26 dB BANDWIDTH





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8.37.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% Bandwidth |
|---------|-----------|---------------|
| | (MHz) | (MHz) |
| Low | 5500 | 16.5707 |
| Mid | 5580 | 16.5651 |
| High | 5700 | 16.5650 |

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99% BANDWIDTH





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8.37.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

This is SISO mode, AG is the highest (worst-case) = 5.72 dBi

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RESULTS

| Channel | Frequency | Min | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------|-------|
| | | 26 dB | Gain | Limit | Limit |
| | | BW | | | |
| | (MHz) | (MHz) | (dBi) | (dBm) | (dBm) |
| Low | 5500 | 23.14 | 5.72 | 24.00 | 11.00 |
| Mid | 5600 | 21.29 | 5.72 | 24.00 | 11.00 |
| High | 5700 | 22.97 | 5.72 | 24.00 | 11.00 |

Bandwidth, Antenna Gain, and Limits

Duty Cycle CF (dB) 0.00

Included in Calculations of Corr'd PSD

Output Power Results

| Channel | Frequency | Chain 0 | Total | Power | Power |
|---------|-----------|---------|--------|-------|--------|
| | | Meas | Corr'd | Limit | Margin |
| | | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 15.90 | 15.90 | 24.00 | -8.10 |
| Mid | 5600 | 18.00 | 18.00 | 24.00 | -6.00 |
| High | 5700 | 14.70 | 14.70 | 24.00 | -9.30 |

PSD Results

| Channel | Frequency | Chain 0 | Total | PSD | PSD |
|---------|-----------|---------|--------|-------|--------|
| | | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 8.259 | 8.259 | 11.00 | -2.741 |
| Mid | 5600 | 7.303 | 7.303 | 11.00 | -3.697 |
| High | 5700 | 7.059 | 7.059 | 11.00 | -3.941 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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PSD, Chain 0





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| | 100 C | , 2010 | | | | n regronantier |
|----------------|---|---------|------|-------------------|------------|-----------------------------|
| Ref 19.74 dBn | n #Attei | n 20 dB | Mkr1 | 5.706 70 7.059 | GHz dBm | Center Freq |
| Avg | | | | | | 3.7000000000 |
| 10 dB/ | | | | | | Start Freq |
| Offst | t // | | | | | 0.000000000 |
| 19.7 dB | | | | h. | | Stop Freq 5.71500000 GHz |
| and spectra | | | | and a second | whenper | CF Ste |
| #PAvg 100 | | | | | | 3.00000000 MHz Auto M |
| W1 S2 S3 FS | | | | | | Freq Offset |
| AA ¤(f): | | | | | | |
| FTun Swp | | | | | | Signal Track On <u>O</u> |
| | | | | | | |
| | | | | | | |

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8.38. 802.11n HT20 CDD 2TX MODE IN THE 5.6 GHz BAND

8.38.1. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For power, the TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Uncorrelated Chains |
|---------|---------|----------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.17 | 4.72 | 5.01 |

For PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Correlated Chains |
|---------|---------|--------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.17 | 4.72 | 7.99 |

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RESULTS

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | | | | | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| Low | 5500 | 27.89 | 5.01 | 7.99 | 24.00 | 9.01 |
| Mid | 5580 | 27.24 | 5.01 | 7.99 | 24.00 | 9.01 |
| High | 5700 | 21.35 | 5.01 | 7.99 | 24.00 | 9.01 |

Duty Cycle CF (dB) 0.00

Included in Calculations of Corr'd PSD

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 15.10 | 15.00 | 18.06 | 24.00 | -5.94 |
| Mid | 5580 | 15.90 | 16.00 | 18.96 | 24.00 | -5.04 |
| High | 5700 | 13.50 | 13.20 | 16.36 | 24.00 | -7.64 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 4.813 | 5.129 | 7.98 | 9.01 | -1.03 |
| Mid | 5580 | 4.867 | 5.073 | 7.98 | 9.01 | -1.03 |
| High | 5700 | 4.987 | 4.984 | 8.00 | 9.01 | -1.01 |

<u>Note:</u> for Chain 0 and Chain 1, 26dB & 99% data & plots, see section 802.11n HT20 CDD 3TX MODE IN THE 5.6 GHz BAND

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

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PSD, Chain 0





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PSD, Chain 1



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STRADDLE CHANNEL 144 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720 | 20.08 | 5.01 | 7.99 | 24.00 | 9.01 |

| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|
|--------------------|------|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 15.929 | 14.648 | 18.35 | 24.00 | -5.65 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 5.323 | 4.077 | 7.75 | 9.01 | -1.26 |

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| 🔆 Agil | ent 01:13:3 | 3 May 6, 2 | 015 | | | | | F | N T | Freq/Channel |
|---|-------------|------------|---------|---------|------------------------------|-------------|---------|-----------------------|--------|----------------|
| Mkr2 5.718 85 GHz Ref 20 dBm Atten 20 dB 5 323 dBm | | | | | | Certer Freq | | | | |
| #Avg [| | | | | | 2 | | 1 | | 5.71393000 GHz |
| Log | | | | | | • | | 0 | | |
| 10 - 4D/ | | | | | | | | | | Start Freq |
| Offet | | | 1 | | | | | | | 5.69893000 GHZ |
| 19.7 | 1R | | / | | | | | | | |
| dB | • | | · · · · | | | | | | | Stop Freq |
| F | | | | | | | | | | 5.72693000 GHZ |
| F | | | | | | | | | | CF Ster |
| | | | | | | | | | | 3.00000000 MHz |
| #PAvg - | | | | | | | | | | Auto Ma |
| Center 5 | .713 93 GH | z | | | | | | Span 3 | 30 MHz | Ener Offerst |
| #Res BV | / 1 MHz | | V | BW 3 M | Hz | #Swe | ep 20 m | ns (1001 | pts) | Freq Utiset |
| Marker | Trace | Туре | | Х | Axis | | | Amplitu | ide | 0.0000000 112 |
| 1R 1A | (1) | Freq | | 5.702 (| 86 GHz 15 MH 2 | | | -34.67 dB 15 93 dF | m | Oissel Treat |
| 2 | (1) | Freq | | 5.718 | 85 GHz | | | 5.32 dB | m | Signal Track |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |



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UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional | Directional | Power | PSD |
|---------|-----------|-------------|-------------|-------|-------|
| | | Gain | Gain | Limit | Limit |
| | | for Power | for PSD | | |
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720 | 5.06 | 8.03 | 30.00 | 27.97 |

| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|
|--------------------|------|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 9.98 | 8.75 | 12.42 | 30.00 | -17.58 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 1.546 | 0.335 | 3.993 | 27.97 | -23.98 |

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8.38.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total |
|---------|-----------|---------|---------|--------|
| | | Meas | Meas | Corr'd |
| | | Power | Power | Power |
| | (MHz) | (dBm) | (dBm) | (dBm) |
| 144 | 5720 | 17.90 | 17.50 | 20.71 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

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8.39. 802.11n HT20 STBC 2TX MODE IN THE 5.6 GHz BAND

8.39.1. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For power and PSD, the TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Uncorrelated Chains |
|---------|---------|----------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.17 | 4.72 | 5.01 |

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RESULTS

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|--------|--------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MU-) | | (dBi) | | (dBm) | (dBm) |
| | | | (аы) | (аы) | (автт) | (автт) |
| Low | 5500 | 27.89 | 5.01 | 5.01 | 24.00 | 11.00 |
| Mid | 5580 | 27.24 | 5.01 | 5.01 | 24.00 | 11.00 |
| High | 5700 | 21.35 | 5.01 | 5.01 | 24.00 | 11.00 |

Bandwidth, Antenna Gain, and Limits

Duty Cycle CF (dB) 0.00 Included in Calculations of Corr'd PSD

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 15.10 | 15.00 | 18.06 | 24.00 | -5.94 |
| Mid | 5580 | 17.30 | 17.81 | 20.57 | 24.00 | -3.43 |
| High | 5700 | 13.50 | 13.20 | 16.36 | 24.00 | -7.64 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 6.136 | 6.435 | 9.30 | 11.00 | -1.70 |
| Mid | 5580 | 6.378 | 6.518 | 9.46 | 11.00 | -1.54 |
| High | 5700 | 6.940 | 6.822 | 9.89 | 11.00 | -1.11 |

<u>Note:</u> for Chain 0 and Chain 1, 26dB & 99% data & plots, see section 802.11n HT20 CDD 3TX MODE IN THE 5.6 GHz BAND

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

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PSD, Chain 0





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PSD, Chain 1



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STRADDLE CHANNEL 144 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720 | 16.06 | 5.01 | 5.01 | 23.06 | 11.00 |

| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|
|--------------------|------|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 17.479 | 16.563 | 20.055 | 23.06 | -3.00 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 6.92 | 6.11 | 9.54 | 11.00 | -1.46 |

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UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional | Directional | Power | PSD |
|---------|-----------|-------------|-------------|-------|-------|
| | | Gain | Gain | Limit | Limit |
| | | for Power | for PSD | | |
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720 | 5.06 | 5.06 | 30.00 | 30.00 |

| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|
|--------------------|------|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 11.76 | 10.78 | 14.31 | 30.00 | -15.69 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 6.17 | 5.22 | 8.73 | 30.00 | -21.27 |

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8.40.1. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total |
|---------|-----------|---------|---------|--------|
| | | Meas | Meas | Corr'd |
| | | Power | Power | Power |
| | (MHz) | (dBm) | (dBm) | (dBm) |
| 144 | 5720 | 18.15 | 17.60 | 20.89 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

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8.40. 802.11n HT20 TxBF 2TX MODE IN THE 5.6 GHz BAND

8.40.1. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For Power and PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Correlated Chains |
|---------|---------|--------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.17 | 4.72 | 7.99 |

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RESULTS

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | | | | | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| Low | 5500 | 27.89 | 7.99 | 7.99 | 22.01 | 9.01 |
| Mid | 5580 | 27.24 | 7.99 | 7.99 | 22.01 | 9.01 |
| High | 5700 | 21.35 | 7.99 | 7.99 | 22.01 | 9.01 |

Duty Cycle CF (dB) 0.00

Included in Calculations of Corr'd PSD

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 14.10 | 14.60 | 17.37 | 22.01 | -4.64 |
| Mid | 5580 | 15.90 | 16.00 | 18.96 | 22.01 | -3.05 |
| High | 5700 | 13.00 | 12.85 | 15.94 | 22.01 | -6.07 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 4.813 | 5.129 | 7.98 | 9.01 | -1.03 |
| Mid | 5580 | 4.867 | 5.073 | 7.98 | 9.01 | -1.03 |
| High | 5700 | 4.987 | 4.984 | 8.00 | 9.01 | -1.01 |

<u>Note:</u> for Chain 0 and Chain 1, 26dB & 99% data & plots, see section 802.11n HT20 CDD 3TX MODE IN THE 5.6 GHz BAND

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

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PSD, Chain 0





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PSD, Chain 1



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8.41. 802.11n HT20 CDD 3TX MODE IN THE 5.6 GHz BAND

