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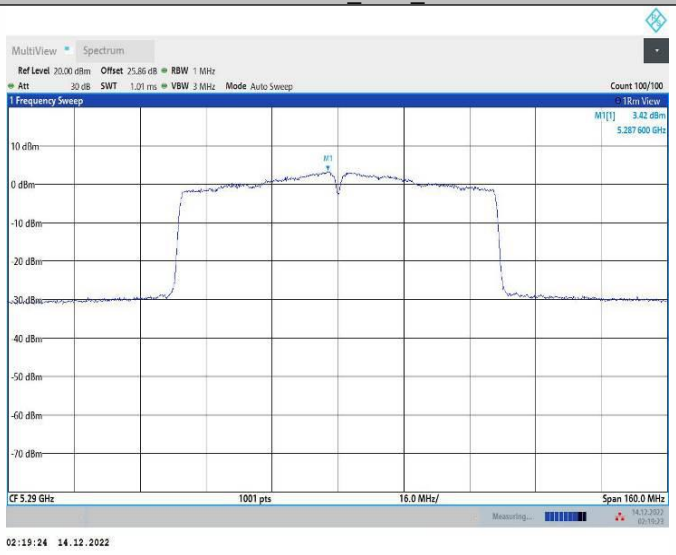

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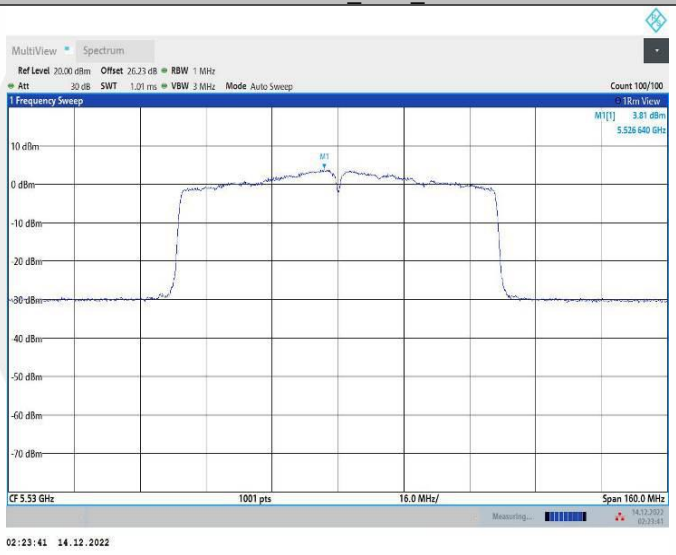

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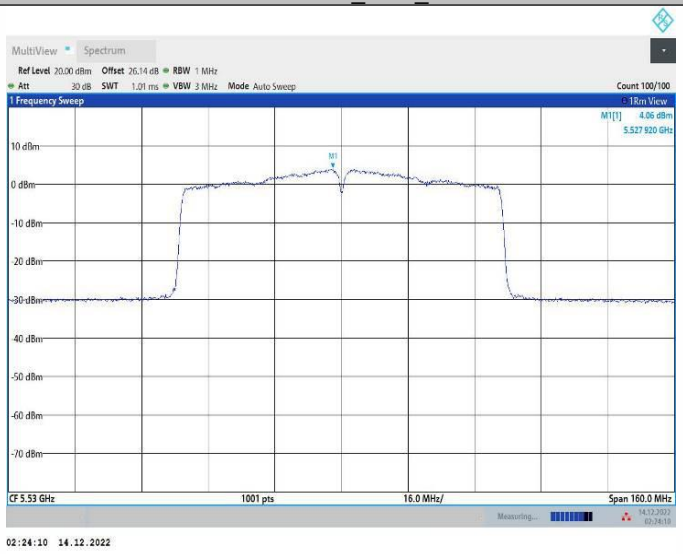

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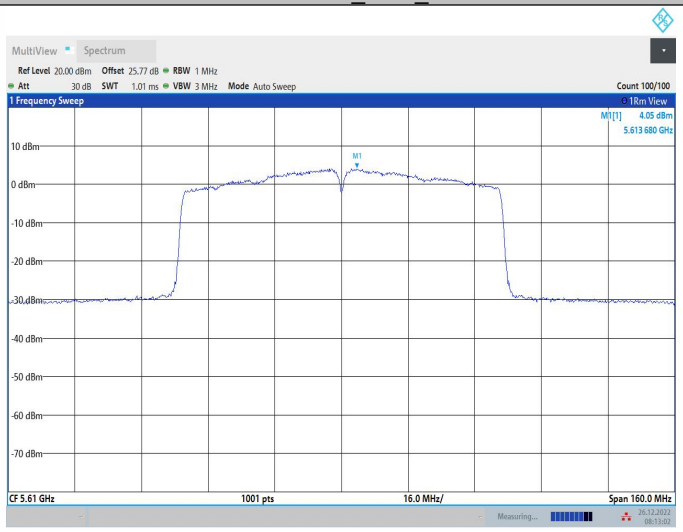

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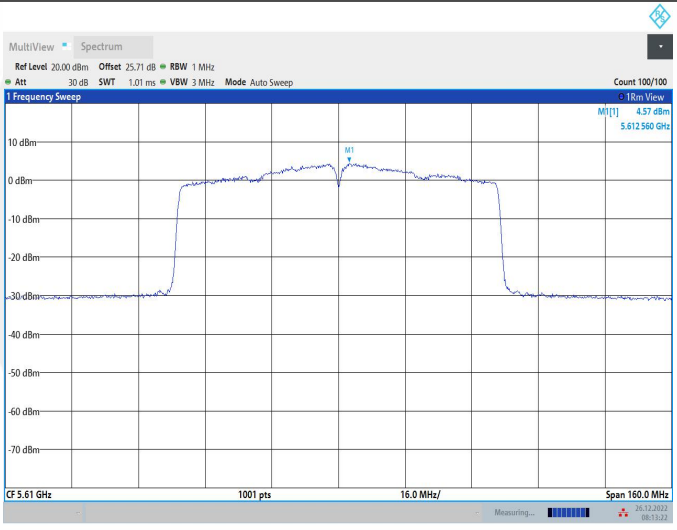

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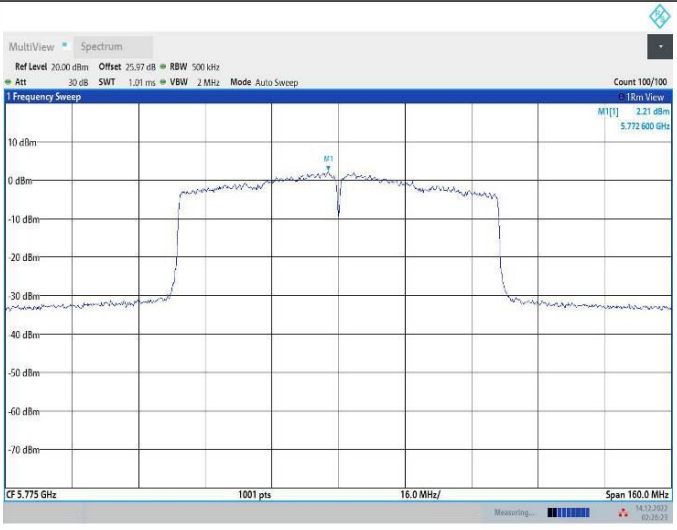

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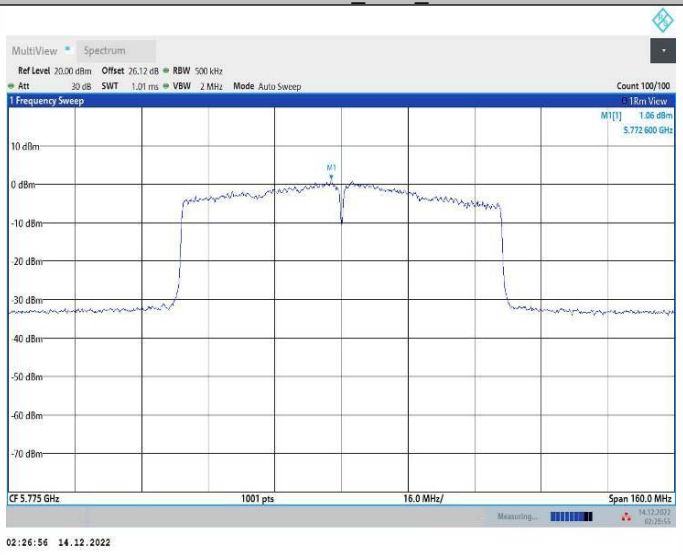


8.4 UNDESIRABLE RADIATED SPURIOUS EMISSION

8.4.1 Applicable Standard

According to FCC Part 15.407 (b)
According to 789033 D02 Section II(G)

8.4.2 Conformance Limit

For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log (uV/m)	300
0.490-1.705	2400/F(KHz)	20 log (uV/m)	30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

The provisions of §15.205 apply to intentional radiators operating under this section,15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

Remark: 1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of ξ 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

8.4.3 Test Configuration

Test according to clause 6.2 radio frequency test setup 2.

8.4.4 Test Procedure

■ Unwanted Emissions Measurements below 1000 MHz

Compliance shall be demonstrated using CISPR quasi-peak detection; however, peak detection is permitted as an alternative to quasi-peak detection.
The EUT was placed on a turn table which is 0.8m above ground plane.
And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
Repeat above procedures until all frequency measured was complete.
We use software control the EUT, Let EUT hopping on and transmit with highest power, All the modes have been tested and the worst result was reported.
Use the following spectrum analyzer settings:
Set RBW=120kHz for f < 1 GHz(30MHz to 1GHz), 200Hz for f<150KHz(9KHz to 150KHz), 9KHz for <30MHz (150KHz to 30KHz).
Set the VBW > RBW.
Detector = Peak.
Trace mode = max hold.
Follow the guidelines in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b). Submit this data.
Repeat above procedures until all frequency measured was complete.

■ Unwanted Maximum peak Emissions Measurements above 1000 MHz

Maximum emission levels are measured by setting the analyzer as follows:
RBW = 1 MHz.
VBW ≥ 3 MHz.
Detector = Peak.
Sweep time = auto.
Trace mode = max hold.
Allow sweeps to continue until the trace stabilizes. Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle. For example, at 50 percent duty cycle, the measurement time will increase by a factor of two relative to measurement time for continuous transmission.

■ Unwanted Average Emissions Measurements above 1000 MHz

Method VB (Averaging using reduced video bandwidth): Alternative method.
RBW = 1 MHz.
Video bandwidth. • If the EUT is configured to transmit with duty cycle ≥ 98 percent, set VBW ≤ RBW/100 (i.e., 10 kHz) but not less than 10 Hz.
• If the EUT duty cycle is < 98 percent, set VBW ≥ 1/T, where T is defined in section II.B.1.a).
Video bandwidth mode or display mode • The instrument shall be set to ensure that video filtering is applied in the power domain. Typically, this requires setting the detector mode to RMS and setting the Average-VBW Type to Power (RMS).
• As an alternative, the analyzer may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some analyzers require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to “Voltage” regardless of the display mode.
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.

