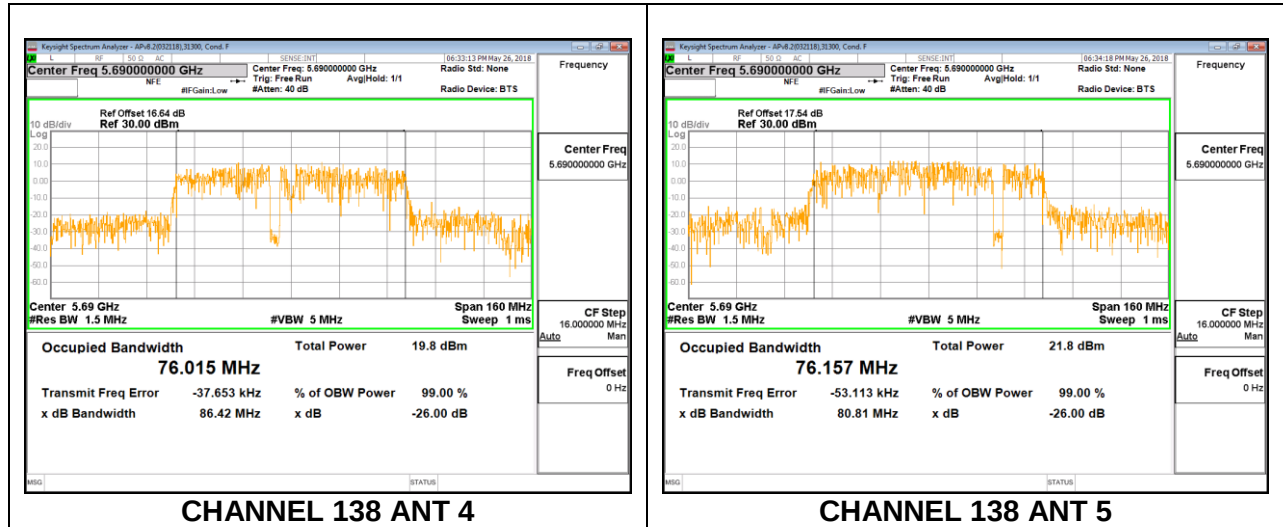


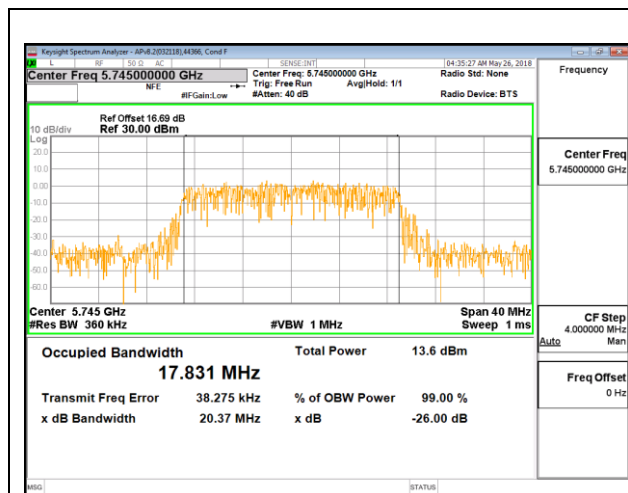
CHANNEL 138



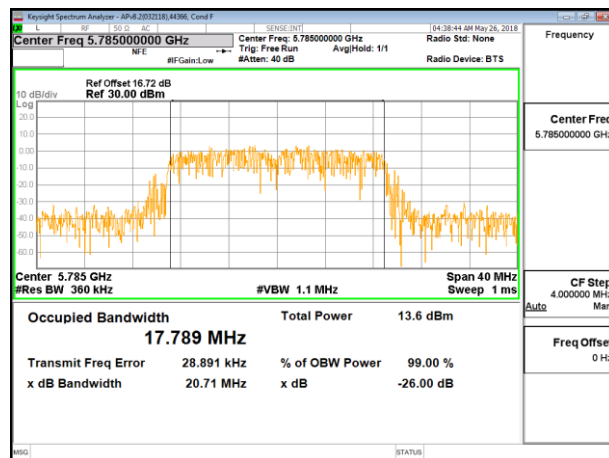
8.3.10. 802.11n HT20 MODE IN THE 5.8 GHz BAND

1TX Antenna 4

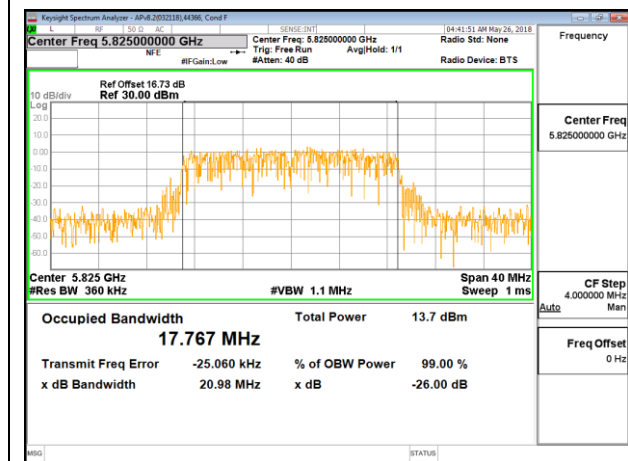
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.831
Mid	5785	17.789
High	5825	17.767



