

APPENDIX REPORT

Project No.	SHT2210112901EW	Radio Specification	WIFI 2.4G
Test sample No.	YPHT22101129001	Model No.	Stark 8
Start test date	2022-11-15	Finish date	2022-11-16
Temperature	25.7℃	Humidity	39%
Test Engineer	Xiaoxiao Li	Auditor	Xiaodong Zheo

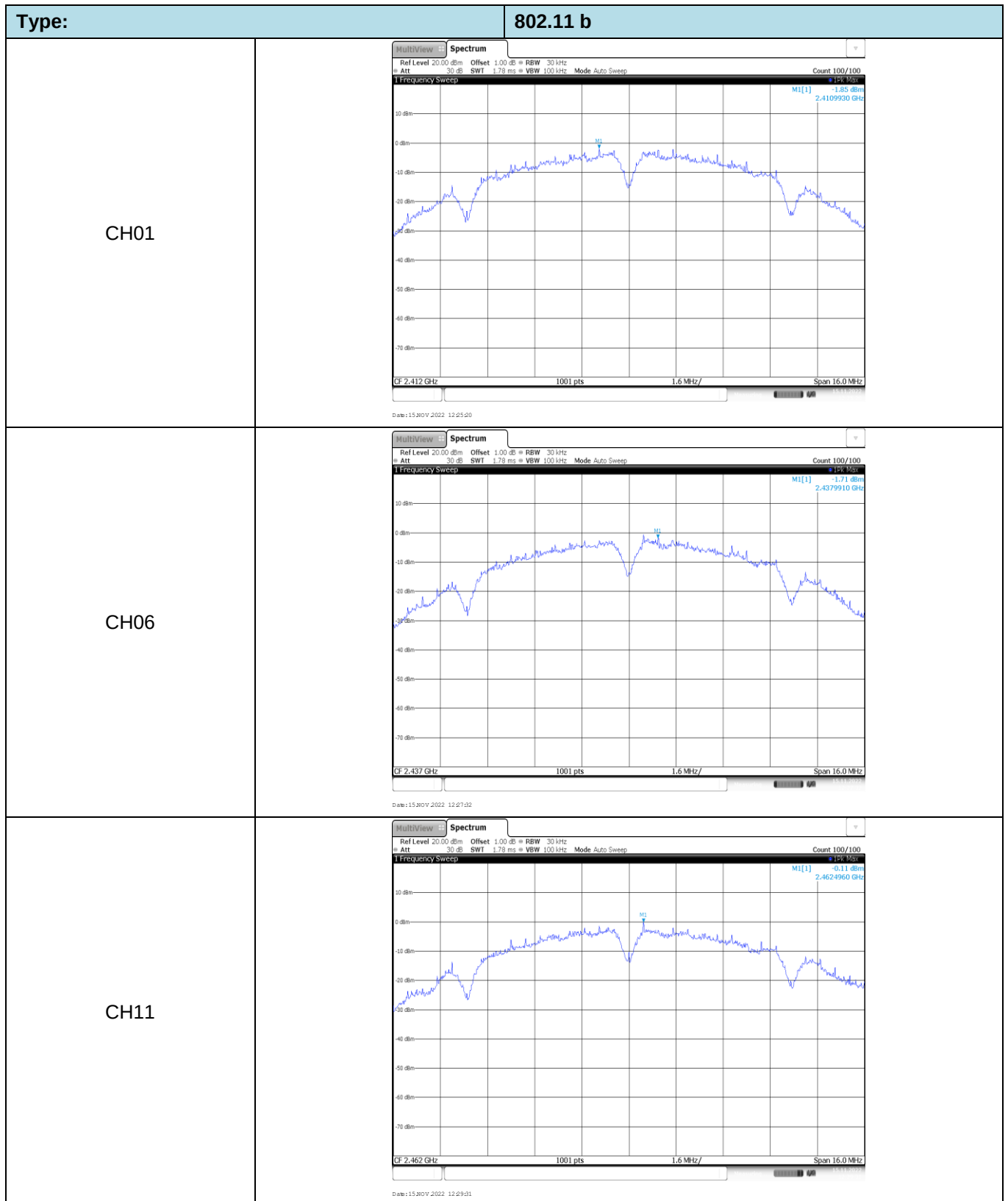
Appendix clause	Test item	Result
A	Conducted Peak Output Power	PASS
B	Power Spectral Density	PASS
C	6 dB Bandwidth	PASS
D	99% Occupied Bandwidth	PASS
E	Duty Cycle	PASS
F	Band edge and Spurious Emissions (conducted)	PASS

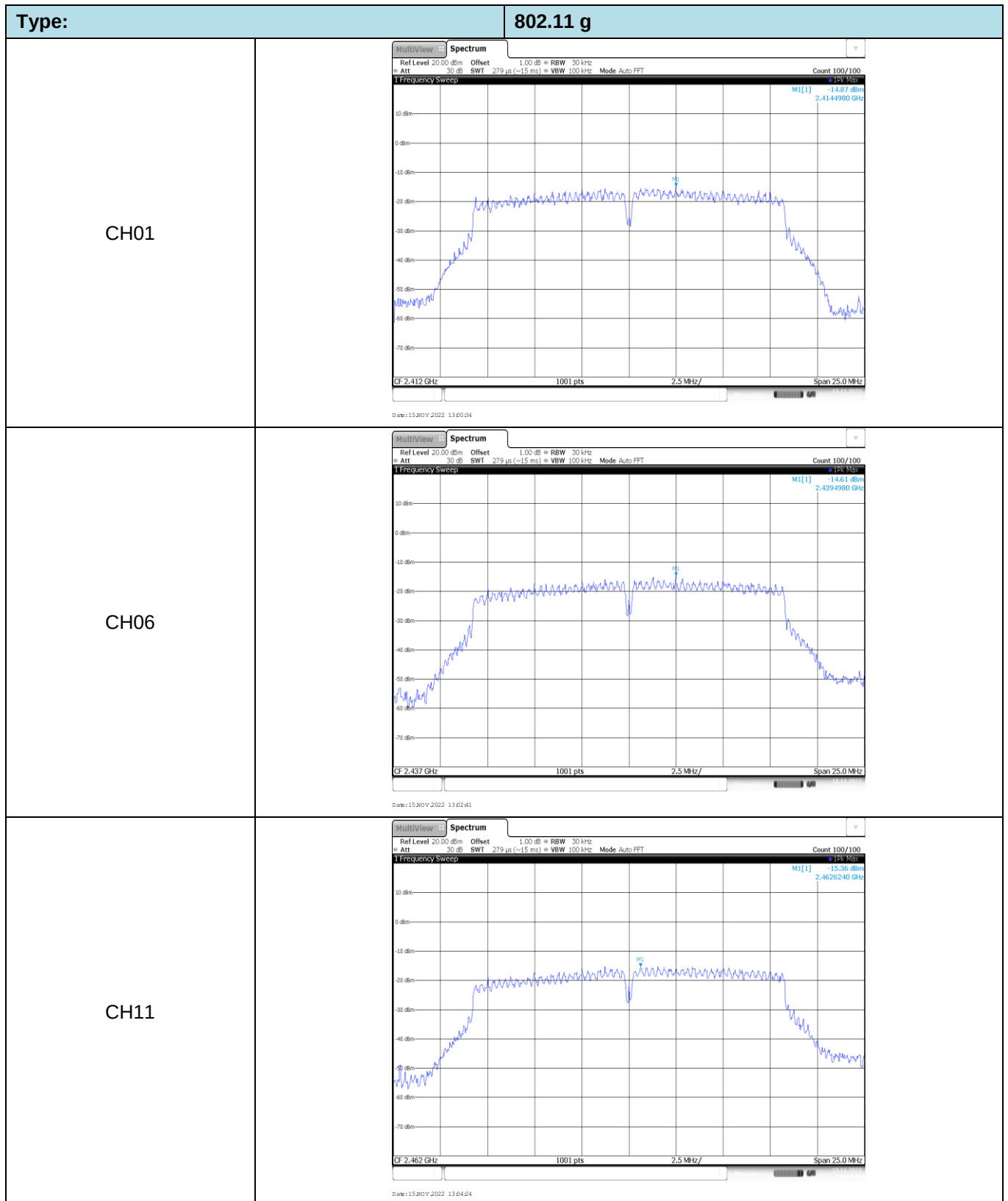
Appendix A: Conducted Peak Output Power

Type	Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
802.11b	01	13.03	10.27	≤ 30.00	Pass
	06	13.67	10.96		
	11	12.76	10.31		
802.11g	01	9.55	6.54	≤ 30.00	Pass
	06	10.03	6.71		
	11	9.21	6.18		
802.11n (HT20)	01	8.99	5.92	≤ 30.00	Pass
	06	9.26	6.48		
	11	8.57	5.65		
802.11n(HT40)	03	9.60	6.28	≤ 30.00	Pass
	06	9.57	6.75		
	09	9.13	5.99		

Appendix B: Power Spectral Density

Type	Channel	Power Spectral Density (dBm/30KHz)	Limit (dBm/3KHz)	Result
802.11b	01	-1.85	≤8.00	Pass
	06	-1.71		
	11	-0.11		
802.11g	01	-14.87	≤8.00	Pass
	06	-14.61		
	11	-15.36		
802.11n(HT20)	01	-15.73	≤8.00	Pass
	06	-15.19		
	11	-14.55		
802.11n(HT40)	03	-17.59	≤8.00	Pass
	06	-17.86		
	09	-17.30		



