

APPENDIX REPORT

Project No.	SHT2112010901EW	Radio Specification	WIFI 2.4G
Test sample No.	YPHT21120109002	Model No.	SE-200PB
Start test date	2021-12-22	Finish date	2021-12-22
Temperature	23.8℃	Humidity	36%
Test Engineer	Hailey Chen	Auditor	Xiaodong Zheo

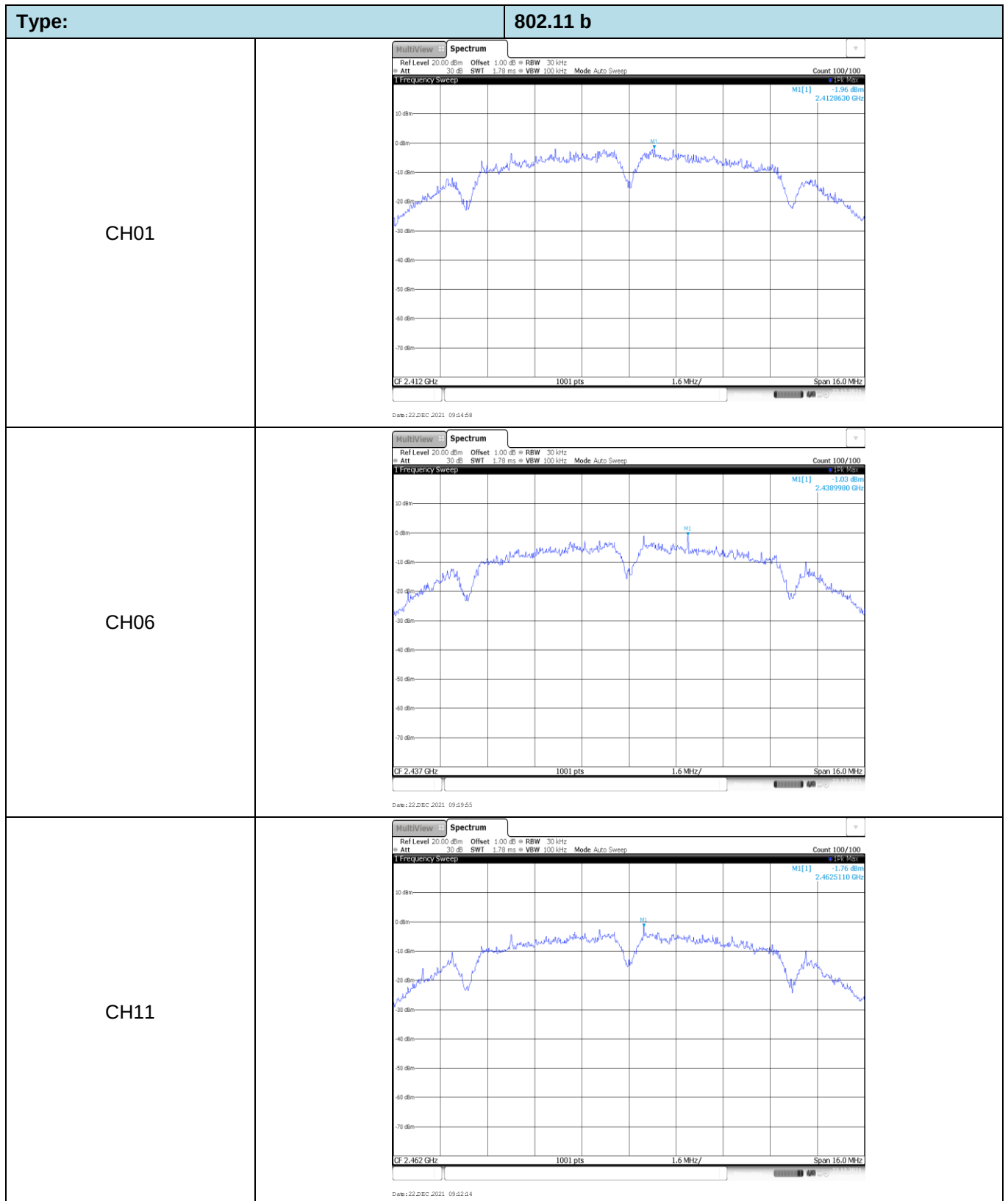
Appendix clause	Test item	Result
A	Conducted Peak Output Power	PASS
B	Power Spectral Density	PASS
C	6 dB Bandwidth	PASS
D	99% Occupied Bandwidth	PASS
E	Duty Cycle	PASS
F	Band edge and Spurious Emissions (conducted)	PASS

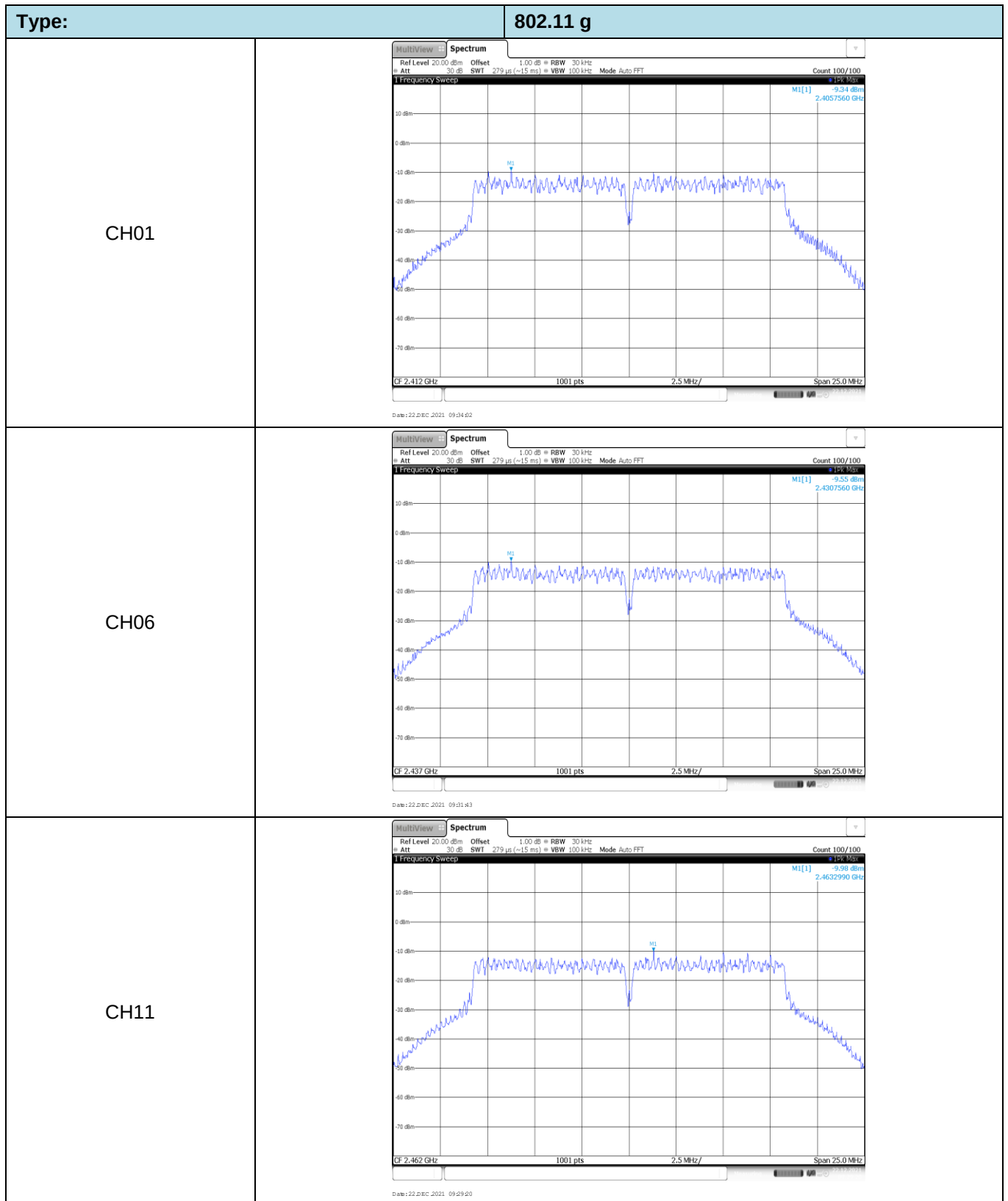
Appendix A: Conducted Peak Output Power

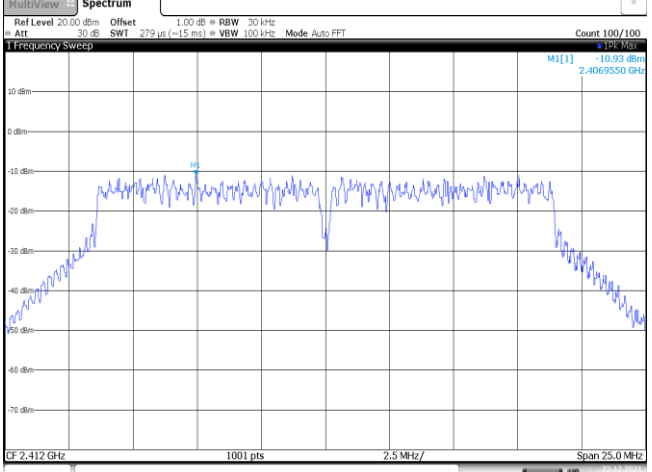
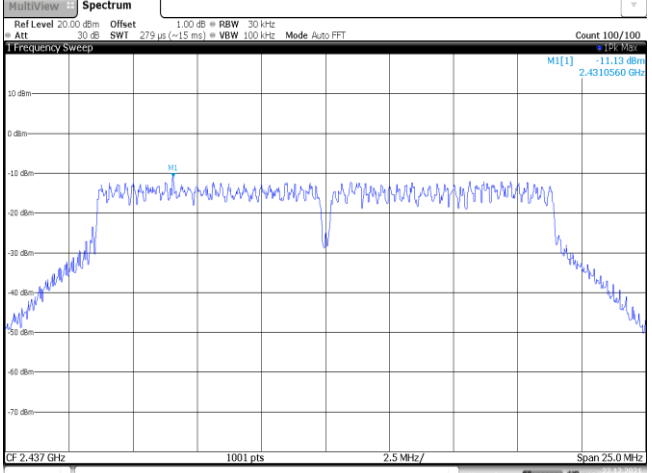
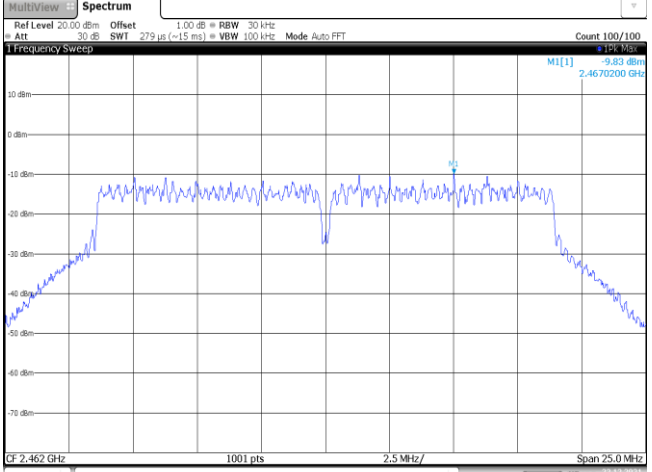
Type	Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
802.11b	01	15.00	12.40	≤ 30.00	Pass
	06	14.09	11.55		
	11	13.15	10.48		
802.11g	01	14.86	12.05	≤ 30.00	Pass
	06	14.05	11.24		
	11	13.04	10.07		
802.11n (HT20)	01	14.89	12.24	≤ 30.00	Pass
	06	14.13	11.41		
	11	13.06	10.20		
802.11n(HT40)	03	14.89	12.47	≤ 30.00	Pass
	06	14.11	11.58		
	09	13.40	10.83		

