

3. 26 dB Bandwidth & 99 % Bandwidth

3.1. Test Setup



3.2. Limit

None; for reporting purpose only.

3.3. Test Procedure

All data rates and modes were investigated for this test. The full data for the worst case data rate are reported in this section.

3.3.1. 26 dB Bandwidth

1. This measurement settings are specified in section C.1 of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set RBW: approximately 1 % of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1 %.

Remark;

In case of band crossing channels 138, 142 and 144, the measurement is complied with section III.A of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

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A4(210 mm x 297 mm)

3.2.2. 99 % Bandwidth

1. This measurement settings are specified in section D of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set center frequency to the nominal EUT channel center frequency.
3. Set span = 1.5 times to 5.0 times the OBW.
4. Set RBW = 1 % to 5 % of the OBW.
5. Set VBW $\geq 3 \times$ RBW.
6. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
7. Use the 99 % power bandwidth function of the instrument (if available).
8. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99 % occupied bandwidth is the difference between these two frequencies.

In the result,

- DFS requirements are not applicable in the 5 150 MHz ~ 5 250 MHz.

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3.4. Test Result

Ambient temperature : (23 ± 1) °C
Relative humidity : 47 % R.H.

Test mode: 11a

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	26 dB Bandwidth (MHz)	99 % Bandwidth (MHz)
U-NII 1	5 180	36	6	21.013	-
	5 220	44		21.071	-
	5 240	48		21.013	16.961
U-NII 2A	5 260	52		21.071	-
	5 300	60		21.071	-
	5 320	64		21.303	-
U-NII 2C	5 500	100		21.071	-
	5 580	116		21.013	-
	5 720	144		21.129	-
U-NII 3	5 745	149		21.013	-
	5 785	157		21.129	-
	5 825	165		21.071	-

Test mode: 11ac_VHT20

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	26 dB Bandwidth (MHz)	99 % Bandwidth (MHz)
U-NII 1	5 180	36	MCS0	21.418	-
	5 220	44		21.592	-
	5 240	48		21.360	18.177
U-NII 2A	5 260	52		21.534	-
	5 300	60		21.592	-
	5 320	64		21.476	-
U-NII 2C	5 500	100		21.476	-
	5 580	116		21.303	-
	5 720	144		21.476	-
U-NII 3	5 745	149		21.476	-
	5 785	157		21.476	-
	5 825	165		21.476	-

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Test mode: 11ac_VHT40

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	26 dB Bandwidth (MHz)	99 % Bandwidth (MHz)
U-NII 1	5 190	38	MCS4	39.595	-
	5 230	46		39.711	36.237
U-NII 2A	5 270	54		39.711	-
	5 310	62		39.711	-
U-NII 2C	5 510	102		39.826	-
	5 550	110		39.711	-
	5 710	142		39.826	-
U-NII 3	5 755	151		39.826	-
	5 795	159		39.711	-

Test mode: 11ac_VHT80

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	26 dB Bandwidth (MHz)	99 % Bandwidth (MHz)
U-NII 1	5 210	42	MCS0	82.431	75.716
U-NII 2A	5 290	58		82.431	-
U-NII 2C	5 530	106		82.200	-
	5 690	138		82.200	-
U-NII 3	5 775	155		82.200	-

Band-crossing channel

Mode	Frequency (MHz)	Ch.	Data Rate (Mbps)	26 dB Bandwidth (MHz)
11a	5 720	144	6	15.593
11ac_VHT20	5 720	144	MCS0	15.593
11ac_VHT40	5 710	142	MCS4	34.797
11ac_VHT80	5 690	138	MCS0	75.980

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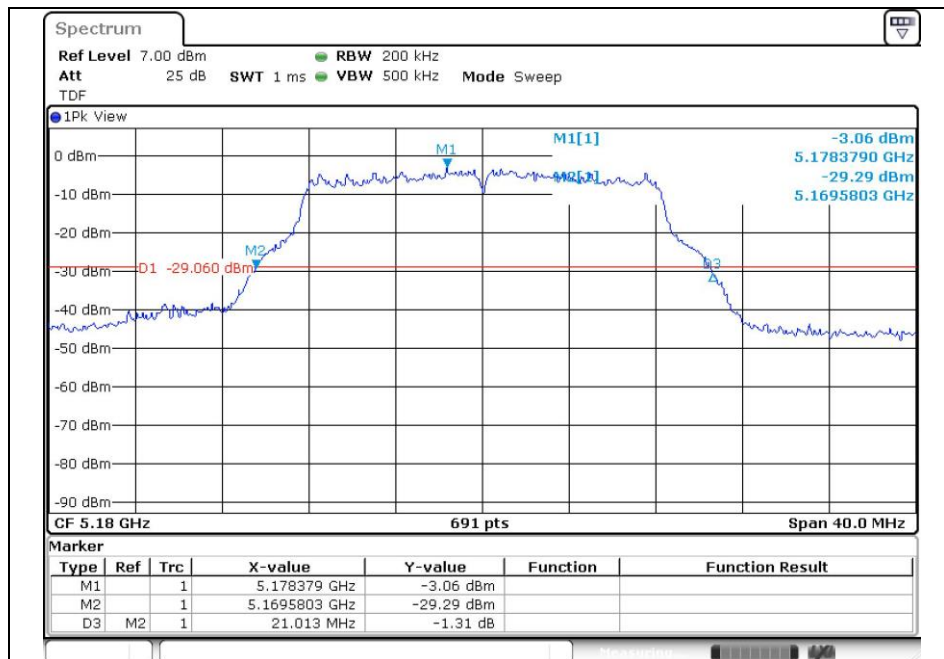
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- Test plots

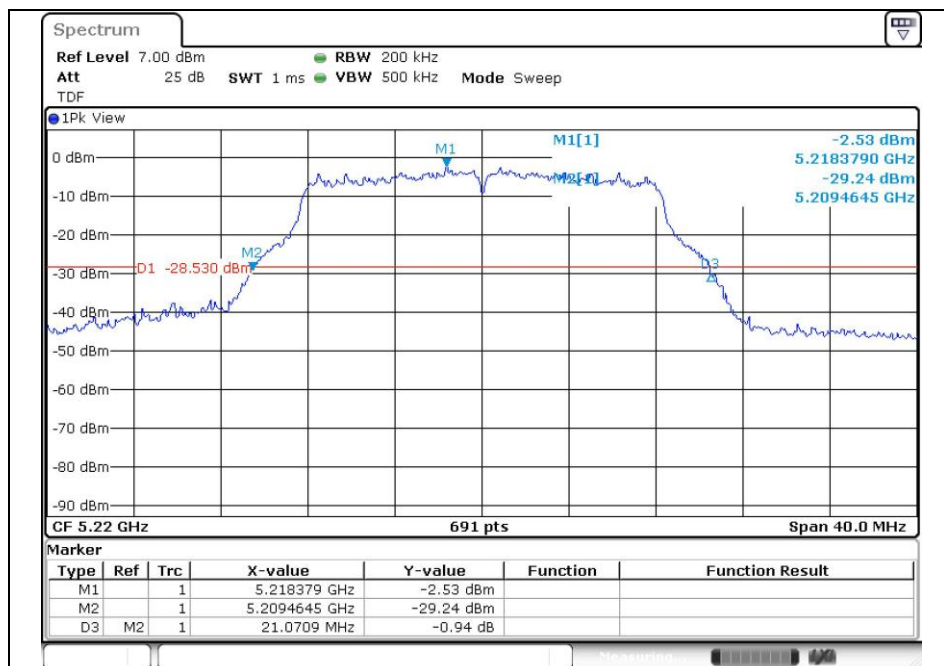
26 dB Bandwidth

802.11a (Band 1)

Low Channel (5 180 MHz)



Middle Channel (5 220 MHz)



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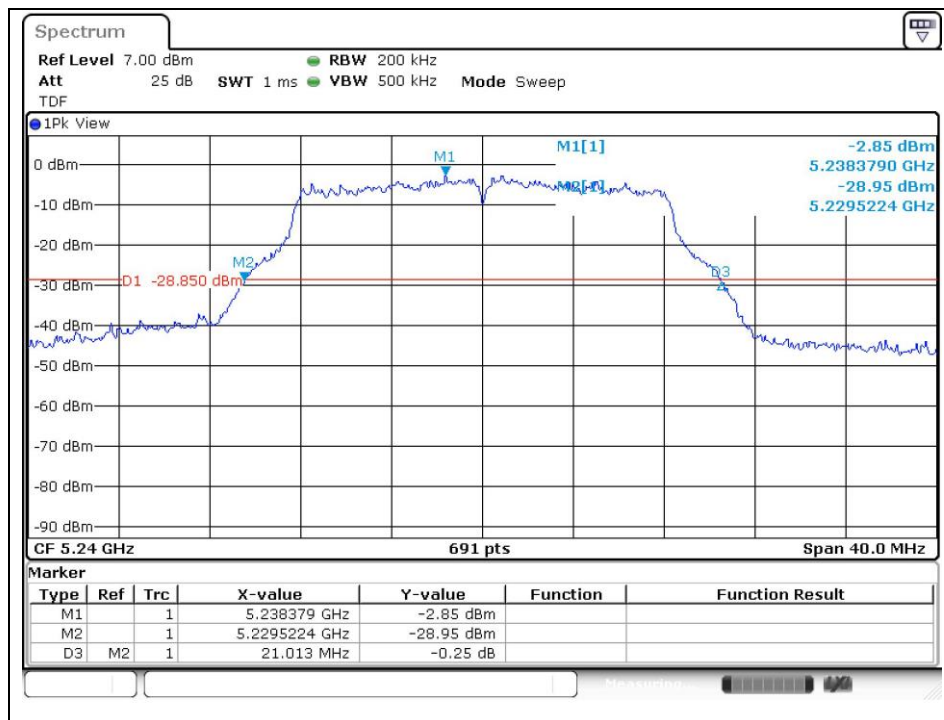
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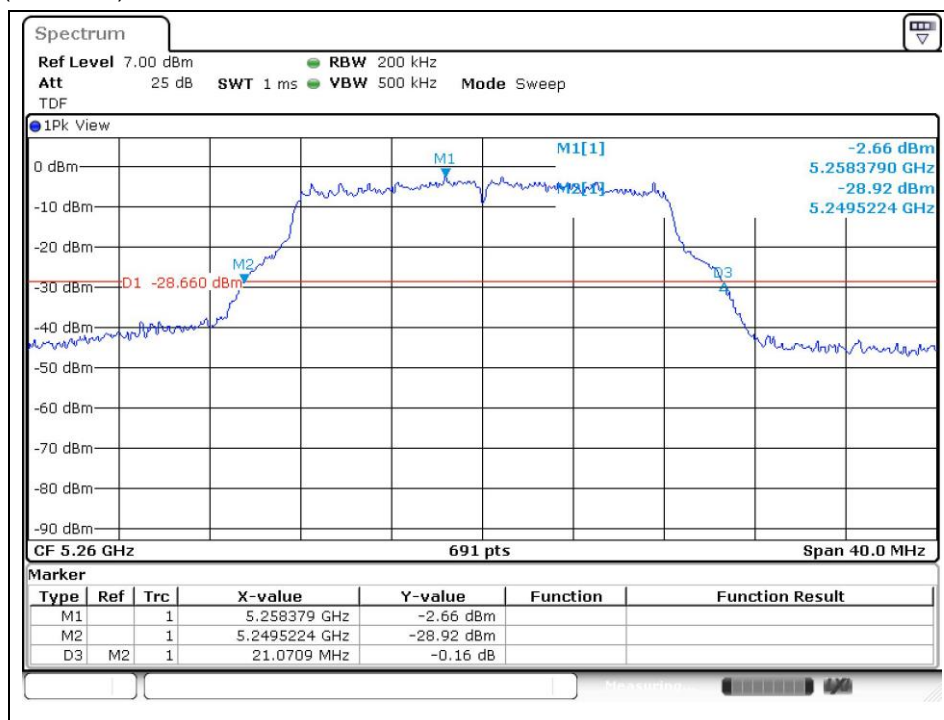
A4(210 mm x 297 mm)

High Channel (5 240 MHz)



802.11a (Band 2A)

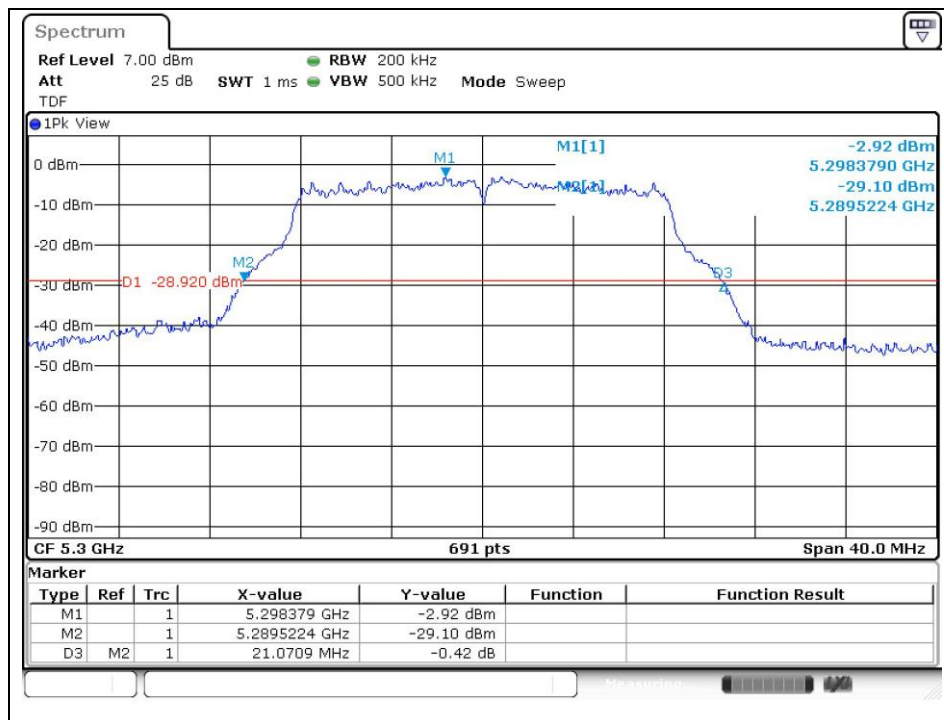
Low Channel (5 260 MHz)



