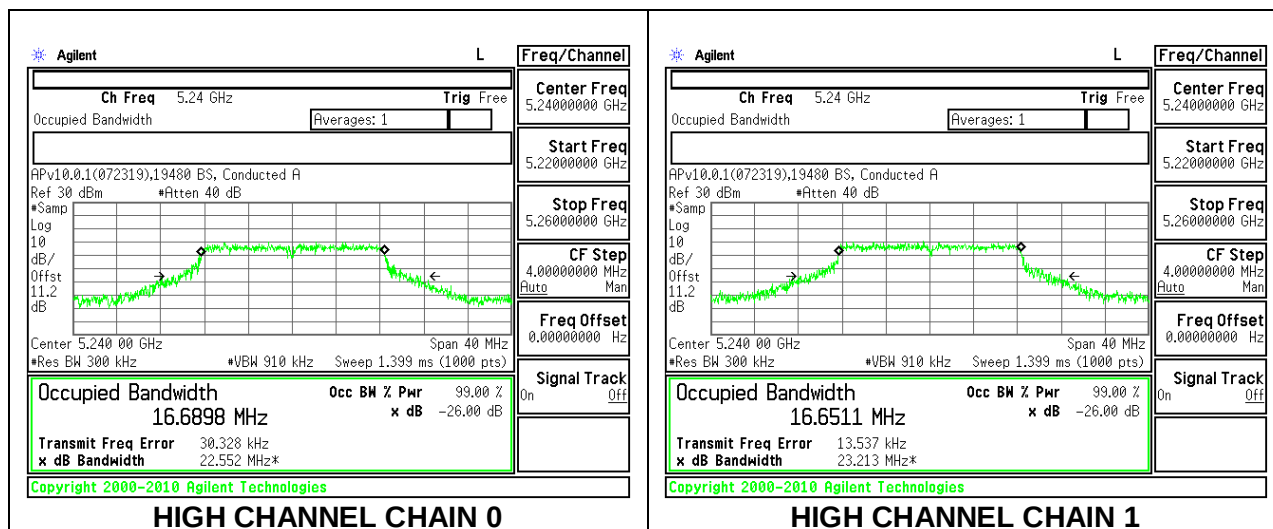


HIGH CHANNEL

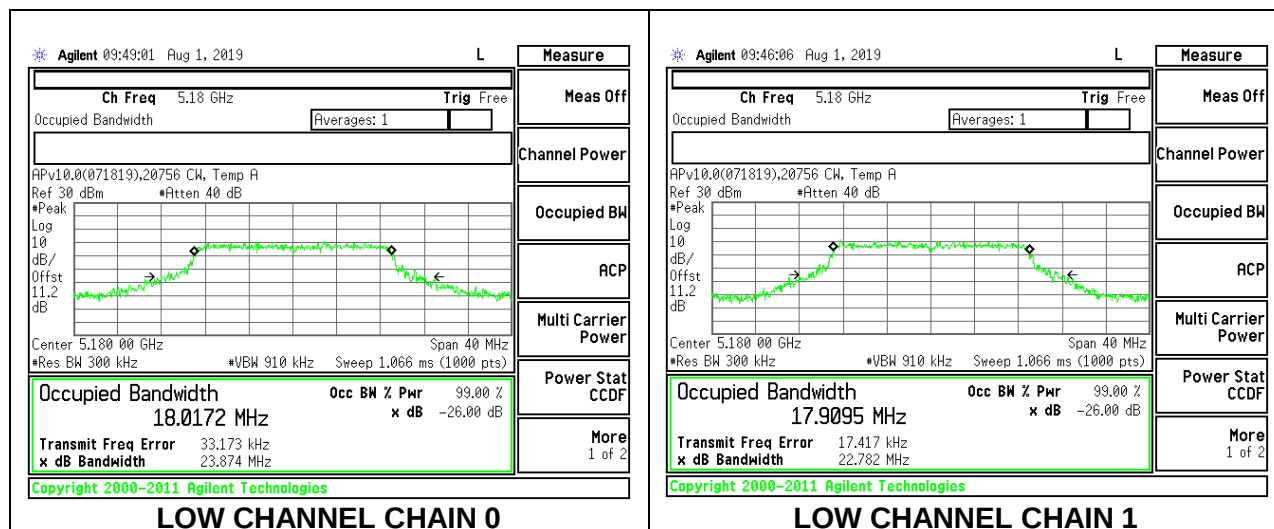


8.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

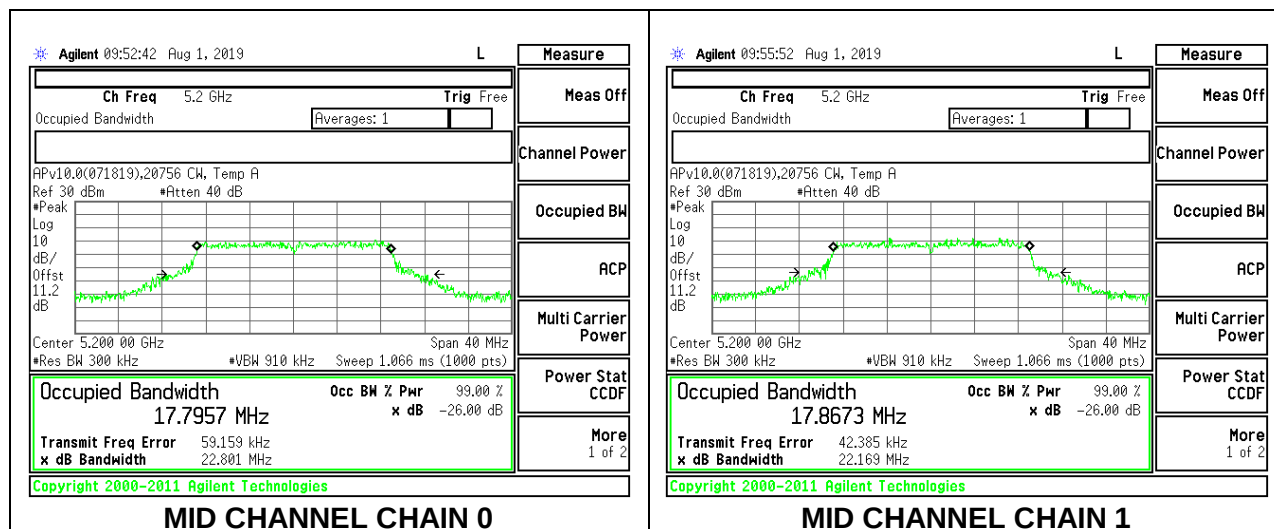
2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5180	18.017	17.910
Mid	5200	17.796	17.867
High	5240	17.896	17.874

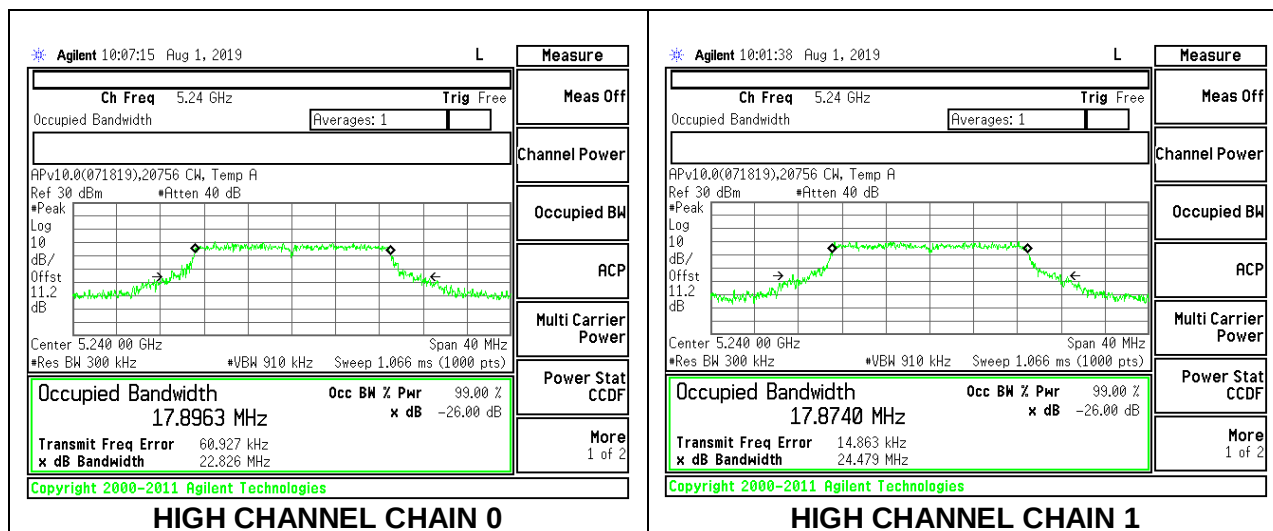
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

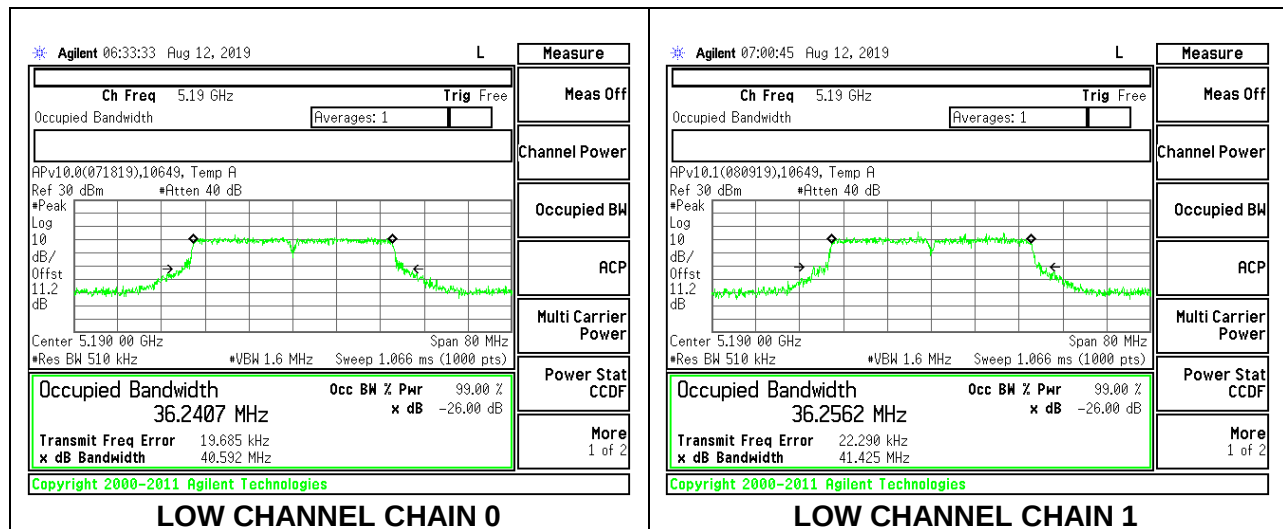


8.3.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

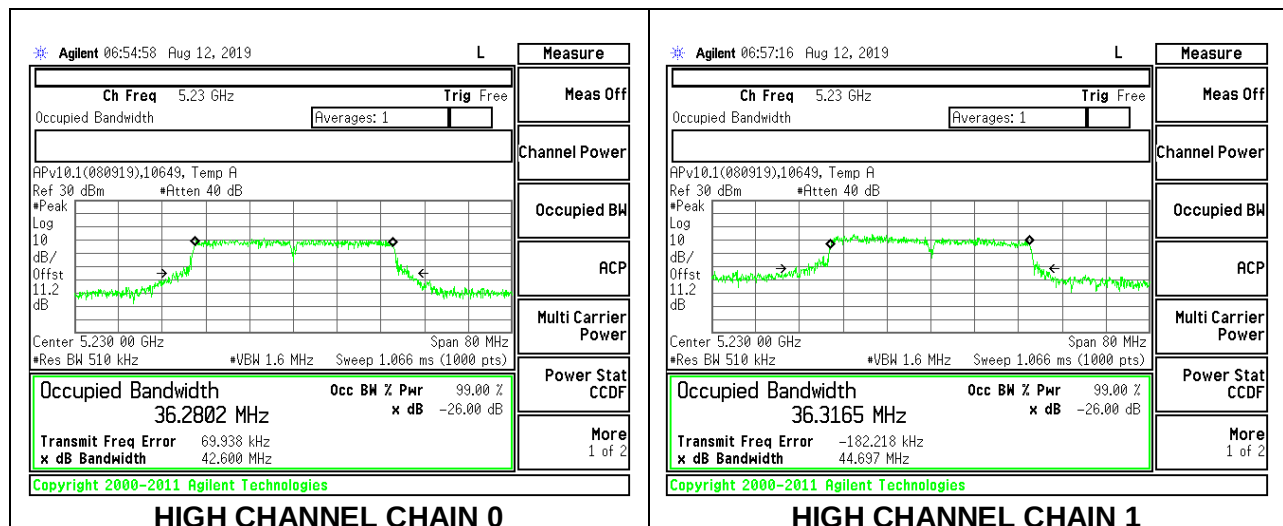
2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5190	36.241	36.256
High	5230	36.280	36.317

LOW CHANNEL



HIGH CHANNEL

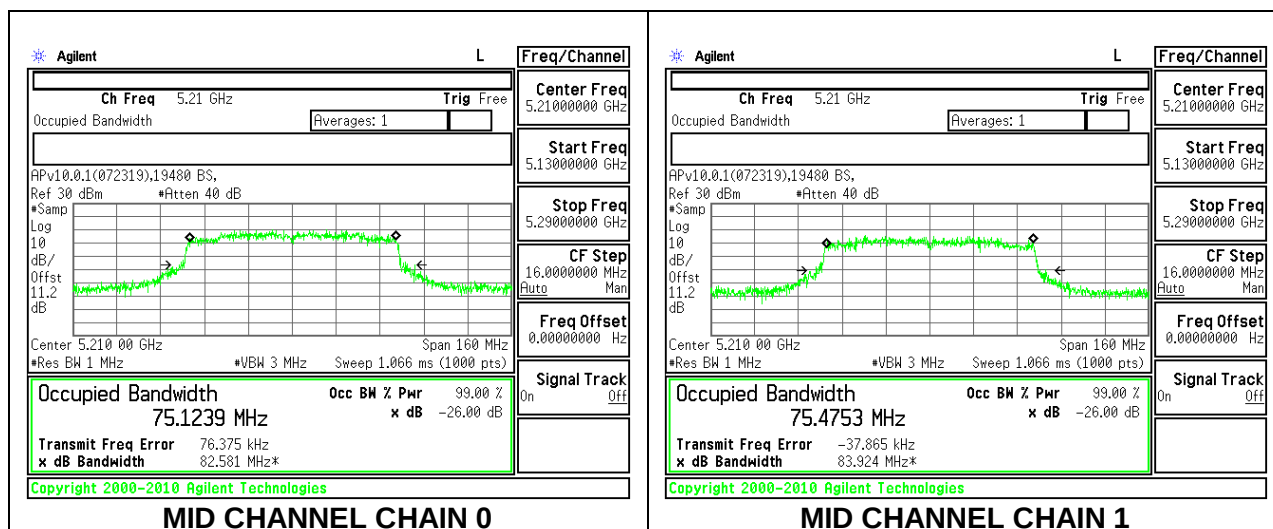


8.3.4. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Mid	5210	75.124	75.475

