

APPENDIX REPORT

Project No.	SHT2202072102EW	Radio Specification	WIFI 2.4G
Test sample No.	YPHT22020721001	Model No.	ABX00049
Start test date	2022-04-26	Finish date	2022-04-26
Temperature	24.4℃	Humidity	36%
Test Engineer	<i>Casper Chen</i>	Auditor	<i>Xiaodong Zhuo</i>

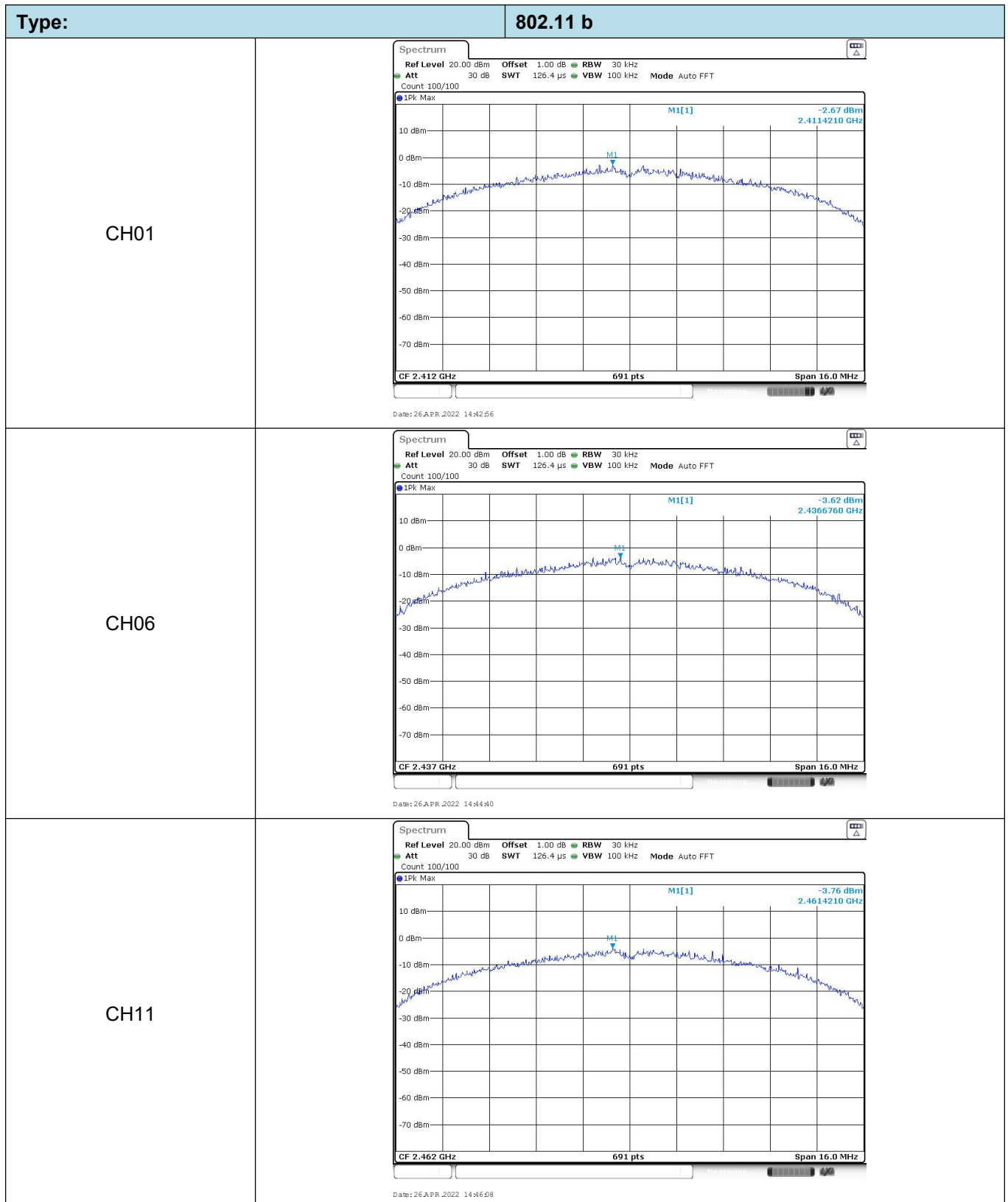
Appendix clause	Test item	Result
A	Conducted Peak Output Power	PASS
B	Power Spectral Density	PASS
C	6 dB Bandwidth	PASS
D	99% Occupied Bandwidth	PASS
E	Duty Cycle	PASS
F	Band edge and Spurious Emissions (conducted)	PASS

