

- Remark:
1. Emission level in $\text{dBuV/m} = 20 \log(\mu\text{V/m})$
 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 $\text{RBW} = 120\text{kHz}$ for $f < 1\text{GHz}$ (30MHz to 1GHz), 200Hz for $f < 150\text{kHz}$ (9kHz to 150kHz), 9kHz for $< 30\text{MHz}$ (150kHz to 30kHz).

Set the $\text{VBW} > \text{RBW}$.

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:

$\text{RBW} = 1\text{MHz}$.

$\text{VBW} \geq 3\text{MHz}$.

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.

$\text{RBW} = 1\text{MHz}$.

Video bandwidth. • If the EUT is configured to transmit with duty cycle ≥ 98 percent, set $\text{VBW} \leq \text{RBW}/100$ (i.e., 10 kHz) but not less than 10 Hz.

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

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)
10369.12	V	57.37	-37.86	-27	10.86
14617	V	63.24	-31.99	-27	4.99
17494.25	V	65.40	-29.83	-27	2.83
10360.62	H	55.83	-39.4	-27	12.4
14687.12	H	63.24	-31.99	-27	4.99
17498.5	H	65.90	-29.33	-27	2.33

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)
10407.37	V	57.88	-37.35	-27	10.35
14336.5	V	62.92	-32.31	-27	5.31
17509.12	V	65.82	-29.41	-27	2.41
10407.37	H	57.23	-38	-27	11
14578.75	H	62.92	-32.31	-27	5.31
17492.12	H	65.40	-29.83	-27	2.83

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)
11576.12	V	59.42	-35.81	-27	8.81
14555.37	V	62.74	-32.49	-27	5.49
17494.25	V	67.55	-27.68	-27	0.68
11508.12	H	61.24	-33.99	-27	6.99
14680.75	H	63.16	-32.07	-27	5.07
17500.62	H	67.37	-27.86	-27	0.86

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)
10367.73	V	57.24	-37.99	-27	10.99
17495.53	V	65.37	-29.86	-27	2.86
14614.75	V	49.89	-45.34	-27	18.34
10372.31	H	55.75	-39.48	-27	12.48
17510.19	H	65.74	-29.49	-27	2.49
14683.81	H	47.83	-47.40	-27	20.40

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)
10405.98	V	57.75	-37.48	-27	10.48
17510.40	V	65.79	-29.44	-27	2.44
14334.25	V	47.91	-47.32	-27	20.32
10419.06	H	57.15	-38.08	-27	11.08
17503.81	H	65.24	-29.99	-27	2.99
14575.44	H	50.02	-45.21	-27	18.21

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)
11574.73	V	59.29	-35.94	-27	8.94
17495.53	V	67.52	-27.71	-27	0.71
14553.12	V	46.96	-48.27	-27	21.27
11519.81	H	61.16	-34.07	-27	7.07
17512.31	H	67.21	-28.02	-27	1.02
14677.44	H	48.16	-47.07	-27	20.07

- 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
10369.12	V	57.37	74.00	16.63	peak
14617	V	63.24	74.00	10.76	peak
17494.25	V	65.40	74.00	8.60	peak
10369.12	V	44.92	54.00	9.08	AVG
14617	V	50.15	54.00	3.85	AVG
17494.25	V	50.72	54.00	3.28	AVG
10360.62	H	55.83	74.00	18.17	peak
14687.12	H	63.24	74.00	10.76	peak
17498.5	H	65.90	74.00	8.10	peak
10360.65	H	44.32	54.00	9.68	AVG
14687.12	H	48.01	54.00	5.99	AVG
17498.5	H	50.45	54.00	3.55	AVG

Test mode:		802.11n(20)		Frequency(MHz): 5200	
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10407.37	V	57.88	74.00	16.12	peak
14336.5	V	62.92	74.00	11.08	peak
17509.12	V	65.82	74.00	8.18	peak
10407.33	V	46.41	54.00	7.59	AVG
14336.5	V	48.17	54.00	5.83	AVG
17509.12	V	48.81	54.00	5.19	AVG
10407.37	H	57.23	74.00	16.77	peak
14578.75	H	62.92	74.00	11.08	peak
17492.12	H	65.40	74.00	8.60	peak
10407.41	H	45.10	54.00	8.90	AVG
14578.75	H	50.20	54.00	3.80	AVG
17492.12	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
11576.12	V	59.42	74.00	14.58	peak
14555.37	V	62.74	74.00	11.26	peak
17494.25	V	67.55	74.00	6.45	peak
11576.12	V	46.63	54.00	7.37	AVG
14555.37	V	47.22	54.00	6.78	AVG
17494.25	V	50.80	54.00	3.20	AVG
11508.12	H	61.24	74.00	12.76	peak
14680.75	H	63.16	74.00	10.84	peak
17500.62	H	67.37	74.00	6.63	peak
11508.12	H	47.17	54.00	6.83	AVG
14680.75	H	48.34	54.00	5.66	AVG
17500.62	H	50.30	54.00	3.70	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
10367.730	V	57.24	74.00	16.76	peak
14615.610	V	63.08	74.00	10.92	peak
17495.530	V	65.37	74.00	8.63	peak
10370.400	V	44.9	54.00	9.1	AVG
14614.750	V	49.89	54.00	4.11	AVG
17492.000	V	50.53	54.00	3.47	AVG
10372.310	H	55.75	74.00	18.25	peak
14698.810	H	63.03	74.00	10.97	peak
17510.190	H	65.74	74.00	8.26	peak
10372.340	H	44.18	54.00	9.82	AVG
14683.810	H	47.83	54.00	6.17	AVG
17495.190	H	50.32	54.00	3.68	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5200			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10405.980	V	57.75	74.00	16.25	peak
14335.110	V	62.76	74.00	11.24	peak
17510.400	V	65.79	74.00	8.21	peak
10408.610	V	46.39	54.00	7.61	AVG
14334.250	V	47.91	54.00	6.09	AVG
17506.870	V	48.62	54.00	5.38	AVG
10419.060	H	57.15	74.00	16.85	peak
14590.440	H	62.71	74.00	11.29	peak
17503.810	H	65.24	74.00	8.76	peak
10419.100	H	44.96	54.00	9.04	AVG
14575.440	H	50.02	54.00	3.98	AVG
17488.810	H	49.35	54.00	4.65	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5240			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11574.730	V	59.29	74.00	14.71	peak
14553.980	V	62.58	74.00	11.42	peak
17495.530	V	67.52	74.00	6.48	peak
11577.400	V	46.61	54.00	7.39	AVG
14553.120	V	46.96	54.00	7.04	AVG
17492.000	V	50.61	54.00	3.39	AVG
11519.810	H	61.16	74.00	12.84	peak
14692.440	H	62.95	74.00	11.05	peak
17512.310	H	67.21	74.00	6.79	peak
11519.810	H	47.03	54.00	6.97	AVG
14677.440	H	48.16	54.00	5.84	AVG
17497.310	H	50.17	54.00	3.83	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
5040.962	H	54.47	-40.76	-27	Pass
5019.837	V	54.46	-40.77	-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
5359.996	H	53.72	-41.51	-27	Pass
5432.156	V	53.15	-42.08	-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
5019.837	V	54.46	74.00	19.54	peak
5019.814	V	39.88	54.00	14.12	AVG
5040.962	H	54.47	74.00	19.53	peak
5040.923	H	39.83	54.00	14.17	AVG

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

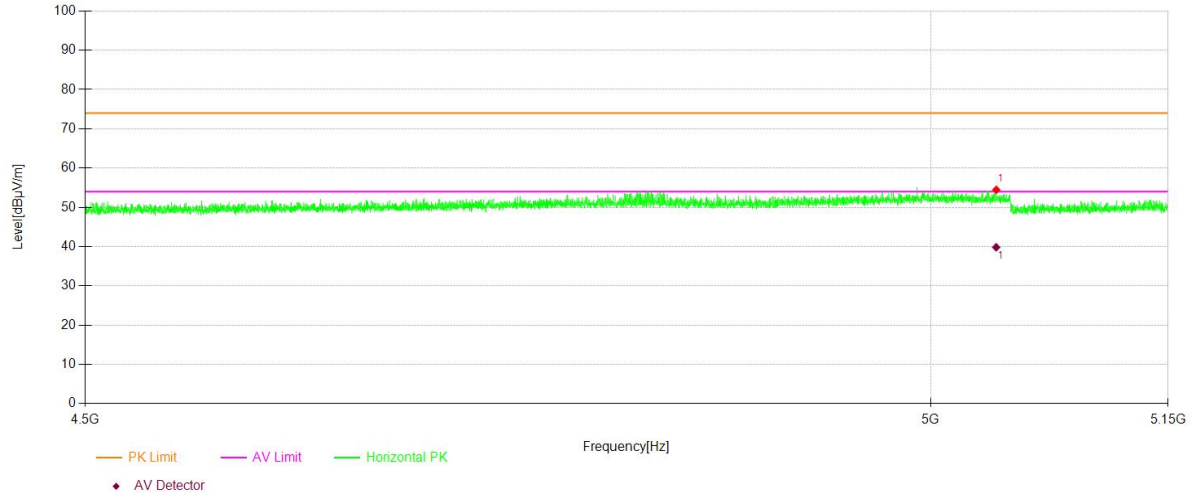
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5432.156	V	53.15	74.00	20.85	peak
5432.140	V	39.37	54.00	14.63	AVG
5359.996	H	53.72	74.00	20.28	peak
5359.954	H	40.18	54.00	13.82	AVG

- 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.