8.4.5 Test Results

The voltage 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)
Highest gain of each antenna and highest output power is ANT2 and MIMO as below:

ANT2:

Test mode: 802.11n(20) Frequency(MHz): 5180

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10358.5	V	58.77	-36.46	-27	9.46
15545.62	V	62.06	-33.17	-27	6.17
17492.12	V	66.14	-29.09	-27	2.09
10360.62	H	54.62	-40.61	-27	13.61
15541.37	H	60.33	-34.9	-27	7.9
17483.62	H	65.37	-29.86	-27	2.86

Test mode: 802.11n(20) Frequency(MHz): 5200

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10401	V	58.61	-36.62	-27	9.62
15596.62	V	62.11	-33.12	-27	6.12
17496.37	V	67.27	-27.96	-27	0.96
10401	H	54.96	-40.27	-27	13.27
15600.87	H	59.03	-36.2	-27	9.2
17507	H	67.74	-27.49	-27	0.49

Test mode: 802.11n(20) Frequency(MHz): 5240

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10481.75	V	59.16	-36.07	-27	9.07
15719.87	V	58.56	-36.67	-27	9.67
17515.5	V	67.97	-27.26	-27	0.26
10481.75	H	57.07	-38.16	-27	11.16
15722	H	57.91	-37.32	-27	10.32
17515.5	H	67.69	-27.54	-27	0.54

MIMO:

Test mode: 802.11n(20) Frequency(MHz): 5180

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10357.11	V	58.64	-36.59	-27	9.59
17493.4	V	66.11	-29.12	-27	2.12
15543.23	V	47.31	-47.92	-27	20.92
10372.31	H	54.54	-40.69	-27	13.69
17495.31	H	65.21	-30.02	-27	3.02
15538.06	H	46.05	-49.18	-27	22.18

Test mode: 802.11n(20) Frequency(MHz): 5200

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10399.61	V	58.48	-36.75	-27	9.75
17497.65	V	67.24	-27.99	-27	0.99
15594.07	V	45.95	-49.28	-27	22.28
10412.69	H	54.88	-40.35	-27	13.35
17518.69	H	67.58	-27.65	-27	0.65
15597.56	H	45.22	-50.01	-27	23.01

Test mode: 802.11n(20) Frequency(MHz): 5240

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10480.36	V	59.03	-36.20	-27	9.20
17516.78	V	67.94	-27.29	-27	0.29
15717.61	V	45.25	-49.98	-27	22.98
10493.44	H	56.99	-38.24	-27	11.24
17527.19	H	67.53	-27.70	-27	0.70
15718.69	H	47.58	-47.65	-27	20.65

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

ANT2:

Test mode:	802.11n(20)	Frequency(MHz):	5180		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10358.5	V	58.77	74.00	15.23	peak
15545.62	V	62.06	74.00	11.94	peak
17492.12	V	66.14	74.00	7.86	peak
10358.10	V	44.24	54.00	9.76	AVG
15545.48	V	47.57	54.00	6.43	AVG
17492.12	V	47.73	54.00	6.27	AVG
10360.62	H	54.62	74.00	19.38	peak
15541.37	H	60.33	74.00	13.67	peak
17483.62	H	65.37	74.00	8.63	peak
10360.62	H	45.34	54.00	8.66	AVG
15541.37	H	46.23	54.00	7.77	AVG
17483.62	H	47.34	54.00	6.66	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5200		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10401	V	58.61	74.00	15.39	peak
15596.62	V	62.11	74.00	11.89	peak
17496.37	V	67.27	74.00	6.73	peak
10400.51	V	46.10	54.00	7.90	AVG
15596.32	V	46.21	54.00	7.79	AVG
17496.07	V	47.83	54.00	6.17	AVG
10401	H	54.96	74.00	19.04	peak
15600.87	H	59.03	74.00	14.97	peak
17507	H	67.74	74.00	6.26	peak
10401	H	45.49	54.00	8.51	AVG
15600.87	H	45.40	54.00	8.60	AVG
17507	H	46.87	54.00	7.13	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5240		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10481.75	V	59.16	74.00	14.84	peak
15719.87	V	58.56	74.00	10.94	peak
17515.5	V	67.97	74.00	6.03	peak
10481.81	V	45.04	54.00	8.96	AVG
15719.86	V	45.51	54.00	8.49	AVG
17515.5	V	47.67	54.00	6.33	AVG
10481.75	H	57.07	74.00	16.93	peak
15722	H	57.91	74.00	16.09	peak
17515.5	H	67.69	74.00	6.31	peak
10481.75	H	45.60	54.00	8.40	AVG
15722	H	47.76	54.00	6.24	AVG
17515.5	H	47.52	54.00	6.48	AVG

MIMO:

Test mode:	802.11n(20)	Frequency(MHz):	5180		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10357.110	V	58.64	74.00	15.36	peak
15544.230	V	61.9	74.00	12.1	peak
17493.400	V	66.11	74.00	7.89	peak
10359.380	V	44.22	54.00	9.78	AVG
15543.230	V	47.31	54.00	6.69	AVG
17489.870	V	47.54	54.00	6.46	AVG
10372.310	H	54.54	74.00	19.46	peak
15553.060	H	60.12	74.00	13.88	peak
17495.310	H	65.21	74.00	8.79	peak
10372.310	H	45.2	54.00	8.8	AVG
15538.060	H	46.05	54.00	7.95	AVG
17480.310	H	47.21	54.00	6.79	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5200		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10399.610	V	58.48	74.00	15.52	peak
15595.230	V	61.95	74.00	12.05	peak
17497.650	V	67.24	74.00	6.76	peak
10401.790	V	46.08	54.00	7.92	AVG
15594.070	V	45.95	54.00	8.05	AVG
17493.820	V	47.64	54.00	6.36	AVG
10412.690	H	54.88	74.00	19.12	peak
15612.560	H	58.82	74.00	15.18	peak
17518.690	H	67.58	74.00	6.42	peak
10412.690	H	45.35	54.00	8.65	AVG
15597.560	H	45.22	54.00	8.78	AVG
17503.690	H	46.74	54.00	7.26	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5240		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10480.360	V	59.03	74.00	14.97	peak
15718.480	V	58.4	74.00	15.6	peak
17516.780	V	67.94	74.00	6.06	peak
10483.090	V	45.02	54.00	8.98	AVG
15717.610	V	45.25	54.00	8.75	AVG
17513.250	V	47.48	54.00	6.52	AVG
10493.440	H	56.99	74.00	17.01	peak
15733.690	H	57.7	74.00	16.3	peak
17527.190	H	67.53	74.00	6.47	peak
10493.440	H	45.46	54.00	8.54	AVG
15718.690	H	47.58	54.00	6.42	AVG
17512.190	H	47.39	54.00	6.61	AVG

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) 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:	802.11n(20)	Frequency(MHz):	5180

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5016.425	H	54.40	-40.83	-27	Pass
5027.231	V	54.63	-40.6	-27	Pass

Test mode:	802.11n(20)	Frequency(MHz):	5240

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5403.776	H	53.38	-41.85	-27	Pass
5424.868	V	53.58	-41.65	-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[dBμV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

Test mode:	802.11n(20)	Frequency(MHz):	5180

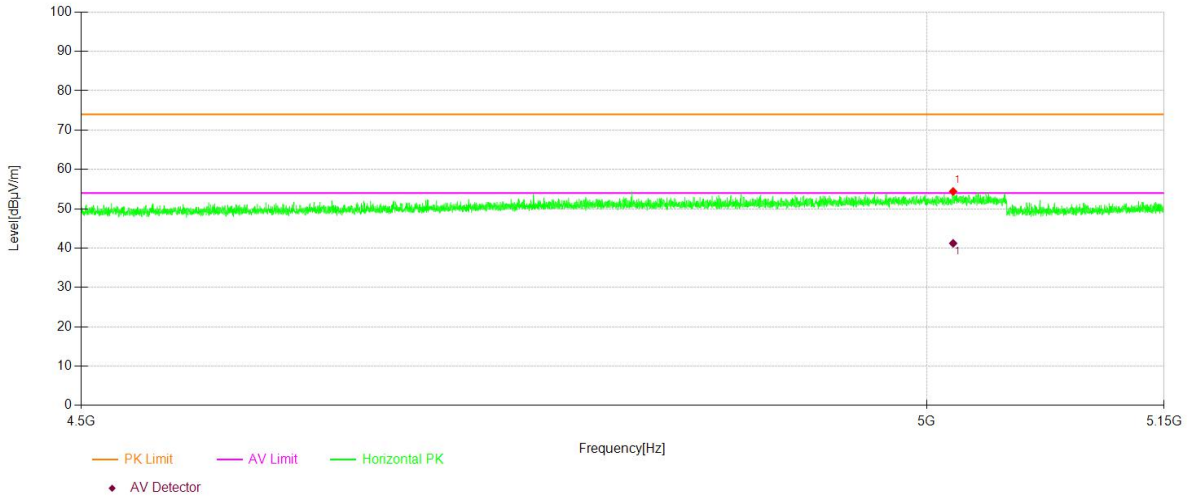
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5027.231	V	54.63	74.00	9.37	peak
5027.231	V	41.32	54.00	12.68	AVG
5016.425	H	54.40	74.00	9.60	peak
5016.423	H	41.22	54.00	12.78	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5240

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5424.868	V	53.58	74.00	20.42	peak
5424.412	V	39.10	54.00	14.90	AVG
5403.776	H	53.38	74.00	20.62	peak
5403.776	H	40.52	54.00	13.48	AVG

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

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



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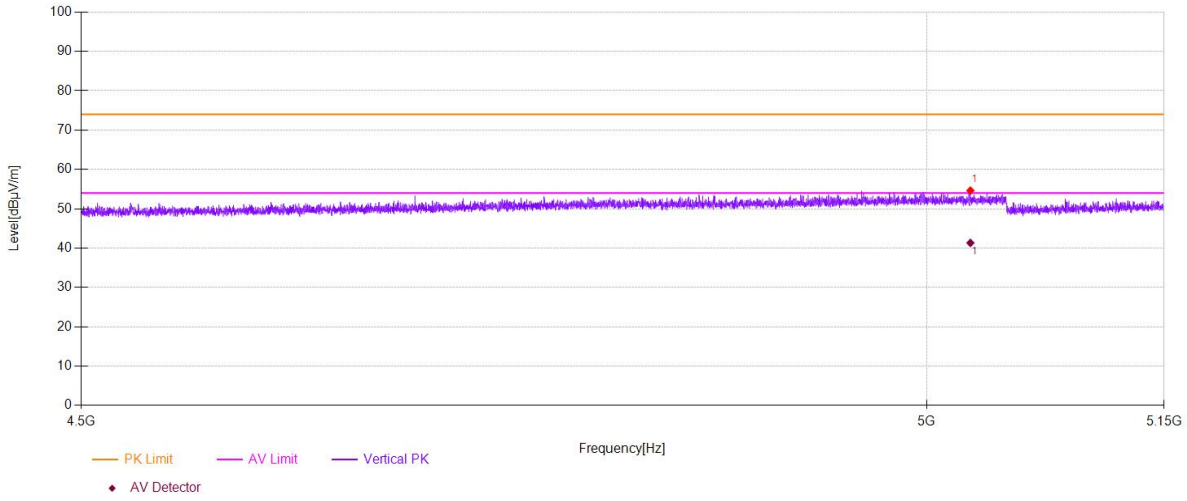
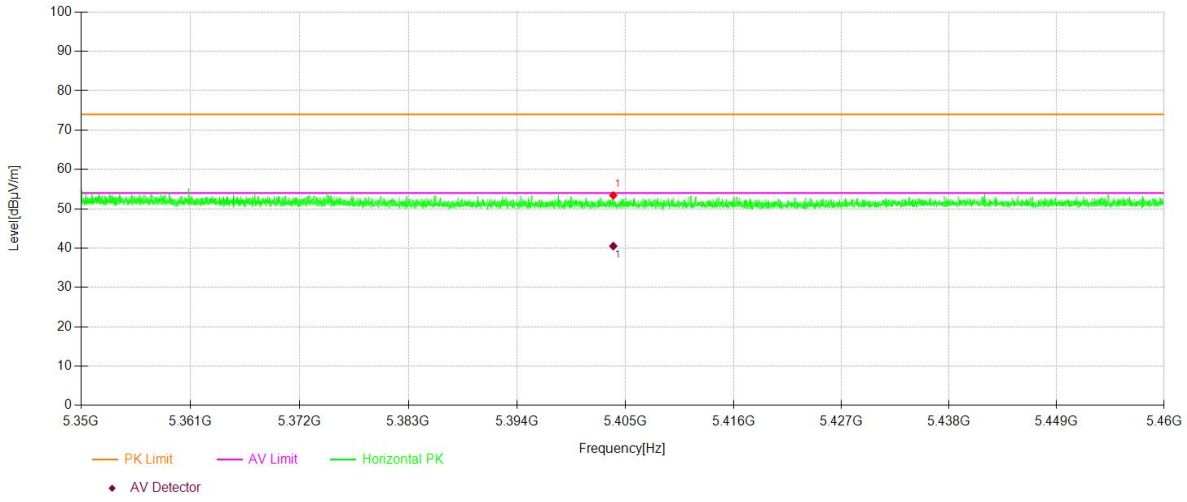
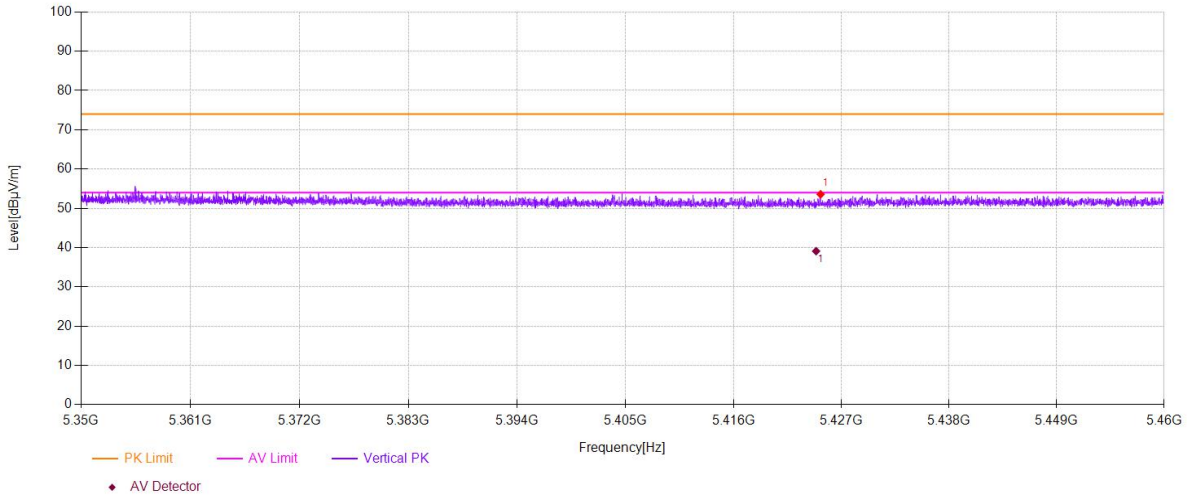
	☒ 5180	☐ 5200	☐ 5240	Ant.Pol	V