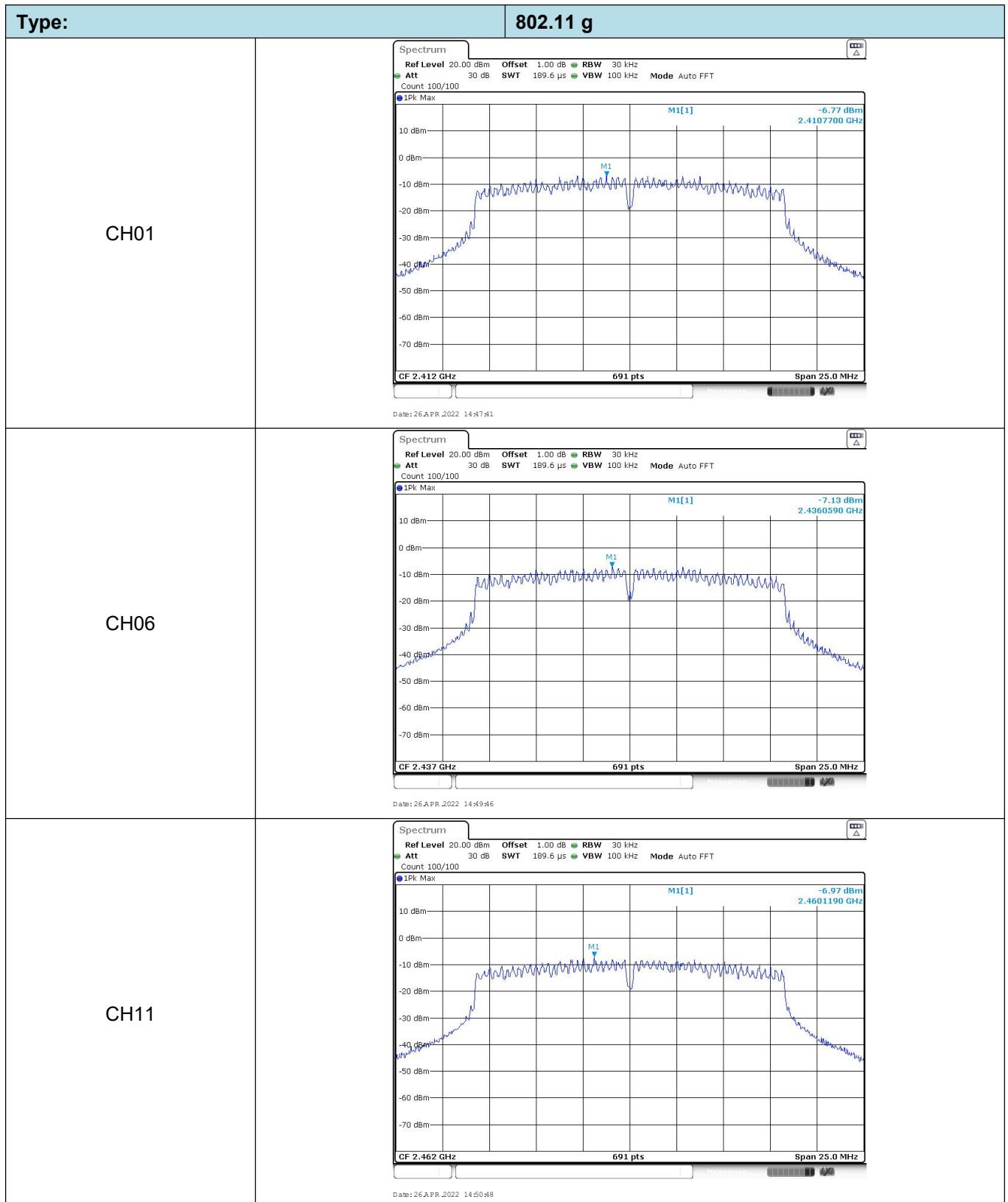
Appendix A: Conducted Peak Output Power

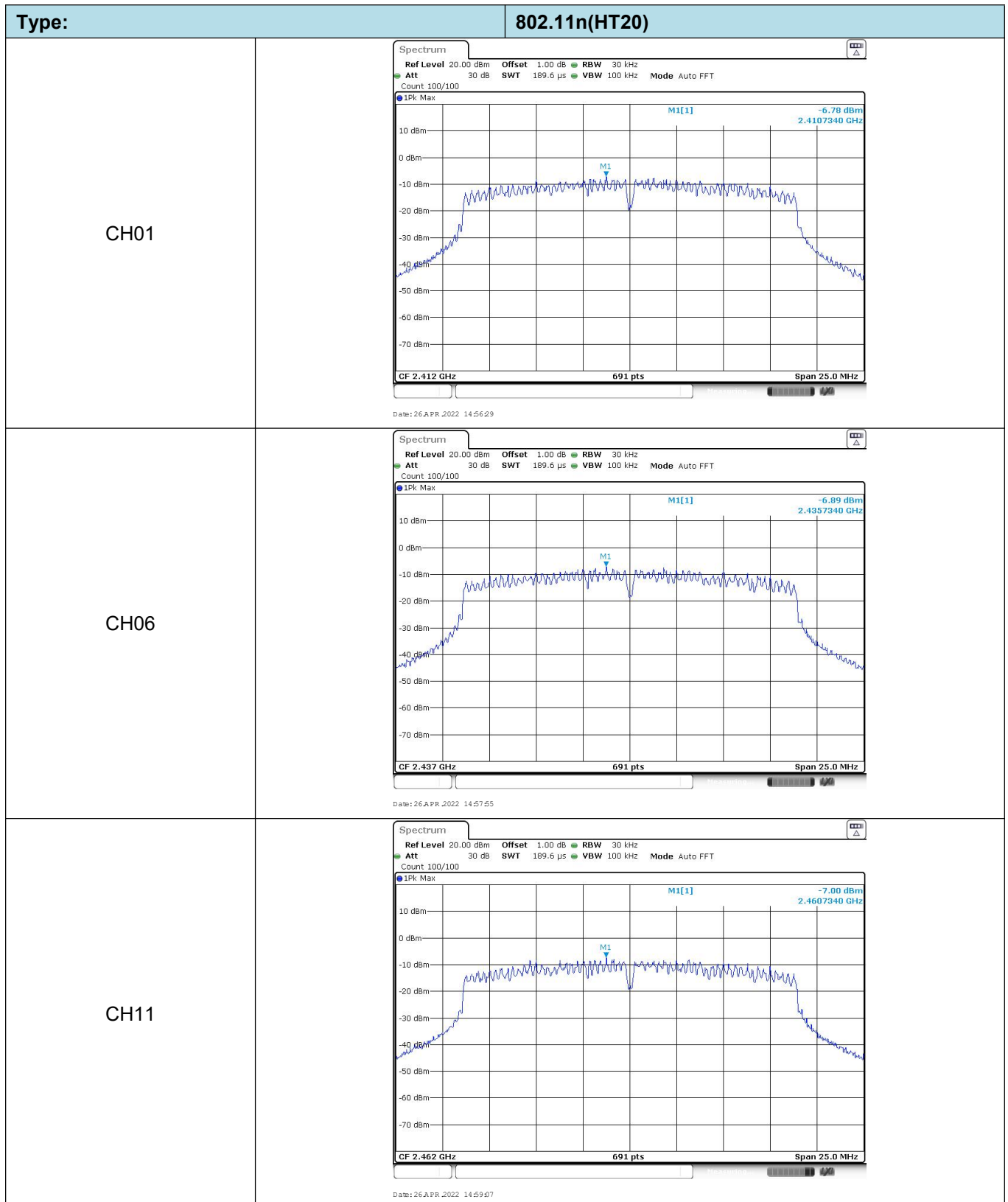
Type	Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
802.11b	01	15.19	12.82	≤ 30.00	Pass
	06	14.91	12.78		
	11	14.83	12.64		
802.11g	01	16.13	13.26	≤ 30.00	Pass
	06	15.96	13.18		
	11	15.85	12.78		
802.11n (HT20)	01	16.15	13.22	≤ 30.00	Pass
	06	15.95	13.12		
	11	15.74	13.05		

Appendix B: Power Spectral Density

Type	Channel	Power Spectral Density (dBm/30KHz)	Limit (dBm/3KHz)	Result
802.11b	01	-2.67	≤8.00	Pass
	06	-3.62		
	11	-3.76		
802.11g	01	-6.77	≤8.00	Pass
	06	-7.13		
	11	-6.97		
802.11n(HT20)	01	-6.78	≤8.00	Pass
	06	-6.89		
	11	-7.00		







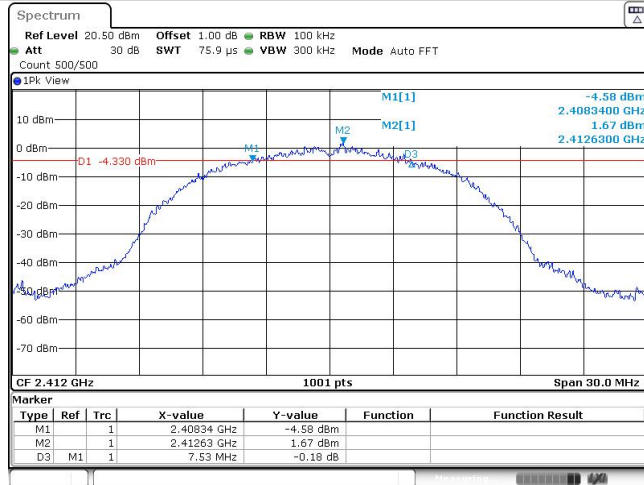
Appendix C: 6dB bandwidth

Type	Channel	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11b	01	7.53	≥0.5	Pass
	06	8.97		
	11	9.06		
802.11g	01	15.45	≥0.5	Pass
	06	15.69		
	11	15.42		
802.11n(HT20)	01	14.82	≥0.5	Pass
	06	15.45		
	11	15.42		

Type:

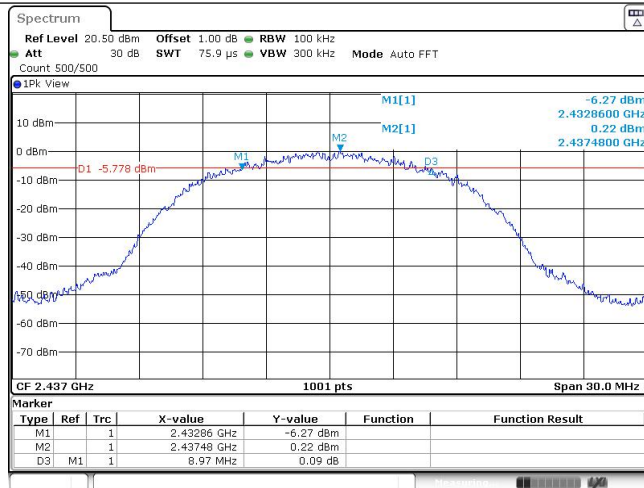
802.11 b

CH01



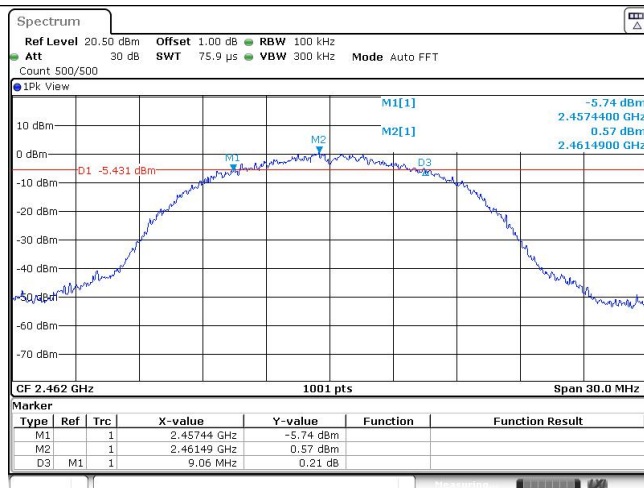
Date: 26 APR 2022 14:42:43

CH06



Date: 26 APR 2022 14:44:28

CH11

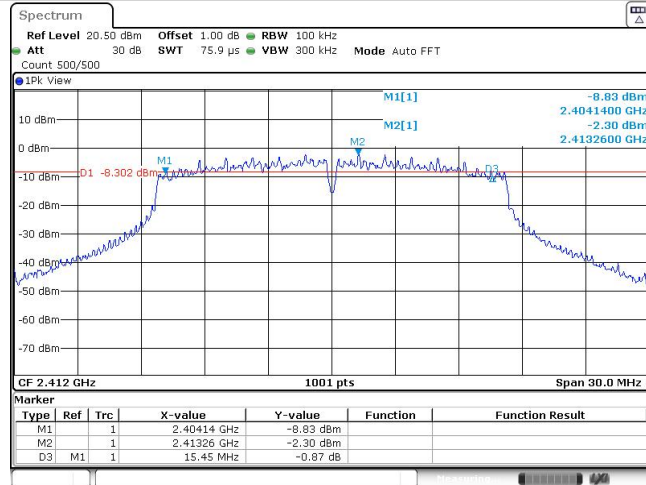


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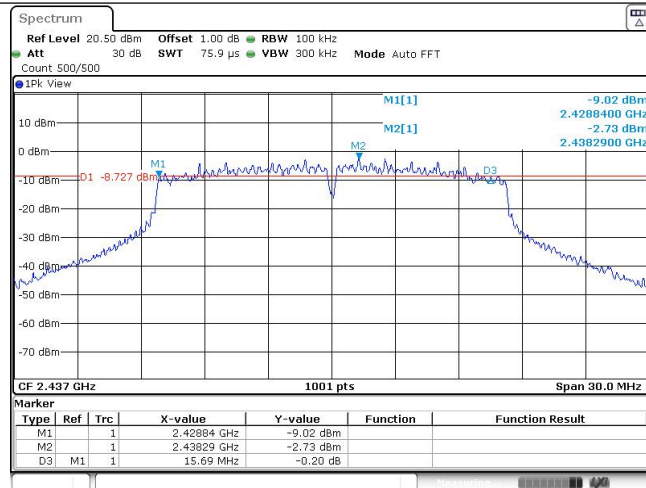
802.11 g

