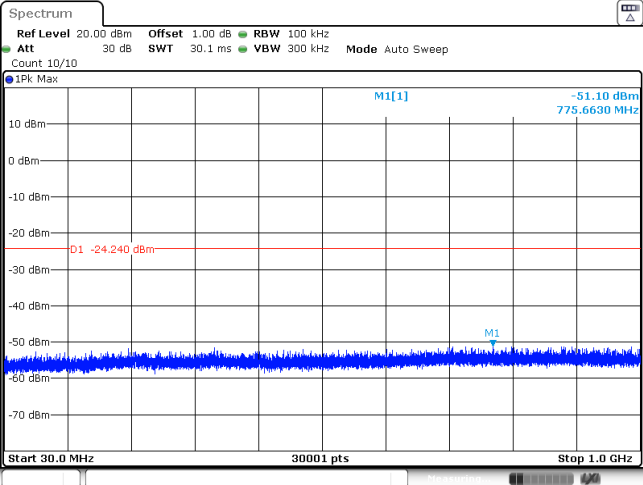
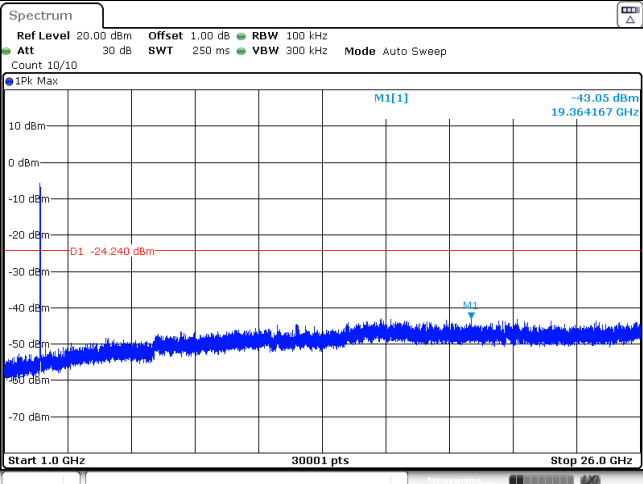
CH06
30MHz~1000MHz



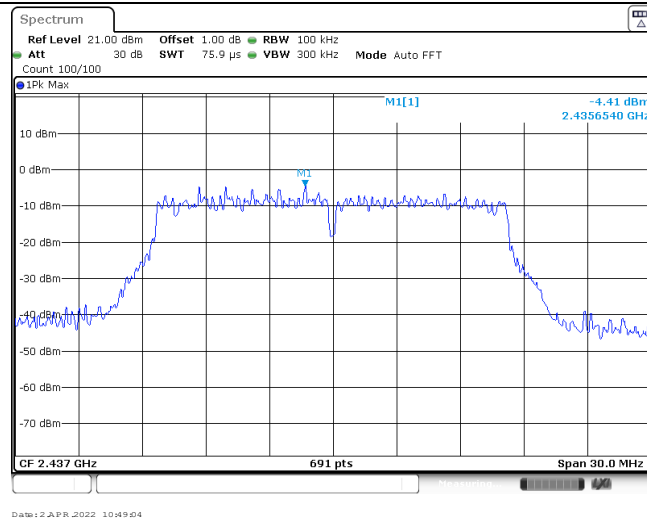
CH06
1GHz~26GHz



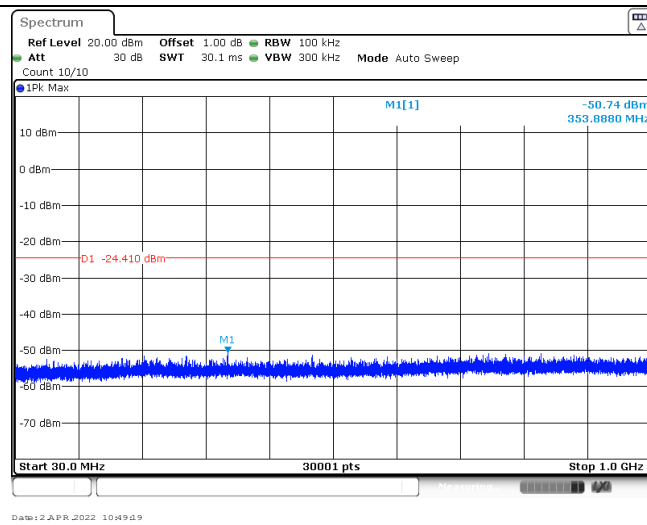
CH11
Reference levelCH11
30MHz~1000MHzCH11
1GHz~26GHz