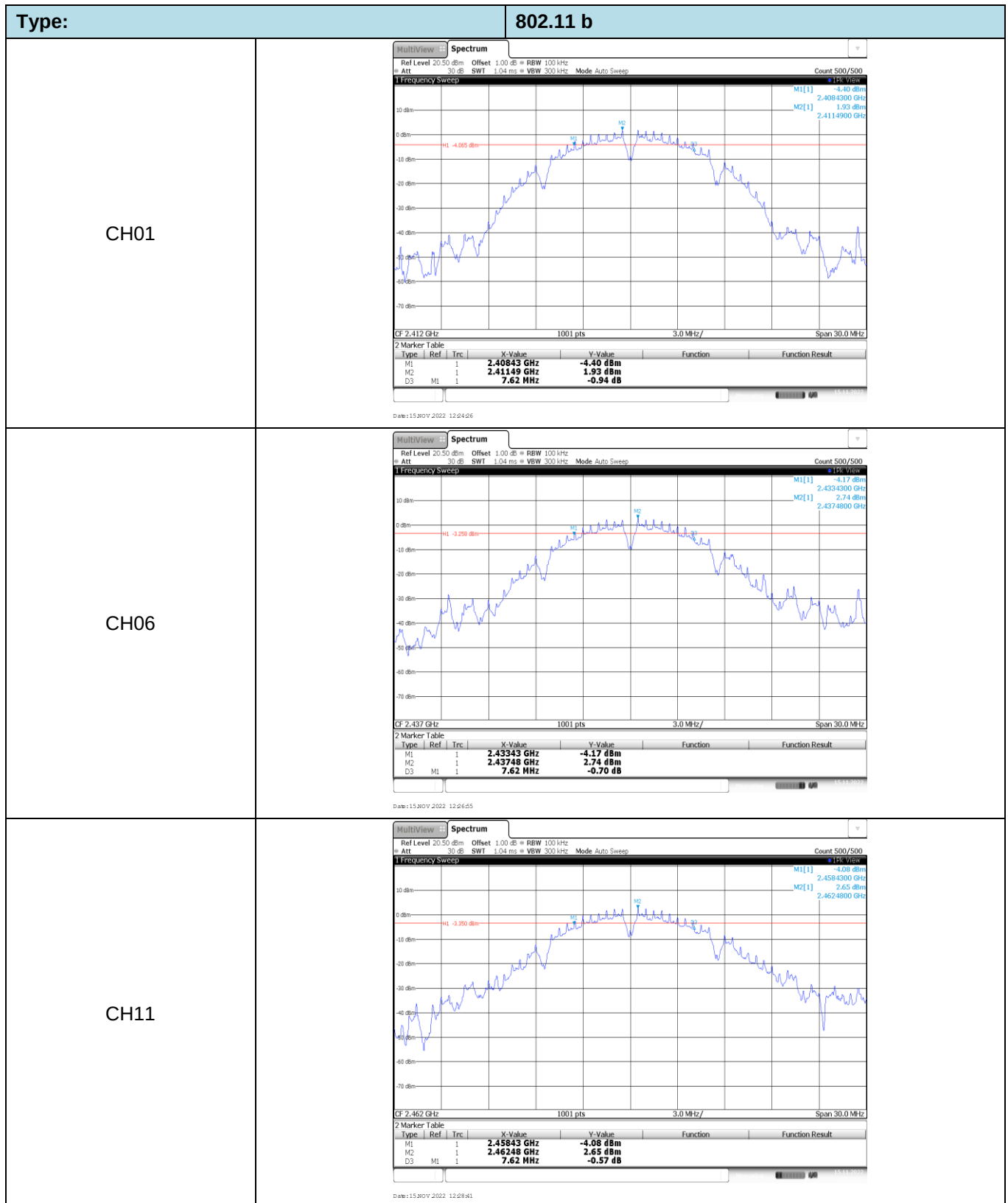


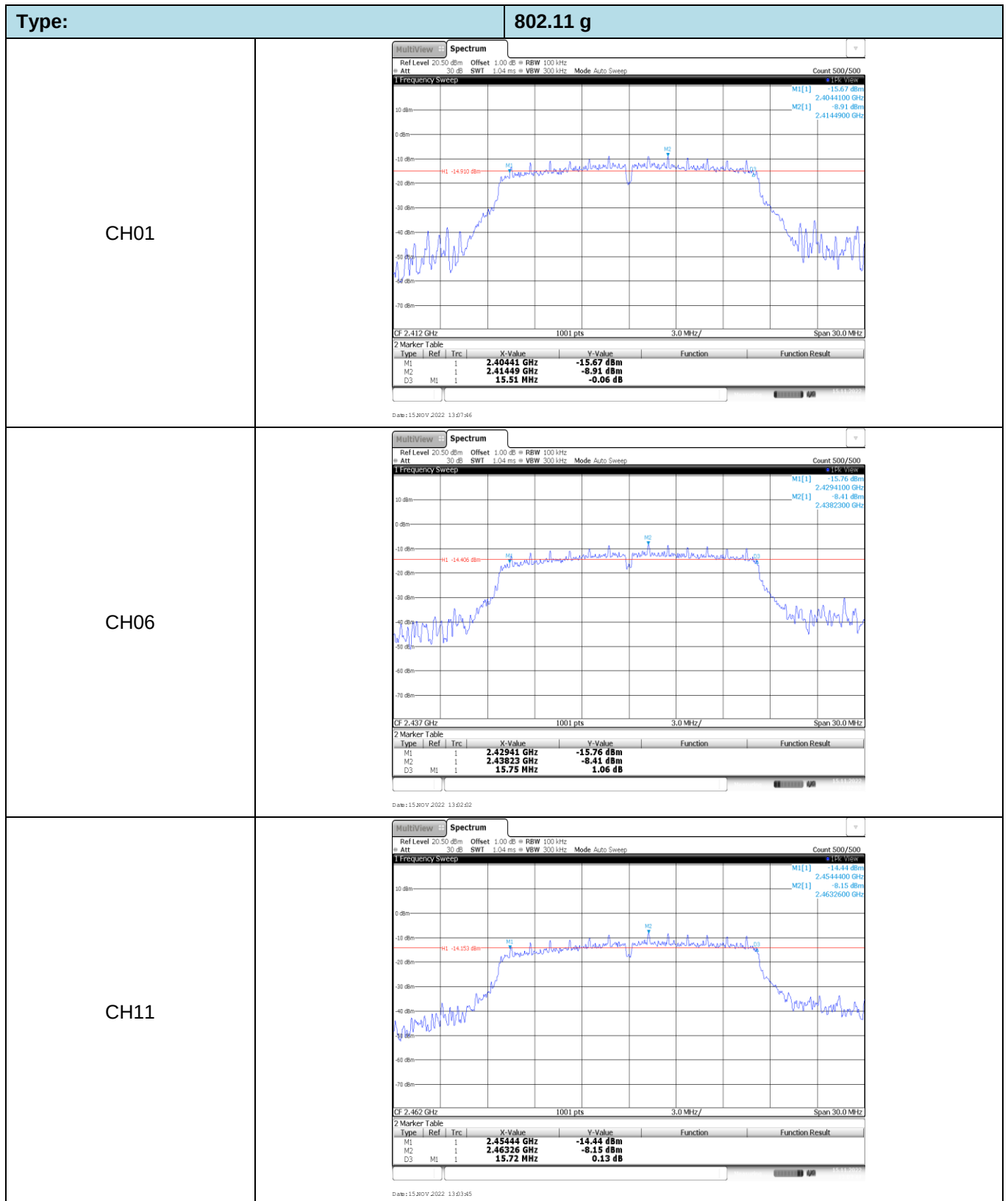
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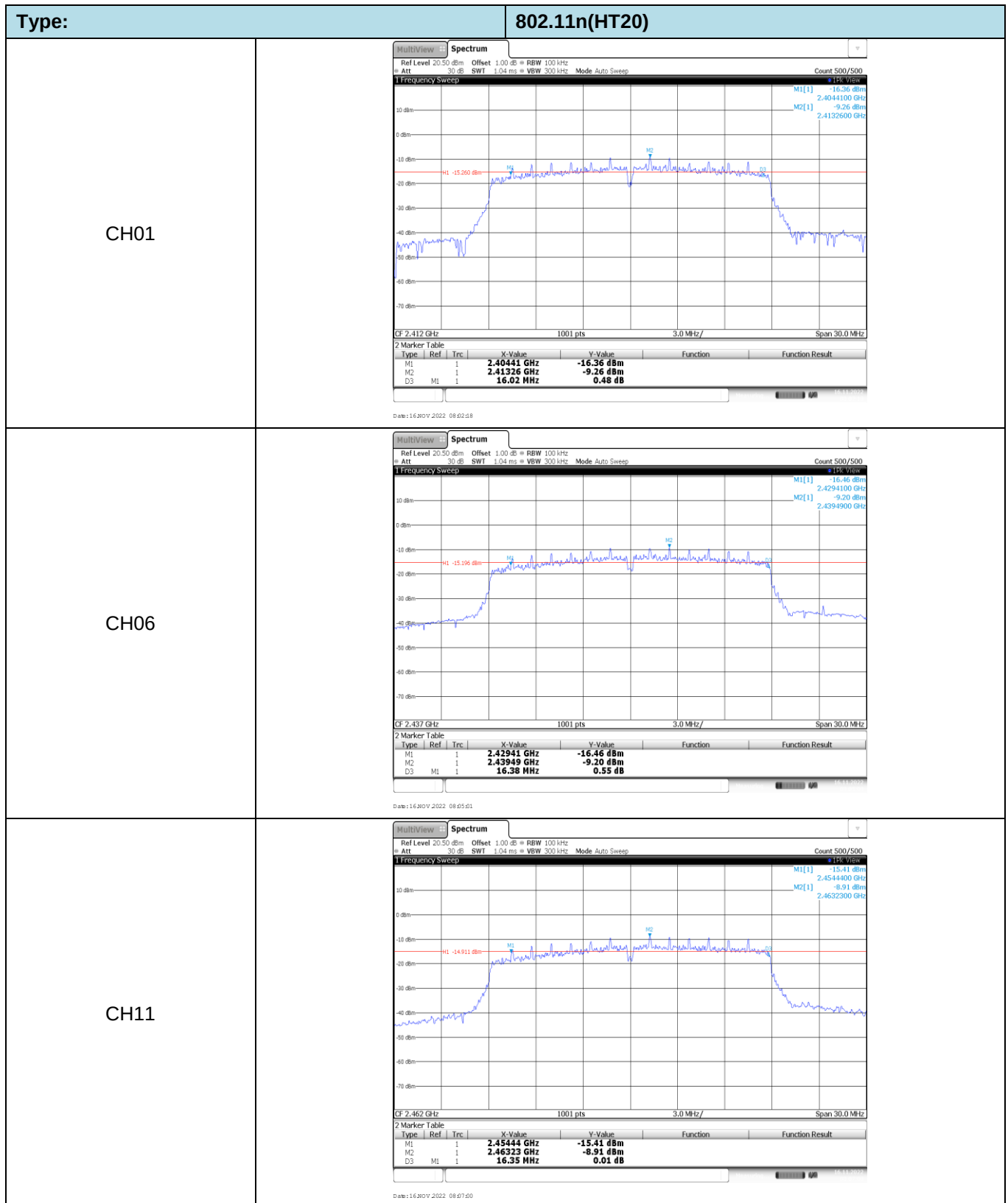
Type:		802.11n(HT40)
CH03	<	

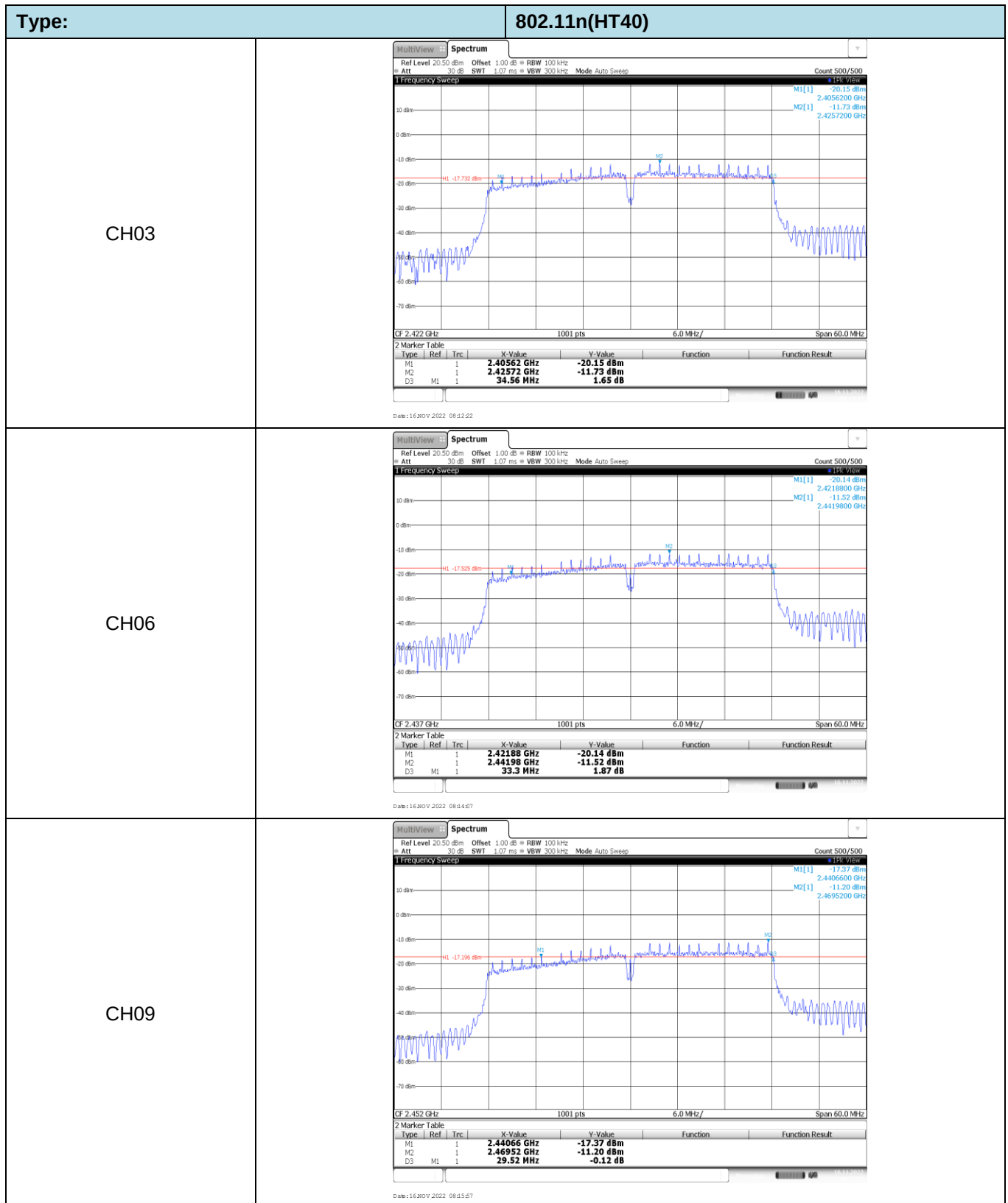
Appendix C: 6dB bandwidth

Type	Channel	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11b	01	7.62	≥0.5	Pass
	06	7.62		
	11	7.62		
802.11g	01	15.51	≥0.5	Pass
	06	15.75		
	11	15.72		
802.11n(HT20)	01	16.02	≥0.5	Pass
	06	16.38		
	11	16.35		
802.11n(HT40)	03	34.56	≥0.5	Pass
	06	33.30		
	09	29.52		