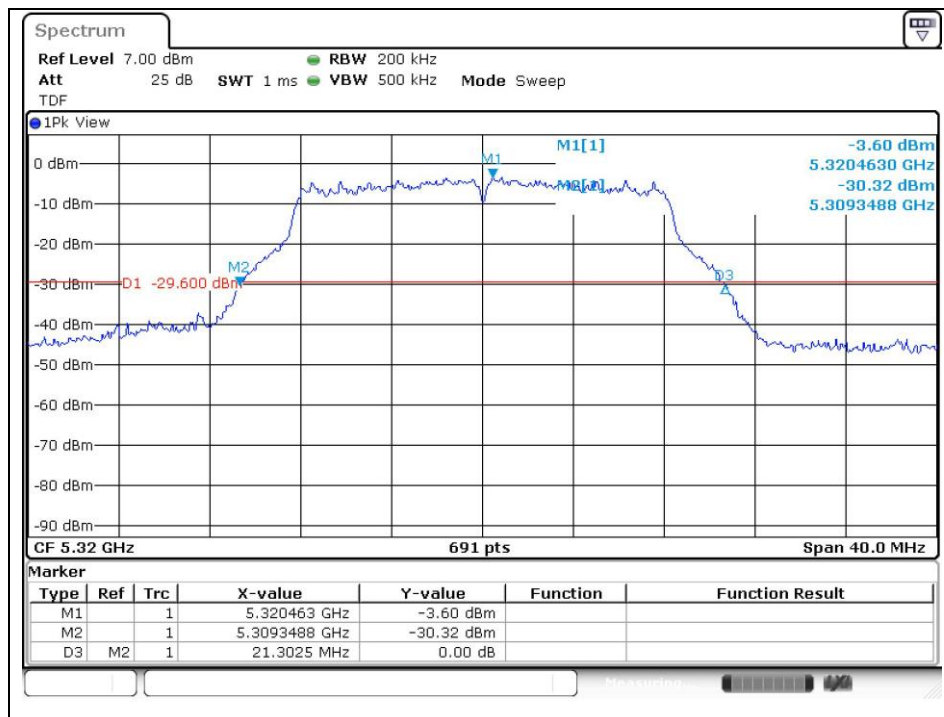
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Middle Channel (5 300 MHz)



High Channel (5 320 MHz)



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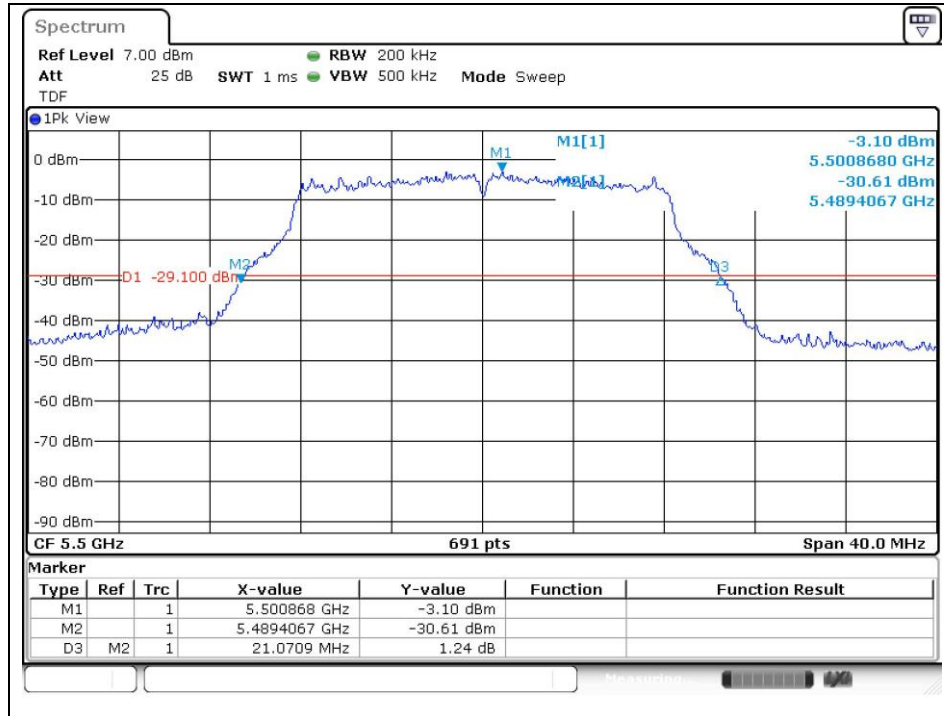
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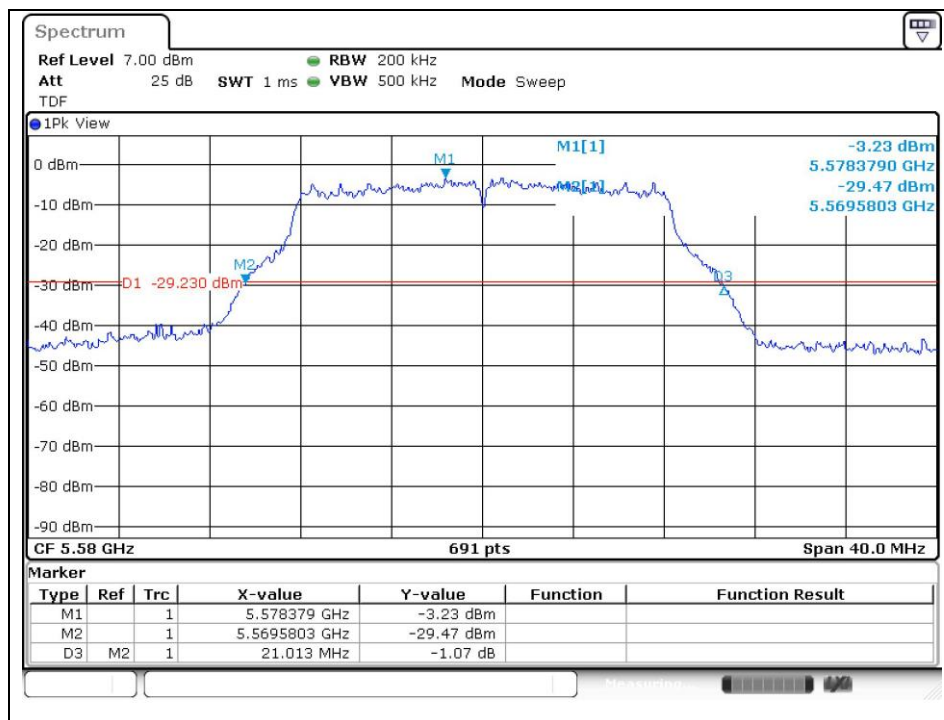
A4(210 mm x 297 mm)

802.11a (Band 2C)

Low Channel (5 500 MHz)



Middle Channel (5 580 MHz)



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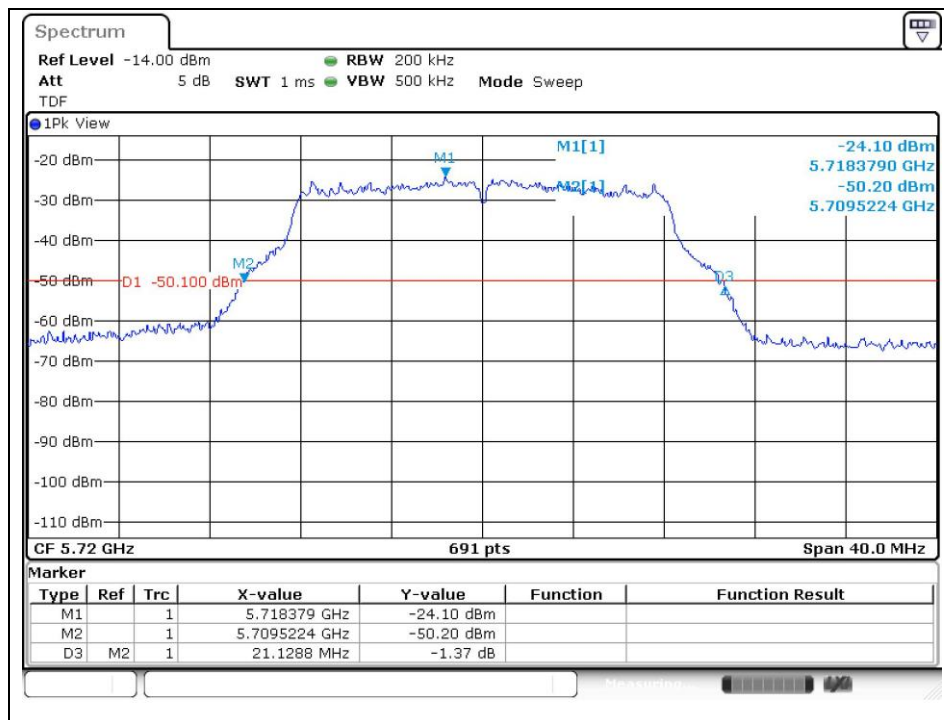
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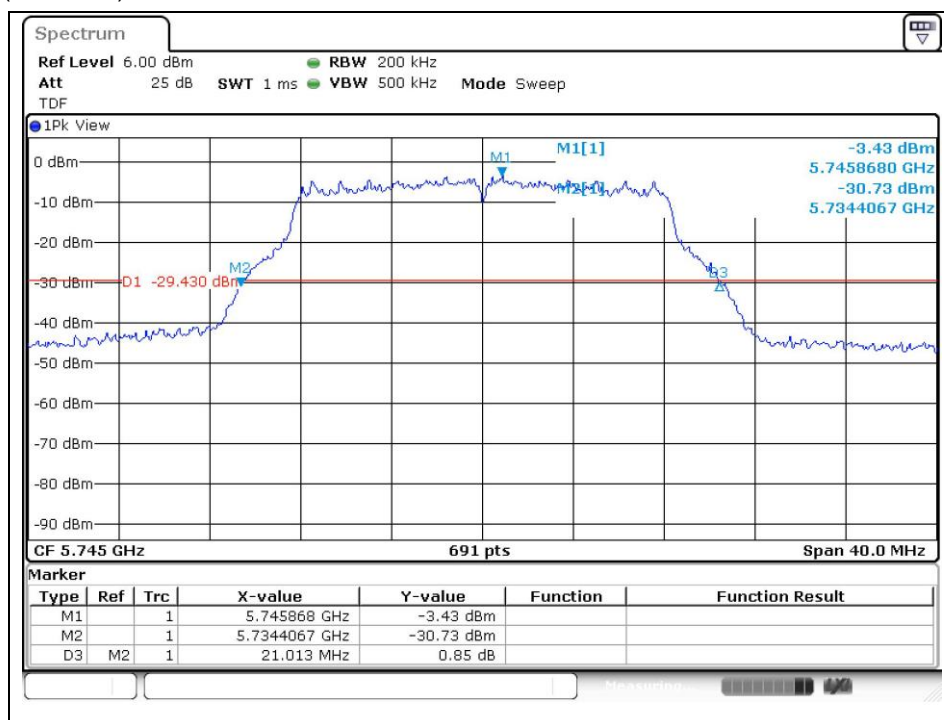
A4(210 mm x 297 mm)

High Channel (5 720 MHz)



802.11a (Band 3)

Low Channel (5 745 MHz)