LOW CHANNEL



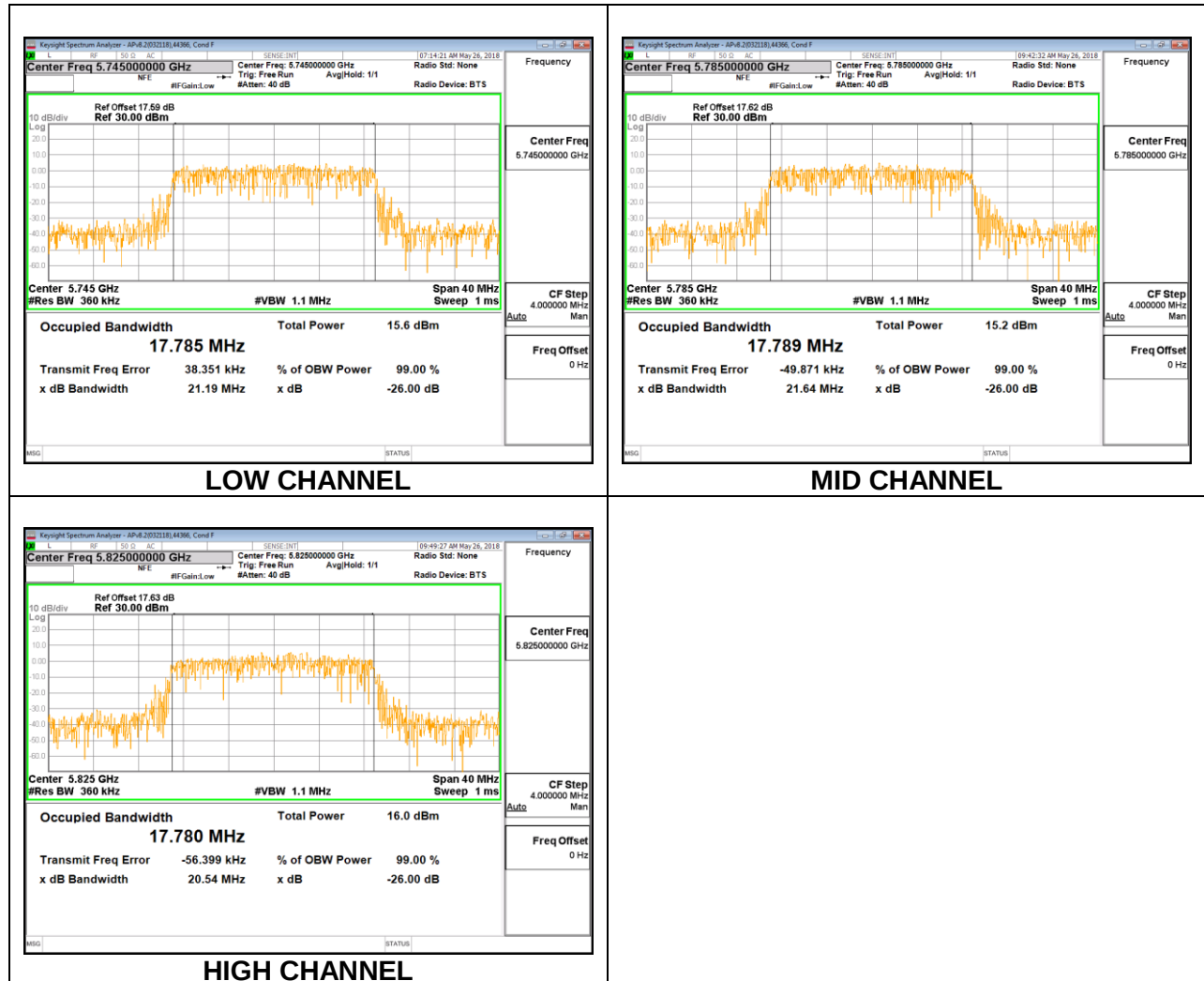
MID CHANNEL



HIGH CHANNEL

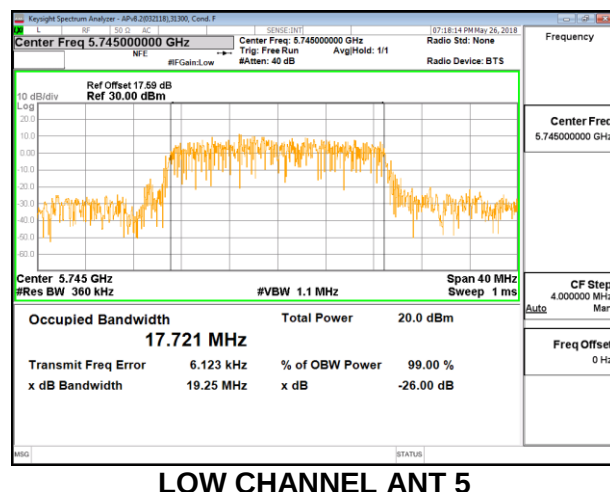
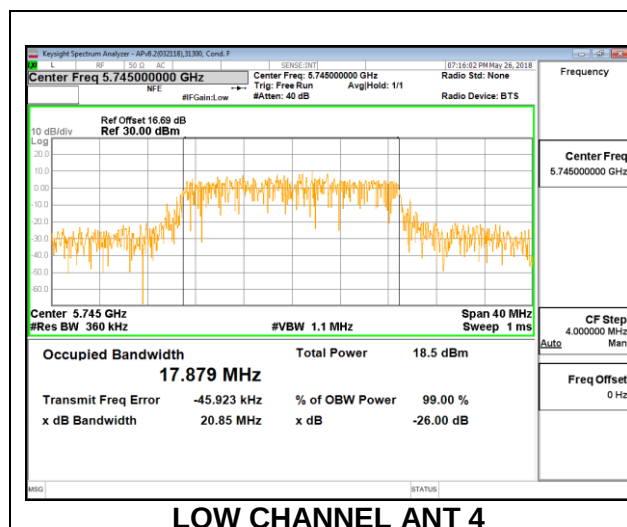
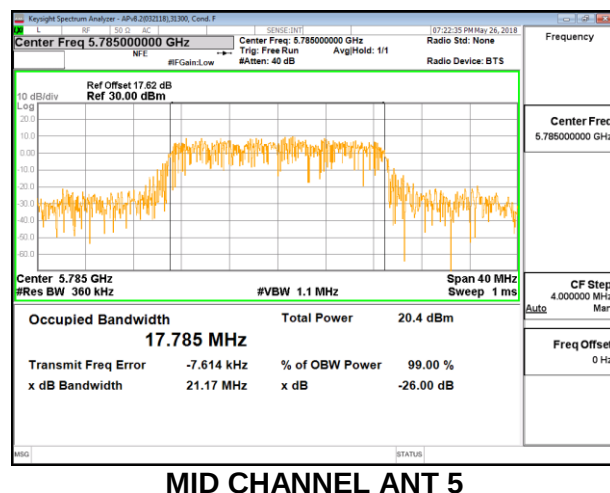
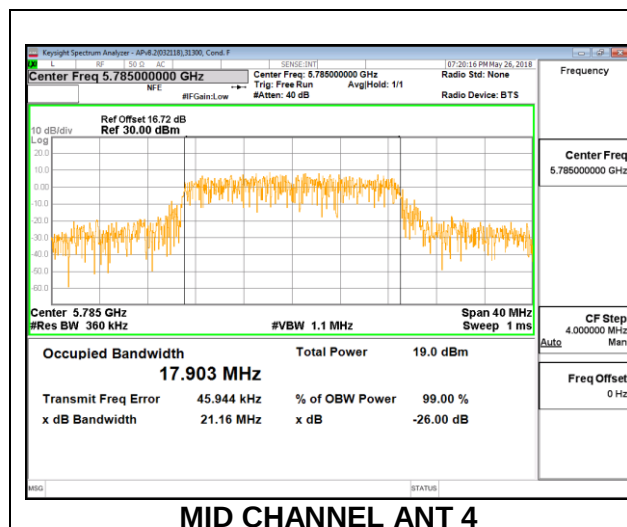
1TX Antenna 5

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.785
Mid	5785	17.789
High	5825	17.780

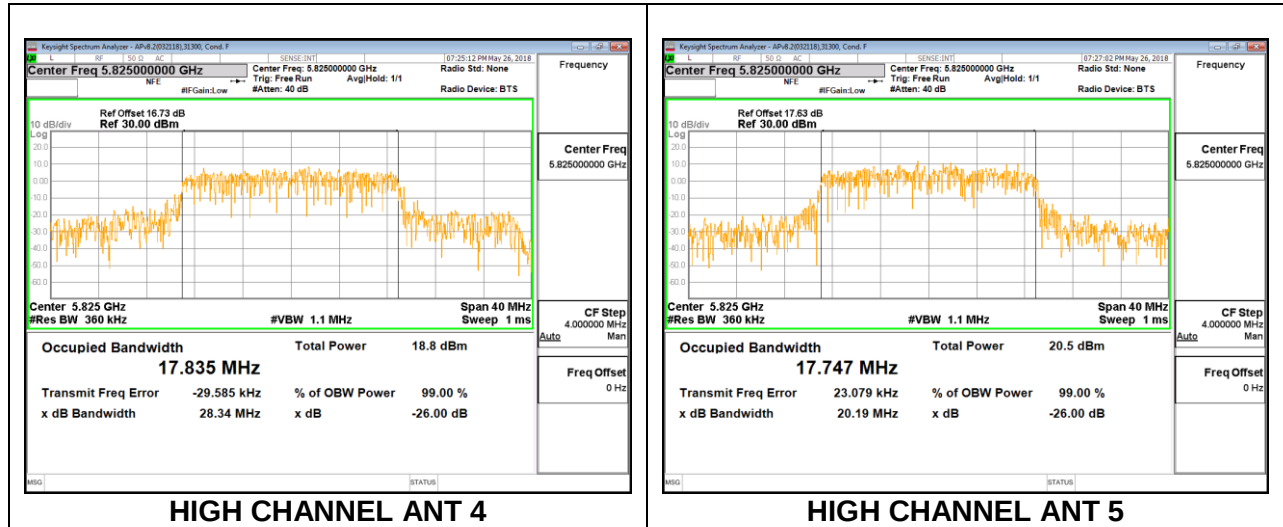


2TX Antenna 4 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth ANT 4 (MHz)	99% Bandwidth ANT 5 (MHz)
Low	5745	17.879	17.721
Mid	5785	17.903	17.785
High	5825	17.835	17.747

LOW CHANNEL**MID CHANNEL**

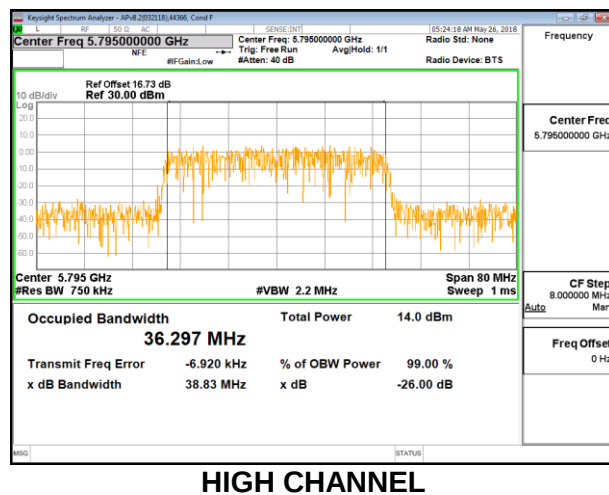
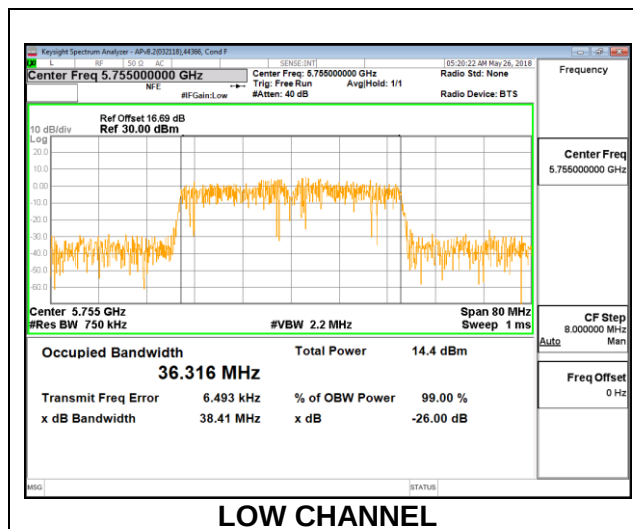
HIGH CHANNEL



8.3.11. 802.11n HT40 MODE IN THE 5.8 GHz BAND

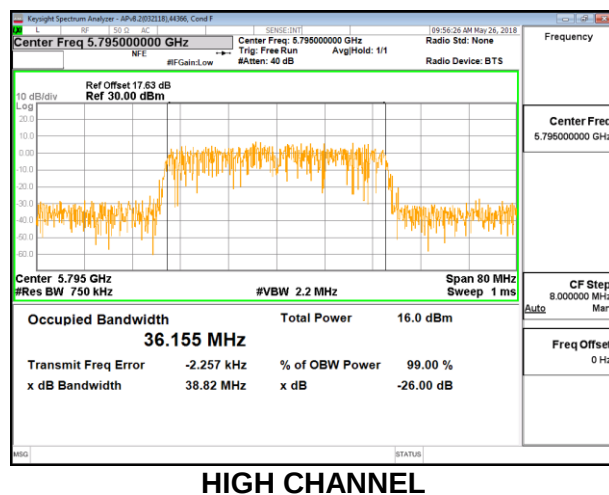
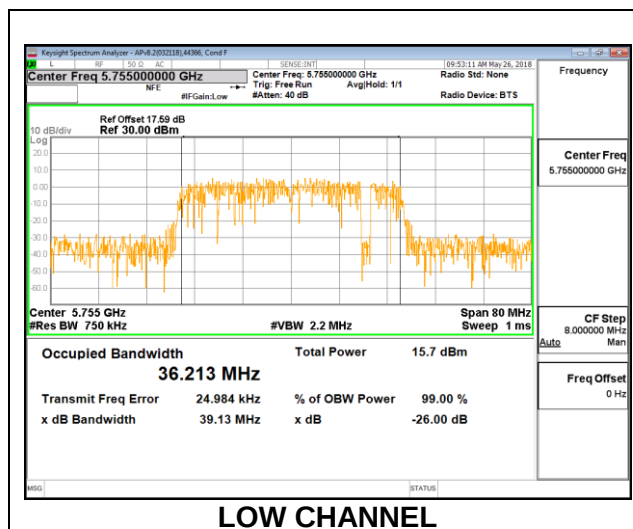
1TX Antenna 4