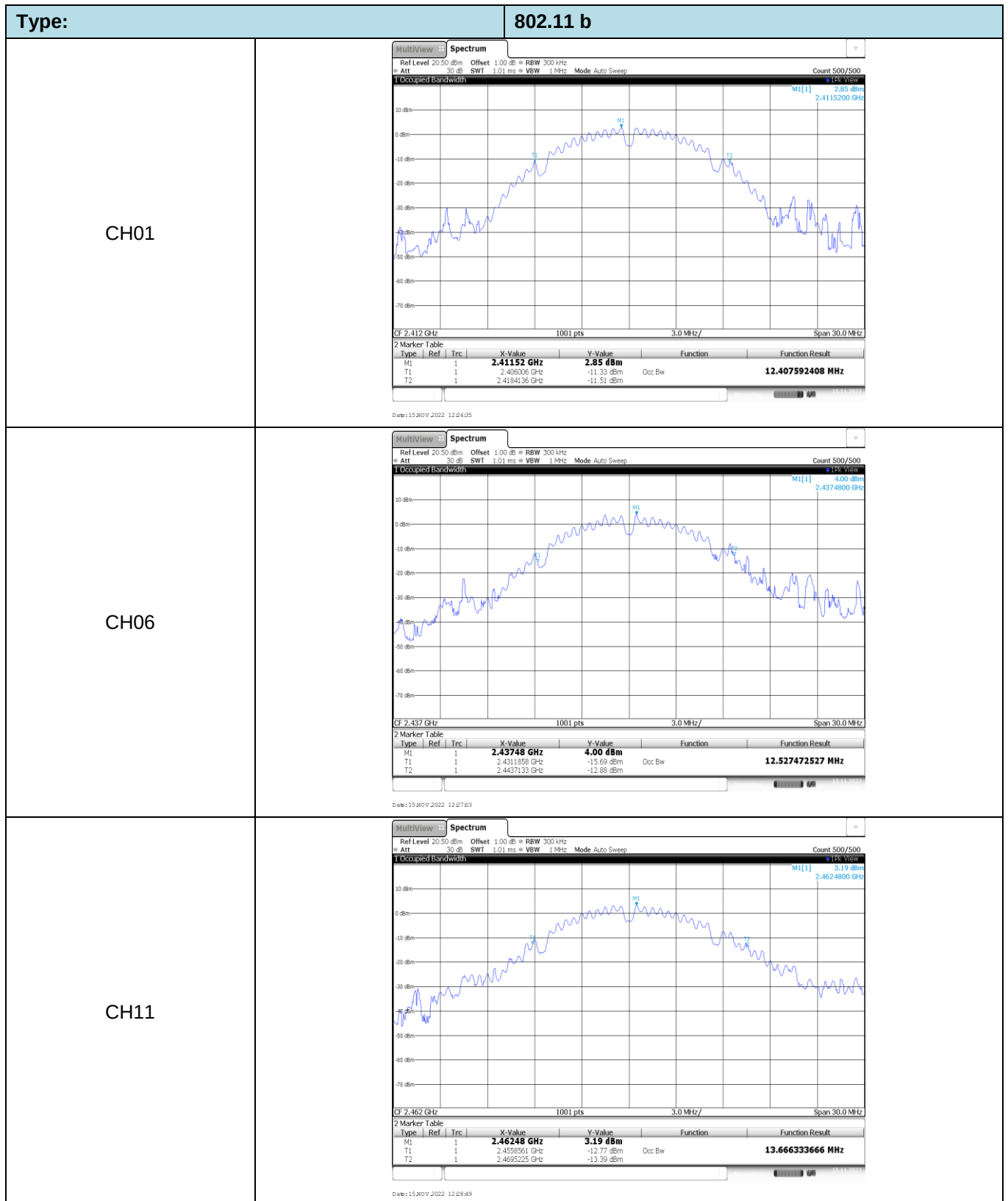


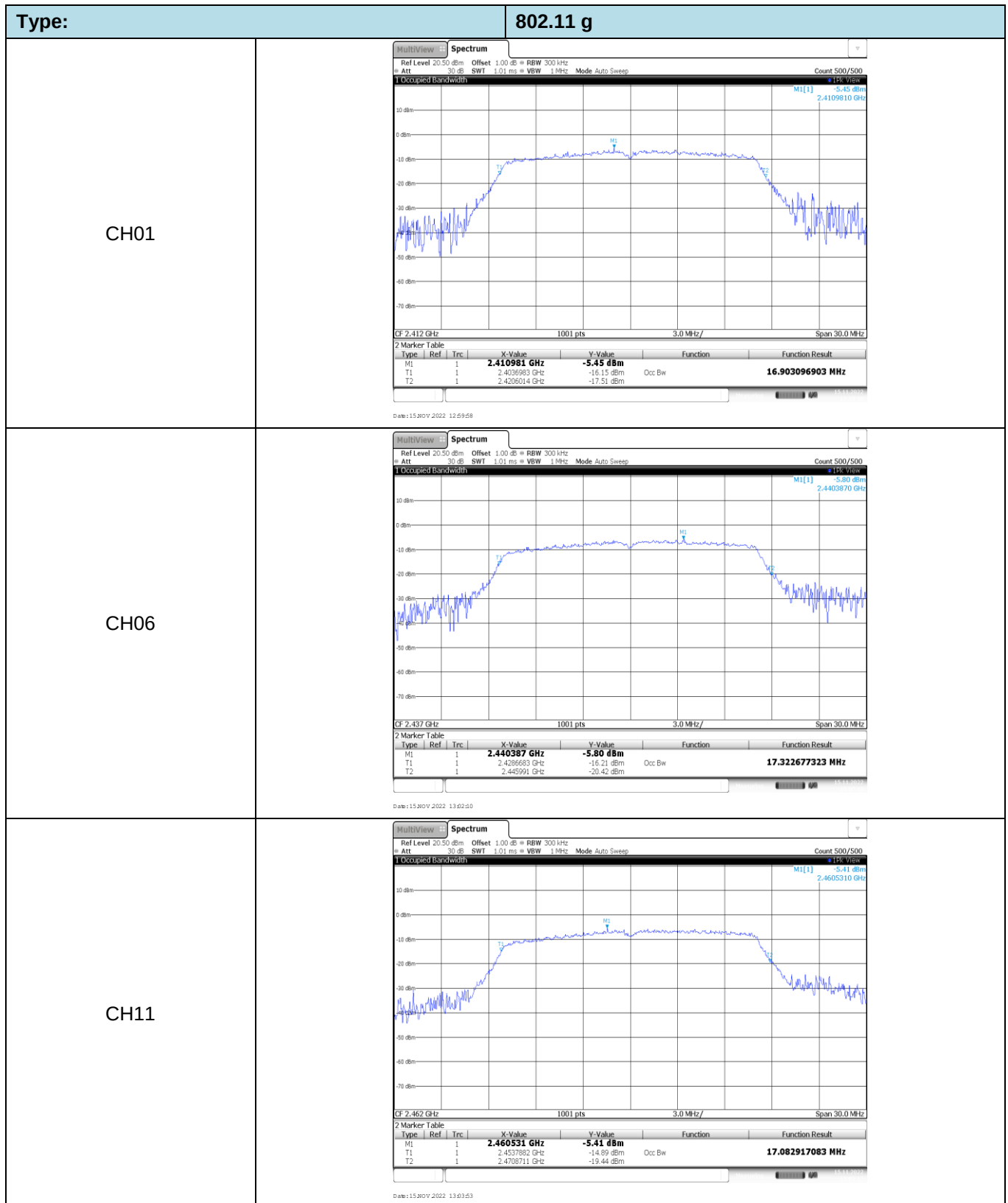


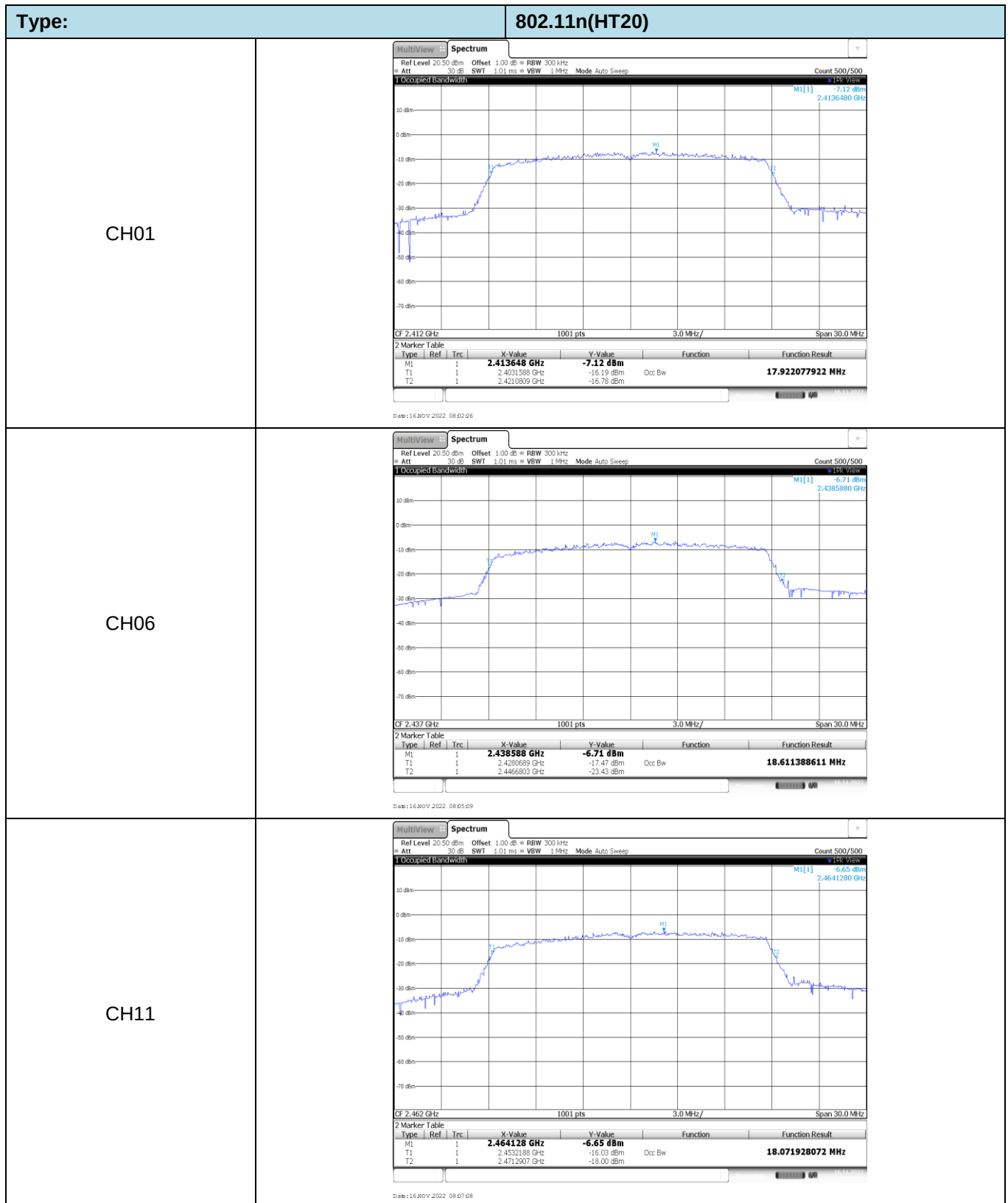


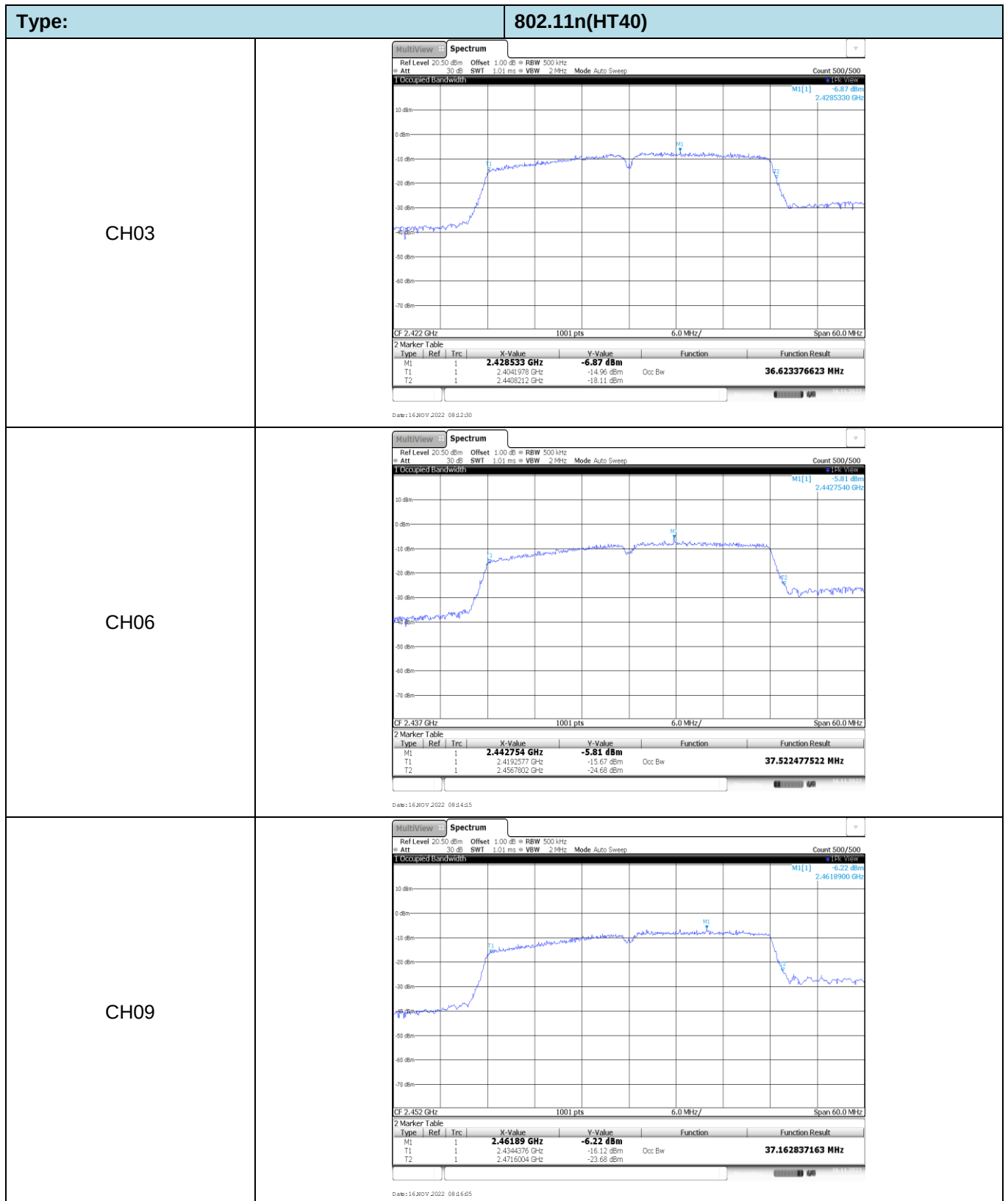
Appendix D: 99% Occupied Bandwidth

Type	Channel	99% Bandwidth (MHz)	Limit (kHz)	Result
802.11b	01	12.41	-	Pass
	06	12.53		
	11	13.67		
802.11g	01	16.90	-	Pass
	06	17.32		
	11	17.08		
802.11n(HT20)	01	17.92	-	Pass
	06	18.61		
	11	18.07		
802.11n(HT40)	03	36.62	-	Pass
