

APPENDIX REPORT

Project No.	SHT2202047302EW	Radio Specification	WIFI 2.4G
Test sample No.	YPHT22020473006	Model No.	Z3Pro
Start test date	2022-02-24	Finish date	2022-02-24
Temperature	22.7℃	Humidity	40%
Test Engineer	Hailey Chen	Auditor	Xiaodong Zhao

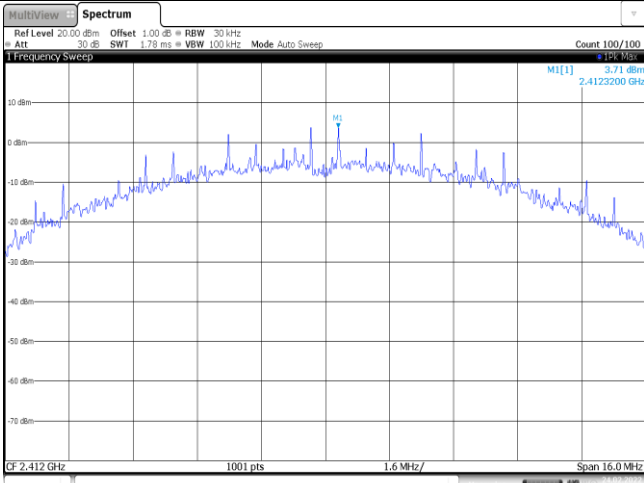
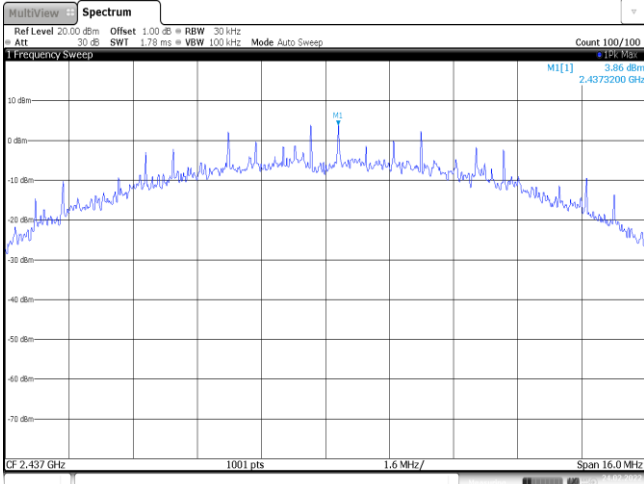
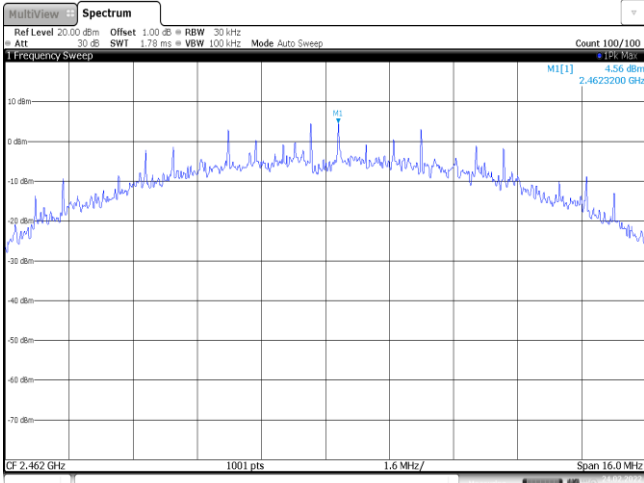
Appendix clause	Test item	Result
A	Conducted Peak Output Power	PASS
B	Power Spectral Density	PASS
C	6 dB Bandwidth	PASS
D	99% Occupied Bandwidth	PASS
E	Duty Cycle	PASS
F	Band edge and Spurious Emissions (conducted)	PASS

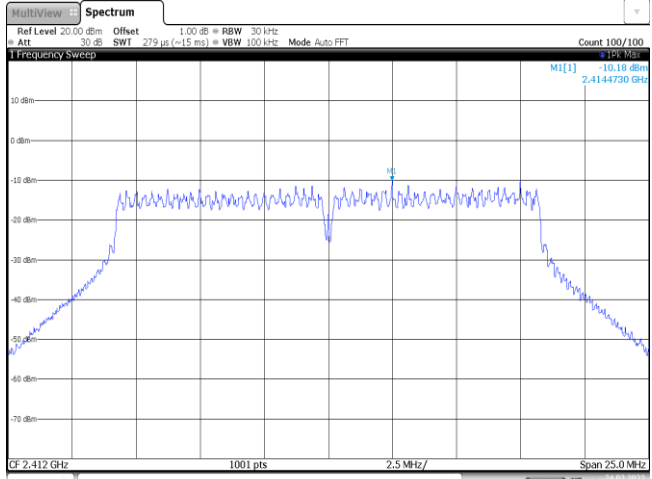
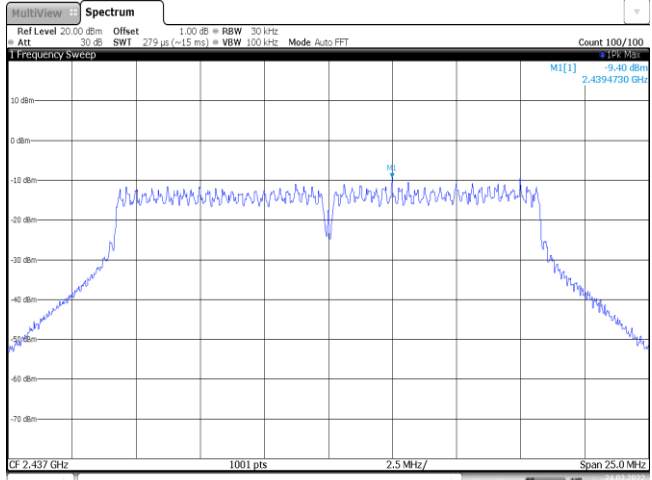
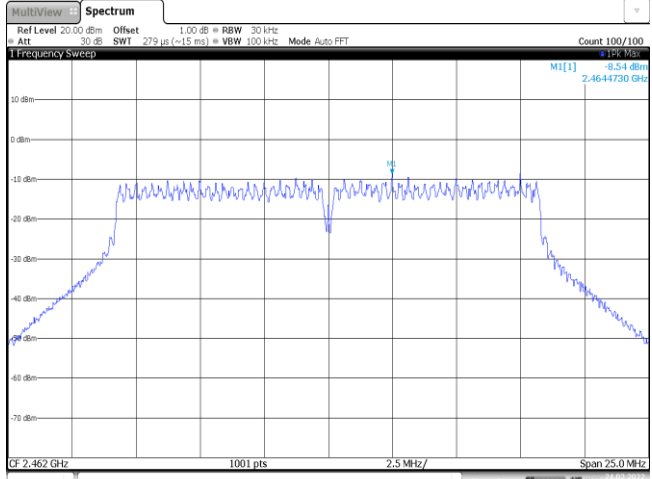
Appendix A: Conducted Peak Output Power

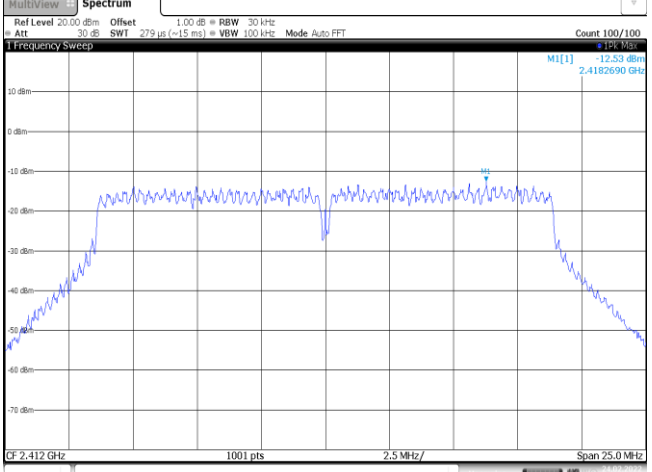
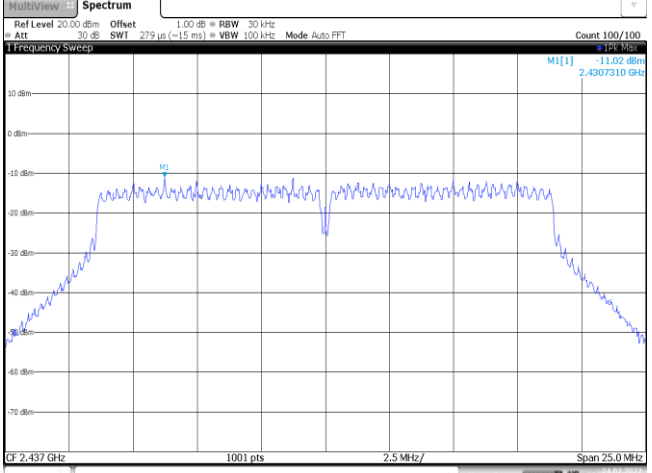
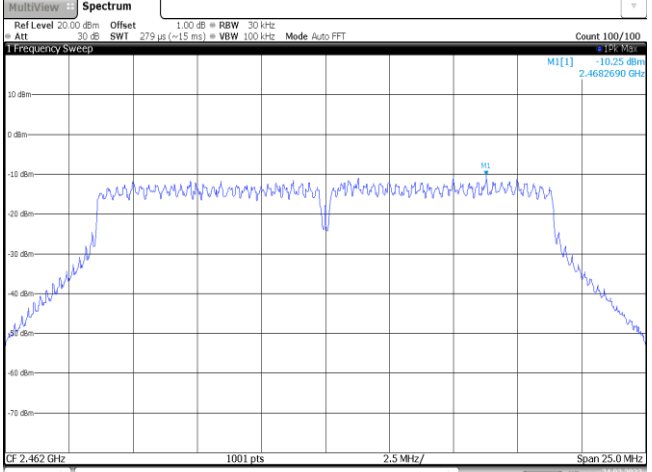
Type	Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
802.11b	01	11.55	8.84	≤ 30.00	Pass
	06	13.26	10.70		
	11	15.17	12.61		
802.11g	01	12.16	9.16	≤ 30.00	Pass
	06	13.75	10.72		
	11	15.32	12.36		
802.11n (HT20)	01	12.23	9.42	≤ 30.00	Pass
	06	13.94	11.24		
	11	15.65	13.04		
802.11n(HT40)	03	12.97	10.14	≤ 30.00	Pass
	06	14.10	11.32		
	09	15.16	12.14		

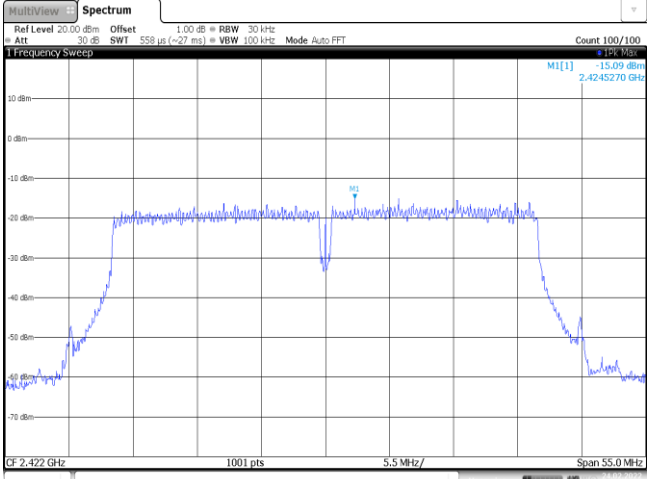
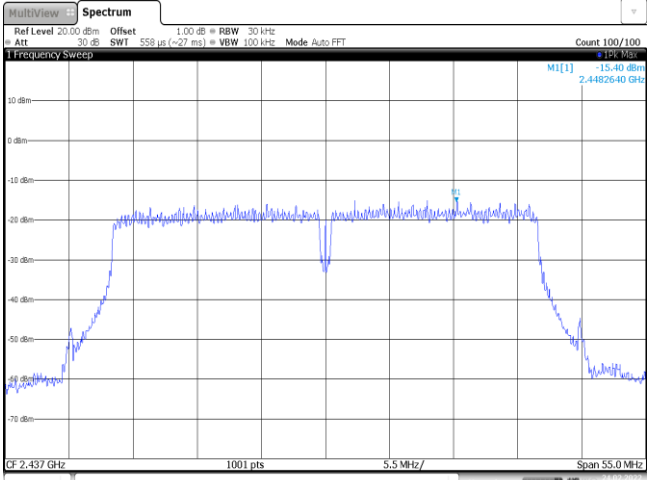
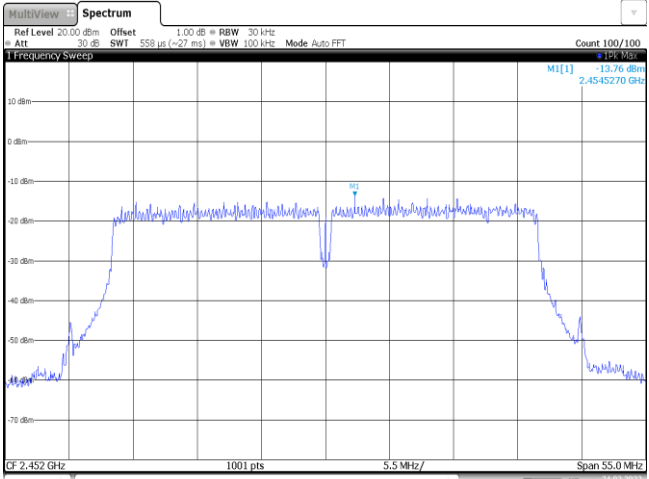
Appendix B: Power Spectral Density