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



Test Model	U-NII - 1 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)
Highest gain of each antenna and highest output power is ANT2 and MIMO as below:

ANT2:

Test mode: 802.11n(20) Frequency(MHz): 5260

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10520	V	57.28	-37.95	-27	10.95
15775.12	V	57.95	-37.28	-27	10.28
17500.62	V	67.82	-27.41	-27	0.41
10520	H	55.64	-39.59	-27	12.59
15781.5	H	59.45	-35.78	-27	8.78
17494.25	H	68.01	-27.22	-27	0.22

Test mode: 802.11n(20) Frequency(MHz): 5280

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10566.75	V	58.46	-36.77	-27	9.77
15838.87	V	64.49	-30.74	-27	3.74
17521.87	V	67.99	-27.24	-27	0.24
10560.37	H	56.60	-38.63	-27	11.63
15841	H	58.75	-36.48	-27	9.48
17509.12	H	67.30	-27.93	-27	0.93

Test mode: 802.11n(20) Frequency(MHz): 5320

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10641.12	V	57.83	-37.4	-27	10.4
15957.87	V	61.03	-34.2	-27	7.2
17496.37	V	67.54	-27.69	-27	0.69
10641.12	H	57.58	-37.65	-27	10.65
15972.75	H	57.40	-37.83	-27	10.83
17500.62	H	67.24	-27.99	-27	0.99

MIMO:

Test mode:	802.11n(20)	Frequency(MHz):	5260		

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10518.61	V	57.15	-38.08	-27	11.08
17501.9	V	67.79	-27.44	-27	0.44
15773.21	V	46.4	-48.83	-27	21.83
10531.69	H	55.56	-39.67	-27	12.67
17505.94	H	67.85	-27.38	-27	0.38
15778.47	H	46.52	-48.71	-27	21.71

Test mode:	802.11n(20)	Frequency(MHz):	5280		

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10565.36	V	58.33	-36.90	-27	9.90
17523.15	V	67.96	-27.27	-27	0.27
15836.42	V	46.36	-48.87	-27	21.87
10572.06	H	56.52	-38.71	-27	11.71
17520.81	H	67.14	-28.09	-27	1.09
15837.69	H	46.94	-48.29	-27	21.29

Test mode:	802.11n(20)	Frequency(MHz):	5320		

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10639.73	V	57.7	-37.53	-27	10.53
17497.65	V	67.51	-27.72	-27	0.72
15955.15	V	46.22	-49.01	-27	22.01
10652.81	H	57.5	-37.73	-27	10.73
17512.31	H	67.08	-28.15	-27	1.15
15969.44	H	46.33	-48.90	-27	21.90

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

ANT2:

Test mode:	802.11n(20)	Frequency(MHz):	5260		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10520	V	57.28	74.00	16.72	peak
15775.12	V	57.95	74.00	9.55	peak
17500.62	V	67.82	74.00	6.18	peak
10519.82	V	45.26	54.00	8.74	AVG
15775.46	V	46.66	54.00	7.34	AVG
17500.62	V	48.14	54.00	5.86	AVG
10520	H	55.64	74.00	18.36	peak
15781.5	H	59.45	74.00	14.55	peak
17494.25	H	68.01	74.00	5.99	peak
10520.35	H	45.58	54.00	8.42	AVG
15781.78	H	46.70	54.00	7.30	AVG
17494.25	H	47.72	54.00	6.28	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5280		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10566.75	V	58.46	74.00	15.54	peak
15838.87	V	64.49	74.00	9.51	peak
17521.87	V	67.99	74.00	6.01	peak
10567.08	V	45.49	54.00	8.51	AVG
15838.67	V	46.62	54.00	7.38	AVG
17521.87	V	47.67	54.00	6.33	AVG
10560.37	H	56.60	74.00	17.40	peak
15841	H	58.75	74.00	15.25	peak
17509.12	H	67.30	74.00	6.70	peak
10560.37	H	45.71	54.00	8.29	AVG
15841	H	47.12	54.00	6.88	AVG
17509.12	H	48.08	54.00	5.92	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5320		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10641.12	V	57.83	74.00	16.17	peak
15957.87	V	61.03	74.00	12.97	peak
17496.37	V	67.54	74.00	6.46	peak
10641.36	V	46.47	54.00	7.53	AVG
15957.40	V	46.48	54.00	7.52	AVG
17496.37	V	47.87	54.00	6.13	AVG
10641.12	H	57.58	74.00	16.42	peak
15972.75	H	57.40	74.00	16.60	peak
17500.62	H	67.24	74.00	6.76	peak
10641.12	H	46.27	54.00	7.73	AVG
15972.75	H	46.51	54.00	7.49	AVG
17500.62	H	47.44	54.00	6.56	AVG

MIMO:

Test mode:	802.11n(20)	Frequency(MHz):	5260		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10518.610	V	57.15	74.00	16.85	peak
15773.730	V	57.79	74.00	16.21	peak
17501.900	V	67.79	74.00	6.21	peak
10521.100	V	45.24	54.00	8.76	AVG
15773.210	V	46.4	54.00	7.6	AVG
17498.370	V	47.95	54.00	6.05	AVG
10531.690	H	55.56	74.00	18.44	peak
15793.190	H	59.24	74.00	14.76	peak
17505.940	H	67.85	74.00	6.15	peak
10532.040	H	45.44	54.00	8.56	AVG
15778.470	H	46.52	54.00	7.48	AVG
17490.940	H	47.59	54.00	6.41	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5280		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10565.360	V	58.33	74.00	15.67	peak
15837.480	V	64.33	74.00	9.67	peak
17523.150	V	67.96	74.00	6.04	peak
10568.360	V	45.47	54.00	8.53	AVG
15836.420	V	46.36	54.00	7.64	AVG
17519.620	V	47.48	54.00	6.52	AVG
10572.060	H	56.52	74.00	17.48	peak
15852.690	H	58.54	74.00	15.46	peak
17520.810	H	67.14	74.00	6.86	peak
10572.060	H	45.57	54.00	8.43	AVG
15837.690	H	46.94	54.00	7.06	AVG
17505.810	H	47.95	54.00	6.05	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5320		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10639.730	V	57.7	74.00	16.3	peak
15956.480	V	60.87	74.00	13.13	peak
17497.650	V	67.51	74.00	6.49	peak
10642.640	V	46.45	54.00	7.55	AVG
15955.150	V	46.22	54.00	7.78	AVG
17494.120	V	47.68	54.00	6.32	AVG
10652.810	H	57.5	74.00	16.5	peak
15984.440	H	57.19	74.00	16.81	peak
17512.310	H	67.08	74.00	6.92	peak
10652.810	H	46.13	54.00	7.87	AVG
15969.440	H	46.33	54.00	7.67	AVG
17497.310	H	47.31	54.00	6.69	AVG

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) 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:	802.11n(20)	Frequency(MHz):	5260

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5048.925	H	55.34	-39.89	-27	Pass
4995.625	V	54.91	-40.32	-27	Pass

Test mode:	802.11n(20)	Frequency(MHz):	5320

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5350.825	H	63.50	-31.73	-27	Pass
5351.993	V	62.01	-33.22	-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[dBμV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

Test mode:	802.11n(20)	Frequency(MHz):	5260

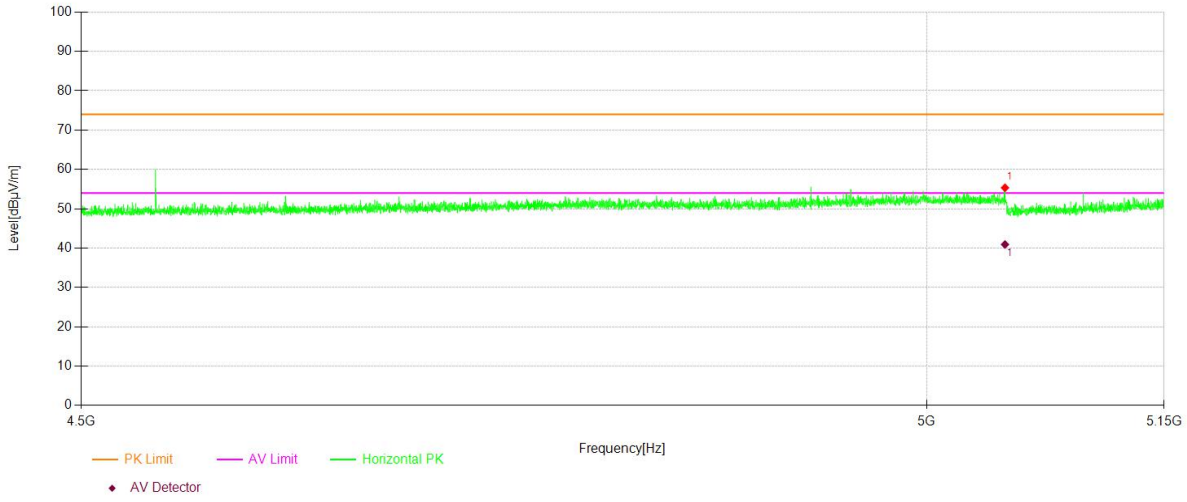
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
4995.625	V	54.91	74.00	19.09	peak
4995.625	V	41.16	54.00	12.84	AVG
5048.925	H	55.34	74.00	18.66	peak
5048.925	H	40.92	54.00	13.08	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5320

