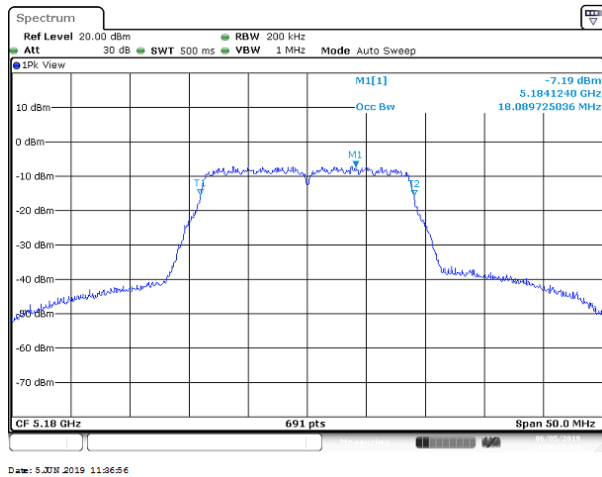
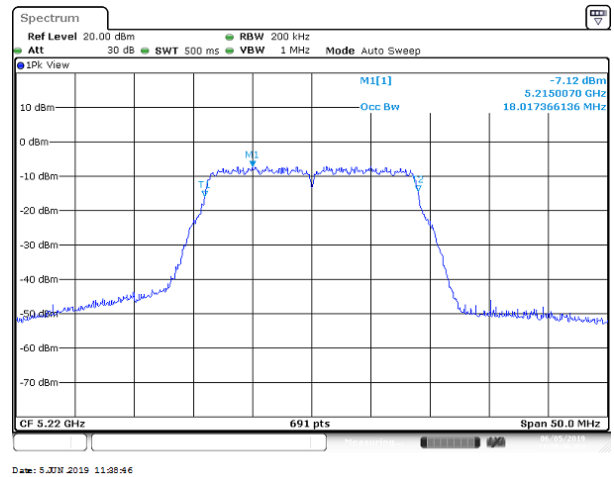


UNII-1 IEEE 802.11n HT20 mode-chain 0

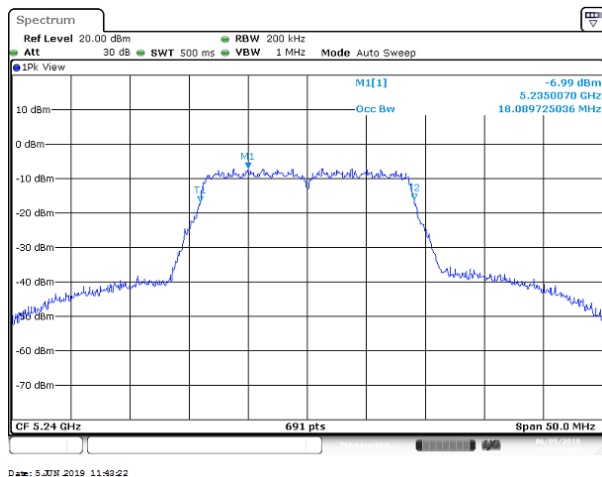
Low CH

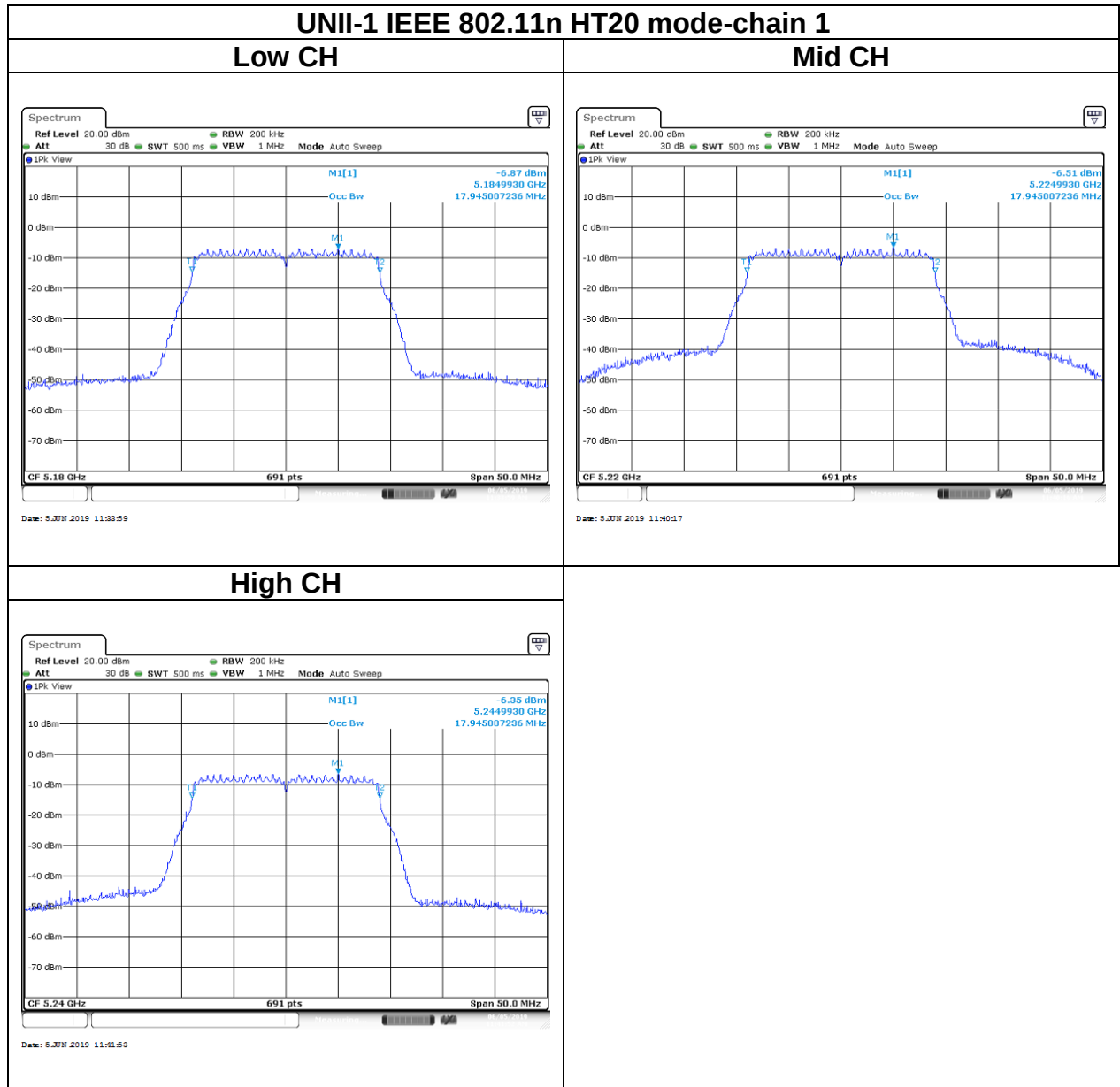


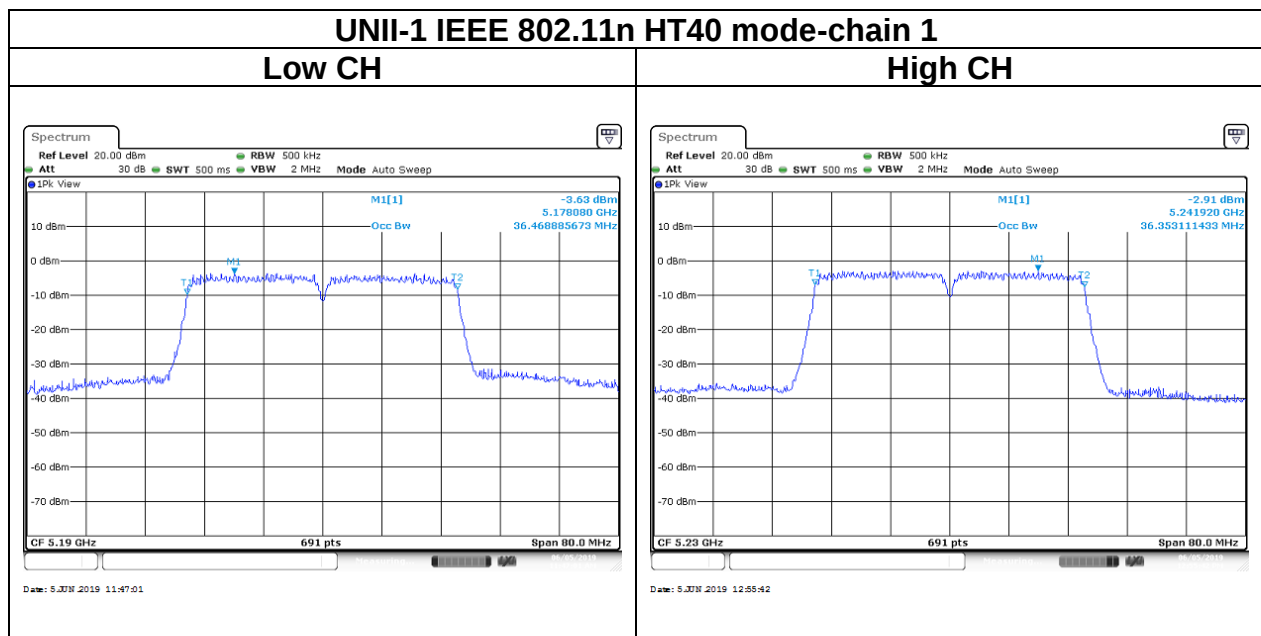
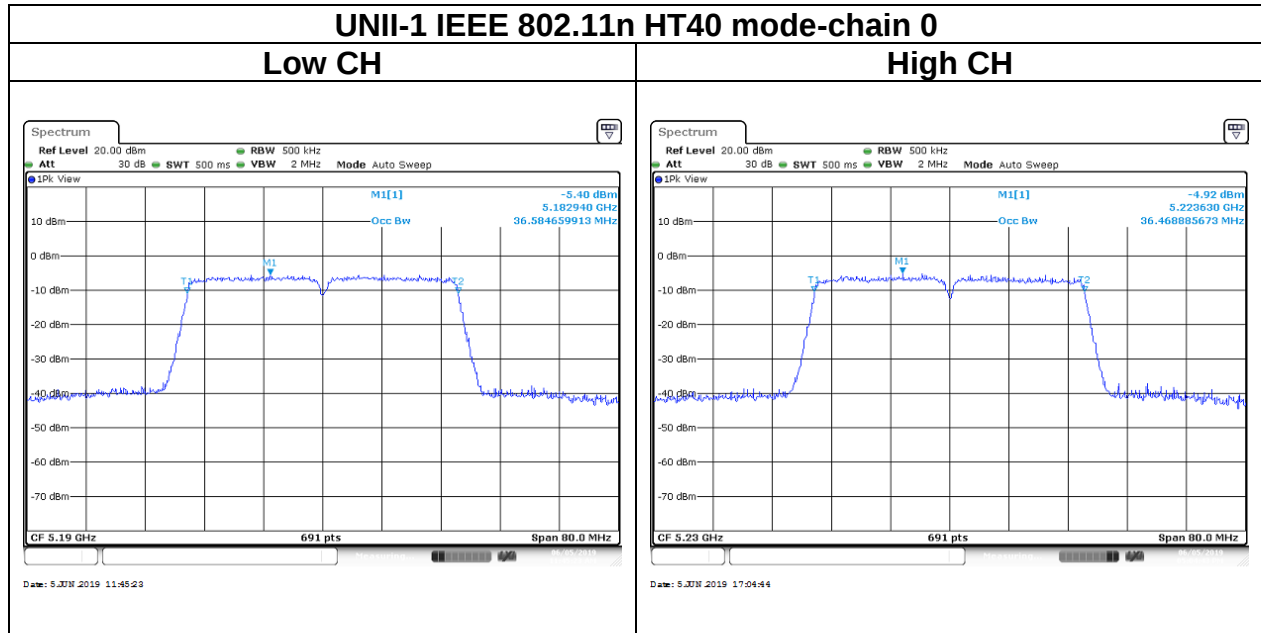
Mid CH

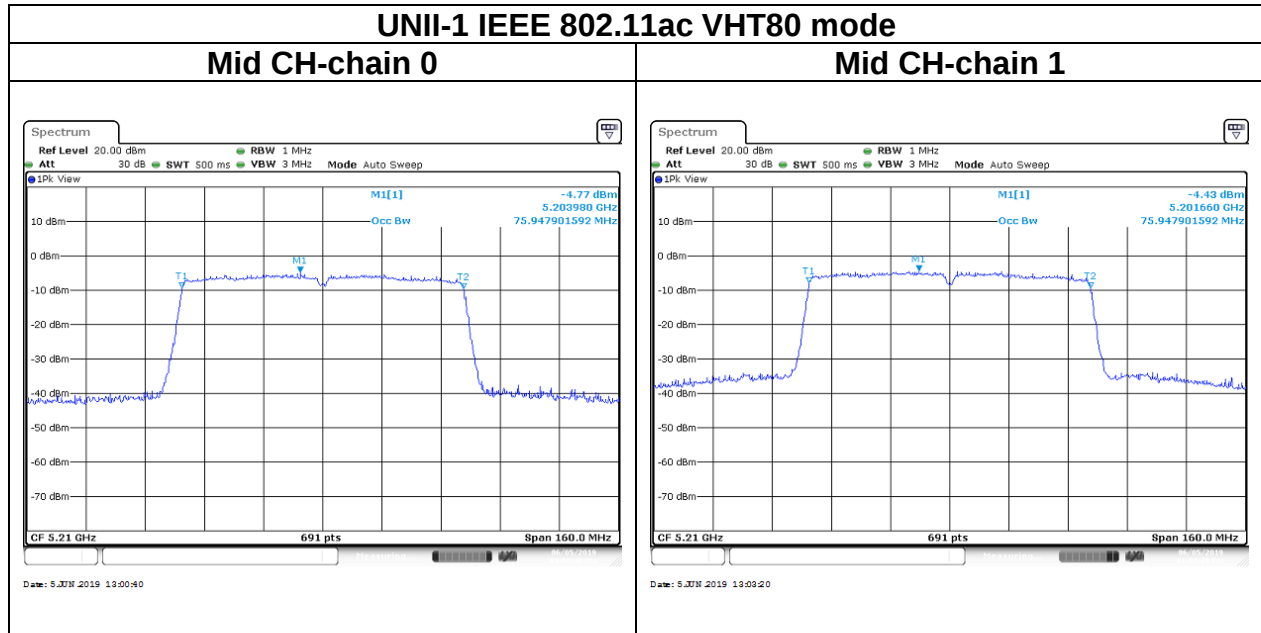


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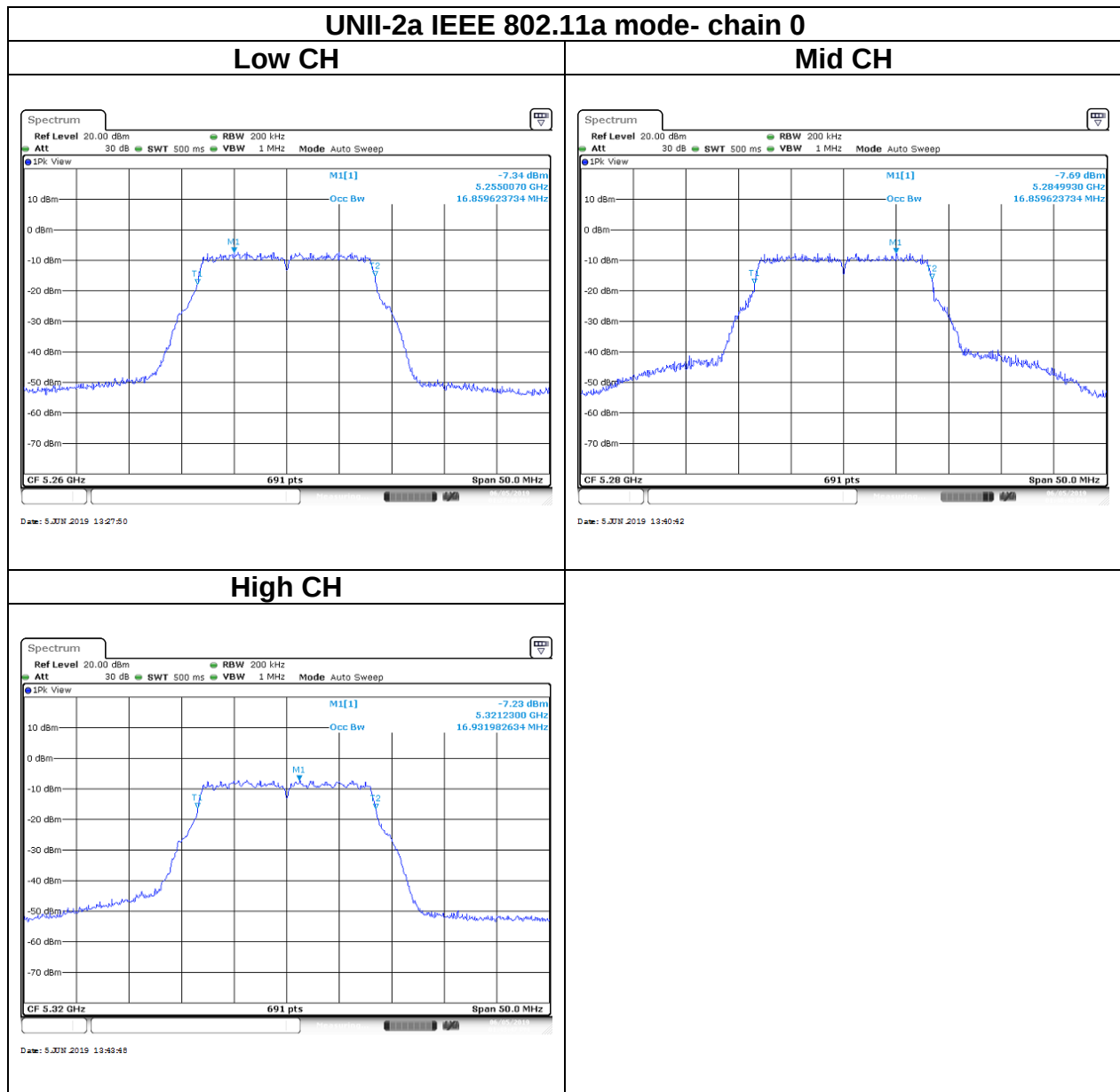


