

APPENDIX REPORT

Project No.	SHT2009040902EW	Radio Specification	WIFI 2.4G
Test sample No.	YPHT 20090409001	Model No.	CRESCENT
Start test date	2020/9/21	Finish date	2020/9/21
Temperature	25°C	Humidity	50%
Test Engineer	Jiongsheng.Feng	Auditor	Xiaodong Zheo

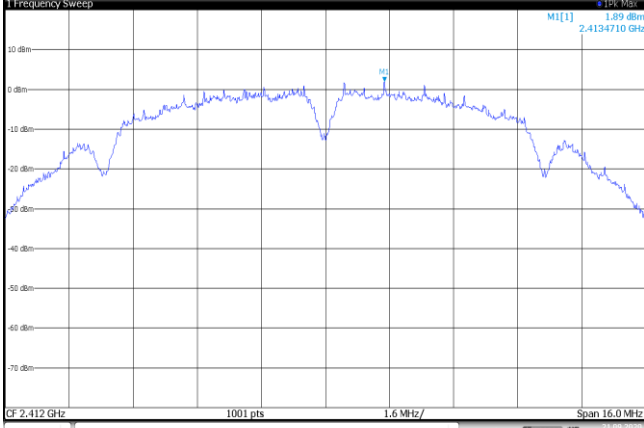
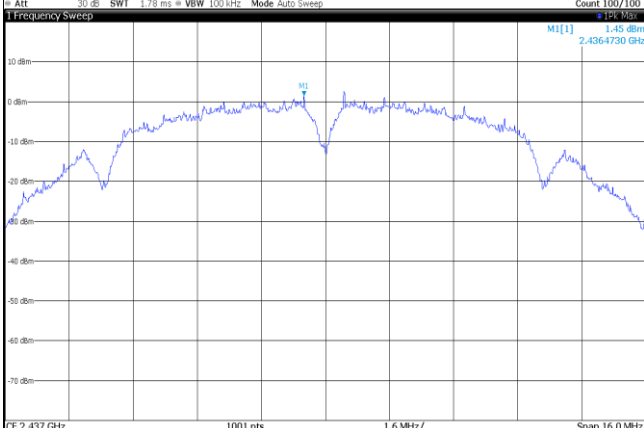
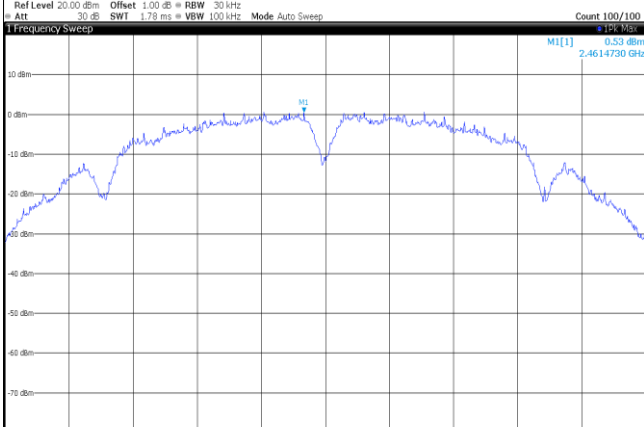
Appendix clause	Test item	Result
A	Conducted Peak Output Power	PASS
B	Power Spectral Density	PASS
C	6 dB Bandwidth	PASS
D	99% Occupied Bandwidth	PASS
E	Duty Cycle	PASS
F	Band edge and Spurious Emissions (conducted)	PASS

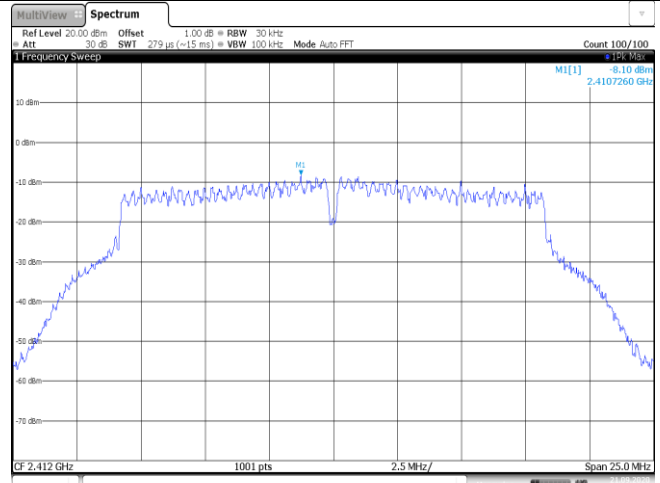
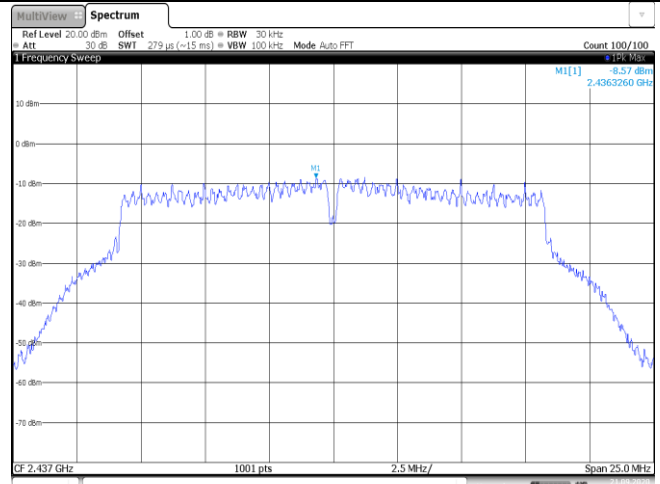
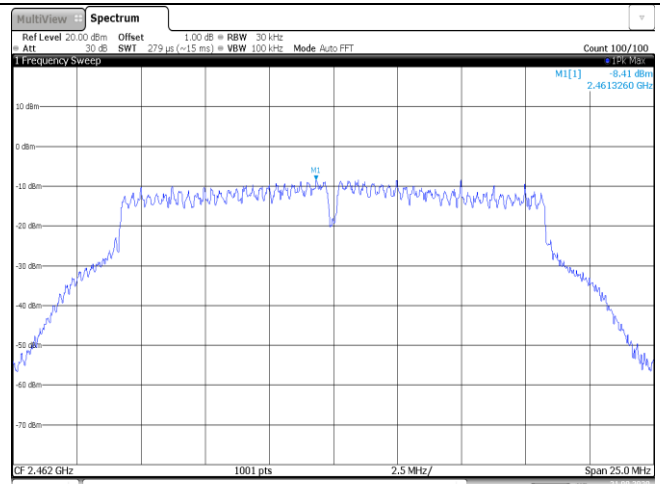
Appendix A: Conducted Peak Output Power

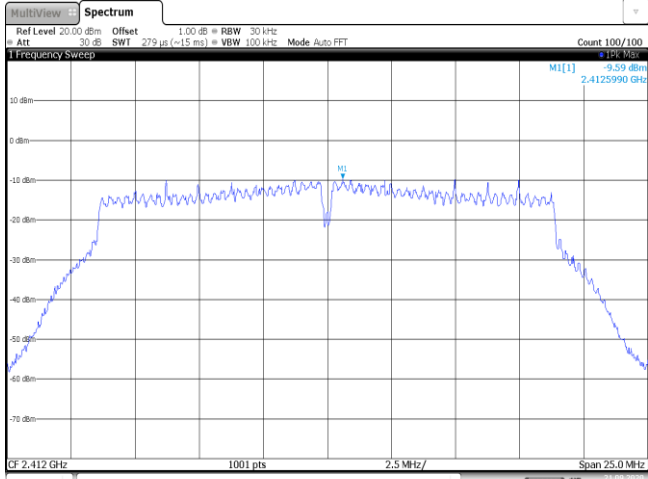
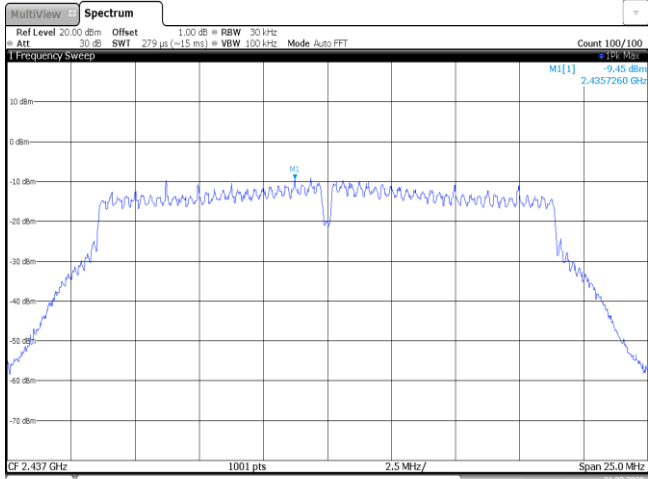
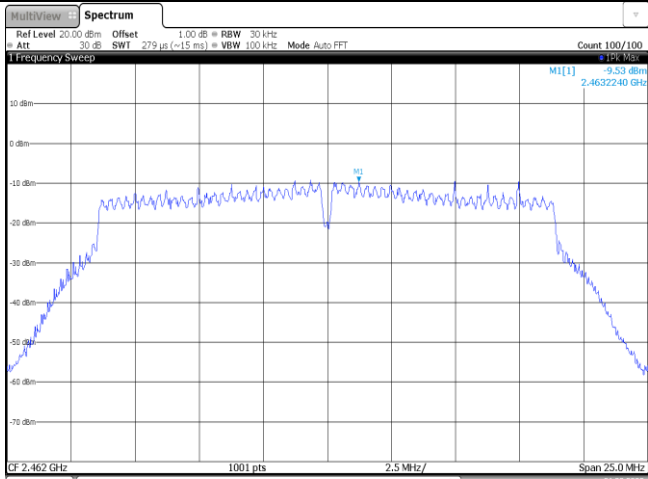
Type	Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
802.11b	01	16.00	13.56	≤ 30.00	Pass
	06	16.03	13.60		
	11	16.30	13.87		
802.11g	01	16.13	13.37	≤ 30.00	Pass
	06	16.36	13.62		
	11	16.26	13.45		
802.11n (HT20)	01	15.20	12.84	≤ 30.00	Pass
	06	15.03	12.26		
	11	15.15	12.78		