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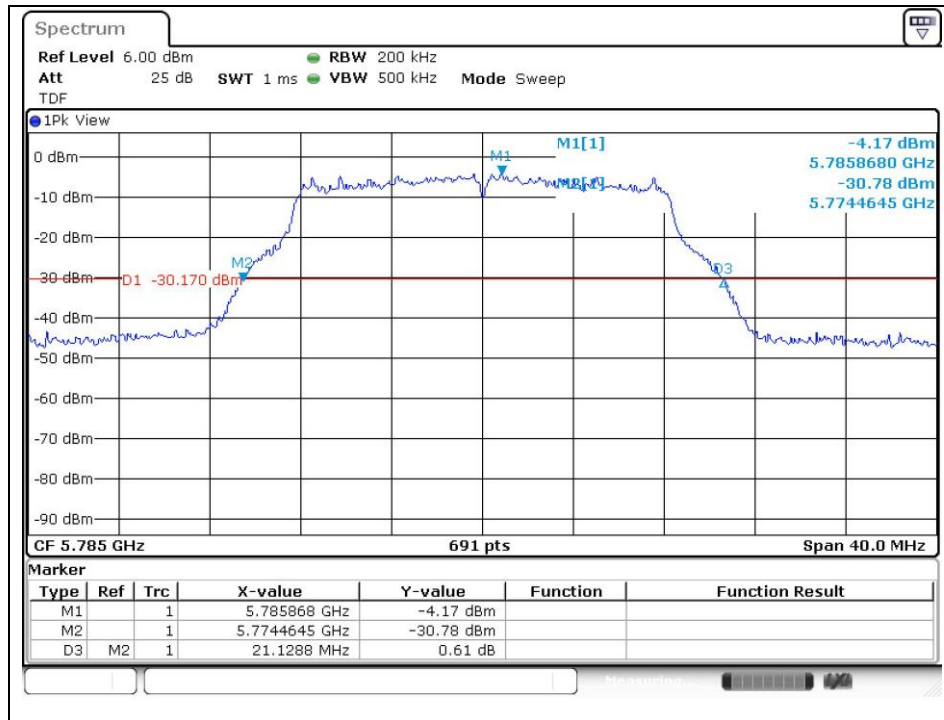
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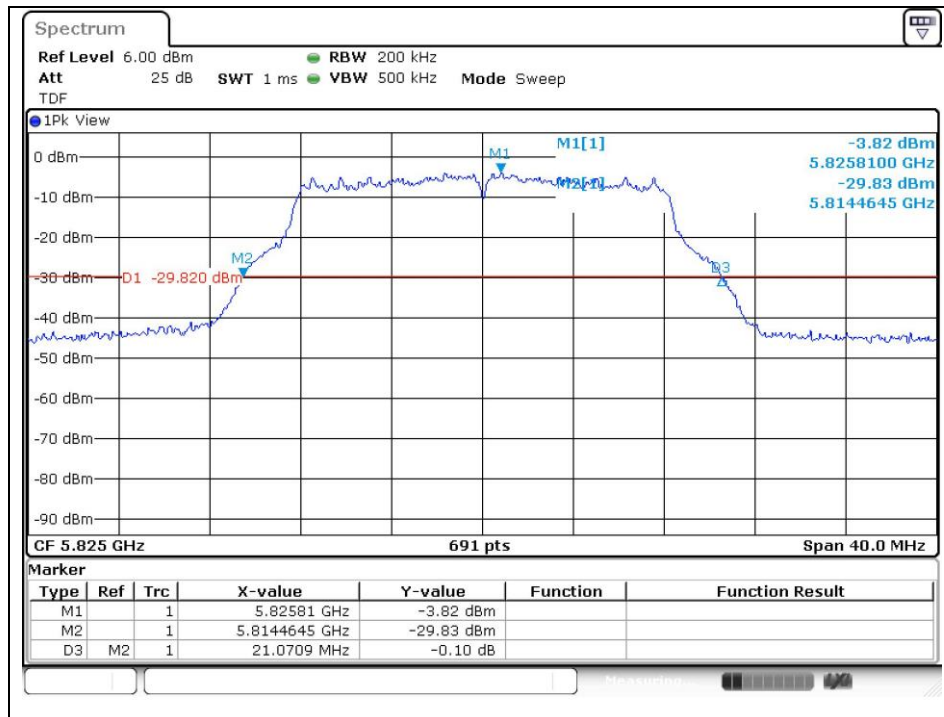
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A4(210 mm x 297 mm)

Middle Channel (5 785 MHz)



High Channel (5 825 MHz)



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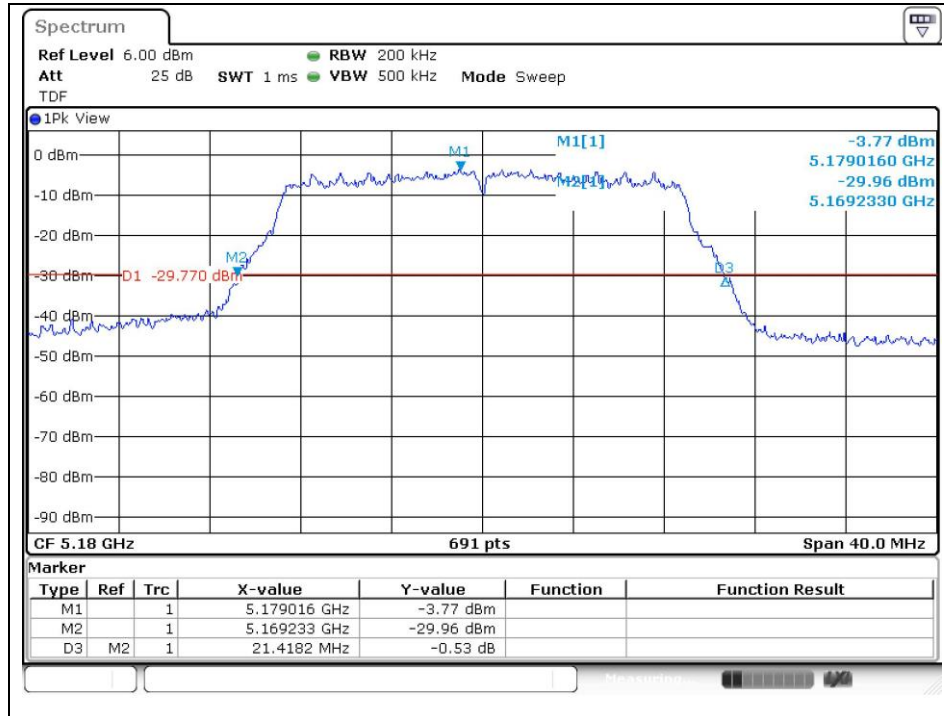
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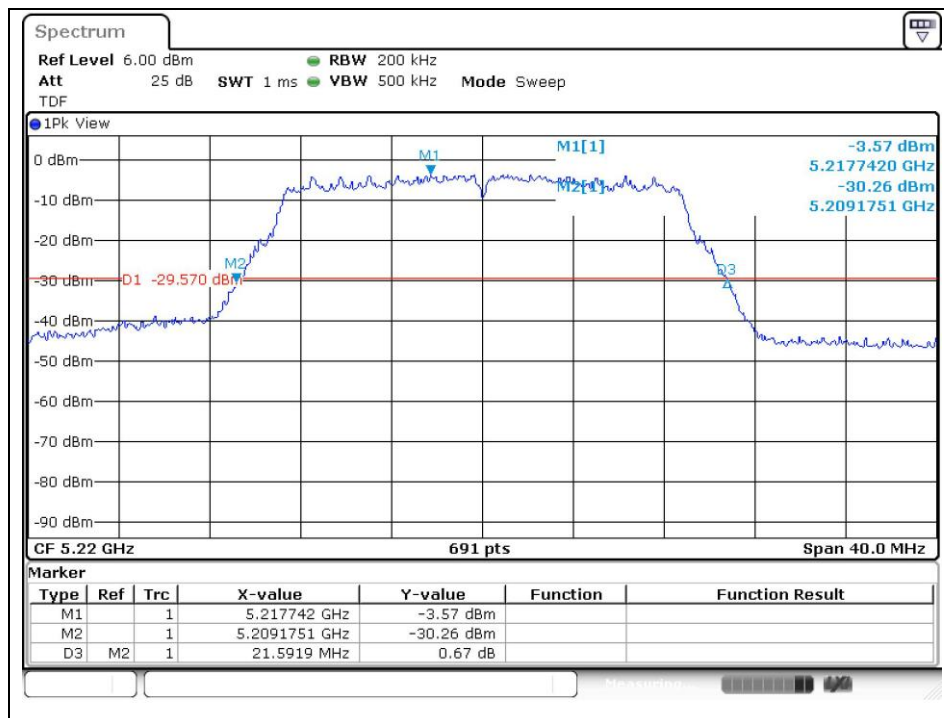
A4(210 mm x 297 mm)

802.11ac_VHT20 (Band 1)

Low Channel (5 180 MHz)



Middle Channel (5 220 MHz)



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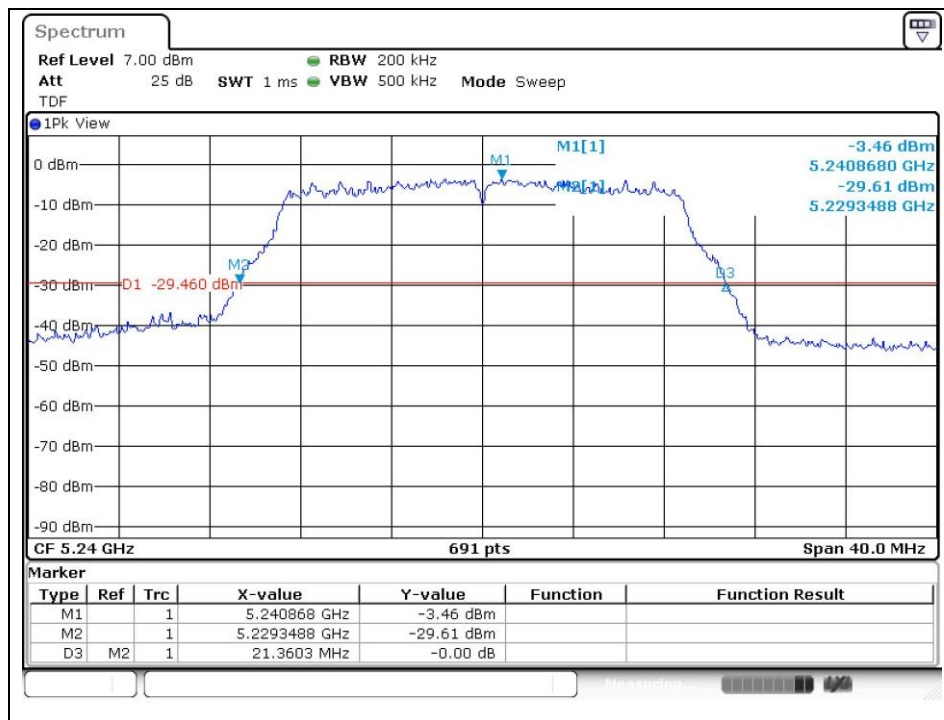
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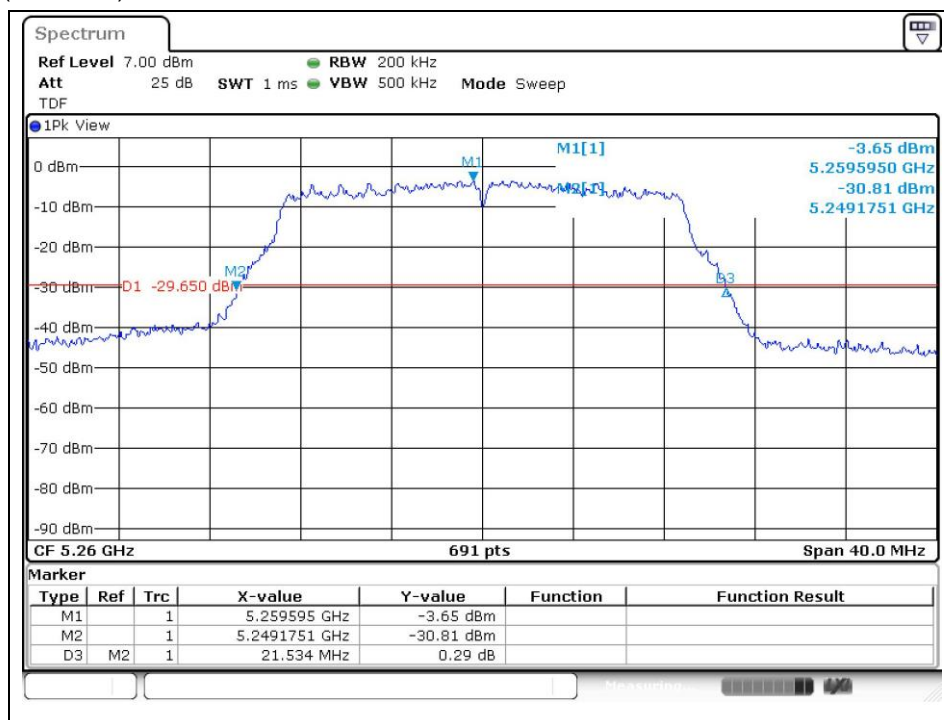
A4(210 mm x 297 mm)

High Channel (5 240 MHz)



802.11ac_VHT20 (Band 2A)

Low Channel (5 260 MHz)