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5755	36.316
High	5795	36.297



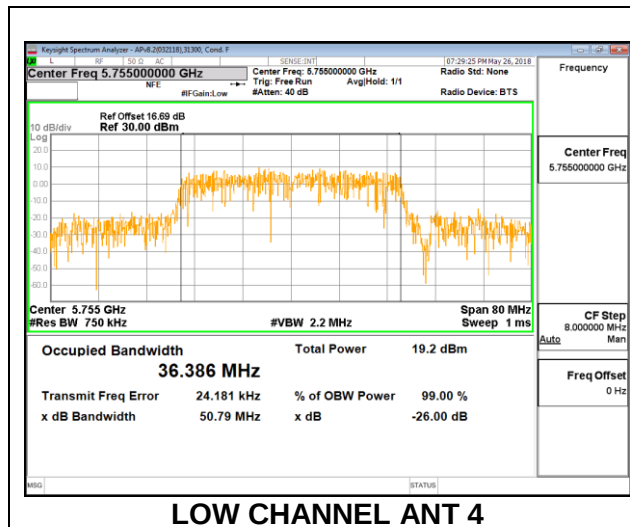
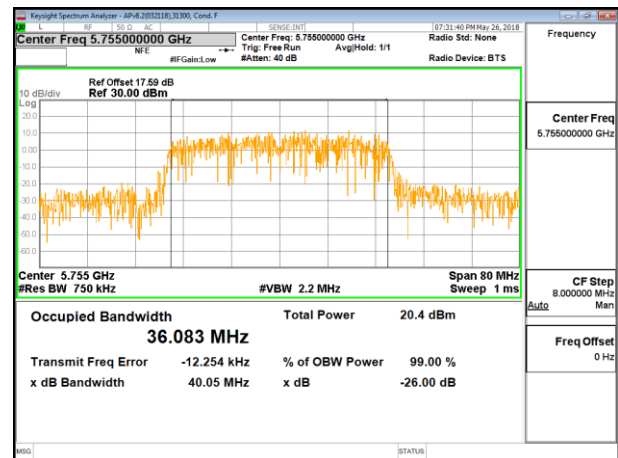
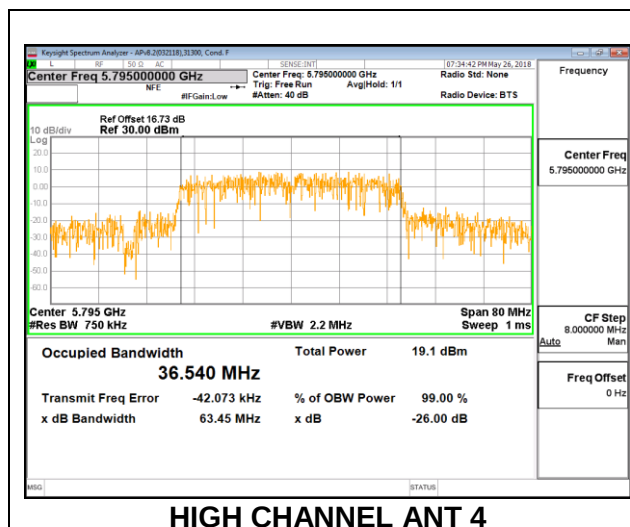
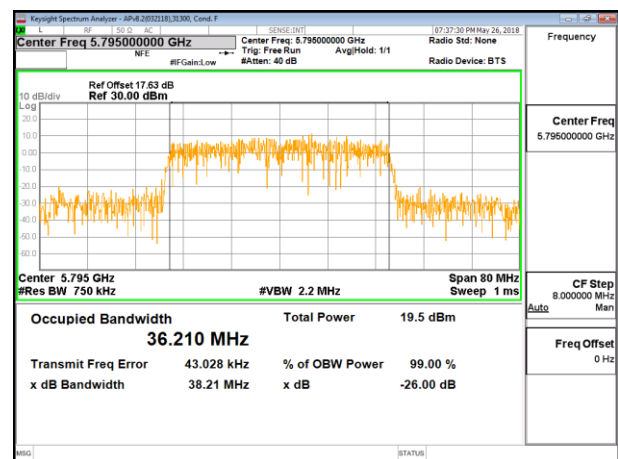
1TX Antenna 5

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5755	36.213
High	5795	36.155



2TX Antenna 4 + Antenna 5 CDD MODE

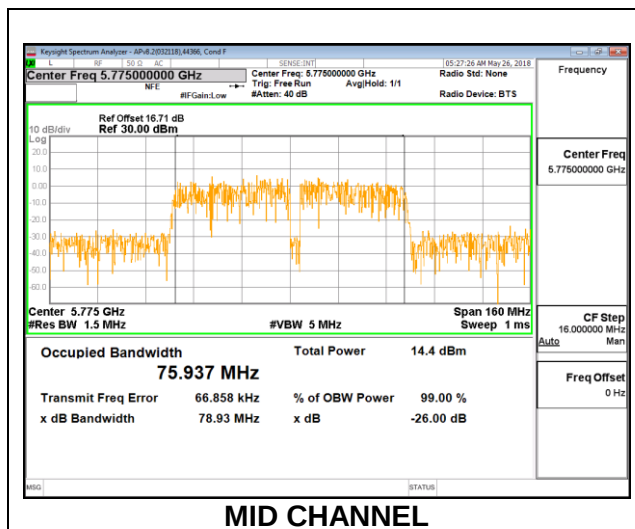
Channel	Frequency	99% Bandwidth ANT 4 (MHz)	99% Bandwidth ANT 5 (MHz)
Low	5755	36.386	36.083
High	5795	36.540	36.210

LOW CHANNEL**LOW CHANNEL ANT 4****LOW CHANNEL ANT 5****HIGH CHANNEL****HIGH CHANNEL ANT 4****HIGH CHANNEL ANT 5**

8.3.12. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

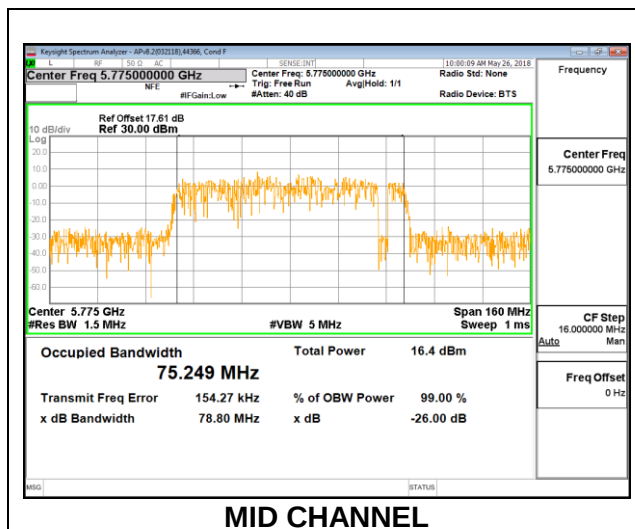
1TX Antenna 4

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Mid	5775	75.937



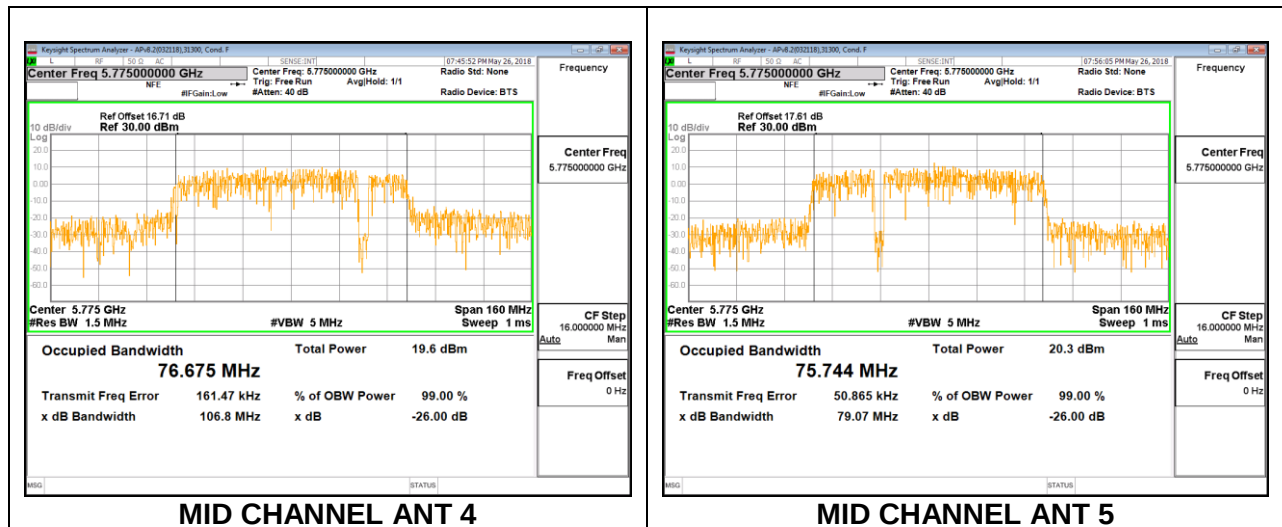
1TX Antenna 5

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Mid	5775	75.249



2TX Antenna 4 + Antenna 5 CDD MODE

Channel	Frequency	99% Bandwidth ANT 4 (MHz)	99% Bandwidth ANT 5 (MHz)
Mid	5775	76.675	75.744

