8.24. 802.11ac VHT80 ANTENNA - B MODE IN THE 5.2 GHz BAND

8.24.1. 26 dB BANDWIDTH

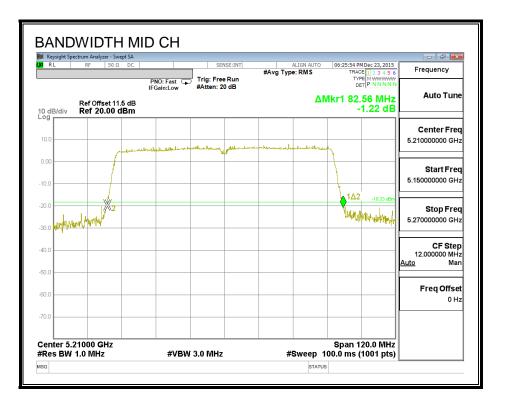
<u>LIMITS</u>

None; for reporting purposes only.

RESULTS

Channel	Frequency	26 dB Bandwidth	
	(MHz)	(MHz)	
Mid	5210	82.56	

26 dB BANDWIDTH



8.24.2. 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

RESULTS

Channel	Frequency	99% Bandwidth	
	(MHz)	(MHz)	
Mid	5210	75.816	

99% BANDWIDTH



Page 212 of 1558

8.24.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

Channel	Frequency	Power	
	(MHz)	(dBm)	
Mid	5210	13.48	

Page 213 of 1558

8.24.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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.

Page 214 of 1558
UL VERIFICATION SERVICES INC.
FORM NO: CCSUP4701J
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000
FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RESULTS

Antenna Gain and Limits

Channel	Frequency	Directional	Directional	Power	PSD
		Gain	Gain	Limit	Limit
		for Power	for PSD		
	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
Mid	5210	3.04	3.04	24.00	11.00

Duty Cycle CF (dB)	0.16	Included in Calculations of Corr'd PSD
	0.10	

Output Power Results

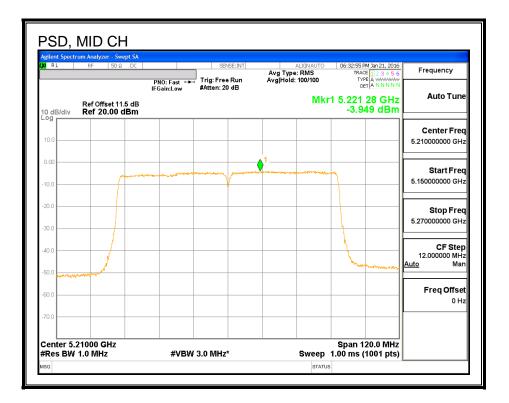
Channel	Frequency	Antenna B	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	13.48	13.48	24.00	-10.52

PSD Results

Channel	Frequency	Antenna B	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	-3.95	-3.79	11.00	-14.79

Page 215 of 1558

<u>PSD</u>



Page 216 of 1558

8.25. 802.11ac VHT80 ANTENNA - A MODE IN THE 5.2 GHz BAND

8.25.1. 26 dB BANDWIDTH

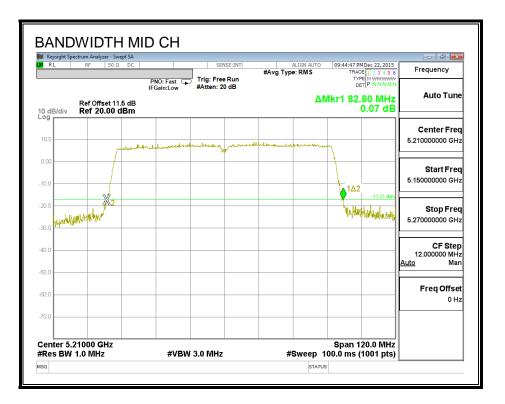
<u>LIMITS</u>

None; for reporting purposes only.

RESULTS

Channel	Frequency	26 dB Bandwidth	
	(MHz)	(MHz)	
Mid	5210	82.80	

26 dB BANDWIDTH



8.25.2. 99% BANDWIDTH

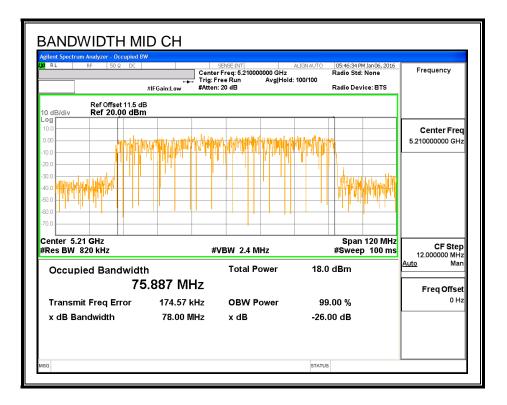
<u>LIMITS</u>

None; for reporting purposes only.

RESULTS

Channel	Frequency	99% Bandwidth	
	(MHz)	(MHz)	
Mid	5210	75.887	

99% BANDWIDTH



UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Page 218 of 1558

8.25.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

<u>RESULTS</u>

Channel	Frequency	Power	
	(MHz)	(dBm)	
Mid	5210	13.47	

Page 219 of 1558

8.25.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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.

Page 220 of 1558 UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RESULTS

Antenna Gain and Limits

Channel	Frequency	Directional	Directional	Power	PSD
		Gain	Gain	Limit	Limit
		for Power	for PSD		
	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
Mid	5210	2.30	2.30	24.00	11.00

Duty Cycle CF (dB)	0.16	Included in Calculations of Corr'd PSD

Output Power Results

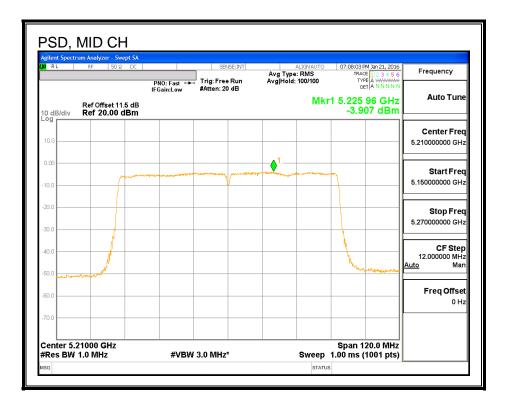
Channel	Frequency	Antenna A	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	13.47	13.47	24.00	-10.53

PSD Results

Channel	Frequency	Antenna A	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	-3.91	-3.75	11.00	-14.75

Page 221 of 1558

<u>PSD</u>



Page 222 of 1558

8.26. 802.11ac VHT80 ANTENNA - C MODE IN THE 5.2 GHz BAND

8.26.1. 26 dB BANDWIDTH

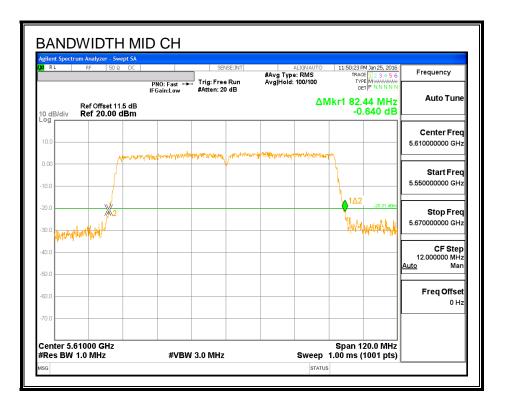
<u>LIMITS</u>

None; for reporting purposes only.

RESULTS

Channel	Frequency	26 dB Bandwidth
	(MHz)	(MHz)
Mid	5210	82.44

26 dB BANDWIDTH



8.26.2. 99% BANDWIDTH

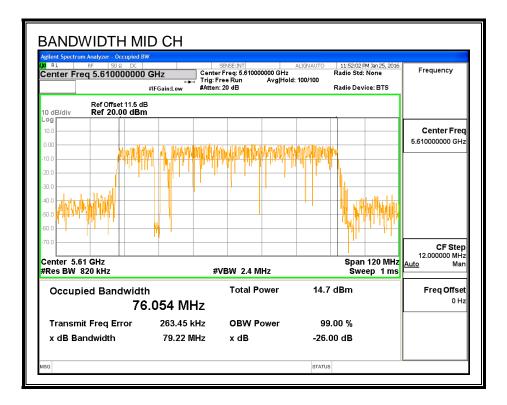
<u>LIMITS</u>

None; for reporting purposes only.

RESULTS

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Mid	5210	76.054

99% BANDWIDTH



Page 224 of 1558

8.26.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

<u>RESULTS</u>

Channel	Frequency	Power	
	(MHz)	(dBm)	
Mid 5210		13.50	

Page 225 of 1558

8.26.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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.

 Page 226 of 1558

 UL VERIFICATION SERVICES INC.

 FORM NO: CCSUP4701J

 47173 BENICIA STREET, FREMONT, CA 94538, USA

 TEL: (510) 771-1000

 FAX: (510) 661-0888

 This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RESULTS

Antenna Gain and Limits

Channel	Frequency	Directional	Directional	Power	PSD
		Gain	Gain	Limit	Limit
		for Power	for PSD		
	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
Mid	5210	1.36	1.36	24.00	11.00

Duty Cycle CF (dB)	0.16	Included in Calculations of Corr'd PSD

Output Power Results

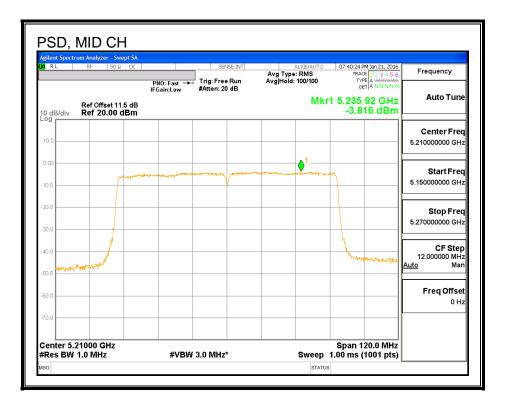
Channel	Frequency	Antenna C	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	13.50	13.50	24.00	-10.50

PSD Results

Channel	Frequency	Antenna C	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	-3.82	-3.66	11.00	-14.66

Page 227 of 1558

<u>PSD</u>



Page 228 of 1558

8.27. 802.11ac VHT80 ANTENNA B+A CDD MODE IN THE 5.2 GHz BAND

8.27.1. 26 dB BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

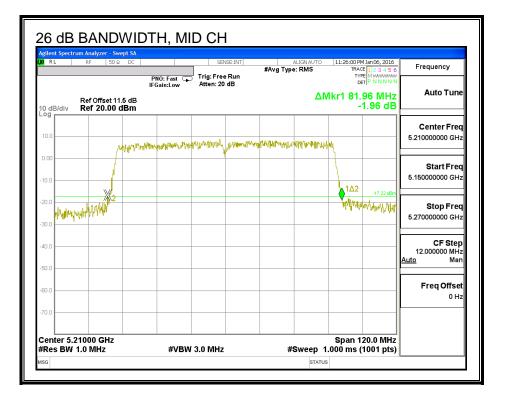
RESULTS

Channel	Frequency	26 dB BW	26 dB BW
		Antenna B	Antenna A
	(MHz)	(MHz)	(MHz)
Mid	5210	81.96	81.84