Appendix B: Power Spectral Density

Type	Channel	Power Spectral Density (dBm/30KHz)	Limit (dBm/3KHz)	Result
802.11b	01	1.89	≤8.00	Pass
	06	1.45		
	11	0.53		
802.11g	01	-8.10	≤8.00	Pass
	06	-8.57		
	11	-8.41		
802.11n(HT20)	01	-9.59	≤8.00	Pass
	06	-9.45		
	11	-9.53		

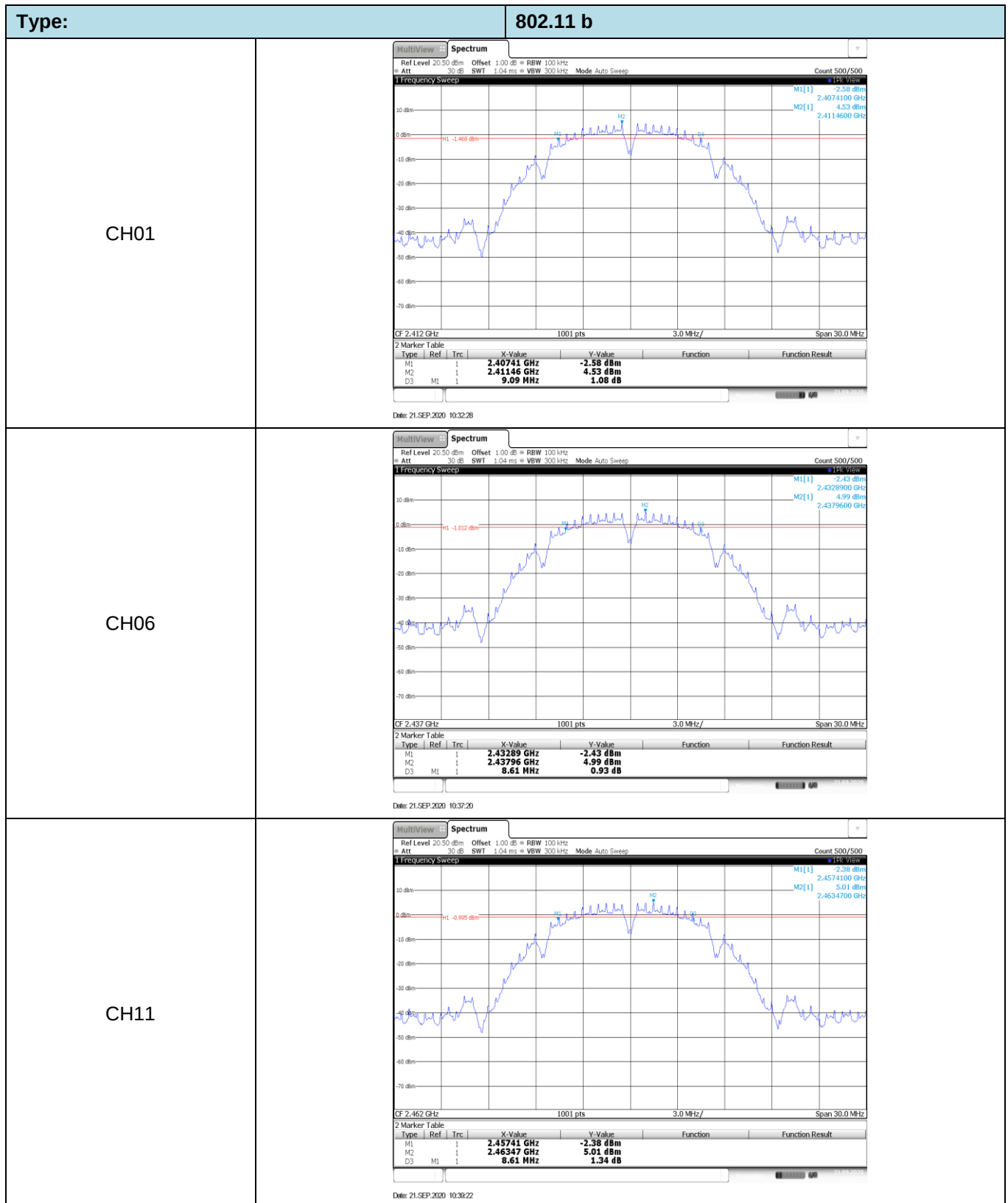
Type:		802.11 b
CH01	MultiView Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB = RBW 30 kHz SWI 1.78 ms = VBW 100 kHz Mode Auto Sweep Count 100/100 1 Frequency Sweep M1[1] 1.89 dBm 2.4134710 GHz  CF 2.412 GHz 1001 pts 1.6 MHz/ Span 16.0 MHz Date: 21.SEP.2000 10:30:19	
CH06	MultiView Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB = RBW 30 kHz SWI 1.78 ms = VBW 100 kHz Mode Auto Sweep Count 100/100 1 Frequency Sweep M1[1] 1.45 dBm 2.4364730 GHz  CF 2.437 GHz 1001 pts 1.6 MHz/ Span 16.0 MHz Date: 21.SEP.2000 10:37:59	
CH11	MultiView Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB = RBW 30 kHz SWI 1.78 ms = VBW 100 kHz Mode Auto Sweep Count 100/100 1 Frequency Sweep M1[1] 0.53 dBm 2.4614730 GHz  CF 2.462 GHz 1001 pts 1.6 MHz/ Span 16.0 MHz Date: 21.SEP.2000 10:40:00	

Type:	802.11 g
CH01	 Ref Level 20.00 dBm Offset 1.00 dB BW 30 kHz Att 30 dB SWI 279 us (~1.5 ms) VBW 100 kHz Mode Auto FFT Count 100/100 MI[1] 8.10 dBm 2.4107260 GHz CF 2.412 GHz 1001 pts 2.5 MHz/ Span 25.0 MHz Date: 21.SEP.2000 10:48:21
CH06	 Ref Level 20.00 dBm Offset 1.00 dB BW 30 kHz Att 30 dB SWI 279 us (~1.5 ms) VBW 100 kHz Mode Auto FFT Count 100/100 MI[1] 8.57 dBm 2.4363260 GHz CF 2.437 GHz 1001 pts 2.5 MHz/ Span 25.0 MHz Date: 21.SEP.2000 10:56:38
CH11	 Ref Level 20.00 dBm Offset 1.00 dB BW 30 kHz Att 30 dB SWI 279 us (~1.5 ms) VBW 100 kHz Mode Auto FFT Count 100/100 MI[1] 8.41 dBm 2.4613260 GHz CF 2.462 GHz 1001 pts 2.5 MHz/ Span 25.0 MHz Date: 21.SEP.2000 11:01:43

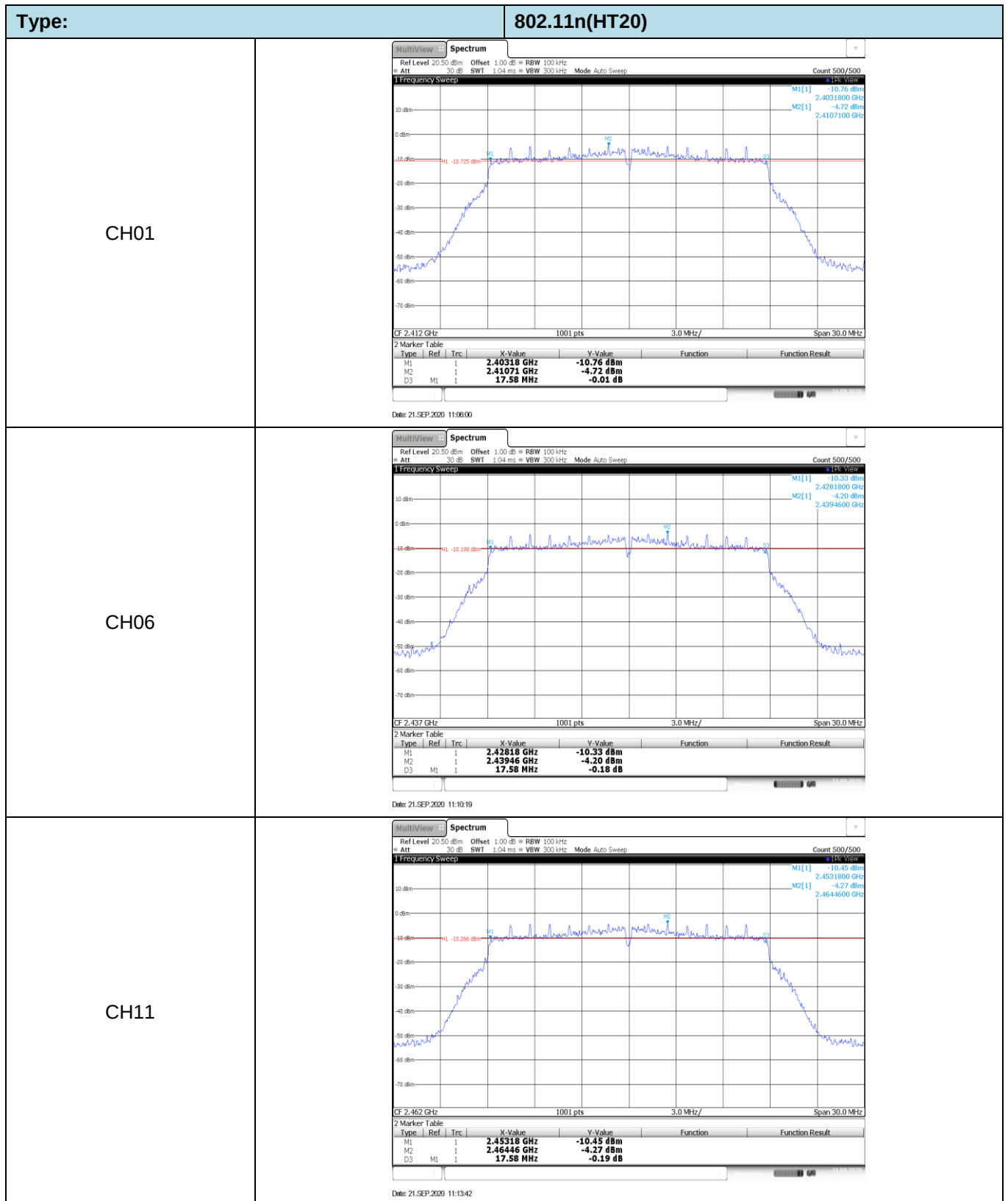
Type: 802.11n(HT20)	
CH01	 21.SEP.2009 11:08:11
CH06	 21.SEP.2009 11:10:41
CH11	 21.SEP.2009 11:15:51

