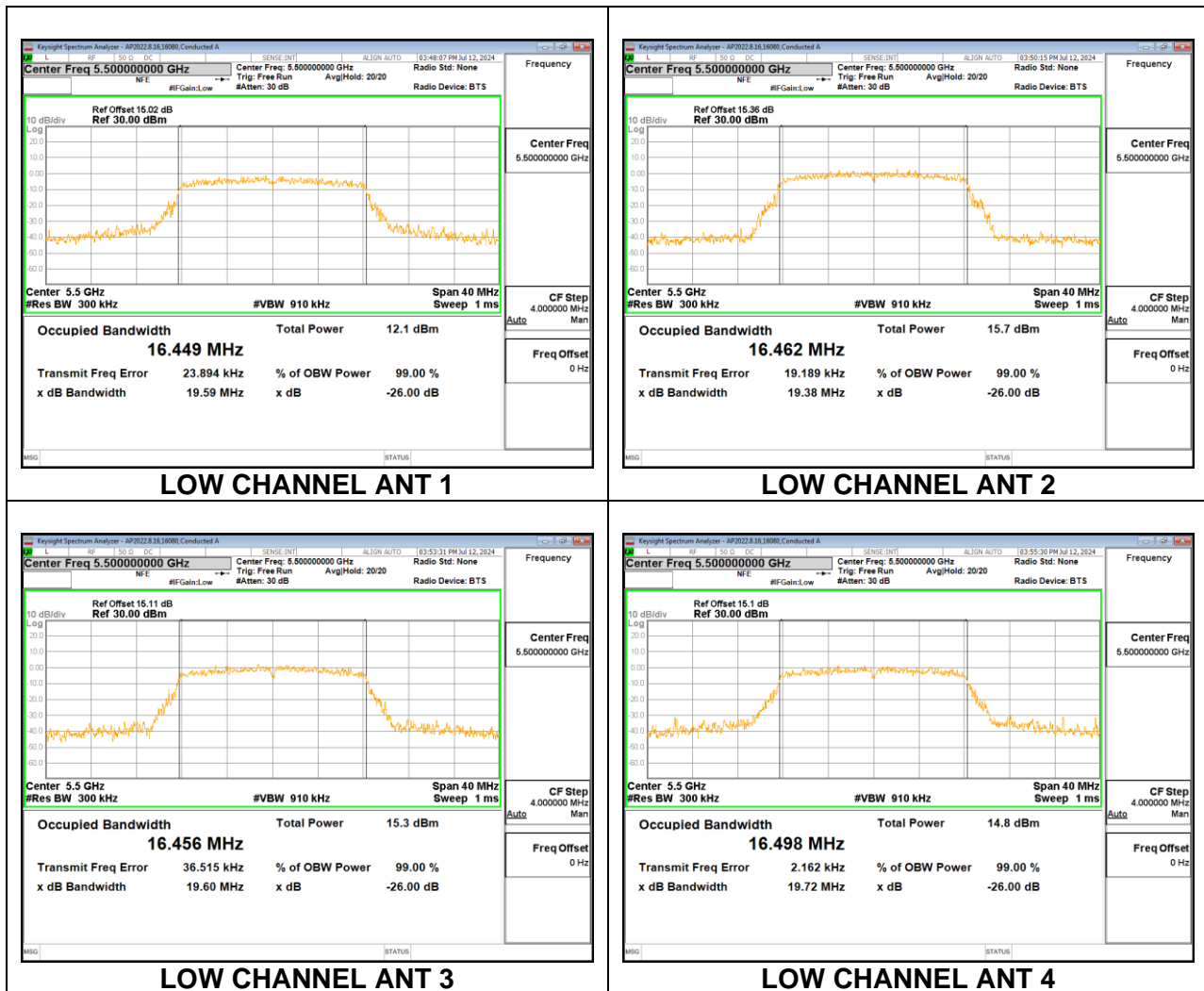


9.3.5. 802.11a MODE IN THE 5.6 GHz BAND

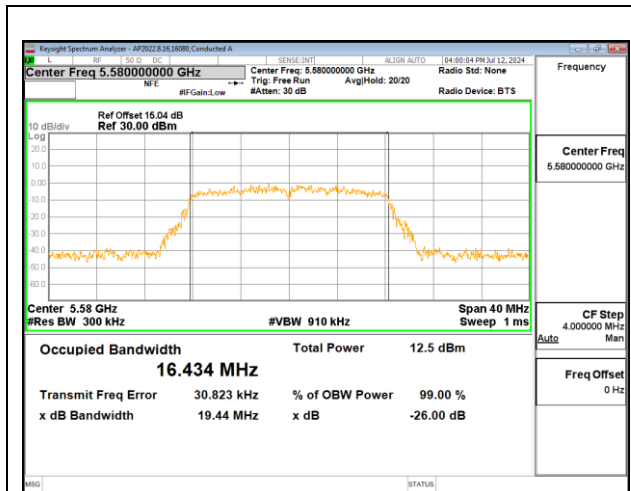
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)	99% Bandwidth Antenna 4 (MHz)
Low	5500	16.449	16.462	16.456	16.498
Mid	5580	16.434	16.457	16.456	16.480
High	5700	16.486	16.404	16.461	16.415