Type	Channel	Power Spectral Density (dBm/30KHz)	Limit (dBm/3KHz)	Result
802.11b	01	3.71	≤8.00	Pass
	06	3.86		
	11	4.56		
802.11g	01	-10.18	≤8.00	Pass
	06	-9.40		
	11	-8.54		
802.11n(HT20)	01	-12.53	≤8.00	Pass
	06	-11.02		
	11	-10.25		
802.11n(HT40)	03	-15.09	≤8.00	Pass
	06	-15.40		
	09	-13.76		

Type:	802.11 b
CH01	 Ref Level 20.00 dBm Offset 1.00 dB BW 30 kHz Att 30 dB SWI 1.78 ms VBW 100 kHz Mode Auto Sweep Count 100/100 MI[1] 3.71 dBm 2.4123200 GHz Date: 24.FEB.2022 18:01:06
CH06	 Ref Level 20.00 dBm Offset 1.00 dB BW 30 kHz Att 30 dB SWI 1.78 ms VBW 100 kHz Mode Auto Sweep Count 100/100 MI[1] 3.86 dBm 2.4373200 GHz Date: 24.FEB.2022 18:06:23
CH11	 Ref Level 20.00 dBm Offset 1.00 dB BW 30 kHz Att 30 dB SWI 1.78 ms VBW 100 kHz Mode Auto Sweep Count 100/100 MI[1] 4.56 dBm 2.4623200 GHz Date: 24.FEB.2022 18:09:29

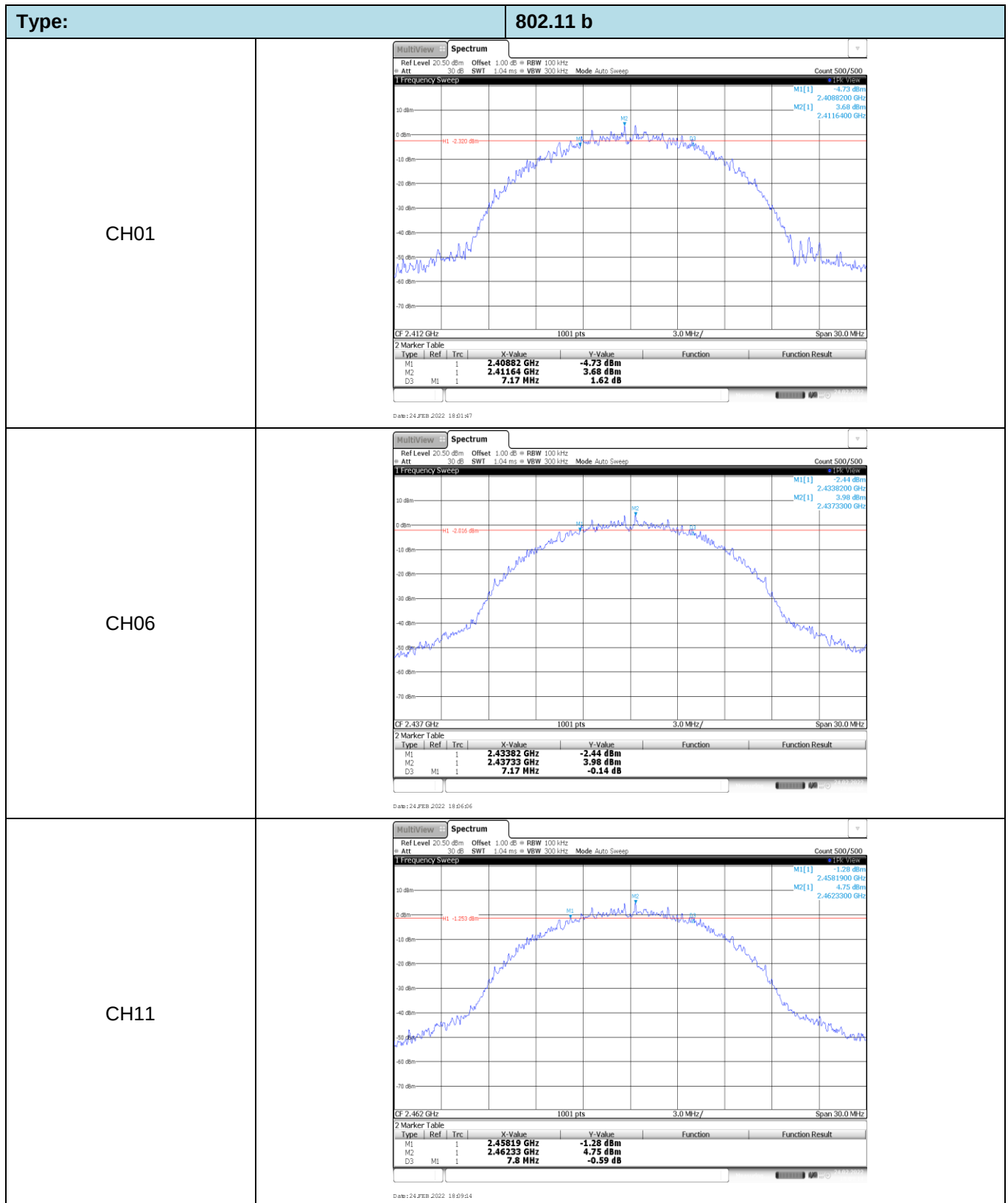
Type:	802.11 g
CH01	 Count 100/100 MI[1] -10.18 dBm 2.4144730 GHz Ref Level 20.00 dBm Offset 30 dB SWI 279 us (~15 ms) BW 30 kHz VBW 100 kHz Mode Auto FFT 1 Frequency Sweep 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm -80 dBm 2.412 GHz 1001 pts 2.5 MHz/ Span 25.0 MHz Date: 24.FEB.2022 18:44:17
CH06	 Count 100/100 MI[1] -9.40 dBm 2.4394730 GHz Ref Level 20.00 dBm Offset 30 dB SWI 279 us (~15 ms) BW 30 kHz VBW 100 kHz Mode Auto FFT 1 Frequency Sweep 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm -80 dBm 2.437 GHz 1001 pts 2.5 MHz/ Span 25.0 MHz Date: 24.FEB.2022 18:48:22
CH11	 Count 100/100 MI[1] -8.54 dBm 2.4644730 GHz Ref Level 20.00 dBm Offset 30 dB SWI 279 us (~15 ms) BW 30 kHz VBW 100 kHz Mode Auto FFT 1 Frequency Sweep 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm -80 dBm 2.462 GHz 1001 pts 2.5 MHz/ Span 25.0 MHz Date: 24.FEB.2022 18:22:01

Type:	802.11n(HT20)
CH01	 Count 100/100 MI[1] -12.53 dBm 2.4182690 GHz Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB BW 30 kHz SWI 279 us (~15 ms) VBW 100 kHz Mode Auto FFT 1 Frequency Sweep 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 2.412 GHz 1001 pts 2.5 MHz/ Span 25.0 MHz Date: 24.FEB.2022 18:25:06
CH06	 Count 100/100 MI[1] -11.02 dBm 2.4387310 GHz Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB BW 30 kHz SWI 279 us (~15 ms) VBW 100 kHz Mode Auto FFT 1 Frequency Sweep 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 2.437 GHz 1001 pts 2.5 MHz/ Span 25.0 MHz Date: 24.FEB.2022 18:29:06
CH11	 Count 100/100 MI[1] -10.25 dBm 2.4682690 GHz Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB BW 30 kHz SWI 279 us (~15 ms) VBW 100 kHz Mode Auto FFT 1 Frequency Sweep 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 2.462 GHz 1001 pts 2.5 MHz/ Span 25.0 MHz Date: 24.FEB.2022 18:22:07

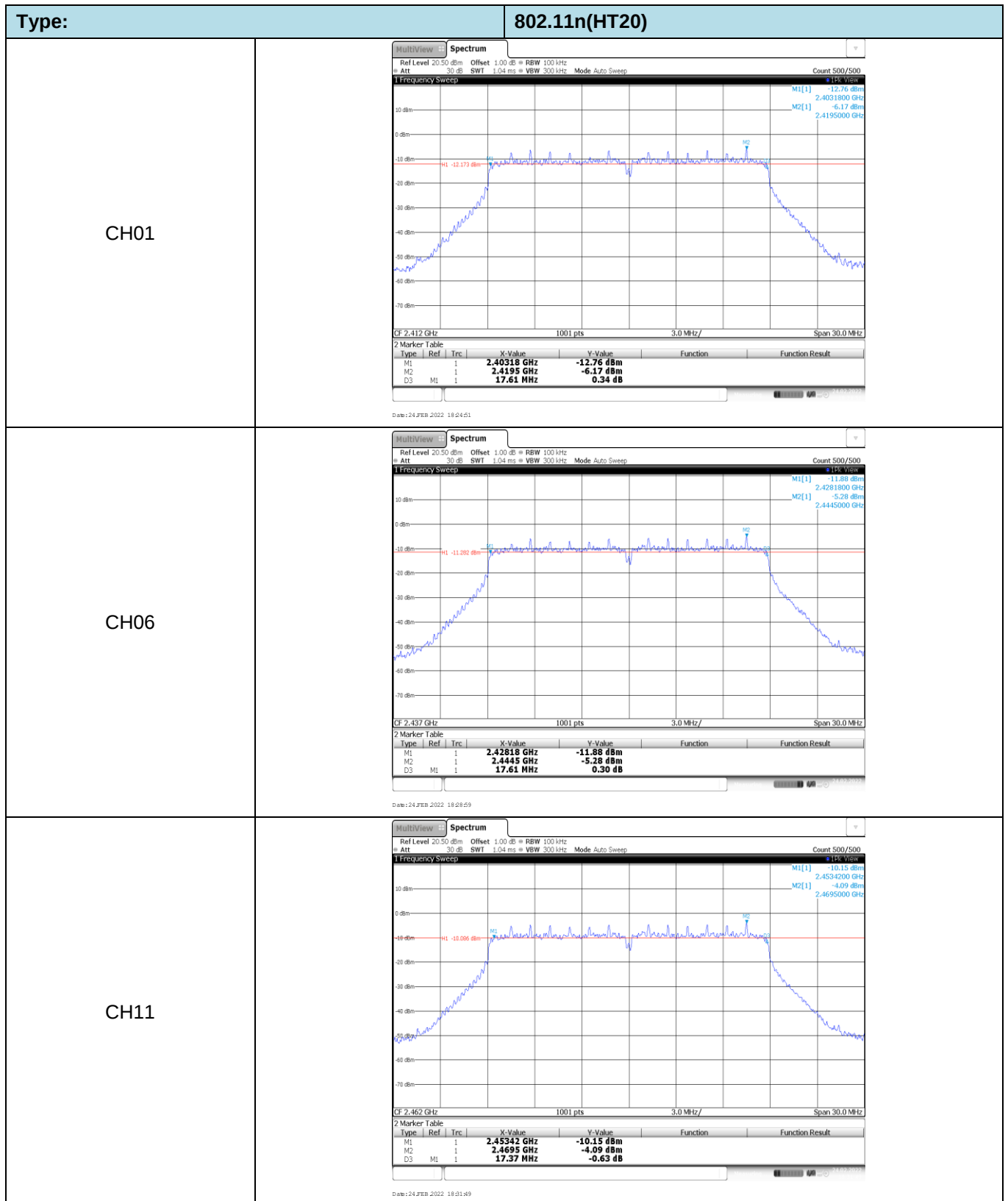
Type:	802.11n(HT40)
CH03	 Ref Level 20.00 dBm Offset 30 dB BW 1.00 MHz RBW 30 kHz SW 558 us (~27 ms) VBW 100 kHz Mode Auto FFT Count 100/100 M1[1] -15.09 dBm 2.4245270 GHz CF 2.422 GHz 1001 pts 5.5 MHz/ Span 55.0 MHz Date: 24.FEB.2022 18:07:03
CH06	 Ref Level 20.00 dBm Offset 30 dB BW 1.00 MHz RBW 30 kHz SW 558 us (~27 ms) VBW 100 kHz Mode Auto FFT Count 100/100 M1[1] -15.40 dBm 2.4482640 GHz CF 2.437 GHz 1001 pts 5.5 MHz/ Span 55.0 MHz Date: 24.FEB.2022 18:41:03
CH09	 Ref Level 20.00 dBm Offset 30 dB BW 1.00 MHz RBW 30 kHz SW 558 us (~27 ms) VBW 100 kHz Mode Auto FFT Count 100/100 M1[1] -13.76 dBm 2.4545270 GHz CF 2.452 GHz 1001 pts 5.5 MHz/ Span 55.0 MHz Date: 24.FEB.2022 18:44:51

