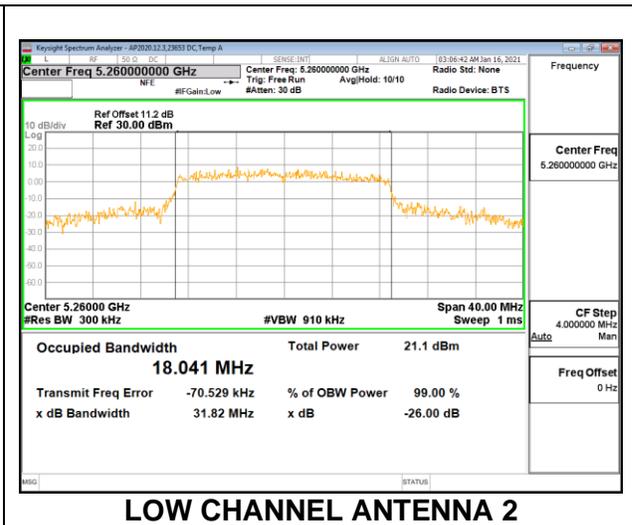
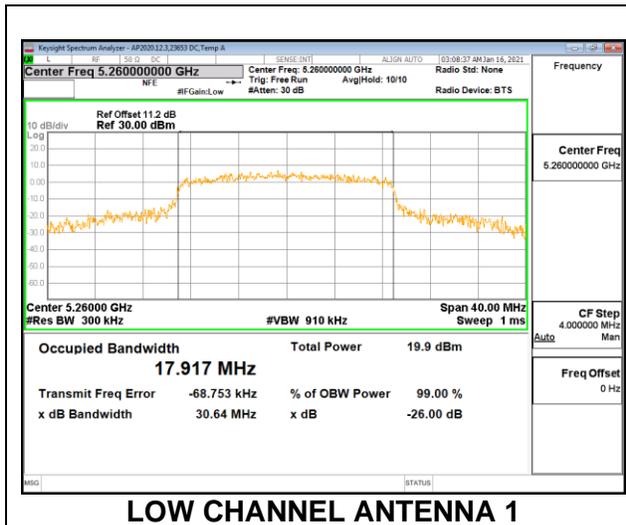


9.3.4. 802.11n HT20 MODE IN THE 5.3 GHz BAND

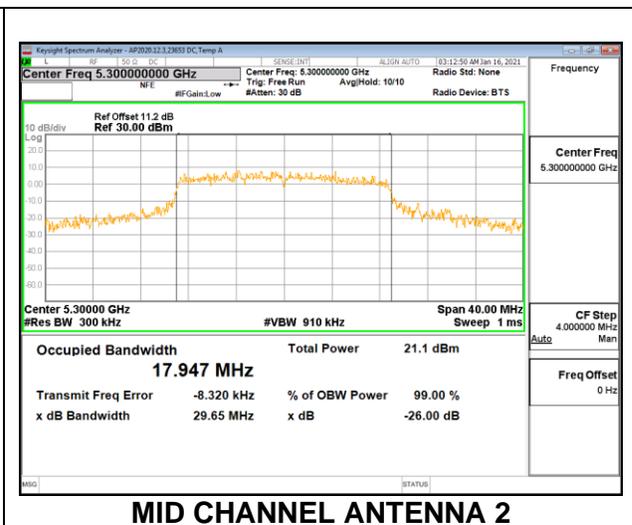
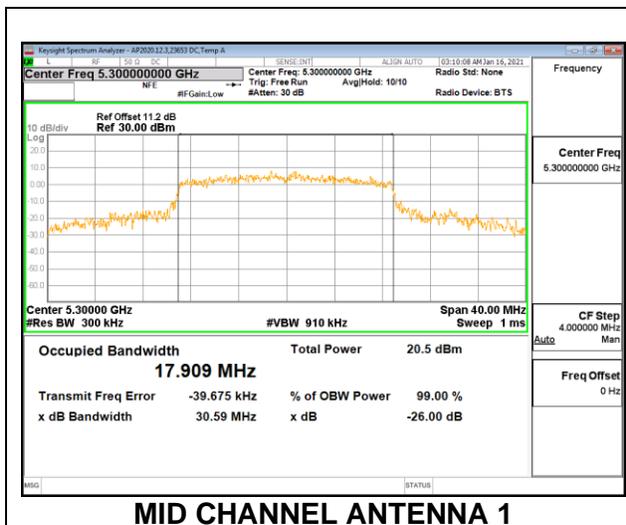
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5260	17.917	18.041
Mid	5300	17.909	17.947
High	5320	17.793	17.900

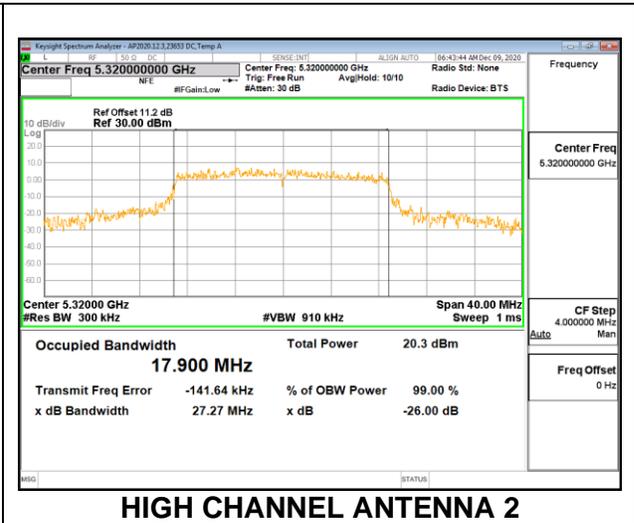
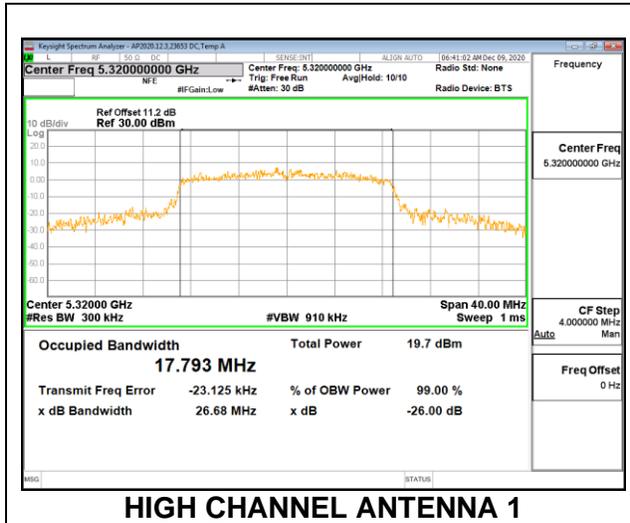
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

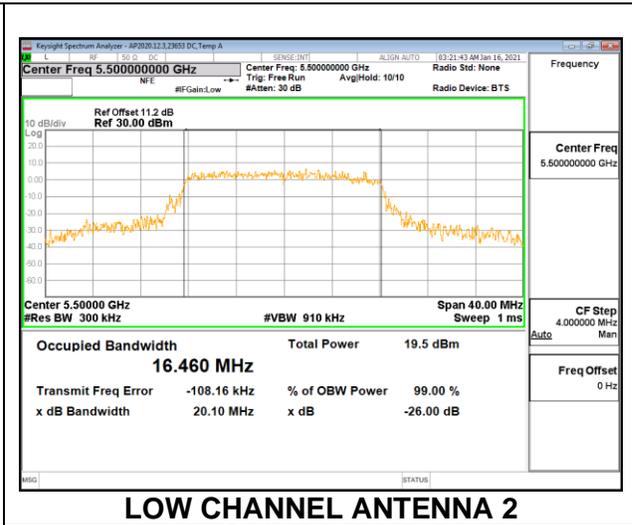
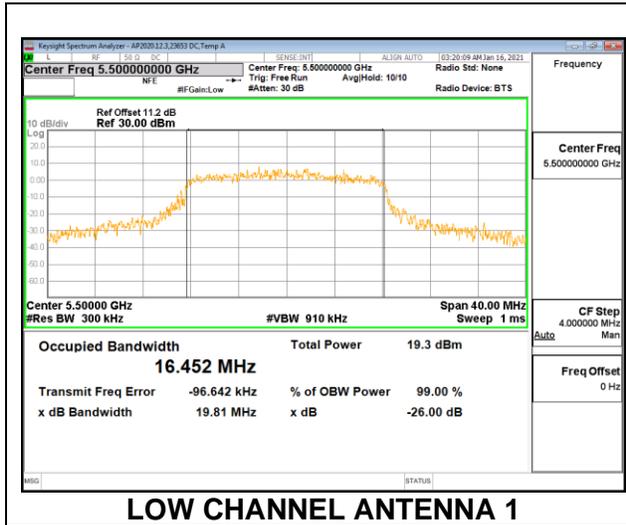