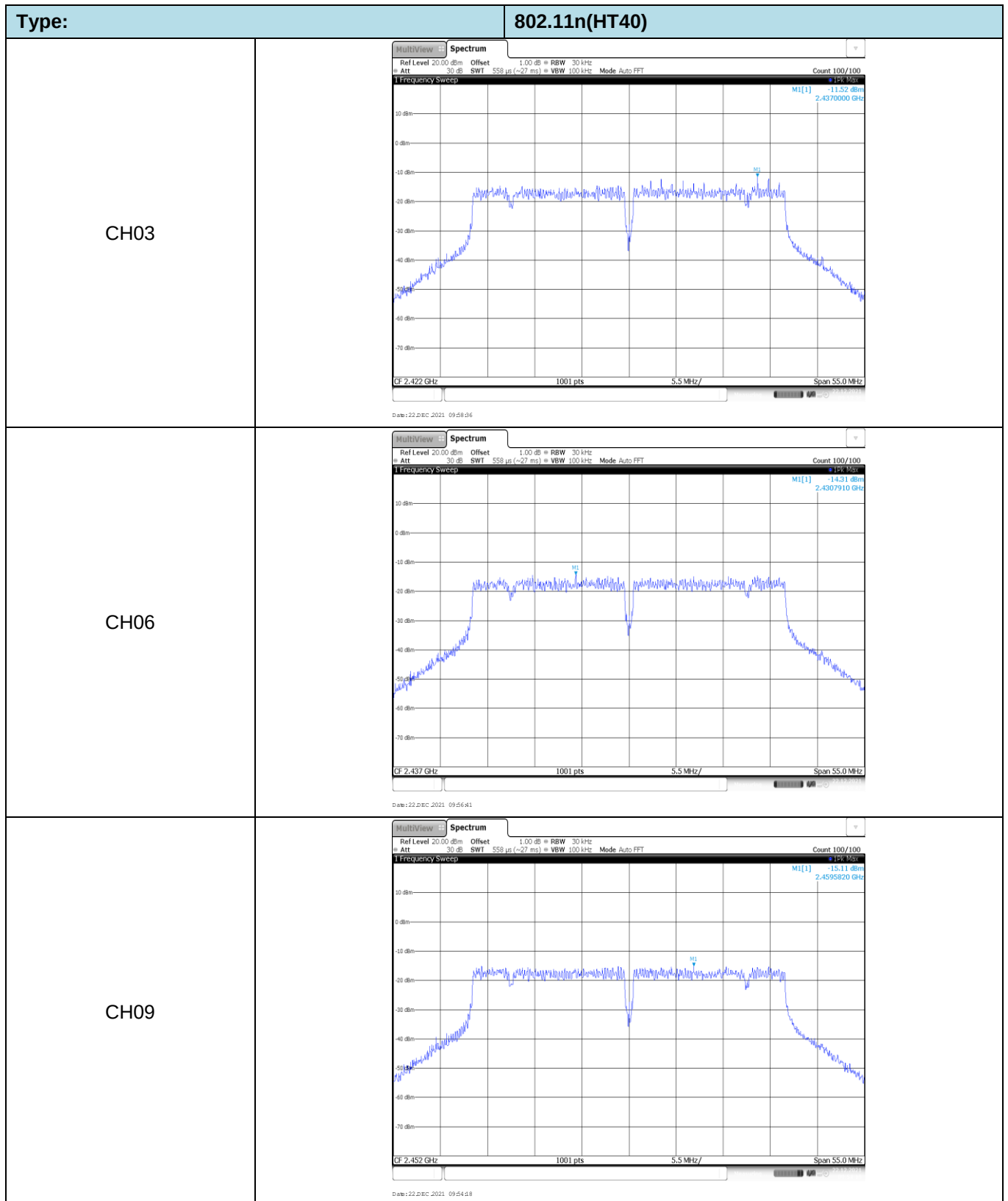
Appendix B: Power Spectral Density

Type	Channel	Power Spectral Density (dBm/30KHz)	Limit (dBm/3KHz)	Result
802.11b	01	-1.96	≤8.00	Pass
	06	-1.03		
	11	-1.76		
802.11g	01	-9.34	≤8.00	Pass
	06	-9.55		
	11	-9.98		
802.11n(HT20)	01	-10.93	≤8.00	Pass
	06	-11.13		
	11	-9.83		
802.11n(HT40)	03	-11.52	≤8.00	Pass
	06	-14.31		
	09	-15.11		



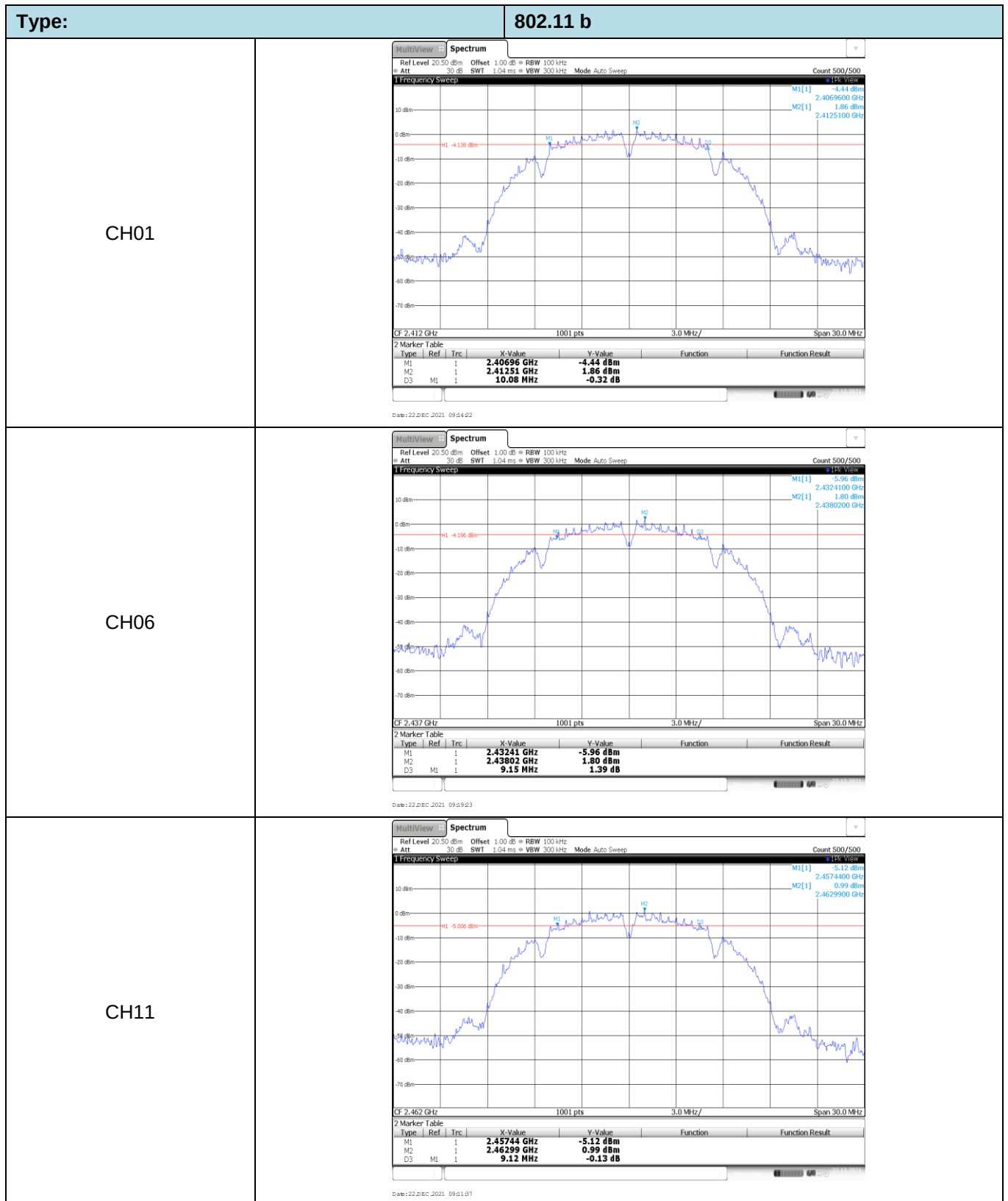


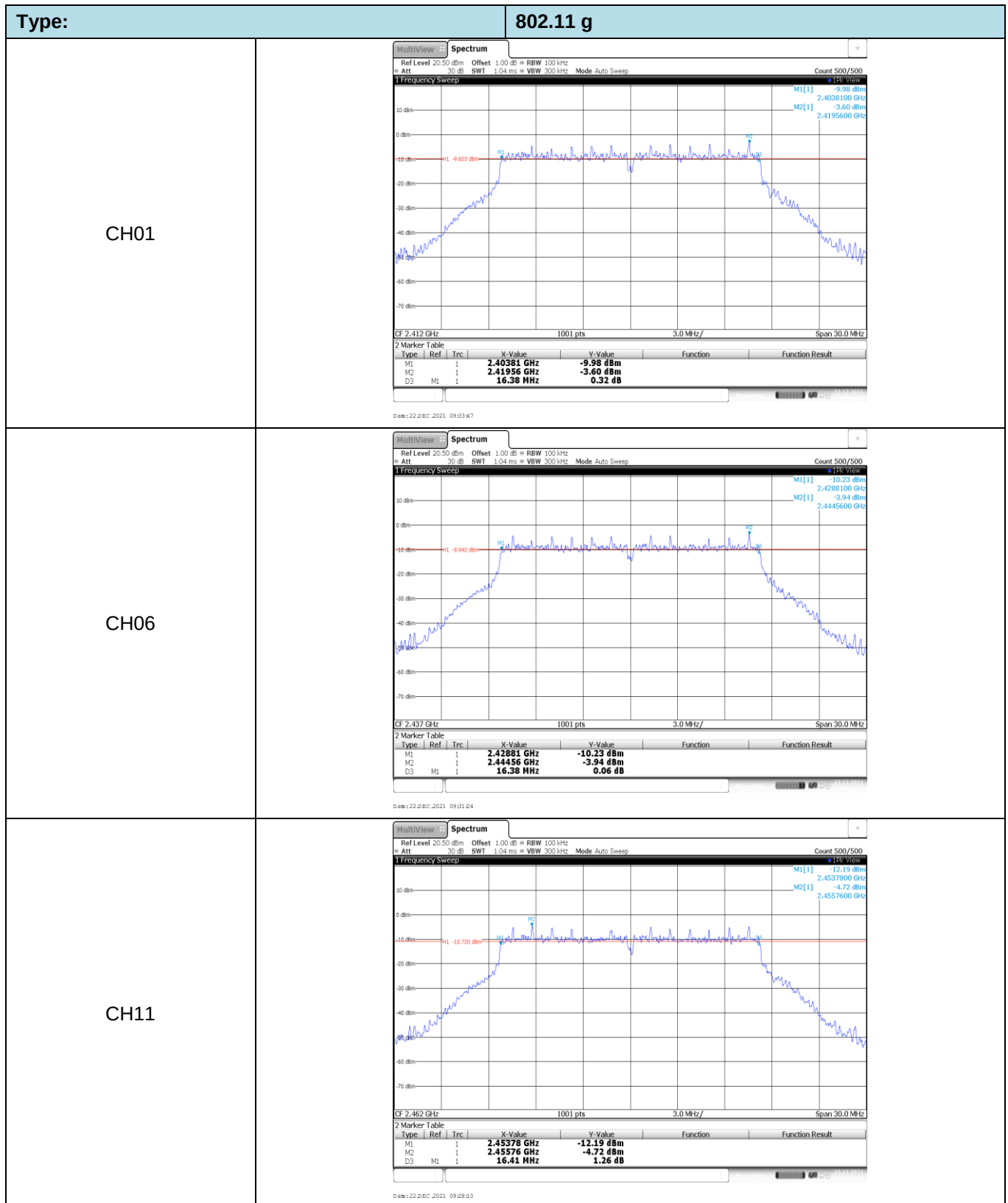
Type:	802.11n(HT20)
CH01	 Ref Level 20.00 dBm Offset 1.00 dB BW 30 kHz Att 30 dB SWI 279 us (~15 ms) VBW 100 kHz Mode Auto FFT Count 100/100 MI[1] -10.93 dBm 2.4069550 GHz Date: 22.DEC.2021 09:48:25
CH06	 Ref Level 20.00 dBm Offset 1.00 dB BW 30 kHz Att 30 dB SWI 279 us (~15 ms) VBW 100 kHz Mode Auto FFT Count 100/100 MI[1] -11.13 dBm 2.4310560 GHz Date: 22.DEC.2021 09:46:44
CH11	 Ref Level 20.00 dBm Offset 1.00 dB BW 30 kHz Att 30 dB SWI 279 us (~15 ms) VBW 100 kHz Mode Auto FFT Count 100/100 MI[1] -9.83 dBm 2.4670200 GHz Date: 22.DEC.2021 09:44:37