	06	37.52		
	09	37.16		





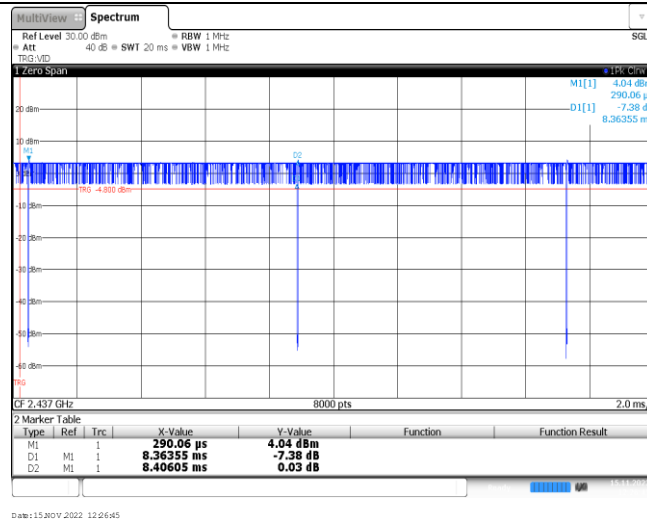




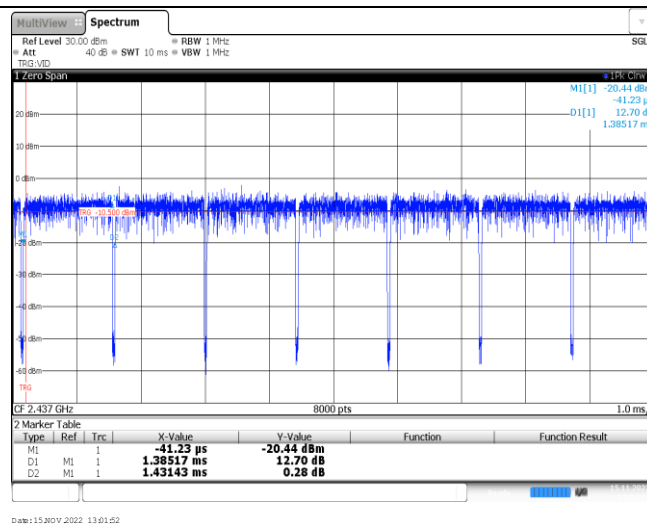
Appendix E: Duty Cycle

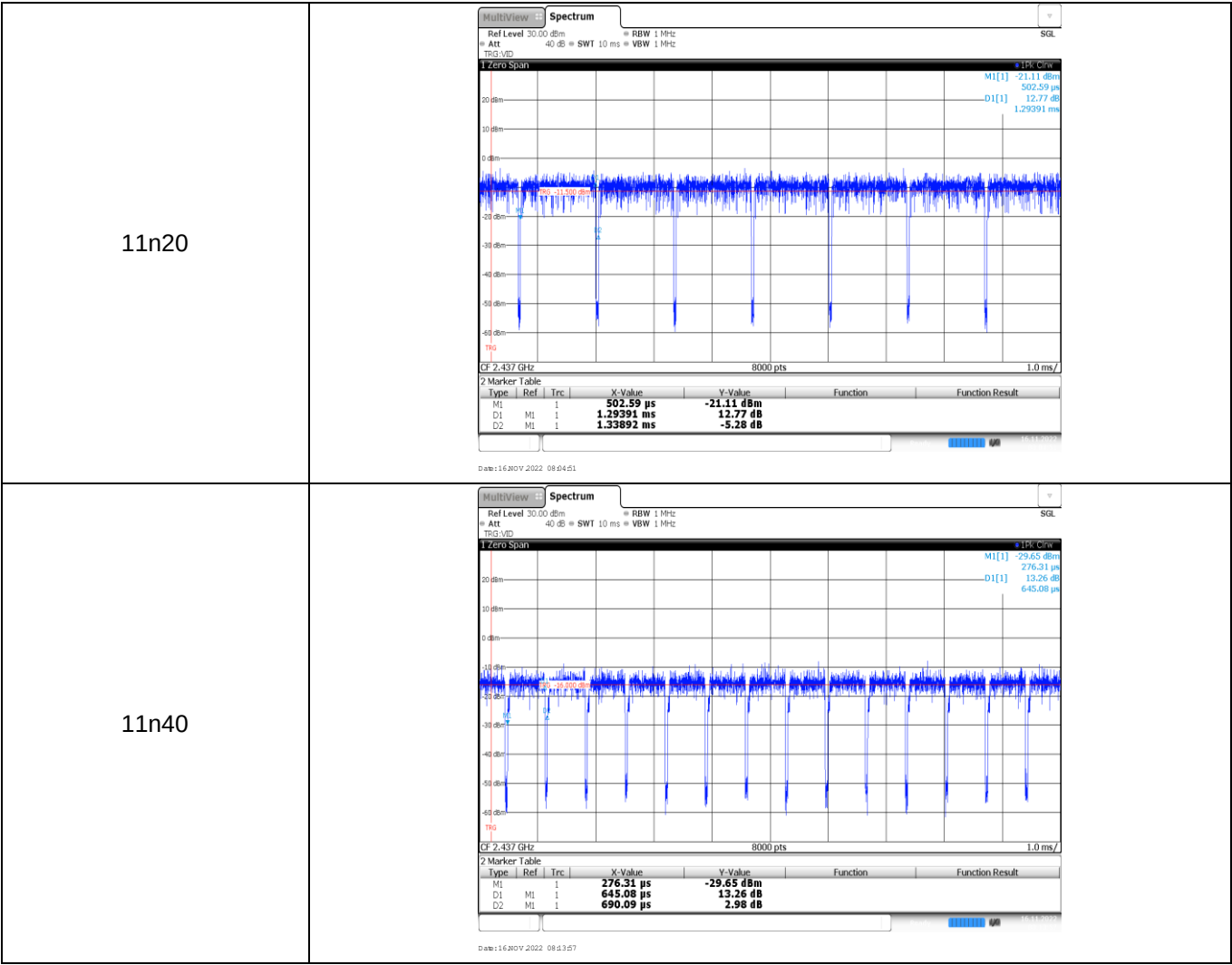
Modulation Type	Test Frequency (MHz)	$T_{on\ time}$ for single burst (ms)	T_{period} (ms)	Duty cycle	$1/T_{on\ time}$ (kHz)
11b	2437	8.36	8.41	99.4%	0.1
11g	2437	1.39	1.43	97.2%	0.7
11n20	2437	1.29	1.34	96.3%	0.8
11n40	2437	0.65	0.69	94.2%	1.5