9.3.5. 802.11a MODE IN THE 5.6 GHz BAND

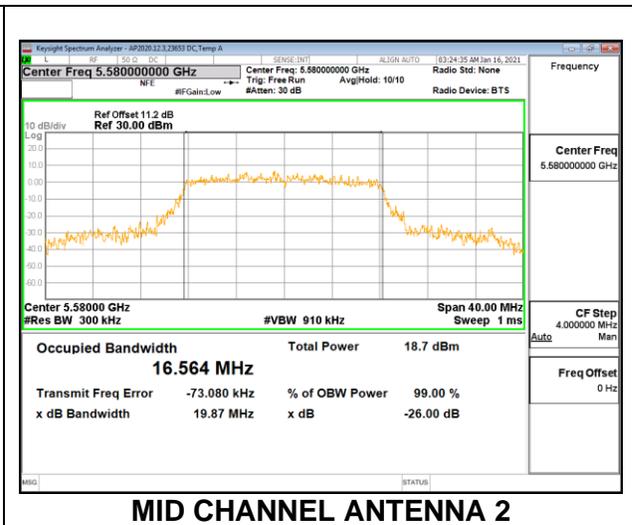
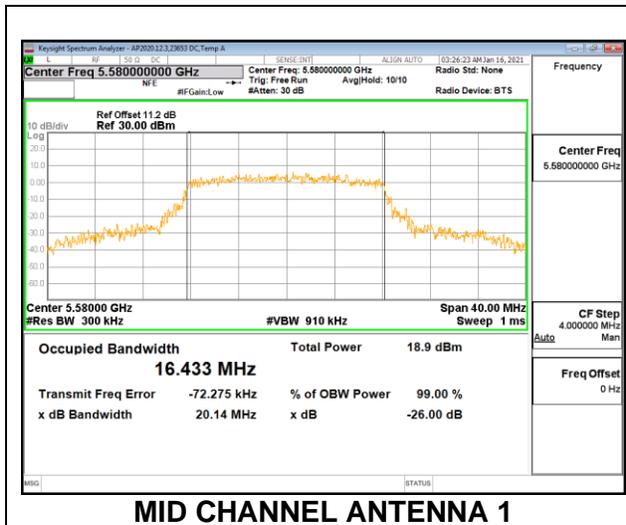
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5500	16.452	16.460
Mid	5580	16.433	16.564
High	5700	16.506	16.669

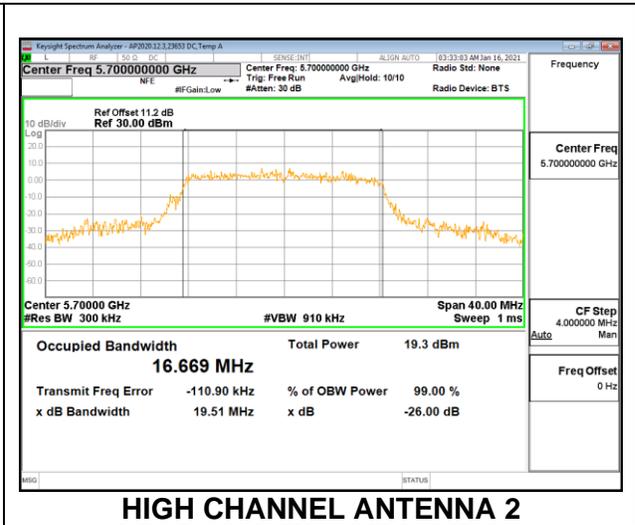
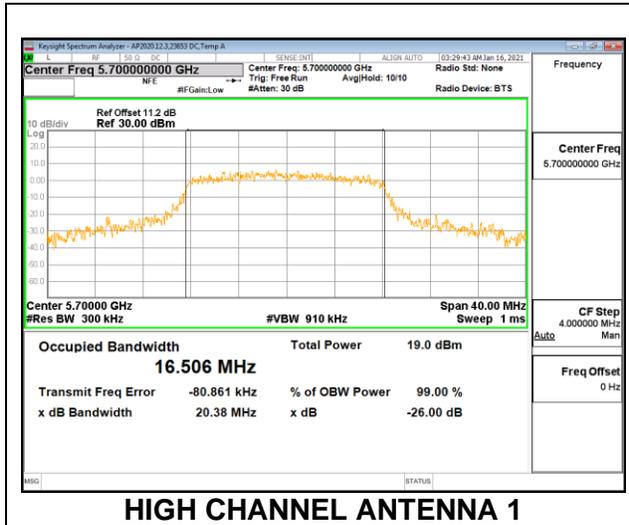
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

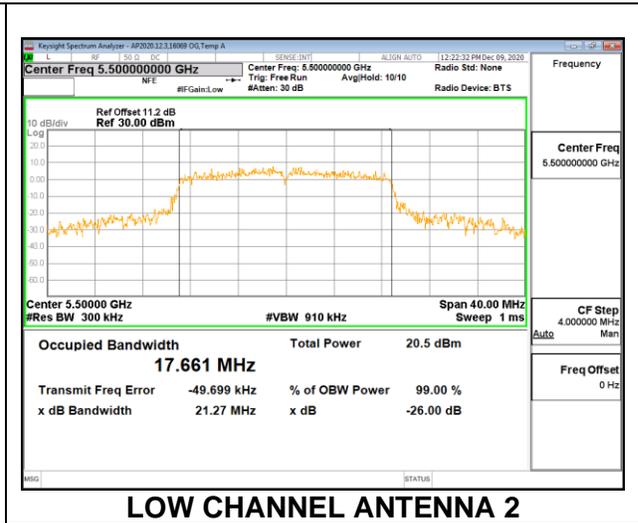
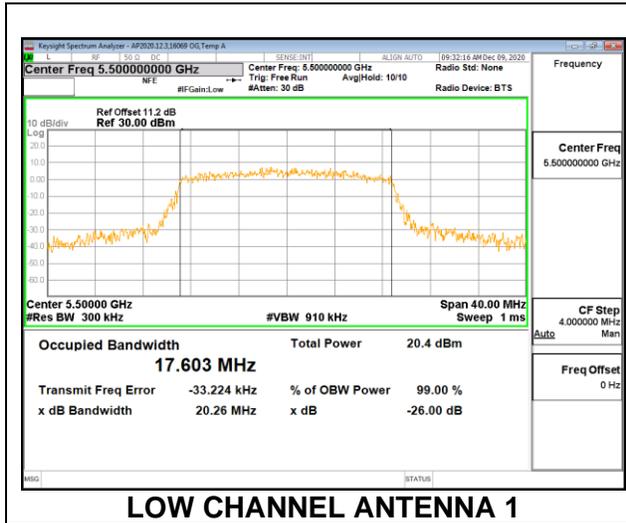


9.3.6. 802.11n HT20 MODE IN THE 5.6 GHz BAND

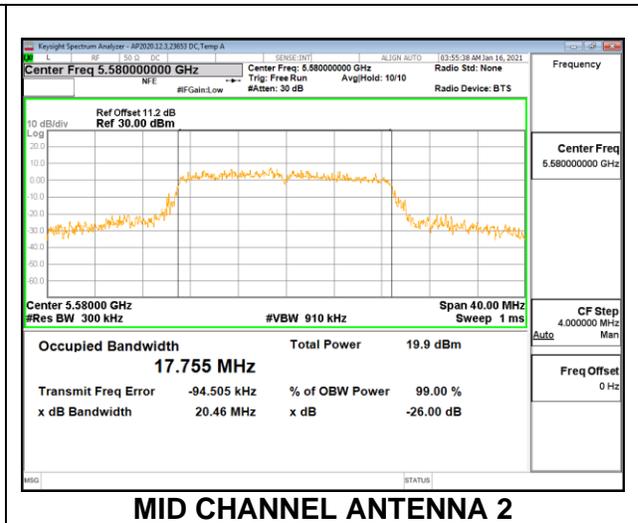
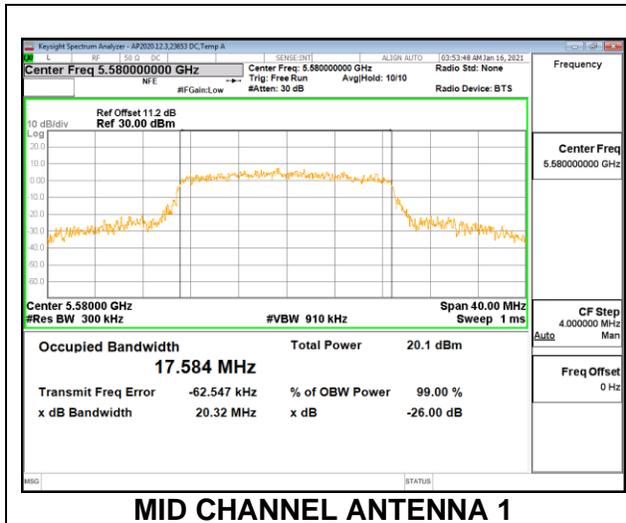
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5500	17.603	17.661
Mid	5580	17.584	17.755
High	5700	17.651	17.613