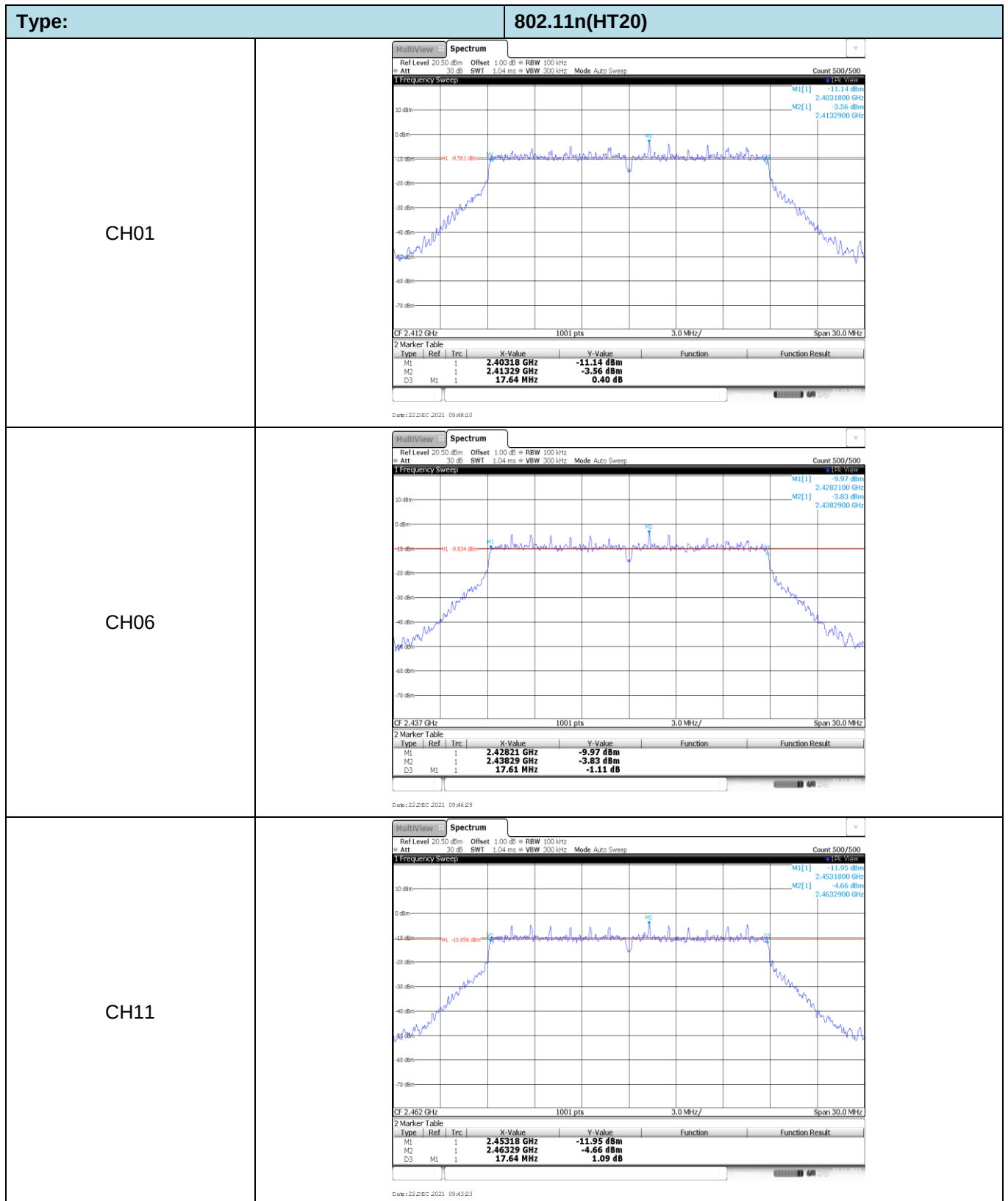


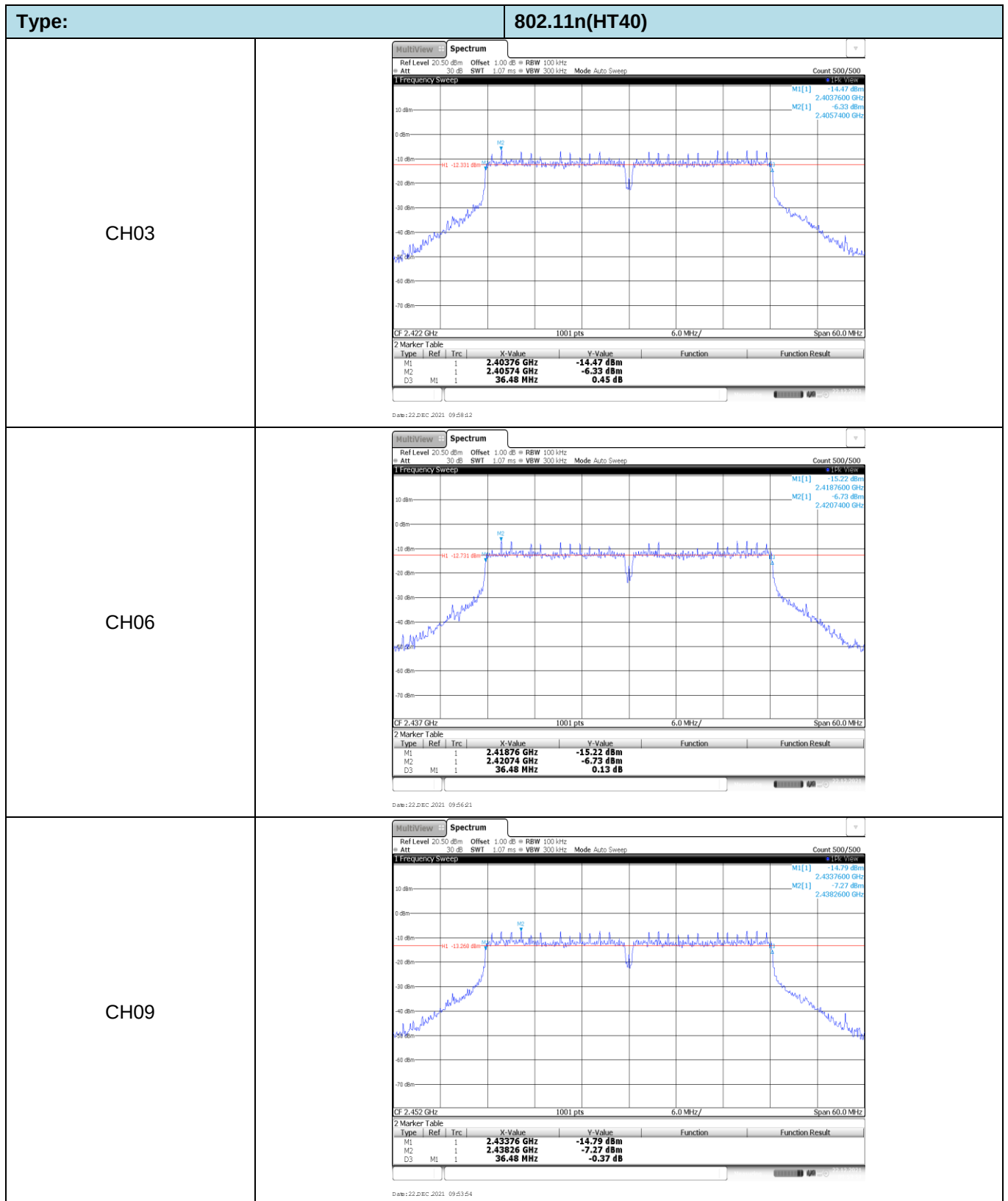
Appendix C: 6dB bandwidth

Type	Channel	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11b	01	10.08	≥0.5	Pass
	06	9.15		
	11	9.12		
802.11g	01	16.38	≥0.5	Pass
	06	16.38		
	11	16.41		
802.11n(HT20)	01	17.64	≥0.5	Pass
	06	17.61		
	11	17.64		
802.11n(HT40)	03	36.48	≥0.5	Pass
	06	36.48		
	09	36.48		



