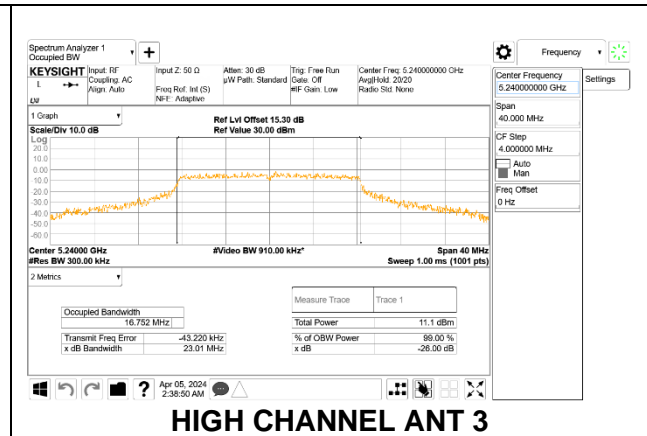
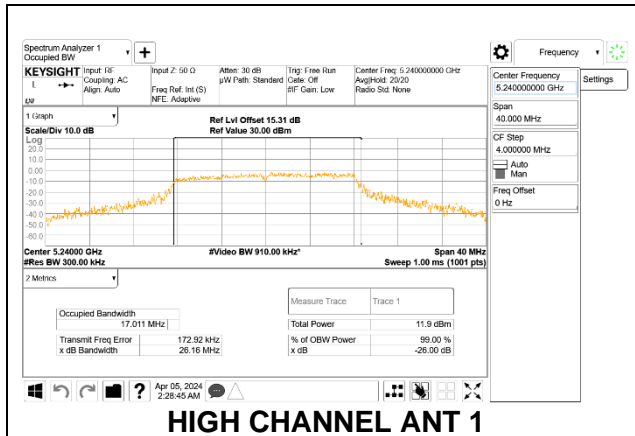


HIGH CHANNEL

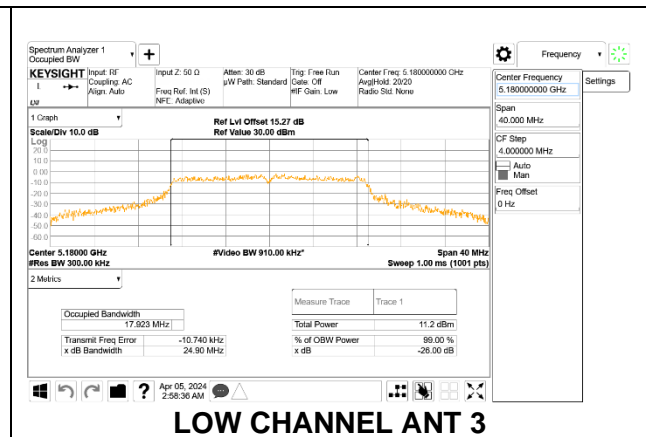
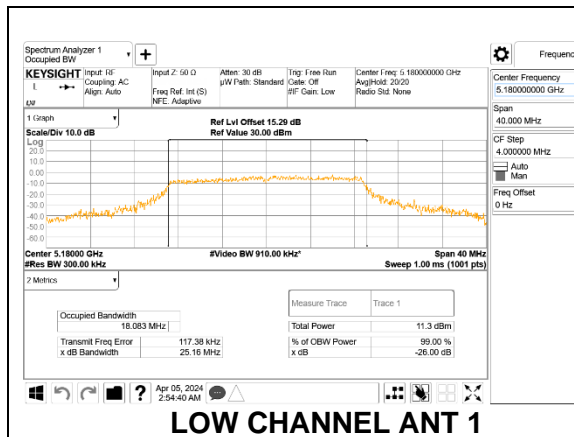


9.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

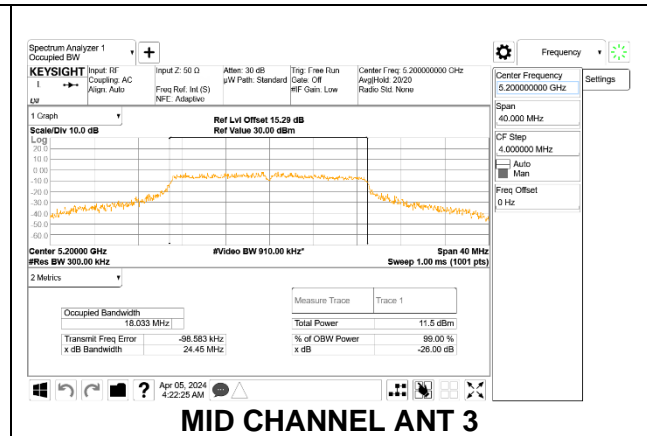
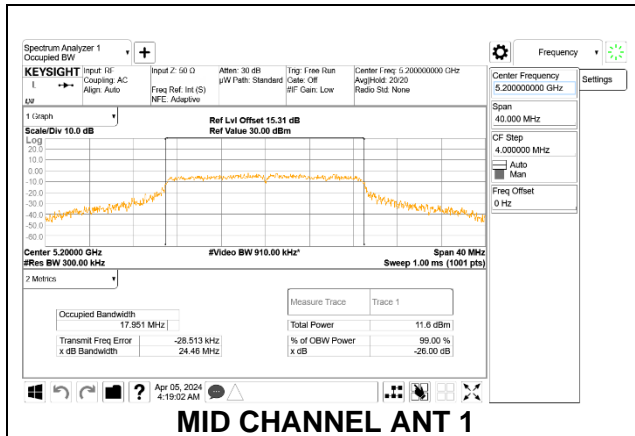
2TX Antenna 1 + Antenna 3 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low	5180	18.083	17.923
Mid	5200	17.951	18.033
High	5240	17.989	17.959

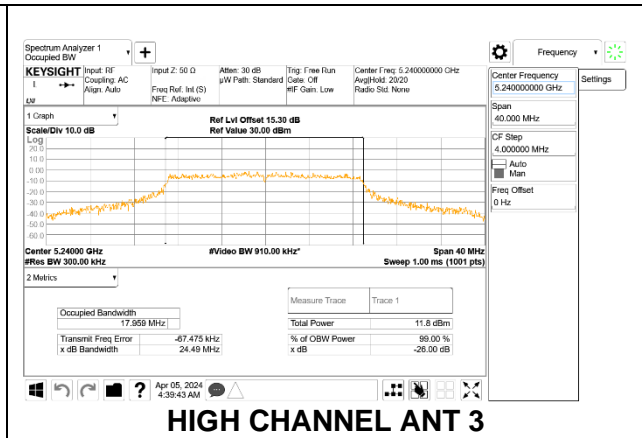
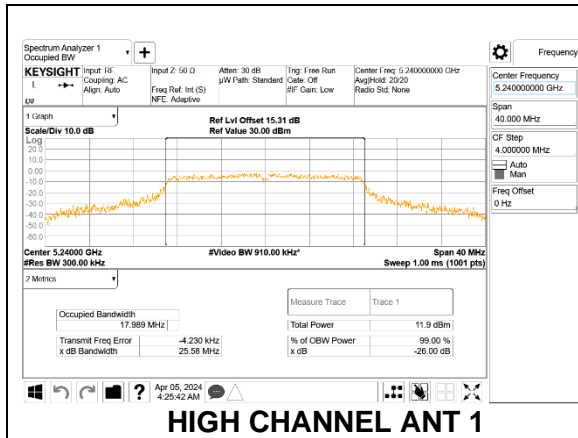
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

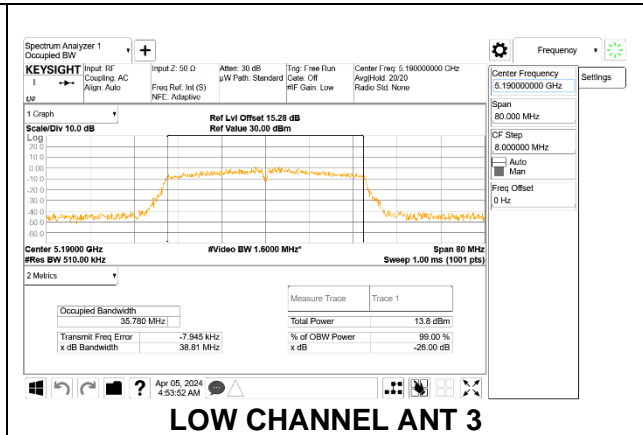
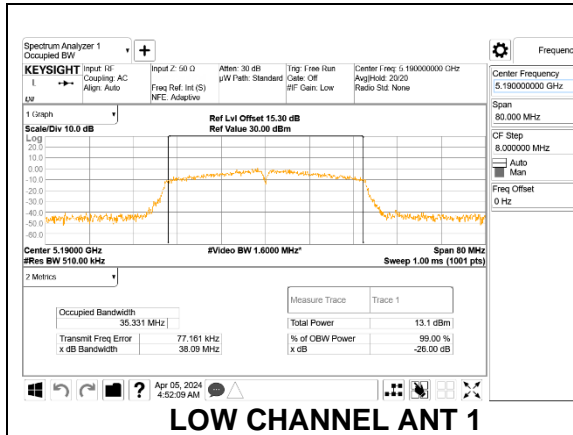


9.3.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

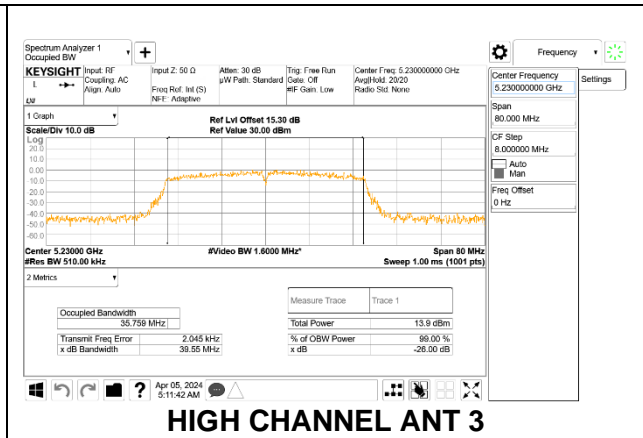
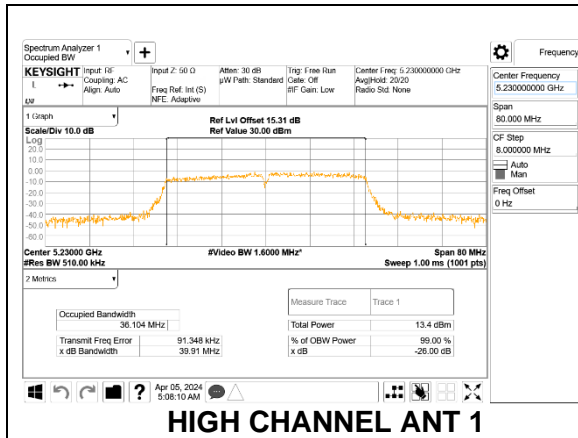
2TX Antenna 1 + Antenna 3 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low	5190	35.331	35.780
High	5230	36.104	35.759