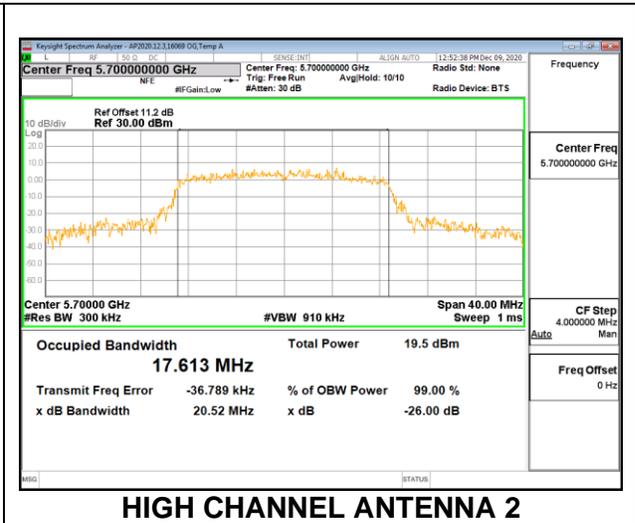
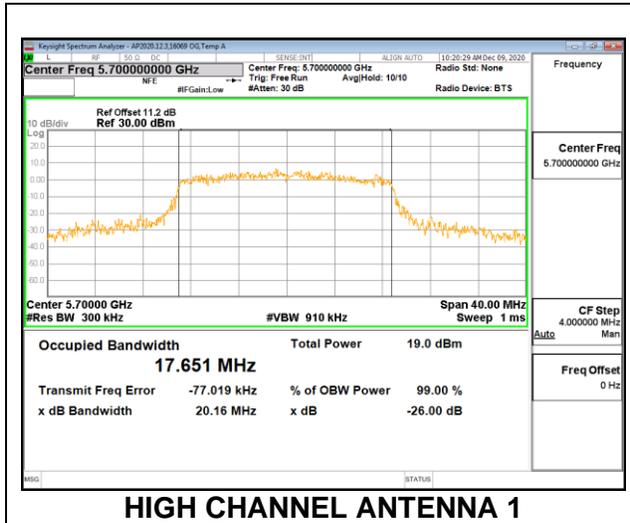
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

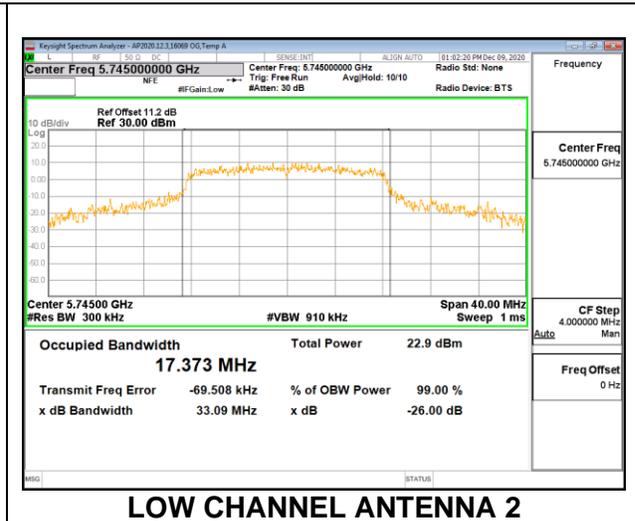
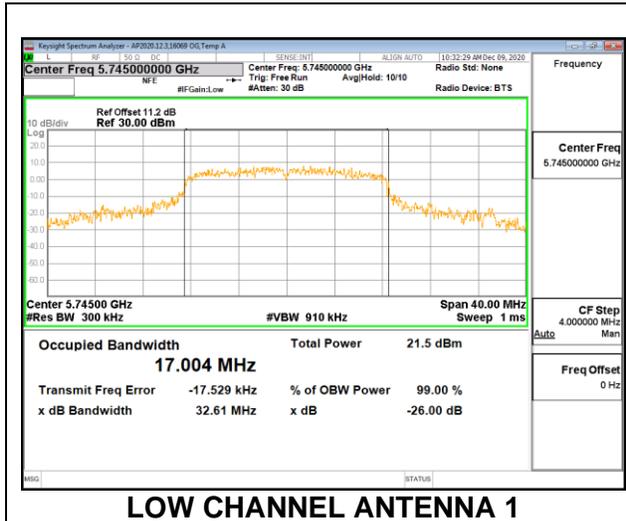


9.3.7. 802.11a MODE IN THE 5.8 GHz BAND

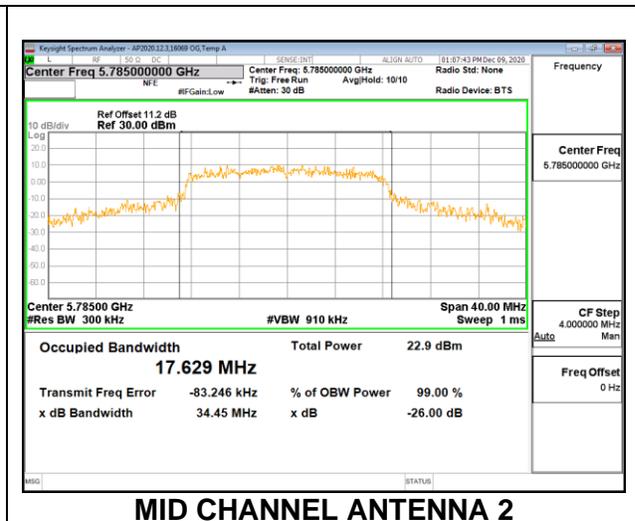
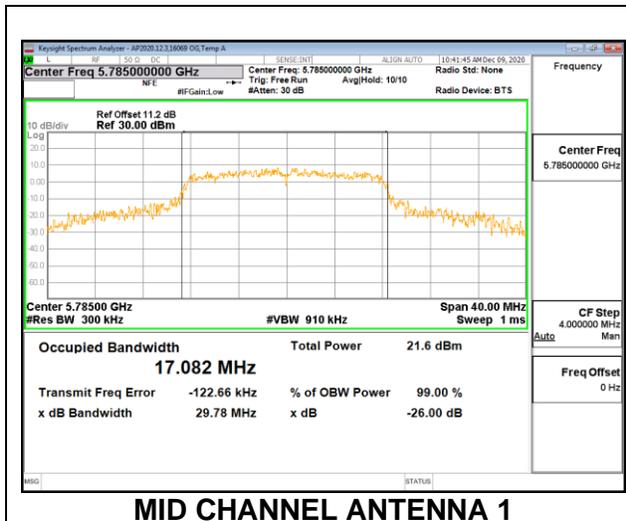
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5745	17.004	17.373
Mid	5785	17.082	17.629
High	5825	17.595	17.384

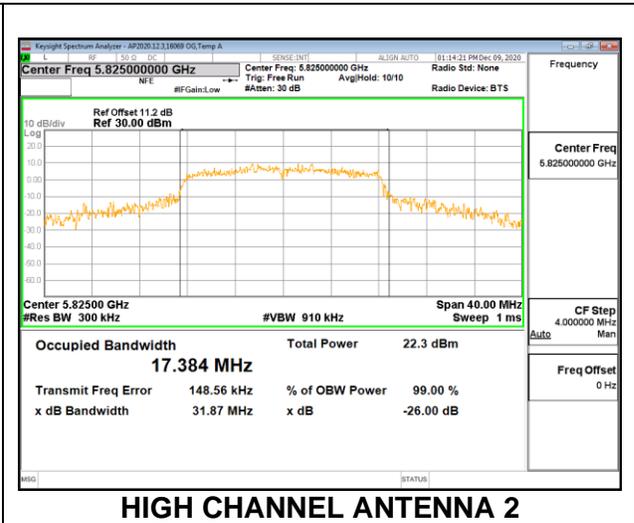
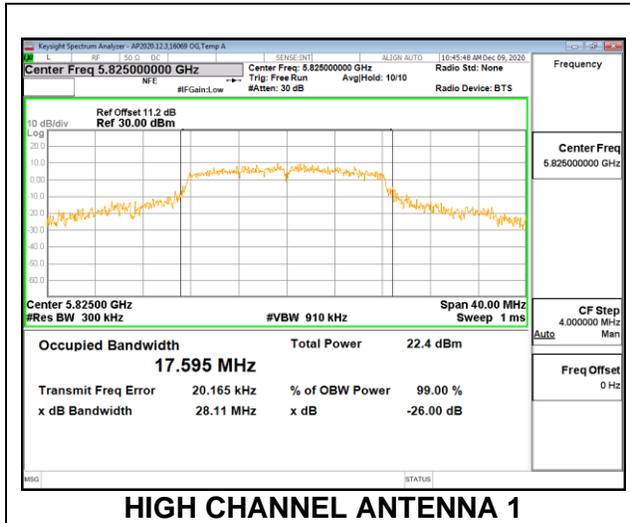
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

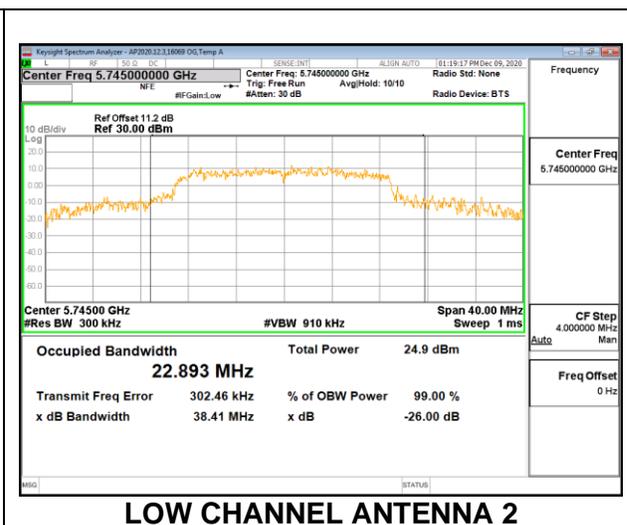
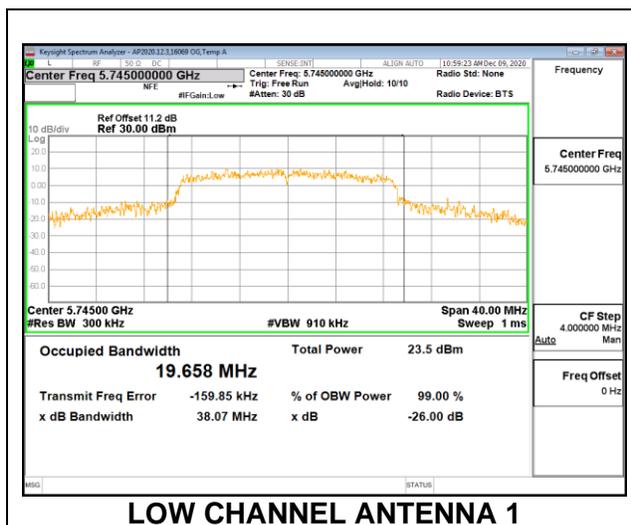