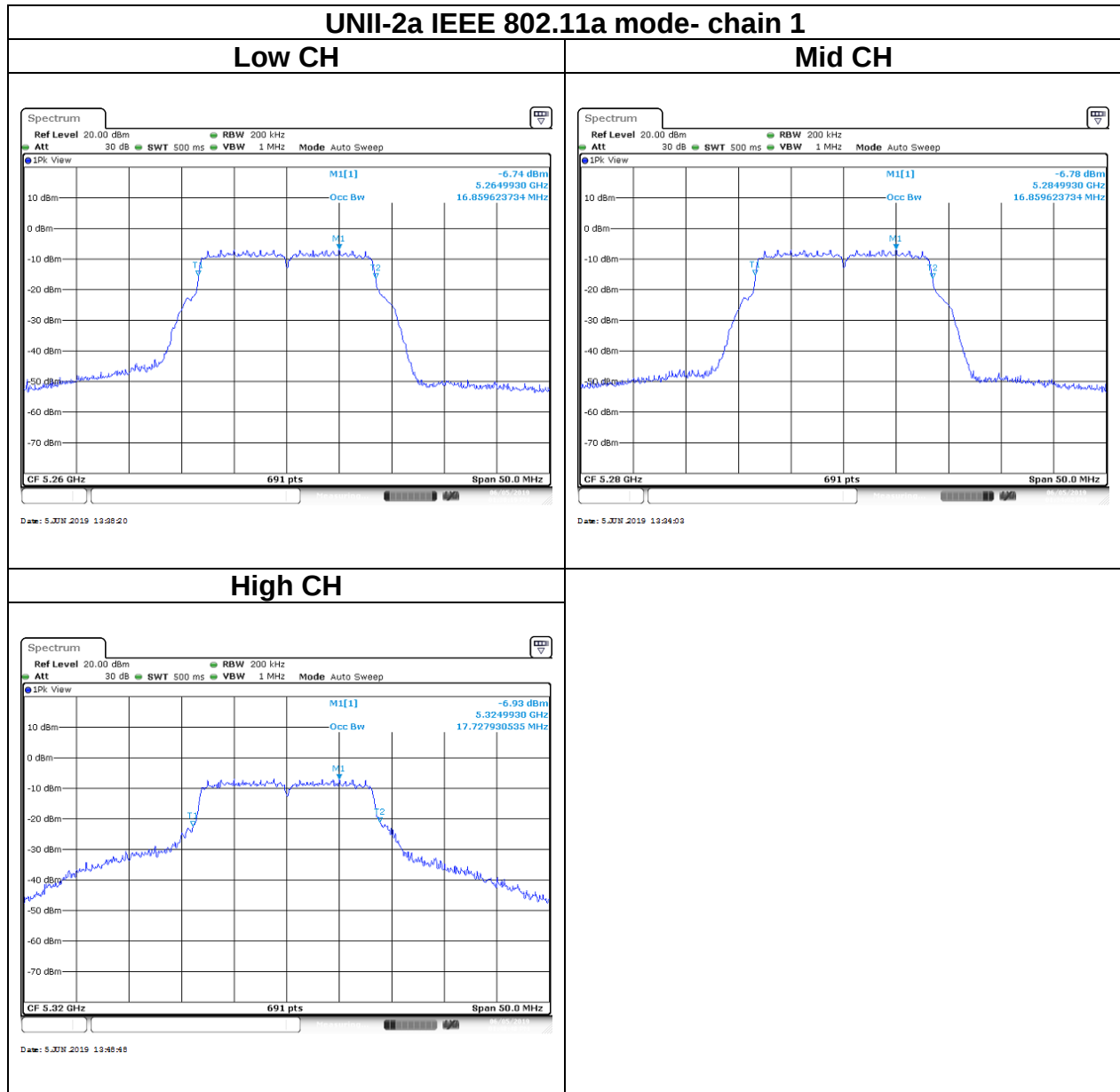




Test Data

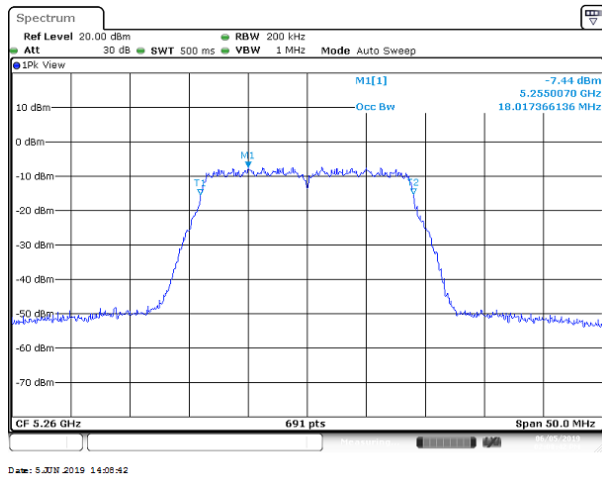
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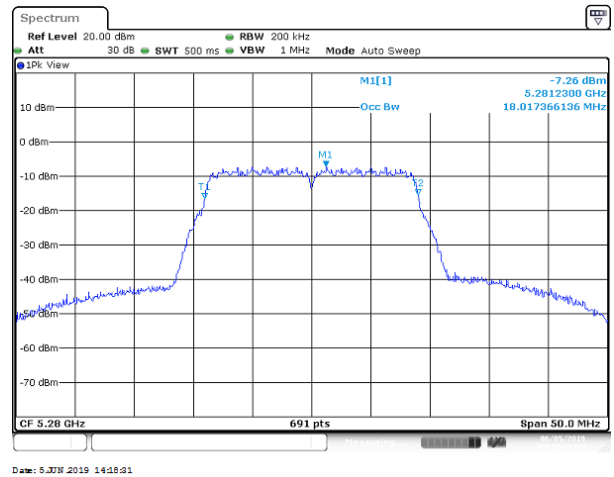


UNII-2a IEEE 802.11n HT20 mode- chain 0

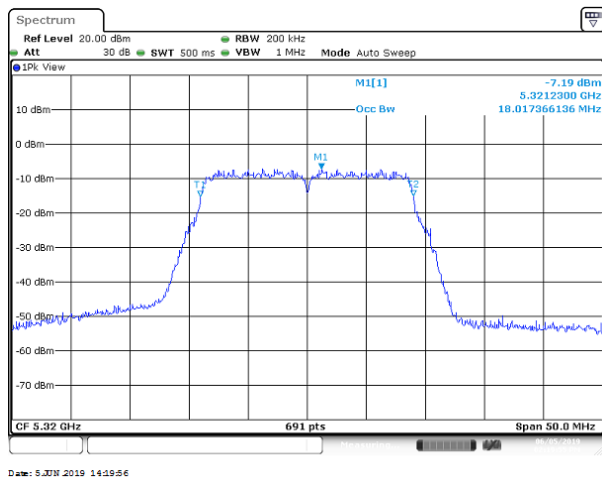
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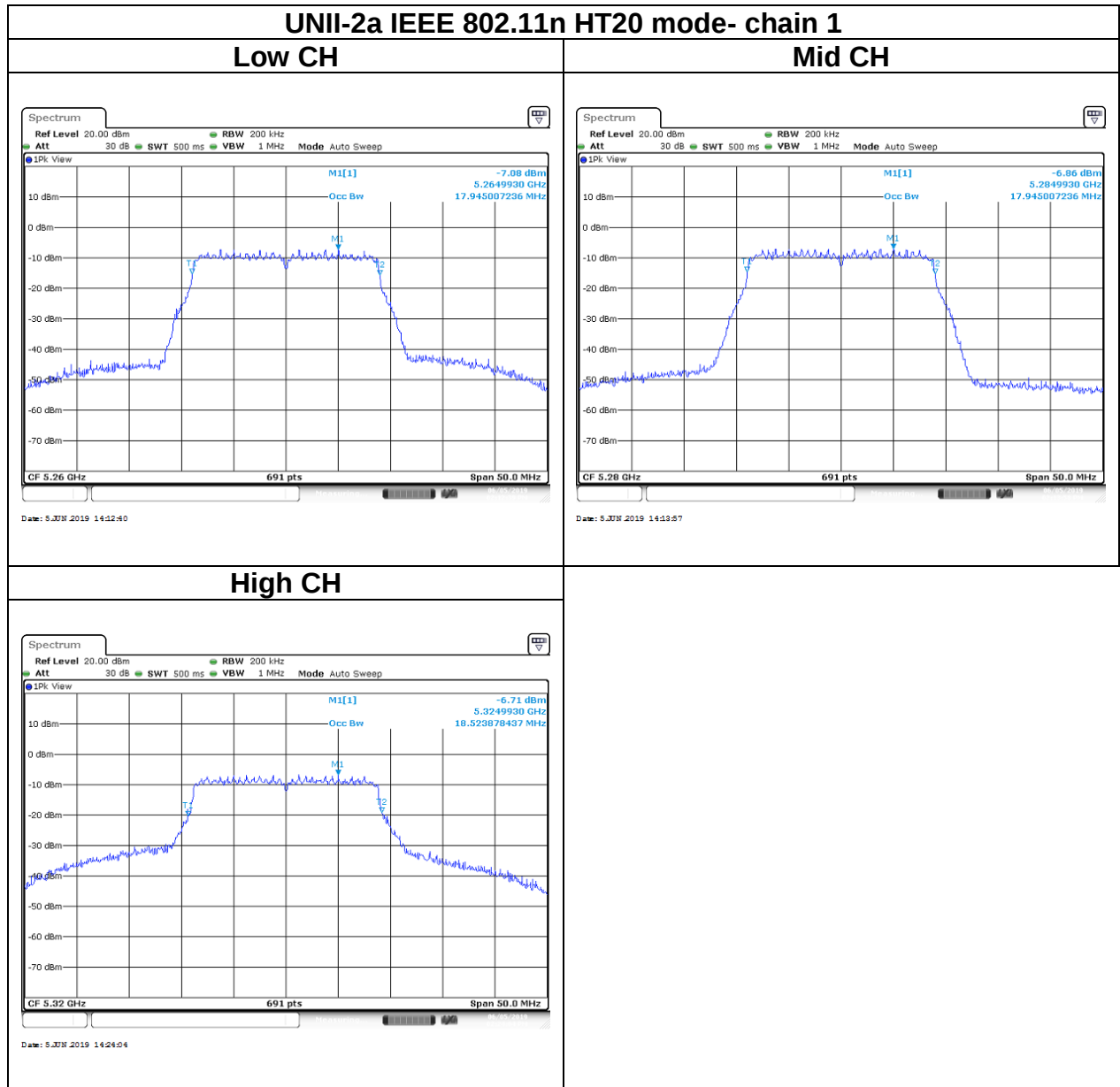


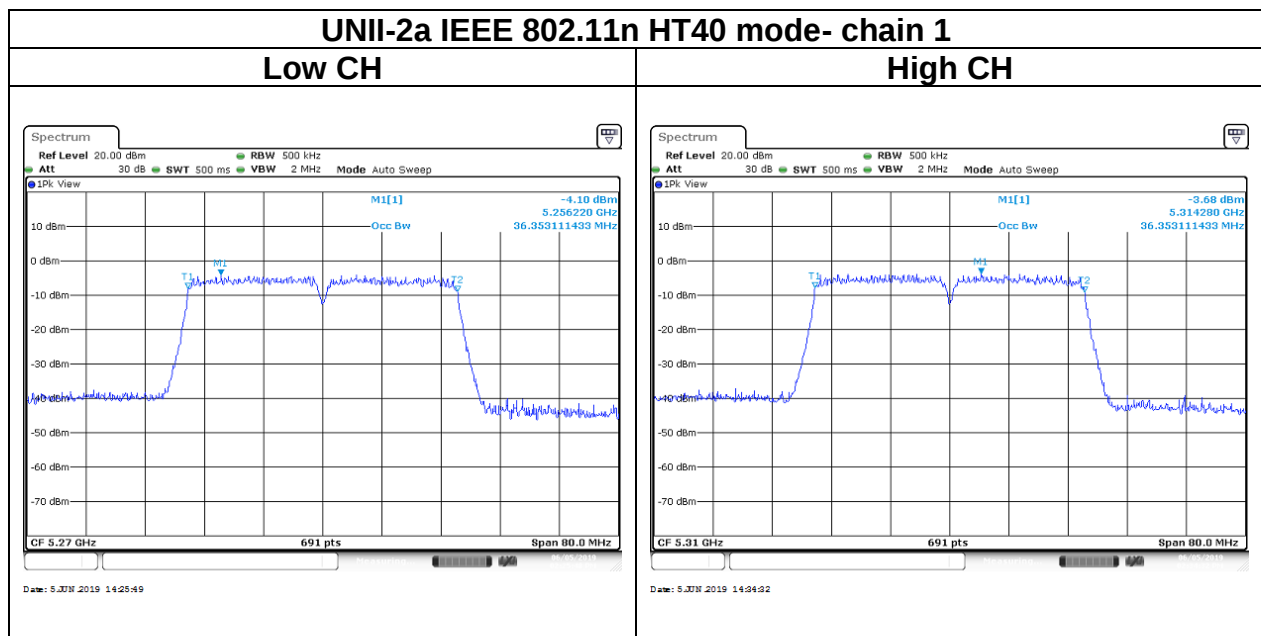
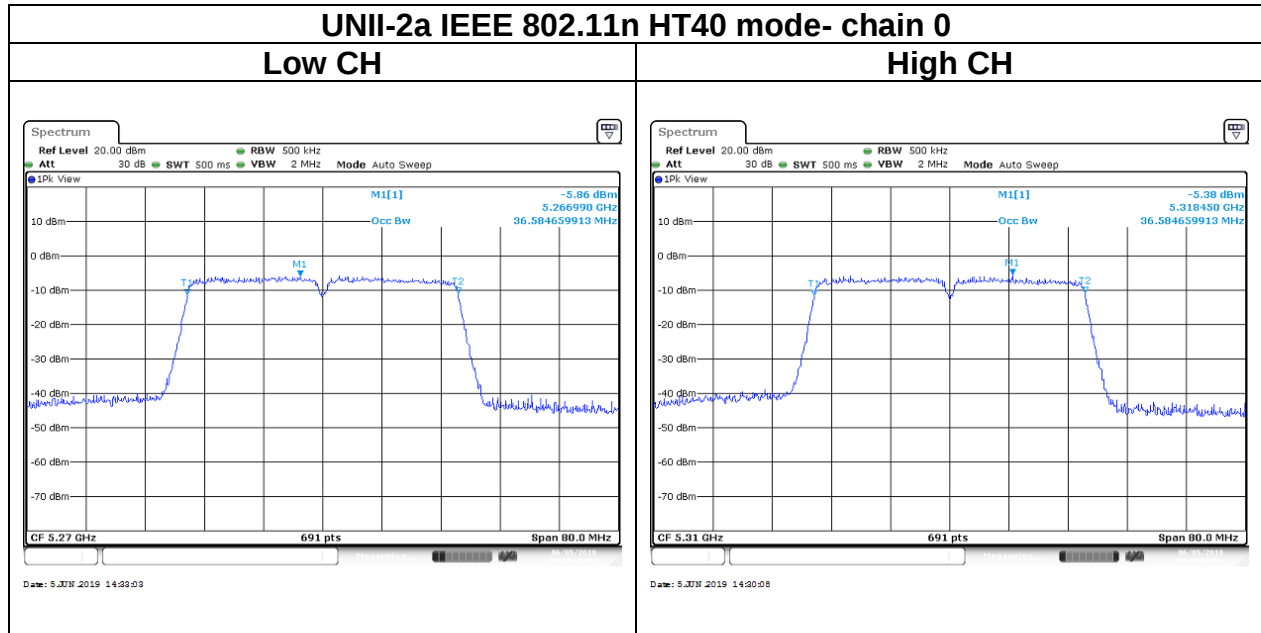
Mid CH



