# 7.4PEAK POWER SPECTRAL DENSITY

## LIMIT

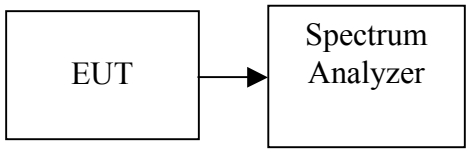
According to §15.407(a),

(1) For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4dBm in any 1MHz band.

(2) For the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11dBm in any 1MHz band.

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

**Test Configuration**




## TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
   Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 1MHz, VBW = 3MHz, Span = Sweep= AUTO
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed

## TEST RESULTS

*No non-compliance noted*

## Test Data

### Test mode: IEEE 802.11a mode / 5180 ~ 5240MHz

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|
| Low | 5180 | 2.369 | 4.00 | -1.631 | PASS |
| Mid | 5220 | 3.374 | 4.00 | -0.626 | PASS |
| High | 5240 | 3.549 | 4.00 | -0.451 | PASS |

### Test mode: draft 802.11n Standard-20 MHz Channel mode / 5180 ~ 5240MHz

| Channel | Frequency (MHz) | Chain 0 PPSD (dBm) | Chain 1 PPSD (dBm) | Chain 2 PPSD (dBm) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|---|---|---|
| Low | 5180 | -2.486 | -2.698 | -1.810 | 2.46 | 4.00 | -1.54 | PASS |
| Mid | 5220 | -2.292 | -1.968 | -2.452 | 2.54 | 4.00 | -1.46 | PASS |
| High | 5240 | -1.444 | -1.549 | -1.200 | 3.38 | 4.00 | -0.62 | PASS |

### Test mode: draft 802.11n Wide-40 MHz Channel mode / 5190 ~ 5230MHz

| Channel | Frequency (MHz) | Chain 0 PPSD (dBm) | Chain 1 PPSD (dBm) | Chain 2 PPSD (dBm) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|---|---|---|
| Low | 5190 | -2.888 | -2.399 | -0.308 | 3.06 | 4.00 | -0.94 | PASS |
| High | 5230 | -3.698 | -2.385 | -2.132 | 2.09 | 4.00 | -1.91 | PASS |

### Test mode: draft 802.11n Standard-20 MHz Channel mode / 5180 ~ 5240MHz with combiner

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|
| Low | 5180 | 3.562 | 4.00 | -0.438 | PASS |
| Mid | 5220 | 3.031 | 4.00 | -0.969 | PASS |
| High | 5240 | 2.616 | 4.00 | -1.384 | PASS |

### Test mode: draft 802.11n Wide-40 MHz Channel mode / 5190 ~ 5230MHz with combiner

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|
| Low | 5190 | 2.353 | 4.00 | -1.647 | PASS |
| High | 5230 | 3.401 | 4.00 | -0.599 | PASS |

***Remark:*** *Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10)+10^(Chain 1 PPSD /10)+10^(Chain 2 PPSD /10))*

**Test mode: IEEE 802.11a mode/ 5260 ~ 5320MHz**

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|
| Low | 5260 | 4.920 | 11.00 | -6.080 | PASS |
| Mid | 5280 | 5.189 | 11.00 | -5.811 | PASS |
| High | 5320 | 10.201 | 11.00 | -0.799 | PASS |

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5260 ~ 5320MHz**

| Channel | Frequency (MHz) | Chain 0 PPSD (dBm) | Chain 1 PPSD (dBm) | Chain 2 PPSD (dBm) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|---|---|---|
| Low | 5260 | 2.666 | 3.168 | 5.435 | 8.70 | 11.00 | -2.30 | PASS |
| Mid | 5280 | 2.837 | 2.291 | 5.71 | 8.66 | 11.00 | -2.34 | PASS |
| High | 5320 | 9.917 | -2.109 | 0.755 | 10.65 | 11.00 | -0.35 | PASS |

**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5270 ~ 5310MHz**

| Channel | Frequency (MHz) | Chain 0 PPSD (dBm) | Chain 1 PPSD (dBm) | Chain 2 PPSD (dBm) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|---|---|---|
| Low | 5270 | 0.28 | -1.889 | 0.47 | 4.52 | 11.00 | -6.48 | PASS |
| High | 5310 | -6.104 | -5.87 | -0.725 | 1.30 | 11.00 | -9.70 | PASS |

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5260 ~ 5320MHz MHz with combiner**

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|
| Low | 5260 | 9.968 | 11.00 | -1.032 | PASS |
| Mid | 5280 | 8.943 | 11.00 | -2.057 | PASS |
| High | 5320 | 5.559 | 11.00 | -5.441 | PASS |

**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5270 ~ 5310MHz with combiner**

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|
| Low | 5270 | 5.677 | 11.00 | -5.323 | PASS |
| High | 5310 | 9.562 | 11.00 | -1.438 | PASS |

***Remark:*** *Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10)+10^(Chain 1 PPSD /10)+10^(Chain 2 PPSD /10))*

**Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz**

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|
| Low | 5500 | 5.146 | 11.00 | -5.854 | PASS |
| Mid | 5600 | 5.967 | 11.00 | -5.033 | PASS |
| High | 5700 | 4.967 | 11.00 | -6.033 | PASS |

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5500 ~ 5700MHz**

| Channel | Frequency (MHz) | Chain 0 PPSD (dBm) | Chain 1 PPSD (dBm) | Chain 2 PPSD (dBm) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|---|---|---|
| Low | 5500 | 0.474 | 0.419 | 1.042 | 5.43 | 11.00 | -5.57 | PASS |
| Mid | 5600 | 2.645 | 1.463 | 1.792 | 6.77 | 11.00 | -4.23 | PASS |
| High | 5700 | 3.918 | 3.974 | 4.180 | 8.80 | 11.00 | -2.20 | PASS |

**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5510 ~ 5670MHz**

| Channel | Frequency (MHz) | Chain 0 PPSD (dBm) | Chain 1 PPSD (dBm) | Chain 2 PPSD (dBm) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|---|---|---|
| Low | 5510 | 4.395 | 5.082 | 5.629 | 9.84 | 11.00 | -1.16 | PASS |
| Mid | 5590 | -0.885 | -1.056 | -0.290 | 4.04 | 11.00 | -6.96 | PASS |
| High | 5670 | 1.478 | -0.298 | 0.562 | 5.41 | 11.00 | -5.59 | PASS |

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5500 ~ 5700MHz MHz with combiner**

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|
| Low | 5500 | 3.893 | 11.00 | -7.107 | PASS |
| Mid | 5600 | 6.544 | 11.00 | -4.456 | PASS |
| High | 5700 | 8.030 | 11.00 | -2.970 | PASS |

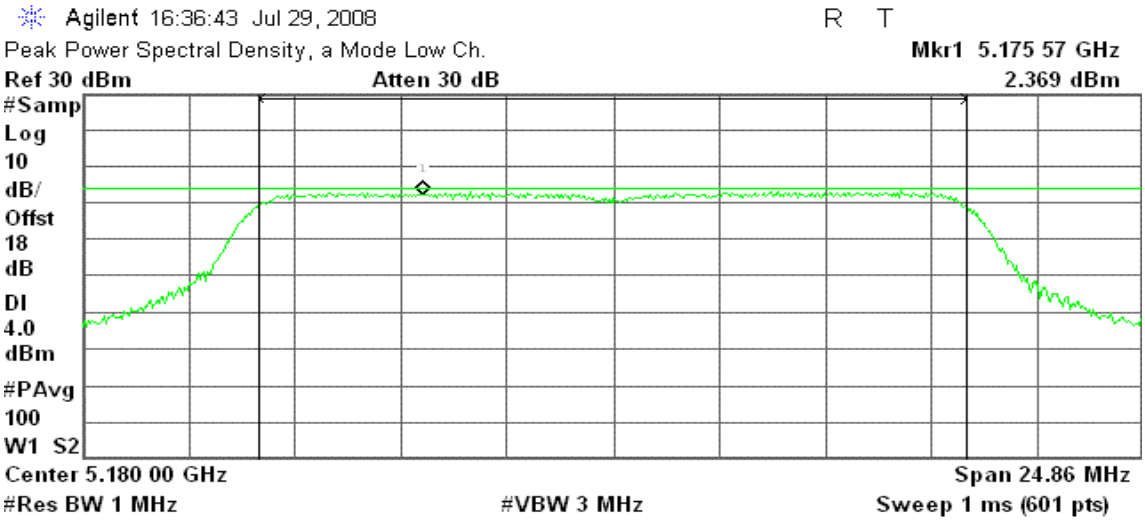
**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5510 ~ 5670MHz with combiner**

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Margin | Result |
|---|---|---|---|---|---|
| Low | 5510 | 0.72 | 11.00 | -10.28 | PASS |
| Mid | 5590 | 4.776 | 11.00 | -6.224 | PASS |
| High | 5670 | 5.086 | 11.00 | -5.914 | PASS |

***Remark:*** *Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10)+10^(Chain 1 PPSD /10)+10^(Chain 2 PPSD /10))*

## Test Plot
## IEEE 802.11a mode / 5180 ~ 5240MHz

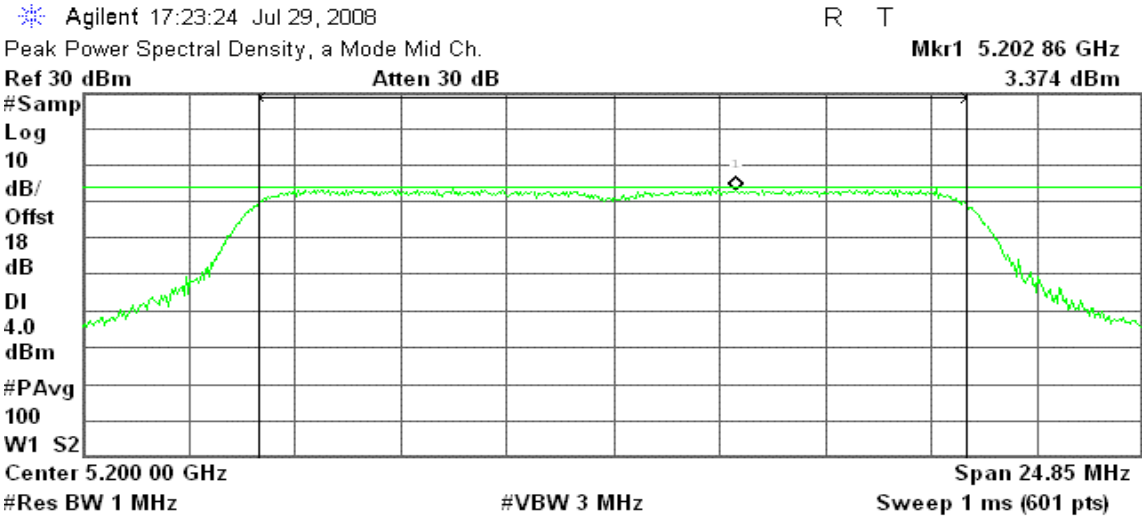
### CH Low




Channel Power
14.07 dBm / 16.5740 MHz

Power Spectral Density
-58.13 dBm/Hz

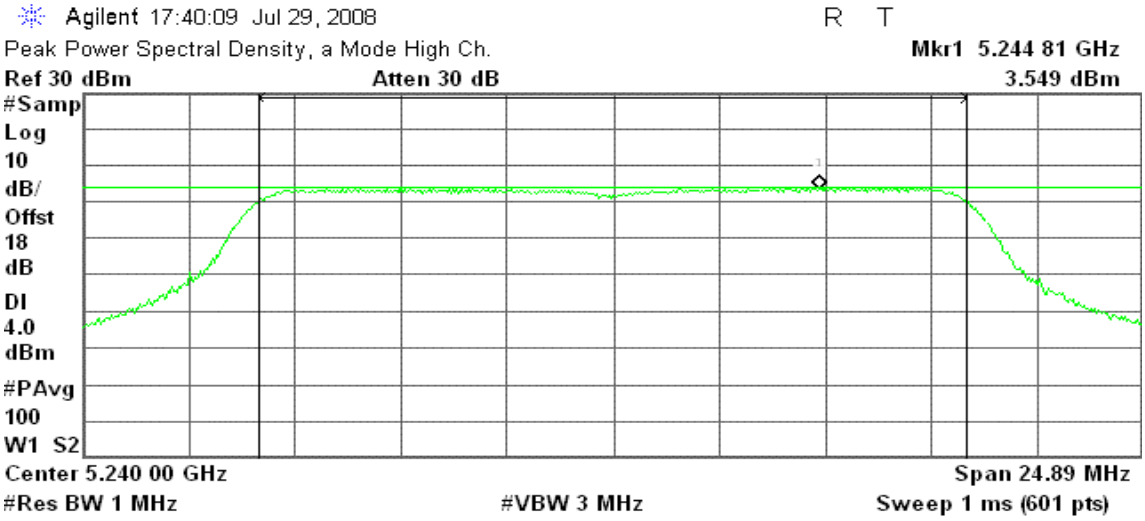
### CH Mid




Channel Power
14.44 dBm / 16.5690 MHz

Power Spectral Density
-57.76 dBm/Hz

**CH High**

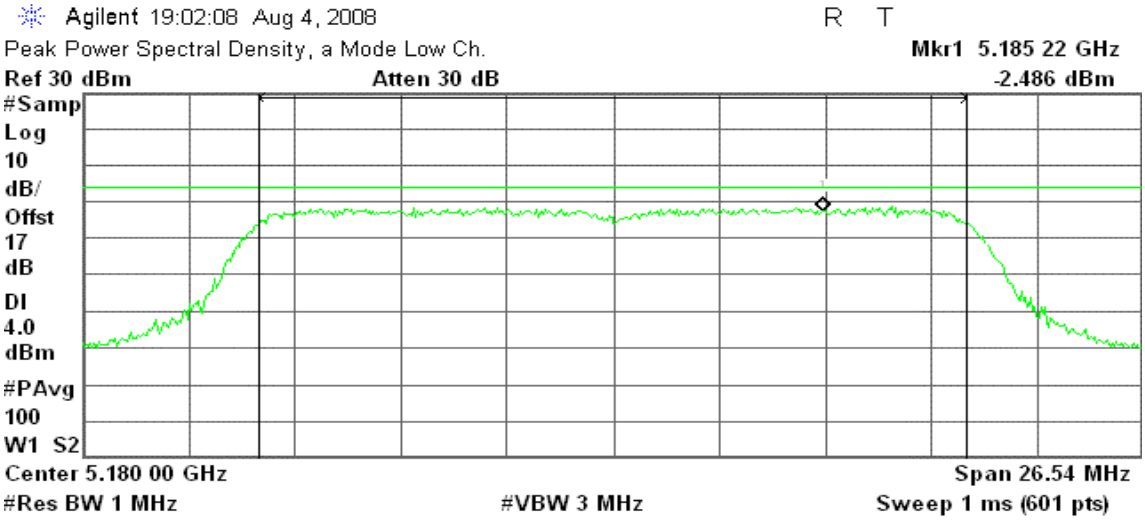



Channel Power
14.95 dBm / 16.5903 MHz

Power Spectral Density
-57.24 dBm/Hz

**draft 802.11n Standard-20 MHz Channel mode / 5180 ~ 5240MHz / Chain 0**

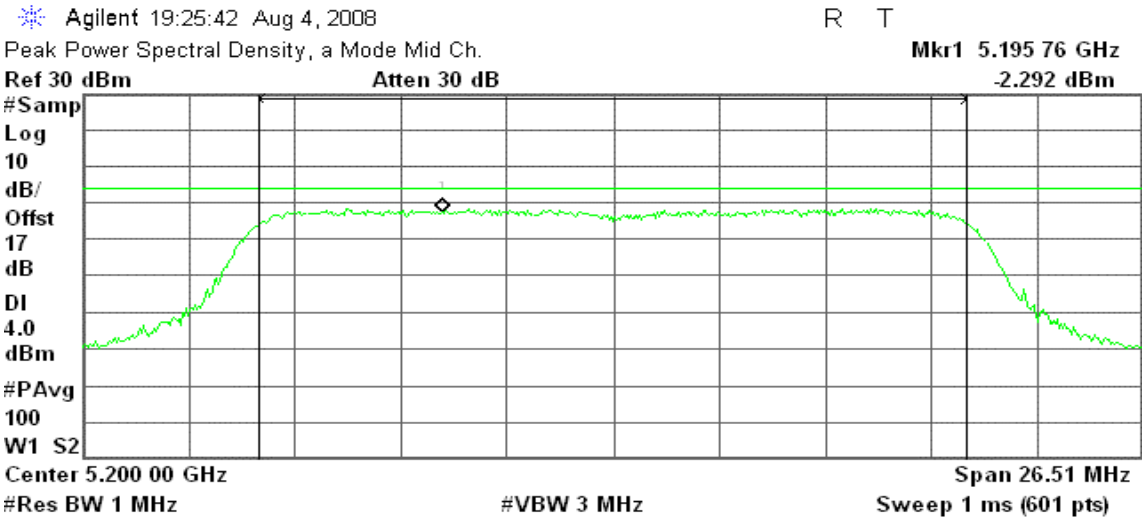
**CH Low**




Channel Power
9.51 dBm / 17.6924 MHz

Power Spectral Density
-62.96 dBm/Hz

## CH Mid



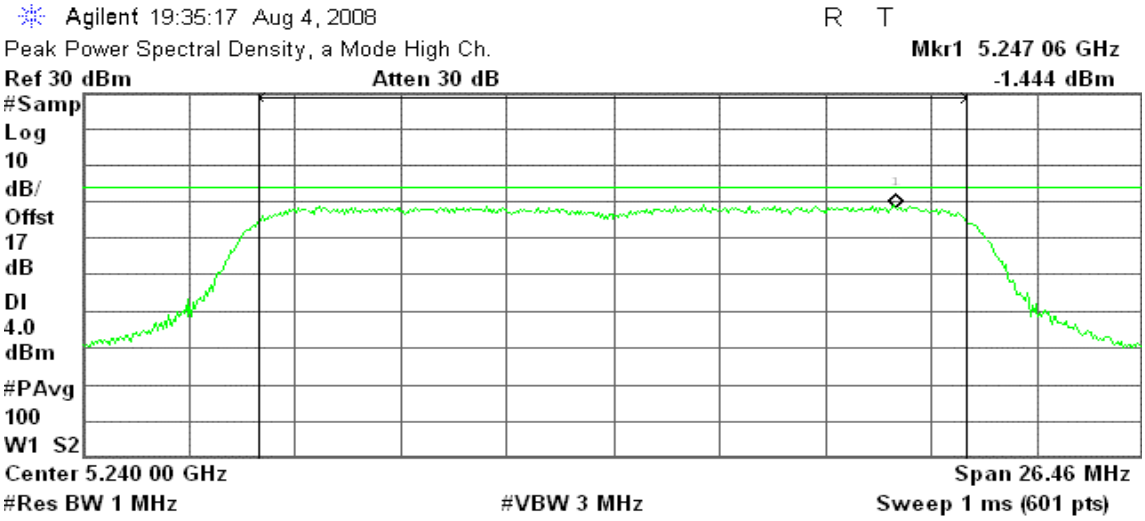

Channel Power

9.13 dBm / 17.6713 MHz

Power Spectral Density

-63.34 dBm/Hz

## CH High




Channel Power

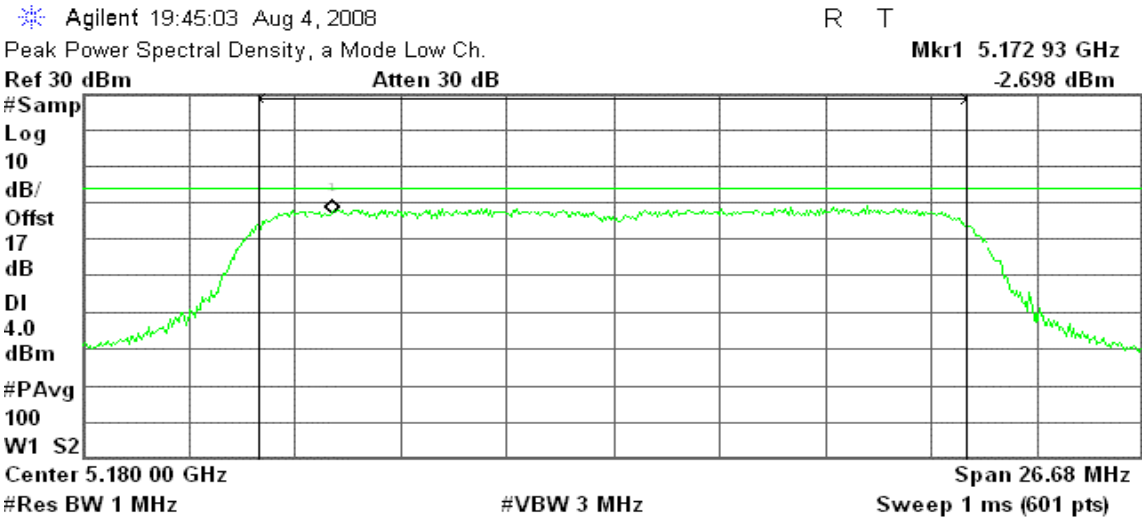
9.95 dBm / 17.6432 MHz

Power Spectral Density

-62.52 dBm/Hz

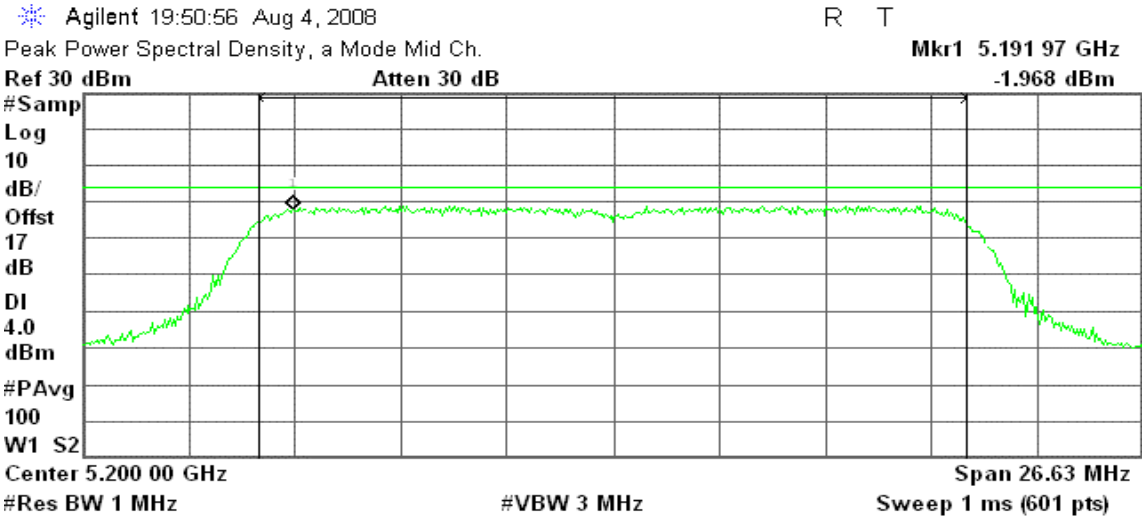
## draft 802.11n Standard-20 MHz Channel mode / 5180 ~ 5240MHz / Chain 1

### CH Low



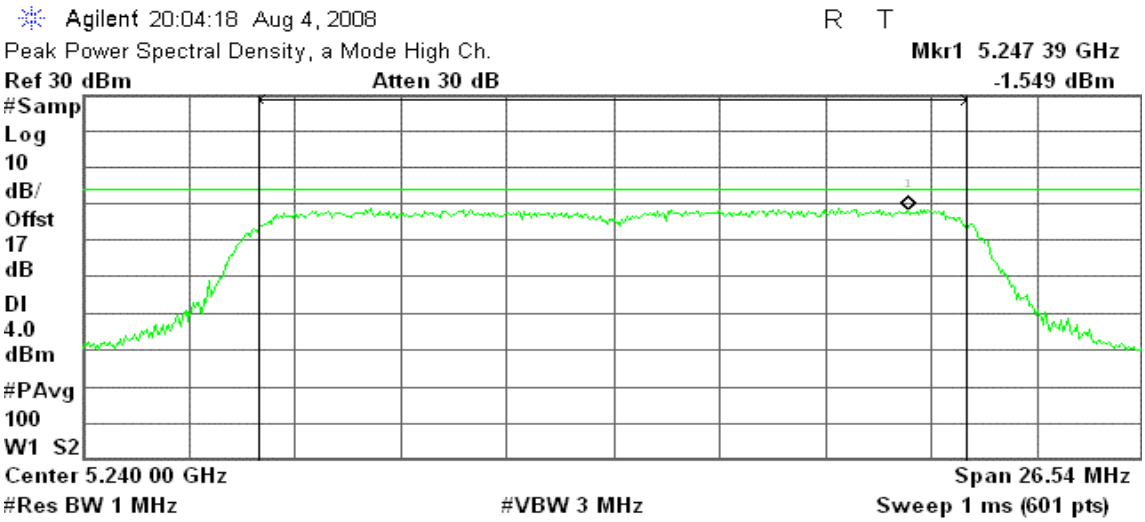

| Channel Power | Power Spectral Density |
|---|---|
| 9.34 dBm / 17.7865 MHz | -63.16 dBm/Hz |

### CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 9.88 dBm / 17.7565 MHz | -62.61 dBm/Hz |

## CH High

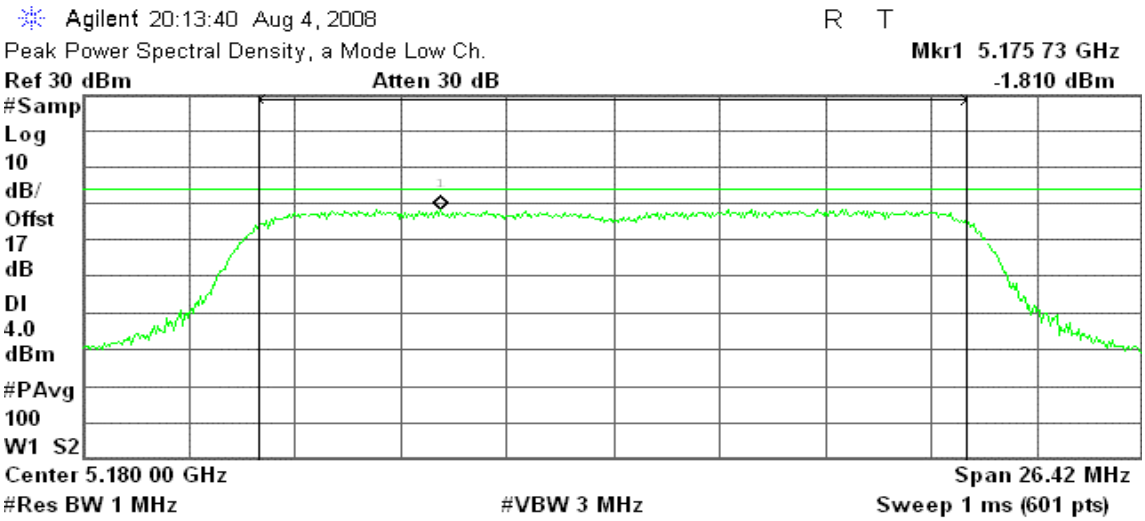



Channel Power
9.71 dBm / 17.6950 MHz

Power Spectral Density
-62.76 dBm/Hz

## draft 802.11n Standard-20 MHz Channel mode / 5180 ~ 5240MHz / Chain 2

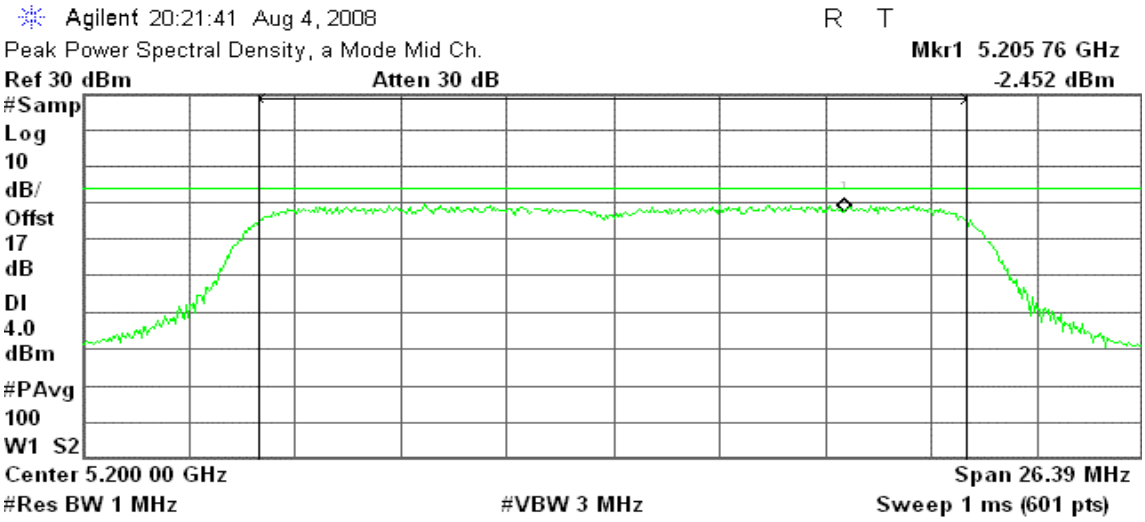
## CH Low




Channel Power
9.21 dBm / 17.6106 MHz

Power Spectral Density
-63.25 dBm/Hz

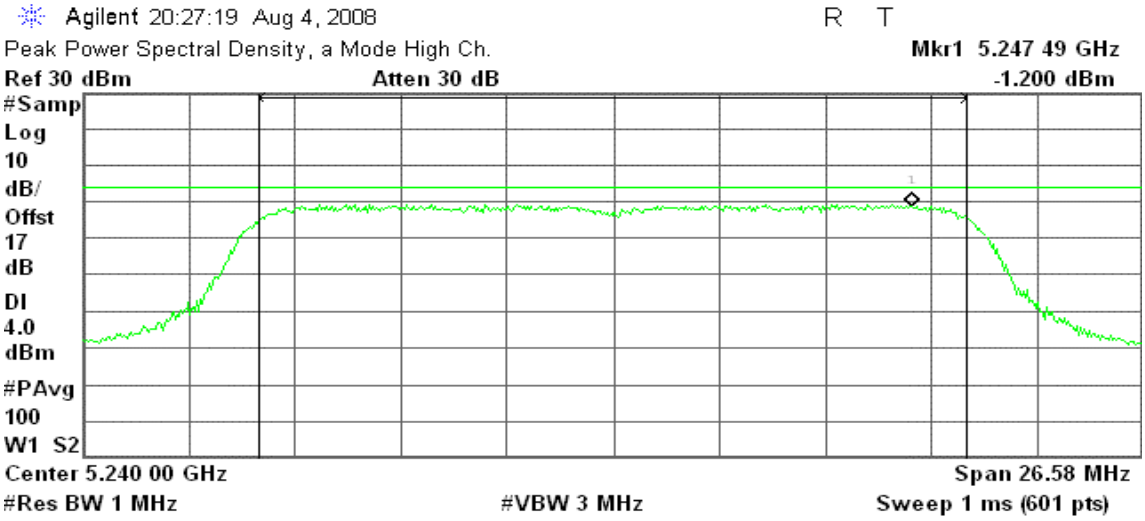
## CH Mid




Channel Power
10.41 dBm / 17.5928 MHz

Power Spectral Density
-62.04 dBm/Hz

## CH High

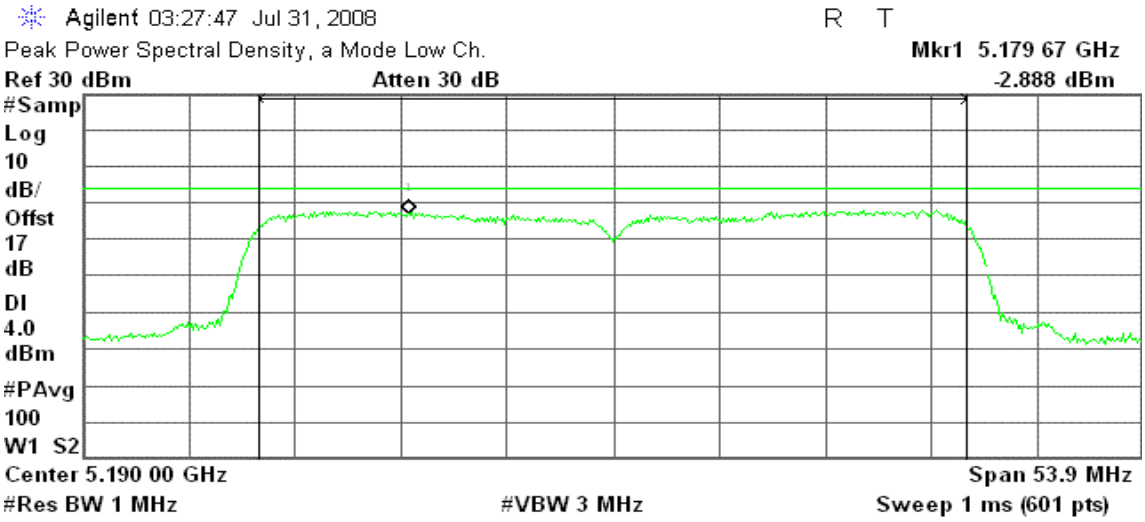



Channel Power
10.85 dBm / 17.7226 MHz

Power Spectral Density
-61.63 dBm/Hz

## draft 802.11n Wide-40 MHz Channel mode / 5190 ~ 5230MHz / Chain 0

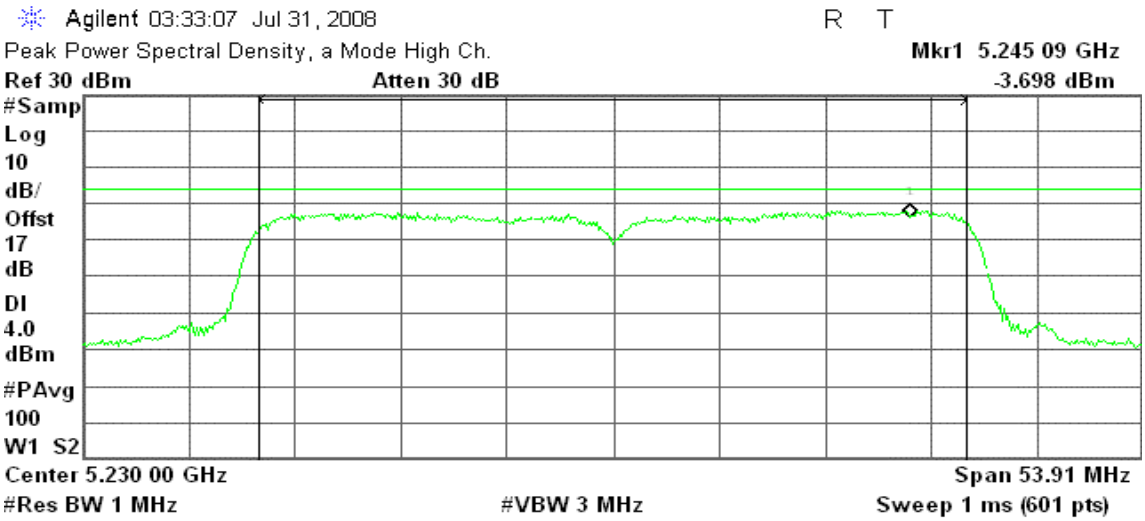
### CH Low




Channel Power
11.95 dBm / 35.9354 MHz

Power Spectral Density
-63.61 dBm/Hz

### CH High

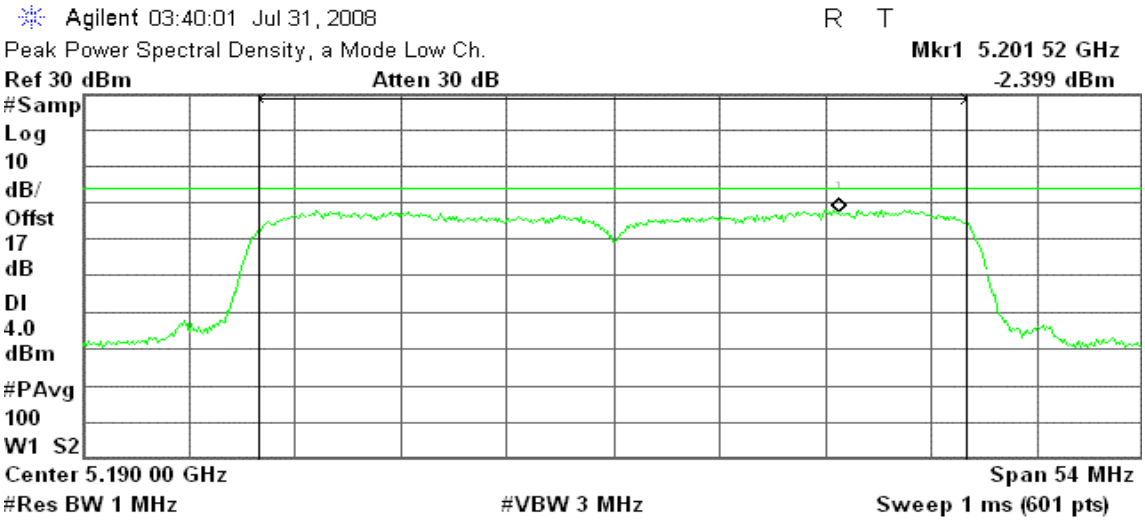



Channel Power
11.27 dBm / 35.9374 MHz

Power Spectral Density
-64.29 dBm/Hz

## draft 802.11n Wide-40 MHz Channel mode / 5190 ~ 5230MHz / Chain 1

### CH Low



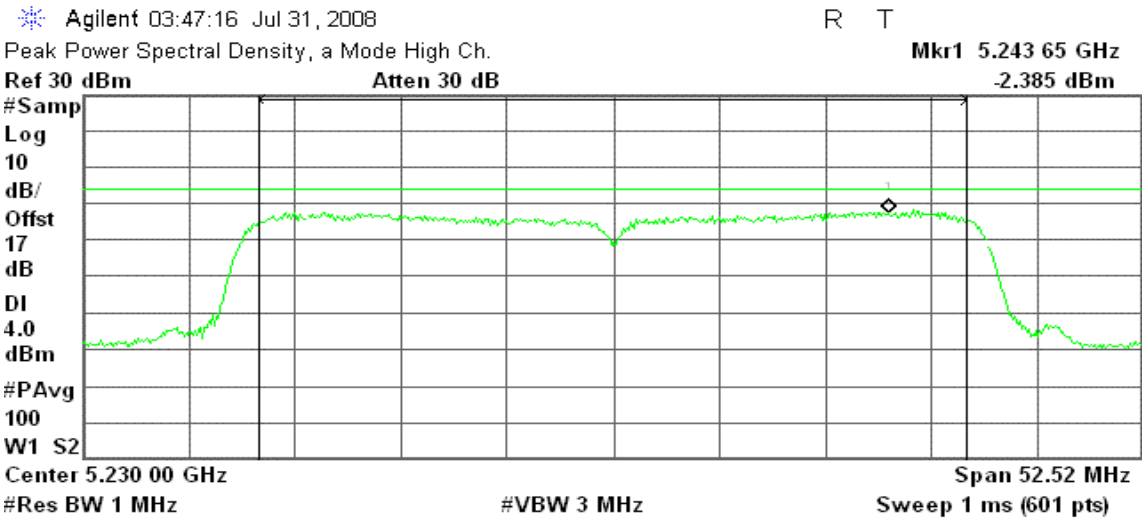

Channel Power

11.80 dBm / 35.9990 MHz

Power Spectral Density

-63.77 dBm/Hz

### CH High




Channel Power

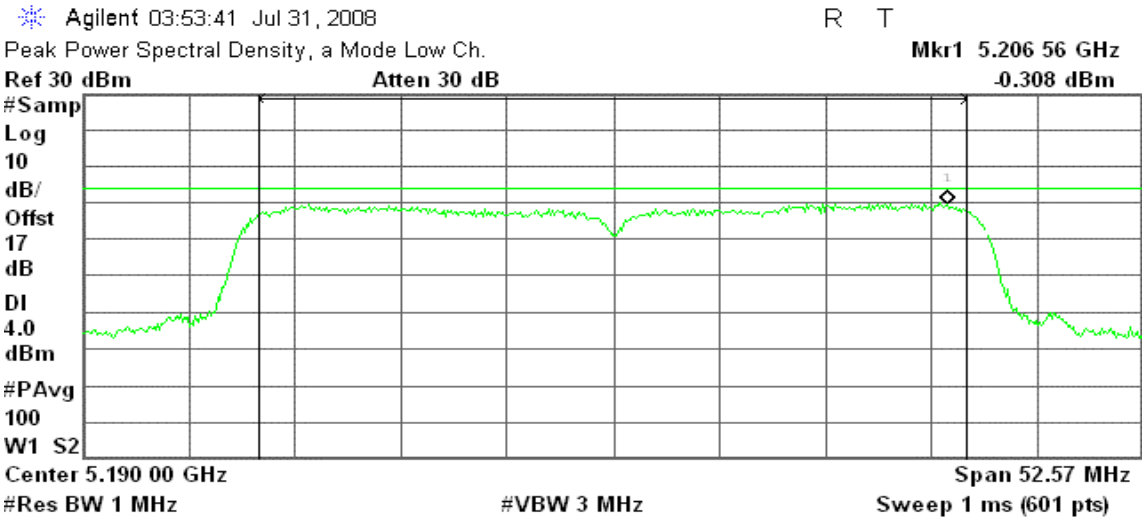
11.29 dBm / 35.0117 MHz

Power Spectral Density

-64.16 dBm/Hz

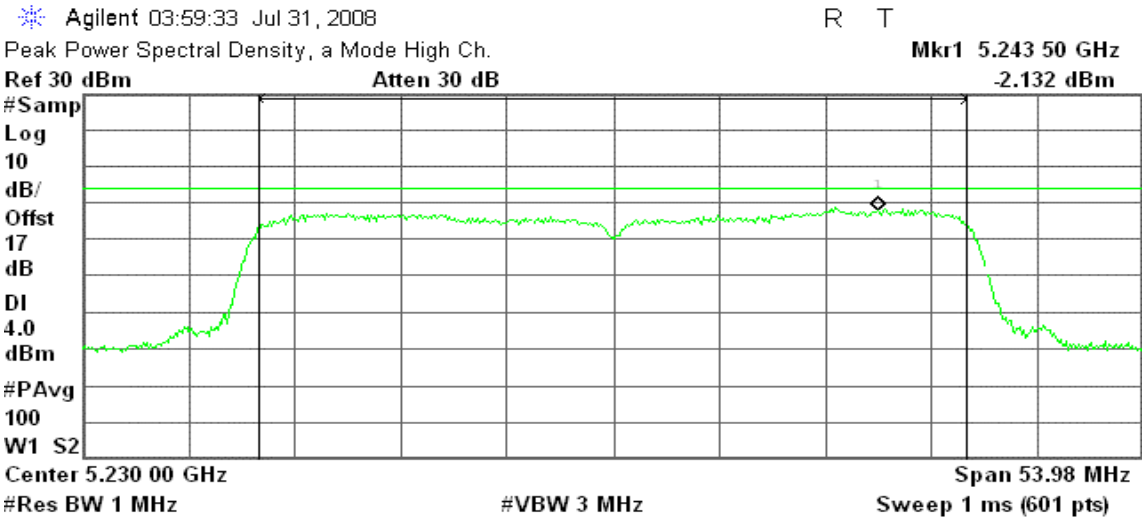
## draft 802.11n Wide-40 MHz Channel mode / 5190 ~ 5230MHz / Chain 2

### CH Low




| Channel Power | Power Spectral Density |
|---|---|
| 12.31 dBm / 35.0464 MHz | -62.13 dBm/Hz |

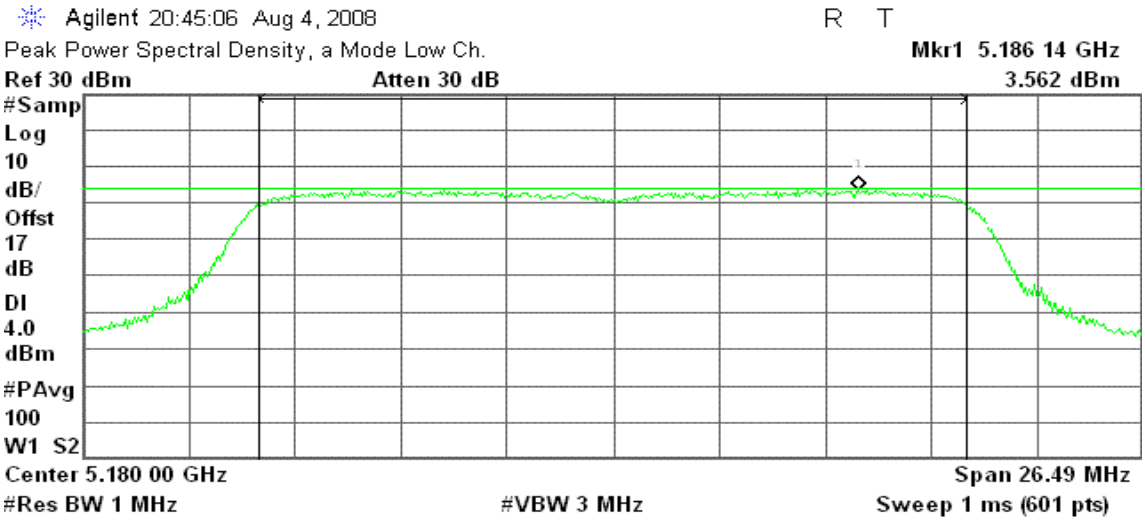
### CH High




| Channel Power | Power Spectral Density |
|---|---|
| 11.40 dBm / 35.9880 MHz | -64.16 dBm/Hz |

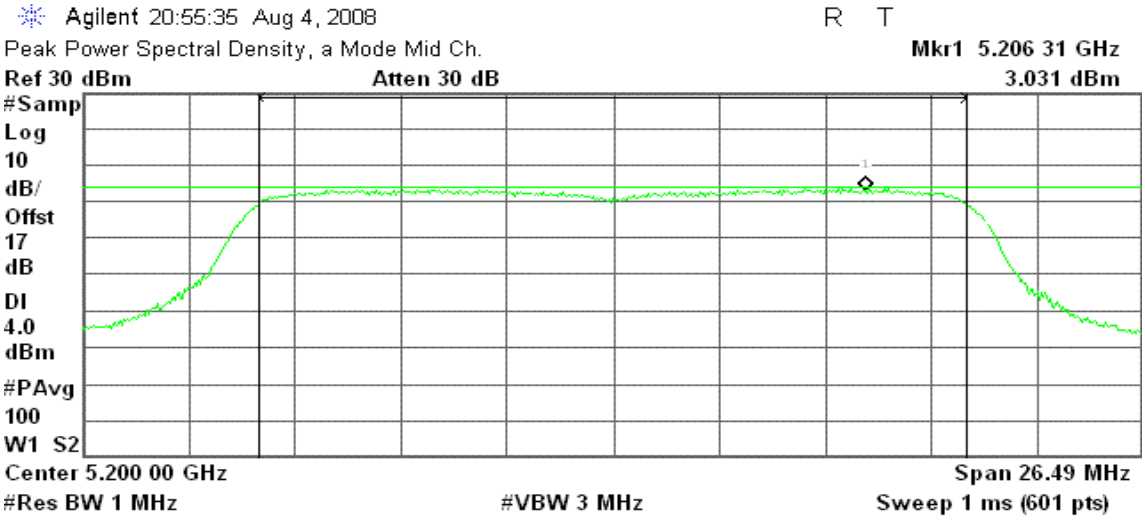
**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5180 ~ 5240MHz with combiner:**

**CH Low**



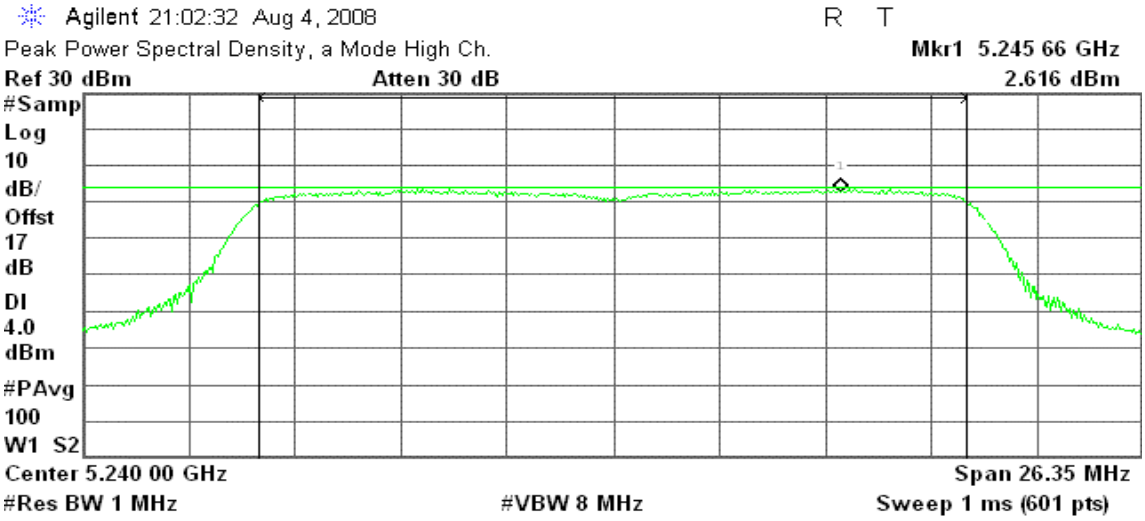

| Channel Power | Power Spectral Density |
|---|---|
| 14.26 dBm / 17.6569 MHz | -58.21 dBm/Hz |

**CH Mid**




| Channel Power | Power Spectral Density |
|---|---|
| 14.75 dBm / 17.6584 MHz | -57.72 dBm/Hz |

**CH High**

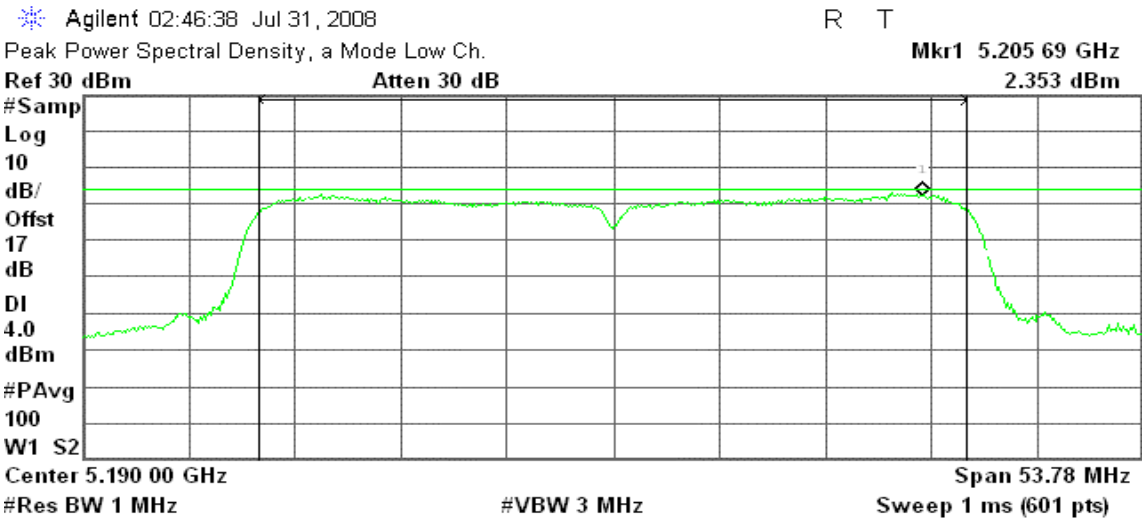



Channel Power
14.34 dBm / 17.5650 MHz

Power Spectral Density
-58.10 dBm/Hz

**<u>Test mode: draft 802.11n Wide-40 MHz Channel mode / 5190 ~ 5230MHz with combiner:</u>**

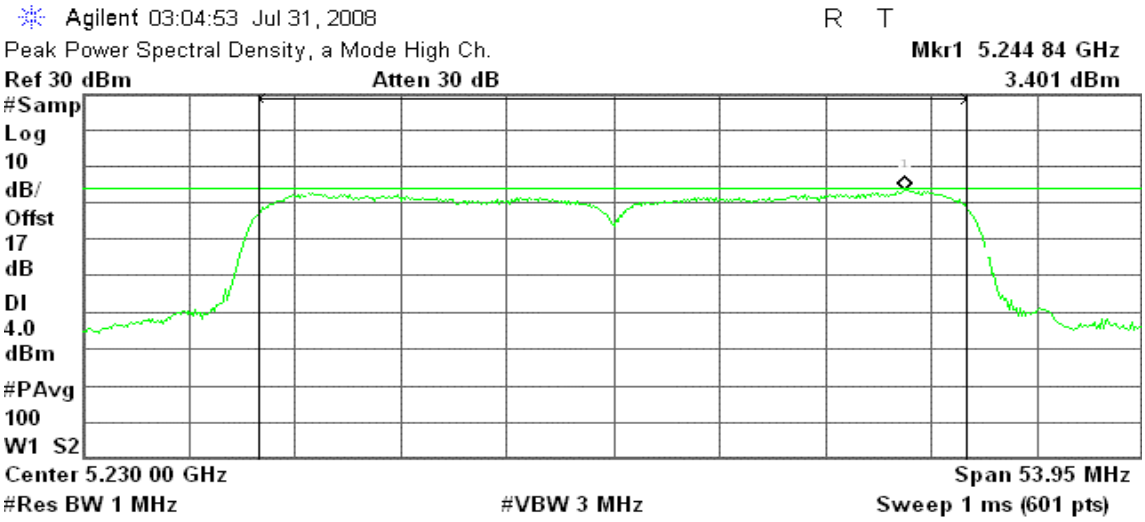
**CH Low**




Channel Power
16.32 dBm / 35.8550 MHz

Power Spectral Density
-59.22 dBm/Hz

## CH High




Channel Power

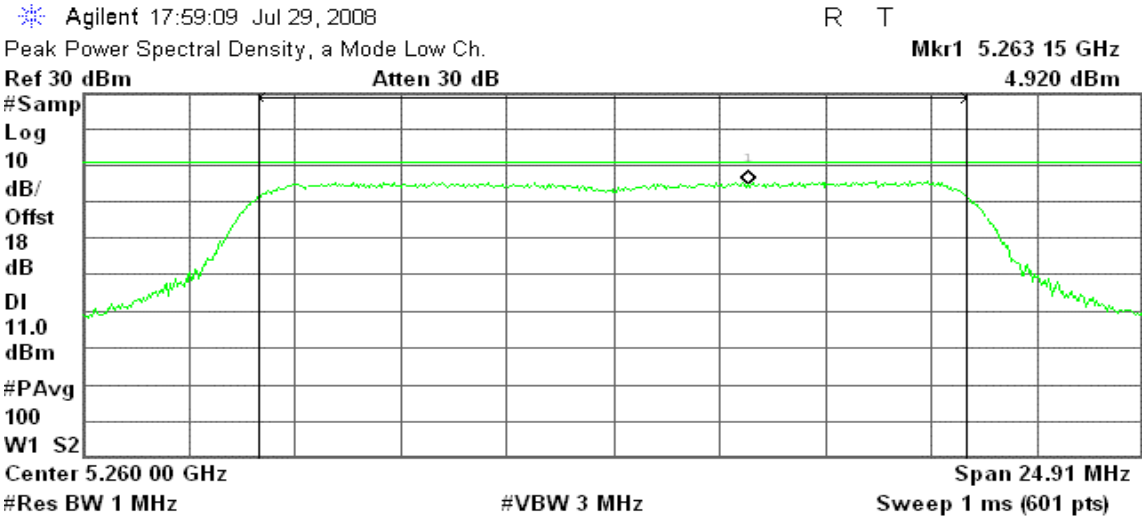
16.10 dBm / 35.9690 MHz

Power Spectral Density

-59.46 dBm/Hz

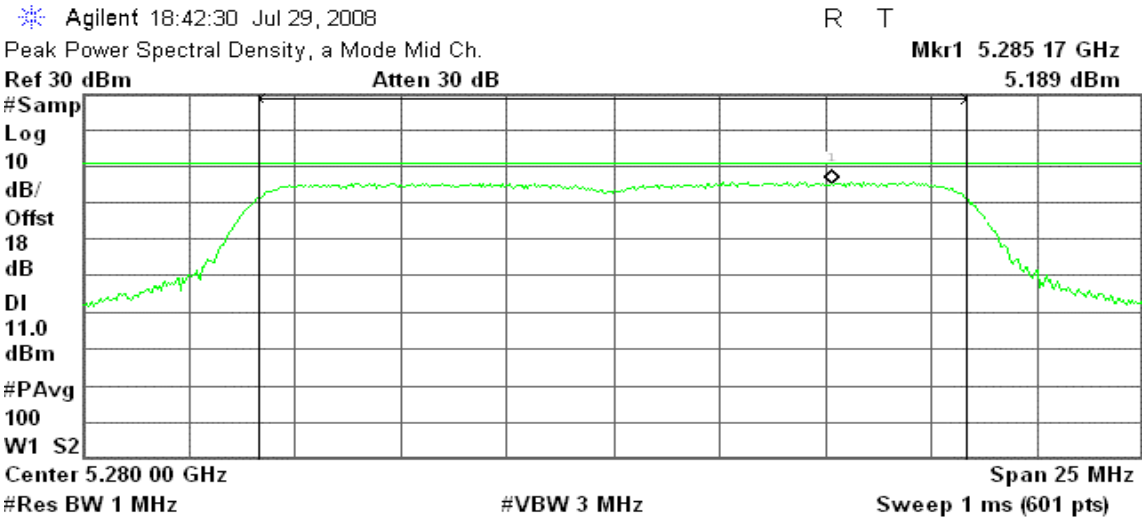
## IEEE 802.11a mode / 5260 ~ 5320MHz

### CH Low



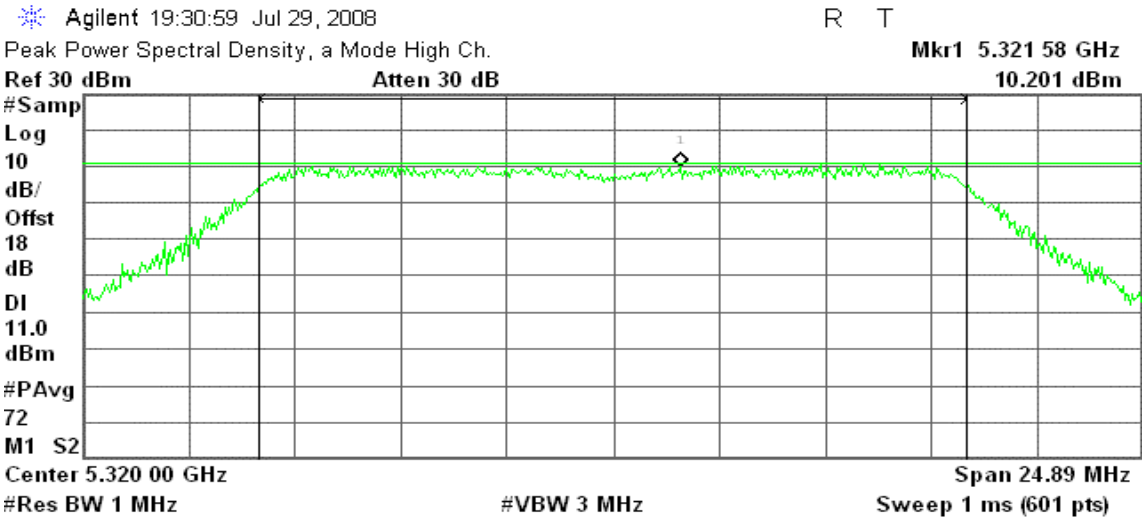

| Channel Power | Power Spectral Density |
|---|---|
| 16.71 dBm / 16.6050 MHz | -55.50 dBm/Hz |

### CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 16.62 dBm / 16.6690 MHz | -55.60 dBm/Hz |

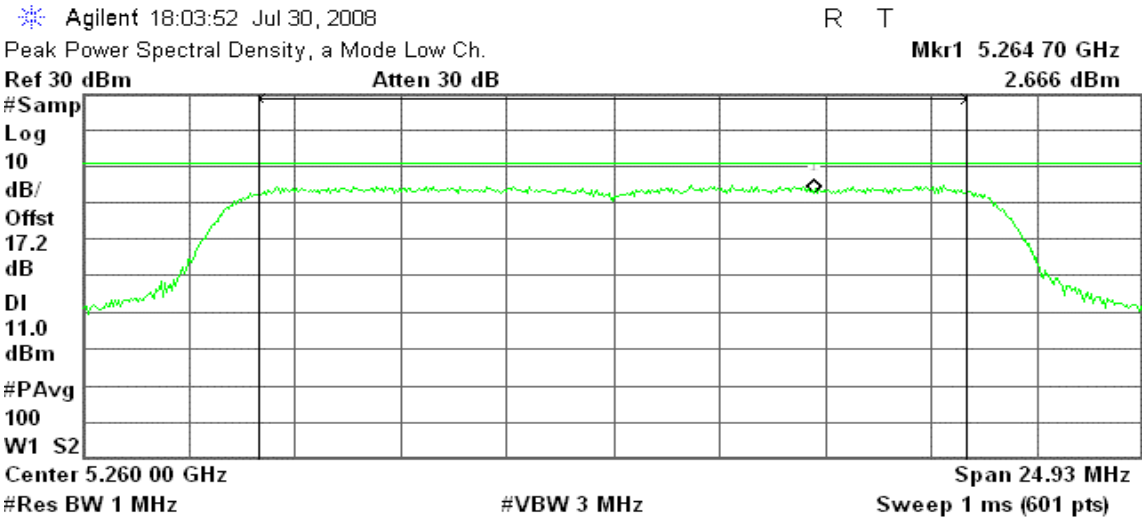
**CH High**




| Channel Power | Power Spectral Density |
|---|---|
| 14.11 dBm / 16.5910 MHz | -58.09 dBm/Hz |

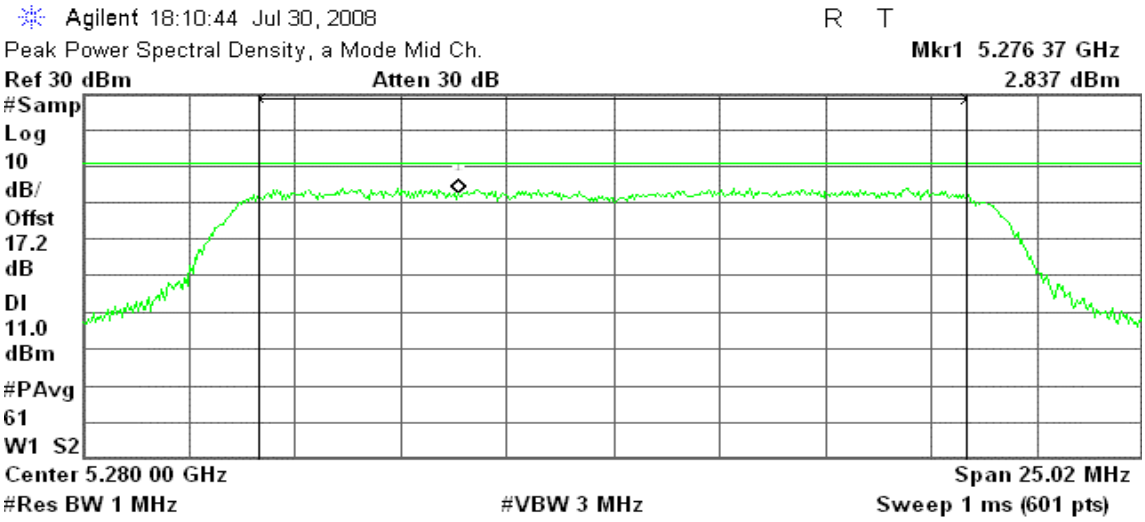
**draft 802.11n Standard-20 MHz Channel mode / 5260 ~ 5320MHz / Chain 0**

**CH Low**



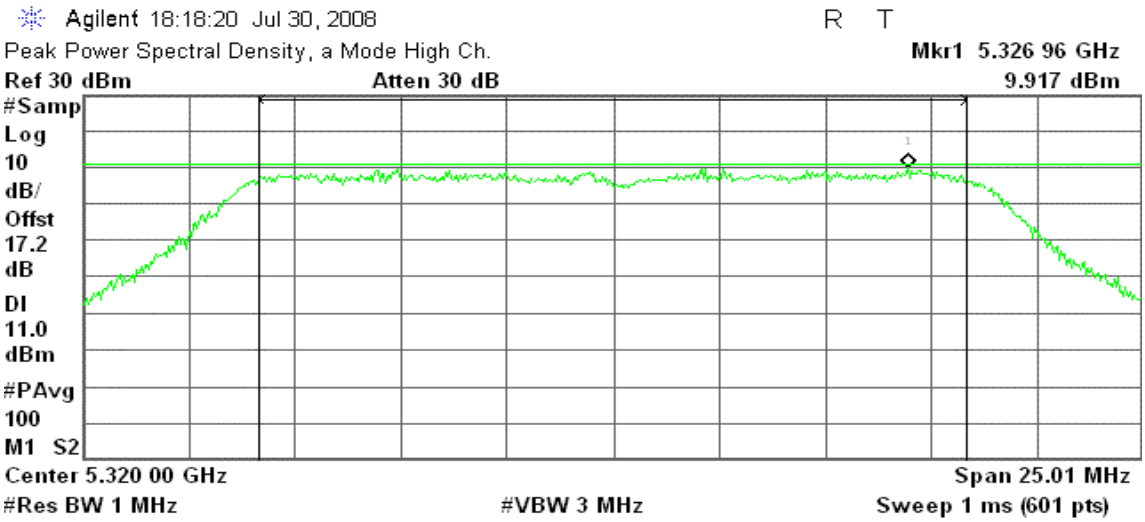

| Channel Power | Power Spectral Density |
|---|---|
| 15.63 dBm / 16.6212 MHz | -56.57 dBm/Hz |

## CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 14.50 dBm / 16.6790 MHz | -57.72 dBm/Hz |

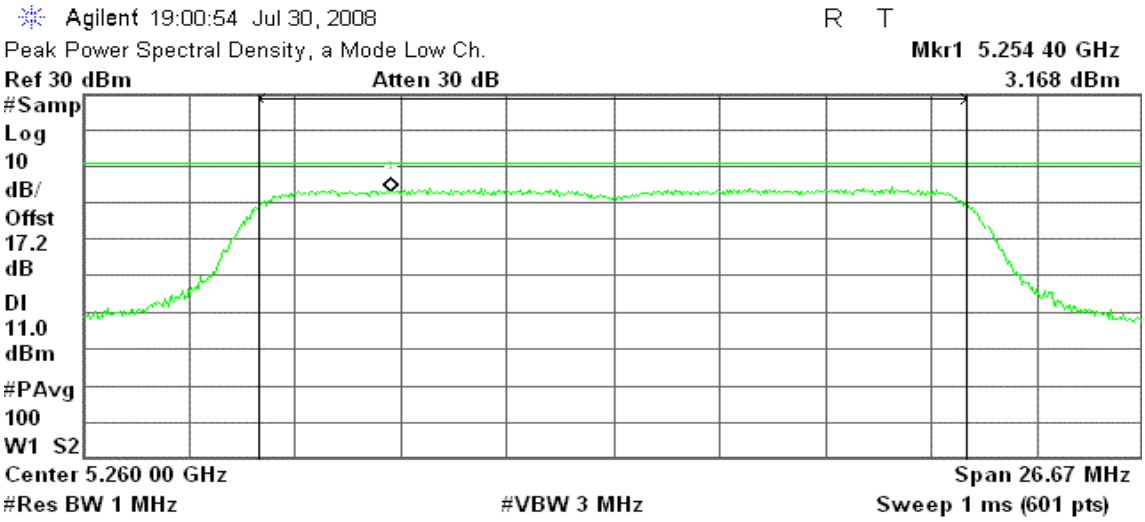
## CH High




| Channel Power | Power Spectral Density |
|---|---|
| 11.51 dBm / 16.6707 MHz | -60.71 dBm/Hz |

