

APPENDIX REPORT

Project No.	SHT2105011002EW	Radio Specification	WIFI 5G
Test sample No.	YPHT21050110007	Model No.	S020
Start test date	2021-06-30	Finish date	2021-06-30
Temperature	26.2°C	Humidity	37%
Test Engineer	Hailey Chen	Auditor	Xiaodong Zhuo

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

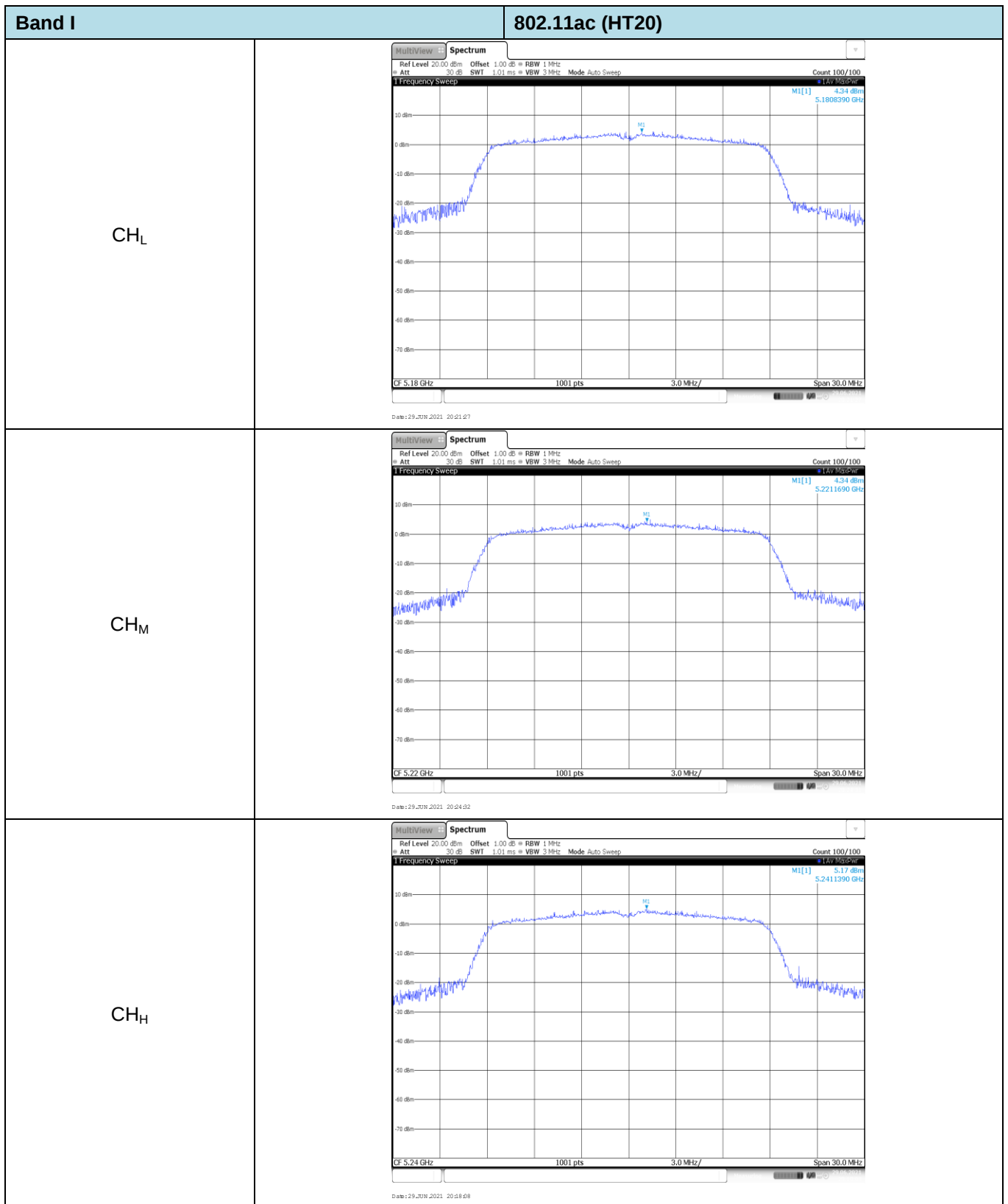
Appendix A: Maximum Conducted Output Power

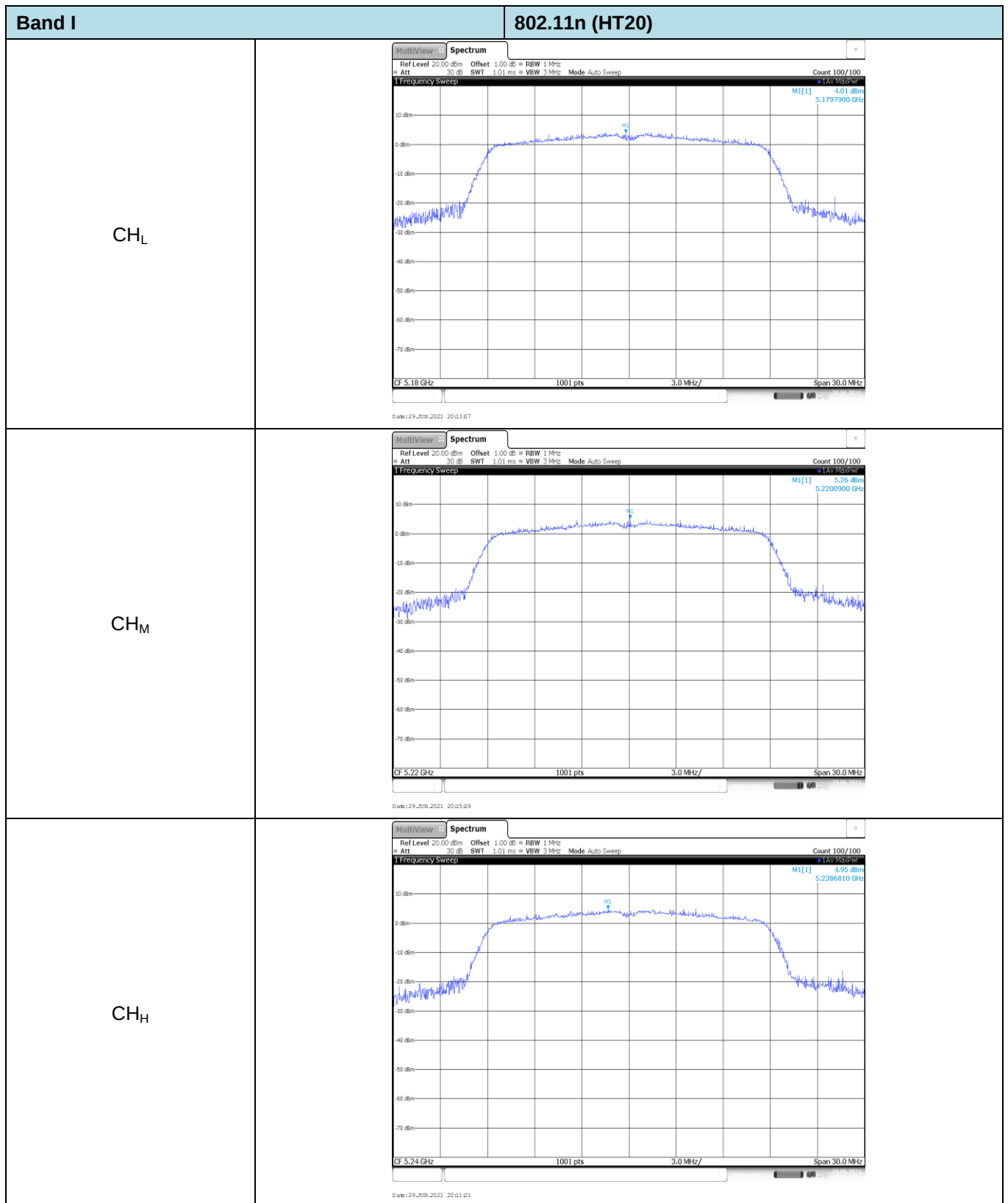
Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Conducted Output Power (dBm)	Limit (dBm)	Result
I	20	802.11ac	CH _L	13.50	97.18	0.12	13.62	24.00	Pass
			CH _M	14.36	97.18	0.12	14.48		
			CH _H	15.25	97.09	0.13	15.38		
		802.11n	CH _L	13.23	97.18	0.12	13.35	24.00	Pass
			CH _M	14.40	97.18	0.12	14.52		
			CH _H	15.11	97.18	0.12	15.23		
		802.11a	CH _L	13.32	97.36	0.12	13.44	24.00	Pass
			CH _M	14.23	97.36	0.12	14.35		
			CH _H	15.21	97.36	0.12	15.33		
	40	802.11ac	CH _L	11.77	94.74	0.23	12.00	24.00	Pass
			CH _H	13.11	94.74	0.23	13.34		
		802.11n	CH _L	12.80	94.74	0.23	13.03	24.00	Pass
			CH _H	13.96	94.74	0.23	14.19		
IV	20	802.11ac	CH _L	14.25	97.18	0.12	14.37	30.00	Pass
			CH _M	14.02	97.18	0.12	14.14		
			CH _H	14.04	97.18	0.12	14.16		
		802.11n	CH _L	14.10	97.18	0.12	14.22	30.00	Pass
			CH _M	14.08	97.18	0.12	14.20		
			CH _H	14.02	97.09	0.13	14.15		
		802.11a	CH _L	14.17	97.36	0.12	14.29	30.00	Pass
			CH _M	13.96	97.36	0.12	14.08		
			CH _H	14.07	97.36	0.12	14.19		
	40	802.11ac	CH _L	13.45	94.74	0.23	13.68	30.00	Pass
			CH _H	13.41	94.74	0.23	13.64		
		802.11n	CH _L	13.49	94.74	0.23	13.72	30.00	Pass
			CH _H	13.47	94.74	0.23	13.70		

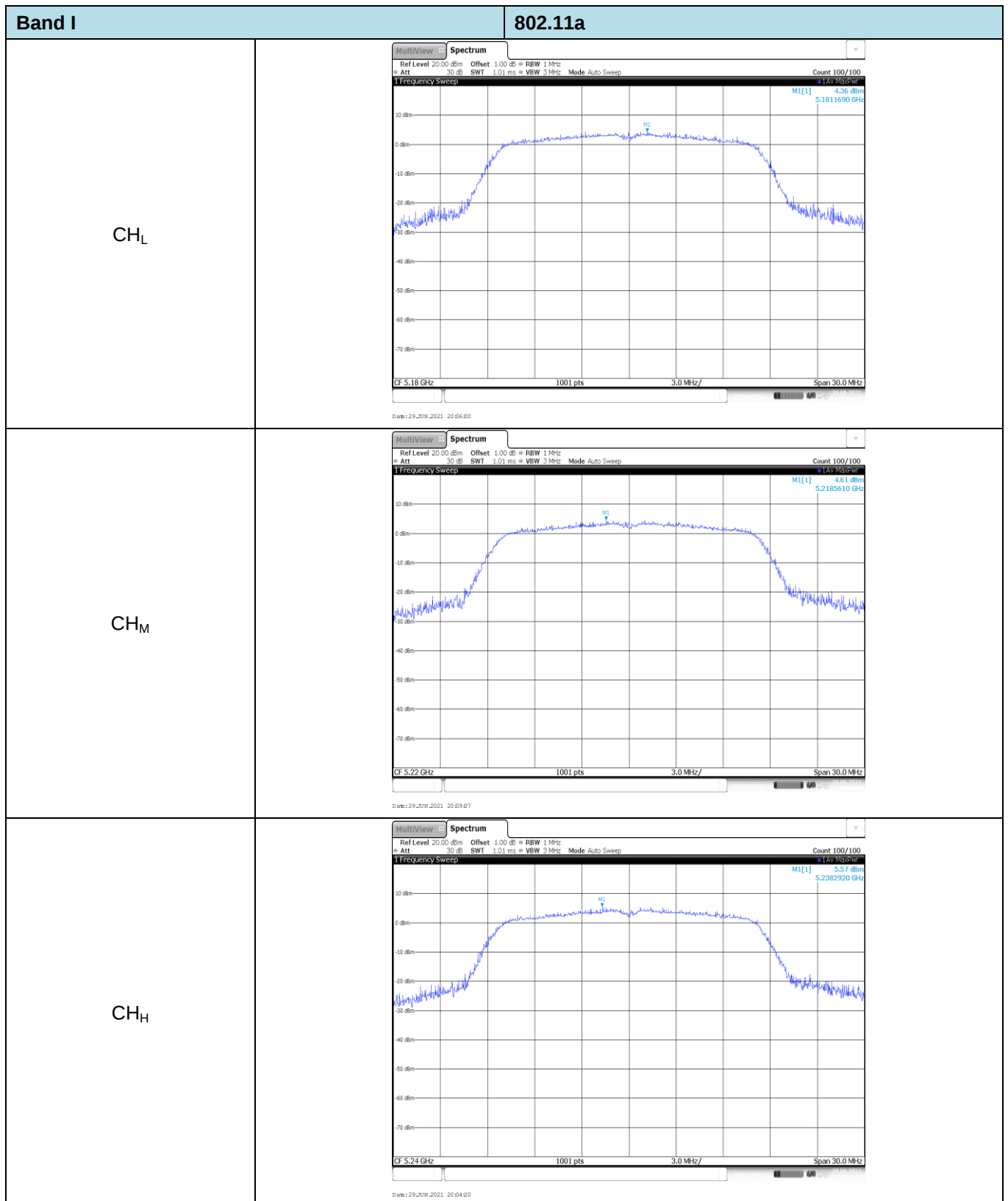
NOTE: duty cycle factor = 10LOG(1/ duty cycle)

Appendix B: Maximum Power Spectral Density

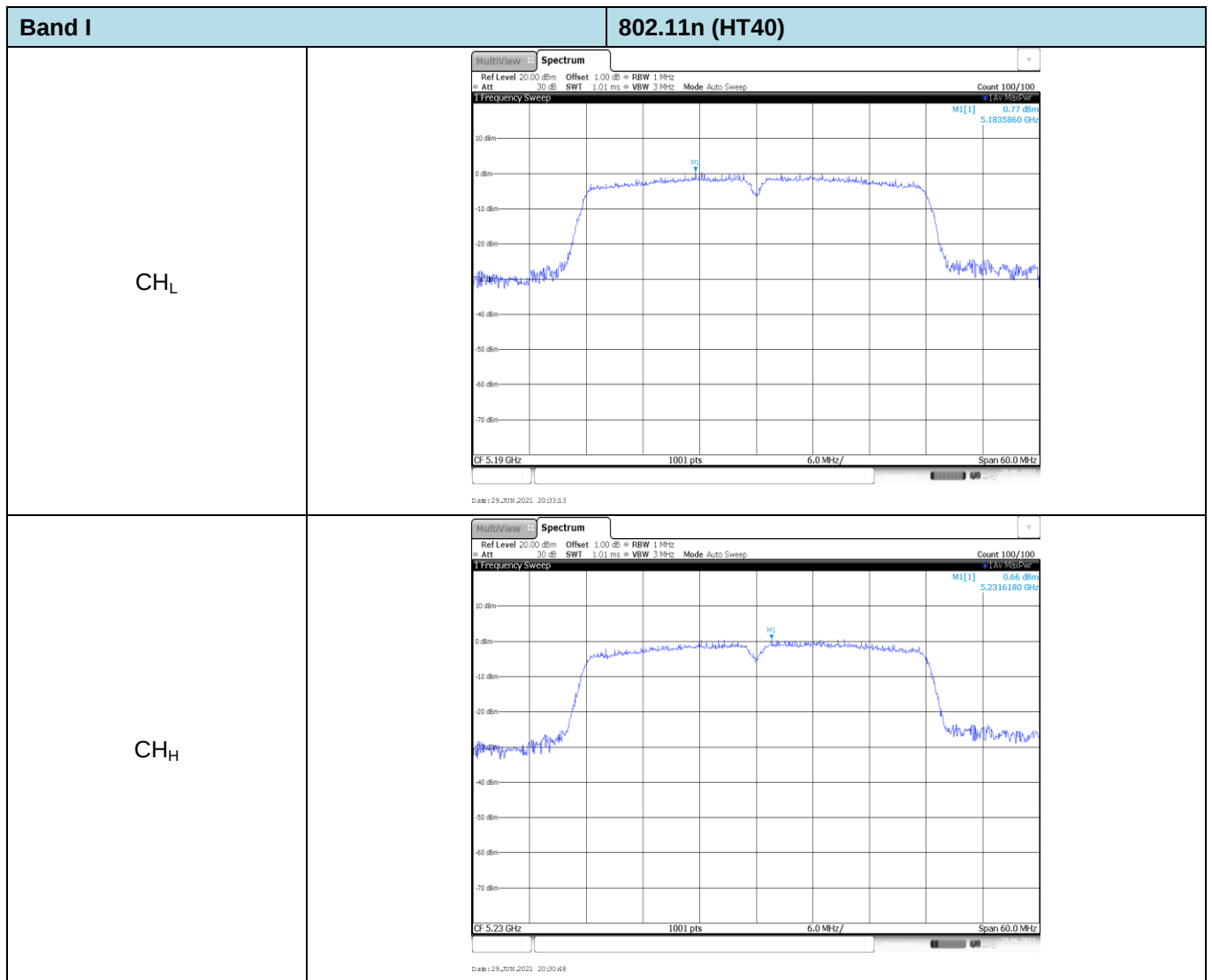
Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor (dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
I	20	802.11ac	CH _L	4.34	97.18	0.12	4.46	11.00	Pass
			CH _M	4.34	97.18	0.12	4.46		
			CH _H	5.17	97.09	0.13	5.30		
		802.11n	CH _L	4.01	97.18	0.12	4.13	11.00	Pass
			CH _M	5.26	97.18	0.12	5.38		
			CH _H	4.95	97.18	0.12	5.07		
		802.11a	CH _L	4.36	97.36	0.12	4.48	11.00	Pass
			CH _M	4.61	97.36	0.12	4.73		
			CH _H	5.57	97.36	0.12	5.69		
	40	802.11ac	CH _L	-1.15	94.74	0.23	-0.92	11.00	Pass
			CH _H	-0.02	94.74	0.23	0.21		
		802.11n	CH _L	0.77	94.74	0.23	1.00	11.00	Pass
			CH _H	0.66	94.74	0.23	0.89		
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	3.60	97.18	0.12	3.72	30.00	Pass
			CH _M	2.53	97.18	0.12	2.65		
			CH _H	2.34	97.18	0.12	2.46		
		802.11n	CH _L	2.96	97.18	0.12	3.08	30.00	Pass
			CH _M	2.73	97.18	0.12	2.85		
			CH _H	1.84	97.09	0.13	1.97		
		802.11a	CH _L	2.94	97.36	0.12	3.06	30.00	Pass
			CH _M	3.51	97.36	0.12	3.63		
			CH _H	2.32	97.36	0.12	2.44		
	40	802.11ac	CH _L	-0.98	94.74	0.23	-0.75	30.00	Pass
			CH _H	-1.54	94.74	0.23	-1.31		
		802.11n	CH _L	-0.74	94.74	0.23	-0.51	30.00	Pass
			CH _H	-1.36	94.74	0.23	-1.13		

