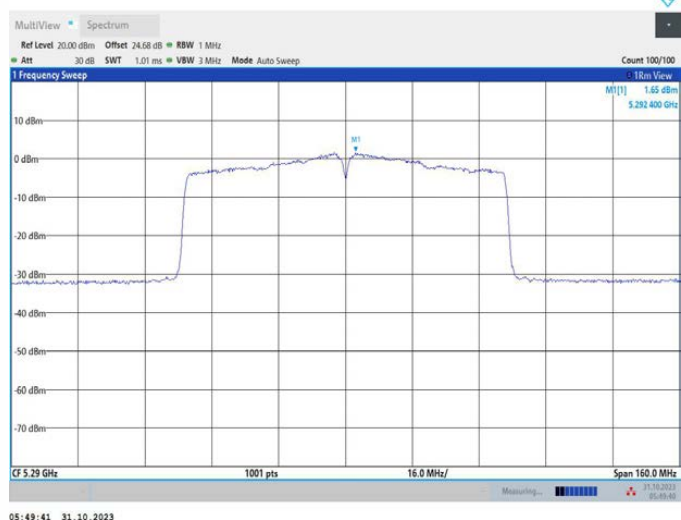
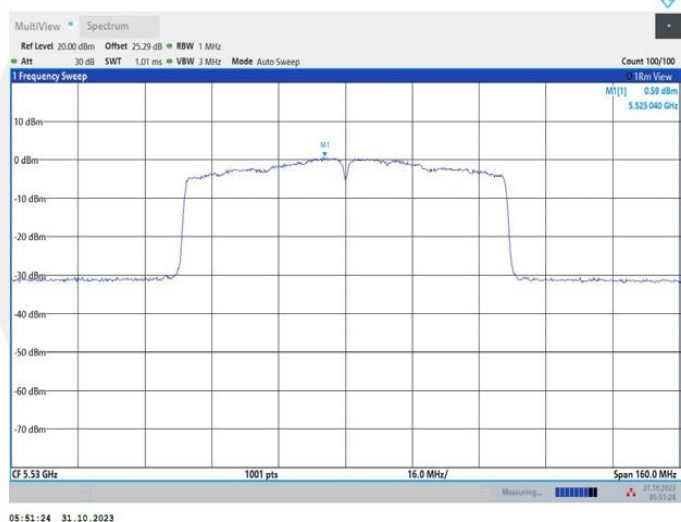


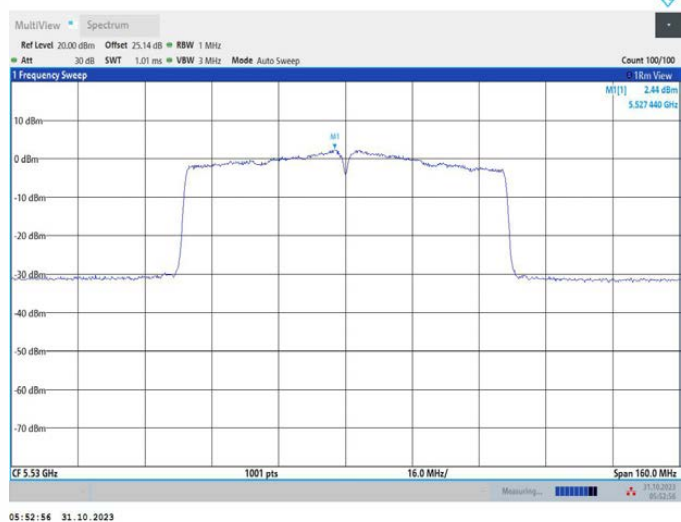
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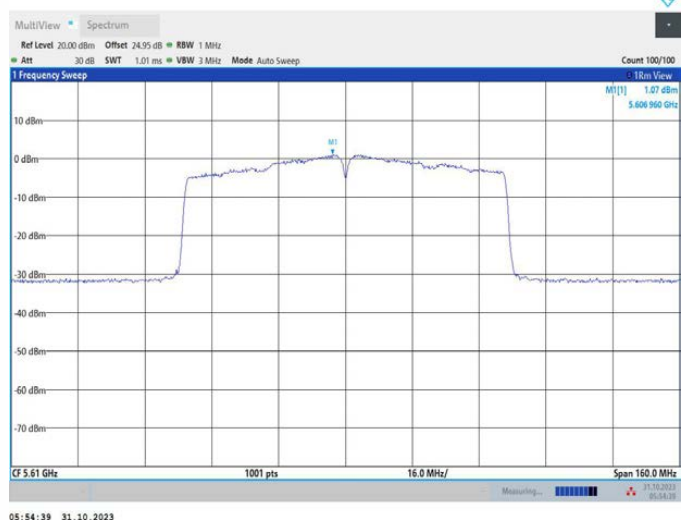
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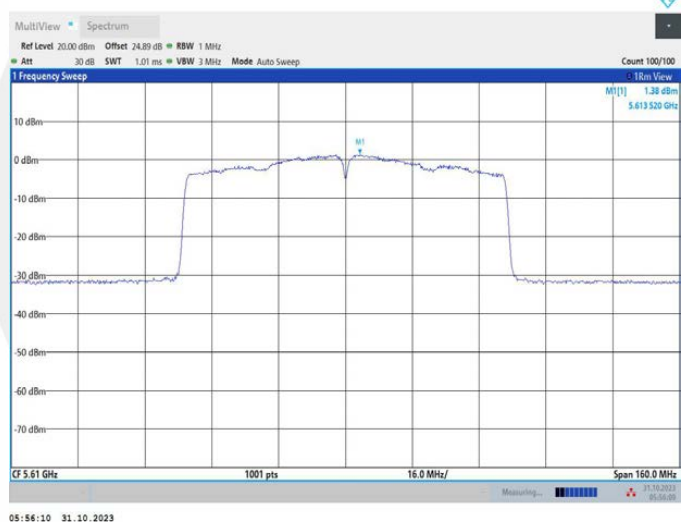
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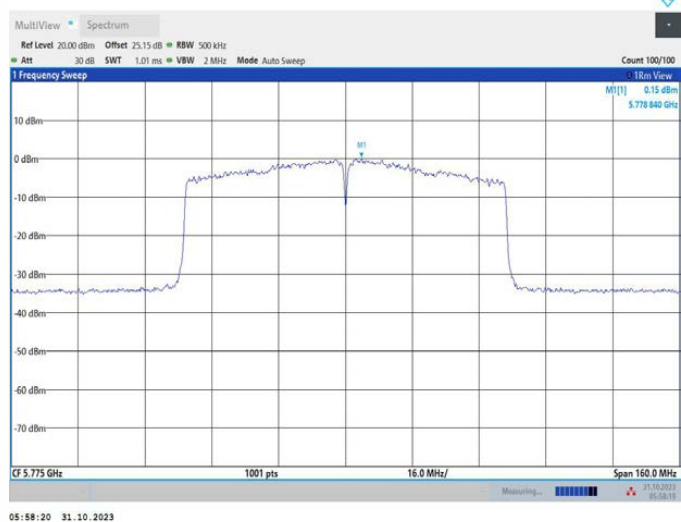
11AC80MIMO_Ant1_5610



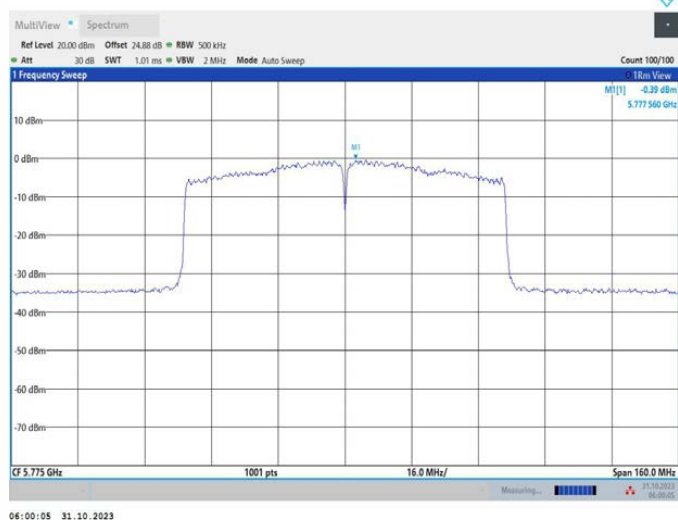
11AC80MIMO_Ant2_5610



11AC80MIMO_Ant1_5775



11AC80MIMO_Ant2_5775



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 ($\mu\text{V/m}$)	Field Strength (dB $\mu\text{V/m}$)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log ($\mu\text{V/m}$)	300
0.490-1.705	2400/F(KHz)	20 log ($\mu\text{V/m}$)	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 $f < 150$ KHz (9KHz to 150KHz), 9KHz for $f < 30$ MHz (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 $\geq$ 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 $\geq$ 98 percent, set $VBW \leq RBW/100$ (i.e., 10 kHz) but not less than 10 Hz.

• If the EUT duty cycle is < 98 percent, set $VBW \geq 1/T$, 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

Temperature : 25°C
Humidity : 60 %

ATM Pressure:: 1011 mbar
Test Engineer: HZB

- ☒ For Undesirable radiated Spurious Emission in U-NII – 1
 - ☒ Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)
- All of the configurations or modes are tested, the data of the worst case is recorded in the report.
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)
11528.2	V	59.93	-35.3	-27	8.3
14606.8	V	63.45	-31.78	-27	4.78
17515.2	V	67.67	-27.56	-27	0.56
11375.1	H	60.84	-34.39	-27	7.39
14564.2	H	63.36	-31.87	-27	4.87
17498.2	H	67.24	-27.99	-27	0.99

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)
11553.7	V	61.22	-34.01	-27	7.01
14623.8	V	62.99	-32.24	-27	5.24
17498.2	V	67.31	-27.92	-27	0.92
11536.7	H	60.23	-35	-27	8
14691.8	H	63.04	-32.19	-27	5.19
17931.9	H	68.01	-27.22	-27	0.22

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)
11383.6	V	60.40	-34.83	-27	7.83
14666.3	V	63.06	-32.17	-27	5.17
17498.2	V	67.59	-27.64	-27	0.64
11528.2	H	60.78	-34.45	-27	7.45
14564.2	H	62.51	-32.72	-27	5.72
17498.2	H	67.38	-27.85	-27	0.85

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)
11526.81	V	59.8	-35.43	-27	8.43
17516.48	V	67.64	-27.59	-27	0.59
14604.55	V	46.43	-48.80	-27	21.80
11386.79	H	60.76	-34.47	-27	7.47
17509.89	H	67.08	-28.15	-27	1.15
14560.97	H	46.6	-48.63	-27	21.63

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)
11552.31	V	61.09	-34.14	-27	7.14
17499.48	V	67.28	-27.95	-27	0.95
14621.56	V	46.09	-49.14	-27	22.14
11548.39	H	60.15	-35.08	-27	8.08
17943.59	H	67.85	-27.38	-27	0.38
14688.53	H	44.88	-50.35	-27	23.35

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)
11382.21	V	60.27	-34.96	-27	7.96
17499.48	V	67.56	-27.67	-27	0.67
14664.08	V	45.56	-49.67	-27	22.67
11539.89	H	60.7	-34.53	-27	7.53
17509.89	H	67.22	-28.01	-27	1.01
14560.97	H	46.46	-48.77	-27	21.77