## draft 802.11n Standard-20 MHz Channel mode / 5260 ~ 5320MHz / Chain 1

### CH Low



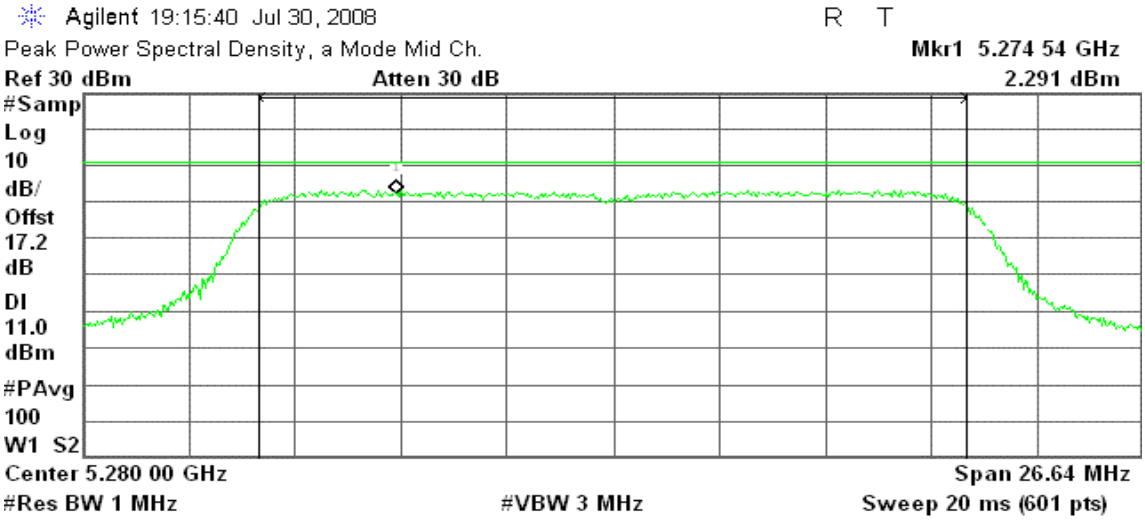

Channel Power

15.40 dBm / 17.7820 MHz

Power Spectral Density

-57.10 dBm/Hz

### CH Mid



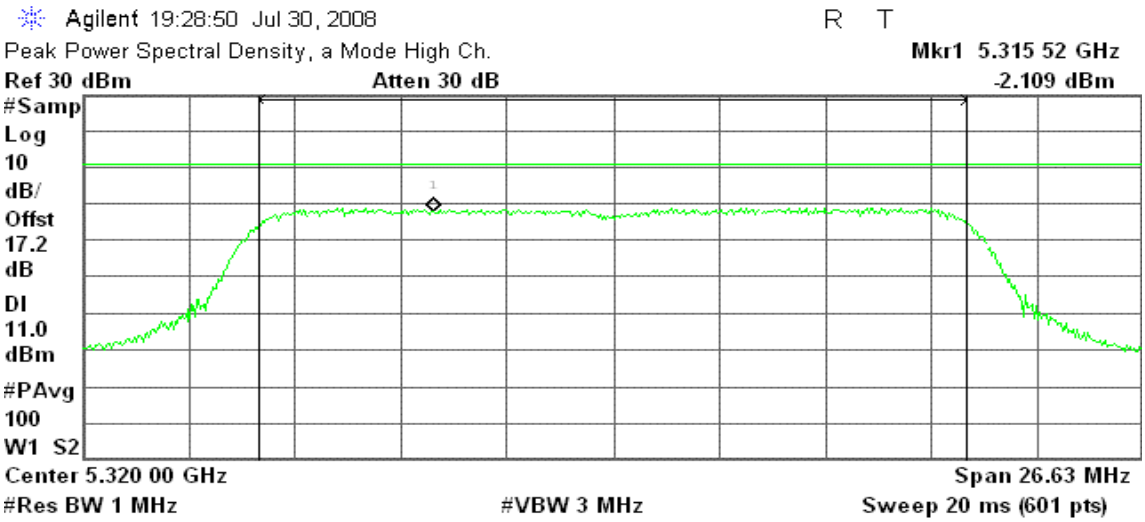

Channel Power

14.82 dBm / 17.7600 MHz

Power Spectral Density

-57.68 dBm/Hz

### CH High

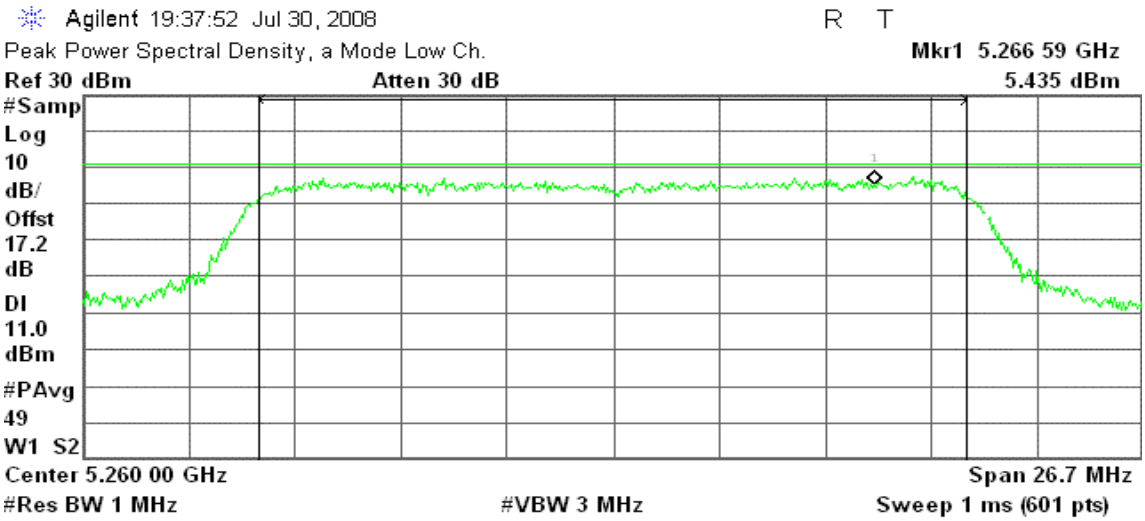



Channel Power
10.15 dBm / 17.7520 MHz

Power Spectral Density
-62.34 dBm/Hz

**draft 802.11n Standard-20 MHz Channel mode / 5260 ~ 5320MHz / Chain 2**

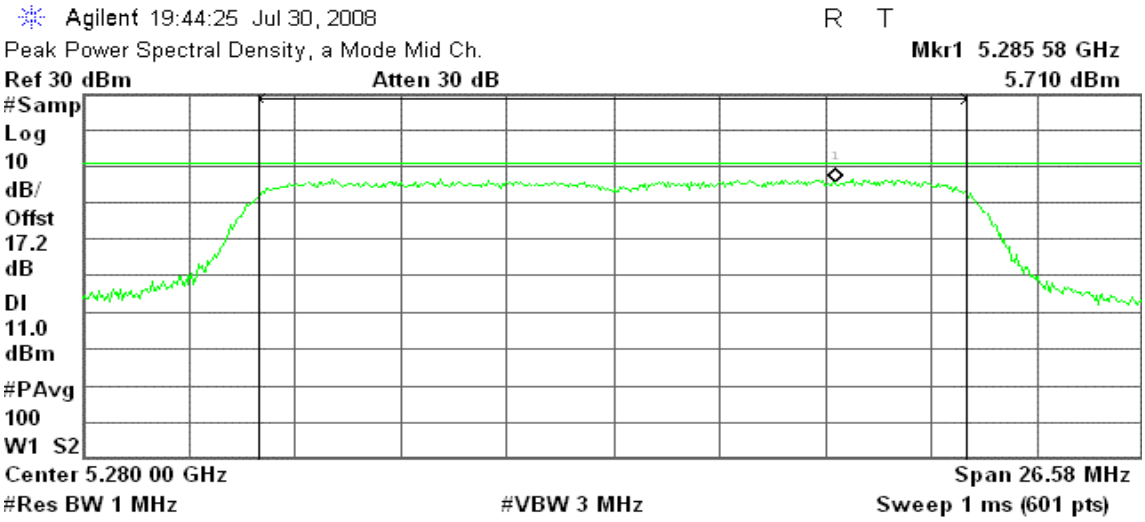
### CH Low




Channel Power
16.87 dBm / 17.8030 MHz

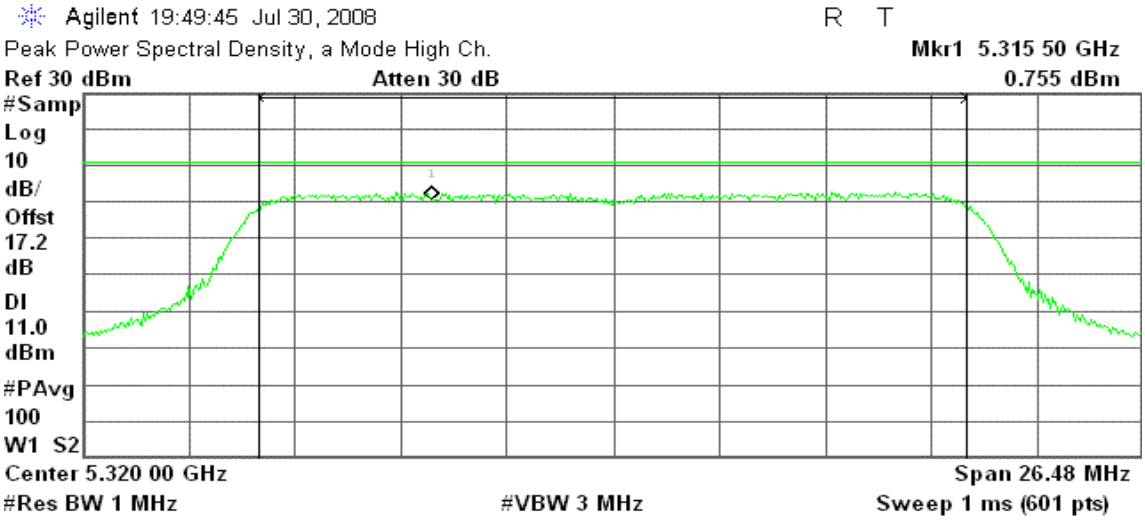
Power Spectral Density
-55.64 dBm/Hz

## CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 17.06 dBm / 17.7200 MHz | -55.42 dBm/Hz |

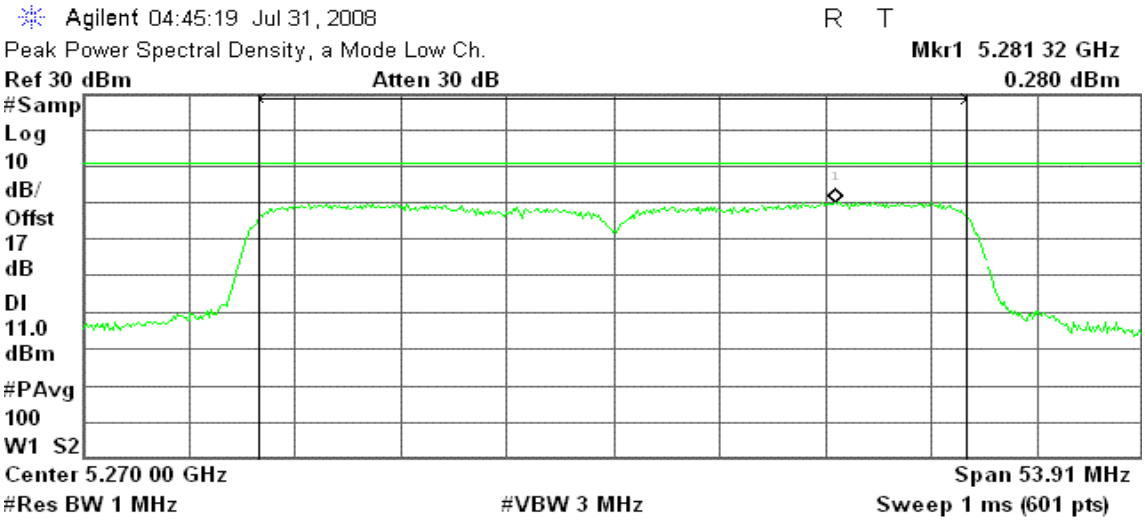
## CH High




| Channel Power | Power Spectral Density |
|---|---|
| 13.63 dBm / 17.6500 MHz | -58.84 dBm/Hz |

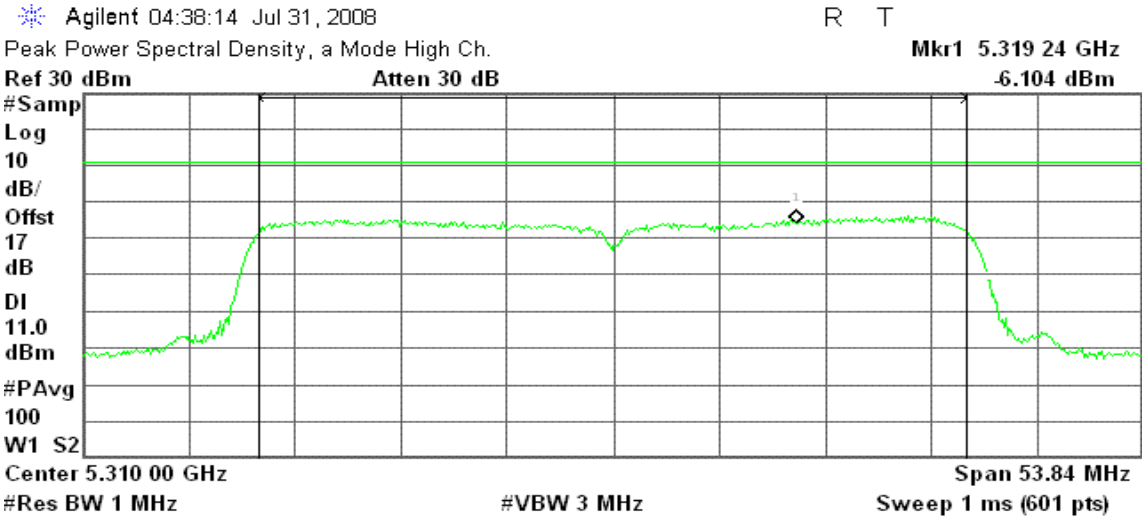
## draft 802.11n Wide-40 MHz Channel mode / 5270 ~ 5310MHz / Chain 0

### CH Low




| Channel Power | Power Spectral Density |
|---|---|
| 13.74 dBm / 35.9396 MHz | -61.81 dBm/Hz |

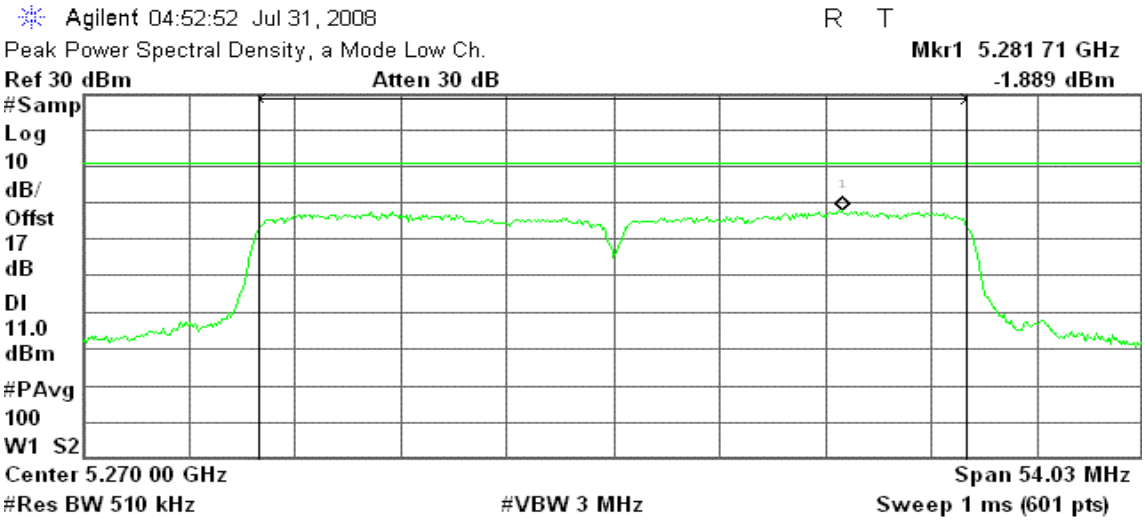
### CH High




| Channel Power | Power Spectral Density |
|---|---|
| 9.47 dBm / 35.8914 MHz | -66.08 dBm/Hz |

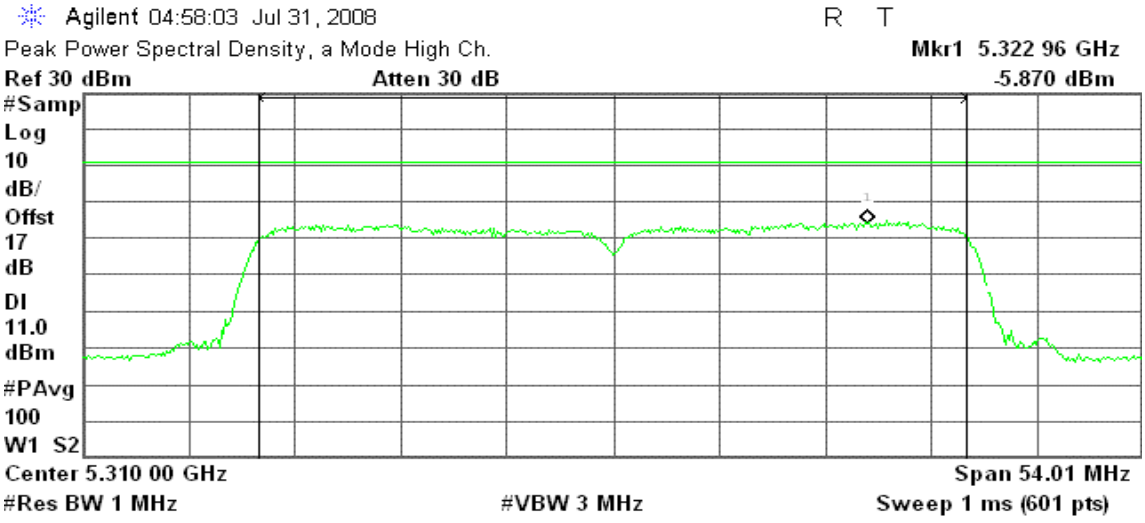
## draft 802.11n Wide-40 MHz Channel mode / 5270 ~ 5310MHz / Chain 1

### CH Low




| Channel Power | Power Spectral Density |
|---|---|
| 13.43 dBm / 36.0180 MHz | -62.13 dBm/Hz |

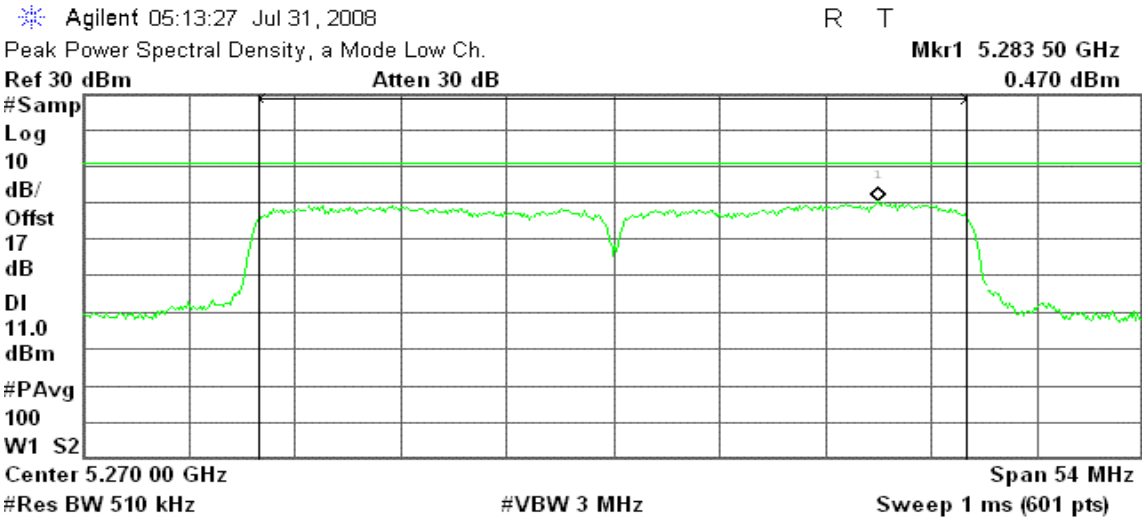
### CH High




| Channel Power | Power Spectral Density |
|---|---|
| 7.70 dBm / 36.0070 MHz | -67.86 dBm/Hz |

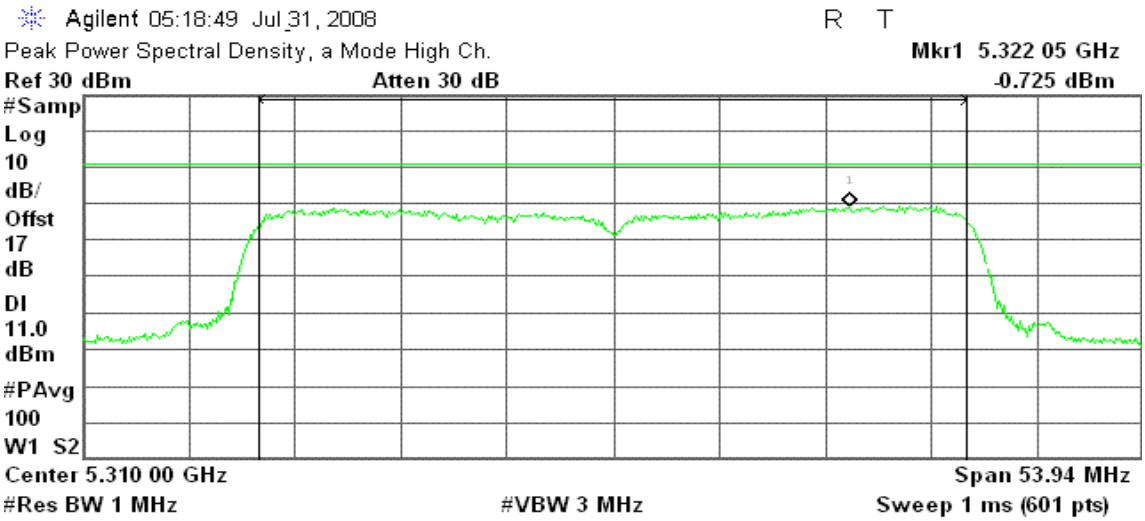
## draft 802.11n Wide-40 MHz Channel mode / 5270 ~ 5310MHz / Chain 2

### CH Low




| Channel Power | Power Spectral Density |
|---|---|
| 16.37 dBm / 35.9990 MHz | -59.19 dBm/Hz |

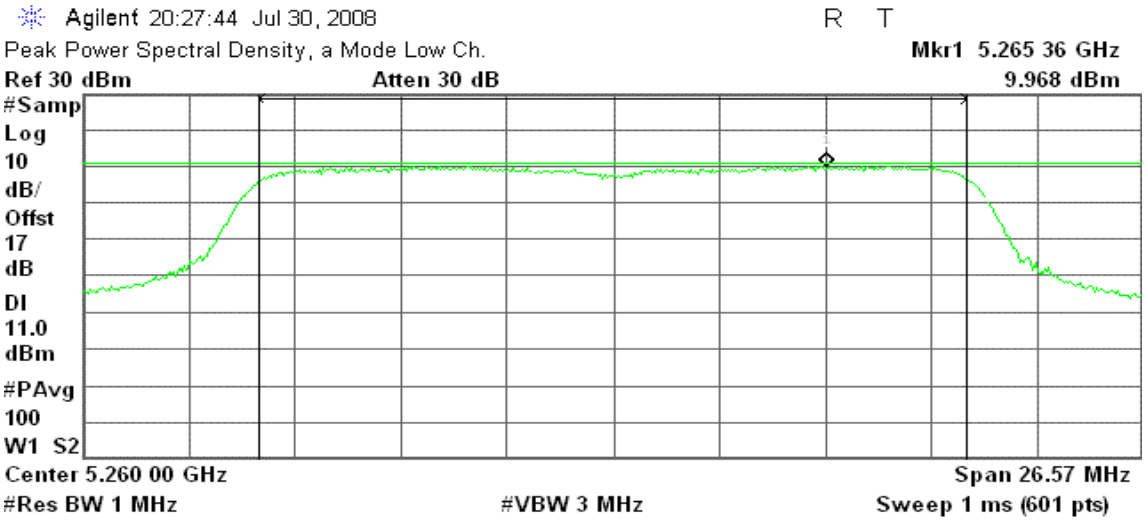
### CH High




| Channel Power | Power Spectral Density |
|---|---|
| 12.68 dBm / 35.9614 MHz | -62.88 dBm/Hz |

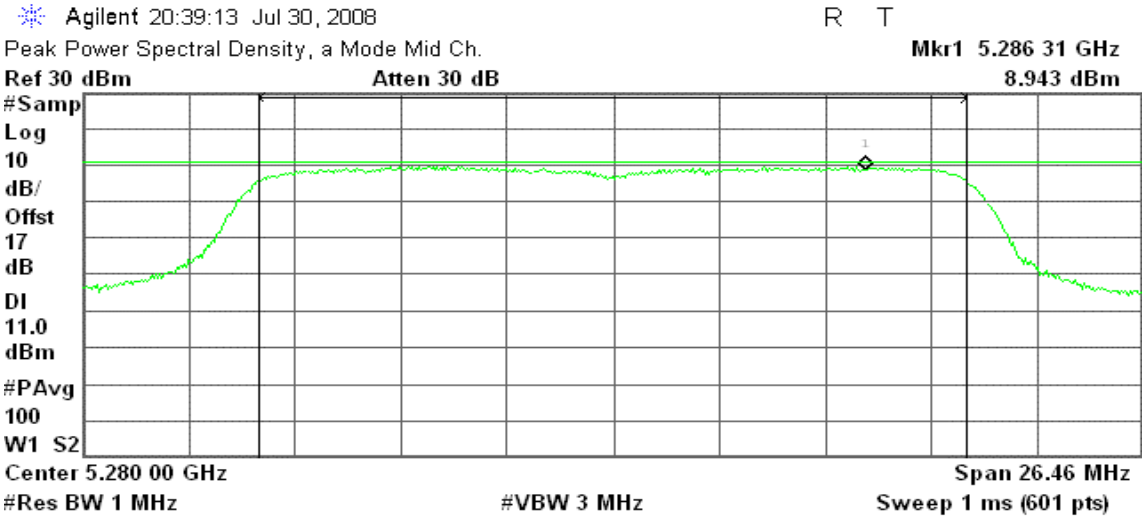
**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5260 ~ 5320MHz with combiner:**

**CH Low**



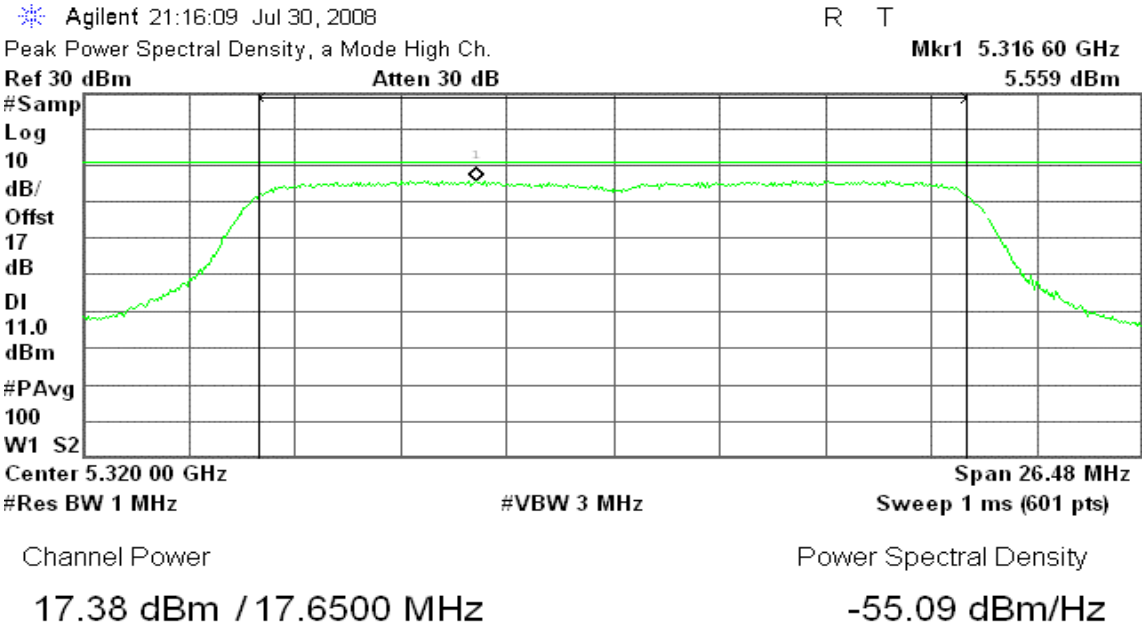

| Channel Power | Power Spectral Density |
|---|---|
| 21.12 dBm / 17.7135 MHz | -51.37 dBm/Hz |

**CH Mid**




| Channel Power | Power Spectral Density |
|---|---|
| 20.28 dBm / 17.6380 MHz | -52.18 dBm/Hz |

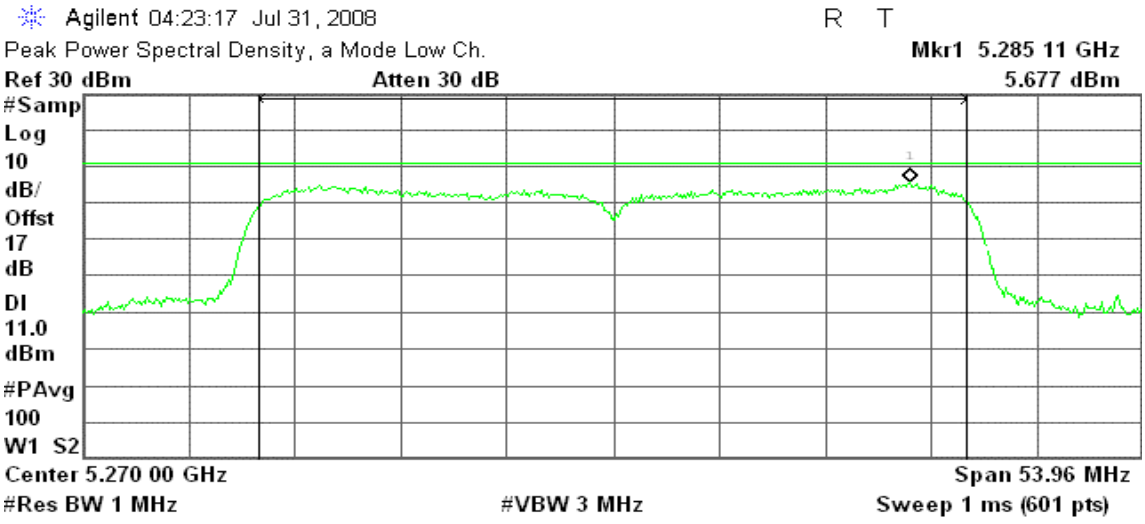
## CH High




| Channel Power | Power Spectral Density |
|---|---|
| 17.38 dBm / 17.6500 MHz | -55.09 dBm/Hz |

**Test mode: draft 802.11n Wide-40 MHz Channel mode with combiner:**

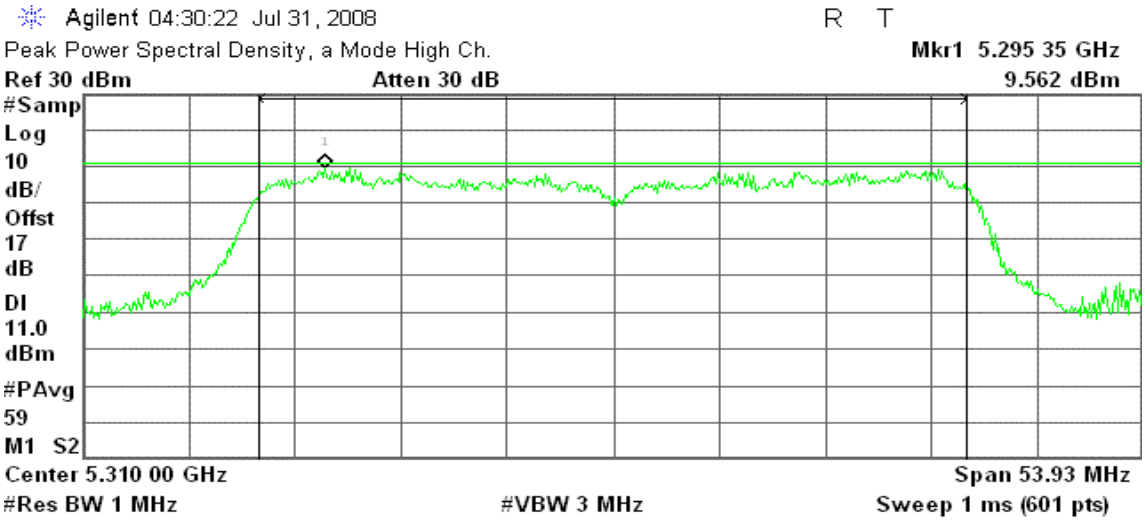
**CH Low**




Channel Power
18.26 dBm / 35.9726 MHz

Power Spectral Density
-57.30 dBm/Hz

**CH High**

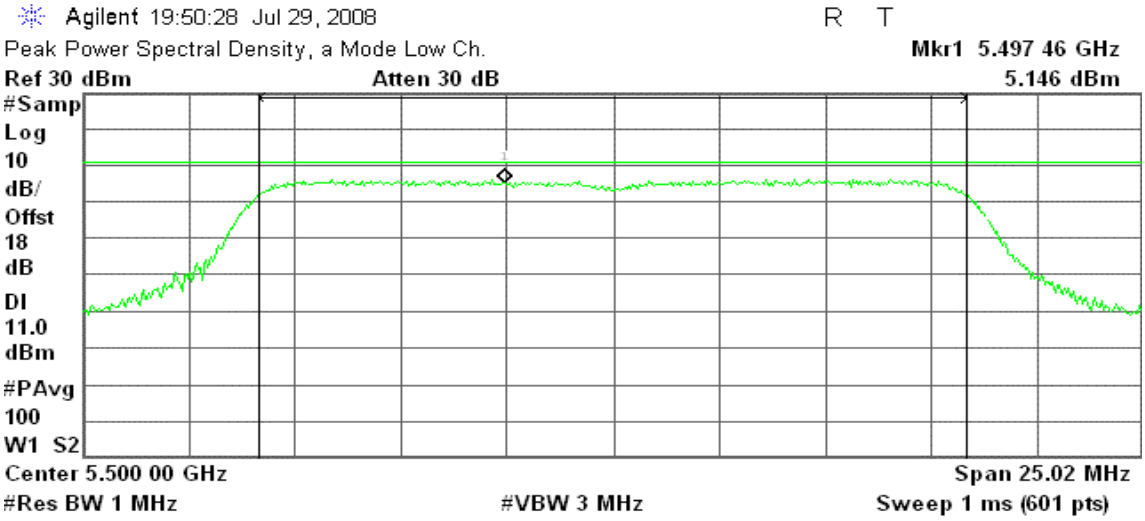



Channel Power
13.71 dBm / 35.9510 MHz

Power Spectral Density
-61.85 dBm/Hz

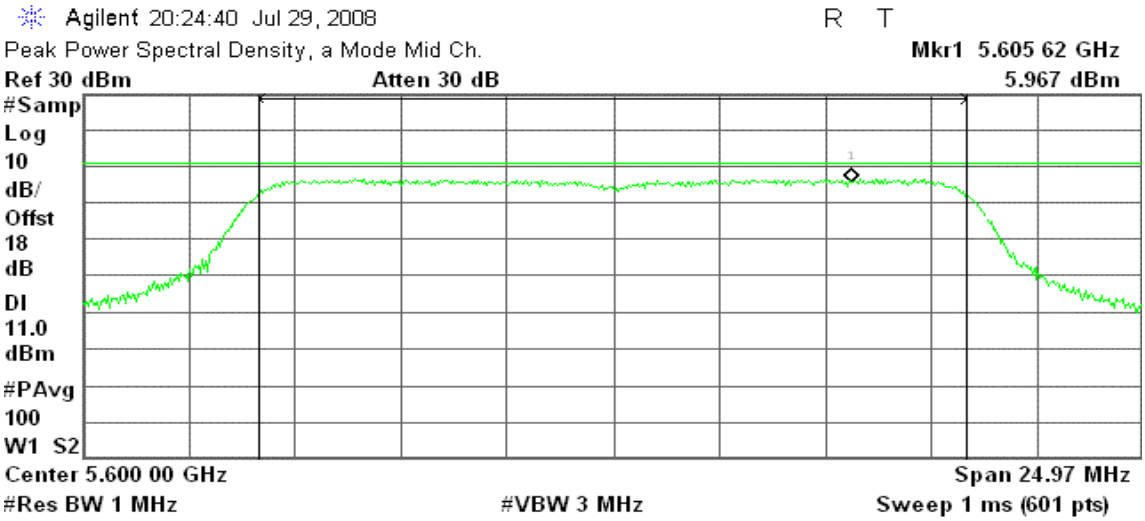
## Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz

### CH Low



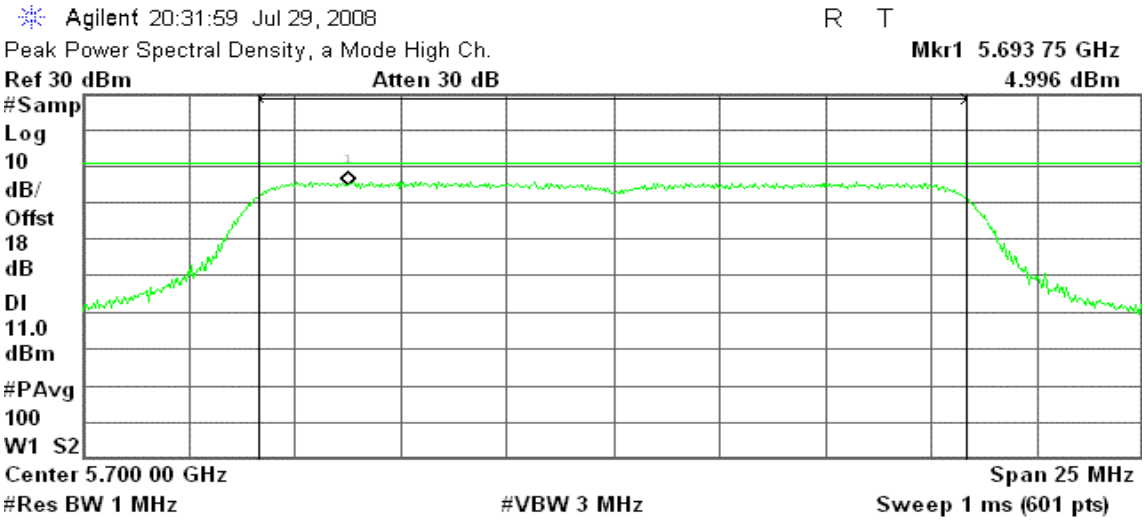

| Channel Power | Power Spectral Density |
|---|---|
| 16.83 dBm / 16.6780 MHz | -55.39 dBm/Hz |

### CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 17.41 dBm / 16.6440 MHz | -54.80 dBm/Hz |

### CH High

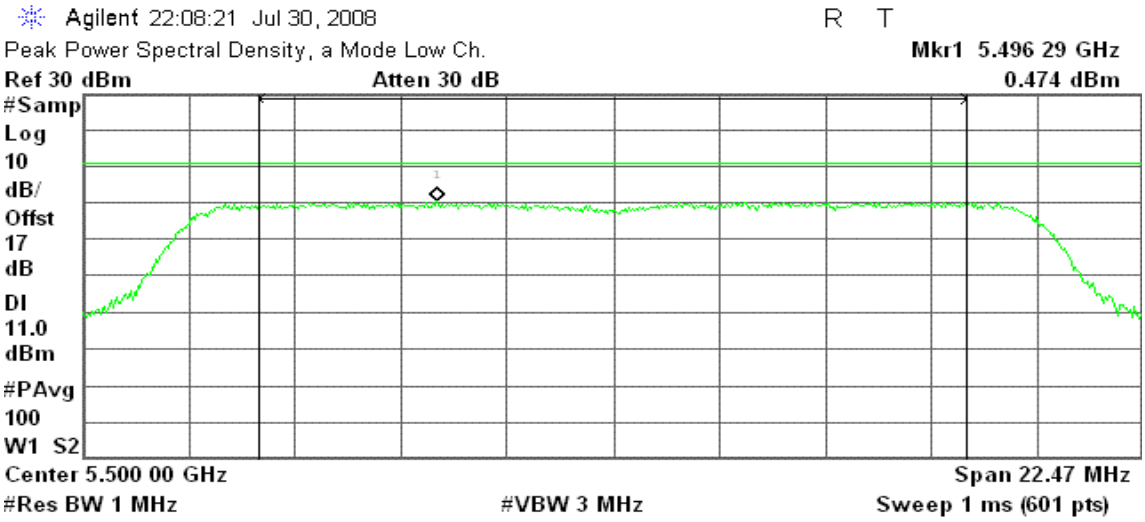



Channel Power
16.86 dBm / 16.6690 MHz

Power Spectral Density
-55.36 dBm/Hz

## draft 802.11n Standard-20 MHz Channel mode / 5500 ~ 5700MHz / Chain 0

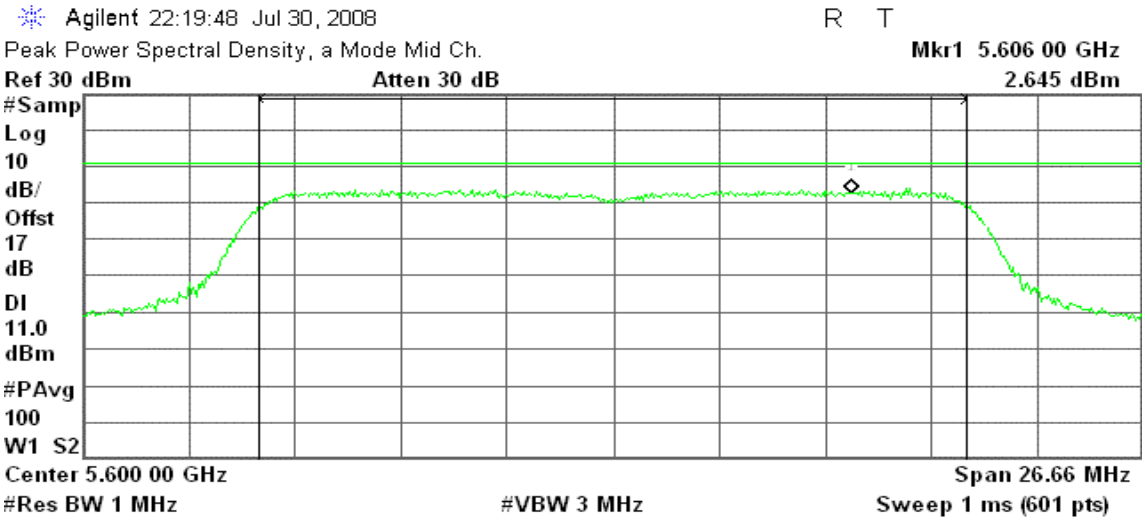
### CH Low




Channel Power
11.01 dBm / 14.9800 MHz

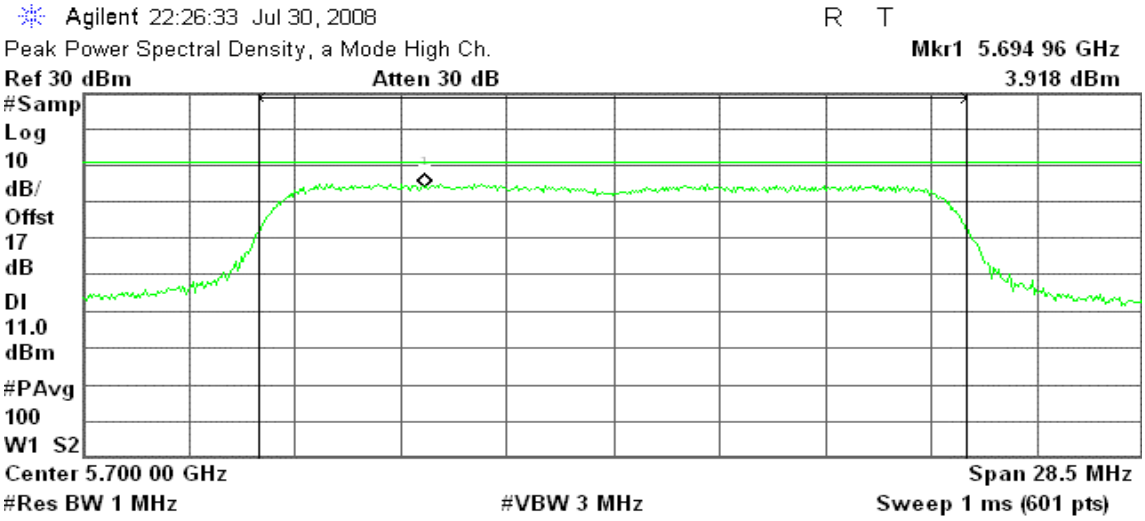
Power Spectral Density
-60.75 dBm/Hz

## CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 14.82 dBm / 17.7700 MHz | -57.68 dBm/Hz |

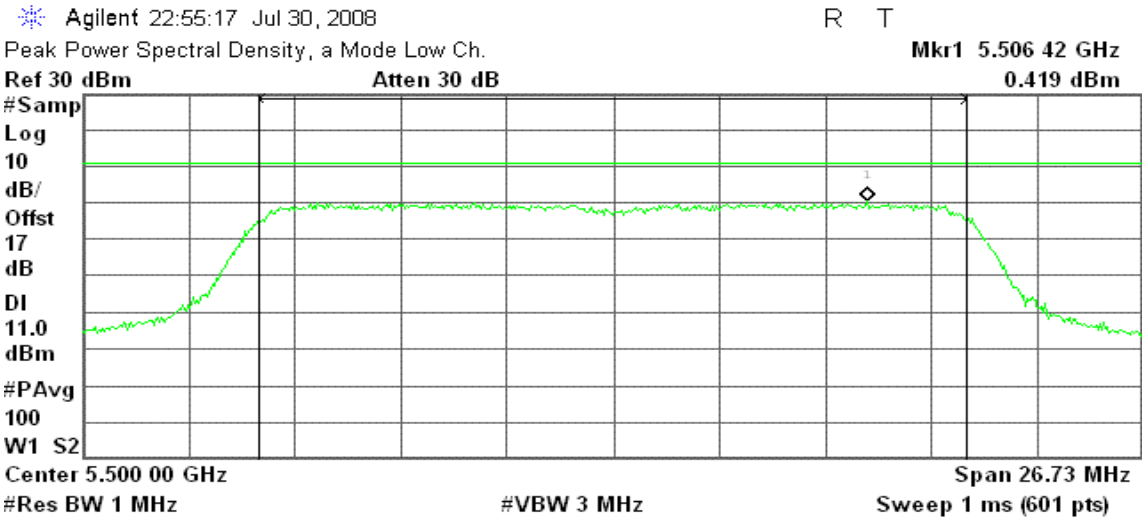
## CH High




| Channel Power | Power Spectral Density |
|---|---|
| 16.19 dBm / 19.0000 MHz | -56.60 dBm/Hz |

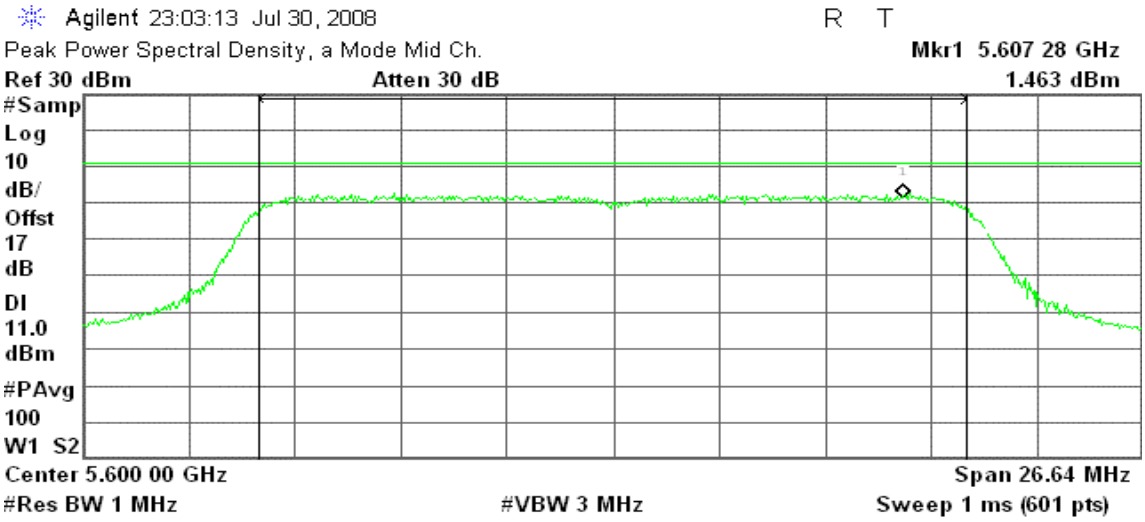
## draft 802.11n Standard-20 MHz Channel mode / 5500 ~ 5700MHz / Chain 1

### CH Low



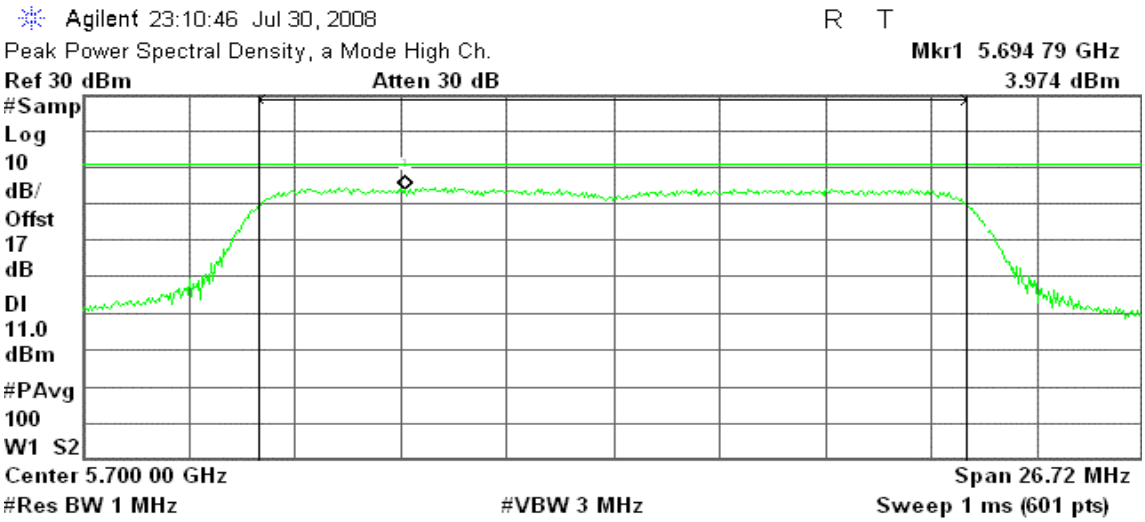

| Channel Power | Power Spectral Density |
|---|---|
| 11.22 dBm / 17.8226 MHz | -61.29 dBm/Hz |

### CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 13.59 dBm / 17.7593 MHz | -58.91 dBm/Hz |

### CH High

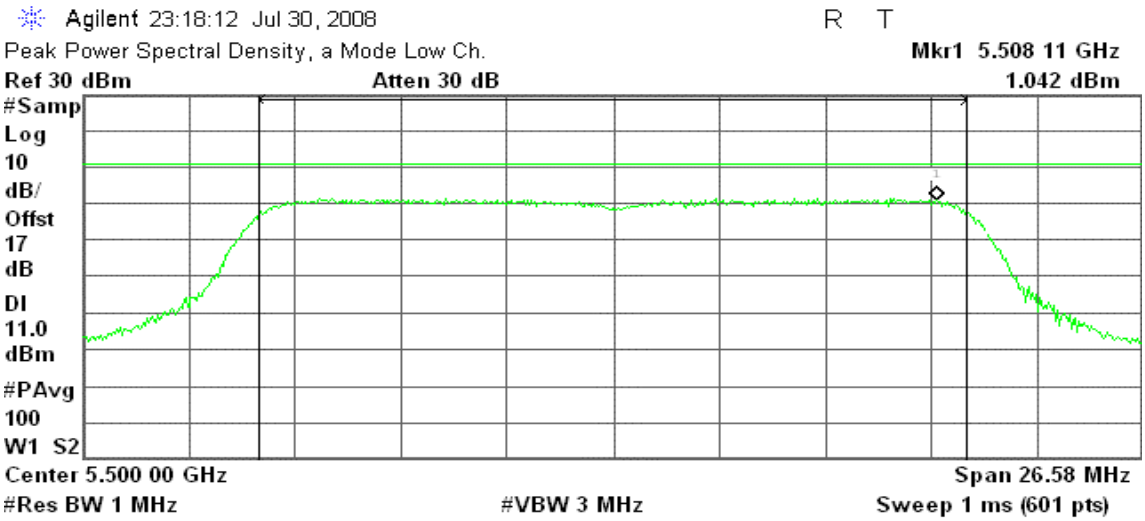



Channel Power
15.74 dBm / 17.8110 MHz

Power Spectral Density
-56.77 dBm/Hz

**draft 802.11n Standard-20 MHz Channel mode / 5500 ~ 5700MHz / Chain 2**

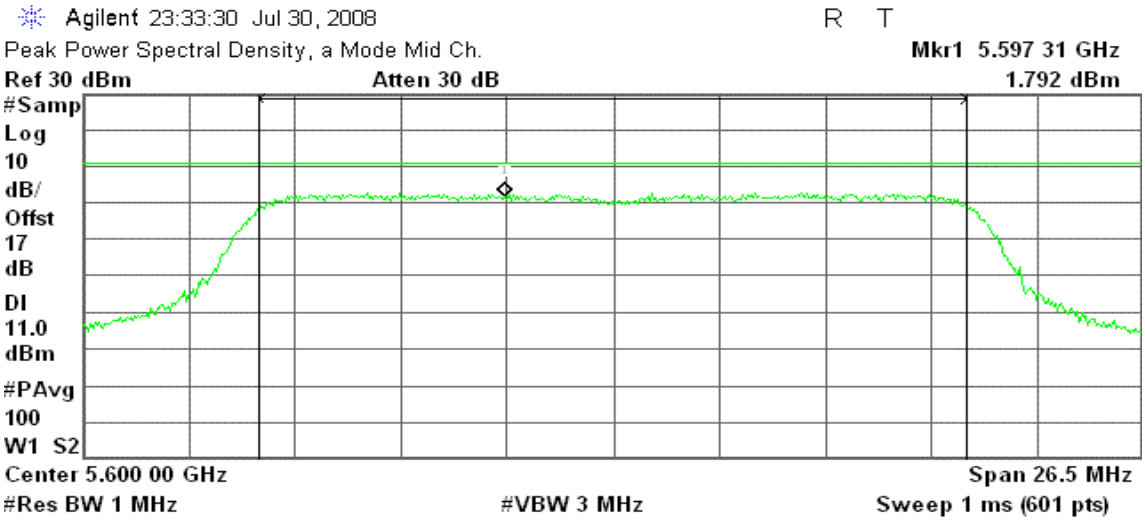
### CH Low




Channel Power
12.81 dBm / 17.7185 MHz

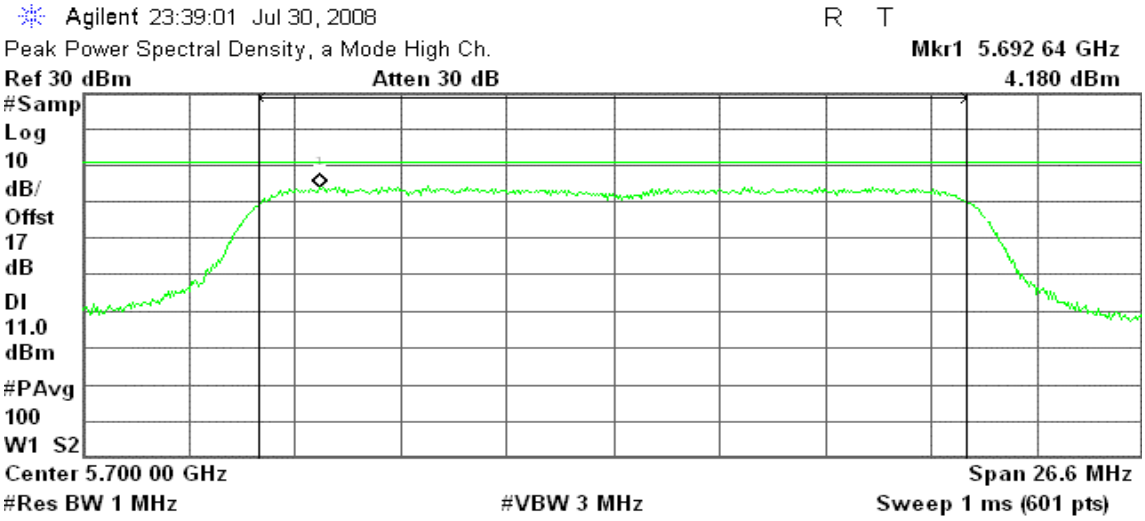
Power Spectral Density
-59.67 dBm/Hz

## CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 14.02 dBm / 17.6643 MHz | -58.45 dBm/Hz |

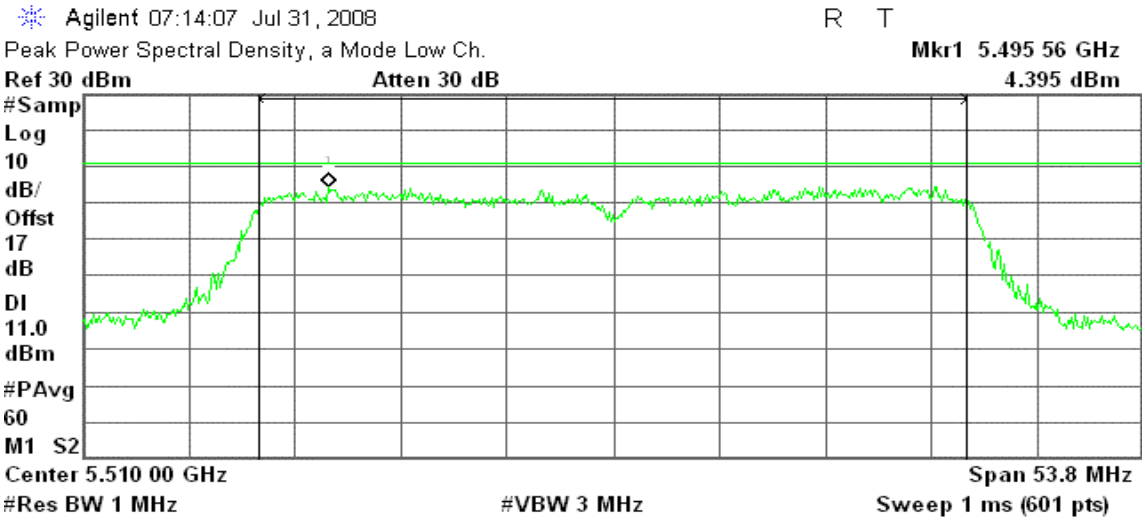
## CH High




| Channel Power | Power Spectral Density |
|---|---|
| 15.11 dBm / 17.7337 MHz | -57.38 dBm/Hz |

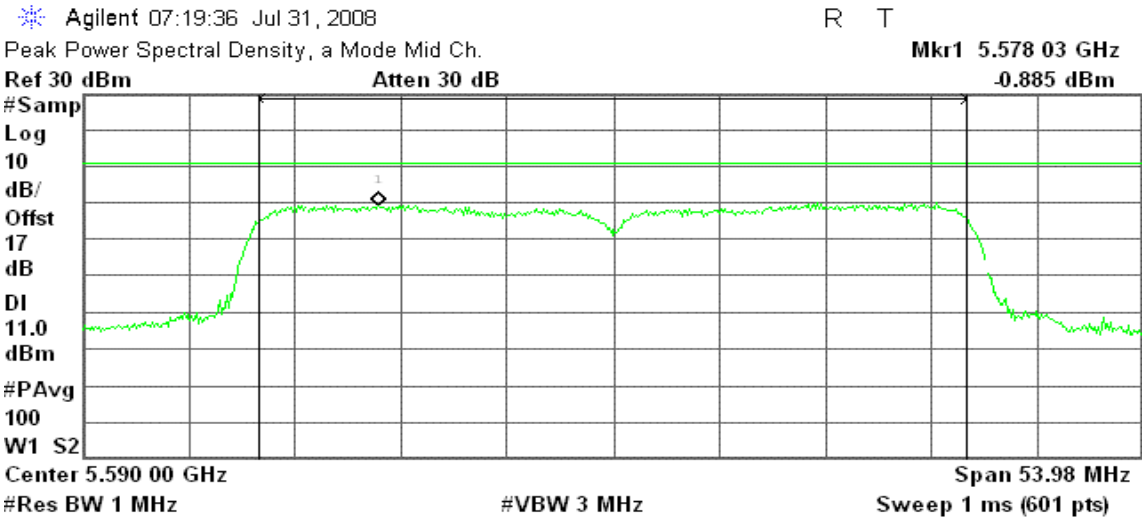
## draft 802.11n Wide-40 MHz Channel mode / 5510 ~ 5670MHz / Chain 0

### CH Low



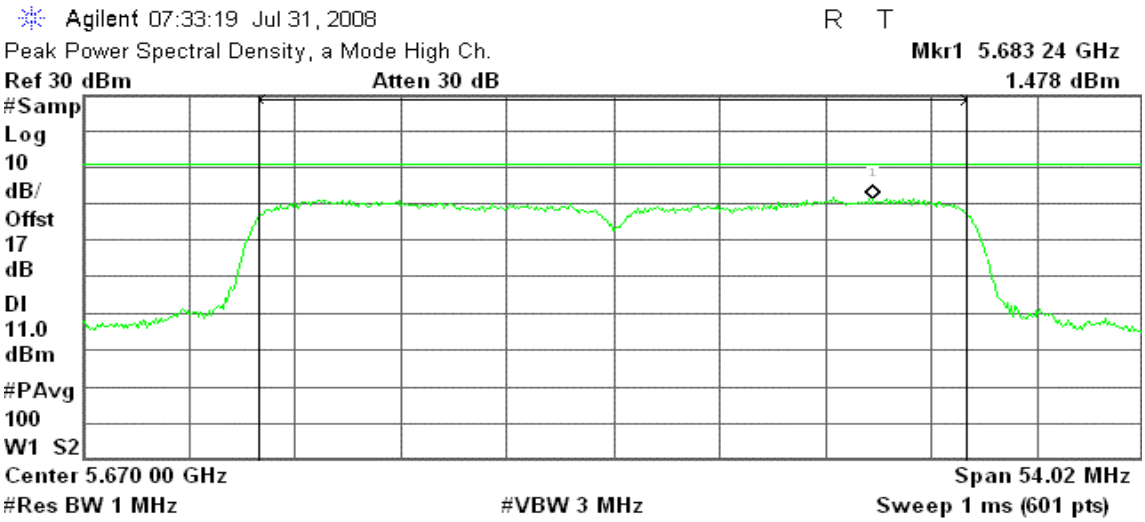

| Channel Power | Power Spectral Density |
|---|---|
| 9.22 dBm / 35.8690 MHz | -66.32 dBm/Hz |

### CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 12.81 dBm / 35.9880 MHz | -62.76 dBm/Hz |

## CH High

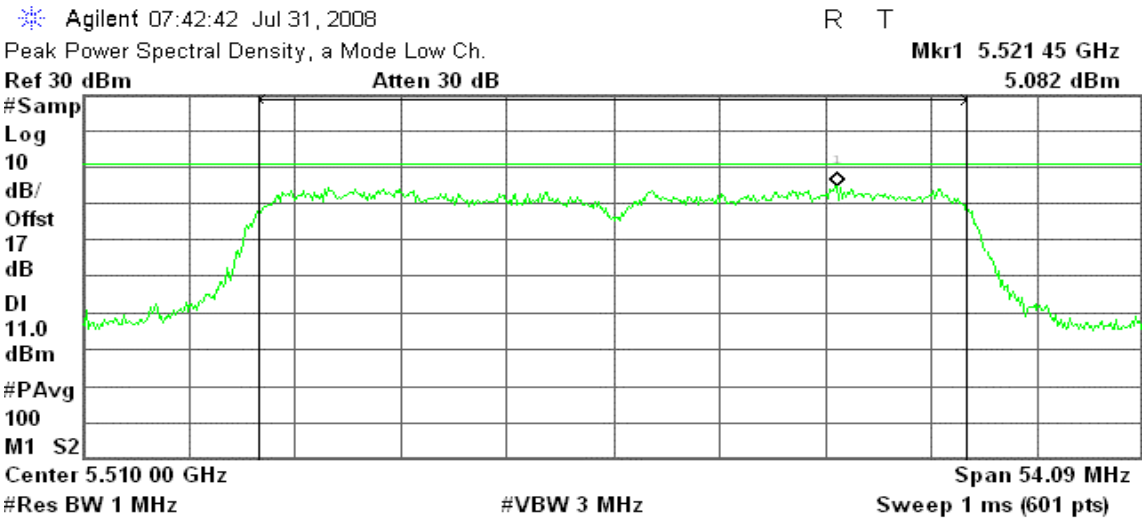



Channel Power
14.79 dBm / 36.0150 MHz

Power Spectral Density
-60.78 dBm/Hz

## draft 802.11n Wide-40 MHz Channel mode / 5510 ~ 5670MHz / Chain 1

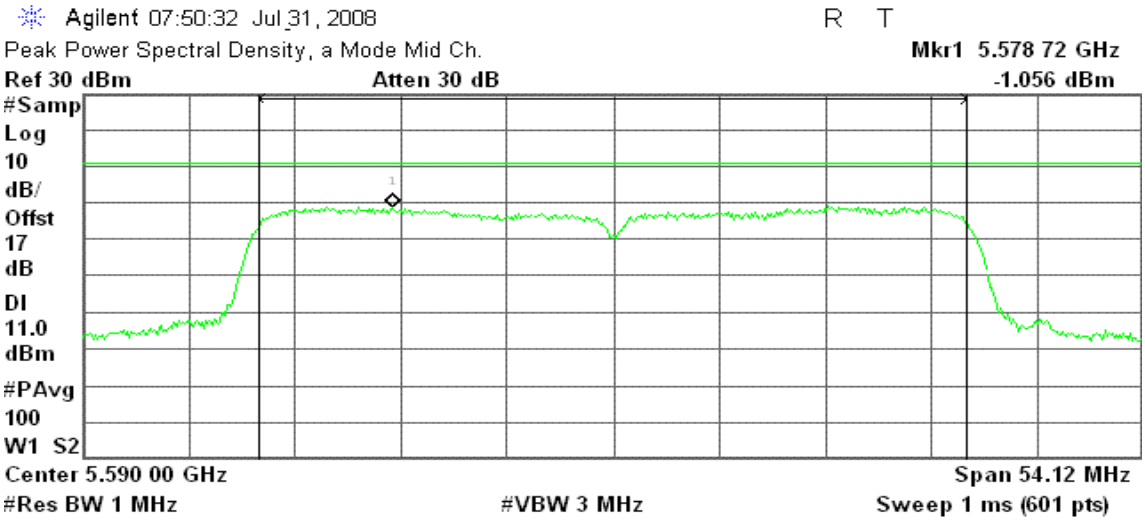
## CH Low




Channel Power
9.25 dBm / 36.0621 MHz

Power Spectral Density
-66.32 dBm/Hz

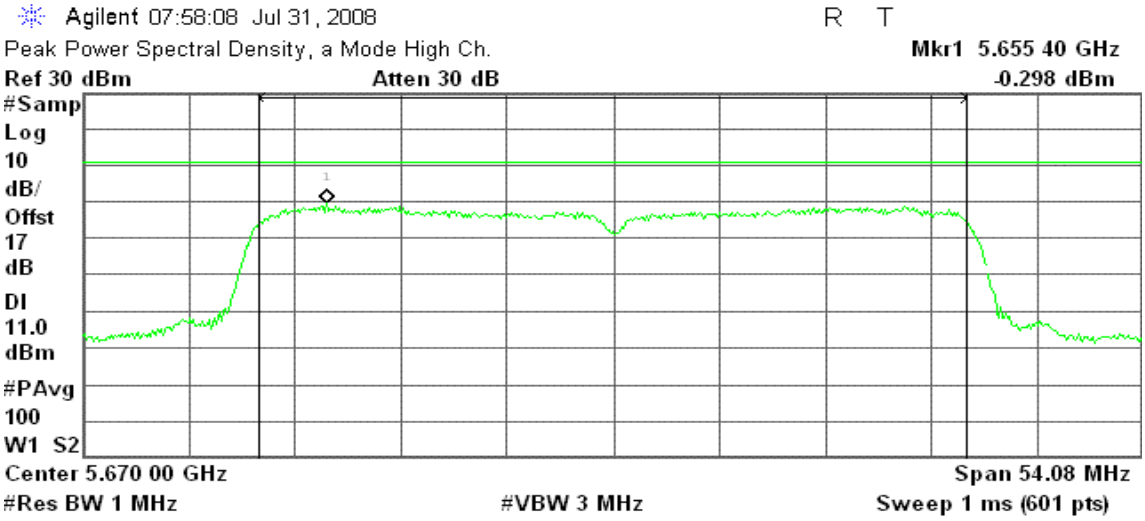
## CH Mid




Channel Power
12.41 dBm / 36.0825 MHz

Power Spectral Density
-63.16 dBm/Hz

## CH High

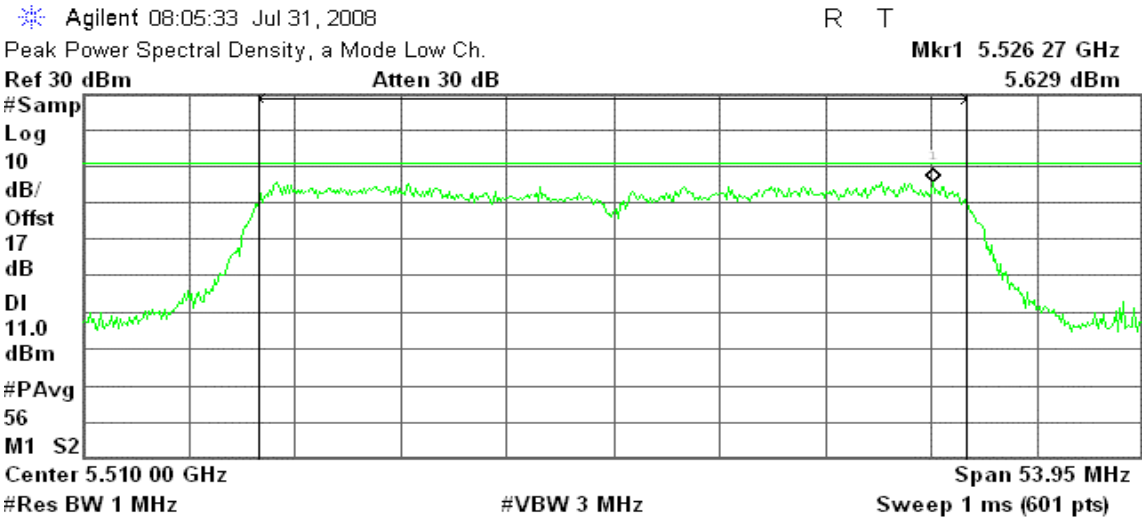



Channel Power
12.54 dBm / 36.0509 MHz

Power Spectral Density
-63.03 dBm/Hz

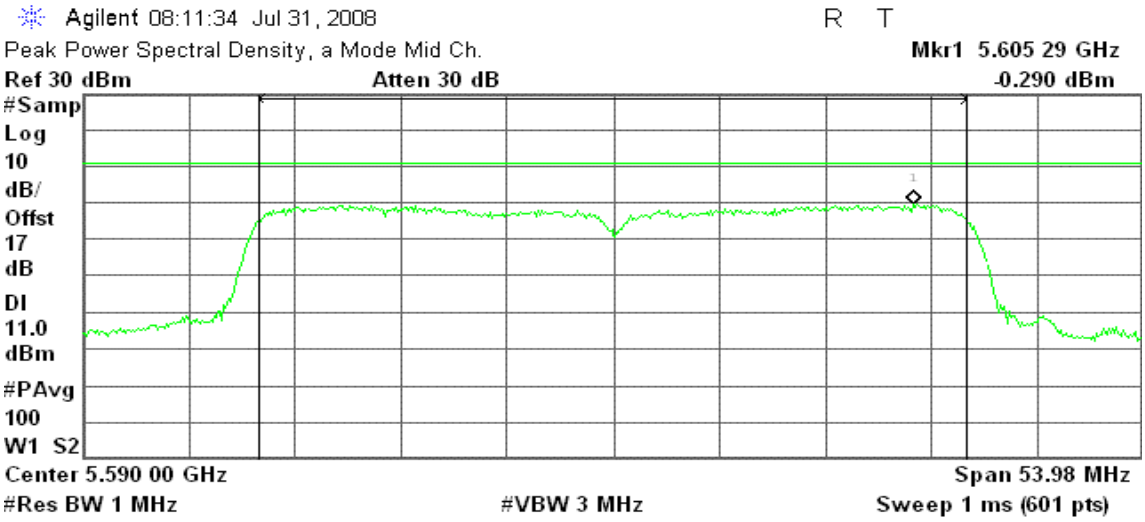
## draft 802.11n Wide-40 MHz Channel mode / 5510 ~ 5670MHz / Chain 2