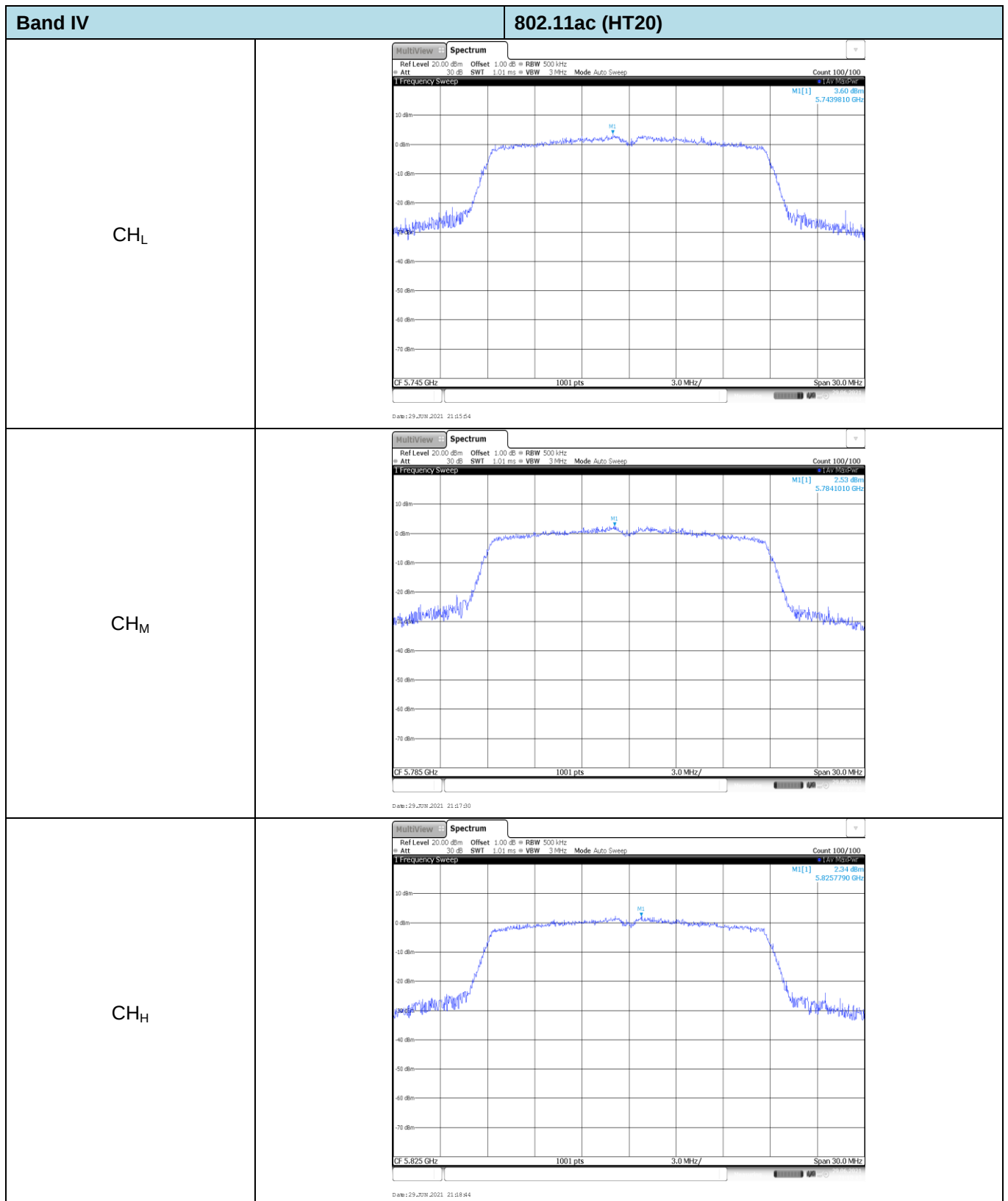


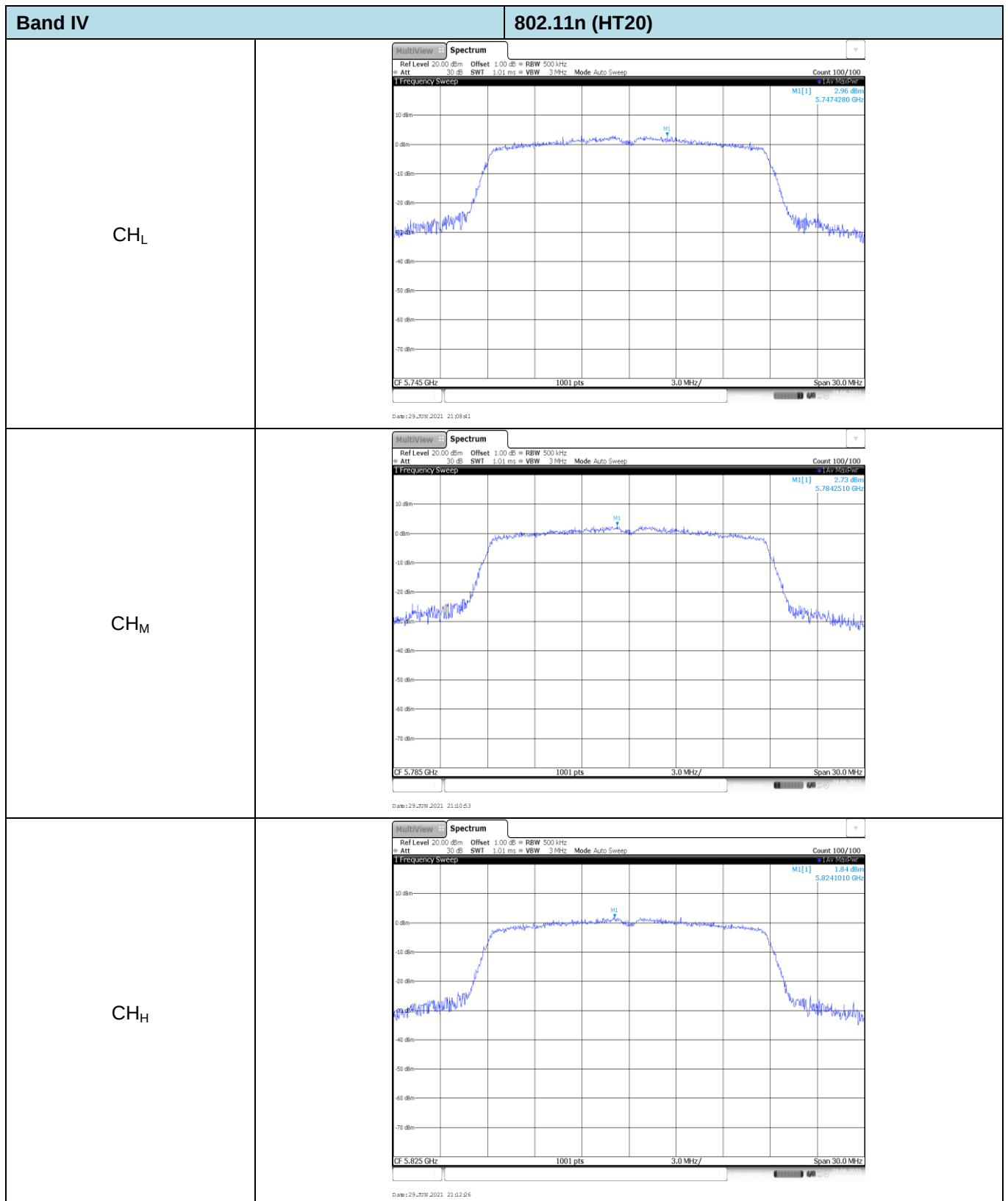


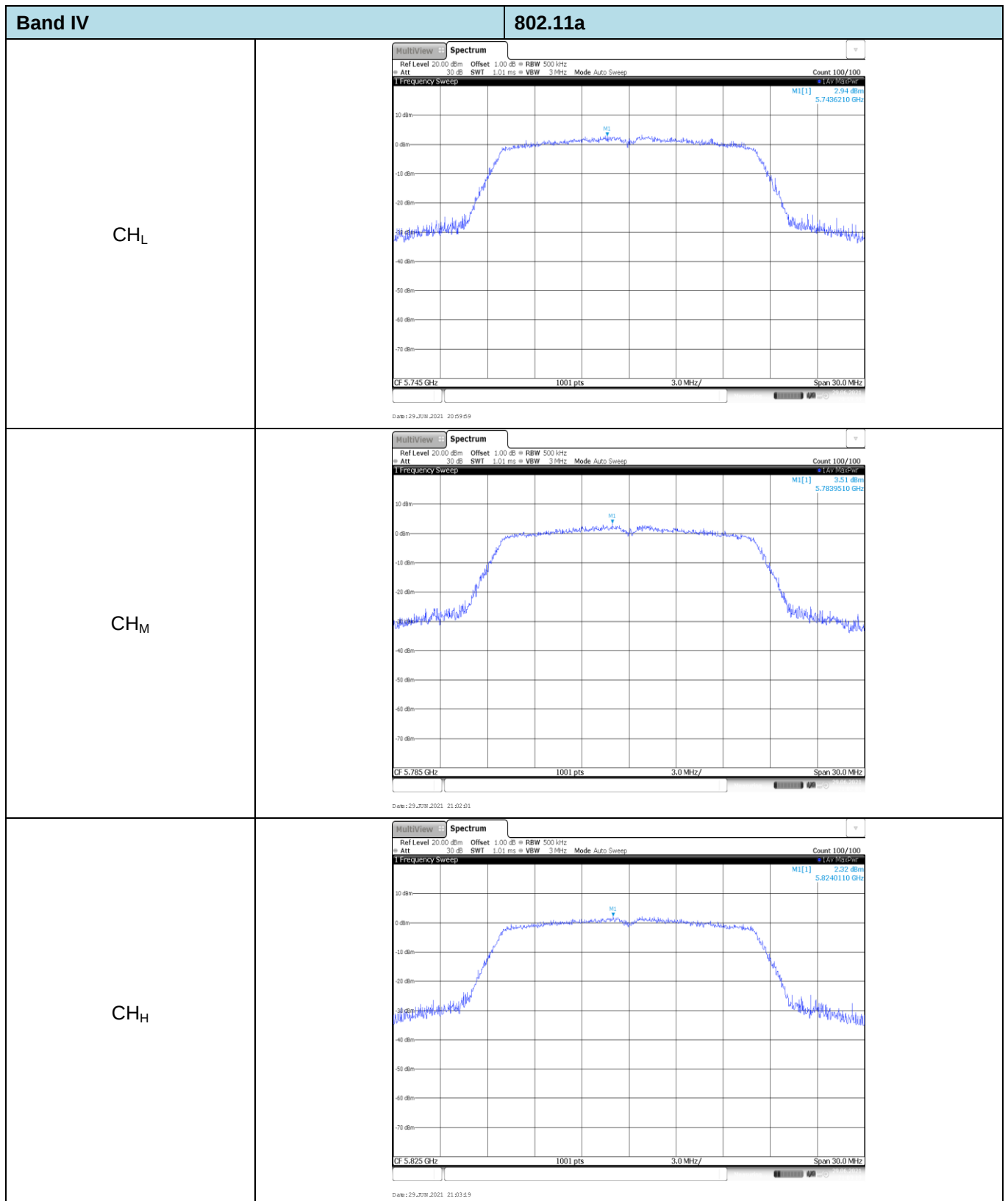


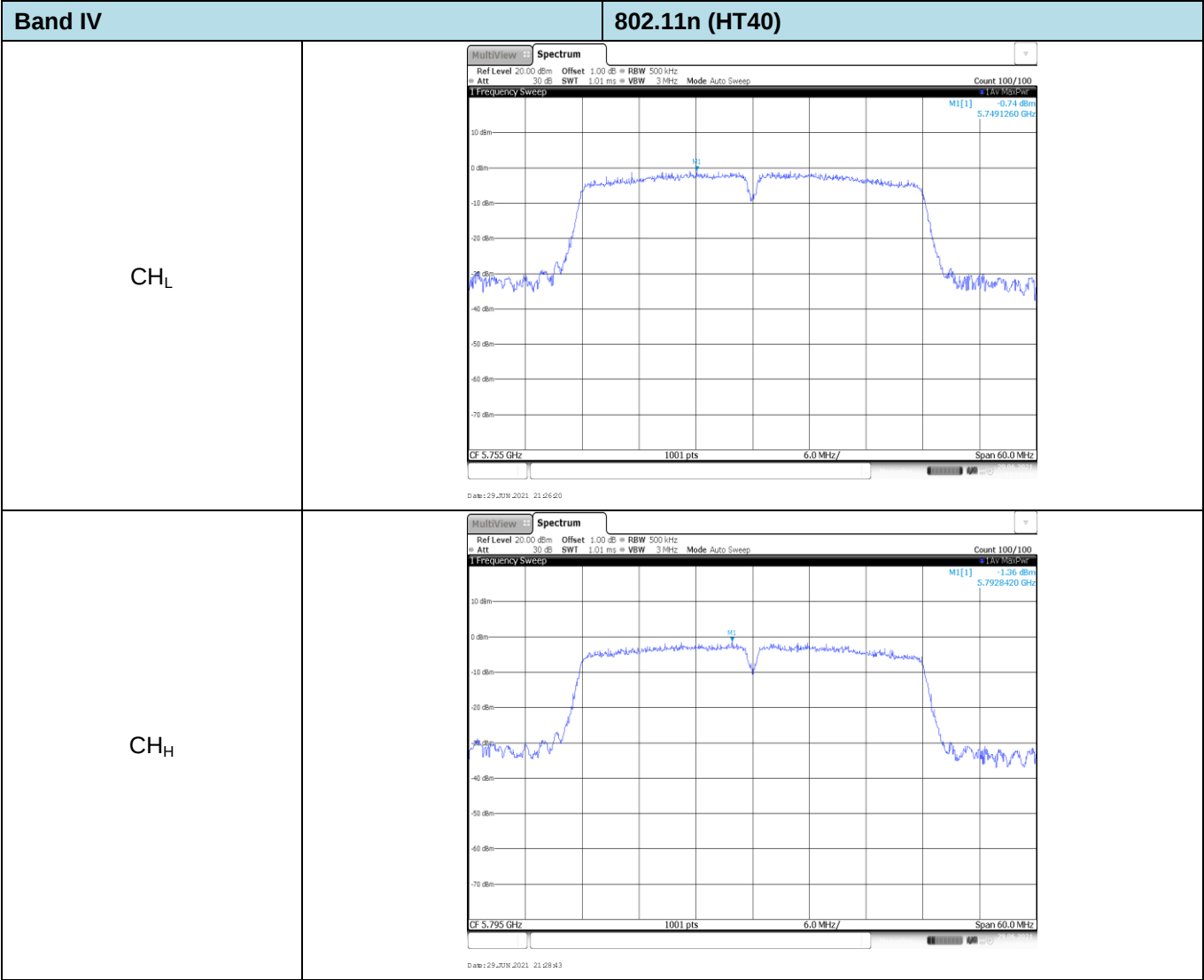
Band I		802.11ac (HT40)
CH _L	MultiView Spectrum Count 100/100 Ref Level 20.00 dBm Att 30.0 dB Offset 1.00 dB RBW 1 MHz SWT 1.01 ms VBW 3 MHz Mode Auto Sweep 1 Frequency Sweep 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1 -1.15 dBm 5.1984520 GHz CF 5.19 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz Date: 29 JUN 2021 20:40:03	
CH _H	MultiView Spectrum Count 100/100 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 1 Frequency Sweep 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1 -0.02 dBm 5.2379720 GHz CF 5.23 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz Date: 29 JUN 2021 20:38:02	