LOW CHANNEL



HIGH CHANNEL

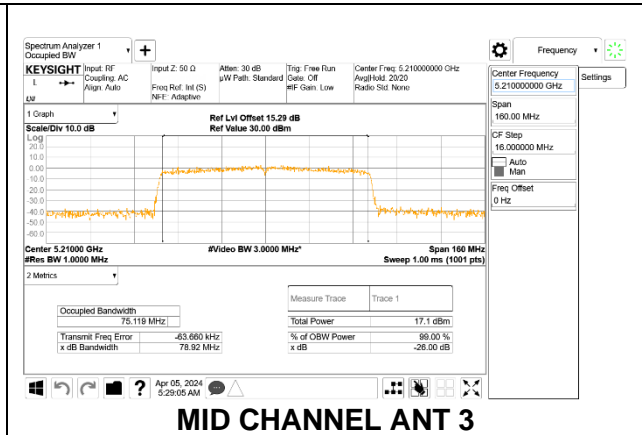
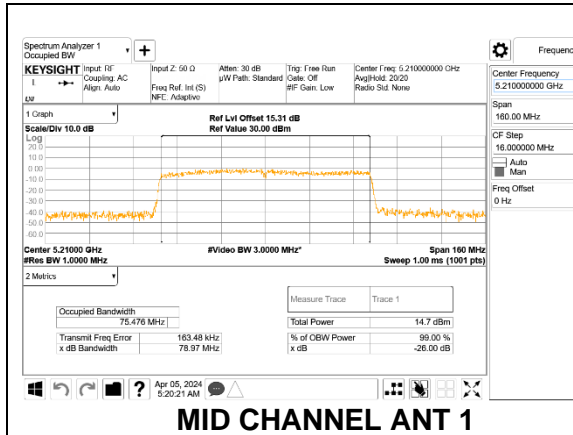


9.3.4. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

2TX Antenna 1 + Antenna 3 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 3 (MHz)
Mid	5210	75.476	75.119

MID CHANNEL

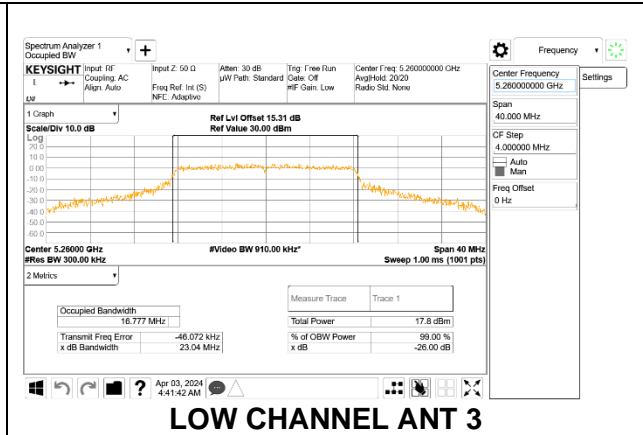
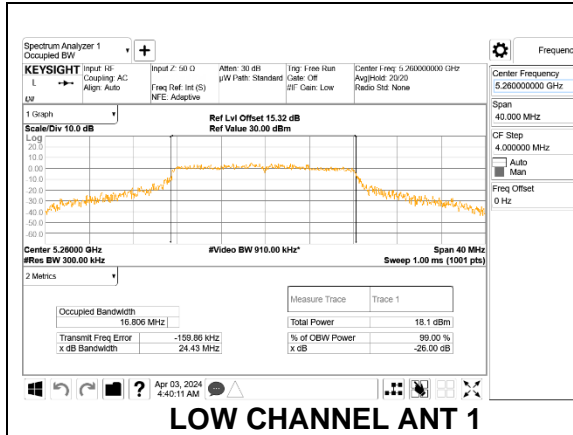


9.3.5. 802.11a MODE IN THE 5.3 GHz BAND

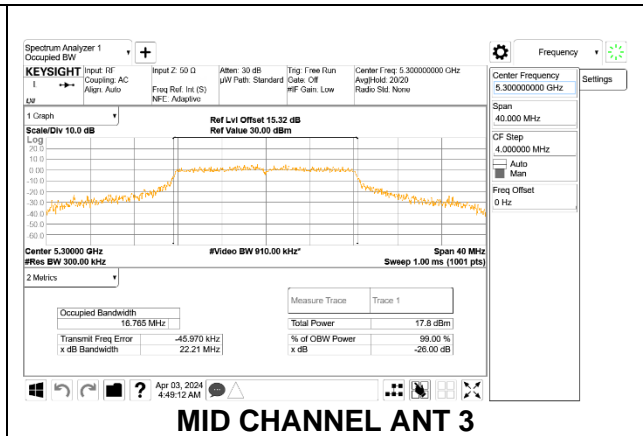
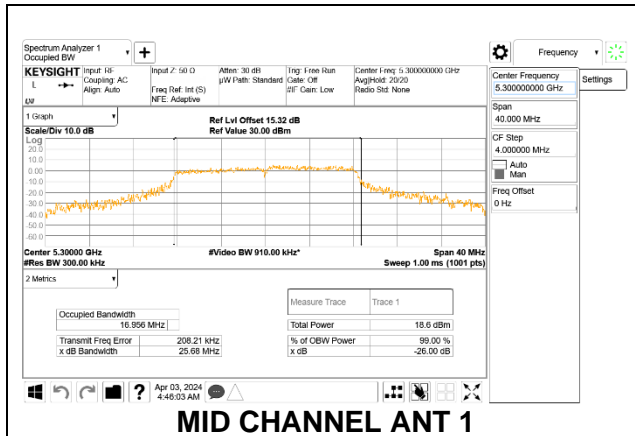
2TX Antenna 1 + Antenna 3 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low	5260	16.806	16.777
Mid	5300	16.956	16.765
High	5320	16.909	16.774

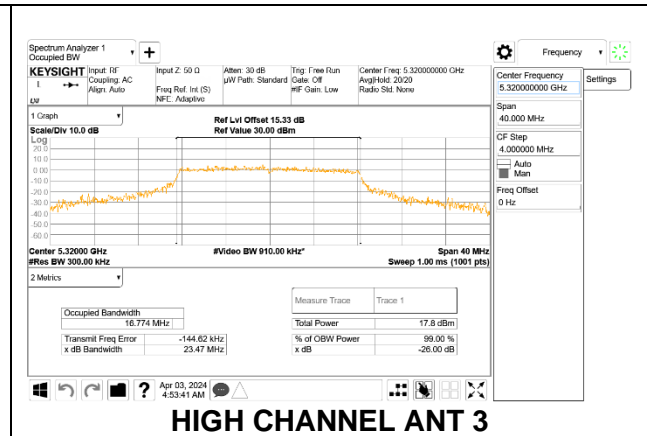
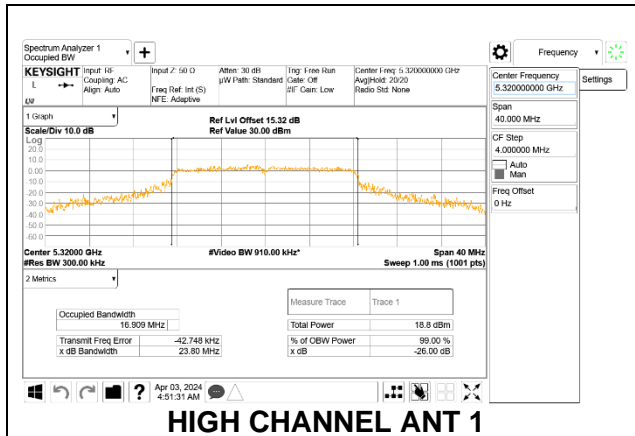
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

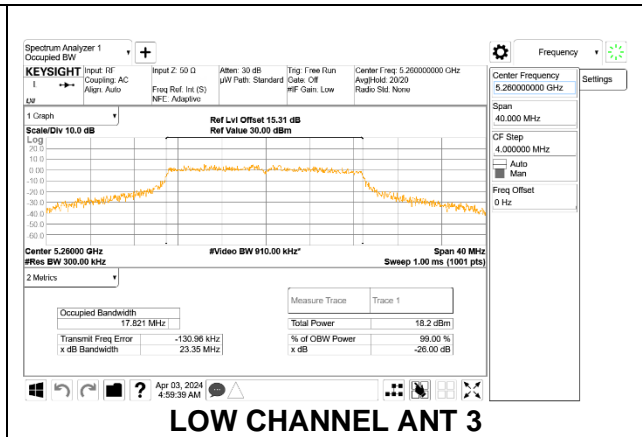
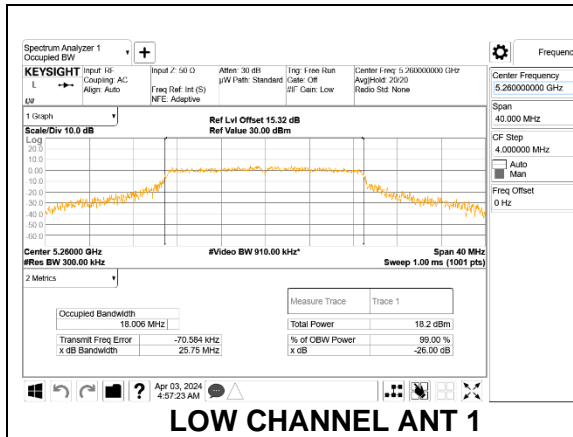


9.3.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

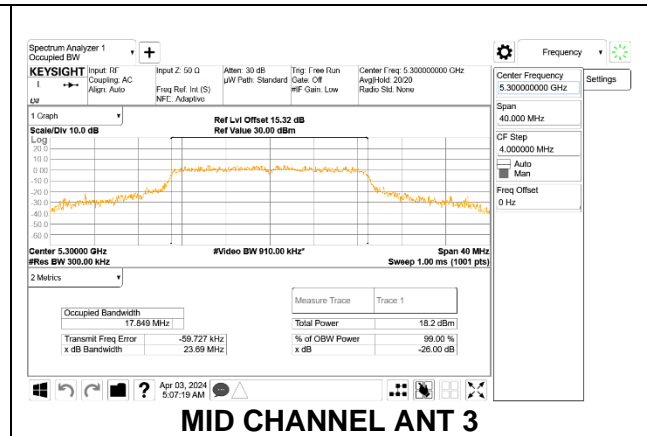
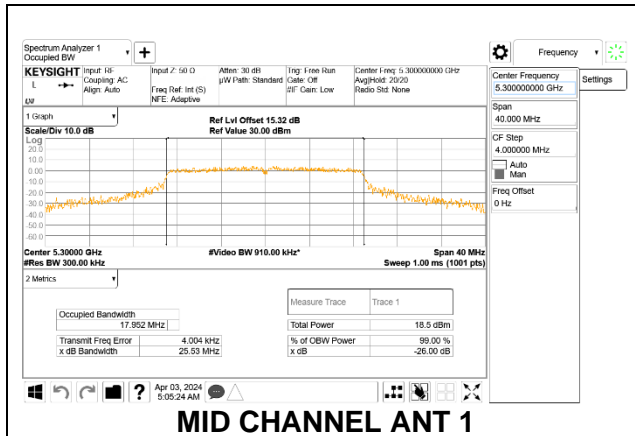
2TX Antenna 1 + Antenna 3 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low	5260	18.006	17.821
Mid	5300	17.952	17.849
High	5320	18.007	17.881