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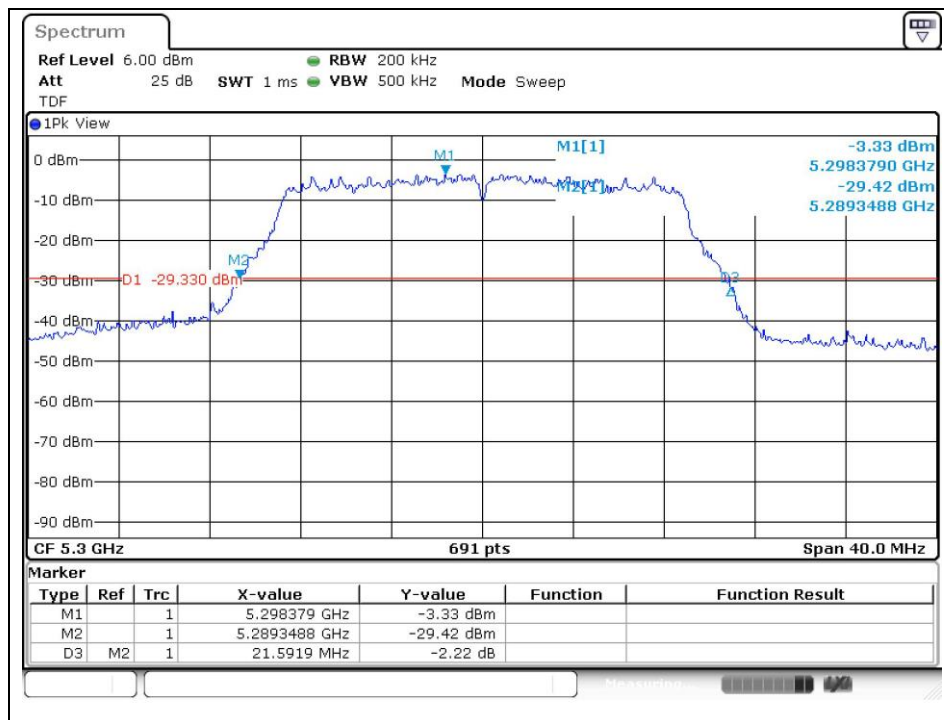
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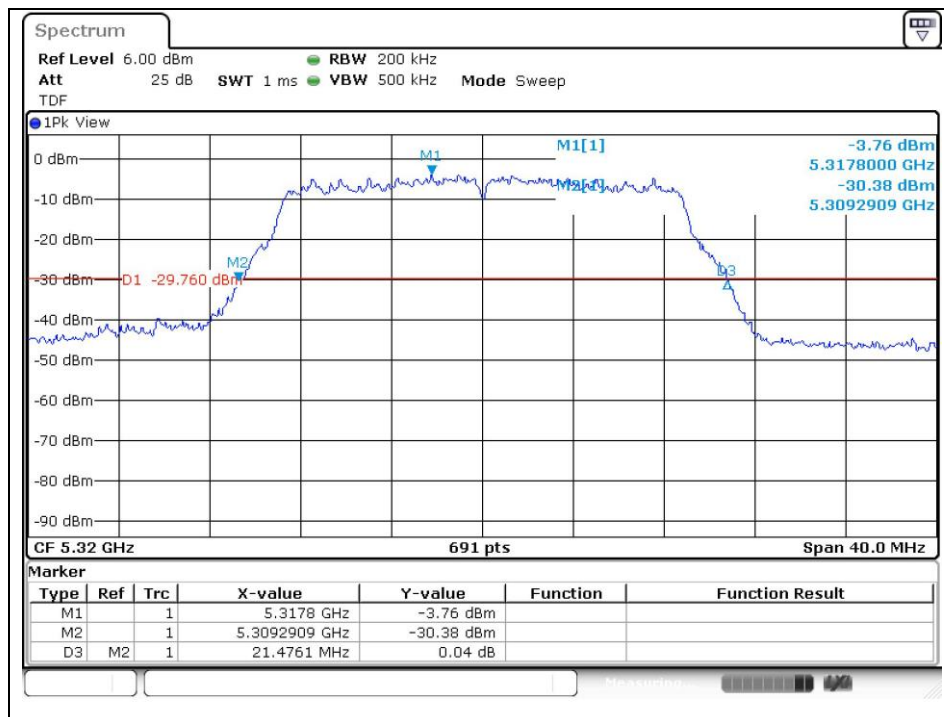
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A4(210 mm x 297 mm)

Middle Channel (5 300 MHz)



High Channel (5 320 MHz)



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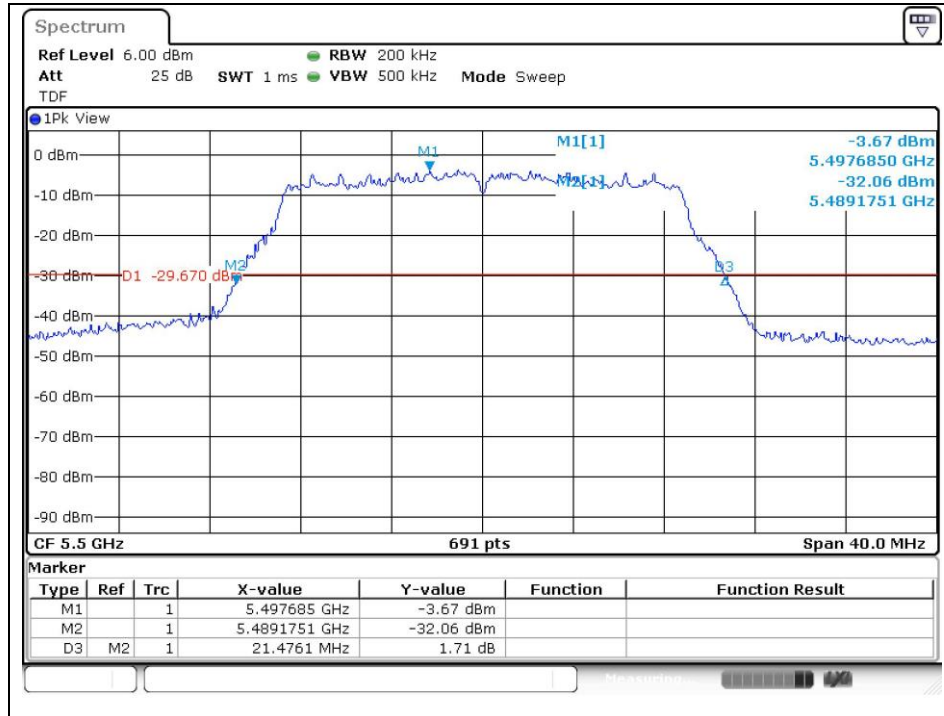
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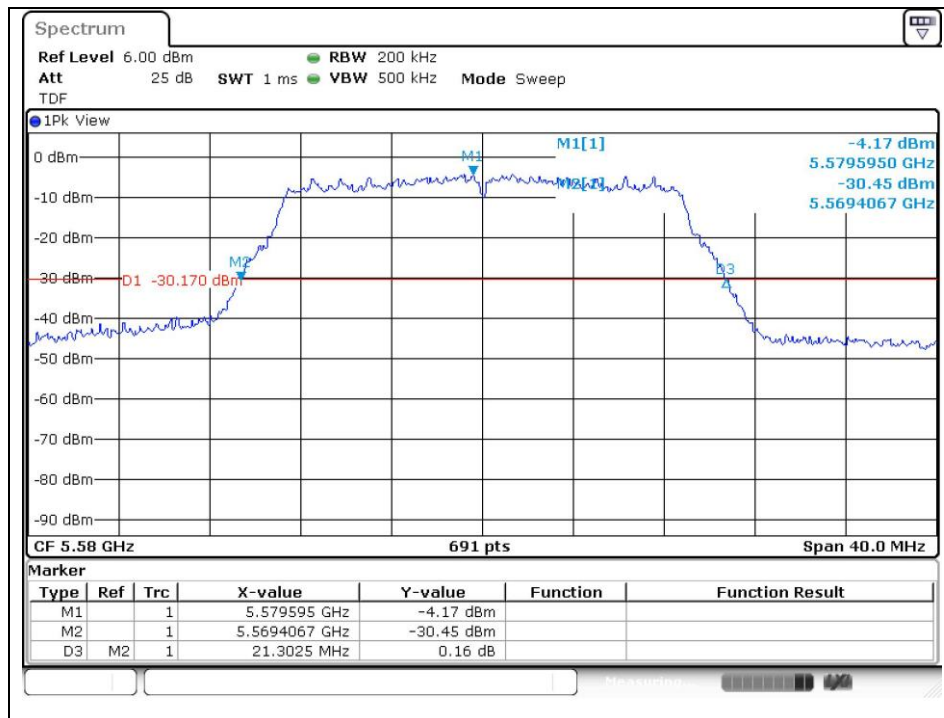
A4(210 mm x 297 mm)

802.11ac_VHT20 (Band 2C)

Low Channel (5 500 MHz)



Middle Channel (5 580 MHz)



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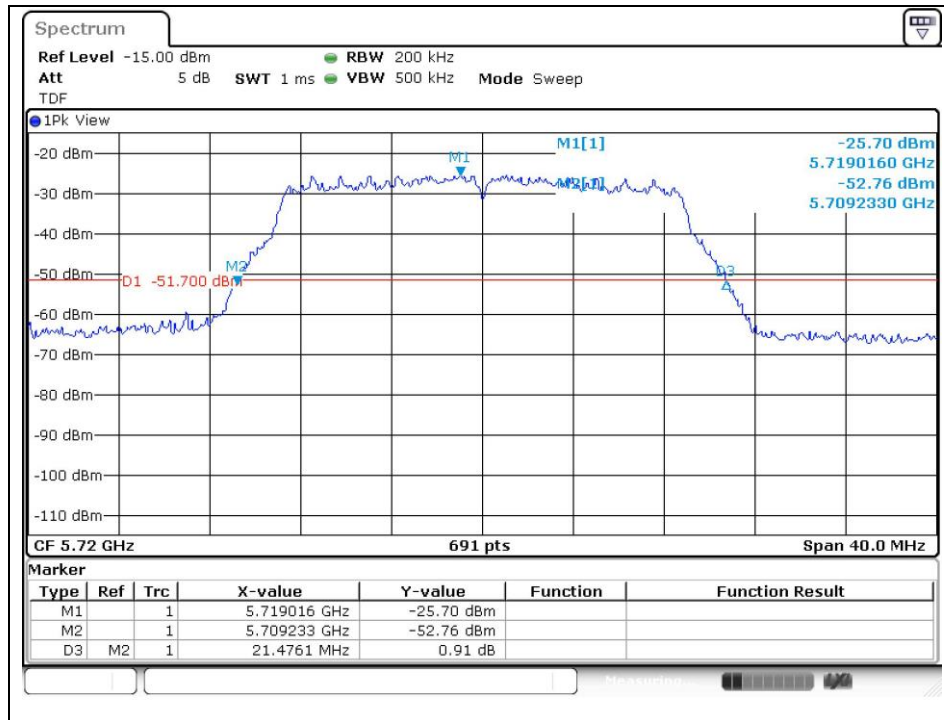
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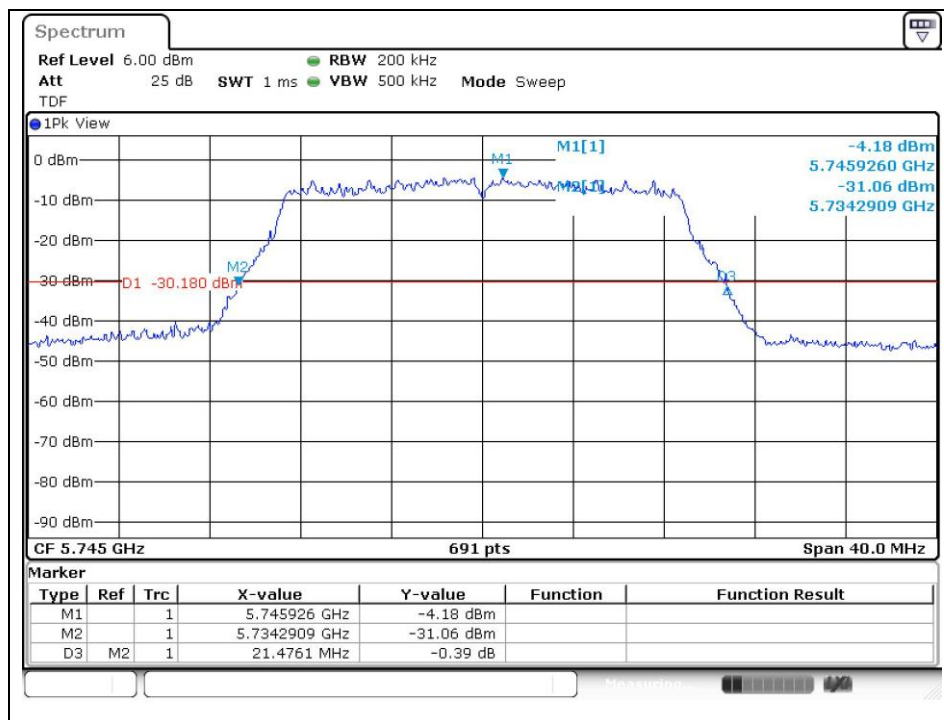
A4(210 mm x 297 mm)

High Channel (5 720 MHz)



802.11ac_VHT20 (Band 3)