11b

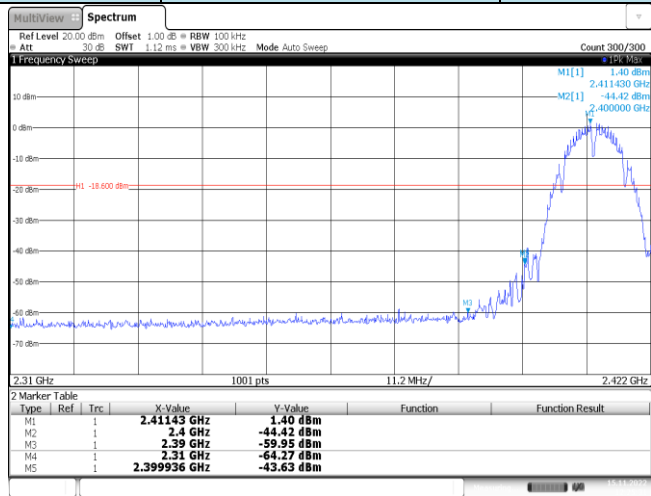
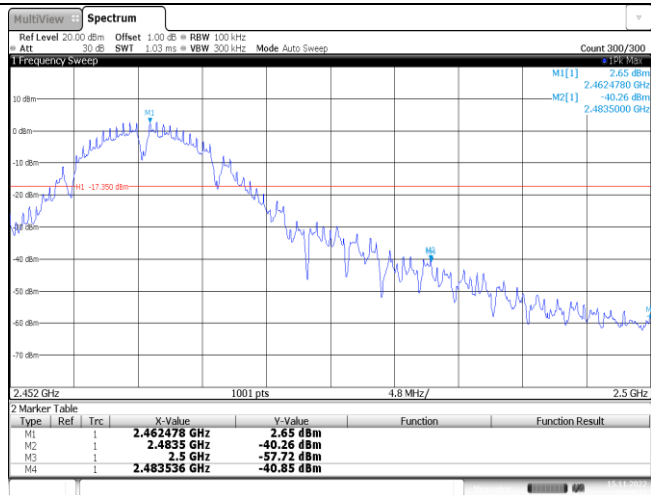


11g





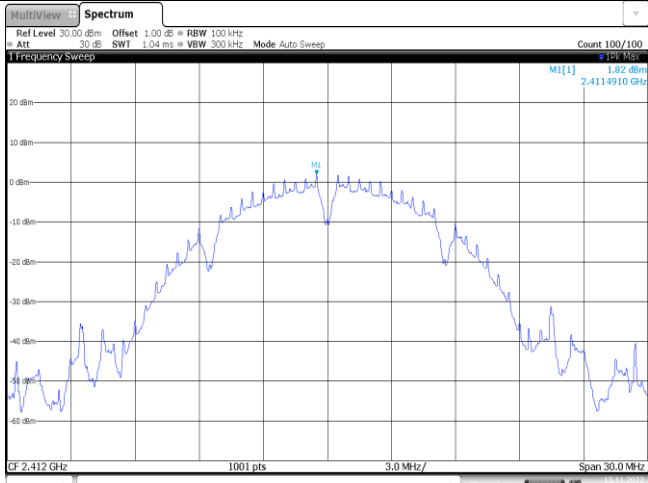
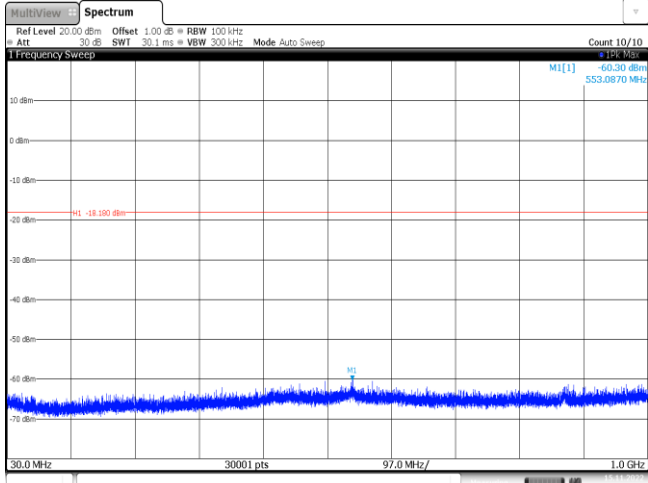
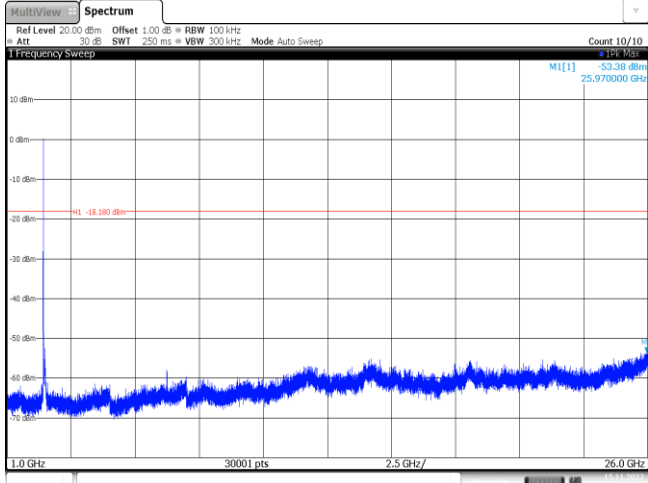
Appendix F: Band edge and Spurious Emissions (conducted)

Test Item:	Bandedge	Type:	802.11 b																																										
CH01	MultiviewSpectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWI 1.12 ms VBW 300 kHz Mode Auto Sweep Count 300/300 1 Frequency Sweep  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>2.41143 GHz</td><td>1.40 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-44.42 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-59.95 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-64.27 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.399936 GHz</td><td>-43.63 dBm</td><td></td><td></td></tr></tbody></table> Date: 15 NOV 2022 12:25:31			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.41143 GHz	1.40 dBm			M2	1		2.4 GHz	-44.42 dBm			M3	1		2.39 GHz	-59.95 dBm			M4	1		2.31 GHz	-64.27 dBm			M5	1		2.399936 GHz	-43.63 dBm		
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CH11	MultiviewSpectrum 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  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>2.65 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-40.26 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-57.72 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.483536 GHz</td><td>-40.85 dBm</td><td></td><td></td></tr></tbody></table> Date: 15 NOV 2022 12:29:41			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.462478 GHz	2.65 dBm			M2	1		2.4835 GHz	-40.26 dBm			M3	1		2.5 GHz	-57.72 dBm			M4	1		2.483536 GHz	-40.85 dBm									
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M4	1		2.483536 GHz	-40.85 dBm																																									

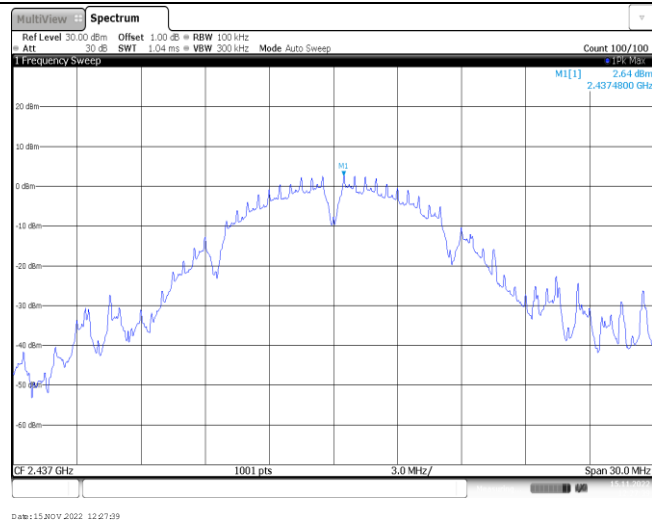
Appendix report page: 21 of 35

Test Item:	Bandedge	Type:	802.11 n(HT20)																																										
CH01	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB BW 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[1] -9.41 dBm 2.413220 GHz M2[1] -42.98 dBm 2.400000 GHz H1 -29.480 dBm M3 M4 M5 2.31 GHz 1001 pts 11.2 MHz/ 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>2.41322 GHz</td><td>-9.41 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-42.98 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-50.94 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-63.35 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.399824 GHz</td><td>-42.59 dBm</td><td></td><td></td></tr></table> Date: 16 NOV 2022 08:03:22			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.41322 GHz	-9.41 dBm			M2	1		2.4 GHz	-42.98 dBm			M3	1		2.39 GHz	-50.94 dBm			M4	1		2.31 GHz	-63.35 dBm			M5	1		2.399824 GHz	-42.59 dBm		
Type	Ref	Trc	X-Value	Y-Value	Function	Function Result																																							
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CH11	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB BW 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[1] -8.89 dBm 2.4644920 GHz M2[1] -47.55 dBm 2.4835000 GHz H1 -28.690 dBm M3 M4 2.452 GHz 1001 pts 4.8 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>2.464492 GHz</td><td>-8.89 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-47.55 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-61.98 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.483536 GHz</td><td>-47.68 dBm</td><td></td><td></td></tr></table> Date: 16 NOV 2022 08:07:55			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.464492 GHz	-8.89 dBm			M2	1		2.4835 GHz	-47.55 dBm			M3	1		2.5 GHz	-61.98 dBm			M4	1		2.483536 GHz	-47.68 dBm									
Type	Ref	Trc	X-Value	Y-Value	Function	Function Result																																							
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M2	1		2.4835 GHz	-47.55 dBm																																									
M3	1		2.5 GHz	-61.98 dBm																																									
M4	1		2.483536 GHz	-47.68 dBm																																									

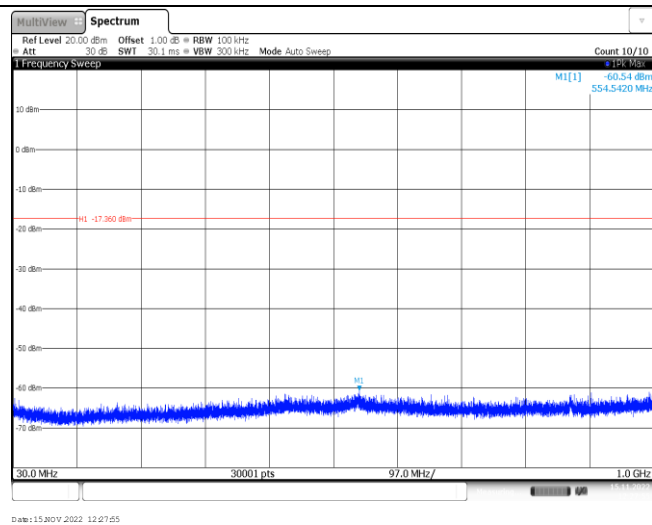
Test Item:	Bandedge	Type:	802.11 n(HT40)
CH03			

Test Item:	SE	Type:	802.11b
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CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