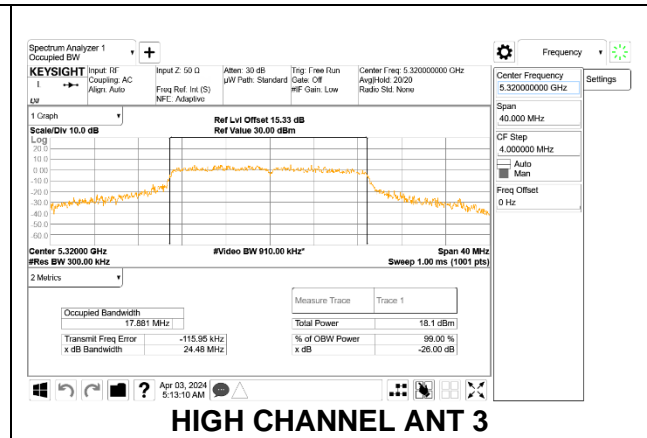
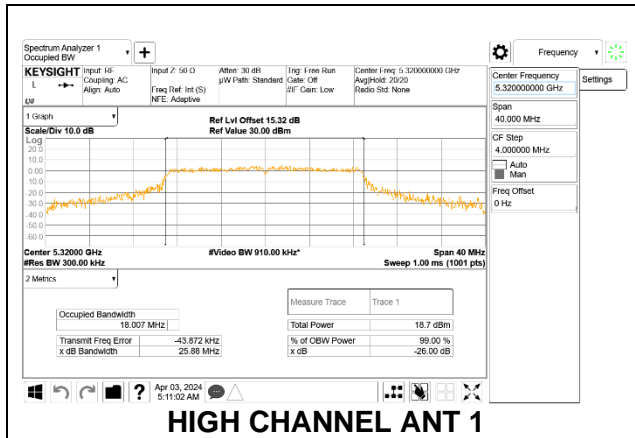
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

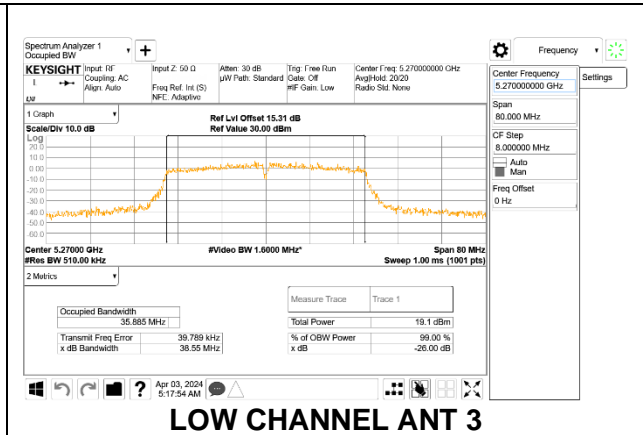
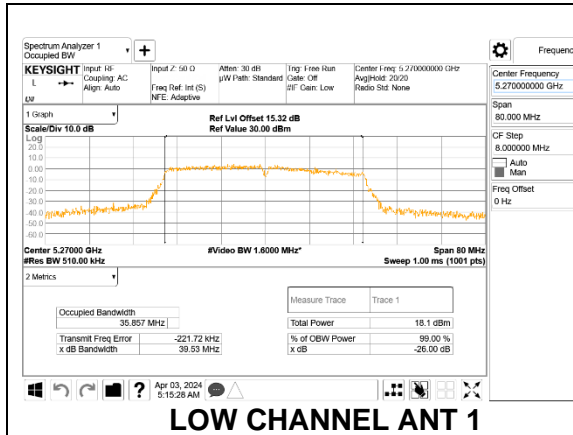


9.3.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

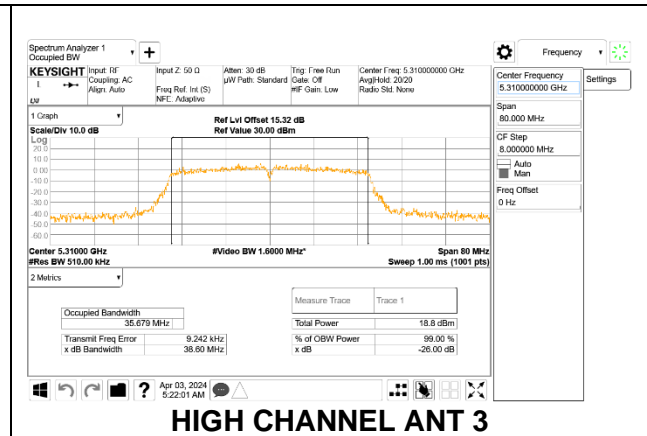
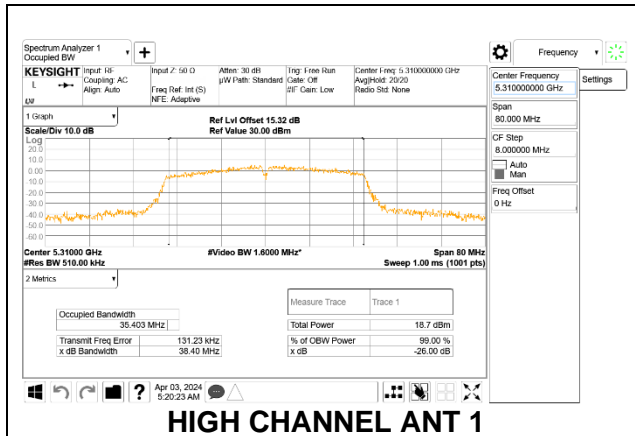
2TX Antenna 1 + Antenna 3 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low	5270	35.857	35.885
High	5310	35.403	35.679

LOW CHANNEL



HIGH CHANNEL

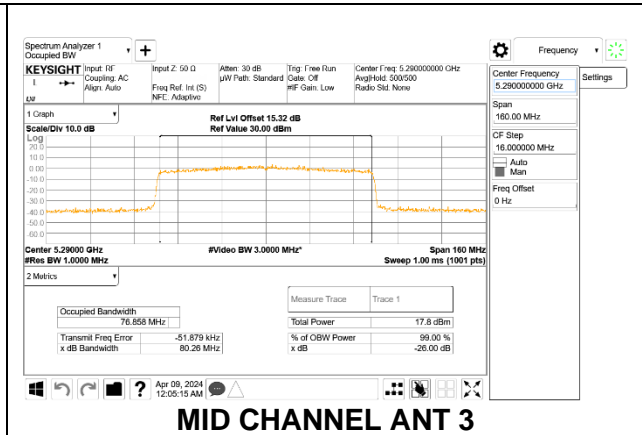
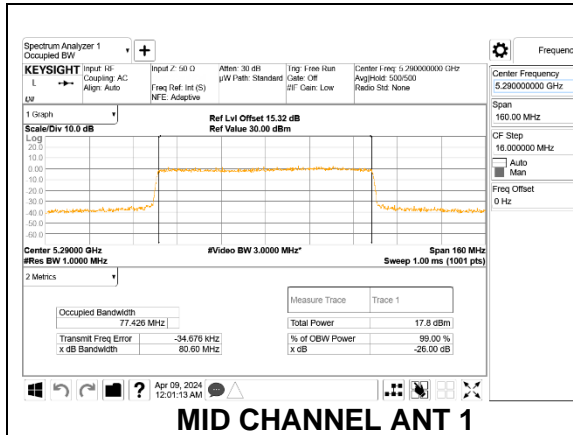


9.3.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

2TX Antenna 1 + Antenna 3 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 3 (MHz)
Mid	5290	77.426	76.858

MID CHANNEL

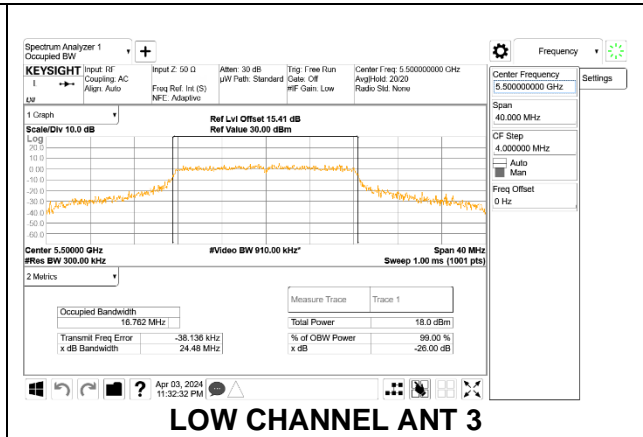
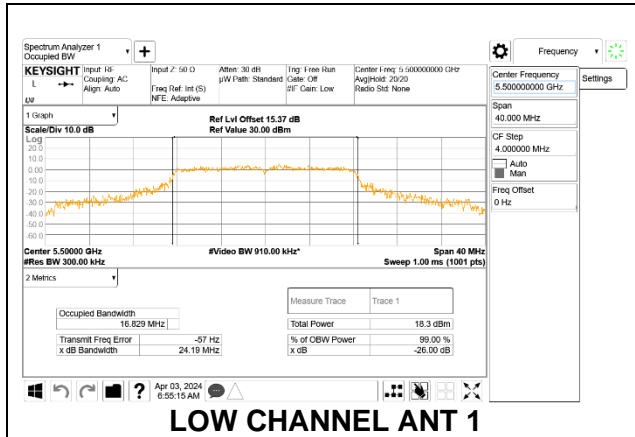


