

APPENDIX REPORT

Project No.	SHT2103109801EW	Radio Specification	WIFI 5G
Test sample No.	YPHT21031098003	Model No.	D104S
Start test date	2021-04-21	Finish date	2021-04-21
Temperature	24.3°C	Humidity	52%
Test Engineer	Hailey Chen	Auditor	Xiaodong Zheo

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	802.11a _c	CH _L	12.45	96.77	0.14	12.59	24.00	Pass
			CH _M	14.35	96.77	0.14	14.49		
			CH _H	15.52	96.77	0.14	15.66		
		802.11n	CH _L	12.55	96.75	0.14	12.69	24.00	Pass
			CH _M	14.21	96.74	0.14	14.35		
			CH _H	15.57	96.74	0.14	15.71		
		802.11a	CH _L	12.72	96.95	0.13	12.85	24.00	Pass
			CH _M	14.60	96.95	0.13	14.73		
			CH _H	15.74	96.95	0.13	15.87		
	40	802.11a _c	CH _L	12.85	93.44	0.29	13.14	24.00	Pass
			CH _H	14.93	93.44	0.29	15.22		
		802.11n	CH _L	12.79	93.84	0.28	13.07	24.00	Pass
			CH _H	14.90	93.84	0.28	15.18		
	80	802.11a _c	CH _M	13.53	88.22	0.54	14.07	24.00	Pass
II	20	802.11a _c	CH _L	15.24	96.77	0.14	15.38	24.00	Pass
			CH _M	15.25	96.77	0.14	15.39		
			CH _H	15.35	96.77	0.14	15.49		
		802.11n	CH _L	15.16	96.84	0.14	15.30	24.00	Pass
			CH _M	15.17	96.74	0.14	15.31		
			CH _H	15.32	96.74	0.14	15.46		
		802.11a	CH _L	15.41	96.95	0.13	15.54	24.00	Pass
			CH _M	15.51	96.94	0.13	15.64		
			CH _H	15.71	97.03	0.13	15.84		
	40	802.11a _c	CH _L	15.31	93.88	0.27	15.58	24.00	Pass
			CH _H	15.62	93.88	0.27	15.89		
		802.11n	CH _L	15.23	93.96	0.27	15.50	24.00	Pass
			CH _H	15.27	93.96	0.27	15.54		
	80	802.11a _c	CH _M	15.11	88.19	0.55	15.66	24.00	Pass

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	12.68	96.77	0.14	12.82	24.00	Pass
			CH _M	9.57	96.86	0.14	9.71		
			CH _H	6.67	96.76	0.14	6.81		
		802.11n	CH _L	12.69	96.75	0.14	12.83	24.00	Pass
			CH _M	9.45	96.84	0.14	9.59		
			CH _H	6.62	96.84	0.14	6.76		
		802.11a	CH _L	12.92	97.03	0.13	13.05	24.00	Pass
			CH _M	9.74	97.03	0.13	9.87		
			CH _H	6.96	97.03	0.13	7.09		
	40	802.11ac	CH _L	11.76	93.78	0.28	12.04	24.00	Pass
			CH _M	9.24	93.78	0.28	9.52		
			CH _H	5.99	93.78	0.28	6.27		
		802.11n	CH _L	12.13	93.90	0.27	12.40	24.00	Pass
			CH _M	9.96	93.90	0.27	10.23		
			CH _H	6.74	93.90	0.27	7.01		
	80	802.11ac	CH _L	10.68	88.35	0.54	11.22	24.00	Pass
			CH _M	7.73	88.35	0.54	8.27		
			CH _H	5.56	88.35	0.54	6.10		
IV	20	802.11ac	CH _L	7.62	96.86	0.14	7.76	30.00	Pass
			CH _M	6.84	96.77	0.14	6.98		
			CH _H	6.96	96.77	0.14	7.10		
		802.11n	CH _L	7.47	96.84	0.14	7.61	30.00	Pass
			CH _M	6.93	96.75	0.14	7.07		
			CH _H	6.86	96.84	0.14	7.00		
		802.11a	CH _L	7.12	97.03	0.13	7.25	30.00	Pass
			CH _M	6.36	97.03	0.13	6.49		
			CH _H	6.24	97.03	0.13	6.37		
	40	802.11ac	CH _L	7.37	93.86	0.28	7.65	30.00	Pass
			CH _H	6.91	93.86	0.28	7.19		
		802.11n	CH _L	7.46	93.78	0.28	7.74	30.00	Pass
			CH _H	6.84	93.78	0.28	7.12		
	80	802.11ac	CH _M	6.61	88.33	0.54	7.15	30.00	Pass

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

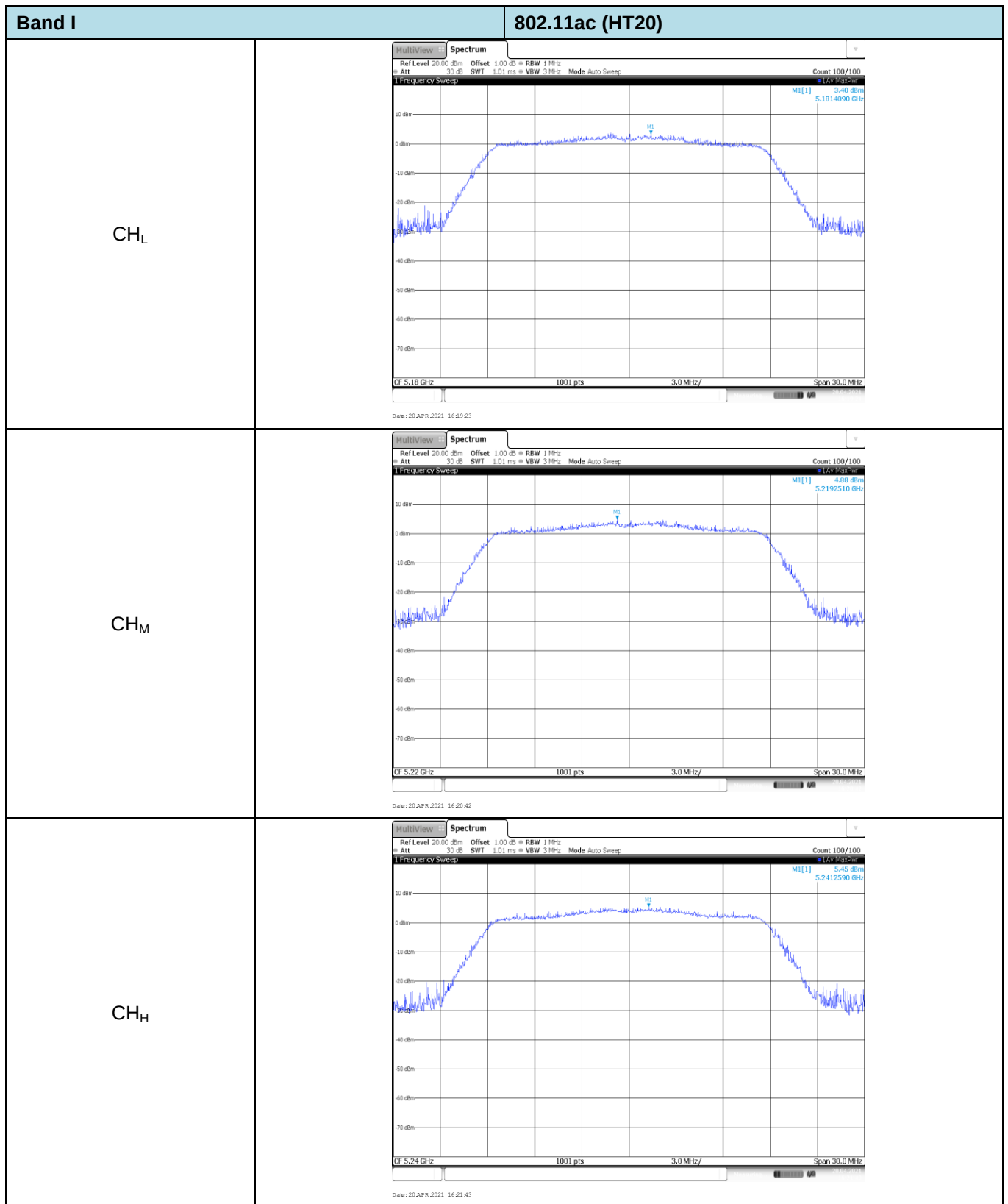
Appendix B: Maximum Power Spectral Density

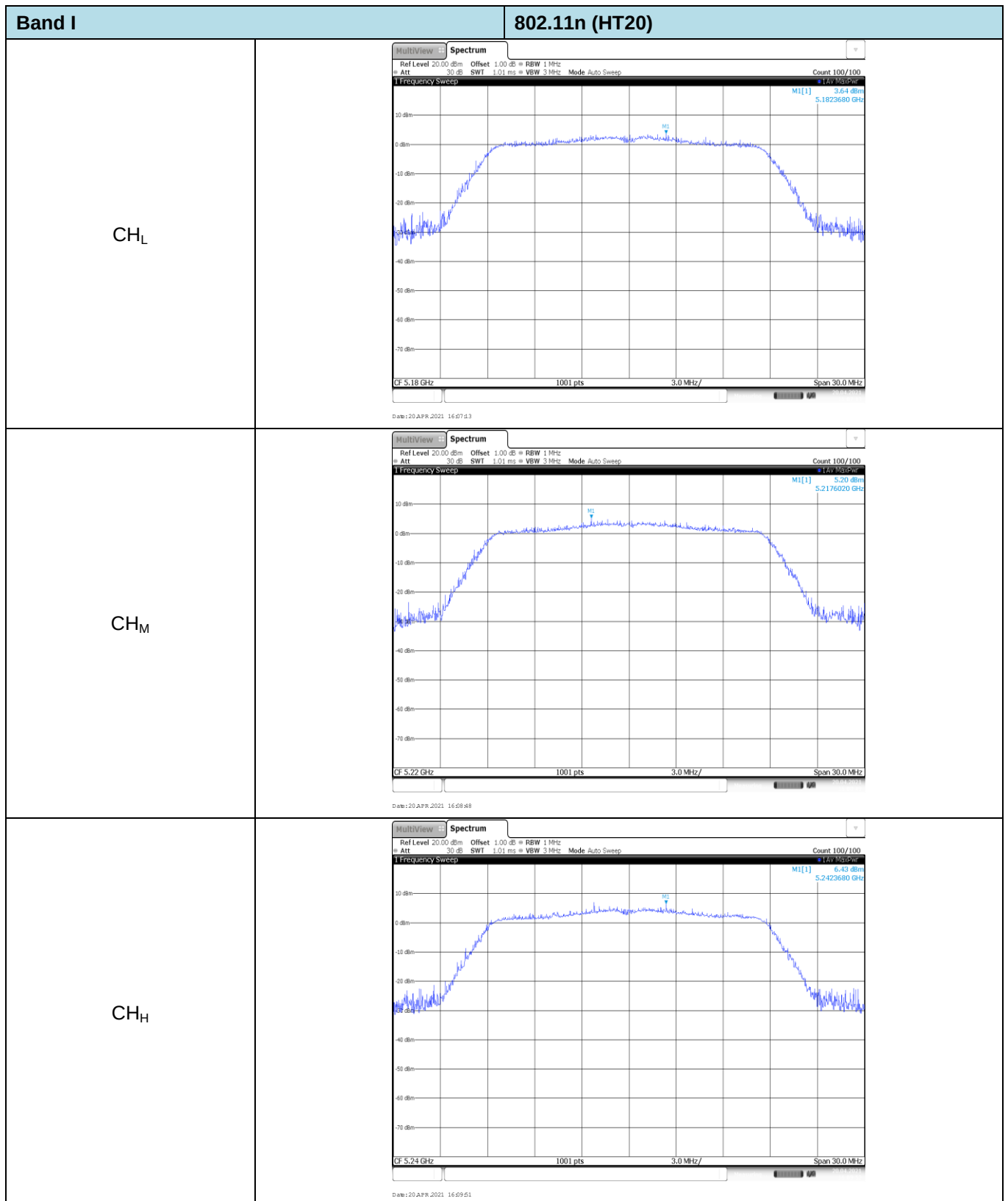
Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
I	20	802.11ac	CH _L	3.40	96.77	0.14	3.54	11.00	Pass
			CH _M	4.88	96.77	0.14	5.02		
			CH _H	5.45	96.77	0.14	5.59		
		802.11n	CH _L	3.64	96.75	0.14	3.78	11.00	Pass
			CH _M	5.20	96.74	0.14	5.34		
			CH _H	6.43	96.74	0.14	6.57		
		802.11a	CH _L	3.99	96.95	0.13	4.12	11.00	Pass
			CH _M	4.97	96.95	0.13	5.10		
			CH _H	5.85	96.95	0.13	5.98		
	40	802.11ac	CH _L	1.07	93.44	0.29	1.36	11.00	Pass
			CH _H	2.15	93.44	0.29	2.44		
		802.11n	CH _L	0.82	93.84	0.28	1.10	11.00	Pass
			CH _H	2.04	93.84	0.28	2.32		
	80	802.11ac	CH _M	-1.90	88.22	0.54	-1.36	11.00	Pass

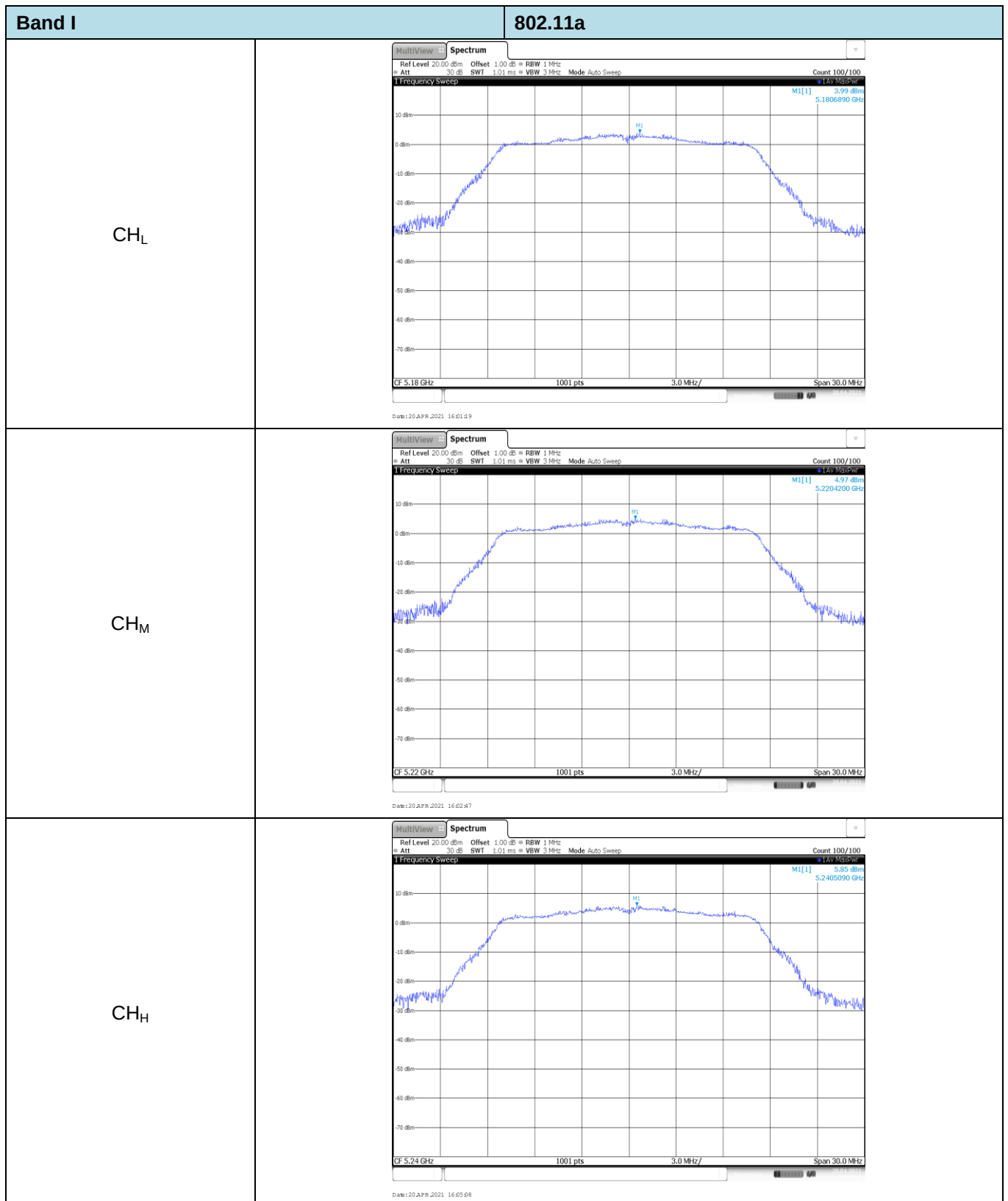
Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
II	20	802.11ac	CH _L	5.82	96.77	0.14	5.96	11.00	Pass
			CH _M	5.71	96.77	0.14	5.85		
			CH _H	6.13	96.77	0.14	6.27		
		802.11n	CH _L	5.96	96.84	0.14	6.10	11.00	Pass
			CH _M	6.14	96.74	0.14	6.28		
			CH _H	5.78	96.74	0.14	5.92		
		802.11a	CH _L	5.76	96.95	0.13	5.89	11.00	Pass
			CH _M	6.48	96.94	0.13	6.61		
			CH _H	6.38	97.03	0.13	6.51		
	40	802.11ac	CH _L	2.24	93.88	0.27	2.51	11.00	Pass
			CH _H	3.09	93.88	0.27	3.36		
		802.11n	CH _L	3.05	93.96	0.27	3.32	11.00	Pass
			CH _H	3.16	93.96	0.27	3.43		
	80	802.11ac	CH _M	0.29	88.19	0.55	0.84	11.00	Pass