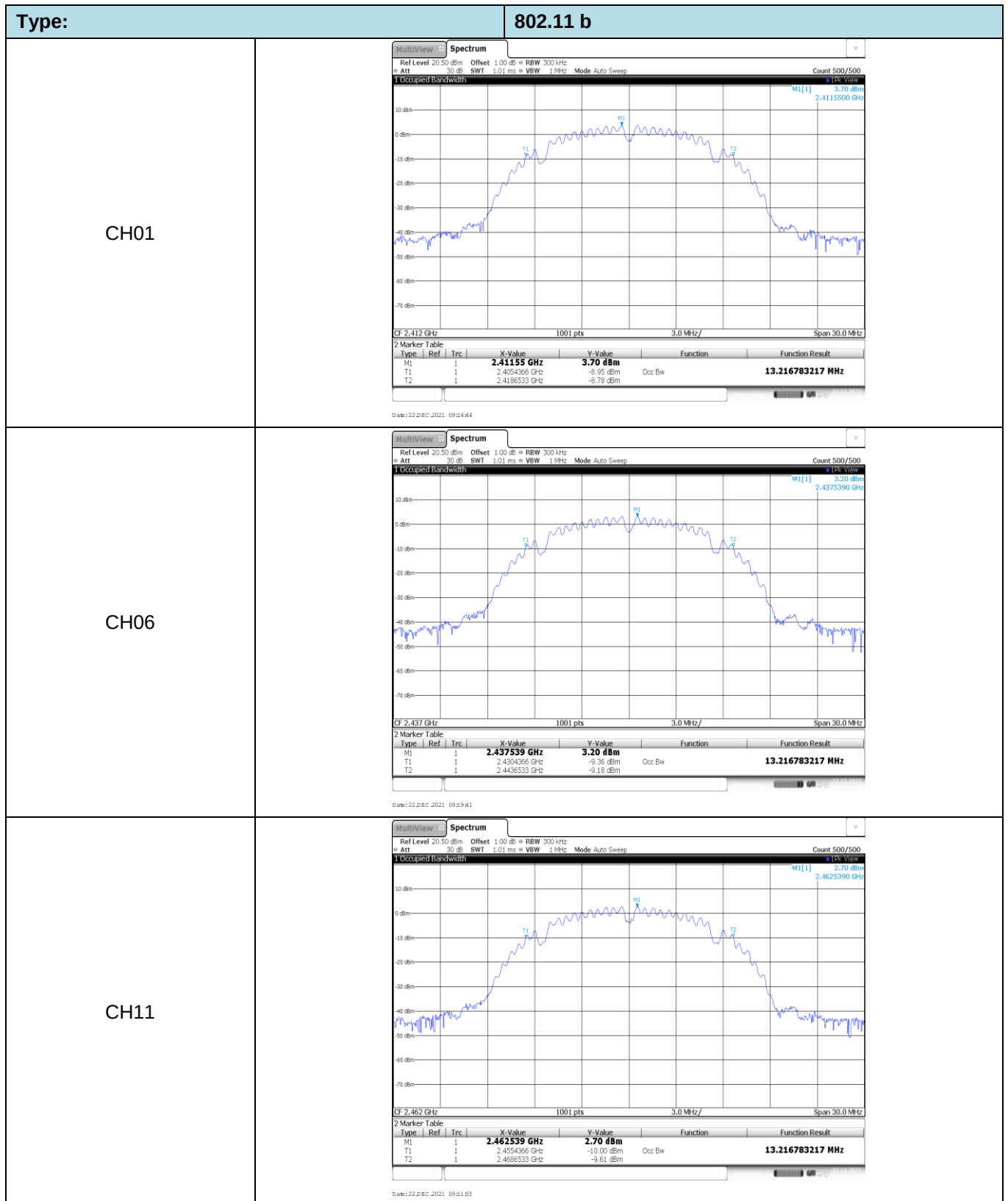


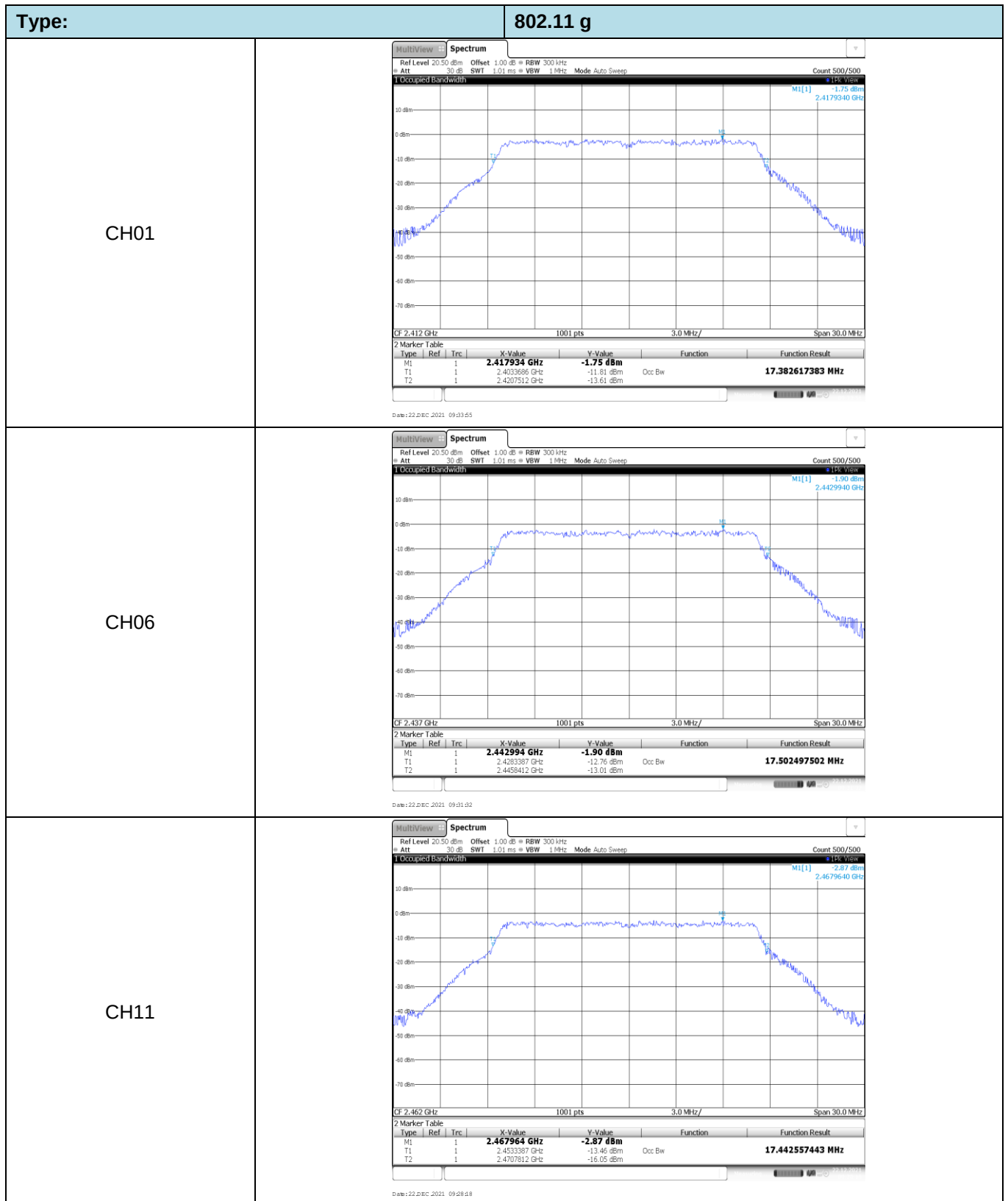


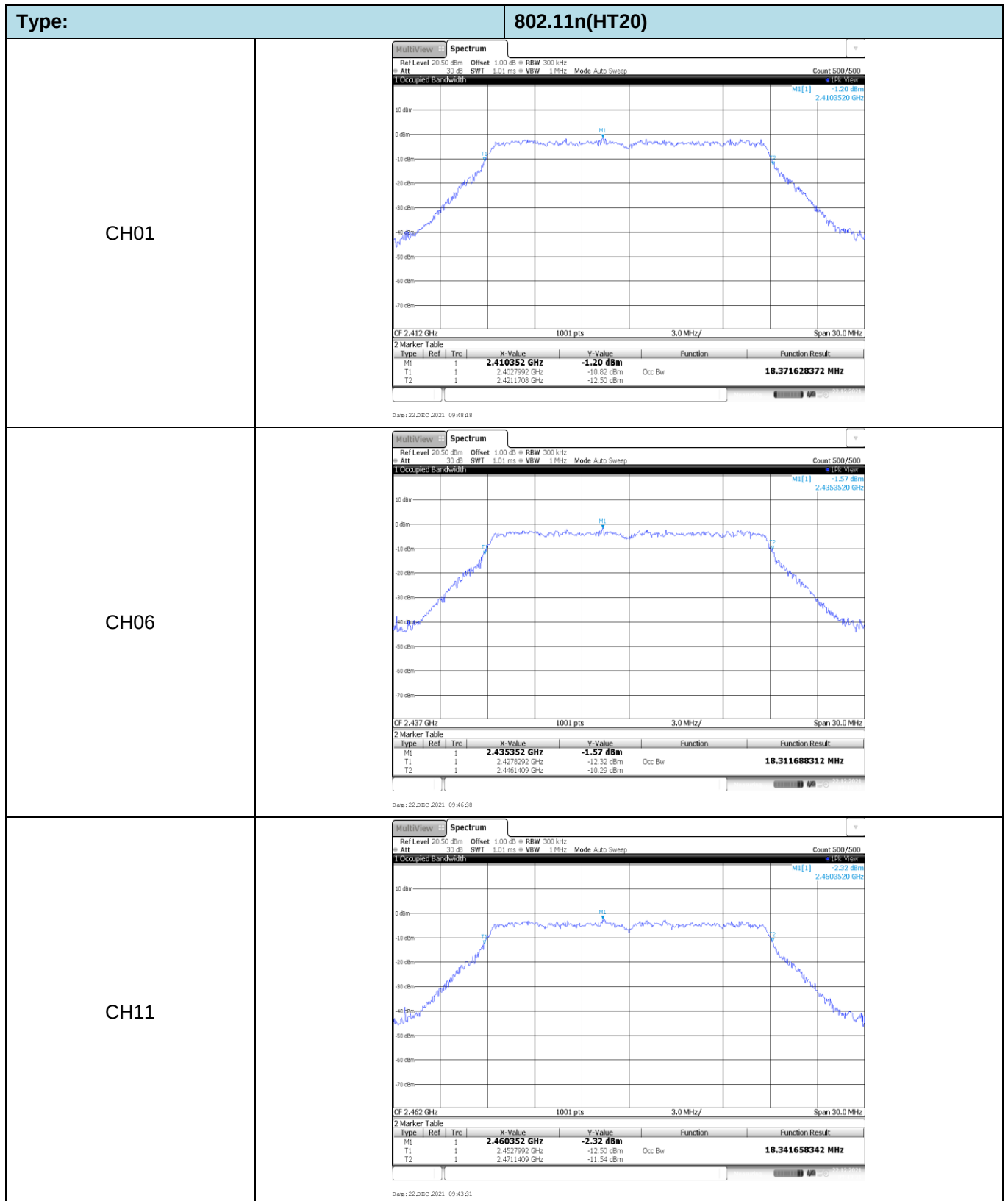


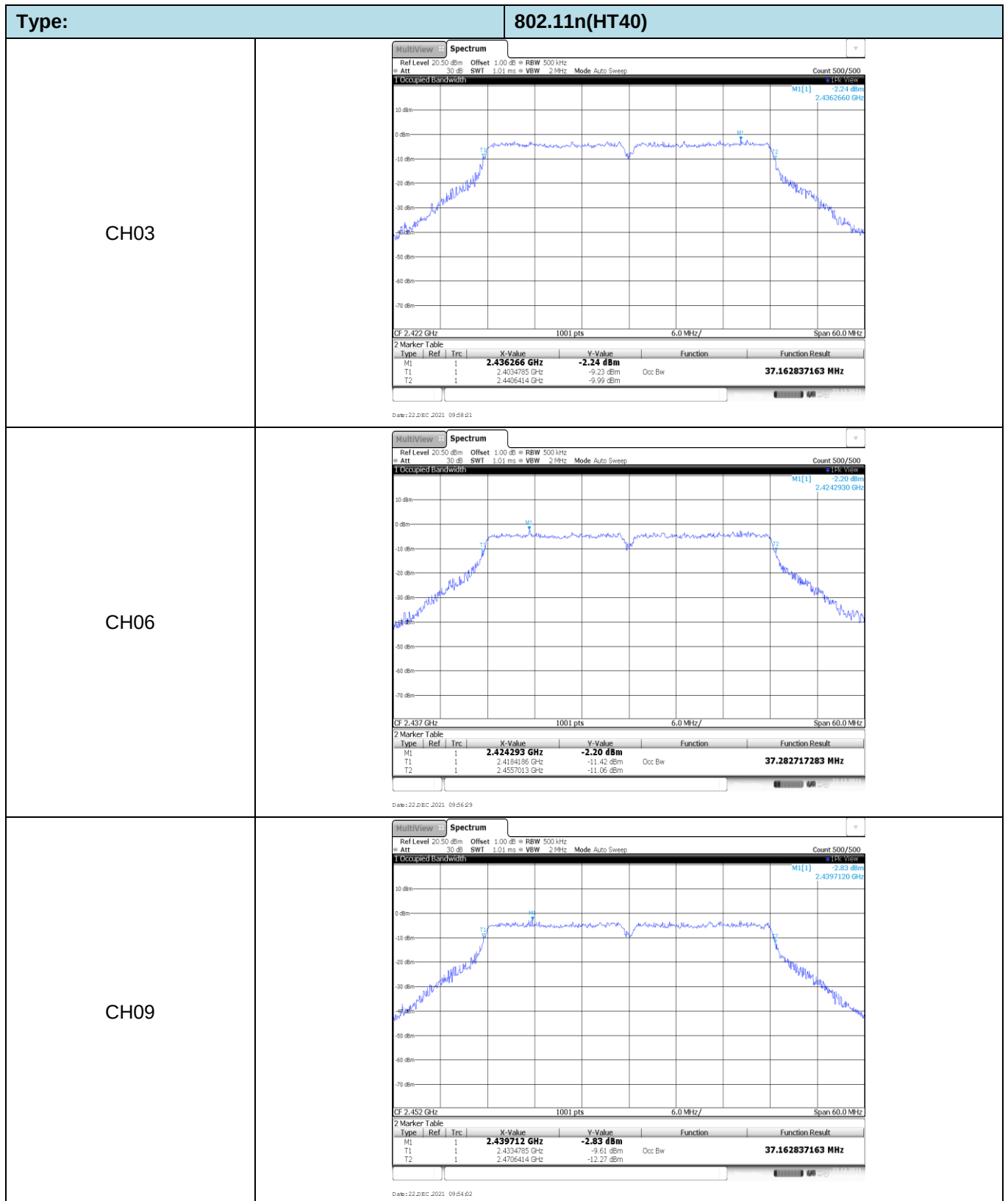
Appendix D: 99% Occupied Bandwidth

Type	Channel	99% Bandwidth (MHz)	Limit (kHz)	Result
802.11b	01	13.22	-	Pass
	06	13.22		
	11	13.22		
802.11g	01	17.38	-	Pass
	06	17.50		
	11	17.44		
802.11n(HT20)	01	18.37	-	Pass
	06	18.31		
	11	18.34		
802.11n(HT40)	03	37.16	-	Pass
	06	37.28		
	09	37.16		