9.3.9. 802.11a MODE IN THE 5.6 GHz BAND

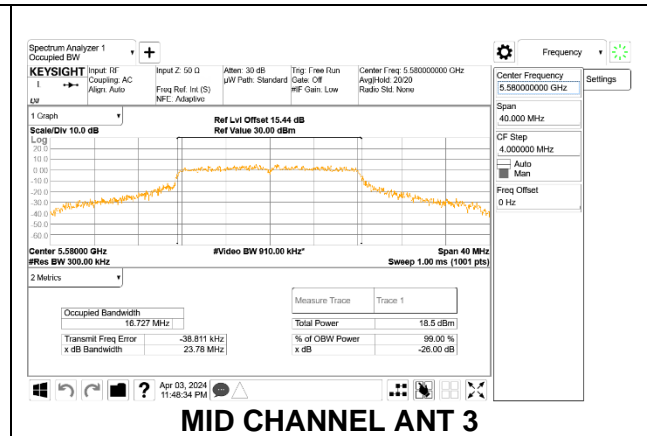
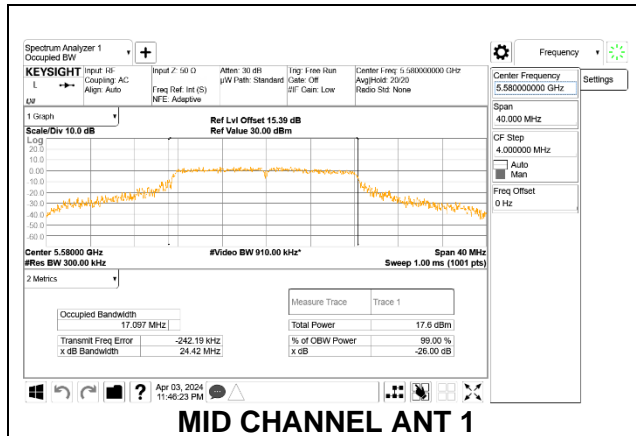
2TX Antenna 1 + Antenna 3 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low	5500	16.829	16.762
Mid	5580	17.097	16.727
High	5700	16.964	16.824

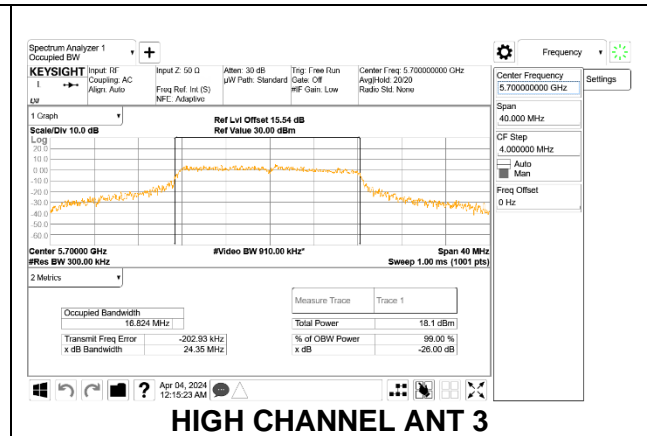
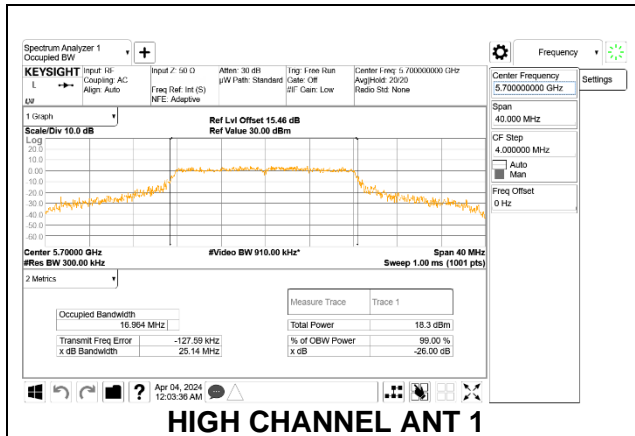
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

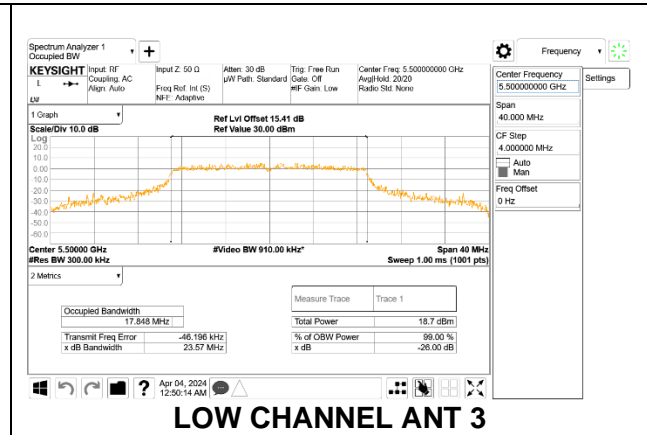
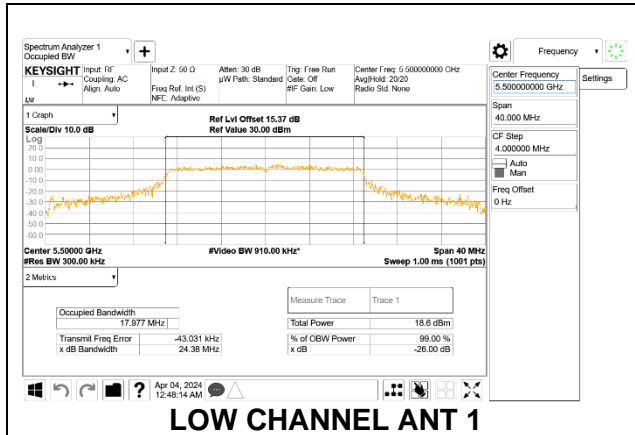


9.3.10. 802.11n HT20 MODE IN THE 5.6 GHz BAND

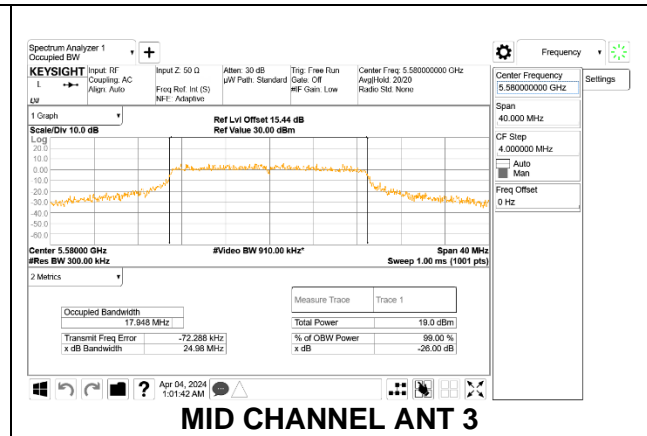
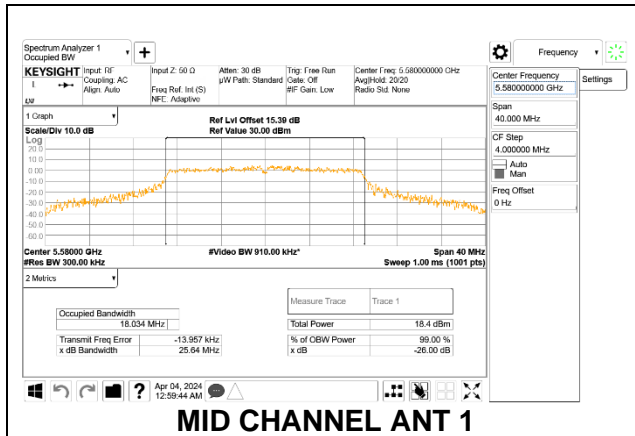
2TX Antenna 1 + Antenna 3 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low	5500	17.977	17.848
Mid	5580	18.034	17.948
High	5700	18.005	17.869

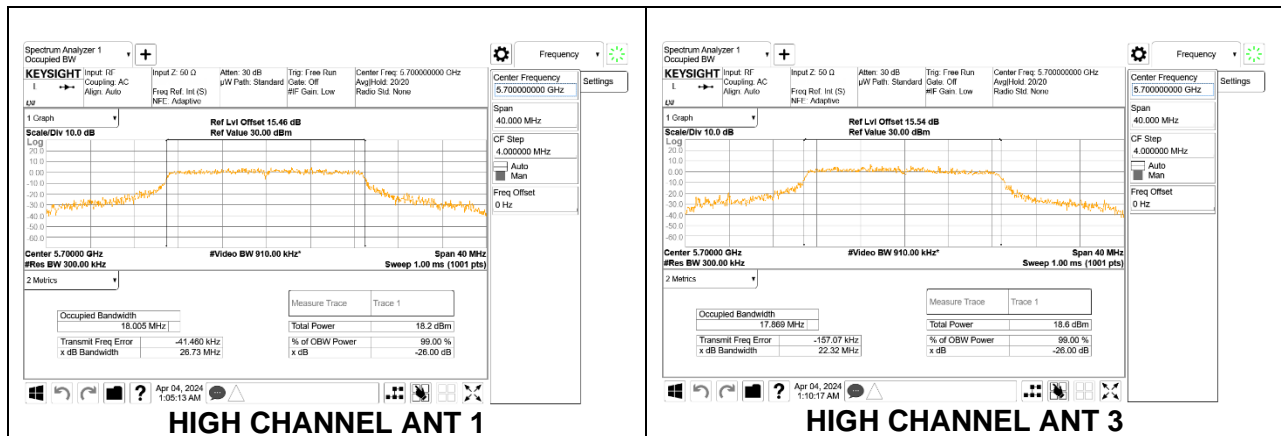
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

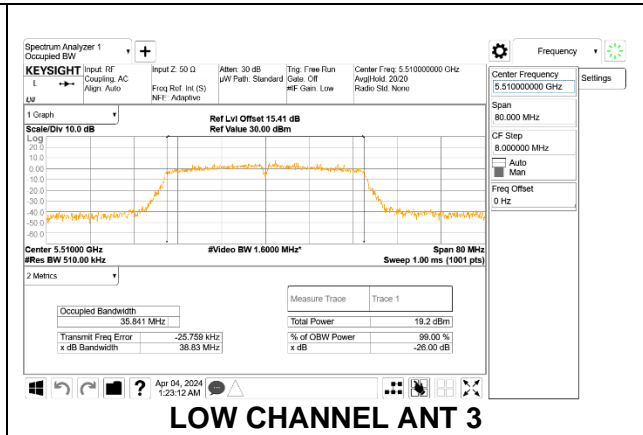
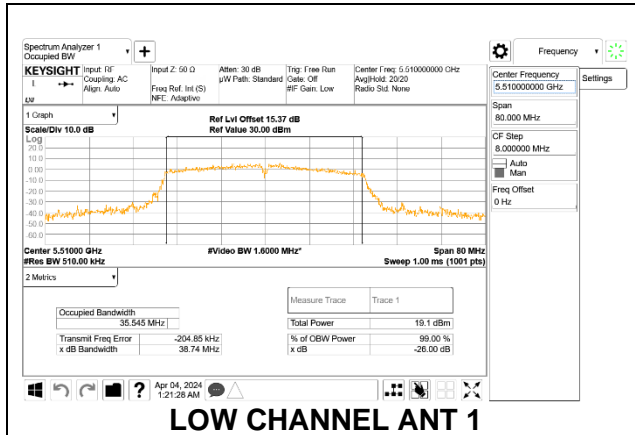


