

APPENDIX REPORT

Project No.	SHT2106054104EW	Radio Specification	WIFI 2.4G
Test sample No.	YPHT21060541011	Model No.	VP880
Start test date	2021-07-01	Finish date	2021-07-01
Temperature	25.4°C	Humidity	46%
Test Engineer	Hailey Chen	Auditor	Xiaodong Zhu

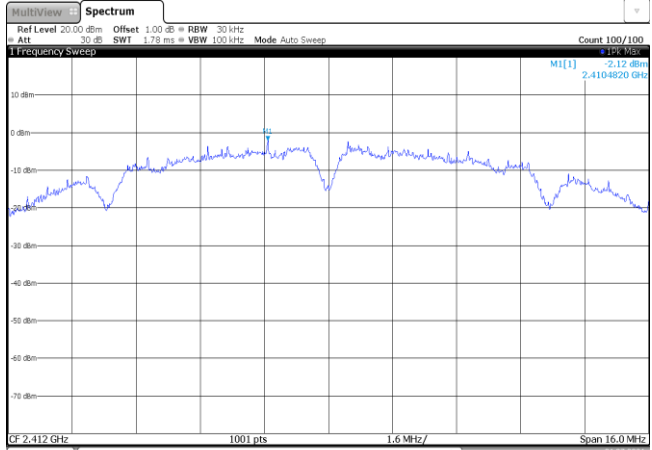
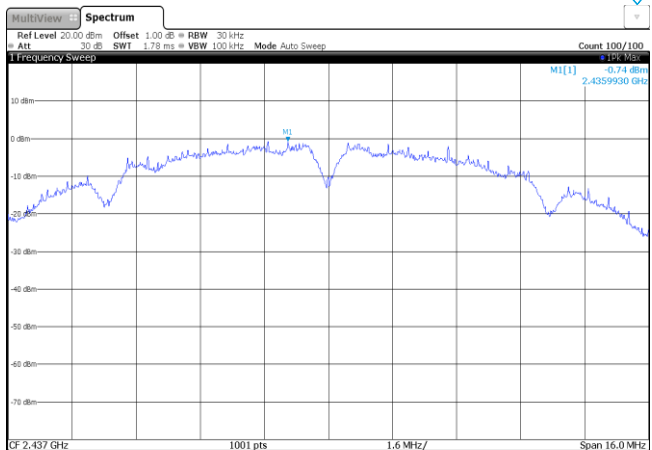
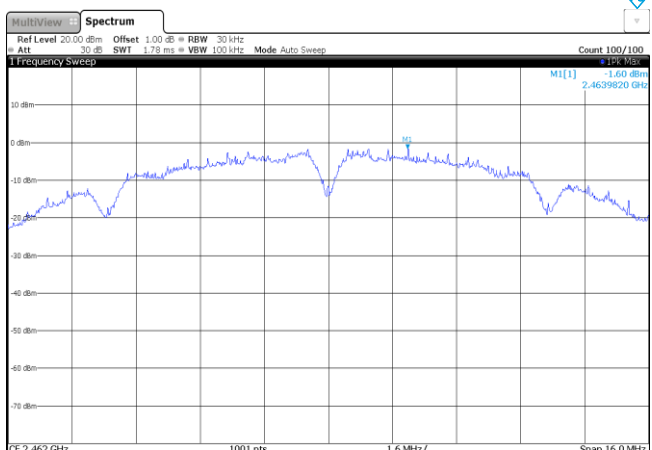
Appendix clause	Test item	Result
A	Conducted Peak Output Power	PASS
B	Power Spectral Density	PASS
C	6 dB Bandwidth	PASS
D	99% Occupied Bandwidth	PASS
E	Duty Cycle	PASS
F	Band edge and Spurious Emissions (conducted)	PASS

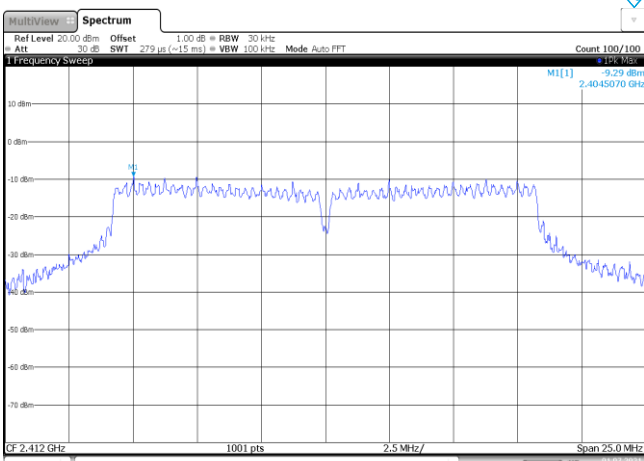
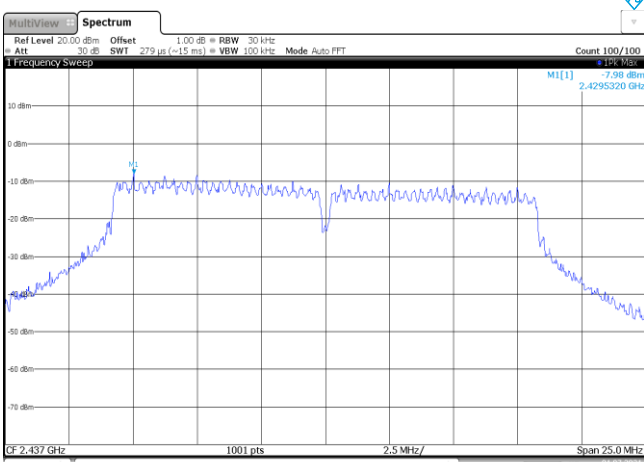
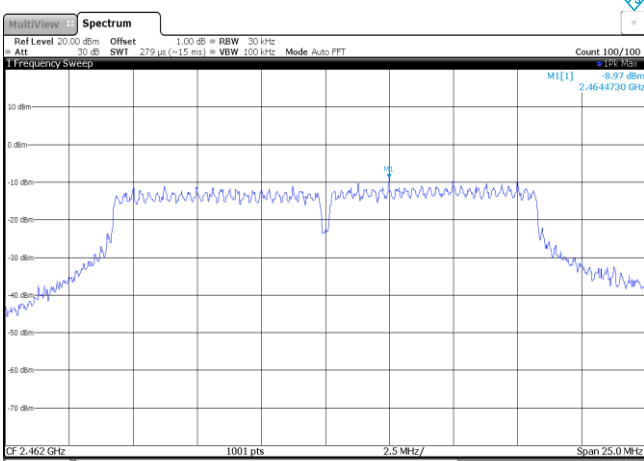
Appendix A: Conducted Peak Output Power

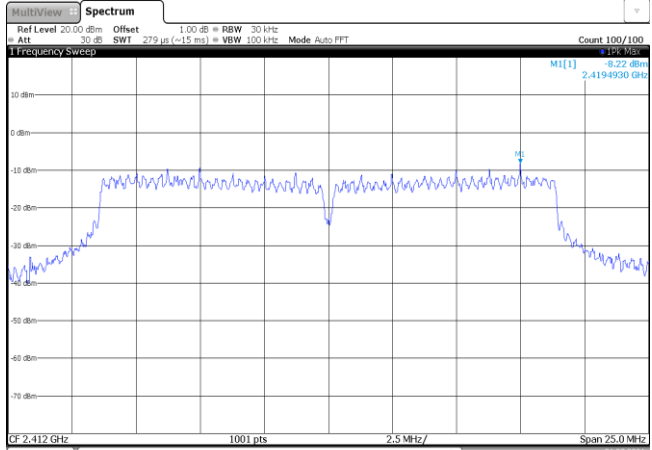
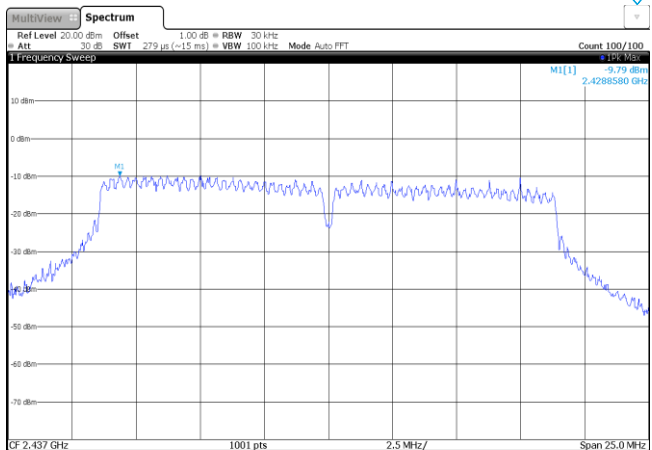
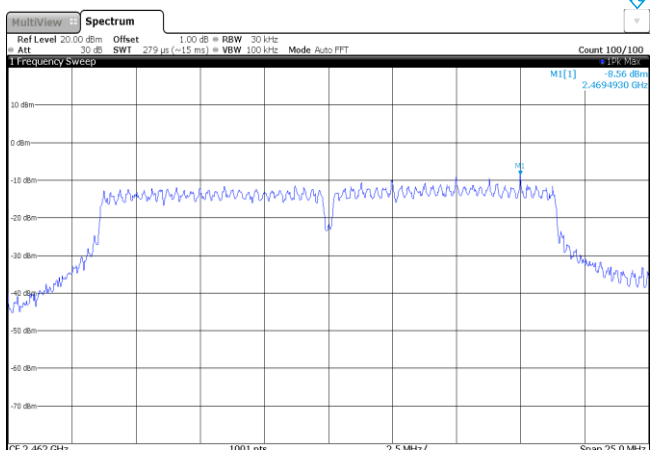
Type	Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
802.11b	01	12.84	10.37	≤ 30.00	Pass
	06	15.06	12.59		
	11	13.50	11.05		
802.11g	01	15.00	12.58	≤ 30.00	Pass
	06	15.70	13.21		
	11	14.63	12.17		
802.11n (HT20)	01	15.06	12.62	≤ 30.00	Pass
	06	15.76	13.68		
	11	14.69	12.21		
802.11n(HT40)	03	15.61	13.01	≤ 30.00	Pass
	06	15.49	12.94		
	09	15.18	12.67		

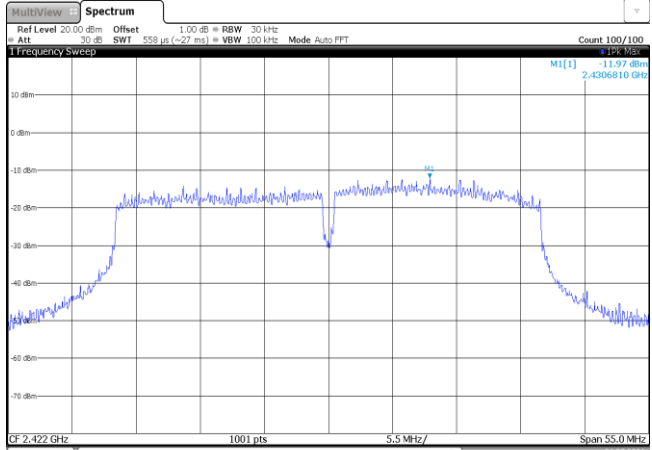
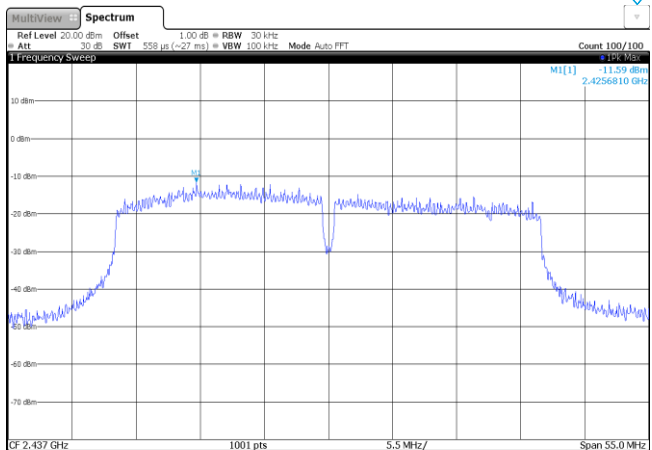
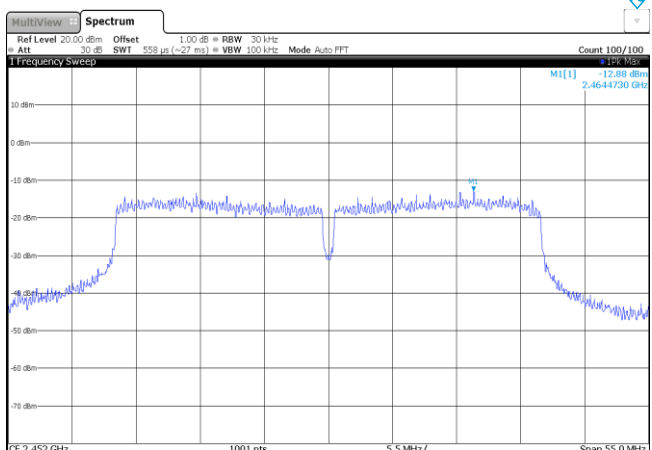
Appendix B: Power Spectral Density