U-NII - 1

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

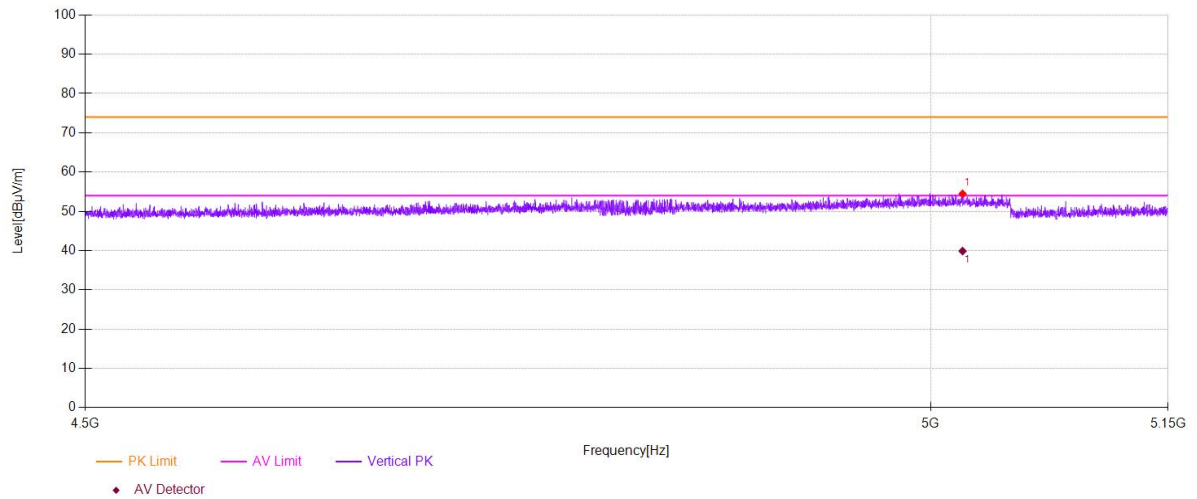
<input type="checkbox"/> 802.11a	<input checked="" type="checkbox"/> 802.11n(HT20)	<input type="checkbox"/> 802.11n(HT40)
<input checked="" type="checkbox"/> 5180	<input type="checkbox"/> 5200	<input type="checkbox"/> 5240
		Ant.Pol H



U-NII - 1

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

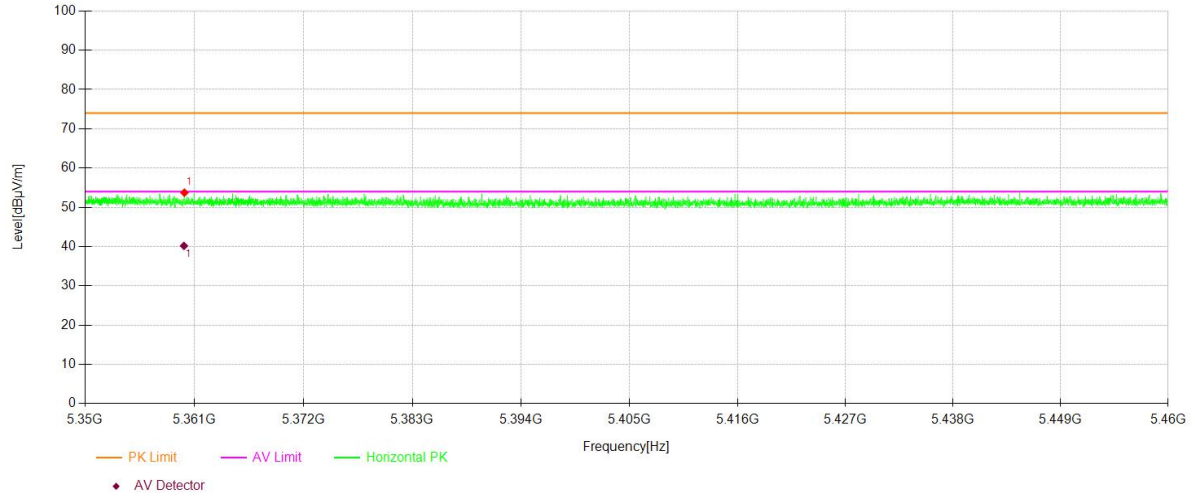
<input type="checkbox"/> 802.11a	<input checked="" type="checkbox"/> 802.11n(HT20)	<input type="checkbox"/> 802.11n(HT40)
<input checked="" type="checkbox"/> 5180	<input type="checkbox"/> 5200	<input type="checkbox"/> 5240
		Ant.Pol V



U-NII - 1

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

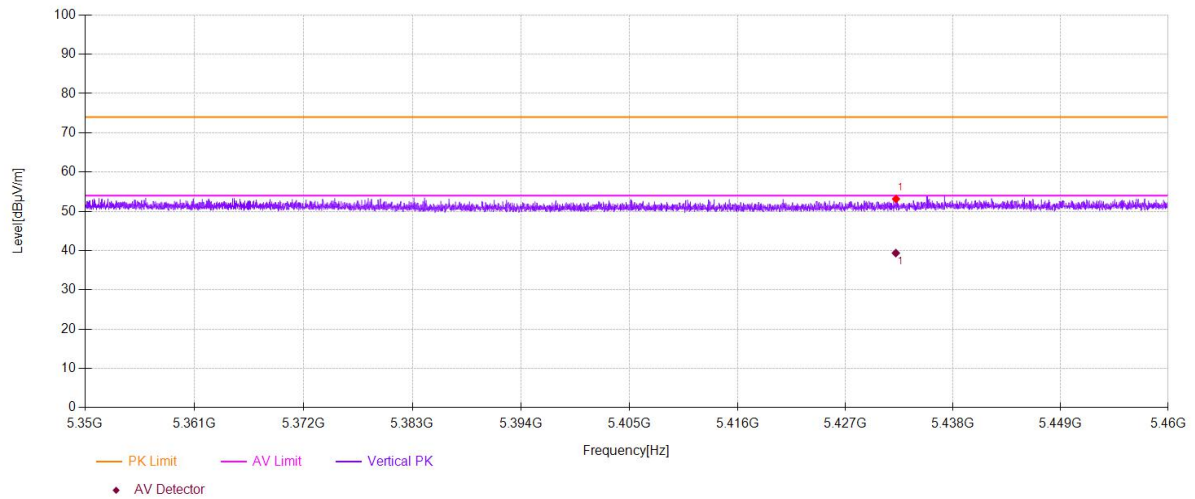
<input type="checkbox"/> 802.11a	<input checked="" type="checkbox"/> 802.11n(HT20)	<input type="checkbox"/> 802.11n(HT40)
<input type="checkbox"/> 5180	<input type="checkbox"/> 5200	<input checked="" type="checkbox"/> 5240
		Ant. Pol H



U-NII - 1

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

<input type="checkbox"/> 802.11a	<input checked="" type="checkbox"/> 802.11n(HT20)	<input type="checkbox"/> 802.11n(HT40)
<input type="checkbox"/> 5180	<input type="checkbox"/> 5200	<input checked="" type="checkbox"/> 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)
10515.75	V	62.49	-32.74	-27	5.74
14617	V	62.84	-32.39	-27	5.39
17507	V	67.49	-27.74	-27	0.74
10522.12	H	59.76	-35.47	-27	8.47
14591.5	H	63.18	-32.05	-27	5.05
17487.87	H	67.32	-27.91	-27	0.91

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)
10562.5	V	61.73	-33.5	-27	6.5
13121	V	60.86	-34.37	-27	7.37
17507	V	67.86	-27.37	-27	0.37
10558.25	H	59.39	-35.84	-27	8.84
14538.37	H	63.29	-31.94	-27	4.94
17519.75	H	67.83	-27.4	-27	0.4

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	V	64.18	-31.05	-27	4.05
15165.25	V	63.28	-31.95	-27	4.95
17504.87	V	67.50	-27.73	-27	0.73
10639	H	60.23	-35	-27	8
14572.37	H	63.06	-32.17	-27	5.17
17513.37	H	67.46	-27.77	-27	0.77

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)
10514.36	V	62.36	-32.87	-27	5.87
17508.28	V	67.46	-27.77	-27	0.77
14614.75	V	49.22	-46.01	-27	19.01
10533.81	H	59.68	-35.55	-27	8.55
17499.56	H	67.16	-28.07	-27	1.07
14588.19	H	49.6	-45.63	-27	18.63

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)
10561.11	V	61.6	-33.63	-27	6.63
17508.28	V	67.83	-27.40	-27	0.40
13118.75	V	47.59	-47.64	-27	20.64
10569.94	H	59.31	-35.92	-27	8.92
17531.44	H	67.67	-27.56	-27	0.56
14535.06	H	48.71	-46.52	-27	19.52

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)
10637.61	V	64.05	-31.18	-27	4.18
17506.15	V	67.47	-27.76	-27	0.76
15163.00	V	49.02	-46.21	-27	19.21
10650.69	H	60.15	-35.08	-27	8.08
17525.06	H	67.3	-27.93	-27	0.93
14569.06	H	50.35	-44.88	-27	17.88

- 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
10515.75	V	62.49	74.00	11.51	peak
14617	V	62.84	74.00	11.16	peak
17507	V	67.49	74.00	6.51	peak
10515.72	V	50.98	54.00	3.02	AVG
14617	V	49.48	54.00	4.52	AVG
17507	V	50.30	54.00	3.70	AVG
10522.12	H	59.76	74.00	14.24	peak
14591.5	H	63.18	74.00	10.82	peak
17487.87	H	67.32	74.00	6.68	peak
10522.09	H	49.19	54.00	4.81	AVG
14591.5	H	49.78	54.00	4.22	AVG
17487.87	H	49.33	54.00	4.67	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5280			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10562.5	V	61.73	74.00	12.27	peak
13121	V	60.86	74.00	13.14	peak
17507	V	67.86	74.00	6.14	peak
10562.54	V	50.60	54.00	3.40	AVG
13121	V	47.85	54.00	6.15	AVG
17507	V	50.12	54.00	3.88	AVG
10558.25	H	59.39	74.00	14.61	peak
14538.37	H	63.29	74.00	10.71	peak
17519.75	H	67.83	74.00	6.17	peak
10558.29	H	48.74	54.00	5.26	AVG
14538.37	H	48.89	54.00	5.11	AVG
17519.75	H	49.52	54.00	4.48	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5320			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10639	V	64.18	74.00	9.82	peak
15165.25	V	63.28	74.00	10.72	peak
17504.87	V	67.50	74.00	6.50	peak
10639.01	V	50.69	54.00	3.31	AVG
15165.25	V	49.28	54.00	4.72	AVG
17504.87	V	50.36	54.00	3.64	AVG
10639	H	60.23	74.00	13.77	peak
14572.37	H	63.06	74.00	10.94	peak
17513.37	H	67.46	74.00	6.54	peak
10638.95	H	50.73	54.00	3.27	AVG
14572.37	H	50.53	54.00	3.47	AVG
17513.37	H	50.94	54.00	3.06	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
10514.360	V	62.36	74.00	11.64	peak
14615.610	V	62.68	74.00	11.32	peak
17508.280	V	67.46	74.00	6.54	peak
10517.000	V	50.96	54.00	3.04	AVG
14614.750	V	49.22	54.00	4.78	AVG
17504.750	V	50.11	54.00	3.89	AVG
10533.810	H	59.68	74.00	14.32	peak
14603.190	H	62.97	74.00	11.03	peak
17499.560	H	67.16	74.00	6.84	peak
10533.780	H	49.05	54.00	4.95	AVG
14588.190	H	49.6	54.00	4.4	AVG
17484.560	H	49.2	54.00	4.8	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5280			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10561.110	V	61.6	74.00	12.4	peak
13119.610	V	60.7	74.00	13.3	peak
17508.280	V	67.83	74.00	6.17	peak
10563.820	V	50.58	54.00	3.42	AVG
13118.750	V	47.59	54.00	6.41	AVG
17504.750	V	49.93	54.00	4.07	AVG
10569.940	H	59.31	74.00	14.69	peak
14550.060	H	63.08	74.00	10.92	peak
17531.440	H	67.67	74.00	6.33	peak
10569.980	H	48.6	54.00	5.4	AVG
14535.060	H	48.71	54.00	5.29	AVG
17516.440	H	49.39	54.00	4.61	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5320			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10637.610	V	64.05	74.00	9.95	peak
15163.860	V	63.12	74.00	10.88	peak
17506.150	V	67.47	74.00	6.53	peak
10640.290	V	50.67	54.00	3.33	AVG
15163.000	V	49.02	54.00	4.98	AVG
17502.620	V	50.17	54.00	3.83	AVG
10650.690	H	60.15	74.00	13.85	peak
14584.060	H	62.85	74.00	11.15	peak
17525.060	H	67.3	74.00	6.7	peak
10650.640	H	50.59	54.00	3.41	AVG
14569.060	H	50.35	54.00	3.65	AVG
17510.060	H	50.81	54.00	3.19	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
5013.093	H	54.71	-40.52	-27	Pass
4813.625	V	53.62	-41.61	-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
5350.096	H	70.28	-24.95	-27	Pass
5352.42	V	70.74	-24.49	-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
4813.625	V	53.62	74.00	20.38	peak
4813.597	V	40.16	54.00	13.84	AVG
5013.093	H	54.71	74.00	19.29	peak
5013.068	H	40.43	54.00	13.57	AVG