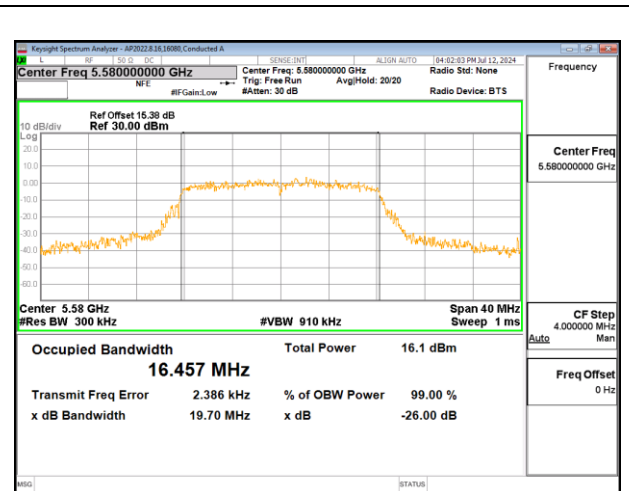
LOW CHANNEL



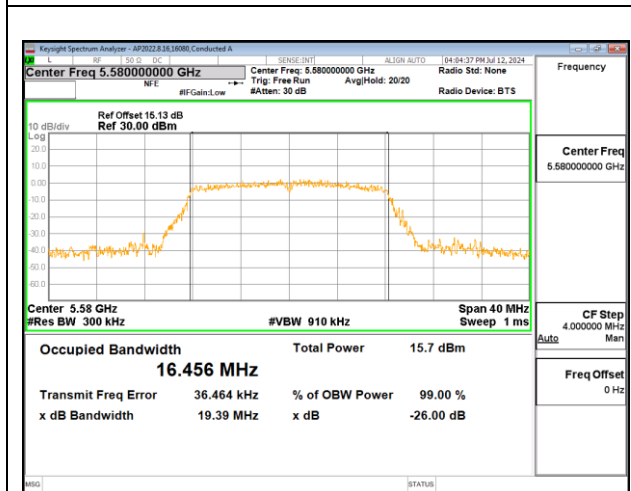
MID CHANNEL



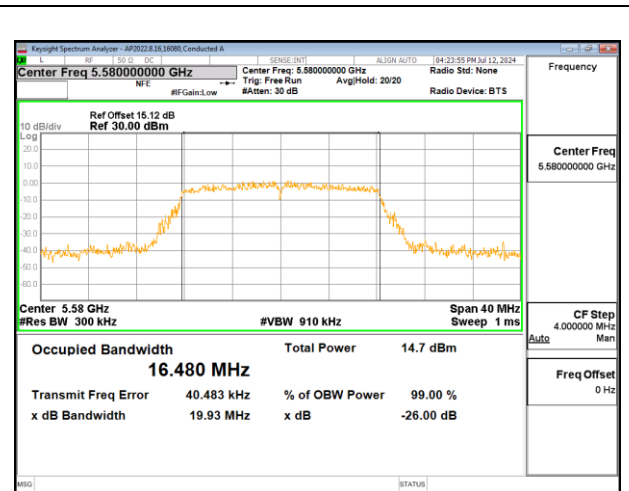
MID CHANNEL ANT 1



MID CHANNEL ANT 2

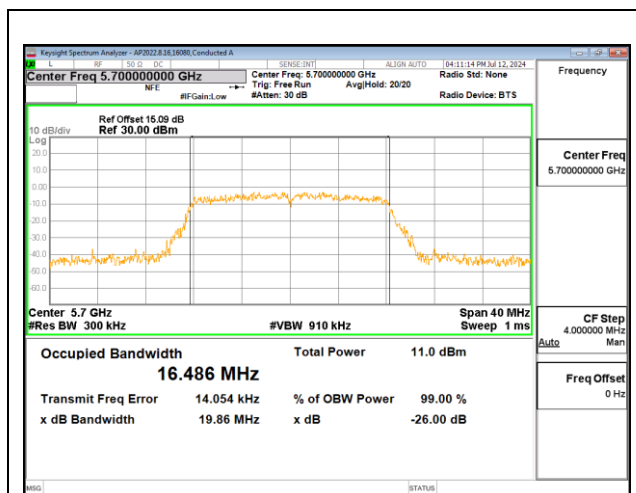


MID CHANNEL ANT 3

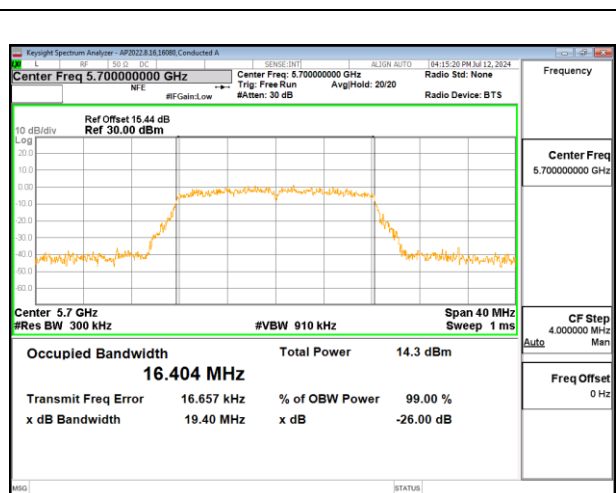


MID CHANNEL ANT 4

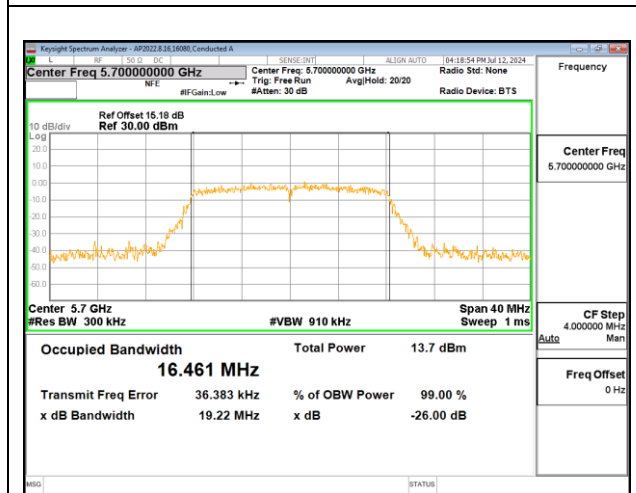
HIGH CHANNEL



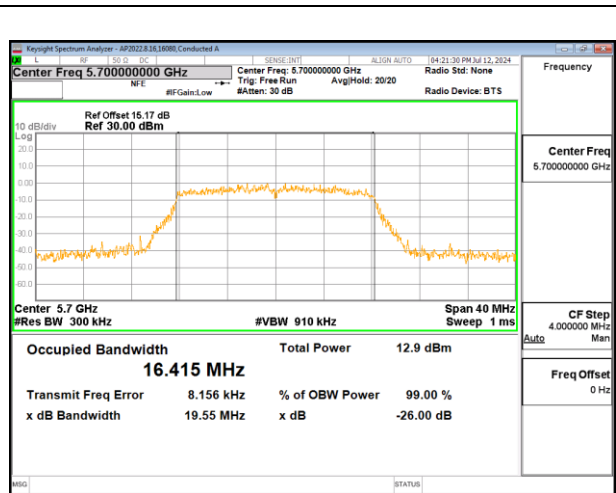
HIGH CHANNEL ANT 1



HIGH CHANNEL ANT 2



HIGH CHANNEL ANT 3



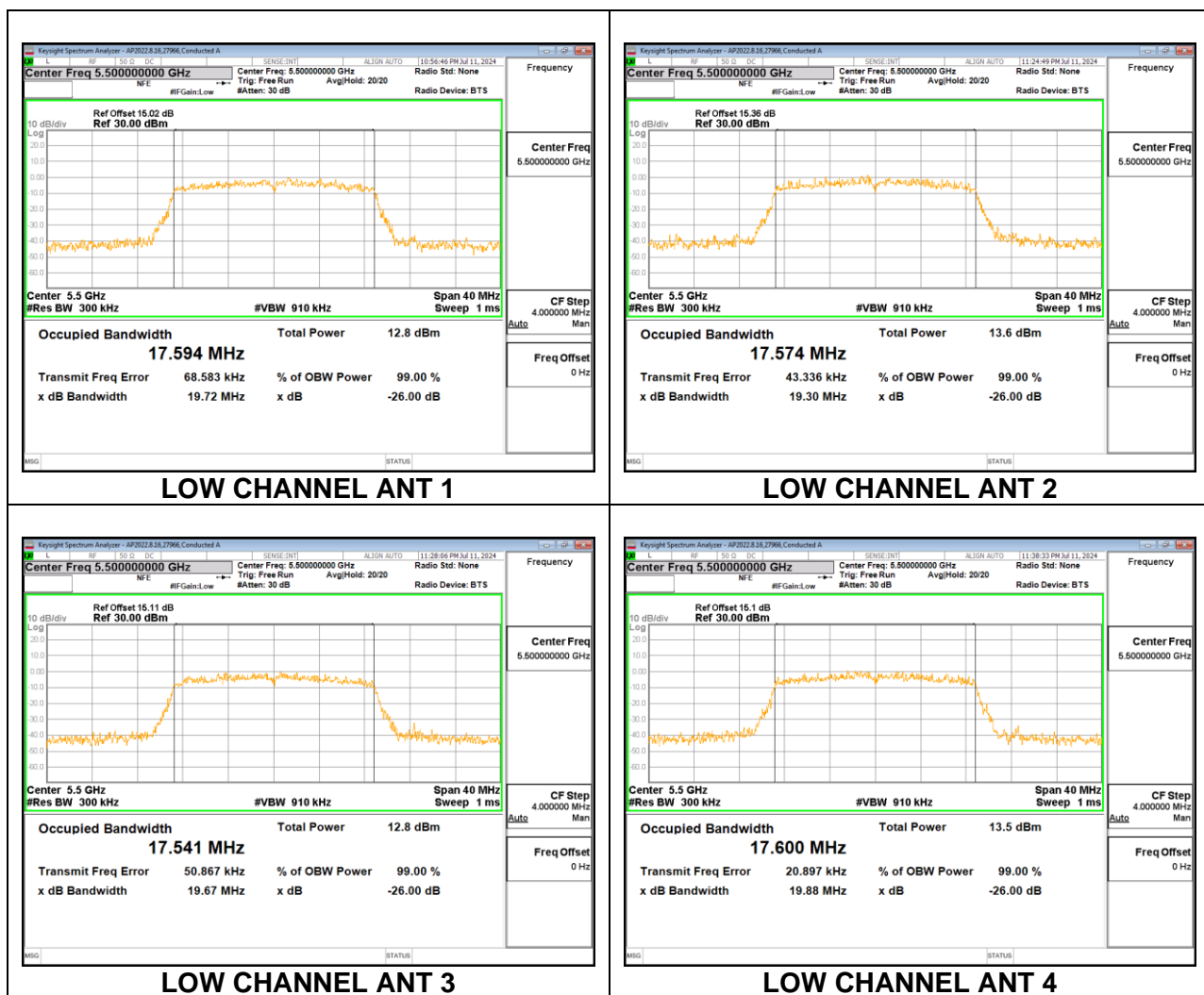
HIGH CHANNEL ANT 4

9.3.6. 802.11n HT20 MODE IN THE 5.6 GHz BAND

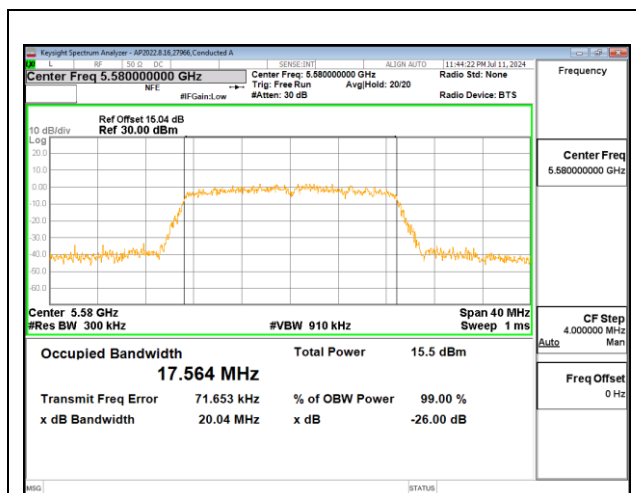
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)	99% Bandwidth Antenna 4 (MHz)
Low	5500	17.594	17.574	17.541	17.600
Mid	5580	17.564	17.499	17.554	17.631
High	5700	17.634	17.591	17.610	17.573