MID CHANNEL

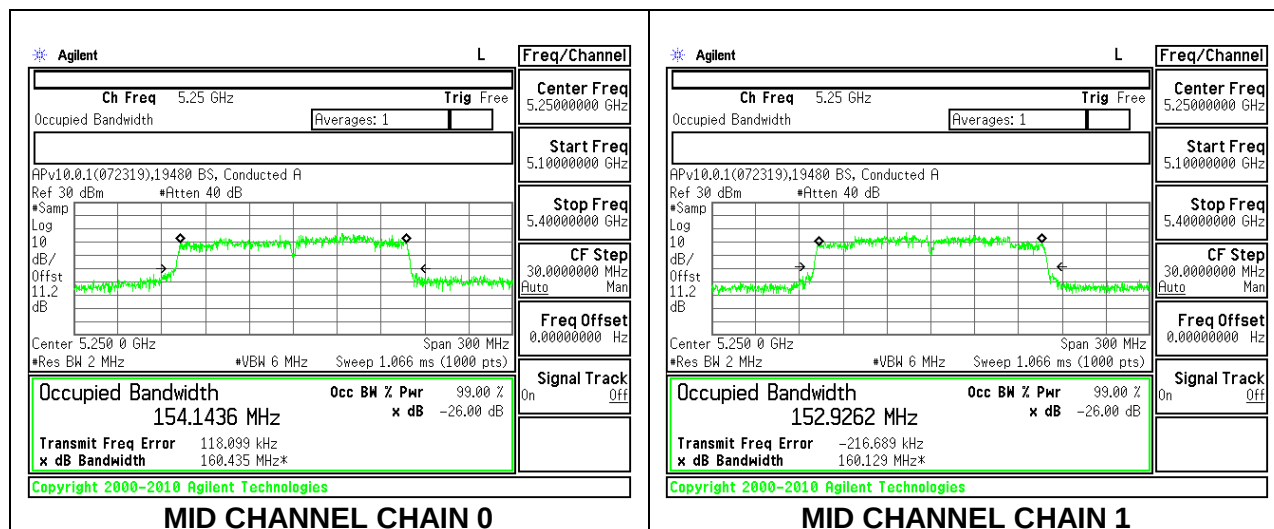


8.3.5. 802.11ac VHT160 MODE IN THE 5.2 GHz BAND

2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Mid	5250	154.144	152.926

MID CHANNEL

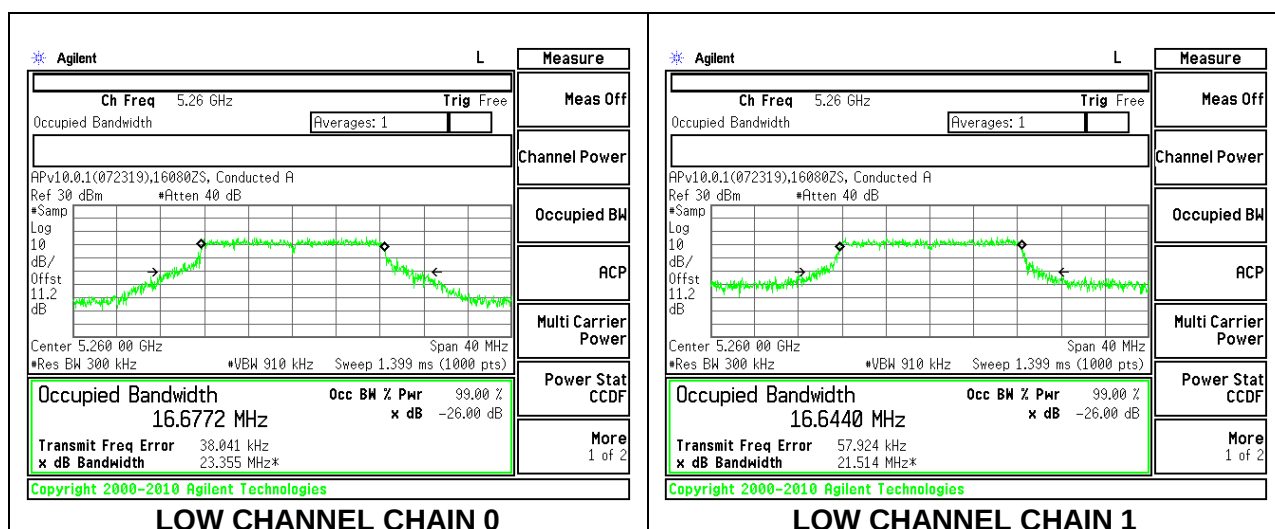


8.3.6. 802.11a MODE IN THE 5.3 GHz BAND

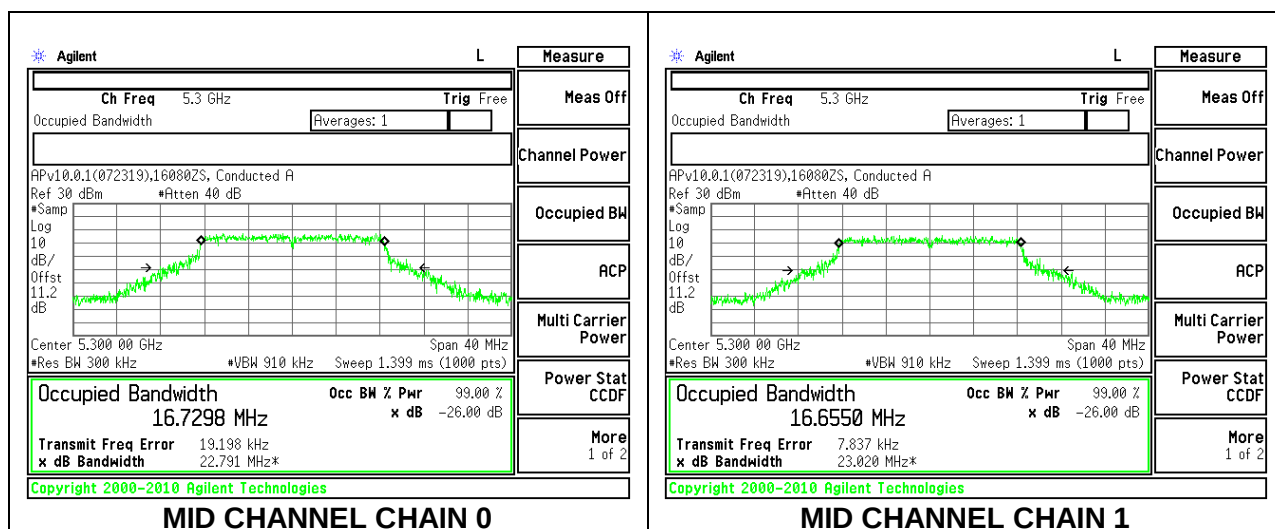
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5260	16.677	16.644
Mid	5300	16.730	16.655
High	5320	16.609	16.779

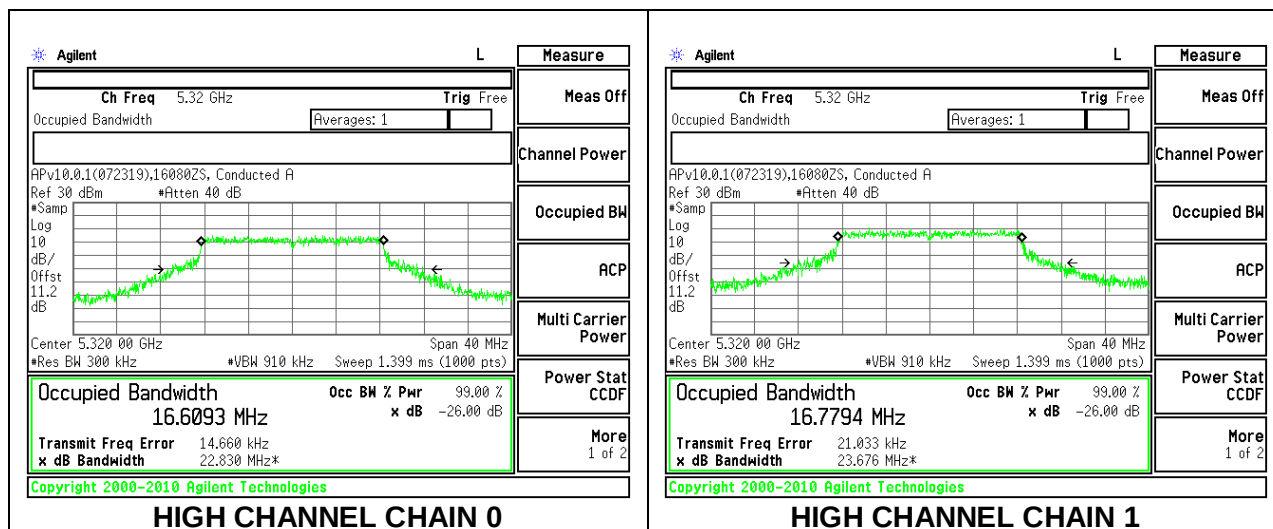
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

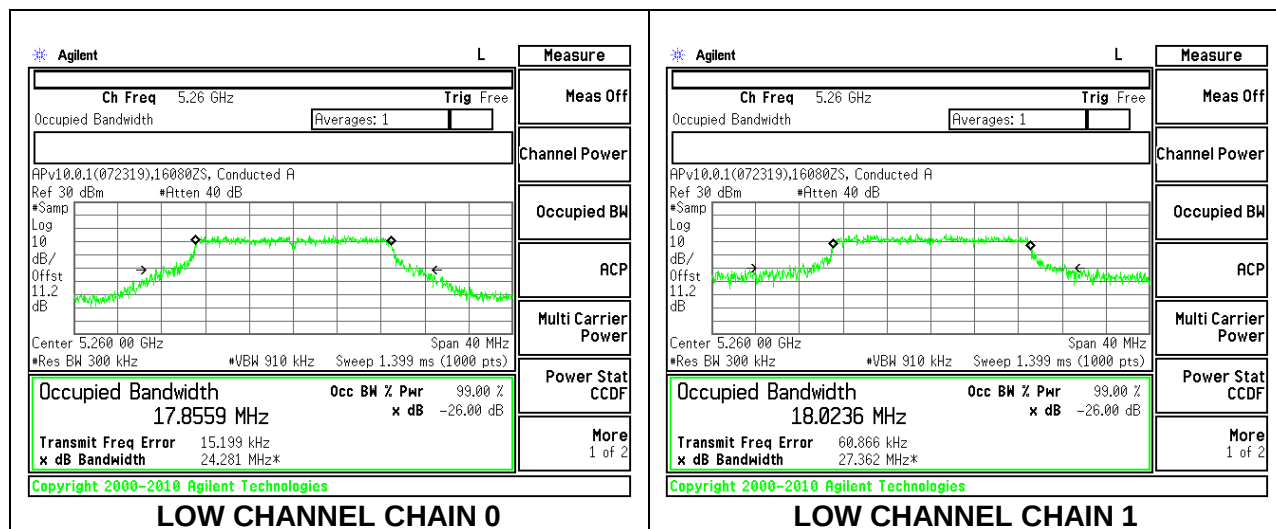


8.3.7. 802.11n HT20 MODE IN THE 5.3 GHz BAND

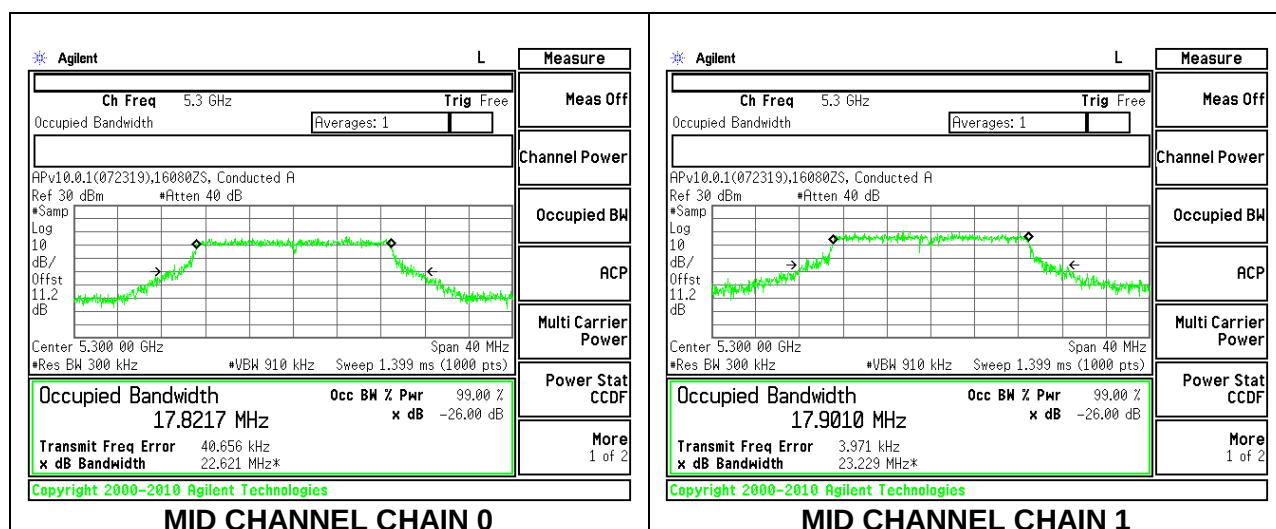
2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5260	17.856	18.024
Mid	5300	17.821	17.901
High	5320	17.912	17.859

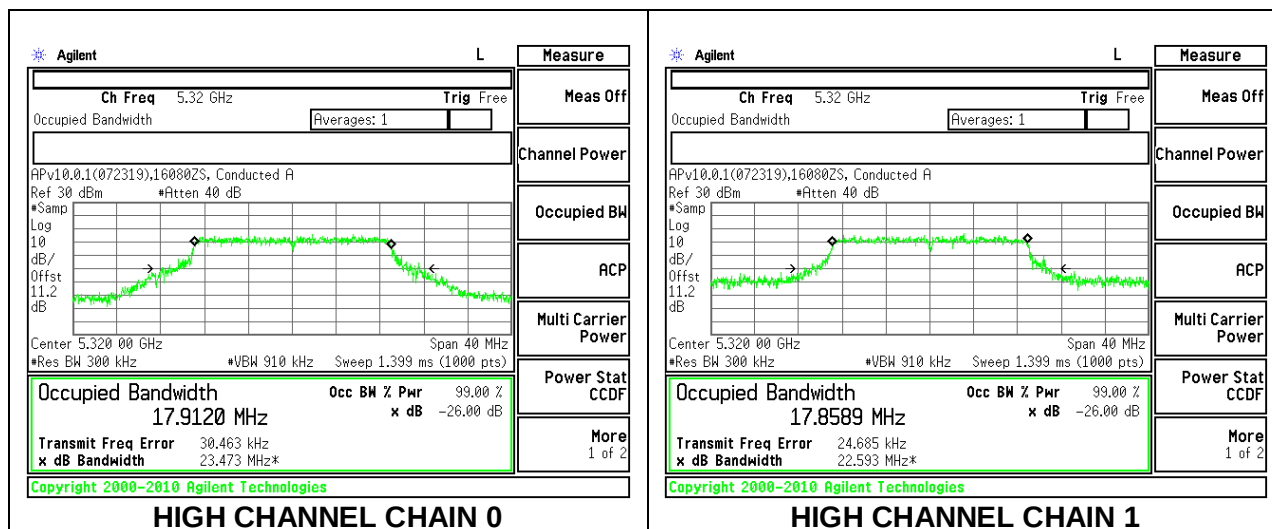
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

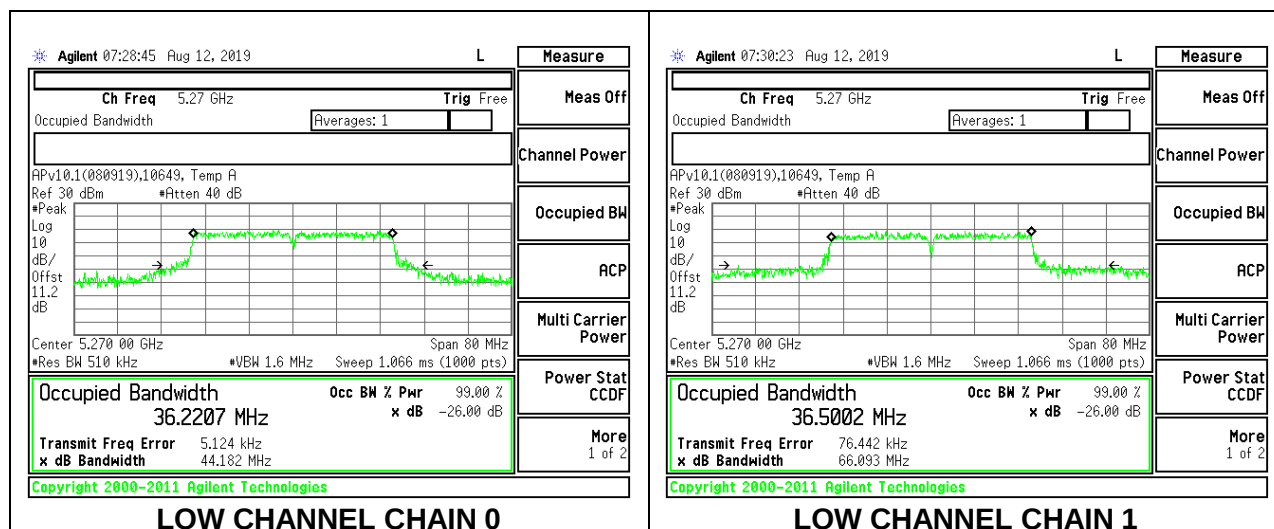


8.3.8. 802.11n HT40 MODE IN THE 5.3 GHz BAND

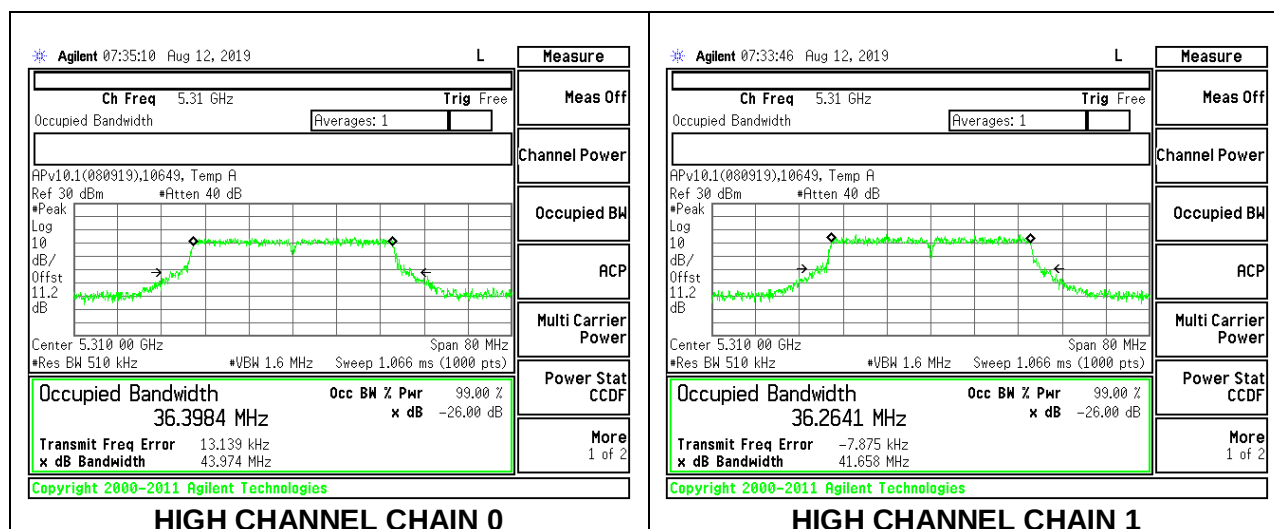
2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5270	36.221	36.500
High	5310	36.938	36.264

LOW CHANNEL



HIGH CHANNEL

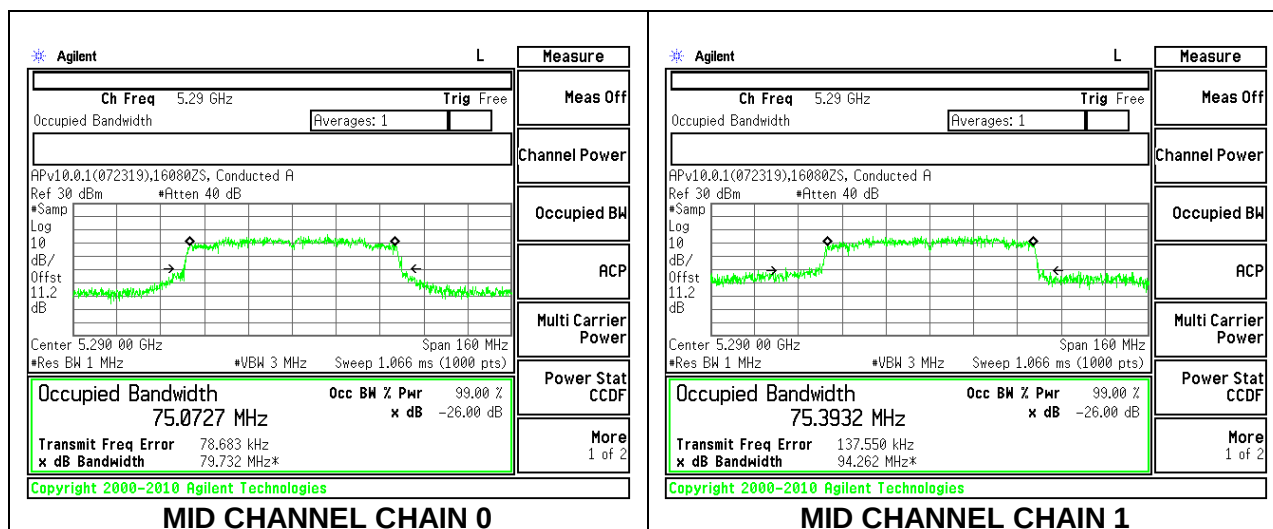


8.3.9. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Mid	5290	75.073	75.393

