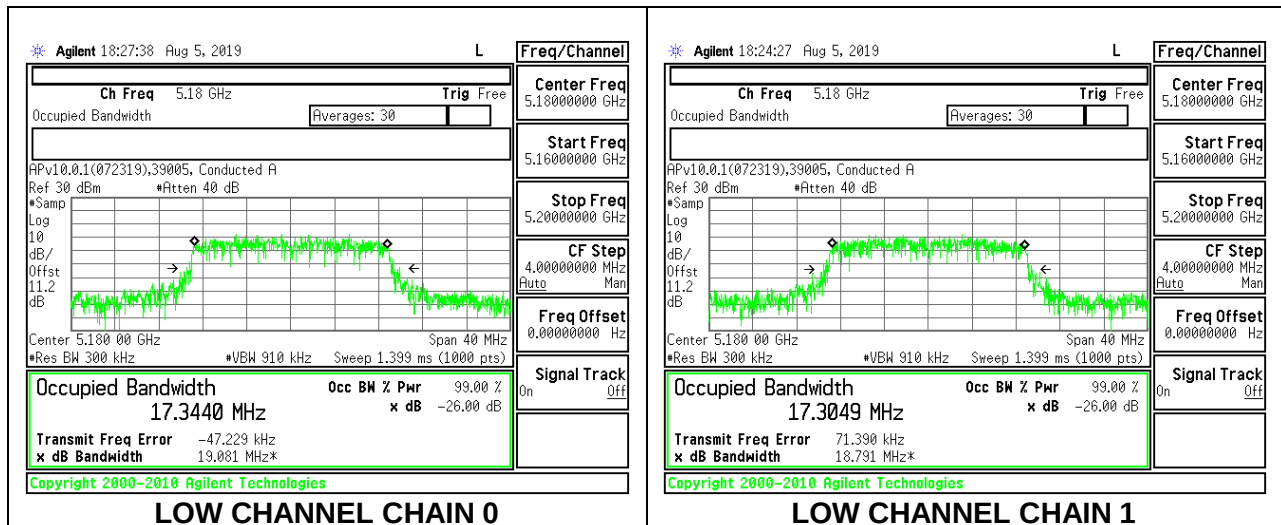


8.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

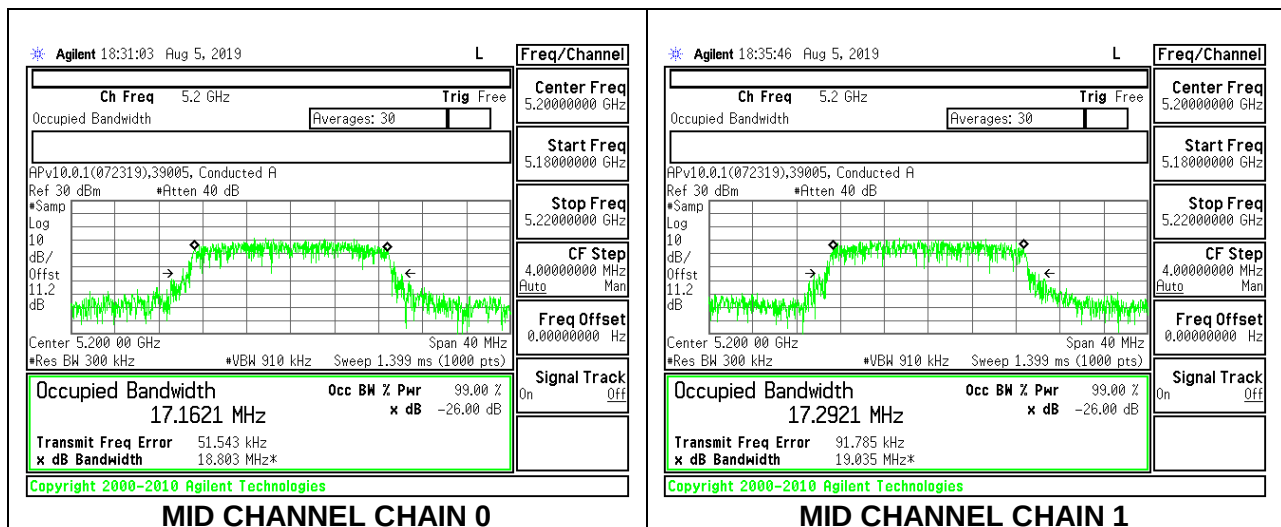
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5180	17.344	17.305
Mid	5200	17.162	17.292
High	5240	17.388	17.394

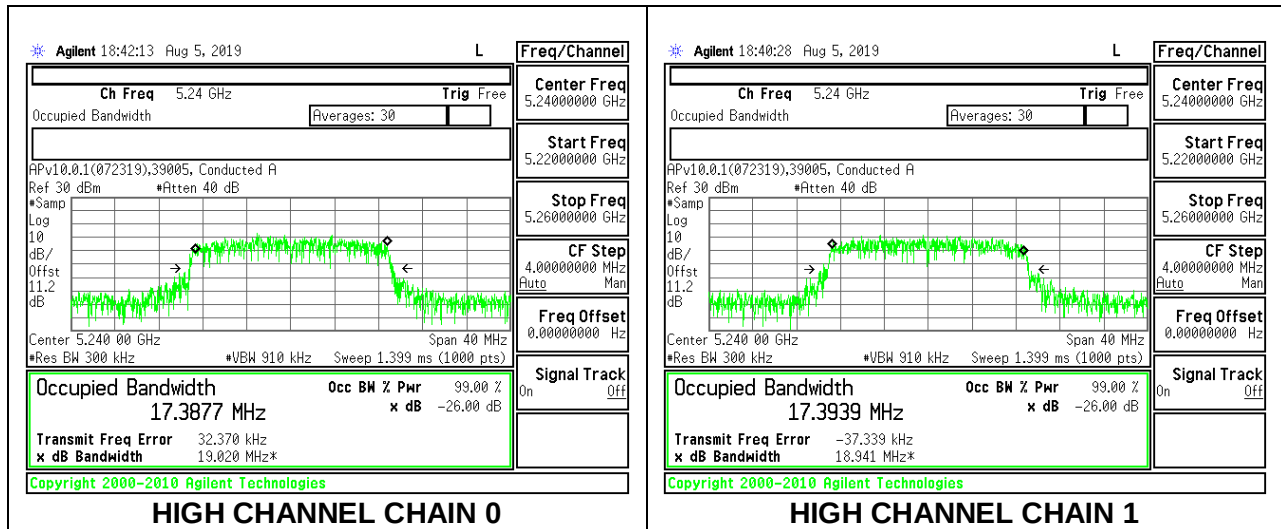
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

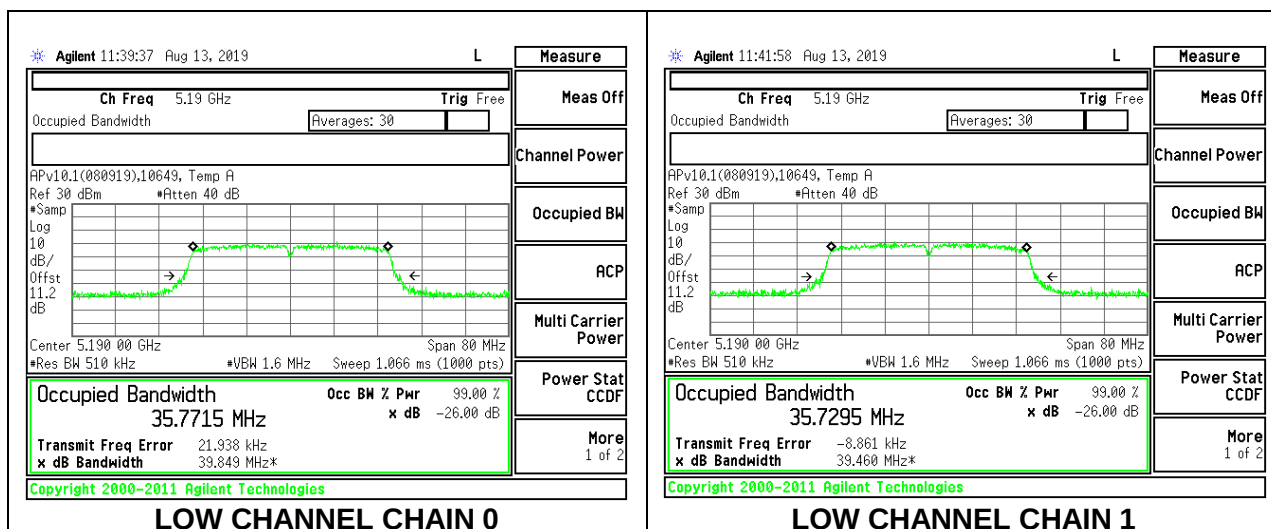


8.3.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

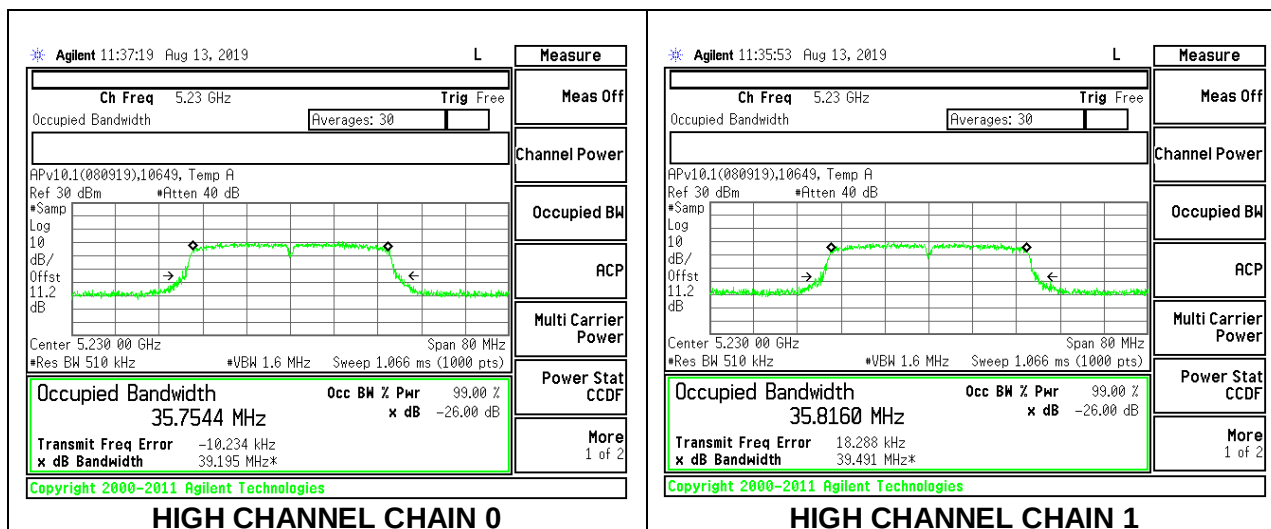
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5190	35.772	35.730
High	5230	35.754	35.816

LOW CHANNEL



HIGH CHANNEL

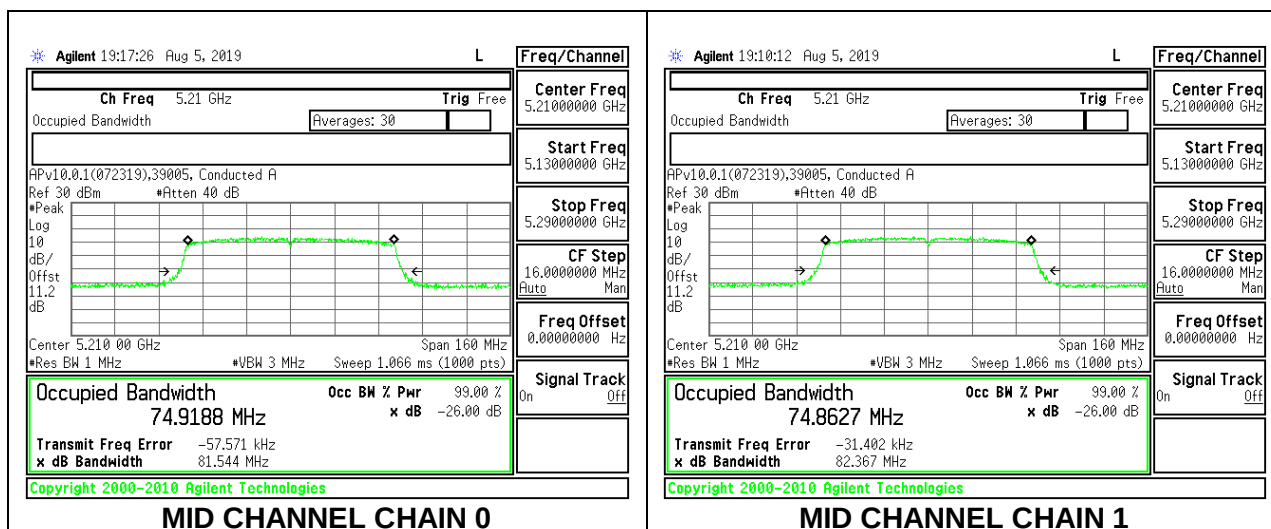


8.3.4. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Mid	5210	74.912	74.876

MID CHANNEL

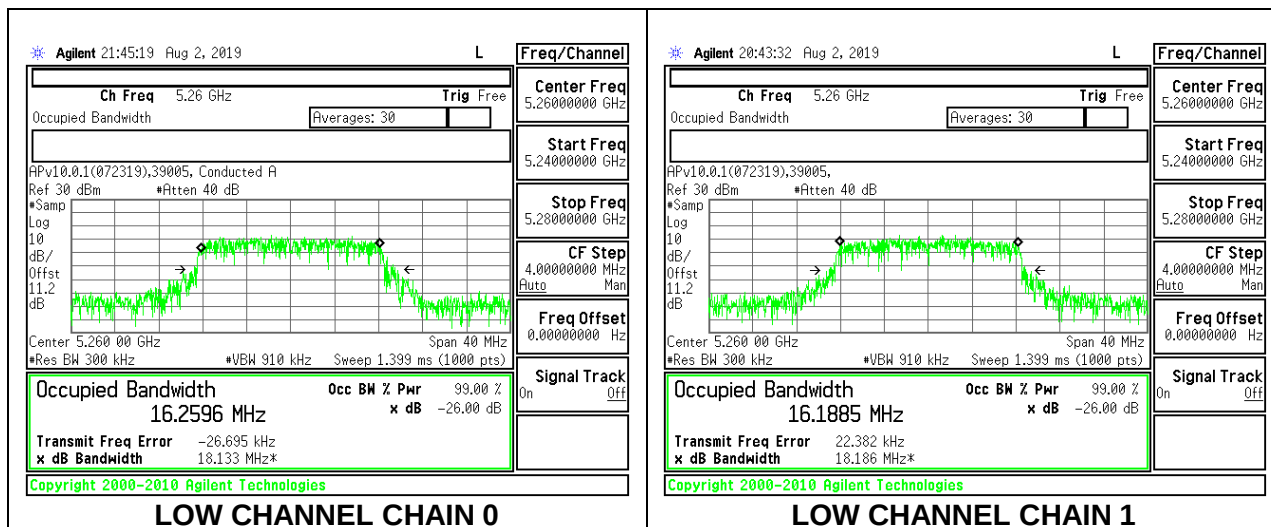


8.3.5. 802.11a MODE IN THE 5.3 GHz BAND

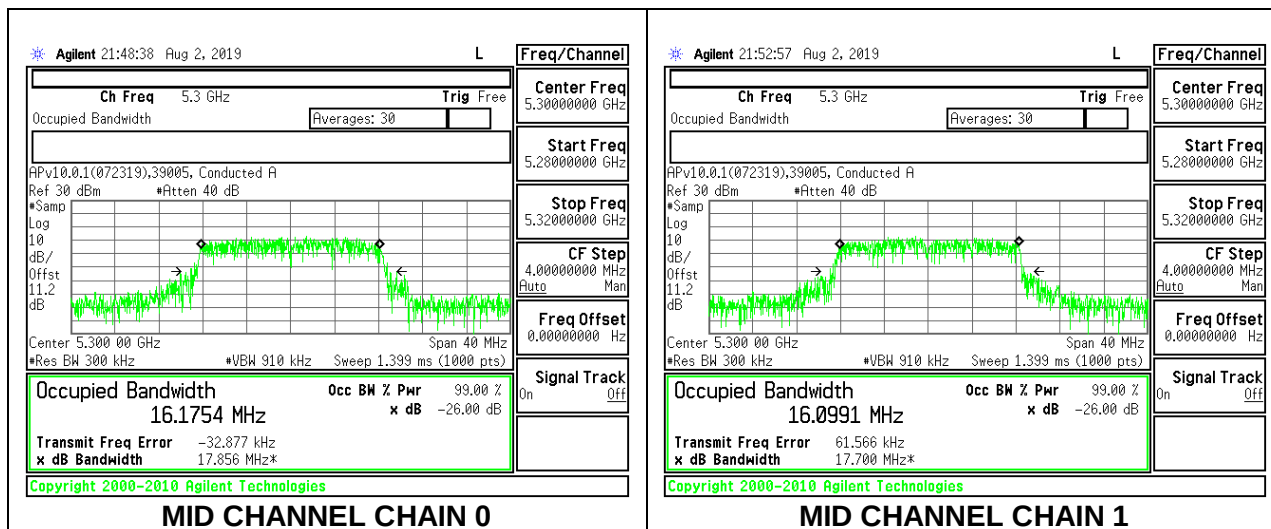
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5260	16.260	16.189
Mid	5300	16.175	16.099
High	5320	16.101	16.197