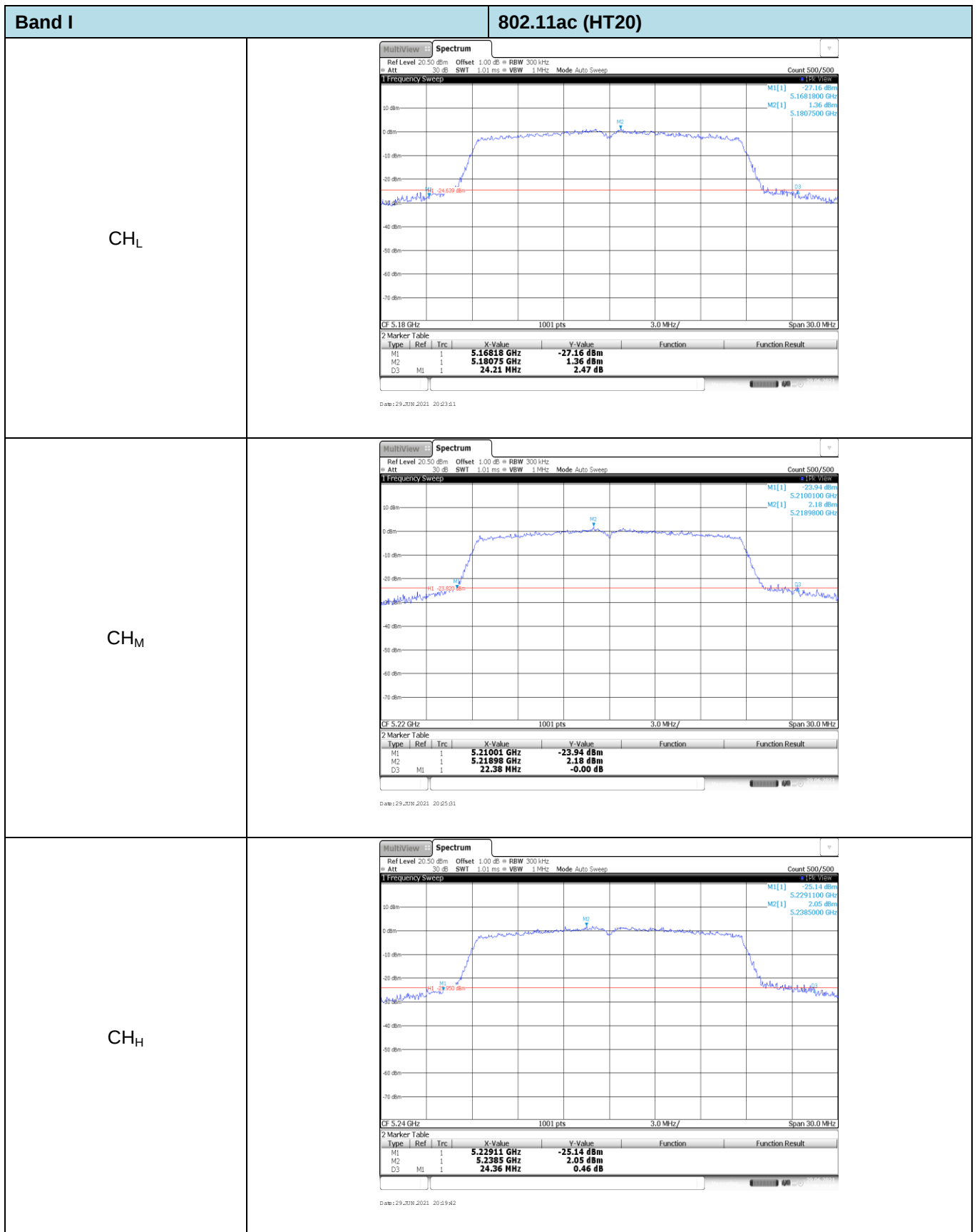


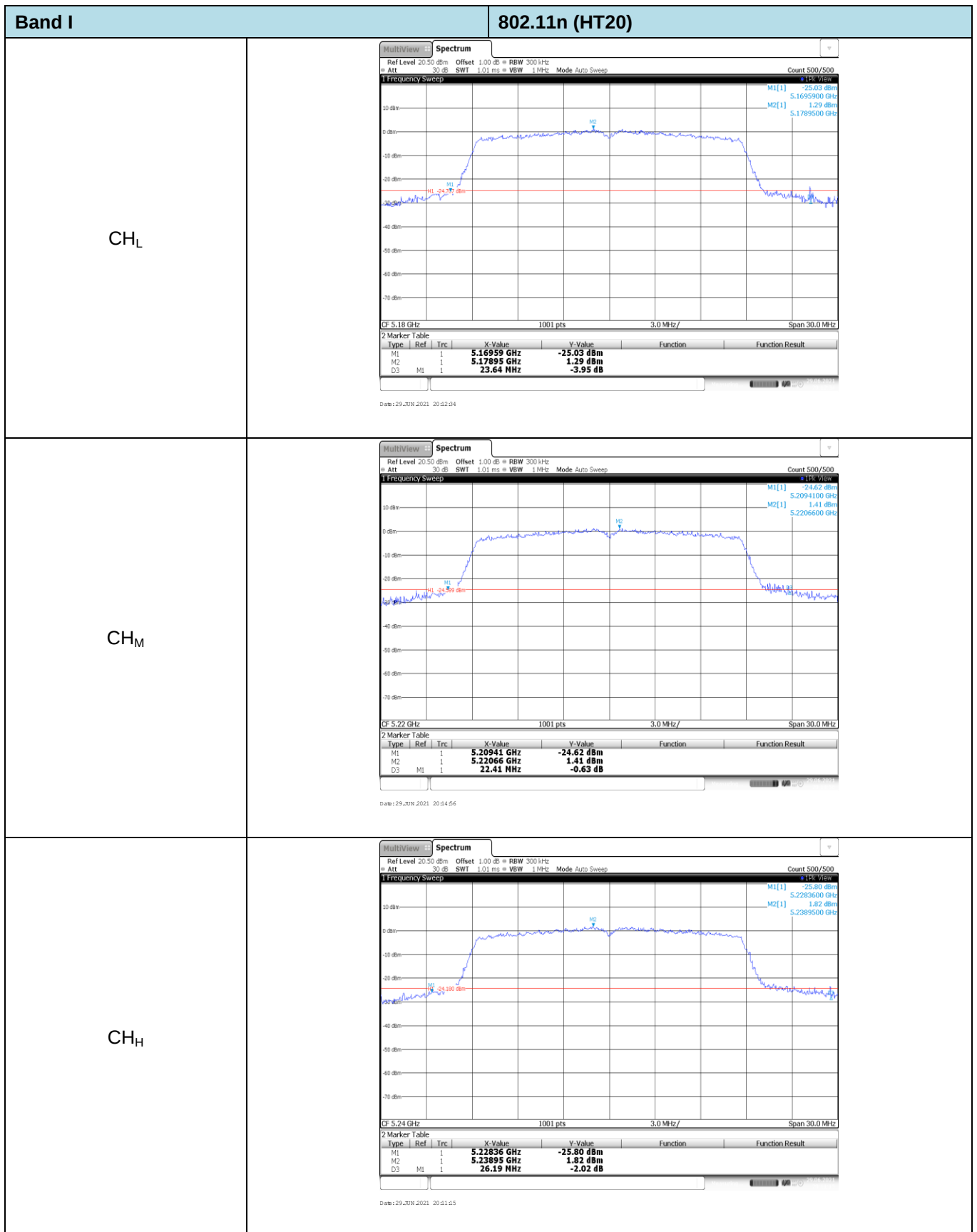


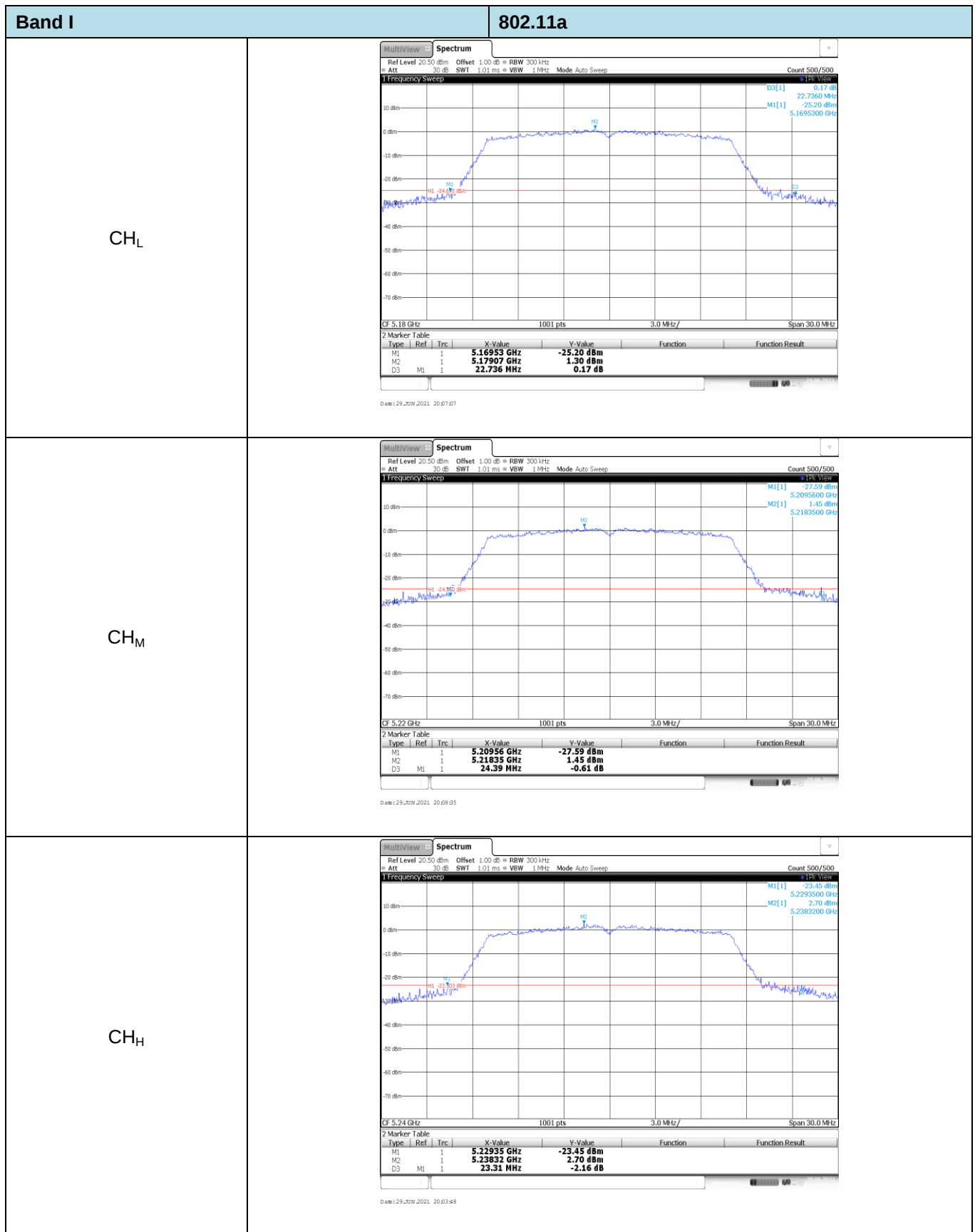


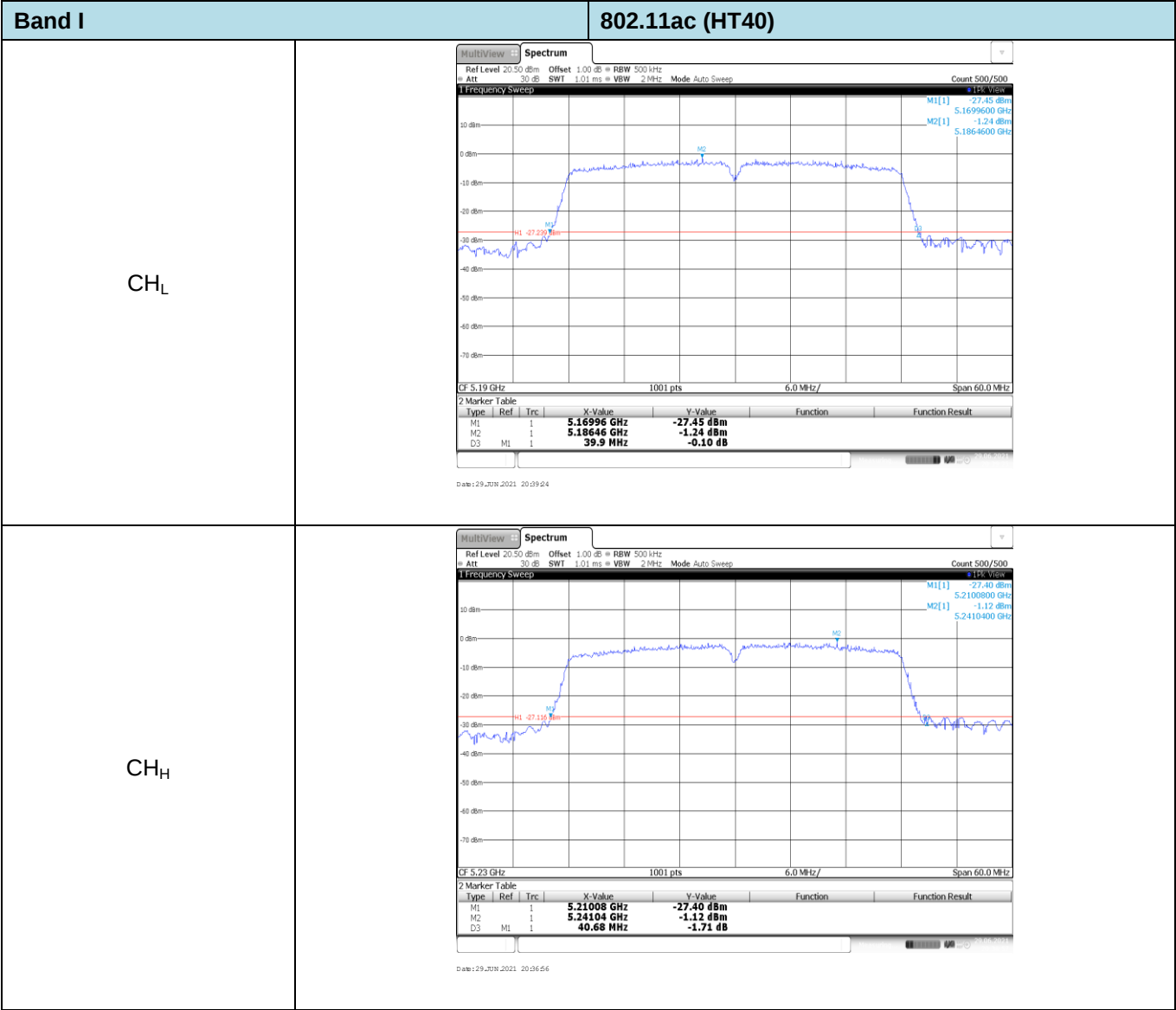
Appendix C: 26dB bandwidth

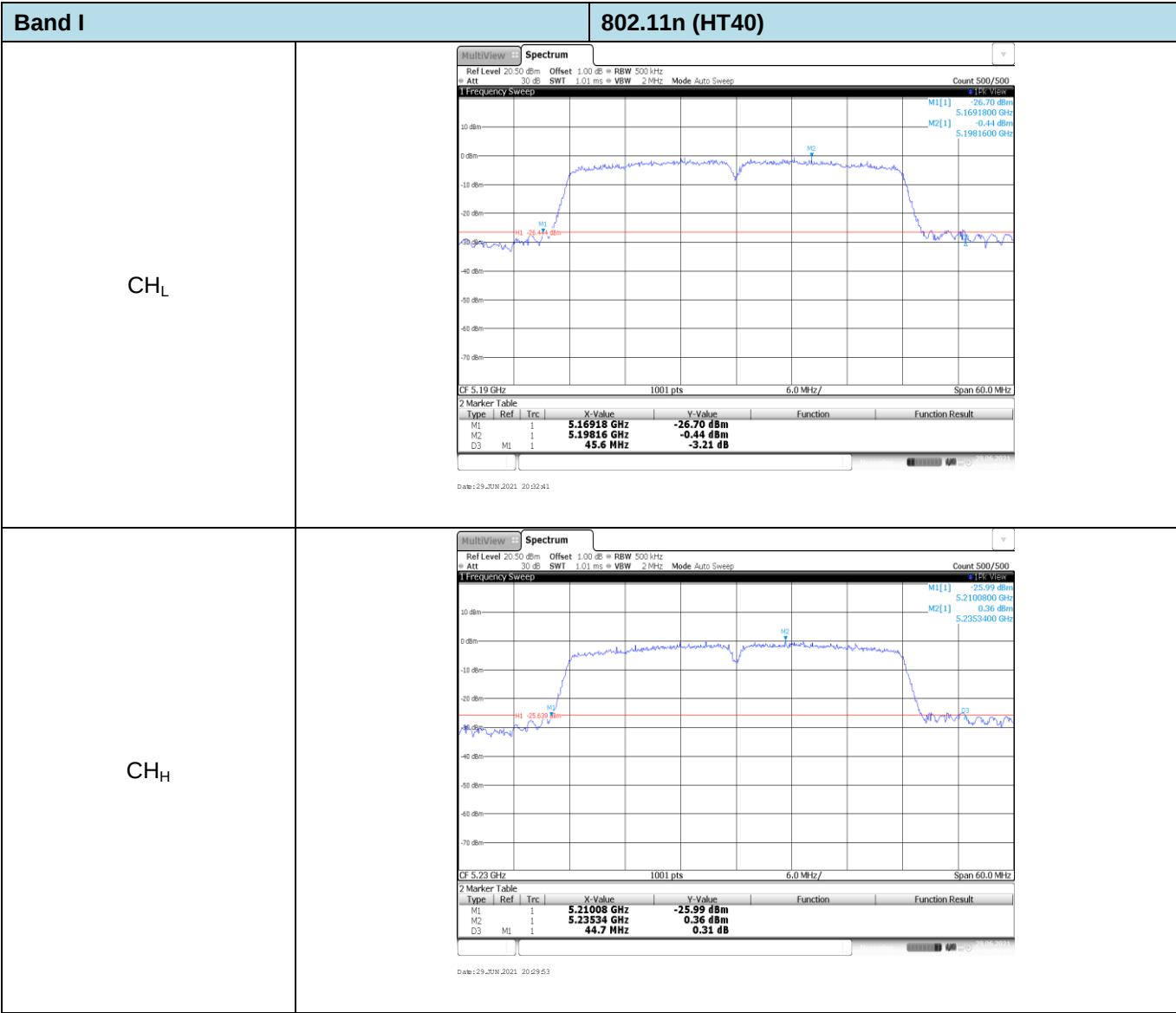
Band	Bandwidth (MHz)	Type	Channel	26dB bandwidth (MHz)	Result
I	20	802.11ac	CH _L	24.21	Pass
			CH _M	22.38	
			CH _H	24.36	
		802.11n	CH _L	23.64	Pass
			CH _M	22.41	
			CH _H	26.19	
		802.11a	CH _L	22.74	Pass
			CH _M	24.39	
			CH _H	23.31	
	40	802.11ac	CH _L	39.90	Pass
			CH _H	40.68	
		802.11n	CH _L	45.60	Pass
			CH _H	44.70	