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

ANT2:

Test mode: 802.11n(20)		Frequency(MHz): 5180			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11528.2	V	59.93	74.00	14.07	peak
14606.8	V	63.45	74.00	10.55	peak
17515.2	V	67.67	74.00	6.33	peak
11528.26	V	46.86	54.00	7.14	AVG
14606.80	V	46.69	54.00	7.31	AVG
17515.25	V	46.95	54.00	7.05	AVG
11375.1	H	60.84	74.00	13.16	peak
14564.2	H	63.36	74.00	10.64	peak
17498.2	H	67.24	74.00	6.76	peak
11375.18	H	46.52	54.00	7.48	AVG
14564.28	H	46.78	54.00	7.22	AVG
17498.24	H	47.45	54.00	6.55	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5200			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11553.7	V	61.22	74.00	12.78	peak
14623.8	V	62.99	74.00	11.01	peak
17498.2	V	67.31	74.00	6.69	peak
11553.77	V	47.33	54.00	6.67	AVG
14623.81	V	46.35	54.00	7.65	AVG
17498.24	V	47.31	54.00	6.69	AVG
11536.7	H	60.23	74.00	13.77	peak
14691.8	H	63.04	74.00	10.96	peak
17931.9	H	68.01	74.00	5.99	peak
11536.76	H	47.01	54.00	6.99	AVG
14691.84	H	45.06	54.00	8.94	AVG
17931.96	H	44.84	54.00	9.16	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5240			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11383.6	V	60.40	74.00	13.60	peak
14666.3	V	63.06	74.00	10.94	peak
17498.2	V	67.59	74.00	6.41	peak
11383.69	V	46.81	54.00	7.19	AVG
14666.33	V	45.82	54.00	8.18	AVG
17498.24	V	47.30	54.00	6.70	AVG
11528.2	H	60.78	74.00	13.22	peak
14564.2	H	62.51	74.00	11.49	peak
17498.2	H	67.38	74.00	6.62	peak
11528.26	H	47.48	54.00	6.52	AVG
14564.28	H	46.64	54.00	7.36	AVG
17498.24	H	47.29	54.00	6.71	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
11526.810	V	59.8	74.00	14.2	peak
14605.410	V	63.29	74.00	10.71	peak
17516.480	V	67.64	74.00	6.36	peak
11529.540	V	46.84	54.00	7.16	AVG
14604.550	V	46.43	54.00	7.57	AVG
17513.000	V	46.76	54.00	7.24	AVG
11386.790	H	60.76	74.00	13.24	peak
14575.890	H	63.15	74.00	10.85	peak
17509.890	H	67.08	74.00	6.92	peak
11386.870	H	46.38	54.00	7.62	AVG
14560.970	H	46.6	54.00	7.4	AVG
17494.930	H	47.32	54.00	6.68	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5200			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11552.310	V	61.09	74.00	12.91	peak
14622.410	V	62.83	74.00	11.17	peak
17499.480	V	67.28	74.00	6.72	peak
11555.050	V	47.31	54.00	6.69	AVG
14621.560	V	46.09	54.00	7.91	AVG
17495.990	V	47.12	54.00	6.88	AVG
11548.390	H	60.15	74.00	13.85	peak
14703.490	H	62.83	74.00	11.17	peak
17943.590	H	67.85	74.00	6.15	peak
11548.450	H	46.87	54.00	7.13	AVG
14688.530	H	44.88	54.00	9.12	AVG
17928.650	H	44.71	54.00	9.29	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5240			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11382.210	V	60.27	74.00	13.73	peak
14664.910	V	62.9	74.00	11.1	peak
17499.480	V	67.56	74.00	6.44	peak
11384.970	V	46.79	54.00	7.21	AVG
14664.080	V	45.56	54.00	8.44	AVG
17495.990	V	47.11	54.00	6.89	AVG
11539.890	H	60.7	74.00	13.3	peak
14575.890	H	62.3	74.00	11.7	peak
17509.890	H	67.22	74.00	6.78	peak
11539.950	H	47.34	54.00	6.66	AVG
14560.970	H	46.46	54.00	7.54	AVG
17494.930	H	47.16	54.00	6.84	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
4995.86	V	55.05	-40.18	-27	Pass
4978.23	H	55.20	-40.03	-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
5401.19	V	54.44	-40.79	-27	Pass
5375.19	H	53.53	-41.7	-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: 802.11n(20) Frequency(MHz): 5180

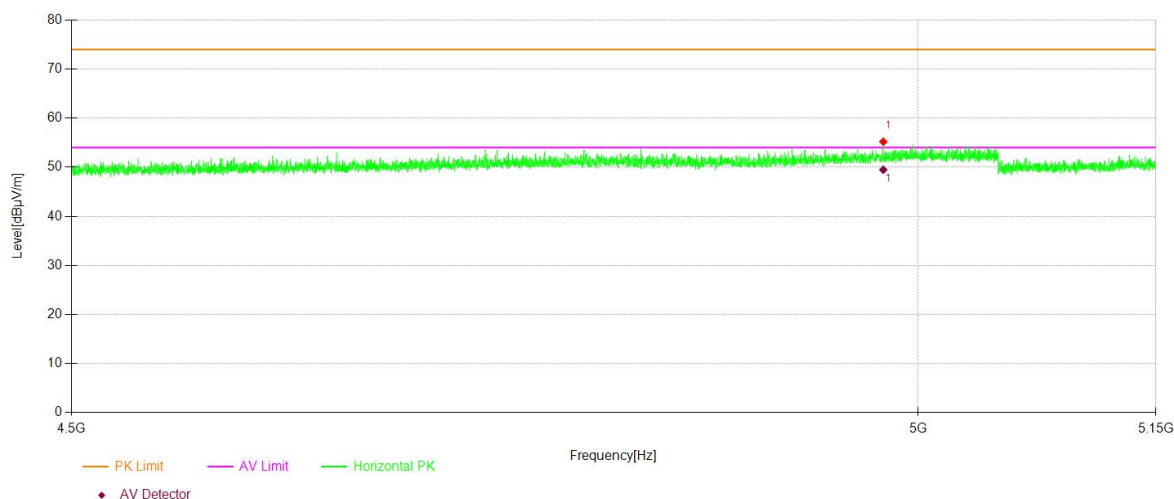
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
4995.86	V	55.05	74.00	18.95	peak
4995.868	V	49.97	54.00	4.03	AVG
4978.23	H	55.20	74.00	18.80	peak
4978.237	H	49.48	54.00	4.52	AVG

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

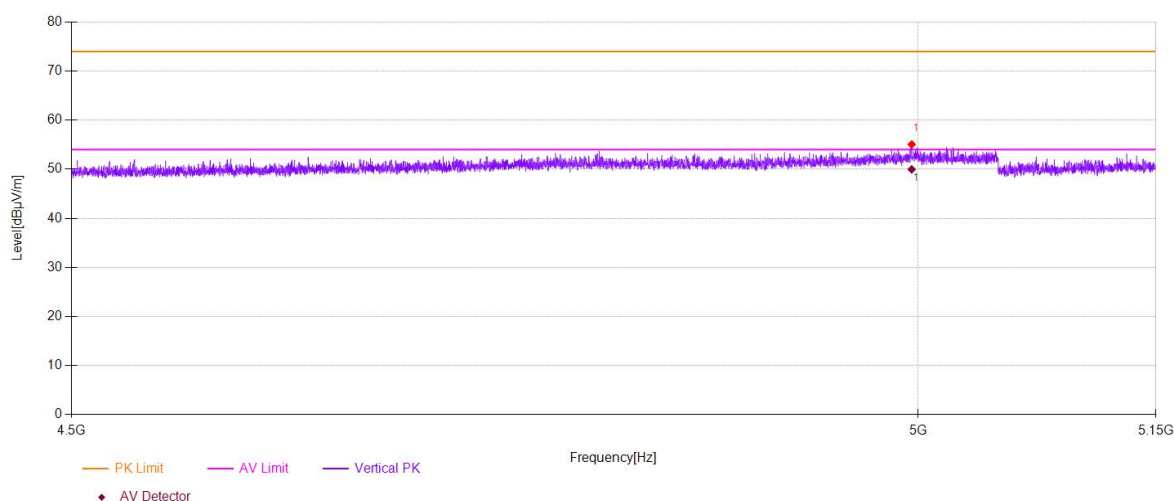
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5401.19	V	54.44	74.00	19.56	peak
5401.191	V	50.10	54.00	3.90	AVG
5375.19	H	53.53	74.00	20.47	peak
5375.19	H	50.30	54.00	3.70	AVG

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.

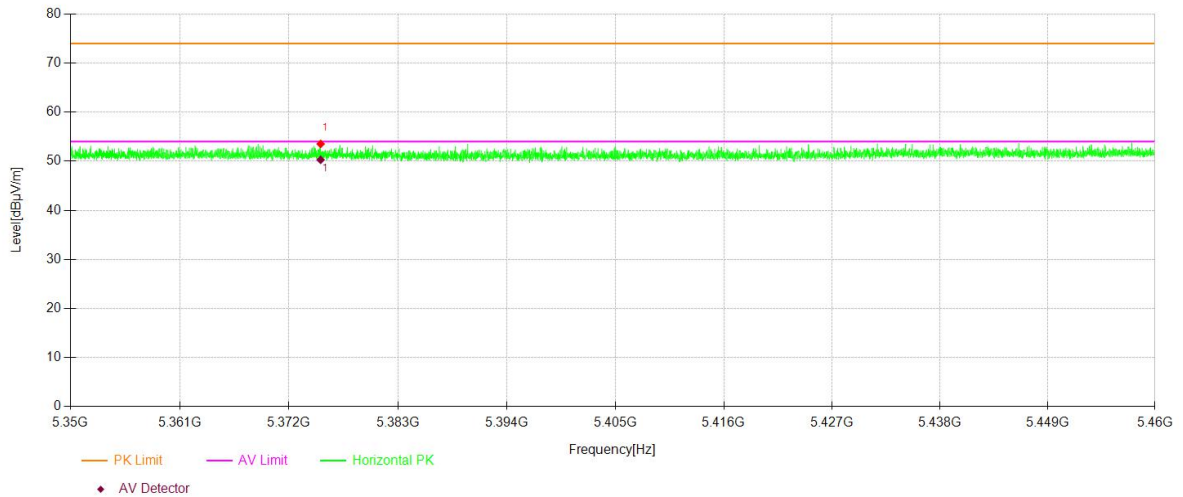
Test Model U-NII - 1
Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40)
☒ 5180 ☐ 5200 ☐ 5240 Ant.Pol H