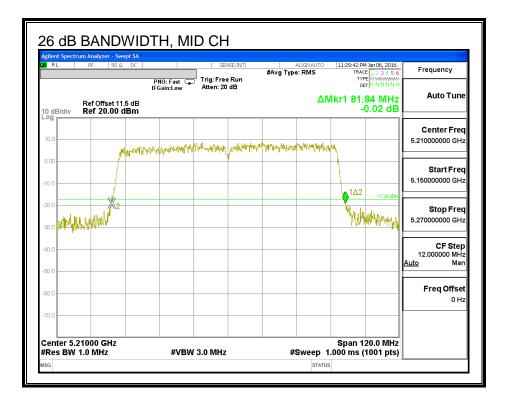
UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Page 229 of 1558

26 DB BANDWIDTH, ANTENNA - B



26 DB BANDWIDTH, ANTENNA - A



Page 230 of 1558

8.27.2. 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

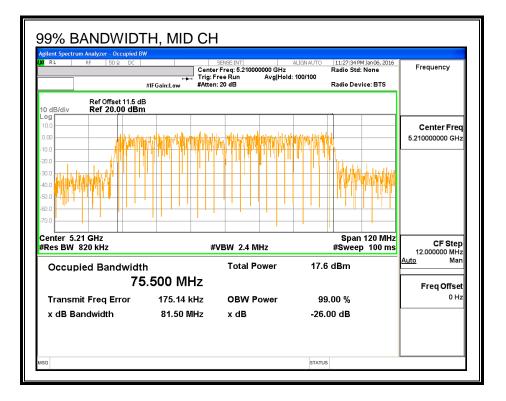
RESULTS

Channel	Frequency	99% BW	99% BW
		Antenna B	Antenna A
	(MHz)	(MHz)	(MHz)
Mid	5210	75.500	75.652

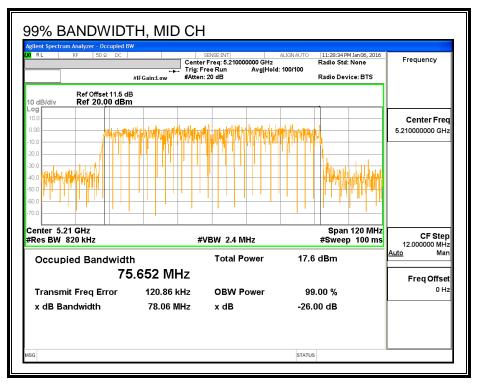
UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Page 231 of 1558

99% BANDWIDTH, ANTENNA - B



99% BANDWIDTH, ANTENNA - A



Page 232 of 1558

8.27.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

<u>RESULTS</u>

Channel	Frequency	Antenna	Antenna	Total
		В	Α	
		Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)
Mid	5210	11.83	11.89	14.87

Page 233 of 1558

8.27.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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.

Page 234 of 1558

DIRECTIONAL ANTENNA GAIN

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

Antenna B	Antenna A	Uncorrelated Chains
		Directional
Gain	Gain	Gain
(dBi)	(dBi)	(dBi)
3.04	2.30	2.69

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

Antenna B	Antenna A	Correlated Chains
		Directional
Gain	Gain	Gain
(dBi)	(dBi)	(dBi)
3.04	2.30	5.69

Page 235 of 1558

RESULTS

Antenna Gain and Limits

Channel	Frequency	Directional	Directional	Power	PSD
		Gain	Gain	Limit	Limit
		for Power	for PSD		
	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
Mid	5210	2.69	5.69	24.00	11.00

Duty Cycle CF (dB)	0.20	Included in Calculations of Corr'd PSD
	0.20	included in Calculations of Corr d FSD

Output Power Results

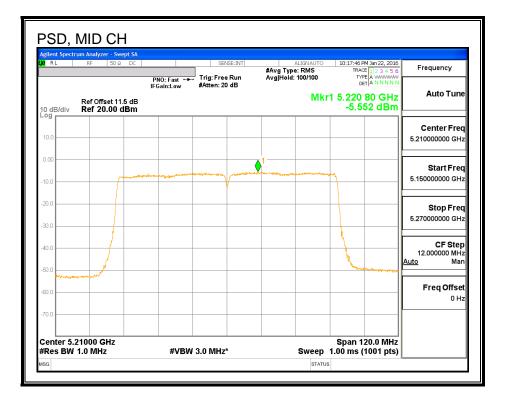
Channel	Frequency	Antenna B	Antenna A	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	11.83	11.89	14.87	24.00	-9.13

PSD Results

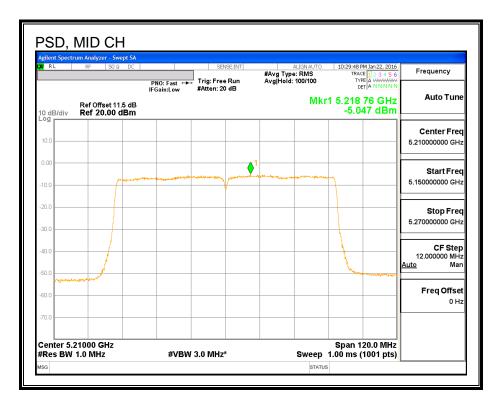
Channel	Frequency	Antenna B	Antenna A	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	-5.55	-5.05	-2.08	11.00	-13.08

Page 236 of 1558

PSD, ANTENNA - B



PSD, ANTENNA - A



Page 237 of 1558

8.28. 802.11ac VHT80 ANTENNA A+C CDD MODE IN THE 5.2 GHz BAND

8.28.1. 26 dB BANDWIDTH

<u>LIMITS</u>

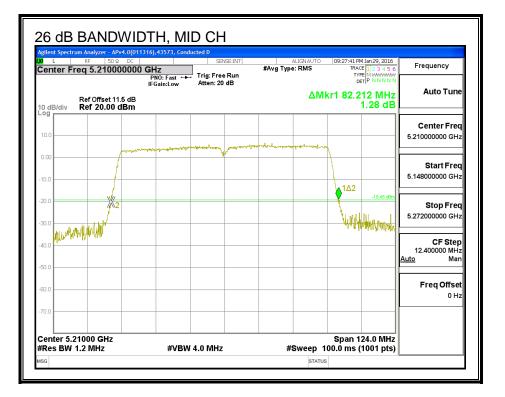
None; for reporting purposes only.

RESULTS

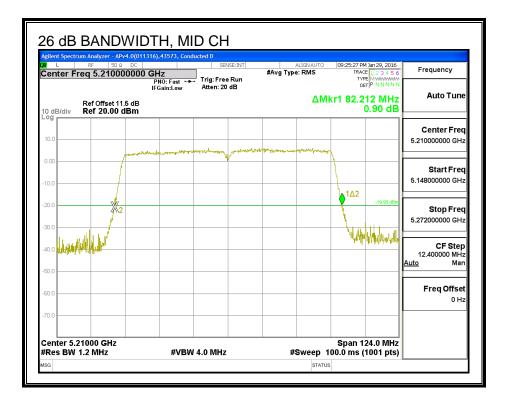
Channel	Frequency	26 dB BW	26 dB BW
		Antenna A	Antenna C
	(MHz)	(MHz)	(MHz)
Mid	5210	82.21	82.21

Page 238 of 1558

26 DB BANDWIDTH, ANTENNA - A



26 DB BANDWIDTH, ANTENNA - C



Page 239 of 1558

8.28.2. 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

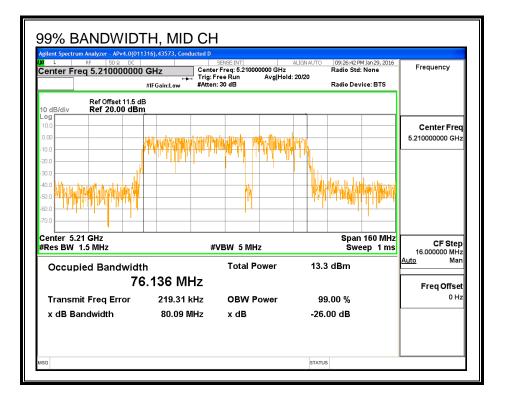
RESULTS

Channel	Frequency	99% BW	99% BW
		Antenna A	Antenna C
	(MHz)	(MHz)	(MHz)
Mid	5210	76.136	75.871

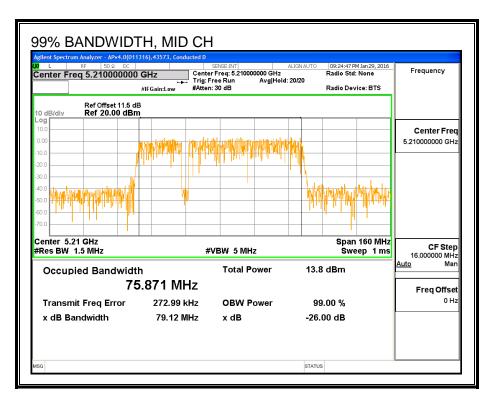
UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. FORM NO: CCSUP4701J FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Page 240 of 1558

99% BANDWIDTH, ANTENNA - A



99% BANDWIDTH, ANTENNA - C



Page 241 of 1558

8.28.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

Average Power Results

Channel	Frequency	Antenna	Antenna	Total
		Α	С	
		Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)
Mid	5210	12.00	11.85	14.94

UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. FORM NO: CCSUP4701J FAX: (510) 661-0888 Inc.

Page 242 of 1558

8.28.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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.