Appendix C: 6dB bandwidth

Type	Channel	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11b	01	9.09	≥0.5	Pass
	06	8.61		
	11	8.61		
802.11g	01	16.38	≥0.5	Pass
	06	16.38		
	11	16.38		
802.11n(HT20)	01	17.58	≥0.5	Pass
	06	17.58		
	11	17.58		

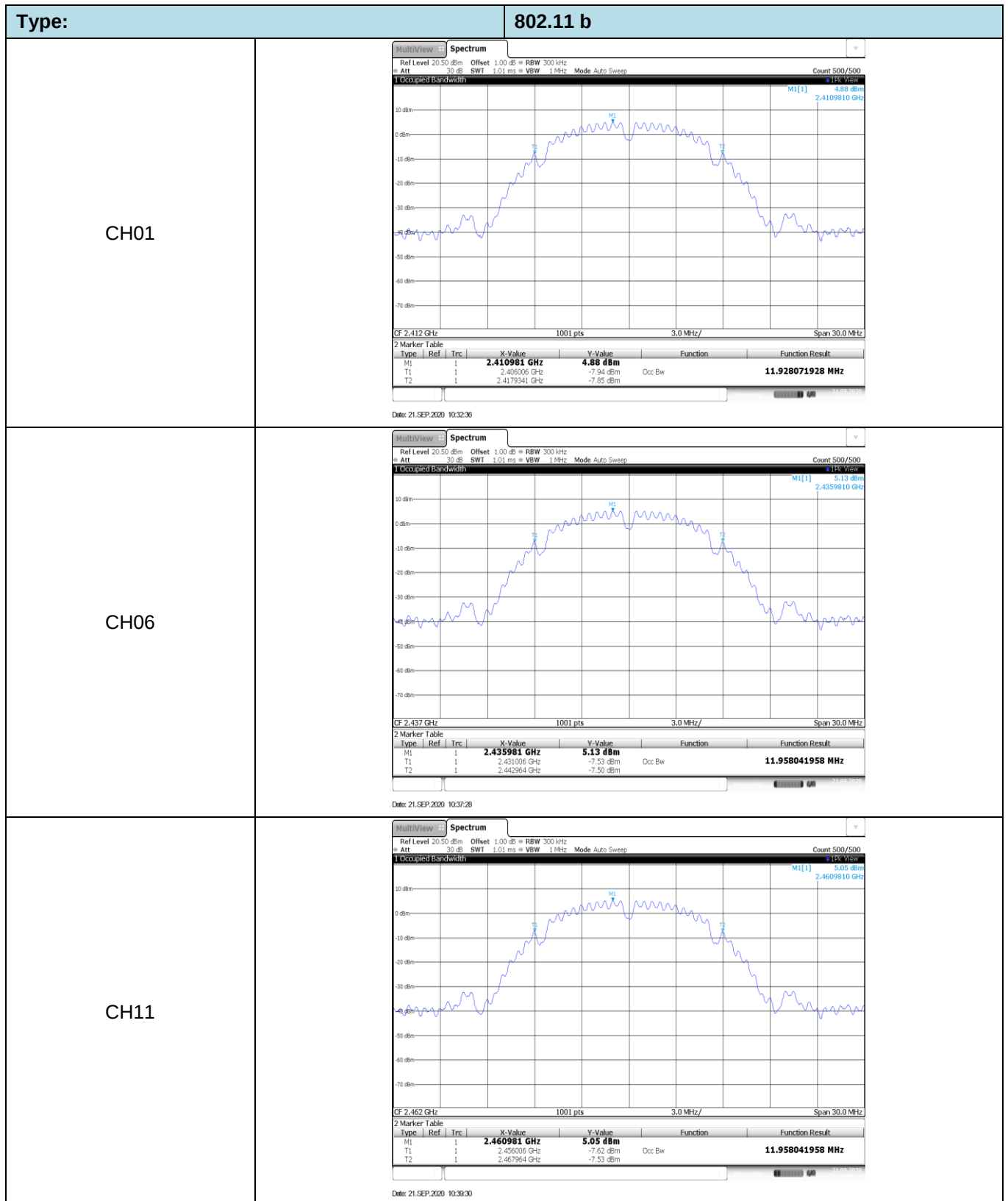


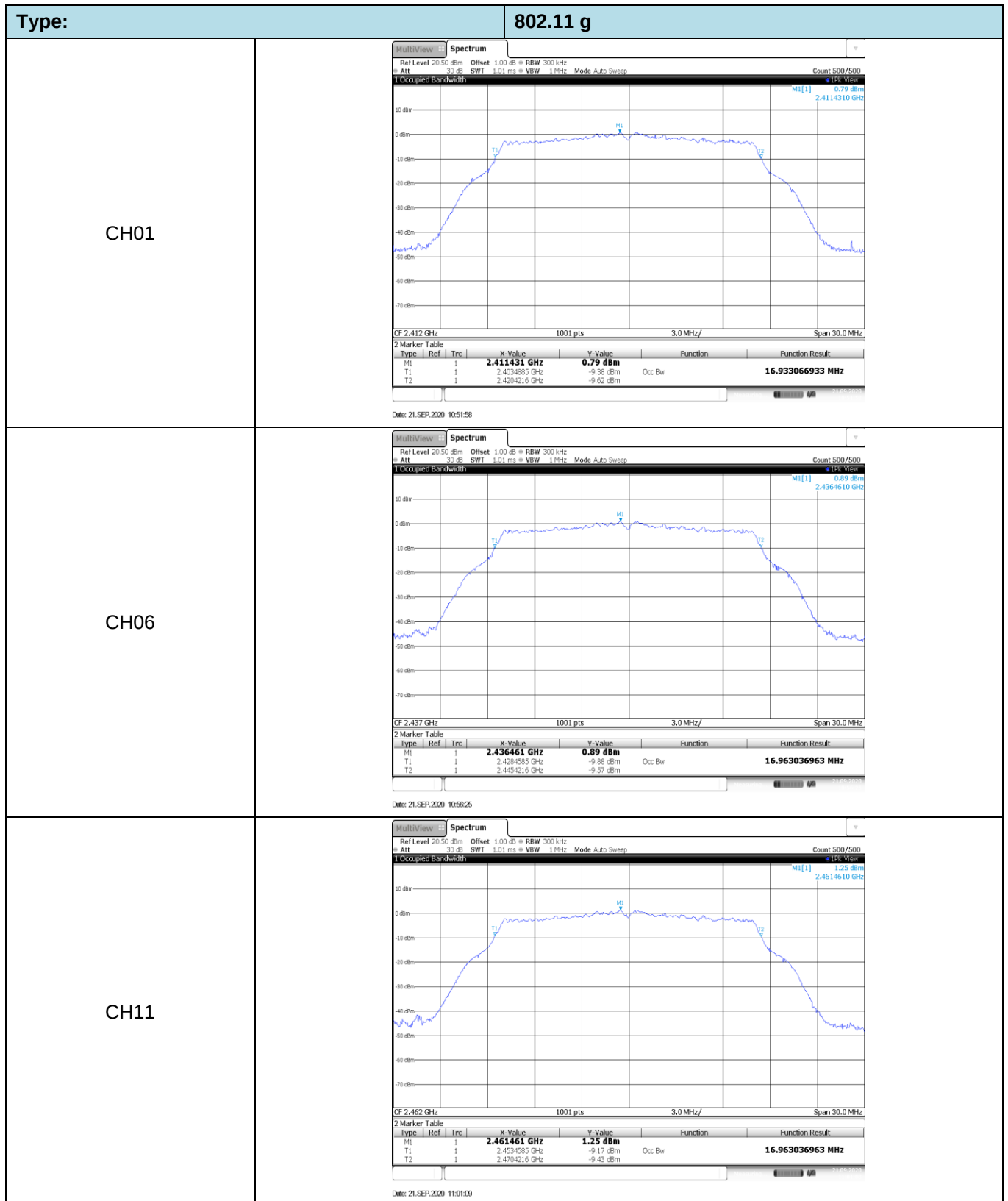
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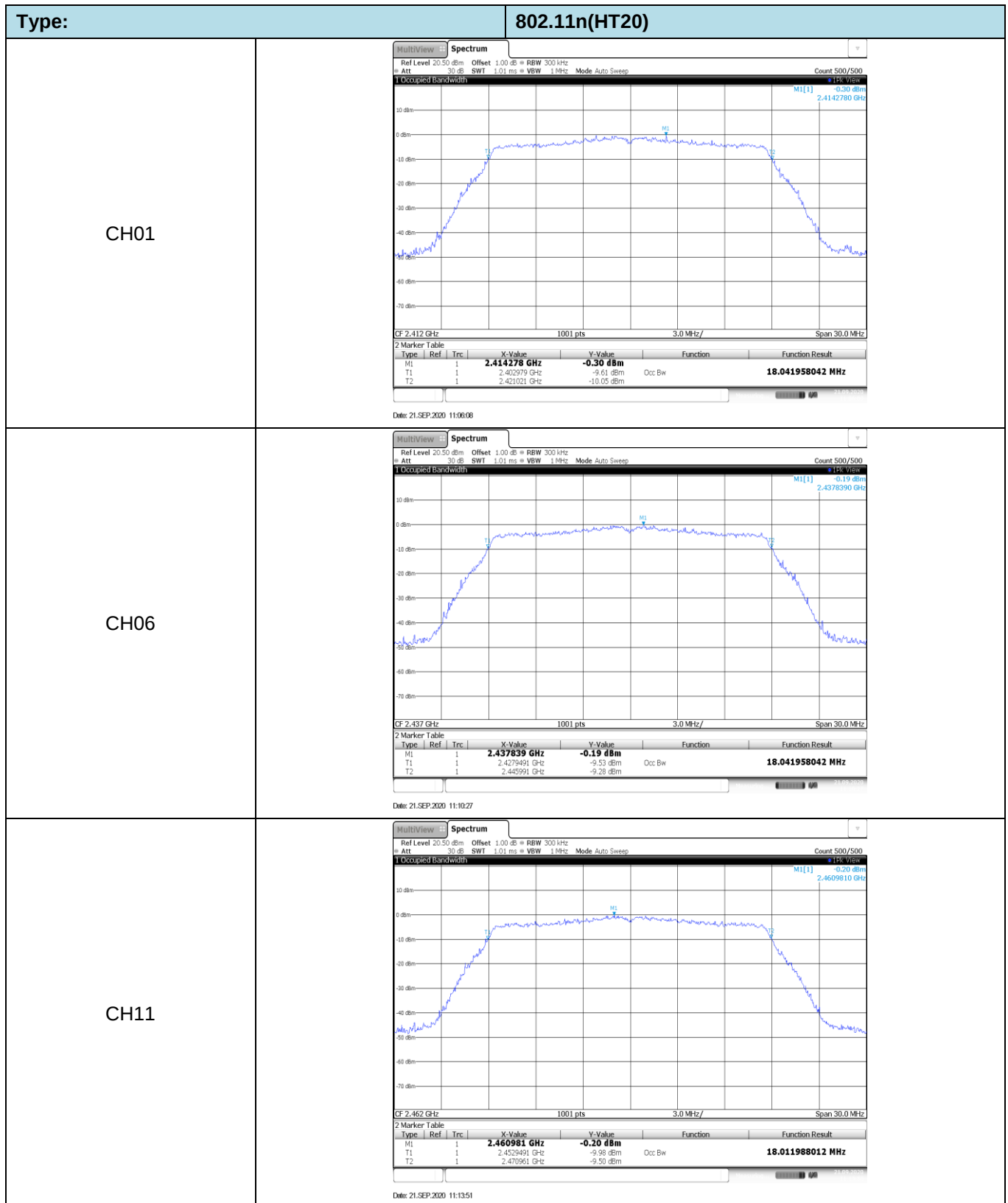


Appendix D: 99% Occupied Bandwidth

Type	Channel	99% Bandwidth (MHz)	Limit (MHz)	Result
802.11b	01	11.93	-	Pass
	06	11.96		
	11	11.96		
802.11g	01	16.93	-	Pass
	06	16.96		
	11	16.96		
802.11n(HT20)	01	18.04	-	Pass
	06	18.04		
	11	18.01		