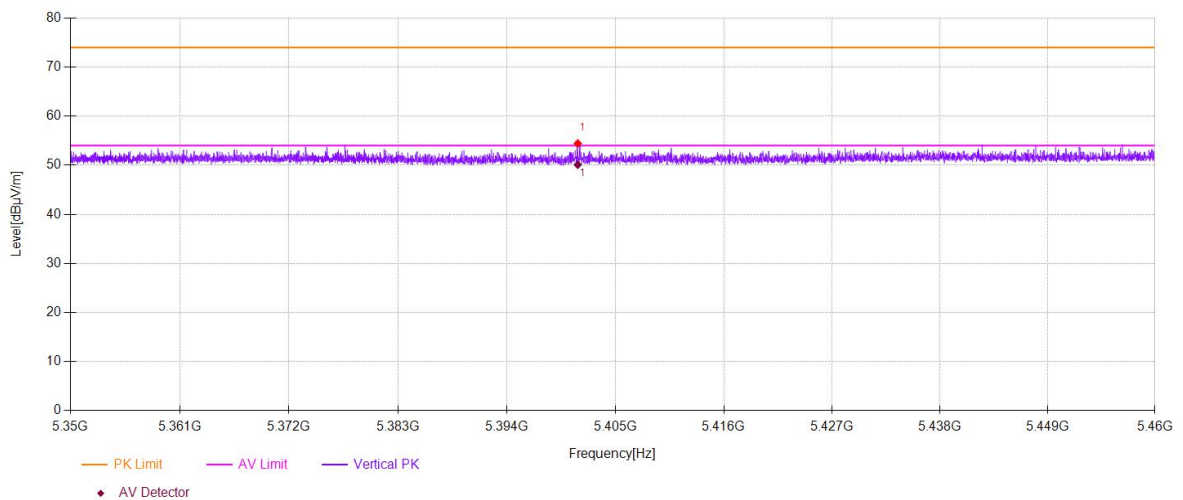
Test Model U-NII - 1
Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40)
☒ 5180 ☐ 5200 ☐ 5240 Ant.Pol V



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

All of the configurations or modes are tested, the data of the worst case is recorded in the report.
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)		
11511.2	V	60.32	-34.91	-27	7.91		
14700.3	V	63.09	-32.14	-27	5.14		
17489.7	V	67.74	-27.49	-27	0.49		
11536.7	H	60.20	-35.03	-27	8.03		
14708.8	H	63.69	-31.54	-27	4.54		
17489.7	H	67.70	-27.53	-27	0.53		

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)		
11502.7	V	60.08	-35.15	-27	8.15		
14674.8	V	63.12	-32.11	-27	5.11		
17489.7	V	67.30	-27.93	-27	0.93		
11494.2	H	59.88	-35.35	-27	8.35		
14598.2	H	62.71	-32.52	-27	5.52		
17481.2	H	67.44	-27.79	-27	0.79		

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)		
11528.2	V	59.67	-35.56	-27	8.56		
14581.2	V	62.99	-32.24	-27	5.24		
17523.7	V	68.10	-27.13	-27	0.13		
10711.8	H	59.24	-35.99	-27	8.99		
14674.8	H	63.91	-31.32	-27	4.32		
17498.2	H	67.42	-27.81	-27	0.81		

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)
11509.81	V	60.19	-35.04	-27	8.04
17490.98	V	67.71	-27.52	-27	0.52
14698.10	V	45.01	-50.22	-27	23.22
11548.39	H	60.12	-35.11	-27	8.11
17501.39	H	67.54	-27.69	-27	0.69
14705.54	H	45.43	-49.80	-27	22.80

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)
11501.31	V	59.95	-35.28	-27	8.28
17490.98	V	67.27	-27.96	-27	0.96
14672.58	V	45.03	-50.20	-27	23.20
11505.89	H	59.8	-35.43	-27	8.43
17492.89	H	67.28	-27.95	-27	0.95
14594.98	H	46.72	-48.51	-27	21.51

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)
11526.81	V	59.54	-35.69	-27	8.69
17524.98	V	68.07	-27.16	-27	0.16
14579.04	V	46.72	-48.51	-27	21.51
10723.49	H	59.16	-36.07	-27	9.07
17509.89	H	67.26	-27.97	-27	0.97
14671.52	H	45.58	-49.65	-27	22.65

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[dBuV/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
11511.2	V	60.32	74.00	13.68	peak
14700.3	V	63.09	74.00	10.91	peak
17489.7	V	67.74	74.00	6.26	peak
11511.25	V	46.70	54.00	7.30	AVG
14700.35	V	45.27	54.00	8.73	AVG
17489.74	V	47.07	54.00	6.93	AVG
11536.7	H	60.20	74.00	13.80	peak
14708.8	H	63.69	74.00	10.31	peak
17489.7	H	67.70	74.00	6.30	peak
11536.76	H	46.78	54.00	7.22	AVG
14708.85	H	45.61	54.00	8.39	AVG
17489.74	H	46.42	54.00	7.58	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5280			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11502.7	V	60.08	74.00	13.92	peak
14674.8	V	63.12	74.00	10.88	peak
17489.7	V	67.30	74.00	6.70	peak
11502.75	V	46.76	54.00	7.24	AVG
14674.83	V	45.29	54.00	8.71	AVG
17489.74	V	46.52	54.00	7.48	AVG
11494.2	H	59.88	74.00	14.12	peak
14598.2	H	62.71	74.00	11.29	peak
17481.2	H	67.44	74.00	6.56	peak
11494.24	H	46.72	54.00	7.28	AVG
14598.29	H	46.90	54.00	7.10	AVG
17481.24	H	46.65	54.00	7.35	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5320			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11528.2	V	59.67	74.00	14.33	peak
14581.2	V	62.99	74.00	11.01	peak
17523.7	V	68.10	74.00	5.90	peak
11528.26	V	46.94	54.00	7.06	AVG
14581.29	V	46.98	54.00	7.02	AVG
17523.76	V	46.20	54.00	7.80	AVG
10711.8	H	59.24	74.00	14.76	peak
14674.8	H	63.91	74.00	10.09	peak
17498.2	H	67.42	74.00	6.58	peak
10711.85	H	47.38	54.00	6.62	AVG
14674.83	H	45.76	54.00	8.24	AVG
17498.24	H	46.81	54.00	7.19	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
11509.810	V	60.19	74.00	13.81	peak
14698.910	V	62.93	74.00	11.07	peak
17490.980	V	67.71	74.00	6.29	peak
11512.530	V	46.68	54.00	7.32	AVG
14698.100	V	45.01	54.00	8.99	AVG
17487.490	V	46.88	54.00	7.12	AVG
11548.390	H	60.12	74.00	13.88	peak
14720.490	H	63.48	74.00	10.52	peak
17501.390	H	67.54	74.00	6.46	peak
11548.450	H	46.64	54.00	7.36	AVG
14705.540	H	45.43	54.00	8.57	AVG
17486.430	H	46.29	54.00	7.71	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5280			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11501.310	V	59.95	74.00	14.05	peak
14673.410	V	62.96	74.00	11.04	peak
17490.980	V	67.27	74.00	6.73	peak
11504.030	V	46.74	54.00	7.26	AVG
14672.580	V	45.03	54.00	8.97	AVG
17487.490	V	46.33	54.00	7.67	AVG
11505.890	H	59.8	74.00	14.2	peak
14609.890	H	62.5	74.00	11.5	peak
17492.890	H	67.28	74.00	6.72	peak
11505.930	H	46.58	54.00	7.42	AVG
14594.980	H	46.72	54.00	7.28	AVG
17477.930	H	46.52	54.00	7.48	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5320			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11526.810	V	59.54	74.00	14.46	peak
14579.810	V	62.83	74.00	11.17	peak
17524.980	V	68.07	74.00	5.93	peak
11529.540	V	46.92	54.00	7.08	AVG
14579.040	V	46.72	54.00	7.28	AVG
17521.510	V	46.01	54.00	7.99	AVG
10723.490	H	59.16	74.00	14.84	peak
14686.490	H	63.7	74.00	10.3	peak
17509.890	H	67.26	74.00	6.74	peak
10723.540	H	47.24	54.00	6.76	AVG
14671.520	H	45.58	54.00	8.42	AVG
17494.930	H	46.68	54.00	7.32	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
4998.71	V	54.07	-41.16	-27	Pass
5028.36	H	54.72	-40.51	-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
5403.55	V	53.32	-41.91	-27	Pass
5393.6838	H	53.23	-42	-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: 802.11n(20) Frequency(MHz): 5260

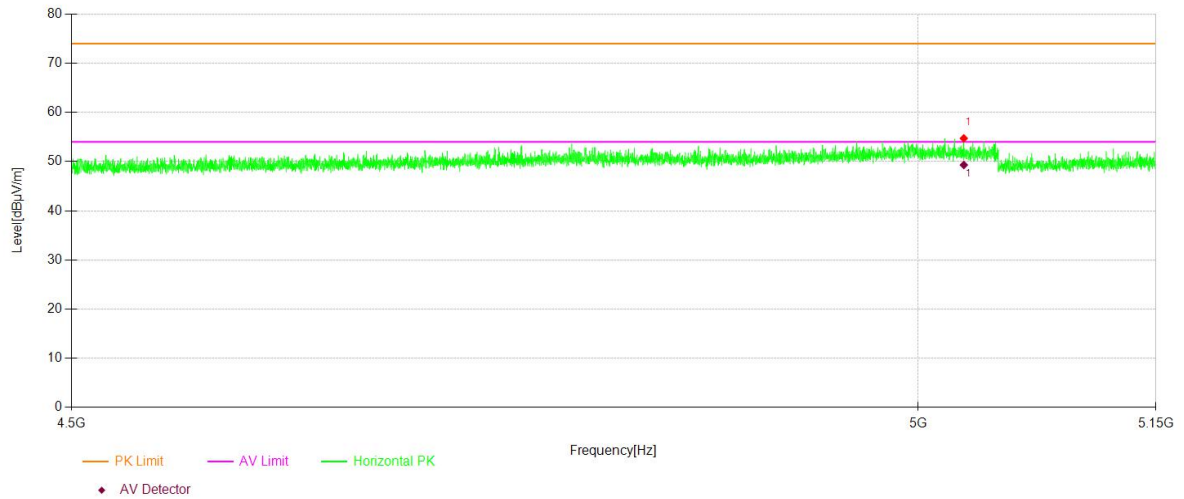
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
4998.71	V	54.07	74.00	19.93	peak
4998.712	V	49.60	54.00	4.40	AVG
5028.36	H	54.72	74.00	19.28	peak
5028.368	H	49.32	54.00	4.68	AVG

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

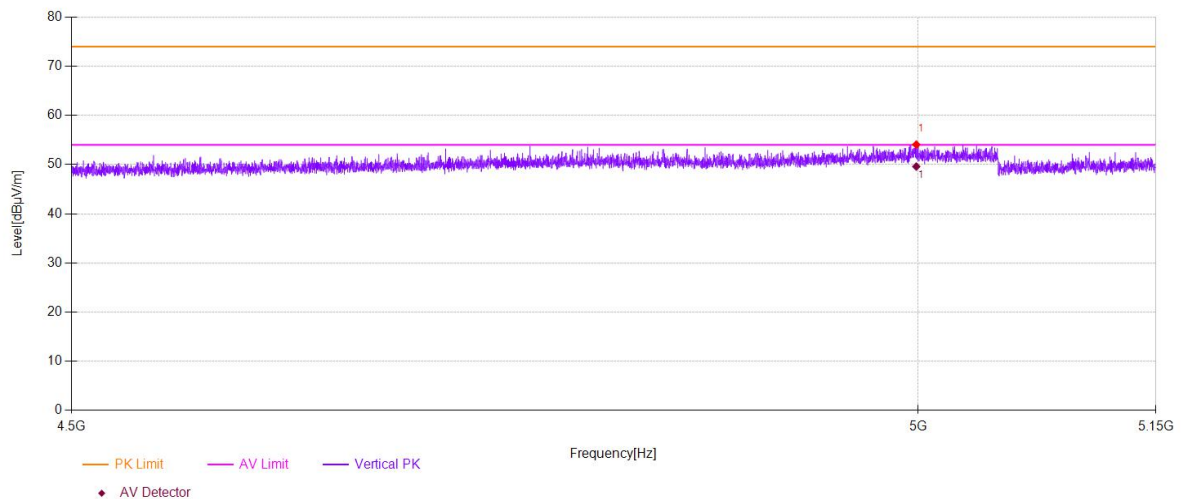
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5403.55	V	53.32	74.00	20.68	peak
5403.5562	V	49.74	54.00	4.26	AVG
5393.6838	H	53.23	74.00	20.77	peak
5393.683	H	50.14	54.00	3.86	AVG

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.