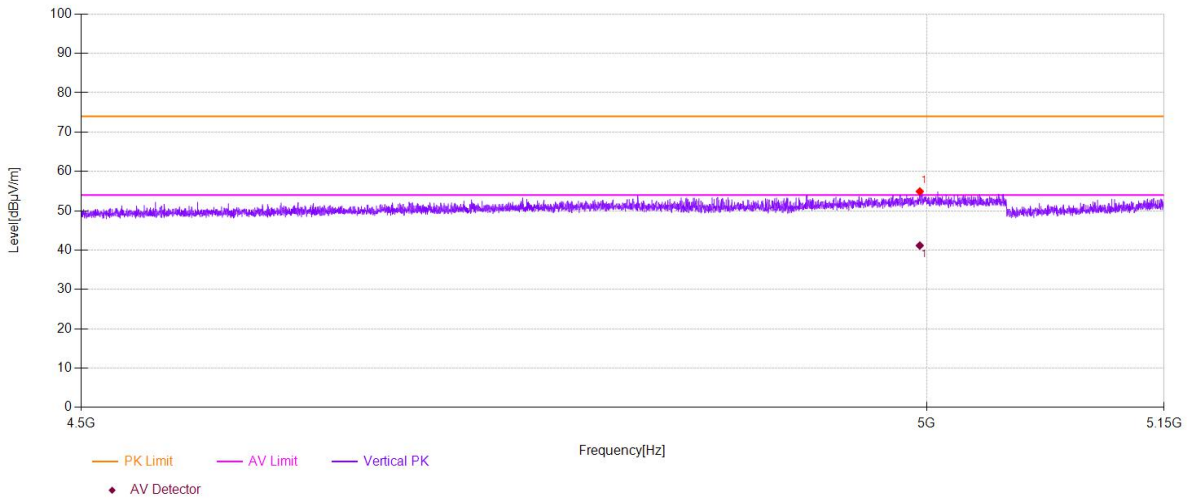
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5351.993	V	62.01	74.00	11.99	peak
5351.768	V	46.14	54.00	7.86	AVG
5350.825	H	63.50	74.00	10.50	peak
5350.825	H	46.52	54.00	7.48	AVG

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

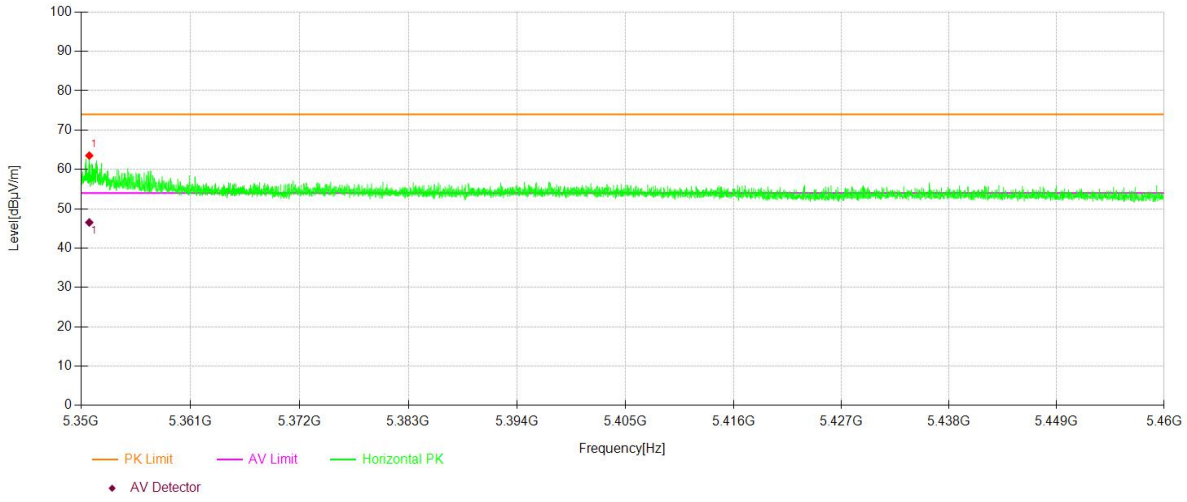
Test Model	U-NII -2A Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)			
	☐ 802.11a	☒ 802.11n(HT20)	☐ 802.11 ac (VHT20)	
	☒ 5260	☐ 5300	☐ 5320	Ant.Pol H



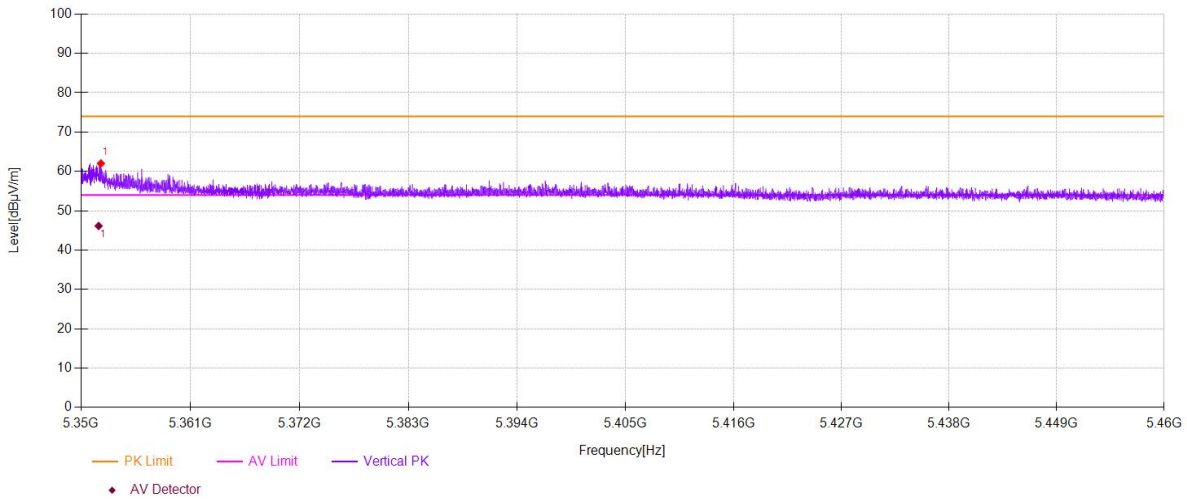
Test Model	U-NII -2A Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)			
	☐ 802.11a	☒ 802.11n(HT20)	☐ 802.11 ac (VHT20)	
	☒ 5260	☐ 5300	☐ 5320	Ant.Pol V



Test Model	U-NII -2A Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)			
	☐ 802.11a	☒ 802.11n(HT20)	☐ 802.11 ac (VHT20)	
	☐ 5260	☐ 5300	☒ 5320	Ant.Pol H



Test Model	U-NII -2A Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)			
	☐ 802.11a	☒ 802.11n(HT20)	☐ 802.11 ac (VHT20)	
	☐ 5260	☐ 5300	☒ 5320	Ant.Pol V



■ ☒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)
Highest gain of each antenna and highest output power is ANT2 and MIMO as below:

ANT2:

Test mode: 802.11n(20) Frequency(MHz): 5500

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11008.75	V	58.23	-37	-27	10
16497.62	V	62.75	-32.48	-27	5.48
17496.37	V	67.88	-27.35	-27	0.35
11000.25	H	56.29	-38.94	-27	11.94
16501.87	H	58.58	-36.65	-27	9.65
17498.5	H	66.60	-28.63	-27	1.63

Test mode: 802.11n(20) Frequency(MHz): 5580

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11161.75	V	56.36	-38.87	-27	11.87
16742	V	59.11	-36.12	-27	9.12
17498.5	V	67.50	-27.73	-27	0.73
11161.75	H	57.42	-37.81	-27	10.81
16801.5	H	62.36	-32.87	-27	5.87
17490	H	67.62	-27.61	-27	0.61

Test mode: 802.11n(20) Frequency(MHz): 5700

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11395.5	V	58.52	-36.71	-27	9.71
17101.12	V	61.45	-33.78	-27	6.78
17500.62	V	68.12	-27.11	-27	0.11
11401.87	H	58.07	-37.16	-27	10.16
17101.12	H	60.65	-34.58	-27	7.58
17494.25	H	67.92	-27.31	-27	0.31

MIMO:

Test mode:	802.11n(20)	Frequency(MHz):	5500		

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11007.36	V	58.1	-37.13	-27	10.13
17497.66	V	67.85	-27.38	-27	0.38
16494.99	V	46.3	-48.93	-27	21.93
11011.94	H	56.21	-39.02	-27	12.02
17510.19	H	66.44	-28.79	-27	1.79
16498.57	H	46.56	-48.67	-27	21.67

Test mode:	802.11n(20)	Frequency(MHz):	5580		

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11160.36	V	56.23	-39.00	-27	12.00
17499.78	V	67.47	-27.76	-27	0.76
16737.75	V	47.34	-47.89	-27	20.89
11173.44	H	57.34	-37.89	-27	10.89
17501.69	H	67.46	-27.77	-27	0.77
16736.69	H	46.94	-48.29	-27	21.29

Test mode:	802.11n(20)	Frequency(MHz):	5700		

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11394.11	V	58.39	-36.84	-27	9.84
17501.90	V	68.09	-27.14	-27	0.14
17099.21	V	46.69	-48.54	-27	21.54
11413.56	H	57.99	-37.24	-27	10.24
17505.94	H	67.76	-27.47	-27	0.47
17097.81	H	46.49	-48.74	-27	21.74

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

ANT2:

Test mode: 802.11n(20)		Frequency(MHz): 5500			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11008.75	V	58.23	74.00	15.77	peak
16497.625	V	62.75	74.00	11.25	peak
17496.375	V	67.88	74.00	6.12	peak
11008.4003	V	46.07	54.00	7.93	AVG
16497.2384	V	46.56	54.00	7.44	AVG
17496.375	V	47.92	54.00	6.08	AVG
11000.25	H	56.29	74.00	17.71	peak
16501.875	H	58.58	74.00	15.42	peak
17498.5	H	66.60	74.00	7.40	peak
11000.25	H	46.13	54.00	7.87	AVG
16501.875	H	46.74	54.00	7.26	AVG
17498.5	H	47.97	54.00	6.03	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5580		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11161.75	V	56.36	74.00	17.64	peak
16742	V	59.11	74.00	14.89	peak
17498.5	V	67.50	74.00	6.50	peak
11160	V	45.68	54.00	8.32	AVG
16740	V	47.60	54.00	6.40	AVG
17498.5	V	48.46	54.00	5.54	AVG
11161.75	H	57.42	74.00	16.58	peak
16801.5	H	62.36	74.00	11.64	peak
17490	H	67.62	74.00	6.38	peak
11160	H	46.50	54.00	7.50	AVG
16740	H	47.12	54.00	6.88	AVG
17490	H	48.30	54.00	5.70	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5700		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11395.5	V	58.52	74.00	10.48	peak
17101.12	V	61.45	74.00	12.55	peak
17500.62	V	68.12	74.00	5.88	peak
11395.61	V	46.04	54.00	7.96	peak
17101.46	V	46.95	54.00	7.05	AVG
17500.62	V	47.87	54.00	6.13	AVG
11401.87	H	58.07	74.00	15.93	AVG
17101.12	H	60.65	74.00	13.35	peak
17494.25	H	67.92	74.00	6.08	peak
11401.87	H	47.16	54.00	6.84	peak
17101.12	H	46.67	54.00	7.33	AVG
17494.25	H	47.69	54.00	6.31	AVG

MIMO:

Test mode: 802.11n(20)		Frequency(MHz): 5500			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11007.360	V	58.1	74.00	15.9	peak
16496.235	V	62.59	74.00	11.41	peak
17497.655	V	67.85	74.00	6.15	peak
11009.680	V	46.05	54.00	7.95	AVG
16494.988	V	46.3	54.00	7.7	AVG
17494.125	V	47.73	54.00	6.27	AVG
11011.940	H	56.21	74.00	17.79	peak
16513.565	H	58.37	74.00	15.63	peak
17510.190	H	66.44	74.00	7.56	peak
11011.940	H	45.99	54.00	8.01	AVG
16498.565	H	46.56	54.00	7.44	AVG
17495.190	H	47.84	54.00	6.16	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5580		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11160.360	V	56.23	74.00	17.77	peak
16740.610	V	58.95	74.00	15.05	peak
17499.780	V	67.47	74.00	6.53	peak
11161.280	V	45.66	54.00	8.34	AVG
16737.750	V	47.34	54.00	6.66	AVG
17496.250	V	48.27	54.00	5.73	AVG
11173.440	H	57.34	74.00	16.66	peak
16813.190	H	62.15	74.00	11.85	peak
17501.690	H	67.46	74.00	6.54	peak
11171.690	H	46.36	54.00	7.64	AVG
16736.690	H	46.94	54.00	7.06	AVG
17486.690	H	48.17	54.00	5.83	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5700		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11394.110	V	58.39	74.00	15.61	peak
17099.730	V	61.29	74.00	12.71	peak
17501.900	V	68.09	74.00	5.91	peak
11396.890	V	46.02	54.00	7.98	AVG
17099.210	V	46.69	54.00	7.31	AVG
17498.370	V	47.68	54.00	6.32	AVG
11413.560	H	57.99	74.00	16.01	peak
17112.810	H	60.44	74.00	13.56	peak
17505.940	H	67.76	74.00	6.24	peak
11413.560	H	47.02	54.00	6.98	AVG
17097.810	H	46.49	54.00	7.51	AVG
17490.940	H	47.56	54.00	6.44	AVG

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) 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:	802.11n(20)	Frequency(MHz):	5500

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5468.993	H	61.65	-33.58	-27	Pass
5468.368	V	62.98	-32.25	-27	Pass

Test mode:	802.11n(20)	Frequency(MHz):	5700

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5725.65	H	66.13	-29.1	-27	Pass
5725.018	V	63.83	-31.4	-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[dBμV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

Test mode:	802.11n(20)	Frequency(MHz):	5500

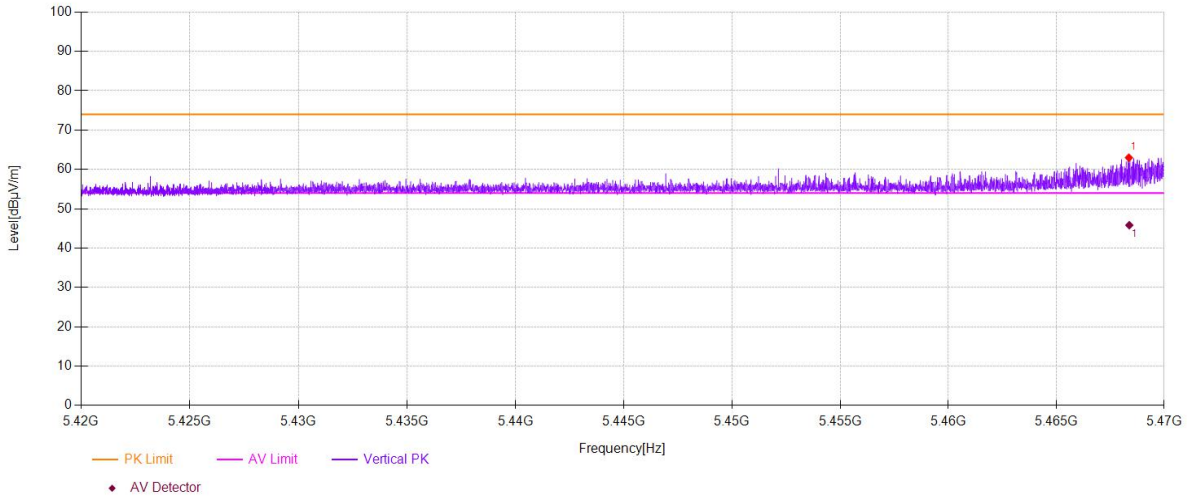
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5468.368	V	62.98	74.00	11.02	peak
5468.388	V	45.82	54.00	8.18	AVG
5468.993	H	61.65	74.00	12.35	peak
5468.993	H	45.56	54.00	8.44	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5700

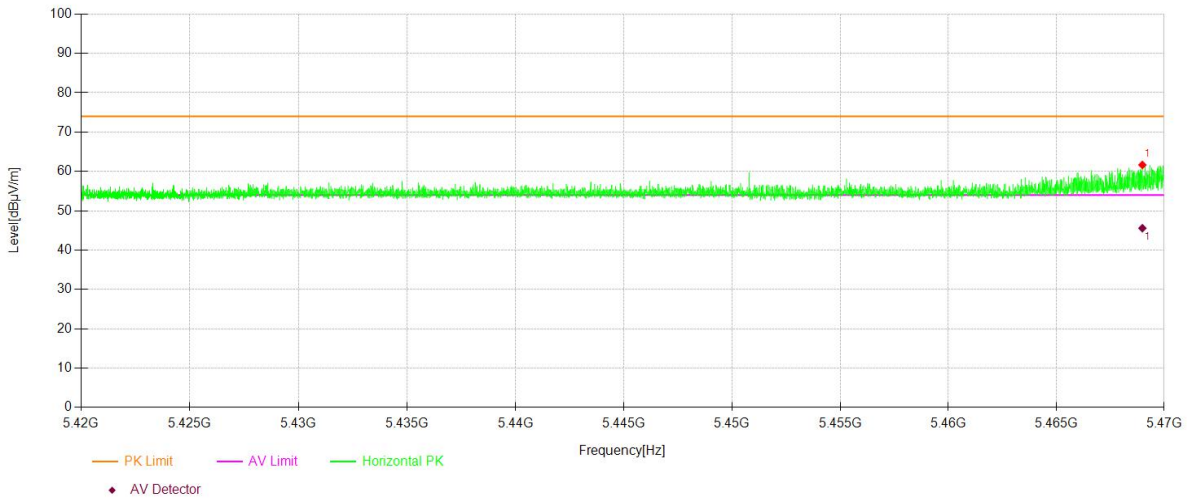
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5725.018	V	63.83	74.00	10.17	peak
5725.094	V	48.22	54.00	5.78	AVG
5725.65	H	66.13	74.00	7.87	peak
5725.65	H	48.98	54.00	5.02	AVG

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

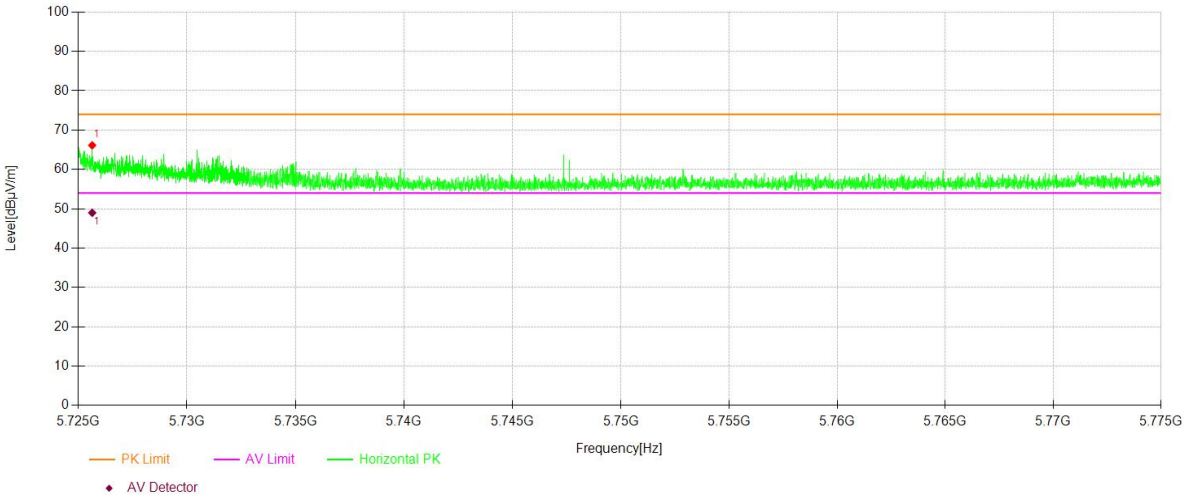
Test Model	U-NII -2C Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)			
	☐ 802.11a	☒ 802.11n(HT20)	☐ 802.11 ac (VHT20)	
	☒ 5500	☐ 5580	☐ 5700	Ant.Pol H



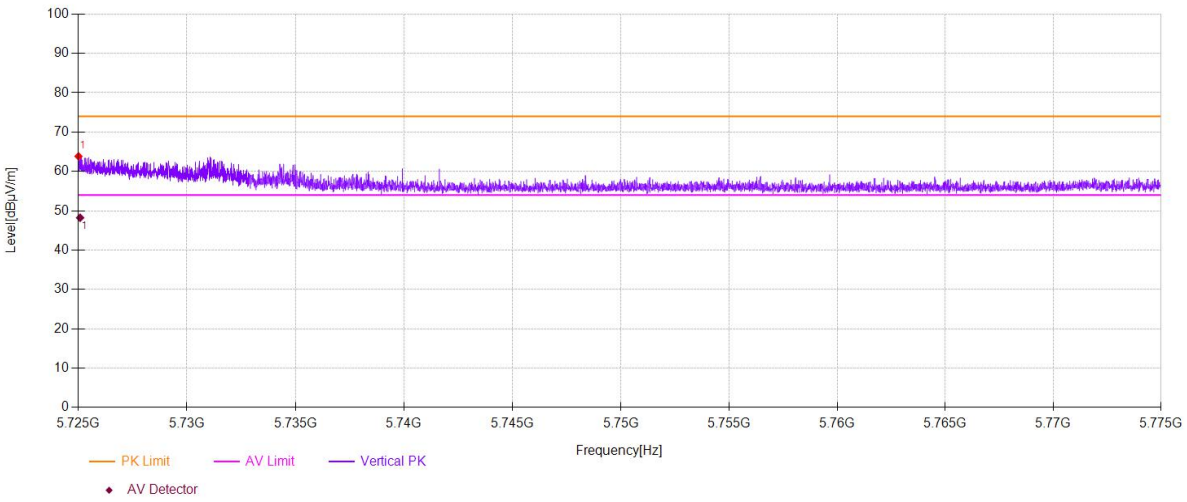
Test Model	U-NII -2C Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)			
	☐ 802.11a	☒ 802.11n(HT20)	☐ 802.11 ac (VHT20)	
	☒ 5500	☐ 5580	☐ 5700	Ant.Pol V



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



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



■ ☒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)
Highest gain of each antenna and highest output power is ANT2 and MIMO as below:

ANT2:

Test mode: 802.11n(20) Frequency(MHz): 5745

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11491.125	V	59.11	-36.12	-27	9.12
17235	V	61.07	-34.16	-27	7.16
17509.125	V	67.10	-28.13	-27	1.13
11491.125	H	58.00	-37.23	-27	10.23
17235	H	61.56	-33.67	-27	6.67
17473	H	67.66	-27.57	-27	0.57

Test mode: 802.11n(20) Frequency(MHz): 5785

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11569.75	V	60.70	-34.53	-27	7.53
17356.125	V	61.31	-33.92	-27	6.92
17515.5	V	67.52	-27.71	-27	0.71
11571.875	H	58.48	-36.75	-27	9.75
17356.125	H	63.20	-32.03	-27	5.03
17500.625	H	67.54	-27.69	-27	0.69

Test mode: 802.11n(20) Frequency(MHz): 5825

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11654.75	V	60.29	-34.94	-27	7.94
17031	V	65.44	-29.79	-27	2.79
17475.12	V	67.04	-28.19	-27	1.19
11650.5	H	56.81	-38.42	-27	11.42
14529.87	H	62.43	-32.8	-27	5.8
17475.12	H	65.60	-29.63	-27	2.63