Type	Channel	Power Spectral Density (dBm/30KHz)	Limit (dBm/3KHz)	Result
802.11b	01	-2.12	≤8.00	Pass
	06	-0.74		
	11	-1.60		
802.11g	01	-9.29	≤8.00	Pass
	06	-7.98		
	11	-8.97		
802.11n(HT20)	01	-8.22	≤8.00	Pass
	06	-9.79		
	11	-8.56		
802.11n(HT40)	03	-11.97	≤8.00	Pass
	06	-11.59		
	09	-12.88		

Type:	802.11 b
CH01	 CH01
CH06	 CH06
CH11	 CH11

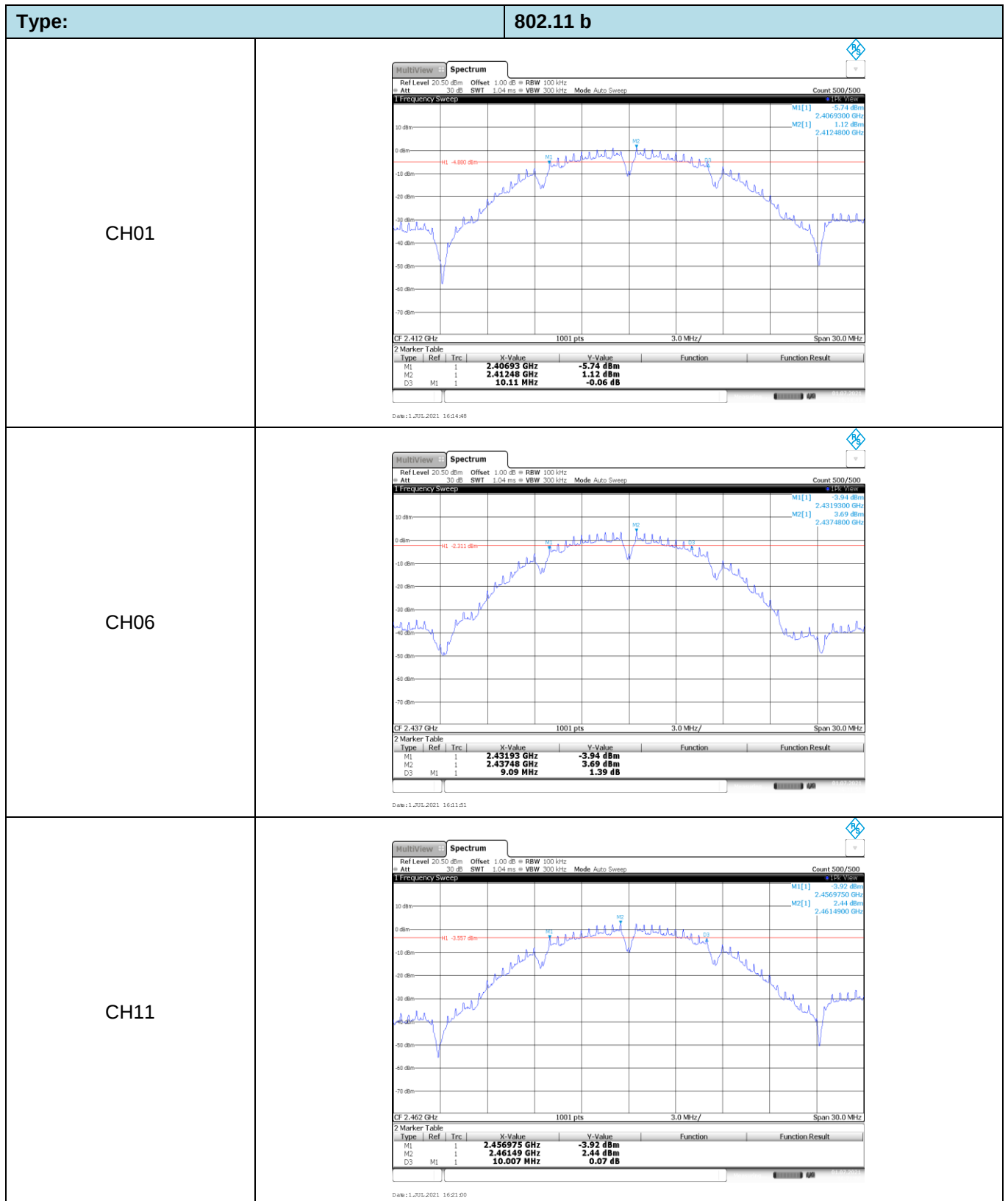
Type:	802.11 g
CH01	 1.701.2021 16:25:16
CH06	 1.701.2021 16:31:31
CH11	 1.701.2021 16:27:47

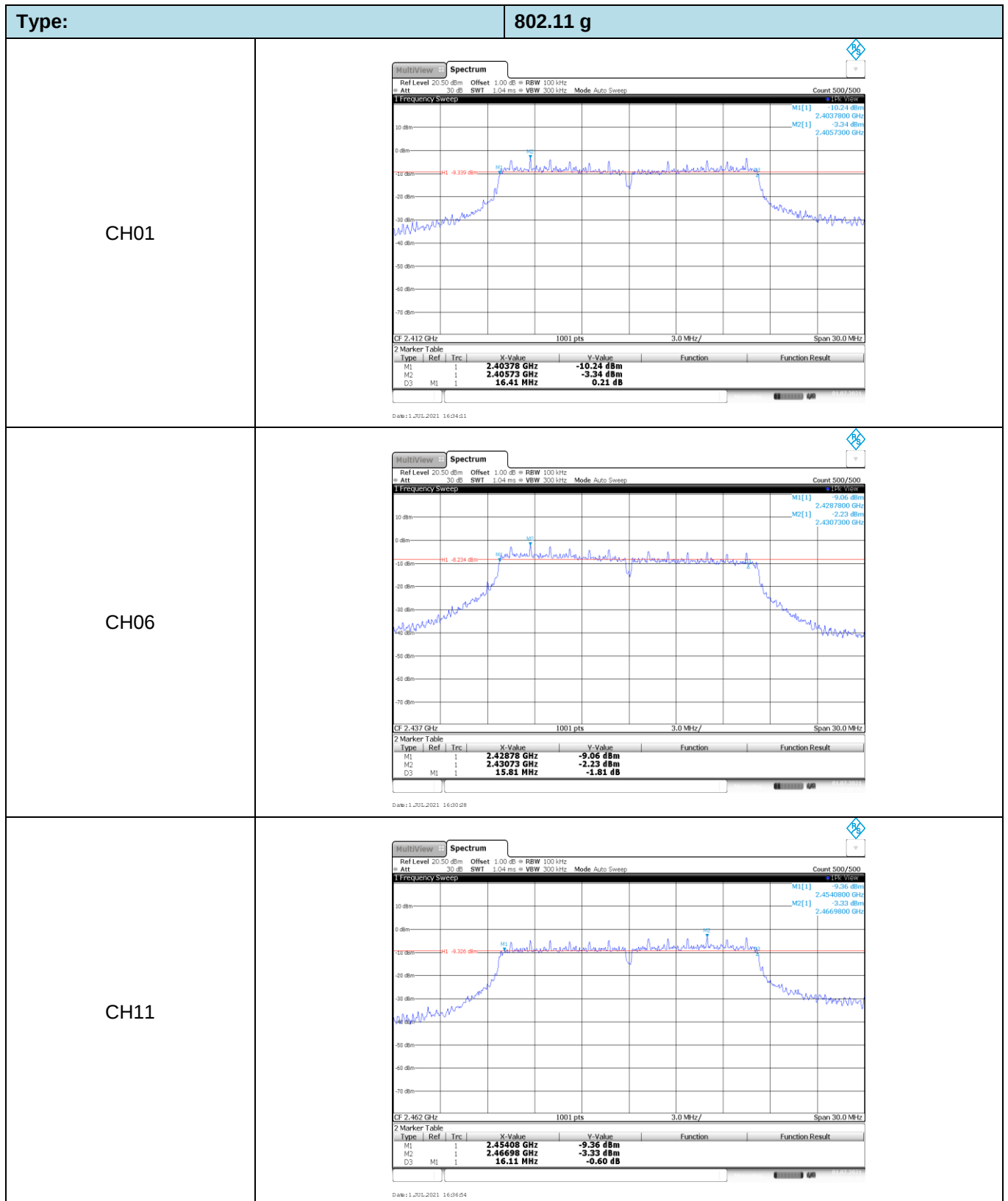
Type:	802.11n(HT20)
CH01	 Count 100/100 Ref Level 20.00 dBm Offset 1.00 dB RBW 30 kHz Att 30 dB SWI 279 μs (~15 ms) VSW 100 kHz Mode Auto FFT Frequency Sweep MI[1] 8.22 dBm 2.4194930 GHz CF 2.412 GHz 1001 pts 2.5 MHz/ Span 25.0 MHz Date: 1.7.2021 16:45:17
CH06	 Count 100/100 Ref Level 20.00 dBm Offset 1.00 dB RBW 30 kHz Att 30 dB SWI 279 μs (~15 ms) VSW 100 kHz Mode Auto FFT Frequency Sweep MI[1] 8.79 dBm 2.4288580 GHz CF 2.437 GHz 1001 pts 2.5 MHz/ Span 25.0 MHz Date: 1.7.2021 16:45:04
CH11	 Count 100/100 Ref Level 20.00 dBm Offset 1.00 dB RBW 30 kHz Att 30 dB SWI 279 μs (~15 ms) VSW 100 kHz Mode Auto FFT Frequency Sweep MI[1] 8.50 dBm 2.4694930 GHz CF 2.462 GHz 1001 pts 2.5 MHz/ Span 25.0 MHz Date: 1.7.2021 16:45:09

