

Detector = Peak.

Sweep time = auto.

Trace mode = max hold.

Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 percent duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of $1/x$, where x is the duty cycle. For example, use at least 200 traces if the duty cycle is 25 percent. (If a specific emission is demonstrated to be continuous—i.e., 100 percent duty cycle—rather than turning on and off with the transmit cycle, at least 50 traces shall be averaged.)

■ Band edge measurements.

Unwanted band-edge emissions may be measured using either of the special band-edge measurement techniques (the marker-delta or integration methods) described below. Note that the marker-delta method is primarily a radiated measurement technique that requires the 99% occupied bandwidth edge to be within 2 MHz of the authorized band edge, whereas the integration method can be used in either a radiated or conducted measurement without any special requirement with regards to the displacement of the unwanted emission(s) relative to the authorized bandwidth.

Marker-Delta Method.

The marker-delta method, as described in ANSI C63.10, can be used to perform measurements of the radiated unwanted emissions level of emissions provided that the 99% occupied bandwidth of the fundamental is within 2 MHz of the authorized band-edge.

8.5.5 Test Results

The voltage AC 120V & 240V and the modes 802.11a/n/ac has been tested and the worst result recorded as below

- ☒ For Undesirable radiated Spurious Emission in U-NII – 1
All the modes 802.11a/n/ac has been tested and the worst result 802.11a recorded as below:
: ☒ Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

Test mode: 802.11a Frequency(MHz): 5180 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
8899.92	V	56.06	-39.17	-27	-12.17
12550.89	V	53.91	-41.32	-27	-14.32
15698.02	V	49.54	-45.69	-27	-18.69
8842.55	H	56.76	-38.47	-27	-11.47
11764.66	H	50.12	-45.11	-27	-18.11
15457.28	H	47.69	-47.54	-27	-20.54

Test mode: 802.11a Frequency(MHz): 5200 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
8991.49	V	55.27	-39.96	-27	-12.96
12265.65	V	51.68	-43.55	-27	-16.55
16750.33	V	48.29	-46.94	-27	-19.94
8416.46	H	57.21	-38.02	-27	-11.02
12463.23	H	50.14	-45.09	-27	-18.09
15899.03	H	48.07	-47.16	-27	-20.16

Test mode: 802.11a Frequency(MHz): 5240 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
8892.39	V	55.69	-39.54	-27	-12.54
12044.58	V	53.11	-42.12	-27	-15.12
15436.10	V	47.43	-47.8	-27	-20.8
8952.45	H	55.13	-40.1	-27	-13.1
13050.66	H	50.66	-44.57	-27	-17.57
15961.73	H	47.34	-47.89	-27	-20.89

Note: (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

Test mode: 802.11a Frequency(MHz): 5180 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
8899.92	V	56.06	43.04	74.00	54.00	-17.94	-10.96
12550.89	V	53.91	39.58	74.00	54.00	-20.09	-14.42
15698.02	V	49.54	37.31	74.00	54.00	-24.46	-16.69
8842.55	H	56.76	42.13	74.00	54.00	-17.24	-11.87
11764.66	H	50.12	38.12	74.00	54.00	-23.88	-15.88
15457.28	H	47.69	36.19	74.00	54.00	-26.31	-17.81

Test mode: 802.11a Frequency(MHz): 5200 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
8991.49	V	55.27	42.23	74.00	54.00	-18.73	-11.77
12265.65	V	51.68	39.98	74.00	54.00	-22.32	-14.02
16750.33	V	48.29	36.62	74.00	54.00	-25.71	-17.38
8416.46	H	57.21	43.40	74.00	54.00	-16.79	-10.60
12463.23	H	50.14	40.71	74.00	54.00	-23.86	-13.29
15899.03	H	48.07	37.53	74.00	54.00	-25.93	-16.47

Test mode: 802.11a Frequency(MHz): 5240 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
8892.39	V	55.69	43.12	74.00	54.00	-18.31	-10.88
12044.58	V	53.11	39.16	74.00	54.00	-20.89	-14.84
15436.10	V	47.43	36.91	74.00	54.00	-26.57	-17.09
8952.45	H	55.13	42.35	74.00	54.00	-18.87	-11.65
13050.66	H	50.66	38.59	74.00	54.00	-23.34	-15.41
15961.73	H	47.34	37.77	74.00	54.00	-26.66	-16.23

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Correct Factor.
(3) Correct Factor= Ant_F + Cab_L - Preamp
(4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

● ☒ Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

Test mode:	802.11a	Frequency(MHz):	5180
Test By:	ZXW	Test date:	June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5127.25	H	51.49	-43.74	-27	Pass
5141.55	V	52.09	-43.14	-27	Pass

Test mode:	802.11a	Frequency(MHz):	5240
Test By:	ZXW	Test date:	June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5352.86	H	51.52	-43.71	-27	Pass
5351.21	V	52.08	-43.15	-27	Pass

Note: (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 (3) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77
 d is the measurement distance in 3 meters

Test mode:	802.11a	Frequency(MHz):	5180
Test By:	ZXW	Test date:	June 11 2021

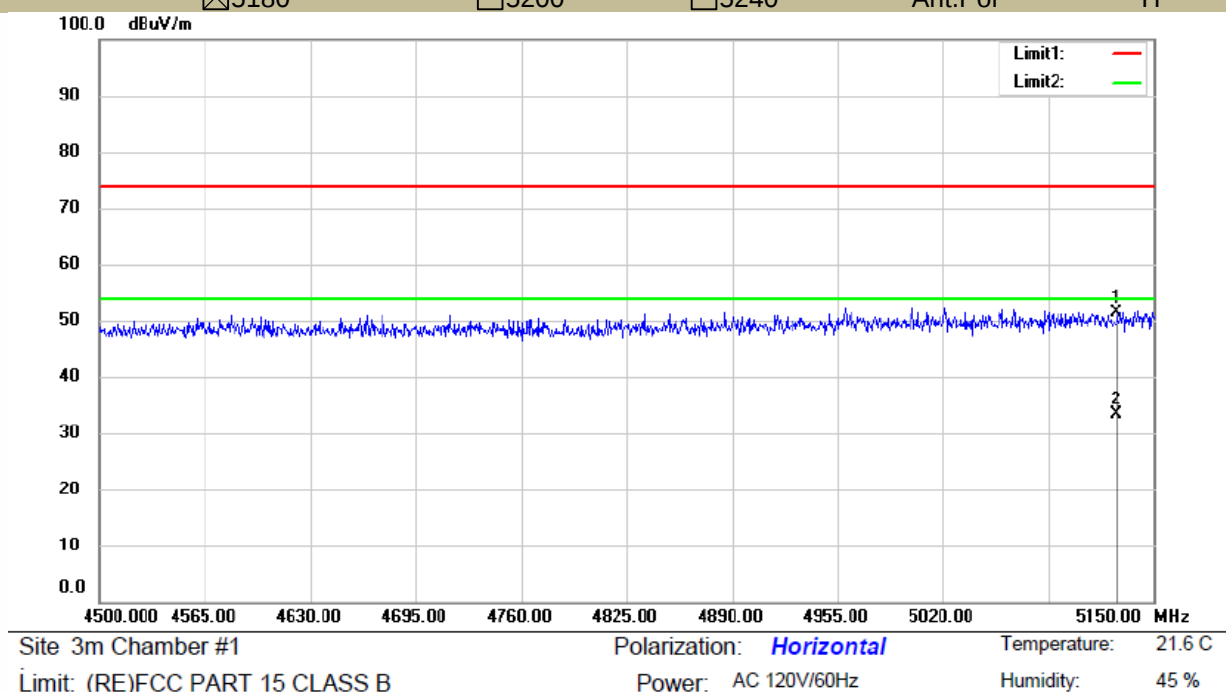
Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5127.25	H	51.49	74	33.49	54
5141.55	V	52.09	74	34.09	54

Test mode:	802.11a	Frequency(MHz):	5240
Test By:	ZXW	Test date:	June 11 2021

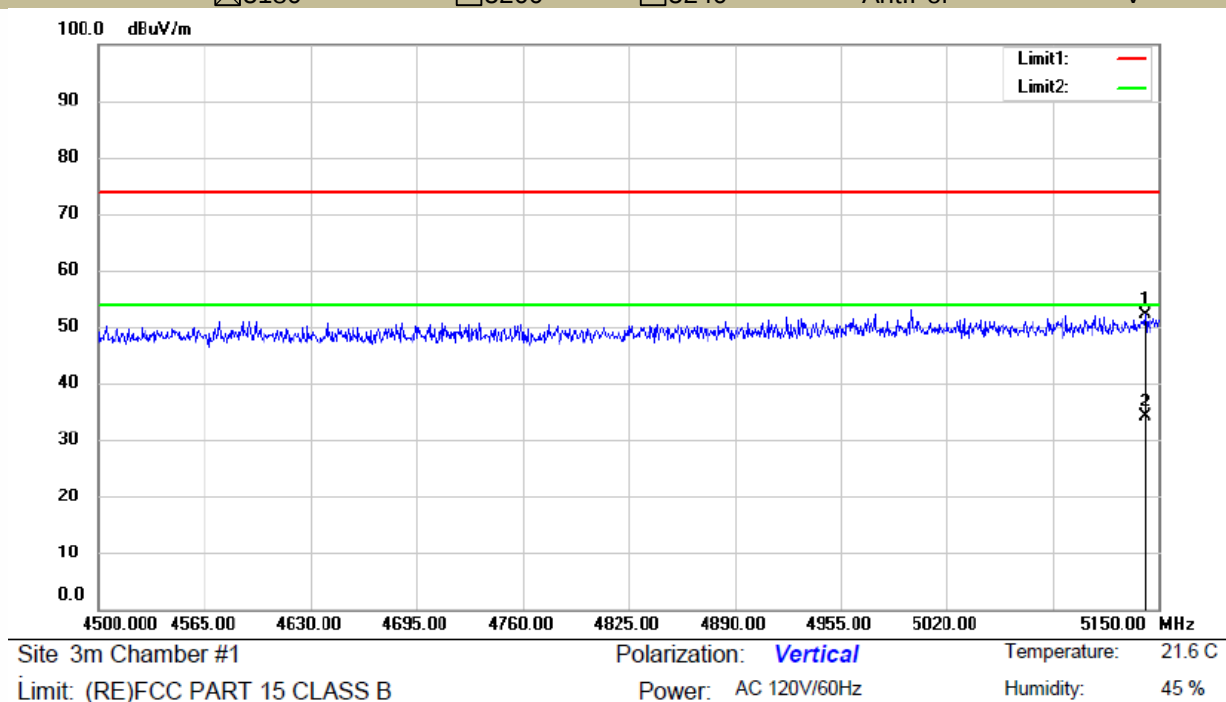
Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5352.86	H	51.52	74	33.52	54
5351.21	V	52.08	74	34.08	54

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Correct Factor.
 (3) Correct Factor= Ant_F + Cab_L - Preamp
 (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