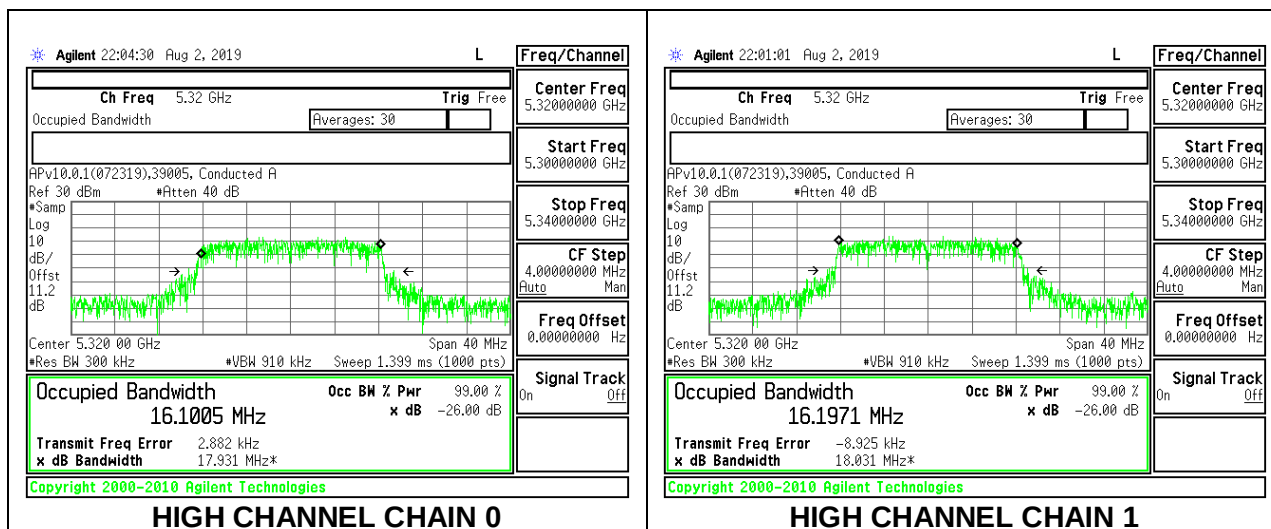
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

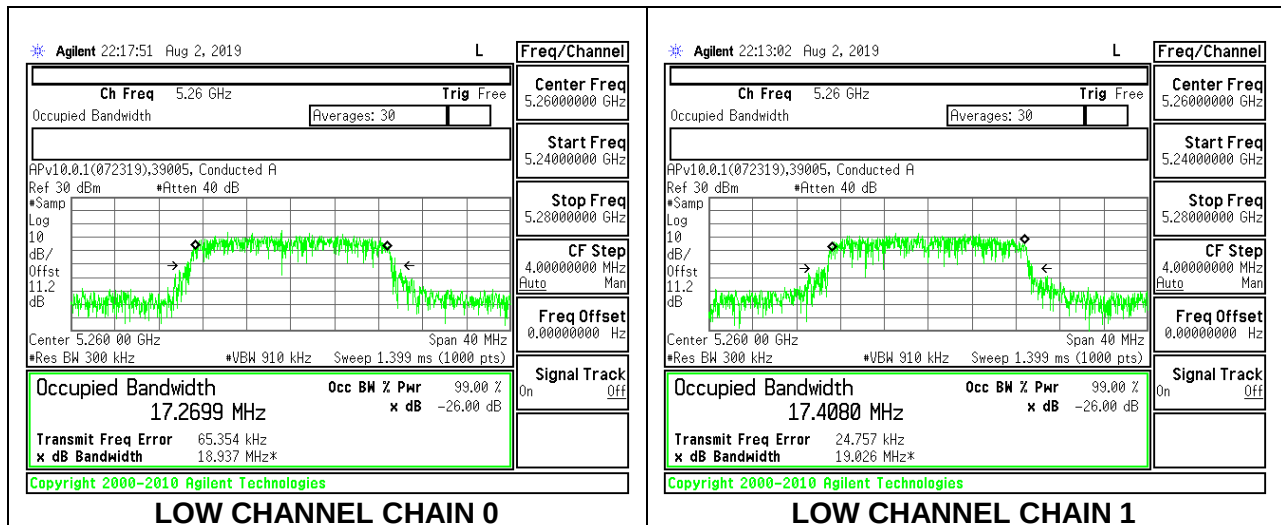


8.3.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

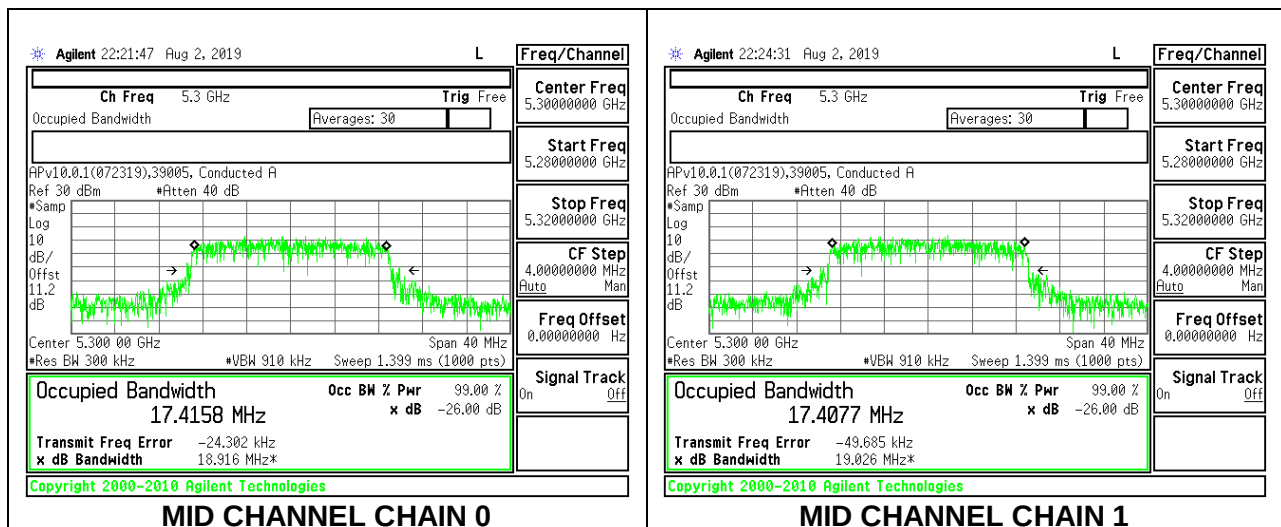
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5260	17.270	17.408
Mid	5300	17.416	17.408
High	5320	17.389	17.450

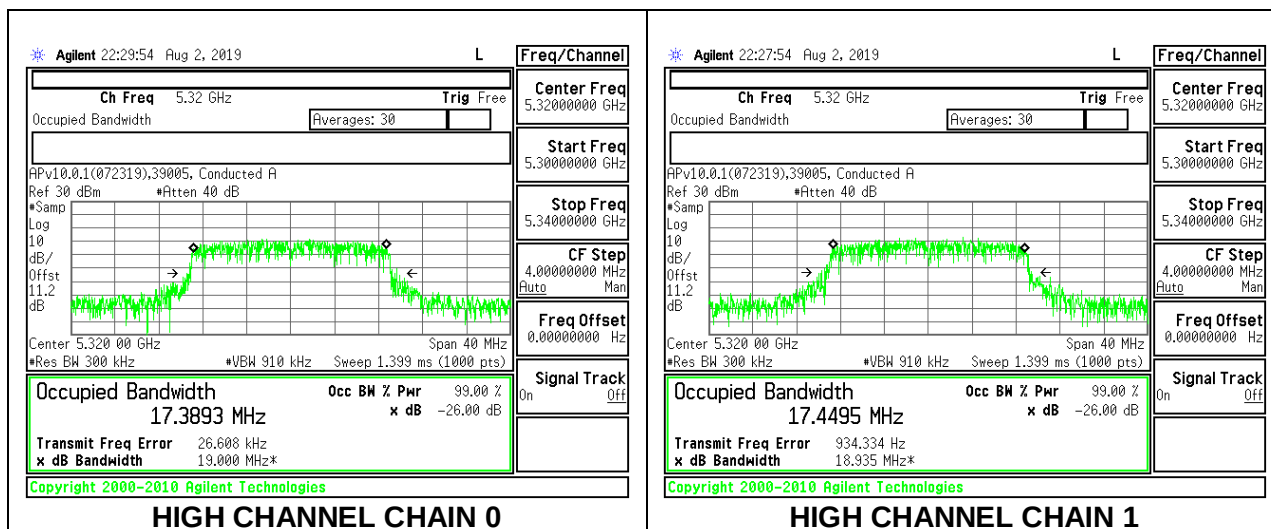
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

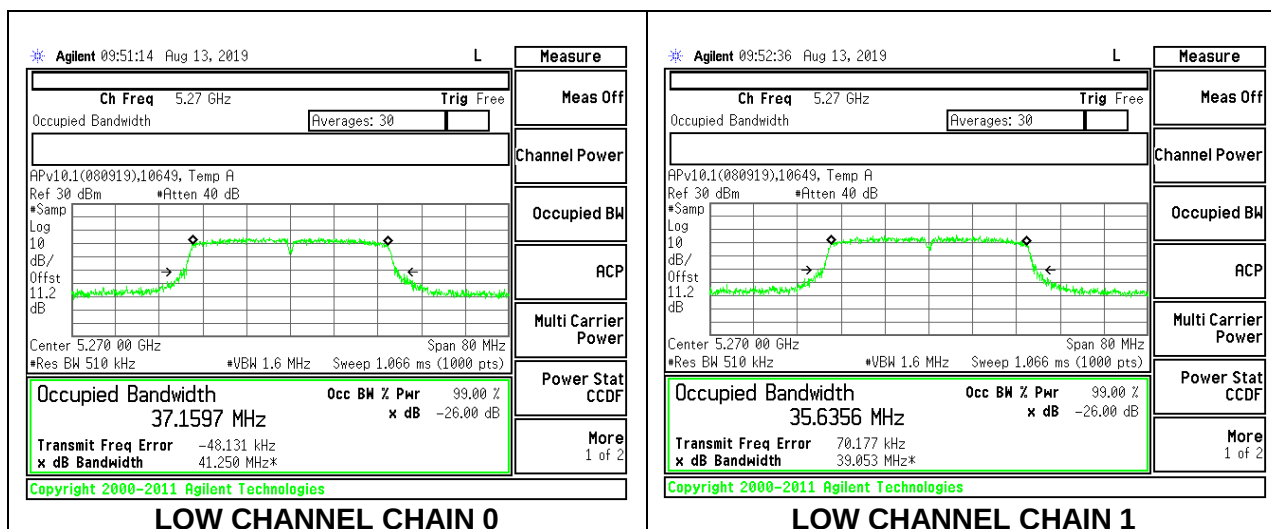


8.3.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

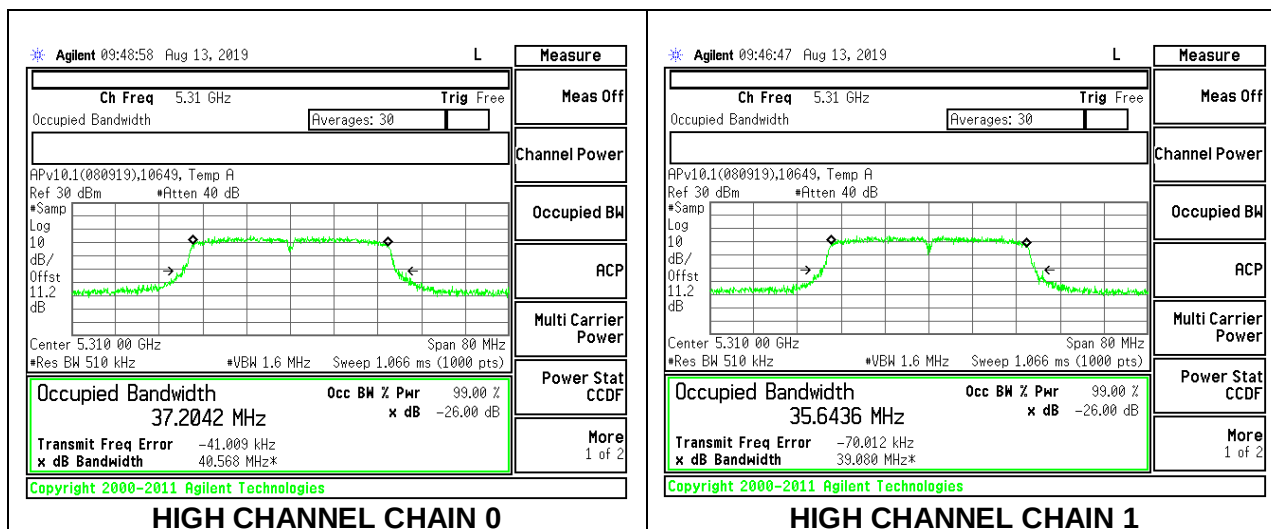
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5270	35.160	35.636
High	5310	37.204	35.644

LOW CHANNEL



HIGH CHANNEL

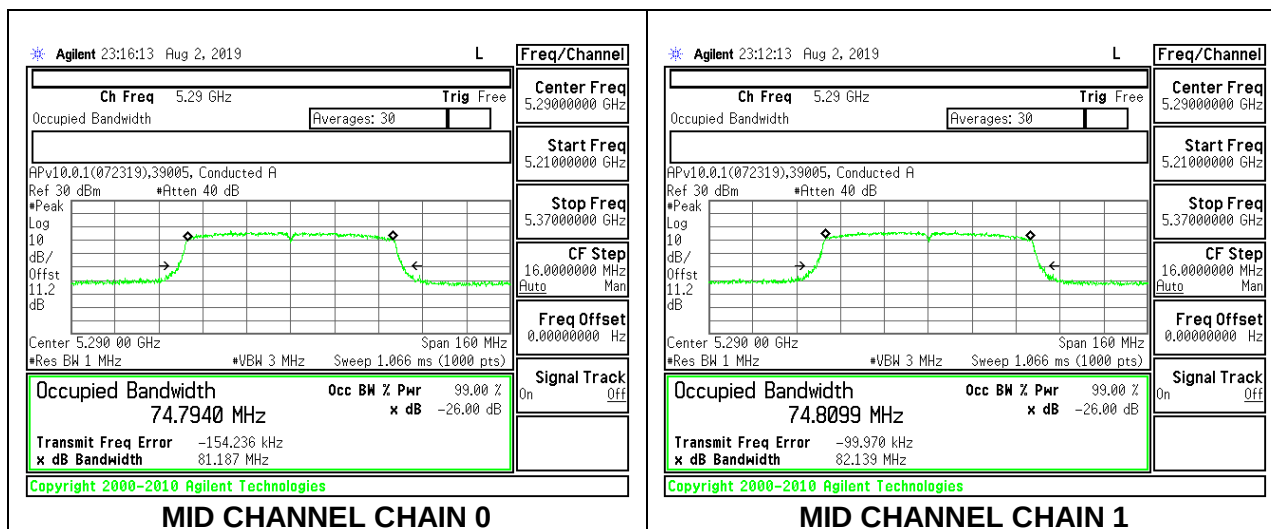


8.3.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Mid	5290	74.7940	74.8099