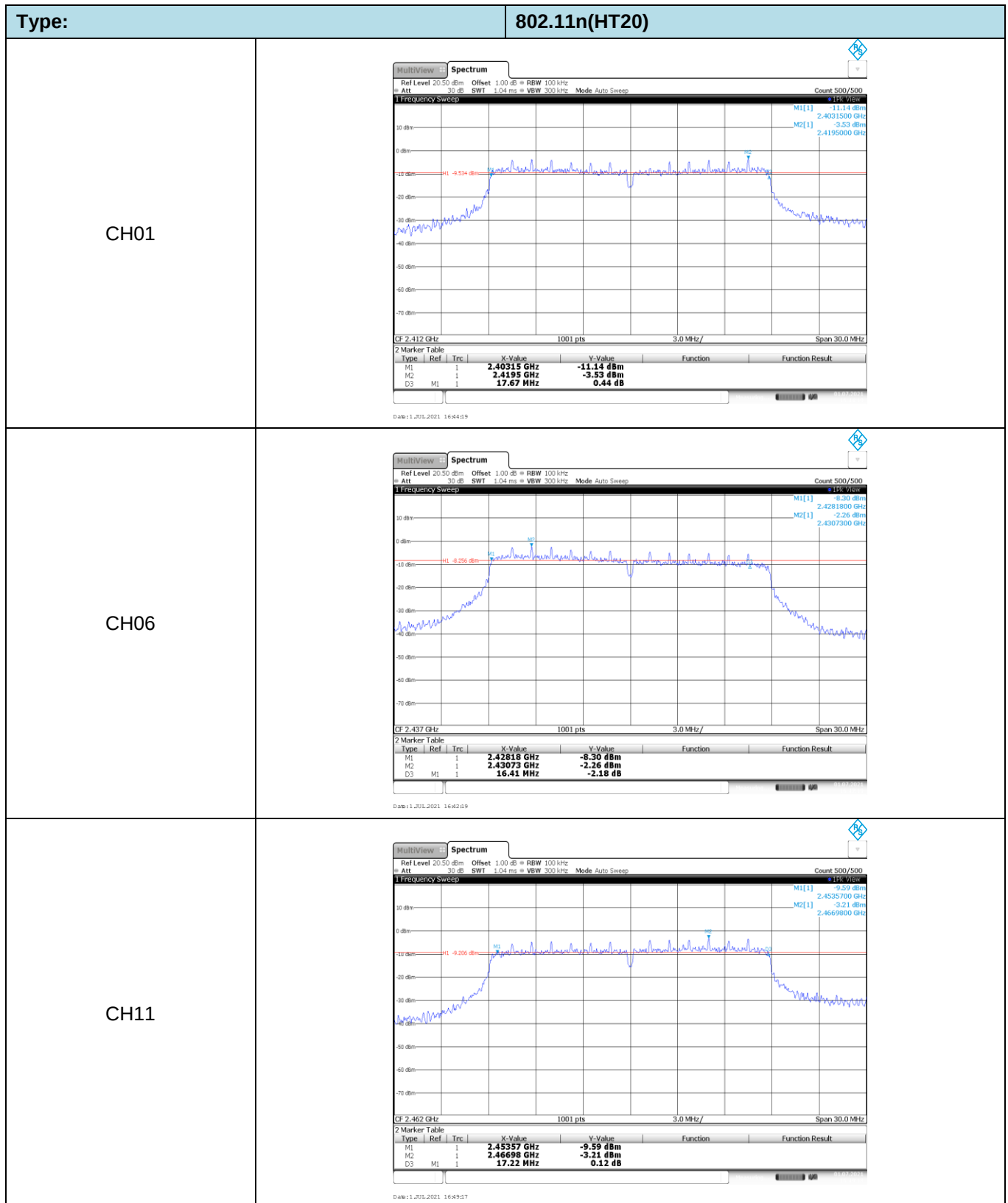
Type:	802.11n(HT40)
CH03	 Ref Level 20.00 dBm Offset 1.00 dB RBW 30 kHz Att 30 dB SWI 558 μs (~27 ms) VBW 100 kHz Mode Auto FFT Count 100/100 Frequency Sweep M1[1] -11.97 dBm 2.4306810 GHz CF 2.422 GHz 1001 pts 5.5 MHz/ Span 55.0 MHz Date: 1.7.2021 16:59:28
CH06	 Ref Level 20.00 dBm Offset 1.00 dB RBW 30 kHz Att 30 dB SWI 558 μs (~27 ms) VBW 100 kHz Mode Auto FFT Count 100/100 Frequency Sweep M1[1] -11.57 dBm 2.4256810 GHz CF 2.437 GHz 1001 pts 5.5 MHz/ Span 55.0 MHz Date: 1.7.2021 16:56:46
CH09	 Ref Level 20.00 dBm Offset 1.00 dB RBW 30 kHz Att 30 dB SWI 558 μs (~27 ms) VBW 100 kHz Mode Auto FFT Count 100/100 Frequency Sweep M1[1] -12.40 dBm 2.4644730 GHz CF 2.452 GHz 1001 pts 5.5 MHz/ Span 55.0 MHz Date: 1.7.2021 17:01:47

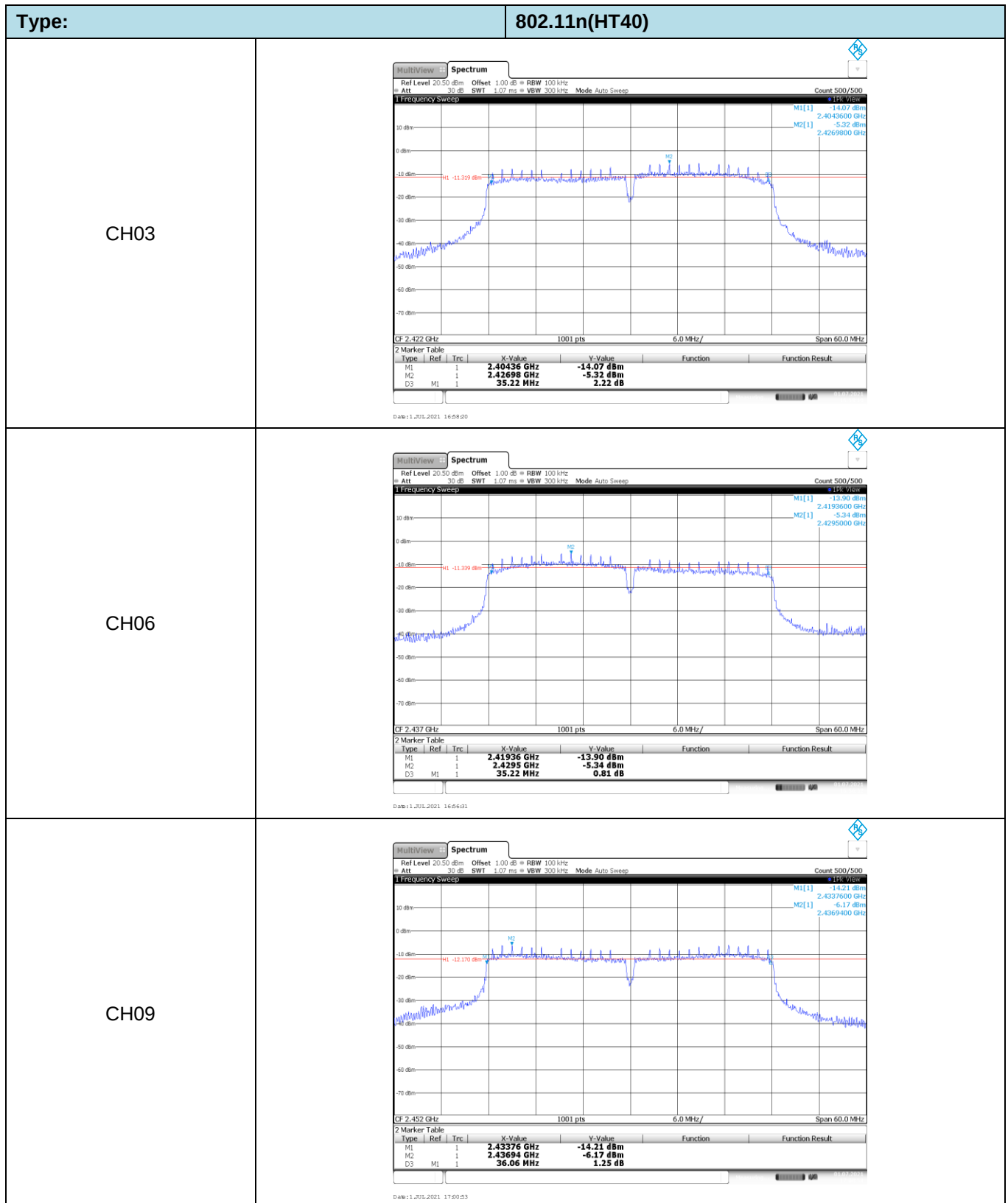
Appendix C: 6dB bandwidth

Type	Channel	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11b	01	10.11	≥0.5	Pass
	06	9.09		
	11	10.00		
802.11g	01	16.41	≥0.5	Pass
	06	15.81		
	11	16.11		
802.11n(HT20)	01	17.67	≥0.5	Pass
	06	16.41		
	11	17.22		
802.11n(HT40)	03	35.22	≥0.5	Pass
	06	35.22		
	09	36.06		



