8.33. 802.11n HT40 ANTENNA A MODE IN THE 5.6 GHz BAND

8.33.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5510	40.640
Mid	5550	40.640
High	5670	40.640
142	5710	40.720

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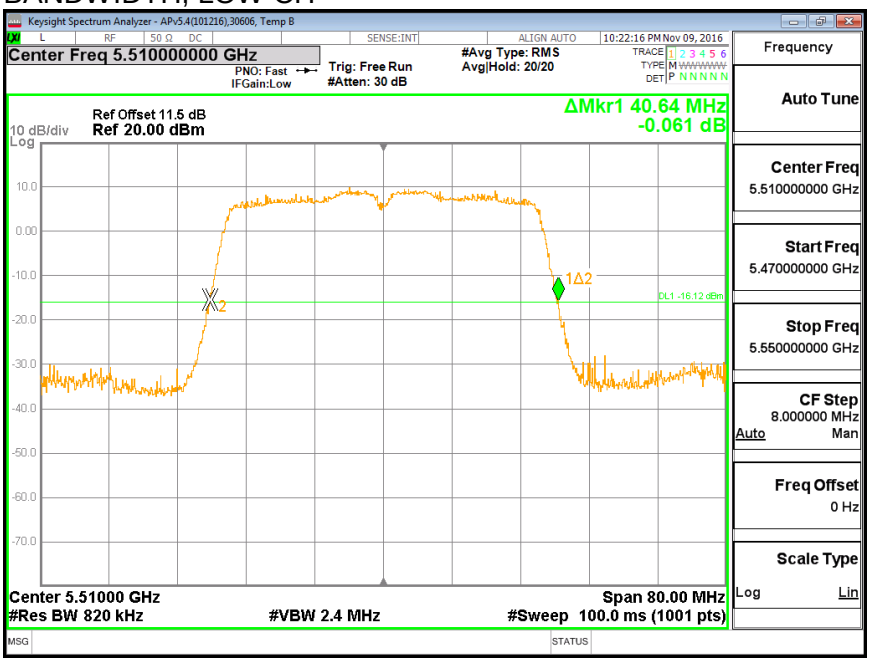
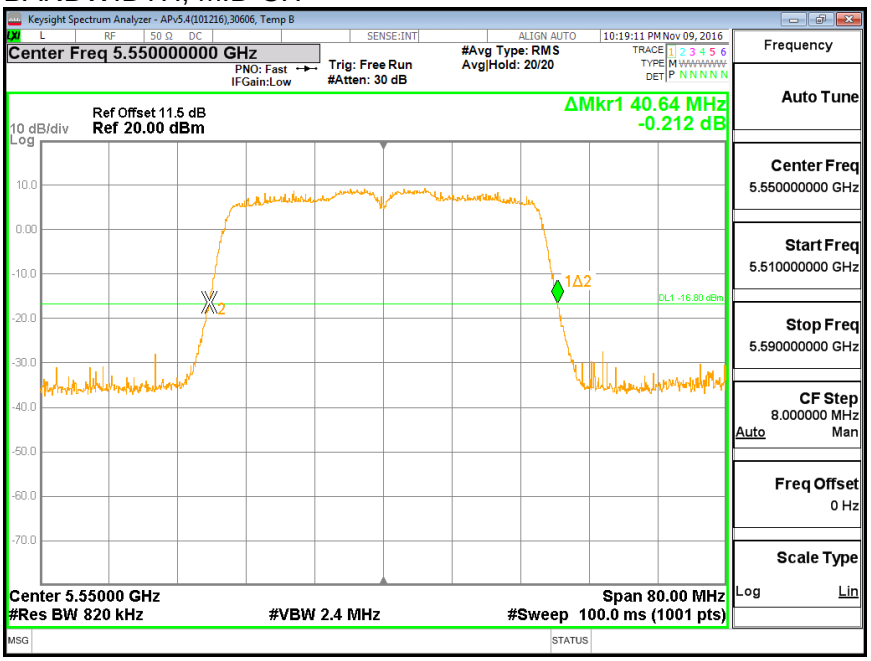
26 dB BANDWIDTH

BANDWIDTH, LOW CH



BANDWIDTH, MID CH



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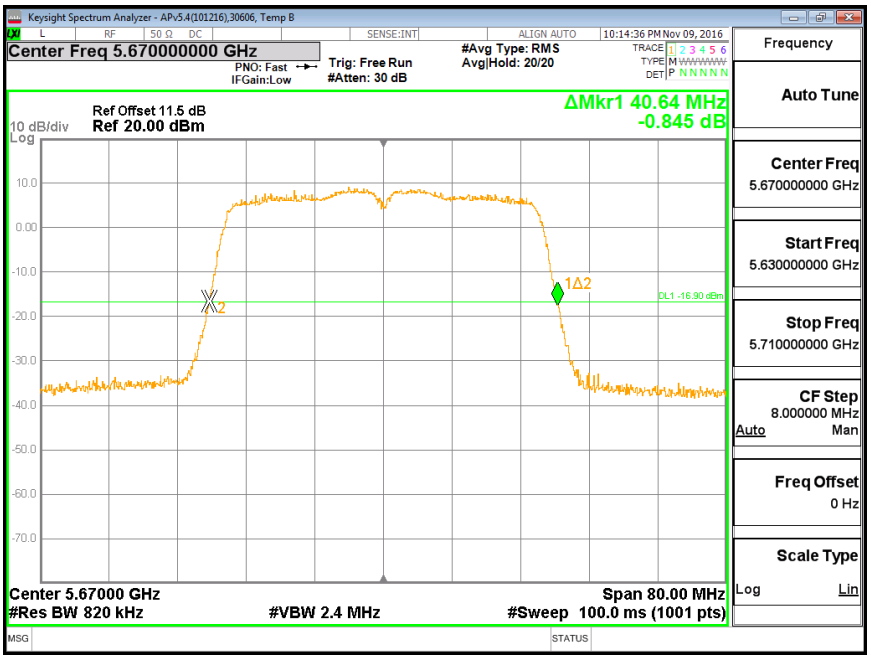
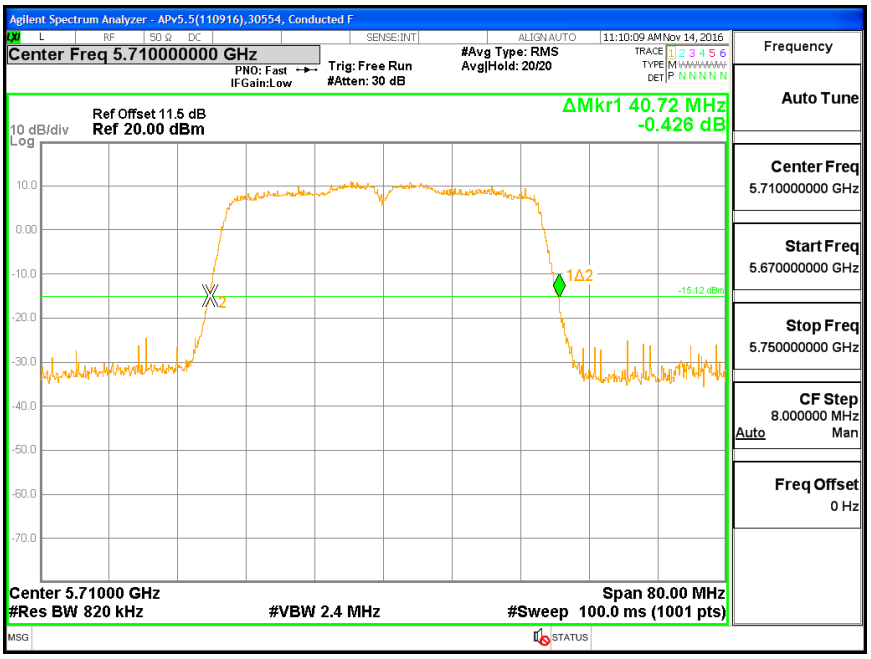
BANDWIDTH' HIGH CH



BANDWIDTH STRADDLE CH 142



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8.33.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.125
Mid	5550	36.576
High	5670	36.218
142	5710	36.235

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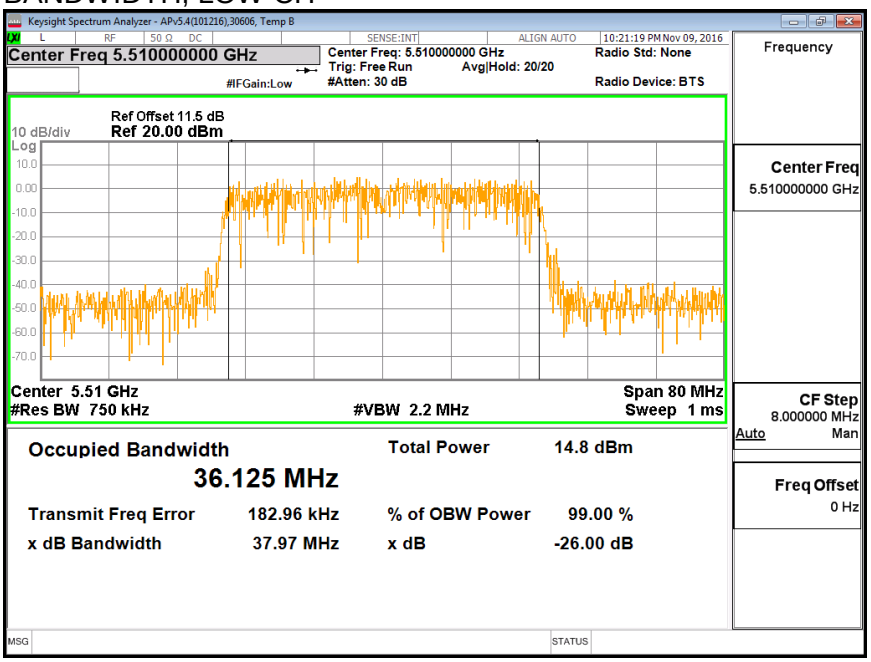
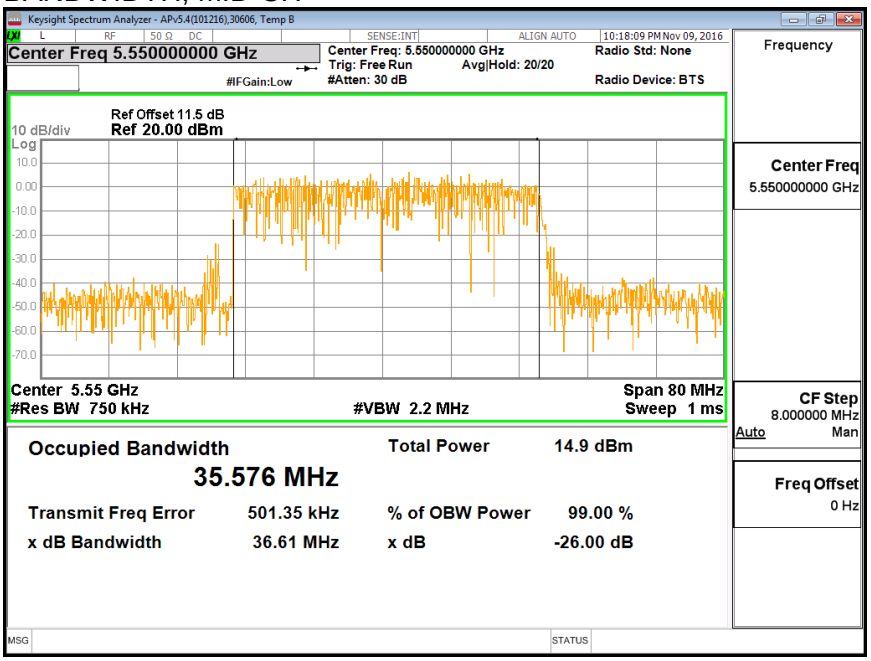
99% BANDWIDTH

BANDWIDTH, LOW CH



BANDWIDTH, MID CH



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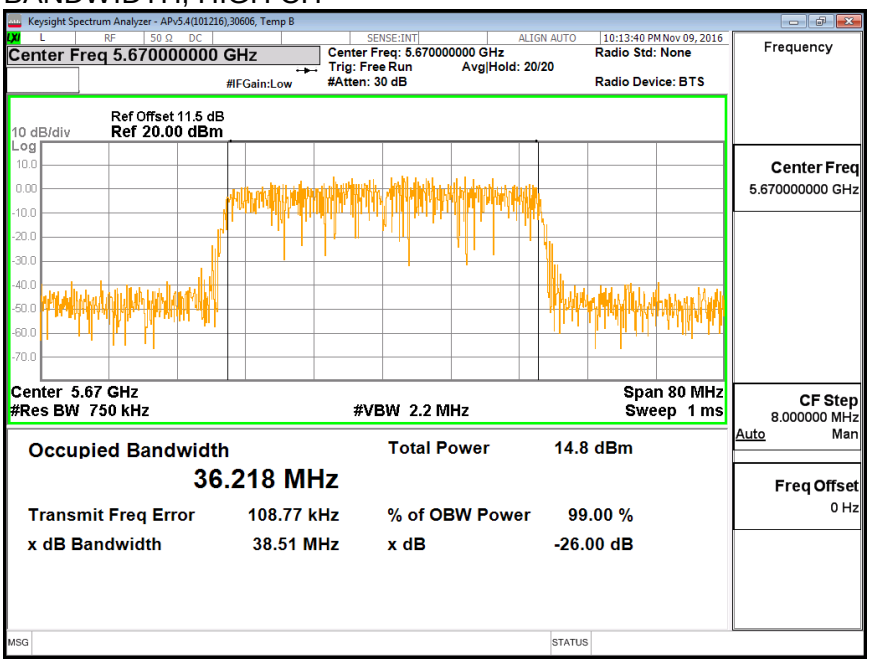
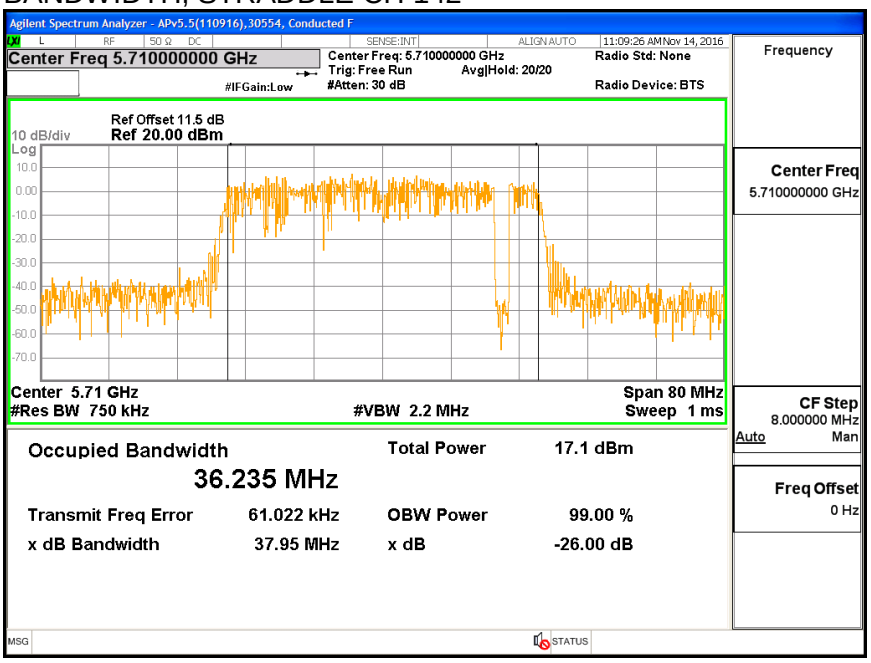
BANDWIDTH, HIGH CH



BANDWIDTH, STRADDLE CH 142



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8.33.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

ID:	30554	Date:	12/15/16

Channel	Frequency (MHz)	Power (dBm)
Low	5510	13.96
Mid	5550	16.41
High	5670	15.97
142	5710	16.39

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

TEST PROCEDURE

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

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

DIRECTIONAL ANTENNA GAIN

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

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RESULTS

ID:	30554	Date:	12/15/16

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	5510	40.64	36.125	3.39	24.00	11.00
Mid	5550	40.64	36.576	3.39	24.00	11.00
High	5670	40.64	36.218	3.39	24.00	11.00

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

Output Power Results

Channel	Frequency (MHz)	Ant A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	13.96	13.96	24.00	-10.04
Mid	5550	16.41	16.41	24.00	-7.59
High	5670	15.97	15.97	24.00	-8.03

PSD Results

Channel	Frequency (MHz)	Ant A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5510	-0.97	-0.87	11.00	-11.87
Mid	5550	1.43	1.53	11.00	-9.47
High	5670	1.14	1.24	11.00	-9.76

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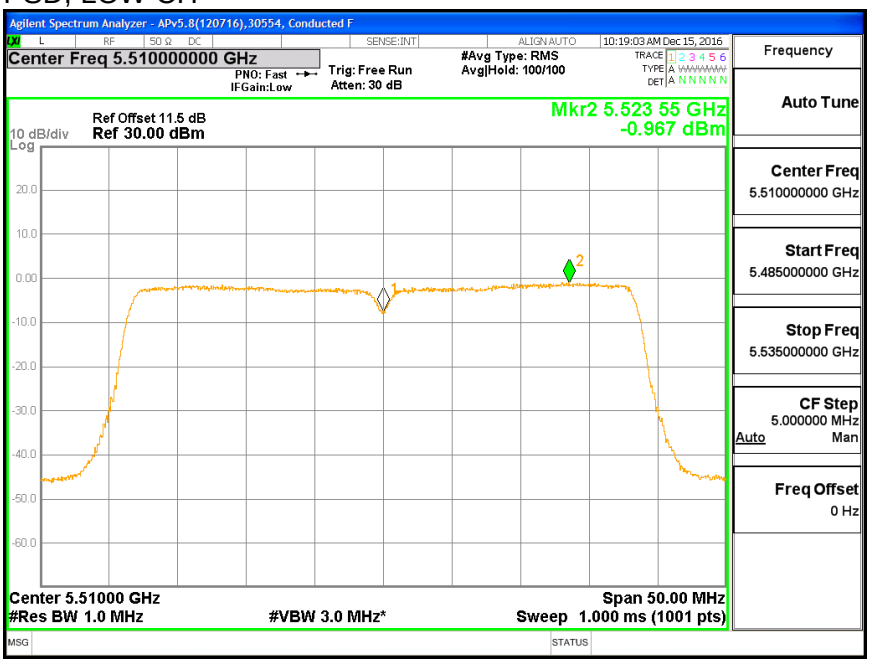
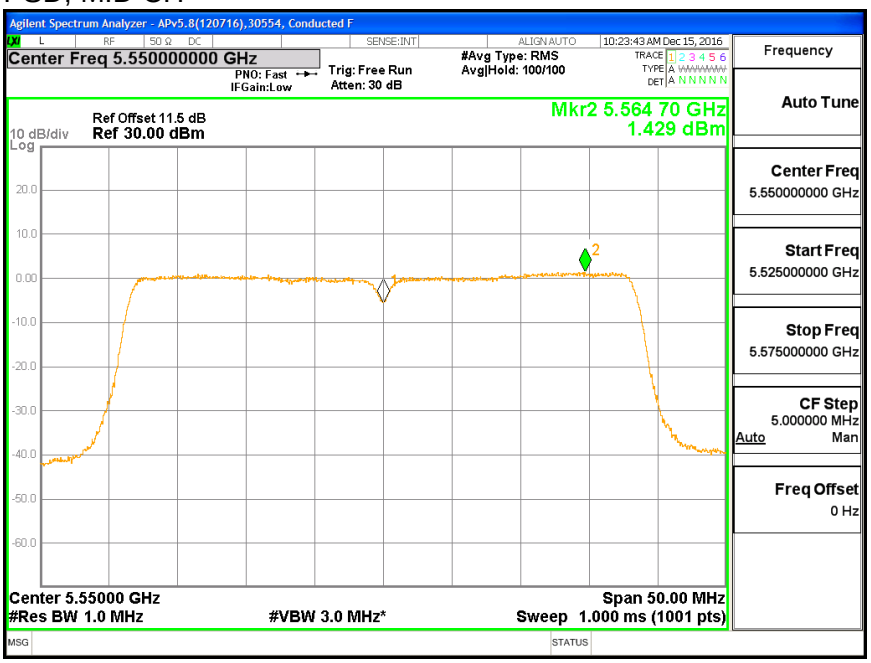
PSD

PSD, LOW CH



PSD, MID CH



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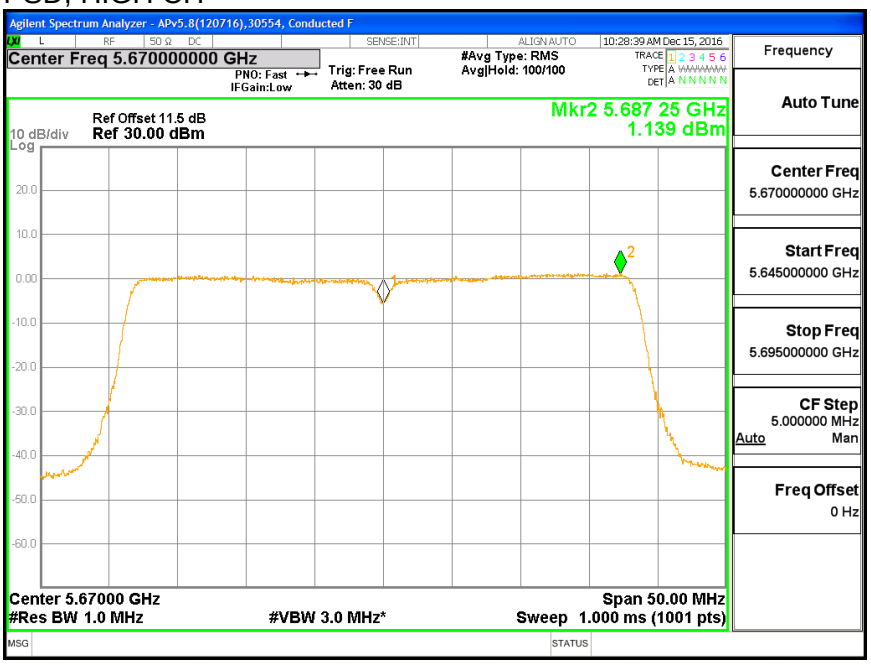
PSD, HIGH CH



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8.34. 802.11ac VHT40 ANTENNA A STRADDLE CH 142 RESULTS

8.34.1. 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)
142	5710	35.36	3.39	3.39	24.00	11.00

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

Output Power Results

Channel	Frequency (MHz)	Ant A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
142	5710	15.57	15.67	24.00	-8.33

PSD Results

Channel	Frequency (MHz)	Ant A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
142	5710	2.03	2.13	11.00	-8.87

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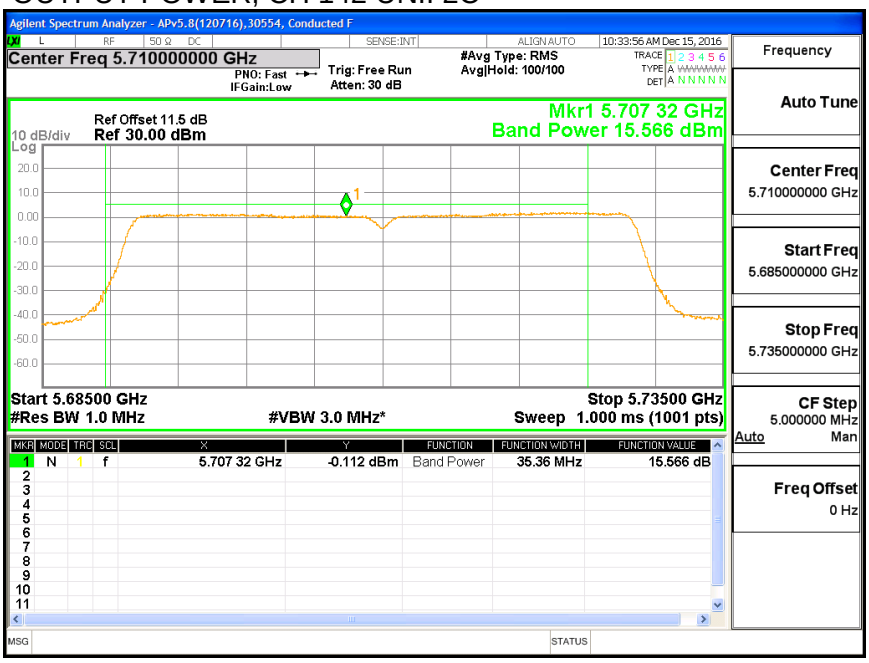
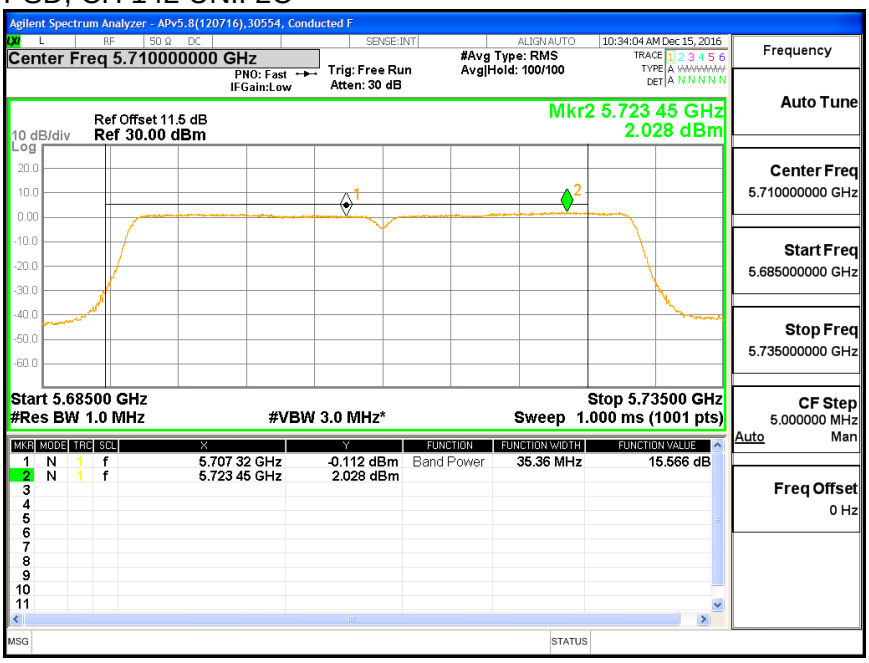
OUTPUT POWER, CH 142 UNII 2C



PSD, CH 142 UNII 2C



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UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
142	5710	5.96	3.39	30.00	30.00

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

Output Power Results

Channel	Frequency (MHz)	Ant A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
142	5710	6.27	6.37	30.00	-23.63

PSD Results

Channel	Frequency (MHz)	Ant A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
142	5710	-0.94	-0.84	30.00	-30.84