### CH Low



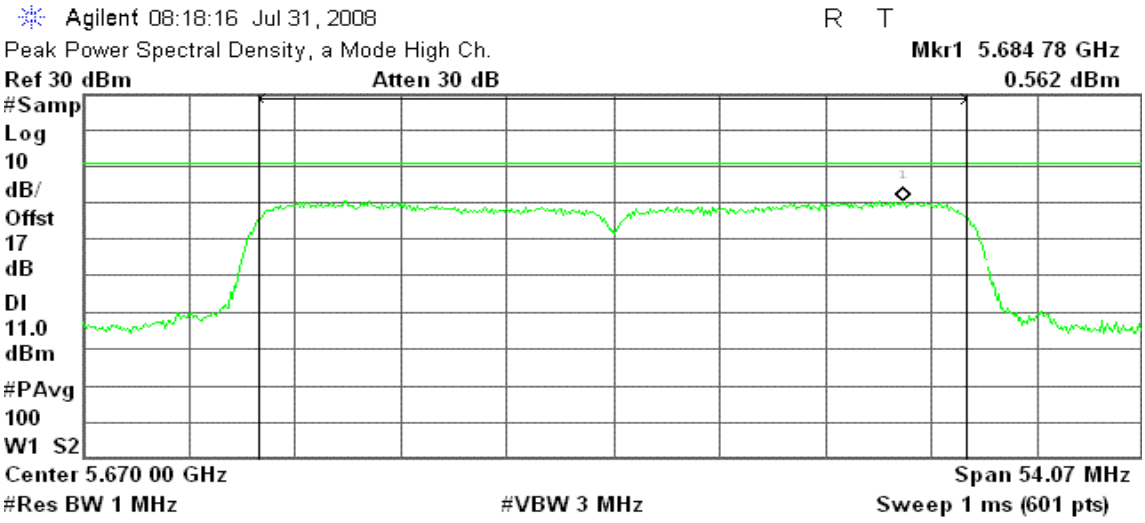

| Channel Power | Power Spectral Density |
|---|---|
| 9.85 dBm / 35.9660 MHz | -65.71 dBm/Hz |

### CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 12.68 dBm / 35.9850 MHz | -62.88 dBm/Hz |

**CH High**

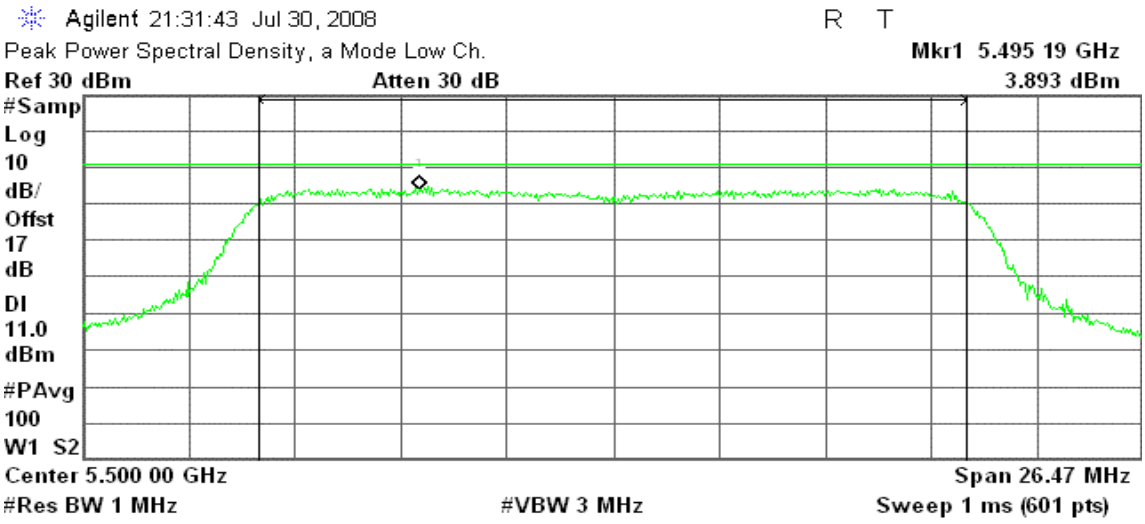



Channel Power
13.66 dBm / 36.0462 MHz

Power Spectral Density
-61.91 dBm/Hz

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5500 ~ 5700MHz with combiner:**

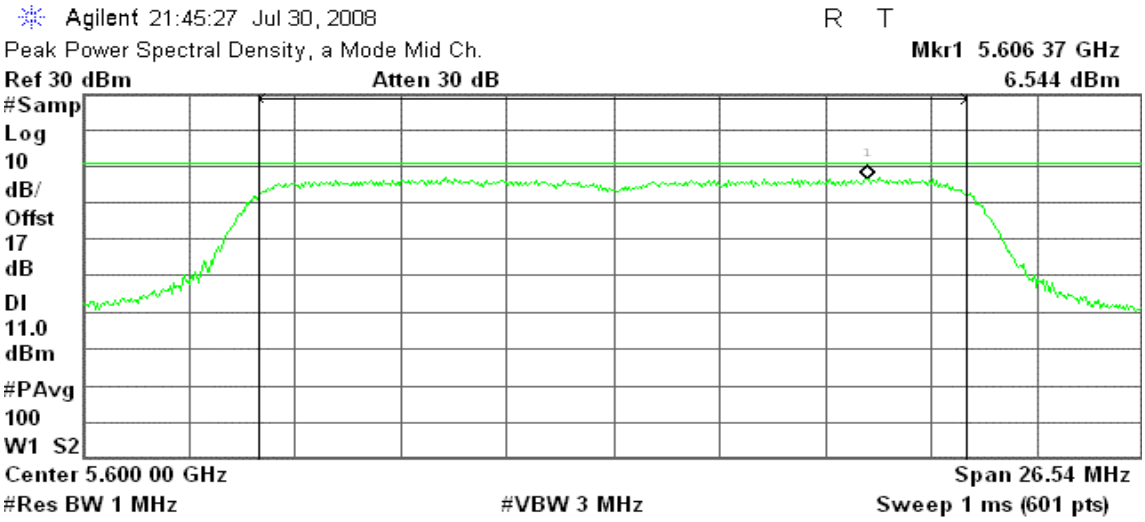
**CH Low**




Channel Power
15.53 dBm / 17.6470 MHz

Power Spectral Density
-56.93 dBm/Hz

## CH Mid



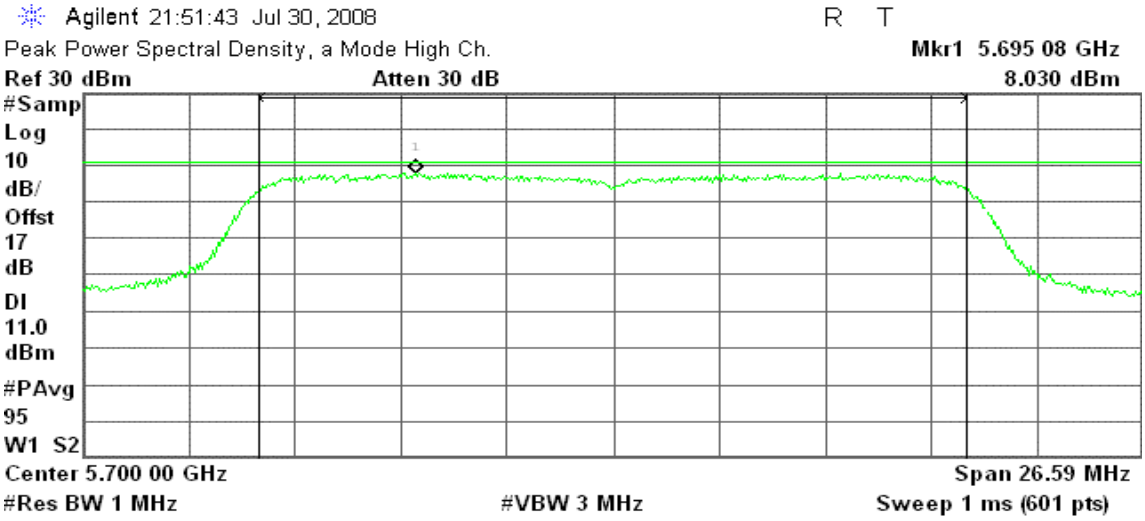

Channel Power

17.88 dBm / 17.6963 MHz

Power Spectral Density

-54.60 dBm/Hz

## CH High




Channel Power

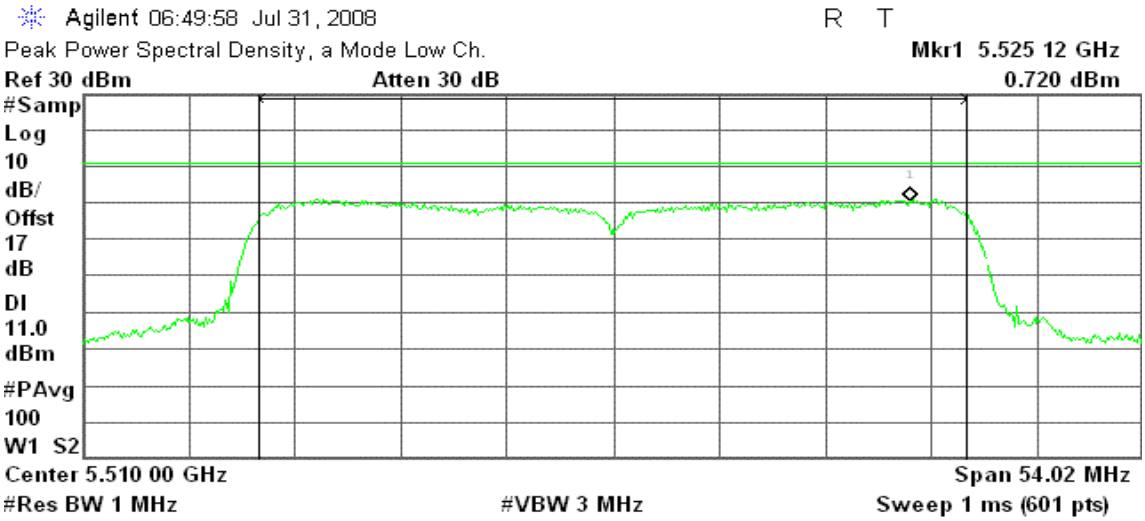
18.60 dBm / 17.7284 MHz

Power Spectral Density

-53.89 dBm/Hz

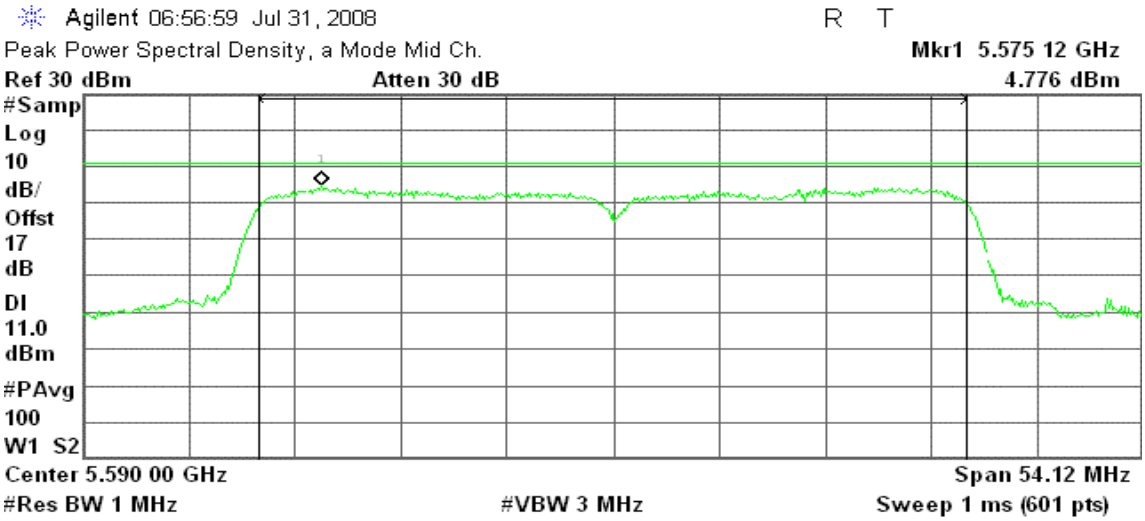
**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5510 ~ 5670MHz with combiner:**

**CH Low**



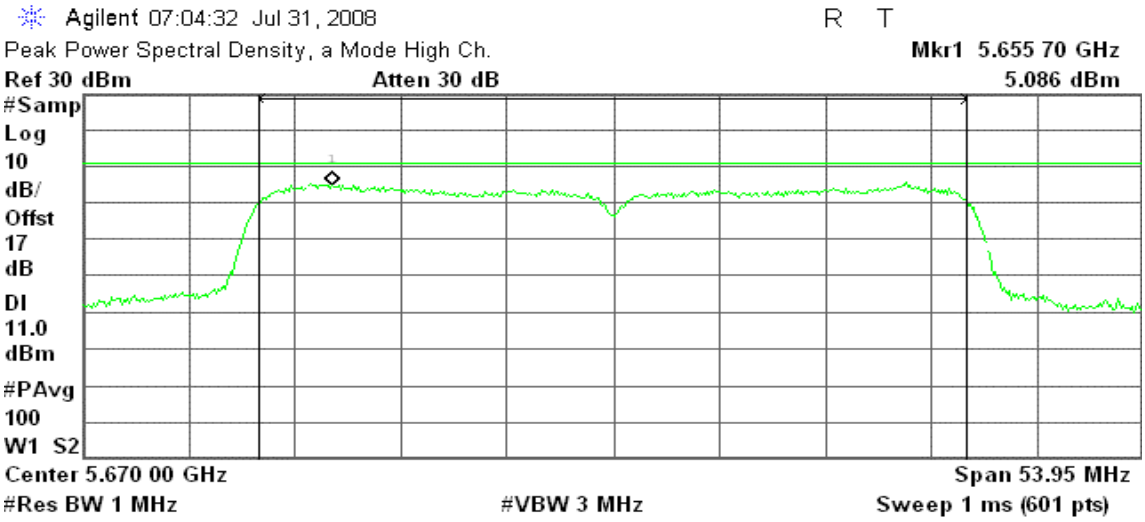

| Channel Power | Power Spectral Density |
|---|---|
| 14.39 dBm / 36.0113 MHz | -61.17 dBm/Hz |

**CH Mid**




| Channel Power | Power Spectral Density |
|---|---|
| 17.34 dBm / 36.0817 MHz | -58.24 dBm/Hz |

## CH High



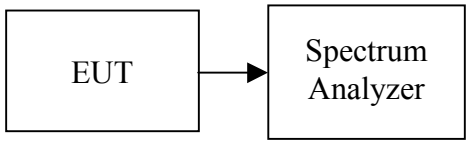

| Channel Power | Power Spectral Density |
|---|---|
| 18.01 dBm / 35.9670 MHz | -57.55 dBm/Hz |

# 7.5PEAK EXCURSION

## LIMIT

According to §15.407(a)(6), the ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

**Test Configuration**




## TEST PROCEDURE

The test is performed in accordance with <FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices> – Part 15, Subpart E, August 2002.

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to spectrum.
3. Trace A, Set RBW =1MHz, VBW = 3MHz, Span >26dB bandwidth, Max. hold.
4. Delta Mark trace A Maximum frequency and trace B same frequency.
5. Repeat the above procedure until measurements for all frequencies were complete.

## TEST RESULTS

*No non-compliance noted*

**Test Data**

**Test mode: IEEE 802.11a mode / 5180 ~ 5240MHz**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5180 | 2.42 | 13.00 | -10.58 | PASS |
| Mid | 5220 | 1.78 | 13.00 | -11.22 | PASS |
| High | 5240 | 1.88 | 13.00 | -11.12 | PASS |

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5180 ~ 5240MHz / Chain 0**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5180 | 2.31 | 13.00 | -10.69 | PASS |
| Mid | 5220 | 3.29 | 13.00 | -9.71 | PASS |
| High | 5240 | 4.14 | 13.00 | -8.86 | PASS |

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5180 ~ 5240MHz / Chain 1**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5180 | 4.88 | 13.00 | -8.12 | PASS |
| Mid | 5220 | 3.75 | 13.00 | -9.25 | PASS |
| High | 5240 | 3.49 | 13.00 | -9.51 | PASS |

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5180 ~ 5240MHz / Chain 2**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5180 | 1.62 | 13.00 | -11.38 | PASS |
| Mid | 5220 | 3.25 | 13.00 | -9.75 | PASS |
| High | 5240 | 3.16 | 13.00 | -9.84 | PASS |

**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5190 ~ 5230MHz / Chain 0**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5190 | 3.29 | 13.00 | -9.71 | PASS |
| High | 5230 | 3.57 | 13.00 | -9.43 | PASS |

**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5190 ~ 5230MHz / Chain 1**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5190 | 6.96 | 13.00 | -6.04 | PASS |
| High | 5230 | 4.12 | 13.00 | -8.88 | PASS |

**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5190 ~ 5230MHz / Chain 2**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5190 | 4.44 | 13.00 | -8.56 | PASS |
| High | 5230 | 3.19 | 13.00 | -9.81 | PASS |

**Test mode: IEEE 802.11a mode / 5260 ~ 5320MHz**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5260 | 2.01 | 13.00 | -10.99 | PASS |
| Mid | 5280 | 2.43 | 13.00 | -10.57 | PASS |
| High | 5320 | 2.29 | 13.00 | -10.71 | PASS |

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5260 ~ 5320MHz / Chain 0**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5260 | 3.26 | 13.00 | -9.74 | PASS |
| Mid | 5280 | 2.23 | 13.00 | -10.77 | PASS |
| High | 5320 | 0.03 | 13.00 | -12.97 | PASS |

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5260 ~ 5320MHz / Chain 1**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5260 | 3.70 | 13.00 | -9.30 | PASS |
| Mid | 5280 | 3.00 | 13.00 | -10.00 | PASS |
| High | 5320 | 3.94 | 13.00 | -9.06 | PASS |

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5260 ~ 5320MHz / Chain 2**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5260 | 4.96 | 13.00 | -8.04 | PASS |
| Mid | 5280 | 4.97 | 13.00 | -8.03 | PASS |
| High | 5320 | 3.78 | 13.00 | -9.22 | PASS |

**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5270 ~ 5310MHz / Chain 0**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5270 | 3.85 | 13.00 | -9.15 | PASS |
| High | 5310 | 2.78 | 13.00 | -10.22 | PASS |

**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5270 ~ 5310MHz / Chain 1**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5270 | 4.92 | 13.00 | -8.08 | PASS |
| High | 5310 | 3.44 | 13.00 | -9.56 | PASS |

**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5270 ~ 5310MHz MHz / Chain 2**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5270 | 3.18 | 13.00 | -9.82 | PASS |
| High | 5310 | 2.71 | 13.00 | -10.29 | PASS |

**Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5500 | 0.80 | 13.00 | -12.20 | PASS |
| Mid | 5600 | 3.53 | 13.00 | -9.47 | PASS |
| High | 5700 | 3.03 | 13.00 | -9.97 | PASS |

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5500 ~ 5700MHz / Chain 0**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5500 | 5.08 | 13.00 | -7.92 | PASS |
| Mid | 5600 | 4.55 | 13.00 | -8.45 | PASS |
| High | 5700 | 4.26 | 13.00 | -8.74 | PASS |

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5500 ~ 5700MHz / Chain 1**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5500 | 2.32 | 13.00 | -10.68 | PASS |
| Mid | 5600 | 2.13 | 13.00 | -10.87 | PASS |
| High | 5700 | 4.59 | 13.00 | -8.41 | PASS |

**Test mode: draft 802.11n Standard-20 MHz Channel mode / 5500 ~ 5700MHz / Chain 2**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5500 | 3.75 | 13.00 | -9.25 | PASS |
| Mid | 5600 | 3.10 | 13.00 | -9.90 | PASS |
| High | 5700 | 5.09 | 13.00 | -7.91 | PASS |

**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5510 ~ 5670MHz / Chain 0**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5510 | 4.37 | 13.00 | -8.63 | PASS |
| Mid | 5590 | 4.14 | 13.00 | -8.86 | PASS |
| High | 5670 | 3.07 | 13.00 | -9.93 | PASS |

**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5510 ~ 5670MHz / Chain 1**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5510 | 3.35 | 13.00 | -9.65 | PASS |
| Mid | 5590 | 1.28 | 13.00 | -11.72 | PASS |
| High | 5670 | 3.42 | 13.00 | -9.58 | PASS |

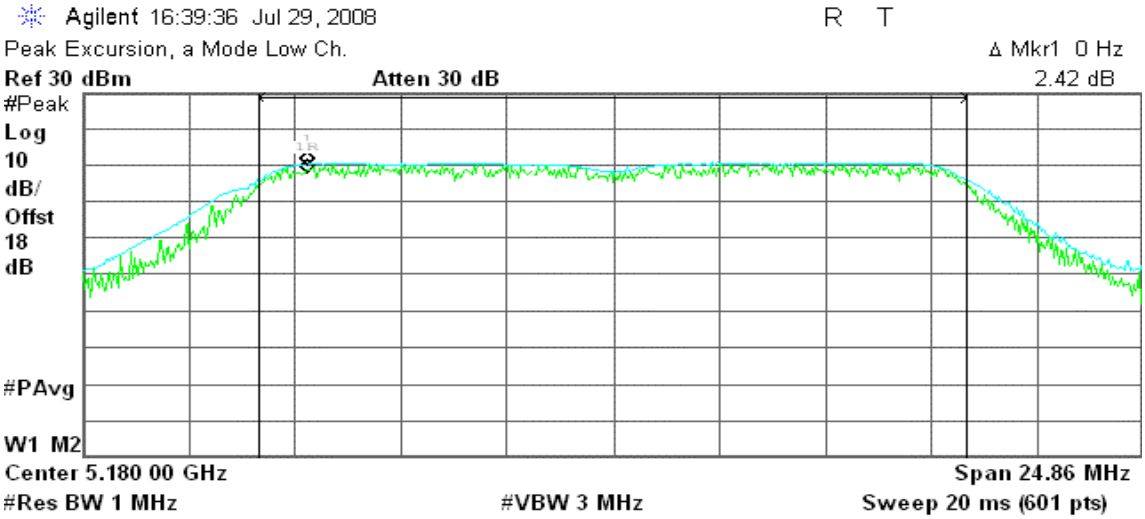
**Test mode: draft 802.11n Wide-40 MHz Channel mode / 5510 ~ 5670MHz MHz / Chain 2**

| Channel | Frequency (MHz) | Peak Excursion (dB) | Limit (dB) | Margin (dB) | Result |
|---|---|---|---|---|---|
| Low | 5510 | 4.61 | 13.00 | -8.39 | PASS |
| Mid | 5590 | 3.70 | 13.00 | -9.30 | PASS |
| High | 5670 | 3.23 | 13.00 | -9.77 | PASS |

## Test Plot

## IEEE 802.11a mode / 5180 ~ 5240MHz

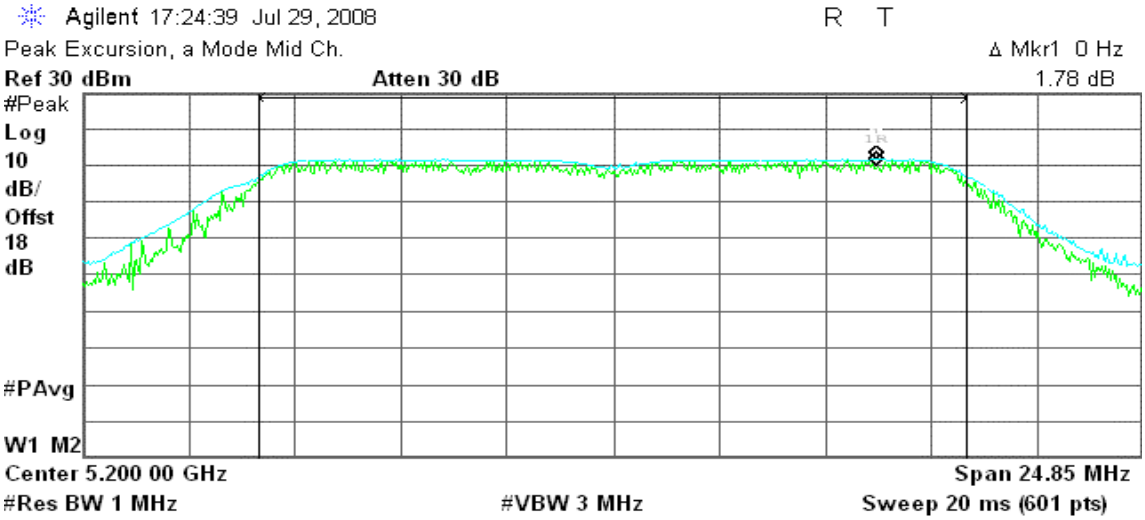
### CH Low




Channel Power
20.44 dBm / 16.5740 MHz

Power Spectral Density
-51.75 dBm/Hz

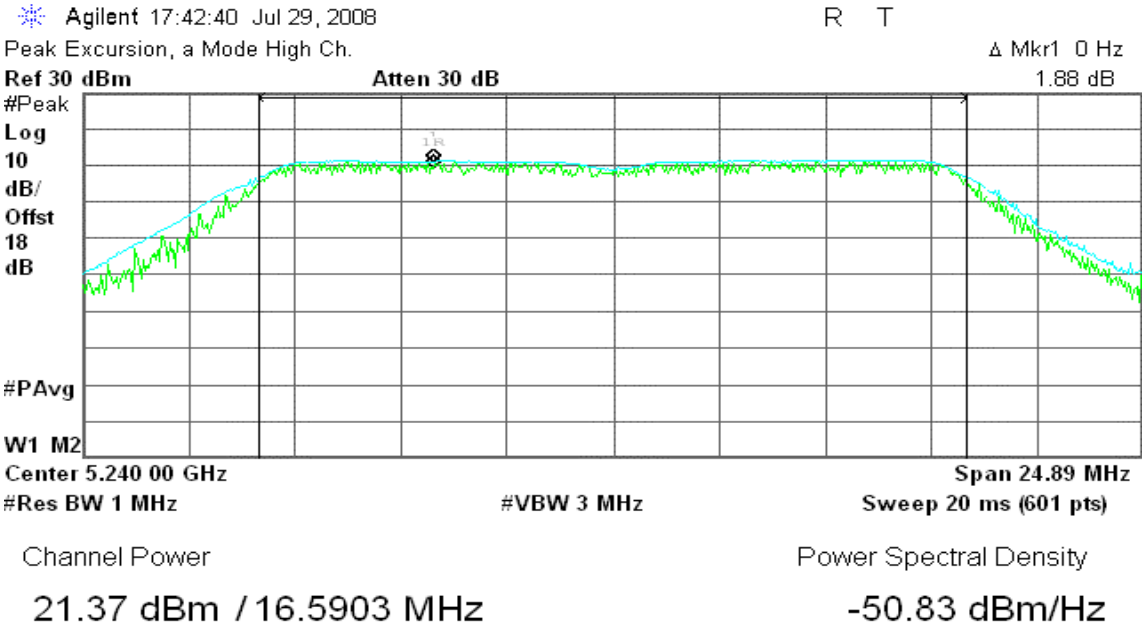
### CH Mid




Channel Power
21.59 dBm / 16.5690 MHz

Power Spectral Density
-50.61 dBm/Hz

**CH High**

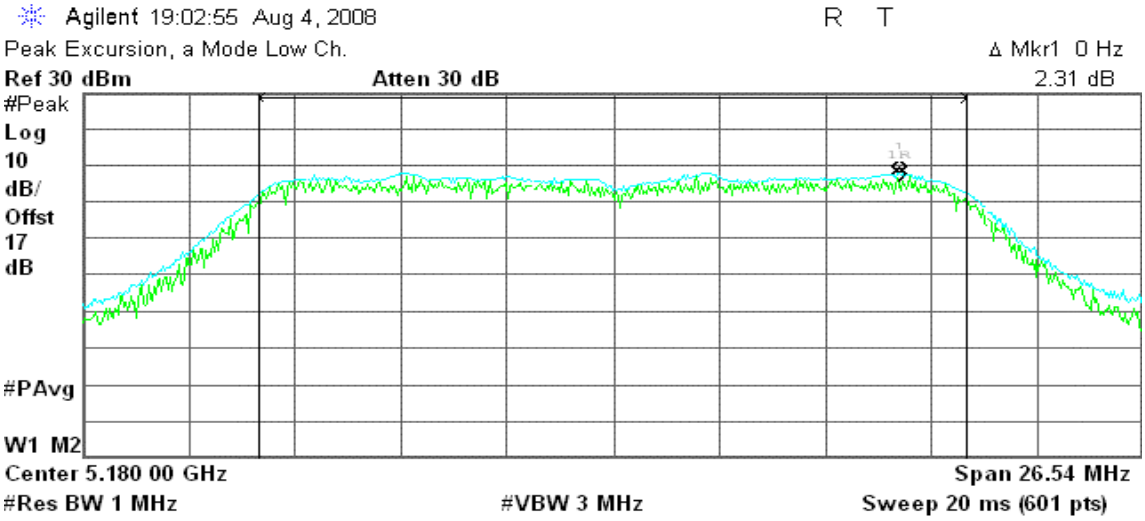



Channel Power
21.37 dBm / 16.5903 MHz

Power Spectral Density
-50.83 dBm/Hz

**draft 802.11n Standard-20 MHz Channel mode / 5180 ~ 5240MHz / Chain 0**

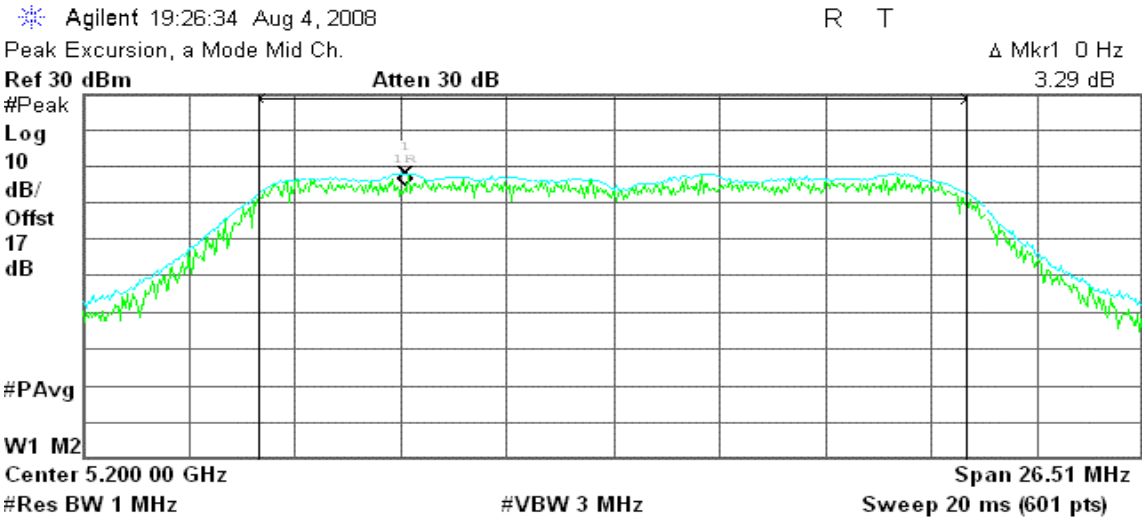
**CH Low**




Channel Power
16.33 dBm / 17.6924 MHz

Power Spectral Density
-56.14 dBm/Hz

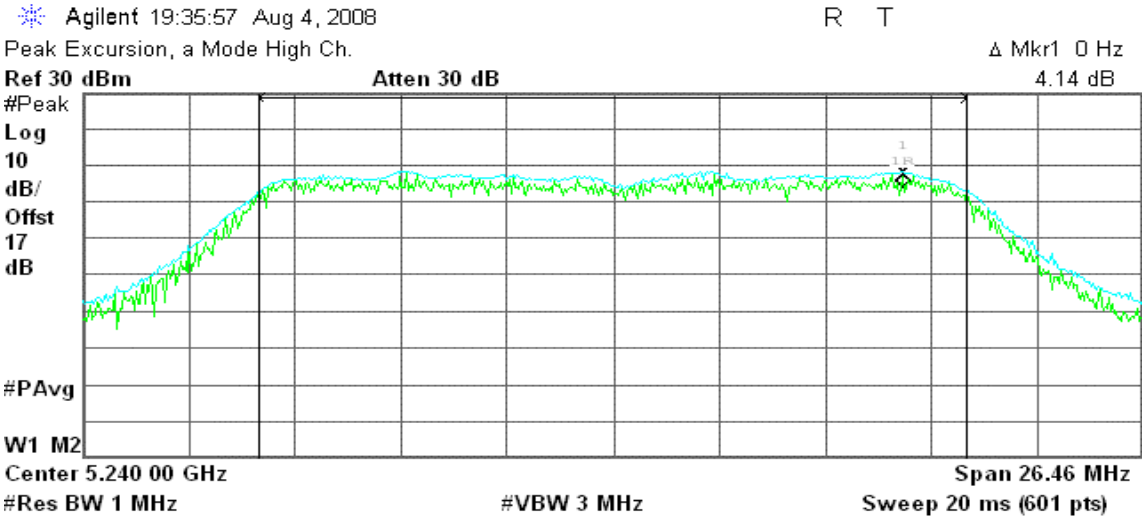
## CH Mid




Channel Power
16.52 dBm / 17.6713 MHz

Power Spectral Density
-55.95 dBm/Hz

## CH High

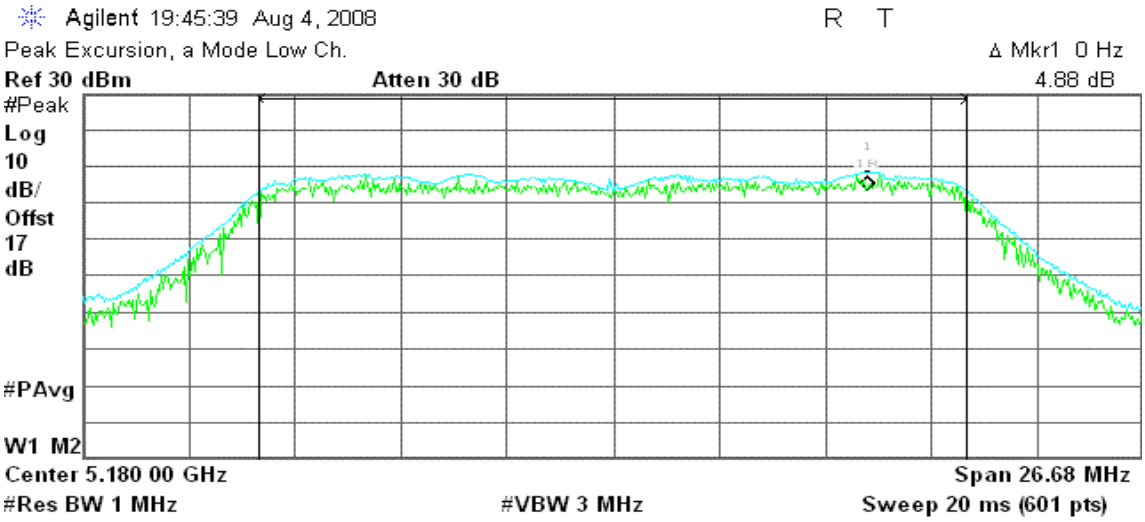



Channel Power
16.69 dBm / 17.6432 MHz

Power Spectral Density
-55.78 dBm/Hz

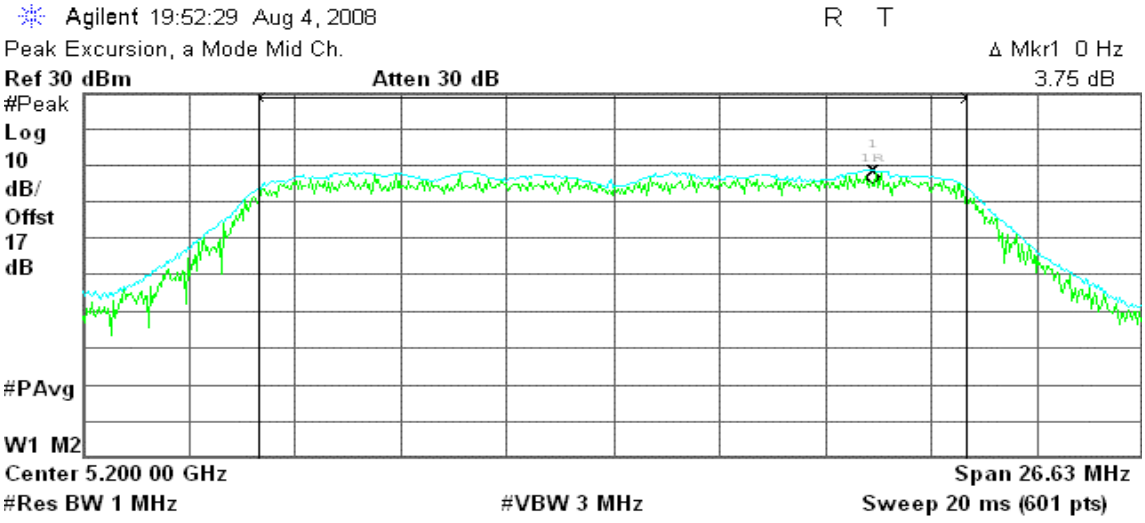
## draft 802.11n Standard-20 MHz Channel mode / 5180 ~ 5240MHz / Chain 1