MID CHANNEL

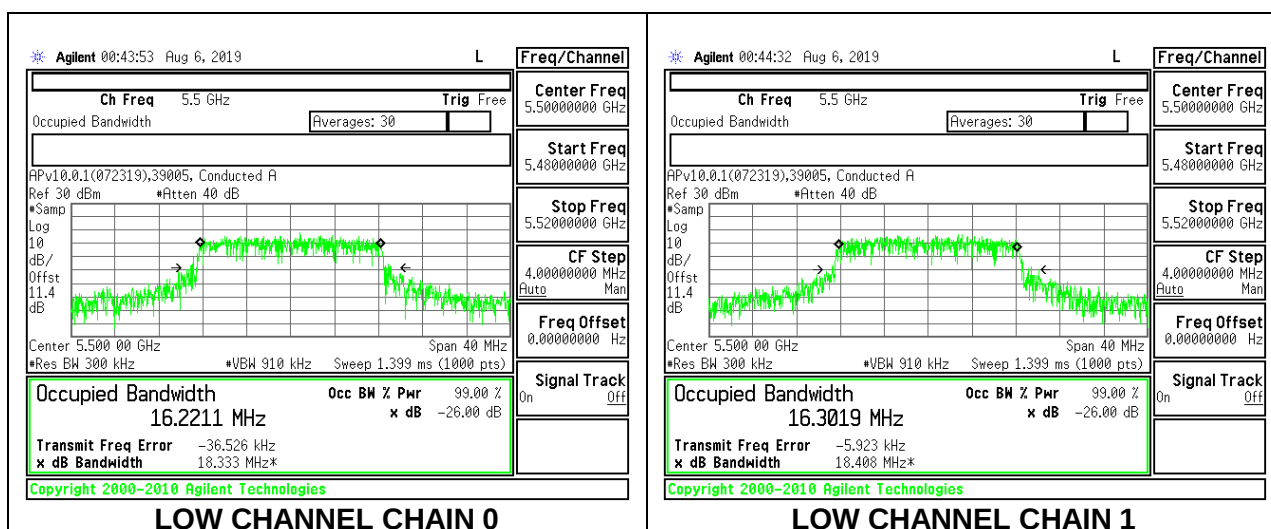


8.3.9. 802.11a MODE IN THE 5.6 GHz BAND

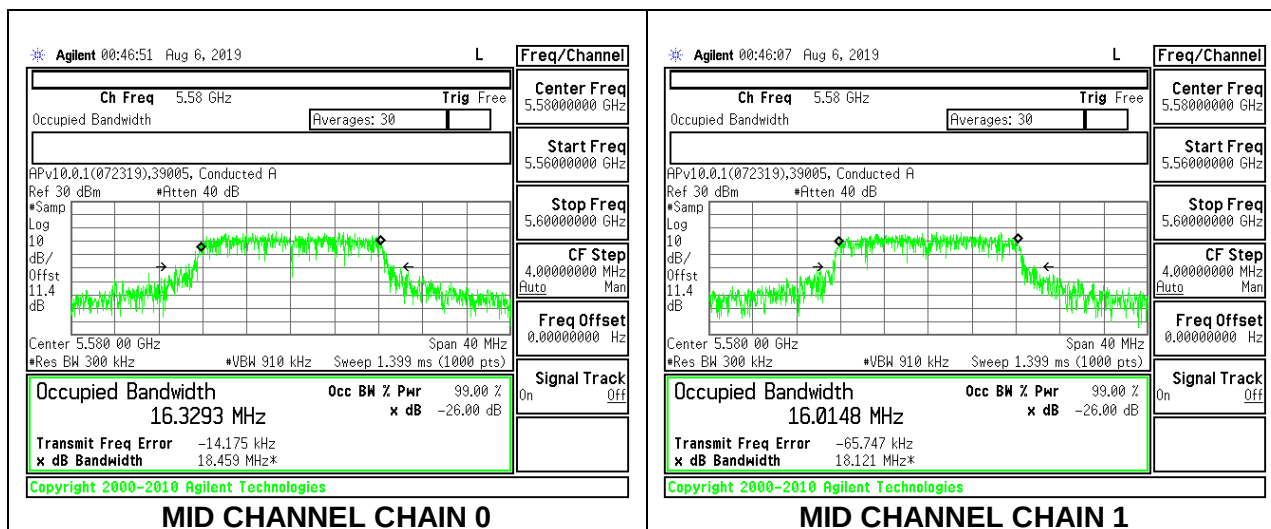
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5500	16.2210	16.3020
Mid	5580	16.3290	16.0150
High	5700	16.3250	16.3020
144	5720	16.1990	16.1270

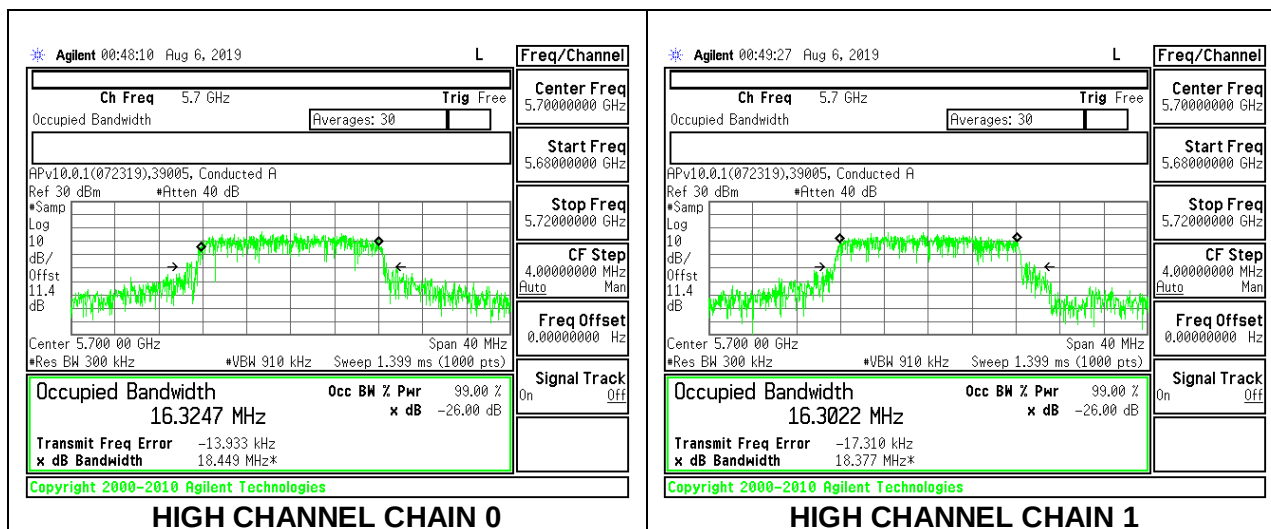
LOW CHANNEL



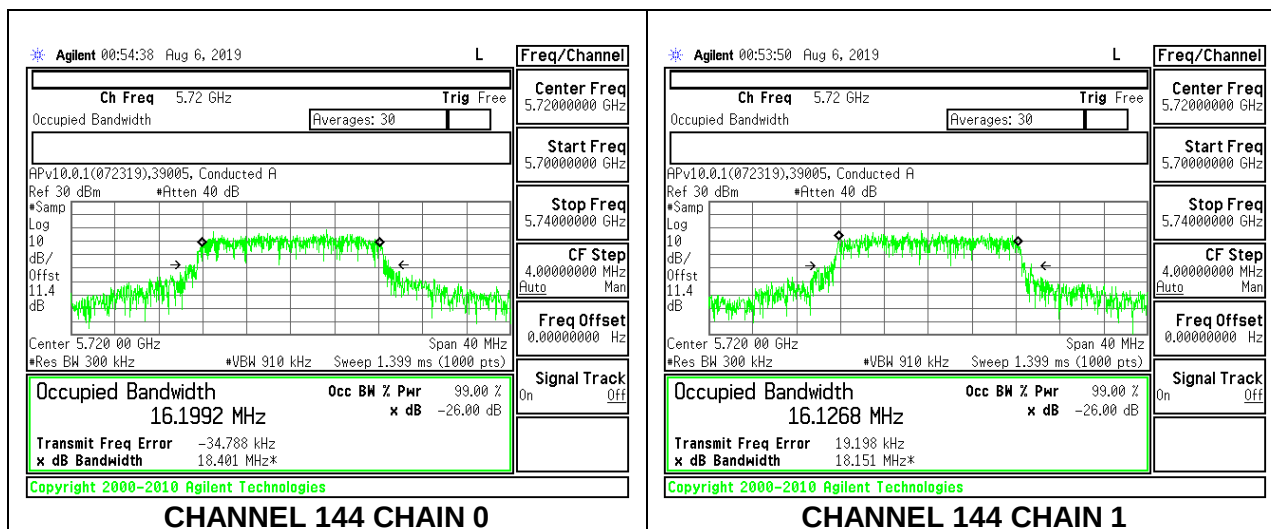
MID CHANNEL



HIGH CHANNEL



CHANNEL 144

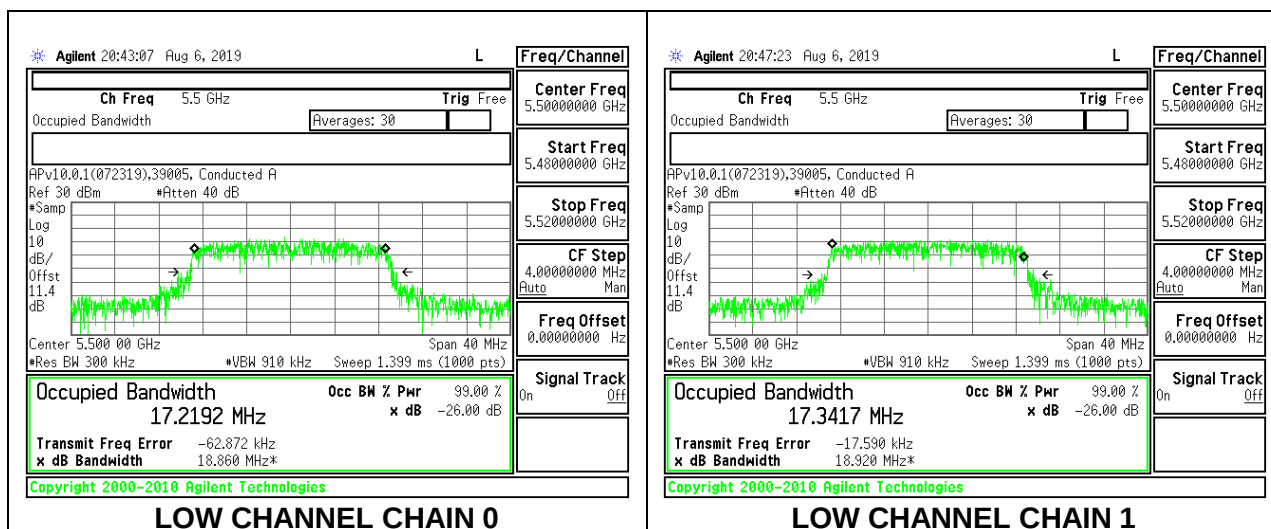


8.3.10. 802.11n HT20 MODE IN THE 5.6 GHz BAND

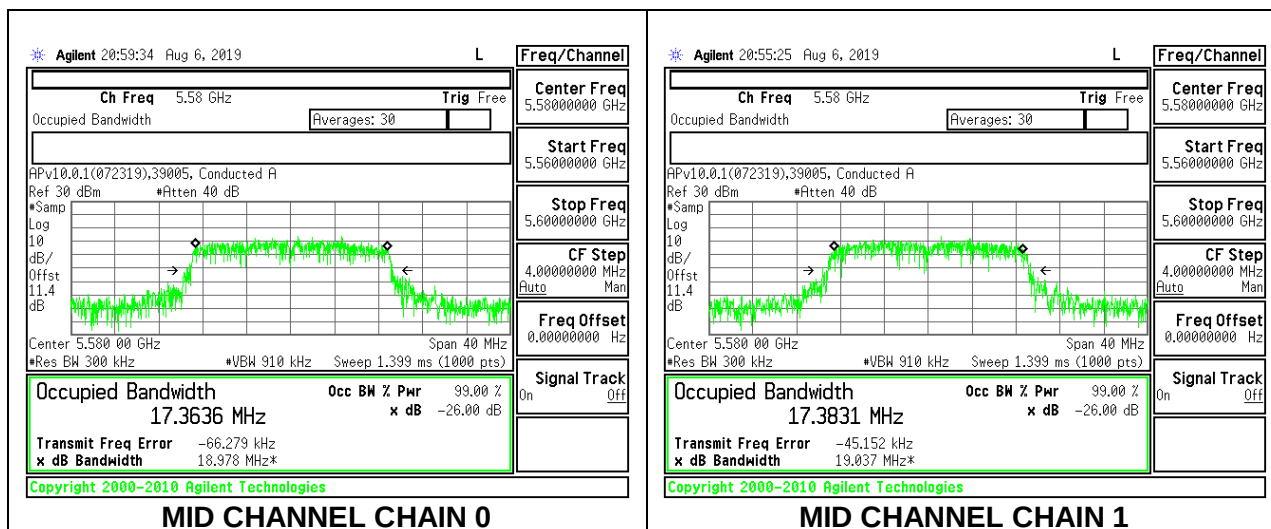
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5500	17.2190	17.3420
Mid	5580	17.3640	17.3830
High	5700	17.3740	17.2790
144	5720	17.4470	17.2050