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

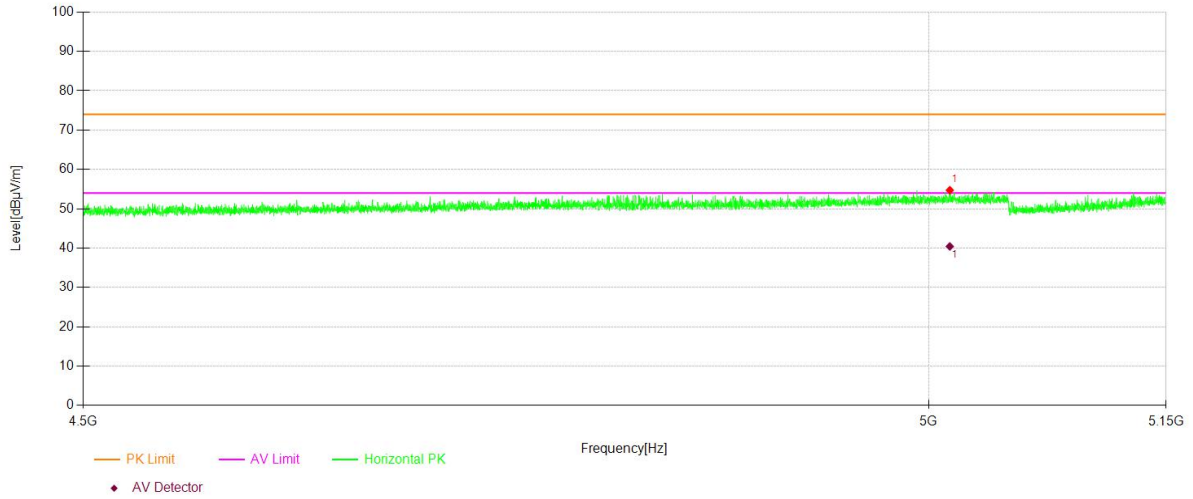
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5352.42	V	70.74	74.00	3.26	peak
5352.436	V	48.55	54.00	5.45	AVG
5350.096	H	70.28	74.00	3.72	peak
5350.114	H	50.20	54.00	3.80	AVG

- 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.

U-NII -2A

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

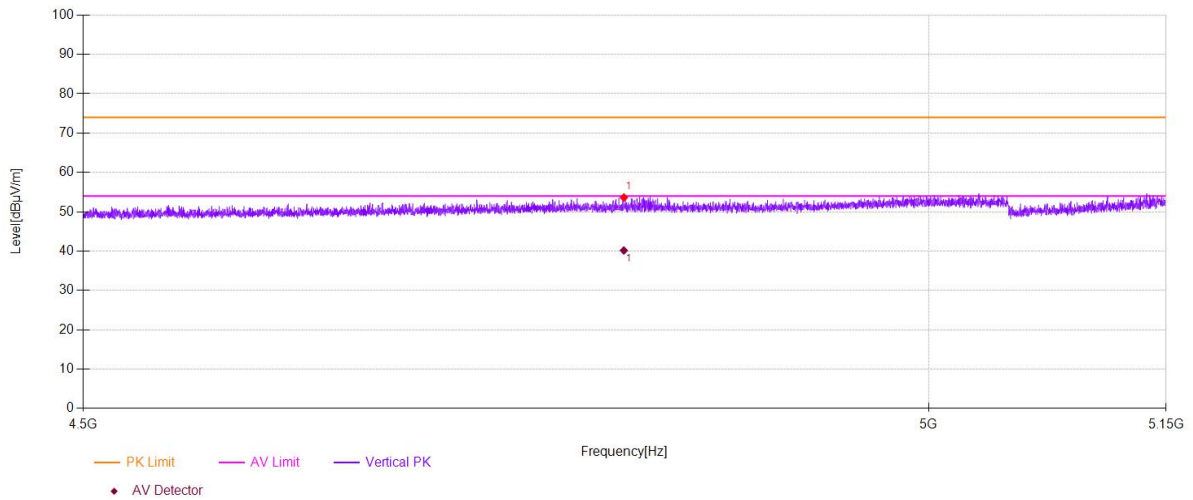
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<input checked="" type="checkbox"/> 5260	<input type="checkbox"/> 5300	<input type="checkbox"/> 5320
		Ant.Pol H



U-NII -2A

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

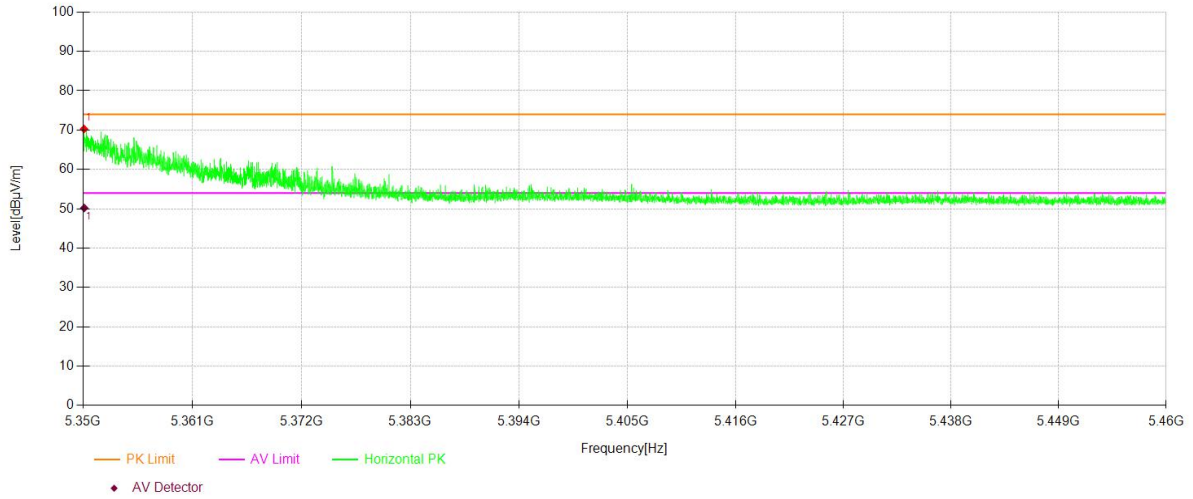
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<input checked="" type="checkbox"/> 5260	<input type="checkbox"/> 5300	<input type="checkbox"/> 5320
		Ant.Pol V



U-NII -2A

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

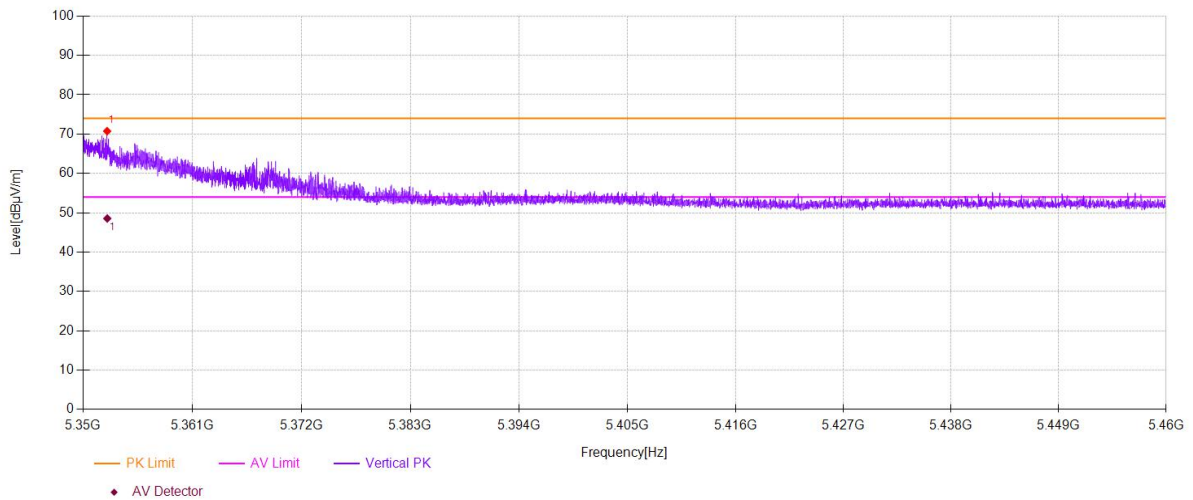
802.11a 802.11n(HT20) 802.11 ac (VHT20)
 5260 5300 5320 Ant.Pol H