Page 243 of 1558

DIRECTIONAL ANTENNA GAIN

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

Antenna A	Antenna C	Uncorrelated Chains
		Directional
Gain	Gain	Gain
(dBi)	(dBi)	(dBi)
2.30	1.36	1.86

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

Antenna A	Antenna C	Correlated Chains
		Directional
Gain	Gain	Gain
(dBi)	(dBi)	(dBi)
2.30	1.36	4.85

Page 244 of 1558

RESULTS

Channel	Frequency	Directional	Directional	Power	PSD
		Gain	Gain	Limit	Limit
		for Power	for PSD		
	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
Mid	5210	1.86	4.85	24.00	11.00

Duty Cycle CF (dB) 0.20 Included in Calculations of Corr'd PSD

Output Power Results

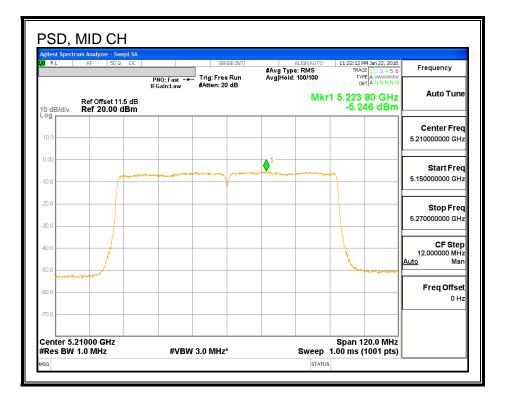
Channel	Frequency	Antenna A	Antenna C	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	12.00	11.85	14.94	24.00	-9.06

PSD Results

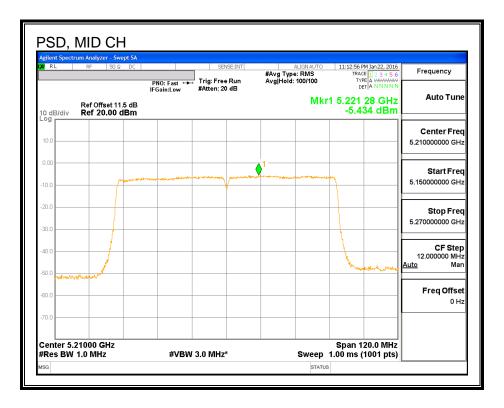
Channel	Frequency	Antenna A	Antenna C	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	-5.25	-5.43	-2.13	11.00	-13.13

Page 245 of 1558

PSD, ANTENNA - A



PSD, ANTENNA - C



Page 246 of 1558

8.29. 802.11ac VHT80 ANTENNA B+A STBC MODE IN THE 5.2 GHz BAND

Noted: Covered by 802.11ac VHT80 ANTENNA B+A CDD MODE IN THE 5.2 GHz BAND

UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Page 247 of 1558

8.30. 802.11ac VHT80 ANTENNA A+C STBC MODE IN THE 5.2 GHz BAND

Noted: Covered by 802.11ac VHT80 ANTENNA A+C CDD MODE IN THE 5.2 GHz BAND

UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Page 248 of 1558

8.31. 802.11ac VHT80 ANTENNA B+A SDM MODE IN THE 5.2 GHz BAND

Noted: Covered by 802.11ac VHT80 ANTENNA B+A CDD MODE IN THE 5.2 GHz BAND

UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Page 249 of 1558

8.32. 802.11ac VHT80 ANTENNA A+C SDM MODE IN THE 5.2 GHz BAND

Noted: Covered by 802.11ac VHT80 ANTENNA B+A CDD MODE IN THE 5.2 GHz BAND

UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Page 250 of 1558

8.33. 802.11a ANTENNA - B MODE IN THE 5.3 GHz BAND

Note: Covered by 802.11n HT20 ANTENNA B MODE IN THE 5.3 GHz BAND

UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. FAX: (510) 661-0888

Page 251 of 1558

8.34. 802.11n HT20 ANTENNA - B MODE IN THE 5.3 GHz BAND

8.34.1. 26 dB BANDWIDTH

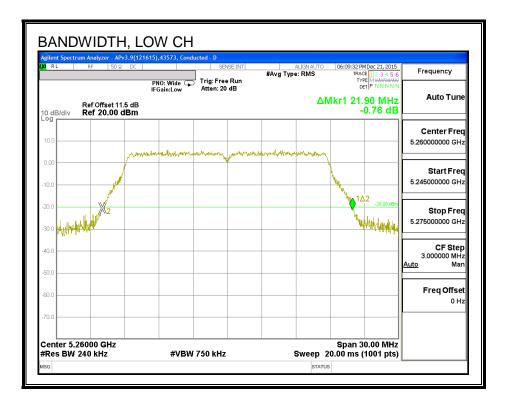
LIMITS

None; for reporting purposes only.

RESULTS

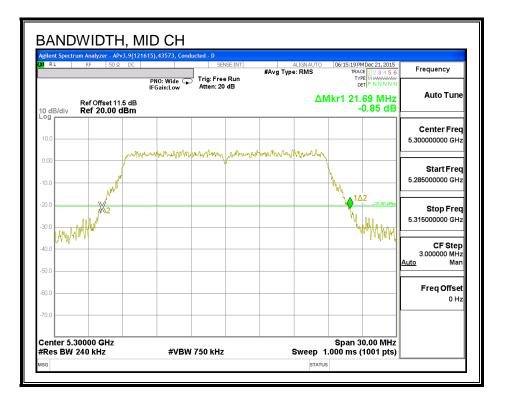
Channel	Frequency	26 dB Bandwidth
	(MHz)	(MHz)
Low	5260	21.90
Mid	5300	21.69
High	5320	21.66

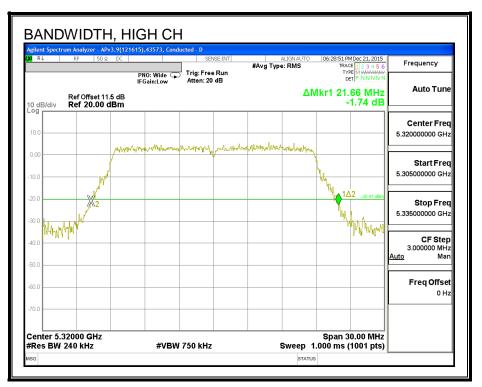
26 dB BANDWIDTH



UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. FORM NO: CCSUP4701J FAX: (510) 661-0888 Inc.

Page 252 of 1558





Page 253 of 1558

8.34.2. 99% BANDWIDTH

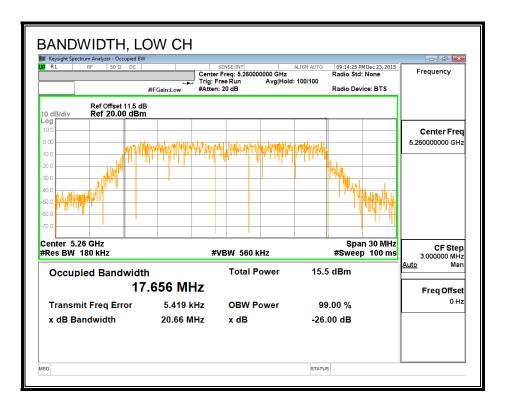
<u>LIMITS</u>

None; for reporting purposes only.

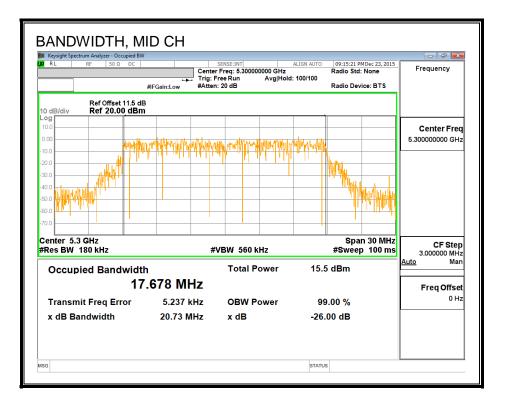
RESULTS

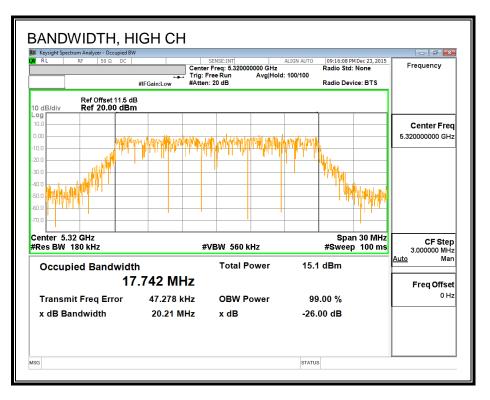
Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5260	17.656
Mid	5300	17.678
High	5320	17.742

99% BANDWIDTH



Page 254 of 1558





Page 255 of 1558

8.34.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

<u>RESULTS</u>

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5260	16.94
Mid	5300	16.98
High	5320	15.99

Page 256 of 1558

8.34.4. 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.

Page 257 of 1558

RESULTS

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	5260	21.90	17.656	3.02	23.47	11.00
Mid	5300	21.69	17.678	3.02	23.47	11.00
High	5320	21.66	17.742	3.02	23.49	11.00

Duty Cycle CF (dB)

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	5260	16.94	16.94	23.47	-6.53
Mid	5300	16.98	16.98	23.47	-6.49
High	5320	15.99	15.99	23.49	-7.50

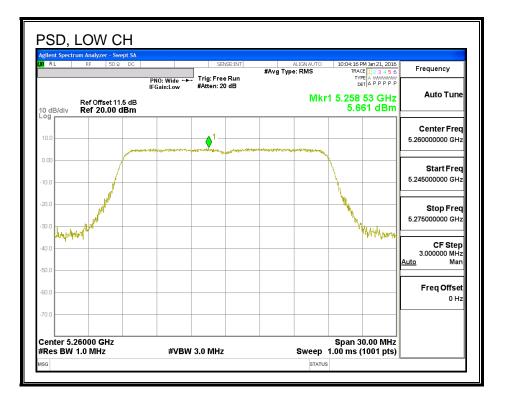
0.00

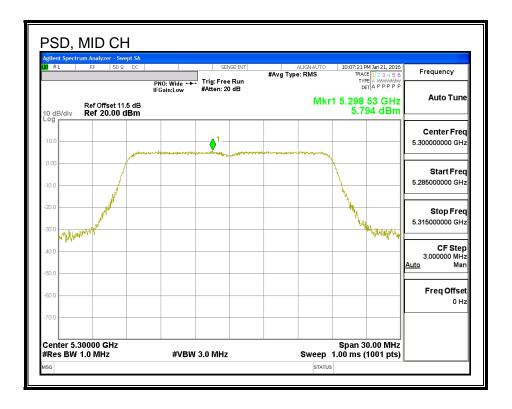
PSD Results

Channel	Frequency	Antenna B	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	5.66	5.66	11.00	-5.34
Mid	5300	5.79	5.79	11.00	-5.21
High	5320	4.83	4.83	11.00	-6.17

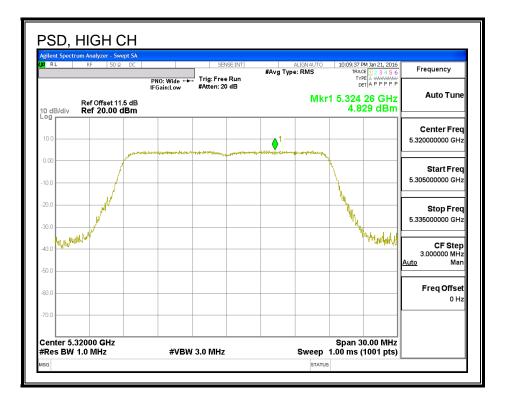
Page 258 of 1558

<u>PSD</u>





Page 259 of 1558



Page 260 of 1558

8.35. 802.11a ANTENNA - A MODE IN THE 5.3 GHz BAND

Note: Covered by 802.11n HT20 ANTENNA A MODE IN THE 5.3 GHz BAND

UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. FAX: (510) 661-0888

Page 261 of 1558

8.36. 802.11n HT20 ANTENNA - A MODE IN THE 5.3 GHz BAND

8.36.1. 26 dB BANDWIDTH

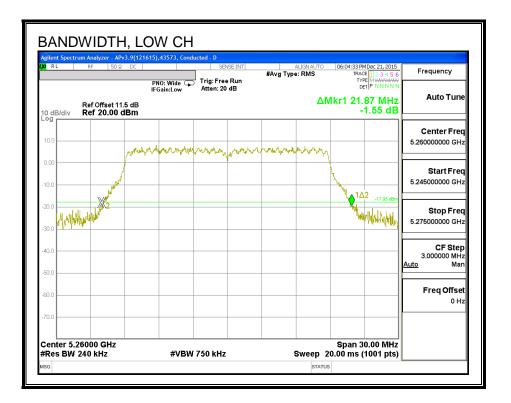
LIMITS

None; for reporting purposes only.

