

APPENDIX REPORT

Project No.	SHT2107048003EW	Radio Specification	WIFI 5G
Test sample No.	YPHT21070480016	Model No.	CT9F8A
Start test date	2021-07-20	Finish date	2021-07-20
Temperature	25.6°C	Humidity	32%
Test Engineer	Hailey Chen	Auditor	Xiaodong Zhu

Appendix clause	Test item	Result
A	Maximum Conducted Output Power	PASS
B	Maximum Power Spectral Density	PASS
C	26 dB Bandwidth	PASS
D	99% Occupy bandwidth	PASS
E	6 dB Bandwidth	PASS
F	Band edge	PASS
G	Frequency stability	PASS

Appendix A: Maximum Conducted Output Power

Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Conducted Output Power (dBm)	Limit (dBm)	Result
I	20	802.11ac	CH _L	11.15	96.58	0.15	11.30	24.00	Pass
			CH _M	11.22	96.48	0.16	11.38		
			CH _H	11.10	96.58	0.15	11.25		
		802.11n	CH _L	11.19	96.55	0.15	11.34	24.00	Pass
			CH _M	11.31	96.55	0.15	11.46		
			CH _H	11.06	96.55	0.15	11.21		
		802.11a	CH _L	10.88	96.77	0.14	11.02	24.00	Pass
			CH _M	10.85	96.77	0.14	10.99		
			CH _H	10.18	96.68	0.15	10.33		
	40	802.11ac	CH _L	10.37	93.48	0.29	10.66	24.00	Pass
			CH _H	10.29	93.48	0.29	10.58		
II	20	802.11ac	CH _L	11.28	96.57	0.15	11.43	24.00	Pass
			CH _M	11.31	96.58	0.15	11.46		
			CH _H	10.85	96.58	0.15	11.00		
		802.11n	CH _L	10.66	96.55	0.15	10.81	24.00	Pass
			CH _M	10.19	96.55	0.15	10.34		
			CH _H	10.02	96.55	0.15	10.17		
		802.11a	CH _L	11.25	96.77	0.14	11.39	24.00	Pass
			CH _M	11.32	96.77	0.14	11.46		
			CH _H	10.89	96.77	0.14	11.03		
	40	802.11ac	CH _L	10.29	93.57	0.29	10.58	24.00	Pass
			CH _H	10.05	93.48	0.29	10.34		

Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Conducted Output Power (dBm)	Limit (dBm)	Result
III	20	802.11ac	CH _L	11.00	96.58	0.15	11.15	24.00	Pass
			CH _M	10.90	96.58	0.15	11.05		
			CH _H	11.00	96.58	0.15	11.15		
		802.11n	CH _L	11.02	96.55	0.15	11.17	24.00	Pass
			CH _M	10.86	96.55	0.15	11.01		
			CH _H	11.04	96.46	0.16	11.20		
		802.11a	CH _L	11.17	96.77	0.14	11.31	24.00	Pass
			CH _M	10.92	96.77	0.14	11.06		
			CH _H	11.15	96.77	0.14	11.29		
	40	802.11ac	CH _L	10.12	93.48	0.29	10.41	24.00	Pass
			CH _M	11.35	93.48	0.29	11.64		
			CH _H	10.86	93.57	0.29	11.15		
IV	20	802.11ac	CH _L	10.81	96.58	0.15	10.96	30.00	Pass
			CH _M	10.90	96.58	0.15	11.05		
			CH _H	11.61	96.58	0.15	11.76		
		802.11n	CH _L	10.61	96.55	0.15	10.76	30.00	Pass
			CH _M	10.90	96.55	0.15	11.05		
			CH _H	11.58	96.55	0.15	11.73		
		802.11a	CH _L	10.71	96.77	0.14	10.85	30.00	Pass
			CH _M	11.08	96.77	0.14	11.22		
			CH _H	11.62	96.77	0.14	11.76		
	40	802.11ac	CH _L	10.72	93.48	0.29	11.01	30.00	Pass
			CH _H	11.22	93.57	0.29	11.51		

NOTE: duty cycle factor =10LOG(1/ duty cycle)

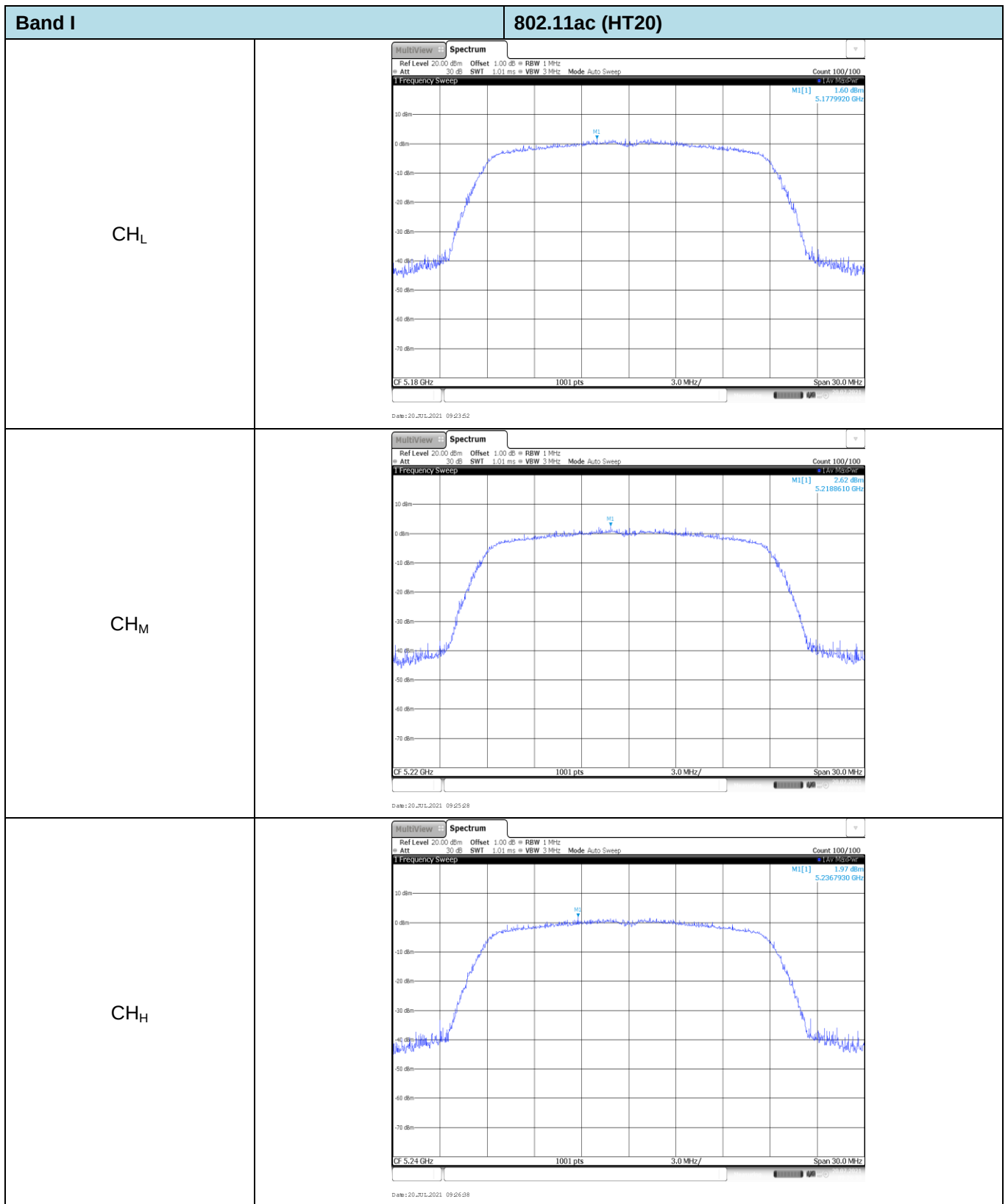
Appendix B: Maximum Power Spectral Density

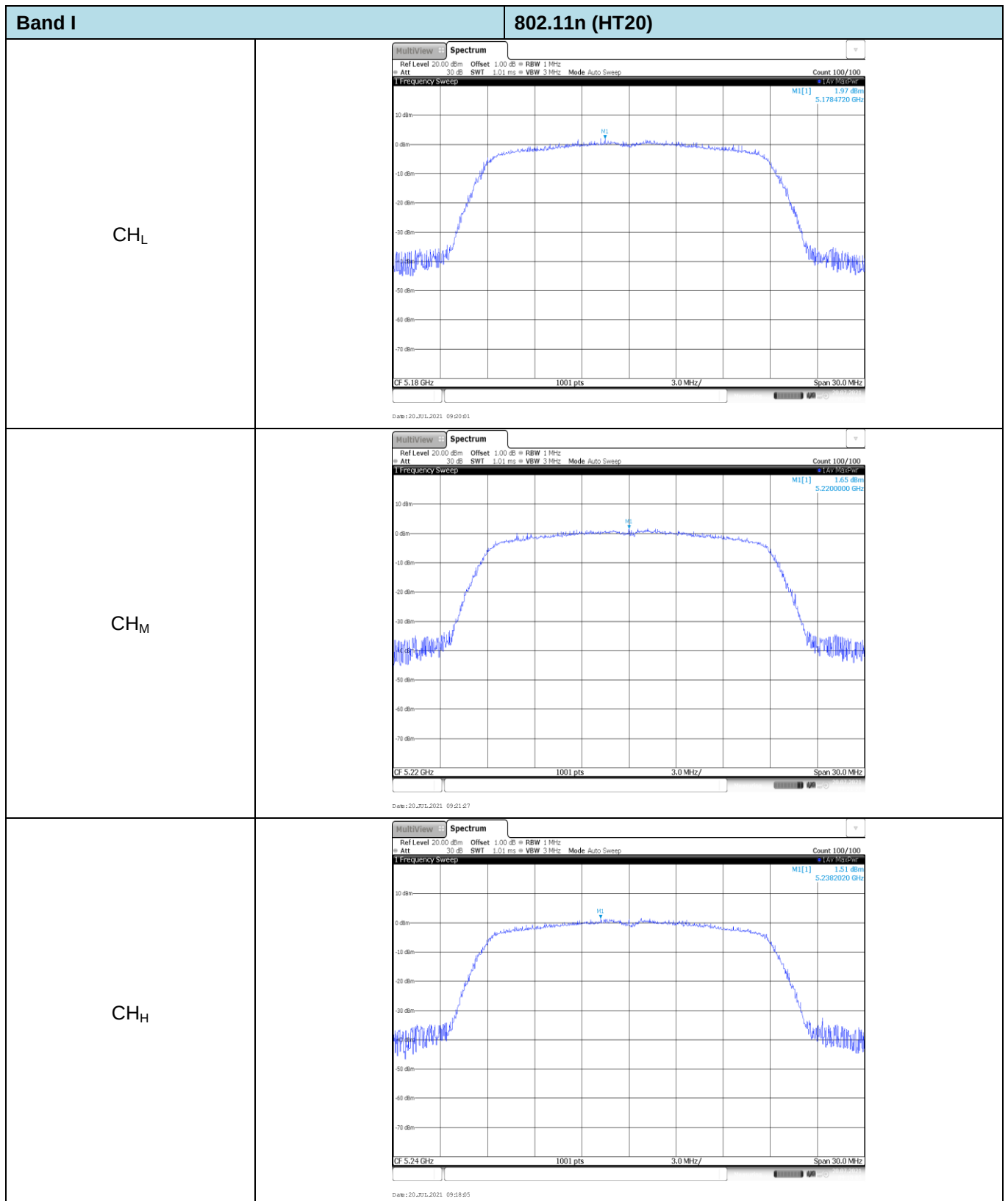
Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
I	20	802.11ac	CH _L	1.60	96.58	0.15	1.75	11.00	Pass
			CH _M	2.62	96.48	0.16	2.78		
			CH _H	1.97	96.58	0.15	2.12		
		802.11n	CH _L	1.97	96.55	0.15	2.12	11.00	Pass
			CH _M	1.65	96.55	0.15	1.80		
			CH _H	1.51	96.55	0.15	1.66		
		802.11a	CH _L	1.52	96.77	0.14	1.66	11.00	Pass
			CH _M	2.20	96.77	0.14	2.34		
			CH _H	1.12	96.68	0.15	1.27		
	40	802.11ac	CH _L	-1.11	93.48	0.29	-0.82	11.00	Pass
			CH _H	-1.93	93.48	0.29	-1.64		