U-NII -2A

Test Model 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)
10998.12	V	63.98	-31.25	-27	4.25
14695.62	V	62.91	-32.32	-27	5.32
17496.37	V	67.99	-27.24	-27	0.24
11000.25	H	61.91	-33.32	-27	6.32
14825.25	H	62.68	-32.55	-27	5.55
17502.75	H	67.08	-28.15	-27	1.15

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)
11157.5	V	62.21	-33.02	-27	6.02
14546.87	V	63.18	-32.05	-27	5.05
17494.25	V	65.81	-29.42	-27	2.42
11157.5	H	59.51	-35.72	-27	8.72
14680.75	H	62.79	-32.44	-27	5.44
17498.5	H	67.56	-27.67	-27	0.67

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)
11401.87	V	63.99	-31.24	-27	4.24
14525.62	V	63.00	-32.23	-27	5.23
17490	V	67.96	-27.27	-27	0.27
11401.87	H	62.07	-33.16	-27	6.16
15148.25	H	63.89	-31.34	-27	4.34
17492.12	H	67.53	-27.7	-27	0.7

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)
10996.73	V	63.85	-31.38	-27	4.38
17497.65	V	67.96	-27.27	-27	0.27
14693.37	V	49.69	-45.54	-27	18.54
11011.94	H	61.83	-33.40	-27	6.40
17514.44	H	66.92	-28.31	-27	1.31
14821.94	H	49.49	-45.74	-27	18.74

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)
11156.11	V	62.08	-33.15	-27	6.15
17495.53	V	65.78	-29.45	-27	2.45
14544.62	V	48.93	-46.30	-27	19.30
11169.19	H	59.43	-35.80	-27	8.80
17510.19	H	67.4	-27.83	-27	0.83
14677.44	H	50.07	-45.16	-27	18.16

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)
11400.48	V	63.86	-31.37	-27	4.37
17491.28	V	67.93	-27.30	-27	0.30
14523.37	V	48.92	-46.31	-27	19.31
11413.56	H	61.99	-33.24	-27	6.24
17503.81	H	67.37	-27.86	-27	0.86
15144.94	H	48.86	-46.37	-27	19.37

- 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
10998.12	V	63.98	74.00	8.02	peak
14695.62	V	62.91	74.00	11.09	peak
17496.37	V	67.99	74.00	6.01	peak
10998.07	V	50.99	54.00	3.01	AVG
14695.62	V	49.95	54.00	4.05	AVG
17496.37	V	50.90	54.00	3.10	AVG
11000.25	H	61.91	74.00	12.09	peak
14825.25	H	62.68	74.00	11.32	peak
17502.75	H	67.08	74.00	6.92	peak
11000.24	H	50.15	54.00	3.85	AVG
14825.25	H	49.67	54.00	4.33	AVG
17502.75	H	50.27	54.00	3.73	AVG

Test mode:		802.11n(20)		Frequency(MHz): 5580	
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11157.5	V	62.21	74.00	11.79	peak
14546.87	V	63.18	74.00	10.82	peak
17494.25	V	65.81	74.00	8.19	peak
11157.50	V	50.84	54.00	3.16	AVG
14546.87	V	49.19	54.00	4.81	AVG
17494.25	V	50.02	54.00	3.98	AVG
11157.5	H	59.51	74.00	14.49	peak
14680.75	H	62.79	74.00	11.21	peak
17498.5	H	67.56	74.00	6.44	peak
11157.45	H	49.34	54.00	4.66	AVG
14680.75	H	50.25	54.00	3.75	AVG
17498.5	H	50.97	54.00	3.03	AVG

Test mode:		802.11n(20)		Frequency(MHz): 5700	
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11401.87	V	63.99	74.00	10.01	peak
14525.62	V	63.00	74.00	11.00	peak
17490	V	67.96	74.00	6.04	peak
11401.86	V	50.27	54.00	3.73	AVG
14525.62	V	49.18	54.00	4.82	AVG
17490	V	50.30	54.00	3.70	AVG
11401.87	H	62.07	74.00	11.93	peak
15148.25	H	63.89	74.00	10.11	peak
17492.12	H	67.53	74.00	6.47	peak
11401.84	H	49.34	54.00	4.66	AVG
15148.25	H	49.04	54.00	4.96	AVG
17492.12	H	49.92	54.00	4.08	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
10996.730	V	63.85	74.00	10.15	peak
14694.230	V	62.75	74.00	11.25	peak
17497.650	V	67.96	74.00	6.04	peak
10999.350	V	50.97	54.00	3.03	AVG
14693.370	V	49.69	54.00	4.31	AVG
17494.120	V	50.71	54.00	3.29	AVG
11011.940	H	61.83	74.00	12.17	peak
14836.940	H	62.47	74.00	11.53	peak
17514.440	H	66.92	74.00	7.08	peak
11011.930	H	50.01	54.00	3.99	AVG
14821.940	H	49.49	54.00	4.51	AVG
17499.440	H	50.14	54.00	3.86	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5580			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11156.110	V	62.08	74.00	11.92	peak
14545.480	V	63.02	74.00	10.98	peak
17495.530	V	65.78	74.00	8.22	peak
11158.780	V	50.82	54.00	3.18	AVG
14544.620	V	48.93	54.00	5.07	AVG
17492.000	V	49.83	54.00	4.17	AVG
11169.190	H	59.43	74.00	14.57	peak
14692.440	H	62.58	74.00	11.42	peak
17510.190	H	67.4	74.00	6.6	peak
11169.140	H	49.2	54.00	4.8	AVG
14677.440	H	50.07	54.00	3.93	AVG
17495.190	H	50.84	54.00	3.16	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5700			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11400.480	V	63.86	74.00	10.14	peak
14524.230	V	62.84	74.00	11.16	peak
17491.280	V	67.93	74.00	6.07	peak
11403.140	V	50.25	54.00	3.75	AVG
14523.370	V	48.92	54.00	5.08	AVG
17487.750	V	50.11	54.00	3.89	AVG
11413.560	H	61.99	74.00	12.01	peak
15159.940	H	63.68	74.00	10.32	peak
17503.810	H	67.37	74.00	6.63	peak
11413.530	H	49.2	54.00	4.8	AVG
15144.940	H	48.86	54.00	5.14	AVG
17488.810	H	49.79	54.00	4.21	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 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
5469.025	H	69.73	-25.5	-27	Pass
5467.987	V	70.95	-24.28	-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
5725.55	H	71.18	-24.05	-27	Pass
5725.362	V	70.49	-24.74	-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
5467.987	V	70.95	74.00	3.05	peak
5467.987	V	51.00	54.00	3.00	AVG
5469.025	H	69.73	74.00	4.27	peak
5469.029	H	50.08	54.00	3.92	AVG

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

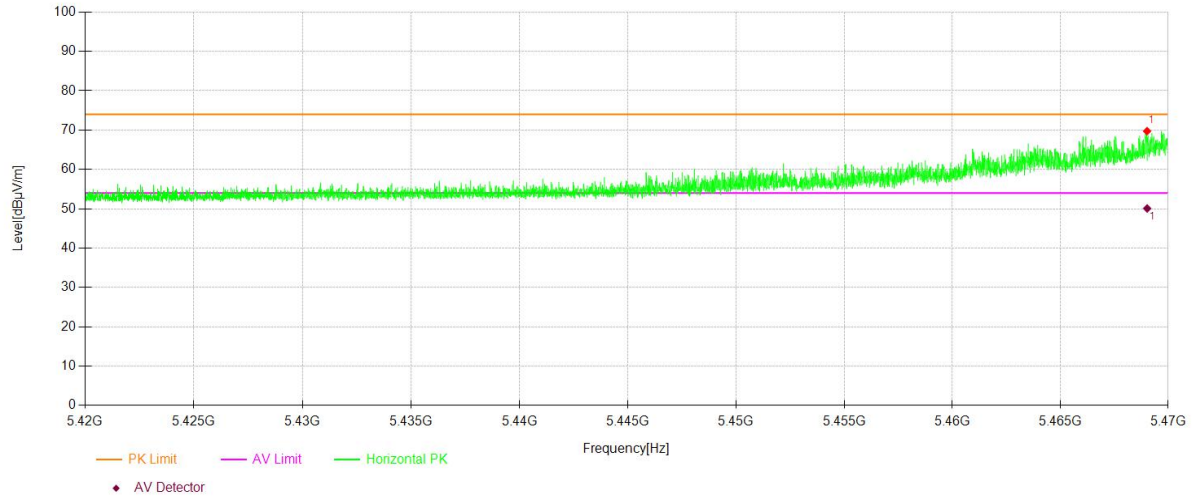
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5725.362	V	70.49	74.00	3.51	peak
5725.32	V	50.48	54.00	3.52	AVG
5725.55	H	71.18	74.00	2.82	peak
5725.594	H	50.60	54.00	3.40	AVG

- 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.