8.41.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 26 dB BW | 26 dB BW | 26 dB BW |
|---------|-----------|----------|----------|----------|
| | | Chain 0 | Chain 1 | Chain 2 |
| | (MHz) | (MHz) | (MHz) | (MHz) |
| Low | 5500 | 29.705 | 31.915 | 27.885 |
| Mid | 5580 | 27.235 | 30.030 | 28.015 |
| High | 5700 | 21.346 | 22.828 | 21.684 |
| 144 | 5720 | 34.320 | 30.160 | 29.770 |

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26 dB BANDWIDTH, Chain 0





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26 dB BANDWIDTH, Chain 1





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26 dB BANDWIDTH, Chain 2





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8.41.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW | 99% BW | 99% BW |
|---------|-----------|---------|---------|---------|
| | | Chain 0 | Chain 1 | Chain 2 |
| | (MHz) | (MHz) | (MHz) | (MHz) |
| Low | 5500 | 17.7956 | 17.8218 | 17.7825 |
| Mid | 5580 | 17.7706 | 17.8079 | 17.7695 |
| High | 5700 | 17.7942 | 17.7920 | 17.7873 |
| 144 | 5720 | 17.8076 | 17.7859 | 17.7960 |

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99% BANDWIDTH, Chain 0





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99% BANDWIDTH, Chain 1





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99% BANDWIDTH, Chain 2





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8.41.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For power, the TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Chain 2 | Uncorrelated Chains |
|---------|---------|---------|----------------------------|
| Antenna | Antenna | Antenna | Directional |
| Gain | Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) | (dBi) |
| 3.17 | 2.09 | 4.72 | 4.46 |

For PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Chain 2 | Correlated Chains |
|---------|---------|---------|--------------------------|
| Antenna | Antenna | Antenna | Directional |
| Gain | Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) | (dBi) |
| 3.17 | 2.09 | 4.72 | 9.17 |

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RESULTS

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| Low | 5500 | 27.89 | 4.46 | 9.17 | 24.00 | 7.83 |
| Mid | 5580 | 27.24 | 4.46 | 9.17 | 24.00 | 7.83 |
| High | 5700 | 21.35 | 4.46 | 9.17 | 24.00 | 7.83 |

Bandwidth, Antenna Gain, and Limits

0.00

Output Power Results

Duty Cycle CF (dB)

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 12.80 | 13.40 | 12.80 | 17.78 | 24.00 | -6.22 |
| Mid | 5580 | 12.80 | 13.10 | 12.50 | 17.58 | 24.00 | -6.42 |
| High | 5700 | 12.30 | 12.40 | 12.20 | 17.07 | 24.00 | -6.93 |

Included in Calculations of Corr'd PSD

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 1.988 | 2.450 | 1.642 | 6.81 | 7.83 | -1.02 |
| Mid | 5580 | 1.949 | 2.302 | 1.566 | 6.72 | 7.83 | -1.11 |
| High | 5700 | 1.933 | 2.021 | 1.917 | 6.73 | 7.83 | -1.10 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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PSD, Chain 0





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PSD, Chain 1



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PSD, Chain 2





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STRADDLE CHANNEL 144 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720 | 19.89 | 4.46 | 9.17 | 23.99 | 7.83 |

Duty Cycle CF (dB) 0.00 Included in 0

Included in Calculations of Corr'd PSD

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 11.690 | 11.888 | 11.739 | 16.54 | 23.99 | -7.44 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 2.021 | 2.090 | 1.890 | 6.77 | 7.83 | -1.06 |

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UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional | Directional | Power | PSD |
|---------|-----------|-------------|-------------|-------|-------|
| | | Gain | Gain | Limit | Limit |
| | | for Power | for PSD | | |
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720 | 4.47 | 9.15 | 30.00 | 26.85 |

| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | included in Calculations of Corr d Power & PSI |

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 6.029 | 5.876 | 5.848 | 10.69 | 30.00 | -19.31 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 1.05 | 0.88 | 1.16 | 5.80 | 26.85 | -21.05 |

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| _ | | | | | | | | 4 0 00 | | T TEQ/ONA | nnei |
|--------------------------------------|-------------|---------|----------------|---------|------------------------------|-----------|------------------|------------------------|---------------|---------------------------------|-------------------------------|
| Ref 20 dBm #Avg | | Atten 2 | 0 dB | | | Ba | A Miki nd Pwr | 5.848 d | MHz IBm | Center 5.7299400 | Freq GHz |
| Log 10 dB/ Offst | ••••••••••• | | 1 ² | | | | | | | Start 5.7149400 | Freq) GHz |
| dB | | | | | AN A A | | | | | Stop 5.74494000 | Freq) GHz |
| #PAvg | | | | | | | | | | CF 3.00000000 <u>Auto</u> | = Step) MHz <u>Mai</u> |
| Center 5.729 94 GHz #Res BW 1 MHz | | | v | BW 3 M | Hz | Sw | eep 1 n | Span 3 ns (1001 | 0 MHz pts) | Freq O | ffset |
| Marker Trace | | Туре | X Axis | | | Amplitude | | 0.0000000 112 | | | |
| 1R 1A | (1) | Fieq | | 5.734 8 | 38 GHz 88 MH 2 | | | -45.84 dBr 5.85 dBr | n | O i ana la | |
| 2 | (1) | Freq | | 5.725 | 56 GHz | | | 1.16 dBr | m | On | Tack <u>Cif</u> |
| | | | | | | | | | | | |

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8.41.4. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | |
|---------|-----------|---------|---------|---------|--------|--|
| | | Meas | Meas | Meas | Corr'd | |
| | | Power | Power | Power | Power | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | |
| 144 | 5720 | 12.90 | 13.00 | 12.80 | 17.67 | |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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8.42. 802.11n HT20 STBC 3TX MODE IN THE 5.6 GHz BAND

8.42.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 26 dB BW | 26 dB BW | 26 dB BW | |
|---------|-----------|----------|----------|----------|--|
| | | Chain 0 | Chain 1 | Chain 2 | |
| | (MHz) | (MHz) | (MHz) | (MHz) | |
| Low | 5500 | 23.673 | 29.484 | 22.464 | |
| Mid | 5580 | 21.606 | 27.456 | 21.502 | |
| High | 5700 | 26.169 | 26.325 | 21.632 | |
| 144 | 5720 | 22.126 | 22.191 | 21.346 | |

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26 dB BANDWIDTH, Chain 0





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26 dB BANDWIDTH, Chain 1





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26 dB BANDWIDTH, Chain 2





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8.42.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW | 99% BW | 99% BW | |
|---------|-----------|---------|---------|---------|--|
| | | Chain 0 | Chain 1 | Chain 2 | |
| | (MHz) | (MHz) | (MHz) | (MHz) | |
| Low | 5500 | 17.7838 | 17.8214 | 17.7489 | |
| Mid | 5580 | 17.7752 | 17.8055 | 17.7580 | |
| High | 5700 | 17.7692 | 17.7777 | 17.7450 | |
| 144 | 5720 | 17.7745 | 17.7937 | 17.7739 | |

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99% BANDWIDTH, Chain 0





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99% BANDWIDTH, Chain 1





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| 99% BANDWIDTH, Chain 1 HIGH CH | |
|---|------------------------|
| Agilent 07:27:50 Mar 9, 2015 R L | Measure |
| Ch Freq 5.7 GHz Trig Free Occupied Bandwidth Averages: 100 | Meas Off |
| | Channel Power |
| Ref 20 dBm #Atten 20 dB #Samp Log 10 | Occupied BW |
| dB/ Offst 19.7 | ACP |
| dB | Multi Carrier Power |
| Image: Width Occupied Bandwidth Occ BW % Pwr 99.00 % 17 7777 MHz × dB -26.00 dB | Power Stat CCDF |
| Transmit Freq Error -14.093 kHz x dB Bandwidth 22.152 MHz* | More 1 of 2 |
| Copyright 2000–2010 Agilent Technologies | |



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99% BANDWIDTH, Chain 2





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| 99% BANDWIDTH, Chain 2 HIGH CH | |
|--|------------------------|
| ዡ Agilent 07:30:41 Mar 9, 2015 | Measure |
| Ch Freq 5.7 GHz Trig Free Occupied Bandwidth Averages: 100 | Meas Off |
| | Channel Power |
| Ref 20 dBm #Atten 20 dB #Samp Log | Occupied BW |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | ACP |
| dB Center 5.700 00 GHz Span 35.29 MHz | Multi Carrier Power |
| #Res BW 360 kHz #VBW 1.1 MHz #Sweep 100 ms (1000 pts) Occupied Bandwidth Occ BW % Pwr 99.00 % 17 7450 MHz × dB -26.00 dB | Power Stat CCDF |
| Transmit Freq Error -13.676 kHz x dB Bandwidth 20.891 MHz* | More 1 of 2 |
| Copyright 2000–2010 Agilent Technologies | |



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8.42.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For PSD and power the TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Chain 2 | Uncorrelated Chains |
|---------|---------|---------|----------------------------|
| Antenna | Antenna | Antenna | Directional |
| Gain | Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) | (dBi) |
| 3.17 | 2.09 | 4.72 | 4.46 |

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RESULTS

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| Low | 5500 | 22.46 | 4.46 | 4.46 | 24.00 | 11.00 |
| Mid | 5580 | 21.50 | 4.46 | 4.46 | 24.00 | 11.00 |
| High | 5700 | 21.63 | 4.46 | 4.46 | 24.00 | 11.00 |

Bandwidth, Antenna Gain, and Limits

0.00

Output Power Results

Duty Cycle CF (dB)

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 14.70 | 14.90 | 14.40 | 19.44 | 24.00 | -4.56 |
| Mid | 5580 | 16.20 | 16.60 | 16.10 | 21.08 | 24.00 | -2.92 |
| High | 5700 | 12.80 | 12.60 | 12.60 | 17.44 | 24.00 | -6.56 |

Included in Calculations of Corr'd PSD

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 5.332 | 5.534 | 4.704 | 9.98 | 11.00 | -1.02 |
| Mid | 5580 | 5.036 | 5.460 | 4.951 | 9.93 | 11.00 | -1.07 |
| High | 5700 | 4.934 | 5.314 | 4.853 | 9.81 | 11.00 | -1.19 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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PSD, Chain 0





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PSD, Chain 1



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PSD, Chain 2





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STRADDLE CHANNEL 144 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720 | 15.67 | 4.46 | 4.46 | 22.95 | 11.00 |

| Duty 0 | Cycle CF (| (dB) | 0.00 | Included in Calculations of Corr'd Power & PSI |
|--------|------------|------|------|--|
| | | | | |

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 14.905 | 15.058 | 14.812 | 19.70 | 22.95 | -3.25 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 4.92 | 5.21 | 5.19 | 9.88 | 11.00 | -1.12 |

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UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional | Directional | Power | PSD |
|---------|-----------|-------------|-------------|-------|-------|
| | | Gain | Gain | Limit | Limit |
| | | for Power | for PSD | | |
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720 | 7.00 | 4.47 | 29.00 | 30.00 |

| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | included in Calculations of Corr d Power & PSI |