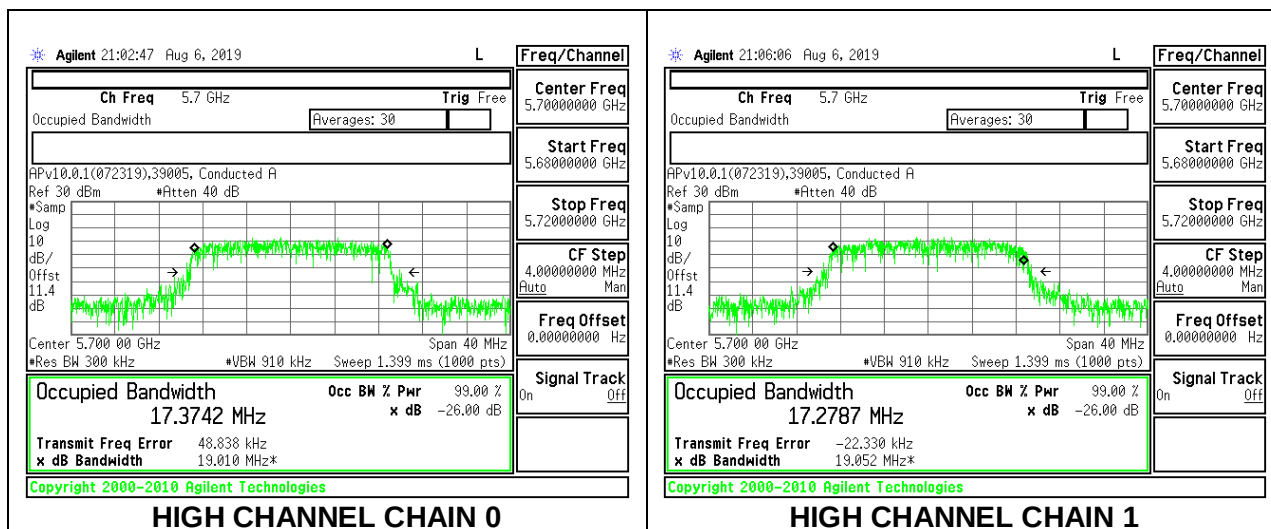
LOW CHANNEL



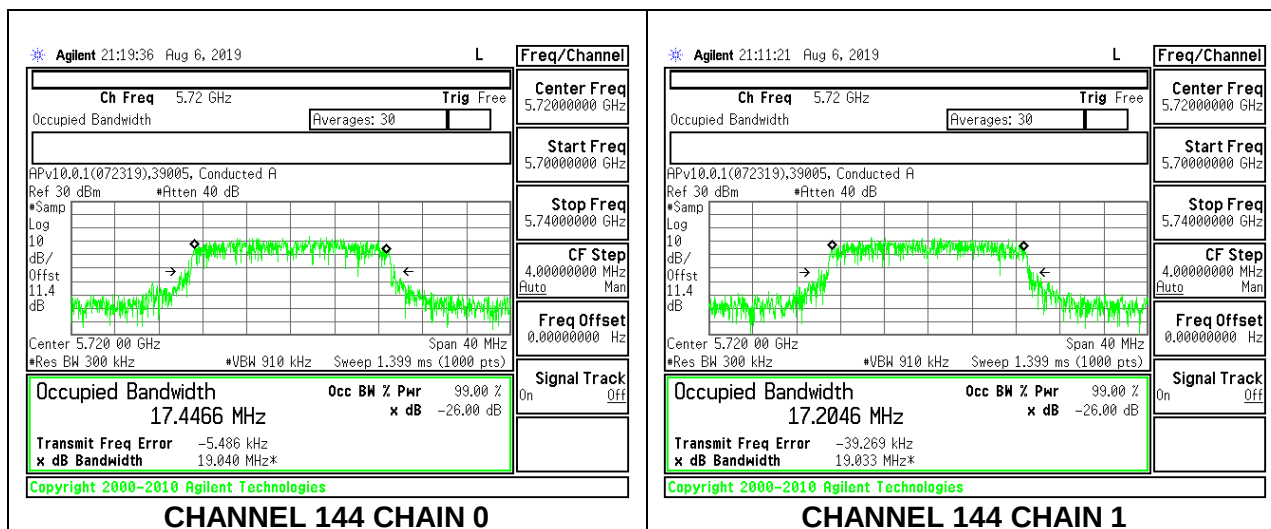
MID CHANNEL



HIGH CHANNEL



CHANNEL 144

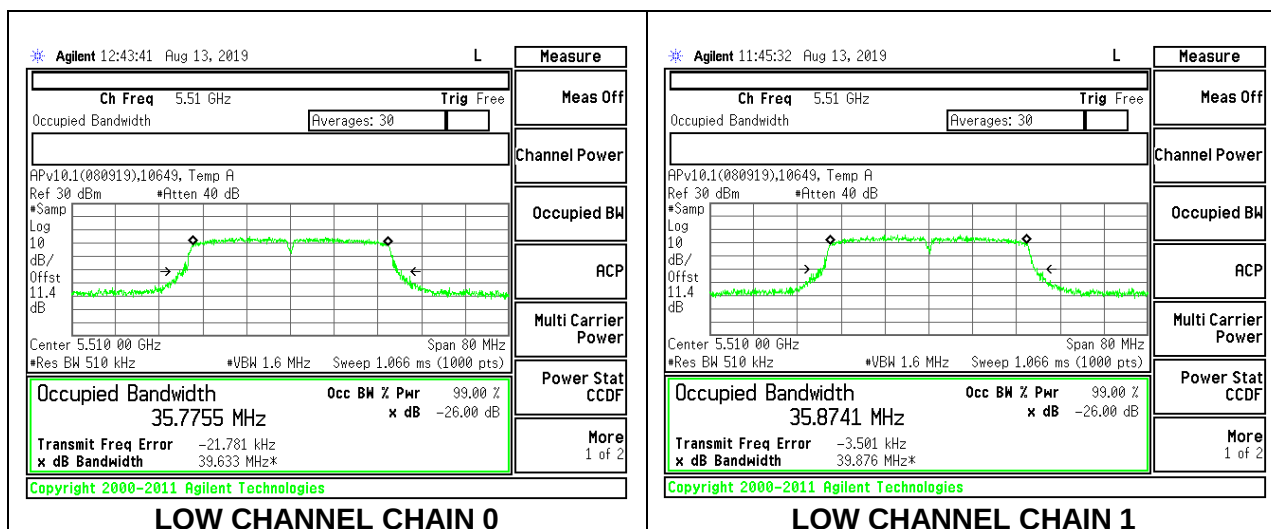


8.3.11. 802.11n HT40 MODE IN THE 5.6 GHz BAND

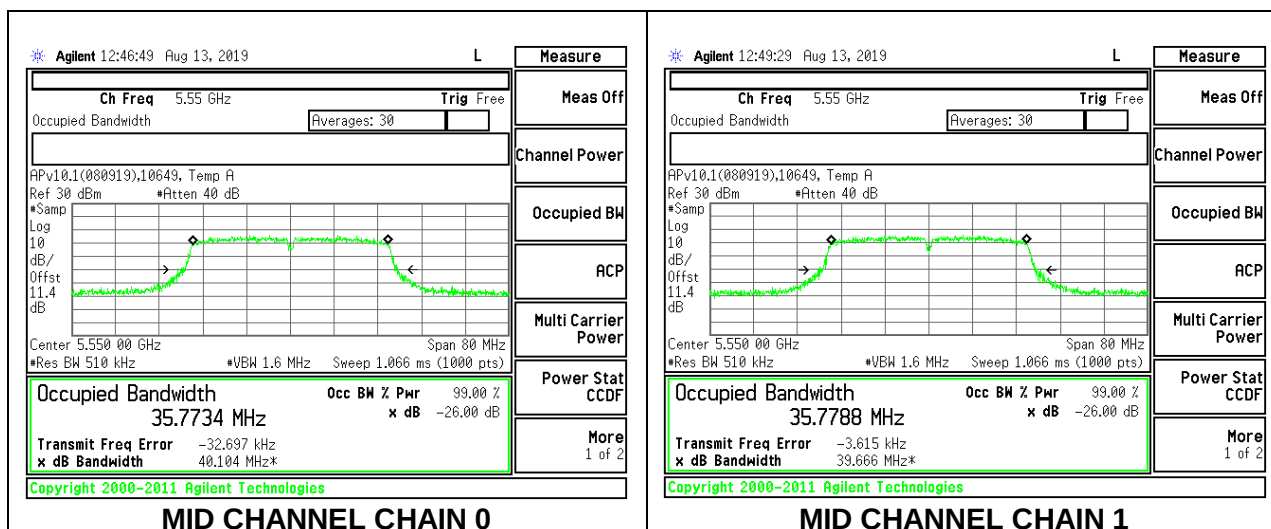
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5510	35.776	35.874
Mid	5550	35.773	35.779
High	5670	35.740	35.784
142	5710	35.693	35.809

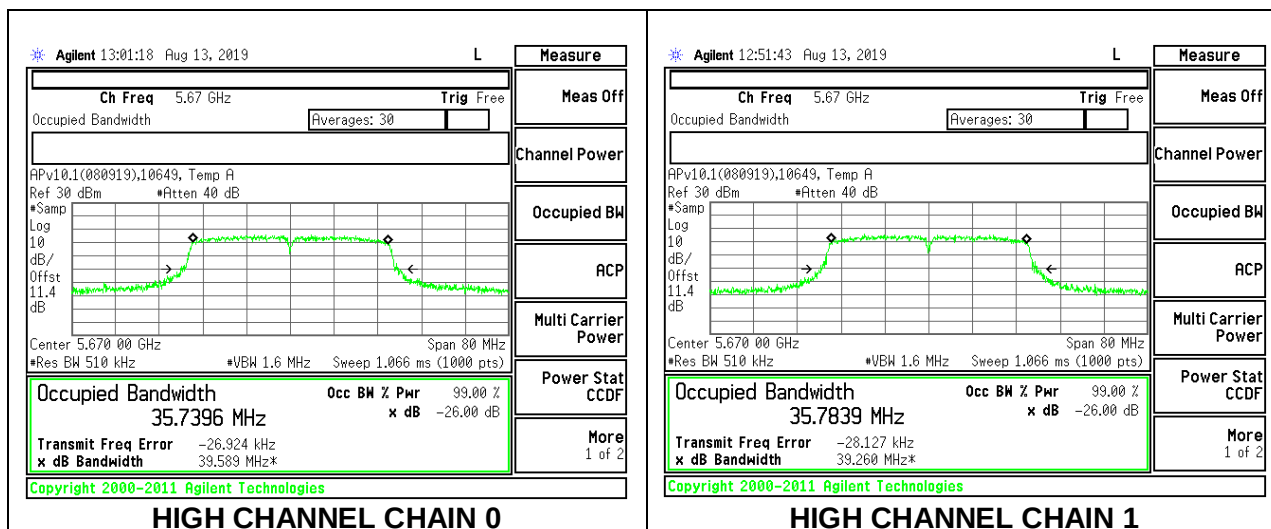
LOW CHANNEL



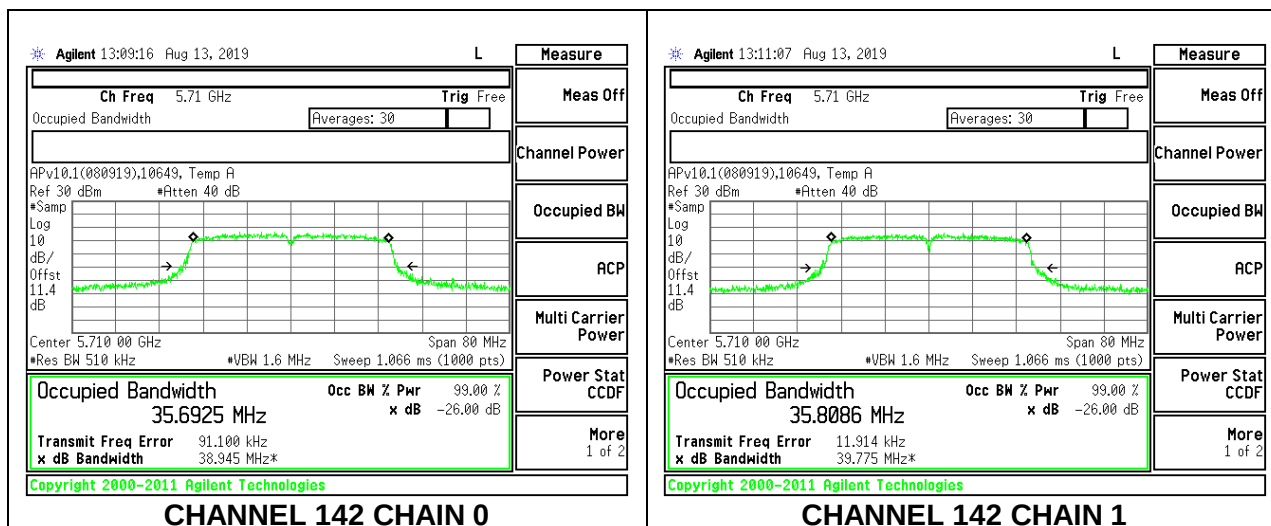
MID CHANNEL



HIGH CHANNEL



CHANNEL 142

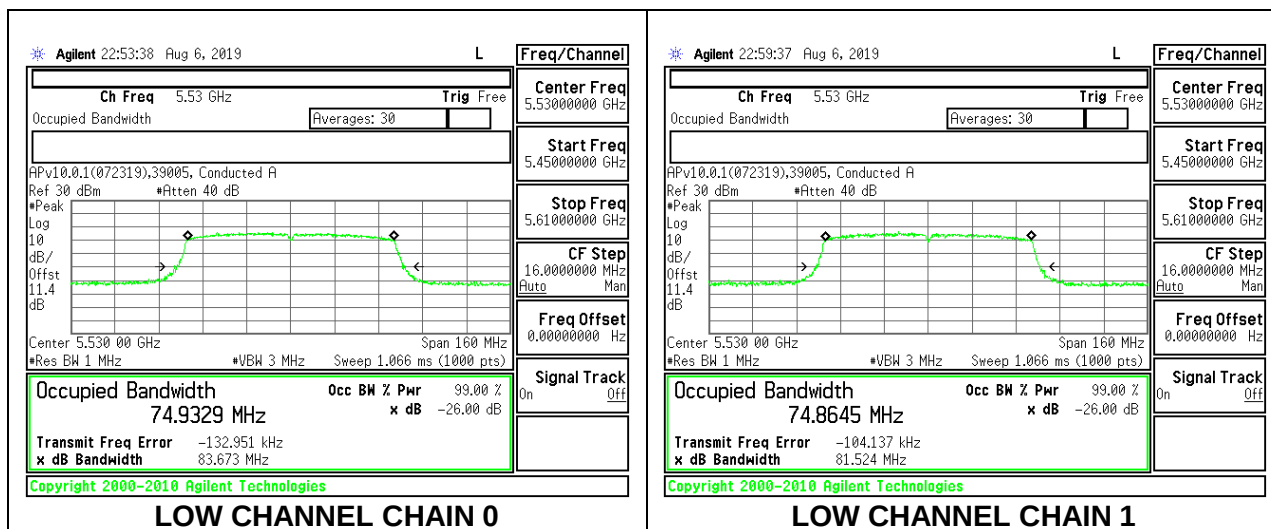


8.3.12. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

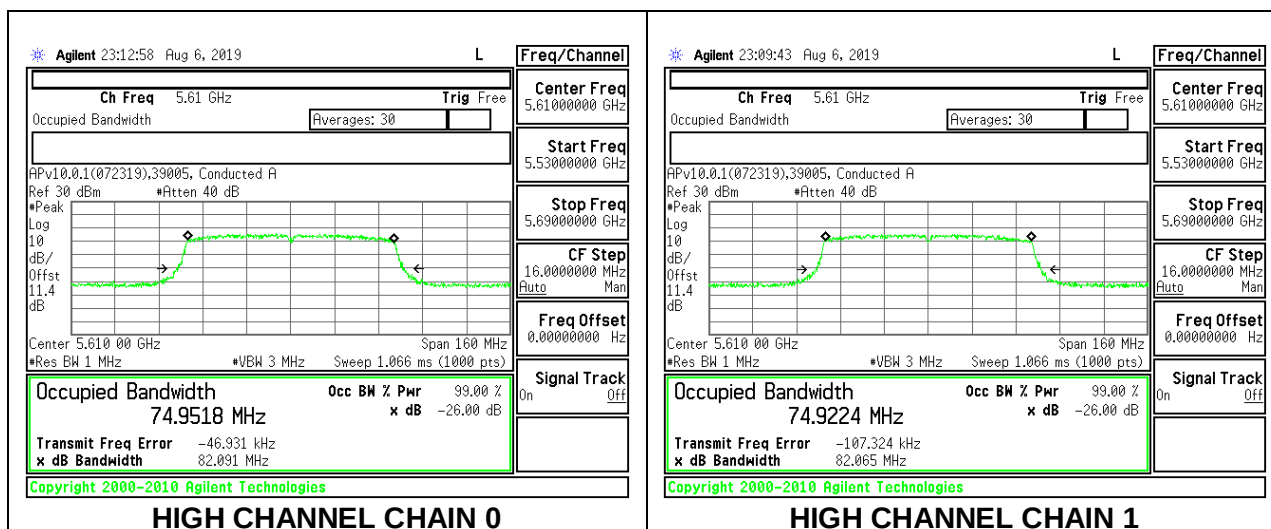
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5530	74.9310	74.8650
High	5610	74.9530	74.9220
138	5690	75.0615	74.9433

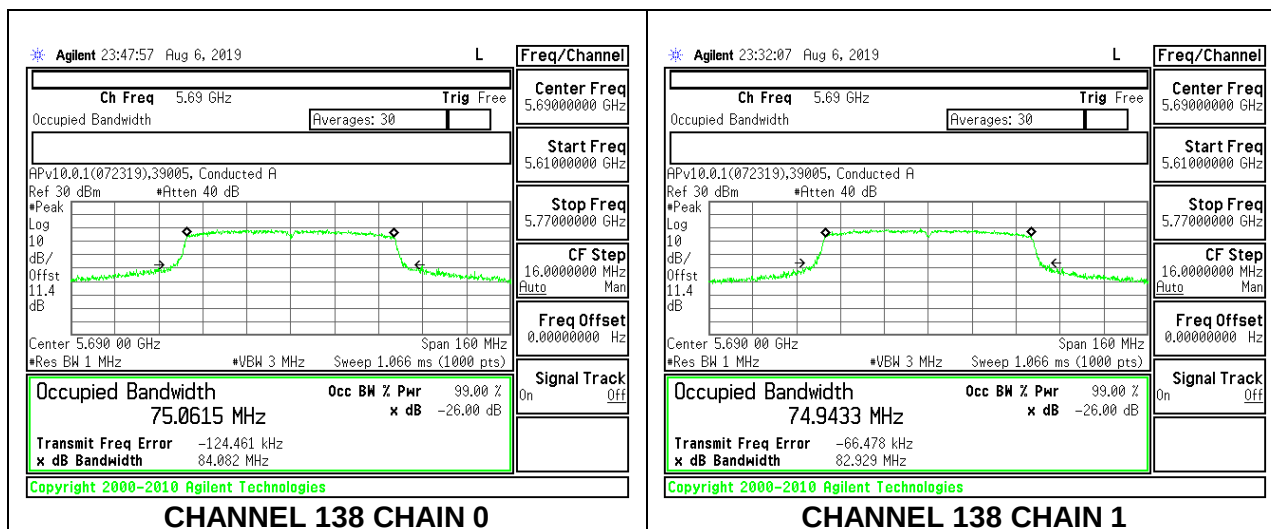
LOW CHANNEL



HIGH CHANNEL



CHANNEL 138

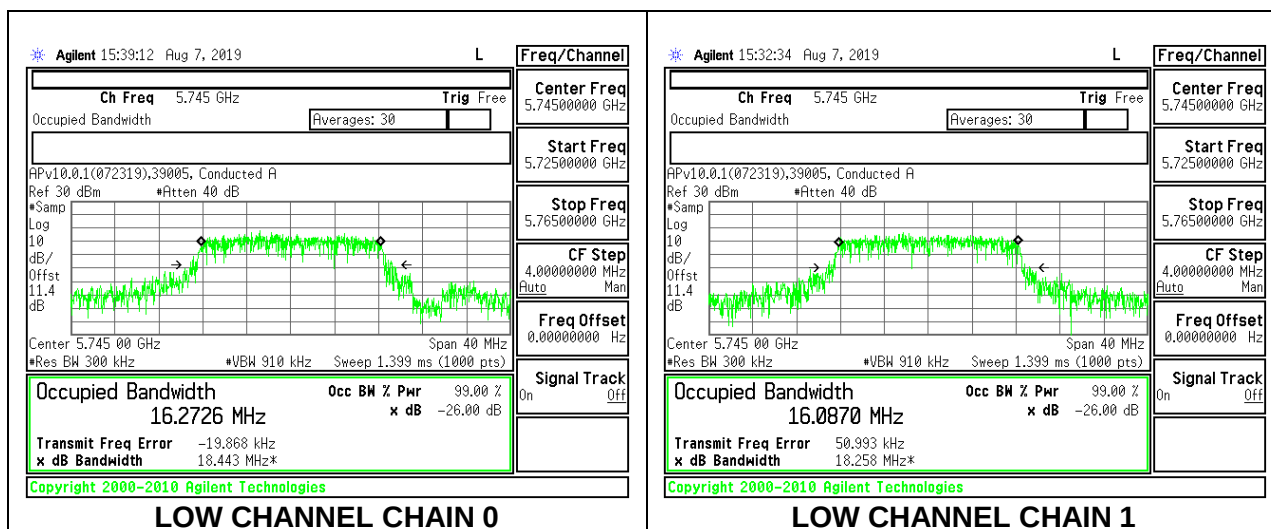


8.3.13. 802.11a MODE IN THE 5.8 GHz BAND

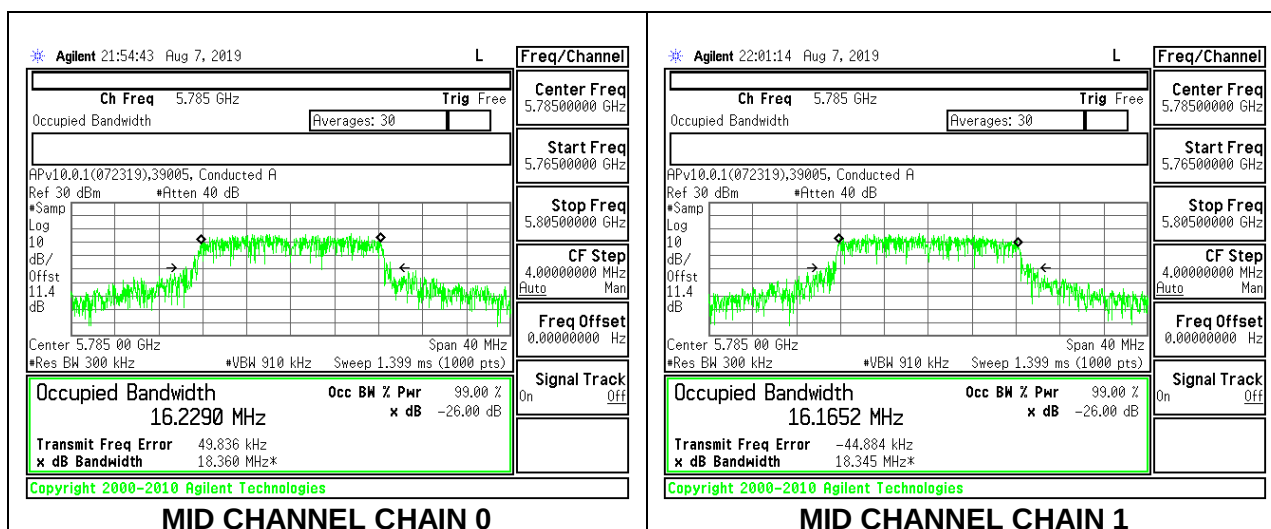
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5745	16.2730	16.0870
Mid	5785	16.2290	16.1650
High	5825	16.1810	16.2340