9.3.8. 802.11n HT20 MODE IN THE 5.8 GHz BAND

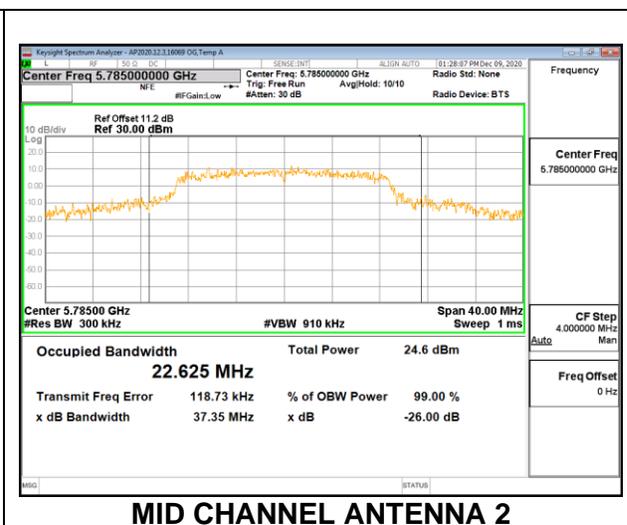
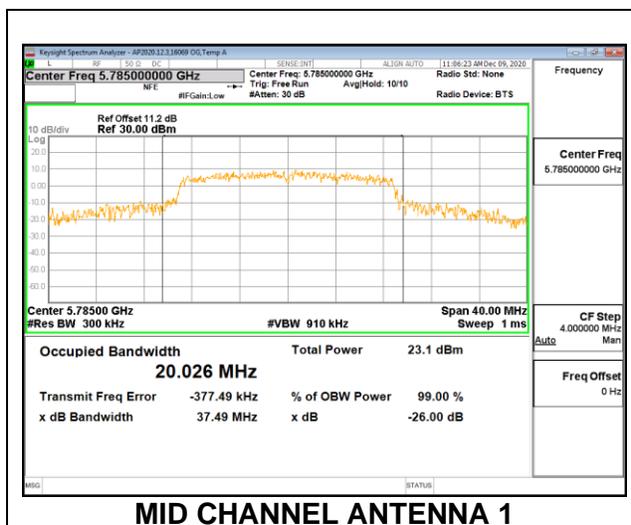
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low	5745	19.658	22.893
Mid	5785	20.026	22.625
High	5825	21.698	23.195

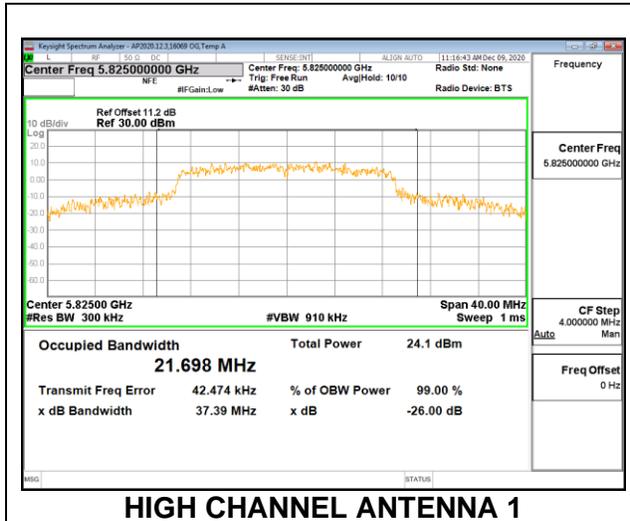
LOW CHANNEL



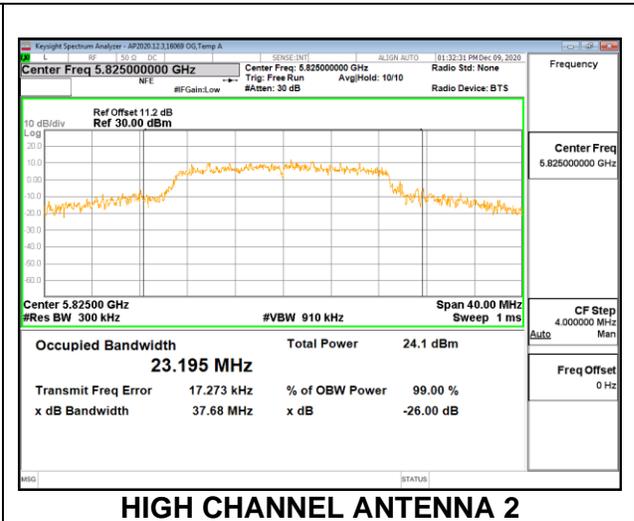
MID CHANNEL



HIGH CHANNEL



HIGH CHANNEL ANTENNA 1



HIGH CHANNEL ANTENNA 2

9.4. 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.

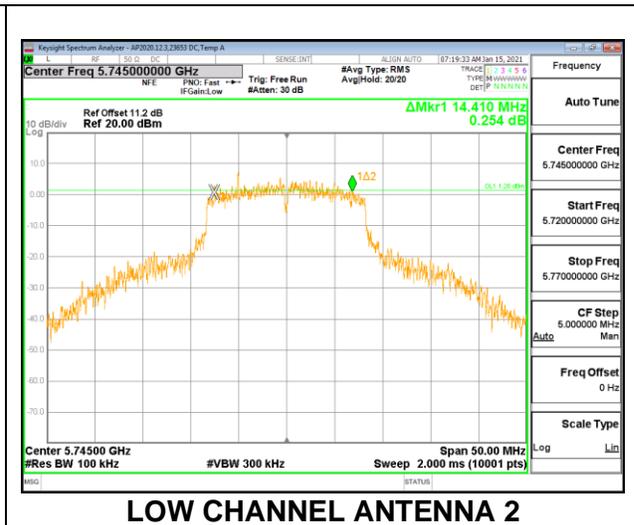
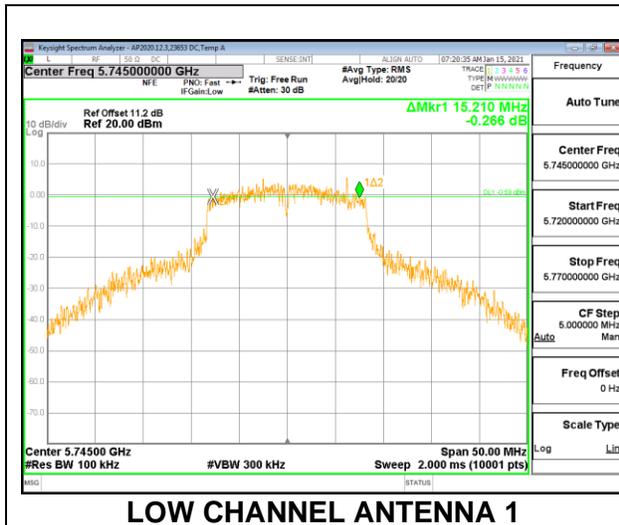
RESULTS

9.4.1. 802.11a MODE IN THE 5.8 GHz BAND

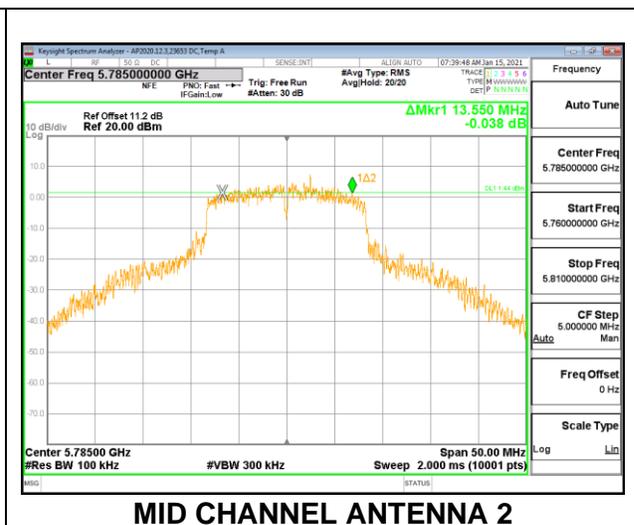
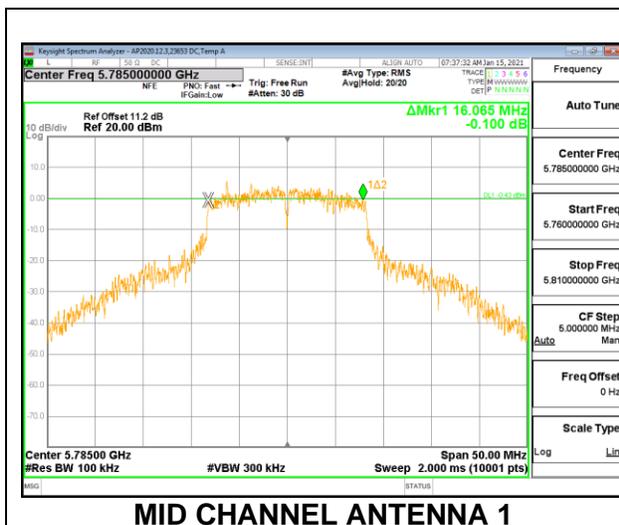
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	Minimum Limit (MHz)
Low	5745	15.210	14.410	0.5
Mid	5785	16.065	13.550	0.5
High	5825	14.445	16.300	0.5