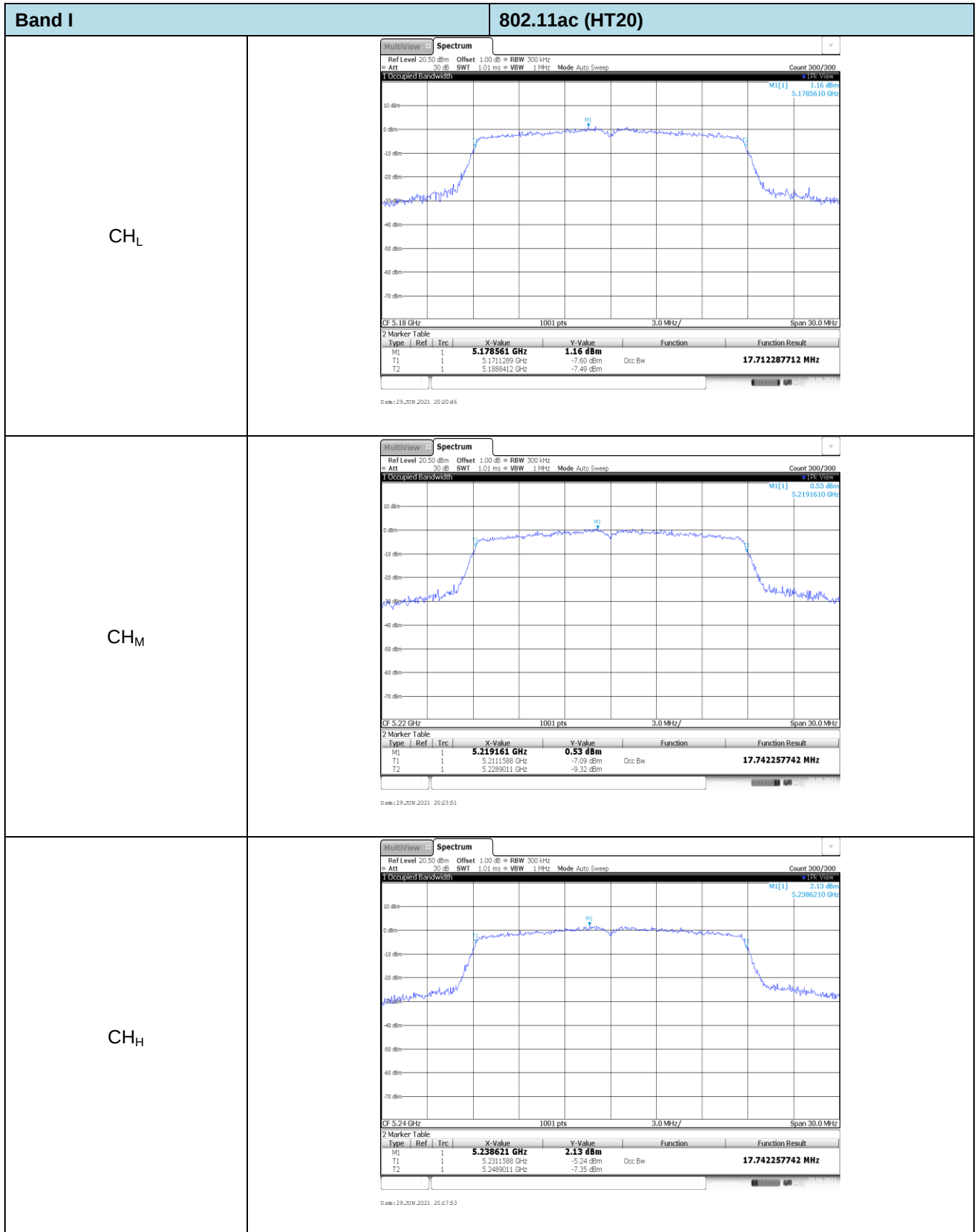






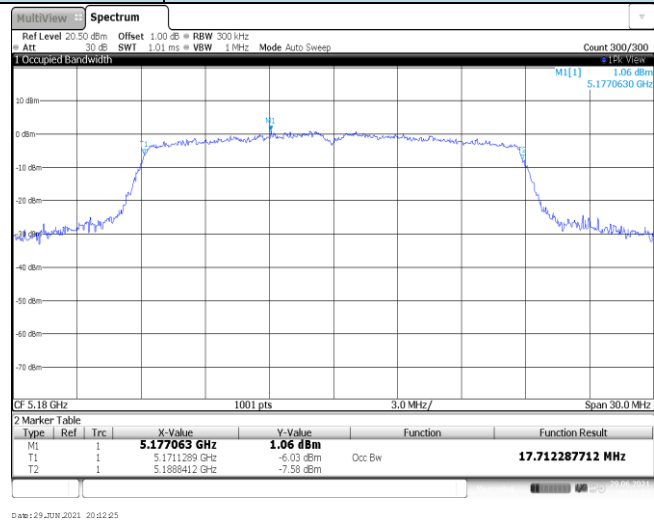
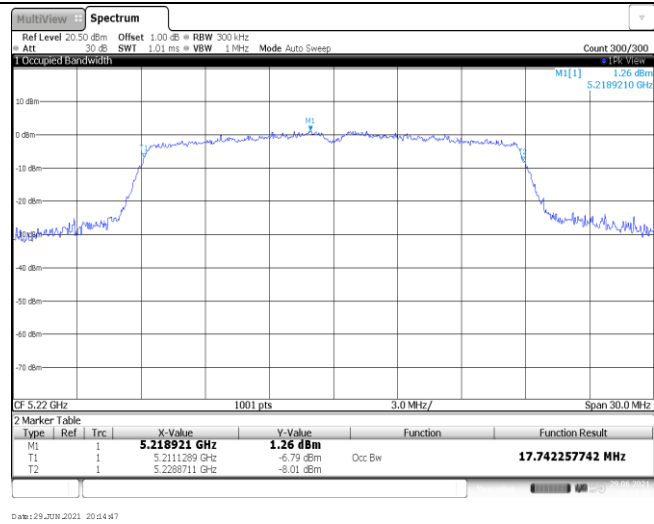
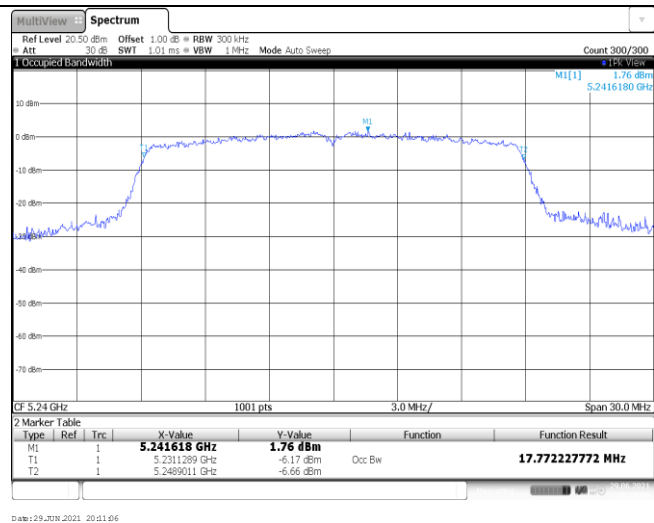
Appendix D: 99% Occupy bandwidth

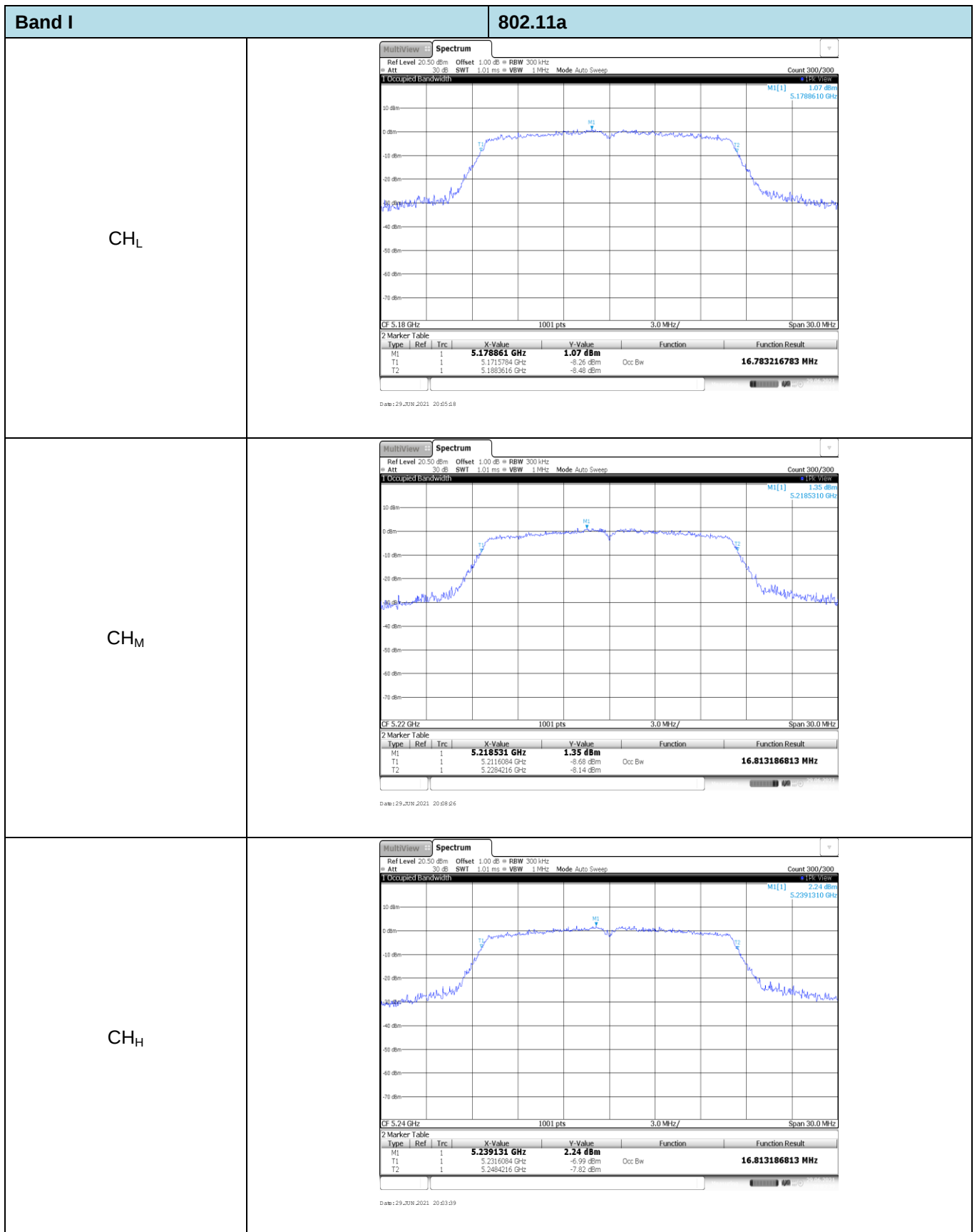
Band	Bandwidth (MHz)	Type	Channel	99% Occupy bandwidth (MHz)	Result
I	20	802.11ac	CH _L	17.71	Pass
			CH _M	17.74	
			CH _H	17.74	
		802.11n	CH _L	17.71	Pass
			CH _M	17.74	
			CH _H	17.77	
		802.11a	CH _L	16.78	Pass
			CH _M	16.81	
			CH _H	16.81	
	40	802.11ac	CH _L	36.14	Pass
			CH _H	36.14	
		802.11n	CH _L	36.14	Pass
			CH _H	36.08	
IV	20	802.11ac	CH _L	17.65	Pass
			CH _M	17.68	
			CH _H	17.68	
		802.11n	CH _L	17.71	Pass
			CH _M	17.68	
			CH _H	17.71	
		802.11a	CH _L	16.78	Pass
			CH _M	16.81	
			CH _H	16.81	
	40	802.11ac	CH _L	36.02	Pass
			CH _H	36.14	
		802.11n	CH _L	36.03	Pass
			CH _H	36.12	

