

8.21.4. OUTPUT POWER AND PSD

LIMITS

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 $11 \text{ dBm} + 10 \log B$, 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.

RESULTS

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

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

Duty Cycle CF (dB)	0.19	Included in Calculations of Corr'd PSD
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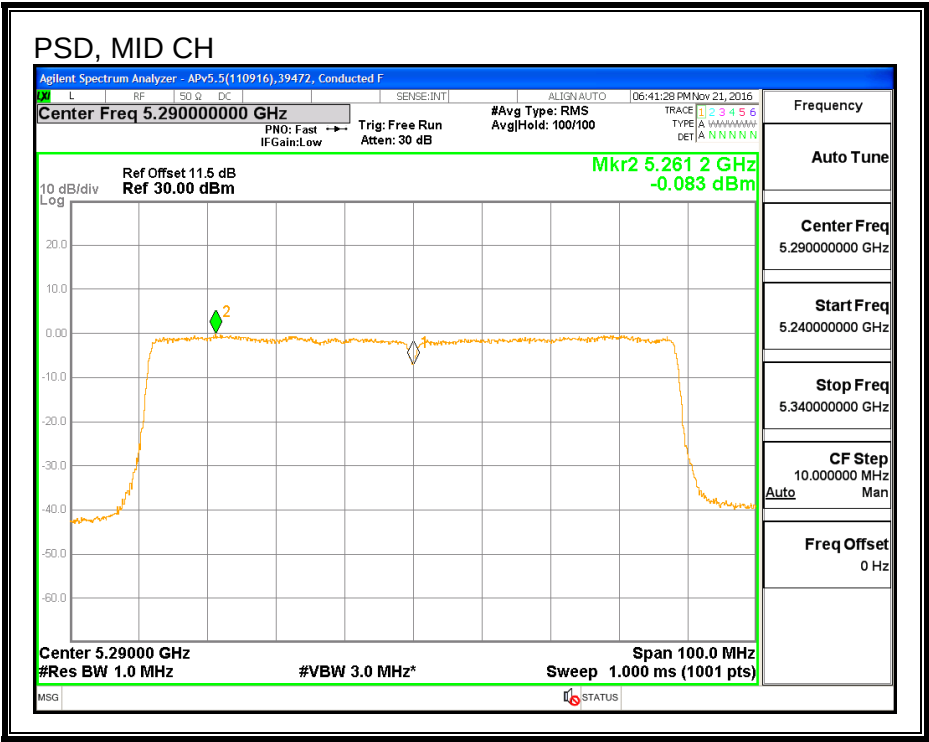
Output Power Results

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

PPSD Results

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

PSD



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

8.22.1. 26 dB BANDWIDTH

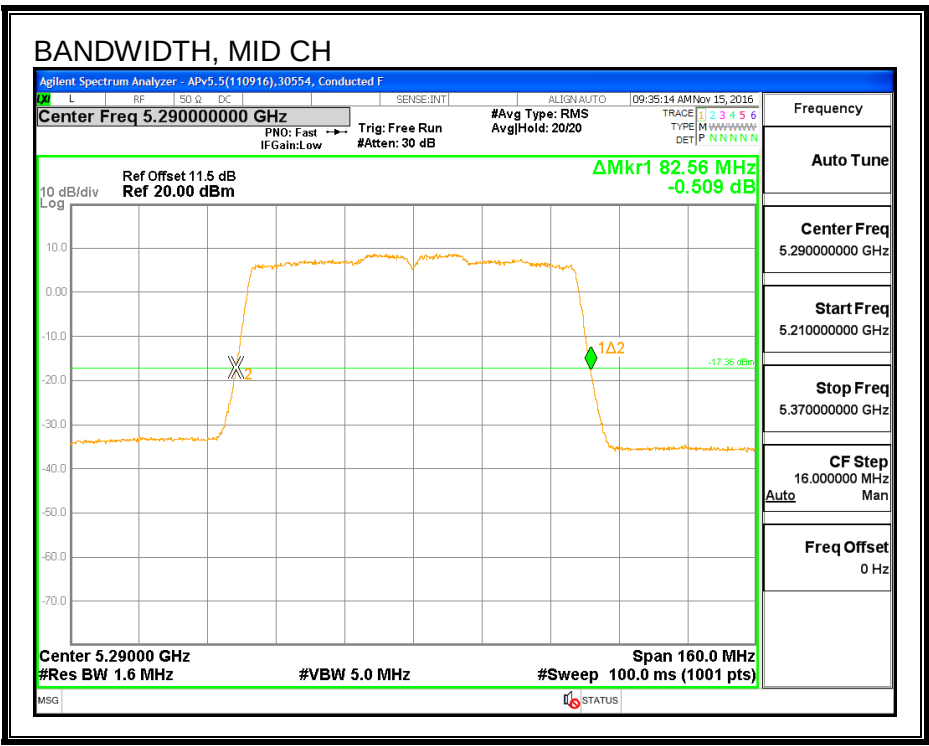
LIMITS

None; for reporting purposes only.

RESULTS

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

26 dB BANDWIDTH



8.22.2. 99% BANDWIDTH

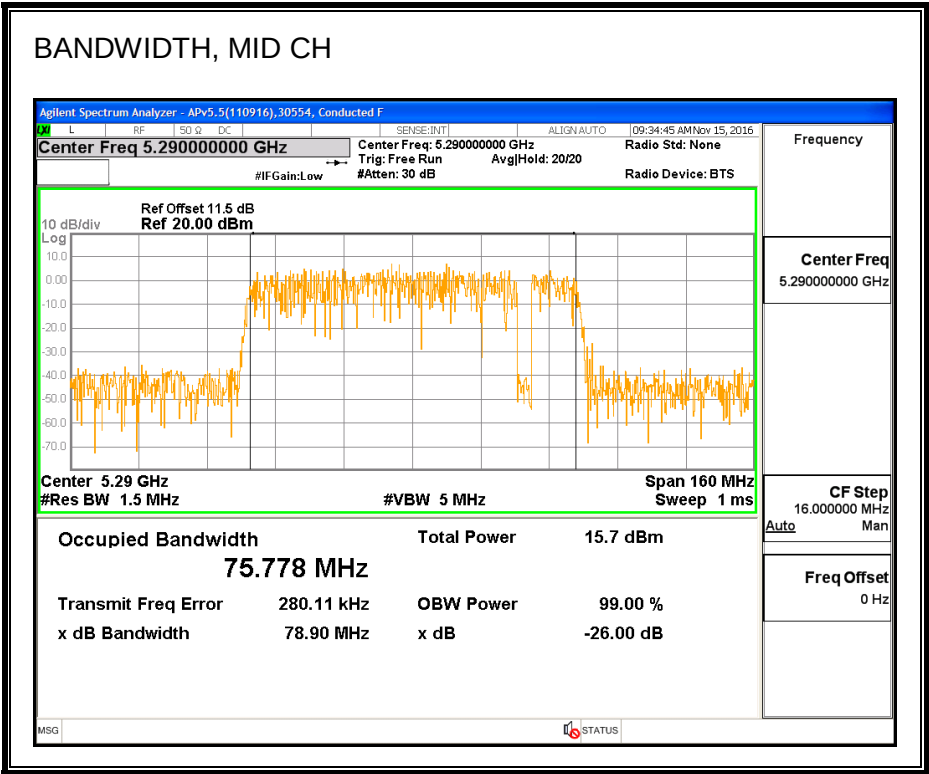
LIMITS

None; for reporting purposes only.

RESULTS

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

99% BANDWIDTH



8.22.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

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

8.22.4. OUTPUT POWER AND PSD

LIMITS

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 $11 \text{ dBm} + 10 \log B$, 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.

RESULTS

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

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (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
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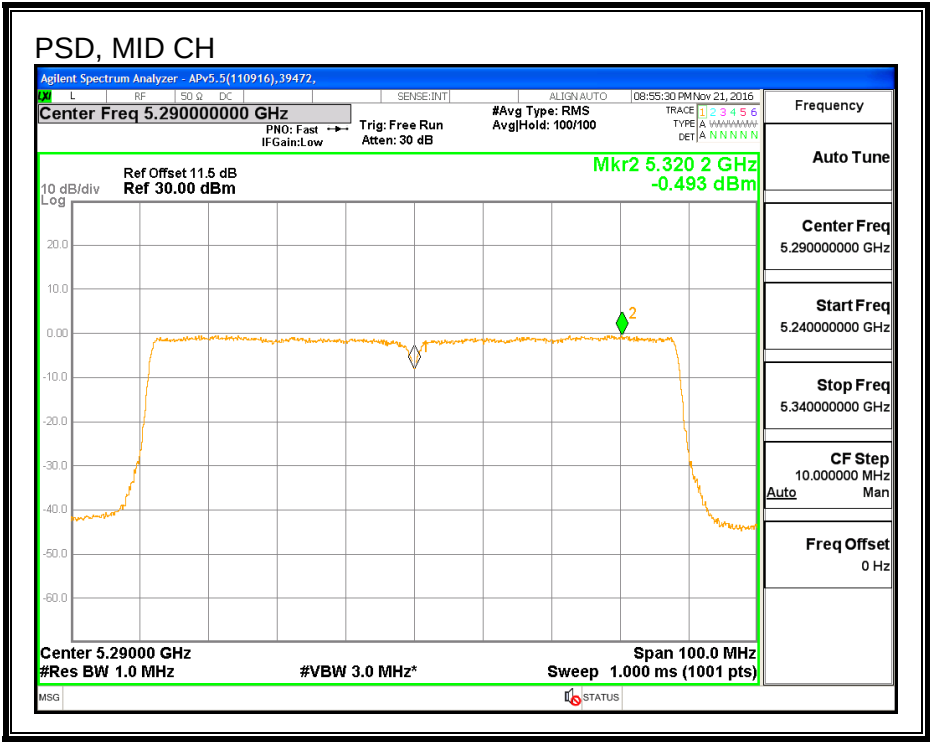
Output Power Results

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

PPSD Results

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

PSD



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

8.23.1. 26 dB BANDWIDTH

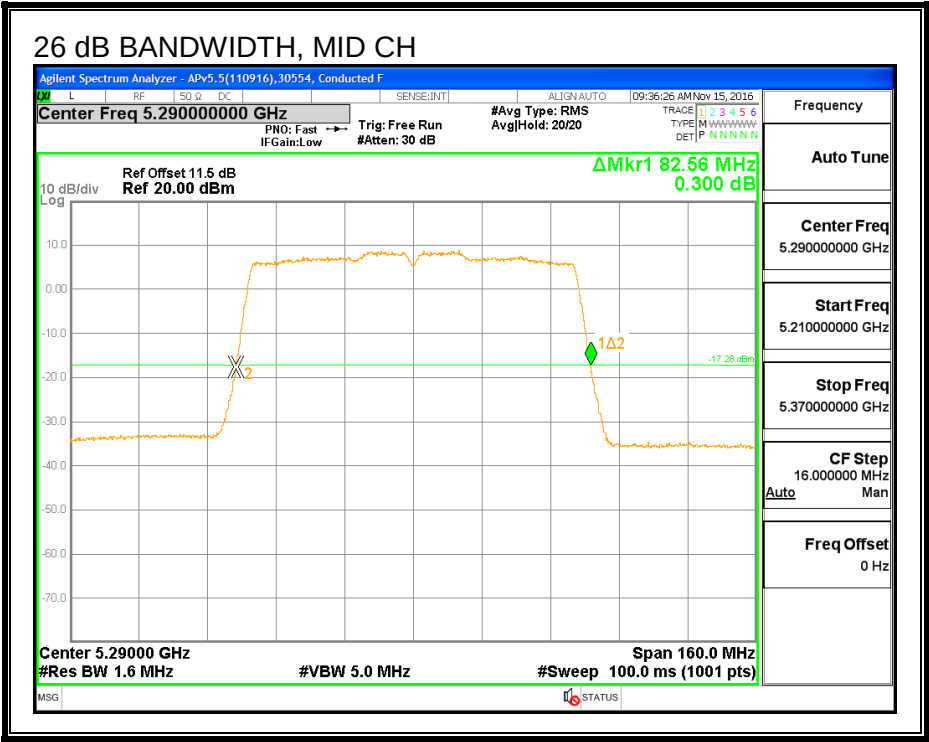
LIMITS

None; for reporting purposes only.

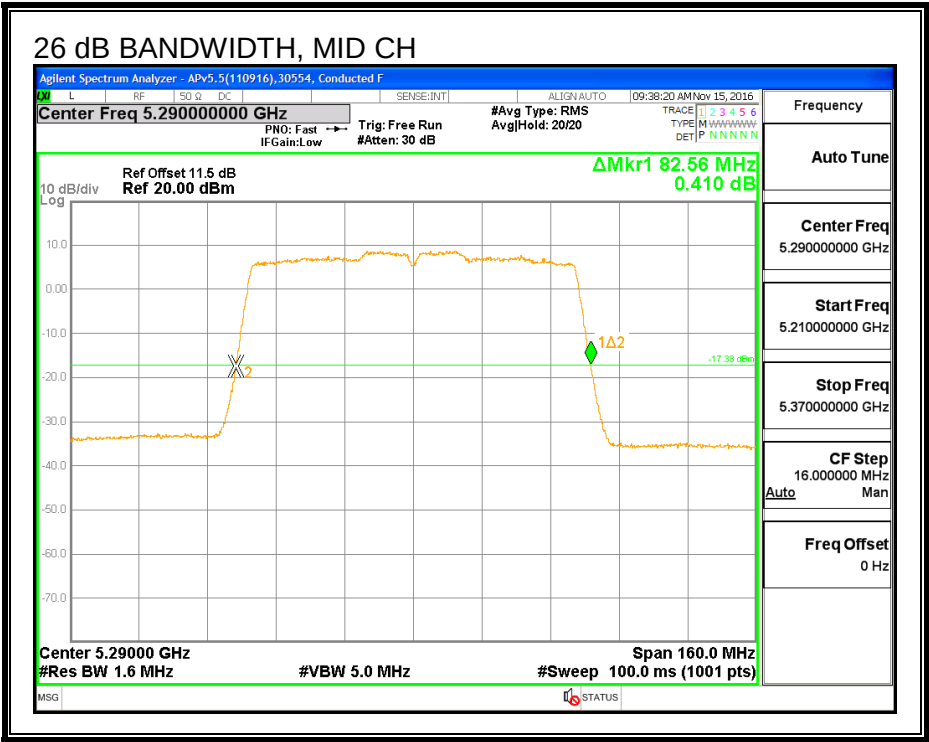
RESULTS

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

26 DB BANDWIDTH, ANTENNA A



26 DB BANDWIDTH, ANTENNA B



8.23.2. 99% BANDWIDTH

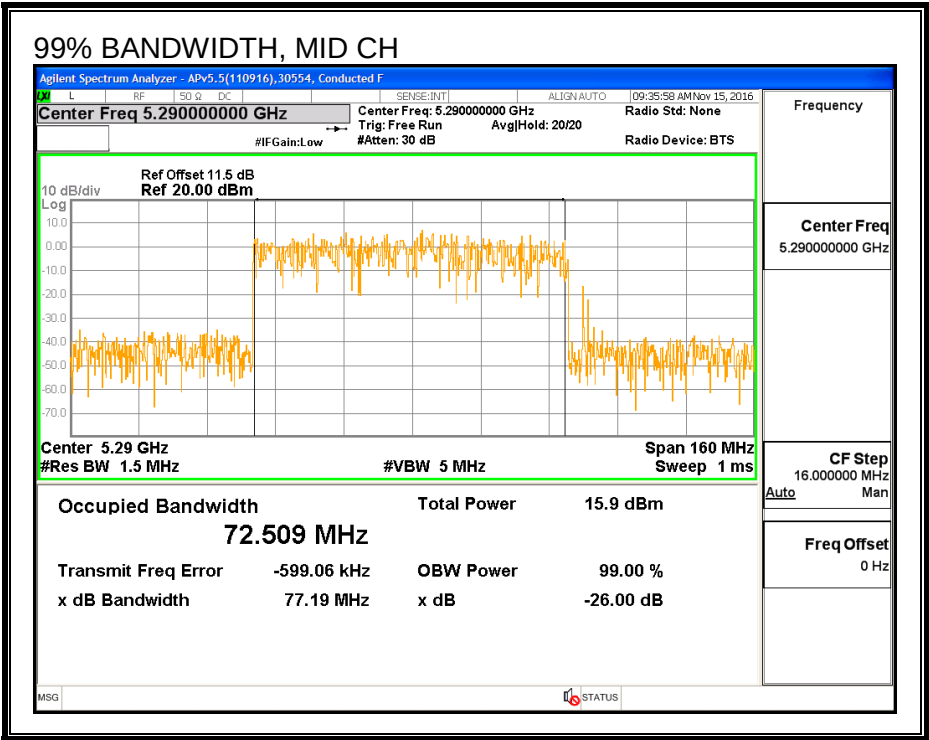
LIMITS

None; for reporting purposes only.

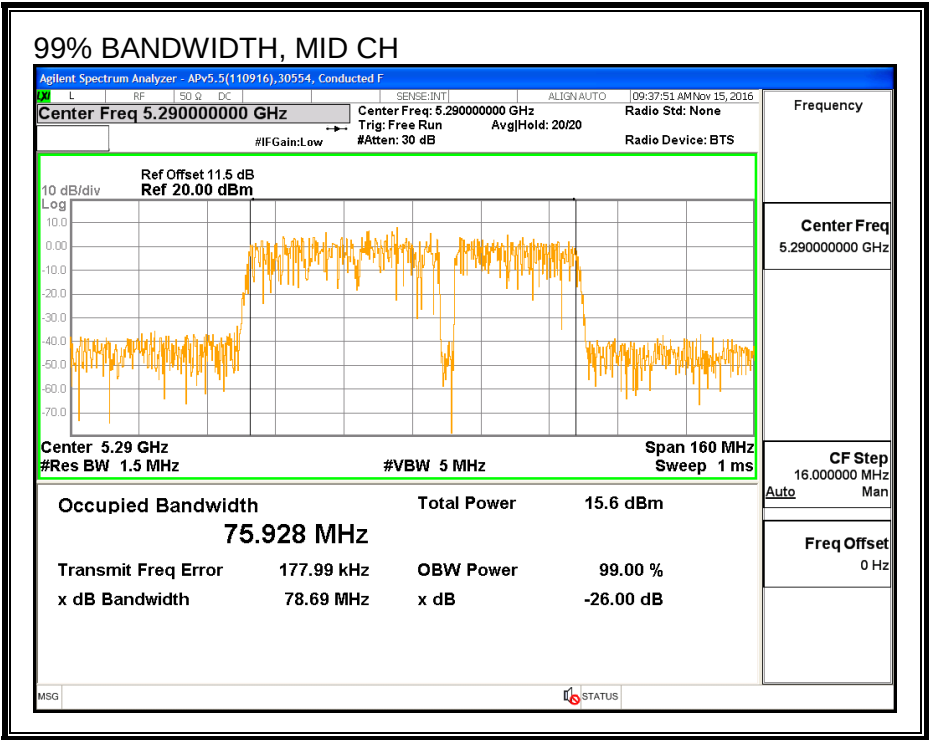
RESULTS

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

99% BANDWIDTH, ANTENNA A



99% BANDWIDTH, ANTENNA B



8.23.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

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Average Power Results

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

8.23.4. OUTPUT POWER AND PSD

LIMITS

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 $11 \text{ dBm} + 10 \log B$, 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 Gain (dBi)	Antenna B Gain (dBi)	Uncorrelated Chains Directional Gain (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 Gain (dBi)	Antenna B Gain (dBi)	Correlated Chains Directional Gain (dBi)
2.24	2.77	5.52

RESULTS

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

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

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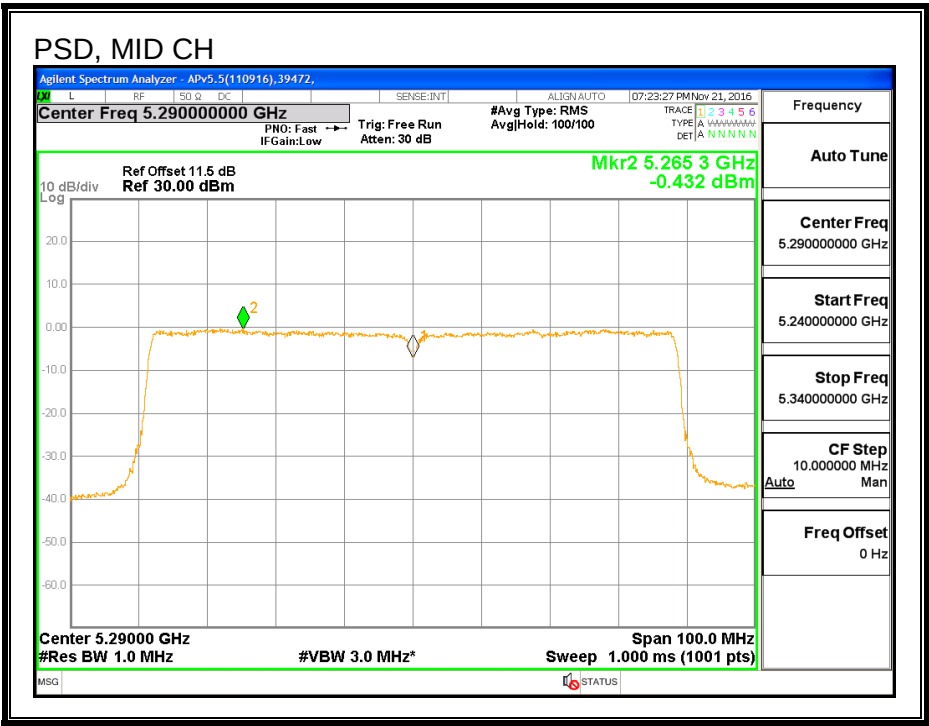
Output Power Results

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

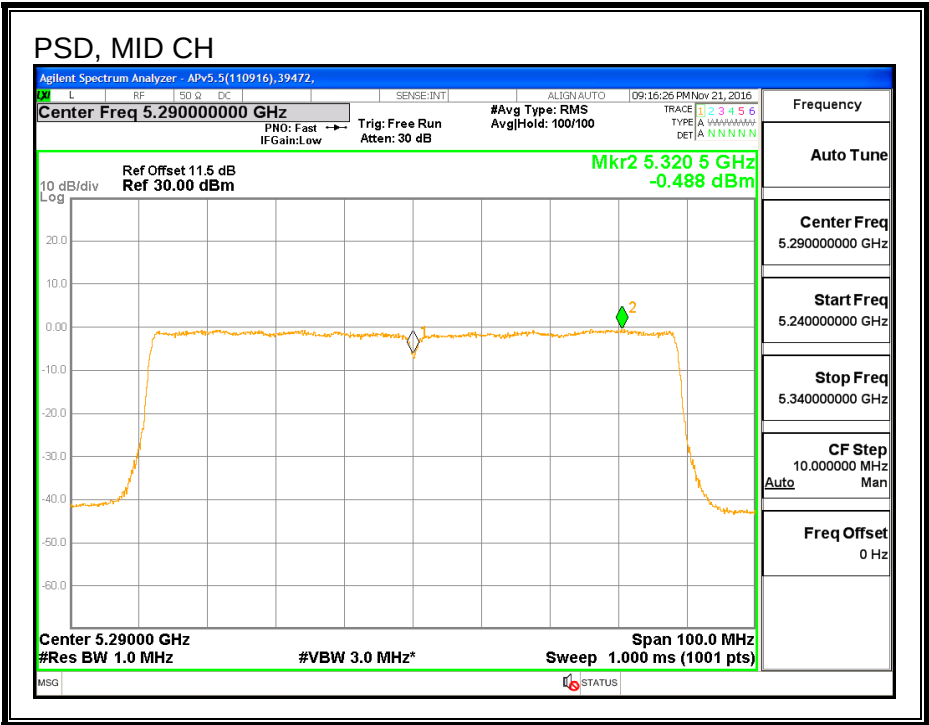
PSD Results

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

PSD, ANTENNA A



PSD, ANTENNA B



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

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

8.25.1. 26 dB BANDWIDTH

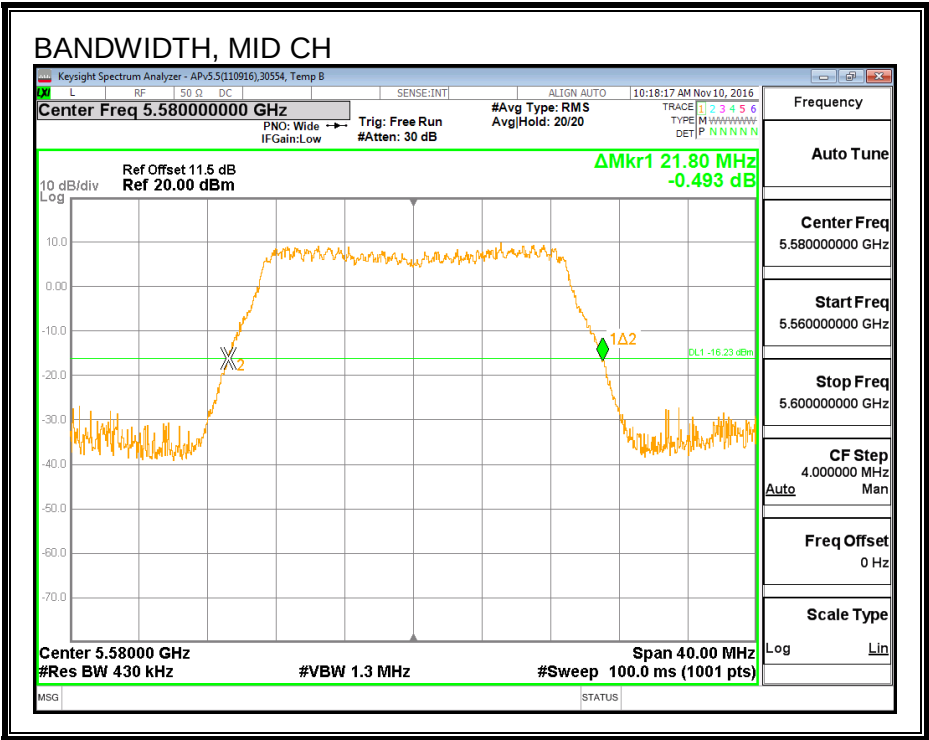
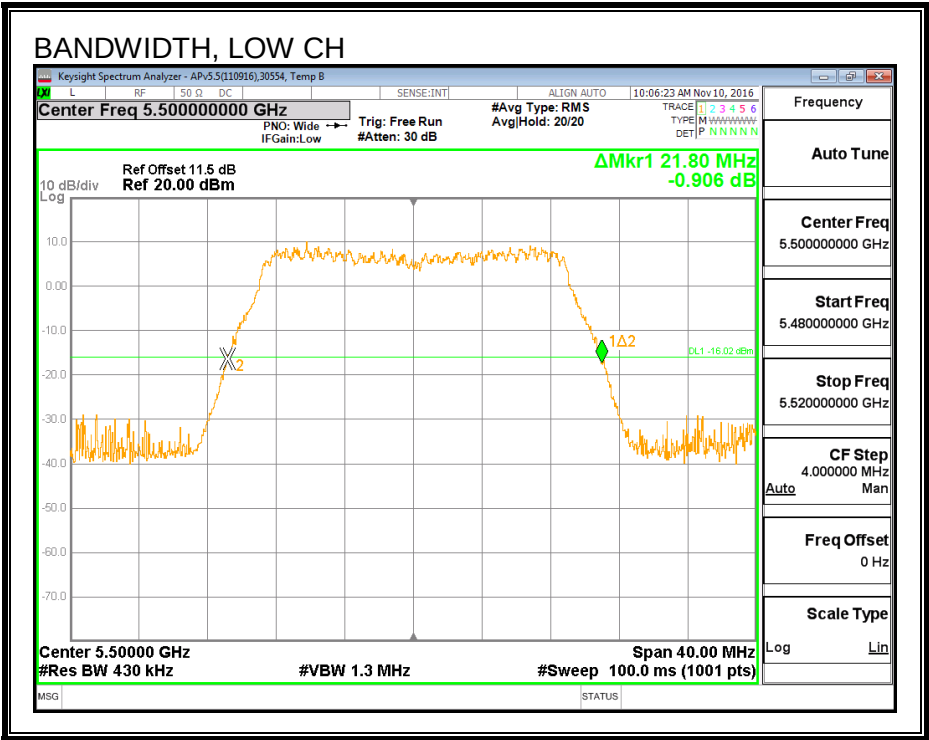
LIMITS

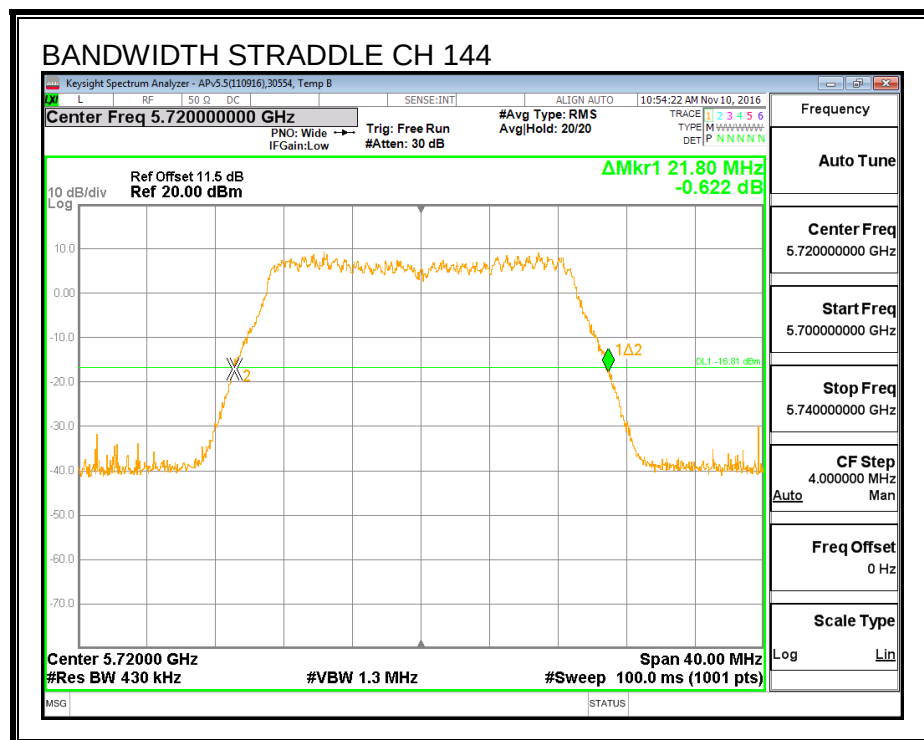
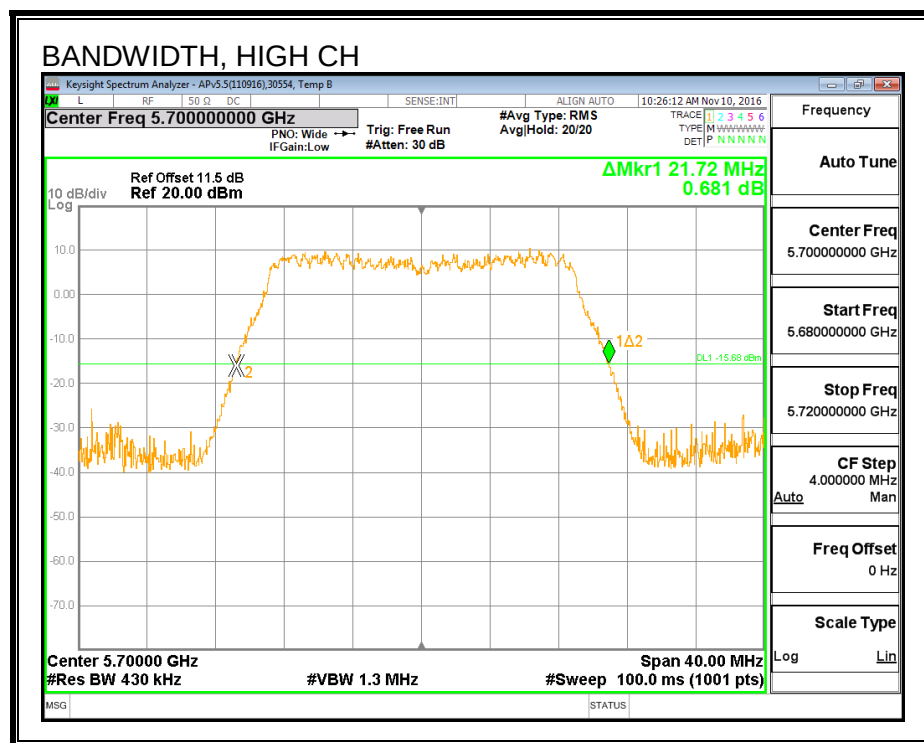
None; for reporting purposes only.