MID CHANNEL

8.4. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

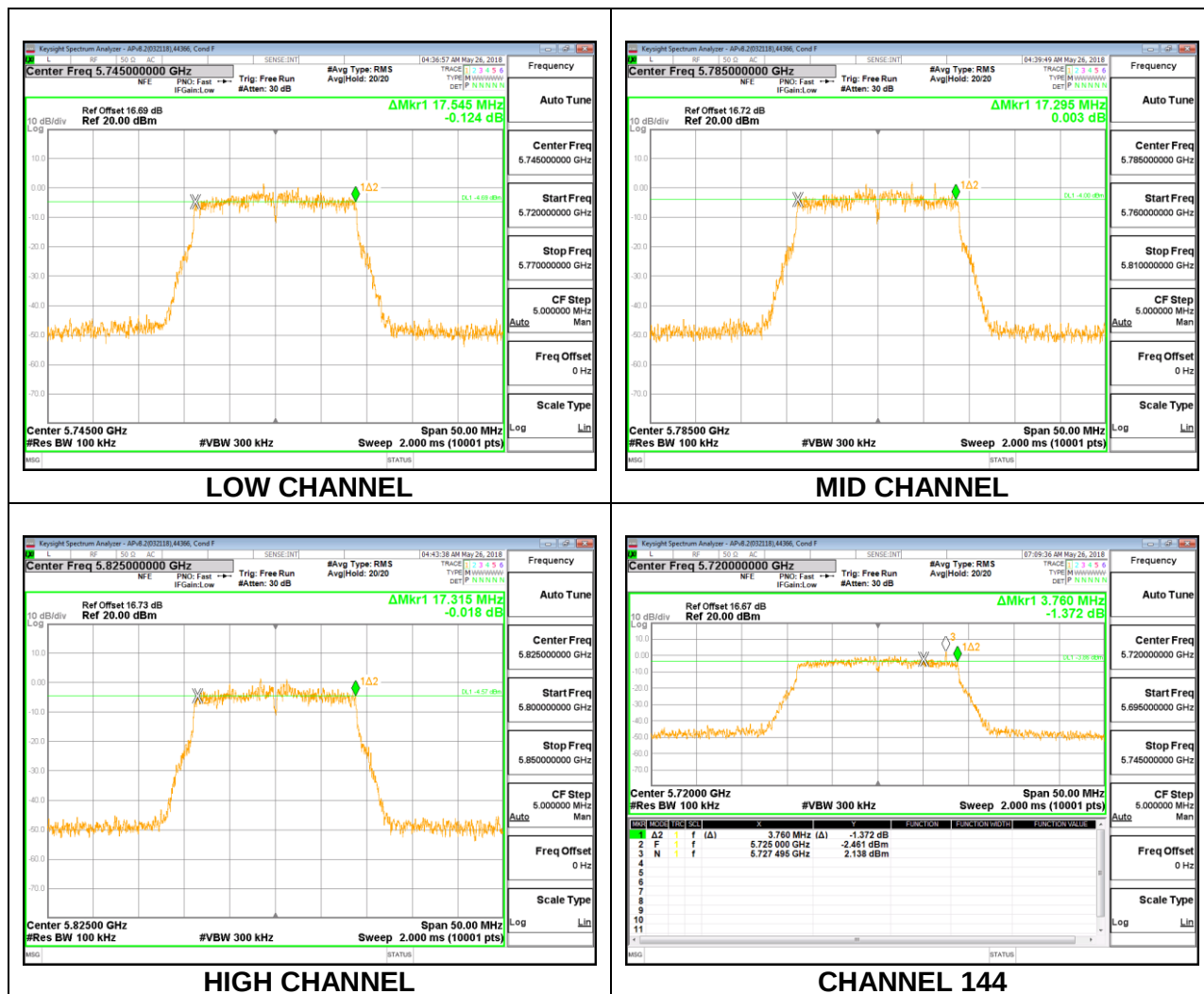
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

8.4.1. 802.11n HT20 MODE IN THE 5.8 GHz BAND

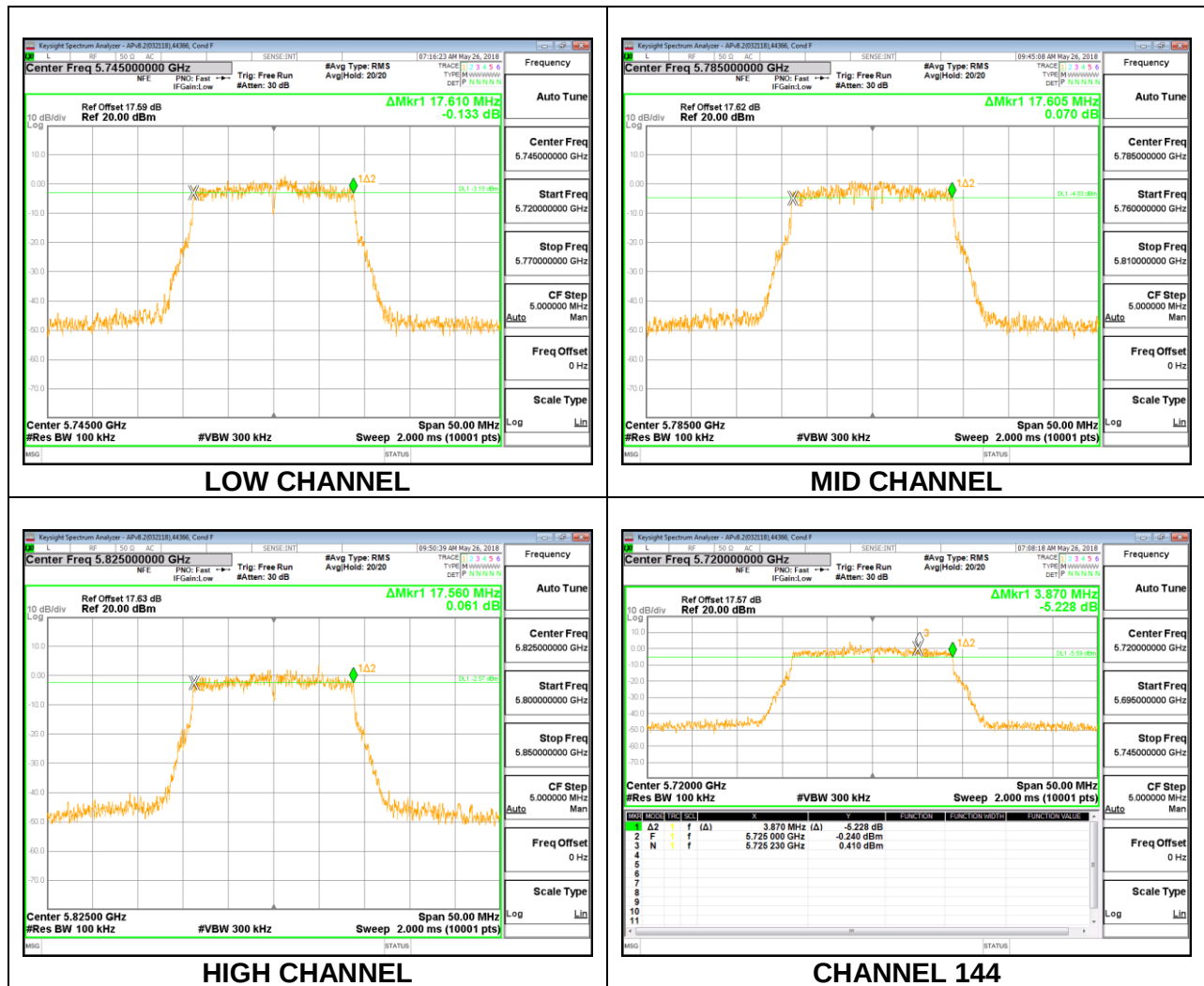
1TX Antenna 4

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	5745	17.545	0.5
Mid	5785	17.295	0.5
High	5825	17.315	0.5
144	5720	3.760	0.5



1TX Antenna 5

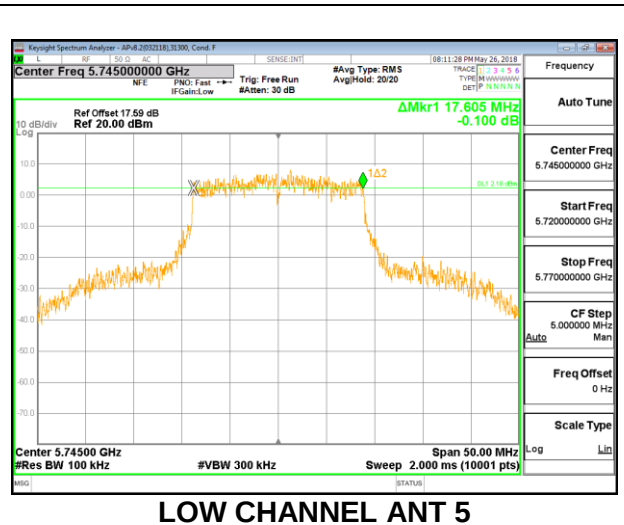
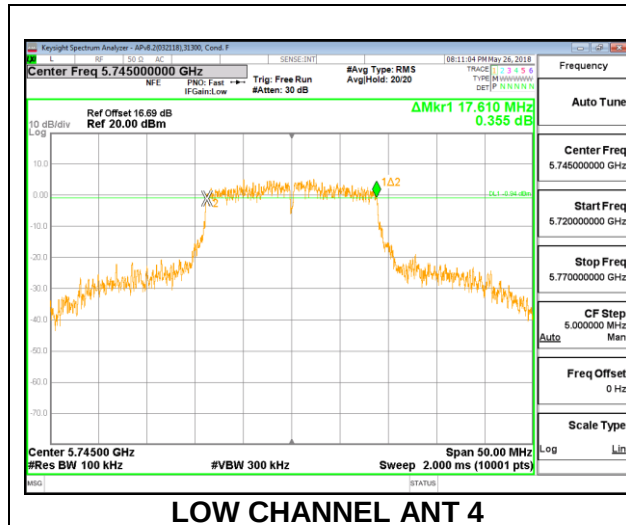
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	17.610	0.5
Mid	5785	17.605	0.5
High	5825	17.560	0.5
144	5720	3.870	0.5