MID CHANNEL

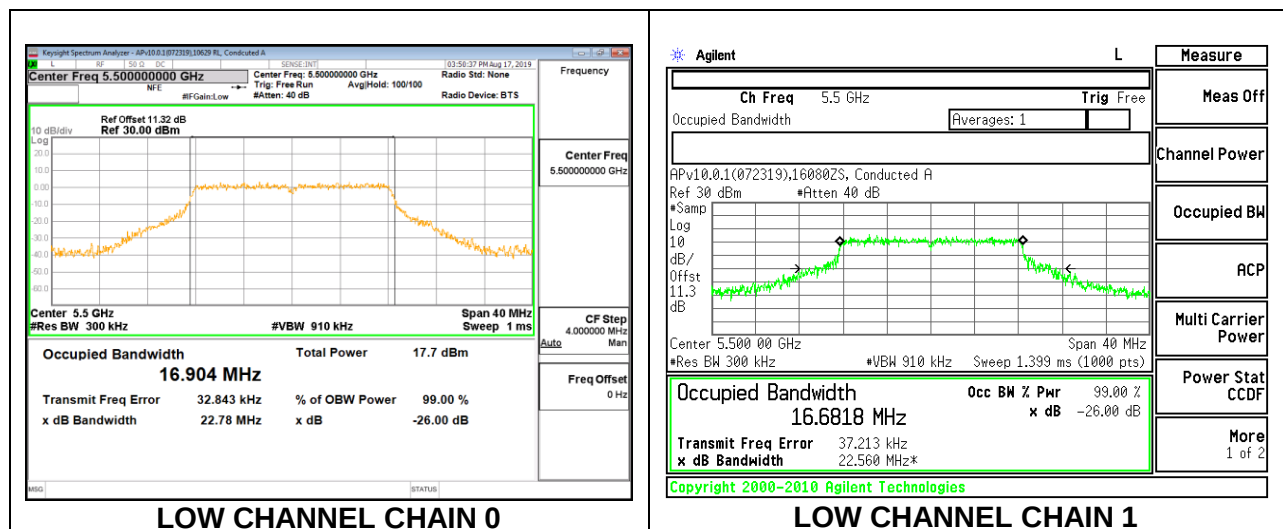


8.3.10. 802.11a MODE IN THE 5.6 GHz BAND

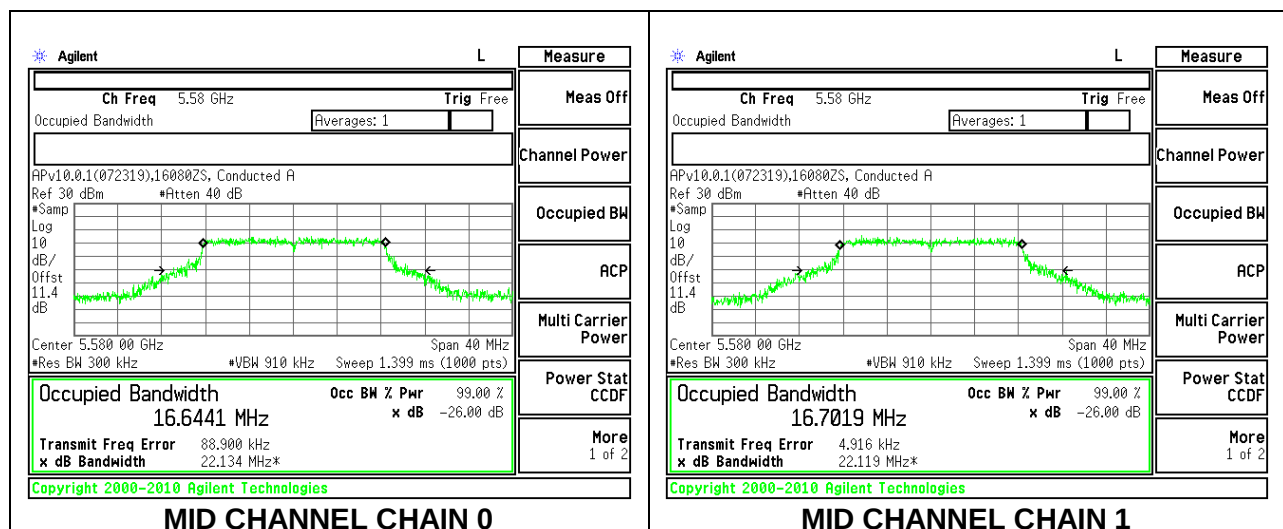
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5500	16.904	16.682
Mid	5580	16.644	16.702
High	5700	16.645	16.655
144	5720	16.637	16.656

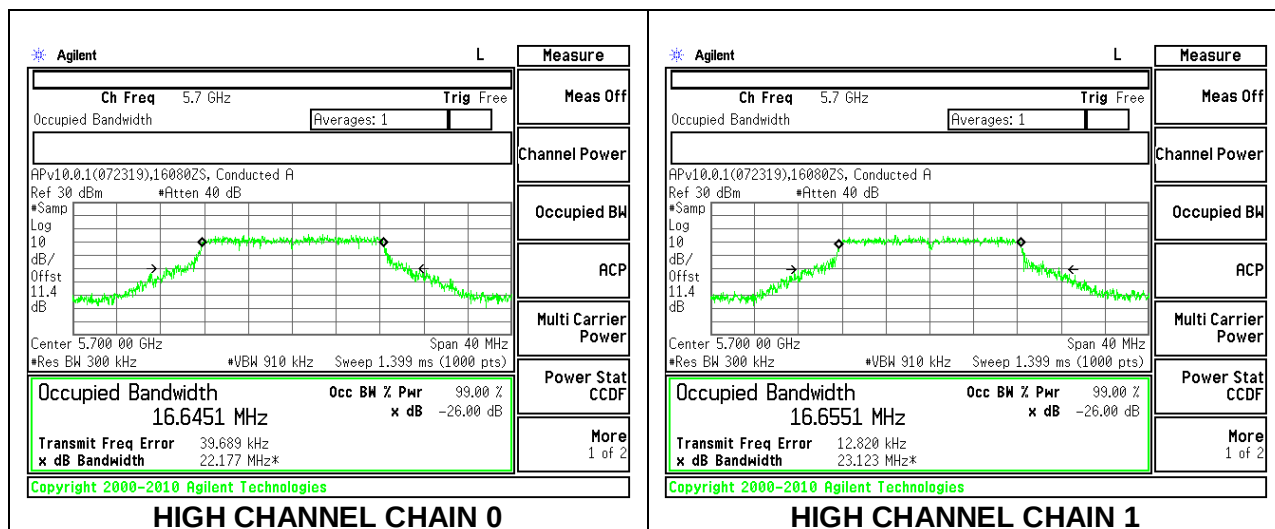
LOW CHANNEL



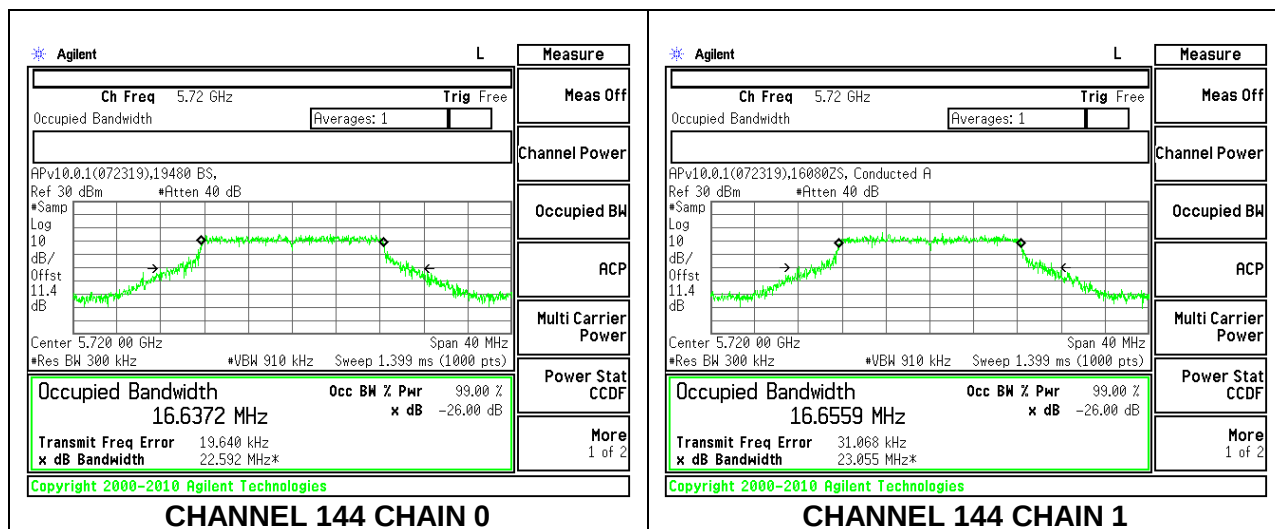
MID CHANNEL



HIGH CHANNEL



CHANNEL 144

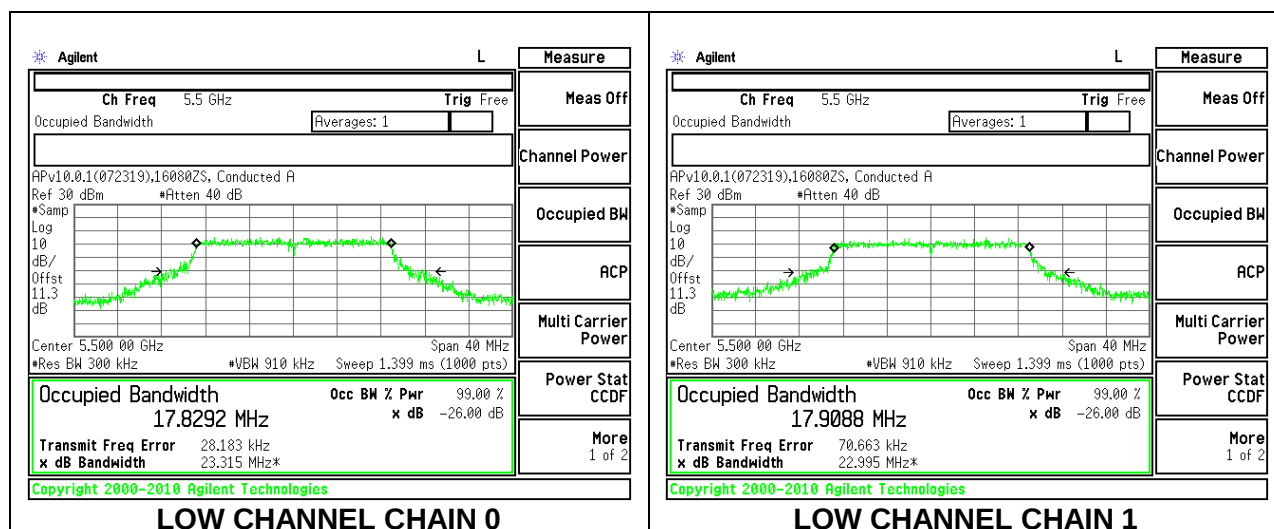


8.3.11. 802.11n HT20 MODE IN THE 5.6 GHz BAND

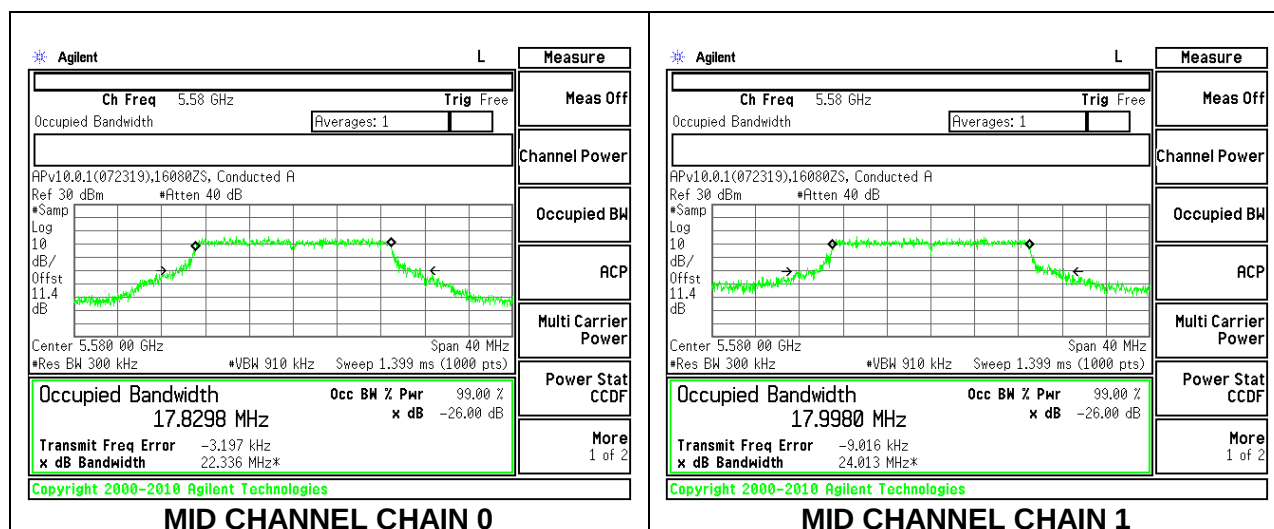
2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5500	17.829	17.909
Mid	5580	17.830	17.998
High	5700	17.889	17.859
144	5720	17.879	17.840

