

Test mode: 802.11n(20) Frequency: Channel 11: 2462MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11493.7	V	60.91	74.00	13.09	peak
14653.1	V	64.23	74.00	9.77	peak
17595	V	68.95	74.00	5.05	peak
11493.75	V	49.69	54.00	4.31	AVG
14653.12	V	50.30	54.00	3.70	AVG
17595	V	50.48	54.00	3.52	AVG
11476.8	H	59.70	74.00	14.30	peak
14718.7	H	63.72	74.00	10.28	peak
17613.7	H	68.41	74.00	5.59	peak
11476.87	H	49.47	54.00	4.53	AVG
14718.75	H	49.19	54.00	4.81	AVG
17613.75	H	50.57	54.00	3.43	AVG

MIMO:

Test mode: 802.11n(20) Frequency: Channel 1: 2412MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11331.110	V	59.88	74.00	14.12	peak
14638.610	V	63.16	74.00	10.84	peak
17628.080	V	67.34	74.00	6.66	peak
11333.780	V	48.89	54.00	5.11	AVG
14637.750	V	50.13	54.00	3.87	AVG
17624.620	V	49.33	54.00	4.67	AVG
11516.690	H	59.48	74.00	14.52	peak
14638.490	H	63.33	74.00	10.67	peak
17623.490	H	67.42	74.00	6.58	peak
11516.690	H	49.44	54.00	4.56	AVG
14623.560	H	50.73	54.00	3.27	AVG
17608.560	H	50.48	54.00	3.52	AVG

Test mode: 802.11n(20) Frequency: Channel 6: 2437MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11490.410	V	59.77	74.00	14.23	peak
14661.110	V	63.08	74.00	10.92	peak
17605.580	V	69.26	74.00	4.74	peak
11493.150	V	49.75	54.00	4.25	AVG
14660.250	V	50.16	54.00	3.84	AVG
17602.120	V	50.44	54.00	3.56	AVG
11512.890	H	60.48	74.00	13.52	peak
14567.290	H	63.08	74.00	10.92	peak
17647.890	H	68.6	74.00	5.4	peak
11512.940	H	49.72	54.00	4.28	AVG
14552.310	H	50.25	54.00	3.75	AVG
17632.940	H	49.48	54.00	4.52	AVG

Test mode: 802.11n(20) Frequency: Channel 11: 2462MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
11492.310	V	60.78	74.00	13.22	peak
14651.710	V	64.07	74.00	9.93	peak
17596.280	V	68.92	74.00	5.08	peak
11495.030	V	49.67	54.00	4.33	AVG
14650.870	V	50.04	54.00	3.96	AVG
17592.750	V	50.29	54.00	3.71	AVG
11488.490	H	59.62	74.00	14.38	peak
14730.390	H	63.51	74.00	10.49	peak
17625.390	H	68.25	74.00	5.75	peak
11488.560	H	49.33	54.00	4.67	AVG
14715.440	H	49.01	54.00	4.99	AVG
17610.440	H	50.44	54.00	3.56	AVG

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

■ Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz
 All modes have been tested, and the worst result recorded was report as below:

Test mode: 802.11n(20) Frequency: Channel 1: 2412MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
2333.21	V	45.62	74.00	28.38	peak
2333.21	V	44.25	54.00	9.75	AVG
2344.58	H	44.69	74.00	29.31	peak
2344.58	H	42.55	54.00	11.45	AVG

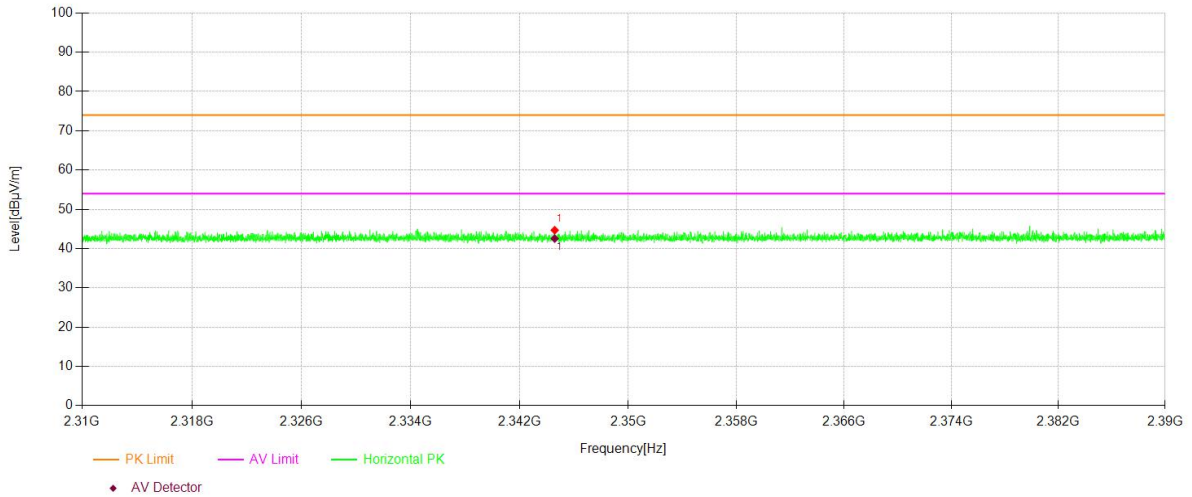
Test mode: 802.11n(20) Frequency: Channel 11: 2462MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
2495.63	V	47.20	74.00	26.80	peak
2495.63	V	45.19	54.00	8.81	AVG
2498.90	H	46.62	74.00	27.38	peak
2498.90	H	44.52	54.00	9.48	AVG