RESULTS

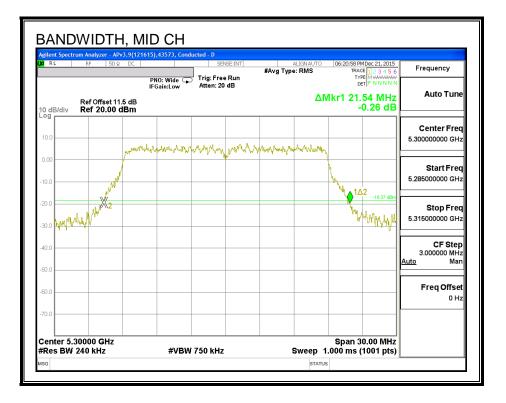
Channel	Frequency	26 dB Bandwidth
	(MHz)	(MHz)
Low	5260	21.87
Mid	5300	21.54
High	5320	21.60

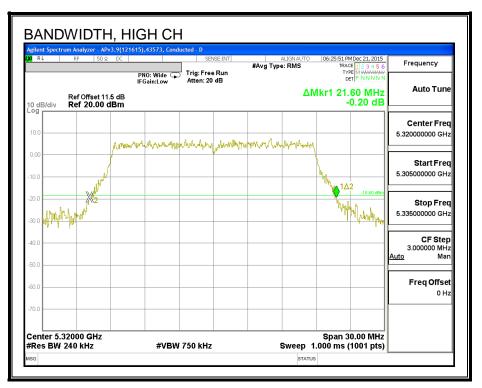
26 dB BANDWIDTH



UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Page 262 of 1558





Page 263 of 1558

8.36.2. 99% BANDWIDTH

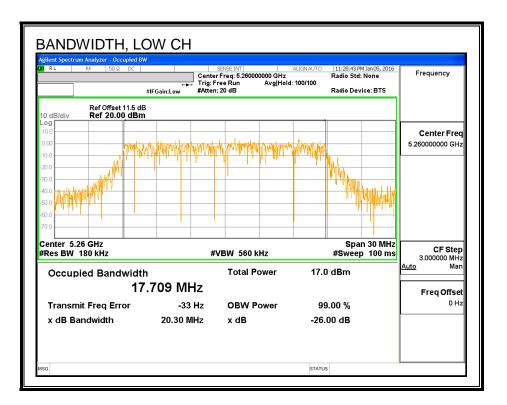
<u>LIMITS</u>

None; for reporting purposes only.

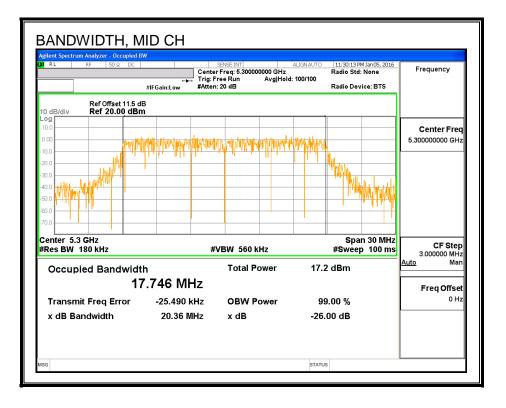
RESULTS

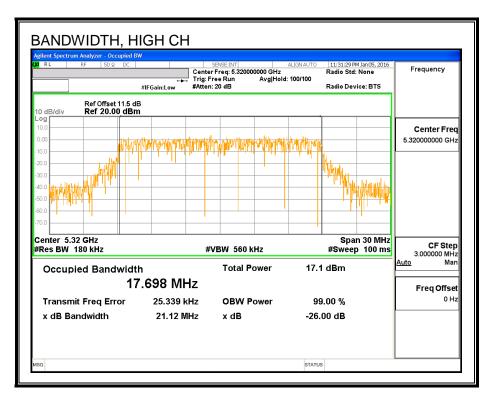
Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5260	17.709
Mid	5300	17.746
High	5320	17.698

99% BANDWIDTH



Page 264 of 1558





Page 265 of 1558

8.36.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5260	17.39
Mid	5300	17.46
High	5320	15.94

Page 266 of 1558

8.36.4. 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.

Page 267 of 1558

RESULTS

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	5260	21.87	17.709	2.23	23.48	11.00
Mid	5300	21.54	17.746	2.23	23.49	11.00
High	5320	21.60	17.698	2.23	23.48	11.00

Duty Cycle CF (dB) 0.00

Included in Calculations of Corr'd PSD

Output Power Results

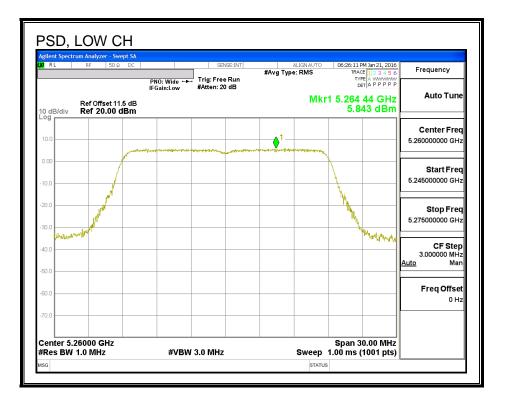
Channel	Frequency	Antenna A	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	17.39	17.39	23.48	-6.09
Mid	5300	17.46	17.46	23.49	-6.03
High	5320	15.94	15.94	23.48	-7.54

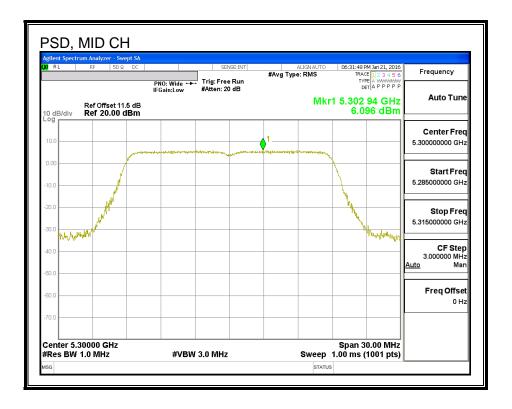
PSD Results

Channel	Frequency	Antenna A	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	5.84	5.84	11.00	-5.16
Mid	5300	6.10	6.10	11.00	-4.90
High	5320	4.68	4.68	11.00	-6.32

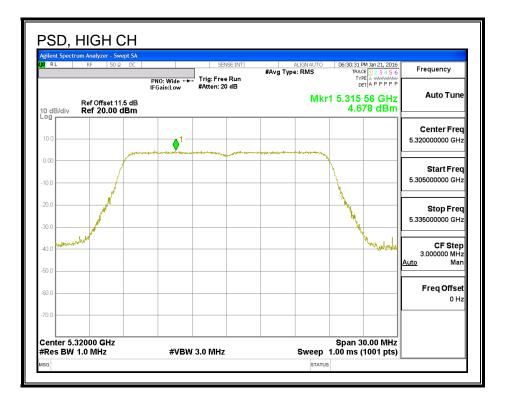
Page 268 of 1558

<u>PSD</u>





Page 269 of 1558



Page 270 of 1558

8.37. 802.11a ANTENNA - C MODE IN THE 5.3 GHz BAND

Note: Covered by 802.11n HT20 ANTENNA C MODE IN THE 5.3 GHz BAND

UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. FORM NO: CCSUP4701J FAX: (510) 661-0888 TEL: (510) 771-1000 FAX: (510) 661-0888

Page 271 of 1558

8.38. 802.11n HT20 ANTENNA - C MODE IN THE 5.3 GHz BAND

8.38.1. 26 dB BANDWIDTH

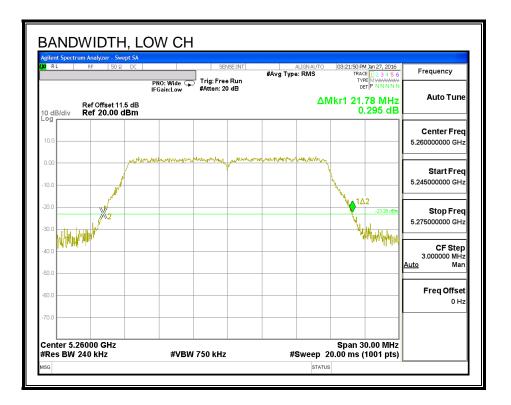
<u>LIMITS</u>

None; for reporting purposes only.

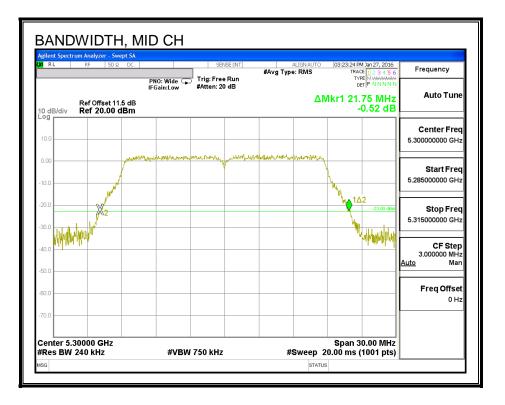
RESULTS

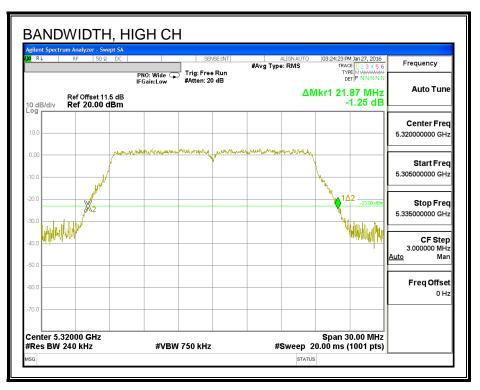
Channel	Frequency	26 dB Bandwidth
(MHz)		(MHz)
Low	5260	21.78
Mid	5300	21.75
High	5320	21.87

26 dB BANDWIDTH



Page 272 of 1558





Page 273 of 1558

8.38.2. 99% BANDWIDTH

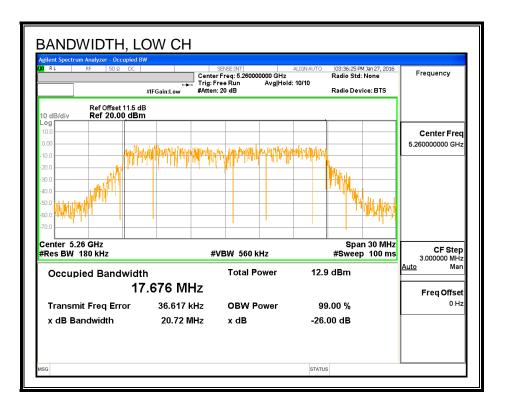
<u>LIMITS</u>

None; for reporting purposes only.