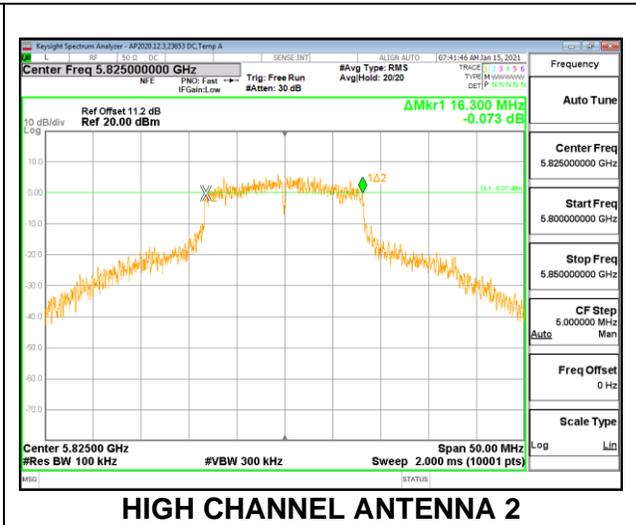
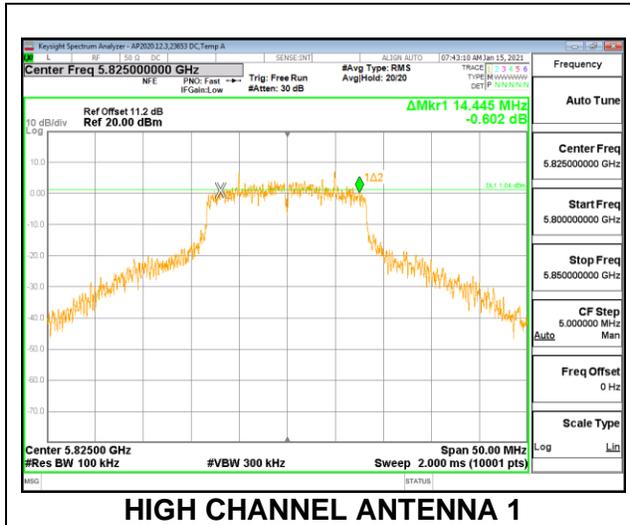
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

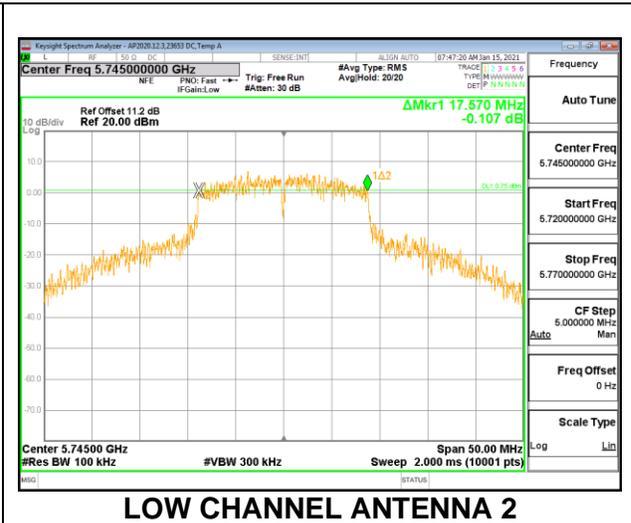
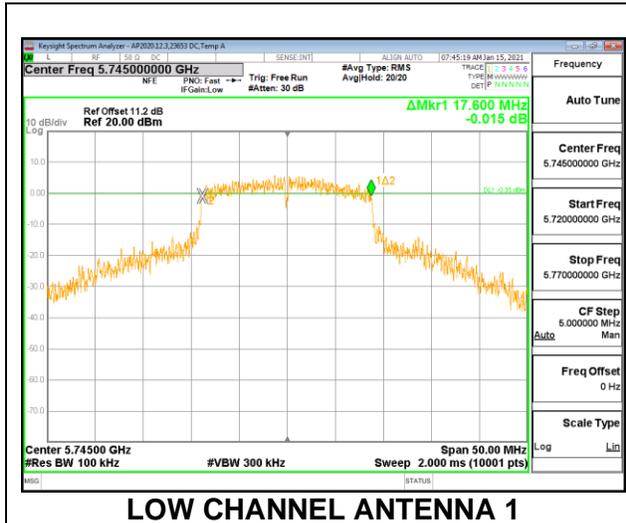


9.4.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

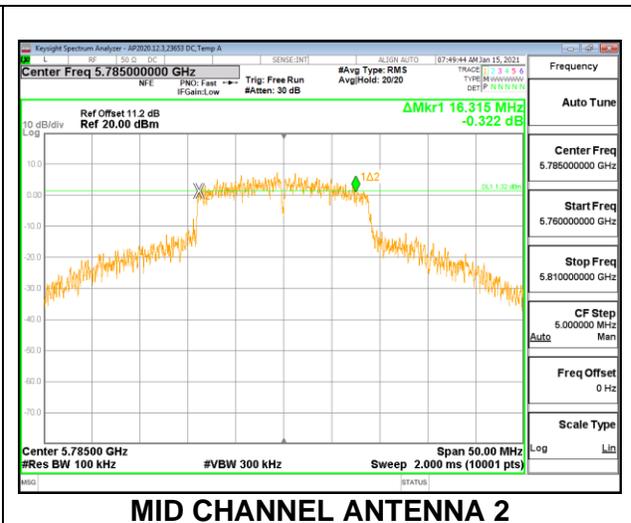
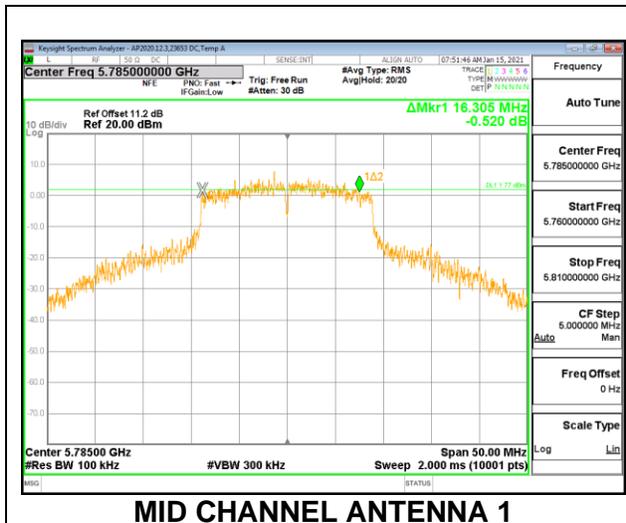
2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	Minimum Limit (MHz)
Low	5745	17.600	17.570	0.5
Mid	5785	16.305	16.315	0.5
High	5825	17.560	15.325	0.5

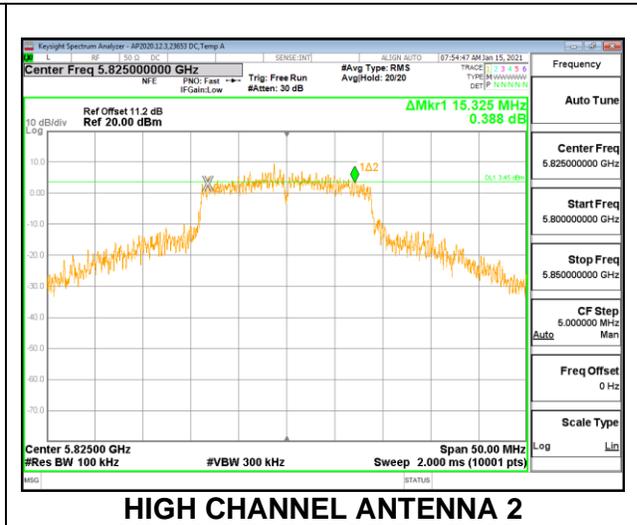
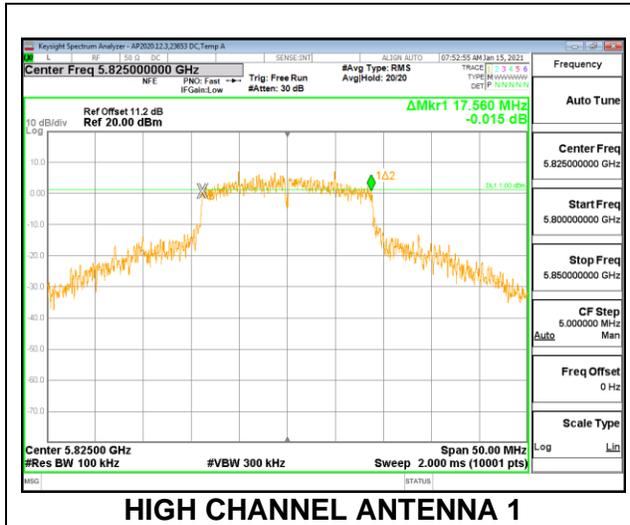
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



9.5. 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.