MIMO:

Test mode:	802.11n(20)	Frequency(MHz):	5745		

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11489.73	V	58.98	-36.25	-27	9.25
17510.40	V	67.07	-28.16	-27	1.16
17232.75	V	46.42	-48.81	-27	21.81
11502.81	H	57.92	-37.31	-27	10.31
17484.69	H	67.5	-27.73	-27	0.73
17231.69	H	47.81	-47.42	-27	20.42

Test mode:	802.11n(20)	Frequency(MHz):	5785		

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11568.36	V	60.57	-34.66	-27	7.66
17516.78	V	67.49	-27.74	-27	0.74
17353.65	V	46.36	-48.87	-27	21.87
11583.56	H	58.4	-36.83	-27	9.83
17512.31	H	67.38	-27.85	-27	0.85
17352.81	H	45.94	-49.29	-27	22.29

Test mode:	802.11n(20)	Frequency(MHz):	5825		

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11653.36	V	60.16	-35.07	-27	8.07
17476.40	V	67.01	-28.22	-27	1.22
17028.75	V	47.66	-47.57	-27	20.57
11662.19	H	56.73	-38.50	-27	11.50
17486.81	H	65.44	-29.79	-27	2.79
14526.56	H	46.85	-48.38	-27	21.38

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

ANT2:

Test mode:	802.11n(20)	Frequency(MHz):	5745		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11491.12	V	59.11	74.00	14.89	peak
17235	V	61.07	74.00	12.93	peak
17509.12	V	67.10	74.00	6.90	peak
11491.12	V	46.88	54.00	7.12	AVG
17235	V	46.68	54.00	7.32	AVG
17509.12	V	48.08	54.00	5.92	AVG
11491.12	H	58.00	74.00	16.00	peak
17235	H	61.56	74.00	12.44	peak
17473	H	67.66	74.00	6.34	peak
11491.12	H	46.47	54.00	7.53	AVG
17235	H	47.99	54.00	6.01	AVG
17473	H	46.86	54.00	7.14	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5785		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11569.75	V	60.70	74.00	13.30	peak
17356.12	V	61.31	74.00	12.69	peak
17515.5	V	67.52	74.00	6.48	peak
11569.82	V	47.25	54.00	6.75	AVG
17355.90	V	46.62	54.00	7.38	AVG
17515.5	V	47.63	54.00	6.37	AVG
11571.87	H	58.48	74.00	15.52	peak
17356.12	H	63.20	74.00	10.80	peak
17500.62	H	67.54	74.00	6.46	peak
11571.87	H	46.41	54.00	7.59	AVG
17356.12	H	46.12	54.00	7.88	AVG
17500.62	H	47.96	54.00	6.04	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5825		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11654.75	V	60.29	74.00	13.71	peak
17031	V	65.44	74.00	8.56	peak
17475.12	V	67.04	74.00	6.96	peak
11654.36	V	44.76	54.00	9.24	AVG
17031	V	47.92	54.00	6.08	AVG
17474.63	V	48.53	54.00	5.47	AVG
11650.5	H	56.81	74.00	17.19	peak
14529.87	H	62.43	74.00	11.57	peak
17475.12	H	65.60	74.00	8.40	peak
11650.5	H	46.07	54.00	7.93	AVG
14529.87	H	47.03	54.00	6.97	AVG
17475.12	H	48.92	54.00	5.08	AVG

MIMO:

Test mode:	802.11n(20)	Frequency(MHz):	5745		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11489.730	V	58.98	74.00	15.02	peak
17233.610	V	60.91	74.00	13.09	peak
17510.400	V	67.07	74.00	6.93	peak
11492.400	V	46.86	54.00	7.14	AVG
17232.750	V	46.42	54.00	7.58	AVG
17506.870	V	47.89	54.00	6.11	AVG
11502.810	H	57.92	74.00	16.08	peak
17246.690	H	61.35	74.00	12.65	peak
17484.690	H	67.5	74.00	6.5	peak
11502.810	H	46.33	54.00	7.67	AVG
17231.690	H	47.81	54.00	6.19	AVG
17469.690	H	46.73	54.00	7.27	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5785		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11568.360	V	60.57	74.00	13.43	peak
17354.730	V	61.15	74.00	12.85	peak
17516.780	V	67.49	74.00	6.51	peak
11571.100	V	47.23	54.00	6.77	AVG
17353.650	V	46.36	54.00	7.64	AVG
17513.250	V	47.44	54.00	6.56	AVG
11583.560	H	58.4	74.00	15.6	peak
17367.810	H	62.99	74.00	11.01	peak
17512.310	H	67.38	74.00	6.62	peak
11583.560	H	46.27	54.00	7.73	AVG
17352.810	H	45.94	54.00	8.06	AVG
17497.310	H	47.83	54.00	6.17	AVG

Test mode:	802.11n(20)	Frequency(MHz):	5825		
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11653.360	V	60.16	74.00	13.84	peak
17029.610	V	65.28	74.00	8.72	peak
17476.400	V	67.01	74.00	6.99	peak
11655.640	V	44.74	54.00	9.26	AVG
17028.750	V	47.66	54.00	6.34	AVG
17472.380	V	48.34	54.00	5.66	AVG
11662.190	H	56.73	74.00	17.27	peak
14541.560	H	62.22	74.00	11.78	peak
17486.810	H	65.44	74.00	8.56	peak
11662.190	H	45.93	54.00	8.07	AVG
14526.560	H	46.85	54.00	7.15	AVG
17471.810	H	48.79	54.00	5.21	AVG

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

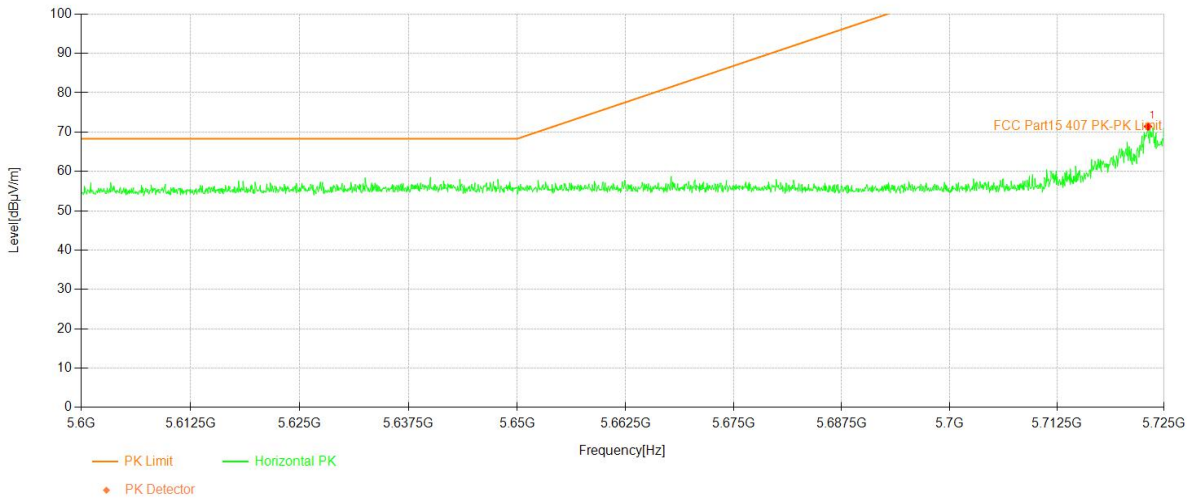
- ☒ Undesirable radiated Spurious Emission in band edge

Test mode:	802.11n(20)	Frequency:	5745		
Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5723.124	H	71.42	-23.81	-27.00	PASS
5723.624	V	71.82	-23.41	-27.00	PASS

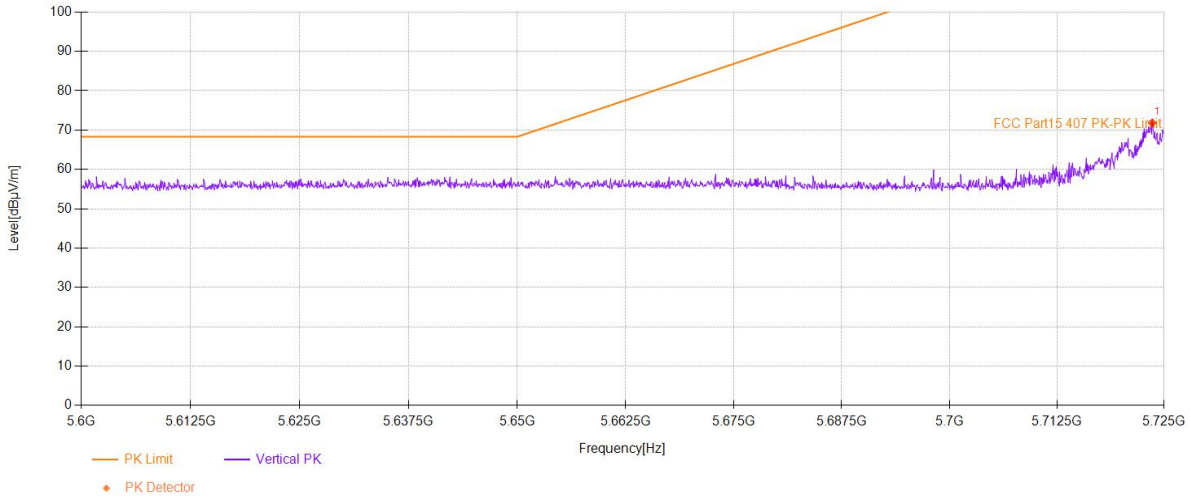
Test mode:	802.11n(20)	Frequency:	5825		
Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5850.500	H	67.66	-27.57	-27.00	PASS
5851.438	V	66.39	-28.84	-27.00	PASS

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[dBμV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

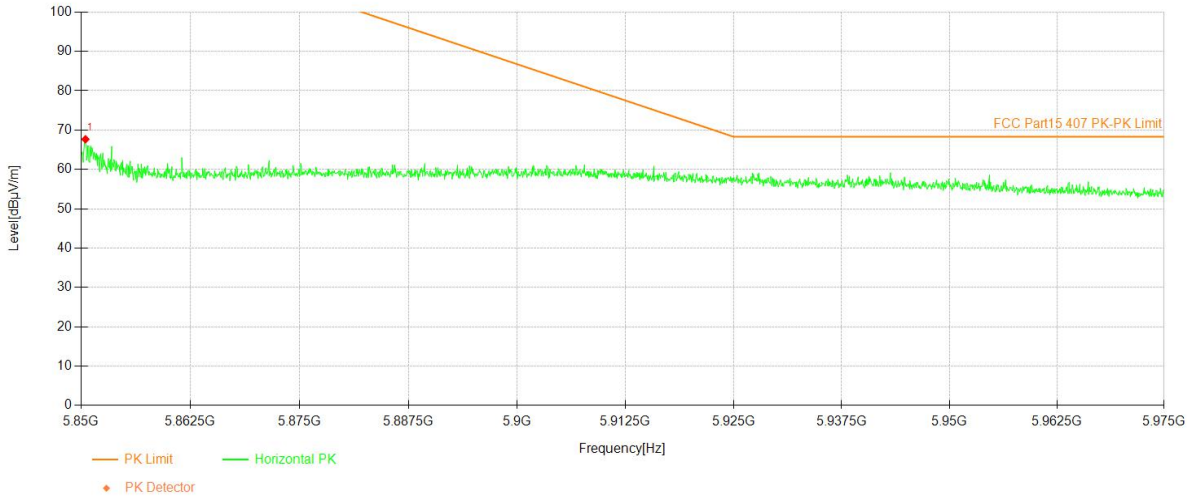
Test Model	U-NII -3 Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40) ☒ 5745 Ant.Pol H