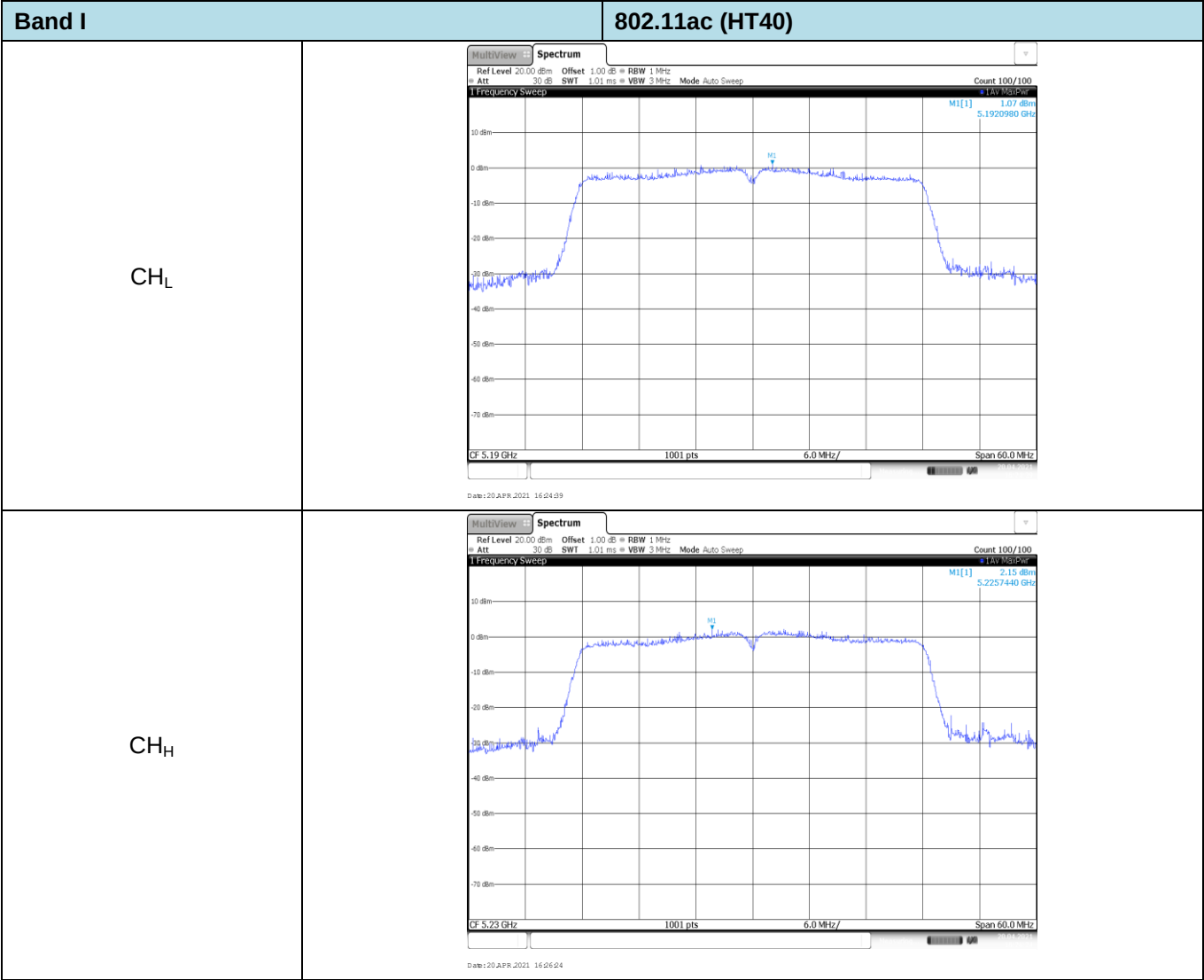
Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
III	20	802.11ac	CH _L	3.92	96.77	0.14	4.06	11.00	Pass
			CH _M	0.43	96.86	0.14	0.57		
			CH _H	-3.05	96.76	0.14	-2.91		
		802.11n	CH _L	3.24	96.75	0.14	3.38	11.00	Pass
			CH _M	0.21	96.84	0.14	0.35		
			CH _H	-3.36	96.84	0.14	-3.22		
		802.11a	CH _L	4.02	97.03	0.13	4.15	11.00	Pass
			CH _M	0.61	97.03	0.13	0.74		
			CH _H	-2.89	97.03	0.13	-2.76		
	40	802.11ac	CH _L	0.08	93.78	0.28	0.36	11.00	Pass
			CH _M	-3.21	93.78	0.28	-2.93		
			CH _H	-6.89	93.78	0.28	-6.61		
		802.11n	CH _L	-0.04	93.90	0.27	0.23	11.00	Pass
			CH _M	-2.24	93.90	0.27	-1.97		
			CH _H	-6.05	93.90	0.27	-5.78		
	80	802.11ac	CH _L	-4.56	88.35	0.54	-4.02	11.00	Pass
			CH _M	-6.40	88.35	0.54	-5.86		
			CH _H	-10.62	88.35	0.54	-10.08		
Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Power Spectral Density (dBm/500kHz)	Limit (dBm/500 KHz)	Result
IV	20	802.11ac	CH _L	-2.78	96.86	0.14	-2.64	30.00	Pass
			CH _M	-4.87	96.77	0.14	-4.73		
			CH _H	-5.17	96.77	0.14	-5.03		
		802.11n	CH _L	-2.82	96.84	0.14	-2.68	30.00	Pass
			CH _M	-4.71	96.75	0.14	-4.57		
			CH _H	-4.99	96.84	0.14	-4.85		
		802.11a	CH _L	-3.96	97.03	0.13	-3.83	30.00	Pass
			CH _M	-4.92	97.03	0.13	-4.79		
			CH _H	-5.90	97.03	0.13	-5.77		
	40	802.11ac	CH _L	-6.75	93.86	0.28	-6.47	30.00	Pass
			CH _H	-7.87	93.86	0.28	-7.59		
		802.11n	CH _L	-6.90	93.78	0.28	-6.62	30.00	Pass
			CH _H	-7.88	93.78	0.28	-7.60		
	80	802.11ac	CH _M	-10.95	88.33	0.54	-10.41	30.00	Pass

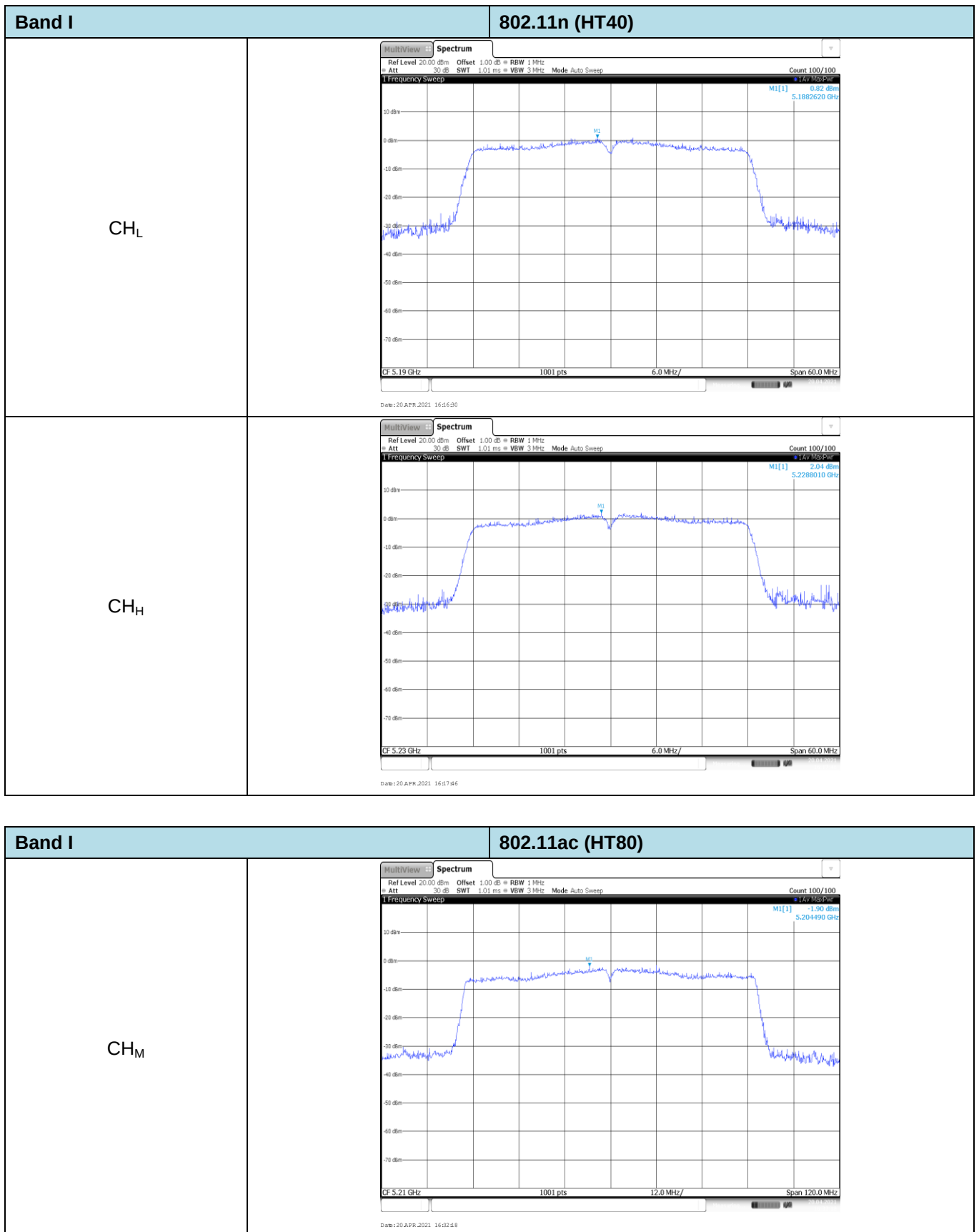
Test plot as follows:

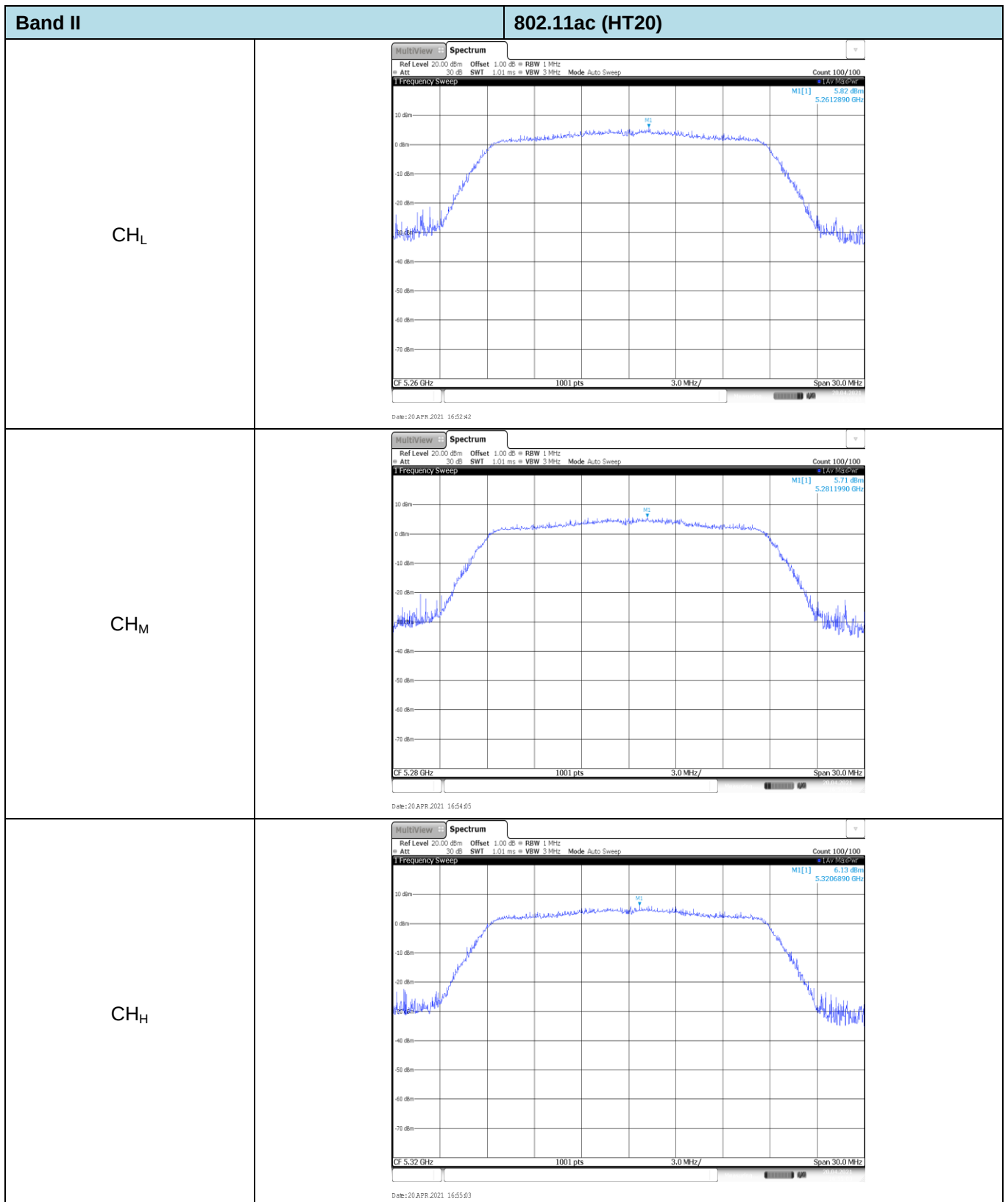




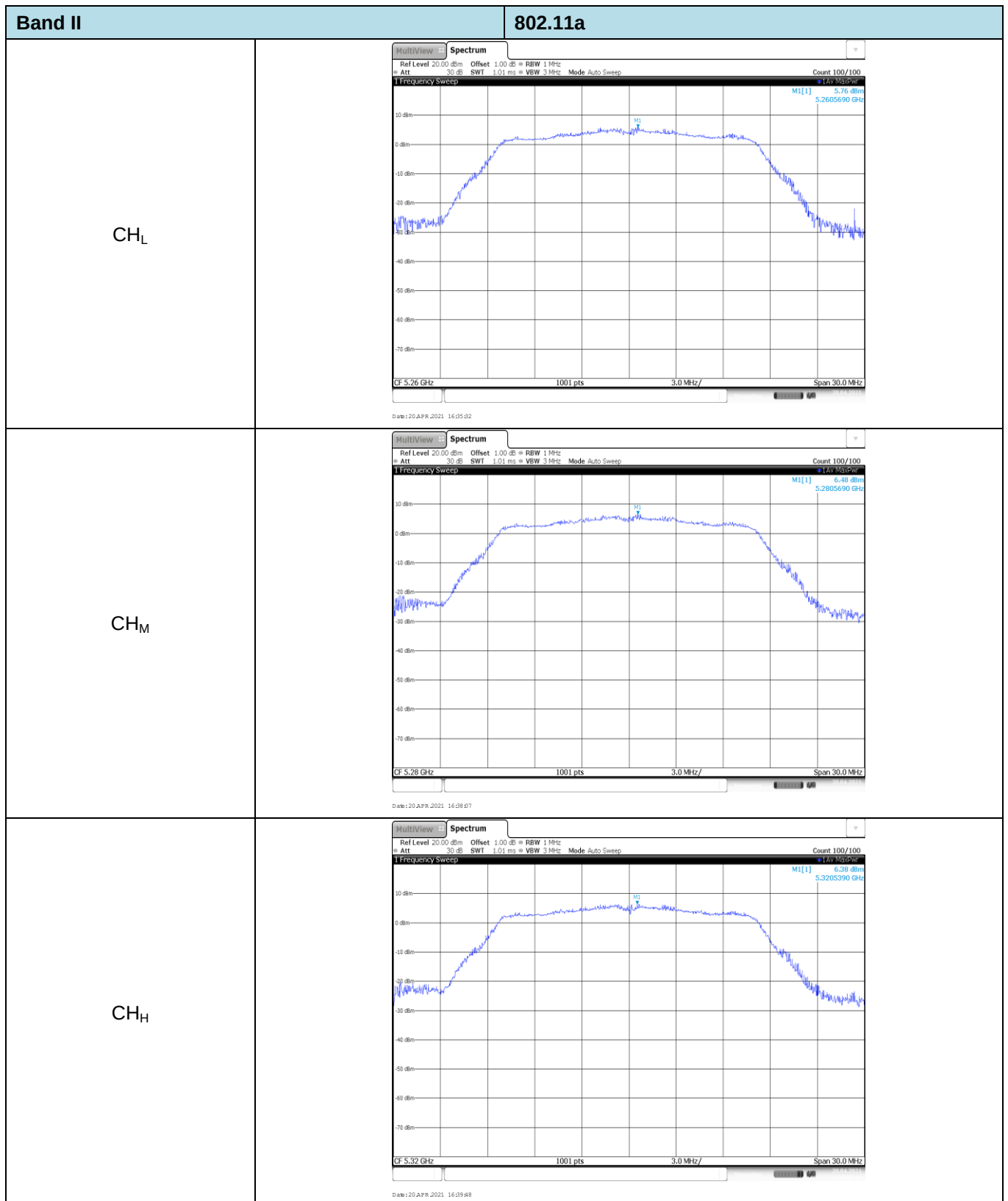


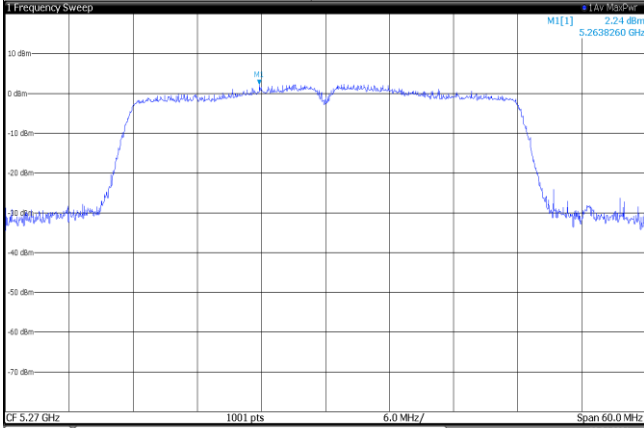
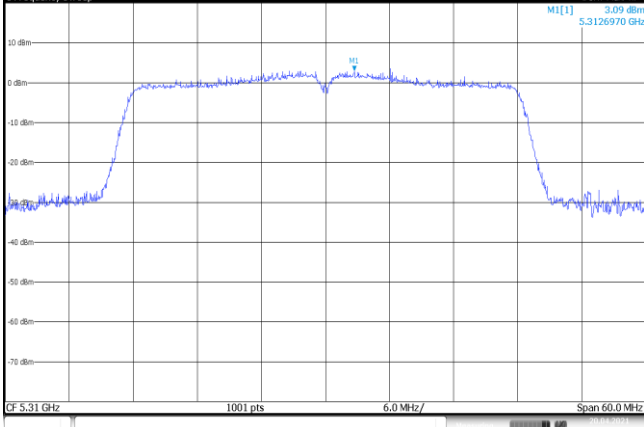