Test Item:	Spurious Emissions	Type:	802.11 g
CH01 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 1Pk Max M1[1] -4.24 dBm 2.4106540 GHz CF 2.412 GHz 691 pts Span 30.0 MHz Date: 22 APR 2022 10:47:21		
CH01 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 1Pk Max M1[1] -51.10 dBm 775.6630 MHz D1 -24.240 dBm M1 Start 30.0 MHz 30001 pts Stop 1.0 GHz Date: 22 APR 2022 10:47:36		
CH01 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 1Pk Max M1[1] -43.05 dBm 19.364167 GHz D1 -24.240 dBm M1 Start 1.0 GHz 30001 pts Stop 26.0 GHz Date: 22 APR 2022 10:47:51		

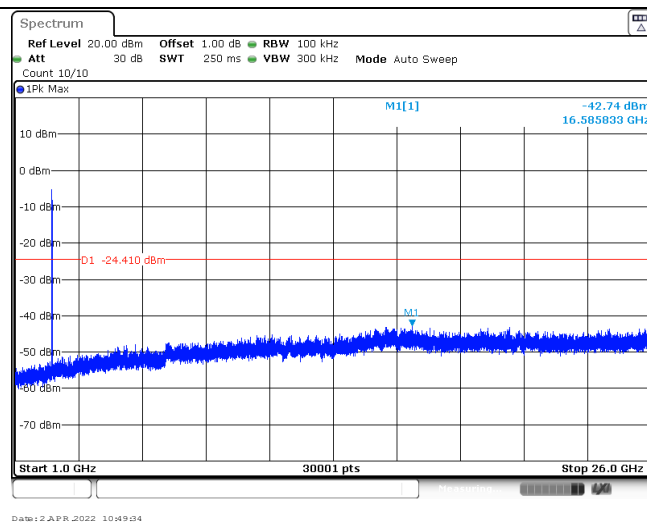
CH06
Reference level

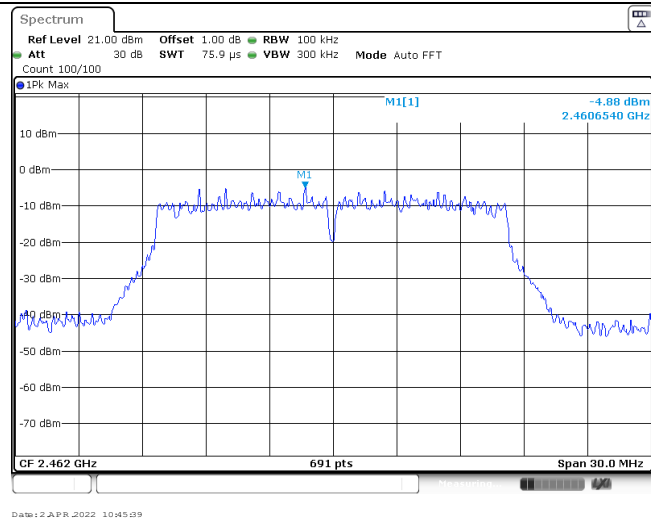
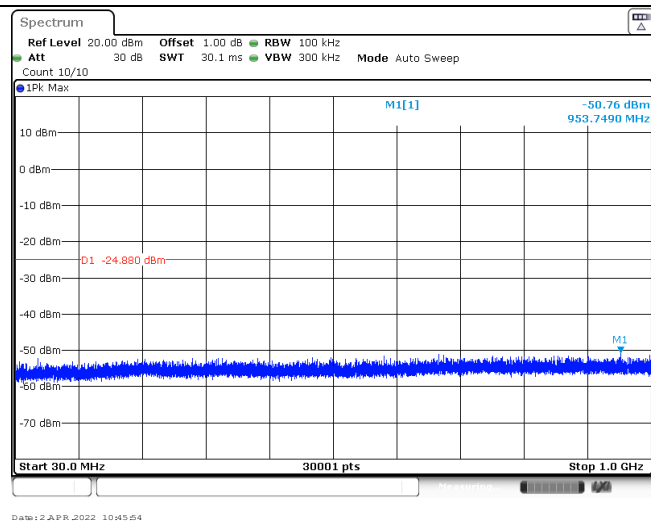
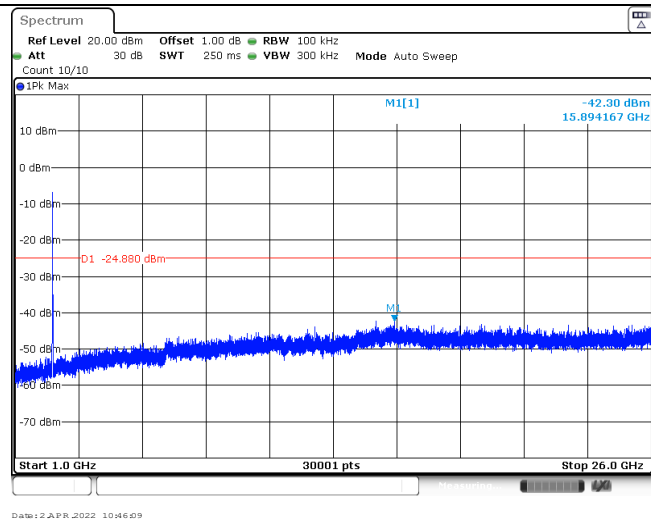