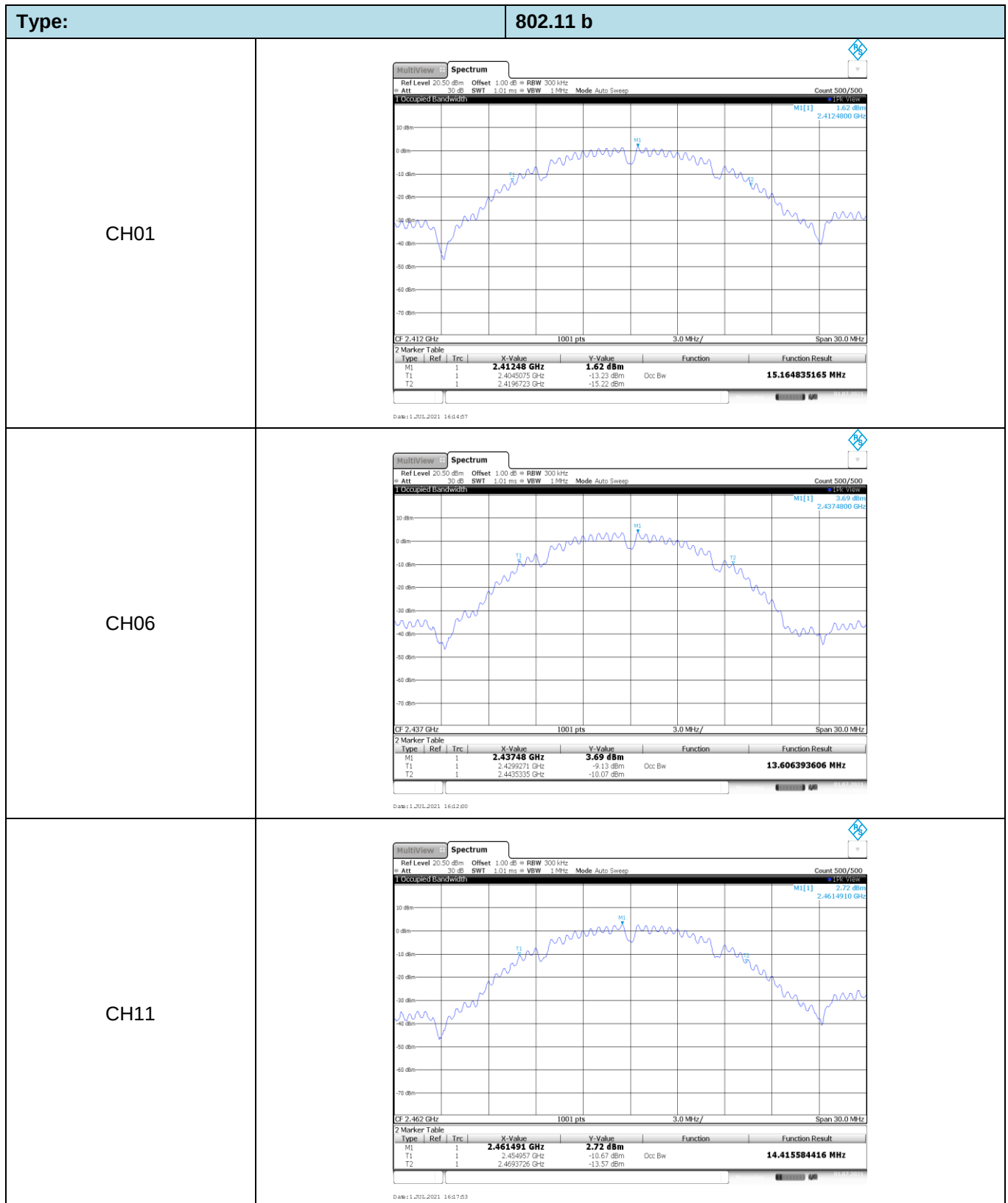






Appendix D: 99% Occupied Bandwidth

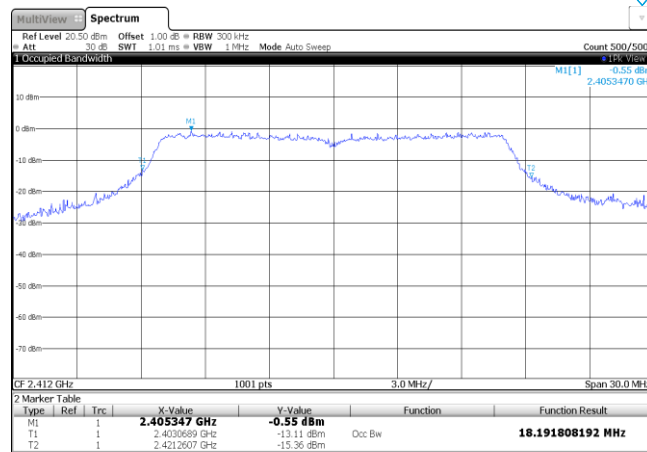
Type	Channel	99% Bandwidth (MHz)	Limit (kHz)	Result
802.11b	01	15.17	-	Pass
	06	13.61		
	11	14.42		
802.11g	01	18.19	-	Pass
	06	17.23		
	11	17.50		
802.11n(HT20)	01	18.70	-	Pass
	06	18.13		
	11	18.37		
802.11n(HT40)	03	36.20	-	Pass
	06	36.20		
	09	36.98		



Type:

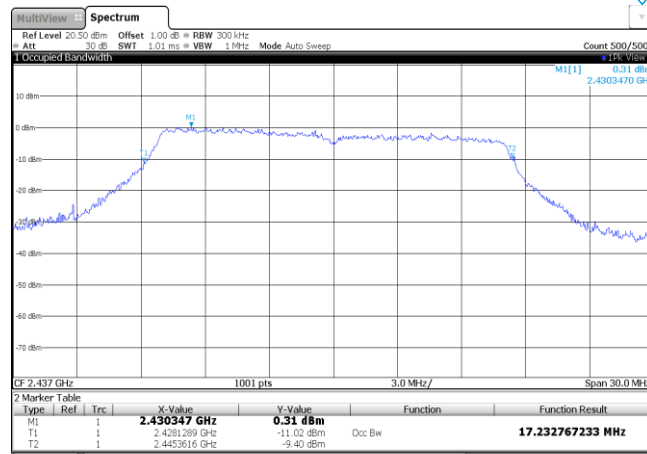
802.11 g

CH01



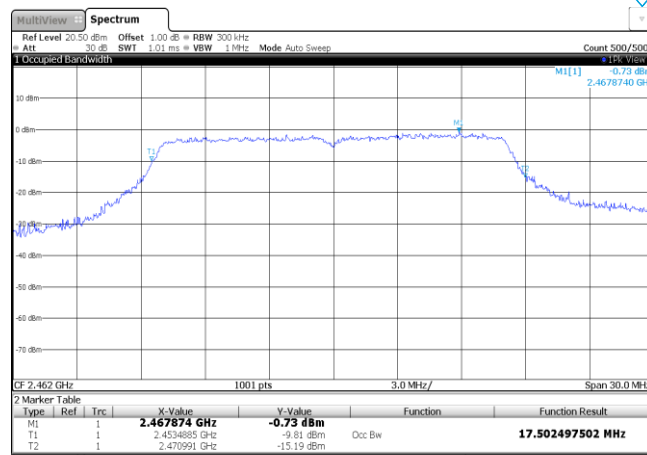
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CH06



Date: 1_30/11/2021 16:00:07

CH11

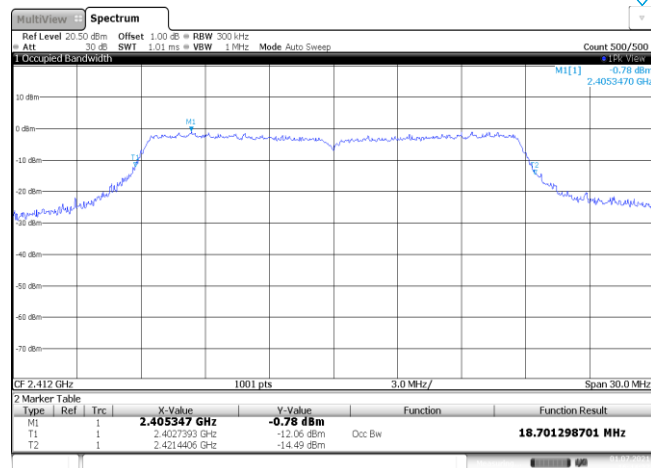


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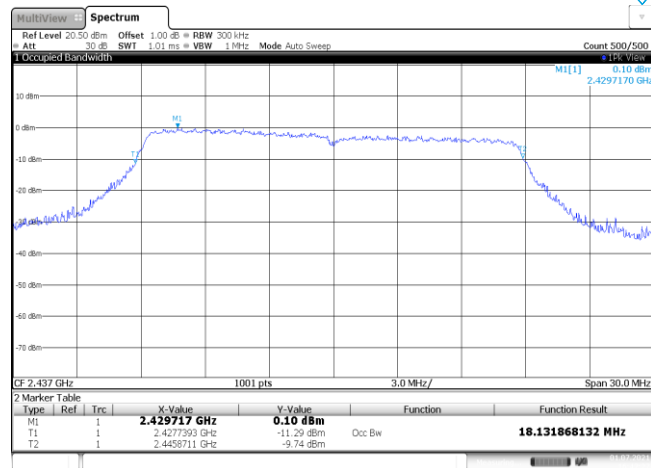
802.11n(HT20)

CH01



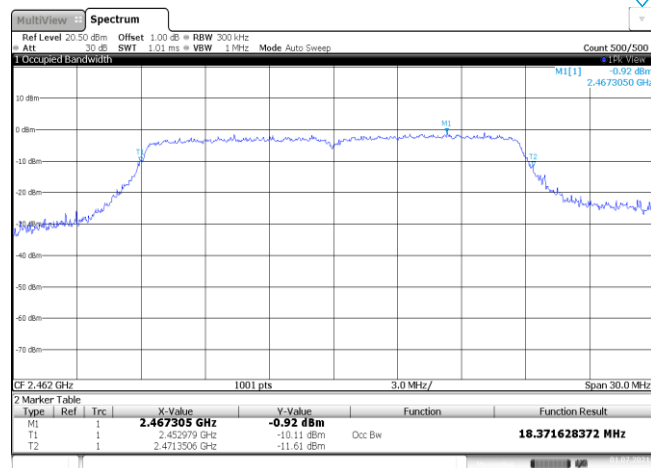
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CH06



Date: 1_30_2021 16:44:27

CH11

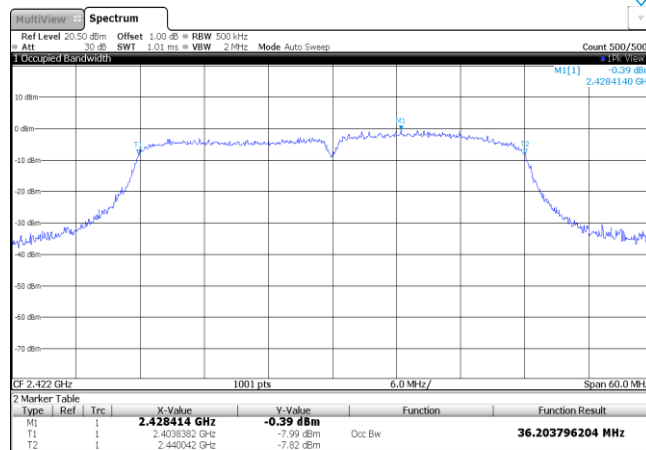


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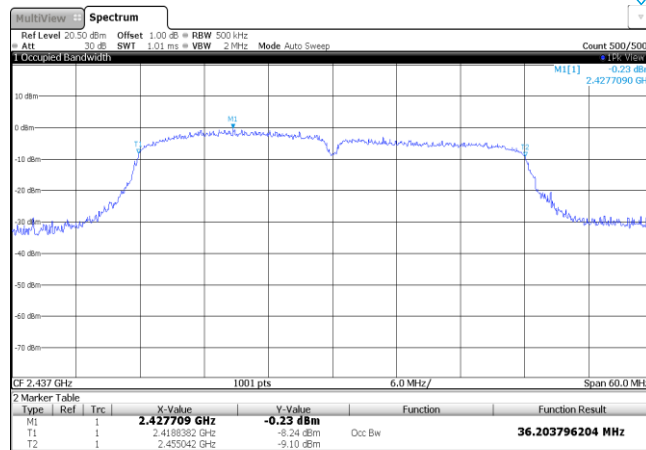
802.11n(HT40)

CH03



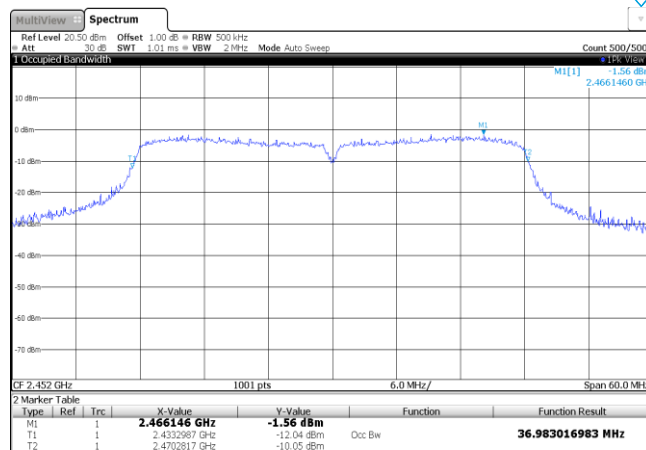
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CH06



Date: 1_30/1_2021 16:56:40

CH09

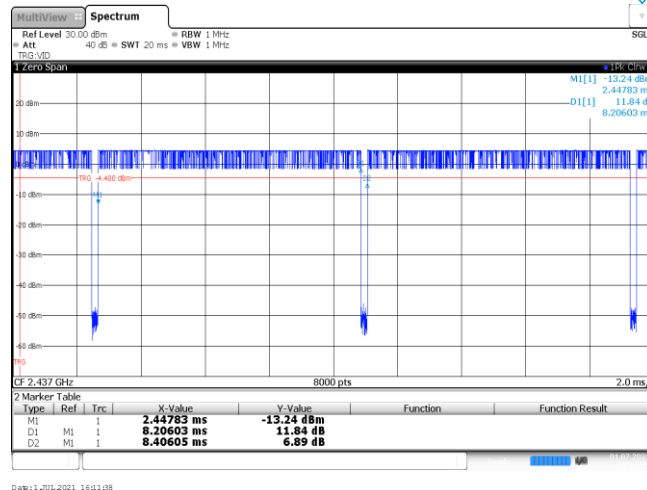


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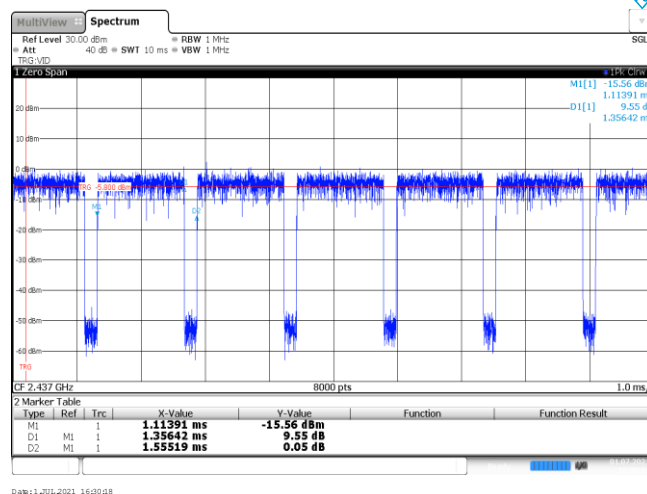
Appendix E: Duty Cycle