High CH



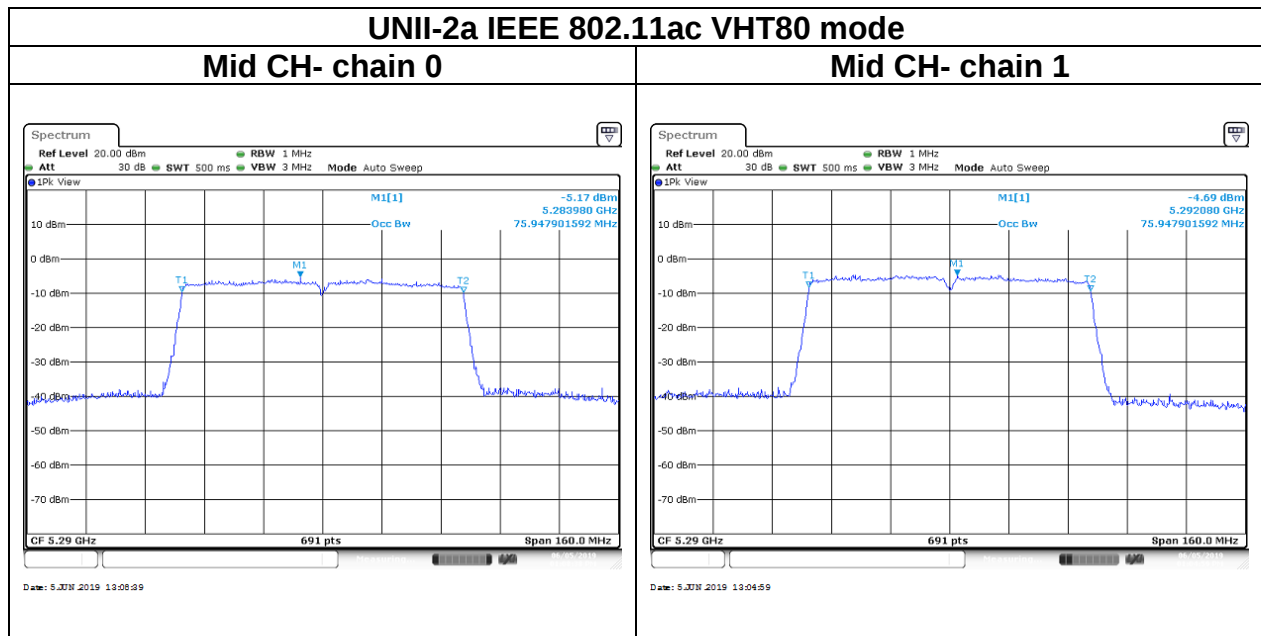






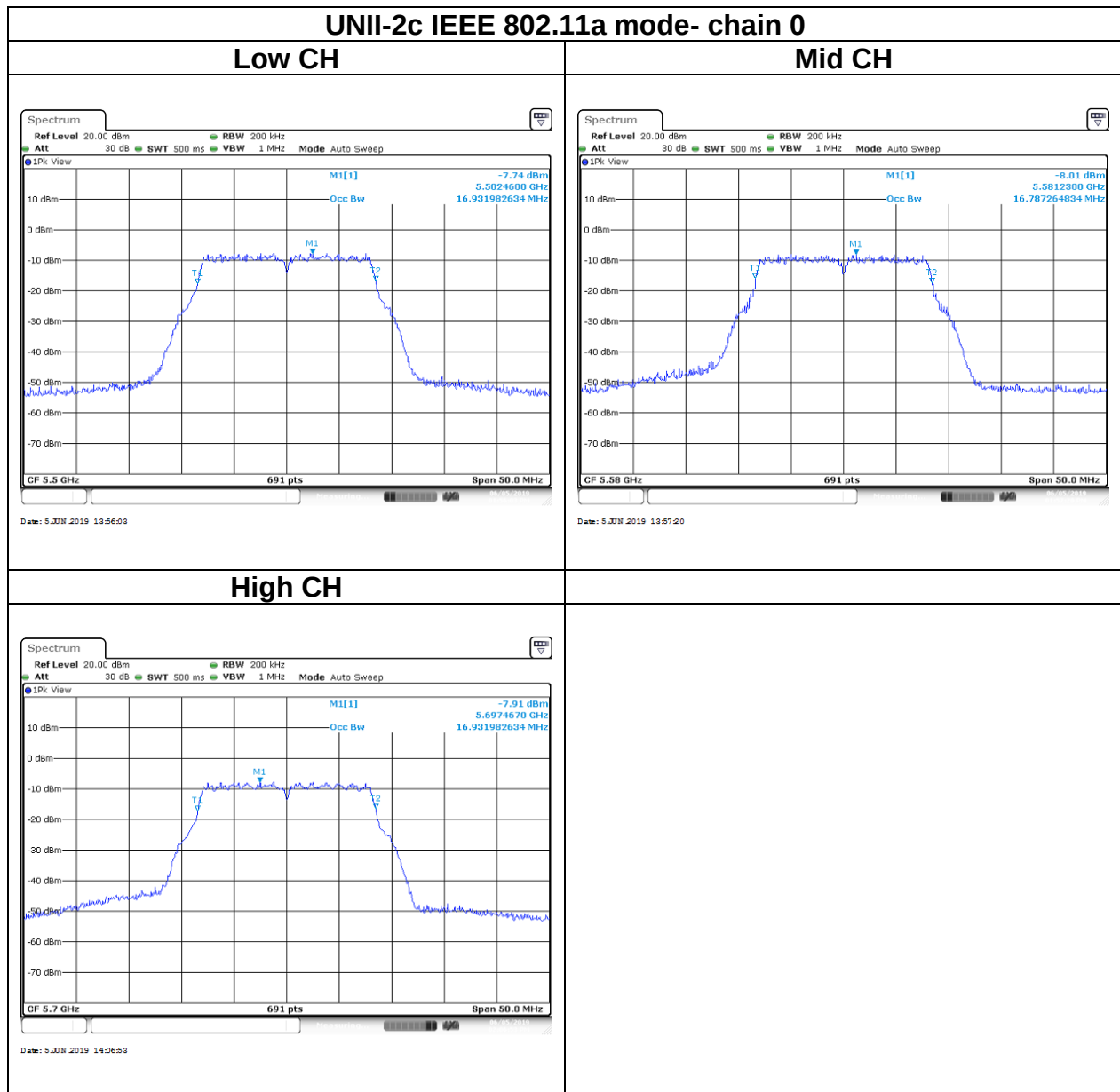
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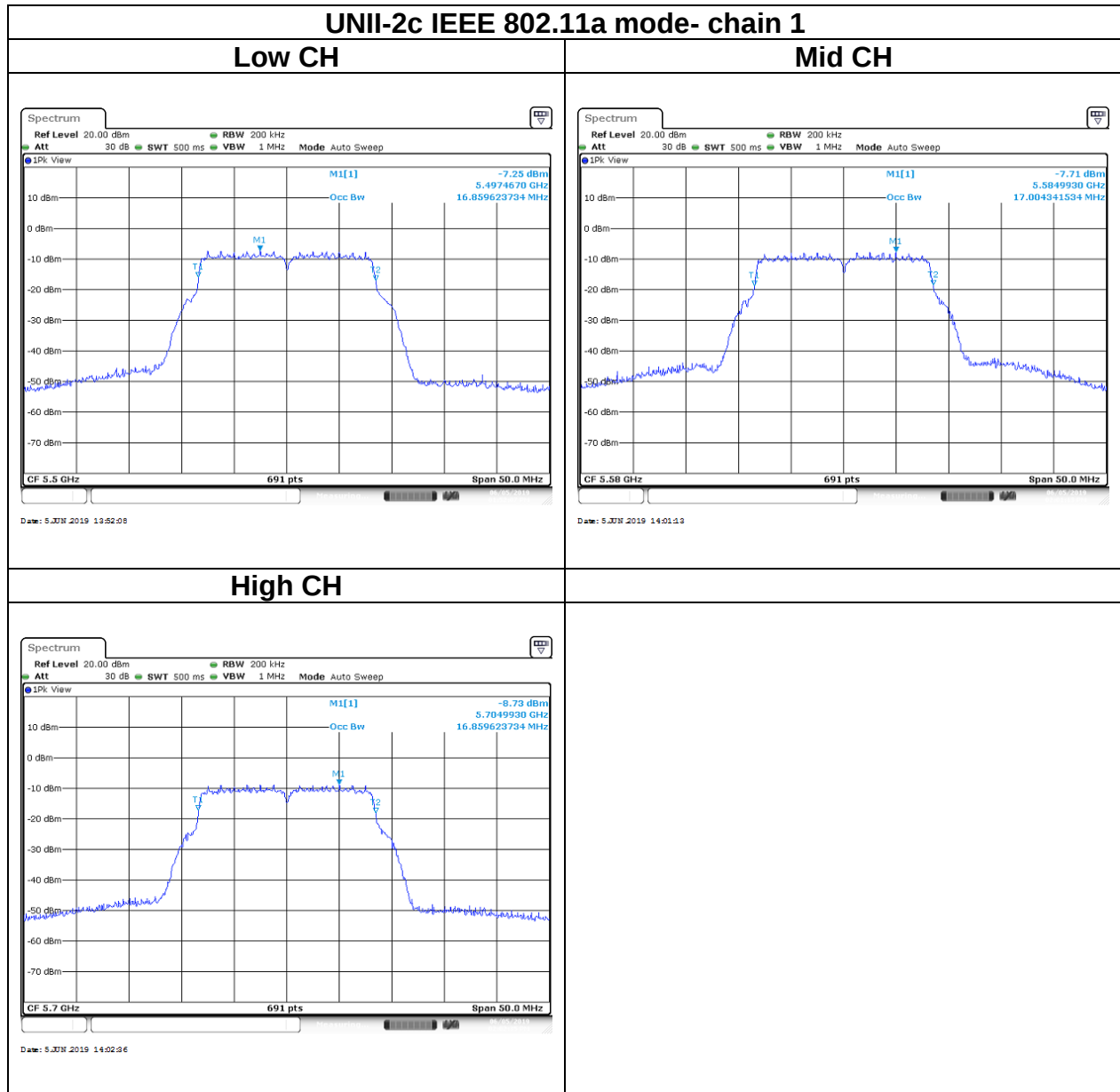
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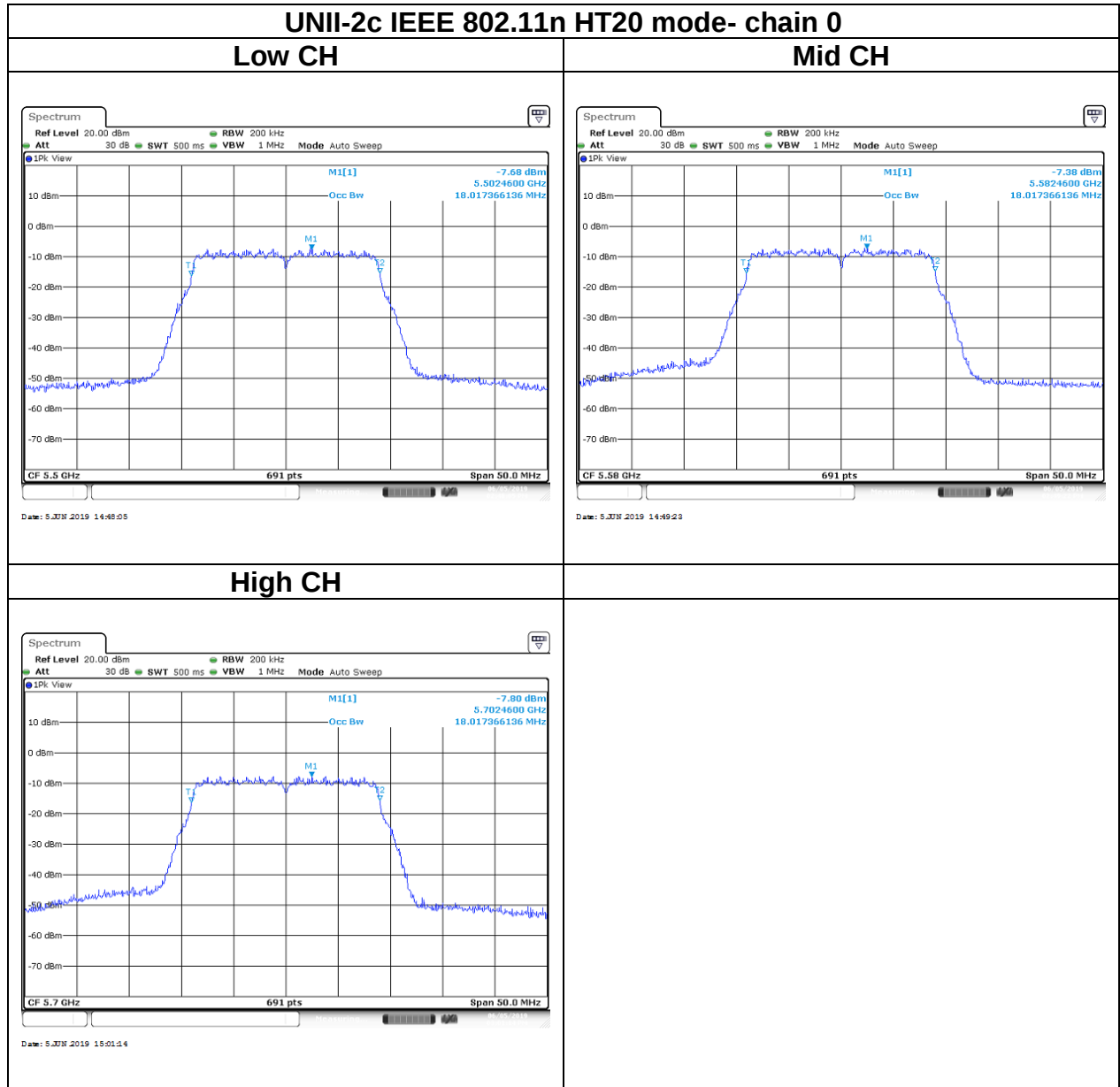