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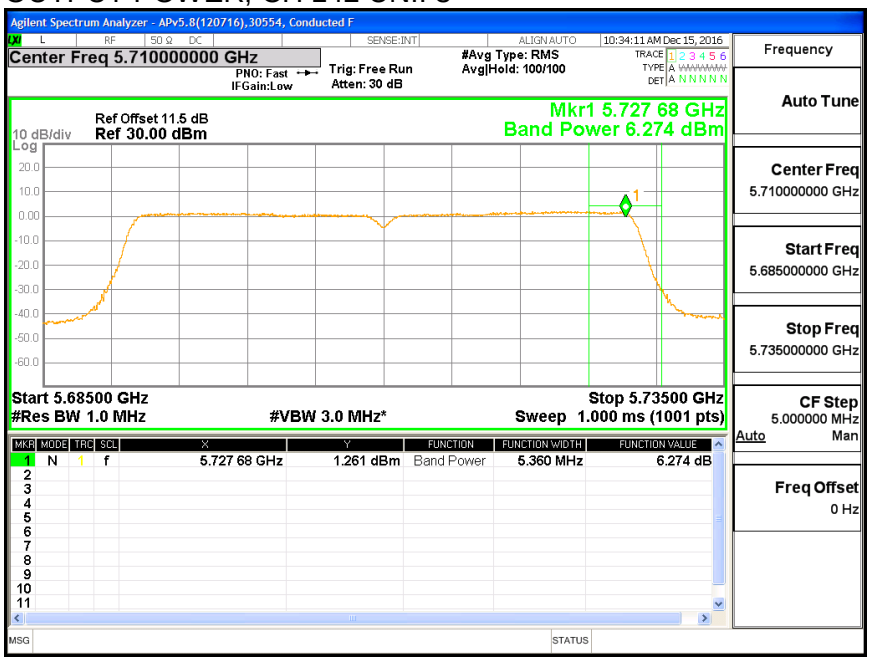
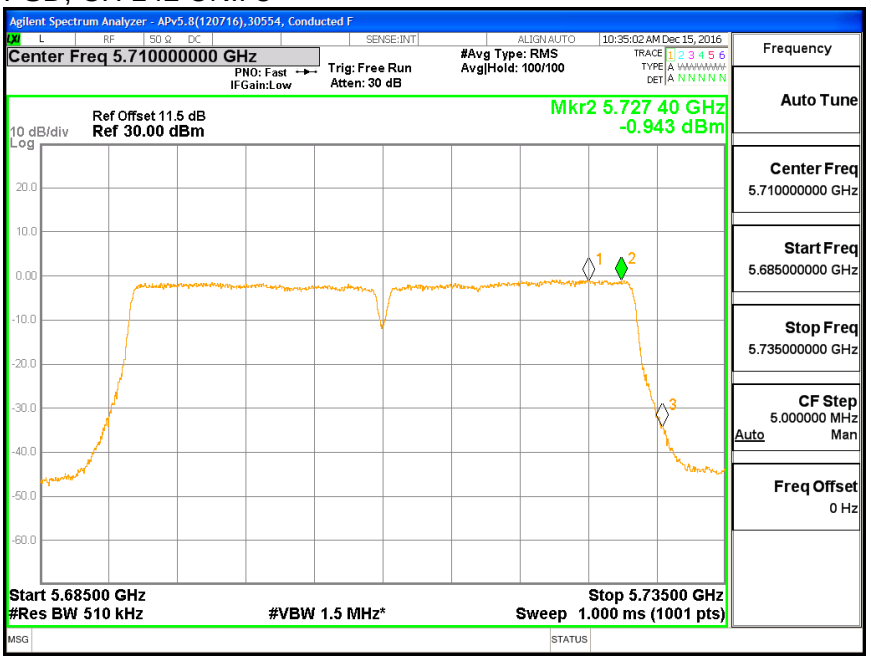
OUTPUT POWER, CH 142 UNII 3



PSD, CH 142 UNII 3



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8.34.2. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

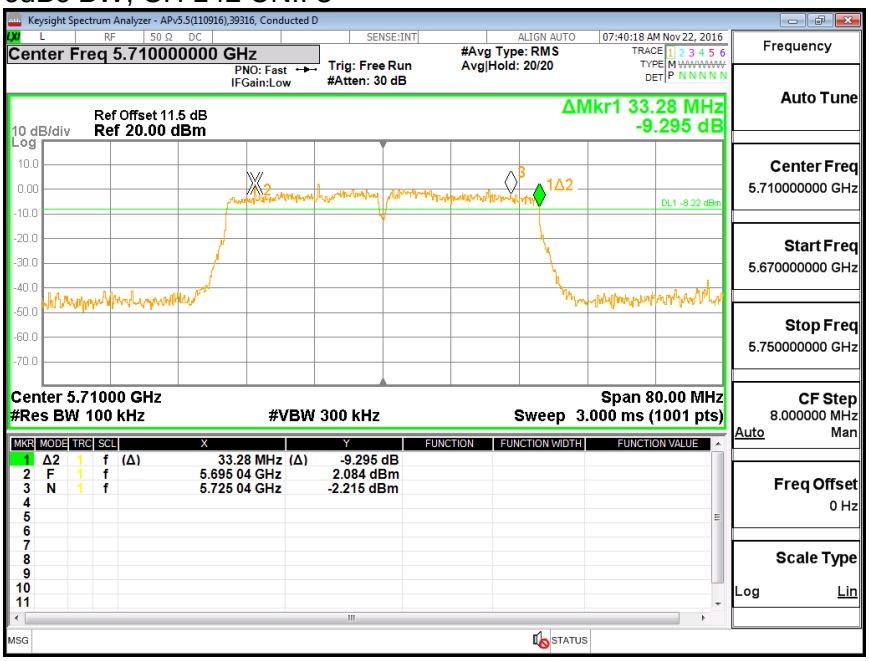
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
142	5710	33.280

6 dB BANDWIDTH

6dBc BW, CH 142 UNII 3



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8.35. 802.11n HT40 ANTENNA B MODE IN THE 5.6 GHz BAND

8.35.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5510	40.160
Mid	5550	40.320
High	5670	40.240
142	5710	40.560

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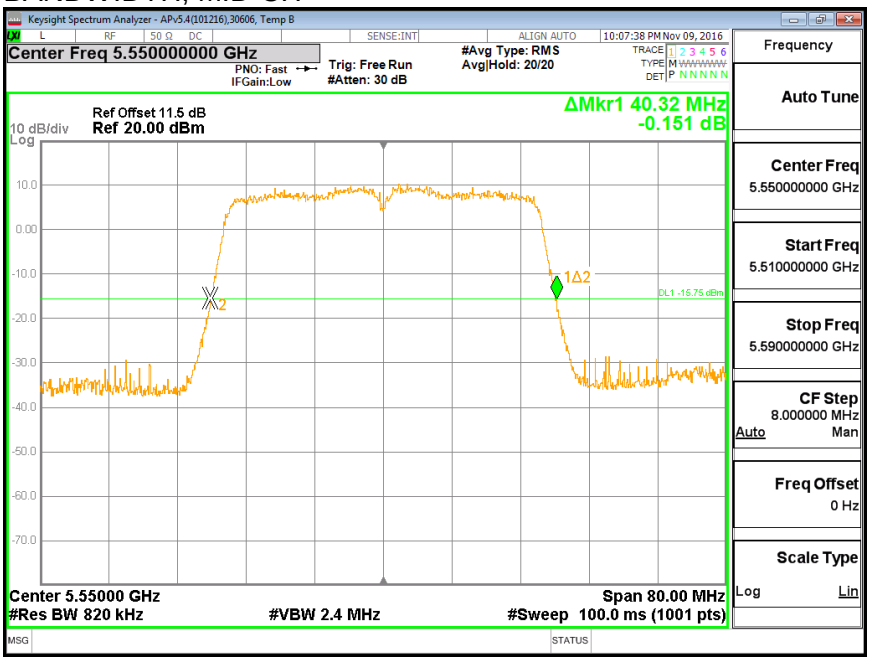
26 dB BANDWIDTH

BANDWIDTH, LOW CH

BANDWIDTH, MID CH



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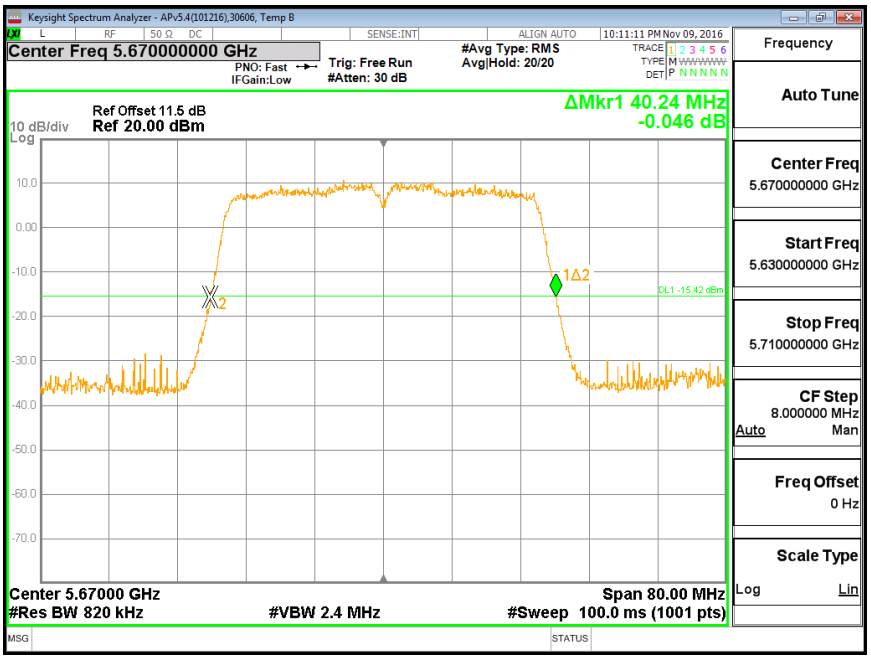
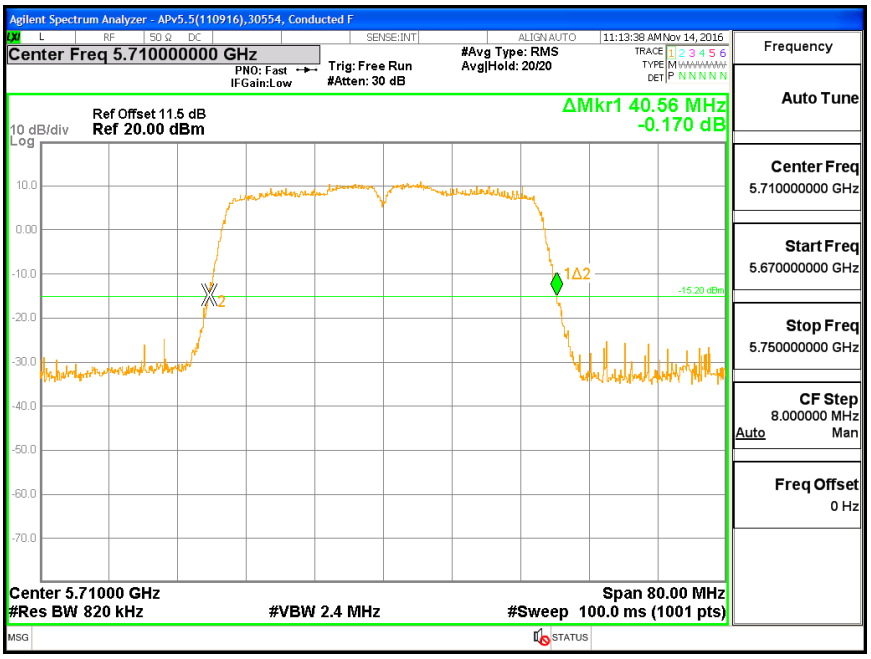
BANDWIDTH' HIGH CH



BANDWIDTH STRADDLE CH 142



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8.35.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.225
Mid	5550	36.292
High	5670	36.394
142	5710	36.287

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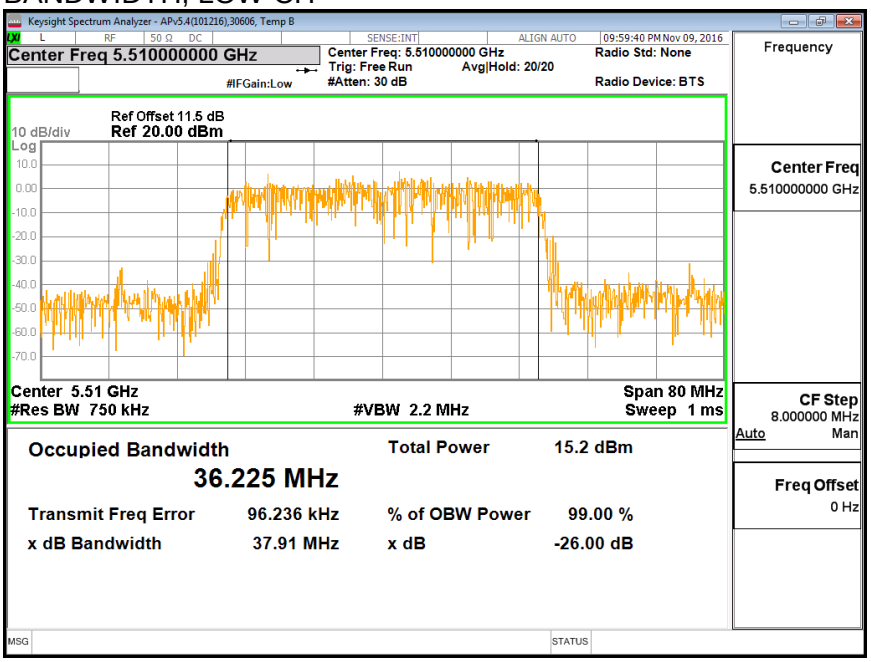
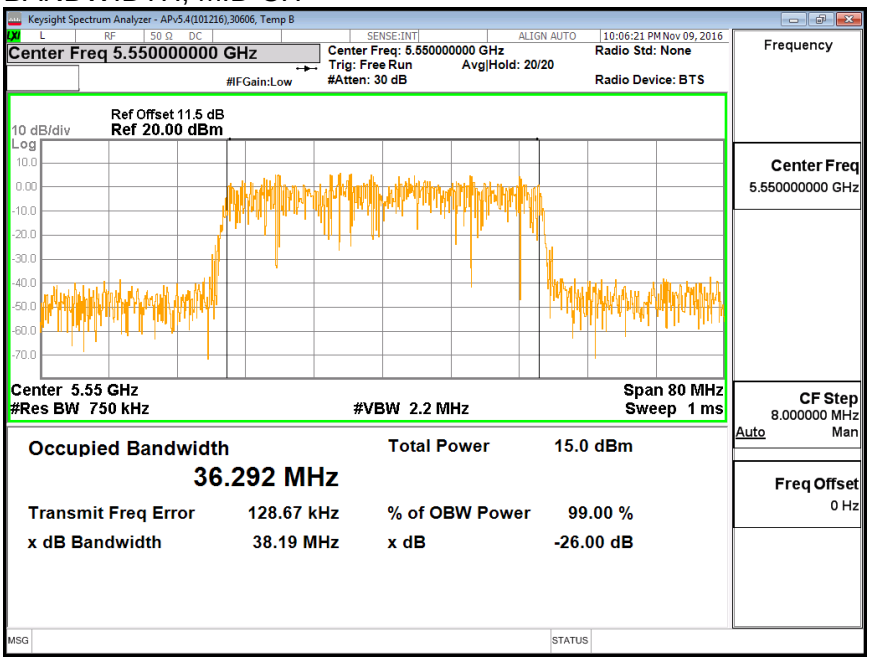
99% BANDWIDTH

BANDWIDTH, LOW CH



BANDWIDTH, MID CH



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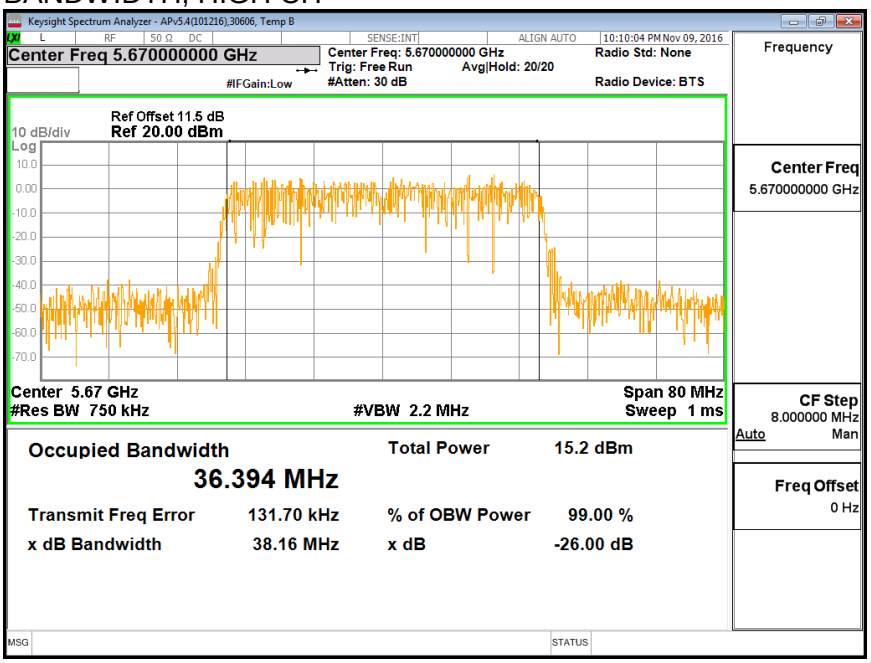
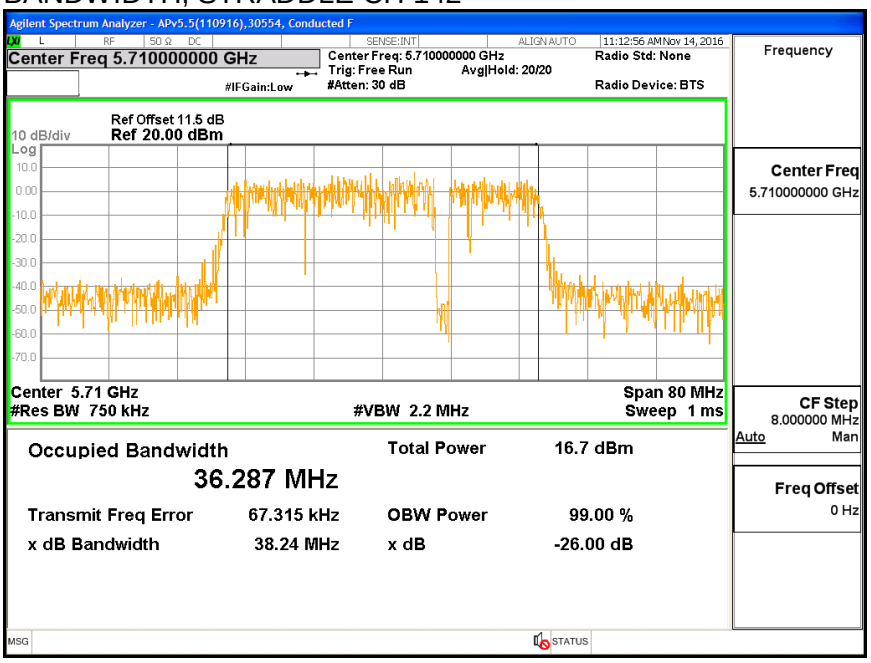
BANDWIDTH, HIGH CH



BANDWIDTH, STRADDLE CH 142



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8.35.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

ID:	30554	Date:	12/15/16

Channel	Frequency (MHz)	Power (dBm)
Low	5510	13.94
Mid	5550	16.98
High	5670	15.89
142	5710	16.88

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

TEST PROCEDURE

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

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

DIRECTIONAL ANTENNA GAIN

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

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RESULTS

ID:	30554	Date:	12/15/16

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	5510	40.16	36.23	3.17	24.00	11.00
Mid	5550	40.32	36.29	3.17	24.00	11.00
High	5670	40.24	36.39	3.17	24.00	11.00

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

Output Power Results

Channel	Frequency (MHz)	Ant B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	13.94	13.94	24.00	-10.06
Mid	5550	16.98	16.98	24.00	-7.02
High	5670	15.89	15.89	24.00	-8.11

PSD Results

Channel	Frequency (MHz)	Ant B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5510	-0.79	-0.69	11.00	-11.69
Mid	5550	3.27	3.37	11.00	-7.63
High	5670	1.47	1.57	11.00	-9.43

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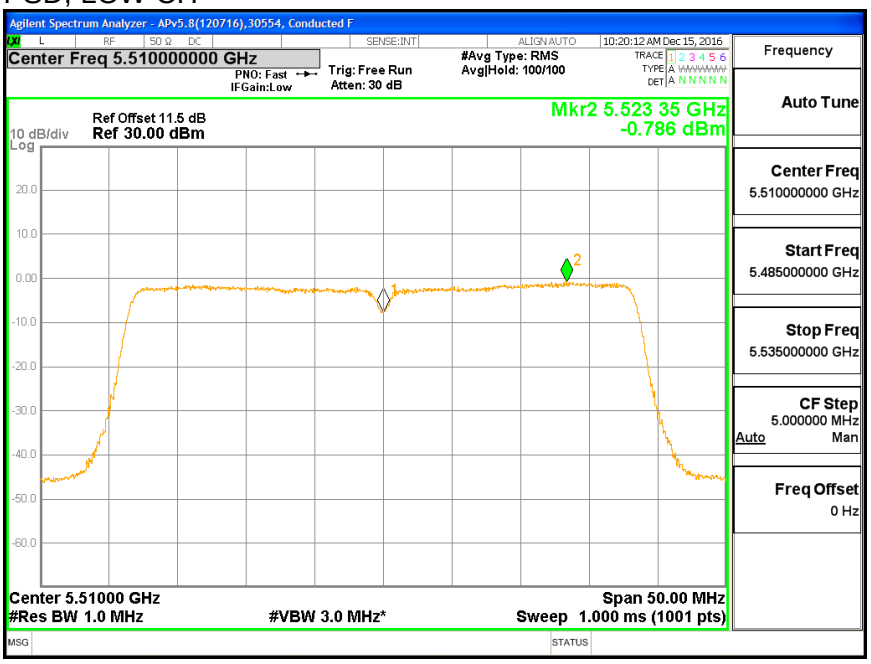
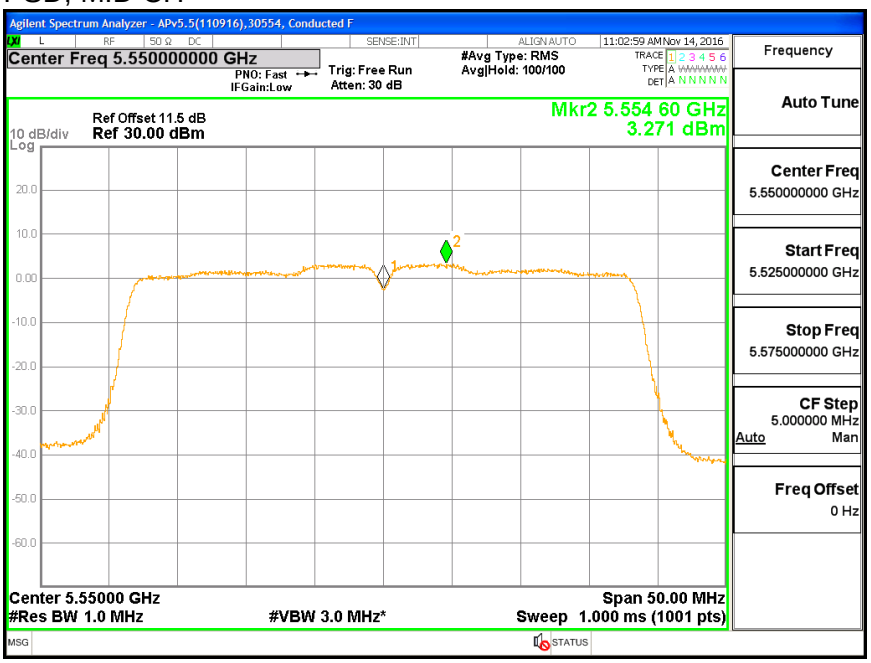
PSD

PSD, LOW CH



PSD, MID CH



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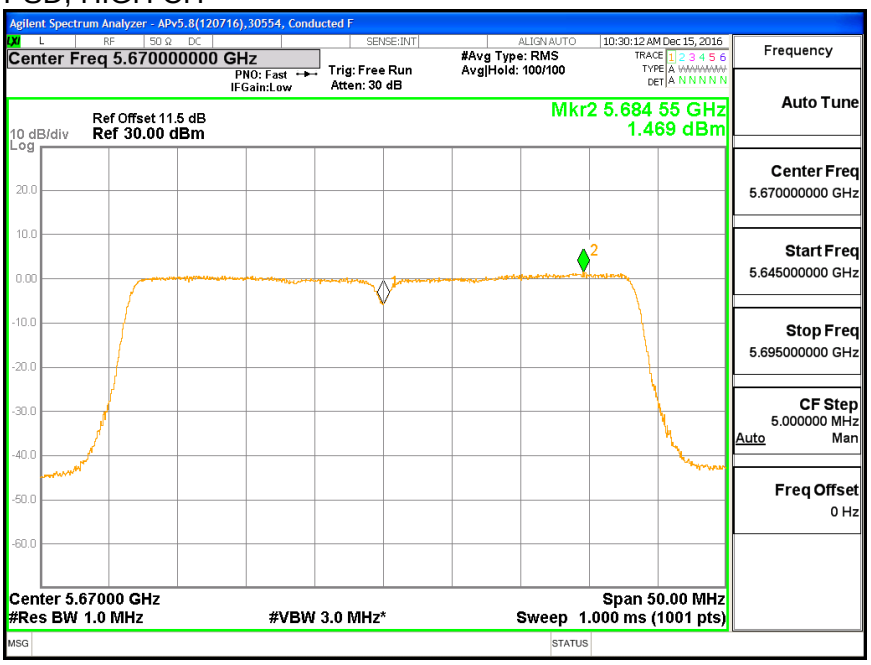
PSD, HIGH CH



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8.36. 802.11ac VHT40 ANTENNA B STRADDLE CH 142 RESULTS

8.36.1. 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)
142	5710	35.28	3.17	3.17	24.00	11.00

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

Output Power Results

Channel	Frequency (MHz)	Ant B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
142	5710	16.59	16.69	24.00	-7.31

PSD Results

Channel	Frequency (MHz)	Ant B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
142	5710	3.73	3.83	11.00	-7.17