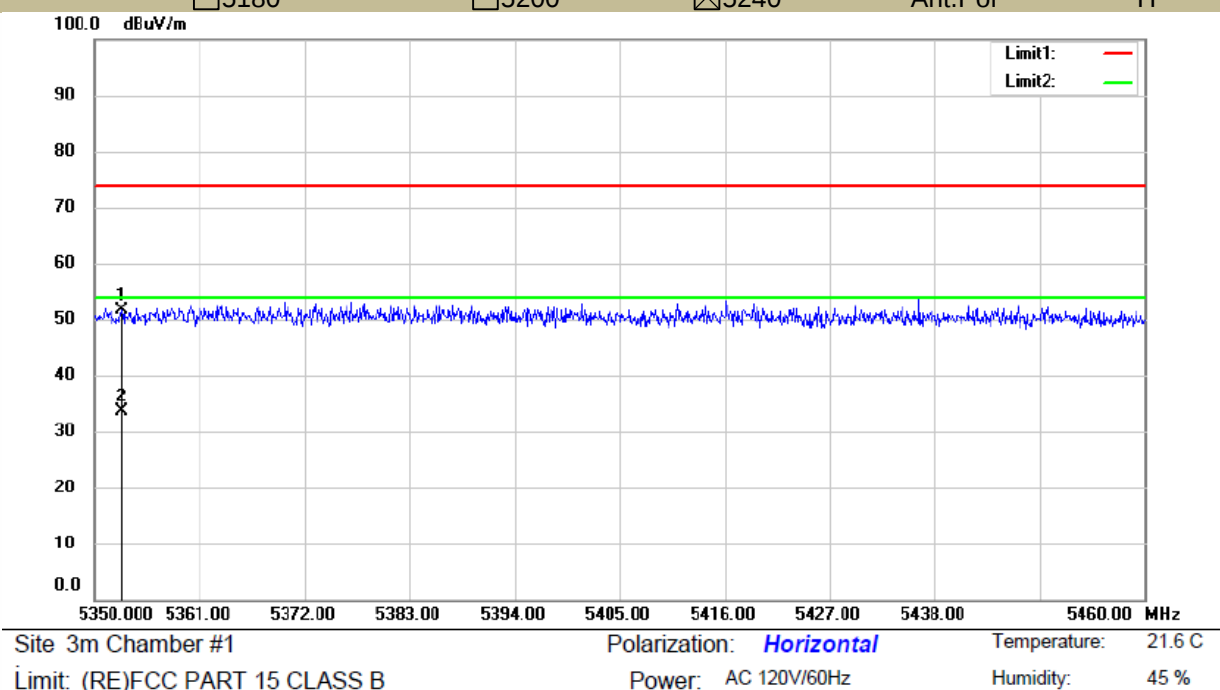
U-NII - 1			
Test Model	Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)		
	☒ 802.11a	☐ 802.11n(HT20)	☐ 802.11n(HT40)
	☒ 5180	☐ 5200	☐ 5240
	Ant.Pol		H



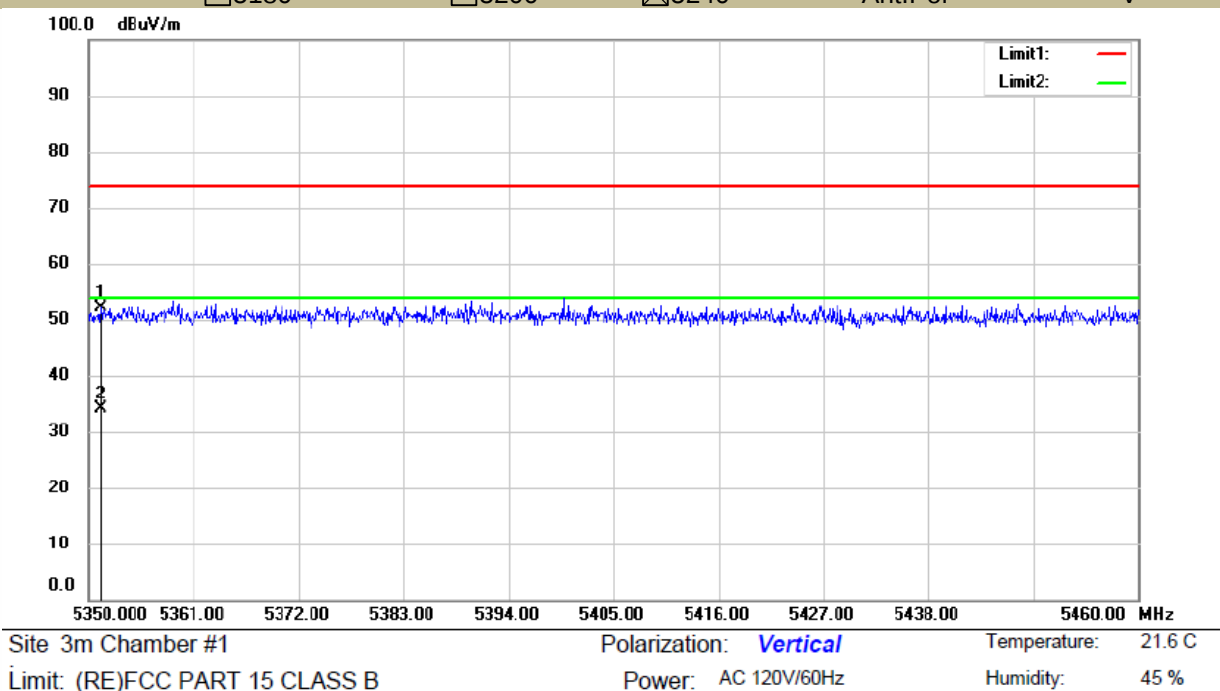
U-NII - 1			
Test Model	Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)		
	☒ 802.11a	☐ 802.11n(HT20)	☐ 802.11n(HT40)
	☒ 5180	☐ 5200	☐ 5240
	Ant.Pol		V



U-NII - 1			
Test Model	Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)		
	☒ 802.11a	☐ 802.11n(HT20)	☐ 802.11n(HT40)
	☐ 5180	☐ 5200	☒ 5240
	Ant.Pol		H



U-NII - 1			
Test Model	Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)		
	☒ 802.11a	☐ 802.11n(HT20)	☐ 802.11n(HT40)
	☐ 5180	☐ 5200	☒ 5240
	Ant.Pol		V



- ☒ For Undesirable radiated Spurious Emission in U-NII -2A
 All the modes 802.11a/n/ac has been tested and the worst result 802.11a recorded as below:
 : ☒ Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

Test mode: 802.11a Frequency(MHz): 5260 MHz
 Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
8792.27	V	57.88	-37.35	-27	-10.35
11546.83	V	52.23	-43.00	-27	-16
15596.92	V	49.97	-45.26	-27	-18.26
8432.09	H	57.79	-37.44	-27	-10.44
12602.25	H	50.86	-44.37	-27	-17.37
15452.57	H	50.39	-44.84	-27	-17.84

Test mode: 802.11a Frequency(MHz): 5280 MHz
 Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
9036.79	V	56.18	-39.05	-27	-12.05
12113.12	V	50.89	-44.34	-27	-17.34
15512.16	V	49.72	-45.51	-27	-18.51
8517.21	H	57.23	-38.00	-27	-11
11601.37	H	51.39	-43.84	-27	-16.84
15843.11	H	47.02	-48.21	-27	-21.21

Test mode: 802.11a Frequency(MHz): 5320 MHz
 Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
8721.58	V	58.02	-37.21	-27	-10.21
12868.96	V	52.12	-43.11	-27	-16.11
15619.53	V	49.27	-45.96	-27	-18.96
8501.66	H	56.08	-39.15	-27	-12.15
11778.68	H	50.75	-44.48	-27	-17.48
15724.17	H	48.24	-46.99	-27	-19.99

Note: (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 (3) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77
 d is the measurement distance in 3 meters

Test mode: 802.11a Frequency(MHz): 5260 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
8792.27	V	57.88	42.19	74.00	54.00	-16.12	-11.81
11546.83	V	52.23	39.40	74.00	54.00	-21.77	-14.60
15596.92	V	49.97	37.98	74.00	54.00	-24.03	-16.02
8432.09	H	57.79	41.61	74.00	54.00	-16.21	-12.39
12602.25	H	50.86	40.97	74.00	54.00	-23.14	-13.03
15452.57	H	50.39	37.40	74.00	54.00	-23.61	-16.60

Test mode: 802.11a Frequency(MHz): 5280 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
9036.79	V	56.18	43.25	74.00	54.00	-17.82	-10.75
12113.12	V	50.89	38.99	74.00	54.00	-23.11	-15.01
15512.16	V	49.72	36.52	74.00	54.00	-24.28	-17.48
8517.21	H	57.23	43.98	74.00	54.00	-16.77	-10.02
11601.37	H	51.39	38.00	74.00	54.00	-22.61	-16.00
15843.11	H	47.02	37.04	74.00	54.00	-26.98	-16.96

Test mode: 802.11a Frequency(MHz): 5320 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
8721.58	V	58.02	42.63	74.00	54.00	-15.98	-11.37
12868.96	V	52.12	39.06	74.00	54.00	-21.88	-14.94
15619.53	V	49.27	37.65	74.00	54.00	-24.73	-16.35
8501.66	H	56.08	41.28	74.00	54.00	-17.92	-12.72
11778.68	H	50.75	40.10	74.00	54.00	-23.25	-13.90
15724.17	H	48.24	36.41	74.00	54.00	-25.76	-17.59

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Correct Factor.
(3) Correct Factor= Ant_F + Cab_L - Preamp
(4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

● ☒ Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

Test mode: 802.11a Frequency(MHz): 5260 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5133.10	H	52.83	-42.40	-27	Pass
5132.45	V	53.06	-42.17	-27	Pass

Test mode: 802.11a Frequency(MHz): 5320 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5353.19	H	52.25	-42.98	-27	Pass
5353.08	V	53.03	-42.20	-27	Pass

Note: (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

Test mode: 802.11a Frequency(MHz): 5260 MHz
Test By: ZXW Test date: June 11 2021

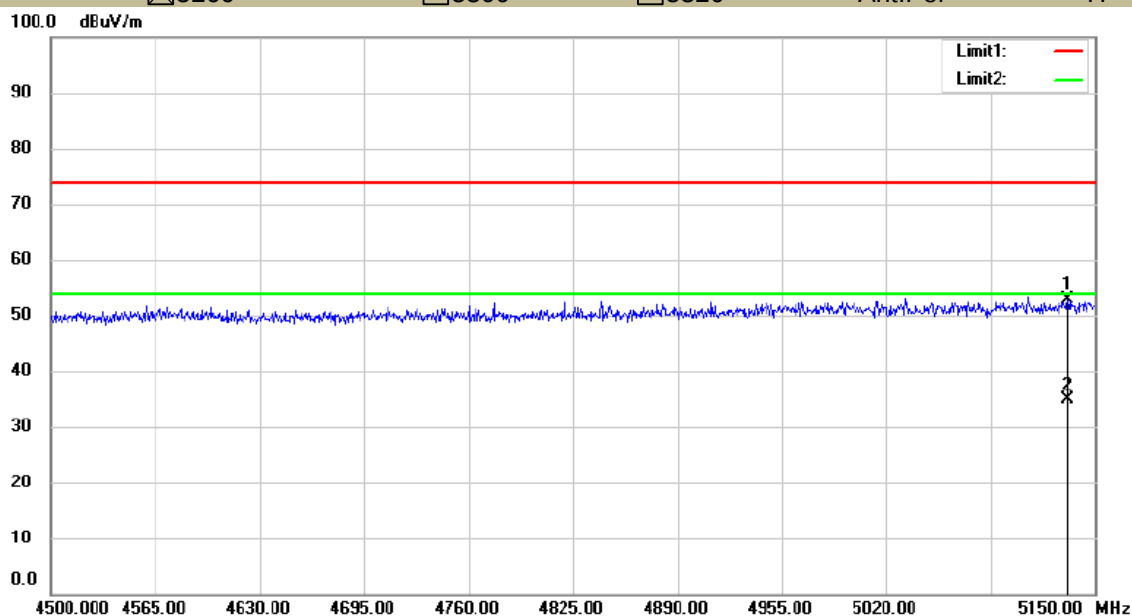
Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5133.10	H	52.83	74	34.83	54
5132.45	V	53.06	74	35.06	54

Test mode: 802.11a Frequency(MHz): 5320 MHz
Test By: ZXW Test date: June 11 2021

Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5353.19	H	52.25	74	34.25	54
5353.08	V	53.03	74	35.03	54