Test Data

BANDWIDTH 99%



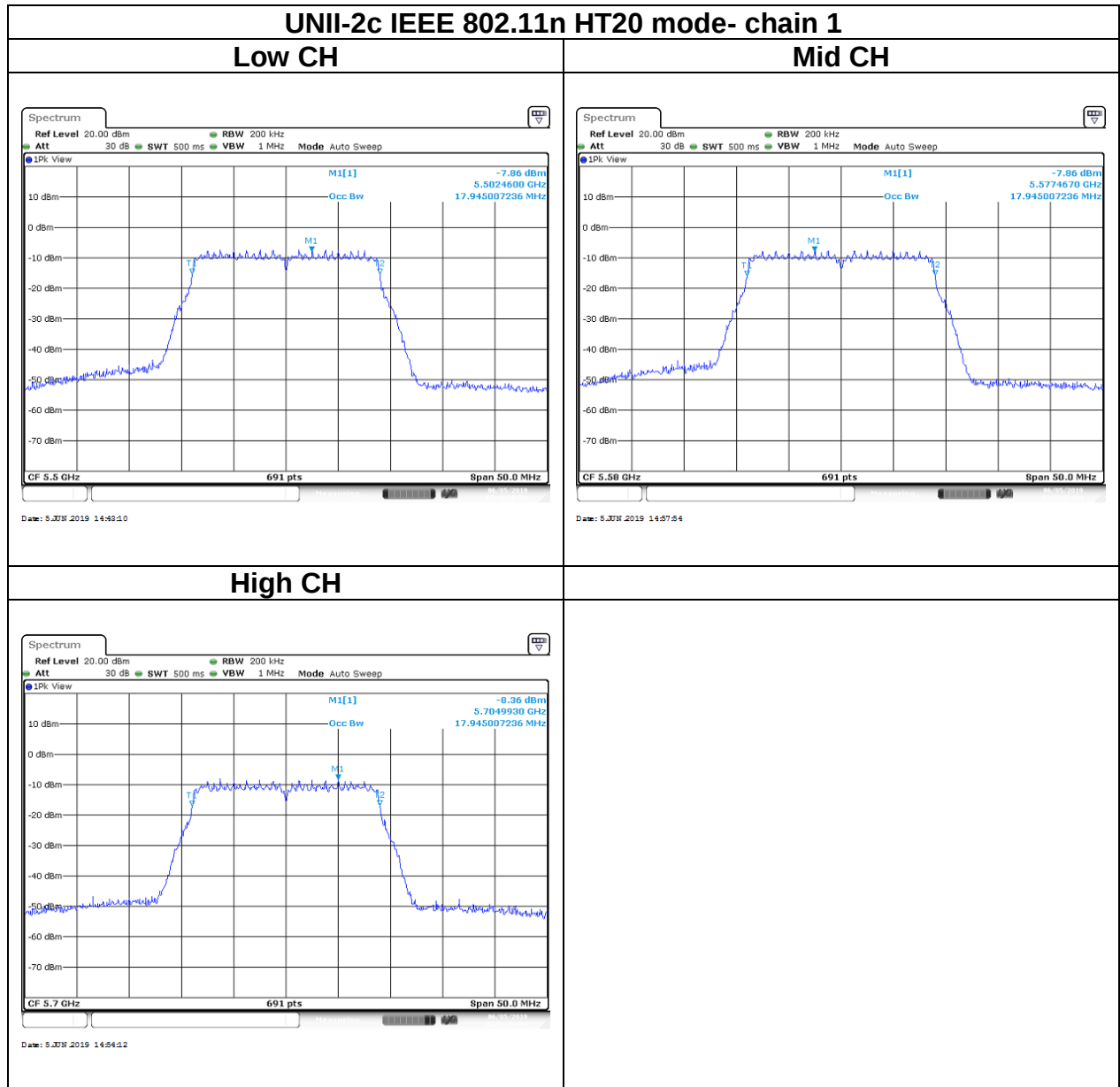


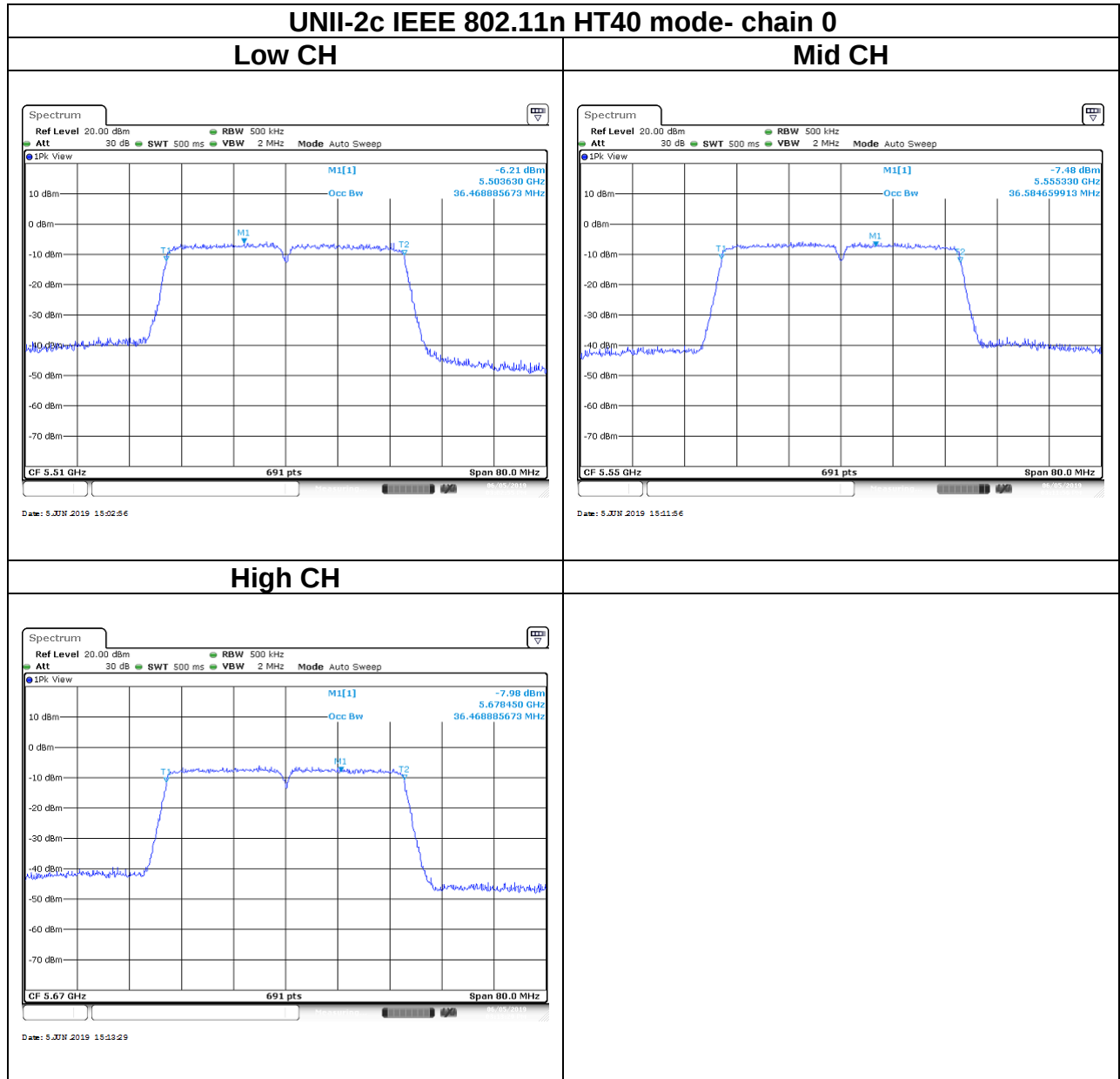


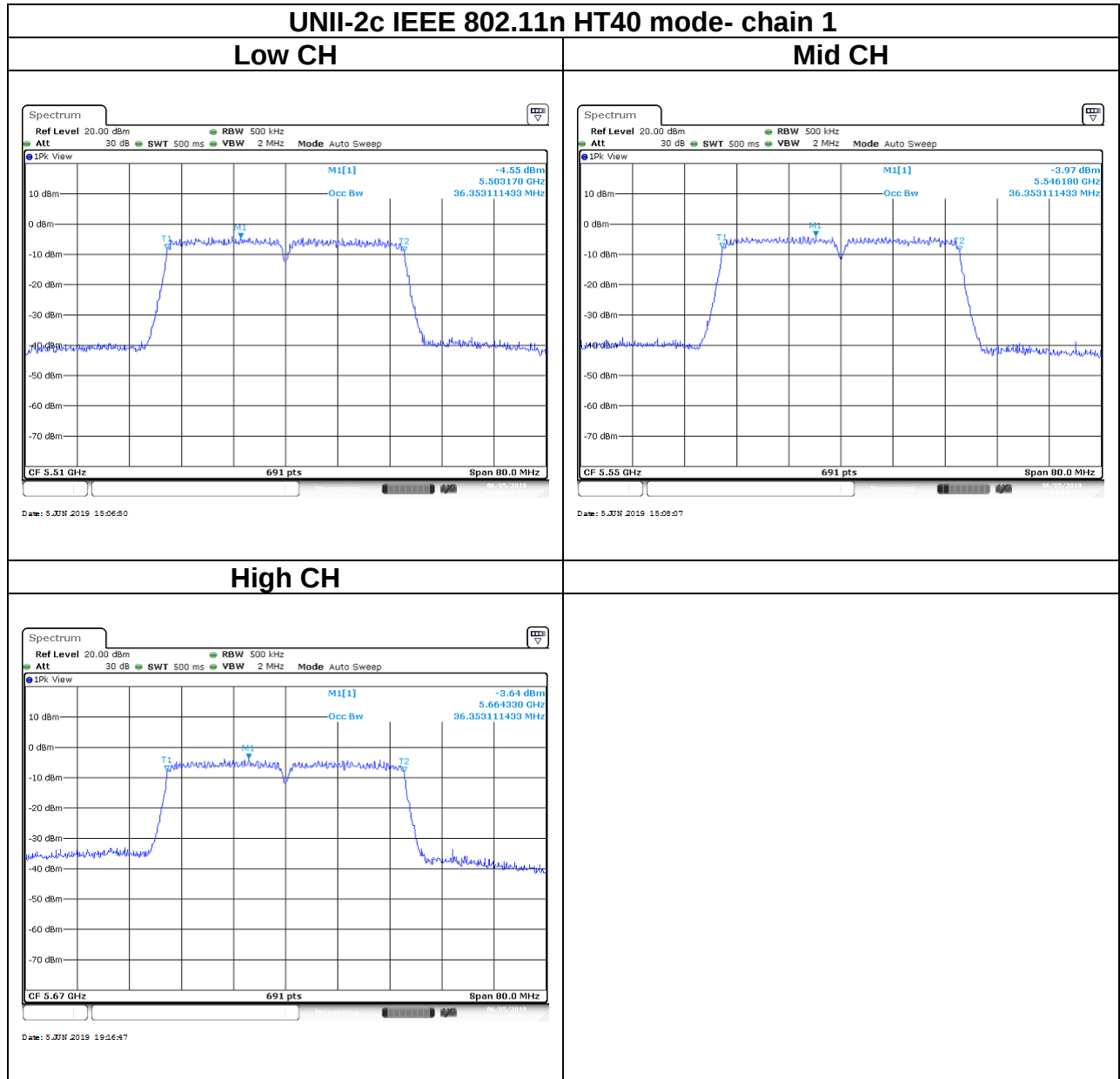


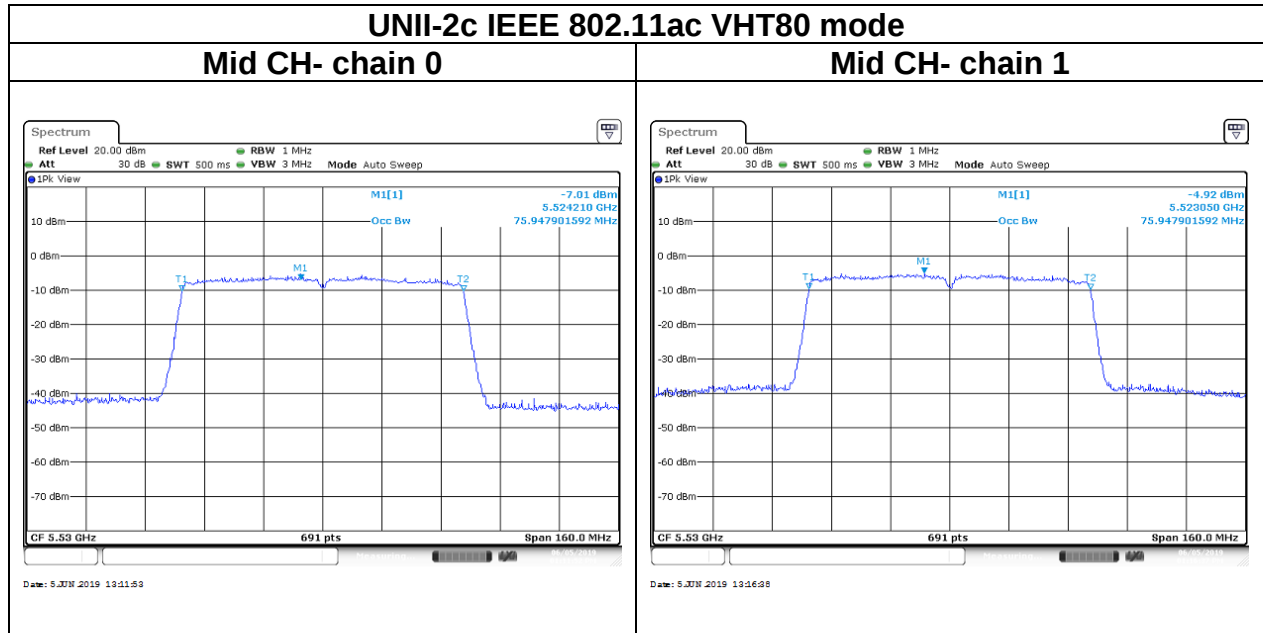
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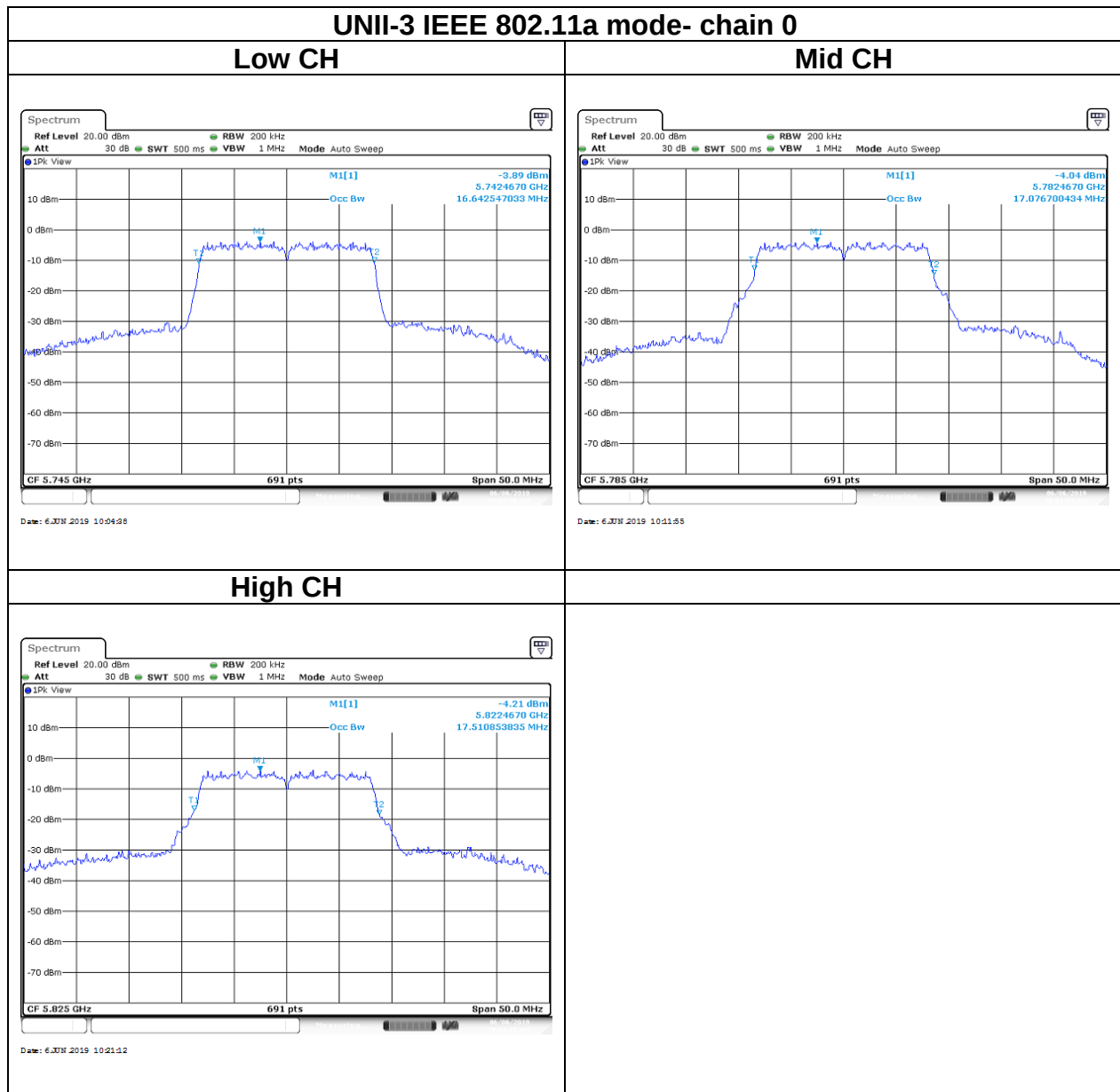