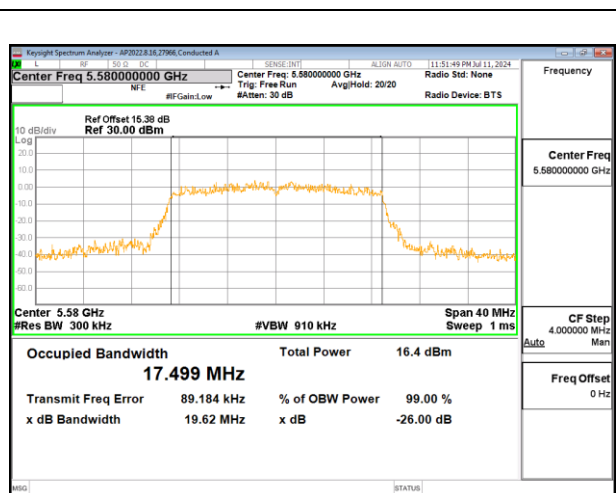
LOW CHANNEL



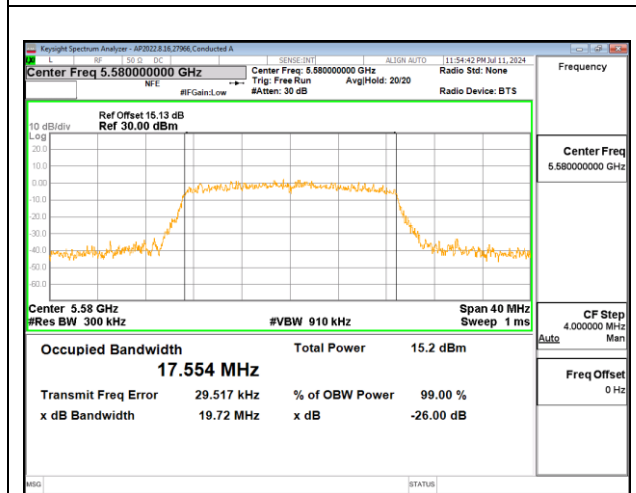
MID CHANNEL



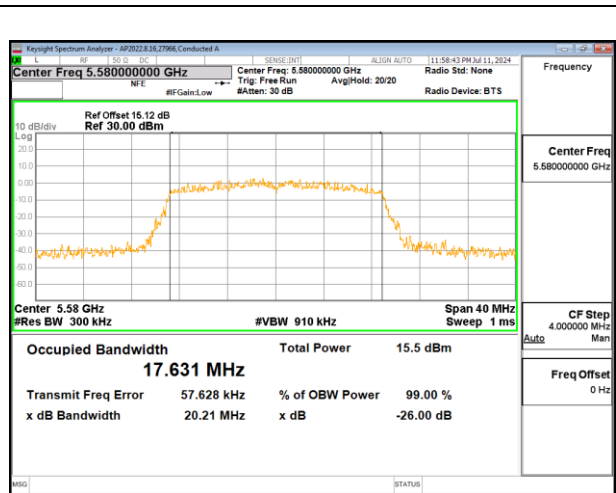
MID CHANNEL ANT 1



MID CHANNEL ANT 2

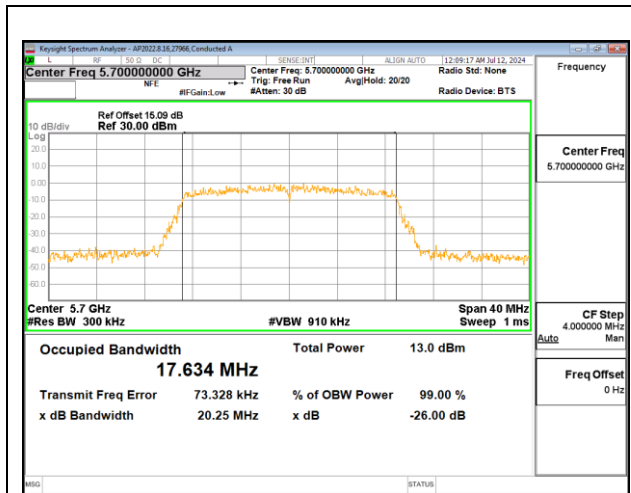


MID CHANNEL ANT 3

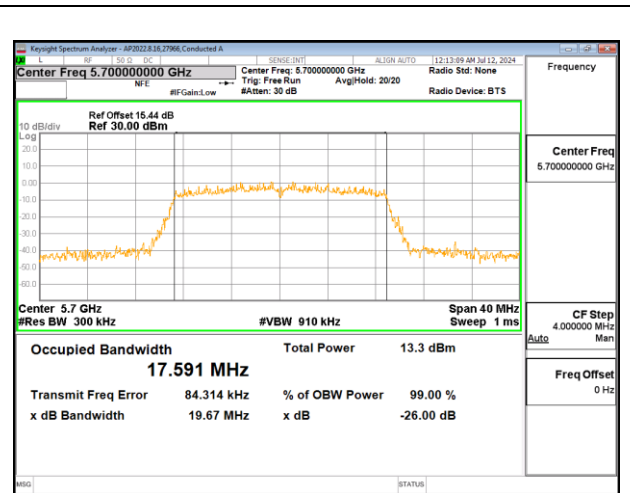


MID CHANNEL ANT 4

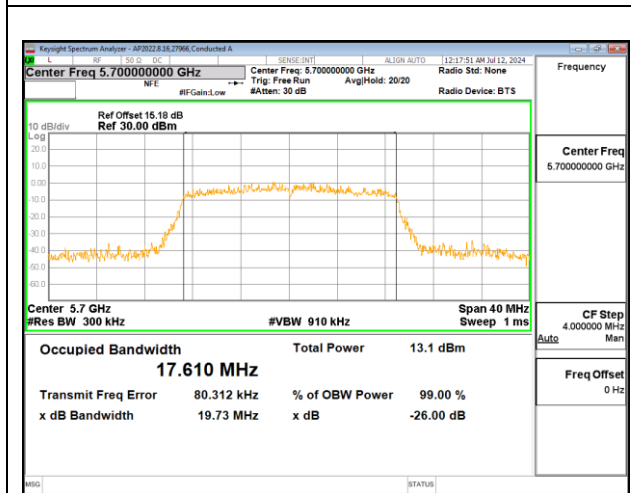
HIGH CHANNEL



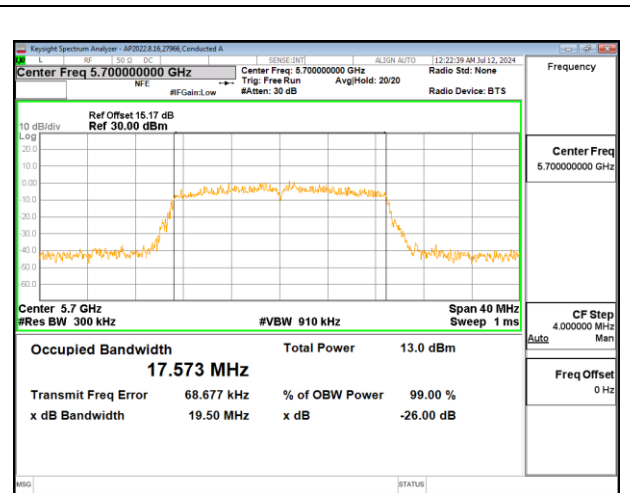
HIGH CHANNEL ANT 1



HIGH CHANNEL ANT 2



HIGH CHANNEL ANT 3



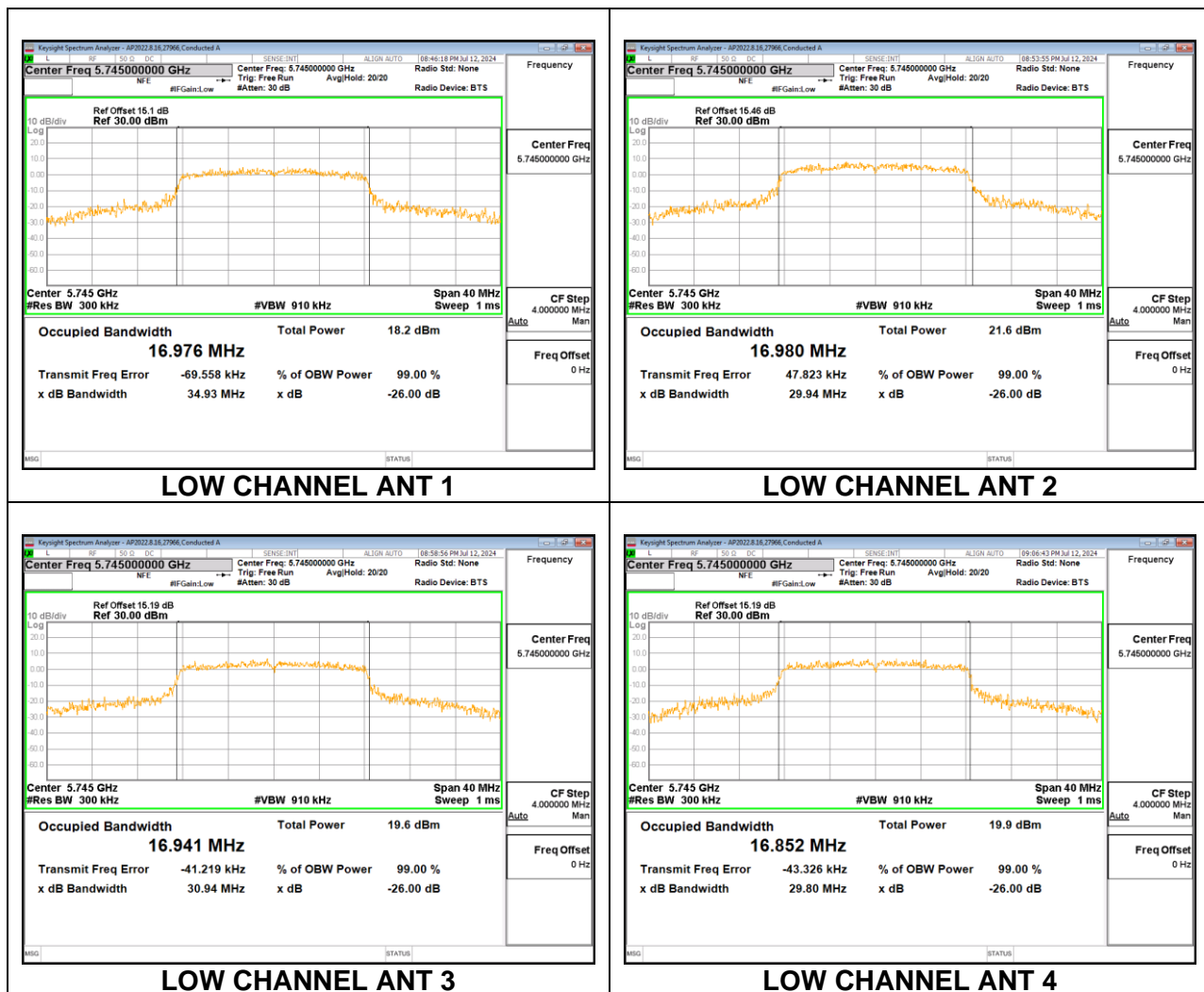
HIGH CHANNEL ANT 4

9.3.7. 802.11a MODE IN THE 5.8 GHz BAND

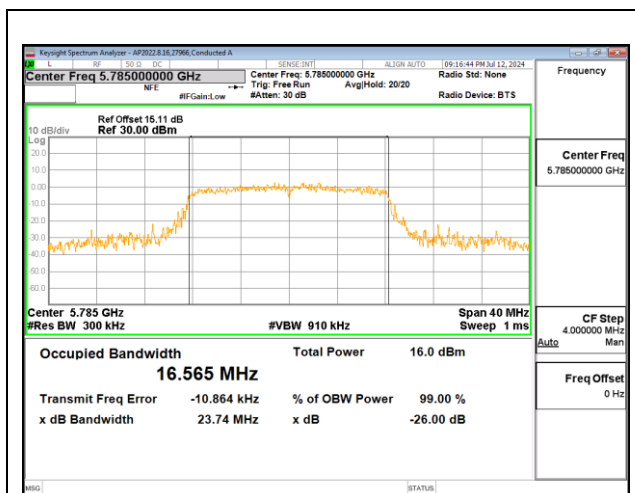
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)	99% Bandwidth Antenna 4 (MHz)
Low	5745	16.976	16.980	16.941	16.852
Mid	5785	16.565	16.514	16.537	16.793
High	5825	16.557	16.802	16.654	16.550