CH01



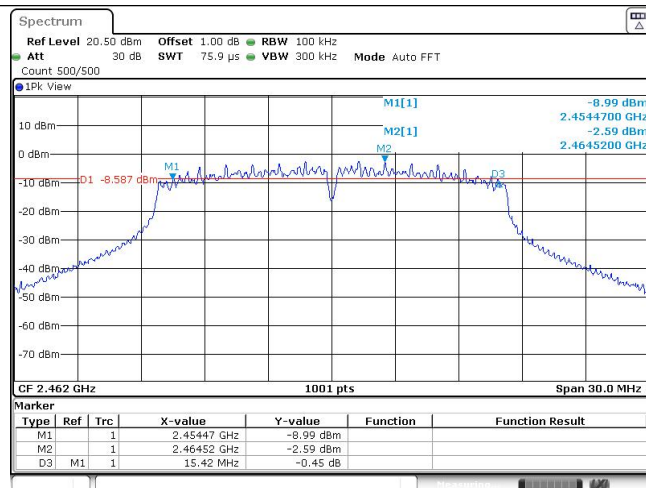
Date: 26 APR 2022 14:47:28

CH06



Date: 26 APR 2022 14:49:33

CH11

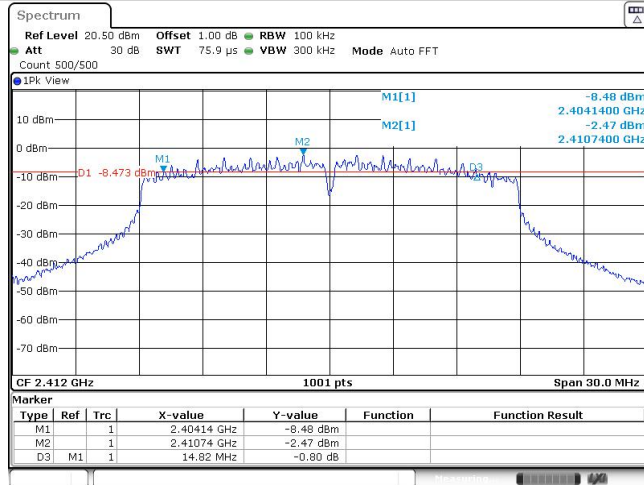


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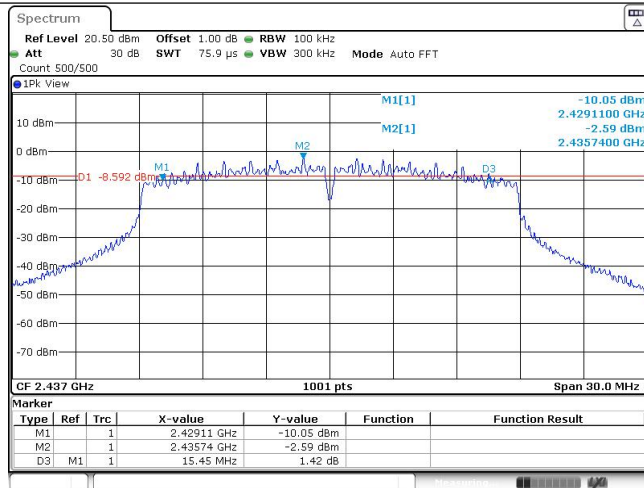
802.11n(HT20)

CH01



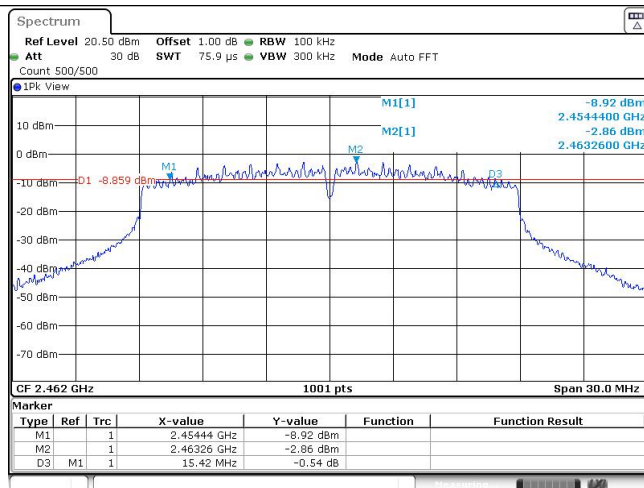
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CH06