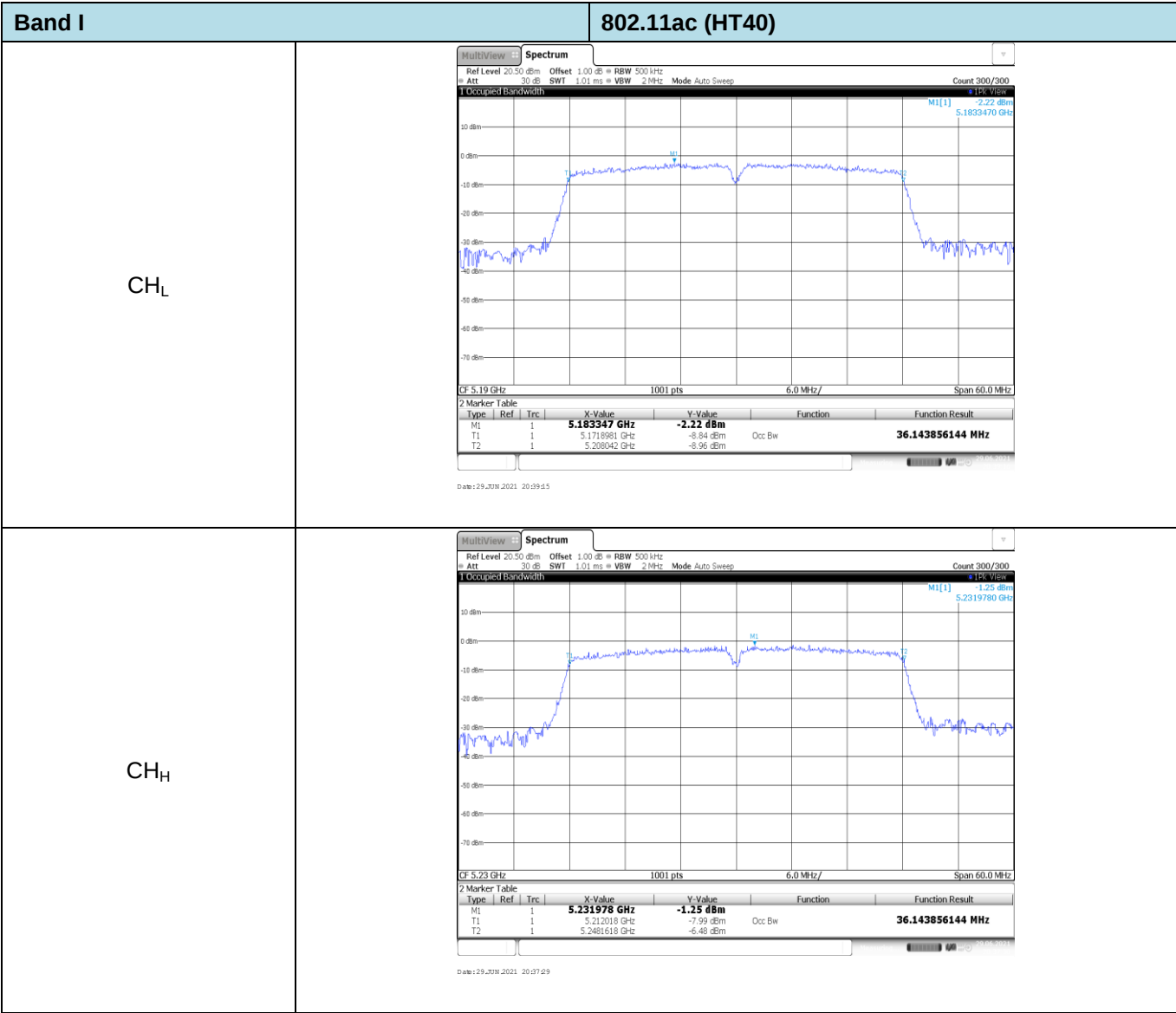


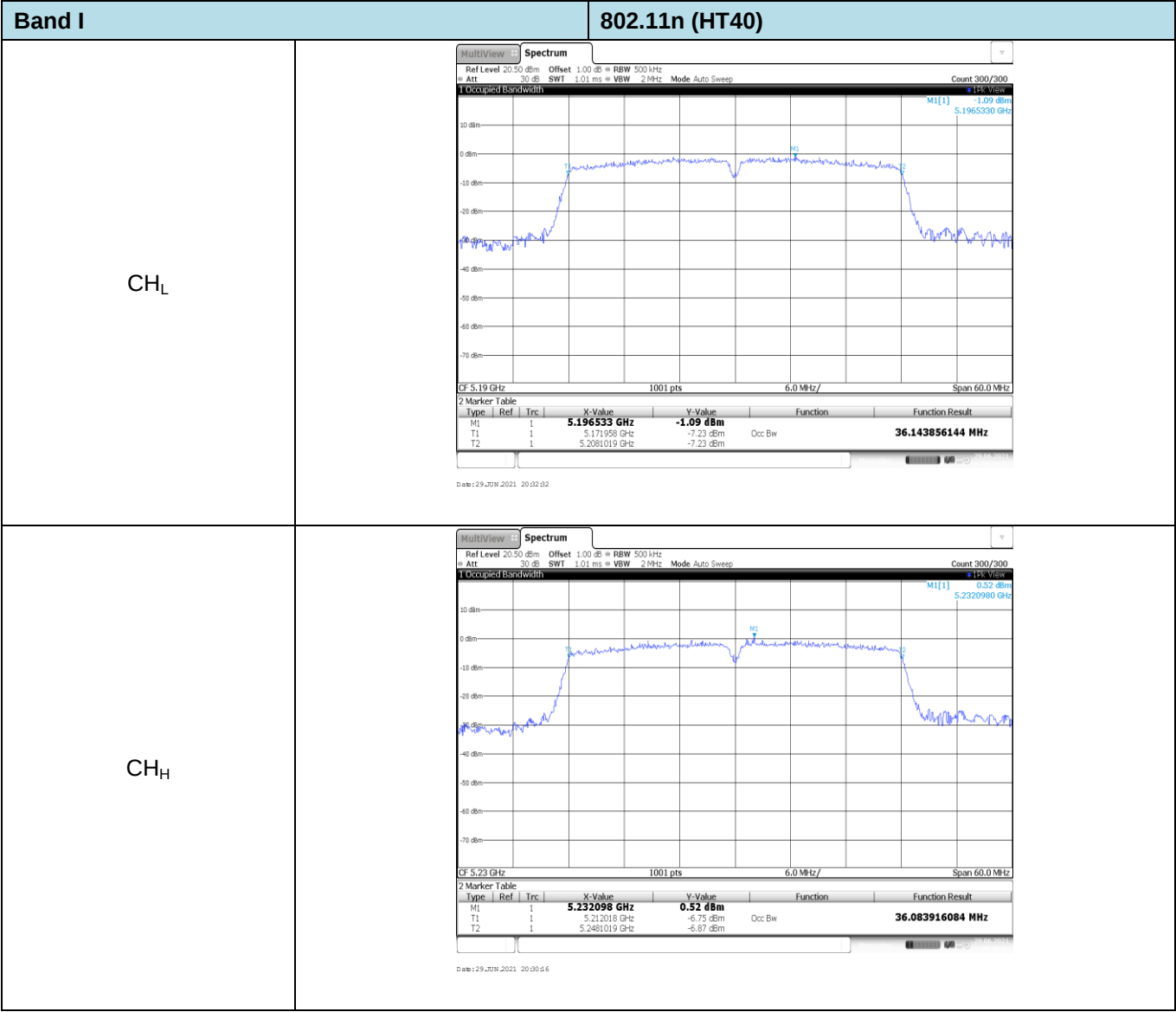
Band I

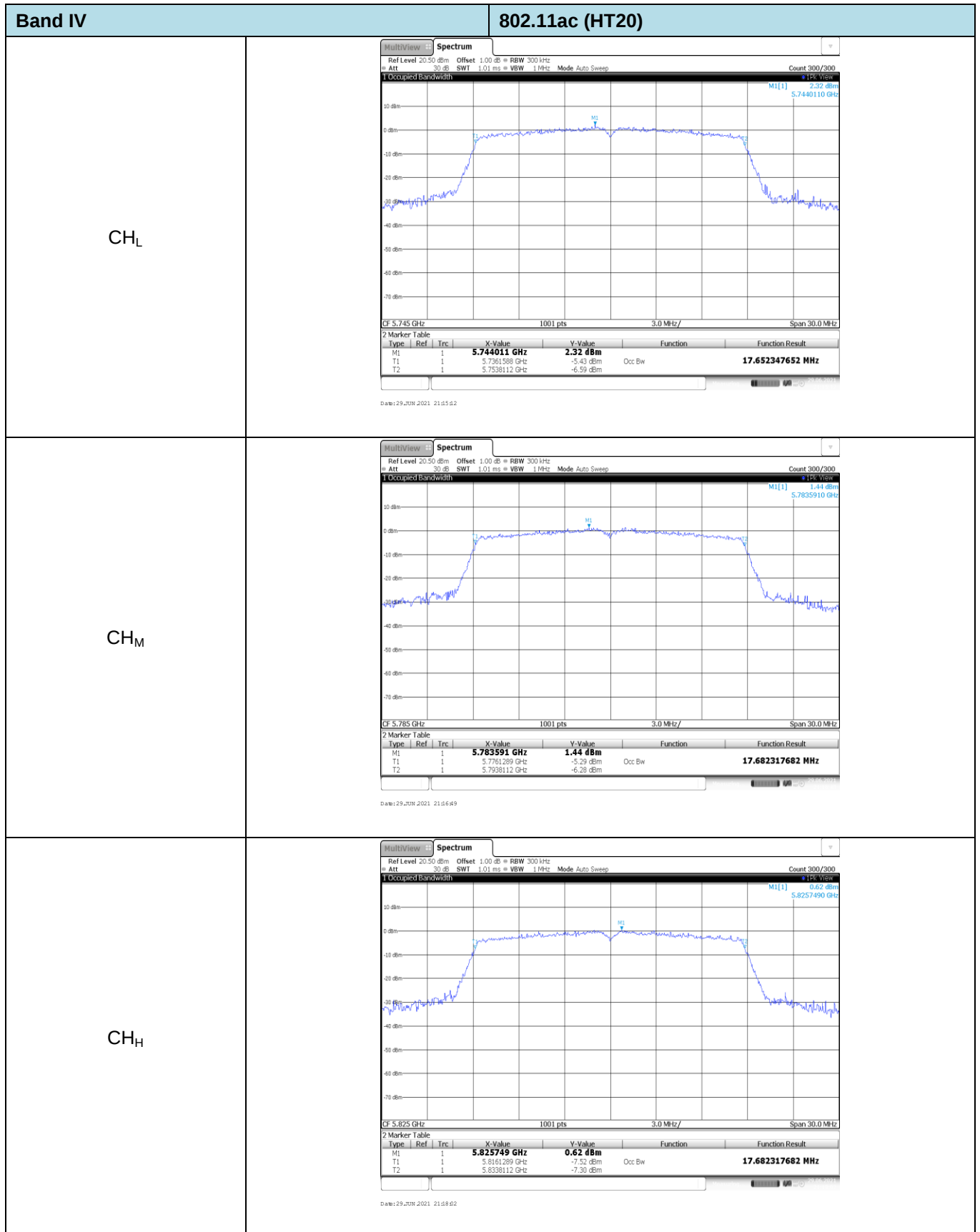
802.11n (HT20)