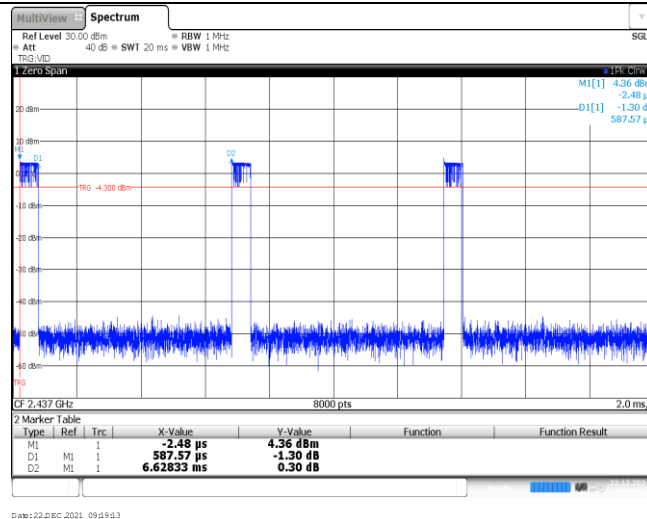




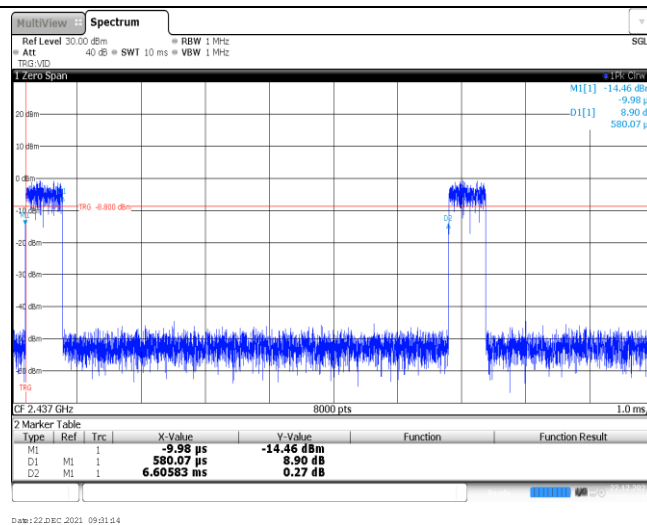
Appendix E: Duty Cycle

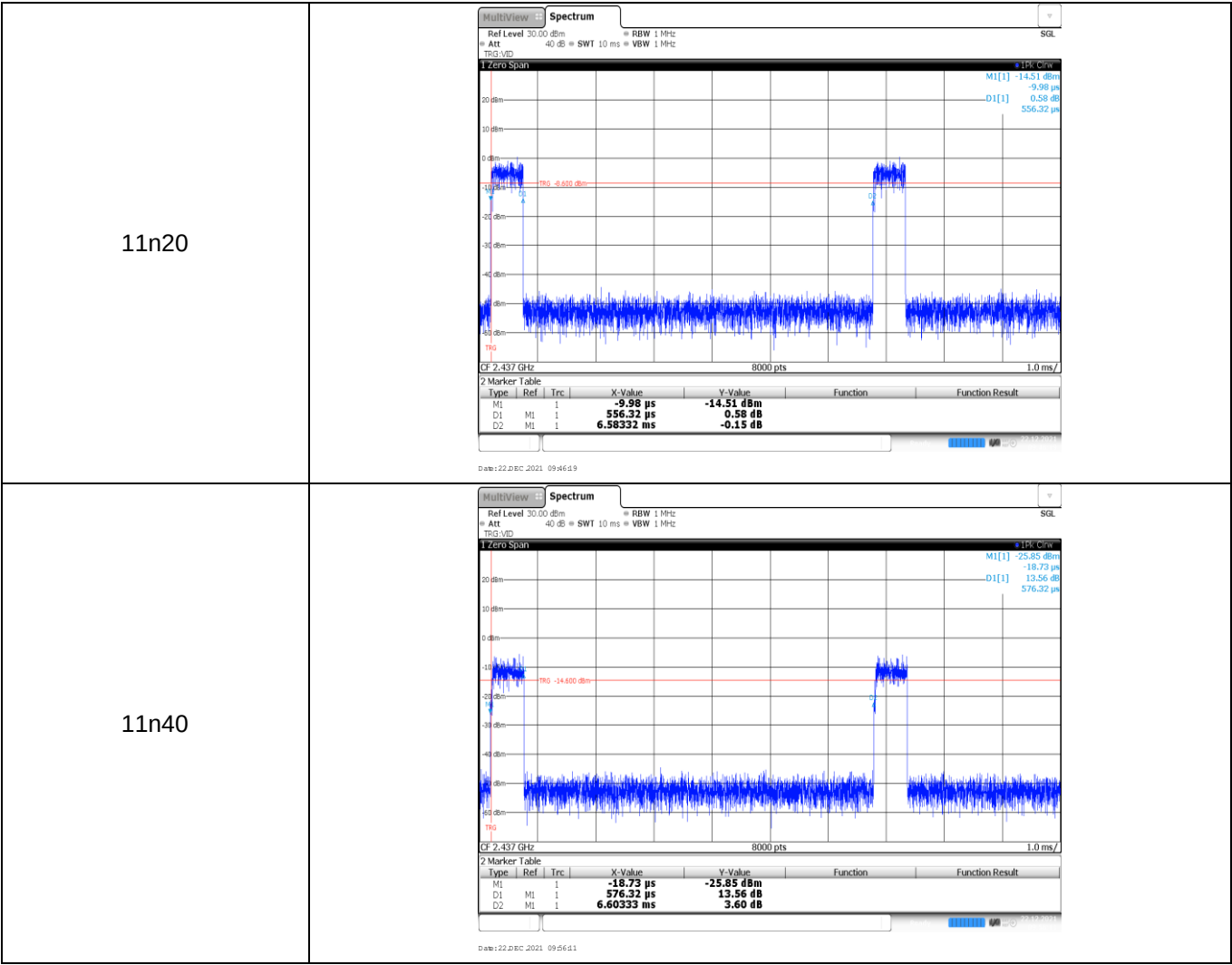
Modulation Type	Test Frequency (MHz)	T _{on time} for single burst (ms)	T _{period} (ms)	Duty cycle	1/T _{on time} (kHz)
11b	2437	0.59	6.63	8.9%	1.7
11g	2437	0.58	6.61	8.8%	1.7
11n20	2437	0.56	6.58	8.5%	1.8
11n40	2437	0.58	6.60	8.8%	1.7

11b



11g



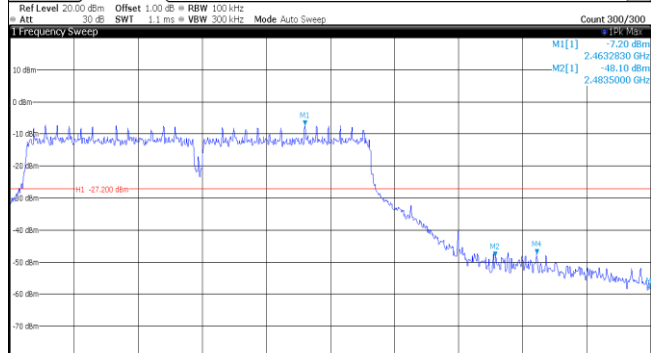


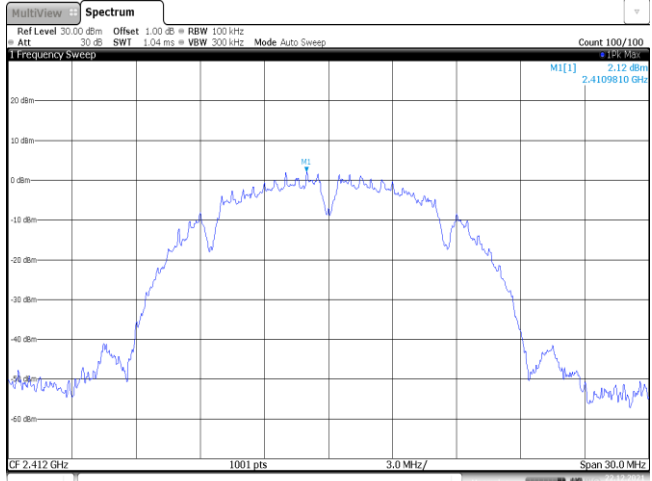
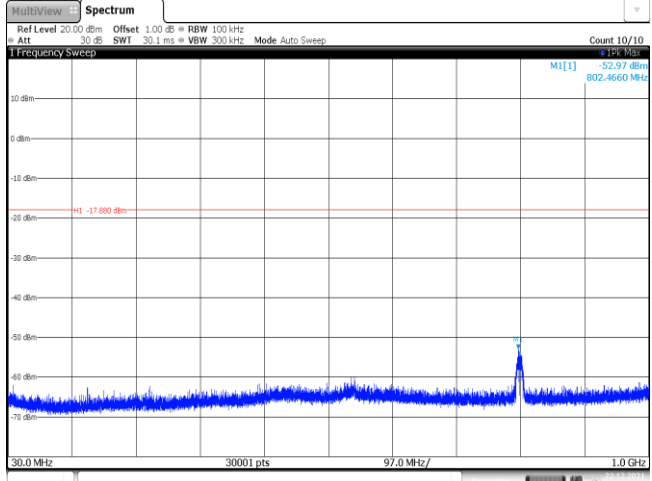
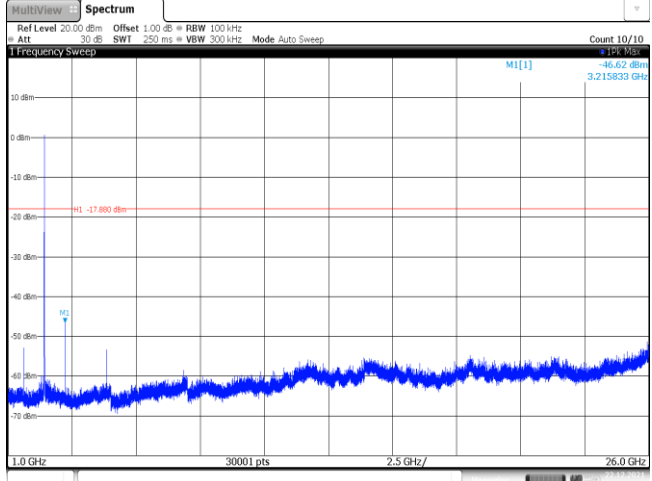
Appendix F: Band edge and Spurious Emissions (conducted)

Test Item:	Bandedge	Type:	802.11 b																																										
CH01	MultiviewSpectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 20.0 dB SWI 1.12 ms VBW 300 kHz Mode Auto Sweep Count 300/300 1 Frequency Sweep 2.31 GHz 1001 pts 11.2 MHz/ 2.422 GHz 2 Marker Table <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>2.41098 GHz</td><td>1.92 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-51.18 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-61.57 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-62.45 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.396016 GHz</td><td>-48.24 dBm</td><td></td><td></td></tr></tbody></table> Date: 22 DEC 2021 09:15:13			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.41098 GHz	1.92 dBm			M2	1		2.4 GHz	-51.18 dBm			M3	1		2.39 GHz	-61.57 dBm			M4	1		2.31 GHz	-62.45 dBm			M5	1		2.396016 GHz	-48.24 dBm		
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CH11	MultiviewSpectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30.0 dB SWI 1.03 ms VBW 300 kHz Mode Auto Sweep Count 300/300 1 Frequency Sweep 2.452 GHz 1001 pts 4.8 MHz/ 2.5 GHz 2 Marker Table <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>2.462478 GHz</td><td>0.92 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-56.40 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-61.04 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.484352 GHz</td><td>-56.68 dBm</td><td></td><td></td></tr></tbody></table> Date: 22 DEC 2021 09:12:25			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.462478 GHz	0.92 dBm			M2	1		2.4835 GHz	-56.40 dBm			M3	1		2.5 GHz	-61.04 dBm			M4	1		2.484352 GHz	-56.68 dBm									
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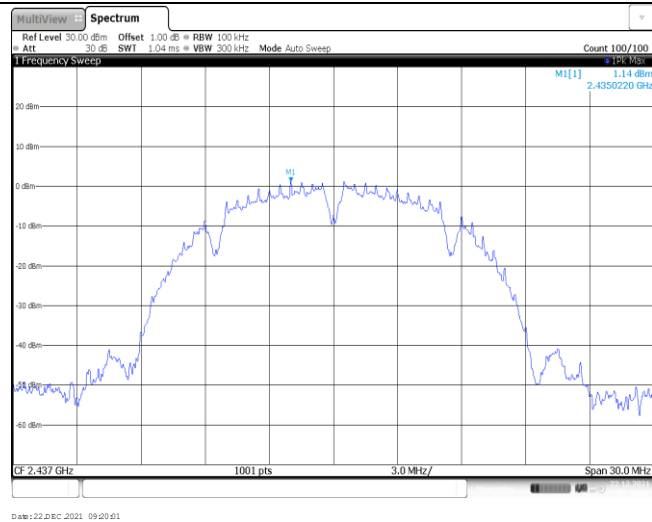
Test Item:	Bandedge	Type:	802.11 g																																										
CH01	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWI 1.12 ms VBW 300 kHz Mode Auto Sweep Count 300/300 1 Frequency Sweep 30 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1 M2 M3 M4 M5 -23.730 dBm -3.73 dBm -38.07 dBm -54.10 dBm -61.58 dBm -40.03 dBm 2.31 GHz 1001 pts 11.2 MHz/ 2.422 GHz 2 Marker Table <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>2.41322 GHz</td><td>-3.73 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-38.07 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-54.10 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-61.58 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.399824 GHz</td><td>-40.03 dBm</td><td></td><td></td></tr></table> Date: 22 DEC 2021 09:35:06			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.41322 GHz	-3.73 dBm			M2	1		2.4 GHz	-38.07 dBm			M3	1		2.39 GHz	-54.10 dBm			M4	1		2.31 GHz	-61.58 dBm			M5	1		2.399824 GHz	-40.03 dBm		
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CH11	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWI 1.03 ms VBW 300 kHz Mode Auto Sweep Count 300/300 1 Frequency Sweep 30 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1 M2 M3 M4 -24.840 dBm -4.84 dBm -57.29 dBm -54.37 dBm 2.452 GHz 1001 pts 4.8 MHz/ 2.5 GHz 2 Marker Table <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>2.467033 GHz</td><td>-4.84 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-57.29 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-61.53 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.484304 GHz</td><td>-54.37 dBm</td><td></td><td></td></tr></table> Date: 22 DEC 2021 09:28:25			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.467033 GHz	-4.84 dBm			M2	1		2.4835 GHz	-57.29 dBm			M3	1		2.5 GHz	-61.53 dBm			M4	1		2.484304 GHz	-54.37 dBm									
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Test Item:	Bandedge	Type:	802.11 n(HT20)
CH01			