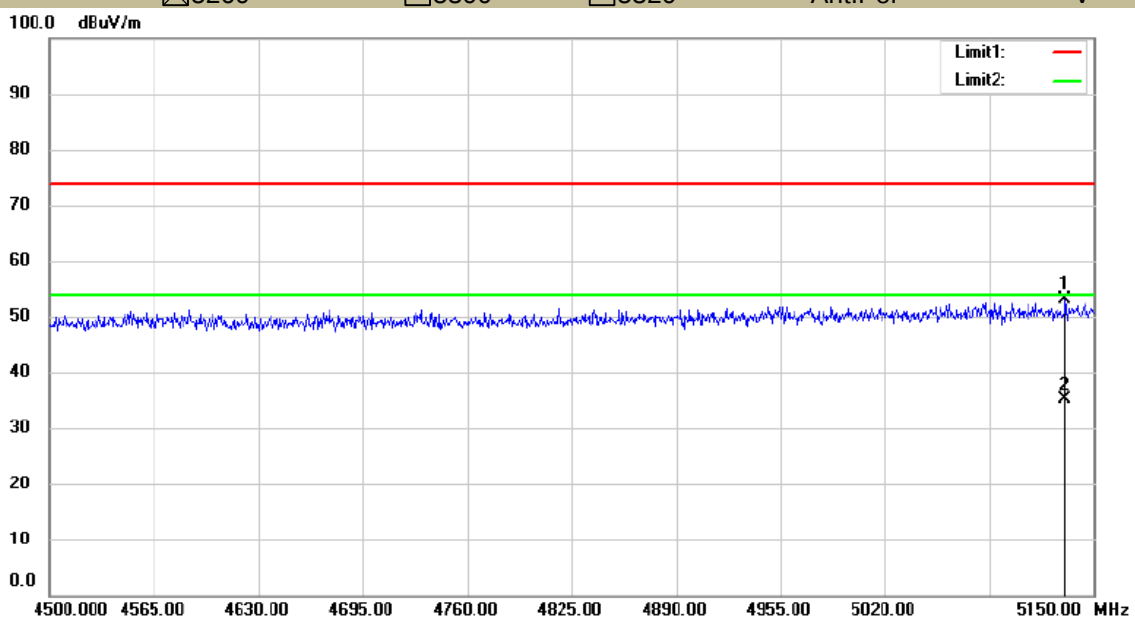
Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Correct Factor.
(3) Correct Factor= Ant_F + Cab_L - Preamp
(4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

U-NII -2A					
Test Model	Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)				
	☒ 802.11a	☐ 802.11n(HT20)	☐ 802.11 ac (VHT20)		
	☒ 5260	☐ 5300	☐ 5320	Ant.Pol	H



Site 3m Chamber #1 Polarization: **Horizontal** Temperature: 21.6 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 45 %

U-NII -2A					
Test Model	Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)				
	☒ 802.11a	☐ 802.11n(HT20)	☐ 802.11 ac (VHT20)		
	☒ 5260	☐ 5300	☐ 5320	Ant.Pol	V



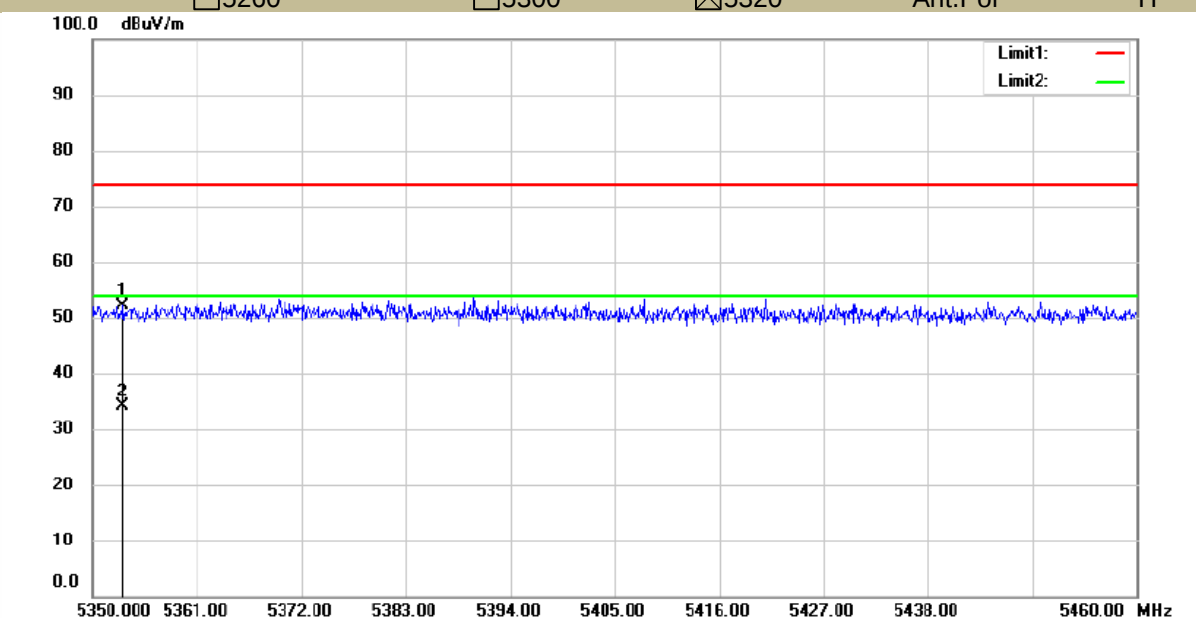
Site 3m Chamber #1 Polarization: **Vertical** Temperature: 21.6 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 45 %

U-NII -2A

Test Model Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)

☐ 5260 ☒ 802.11a ☐ 802.11n(HT20) ☐ 802.11 ac (VHT20)

☐ 5300 ☒ 5320 Ant.Pol H



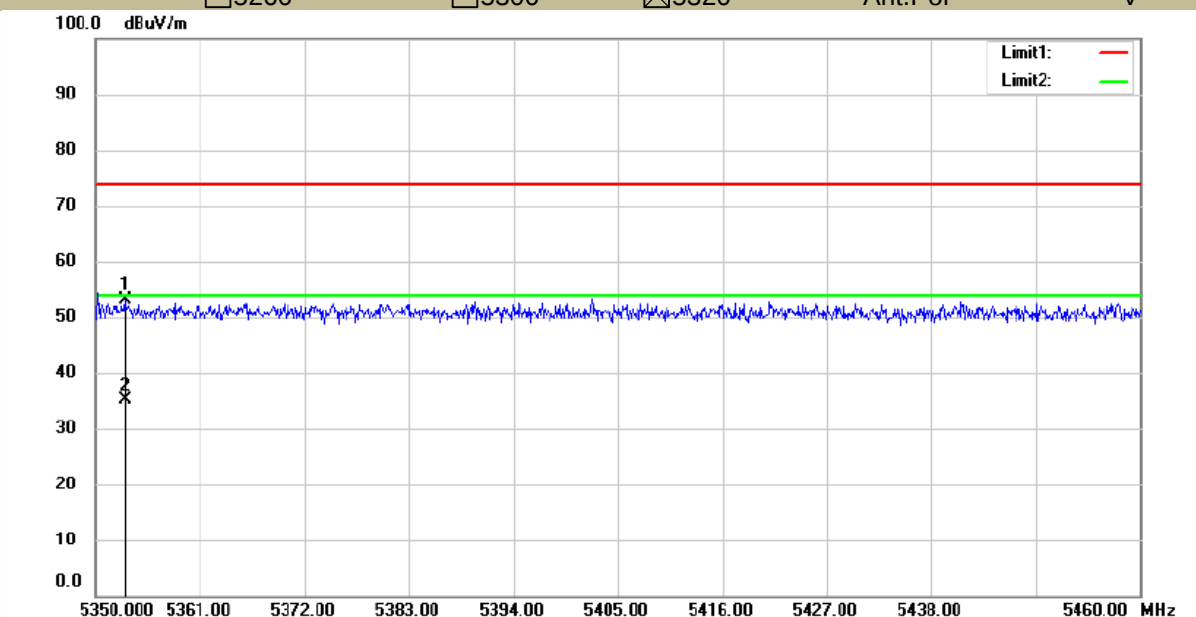
Site 3m Chamber #1 Polarization: **Horizontal** Temperature: 21.6 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 45 %

U-NII -2A

Test Model Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)

☐ 5260 ☒ 802.11a ☐ 802.11n(HT20) ☐ 802.11 ac (VHT20)

☐ 5300 ☒ 5320 Ant.Pol V



Site 3m Chamber #1 Polarization: **Vertical** Temperature: 21.6 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 45 %

- ☒ For Undesirable radiated Spurious Emission in U-NII -2C
All the modes 802.11a/n/ac has been tested and the worst result 802.11a recorded as below:
: ☒ Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

Test mode: 802.11a Frequency(MHz): 5500 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
9131.45	V	57.93	-37.3	-27	-10.3
12994.04	V	50.14	-45.09	-27	-18.09
16792.91	V	47.01	-48.22	-27	-21.22
8489.07	H	58.85	-36.38	-27	-9.38
11607.54	H	53.26	-41.97	-27	-14.97
15467.03	H	50.90	-44.33	-27	-17.33

Test mode: 802.11a Frequency(MHz): 5580 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
8387.99	V	55.85	-39.38	-27	-12.38
12679.67	V	50.81	-44.42	-27	-17.42
16454.58	V	47.70	-47.53	-27	-20.53
8746.14	H	57.11	-38.12	-27	-11.12
11738.27	H	50.55	-44.68	-27	-17.68
16374.06	H	48.00	-47.23	-27	-20.23

Test mode: 802.11a Frequency(MHz): 5700 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
8473.32	V	56.29	-38.94	-27	-11.94
13050.99	V	51.63	-43.6	-27	-16.6
16117.04	V	50.48	-44.75	-27	-17.75
8783.78	H	58.44	-36.79	-27	-9.79
11954.66	H	53.81	-41.42	-27	-14.42
15976.81	H	47.62	-47.61	-27	-20.61

Note: (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

Test mode: 802.11a Frequency(MHz): 5500 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
9131.45	V	57.93	43.89	74.00	54.00	-16.07	-10.11
12994.04	V	50.14	38.74	74.00	54.00	-23.86	-15.26
16792.91	V	47.01	37.20	74.00	54.00	-26.99	-16.80
8489.07	H	58.85	42.25	74.00	54.00	-15.15	-11.75
11607.54	H	53.26	40.61	74.00	54.00	-20.74	-13.39
15467.03	H	50.90	36.12	74.00	54.00	-23.10	-17.88

Test mode: 802.11a Frequency(MHz): 5580 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
8387.99	V	55.85	41.70	74.00	54.00	-18.15	-12.30
12679.67	V	50.81	38.33	74.00	54.00	-23.19	-15.67
16454.58	V	47.70	36.11	74.00	54.00	-26.30	-17.89
8746.14	H	57.11	43.87	74.00	54.00	-16.89	-10.13
11738.27	H	50.55	40.13	74.00	54.00	-23.45	-13.87
16374.06	H	48.00	36.80	74.00	54.00	-26.00	-17.20

Test mode: 802.11a Frequency(MHz): 5700 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
8473.32	V	56.29	41.46	74.00	54.00	-17.71	-12.54
13050.99	V	51.63	40.16	74.00	54.00	-22.37	-13.84
16117.04	V	50.48	37.94	74.00	54.00	-23.52	-16.06
8783.78	H	58.44	43.22	74.00	54.00	-15.56	-10.78
11954.66	H	53.81	38.19	74.00	54.00	-20.19	-15.81
15976.81	H	47.62	36.69	74.00	54.00	-26.38	-17.31

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Correct Factor.
(3) Correct Factor= Ant_F + Cab_L - Preamp
(4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

- ☑ Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

Test mode:	802.11a	Frequency(MHz):	5500 MHz
Test By:	ZXW	Test date:	June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5467.75	H	52.42	-42.81	-27	Pass
5468.80	V	52.87	-42.36	-27	Pass

Test mode:	802.11a	Frequency(MHz):	5700 MHz
Test By:	ZXW	Test date:	June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5726.55	H	53.08	-42.15	-27	Pass
5726.05	V	52.55	-42.68	-27	Pass

Note: (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).