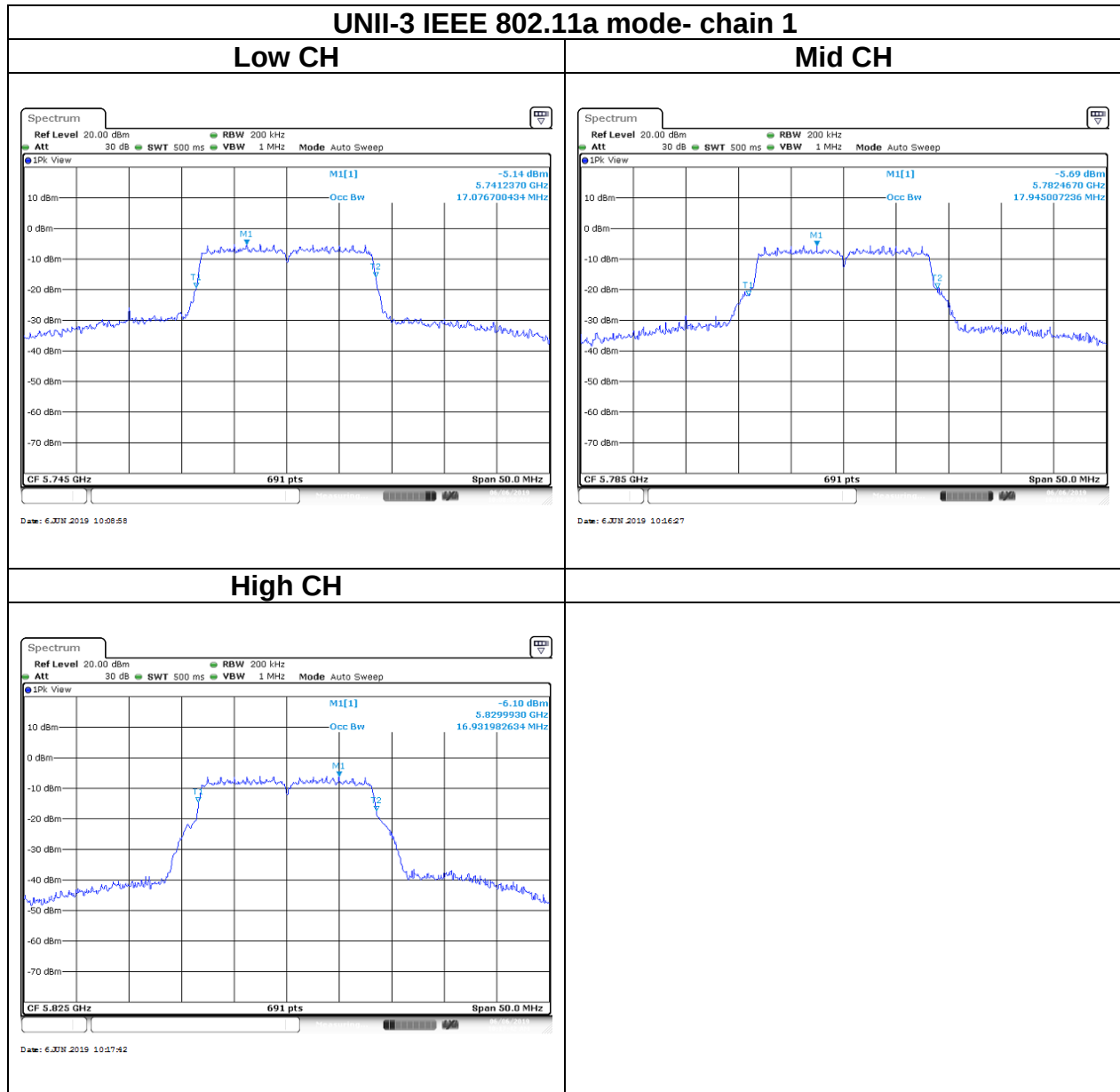


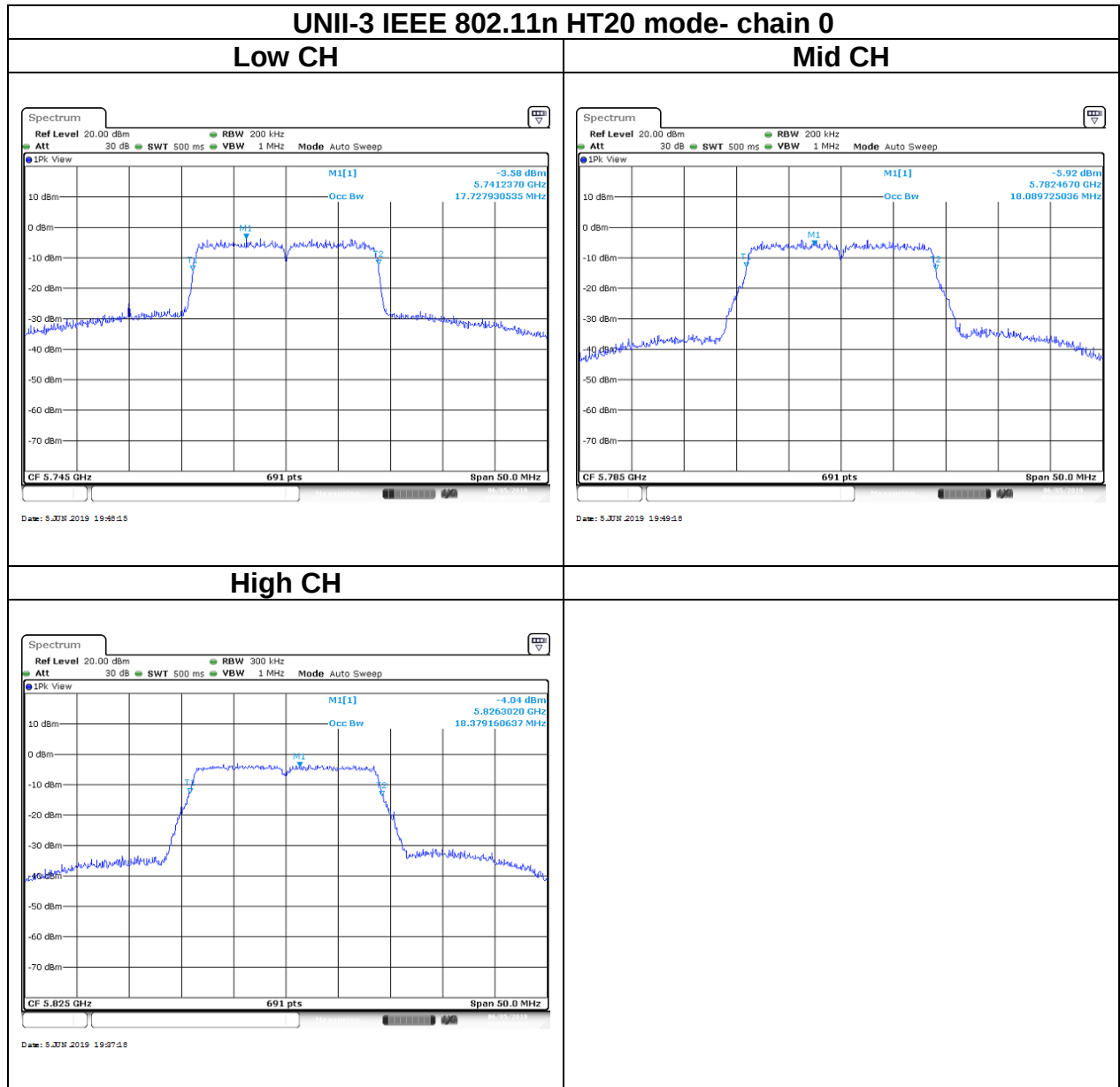


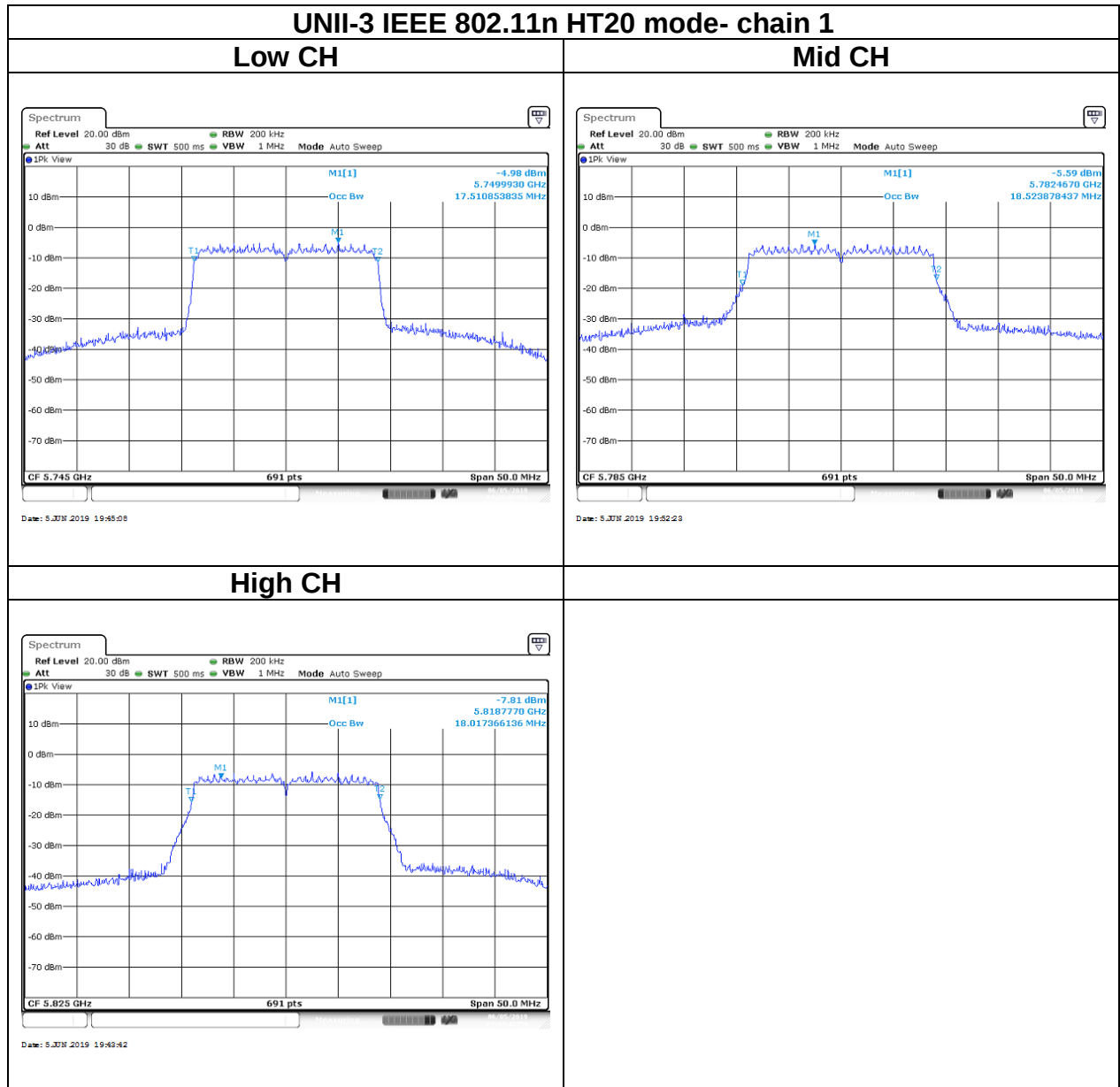
Test Data

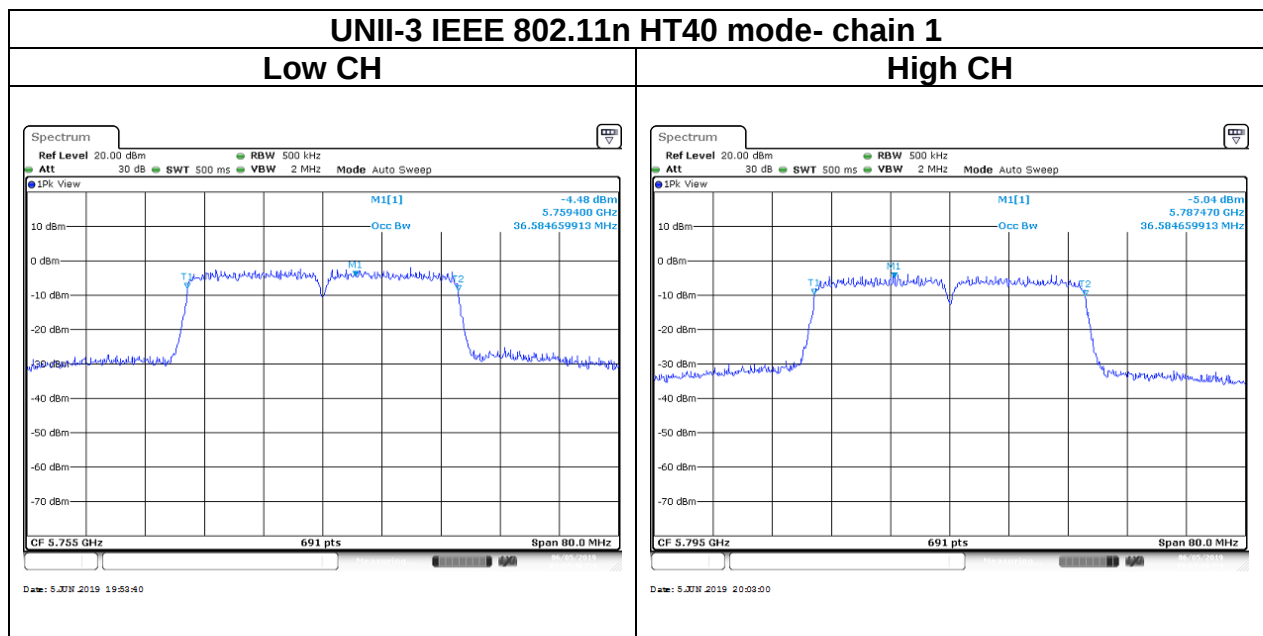
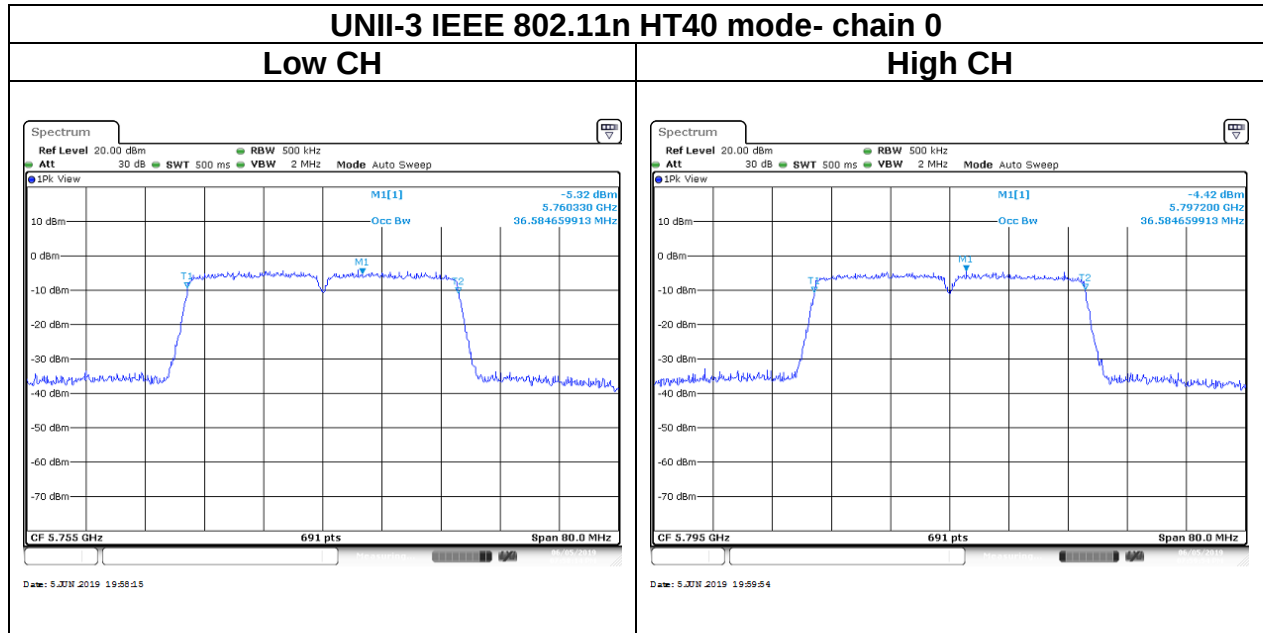
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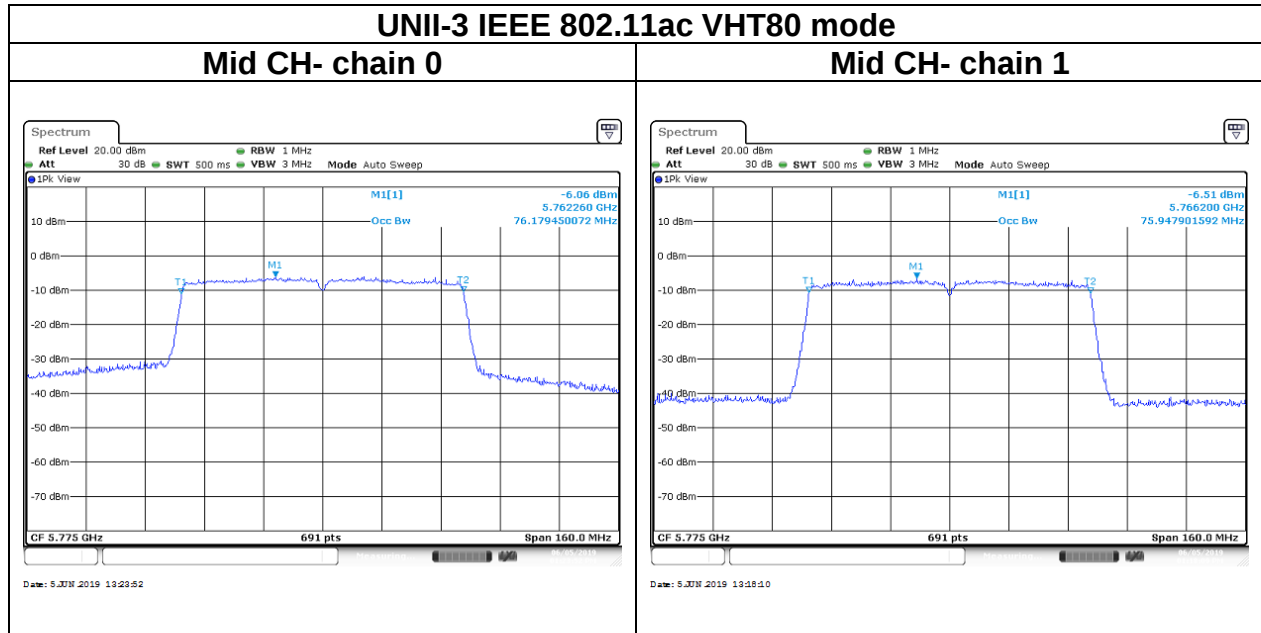












4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.407 (a)(1), 15.407(a)(2) and 15.407(a)(3) and RSS-247 section 6.2.1.1, section 6.2.2.1, section 6.2.3.1 and section 6.2.4.1

UNII-1 :

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW(24 dBm) and The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz ,provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-2a and 2c:

the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. and The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

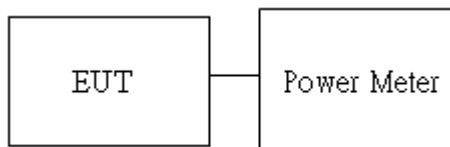
UNII-1 Limit	☒ Antenna not exceed 6 dBi : 24dBm (EIRP : 23dBm) ☐ Antenna with DG greater than 6 dBi : [Limit = $24 - (DG - 6)$]
UNII-2a/2c Limit	☒ Antenna not exceed 6 dBi : 24dBm (EIRP : 30dBm) ☐ Antenna with DG greater than 6 dBi : [Limit = $24 - (DG - 6)$]
UNII-3 Limit	☒ Antenna not exceed 6 dBi : 30dBm ☐ Antenna with DG greater than 6 dBi : [Limit = $30 - (DG - 6)$]

4.3.2 Test Procedure

Test method Refer as KDB 789033 D02.

1. The EUT RF output connected to the power meter by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Average output power. in the test report.