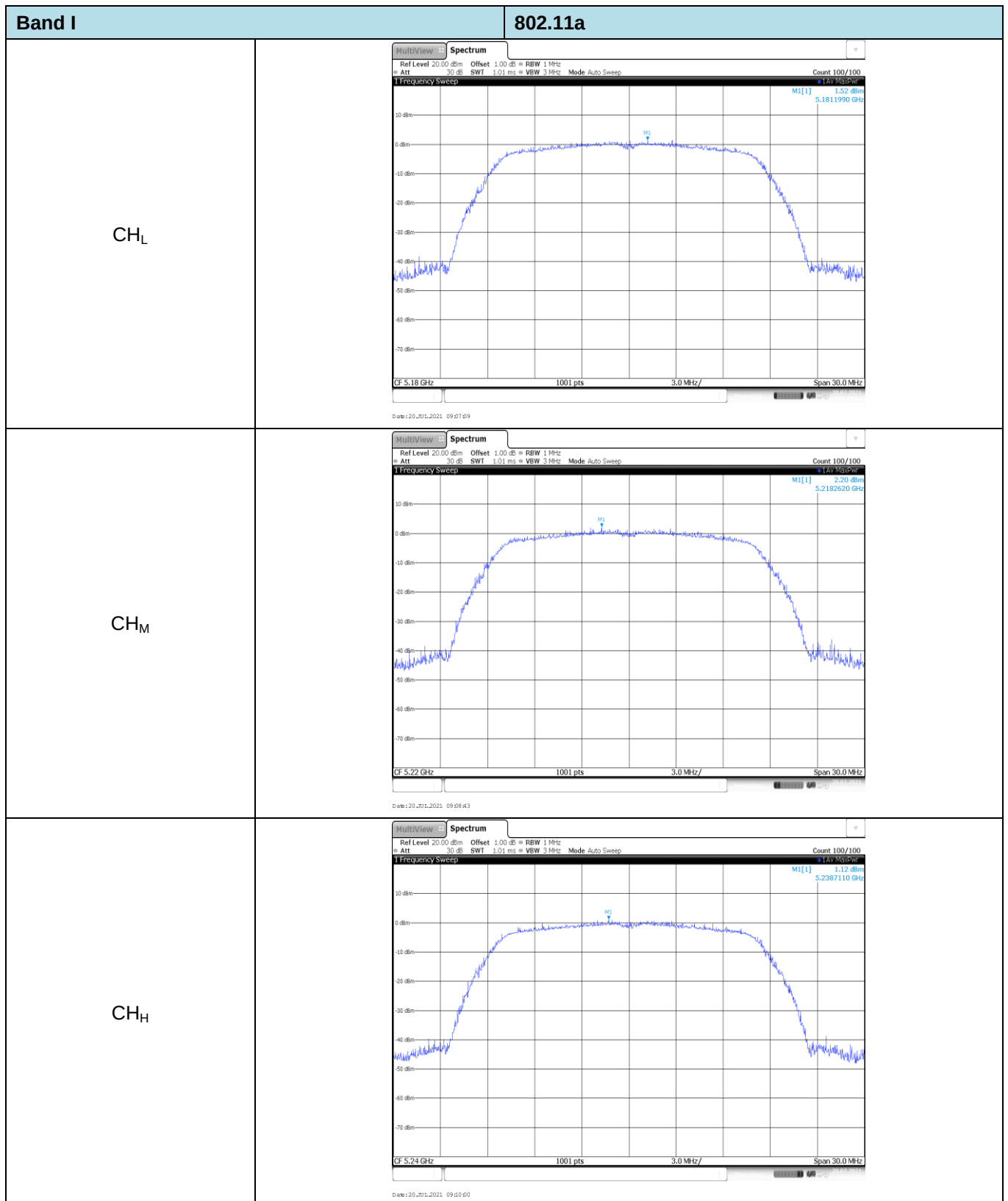
Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
II	20	802.11ac	CH _L	1.40	96.57	0.15	1.55	11.00	Pass
			CH _M	1.49	96.58	0.15	1.64		
			CH _H	2.74	96.58	0.15	2.89		
		802.11n	CH _L	1.31	96.55	0.15	1.46	11.00	Pass
			CH _M	0.39	96.55	0.15	0.54		
			CH _H	0.44	96.55	0.15	0.59		
		802.11a	CH _L	1.57	96.77	0.14	1.71	11.00	Pass
			CH _M	1.93	96.77	0.14	2.07		
			CH _H	1.51	96.77	0.14	1.65		
	40	802.11ac	CH _L	-2.47	93.57	0.29	-2.18	11.00	Pass
			CH _H	-2.03	93.48	0.29	-1.74		

Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
III	20	802.11ac	CH _L	2.51	96.58	0.15	2.66	11.00	Pass
			CH _M	1.95	96.58	0.15	2.10		
			CH _H	1.36	96.58	0.15	1.51		
		802.11n	CH _L	2.27	96.55	0.15	2.42	11.00	Pass
			CH _M	2.17	96.55	0.15	2.32		
			CH _H	1.16	96.46	0.16	1.32		
		802.11a	CH _L	2.41	96.77	0.14	2.55	11.00	Pass
			CH _M	2.91	96.77	0.14	3.05		
			CH _H	1.24	96.77	0.14	1.38		
	40	802.11ac	CH _L	-1.55	93.48	0.29	-1.26	11.00	Pass
			CH _M	-0.21	93.48	0.29	0.08		
			CH _H	-1.90	93.57	0.29	-1.61		
Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Power Spectral Density (dBm/500k Hz)	Limit (dBm/500K Hz)	Result
IV	20	802.11ac	CH _L	0.00	96.58	0.15	0.15	30.00	Pass
			CH _M	-0.41	96.58	0.15	-0.26		
			CH _H	-0.11	96.58	0.15	0.04		
		802.11n	CH _L	-0.38	96.55	0.15	-0.23	30.00	Pass
			CH _M	-0.48	96.55	0.15	-0.33		
			CH _H	-0.43	96.55	0.15	-0.28		
		802.11a	CH _L	0.15	96.77	0.14	0.29	30.00	Pass
			CH _M	0.07	96.77	0.14	0.21		
			CH _H	-0.22	96.77	0.14	-0.08		
	40	802.11ac	CH _L	-2.74	93.48	0.29	-2.45	30.00	Pass
			CH _H	-2.92	93.57	0.29	-2.63		

Test plot as follows:

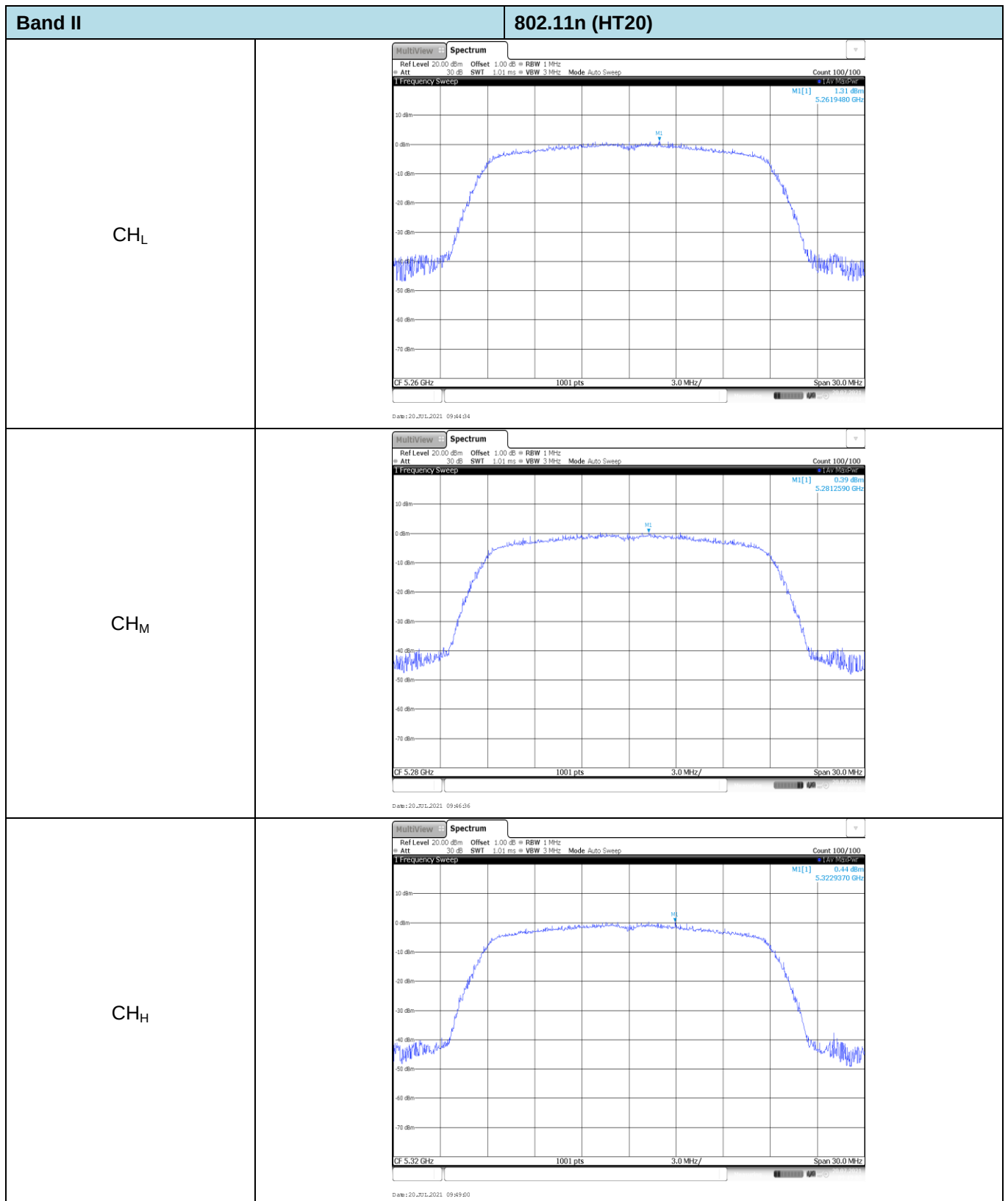


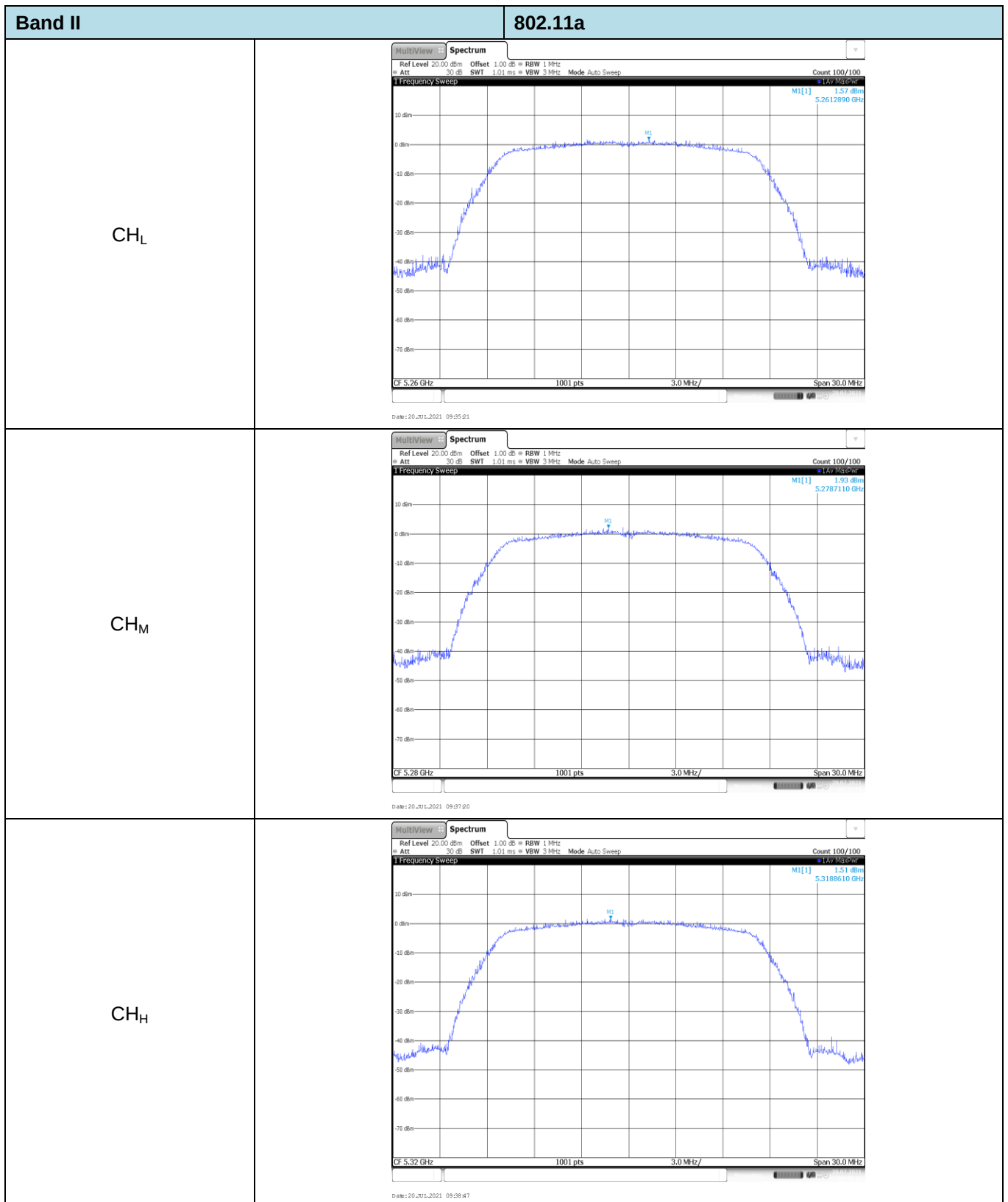




Band I		802.11ac (HT40)
CH _L	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 1 MHz Att 30 dB SWF 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 1 Frequency Sweep 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1 -1.11 dBm 5.1869430 GHz CF 5.19 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz Date: 20 JUL 2021 09:29:21	
CH _H	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 1 MHz Att 30 dB SWF 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 1 Frequency Sweep 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1 -1.93 dBm 5.2322180 GHz CF 5.23 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz Date: 20 JUL 2021 09:31:40	