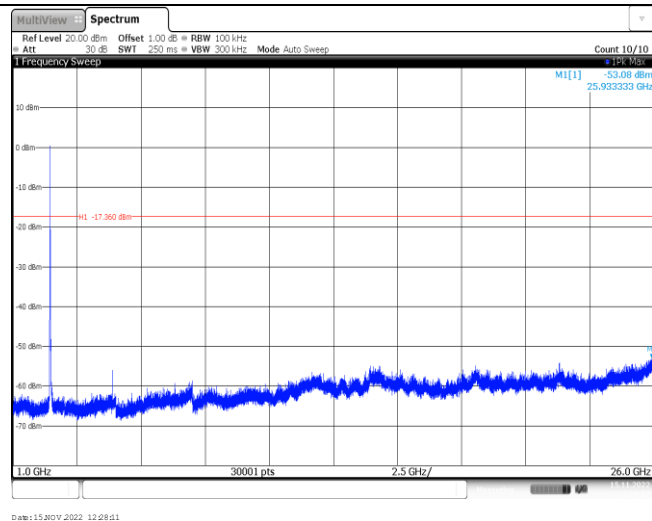
CH06
Reference level



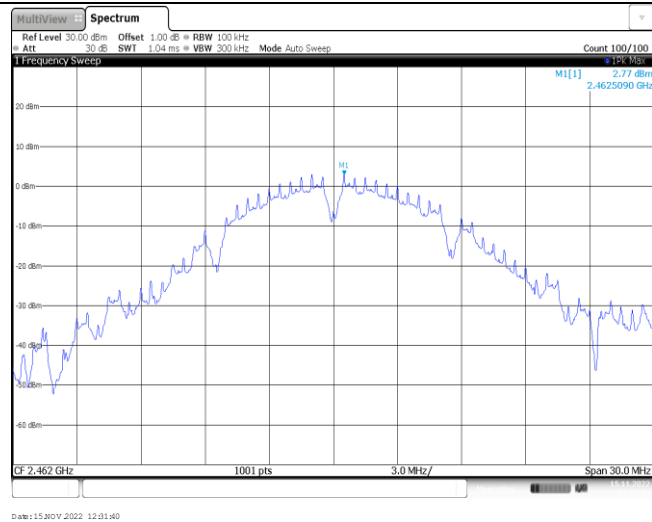
CH06
30MHz~1000MHz



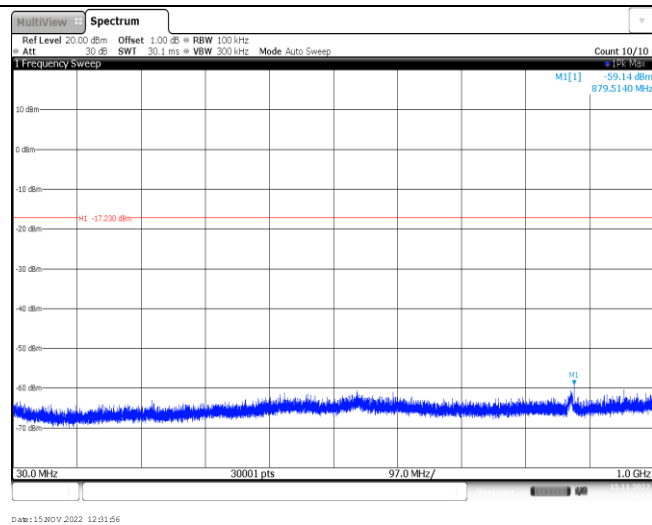
CH06
1GHz~26GHz



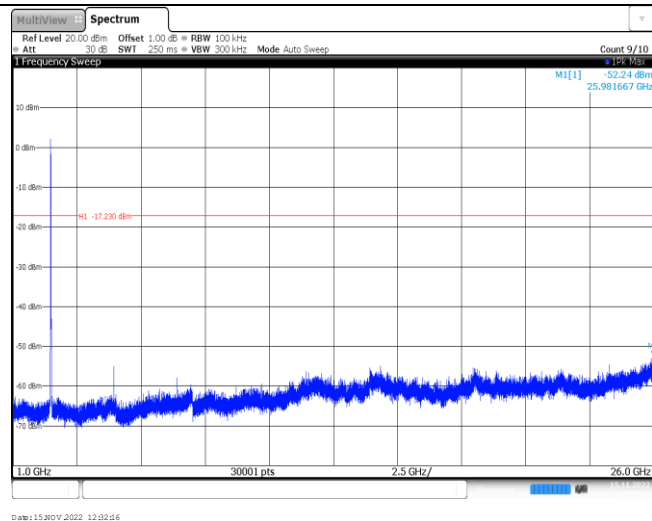
CH11
Reference level

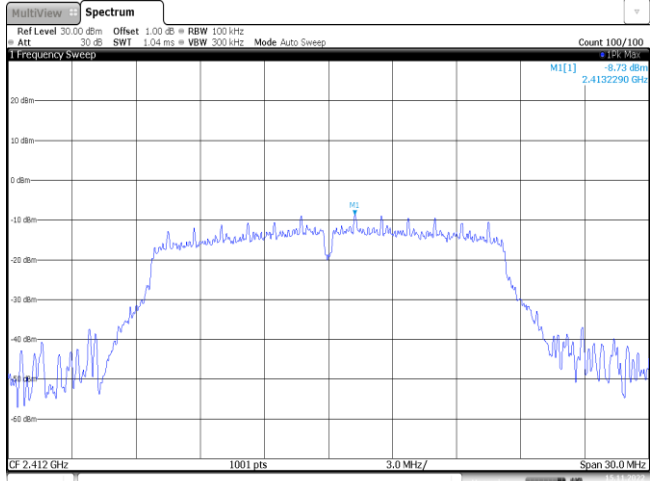
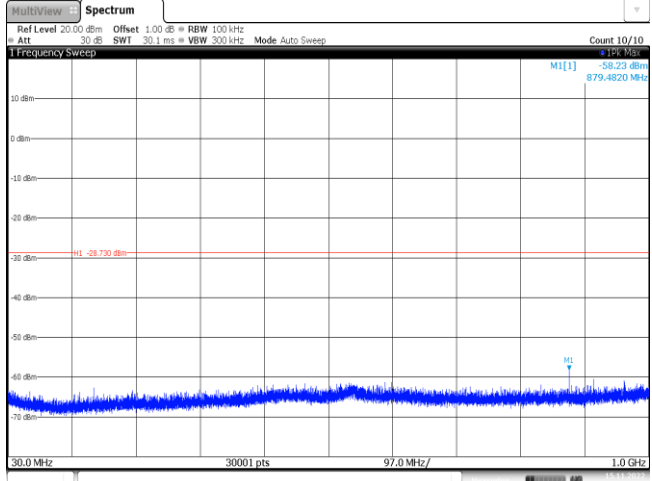
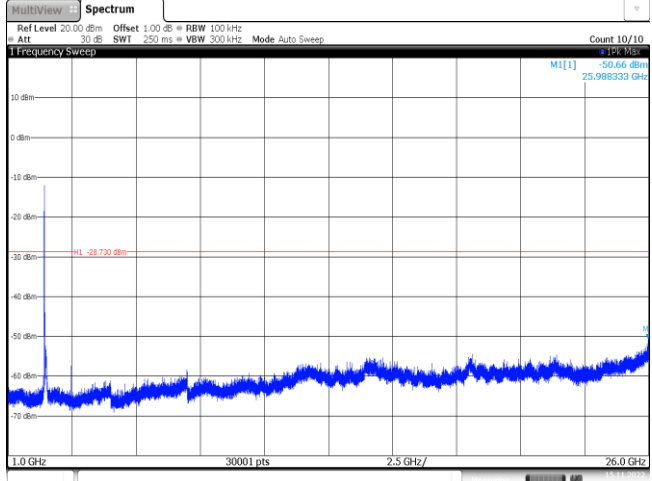


CH11
30MHz~1000MHz

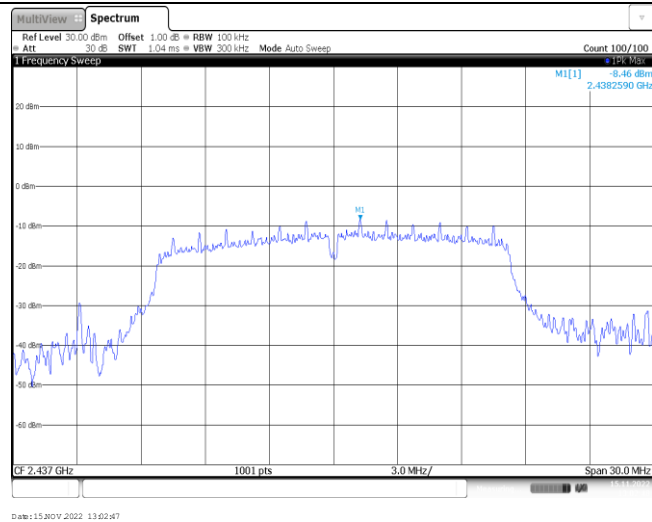


CH11
1GHz~26GHz

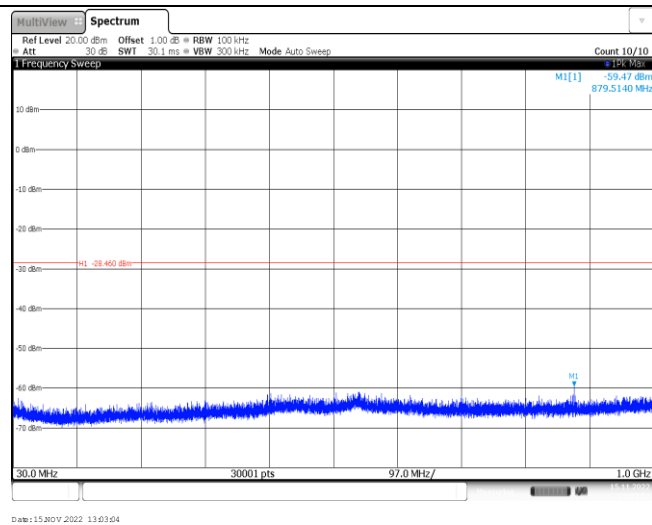


Test Item:	SE	Type:	802.11g
CH01 Reference level			
CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

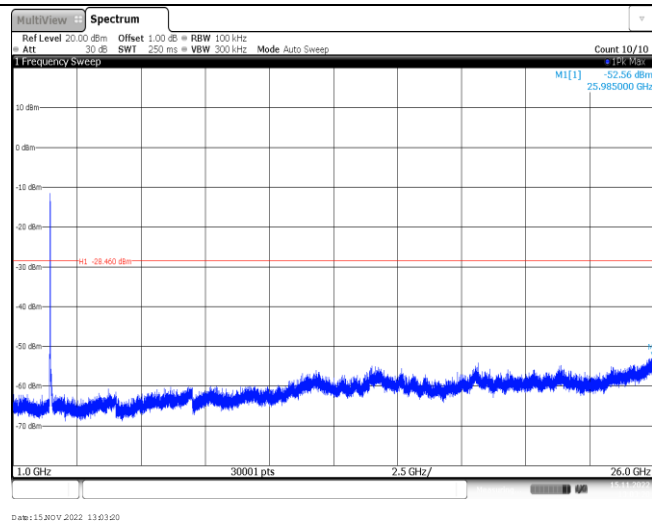
CH06
Reference level

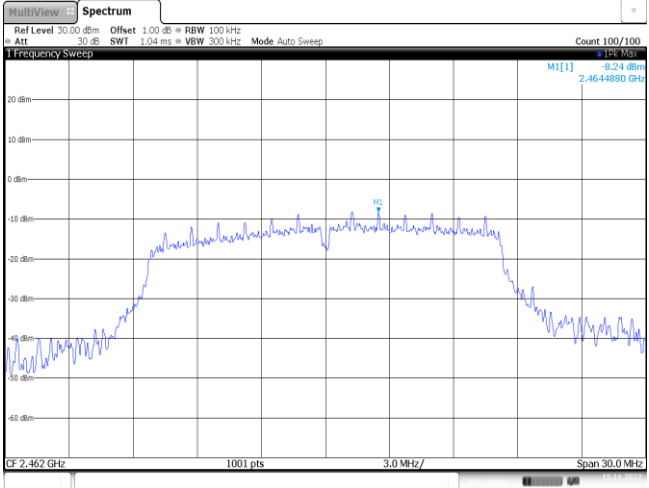
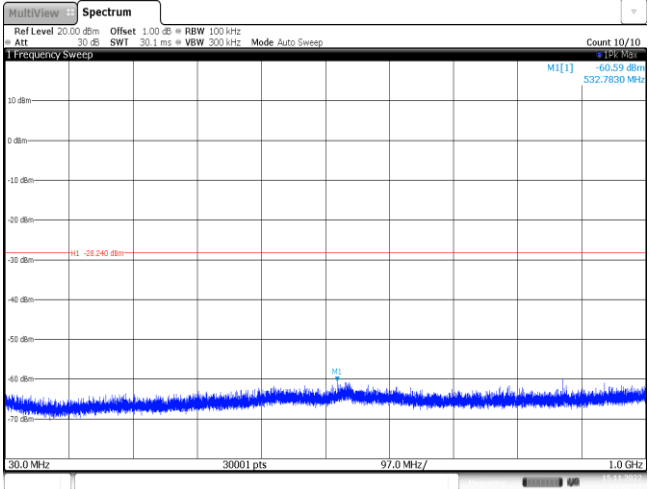
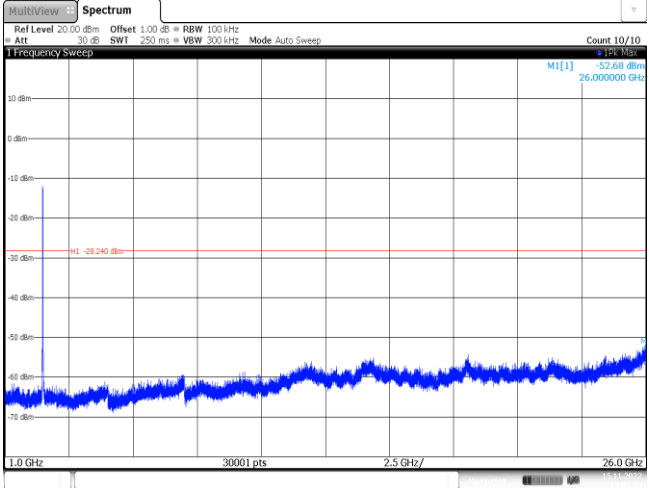