RESULTS

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

26 dB BANDWIDTH





8.25.2. 99% BANDWIDTH

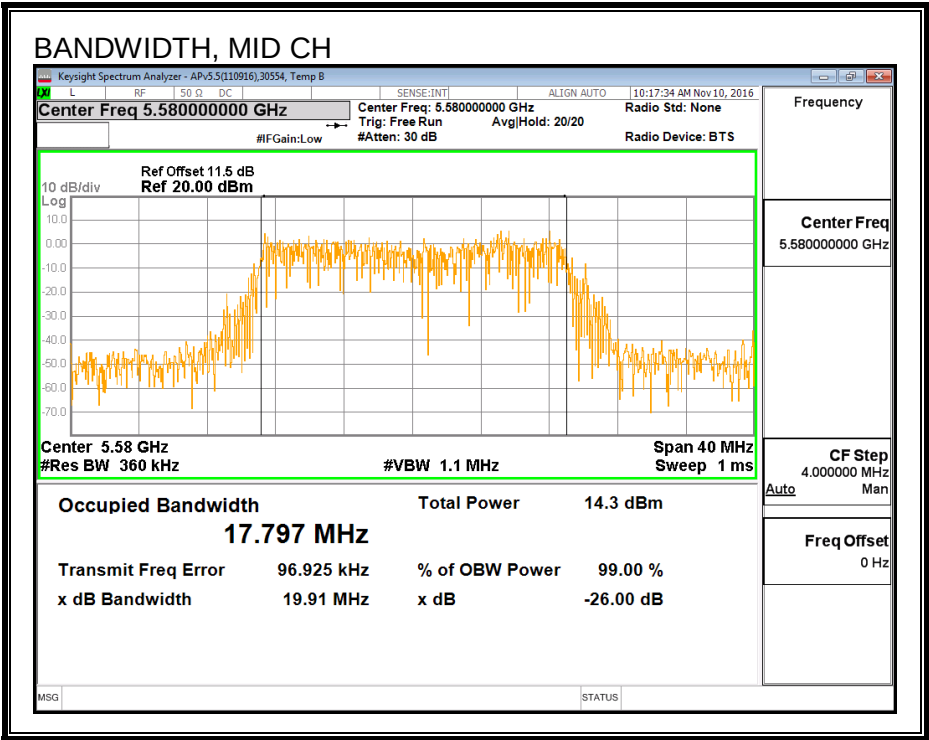
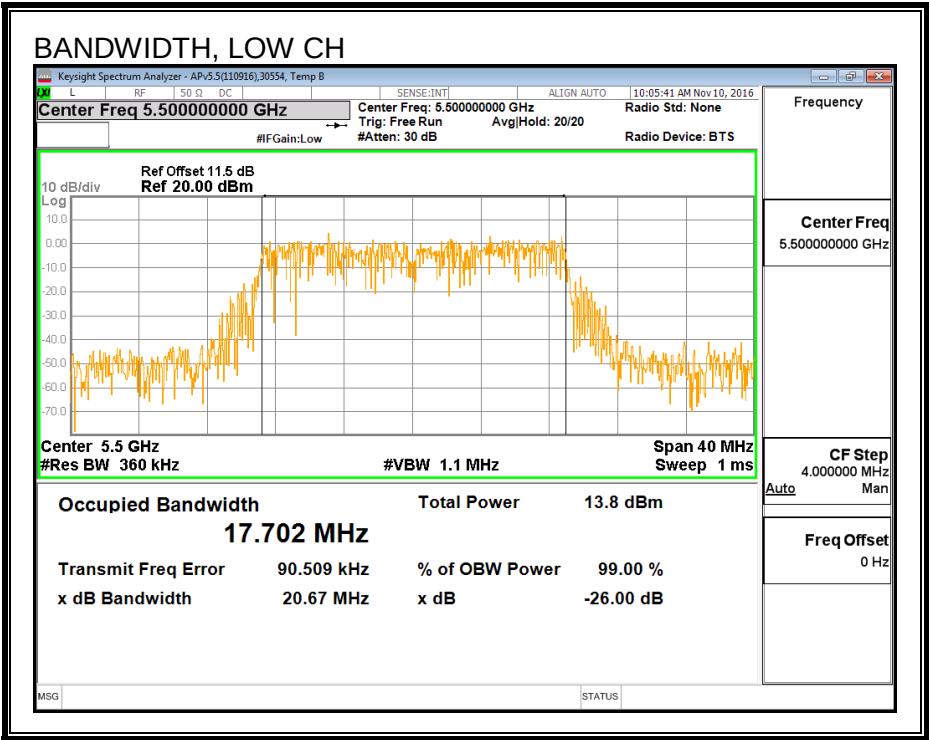
LIMITS

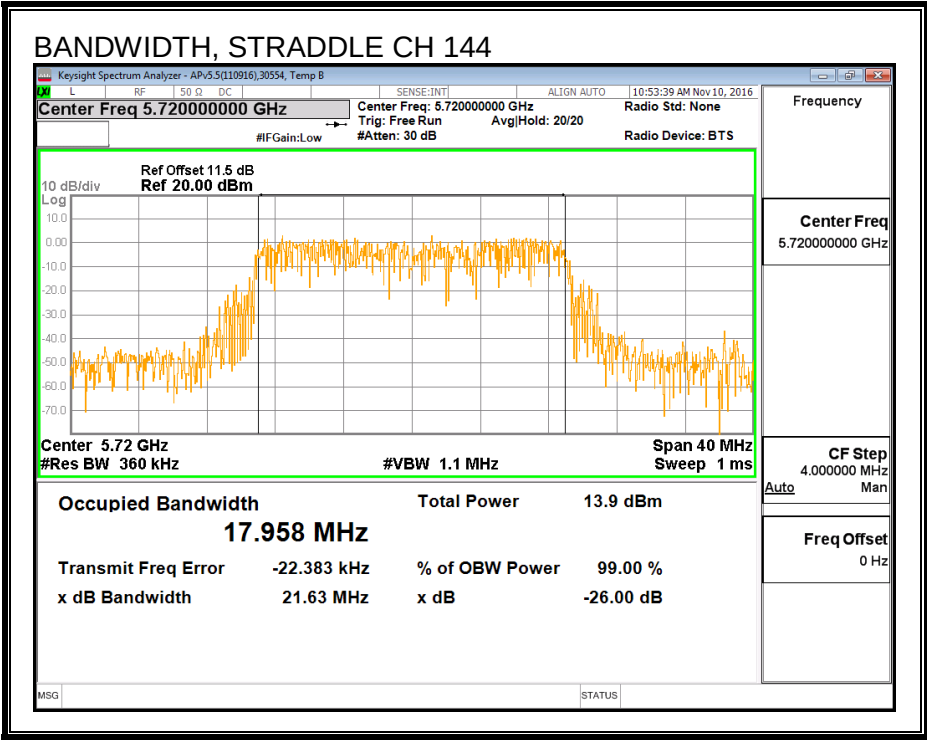
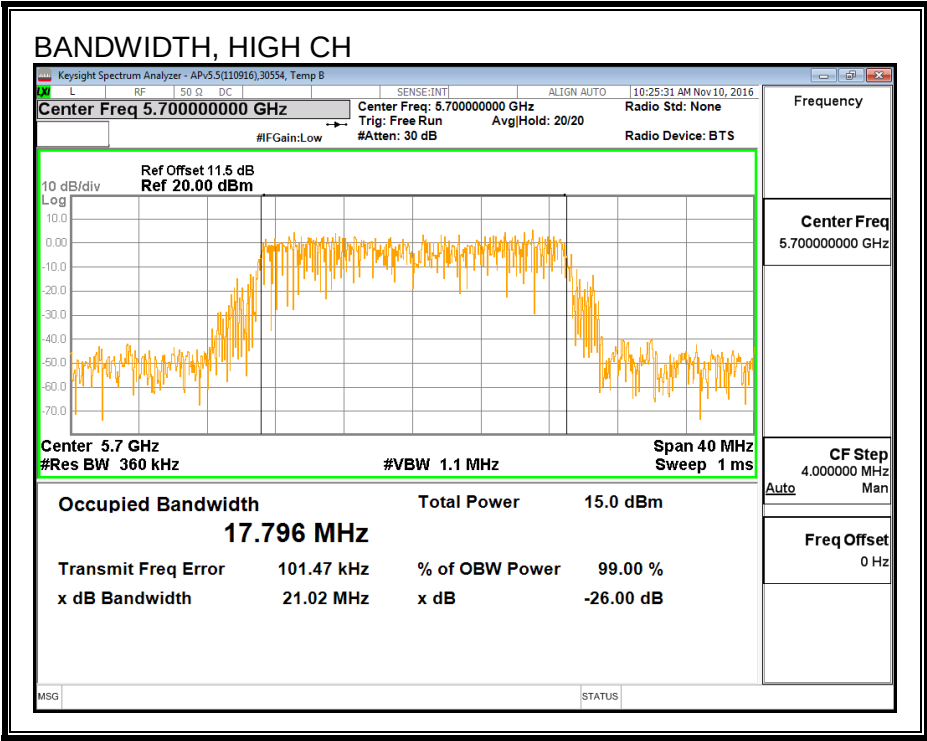
None; for reporting purposes only.

RESULTS

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

99% BANDWIDTH





8.25.3. 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
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Channel	Frequency (MHz)	Power (dBm)
Low	5500	15.49
Mid	5580	16.48
High	5700	15.43
144	5720	16.39

8.25.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, 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.

RESULTS

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

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (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 Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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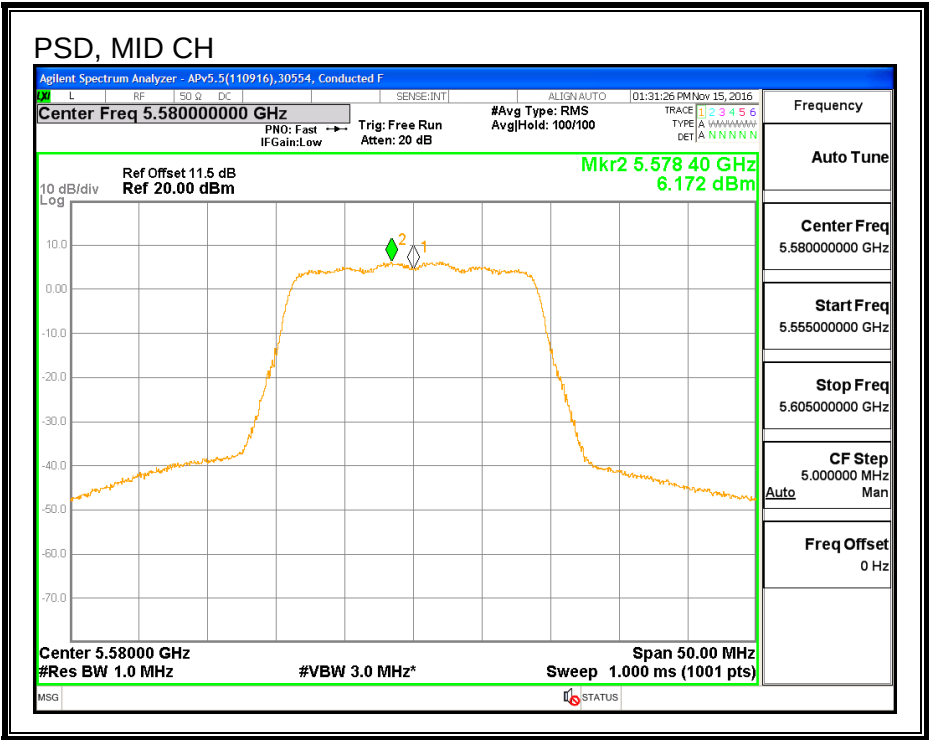
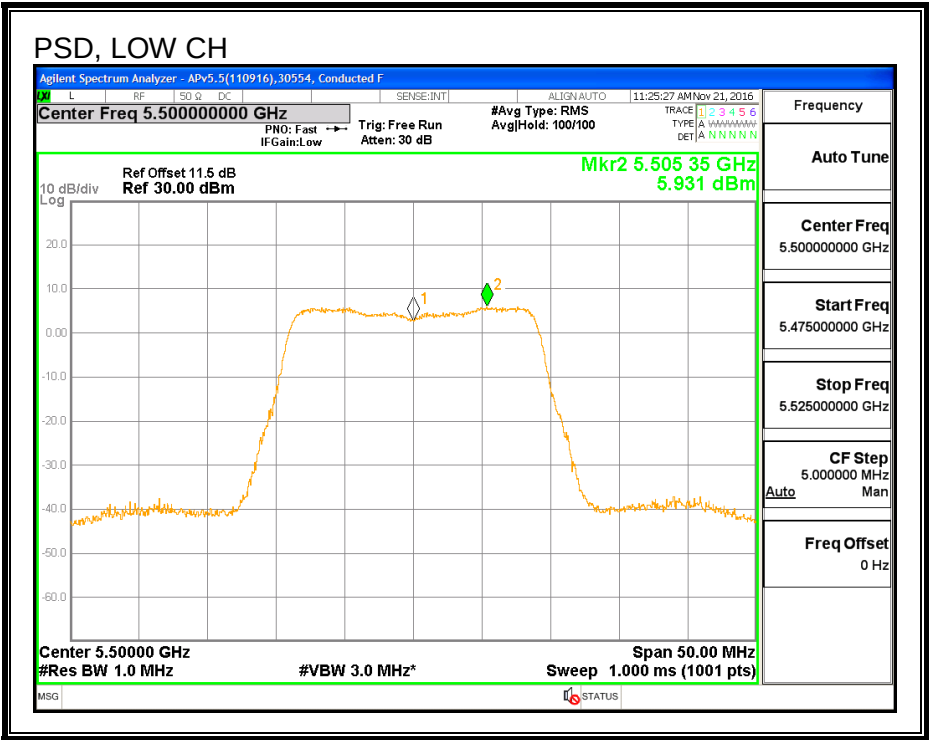
Output Power Results

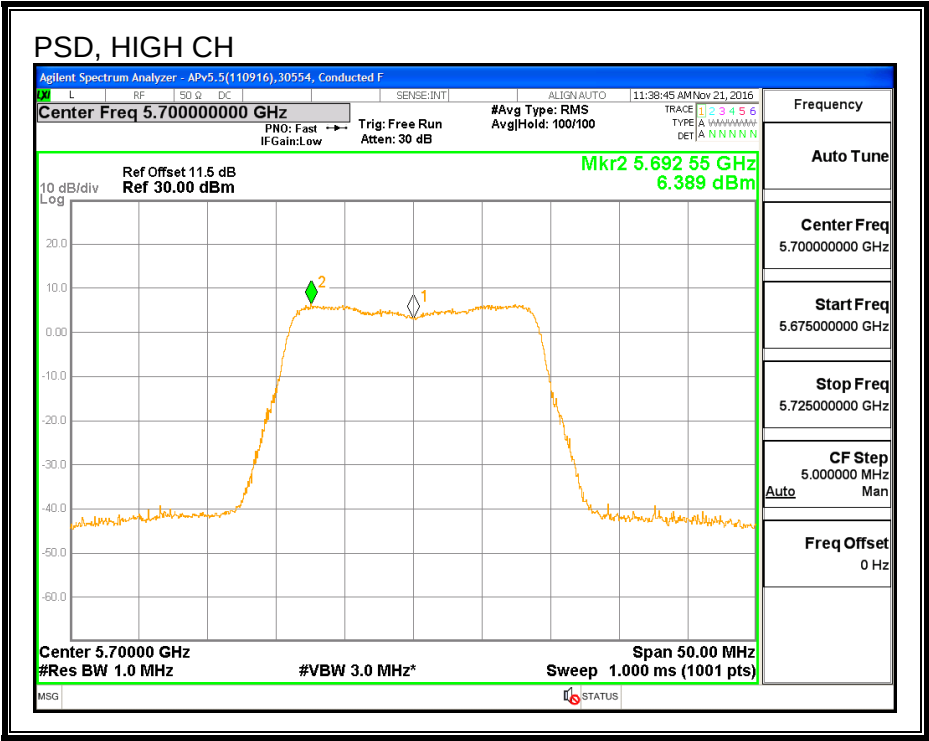
Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	15.490	15.490	23.48	-7.99
Mid	5580	16.480	16.480	23.50	-7.02
High	5700	15.430	15.430	23.50	-8.07

PSD Results

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (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

PSD





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 (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	15.90	3.39	3.39	23.01	11.00

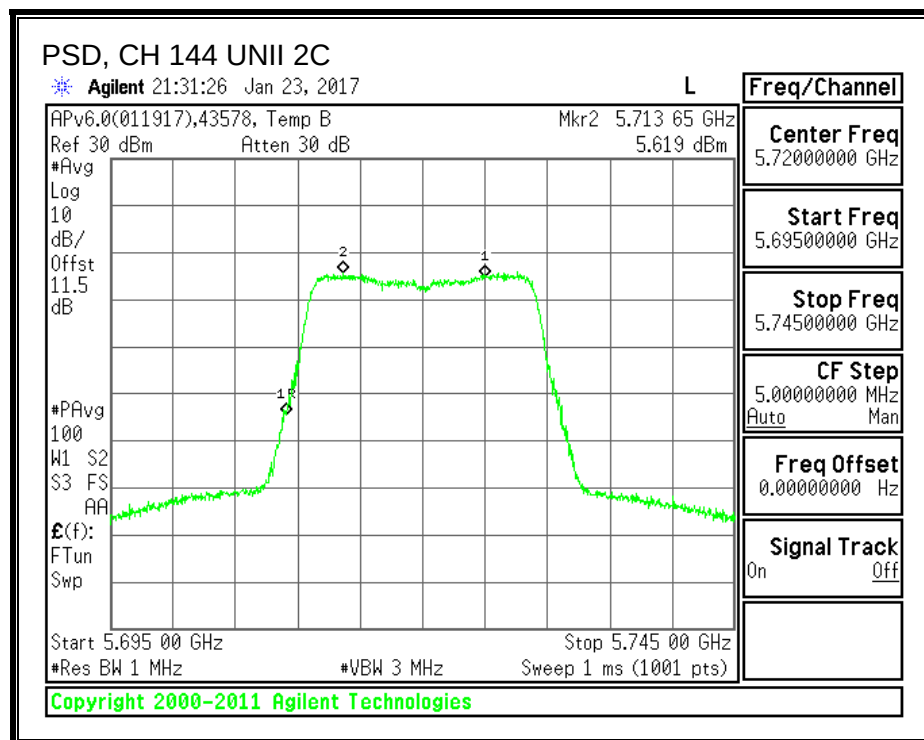
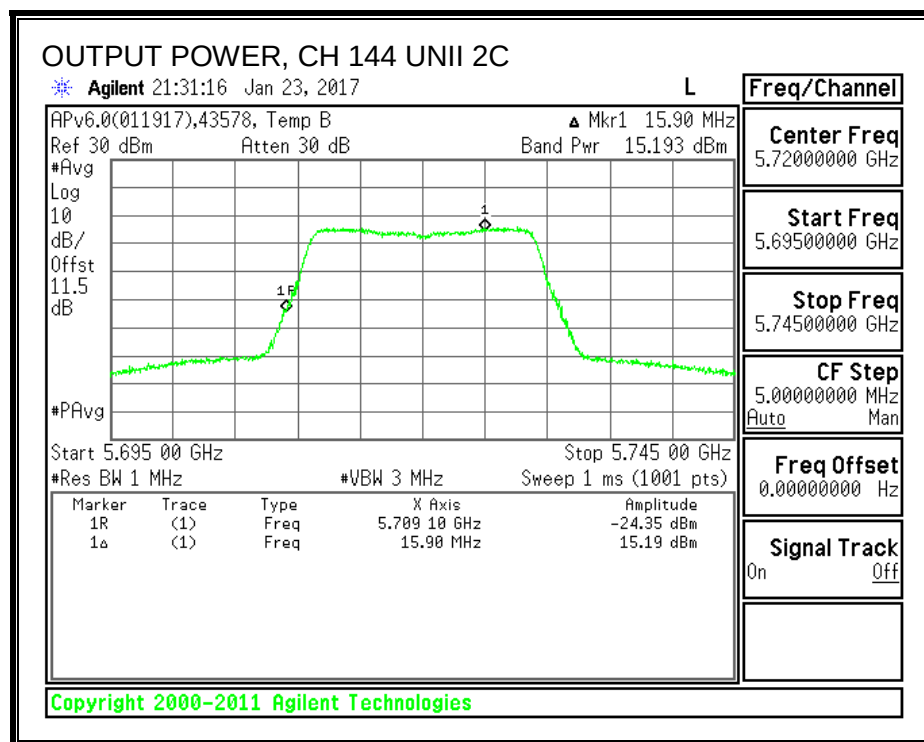
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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Output Power Results

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

PSD Results

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



UNII-3 BAND

Antenna Gain and Limit

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

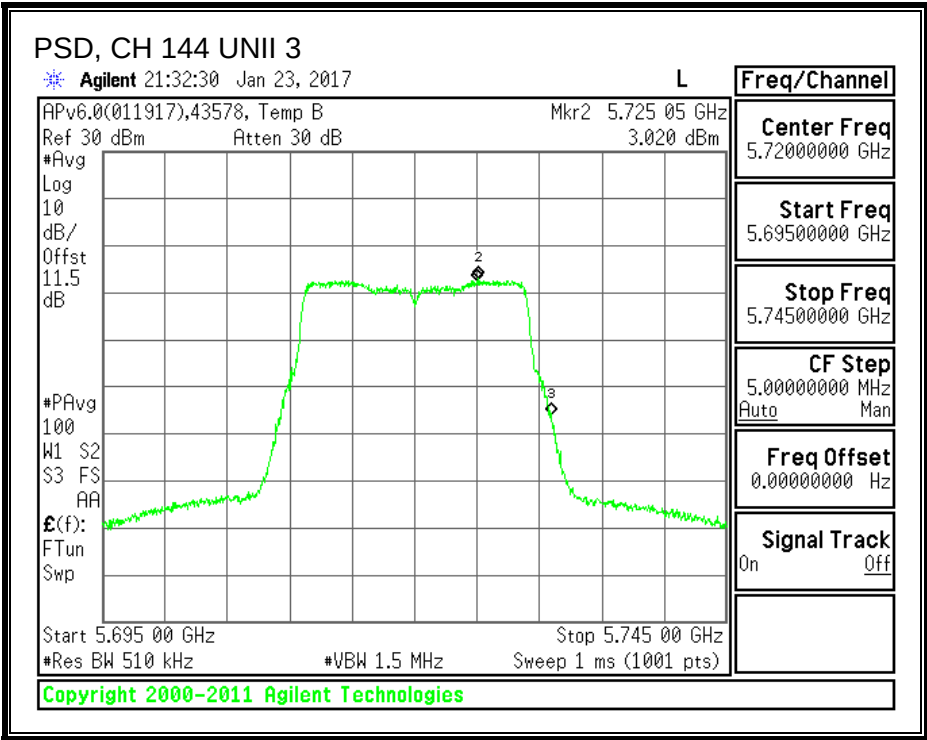
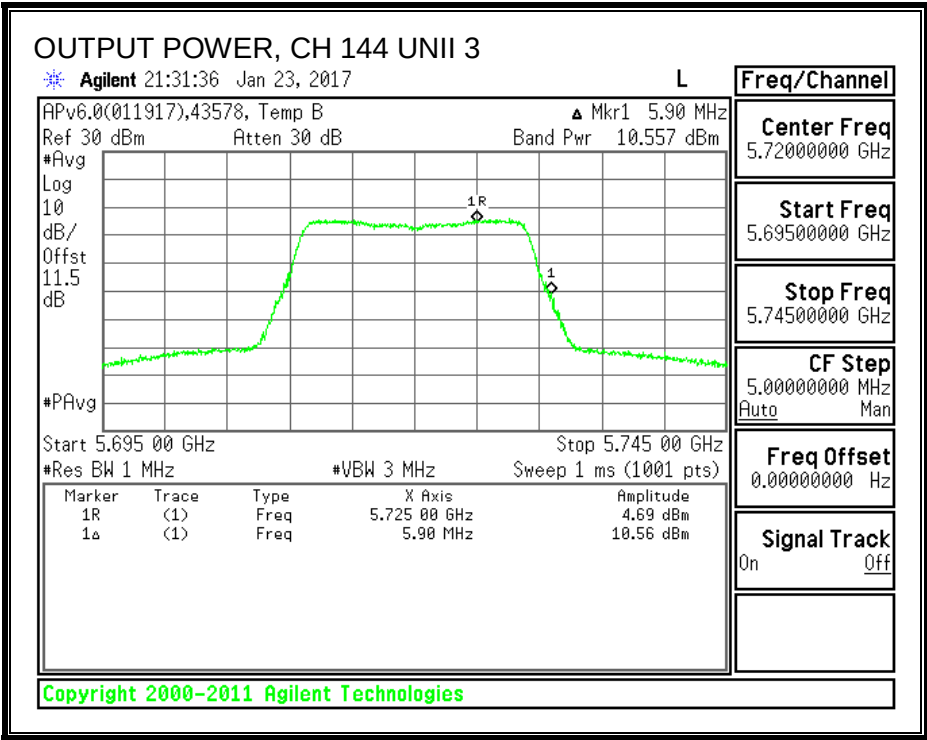
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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Output Power Results

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

PSD Results

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



8.26.2. 6 dB BANDWIDTH

LIMITS

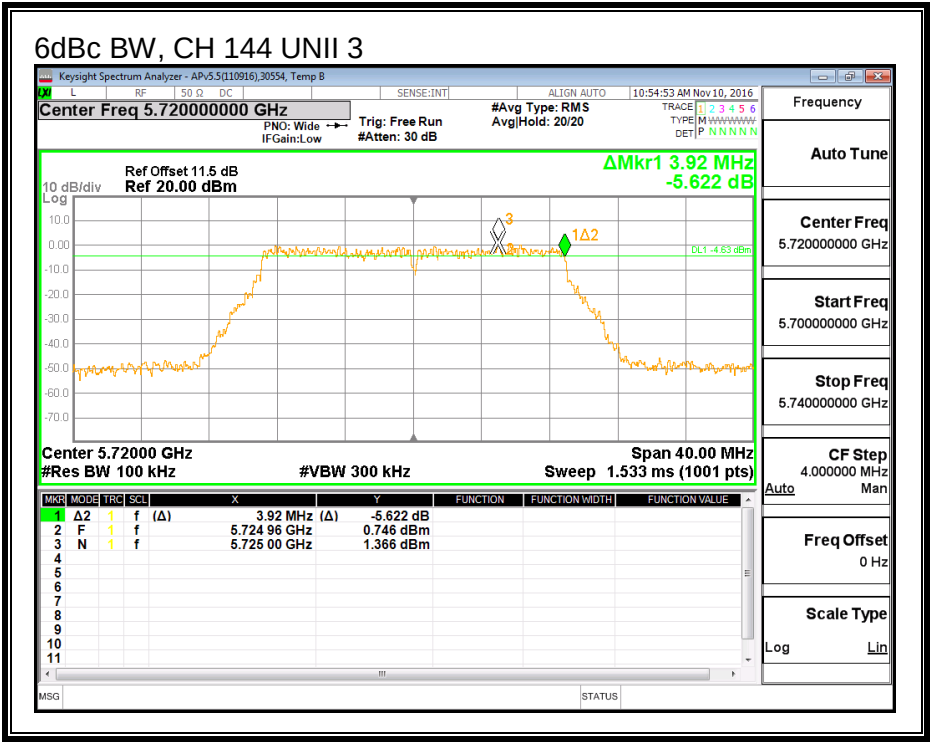
FCC §15.407 (e)