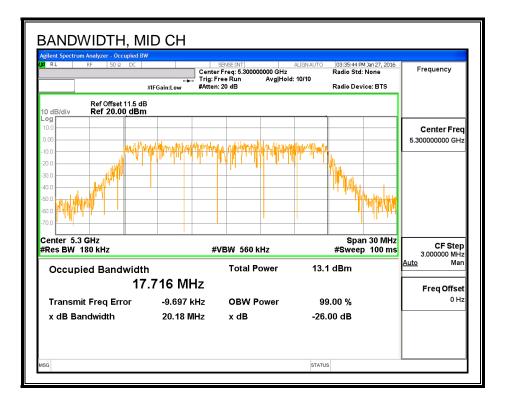
RESULTS

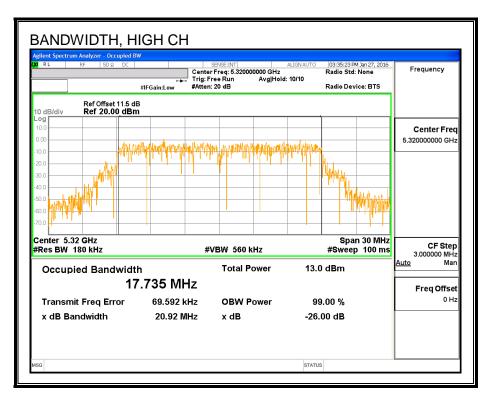
Channel	Frequency	99% Bandwidth
(MHz)		(MHz)
Low	5260	17.676
Mid	5300	17.716
High	5320	17.735

99% BANDWIDTH



Page 274 of 1558





Page 275 of 1558 **UL VERIFICATION SERVICES INC.** 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000

8.38.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5260	15.45
Mid	5300	15.49
High	5320	15.48

UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Page 276 of 1558

8.38.4. 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.

Page 277 of 1558

RESULTS

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	5260	21.78	17.676	2.12	23.47	11.00
Mid	5300	21.75	17.716	2.12	23.48	11.00
High	5320	21.87	17.735	2.12	23.49	11.00

Duty Cycle CF (dB)

Included in Calculations of Corr'd PSD

Output Power Results

Channel	Frequency	Antenna C	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	15.45	15.45	23.47	-8.02
Mid	5300	15.49	15.49	23.48	-7.99
High	5320	15.48	15.48	23.49	-8.01

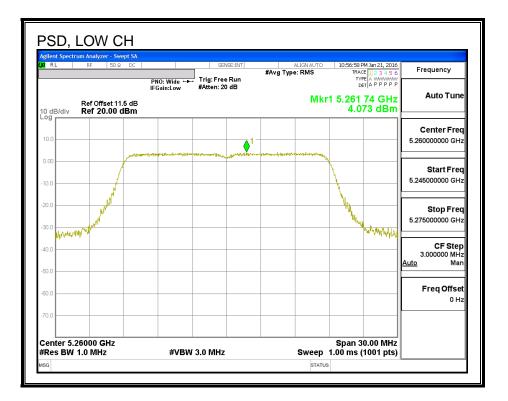
0.00

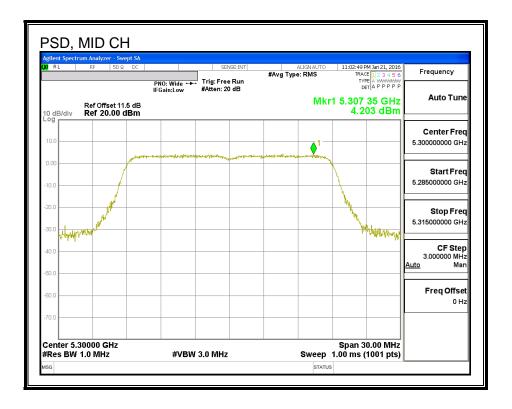
PSD Results

Channel	Frequency	Antenna C	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	4.07	4.07	11.00	-6.93
Mid	5300	4.20	4.20	11.00	-6.80
High	5320	4.09	4.09	11.00	-6.91

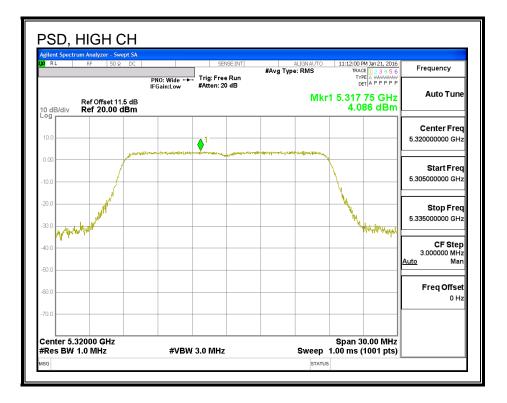
Page 278 of 1558

<u>PSD</u>





Page 279 of 1558



Page 280 of 1558

8.39. 802.11n HT20 ANTENNA B+A CDD MODE IN THE 5.3 GHz BAND

8.39.1. 26 dB BANDWIDTH

<u>LIMITS</u>

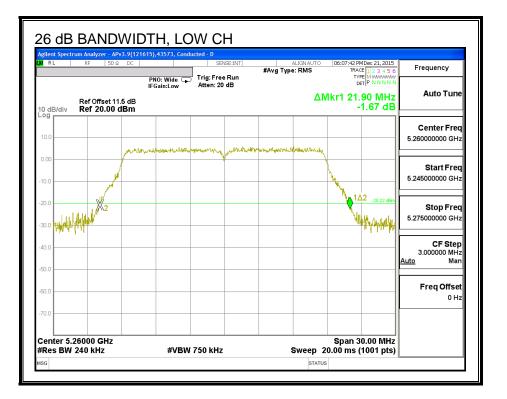
None; for reporting purposes only.

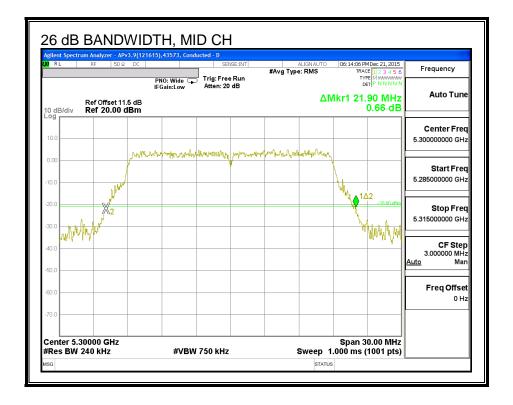
RESULTS

Channel	Frequency	26 dB BW	26 dB BW
		Antenna B	Antenna A
	(MHz)	(MHz)	(MHz)
Low	5260	21.90	21.87
Mid	5300	21.90	21.60
High	5320	21.72	21.51

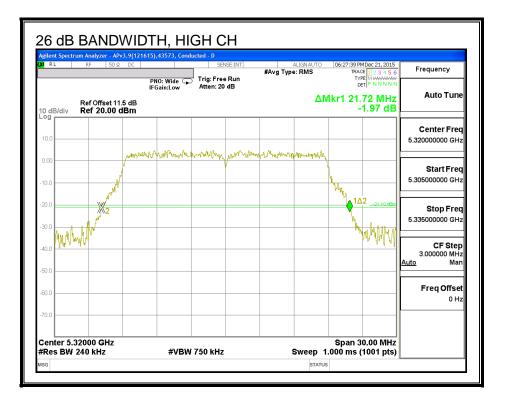
Page 281 of 1558

26 DB BANDWIDTH, ANTENNA - B

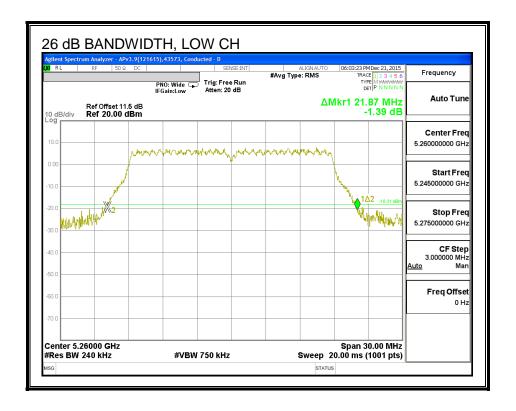




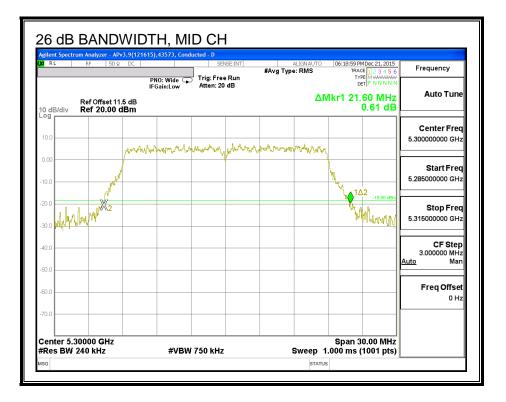
Page 282 of 1558

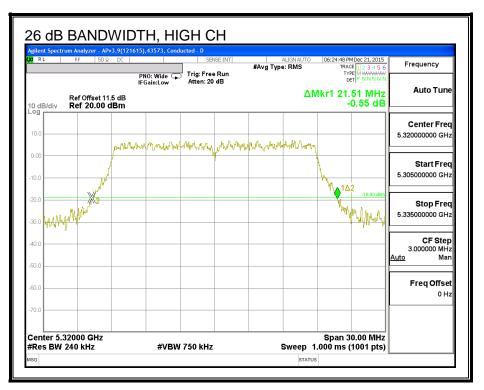


26 DB BANDWIDTH, ANTENNA - A



Page 283 of 1558





Page 284 of 1558

8.39.2. 99% BANDWIDTH

<u>LIMITS</u>

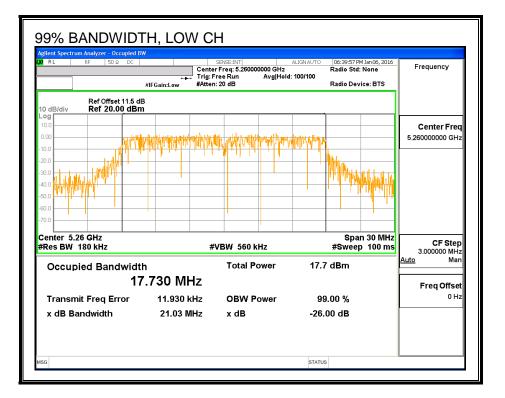
None; for reporting purposes only.