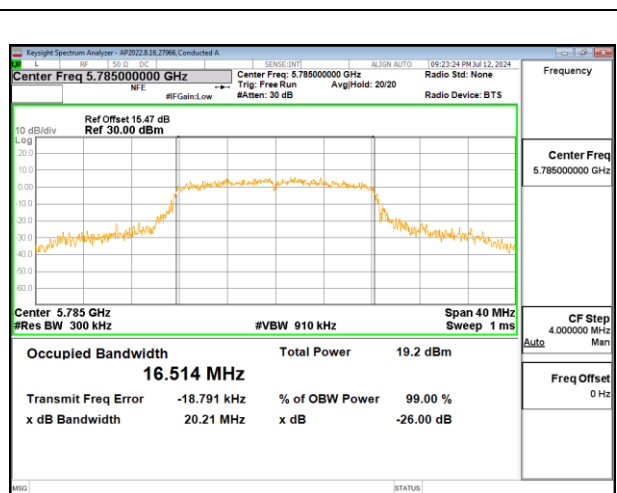
LOW CHANNEL



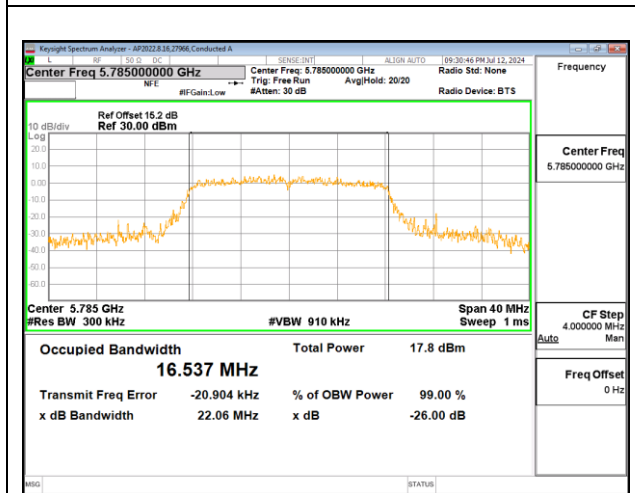
MID CHANNEL



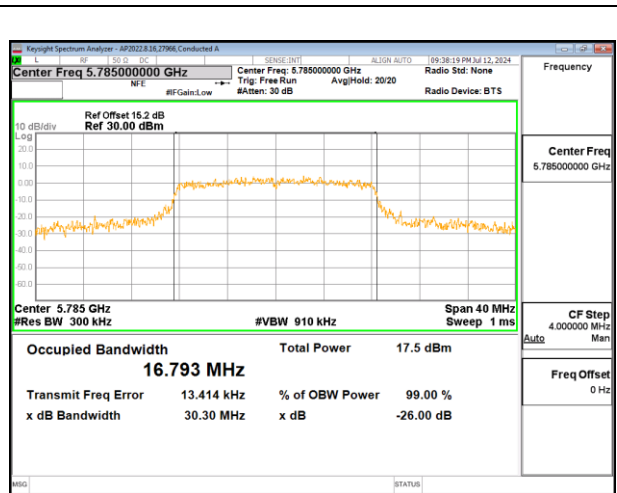
MID CHANNEL ANT 1



MID CHANNEL ANT 2

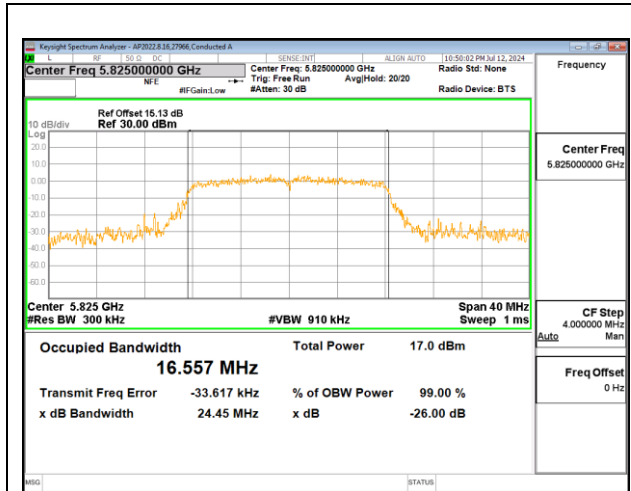


MID CHANNEL ANT 3

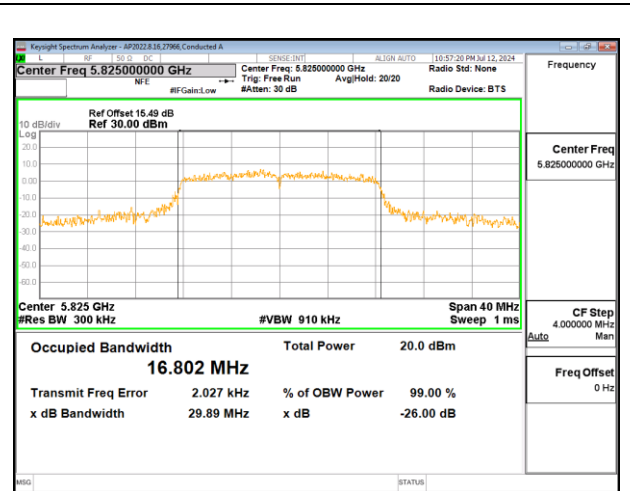


MID CHANNEL ANT 4

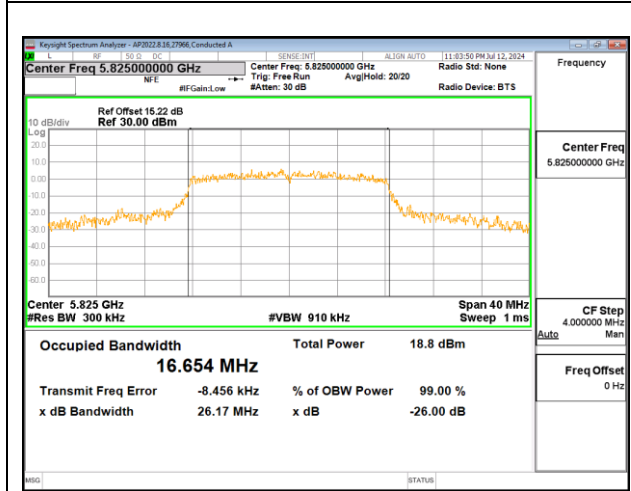
HIGH CHANNEL



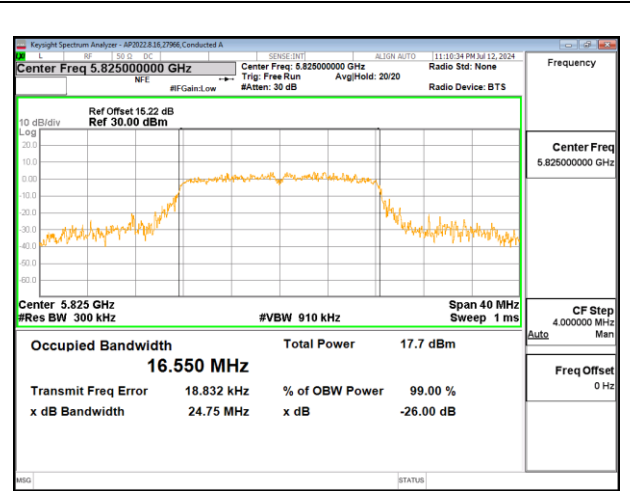
HIGH CHANNEL ANT 1



HIGH CHANNEL ANT 2



HIGH CHANNEL ANT 3



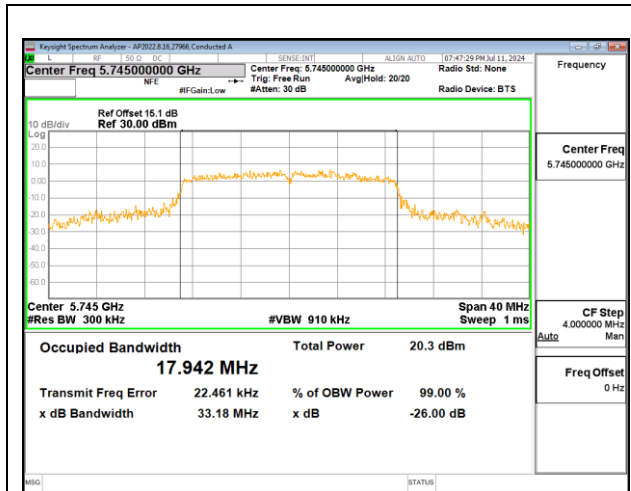
HIGH CHANNEL ANT 4

9.3.8. 802.11n HT20 MODE IN THE 5.8 GHz BAND

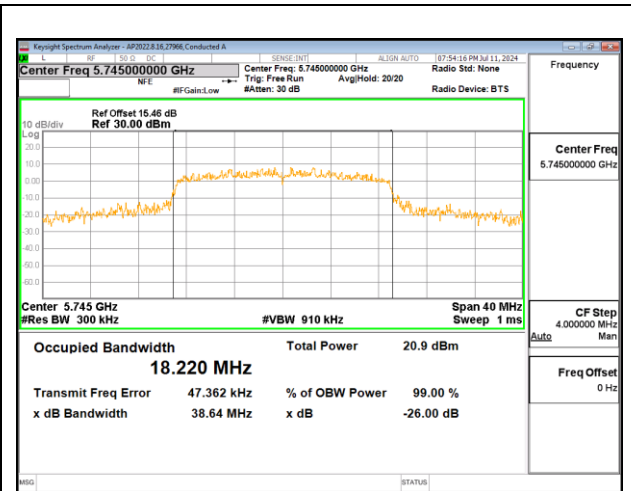
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)	99% Bandwidth Antenna 4 (MHz)
Low	5745	17.942	18.220	17.868	17.850
Mid	5785	17.937	17.944	17.814	18.028
High	5825	17.860	18.063	17.962	17.975