(2) Emission Level= Reading Level+Correct Factor +Cable Loss.

(3) Correct Factor= Ant_F + Cab_L - Preamp

(4) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77

d is the measurement distance in 3 meters

Test mode:	802.11a	Frequency(MHz):	5500
Test By:	ZXW	Test date:	June 11 2021

Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5467.75	H	52.42	74	34.42	54
5468.80	V	52.87	74	34.87	54

Test mode:	802.11a	Frequency(MHz):	5700
Test By:	ZXW	Test date:	June 11 2021

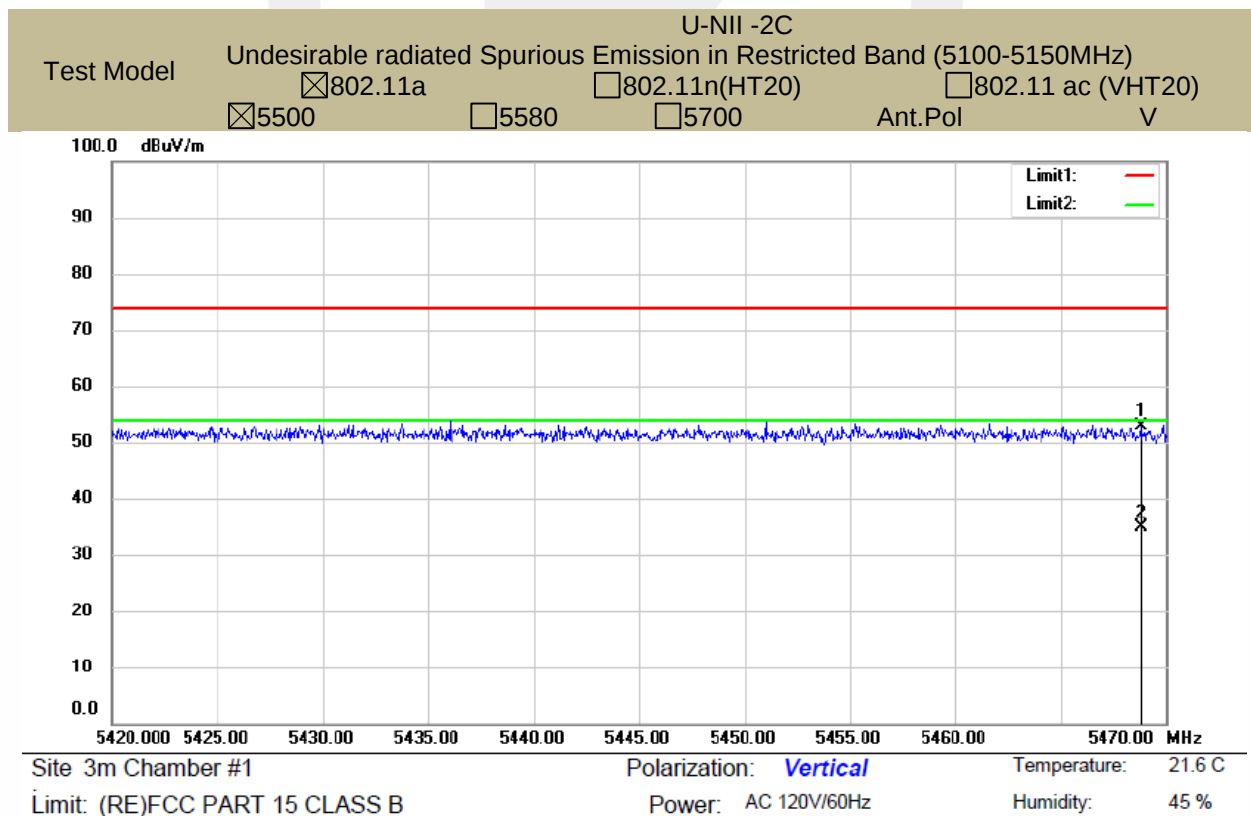
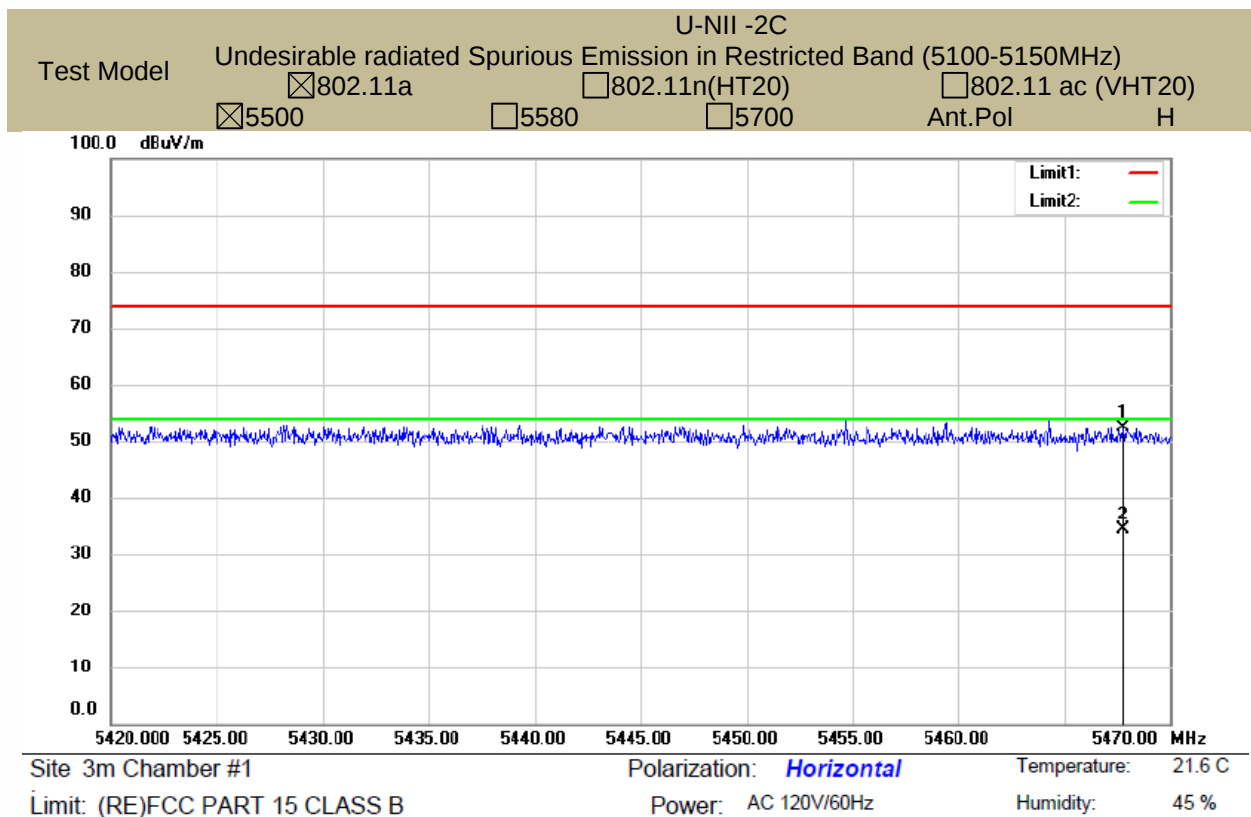
Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5726.55	H	53.08	74	35.08	54
5726.05	V	52.55	74	34.55	54

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).

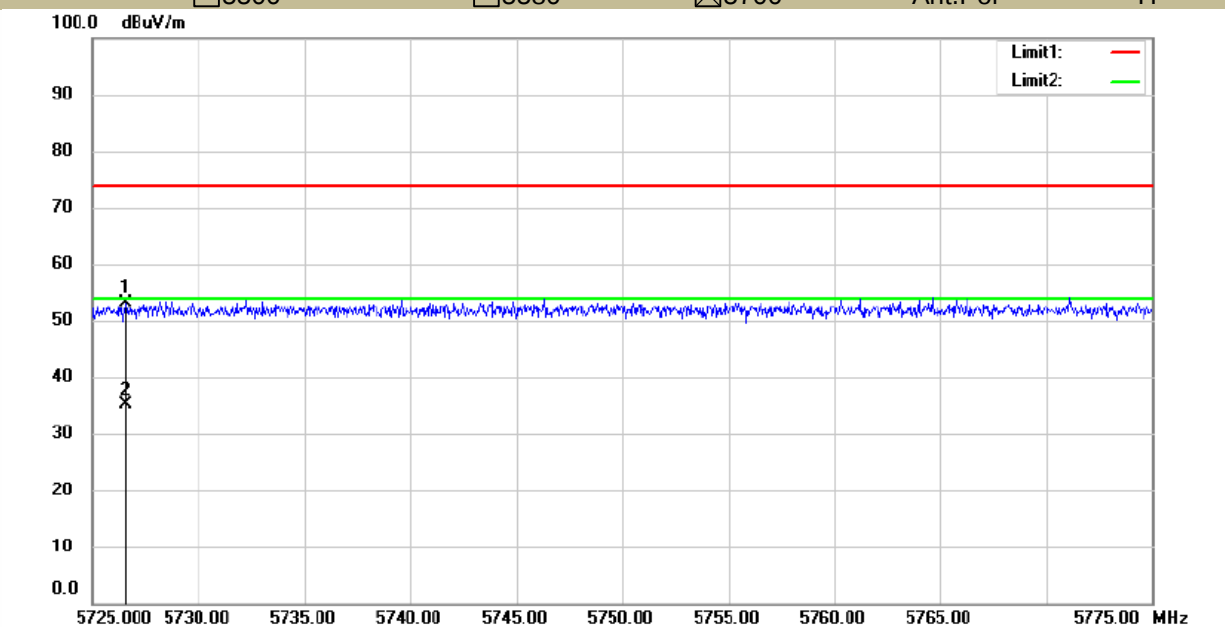
(2) Emission Level= Reading Level+Correct Factor.