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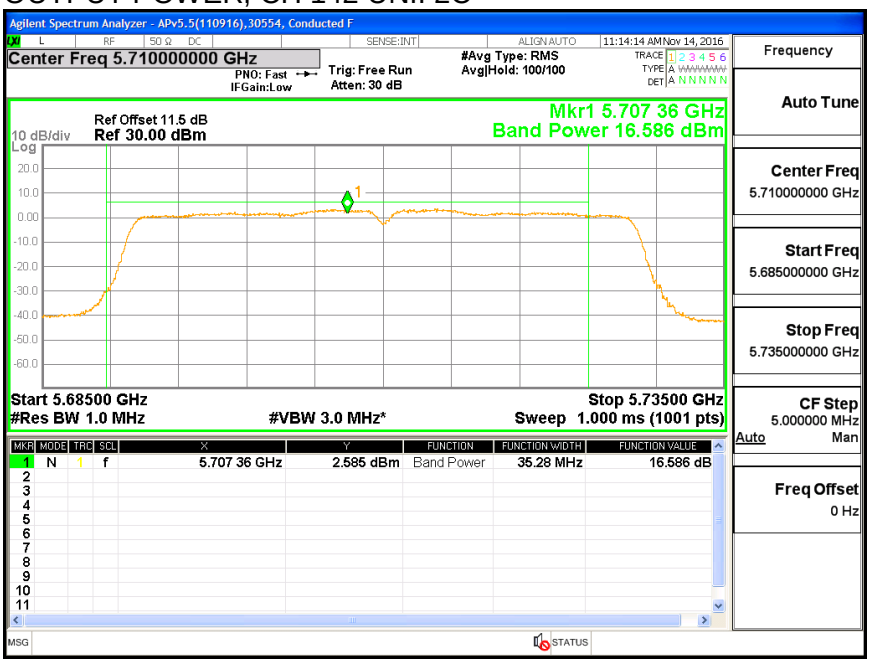
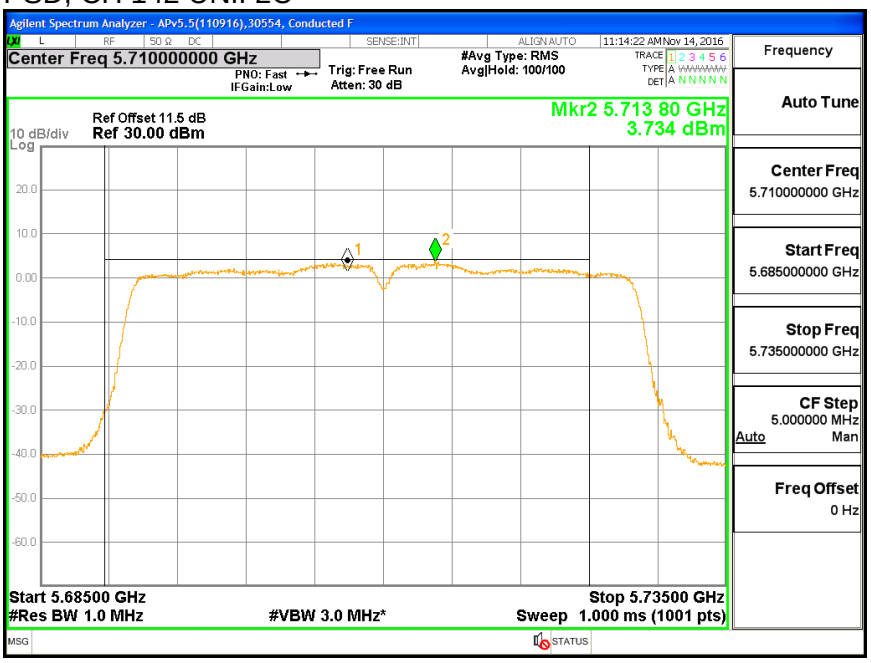
OUTPUT POWER, CH 142 UNII 2C



PSD, CH 142 UNII 2C



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UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
142	5710	5.28	3.22	30.00	30.00

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

Output Power Results

Channel	Frequency (MHz)	Ant B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
142	5710	5.57	5.67	30.00	-24.33

PSD Results

Channel	Frequency (MHz)	Ant B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
142	5710	-1.59	-1.49	30.00	-31.49

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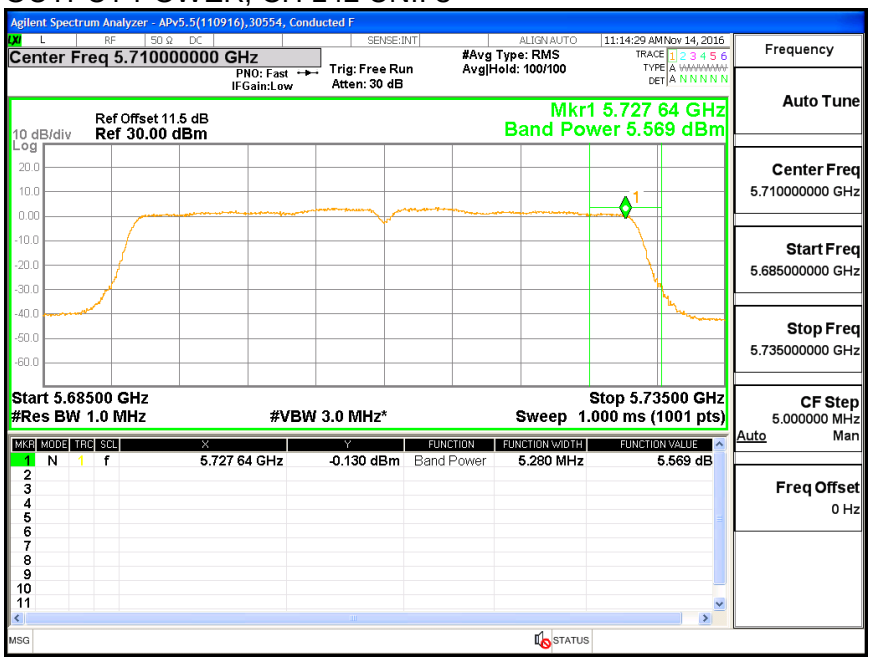
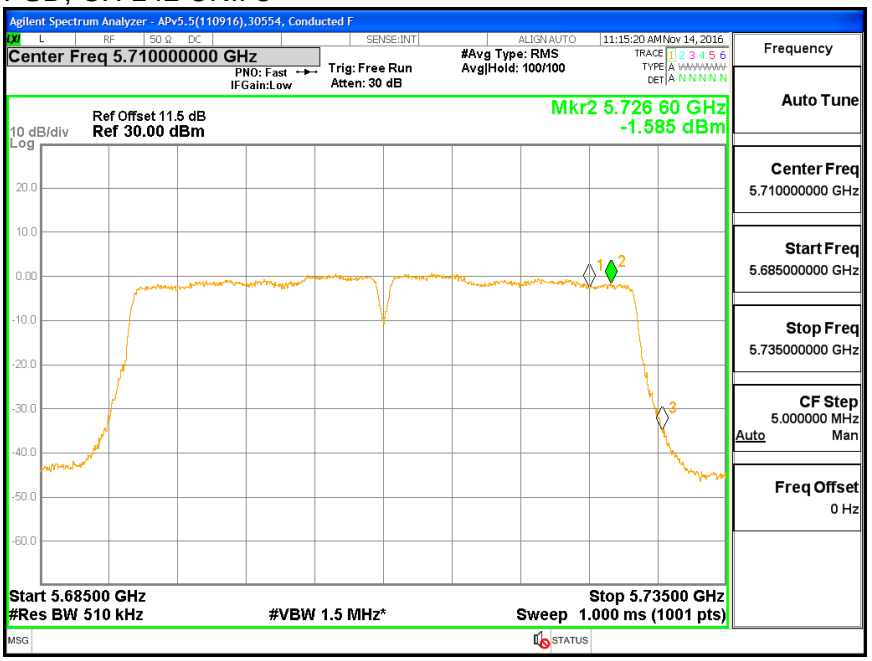
OUTPUT POWER, CH 142 UNII 3



PSD, CH 142 UNII 3



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8.36.2. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

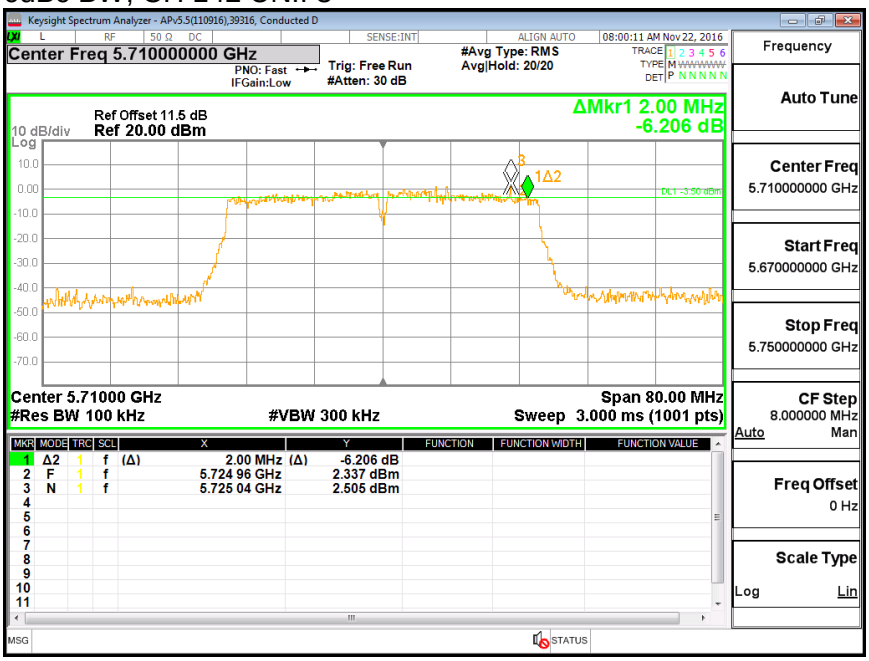
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
142	5710	2.000

6 dB BANDWIDTH

6dBc BW, CH 142 UNII 3



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8.37. 802.11n HT40 2Tx (ANTENNA A + ANTENNA B) CDD MODE IN THE 5.6 GHz BAND

8.37.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB BW Ant A (MHz)	26 dB BW Ant B (MHz)
Low	5510	40.72	40.24
Mid	5550	40.56	40.32
High	5670	40.64	40.32
142	5710	40.56	40.64

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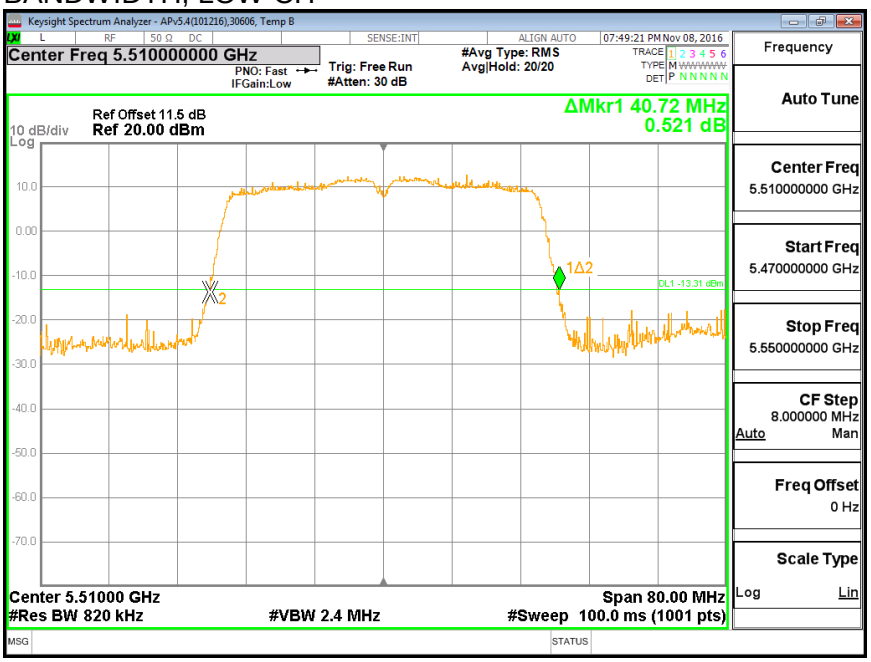
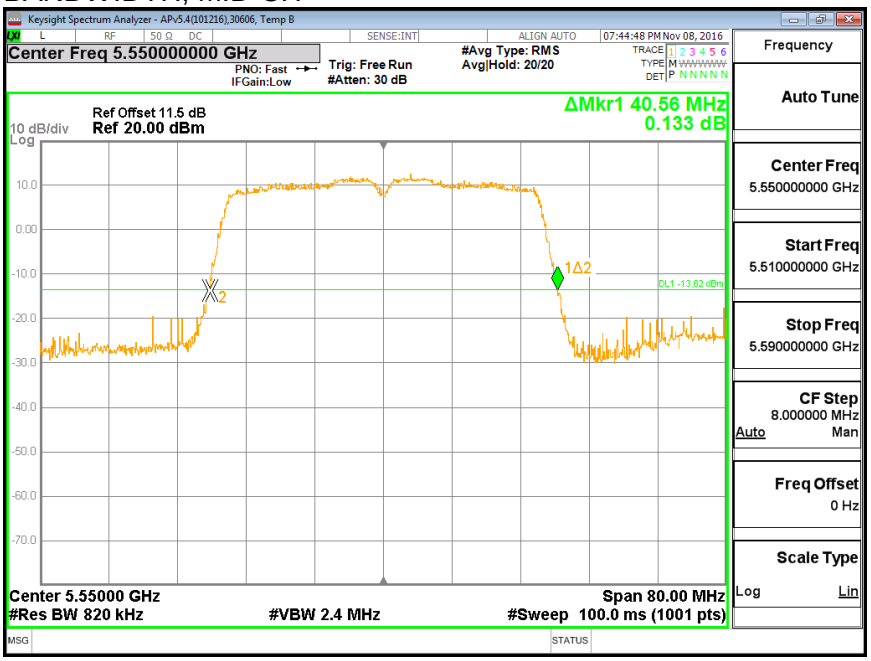
26 dB BANDWIDTH, ANTENNA A

BANDWIDTH, LOW CH



BANDWIDTH, MID CH



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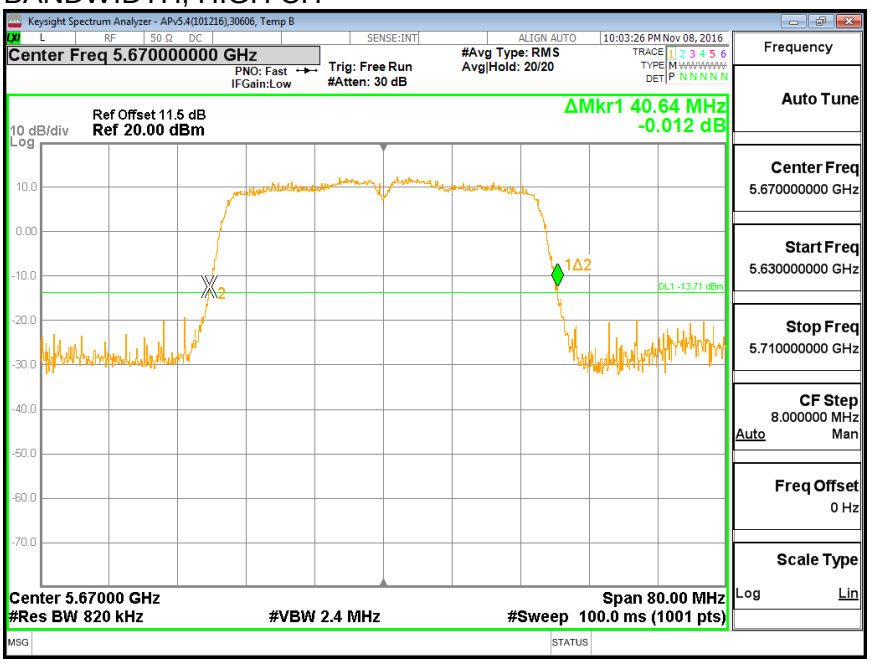
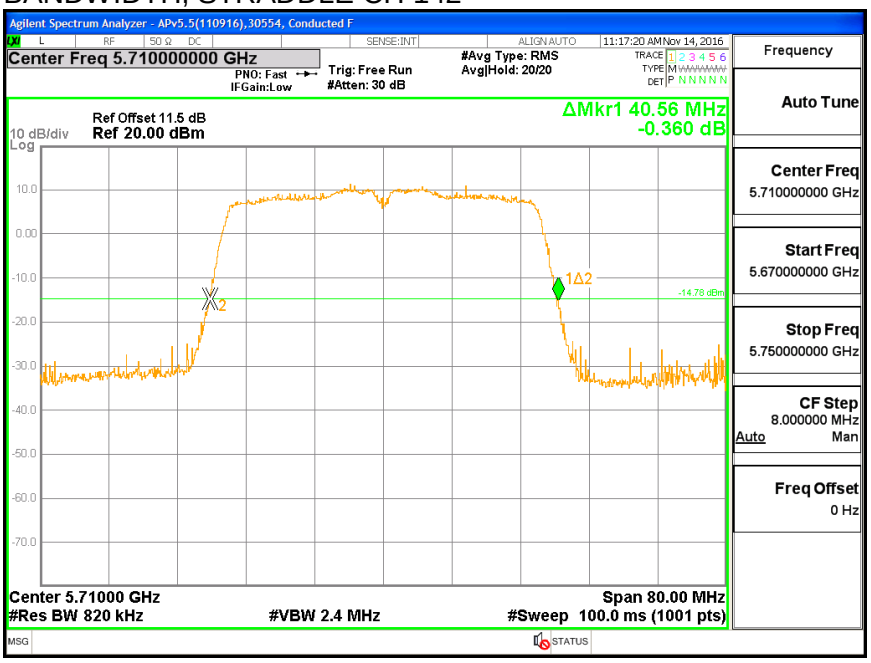
BANDWIDTH, HIGH CH



BANDWIDTH, STRADDLE CH 142



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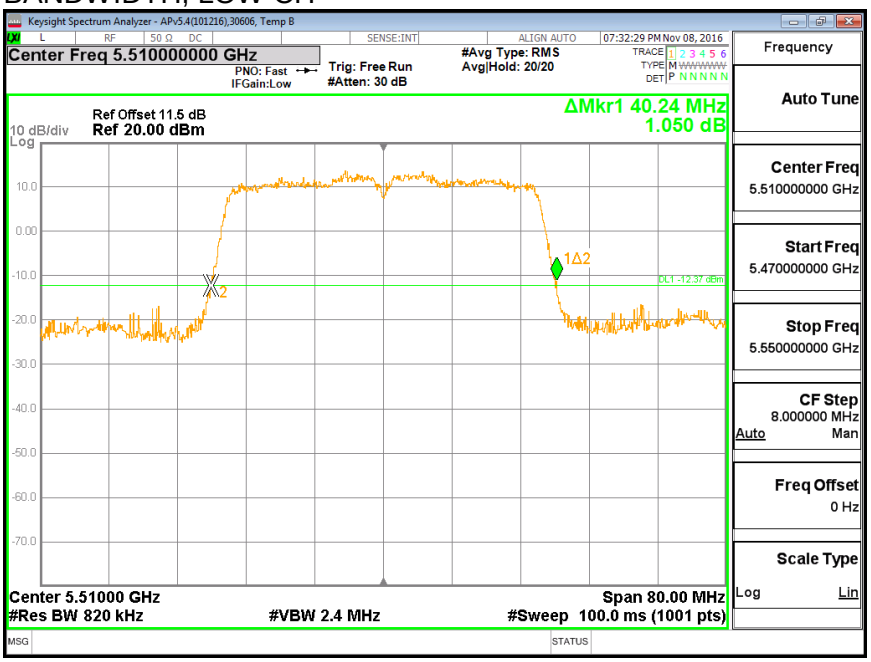
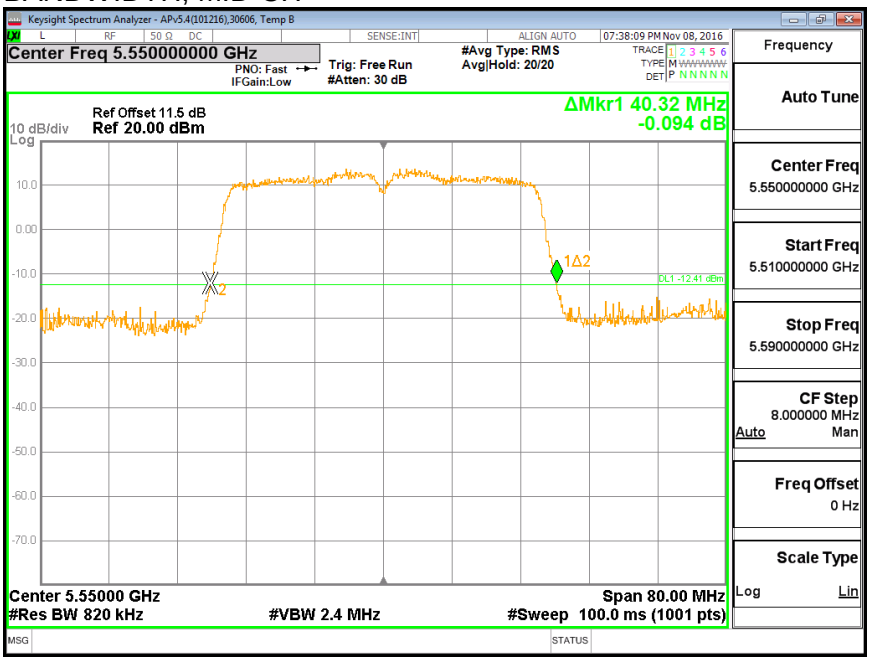
26 dB BANDWIDTH, ANTENNA B

BANDWIDTH, LOW CH



BANDWIDTH, MID CH



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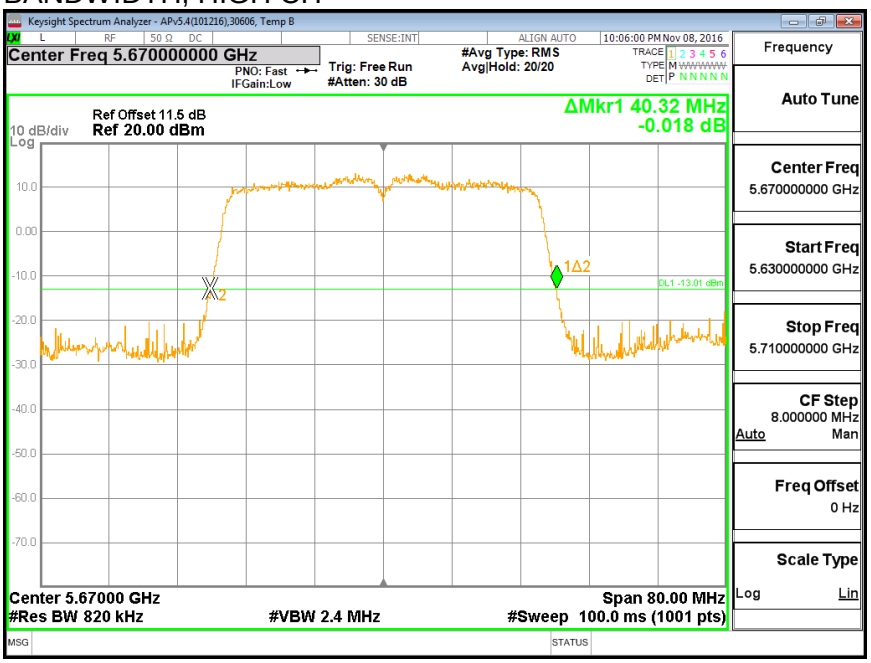
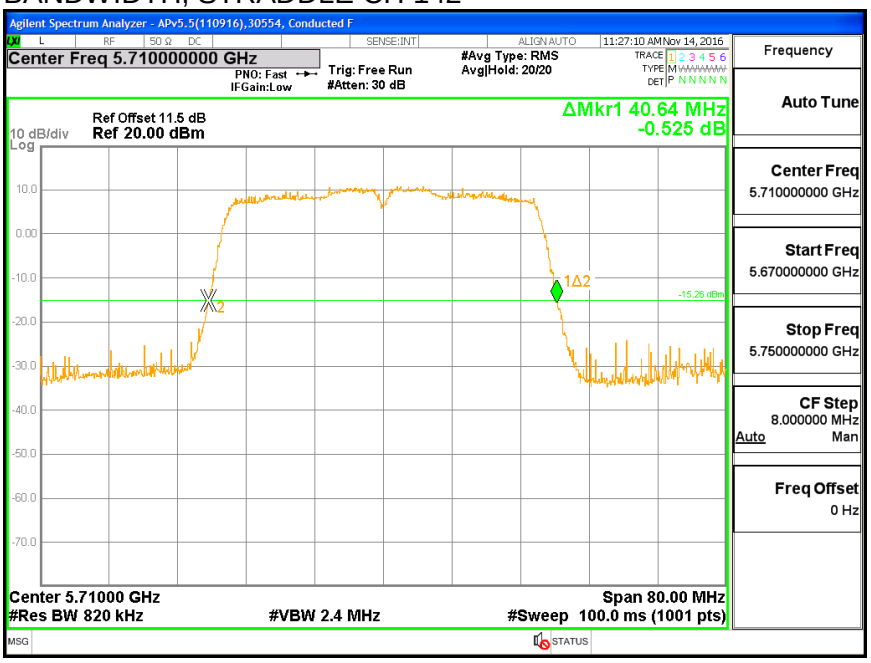
BANDWIDTH, HIGH CH



BANDWIDTH, STRADDLE CH 142



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8.37.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% BW Ant A (MHz)	99% BW Ant B (MHz)
Low	5510	36.251	36.245
Mid	5550	36.143	36.235
High	5670	36.348	36.171
142	5710	36.356	36.175

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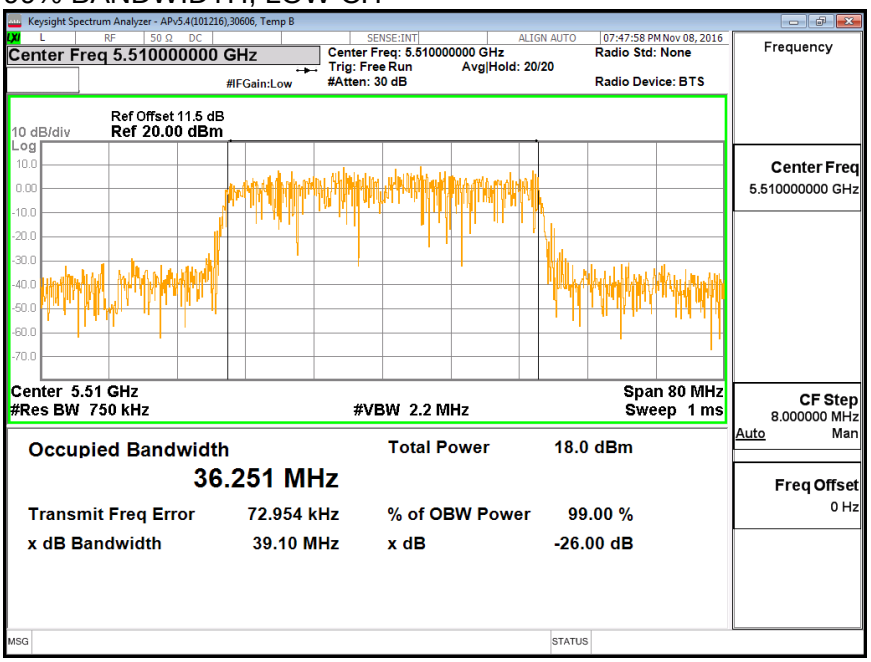
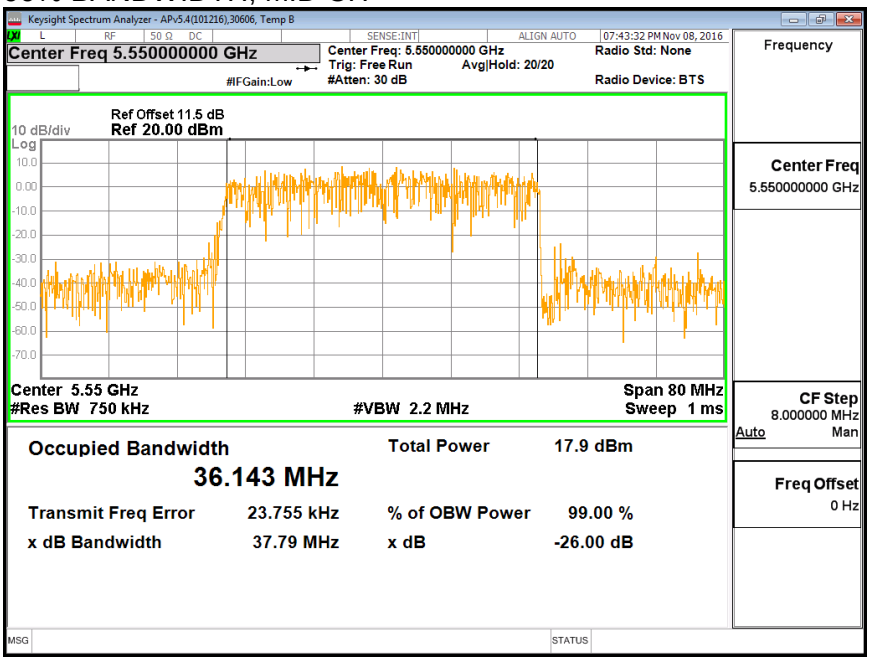
99% BANDWIDTH, ANTENNA A