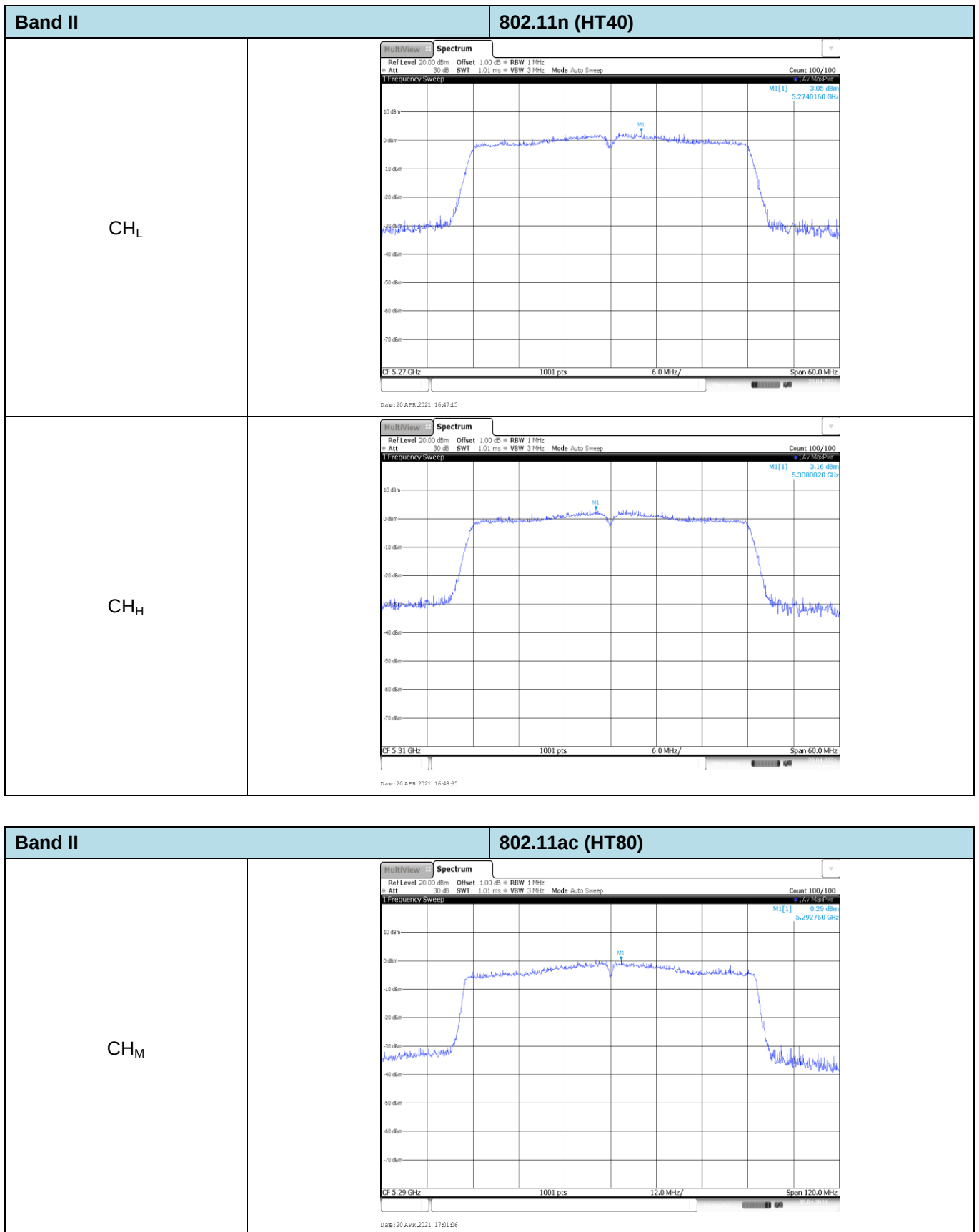


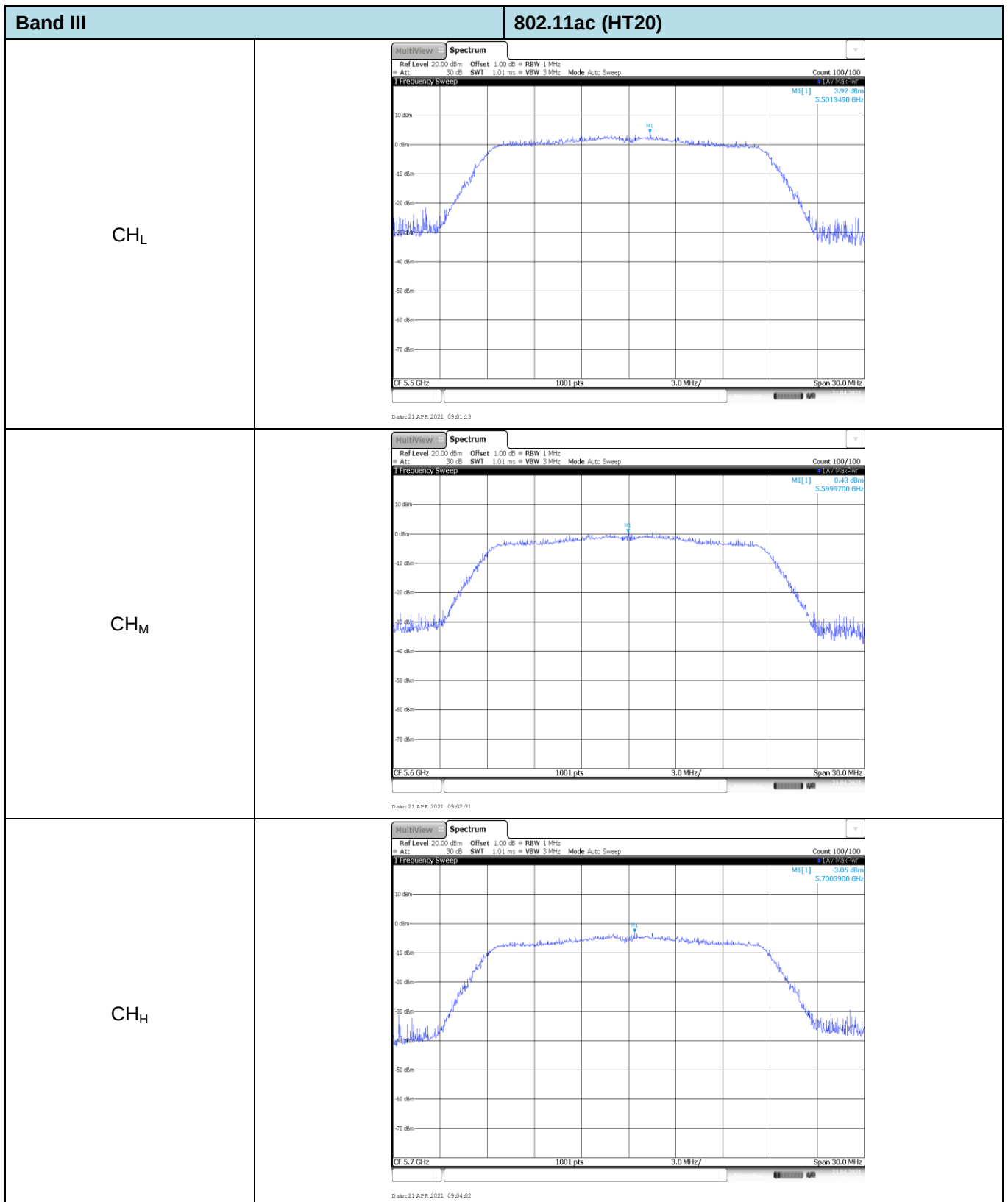


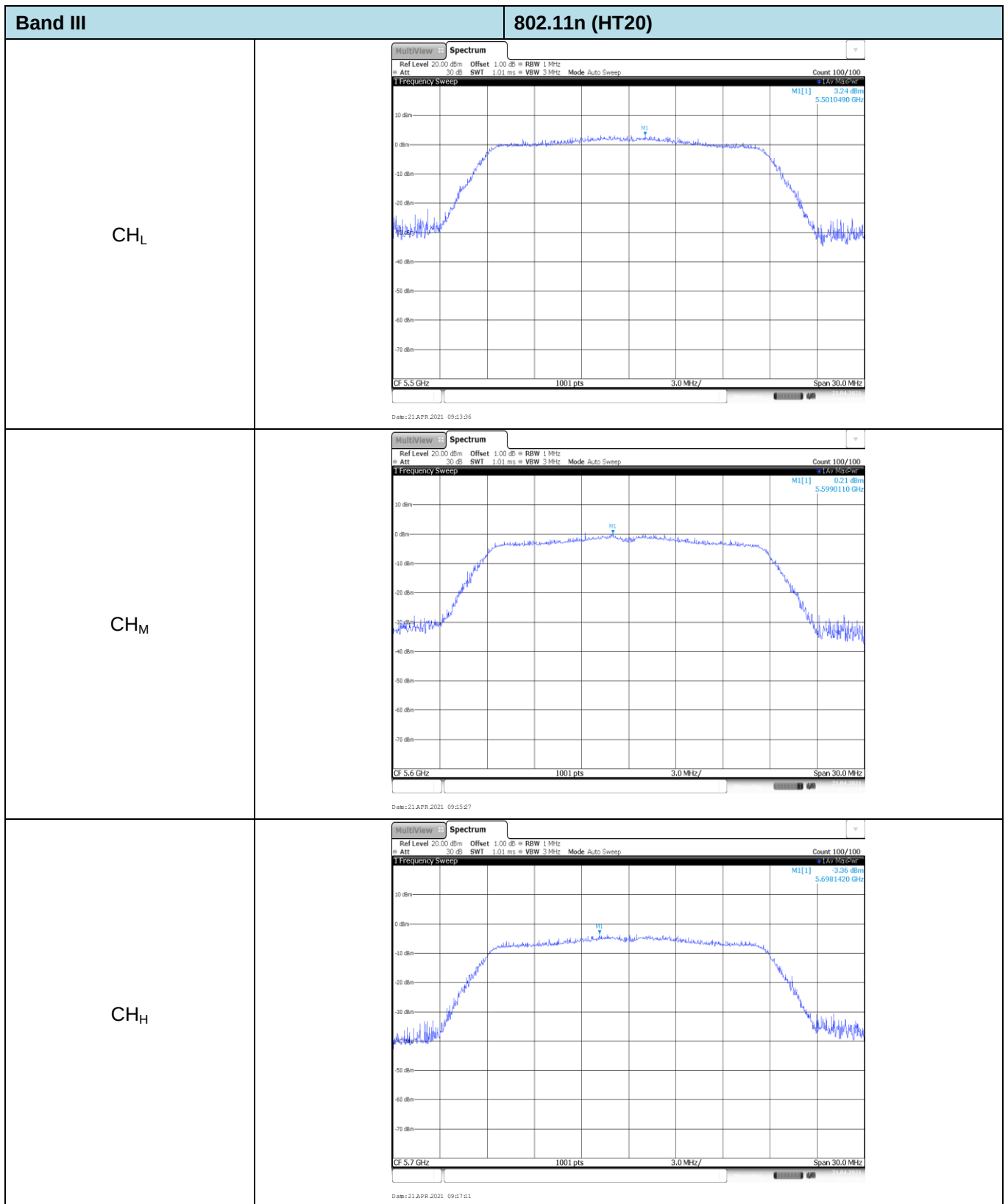
Band II		802.11n (HT20)
CH _L		
CH _M		
CH _H		