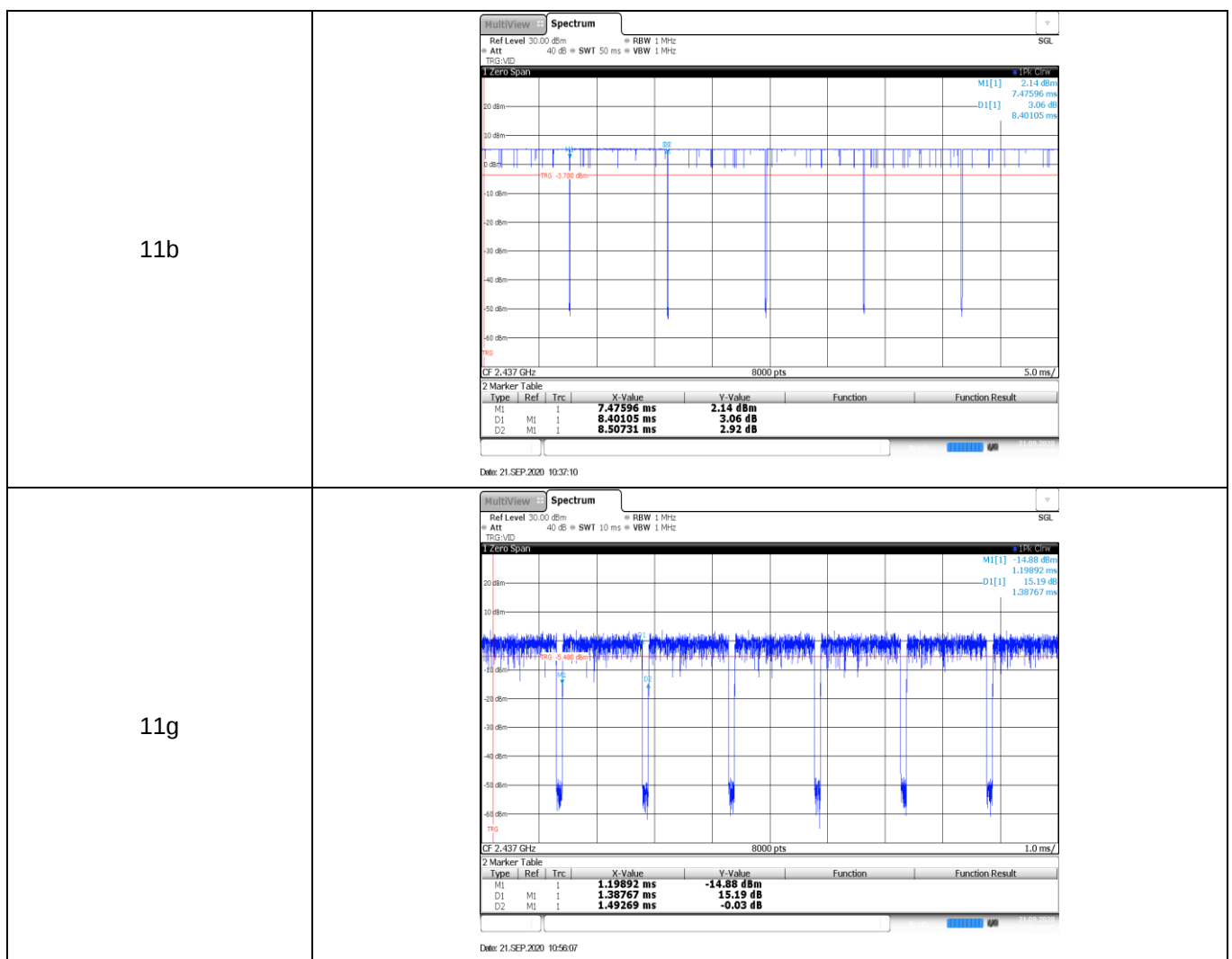


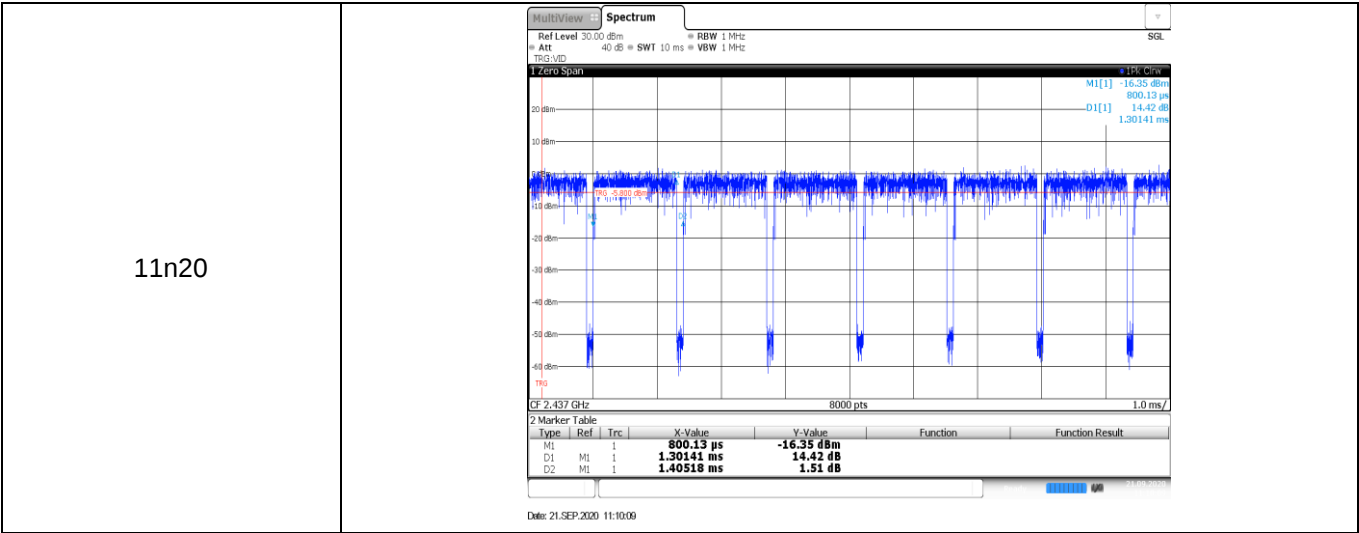




Appendix E: Duty Cycle

Modulation Type	Test Frequency (MHz)	T _{on time} for single burst (ms)	T _{period} (ms)	Duty cycle	1/T _{on time} (kHz)
11b	2437	8.40	8.51	98.7%	0.1
11g	2437	1.39	1.49	93.3%	0.7
11n20	2437	1.30	1.41	92.2%	0.8