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

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (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

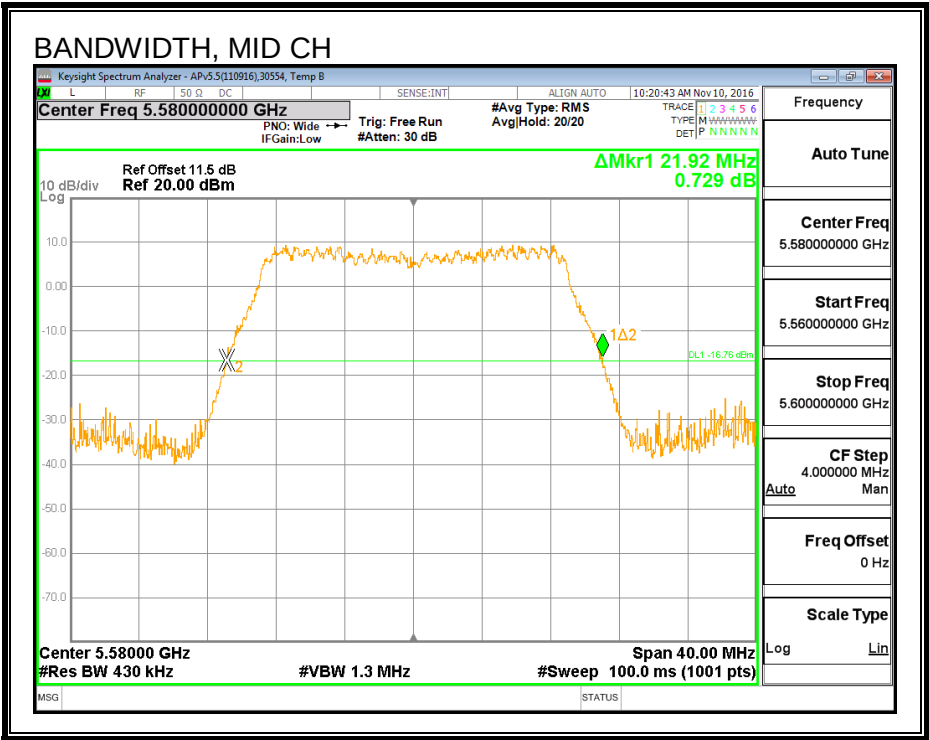
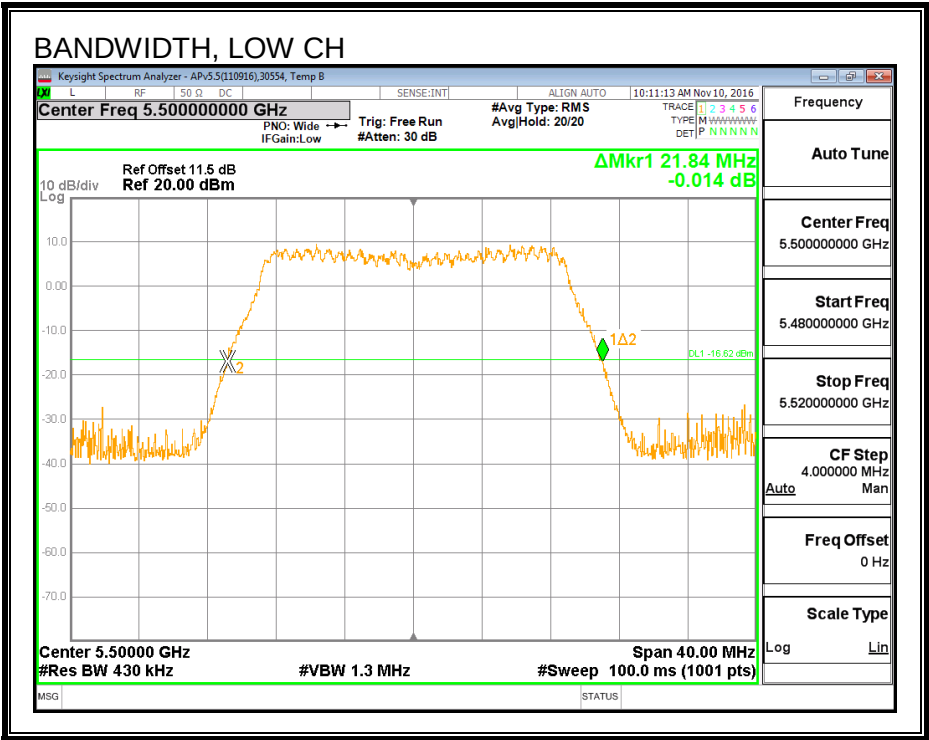
LIMITS

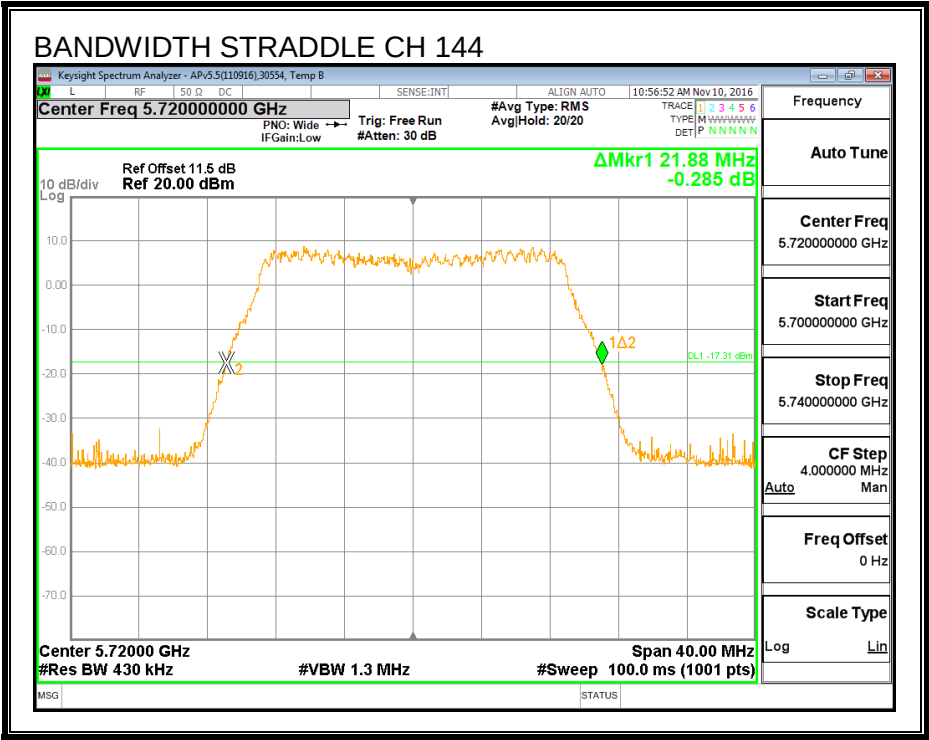
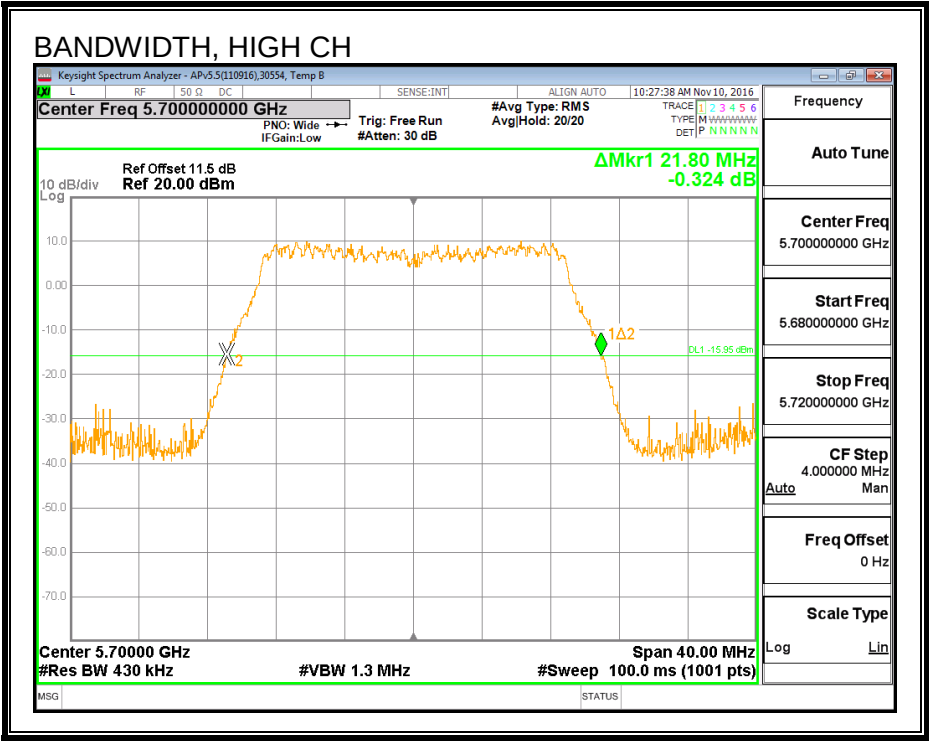
None; for reporting purposes only.

RESULTS

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

26 dB BANDWIDTH





8.27.2. 99% BANDWIDTH

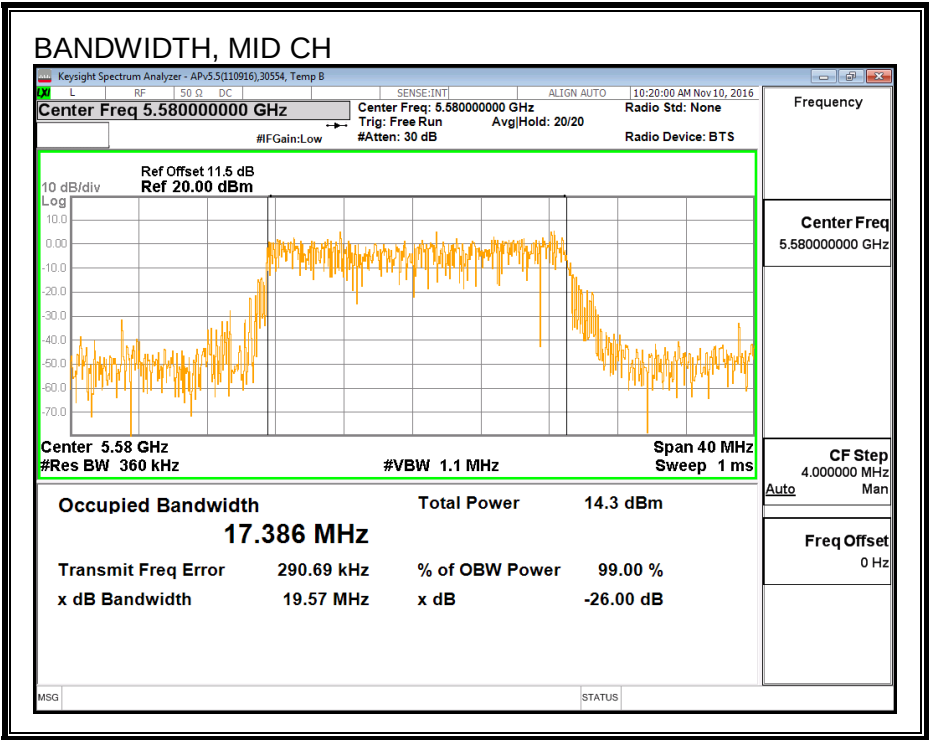
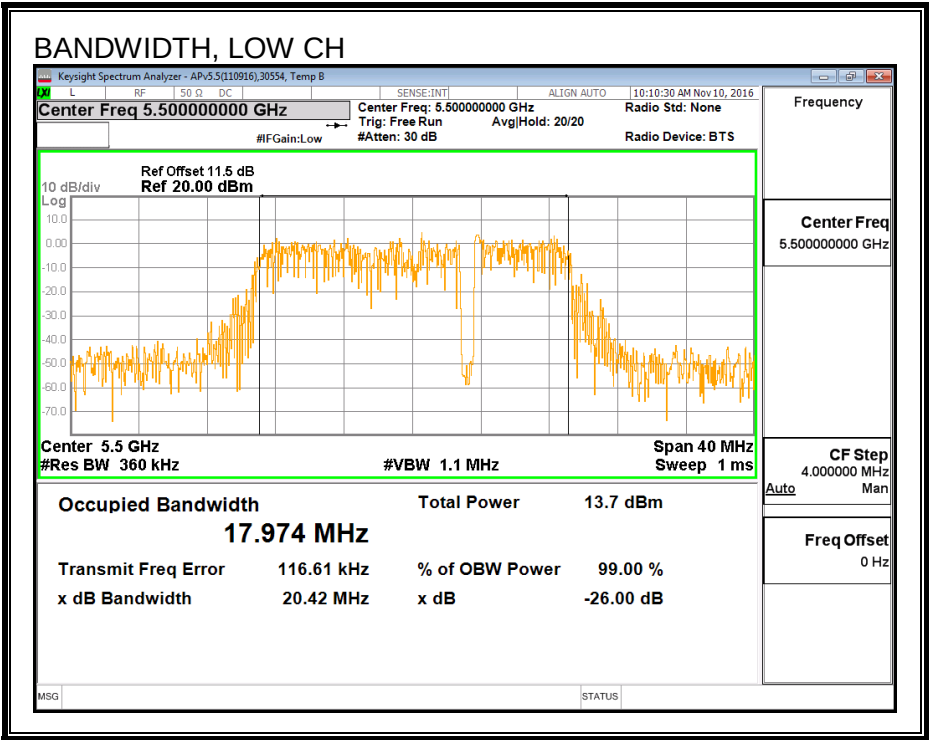
LIMITS

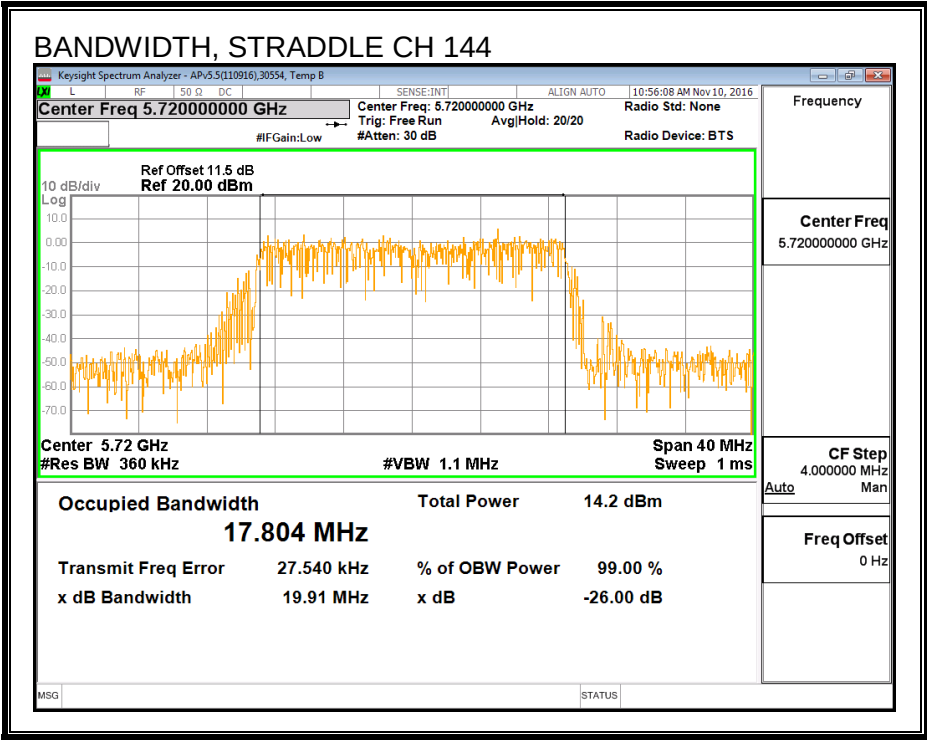
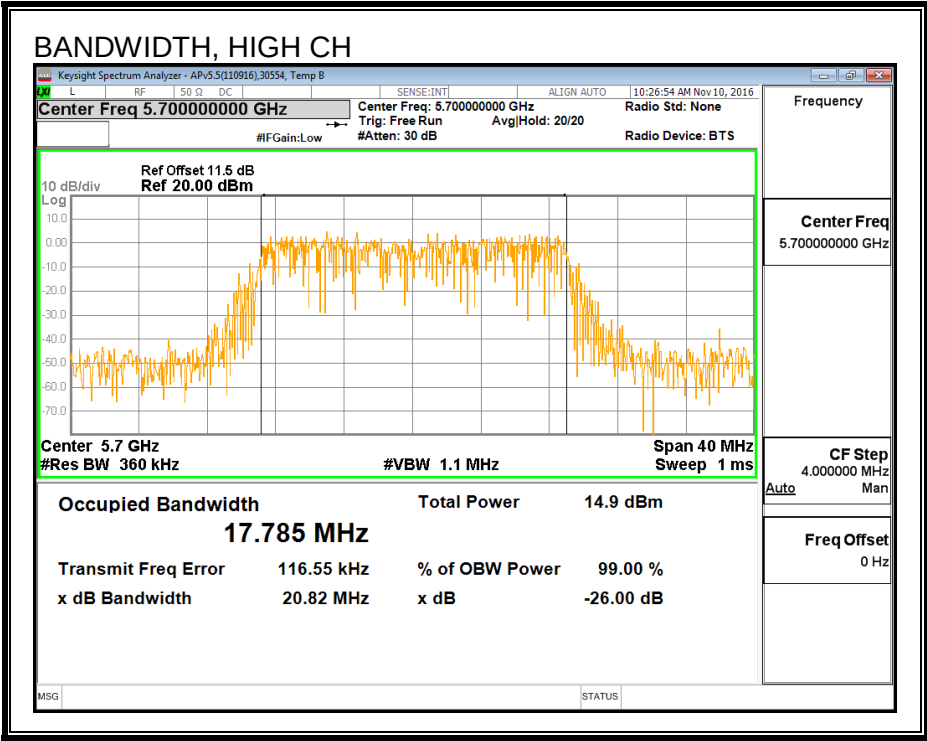
None; for reporting purposes only.

RESULTS

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

99% BANDWIDTH





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

8.27.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, 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.

RESULTS

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

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (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

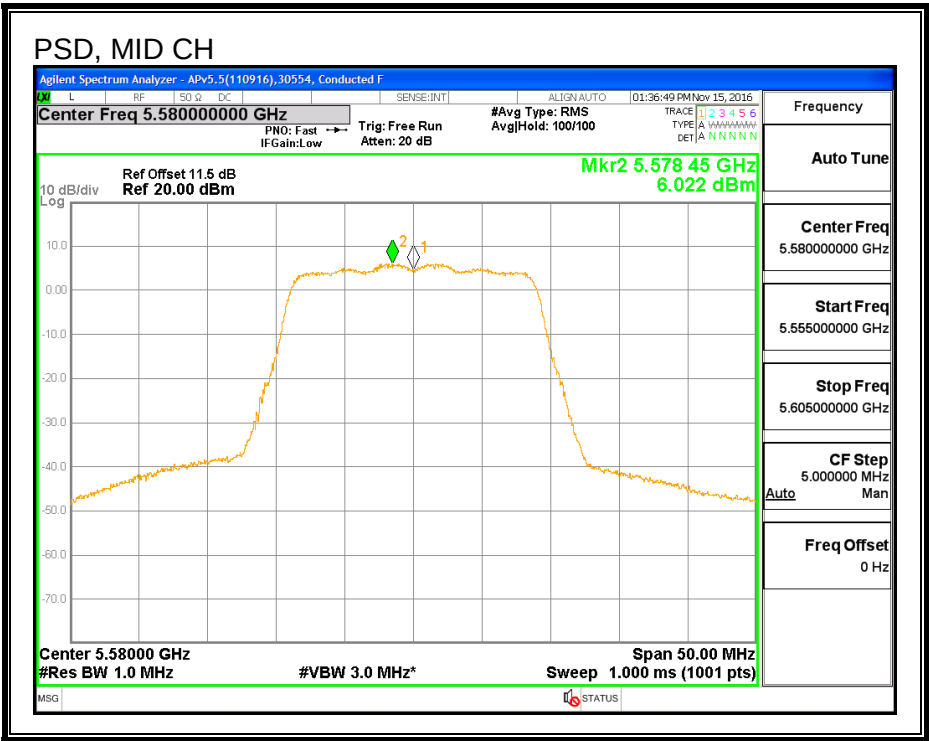
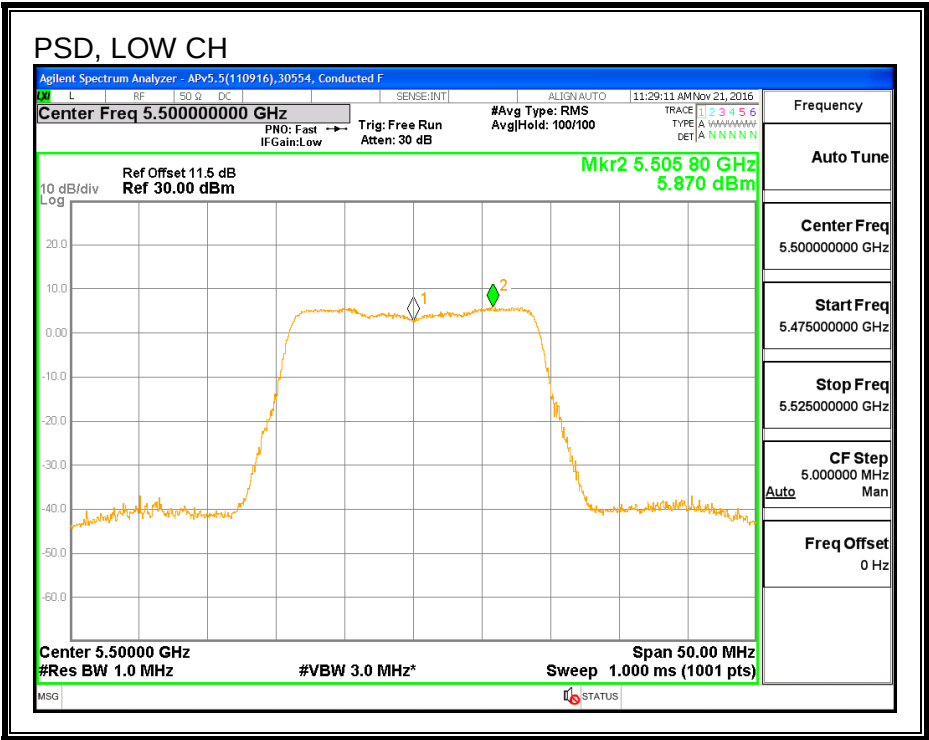
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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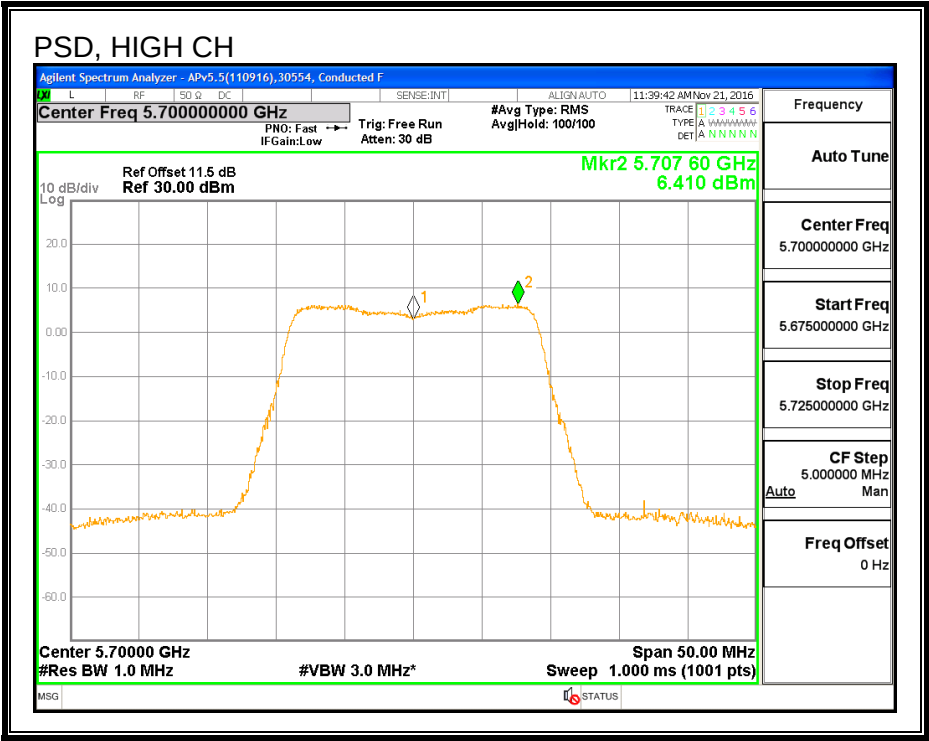
Output Power Results

Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (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 (MHz)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (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





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 (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	15.94	3.17	3.17	23.02	11.00

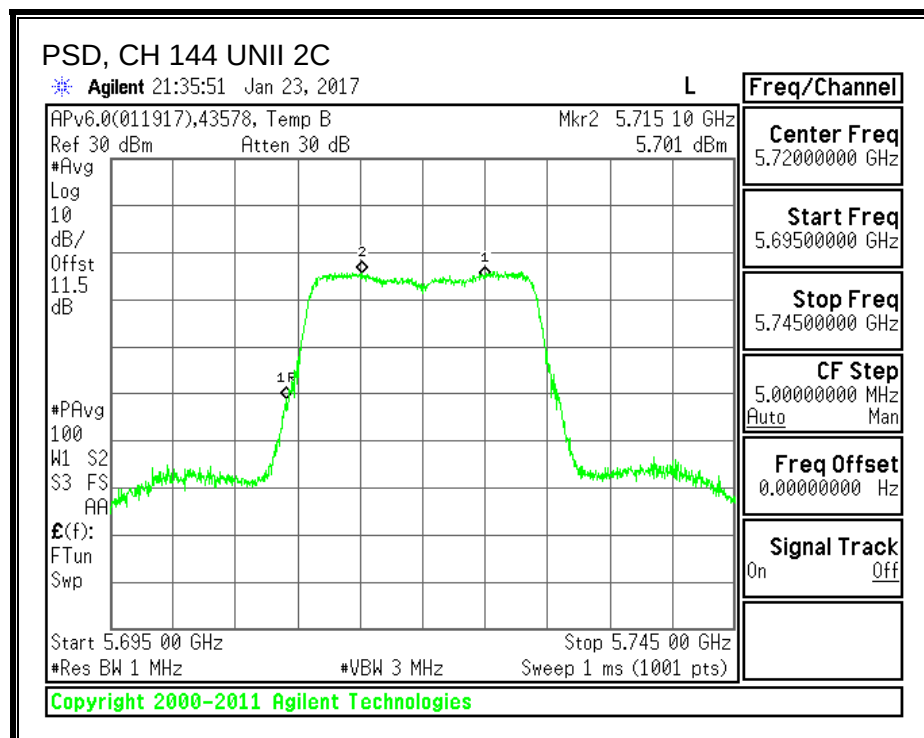
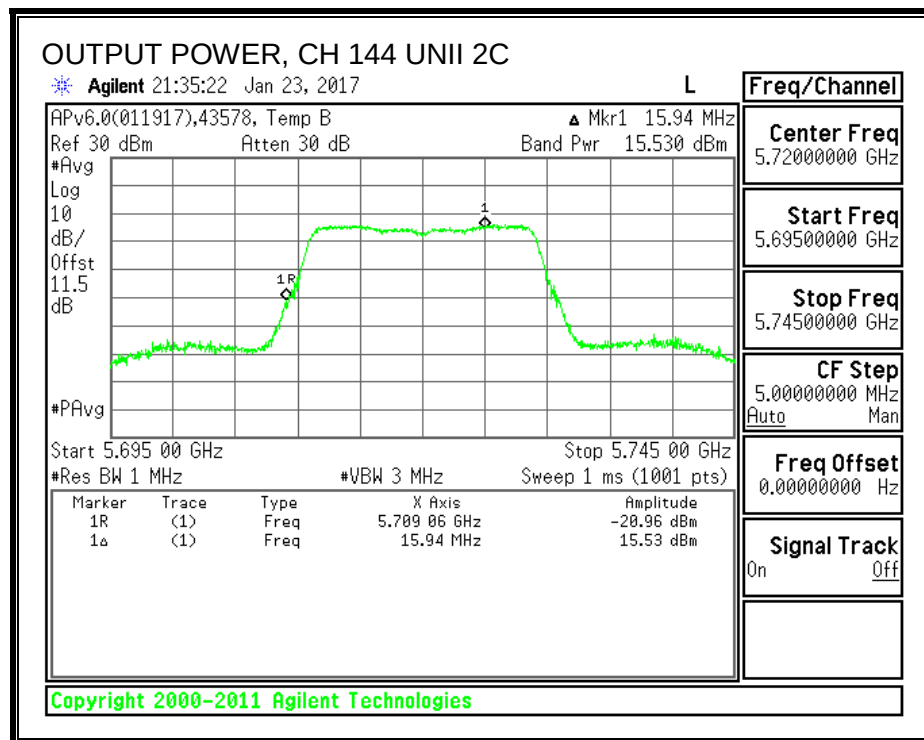
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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Output Power Results