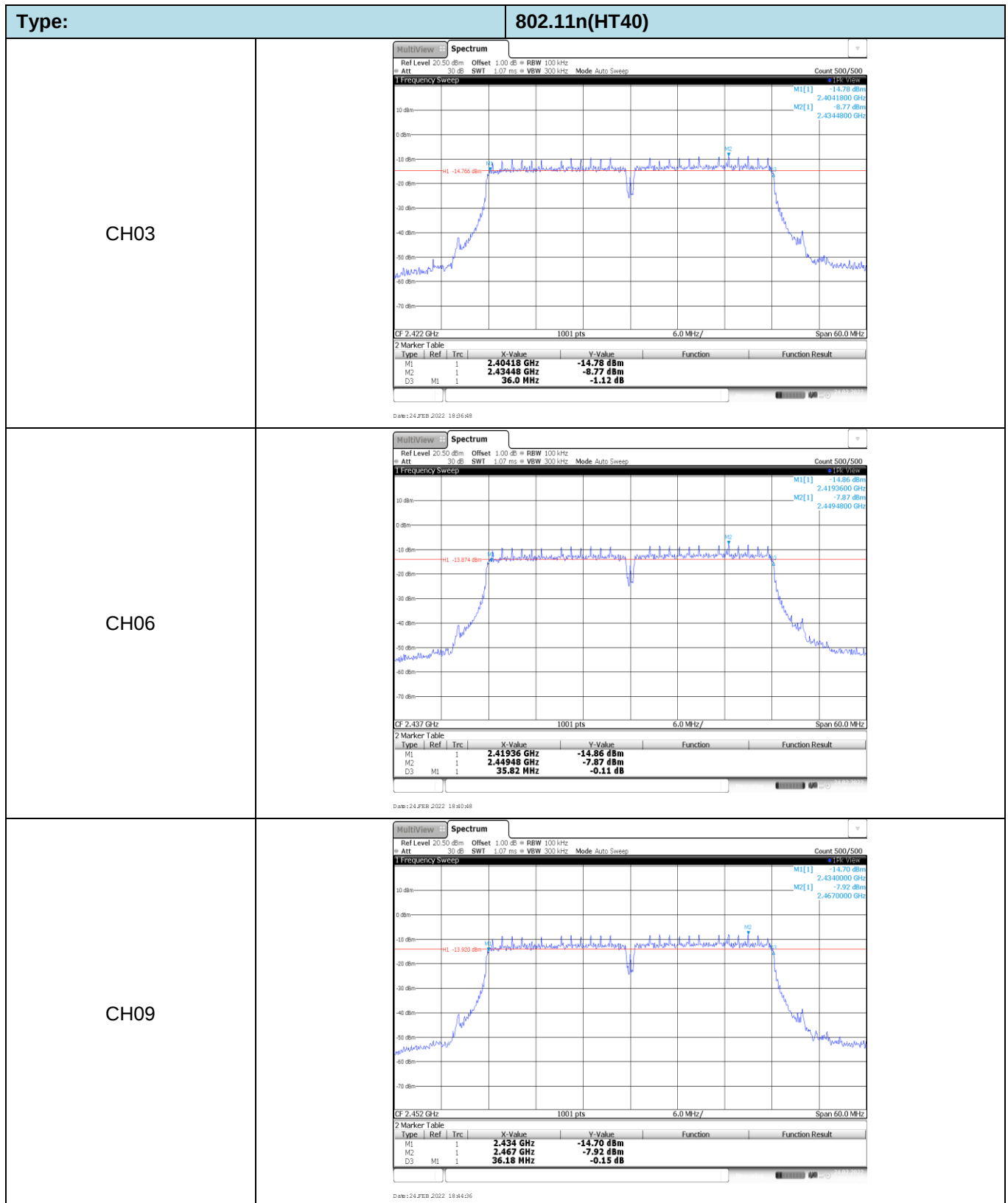
Appendix C: 6dB bandwidth

Type	Channel	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11b	01	7.17	≥0.5	Pass
	06	7.17		
	11	7.80		
802.11g	01	16.41	≥0.5	Pass
	06	16.41		
	11	16.41		
802.11n(HT20)	01	17.61	≥0.5	Pass
	06	17.61		
	11	17.37		
802.11n(HT40)	03	36.00	≥0.5	Pass
	06	35.82		
	09	36.18		



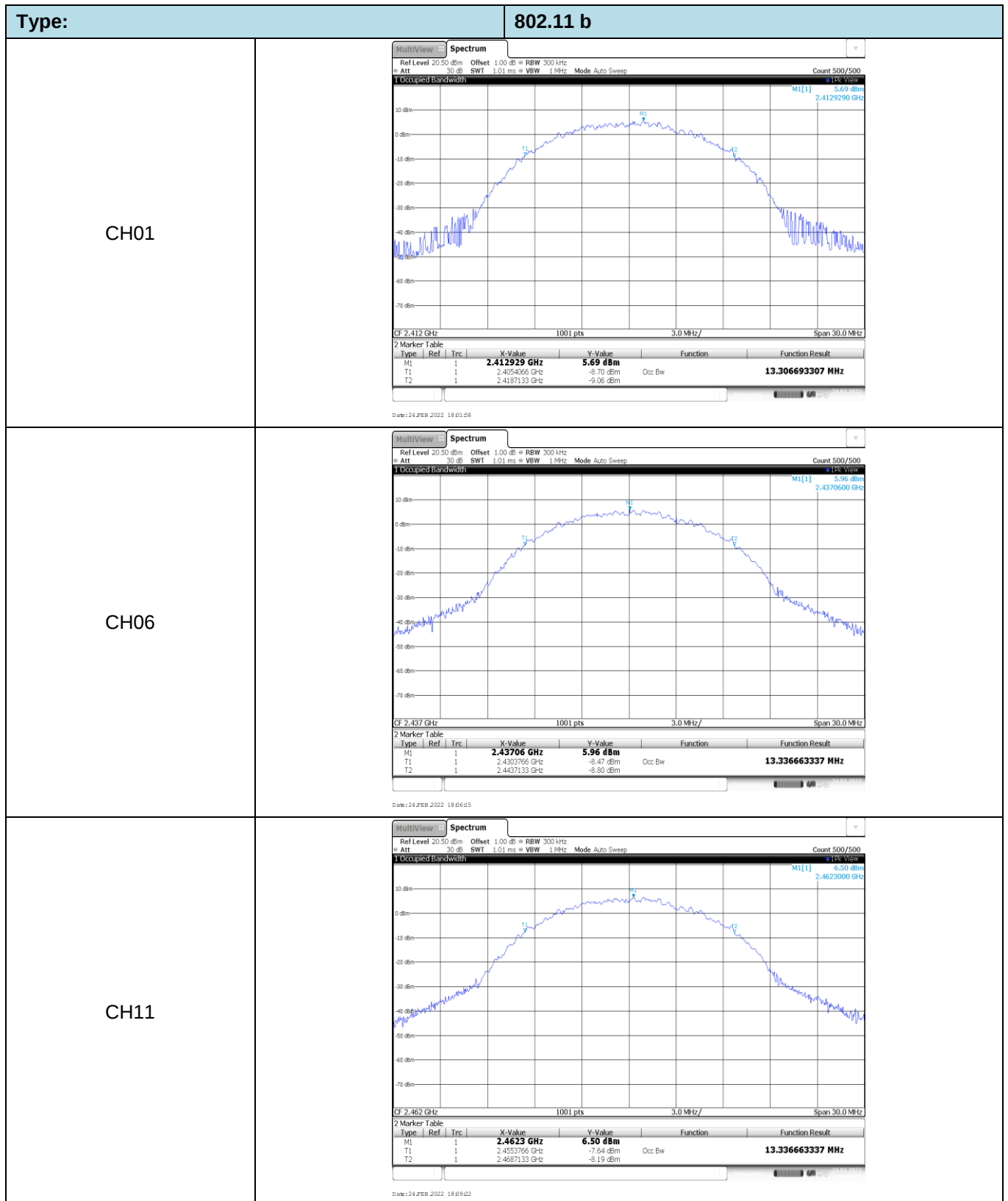
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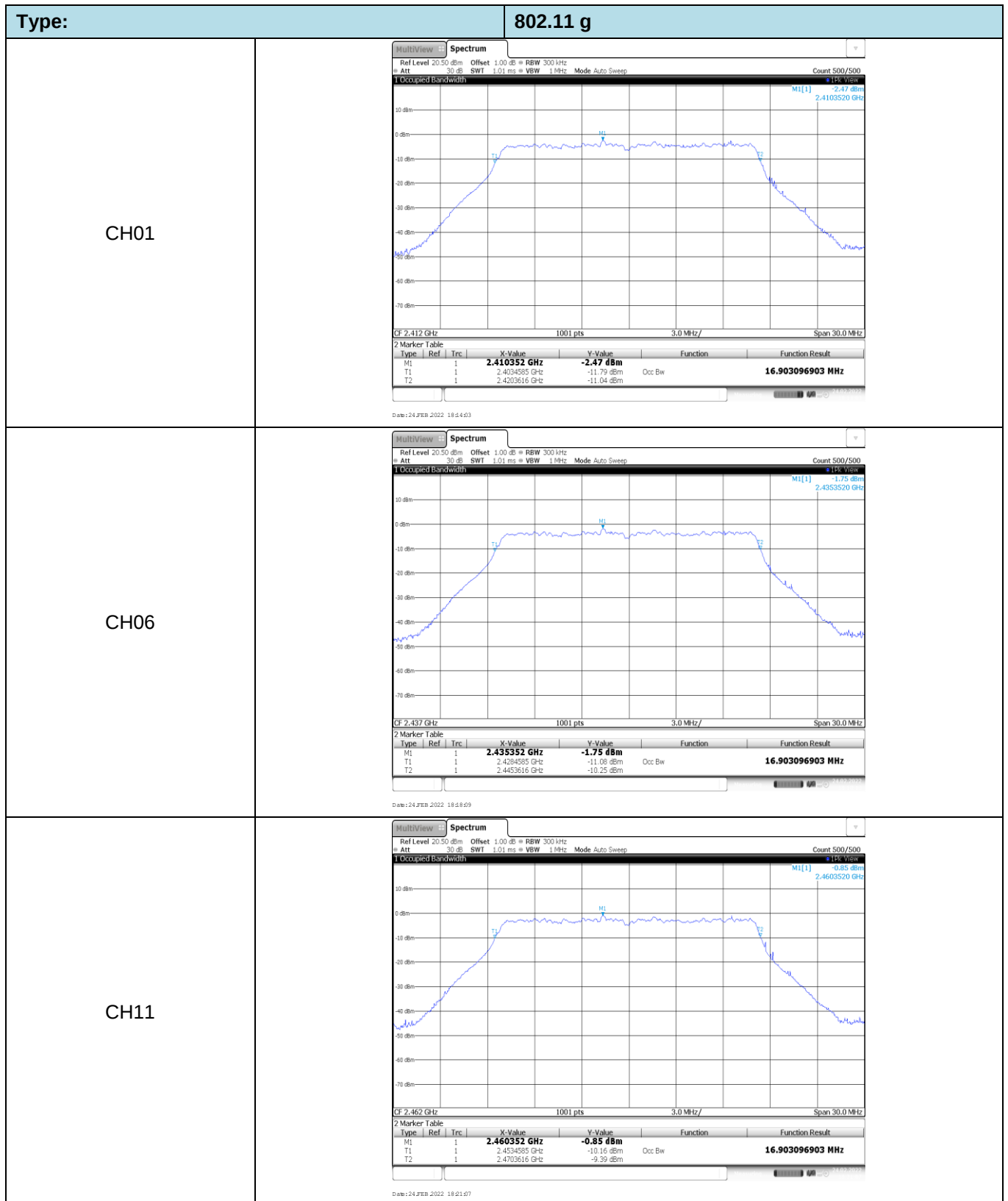