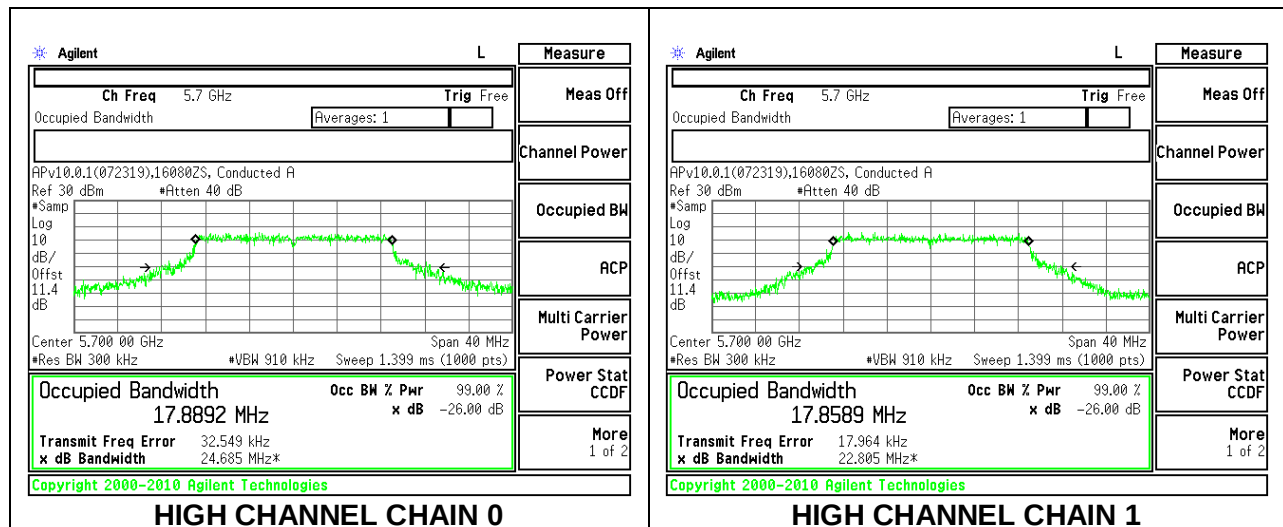
LOW CHANNEL



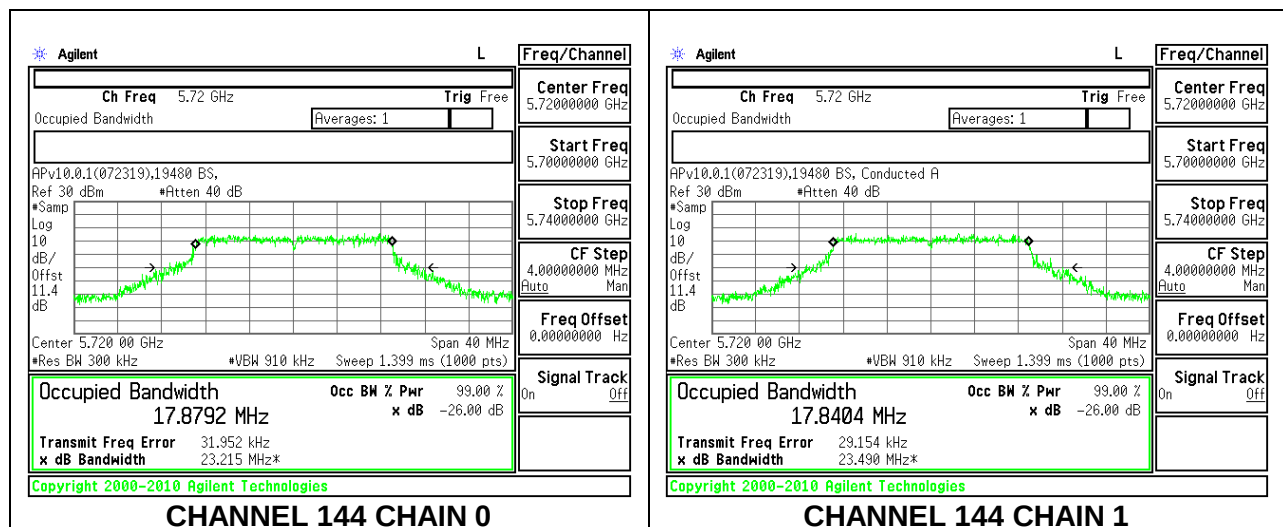
MID CHANNEL



HIGH CHANNEL



CHANNEL 144

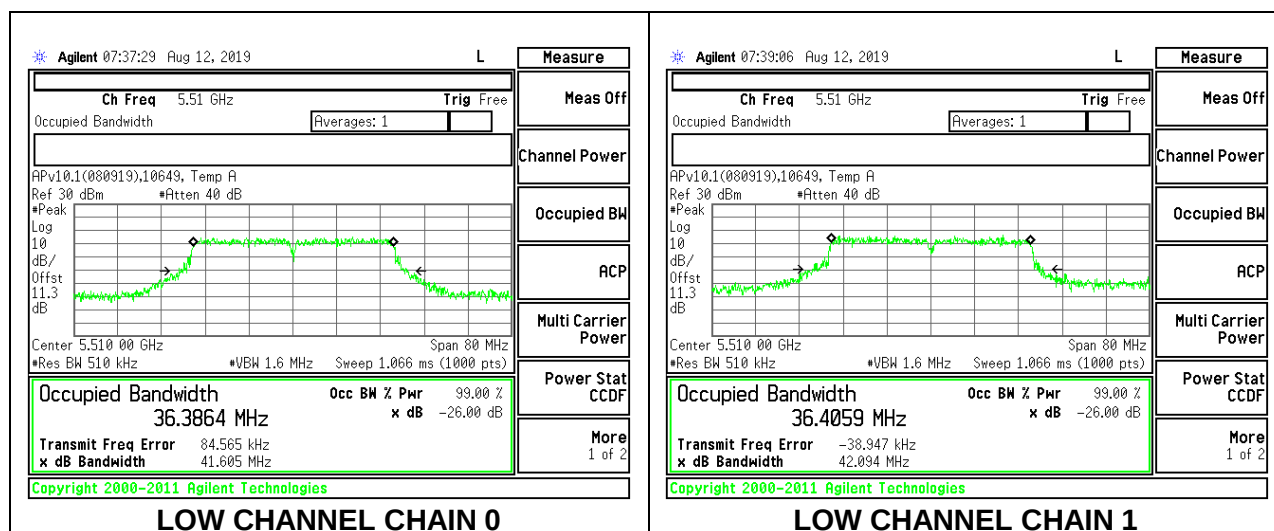


8.3.12. 802.11n HT40 MODE IN THE 5.6 GHz BAND

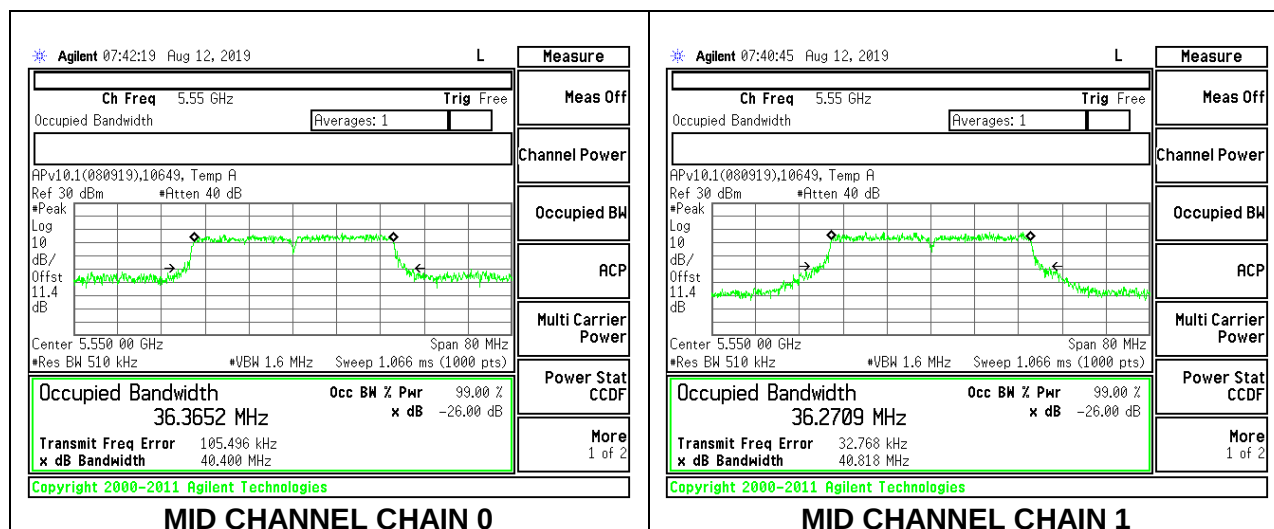
2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5510	36.386	36.406
Mid	5550	36.365	36.271
High	5670	36.250	36.238
142	5710	36.355	36.388

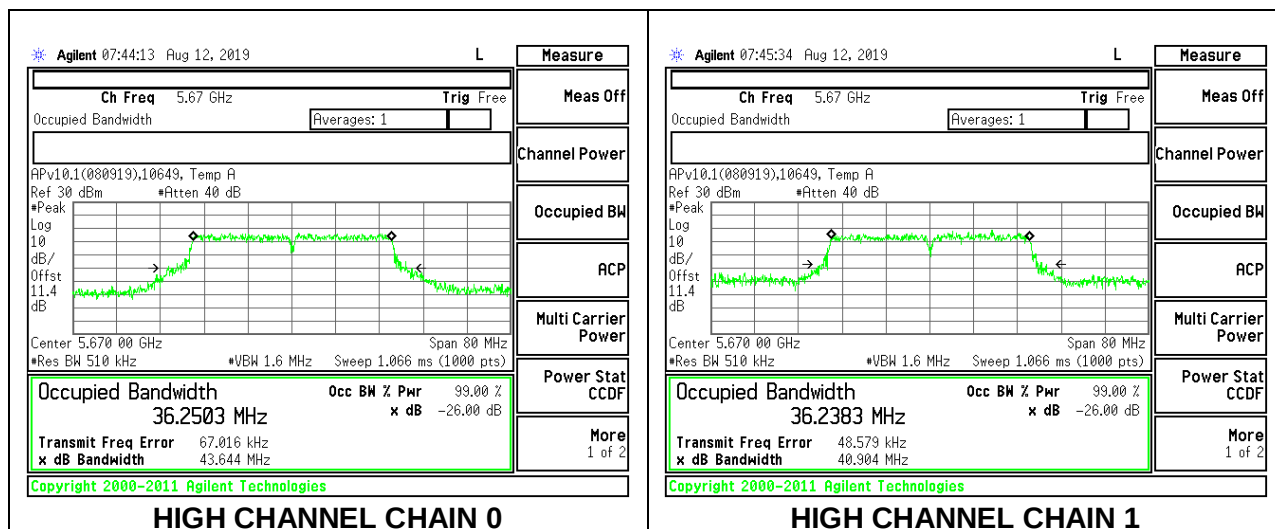
LOW CHANNEL



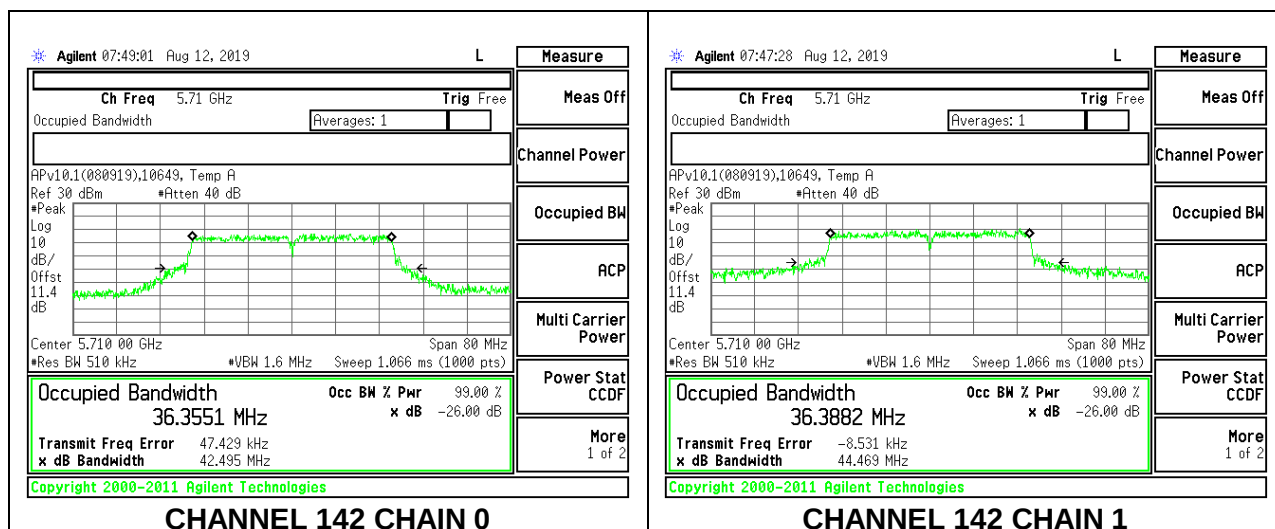
MID CHANNEL



HIGH CHANNEL



CHANNEL 142

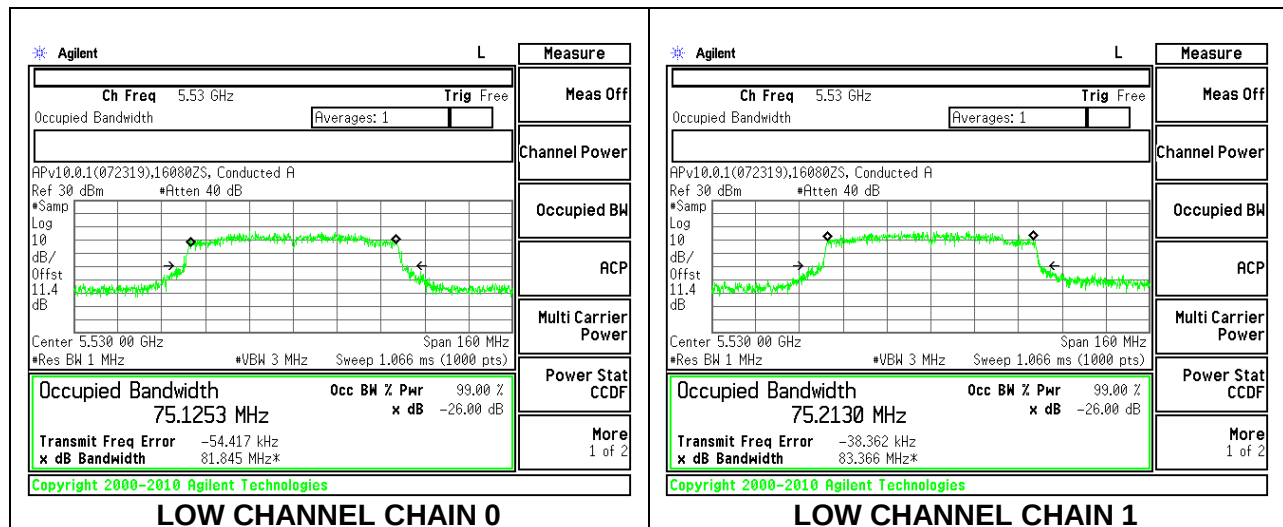


8.3.13. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

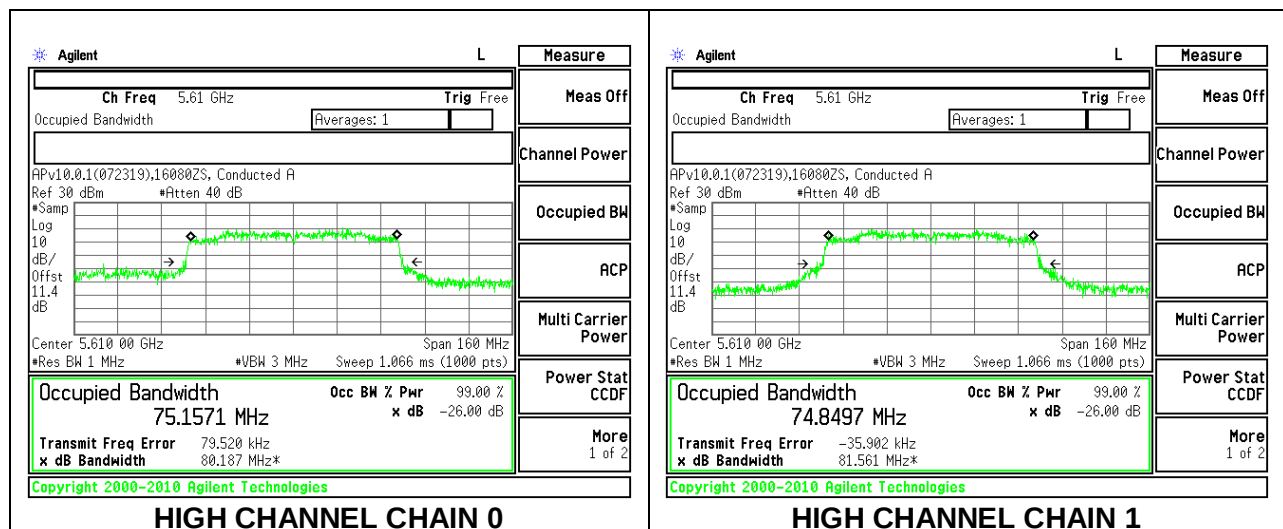
2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5530	75.125	75.213
High	5610	75.157	74.850
138	5690	75.062	75.155