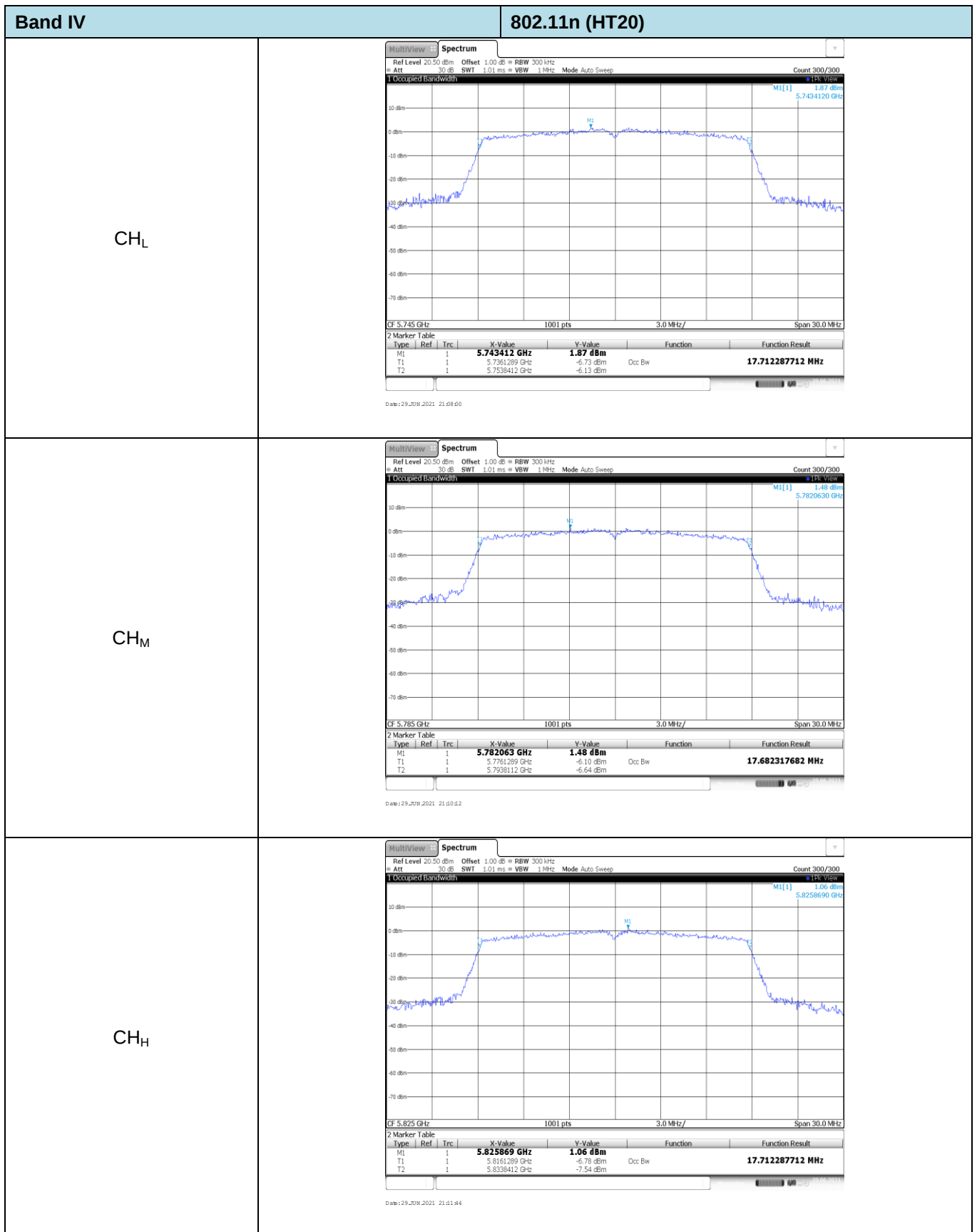
CH_LCH_MCH_H

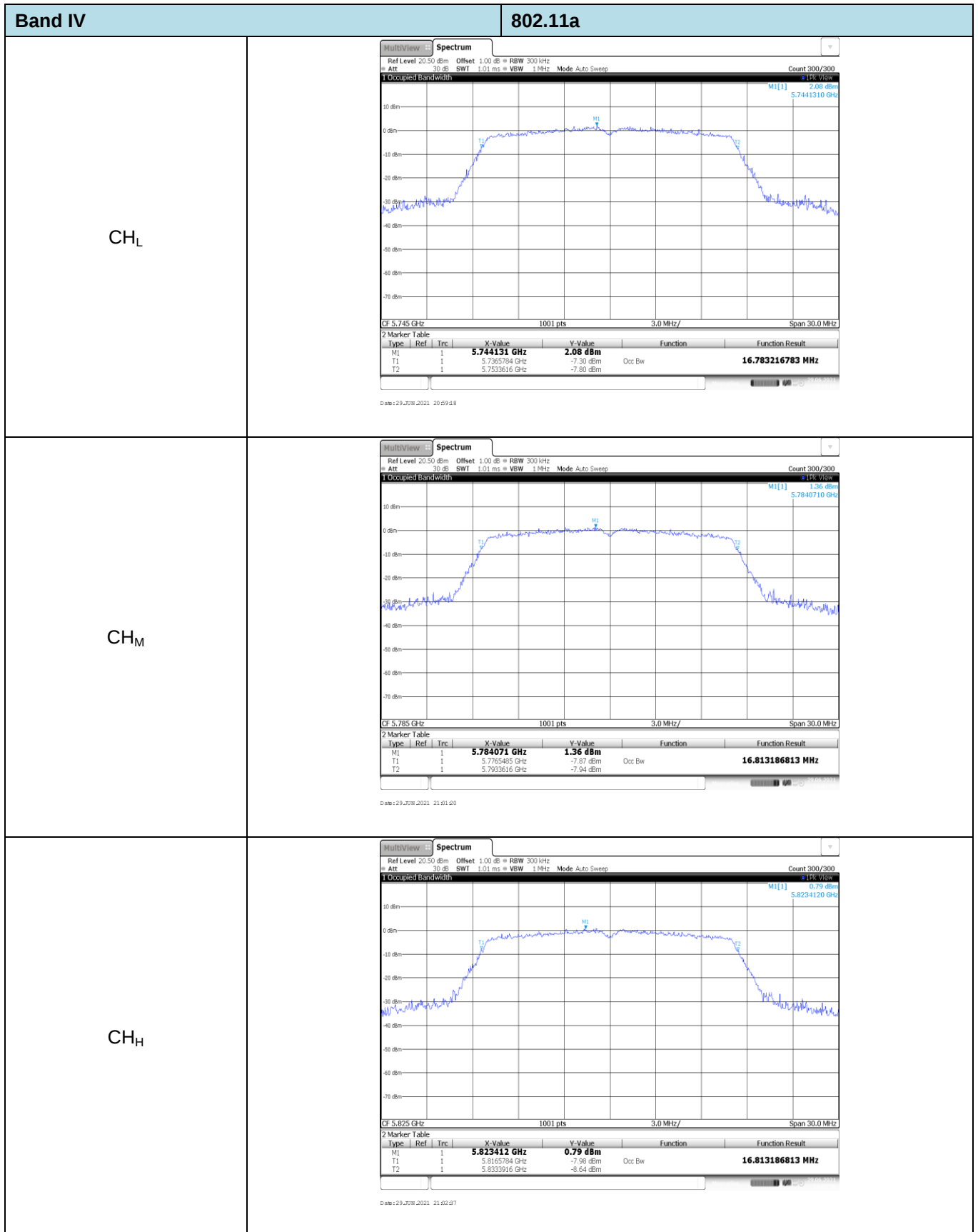


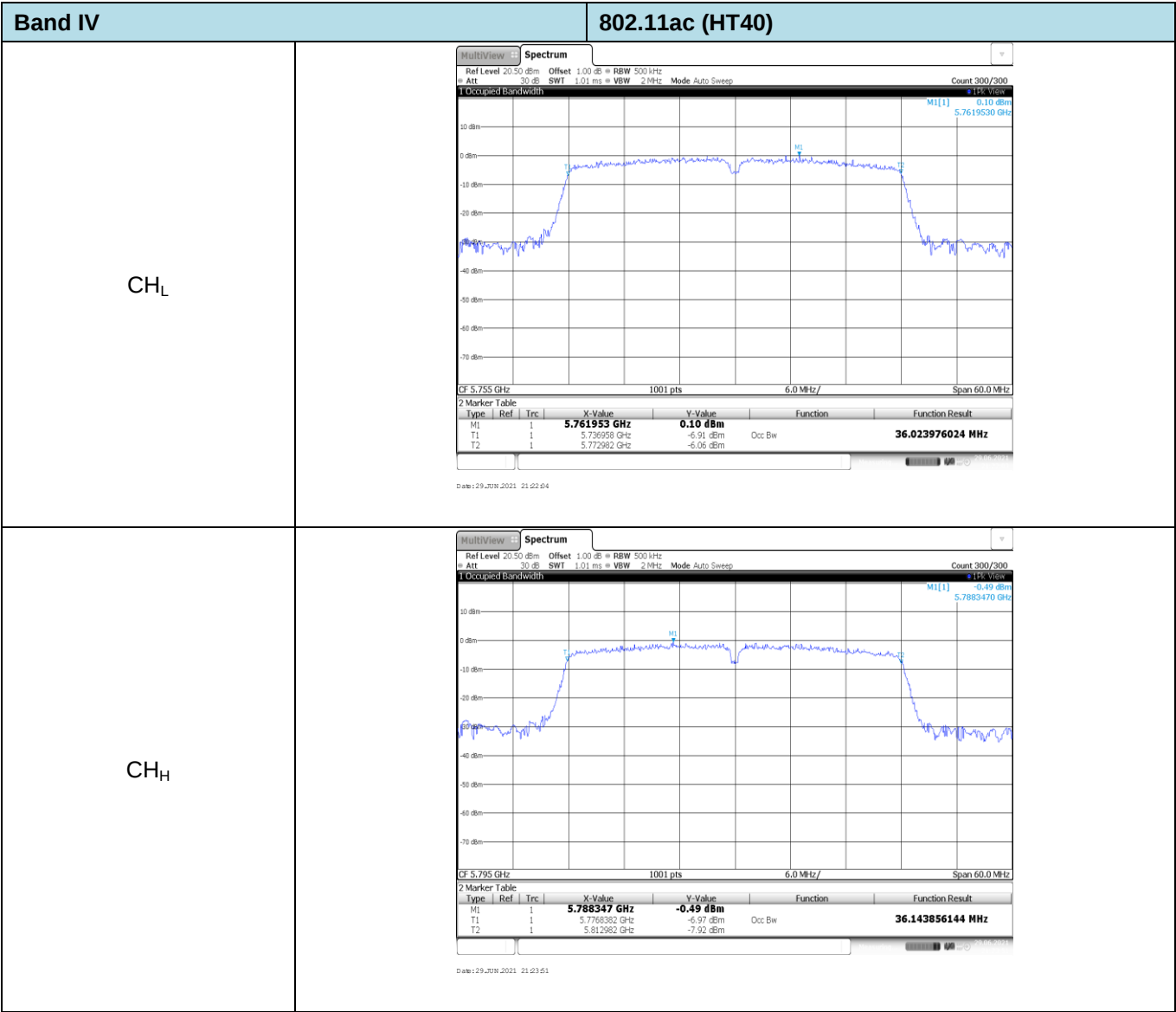


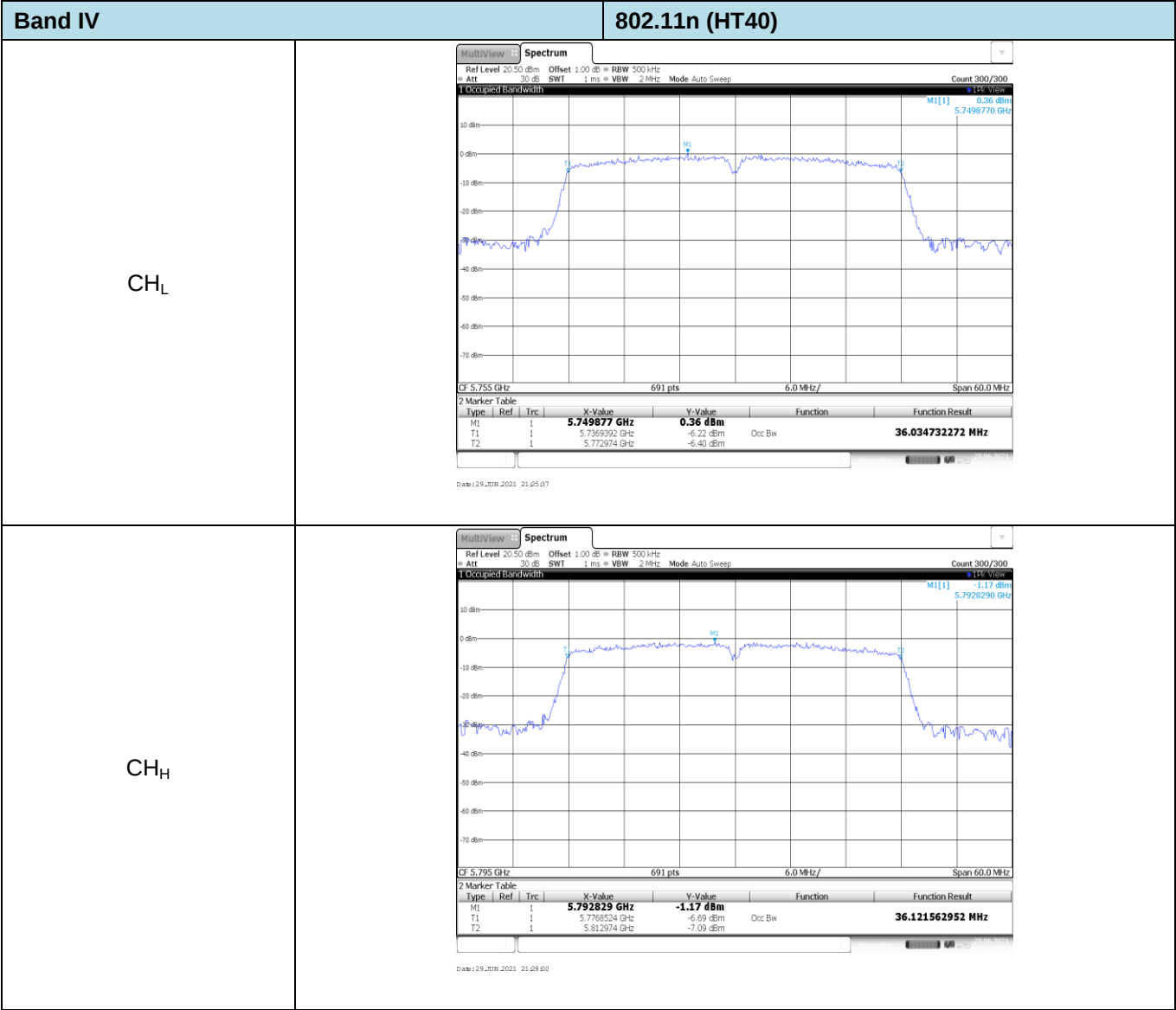












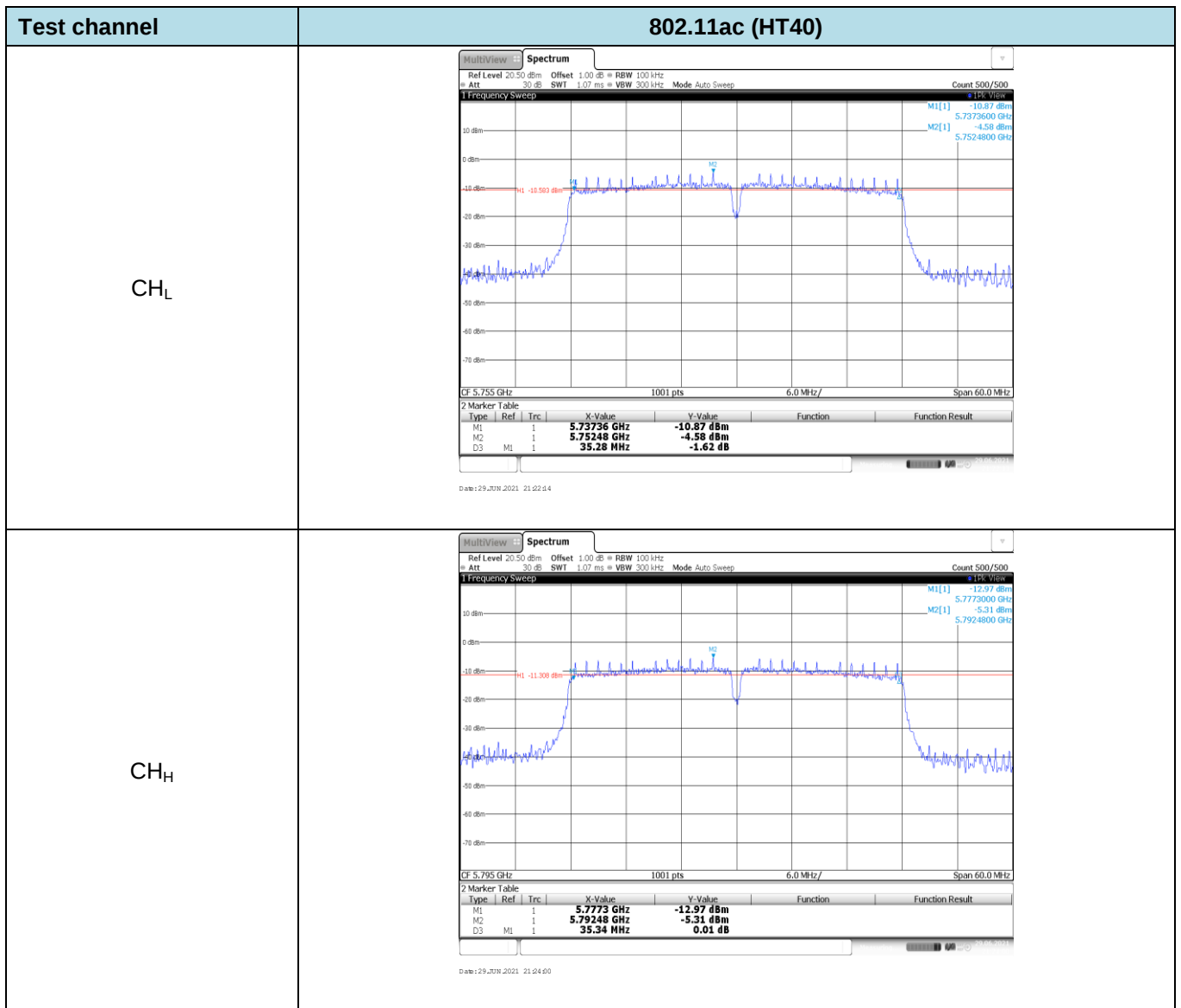
Appendix E: 6dB Bandwidth

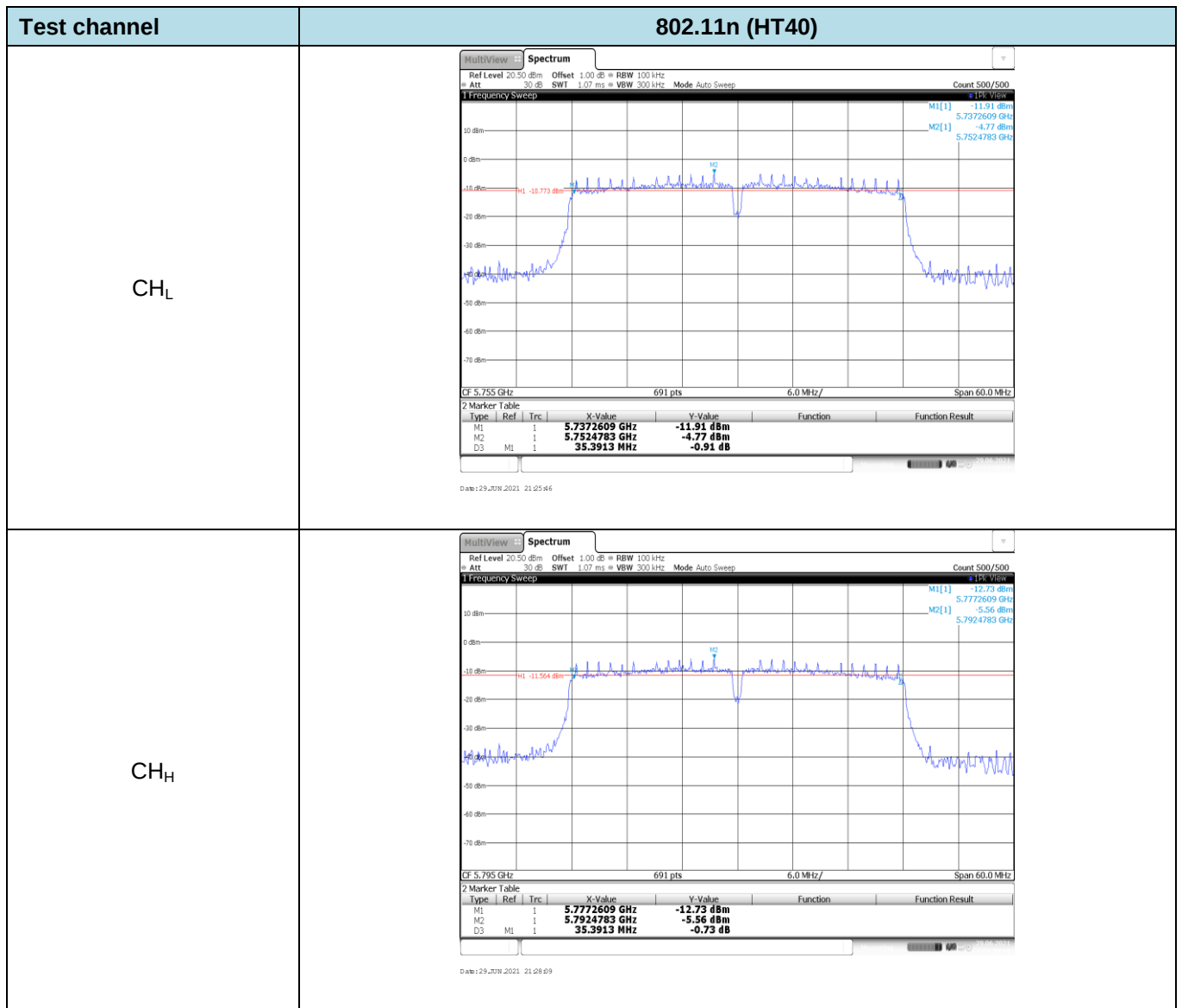
Band	Bandwidth (MHz)	Type	Channel	6dB bandwidth (MHz)	Result
IV	20	802.11ac	CH _L	15.21	Pass
			CH _M	15.21	
			CH _H	16.14	
		802.11n	CH _L	16.02	Pass
			CH _M	15.21	
			CH _H	15.21	
		802.11a	CH _L	15.21	Pass
			CH _M	15.21	
			CH _H	15.21	
	40	802.11ac	CH _L	35.28	Pass
			CH _H	35.34	
		802.11n	CH _L	35.39	Pass
			CH _H	35.39	

Test channel	802.11ac (HT20)
CH _L	MultiView Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 1.04 ms VBW 300 kHz Mode Auto Sweep Count 500/500 1 Frequency Sweep

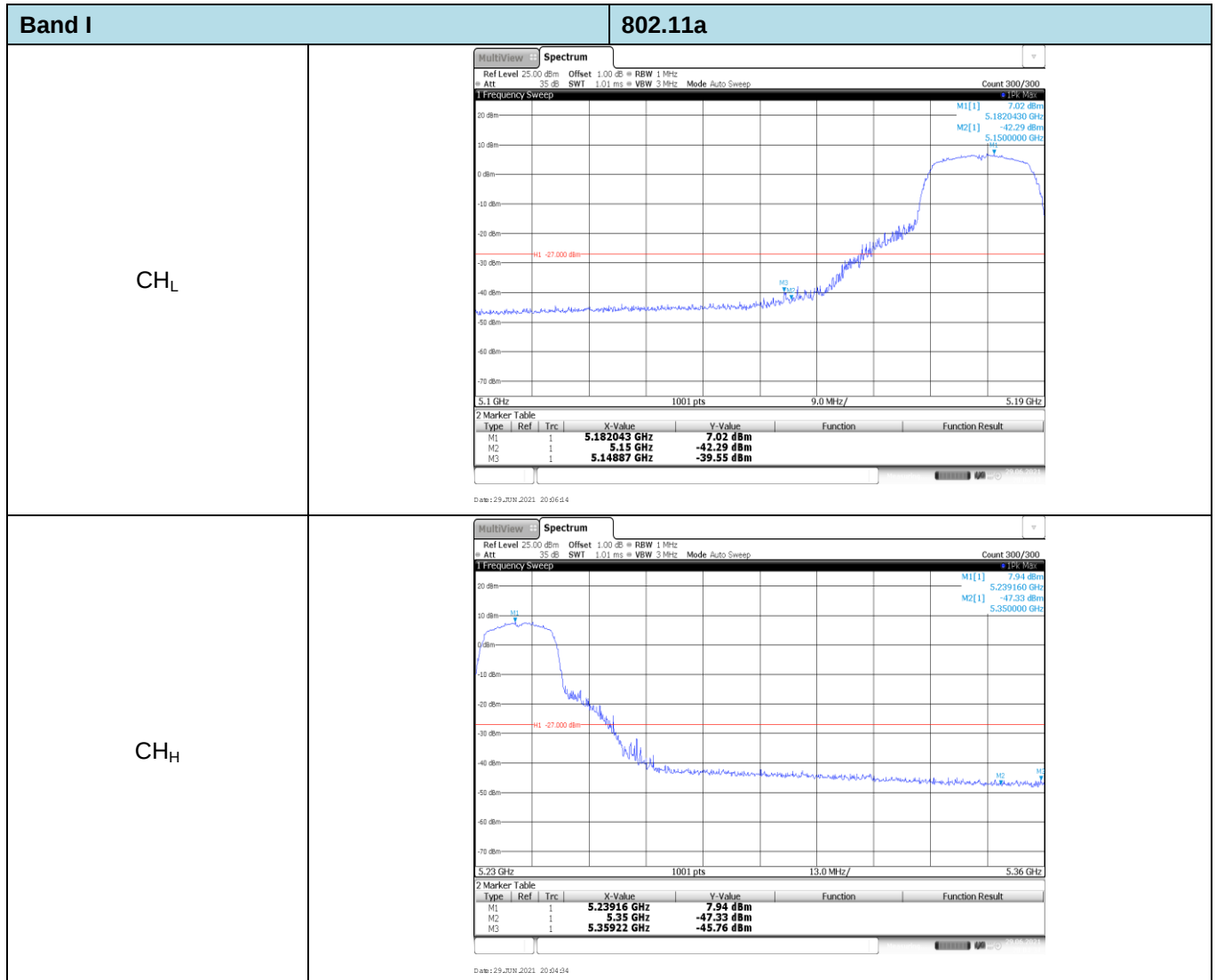
Test channel	802.11n (HT20)
CH _L	MultiView Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 1.04 ms VBW 300 kHz Mode Auto Sweep Count 500/500 1 Frequency Sweep </