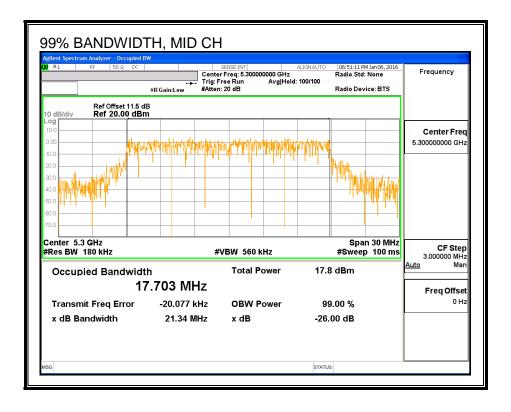
RESULTS

Channel	Frequency	99% BW	99% BW
		Antenna B	Antenna A
	(MHz)	(MHz)	(MHz)
Low	5260	17.730	17.713
Mid	5300	17.703	17.687
High	5320	17.697	17.685

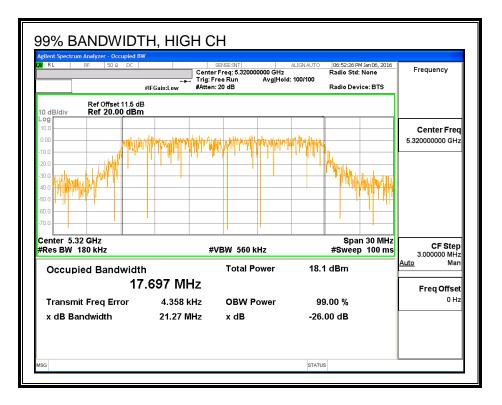
Page 285 of 1558

99% BANDWIDTH, ANTENNA - B

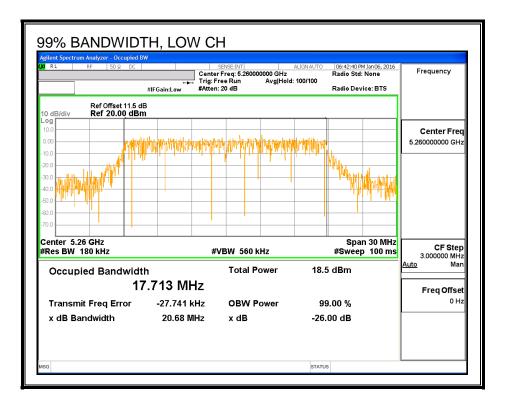




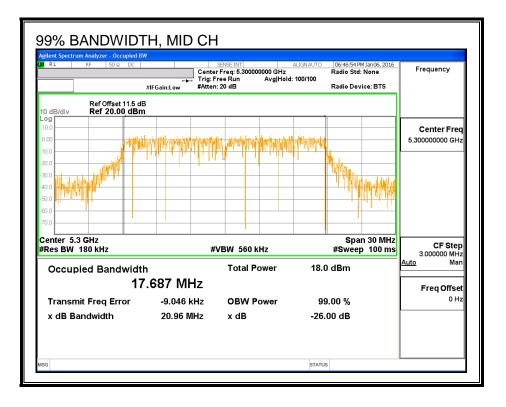
Page 286 of 1558

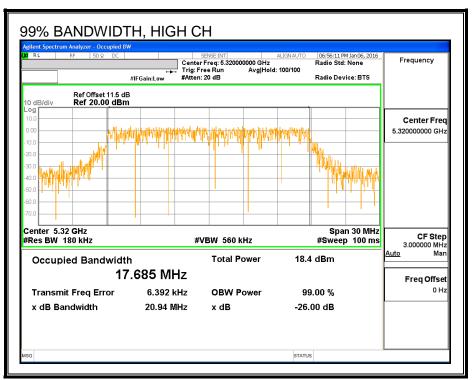


99% BANDWIDTH, ANTENNA - A



Page 287 of 1558





Page 288 of 1558

8.39.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

Channel	Frequency	Antenna	Antenna	Total
		В	Α	
		Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)
Low	5260	15.92	15.94	18.94
Mid	5300	15.93	15.98	18.97
High	5320	14.48	14.47	17.49

Page 289 of 1558

8.39.4. 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 B	Antenna A	Uncorrelated Chains
		Directional
Gain	Gain	Gain
(dBi)	(dBi)	(dBi)
3.02	2.23	2.64

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

Antenna B	Antenna A	Correlated Chains
		Directional
Gain	Gain	Gain
(dBi)	(dBi)	(dBi)
3.02	2.23	5.64

Page 290 of 1558

RESULTS

Bandwidth, Antenna Gain and Limits

0.00

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	5260	21.90	17.730	2.64	5.64	23.49	11.00
Mid	5300	21.90	17.703	2.64	5.64	23.48	11.00
High	5320	21.72	17.697	2.64	5.64	23.48	11.00

Duty Cycle CF (dB)

Included in Calculations of Corr'd PSD

Output Power Results

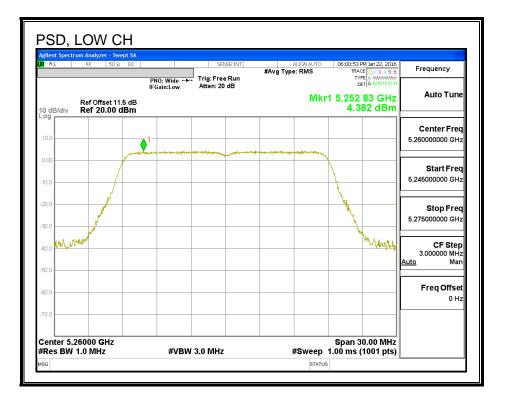
Channel	Frequency	Antenna B	Antenna A	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	15.92	15.94	18.94	23.49	-4.55
Mid	5300	15.93	15.98	18.97	23.48	-4.52
High	5320	14.48	14.47	17.49	23.48	-5.99

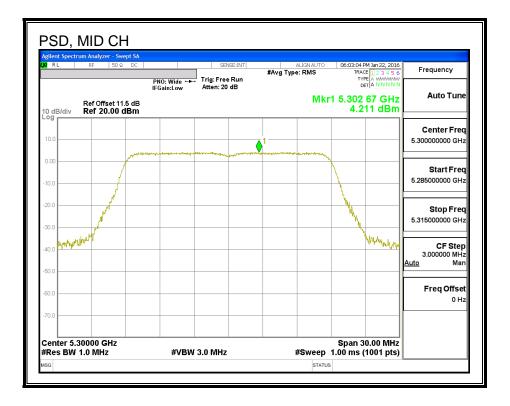
PSD Results

Channel	Frequency	Antenna B	Antenna A	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	4.38	4.55	7.48	11.00	-3.52
Mid	5300	4.21	4.63	7.44	11.00	-3.56
High	5320	2.98	2.97	5.99	11.00	-5.01

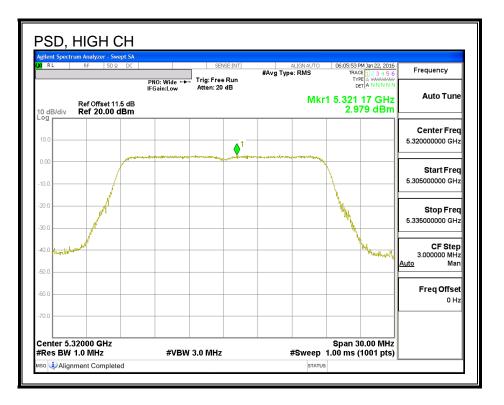
Page 291 of 1558

PSD, ANTENNA - B

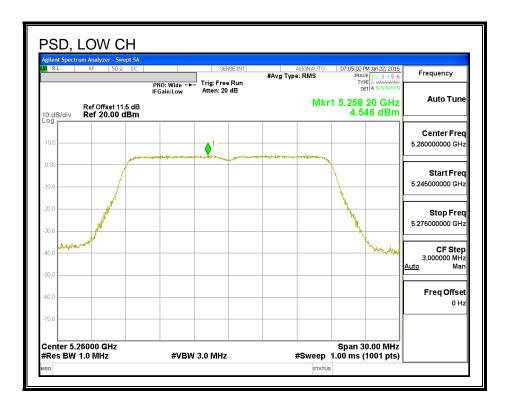




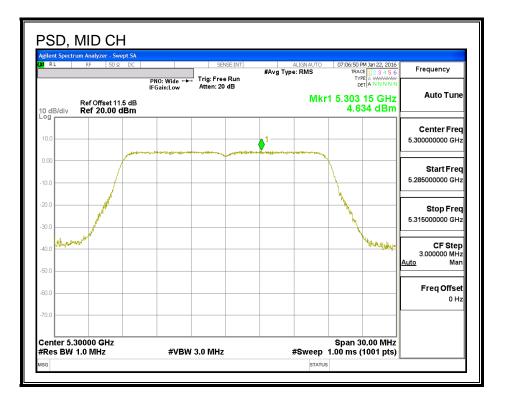
Page 292 of 1558

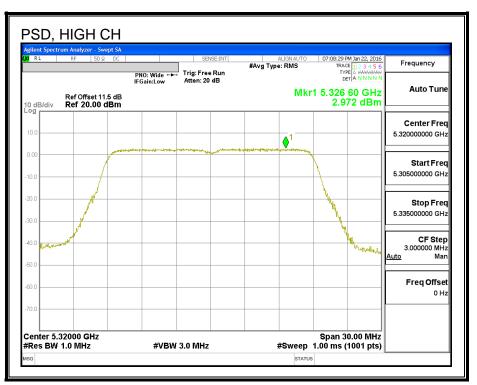


PSD, ANTENNA - A



Page 293 of 1558





Page 294 of 1558

8.40. 802.11n HT20 ANTENNA A+C CDD MODE IN THE 5.3 GHz BAND

8.40.1. 26dB BANDWIDTH

LIMITS

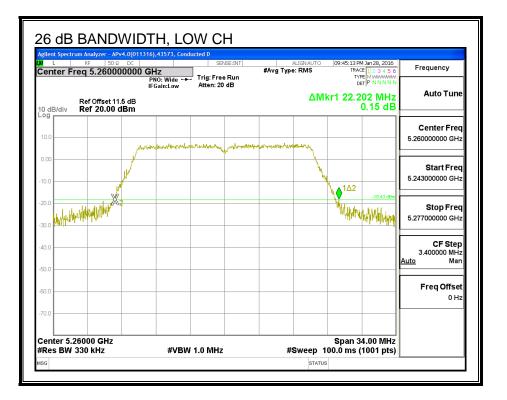
None; for reporting purposes only.