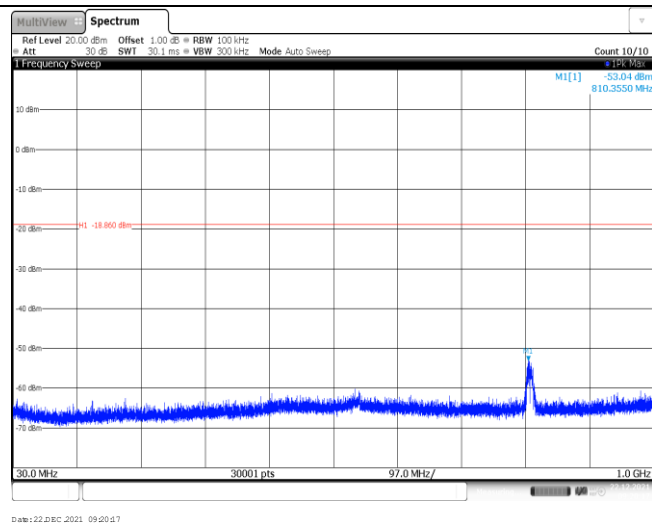
Test Item:	Bandedge	Type:	802.11 n(HT40)																																										
CH03	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB BW 100 kHz Att 30 dB SWI 1.32 ms VBW 300 kHz Mode Auto Sweep Count 300/300 1 Frequency Sweep 30 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] -6.48 dBm 2.405800 GHz M2[1] -36.67 dBm 2.400000 GHz  2.31 GHz 1001 pts 13.2 MHz/ 2.442 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>2.4058 GHz</td><td>-6.48 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-36.67 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-51.22 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-62.64 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.398704 GHz</td><td>-35.83 dBm</td><td></td><td></td></tr></table> Date: 22 DEC 2021 09:58:47			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.4058 GHz	-6.48 dBm			M2	1		2.4 GHz	-36.67 dBm			M3	1		2.39 GHz	-51.22 dBm			M4	1		2.31 GHz	-62.64 dBm			M5	1		2.398704 GHz	-35.83 dBm		
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CH09	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB BW 100 kHz Att 30 dB SWI 1.1 ms VBW 300 kHz Mode Auto Sweep Count 300/300 1 Frequency Sweep 30 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] -7.20 dBm 2.4632830 GHz M2[1] -48.10 dBm 2.4835000 GHz  2.432 GHz 1001 pts 6.8 MHz/ 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>2.463283 GHz</td><td>-7.20 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-48.10 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-57.76 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.487896 GHz</td><td>-47.37 dBm</td><td></td><td></td></tr></table> Date: 22 DEC 2021 09:54:30			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.463283 GHz	-7.20 dBm			M2	1		2.4835 GHz	-48.10 dBm			M3	1		2.5 GHz	-57.76 dBm			M4	1		2.487896 GHz	-47.37 dBm									
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M3	1		2.5 GHz	-57.76 dBm																																									
M4	1		2.487896 GHz	-47.37 dBm																																									

Test Item:	SE	Type:	802.11b
CH01 Reference level		 Ref Level 30.00 dBm Offset 1.00 dB BW 100 kHz Att 30 dB SWI 1.04 ms VBW 300 kHz Mode Auto Sweep Count 100/100 M1[1] 2.12 dBm 2.4109810 GHz 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm 2.412 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 22 DEC 2021 09:18:07	
CH01 30MHz~1000MHz		 Ref Level 20.00 dBm Offset 1.00 dB BW 100 kHz Att 30 dB SWI 30.1 ms VBW 300 kHz Mode Auto Sweep Count 10/10 M1[1] -52.97 dBm 802.4660 MHz 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 22 DEC 2021 09:18:23	
CH01 1GHz~26GHz		 Ref Level 20.00 dBm Offset 1.00 dB BW 100 kHz Att 30 dB SWI 250 ms VBW 300 kHz Mode Auto Sweep Count 10/10 M1[1] -46.62 dBm 3.215833 GHz 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 22 DEC 2021 09:18:39	

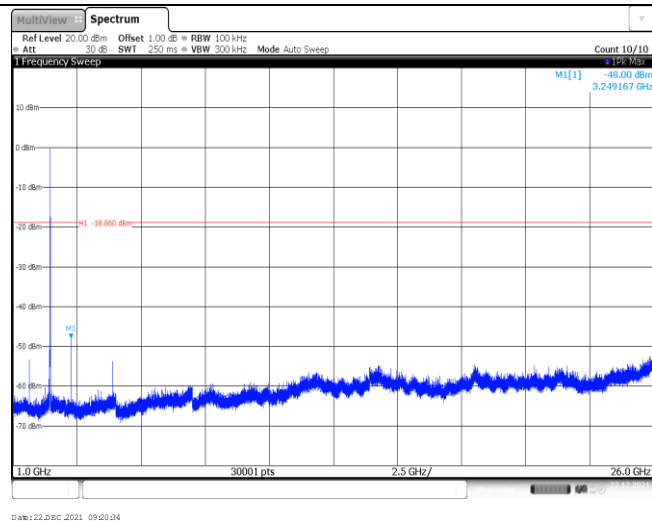
CH06
Reference level



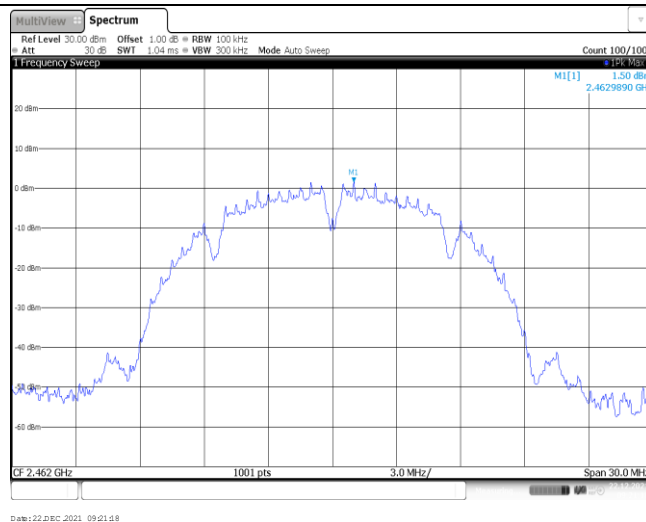
CH06
30MHz~1000MHz



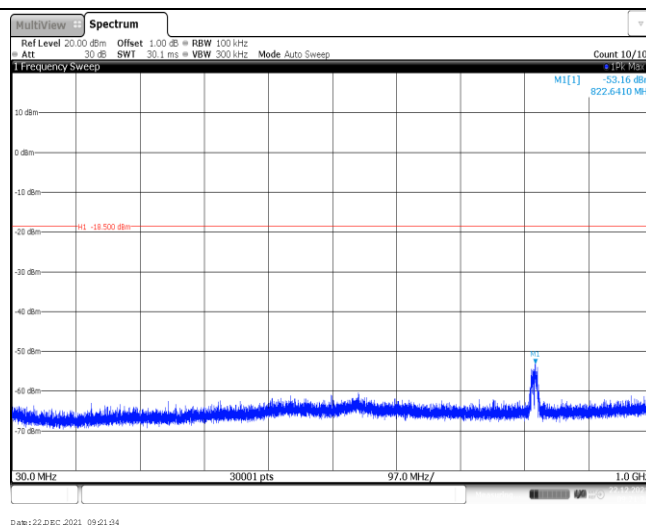
CH06
1GHz~26GHz



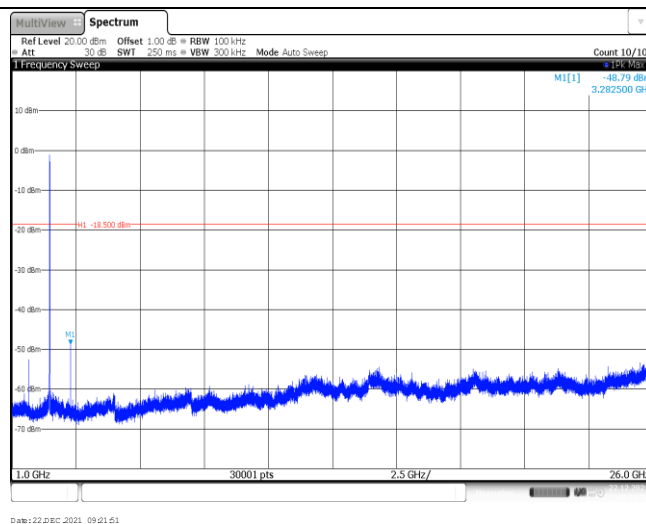
CH11
Reference level

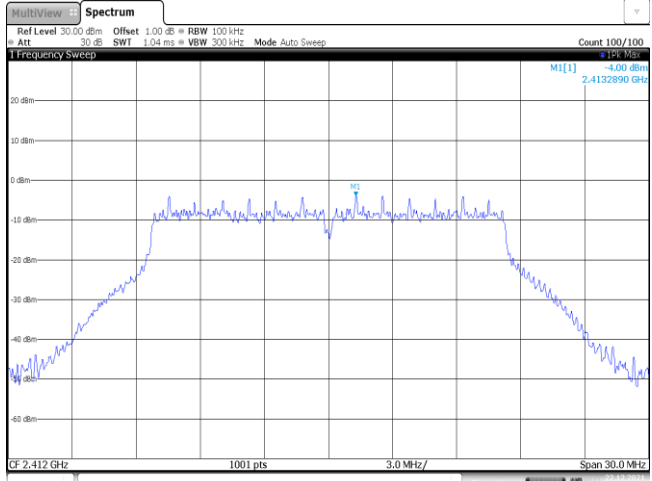
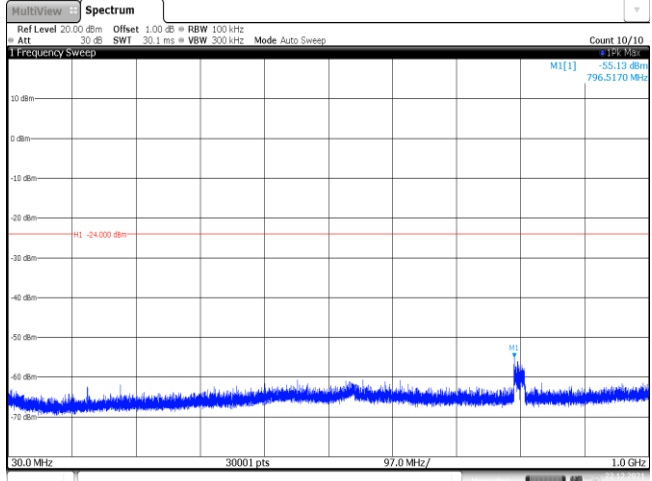
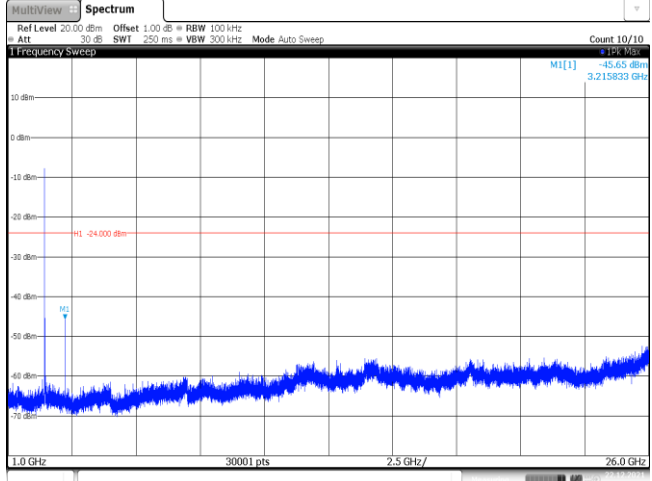


CH11
30MHz~1000MHz

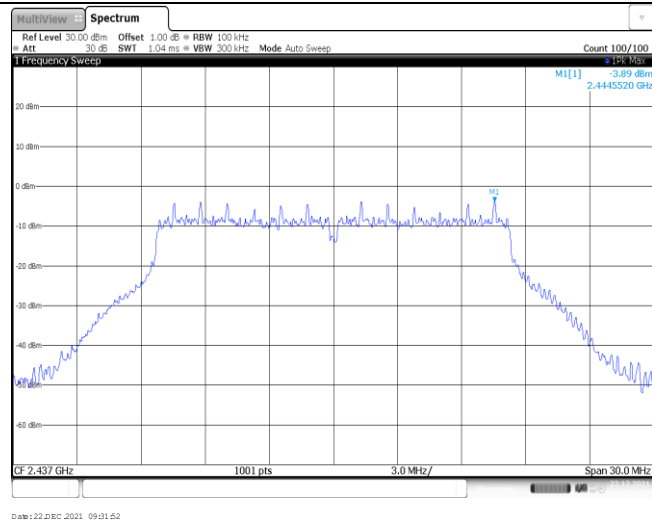


CH11
1GHz~26GHz

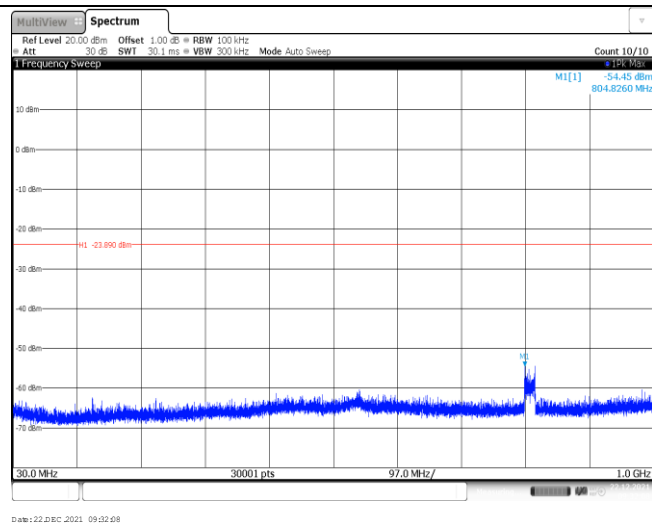


Test Item:	SE	Type:	802.11g
CH01 Reference level			
CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