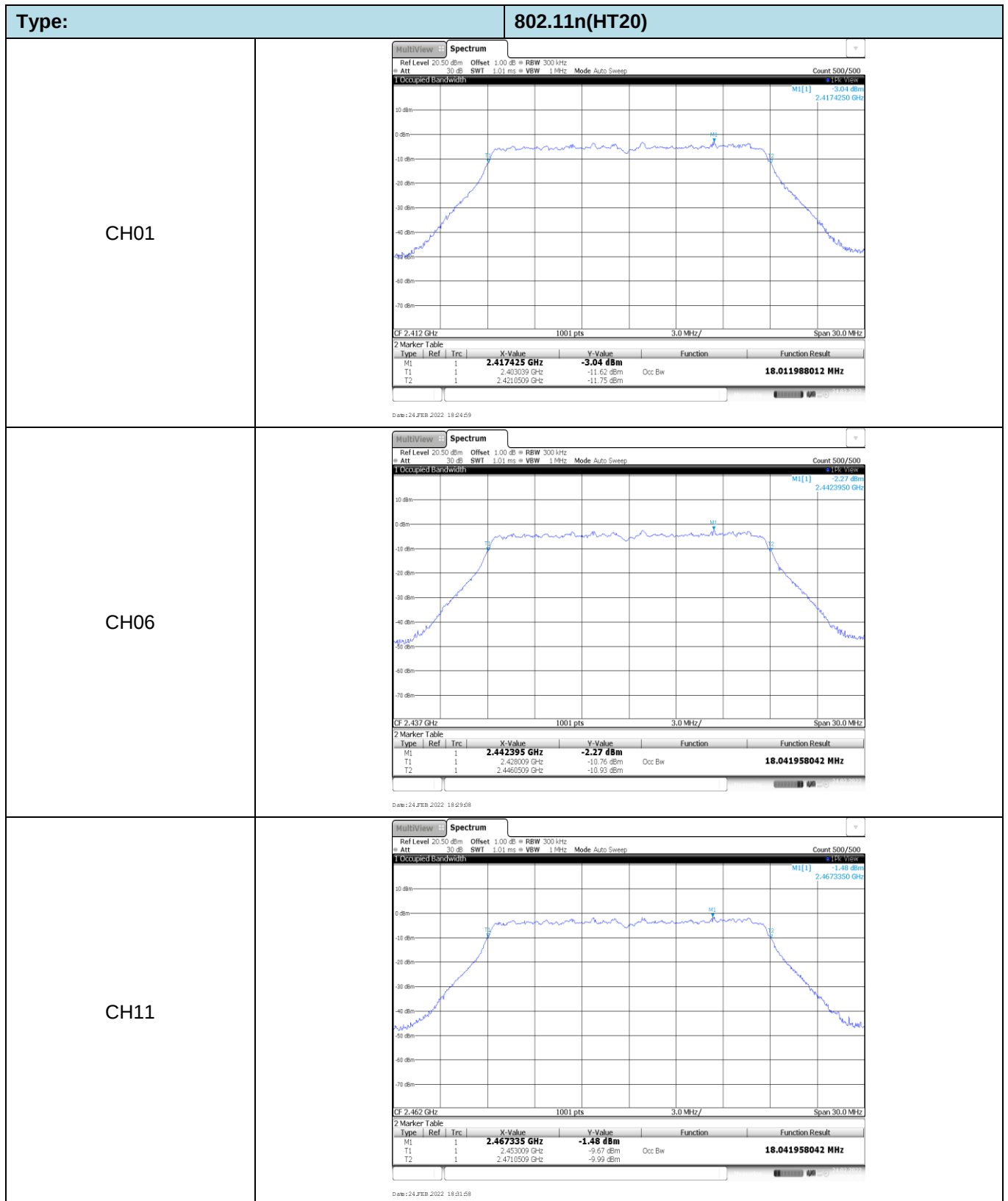


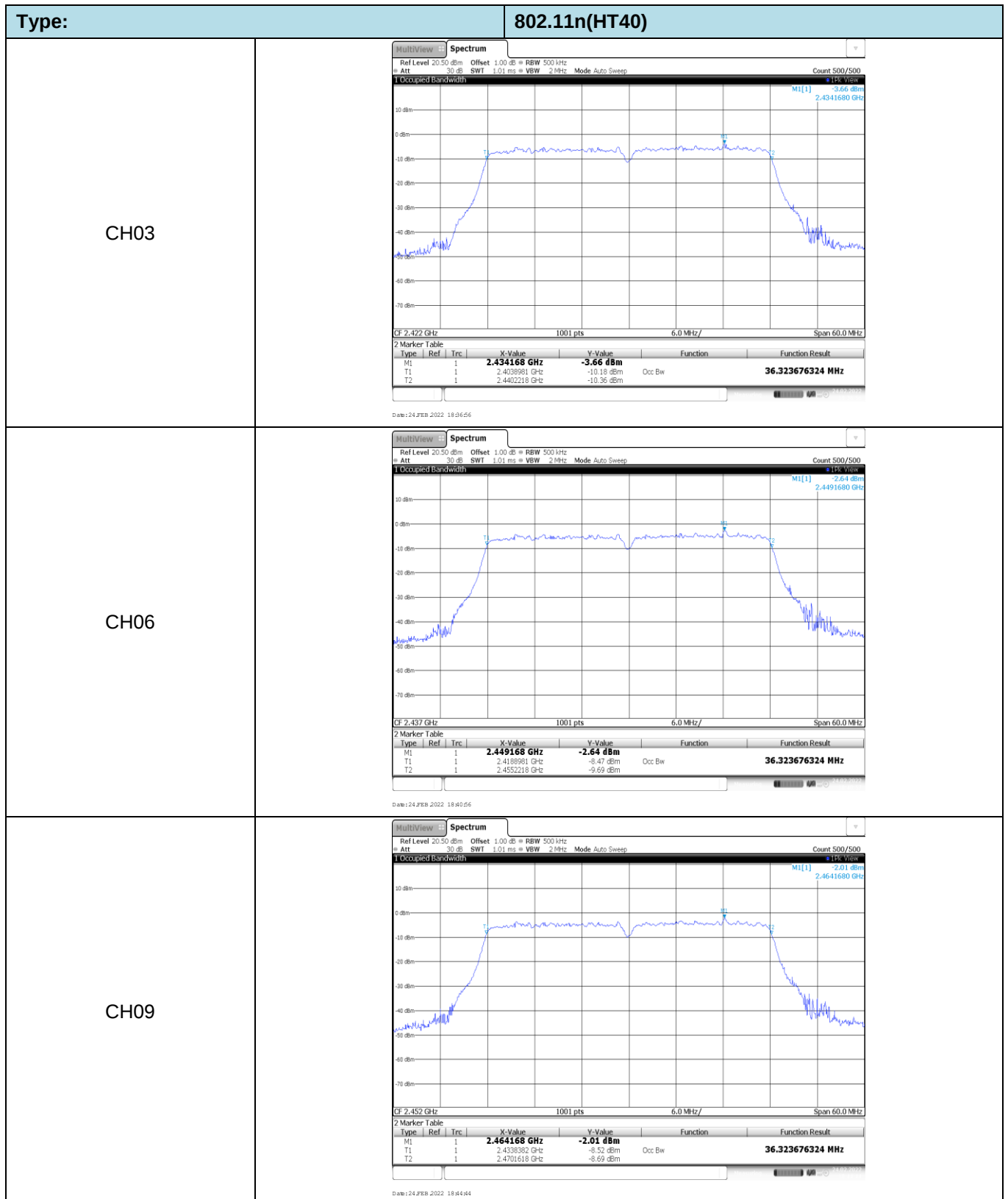
Appendix D: 99% Occupied Bandwidth

Type	Channel	99% Bandwidth (MHz)	Limit (kHz)	Result
802.11b	01	13.31	-	Pass
	06	13.34		
	11	13.34		
802.11g	01	16.90	-	Pass
	06	16.90		
	11	16.90		
802.11n(HT20)	01	18.01	-	Pass
	06	18.04		
	11	18.04		
802.11n(HT40)	03	36.32	-	Pass
	06	36.32		
	09	36.32		