Date: 26 APR 2022 14:57:42

CH11

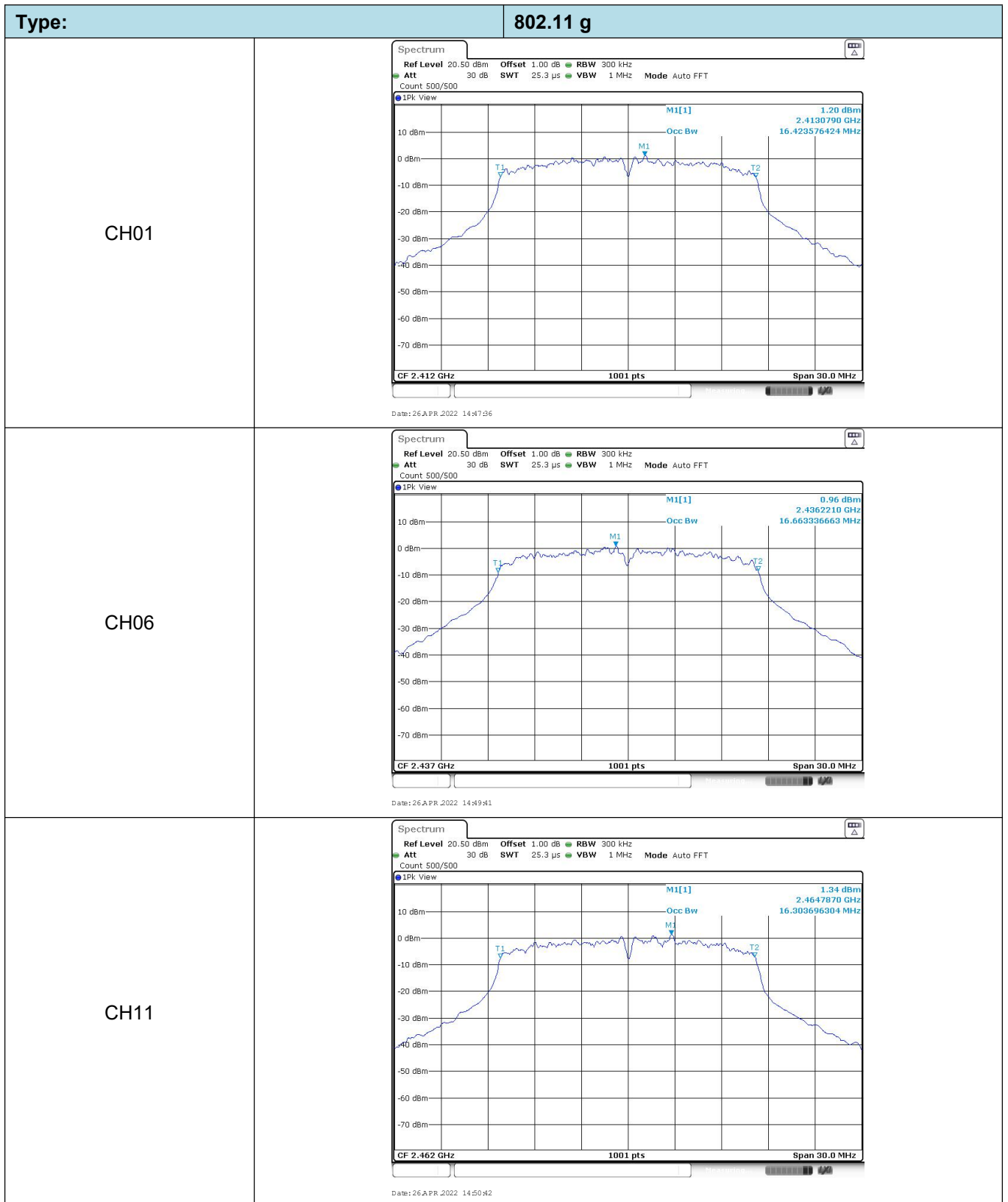


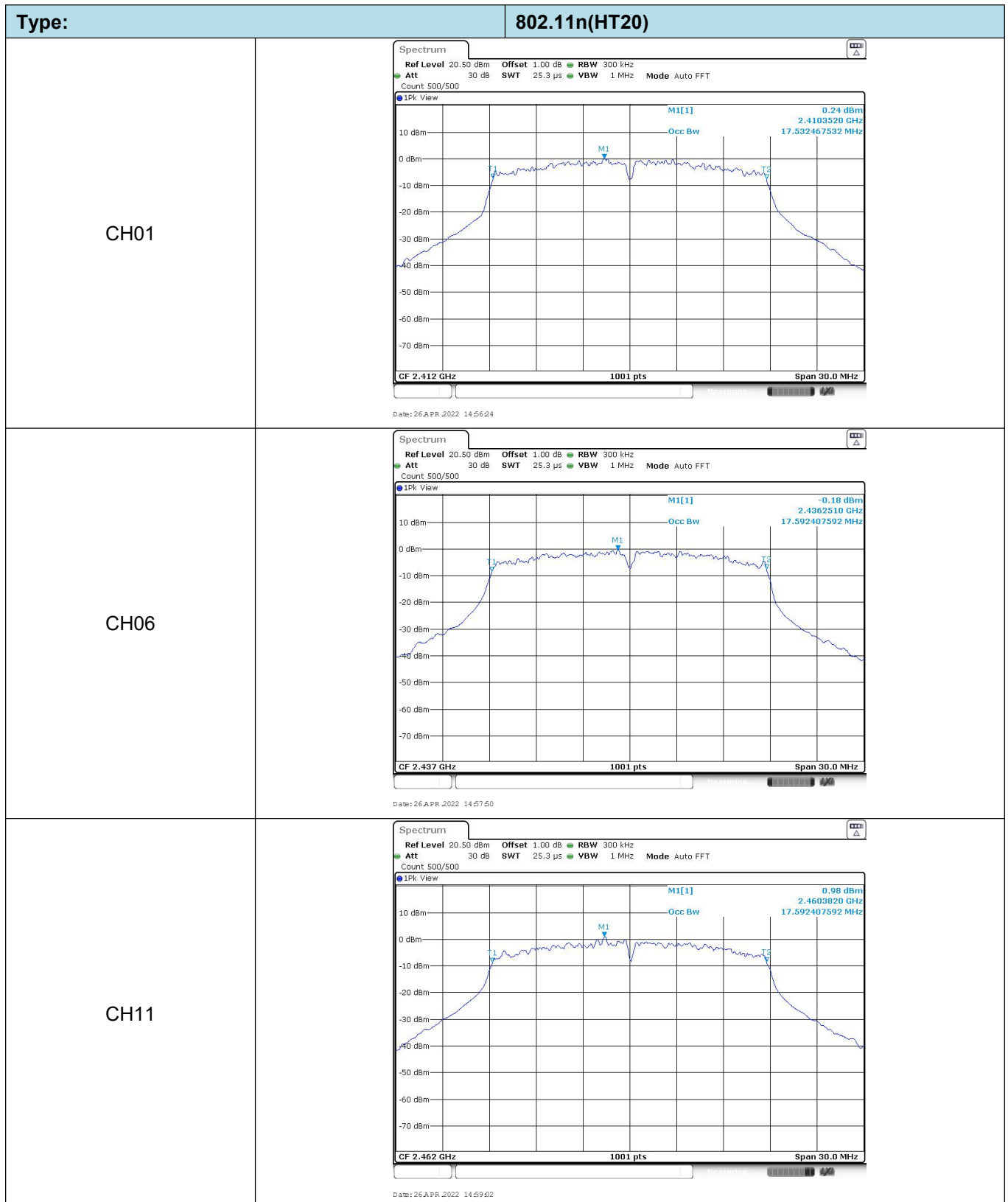
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Appendix D: 99% Occupied Bandwidth

Type	Channel	99% Bandwidth (MHz)	Limit (MHz)	Result
802.11b	01	13.73	-	Pass
	06	13.70		
	11	13.70		
802.11g	01	16.42	-	Pass
	06	16.66		
	11	16.30		
802.11n(HT20)	01	17.53	-	Pass
	06	17.59		
	11	17.59		

Type:	802.11 b
CH01	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 300 kHz Att 30 dB SWT 25.3 μs VBW 1 MHz Mode Auto FFT Count 500/500 1Pk View M1[1] 4.48 dBm 2.4125390 GHz 13.726273726 MHz Occ Bw T1 T2 CF 2.412 GHz 1001 pts Span 30.0 MHz Date: 26 APR 2022 14:42:51
CH06	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 300 kHz Att 30 dB SWT 25.3 μs VBW 1 MHz Mode Auto FFT Count 500/500 1Pk View M1[1] 3.73 dBm 2.4364910 GHz 13.696303696 MHz Occ Bw T1 T2 CF 2.437 GHz 1001 pts Span 30.0 MHz Date: 26 APR 2022 14:44:35
CH11	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 300 kHz Att 30 dB SWT 25.3 μs VBW 1 MHz Mode Auto FFT Count 500/500 1Pk View M1[1] 3.51 dBm 2.4614310 GHz 13.696303696 MHz Occ Bw T1 T2 CF 2.462 GHz 1001 pts Span 30.0 MHz Date: 26 APR 2022 14:46:02

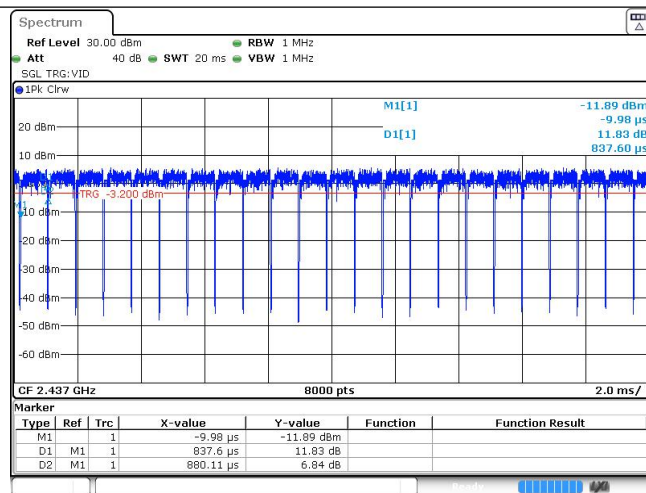




Appendix E: Duty Cycle

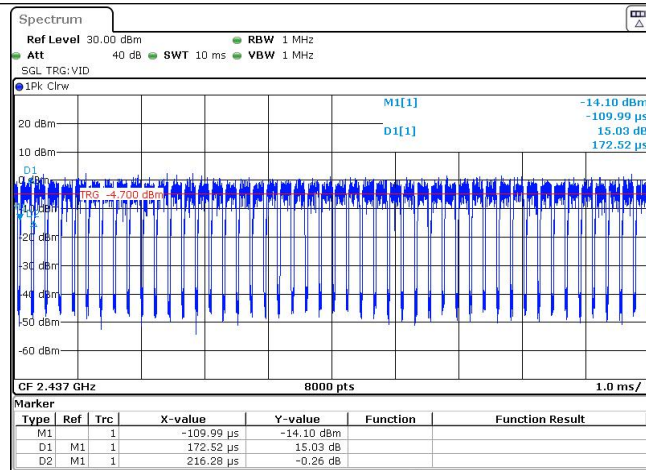
Modulation Type	Test Frequency (MHz)	T _{on} time for single burst (ms)	T _{period} (ms)	Duty cycle	1/T _{on} time (kHz)
11b	2437	0.84	0.88	95.5%	1.19
11g	2437	0.17	0.22	77.3%	5.88
11n20	2437	0.16	0.20	80.0%	6.25