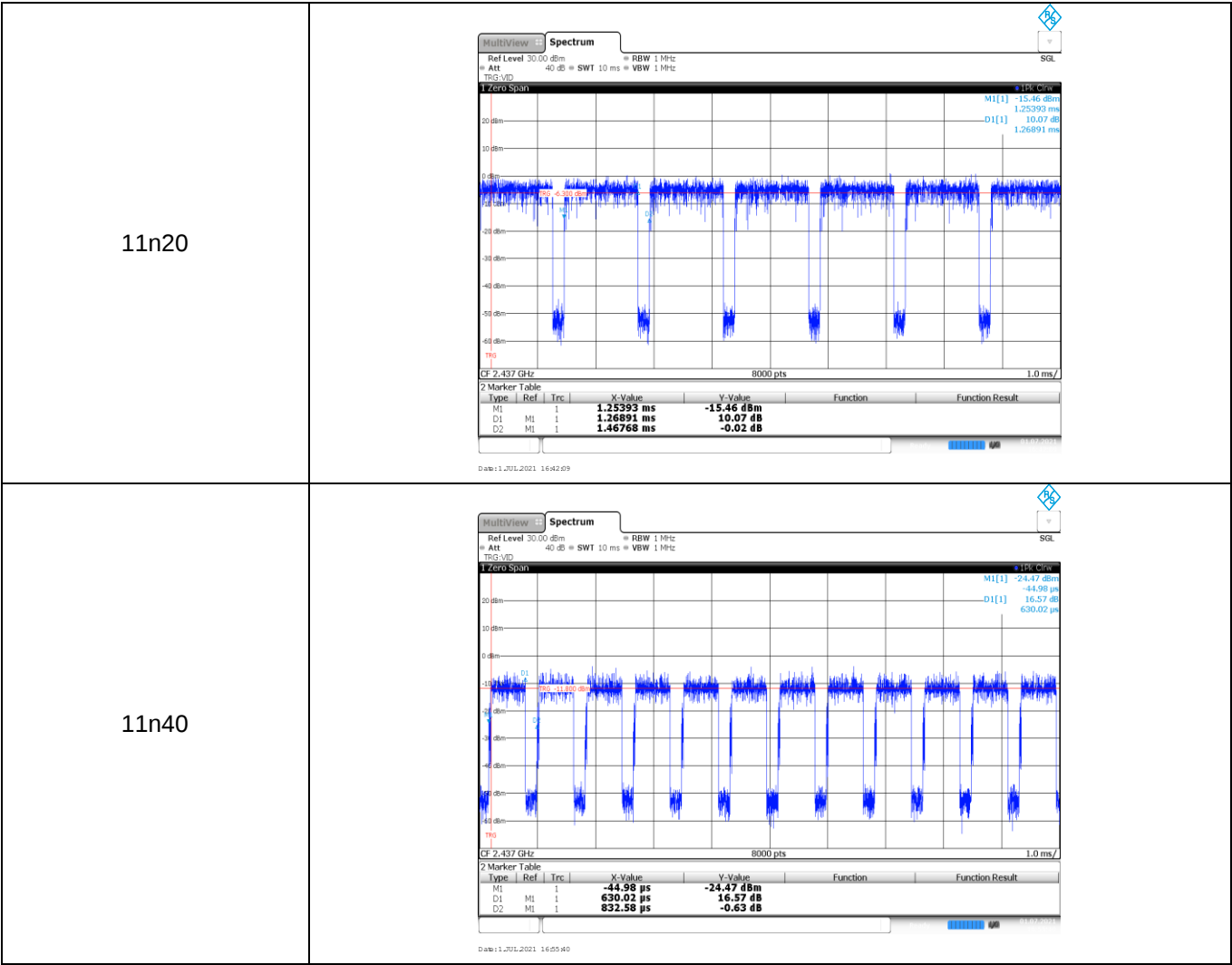
Modulation Type	Test Frequency (MHz)	T _{on time} for single burst (ms)	T _{period} (ms)	Duty cycle	1/T _{on time} (kHz)
11b	2437	8.21	8.41	97.6%	0.1
11g	2437	1.36	1.56	87.2%	0.7
11n20	2437	1.27	1.47	86.4%	0.8
11n40	2437	0.63	0.83	75.9%	1.6

11b

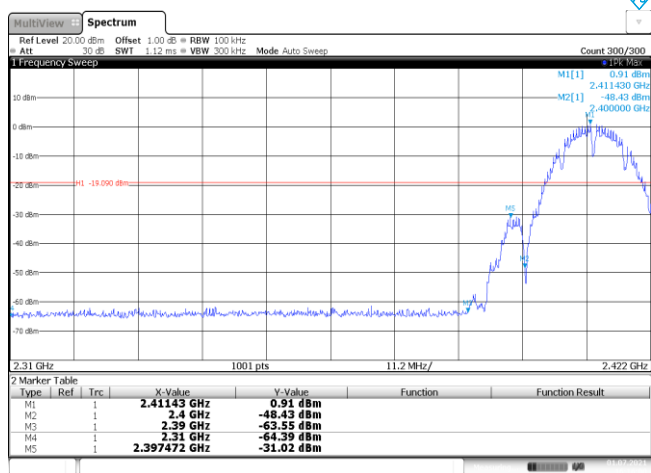
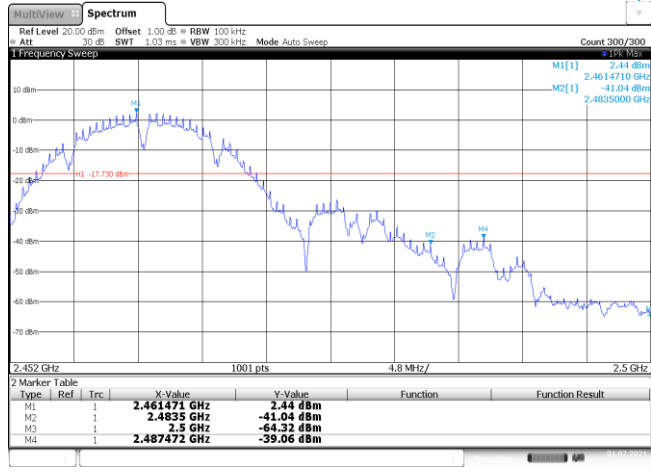


11g





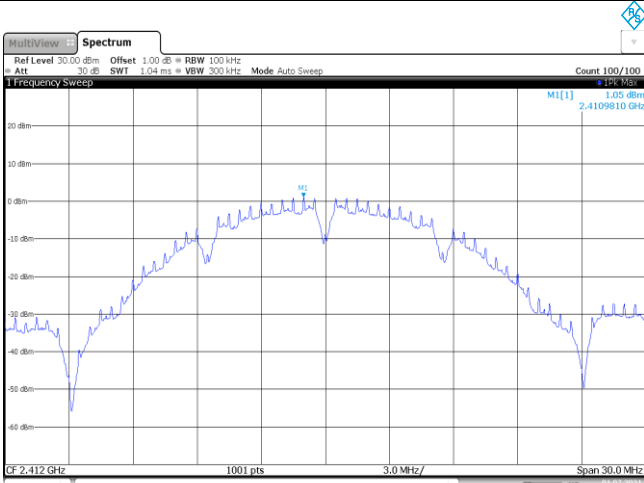
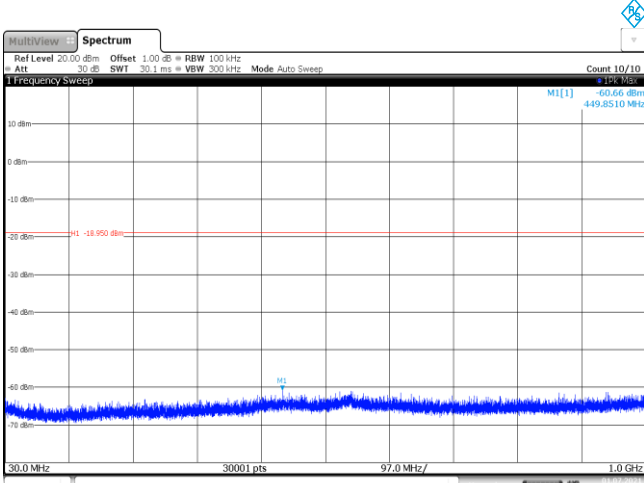
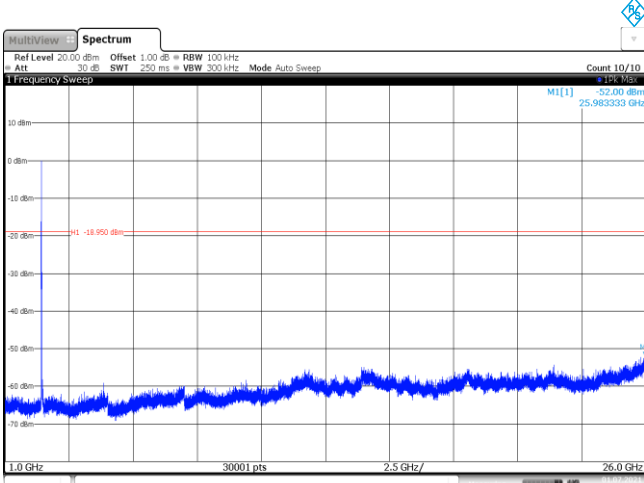
Appendix F: Band edge and Spurious Emissions (conducted)