RSS-247

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 gain of non cross polarization antenna model: E1915 is the worst compare to cross polarization antenna models: E19122 and E1913. The worst antenna model: E1915 directional gains are as follows:

Band (GHz)	Antenna 1 Gain (dBi)	Antenna 2 Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.2	4.88	3.64	4.30	7.29
5.3	4.63	3.52	4.11	7.10
5.6	4.49	3.77	4.14	7.15
5.8	4.12	2.76	3.49	6.48

RESULTS

9.5.1. 802.11a MODE IN THE 5.2 GHz BAND

E1915 ANTENNA

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

Test Engineer:	23653 DC
Test Date:	1/16/2021

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	4.30	7.29	24.00	9.71
Mid	5200	4.30	7.29	24.00	9.71
High	5240	4.30	7.29	24.00	9.71

Duty Cycle CF (dB)	0.61	Included in Calculations of Corr'd PSD
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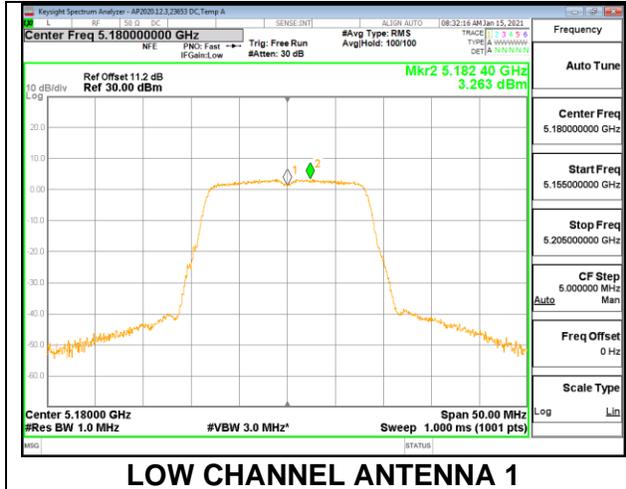
Output Power Results

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	13.43	13.51	16.48	24.00	-7.52
Mid	5200	13.39	13.65	16.53	24.00	-7.47
High	5240	14.30	15.20	17.78	24.00	-6.22

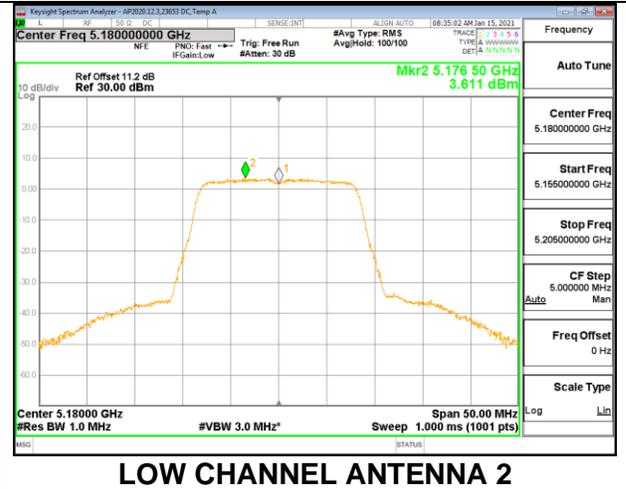
PSD Results

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	3.263	3.611	7.06	9.71	-2.65
Mid	5200	2.829	3.192	6.63	9.71	-3.08
High	5240	3.656	4.130	7.52	9.71	-2.19

LOW CHANNEL

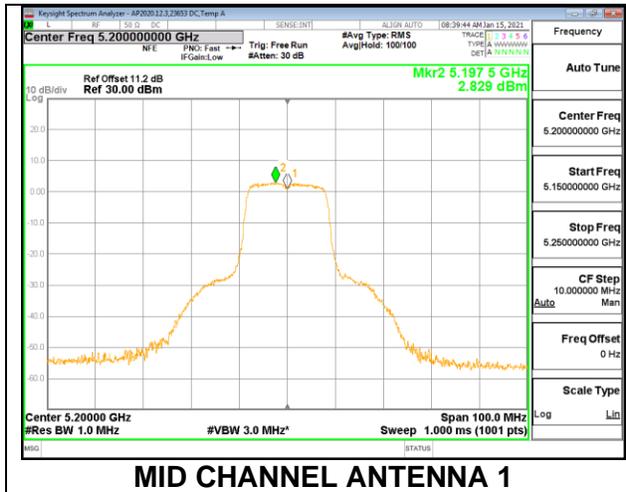


LOW CHANNEL ANTENNA 1

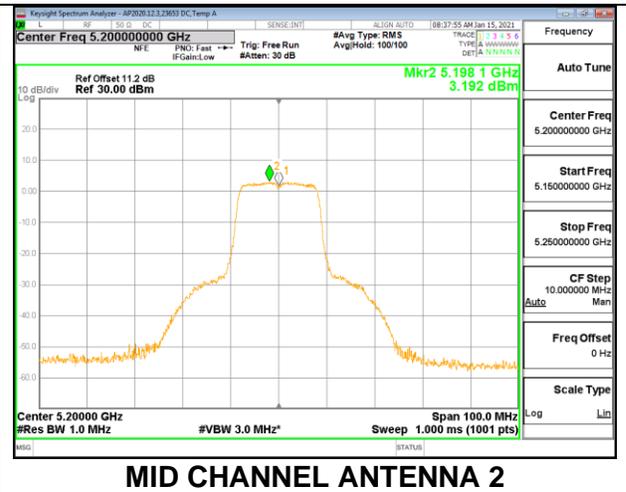


LOW CHANNEL ANTENNA 2

MID CHANNEL

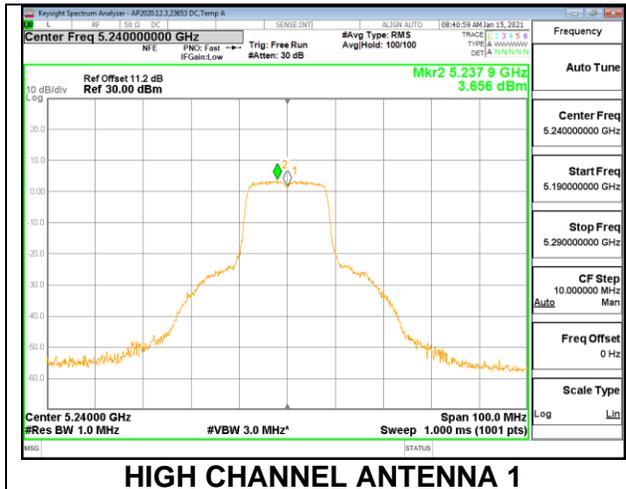


MID CHANNEL ANTENNA 1

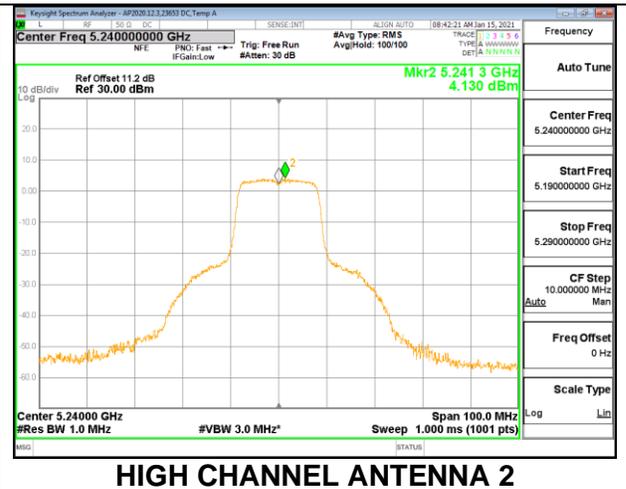


MID CHANNEL ANTENNA 2

HIGH CHANNEL



HIGH CHANNEL ANTENNA 1



HIGH CHANNEL ANTENNA 2

2TX Antenna 1 + Antenna 2 CDD MODE (ISED, PSD was tested by radiated method)

Test Engineer:	19498 ER
Test Date:	12/08/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 99% BW (MHz)
Low	5180	16.524
Mid	5200	16.867
High	5240	16.940

Limits

Channel	Frequency (MHz)	ISED EIRP Limit (dBm)	ISED eirp PSD Limit (dBm/ 1MHz)
Low	5180	22.18	10.00
Mid	5200	22.27	10.00
High	5240	22.29	10.00