11b



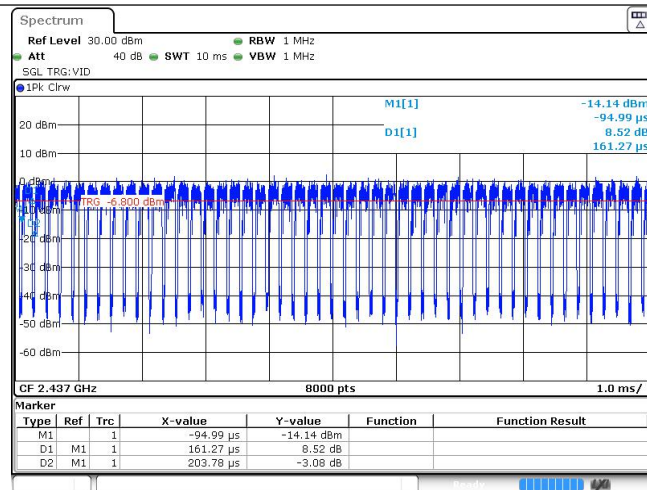
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11g



Date: 26 APR 2022 14:49:25

11n20



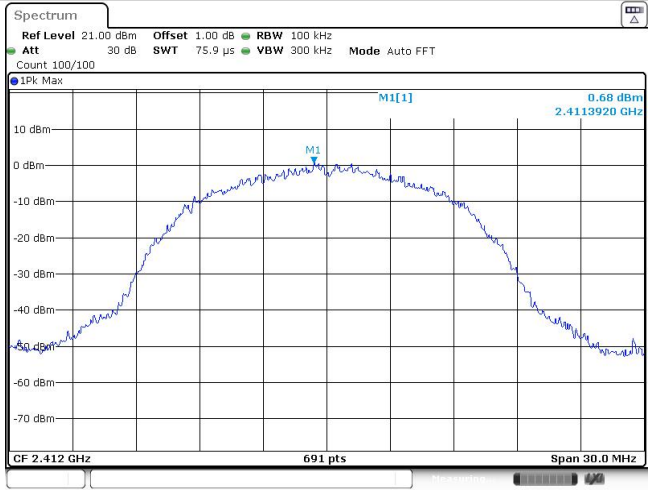
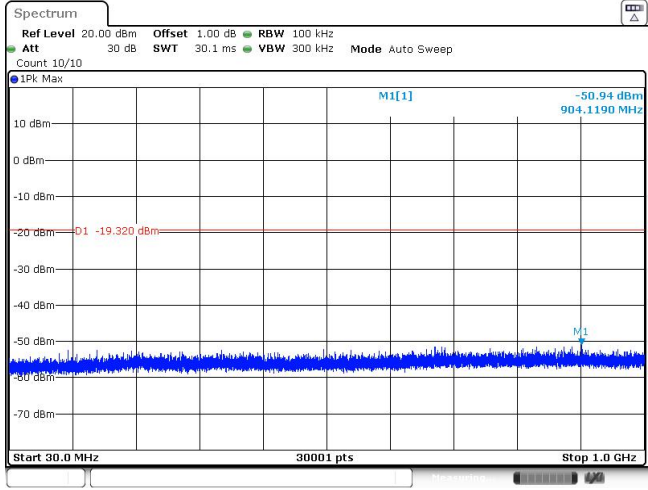
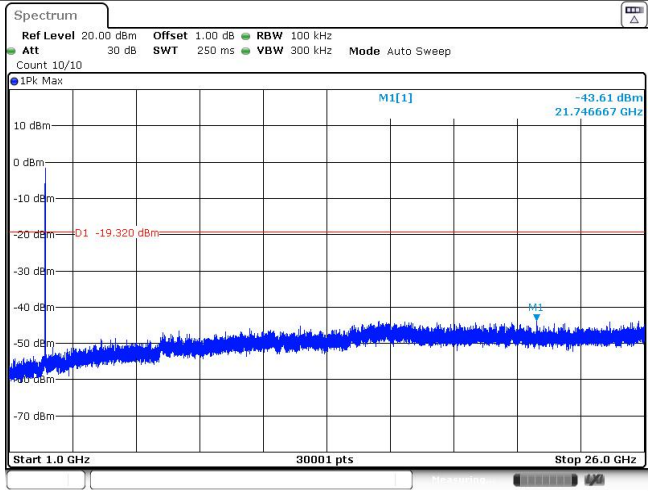
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Appendix F: Band edge and Spurious Emissions (conducted)

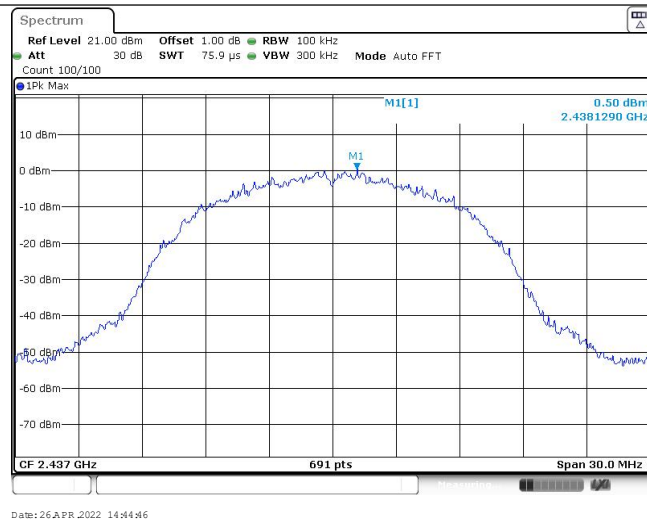
Test Item:	Bandedge	Type:	802.11 b
CH01	Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 246.5 μs VBW 300 kHz Mode Auto FFT Count 300/300 1Pk Max <		

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 M4 M5 -2.36 dBm 2.410740 GHz -38.62 dBm 2.400000 GHz D1 -22.360 dBm Start 2.31 GHz 691 pts Stop 2.422 GHz <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>-2.36 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-38.62 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-52.64 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-59.28 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.399925 GHz</td><td>-38.52 dBm</td><td></td><td></td></tr></table> Date: 26 APR 2022 14:47:50			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.41074 GHz	-2.36 dBm			M2	1		2.4 GHz	-38.62 dBm			M3	1		2.39 GHz	-52.64 dBm			M4	1		2.31 GHz	-59.28 dBm			M5	1		2.399925 GHz	-38.52 dBm		
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CH11	Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB RBW 100 kHz SWT 113.8 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 M4 M5 -2.94 dBm 2.4632880 GHz -53.46 dBm 2.4835000 GHz D1 -22.940 dBm Start 2.452 GHz 691 pts Stop 2.5 GHz <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>2.463288 GHz</td><td>-2.94 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-53.46 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-55.92 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.4894957 GHz</td><td>-52.67 dBm</td><td></td><td></td></tr></table> Date: 26 APR 2022 14:50:57			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.463288 GHz	-2.94 dBm			M2	1		2.4835 GHz	-53.46 dBm			M3	1		2.5 GHz	-55.92 dBm			M4	1		2.4894957 GHz	-52.67 dBm									
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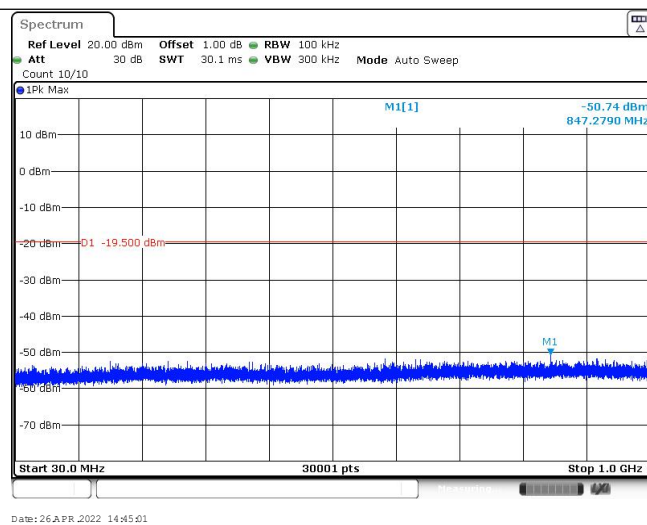
Test Item:	Bandedge	Type:	802.11 n(HT20)																																										
CH01	Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB RBW 100 kHz SWT 246.5 μs VBW 300 kHz Mode Auto FFT Count 300/300 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M3 M4 M5 -2.66 dBm 2.410740 GHz -39.15 dBm 2.410000 GHz -59.46 dBm 2.399762 GHz -38.09 dBm D1 -22.770 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>-2.66 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-39.15 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-54.22 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-59.46 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.399762 GHz</td><td>-38.09 dBm</td><td></td><td></td></tr></table> Date: 26 APR 2022 14:56:38			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.41074 GHz	-2.66 dBm			M2	1		2.4 GHz	-39.15 dBm			M3	1		2.39 GHz	-54.22 dBm			M4	1		2.31 GHz	-59.46 dBm			M5	1		2.399762 GHz	-38.09 dBm		
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M3	1		2.5 GHz	-55.48 dBm																																									
M4	1		2.4859478 GHz	-52.80 dBm																																									

