

APPENDIX REPORT

Project No.	SHT2104043102EW	Radio Specification	WIFI 5G
Test sample No.	YPHT21040431002	Model No.	M2
Start test date	2021-04-29	Finish date	2021-04-29
Temperature	25°C	Humidity	36%
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	14.16	96.77	0.14	14.30	24.00	Pass
			CH _M	14.25	96.77	0.14	14.39		
			CH _H	14.27	96.77	0.14	14.41		
		802.11n	CH _L	14.46	92.61	0.33	14.79	24.00	Pass
			CH _M	14.51	92.61	0.33	14.84		
			CH _H	13.70	92.70	0.33	14.03		
		802.11a	CH _L	14.24	93.13	0.31	14.55	24.00	Pass
			CH _M	14.49	93.04	0.31	14.80		
			CH _H	13.53	93.04	0.31	13.84		
	40	802.11ac	CH _L	14.34	93.92	0.27	14.61	24.00	Pass
			CH _H	13.84	93.92	0.27	14.11		
		802.11n	CH _L	14.37	93.95	0.27	14.64	24.00	Pass
			CH _H	13.96	93.95	0.27	14.23		
	80	802.11ac	CH _M	12.90	75.96	1.19	14.09	24.00	Pass
II	20	802.11ac	CH _L	14.77	96.85	0.14	14.91	24.00	Pass
			CH _M	14.47	96.85	0.14	14.61		
			CH _H	14.01	96.77	0.14	14.15		
		802.11n	CH _L	13.68	92.62	0.33	14.01	24.00	Pass
			CH _M	13.60	92.70	0.33	13.93		
			CH _H	12.97	92.62	0.33	13.30		
		802.11a	CH _L	14.03	93.13	0.31	14.34	24.00	Pass
			CH _M	13.75	93.13	0.31	14.06		
			CH _H	13.44	93.05	0.31	13.75		
	40	802.11ac	CH _L	13.81	93.23	0.30	14.11	24.00	Pass
			CH _H	13.55	93.23	0.30	13.85		
		802.11n	CH _L	13.96	94.01	0.27	14.23	24.00	Pass
			CH _H	13.33	94.01	0.27	13.60		
	80	802.11ac	CH _M	13.33	76.71	1.15	14.48	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	11.04	96.77	0.14	11.18	24.00	Pass
			CH _M	10.54	96.77	0.14	10.68		
			CH _H	10.75	96.77	0.14	10.89		
		802.11n	CH _L	11.48	92.61	0.33	11.81	24.00	Pass
			CH _M	11.07	92.62	0.33	11.40		
			CH _H	10.65	92.70	0.33	10.98		
		802.11a	CH _L	11.30	93.05	0.31	11.61	24.00	Pass
			CH _M	10.49	93.05	0.31	10.80		
			CH _H	10.75	93.04	0.31	11.06		
	40	802.11ac	CH _L	10.36	94.05	0.27	10.63	24.00	Pass
			CH _M	10.30	94.05	0.27	10.57		
			CH _H	9.89	94.05	0.27	10.16		
		802.11n	CH _L	10.38	93.78	0.28	10.66	24.00	Pass
			CH _M	10.27	93.78	0.28	10.55		
			CH _H	10.02	93.78	0.28	10.30		
	80	802.11ac	CH _L	9.48	74.02	1.31	10.79	24.00	Pass
			CH _M	9.10	74.02	1.31	10.41		
			CH _H	9.01	74.02	1.31	10.32		
IV	20	802.11ac	CH _L	11.10	96.77	0.14	11.24	30.00	Pass
			CH _M	11.59	96.77	0.14	11.73		
			CH _H	12.65	96.85	0.14	12.79		
		802.11n	CH _L	11.07	92.61	0.33	11.40	30.00	Pass
			CH _M	11.63	92.70	0.33	11.96		
			CH _H	12.79	92.62	0.33	13.12		
		802.11a	CH _L	11.12	93.04	0.31	11.43	30.00	Pass
			CH _M	11.69	93.04	0.31	12.00		
			CH _H	12.72	93.04	0.31	13.03		
	40	802.11ac	CH _L	10.56	94.22	0.26	10.82	30.00	Pass
			CH _H	11.49	94.22	0.26	11.75		
		802.11n	CH _L	10.42	93.81	0.28	10.70	30.00	Pass
			CH _H	11.67	93.81	0.28	11.95		
	80	802.11ac	CH _M	10.50	76.17	1.18	11.68	30.00	Pass

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

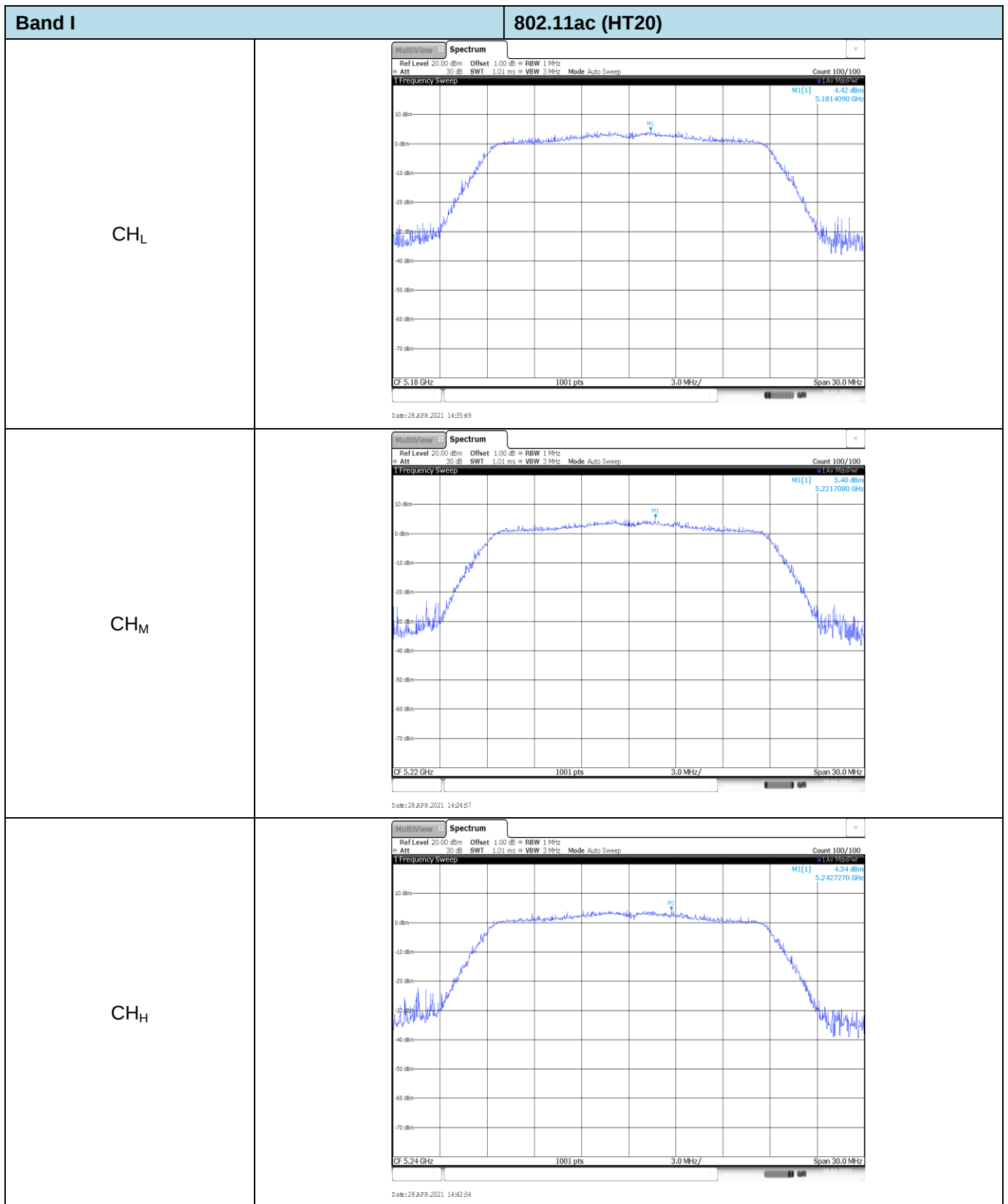
Appendix B: Maximum Power Spectral Density

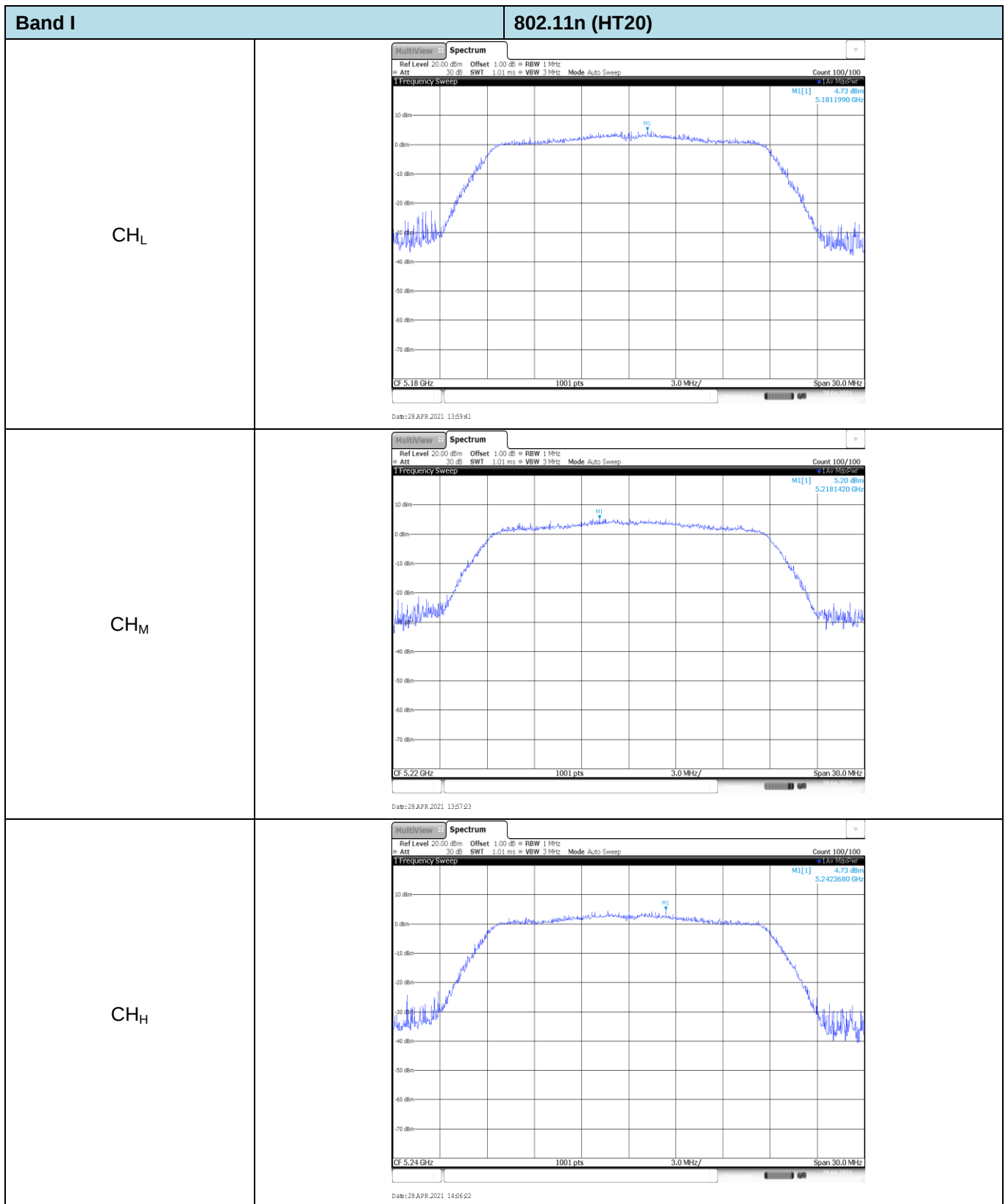
Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
I	20	802.11ac	CH _L	4.42	96.77	0.14	4.56	11.00	Pass
			CH _M	5.40	96.77	0.14	5.54		
			CH _H	4.34	96.77	0.14	4.48		
		802.11n	CH _L	4.73	92.61	0.33	5.06	11.00	Pass
			CH _M	5.20	92.61	0.33	5.53		
			CH _H	4.73	92.70	0.33	5.06		
		802.11a	CH _L	5.15	93.13	0.31	5.46	11.00	Pass
			CH _M	5.34	93.04	0.31	5.65		
			CH _H	4.67	93.04	0.31	4.98		
	40	802.11ac	CH _L	1.70	93.92	0.27	1.97	11.00	Pass
			CH _H	1.27	93.92	0.27	1.54		
		802.11n	CH _L	1.70	93.95	0.27	1.97	11.00	Pass
			CH _H	1.71	93.95	0.27	1.98		
	80	802.11ac	CH _M	-1.97	75.96	1.19	-0.78	11.00	Pass

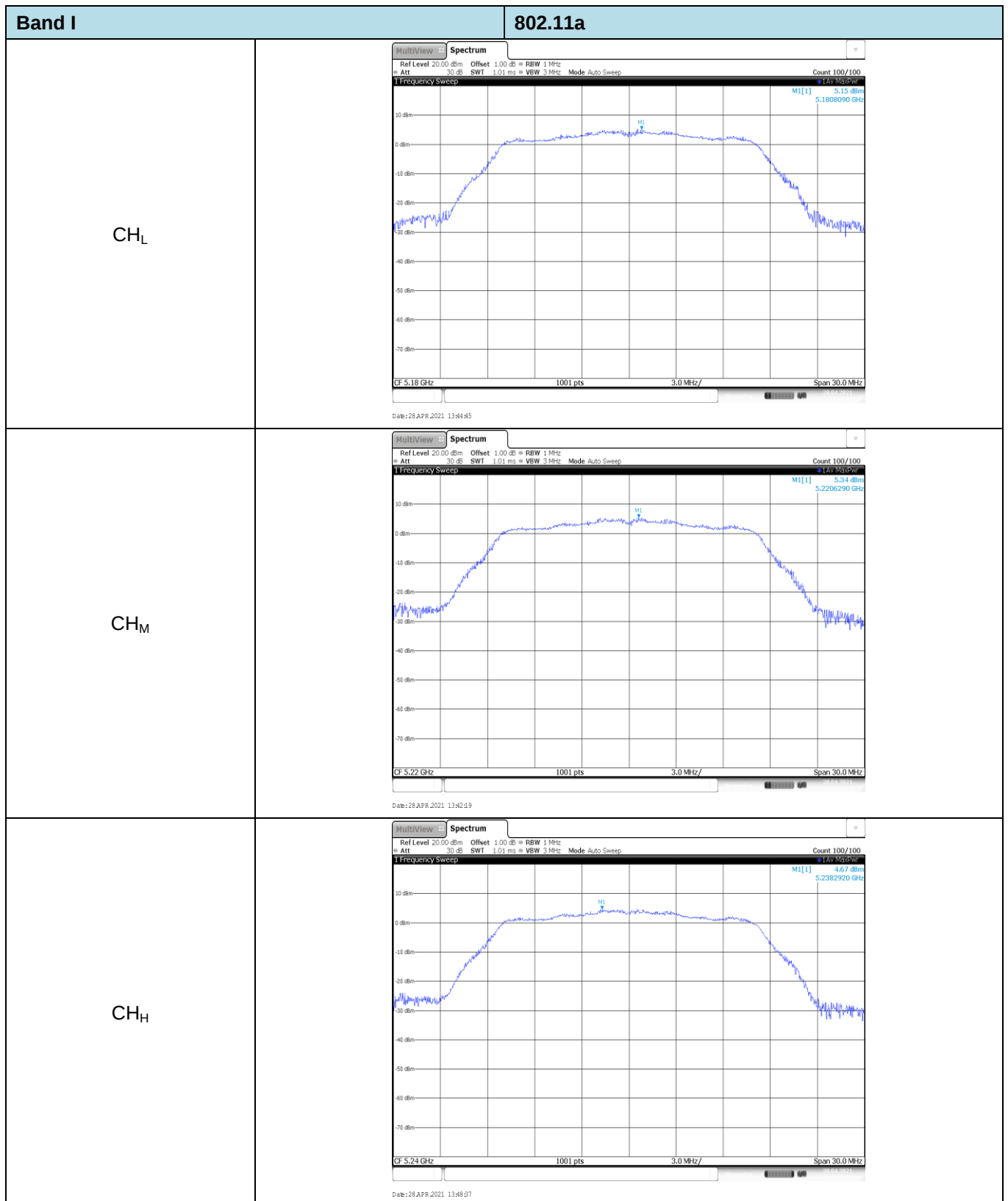
Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
II	20	802.11ac	CH _L	6.07	96.85	0.14	6.21	11.00	Pass
			CH _M	4.47	96.85	0.14	4.61		
			CH _H	4.67	96.77	0.14	4.81		
		802.11n	CH _L	3.91	92.62	0.33	4.24	11.00	Pass
			CH _M	4.27	92.70	0.33	4.60		
			CH _H	3.49	92.62	0.33	3.82		
		802.11a	CH _L	4.71	93.13	0.31	5.02	11.00	Pass
			CH _M	4.18	93.13	0.31	4.49		
			CH _H	3.61	93.05	0.31	3.92		
	40	802.11ac	CH _L	1.15	93.23	0.30	1.45	11.00	Pass
			CH _H	1.05	93.23	0.30	1.35		
		802.11n	CH _L	1.68	94.01	0.27	1.95	11.00	Pass
			CH _H	0.63	94.01	0.27	0.90		
	80	802.11ac	CH _M	-2.11	76.71	1.15	-0.96	11.00	Pass