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 9.081 | 9.186 | 9.014 | 13.87 | 29.00 | -15.13 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 3.94 | 4.33 | 4.39 | 9.00 | 30.00 | -21.00 |

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| Freq 0 GHz |
|-------------------------------|
| |
| |
| Freq 0 GHz |
| Freq 0 GHz |
| F Step 0 MHz <u>Mai</u> |
| lifset |
|)0 Hz |
| |
| Track <u>Cif</u> |
| |
| |

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8.42.4. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total |
|---------|-----------|---------|---------|---------|--------|
| | | Meas | Meas | Meas | Corr'd |
| | | Power | Power | Power | Power |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 144 | 5720 | 15.60 | 15.80 | 15.50 | 20.41 |

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8.43. 802.11n HT20 TxBF 3TX MODE IN THE 5.6 GHz BAND

8.43.1. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For Power and PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Chain 2 | Correlated Chains |
|---------|---------|---------|--------------------------|
| Antenna | Antenna | Antenna | Directional |
| Gain | Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) | (dBi) |
| 3.17 | 2.09 | 4.72 | 9.17 |

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RESULTS

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain Gain | | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| Low | 5500 | 27.89 | 9.17 | 9.17 | 20.83 | 7.83 |
| Mid | 5580 | 27.24 | 9.17 | 9.17 | 20.83 | 7.83 |
| High | 5700 | 21.35 | 9.17 | 9.17 | 20.83 | 7.83 |

Bandwidth, Antenna Gain, and Limits

0.00

Output Power Results

Duty Cycle CF (dB)

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 12.80 | 13.40 | 12.80 | 17.78 | 20.83 | -3.05 |
| Mid | 5580 | 12.80 | 13.10 | 12.50 | 17.58 | 20.83 | -3.25 |
| High | 5700 | 12.30 | 12.40 | 12.20 | 17.07 | 20.83 | -3.76 |

Included in Calculations of Corr'd PSD

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5500 | 1.988 | 2.450 | 1.642 | 6.81 | 7.83 | -1.02 |
| Mid | 5580 | 1.949 | 2.302 | 1.566 | 6.72 | 7.83 | -1.11 |
| High | 5700 | 1.933 | 2.021 | 1.917 | 6.73 | 7.83 | -1.10 |

<u>Note:</u> for Chains 0, 1 and 2, 26dB & 99% data & plots, see section 11n HT20 CDD 3TX MODE IN THE 5.6 GHz BAND

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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PSD, Chain 0





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PSD, Chain 1



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PSD, Chain 2





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STRADDLE CHANNEL 144 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional Directiona | | Power | PSD |
|---------|-----------|-------|------------------------|-------|-------|-------|
| | | 26 dB | Gain Gain | | Limit | Limit |
| | | BW | for Power for PSD | | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720 | 19.89 | 9.17 | 9.17 | 20.82 | 7.83 |

| Duty | / Cycle | CF (dB |) 0.00 | Included in Calculations of Corr'd Power & PSD |
|------|---------|--------|--------|--|
|------|---------|--------|--------|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 11.690 | 11.888 | 11.739 | 16.54 | 20.82 | -4.27 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 2.02 | 2.09 | 1.89 | 6.77 | 7.83 | -1.06 |

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UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional | Directional | Power | PSD |
|---------|-----------|-------------|-------------|-------|-------|
| | | Gain | Gain | Limit | Limit |
| | | for Power | for PSD | | |
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720 | 9.17 | 9.17 | 26.83 | 26.83 |

| Duty Cycle CF (dB) 0.00 Included in Calculations of Corr a Power & PS | Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|---|--------------------|------|--|
|---|--------------------|------|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 6.029 | 5.876 | 5.848 | 10.69 | 26.83 | -16.14 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 1.05 | 0.88 | 1.16 | 5.80 | 26.83 | -21.03 |

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| A righteri | 11.40.41 | 111dy 0, 2 | 015 | | | | A ML | .1 0.001 | | rieq/Cilai | IIICI |
|---------------------------|-----------------|----------------------|--|--------|-------|------------------------|------------------------------------|--------------------|---------------|---------------------------------|---------------------------|
| Ref 20 dBm ≜Avg | | Atten 2 | 0 dB | | | Ba | nd Pwr | 5.848 d | Bm | Center I 5.72994000 | Freq GHz |
| Log 10 dB/ Offst | | | ¹² ♦ | | | | | | | Start F 5.71494000 | Freq GHz |
| 19.7 dB | | | | | A A A | IR UAN LOUI | chimaliqueus | | | Stop 5.74494000 | Freq GHz |
| #PAvg | | | | | | | | | | CF 3.00000000 <u>Auto</u> | Step MHz <u>Mar</u> |
| Center 5.72 #Res BW 1 | 9 94 GHz MHz | | v | BW 3 M | Hz | Sw | eep 1 n | Span 3 ns (1001 | 0 MHz pts) | Freq O | lfset |
| Marker Trace | | Туре | Type X Axis | | | Amplitude 45.84 dBm | | e | | | |
| 1R (1) 1∆ (1) 2 (1) | | Fieq Fieq Fieq | Freq 5.734 88 GHz Freq -9.88 MHz Freq 5.725 56 GHz | | | | -45.84 dBm 5.85 dBm 1.16 dBm | | | Signal Track On <u>Ci</u> f | |
| | | | | | | | | | | | |

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8.43.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total |
|---------|-----------|---------|---------|---------|--------|
| | | Meas | Meas | Meas | Corr'd |
| | | Power | Power | Power | Power |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 144 | 5720 | 13.20 | 13.25 | 13.30 | 18.02 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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8.44. 802.11n HT40 1TX MODE IN THE 5.6 GHz BAND

8.44.1. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

This is SISO mode, AG is the highest (worst-case) = 5.72 dBi

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RESULTS

| Channel | Frequency | Min | Min Directional | |
|---------|-----------|------------|-----------------|-------|
| | | 26 dB Gain | | Limit |
| | | BW | | |
| | (MHz) | (MHz) | (dBi) | (dBm) |
| Low | 5510 | 56.16 | 5.72 | 24.00 |
| Mid | 5550 | 63.27 | 5.72 | 24.00 |
| High | 5670 | 50.84 | 5.72 | 24.00 |

Bandwidth, Antenna Gain, and Limits

Output Power Results

| Channel | Frequency | Chain 1 | Total | Power | Power |
|---------|-----------|---------|--------|-------|--------|
| | | Meas | Corr'd | Limit | Margin |
| | | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5510 | 11.00 | 11.00 | 24.00 | -13.00 |
| Mid | 5550 | 18.00 | 18.00 | 24.00 | -6.00 |
| High | 5670 | 15.80 | 15.80 | 24.00 | -8.20 |

<u>Note:</u> for Chain 1 26dB data & plots, see section 11n HT40 CDD 3TX MODE IN THE 5.6 GHz BAND.

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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8.45. 802.11n HT40 CDD 2TX MODE IN THE 5.6 GHz BAND

8.45.1. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For power, the TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Uncorrelated Chains |
|---------|---------|----------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.17 | 4.72 | 5.01 |

For PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Correlated Chains |
|---------|---------|--------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.17 | 4.72 | 7.99 |

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RESULTS

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| Low | 5510 | 56.16 | 5.01 | 7.99 | 24.00 | 9.01 |
| Mid | 5550 | 63.27 | 5.01 | 7.99 | 24.00 | 9.01 |
| High | 5670 | 50.84 | 5.01 | 7.99 | 24.00 | 9.01 |

Included in Calculations of Corr'd PSD

Bandwidth, Antenna Gain, and Limits

0.09

Output Power Results

Duty Cycle CF (dB)

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5510 | 12.10 | 11.90 | 15.01 | 24.00 | -8.99 |
| Mid | 5550 | 17.98 | 17.65 | 20.83 | 24.00 | -3.17 |
| High | 5670 | 16.40 | 16.30 | 19.36 | 24.00 | -4.64 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5510 | 3.695 | 3.284 | 6.59 | 9.01 | -2.42 |
| Mid | 5550 | 3.638 | 3.229 | 6.54 | 9.01 | -2.47 |
| High | 5670 | 4.347 | 3.974 | 7.26 | 9.01 | -1.75 |

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PSD, Chain 0





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PSD, Chain 1



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STRADDLE CHANNEL 142 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 142 | 5710 | 47.95 | 5.01 | 7.99 | 24.00 | 9.01 |

| Duty Cycle CF (dB) 0.09 [Included in Calculations of Corr d Power & PS | Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd Power & | PSD |
|--|--------------------|------|--|-----|
|--|--------------------|------|--|-----|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 18.044 | 16.598 | 20.48 | 24.00 | -3.52 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 3.598 | 2.202 | 6.06 | 9.01 | -2.95 |

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UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional | Directional | Power | PSD |
|---------|-----------|-------------|-------------|-------|-------|
| | | Gain | Gain | Limit | Limit |
| | | for Power | for PSD | | |
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 142 | 5710 | 5.06 | 8.03 | 30.00 | 27.97 |

| Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|
| Duty Cycle CF (aB) | 0.09 | included in Calculations of Corr d Power & PSD |

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 7.846 | 6.308 | 10.25 | 30.00 | -19.75 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 2.938 | 1.362 | 5.32 | 27.97 | -22.65 |

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| 🔆 Aglier | 10 13:37:40 7 | Apr 29, 201 | 5 | | | | | < 1 | Freq/Channel |
|-------------------|---------------|-------------|--|-------|-----|---------|----------|----------|-----------------|
| | | A.c. 20 | 10 | | | Mkr2 | 5.727 4 | 3 GHz | Certer Freq |
| Ke1 20 dB #∆va | m | Atten 20 d | 1B | | | | 2.938 | dBm | 5.73480750 GHz |
| | 1R | 2 | | | | | | | |
| 10 = | Q | | | | | | | | Start Fred |
| dB/ 📙 | | | | | | | | | 5.71980750 GHz |
| Offst 📃 | | | | | | | _ | | |
| 19.7 | | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | ò | | Stop Frog |
| dB | | | | | | | | | 5 74980750 GHz |
| | | | | | | | | | 3.14300130 0112 |
| | | | | | | | | | CF Ster |
| | | | | | | | | | 3.00000000 MHz |
| #PAvg | | | | | | | | | <u>Auto Ma</u> |
| Center 5.7 | 34 81 GHz | · · · · · | I | I | | | Span | 30 MHz | - <u>-</u> |
| #Res BW | 1 MHz | | #VBW 3 M | Hz | Swe | ep 20 m | ns (1001 | pts) | Freq Offset |
| Marker | Trace | Туре | x | Axis | | | Ampliti | Jde | 0.00000000 H2 |
| 1R | (1) | Freq | 5.725 0 | 0 GHz | | | 2.96 dE | Im | |
| 1Δ | (1) | Freq | 19.6 | 2 MHz | | | 7.85 dE | im Im | Signal Track |
| 2 | 10 | rieq | 0.727 4 | 3 6H2 | | | 2.04 00 | | On <u>C</u> tt |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |



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8.45.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total |
|---------|-----------|---------|---------|--------|
| | | Meas | Meas | Corr'd |
| | | Power | Power | Power |
| | (MHz) | (dBm) | (dBm) | (dBm) |
| 142 | 5710 | 18.10 | 17.70 | 20.91 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