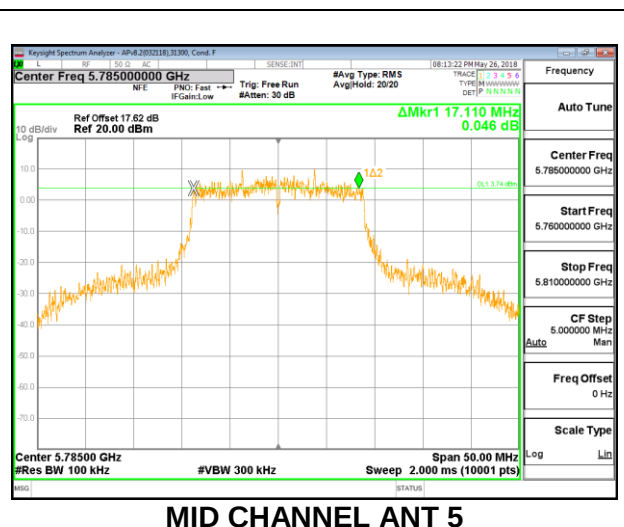
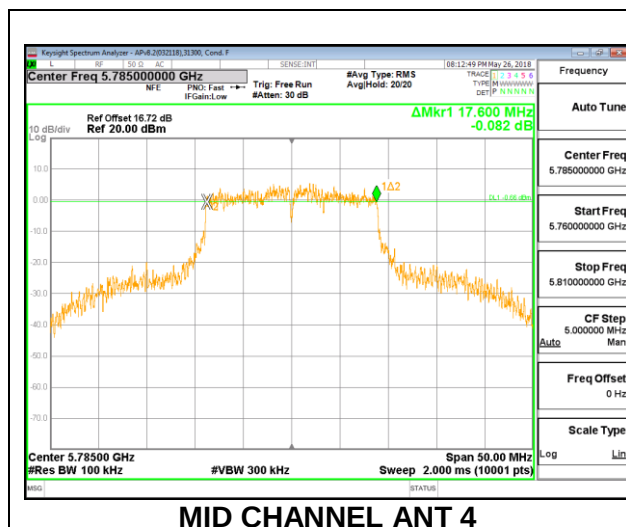
2TX Antenna 4 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	6 dB BW ANT 4 (MHz)	6 dB BW ANT 5 (MHz)	Minimum Limit (MHz)
Low	5745	17.610	17.605	0.5
Mid	5785	17.600	17.110	0.5
High	5825	17.610	17.615	0.5
144	5720	3.760	3.785	0.5