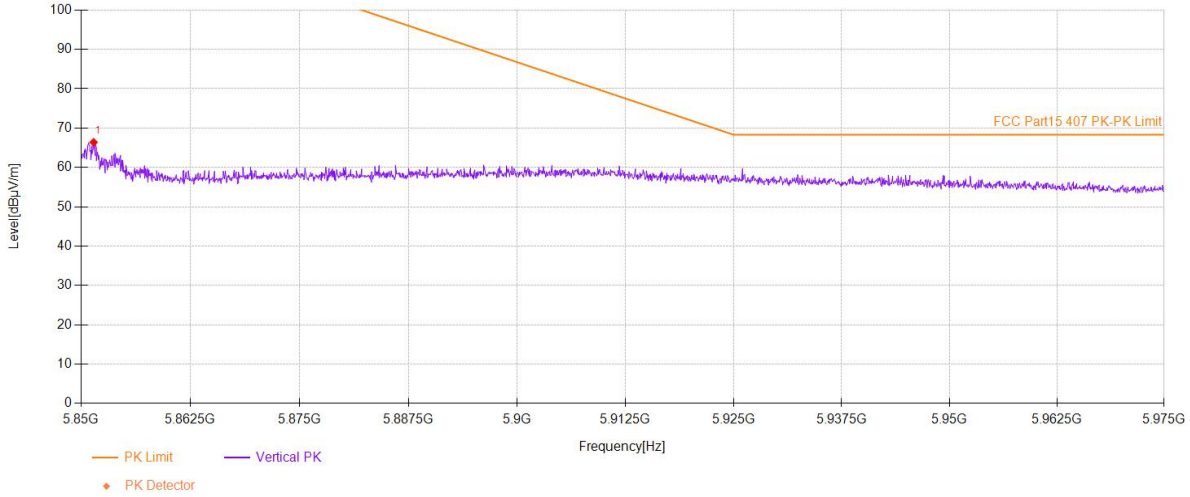
Test Model	U-NII -3 Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40) ☒ 5745 Ant.Pol V



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

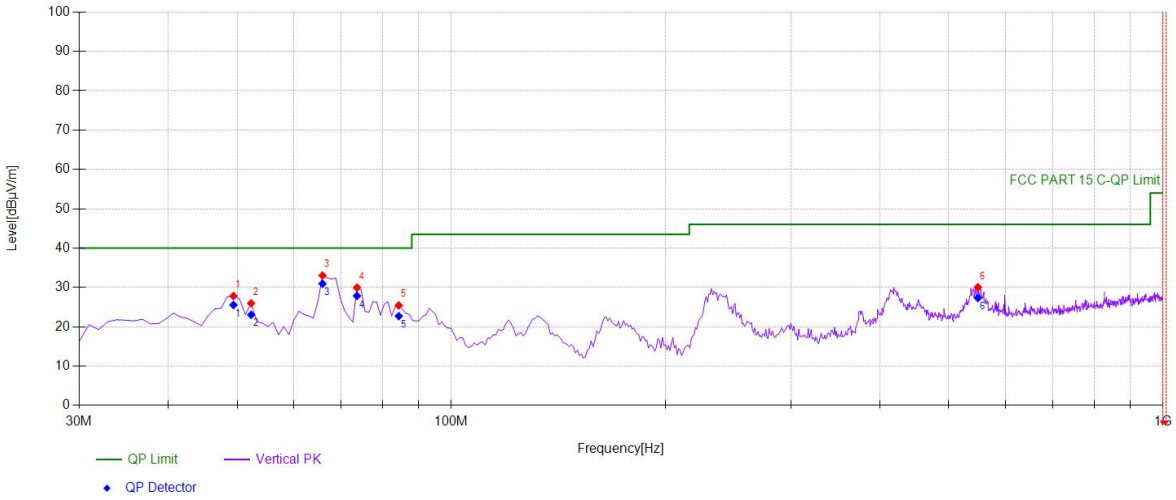


Test Model	U-NII -3 Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40) ☒ 5825 Ant.Pol V



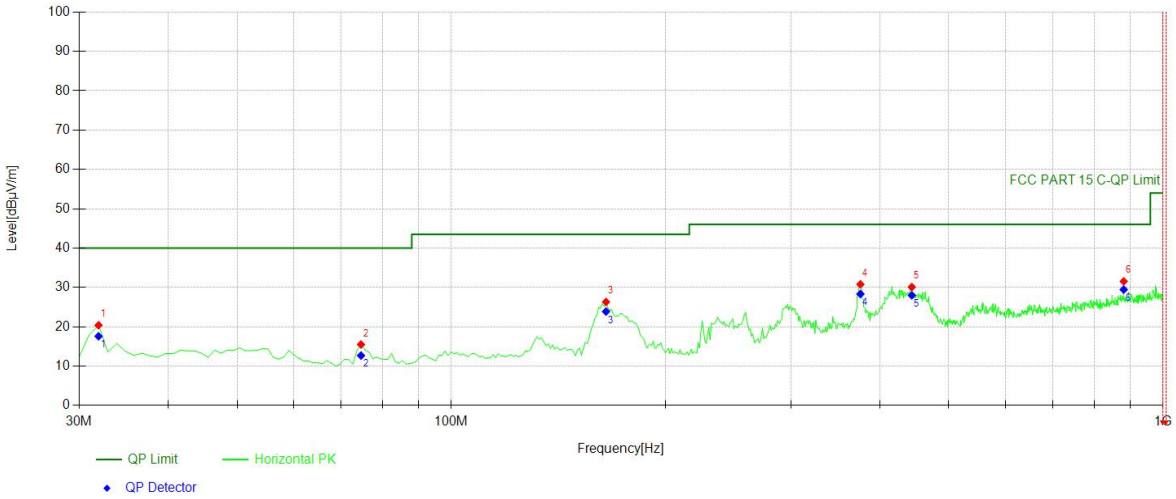
- Undesirable radiated Spurious Emission below 1GHz (30MHz to 1GHz)
  All modes have been tested, and the worst result recorded was report as below:

Test mode:	802.11a	Frequency(MHz):	5180



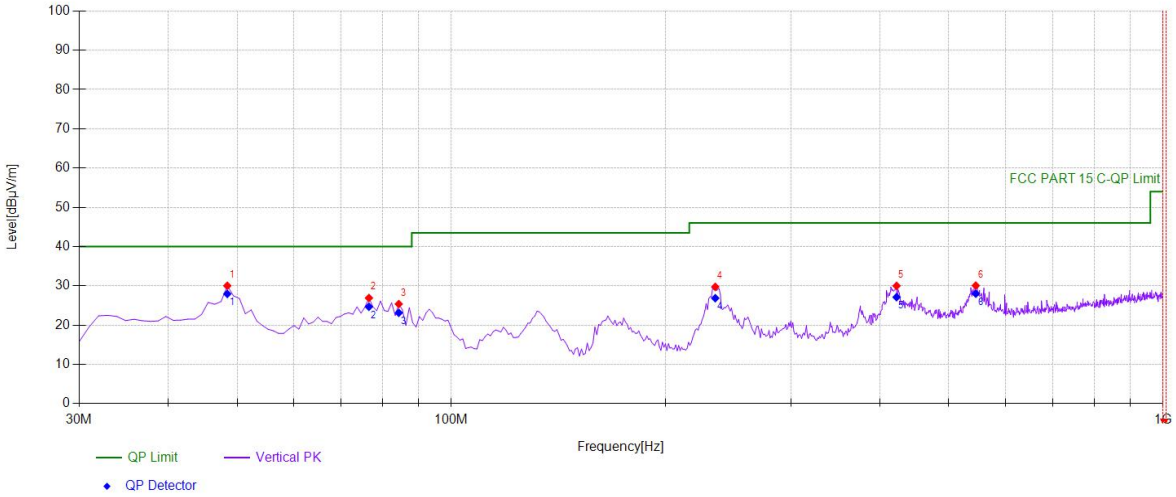
Suspected Data List

NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	49.4194	27.83	40.00	12.17	100	220	Vertical
2	52.3323	25.97	40.00	14.03	100	174	Vertical
3	65.9259	33.04	40.00	6.96	100	220	Vertical
4	73.6937	29.96	40.00	10.04	100	0	Vertical
5	84.3744	25.44	40.00	14.56	100	330	Vertical
6	549.4695	30.05	46.00	15.95	100	34	Vertical



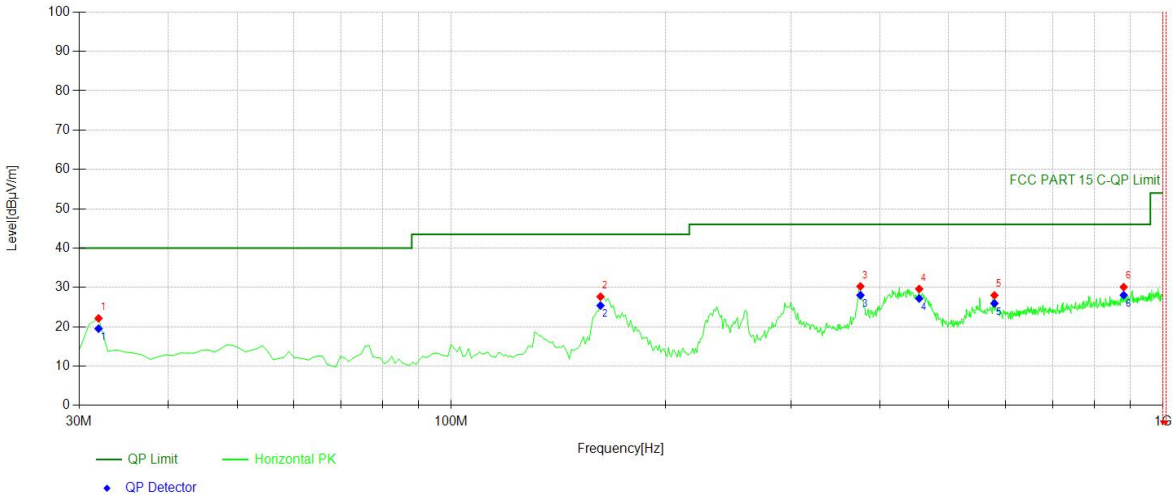
Suspected Data List							
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	31.9419	20.40	40.00	19.60	100	112	Horizontal
2	74.6647	15.50	40.00	24.50	100	268	Horizontal
3	164.965	26.32	43.50	17.18	100	291	Horizontal
4	375.6657	30.79	46.00	15.21	100	131	Horizontal
5	443.6336	30.10	46.00	15.90	100	31	Horizontal
6	880.5706	31.55	46.00	14.45	100	209	Horizontal

Test mode:	802.11a	Frequency(MHz):	5200



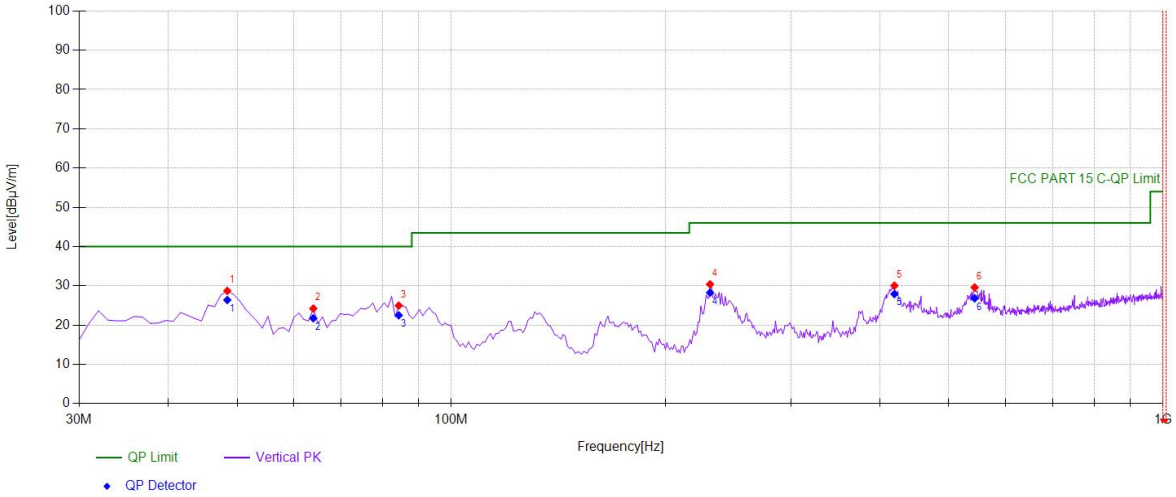
Suspected Data List

NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	48.4484	30.03	40.00	9.97	100	329	Vertical
2	76.6066	26.92	40.00	13.08	100	329	Vertical
3	84.3744	25.38	40.00	14.62	100	168	Vertical
4	234.8749	29.74	46.00	16.26	100	6	Vertical
5	422.2723	30.01	46.00	15.99	100	329	Vertical
6	545.5856	30.07	46.00	15.93	100	38	Vertical