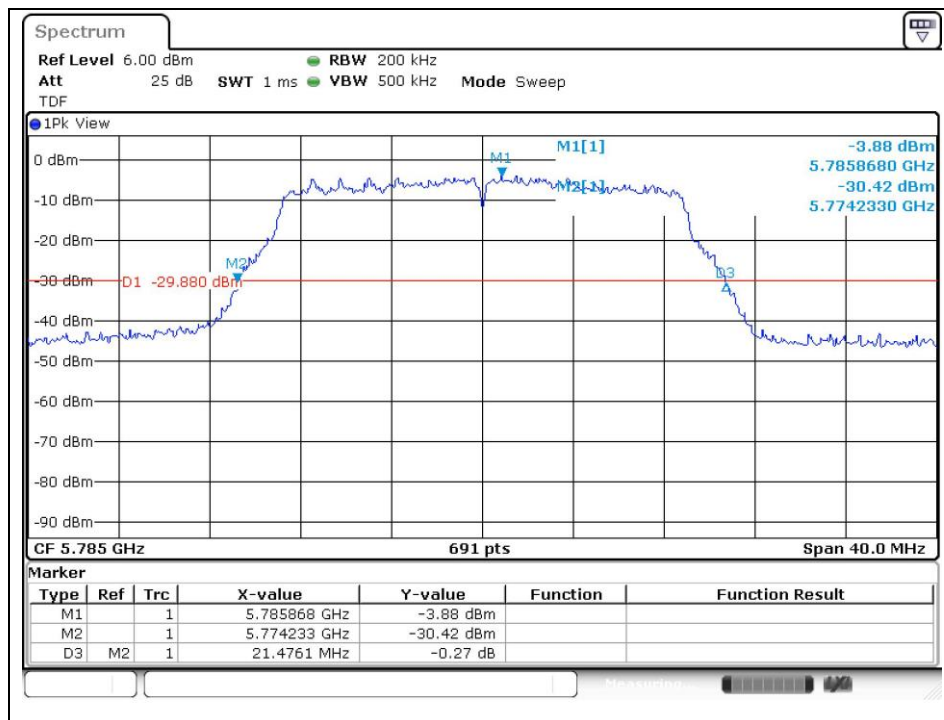
Low Channel (5 745 MHz)



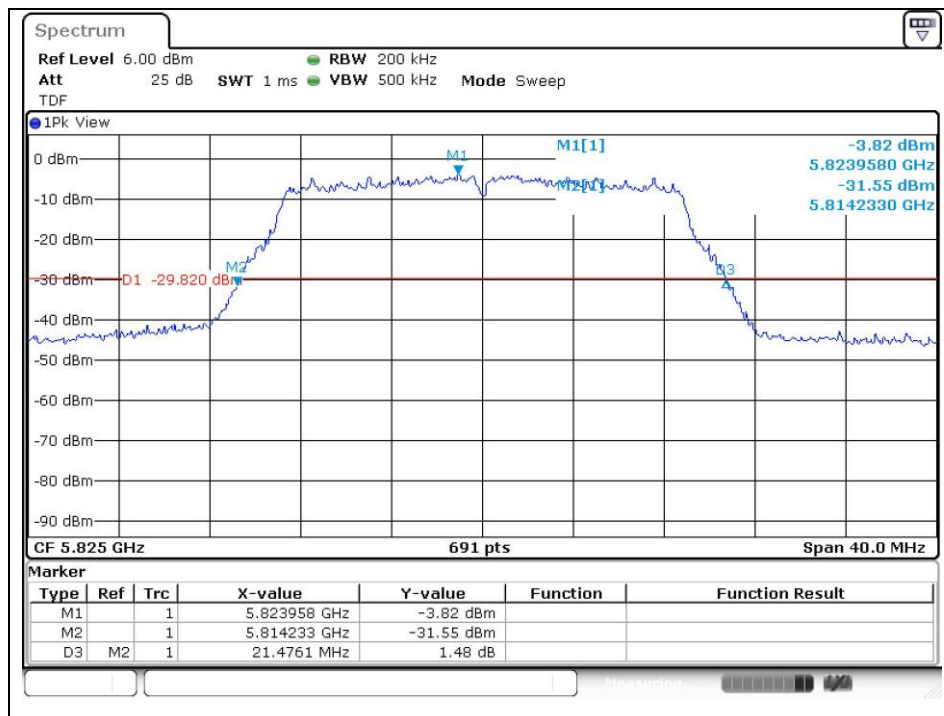
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Middle Channel (5 785 MHz)



High Channel (5 825 MHz)



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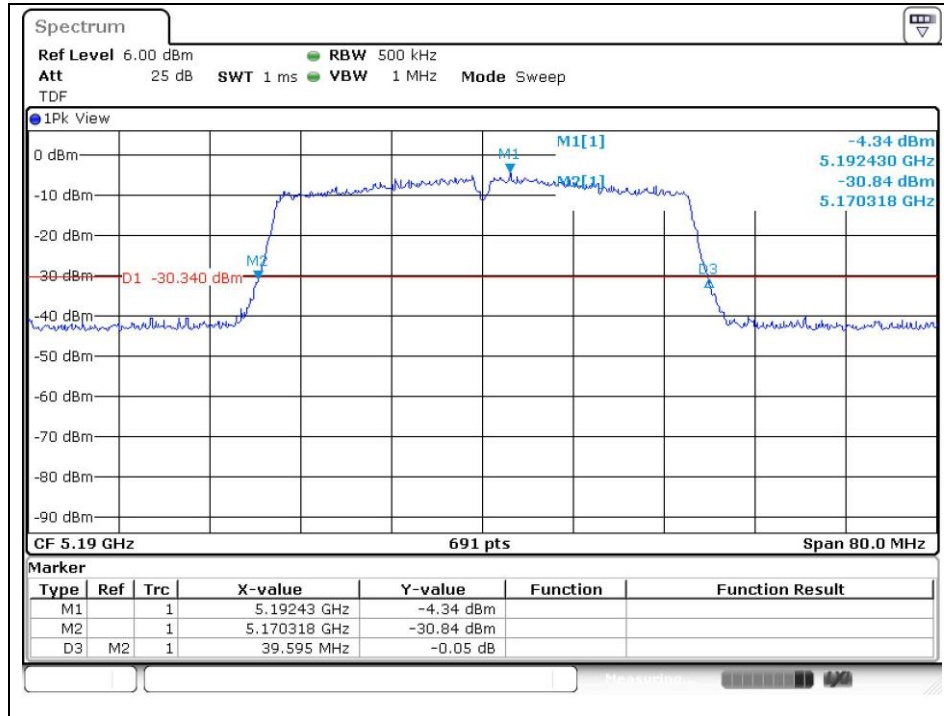
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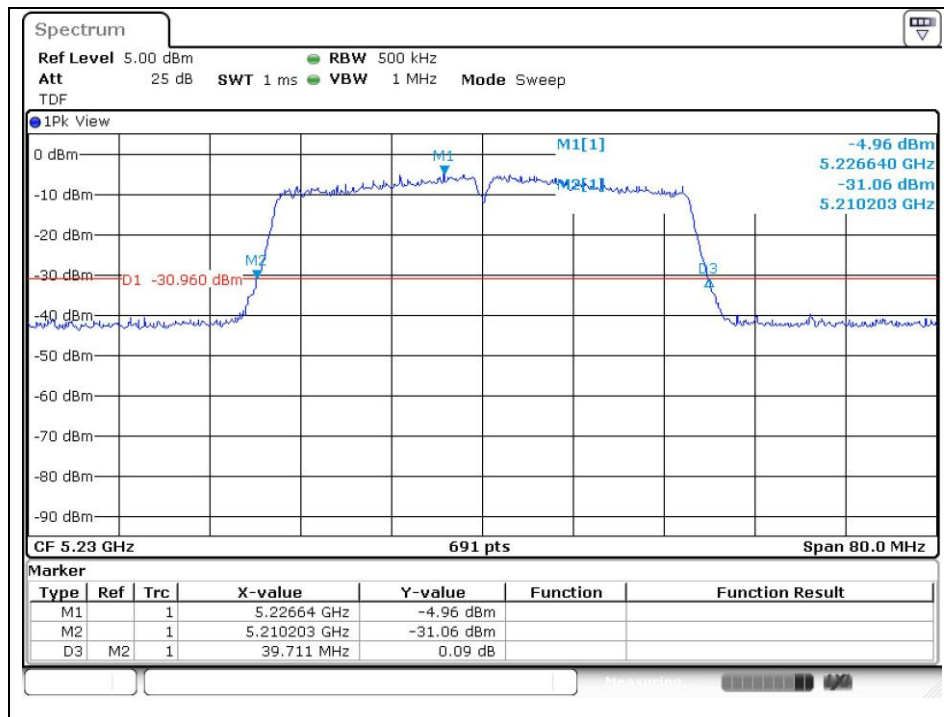
A4(210 mm x 297 mm)

802.11ac_VHT40 (Band 1)

Low Channel (5 190 MHz)



High Channel (5 230 MHz)



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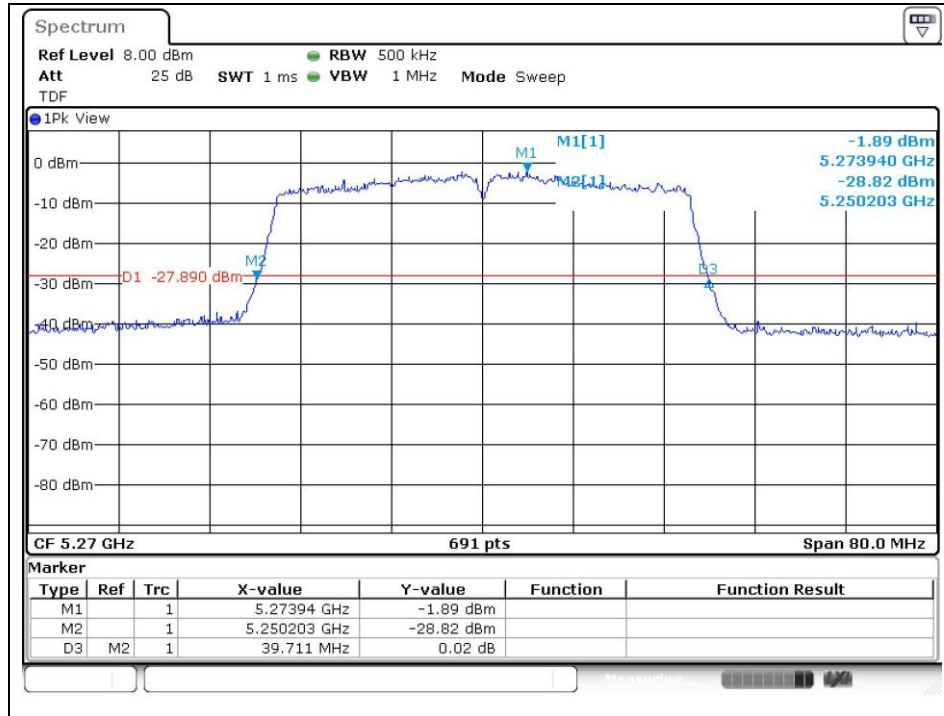
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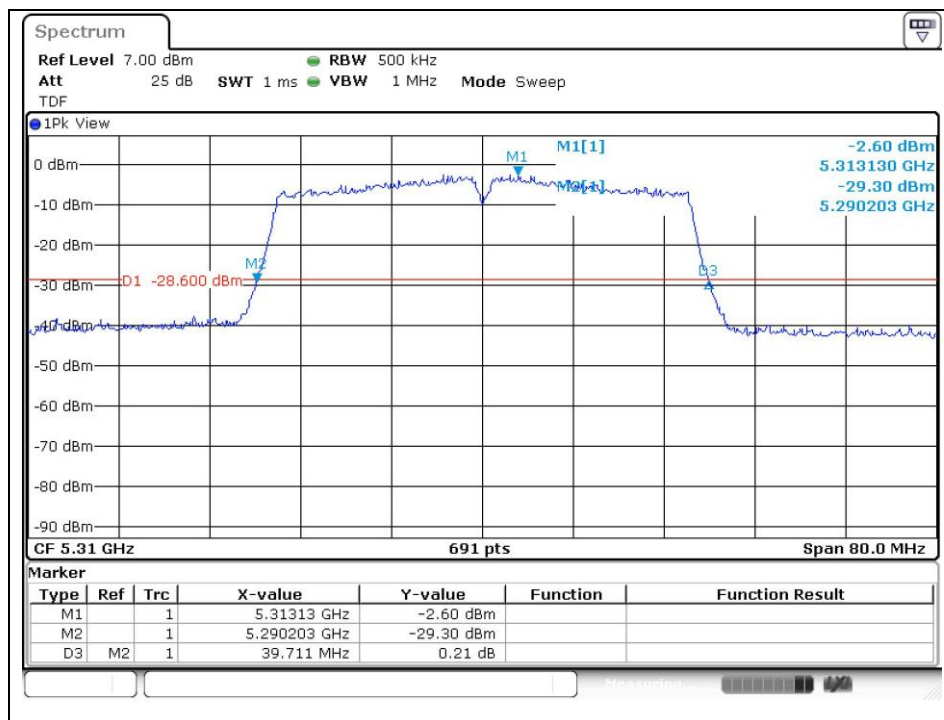
A4(210 mm x 297 mm)

802.11ac_VHT40 (Band 2A)

Low Channel (5 270 MHz)



High Channel (5 310 MHz)