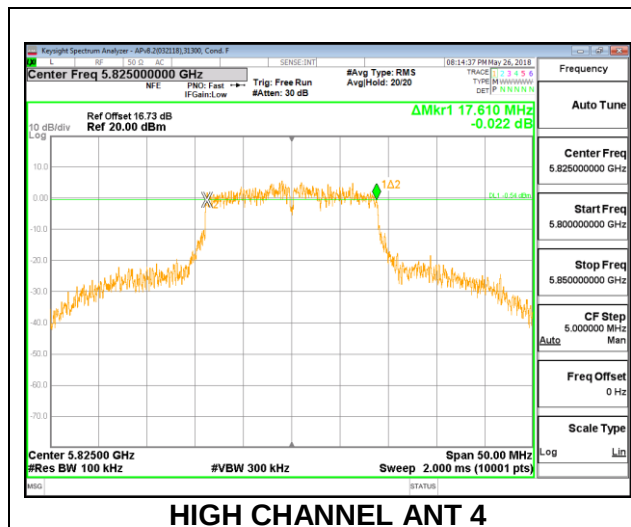
LOW CHANNEL



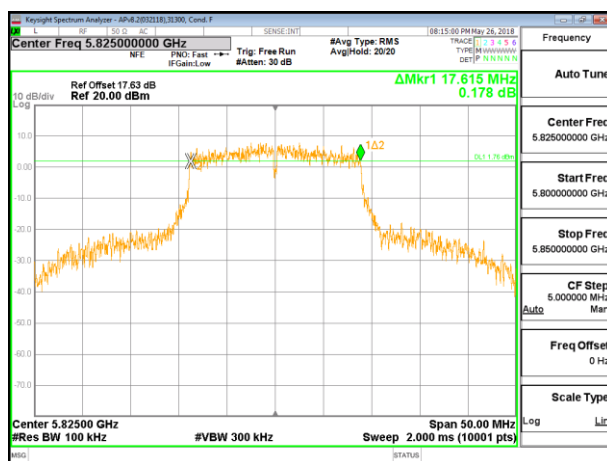
MID CHANNEL



HIGH CHANNEL

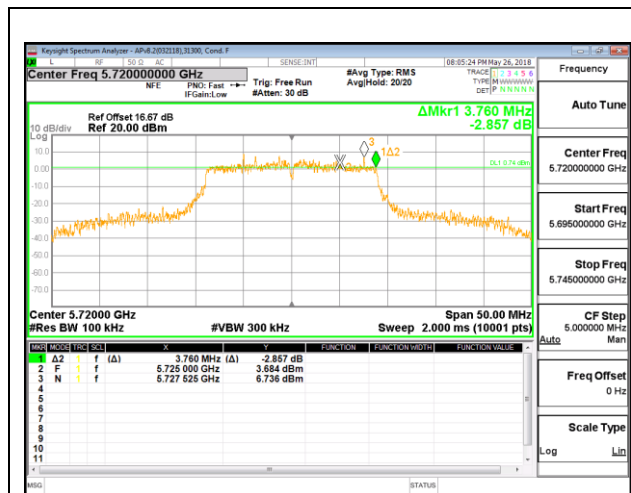


HIGH CHANNEL ANT 4

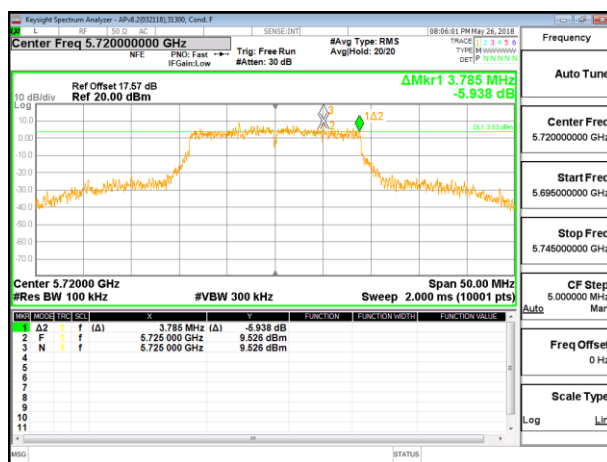


HIGH CHANNEL ANT 5

CHANNEL 144



CHANNEL 144 ANT 4

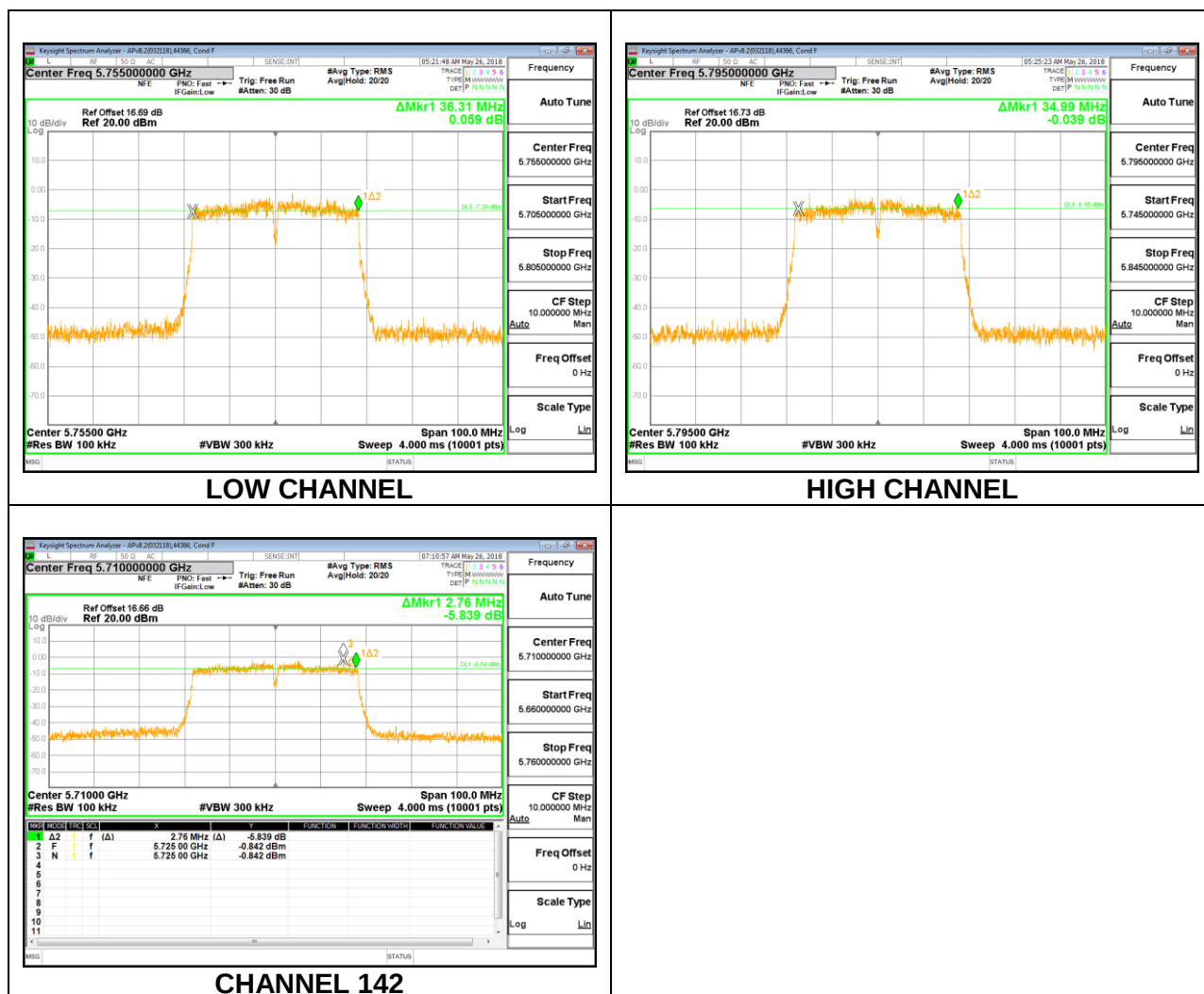


CHANNEL 144 ANT 5

8.4.2. 802.11n HT40 MODE IN THE 5.8 GHz BAND

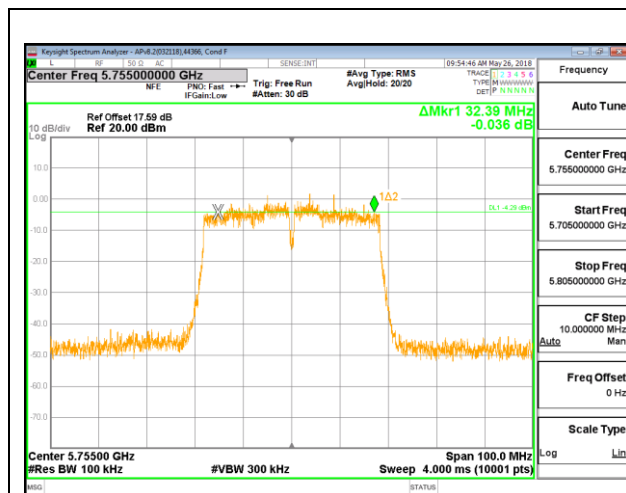
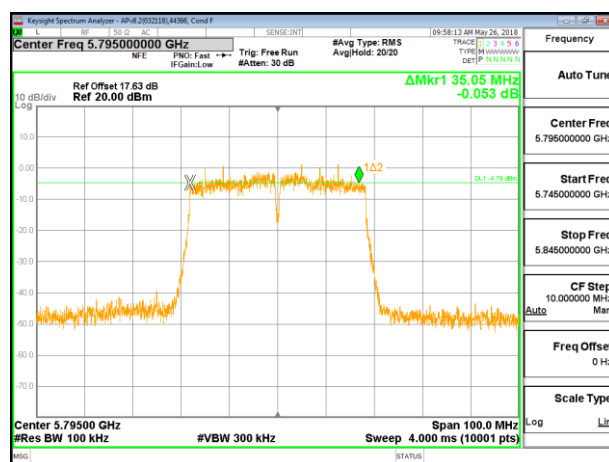
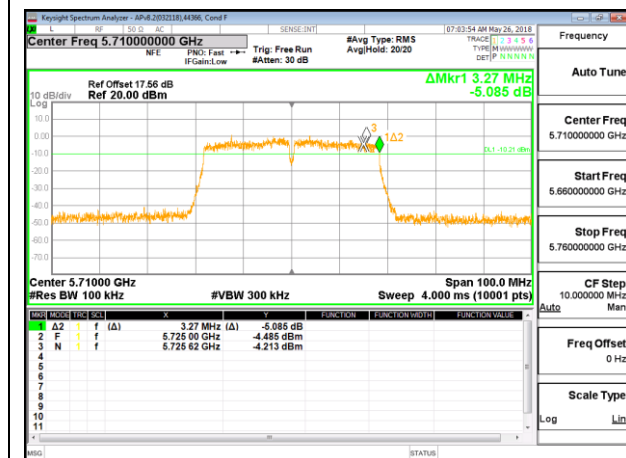
1TX Antenna 4

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	5755	36.310	0.5
High	5795	34.990	0.5
142	5710	2.760	0.5



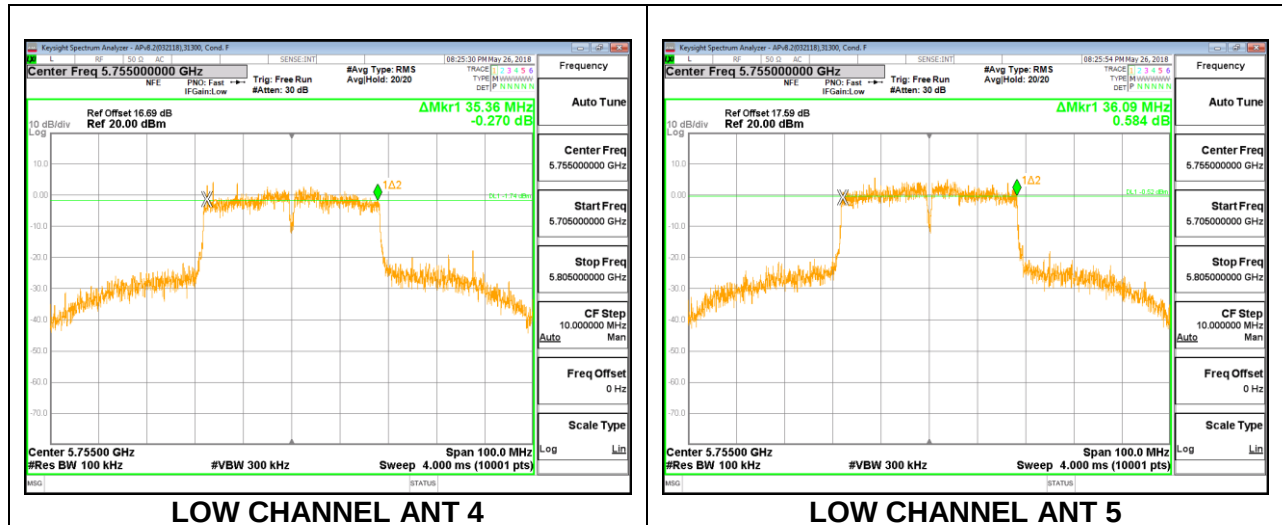
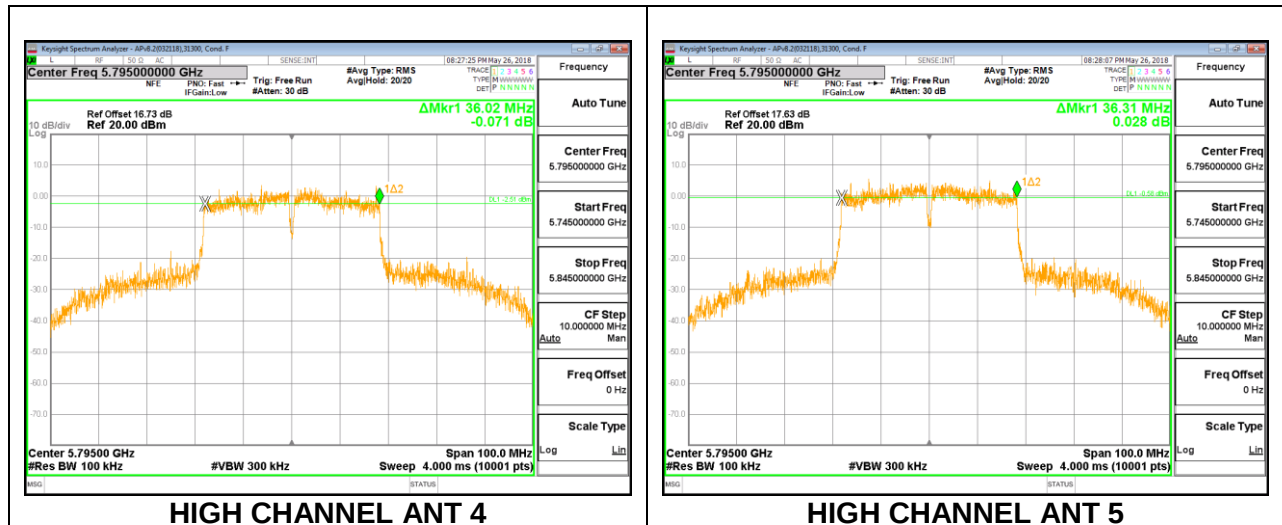
1TX Antenna 5

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	5755	32.390	0.5
High	5795	35.050	0.5
142	5710	3.270	0.5