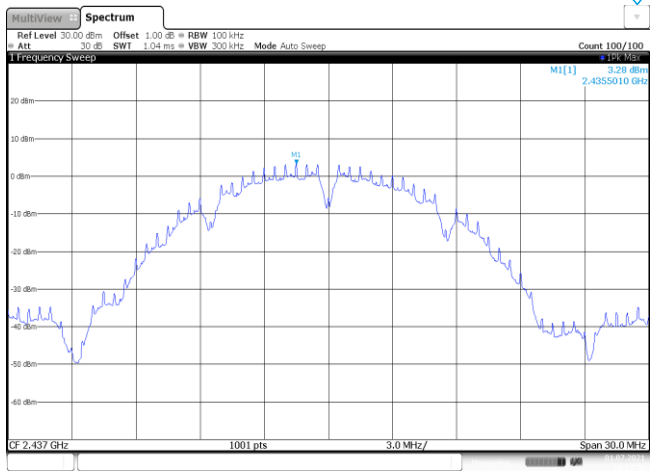
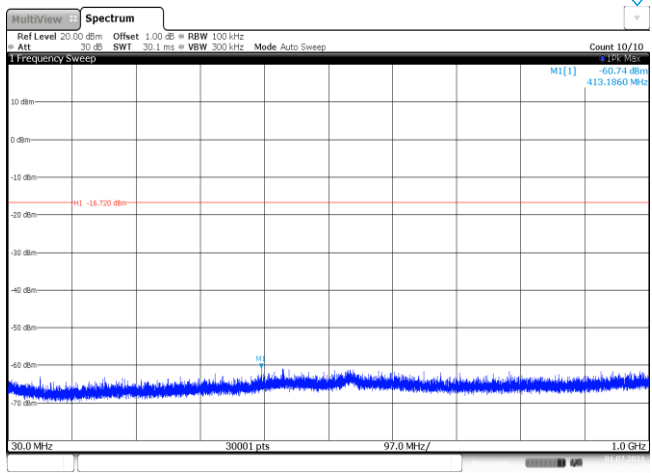
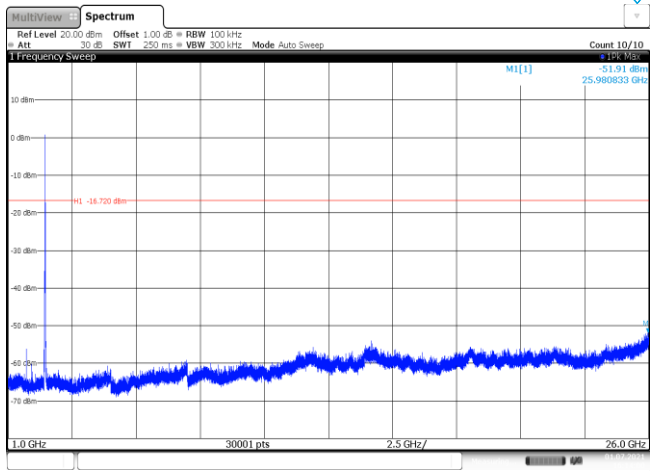
Test Item:	Bandedge	Type:	802.11 b																																										
CH01	MultViewSpectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWI 1.12 ms VBW 300 kHz Mode Auto Sweep Count 300/300 1 Frequency Sweep  2 Marker Table <table><tr><th>Type</th><th>Ref</th><th>Trc</th><th>X-Value</th><th>Y-Value</th><th>Function</th><th>Function Result</th></tr><tr><td>M1</td><td>1</td><td></td><td>2.41143 GHz</td><td>0.91 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-48.43 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-63.55 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-64.39 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.397472 GHz</td><td>-31.02 dBm</td><td></td><td></td></tr></table> Date: 1 JUL 2021 16:15:59			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.41143 GHz	0.91 dBm			M2	1		2.4 GHz	-48.43 dBm			M3	1		2.39 GHz	-63.55 dBm			M4	1		2.31 GHz	-64.39 dBm			M5	1		2.397472 GHz	-31.02 dBm		
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M5	1		2.397472 GHz	-31.02 dBm																																									
CH11	MultViewSpectrum 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><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>2.461471 GHz</td><td>2.44 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-41.04 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-64.32 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.487472 GHz</td><td>-39.06 dBm</td><td></td><td></td></tr></table> Date: 1 JUL 2021 16:19:11			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.461471 GHz	2.44 dBm			M2	1		2.4835 GHz	-41.04 dBm			M3	1		2.5 GHz	-64.32 dBm			M4	1		2.487472 GHz	-39.06 dBm									
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M3	1		2.5 GHz	-64.32 dBm																																									
M4	1		2.487472 GHz	-39.06 dBm																																									

Test Item:	Bandedge	Type:	802.11 g
CH01	<		

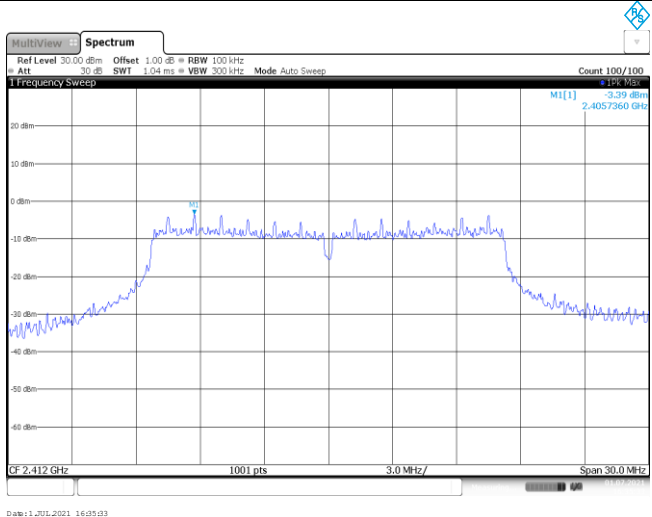
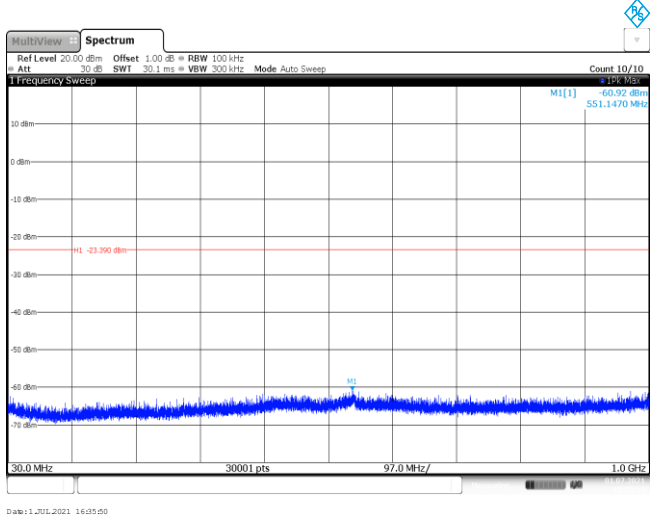
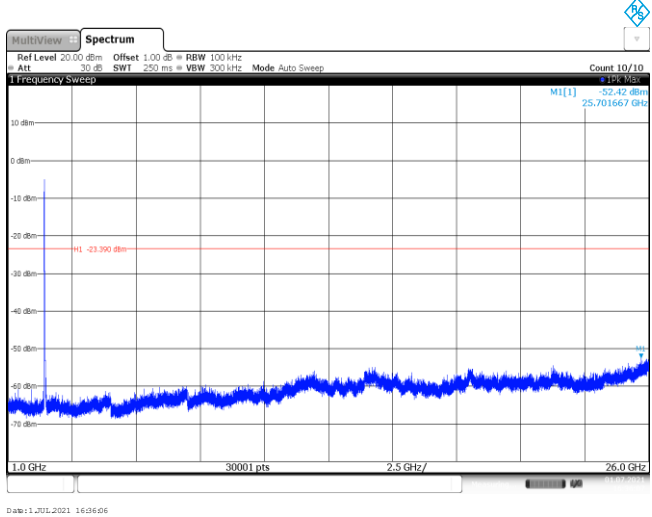
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Test Item:	Bandedge	Type:	802.11 n(HT40)
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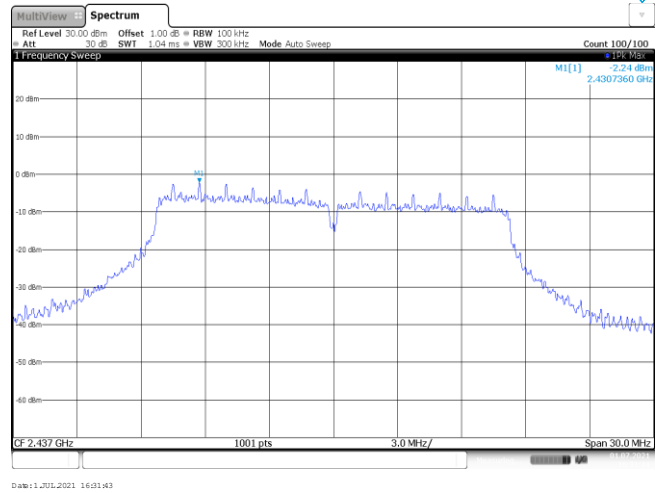
Test Item:	SE	Type:	802.11b
CH01 Reference level	 Date: 1 JUL 2021 16:05:02		
CH01 30MHz~1000MHz	 Date: 1 JUL 2021 16:06:48		
CH01 1GHz~26GHz	 Date: 1 JUL 2021 16:07:05		

CH06 Reference level	 MultiView Spectrum 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 Frequency Sweep M1[1] 3.28 dBm 2.4355010 GHz CF 2.437 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 1 JUL 2021 16:13:01
CH06 30MHz~1000MHz	 MultiView Spectrum 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 Frequency Sweep M1[1] -16.700 dBm 413.1850 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 1 JUL 2021 16:13:43
CH06 1GHz~26GHz	 MultiView Spectrum 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 Frequency Sweep M1[1] -16.700 dBm 25.980833 GHz 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 1 JUL 2021 16:13:59

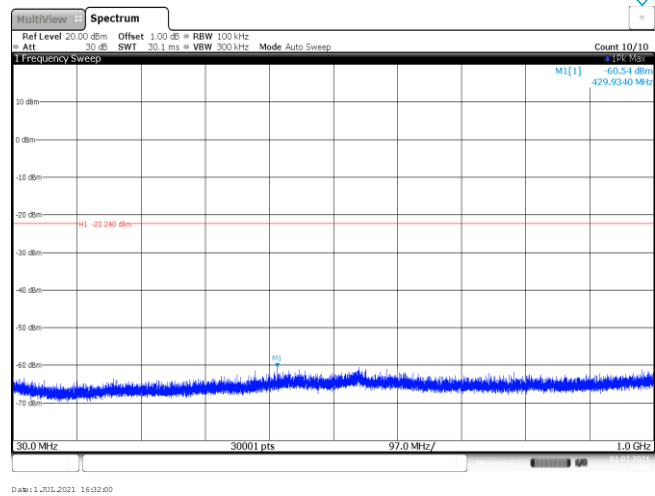
Appendix report page: 26 of 35

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

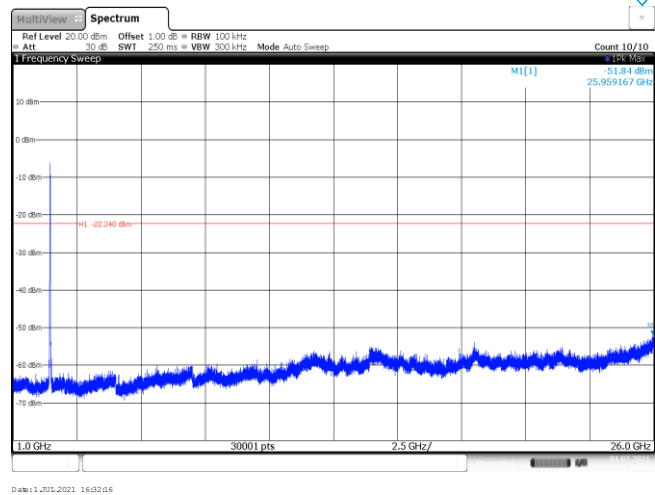
CH06
Reference level

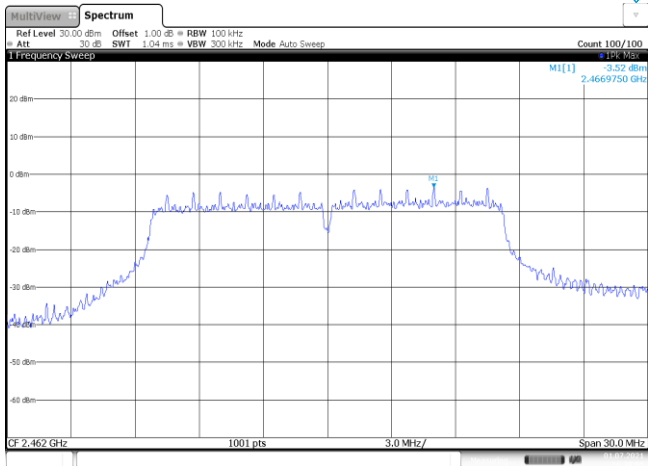
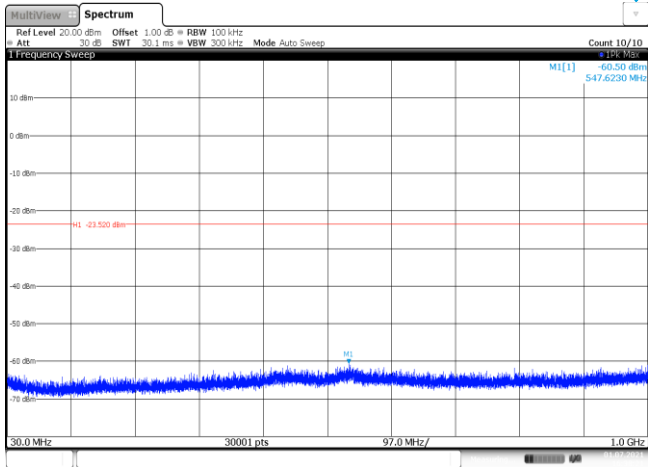
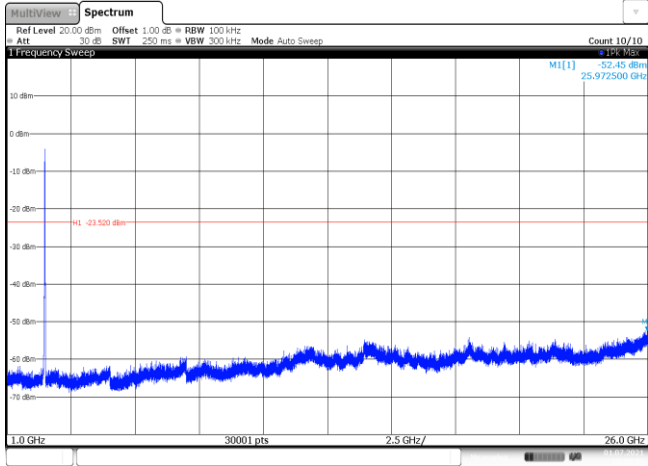