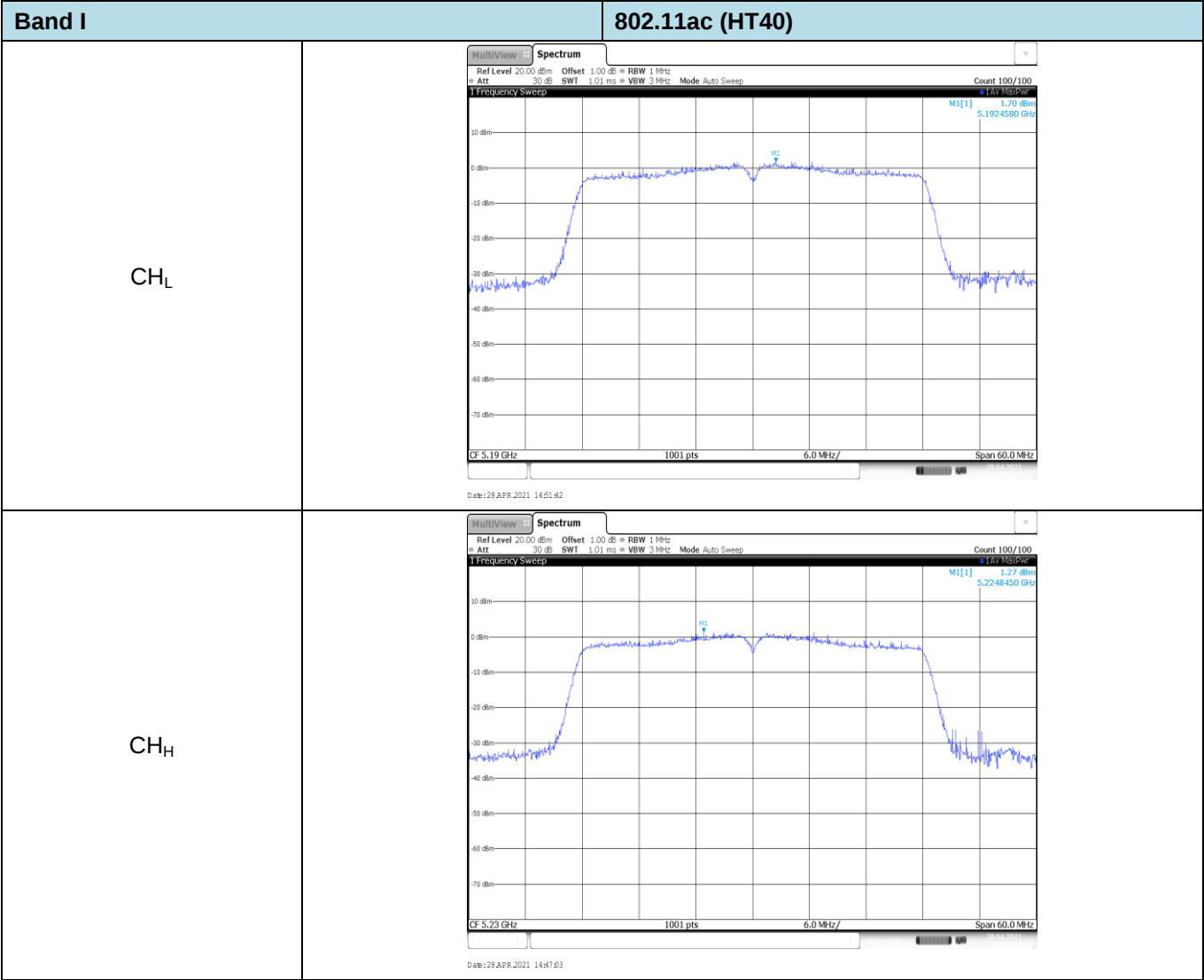
Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
III	20	802.11ac	CH _L	0.29	96.77	0.14	0.43	11.00	Pass
			CH _M	0.40	96.77	0.14	0.54		
			CH _H	-0.71	96.77	0.14	-0.57		
		802.11n	CH _L	1.24	92.61	0.33	1.57	11.00	Pass
			CH _M	0.97	92.62	0.33	1.30		
			CH _H	0.34	92.70	0.33	0.67		
		802.11a	CH _L	2.00	93.05	0.31	2.31	11.00	Pass
			CH _M	1.34	93.05	0.31	1.65		
			CH _H	0.58	93.04	0.31	0.89		
	40	802.11ac	CH _L	-4.18	94.05	0.27	-3.91	11.00	Pass
			CH _M	-3.75	94.05	0.27	-3.48		
			CH _H	-4.43	94.05	0.27	-4.16		
		802.11n	CH _L	-1.81	93.78	0.28	-1.53	11.00	Pass
			CH _M	-2.45	93.78	0.28	-2.17		
			CH _H	-4.06	93.78	0.28	-3.78		
	80	802.11ac	CH _L	-6.78	74.02	1.31	-5.47	11.00	Pass
			CH _M	-6.35	74.02	1.31	-5.04		
			CH _H	-7.48	74.02	1.31	-6.17		
Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Power Spectral Density (dBm/500kHz)	Limit (dBm/500K Hz)	Result
IV	20	802.11ac	CH _L	0.49	96.77	0.14	0.63	30.00	Pass
			CH _M	-0.25	96.77	0.14	-0.11		
			CH _H	0.82	96.85	0.14	0.96		
		802.11n	CH _L	0.89	92.61	0.33	1.22	30.00	Pass
			CH _M	-0.08	92.70	0.33	0.25		
			CH _H	0.81	92.62	0.33	1.14		
		802.11a	CH _L	1.06	93.04	0.31	1.37	30.00	Pass
			CH _M	0.52	93.04	0.31	0.83		
			CH _H	1.40	93.04	0.31	1.71		
	40	802.11ac	CH _L	-3.47	94.22	0.26	-3.21	30.00	Pass
			CH _H	-3.54	94.22	0.26	-3.28		
		802.11n	CH _L	-3.34	93.81	0.28	-3.06	30.00	Pass
			CH _H	-3.35	93.81	0.28	-3.07		
	80	802.11ac	CH _M	-6.78	76.17	1.18	-5.60	30.00	Pass

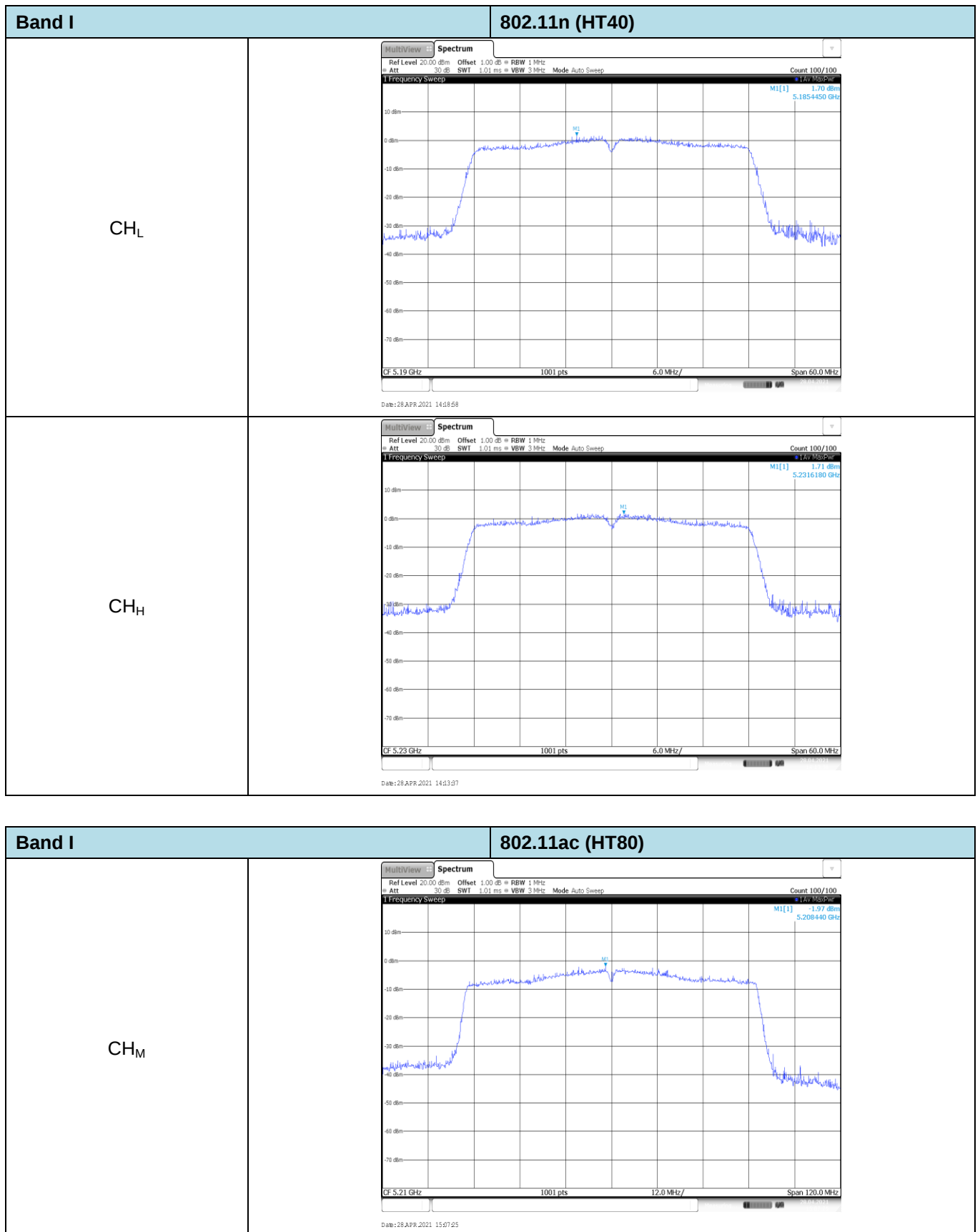
Test plot as follows:

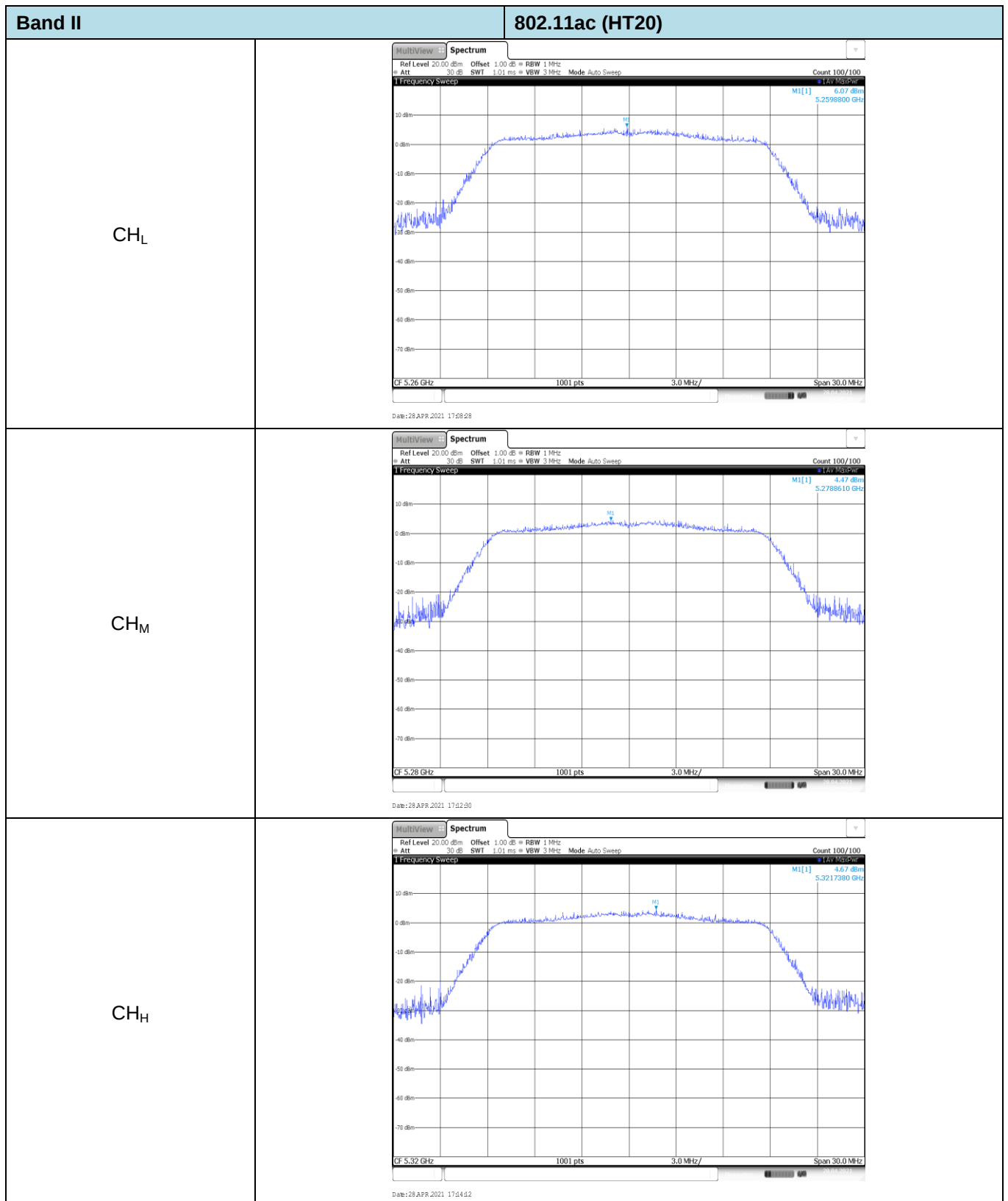


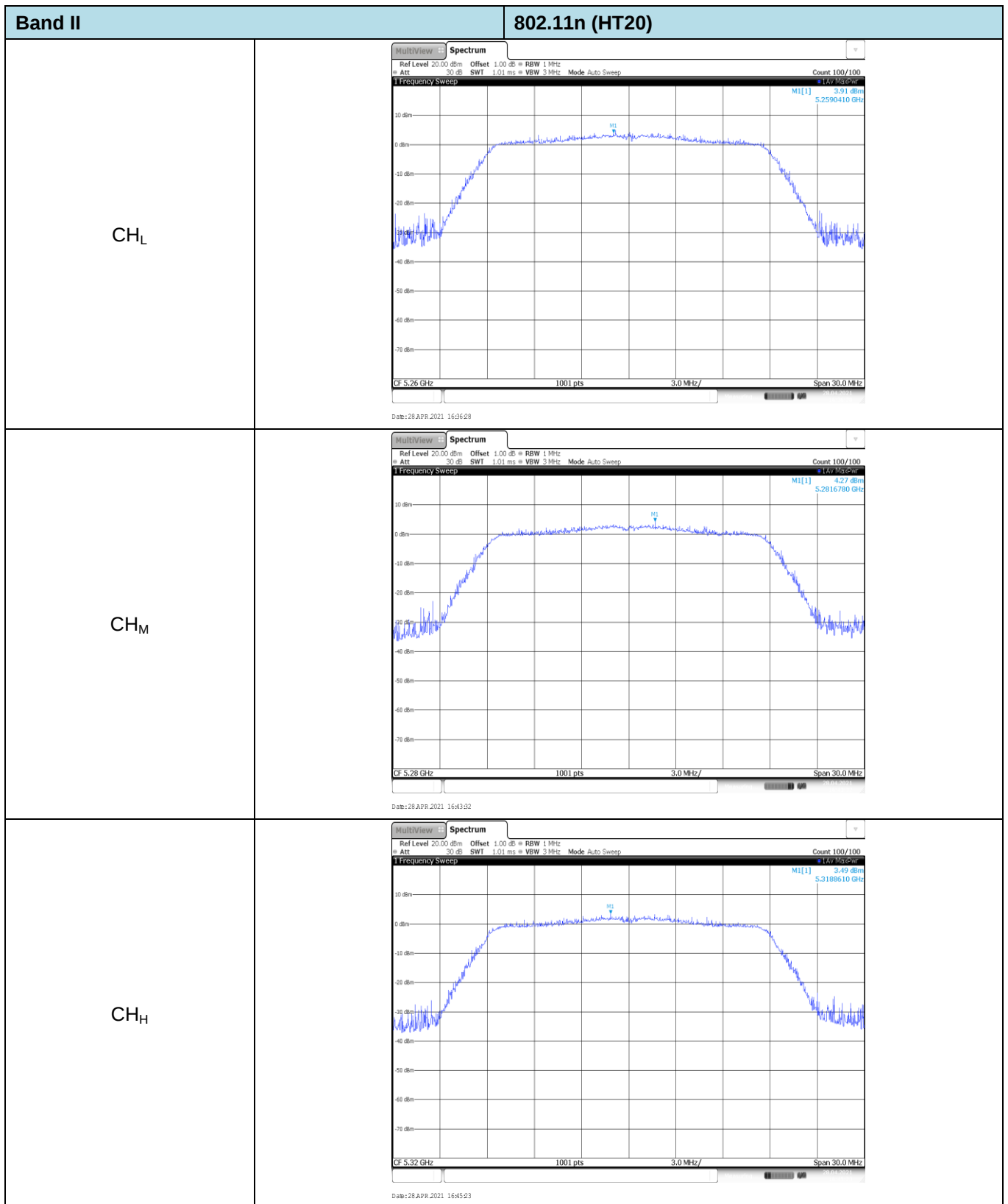


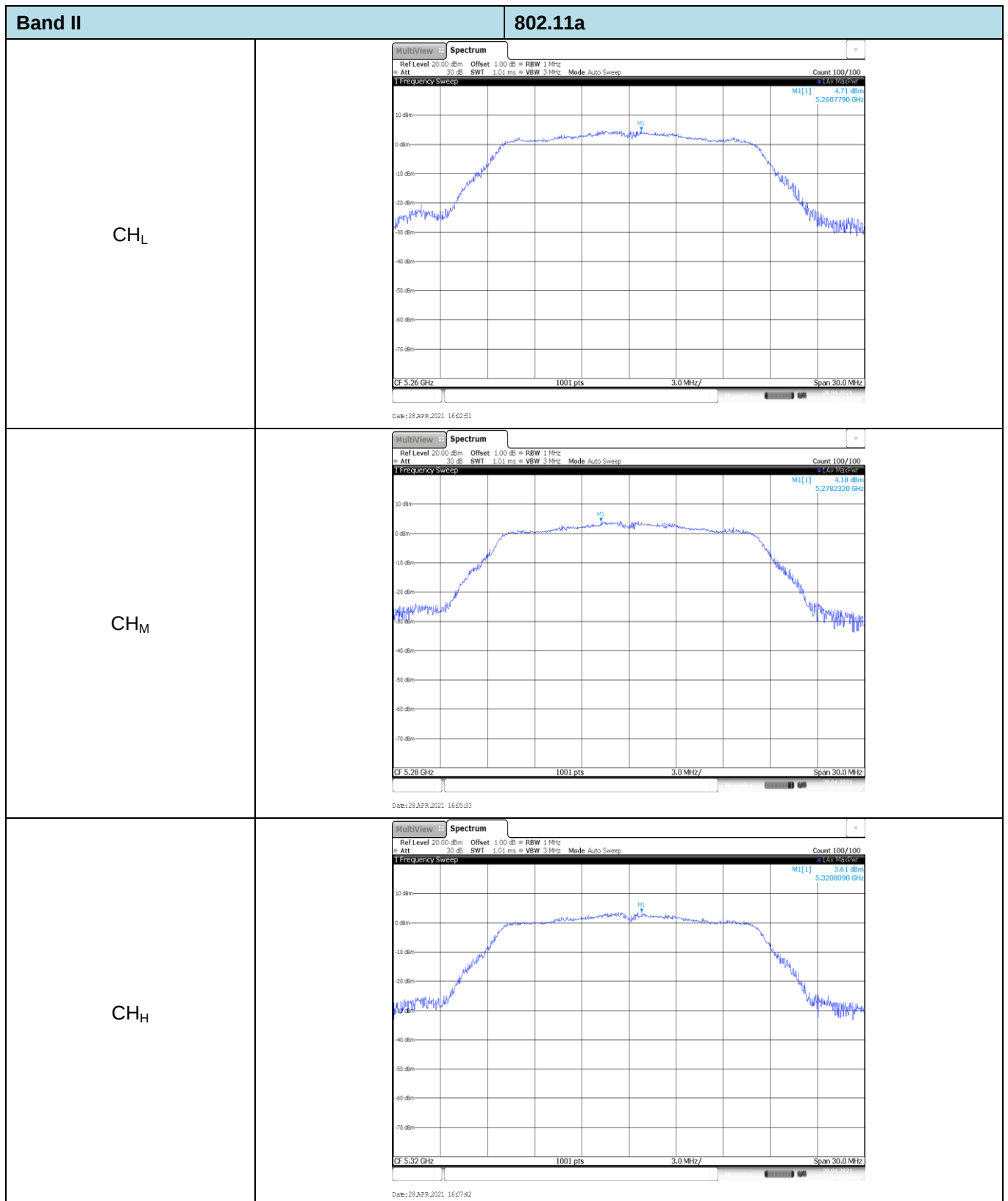


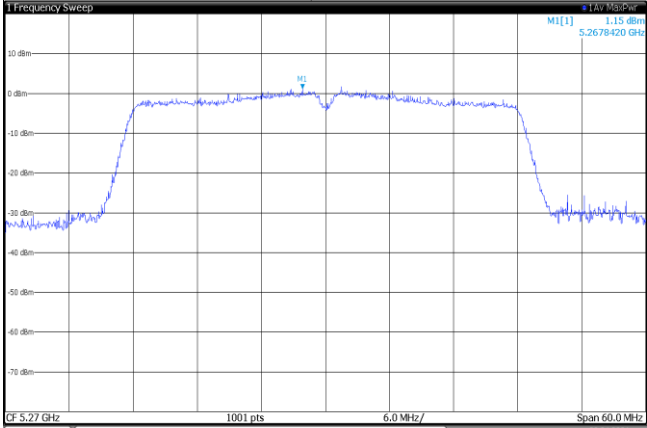
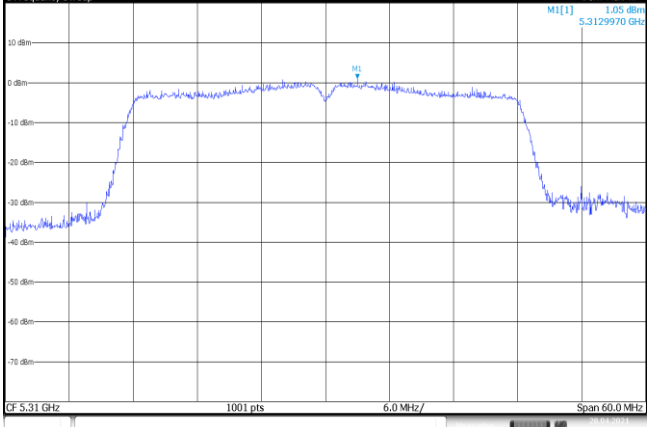


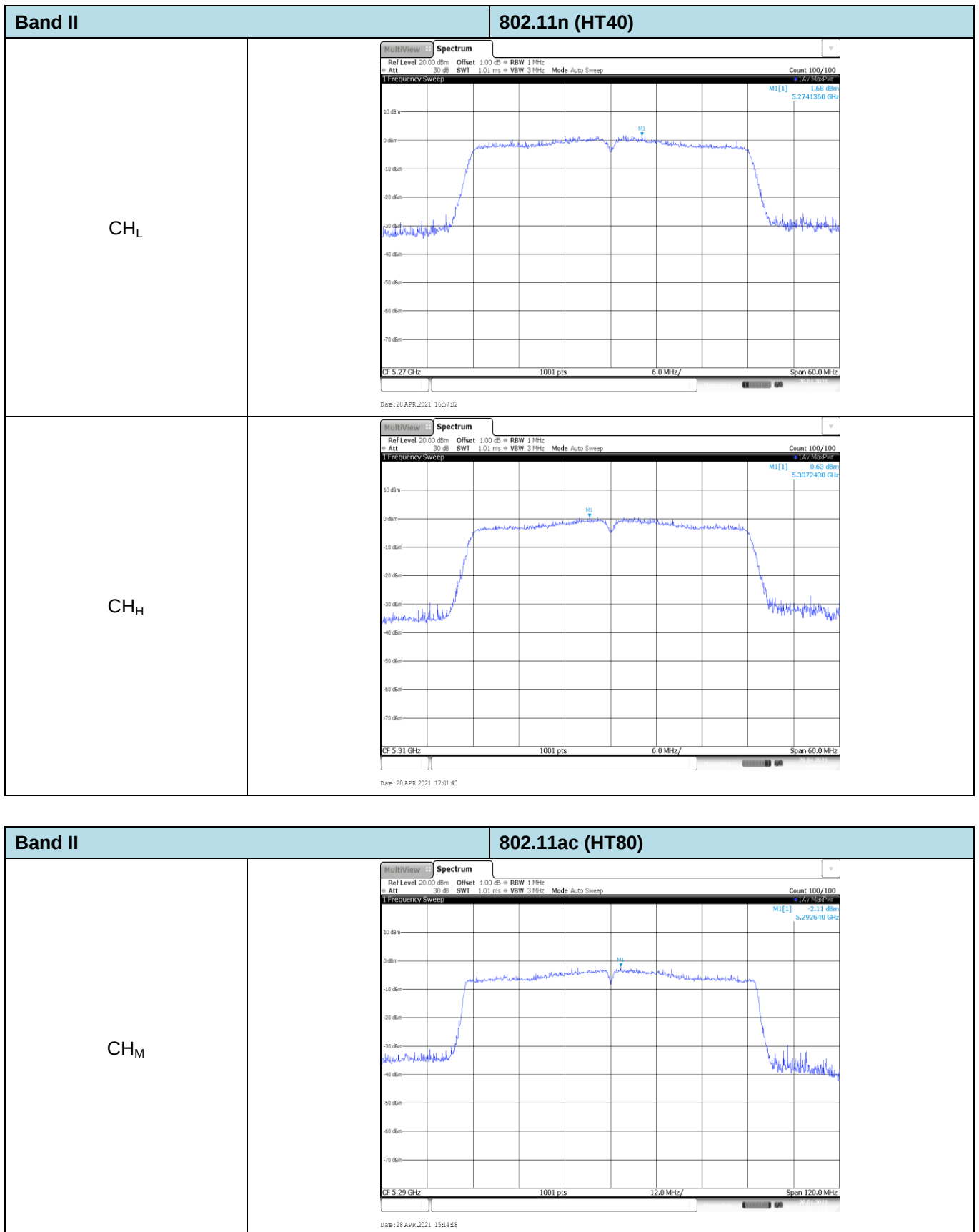


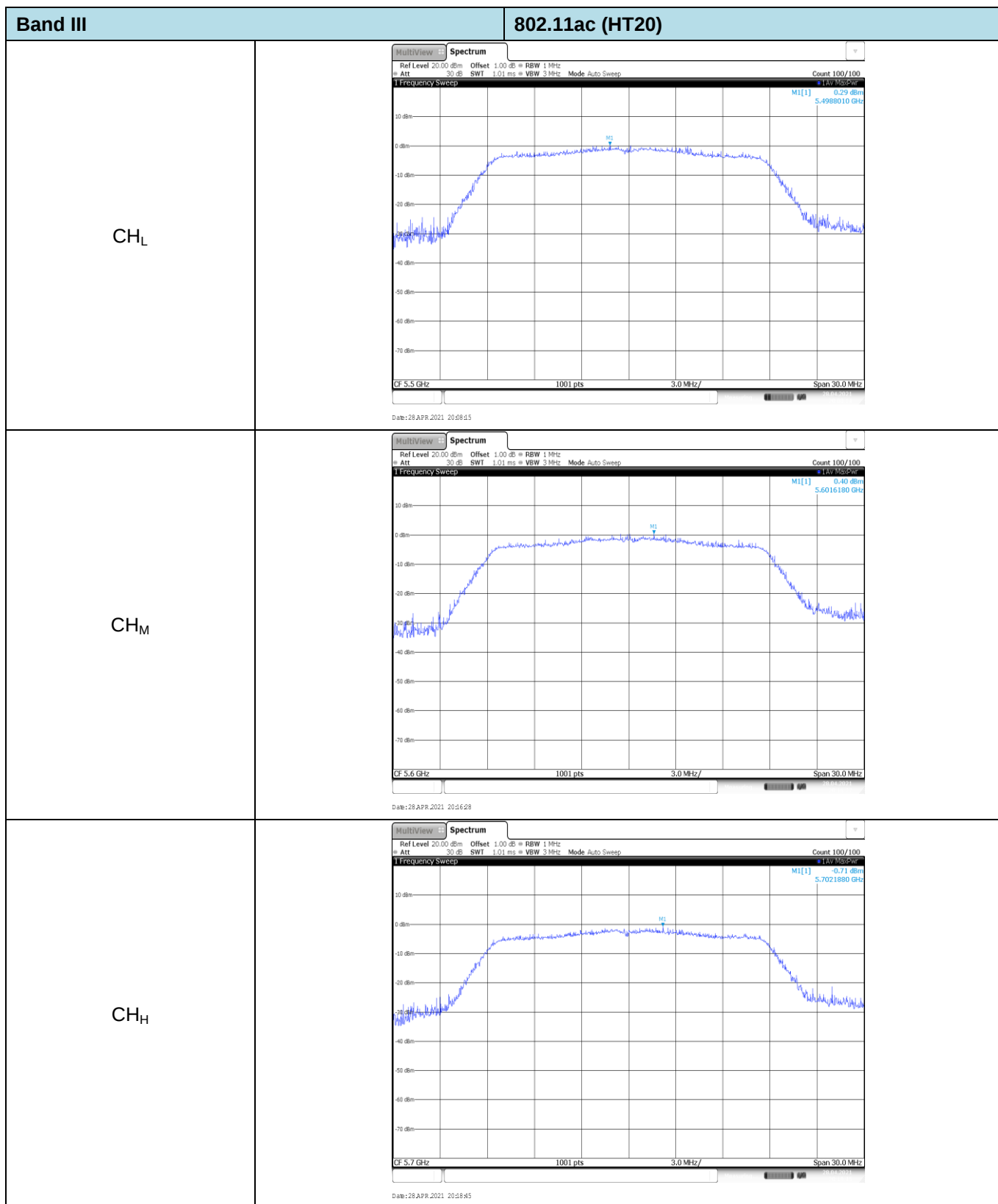


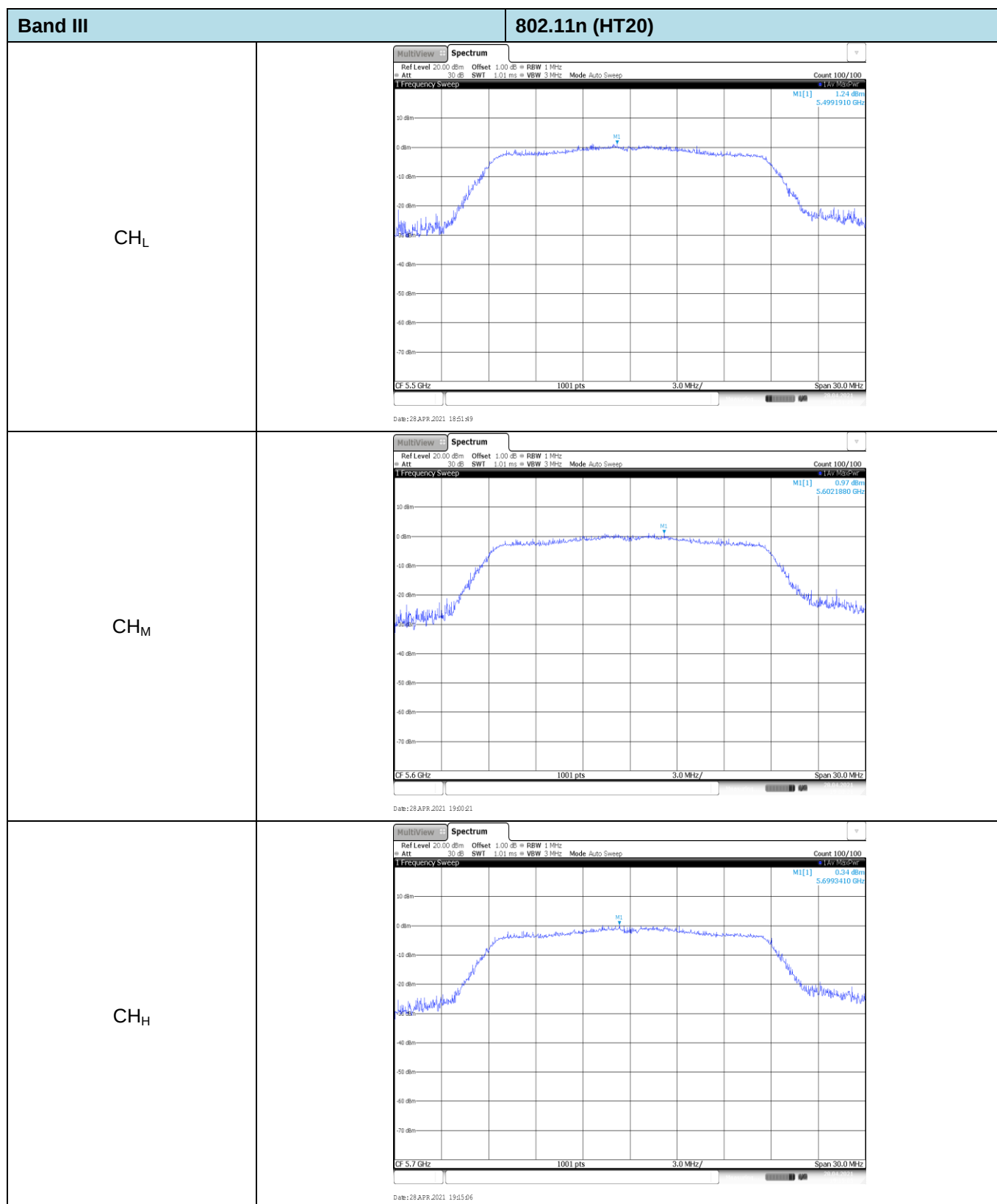


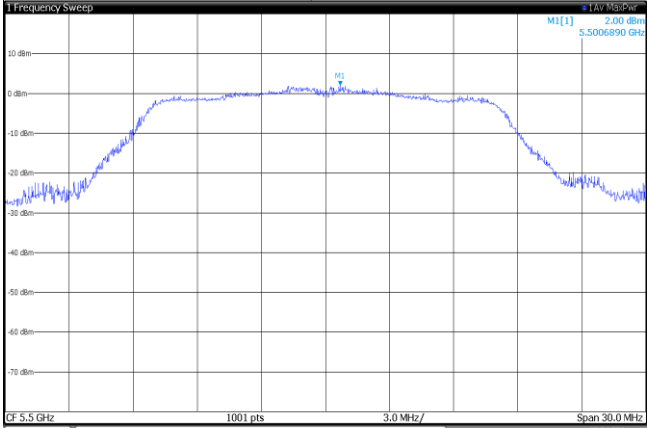
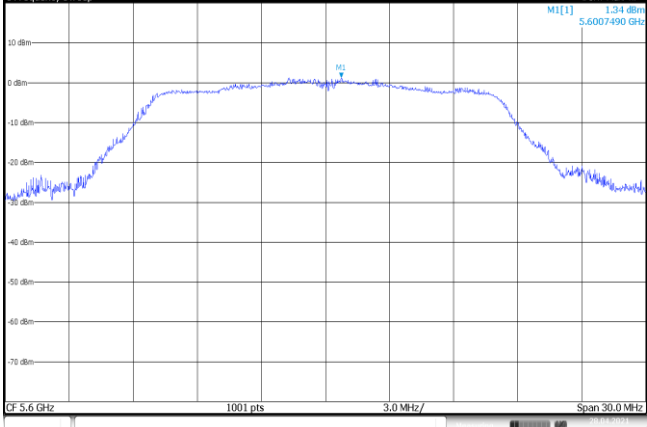
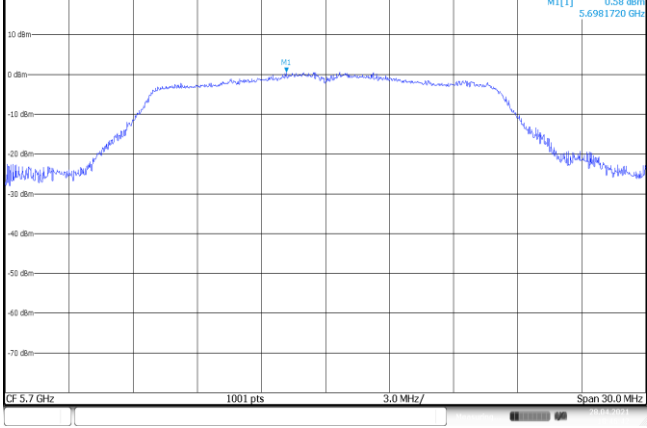