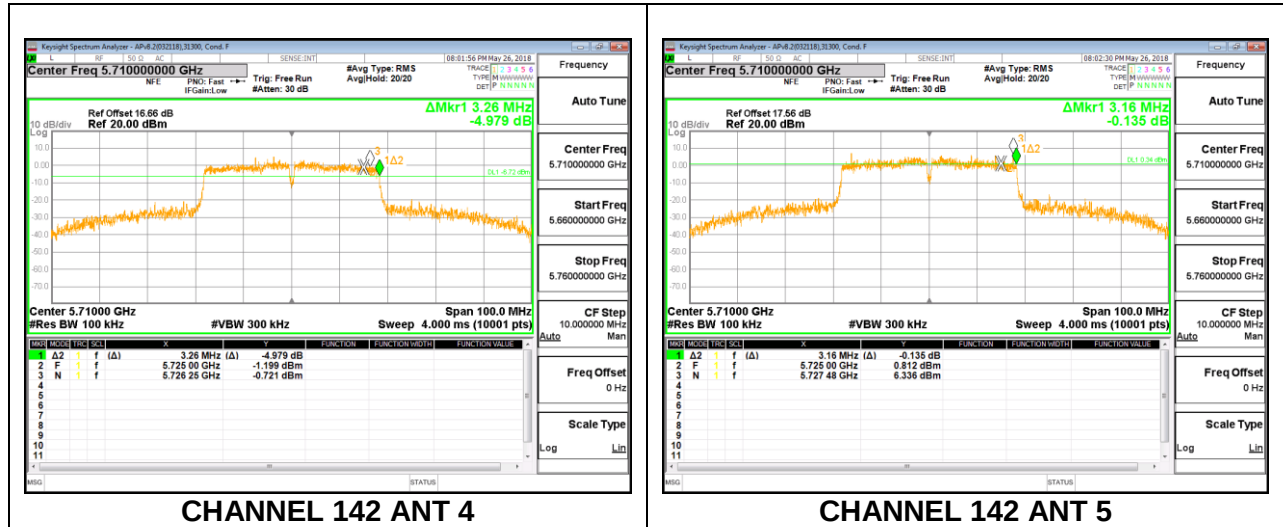
**LOW CHANNEL****HIGH CHANNEL****CHANNEL 142**

2TX Antenna 4 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	6 dB BW ANT 4 (MHz)	6 dB BW ANT 5 (MHz)	Minimum Limit (MHz)
Low	5755	35.360	36.090	0.5
High	5795	36.020	36.310	0.5
142	5710	3.260	3.160	0.5

LOW CHANNEL**HIGH CHANNEL**

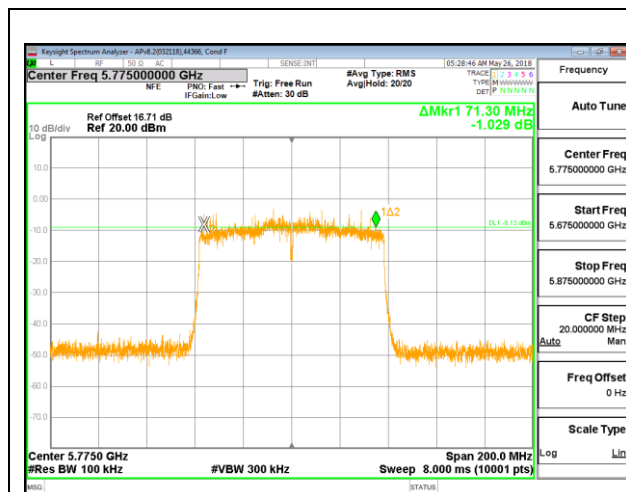
CHANNEL 142



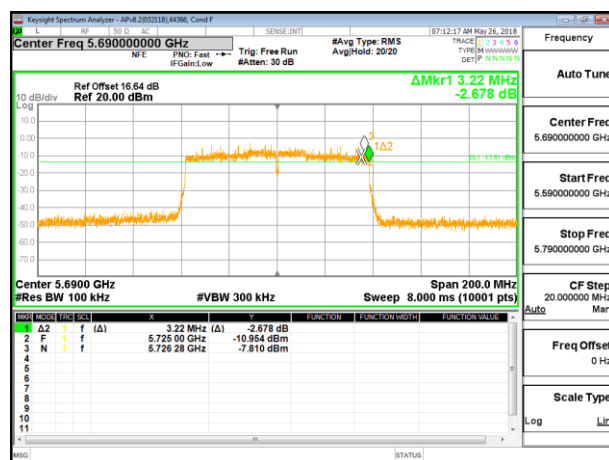
8.4.3. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

1TX Antenna 4

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Mid	5775	71.300	0.5
138	5690	3.220	0.5



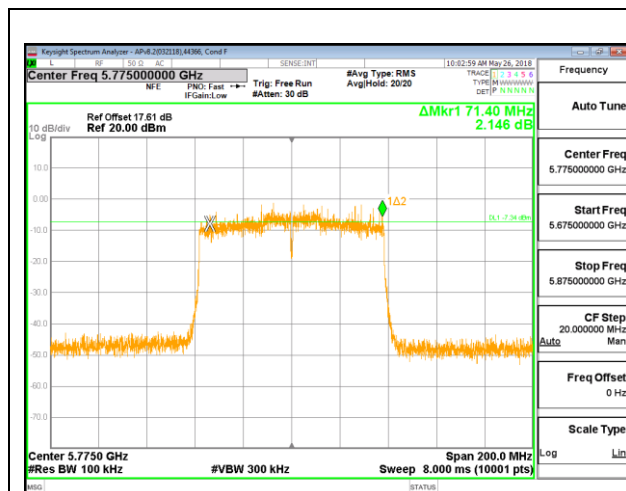
MID CHANNEL



CHANNEL 138

1TX Antenna 5

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Mid	5775	71.400	0.5
138	5690	3.180	0.5



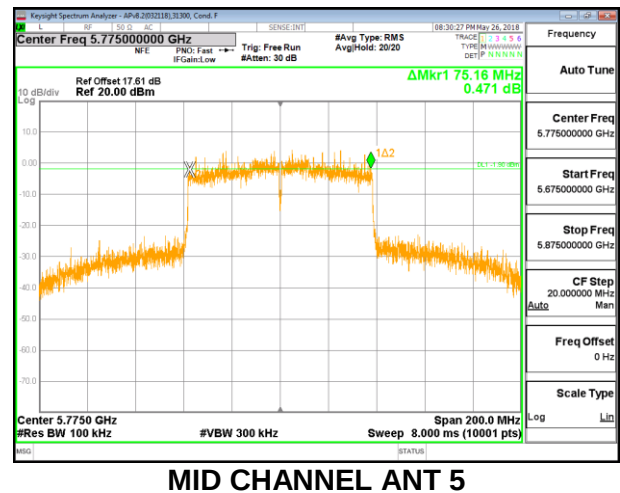
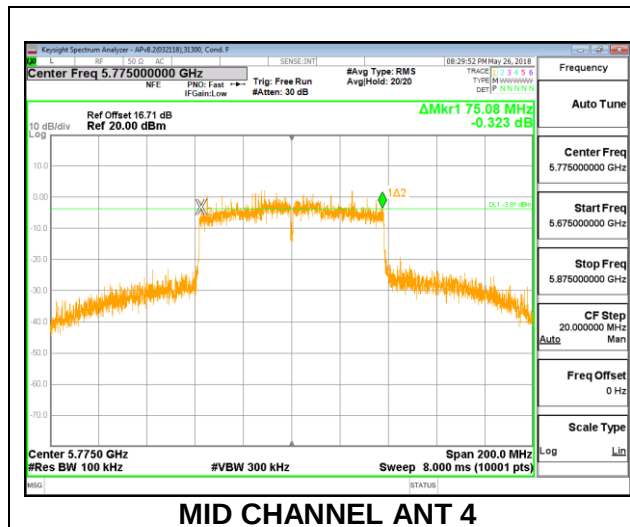
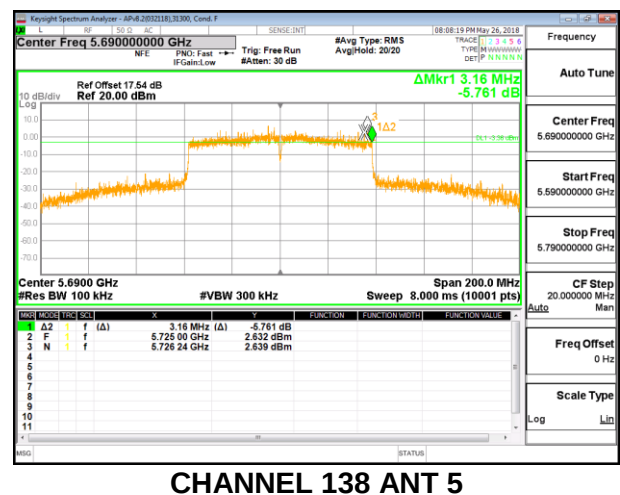
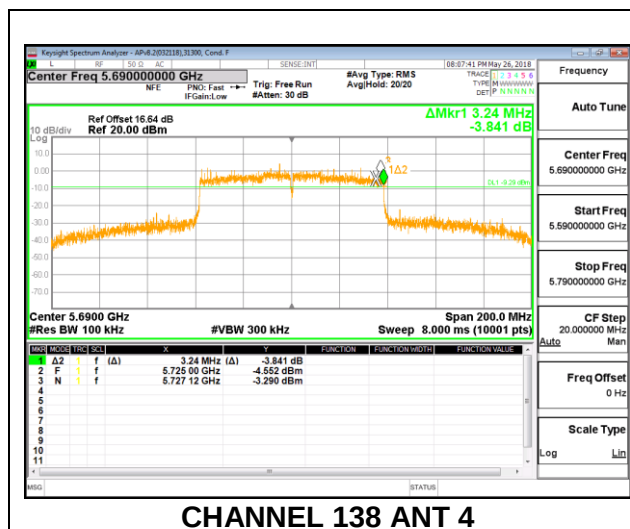
MID CHANNEL



CHANNEL 138

2TX Antenna 4 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	6 dB BW ANT 4 (MHz)	6 dB BW ANT 5 (MHz)	Minimum Limit (MHz)
Mid	5775	75.080	75.160	0.5
138	5690	3.240	3.160	0.5

MID CHANNEL**CHANNEL 138**

8.5. OUTPUT POWER AND PSD

LIMITS

FCC §15.407

Band 5.15–5.25 GHz

(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.

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-2) was used.