99% BANDWIDTH, LOW CH



99% BANDWIDTH, MID CH



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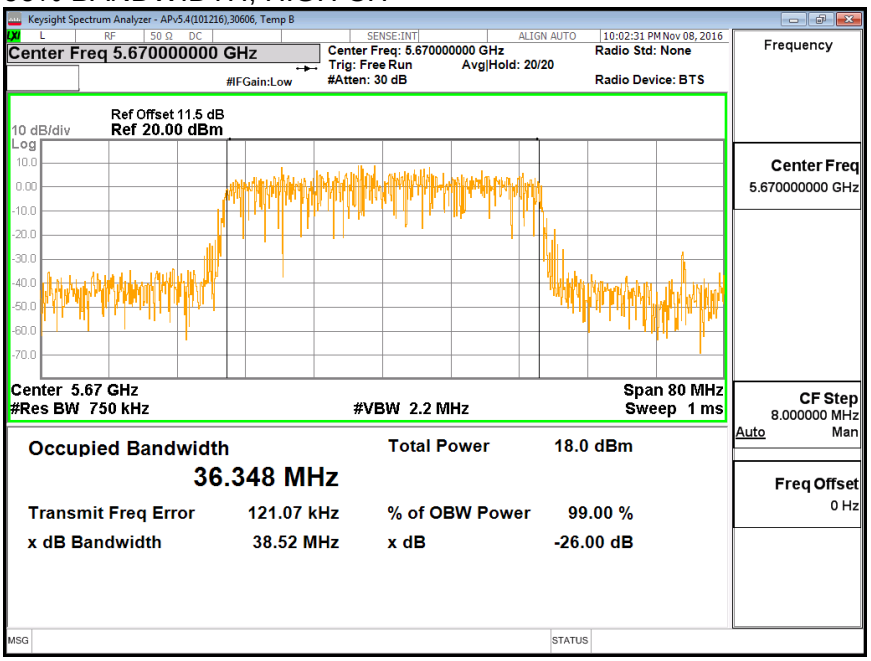
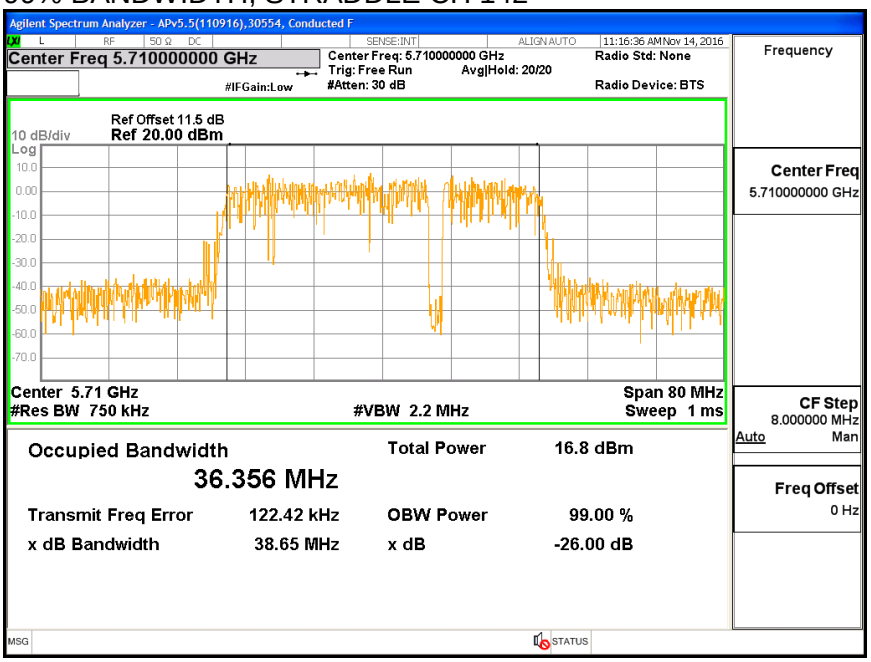
99% BANDWIDTH, HIGH CH



99% BANDWIDTH, STRADDLE CH 142



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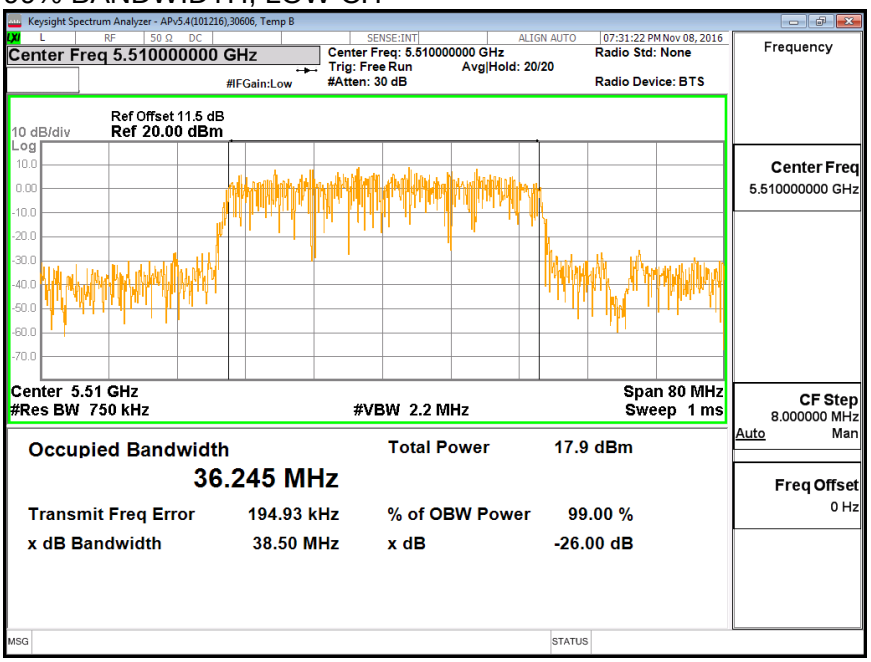
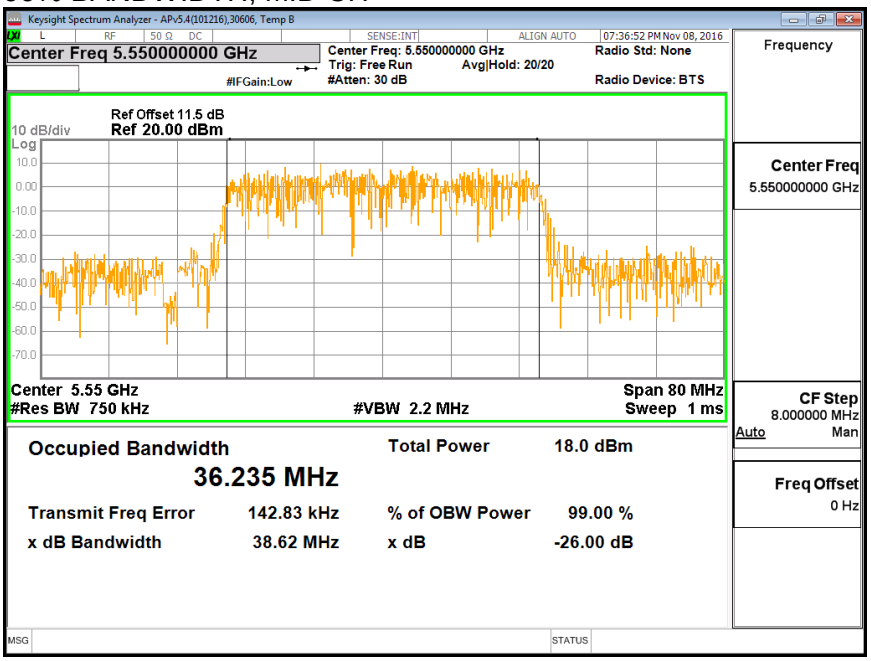
99% BANDWIDTH, ANTENNA B

99% BANDWIDTH, LOW CH



99% BANDWIDTH, MID CH



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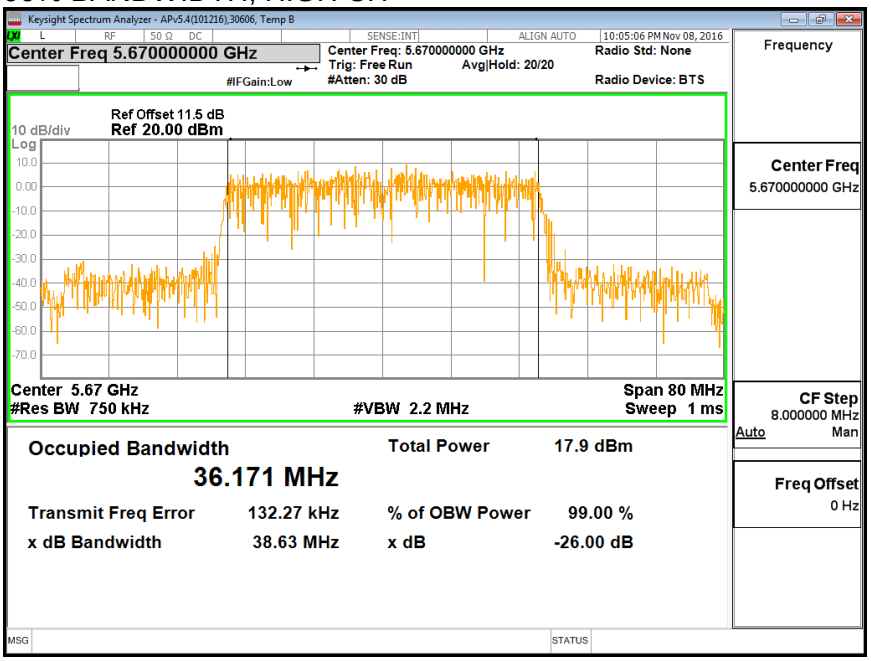
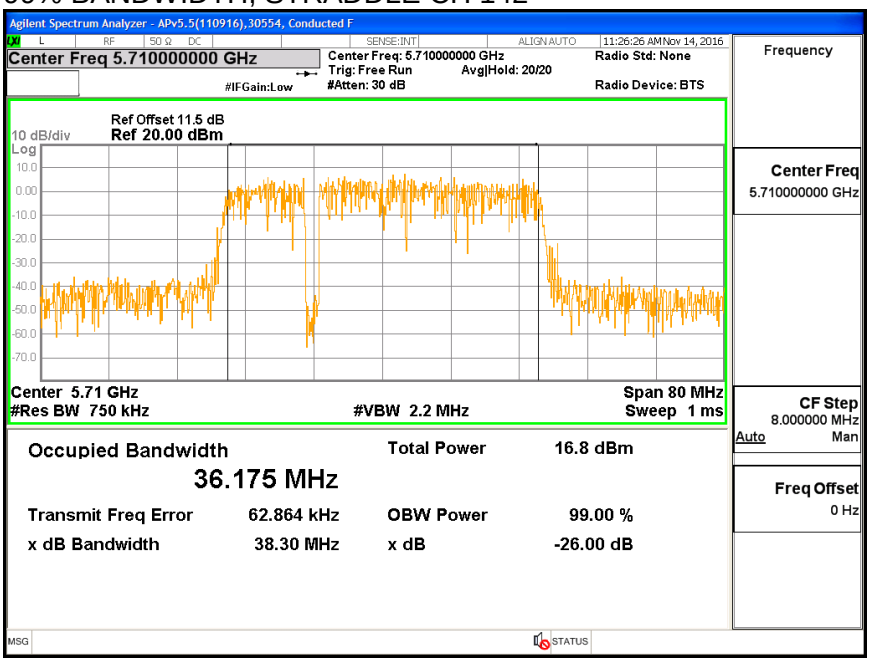
99% BANDWIDTH, HIGH CH



99% BANDWIDTH, STRADDLE CH 142



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8.37.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

ID:	39316	Date:	12/15/16

Average Power Results

Channel	Frequency (MHz)	Ant A Power (dBm)	Ant B Power (dBm)	Total Power (dBm)
Low	5510	12.99	12.98	16.00
Mid	5550	16.47	17.00	19.75
High	5670	14.98	14.86	17.93
142	5710	16.44	16.94	19.71

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

TEST PROCEDURE

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

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

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DIRECTIONAL ANTENNA GAIN

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

Ant A Antenna Gain (dBi)	Ant B Antenna 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:

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

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RESULTS

ID:	39316	Date:	12/15/16

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	5510	40.24	36.245	3.28	6.29	24.00	10.71
Mid	5550	40.32	36.143	3.28	6.29	24.00	10.71
High	5670	40.32	36.171	3.28	6.29	24.00	10.71

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

Output Power Results

Channel	Frequency (MHz)	Ant A Meas Power (dBm)	Ant B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	12.99	12.98	16.00	24.00	-8.00
Mid	5550	16.47	17.00	19.75	24.00	-4.25
High	5670	14.98	14.86	17.93	24.00	-6.07

PSD Results

Channel	Frequency (MHz)	Ant A Meas PSD (dBm)	Ant B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5510	-0.867	-0.549	2.41	10.71	-8.30
Mid	5550	2.513	3.308	6.04	10.71	-4.67
High	5670	1.548	1.324	4.55	10.71	-6.16

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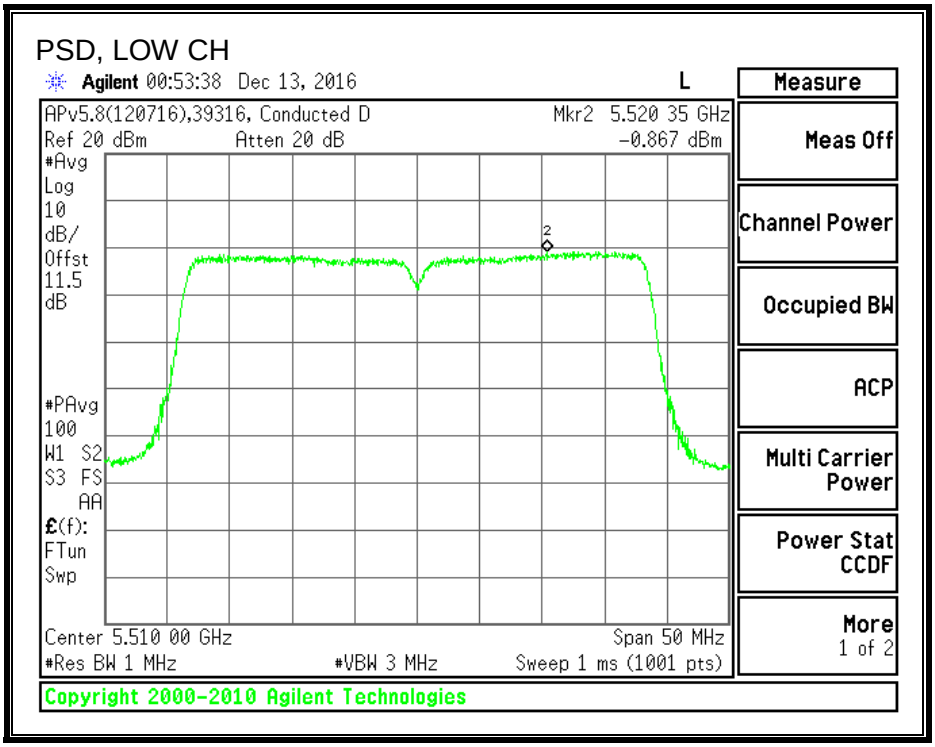
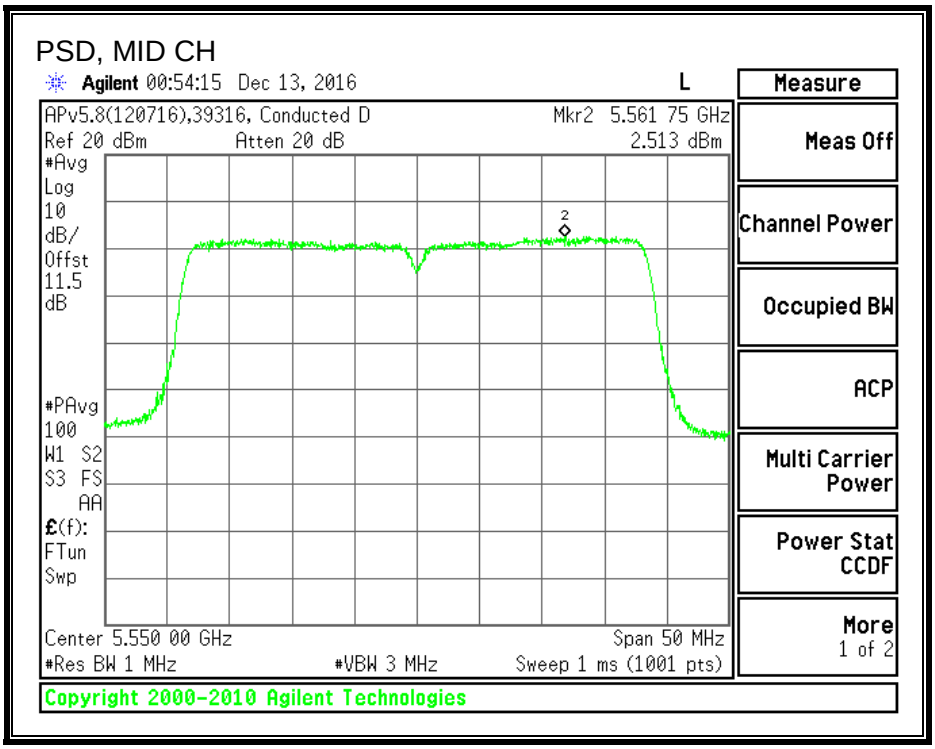
PSD, ANTENNA A





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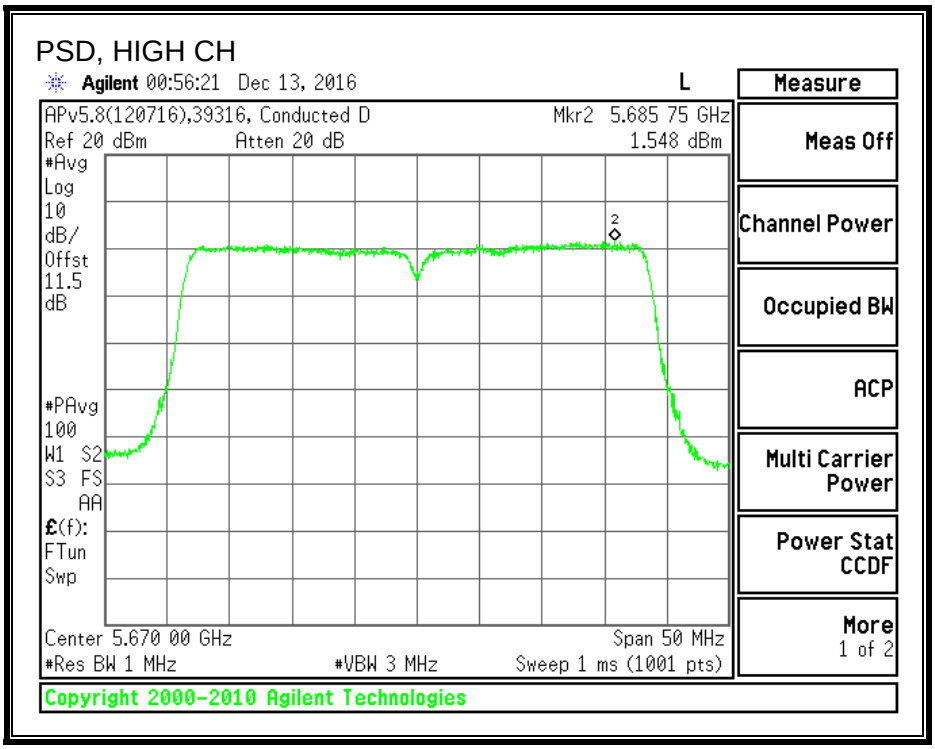
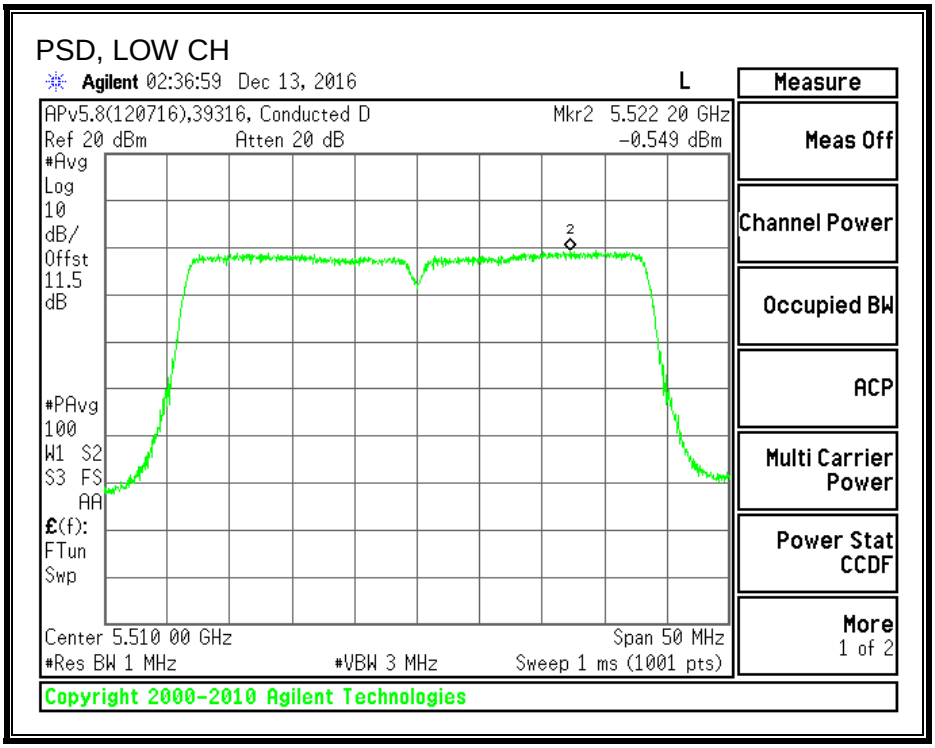


PSD, ANTENNA B



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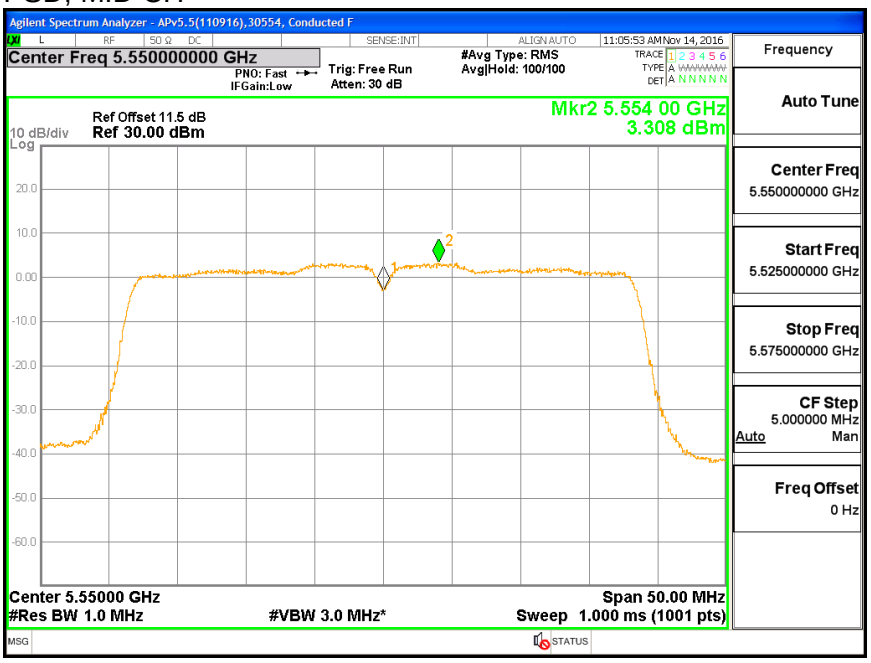
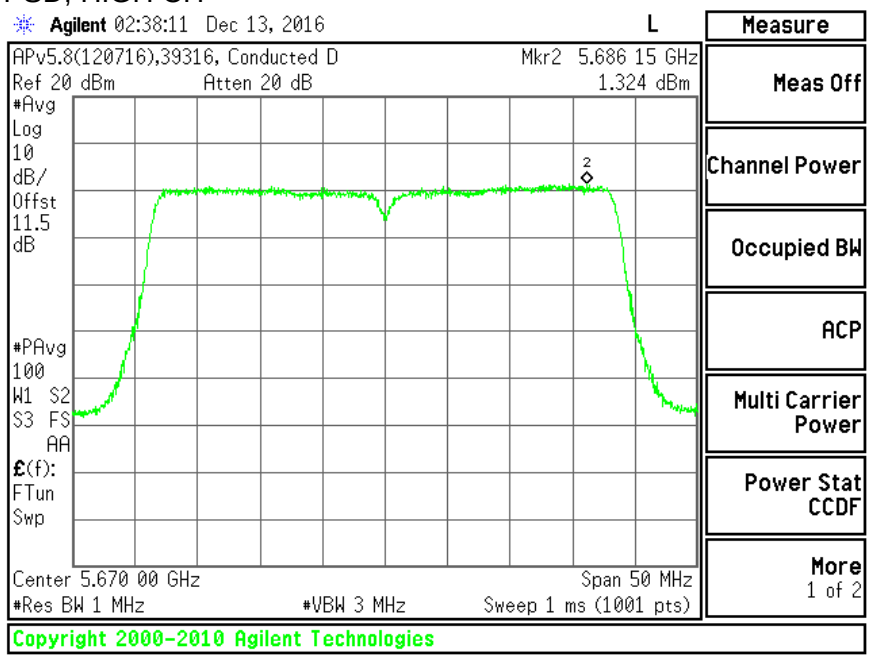
PSD, MID CH