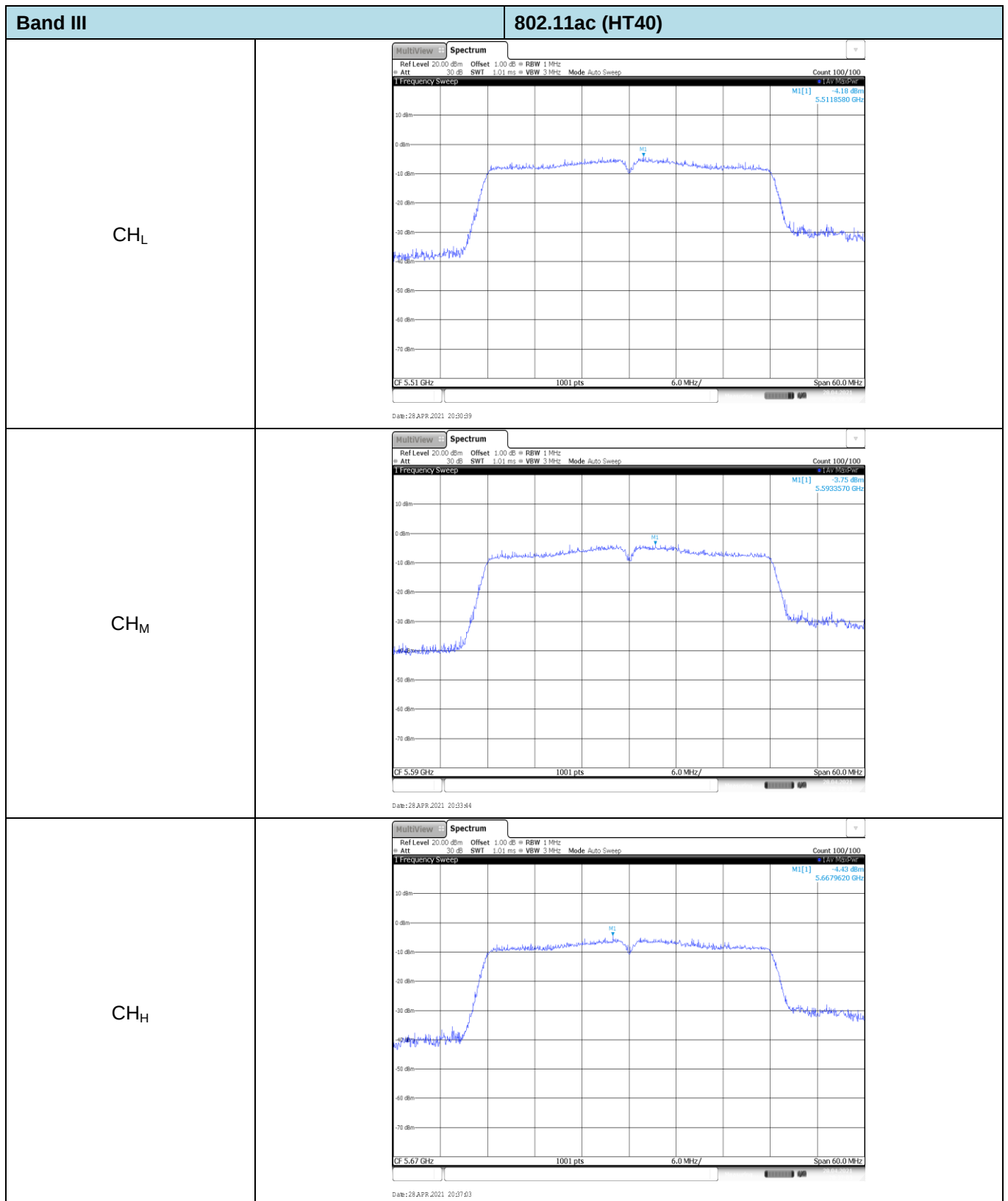
Band II		802.11ac (HT40)
CH _L	MultiView Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB RBW 1 MHz SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 STAT MS/Power 1 Frequency Sweep  CF 5.27 GHz1001 pts6.0 MHz/Span 60.0 MHz Date:28 APR,2021 17:47:38	
CH _H	MultiView Spectrum Ref Level 20.00 dBm Att 30 dB Offset 1.00 dB RBW 1 MHz SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 STAT MS/Power 1 Frequency Sweep  CF 5.31 GHz1001 pts6.0 MHz/Span 60.0 MHz Date:28 APR,2021 17:49:45	

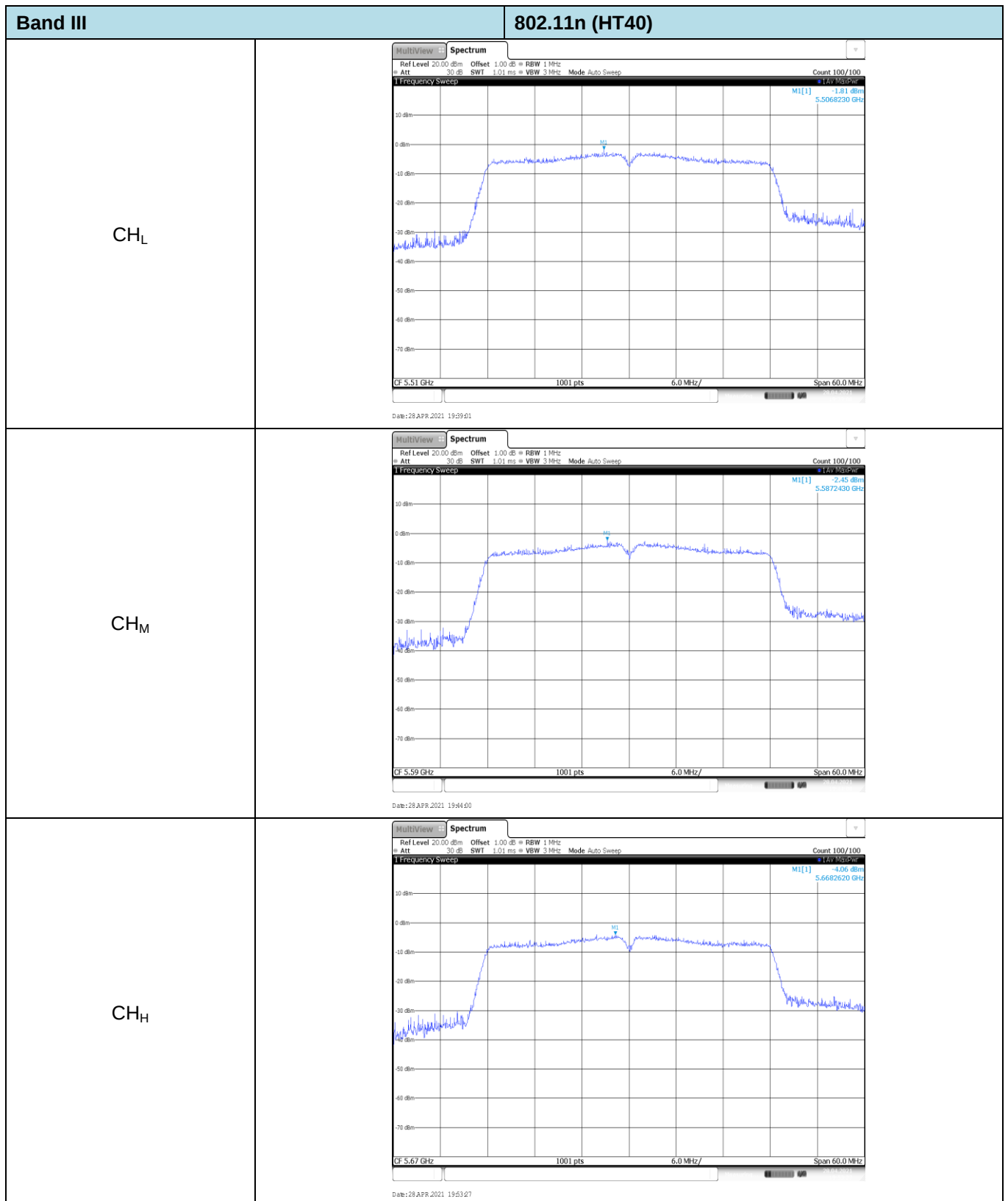




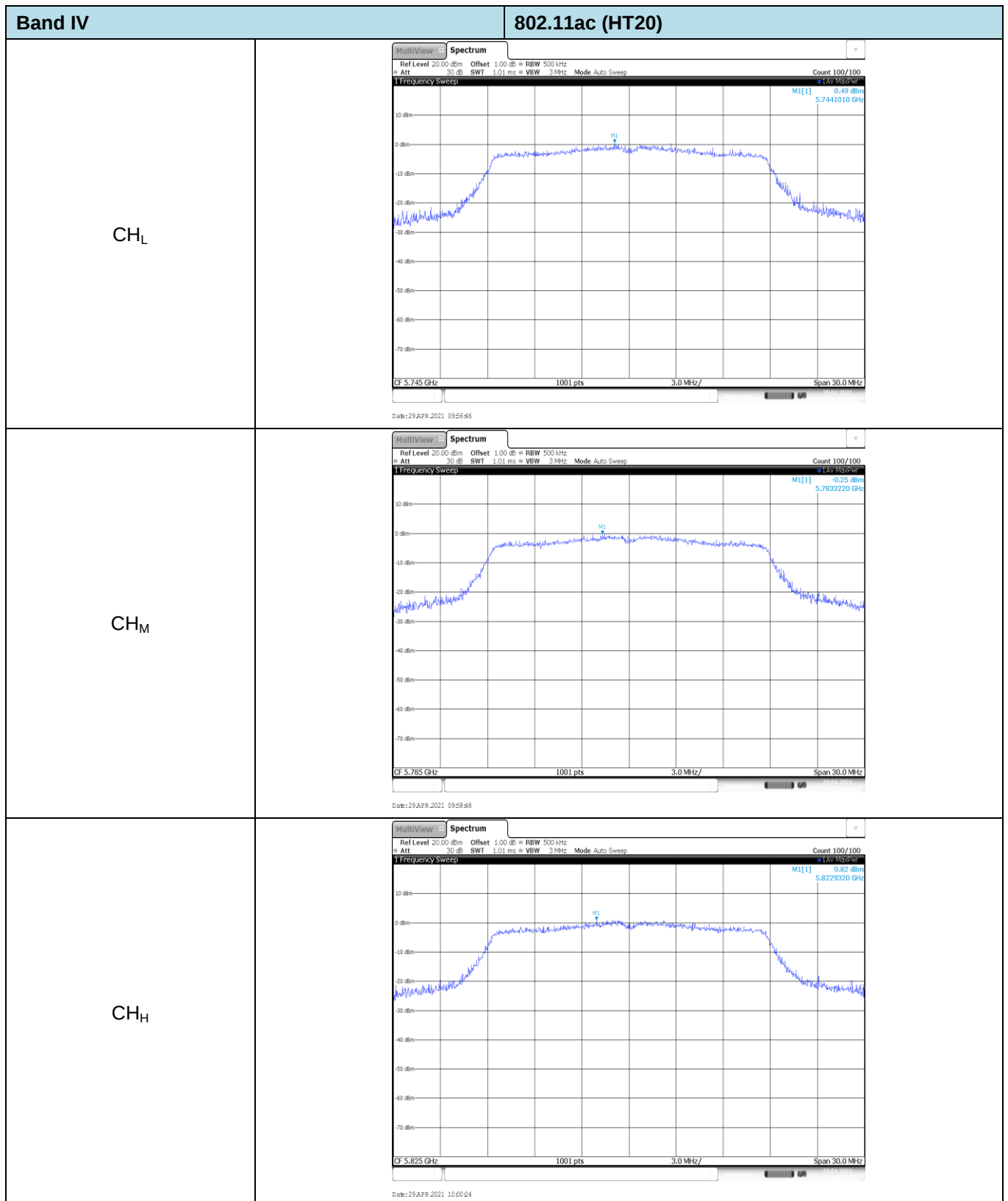


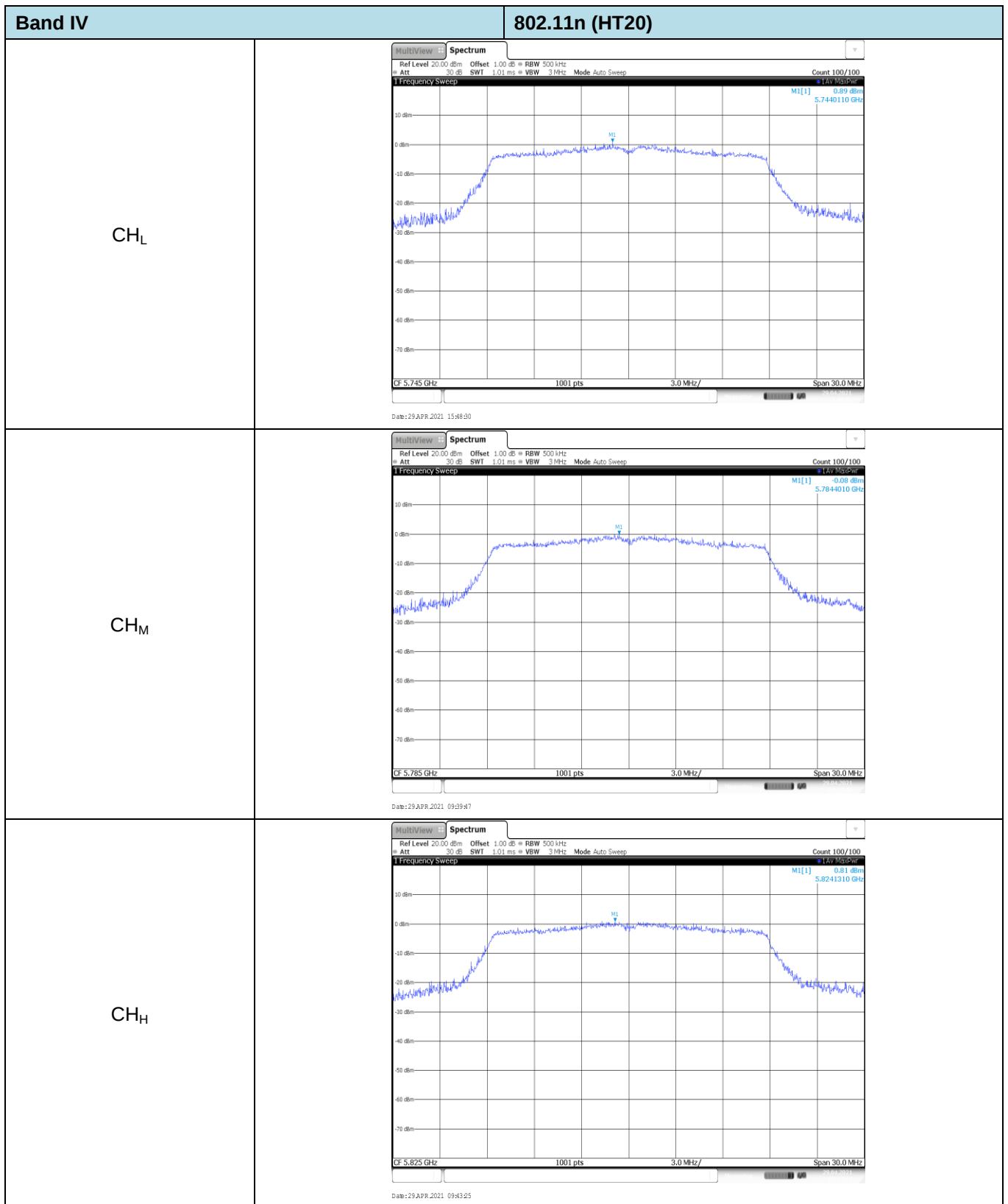
Band III		802.11a
CH _L	MultiView Spectrum Ref Level 20.00 dBm Att 30.0 dB Offset 1.00 dB RBW 1 MHz SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 ↑TAT M50Pw M1[1] 2.00 dBm 5.5006890 GHz  CF 5.5 GHz1001 pts3.0 MHz/Span 30.0 MHz Date:28.Apr.2021 18:38:47	
CH _M	MultiView Spectrum Ref Level 20.00 dBm Att 30.0 dB Offset 1.00 dB RBW 1 MHz SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 ↑TAT M50Pw M1[1] 1.34 dBm 5.6007490 GHz  CF 5.6 GHz1001 pts3.0 MHz/Span 30.0 MHz Date:28.Apr.2021 18:44:01	
CH _H	MultiView Spectrum Ref Level 20.00 dBm Att 30.0 dB Offset 1.00 dB RBW 1 MHz SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 ↑TAT M50Pw M1[1] 0.58 dBm 5.6981720 GHz  CF 5.7 GHz1001 pts3.0 MHz/Span 30.0 MHz Date:28.Apr.2021 18:46:41	