(3) Correct Factor= Ant_F + Cab_L - Preamp

(4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

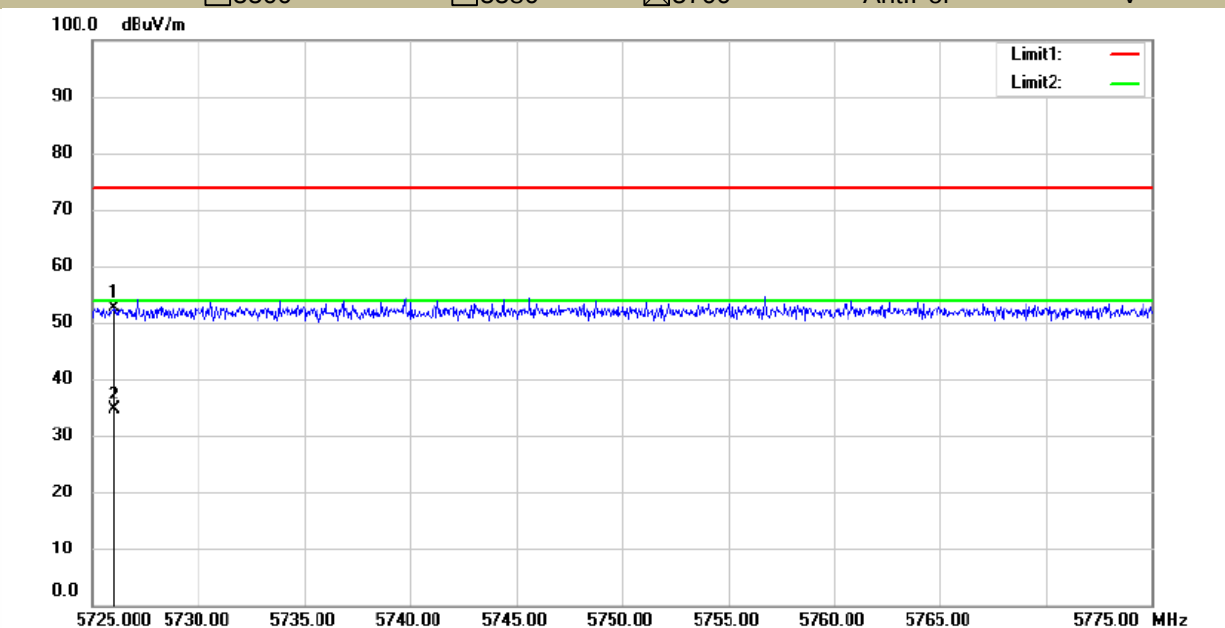


U-NII -2C			
Test Model	Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)		
	☒ 802.11a	☐ 802.11n(HT20)	☐ 802.11 ac (VHT20)
	☐ 5500	☐ 5580	☒ 5700
	Ant.Pol		H



Site 3m Chamber #1 Polarization: **Horizontal** Temperature: 21.6 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 45 %

U-NII -2C			
Test Model	Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)		
	☒ 802.11a	☐ 802.11n(HT20)	☐ 802.11 ac (VHT20)
	☐ 5500	☐ 5580	☒ 5700
	Ant.Pol		V



Site 3m Chamber #1 Polarization: **Vertical** Temperature: 21.6 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 45 %

- ☒ For Undesirable radiated Spurious Emission in U-NII -3

All the modes 802.11a/n/ac has been tested and the worst result 802.11a recorded as below:

- ☒ Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

Test mode:	802.11a	Frequency(MHz):	5745 MHz
Test By:	ZXW	Test date:	June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
9132.98	V	57.29	-37.94	-27	-10.94
12226.58	V	51.20	-44.03	-27	-17.03
15360.84	V	47.18	-48.05	-27	-21.05
9113.00	H	57.48	-37.75	-27	-10.75
12751.08	H	52.74	-42.49	-27	-15.49
17033.15	H	48.92	-46.31	-27	-19.31

Test mode:	802.11a	Frequency(MHz):	5785 MHz
Test By:	ZXW	Test date:	June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
8493.75	V	57.43	-37.8	-27	-10.8
11989.92	V	53.93	-41.3	-27	-14.3
16996.03	V	47.84	-47.39	-27	-20.39
8495.10	H	55.21	-40.02	-27	-13.02
11774.48	H	53.70	-41.53	-27	-14.53
17124.76	H	50.60	-44.63	-27	-17.63

Test mode:	802.11a	Frequency(MHz):	5825 MHz
Test By:	ZXW	Test date:	June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
9122.93	V	56.11	-39.12	-27	-12.12
11812.48	V	51.26	-43.97	-27	-16.97
16755.46	V	48.49	-46.74	-27	-19.74
8849.13	H	56.56	-38.67	-27	-11.67
11771.28	H	52.85	-42.38	-27	-15.38
16476.85	H	49.07	-46.16	-27	-19.16

Note: (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 (3) EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
 d is the measurement distance in 3 meters

Test mode: 802.11a Frequency(MHz): 5745 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
9132.98	V	57.29	41.21	74.00	54.00	-16.71	-12.79
12226.58	V	51.20	38.82	74.00	54.00	-22.80	-15.18
15360.84	V	47.18	36.67	74.00	54.00	-26.82	-17.33
9113.00	H	57.48	41.63	74.00	54.00	-16.52	-12.37
12751.08	H	52.74	38.54	74.00	54.00	-21.26	-15.46
17033.15	H	48.92	35.23	74.00	54.00	-25.08	-18.77

Test mode: 802.11a Frequency(MHz): 5785 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
8493.75	V	57.43	41.03	74.00	54.00	-16.57	-12.97
11989.92	V	53.93	38.61	74.00	54.00	-20.07	-15.39
16996.03	V	47.84	36.00	74.00	54.00	-26.16	-18.00
8495.10	H	55.21	43.32	74.00	54.00	-18.79	-10.68
11774.48	H	53.70	39.18	74.00	54.00	-20.30	-14.82
17124.76	H	50.60	36.02	74.00	54.00	-23.40	-17.98

Test mode: 802.11a Frequency(MHz): 5825 MHz
Test By: ZXW Test date: June 11 2021

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
9122.93	V	56.11	43.00	74.00	54.00	-17.89	-11.00
11812.48	V	51.26	40.28	74.00	54.00	-22.74	-13.72
16755.46	V	48.49	36.23	74.00	54.00	-25.51	-17.77
8849.13	H	56.56	43.95	74.00	54.00	-17.44	-10.05
11771.28	H	52.85	40.67	74.00	54.00	-21.15	-13.33
16476.85	H	49.07	36.07	74.00	54.00	-24.93	-17.93

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Correct Factor.
(3) Correct Factor= Ant_F + Cab_L - Preamp
(4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

● ☒ Undesirable radiated Spurious Emission in band edge

Test mode:	802.11a	Frequency:	5745 MHz
Test By:	ZXW	Test date:	June 11 2021

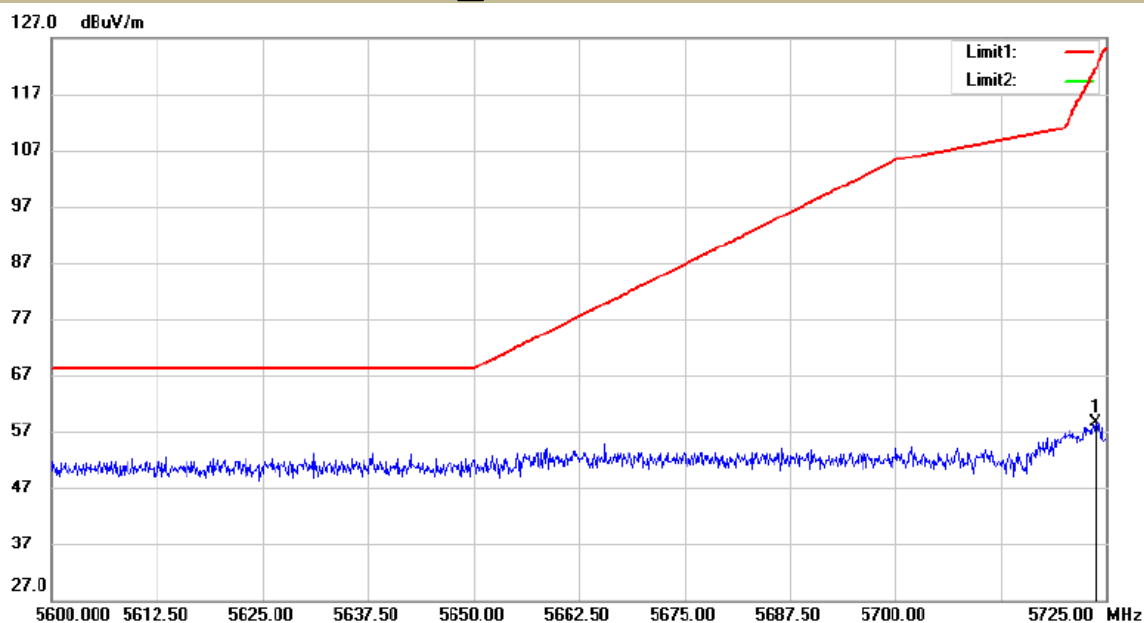
Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5723.75	H	58.73	-36.50	24.15	PASS
5723.75	V	59.74	-35.49	24.15	PASS

Test mode:	802.11a	Frequency:	5825 MHz
Test By:	ZXW	Test date:	June 11 2021

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5853.37	V	53.36	-41.87	19.31	PASS
5851.00	H	53.11	-42.12	24.72	PASS

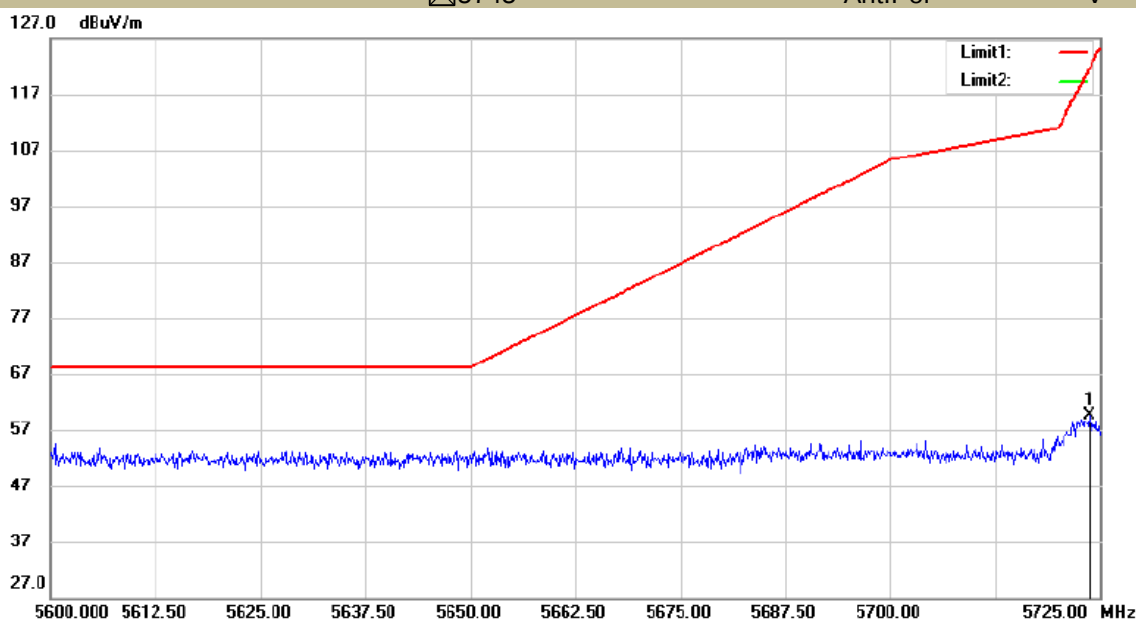
Note: (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
 (3) Correct Factor= Ant_F + Cab_L - Preamp
 (4) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77
 d is the measurement distance in 3 meters

U-NII -3				
Test Model	Undesirable radiated	Undesirable radiated	Spurious Emission in Band Edge	
	☒ 802.11a	☐ 802.11n(HT20)	☐ 802.11n(HT40)	
	☒ 5745		Ant.Pol	H