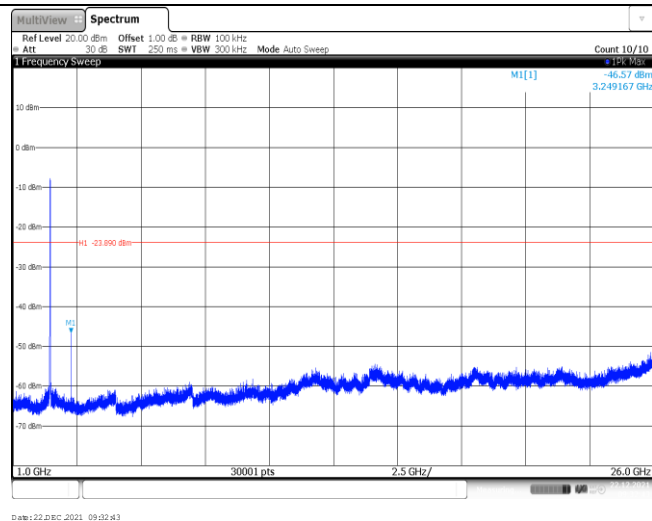
CH06
Reference level



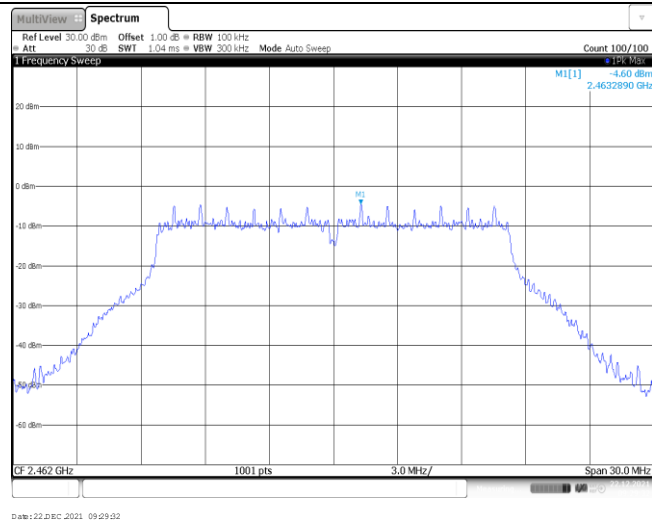
CH06
30MHz~1000MHz



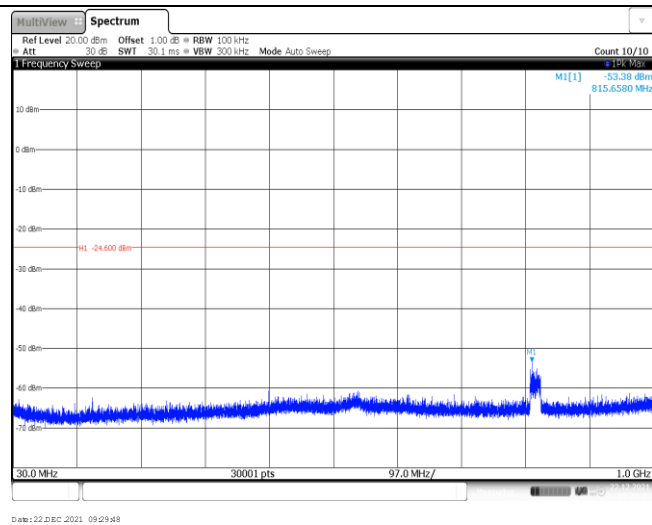
CH06
1GHz~26GHz



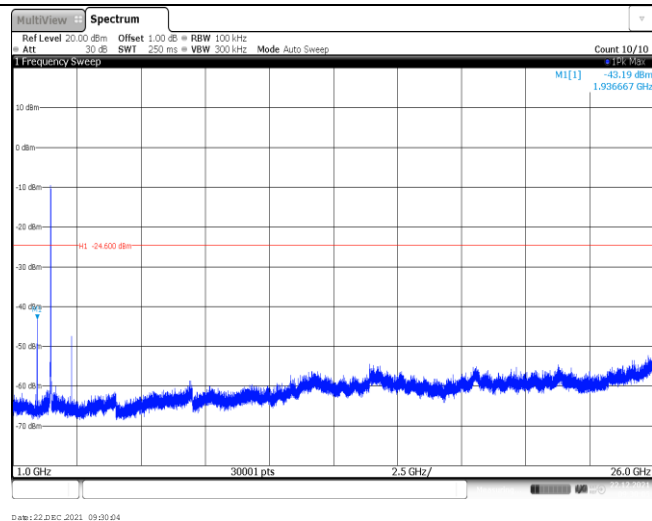
CH11
Reference level

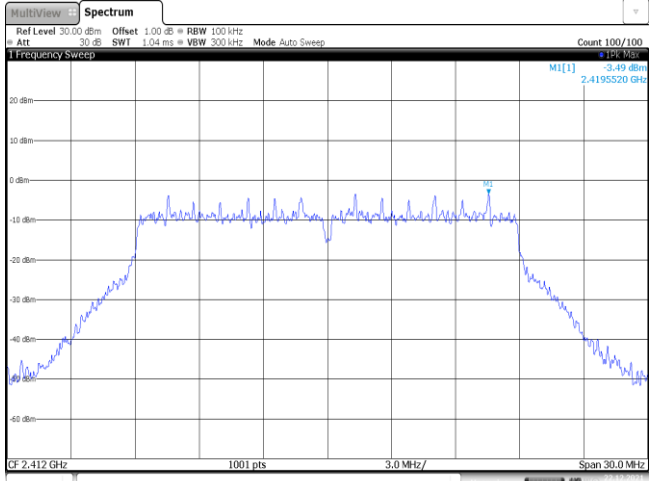
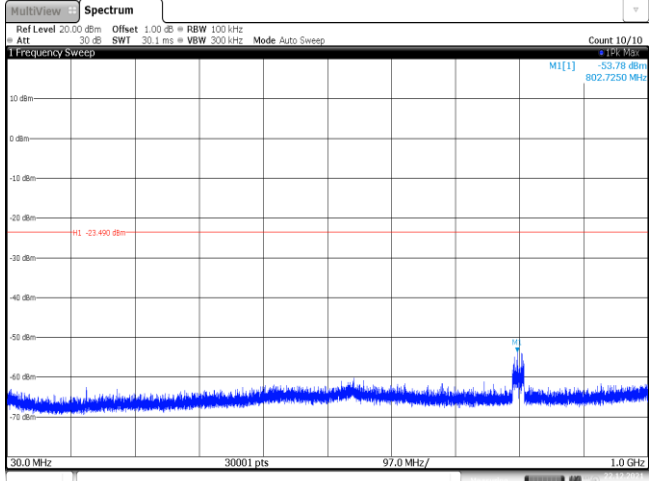
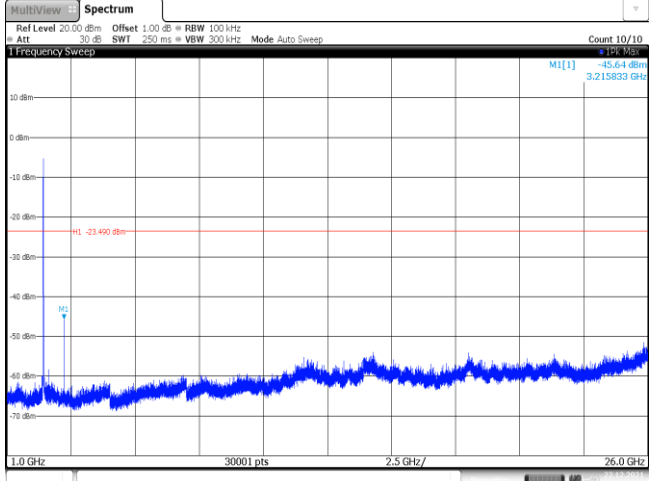


CH11
30MHz~1000MHz

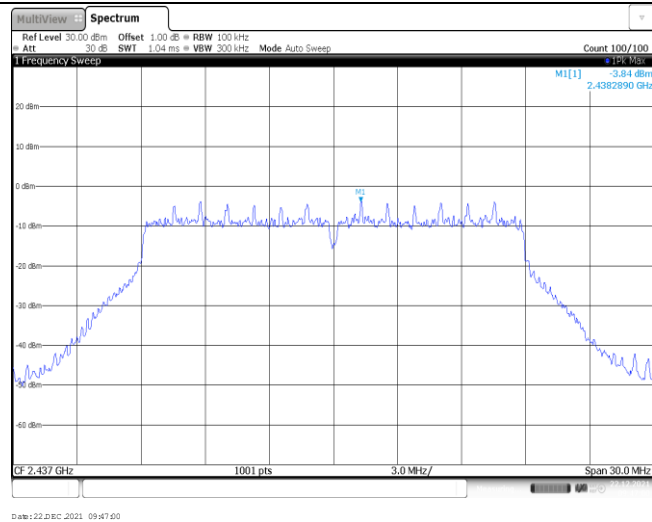


CH11
1GHz~26GHz

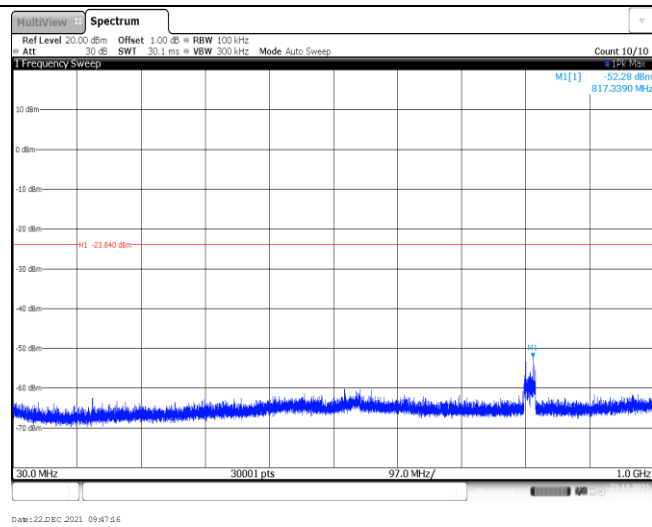


Test Item:	SE	Type:	802.11n(HT20)
CH01 Reference level		 CH01 Reference level	
CH01 30MHz~1000MHz		 CH01 30MHz~1000MHz	
CH01 1GHz~26GHz		 CH01 1GHz~26GHz	