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

PSD Results

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



UNII-3 BAND

Antenna Gain and Limit

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

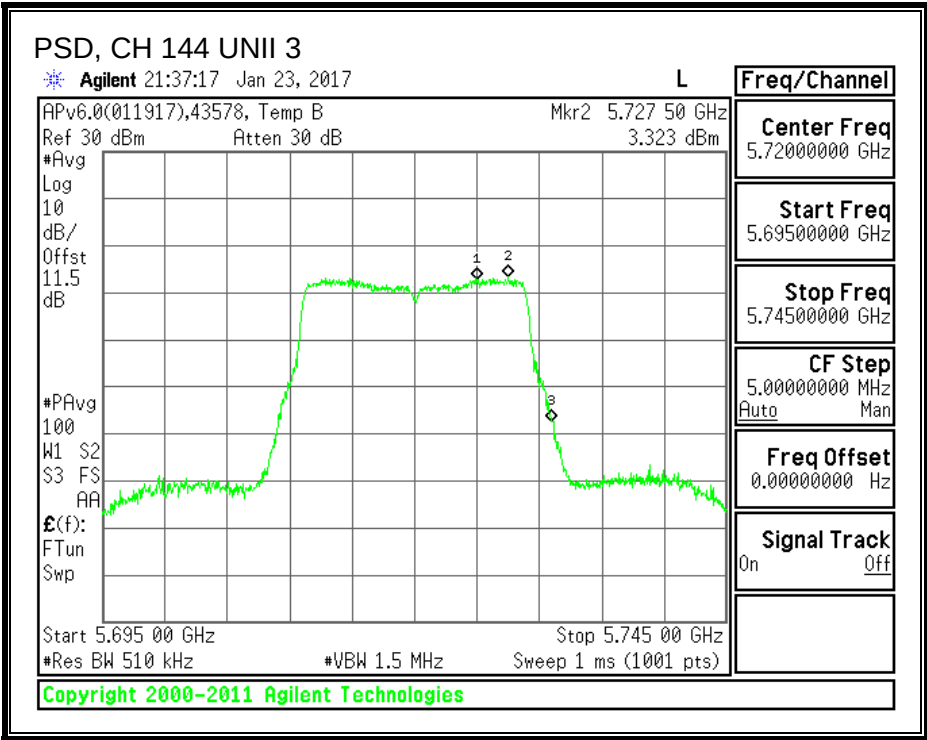
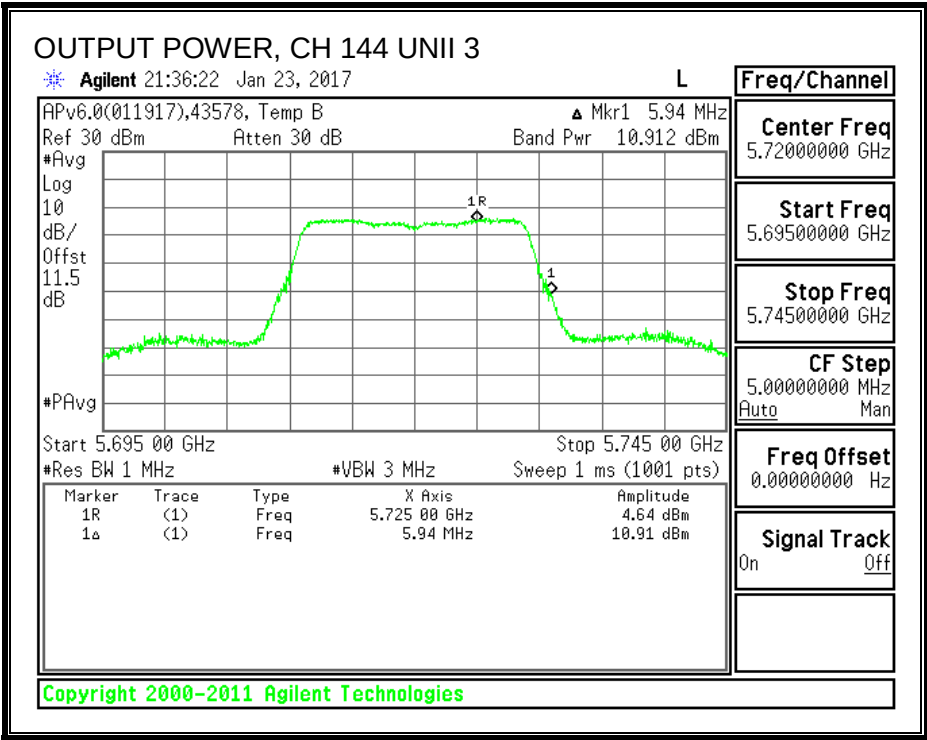
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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Output Power Results

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

PSD Results

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



8.28.2. 6 dB BANDWIDTH

LIMITS

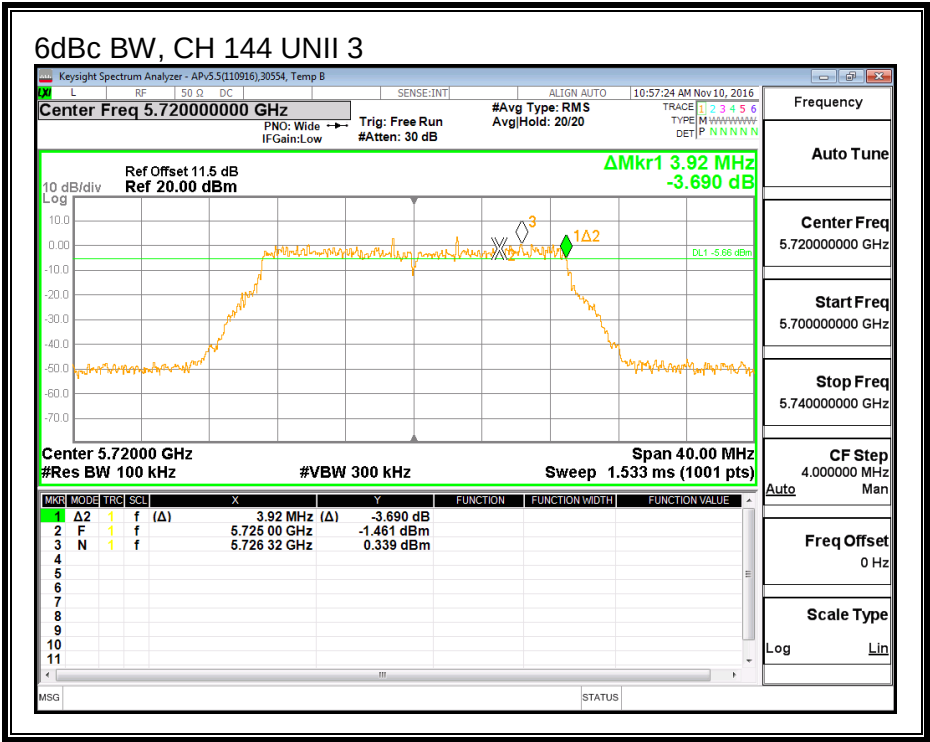
FCC §15.407 (e)

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

RESULTS

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

6 dB BANDWIDTH



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

8.29.1. 26 dB BANDWIDTH

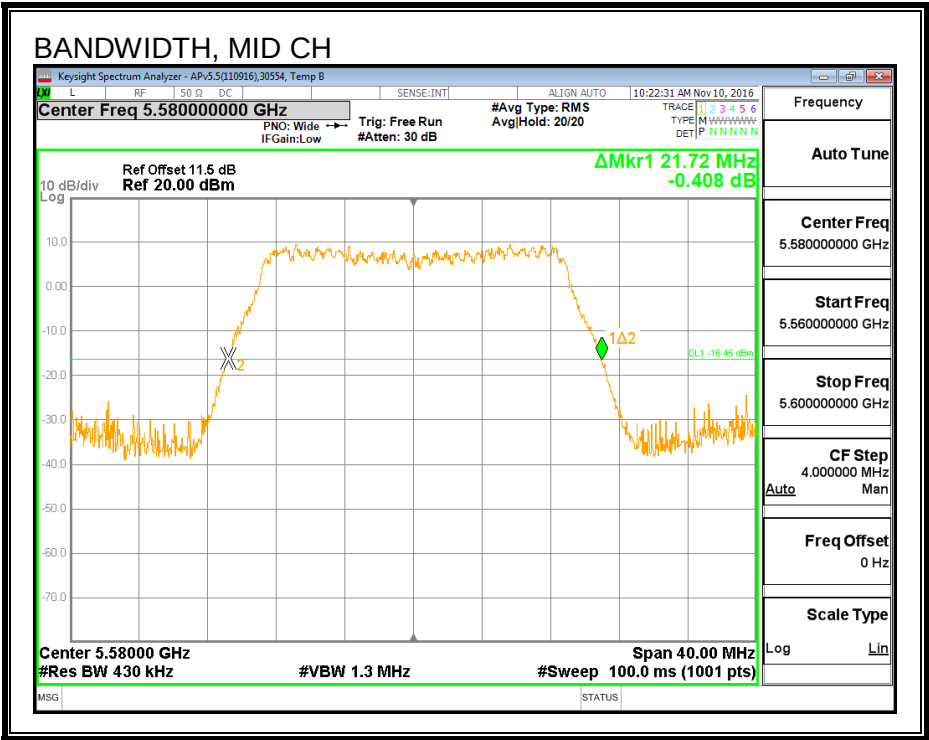
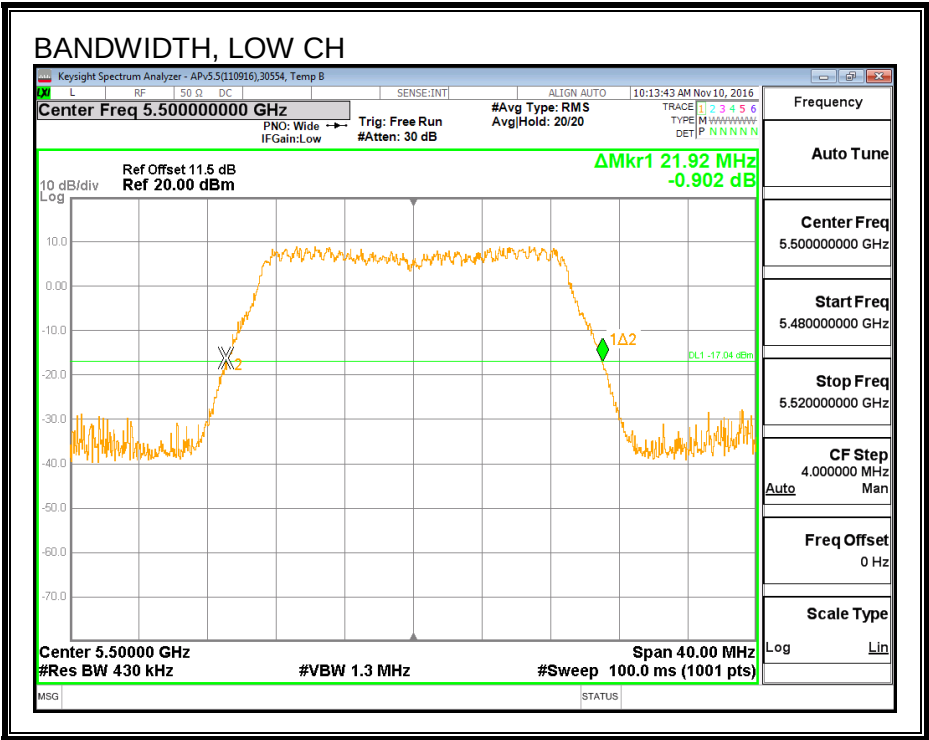
LIMITS

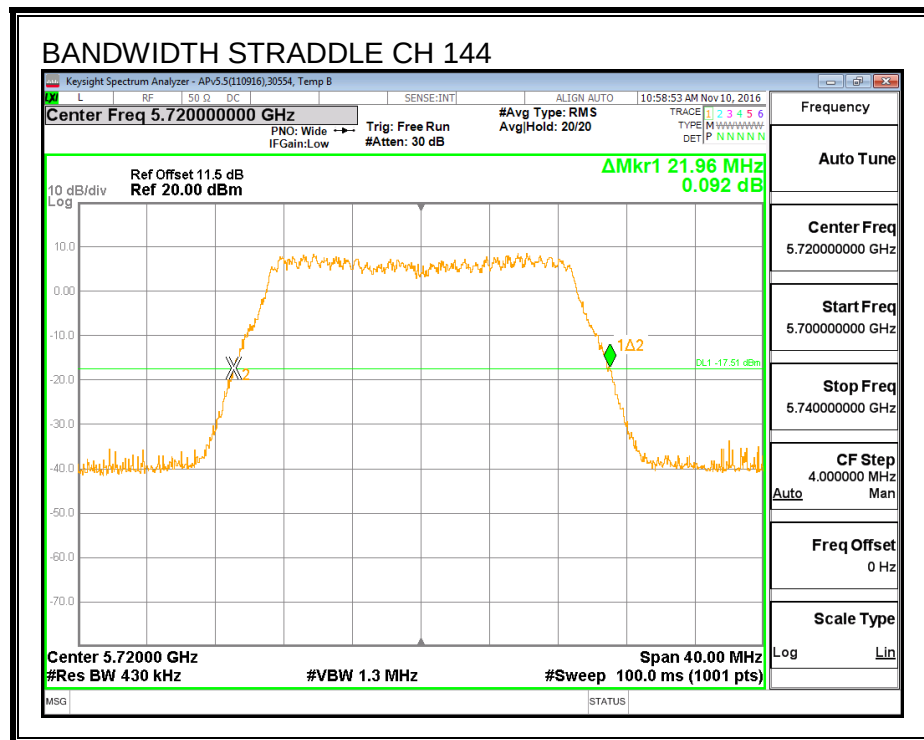
None; for reporting purposes only.

RESULTS

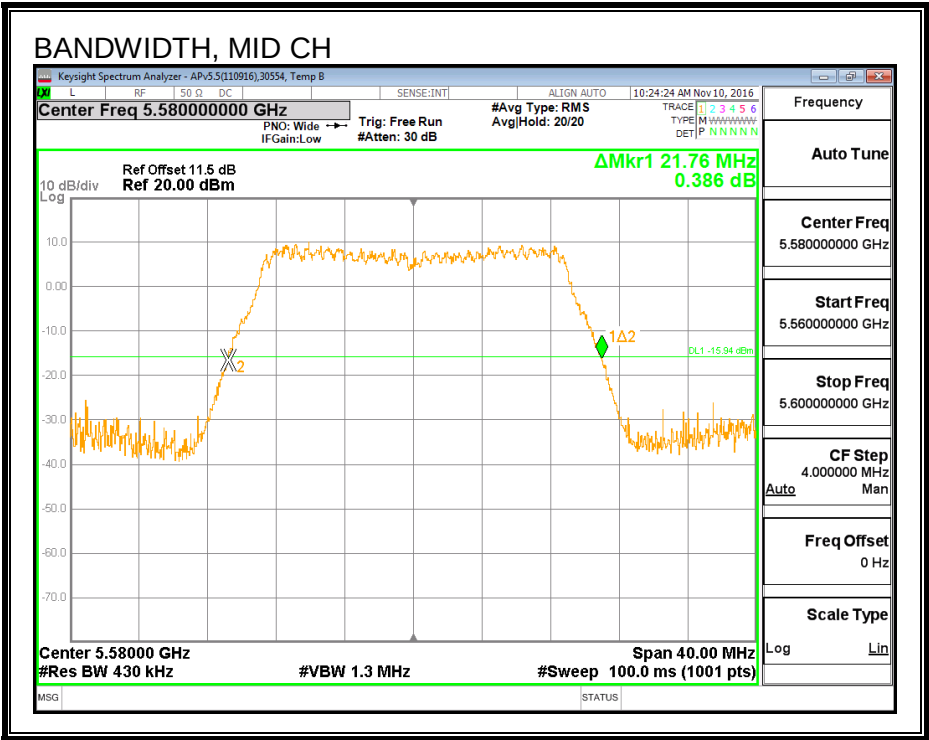
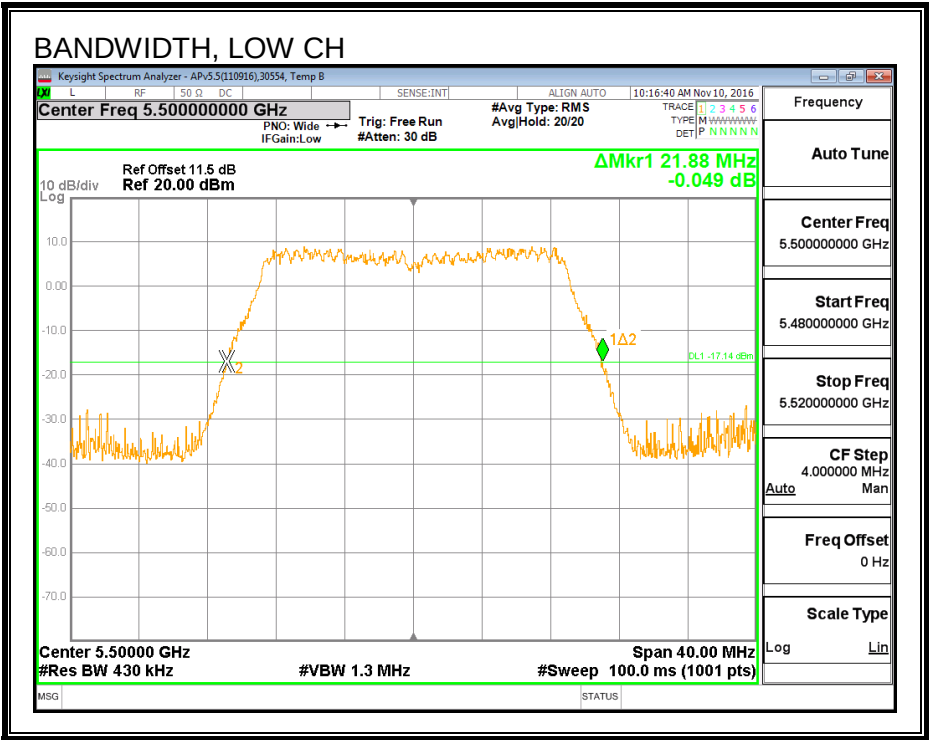
Channel	Frequency (MHz)	26 dB BW Antenna A (MHz)	26 dB BW Antenna B (MHz)
Low	5500	21.920	21.880
Mid	5580	21.720	21.760
High	5700	21.800	21.720
144	5720	21.960	22.040

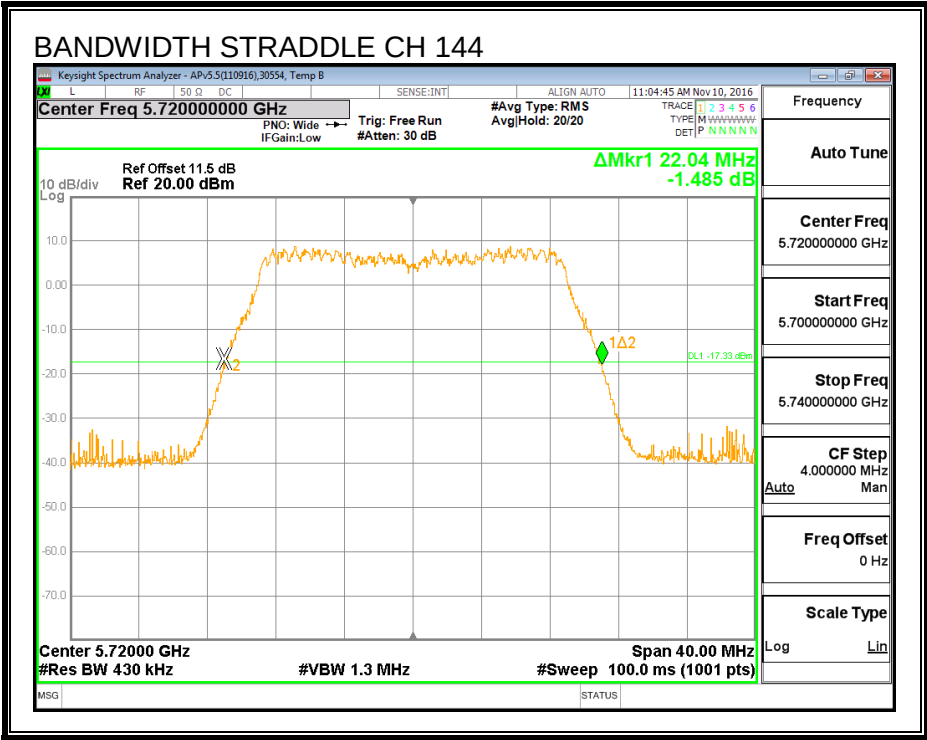
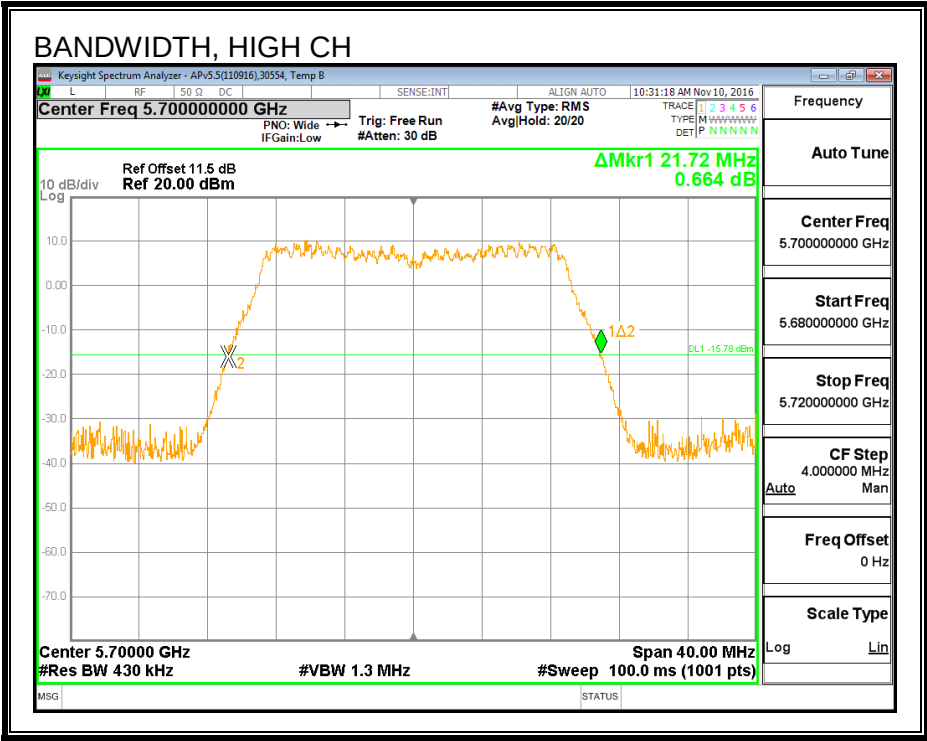
26 dB BANDWIDTH, ANTENNA A





26 dB BANDWIDTH, ANTENNA B





8.29.2. 99% BANDWIDTH

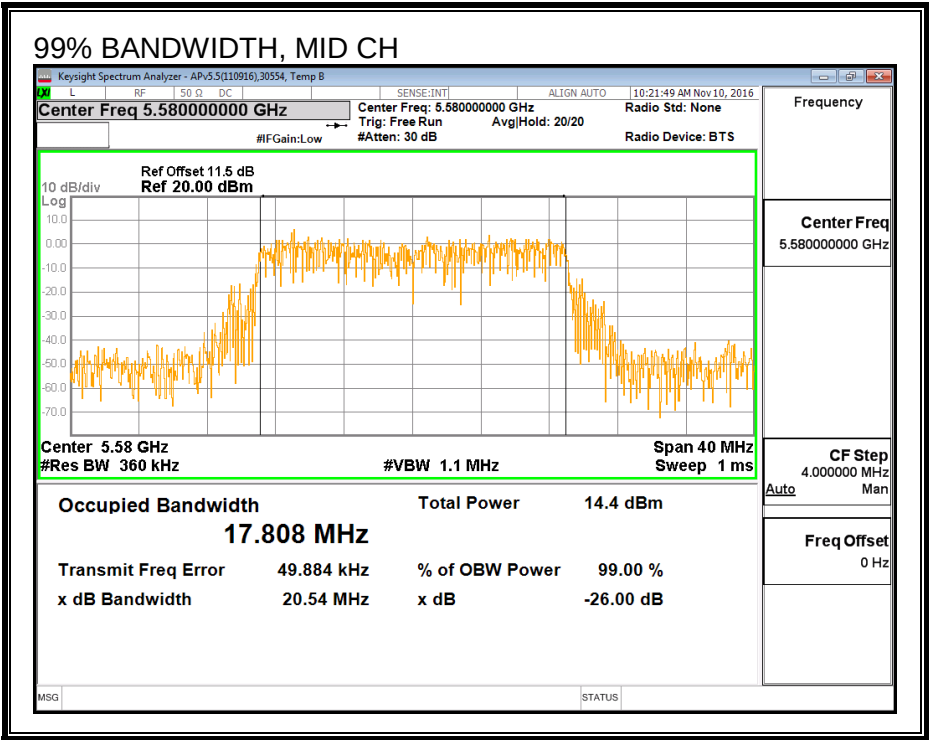
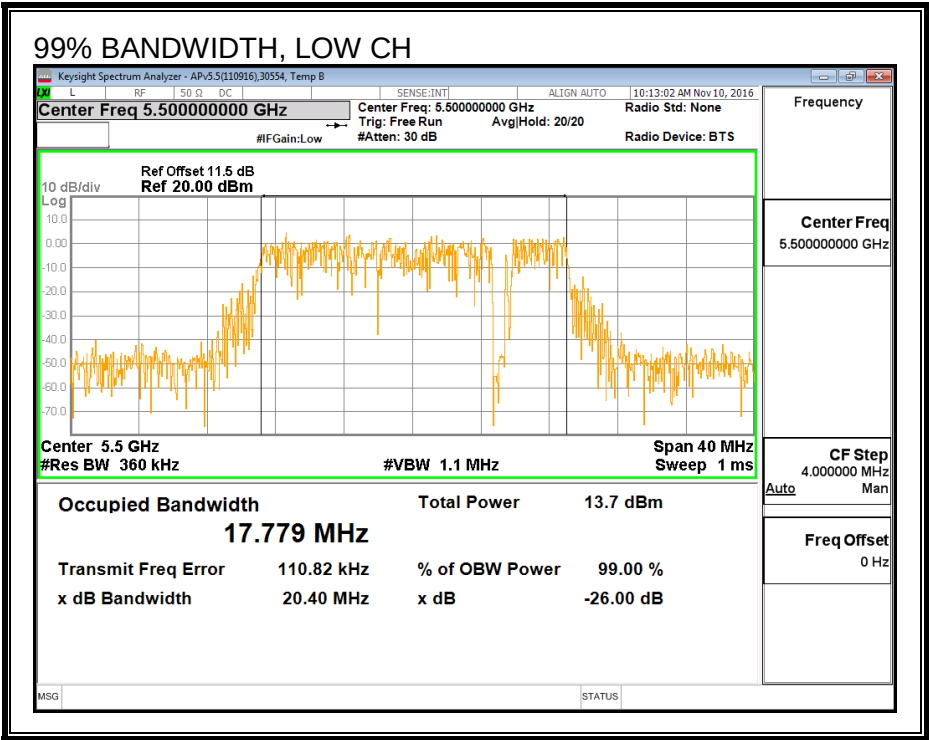
LIMITS

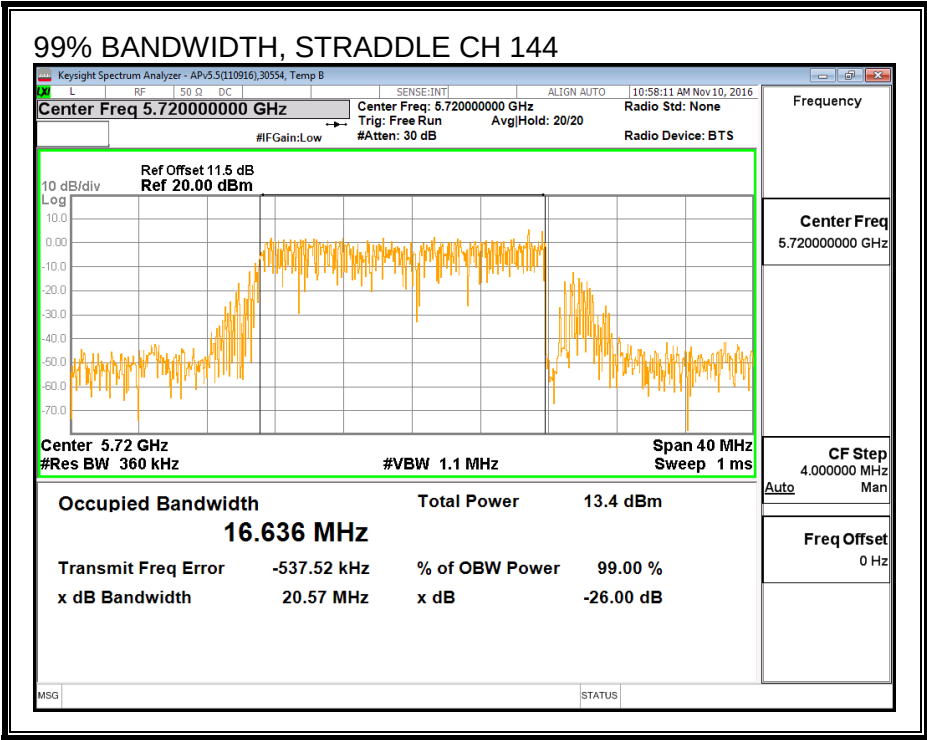
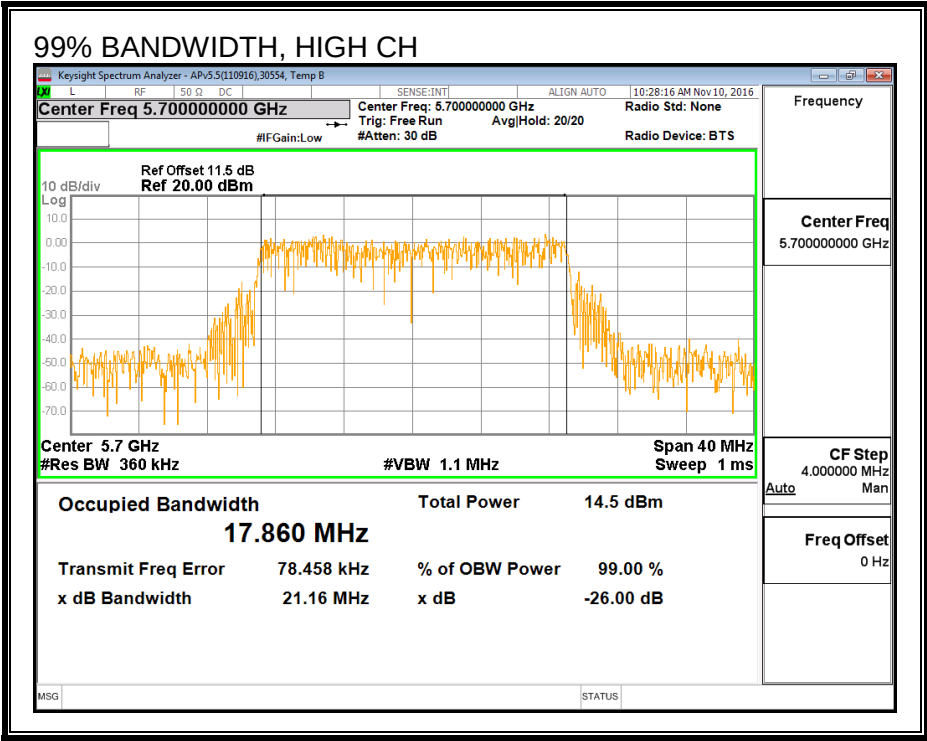
None; for reporting purposes only.