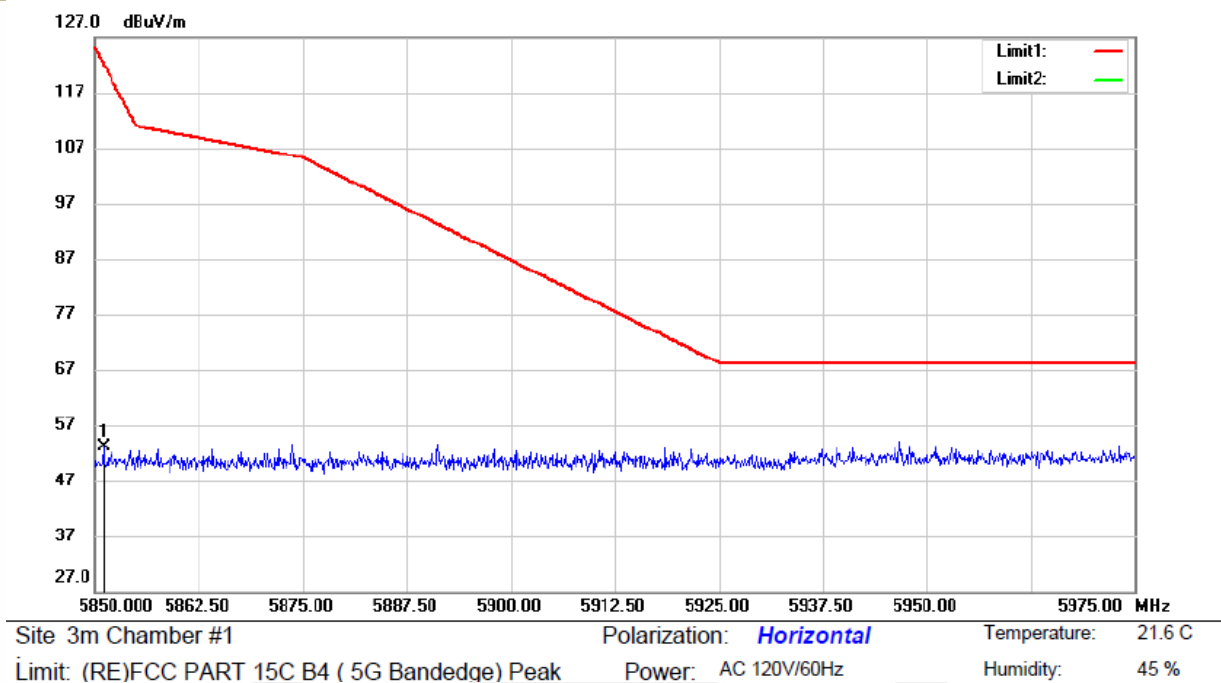
Site 3m Chamber #1 Polarization: **Horizontal** Temperature: 21.6 C
 Limit: (RE)FCC PART 15C B4 (5G Bandedge) Peak Power: AC 120V/60Hz Humidity: 45 %

U-NII -3				
Test Model	Undesirable radiated	Undesirable radiated	Spurious Emission in Band Edge	
	☒ 802.11a	☐ 802.11n(HT20)	☐ 802.11n(HT40)	
	☒ 5745		Ant.Pol	V

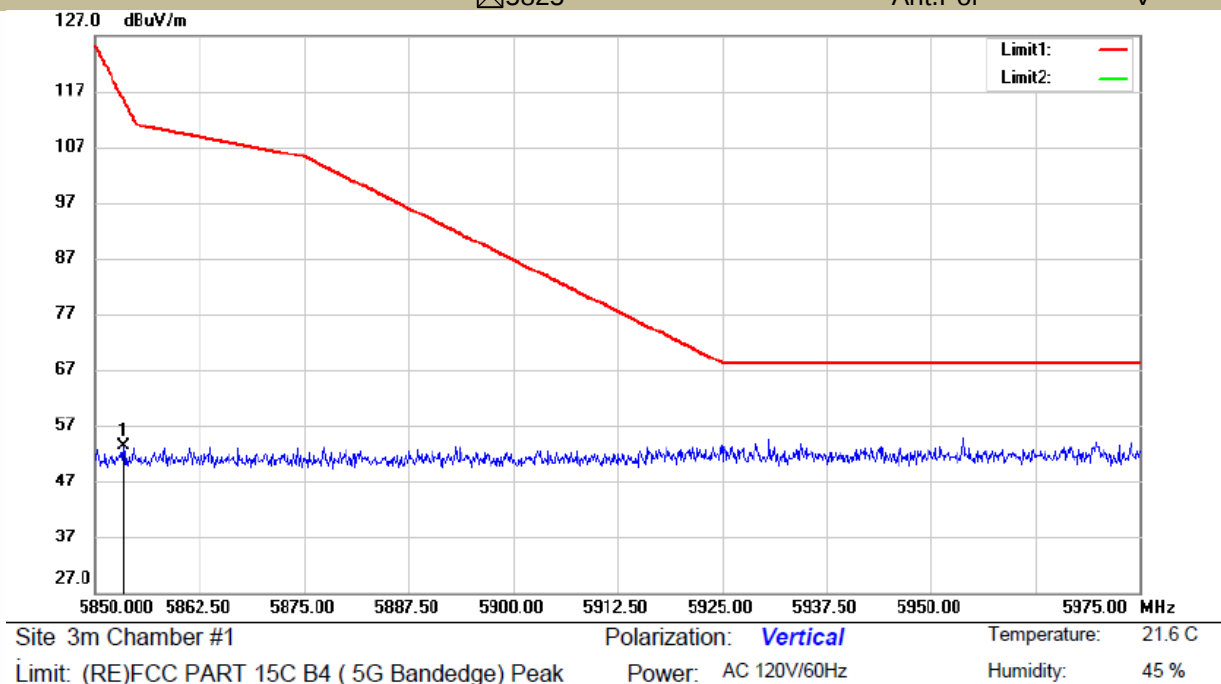


Site 3m Chamber #1 Polarization: **Vertical** Temperature: 21.6 C
 Limit: (RE)FCC PART 15C B4 (5G Bandedge) Peak Power: AC 120V/60Hz Humidity: 45 %

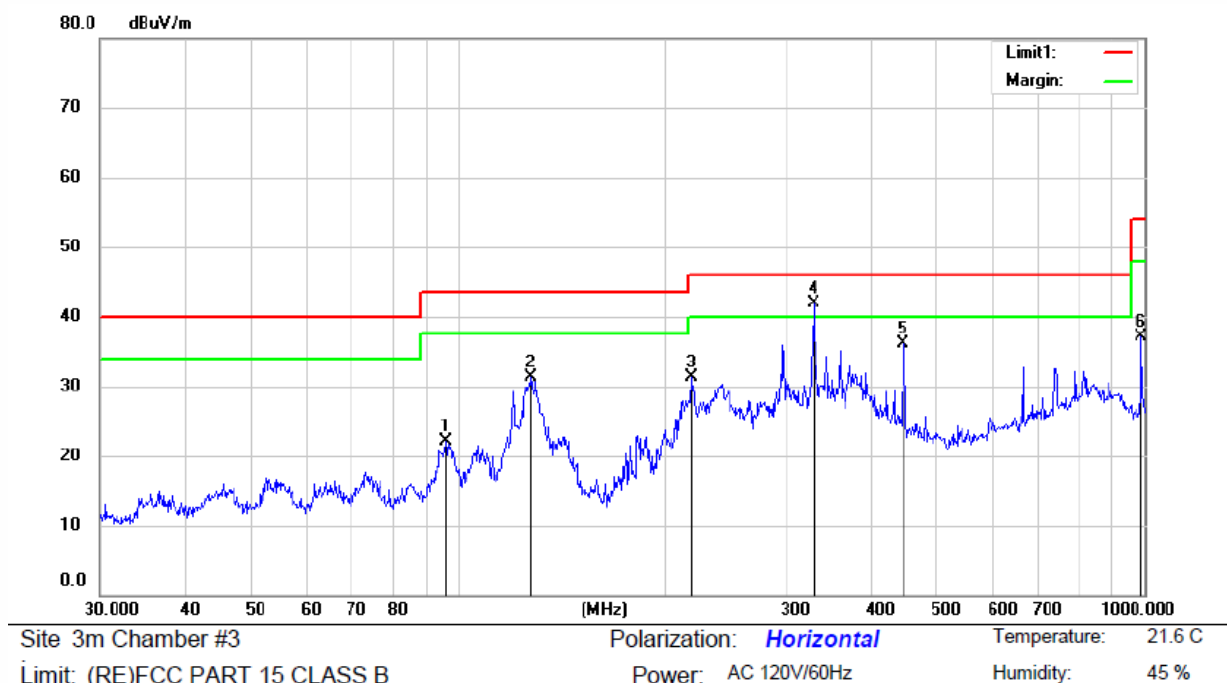
U-NII -3				
Test Model	Undesirable radiated Undesirable radiated Spurious Emission in Band Edge			
	☒ 802.11a	☐ 802.11n(HT20)	☐ 802.11n(HT40)	
	☒ 5825		Ant.Pol	H



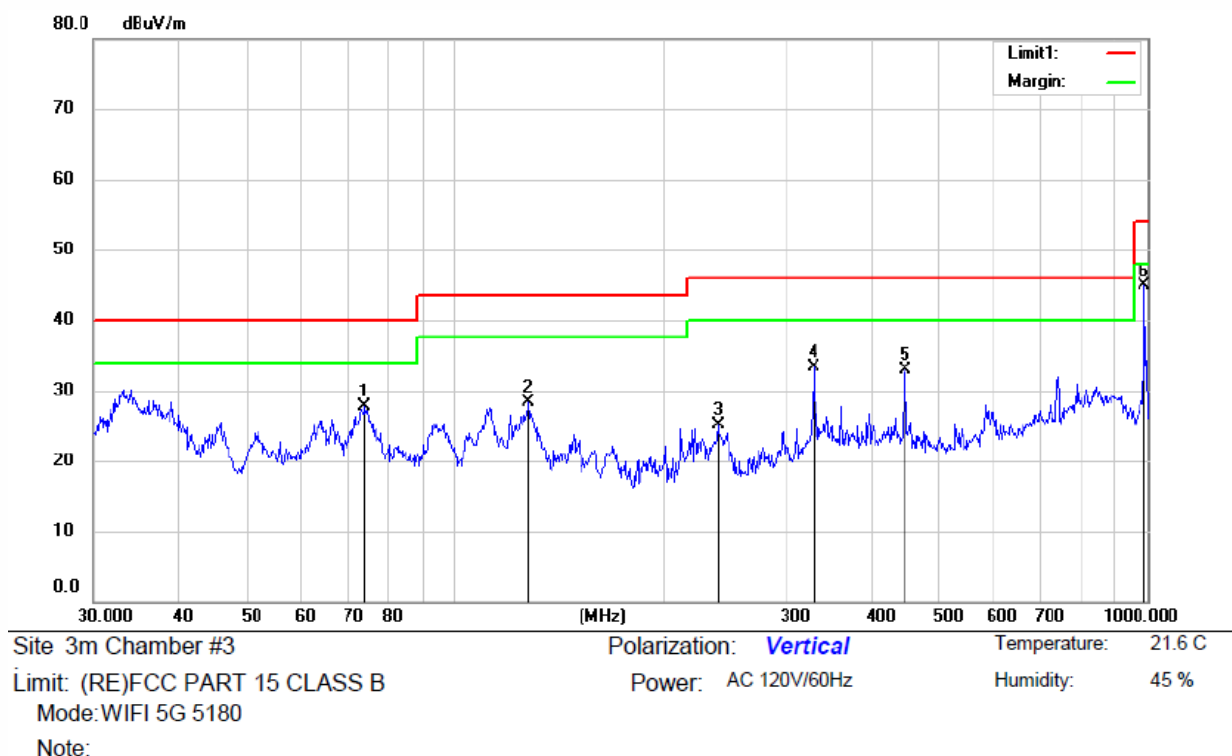
U-NII -3				
Test Model	Undesirable radiated Undesirable radiated Spurious Emission in Band Edge			
	☒ 802.11a	☐ 802.11n(HT20)	☐ 802.11n(HT40)	
	☒ 5825		Ant.Pol	V