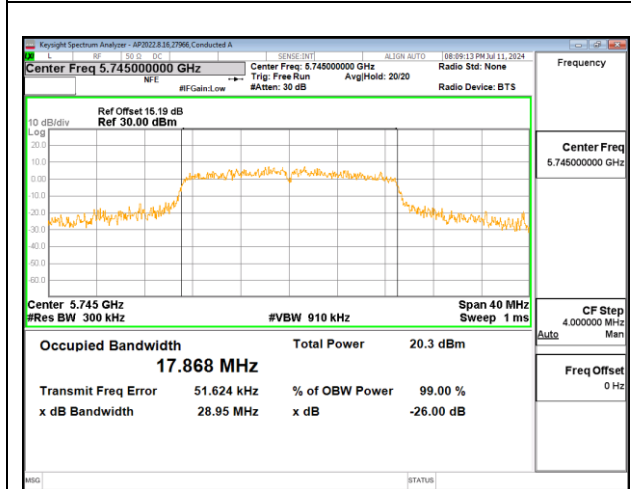
LOW CHANNEL



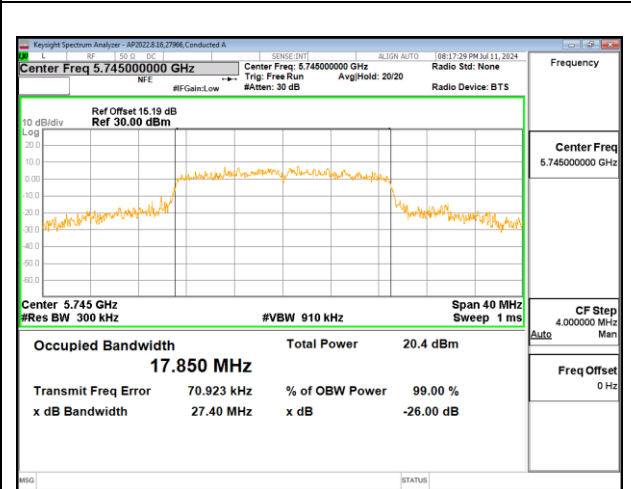
LOW CHANNEL ANT 1



LOW CHANNEL ANT 2

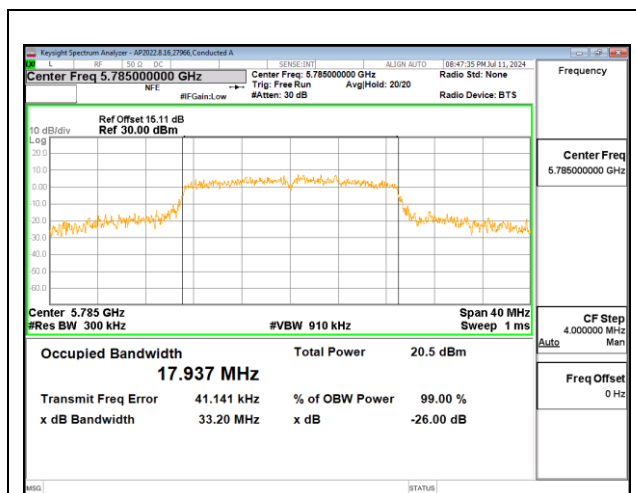


LOW CHANNEL ANT 3

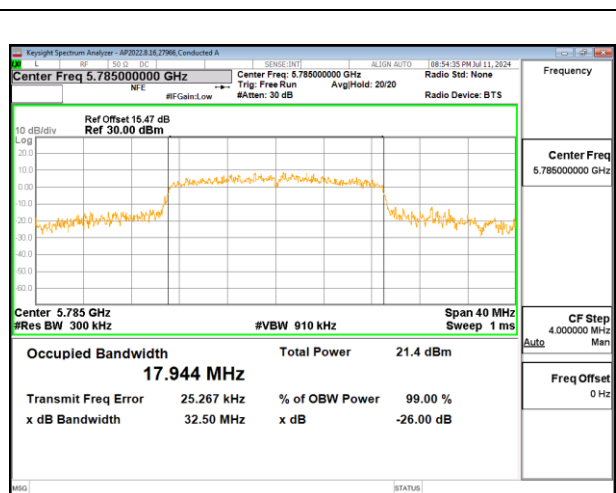


LOW CHANNEL ANT 4

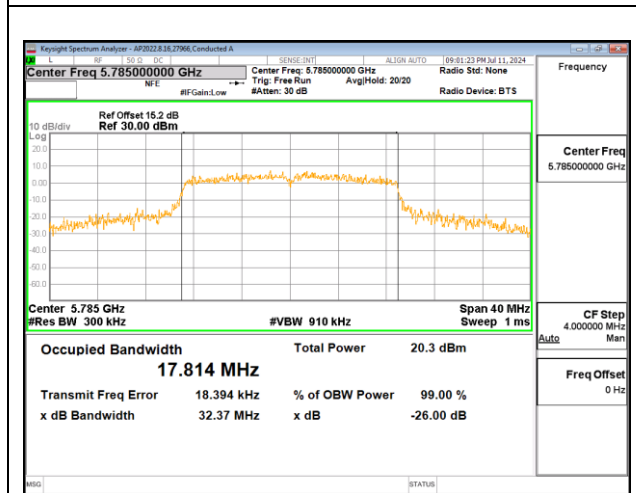
MID CHANNEL



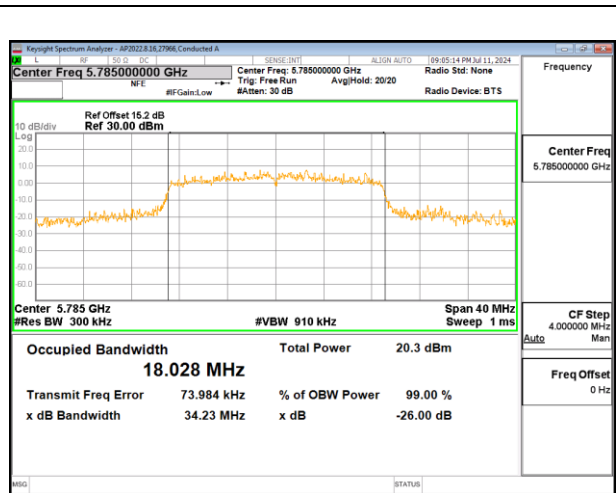
MID CHANNEL ANT 1



MID CHANNEL ANT 2

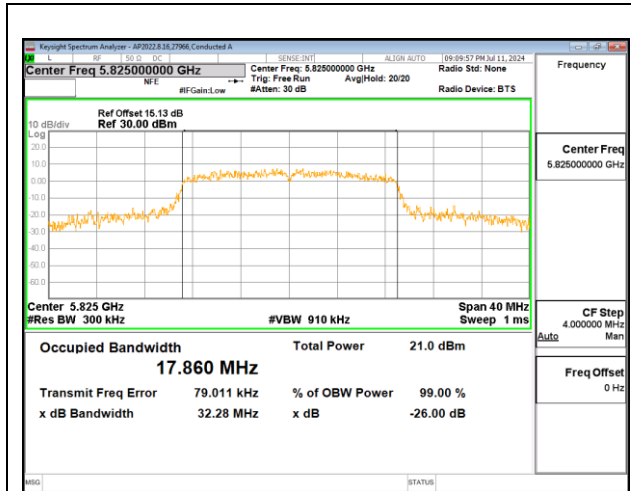


MID CHANNEL ANT 3

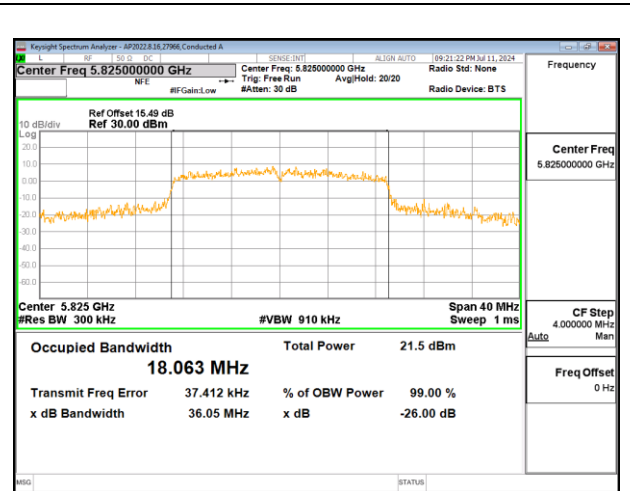


MID CHANNEL ANT 4

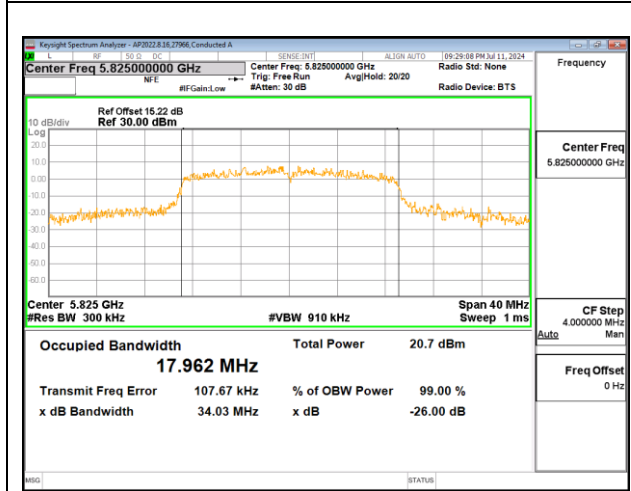
HIGH CHANNEL