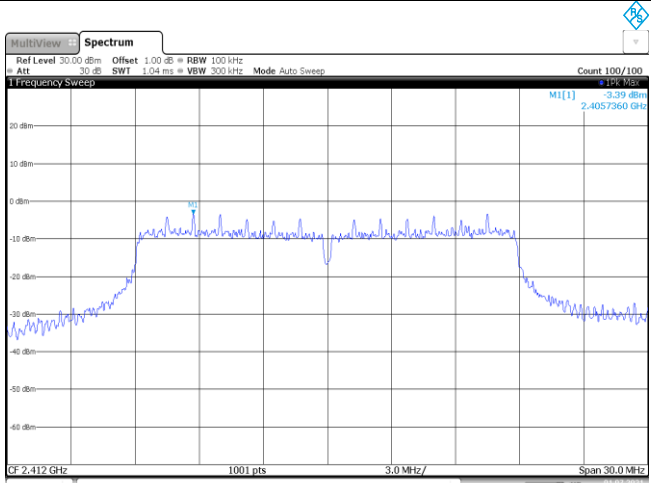
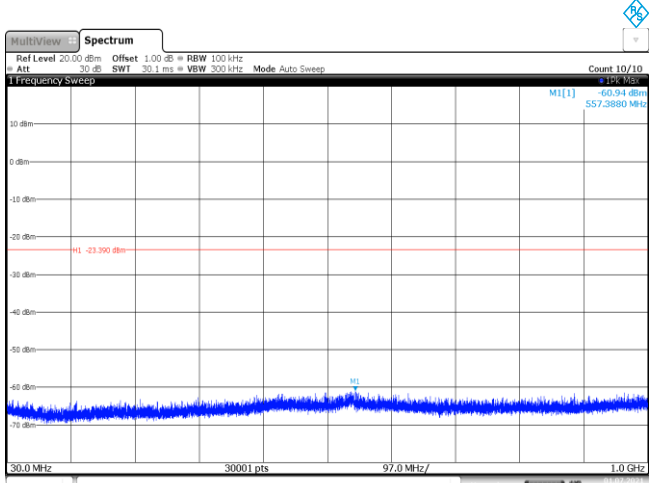
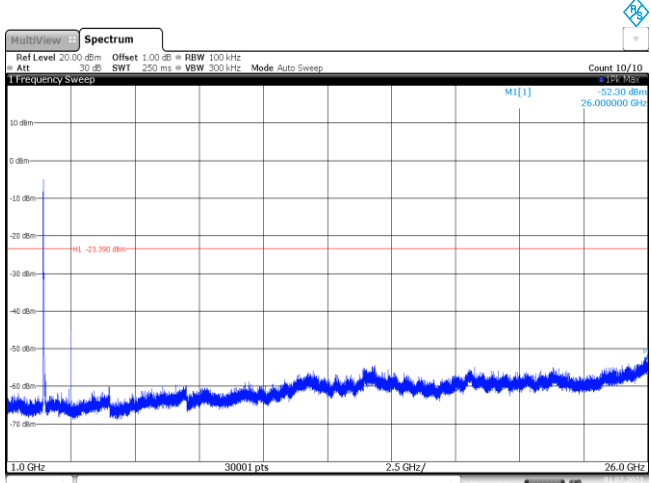
CH06
30MHz~1000MHz

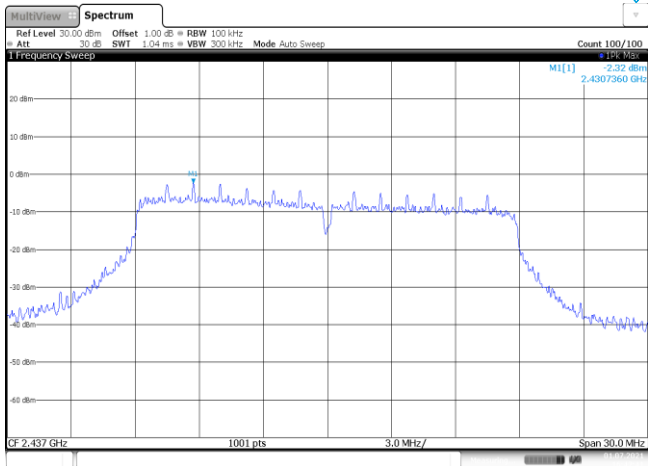
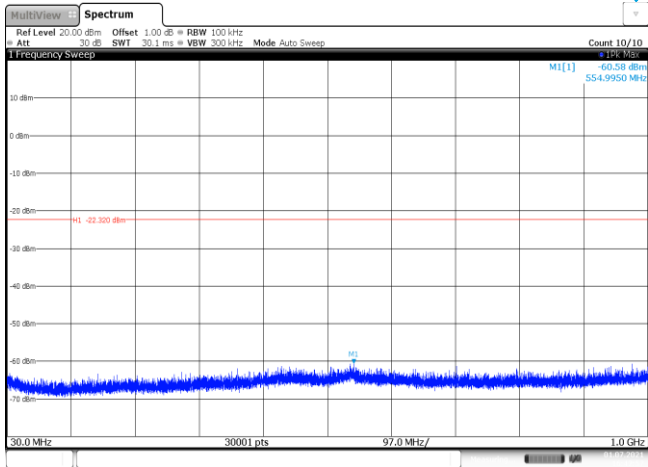
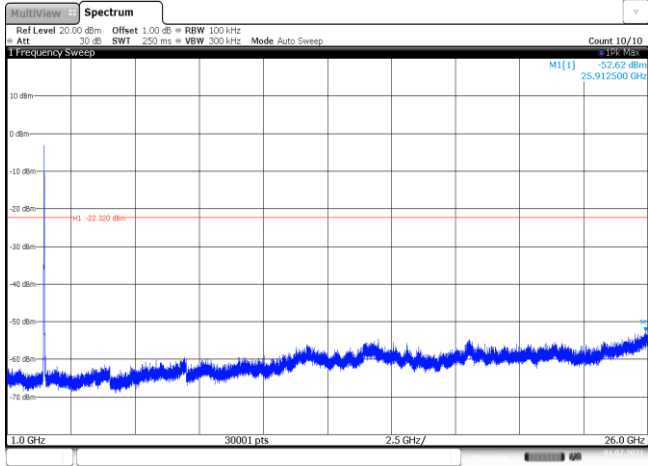


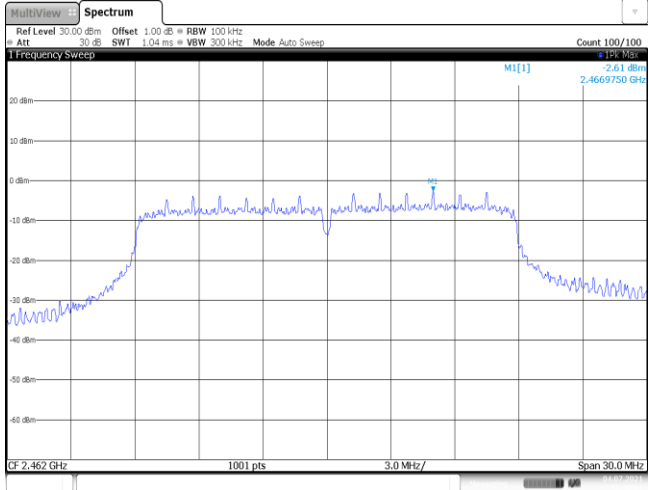
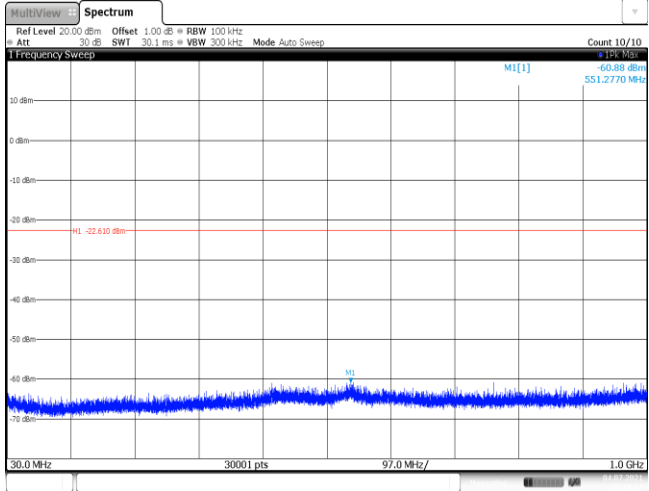
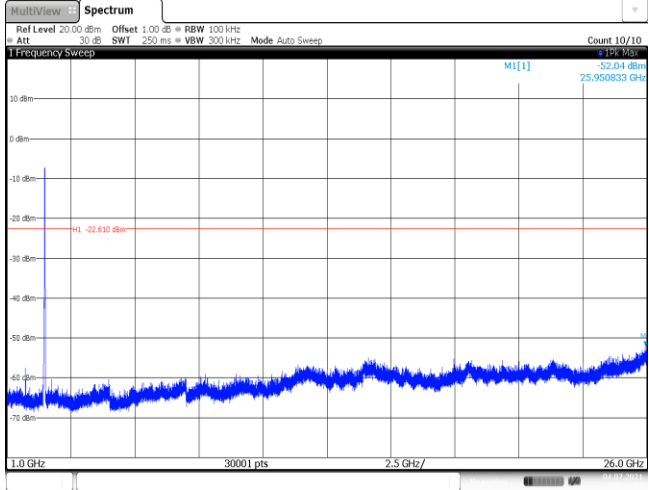
CH06
1GHz~26GHz