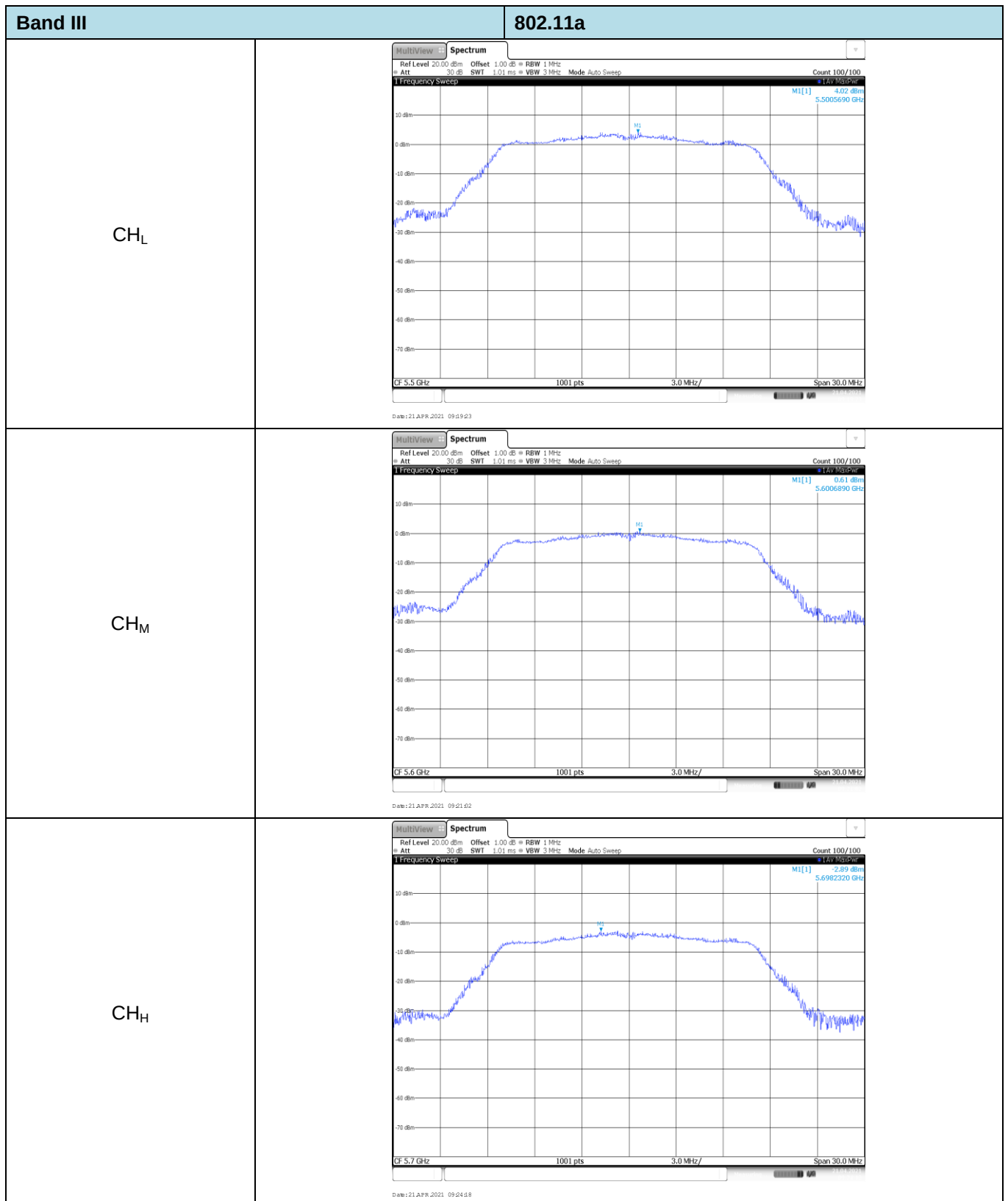


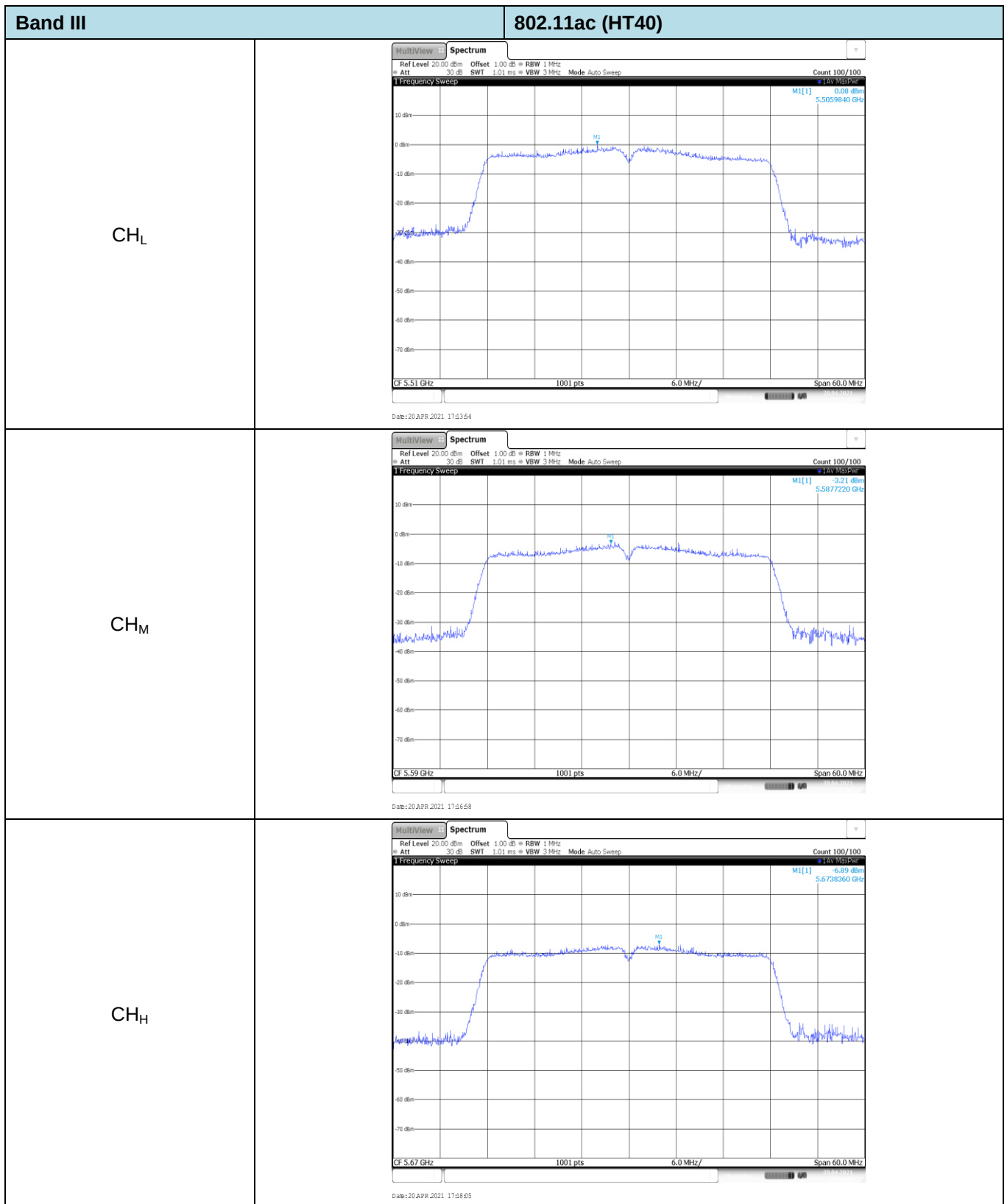
Band II		802.11ac (HT40)
CH _L	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 1 MHz Att 30.00 SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 STAT MS/Hz 1 Frequency Sweep  CF 5.27 GHz1001 pts6.0 MHz/Span 60.0 MHz Date: 20 APR 2021 16:56:37	
CH _H	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 1 MHz Att 30.00 SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 STAT MS/Hz 1 Frequency Sweep  CF 5.31 GHz1001 pts6.0 MHz/Span 60.0 MHz Date: 20 APR 2021 16:58:15	