Band II		802.11ac (HT20)
CH _L	MultiView Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB RBW 1 MHz SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 ↑TAT MSPW Frequency Sweep M1[1] 1.40 dBm 5.2576620 GHz 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 5.26 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 20 JUL 2021 09:51:50	
CH _M	MultiView Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB RBW 1 MHz SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 ↑TAT MSPW Frequency Sweep M1[1] 1.49 dBm 5.2787710 GHz 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 5.28 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 20 JUL 2021 09:53:04	
CH _H	MultiView Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB RBW 1 MHz SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 ↑TAT MSPW Frequency Sweep M1[1] 2.74 dBm 5.3184420 GHz 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 5.32 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 20 JUL 2021 09:55:42	

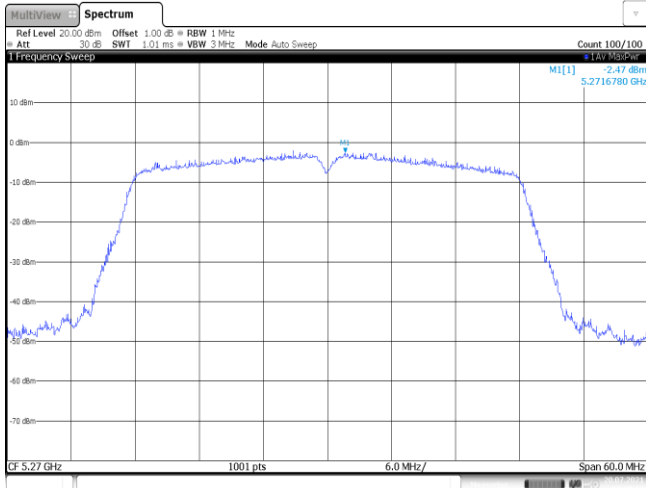




Band II

802.11ac (HT40)

CH_L

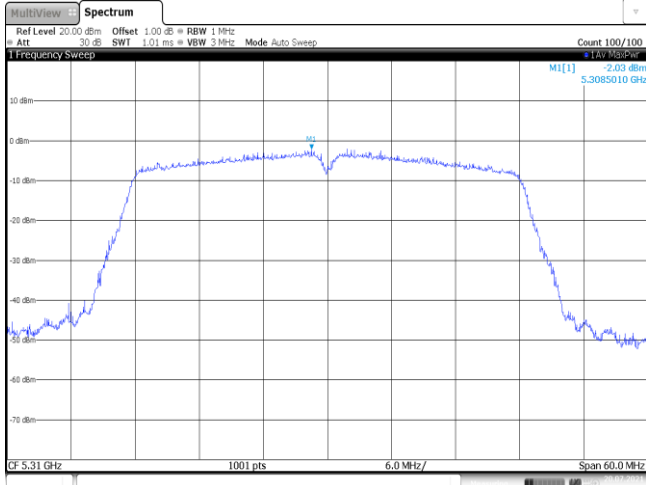


This spectrum plot shows the frequency response for the CH_L channel. The y-axis represents power in dBm, ranging from -80 to 10. The x-axis represents frequency in MHz, with a span of 60.0 MHz. The signal is a flat-topped pulse with a bandwidth of approximately 20 MHz. The peak power is approximately -10 dBm. The plot includes a frequency sweep and a count of 100/100.

Parameter	Value
Ref Level	20.00 dBm
Offset	1.00 dB
RBW	1 MHz
Att	30 dB
SWT	1.01 ms
VBW	3 MHz
Mode	Auto Sweep
Count	100/100
Frequency	5.27 GHz
Span	60.0 MHz

Date: 20_10_2021 09:58:22

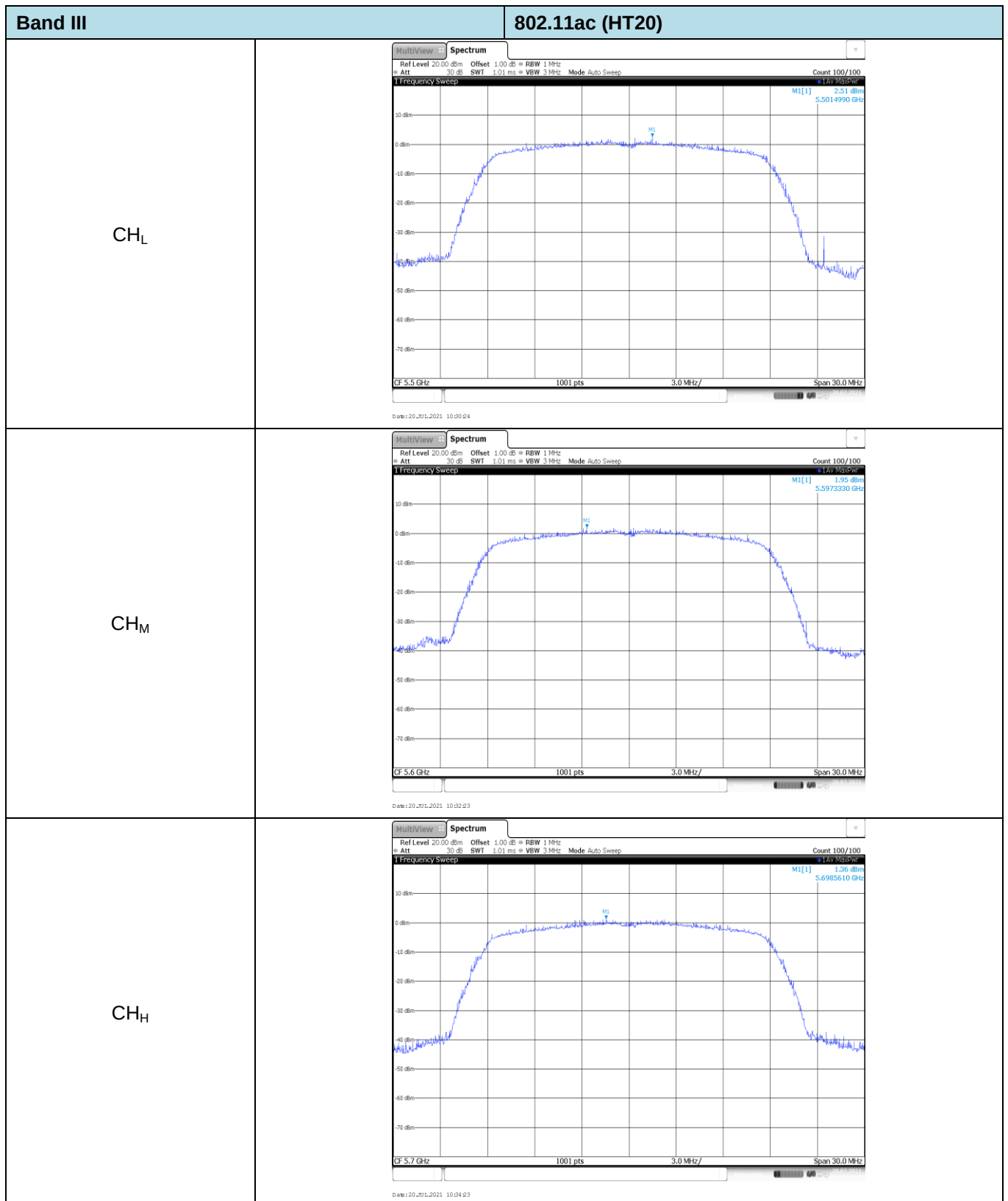
CH_H



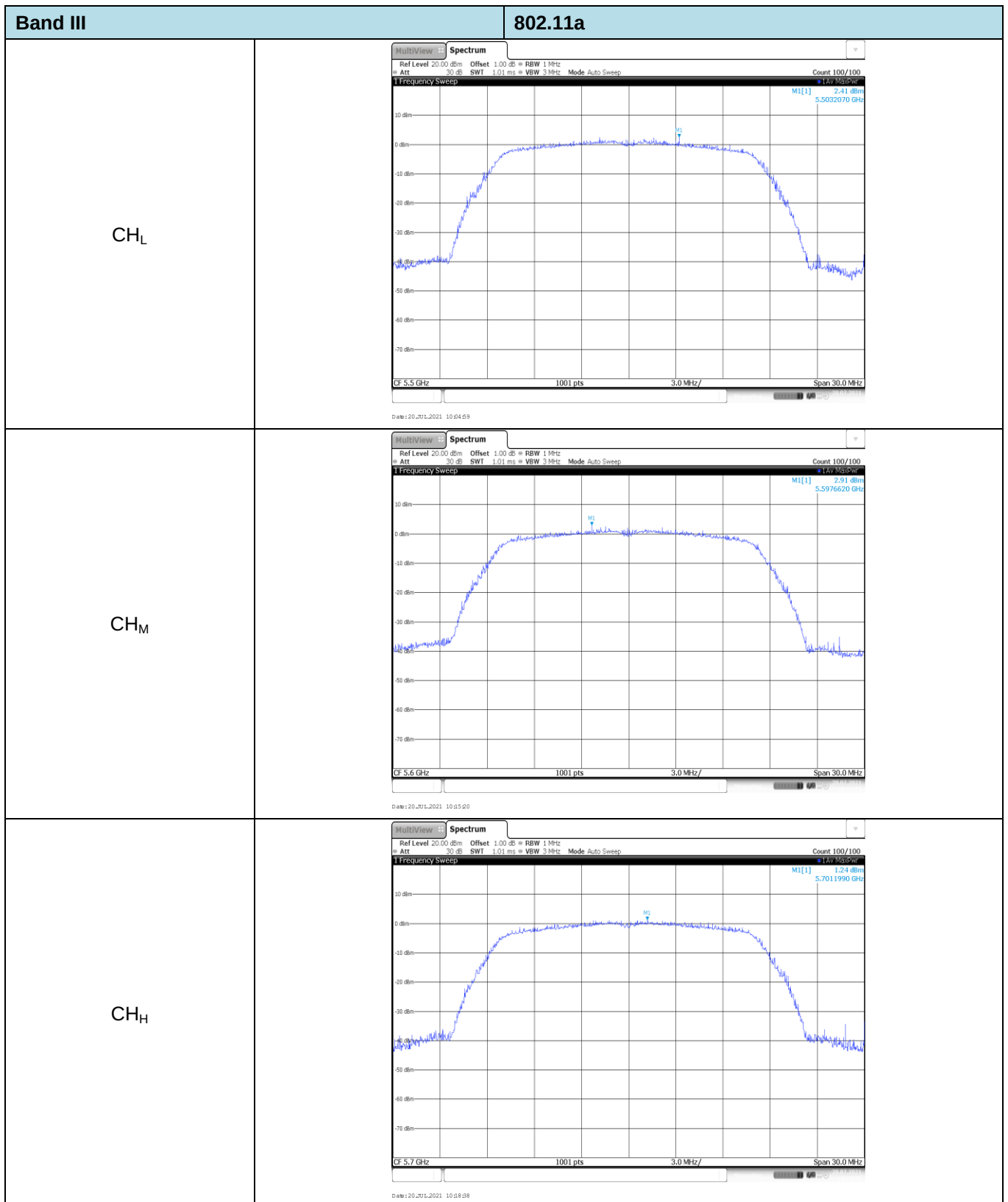
This spectrum plot shows the frequency response for the CH_H channel. The y-axis represents power in dBm, ranging from -80 to 10. The x-axis represents frequency in MHz, with a span of 60.0 MHz. The signal is a flat-topped pulse with a bandwidth of approximately 20 MHz. The peak power is approximately -10 dBm. The plot includes a frequency sweep and a count of 100/100.