Test Item:	Spurious Emissions	Type:	802.11 b
CH01 Reference level	 0.68 dBm 2.4113920 GHz CF 2.412 GHz 691 pts Span 30.0 MHz Date: 26 APR. 2022 14:43:11		
CH01 30MHz~1000MHz	 -19.320 dBm -50.94 dBm 904.1190 MHz Start 30.0 MHz 30001 pts Stop 1.0 GHz Date: 26 APR. 2022 14:43:26		
CH01 1GHz~26GHz	 -43.61 dBm 21.746667 GHz -19.320 dBm Start 1.0 GHz 30001 pts Stop 26.0 GHz Date: 26 APR. 2022 14:43:41		

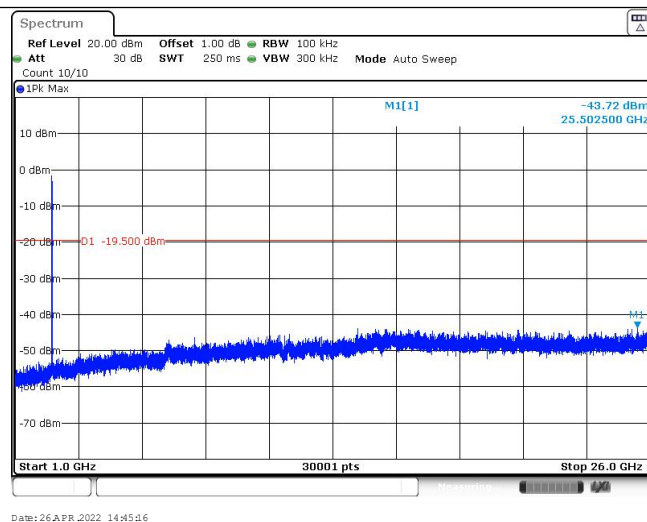
CH06
Reference level



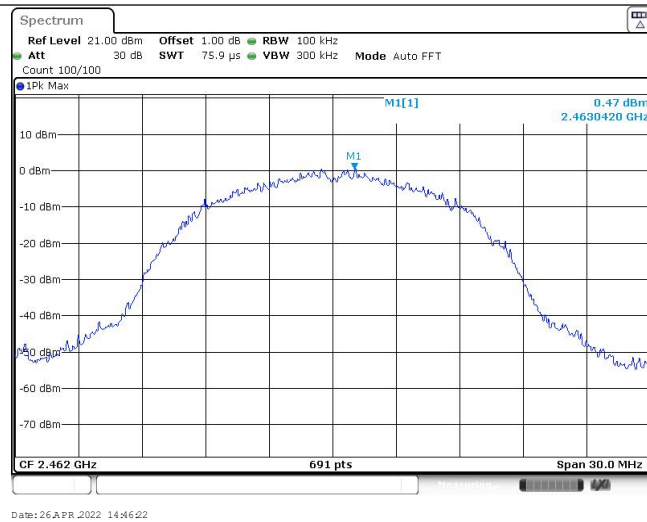
CH06
30MHz~1000MHz



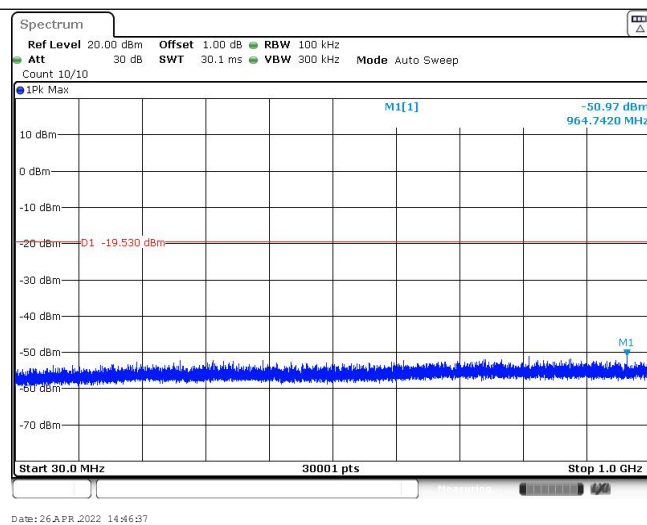
CH06
1GHz~26GHz



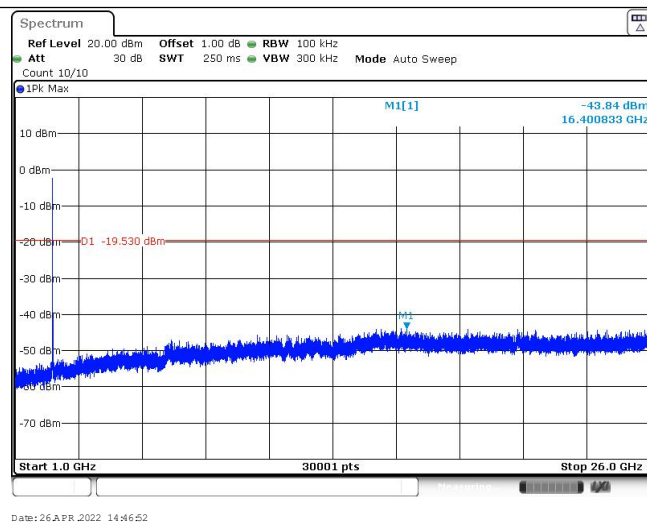
CH11
Reference level

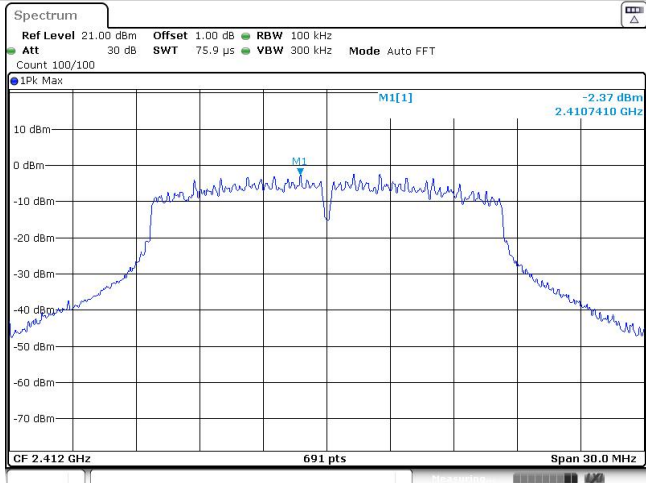
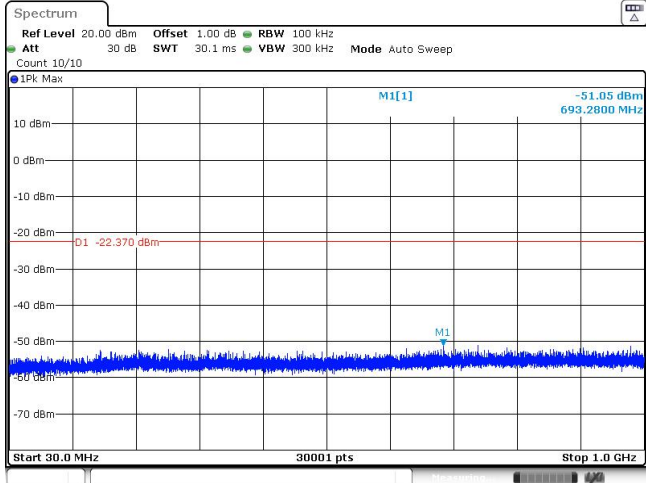
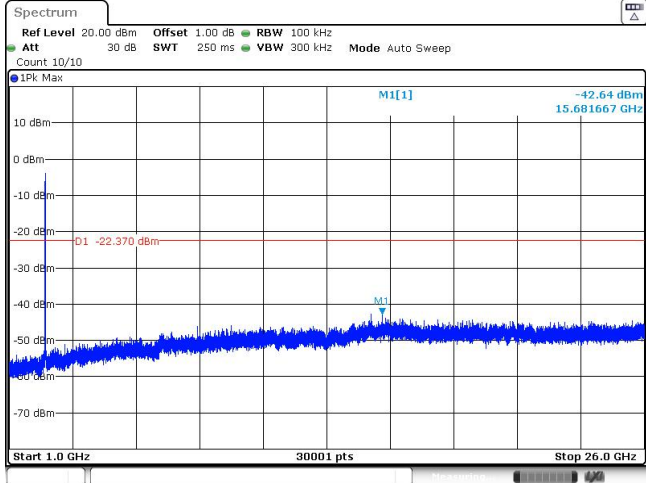