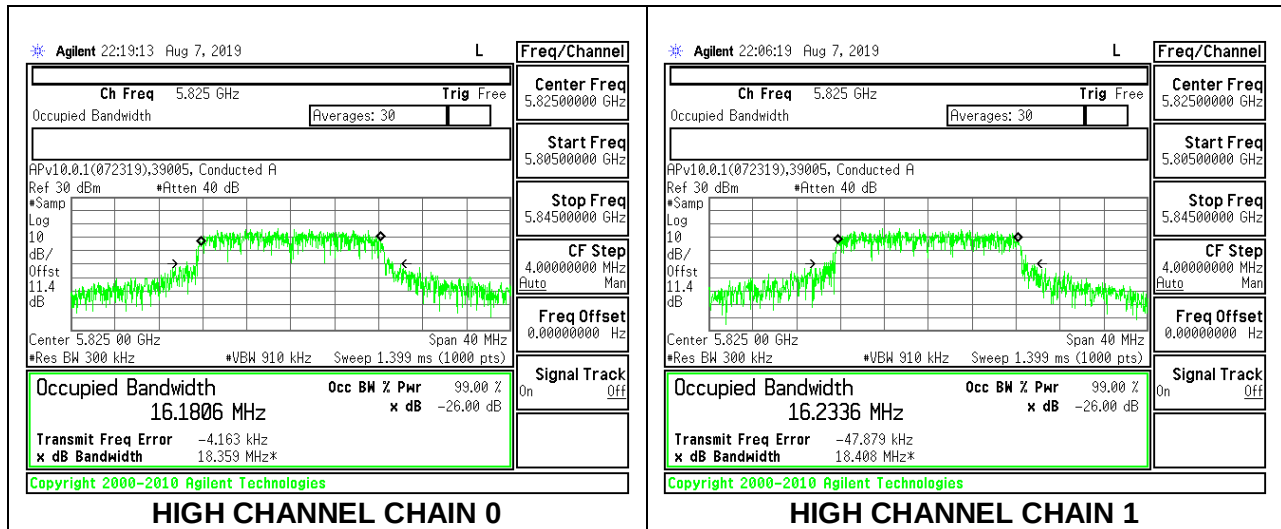
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

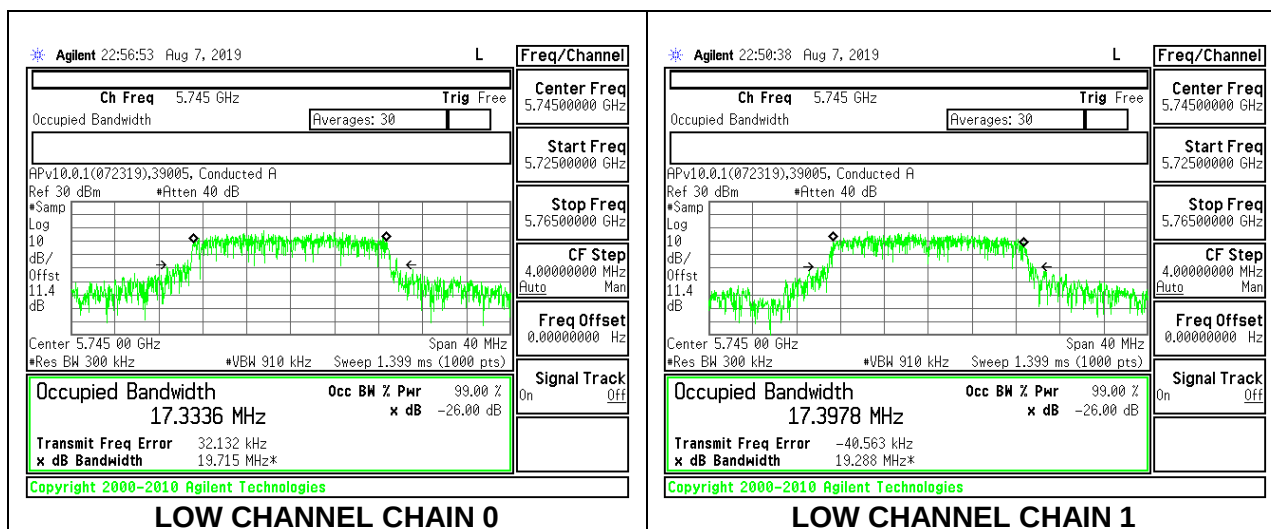


8.3.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

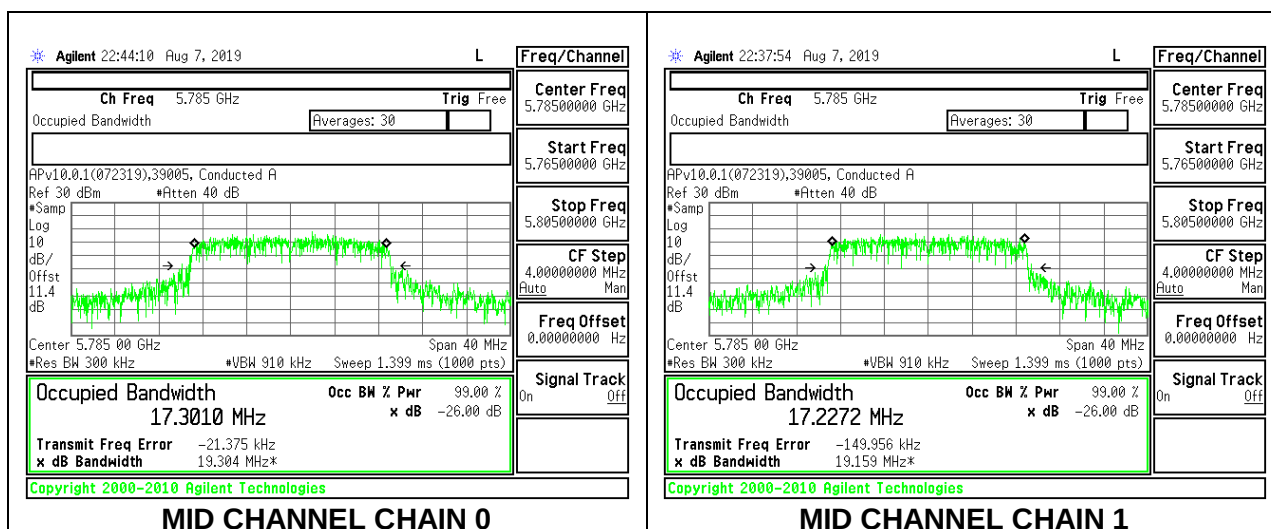
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5745	17.3340	17.3980
Mid	5785	17.3010	17.2270
High	5825	17.4060	17.4830

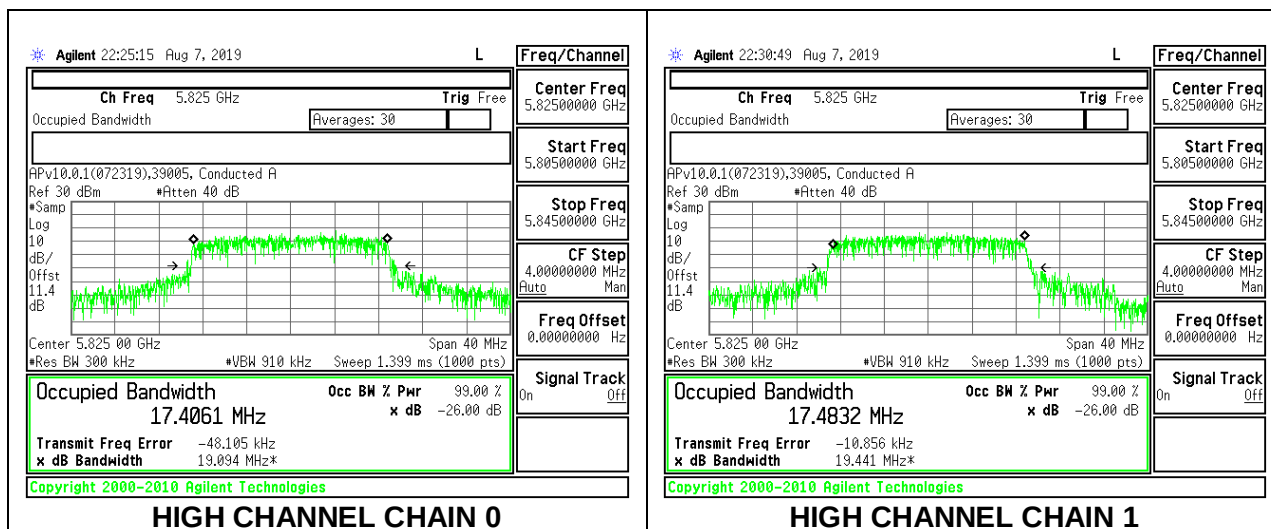
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

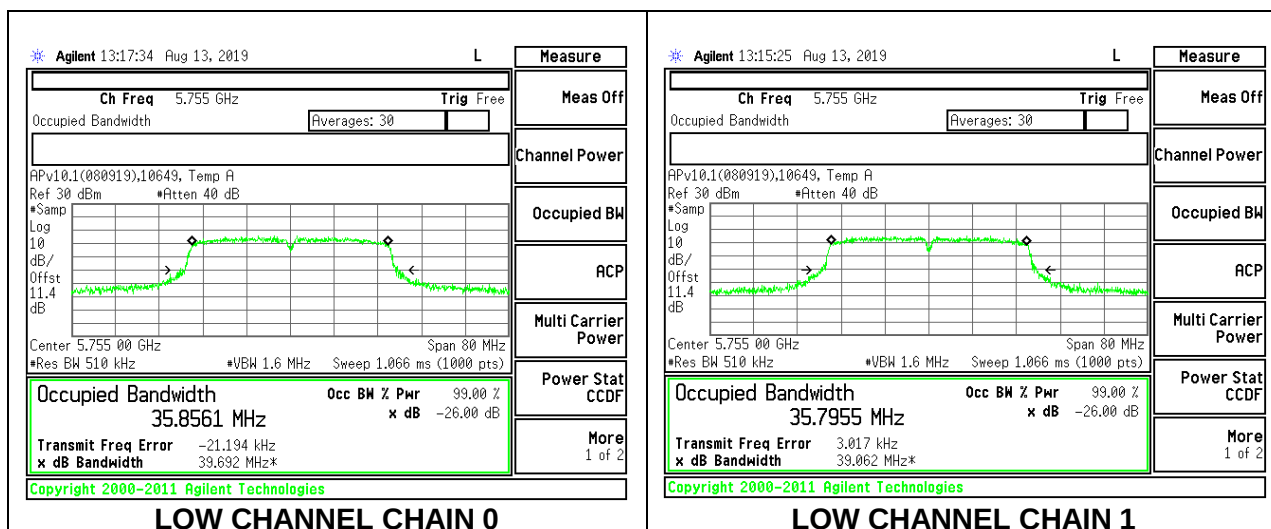


8.3.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

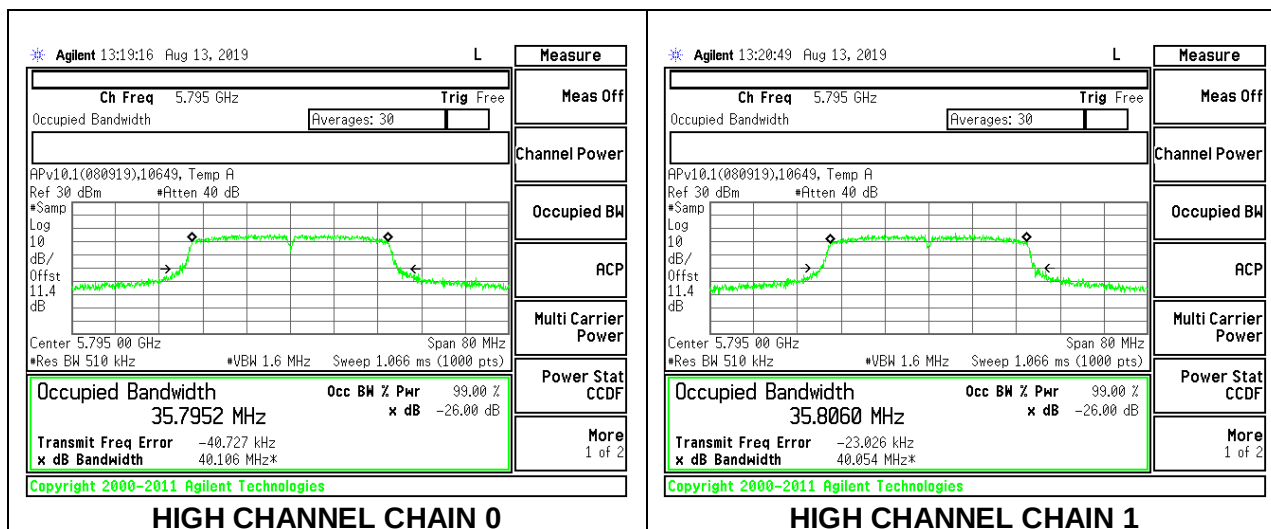
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5755	35.8561	35.7955
High	5795	35.7952	35.8060

LOW CHANNEL



HIGH CHANNEL

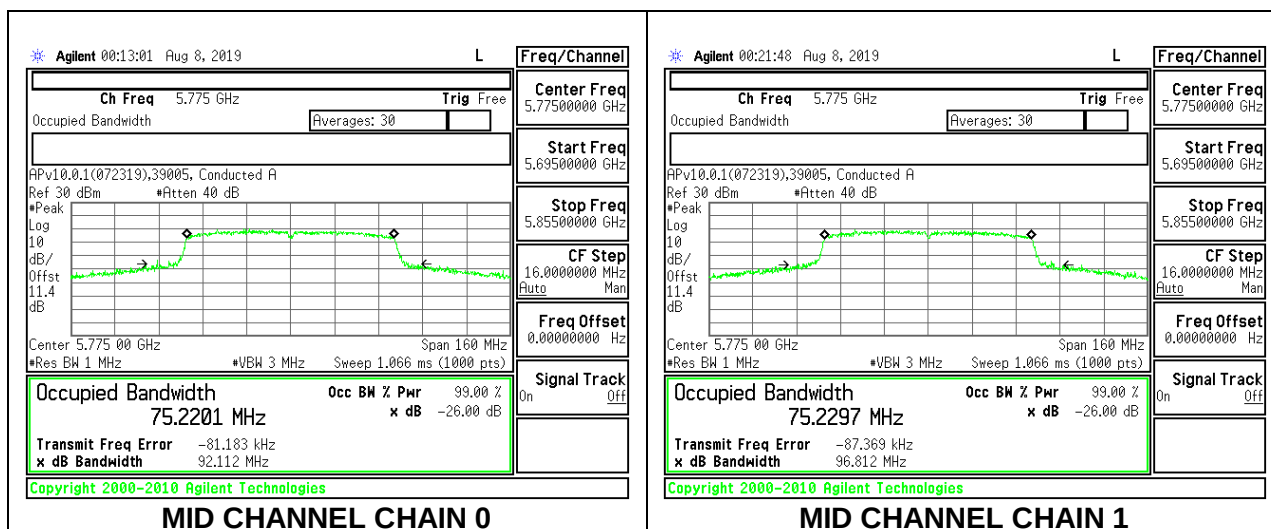


8.3.16. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Mid	5775	75.2201	75.2297