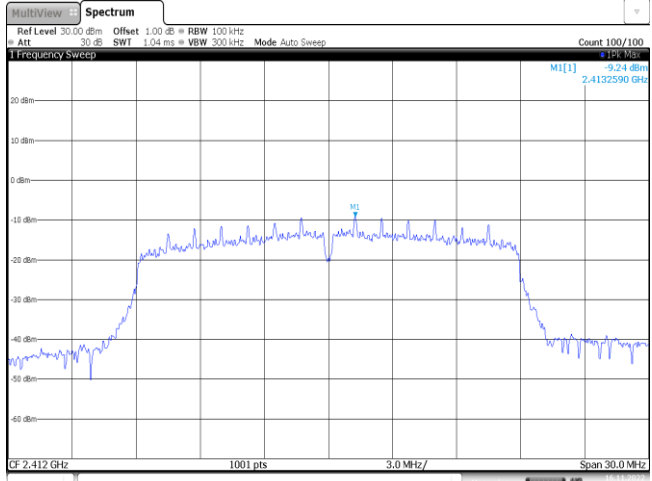
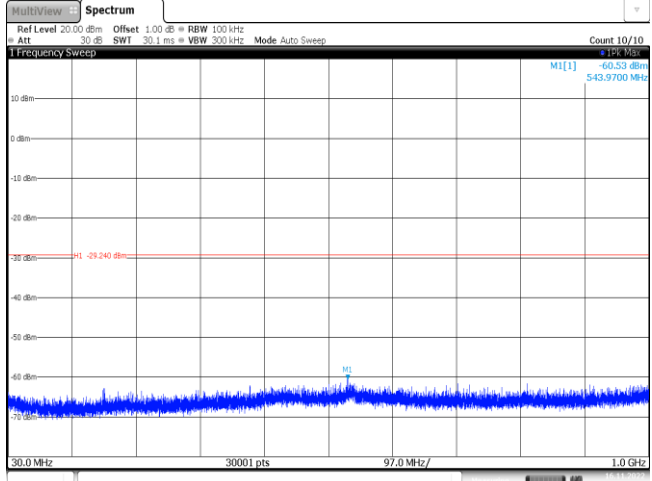
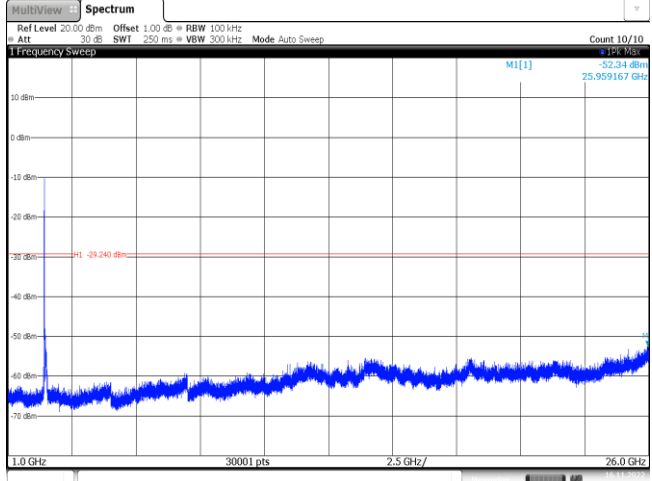
CH06
30MHz~1000MHz



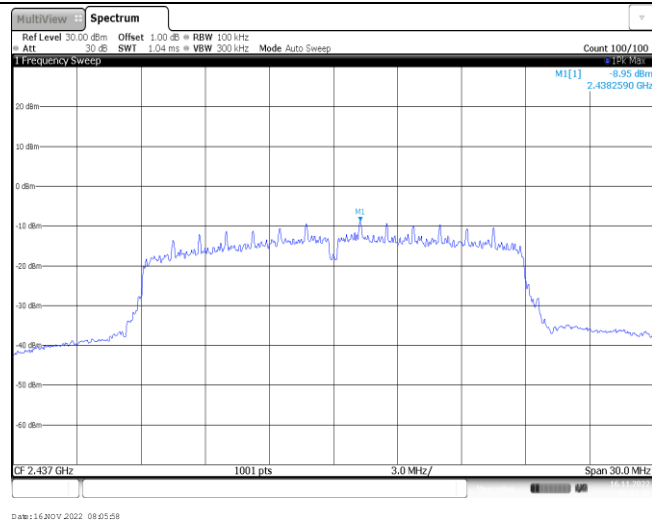
CH06
1GHz~26GHz



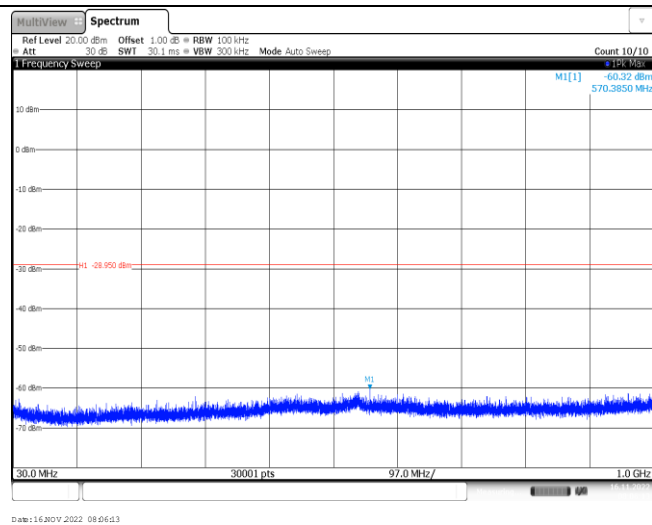
CH11 Reference level	 15/01/2022 13:04:40
CH11 30MHz~1000MHz	 15/01/2022 13:04:56
CH11 1GHz~26GHz	 15/01/2022 13:05:13

Test Item:	SE	Type:	802.11n(HT20)
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] 2.4122590 GHz -9.24 dBm 2.4122590 GHz 2.412 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 16 NOV 2022 08:03:20	
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] 543.9700 MHz -60.53 dBm 543.9700 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 16 NOV 2022 08:04:05	
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] 25.959167 GHz -52.34 dBm 25.959167 GHz 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 16 NOV 2022 08:04:22	

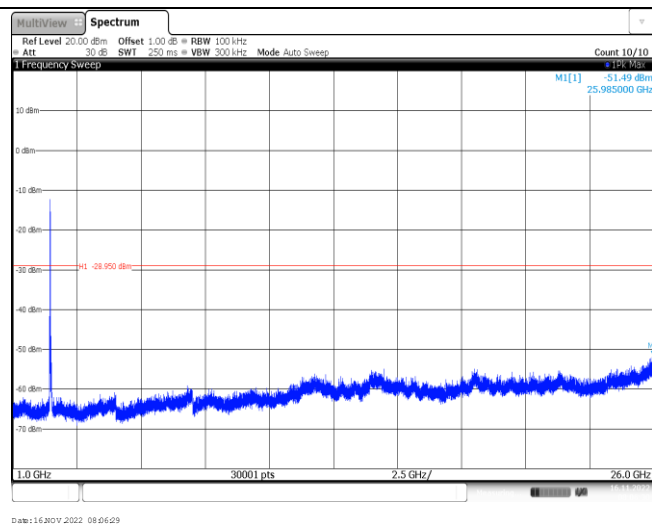
CH06
Reference level

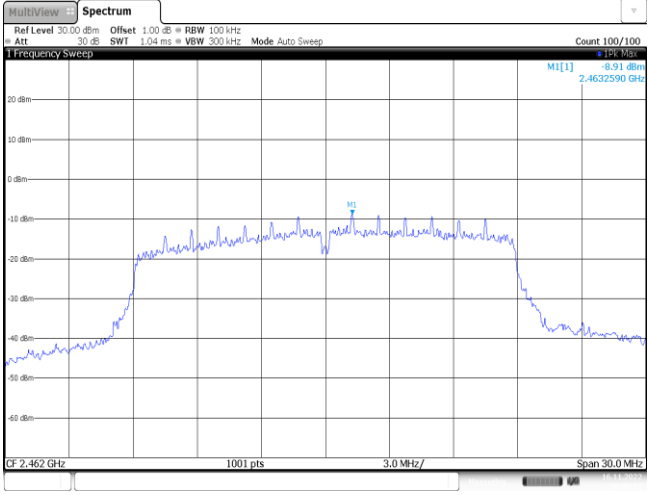
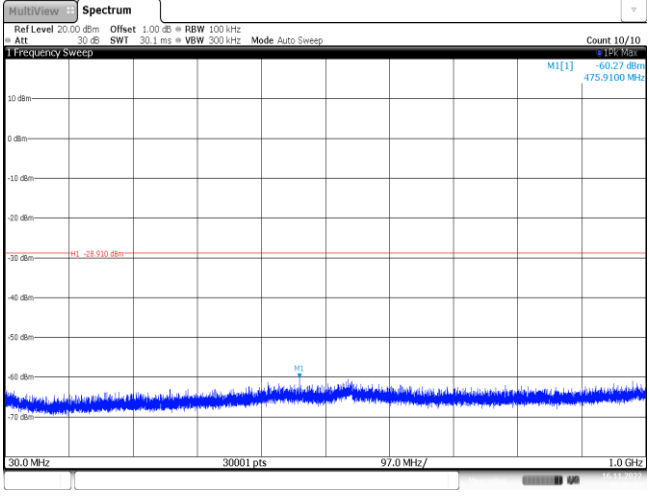
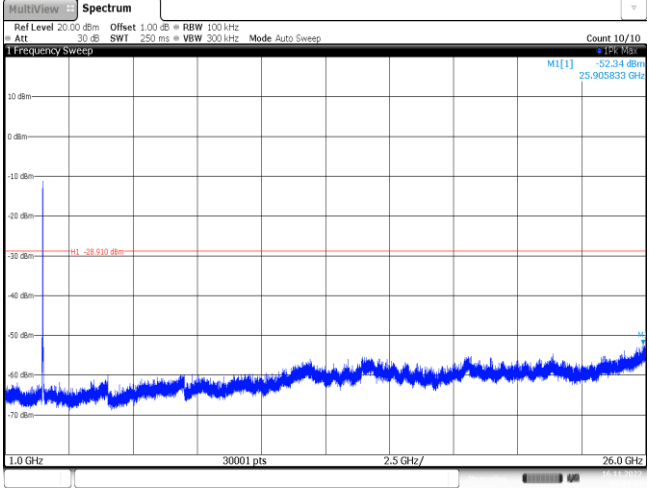