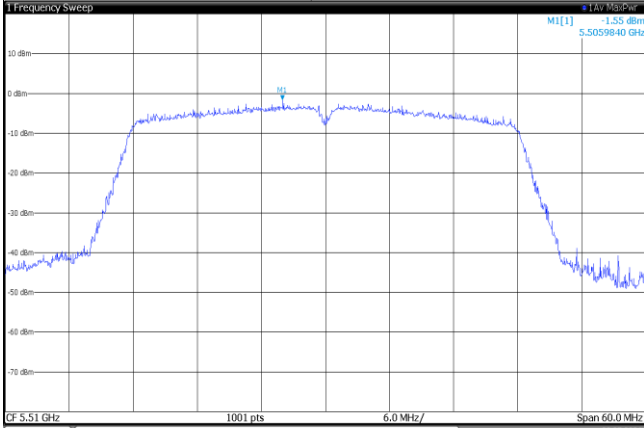
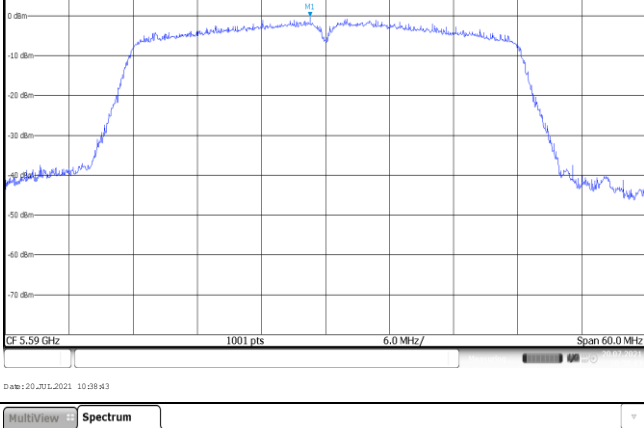
Parameter	Value
Ref Level	20.00 dBm
Offset	1.00 dB
RBW	1 MHz
Att	30 dB
SWT	1.01 ms
VBW	3 MHz
Mode	Auto Sweep
Count	100/100
Frequency	5.31 GHz
Span	60.0 MHz

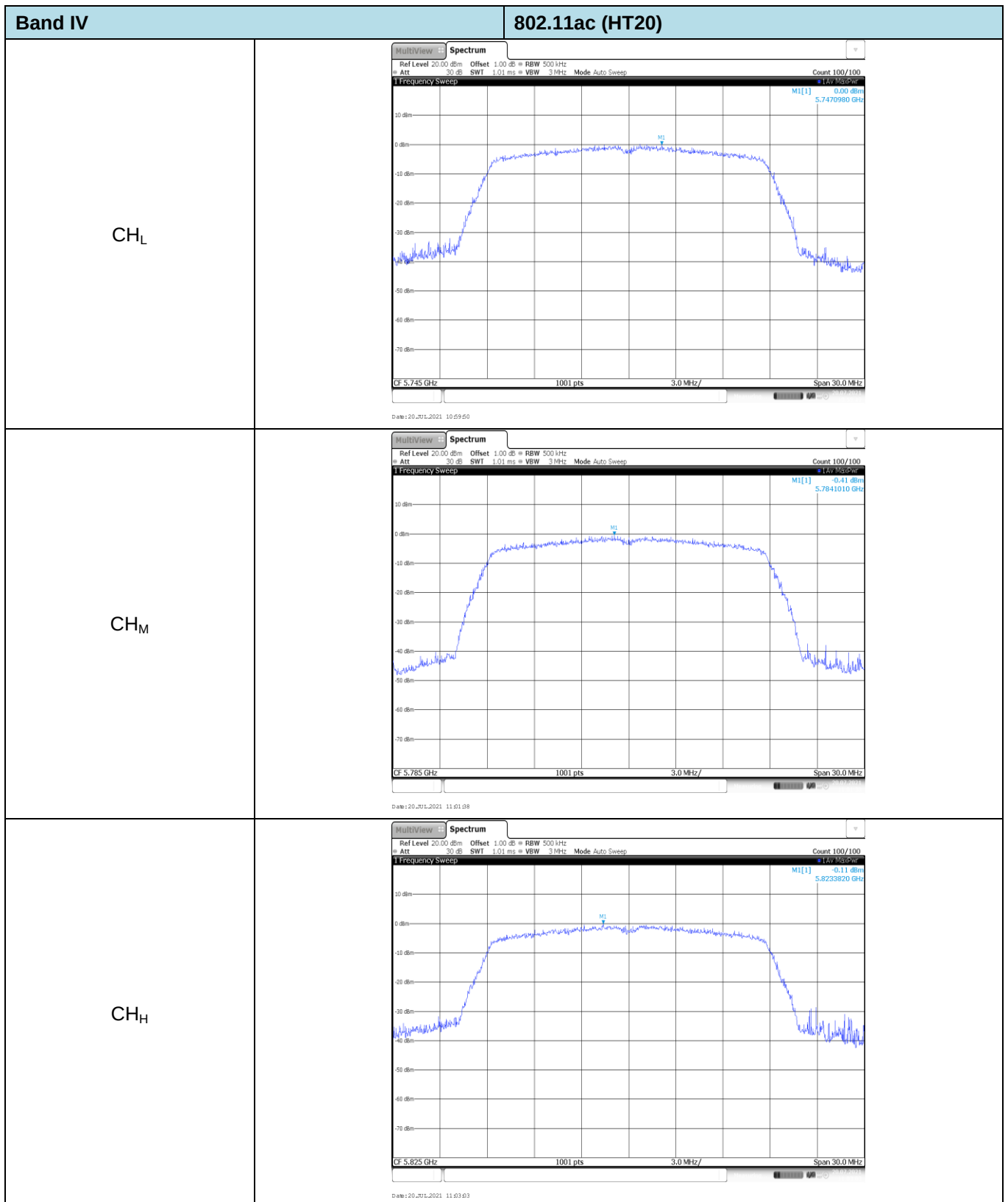
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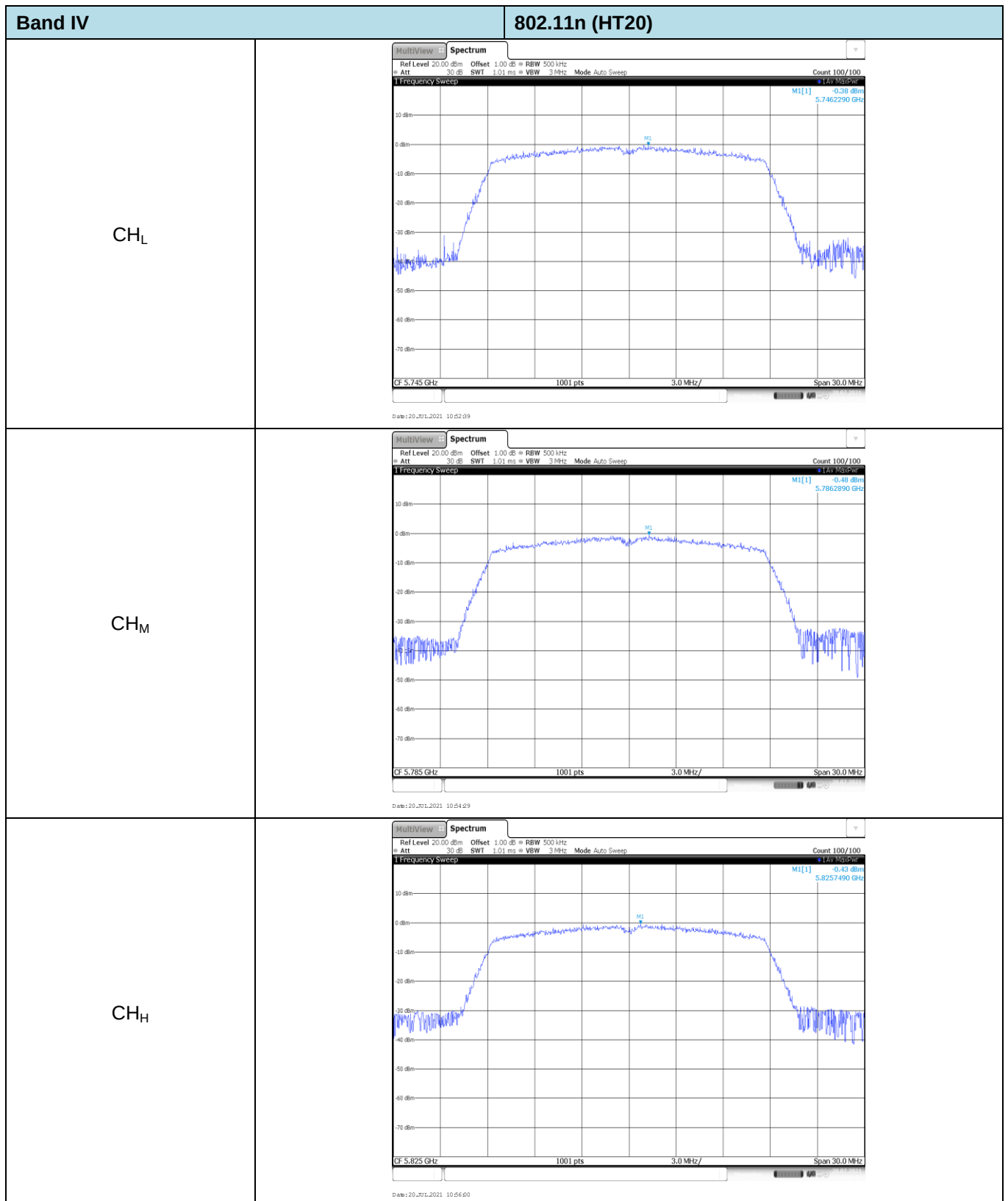


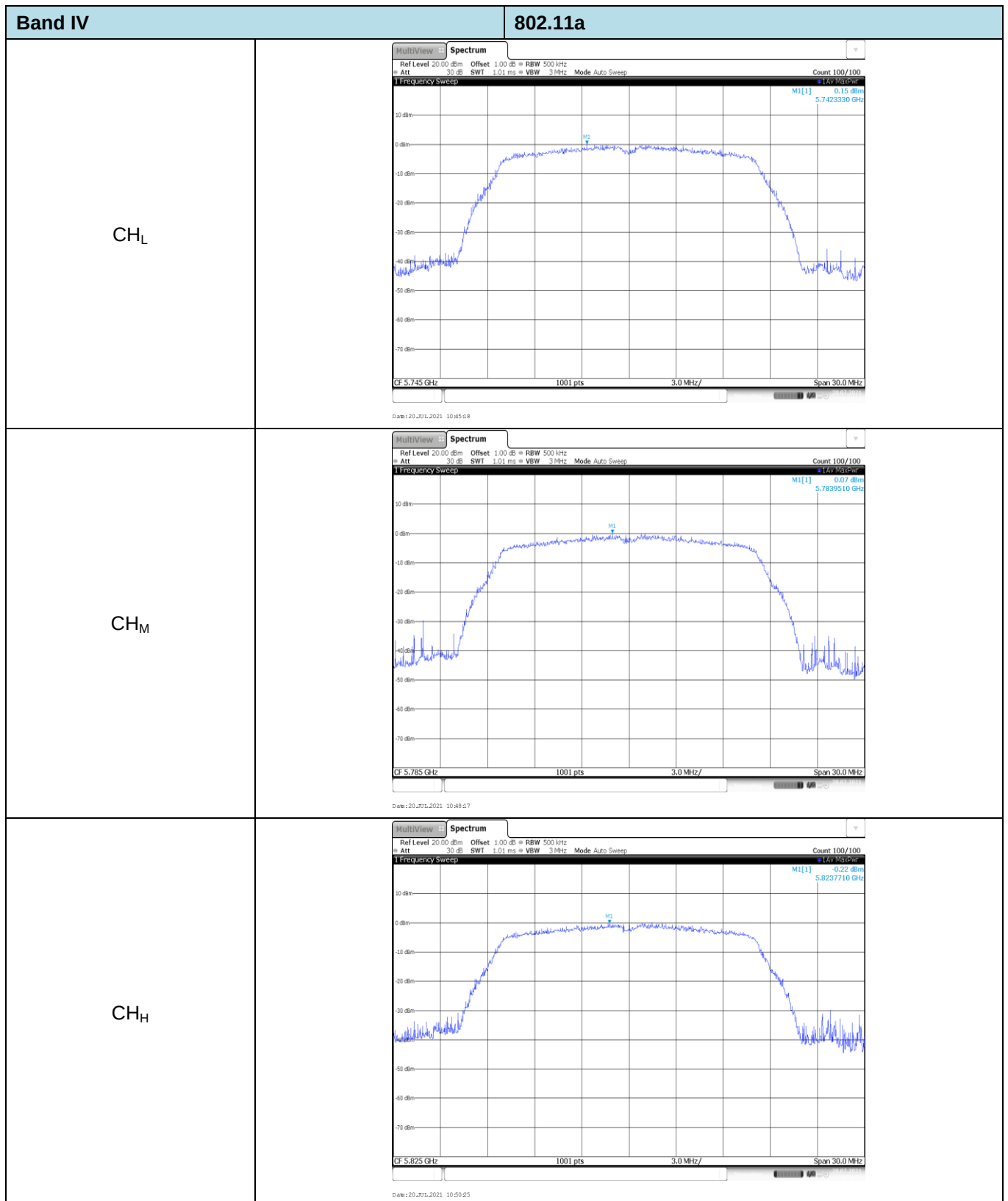
Band III		802.11n (HT20)
CH _L	MultiView Spectrum Ref Level 20.00 dBm Att 30.0 dB Offset 1.00 dB RBW 1 MHz Mode Auto Sweep Count 100/100 STAT MS/PPW 1 Frequency Sweep M1[1] 2.27 dBm 5.4979320 GHz 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 5.5 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 20_JUL_2021 10:23:20	
CH _M	MultiView Spectrum Ref Level 20.00 dBm Att 30.0 dB Offset 1.00 dB RBW 1 MHz Mode Auto Sweep Count 100/100 STAT MS/PPW 1 Frequency Sweep M1[1] 2.17 dBm 5.6020680 GHz 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 5.6 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 20_JUL_2021 10:25:45	
CH _H	MultiView Spectrum Ref Level 20.00 dBm Att 30.0 dB Offset 1.00 dB RBW 1 MHz Mode Auto Sweep Count 100/100 STAT MS/PPW 1 Frequency Sweep M1[1] 1.16 dBm 5.6982920 GHz 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 5.7 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 20_JUL_2021 10:26:49	