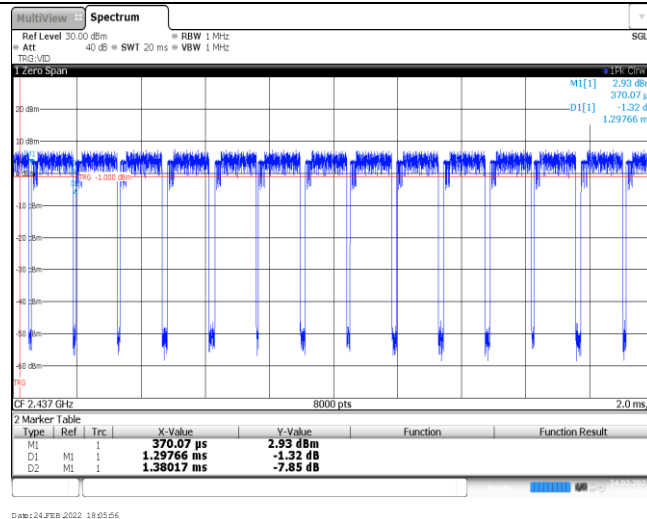




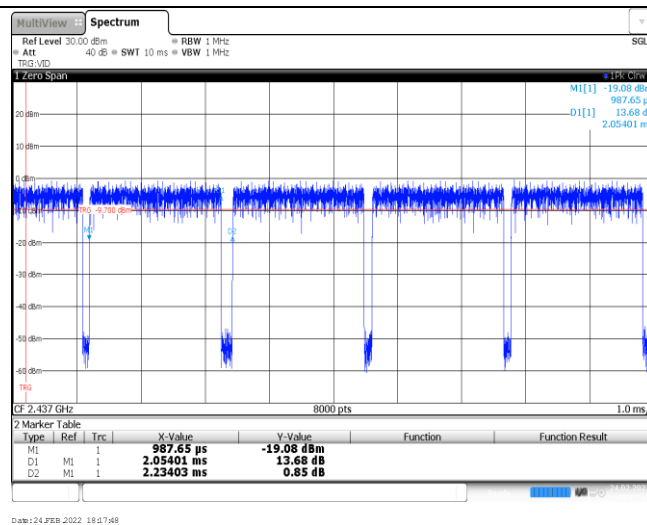
Appendix E: Duty Cycle

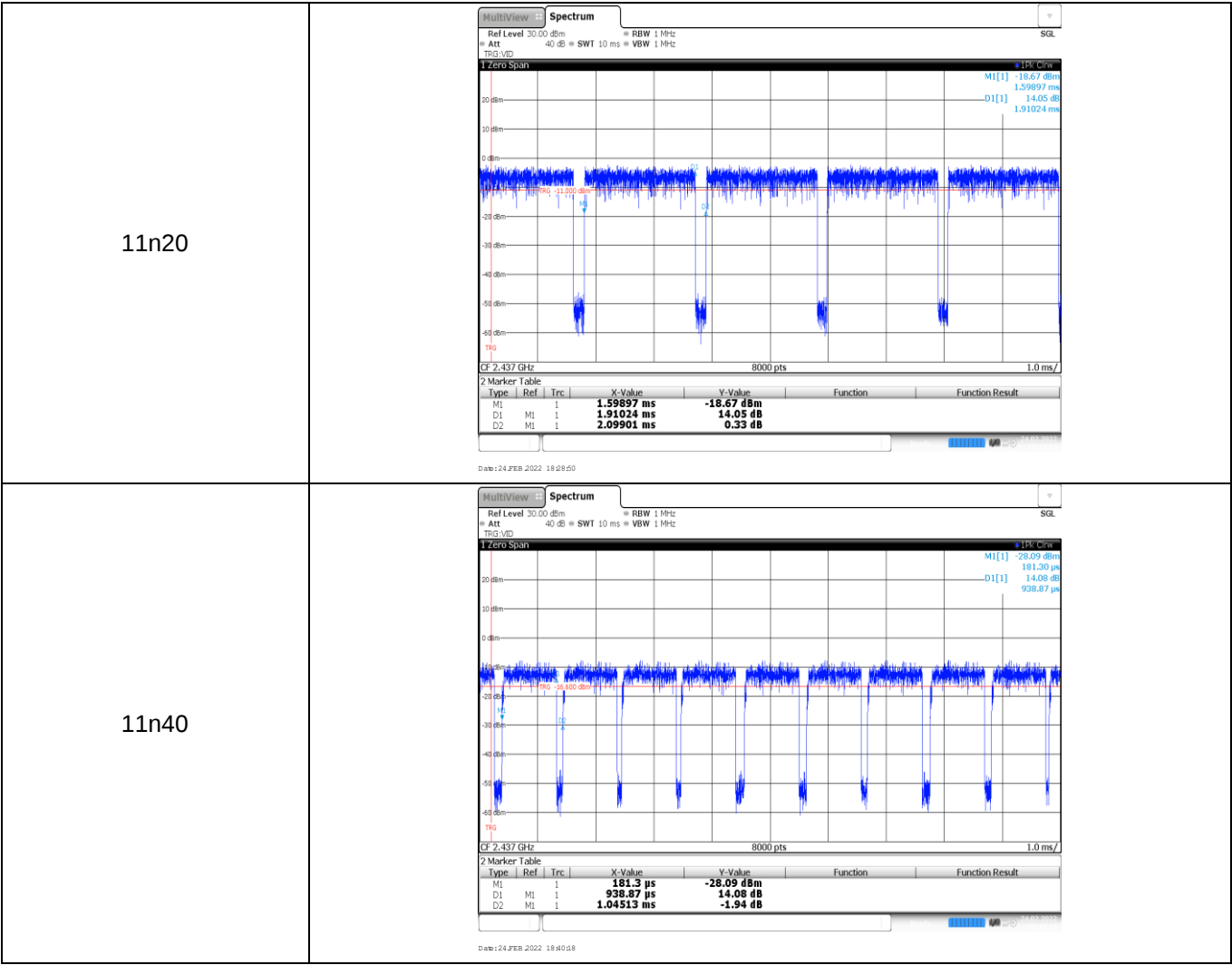
Modulation Type	Test Frequency (MHz)	T _{on time} for single burst (ms)	T _{period} (ms)	Duty cycle	1/T _{on time} (kHz)
11b	2437	1.30	1.38	94.2%	0.8
11g	2437	2.05	2.23	91.9%	0.5
11n20	2437	1.91	2.10	91.0%	0.5
11n40	2437	0.94	1.05	89.5%	1.1

11b

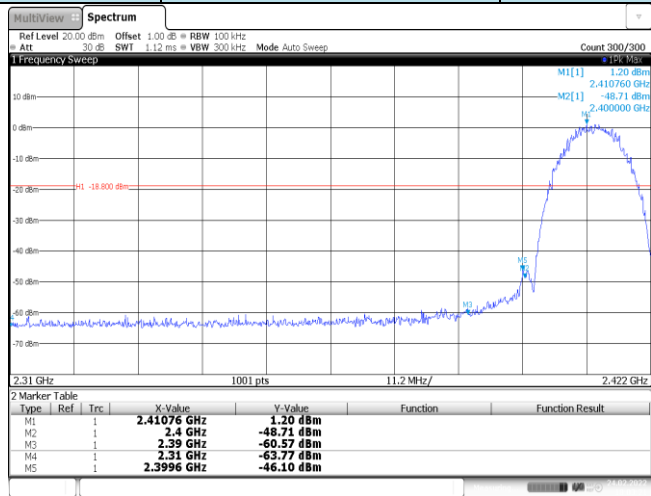
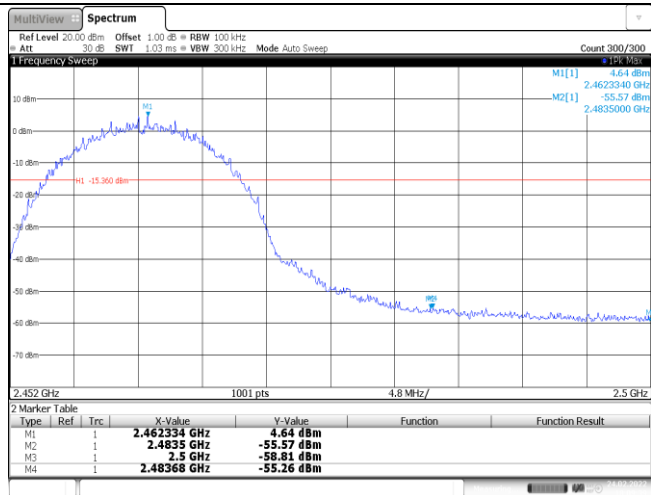


11g



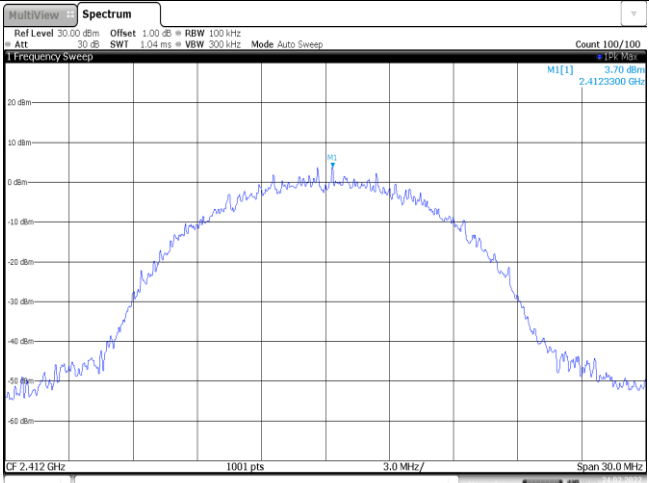
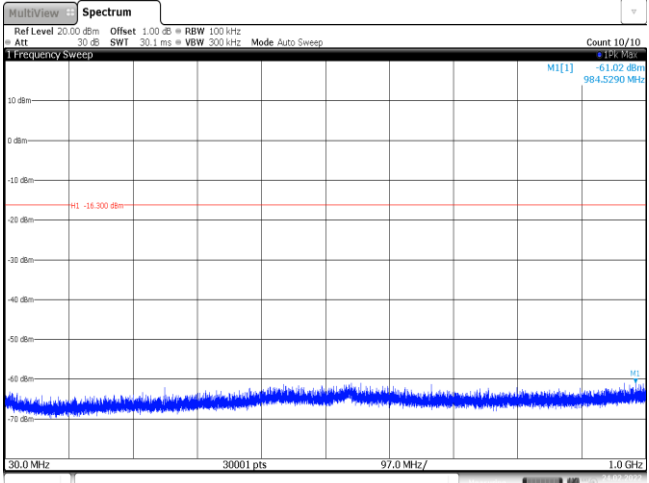
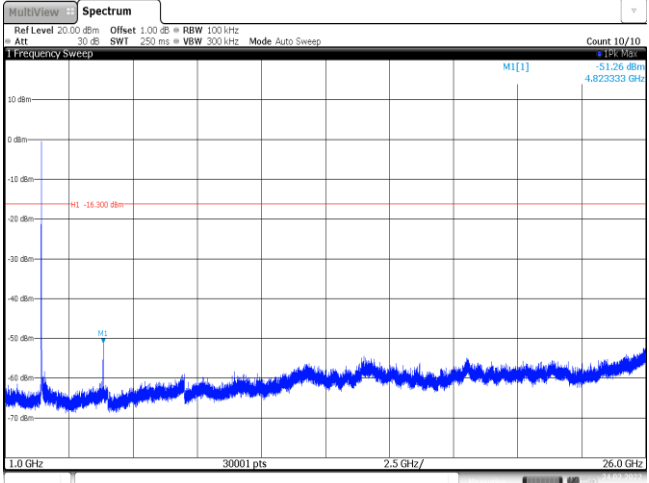


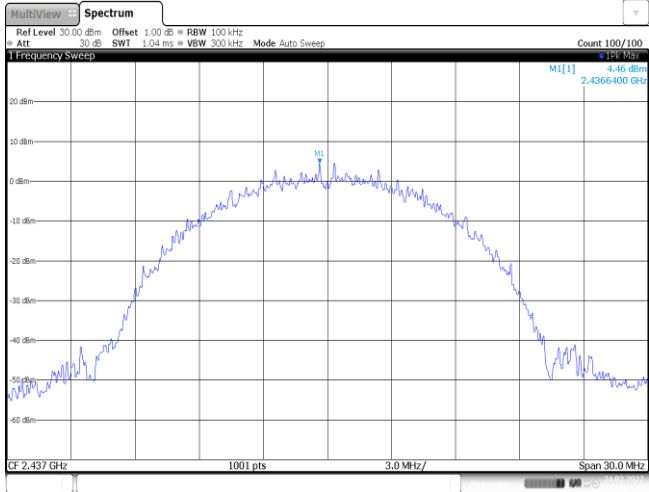
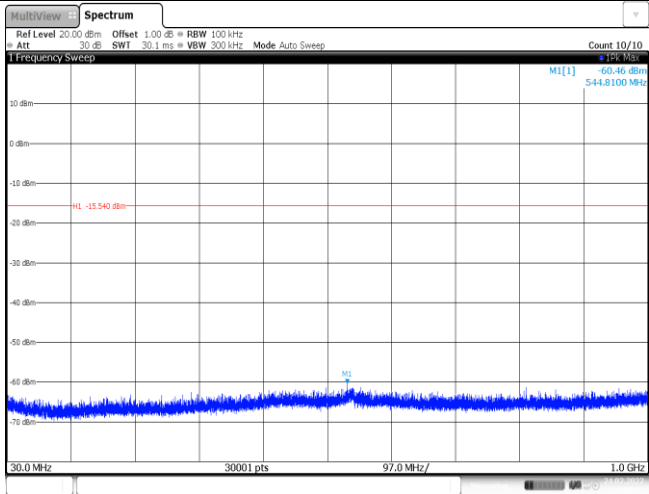
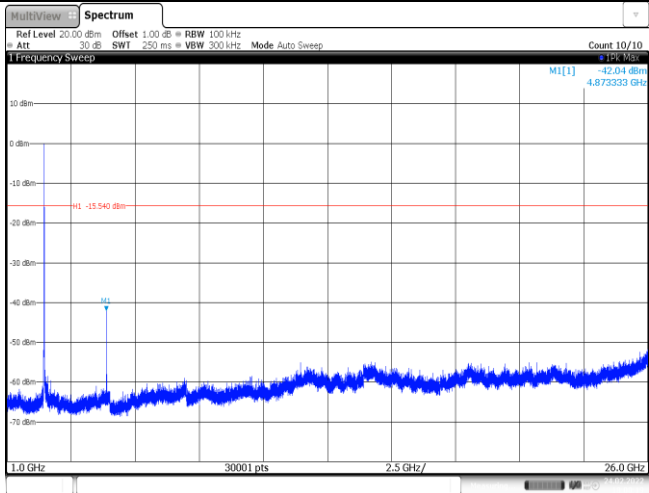
Appendix F: Band edge and Spurious Emissions (conducted)