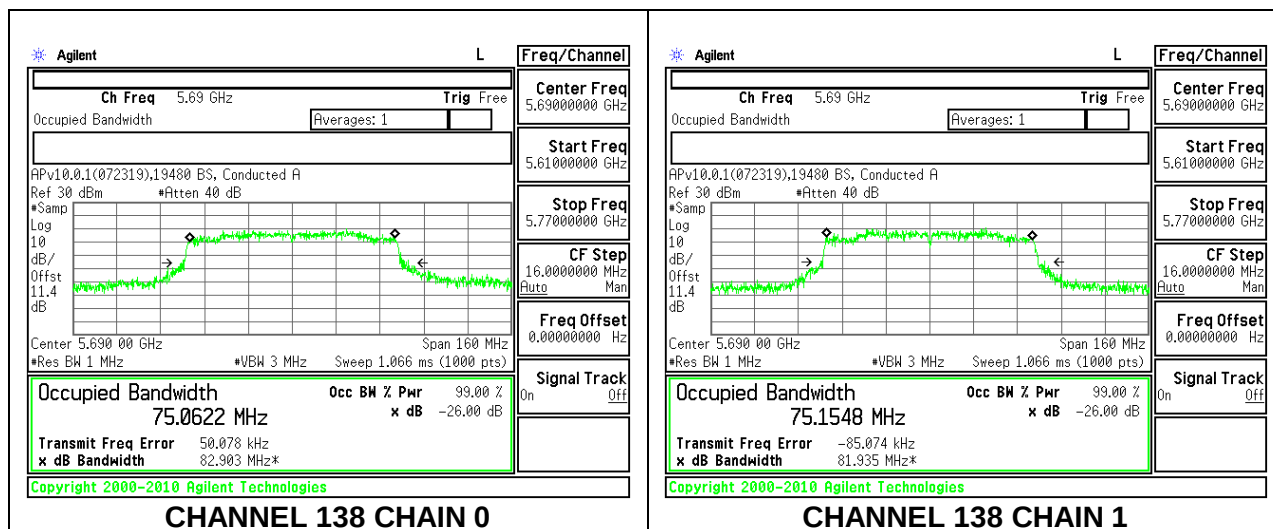
LOW CHANNEL



HIGH CHANNEL



CHANNEL 138

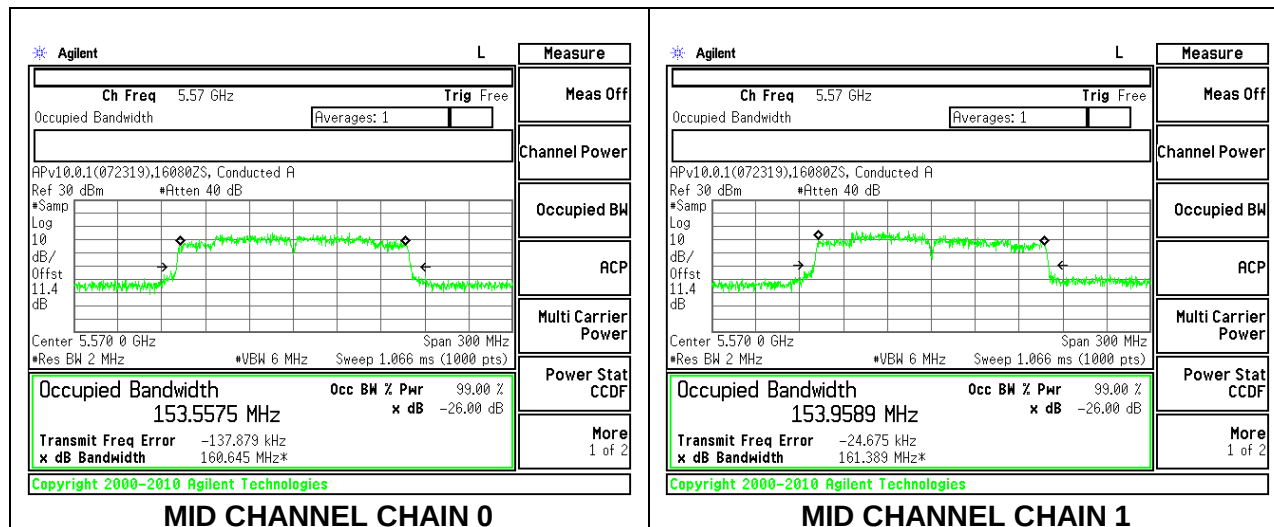


8.3.14. 802.11ac VHT160 MODE IN THE 5.6 GHz BAND

2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Mid	5570	153.558	153.959

MID CHANNEL

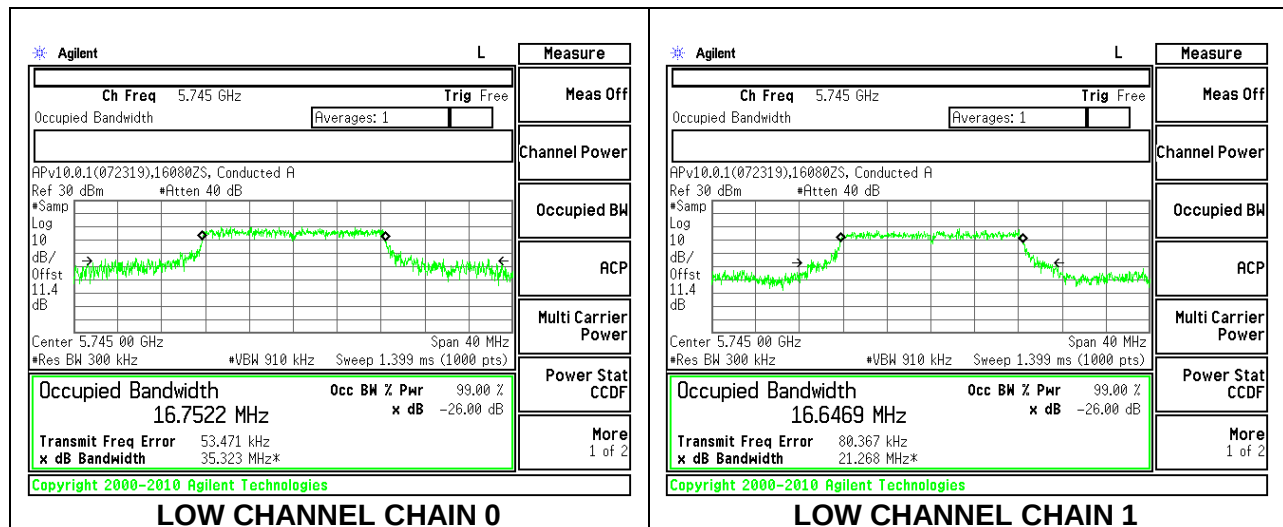


8.3.15. 802.11a MODE IN THE 5.8 GHz BAND

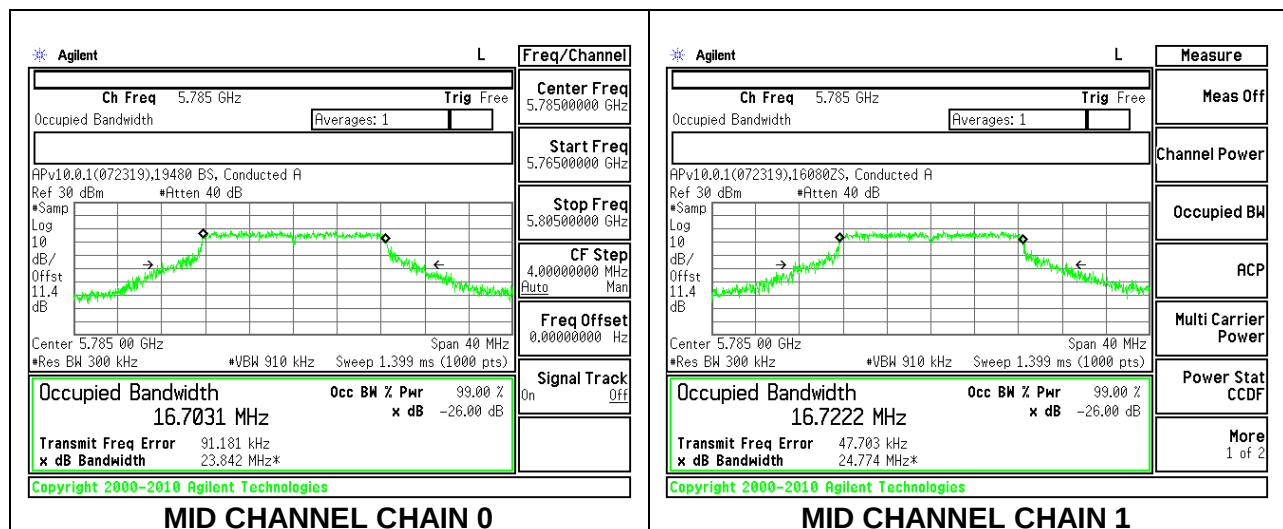
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5745	16.752	16.647
Mid	5785	16.703	16.722
High	5825	16.724	16.557

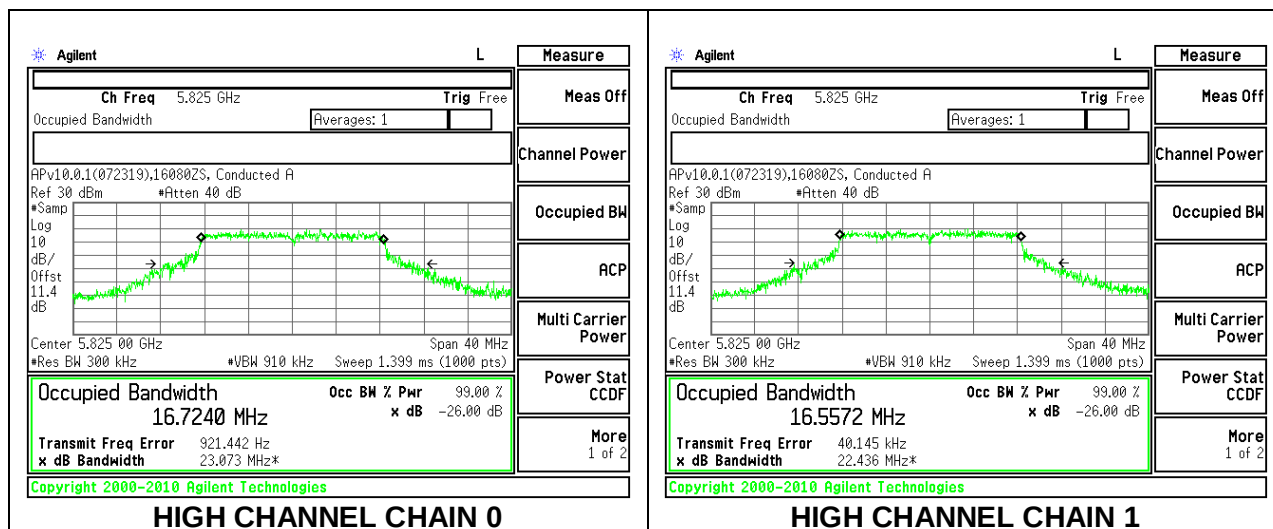
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

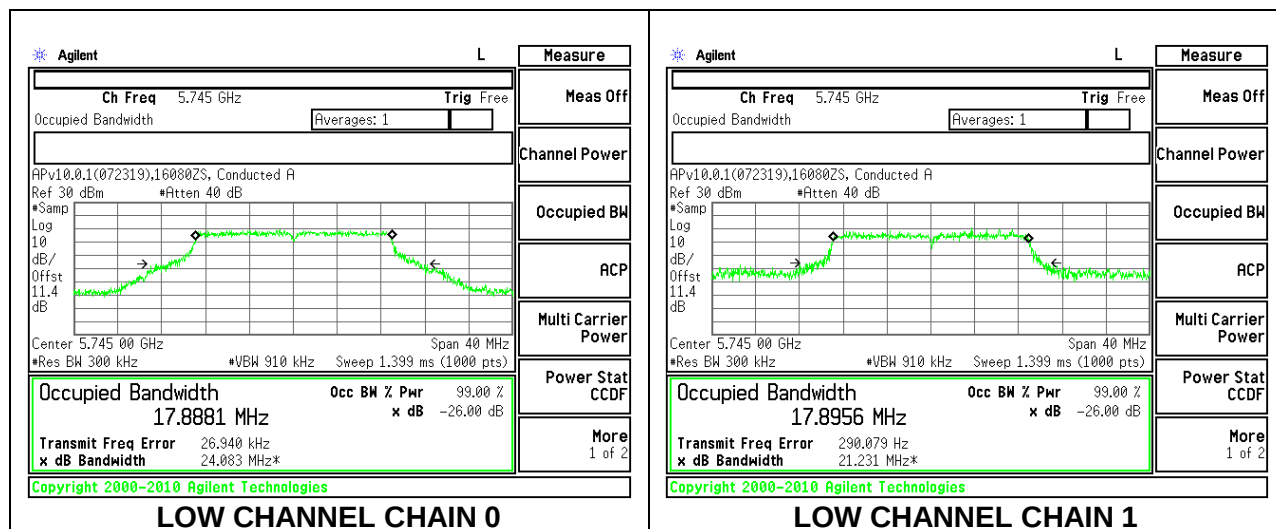


8.3.16. 802.11n HT20 MODE IN THE 5.8 GHz BAND

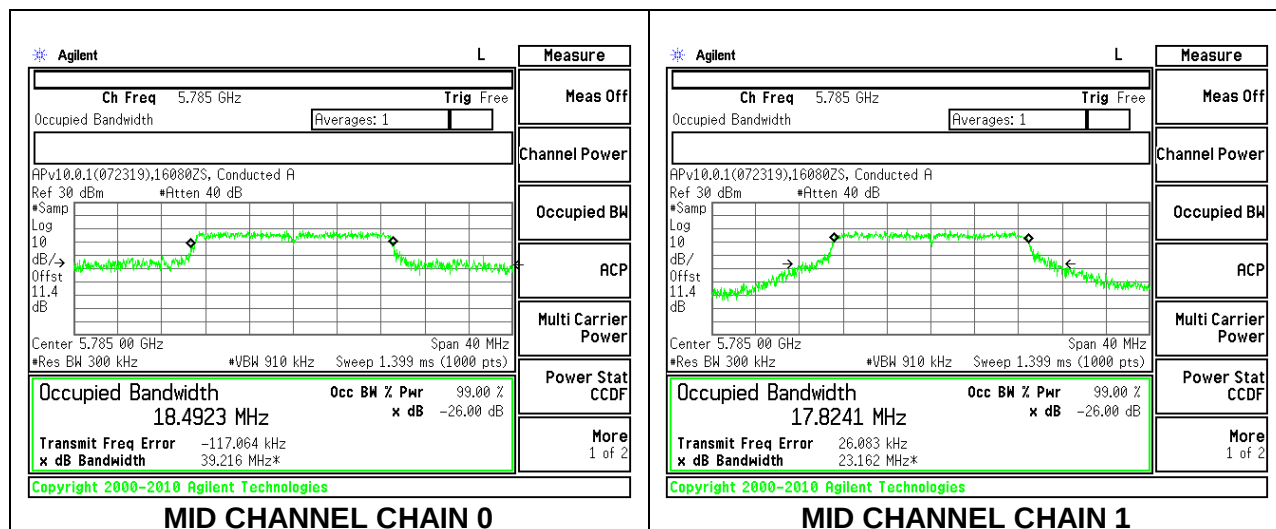
2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5745	17.888	17.896
Mid	5785	18.492	17.824
High	5825	17.862	17.977

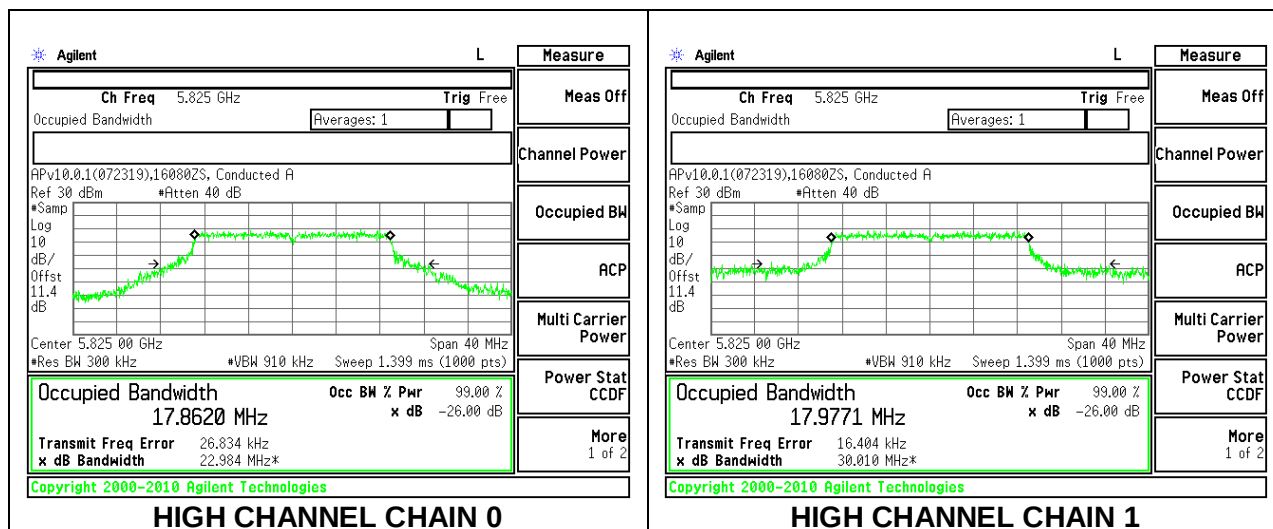
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

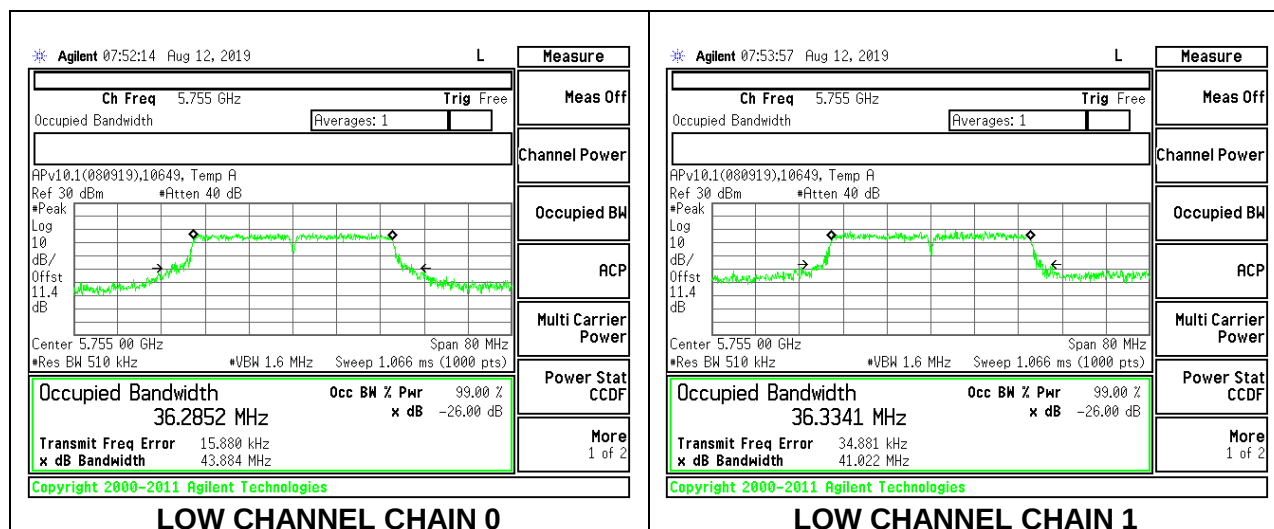


8.3.17. 802.11n HT40 MODE IN THE 5.8 GHz BAND

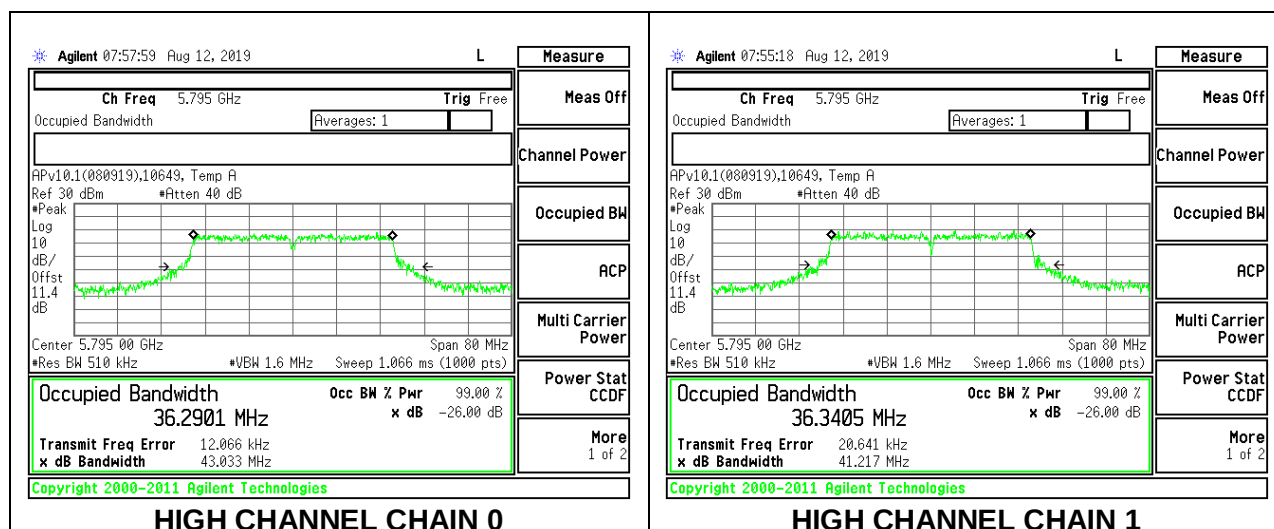
2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5755	36.285	36.334
High	5795	36.290	36.341

LOW CHANNEL



HIGH CHANNEL

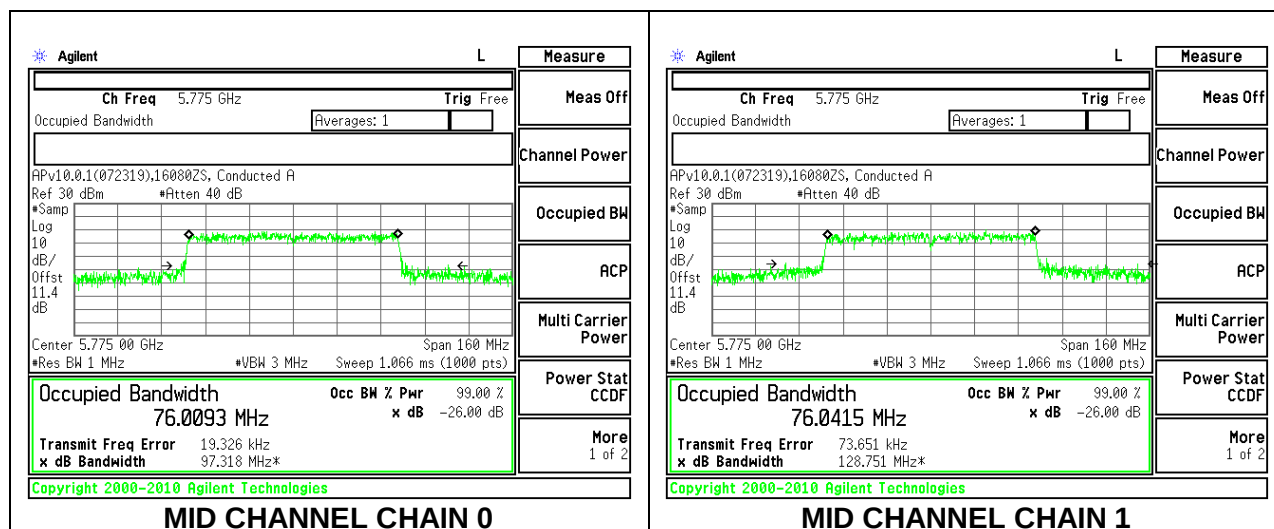


8.3.18. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Mid	5775	76.009	76.041

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.