RESULTS

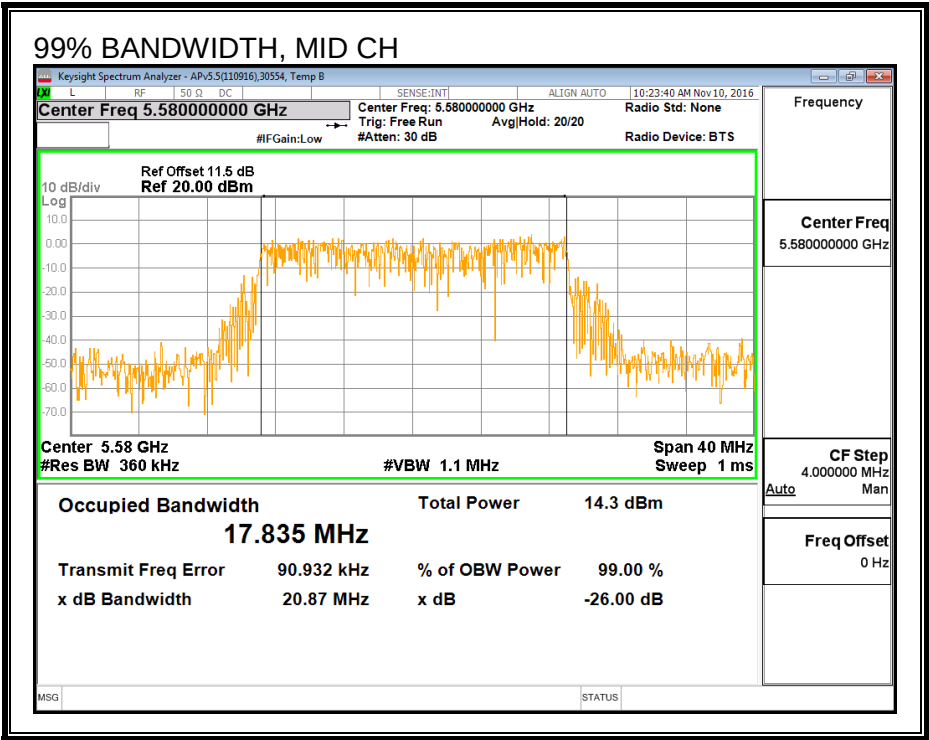
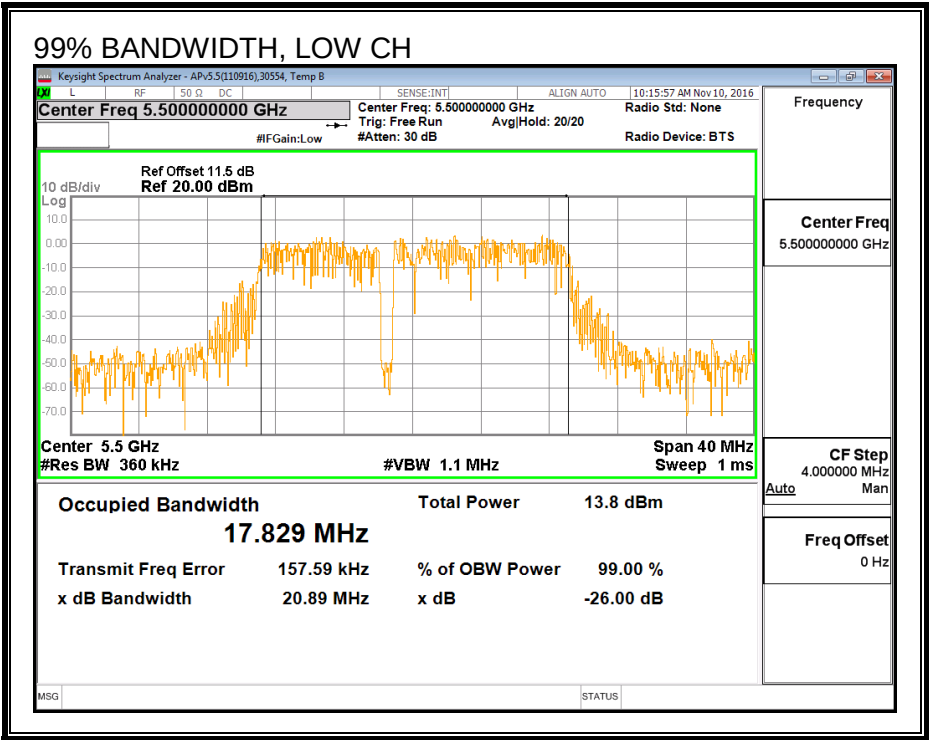
Channel	Frequency (MHz)	99% BW Antenna A (MHz)	99% BW Antenna B (MHz)
Low	5500	17.779	17.829
Mid	5580	17.808	17.835
High	5700	17.860	17.726
144	5720	16.636	17.845

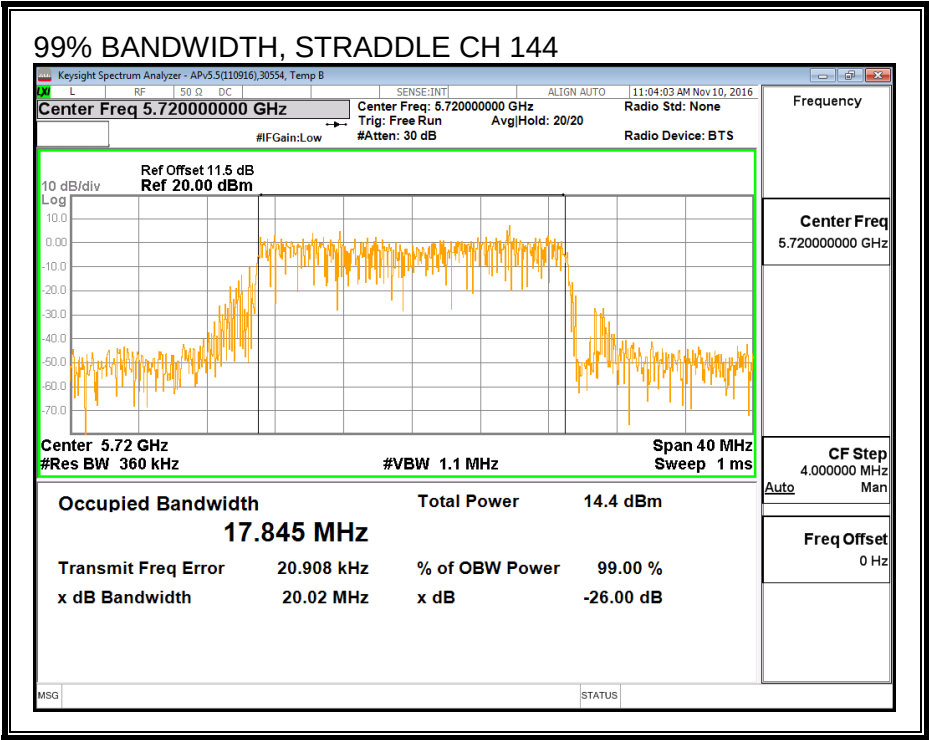
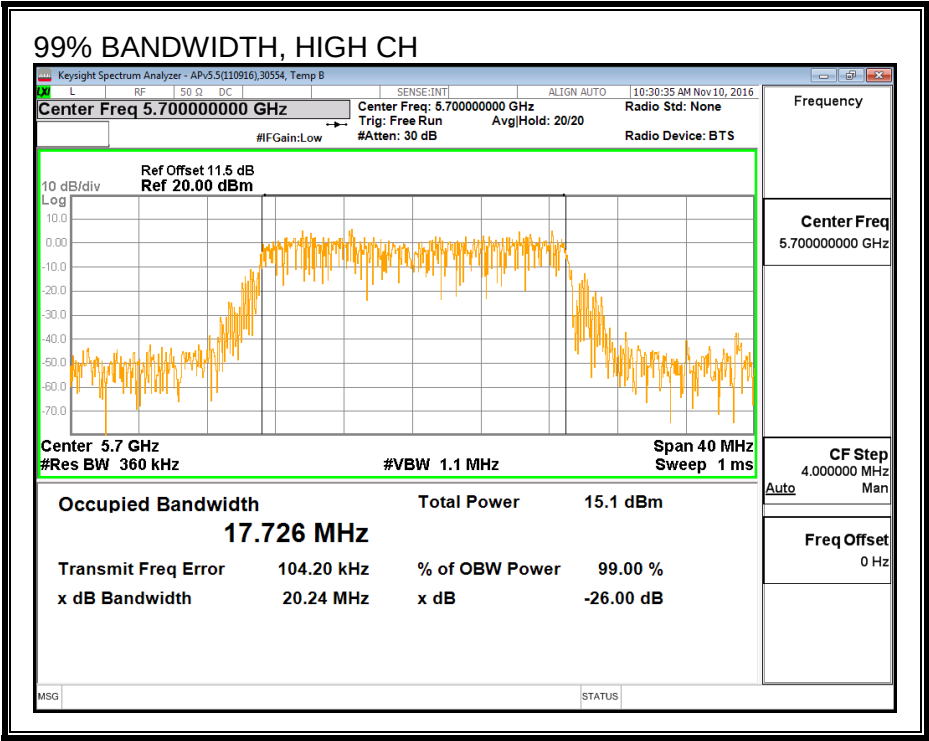
99% BANDWIDTH, ANTENNA A





99% BANDWIDTH, ANTENNA B





8.29.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

ID:	39316	Date:	12/14/16
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Average Power Results

Channel	Frequency (MHz)	Antenna A Power (dBm)	Antenna B Power (dBm)	Total Power (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

8.29.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, 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

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

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

RESULTS

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

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (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	Included in Calculations of Corr'd PSD
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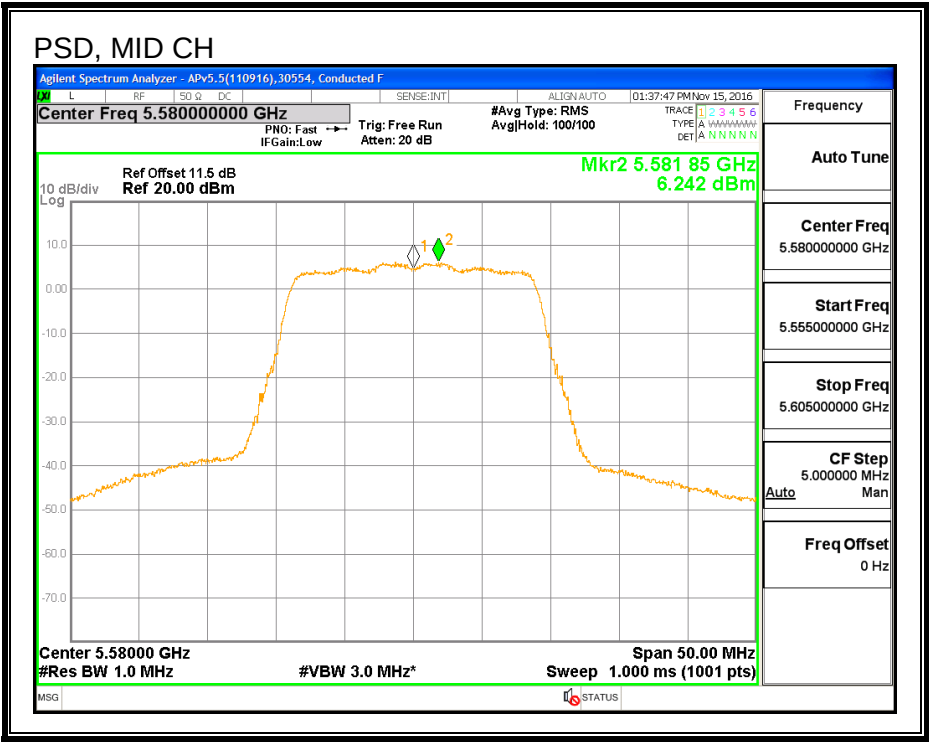
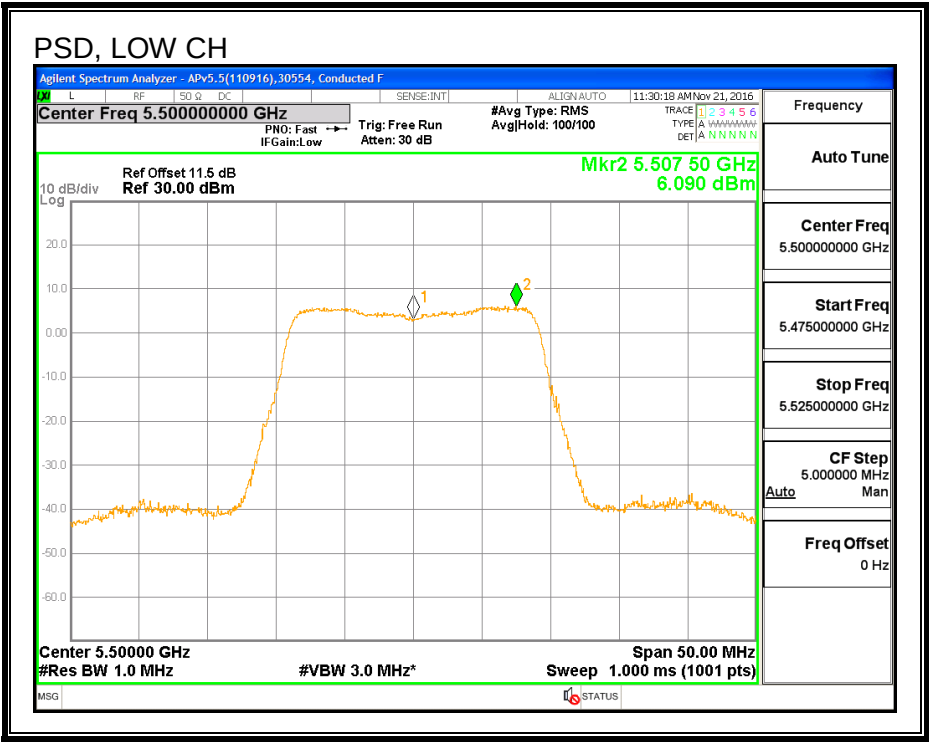
Output Power Results

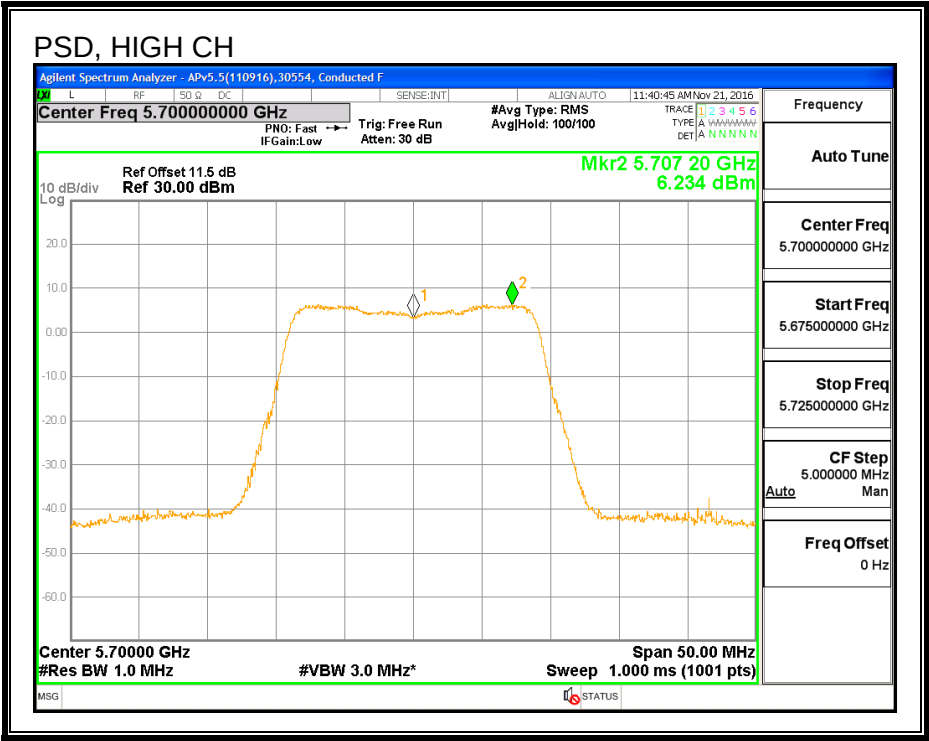
Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	14.97	14.93	17.96	23.50	-5.54
Mid	5580	15.47	15.48	18.49	23.51	-5.02
High	5700	13.97	13.94	16.97	23.49	-6.52

PSD Results

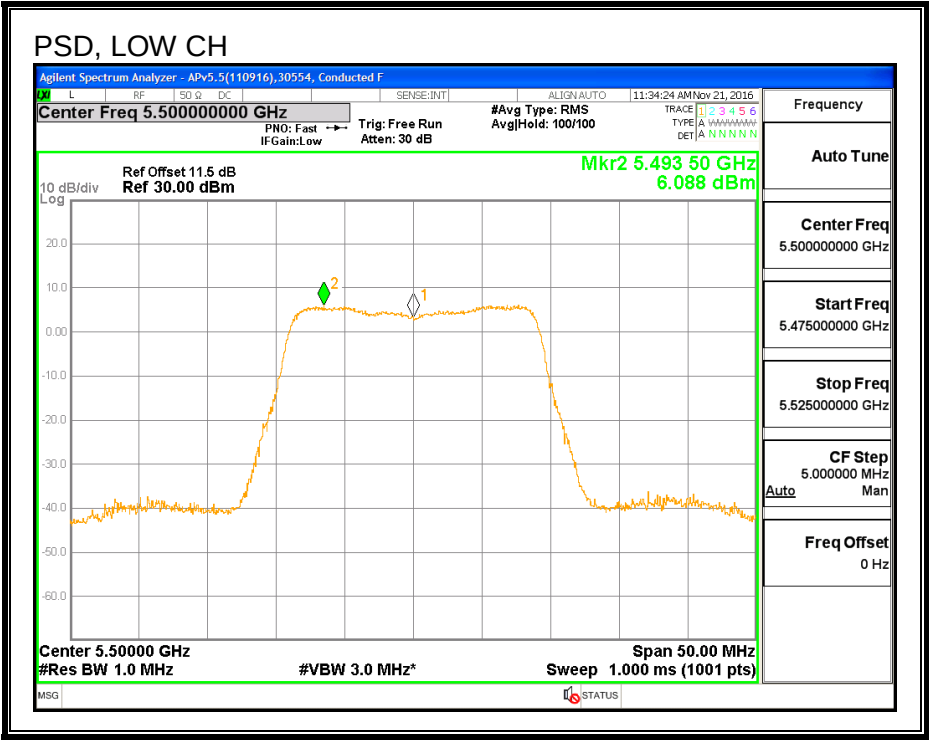
Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5500	6.090	6.088	9.099	10.71	-1.61
Mid	5580	6.242	6.038	9.151	10.71	-1.56
High	5700	6.234	6.415	9.336	10.71	-1.37

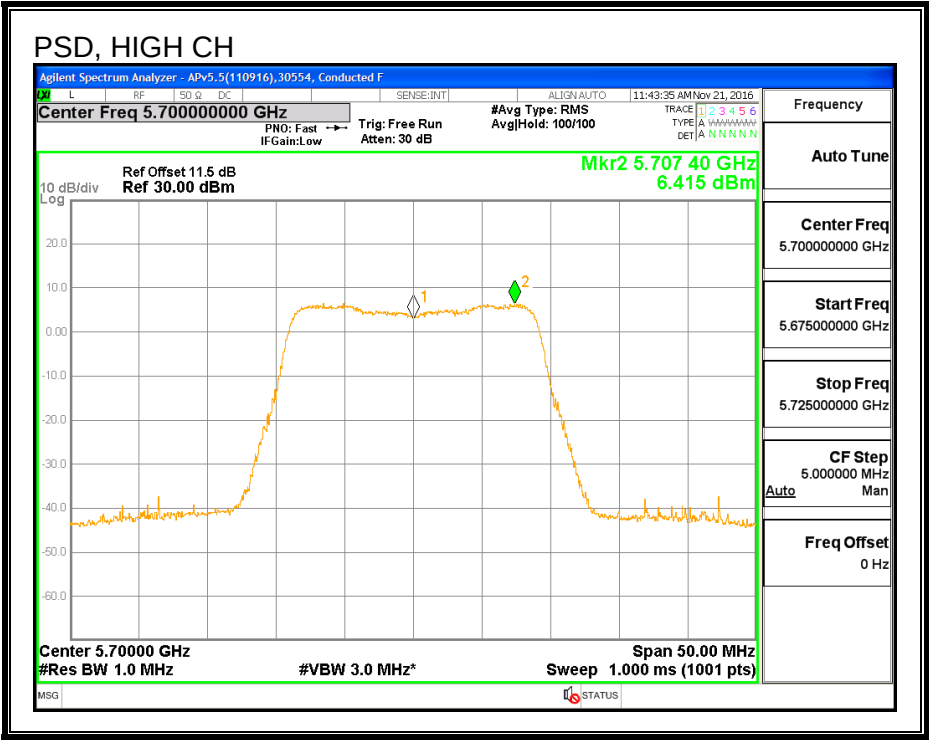
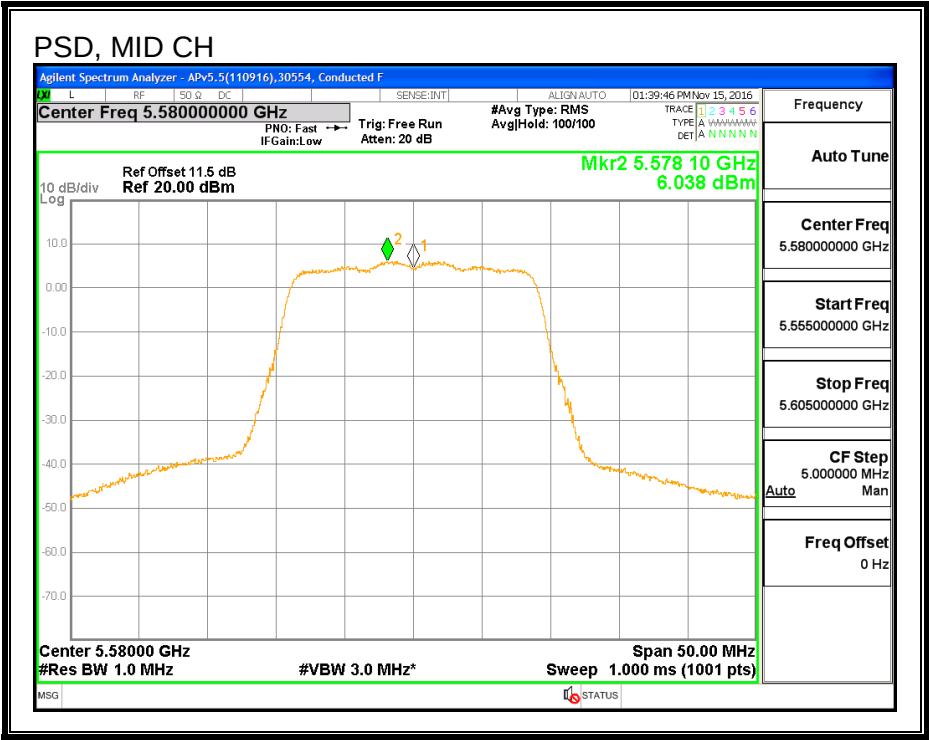
PSD, ANTENNA A





PSD, ANTENNA B





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 (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (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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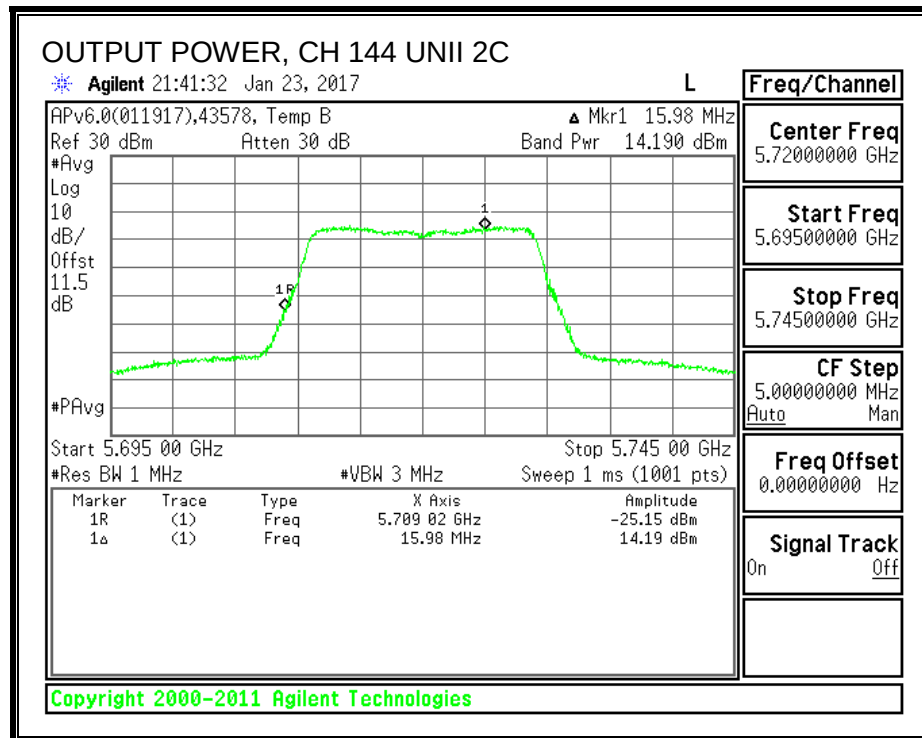
Output Power Results

