8.21.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.407 (a) (2)

For the band 5.25–5.35 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

ID:	39472	Date:	12/14/16
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Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Min	Directional	Power	PSD
		26 dB	99%	Gain	Limit	Limit
		BW	BW			
	(MHz)	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)
Mid	5290	82.56	75.85	2.24	24.00	11.00

Duty Cycle CF (ub) 0.19 Included in Calculations of Cont a F3D
--

Output Power Results

-					
Channel	Frequency	Antenna A	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5290	12.97	12.97	24.00	-11.03

PPSD Results

Channel	Frequency	Antenna A	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5290	-0.083	0.11	11.00	-10.89

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<u>PSD</u>

Agilent Spectrum Analyzer - AP	v5.5(110916),39472, Co	sense INT	ALIGNALITO	06:41:28 PMNov 21, 2016	
Center Freq 5.2900	DOOOO GHz PNO: Fast -	Trig: Free Run	#Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 5 6 TYPE A WANNAW DET A N N N N N	Frequency
Ref Offset 11 0 dB/div Ref 30.00	.5 dB dBm		Mk	r2 5.261 2 GHz -0.083 dBm	Auto Tune
log					Center Freq
20.0					5.290000000 GHz
10.0	.2				Start Fred
0.00 مەلىيەسەپىرىدىن	and the second s	harmon however	and a far and the constraint and a far for the	monen	5.240000000 GH
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200					Stop Fred 5.340000000 GH;
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					0 H:
60.0					
enter 5.29000 GHz	<i>"</i> " (5)		0	Span 100.0 MHz	

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8.22. 802.11ac VHT80 ANTENNA B MODE IN THE 5.3 GHz BAND

8.22.1. 26 dB BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

RESULTS

Channel Frequency		26 dB Bandwidth	
	(MHz)	(MHz)	
Mid	5290	82.560	

26 dB BANDWIDTH



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8.22.2. 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

<u>RESULTS</u>

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Mid	5290	75.778

99% BANDWIDTH



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8.22.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

ID:	39472	Date:	12/14/16

Channel	Frequency	Power
	(MHz)	(dBm)
Mid	5290	12.86

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8.22.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.407 (a) (2)

For the band 5.25–5.35 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

ID:	39472	Date:	12/14/16
-----	-------	-------	----------

Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Min	Directional	Power	PSD
		26 dB	99%	Gain	Limit	Limit
		BW	BW			
	(MHz)	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)
Mid	5290	82.560	75.778	2.77	24.00	11.00

Duty Cycle CF (dB)	0.19	Included in Calculations of Corr'd PSD
--------------------	------	--

Output Power Results

Channel	Frequency	Antenna B	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5290	12.86	12.86	24.00	-11.14

PPSD Results

Channel	Frequency	Antenna B	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5290	-0.493	-0.30	11.00	-11.30

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<u>PSD</u>



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8.23. 802.11ac VHT80 2Tx (ANTENNA A + ANTENNA B) CDD MODE IN THE 5.3 GHz BAND

8.23.1. 26 dB BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

RESULTS

Channel	Frequency	26 dB BW	26 dB BW
		Antenna A	Antenna B
	(MHz)	(MHz)	(MHz)
Mid	5290	82.560	82.560

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26 DB BANDWIDTH, ANTENNA A



26 DB BANDWIDTH, ANTENNA B



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8.23.2. 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

<u>RESULTS</u>

Channel	Frequency	99% BW	99% BW
		Antenna A	Antenna B
	(MHz)	(MHz)	(MHz)
Mid	5290	72.509	75.928

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99% BANDWIDTH, ANTENNA A



99% BANDWIDTH, ANTENNA B



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8.23.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

ID:	20216	Data	12/14/16
ID:	39316	Date:	12/14/16

Average Power Results

Channel	Frequency	Antenna A	Antenna B	Total
		Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)
Mid	5290	12.00	11.96	14.99

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8.23.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.407 (a) (2)

For the band 5.25–5.35 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

Antenna A	Antenna B	Uncorrelated Chains
Gain	Gain	Directional
		Gain
(dBi)	(dBi)	(dBi)
2.24	2.77	2.51