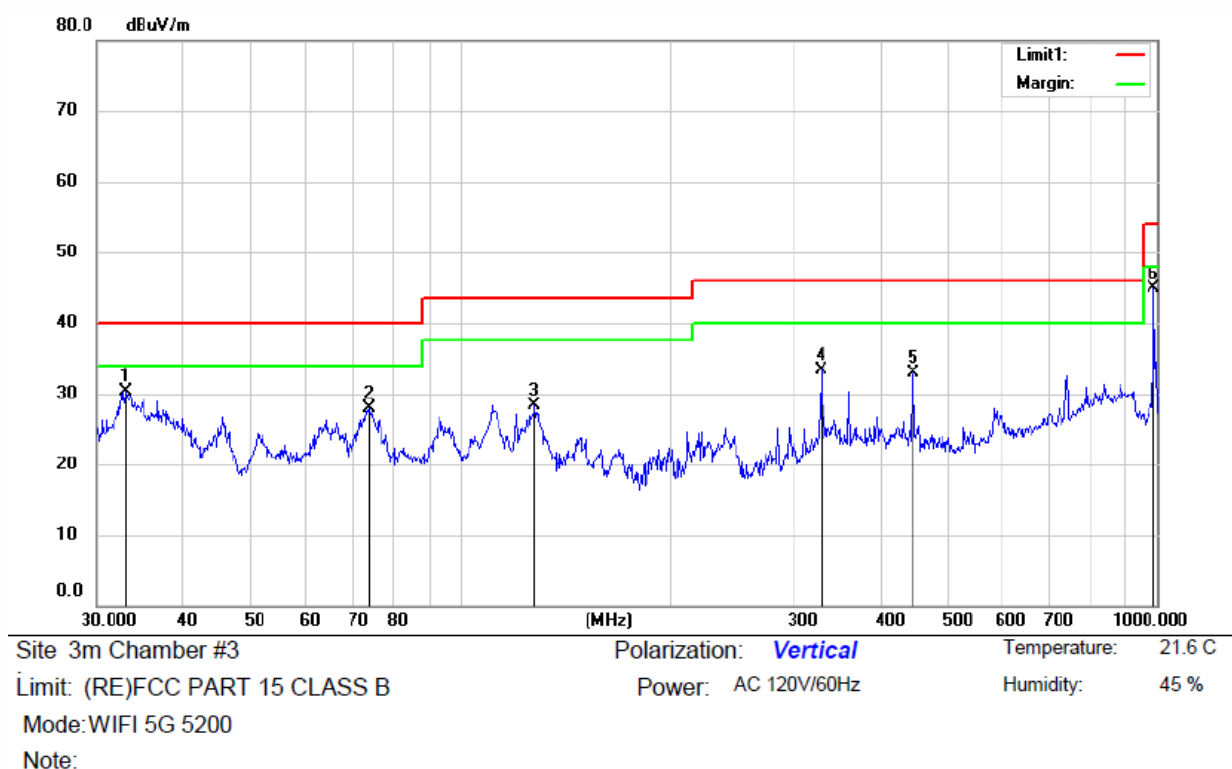
- Undesirable radiated Spurious Emission below 1GHz (30MHz to 1GHz)
All the modes 802.11a/n/ac has been tested and the worst result 802.11ac recorded as below:



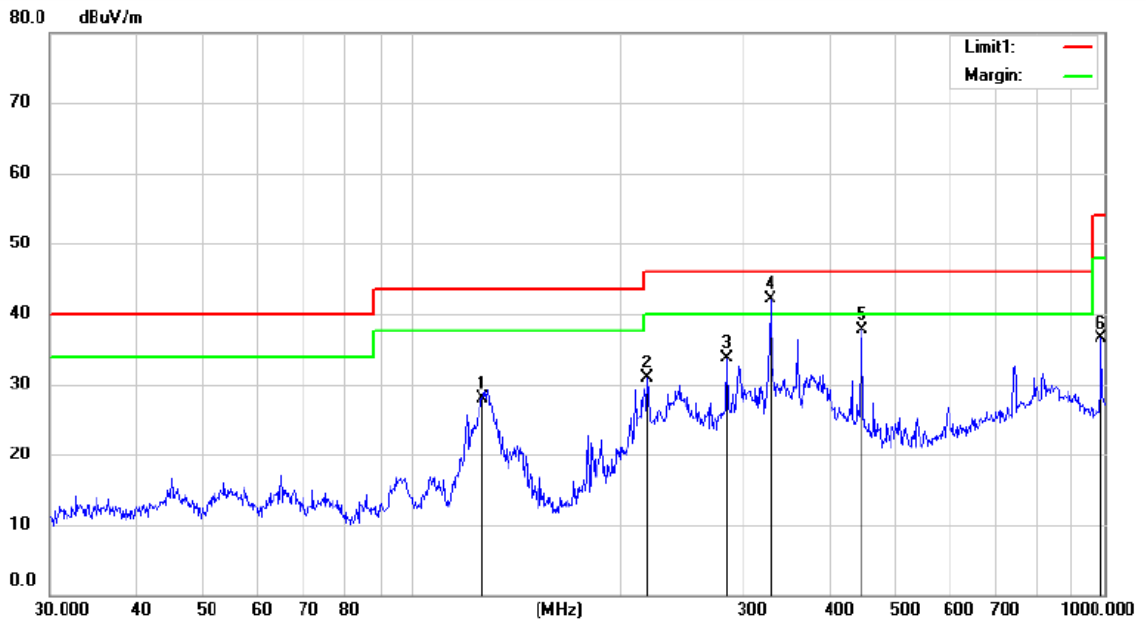
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		95.9302	39.65	-17.55	22.10	43.50	-21.40	QP		
2		127.9446	48.72	-17.49	31.23	43.50	-12.27	QP		
3		218.5957	47.97	-16.66	31.31	46.00	-14.69	QP		
4	*	330.0501	53.91	-11.96	41.95	46.00	-4.05	QP		
5		445.8274	44.57	-8.48	36.09	46.00	-9.91	QP		
6		989.9692	38.87	-1.70	37.17	54.00	-16.83	QP		



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		74.0376	44.49	-16.79	27.70	40.00	-12.30	QP		
2		127.9446	45.88	-17.49	28.39	43.50	-15.11	QP		
3		239.9873	40.79	-15.75	25.04	46.00	-20.96	QP		
4		330.0501	45.36	-11.96	33.40	46.00	-12.60	QP		
5		446.8056	41.34	-8.46	32.88	46.00	-13.12	QP		
6	*	990.4033	46.49	-1.68	44.81	54.00	-9.19	QP		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		33.0804	47.23	-16.97	30.26	40.00	-9.74	QP		
2		74.1025	44.61	-16.80	27.81	40.00	-12.19	QP		
3		127.9446	45.88	-17.49	28.39	43.50	-15.11	QP		
4		330.0500	45.36	-11.96	33.40	46.00	-12.60	QP		
5		446.8056	41.34	-8.46	32.88	46.00	-13.12	QP		
6	*	990.4033	46.49	-1.68	44.81	54.00	-9.19	QP		



Site 3m Chamber #3

Polarization: **Horizontal**

Temperature: 21.6 C

Limit: (RE)FCC PART 15 CLASS B

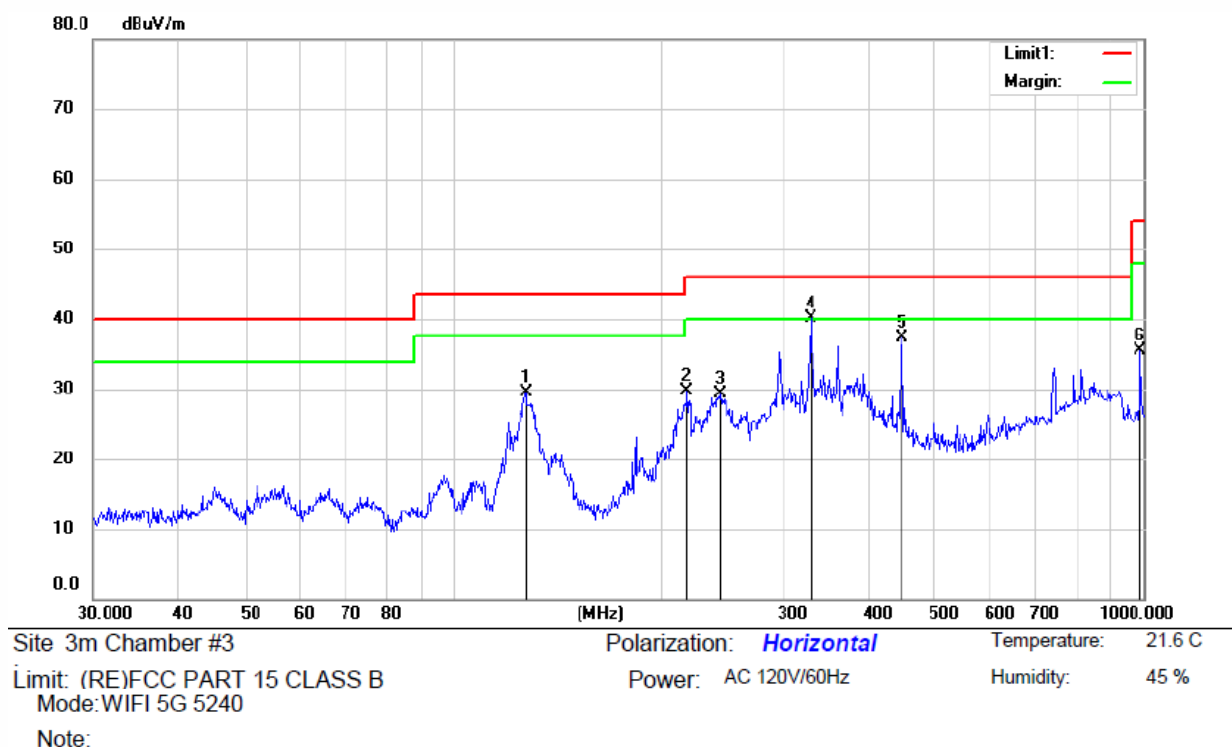
Power: AC 120V/60Hz

Humidity: 45 %

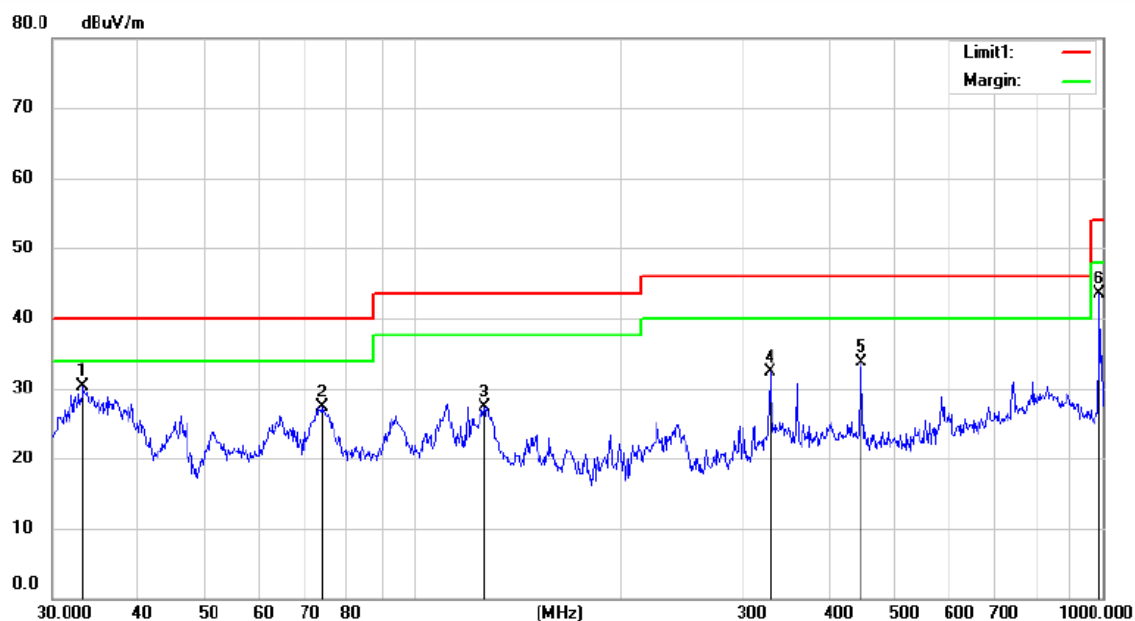
Mode: WIFI 5G 5200

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		126.1625	45.36	-17.53	27.83	43.50	-15.67	QP			
2		218.7874	47.56	-16.65	30.91	46.00	-15.09	QP			
3		285.7271	47.29	-13.49	33.80	46.00	-12.20	QP			
4	*	330.0501	54.13	-11.96	42.17	46.00	-3.83	QP			
5		446.8056	46.18	-8.46	37.72	46.00	-8.28	QP			
6		990.4033	38.20	-1.68	36.52	54.00	-17.48	QP			