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

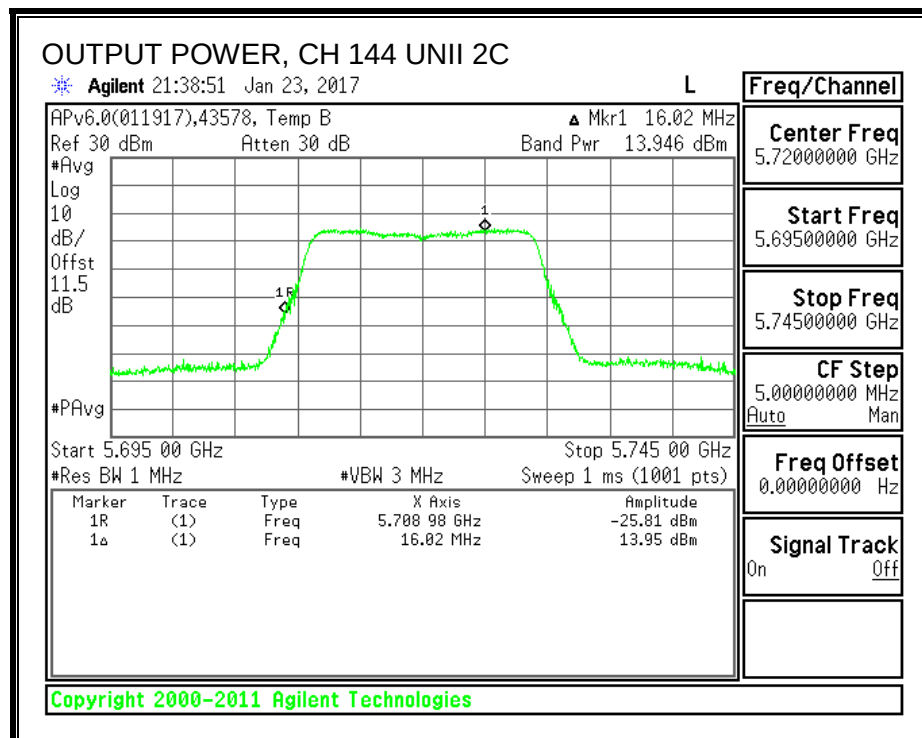
PSD Results

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

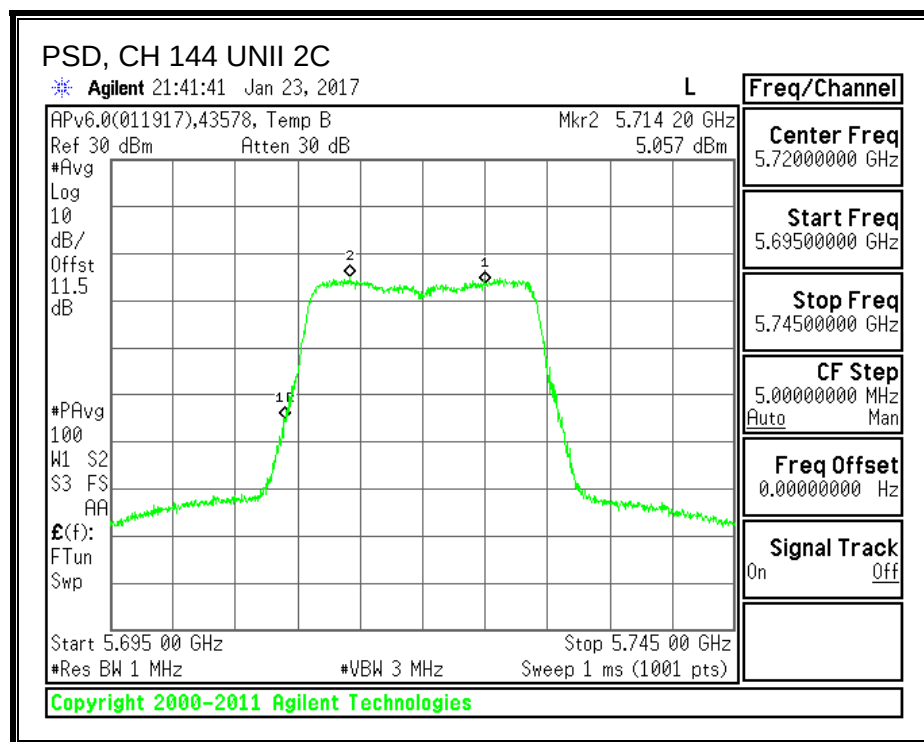
OUTPUT POWER, ANTENNA A



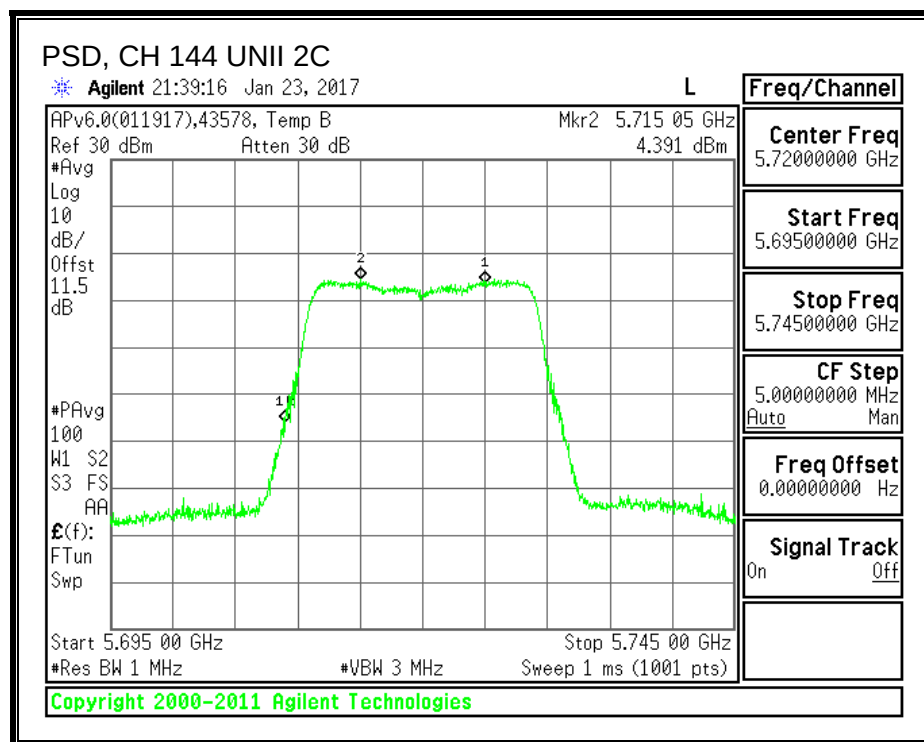
OUTPUT POWER, ANTENNA B



PSD, ANTENNA A



PSD, ANTENNA B



UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (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
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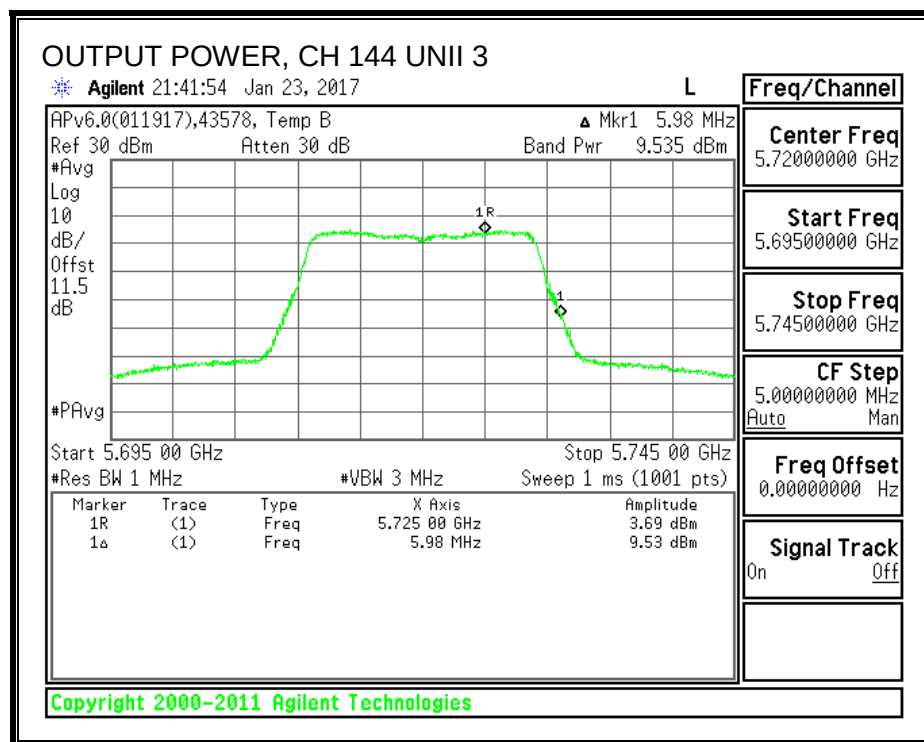
Output Power Results

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

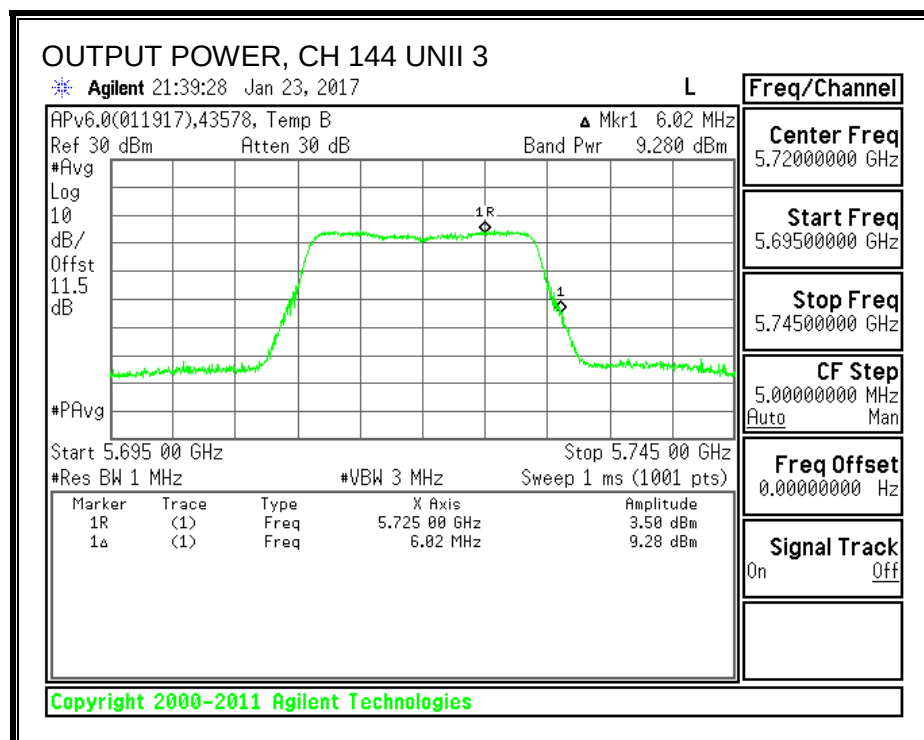
PSD Results

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

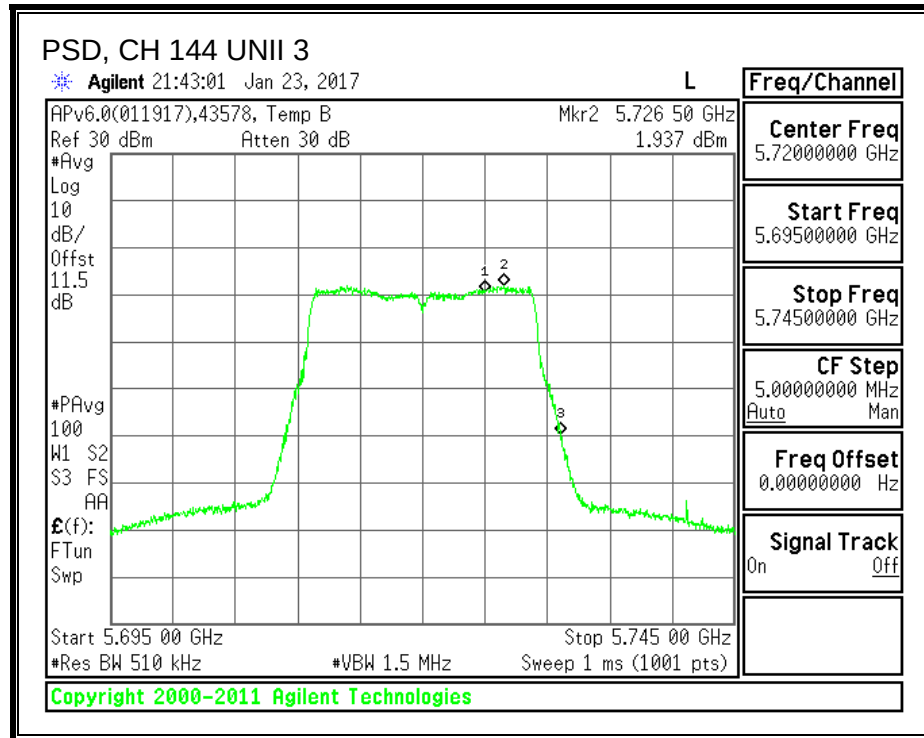
OUTPUT POWER, ANTENNA A



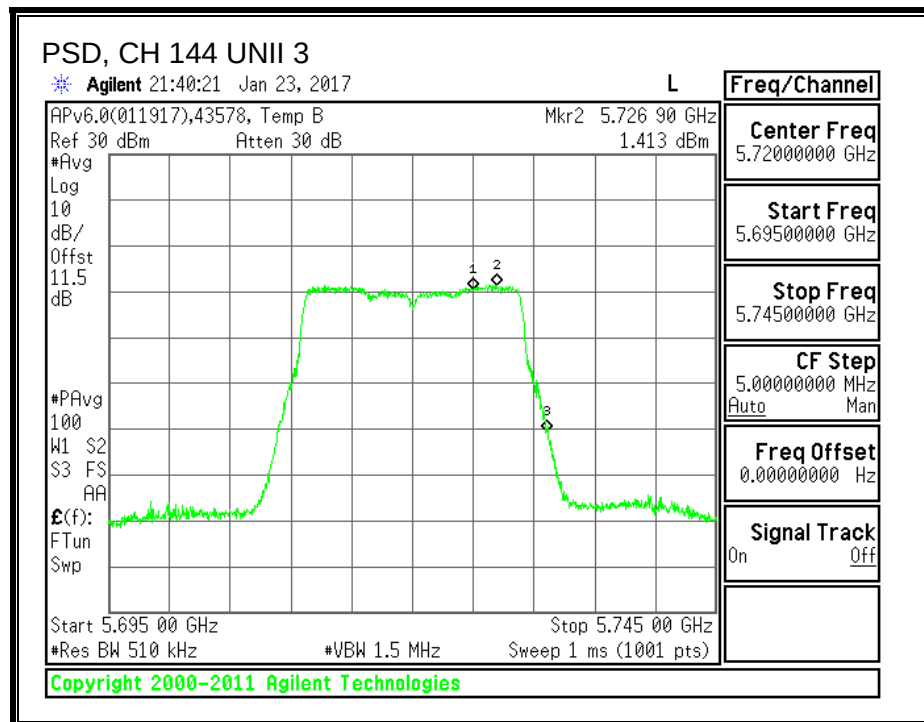
OUTPUT POWER, ANTENNA B



PSD, ANTENNA A



PSD, ANTENNA B



8.30.2. 6 dB BANDWIDTH

LIMITS

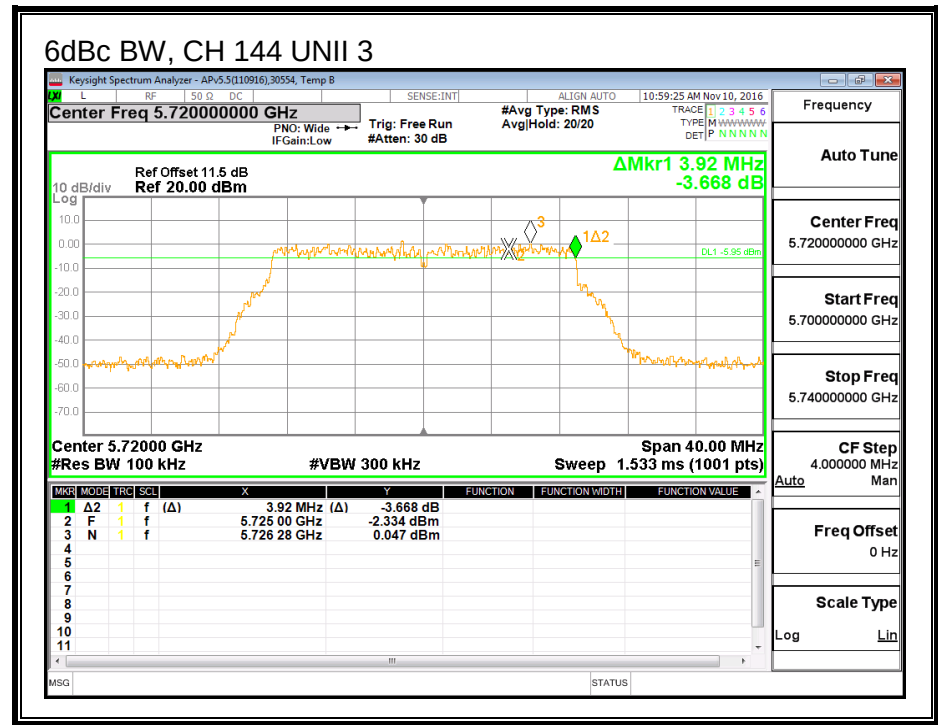
FCC §15.407 (e)

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

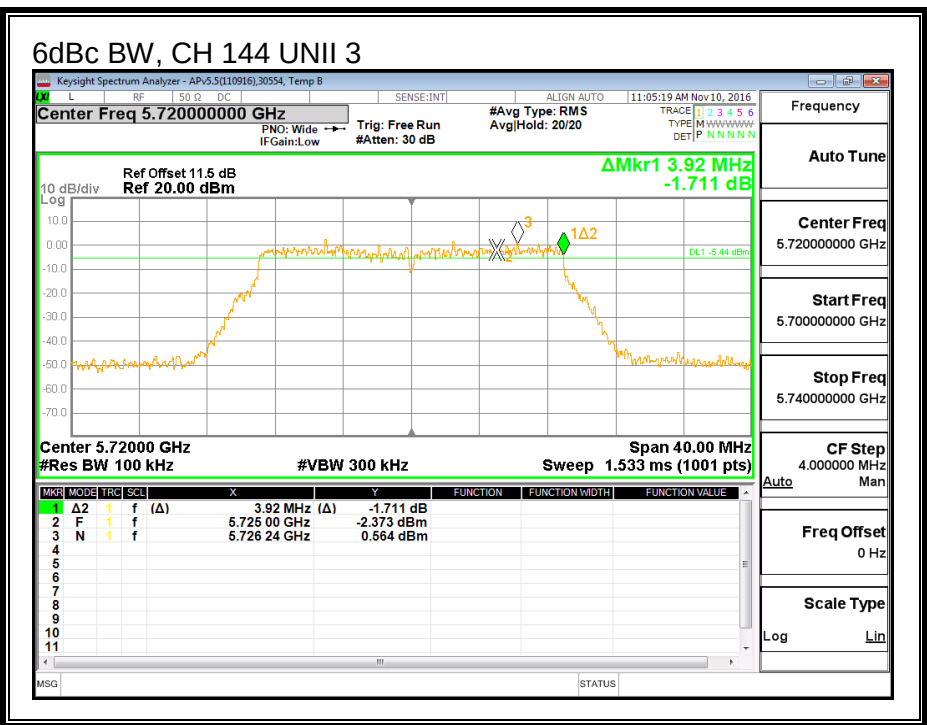
RESULTS

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

ANTENNA A



ANTENNA B



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

8.31.1. 26 dB BANDWIDTH

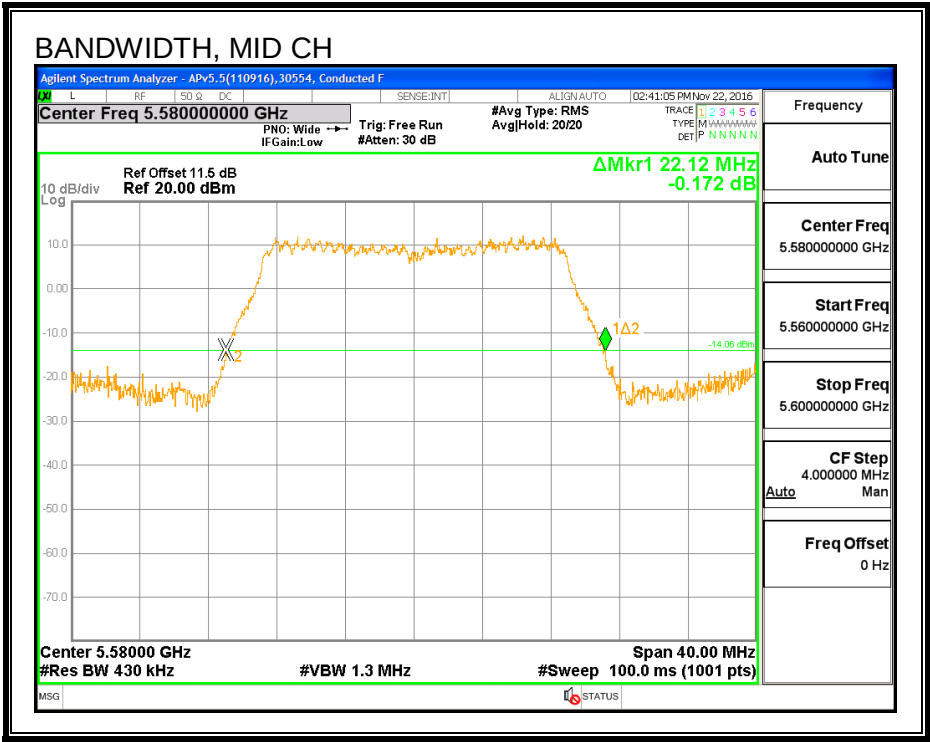
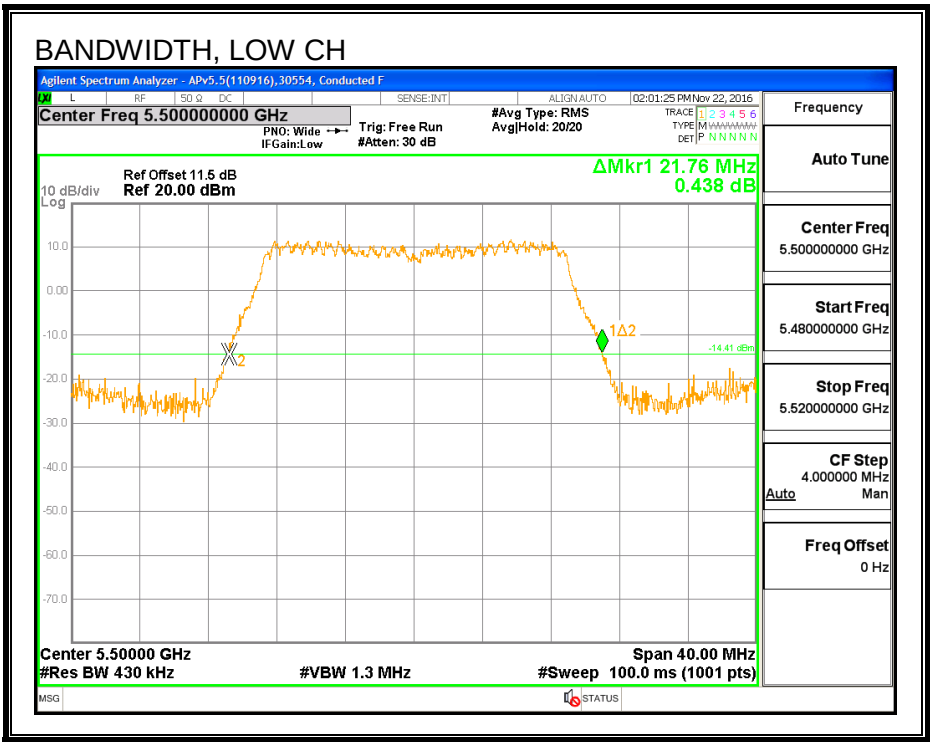
LIMITS

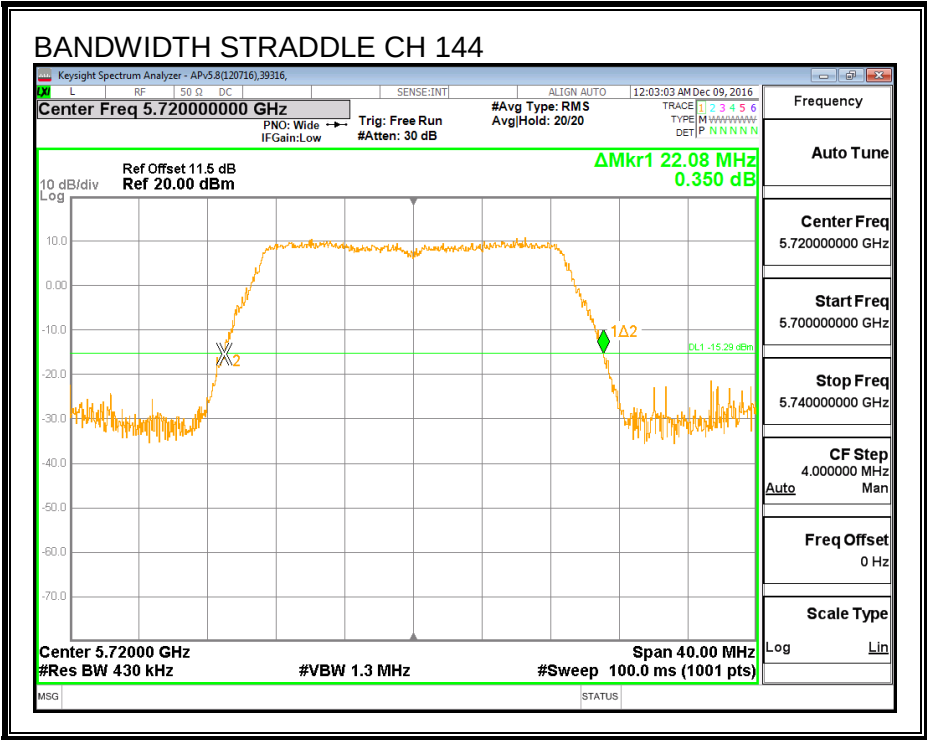
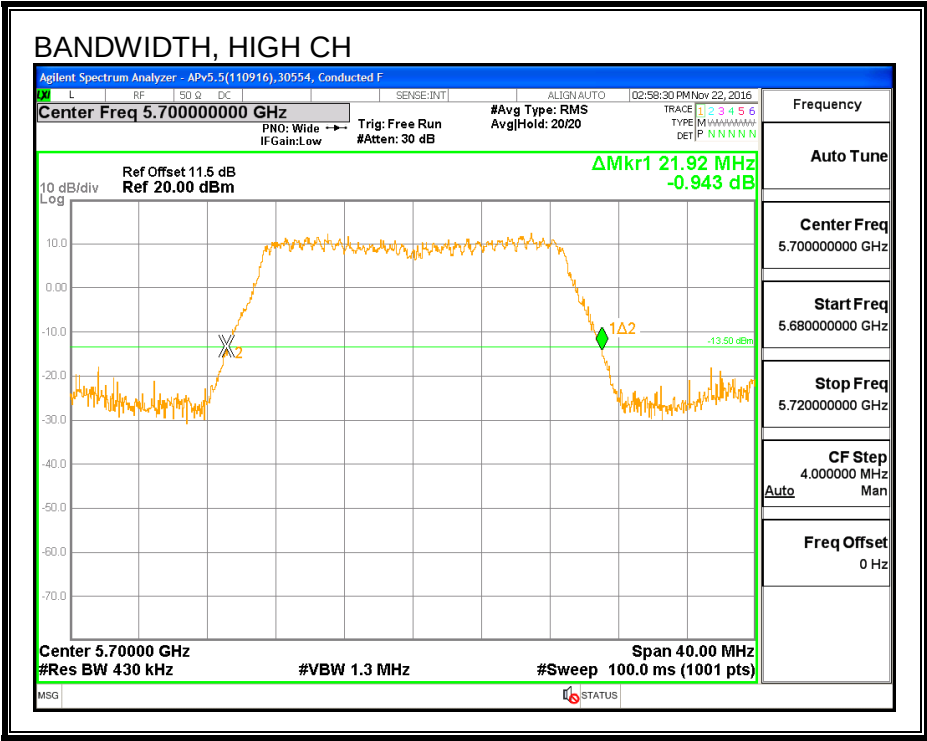
None; for reporting purposes only.