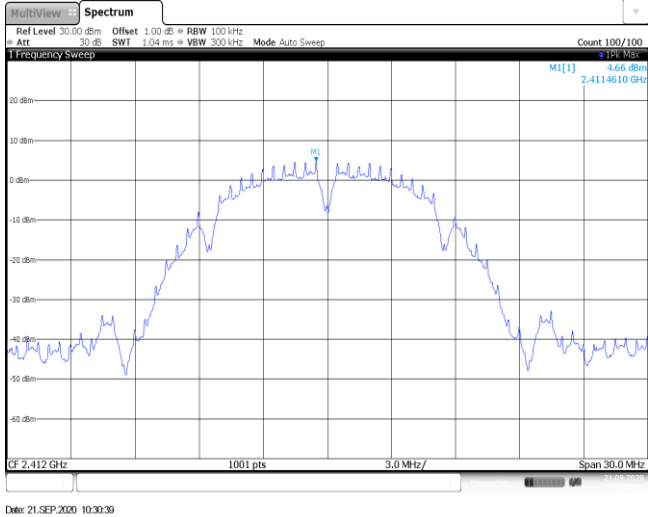
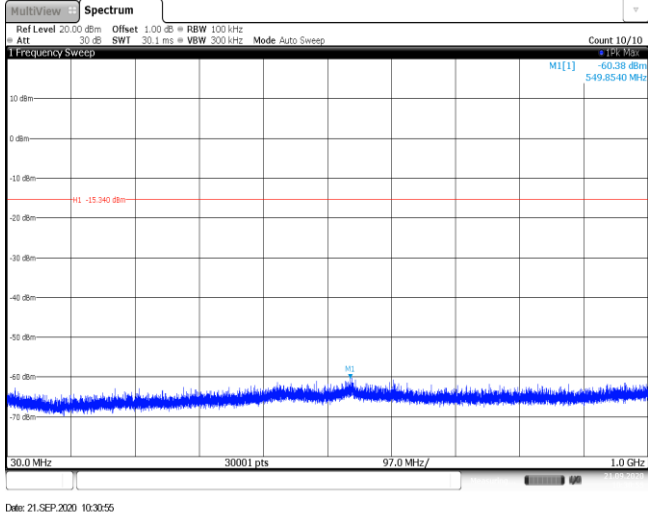
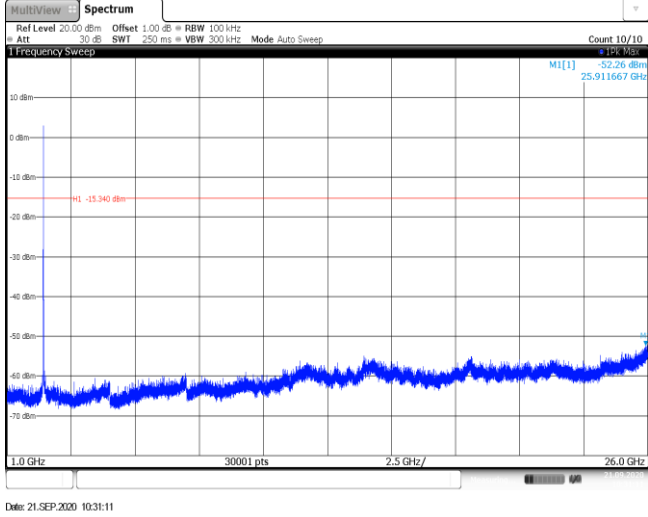


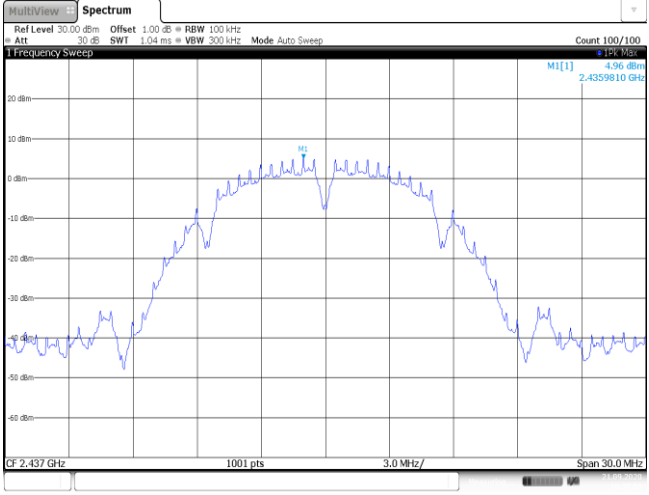
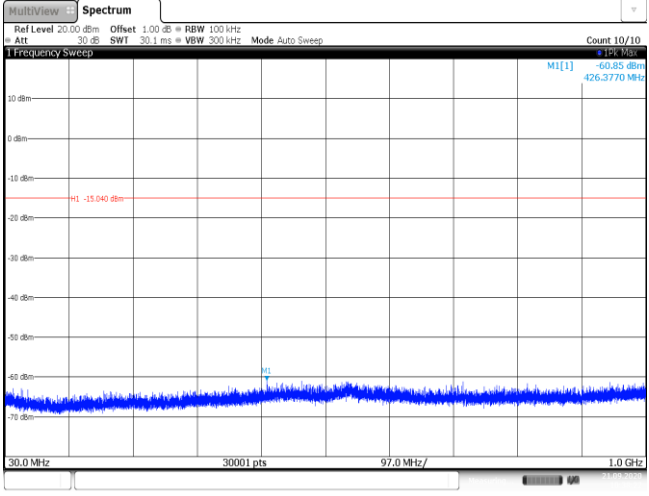
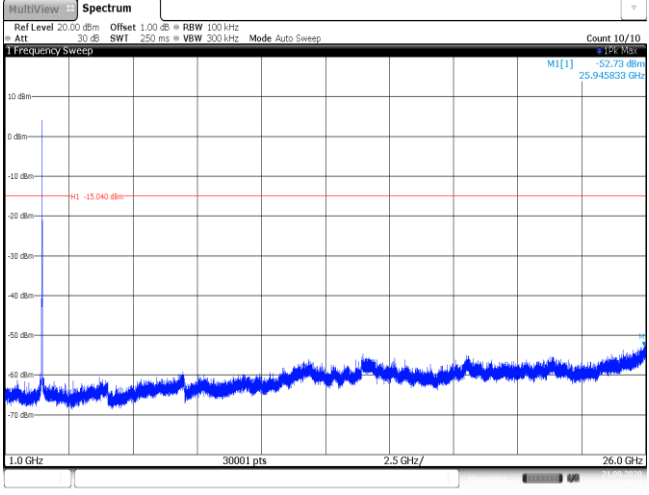
Appendix F: Band edge and Spurious Emissions (conducted)