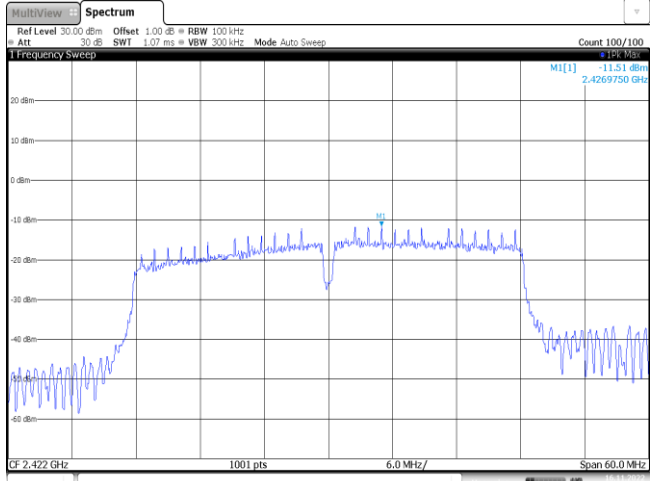
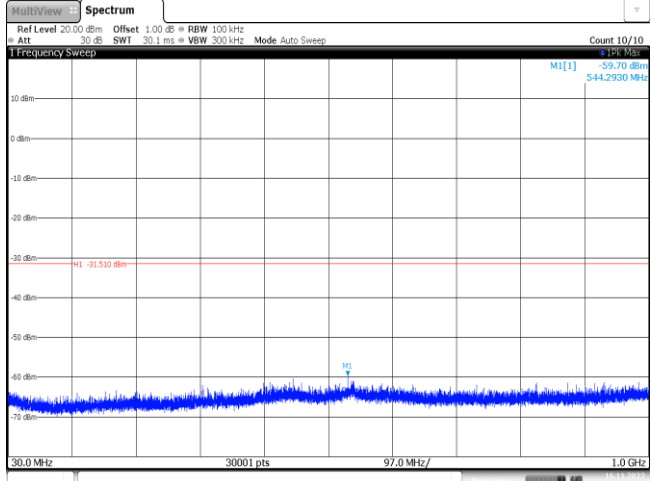
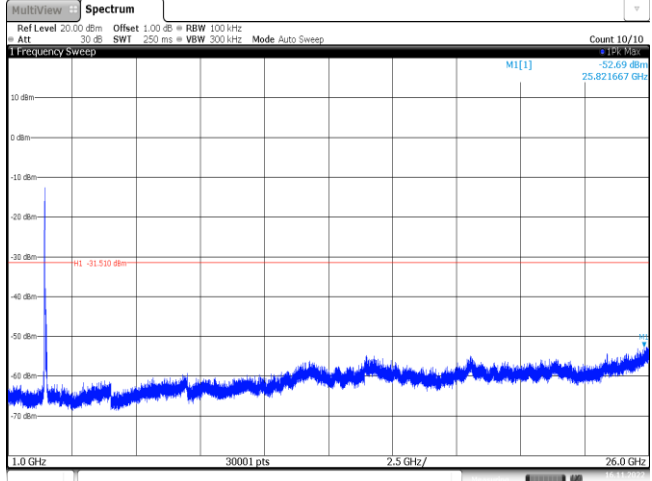
CH06
30MHz~1000MHz

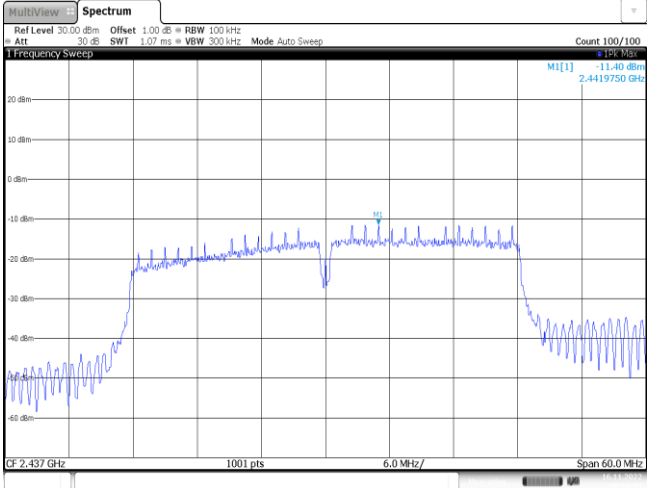
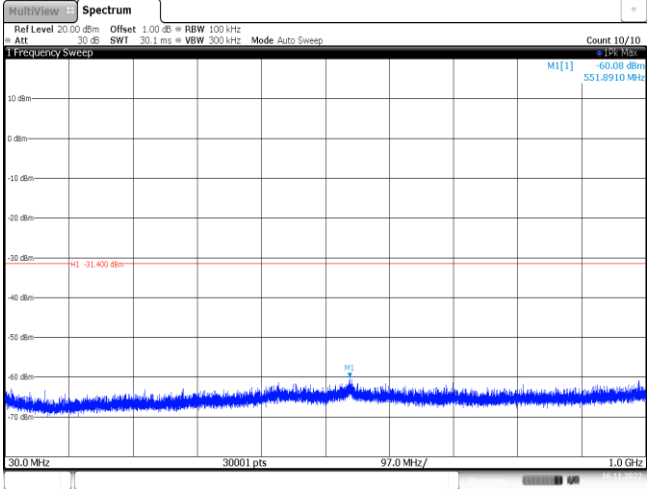
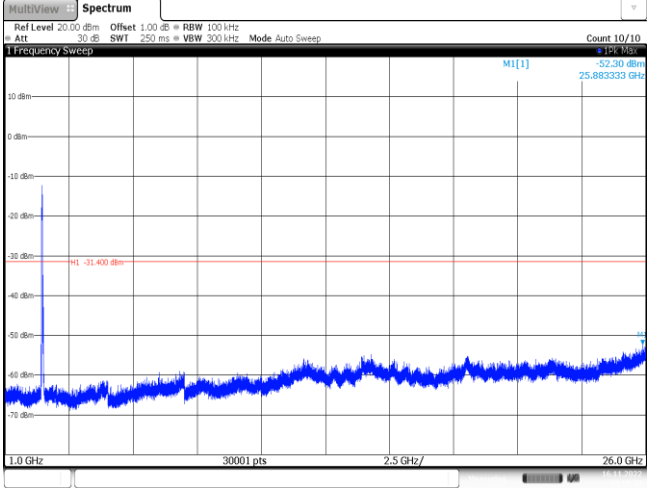


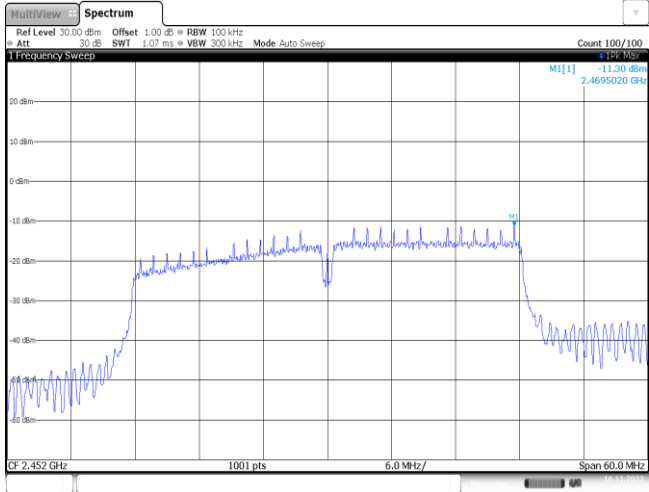
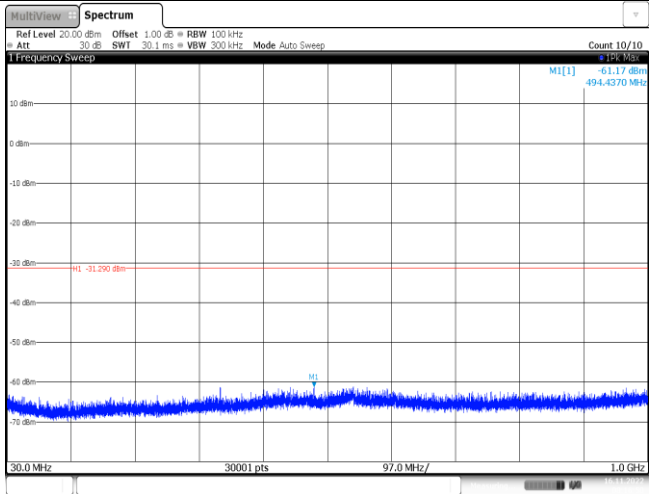
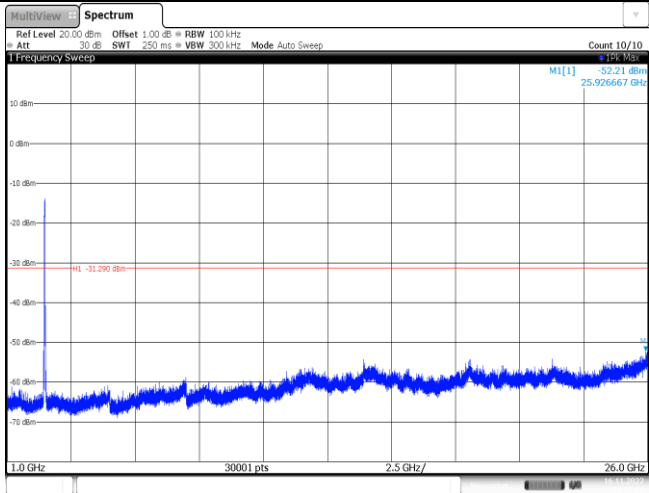
CH06
1GHz~26GHz



CH11 Reference level	 Ref Level 30.00 dBm Offset 1.00 dB BW 100 kHz Att 30.0 dB SWF 1.04 ms VSW 300 kHz Mode Auto Sweep Count 100/100 MI[1] -8.91 dBm 2.4632590 GHz CF 2.462 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date:16/01/2022 08:08:02
CH11 30MHz~1000MHz	 Ref Level 20.00 dBm Offset 1.00 dB BW 100 kHz Att 30.0 dB SWF 30.1 ms VSW 300 kHz Mode Auto Sweep Count 10/10 MI[1] -60.27 dBm 475.9100 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date:16/01/2022 08:08:18
CH11 1GHz~26GHz	 Ref Level 20.00 dBm Offset 1.00 dB BW 100 kHz Att 30.0 dB SWF 250 ms VSW 300 kHz Mode Auto Sweep Count 10/10 MI[1] -52.34 dBm 25.905833 GHz 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date:16/01/2022 08:08:24

Test Item:	SE	Type:	802.11n(HT40)
CH03 Reference level		 Ref Level 30.00 dBm Offset 1.00 dB BW 100 kHz Att 30 dB SWI 1.07 ms VBW 300 kHz Mode Auto Sweep Count 100/100 M1[1] -11.51 dBm 2.4269750 GHz CF 2.422 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz Date: 16 NOV 2022 08:12:59	
CH03 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] -59.70 dBm 544.2900 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 16 NOV 2022 08:13:15	
CH03 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] -52.69 dBm 25.821667 GHz 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 16 NOV 2022 08:13:31	

CH06 Reference level	 Date:16/NOV/2022 08:14:28
CH06 30MHz~1000MHz	 Date:16/NOV/2022 08:15:14
CH06 1GHz~26GHz	 Date:16/NOV/2022 08:15:30

CH09 Reference level	 Ref Level 30.00 dBm Offset 1.00 dB RBW 100 kHz Att -30 dB SWF 1.07 ms VBW 300 kHz Mode Auto Sweep Count 100/100 MI[1] -11.30 dBm 2.4695020 GHz CF 2.452 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz Date:16/NOV/2022 08:16:24
CH09 30MHz~1000MHz	 Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att -30 dB SWF 30.1 ms VBW 300 kHz Mode Auto Sweep Count 10/10 MI[1] -61.17 dBm 494.4370 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date:16/NOV/2022 08:16:50
CH09 1GHz~26GHz	 Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att -30 dB SWF 250 ms VBW 300 kHz Mode Auto Sweep Count 10/10 MI[1] -52.21 dBm 25.926667 GHz 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date:16/NOV/2022 08:17:26

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