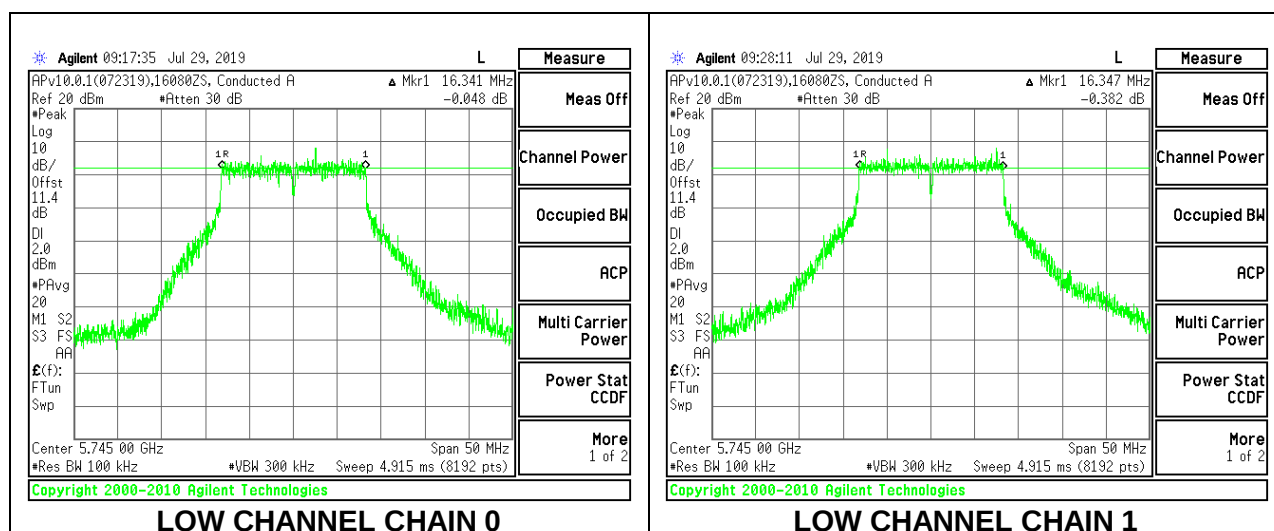
RESULTS

8.4.1. 802.11a MODE IN THE 5.8 GHz BAND

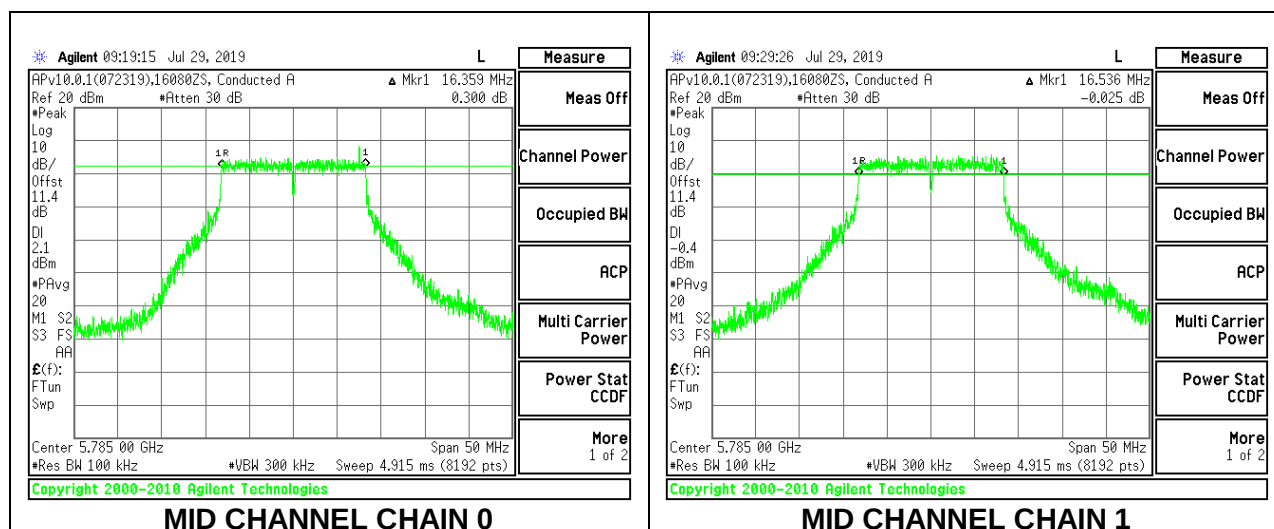
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	Minimum Limit (MHz)
Low	5745	16.341	16.347	0.5
Mid	5785	16.359	16.536	0.5
High	5825	16.359	16.292	0.5
144	5720	3.232	3.183	0.5

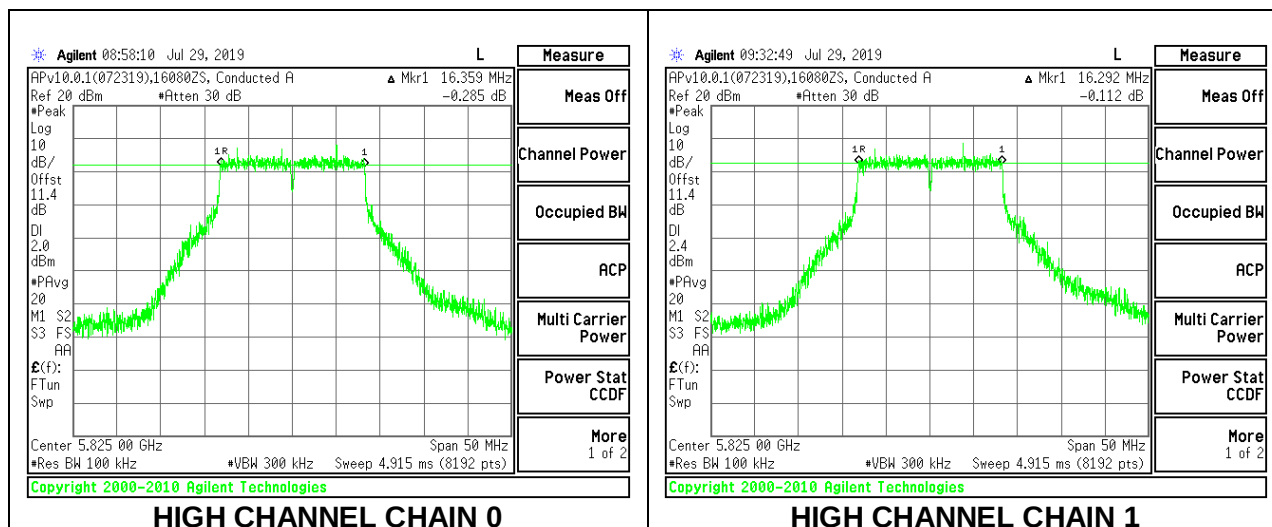
LOW CHANNEL



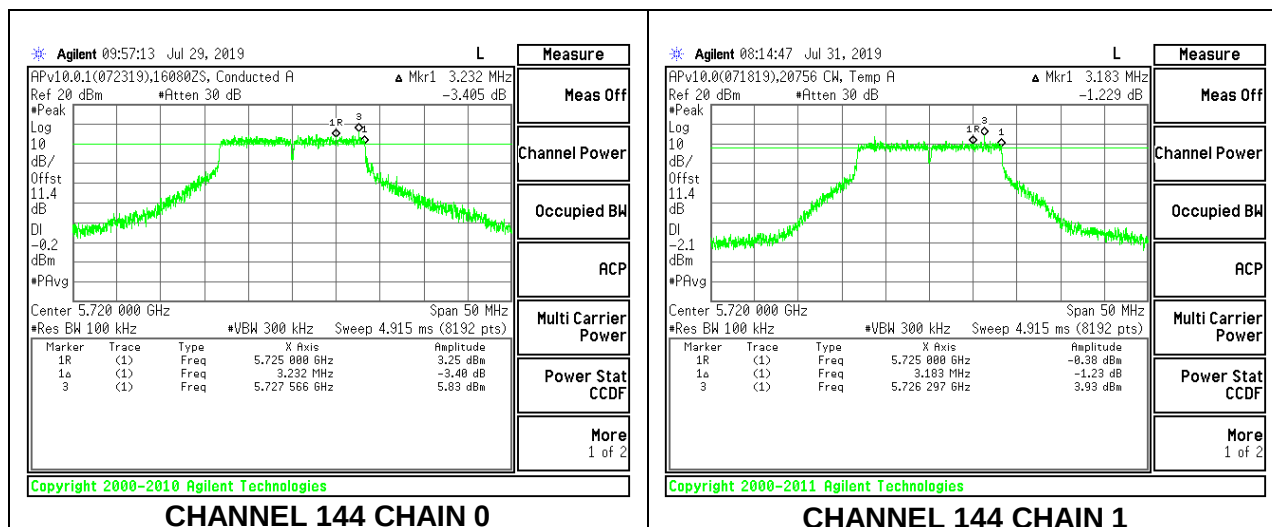
MID CHANNEL



HIGH CHANNEL



CHANNEL 144

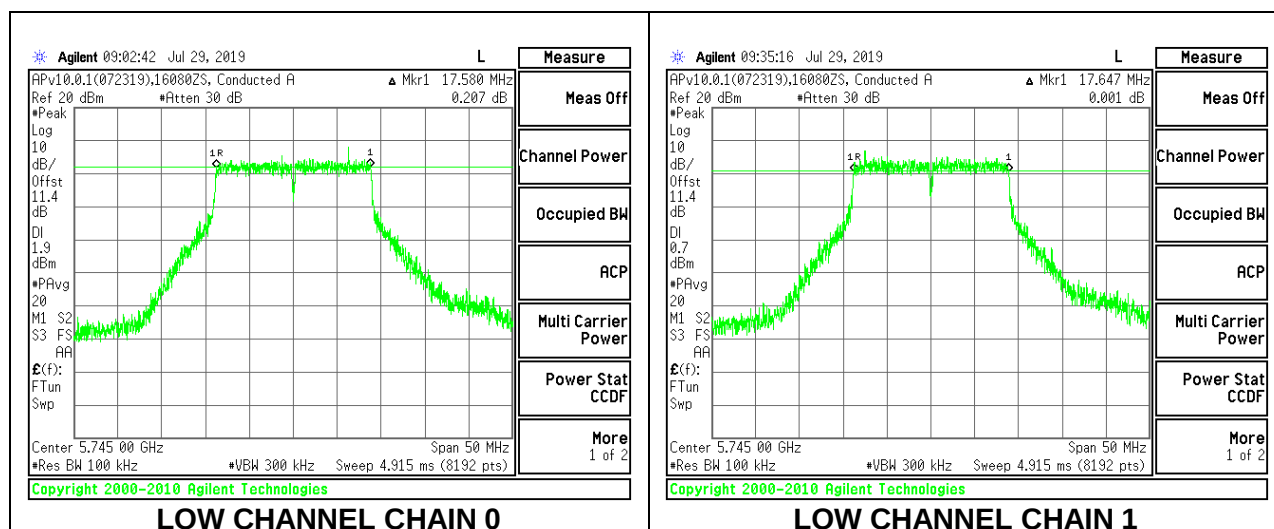


8.4.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

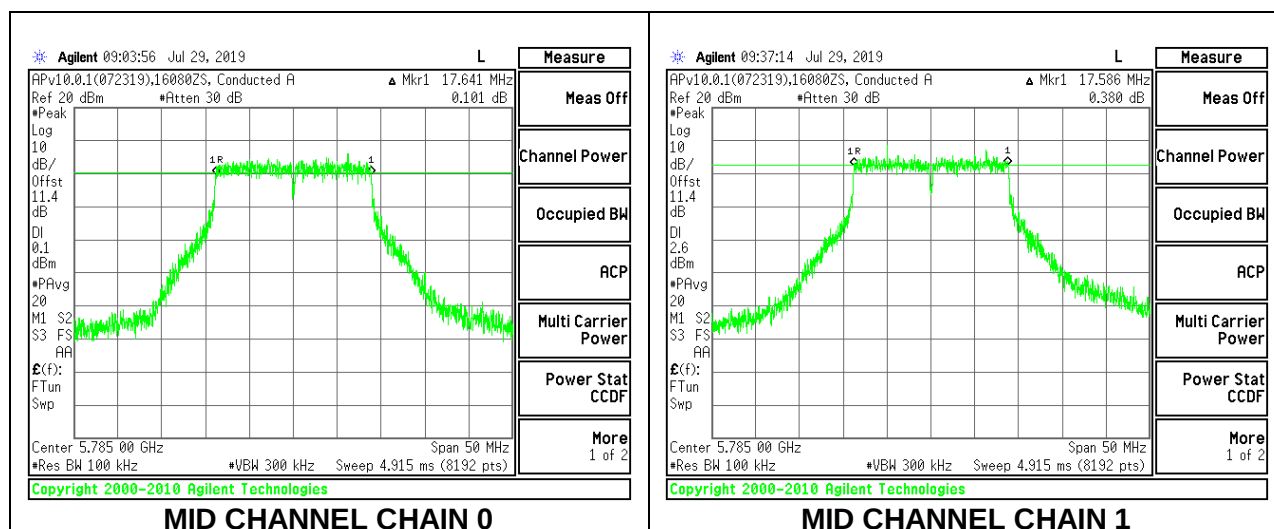
2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	Minimum Limit (MHz)
Low	5745	17.580	17.647	0.5
Mid	5785	17.641	17.586	0.5
High	5825	17.672	17.605	0.5
144	5720	3.934	3.921	0.5