U-NII -2C

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

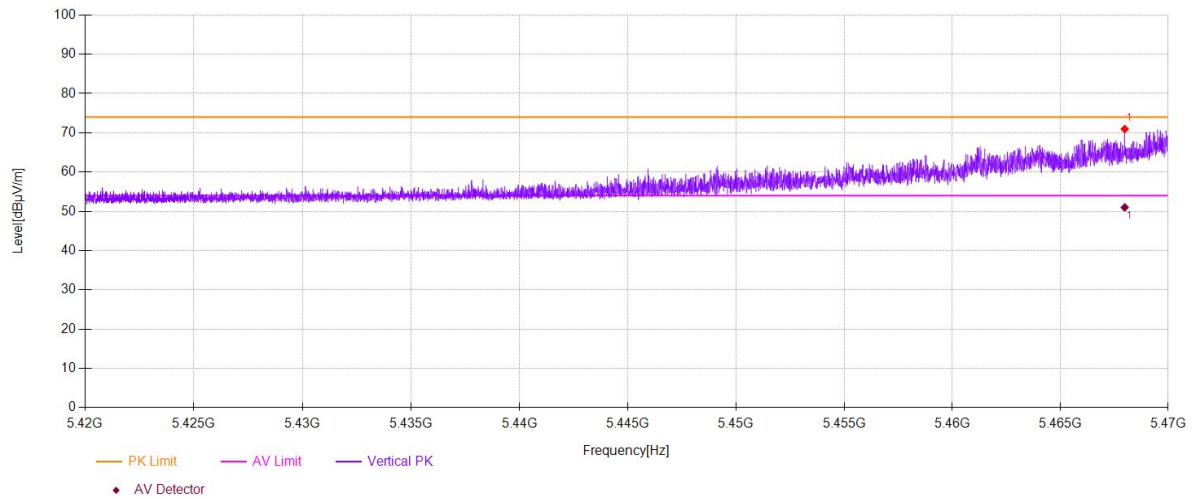
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Ant.Pol		H



U-NII -2C

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

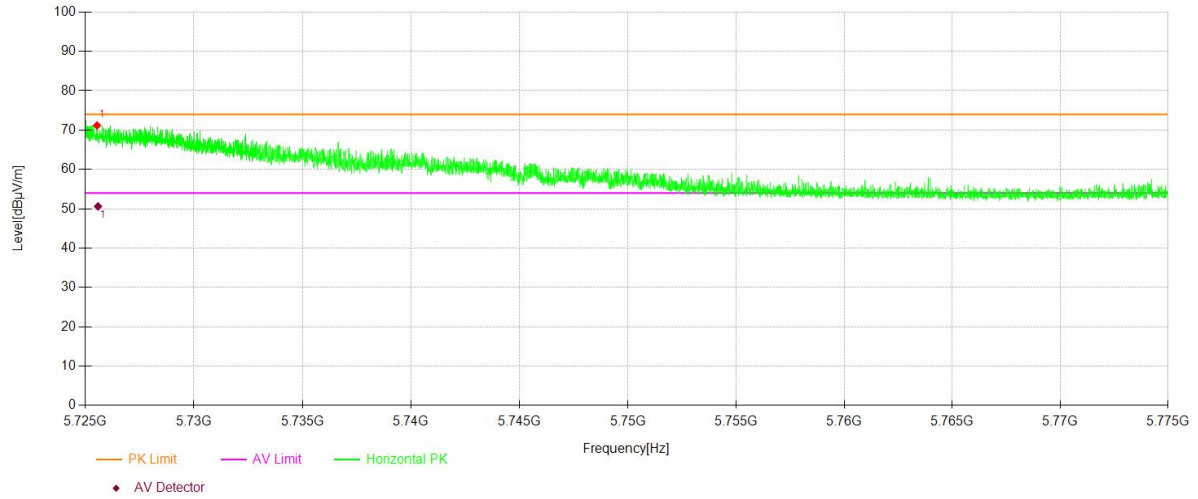
<input type="checkbox"/> 802.11a	<input checked="" type="checkbox"/> 802.11n(HT20)	<input type="checkbox"/> 802.11 ac (VHT20)
<input checked="" type="checkbox"/> 5500	<input type="checkbox"/> 5580	<input type="checkbox"/> 5700
Ant.Pol		V



U-NII -2C

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

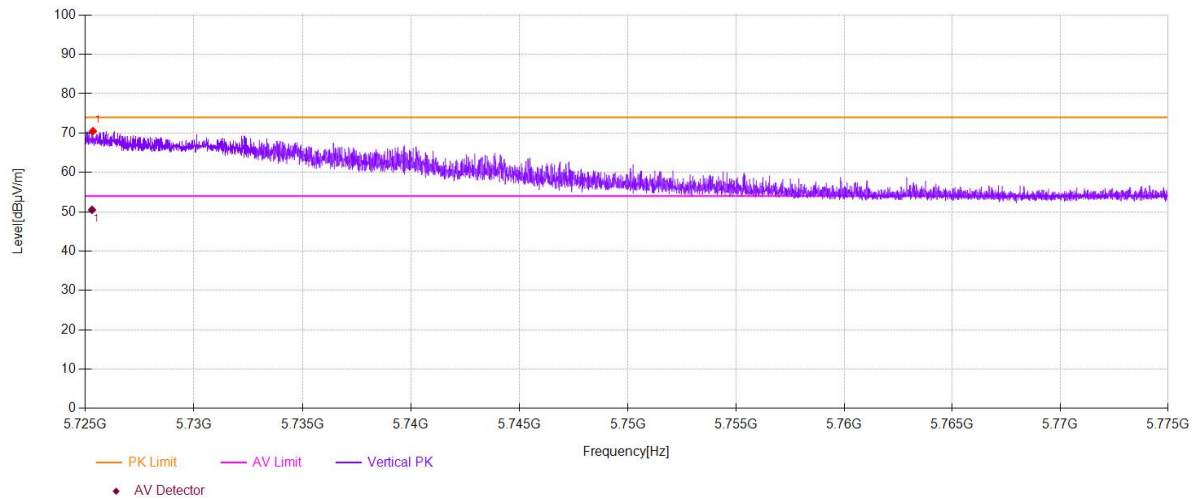
<input type="checkbox"/> 802.11a	<input checked="" type="checkbox"/> 802.11n(HT20)	<input type="checkbox"/> 802.11 ac (VHT20)
<input type="checkbox"/> 5500	<input type="checkbox"/> 5580	<input checked="" type="checkbox"/> 5700
		Ant.Pol H



U-NII -2C

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

<input type="checkbox"/> 802.11a	<input checked="" type="checkbox"/> 802.11n(HT20)	<input type="checkbox"/> 802.11 ac (VHT20)
<input type="checkbox"/> 5500	<input type="checkbox"/> 5580	<input checked="" type="checkbox"/> 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)
11489	V	63.90	-31.33	-27	4.33
14540.5	V	63.03	-32.2	-27	5.2
17502.75	V	65.34	-29.89	-27	2.89
11491.12	H	62.90	-32.33	-27	5.33
14827.37	H	62.97	-32.26	-27	5.26
17502.75	H	68.07	-27.16	-27	0.16

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)
11571.87	V	63.52	-31.71	-27	4.71
15105.75	V	63.81	-31.42	-27	4.42
17494.25	V	65.48	-29.75	-27	2.75
11574	H	60.75	-34.48	-27	7.48
14682.87	H	63.58	-31.65	-27	4.65
17496.37	H	65.51	-29.72	-27	2.72

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)
11648.37	V	60.55	-34.68	-27	7.68
14557.5	V	64.51	-30.72	-27	3.72
17494.25	V	65.36	-29.87	-27	2.87
11642	H	59.66	-35.57	-27	8.57
14538.375	H	64.07	-31.16	-27	4.16
17487.875	H	65.96	-29.27	-27	2.27

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)
11487.61	V	63.77	-31.46	-27	4.46
17504.03	V	65.31	-29.92	-27	2.92
14538.25	V	49.81	-45.42	-27	18.42
11502.81	H	62.82	-32.41	-27	5.41
17514.44	H	67.91	-27.32	-27	0.32
14824.06	H	49.48	-45.75	-27	18.75

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)
11570.48	V	63.39	-31.84	-27	4.84
17495.53	V	65.45	-29.78	-27	2.78
15103.50	V	48.67	-46.56	-27	19.56
11585.69	H	60.67	-34.56	-27	7.56
17508.06	H	65.35	-29.88	-27	2.88
14679.56	H	49.1	-46.13	-27	19.13

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)
11646.98	V	60.42	-34.81	-27	7.81
17495.53	V	65.33	-29.90	-27	2.90
14555.25	V	50.07	-45.16	-27	18.16
11653.69	H	59.58	-35.65	-27	8.65
17499.56	H	65.8	-29.43	-27	2.43
14535.06	H	49.89	-45.34	-27	18.34

- 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
11489	V	63.90	74.00	10.10	peak
14540.5	V	63.03	74.00	10.97	peak
17502.75	V	65.34	74.00	8.66	peak
11488.95	V	50.37	54.00	3.63	AVG
14540.5	V	50.07	54.00	3.93	AVG
17502.75	V	50.54	54.00	3.46	AVG
11491.12	H	62.90	74.00	11.10	peak
14827.37	H	62.97	74.00	11.03	peak
17502.75	H	68.07	74.00	5.93	peak
11491.07	H	48.60	54.00	5.40	AVG
14827.37	H	49.66	54.00	4.34	AVG
17502.75	H	50.19	54.00	3.81	AVG

Test mode:		802.11n(20)		Frequency(MHz): 5785	
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11571.87	V	63.52	74.00	10.48	peak
15105.75	V	63.81	74.00	10.19	peak
17494.25	V	65.48	74.00	8.52	peak
11571.90	V	50.68	54.00	3.32	AVG
15105.75	V	48.93	54.00	5.07	AVG
17494.25	V	50.25	54.00	3.75	AVG
11574	H	60.75	74.00	13.25	peak
14682.87	H	63.58	74.00	10.42	peak
17496.37	H	65.51	74.00	8.49	peak
11574	H	49.50	54.00	4.50	AVG
14682.87	H	49.28	54.00	4.72	AVG
17496.37	H	50.59	54.00	3.41	AVG

Test mode:		802.11n(20)		Frequency(MHz): 5825	
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11648.37	V	60.55	74.00	13.45	peak
14557.5	V	64.51	74.00	9.49	peak
17494.25	V	65.36	74.00	8.64	peak
11648.32	V	50.82	54.00	3.18	AVG
14557.5	V	50.33	54.00	3.67	AVG
17494.25	V	50.49	54.00	3.51	AVG
11642	H	59.66	74.00	14.34	peak
14538.37	H	64.07	74.00	9.93	peak
17487.87	H	65.96	74.00	8.04	peak
11641.99	H	48.65	54.00	5.35	AVG
14538.37	H	50.07	54.00	3.93	AVG
17487.87	H	49.76	54.00	4.24	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
11487.610	V	63.77	74.00	10.23	peak
14539.110	V	62.87	74.00	11.13	peak
17504.030	V	65.31	74.00	8.69	peak
11490.230	V	50.35	54.00	3.65	AVG
14538.250	V	49.81	54.00	4.19	AVG
17500.500	V	50.35	54.00	3.65	AVG
11502.810	H	62.82	74.00	11.18	peak
14839.060	H	62.76	74.00	11.24	peak
17514.440	H	67.91	74.00	6.09	peak
11502.760	H	48.46	54.00	5.54	AVG
14824.060	H	49.48	54.00	4.52	AVG
17499.440	H	50.06	54.00	3.94	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5785			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11570.480	V	63.39	74.00	10.61	peak
15104.360	V	63.65	74.00	10.35	peak
17495.530	V	65.45	74.00	8.55	peak
11573.180	V	50.66	54.00	3.34	AVG
15103.500	V	48.67	54.00	5.33	AVG
17492.000	V	50.06	54.00	3.94	AVG
11585.690	H	60.67	74.00	13.33	peak
14694.560	H	63.37	74.00	10.63	peak
17508.060	H	65.35	74.00	8.65	peak
11585.690	H	49.36	54.00	4.64	AVG
14679.560	H	49.1	54.00	4.9	AVG
17493.060	H	50.46	54.00	3.54	AVG