CH11
30MHz~1000MHz

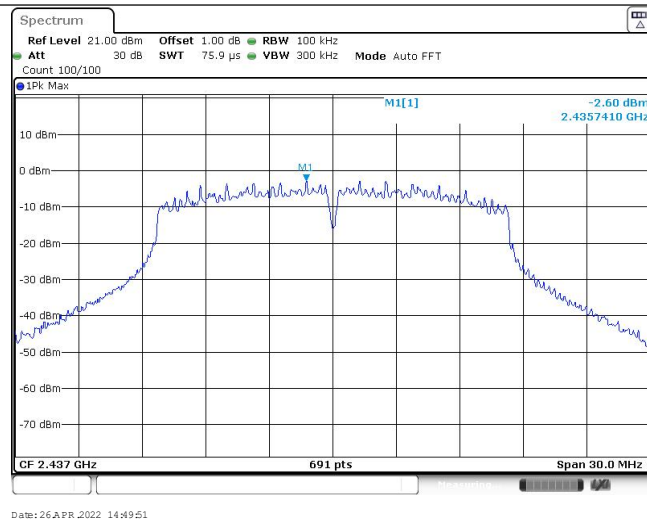


CH11
1GHz~26GHz

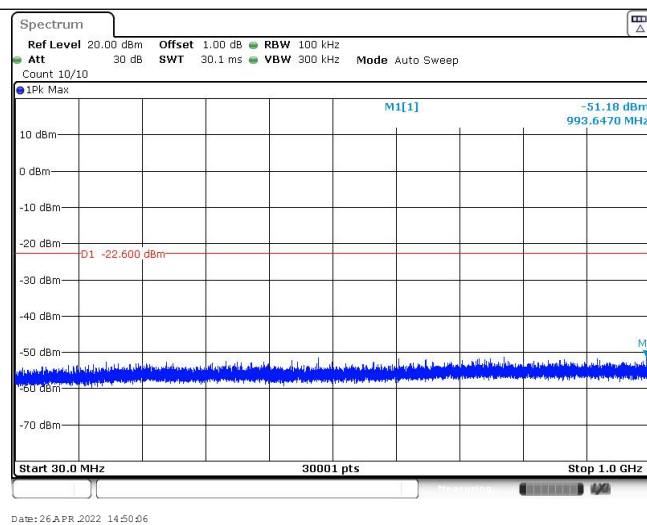


Test Item:	Spurious Emissions	Type:	802.11 g
CH01 Reference level	 Date: 26 APR. 2022 14:47:55		
CH01 30MHz~1000MHz	 Date: 26 APR. 2022 14:48:10		
CH01 1GHz~26GHz	 Date: 26 APR. 2022 14:48:26		

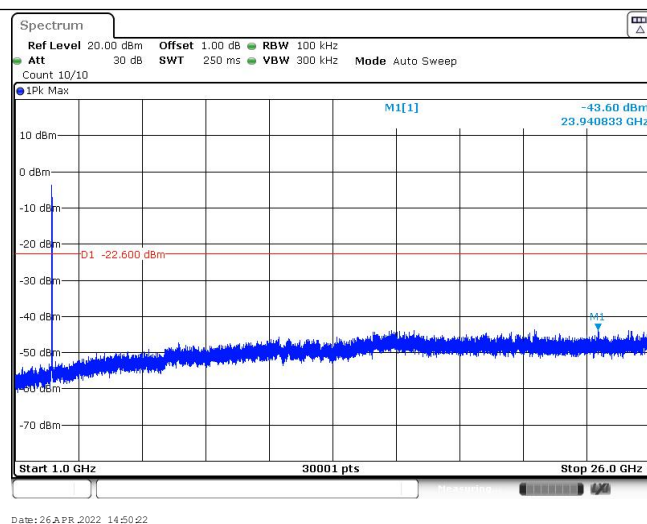
CH06
Reference level



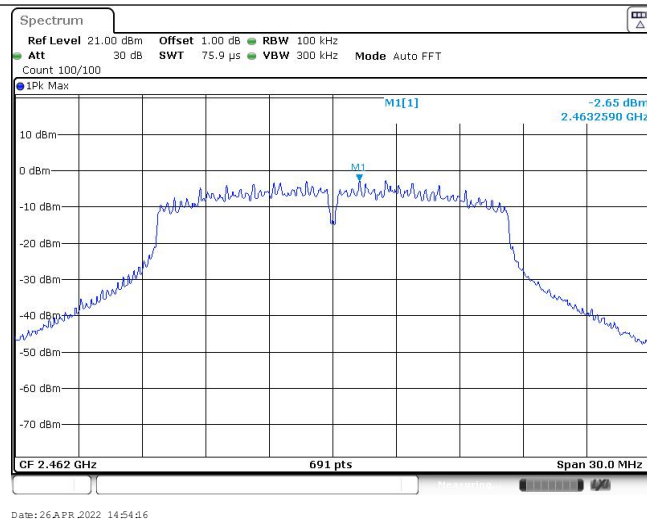
CH06
30MHz~1000MHz



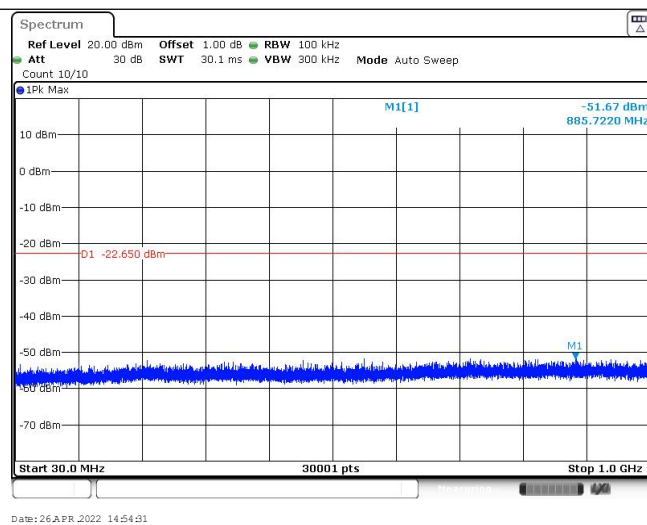
CH06
1GHz~26GHz



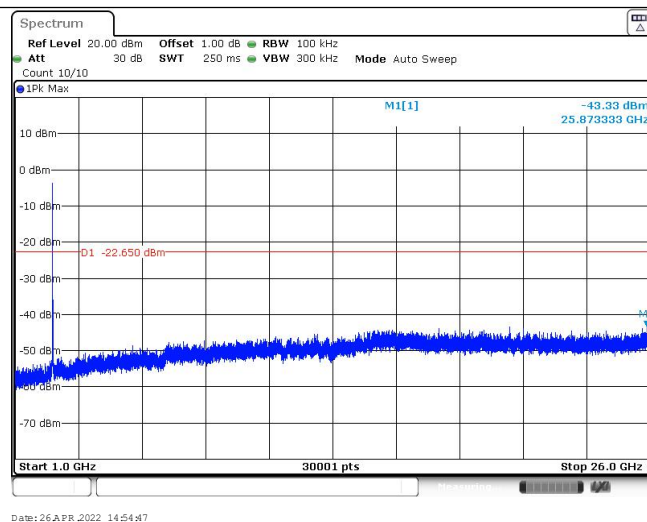
CH11
Reference level

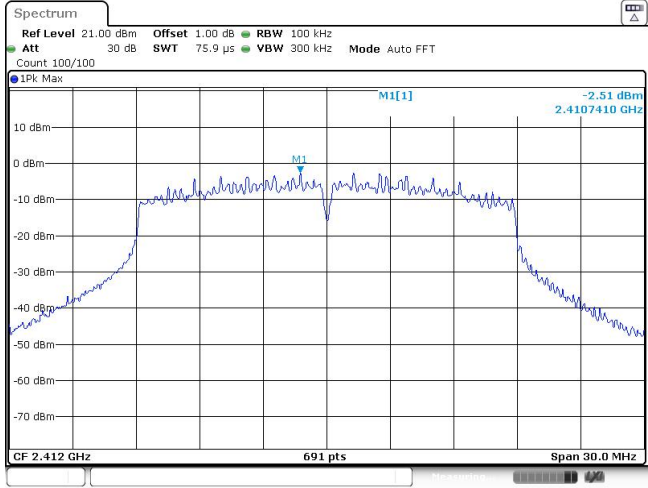
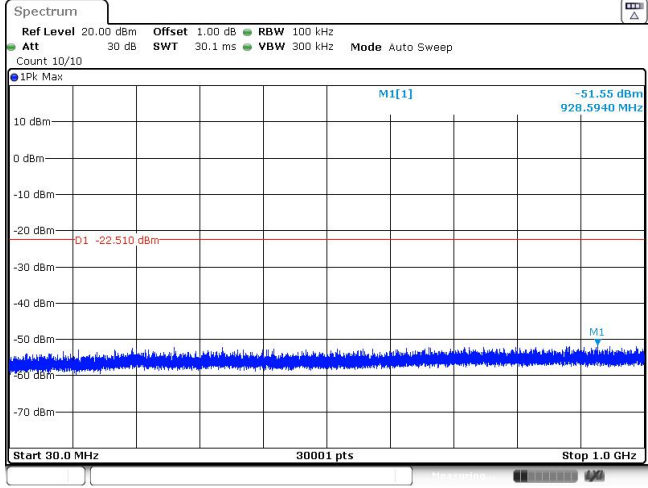
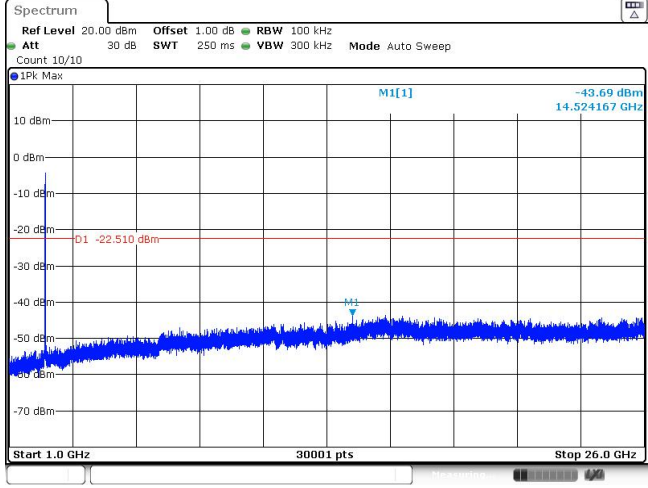