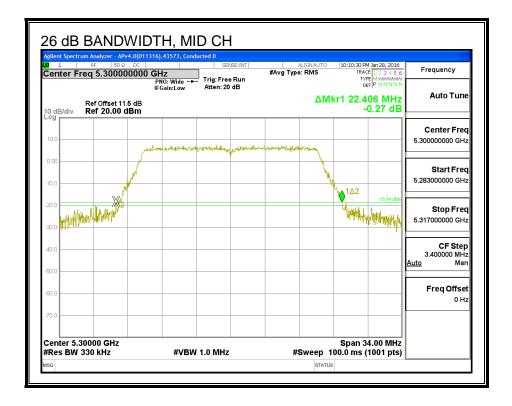
RESULTS

Channel	Frequency	26 dB BW	26 dB BW
		Antenna A	Antenna C
	(MHz)	(MHz)	(MHz)
Low	5260	22.20	21.81
Mid	5300	22.41	21.65
High	5320	22.30	21.58

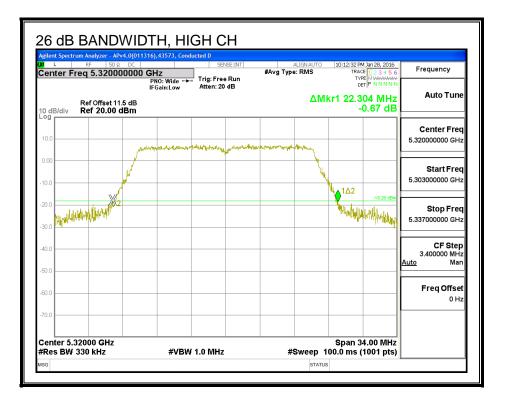
Page 295 of 1558

26 DB BANDWIDTH, ANTENNA - A

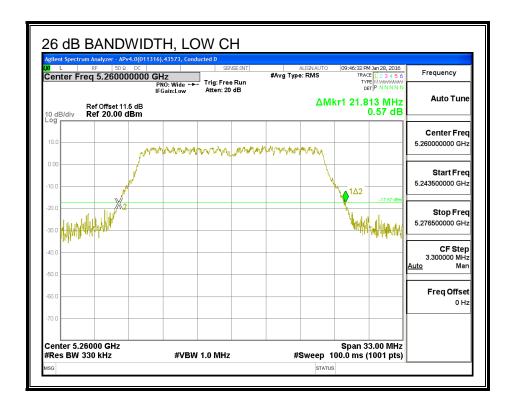




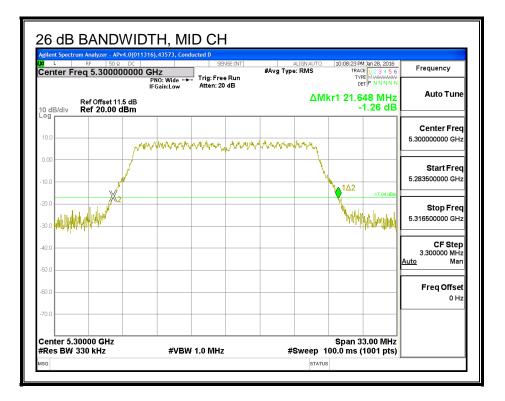
Page 296 of 1558

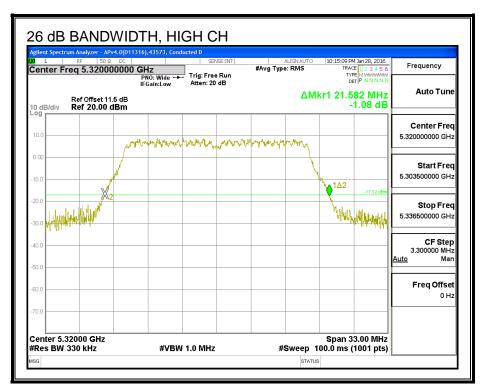


26 DB BANDWIDTH, ANTENNA - C



Page 297 of 1558





Page 298 of 1558

8.40.2. 99% BANDWIDTH

<u>LIMITS</u>

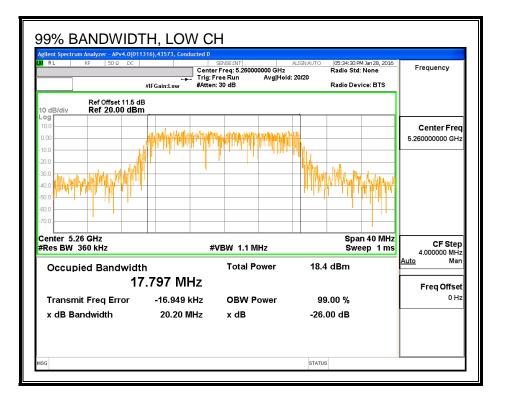
None; for reporting purposes only.

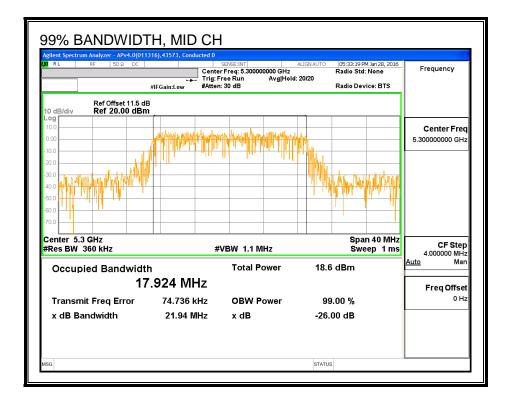
RESULTS

Channel	Frequency	99% BW	99% BW
		Antenna A	Antenna C
	(MHz)	(MHz)	(MHz)
Low	5260	17.797	17.794
Mid	5300	17.924	17.799
High	5320	17.823	17.874

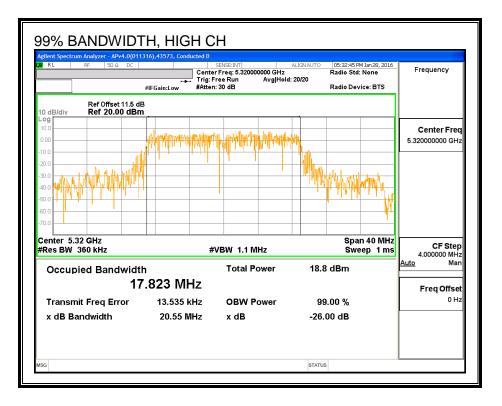
Page 299 of 1558

99% BANDWIDTH, ANTENNA - A

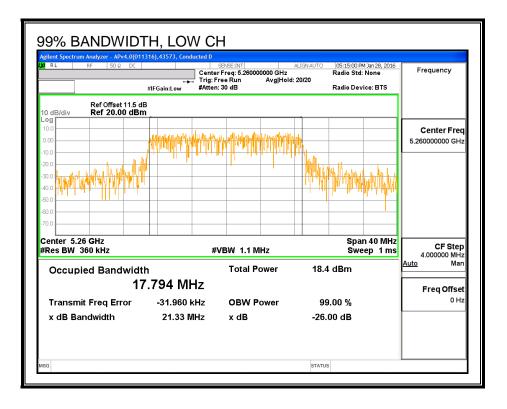




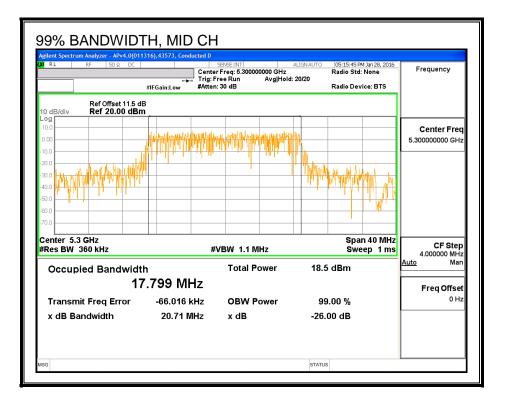
Page 300 of 1558

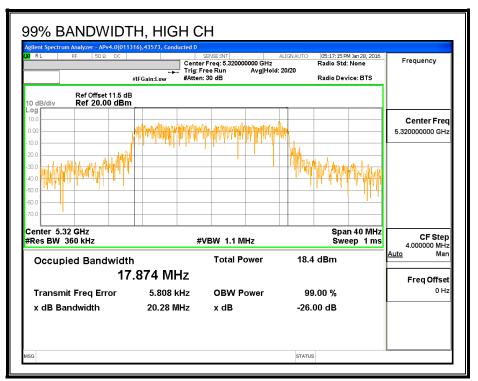


99% BANDWIDTH, ANTENNA - C



Page 301 of 1558





UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. FORM NO: CCSUP4701J FAX: (510) 661-0888 USA

Page 302 of 1558

8.40.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

Channel	Frequency	Antenna	Antenna	Total
		A	С	
		Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)
Low	5260	16.00	15.48	18.76
Mid	5300	15.99	15.50	18.76
High	5320	14.35	14.45	17.41

Page 303 of 1558

8.40.4. 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 C	Uncorrelated Chains
		Directional
Gain	Gain	Gain
(dBi)	(dBi)	(dBi)
2.23	2.12	2.18

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

Antenna A	Antenna C	Correlated Chains
		Directional
Gain	Gain	Gain
(dBi)	(dBi)	(dBi)
2.23	2.12	5.19

Page 304 of 1558

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)
Low	5260	22.20	17.797	2.18	5.19	23.50	11.00
Mid	5300	22.41	17.924	2.18	5.19	23.53	11.00
High	5320	22.30	17.874	2.18	5.19	23.52	11.00

Duty Cycle CF (dB) 0.00

Included in Calculations of Corr'd PSD

Output Power Results

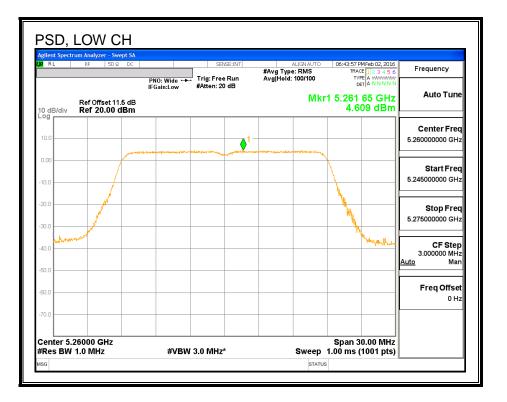
Channel	Frequency	Antenna A	Antenna C	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	16.00	15.48	18.76	23.50	-4.75
Mid	5300	15.99	15.50	18.76	23.53	-4.77
High	5320	14.35	14.45	17.41	23.52	-6.11

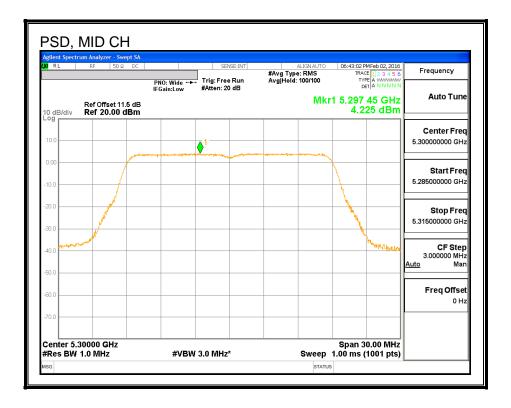
PSD Results

Channel	Frequency	Antenna A	Antenna C	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	4.61	4.29	7.46	11.00	-3.54
Mid	5300	4.23	4.00	7.12	11.00	-3.88
High	5320	2.84	2.88	5.87	11.00	-5.13