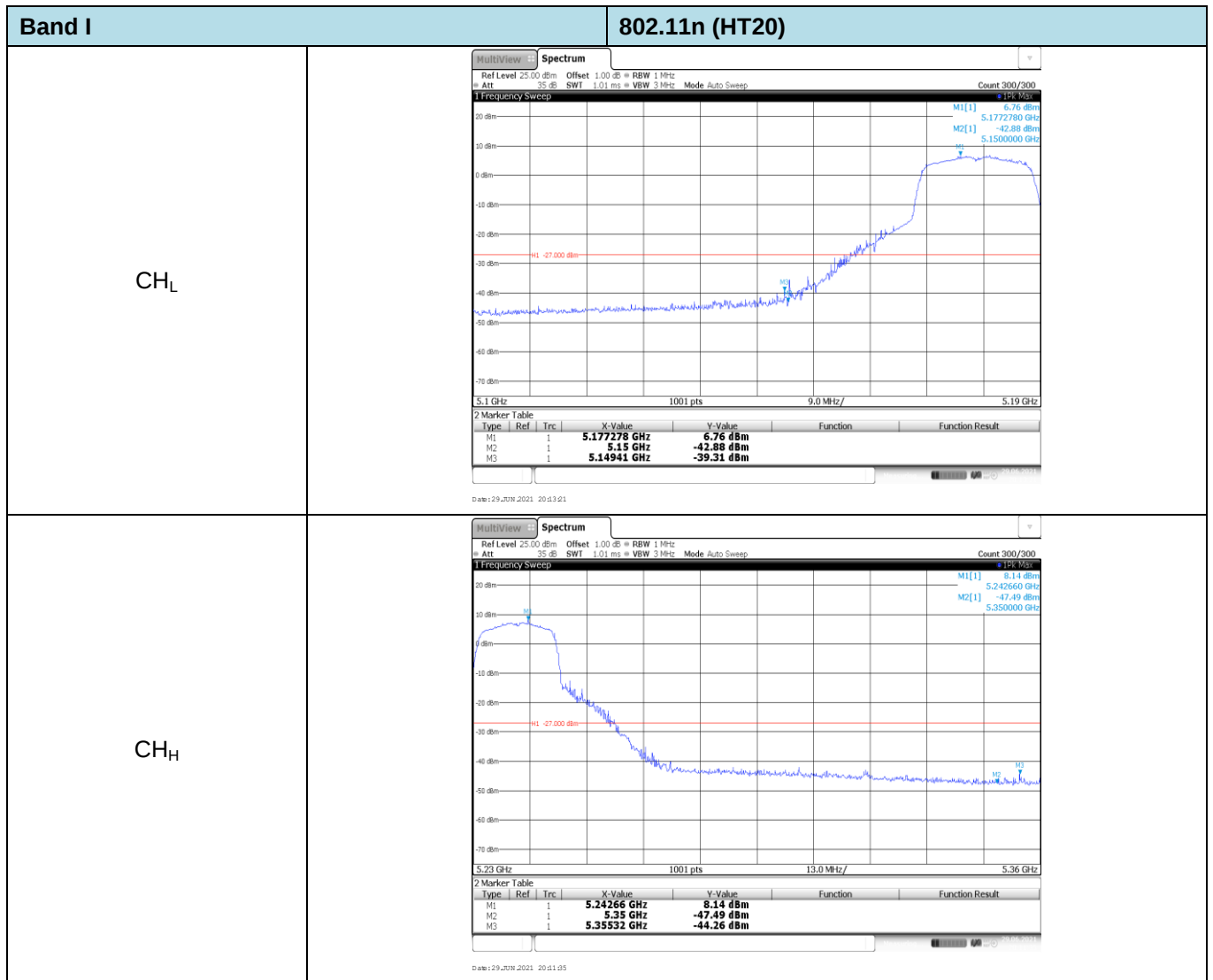
Test channel	802.11a
CH _L	MultiView Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 1.04 ms VBW 300 kHz Mode Auto Sweep Count 500/500 1 Frequency Sweep <