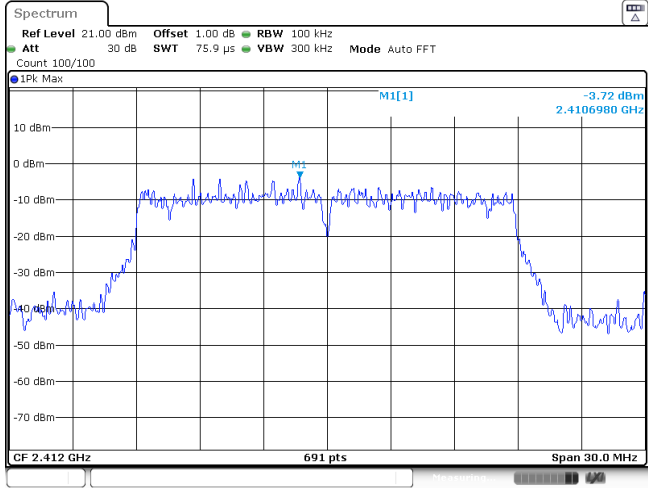
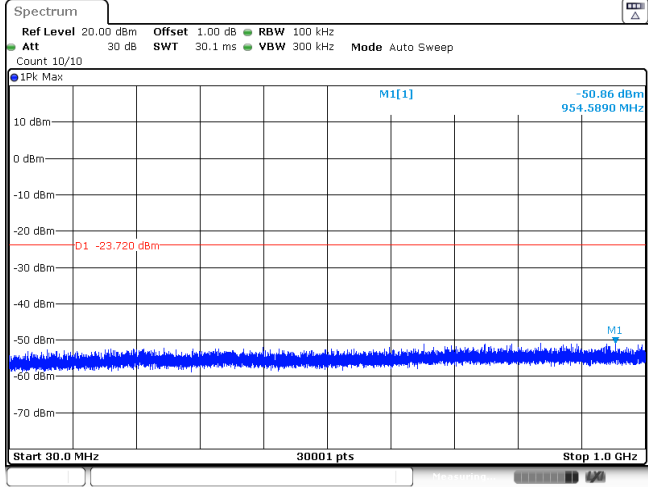
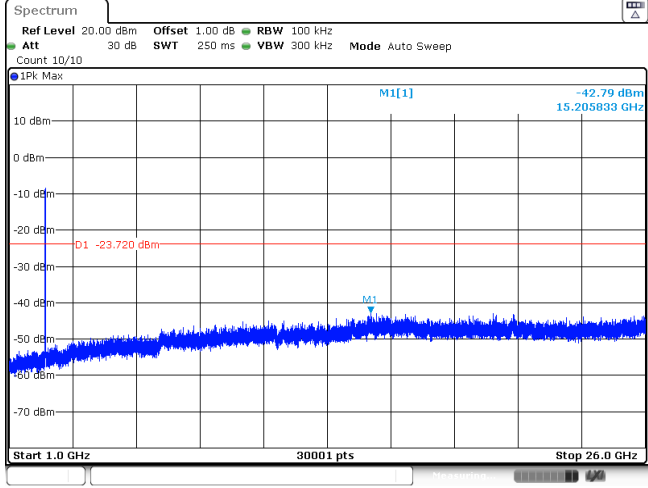
CH06
30MHz~1000MHz