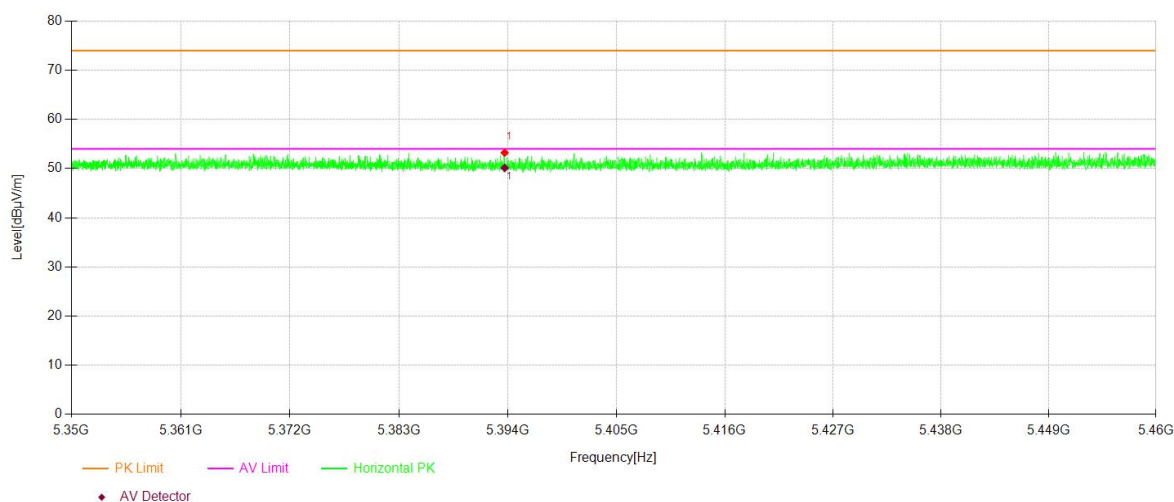
Test Model U-NII -2A
Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11 ac (VHT20)
☒ 5260 ☐ 5300 ☐ 5320 Ant.Pol H



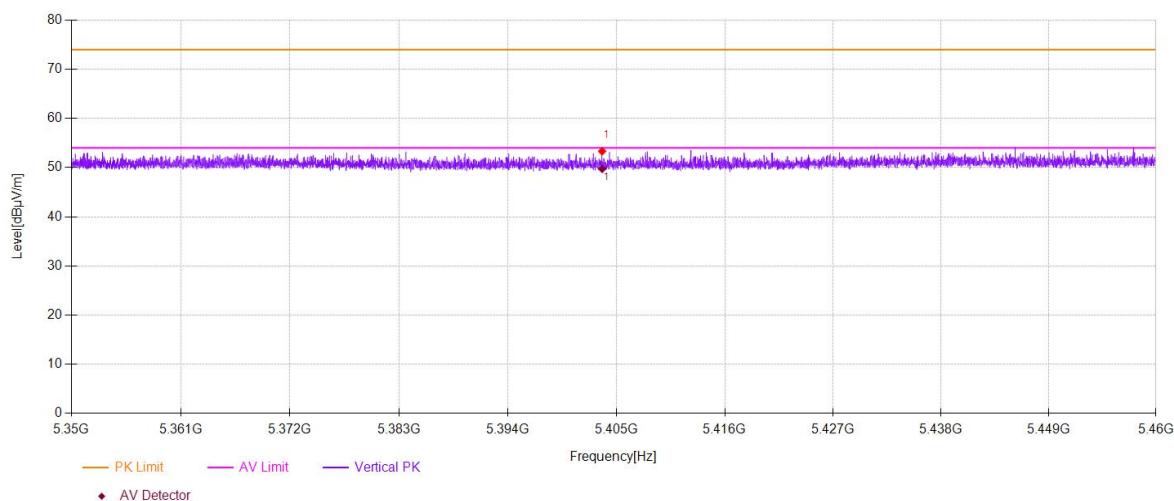
Test Model U-NII -2A
Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11 ac (VHT20)
☒ 5260 ☐ 5300 ☐ 5320 Ant.Pol V



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
 - ☒ Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)
- All of the configurations or modes are tested, the data of the worst case is recorded in the report.
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)
11519.7	V	60.54	-34.69	-27	7.69
14657.8	V	62.70	-32.53	-27	5.53
17489.7	V	67.01	-28.22	-27	1.22
11519.7	H	60.15	-35.08	-27	8.08
14861.9	H	63.25	-31.98	-27	4.98
17498.2	H	67.89	-27.34	-27	0.34

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)
11536.7	V	59.95	-35.28	-27	8.28
14751.3	V	63.37	-31.86	-27	4.86
17498.2	V	67.83	-27.4	-27	0.4
11553.7	H	60.41	-34.82	-27	7.82
14538.7	H	63.58	-31.65	-27	4.65
17489.7	H	68.23	-27	-27	0

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)
8934.4	V	57.31	-37.92	-27	10.92
11502.7	V	60.25	-34.98	-27	7.98
17039.0	V	66.59	-28.64	-27	1.64
11562.2	H	59.97	-35.26	-27	8.26
14819.4	H	63.09	-32.14	-27	5.14
17515.2	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)
11518.31	V	60.41	-34.82	-27	7.82
17490.98	V	66.98	-28.25	-27	1.25
14655.57	V	45.89	-49.34	-27	22.34
11531.39	H	60.07	-35.16	-27	8.16
17509.89	H	67.73	-27.50	-27	0.50
14858.62	H	44.79	-50.44	-27	23.44

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)
11535.31	V	59.82	-35.41	-27	8.41
17499.48	V	67.8	-27.43	-27	0.43
14749.12	V	44.99	-50.24	-27	23.24
11565.39	H	60.33	-34.90	-27	7.90
17501.39	H	68.07	-27.16	-27	0.16
14535.45	H	46.23	-49.00	-27	22.00

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)
8933.01	V	57.18	-38.05	-27	11.05
17040.28	V	66.56	-28.67	-27	1.67
11500.50	V	40.92	-54.31	-27	27.31
11573.89	H	59.89	-35.34	-27	8.34
17526.89	H	67.76	-27.47	-27	0.47
14816.09	H	44.51	-50.72	-27	23.72

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

ANT2:

Test mode: 802.11n(20)		Frequency(MHz): 5500			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11519.7	V	60.54	74.00	13.46	peak
14657.8	V	62.70	74.00	11.30	peak
17489.7	V	67.01	74.00	6.99	peak
11519.75	V	46.67	54.00	7.33	AVG
14657.82	V	46.15	54.00	7.85	AVG
17489.74	V	47.20	54.00	6.80	AVG
11519.7	H	60.15	74.00	13.85	peak
14861.9	H	63.25	74.00	10.75	peak
17498.2	H	67.89	74.00	6.11	peak
11519.75	H	47.09	54.00	6.91	AVG
14861.93	H	44.97	54.00	9.03	AVG
17498.24	H	47.45	54.00	6.55	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5580			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11536.7	V	59.95	74.00	14.05	peak
14751.3	V	63.37	74.00	10.63	peak
17498.2	V	67.83	74.00	6.17	peak
11536.76	V	46.58	54.00	7.42	AVG
14751.37	V	45.25	54.00	8.75	AVG
17498.24	V	47.34	54.00	6.66	AVG
11553.7	H	60.41	74.00	13.59	peak
14538.7	H	63.58	74.00	10.42	peak
17489.7	H	68.23	74.00	5.77	peak
11553.77	H	46.49	54.00	7.51	AVG
14538.76	H	46.41	54.00	7.59	AVG
17489.74	H	46.74	54.00	7.26	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5700			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
8934.4	V	57.31	74.00	16.69	peak
11502.7	V	60.25	74.00	13.75	peak
17039.0	V	66.59	74.00	7.41	peak
8934.46	V	41.75	54.00	12.25	AVG
11502.75	V	41.18	54.00	12.82	AVG
17039.0	V	44.57	54.00	9.43	AVG
11562.2	H	59.97	74.00	14.03	peak
14819.4	H	63.09	74.00	10.91	peak
17515.2	H	67.92	74.00	6.08	peak
11562.28	H	46.67	54.00	7.33	AVG
14819.40	H	44.69	54.00	9.31	AVG
17515.25	H	46.66	54.00	7.34	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
11518.310	V	60.41	74.00	13.59	peak
14656.410	V	62.54	74.00	11.46	peak
17490.980	V	66.98	74.00	7.02	peak
11521.030	V	46.65	54.00	7.35	AVG
14655.570	V	45.89	54.00	8.11	AVG
17487.490	V	47.01	54.00	6.99	AVG
11531.390	H	60.07	74.00	13.93	peak
14873.590	H	63.04	74.00	10.96	peak
17509.890	H	67.73	74.00	6.27	peak
11531.440	H	46.95	54.00	7.05	AVG
14858.620	H	44.79	54.00	9.21	AVG
17494.930	H	47.32	54.00	6.68	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5580			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11535.310	V	59.82	74.00	14.18	peak
14749.910	V	63.21	74.00	10.79	peak
17499.480	V	67.8	74.00	6.2	peak
11538.040	V	46.56	54.00	7.44	AVG
14749.120	V	44.99	54.00	9.01	AVG
17495.990	V	47.15	54.00	6.85	AVG
11565.390	H	60.33	74.00	13.67	peak
14550.390	H	63.37	74.00	10.63	peak
17501.390	H	68.07	74.00	5.93	peak
11565.460	H	46.35	54.00	7.65	AVG
14535.450	H	46.23	54.00	7.77	AVG
17486.430	H	46.61	54.00	7.39	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5700			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
8933.010	V	57.18	74.00	16.82	peak
11501.310	V	60.09	74.00	13.91	peak
17040.280	V	66.56	74.00	7.44	peak
8935.740	V	41.73	54.00	12.27	AVG
11500.500	V	40.92	54.00	13.08	AVG
17036.750	V	44.38	54.00	9.62	AVG
11573.890	H	59.89	74.00	14.11	peak
14831.090	H	62.88	74.00	11.12	peak
17526.890	H	67.76	74.00	6.24	peak
11573.970	H	46.53	54.00	7.47	AVG
14816.090	H	44.51	54.00	9.49	AVG
17511.940	H	46.53	54.00	7.47	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
5427.53	V	52.76	-42.47	-27	Pass
5427.48	H	53.35	-41.88	-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
5729.18	V	55.13	-40.1	-27	Pass
5731.69	H	53.86	-41.37	-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: 802.11n(20) Frequency(MHz): 5500