PSD, HIGH CH



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8.38. 802.11ac VHT40 2Tx (ANTENNA A + ANTENNA B) CDD STRADDLE CHANNEL 142 RESULTS

8.38.1. 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)
142	5710	35.28	3.28	6.29	24.00	10.71

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

Output Power Results

Channel	Frequency (MHz)	Ant A Meas Power (dBm)	Ant B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
142	5710	15.71	16.76	19.38	24.00	-4.62

PSD Results

Channel	Frequency (MHz)	Ant A Meas PSD (dBm)	Ant B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
142	5710	2.32	3.71	6.18	10.71	-4.53

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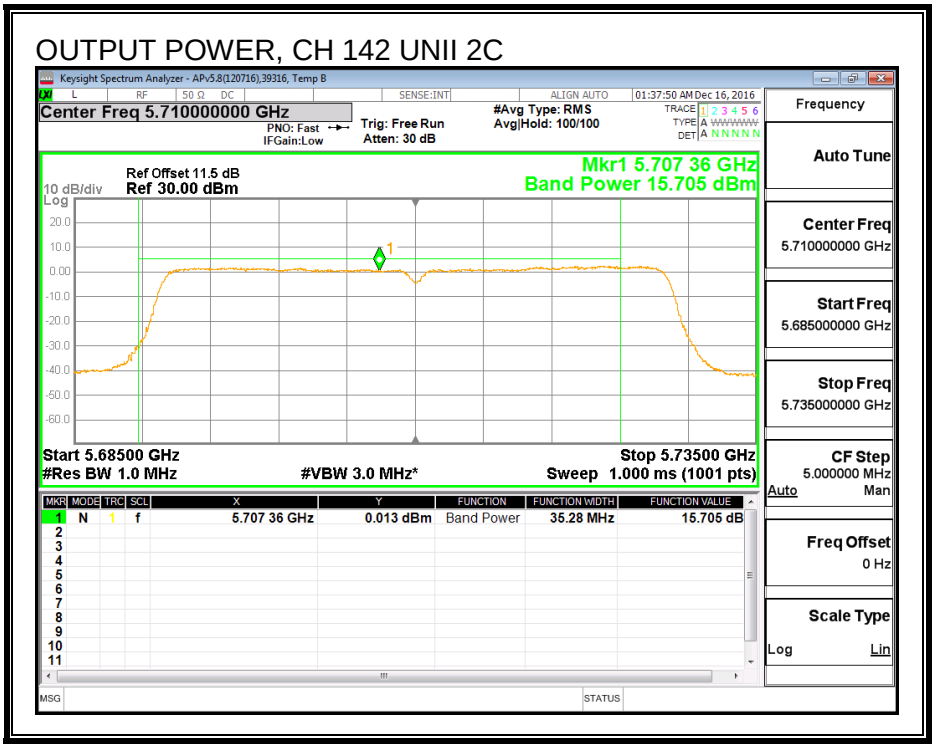
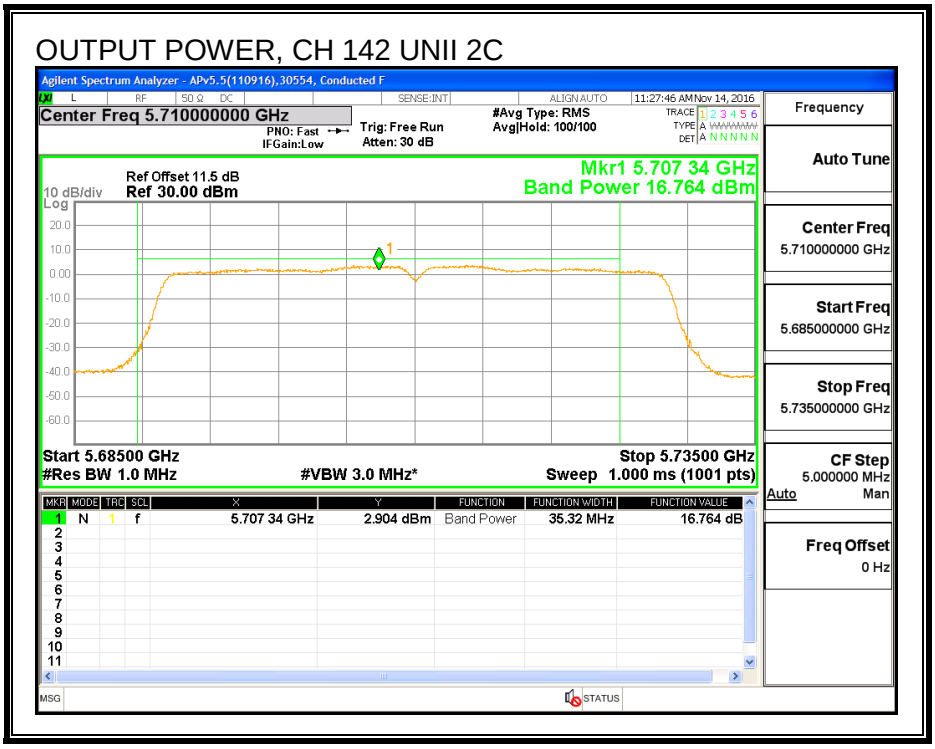
OUTPUT POWER, ANTENNA A



OUTPUT POWER, ANTENNA B



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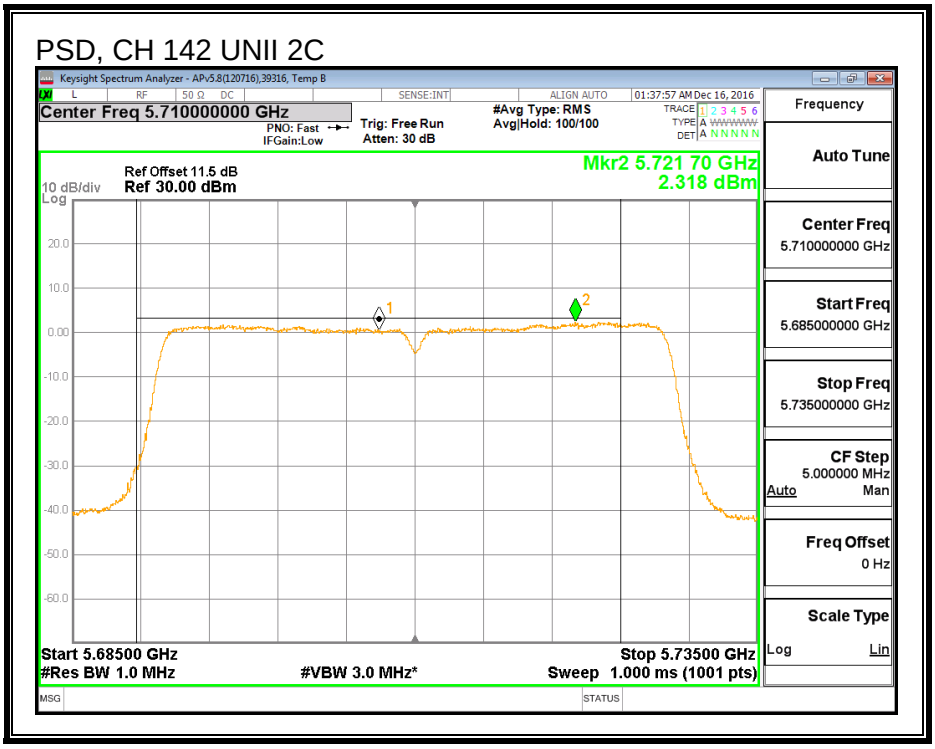
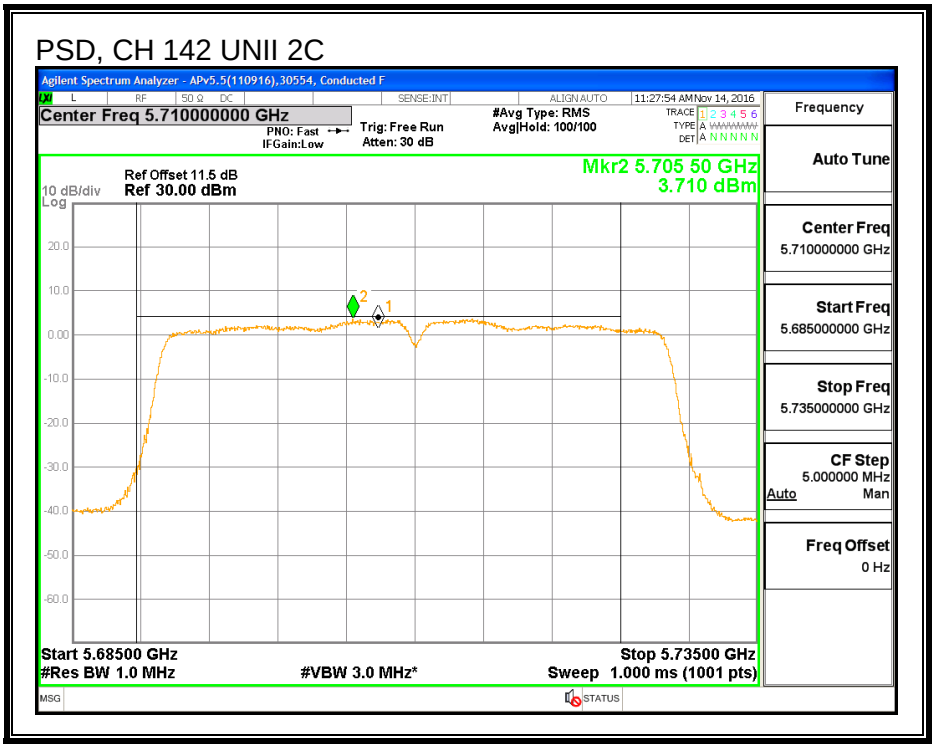
PSD, ANTENNA A



PSD, ANTENNA B



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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)
142	5710	5.28	3.28	6.29	30.00	29.71

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

Output Power Results

Channel	Frequency (MHz)	Ant A Meas Power (dBm)	Ant B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
142	5710	6.50	5.75	9.25	30.00	-20.75

PSD Results

Channel	Frequency (MHz)	Ant A Meas PSD (dBm)	Ant B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
142	5710	-0.69	-1.45	2.06	29.71	-27.65

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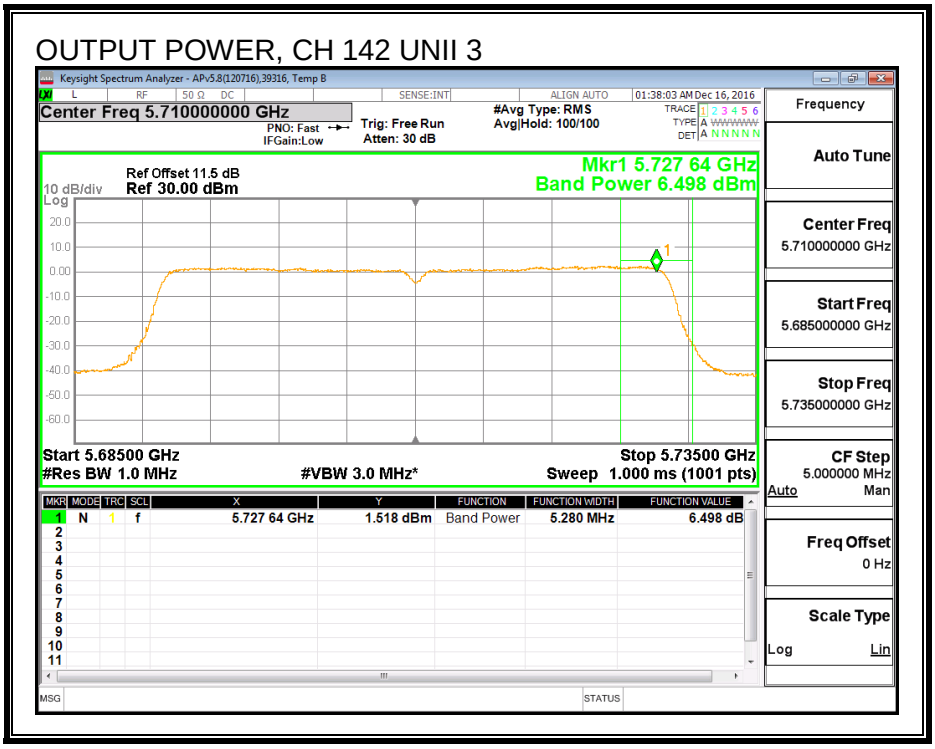
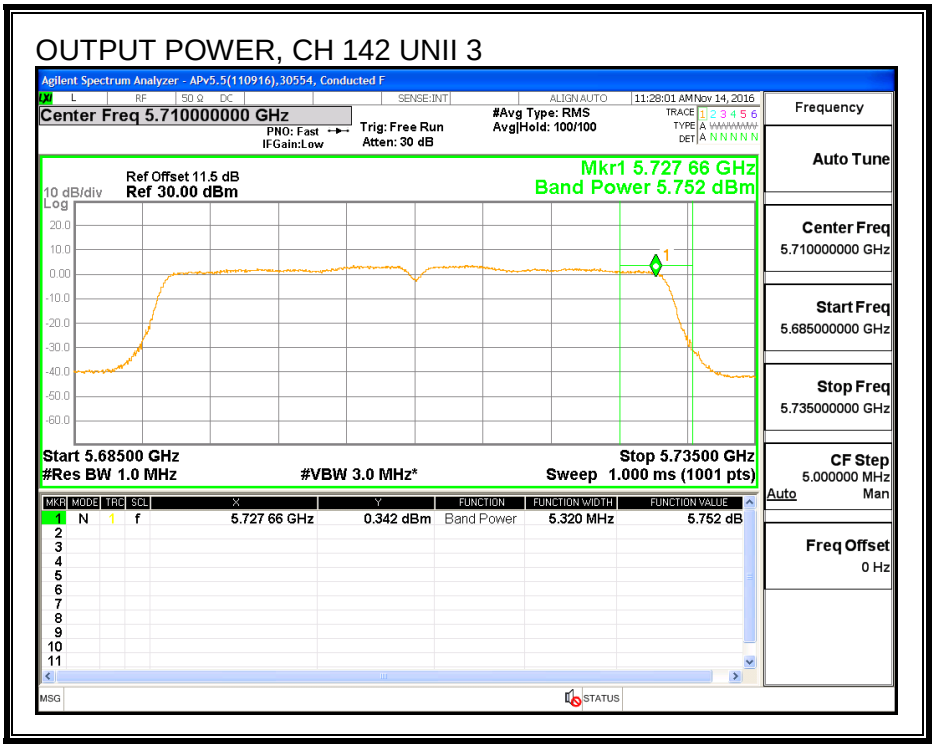
OUTPUT POWER, ANTENNA A



OUTPUT POWER, ANTENNA B



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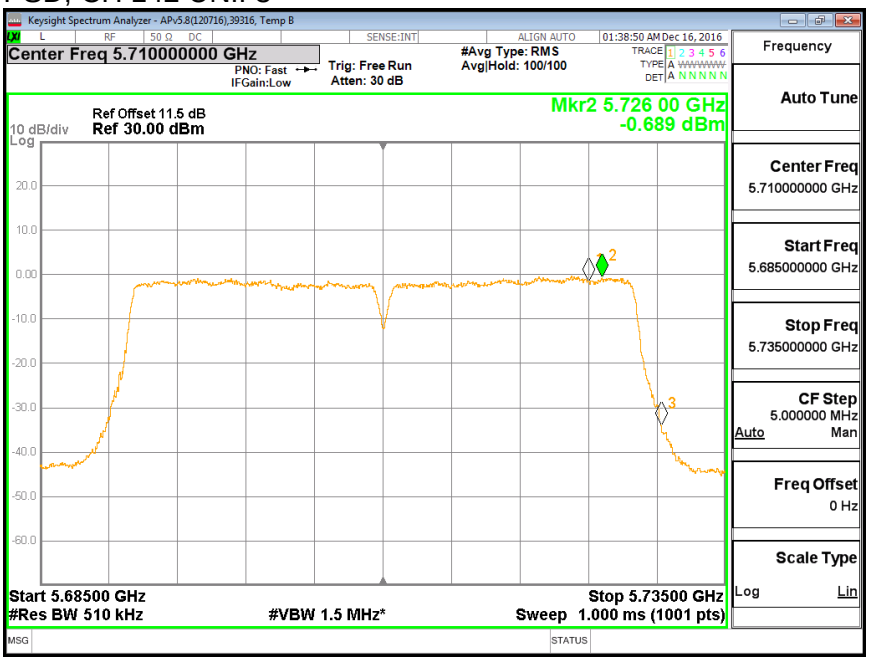
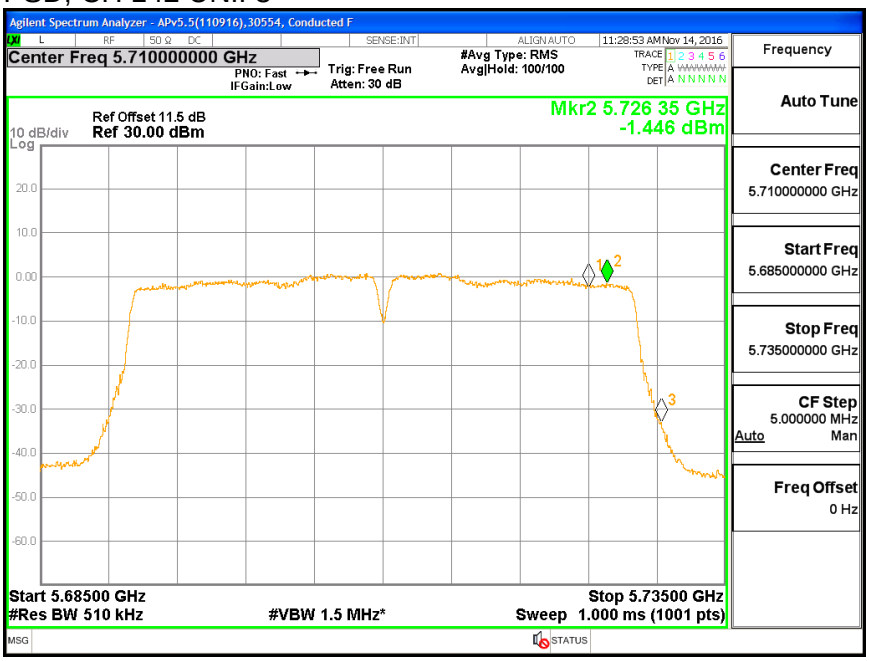
PSD, ANTENNA A

PSD, CH 142 UNII 3



PSD, ANTENNA B

PSD, CH 142 UNII 3



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8.38.2. 6 dB BBANDWIDTH

LIMITS

FCC §15.407 (e)

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

RESULTS

Channel	Frequency (MHz)	6 dB BW Ant A (MHz)	6 dB BW Ant B (MHz)
142	5710	3.12	3.28

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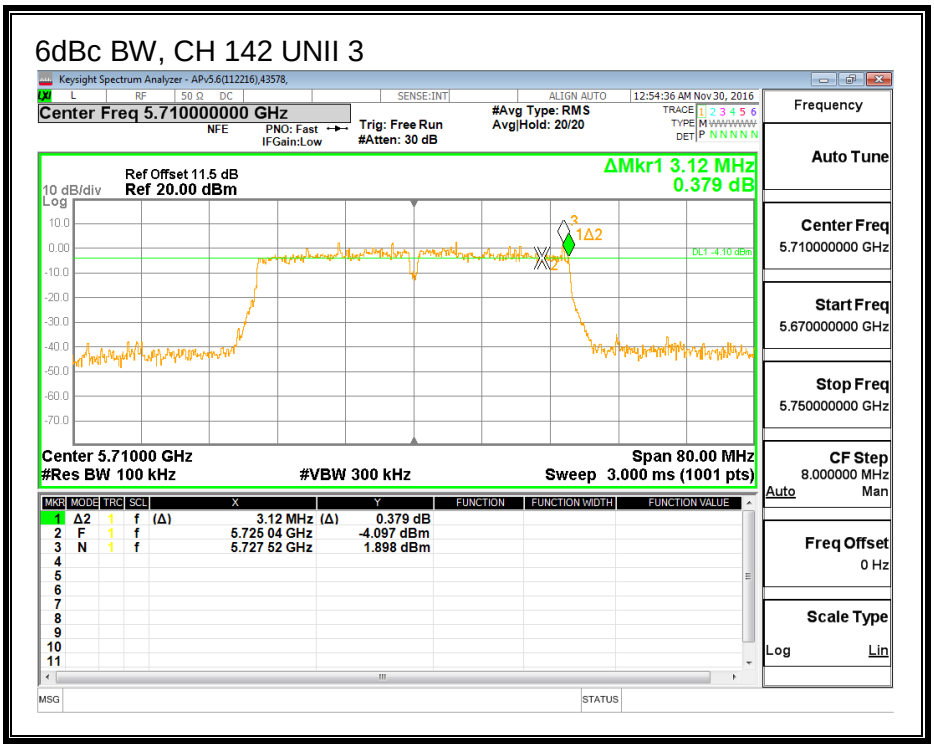
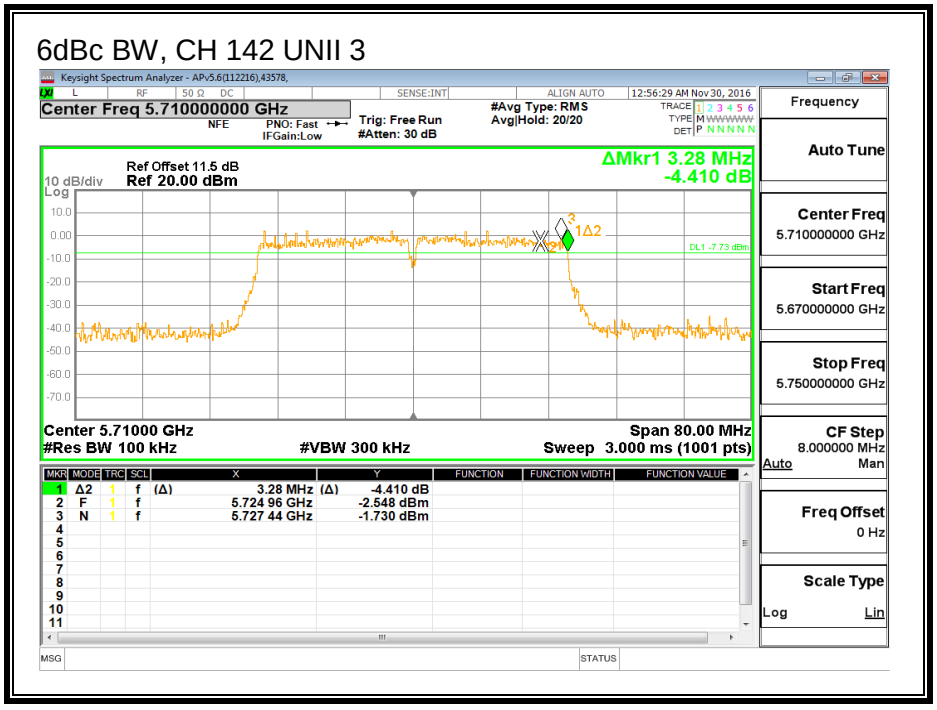
ANTENNA A



ANTENNA B



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8.39. 802.11n HT40 2Tx (ANTENNA A + ANTENNA B) STBC MODE IN THE 5.6 GHz BAND

Noted: Covered by 802.11n HT40 2Tx (ANTENNA A + ANTENNA B) CDD MODE IN THE 5.6 GHz BAND

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8.40. 802.11ac VHT80 ANTENNA A MODE IN THE 5.6 GHz BAND

8.40.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5530	82.72
Mid	5610	82.72
High	5690	83.04

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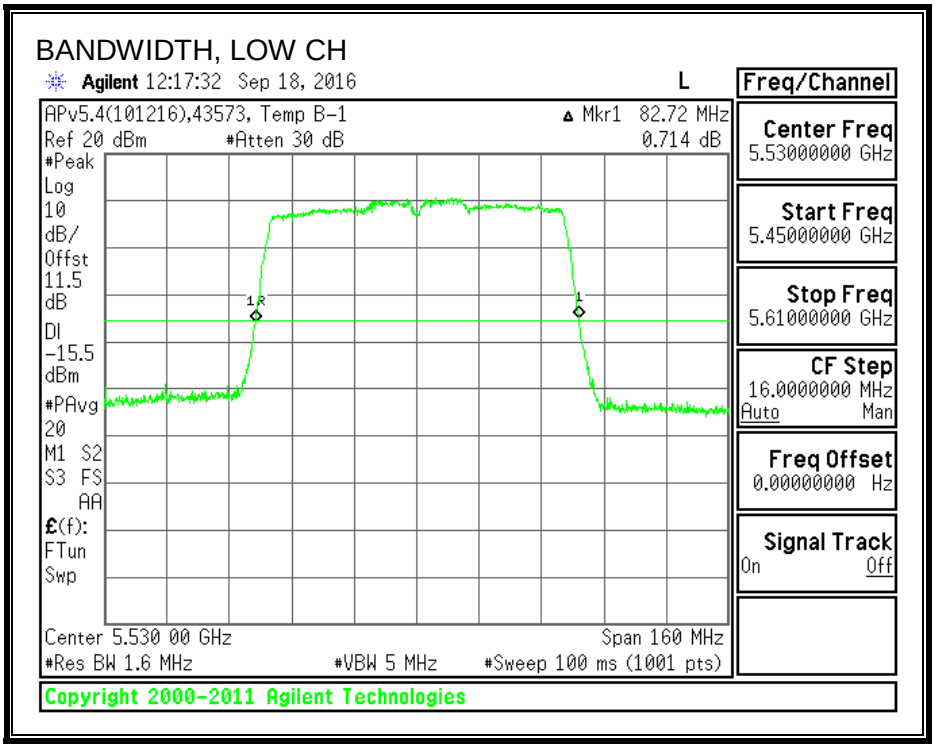
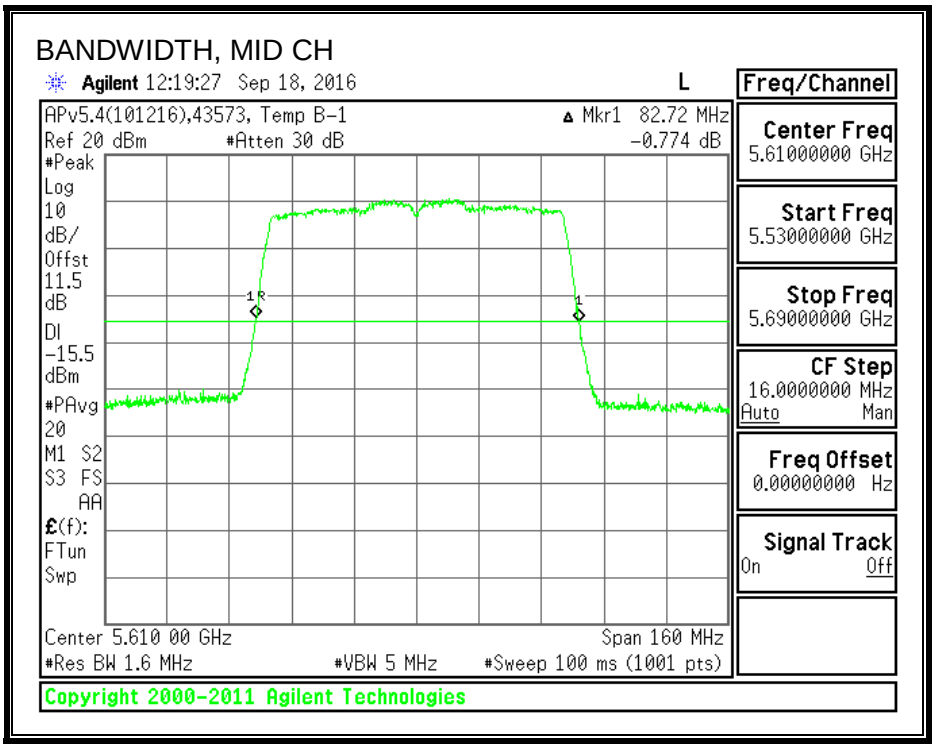
26 dB BANDWIDTH