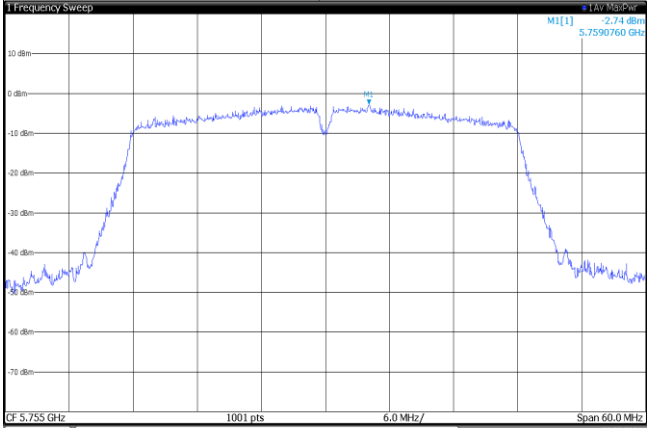
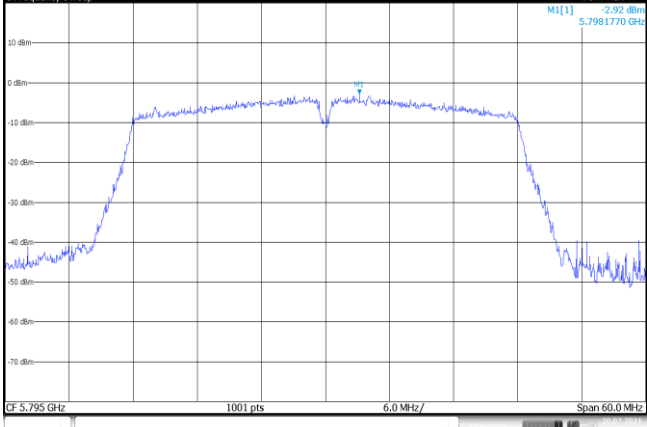


Band III		802.11ac (HT40)
CH _L	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 1 MHz Att 30 dB SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 ↑TAT MSPW 1 Frequency Sweep  CF 5.51 GHz1001 pts6.0 MHz/Span 60.0 MHz Date: 20_JUL_2021 10:37:00	
CH _M	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 1 MHz Att 30 dB SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 ↑TAT MSPW 1 Frequency Sweep  CF 5.59 GHz1001 pts6.0 MHz/Span 60.0 MHz Date: 20_JUL_2021 10:38:43	
CH _H	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 1 MHz Att 30 dB SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 ↑TAT MSPW 1 Frequency Sweep  CF 5.67 GHz1001 pts6.0 MHz/Span 60.0 MHz Date: 20_JUL_2021 10:42:08	



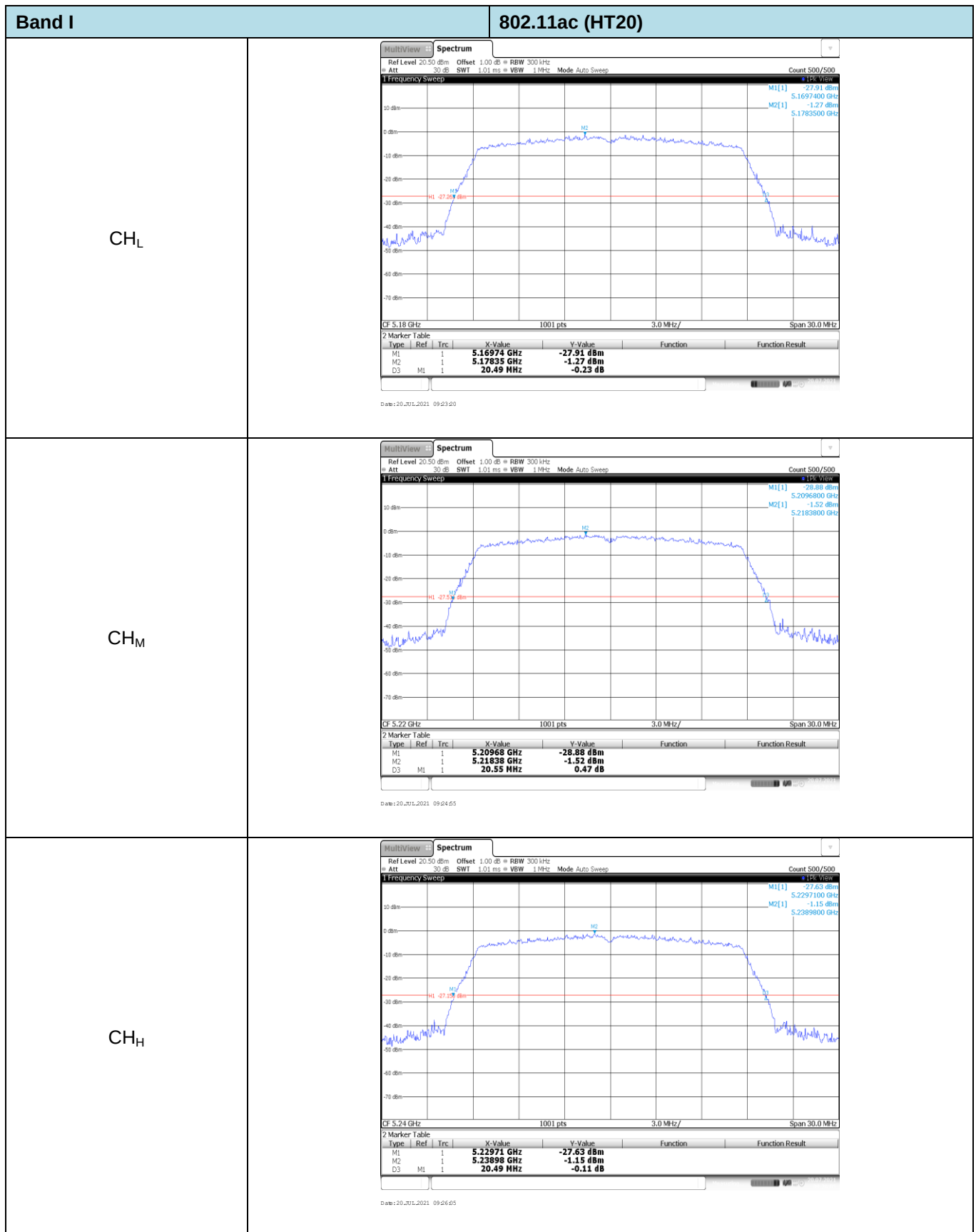


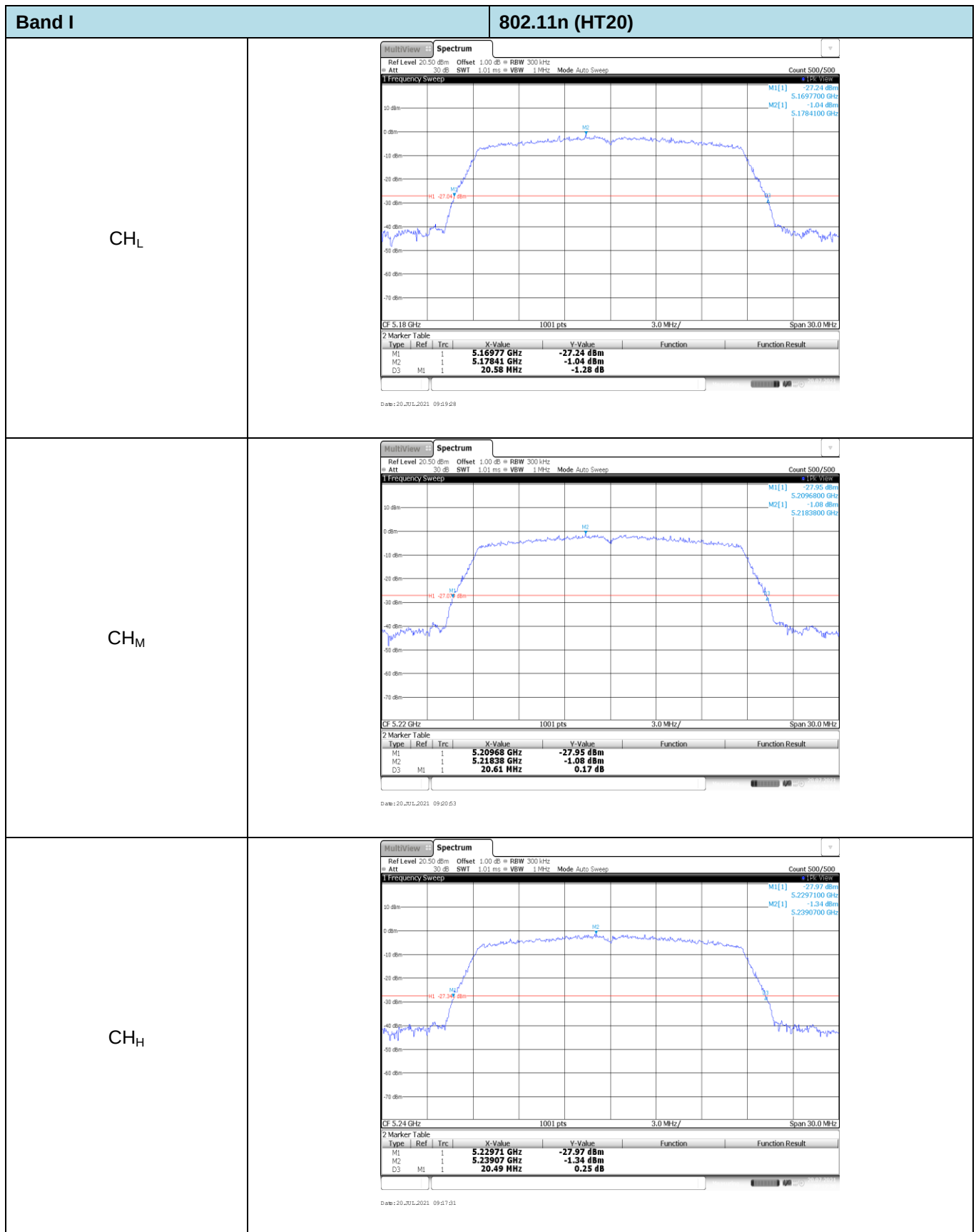


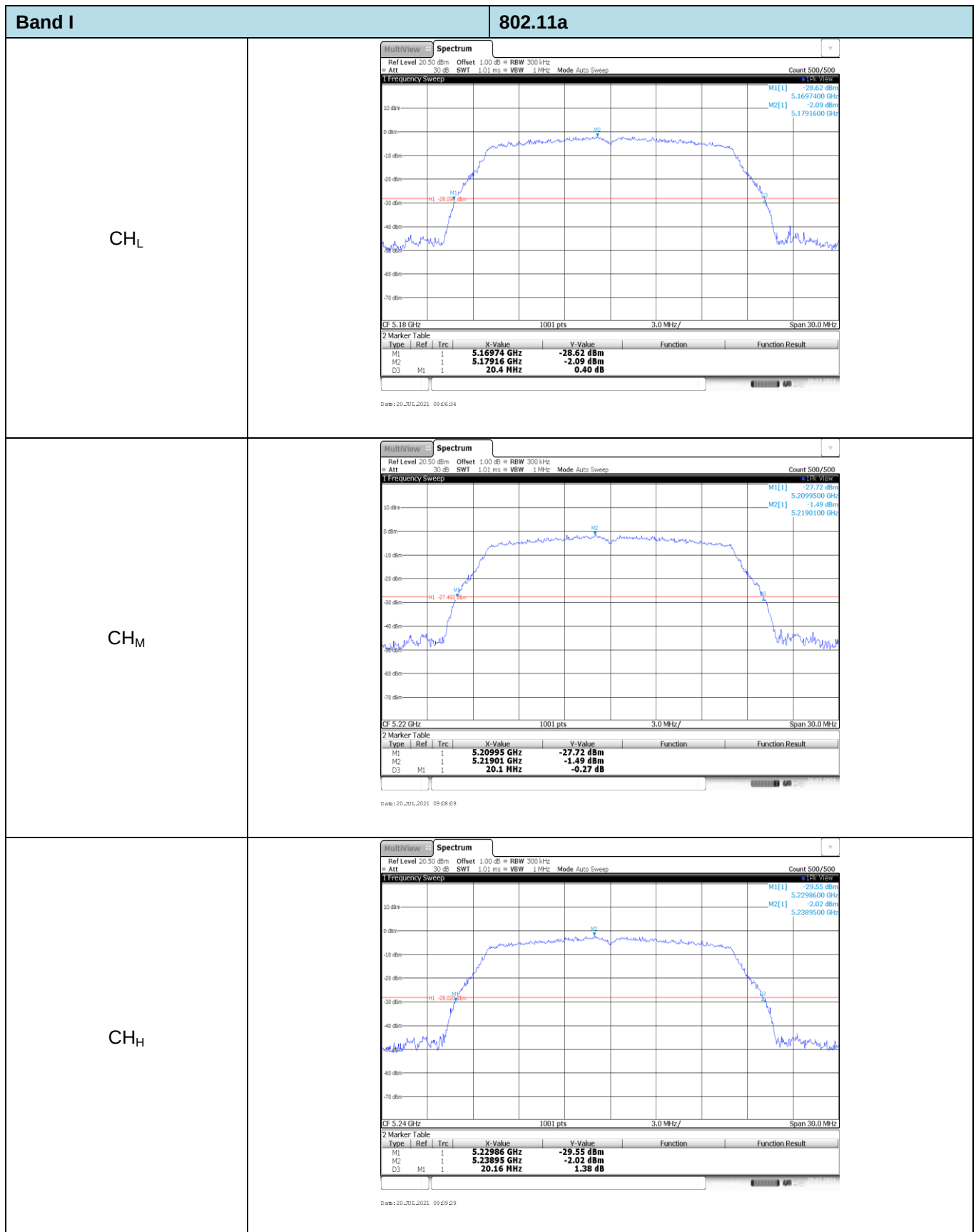
Band IV		802.11ac (HT40)
CH _L	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 500 kHz Att 30 dB SWI 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 1 Frequency Sweep MU[1] -2.74 dBm 5.7590760 GHz  CF 5.755 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz Date: 20 JUL 2021 11:06:02	
CH _H	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 500 kHz Att 30 dB SWI 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 1 Frequency Sweep MU[1] -2.92 dBm 5.7981770 GHz  CF 5.795 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz Date: 20 JUL 2021 11:08:06	