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8.46. 802.11n HT40 TxBF 2TX MODE IN THE 5.6 GHz BAND

8.46.1. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For power, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Correlated Chains | | |
|---------|---------|--------------------------|--|--|
| Antenna | Antenna | Directional | | |
| Gain | Gain | Gain | | |
| (dBi) | (dBi) | (dBi) | | |
| 3.17 | 4.72 | 7.99 | | |

For PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Correlated Chains | | |
|---------|---------|--------------------------|--|--|
| Antenna | Antenna | Directional | | |
| Gain | Gain | Gain | | |
| (dBi) | (dBi) | (dBi) | | |
| 3.17 | 4.72 | 7.99 | | |

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RESULTS

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| Low | 5510 | 56.16 | 7.99 | 7.99 | 22.01 | 9.01 |
| Mid | 5550 | 63.27 | 7.99 | 7.99 | 22.01 | 9.01 |
| High | 5670 | 50.84 | 7.99 | 7.99 | 22.01 | 9.01 |

Included in Calculations of Corr'd PSD

Bandwidth, Antenna Gain, and Limits

0.09

Output Power Results

Duty Cycle CF (dB)

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5510 | 10.90 | 10.60 | 13.76 | 22.01 | -8.25 |
| Mid | 5550 | 17.98 | 17.65 | 20.83 | 22.01 | -1.18 |
| High | 5670 | 13.90 | 13.60 | 16.76 | 22.01 | -5.25 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5510 | 2.814 | 2.703 | 5.86 | 9.01 | -3.15 |
| Mid | 5550 | 3.464 | 3.227 | 6.45 | 9.01 | -2.56 |
| High | 5670 | 4.171 | 3.612 | 7.00 | 9.01 | -2.01 |

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PSD, Chain 0





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PSD, Chain 1



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| PSD, Chain 1 MID CH | | RT | Freq/Channel |
|--|-------------------|-----------------------------|--|
| Ref 20 dBm Atten 20 dB | Mkr1 | 5.552 7 GHz 3.227 dBm | Certer Freq 5.5500000 GHz |
| Log | 1 ••••• | | Start Freq 5.52000000 GHz |
| Offst 19.7 dB | | | Stop Freq 5.5800000 GHz |
| PAvg | | Longerman | CF Step 6.00000000 MHz |
| 100 W1 S2 S3 FS | | · | Freq Offset 0.00000000 Hz |
| AA ¤(f): FTun Swp | | | Signal Track ^{On <u>C</u>:f} |
| Center 5.550 0 GHz #Res BW 1 MHz VE | V 3 MHz Sweep 1 r | Span 60 MHz ms (601 pts) | |



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STRADDLE CHANNEL 142 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 142 | 5710 | 47.95 | 7.99 | 7.99 | 22.01 | 9.01 |

Duty Cycle CF (dB) 0.09 Included in Calculations of Corr'd Power & PSD

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 18.044 | 16.598 | 20.48 | 22.01 | -1.53 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 3.598 | 2.202 | 6.06 | 9.01 | -2.95 |

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UNII-3 BAND

| Channel | Frequency | Directional | Directional | Power | PSD |
|---------|-----------|-------------|-------------|-------|-------|
| | | Gain | Gain | Limit | Limit |
| | | for Power | for PSD | | |
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 142 | 5710 | 7.03 | 8.03 | 28.97 | 27.97 |

 Duty Cycle CF (dB)
 0.09
 Included in Calculations of Corr'd Power & PSD

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 7.846 | 6.308 | 10.245 | 28.97 | -18.72 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 2.938 | 1.362 | 5.32 | 27.97 | -22.65 |

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| 🔆 Aglier | 10 13:37:40 7 | Apr 29, 201 | 5 | | | | | | Freq/Channel |
|-------------------|---------------|-------------|-----------|-------|------|---------|---------|--------|-----------------|
| | | A.c. 20 | | | | Mkr2 5 | .727 43 | 3 GHz | Certer Freq |
| Ke1 20 dB #∆va | m | Atten 20 d | IR | | | | 2.938 | dBm | 5.73480750 GHz |
| | 1R | 2 | | | | | | | |
| 10 = | Q | | | | | | | | Start Fred |
| dB/ 📙 | | | | | | | | | 5.71980750 GHz |
| Offst 📃 | | \square | | | | | _ | | |
| 19.7 | | | | | | | ò | | Stop Frog |
| dB | | | | | | | | | 5 74980750 GHz |
| | | | | | | | | | 3.14300130 0112 |
| | | | | | | | | | CF Ster |
| | | | | | | | | | 3.00000000 MHz |
| #PAvg | | | | | | | | | Auto Ma |
| Center 5.7 | 34 81 GHz | II | | | | | Span 3 | 30 MHz | - ou i |
| Res BW | 1 MHz | | #VBW 3 MH | lz | Swee | p 20 ms | s (1001 | pts) | Freq Offset |
| Marker | Trace | Туре | ХA | xis | | | Amplitu | de | 0.00000000 H2 |
| 1R | (1) | Freq | 5.725 00 | GHz | | | 2.96 dB | m | |
| 1Δ | (1) | Freq | 19.62 | 2 MHz | | | 7.85 dB | m | Signal Track |
| 2 | 10 | rieq | 0.727 43 | GHZ | | | 2.04 00 | | On <u>Ct</u> |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |



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8.46.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total |
|---------|-----------|---------|---------|--------|
| | | Meas | Meas | Corr'd |
| | | Power | Power | Power |
| | (MHz) | (dBm) | (dBm) | (dBm) |
| 142 | 5710 | 18.10 | 17.70 | 20.91 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

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8.47. 802.11n HT40 CDD 3TX MODE IN THE 5.6 GHz BAND

8.47.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 26 dB BW | 26 dB BW | 26 dB BW |
|---------|-----------|----------|----------|----------|
| | | Chain 0 | Chain 1 | Chain 2 |
| | (MHz) | (MHz) | (MHz) | (MHz) |
| Low | 5510 | 66.430 | 56.160 | 50.540 |
| Mid | 5550 | 73.890 | 63.270 | 62.390 |
| High | 5670 | 55.630 | 50.836 | 51.012 |
| 142 | 5710 | 69.230 | 65.900 | 72.040 |

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26 dB BANDWIDTH, Chain 0





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26 dB BANDWIDTH, Chain 1





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26 dB BANDWIDTH, Chain 2





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8.47.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW | 99% BW | 99% BW |
|---------|-----------|---------|---------|---------|
| | | Chain 0 | Chain 1 | Chain 2 |
| | (MHz) | (MHz) | (MHz) | (MHz) |
| Low | 5510 | 36.4351 | 36.4257 | 36.3987 |
| Mid | 5550 | 36.4545 | 36.4326 | 36.4222 |
| High | 5670 | 36.4704 | 36.4718 | 36.4566 |
| 142 | 5710 | 36.4556 | 36.3931 | 36.4306 |

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99% BANDWIDTH, Chain 0





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99% BANDWIDTH, Chain 1





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99% BANDWIDTH, Chain 2





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8.47.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For power the TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Chain 2 | Uncorrelated Chains |
|---------|---------|---------|----------------------------|
| Antenna | Antenna | Antenna | Directional |
| Gain | Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) | (dBi) |
| 3.17 | 2.09 | 4.72 | 4.46 |

For PSD the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Chain 2 | Correlated Chains |
|---------|---------|---------|--------------------------|
| Antenna | Antenna | Antenna | Directional |
| Gain | Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) | (dBi) |
| 3.17 | 2.09 | 4.72 | 9.17 |

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RESULTS

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| Low | 5510 | 50.54 | 4.46 | 9.17 | 24.00 | 7.83 |
| Mid | 5550 | 62.39 | 4.46 | 9.17 | 24.00 | 7.83 |
| High | 5670 | 50.84 | 4.46 | 9.17 | 24.00 | 7.83 |

Duty Cycle CF (dB) 0.09

Included in Calculations of Corr'd PSD

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5510 | 10.00 | 9.80 | 9.70 | 14.61 | 24.00 | -9.39 |
| Mid | 5550 | 16.20 | 16.30 | 16.10 | 20.97 | 24.00 | -3.03 |
| High | 5670 | 15.40 | 15.60 | 15.60 | 20.31 | 24.00 | -3.69 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5510 | 2.001 | 2.015 | 1.892 | 6.83 | 7.83 | -1.00 |
| Mid | 5550 | 2.007 | 2.100 | 1.728 | 6.81 | 7.83 | -1.02 |
| High | 5670 | 2.006 | 1.933 | 1.884 | 6.80 | 7.83 | -1.03 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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PSD, Chain 0





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PSD, Chain 1



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PSD, Chain 2





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STRADDLE CHANNEL 142 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 142 | 5710 | 47.95 | 5.01 | 9.17 | 24.00 | 7.83 |

| Duty Cycle CF (dB) 0.09 Included in Calculation | ons of Corr'd Power & PSD |
|---|---------------------------|
|---|---------------------------|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 15.369 | 15.441 | 15.299 | 20.23 | 24.00 | -3.77 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 1.77 | 1.95 | 1.84 | 6.72 | 7.83 | -1.11 |

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UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional | Directional | Power | PSD |
|---------|-----------|-------------|-------------|-------|-------|
| | | Gain | Gain | Limit | Limit |
| | | for Power | for PSD | | |
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 142 | 5710 | 4.47 | 9.15 | 30.00 | 26.85 |

| Duty Cycle CF (ub) 0.09 Included in Calculations of Cont a Fower & Fob | Duty Cycle CF (dB) 0.09 | Included in Calculations of Corr'd Power & PSD |
|--|-------------------------|--|
|--|-------------------------|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 5.232 | 5.206 | 5.110 | 10.04 | 30.00 | -19.96 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 1.25 | 1.20 | 0.94 | 5.99 | 26.85 | -20.86 |

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| N Aylient | 21.20.30 | way 6, 2 | 015 | | | | A ML | 1 21 02 | MU~ | Freq/Cna | Innei |
|-------------------------|-------------------|------------------------------|------------|---------------------------|----------------------------|------------|--------------------------------------|----------------------------------|-------------|-------------------------------|------------------------------|
| Ref 20 dBm | 1 | Atten | 20 dB | | | Bai | nd Pwr | 5.110 c | IBm | Certer 5.7355100 | Freq 0 GHz |
| .og 0 IB/ | V | | 1R (\$) | | | | | | | Start 5.7055100 | Freq 0 GHz |
| 9.7 B | | | | A second | maginger | , . | han the second second | Mary Moderald | | Stop 5.7655100 | Freq 0 GHz |
| PAvg | | | | | | | | | | C 6.0000000 <u>Auto</u> | F Step 0 MHz <u>Ma</u> |
| Center 5.73 Res BW 1 | 5 51 GHz MHz | Ture | v | VBW 3 MHz | | Sw | Span 60 MHz Sweep 1 ms (1001 pts) | | | Freq Clfset 0.00000000 Hz | |
| 1R 1∆ 2 | (1) (1) (1) | Freq Freq Freq Freq | | 5.725 (21. 5.725 (| 00 GHz 02 MHz 55 GHz | | | 0.61 dBi 5.11 dBi 0.94 dBi | m m m | Signal ^{On} | Track <u>Cif</u> |
| | | | | | | | | | | | |