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>2.41076 GHz</td><td>1.20 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-48.71 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-60.57 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-63.77 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.3996 GHz</td><td>-46.10 dBm</td><td></td><td></td></tr></tbody></table> Date: 24.FEB.2022 18:03:21			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.41076 GHz	1.20 dBm			M2	1		2.4 GHz	-48.71 dBm			M3	1		2.39 GHz	-60.57 dBm			M4	1		2.31 GHz	-63.77 dBm			M5	1		2.3996 GHz	-46.10 dBm		
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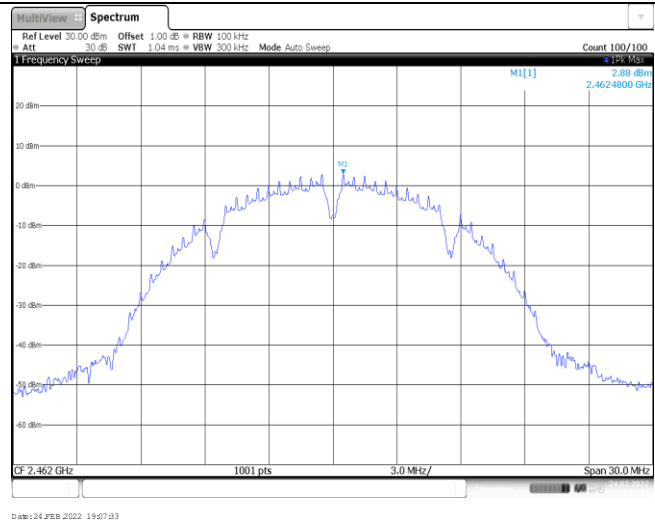
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Test Item:	Bandedge	Type:	802.11 n(HT20)
CH01	</		

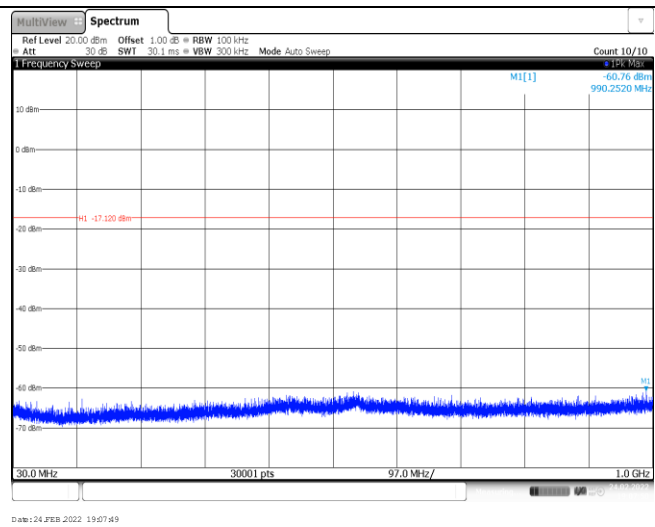
Test Item:	SE	Type:	802.11b
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CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

CH06 Reference level	
CH06 30MHz~1000MHz	
CH06 1GHz~26GHz	

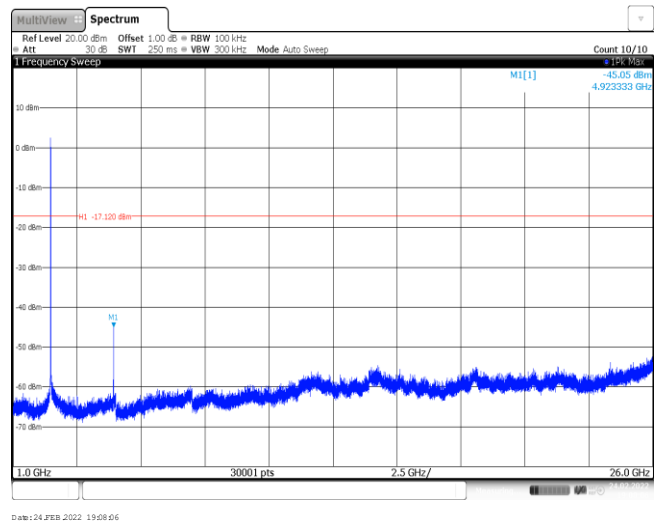
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Reference level

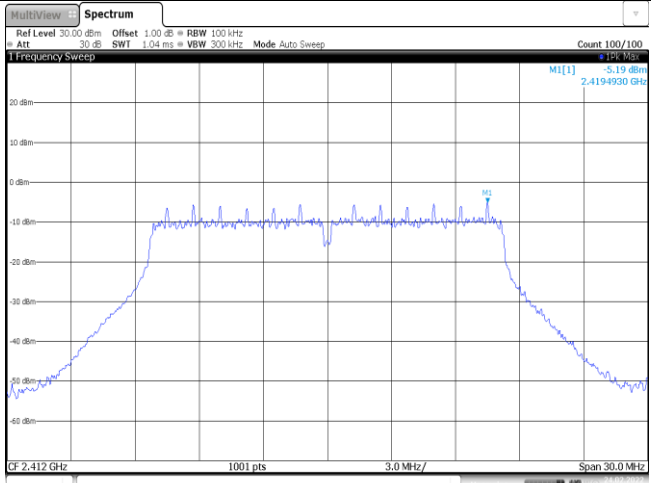
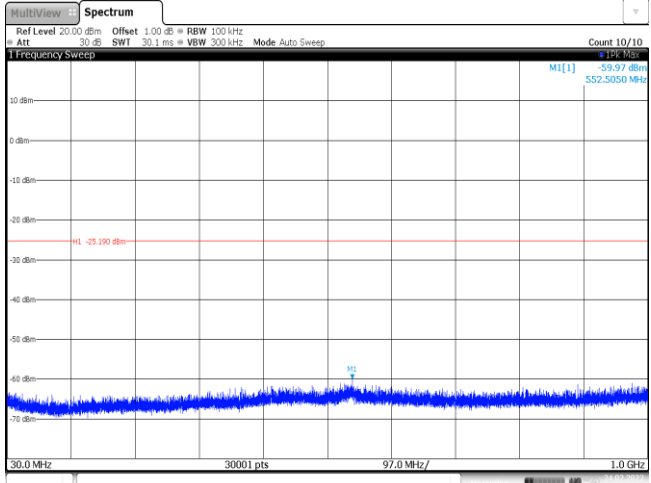
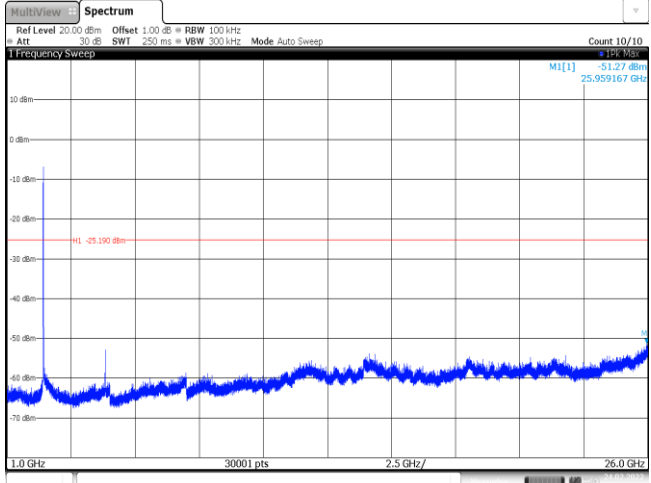


CH11
30MHz~1000MHz

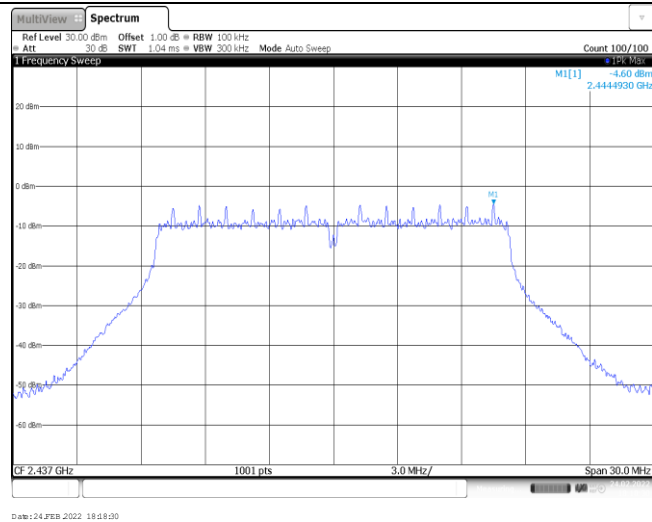


CH11
1GHz~26GHz

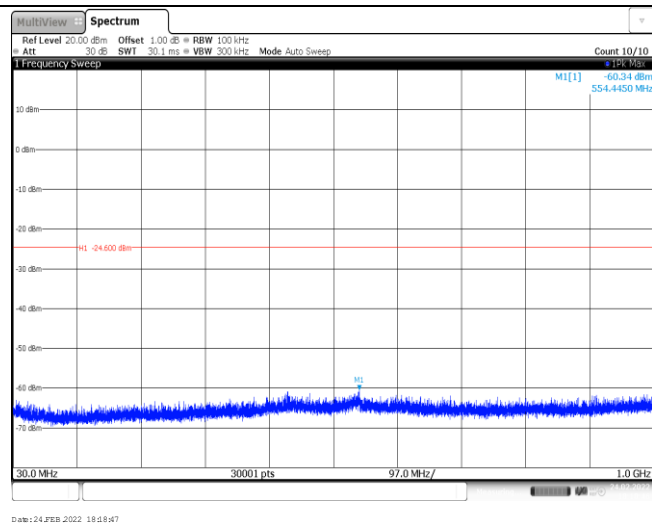


Test Item:	SE	Type:	802.11g
CH01 Reference level		 Ref Level 30.00 dBm Offset 1.00 dB BW 100 kHz Att 30 dB SWI 1.04 ms VBW 300 kHz Mode Auto Sweep Count 100/100 M1[1] -51.19 dBm 2.4194930 GHz 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm 2.412 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 24.FEB.2022 18:15:29	
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] -59.97 dBm 552.5050 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: 24.FEB.2022 18:15:45	
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] -51.27 dBm 25.959167 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: 24.FEB.2022 18:16:27	