MID CHANNEL



8.4. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

RSS-247 6.2.4.1

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

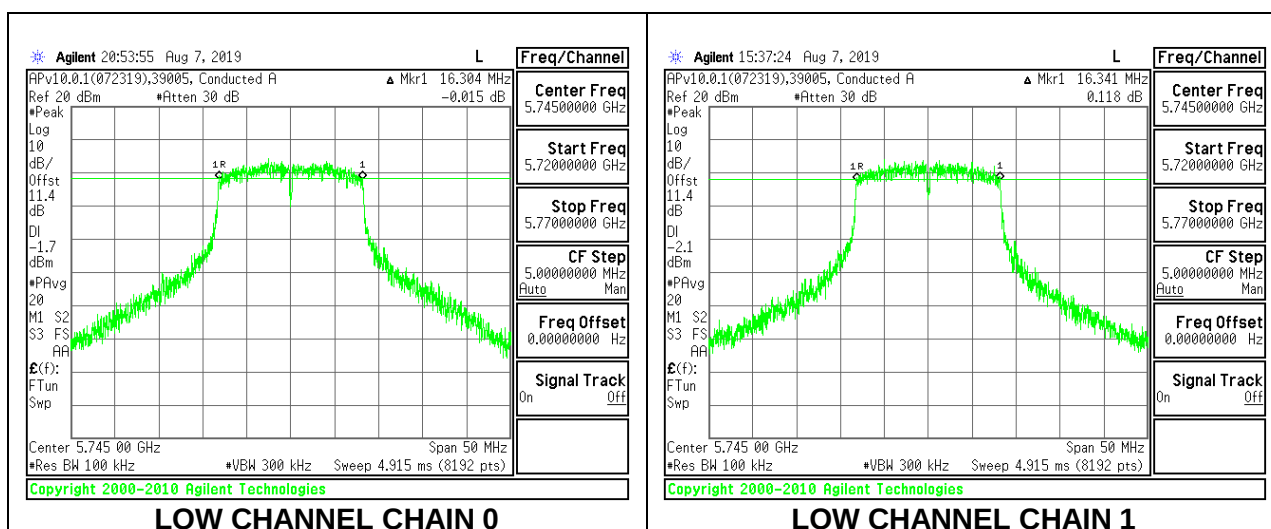
RESULTS

8.4.1. 802.11a MODE IN THE 5.8 GHz BAND

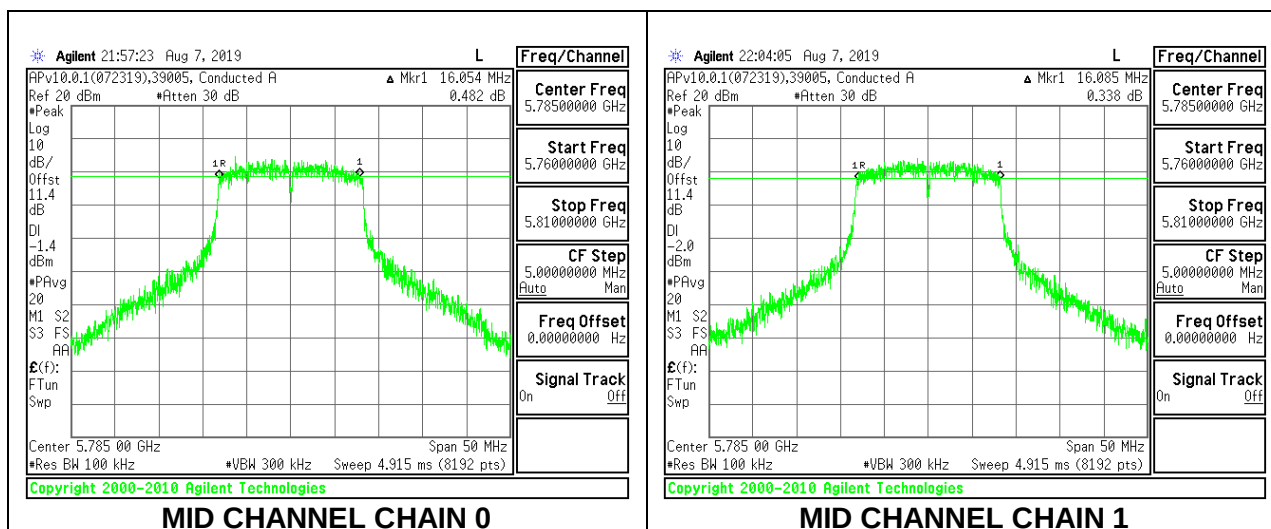
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5745	16.3040	16.3410	0.5
Mid	5785	16.0540	16.0850	0.5
High	5825	16.3660	16.3170	0.5
144	5720	3.1460	3.1710	0.5

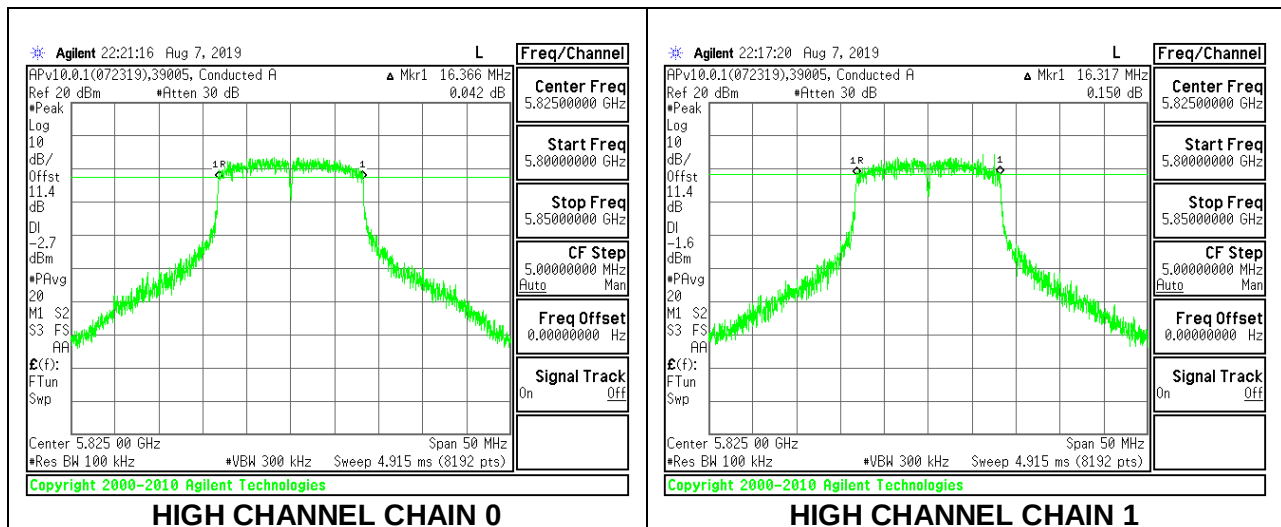
LOW CHANNEL



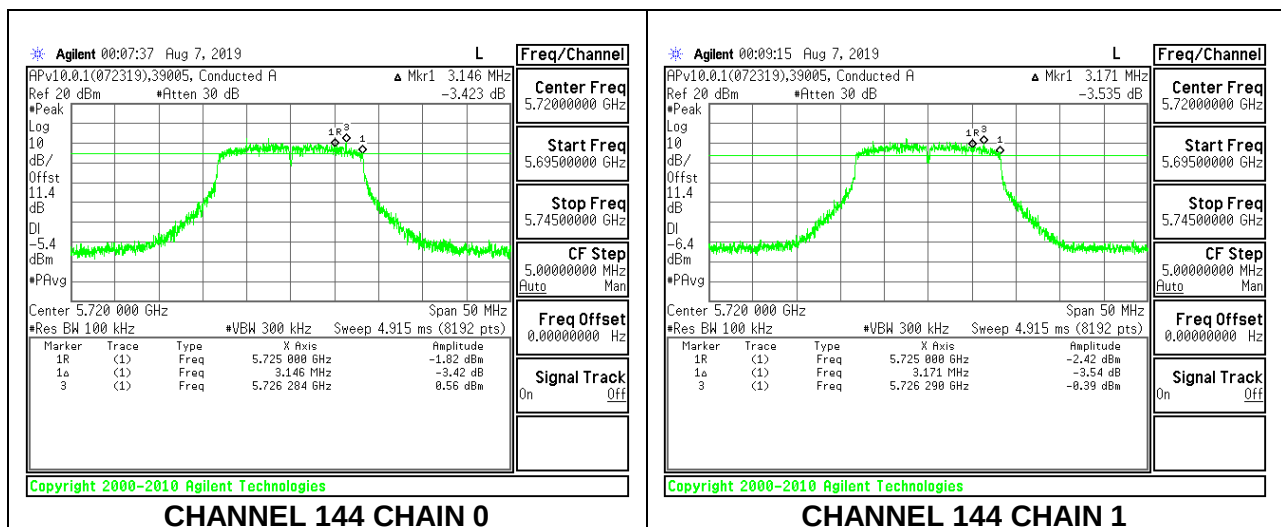
MID CHANNEL



HIGH CHANNEL



CHANNEL 144

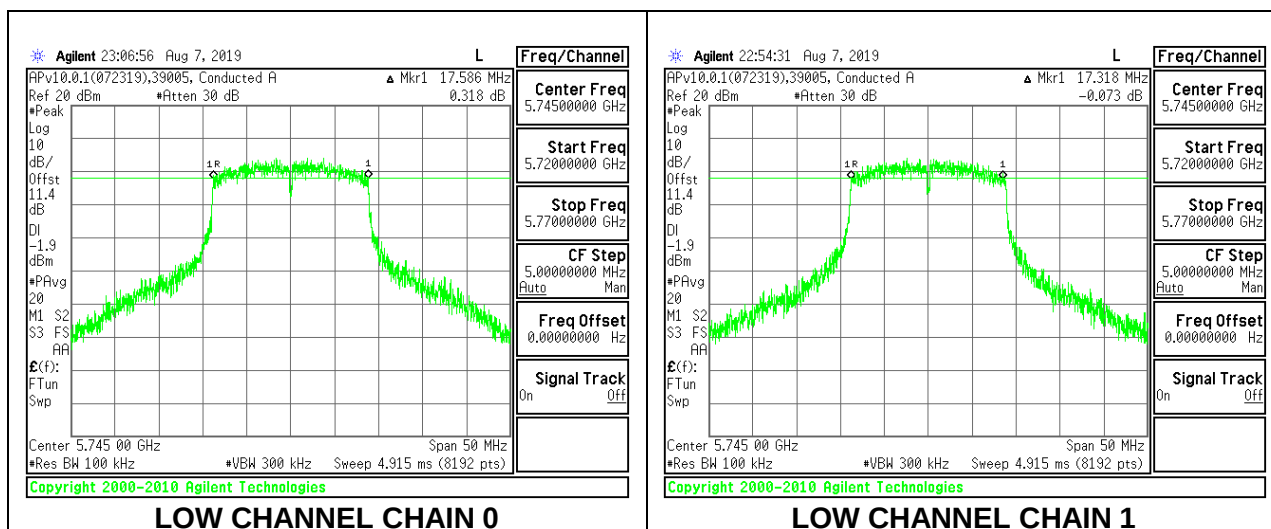


8.4.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

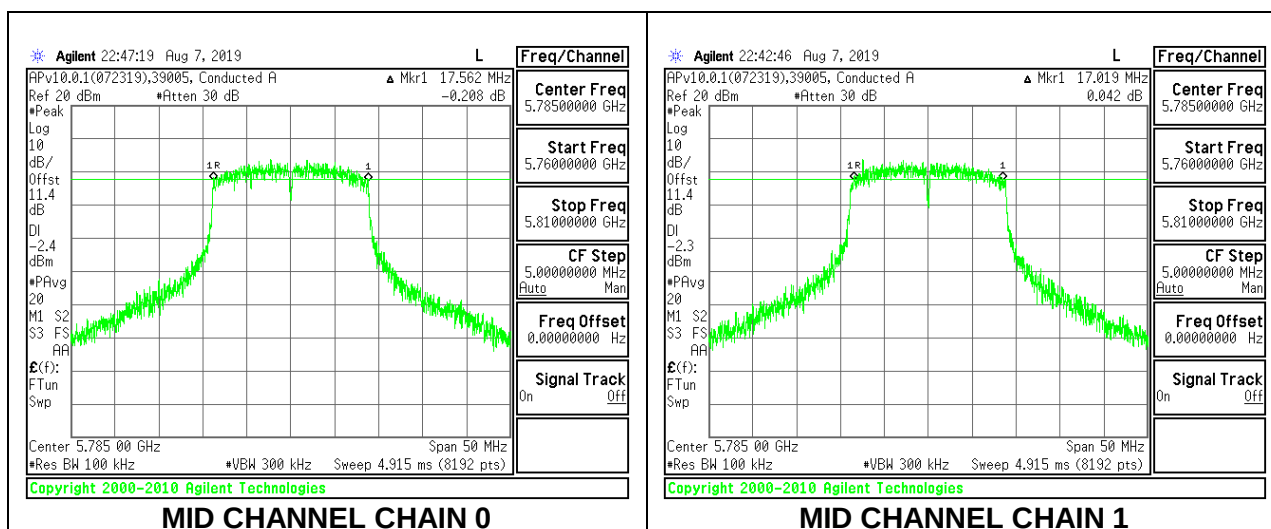
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5745	17.5860	17.3180	0.5
Mid	5785	17.5620	17.0190	0.5
High	5825	17.5130	17.5920	0.5
144	5720	3.7870	3.7870	0.5