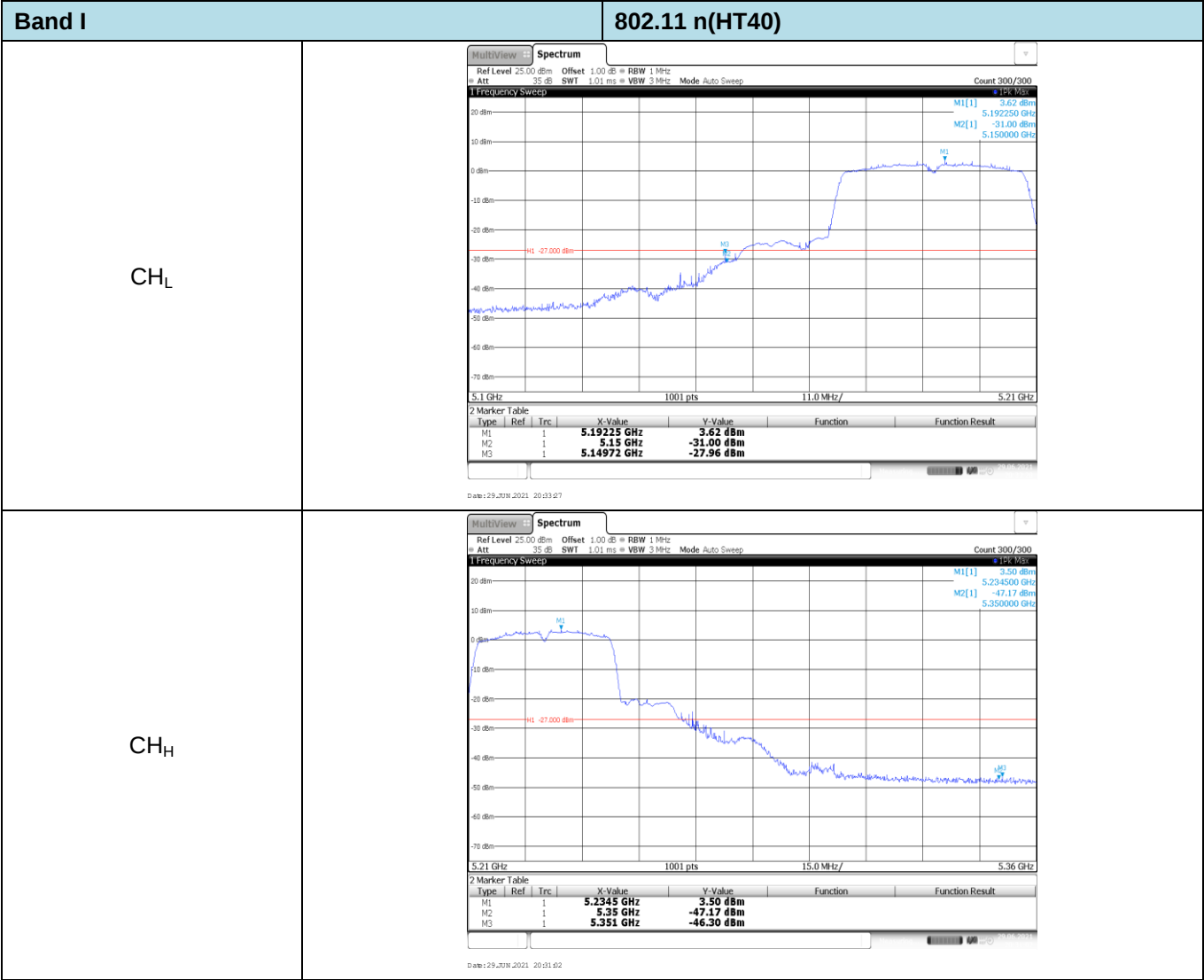


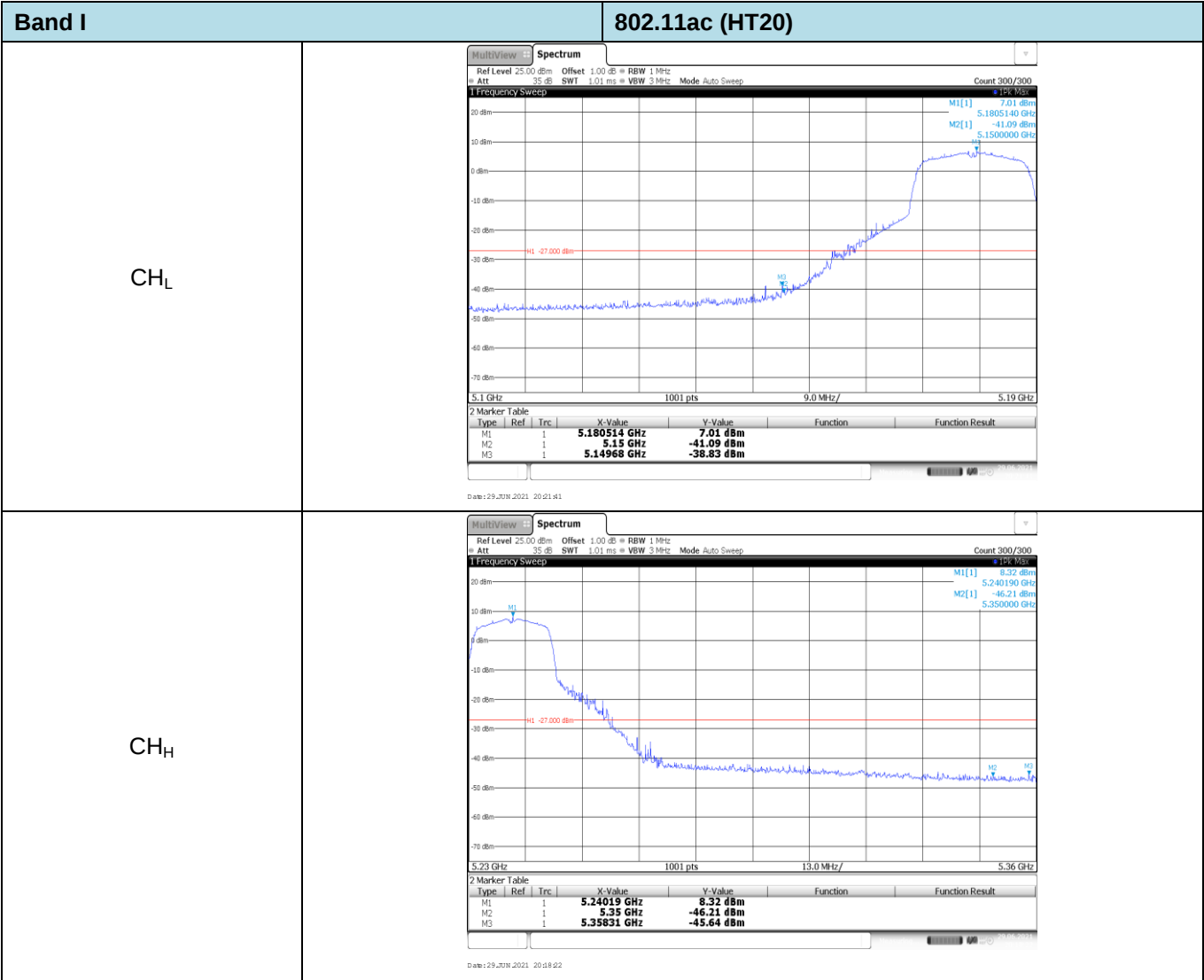


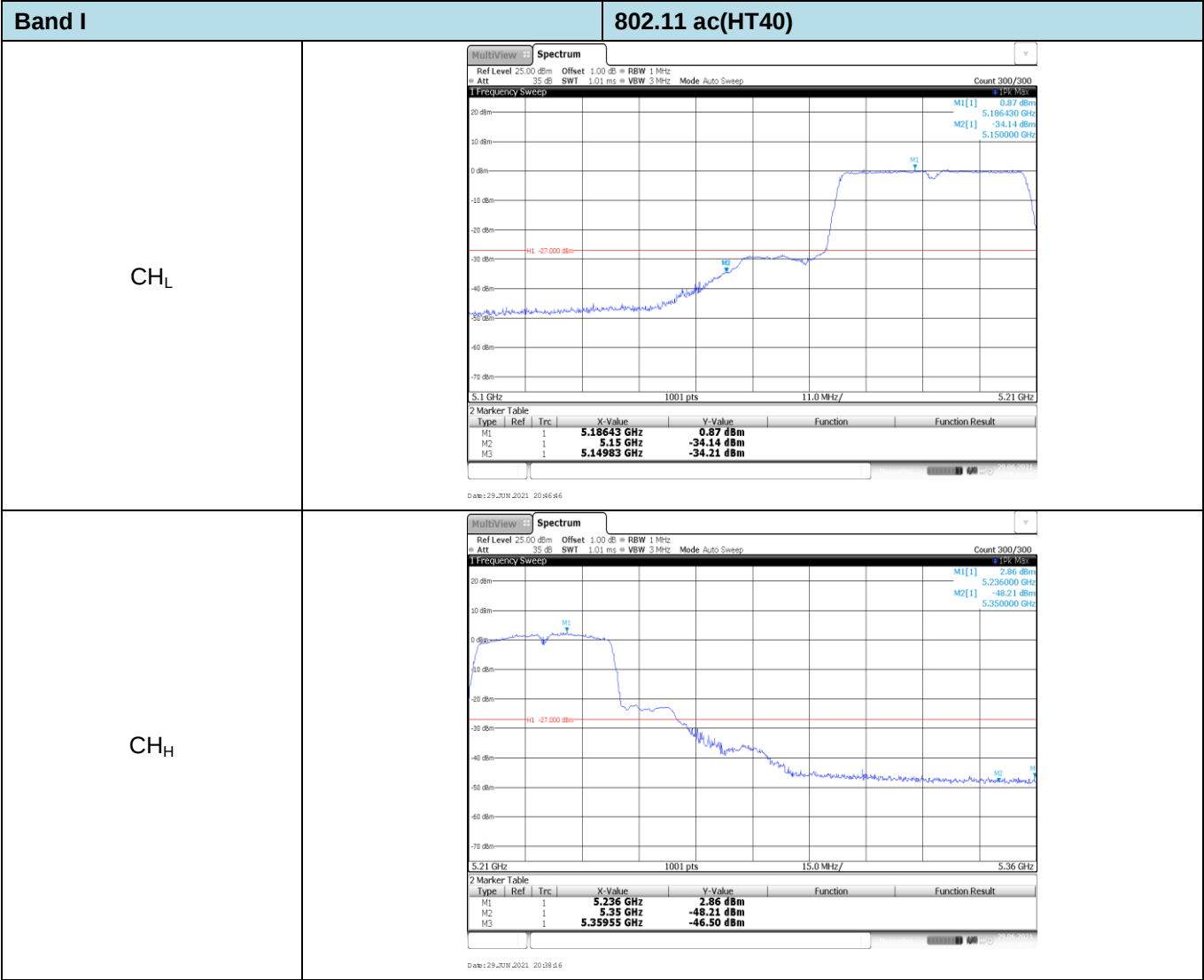
Appendix F: Band edge

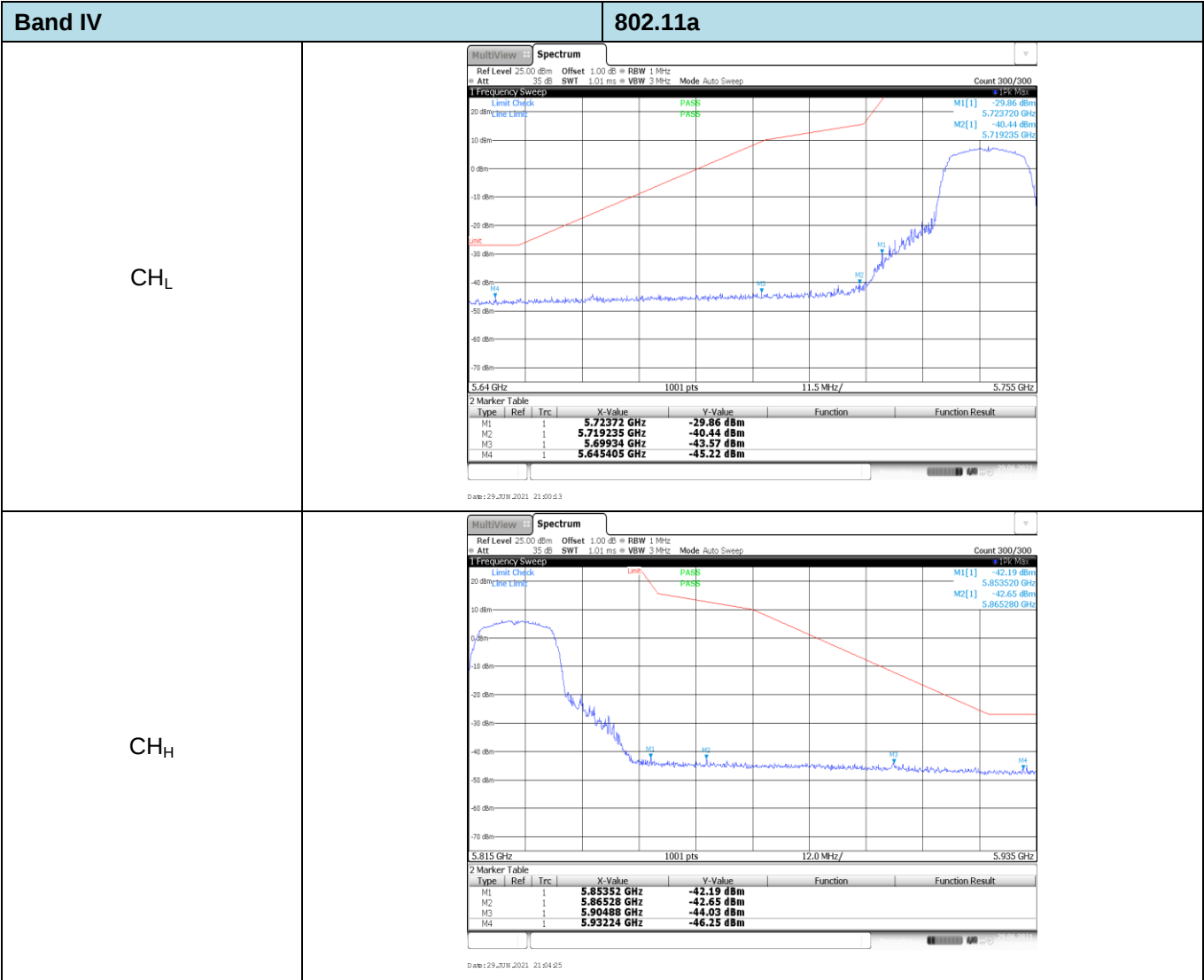


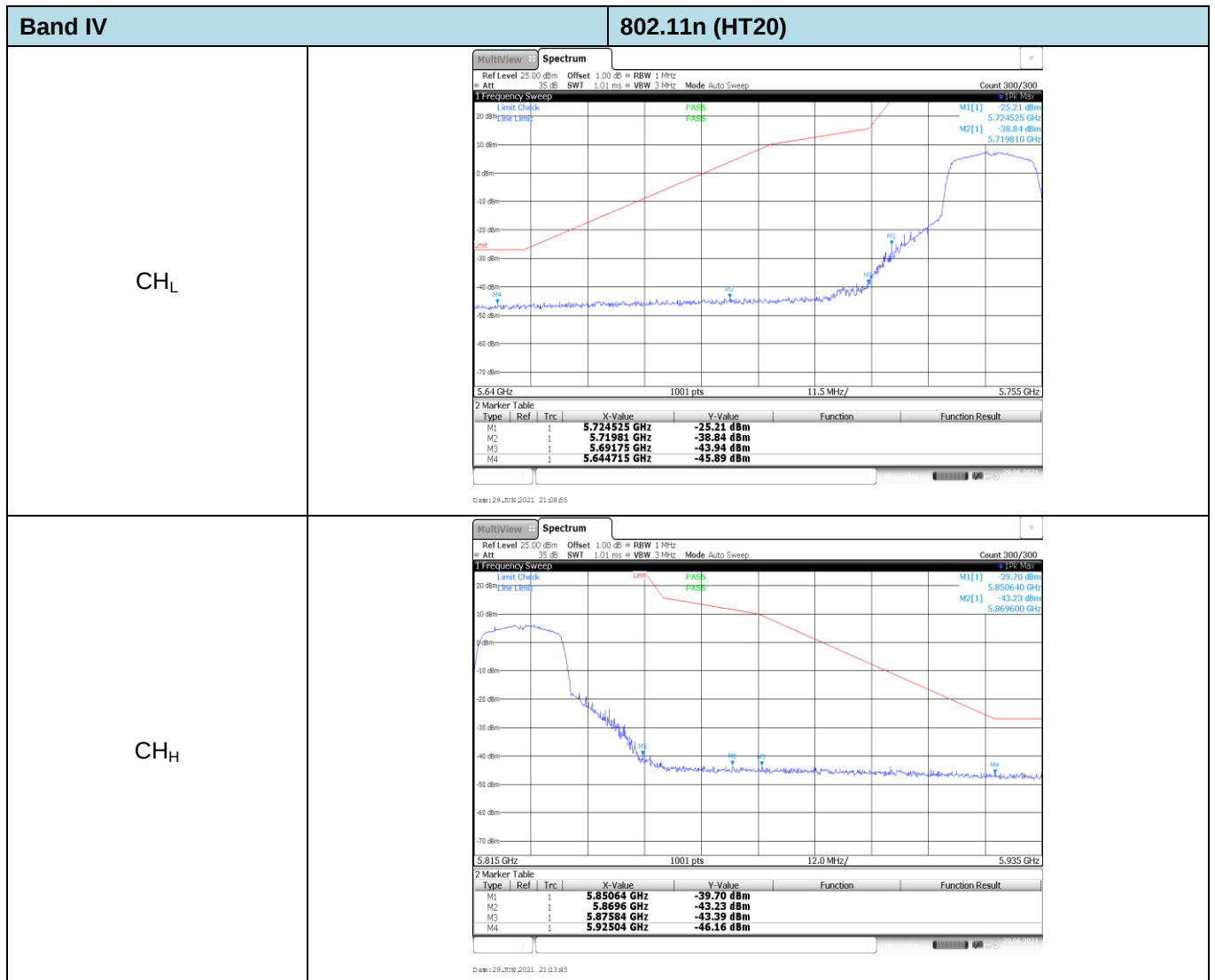


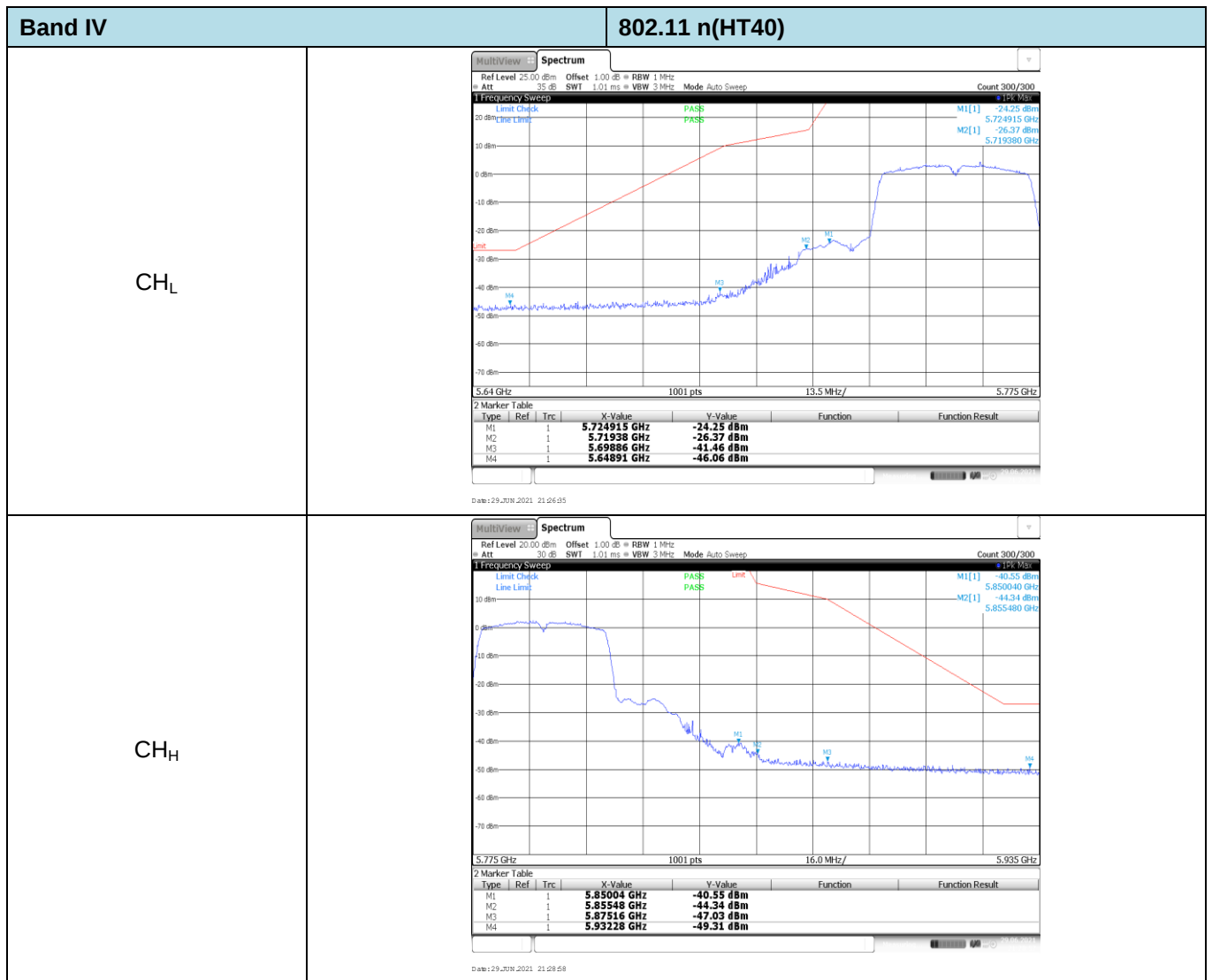






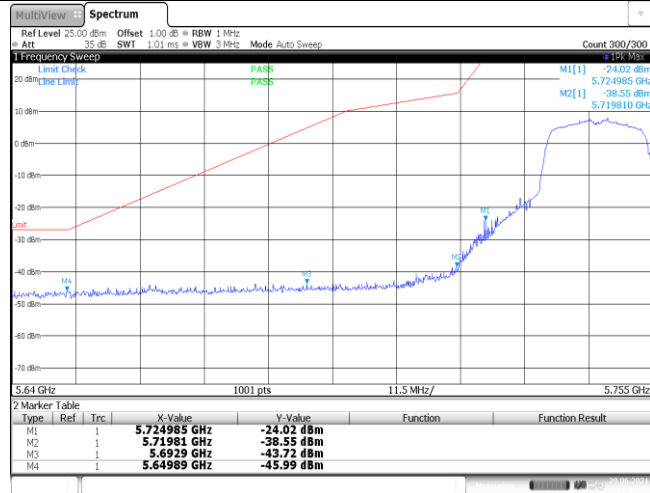




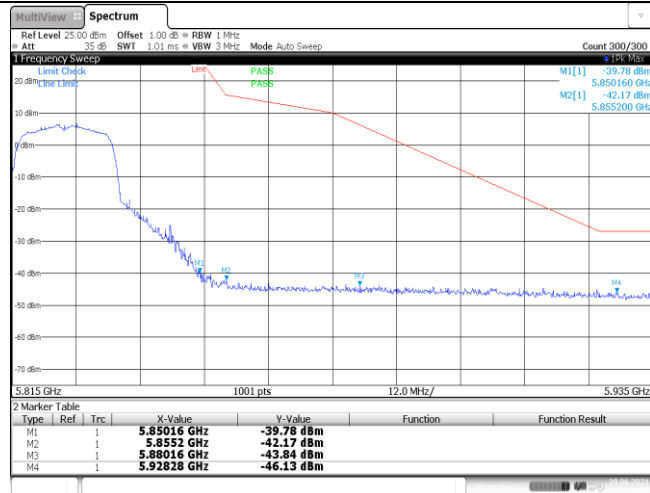


Band IV

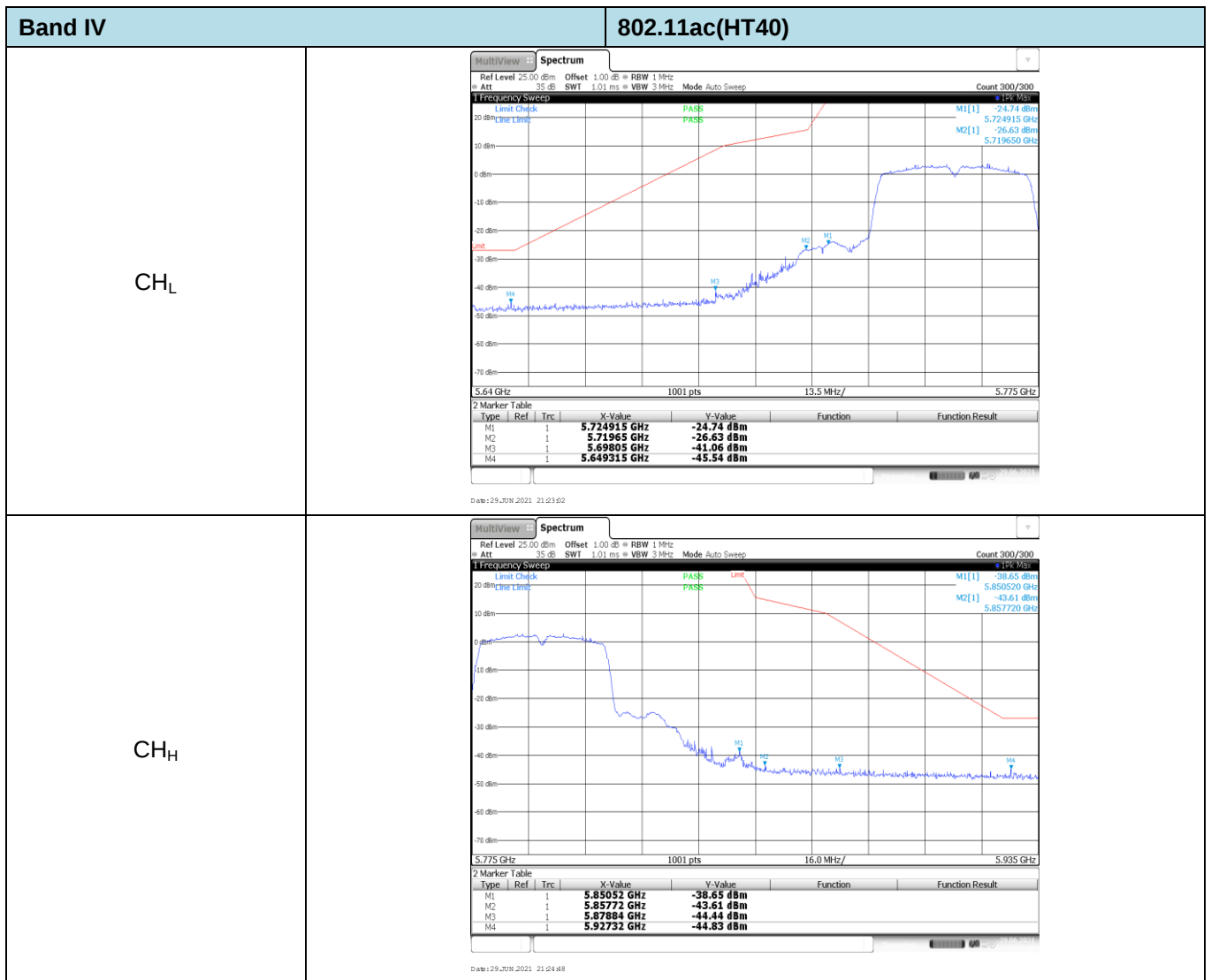
802.11ac(HT20)

CH_L

Date: 29 JUN 2021 21:16:08

CH_H

Date: 29 JUN 2021 21:18:58



Appendix G: Frequency stability**Voltage VS Frequency stability**

Band: I			Test Frequency: 5180.00MHz	
Temperature (°C)	Voltage (V)	Frequency Deviation (Hz)	Frequency Deviation (ppm)	Result
T _N	V _L	-9000.00	-1.73745	PASS
T _N	V _N	-9000.00	-1.73745	PASS
T _N	V _H	-9000.00	-1.73745	PASS

Band: IV			Test Frequency: 5745.00MHz	
Temperature (°C)	Voltage (V)	Frequency Deviation (Hz)	Frequency Deviation (ppm)	Result
T _N	V _L	-12000.00	-2.08877	PASS
T _N	V _N	-12000.00	-2.08877	PASS
T _N	V _H	-12000.00	-2.08877	PASS

Temperature VS Frequency stability

Band: I			Test Frequency: 5180.00MHz	
Voltage (V)	Temperature (°C)	Frequency Deviation (Hz)	Frequency Deviation (ppm)	Result
V _N	-20	-10000.00	-1.93050	PASS
V _N	-10	-10000.00	-1.93050	PASS
V _N	0	-10000.00	-1.93050	PASS
V _N	10	-10000.00	-1.93050	PASS
V _N	20	-10000.00	-1.93050	PASS
V _N	30	-10000.00	-1.93050	PASS
V _N	40	-10000.00	-1.93050	PASS
V _N	50	-10000.00	-1.93050	PASS

Band: IV			Test Frequency: 5745.00MHz	
Voltage (V)	Temperature (°C)	Frequency Deviation (Hz)	Frequency Deviation (ppm)	Result
V _N	-20	-12000.00	-2.08877	PASS
V _N	-10	-12000.00	-2.08877	PASS
V _N	0	-12000.00	-2.08877	PASS
V _N	10	-12000.00	-2.08877	PASS
V _N	20	-12000.00	-2.08877	PASS
V _N	30	-12000.00	-2.08877	PASS
V _N	40	-12000.00	-2.08877	PASS
V _N	50	-12000.00	-2.08877	PASS

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