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

Antenna A	Antenna B	Correlated Chains
Gain	Gain	Directional
		Gain
(dBi)	(dBi)	(dBi)
2.24	2.77	5.52

RESULTS

Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Min	Directional	Directional	Power	PSD
		26 dB	99%	Gain	Gain	Limit	Limit
		BW	BW	for Power	for PSD		
	(MHz)	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
Mid	5290	82.56	72.51	2.51	5.52	24.00	11.00

Duty Cycle CF (dB) 0.20 In	ncluded in Calculations of Corr'd PSD
----------------------------	---------------------------------------

Output Power Results

Channel	Frequency	Antenna A	Antenna B	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5290	12.00	11.96	14.99	24.00	-9.01

PSD Results

Channel	Frequency	Antenna A	Antenna B	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5290	-0.43	-0.49	2.75	11.00	-8.25

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PSD, ANTENNA A



PSD, ANTENNA B



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8.24. 802.11ac VHT80 2Tx (ANTENNA A + ANTENNA B) STBC MODE IN THE 5.3 GHz BAND

Noted: Covered by 802.11ac VHT80 2Tx (ANTENNA A + ANTENNA B) CDD MODE IN THE 5.3 GHz BAND

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8.25. 802.11n HT20 ANTENNA A MODE IN THE 5.6 GHz BAND

8.25.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

<u>RESULTS</u>

Channel	Frequency	26 dB Bandwidth
	(MHz)	(MHz)
Low	5500	21.800
Mid	5580	21.800
High	5700	21.720
144	5720	21.800

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26 dB BANDWIDTH





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8.25.2. 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

<u>RESULTS</u>

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5500	17.702
Mid	5580	17.797
High	5700	17.796
144	5720	17.958

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99% BANDWIDTH





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8.25.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

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ID: 39472 Date: 12/14	4/16
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Channel	Frequency	Power
	(MHz)	(dBm)
Low	5500	15.49
Mid	5580	16.48
High	5700	15.43
144	5720	16.39

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8.25.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power is measured using PXA spectrum analyzer, duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

ID:	39472	Date:	12/14/16
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Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Min	Directional	Power	PSD
		26 dB	99%	Gain	Limit	Limit
		BW	BW			
	(MHz)	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)
Low	5500	21.80	17.702	3.39	23.48	11.00
Mid	5580	21.80	17.797	3.39	23.50	11.00
High	5700	21.72	17.796	3.39	23.50	11.00
Duty C	ycle CF (dB)	0.00	Included in Calculations of Corr'd PSD			

Output Power Results

Channel	Frequency	Antenna A	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	15.490	15.490	23.48	-7.99
Mid	5580	16.480	16.480	23.50	-7.02
High	5700	15.430	15.430	23.50	-8.07

PSD Results

Channel	Frequency	Antenna A	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	5.931	5.931	11.00	-5.07
Mid	5580	6.172	6.172	11.00	-4.83
High	5700	6.389	6.389	11.00	-4.61

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<u>PSD</u>





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8.26. 802.11ac VHT20 ANTENNA A STRADDLE CHANNEL 144 RESULTS

8.26.1. OUTPUT POWER AND PSD

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	15.90	3.39	3.39	23.01	11.00

Duty Cycle CF (dB) 0.00

Included in Calculations of Corr'd Power & PSD

Output Power Results

Channel	Frequency	Antenna A	Total	Power	Power
		Meas	Corr'd	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
	(((5.2.1.)	(0.2.1.)	()
144	5720	15.193	15.193	23.01	-7.82

PSD Results

Channel	Frequency	Antenna A	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
	(MHz)	PSD (dBm)	PSD (dBm)	(dBm)	(dB)
	(11112)	(abiii)	(abiii)	(abiii)	
144	5720	5.619	5.619	11.00	-5.38

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UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency	Min	Directional	Power	PSD
		26 dB	Gain	Limit	Limit
		BW			
	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)
144	5720	5.90	3.54	30.00	30.00

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

Output Power Results

Channel	Frequency	Antenna A	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	10.557	10.557	30.00	-19.44