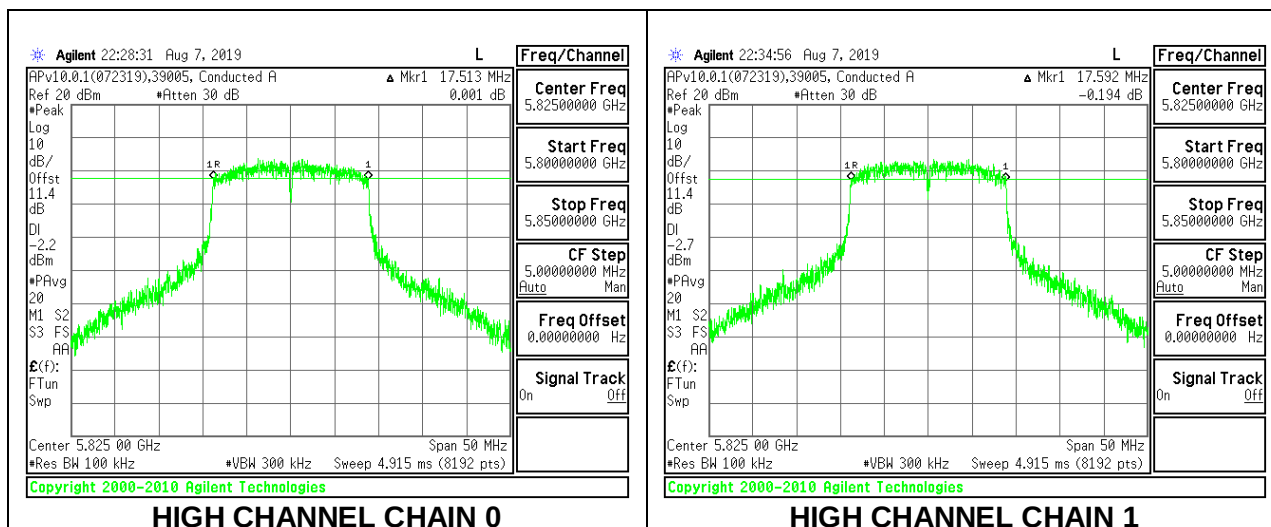
LOW CHANNEL



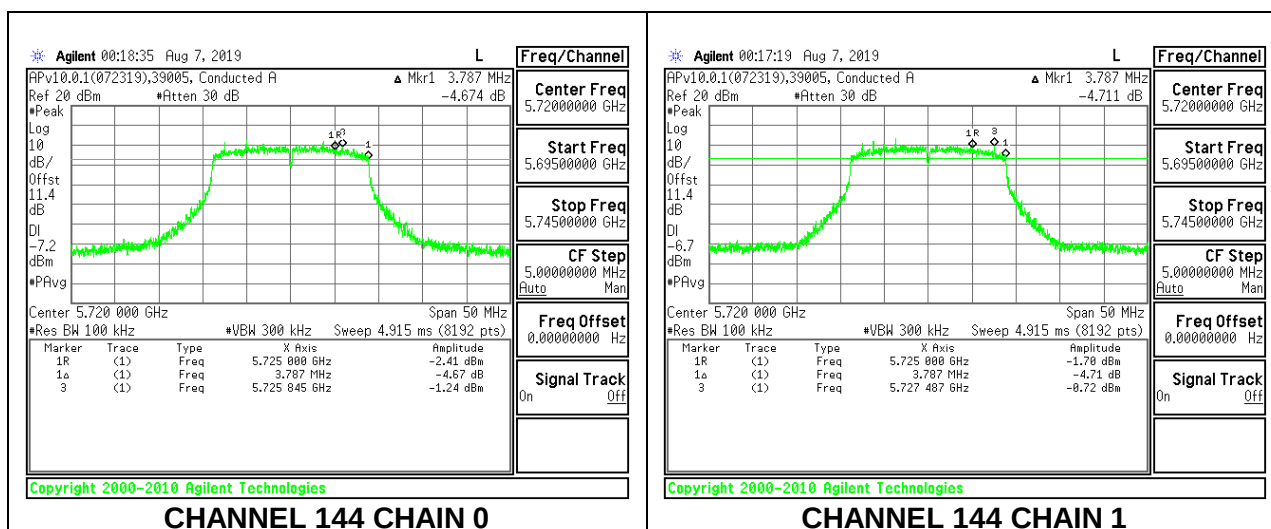
MID CHANNEL



HIGH CHANNEL



CHANNEL 144

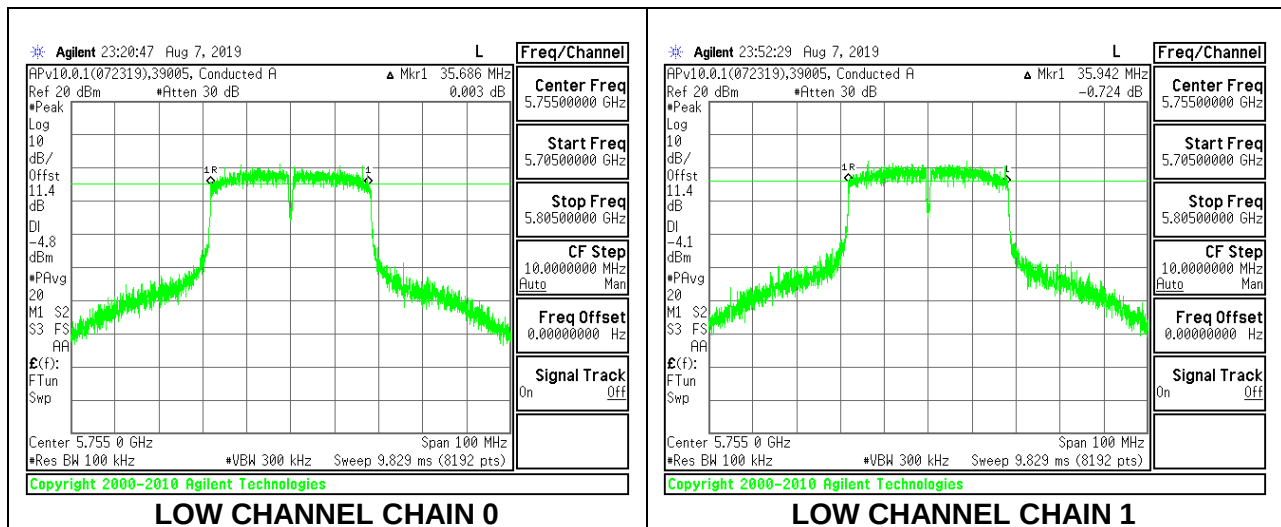


8.4.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

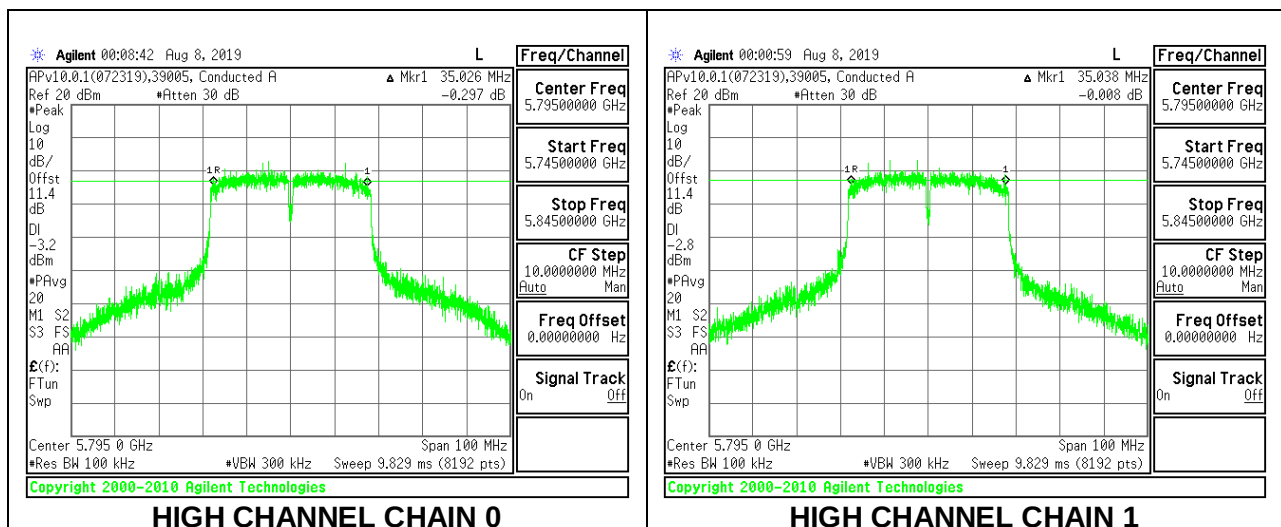
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5755	35.6860	35.9420	0.5
High	5795	35.0260	35.0380	0.5
142	5710	3.1240	3.1600	0.5

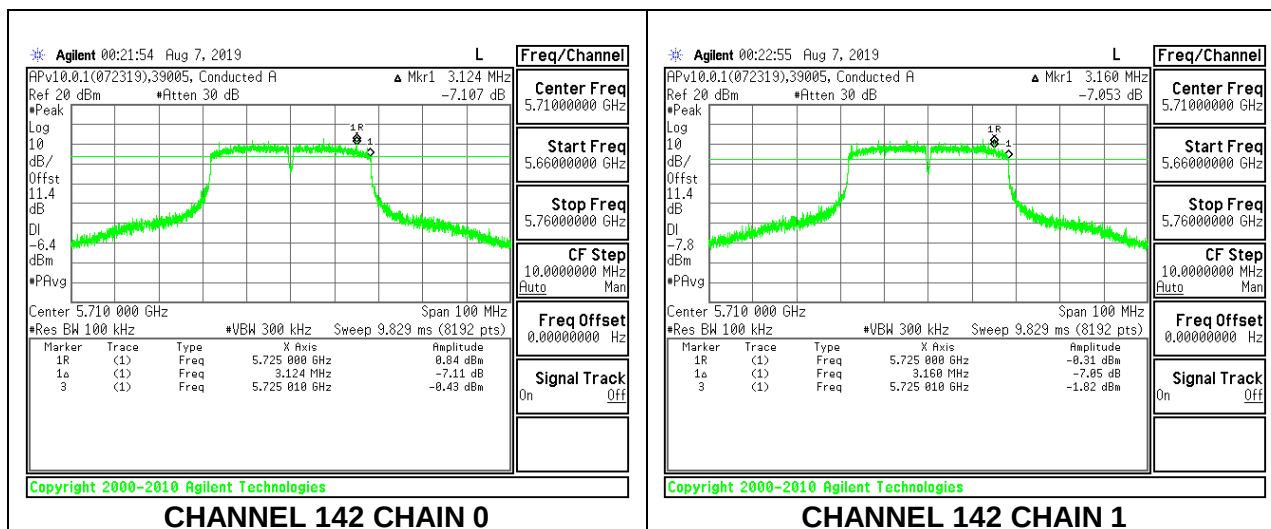
LOW CHANNEL



HIGH CHANNEL



CHANNEL 142

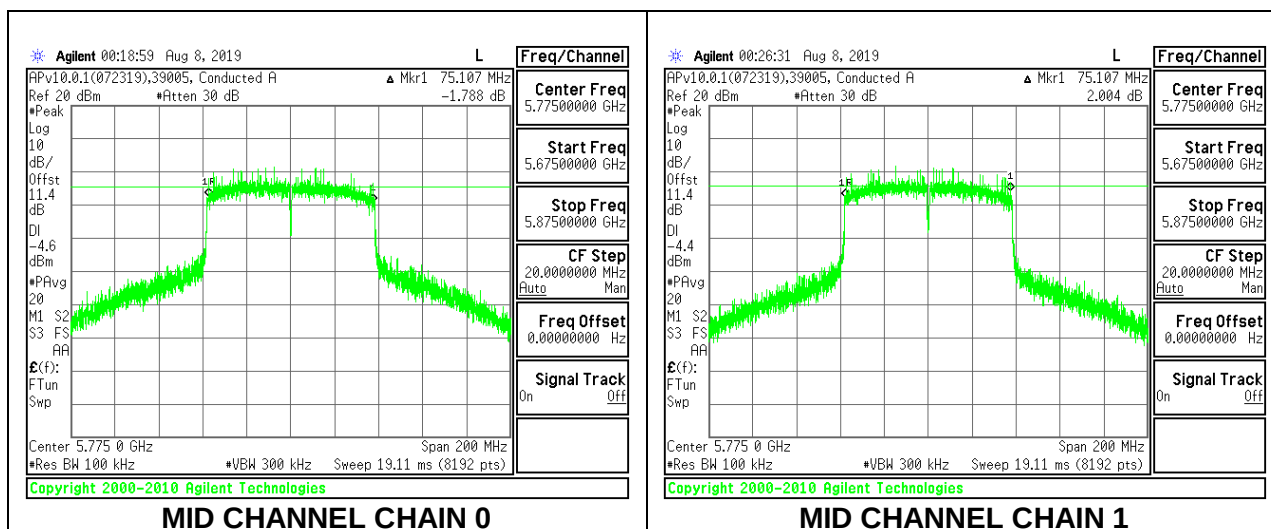


8.4.4. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

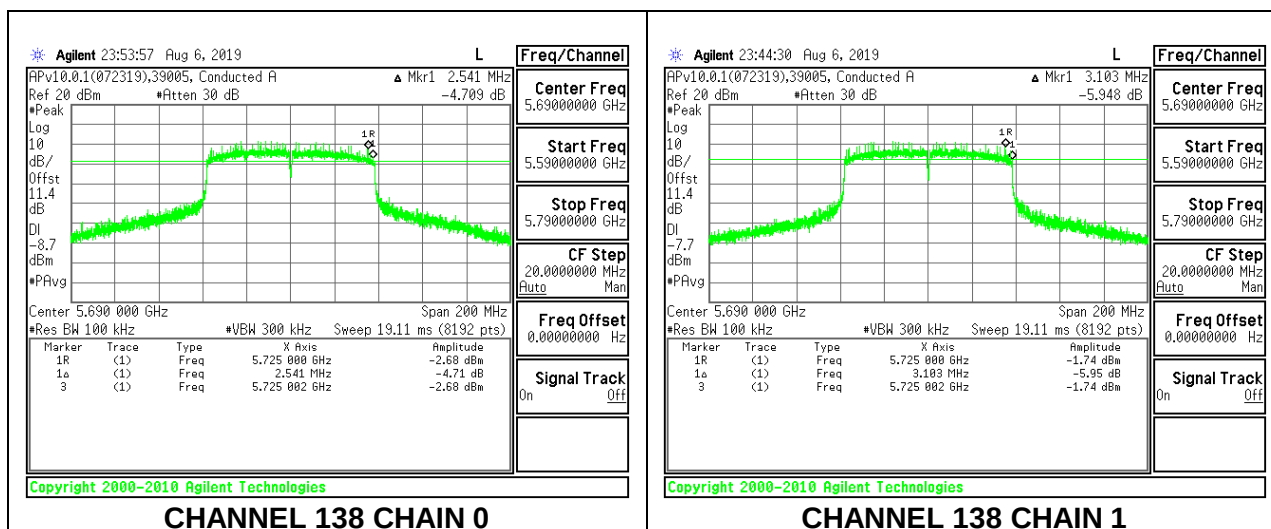
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Mid	5775	75.1070	75.1070	0.5
138	5690	2.5410	3.1030	0.5

MID CHANNEL



CHANNEL 138



8.5. OUTPUT POWER AND PSD

LIMITS

FCC §15.407

Band 5.15–5.25 GHz (pick the section that applies to your product)

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

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

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

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

Bands 5.25-5.35 GHz and 5.47-5.725 GHz

The maximum conducted output power over the frequency bands 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 megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Band 5.725-5.85 GHz

The maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

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Band 5.15-5.25 GHz

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Band 5.25-5.35 GHz

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Bands 5.47-5.6 GHz and 5.65-5.725 GHz

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Band 5.725-5.85 GHz

The maximum conducted output power shall not exceed 1 W. The power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

TEST PROCEDURE

The measurement method used for output power is KDB 789033 D02 v02r01, Section E.3.b (Method PM-G) and for straddles channels KDB 789033 D02 v02r01, Section E.2.b (Method SA-1) was used.

The measurement method used for power spectral density is KDB 789033 D02 v02r01, Section F

DIRECTIONAL ANTENNA GAIN

For 2 TX:

Tx chains are uncorrelated for power and correlated for PSD due to the device supporting CDD in all MIMO modes. The directional gains are as follows:

Band (GHz)	Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.2	7.5	2.4	5.66	8.33
5.3	8.4	2.9	6.47	9.09
5.6	7.9	4.9	6.65	9.54
5.8	7.9	3.5	6.23	8.99

RESULTS

8.5.1. 802.11a MODE IN THE 5.2 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE (FCC) MOBILE

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5180	5.66	8.33	24.00	8.67
Mid	5200	5.66	8.33	24.00	8.67
High	5240	5.66	8.33	24.00	8.67

Duty Cycle CF (dB)	0.22	Included in Calculations of Corr'd PSD
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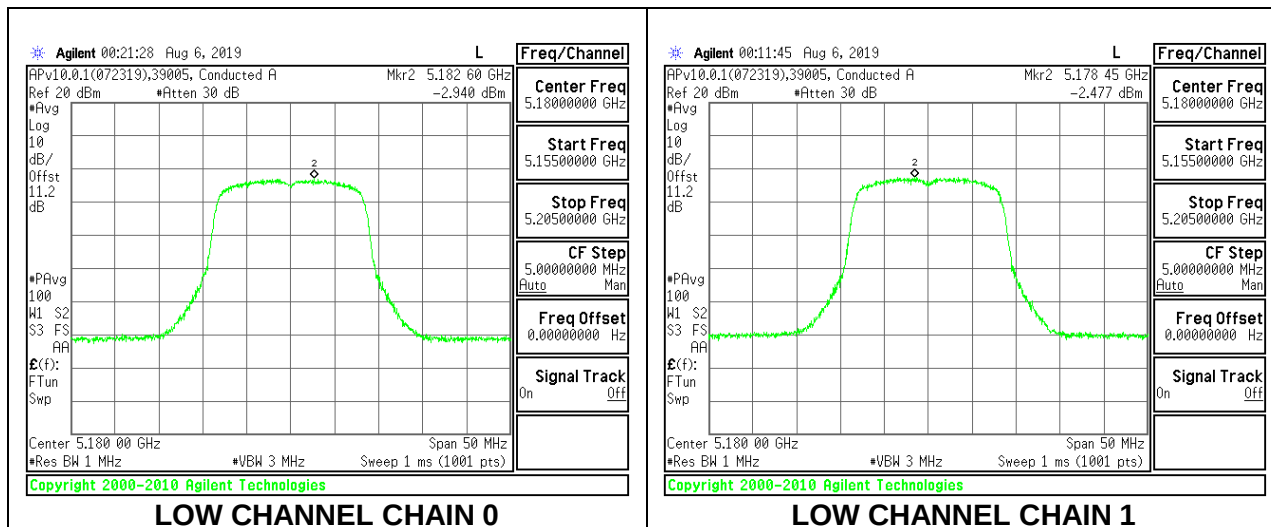
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	6.97	7.26	10.13	24.00	-13.87
Mid	5200	6.80	7.12	9.97	24.00	-14.03
High	5240	6.90	7.38	10.16	24.00	-13.84

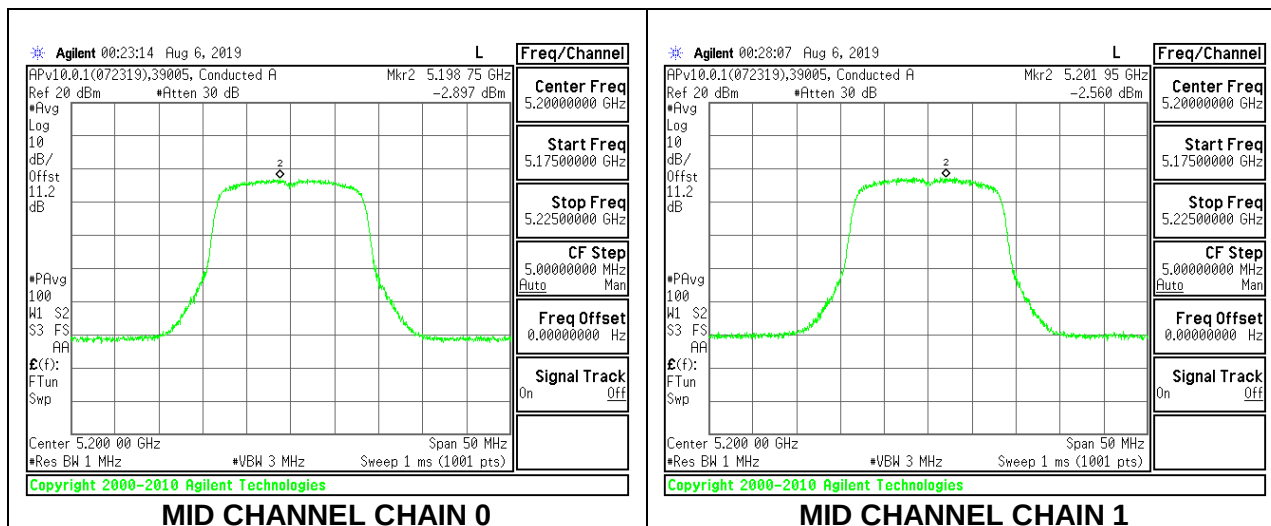
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/1MHz)	Chain 1 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5180	-2.94	-2.48	0.53	8.67	-8.14
Mid	5200	-2.90	-2.56	0.51	8.67	-8.16
High	5240	-2.90	-2.31	0.63	8.67	-8.04