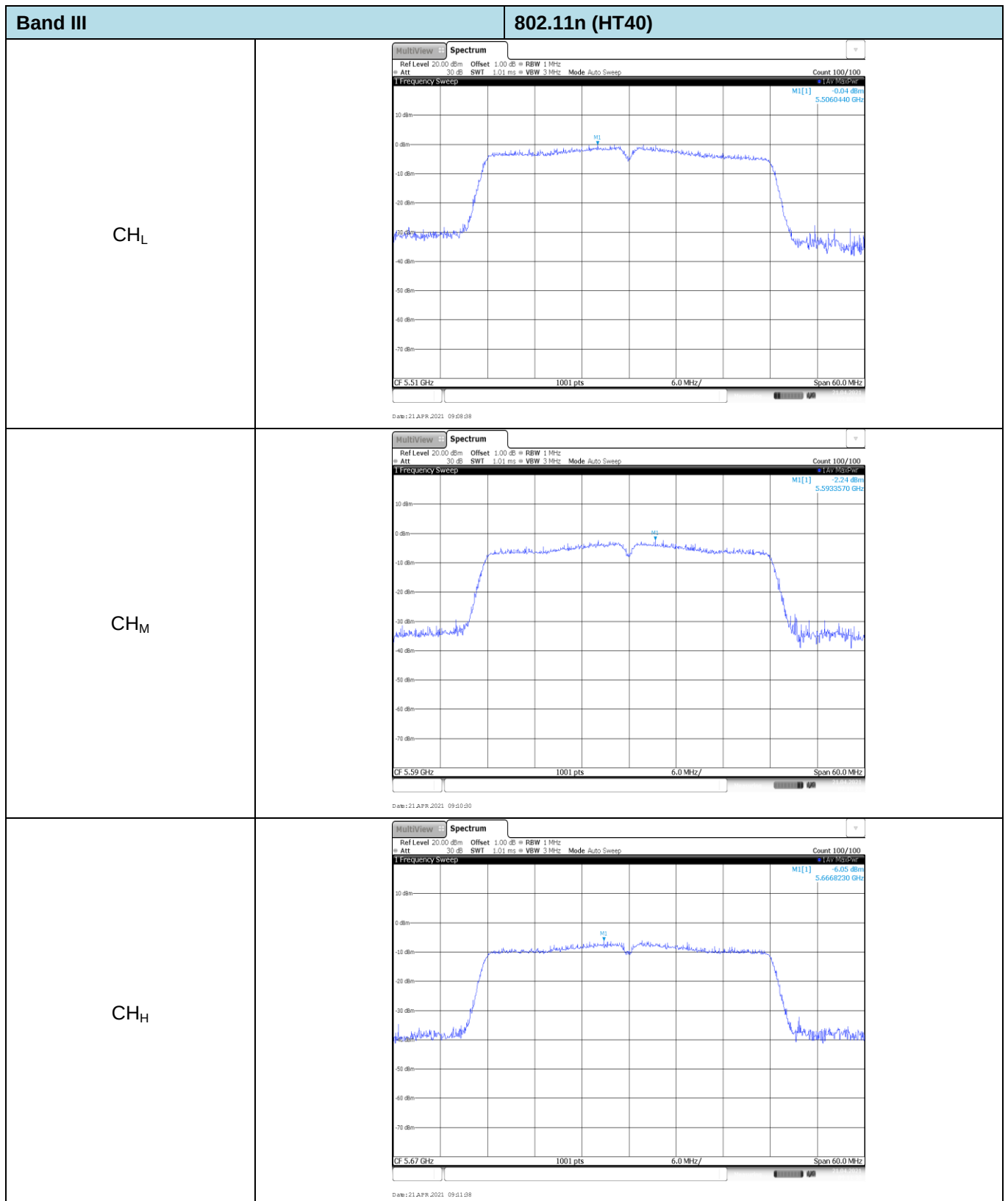


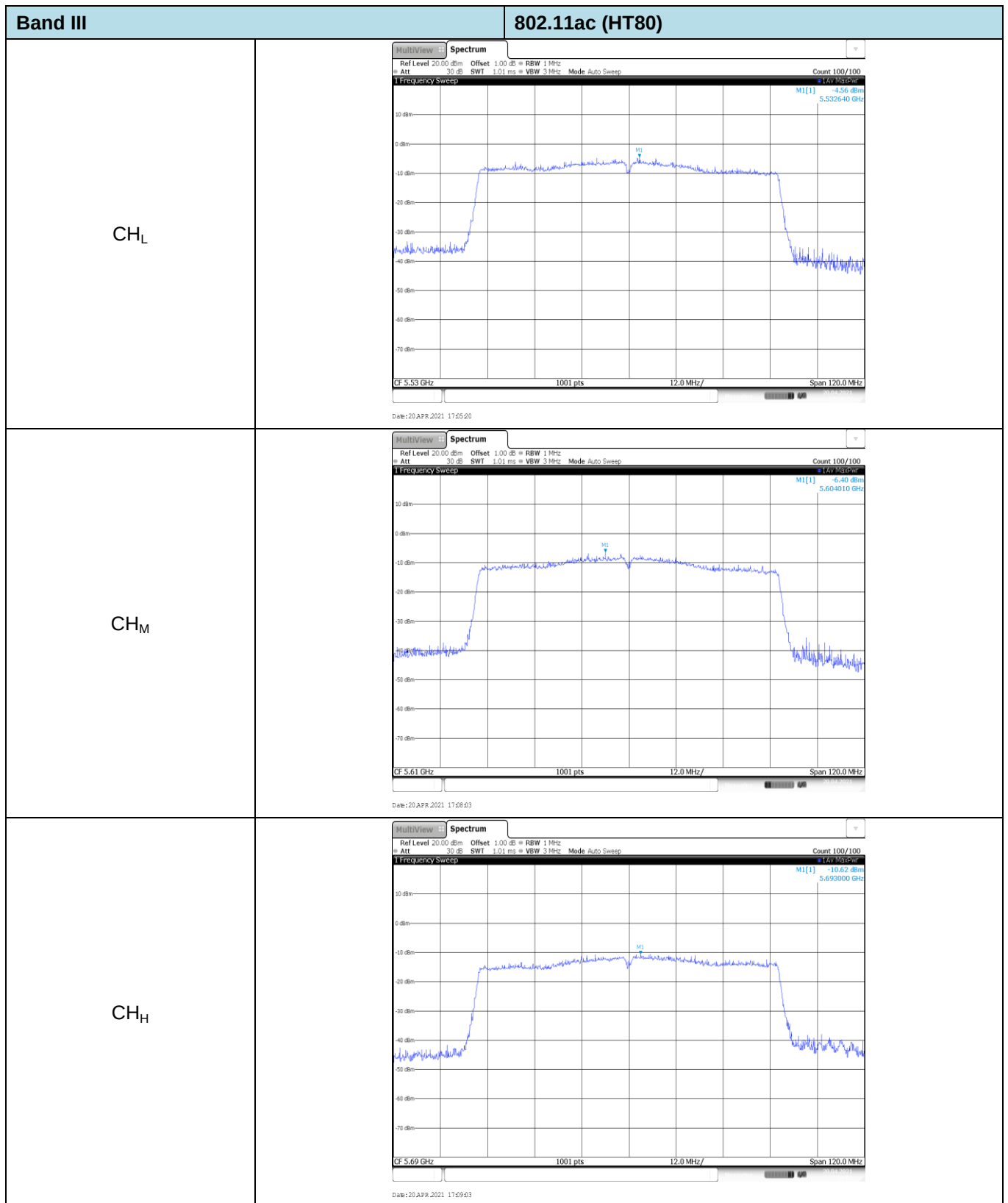


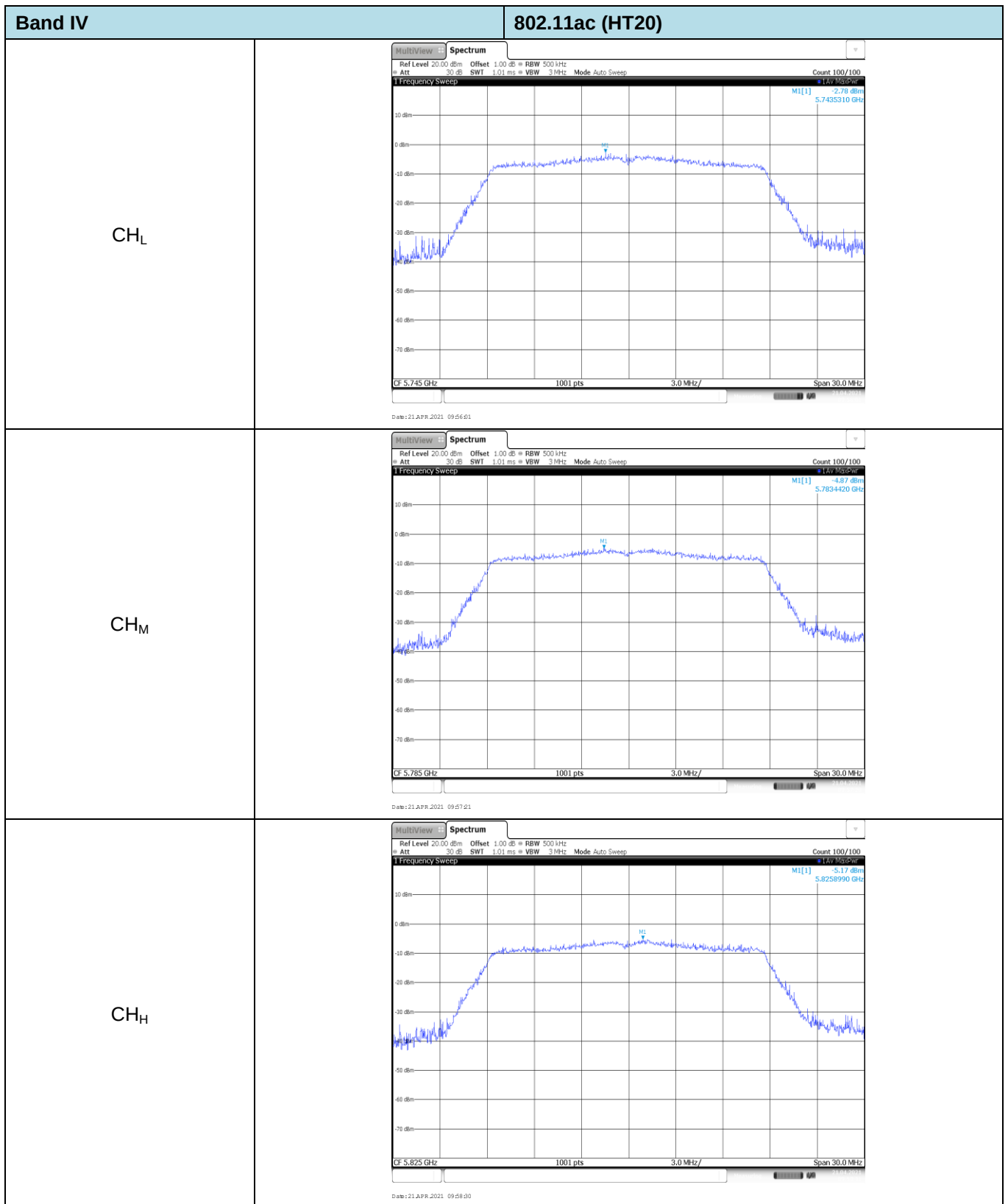




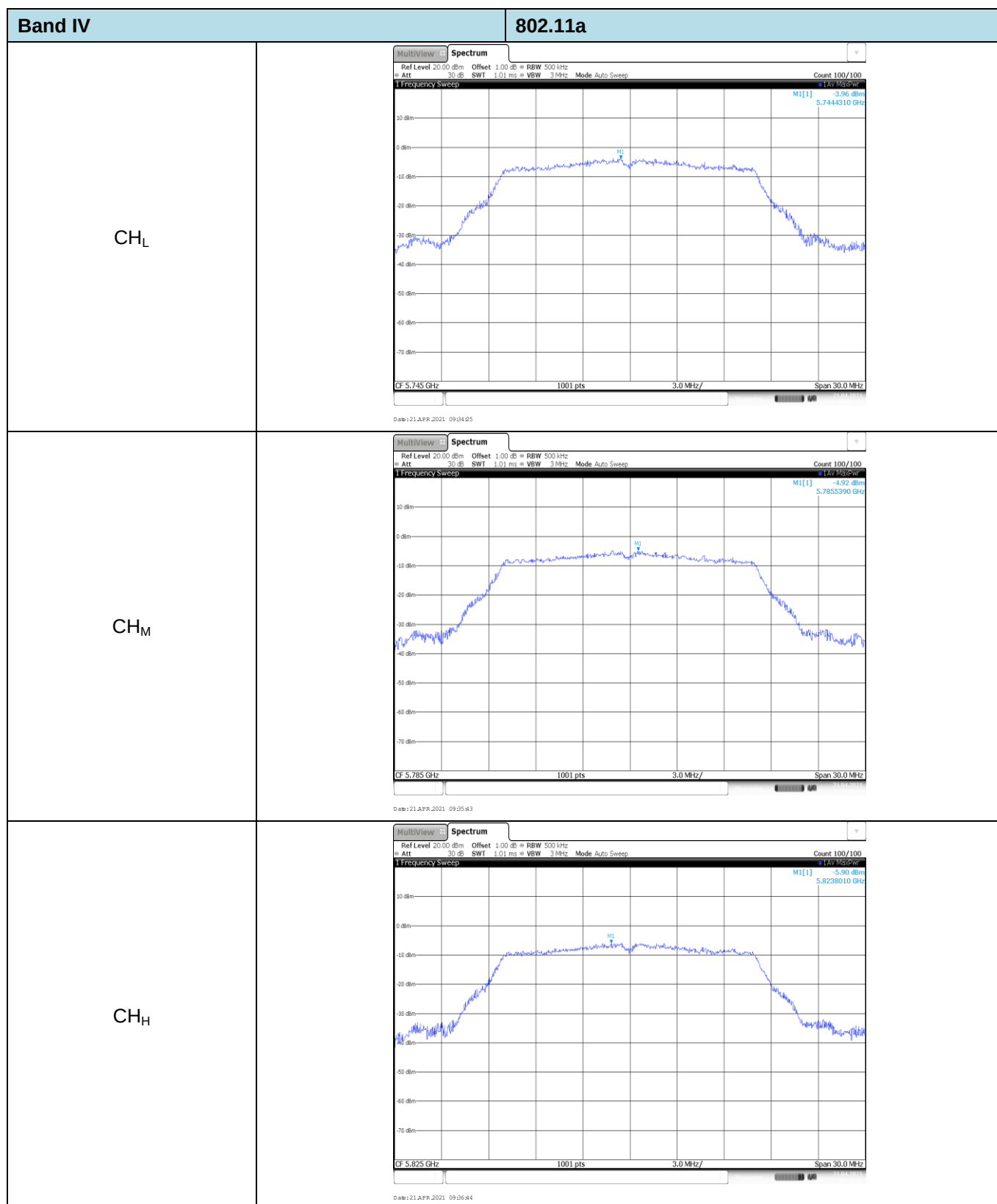




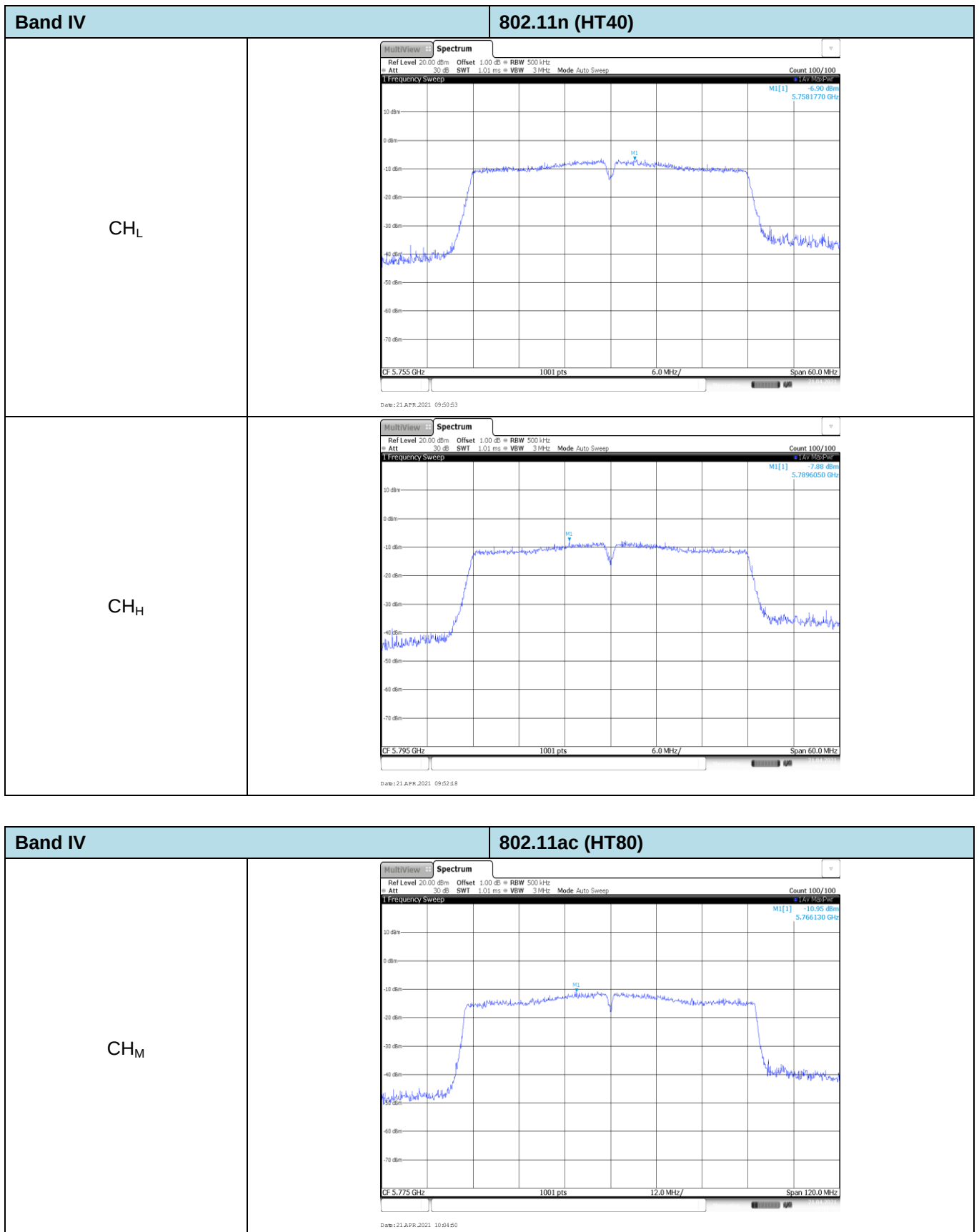




Band IV		802.11n (HT20)
CH _L	MultiView Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB RBW 500 kHz SWT 1.01 ms VBW 3 kHz Mode Auto Sweep Count 100/100 STAT MSOPW Frequency Sweep MU[1] -2.82 dBm 5.7440110 GHz 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 5.745 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 21 APR 2021 09:46:44	
CH _M	MultiView Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB RBW 500 kHz SWT 1.01 ms VBW 3 kHz Mode Auto Sweep Count 100/100 STAT MSOPW Frequency Sweep MU[1] -4.71 dBm 5.7832020 GHz 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 5.785 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 21 APR 2021 09:48:02	
CH _H	MultiView Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB RBW 500 kHz SWT 1.01 ms VBW 3 kHz Mode Auto Sweep Count 100/100 STAT MSOPW Frequency Sweep MU[1] -4.99 dBm 5.8228120 GHz 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 5.825 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz Date: 21 APR 2021 09:49:05	



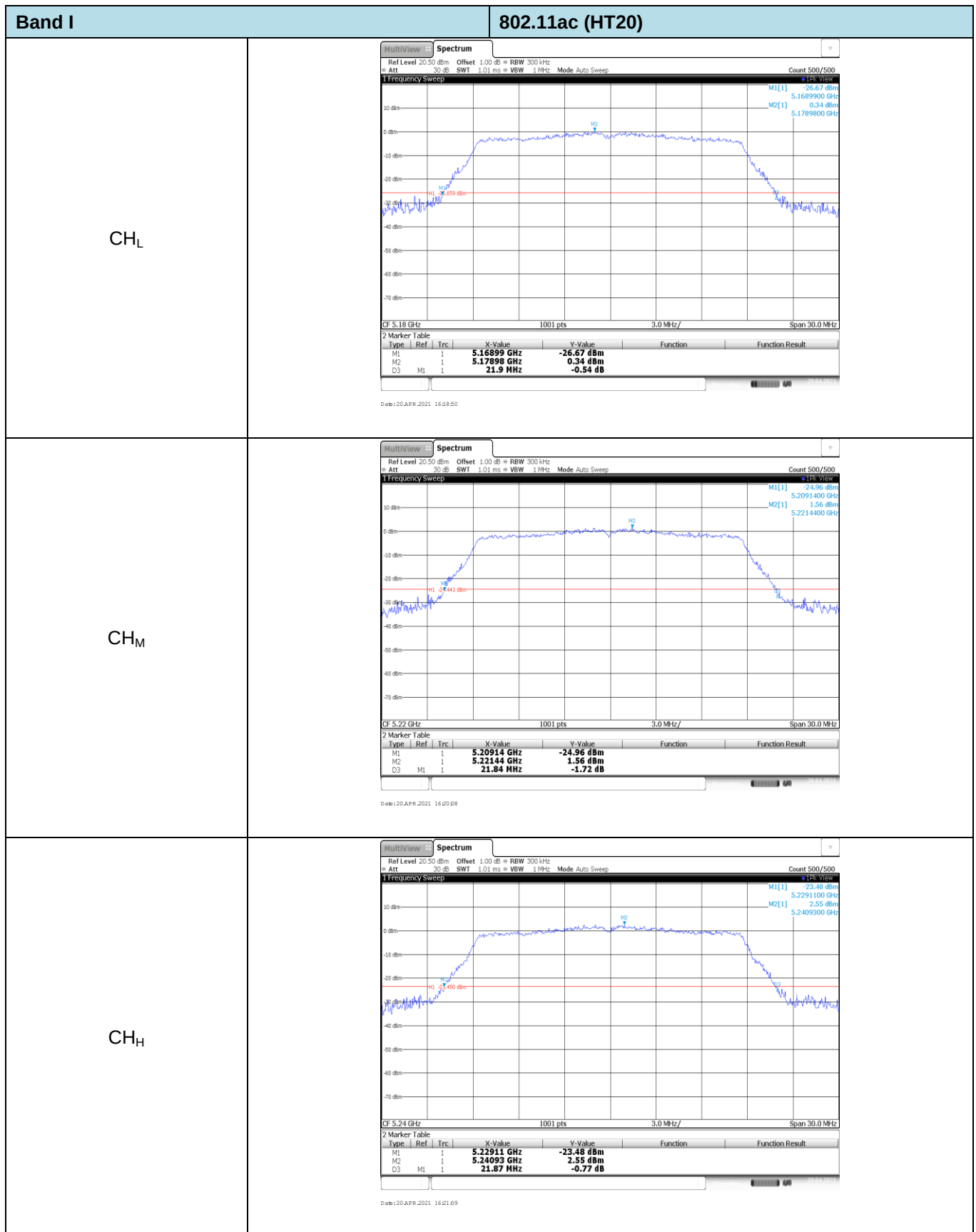
Band IV		802.11ac (HT40)
CH _L	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 500 kHz Att 30 dB SWF 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 1 Frequency Sweep MU[1] -6.75 dBm 5.7496650 GHz 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 5.755 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz Date: 21 APR 2021 10:00:09	
CH _H	MultiView Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 500 kHz Att 30 dB SWF 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 1 Frequency Sweep MU[1] -7.87 dBm 5.7995550 GHz 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 5.795 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz Date: 21 APR 2021 10:02:08	