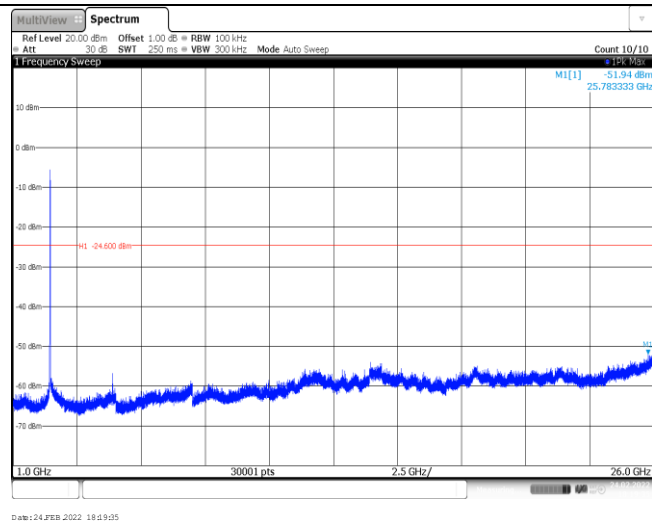
CH06
Reference level

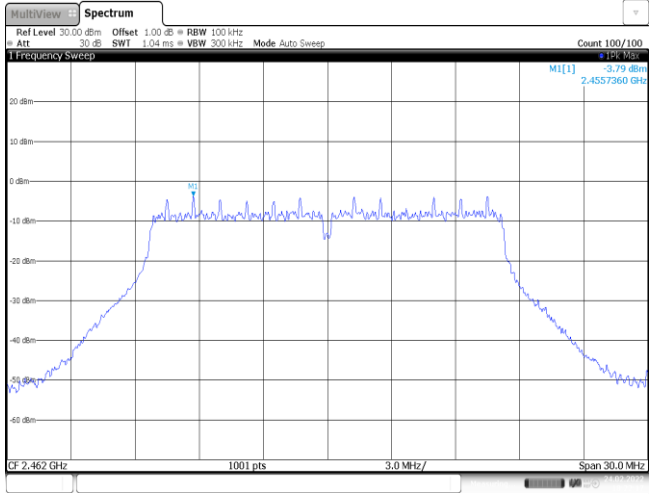
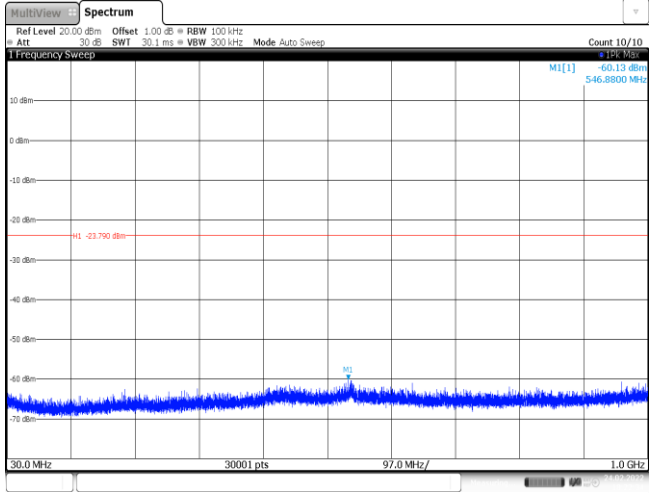
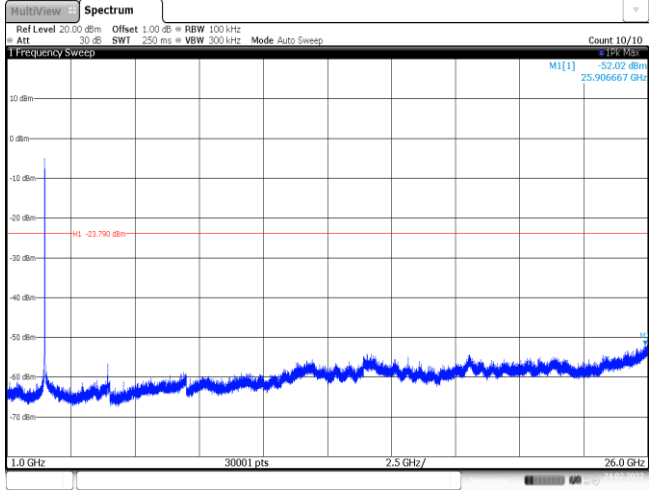


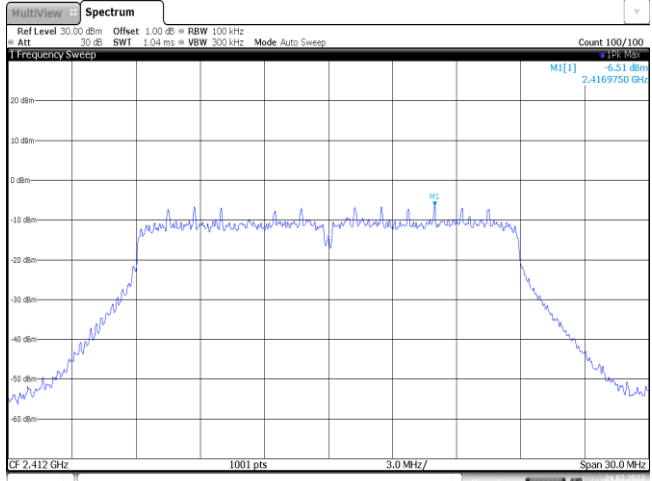
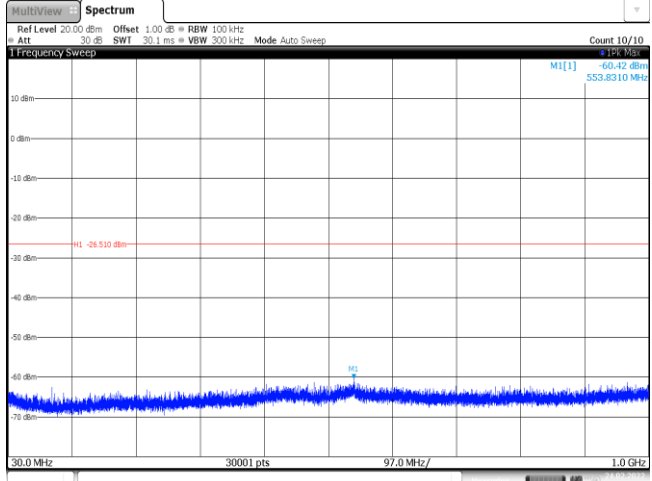
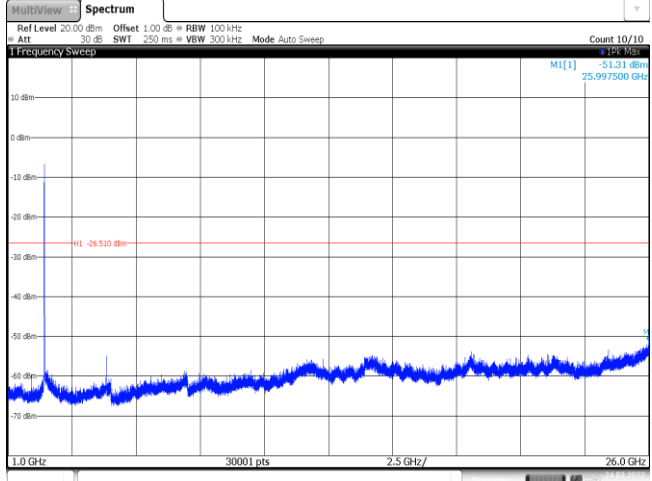
CH06
30MHz~1000MHz



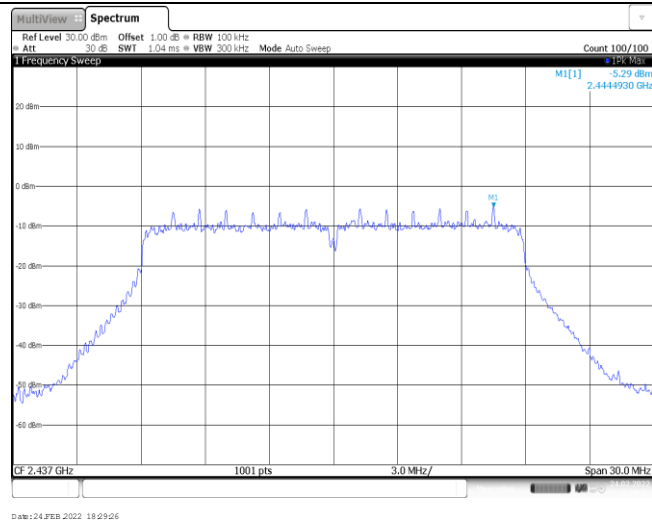
CH06
1GHz~26GHz



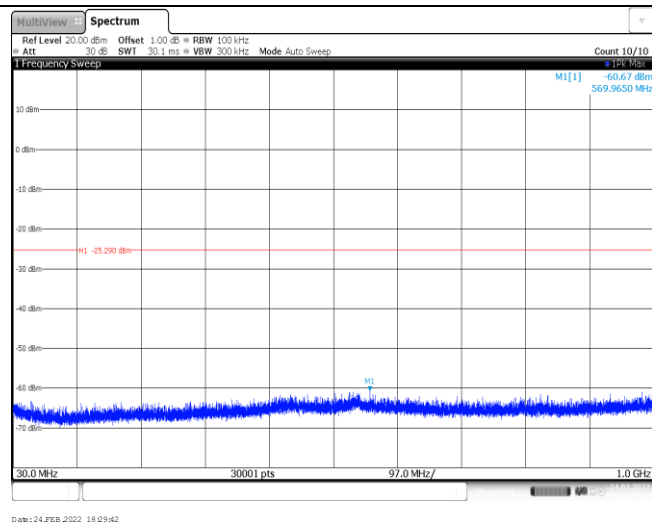
CH11 Reference level	
CH11 30MHz~1000MHz	
CH11 1GHz~26GHz	

Test Item:	SE	Type:	802.11n(HT20)
CH01 Reference level		 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] -6.51 dBm 2.4169750 GHz 2.412 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 24.FEB.2022 18:25:28	
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] -60.42 dBm 553.6310 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 24.FEB.2022 18:25:44	
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] -51.31 dBm 25.997500 GHz 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 24.FEB.2022 18:26:27	