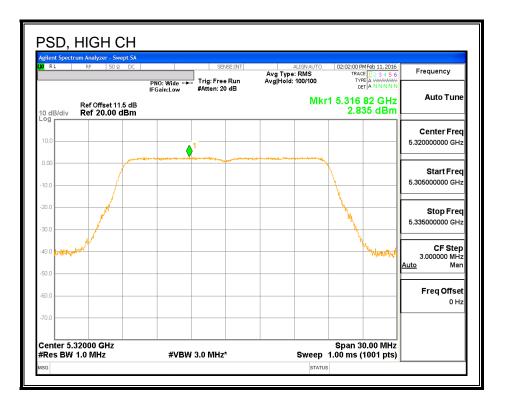
Page 305 of 1558

PSD, ANTENNA - A

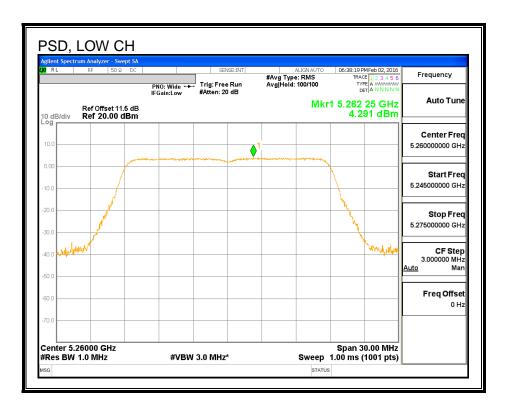




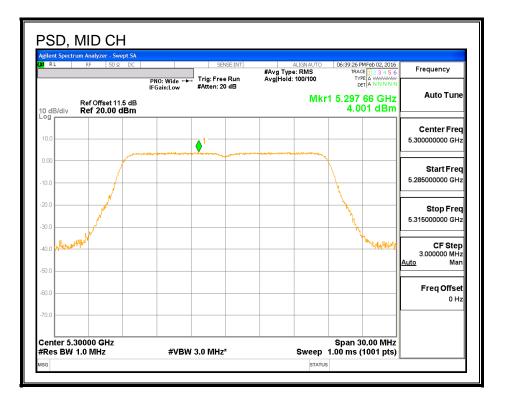
Page 306 of 1558

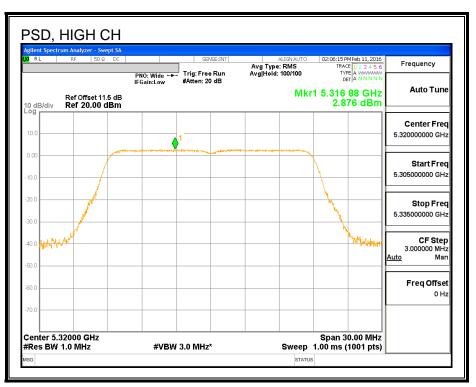


PSD, ANTENNA - C



Page 307 of 1558





Page 308 of 1558

8.41. 802.11n HT20 ANTENNA B+A STBC MODE IN THE 5.3 GHz BAND

8.41.1. 26 dB BANDWIDTH

LIMITS

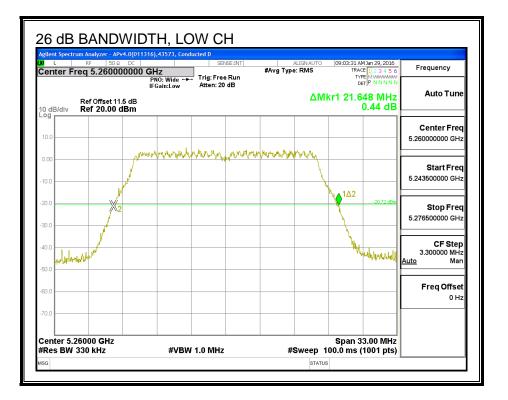
None; for reporting purposes only.

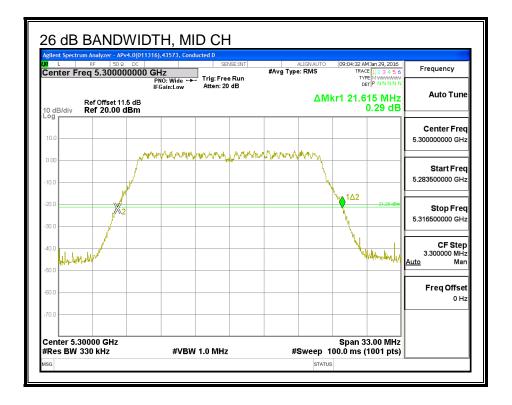
RESULTS

Channel	Frequency	26 dB BW	26 dB BW
		Antenna B	Antenna A
	(MHz)	(MHz)	(MHz)
Low	5260	21.65	21.78
Mid	5300	21.62	21.81
High	5320	21.81	21.65

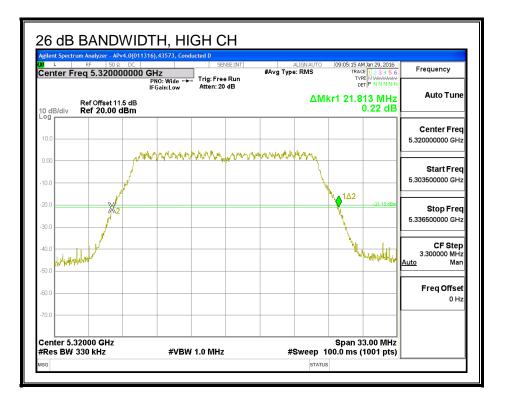
Page 309 of 1558

26 dB BANDWIDTH, ANTENNA - B

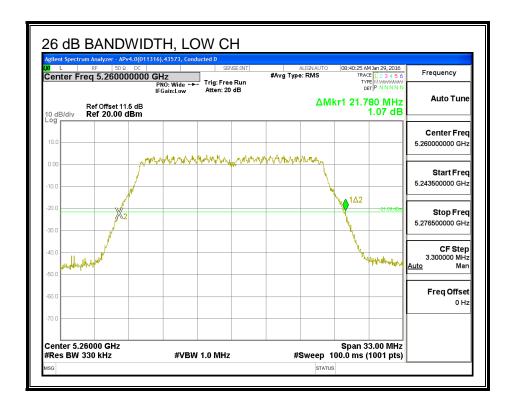




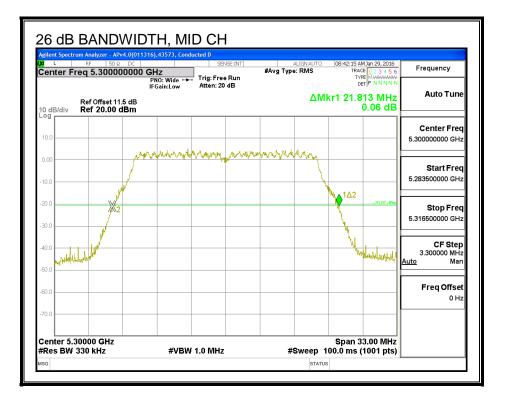
Page 310 of 1558

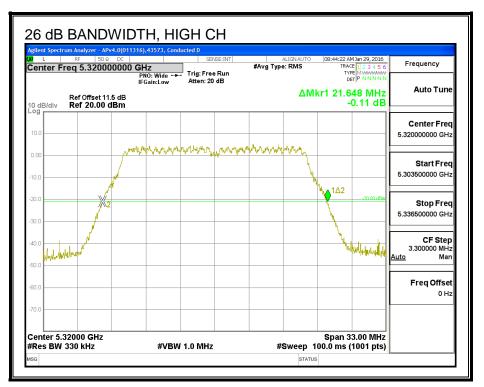


26 DB BANDWIDTH, ANTENNA - A



Page 311 of 1558





Page 312 of 1558

8.41.2. 99% BANDWIDTH

<u>LIMITS</u>

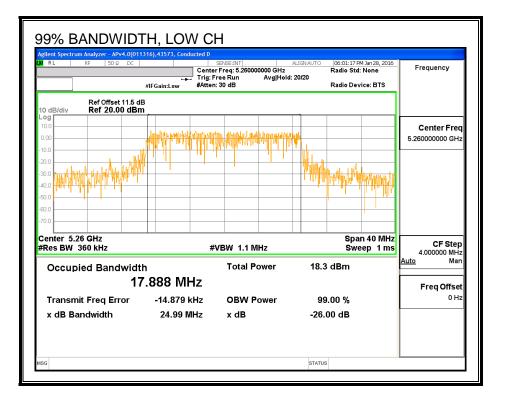
None; for reporting purposes only.

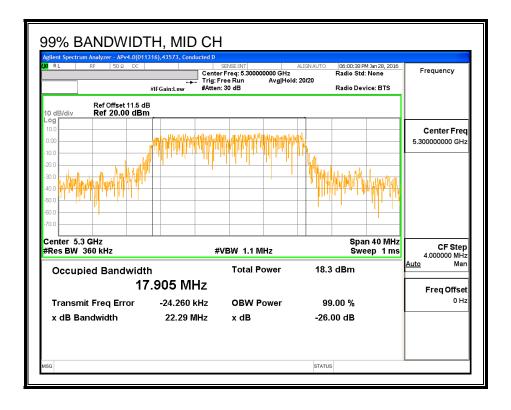
RESULTS

Channel	Frequency	99% BW	99% BW
			Antenna A
	(MHz)	(MHz)	(MHz)
Low	5260	17.888	17.822
Mid	5300	17.905	17.788
High	5320	17.808	17.776

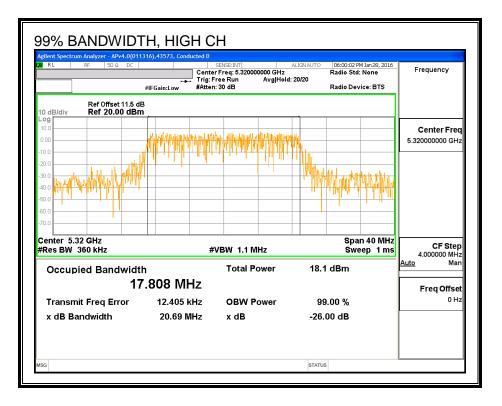
Page 313 of 1558

99% BANDWIDTH, ANTENNA - B

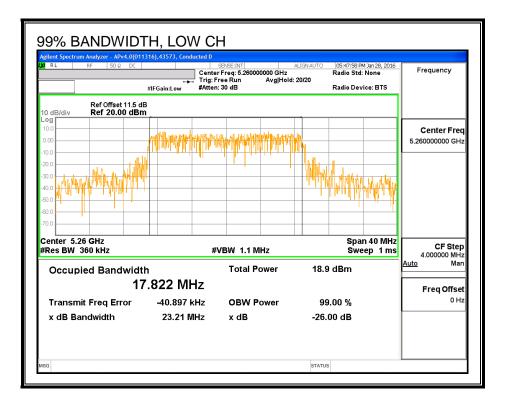




Page 314 of 1558



99% BANDWIDTH, ANTENNA - A



Page 315 of 1558