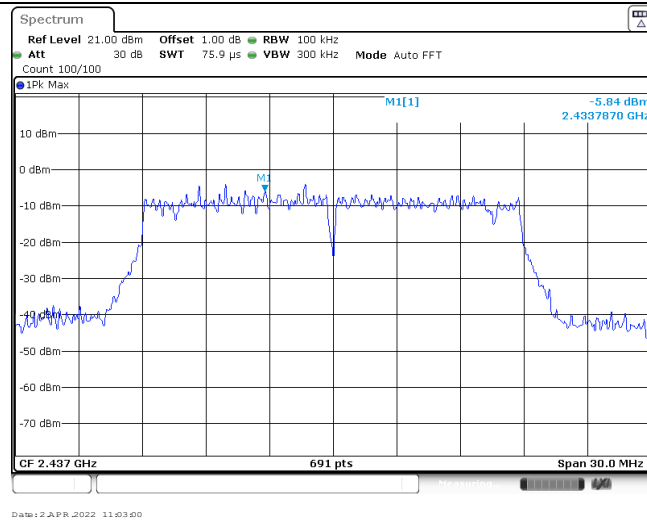
CH06
1GHz~26GHz



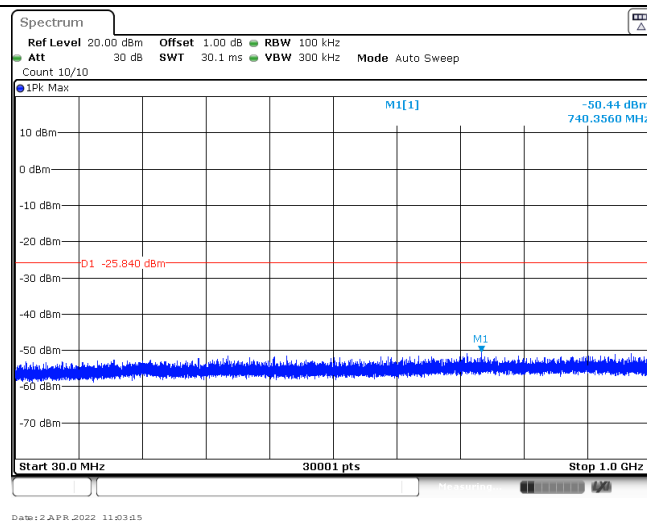
CH11
Reference levelCH11
30MHz~1000MHzCH11
1GHz~26GHz

Test Item:	Spurious Emissions	Type:	802.11 n(HT20)
CH01 Reference level			
CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