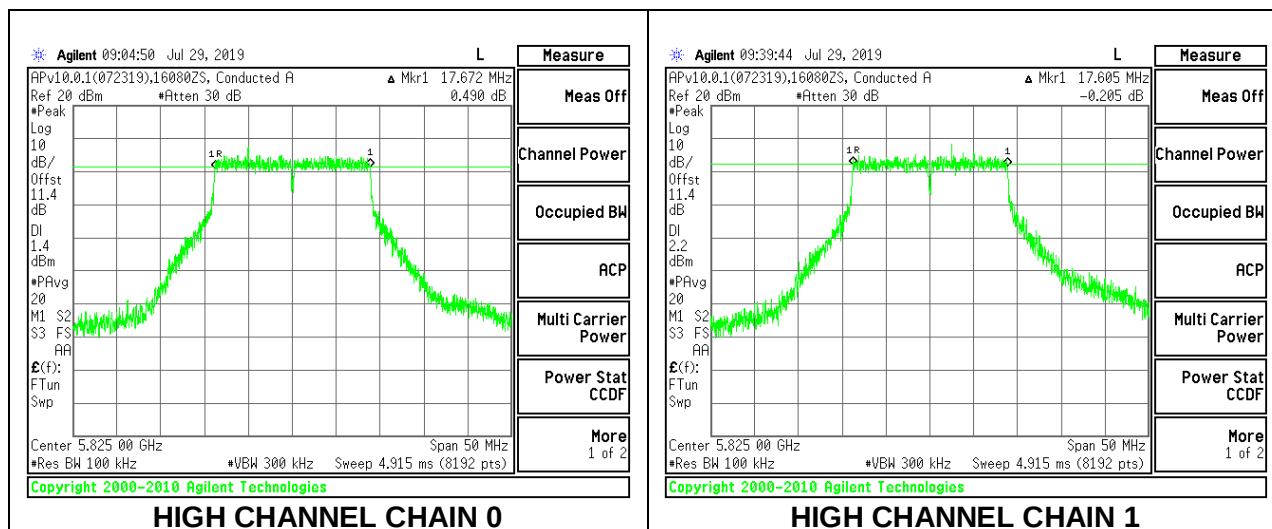
LOW CHANNEL



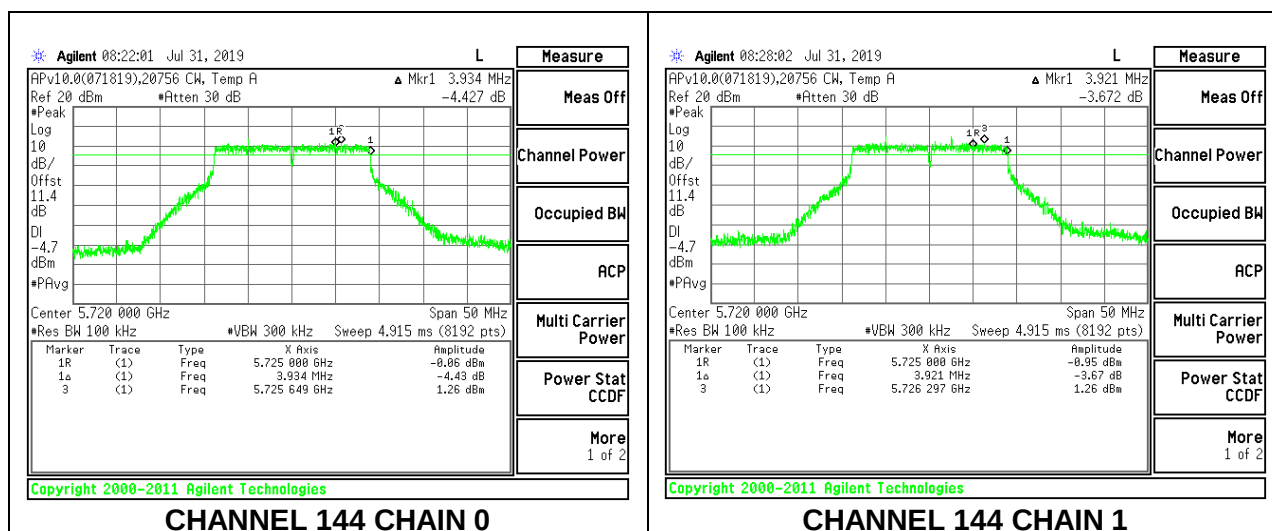
MID CHANNEL



HIGH CHANNEL



CHANNEL 144

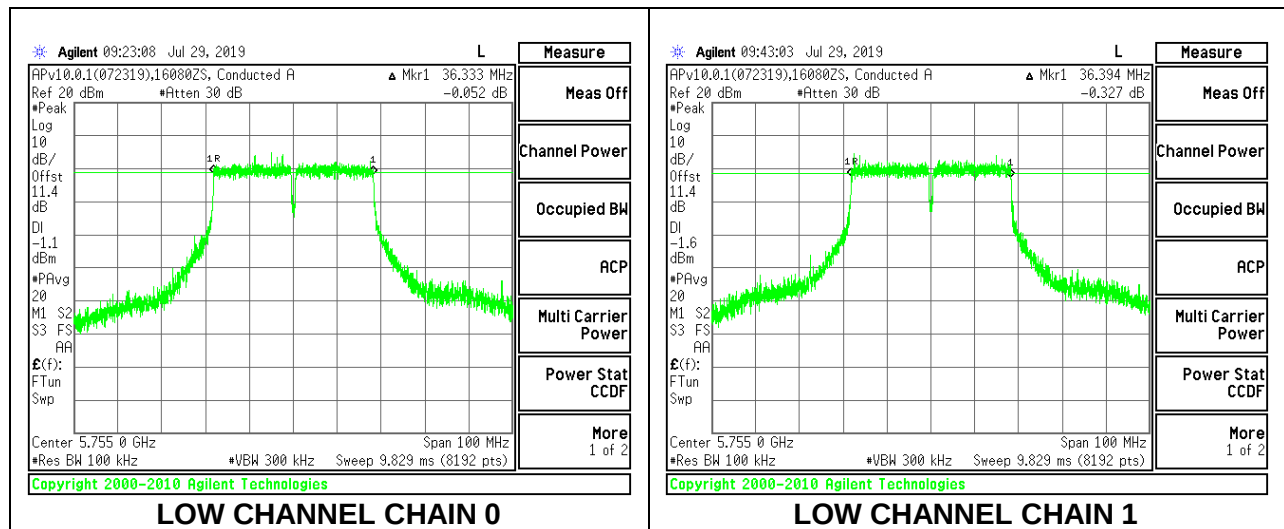


8.4.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

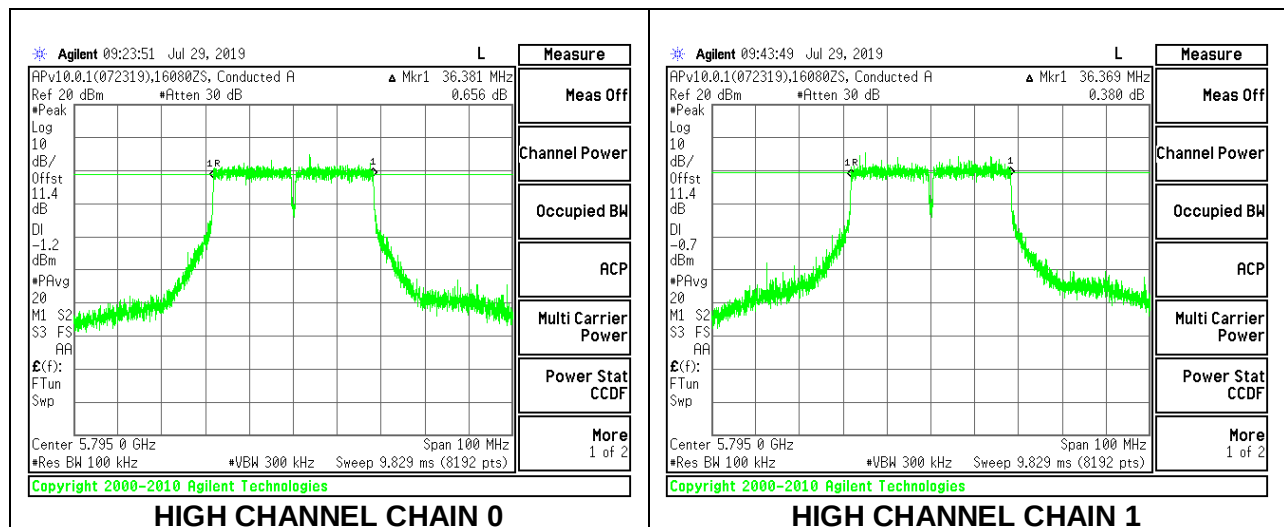
2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	Minimum Limit (MHz)
Low	5755	36.3330	36.3940	0.5
High	5795	36.3810	36.3690	0.5
142	5710	3.221	3.197	0.5

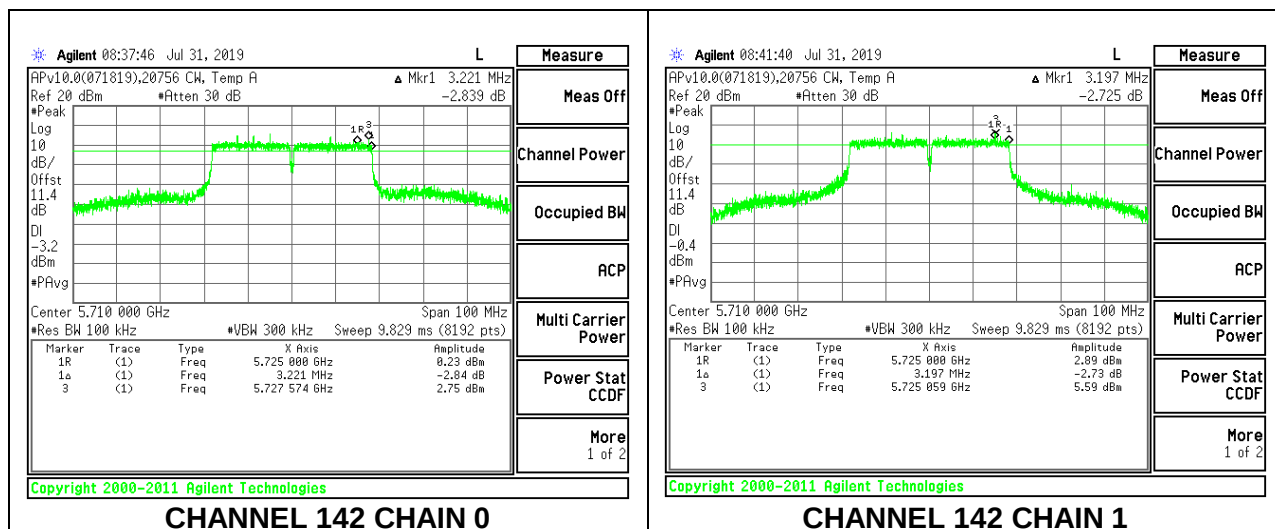
LOW CHANNEL



HIGH CHANNEL



CHANNEL 142

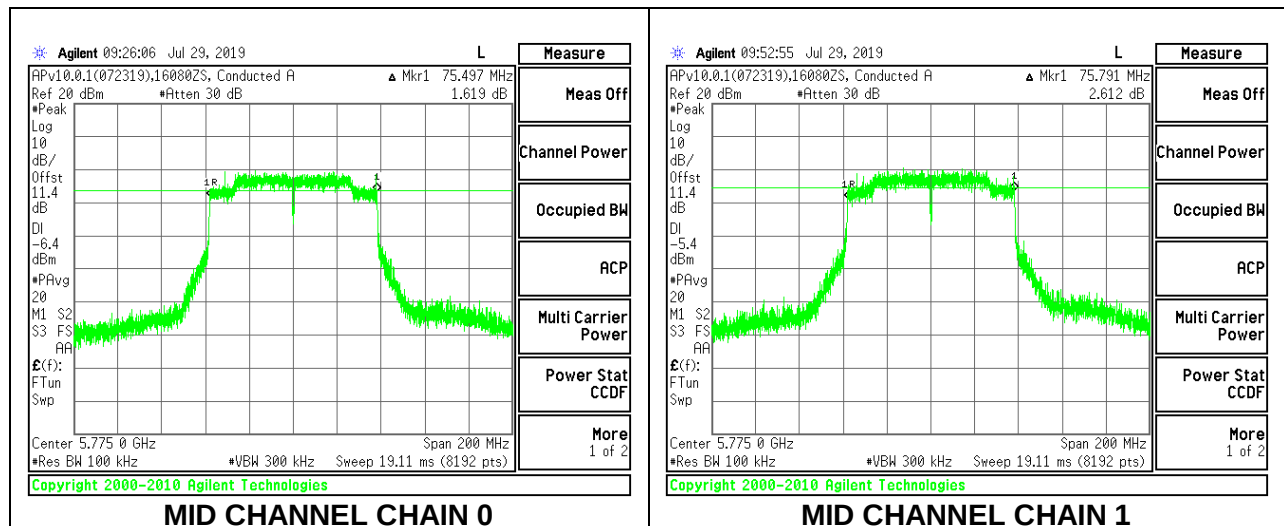


8.4.4. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

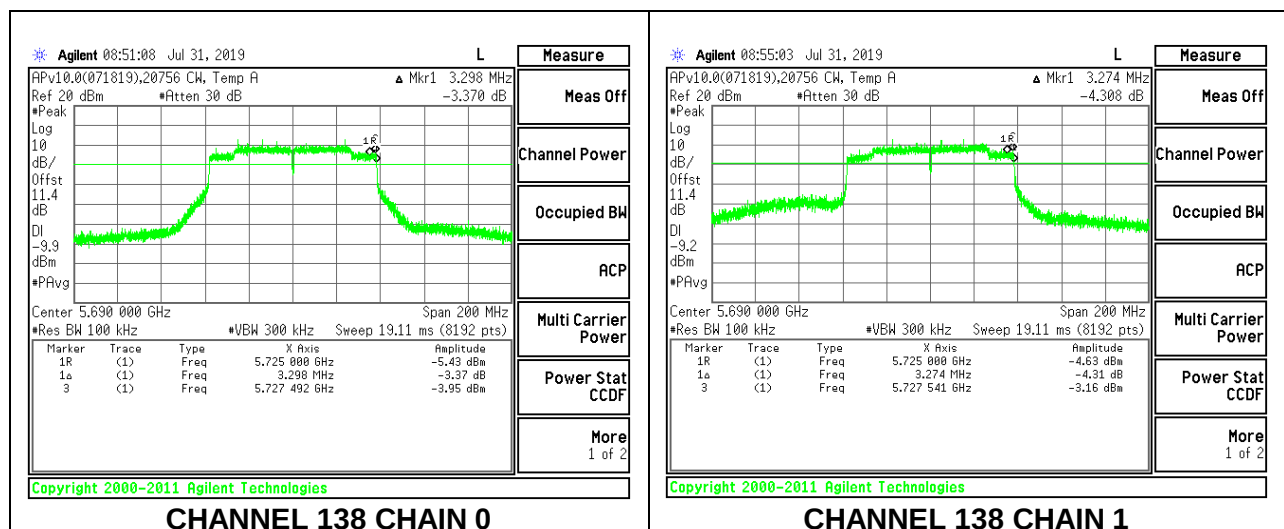
2TX Antenna 1 + Antenna 2 SDM MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	Minimum Limit (MHz)
Mid	5775	75.497	75.791	0.5
138	5690	3.298	3.274	0.5

MID CHANNEL



CHANNEL 138



8.5. OUTPUT POWER AND PSD

LIMITS

FCC §15.407

Band 5.15–5.25 GHz

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.

Note: 160Mhz mode results comparisons to ISED limits are for informational purposes. Canada does not permit transmission in the TDWR band.

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 PSD in SDM MIMO mode and correlated for PSD in CDD MIMO mode. 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	6.0	3.0	4.75	7.64
5.3	7.8	3.5	6.16	8.92
5.6	8.0	4.0	6.45	9.24
5.8	8.3	4.6	6.83	9.66

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	4.75	7.64	24.00	9.36
Mid	5200	4.75	7.64	24.00	9.36
High	5240	4.75	7.64	24.00	9.36

Duty Cycle CF (dB)	0.09	Included in Calculations of Corr'd PSD
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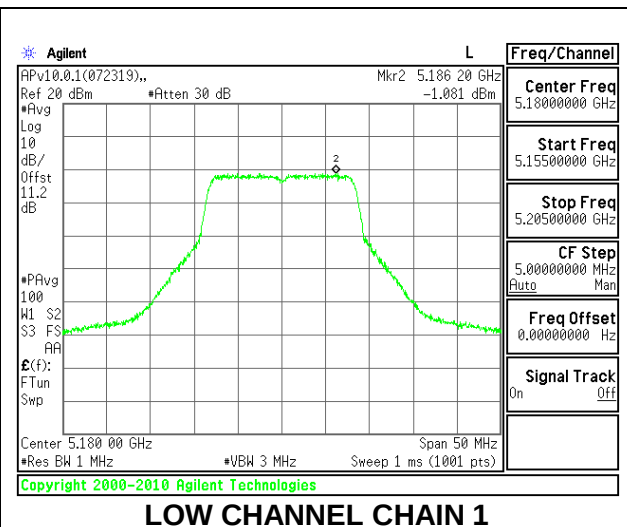
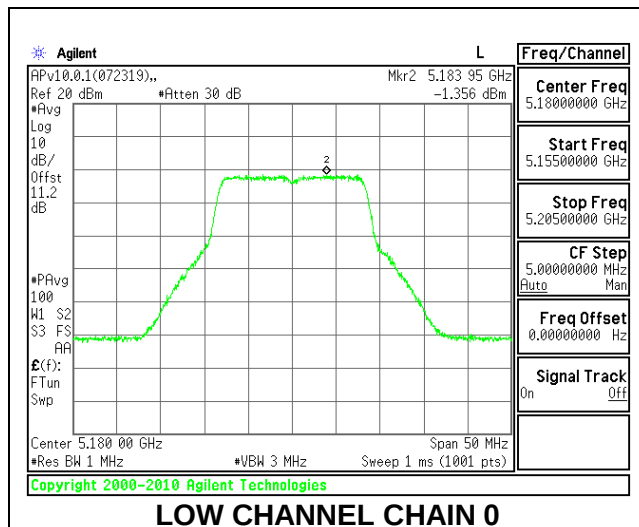
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	9.55	9.73	12.65	24.00	-11.35
Mid	5200	9.57	9.77	12.68	24.00	-11.32
High	5240	9.53	9.85	12.70	24.00	-11.30

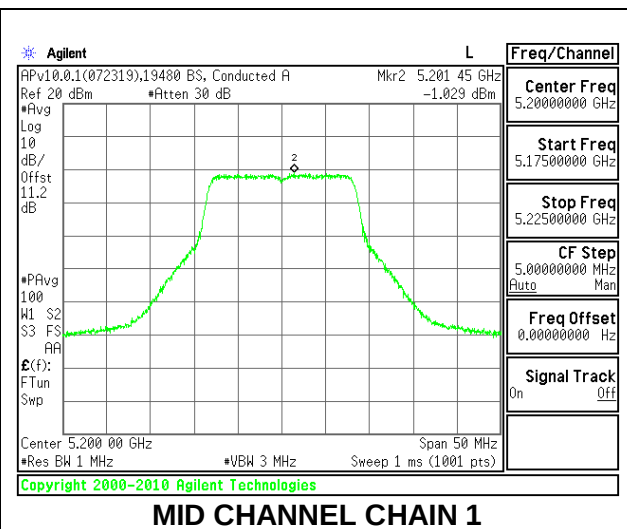
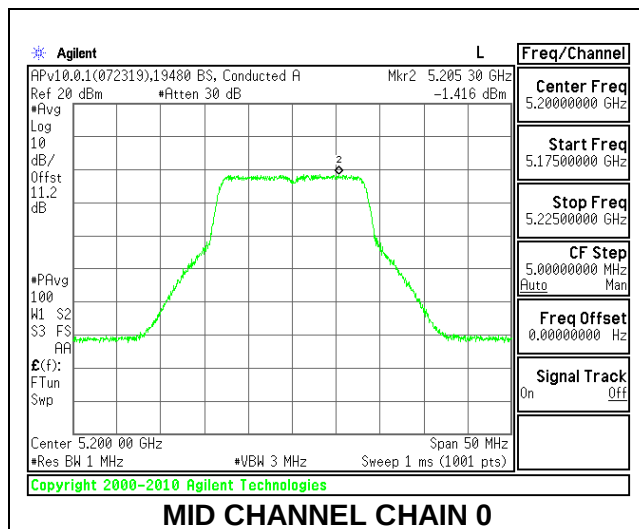
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5180	-1.36	-1.08	1.88	9.36	-7.48
Mid	5200	-1.42	-1.03	1.88	9.36	-7.48
High	5240	-1.40	-0.98	1.92	9.36	-7.44

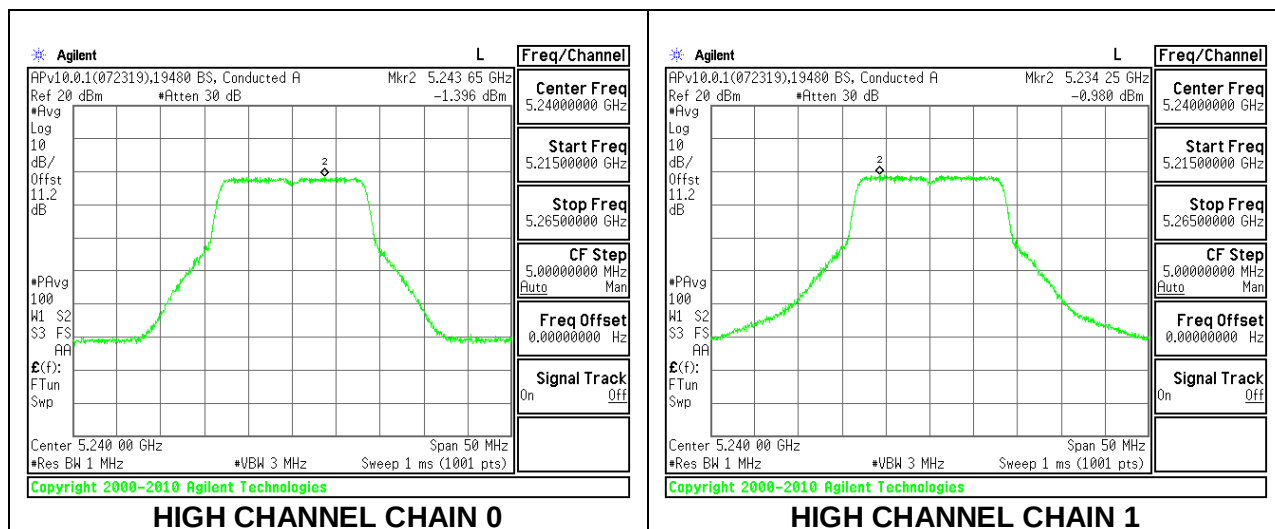
LOW CHANNEL



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	16.595	4.75	7.64	22.20	17.45	10.00	2.36
Mid	5200	16.682	4.75	7.64	22.22	17.47	10.00	2.36
High	5240	16.651	4.75	7.64	22.21	17.46	10.00	2.36