PSD Results

Channel	Frequency	Antenna A	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	3.020	3.020	30.00	-26.98

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8.26.2. 6 dB BANDWIDTH

<u>LIMITS</u>

FCC §15.407 (e)

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

<u>RESULTS</u>

Channel	Frequency	6 dB Bandwidth	
	(MHz)	(MHz)	
144	5720	3.92	

6 dB BANDWIDTH



8.27. 802.11n HT20 ANTENNA B MODE IN THE 5.6 GHz BAND

8.27.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

<u>RESULTS</u>

Channel	Frequency	26 dB Bandwidth
	(MHz)	(MHz)
Low	5500	21.840
Mid	5580	21.920
High	5700	21.800
144	5720	21.880

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26 dB BANDWIDTH





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8.27.2. 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

<u>RESULTS</u>

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5500	17.974
Mid	5580	17.386
High	5700	17.785
144	5720	17.804

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99% BANDWIDTH





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8.27.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

ID:	39472	Date:	12/14/16

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5500	15.42
Mid	5580	16.97
High	5700	15.41
144	5720	16.98

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8.27.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power is measured using PXA spectrum analyzer, duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

ID: 39472	Date:	12/14/16
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Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Min	Directional	Power	PSD	
		26 dB	99%	Gain	Limit	Limit	
		BW	BW				
	(MHz)	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)	
Low	5500	21.84	17.97	3.17	23.55	11.00	
Mid	5580	21.92	17.39	3.17	23.40	11.00	
High	5700	21.80	17.79	3.17	23.50	11.00	
Duty C	ycle CF (dB)	0.00	Included in Calculations of Corr'd PSD				

Output Power Results

Channel	Frequency	Antenna B	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	15.42	15.42	23.55	-8.13
Mid	5580	16.97	16.97	23.40	-6.43
High	5700	15.41	15.41	23.50	-8.09

PSD Results

Channel	Frequency	Antenna B	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	5.87	5.87	11.00	-5.13
Mid	5580	6.02	6.02	11.00	-4.98
High	5700	6.41	6.41	11.00	-4.59

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8.28. 802.11ac VHT20 ANTENNA B STRADDLE CHANNEL 144 RESULTS

8.28.1. OUTPUT POWER AND PSD

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	15.94	3.17	3.17	23.02	11.00

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

Output Power Results

Channel	Frequency	Antenna B	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	15.53	15.53	23.02	-7.49

PSD Results

Channel	Frequency	Antenna B	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	5.701	5.70	11.00	-5.30





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UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency	Min	Directional	Power	PSD
		26 dB	Gain	Limit	Limit
		BW			
	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)
144	5720	5.94	3.21	30.00	30.00

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

Output Power Results

Channel	Frequency	Antenna B	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	10.912	10.91	30.00	-19.09

PSD Results

Channel	Frequency	Antenna B	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	3.323	3.32	30.00	-26.68

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8.28.2. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

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

<u>RESULTS</u>

Channel	Frequency	6 dB Bandwidth
	(MHz)	(MHz)
144	5720	3.92

6 dB BANDWIDTH



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8.29. 802.11n HT20 2Tx (ANTENNA A + ANTENNA B) CDD MODE IN THE 5.6 GHz BAND

8.29.1. 26 dB BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

RESULTS

Channel	inel Frequency 26 dB BW		26 dB BW
		Antenna A	Antenna B
	(MHz)	(MHz)	(MHz)
Low	5500	21.920	21.880
Mid	5580	21.720	21.760
High	5700	21.800	21.720
144	5720	21.960	22.040

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26 dB BANDWIDTH, ANTENNA A





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26 dB BANDWIDTH, ANTENNA B





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8.29.2. 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

RESULTS

Channel Frequency		99% BW	99% BW
		Antenna A	Antenna B
	(MHz)	(MHz)	(MHz)
Low	5500	17.779	17.829
Mid	5580	17.808	17.835
High	5700	17.860	17.726
144	5720	16.636	17.845

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99% BANDWIDTH, ANTENNA A





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99% BANDWIDTH, ANTENNA B





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8.29.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

ID:	39316	Date:	12/14/16

Average Power Results

Channel	Frequency	Antenna A	Antenna B	Total
		Power	Power Power	
	(MHz)	(dBm)	(dBm)	(dBm)
Low	5500	14.97	14.93	17.96
Mid	5580	15.47	15.48	18.49
High	5700	13.97	13.94	16.97
144	5720	15.45	15.37	18.42

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8.29.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power is measured using PXA spectrum analyzer, duty cycle correction factor is required.