9.3.11. 802.11n HT40 MODE IN THE 5.6 GHz BAND

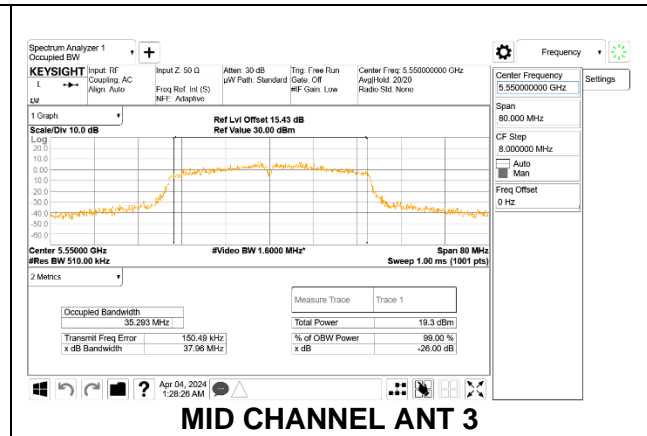
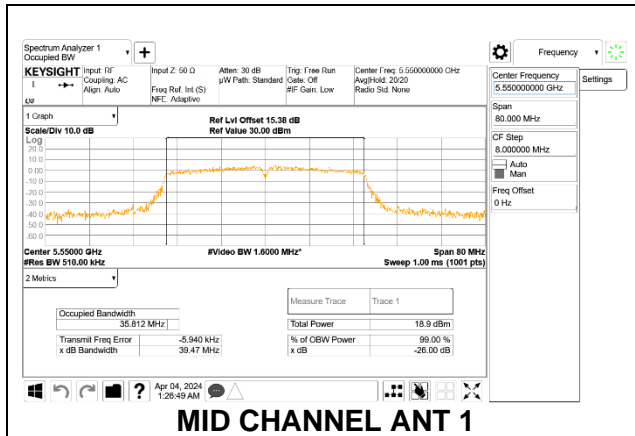
2TX Antenna 1 + Antenna 3 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low	5510	35.545	35.841
Mid	5550	35.812	35.293
High	5670	35.850	35.678

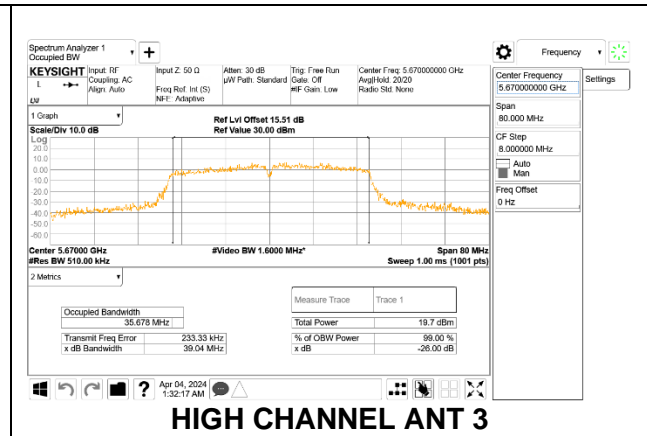
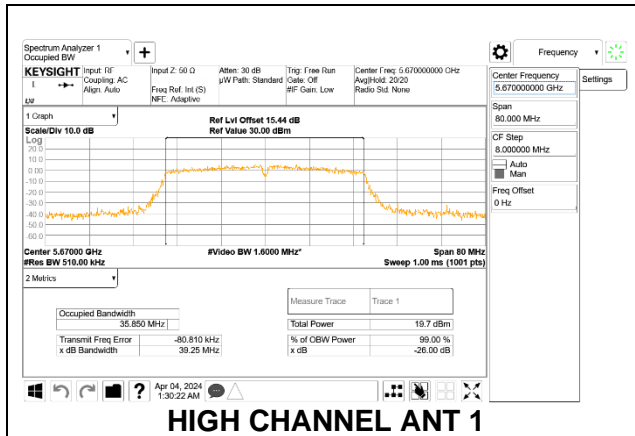
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

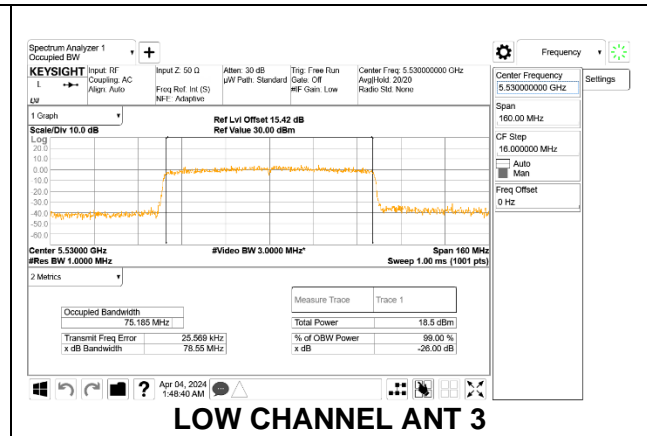
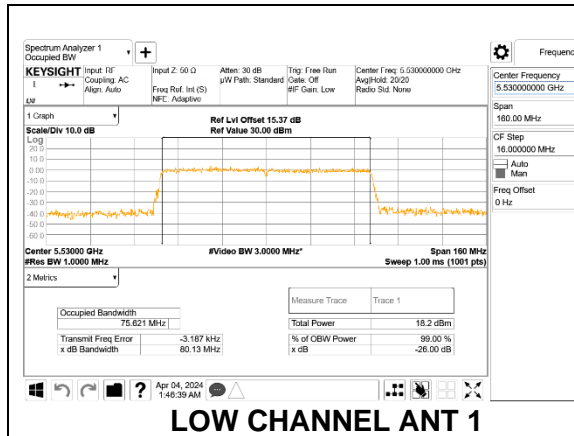


9.3.12. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

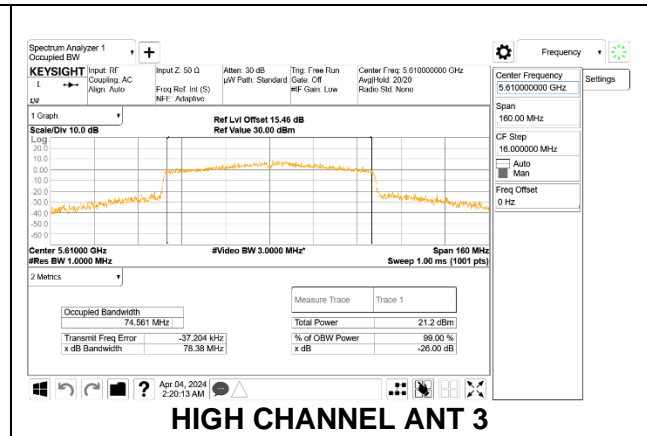
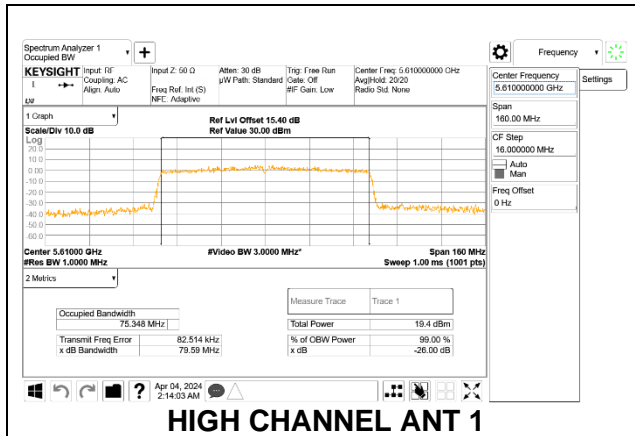
2TX Antenna 1 + Antenna 3 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low	5530	75.621	75.185
High	5610	75.348	74.561

LOW CHANNEL



HIGH CHANNEL

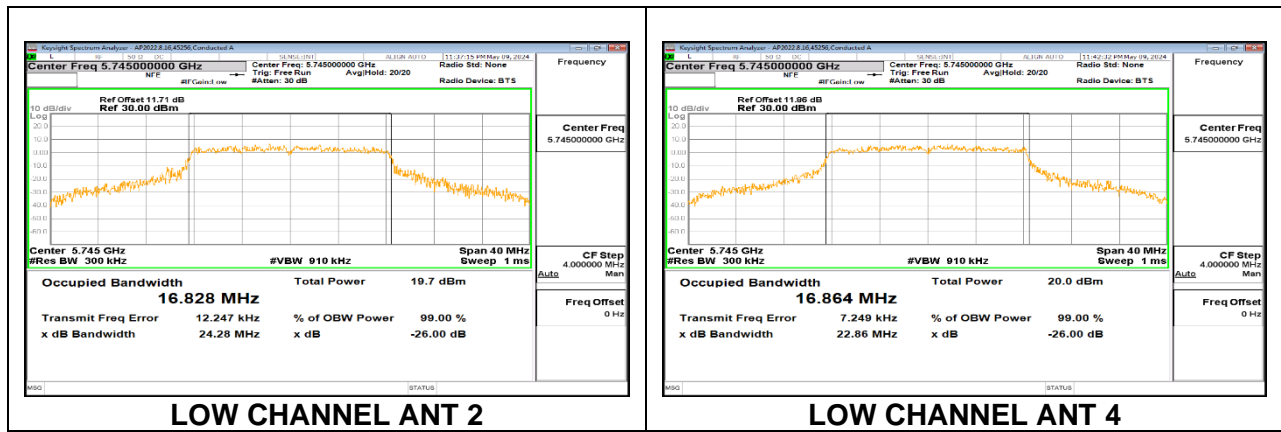


9.3.13. 802.11a MODE IN THE 5.8 GHz BAND

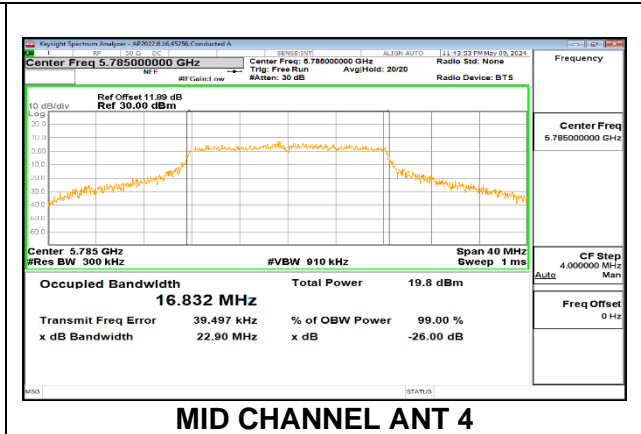
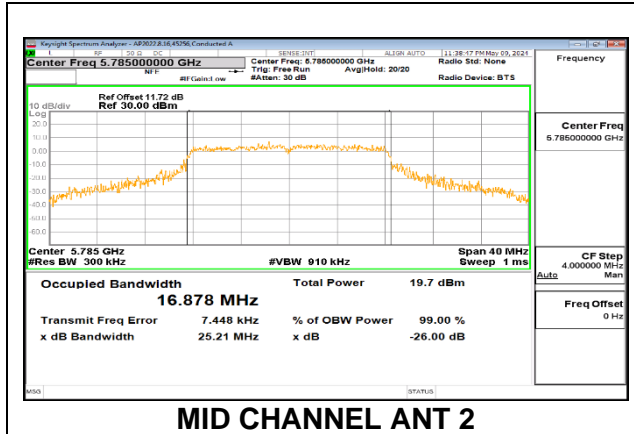
2TX Antenna 2 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 4 (MHz)
Low	5745	16.828	16.864
Mid	5785	16.878	16.832
High	5825	16.941	16.704