Test mode: 802.11n(20)		Frequency(MHz): 5825			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11646.980	V	60.42	74.00	13.58	peak
14556.110	V	64.35	74.00	9.65	peak
17495.530	V	65.33	74.00	8.67	peak
11649.600	V	50.8	54.00	3.2	AVG
14555.250	V	50.07	54.00	3.93	AVG
17492.000	V	50.3	54.00	3.7	AVG
11653.690	H	59.58	74.00	14.42	peak
14550.060	H	63.86	74.00	10.14	peak
17499.560	H	65.8	74.00	8.2	peak
11653.680	H	48.51	54.00	5.49	AVG
14535.060	H	49.89	54.00	4.11	AVG
17484.560	H	49.63	54.00	4.37	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
5724.749	H	81.27	-13.96	-27.00	PASS
5724.562	V	81.60	-13.63	-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
5851.375	H	76.27	-18.96	-27.00	PASS
5850.812	V	76.46	-18.77	-27.00	PASS

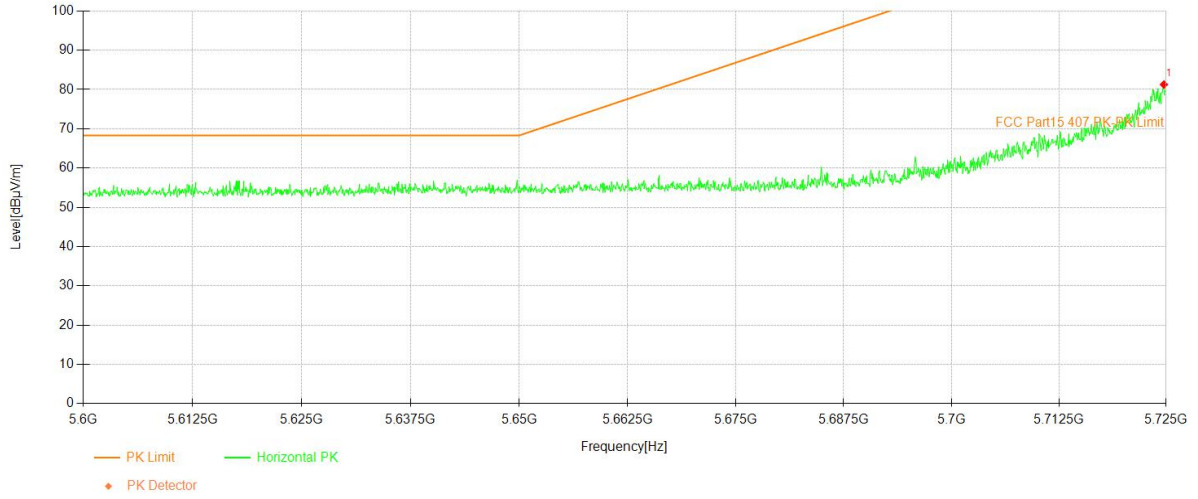
- Note:** (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
 (3) Correct Factor= Ant_F + Cab_L - Preamp
 (4) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77
 d is the measurement distance in 3 meters

U-NII -3

Test Model Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

802.11a 802.11n(HT20) 802.11n(HT40)

5745 Ant.Pol H

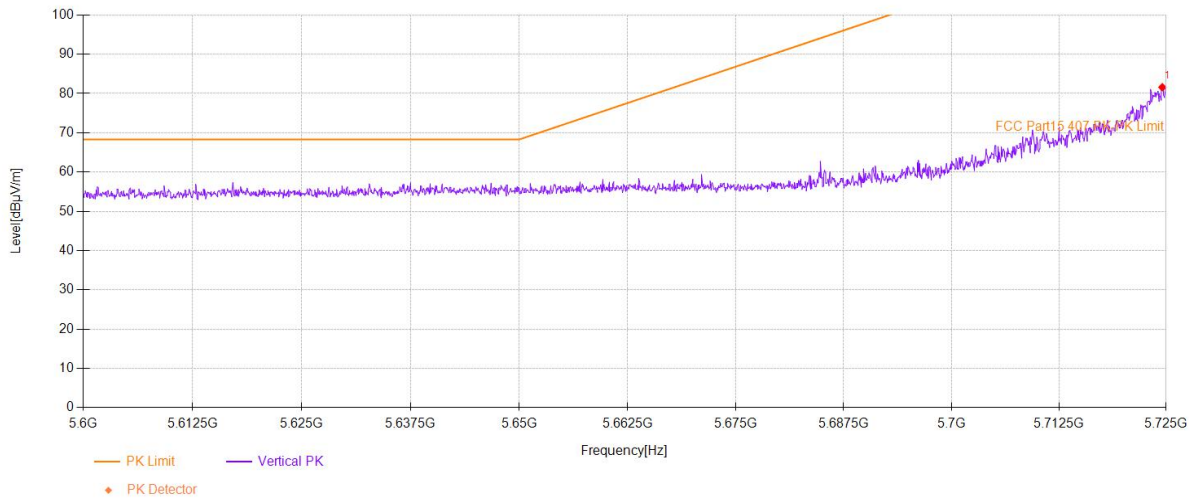


U-NII -3

Test Model Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

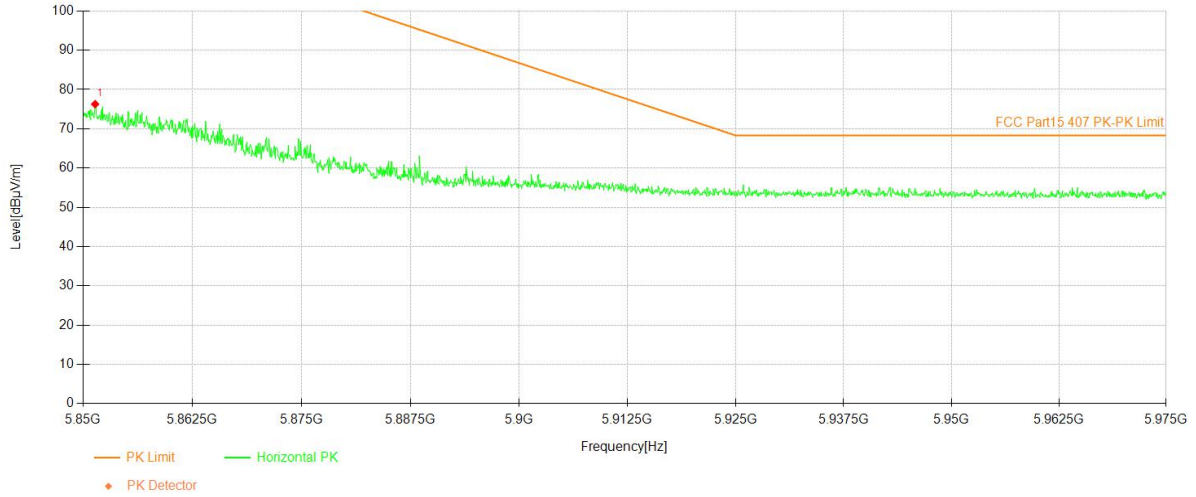
802.11a 802.11n(HT20) 802.11n(HT40)

5745 Ant.Pol V



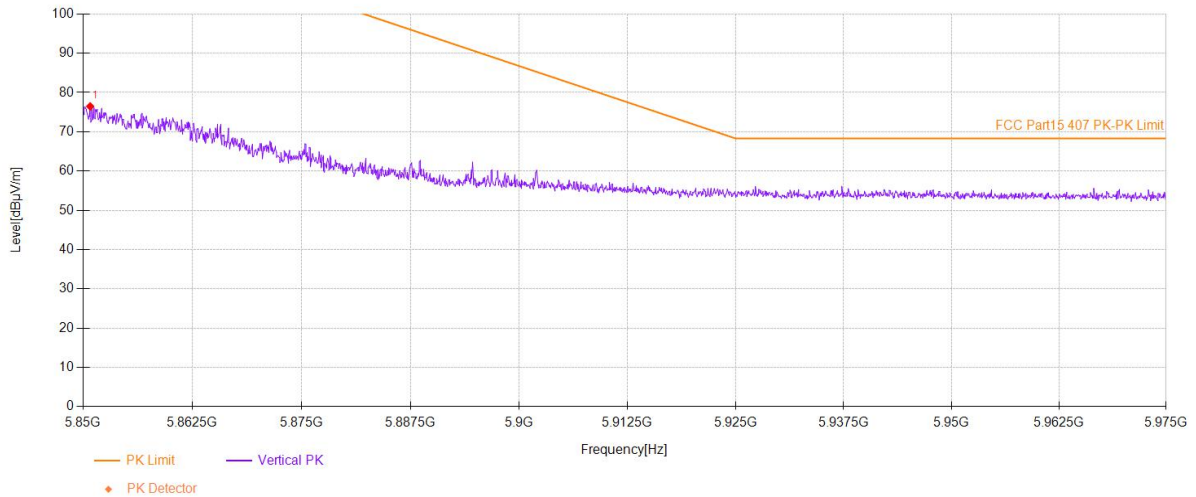
U-NII -3

Test Model	Undesirable radiated	Undesirable radiated	Spurious Emission in Band Edge
	<input type="checkbox"/> 802.11a	<input checked="" type="checkbox"/> 802.11n(HT20)	<input type="checkbox"/> 802.11n(HT40)
	<input checked="" type="checkbox"/> 5825		
			Ant.Pol H