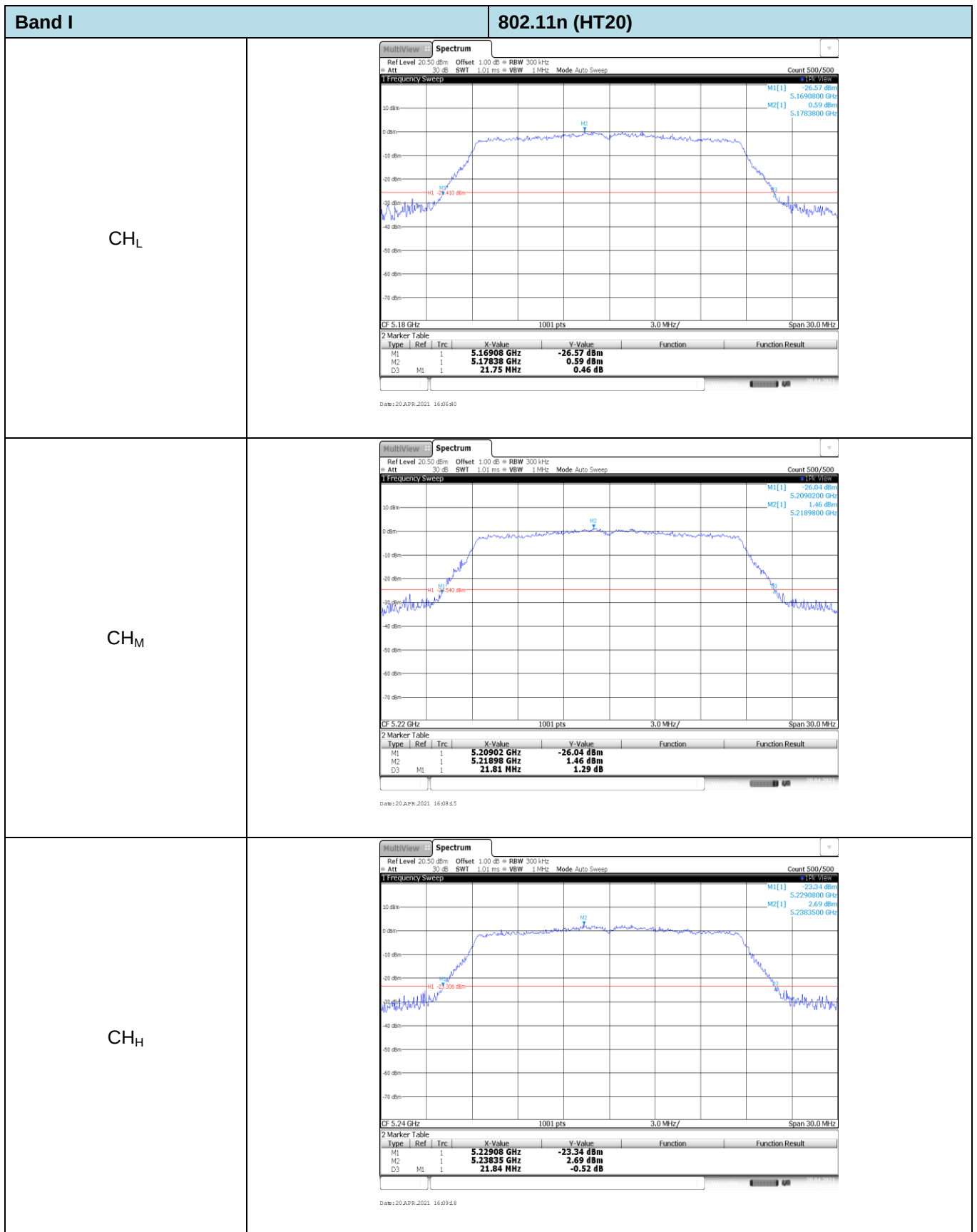


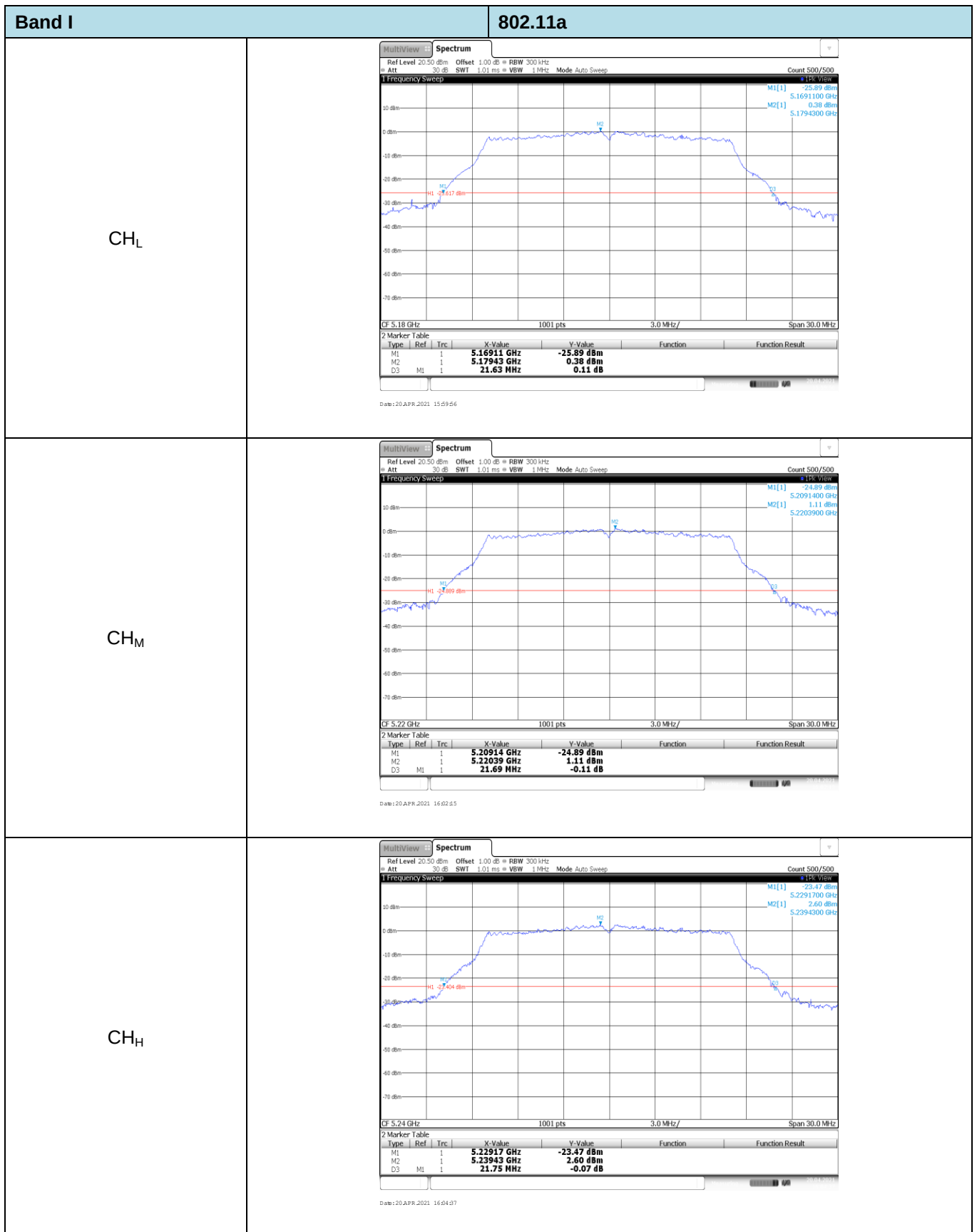
Appendix C: 26dB bandwidth

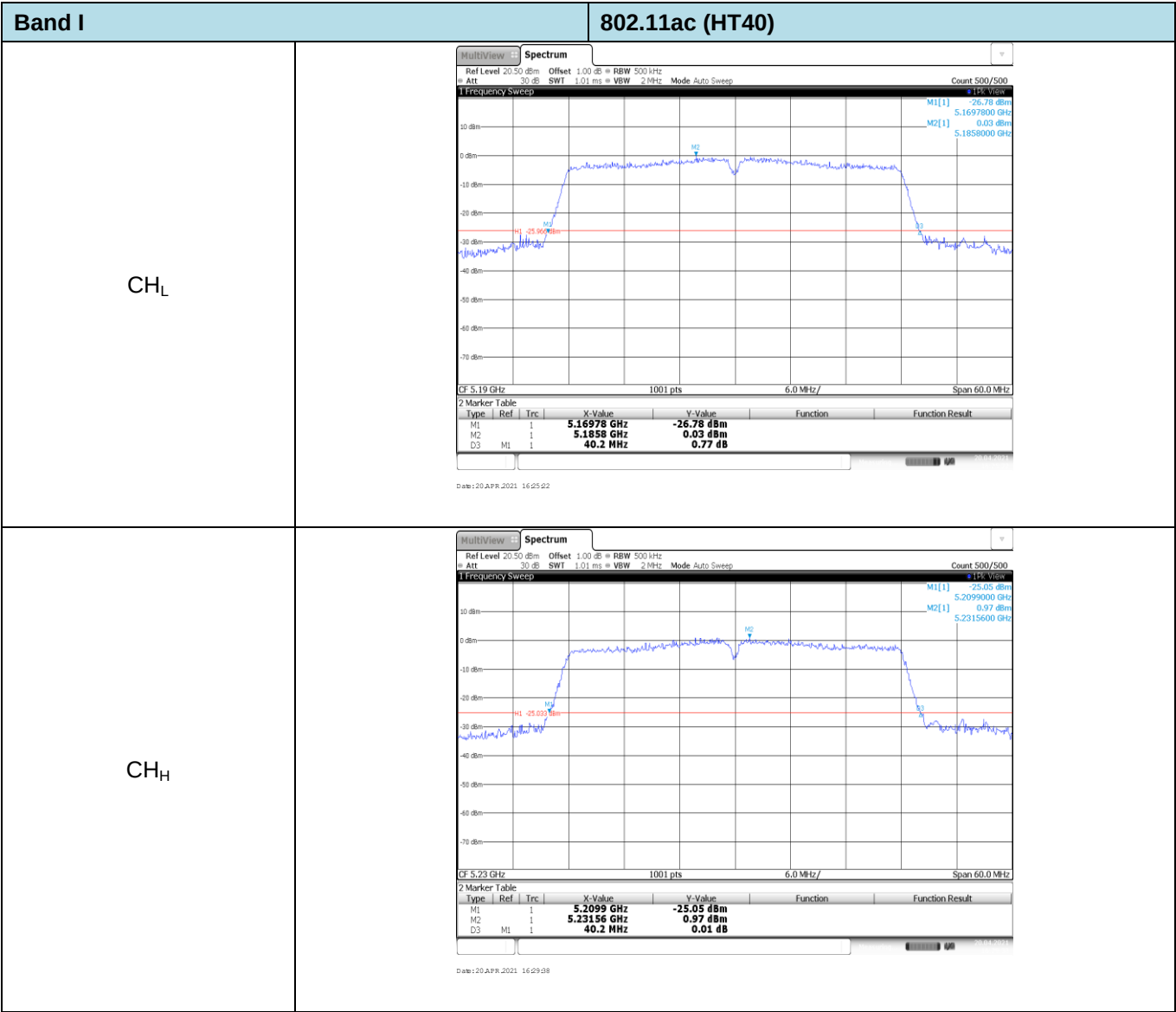
Band	Bandwidth (MHz)	Type	Channel	26dB bandwidth (MHz)	Result
I	20	802.11ac	CH _L	21.90	Pass
			CH _M	21.84	
			CH _H	21.87	
		802.11n	CH _L	21.75	Pass
			CH _M	21.81	
			CH _H	21.84	
		802.11a	CH _L	21.63	Pass
			CH _M	21.69	
			CH _H	21.75	
	40	802.11ac	CH _L	40.20	Pass
			CH _H	40.20	
		802.11n	CH _L	40.32	Pass
			CH _H	40.02	
	80	802.11ac	CH _M	81.96	Pass
II	20	802.11ac	CH _L	21.66	Pass
			CH _M	21.84	
			CH _H	21.81	
		802.11n	CH _L	21.93	Pass
			CH _M	21.90	
			CH _H	21.84	
		802.11a	CH _L	21.75	Pass
			CH _M	21.81	
			CH _H	21.81	
	40	802.11ac	CH _L	40.08	Pass
			CH _H	40.26	
		802.11n	CH _L	40.20	Pass
			CH _H	40.50	
	80	802.11ac	CH _M	82.56	Pass

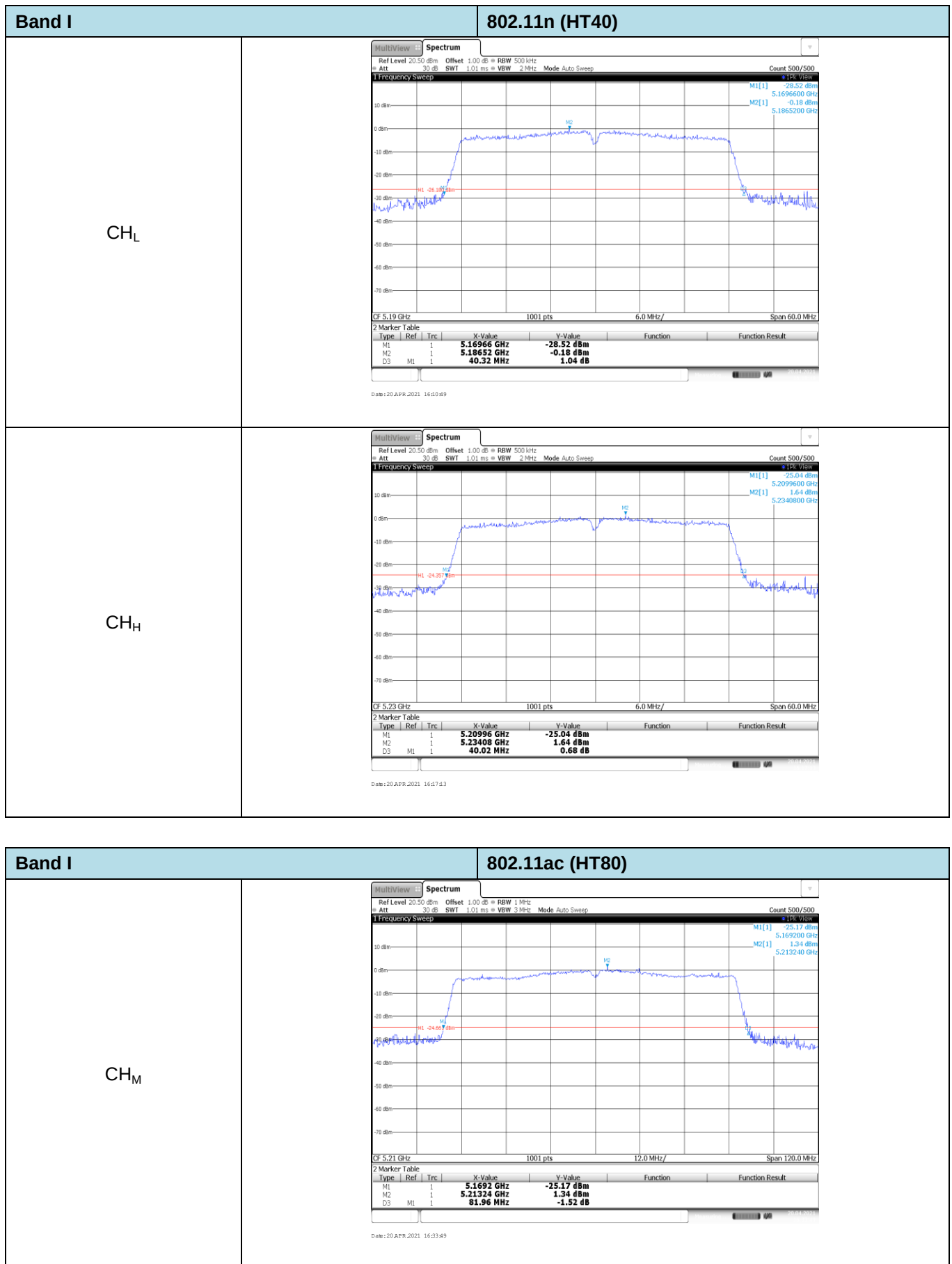
Band	Bandwidth (MHz)	Type	Channel	26dB bandwidth (MHz)	Result
III	20	802.11ac	CH _L	21.87	Pass
			CH _M	21.87	
			CH _H	21.69	
		802.11n	CH _L	21.90	Pass
			CH _M	22.02	
			CH _H	21.81	
		802.11a	CH _L	21.99	Pass
			CH _M	24.99	
			CH _H	21.81	
	40	802.11ac	CH _L	40.26	Pass
			CH _M	41.04	
			CH _H	40.32	
		802.11n	CH _L	40.26	Pass
			CH _M	40.44	
			CH _H	39.96	
	80	802.11ac	CH _L	82.44	Pass
			CH _M	81.48	
			CH _H	82.68	