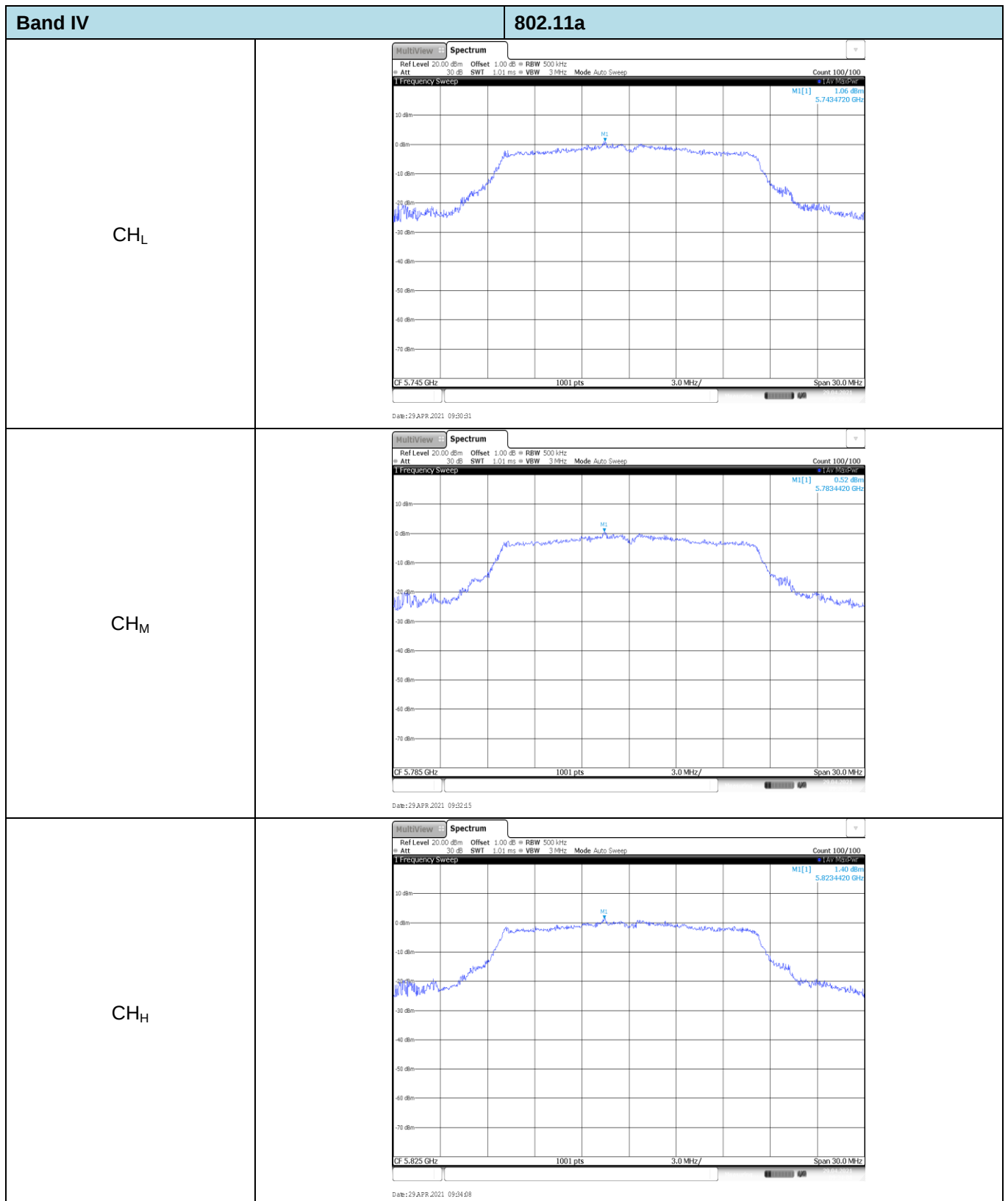


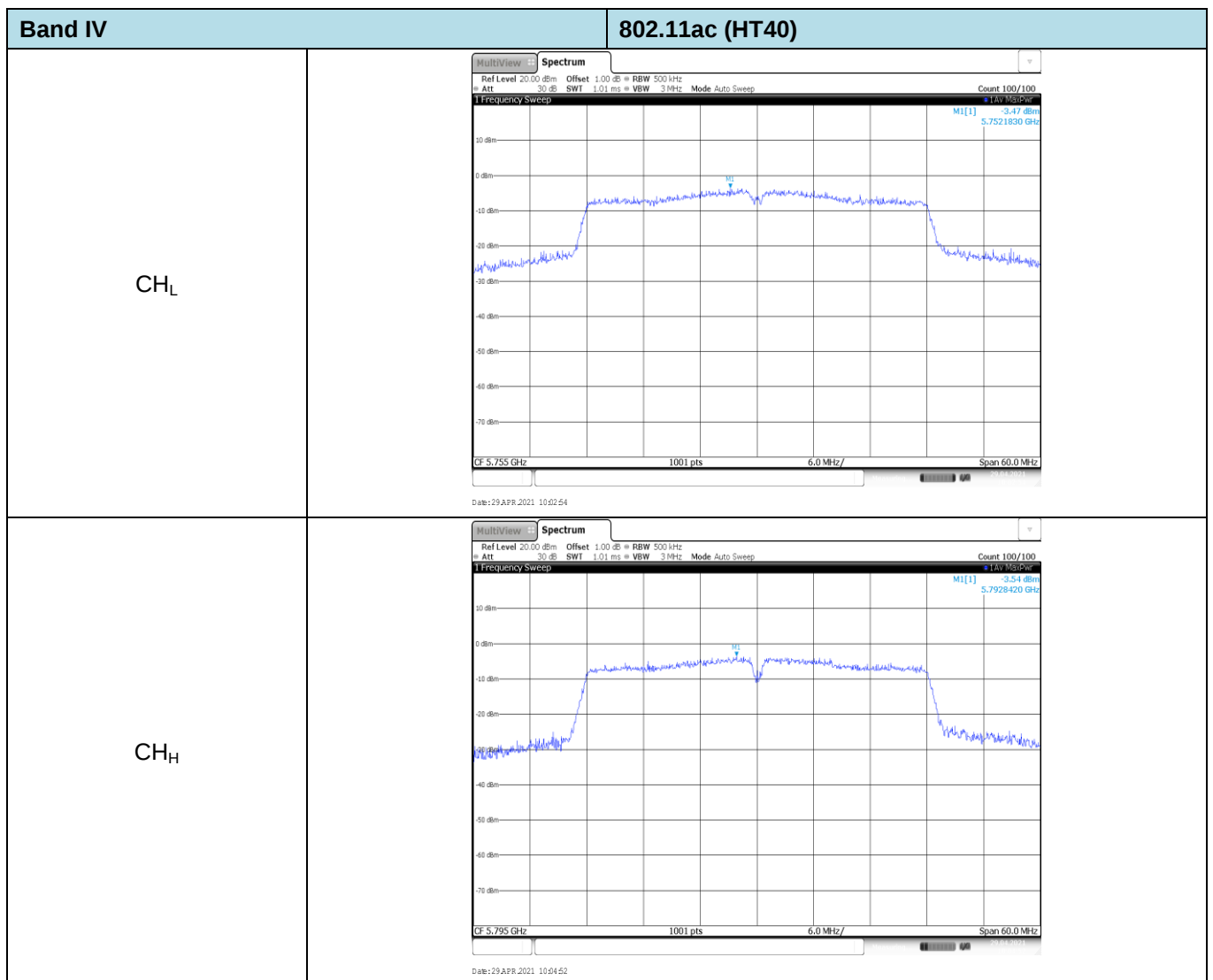


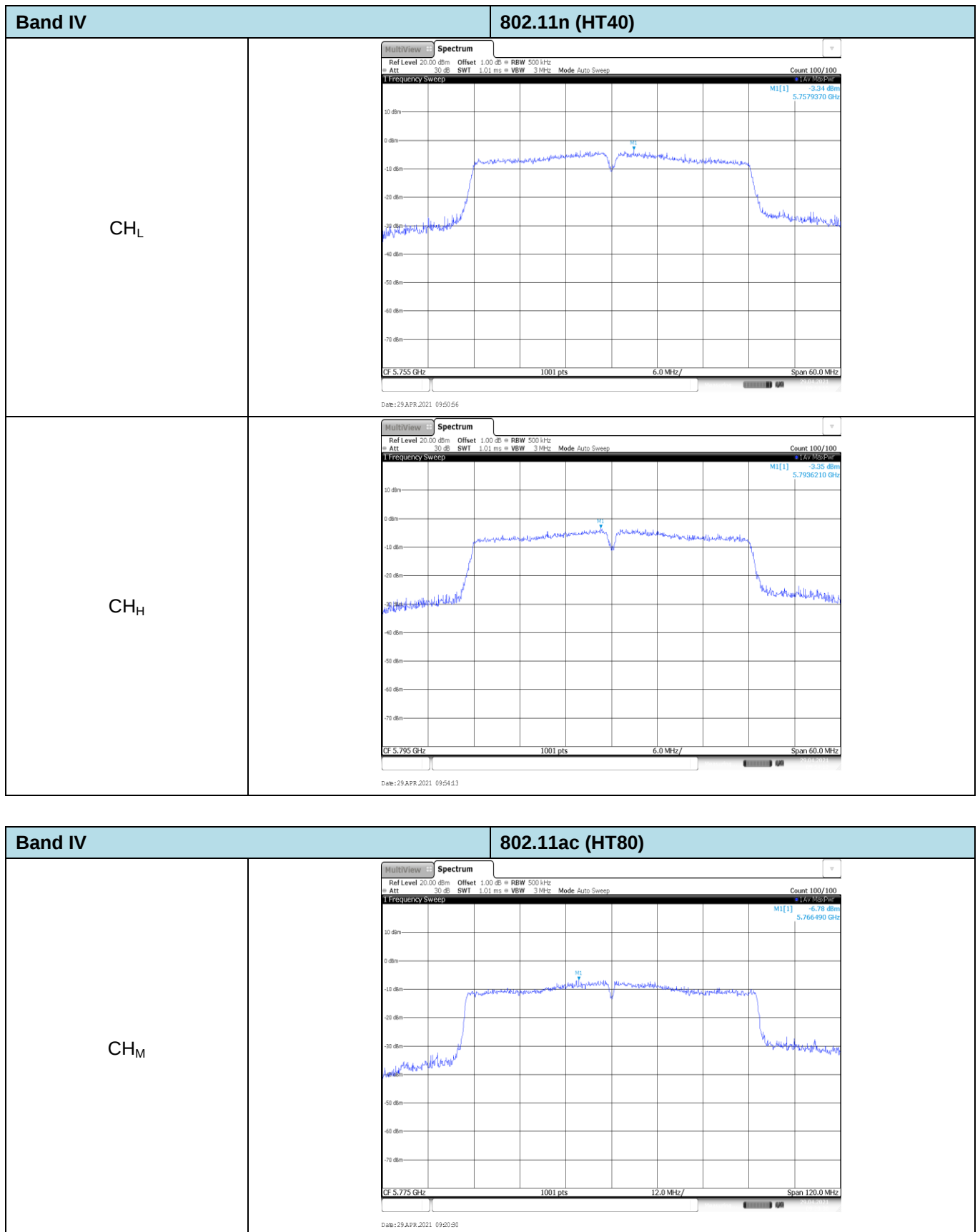
Band III		802.11ac (HT80)
CH _L	Ref Level 20.00 dBm Offset 1.00 dB BW 1 MHz ATT 30 dB SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 M1[1] -6.78 dBm 5.525800 GHz CF 5.53 GHz 1001 pts 12.0 MHz/ Span 120.0 MHz Date: 28 APR 2021 20:43:49	
CH _M	Ref Level 20.00 dBm Offset 1.00 dB BW 1 MHz ATT 30 dB SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 M1[1] -6.35 dBm 5.604490 GHz CF 5.61 GHz 1001 pts 12.0 MHz/ Span 120.0 MHz Date: 28 APR 2021 20:45:46	
CH _H	Ref Level 20.00 dBm Offset 1.00 dB BW 1 MHz ATT 30 dB SWT 1.01 ms VBW 3 MHz Mode Auto Sweep Count 100/100 M1[1] -7.48 dBm 5.700070 GHz CF 5.69 GHz 1001 pts 12.0 MHz/ Span 120.0 MHz Date: 28 APR 2021 20:48:45	