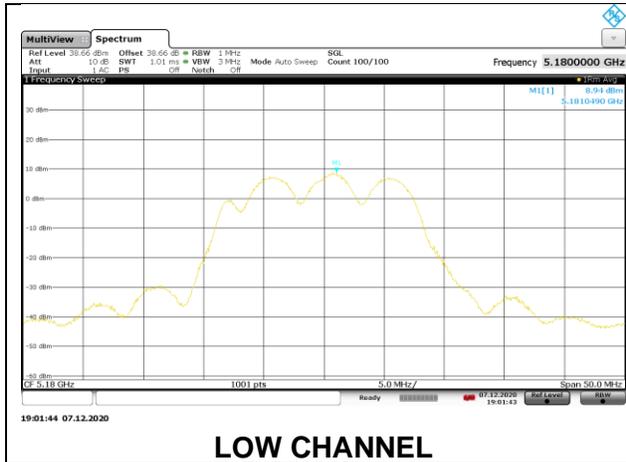
Duty Cycle CF (dB)	0.61	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	16.08	22.18	-6.10
Mid	5200	16.44	22.27	-5.83
High	5240	16.87	22.29	-5.42

PSD Results

Channel	Frequency (MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	9.55	10.00	-0.45
Mid	5200	9.48	10.00	-0.52
High	5240	9.76	10.00	-0.24



E1922 ANTENNA

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

Test Engineer:	23653 DC
Test Date:	1/16/2021

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	4.30	7.29	24.00	9.71
Mid	5200	4.30	7.29	24.00	9.71
High	5240	4.30	7.29	24.00	9.71

Duty Cycle CF (dB)	0.61	Included in Calculations of Corr'd PSD
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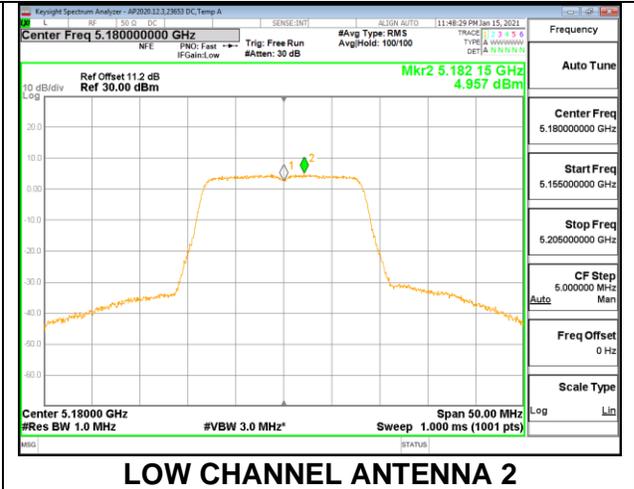
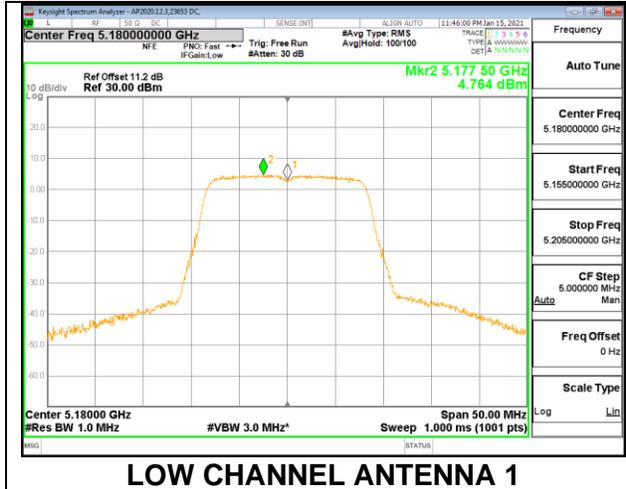
Output Power Results

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	15.48	15.88	18.69	24.00	-5.31
Mid	5200	15.56	15.72	18.65	24.00	-5.35
High	5240	16.23	17.04	19.66	24.00	-4.34

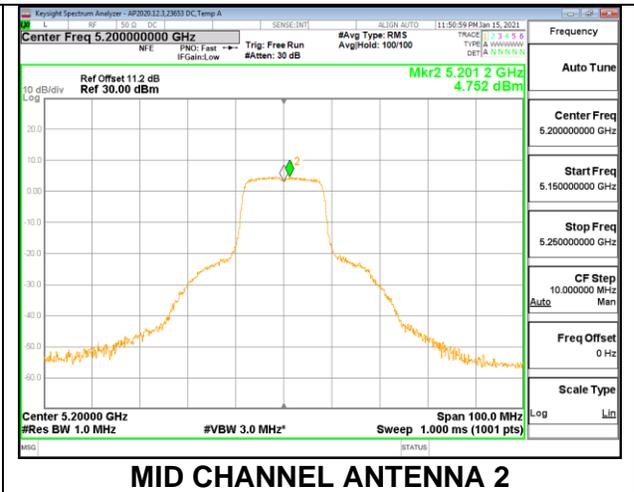
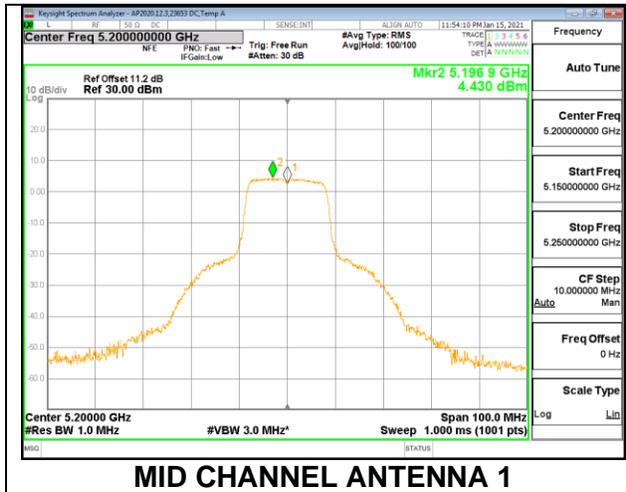
PSD Results

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	4.764	4.957	8.48	9.71	-1.23
Mid	5200	4.430	4.752	8.21	9.71	-1.50
High	5240	5.279	5.818	9.18	9.71	-0.53

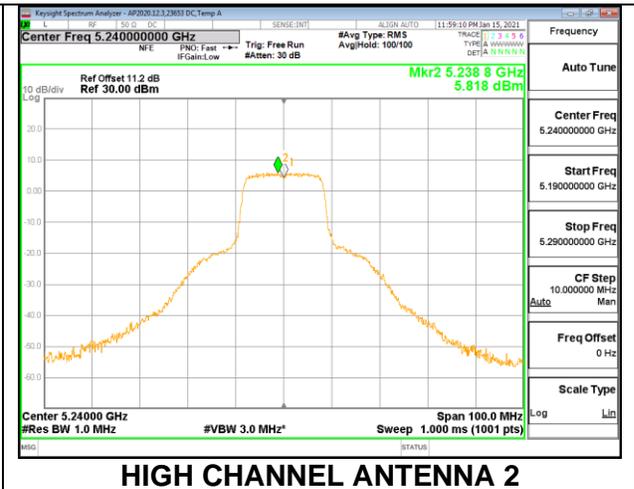
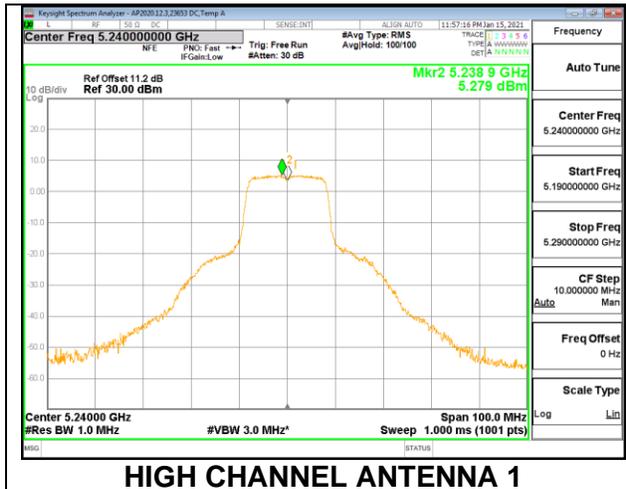
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



2TX Antenna 1 + Antenna 2 CDD MODE (ISED, PSD was tested by radiated method)

Test Engineer:	19498 ER
Test Date:	12/21/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 99% BW (MHz)
Low	5180	16.524
Mid	5200	16.867
High	5240	16.940

Limits

Channel	Frequency (MHz)	ISED EIRP Limit (dBm)	ISED eirp PSD Limit (dBm/ 1MHz)
Low	5180	22.18	10.00
Mid	5200	22.27	10.00
High	5240	22.29	10.00