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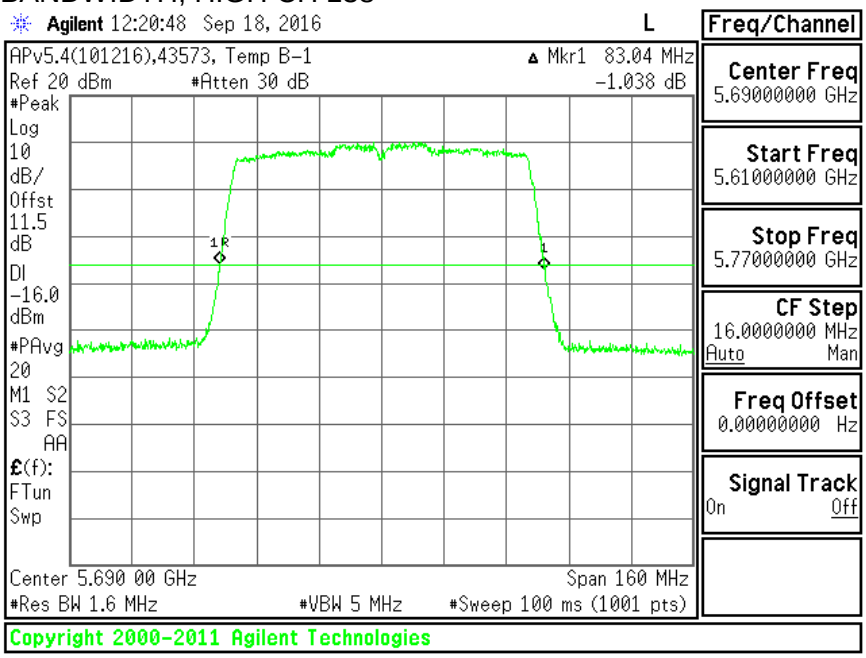
BANDWIDTH, HIGH CH 138



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8.40.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Frequency (MHz)	99% Bandwidth (MHz)
5530	75.216
5610	75.655
5690	75.414

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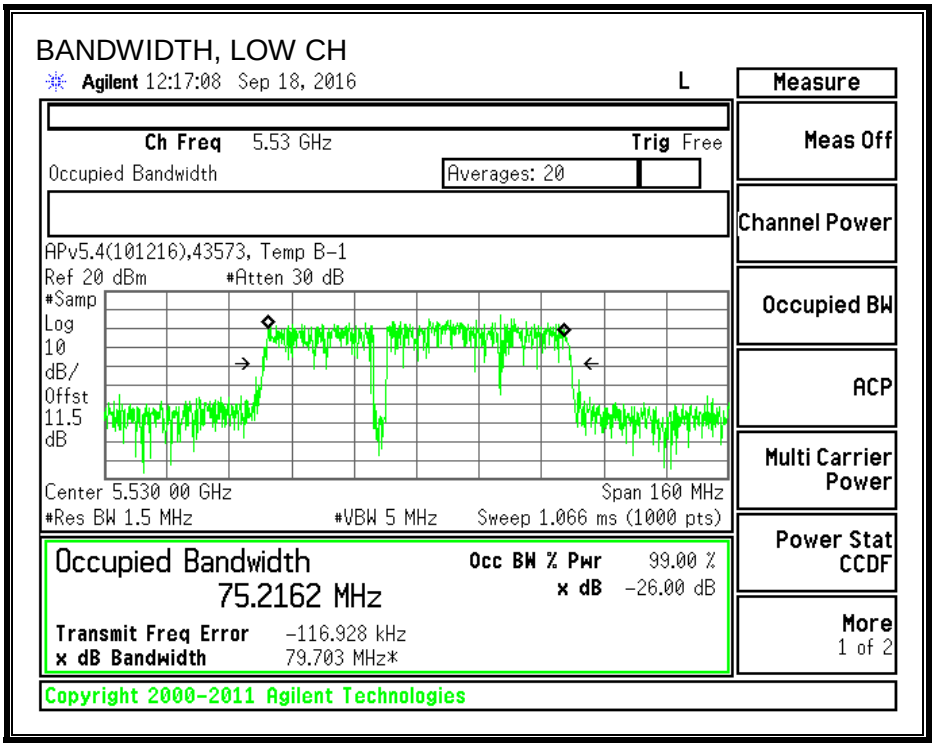
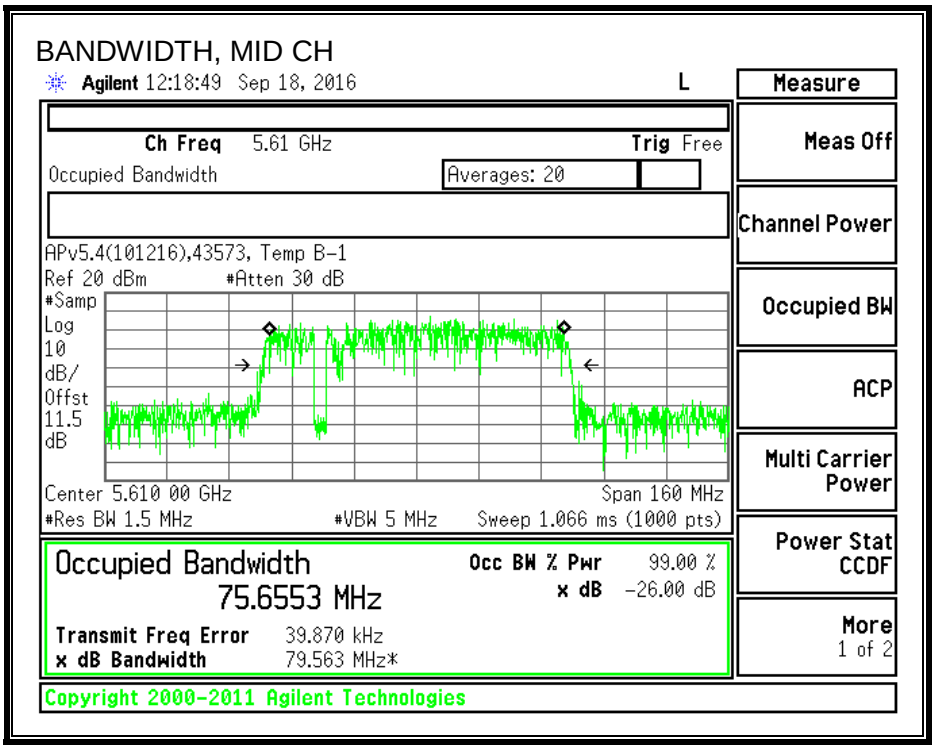
99% BANDWIDTH





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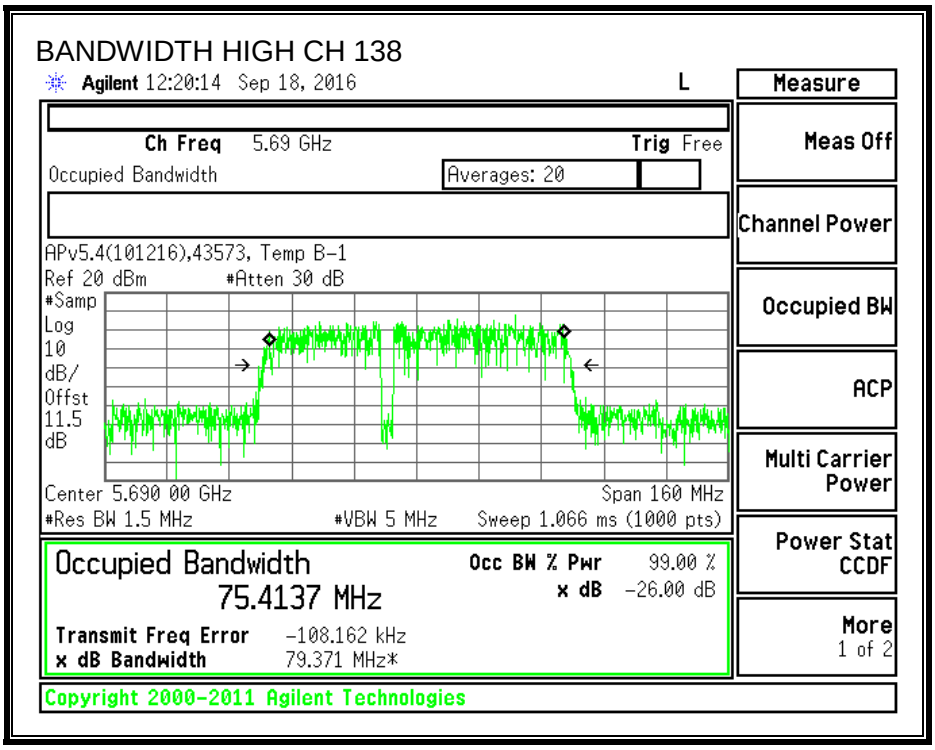
BANDWIDTH HIGH CH 138



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8.40.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

ID:	30554	Date:	12/15/16

Channel	Frequency (MHz)	Power (dBm)
Low	5530	13.89
Mid	5610	16.43
High	5690	16.40

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

TEST PROCEDURE

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

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

DIRECTIONAL ANTENNA GAIN

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

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RESULTS

ID:	30554	Date:	12/15/16

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	5530	82.72	75.22	3.39	24.00	11.00
Mid	5610	82.72	75.66	3.39	24.00	11.00

Duty Cycle CF (dB)	0.21	Included in Calculations of Corr'd PSD

Output Power Results

Channel	Frequency (MHz)	Ant A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	13.89	13.89	24.00	-10.11
Mid	5610	16.43	16.43	24.00	-7.57

PSD Results

Channel	Frequency (MHz)	Ant A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5530	-3.171	-2.96	11.00	-13.96
Mid	5610	-0.353	-0.14	11.00	-11.14

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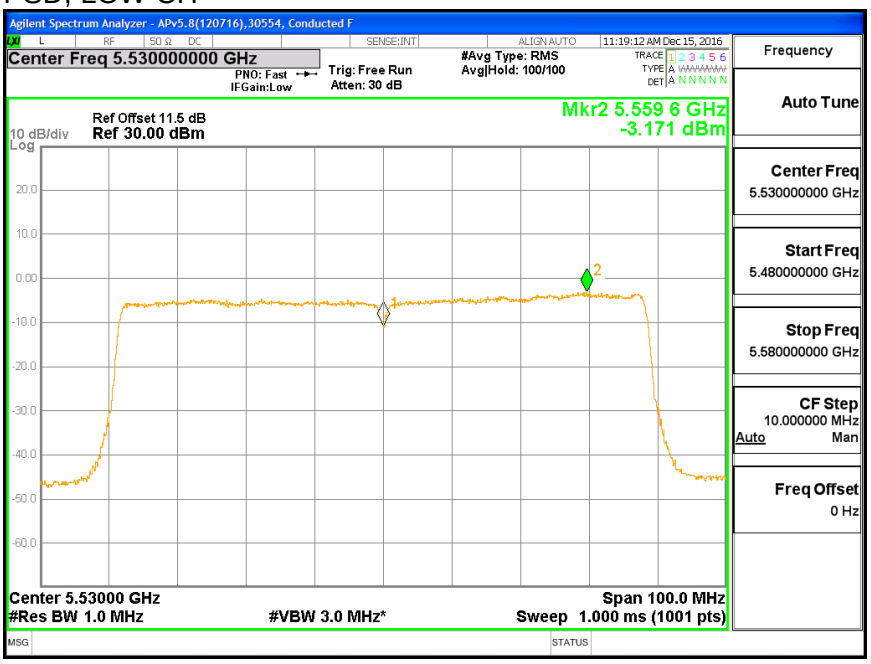
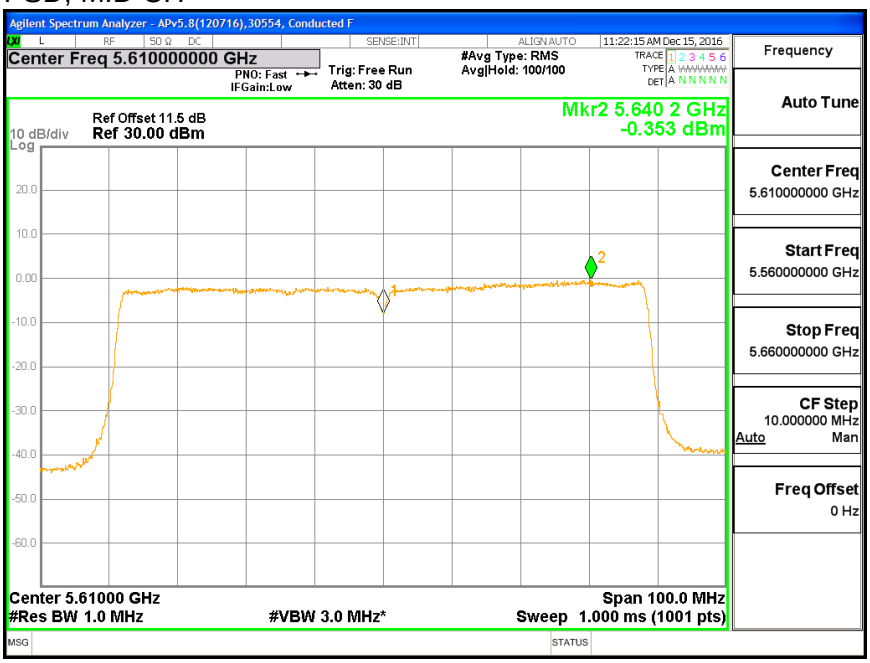
PSD

PSD, LOW CH



PSD, MID CH



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8.40.5. STRADDLE CHANNEL 138 RESULTS

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)
138	5690	76.52	3.39	3.39	24.00	11.00

Duty Cycle CF (dB)	0.21	Included in Calculations of Corr'd Power & PSD

Output Power Results

Channel	Frequency (MHz)	Ant A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	15.96	16.17	24.00	-7.83

PSD Results

Channel	Frequency (MHz)	Ant A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-0.74	-0.53	11.00	-11.53

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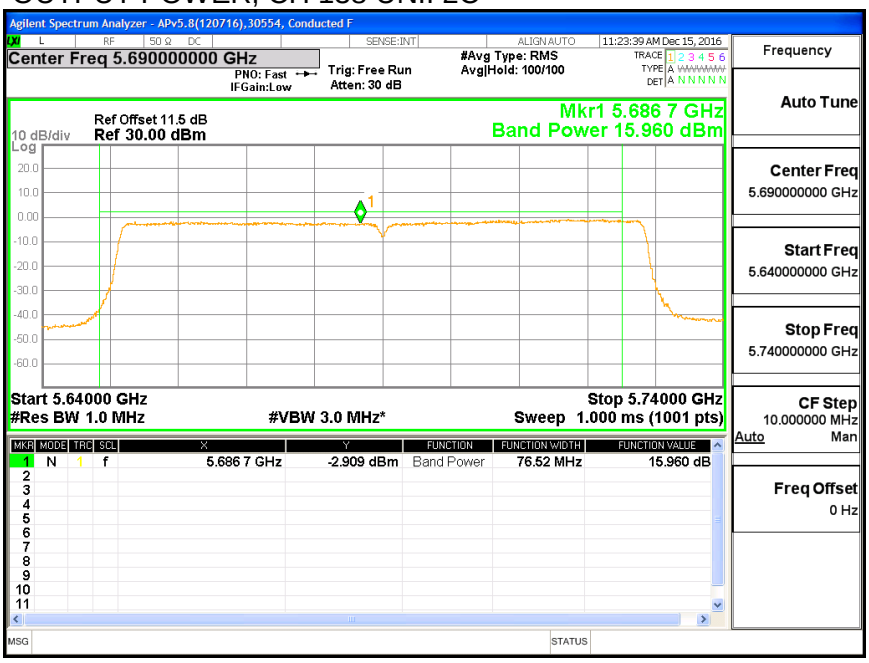
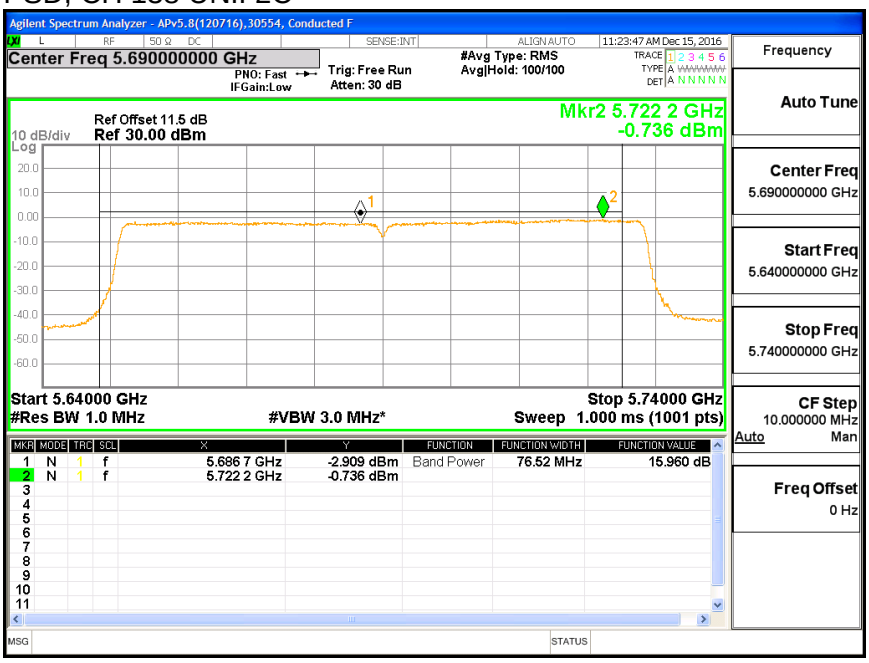
OUTPUT POWER, CH 138 UNII 2C



PSD, CH 138 UNII 2C



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UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
138	5690	6.52	3.54	30.00	30.00

Duty Cycle CF (dB)	0.21	Included in Calculations of Corr'd Power & PSD

Output Power Results

Channel	Frequency (MHz)	Ant A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	3.21	3.42	30.00	-26.58

PSD Results

Channel	Frequency (MHz)	Ant A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-3.72	-3.51	30.00	-33.51

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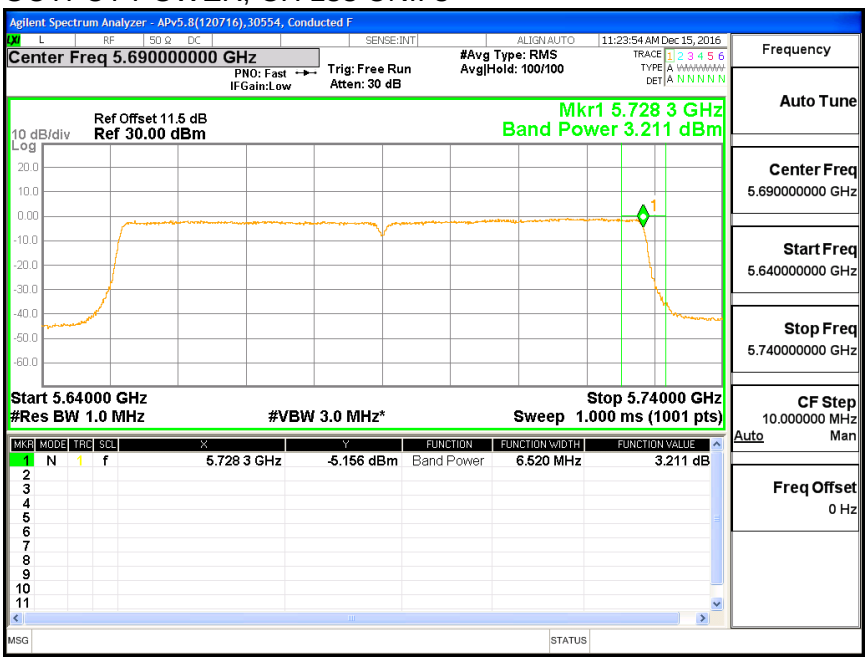
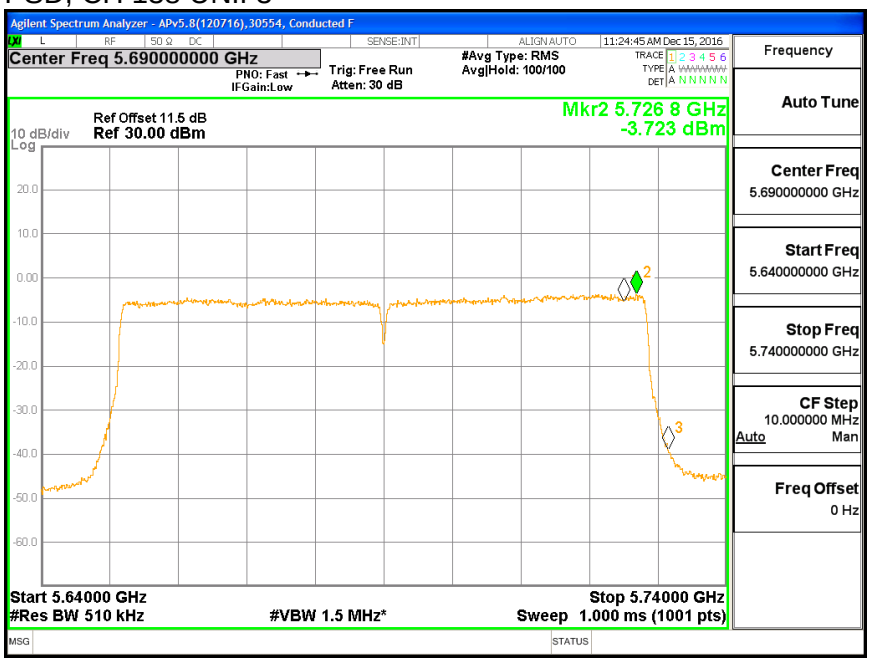
OUTPUT POWER, CH 138 UNII 3



PSD, CH 138 UNII 3



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8.40.6. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

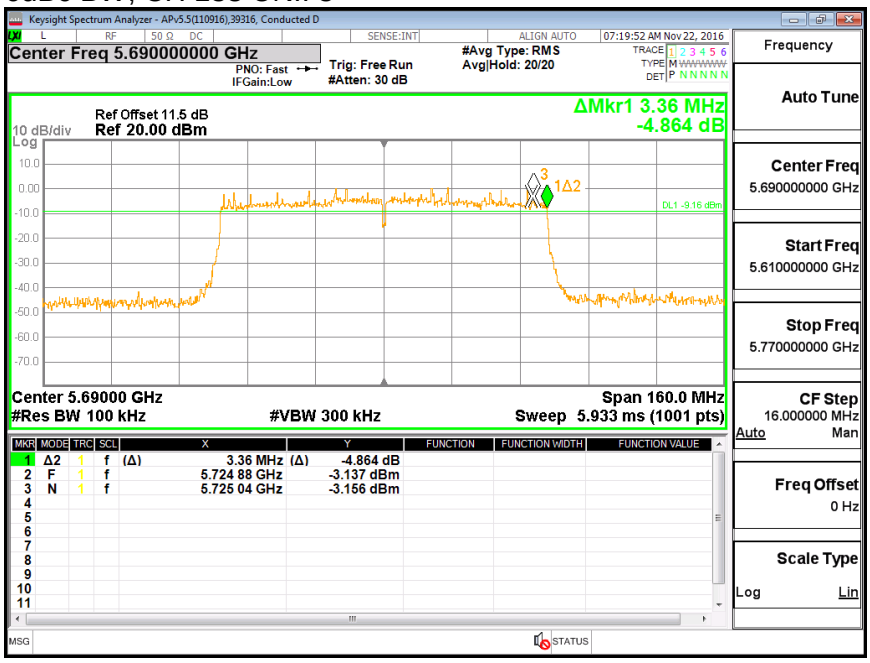
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
High	5690	3.36

6 dB BANDWIDTH

6dBc BW, CH 138 UNII 3



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8.41. 802.11ac VHT80 ANTENNA B MODE IN THE 5.6 GHz BAND

8.41.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5530	82.88
Mid	5610	82.88
High	5690	83.04