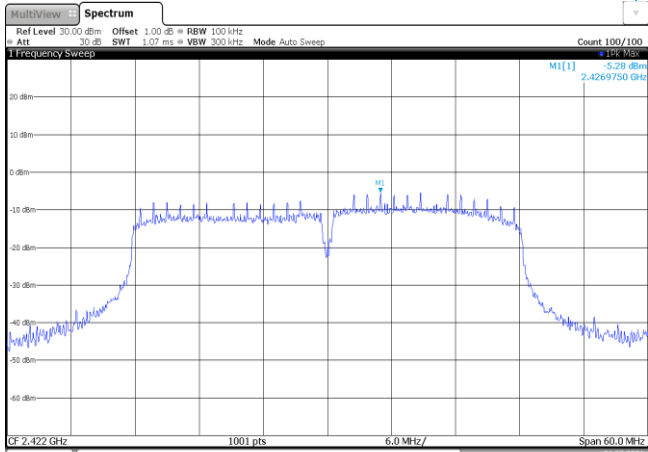
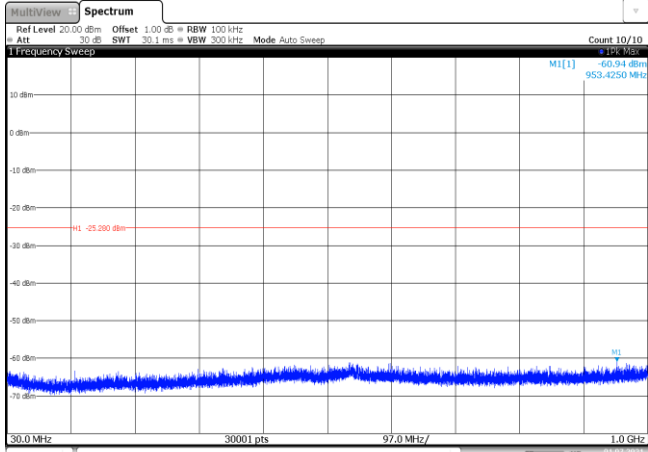
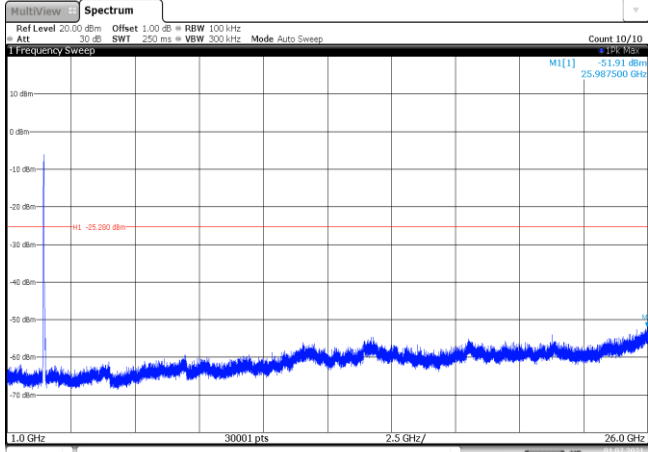


CH11 Reference level	 Ref Level 30.00 dBm Offset 1.00 dB BW 100 kHz Att 30 dB SWI 1.04 ms VBW 300 kHz Mode Auto Sweep Count 100/100 M1[1] -35.2 dBm 2.462 GHz CF 2.462 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 1 JUL 2021 16:08:04
CH11 30MHz~1000MHz	 Ref Level 20.00 dBm Offset 1.00 dB BW 100 kHz Att 30 dB SWI 30.1 ms VBW 300 kHz Mode Auto Sweep Count 10/10 M1[1] -60.50 dBm 547.6250 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 1 JUL 2021 16:08:01
CH11 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] -32.43 dBm 25.972500 GHz 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 1 JUL 2021 16:08:07

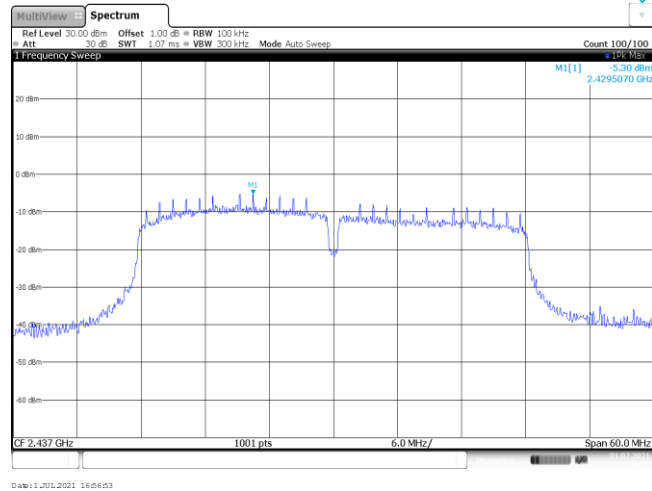
Test Item:	SE	Type:	802.11n(HT20)
CH01 Reference level		 Count 100/100 Ref Level 30.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWI 1.04 ms VBW 300 kHz Mode Auto Sweep Frequency Sweep M1[1] -3.29 dBm 2.4057360 GHz CF 2.412 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 1 JUL 2021 16:45:04	
CH01 30MHz~1000MHz		 Count 10/10 Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWI 30.1 ms VBW 300 kHz Mode Auto Sweep Frequency Sweep M1[1] -65.54 dBm 557.3880 MHz M1 -23.390 dBm 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 1 JUL 2021 16:45:00	
CH01 1GHz~26GHz		 Count 10/10 Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWI 250 ms VBW 300 kHz Mode Auto Sweep Frequency Sweep M1[1] -52.50 dBm 26.000000 GHz M1 -23.390 dBm 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 1 JUL 2021 16:46:07	

CH06 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] 2.32 dBm 2.4307360 GHz CF 2.437 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 1 JUL 2021 16:42:41
CH06 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] -60.34 dBm 554.9950 MHz H1 -62.300 dBm 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 1 JUL 2021 16:42:57
CH06 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 25.912500 GHz H1 -62.300 dBm 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 1 JUL 2021 16:43:14

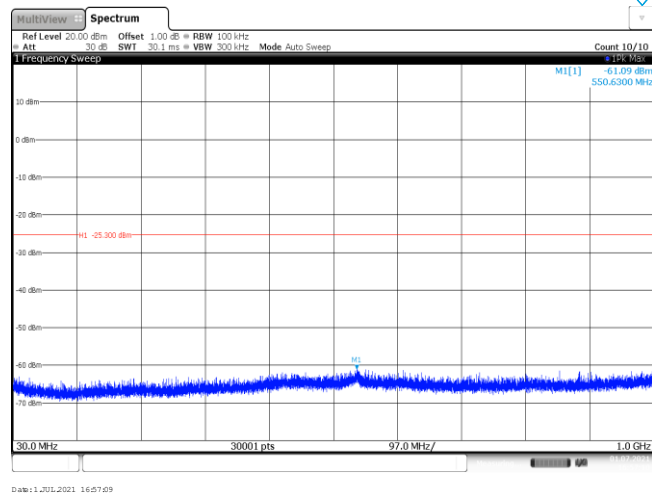
CH11 Reference level	 The spectrum plot shows a frequency sweep from 2.462 GHz to 2.4669750 GHz. The y-axis represents power in dBm, ranging from -40 to 20. The plot shows a noisy signal with a peak around -2.61 dBm. The x-axis is labeled with 1001 pts and 3.0 MHz/.
CH11 30MHz~1000MHz	 The spectrum plot shows a frequency sweep from 30.0 MHz to 1.0 GHz. The y-axis represents power in dBm, ranging from -70 to 10. The plot shows a noisy signal with a peak around -60.88 dBm. The x-axis is labeled with 30001 pts and 97.0 MHz/.
CH11 1GHz~26GHz	 The spectrum plot shows a frequency sweep from 1.0 GHz to 26.0 GHz. The y-axis represents power in dBm, ranging from -70 to 10. The plot shows a noisy signal with a peak around -52.04 dBm. The x-axis is labeled with 30001 pts and 2.5 GHz/.

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] -5.23 dBm 2.4269750 GHz CF 2.422 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz Date: 1 JUL 2021 16:09:46		
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] -60.94 dBm 953.4250 MHz M1 -25.00 dBm 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 1 JUL 2021 17:00:02		
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] -51.91 dBm 25.987500 GHz M1 -25.00 dBm 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 1 JUL 2021 17:00:19		

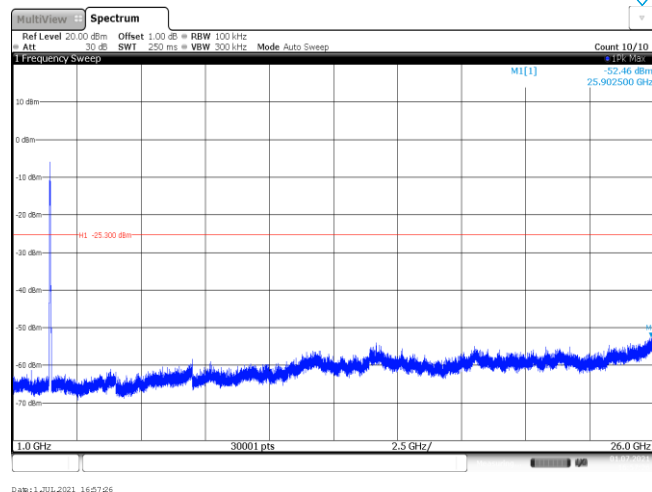
CH06
Reference level

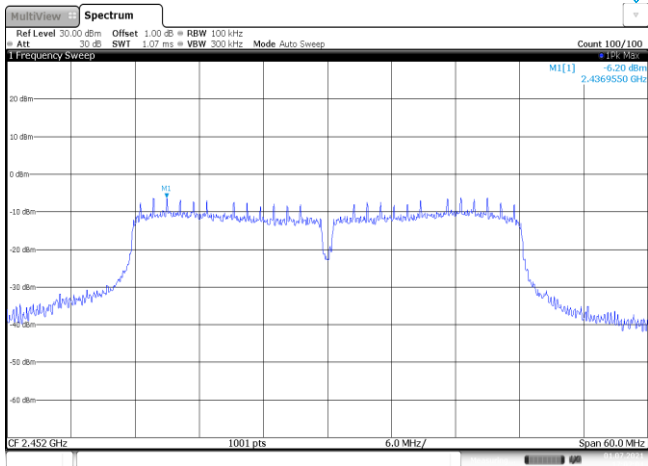
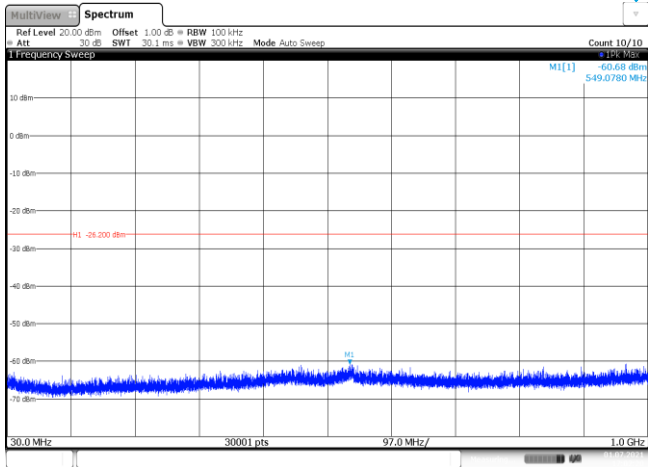
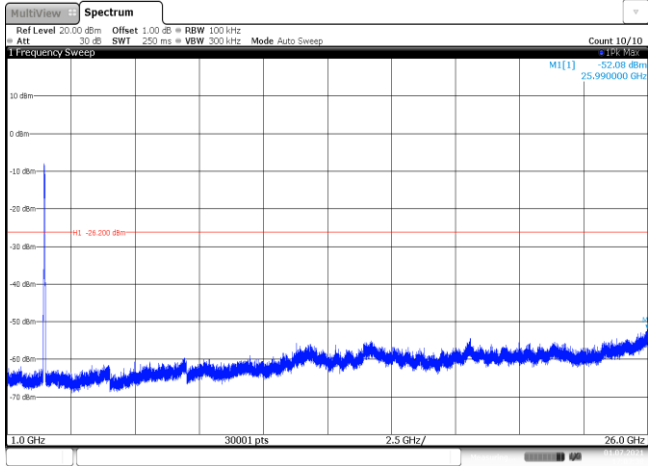


CH06
30MHz~1000MHz



CH06
1GHz~26GHz



CH09 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] 6.20 dBm 2.4369530 GHz CF 2.452 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz Date: 1 JUL 2021 17:02:04
CH09 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] -60.68 dBm 549.0780 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 1 JUL 2021 17:02:00
CH09 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] -32.08 dBm 25.990000 GHz 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 1 JUL 2021 17:02:07

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