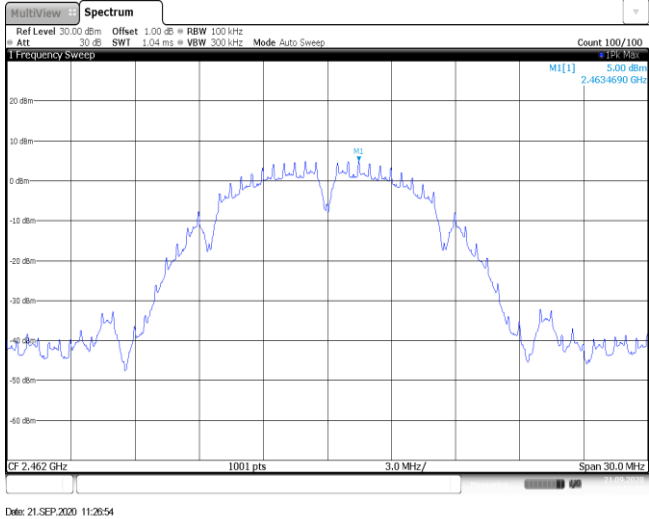
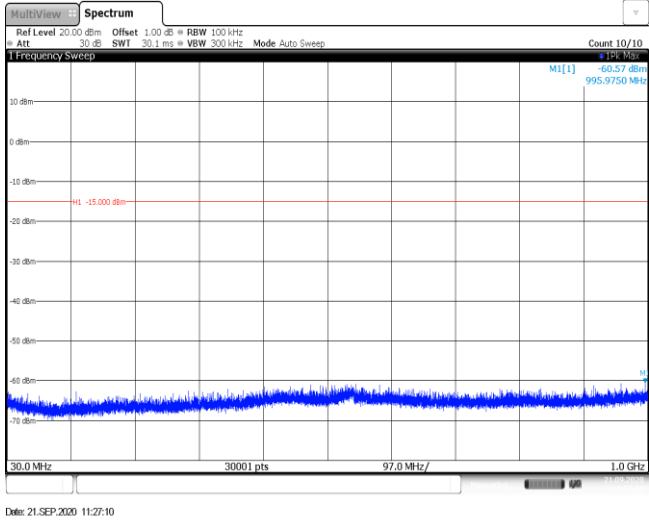
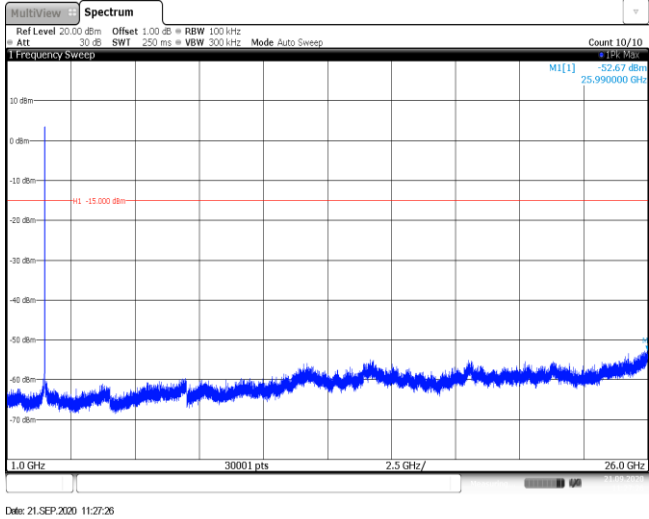
Test Item:	Bandedge	Type:	802.11 b																																										
CH01	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB BW 100 kHz ATT 30 dB SWT 1.12 ms VBW 300 kHz Mode Auto Sweep Count 300/300 Frequency Sweep M1 -15.540 dBm M1[1] 4.46 dBm 2.410980 GHz M2[1] -42.69 dBm 2.400000 GHz 2.31 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>2.41098 GHz</td><td>4.46 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-42.69 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-61.23 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-63.48 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.39792 GHz</td><td>-40.07 dBm</td><td></td><td></td></tr></table> Date: 21.SEP.2020 10:30:30			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.41098 GHz	4.46 dBm			M2	1		2.4 GHz	-42.69 dBm			M3	1		2.39 GHz	-61.23 dBm			M4	1		2.31 GHz	-63.48 dBm			M5	1		2.39792 GHz	-40.07 dBm		
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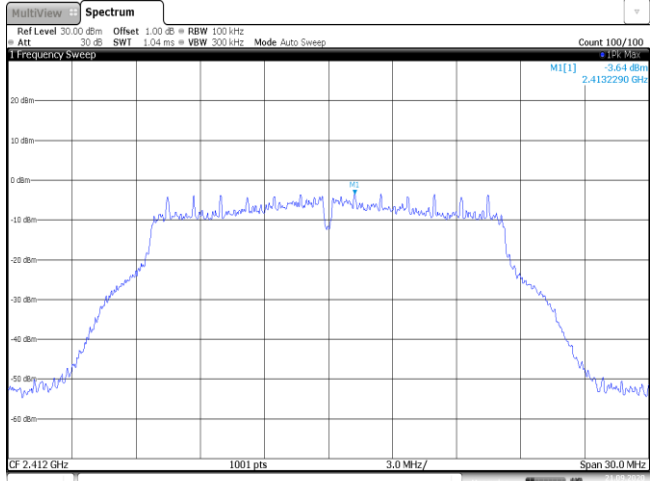
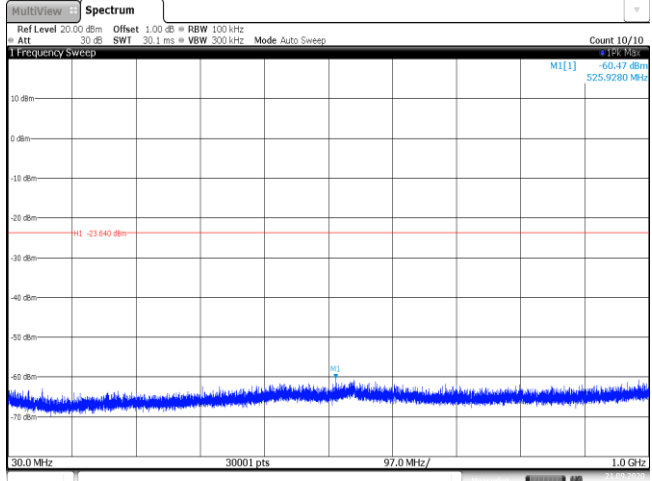
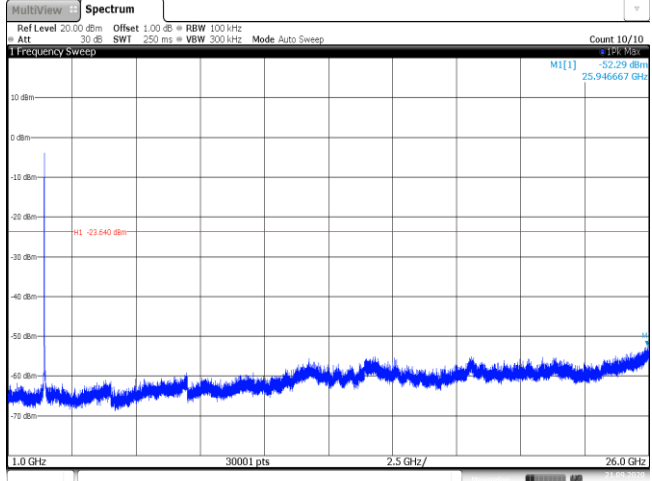
Test Item:	Bandedge	Type:	802.11 g																																										
CH01	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWI 1.12 ms VBW 300 kHz Mode Auto Sweep Count 300/300 1 Frequency Sweep 2 Marker Table <table><tr><th>Type</th><th>Ref</th><th>Trc</th><th>X-Value</th><th>Y-Value</th><th>Function</th><th>Function Result</th></tr><tr><td>M1</td><td>1</td><td></td><td>2.41445 GHz</td><td>-3.54 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-46.25 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-57.79 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-63.37 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.399824 GHz</td><td>-48.44 dBm</td><td></td><td></td></tr></table> 2.31 GHz 1001 pts 11.2 MHz/ 2.422 GHz Date: 21.SEP.2020 10:48:31			Type	Ref	Trc	X-Value	Y-Value	Function	Function Result	M1	1		2.41445 GHz	-3.54 dBm			M2	1		2.4 GHz	-46.25 dBm			M3	1		2.39 GHz	-57.79 dBm			M4	1		2.31 GHz	-63.37 dBm			M5	1		2.399824 GHz	-48.44 dBm		
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M2	1		2.4835 GHz	-56.72 dBm																																									
M3	1		2.5 GHz	-59.77 dBm																																									
M4	1		2.483776 GHz	-54.96 dBm																																									