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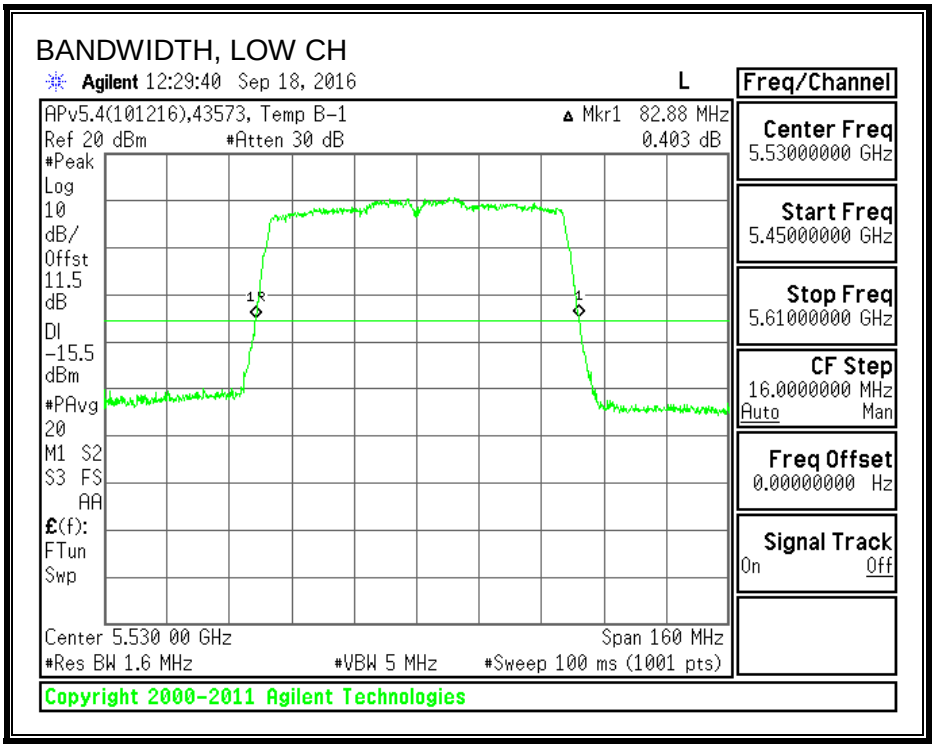
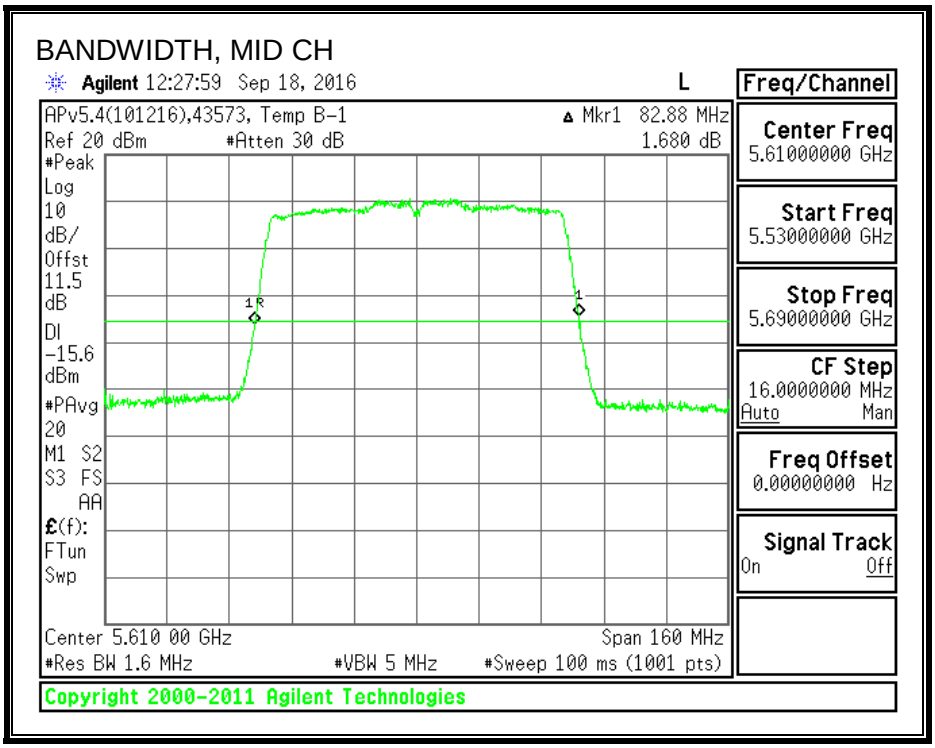
26 dB BANDWIDTH





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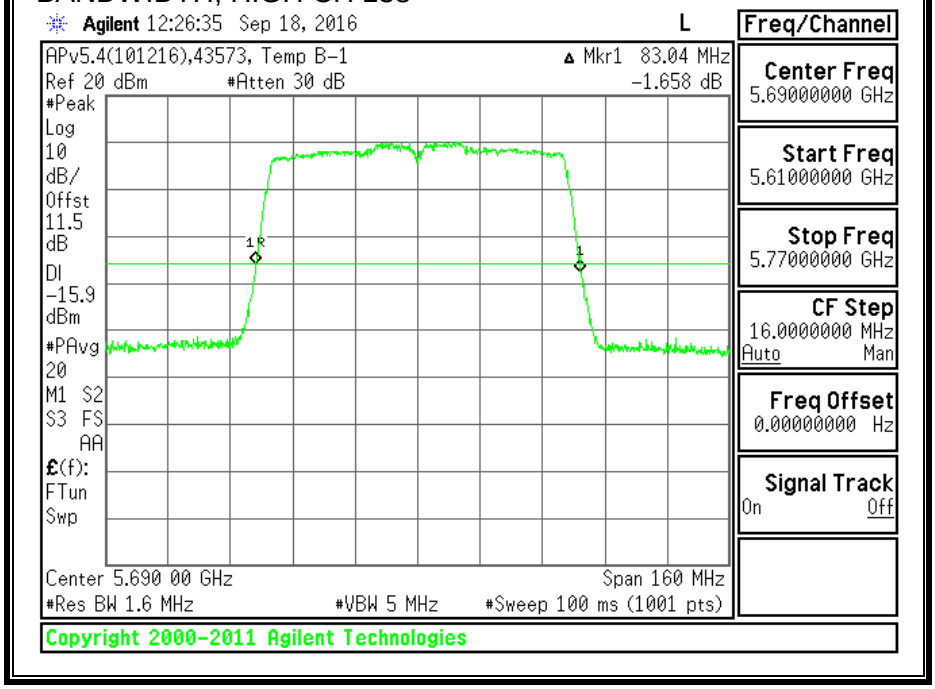
BANDWIDTH, HIGH CH 138



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8.41.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Frequency (MHz)	99% Bandwidth (MHz)
5530	75.512
5610	75.645
5690	75.607

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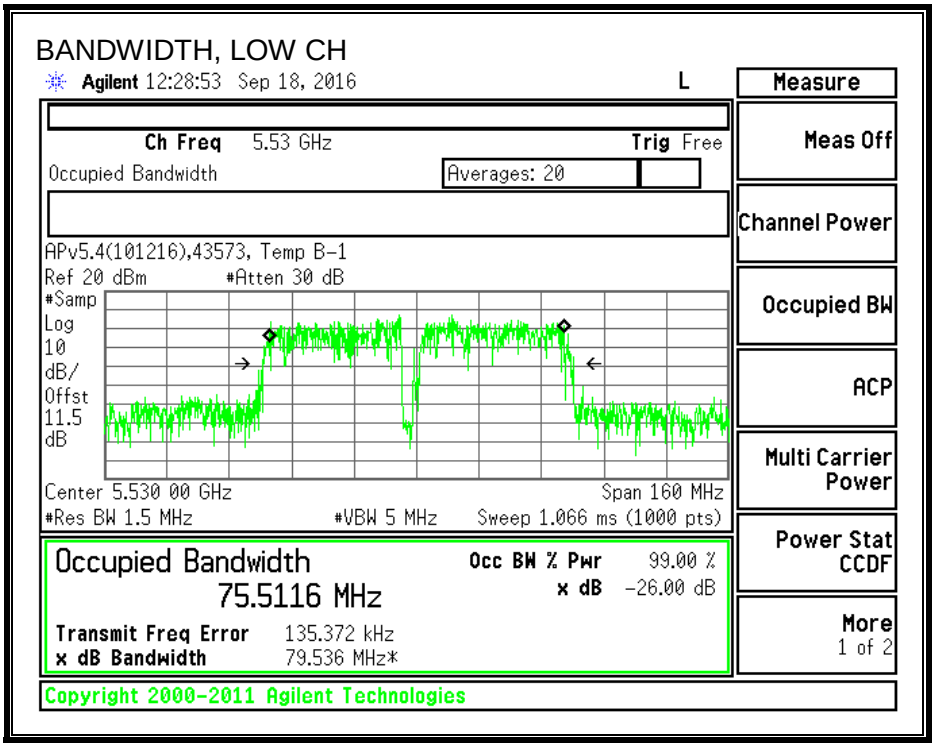
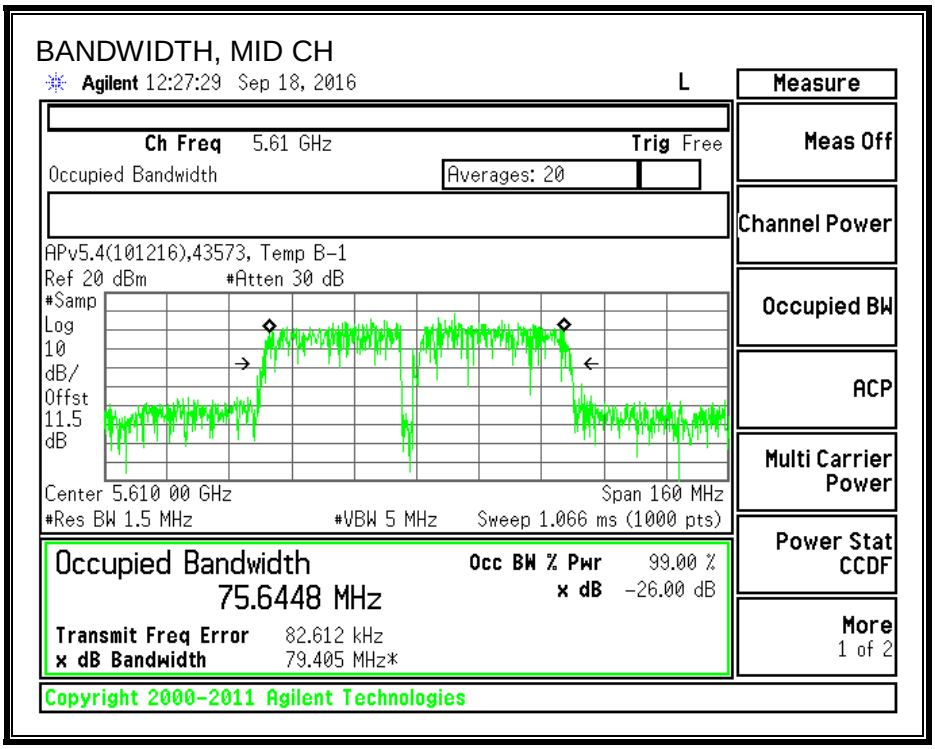
99% BANDWIDTH





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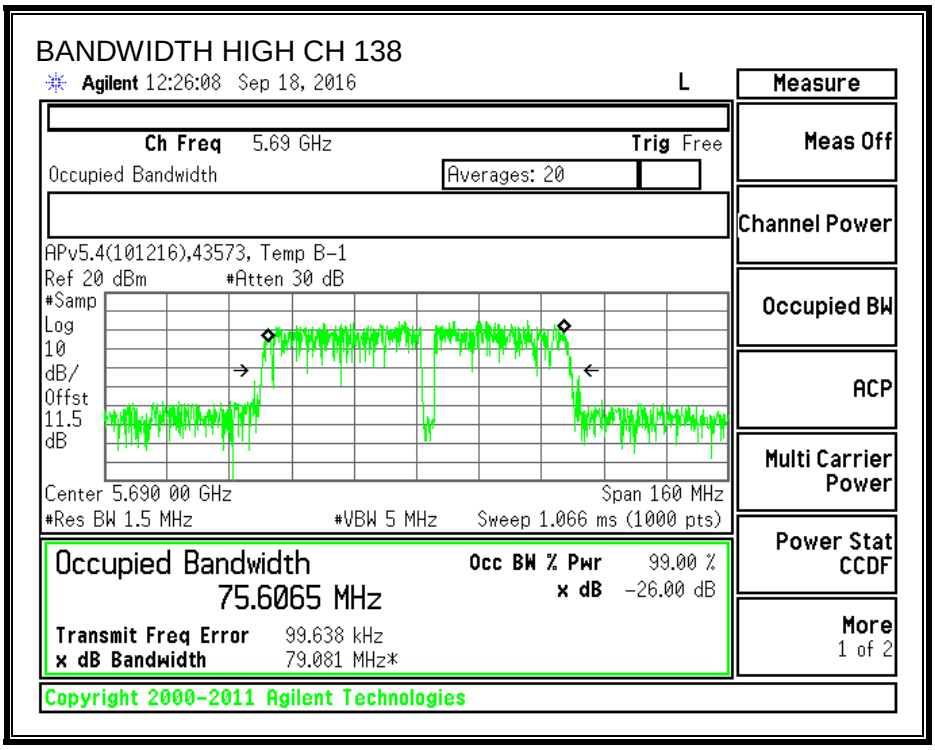
BANDWIDTH HIGH CH 138



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8.41.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

ID:	30554	Date:	12/15/16

Channel	Frequency (MHz)	Power (dBm)
Low	5530	13.95
Mid	5610	16.90
High	5690	16.87

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

TEST PROCEDURE

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

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

DIRECTIONAL ANTENNA GAIN

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

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RESULTS

ID:	30554	Date:	12/15/16

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	5530	82.88	75.51	3.17	24.00	11.00
Mid	5610	82.88	75.64	3.17	24.00	11.00

Duty Cycle CF (dB)	0.21	Included in Calculations of Corr'd PSD

Output Power Results

Channel	Frequency (MHz)	Ant B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	13.95	13.95	24.00	-10.05
Mid	5610	16.90	16.90	24.00	-7.10

PSD Results

Channel	Frequency (MHz)	Ant B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5530	-3.440	-3.23	11.00	-14.23
Mid	5610	0.390	0.60	11.00	-10.40

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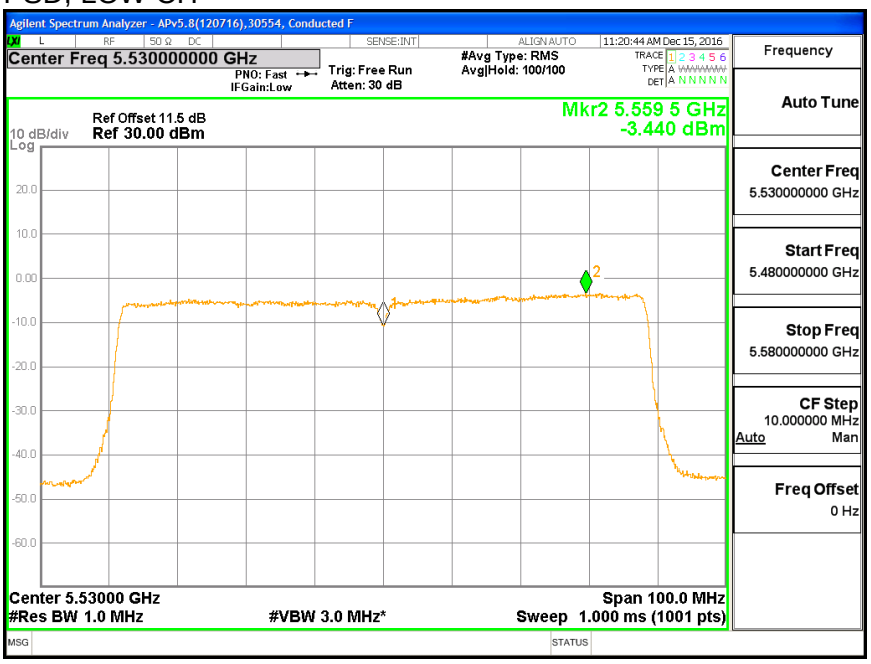
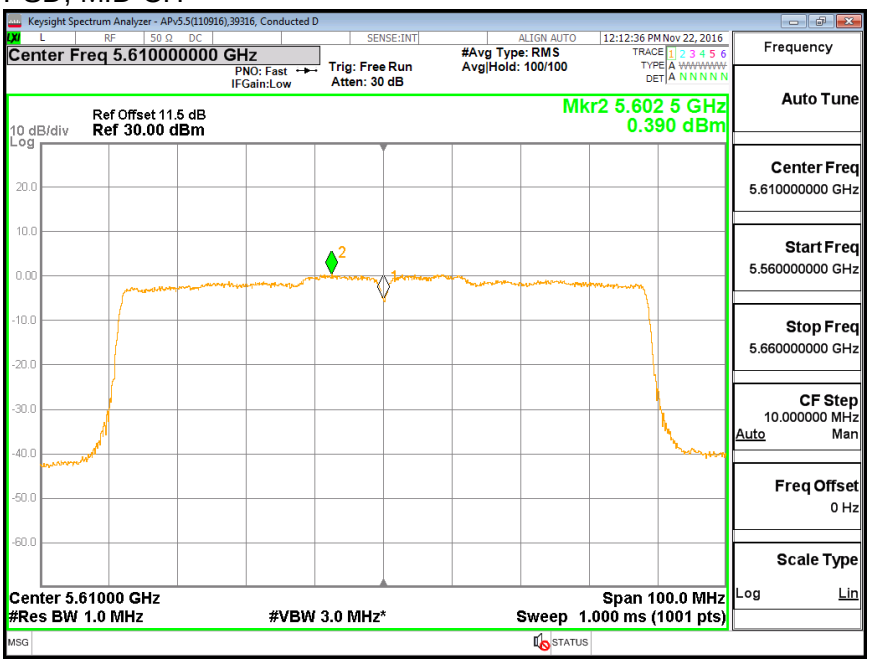
PSD

PSD, LOW CH



PSD, MID CH



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8.41.5. STRADDLE CHANNEL 138 RESULTS

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)
138	5690	76.52	3.17	3.17	24.00	11.00

Duty Cycle CF (dB)	0.21	Included in Calculations of Corr'd Power & PSD

Output Power Results

Channel	Frequency (MHz)	Ant B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	16.61	16.82	24.00	-7.18

PSD Results

Channel	Frequency (MHz)	Ant B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	0.31	0.52	11.00	-10.48

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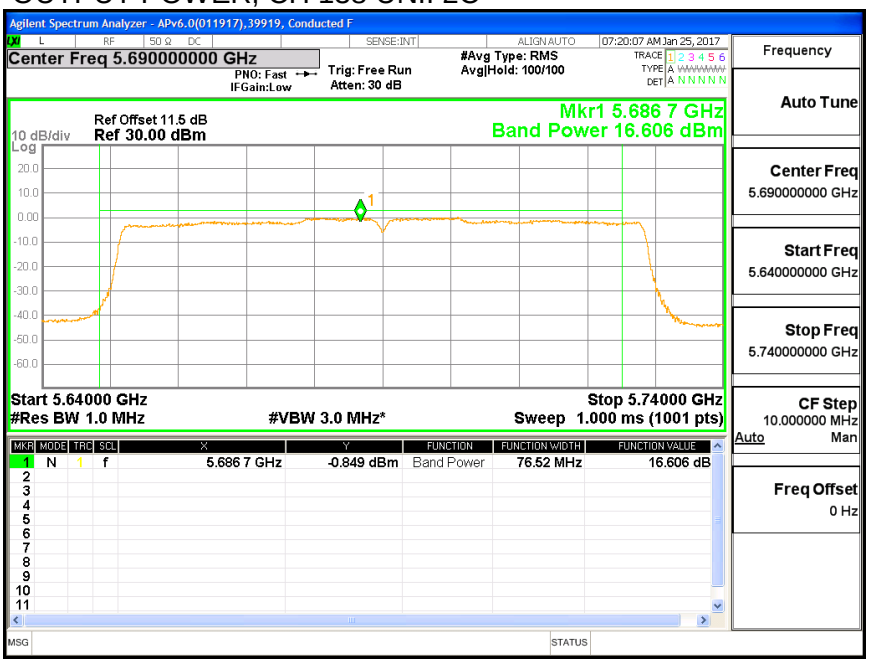
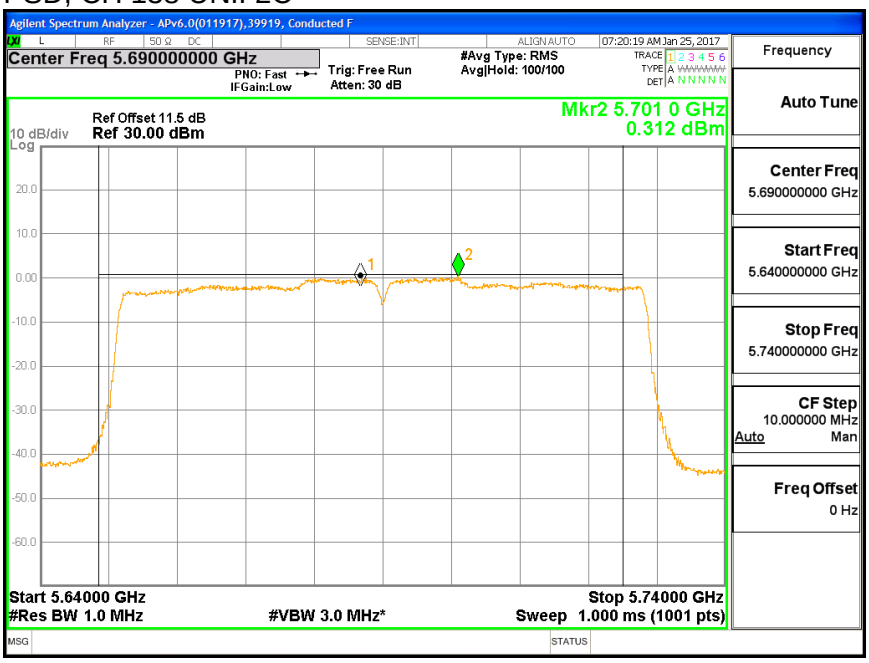
OUTPUT POWER, CH 138 UNII 2C



PSD, CH 138 UNII 2C



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UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
138	5690	6.52	3.22	30.00	30.00

Duty Cycle CF (dB)	0.21	Included in Calculations of Corr'd Power & PSD

Output Power Results

Channel	Frequency (MHz)	Ant B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	2.62	2.83	30.00	-27.17

PSD Results

Channel	Frequency (MHz)	Ant B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-4.52	-4.31	30.00	-34.31

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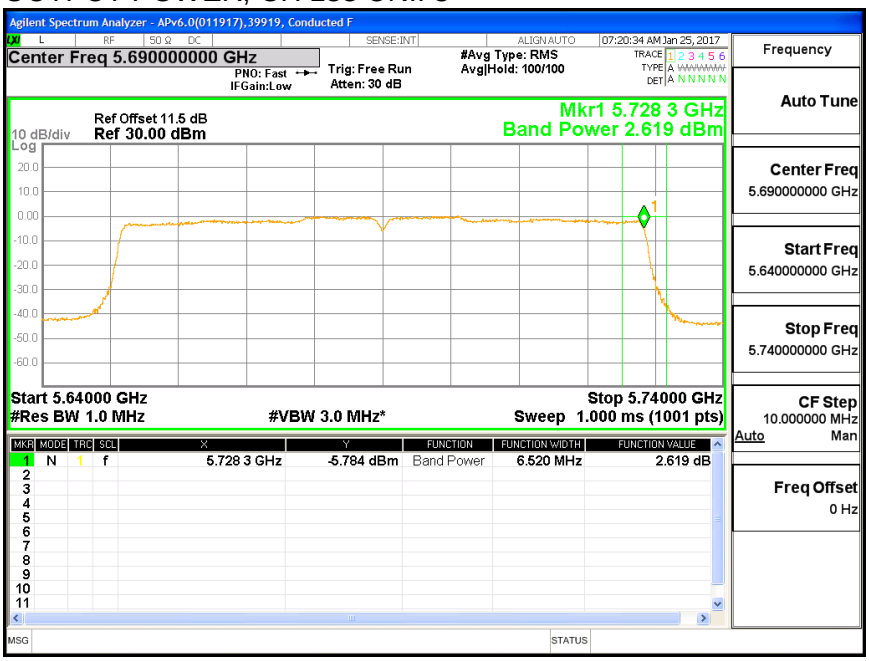
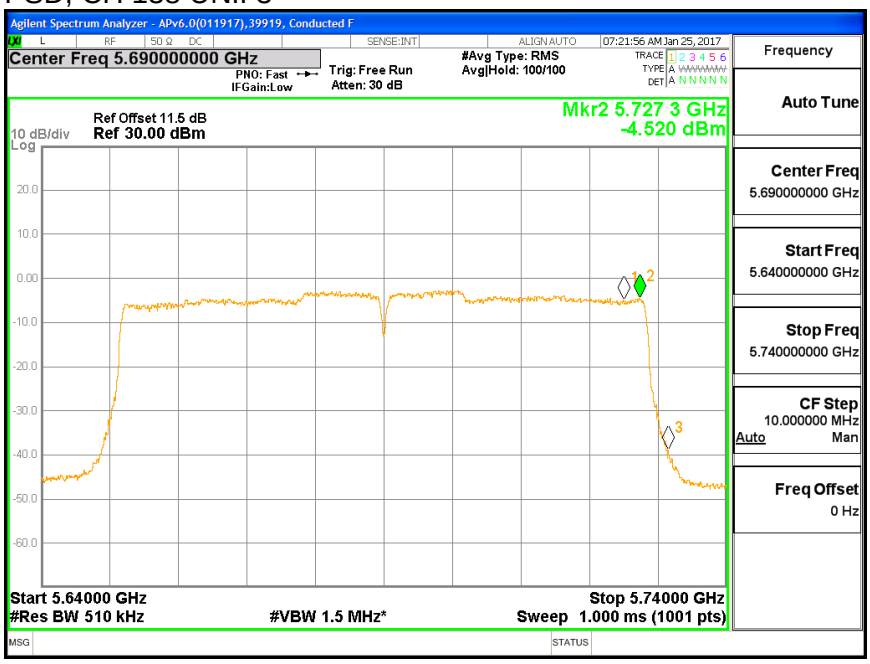
OUTPUT POWER, CH 138 UNII 3



PSD, CH 138 UNII 3



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8.41.6. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

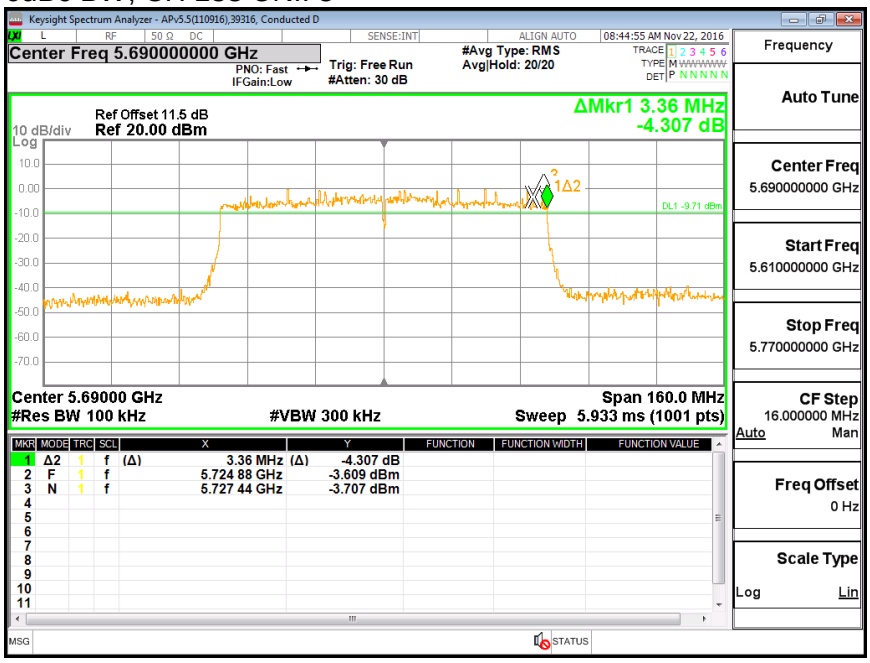
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
High	5690	3.36

6 dB BANDWIDTH

6dBc BW, CH 138 UNII 3



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8.42. 802.11ac VHT80 2Tx (ANTENNA A + ANTENNA B) CDD MODE IN THE 5.6 GHz BAND (5610MHz for FCC only)

8.42.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB BW Ant A (MHz)	26 dB BW Ant B (MHz)
Low	5530	82.88	83.04
Mid	5610	82.88	83.04
High	5690	82.88	82.72