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DIRECTIONAL ANTENNA GAIN

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

Antenna A	Antenna B	Uncorrelated Chains
Gain	Gain	Directional
		Gain
(dBi)	(dBi)	(dBi)
3.39	3.17	3.28

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

Antenna A	Antenna B	Correlated Chains
Gain	Gain	Directional
		Gain
(dBi)	(dBi)	(dBi)
3.39	3.17	6.29

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RESULTS

ID:	39316	Date:	12/14/16
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Bandwidth, Antenna Gain and Limits

Channel	Frequency	Min	Min	Directional	Directional	Power	PSD
		26 dB	99%	Gain	Gain	Limit	Limit
		BW	BW	for Power	for PSD		
	(MHz)	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
Low	5500	21.88	17.779	3.28	6.29	23.50	10.71
Mid	5580	21.72	17.808	3.28	6.29	23.51	10.71
High	5700	21.72	17.726	3.28	6.29	23.49	10.71

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

Output Power Results

Channel	Frequency	Antenna A	Antenna B	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	14.97	14.93	17.96	23.50	-5.54
Mid	5580	15.47	15.48	18.49	23.51	-5.02
High	5700	13.97	13.94	16.97	23.49	-6.52

PSD Results

Channel	Frequency	Antenna A	Antenna B	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	6.090	6.088	9.099	10.71	-1.61
Mid	5580	6.242	6.038	9.151	10.71	-1.56
High	5700	6.234	6.415	9.336	10.71	-1.37

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PSD, ANTENNA A





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PSD, ANTENNA B



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8.30. 802.11ac VHT20 2Tx (ANTENNA A + ANTENNA B) CDD STRADDLE CHANNEL 144 RESULTS

8.30.1. OUTPUT POWER AND PSD

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	15.98	3.28	6.29	23.04	10.71

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

Channel	Frequency	Antenna A	Antenna B	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	14.19	13.95	17.08	23.04	-5.96

PSD Results

Channel	Frequency	Antenna A	Antenna B	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	5.057	4.391	7.747	10.71	-2.96

OUTPUT POWER, ANTENNA A



OUTPUT POWER, ANTENNA B



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PSD, ANTENNA A



PSD, ANTENNA B



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UNII-3 BAND

Antenna Gain and Limit

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	5.98	3.38	6.39	30.00	29.61

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

Output Power Results

Channel	Frequency	Antenna A	Antenna B	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	9.535	9.280	12.42	30.00	-17.58

PSD Results

Channel	Frequency	Antenna A	Antenna B	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	1.937	1.413	4.69	29.61	-24.92

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OUTPUT POWER, ANTENNA A



OUTPUT POWER, ANTENNA B



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PSD, ANTENNA A



PSD, ANTENNA B



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8.30.2. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

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

<u>RESULTS</u>

Channel	Frequency	6 dB BW	6 dB BW
		Antenna A	Antenna B
	(MHz)	(MHz)	(MHz)
144	5720	3.920	3.920

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ANTENNA A



ANTENNA B



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8.31. 802.11n HT20 2Tx (ANTENNA A + ANTENNA B) STBC MODE IN THE 5.6 GHz BAND

8.31.1. 26 dB BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

RESULTS

Channel	Frequency	26 dB BW	26 dB BW
		Antenna A	Antenna B
	(MHz)	(MHz)	(MHz)
Low	5500	21.760	21.880
Mid	5580	22.120	21.840
High	5700	21.920	21.840
144	5720	22.080	21.960

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26 dB BANDWIDTH, ANTENNA A





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26 dB BANDWIDTH, ANTENNA B





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8.31.2. 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