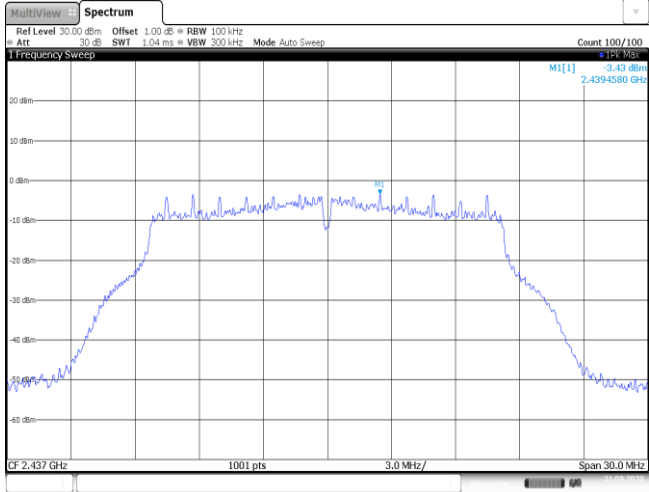
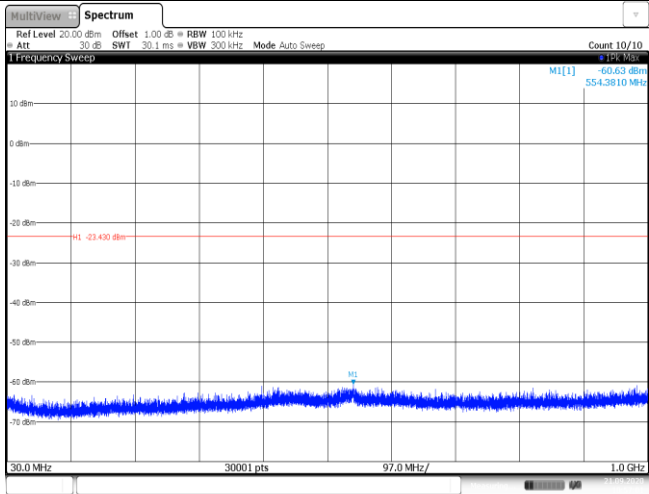
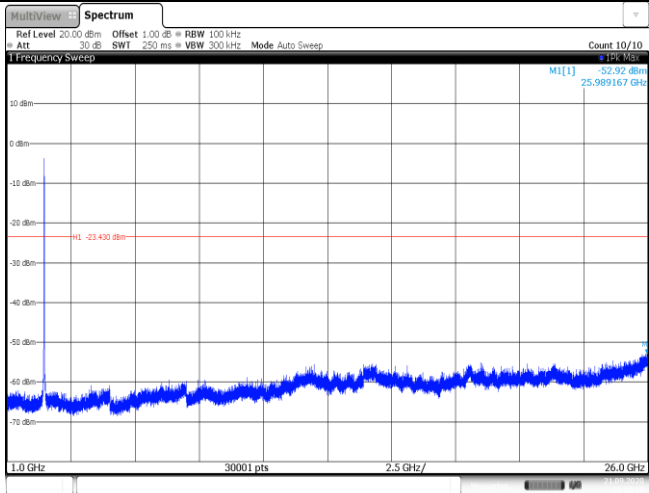
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CH01	</		

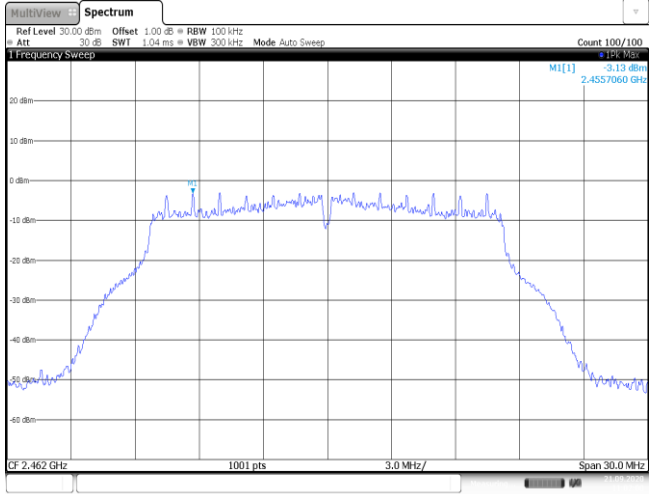
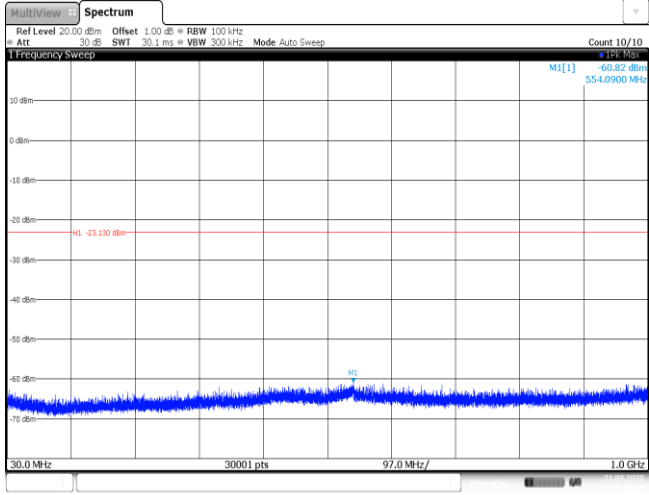
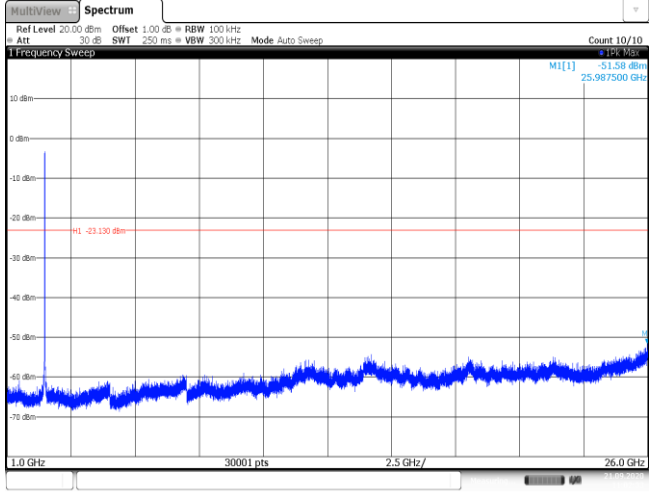
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CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

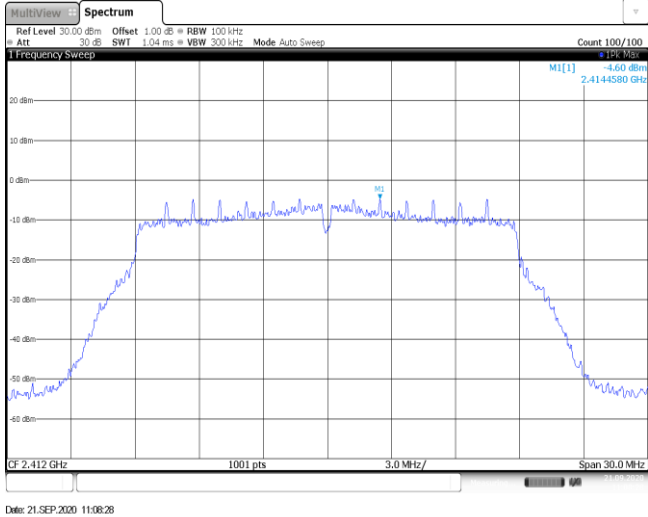
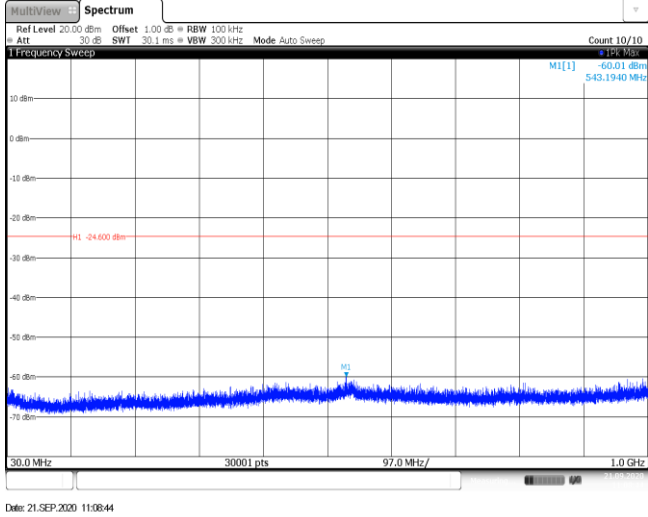
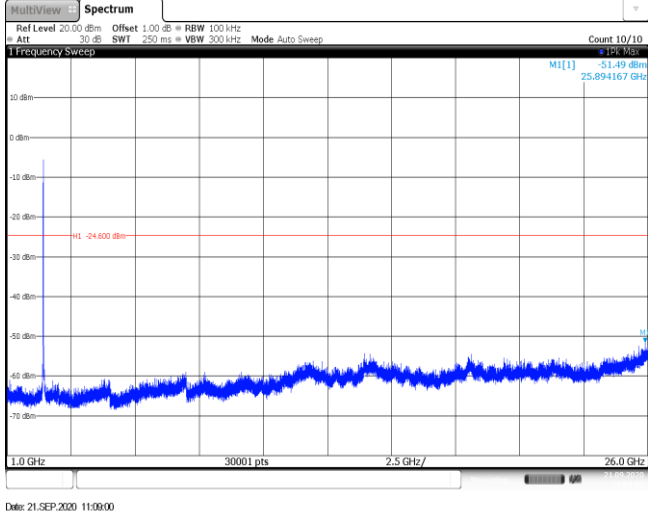
CH06 Reference level	 Ref Level 30.00 dBm Offset 1.00 dB RBW 100 kHz Att 30.0 dB SWF 1.04 ms VSW 300 kHz Mode Auto Sweep Count 100/100 M1[1] 4.96 dBm 2.4359810 GHz CF 2.437 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 21.SEP.2020 10:38:06
CH06 30MHz~1000MHz	 Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30.0 dB SWF 30.1 ms VSW 300 kHz Mode Auto Sweep Count 10/10 M1[1] -60.85 dBm 426.3770 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 21.SEP.2020 10:38:22
CH06 1GHz~26GHz	 Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30.0 dB SWF 250 ms VSW 300 kHz Mode Auto Sweep Count 10/10 M1[1] -52.73 dBm 25.945833 GHz 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 21.SEP.2020 10:38:38