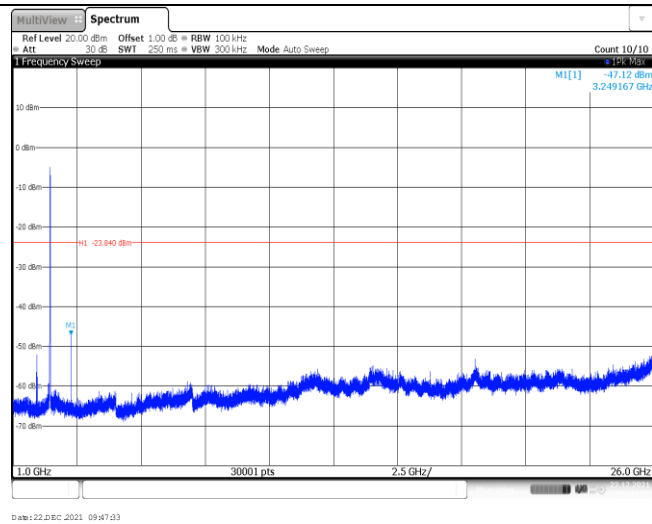
CH06
Reference level



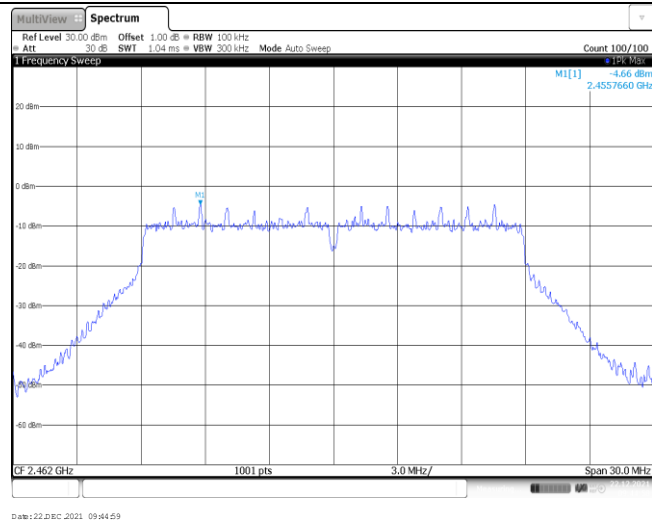
CH06
30MHz~1000MHz



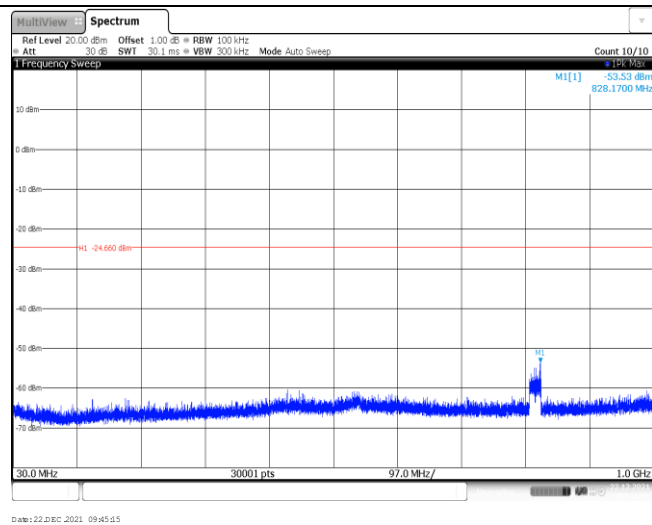
CH06
1GHz~26GHz



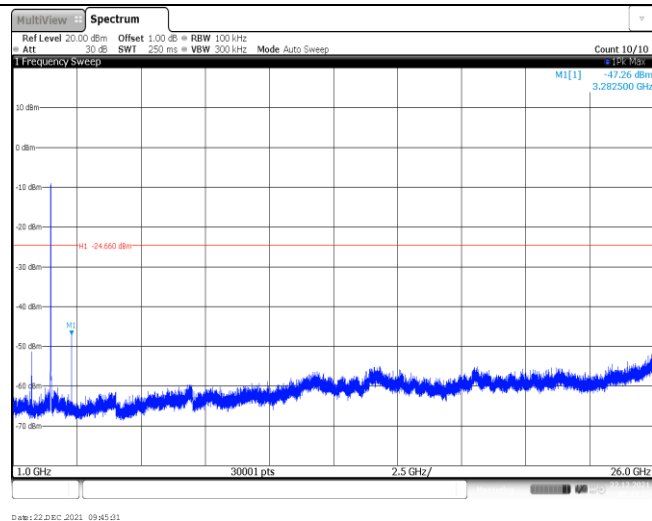
CH11
Reference level

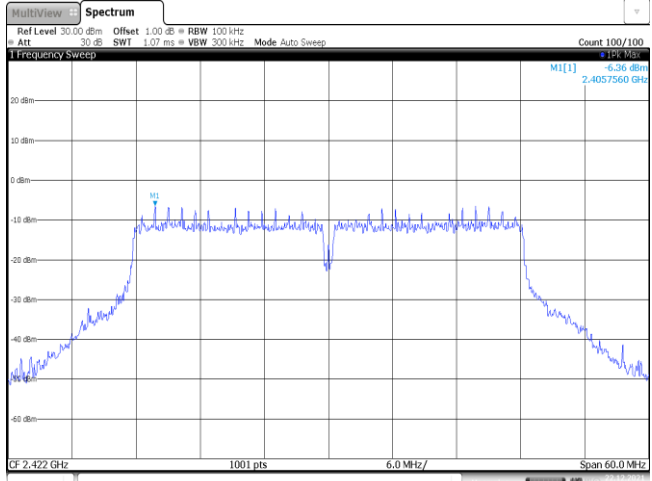
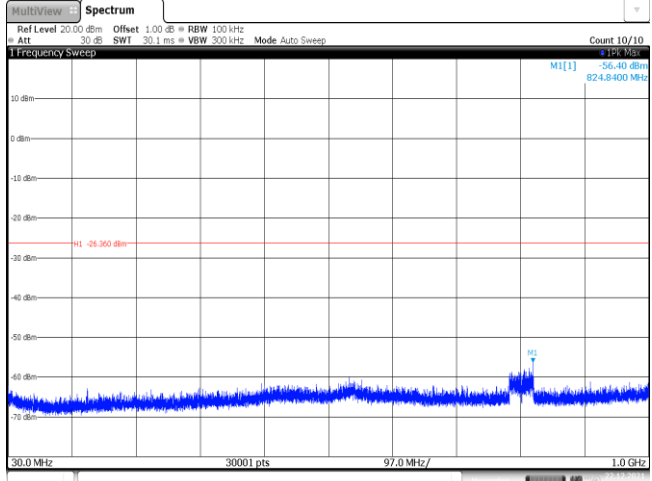
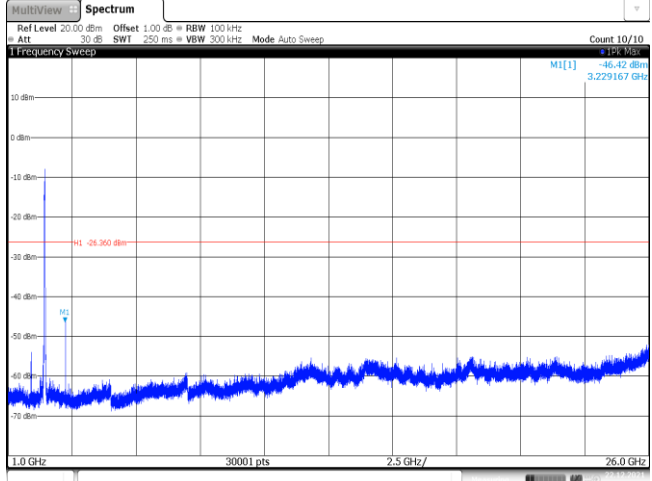


CH11
30MHz~1000MHz

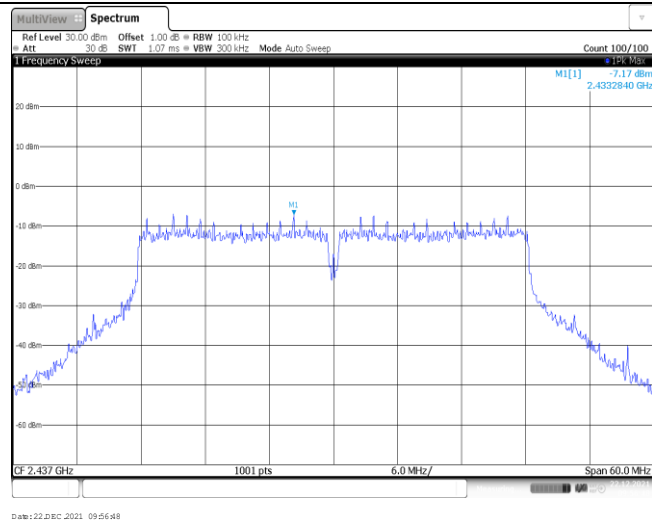


CH11
1GHz~26GHz

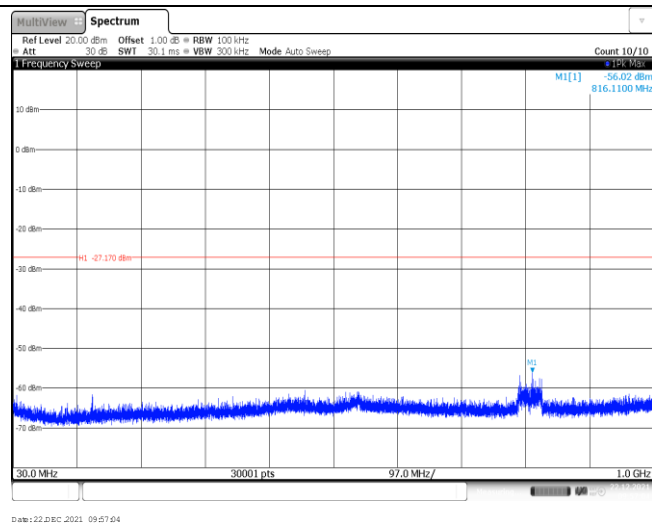


Test Item:	SE	Type:	802.11n(HT40)
CH03 Reference level			
CH03 30MHz~1000MHz			
CH03 1GHz~26GHz			

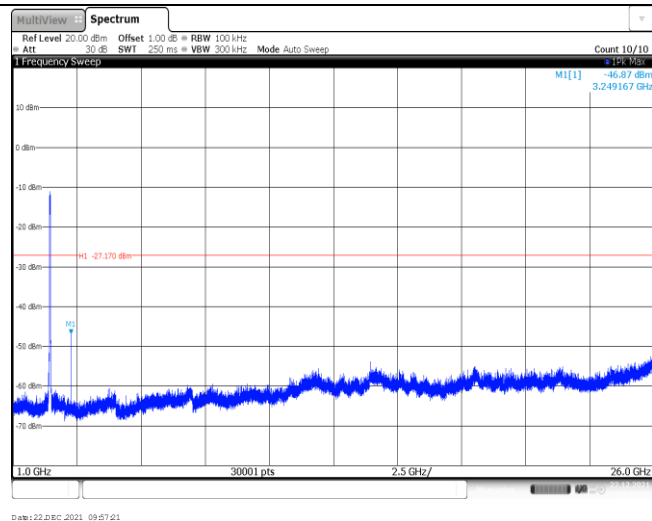
CH06
Reference level



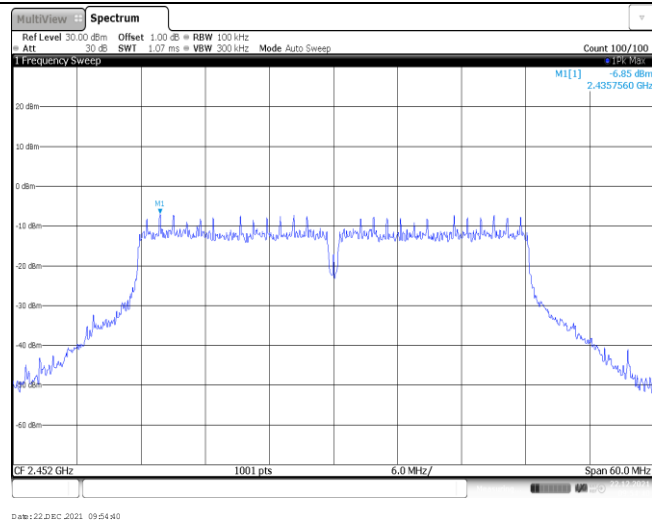
CH06
30MHz~1000MHz



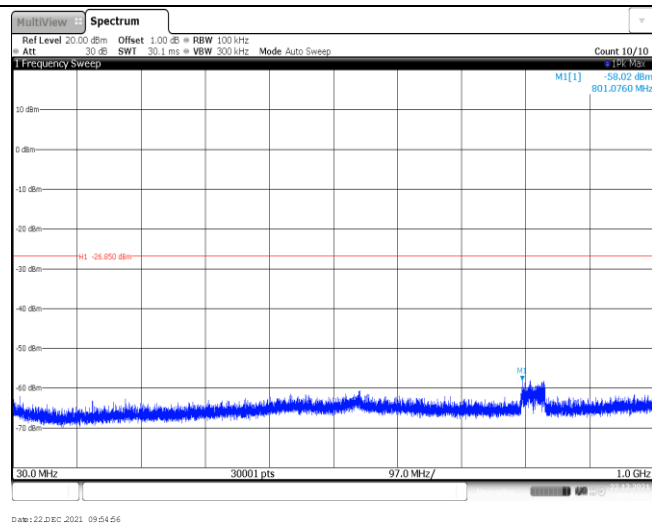
CH06
1GHz~26GHz



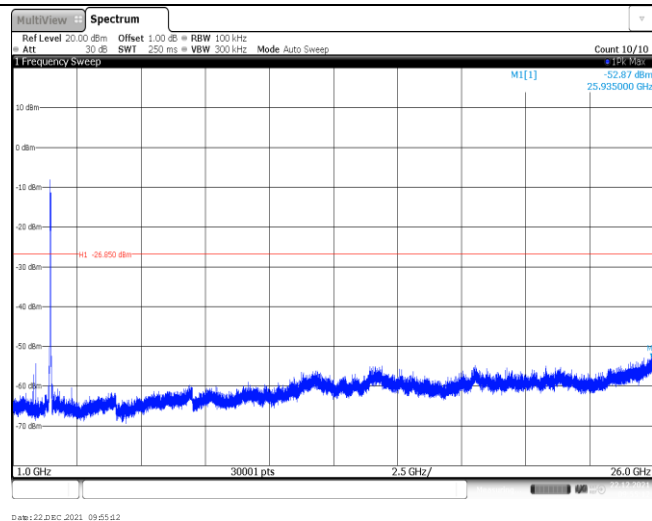
CH09
Reference level



CH09
30MHz~1000MHz



CH09
1GHz~26GHz



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