RESULTS

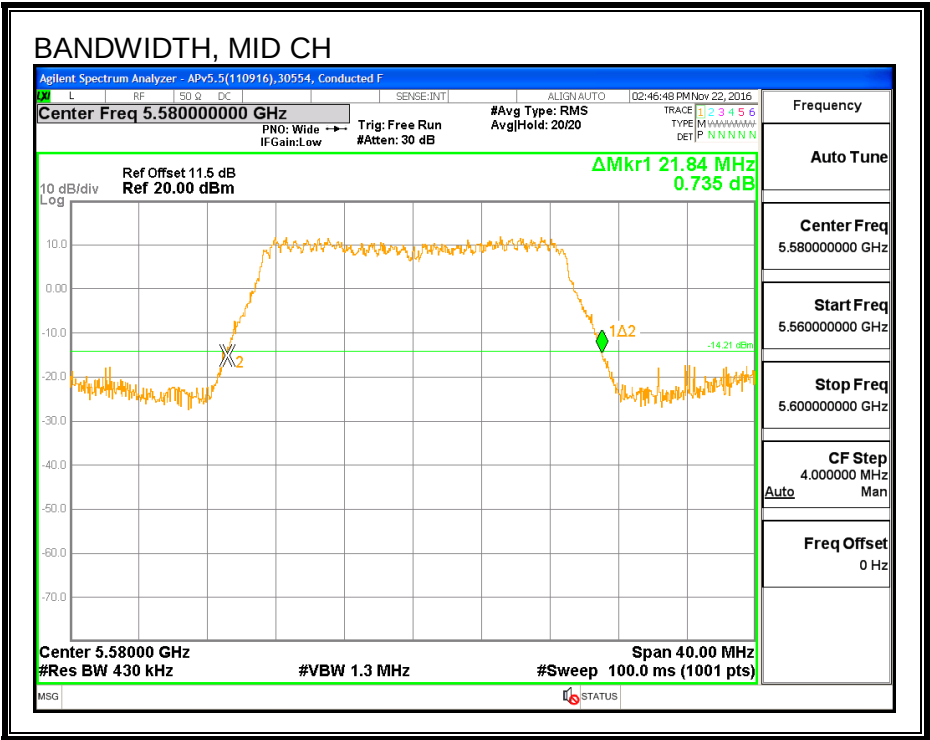
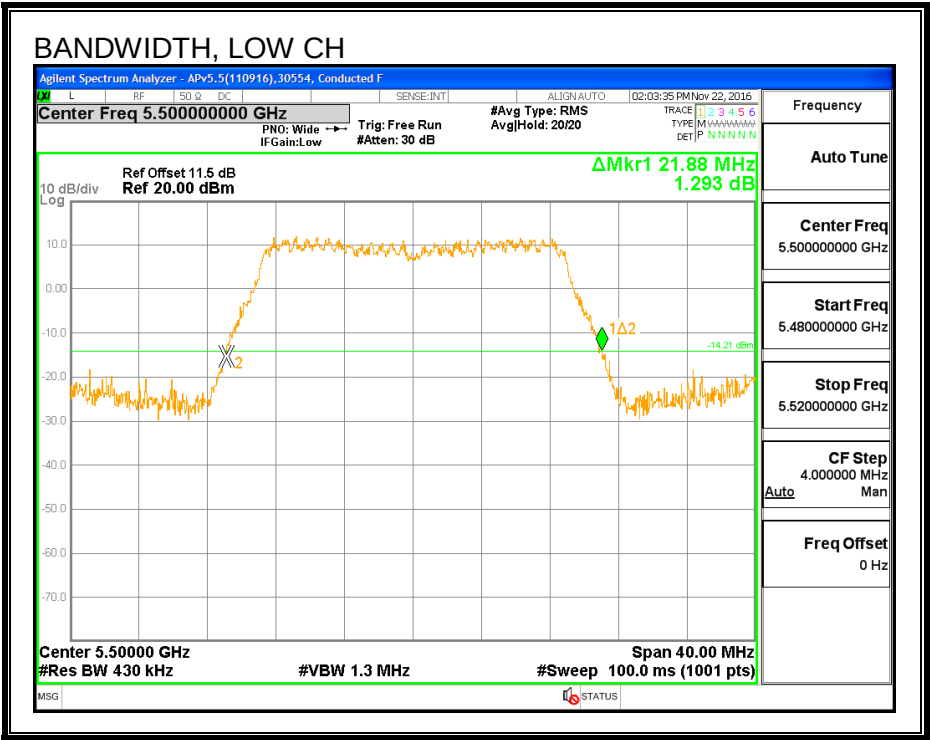
Channel	Frequency (MHz)	26 dB BW Antenna A (MHz)	26 dB BW Antenna B (MHz)
Low	5500	21.760	21.880
Mid	5580	22.120	21.840
High	5700	21.920	21.840
144	5720	22.080	21.960

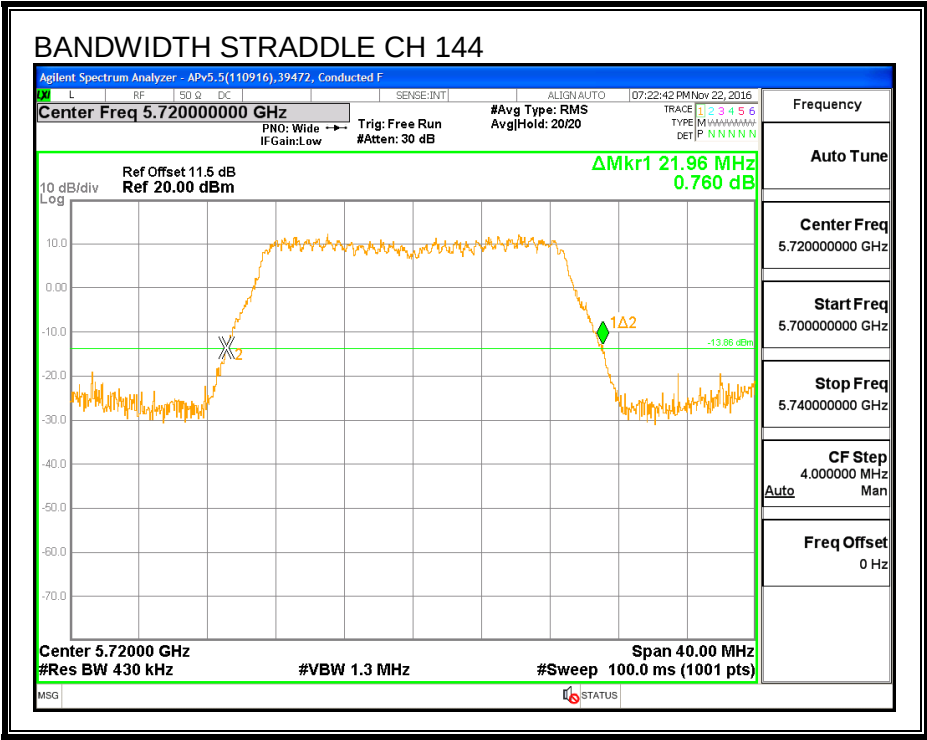
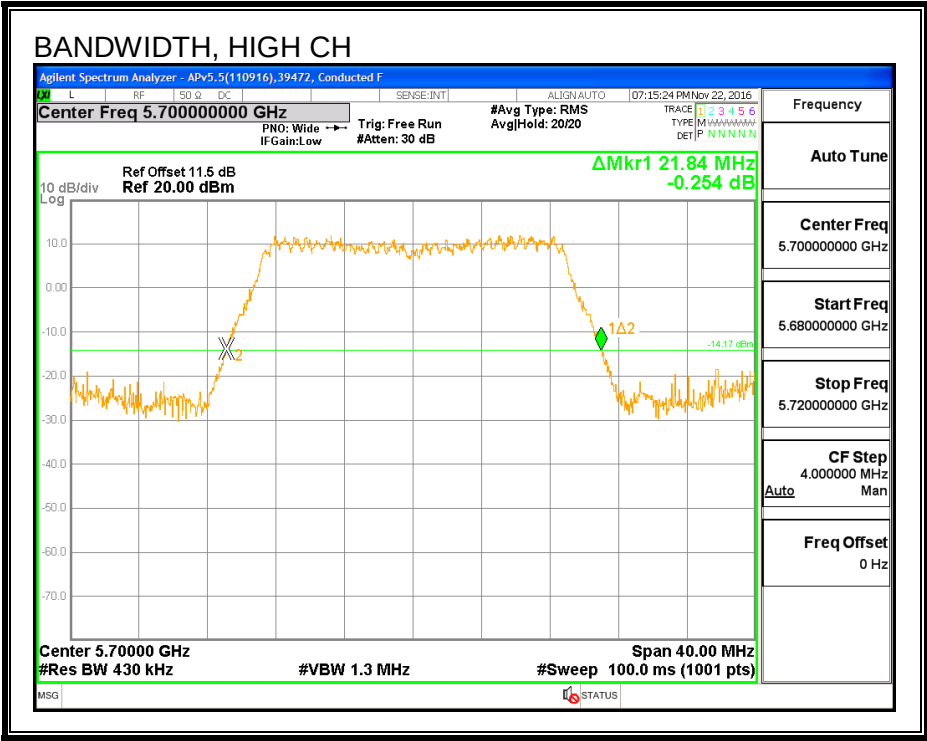
26 dB BANDWIDTH, ANTENNA A





26 dB BANDWIDTH, ANTENNA B





8.31.2. 99% BANDWIDTH

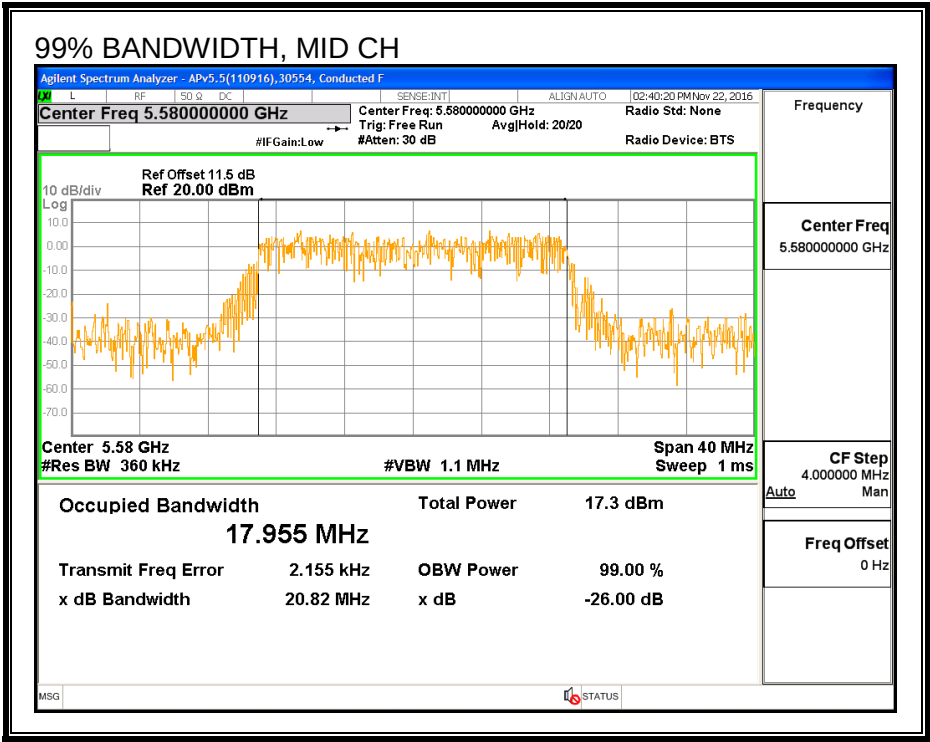
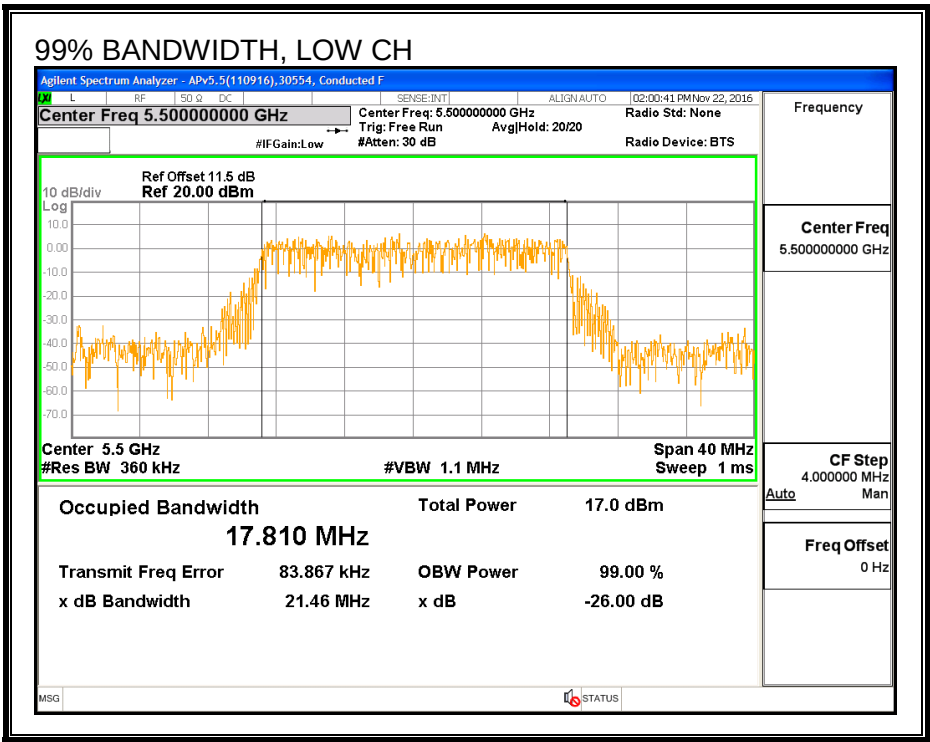
LIMITS

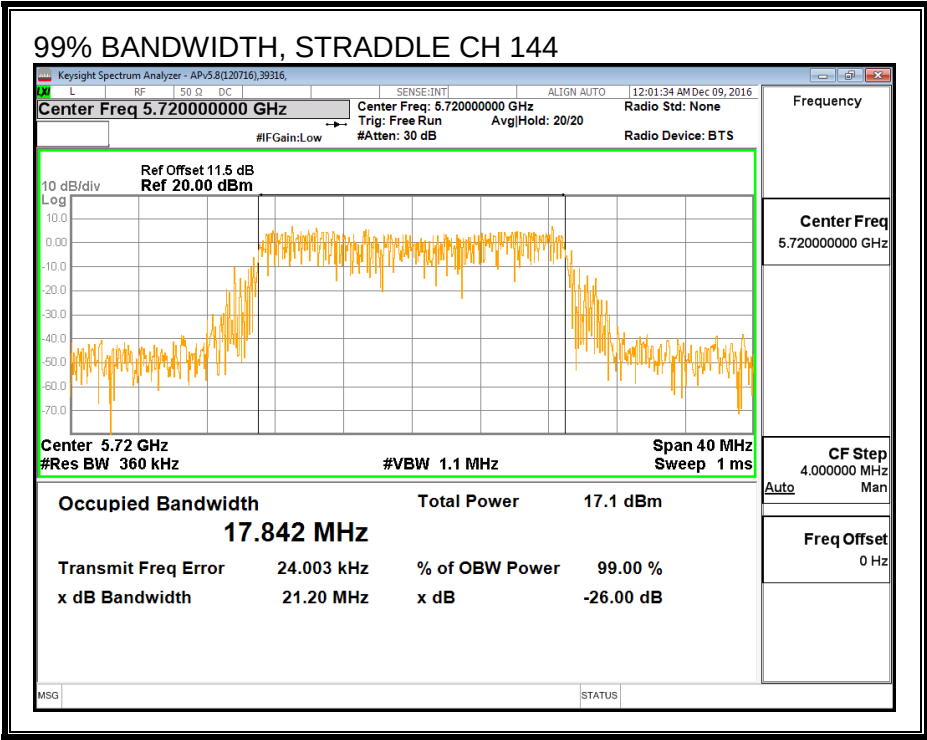
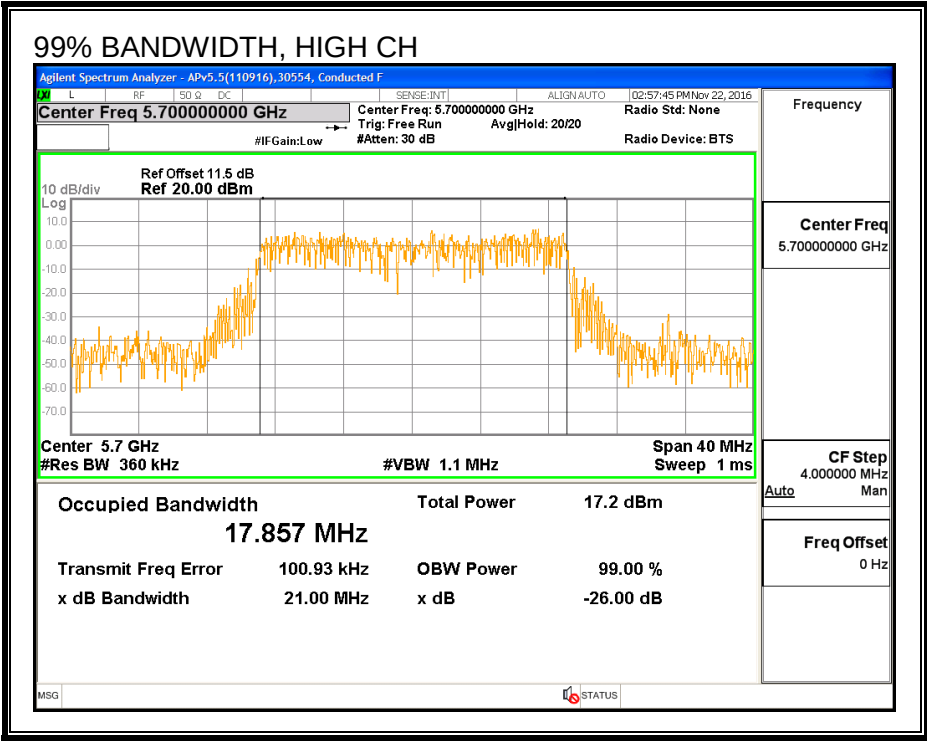
None; for reporting purposes only.

RESULTS

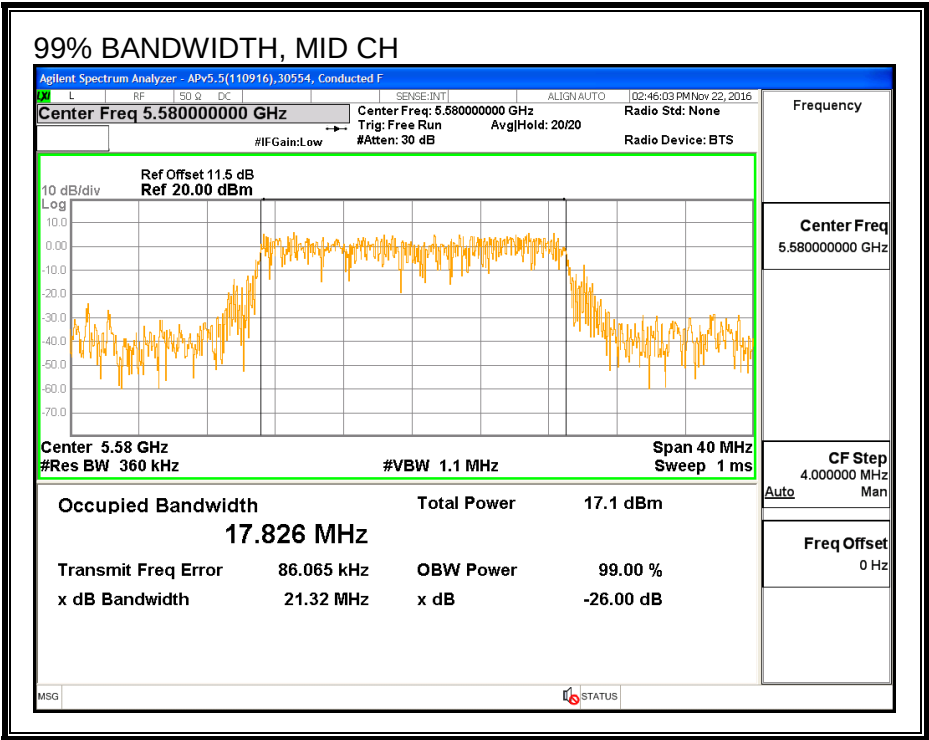
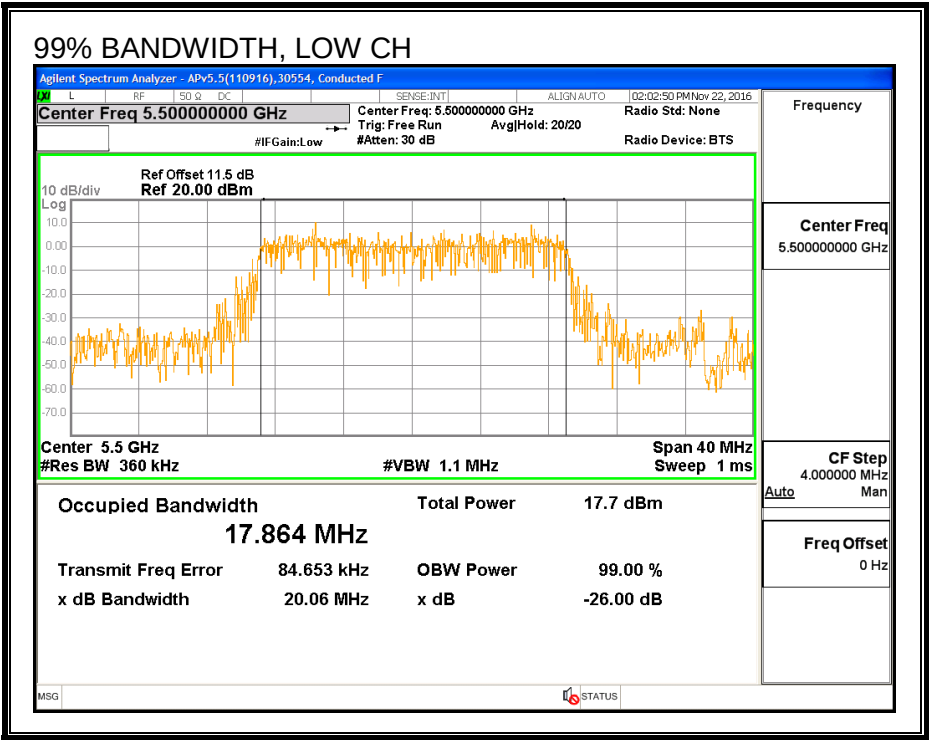
Channel	Frequency (MHz)	99% BW Antenna A (MHz)	99% BW Antenna B (MHz)
Low	5500	17.810	17.864
Mid	5580	17.955	17.826
High	5700	17.857	17.851
144	5720	17.842	17.917

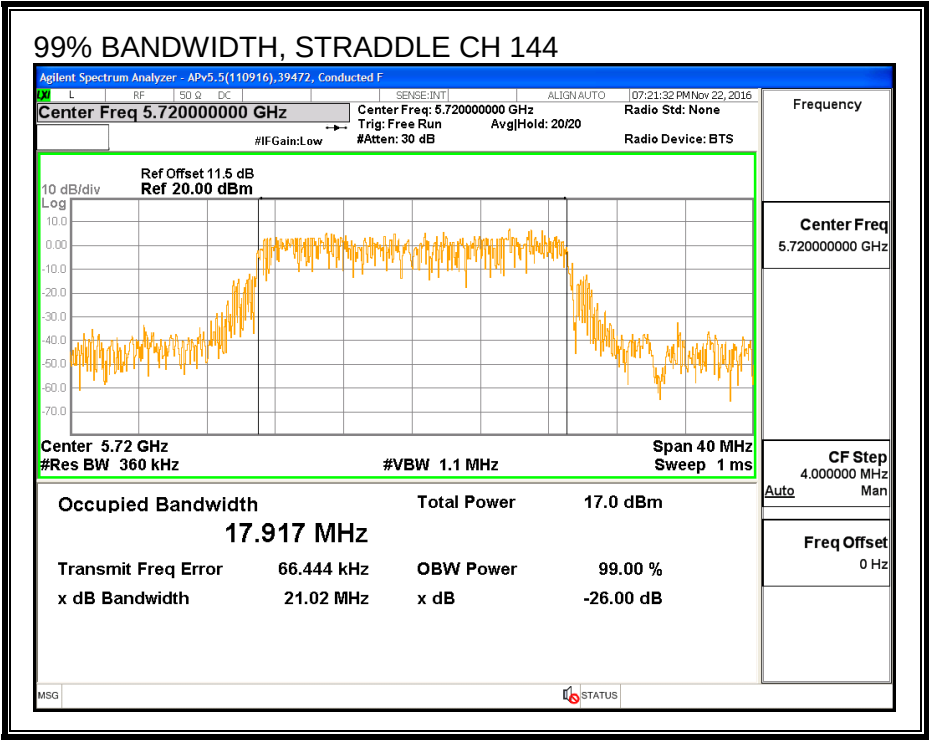
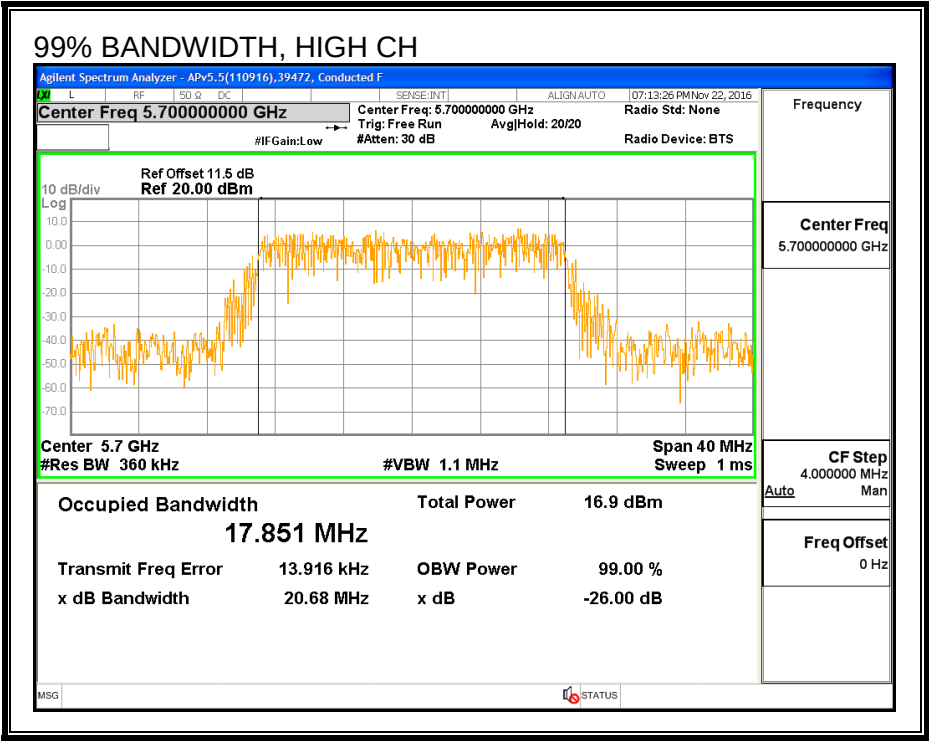
99% BANDWIDTH, ANTENNA A





99% BANDWIDTH, ANTENNA B





8.31.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

ID:	39316	Date:	12/14/16
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Average Power Results

Channel	Frequency (MHz)	Antenna A Power (dBm)	Antenna B Power (dBm)	Total Power (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

8.31.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, 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

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

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

RESULTS

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

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (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 CF (dB)	0.00	Included in Calculations of Corr'd PSD
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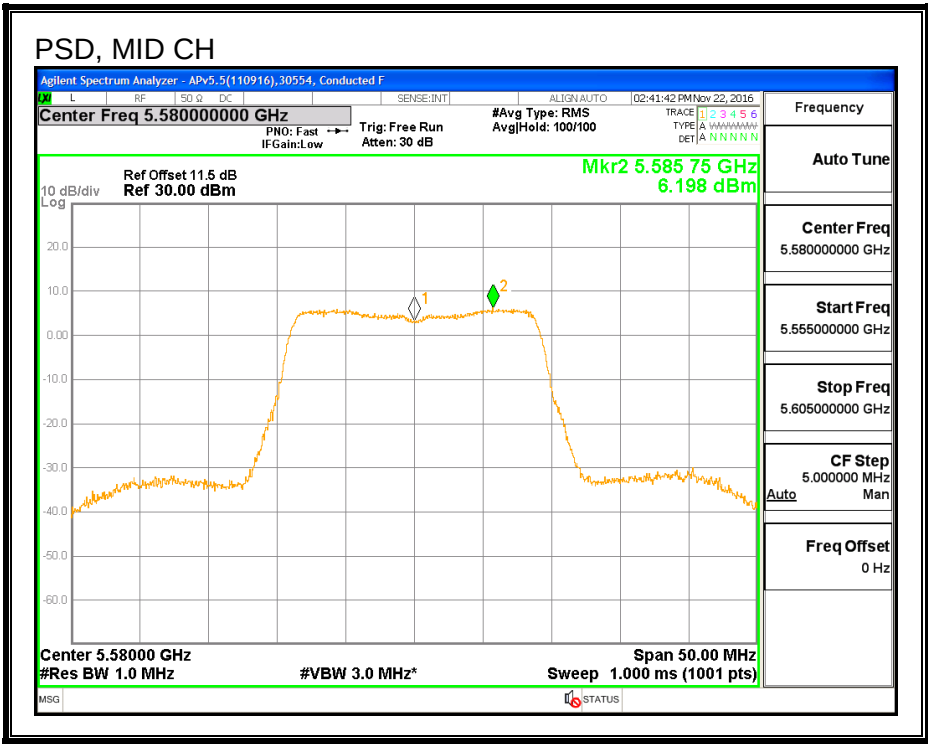
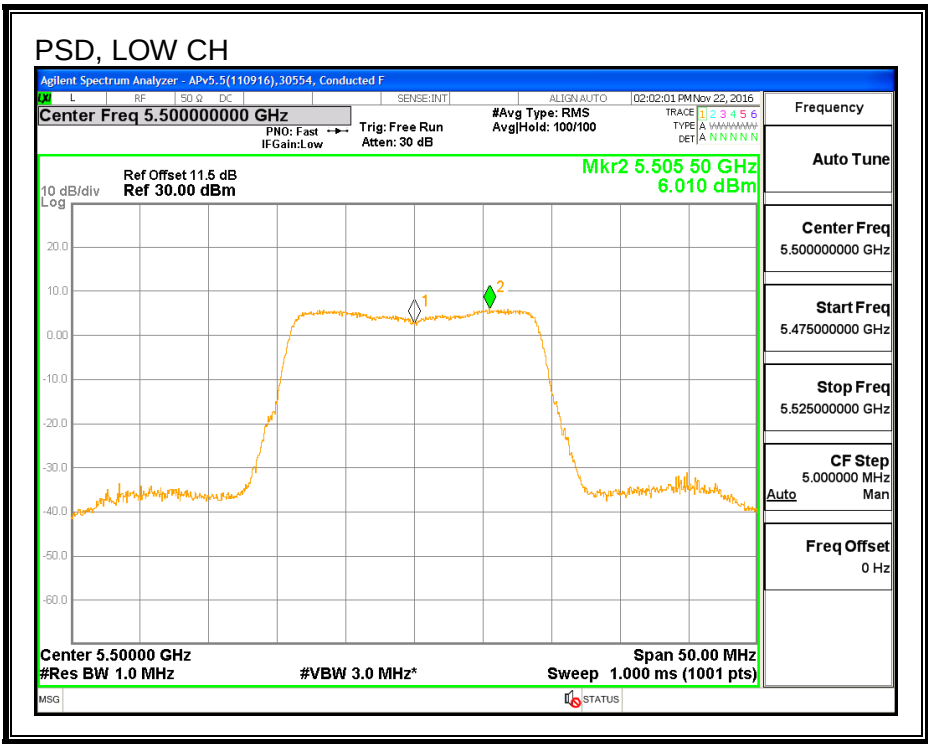
Output Power Results