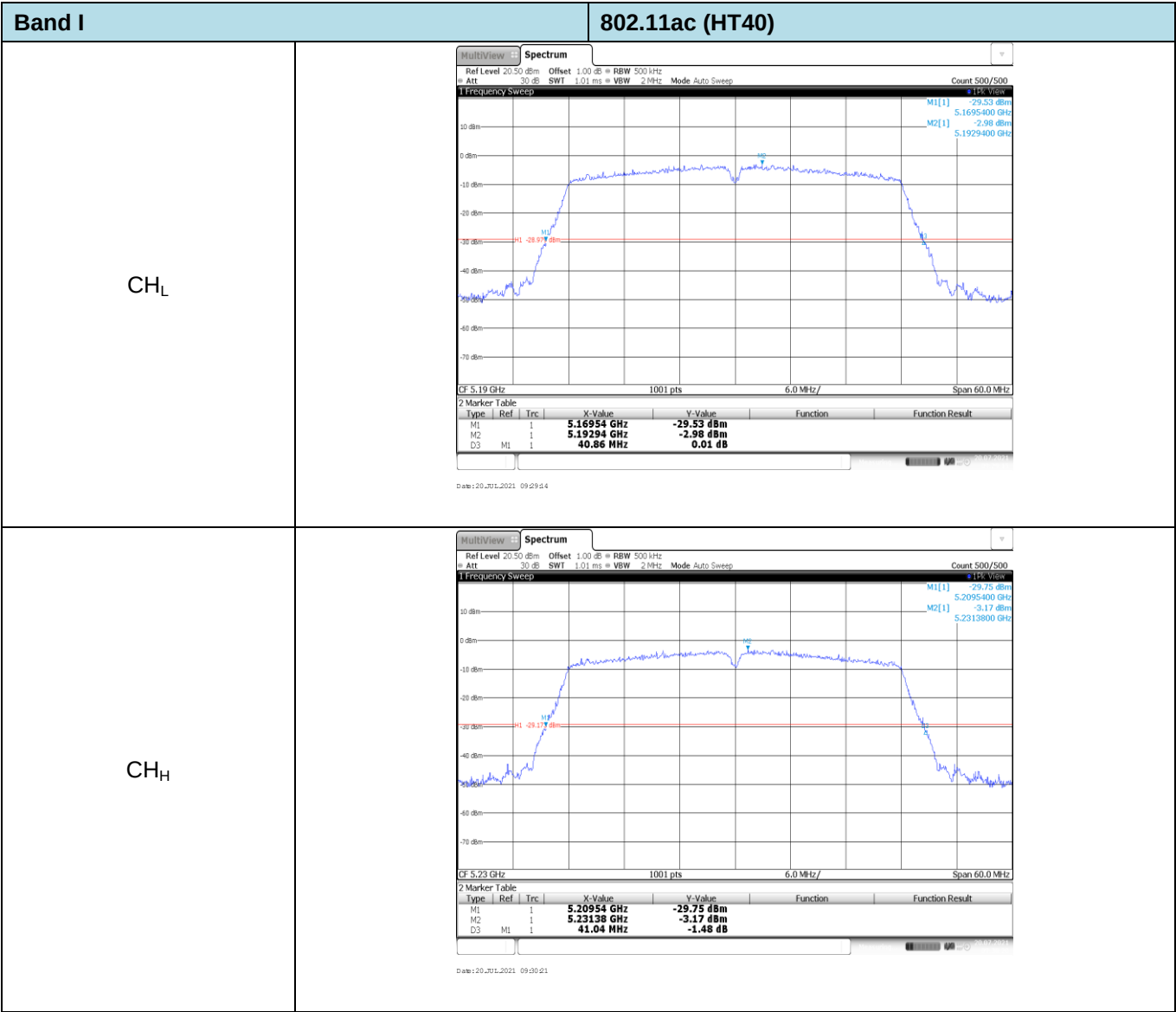
Appendix C: 26dB bandwidth

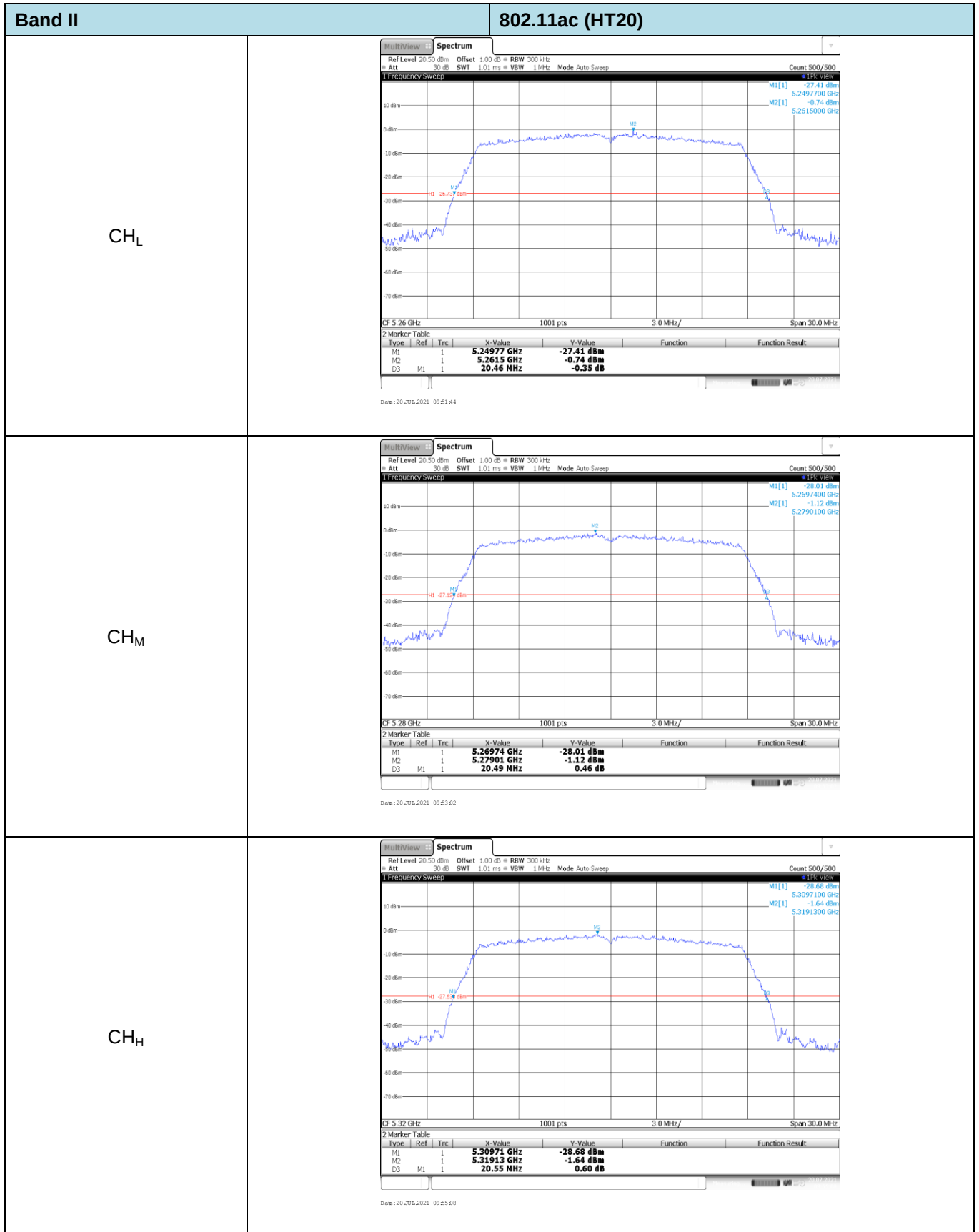
Band	Bandwidth (MHz)	Type	Channel	26dB bandwidth (MHz)	Result
I	20	802.11ac	CH _L	20.49	Pass
			CH _M	20.55	
			CH _H	20.49	
		802.11n	CH _L	20.58	Pass
			CH _M	20.61	
			CH _H	20.49	
		802.11a	CH _L	20.40	Pass
			CH _M	20.10	
			CH _H	20.16	
	40	802.11ac	CH _L	40.86	Pass
			CH _H	41.04	
II	20	802.11ac	CH _L	20.46	Pass
			CH _M	20.49	
			CH _H	20.55	
		802.11n	CH _L	20.46	Pass
			CH _M	20.55	
			CH _H	20.49	
		802.11a	CH _L	20.22	Pass
			CH _M	20.13	
			CH _H	20.19	
	40	802.11ac	CH _L	40.98	Pass
			CH _H	40.74	
III	20	802.11ac	CH _L	20.58	Pass
			CH _M	20.67	
			CH _H	20.52	
		802.11n	CH _L	20.49	Pass
			CH _M	20.58	
			CH _H	20.64	
		802.11a	CH _L	20.37	Pass
			CH _M	20.40	
			CH _H	20.28	
	40	802.11ac	CH _L	41.10	Pass
			CH _M	40.86	
			CH _H	41.04	