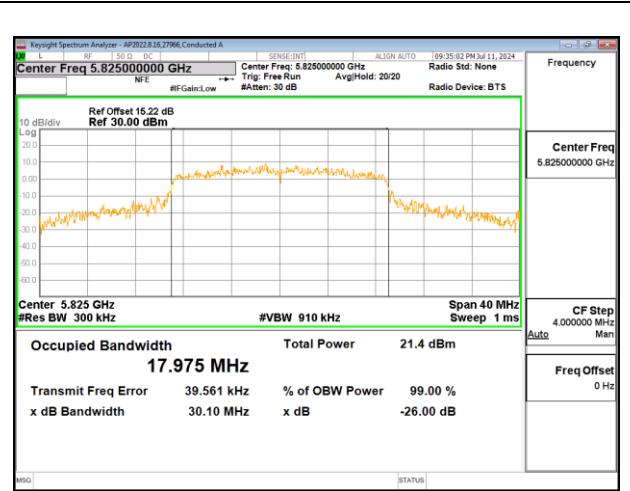
HIGH CHANNEL ANT 1



HIGH CHANNEL ANT 2



HIGH CHANNEL ANT 3



HIGH CHANNEL ANT 4

9.4. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

RSS-247 6.2.4.2

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

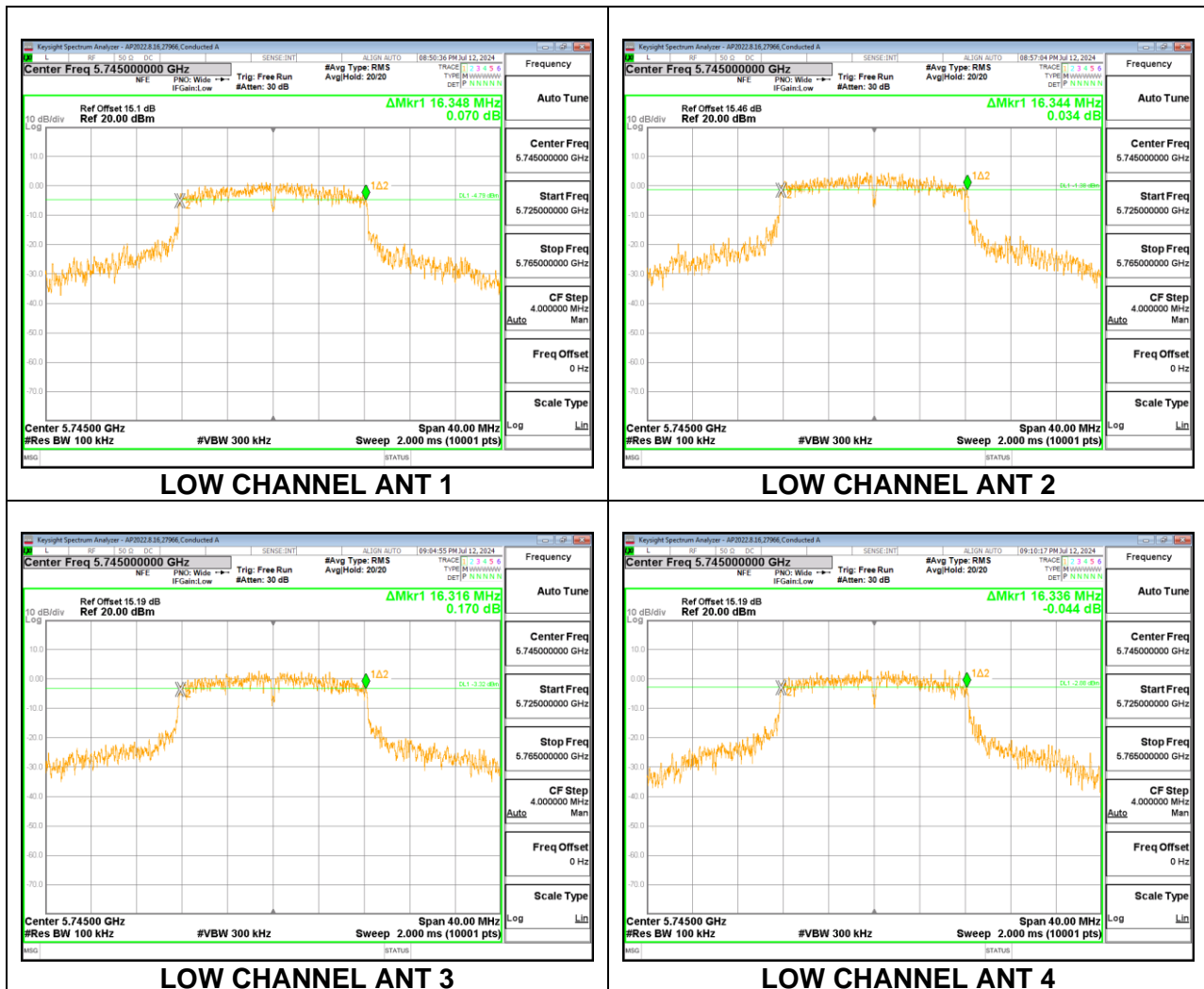
RESULTS

9.4.1. 802.11a MODE IN THE 5.8 GHz BAND

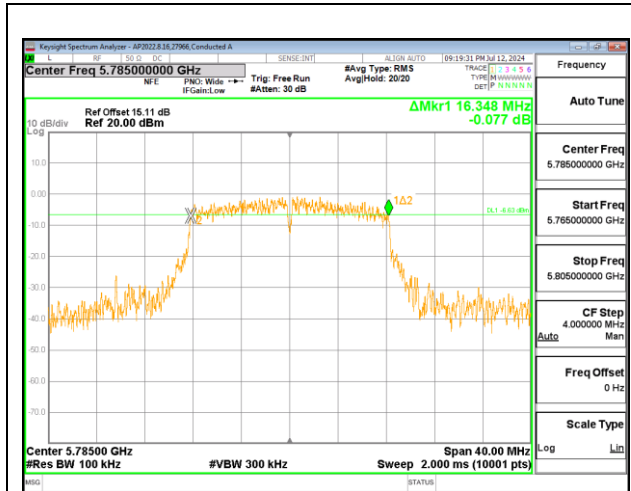
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	6 dB BW Antenna 4 (MHz)	Minimum Limit (MHz)
Low	5745	16.348	16.344	16.316	16.336	0.5
Mid	5785	16.348	16.344	16.320	16.352	0.5
High	5825	16.284	16.328	16.332	16.328	0.5