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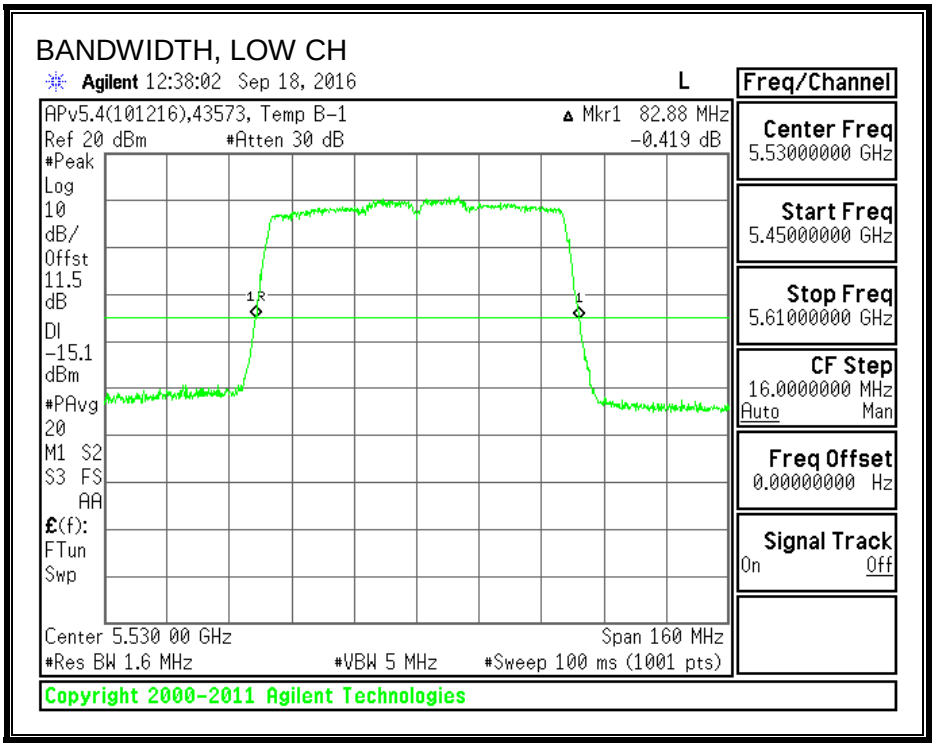
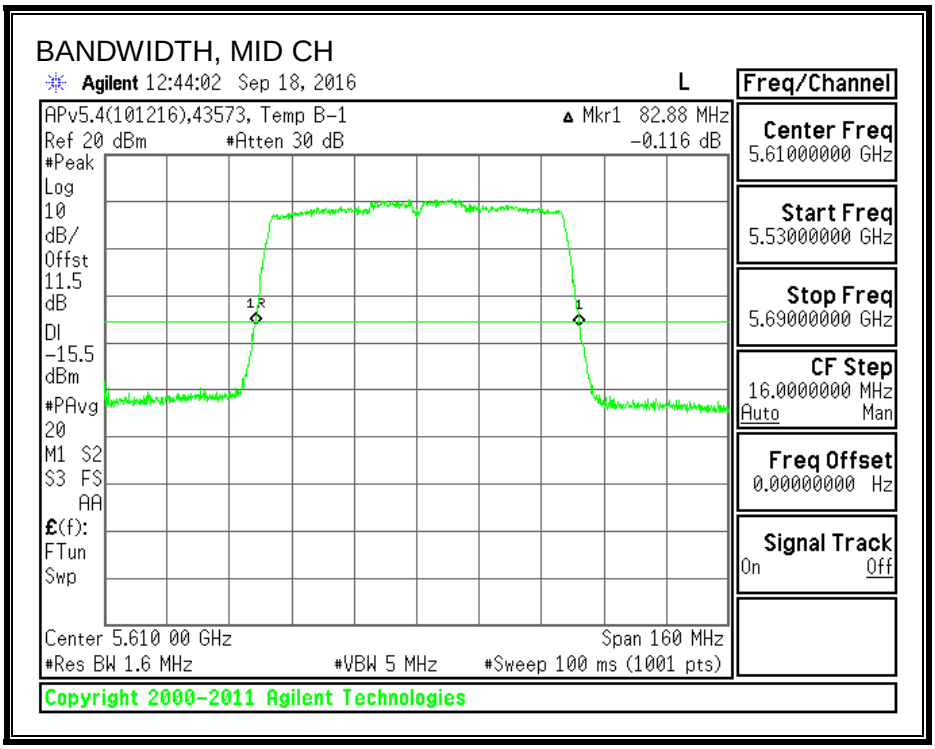
26 dB BANDWIDTH, ANTENNA A





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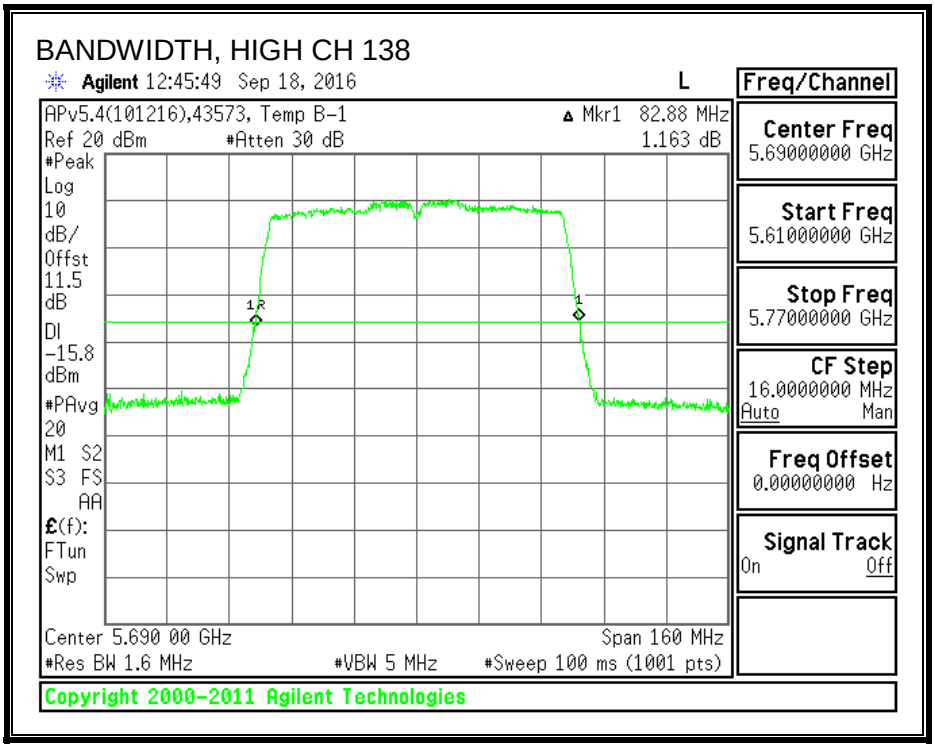
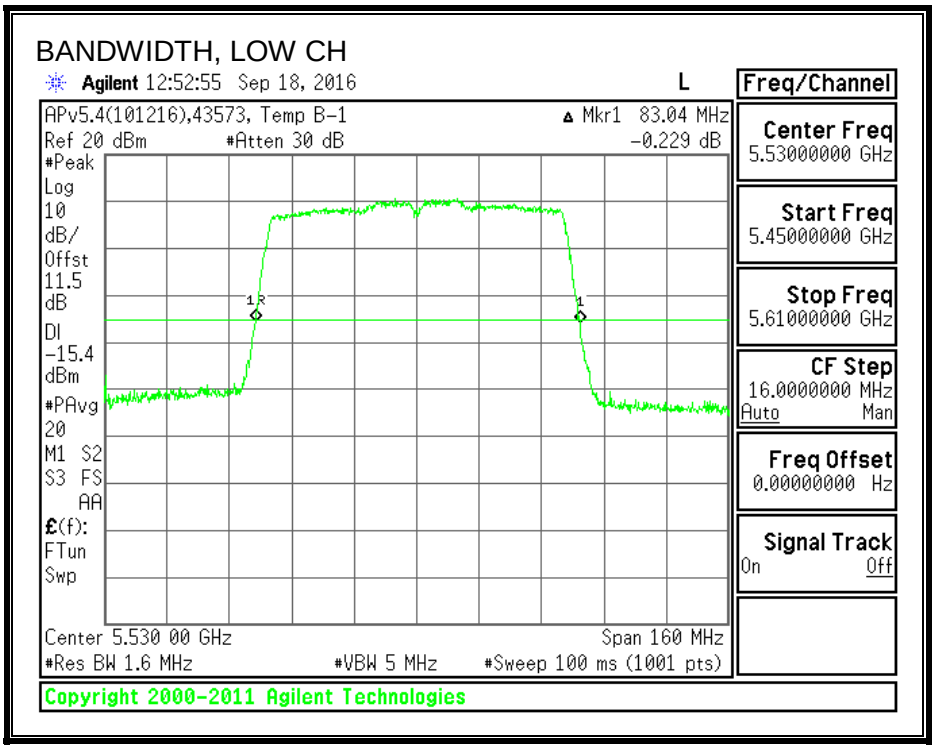


26 dB BANDWIDTH, ANTENNA B



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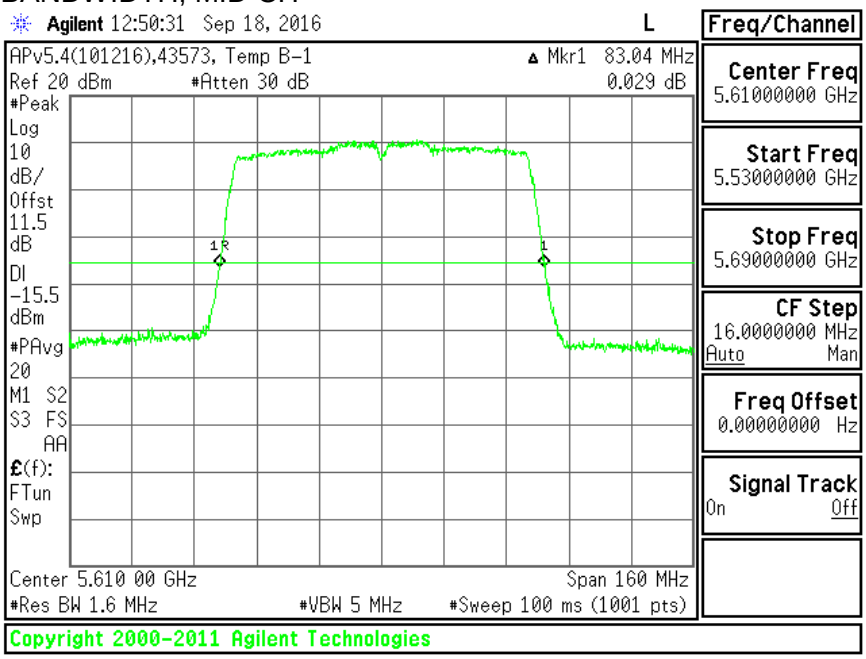
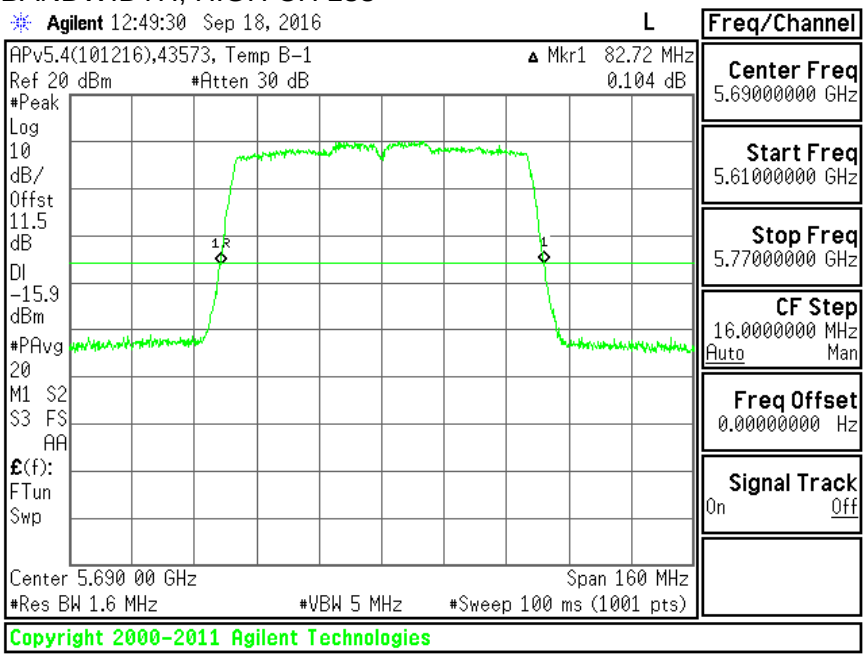
BANDWIDTH, MID CH



BANDWIDTH, HIGH CH 138



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8.42.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% BW Ant A (MHz)	99% BW Ant B (MHz)
Low	5530	75.587	75.662
Mid	5610	75.451	75.309
High	5690	75.617	75.289

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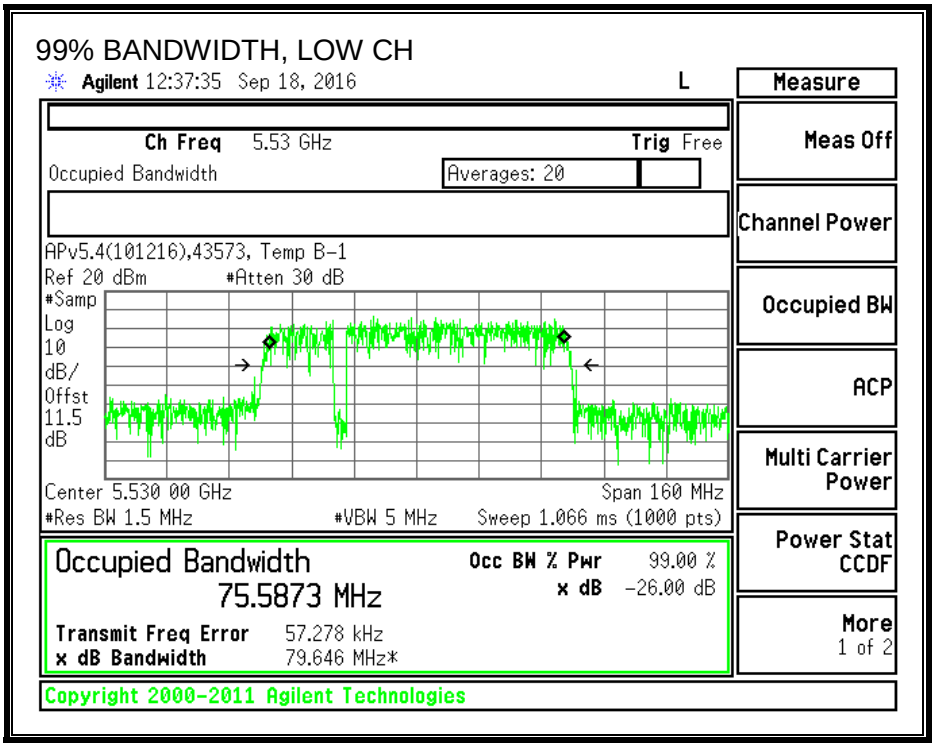
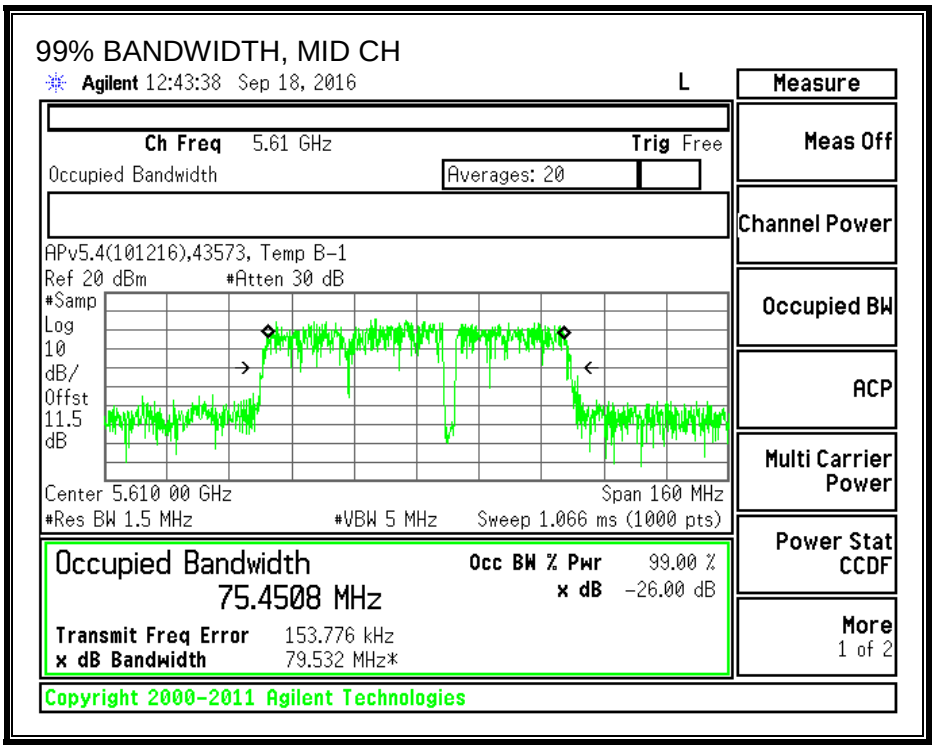
99% BANDWIDTH, ANTENNA A





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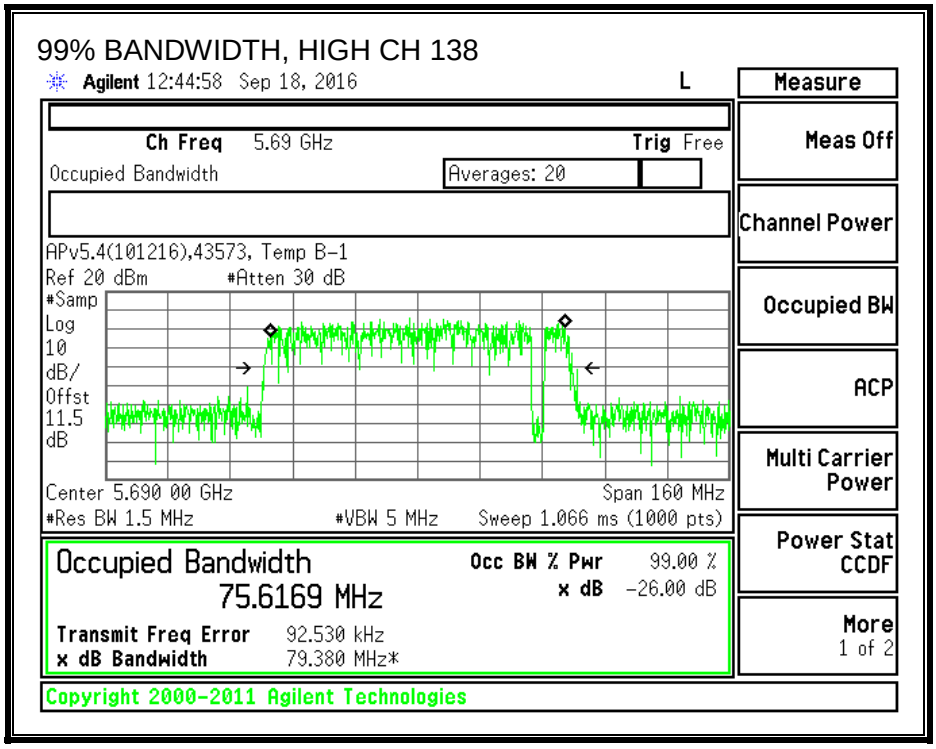
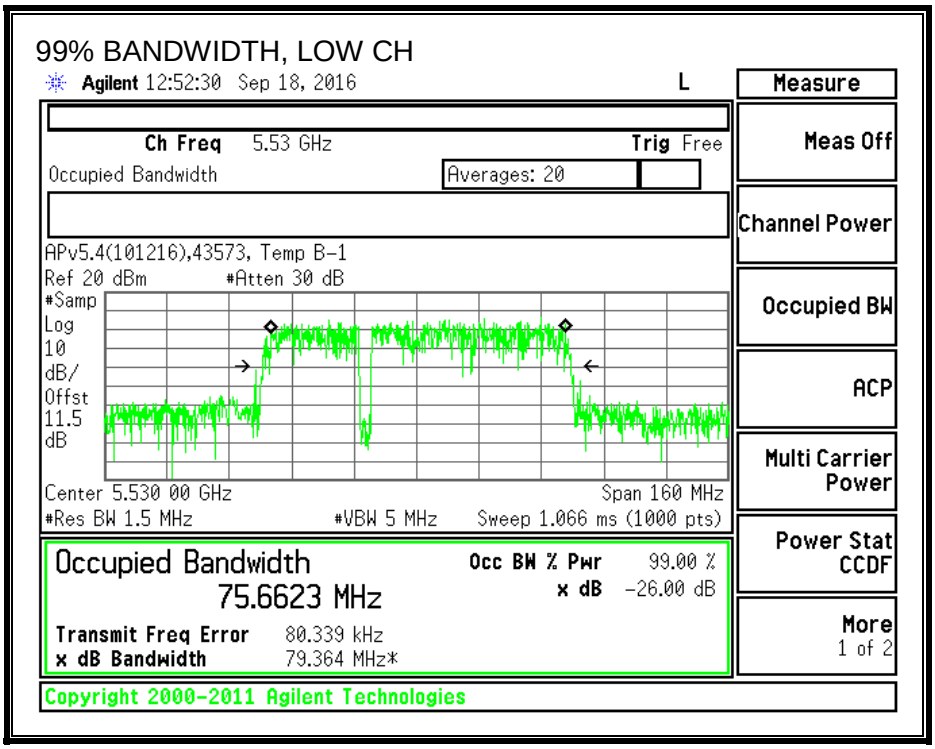


99% BANDWIDTH, ANTENNA B



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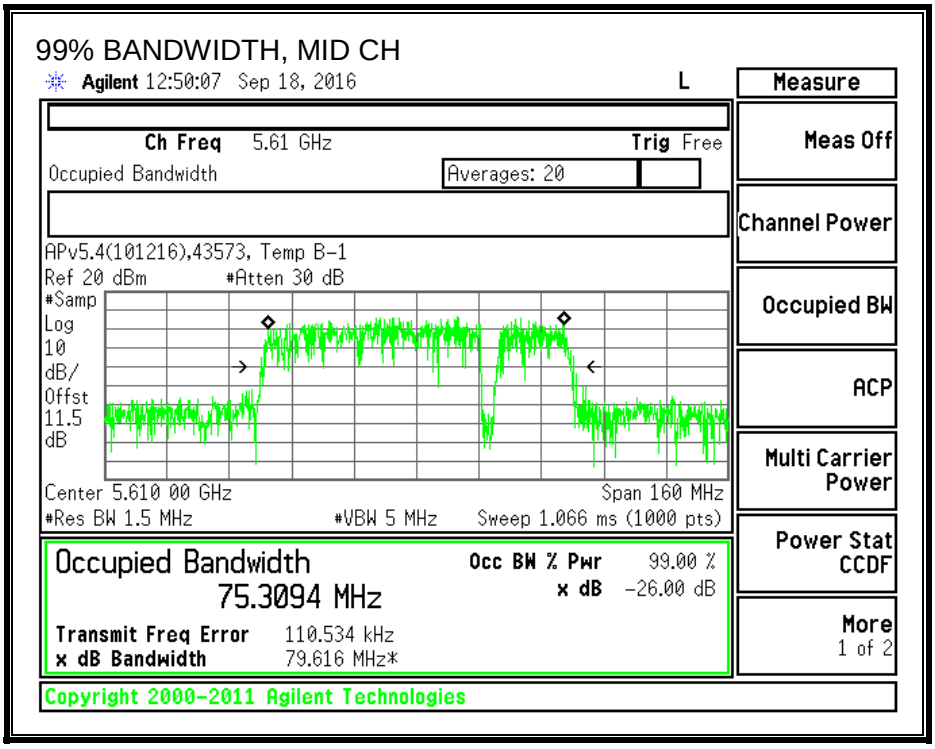
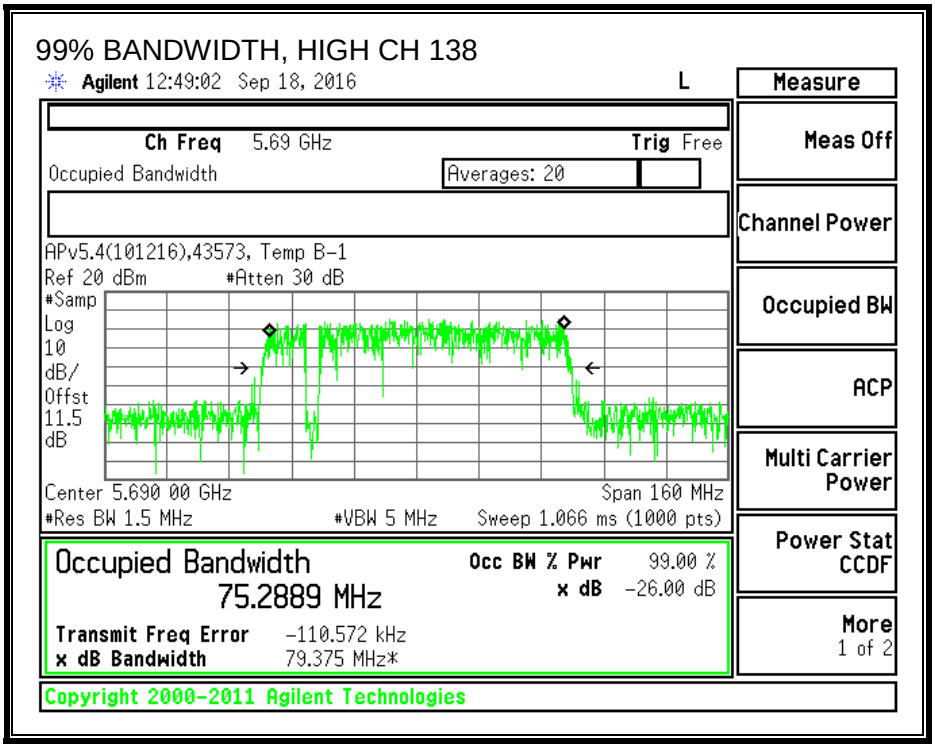
99% BANDWIDTH, MID CH



99% BANDWIDTH, HIGH CH 138



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8.42.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

ID:	39316	Date:	12/15/16

Channel	Frequency (MHz)	Ant A Power (dBm)	Ant B Power (dBm)	Total Power (dBm)
Low	5530	12.99	12.98	16.00
Mid	5610	16.39	16.87	19.65
High	5690	16.46	16.97	19.73

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

TEST PROCEDURE

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

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

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DIRECTIONAL ANTENNA GAIN

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

Ant A Antenna Gain (dBi)	Ant B Antenna 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:

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

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RESULTS

ID:	39316	Date:	12/15/16

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	5530	82.88	75.587	3.28	6.29	24.00	10.71
High	5610	82.88	75.309	3.28	6.29	24.00	10.71

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

Output Power Results

Channel	Frequency (MHz)	Ant A Meas Power (dBm)	Ant B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	12.99	12.98	16.00	24.00	-8.00
High	5610	16.39	16.87	19.65	24.00	-4.35

PSD Results

Channel	Frequency (MHz)	Ant A Meas PSD (dBm)	Ant B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5530	-3.50	-3.57	-0.32	10.71	-11.03
High	5610	-0.32	0.51	3.32	10.71	-7.39

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