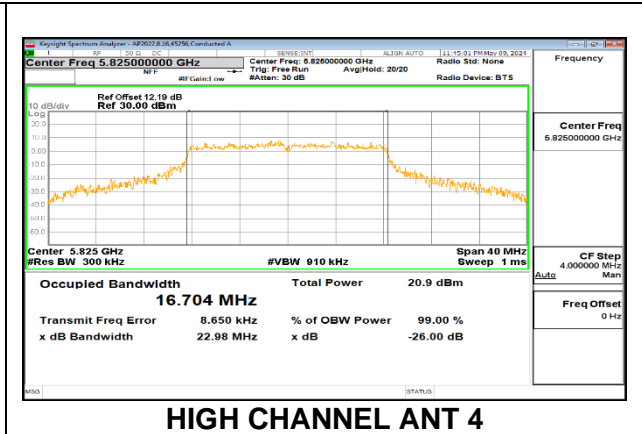
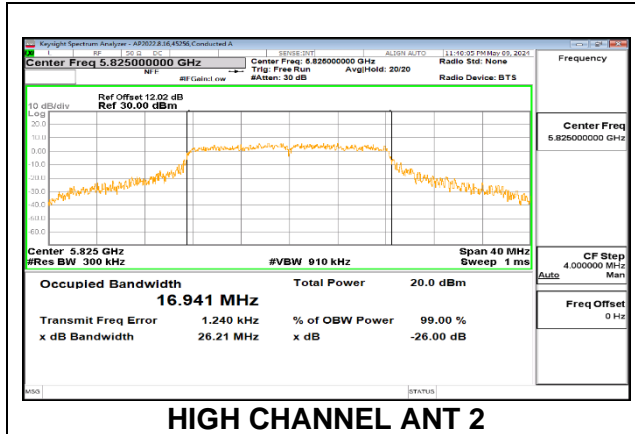
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

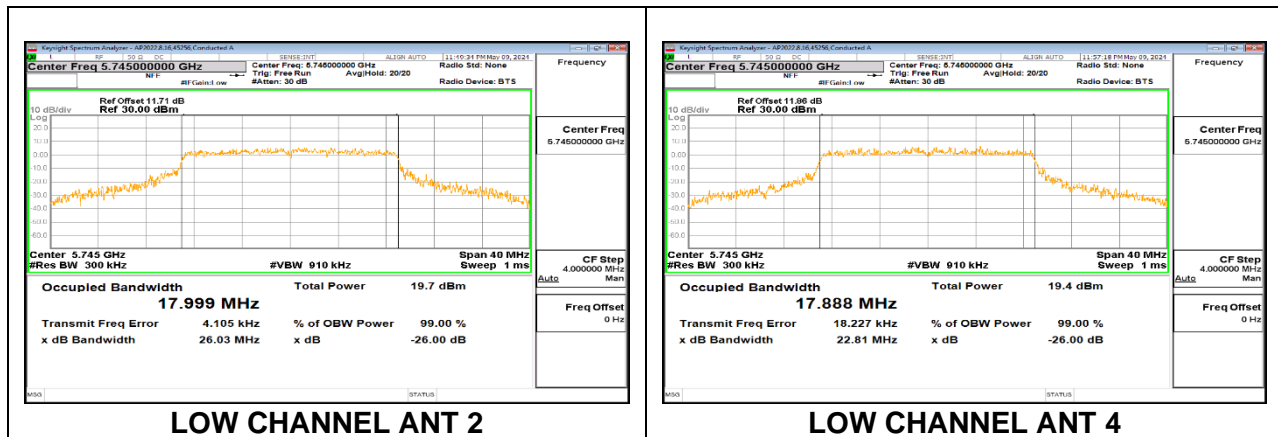


9.3.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

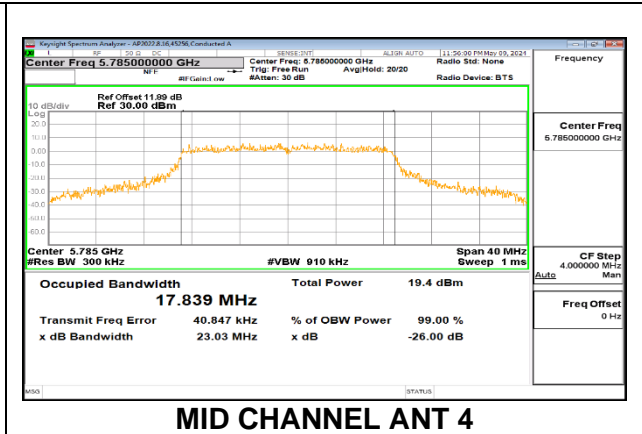
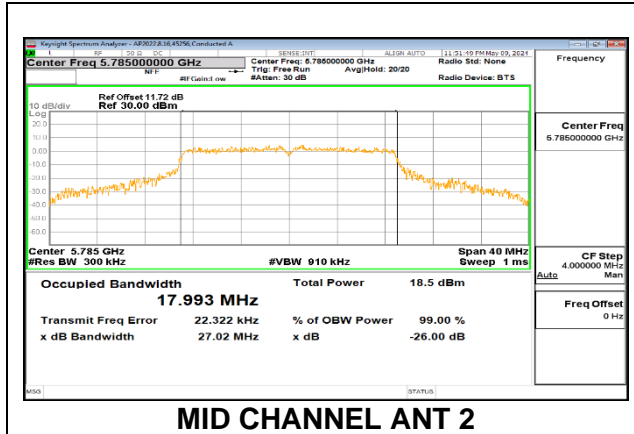
2TX Antenna 2 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 4 (MHz)
Low	5745	17.999	17.888
Mid	5785	17.993	17.839
High	5825	17.961	17.826

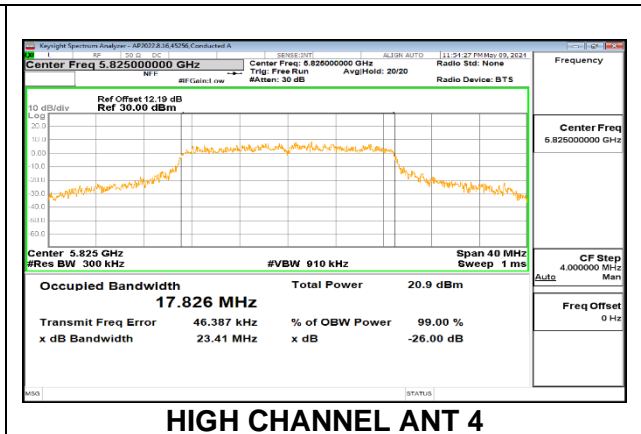
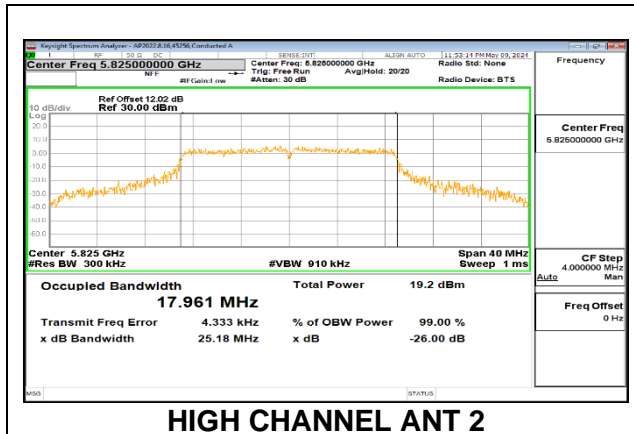
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

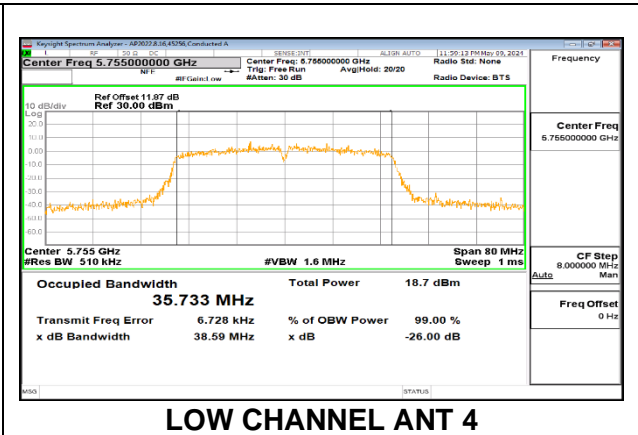
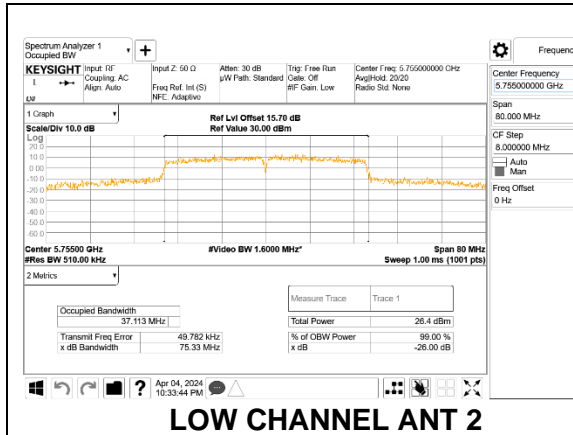


9.3.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

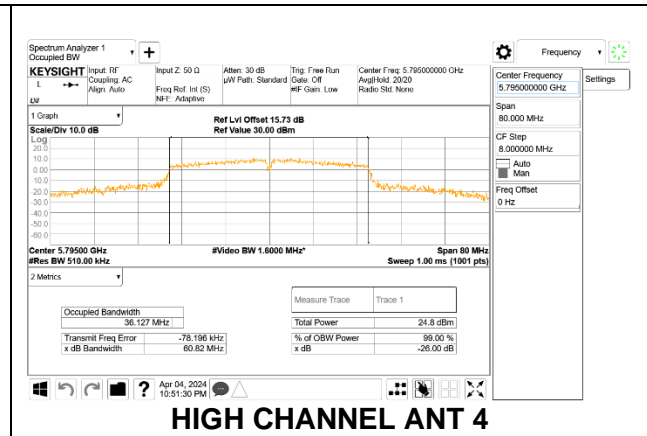
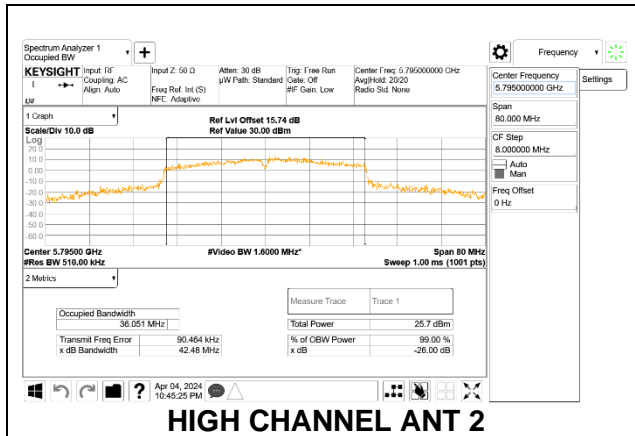
2TX Antenna 2 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 4 (MHz)
Low	5755	37.113	35.733
High	5795	36.051	36.127