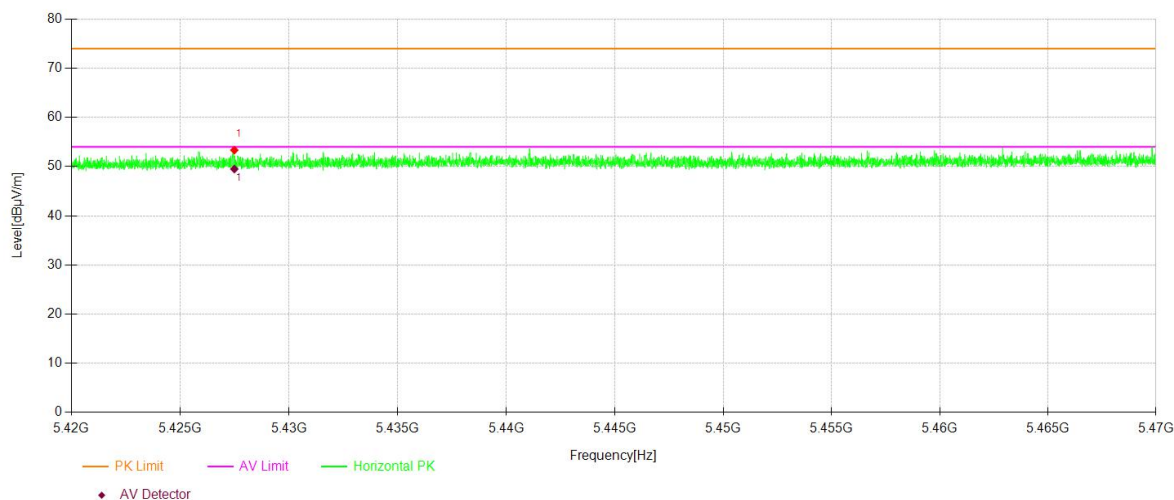
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5427.53	V	52.76	74.00	21.24	peak
5427.531	V	49.95	54.00	4.05	AVG
5427.48	H	53.35	74.00	20.65	peak
5427.487	H	49.50	54.00	4.50	AVG

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

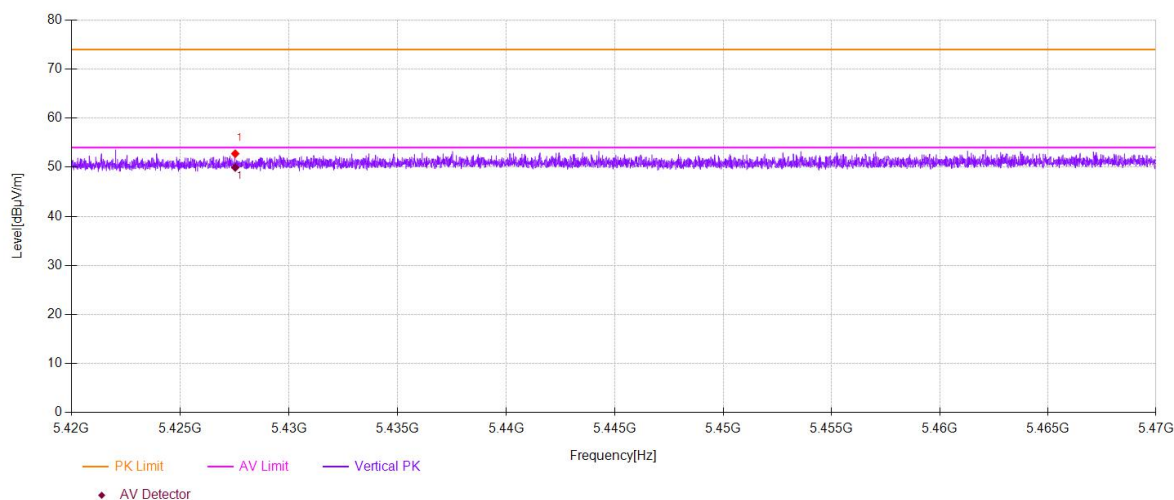
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5729.18	V	55.13	74.00	18.87	peak
5729.187	V	50.31	54.00	3.69	AVG
5731.69	H	53.86	74.00	20.14	peak
5731.693	H	49.89	54.00	4.11	AVG

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.

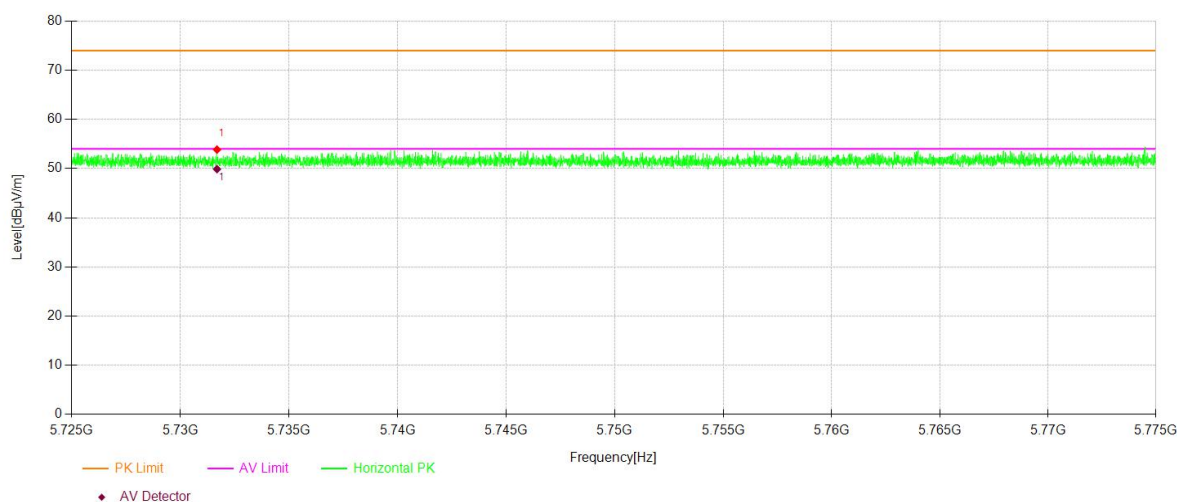
Test Model U-NII -2C
Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11 ac (VHT20)
☒ 5500 ☐ 5580 ☐ 5700 Ant.Pol H



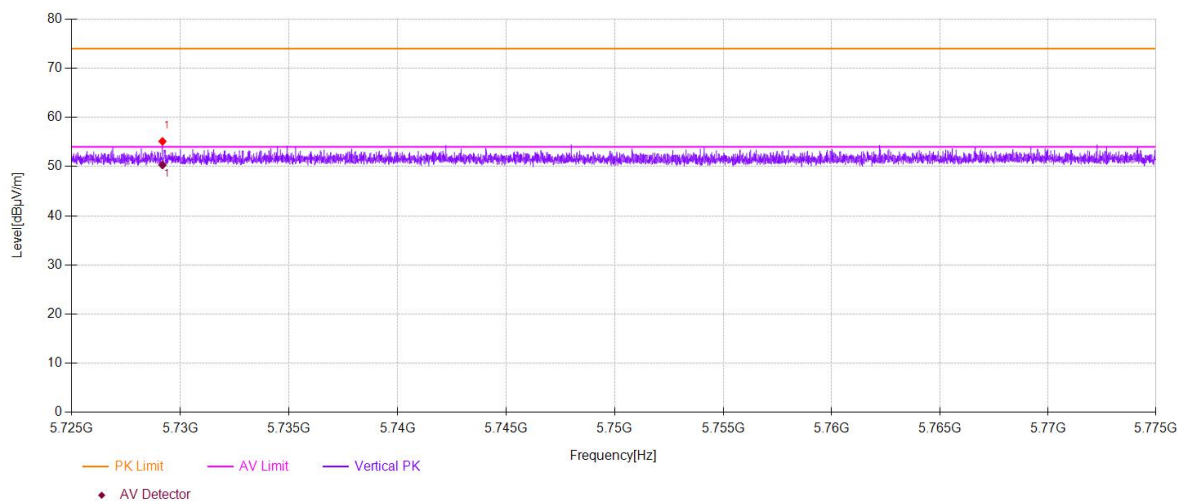
Test Model U-NII -2C
Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11 ac (VHT20)
☒ 5500 ☐ 5580 ☐ 5700 Ant.Pol V



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
 - ☒ Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)
- All of the configurations or modes are tested, the data of the worst case is recorded in the report.
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)		
11536.7	V	60.54	-34.69	-27	7.69		
14640.8	V	62.97	-32.26	-27	5.26		
17498.2	V	68.15	-27.08	-27	0.08		
11511.2	H	59.56	-35.67	-27	8.67		
14632.3	H	63.13	-32.1	-27	5.1		
17481.2	H	67.38	-27.85	-27	0.85		

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)		
11587.7	V	60.04	-35.19	-27	8.19		
14895.9	V	63.12	-32.11	-27	5.11		
17498.2	V	67.45	-27.78	-27	0.78		
11570.7	H	59.95	-35.28	-27	8.28		
14547.2	H	64.22	-31.01	-27	4.01		
17498.2	H	67.49	-27.74	-27	0.74		

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)		
11468.7	V	60.16	-35.07	-27	8.07		
14572.7	V	62.55	-32.68	-27	5.68		
17498.2	V	67.85	-27.38	-27	0.38		
11511.2	H	60.37	-34.86	-27	7.86		
14802.4	H	63.73	-31.5	-27	4.5		
17498.2	H	67.63	-27.6	-27	0.6		

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)
11535.31	V	60.41	-34.82	-27	7.82
17499.48	V	68.12	-27.11	-27	0.11
14638.57	V	46.2	-49.03	-27	22.03
11522.89	H	59.48	-35.75	-27	8.75
17492.89	H	67.22	-28.01	-27	1.01
14629.00	H	46.48	-48.75	-27	21.75

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)
11586.31	V	59.91	-35.32	-27	8.32
17499.48	V	67.42	-27.81	-27	0.81
14893.69	V	44.62	-50.61	-27	23.61
11582.39	H	59.87	-35.36	-27	8.36
17509.89	H	67.33	-27.90	-27	0.90
14543.96	H	46.27	-48.96	-27	21.96

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)
11467.31	V	60.03	-35.20	-27	8.20
17499.48	V	67.82	-27.41	-27	0.41
14570.53	V	46.21	-49.02	-27	22.02
11522.89	H	60.29	-34.94	-27	7.94
17509.89	H	67.47	-27.76	-27	0.76
14799.09	H	44.56	-50.67	-27	23.67

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

ANT2:

Test mode: 802.11n(20)		Frequency(MHz): 5745			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11536.7	V	60.54	74.00	13.46	peak
14640.8	V	62.97	74.00	11.03	peak
17498.2	V	68.15	74.00	5.85	peak
11536.76	V	46.42	54.00	7.58	AVG
14640.82	V	46.46	54.00	7.54	AVG
17498.24	V	48.43	54.00	5.57	AVG
11511.2	H	59.56	74.00	14.44	peak
14632.3	H	63.13	74.00	10.87	peak
17481.2	H	67.38	74.00	6.62	peak
11511.25	H	47.35	54.00	6.65	AVG
14632.31	H	46.66	54.00	7.34	AVG
17481.24	H	47.63	54.00	6.37	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5785			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11587.7	V	60.04	74.00	13.96	peak
14895.9	V	63.12	74.00	10.88	peak
17498.2	V	67.45	74.00	6.55	peak
11587.79	V	46.98	54.00	7.02	AVG
14895.94	V	44.88	54.00	9.12	AVG
17498.24	V	48.43	54.00	5.57	AVG
11570.7	H	59.95	74.00	14.05	peak
14547.2	H	64.22	74.00	9.78	peak
17498.2	H	67.49	74.00	6.51	peak
11570.78	H	47.25	54.00	6.75	AVG
14547.27	H	46.45	54.00	7.55	AVG
17498.24	H	48.34	54.00	5.66	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5825			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11468.7	V	60.16	74.00	13.84	peak
14572.7	V	62.55	74.00	11.45	peak
17498.2	V	67.85	74.00	6.15	peak
11468.73	V	47.32	54.00	6.68	AVG
14572.78	V	46.47	54.00	7.53	AVG
17498.24	V	47.31	54.00	6.69	AVG
11511.2	H	60.37	74.00	13.63	peak
14802.4	H	63.73	74.00	10.27	peak
17498.2	H	67.63	74.00	6.37	peak
11511.25	H	46.92	54.00	7.08	AVG
14802.40	H	44.74	54.00	9.26	AVG
17498.24	H	47.31	54.00	6.69	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
11535.310	V	60.41	74.00	13.59	peak
14639.410	V	62.81	74.00	11.19	peak
17499.480	V	68.12	74.00	5.88	peak
11538.040	V	46.4	54.00	7.6	AVG
14638.570	V	46.2	54.00	7.8	AVG
17495.990	V	48.24	54.00	5.76	AVG
11522.890	H	59.48	74.00	14.52	peak
14643.990	H	62.92	74.00	11.08	peak
17492.890	H	67.22	74.00	6.78	peak
11522.940	H	47.21	54.00	6.79	AVG
14629.000	H	46.48	54.00	7.52	AVG
17477.930	H	47.5	54.00	6.5	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5785			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11586.310	V	59.91	74.00	14.09	peak
14894.510	V	62.96	74.00	11.04	peak
17499.480	V	67.42	74.00	6.58	peak
11589.070	V	46.96	54.00	7.04	AVG
14893.690	V	44.62	54.00	9.38	AVG
17495.990	V	48.24	54.00	5.76	AVG
11582.390	H	59.87	74.00	14.13	peak
14558.890	H	64.01	74.00	9.99	peak
17509.890	H	67.33	74.00	6.67	peak
11582.470	H	47.11	54.00	6.89	AVG
14543.960	H	46.27	54.00	7.73	AVG
17494.930	H	48.21	54.00	5.79	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5825			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11467.310	V	60.03	74.00	13.97	peak
14571.310	V	62.39	74.00	11.61	peak
17499.480	V	67.82	74.00	6.18	peak
11470.010	V	47.3	54.00	6.7	AVG
14570.530	V	46.21	54.00	7.79	AVG
17495.990	V	47.12	54.00	6.88	AVG
11522.890	H	60.29	74.00	13.71	peak
14814.090	H	63.52	74.00	10.48	peak
17509.890	H	67.47	74.00	6.53	peak
11522.940	H	46.78	54.00	7.22	AVG
14799.090	H	44.56	54.00	9.44	AVG
17494.930	H	47.18	54.00	6.82	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
5676.66	H	53.99	-41.24	-27.00	PASS
5678.97	V	54.24	-40.99	-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
5860.00	H	54.15	-41.08	-27.00	PASS
5880.39	V	53.48	-41.75	-27.00	PASS

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

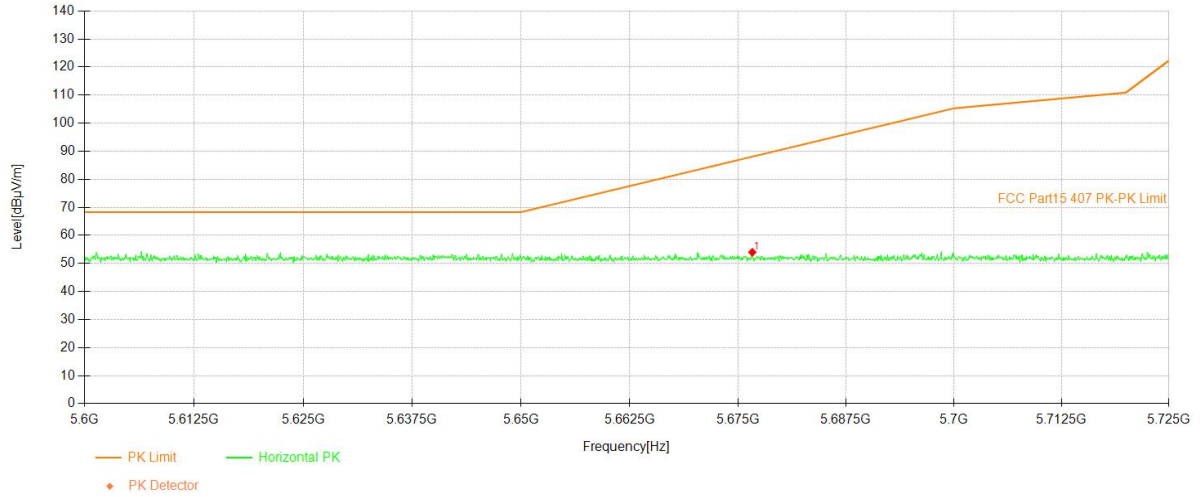
(2) Emission Level= Reading Level+Correct Factor +Cable Loss.

(3) Correct Factor= Ant_F + Cab_L - Preamp

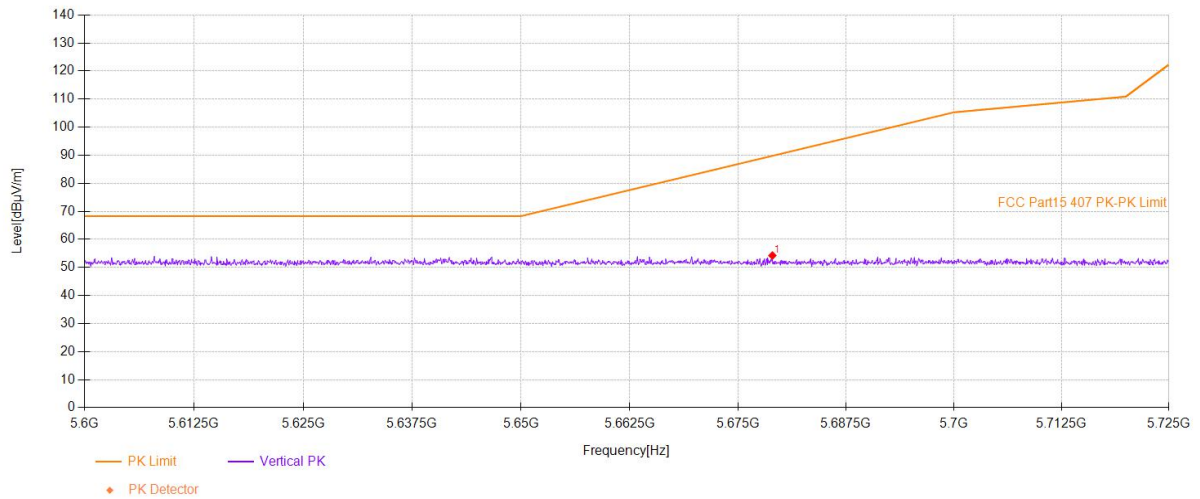
(4) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77

d is the measurement distance in 3 meters

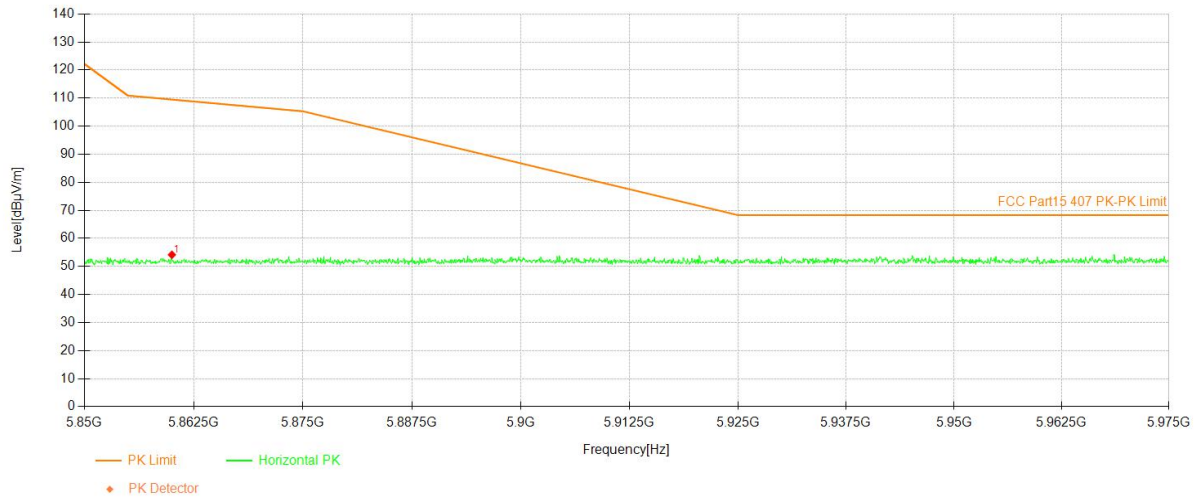
Test Model U-NII -3
Undesirable radiated ☐ 802.11a ☒ 5745 Undesirable radiated ☒ 802.11n(HT20) Spurious Emission in Band Edge ☐ 802.11n(HT40)
Ant.Pol H



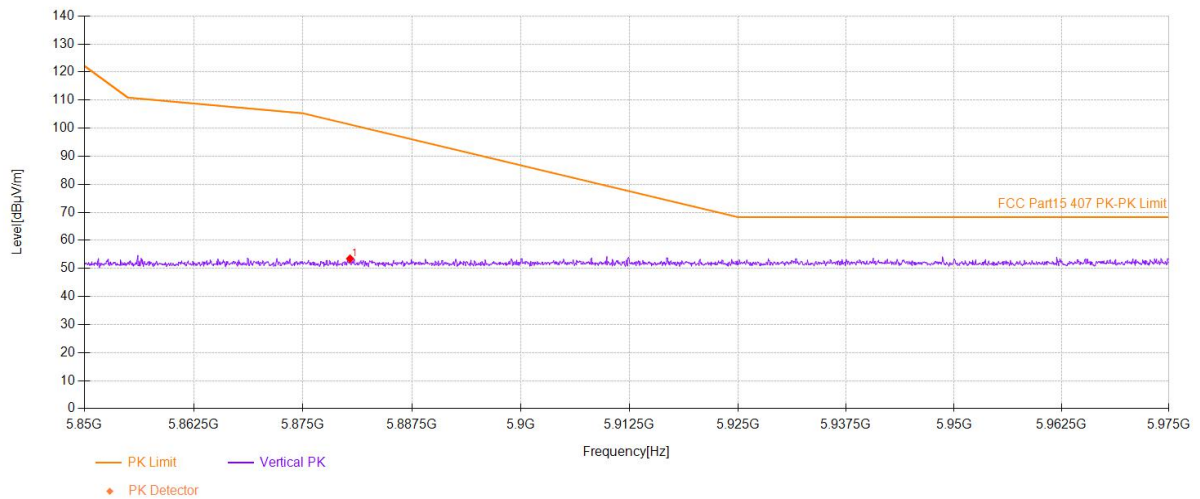
Test Model U-NII -3
Undesirable radiated ☐ 802.11a ☒ 5745 Undesirable radiated ☒ 802.11n(HT20) Spurious Emission in Band Edge ☐ 802.11n(HT40)
Ant.Pol V