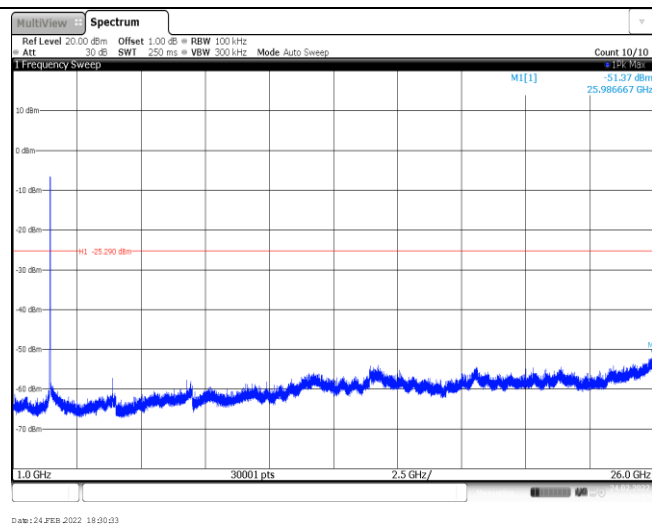
CH06
Reference level



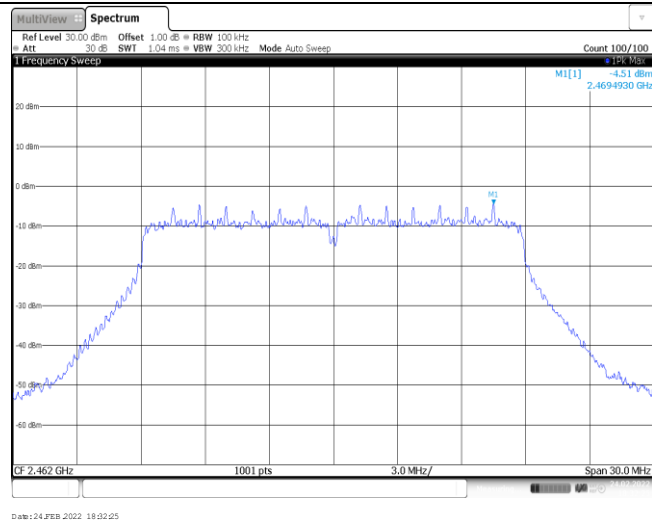
CH06
30MHz~1000MHz



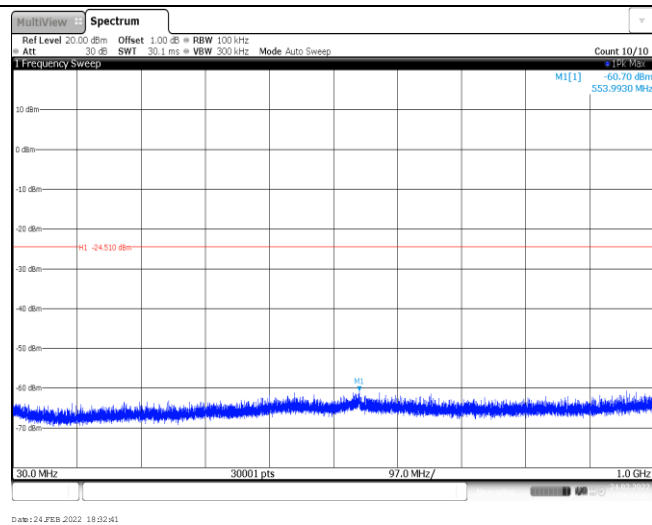
CH06
1GHz~26GHz



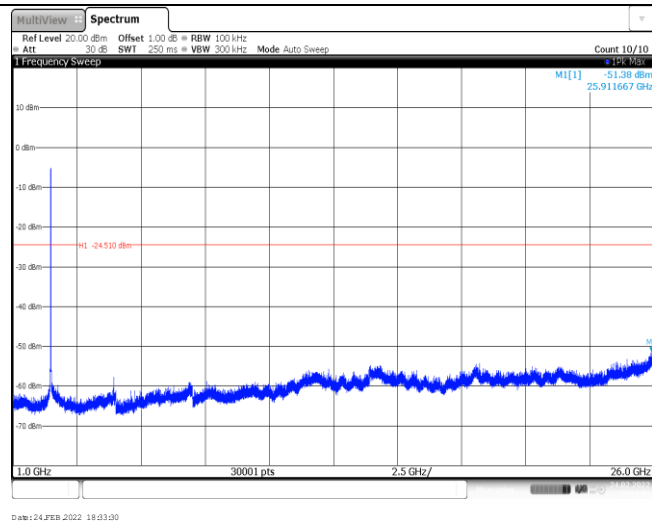
CH11
Reference level

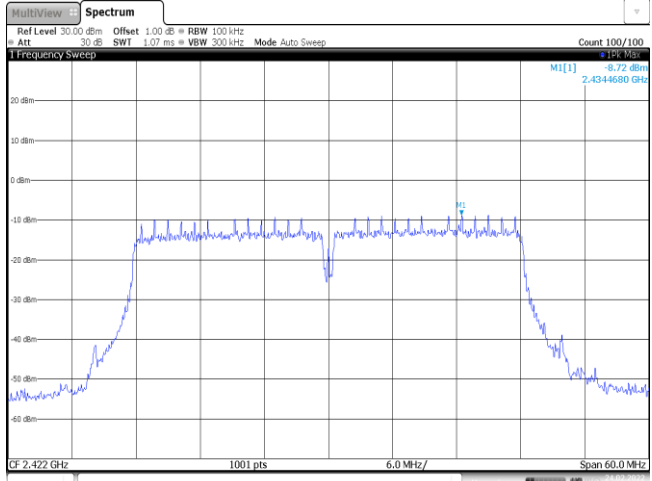
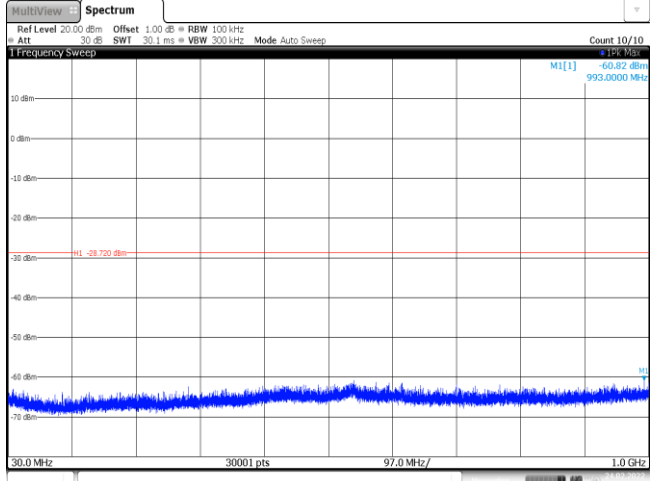
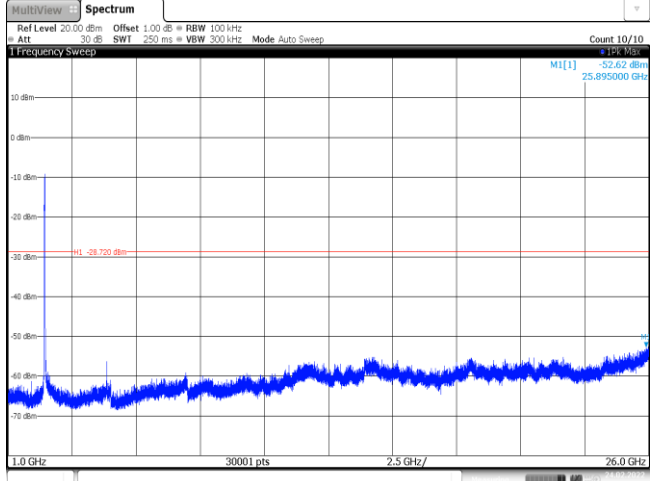


CH11
30MHz~1000MHz

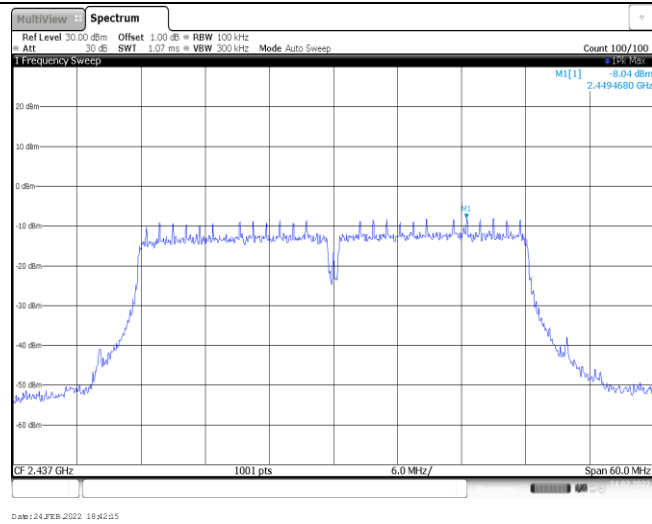


CH11
1GHz~26GHz

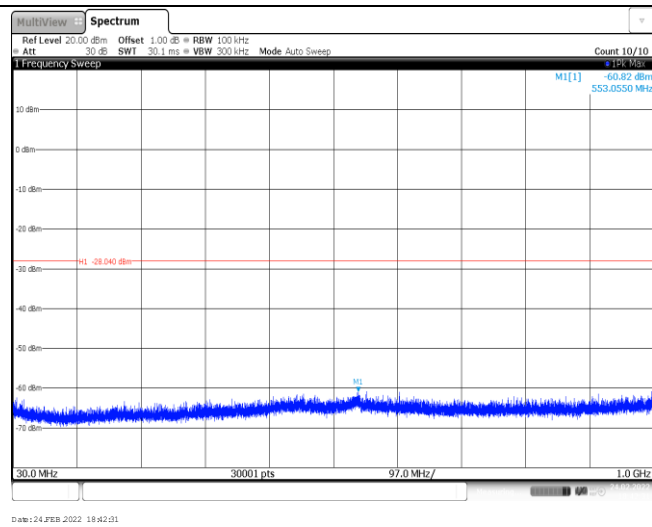


Test Item:	SE	Type:	802.11n(HT40)
CH03 Reference level		 Ref Level 30.00 dBm Offset 1.00 dB BW 100 kHz Att 30 dB SWI 1.07 ms VBW 300 kHz Mode Auto Sweep Count 100/100 M1[1] -60.72 dBm 2.434680 GHz 2.422 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz Date: 24.FEB.2022 18:07:39	
CH03 30MHz~1000MHz		 Ref Level 20.00 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] -60.82 dBm 993.0000 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 24.FEB.2022 18:07:55	
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] -52.62 dBm 25.895000 GHz 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 24.FEB.2022 18:08:12	

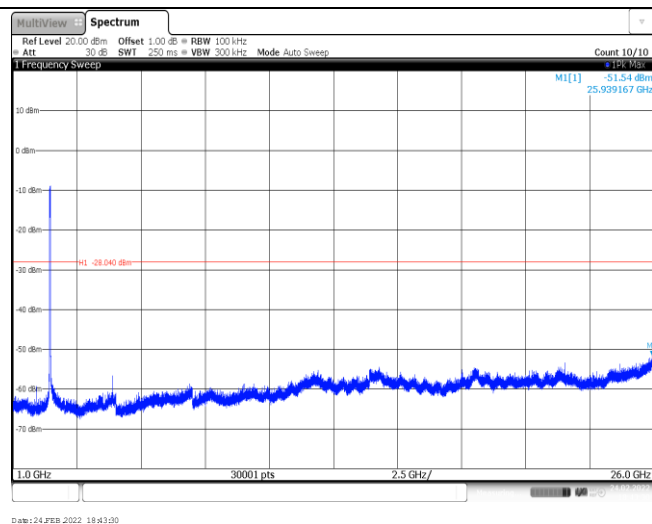
CH06
Reference level



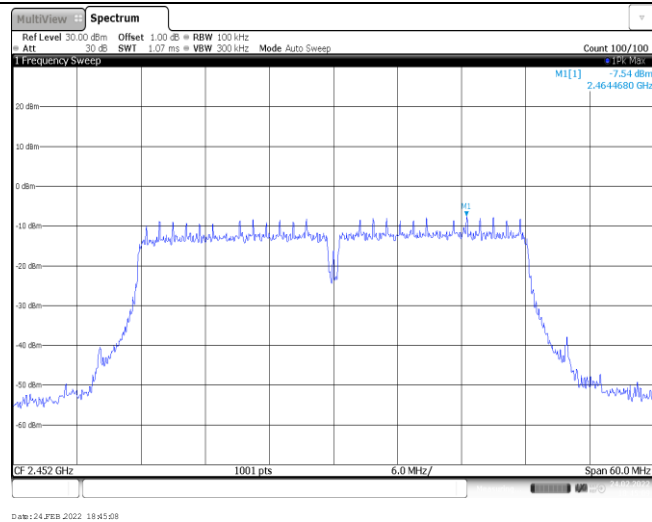
CH06
30MHz~1000MHz



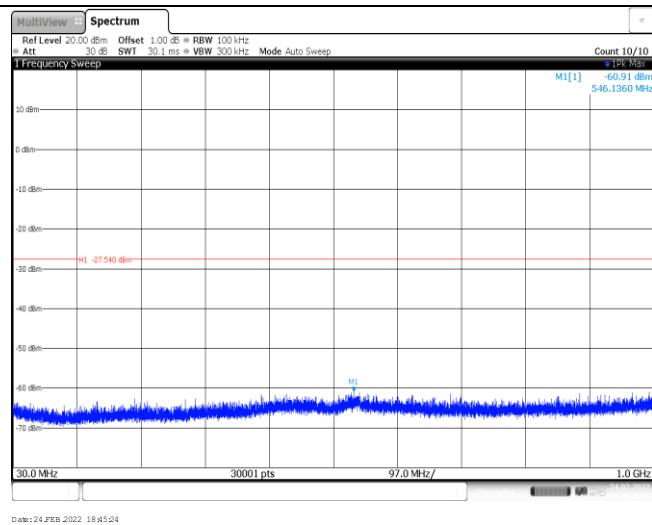
CH06
1GHz~26GHz



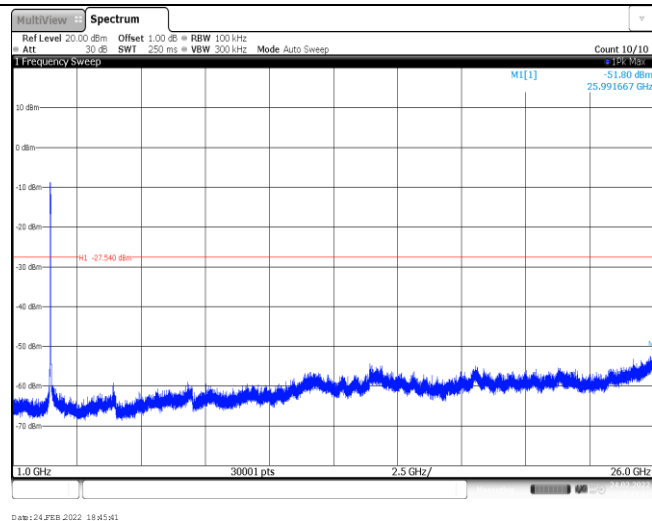
CH09
Reference level



CH09
30MHz~1000MHz



CH09
1GHz~26GHz



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