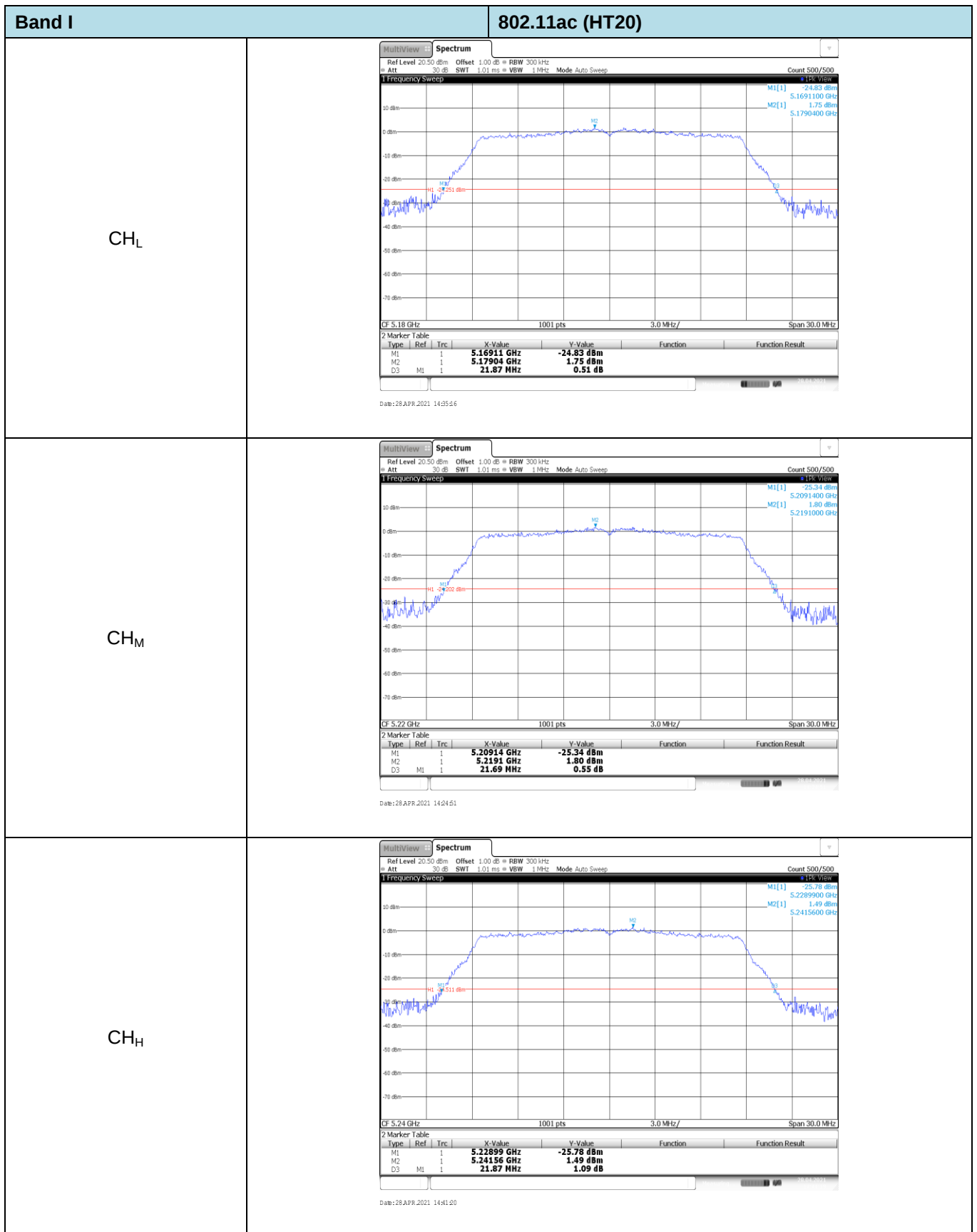


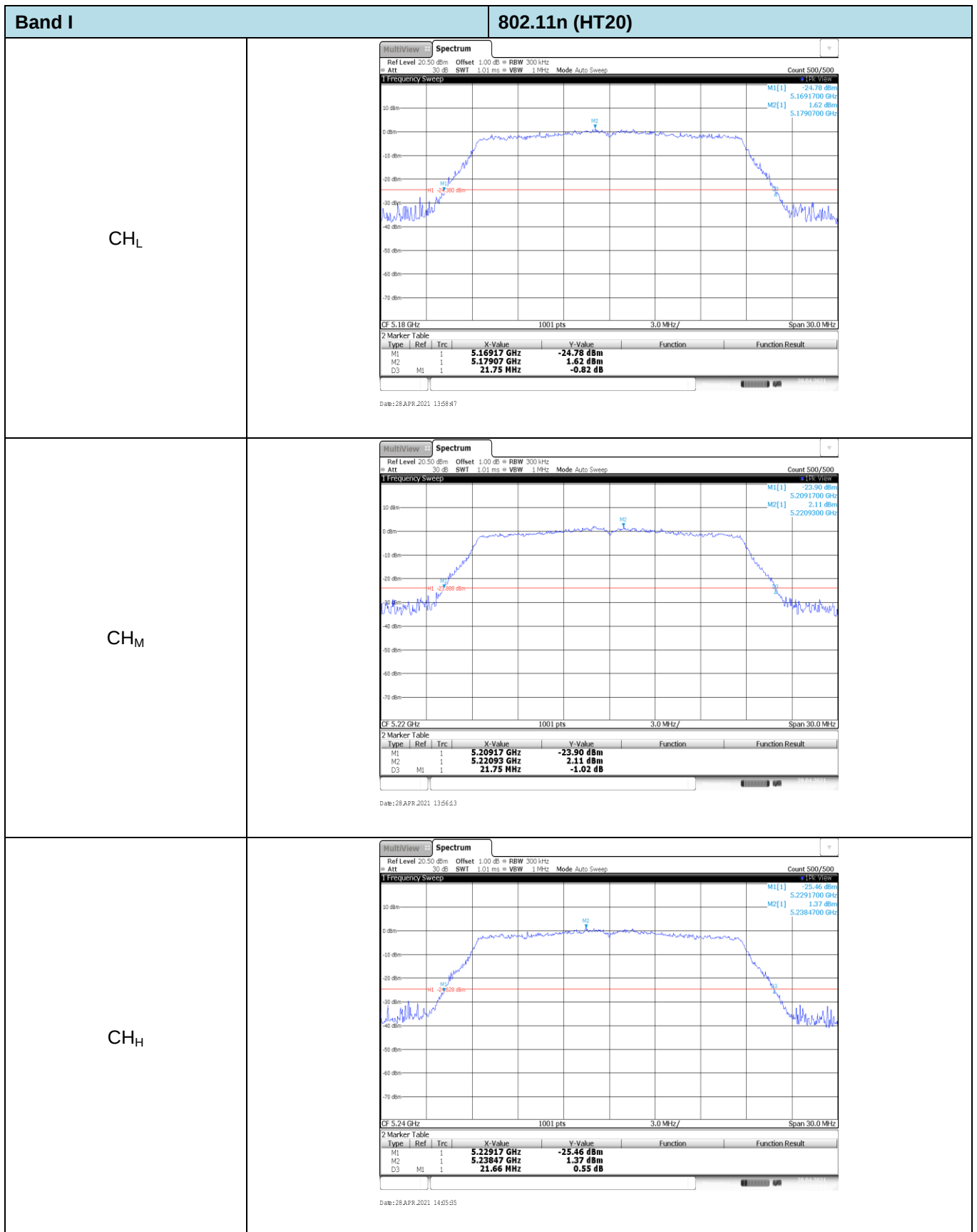


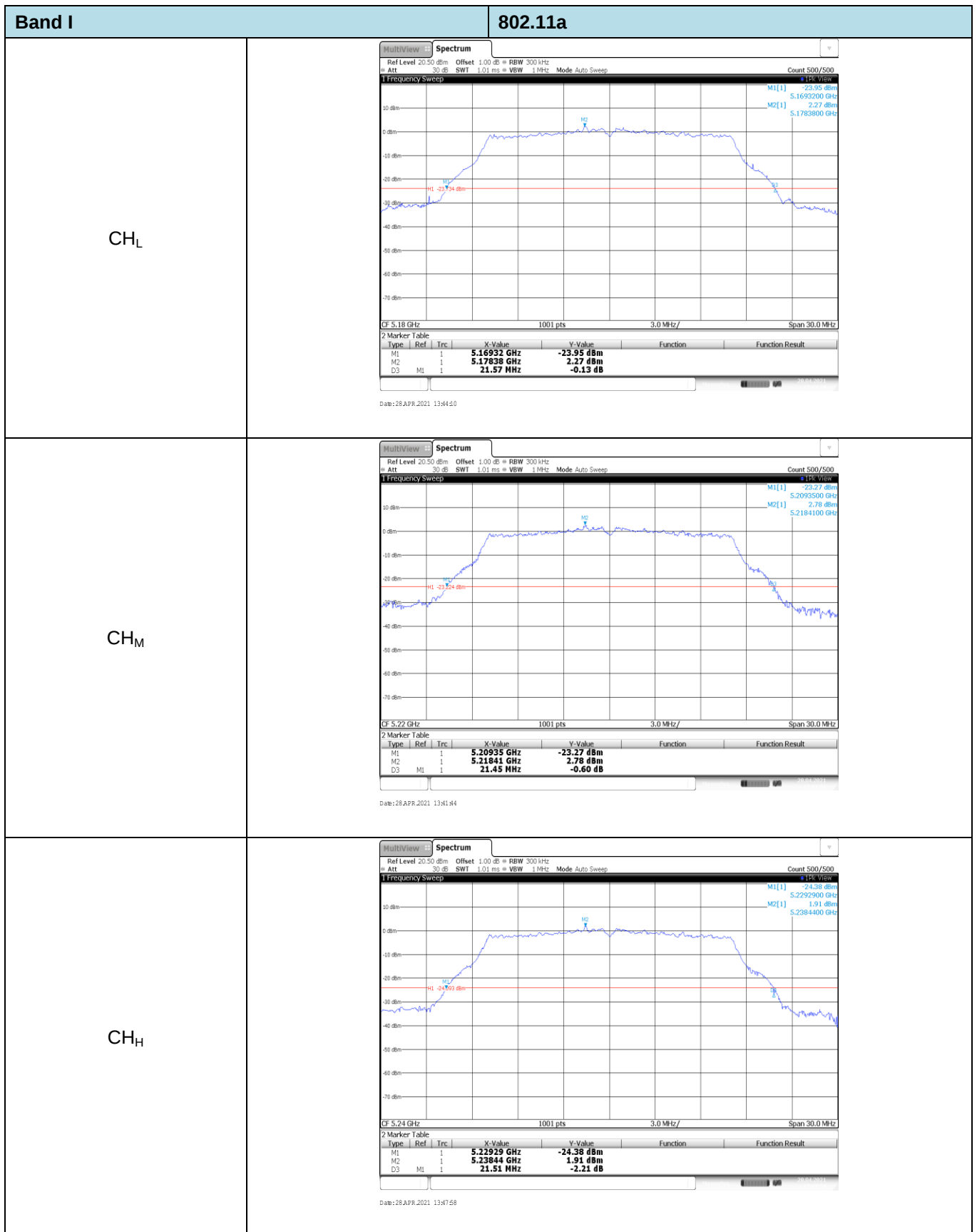
Appendix C: 26dB bandwidth

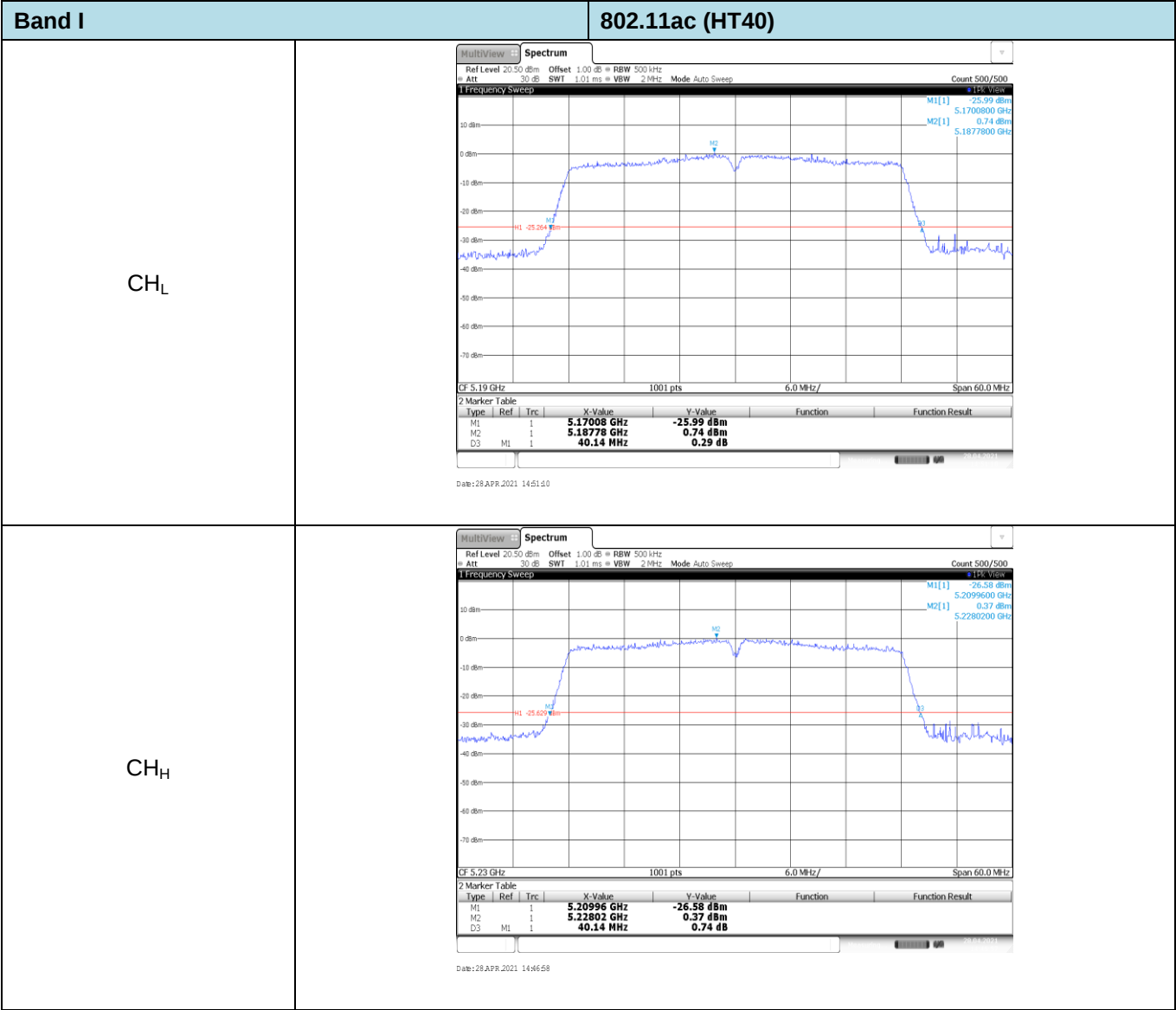
Band	Bandwidth (MHz)	Type	Channel	26dB bandwidth (MHz)	Result
I	20	802.11ac	CH _L	21.87	Pass
			CH _M	21.69	
			CH _H	21.87	
		802.11n	CH _L	21.75	Pass
			CH _M	21.75	
			CH _H	21.66	
		802.11a	CH _L	21.57	Pass
			CH _M	21.45	
			CH _H	21.51	
	40	802.11ac	CH _L	40.14	Pass
			CH _H	40.14	
		802.11n	CH _L	40.14	Pass
			CH _H	40.02	
	80	802.11ac	CH _M	81.36	Pass
II	20	802.11ac	CH _L	21.66	Pass
			CH _M	22.29	
			CH _H	22.98	
		802.11n	CH _L	21.63	Pass
			CH _M	21.84	
			CH _H	21.90	
		802.11a	CH _L	21.60	Pass
			CH _M	21.54	
			CH _H	21.51	
	40	802.11ac	CH _L	41.94	Pass
			CH _H	41.82	
		802.11n	CH _L	40.44	Pass
			CH _H	40.20	
	80	802.11ac	CH _M	83.16	Pass

Band	Bandwidth (MHz)	Type	Channel	26dB bandwidth (MHz)	Result
III	20	802.11ac	CH _L	26.79	Pass
			CH _M	25.44	
			CH _H	26.19	
		802.11n	CH _L	25.80	Pass
			CH _M	25.25	
			CH _H	27.33	
		802.11a	CH _L	23.43	Pass
			CH _M	23.40	
			CH _H	26.13	
	40	802.11ac	CH _L	49.20	Pass
			CH _M	48.66	
			CH _H	49.44	
		802.11n	CH _L	49.50	Pass
			CH _M	49.26	
			CH _H	48.78	
	80	802.11ac	CH _L	99.00	Pass
			CH _M	98.88	
			CH _H	98.04	



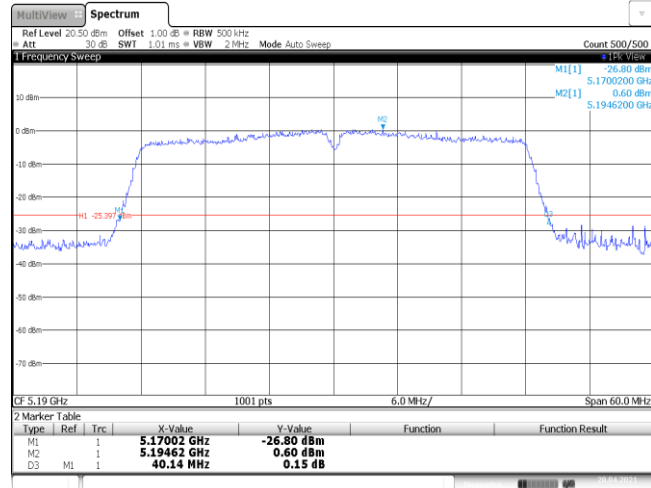




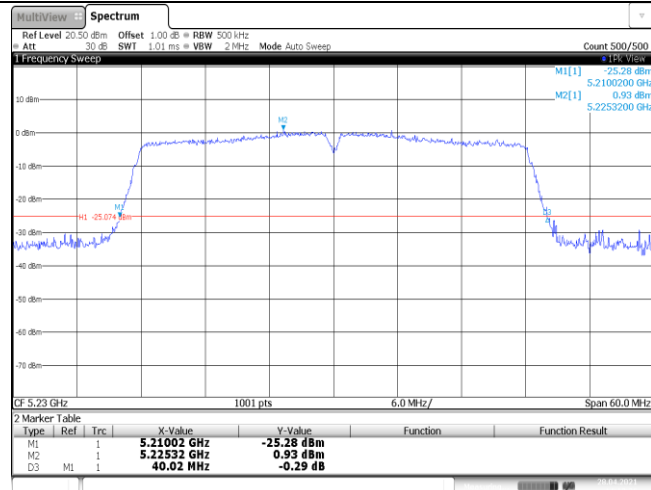


Band I

802.11n (HT40)