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8.47.4. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total |
|---------|-----------|---------|---------|---------|--------|
| | | Meas | Meas | Meas | Corr'd |
| | | Power | Power | Power | Power |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 142 | 5710 | 15.70 | 15.70 | 15.60 | 20.44 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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8.48. 802.11n HT40 TxBF 3TX MODE IN THE 5.6 GHz BAND

8.48.1. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For Power and PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Chain 2 | Correlated Chains | | |
|-----------------|---------|---------|--------------------------|--|--|
| Antenna Antenna | | Antenna | Directional | | |
| Gain | Gain | Gain | Gain | | |
| (dBi) | (dBi) | (dBi) | (dBi) | | |
| 3.17 | 2.09 | 4.72 | 9.17 | | |

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RESULTS

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| Low | 5510 | 50.54 | 9.17 | 9.17 | 20.83 | 7.83 |
| Mid | 5550 | 62.39 | 9.17 | 9.17 | 20.83 | 7.83 |
| High | 5670 | 50.84 | 9.17 | 9.17 | 20.83 | 7.83 |

Duty Cycle CF (dB) 0.09 Included in Calculations of Corr'd PSD

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5510 | 9.90 | 9.40 | 9.70 | 14.44 | 20.83 | -6.39 |
| Mid | 5550 | 15.00 | 14.80 | 14.80 | 19.64 | 20.83 | -1.19 |
| High | 5670 | 14.20 | 14.00 | 14.00 | 18.84 | 20.83 | -1.99 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5510 | 2.001 | 2.015 | 1.892 | 6.83 | 7.83 | -1.00 |
| Mid | 5550 | 2.007 | 2.100 | 1.728 | 6.81 | 7.83 | -1.02 |
| High | 5670 | 2.006 | 1.933 | 1.884 | 6.80 | 7.83 | -1.03 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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PSD, Chain 0





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PSD, Chain 1



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PSD, Chain 2





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STRADDLE CHANNEL 142 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 142 | 5710 | 47.95 | 9.17 | 9.17 | 20.83 | 7.83 |

| Duty Cycle CF (dE | B) 0.09 | Included in Calculations of Corr'd Power & PSD |
|-------------------|----------------|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 15.094 | 15.108 | 14.606 | 19.803 | 20.83 | -1.03 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | | | | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 1.62 | 1.65 | 1.13 | 6.33 | 7.83 | -1.50 |

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UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional | Directional | Power | PSD |
|---------|-----------|-------------|-------------|-------|-------|
| | | Gain | Gain | Limit | Limit |
| | | for Power | for PSD | | |
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 142 | 5710 | 9.15 | 9.15 | 26.85 | 26.85 |

| Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|
|--------------------|------|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 4.700 | 4.819 | 4.713 | 9.606 | 26.85 | -17.24 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | 0.38 | 0.57 | 0.35 | 5.30 | 26.85 | -21.55 |

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| 🔆 Agilent | 22:28:35 | May 6, 2 | 2015 | | | | | F | R T | Freq/Cha | annel |
|---------------------------|----------------------------|------------------------------|-------|--------------------------------|------------------------------------|--------|-----------------|--|-----------------------|-------------------------------|--------------------------------|
| Ref 20 dBm #Avg | <u> </u> | Atten | 20 dB | | | Ba | ∆ Mk nd Pwr | 4.713 | 2 MHz dBm | Certer 5.7355100 | Freq 00 GHz |
| Log 10 dB/ Offst | | ····· | | | | | | | | Start 5.7055100 | Freq 00 GHz |
| 19.7 dB | | | | here was not | | 1 O | ne technic mare | | | Stop 5.7655100 | o Freq 00 GHz |
| #PAvg | | | | | | | | | | C 6.0000000 <u>Auto</u> | F Step 00 MHz <u>Man</u> |
| Center 5.73 #Res BW 1 | 85 51 GHz MHz | : | v | BW 3 M | Hz | Sw | eep 1 n | Span (ns (1001 | 60 MHz pts) | Freq (| Olfset 00 Hz |
| Manker 1 R 1∆ 2 | Trace (1) (1) (1) | Type Freq Freq Freq | | X 5.725 (21. 5.726 (| Axis 00 GHz 02 MHz 27 GHz | | | Amplitu 0.32 dE 4.71 dE 0.35 dE | ude im im im | Signal ^{On} | Track <u>Cif</u> |
| | | | | | | | | | | | |

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8.48.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total |
|---------|-----------|---------|---------|---------|--------|
| | | Meas | Meas | Meas | Corr'd |
| | | Power | Power | Power | Power |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 142 | 5710 | 15.30 | 15.30 | 14.90 | 19.94 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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8.49. 802.11ac VHT80 1TX MODE IN THE 5.6 GHz BAND

8.49.1. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

This is SISO mode, AG is the highest (worst-case) = 5.72 dBi

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RESULTS

| Channel | Frequency | Min | Directional | Power | PSD |
|---------|---------------|------------------|-----------------------|----------------|------------------------|
| | | 26 dB Gain BW | | Limit | Limit |
| | | BW | | | |
| | | | | | <i></i> |
| | (MHZ) | (MHZ) | (dBI) | (dBm) | (dBm) |
| Low | (MHZ) 5530 | (MHz) 116.22 | (dBi) 5.72 | (dBm) 24.00 | (dBm) 11.00 |

Bandwidth, Antenna Gain, and Limits

Output Power Results

| Channel | Frequency | Chain 0 | Total | Power | Power |
|---------|---------------|---------------|---------------|----------------|----------------|
| | | Meas | Corr'd | Limit | Margin |
| | | Power | Power | | |
| | | | | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | (MHz) 5530 | (dBm) 9.20 | (dBm) 9.20 | (dBm) 24.00 | (dB) -14.80 |

<u>Note:</u> for Chain 0, 26dB data & plots, see section 11ac HT80 CDD 3TX MODE IN THE 5.6 GHz BAND.

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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8.50. 802.11n VHT80 CDD 2TX MODE IN THE 5.6 GHz BAND

8.50.1. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For power, the TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Uncorrelated Chains |
|---------|---------|----------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.17 | 4.72 | 5.01 |

For PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Correlated Chains |
|---------|---------|--------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.17 | 4.72 | 7.99 |

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RESULTS

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|--------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| Low | 5530 | 145.91 | 5.01 | 7.99 | 24.00 | 9.01 |
| Mid | 5610 | 109.35 | 5.01 | 7.99 | 24.00 | 9.01 |

Included in Calculations of Corr'd PSD

0.18

Bandwidth, Antenna Gain, and Limits

Output Power Results

Duty Cycle CF (dB)

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5530 | 9.70 | 9.20 | 12.47 | 24.00 | -11.53 |
| Mid | 5610 | 16.10 | 16.10 | 19.11 | 24.00 | -4.89 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5530 | 0.042 | 0.091 | 3.26 | 9.01 | -5.75 |
| Mid | 5610 | 0.868 | 0.640 | 3.95 | 9.01 | -5.06 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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PSD, Chain 0





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PSD, Chain 1





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STRADDLE CHANNEL 138 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 138 | 5690 | 86.20 | 4.01 | 7.99 | 24.00 | 9.01 |

| Duty | Cycle CF (| dB) | 0.18 | Included in Calculations of Corr'd Power & PSD |
|------|------------|-----|------|--|
|------|------------|-----|------|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | 17.791 | 17.749 | 20.96 | 24.00 | -3.04 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | 0.084 | -0.353 | 3.06 | 9.01 | -5.95 |

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| X Ayner | 10.50.10 | Apr 23, 2010 | , | | Г | | Freq/Channel |
|-------------------------|----------------------------|------------------------------|---|-------|---|----------------------|---|
| Ref20dB #Avq ∏ | m | Atten 20 d | B | M | lkr2 5.677 2 0.084 | 5 GHz dBm | Certer Freq 5.68190000 GHz |
| Log 10 | | | 2 () | | 1 • | | Start Freq 5.60690000 GHz |
| 19.7 dB | | | | | | | Stop Freq 5.75690000 GHz |
| #PAvg - | | | | | | | CF Step 15.0000000 MHz <u>Auto Ma</u> |
| Center 5.0 #Res BW | 581 90 GHz 1 MHz | · · · | #VBW 3 MHz | Sweep | Span 15 20 ms (1001 | 50 MHz pts) | Freq Offset |
| Marker 1R 1∆ 2 | Trace (1) (1) (1) | Type Freq Freq Freq | X Axis 5.638 80 GHz 86.20 MHz 5.677 25 GHz | | Amplitu -31.90 dB 17.79 dE 0.08 dB | ide m im im | Signal Track |
| | | | | | | | |



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UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional | Directional | Power | PSD |
|---------|-----------|-------------|-------------|-------|-------|
| | | Gain | Gain | Limit | Limit |
| | | for Power | for PSD | | |
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 138 | 5690 | 4.06 | 8.03 | 30.00 | 27.97 |

| | Duty Cycle CF (dB) | 0.18 | Included in Calculations of Corr'd Power & PSD |
|--|--------------------|------|--|
|--|--------------------|------|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | 3.920 | 3.971 | 7.14 | 30.00 | -22.86 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | -0.882 | -0.822 | 2.34 | 27.97 | -25.63 |

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| SAC Ayrier | 11 11.22.43 | Apr 29, 2 | 015 | | | | | 1 | | Freq/Channel |
|-------------------------|----------------------------|------------------------------|----------------|----------------------|---------------------------------------|-----|---------|--|-----------------------|---|
| Ref 20 dBi #Avg | m | Atten 2 | 0 dB | | | | MKrZ | 0.882- -0.882 | dBm | Certer Freq 5.73310000 GHz |
| Log 10 dB/ | | | $\overline{\}$ | | | | | | | Start Freq 5.71810000 GHz |
| 19.7 dB | | | | | | | ۱ ۵ | | | Stop Freq 5.74810000 GHz |
| #PAvg — | | | | | | | | | | CF Step 3.00000000 MHz <u>Auto Ma</u> |
| Center 5.7 #Res BW | '33 10 GHz 1 MHz | | #\ | /BW 3 N | ЛНz | Swe | ep 20 m | Span ns (1001 | 30 MHz pts) | Freq Clfset |
| Marker 1R 1∆ 2 | Trace (1) (1) (1) | Type Freq Freq Freq | | 5.725 18 5.726 | (Axis 00 GHz .20 MHz 77 GHz | | | Amplite -1.03 dB 3.92 dB -0.88 dB | ude im 3m im | Signal Track |
| | | | | | | | | | | |



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8.50.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total |
|---------|-----------|---------|---------|--------|
| | | Meas | Meas | Corr'd |
| | | Power | Power | Power |
| | (MHz) | (dBm) | (dBm) | (dBm) |
| 138 | 5690 | 18.55 | 17.60 | 21.11 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

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8.51. 802.11n VHT80 TxBF 2TX MODE IN THE 5.6 GHz BAND