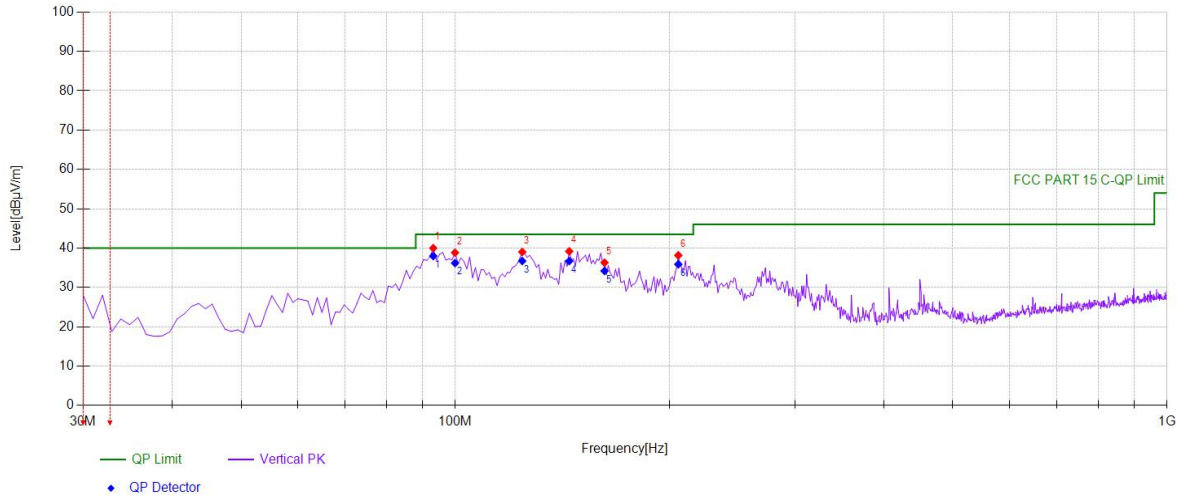
U-NII -3

Test Model	Undesirable radiated	Undesirable radiated	Spurious Emission in Band Edge
	<input type="checkbox"/> 802.11a	<input checked="" type="checkbox"/> 802.11n(HT20)	<input type="checkbox"/> 802.11n(HT40)
	<input checked="" type="checkbox"/> 5825		
			Ant.Pol V

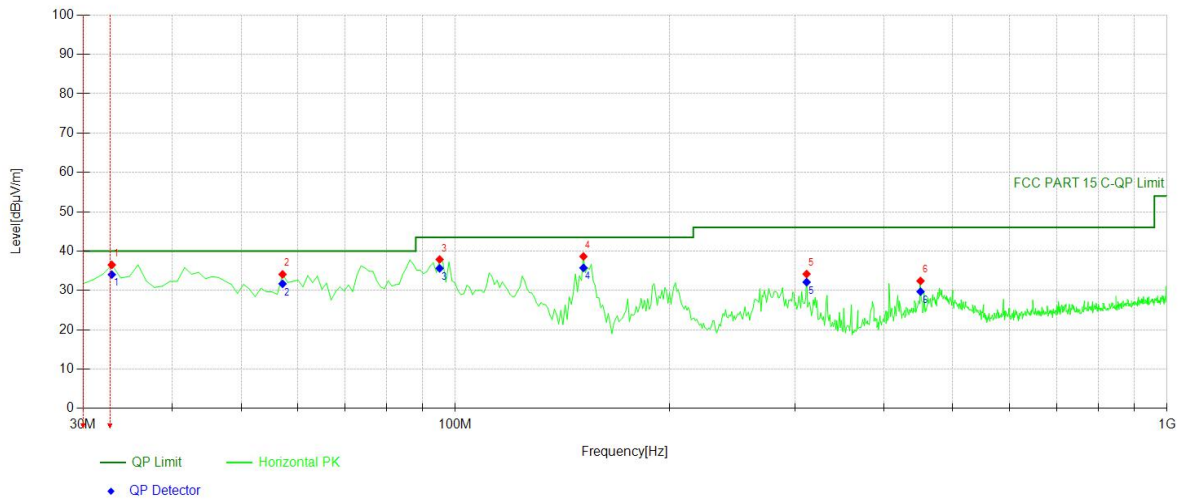


- Undesirable radiated Spurious Emission below 1GHz (30MHz to 1GHz)
All modes have been tested, and the worst result recorded was report as below:

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

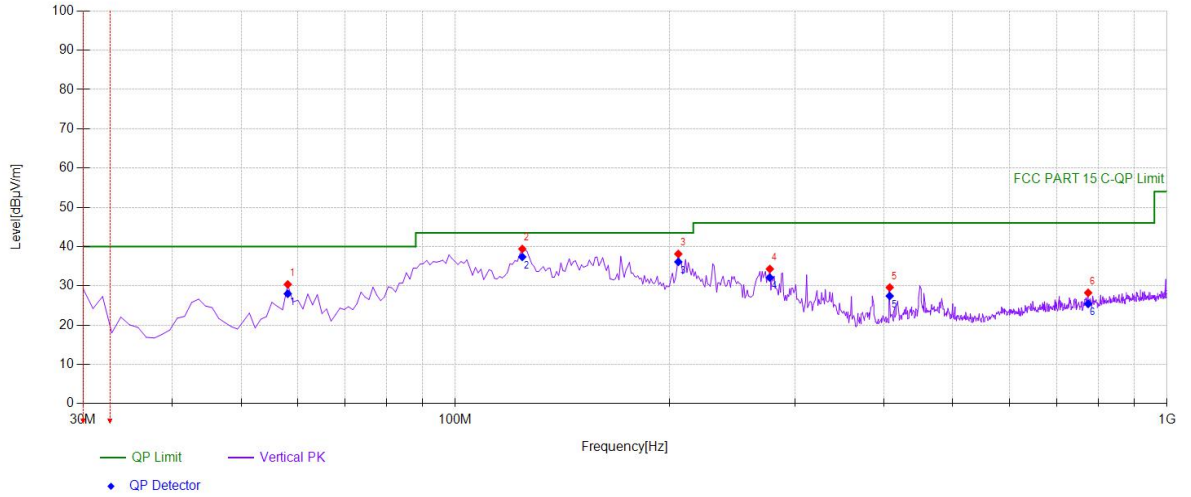


Suspected Data List							
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	93.1131	40.00	43.50	3.50	100	136	Vertical
2	99.9099	38.85	43.50	4.65	100	122	Vertical
3	124.1842	39.03	43.50	4.47	100	63	Vertical
4	144.5746	39.18	43.50	4.32	100	132	Vertical
5	162.0521	36.31	43.50	7.19	100	99	Vertical
6	205.7457	38.16	43.50	5.34	100	67	Vertical

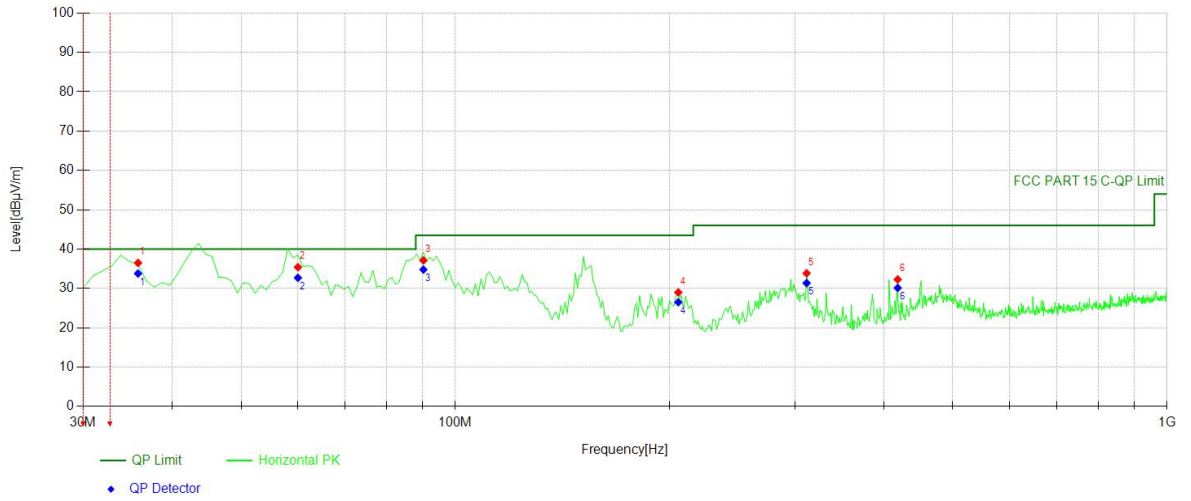


Suspected Data List							
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	32.9129	36.50	40.00	3.50	100	2	Horizontal
2	57.1872	34.09	40.00	5.91	100	135	Horizontal
3	95.0551	37.88	43.50	5.62	100	200	Horizontal
4	151.3714	38.64	43.50	4.86	100	149	Horizontal
5	311.5816	34.18	46.00	11.82	100	116	Horizontal
6	450.4304	32.42	46.00	13.58	100	302	Horizontal

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

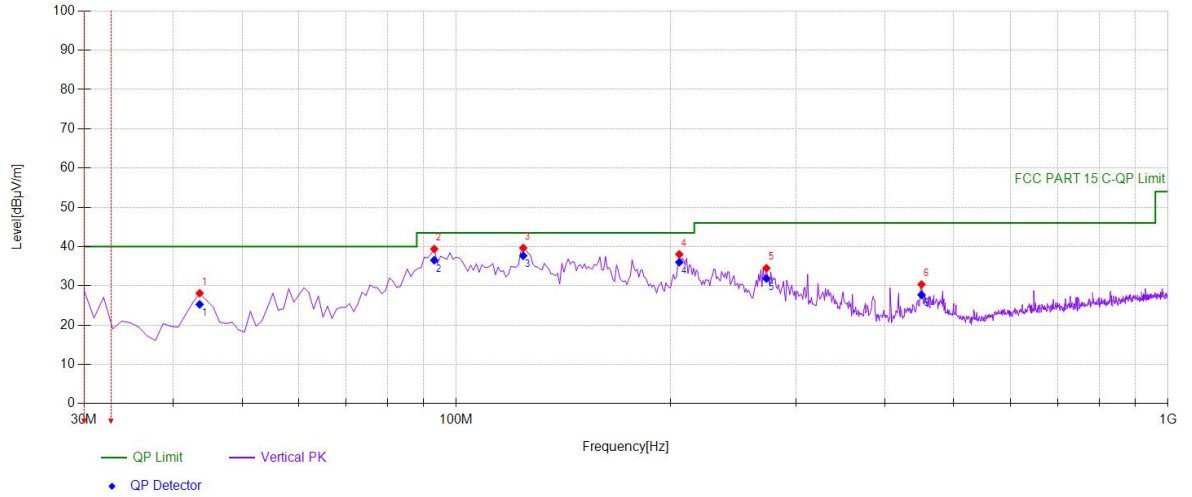


Suspected Data List							
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	58.1582	30.37	40.00	9.63	100	204	Vertical
2	124.1842	39.40	43.50	4.10	100	30	Vertical
3	205.7457	38.13	43.50	5.37	100	72	Vertical
4	276.6266	34.30	46.00	11.70	100	139	Vertical
5	407.7077	29.60	46.00	16.40	100	152	Vertical
6	774.7347	28.24	46.00	17.76	100	139	Vertical