RESULTS

Channel	Frequency	99% BW	99% BW
		Antenna A	Antenna B
	(MHz)	(MHz)	(MHz)
Low	5500	17.810	17.864
Mid	5580	17.955	17.826
High	5700	17.857	17.851
144	5720	17.842	17.917

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99% BANDWIDTH, ANTENNA A





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99% BANDWIDTH, ANTENNA B





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8.31.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

ID:	39316	Date:	12/14/16

Average Power Results

Channel	Frequency	Antenna A	tenna A Antenna B	
		Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)
Low	5500	14.99	14.84	17.93
Mid	5580	16.48	16.94	19.73
High	5700	13.96	13.92	16.95
144	5720	16.37	16.98	19.70

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8.31.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power is measured using PXA spectrum analyzer, duty cycle correction factor is required.

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DIRECTIONAL ANTENNA GAIN

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

Antenna A	Antenna B	Uncorrelated Chains
Gain	Gain	Directional
		Gain
(dBi)	(dBi)	(dBi)
3.39	3.17	3.28

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RESULTS

ID: 3931	Date:	12/14/16
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Bandwidth, Antenna Gain and Limits

Channel	Frequency	Min	Min	Directional	Directional	Power	PSD
		26 dB	99%	Gain	Gain	Limit	Limit
		BW	BW	for Power	for PSD		
	(MHz)	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
Low	5500	21.76	17.810	3.28	3.28	23.51	11.00
Mid	5580	22.12	17.955	3.28	3.28	23.54	11.00
High	5700	21.92	17.857	3.28	3.28	23.52	11.00

Duty Cycle CE ((dB) 0.00

Included in Calculations of Corr'd PSD

Output Power Results

Channel	Frequency	Antenna A	Antenna B	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	14.99	14.84	17.93	23.51	-5.58
Mid	5580	16.48	16.94	19.73	23.54	-3.82
High	5700	13.96	13.92	16.95	23.52	-6.57

PSD Results

Channel	Frequency	Antenna A	Antenna B	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	6.010	5.976	9.003	11.00	-2.00
Mid	5580	6.198	6.030	9.125	11.00	-1.87
High	5700	6.386	6.318	9.362	11.00	-1.64

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PSD, ANTENNA A





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PSD, ANTENNA B



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8.32. 802.11ac VHT20 2Tx (ANTENNA A + ANTENNA B) STBC STRADDLE CHANNEL 144 RESULTS

8.32.1. OUTPUT POWER AND PSD

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	15.98	3.28	3.28	23.04	11.00

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

Output Power Results

Channel	Frequency	Antenna A	Antenna B	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	15.06	15.63	18.37	23.04	-4.67

PSD Results

Channel	Frequency	Antenna A	Antenna B	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	5.423	5.84	8.647	11.00	-2.35

OUTPUT POWER, ANTENNA A



OUTPUT POWER, ANTENNA B



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PSD, ANTENNA A



PSD, ANTENNA B



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UNII-3 BAND

Antenna Gain and Limit

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	5.98	3.38	6.39	30.00	29.61

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

Output Power Results

Channel	Frequency	Antenna A	Antenna B	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	10.405	11.013	13.73	30.00	-16.27

PSD Results

Channel	Frequency	Antenna A	Antenna B	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	2.651	3.366	6.03	29.61	-23.58

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OUTPUT POWER, ANTENNA A



OUTPUT POWER, ANTENNA B



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PSD, ANTENNA A



PSD, ANTENNA B



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8.32.2. 6 dB BANDWIDTH

<u>LIMITS</u>

FCC §15.407 (e)

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

<u>RESULTS</u>

Channel	Frequency	6 dB BW	6 dB BW
		Antenna A	Antenna B
	(MHz)	(MHz)	(MHz)
144	5720	3.960	3.840

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ANTENNA A

L R	F 50 Ω F	DC 000 GHz	Temp 6	SENSE:IN	#Avg T	ALIGN AUTO	01:17:56 AM De TRACE 1	c 09, 2016 2 3 4 5 6	Fred	quency
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6 7								_	_	
8									5	cale Type
10 1								-	Log	<u>Lir</u>

ANTENNA B



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