8.51.1. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For Power and PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Correlated Chains |
|---------|---------|--------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.17 | 4.72 | 7.99 |

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RESULTS

| requency | Min | Directional | Directional | Power | PSD |
|----------|-----------------------|--|---|--|---|
| | 26 dB | Gain | Gain | Limit | Limit |
| | BW | for Power | for PSD | | |
| (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 5530 | 116.22 | 7.99 | 7.99 | 22.01 | 9.01 |
| 5610 | 109.35 | 7.99 | 7.99 | 22.01 | 9.01 |
| | (MHz) 5530 5610 | Comparison Comparison 26 dB BW (MHz) (MHz) 5530 116.22 5610 109.35 | 26 dB Gain BW for Power (MHz) (MHz) 5530 116.22 5610 109.35 | 26 dB Gain Gain BW for Power for PSD (MHz) (dBi) (dBi) 5530 116.22 7.99 7.99 5610 109.35 7.99 7.99 | 26 dB Gain Gain Limit BW for Power for PSD Image: Compare the sector of the sec |

Included in Calculations of Corr'd PSD

0.18

Bandwidth, Antenna Gain, and Limits

Output Power Results

Duty Cycle CF (dB)

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5530 | 8.30 | 7.70 | 11.02 | 22.01 | -10.99 |
| Mid | 5610 | 14.80 | 14.20 | 17.52 | 22.01 | -4.49 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5530 | 0.04 | 0.09 | 3.26 | 9.01 | -5.75 |
| Mid | 5610 | 0.87 | 0.64 | 3.95 | 9.01 | -5.06 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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PSD, Chain 0





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PSD, Chain 1





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STRADDLE CHANNEL 138 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 138 | 5690 | 86.20 | 7.99 | 7.99 | 22.01 | 9.01 |

| Duty Cycle CF (dB) | 0.18 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|
|--------------------|------|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | 17.791 | 17.749 | 20.96 | 22.01 | -1.05 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | 0.084 | -0.353 | 3.06 | 9.01 | -5.95 |

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| - | | 7101 20, 2010 | , | | 1 11 | Fieq/Cilalille |
|---------------------------------|----------------------------|------------------------------|---|------------|--|---|
| Ref 20 dB | m | Atten 20 d | B | MK12 | 0.084 dBm | Certer Freq 5.68190000 GHz |
| Log — 10 — dB/ — Offst | | | 2 X | | | Start Freq 5.60690000 GHz |
| dB | | | | | | Stop Freq 5.75690000 GHz |
| #PAvg | | | | | | CF Step 15.0000000 MHz <u>Auto Ma</u> |
| Center 5.6 #Res BW | 681 90 GHz 1 MHz | : | #VBW 3 MHz | Sweep 20 r | Span 150 MHz ns (1001 pts) | Freq Cliset |
| Marker 1R 1∆ 2 | Trace (1) (1) (1) | Type Freq Freq Freq | X Axis 5.638 80 GHz 86.20 MHz 5.677 25 GHz | | Amplitude -31.90 dBm 17.79 dBm 0.08 dBm | Signal Track |
| | | | | | | |



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UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional | Directional | Power | PSD |
|---------|-----------|-------------|-------------|-------|-------|
| | | Gain | Gain | Limit | Limit |
| | | for Power | for PSD | | |
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 138 | 5690 | 8.03 | 8.03 | 27.97 | 27.97 |

| Duty Cycle CF (dB) 0.18 Included in Calculations of Corr'd Power & F |
|--|
|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | 3.920 | 3.971 | 7.14 | 27.97 | -20.83 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | -0.882 | -0.822 | 2.34 | 27.97 | -25.63 |

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| SAC Ayrier | 11 11.22.43 | Apr 29, 2 | 015 | | | | | 1 | | Freq/Channel |
|-------------------------|-----------------------------------|------------------------------|----------------|---------------------------|---------------------------------------|-----|---------|--|-----------------------|---|
| Ref 20 dBi #Avg | m | Atten 2 | 0 dB | | | | MKrZ | 0.882- | dBm | Certer Freq 5.73310000 GHz |
| Log 10 dB/ | , , , , , , , , , , , , , , , , , | | $\overline{\}$ | | | | | | | Start Freq 5.71810000 GHz |
| 19.7 dB | | | | | | | ۱ ۵ | | | Stop Freq 5.74810000 GHz |
| #PAvg — | | | | | | | | | | CF Step 3.00000000 MHz <u>Auto Ma</u> |
| Center 5.7 #Res BW | /33 10 GHz 1 MHz | | #\ | /BW 3 N | ИНz | Swe | ep 20 m | Span ns (1001 | 30 MHz pts) | Freq Clfset |
| Marker 1R 1∆ 2 | Trace (1) (1) (1) | Type Freq Freq Freq | | > 5.725 18 5.726 | (Axis 00 GHz .20 MHz 77 GHz | | | Amplite -1.03 dB 3.92 dB -0.88 dB | ude Im Im Im | Signal Track On <u>C</u> |
| | | | | | | | | | | |



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8.51.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total |
|---------|-----------|---------|---------|--------|
| | | Meas | Meas | Corr'd |
| | | Power | Power | Power |
| | (MHz) | (dBm) | (dBm) | (dBm) |
| 138 | 5690 | 18.55 | 17.45 | 21.05 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

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8.52. 802.11ac VHT80 CDD 3TX MODE IN THE 5.6 GHz BAND

8.52.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 26 dB BW | 26 dB BW | 26 dB BW |
|---------|-----------|----------|----------|----------|
| | | Chain 0 | Chain 1 | Chain 2 |
| | (MHz) | (MHz) | (MHz) | (MHz) |
| Low | 5530 | 149.86 | 145.91 | 116.22 |
| Mid | 5610 | 109.35 | 111.71 | 115.40 |
| High | 5690 | 102.40 | 111.354 | 99.964 |

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26 dB BANDWIDTH, Chain 0





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26 dB BANDWIDTH, Chain 1



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26 dB BANDWIDTH, Chain 2





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| - | ID | | ∆ Mkr: | 1 99.96 | 4 MHz | Center Fr |
|-------------------------|-------------|------------------------|---------------------------|----------|------------|---------------------------------|
| ak ak | Htten 20 dB | | | -0.02 | 8 dB | 5.69000000 G |
| / | makaanin | water and participants | here block and the second | | | Start Fr 5.62300000 G |
| st 7 | | | | | | Stop Fr 5.75700000 G |
| 6.8 Manufrankingar n | <u>п</u> | | | | haikaadhad | CF St 13.4000000 M |
| S2 | | | | | | Freq Offs |
| AA :): | | | | | | Signal Tra |
| un | | | | | | On . |
| nter 5.690 000 G | }Hz | | | Span 134 | H MHz | |

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8.52.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW | 99% BW | 99% BW |
|---------|-----------|---------|---------|---------|
| | | Chain 0 | Chain 1 | Chain 2 |
| | (MHz) | (MHz) | (MHz) | (MHz) |
| Low | 5530 | 76.1068 | 76.0287 | 75.9534 |
| Mid | 5610 | 76.1234 | 76.0641 | 76.0862 |
| High | 5690 | 75.9989 | 75.9891 | 76.0230 |

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99% BANDWIDTH, Chain 0





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99% BANDWIDTH, Chain 1



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99% BANDWIDTH, Chain 2





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8.52.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For power, the TX chains are ucorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Chain 2 | Uncorrelated Chains |
|---------|---------|---------|----------------------------|
| Antenna | Antenna | Antenna | Directional |
| Gain | Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) | (dBi) |
| 3.17 | 2.09 | 4.72 | 4.46 |

For PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Chain 2 | Correlated Chains |
|---------|---------|---------|--------------------------|
| Antenna | Antenna | Antenna | Directional |
| Gain | Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) | (dBi) |
| 3.17 | 2.09 | 4.72 | 9.17 |

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RESULTS

| Channel | Frequency Min | | Directional | Directional Directional | | PSD |
|---------|---------------|--------|-------------|-------------------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| Low | 5530 | 116.22 | 4.46 | 9.17 | 24.00 | 7.83 |
| Mid | 5610 | 109.35 | 4.46 | 9.17 | 24.00 | 7.83 |

Bandwidth, Antenna Gain, and Limits

 Duty Cycle CF (dB)
 0.18
 Included in Calculations of Corr'd PSD

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5530 | 8.70 | 8.70 | 8.60 | 13.44 | 24.00 | -10.56 |
| Mid | 5610 | 16.00 | 15.40 | 15.90 | 20.55 | 24.00 | -3.45 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| | 5500 | 4 00 4 | 4 500 | | | | 4.04 |
| LOW | 5530 | 1.884 | 1.590 | 1.194 | 6.52 | 7.83 | -1.31 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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PSD, Chain 0





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PSD, Chain 1





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STRADDLE CHANNEL 138 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 138 | 5690 | 84.98 | 4.46 | 9.17 | 24.00 | 7.83 |

| Duty Cycle CF (dB) 0. | 18 | Included in Calculations of Corr'd PSD |
|-----------------------|----|--|
|-----------------------|----|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | 17.561 | 17.248 | 17.550 | 22.407 | 24.00 | -1.59 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | 0.57 | 0.08 | 0.55 | 5.36 | 7.83 | -2.47 |

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UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional | Directional Directional | | PSD |
|---------|-----------|-------------|-------------------------|-------|-------|
| | | Gain | Gain | Limit | Limit |
| | | for Power | for PSD | | |
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 138 | 5690 | 4.47 | 9.15 | 30.00 | 26.85 |

| Duty Cycle CF (dB) 0.18 Inc | luded in Calculations of Corr'd Power & PSD |
|-----------------------------|---|
|-----------------------------|---|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | 3.530 | 3.400 | 3.391 | 8.39 | 30.00 | -21.61 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | -0.82 | -0.79 | -0.83 | 4.14 | 26.85 | -22.71 |

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| Ref 20 dBm | | Atten 20 d | В | Ва | ∆ Mkr1 nd Pwr | -14.98 N 3.391 dE | /Hz 3m | Certer Freq 5.73249000 GHz |
|-----------------------------|----------------------------|------------------------------|---|-------------|------------------|--|---------------|--|
| HANG Log 10 dB/ | | | | | | | | Start Freq 5.71749000 GHz |
| JISC | | | | 19** | | | ***** | Stop Freq 5.74749000 GHz |
| #PAvg | | | | | | | | CF Step 3.0000000 MHz <u>Auto Ma</u> |
| Center 5.732 #Res BW 1 M | 49 GHz Hz | | VBW 3 MHz | Sw | eep 1 n | Span 30 ns (1001 p |) MHz ots) | Freq Offset |
| Marker 1R 1∆ 2 | Trace (1) (1) (1) | Type Freq Freq Freq | X Axis 5.739 98 GH -14.98 MH 5.725 59 GH | z z z | | Amplitude -30.19 dBm 3.39 dBm -0.83 dBm | e | Signal Track |

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8.52.4. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total |
|---------|-----------|---------|---------|---------|--------|
| | | Meas | Meas | Meas | Corr'd |
| | | Power | Power | Power | Power |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 138 | 5690 | 18.00 | 17.90 | 18.00 | 22.74 |