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

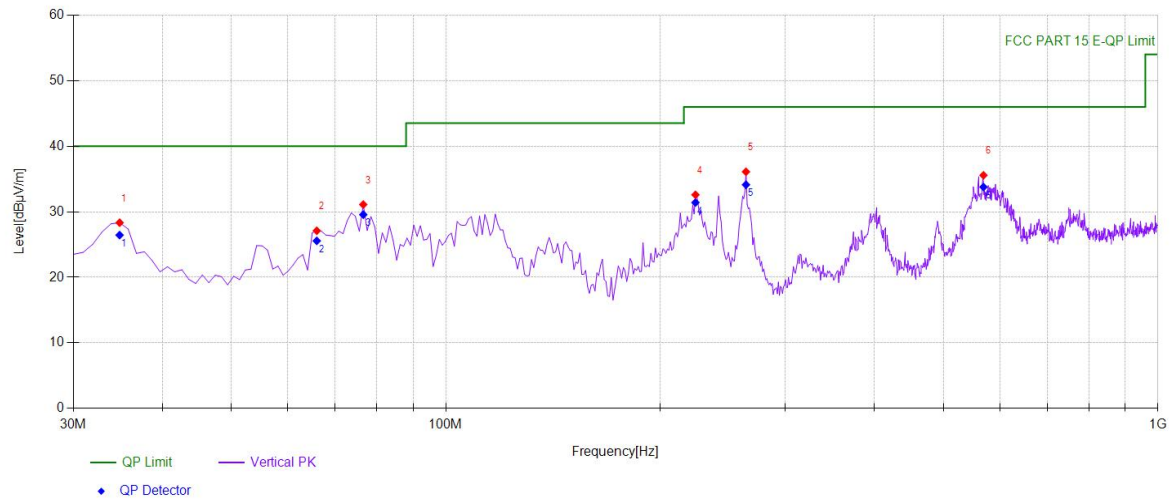


Test Model U-NII -3
Undesirable radiated Undesirable radiated Spurious Emission in Band Edge
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40)
☒ 5825 Ant.Pol V



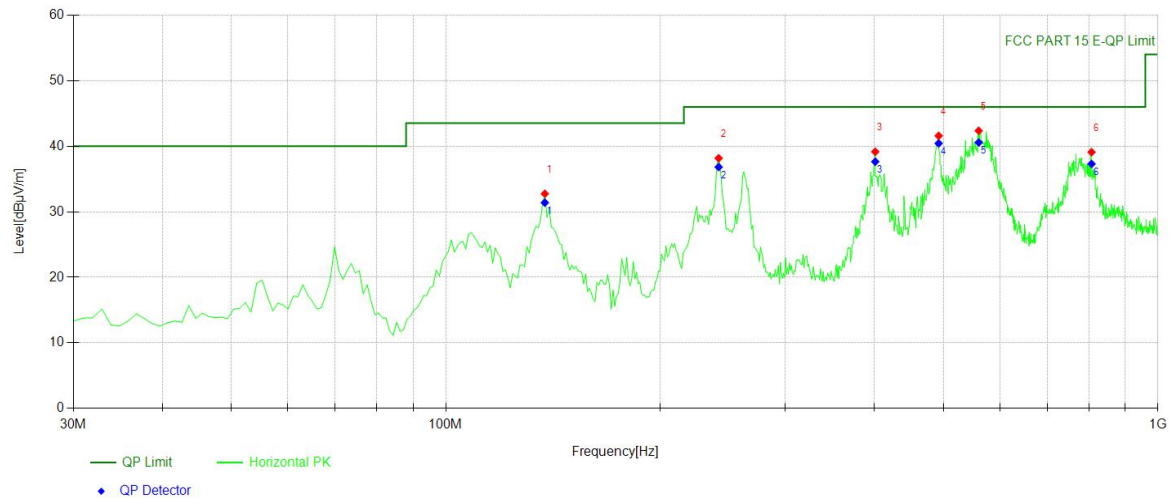
- Undesirable radiated Spurious Emission below 1GHz (30MHz to 1GHz)
All of the configurations or modes are tested, the data of the worst case is recorded in the report.

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



Suspected Data List

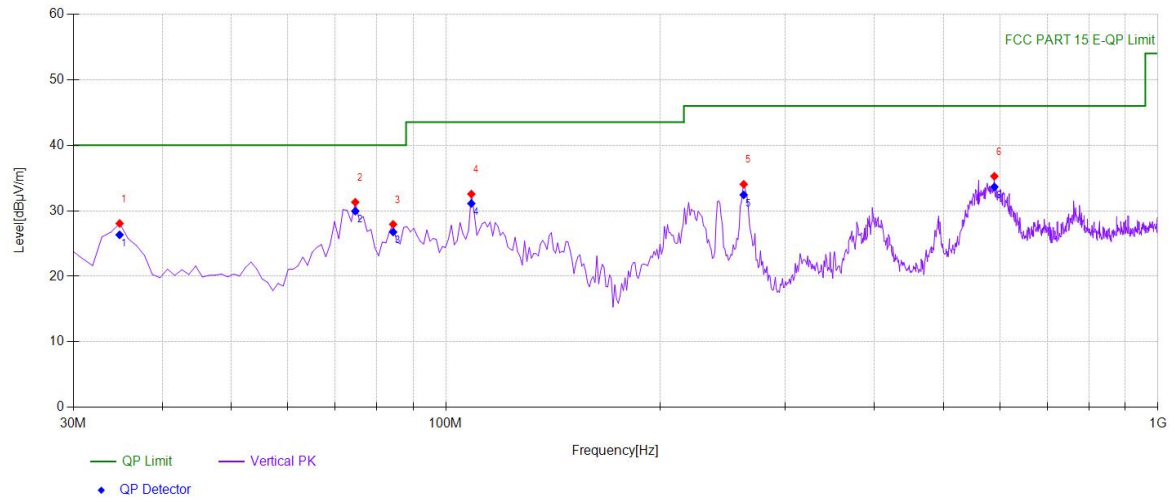
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	34.8549	46.56	-18.23	28.33	PK	40.00	11.67	Vertical
2	65.9259	46.49	-19.39	27.10	PK	40.00	12.90	Vertical
3	76.6066	52.08	-20.98	31.10	PK	40.00	8.90	Vertical
4	224.194	49.28	-16.69	32.59	PK	46.00	13.41	Vertical
5	264.004	51.10	-15.00	36.10	PK	46.00	9.90	Vertical
6	568.888	43.72	-8.16	35.56	PK	46.00	10.44	Vertical



Suspected Data List

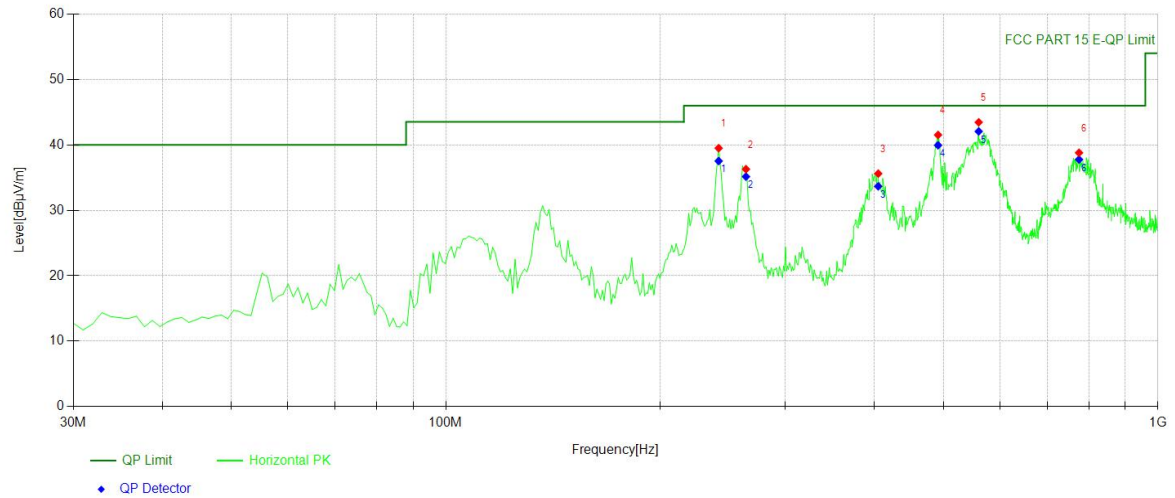
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	137.777	52.52	-19.78	32.74	PK	43.50	10.76	Horizontal
2	241.671	53.36	-15.19	38.17	PK	46.00	7.83	Horizontal
3	400.910	50.94	-11.79	39.15	PK	46.00	6.85	Horizontal
4	492.182	51.37	-9.79	41.58	PK	46.00	4.42	Horizontal
5	560.150	51.34	-8.99	42.35	PK	46.00	3.65	Horizontal
6	806.776	43.46	-4.37	39.09	PK	46.00	6.91	Horizontal

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



Suspected Data List

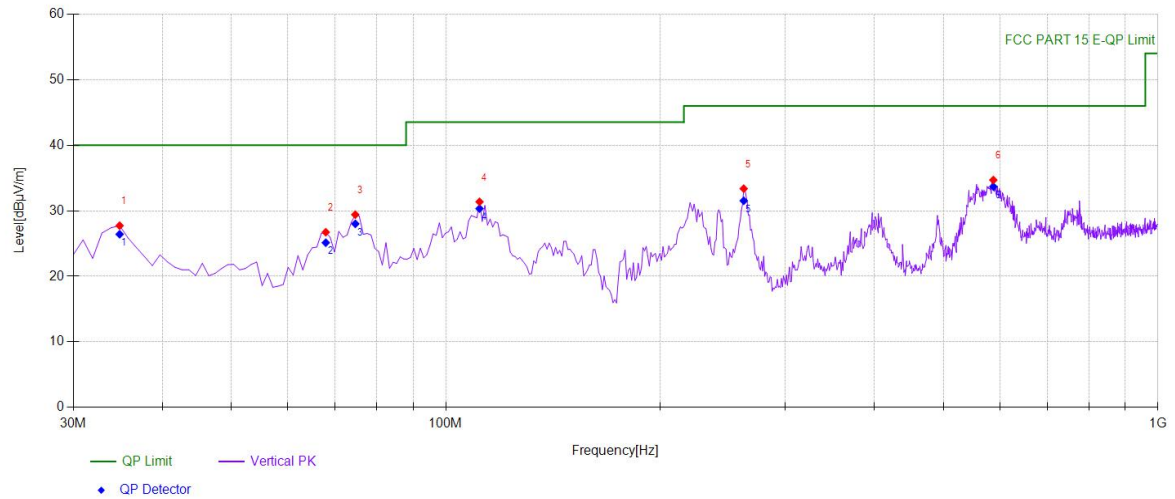
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	34.8549	46.29	-18.23	28.06	PK	40.00	11.94	Vertical
2	74.6647	51.99	-20.68	31.31	PK	40.00	8.69	Vertical
3	84.3744	48.40	-20.47	27.93	PK	40.00	12.07	Vertical
4	108.648	49.80	-17.25	32.55	PK	43.50	10.95	Vertical
5	262.062	49.13	-15.09	34.04	PK	46.00	11.96	Vertical
6	589.279	42.40	-7.14	35.26	PK	46.00	10.74	Vertical