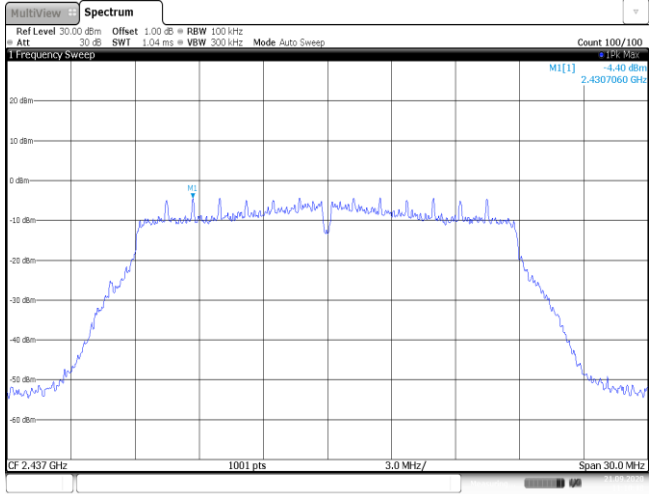
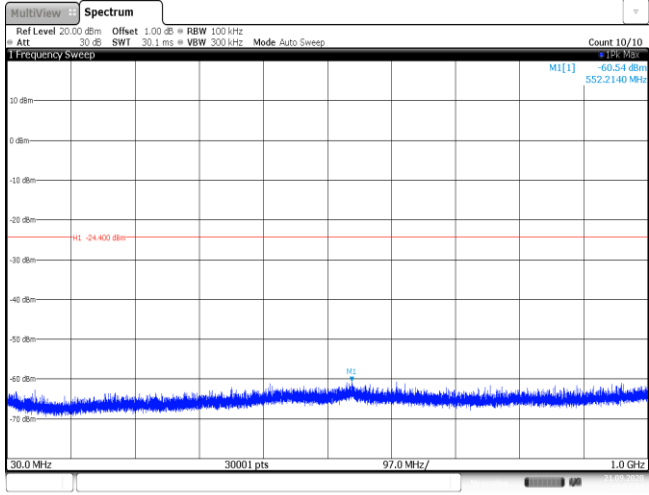
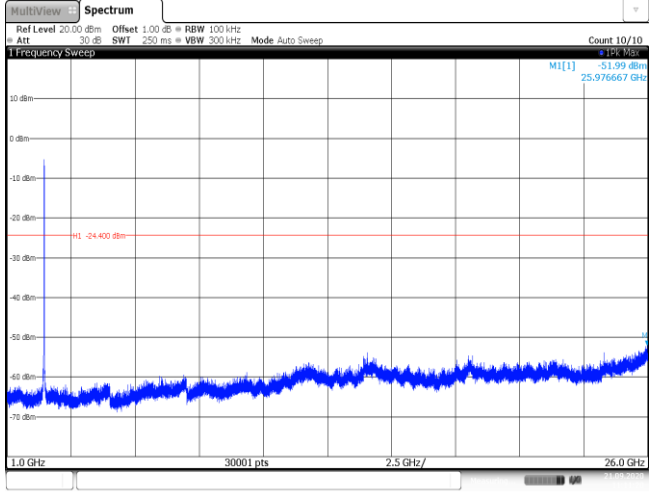
CH11 Reference level	
CH11 30MHz~1000MHz	
CH11 1GHz~26GHz	

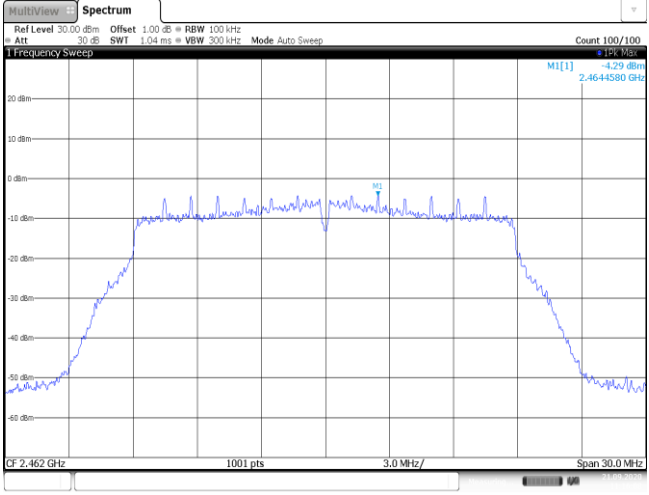
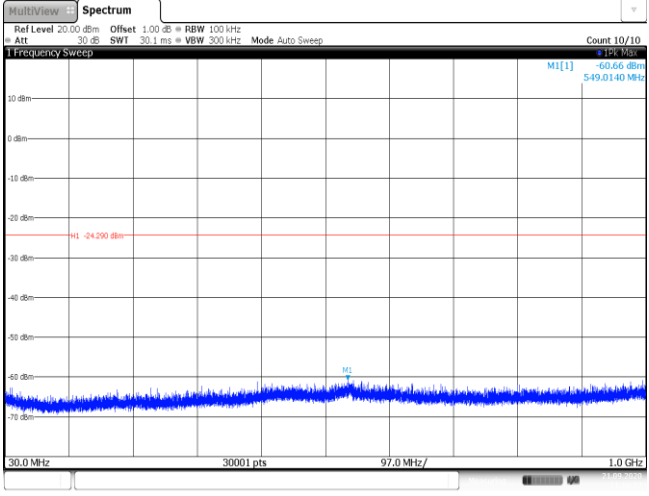
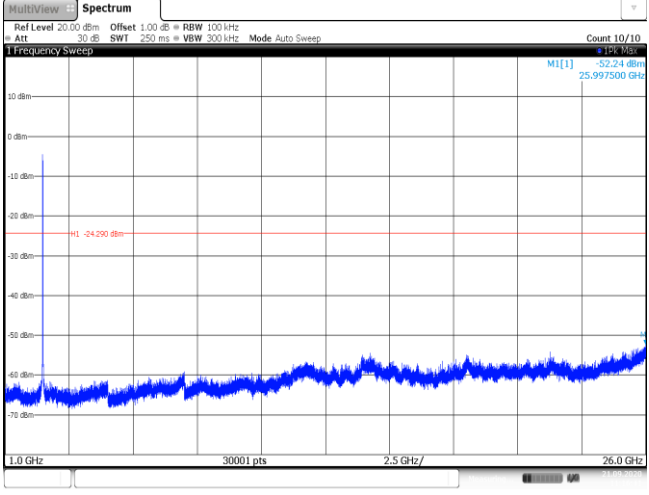
Test Item:	SE	Type:	802.11 g
CH01 Reference level		 21.SEP.2020 10:48:38	
CH01 30MHz~1000MHz		 21.SEP.2020 10:48:54	
CH01 1GHz~26GHz		 21.SEP.2020 10:49:10	

CH06 Reference level	 Ref Level 30.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWF 1.04 ms VSW 300 kHz Mode Auto Sweep Count 100/100 MI[1] -3.43 dBm 2.4394580 GHz CF 2.437 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 21.SEP.2020 10:56:45
CH06 30MHz~1000MHz	 Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWF 30.1 ms VSW 300 kHz Mode Auto Sweep Count 10/10 MI[1] -60.63 dBm 554.3810 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 21.SEP.2020 10:57:01
CH06 1GHz~26GHz	 Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWF 250 ms VSW 300 kHz Mode Auto Sweep Count 10/10 MI[1] -52.92 dBm 25.989167 GHz 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 21.SEP.2020 10:57:17

CH11 Reference level	 MultiView Spectrum Ref Level 30.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWF 1.04 ms VBW 300 kHz Mode Auto Sweep Count 100/100 Frequency Sweep M1[1] -3.13 dBm 2.4557060 GHz CF 2.462 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 21.SEP.2020 11:02:00
CH11 30MHz~1000MHz	 MultiView Spectrum 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 Frequency Sweep M1[1] -60.82 dBm 554.0900 MHz H1 -23.130 dBm 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 21.SEP.2020 11:02:16
CH11 1GHz~26GHz	 MultiView Spectrum 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 Frequency Sweep M1[1] -51.58 dBm 25.987500 GHz H1 -23.130 dBm 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 21.SEP.2020 11:02:33

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

CH06 Reference level	 Ref Level 30.00 dBm Offset 1.00 dB RBW 100 kHz Att 30.0 dB SWF 1.04 ms VSW 300 kHz Mode Auto Sweep Count 100/100 M1[1] -4.40 dBm 2.4307060 GHz CF 2.437 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 21.SEP.2020 11:10:48
CH06 30MHz~1000MHz	 Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30.0 dB SWF 30.1 ms VSW 300 kHz Mode Auto Sweep Count 10/10 M1[1] -60.54 dBm 552.2140 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 21.SEP.2020 11:11:04
CH06 1GHz~26GHz	 Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30.0 dB SWF 250 ms VSW 300 kHz Mode Auto Sweep Count 10/10 M1[1] -51.99 dBm 25.976667 GHz 1.0 GHz 30001 pts 25.0 GHz/ 26.0 GHz Date: 21.SEP.2020 11:11:20

CH11 Reference level	 Ref Level 30.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWF 1.04 ms VSW 300 kHz Mode Auto Sweep Count 100/100 MI[1] -42.9 dBm 2.464580 GHz CF 2.462 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 21.SEP.2020 11:16:08
CH11 30MHz~1000MHz	 Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWF 30.1 ms VSW 300 kHz Mode Auto Sweep Count 10/10 MI[1] -60.66 dBm 549.0140 MHz 30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz Date: 21.SEP.2020 11:16:24
CH11 1GHz~26GHz	 Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWF 250 ms VSW 300 kHz Mode Auto Sweep Count 10/10 MI[1] -52.24 dBm 25.997500 GHz 1.0 GHz 30001 pts 2.5 GHz/ 26.0 GHz Date: 21.SEP.2020 11:16:40

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