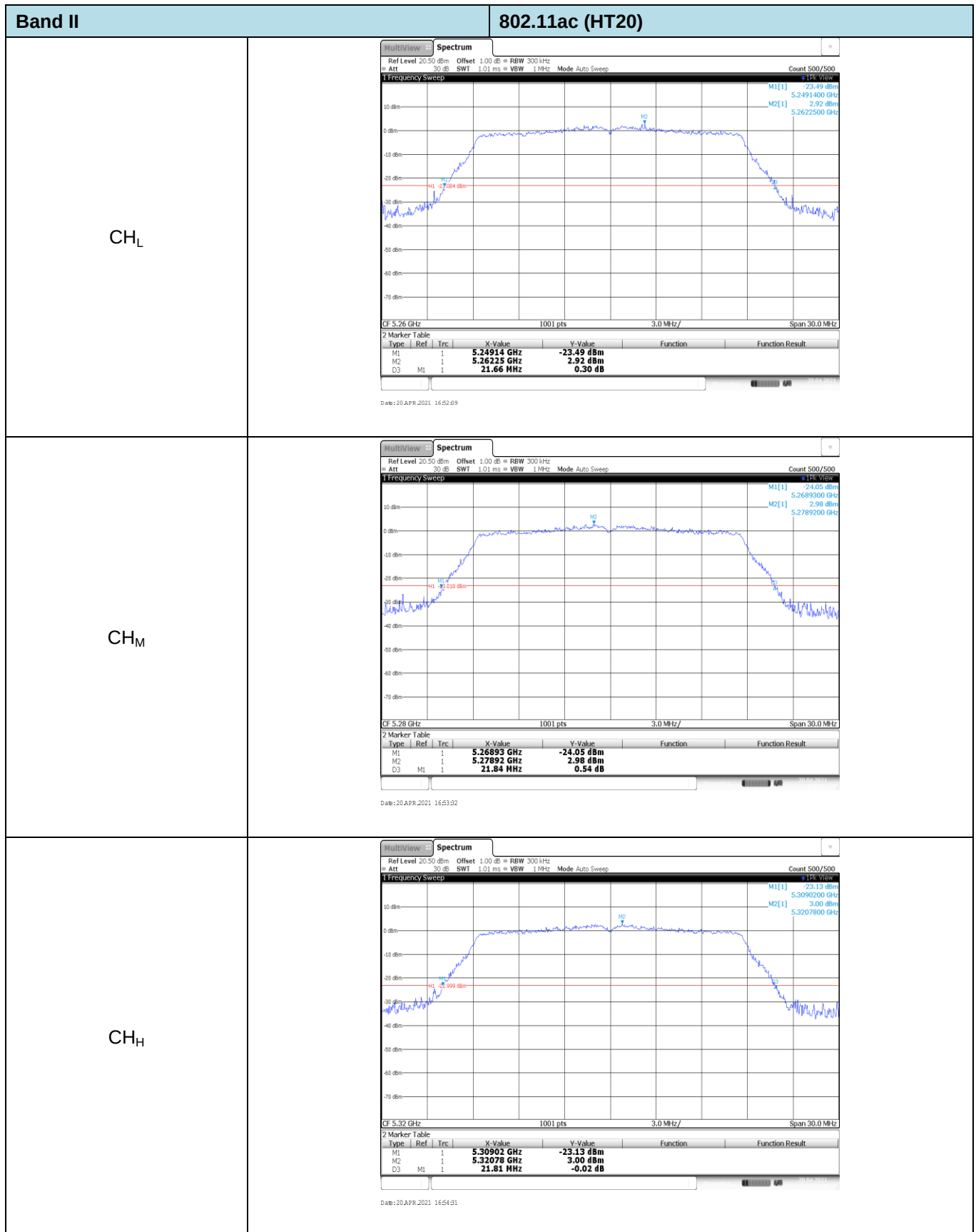


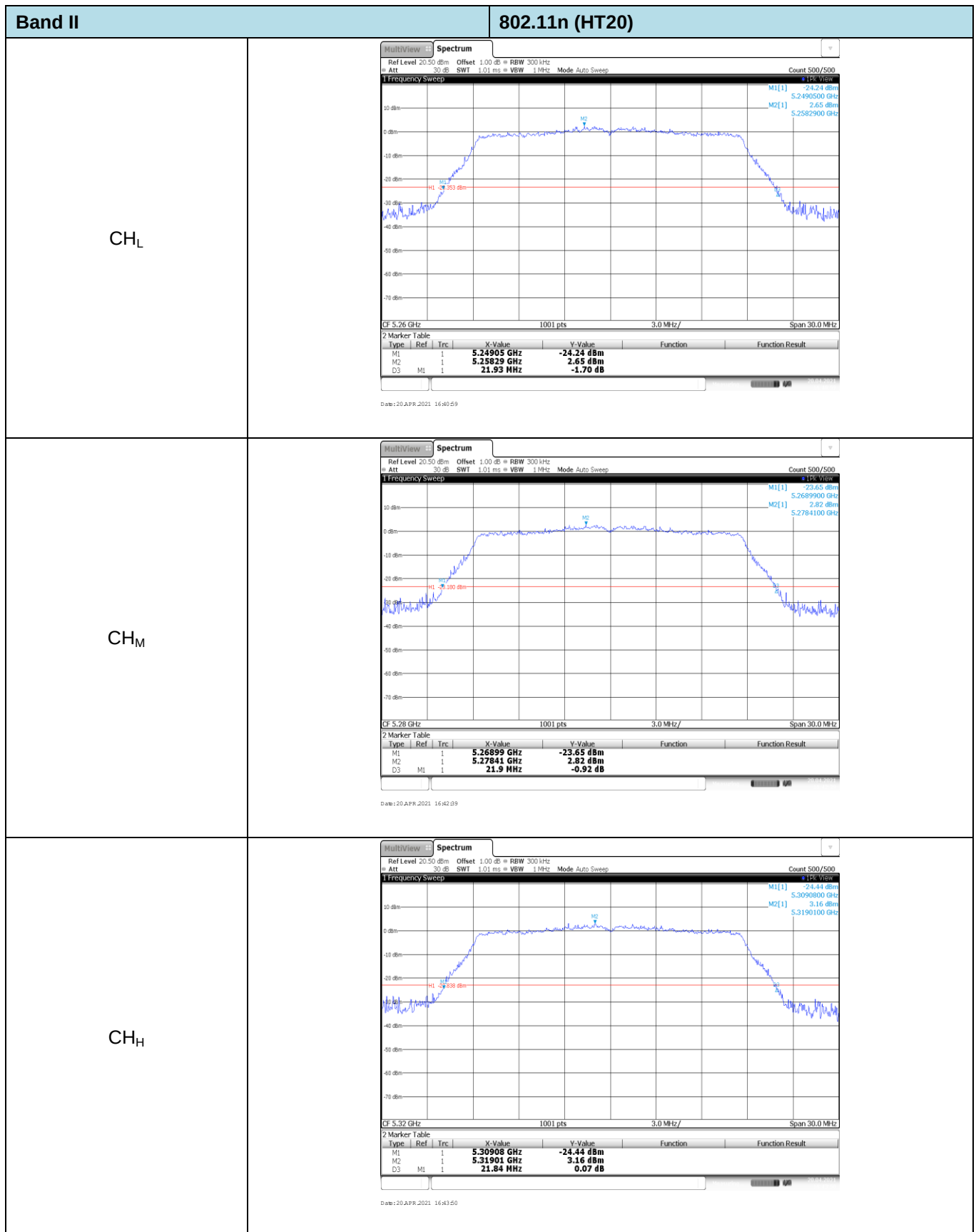


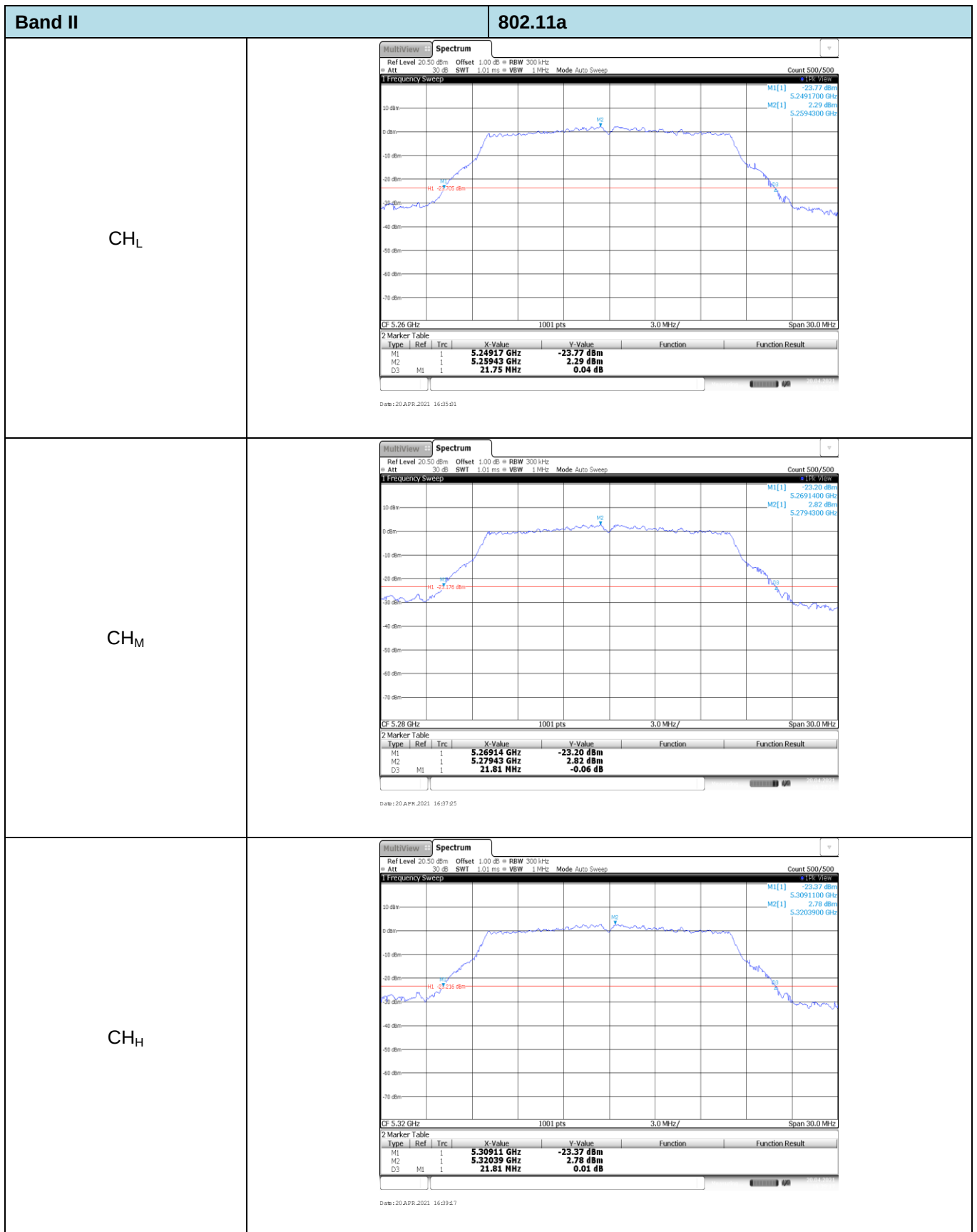


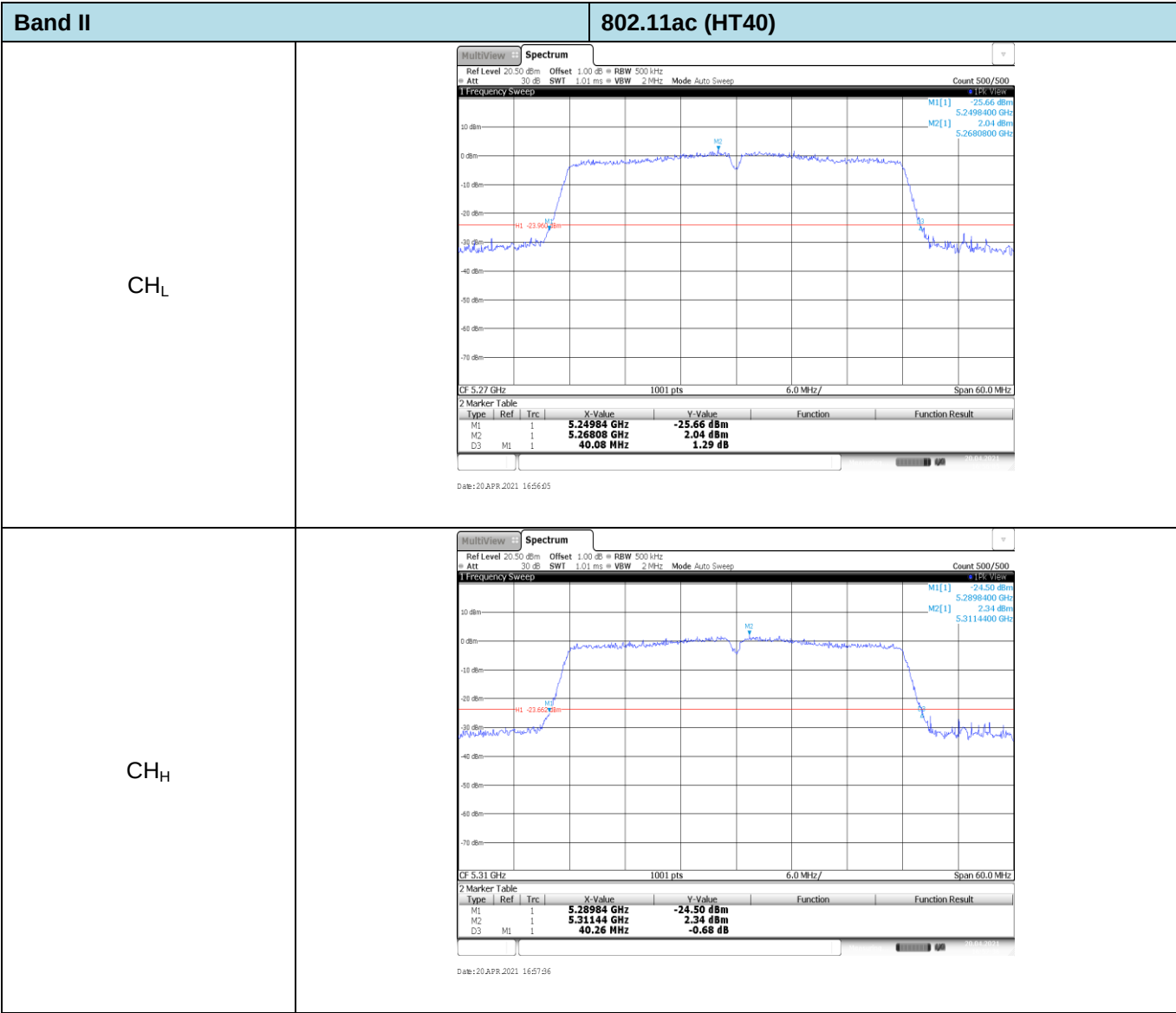


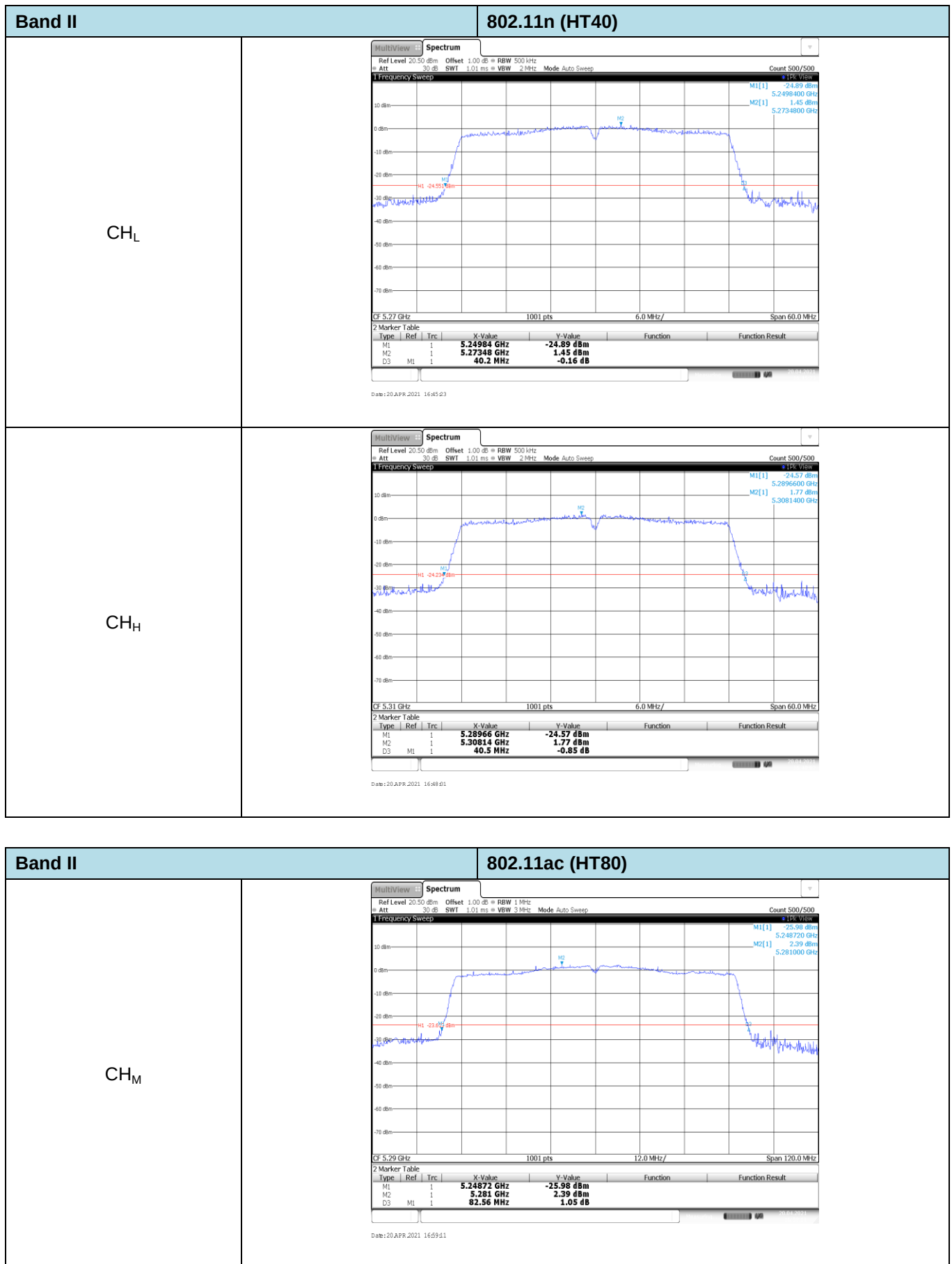


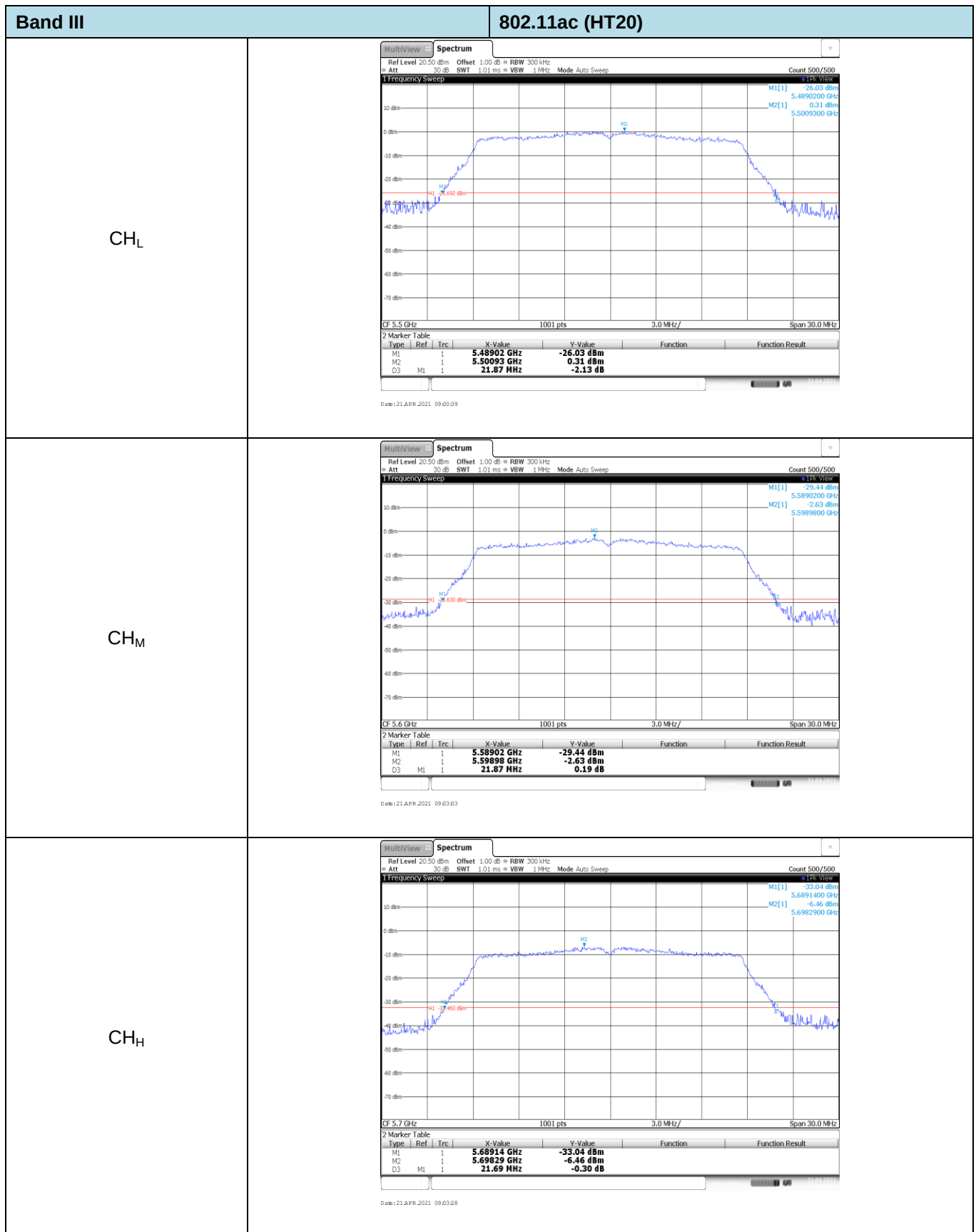


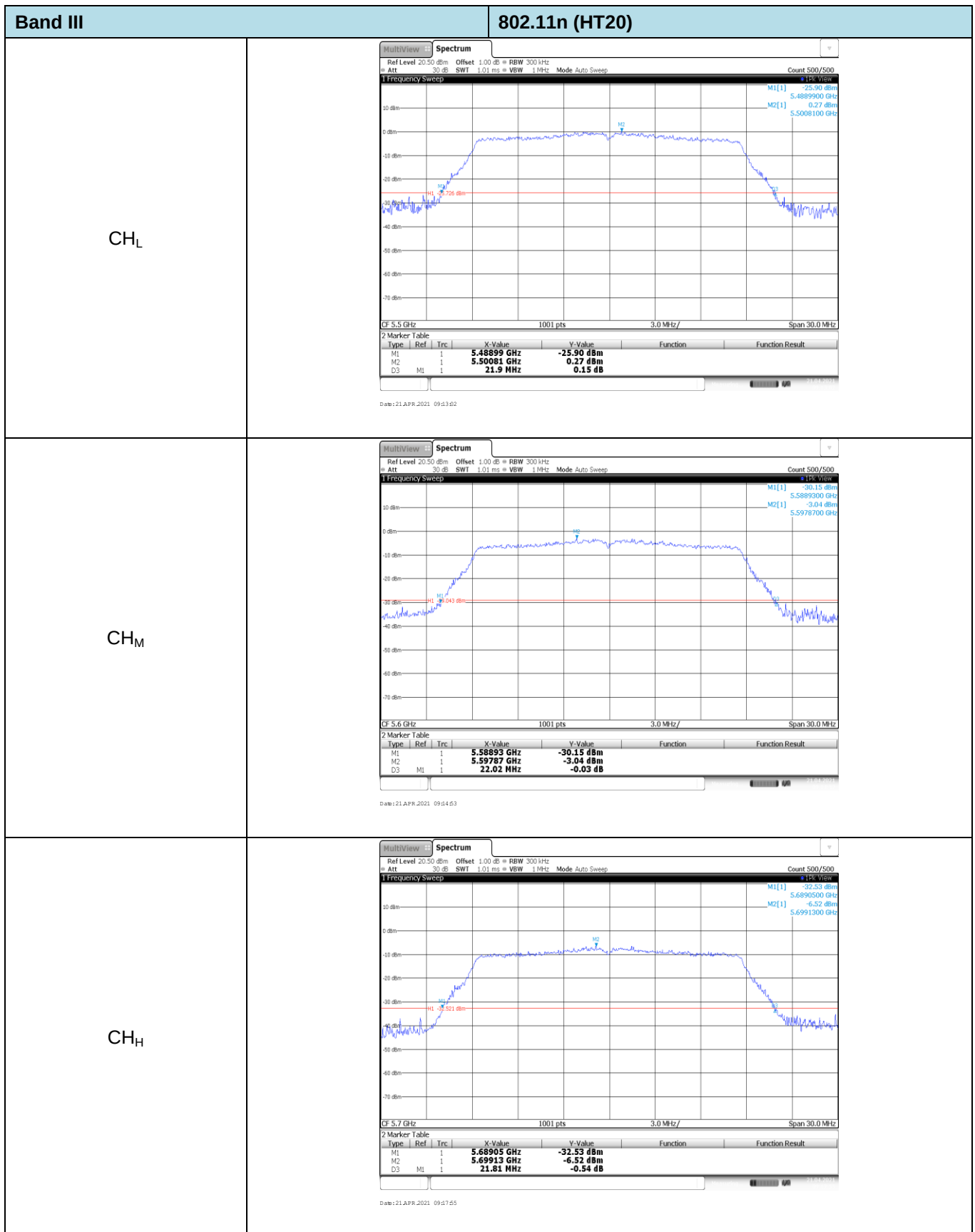


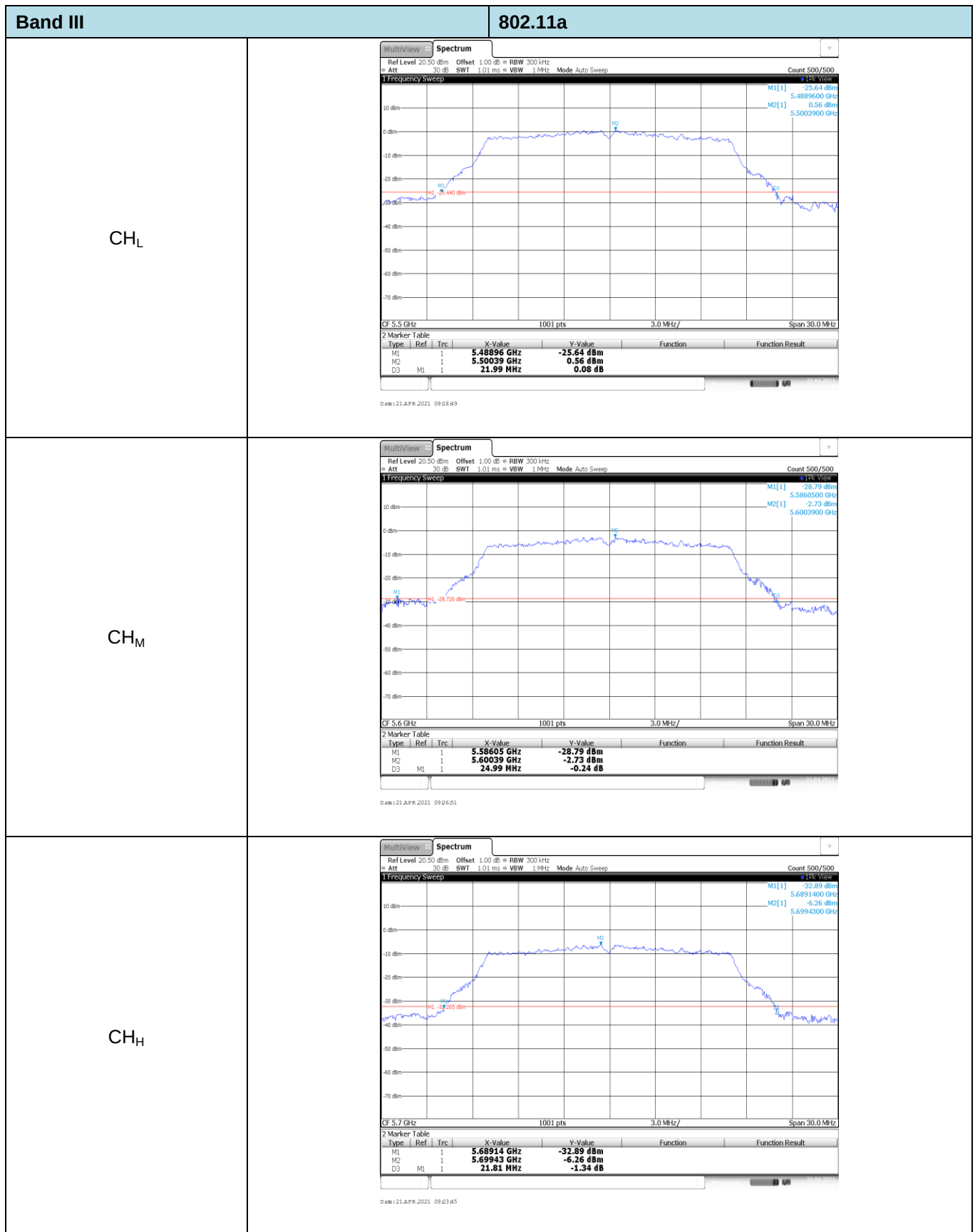


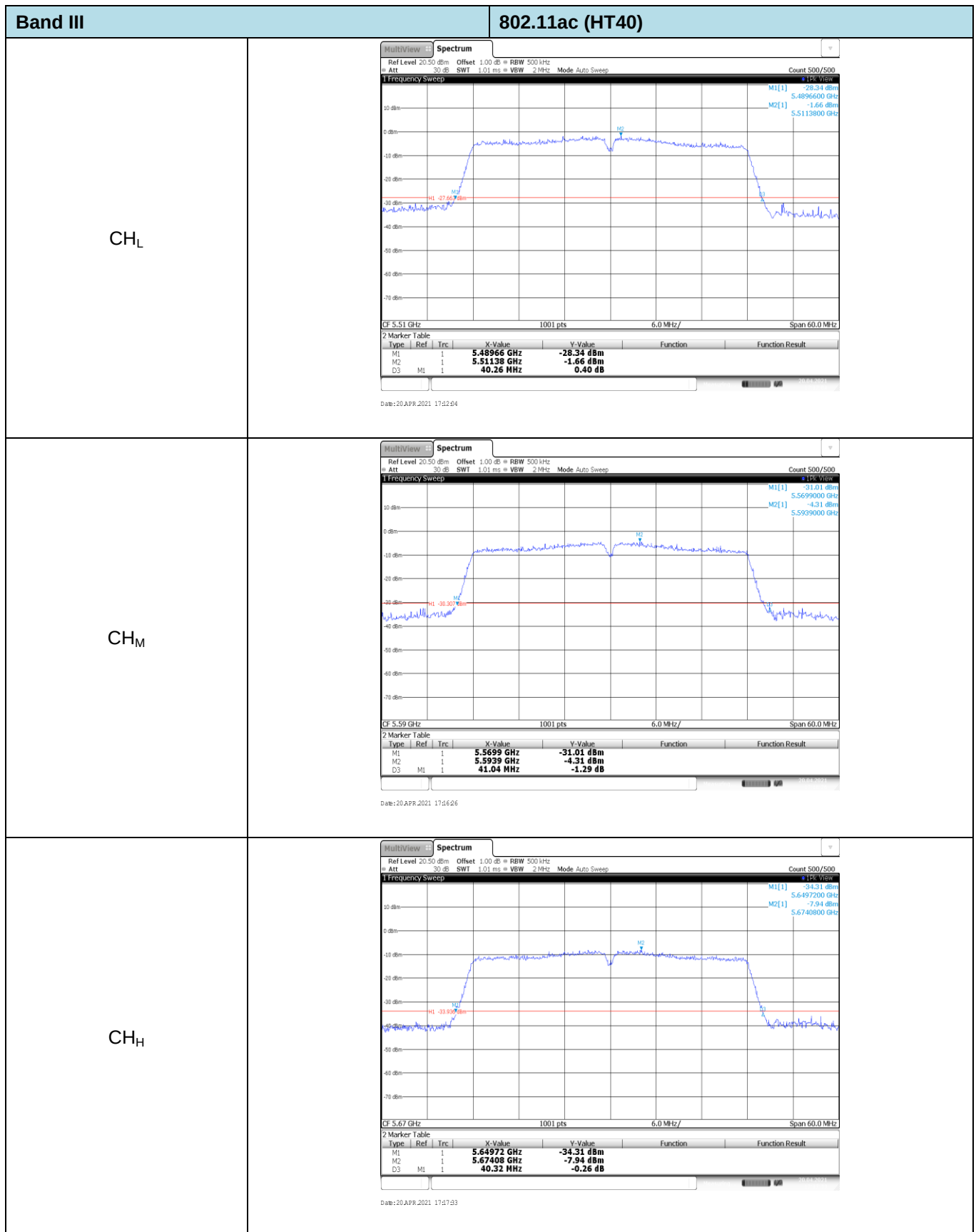


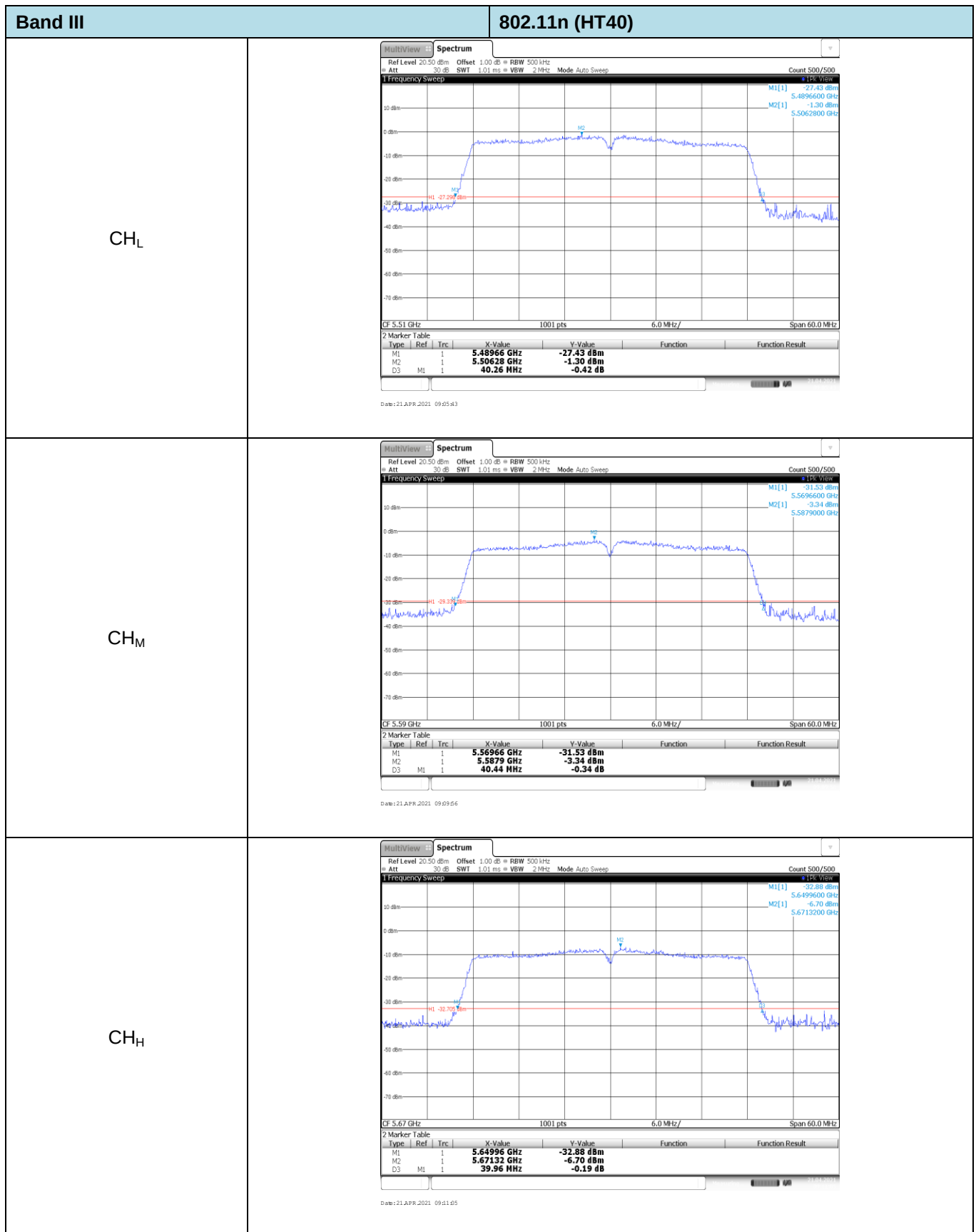


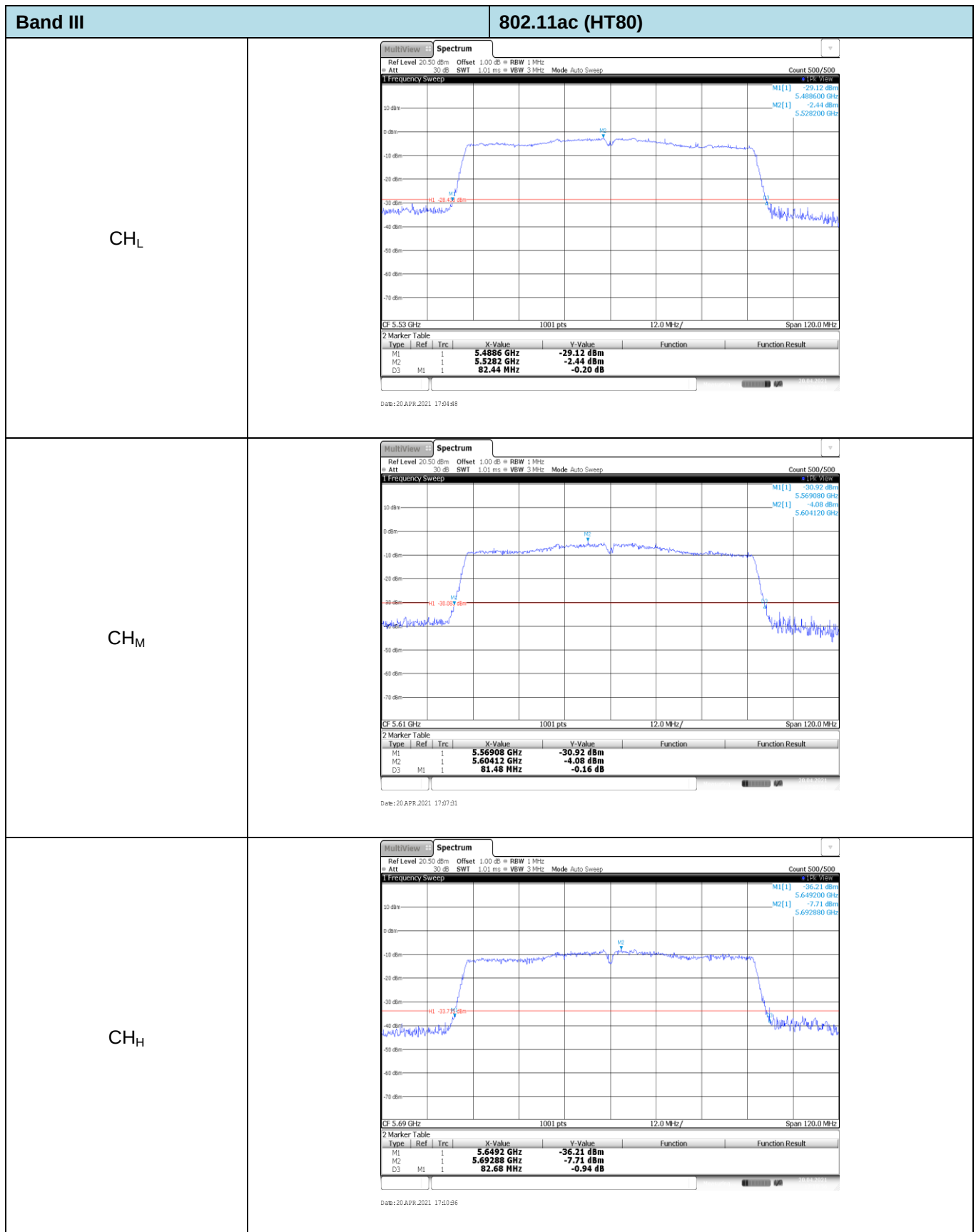












Appendix D: 99% Occupy bandwidth

Band	Bandwidth (MHz)	Type	Channel	99% Occupy bandwidth (MHz)	Result
I	20	802.11ac	CH _L	18.07	Pass
			CH _M	18.07	
			CH _H	18.07	
		802.11n	CH _L	18.10	Pass
			CH _M	18.07	
			CH _H	18.01	
		802.11a	CH _L	16.96	Pass
			CH _M	16.96	
			CH _H	16.93	
	40	802.11ac	CH _L	36.32	Pass
			CH _H	36.38	
		802.11n	CH _L	36.32	Pass
			CH _H	36.32	
	80	802.11ac	CH _M	75.76	Pass
II	20	802.11ac	CH _L	18.04	Pass
			CH _M	18.07	
			CH _H	18.01	
		802.11n	CH _L	18.07	Pass
			CH _M	18.07	