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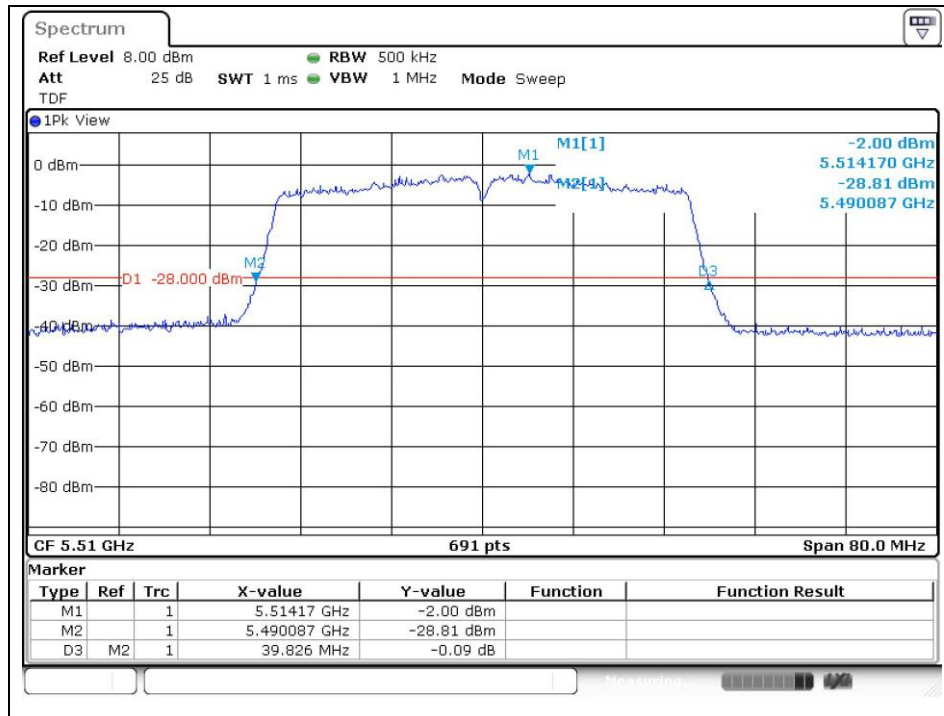
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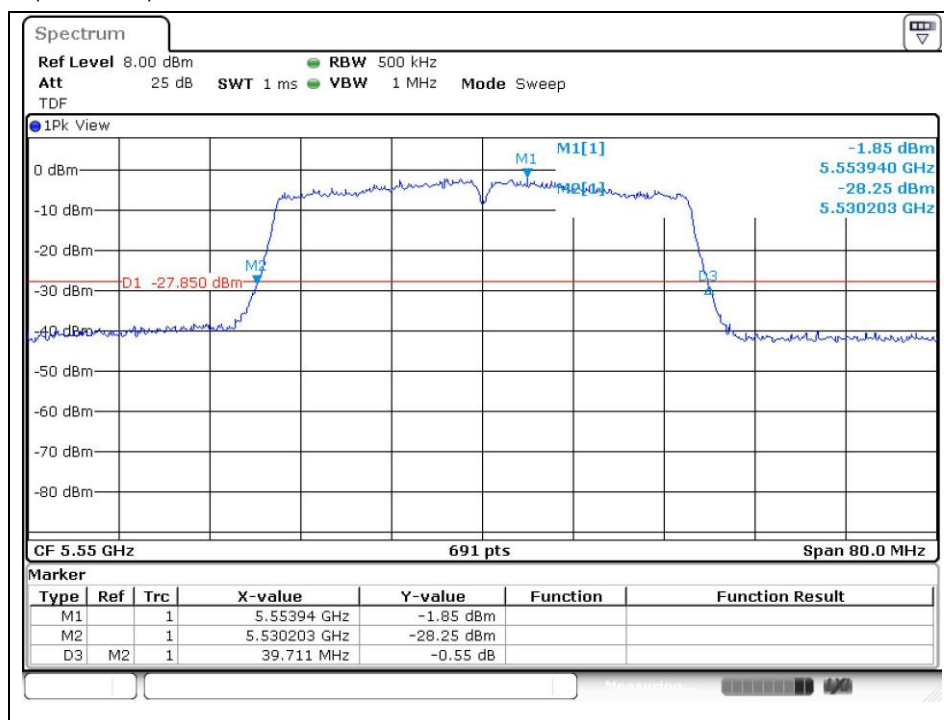
A4(210 mm x 297 mm)

802.11ac_VHT40 (Band 2C)

Low Channel (5 510 MHz)



Middle Channel (5 550 MHz)



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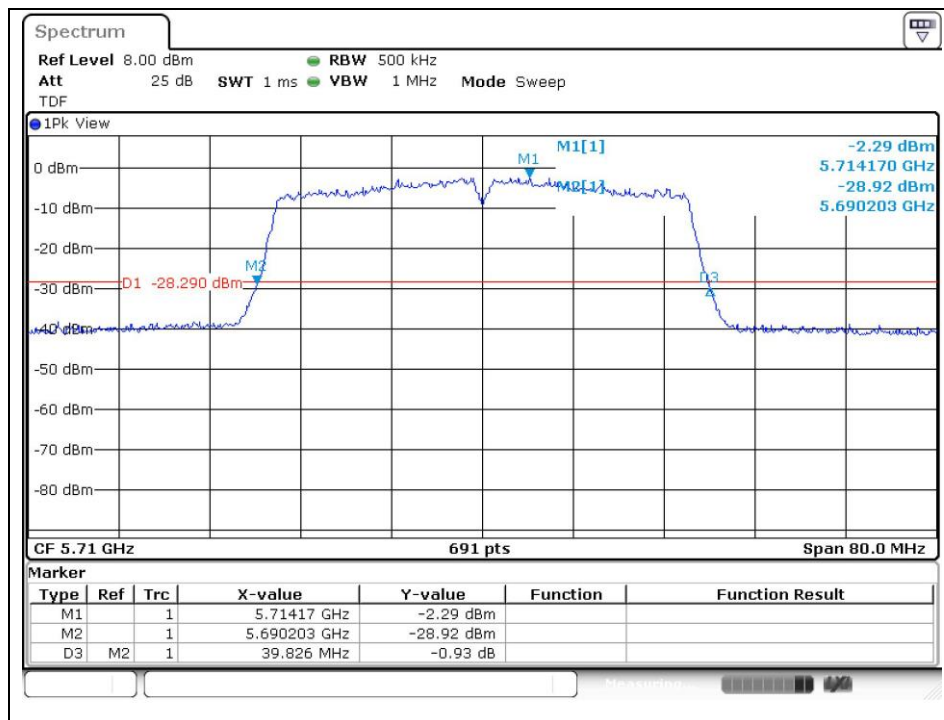
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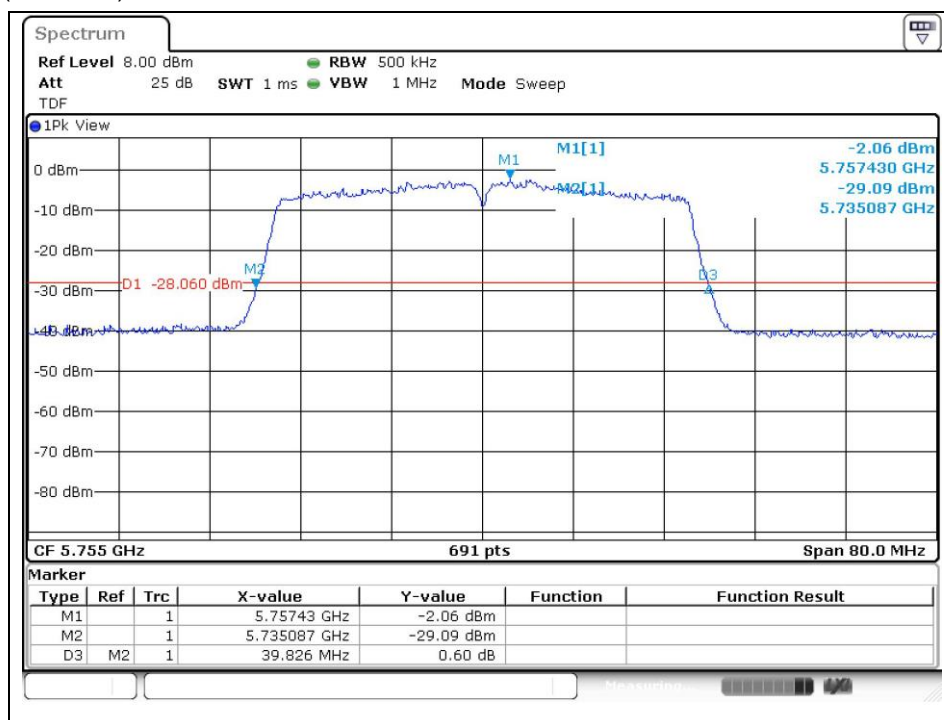
A4(210 mm x 297 mm)

High Channel (5 710 MHz)



802.11ac_VHT40 (Band 3)

Low Channel (5 755 MHz)



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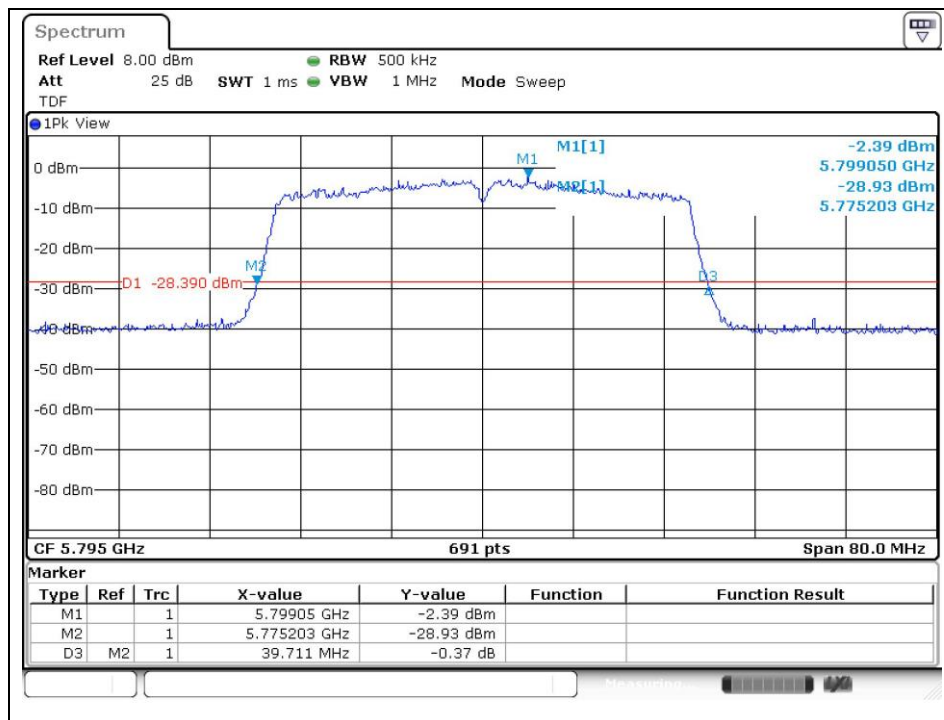
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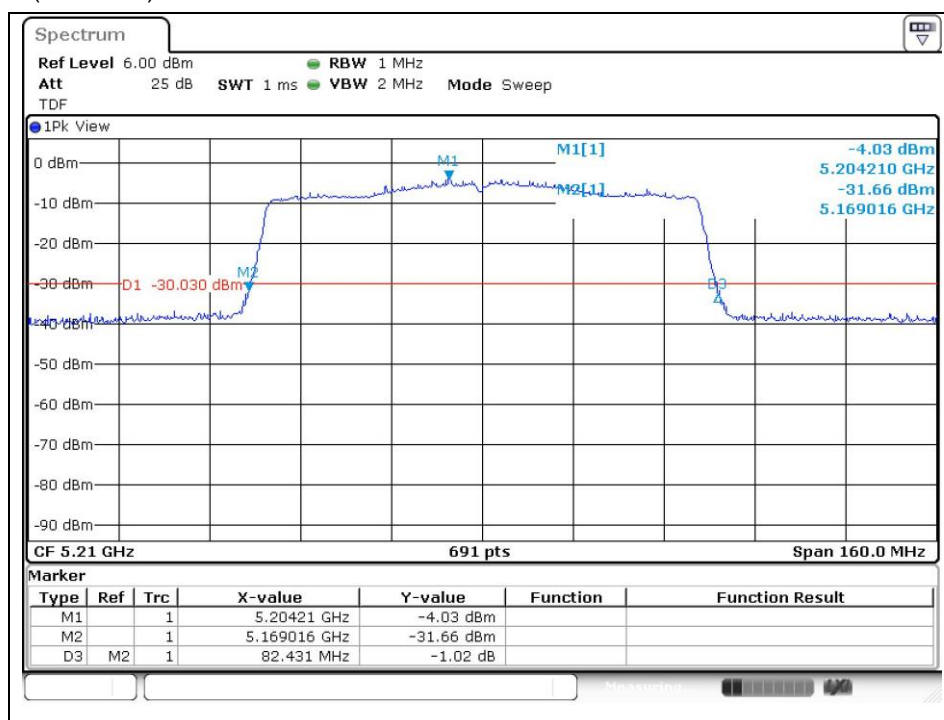
A4(210 mm x 297 mm)

High Channel (5 795 MHz)



802.11ac_VHT80 (Band 1)

Middle Channel (5 210 MHz)