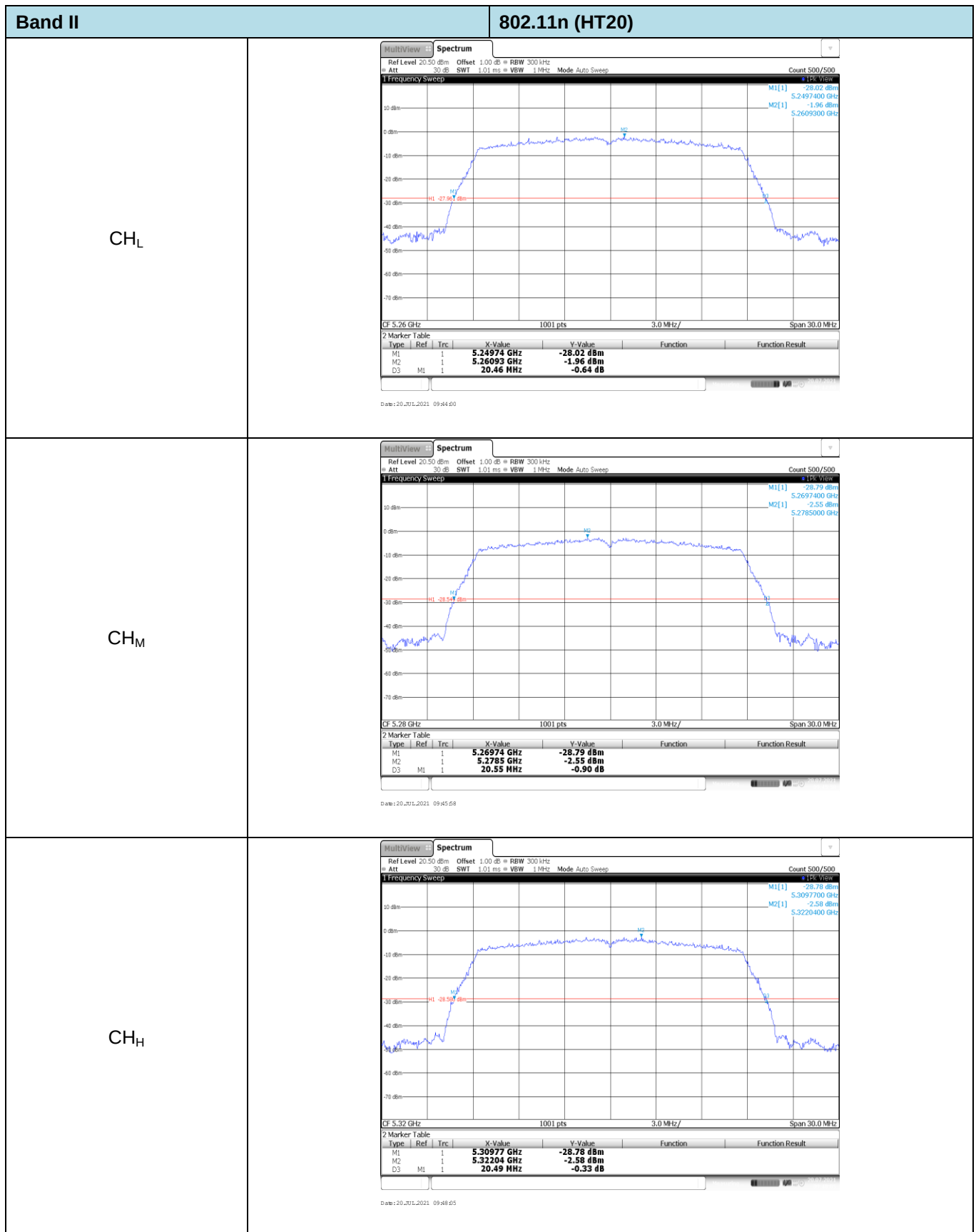


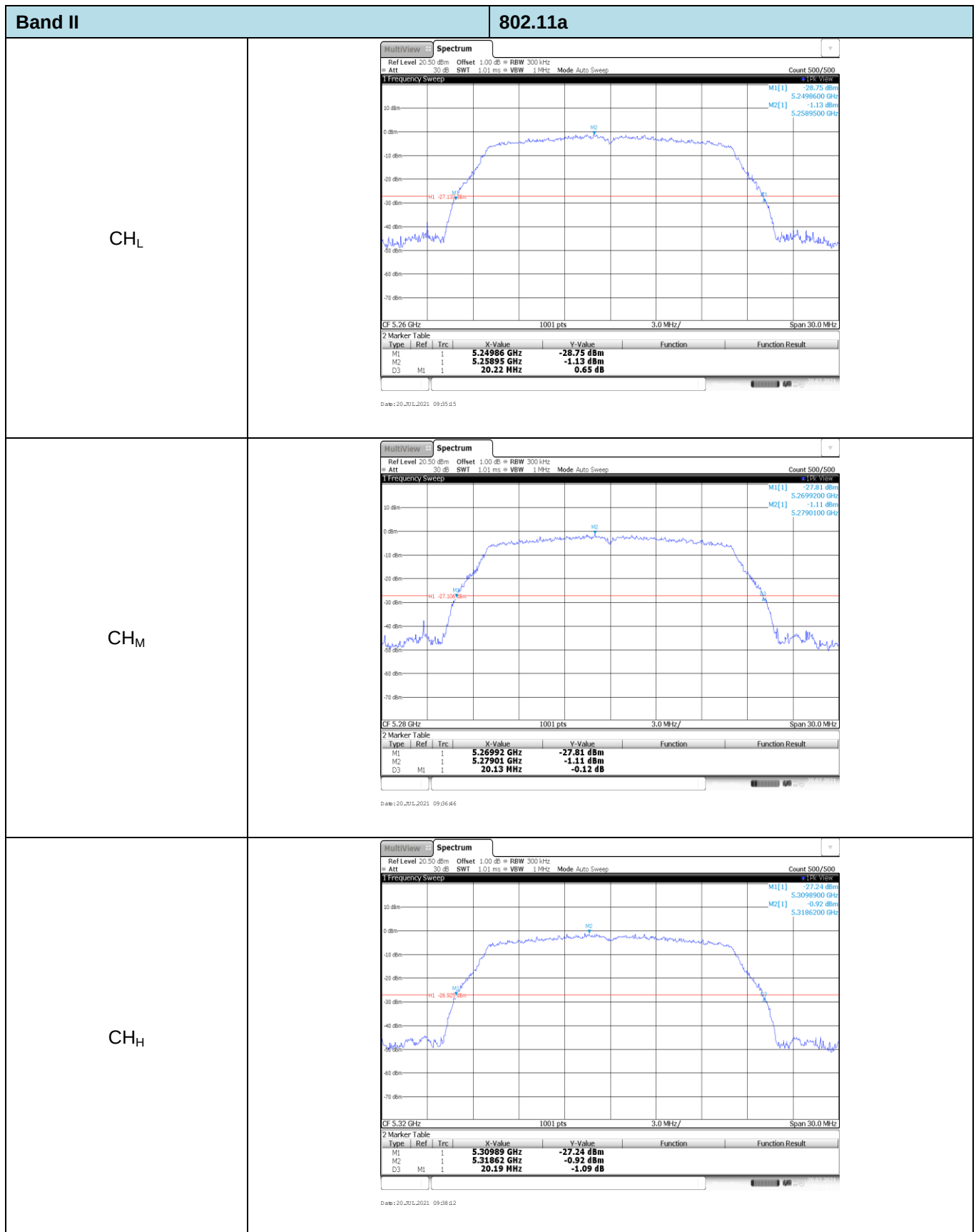


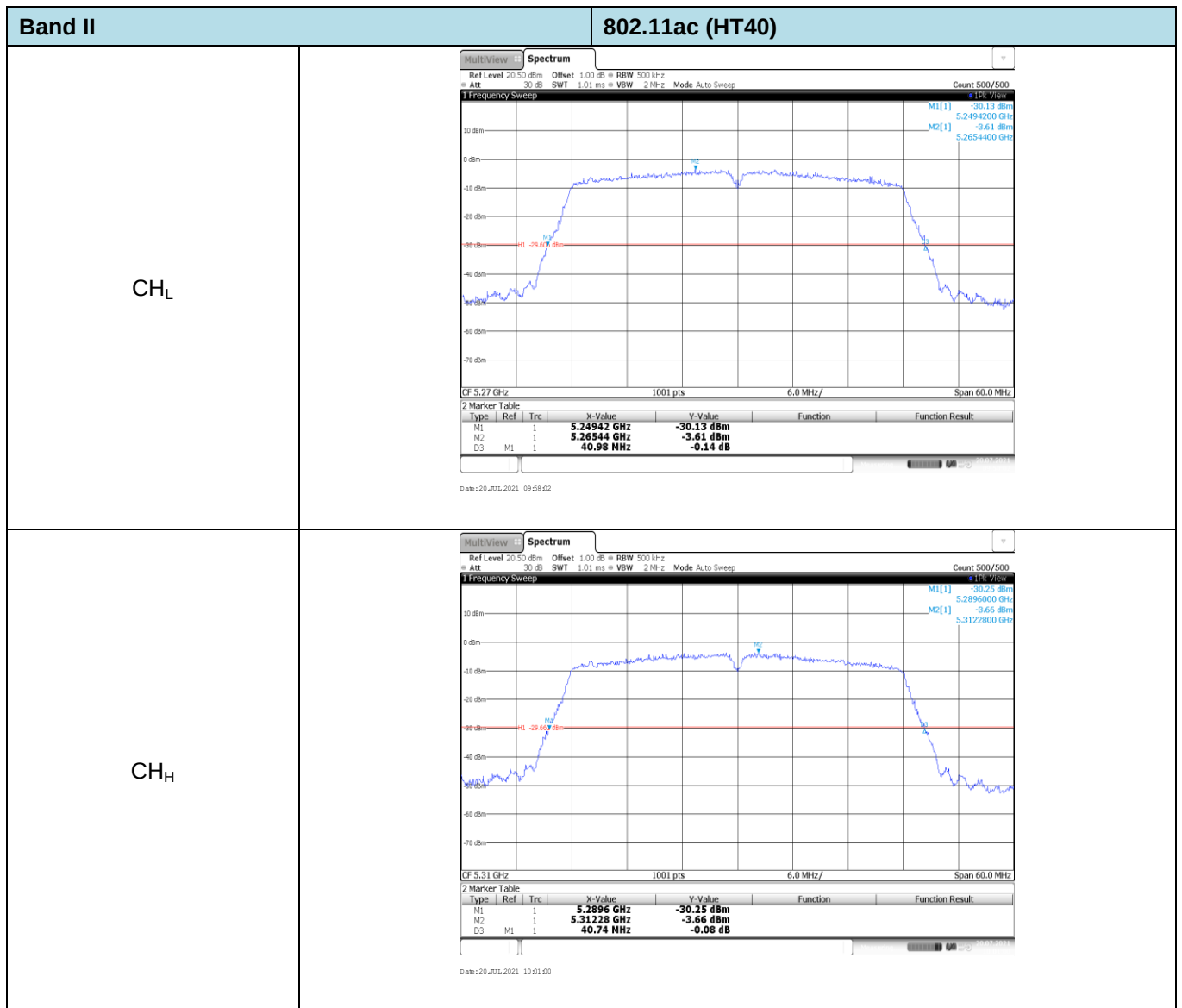


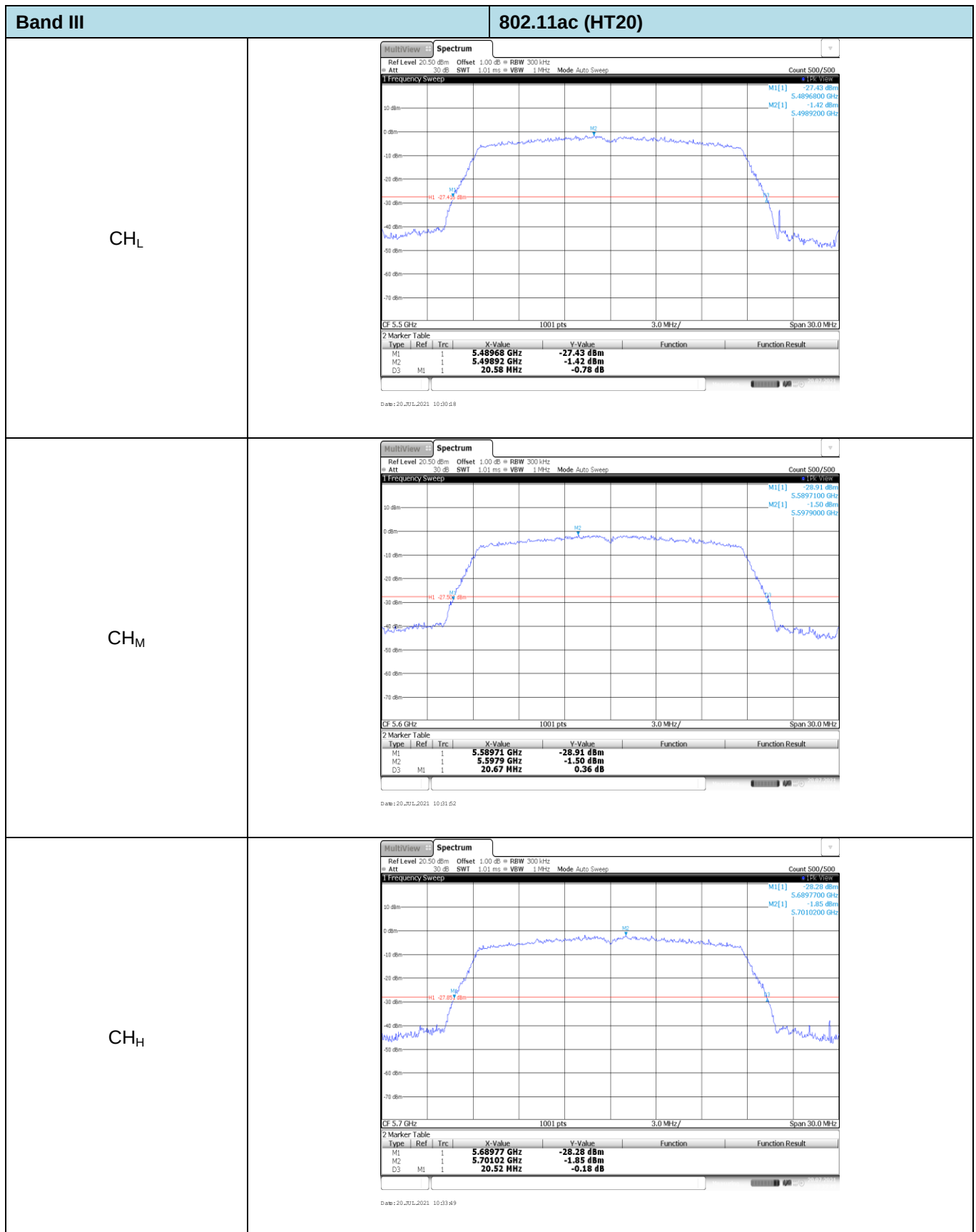


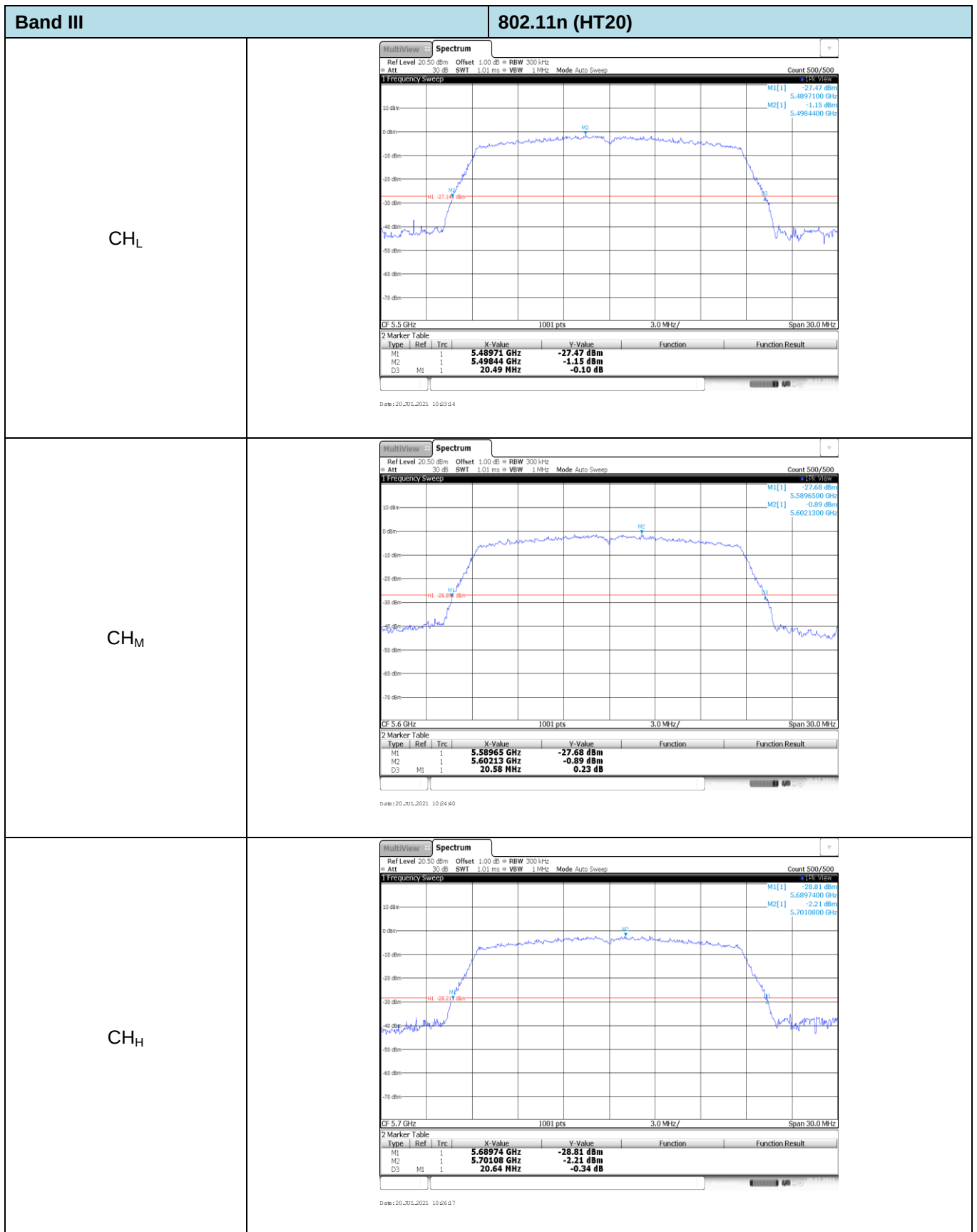


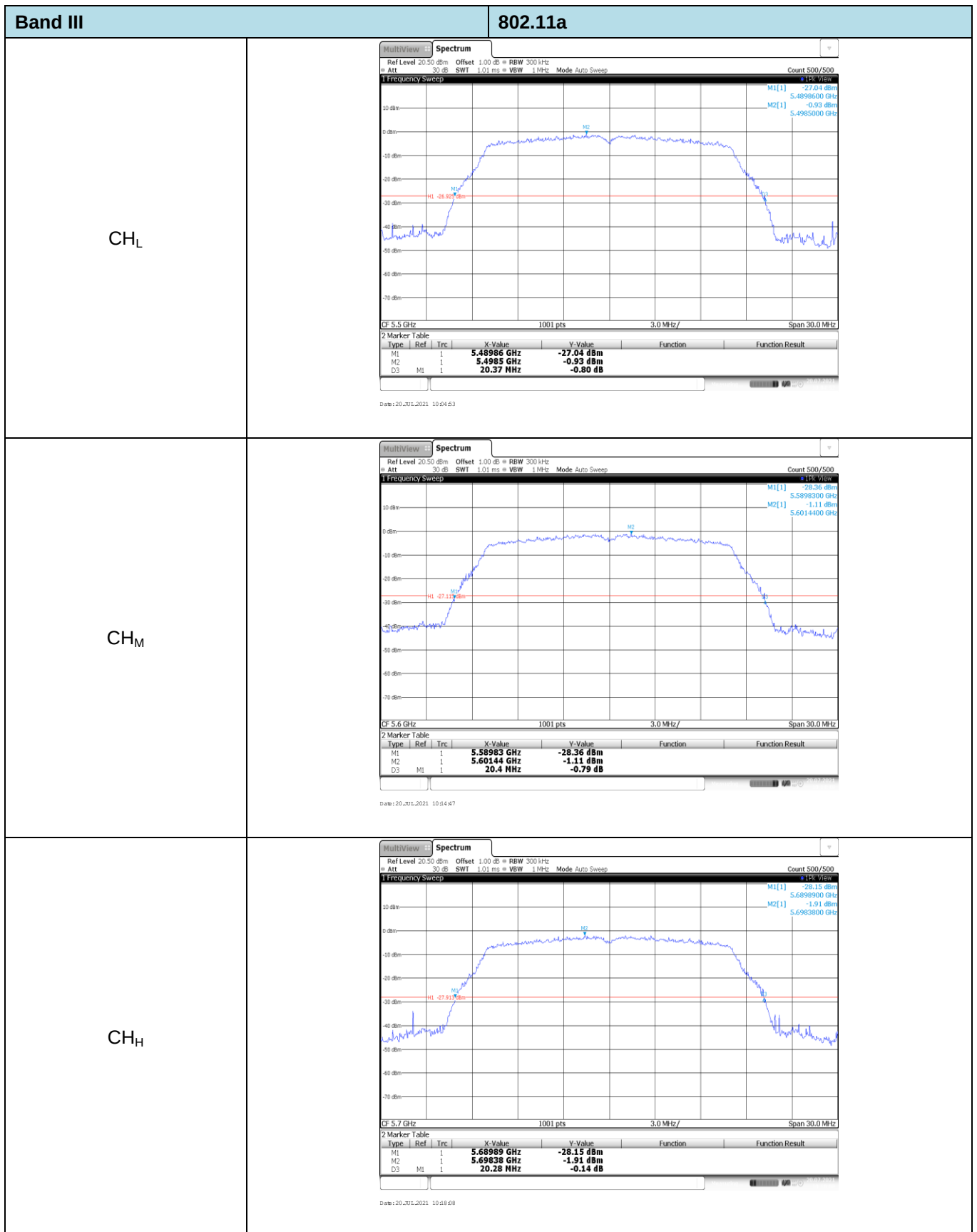


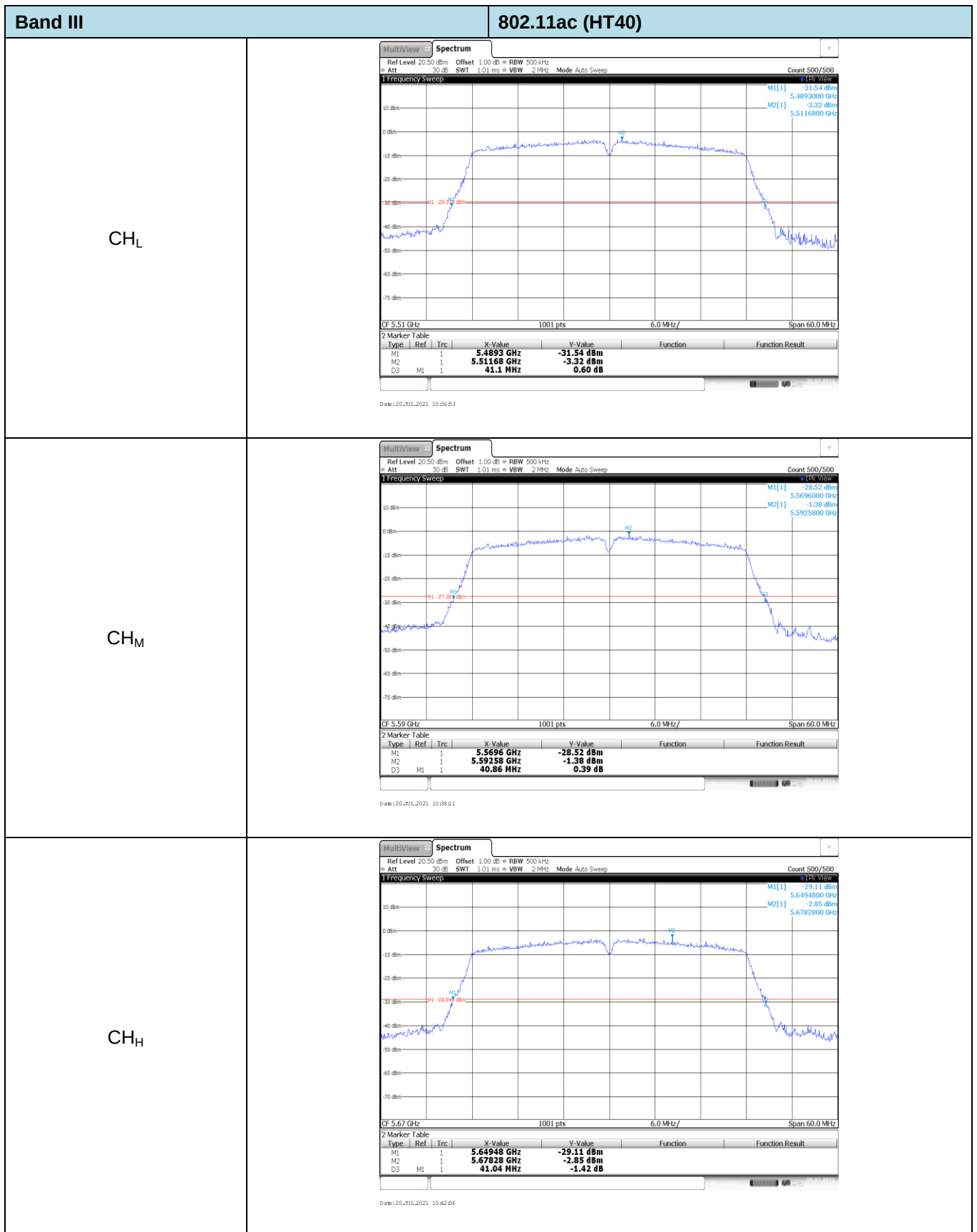












Appendix D: 99% Occupy bandwidth

Band	Bandwidth (MHz)	Type	Channel	99% Occupy bandwidth (MHz)	Result
I	20	802.11ac	CH _L	17.65	Pass
			CH _M	17.68	
			CH _H	17.65	
		802.11n	CH _L	17.65	Pass
			CH _M	17.68	
			CH _H	17.68	
		802.11a	CH _L	16.66	Pass
			CH _M	16.66	
			CH _H	16.63	
	40	802.11ac	CH _L	36.08	Pass
			CH _H	36.02	
II	20	802.11ac	CH _L	17.68	Pass
			CH _M	17.68	
			CH _H	17.68	
		802.11n	CH _L	17.68	Pass
			CH _M	17.68	
			CH _H	17.65	
		802.11a	CH _L	16.69	Pass
			CH _M	16.69	
			CH _H	16.63	
	40	802.11ac	CH _L	36.08	Pass
			CH _H	36.08	

Band	Bandwidth (MHz)	Type	Channel	99% Occupy bandwidth (MHz)	Result
III	20	802.11ac	CH _L	17.71	Pass
			CH _M	17.68	
			CH _H	17.65	
		802.11n	CH _L	17.68	Pass
			CH _M	17.65	
			CH _H	17.68	
		802.11a	CH _L	16.66	Pass
			CH _M	16.66	
			CH _H	16.69	
	40	802.11ac	CH _L	36.08	Pass
			CH _M	36.08	
			CH _H	36.08	

Band	Bandwidth (MHz)	Type	Channel	99% Occupy bandwidth (MHz)	Result
IV	20	802.11ac	CH _L	17.71	Pass
			CH _M	17.68	
			CH _H	17.68	
		802.11n	CH _L	17.68	Pass
			CH _M	17.71	
			CH _H	17.68	
		802.11a	CH _L	16.66	Pass
			CH _M	16.69	
			CH _H	16.69	
	40	802.11ac	CH _L	36.02	Pass
			CH _H	36.08	