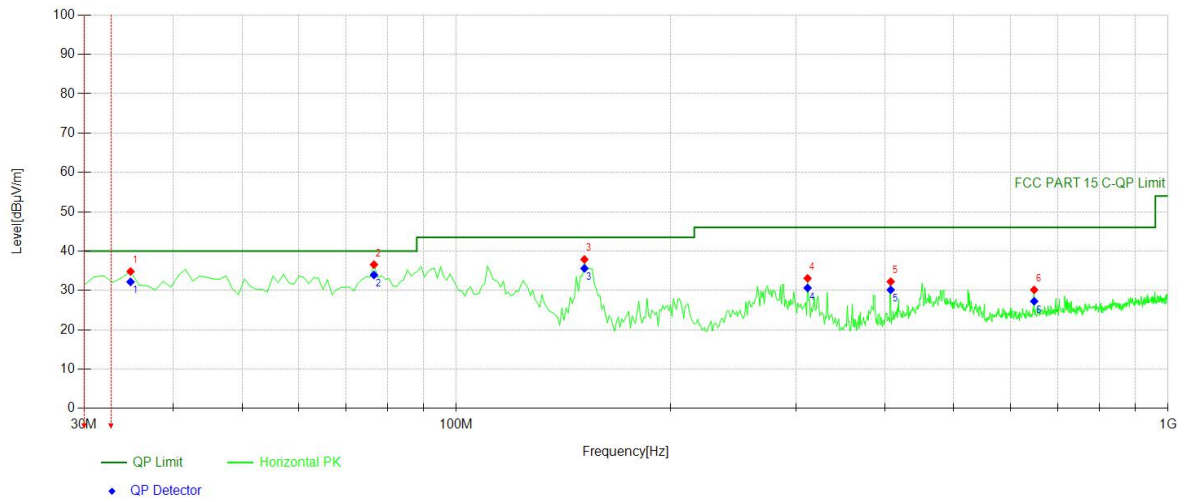


Suspected Data List							
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.8258	36.49	40.00	3.51	100	57	Horizontal
2	60.1001	35.40	40.00	4.60	100	260	Horizontal
3	90.2002	37.12	43.50	6.38	100	260	Horizontal
4	205.7457	28.99	43.50	14.51	100	118	Horizontal
5	311.5816	33.86	46.00	12.14	100	123	Horizontal
6	418.3884	32.28	46.00	13.72	100	95	Horizontal

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



Suspected Data List							
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.5936	28.13	40.00	11.87	100	109	Vertical
2	93.1131	39.38	43.50	4.12	100	123	Vertical
3	124.1842	39.67	43.50	3.83	100	35	Vertical
4	205.7457	38.02	43.50	5.48	100	72	Vertical
5	272.7427	34.51	46.00	11.49	100	137	Vertical
6	450.4304	30.37	46.00	15.63	100	355	Vertical



Suspected Data List							
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	34.8549	34.81	40.00	5.19	100	292	Horizontal
2	76.6066	36.57	40.00	3.43	100	288	Horizontal
3	151.3714	37.89	43.50	5.61	100	172	Horizontal
4	311.5816	33.08	46.00	12.92	100	117	Horizontal
5	407.7077	32.24	46.00	13.76	100	223	Horizontal
6	648.5085	30.15	46.00	15.85	100	302	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

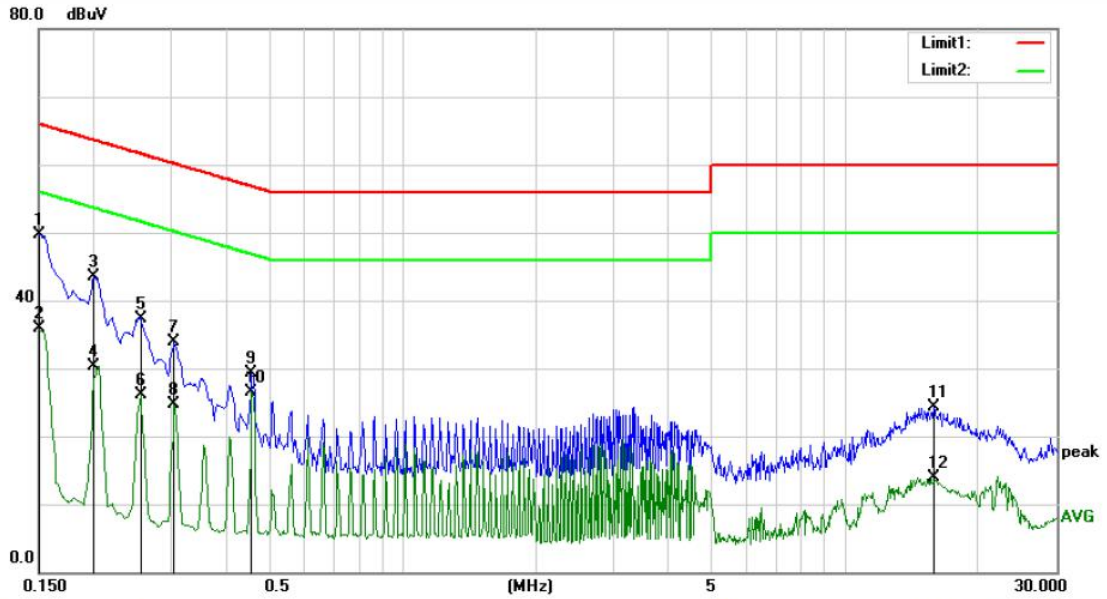
8.5.4 Test Procedure

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

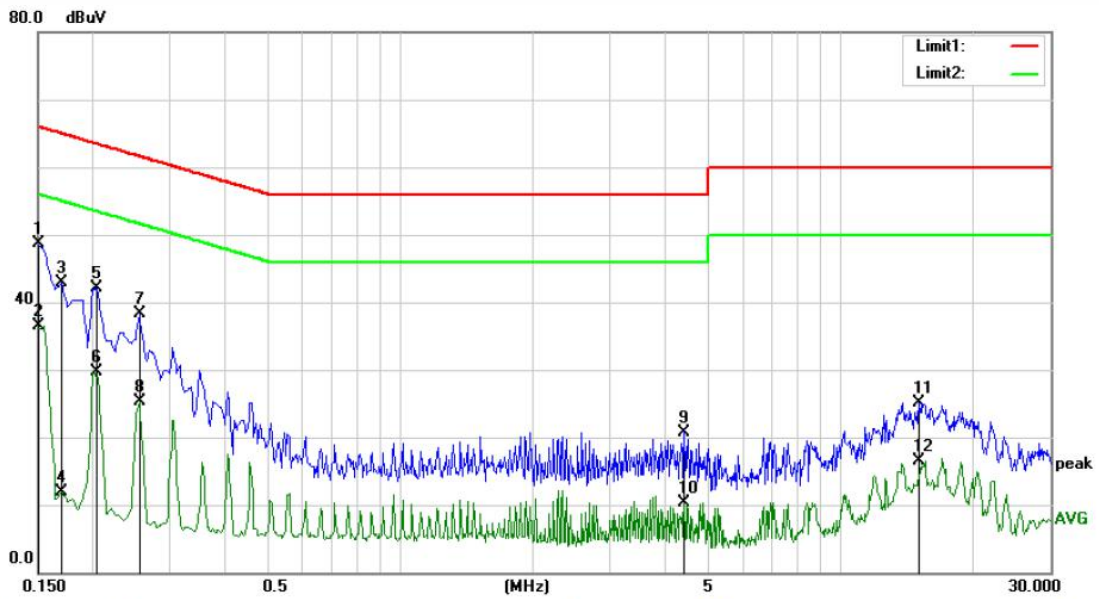
Pass

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. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1500	40.21	9.53	49.74	66.00	-16.26	QP	
2		0.1500	26.30	9.53	35.83	56.00	-20.17	AVG	
3		0.2000	33.95	9.53	43.48	63.61	-20.13	QP	
4		0.2000	20.86	9.53	30.39	53.61	-23.22	AVG	
5		0.2550	27.87	9.53	37.40	61.59	-24.19	QP	
6		0.2550	16.60	9.53	26.13	51.59	-25.46	AVG	
7		0.3050	24.42	9.53	33.95	60.11	-26.16	QP	
8		0.3050	15.14	9.53	24.67	50.11	-25.44	AVG	
9		0.4550	19.84	9.53	29.37	56.78	-27.41	QP	
10		0.4550	17.02	9.53	26.55	46.78	-20.23	AVG	
11		15.8800	14.47	9.84	24.31	60.00	-35.69	QP	
12		15.8800	4.07	9.84	13.91	50.00	-36.09	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	*	0.1500	39.09	9.53	48.62	66.00	-17.38	QP	
2		0.1500	26.88	9.53	36.41	56.00	-19.59	AVG	
3		0.1700	33.31	9.53	42.84	64.96	-22.12	QP	
4		0.1700	2.38	9.53	11.91	54.96	-43.05	AVG	
5		0.2050	32.55	9.53	42.08	63.41	-21.33	QP	
6		0.2050	20.15	9.53	29.68	53.41	-23.73	AVG	
7		0.2550	28.74	9.53	38.27	61.59	-23.32	QP	
8		0.2550	15.72	9.53	25.25	51.59	-26.34	AVG	
9		4.4150	11.23	9.57	20.80	56.00	-35.20	QP	
10		4.4150	0.70	9.57	10.27	46.00	-35.73	AVG	
11		15.1050	15.29	9.82	25.11	60.00	-34.89	QP	
12		15.1050	6.71	9.82	16.53	50.00	-33.47	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: 5.87dBi, Ant 2: 5dBi
 5250-5350MHz: Ant 1: 5.87dBi, Ant 2: 5dBi
 5470-5725MHz: Ant 1: 5.87dBi, Ant 2: 5dBi
 5725-5850MHz: Ant 1: 5.87dBi, Ant 2: 5dBi

- 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 ---