4.3.3 Test Setup



4.3.4 Test Result

Conducted output power :

UNII-1																			
Config	CH	Freq. (MHz)	Power Set		AV Power(dBm)		AV Total Power (dBm)	EIRP AV Total Power (dBm)	AV Total Power (W)	EIRP AV Total Power (W)	DG (dBi)	Limit (dBm)	EIRP Limit (dBm)						
			chain0	chain1	chain0	chain1													
IEEE 802.11a Data rate: 6Mbps	36	5180	11	11	9.45	9.74	12.61	15.12	0.0182	0.0325	2.51	24	23						
	44	5220	9	9	7.80	9.14	11.53	14.04	0.0142	0.0254									
	48	5240	9	9	8.94	9.16	12.06	14.57	0.0161	0.0287									
IEEE 802.11n HT20 Data rate: MCS0	36	5180	10	10	9.48	9.52	12.51	15.02	0.0178	0.0318				2.51	24	23			
	44	5220	10	10	9.69	10.10	12.91	15.42	0.0195	0.0348									
	48	5240	9	9	8.85	9.48	12.19	14.70	0.0165	0.0295									
IEEE 802.11n HT40 Data rate: MCS0	38	5190	11	11	10.68	10.71	13.71	16.22	0.0235	0.0418							2.51	24	23
	46	5230	10	10	9.72	10.18	12.97	15.48	0.0198	0.0353									
IEEE 802.11ac VHT80 Data rate: MCS0	42	5210	4	4	10.38	14.75	16.10	18.61	0.0408	0.0727									



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UNII-2a																			
Config	CH	Freq. (MHz)	Power Set		AV Power(dBm)		AV Total Power (dBm)	EIRP AV Total Power (dBm)	AV Total Power (W)	EIRP AV Total Power (W)	DG (dBi)	Limit (dBm)	EIRP Limit (dBm)						
			chain0	chain1	chain0	chain1													
IEEE 802.11a Data rate: 6Mbps	52	5260	10	10	8.98	9.57	12.30	14.81	0.0170	0.0302	2.51	24	30						
	56	5280	10	10	9.12	9.61	12.38	14.89	0.0173	0.0308									
	64	5320	10	10	9.34	9.78	12.58	15.09	0.0181	0.0323									
IEEE 802.11n HT20 Data rate: MCS0	52	5260	10	10	8.77	9.61	12.22	14.73	0.0167	0.0297				2.51	24	30			
	56	5280	10	10	8.81	9.53	12.20	14.71	0.0166	0.0295									
	64	5320	10	10	9.02	9.77	12.42	14.93	0.0175	0.0311									
IEEE 802.11n HT40 Data rate: MCS0	54	5270	11	11	9.85	10.63	13.27	15.78	0.0212	0.0378							2.51	24	30
	62	5310	10	10	8.93	9.63	12.30	14.81	0.0170	0.0303									
IEEE 802.11ac VHT80 Data rate: MCS0	58	5290	7	7	12.03	13.98	16.12	18.63	0.0410	0.0730									



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UNII-2c													
Config	CH	Freq. (MHz)	Power Set		AV Power(dBm)		AV Total Power (dBm)	EIRP AV Total Power (dBm)	AV Total Power (W)	EIRP AV Total Power (W)	DG (dBi)	Limit (dBm)	EIRP Limit (dBm)
			chain0	chain1	chain0	chain1							
IEEE 802.11a Data rate: 6Mbps	100	5500	11	11	9.91	10.27	13.10	15.61	0.0204	0.0364	2.51	24	30
	116	5580	11	11	10.10	10.19	13.16	15.67	0.0207	0.0369			
	140	5700	7	7	5.62	5.35	8.50	11.01	0.0071	0.0126			
IEEE 802.11n HT20 Data rate: MCS0	100	5500	11	11	9.82	10.31	13.08	15.59	0.0203	0.0362			
	116	5580	11	11	9.87	9.94	12.92	15.43	0.0196	0.0349			
	140	5700	9	9	7.61	7.05	10.35	12.86	0.0108	0.0193			
IEEE 802.11n HT40 Data rate: MCS0	102	5510	10	10	8.93	8.15	11.57	14.08	0.0143	0.0256			
	110	5550	10	10	9.02	8.34	11.70	14.21	0.0148	0.0264			
	134	5670	9	9	7.62	7.11	10.38	12.89	0.0109	0.0195			
IEEE 802.11ac VHT80 Data rate: MCS0	106	5530	7	7	12.85	13.46	16.18	18.69	0.0415	0.0739			



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UNII-3										
Config	CH	Freq. (MHz)	Power Set		AV Power(dBm)		AV Total Power (dBm)	AV Total Power (W)	DG (dBi)	Limit (dBm)
			chain0	chain1	chain0	chain1				
IEEE 802.11a Data rate: 6Mbps	149	5745	7	7	6.77	6.07	9.44	0.0088	2.51	30
	157	5785	7	7	6.52	5.51	9.05	0.0080		
	165	5825	7	7	6.42	5.41	8.95	0.0079		
IEEE 802.11n HT20 Data rate: MCS0	149	5745	7	7	6.81	6.11	9.48	0.0089		
	157	5785	7	7	6.62	5.56	9.13	0.0082		
	165	5825	7	7	6.28	5.41	8.88	0.0077		
IEEE 802.11n HT40 Data rate: MCS0	151	5755	7	7	6.31	5.14	8.77	0.0075		
	159	5795	7	7	6.20	5.18	8.73	0.0075		
IEEE 802.11ac VHT80 Data rate: MCS0	155	5775	-1	-1	7.43	7.44	10.45	0.0111		

4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

According to §15.407 (a)(1), 15.407(a)(2) and 15.407(a)(3) and RSS-247 section 6.2.1(1), section 6.2.2(1), section 6.2.3(1) and section 6.2.4(1)

UNII-1 :

FCC: The maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

IC: The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-2a and 2c:

The maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.i.

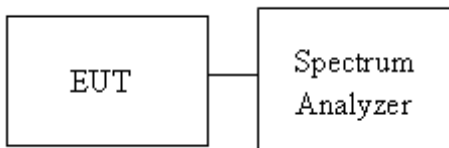
UNII-1 Limit	☒ Antenna not exceed 6 dBi : 11 dBm ☐ Antenna with DG greater than 6 dBi : [Limit = 11 – (DG – 6)]
UNII-2a Limit	☒ Antenna not exceed 6 dBi : 11 dBm ☐ Antenna with DG greater than 6 dBi : [Limit = 11 – (DG – 6)]
UNII-2c Limit	☒ Antenna not exceed 6 dBi : 11 dBm ☐ Antenna with DG greater than 6 dBi : [Limit = 11 – (DG – 6)]
UNII-3 Limit	☒ Antenna not exceed 6 dBi : 30 dBm ☐ Antenna with DG greater than 6 dBi : [Limit = 30 – (DG – 6)]

4.4.2 Test Procedure

Test method Refer as KDB 789033 D02.

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. UNII-1, UNII-2a and UNII-2c, SA set RBW = 1MHz, VBW = 3MHz and Detector = RMS, to measurement Power Density.
4. UNII-3, SA set RBW = 500kHz, VBW = 2MHz and Detector = RMS, to measurement Power Density
5. The path loss and Duty Factor were compensated to the results for each measurement by SA.
6. Mark the maximum level.
7. Measure and record the result of power spectral density. in the test report.

4.4.3 Test Setup



4.4.4 Test Result

UNII-1						
Test mode: IEEE 802.11a mode						
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	FCC Limit (dBm)	IC Limit (dBm)
Low	5180	1.94	2.46	5.22	11	10
Mid	5220	2.24	2.56	5.41		
High	5240	2.28	2.6	5.45		
Test mode: IEEE 802.11n HT20 mode						
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	FCC Limit (dBm)	IC Limit (dBm)
Low	5180	1.65	2.15	4.92	11	10
Mid	5220	1.64	2.26	4.97		
High	5240	2.05	2.56	5.32		
Test mode: IEEE 802.11n HT40 mode						
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	FCC Limit (dBm)	IC Limit (dBm)
Low	5190	-0.42	0.01	2.81	11	10
High	5230	-0.34	0.18	2.94		
Test mode: IEEE 802.11ac VHT80 mode						
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	FCC Limit (dBm)	IC Limit (dBm)
Mid	5210	-2.88	-1.51	0.87	11	10

UNII-2a					
Test mode: IEEE 802.11a mode					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)
Low	5260	1.89	2.52	5.23	11
Mid	5280	2.01	2.25	5.14	
High	5320	2.18	2.37	5.29	
Test mode: IEEE 802.11n HT20 mode					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)
Low	5260	1.53	1.97	4.77	11
Mid	5280	1.67	2.16	4.93	
High	5320	1.82	2.57	5.22	
Test mode: IEEE 802.11n HT40 mode					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)
Low	5270	-0.71	-0.13	2.60	11
High	5310	-0.51	0.17	2.85	
Test mode: IEEE 802.11ac VHT80 mode					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)
Mid	5290	-3.46	-2.28	0.18	11

UNII-2c					
Test mode: IEEE 802.11a mode					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)
Low	5500	1.52	1.96	4.76	11
Mid	5580	1.51	1.9	4.72	
High	5700	2.54	2.01	5.29	
Test mode: IEEE 802.11n HT20 mode					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)
Low	5500	2.33	3.09	5.74	11
Mid	5580	2.54	2.78	5.67	
High	5700	2.19	1.84	5.03	
Test mode: IEEE 802.11n HT40 mode					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)
Low	5510	0.12	0.57	3.36	11
Mid	5500	0.18	0.62	3.42	
High	5670	-0.09	-0.35	2.79	
Test mode: IEEE 802.11ac VHT80 mode					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)
Mid	5530	-2.42	-1.91	0.85	11

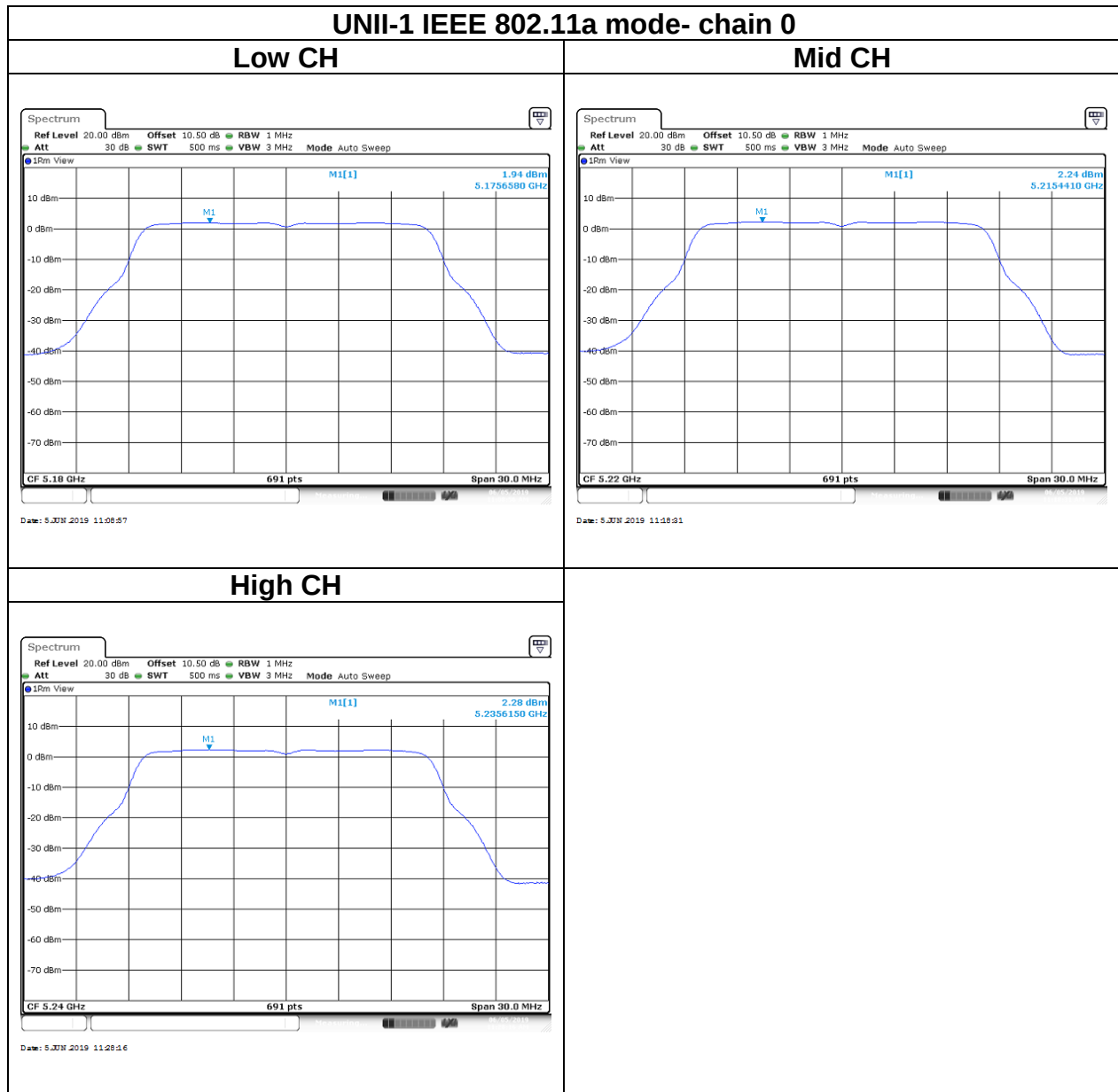
UNII-3					
Test mode: IEEE 802.11a mode					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)
Low	5745	10.29	10.55	13.43	30
Mid	5785	9.89	10.26	13.09	
High	5825	9.87	9.91	12.90	
Test mode: IEEE 802.11n HT20 mode					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)
Low	5745	11.37	11.33	14.36	30
Mid	5785	10.38	10.96	13.69	
High	5825	10.1	10.85	13.50	
Test mode: IEEE 802.11n HT40 mode					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)
Low	5755	8.55	8.73	11.65	30
High	5795	6.38	6.68	9.54	
Test mode: IEEE 802.11ac VHT80 mode					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)
Mid	5775	5.69	5.56	8.64	30



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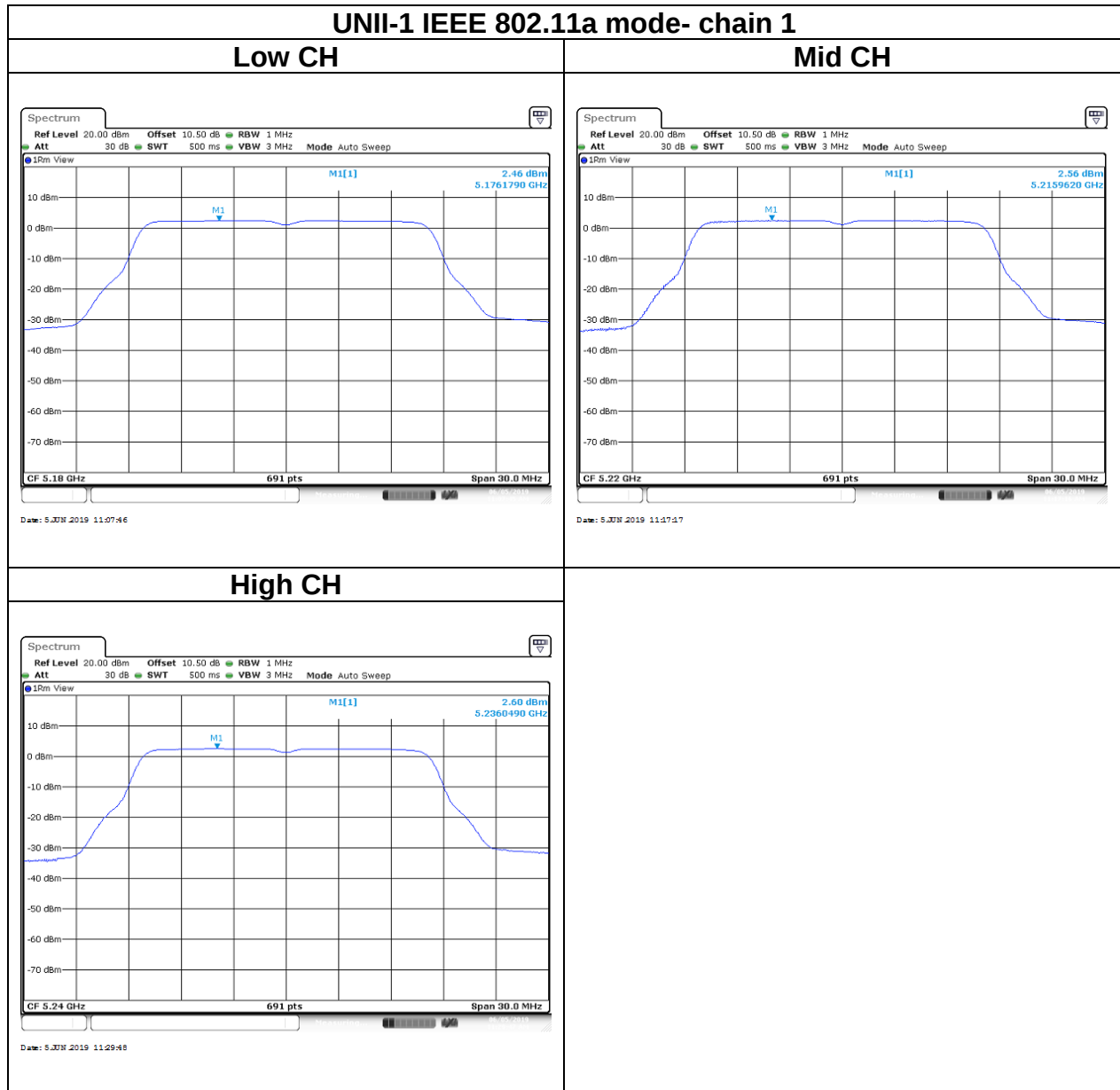
Test Data





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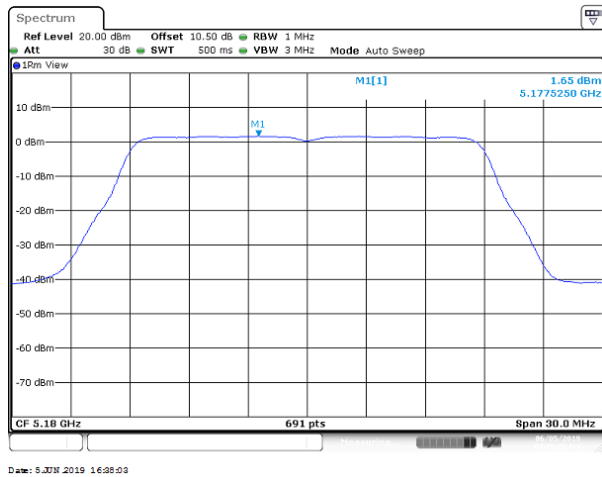


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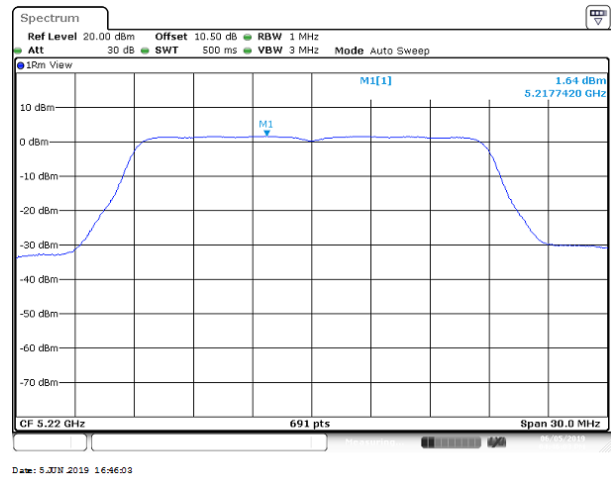
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UNII-1 IEEE 802.11n HT20 mode chain 0