Suspected Data List

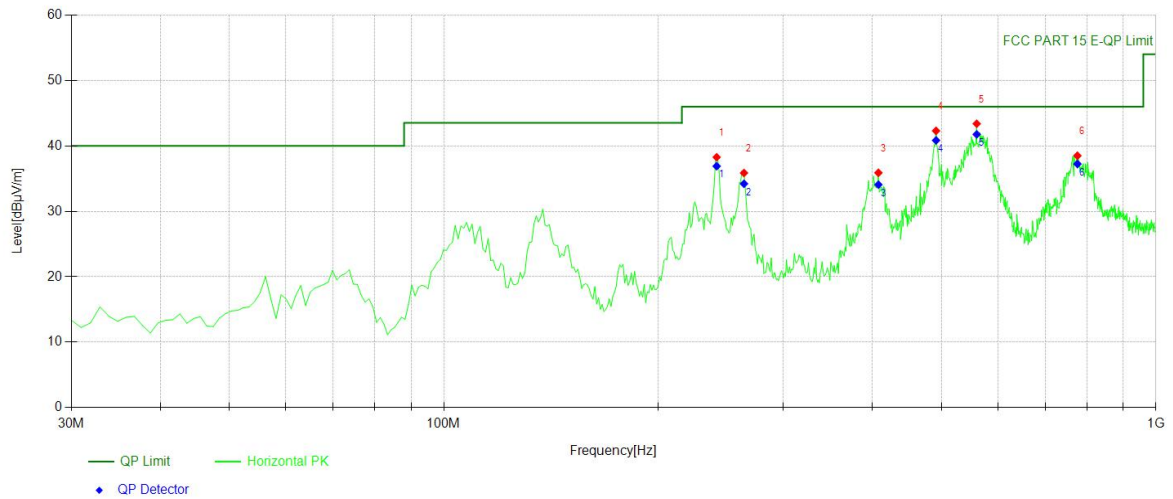
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	241.671	54.69	-15.19	39.50	PK	46.00	6.50	Horizontal
2	264.004	51.29	-15.00	36.29	PK	46.00	9.71	Horizontal
3	404.794	47.40	-11.79	35.61	PK	46.00	10.39	Horizontal
4	491.211	51.32	-9.80	41.52	PK	46.00	4.48	Horizontal
5	560.150	52.44	-8.99	43.45	PK	46.00	2.55	Horizontal
6	774.734	43.62	-4.83	38.79	PK	46.00	7.21	Horizontal

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



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	34.8549	45.96	-18.23	27.73	PK	40.00	12.27	Vertical
2	67.8679	46.39	-19.66	26.73	PK	40.00	13.27	Vertical
3	74.6647	50.09	-20.68	29.41	PK	40.00	10.59	Vertical
4	111.561	48.78	-17.41	31.37	PK	43.50	12.13	Vertical
5	262.062	48.46	-15.09	33.37	PK	46.00	12.63	Vertical
6	587.337	41.83	-7.14	34.69	PK	46.00	11.31	Vertical



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	241.671	53.46	-15.19	38.27	PK	46.00	7.73	Horizontal
2	264.004	50.86	-15.00	35.86	PK	46.00	10.14	Horizontal
3	407.707	47.67	-11.78	35.89	PK	46.00	10.11	Horizontal
4	491.211	52.10	-9.80	42.30	PK	46.00	3.70	Horizontal
5	560.150	52.37	-8.99	43.38	PK	46.00	2.62	Horizontal
6	775.705	43.29	-4.79	38.50	PK	46.00	7.50	Horizontal

8.5 POWER LINE CONDUCTED EMISSIONS

8.5.1 Applicable Standard

According to FCC Part 15.207(a)

8.5.2 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.

8.5.3 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.

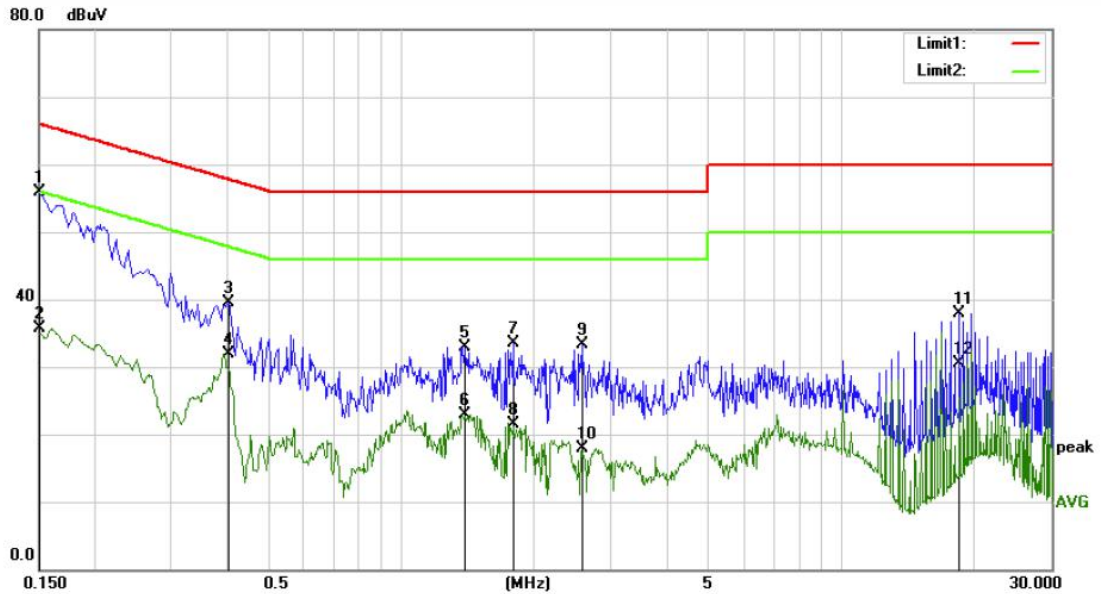
8.5.5 Test Results

Temperature : 21.9℃
Humidity : 58 %

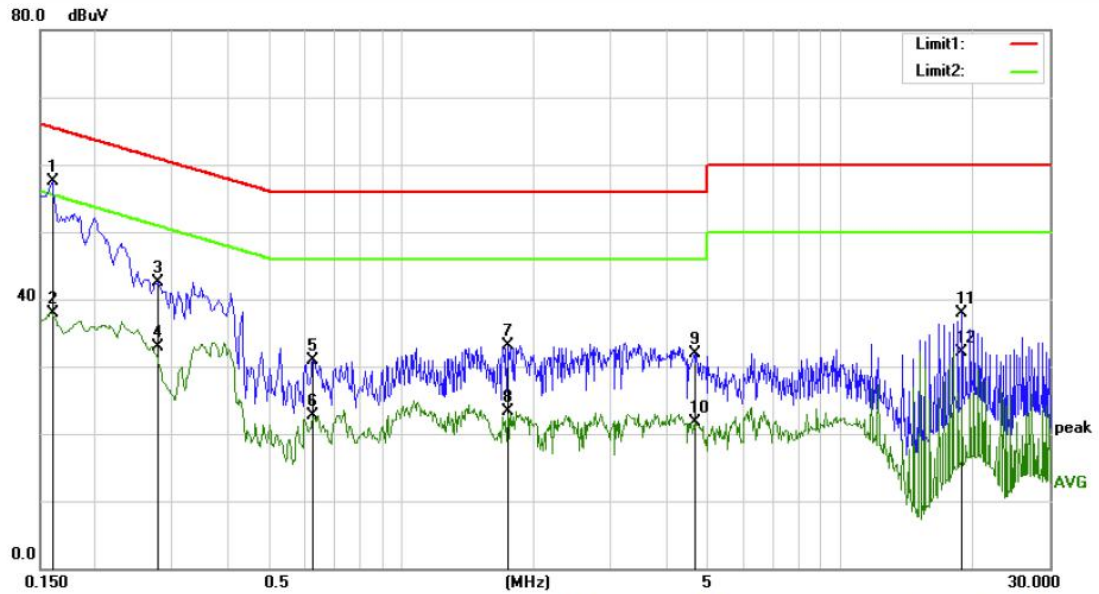
ATM Pressure:: 1011 mbar
Test Engineer: WAP

Pass

The 120V &240V voltage have 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	*	0.1500	46.37	9.51	55.88	66.00	-10.12	QP
2		0.1500	26.10	9.51	35.61	56.00	-20.39	AVG
3		0.4040	29.71	9.81	39.52	57.77	-18.25	QP
4		0.4040	22.01	9.81	31.82	47.77	-15.95	AVG
5		1.3884	23.18	9.79	32.97	56.00	-23.03	QP
6		1.3884	13.14	9.79	22.93	46.00	-23.07	AVG
7		1.7903	23.84	9.73	33.57	56.00	-22.43	QP
8		1.7903	11.87	9.73	21.60	46.00	-24.40	AVG
9		2.5670	23.63	9.73	33.36	56.00	-22.64	QP
10		2.5670	8.21	9.73	17.94	46.00	-28.06	AVG
11		18.5235	27.66	10.24	37.90	60.00	-22.10	QP
12		18.5235	20.31	10.24	30.55	50.00	-19.45	AVG



Site Conduction #1

Phase: L1

Temperature: 21.9

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1598	47.87	9.63	57.50	65.47	-7.97	QP	
2		0.1598	28.34	9.63	37.97	55.47	-17.50	AVG	
3		0.2788	32.49	10.04	42.53	60.85	-18.32	QP	
4		0.2788	22.91	10.04	32.95	50.85	-17.90	AVG	
5		0.6271	21.32	9.66	30.98	56.00	-25.02	QP	
6		0.6271	12.95	9.66	22.61	46.00	-23.39	AVG	
7		1.7436	23.42	9.74	33.16	56.00	-22.84	QP	
8		1.7436	13.63	9.74	23.37	46.00	-22.63	AVG	
9		4.6468	22.10	9.85	31.95	56.00	-24.05	QP	
10		4.6468	11.87	9.85	21.72	46.00	-24.28	AVG	
11		18.9204	27.57	10.27	37.84	60.00	-22.16	QP	
12		18.9204	21.83	10.27	32.10	50.00	-17.90	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

Temperature : 25°C ATM Pressure:: 1011 mbar
Humidity : 60 % Test Engineer: XXH

PASS

The EUT is integrated antenna, the antenna gain is ANT1: 4.67dBi, ANT2: 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 ---