LOW CHANNEL



HIGH CHANNEL

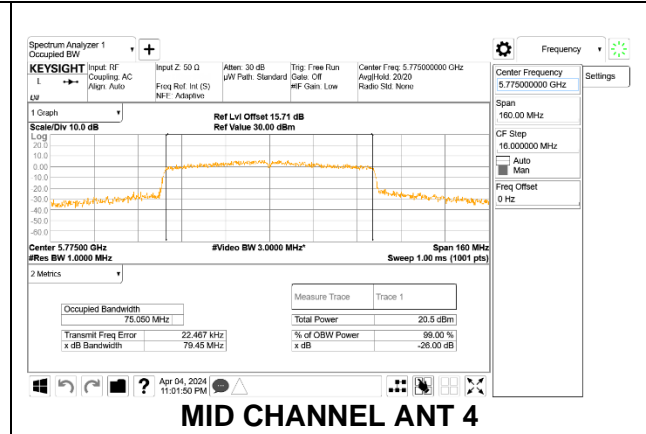
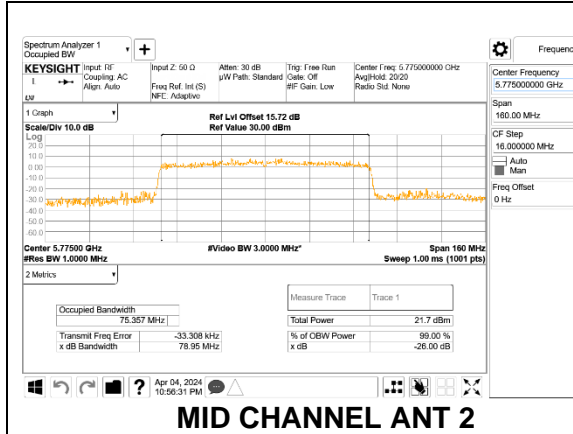


9.3.16. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

2TX Antenna 2 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 4 (MHz)
Mid	5775	75.357	75.050

MID CHANNEL



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.

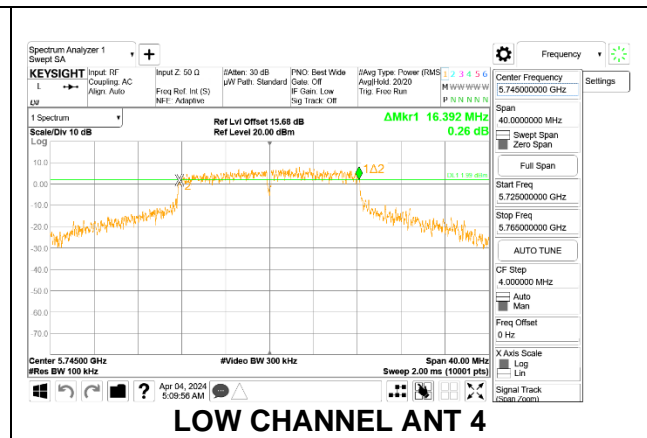
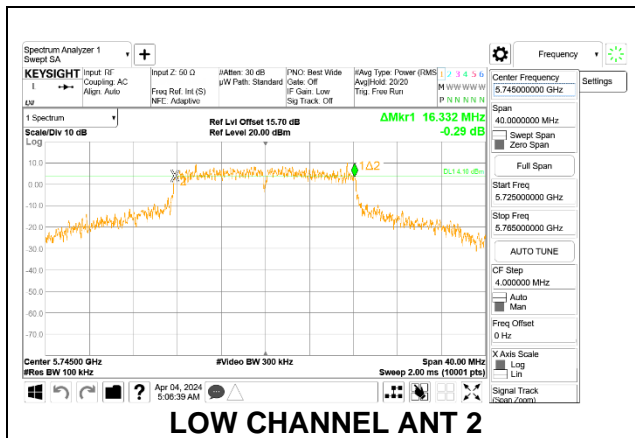
RESULTS

9.4.1. 802.11a MODE IN THE 5.8 GHz BAND

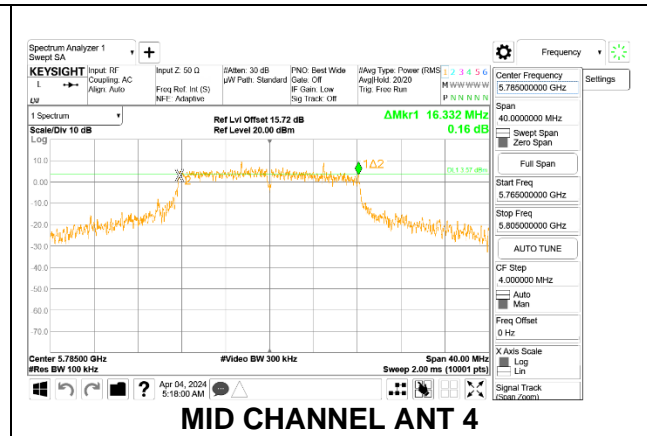
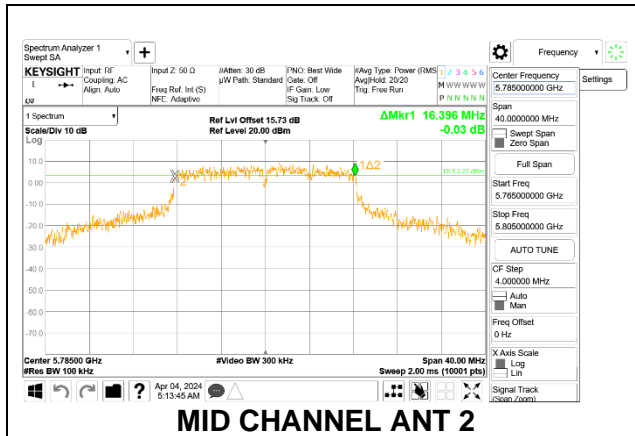
2TX Antenna 2 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 4 (MHz)	Minimum Limit (MHz)
Low	5745	16.332	16.392	0.5
Mid	5785	16.396	16.332	0.5
High	5825	16.412	16.340	0.5

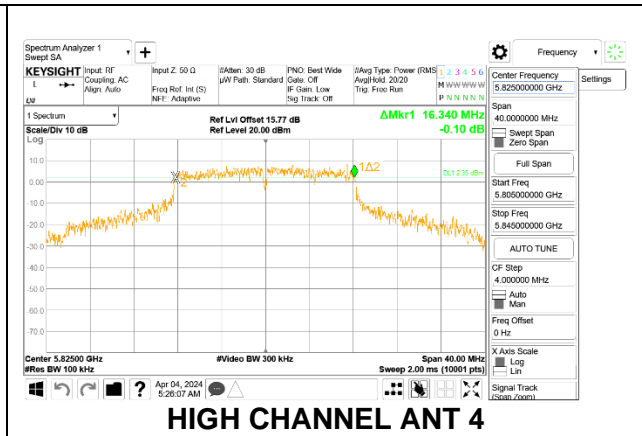
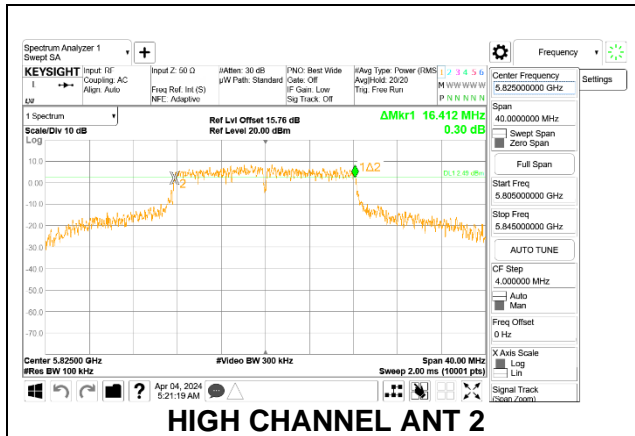
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

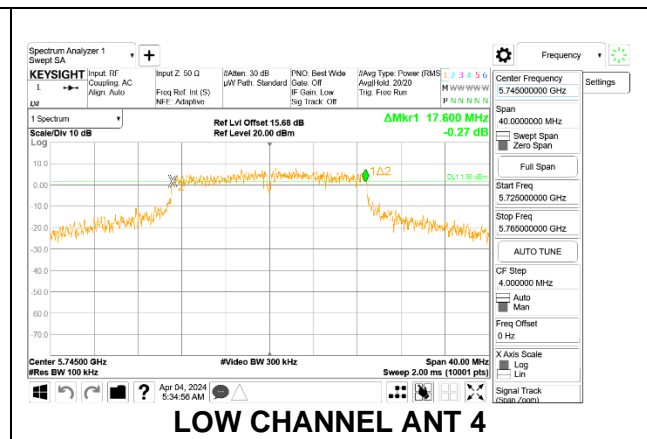
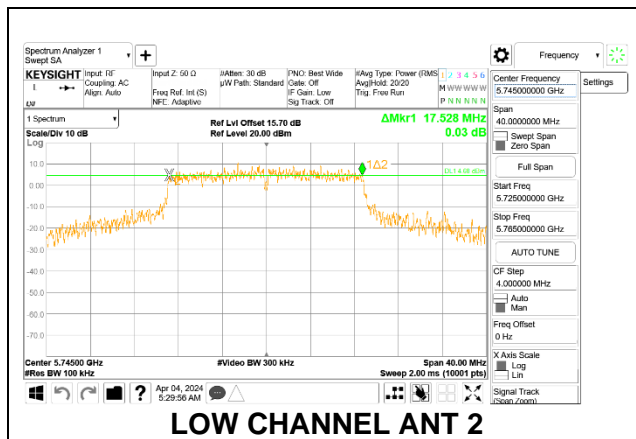