CH_L

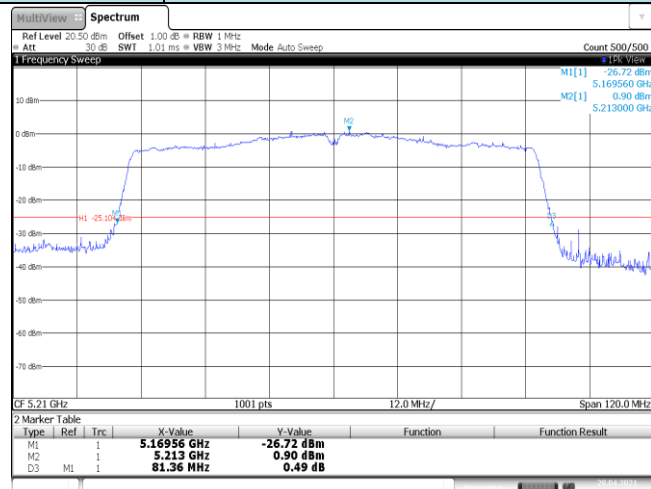
Date: 28 APR 2021 14:18:24

CH_H

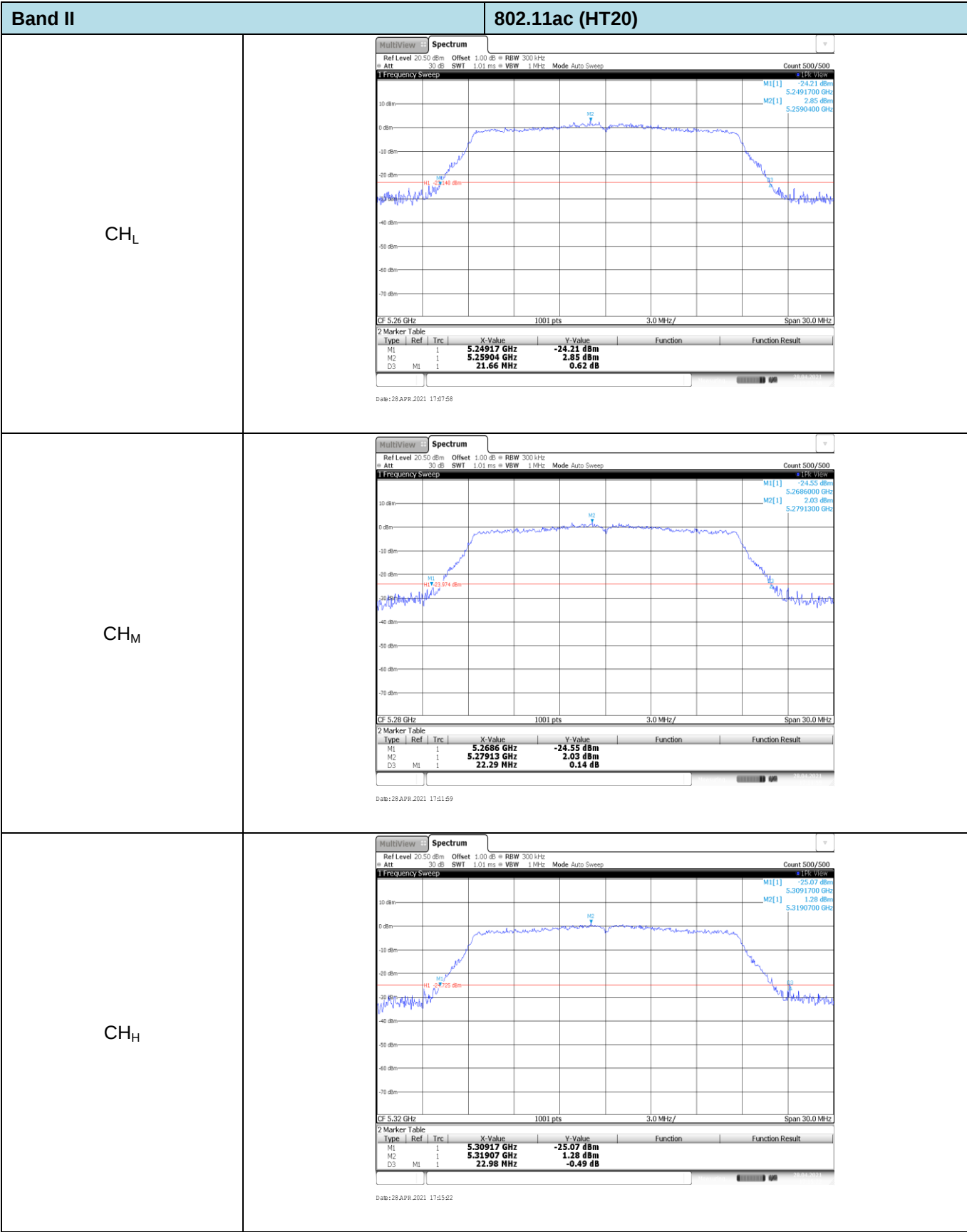
Date: 28 APR 2021 14:13:27

Band I

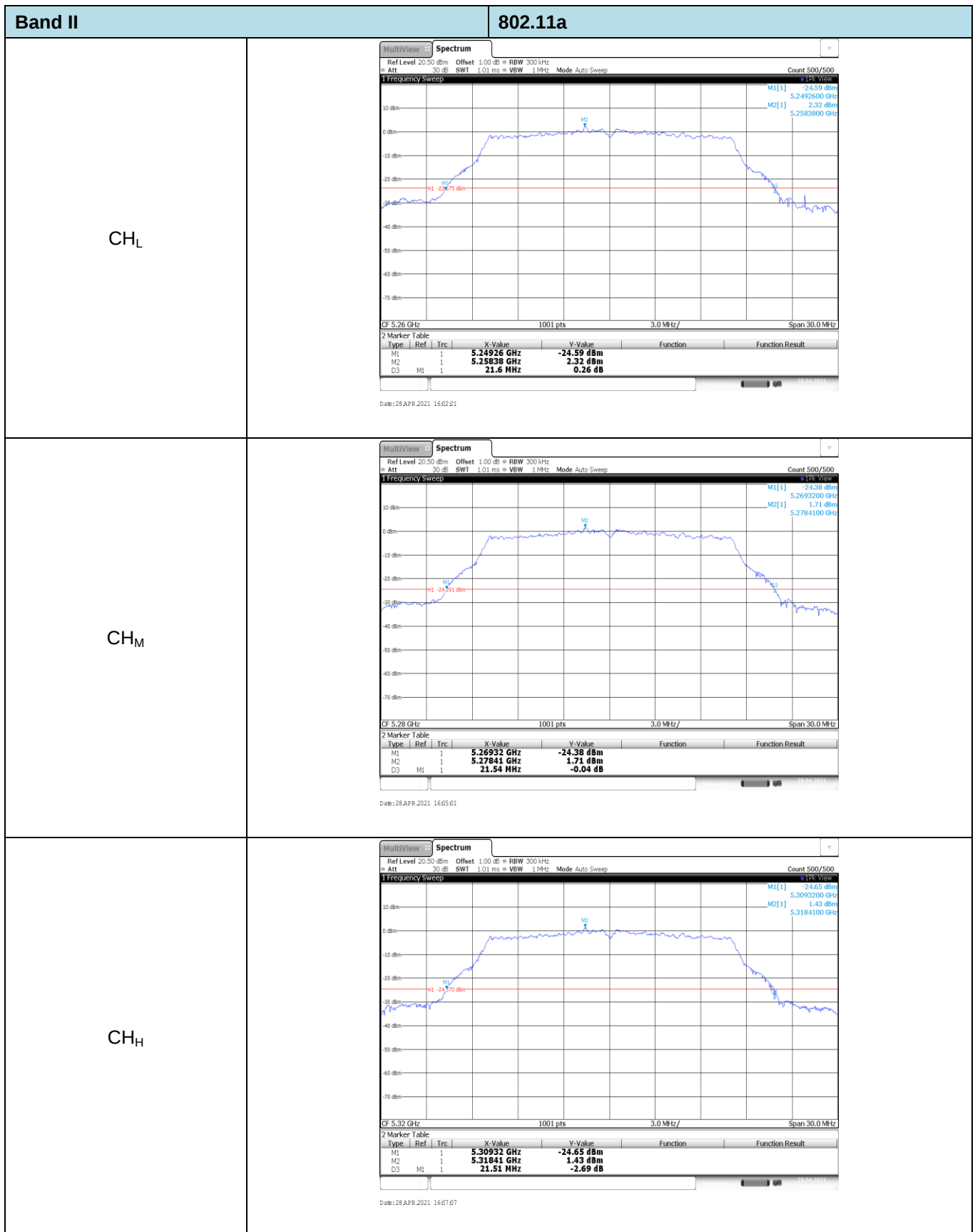
802.11ac (HT80)