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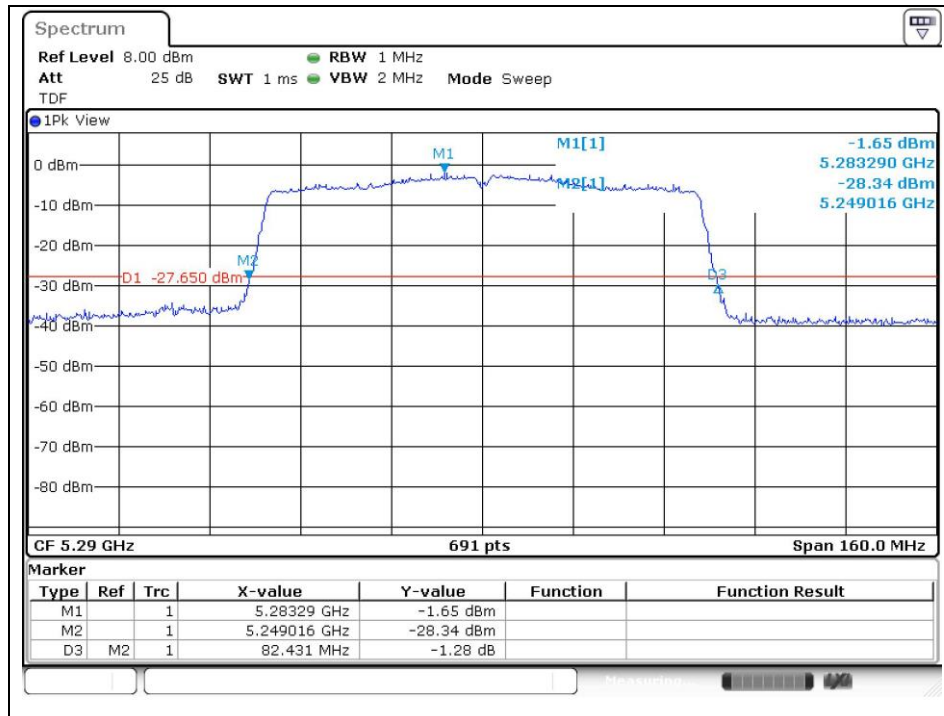
RTT5041-19(2019.04.24)(1)

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A4(210 mm x 297 mm)

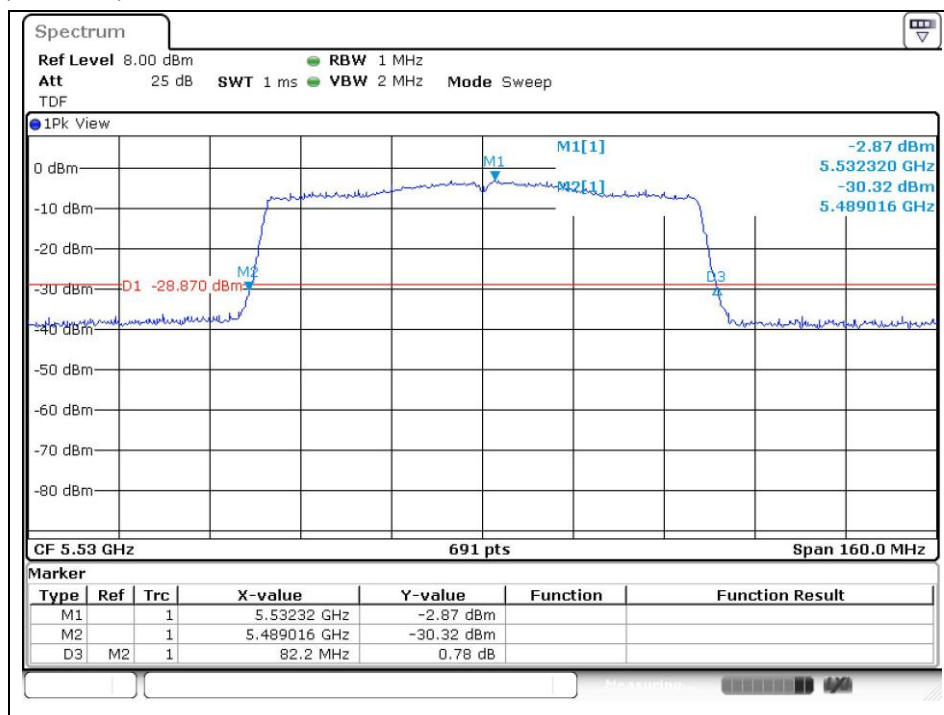
802.11ac_VHT80 (Band 2A)

Middle Channel (5 290 MHz)



802.11ac_VHT80 (Band 2C)

Low Channel (5 530 MHz)



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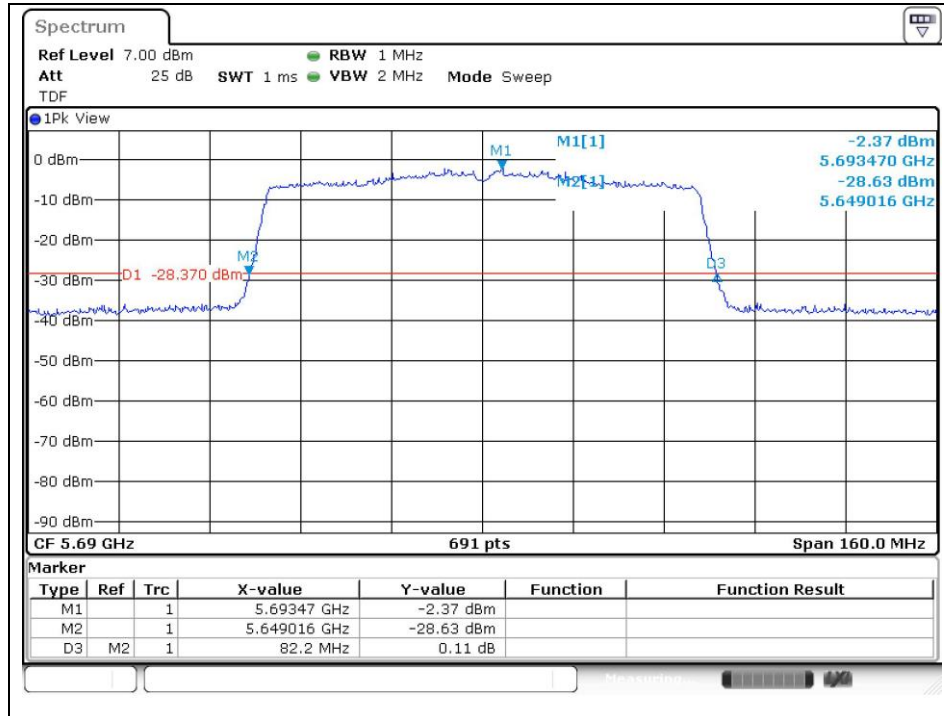
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A4(210 mm x 297 mm)

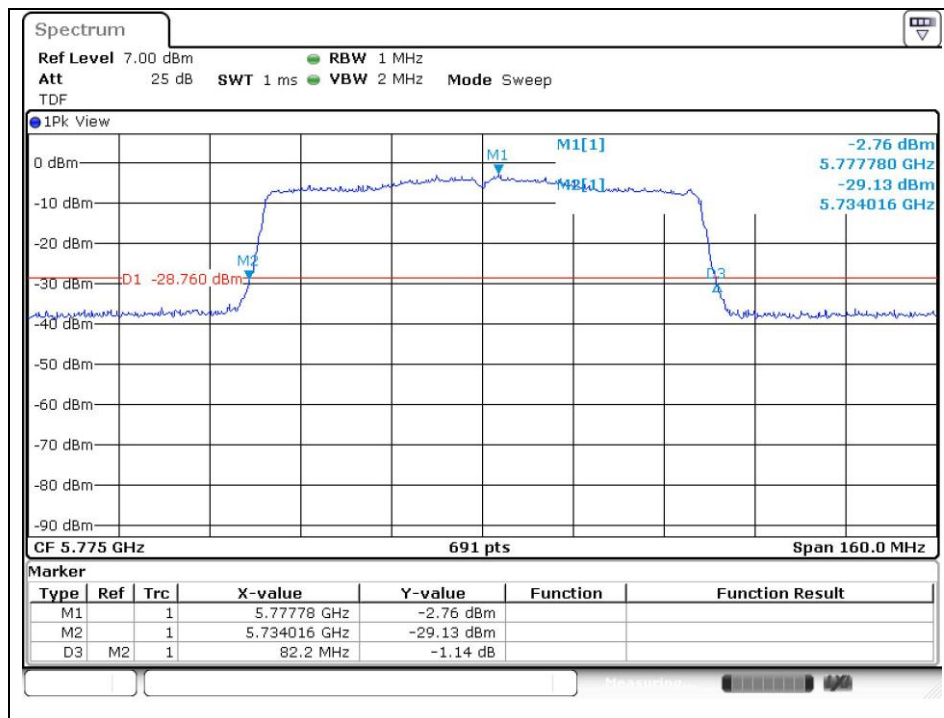
802.11ac_VHT80 (Band 2C)

High Channel (5 690 MHz)



802.11ac_VHT80 (Band 3)

Middle Channel (5 775 MHz)



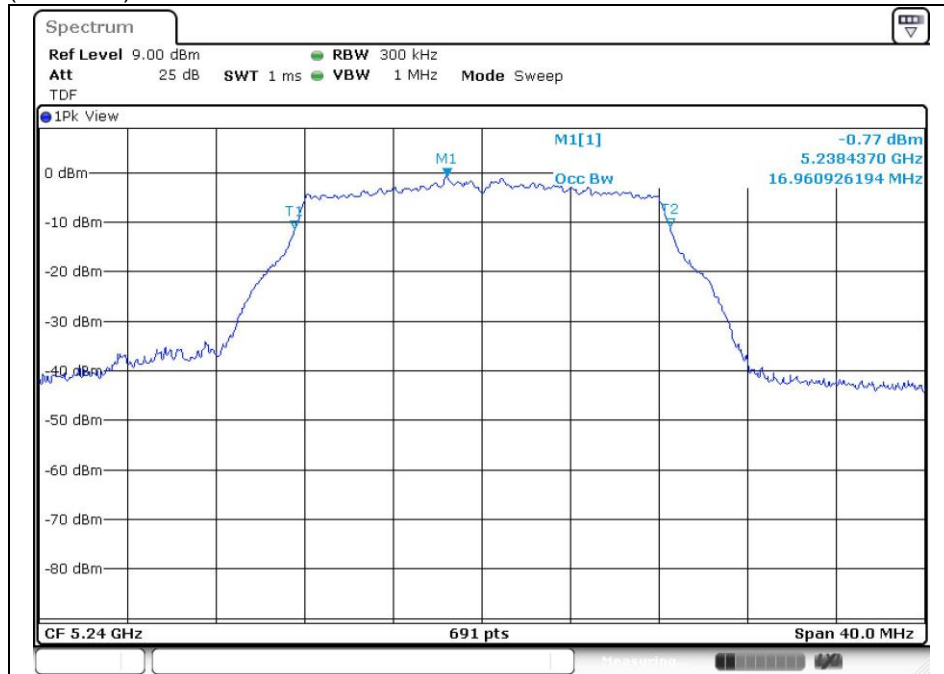
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99 % Bandwidth

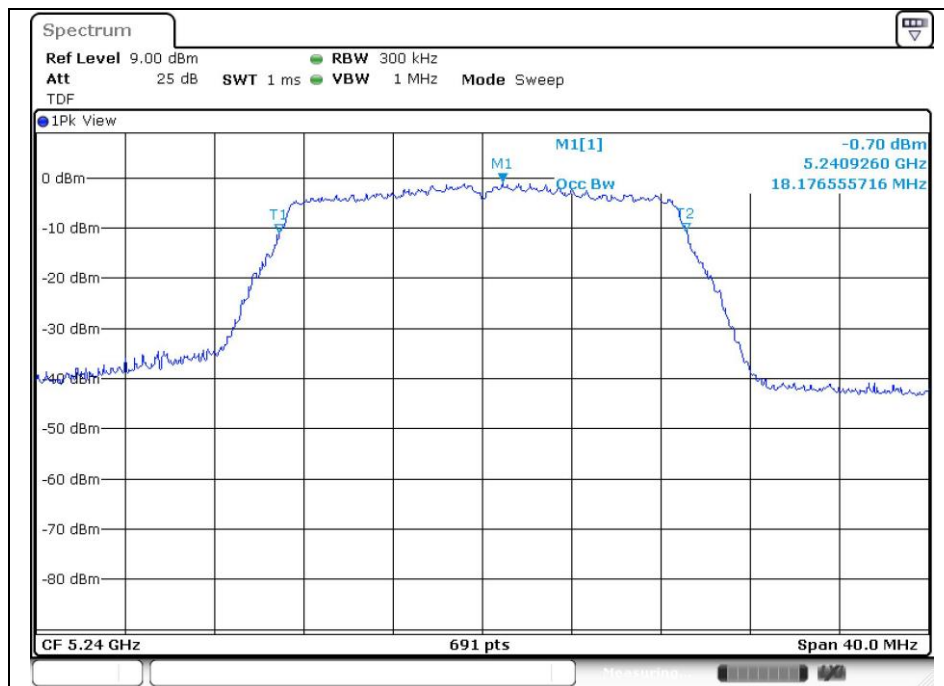
802.11a (Band 1)

High Channel (5 240 MHz)



802.11ac_VHT20 (Band 1)

High Channel (5 240 MHz)