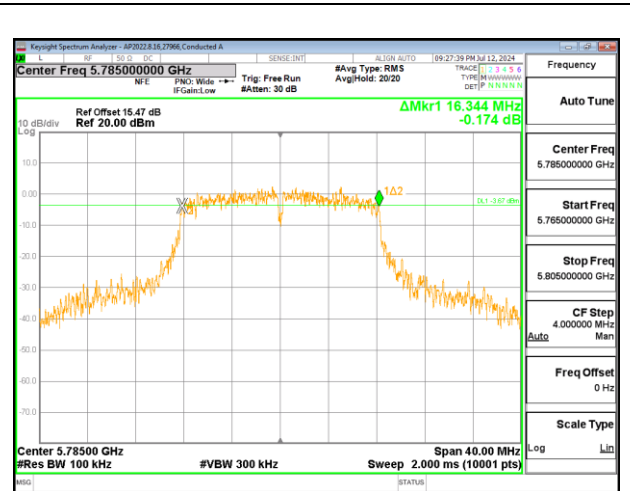
LOW CHANNEL



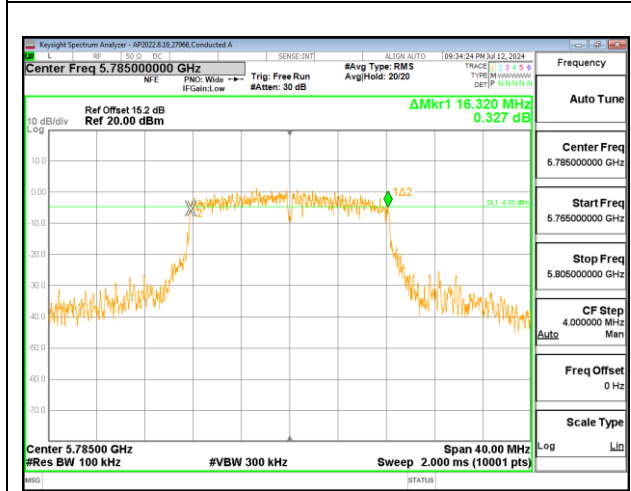
MID CHANNEL



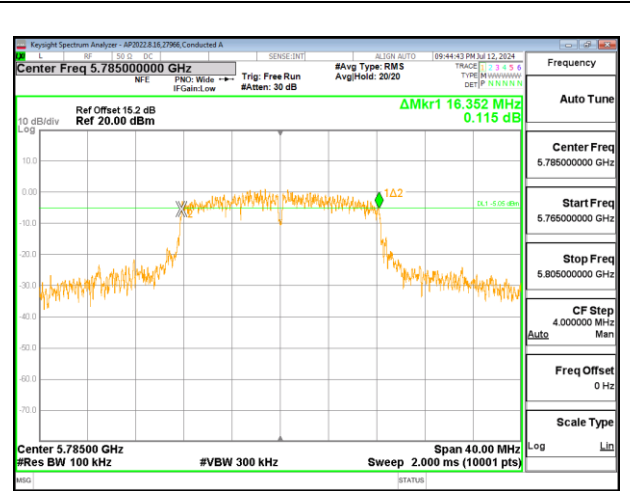
MID CHANNEL ANT 1



MID CHANNEL ANT 2

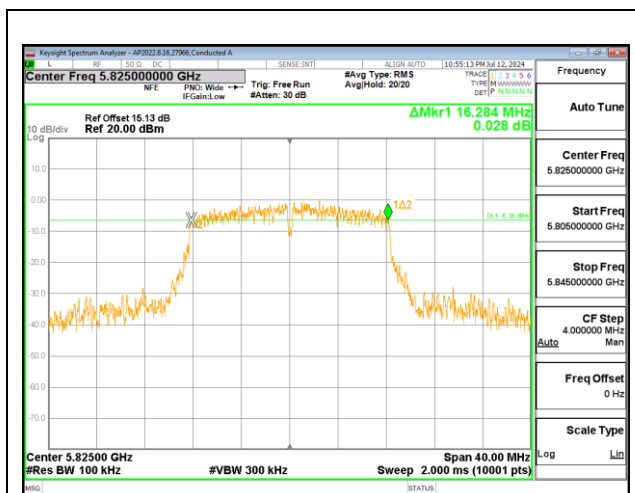


MID CHANNEL ANT 3

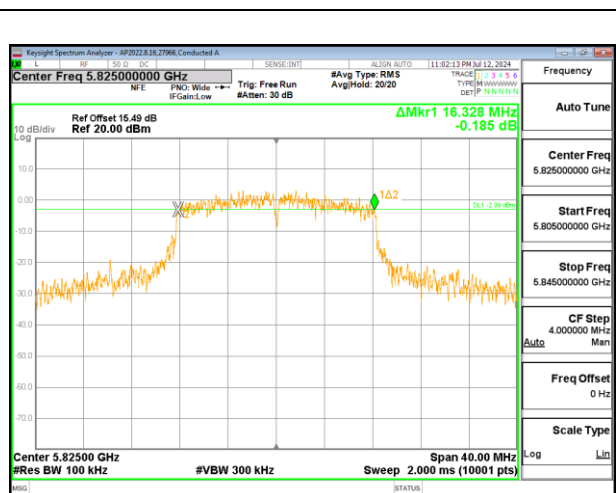


MID CHANNEL ANT 4

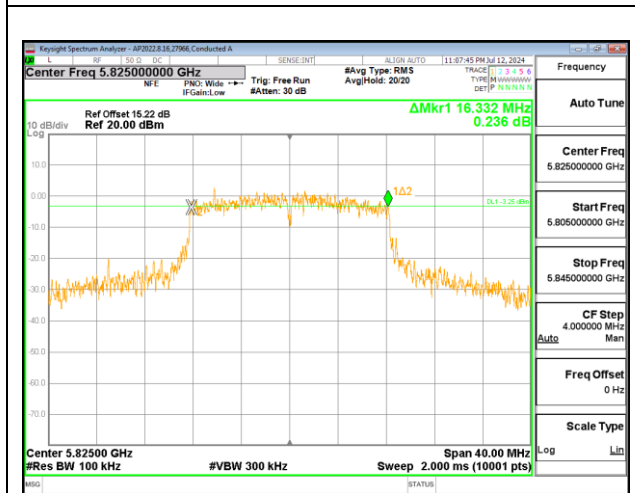
HIGH CHANNEL



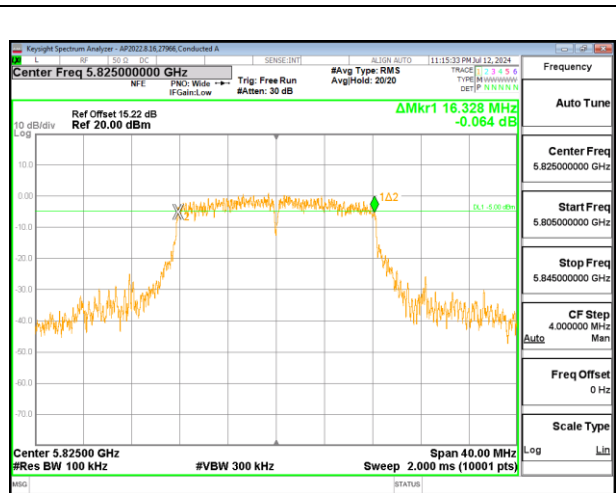
HIGH CHANNEL ANT 1



HIGH CHANNEL ANT 2



HIGH CHANNEL ANT 3



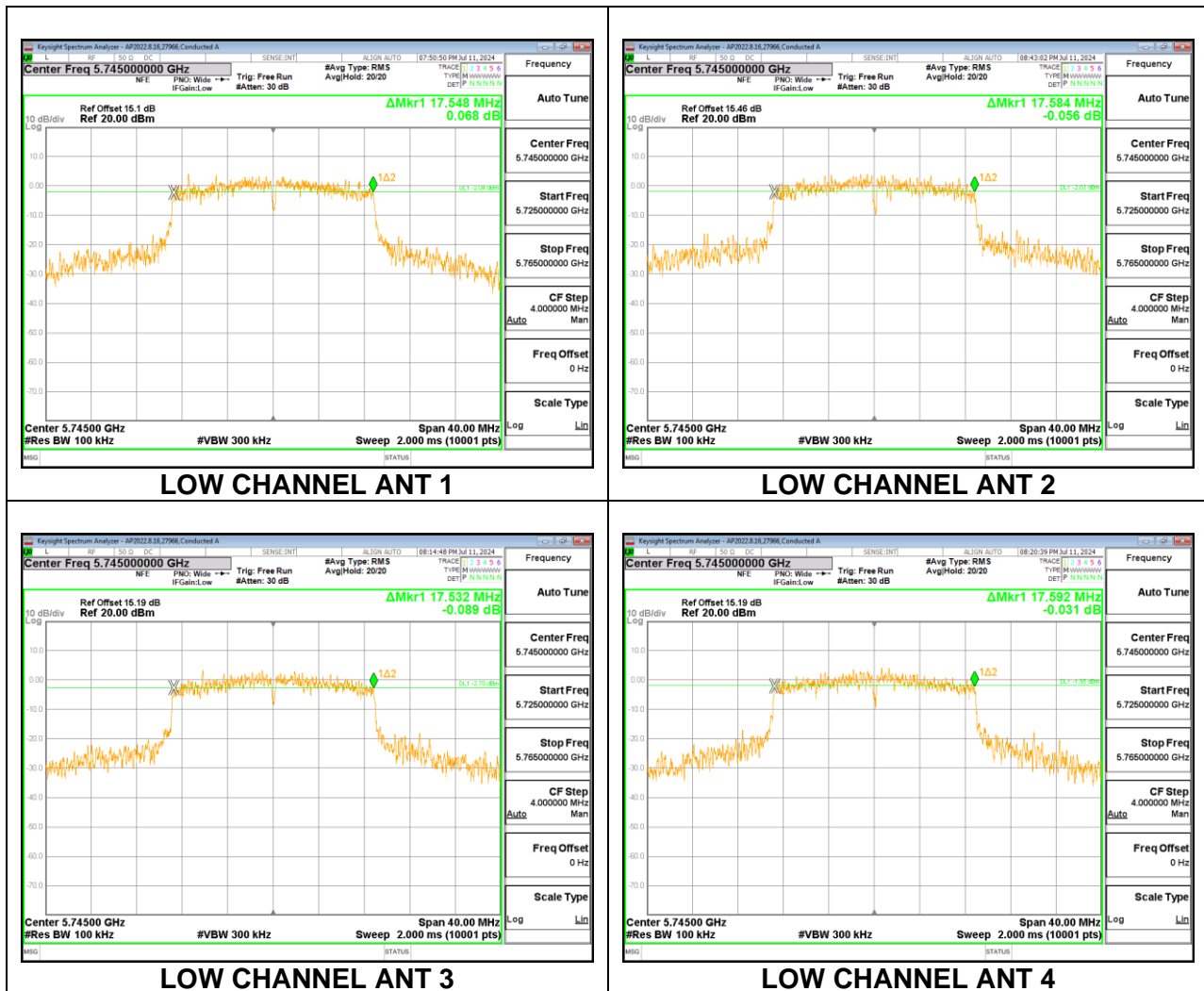
HIGH CHANNEL ANT 4

9.4.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

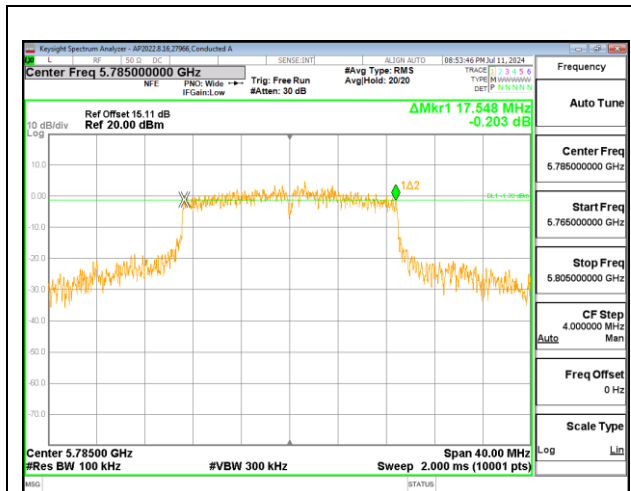
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	6 dB BW Antenna 4 (MHz)	Minimum Limit (MHz)
Low	5745	17.584	17.584	17.532	17.592	0.5
Mid	5785	17.548	17.584	17.568	17.564	0.5
High	5825	17.580	17.544	17.576	17.540	0.5