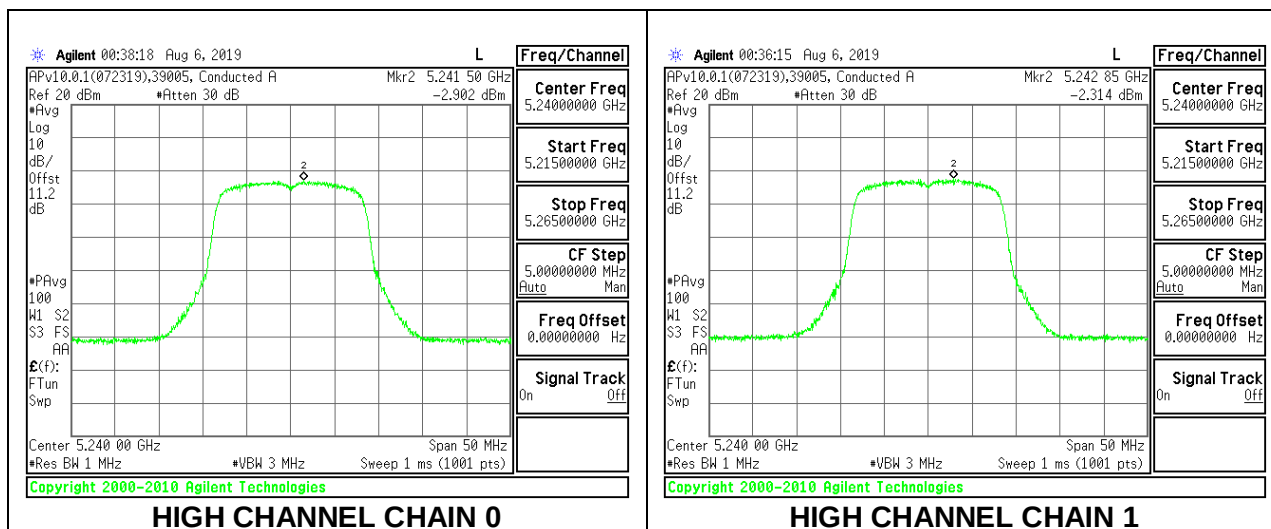
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



2TX Antenna 1 + Antenna 2 CDD MODE (IC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	EIRP Power Limit (dBm)	Power Limit (dBm)	EIRP PSD Limit (dBm/1MHz)	PSD Limit (dBm/1MHz)
Low	5180	16.340	5.66	8.33	22.13	16.47	10.00	1.67
Mid	5200	16.370	5.66	8.33	22.14	16.48	10.00	1.67
High	5240	16.269	5.66	8.33	22.11	16.45	10.00	1.67

Duty Cycle CF (dB)	0.22	Included in Calculations of Corr'd PSD
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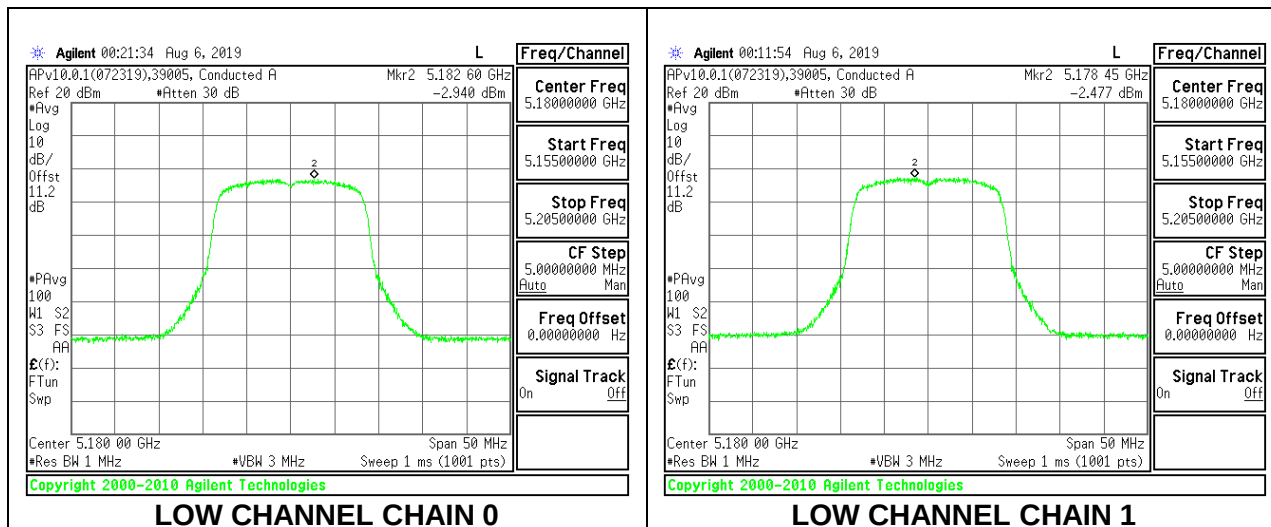
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	6.97	7.26	10.13	16.47	-6.34
Mid	5200	6.80	7.12	9.97	16.48	-6.51
High	5240	6.90	7.38	10.16	16.45	-6.30

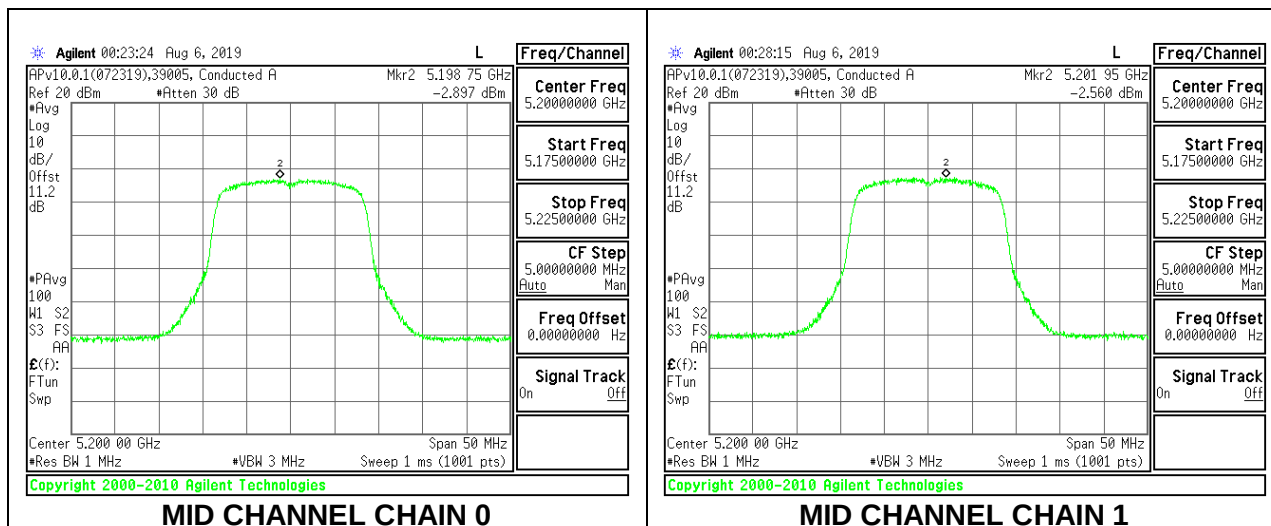
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/1MHz)	Chain 1 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5180	-2.94	-2.48	0.53	1.67	-1.14
Mid	5200	-2.90	-2.56	0.51	1.67	-1.16
High	5240	-2.90	-2.31	0.63	1.67	-1.04

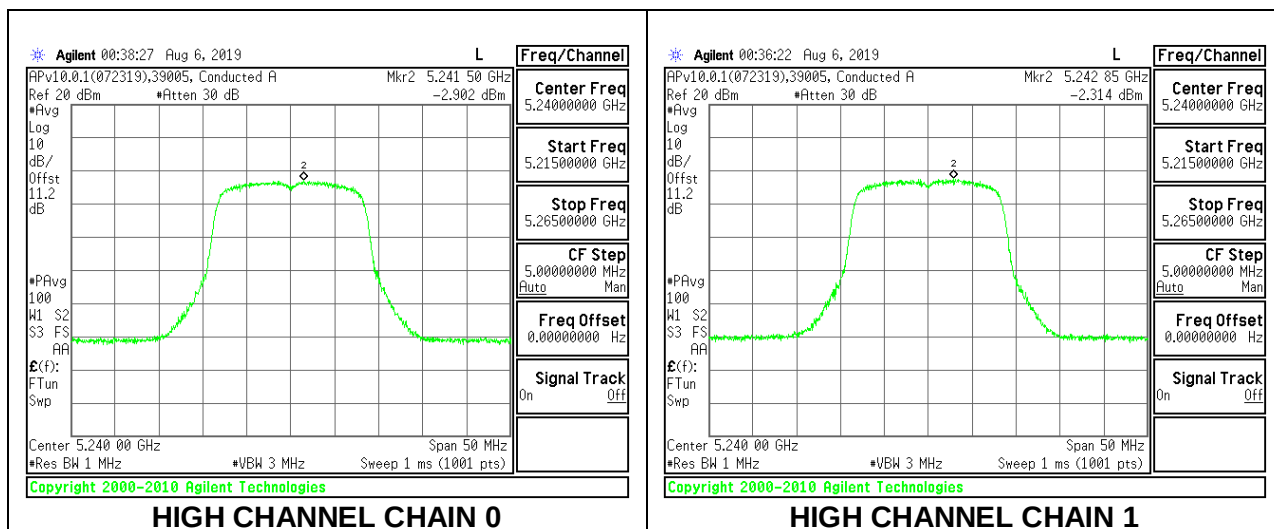
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



8.5.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE (FCC) MOBILE

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5180	5.66	8.33	24.00	8.67
Mid	5200	5.66	8.33	24.00	8.67
High	5240	5.66	8.33	24.00	8.67

Duty Cycle CF (dB)	0.24	Included in Calculations of Corr'd Power & PSD
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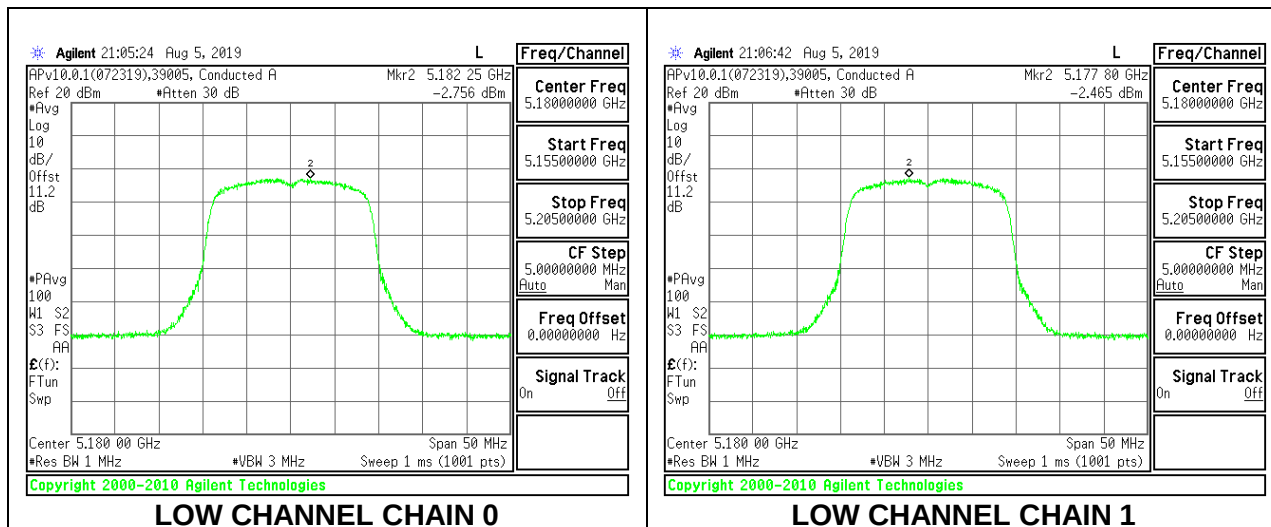
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	7.12	7.36	10.25	24.00	-13.75
Mid	5200	6.96	7.06	10.02	24.00	-13.98
High	5240	6.83	7.23	10.04	24.00	-13.96

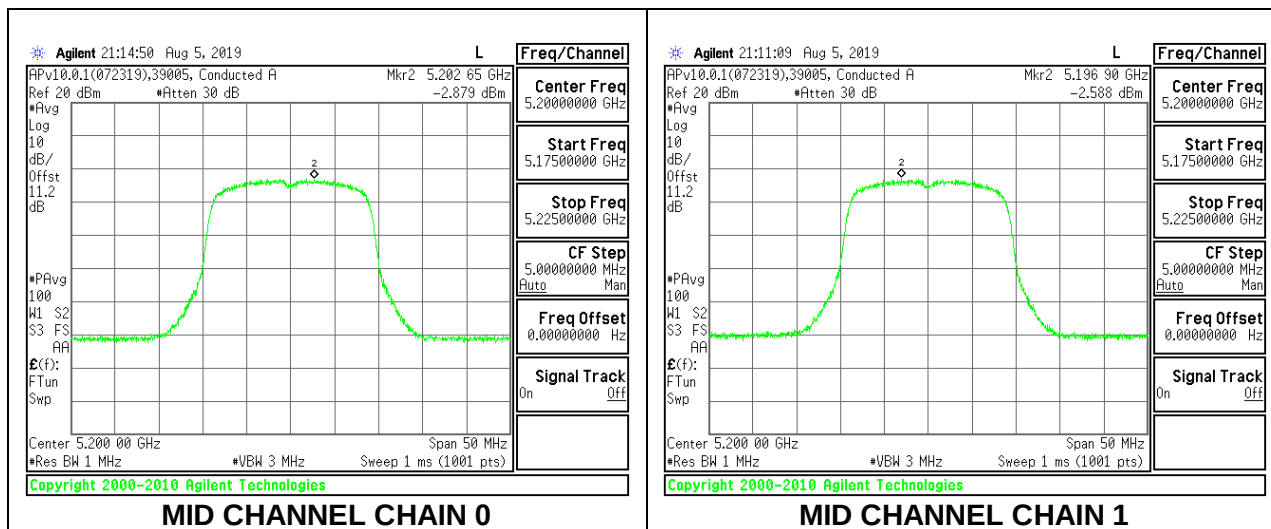
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/1MHz)	Chain 1 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	-2.76	-2.47	0.64	8.67	-8.03
Mid	5200	-2.88	-2.59	0.52	8.67	-8.15
High	5240	-3.06	-2.63	0.41	8.67	-8.26

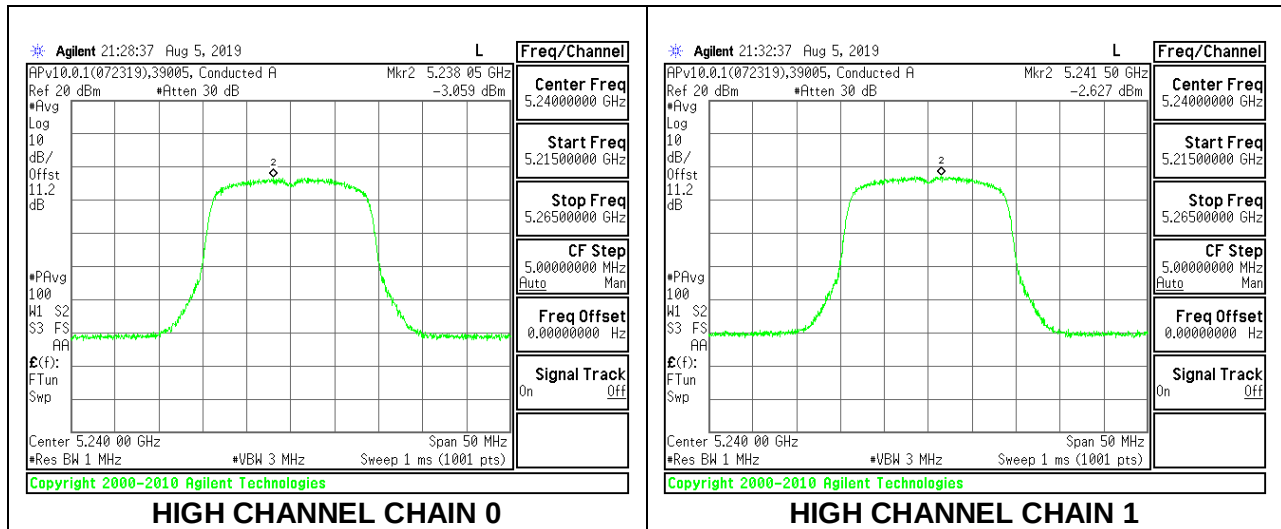
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



2TX Antenna 1 + Antenna 2 CDD MODE (IC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	EIRP Power Limit (dBm)	Power Limit (dBm)	EIRP PSD Limit (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)
Low	5180	17.305	5.66	8.33	22.38	16.72	10.00	1.67
Mid	5200	17.162	5.66	8.33	22.35	16.69	10.00	1.67
High	5240	17.388	5.66	8.33	22.40	16.74	10.00	1.67

Duty Cycle CF (dB)	0.24	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	7.12	7.36	10.25	16.72	-6.47
Mid	5200	6.96	7.06	10.02	16.69	-6.67
High	5240	6.83	7.23	10.04	16.74	-6.70

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/1MHz)	Chain 1 Meas PSD (dBm/1MHz)	Total Corr'd D (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	-2.76	-2.47	0.64	1.67	-1.03
Mid	5200	-2.88	-2.59	0.52	1.67	-1.15
High	5240	-3.06	-2.63	0.41	1.67	-1.26