9.4.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

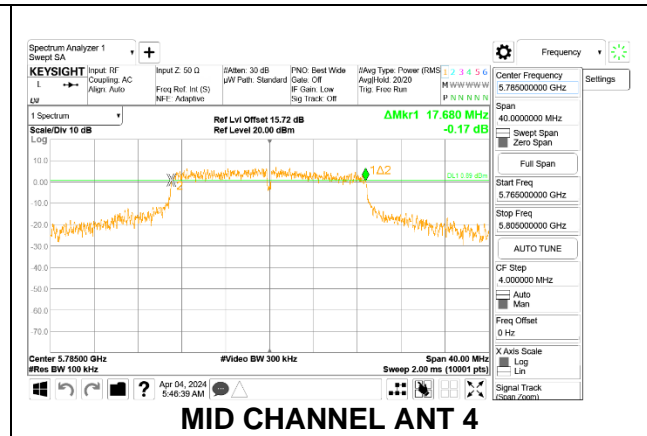
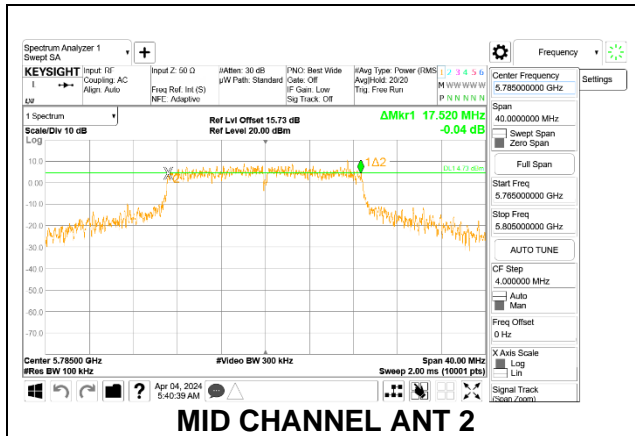
2TX Antenna 2 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 4 (MHz)	Minimum Limit (MHz)
Low	5745	17.528	17.600	0.5
Mid	5785	17.520	17.680	0.5
High	5825	17.616	17.652	0.5

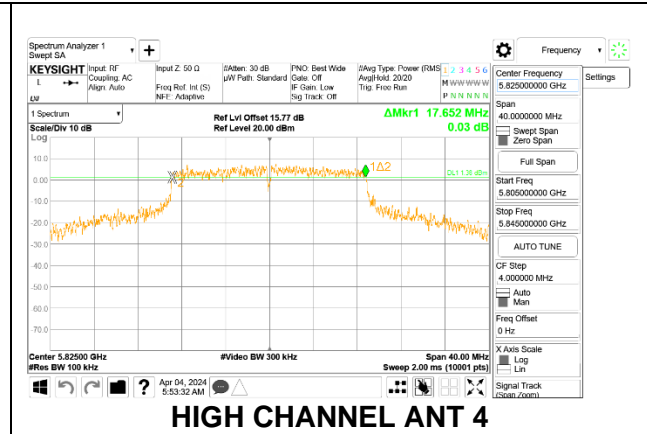
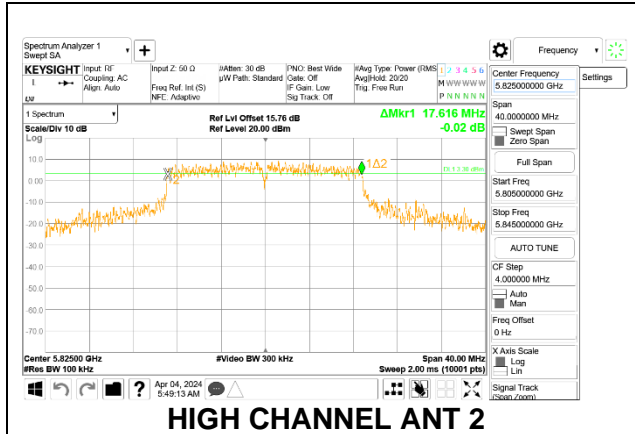
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

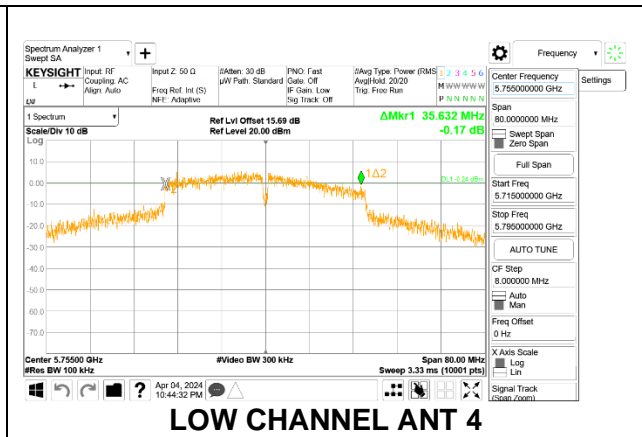
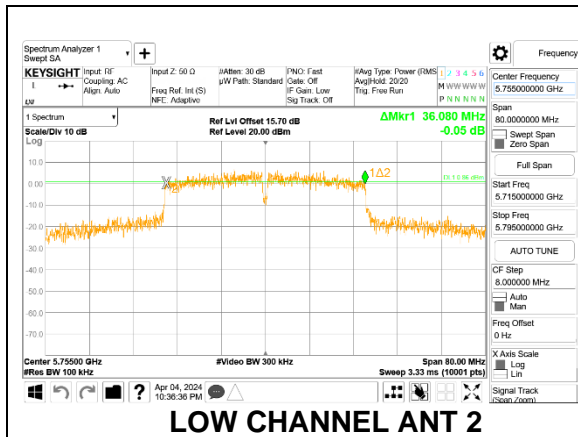


9.4.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

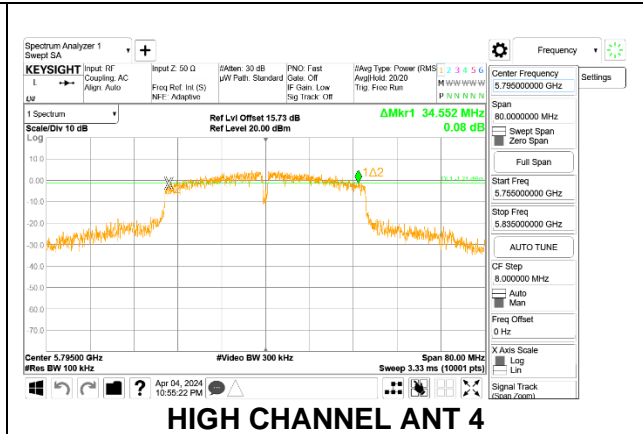
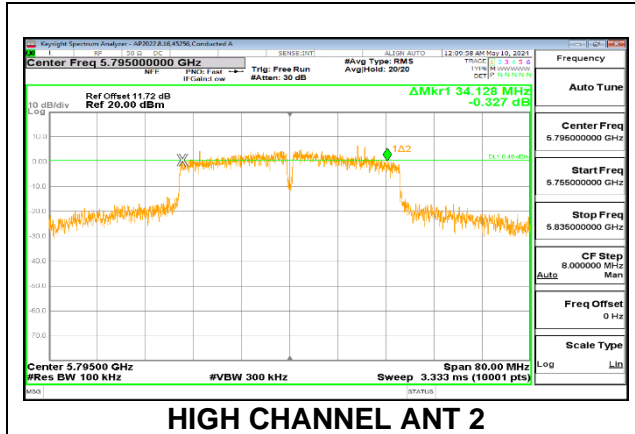
2TX Antenna 2 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 4 (MHz)	Minimum Limit (MHz)
Low	5755	36.080	35.632	0.5
High	5795	34.128	34.552	0.5

LOW CHANNEL



HIGH CHANNEL

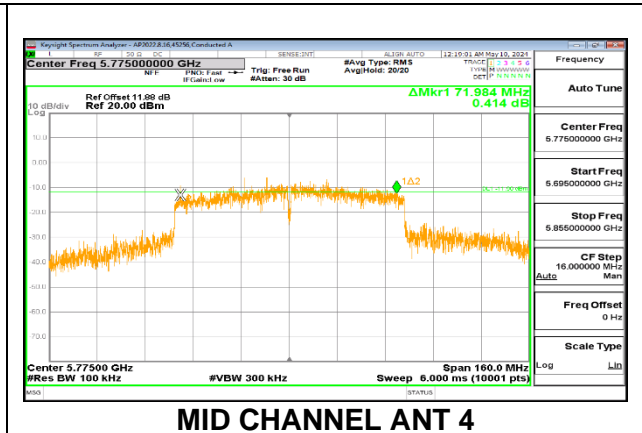
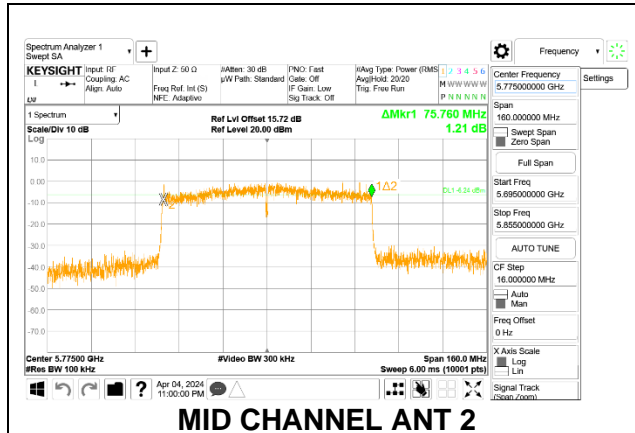


9.4.4. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

2TX Antenna 2 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 4 (MHz)	Minimum Limit (MHz)
Mid	5775	75.760	71.984	0.5

MID CHANNEL



9.5. OUTPUT POWER AND PSD

LIMITS

FCC §15.407

Band 5.15–5.25 GHz

(1)(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

(2)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

(3)(i)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

The power output was measured on the EUT antenna port using SMA cable with 10dB attenuator connected to a power meter via wideband average power sensor. Gated average output power was read directly from power meter.

DIRECTIONAL ANTENNA GAIN

See section 6.3 for antenna gains used.

Directional Gain value was determined by manufacturer measurement procedure.

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:

RESULTS

9.5.1. 802.11a MODE IN THE 5.2 GHz BAND

2TX Antenna 1 + Antenna 3 CDD MODE (FCC+IC)

Test Engineer:	ZS 16080
Test Date:	2024-04-03 - 2024-04-05

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)
Low	5180	16.7760	6.10	9.10
Mid	5200	16.8880	6.10	9.10
High	5240	16.7520	6.10	9.10

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED EIRP Limit (dBm)	Max ISED Power (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/1MHz)	ISED eirp PSD Limit (dBm/1MHz)	PSD Limit (dBm/1MHz)
Low	5180	23.90	22.25	16.15	16.15	7.90	10.00	0.90
Mid	5200	23.90	22.28	16.18	16.18	7.90	10.00	0.90
High	5240	23.90	22.24	16.14	16.14	7.90	10.00	0.90

Duty Cycle CF (dB)	0.94	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	7.35	7.45	10.41	16.15	-5.74
Mid	5200	7.61	7.72	10.68	16.18	-5.50
High	5240	7.53	7.48	10.52	16.14	-5.63

PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 3 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5180	-3.86	-4.12	-0.04	0.90	-0.94
Mid	5200	-3.83	-3.63	0.22	0.90	-0.68
High	5240	-3.69	-4.05	0.09	0.90	-0.81