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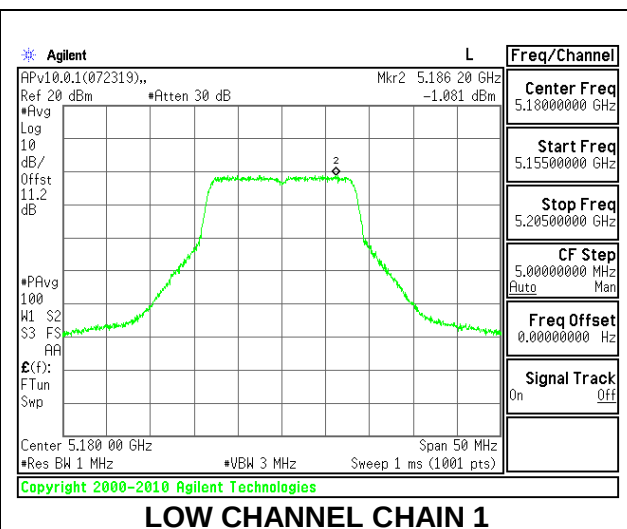
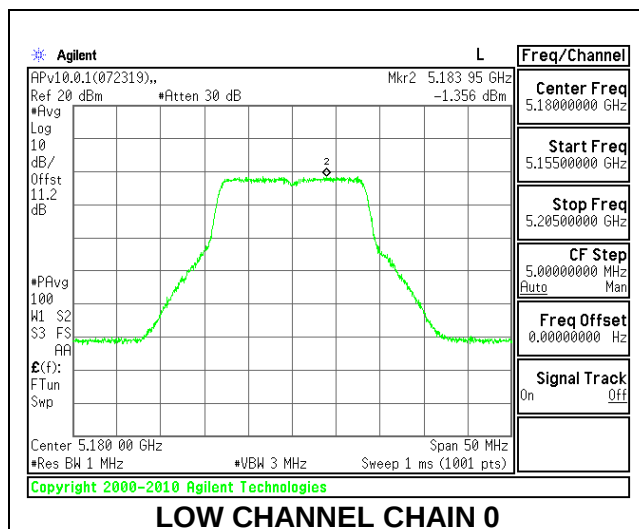
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	9.55	9.73	12.65	17.45	-4.80
Mid	5200	9.57	9.77	12.68	17.47	-4.79
High	5240	9.53	9.85	12.70	17.46	-4.76

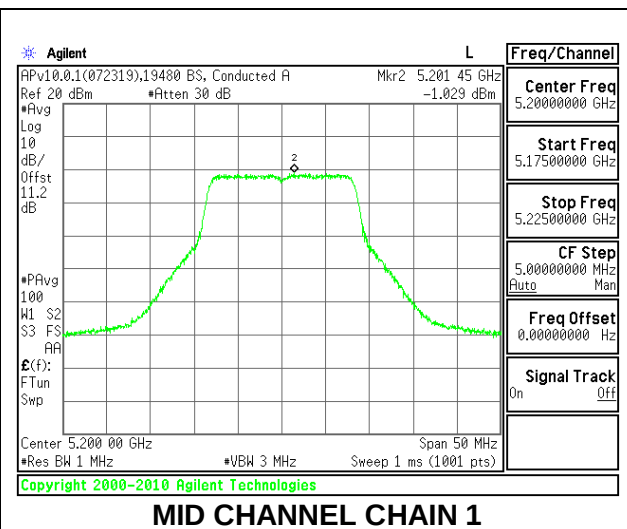
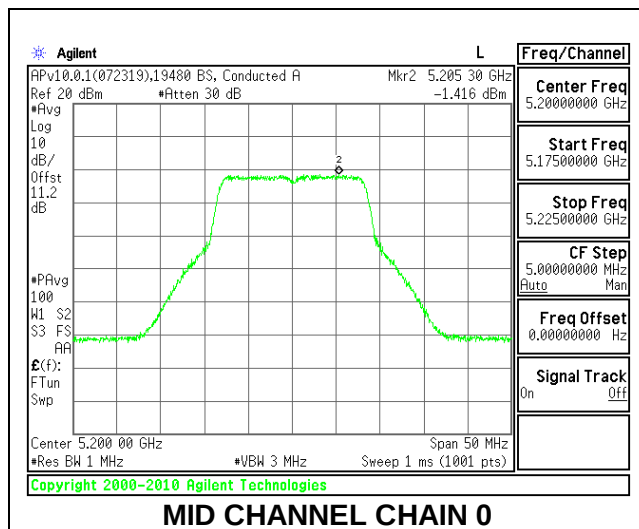
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5180	-1.36	-1.08	1.79	2.36	-0.57
Mid	5200	-1.42	-1.03	1.79	2.36	-0.57
High	5240	-1.40	-0.98	1.83	2.36	-0.53

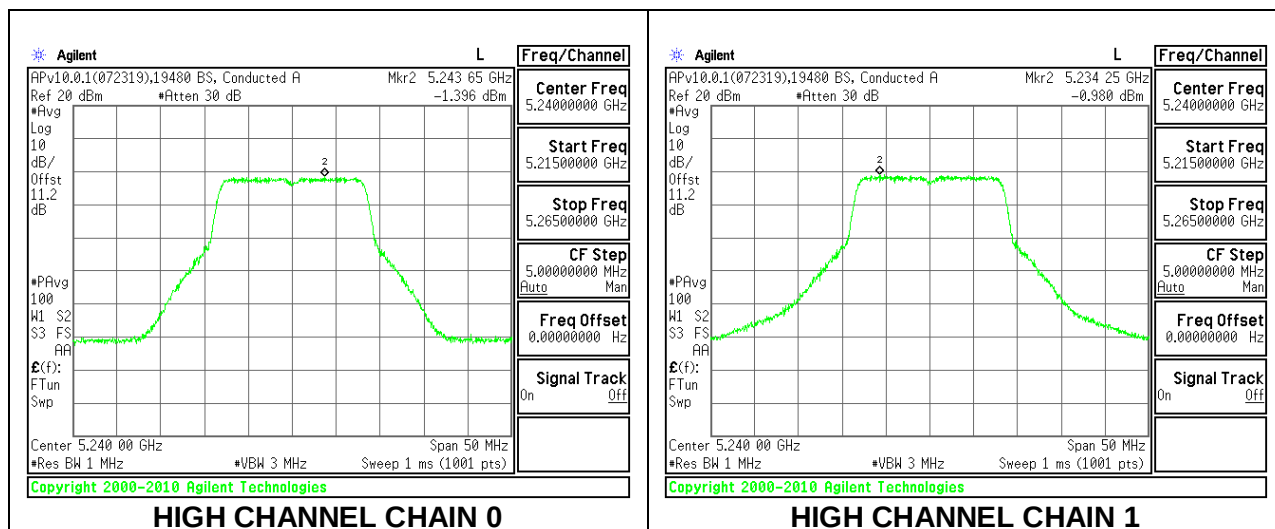
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



8.5.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

2TX Antenna 1 + Antenna 2 SDM 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	4.75	4.75	24.00	11.00
Mid	5200	4.75	4.75	24.00	11.00
High	5240	4.75	4.75	24.00	11.00

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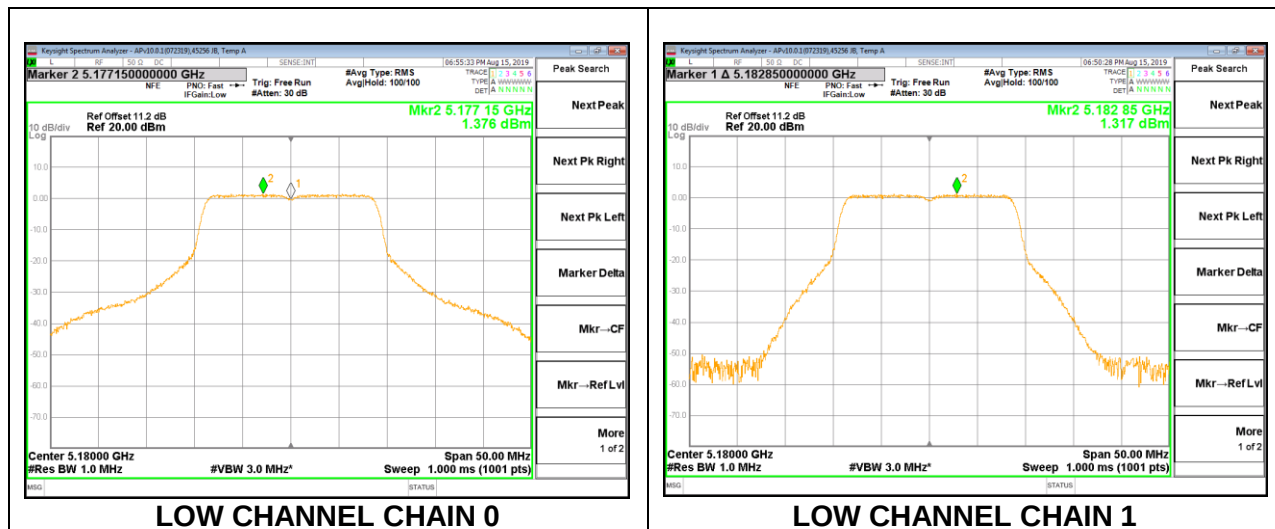
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	13.04	13.18	16.12	24.00	-7.88
Mid	5200	13.09	13.24	16.18	24.00	-7.82
High	5240	12.92	13.36	16.16	24.00	-7.84

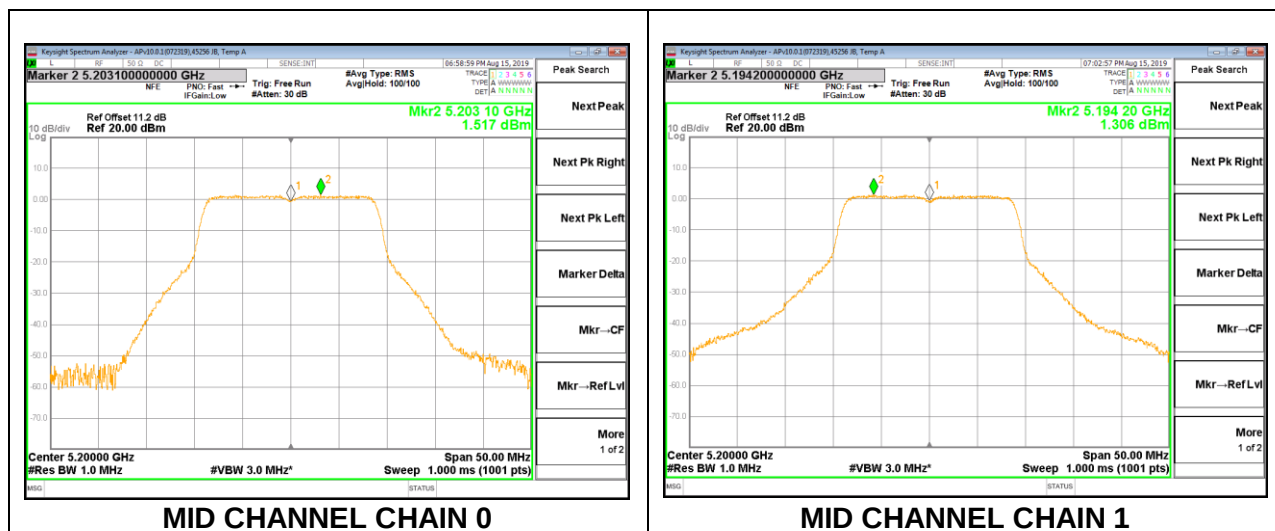
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	1.38	1.32	4.36	11.00	-6.64
Mid	5200	1.52	1.31	4.42	11.00	-6.58
High	5240	1.16	1.22	4.20	11.00	-6.80

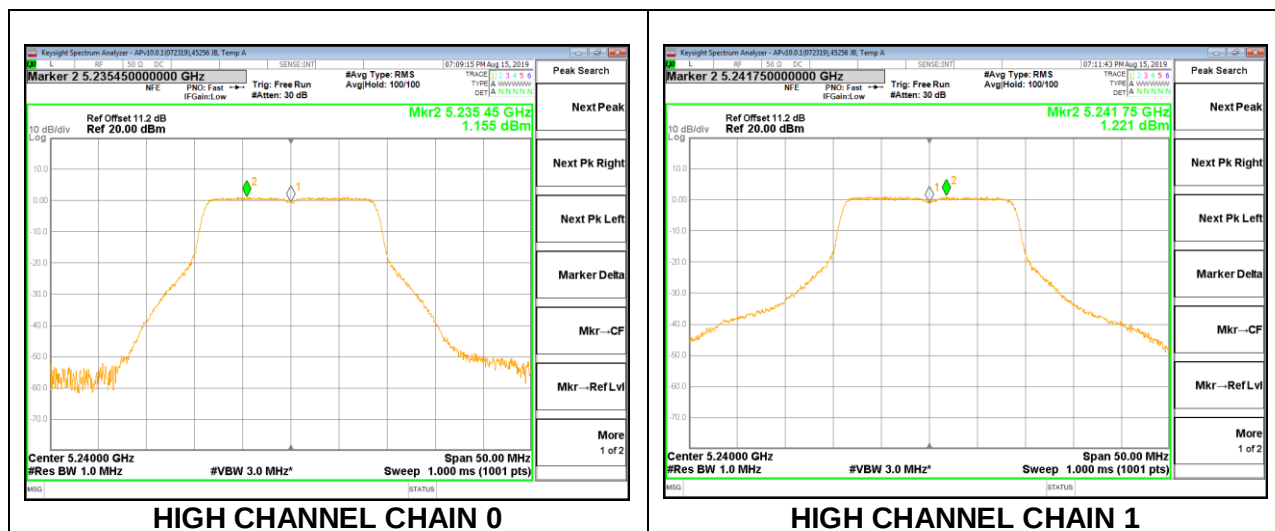
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



2TX Antenna 1 + Antenna 2 SDM 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	17.910	4.75	4.75	22.53	17.78	10.00	5.25
Mid	5200	17.796	4.75	4.75	22.50	17.75	10.00	5.25
High	5240	17.874	4.75	4.75	22.52	17.77	10.00	5.25

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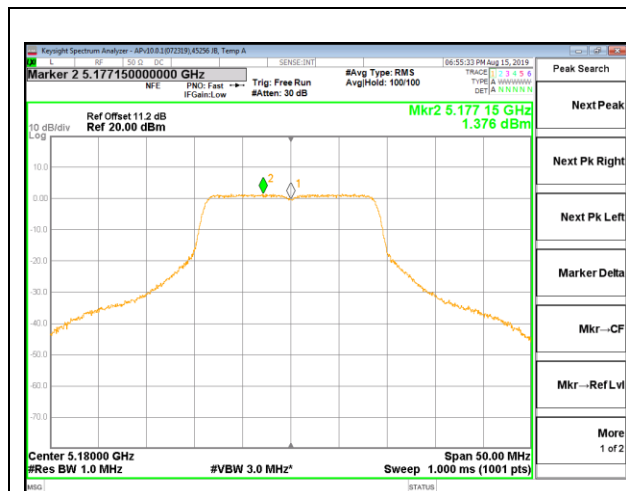
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	13.04	13.18	16.12	17.78	-1.66
Mid	5200	13.09	13.24	16.18	17.75	-1.58
High	5240	12.92	13.36	16.16	17.77	-1.62

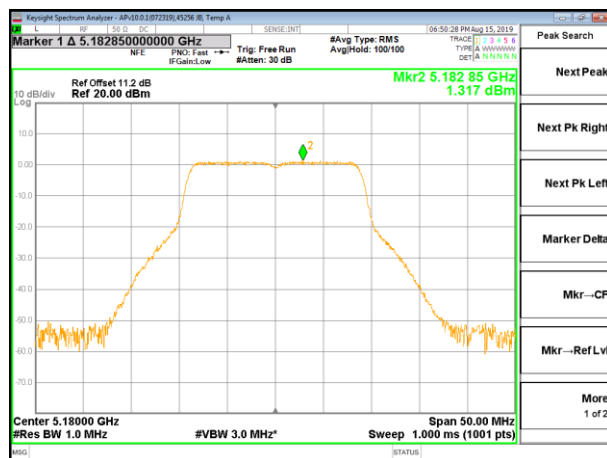
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Total Corr'd D (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	1.38	1.32	4.36	5.25	-0.89
Mid	5200	1.52	1.31	4.42	5.25	-0.83
High	5240	1.16	1.22	4.20	5.25	-1.05

LOW CHANNEL

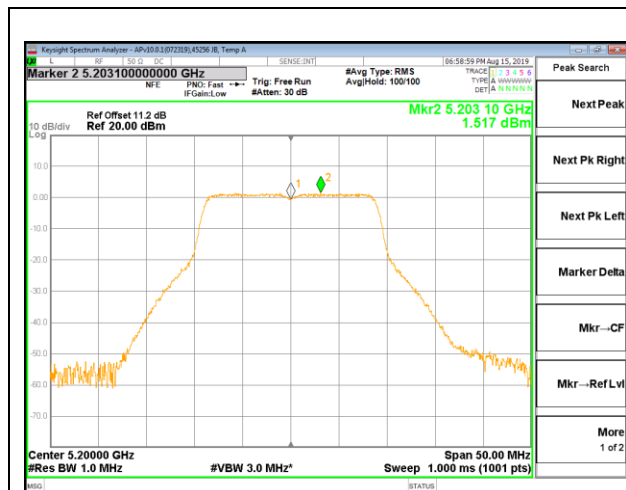


LOW CHANNEL CHAIN 0

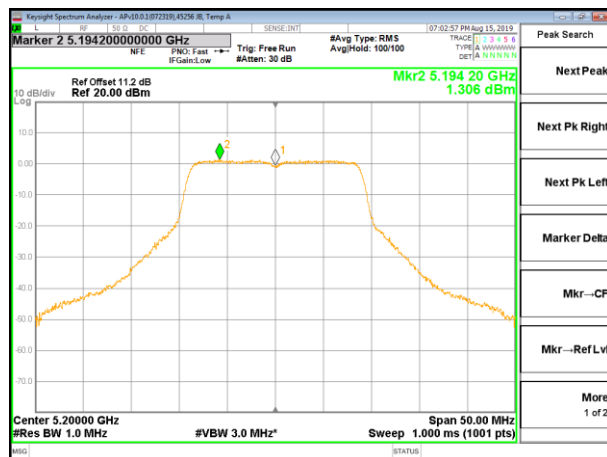


LOW CHANNEL CHAIN 1

MID CHANNEL



MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1

HIGH CHANNEL