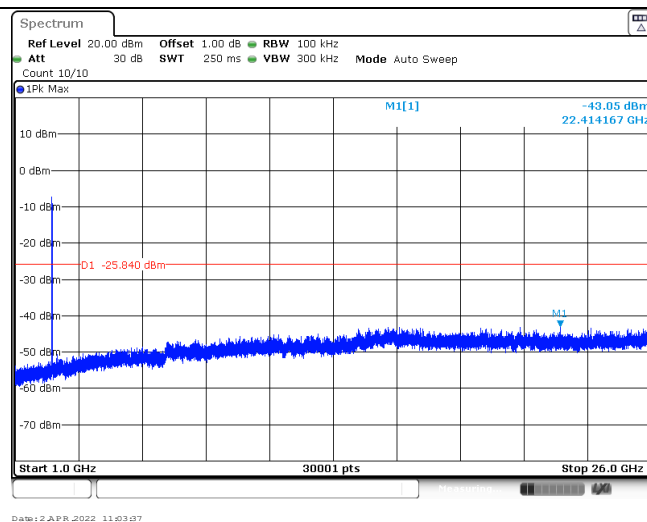
CH06
Reference level



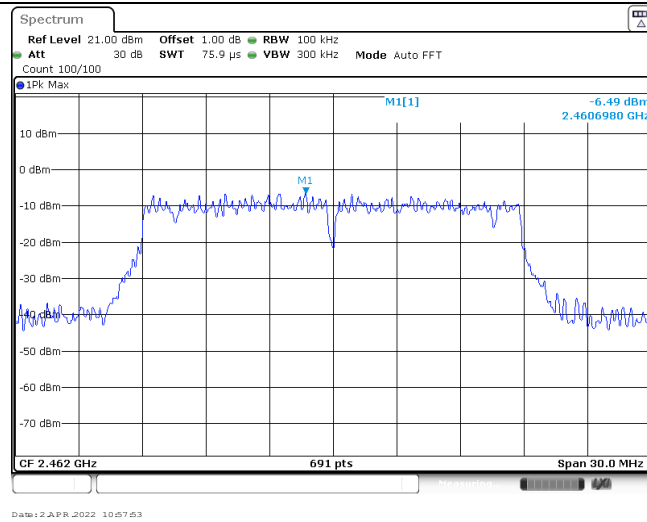
CH06
30MHz~1000MHz



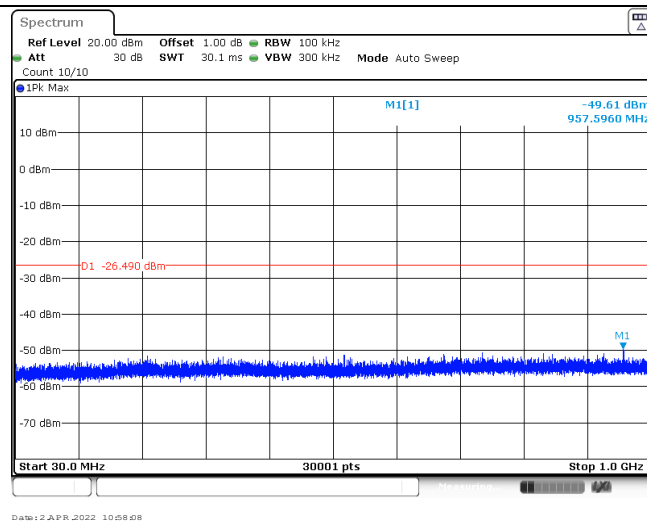
CH06
1GHz~26GHz



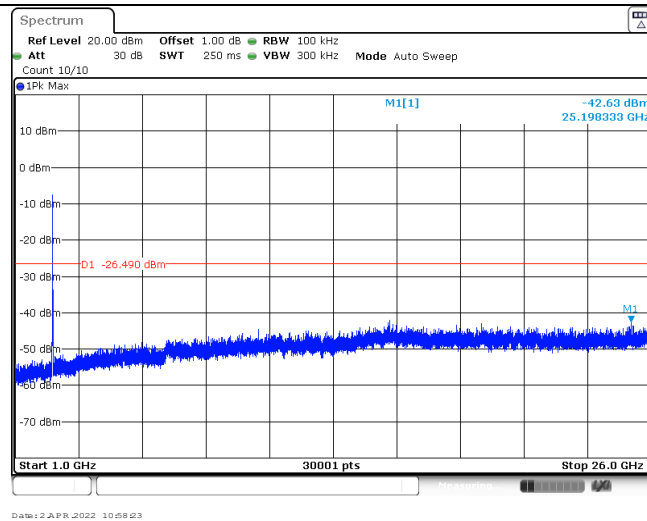
CH11
Reference level



CH11
30MHz~1000MHz



CH11
1GHz~26GHz



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