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8.53. 802.11ac VHT80 TxBF 3TX MODE IN THE 5.6 GHz BAND

8.53.1. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For Power and PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Chain 2 | Correlated Chains |
|---------|---------|---------|--------------------------|
| Antenna | Antenna | Antenna | Directional |
| Gain | Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) | (dBi) |
| 3.17 | 2.09 | 4.72 | 9.17 |

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RESULTS

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|--------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| Low | 5530 | 116.22 | 9.17 | 9.17 | 20.83 | 7.83 |
| Mid | 5610 | 109.35 | 9.17 | 9.17 | 20.83 | 7.83 |

Bandwidth, Antenna Gain, and Limits

Duty Cycle CF (dB) 0.18 Included in Calculations of Corr'd PSD

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5530 | 8.70 | 8.60 | 8.60 | 13.40 | 20.83 | -7.43 |
| Mid | 5610 | 14.00 | 13.90 | 14.00 | 18.74 | 20.83 | -2.09 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|----------------------|----------------|----------------|----------------|---------------|---------------|---------------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | | | | | | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | (MHz) 5530 | (dBm) 1.884 | (dBm) 1.590 | (dBm) 1.194 | (dBm) 6.52 | (dBm) 7.83 | (dB) -1.31 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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STRADDLE CHANNEL 138 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency | Min | Directional | Directional | Power | PSD |
|---------|-----------|-------|-------------|-------------|-------|-------|
| | | 26 dB | Gain | Gain | Limit | Limit |
| | | BW | for Power | for PSD | | |
| | (MHz) | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 138 | 5690 | 84.98 | 9.17 | 9.17 | 20.83 | 7.83 |

| Duty Cycle CF (dB) 0. | 18 | Included in Calculations of Corr'd PSD |
|-----------------------|----|--|
|-----------------------|----|--|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | 14.718 | 14.534 | 14.854 | 19.66 | 20.83 | -1.17 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | -2.31 | -2.45 | -2.06 | 2.68 | 7.83 | -5.15 |

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| we Ag | IENT 23:56:46 | o May 6, 20 | J15 | | | | | F | | Freq/Channe | el |
|---|--------------------------------------|----------------------|-----------|---------------------------|----------------------------|-------|---------------------------------------|-----------------------------------|--------------|-------------------------------------|-------------------------|
| Ref20o #Avg | 1Bm | Atten 2 | 0 dB | | | Bar | ∆ Mk nd Pwr | 14.854 | dBm | Center Fre 5.68251000 G | eq Hz |
| Log 10 dB/ Offst | | | | 2 | ~~~~~ | ***** | 1 • • • • • | | | Start Fre 5.60751000 G | eq Hz |
| 19.7 dB | | | | | | | | - | ***** | Stop Fr 5.75751000 G | eq Hz |
| #PAvg | | | | | | | | | | CF S 15.0000000 M <u>Auto</u> | tep Hz <u>Man</u> |
| Center #Res B\ | Center 5.682 51 GHz #Res BW 1 MHz | | VBW 3 MHz | | | Sw | Span 150 MHz Sweep 1 ms (1001 pts) | | | Freq Offs 0.00000000 | et Hz |
| Marker Trace 1R (1) 1∆ (1) 2 (1) | | Freq Freq Freq | | 5.640 (84. 5.676 (| 02 GHz 98 MHz 96 GHz | | | -40.57 dB 14.85 dE -2.06 dB | m 3m m | Signal Tra ^{On} | ck <u>Cif</u> |
| | | | | | | | | | | | |

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UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional | Directional | Power | PSD |
|---------|-----------|-------------|-------------|-------|-------|
| | | Gain | Gain | Limit | Limit |
| | | for Power | for PSD | | |
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 138 | 5690 | 9.15 | 9.15 | 26.85 | 26.85 |

| Duty Cycle CF (dB) 0.18 Included in Calculations of Corr'd Pc |
|---|
|---|

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | 0.672 | 0.619 | 0.908 | 5.69 | 26.85 | -21.16 |

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 138 | 5690 | -3.67 | -3.74 | -3.56 | 1.30 | 26.85 | -25.55 |

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| × Aylieni | 23.53.05 | Way 0, 201 | 5 | | | A Mk | ۳ 1 1/ 92 | | Freq/Cna | nnei |
|--|------------------|------------------------------|------------|---|-----|--------------------------------------|--|---|--------------------------------|--|
| Ref20dBn ∮Avg | n | Atten 20 | dB | | Bai | nd Pwr | 0.908 (| dBm | Certer 5.7324900 | Freq 0 GHz |
| Log 10 dB/ Offst | | | | | | | | | Start 5.7174900 | Freq 0 GHz |
| 19.7 1B | | | | for the second second | *** | 1 1 1 | | an de cara de c | Stop 5.7474900 | Freq 0 GHz |
| #PAvg | | | | | | | | | CI 3.0000000 <u>Auto</u> | F Step ⁰ MHz <u>Mar</u> |
| Center 5.73 #Res BW 1 | 32 49 GHz MHz | | VBW 3 MHz | | | Span 30 MHz Sweep 1 ms (1001 pts) | | | Freq Clfset | |
| Marker Trace 1R (1) 1∆ (1) 2 (1) | | Type Freq Freq Freq | 5.7 5.7 | X Axis 25 00 GHz 14.98 MHz 25 86 GHz | | | Amplitu -4.36 dBr 0.91 dB -3.56 dBr | ide m m m | Signal [®] On | Track <u>Cif</u> |
| | | | | | | | | | | |

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8.53.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total |
|---------|-----------|---------|---------|---------|--------|
| | | Meas | Meas | Meas | Corr'd |
| | | Power | Power | Power | Power |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 138 | 5690 | 14.90 | 14.80 | 15.00 | 19.67 |

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8.54. 802.11a LEGACY MODE IN THE 5.8 GHz BAND

8.54.1. OUTPUT POWER

LIMITS

FCC §15.407 (a) (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.

DIRECTIONAL ANTENNA GAIN

This is SISO mode, AG is the highest (worst-case) = 5.86 dBi

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RESULTS

Antenna Gain and Limit

| Channel | Frequency | Directional | Power |
|---------|-----------|-------------|-------|
| | | Gain | Limit |
| | | for Power | |
| | (MHz) | (dBi) | (dBm) |
| Low | 5745 | 5.86 | 30.00 |
| Mid | 5785 | 5.86 | 30.00 |
| High | 5825 | 5.86 | 30.00 |

Output Power Results

| Channel | Frequency | Chain 0 | Total | Power | Power |
|---------|-----------|---------|--------|-------|--------|
| | | Meas | Corr'd | Limit | Margin |
| | | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5745 | 14.30 | 14.30 | 30.00 | -15.70 |
| Mid | 5785 | 18.00 | 18.00 | 30.00 | -12.00 |
| High | 5825 | 17.10 | 17.10 | 30.00 | -12.90 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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8.54.2. Maximum Power Spectral Density (PSD)

LIMITS

FCC §15.407 (a) (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.

DIRECTIONAL ANTENNA GAIN

This is SISO mode, AG is the highest (worst-case) = 5.86 dBi

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RESULTS

Antenna Gain and Limits

| Channel | Frequency | Directional | PSD |
|---------|-----------|-------------|-------|
| | | Gain | Limit |
| | (MHz) | (dBi) | (dBm) |
| Low | 5745 | 5.86 | 30.00 |
| High | 5825 | 5.86 | 30.00 |

| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|--------------------|------|--|
|--------------------|------|--|

PSD Results

| Channel | Frequency | Chain 0 | Total | PSD | PSD |
|---------|---------------|-----------------------|----------------|----------------|----------------|
| | | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | | |
| | | | | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | (MHz) 5745 | (dBm) 5.441 | (dBm) 5.441 | (dBm) 30.00 | (dB) -24.56 |

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8.55. 802.11n HT20 CDD 2TX MODE IN THE 5.8 GHz BAND

8.55.1. OUTPUT POWER

LIMITS

FCC §15.407 (a) (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.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 2 | Uncorrelated Chains |
|---------|---------|----------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.09 | 4.86 | 5.06 |

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RESULTS

Antenna Gain and Limit

| Channel | Frequency | Directional | Power |
|---------|-----------|-------------|-------|
| | | Gain | Limit |
| | | for Power | |
| | (MHz) | (dBi) | (dBm) |
| Low | 5745 | 5.06 | 30.00 |
| Mid | 5785 | 5.06 | 30.00 |
| High | 5825 | 5.06 | 30.00 |

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5745 | 13.00 | 13.10 | 16.06 | 30.00 | -13.94 |
| Mid | 5785 | 17.52 | 17.58 | 20.56 | 30.00 | -9.44 |
| High | 5825 | 16.10 | 16.20 | 19.16 | 30.00 | -10.84 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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8.55.2. Maximum Power Spectral Density (PSD)

LIMITS

FCC §15.407 (a) (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.

DIRECTIONAL ANTENNA GAIN

For PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Correlated Chains |
|---------|---------|--------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.09 | 4.86 | 8.03 |

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RESULTS

Antenna Gain and Limits

| Channel | Frequency | Directional | PSD |
|---------|-----------|-------------|-------|
| | | Gain | Limit |
| | (MHz) | (dBi) | (dBm) |
| Low | 5745 | 8.03 | 27.97 |
| Mid | 5785 | 8.03 | 27.97 |
| High | 5825 | 8.03 | 27.97 |

| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|--------------------|------|--|
|--------------------|------|--|

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5745 | 4.844 | 4.644 | 7.755 | 27.97 | -20.21 |
| Mid | 5785 | 4.859 | 4.977 | 7.929 | 27.97 | -20.04 |
| High | 5825 | 4.789 | 5.083 | 7.949 | 27.97 | -20.02 |

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8.56. 802.11n HT20 STBC 2TX MODE IN THE 5.8 GHz BAND

8.56.1. OUTPUT POWER

LIMITS

FCC §15.407 (a) (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.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 2 | Uncorrelated Chains | | |
|---------|---------|---------------------|--|--|
| Antenna | Antenna | Directional | | |
| Gain | Gain | Gain | | |
| (dBi) | (dBi) | (dBi) | | |
| 3.09 | 4.86 | 5.06 | | |

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RESULTS

Antenna Gain and Limit

| Channel | Frequency | Directional | Power | |
|---------|-----------|-------------|-------|--|
| | | Gain | Limit | |
| | | for Power | | |
| | (MHz) | (dBi) | (dBm) | |
| Low | 5745 | 5.06 | 30.00 | |
| Mid | 5785 | 5.06 | 30.00 | |
| High | 5825 | 5.06 | 30.00 | |

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5745 | 13.00 | 13.10 | 16.06 | 30.00 | -13.94 |
| Mid | 5785 | 17.45 | 17.60 | 20.54 | 30.00 | -9.46 |
| High | 5825 | 16.10 | 16.20 | 19.16 | 30.00 | -10.84 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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8.56.2. Maximum Power Spectral Density (PSD)

LIMITS

FCC §15.407 (a) (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.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 2 | Uncorrelated Chains |
|---------|---------|----------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.09 | 4.86 | 5.06 |

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RESULTS

Antenna Gain and Limits

| Channel | Frequency | Directional | PSD | |
|---------|-----------|-------------|-------|--|
| | | Gain | Limit | |
| | (MHz) | (dBi) | (dBm) | |
| Low | 5745 | 5.06 | 30.00 | |
| Mid | 5785 | 5.06 | 30.00 | |
| High | 5825 | 5.06 | 30.00 | |

| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|--------------------|------|--|
|--------------------|------|--|

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5745 | 4.767 | 4.857 | 7.823 | 30.00 | -22.18 |
| Mid | 5785 | 4.900 | 4.777 | 7.849 | 30.00 | -22.15 |
| High | 5825 | 4.743 | 5.017 | 7.892 | 30.00 | -22.11 |

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PSD, Chain 0





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PSD, Chain 1



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8.57. 802.11n HT20 TxBF 2TX MODE IN THE 5.8 GHz BAND

8.57.1. OUTPUT POWER

<u>LIMITS</u>

FCC §15.407 (a) (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.