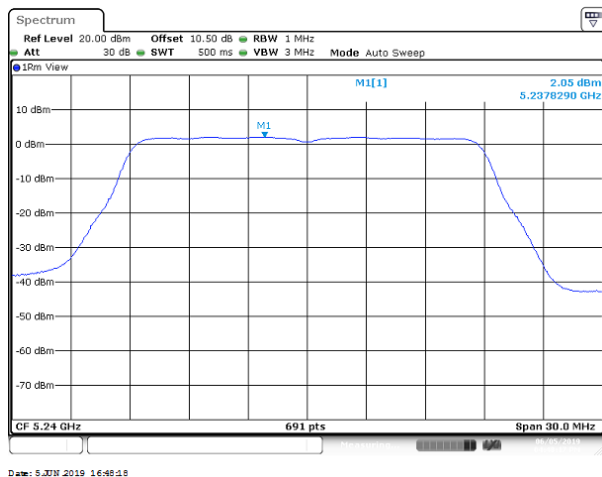
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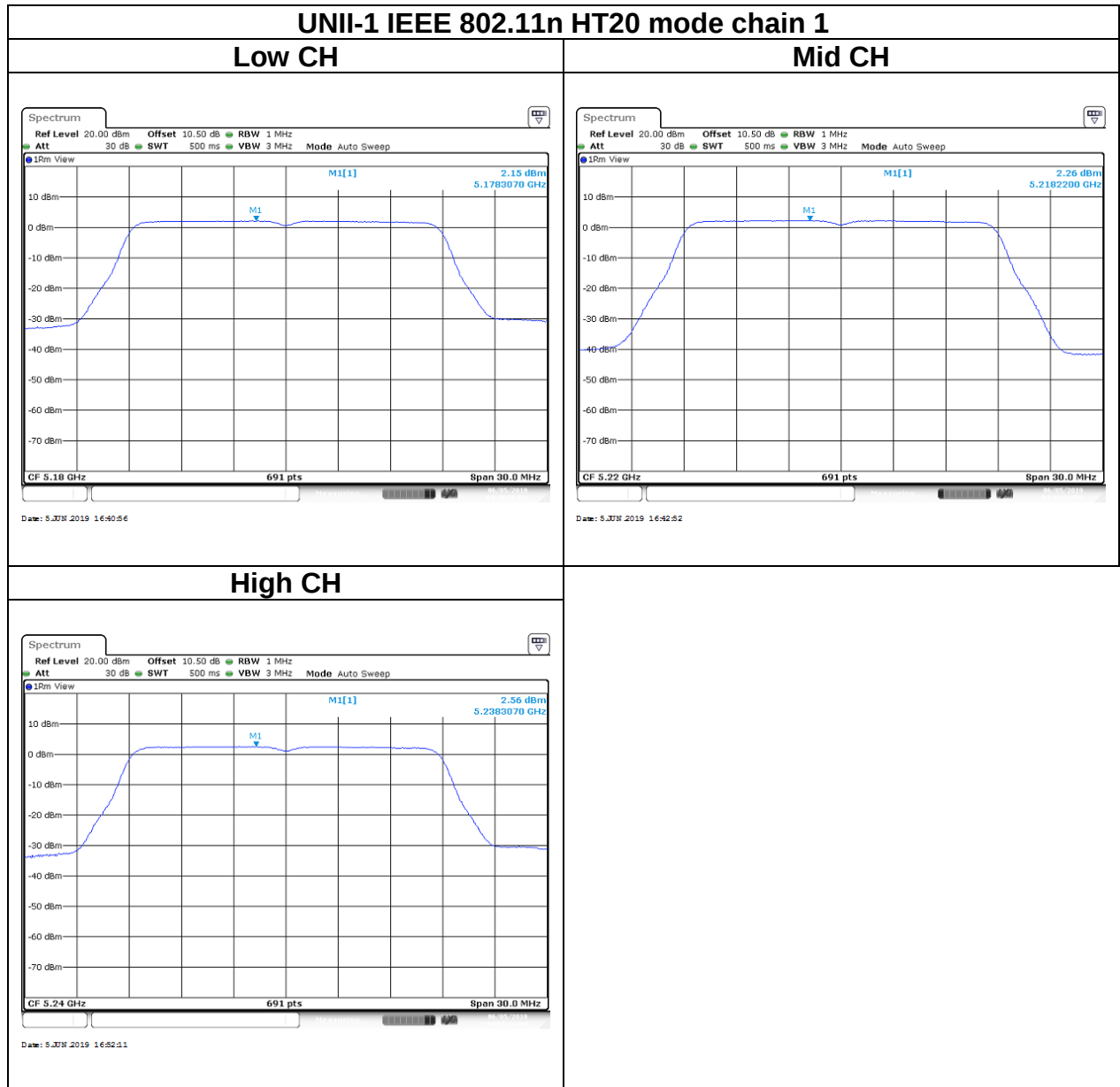


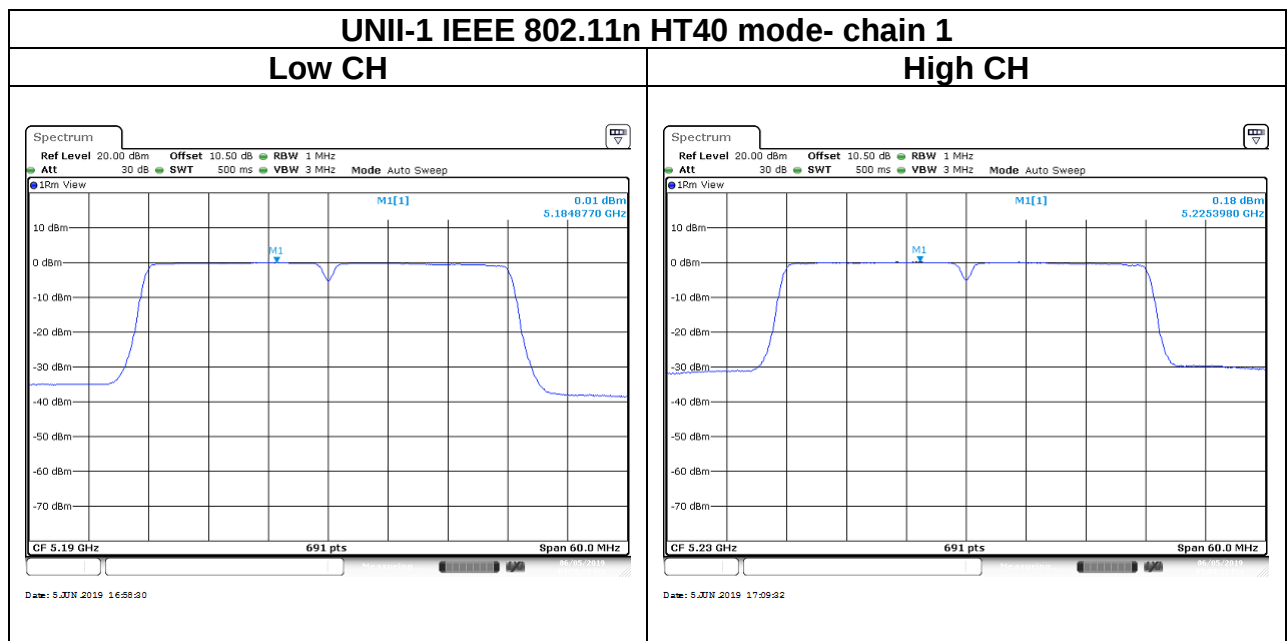
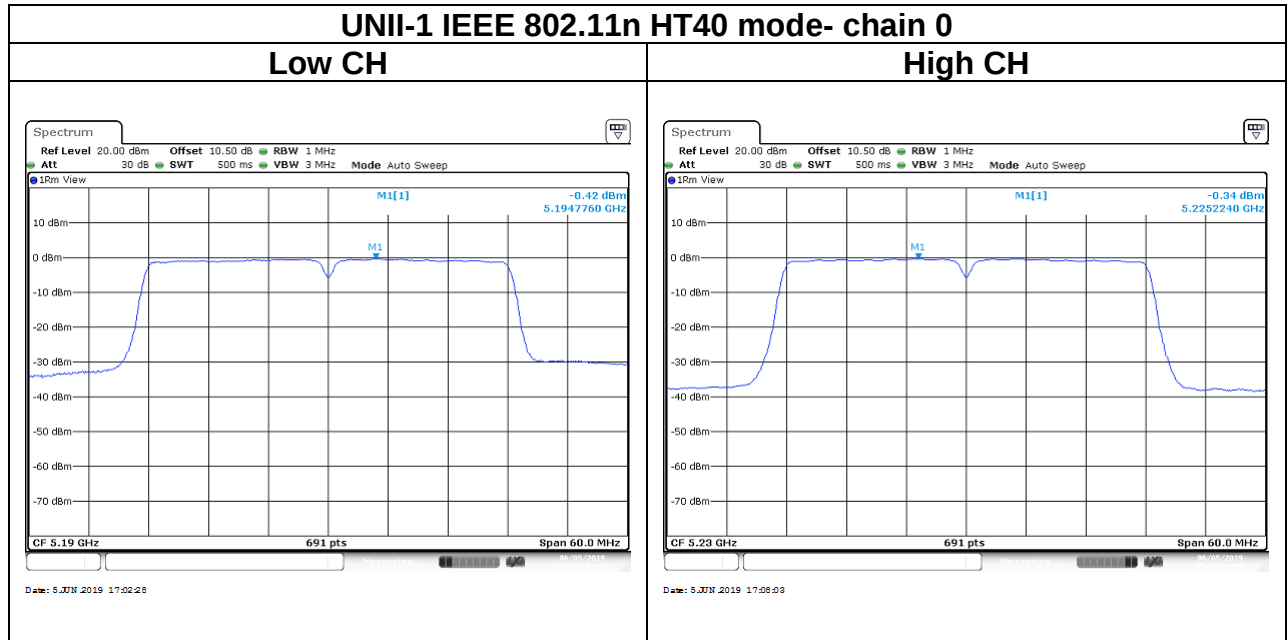
Mid CH



High CH



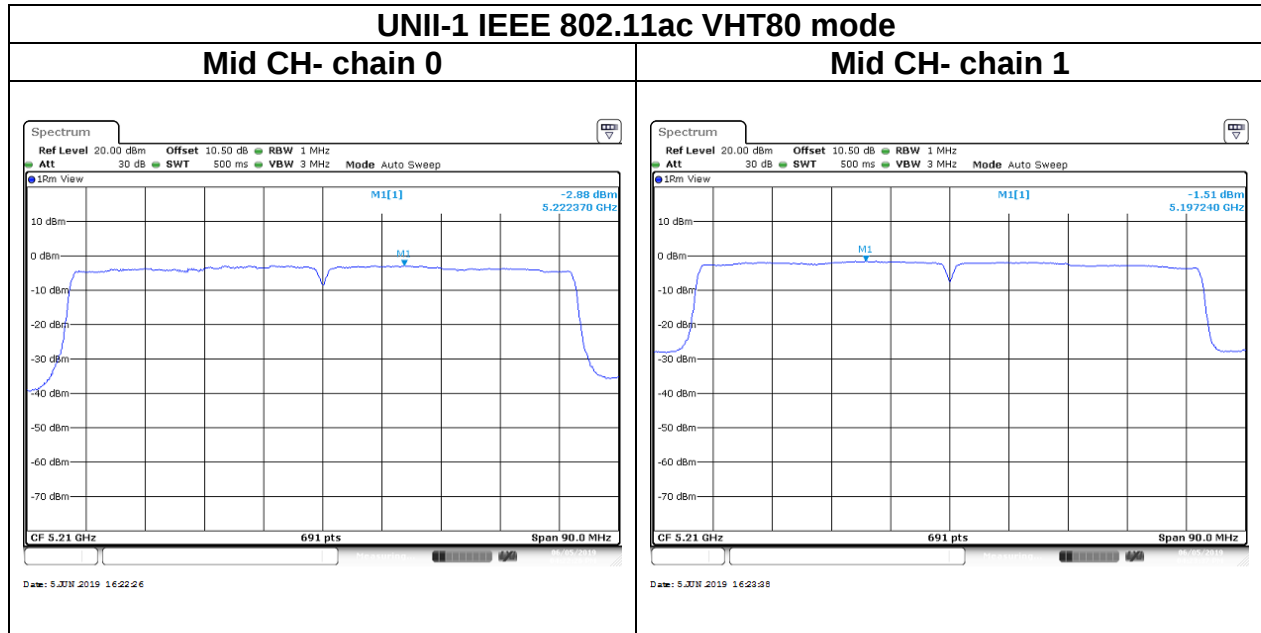






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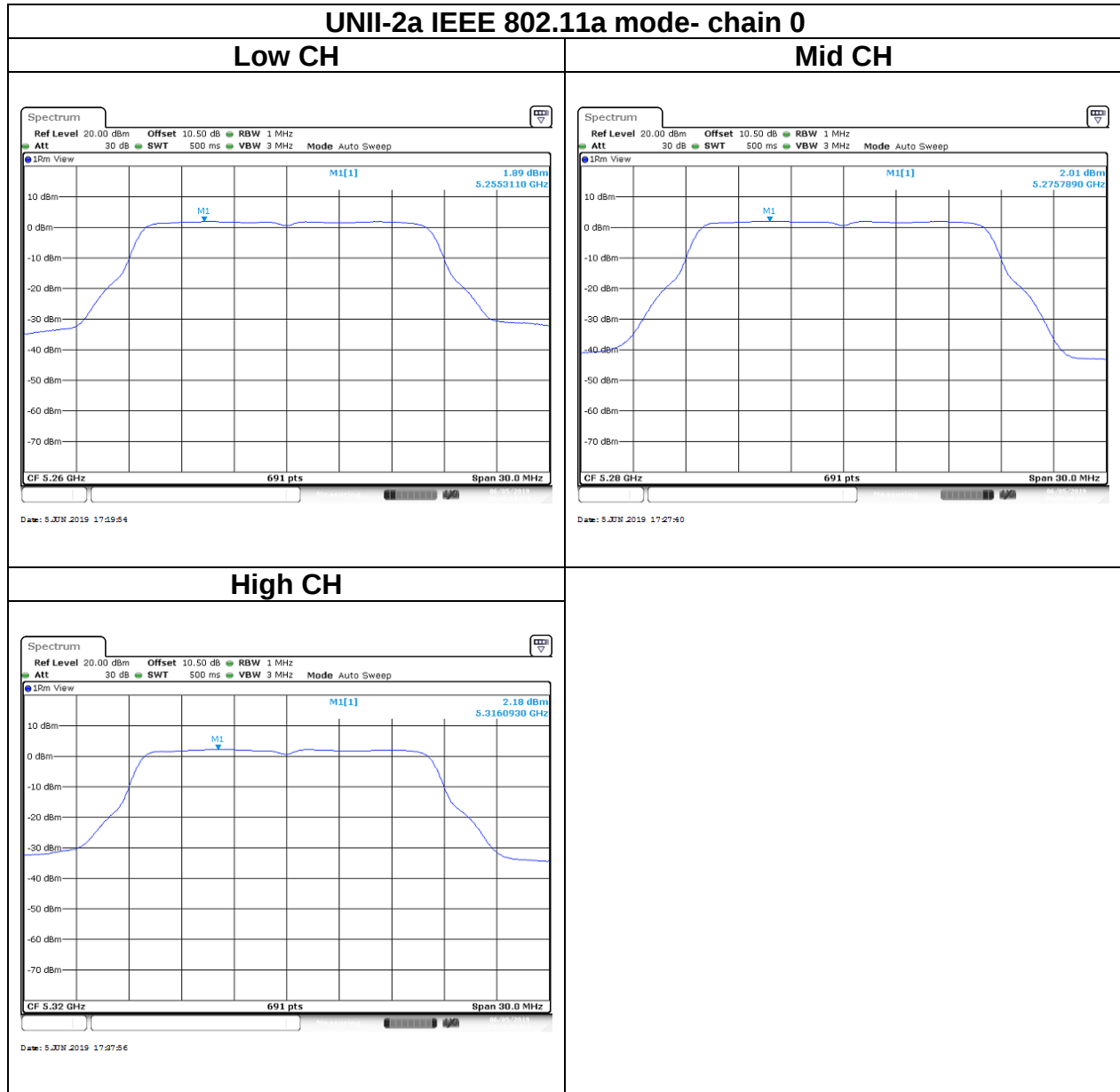