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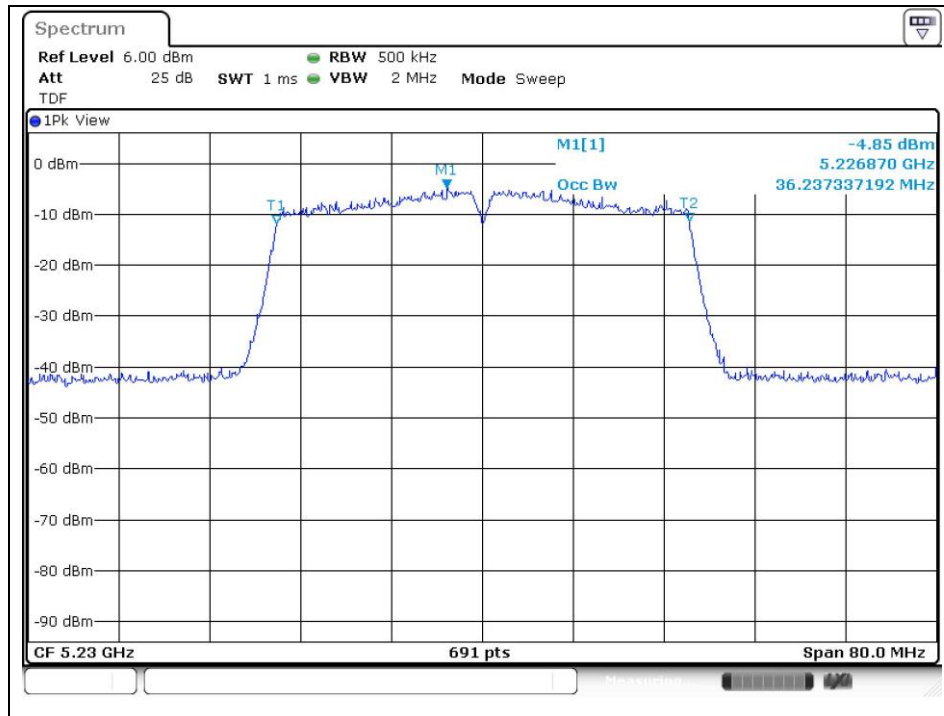
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A4(210 mm x 297 mm)

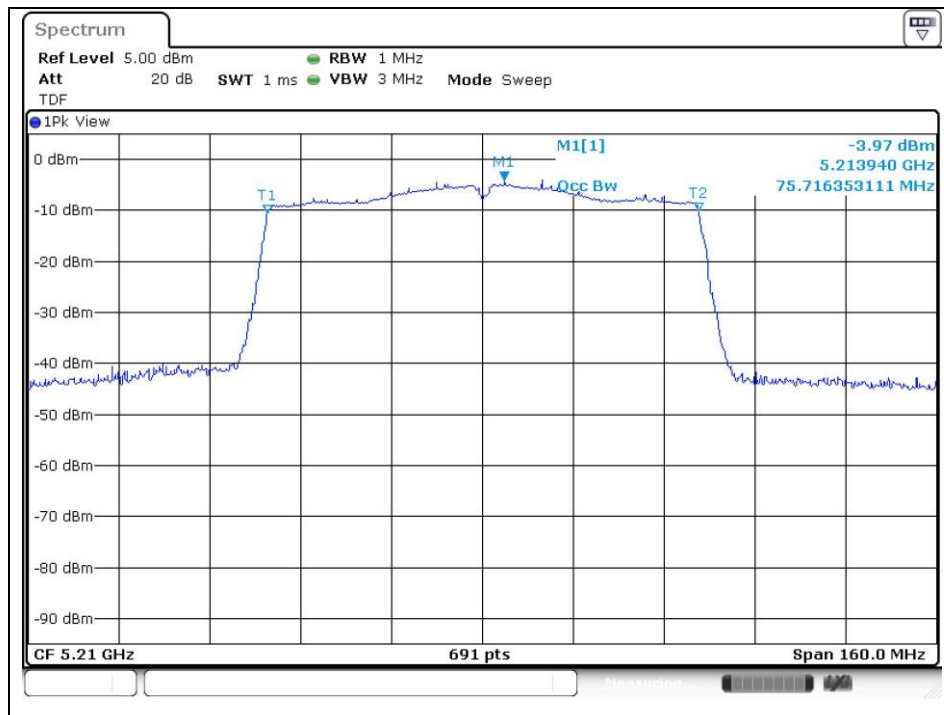
802.11ac_VHT40 (Band 1)

High Channel (5 230 MHz)



802.11ac_VHT80 (Band 1)

Middle Channel (5 210 MHz)



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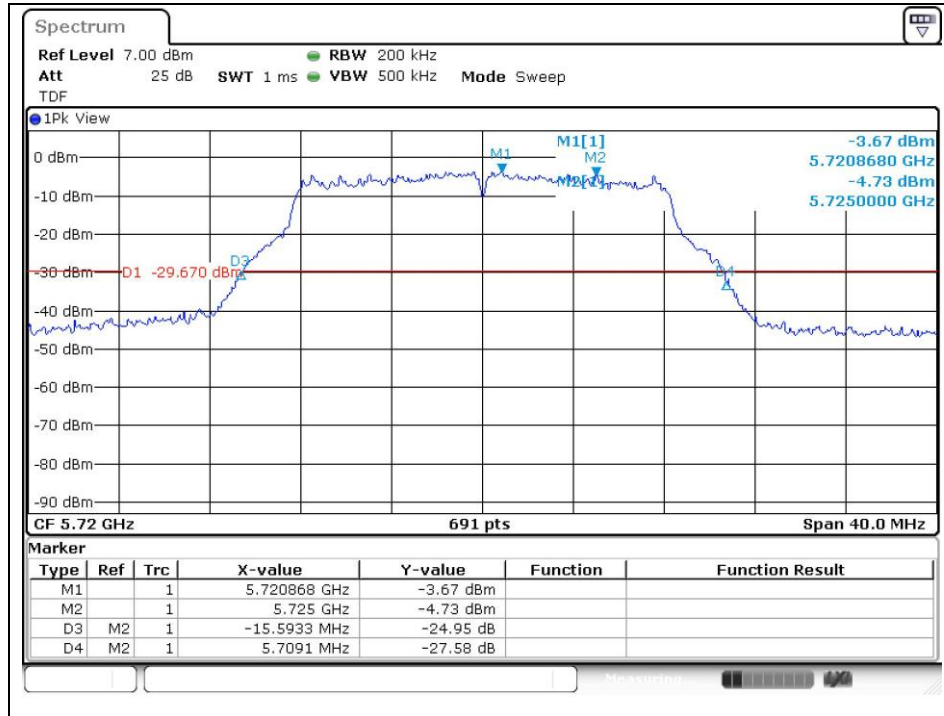
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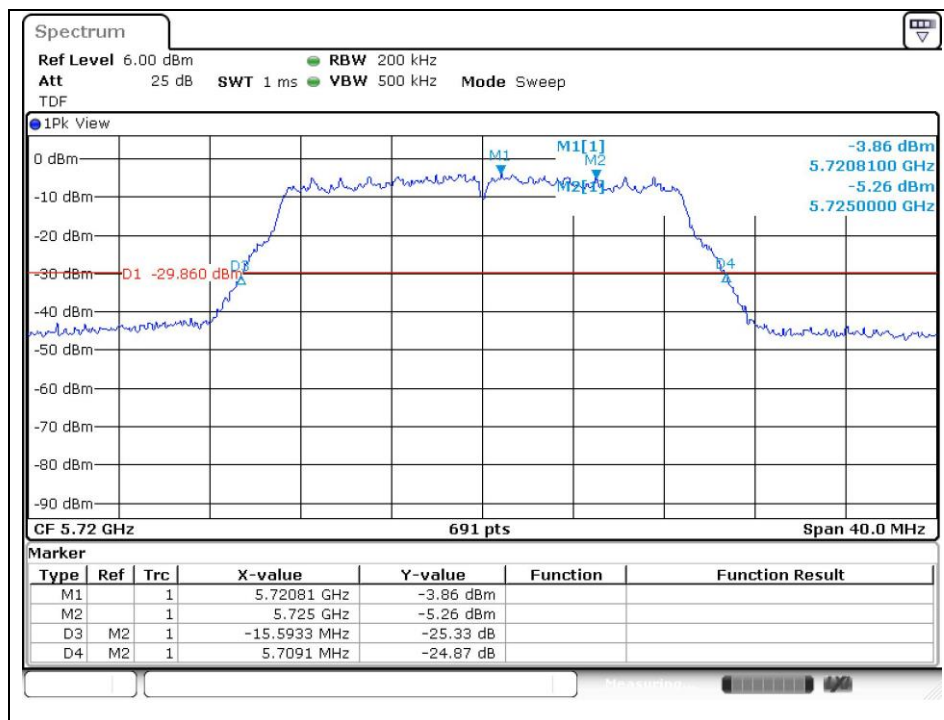
A4(210 mm x 297 mm)

Band-crossing channels

802.11a (5 720 MHz)



802.11ac_VHT20 (5 720 MHz)



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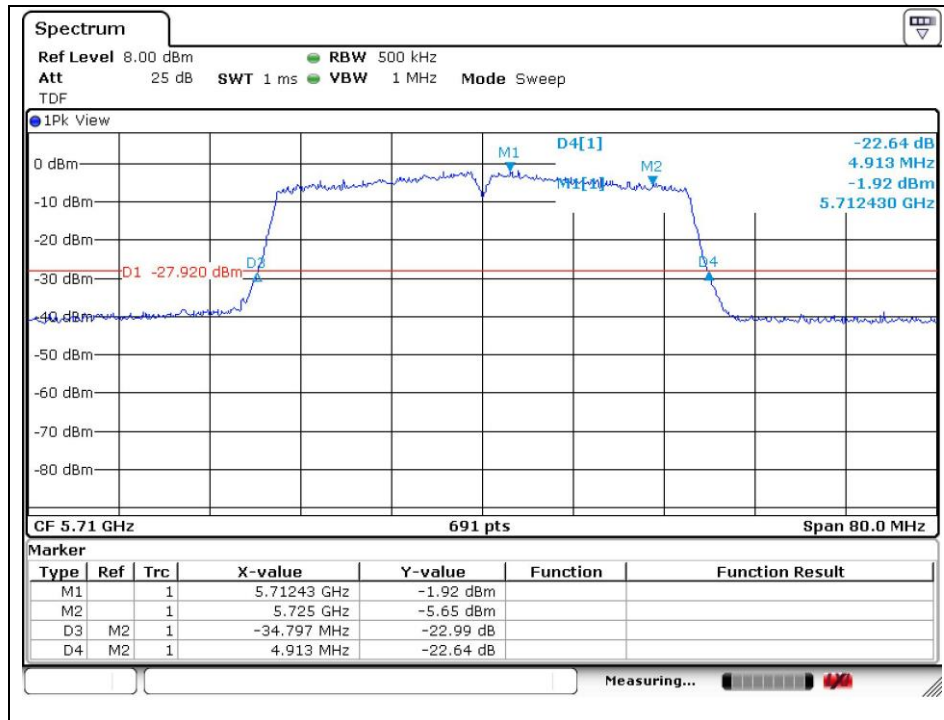
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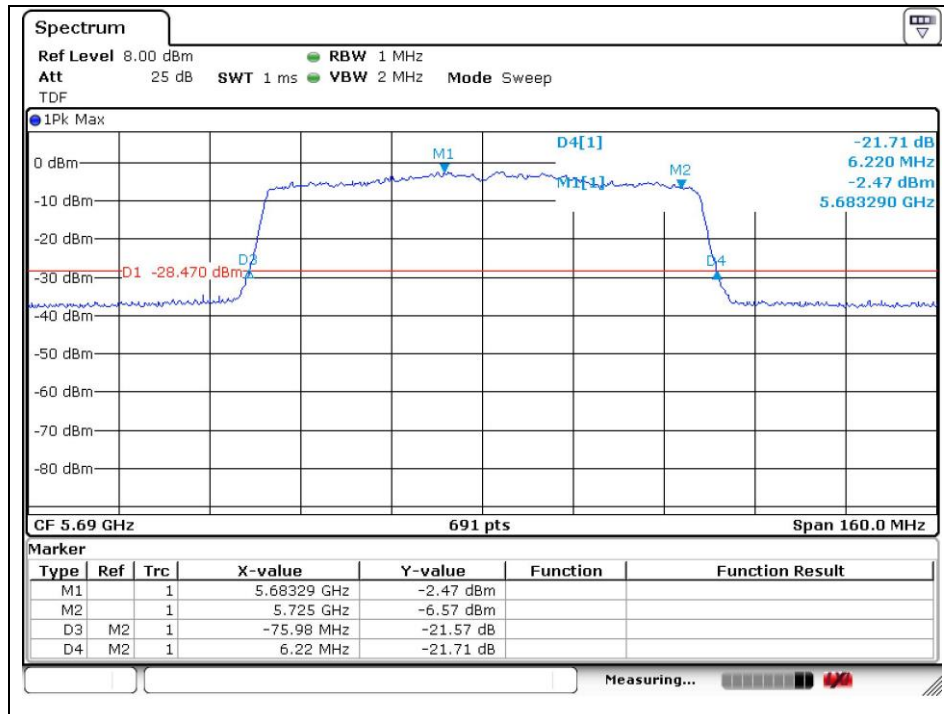
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A4(210 mm x 297 mm)

802.11ac_VHT40 (5 710 MHz)



802.11ac_VHT80 (5 690 MHz)



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