CH11
30MHz~1000MHz

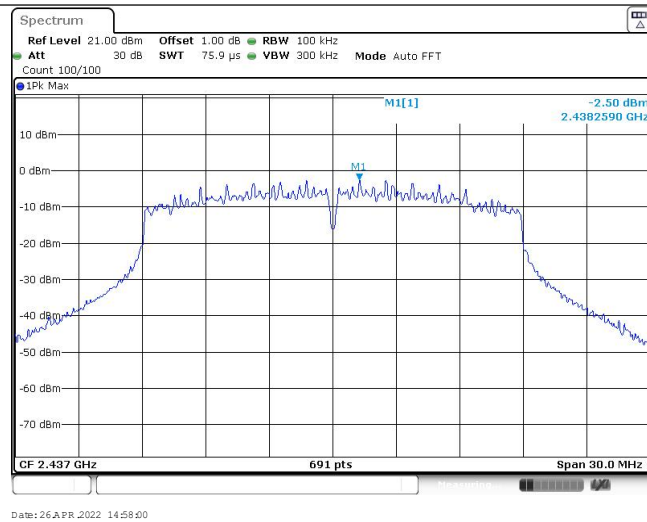


CH11
1GHz~26GHz

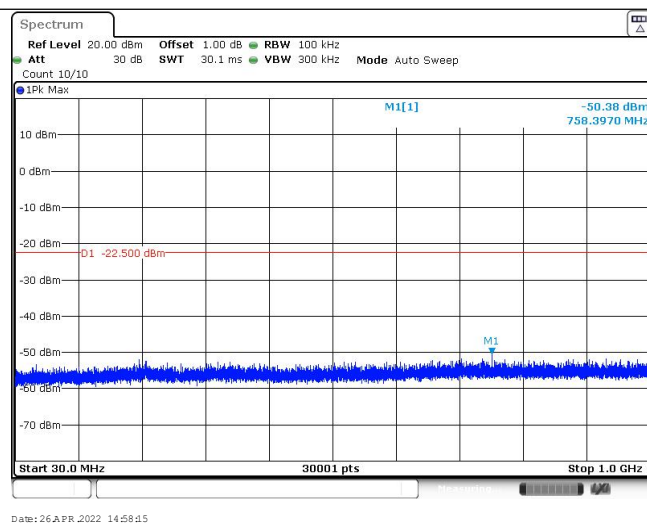


Test Item:	Spurious Emissions	Type:	802.11 n(HT20)
CH01 Reference level	 CF 2.412 GHz 691 pts Span 30.0 MHz Date: 26 APR 2022 14:56:44		
CH01 30MHz~1000MHz	 Start 30.0 MHz 30001 pts Stop 1.0 GHz Date: 26 APR 2022 14:56:59		
CH01 1GHz~26GHz	 Start 1.0 GHz 30001 pts Stop 26.0 GHz Date: 26 APR 2022 14:57:14		

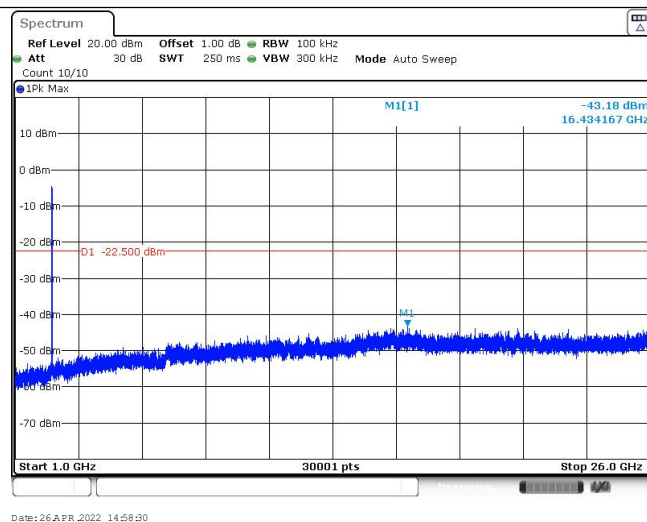
CH06
Reference level



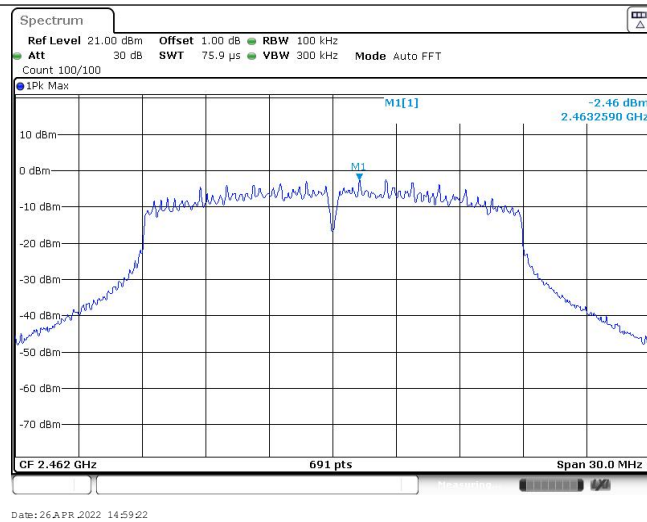
CH06
30MHz~1000MHz



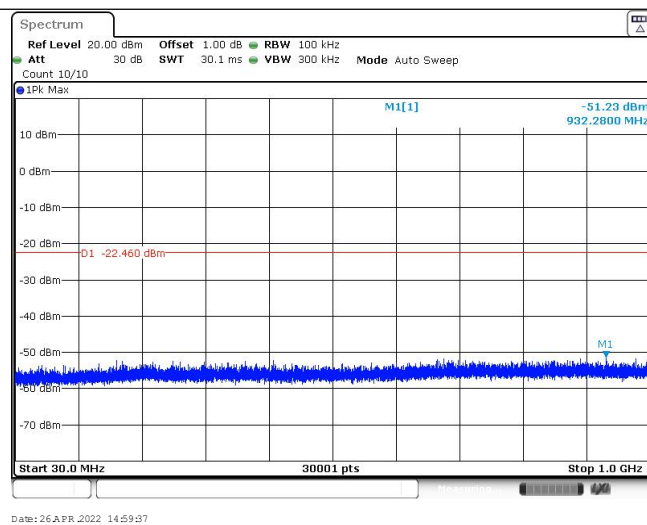
CH06
1GHz~26GHz



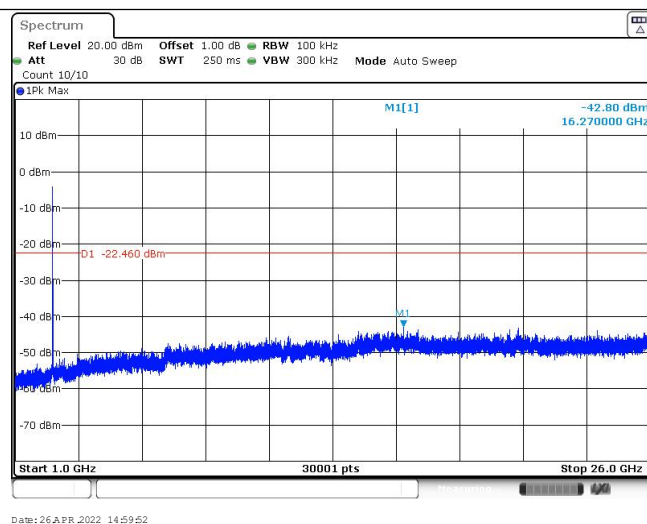
CH11
Reference level



CH11
30MHz~1000MHz



CH11
1GHz~26GHz



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