### CH Low



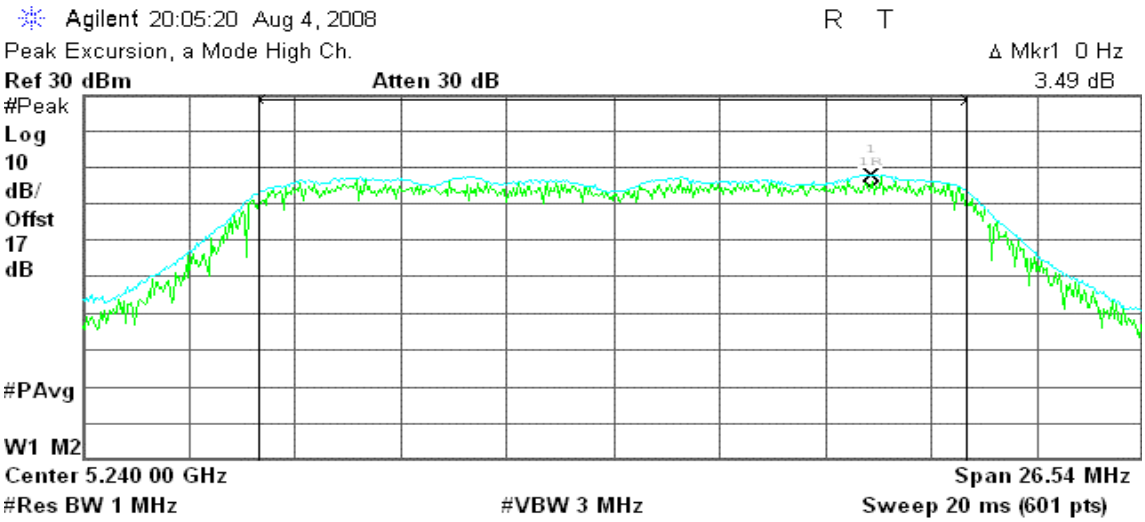

| Channel Power | Power Spectral Density |
|---|---|
| 16.46 dBm / 17.7865 MHz | -56.04 dBm/Hz |

### CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 16.88 dBm / 17.7565 MHz | -55.61 dBm/Hz |

## CH High

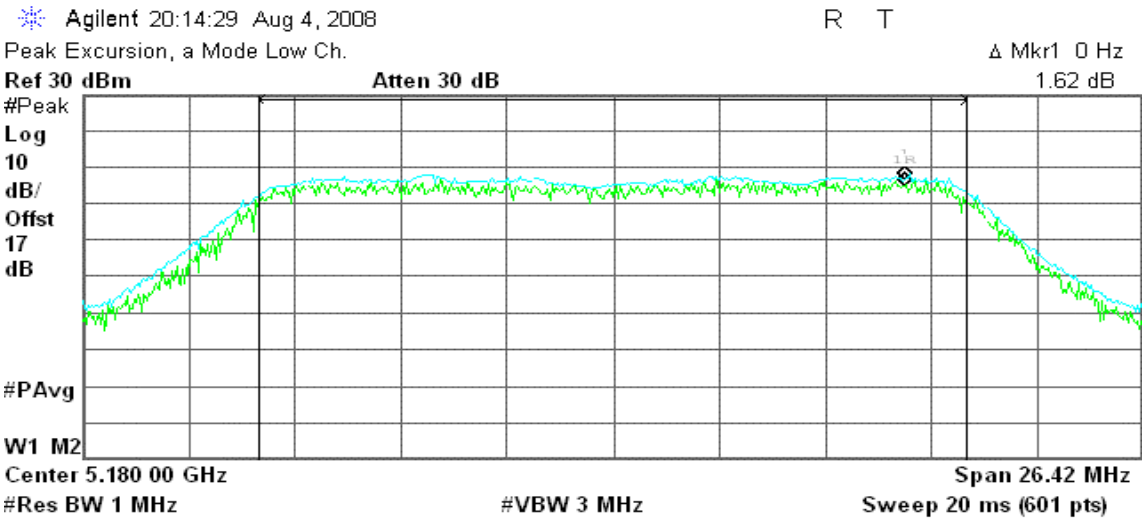



Channel Power
16.16 dBm / 17.6950 MHz

Power Spectral Density
-56.32 dBm/Hz

## draft 802.11n Standard-20 MHz Channel mode / 5180 ~ 5240MHz / Chain 2

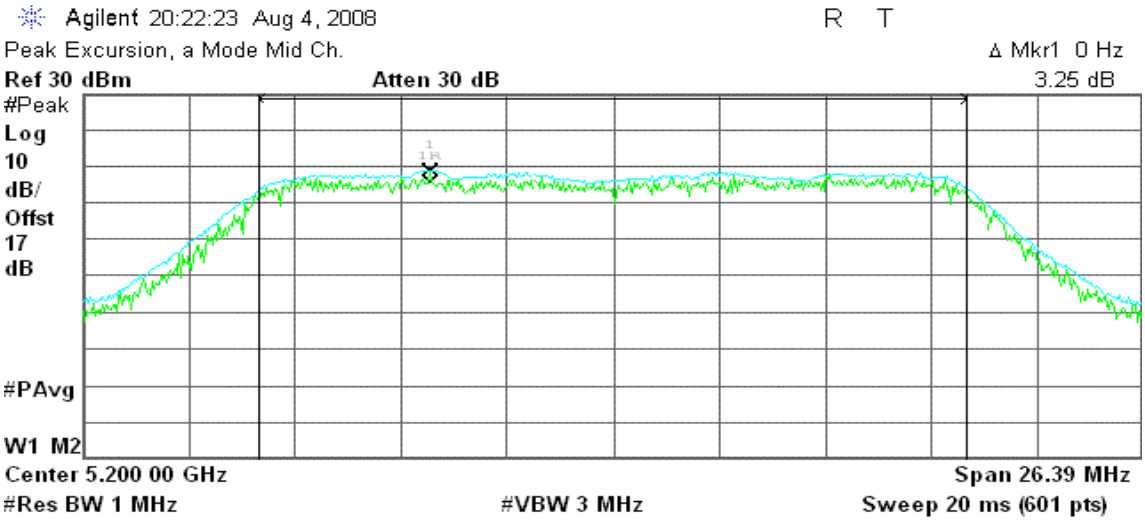
## CH Low




Channel Power
16.31 dBm / 17.6106 MHz

Power Spectral Density
-56.14 dBm/Hz

## CH Mid



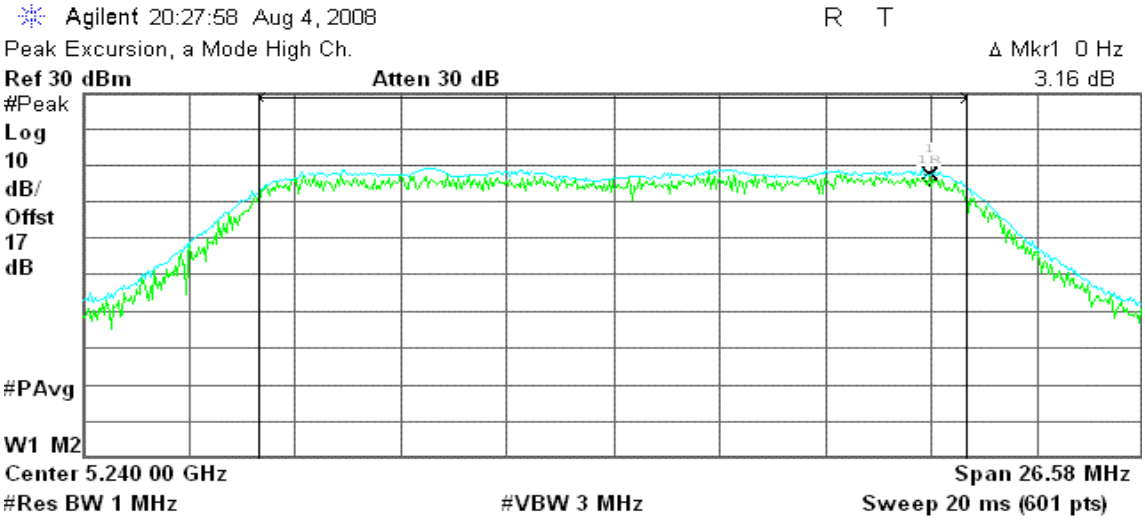

Channel Power

17.16 dBm / 17.5928 MHz

Power Spectral Density

-55.29 dBm/Hz

## CH High




Channel Power

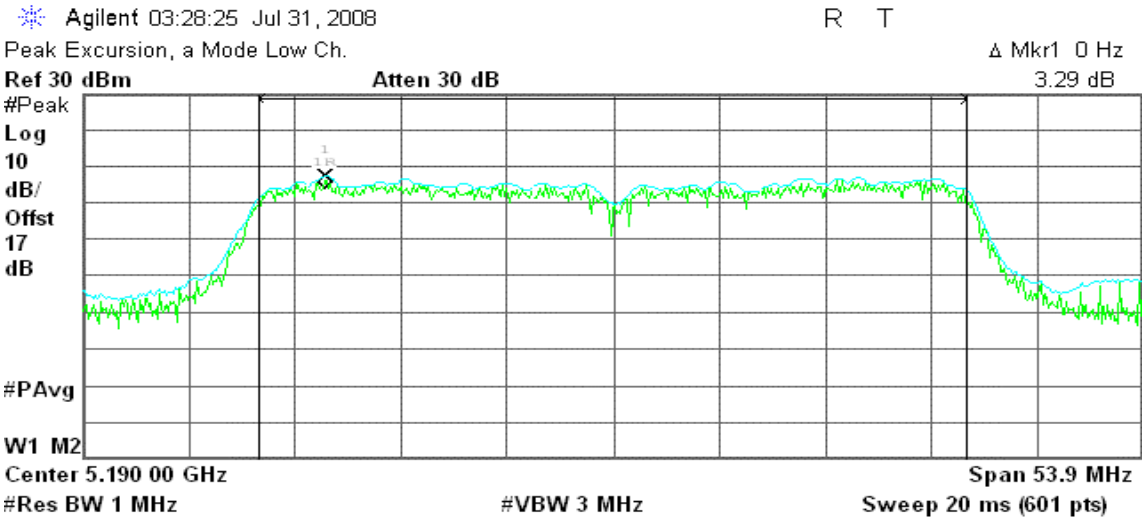
17.53 dBm / 17.7226 MHz

Power Spectral Density

-54.96 dBm/Hz

## draft 802.11n Wide-40 MHz Channel mode / 5190 ~ 5230MHz / Chain 0

### CH Low



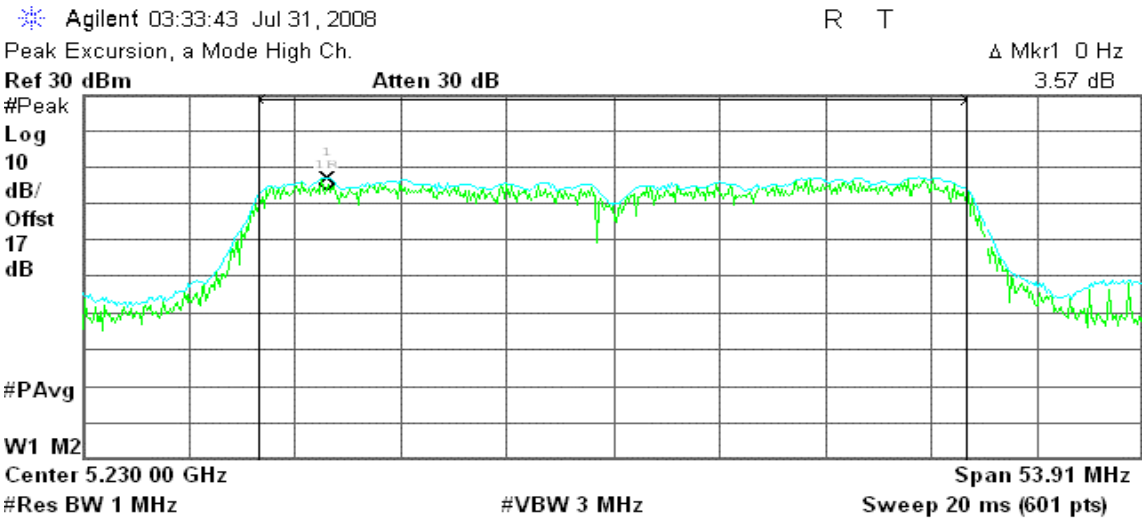

Channel Power

18.56 dBm / 35.9354 MHz

Power Spectral Density

-56.99 dBm/Hz

### CH High




Channel Power

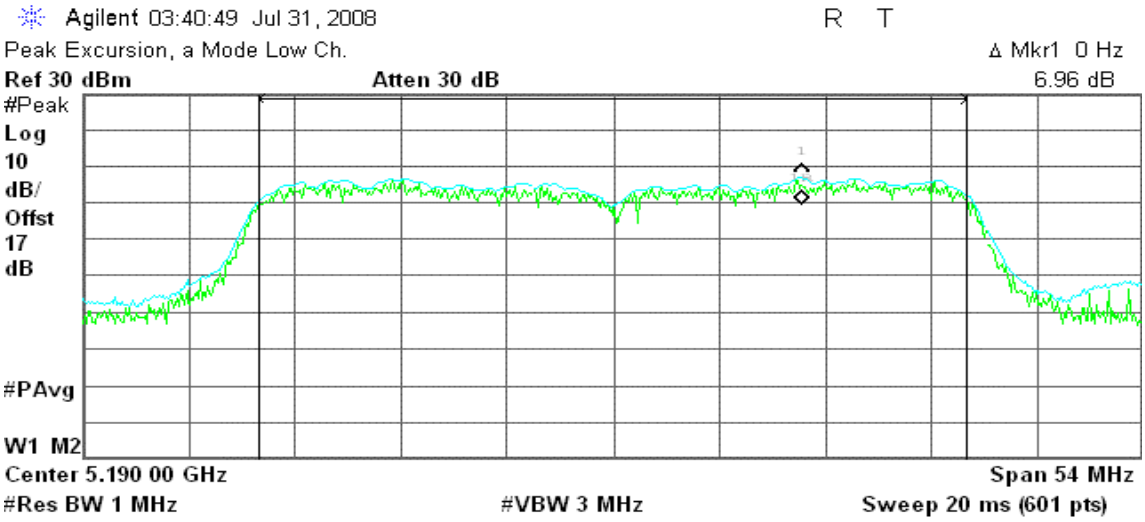
18.70 dBm / 35.9374 MHz

Power Spectral Density

-56.85 dBm/Hz

## draft 802.11n Wide-40 MHz Channel mode / 5190 ~ 5230MHz / Chain 1

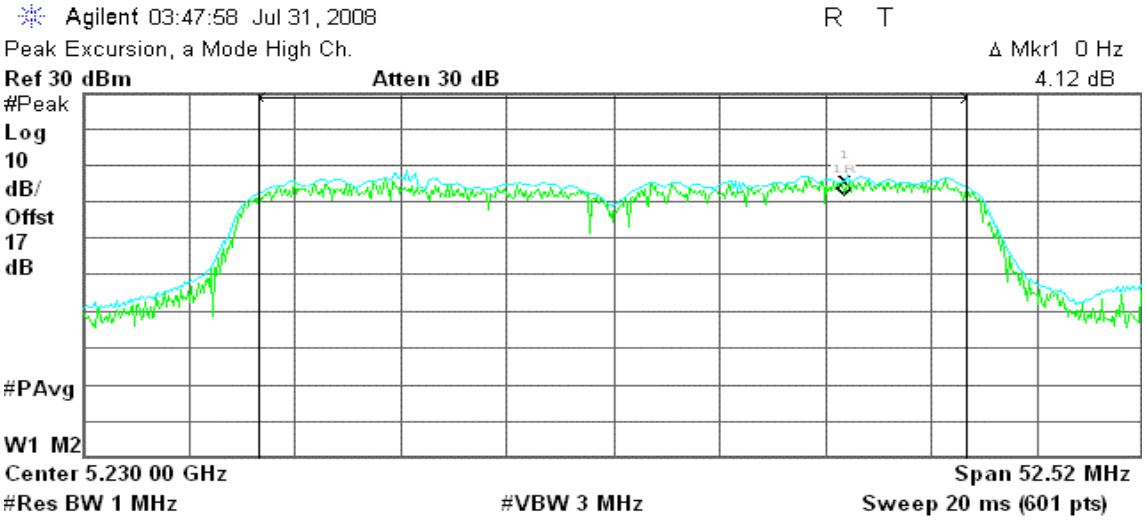
### CH Low




Channel Power
18.40 dBm / 35.9990 MHz

Power Spectral Density
-57.16 dBm/Hz

### CH High

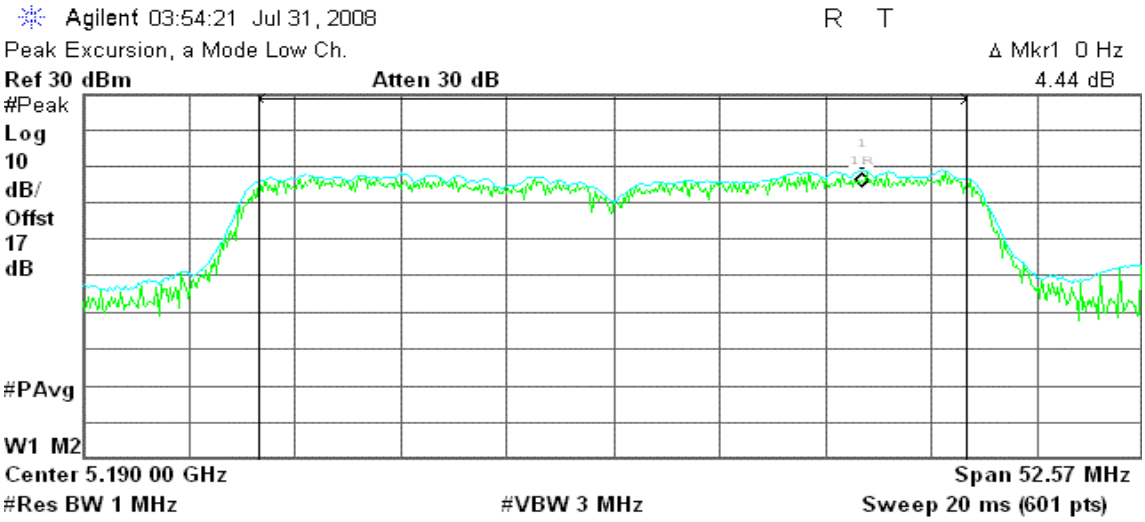



Channel Power
18.35 dBm / 35.0117 MHz

Power Spectral Density
-57.09 dBm/Hz

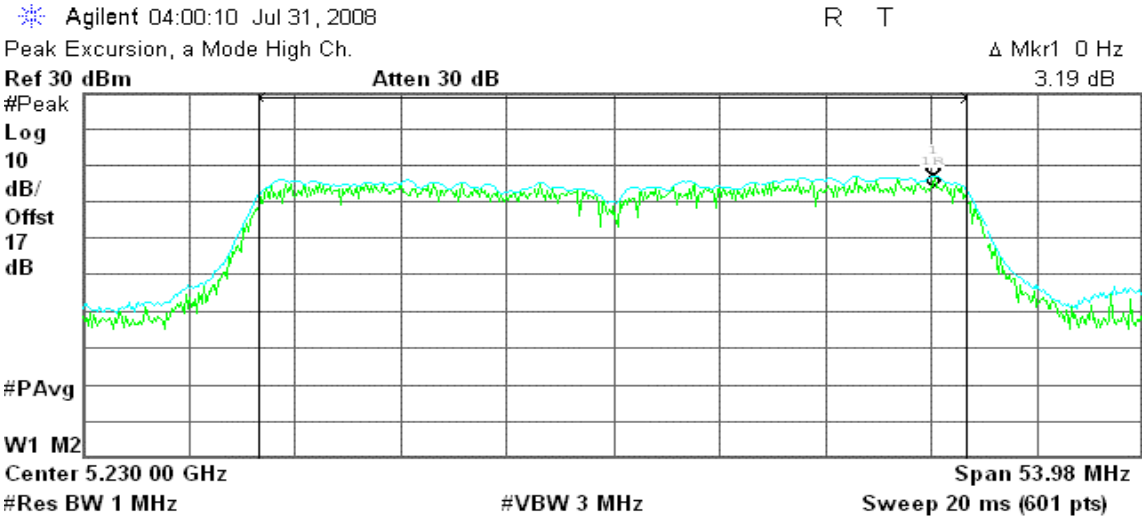
## draft 802.11n Wide-40 MHz Channel mode / 5190 ~ 5230MHz / Chain 2

### CH Low




| Channel Power | Power Spectral Density |
|---|---|
| 20.14 dBm / 35.0464 MHz | -55.31 dBm/Hz |

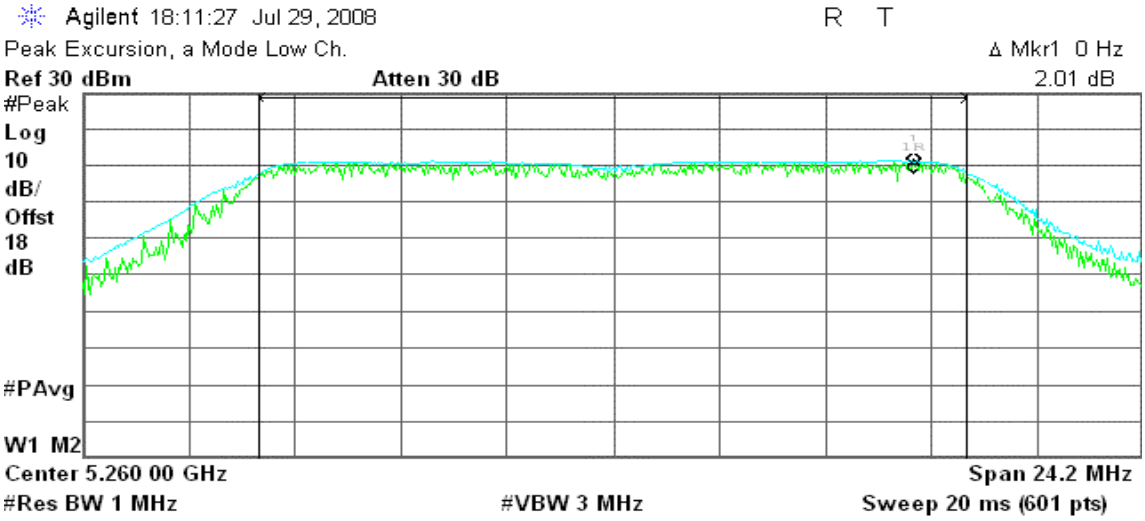
### CH High




| Channel Power | Power Spectral Density |
|---|---|
| 18.22 dBm / 35.9880 MHz | -57.35 dBm/Hz |

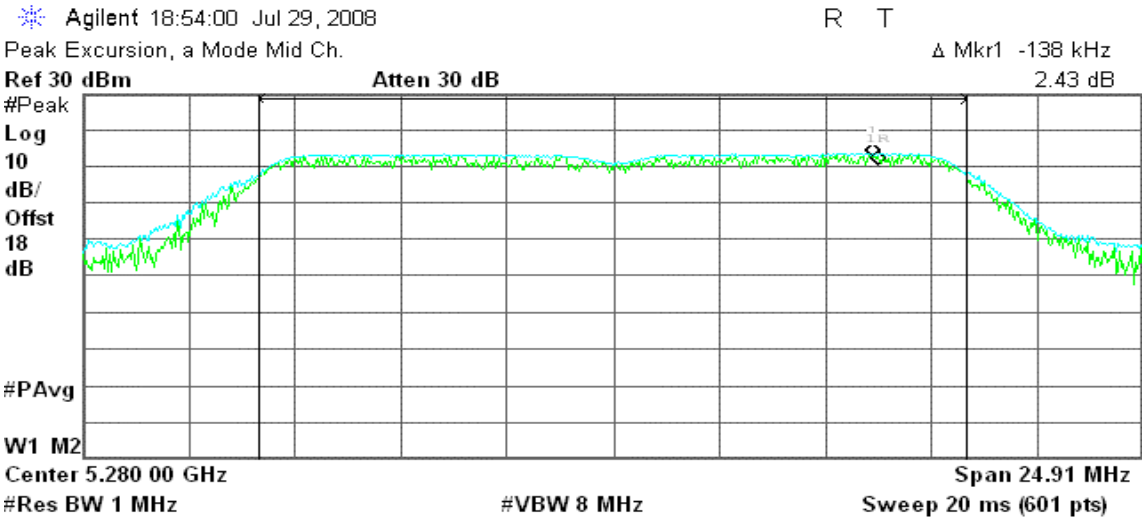
## IEEE 802.11a mode / 5260 ~ 5320MHz

### CH Low



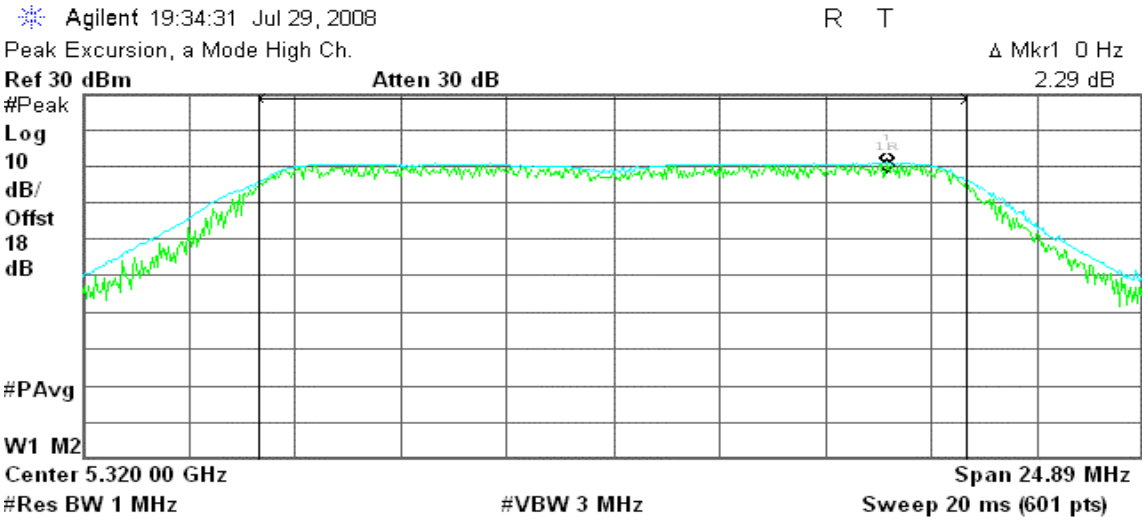

| Channel Power | Power Spectral Density |
|---|---|
| 21.00 dBm / 16.6050 MHz | -51.08 dBm/Hz |

### CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 23.33 dBm / 16.6050 MHz | -48.87 dBm/Hz |

**CH High**

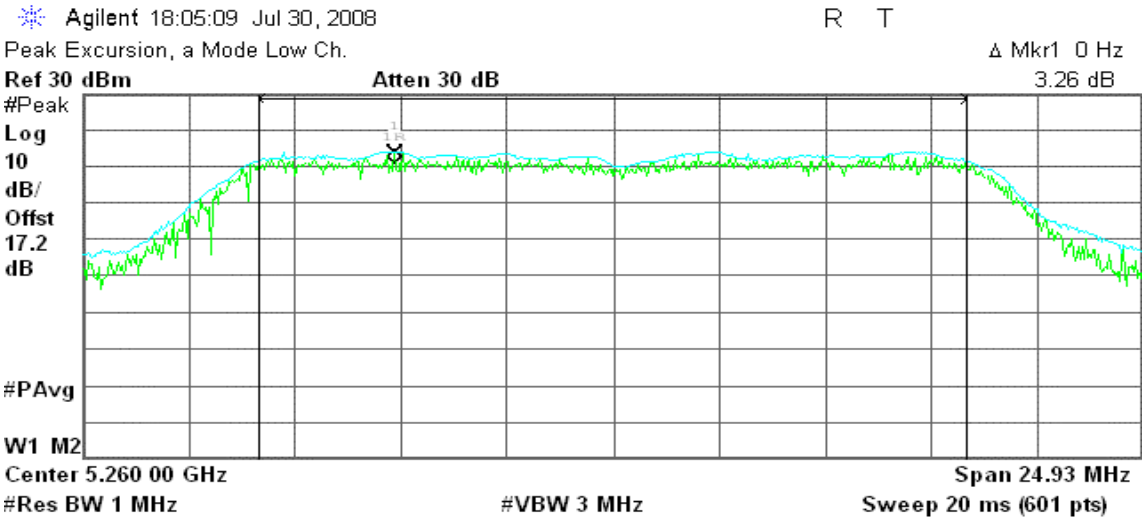



Channel Power
20.68 dBm / 16.5910 MHz

Power Spectral Density
-51.52 dBm/Hz

**draft 802.11n Standard-20 MHz Channel mode / 5260 ~ 5320MHz / Chain 0**

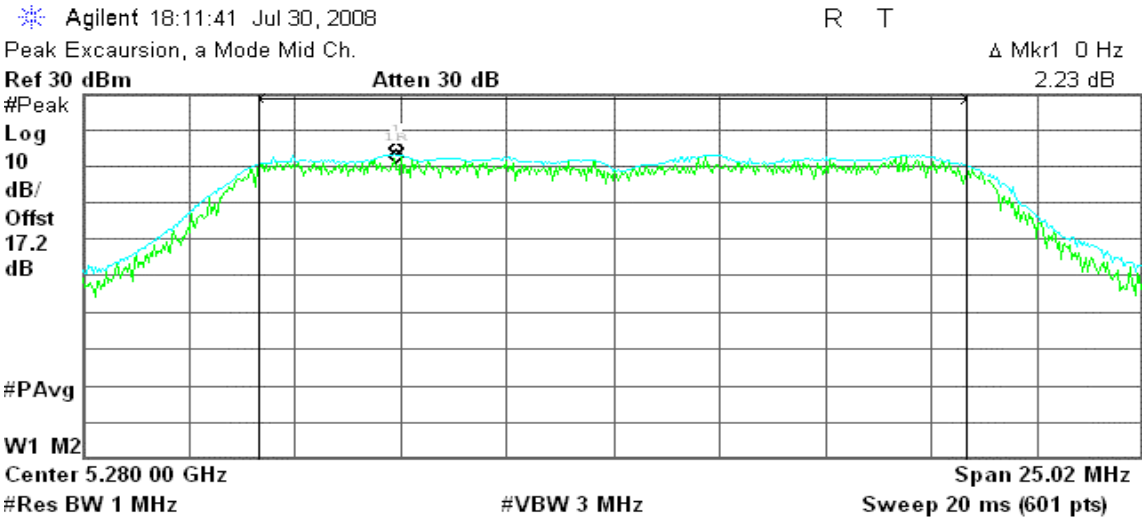
**CH Low**




Channel Power
22.45 dBm / 16.6212 MHz

Power Spectral Density
-49.75 dBm/Hz

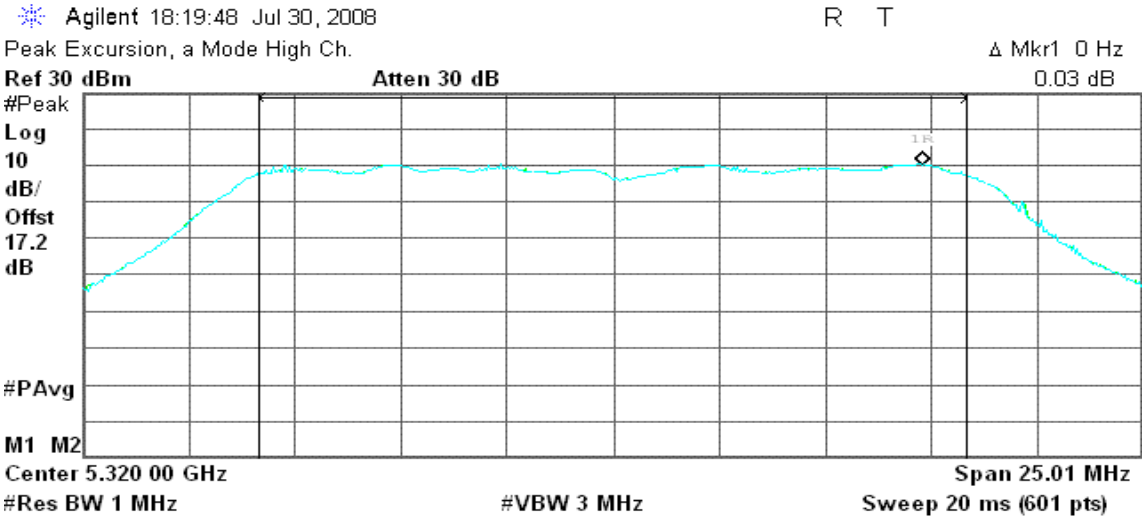
## CH Mid




Channel Power
21.61 dBm / 16.6790 MHz

Power Spectral Density
-50.61 dBm/Hz

## CH High

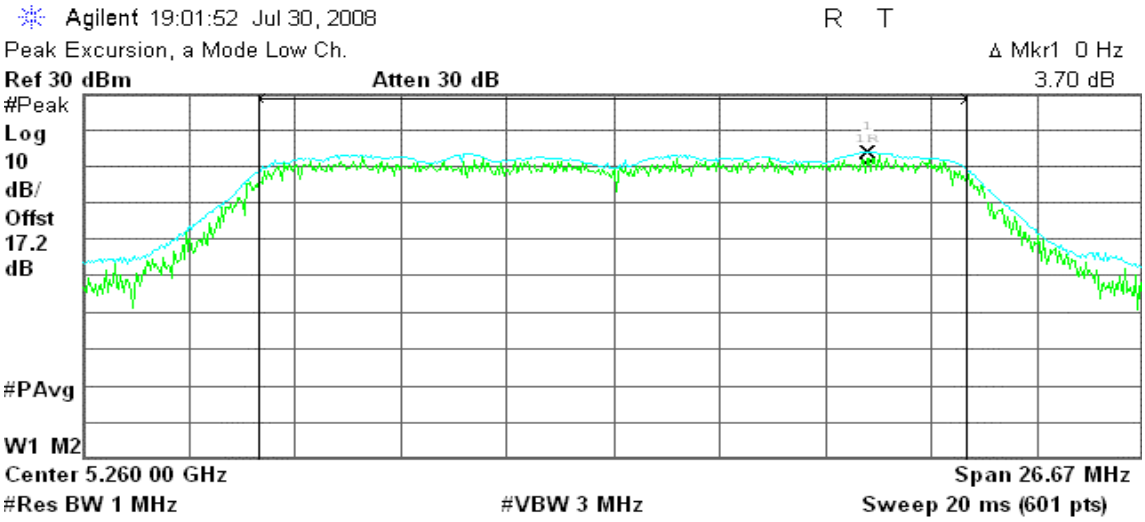



Channel Power
18.40 dBm / 16.6707 MHz

Power Spectral Density
-53.82 dBm/Hz

## draft 802.11n Standard-20 MHz Channel mode / 5260 ~ 5320MHz / Chain 1

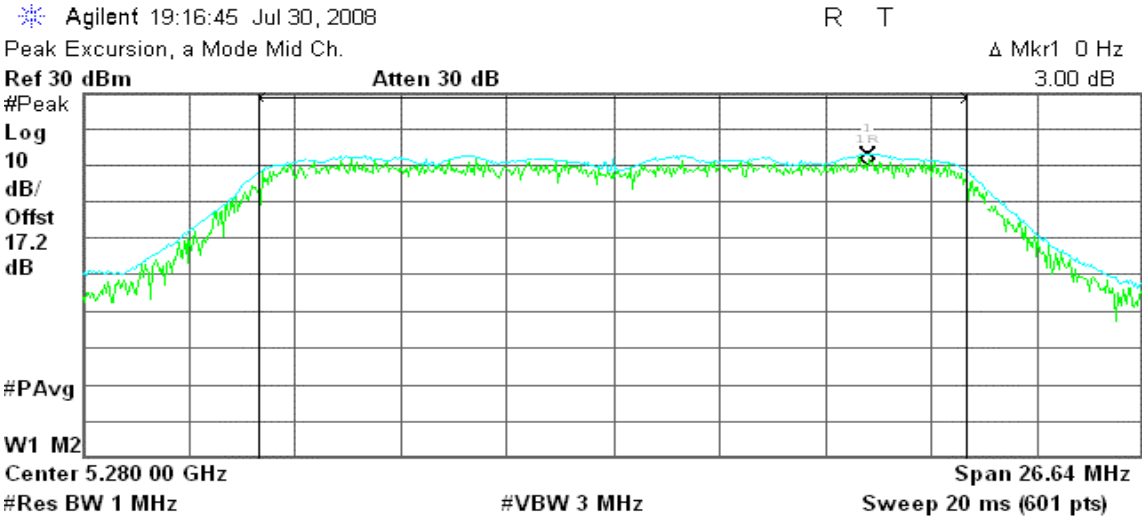
### CH Low




Channel Power
22.12 dBm / 17.7820 MHz

Power Spectral Density
-50.38 dBm/Hz

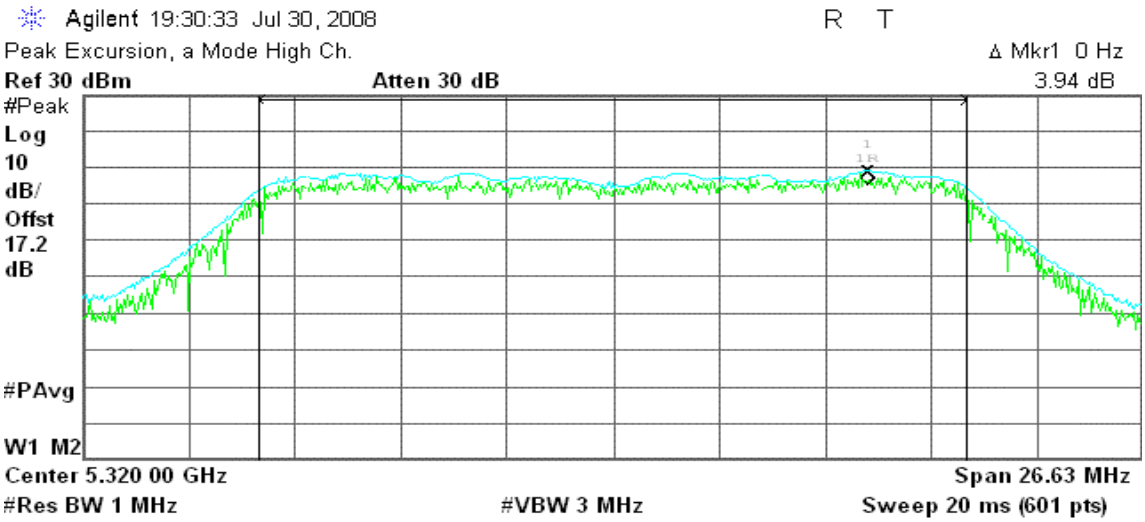
### CH Mid




Channel Power
21.31 dBm / 17.7600 MHz

Power Spectral Density
-51.19 dBm/Hz

## CH High

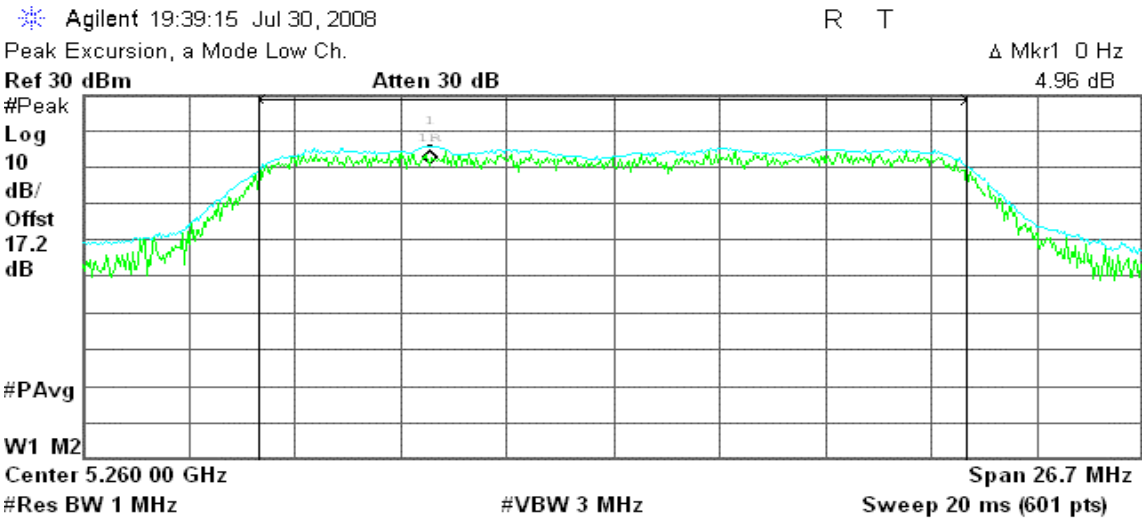



Channel Power
17.12 dBm / 17.7520 MHz

Power Spectral Density
-55.37 dBm/Hz

## draft 802.11n Standard-20 MHz Channel mode / 5260 ~ 5320MHz / Chain 2

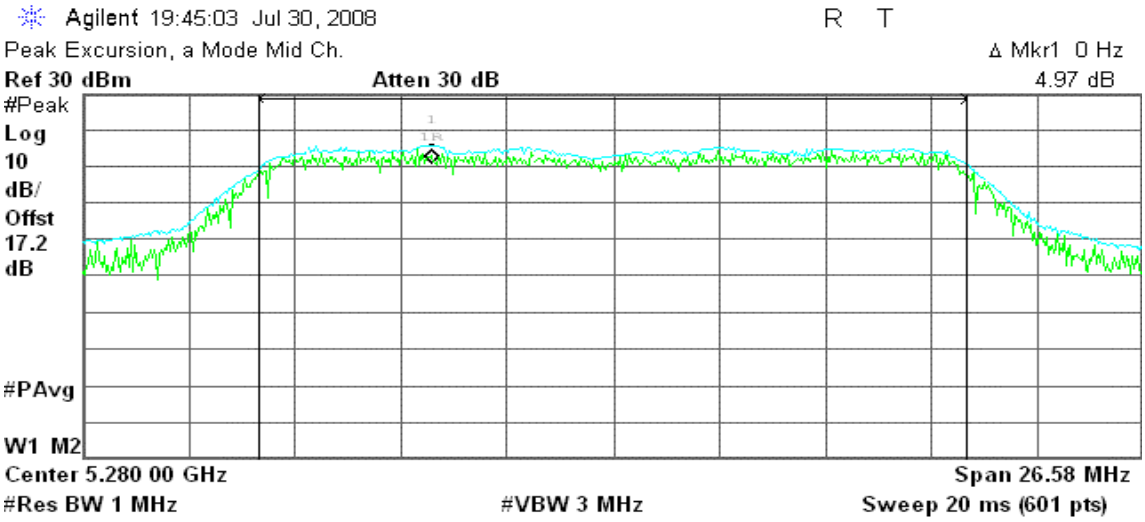
## CH Low




Channel Power
24.10 dBm / 17.8030 MHz

Power Spectral Density
-48.40 dBm/Hz

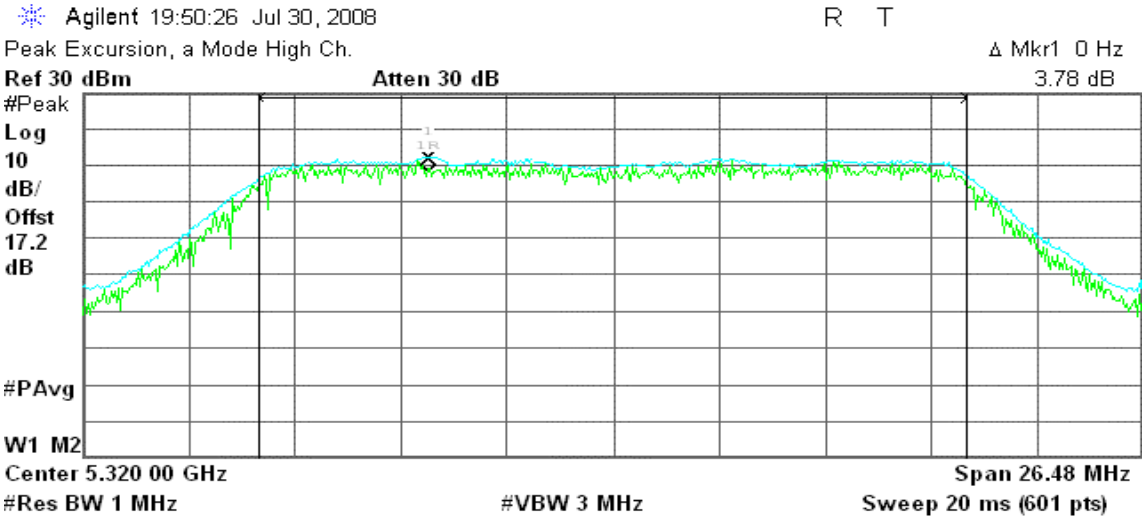
## CH Mid




Channel Power
24.05 dBm / 17.7200 MHz

Power Spectral Density
-48.43 dBm/Hz

## CH High

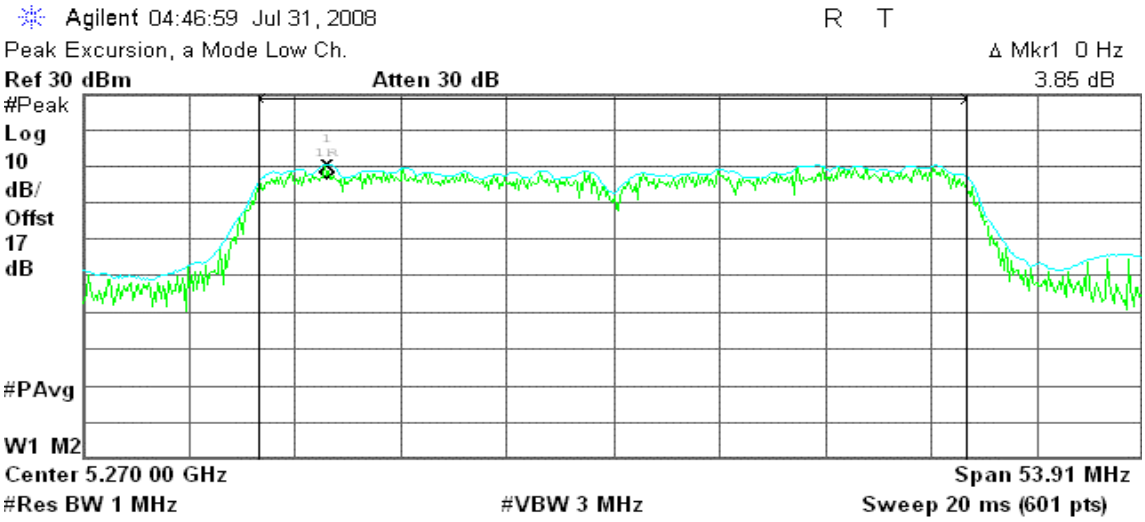



Channel Power
20.62 dBm / 17.6500 MHz

Power Spectral Density
-51.85 dBm/Hz

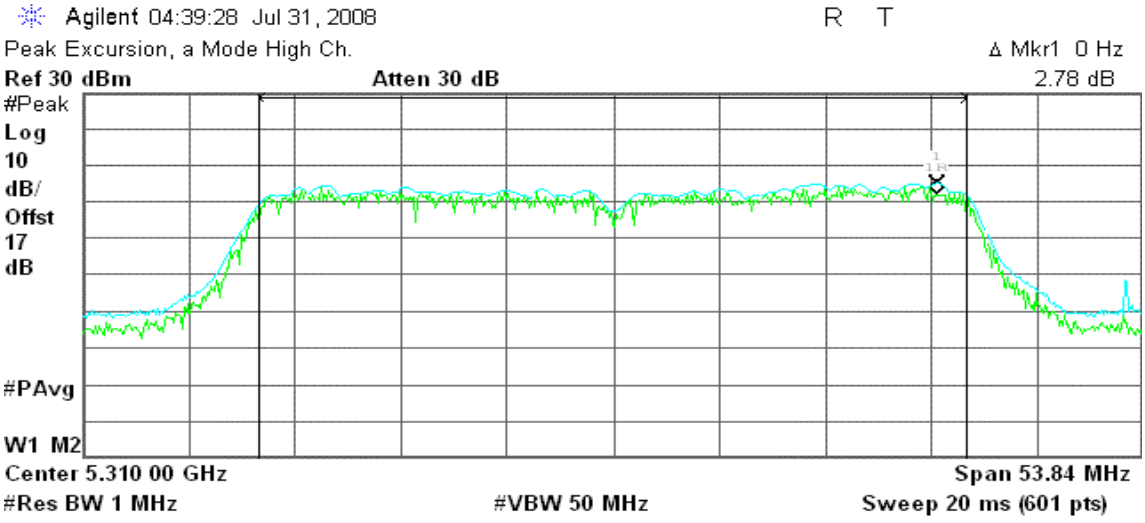
## draft 802.11n Wide-40 MHz Channel mode / 5270 ~ 5310MHz / Chain 0

### CH Low




| Channel Power | Power Spectral Density |
|---|---|
| 21.87 dBm / 35.9396 MHz | -53.68 dBm/Hz |

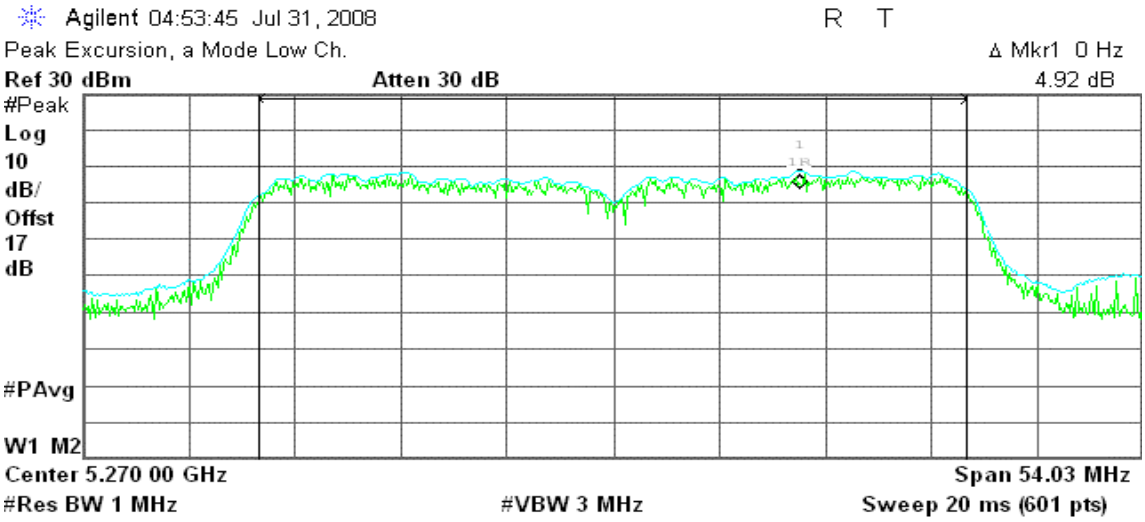
### CH High




| Channel Power | Power Spectral Density |
|---|---|
| 16.38 dBm / 35.8914 MHz | -59.17 dBm/Hz |

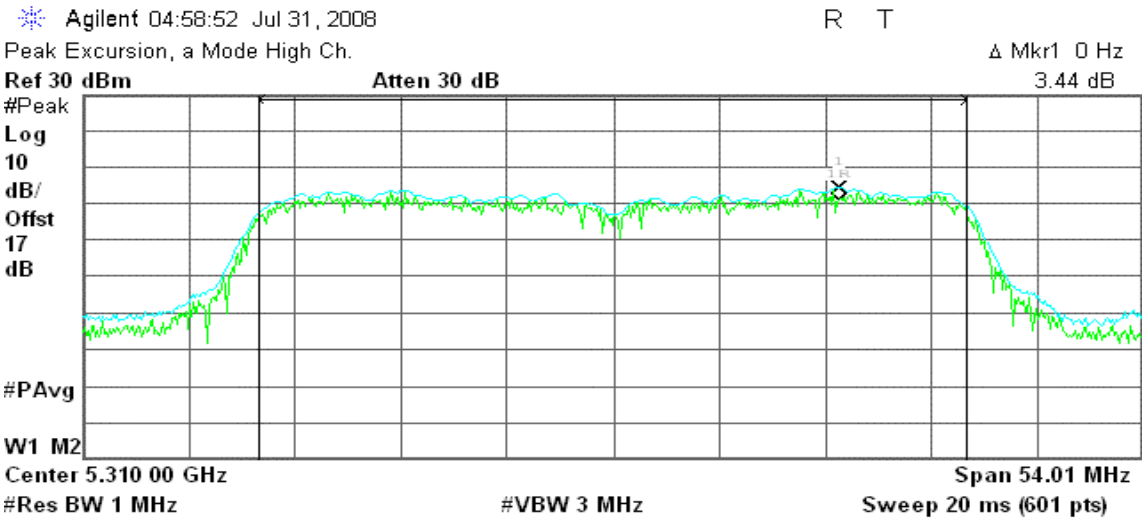
## draft 802.11n Wide-40 MHz Channel mode / 5270 ~ 5310MHz / Chain 1

### CH Low




| Channel Power | Power Spectral Density |
|---|---|
| 20.15 dBm / 36.0180 MHz | -55.41 dBm/Hz |

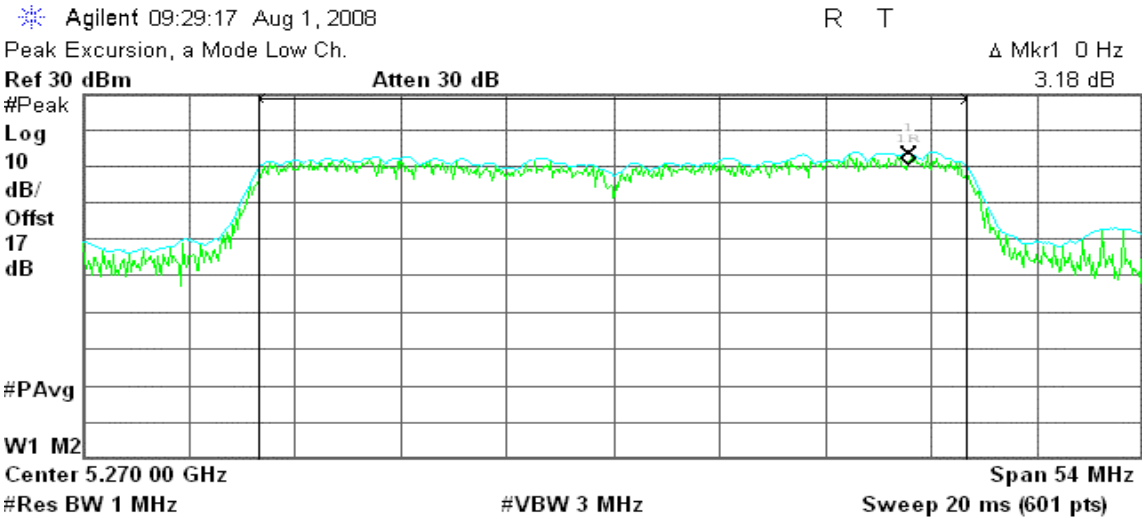
### CH High




| Channel Power | Power Spectral Density |
|---|---|
| 15.34 dBm / 36.0070 MHz | -60.23 dBm/Hz |

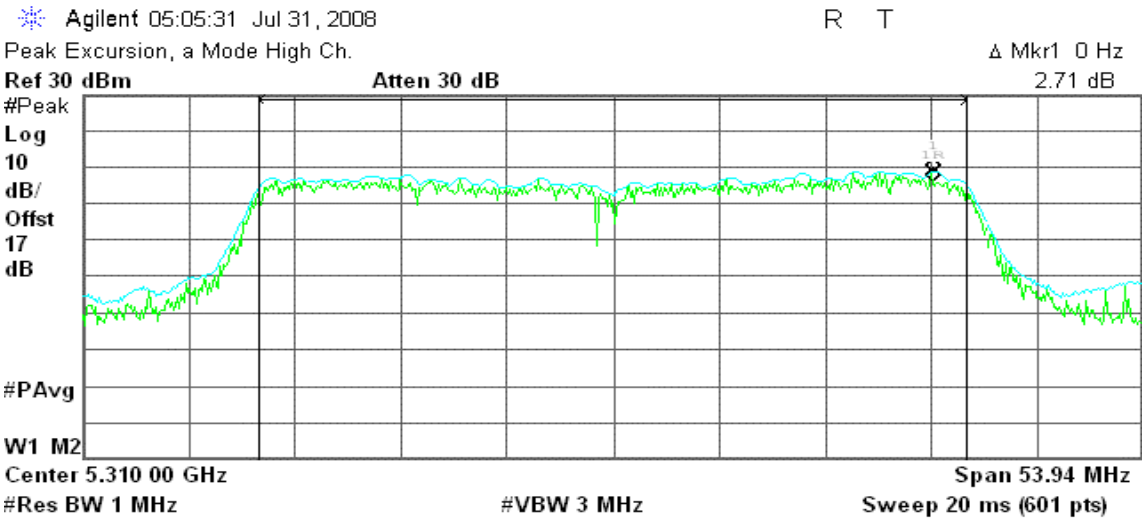
## draft 802.11n Wide-40 MHz Channel mode / 5270 ~ 5310MHz / Chain 2

### CH Low




| Channel Power | Power Spectral Density |
|---|---|
| 25.06 dBm / 35.9990 MHz | -50.50 dBm/Hz |

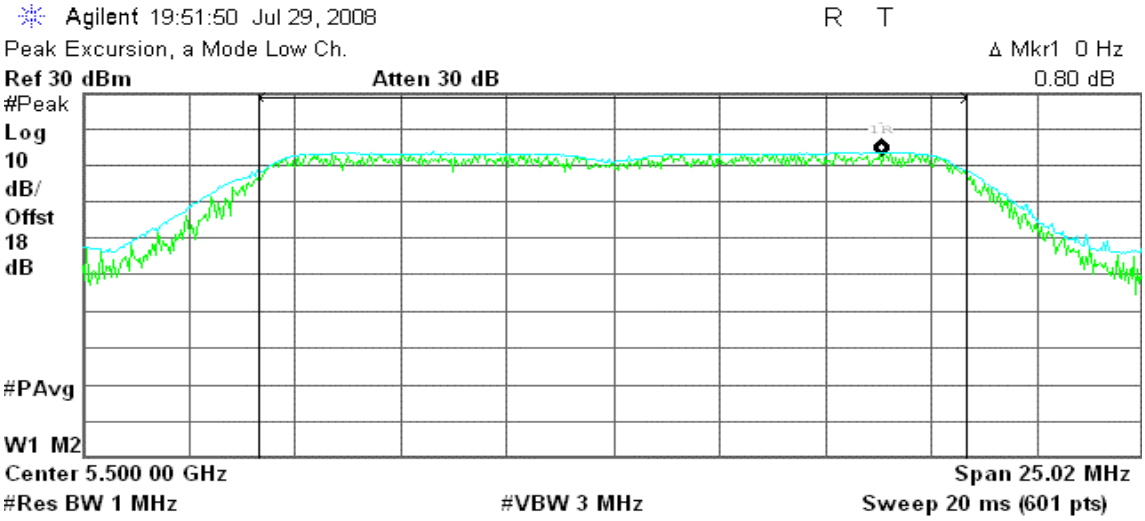
### CH High




| Channel Power | Power Spectral Density |
|---|---|
| 19.93 dBm / 35.9614 MHz | -55.63 dBm/Hz |

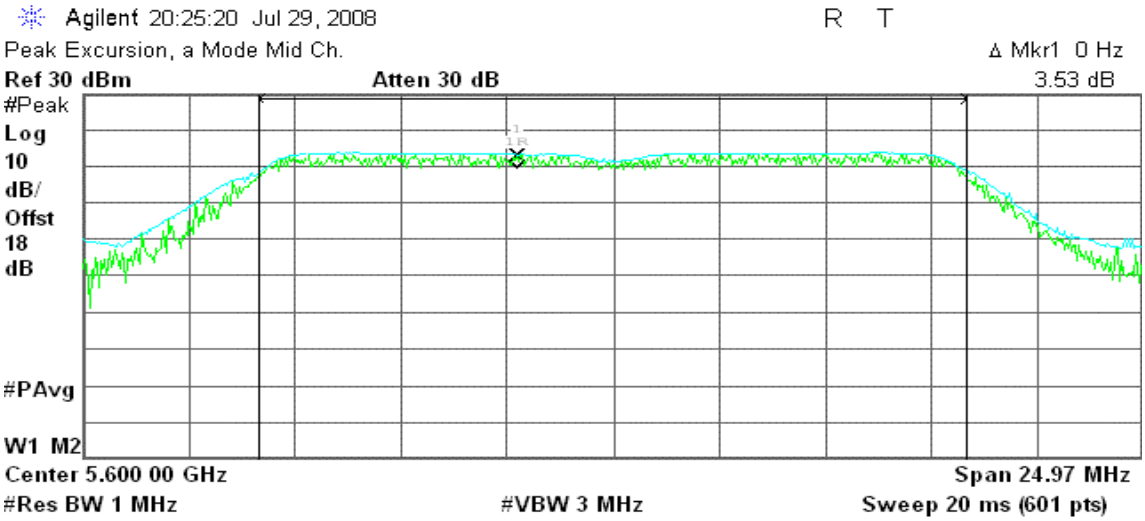
## Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz

### CH Low



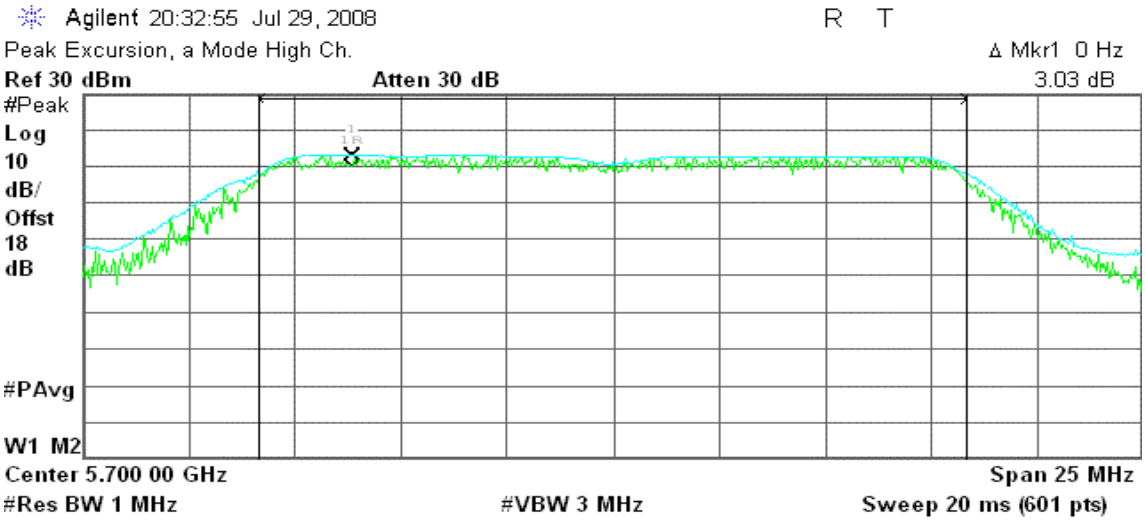

| Channel Power | Power Spectral Density |
|---|---|
| 23.36 dBm / 16.6780 MHz | -48.86 dBm/Hz |

### CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 23.73 dBm / 16.6440 MHz | -48.48 dBm/Hz |

**CH High**

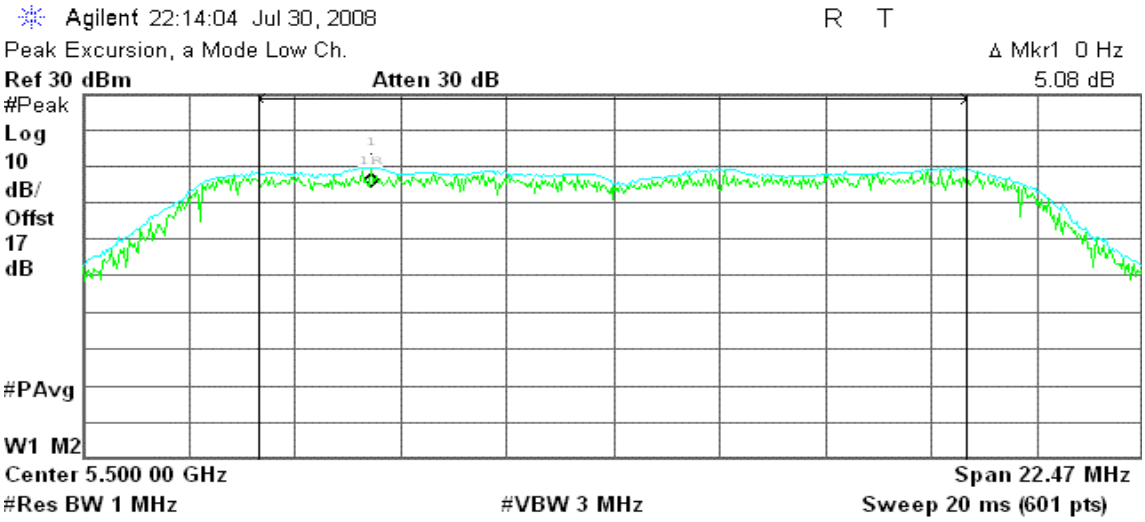



Channel Power
23.00 dBm / 16.6690 MHz

Power Spectral Density
-49.22 dBm/Hz

**draft 802.11n Standard-20 MHz Channel mode / 5500 ~ 5700MHz / Chain 0**

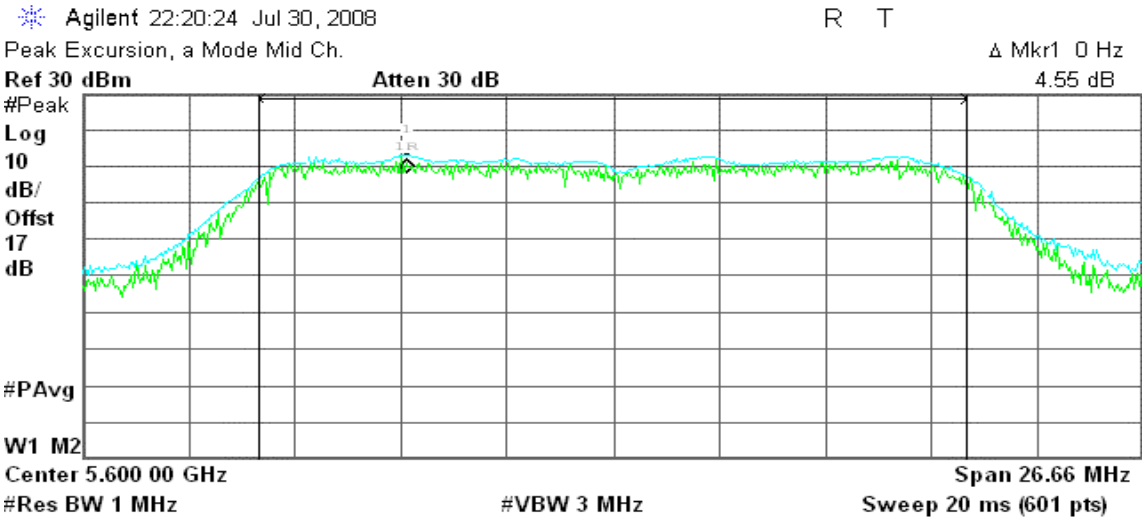
**CH Low**




Channel Power
17.42 dBm / 14.9800 MHz

Power Spectral Density
-54.34 dBm/Hz

## CH Mid



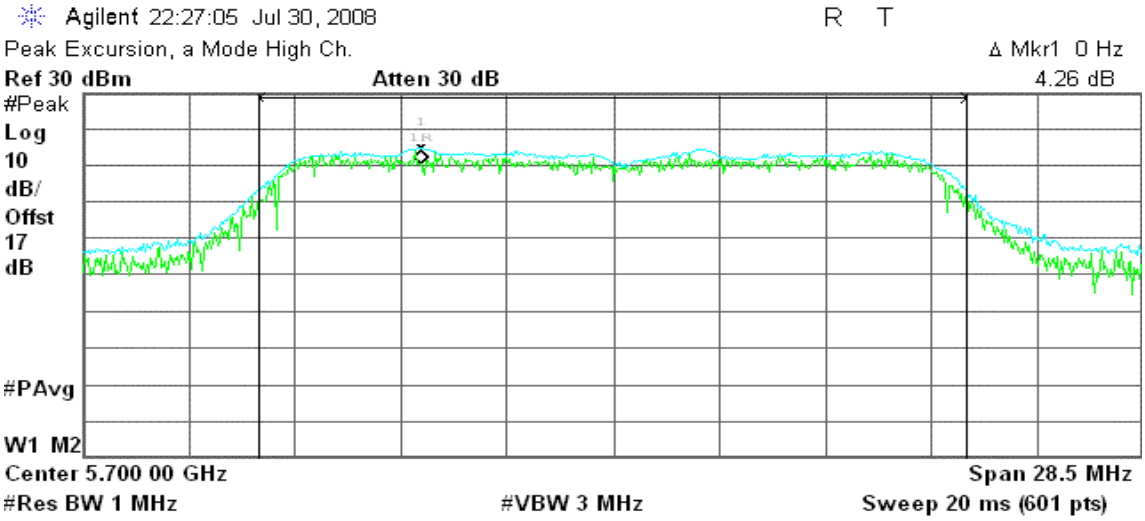

Channel Power

21.38 dBm / 17.7700 MHz

Power Spectral Density

-51.11 dBm/Hz

## CH High




Channel Power

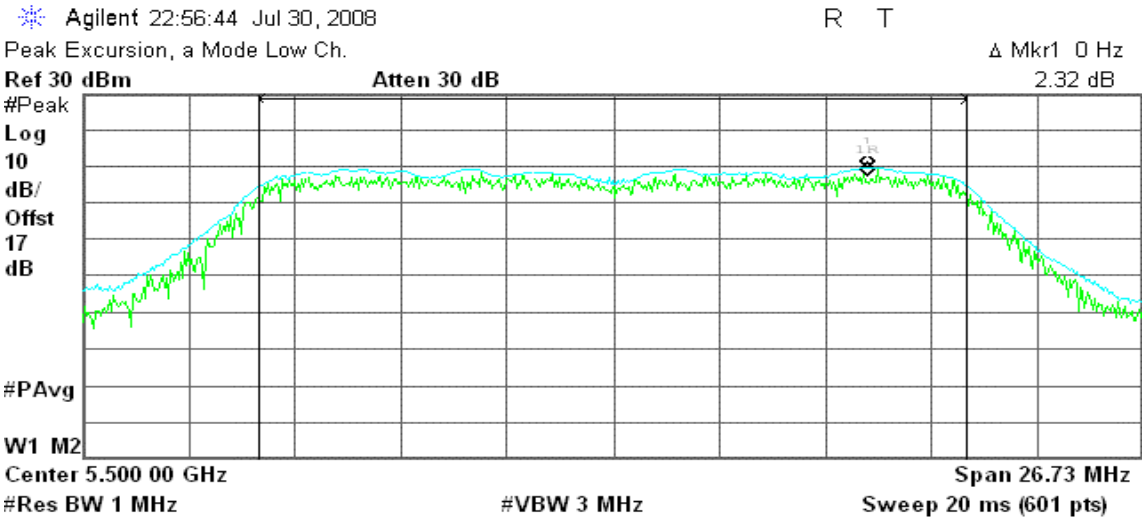
22.93 dBm / 19.0000 MHz

Power Spectral Density

-49.86 dBm/Hz

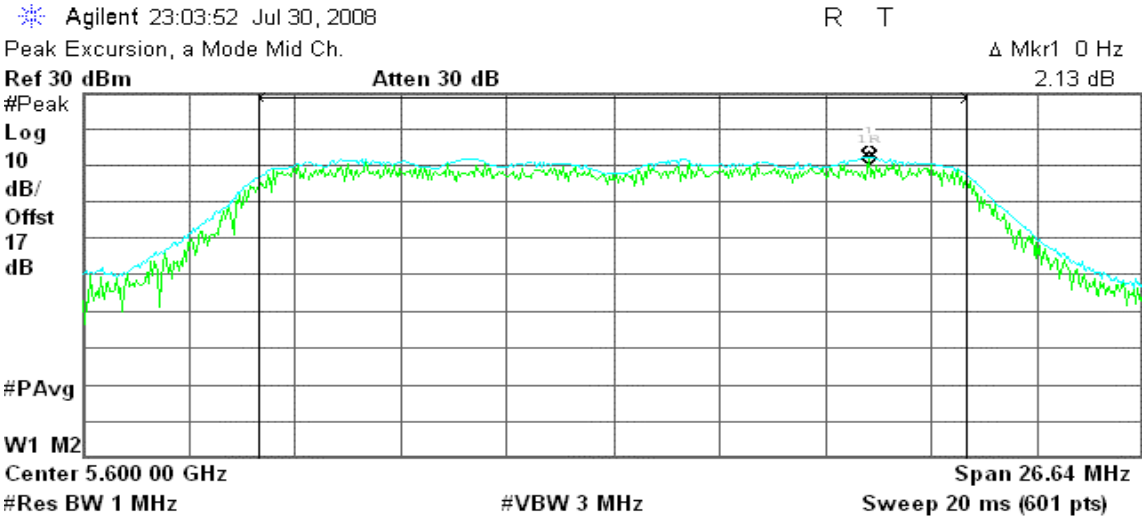
## draft 802.11n Standard-20 MHz Channel mode / 5500 ~ 5700MHz / Chain 1

### CH Low



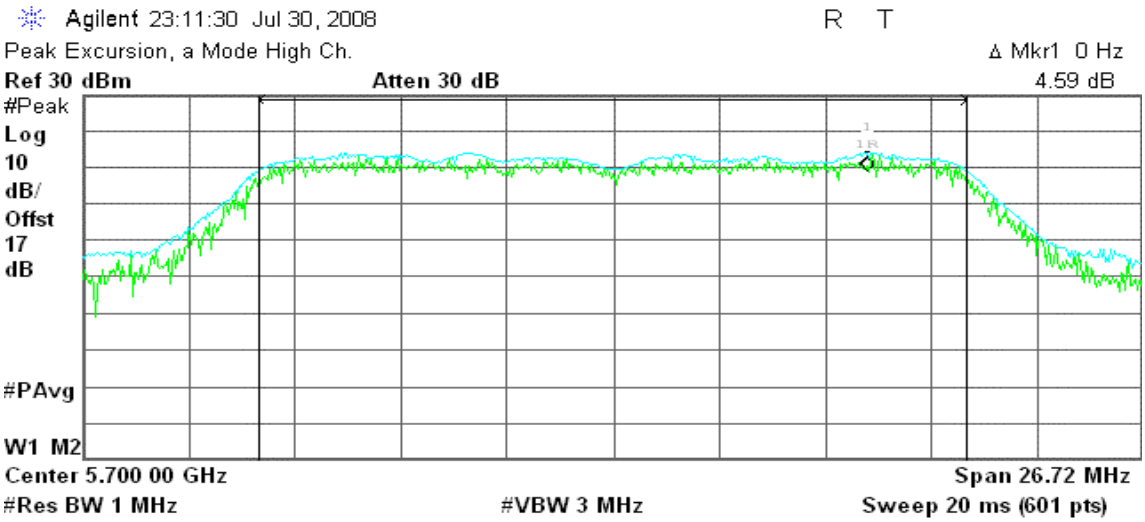

| Channel Power | Power Spectral Density |
|---|---|
| 17.84 dBm / 17.8226 MHz | -54.67 dBm/Hz |

### CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 20.32 dBm / 17.7593 MHz | -52.18 dBm/Hz |

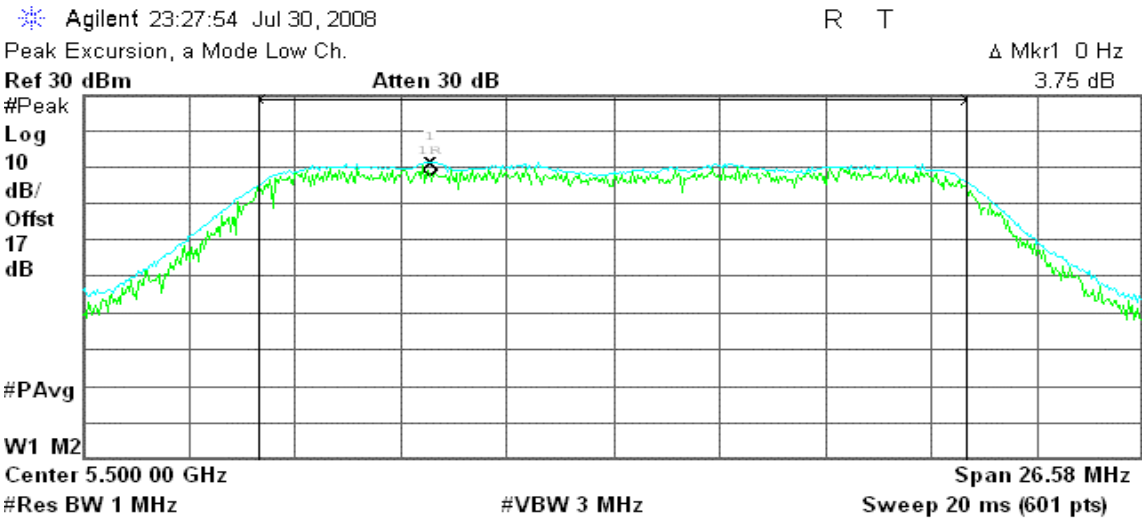
### CH High




| Channel Power | Power Spectral Density |
|---|---|
| 22.31 dBm / 17.8110 MHz | -50.19 dBm/Hz |

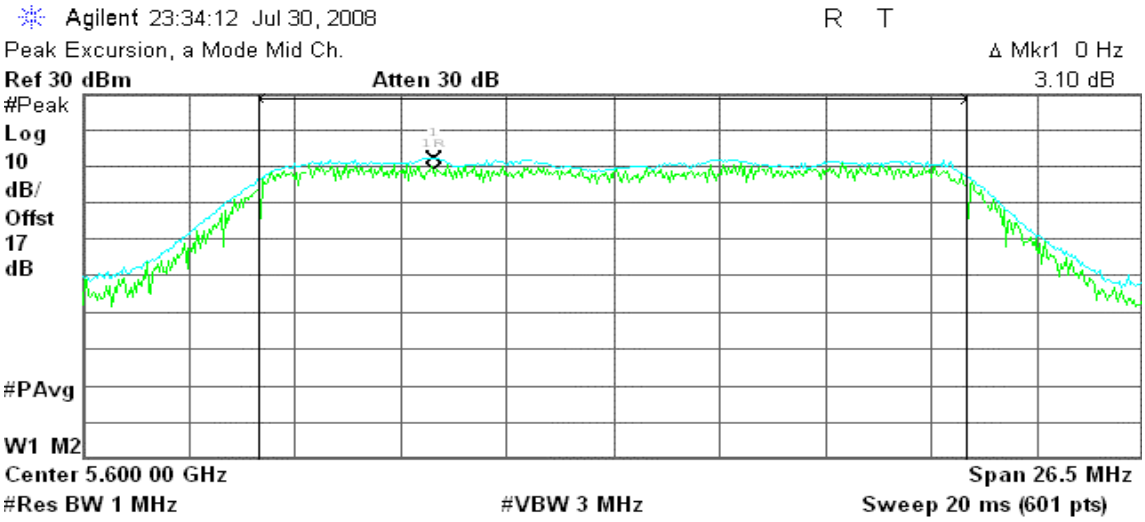
**<u>draft 802.11n Standard-20 MHz Channel mode / 5500 ~ 5700MHz / Chain 2</u>**

### CH Low




| Channel Power | Power Spectral Density |
|---|---|
| 19.66 dBm / 17.7185 MHz | -52.82 dBm/Hz |

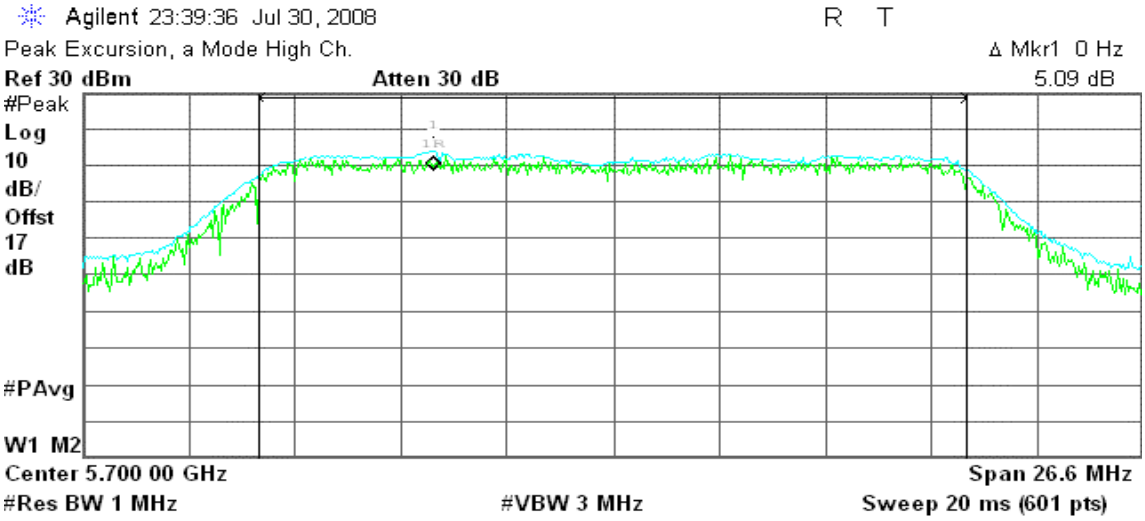
## CH Mid




Channel Power
20.63 dBm / 17.6643 MHz

Power Spectral Density
-51.85 dBm/Hz

## CH High

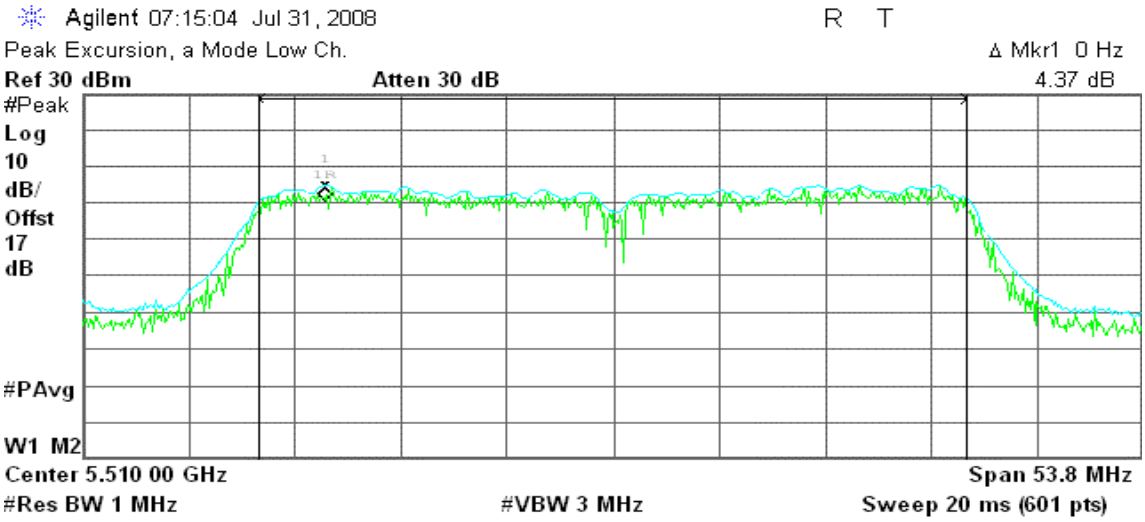



Channel Power
21.98 dBm / 17.7337 MHz

Power Spectral Density
-50.51 dBm/Hz

## draft 802.11n Wide-40 MHz Channel mode / 5510 ~ 5670MHz / Chain 0

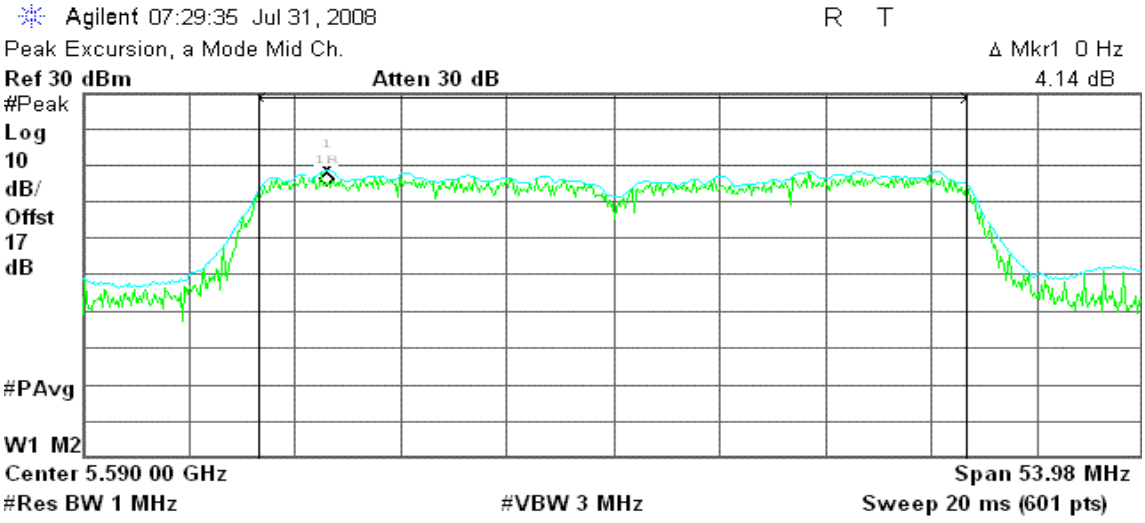
### CH Low




Channel Power
16.20 dBm / 35.8690 MHz

Power Spectral Density
-59.35 dBm/Hz

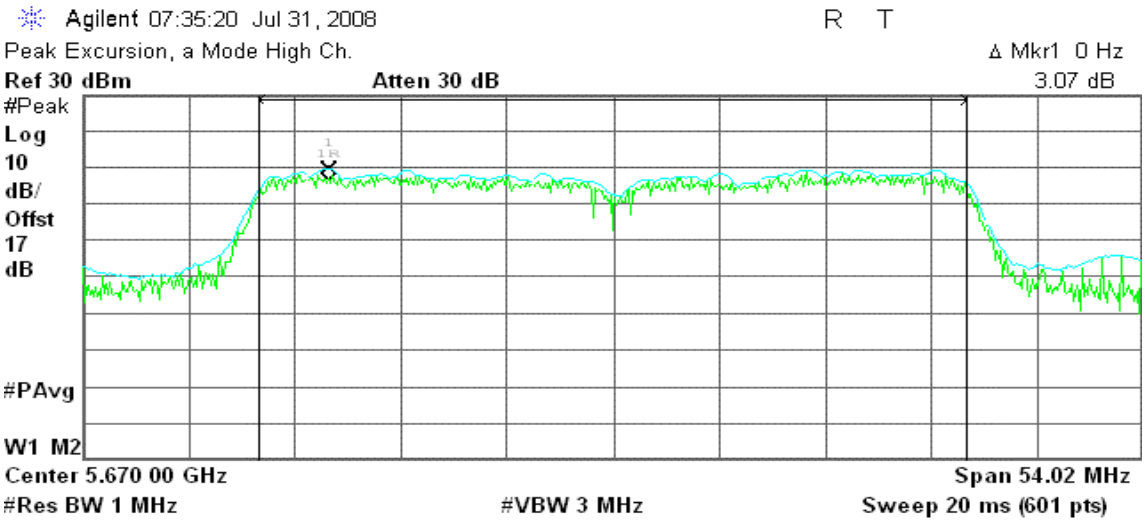
### CH Mid




Channel Power
19.89 dBm / 35.9880 MHz

Power Spectral Density
-55.67 dBm/Hz

### CH High

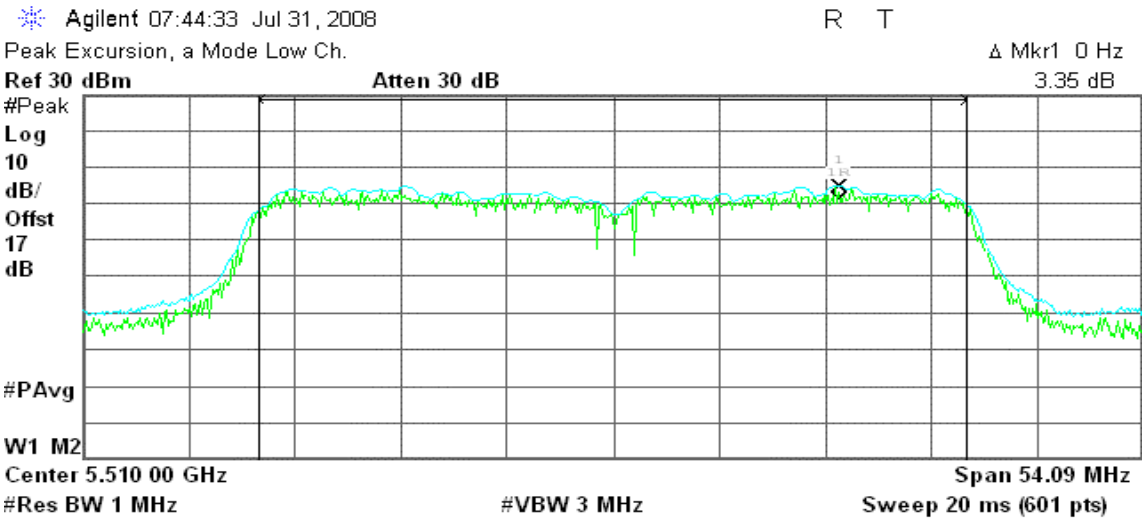



Channel Power
21.07 dBm / 36.0150 MHz

Power Spectral Density
-54.50 dBm/Hz

## draft 802.11n Wide-40 MHz Channel mode / 5510 ~ 5670MHz / Chain 1

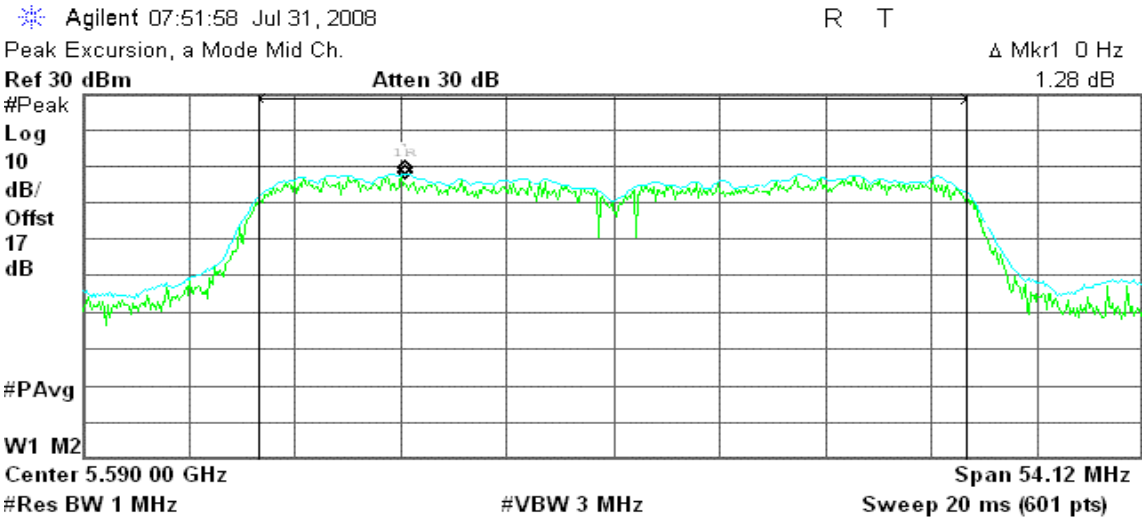
### CH Low




Channel Power
16.04 dBm / 36.0621 MHz

Power Spectral Density
-59.53 dBm/Hz

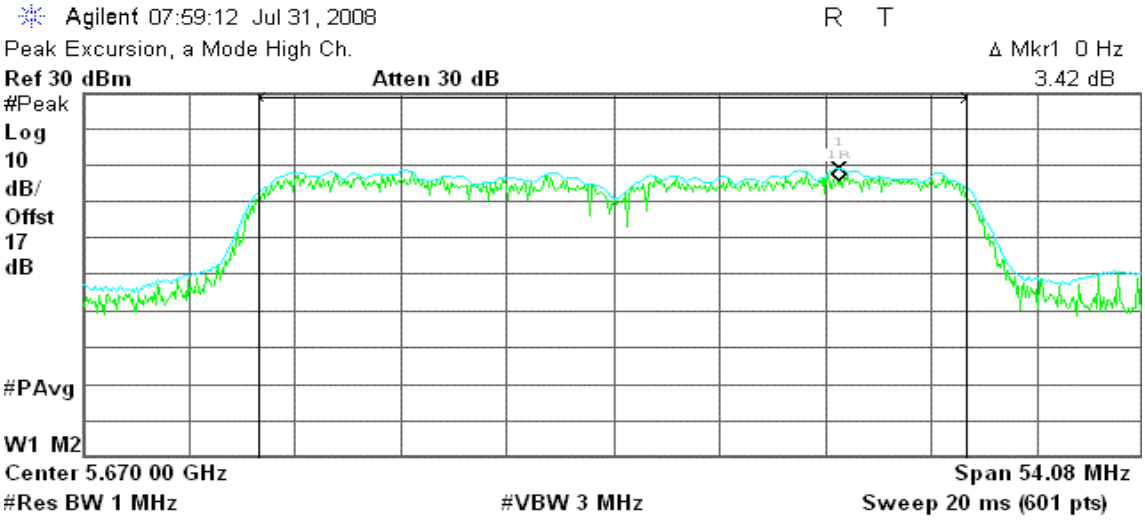
## CH Mid




Channel Power
19.36 dBm / 36.0825 MHz

Power Spectral Density
-56.21 dBm/Hz

## CH High

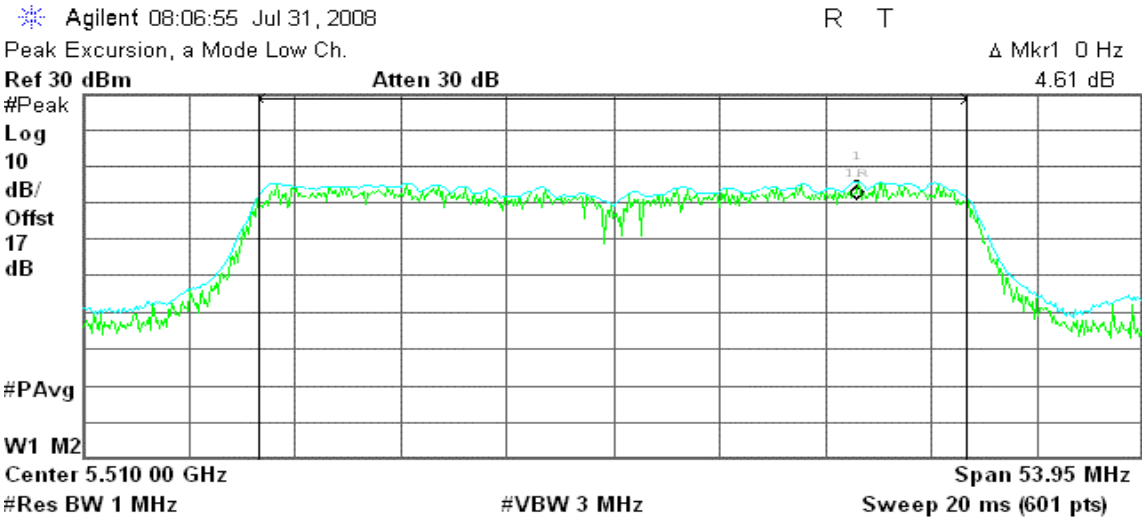



Channel Power
20.06 dBm / 36.0509 MHz

Power Spectral Density
-55.51 dBm/Hz

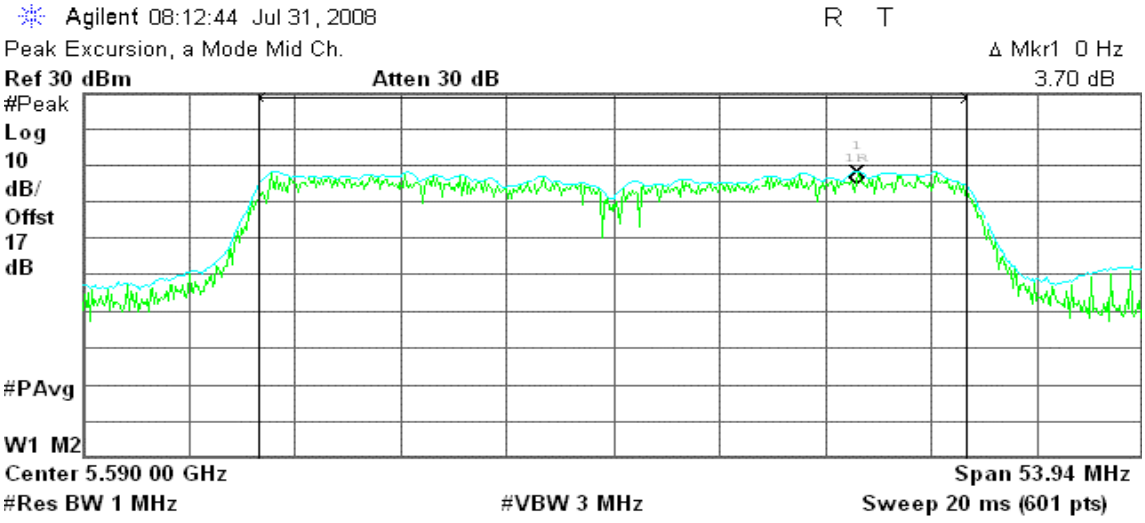
## draft 802.11n Wide-40 MHz Channel mode / 5510 ~ 5670MHz / Chain 2.

### CH Low



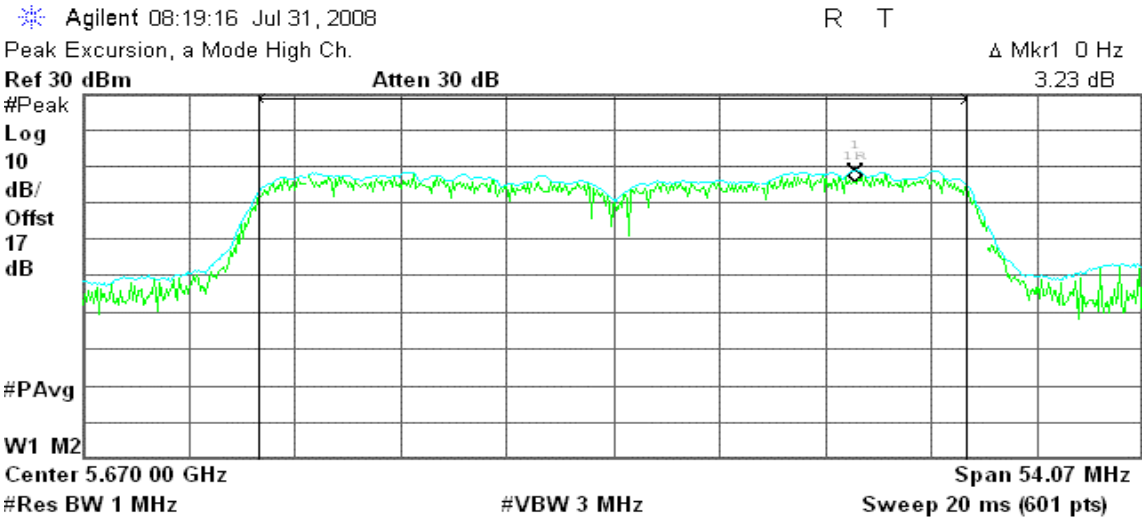

| Channel Power | Power Spectral Density |
|---|---|
| 17.19 dBm / 35.9660 MHz | -58.37 dBm/Hz |

### CH Mid




| Channel Power | Power Spectral Density |
|---|---|
| 19.82 dBm / 35.9580 MHz | -55.73 dBm/Hz |

## CH High




Channel Power

20.17 dBm / 36.0462 MHz

Power Spectral Density

-55.40 dBm/Hz