DIRECTIONAL ANTENNA GAIN

For power, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Correlated Chains | |
|---------|---------|--------------------------|--|
| Antenna | Antenna | Directional | |
| Gain | Gain | Gain | |
| (dBi) | (dBi) | (dBi) | |
| 3.09 | 4.86 | 8.03 | |

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RESULTS

Antenna Gain and Limit

| Channel | Frequency | Directional | Power |
|---------|-----------|-------------|-------|
| | | Gain | Limit |
| | | for Power | |
| | (MHz) | (dBi) | (dBm) |
| Low | 5745 | 8.03 | 27.97 |
| High | 5825 | 8.03 | 27.97 |

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | Power | Power |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5745 | 12.10 | 12.00 | 15.06 | 27.97 | -12.91 |
| Mid | 5785 | 17.52 | 17.58 | 20.56 | 28.97 | -8.41 |
| High | 5825 | 15.60 | 15.80 | 18.71 | 27.97 | -9.26 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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8.57.2. Maximum Power Spectral Density (PSD)

LIMITS

FCC §15.407 (a) (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.

DIRECTIONAL ANTENNA GAIN

For PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Correlated Chains |
|---------|---------|--------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.09 | 4.86 | 8.03 |

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RESULTS

Antenna Gain and Limits

| Channel | Frequency | Directional | PSD |
|---------|-----------|-------------|-------|
| | | Gain | Limit |
| | (MHz) | (dBi) | (dBm) |
| Low | 5745 | 8.03 | 27.97 |
| Mid | 5785 | 8.03 | 27.97 |
| High | 5825 | 8.03 | 27.97 |

| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|--------------------|------|--|
|--------------------|------|--|

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Total | PSD | PSD |
|---------|-----------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5745 | 4.844 | 4.644 | 7.755 | 27.97 | -20.21 |
| Mid | 5785 | 4.859 | 4.977 | 7.929 | 27.97 | -20.04 |
| High | 5825 | 4.789 | 5.083 | 7.949 | 27.97 | -20.02 |

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PSD, Chain 0





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PSD, Chain 1



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8.58. 802.11n HT20 CDD 3TX MODE IN THE 5.8 GHz BAND

8.58.1. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

| Channel Frequency | | 6 dB BW | 6 dB BW | 6 dB BW | Minimum |
|-------------------|-------|---------|---------|---------|---------|
| | | Chain 0 | Chain 1 | Chain 2 | Limit |
| | (MHz) | (MHz) | (MHz) | (MHz) | (MHz) |
| Low | 5745 | 17.59 | 17.58 | 17.58 | 0.5 |
| Mid | 5785 | 17.54 | 17.58 | 17.58 | 0.5 |
| High | 5825 | 17.58 | 17.62 | 17.58 | 0.5 |

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6 dB BANDWIDTH, Chain 0





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6 dB BANDWIDTH, Chain 1



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6 dB BANDWIDTH, Chain 2





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8.58.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW | 99% BW | 99% BW |
|---------|-----------|---------|---------|---------|
| | | Chain 0 | Chain 1 | Chain 2 |
| | (MHz) | (MHz) | (MHz) | (MHz) |
| Low | 5745 | 17.6846 | 17.6716 | 17.6789 |
| Mid | 5785 | 17.6892 | 17.6777 | 17.6715 |
| High | 5825 | 17.6833 | 17.6817 | 17.6782 |

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99% BANDWIDTH, Chain 0





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| 99% BANDWIDTH, Chain 0 H * Agilent 14:51:43 Mar 4, 2015 | IIGH CH | RT | Freq/Channel |
|--|----------------------|----------------------|--------------------------------------|
| Ch Freq 5.825 GHz Occupied Bandwidth | Averages: 100 | Trig Free | Certer Freq 5.82500000 GHz |
| | | | Start Freq 5.80000000 GHz |
| Ref 20 dBm Atten 20 dB #Samp Log | w^mtw/~mk//sha | | Stop Freq 5.8500000 GHz |
| 10 dB/ Offst 19.5 | | MAN WAA | CF Step 5.0000000 MHz Auto Man |
| dB | S | ipan 50 MHz | Freq Ctfset 0.00000000 Hz |
| #Res BW 200 kHz #VBW 620 k | Hz #Sweep 100 m | s (601 pts) | |
| Occupied Bandwidth 17.6833 MHz | Occ BW % Pwr x dB | 99.00 % -26.00 dB | On <u>Cif</u> |
| Transmit Freq Error 876.110 Hz x dB Bandwidth 21.929 MHz* | | | |
| Copyright 2000-2010 Agilent Technologies | | | |

99% BANDWIDTH, Chain 1



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99% BANDWIDTH, Chain 2





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8.58.3. OUTPUT POWER

LIMITS

FCC §15.407 (a) (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.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Chain 2 | Uncorrelated Chains |
|---------|---------|---------|----------------------------|
| Antenna | Antenna | Antenna | Directional |
| Gain | Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) | (dBi) |
| 3.09 | 1.95 | 4.86 | 4.47 |

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RESULTS

Antenna Gain and Limit

| Channel | Frequency | Directional | Power |
|---------|-----------|-------------|-------|
| | | Gain | Limit |
| | | | |
| | (MHz) | (dBi) | (dBm) |
| Low | 5745 | 3.47 | 30.00 |
| 153 | 5765 | 3.47 | 30.00 |
| Mid | 5785 | 3.47 | 30.00 |
| High | 5825 | 3.47 | 30.00 |

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5745 | 12.60 | 12.80 | 12.30 | 17.34 | 30.00 | -12.66 |
| 153 | 5765 | 18.30 | 18.20 | 17.60 | 22.82 | 30.00 | -7.18 |
| Mid | 5785 | 18.60 | 18.48 | 17.85 | 23.09 | 30.00 | -6.91 |
| High | 5825 | 16.50 | 16.60 | 15.80 | 21.09 | 30.00 | -8.91 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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8.58.4. Maximum Power Spectral Density (PSD)

LIMITS

FCC §15.407 (a) (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.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Chain 2 | Correlated Chains |
|---------|---------|---------|--------------------------|
| Antenna | Antenna | Antenna | Directional |
| Gain | Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) | (dBi) |
| 3.09 | 1.95 | 4.86 | 9.15 |

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RESULTS

Antenna Gain and Limit

| Channel | Frequency | Directional | PSD |
|---------|-----------|-------------|-------|
| | | Gain | Limit |
| | (MHz) | (dBi) | (dBm) |
| Low | 5745 | 9.15 | 26.85 |
| Mid | 5785 | 9.15 | 26.85 |
| High | 5825 | 9.15 | 26.85 |

Duty Cycle CF (dB) 0.00

Included in Calculations of Corr'd PSD

PSD Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | PSD | PSD |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | PSD | PSD | PSD | PSD | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5745 | 5.062 | 4.725 | 4.316 | 9.48 | 26.85 | -17.37 |
| Mid | 5785 | 5.376 | 5.159 | 4.710 | 9.86 | 26.85 | -16.99 |
| High | 5825 | 5.439 | 5.073 | 5.008 | 9.95 | 26.85 | -16.90 |

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PSD, Chain 0





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PSD, Chain 1



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PSD, Chain 2





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8.59. 802.11n HT20 TxBF 3TX MODE IN THE 5.8 GHz BAND

8.59.1. OUTPUT POWER

LIMITS

FCC §15.407 (a) (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.

DIRECTIONAL ANTENNA GAIN

For power, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 1 | Chain 2 | Correlated Chains |
|---------|---------|---------|--------------------------|
| Antenna | Antenna | Antenna | Directional |
| Gain | Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) | (dBi) |
| 3.09 | 1.95 | 4.86 | 9.15 |

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RESULTS

Antenna Gain and Limit

| Channel | Frequency | Directional | Power |
|---------|-----------|-------------|-------|
| | | Gain | Limit |
| | | | |
| | (MHz) | (dBi) | (dBm) |
| Low | 5745 | 8.15 | 27.85 |
| Mid | 5785 | 8.15 | 27.85 |
| High | 5825 | 8.15 | 27.85 |

Output Power Results

| Channel | Frequency | Chain 0 | Chain 1 | Chain 2 | Total | Power | Power |
|---------|-----------|---------|---------|---------|--------|-------|--------|
| | | Meas | Meas | Meas | Corr'd | Limit | Margin |
| | | Power | Power | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5745 | 12.30 | 12.10 | 11.90 | 16.87 | 27.85 | -10.98 |
| Mid | 5785 | 18.60 | 18.48 | 17.85 | 23.09 | 27.85 | -4.76 |
| High | 5825 | 16.50 | 16.30 | 16.10 | 21.07 | 27.85 | -6.78 |

<u>Note:</u> the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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8.60. 802.11n HT40 1TX MODE IN THE 5.8 GHz BAND

8.60.1. OUTPUT POWER

LIMITS

FCC §15.407 (a) (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.

DIRECTIONAL ANTENNA GAIN

This is SISO mode, AG is the highest (worst-case) = 5.86 dBi

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RESULTS

Antenna Gain and Limit

| Channel | Frequency | Directional | Power |
|---------|-----------|-------------|-------|
| | | Gain | Limit |
| | (MHz) | (dBi) | (dBm) |
| Low | 5755 | 5.86 | 30.00 |
| High | 5795 | 5.96 | 30.00 |

Output Power Results

| Channel | Frequency | Chain 1 | Total | Power | Power |
|---------|-----------|---------|--------|-------|--------|
| | | Meas | Corr'd | Limit | Margin |
| | | Power | Power | | |
| | (MHz) | (dBm) | (dBm) | (dBm) | (dB) |
| Low | 5755 | 10.50 | 10.50 | 30.00 | -19.50 |
| | | | | | |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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8.61. 802.11n HT40 CDD 2TX MODE IN THE 5.8 GHz BAND

8.61.1. OUTPUT POWER

LIMITS

FCC §15.407 (a) (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.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| Chain 0 | Chain 2 | Uncorrelated Chains |
|---------|---------|----------------------------|
| Antenna | Antenna | Directional |
| Gain | Gain | Gain |
| (dBi) | (dBi) | (dBi) |
| 3.09 | 4.86 | 5.06 |

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