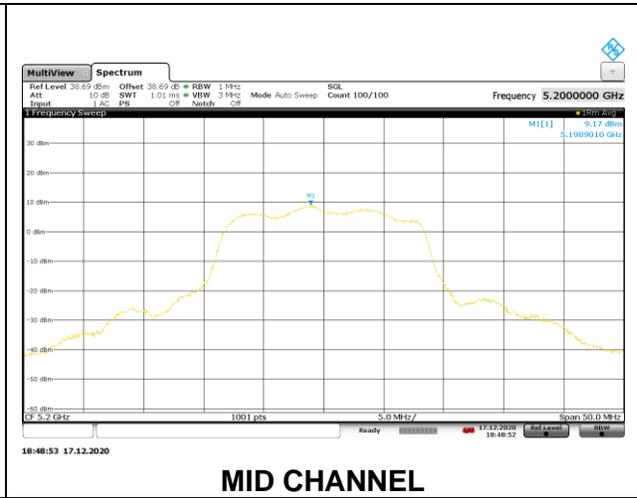
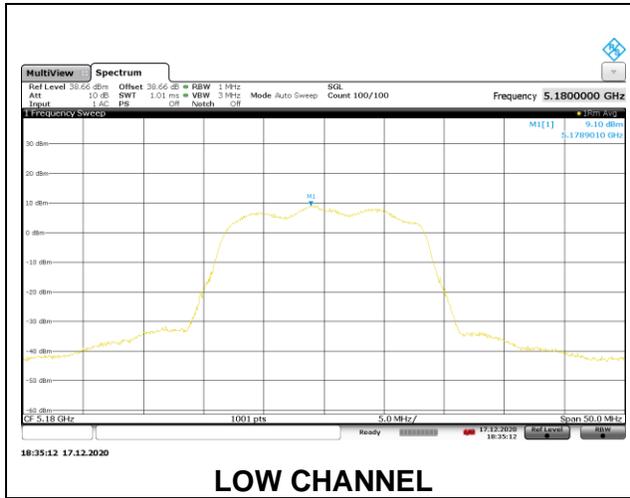
Duty Cycle CF (dB)	0.61	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	18.15	22.18	-4.03
Mid	5200	17.86	22.27	-4.41
High	5240	18.44	22.29	-3.85

PSD Results

Channel	Frequency (MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	9.71	10.00	-0.29
Mid	5200	9.78	10.00	-0.22
High	5240	9.70	10.00	-0.30



9.5.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

E1915 ANTENNA

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

Test Engineer:	23653 DC
Test Date:	1/16/2021

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	4.30	7.29	24.00	9.71
Mid	5200	4.30	7.29	24.00	9.71
High	5240	4.30	7.29	24.00	9.71

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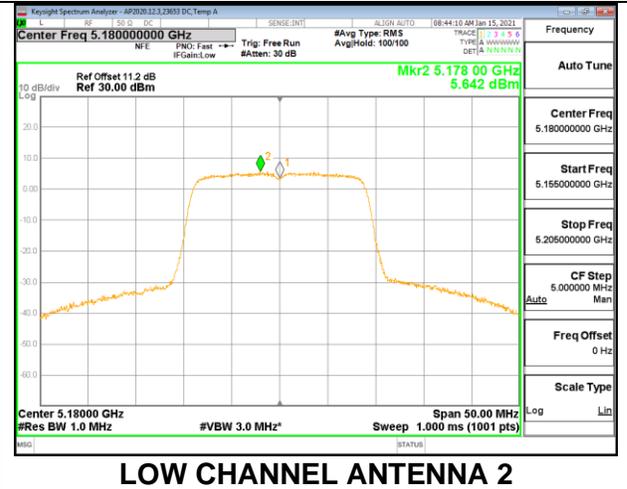
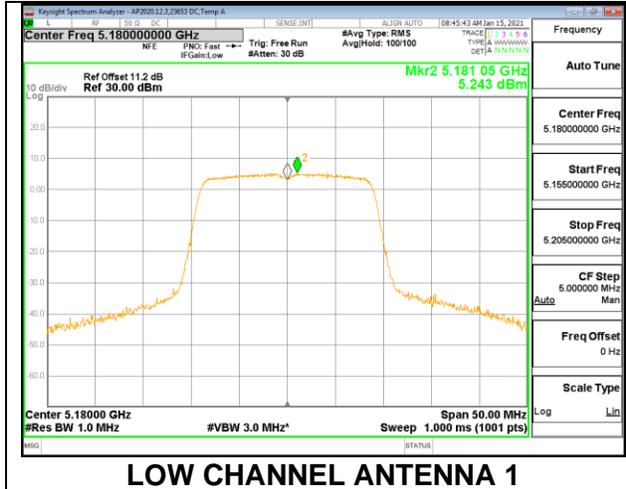
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	15.20	15.68	18.46	24.00	-5.54
Mid	5200	15.01	15.35	18.19	24.00	-5.81
High	5240	15.98	16.90	19.47	24.00	-4.53

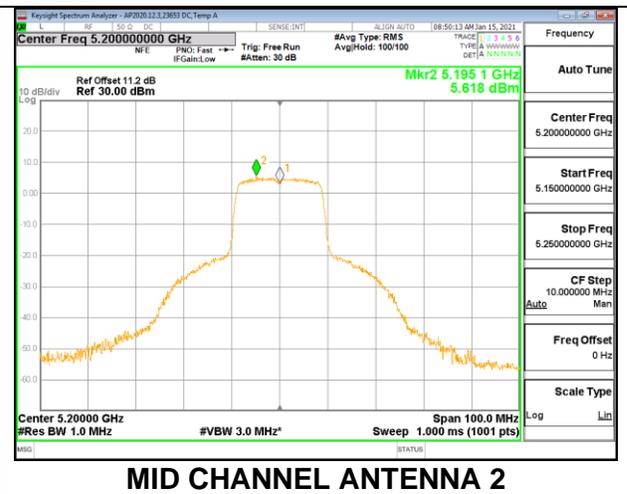
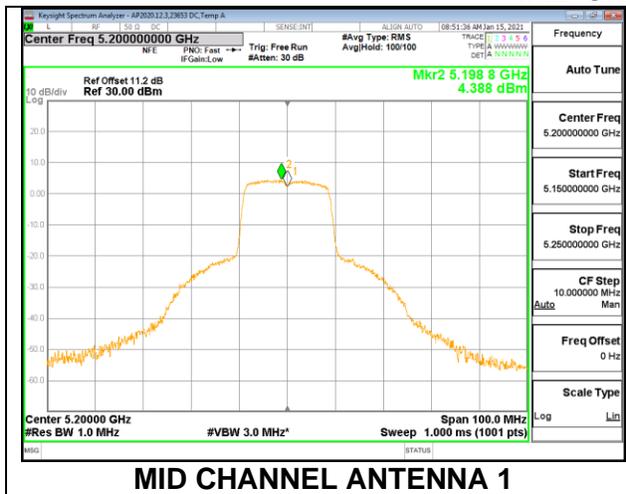
PSD Results

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	5.243	5.642	8.457	9.71	-1.25
Mid	5200	4.388	5.618	8.057	9.71	-1.65
High	5240	5.371	5.949	8.680	9.71	-1.03

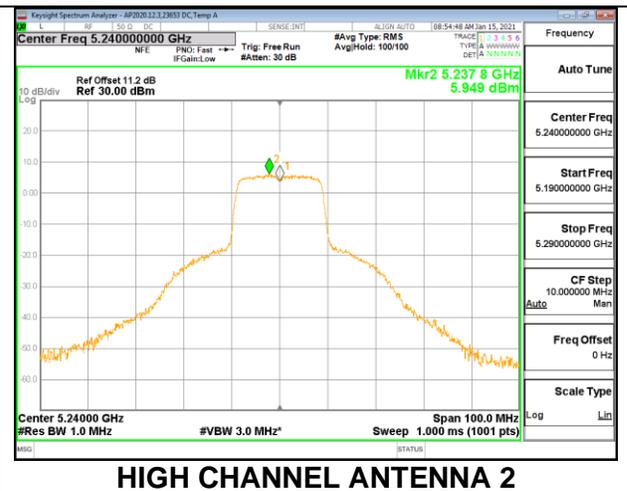
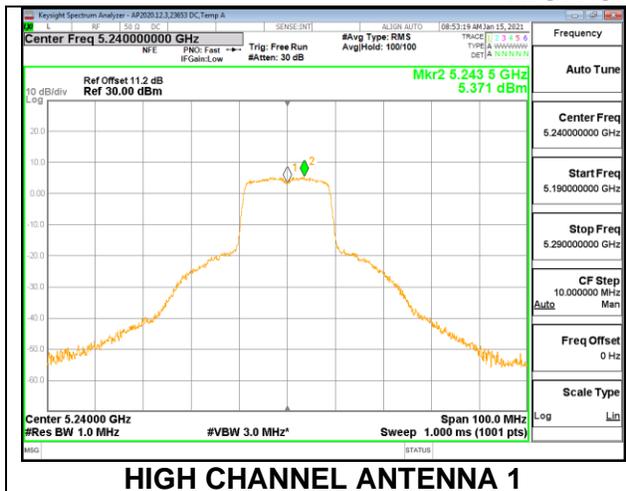
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



2TX Antenna 1 + Antenna 2 CDD MODE (ISED, PSD was tested by radiated method)

Test Engineer:	19498 ER
Test Date:	12/08/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 99% BW (MHz)
Low	5180	17.558
Mid	5200	18.343
High	5240	18.364

Limits

Channel	Frequency (MHz)	ISED EIRP Limit (dBm)	ISED eirp PSD Limit (dBm/ 1MHz)
Low	5180	22.44	10.00
Mid	5200	22.63	10.00
High	5240	22.64	10.00

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

Channel	Frequency (MHz)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	17.89	22.44	-4.56
Mid	5200	18.00	22.63	-4.64
High	5240	18.31	22.64	-4.33

PSD Results

Channel	Frequency (MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	9.57	10.00	-0.43
Mid	5200	9.75	10.00	-0.25
High	5240	9.71	10.00	-0.29