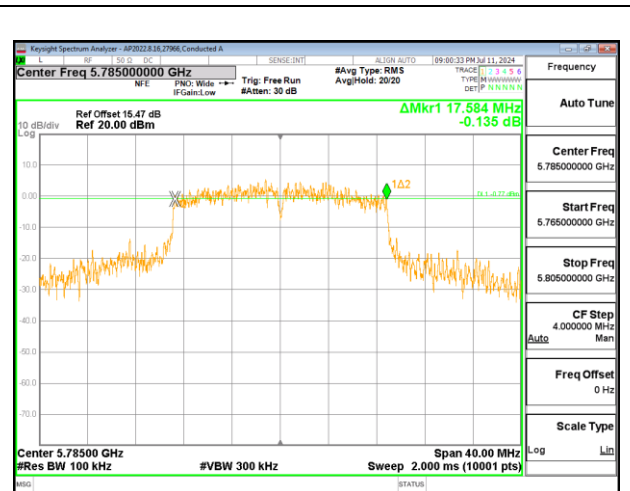
LOW CHANNEL



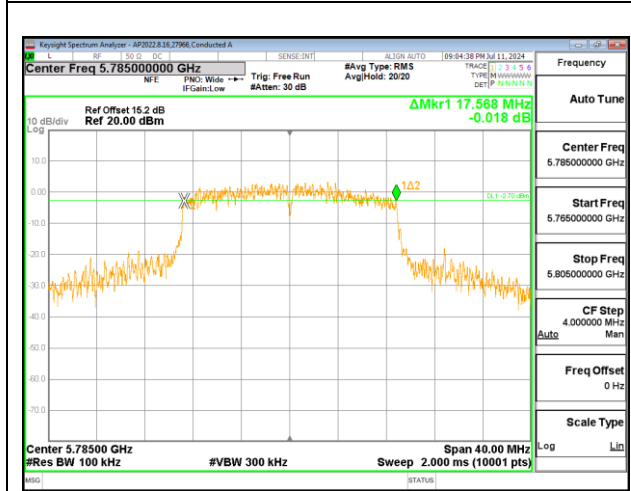
MID CHANNEL



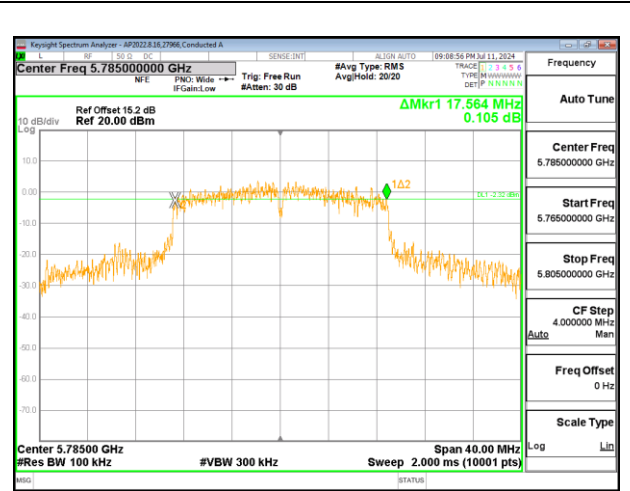
MID CHANNEL ANT 1



MID CHANNEL ANT 2

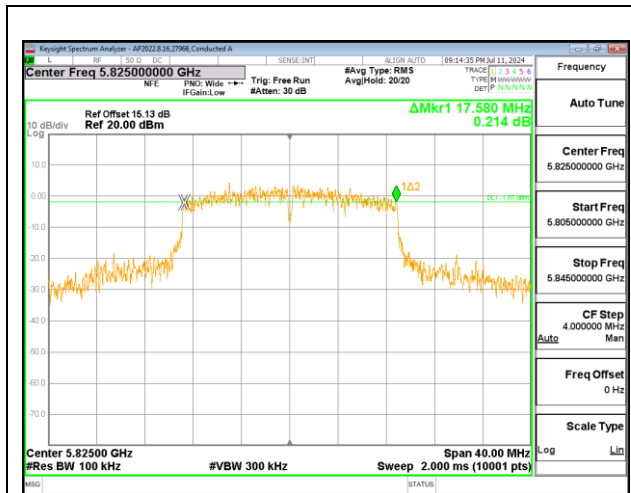


MID CHANNEL ANT 3

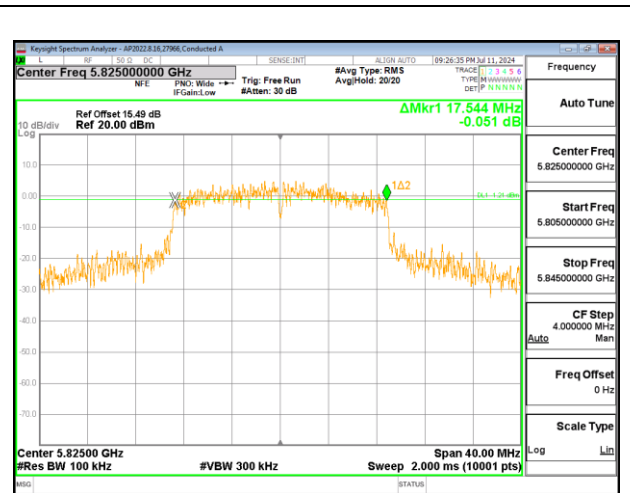


MID CHANNEL ANT 4

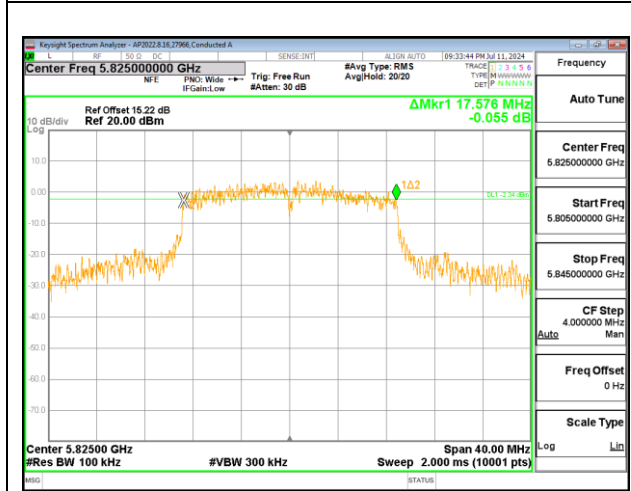
HIGH CHANNEL



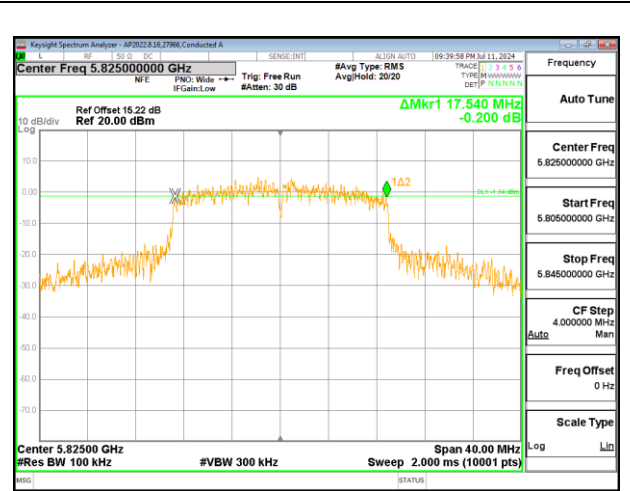
HIGH CHANNEL ANT 1



HIGH CHANNEL ANT 2



HIGH CHANNEL ANT 3



HIGH CHANNEL ANT 4

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

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

DIRECTIONAL ANTENNA GAIN

Tx chains are uncorrelated for power and correlated for PSD due to the device supporting CDD in all MIMO modes. For directional gains see section 6.3.

RESULTS

9.5.1. 802.11a MODE IN THE 5.2 GHz BAND

4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE (FCC) MOBILE

Test Engineer:	ZS 16080
Test Date:	2024/07/11

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	1.60	5.00	24.00	11.00
Mid	5200	1.60	5.00	24.00	11.00
High	5240	1.60	5.00	24.00	11.00

Duty Cycle CF (dB)	1.17	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)	Antenna 3 Meas Power (dBm)	Antenna 4 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	10.59	11.02	11.08	11.12	16.98	24.00	-7.02
Mid	5200	10.03	11.52	11.15	11.12	17.01	24.00	-6.99
High	5240	11.03	11.02	11.25	10.44	16.97	24.00	-7.03

PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Antenna 3 Meas PSD (dBm/1MHz)	Antenna 4 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	-1.570	-0.368	-2.691	-0.984	5.87	11.00	-5.13
Mid	5200	-1.214	-0.510	-2.503	-0.154	6.18	11.00	-4.82
High	5240	-0.514	-0.578	-2.942	-0.780	6.09	11.00	-4.91