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		127.6645	47.09	-17.50	29.59	43.50	-13.91	QP		
2		217.8305	46.33	-16.68	29.65	46.00	-16.35	QP		
3		244.1250	44.90	-15.57	29.33	46.00	-16.67	QP		
4	*	330.0501	52.07	-11.96	40.11	46.00	-5.89	QP		
5		446.6098	45.82	-8.47	37.35	46.00	-8.65	QP		
6		989.9692	37.12	-1.70	35.42	54.00	-18.58	QP		



Site 3m Chamber #3

Polarization: **Vertical**

Temperature: 21.6 C

Limit: (RE)FCC PART 15 CLASS B

Power: AC 120V/60Hz

Humidity: 45 %

Mode: WIFI 5G 5240

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	33.3132	47.16	-16.93	30.23	40.00	-9.77	QP		
2		73.7785	44.05	-16.73	27.32	40.00	-12.68	QP		
3		126.8278	44.91	-17.51	27.40	43.50	-16.10	QP		
4		330.0501	44.26	-11.96	32.30	46.00	-13.70	QP		
5		446.8056	42.26	-8.46	33.80	46.00	-12.20	QP		
6		990.4033	45.14	-1.68	43.46	54.00	-10.54	QP		

8.6 POWER LINE CONDUCTED EMISSIONS

8.6.1 Applicable Standard

According to FCC Part 15.207(a)

8.6.2 Conformance Limit

Frequency(MHz)	Conducted Emission Limit	
	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

8.6.3 Test Configuration

Test according to clause 6.3 conducted emission test setup

8.6.4 Test Procedure

The EUT was placed on a table which is 0.8m above ground plane.

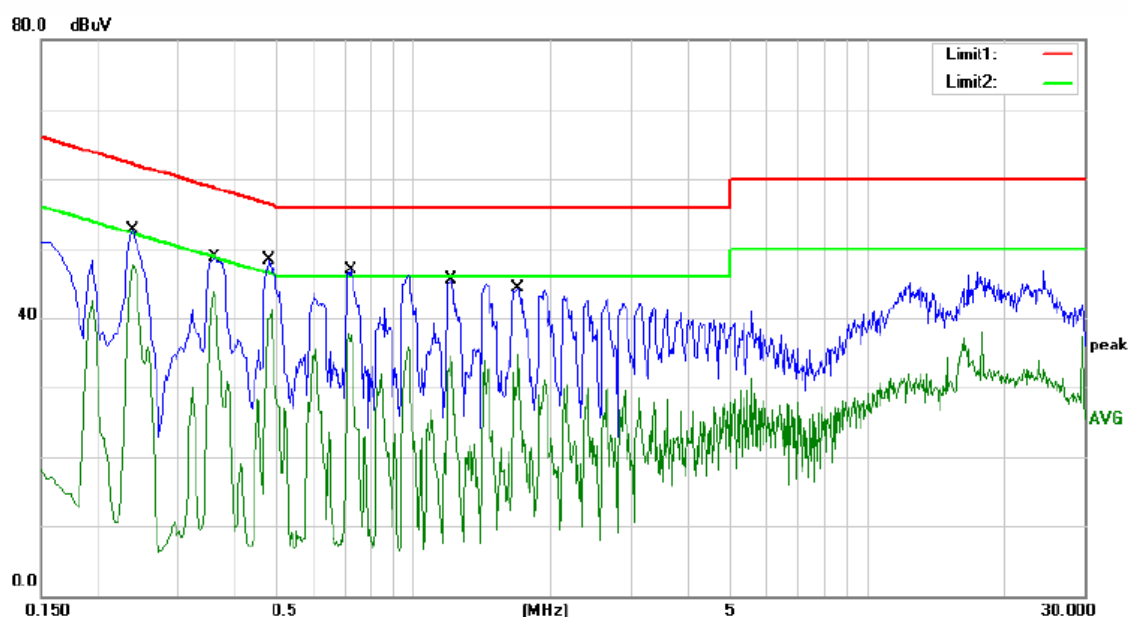
Maximum procedure was performed on the highest emissions to ensure EUT compliance.

Repeat above procedures until all frequency measured were complete.

8.6.5 Test Results

Pass

The AC 120V & 240V voltage have been tested, and the worst result recorded was report as below:



Site Conduction #1

Phase: **L1**

Temperature: 24.9

Limit: (CE)FCC PART 15 class B_QP

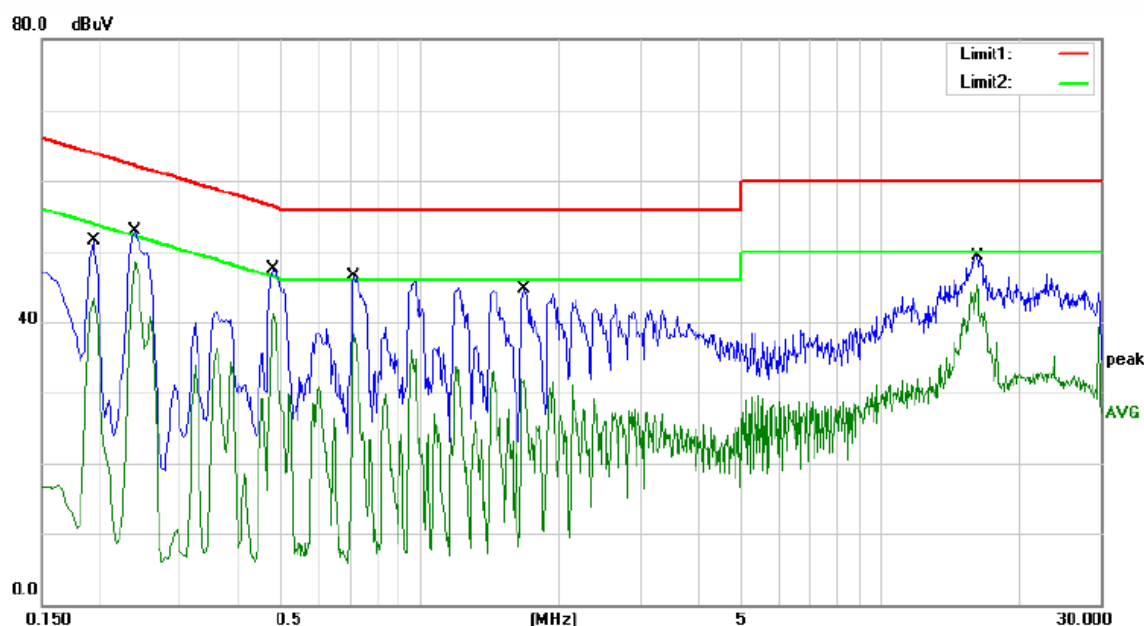
Power: AC 120V/60Hz

Humidity: 54 %

Mode: TX mode

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2380	43.13	9.55	52.68	62.17	-9.49	QP	
2	*	0.2380	38.20	9.55	47.75	52.17	-4.42	AVG	
3		0.3580	39.07	9.56	48.63	58.77	-10.14	QP	
4		0.3580	34.07	9.56	43.63	48.77	-5.14	AVG	
5		0.4780	38.66	9.57	48.23	56.37	-8.14	QP	
6		0.4780	31.55	9.57	41.12	46.37	-5.25	AVG	
7		0.7220	37.32	9.57	46.89	56.00	-9.11	QP	
8		0.7220	27.91	9.57	37.48	46.00	-8.52	AVG	
9		1.2020	35.88	9.59	45.47	56.00	-10.53	QP	
10		1.2020	24.83	9.59	34.42	46.00	-11.58	AVG	
11		1.6900	34.64	9.59	44.23	56.00	-11.77	QP	
12		1.6900	25.18	9.59	34.77	46.00	-11.23	AVG	



Site Conduction #1

Phase: **N**

Temperature: 24.9

Limit: (CE)FCC PART 15 class B_QP

Power: AC 120V/60Hz

Humidity: 54 %

Mode: TX mode

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1940	41.98	9.55	51.53	63.86	-12.33	QP	
2		0.1940	33.84	9.55	43.39	53.86	-10.47	AVG	
3		0.2365	42.80	9.55	52.35	62.22	-9.87	QP	
4	*	0.2365	38.99	9.55	48.54	52.22	-3.68	AVG	
5		0.4780	37.98	9.57	47.55	56.37	-8.82	QP	
6		0.4780	31.49	9.57	41.06	46.37	-5.31	AVG	
7		0.7140	36.04	9.57	45.61	56.00	-10.39	QP	
8		0.7140	28.76	9.57	38.33	46.00	-7.67	AVG	
9		1.6620	35.19	9.59	44.78	56.00	-11.22	QP	
10		1.6620	22.29	9.59	31.88	46.00	-14.12	AVG	
11		16.1820	39.25	9.97	49.22	60.00	-10.78	QP	
12		16.1820	35.23	9.97	45.20	50.00	-4.80	AVG	

8.7 ANTENNA APPLICATION

8.7.1 Antenna Requirement

Standard	Requirement
FCC CRF Part 15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

8.7.2 Result

PASS.

- The EUT has 2 antennas: an FPC Antenna for WIFI 5G, the antenna 1 gain is 4.09 dBi, antenna 2 gain is 4.10 dBi,;

Note: ☒ Antennas use a permanently attached antenna which is not replaceable.
☐ Not using a standard antenna jack or electrical connector for antenna replacement
☐ The antenna has to be professionally installed (please provide method of installation)

Which in accordance to section 15.203, please refer to the internal photos.

Detail of factor for radiated emission

Frequency(MHz)	Ant_F(dB)	Cab_L(dB)	Preamp(dB)	Correct Factor(dB)
0.009	20.6	0.03	\	20.63
0.15	20.7	0.1	\	20.8
1	20.9	0.15	\	21.05
10	20.1	0.28	\	20.38
30	18.8	0.45	\	19.25
30	11.7	0.62	27.9	-15.58
100	12.5	1.02	27.8	-14.28
300	12.9	1.91	27.5	-12.69
600	19.2	2.92	27	-4.88
800	21.1	3.54	26.6	-1.96
1000	22.3	4.17	26.2	0.27
1000	25.6	1.76	41.4	-14.04
3000	28.9	3.27	43.2	-11.03
5000	31.1	4.2	44.6	-9.3
8000	36.2	5.95	44.7	-2.55
10000	38.4	6.3	43.9	0.8
12000	38.5	7.14	42.3	3.34
15000	40.2	8.15	41.4	6.95
18000	45.4	9.02	41.3	13.12
18000	37.9	1.81	47.9	-8.19
21000	37.9	1.95	48.7	-8.85
25000	39.3	2.01	42.8	-1.49
28000	39.6	2.16	46.0	-4.24
31000	41.2	2.24	44.5	-1.06
34000	41.5	2.29	46.6	-2.81
37000	43.8	2.30	46.4	-0.3
40000	43.2	2.50	42.2	3.5

----- END OF REPORT -----