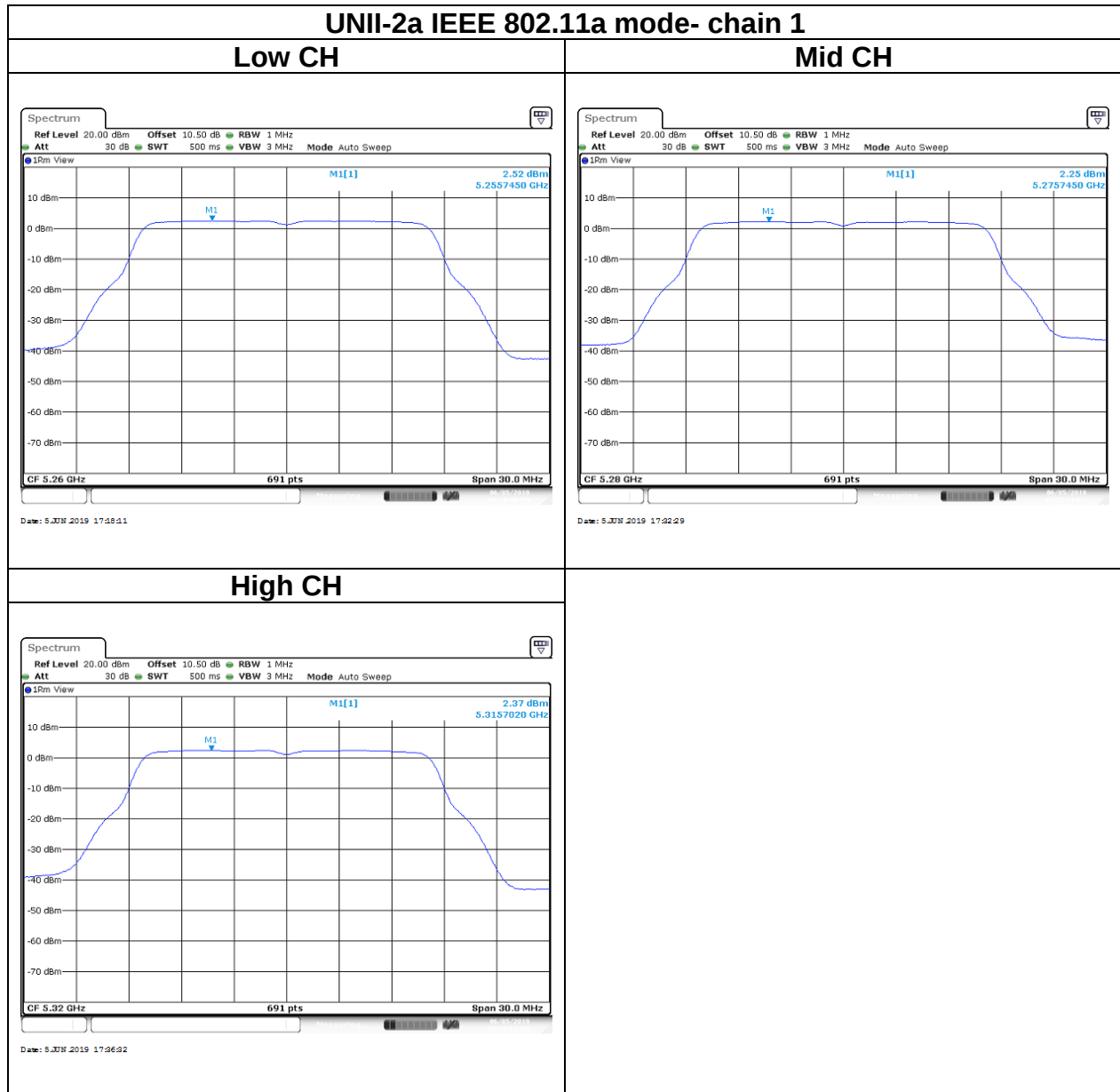


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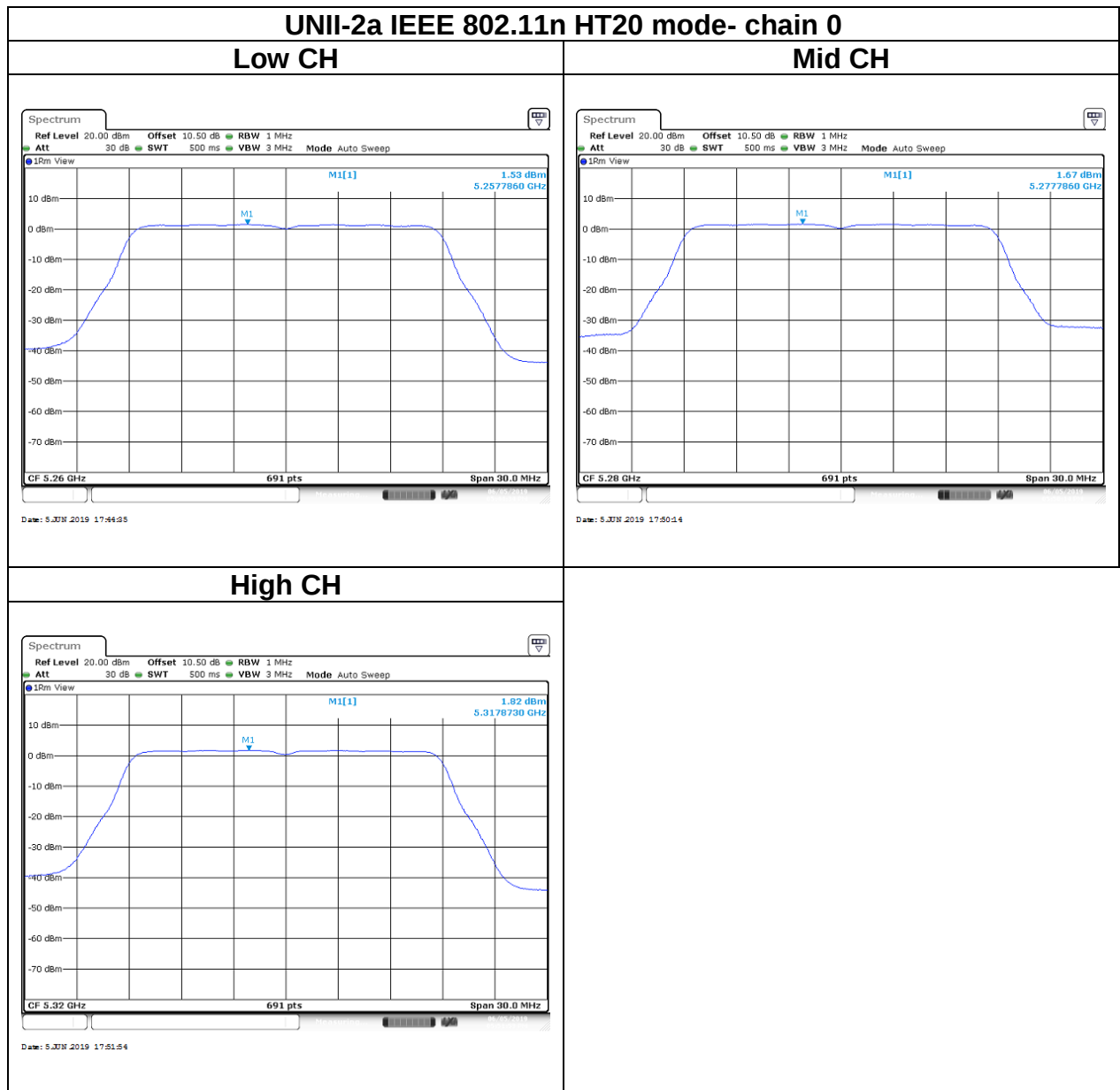


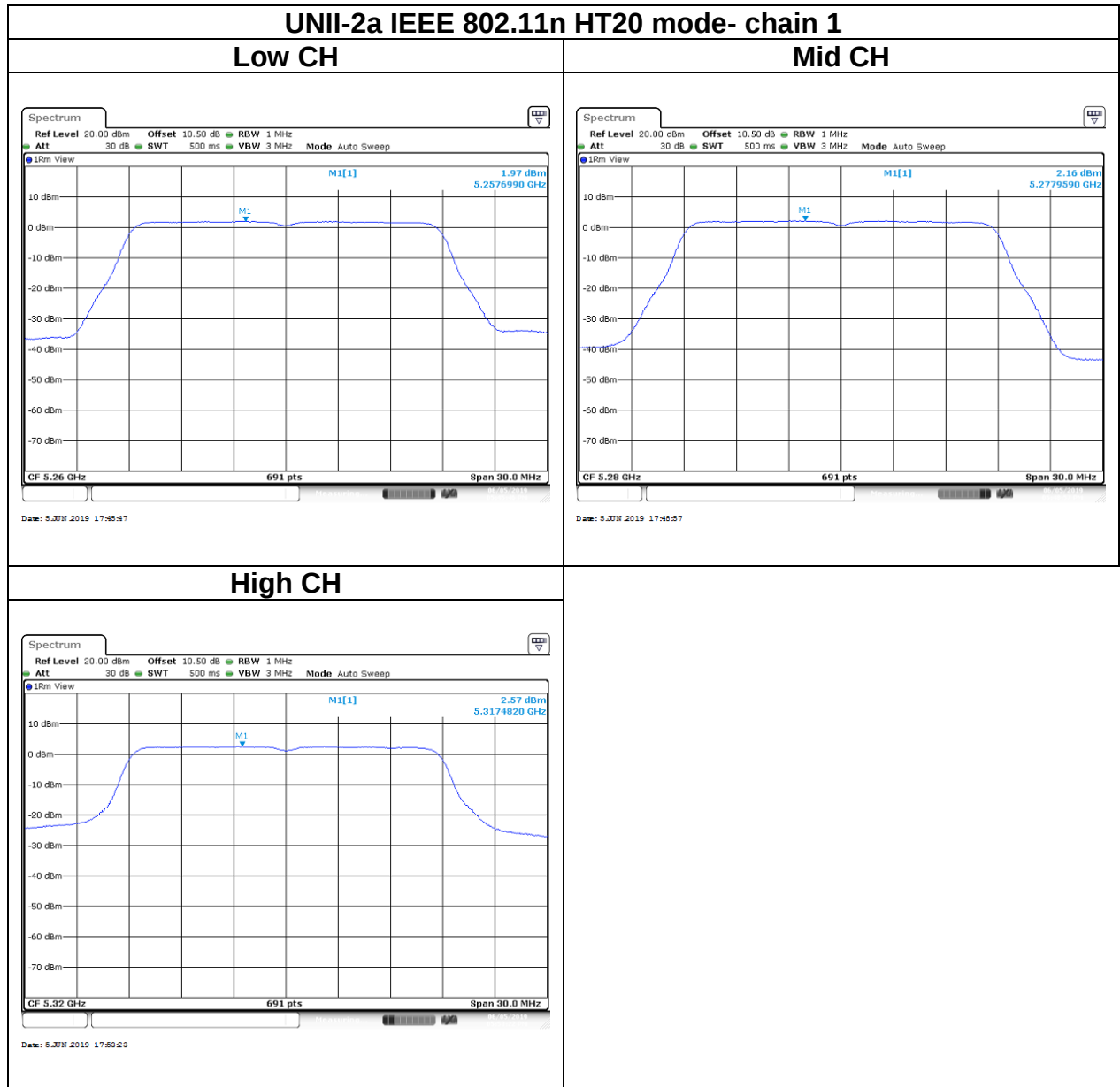




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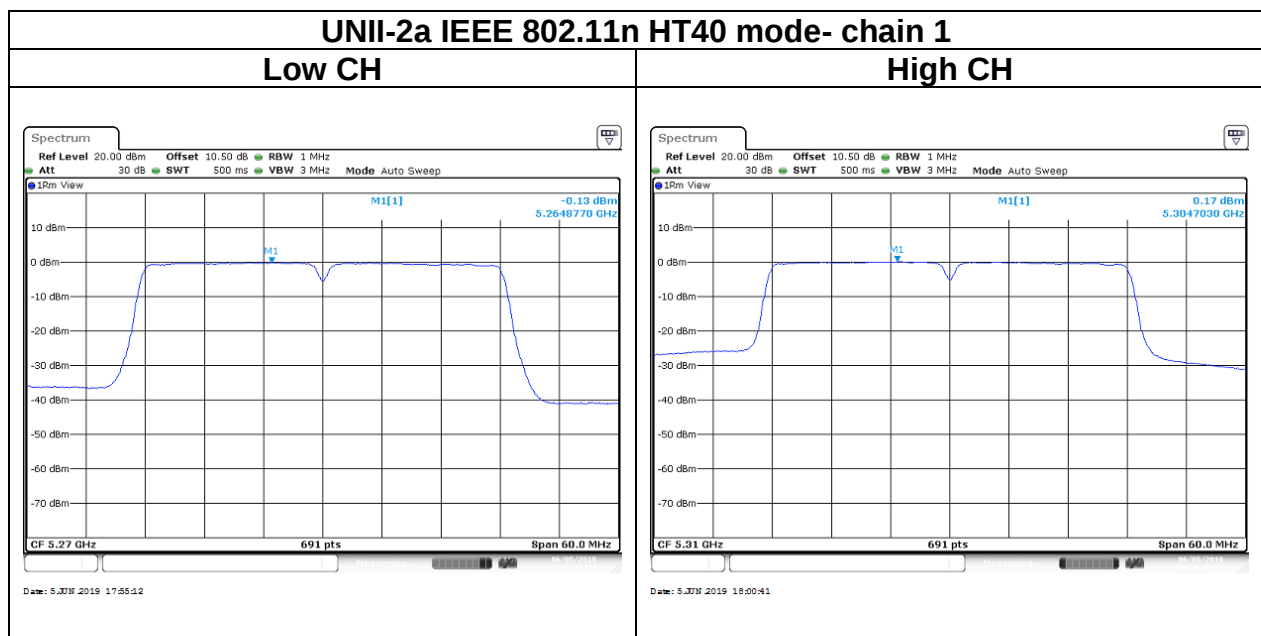
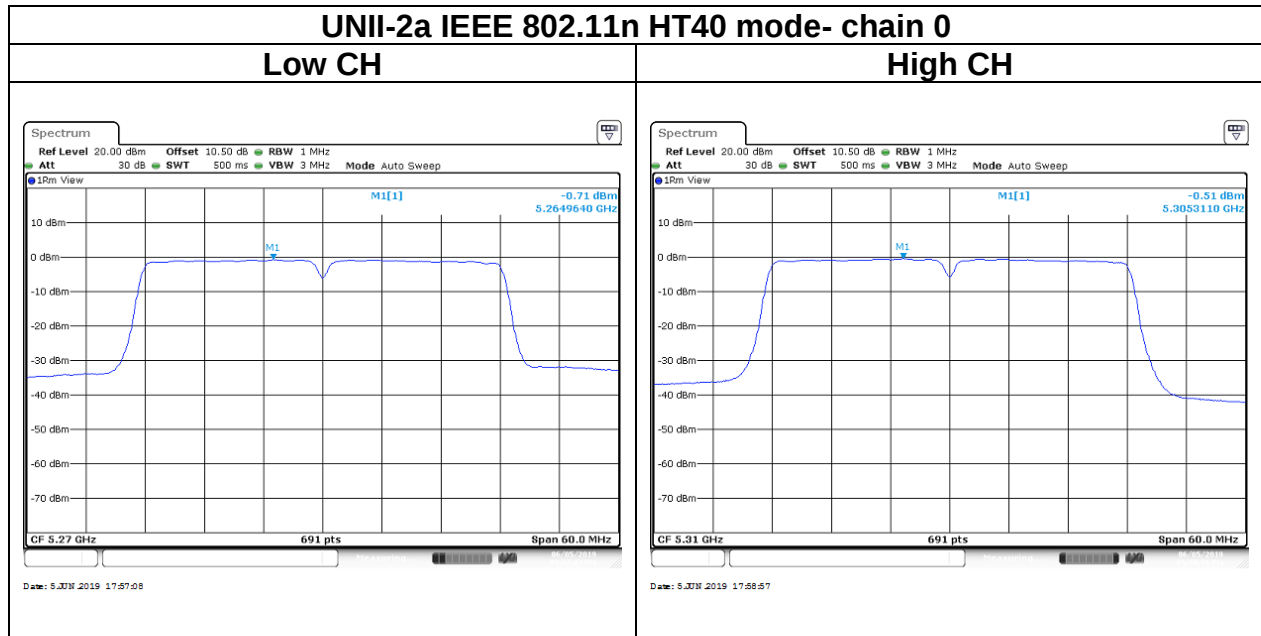






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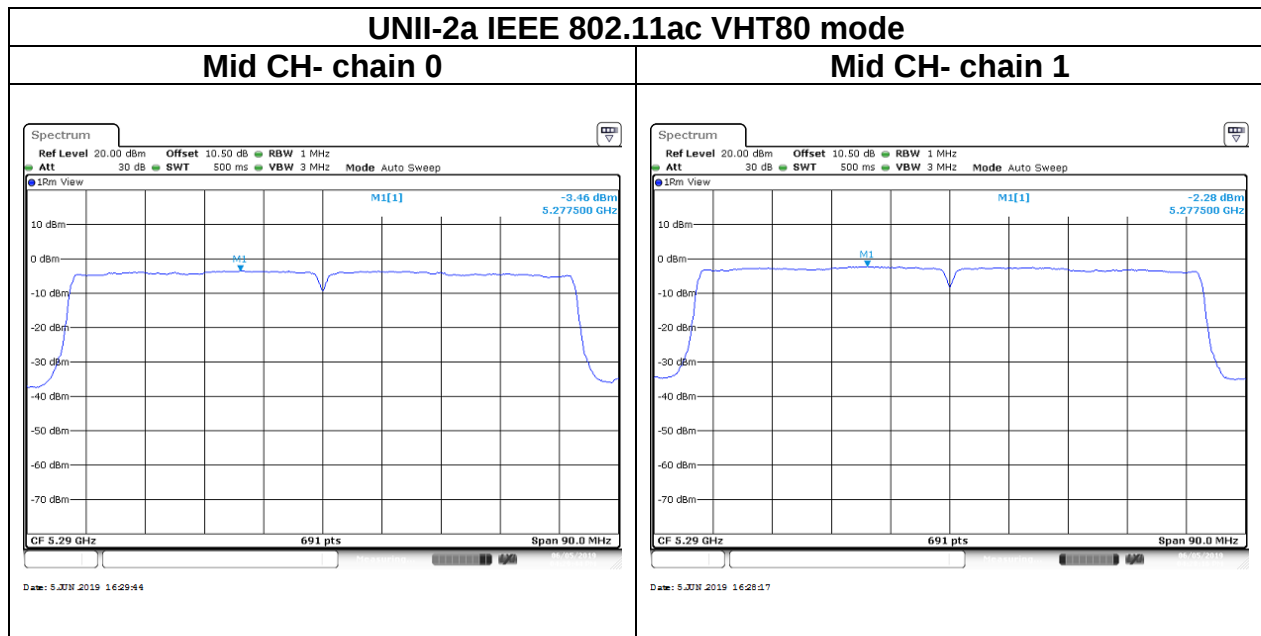
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Test Data