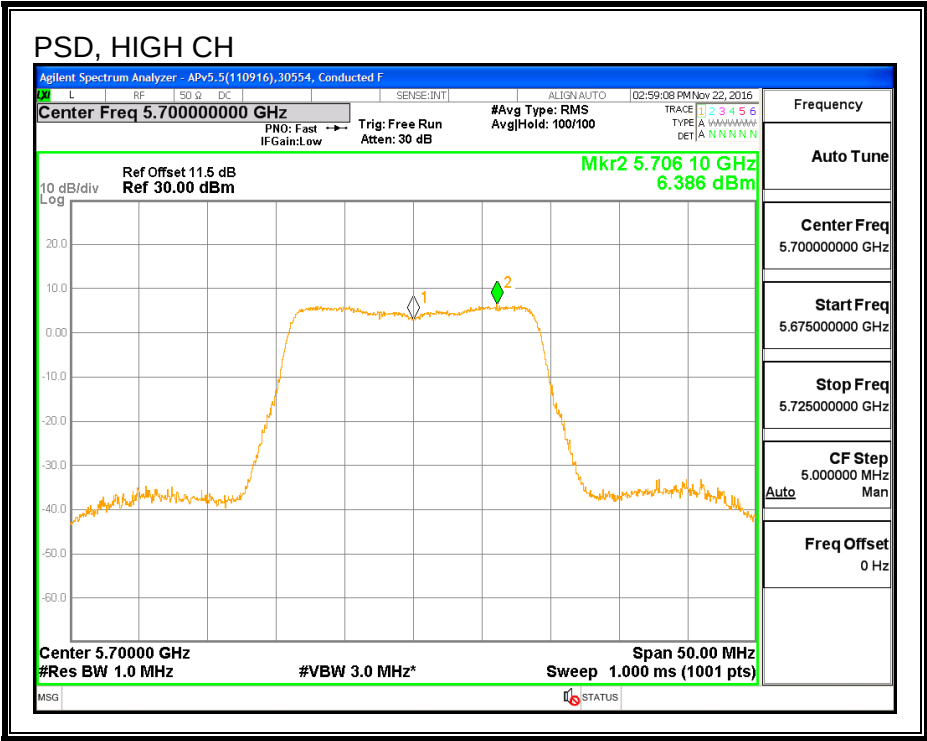
Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	14.99	14.84	17.93	23.51	-5.58
Mid	5580	16.48	16.94	19.73	23.54	-3.82
High	5700	13.96	13.92	16.95	23.52	-6.57

PSD Results

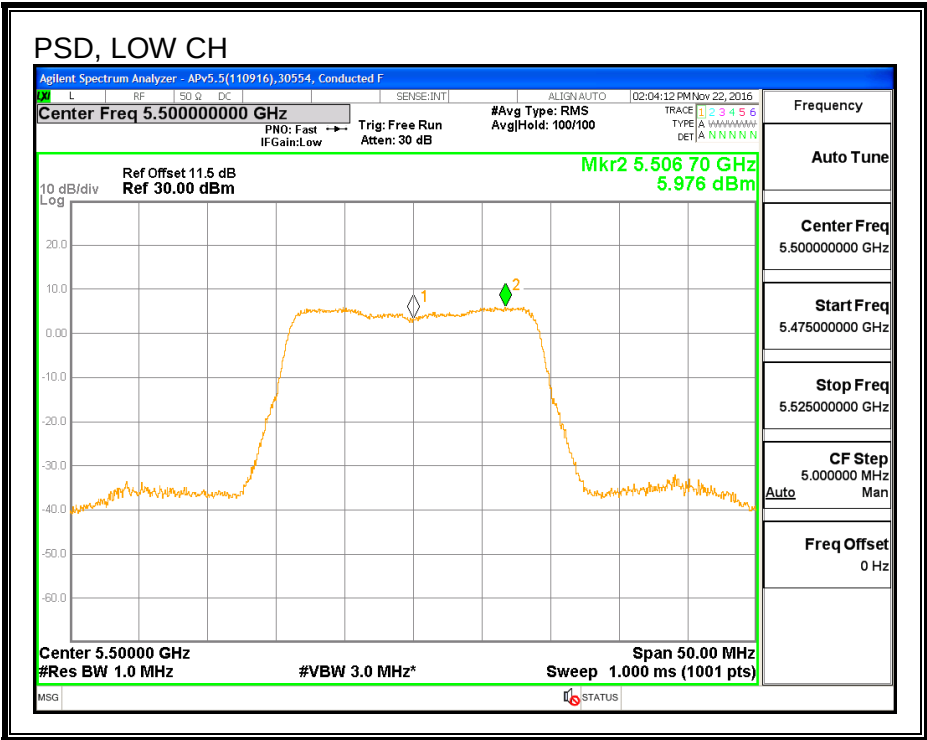
Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5500	6.010	5.976	9.003	11.00	-2.00
Mid	5580	6.198	6.030	9.125	11.00	-1.87
High	5700	6.386	6.318	9.362	11.00	-1.64

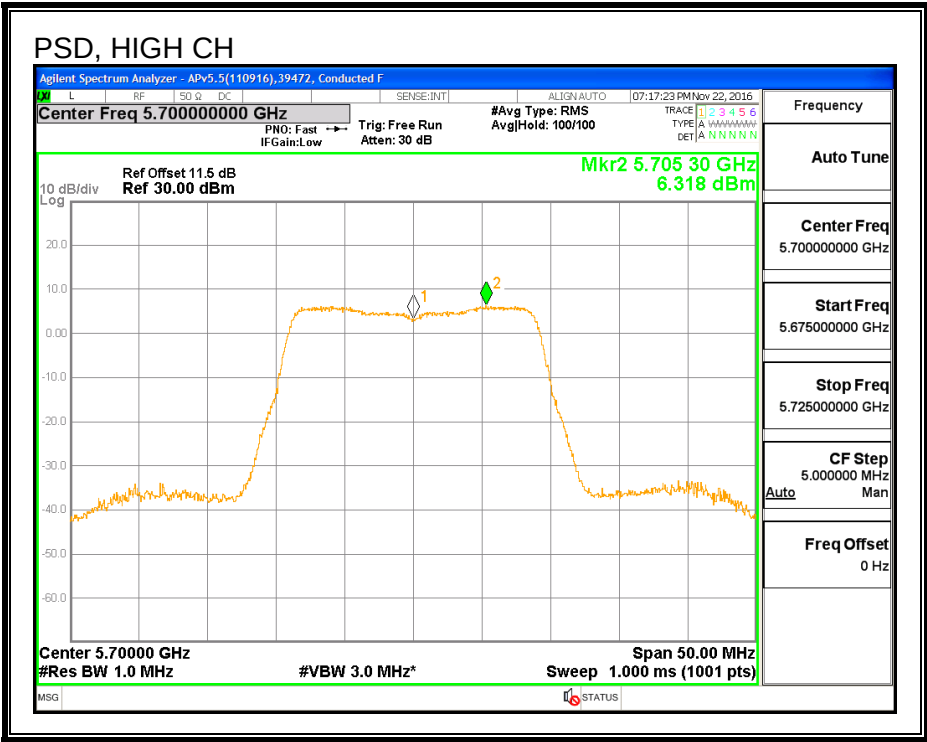
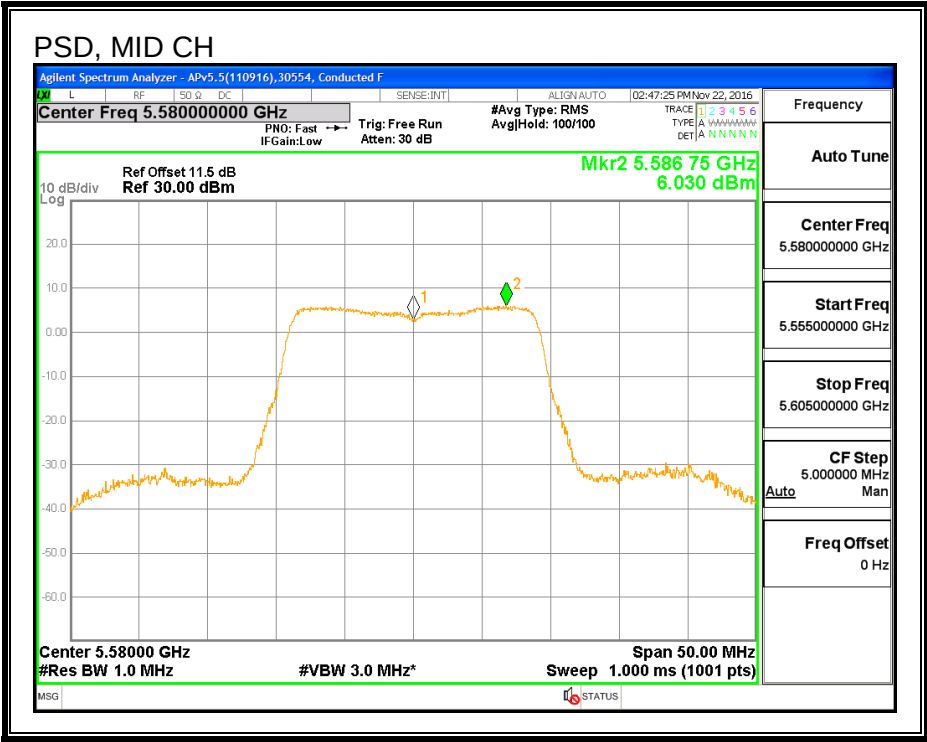
PSD, ANTENNA A





PSD, ANTENNA B





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 (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (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
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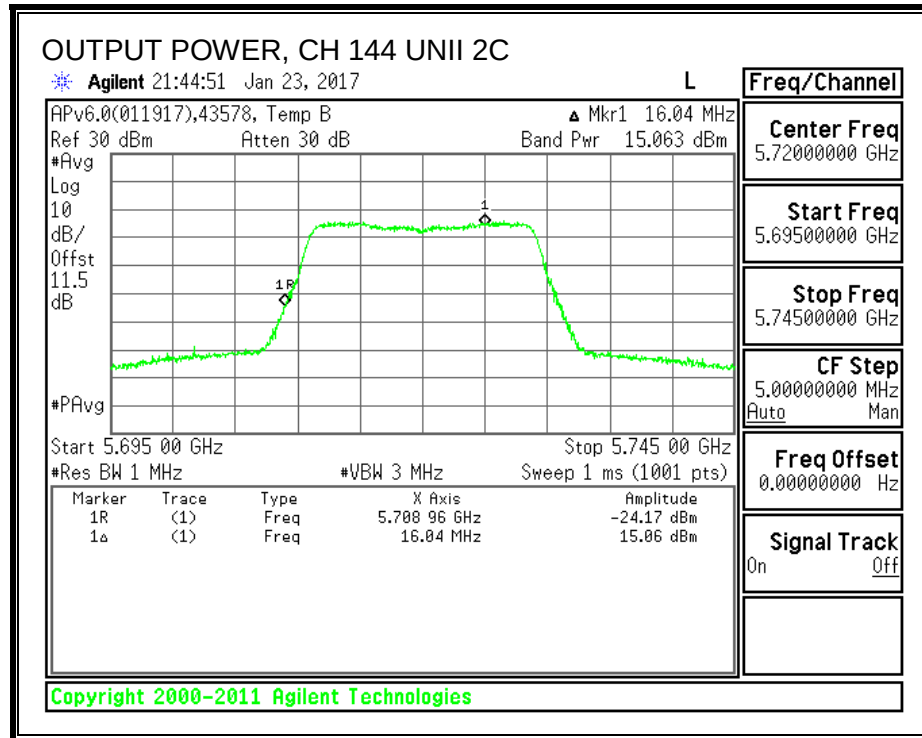
Output Power Results

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

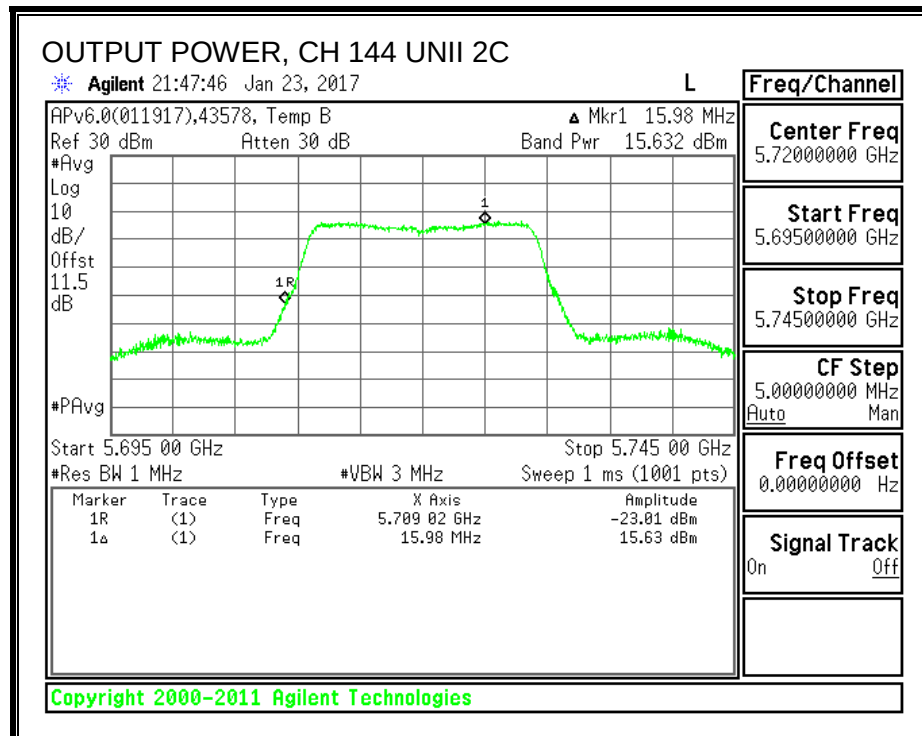
PSD Results

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

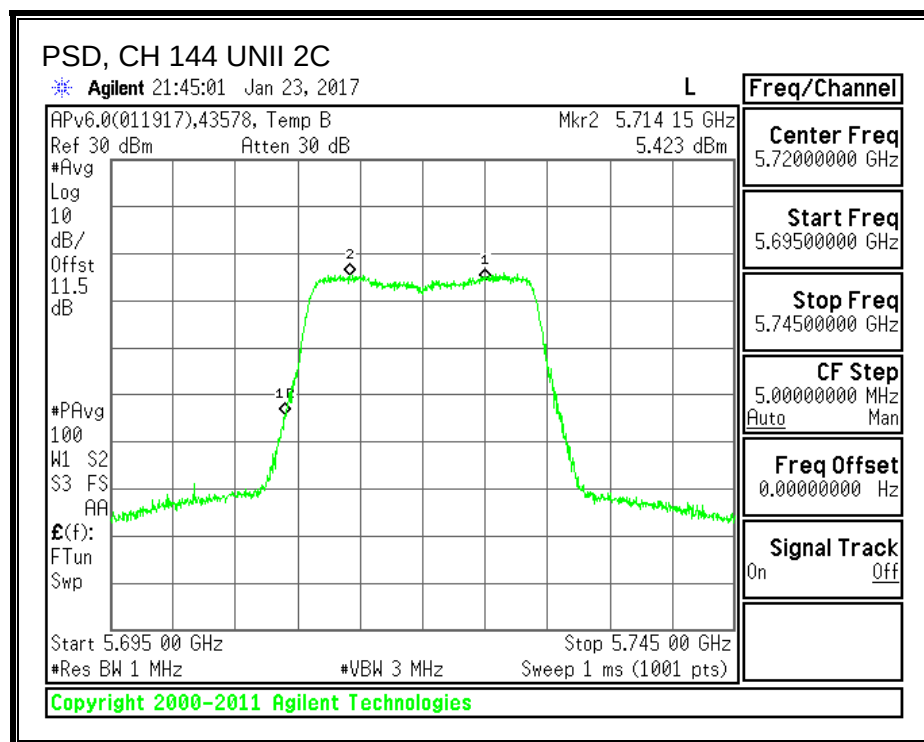
OUTPUT POWER, ANTENNA A



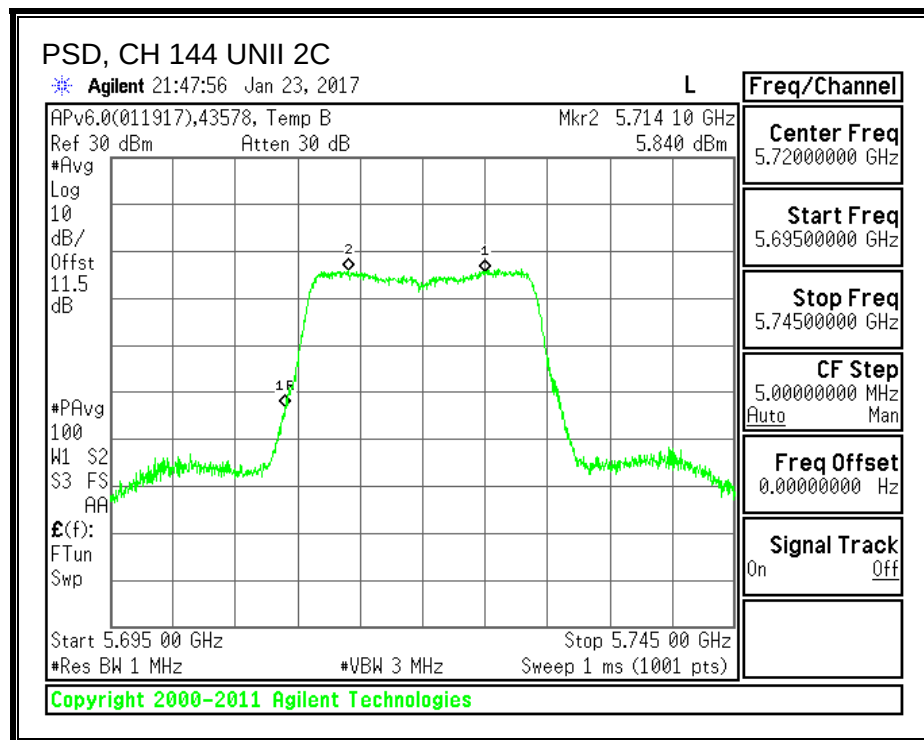
OUTPUT POWER, ANTENNA B



PSD, ANTENNA A



PSD, ANTENNA B



UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (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
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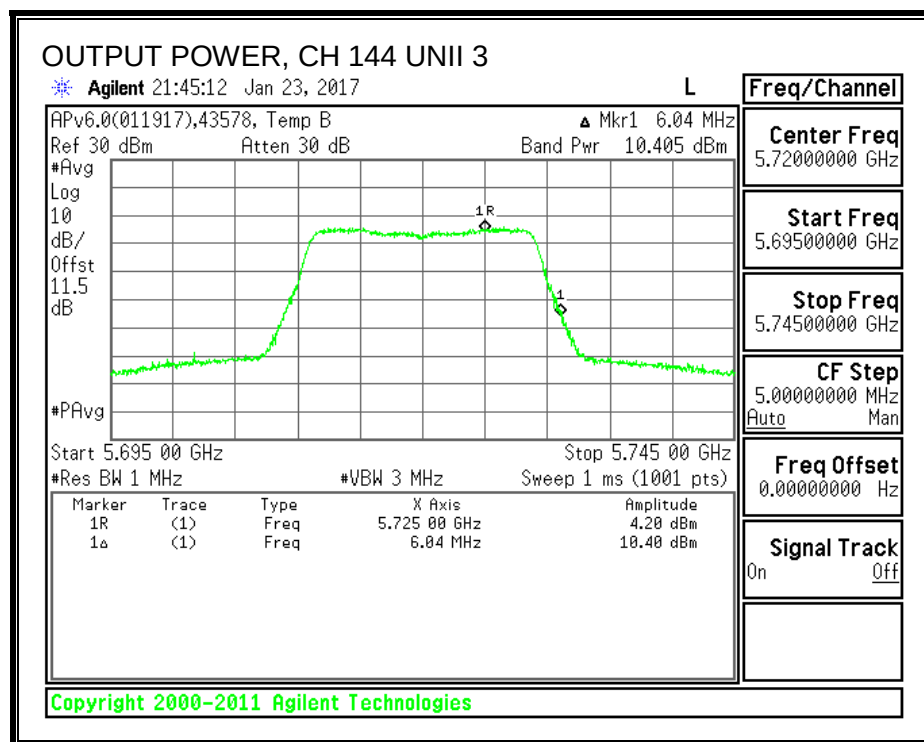
Output Power Results

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

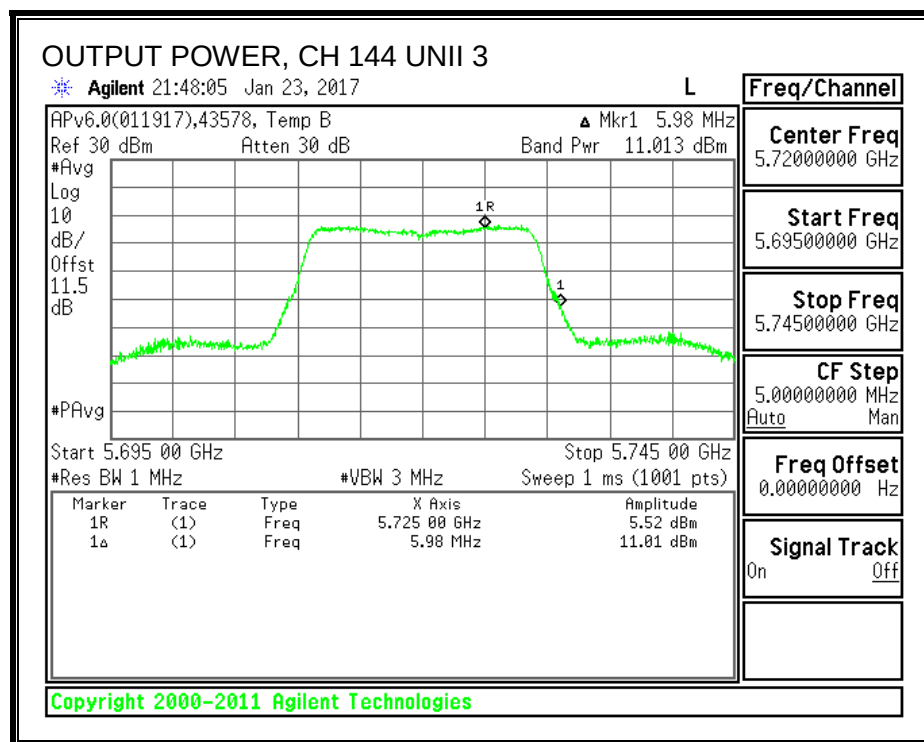
PSD Results

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

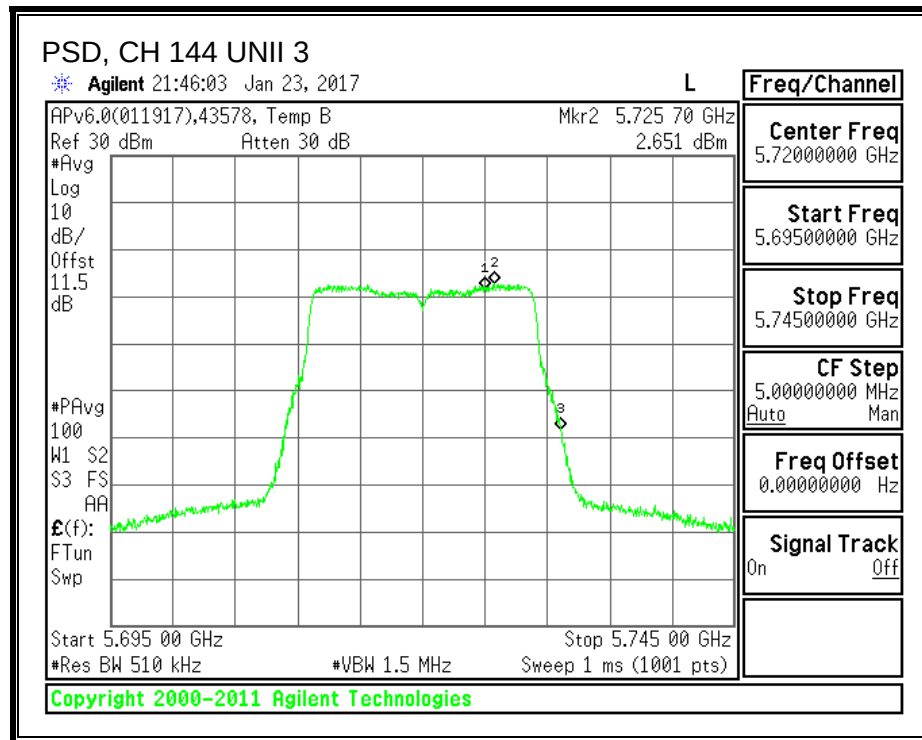
OUTPUT POWER, ANTENNA A



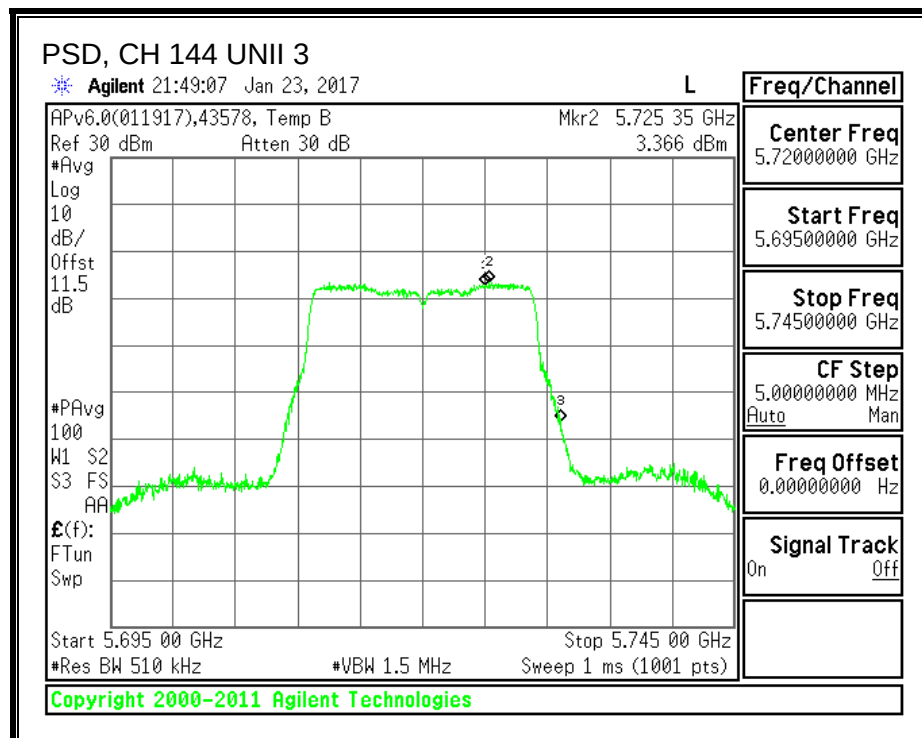
OUTPUT POWER, ANTENNA B



PSD, ANTENNA A



PSD, ANTENNA B



8.32.2. 6 dB BANDWIDTH

LIMITS

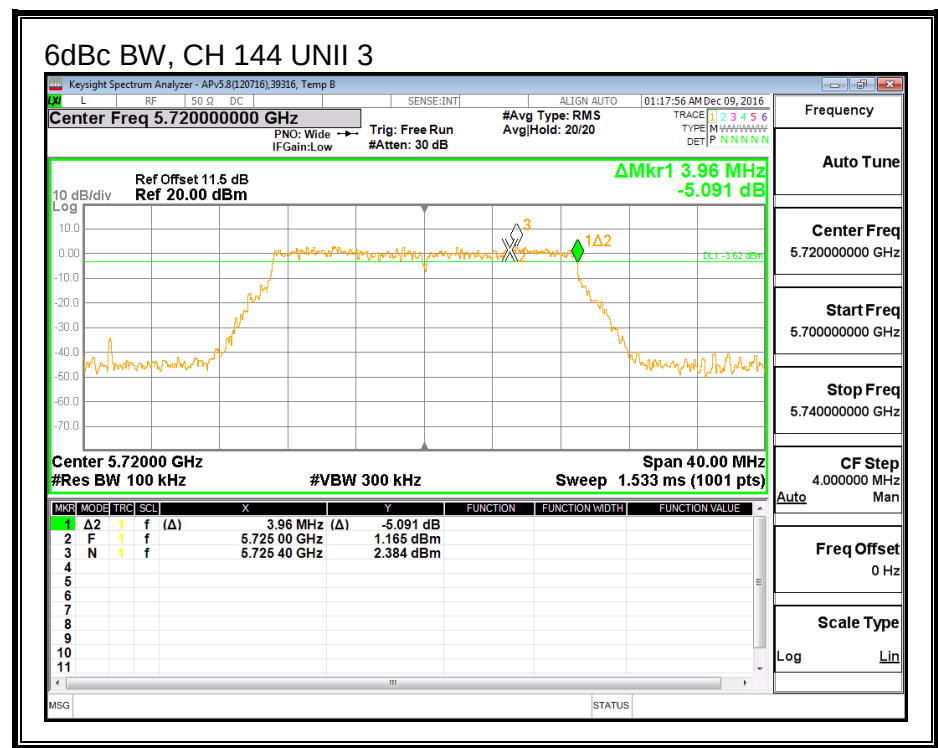
FCC §15.407 (e)

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

RESULTS

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

ANTENNA A



ANTENNA B