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

DIRECTIONAL ANTENNA GAIN

For 1 TX:

There is only one transmitter output therefore the directional gain is equal to the 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)	Ant 4 Antenna Gain (dBi)	Ant 5 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.2	-5.3	-5.0	-5.15	-2.14
5.3	-5.0	-5.2	-5.10	-2.09
5.6	-3.8	-3.9	-3.85	-0.84
5.8	-3.7	-4.9	-4.26	-1.27

RESULTS**8.5.1. 802.11n HT20 MODE IN THE 5.2 GHz BAND****1TX Antenna 4 (FCC) MOBILE****Antenna Gain and Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5180	-5.30	24.00	11.00
Mid	5200	-5.30	24.00	11.00
High	5240	-5.30	24.00	11.00

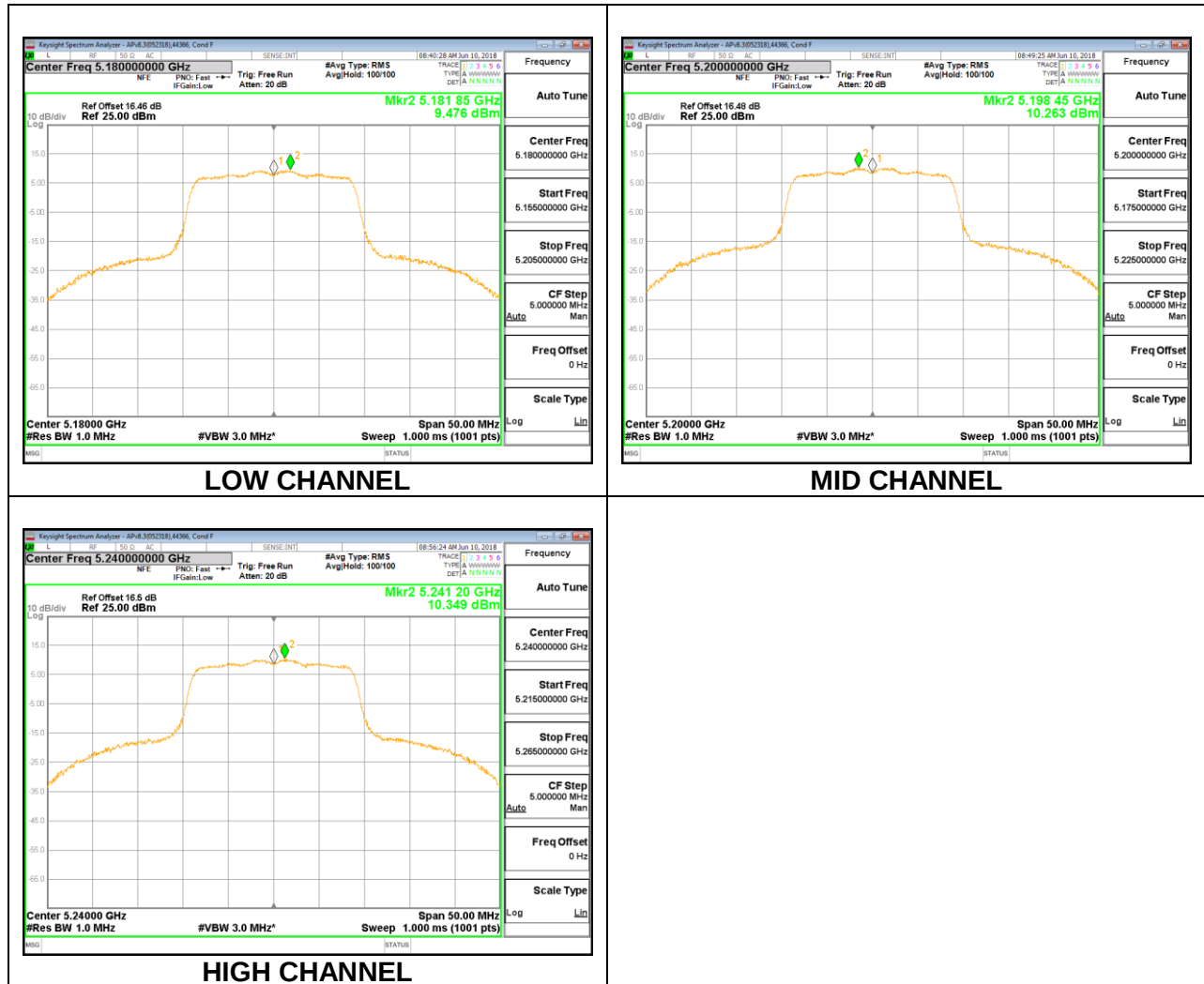
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	18.93	18.93	24.00	-5.07
Mid	5200	20.84	20.84	24.00	-3.16
High	5240	20.85	20.85	24.00	-3.15

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	9.48	9.48	11.00	-1.52
Mid	5200	10.26	10.26	11.00	-0.74
High	5240	10.35	10.35	11.00	-0.65



1TX Antenna 5 (FCC) MOBILE**Antenna Gain and Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5180	-5.00	24.00	11.00
Mid	5200	-5.00	24.00	11.00
High	5240	-5.00	24.00	11.00

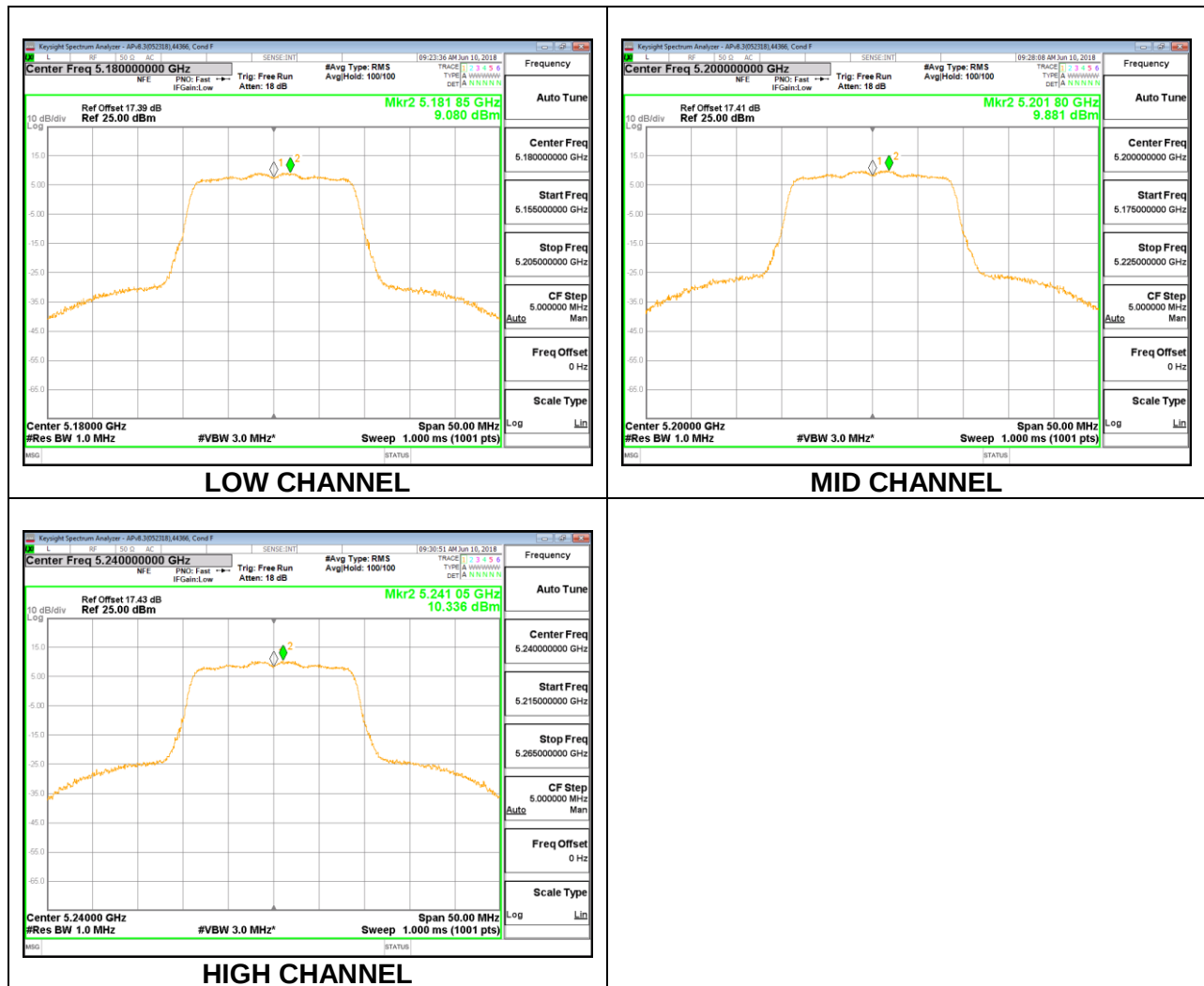
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	18.97	18.97	24.00	-5.03
Mid	5200	20.89	20.89	24.00	-3.11
High	5240	20.94	20.94	24.00	-3.06

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	9.08	9.08	11.00	-1.92
Mid	5200	9.88	9.88	11.00	-1.12
High	5240	10.34	10.34	11.00	-0.66



2TX Antenna 4 + Antenna 5 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	-5.15	-2.14	24.00	11.00
Mid	5200	-5.15	-2.14	24.00	11.00
High	5240	-5.15	-2.14	24.00	11.00

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

Channel	Frequency (MHz)	Antenna 4 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	17.97	17.89	20.94	24.00	-3.06
Mid	5200	17.98	17.93	20.97	24.00	-3.03
High	5240	17.93	17.91	20.93	24.00	-3.07

PSD Results

Channel	Frequency (MHz)	Antenna 4 Meas PSD (dBm/1MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	7.03	7.32	10.19	11.00	-0.81
Mid	5200	7.03	7.36	10.21	11.00	-0.79
High	5240	7.43	7.65	10.55	11.00	-0.45