			CH _H	18.04	
		802.11a	CH _L	16.93	Pass
			CH _M	16.99	
			CH _H	16.99	
	40	802.11ac	CH _L	36.32	Pass
			CH _H	36.32	
		802.11n	CH _L	36.26	Pass
			CH _H	36.32	
	80	802.11ac	CH _M	75.41	Pass

Band	Bandwidth (MHz)	Type	Channel	99% Occupy bandwidth (MHz)	Result
III	20	802.11ac	CH _L	18.07	Pass
			CH _M	18.04	
			CH _H	18.07	
		802.11n	CH _L	18.07	Pass
			CH _M	18.07	
			CH _H	18.07	
		802.11a	CH _L	17.05	Pass
			CH _M	17.17	
			CH _H	17.02	
	40	802.11ac	CH _L	36.38	Pass
			CH _M	36.32	
			CH _H	36.38	
		802.11n	CH _L	36.38	Pass
			CH _M	36.32	
			CH _H	36.38	
	80	802.11ac	CH _L	75.64	Pass
			CH _M	75.41	
			CH _H	75.64	

Band	Bandwidth (MHz)	Type	Channel	99% Occupy bandwidth (MHz)	Result
IV	20	802.11ac	CH _L	18.07	Pass
			CH _M	18.13	
			CH _H	18.16	
		802.11n	CH _L	18.10	Pass
			CH _M	18.16	
			CH _H	18.13	
		802.11a	CH _L	17.08	Pass
			CH _M	17.08	
			CH _H	17.11	
	40	802.11ac	CH _L	36.32	Pass
			CH _H	36.44	
		802.11n	CH _L	36.38	Pass
			CH _H	36.38	
	80	802.11ac	CH _M	75.76	Pass