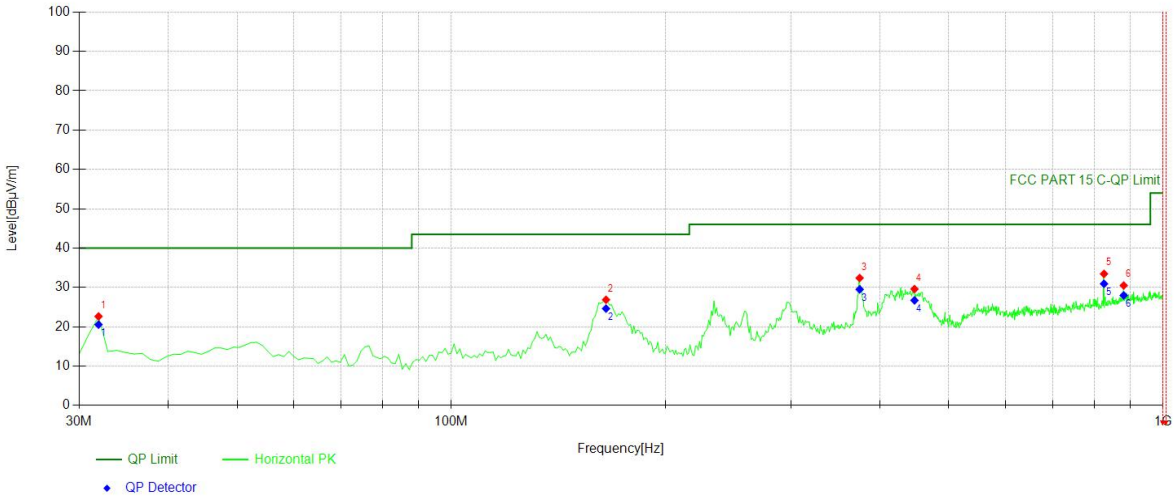
Suspected Data List							
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	31.9419	22.14	40.00	17.86	100	100	Horizontal
2	162.0521	27.65	43.50	15.85	100	86	Horizontal
3	375.6657	30.28	46.00	15.72	100	123	Horizontal
4	454.3143	29.61	46.00	16.39	100	31	Horizontal
5	579.5696	28.00	46.00	18.00	100	275	Horizontal
6	880.5706	30.10	46.00	15.90	100	211	Horizontal

Test mode:	802.11a	Frequency(MHz):	5240



Suspected Data List

NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	48.4484	28.72	40.00	11.28	100	201	Vertical
2	63.984	24.22	40.00	15.78	100	330	Vertical
3	84.3744	24.98	40.00	15.02	100	0	Vertical
4	230.991	30.40	46.00	15.60	100	41	Vertical
5	419.3594	30.05	46.00	15.95	100	1	Vertical
6	543.6436	29.60	46.00	16.40	100	54	Vertical



Suspected Data List							
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	31.9419	22.64	40.00	17.36	100	305	Horizontal
2	164.965	26.87	43.50	16.63	100	264	Horizontal
3	374.6947	32.39	46.00	13.61	100	132	Horizontal
4	447.5175	29.60	46.00	16.40	100	30	Horizontal
5	826.1962	33.45	46.00	12.55	100	136	Horizontal
6	880.5706	30.50	46.00	15.50	100	168	Horizontal

8.5 POWER LINE CONDUCTED EMISSIONS

8.5.1 Applicable Standard

According to FCC Part 15.207(a)

8.5.2 Conformance Limit

Conducted Emission Limit		
Frequency(MHz)	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.

8.5.3 Test Configuration

Test according to clause 6.3 conducted emission test setup

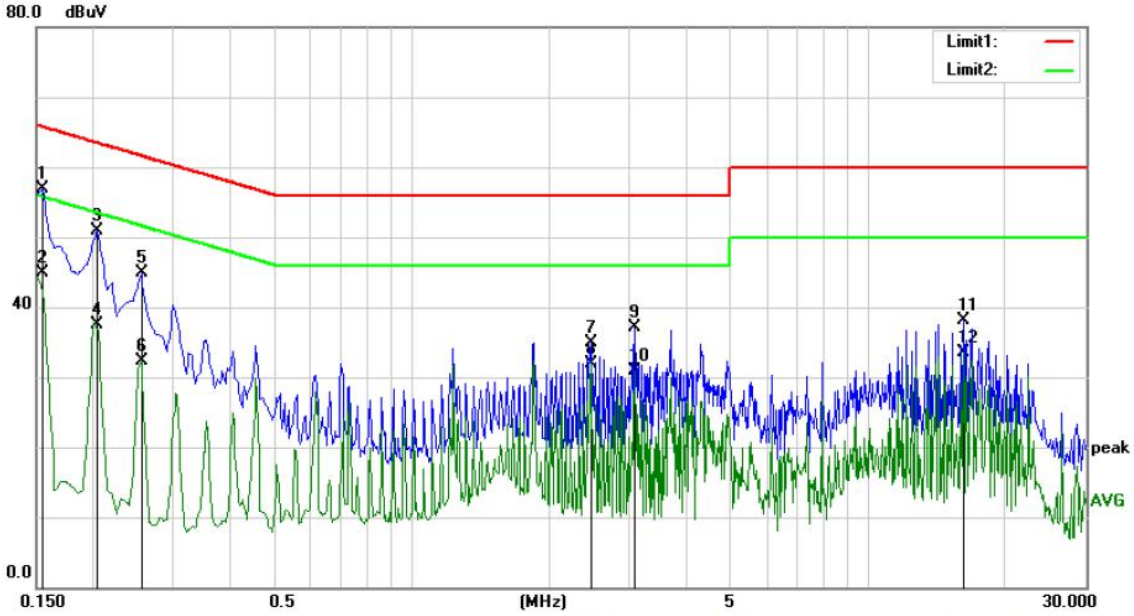
8.5.4 Test Procedure

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.

8.5.5 Test Results

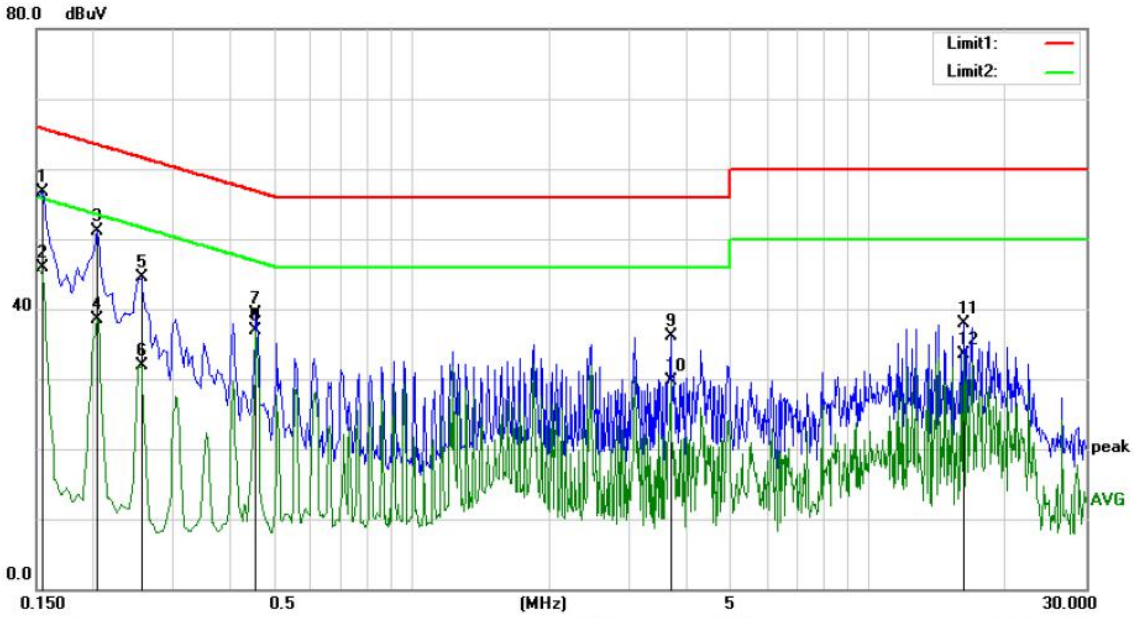
Pass

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



Site Conduction #1 Phase: *N* Temperature: 21.9

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1550	47.38	9.53	56.91	65.73	-8.82	QP	
2		0.1550	35.34	9.53	44.87	55.73	-10.86	AVG	
3		0.2050	41.36	9.53	50.89	63.41	-12.52	QP	
4		0.2050	27.97	9.53	37.50	53.41	-15.91	AVG	
5		0.2550	35.36	9.53	44.89	61.59	-16.70	QP	
6		0.2550	22.73	9.53	32.26	51.59	-19.33	AVG	
7		2.4750	25.45	9.55	35.00	56.00	-21.00	QP	
8		2.4750	22.45	9.55	32.00	46.00	-14.00	AVG	
9		3.0800	27.57	9.56	37.13	56.00	-18.87	QP	
10		3.0800	21.30	9.56	30.86	46.00	-15.14	AVG	
11		16.2050	28.32	9.85	38.17	60.00	-21.83	QP	
12		16.2050	23.56	9.85	33.41	50.00	-16.59	AVG	



Site Conduction #1 Phase: *L1* Temperature: 21.9

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1550	47.22	9.53	56.75	65.73	-8.98	QP	
2		0.1550	36.32	9.53	45.85	55.73	-9.88	AVG	
3		0.2050	41.66	9.53	51.19	63.41	-12.22	QP	
4		0.2050	28.96	9.53	38.49	53.41	-14.92	AVG	
5		0.2550	34.92	9.53	44.45	61.59	-17.14	QP	
6		0.2550	22.33	9.53	31.86	51.59	-19.73	AVG	
7		0.4550	29.84	9.53	39.37	56.78	-17.41	QP	
8		0.4550	27.31	9.53	36.84	46.78	-9.94	AVG	
9		3.6950	26.45	9.56	36.01	56.00	-19.99	QP	
10		3.6950	20.12	9.56	29.68	46.00	-16.32	AVG	
11		16.2050	28.10	9.85	37.95	60.00	-22.05	QP	
12		16.2050	23.67	9.85	33.52	50.00	-16.48	AVG	

8.6 ANTENNA APPLICATION

8.6.1 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.

8.6.2 Result

PASS

The EUT is integrated antenna, the antenna gain as below:
5150-5250MHz: Ant 1: 4.67dBi, Ant 2: 4.67dBi
5250-5350MHz: Ant 1: 4.67dBi, Ant 2: 4.67dBi
5470-5725MHz: Ant 1: 4.67dBi, Ant 2: 4.67dBi
5725-5850MHz: Ant 1: 4.67dBi, Ant 2: 4.67dBi

☒ 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 ---