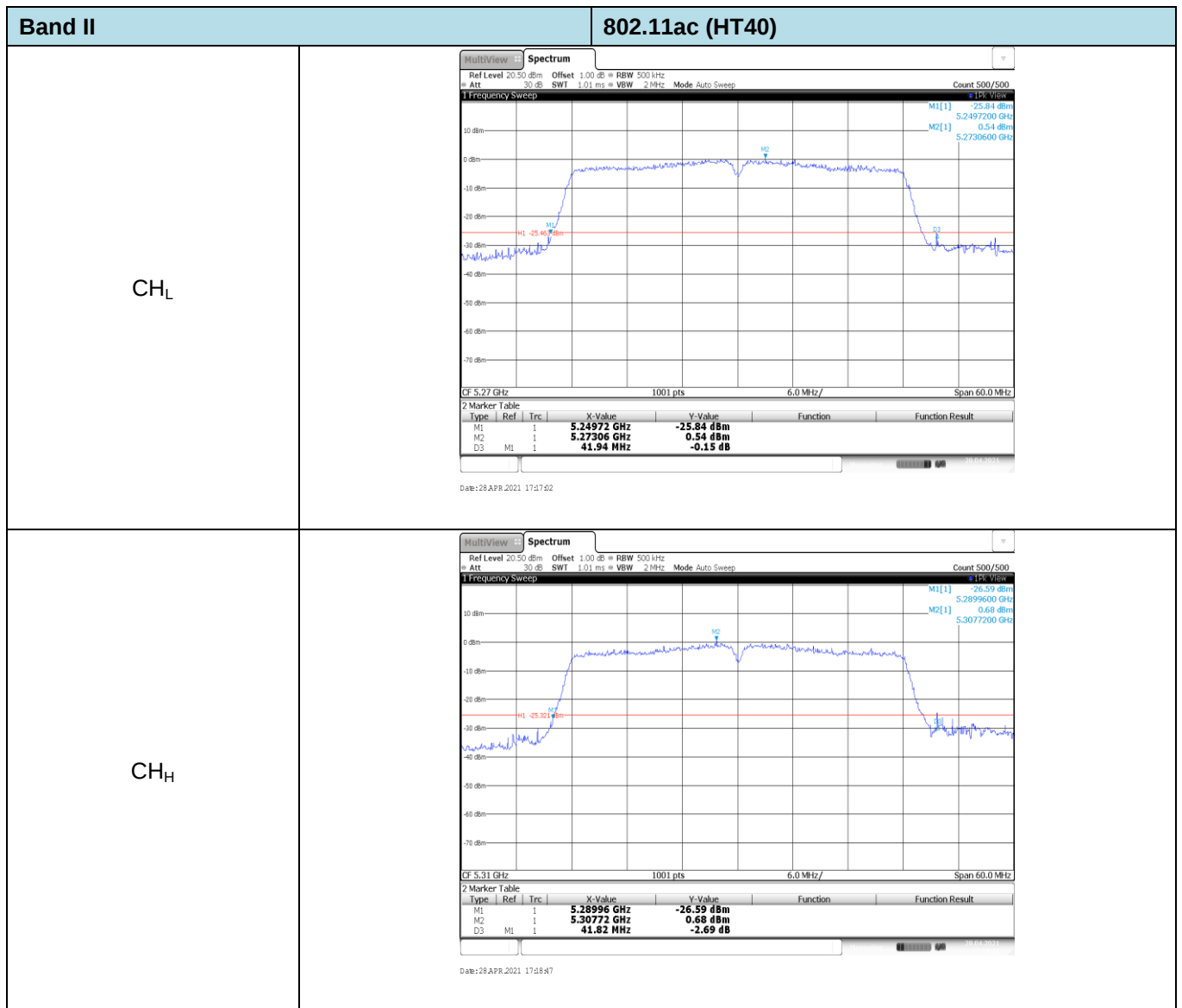
CH_M

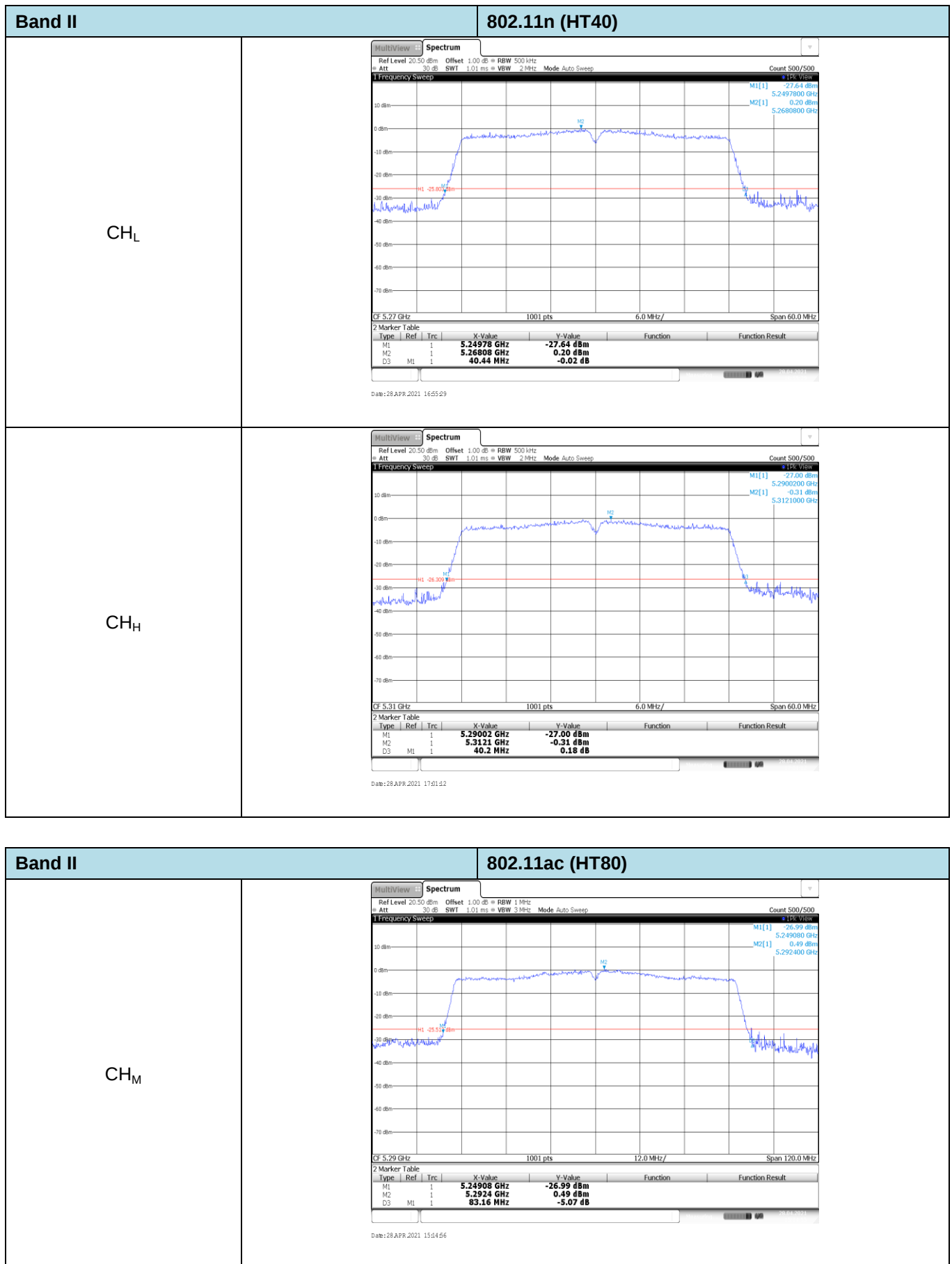
Date: 28 APR 2021 15:06:53

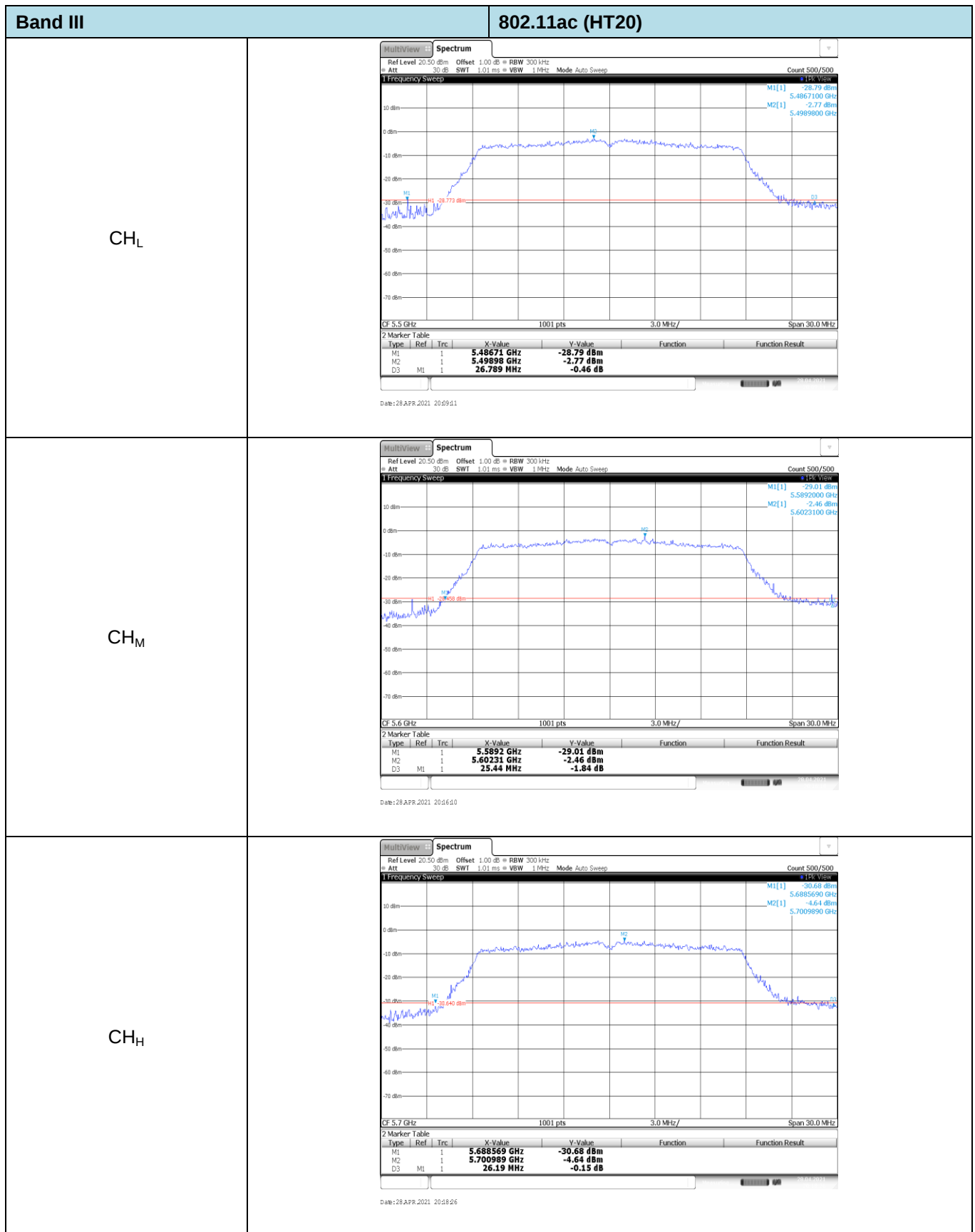


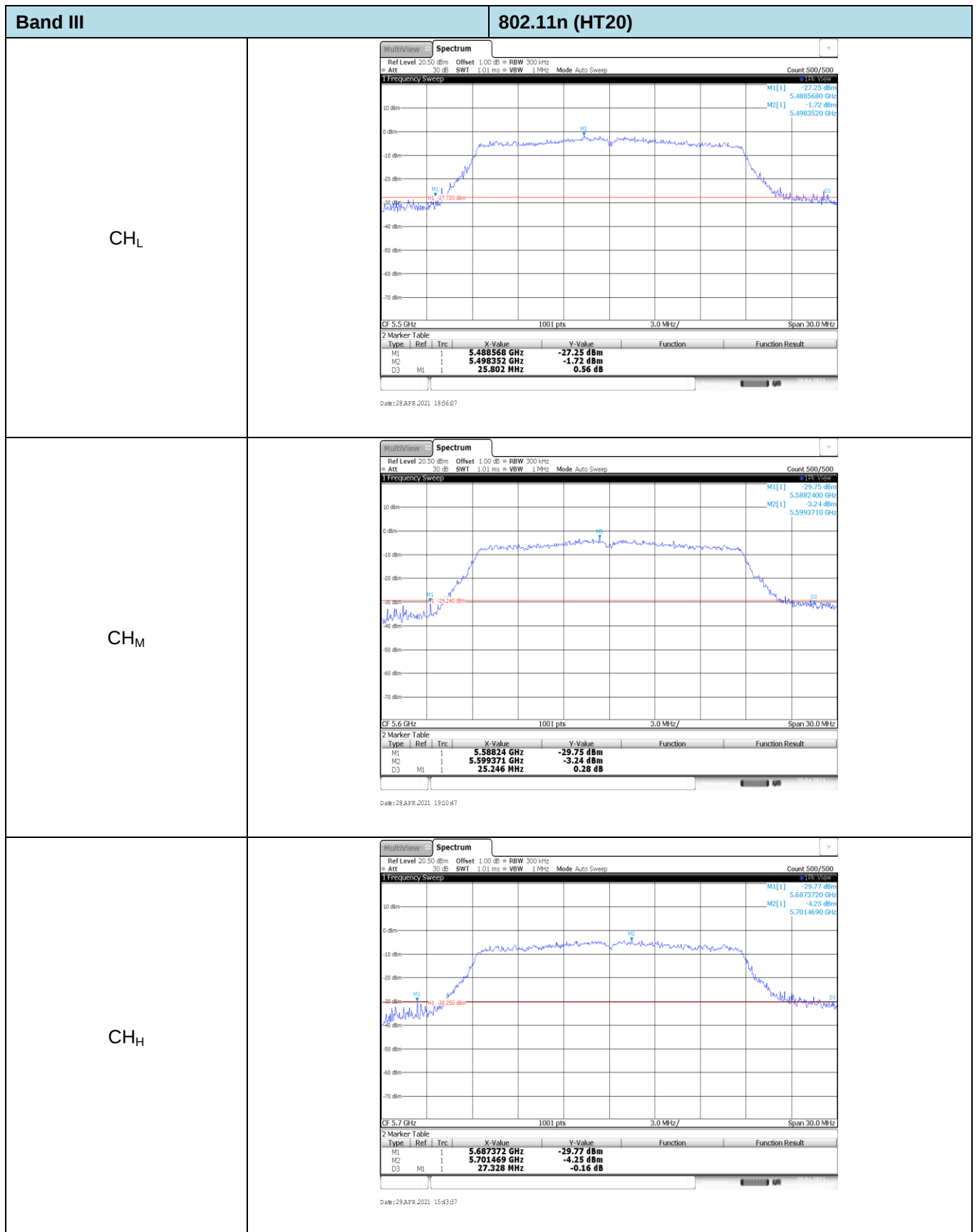
Appendix report page: 35 of 101





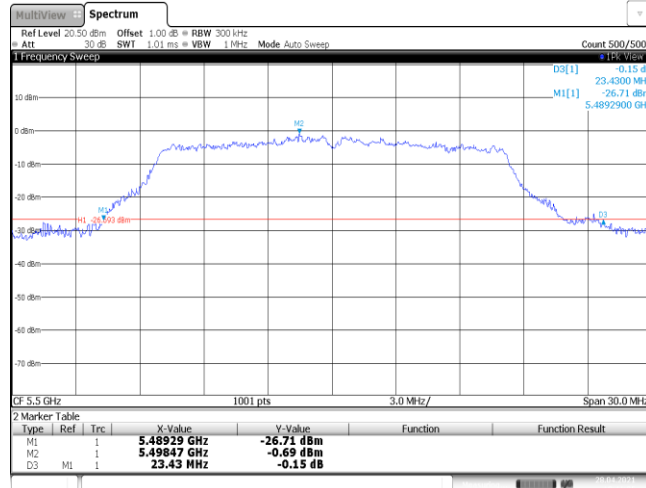




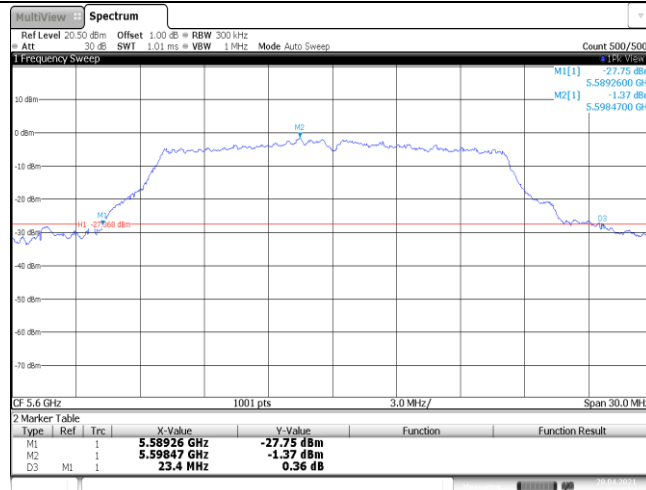


Band III

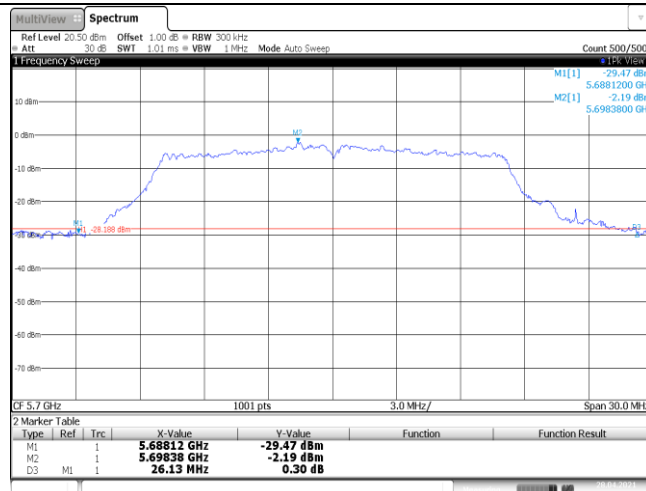
802.11a

CH_L

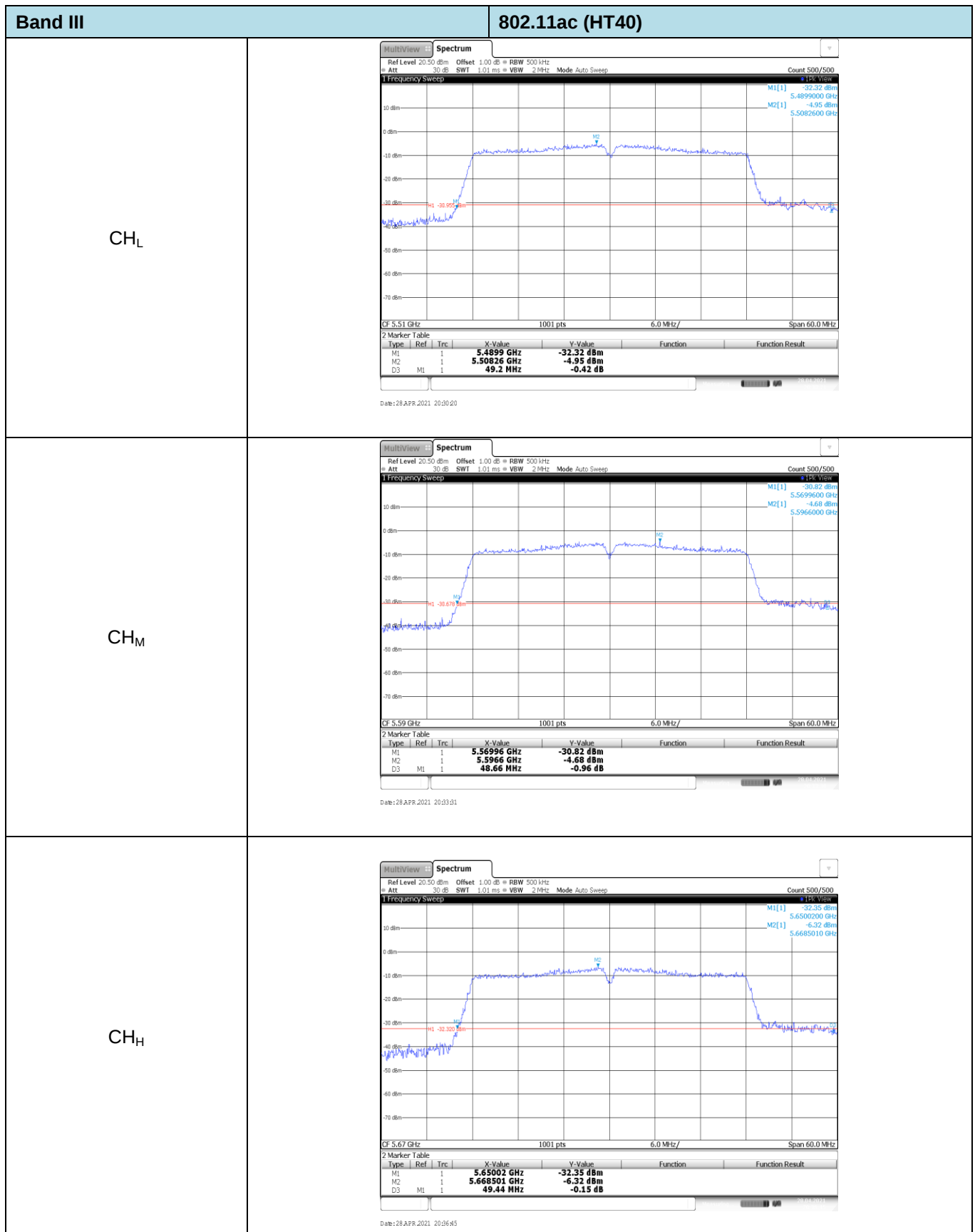
Date: 28 APR 2021 18:41:26

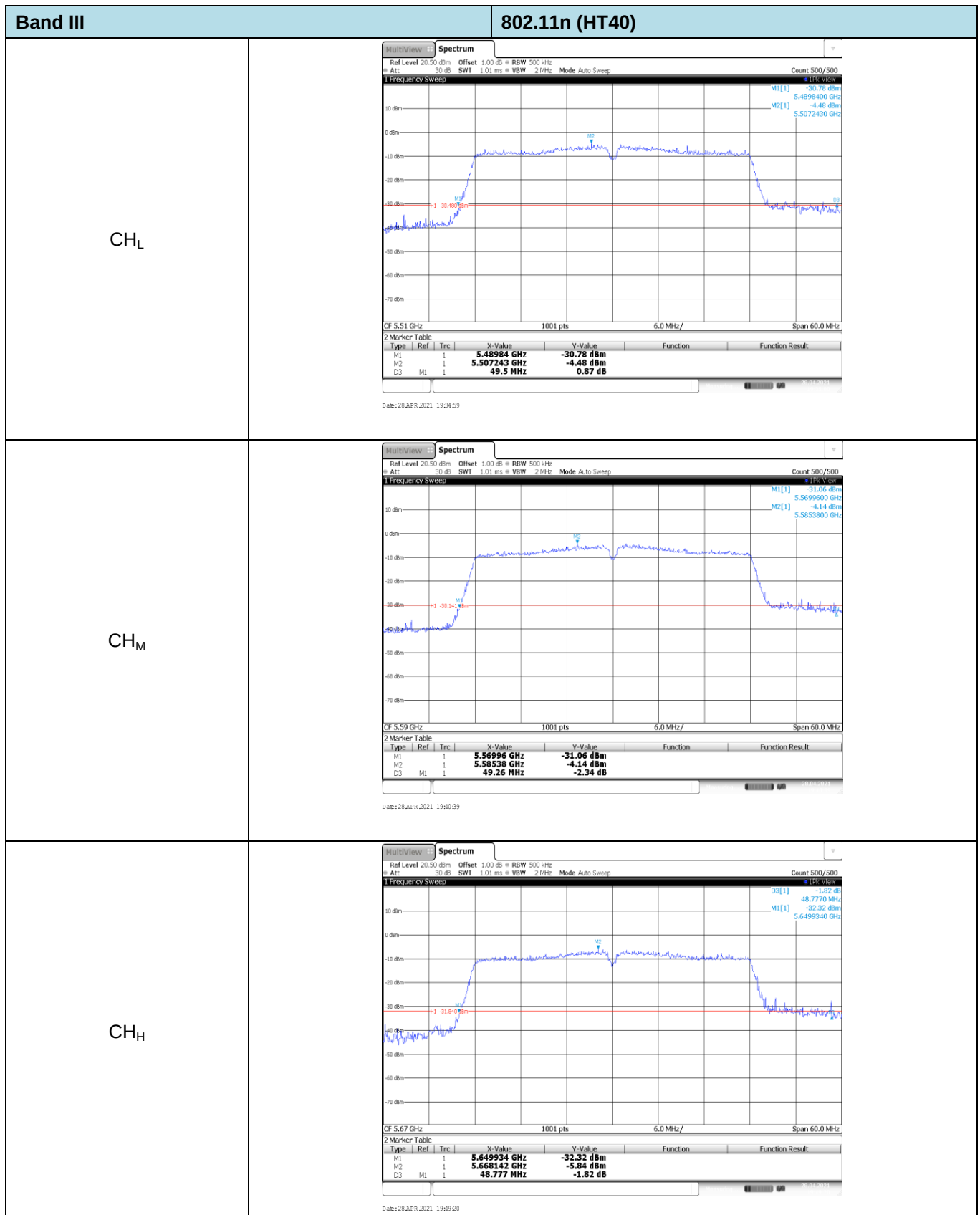
CH_M

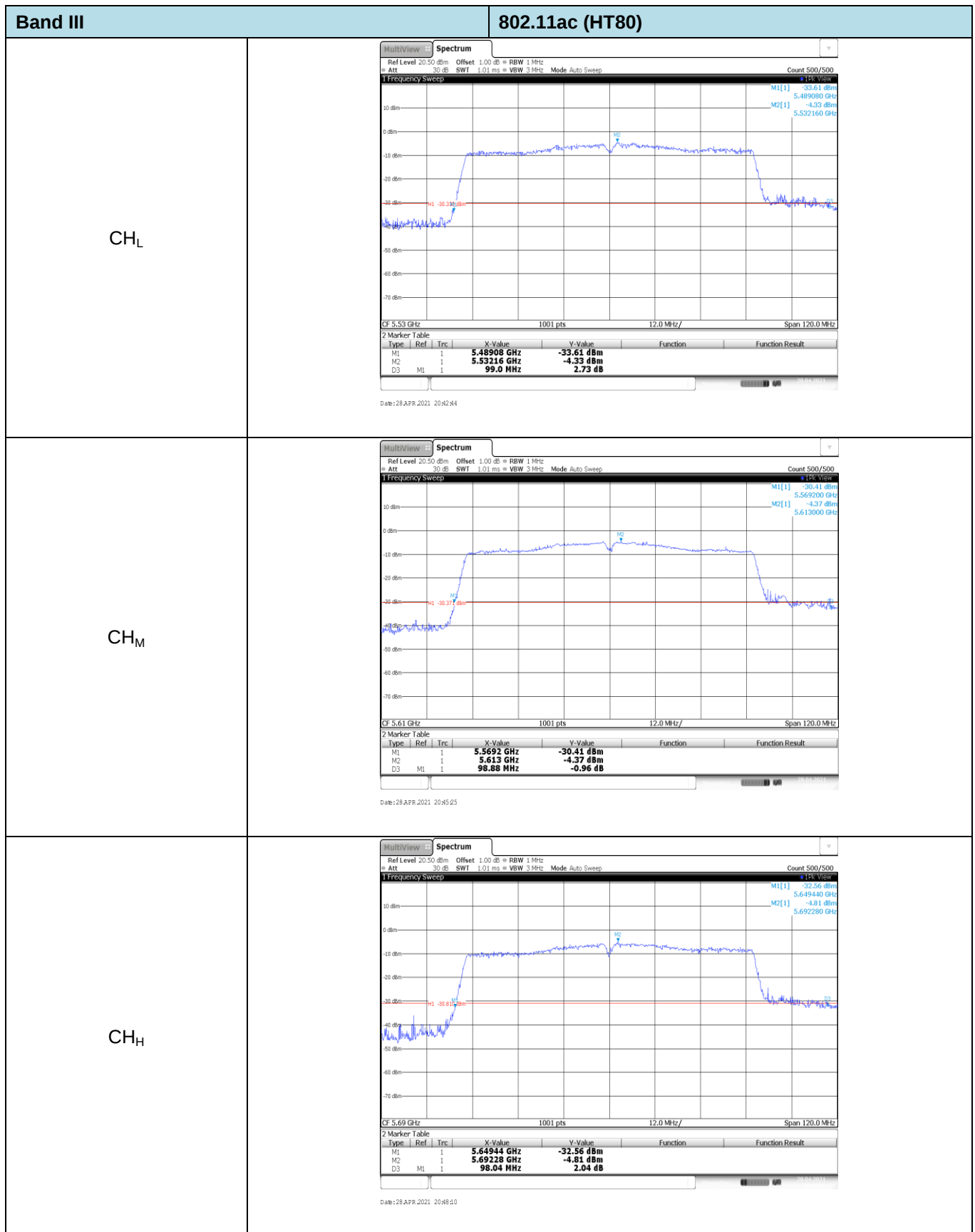
Date: 28 APR 2021 18:42:43

CH_H

Date: 28 APR 2021 18:45:10







Appendix D: 99% Occupy bandwidth

Band	Bandwidth (MHz)	Type	Channel	99% Occupy bandwidth (MHz)	Result
I	20	802.11ac	CH _L	18.01	Pass
			CH _M	18.04	
			CH _H	18.07	
		802.11n	CH _L	18.07	Pass
			CH _M	18.04	
			CH _H	18.01	
		802.11a	CH _L	17.02	Pass
			CH _M	16.96	
			CH _H	16.99	
	40	802.11ac	CH _L	36.26	Pass
			CH _H	36.26	
		802.11n	CH _L	36.32	Pass
			CH _H	36.32	
	80	802.11ac	CH _M	75.28	Pass
II	20	802.11ac	CH _L	18.07	Pass
			CH _M	18.13	
			CH _H	18.07	
		802.11n	CH _L	18.04	Pass
			CH _M	18.04	
			CH _H	18.01	
		802.11a	CH _L	17.02	Pass
			CH _M	17.02	
			CH _H	16.99	
	40	802.11ac	CH _L	36.38	Pass
			CH _H	36.32	
		802.11n	CH _L	36.32	Pass
			CH _H	36.32	
	80	802.11ac	CH _M	75.52	Pass

Band	Bandwidth (MHz)	Type	Channel	99% Occupy bandwidth (MHz)	Result
III	20	802.11ac	CH _L	18.16	Pass
			CH _M	18.19	
			CH _H	18.25	
		802.11n	CH _L	18.19	Pass
			CH _M	18.22	
			CH _H	18.40	
		802.11a	CH _L	17.17	Pass
			CH _M	17.17	
			CH _H	17.53	
	40	802.11ac	CH _L	36.44	Pass
			CH _M	36.44	
			CH _H	36.50	
		802.11n	CH _L	36.50	Pass
			CH _M	36.50	
			CH _H	36.56	
	80	802.11ac	CH _L	75.88	Pass
			CH _M	75.64	
			CH _H	75.76	

Band	Bandwidth (MHz)	Type	Channel	99% Occupy bandwidth (MHz)	Result
IV	20	802.11ac	CH _L	18.49	Pass
			CH _M	18.58	
			CH _H	18.55	
		802.11n	CH _L	18.49	Pass
			CH _M	18.61	
			CH _H	18.58	
		802.11a	CH _L	17.89	Pass
			CH _M	18.34	
			CH _H	18.19	
	40	802.11ac	CH _L	36.62	Pass
			CH _H	36.80	
		802.11n	CH _L	36.73	Pass
			CH _H	36.82	
	80	802.11ac	CH _M	75.88	Pass