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

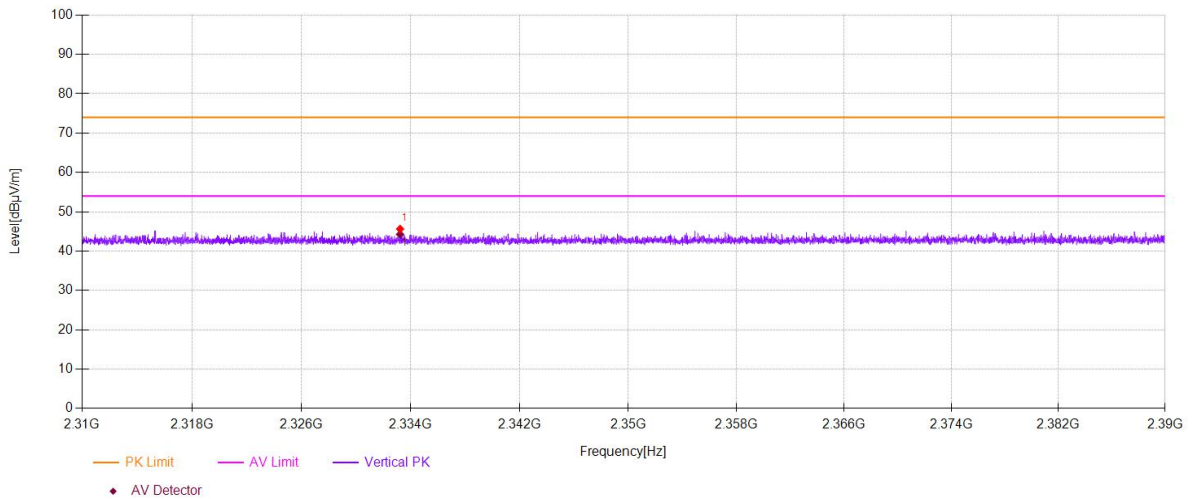
Spurious Emission in Restricted Band 2310-2390MHz

Test Model 802.11b 802.11g 802.11n(HT20) 802.11n(HT40)
 Channel 1:2412MHz Channel 3: 2422MHz Polarity: H
 VBW=3MHz



Spurious Emission in Restricted Band 2310-2390MHz

Test Model 802.11b 802.11g 802.11n(HT20) 802.11n(HT40)
 Channel 1:2412MHz Channel 3: 2422MHz Polarity: V
 VBW=3MHz

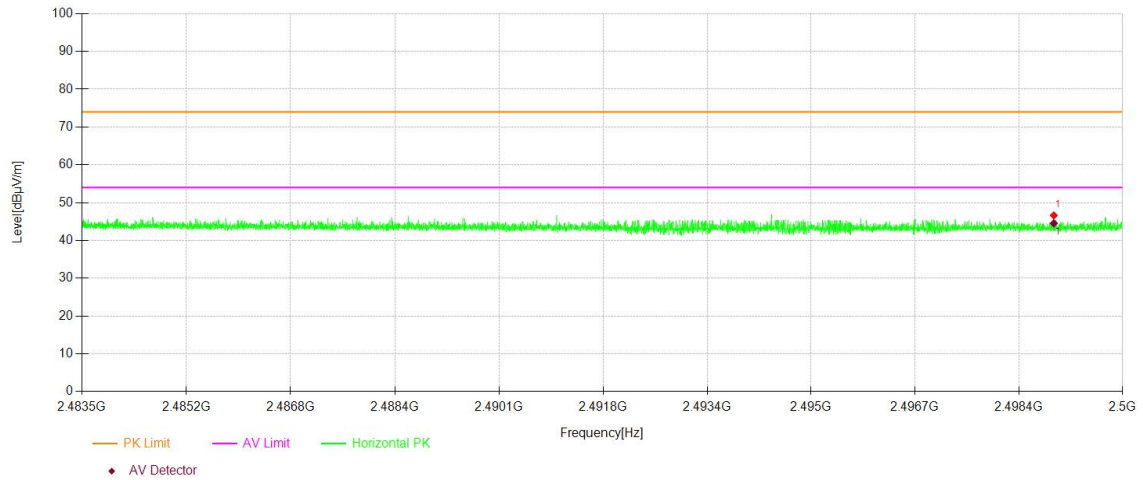


Spurious Emission in Restricted Band 2483.5-2500MHz

Test Model 802.11b 802.11g 802.11n(HT20) 802.11n(HT40)

Channel 11: 2462MHz Channel 9: 2452MHz Polarity: H

 VBW=3MHz

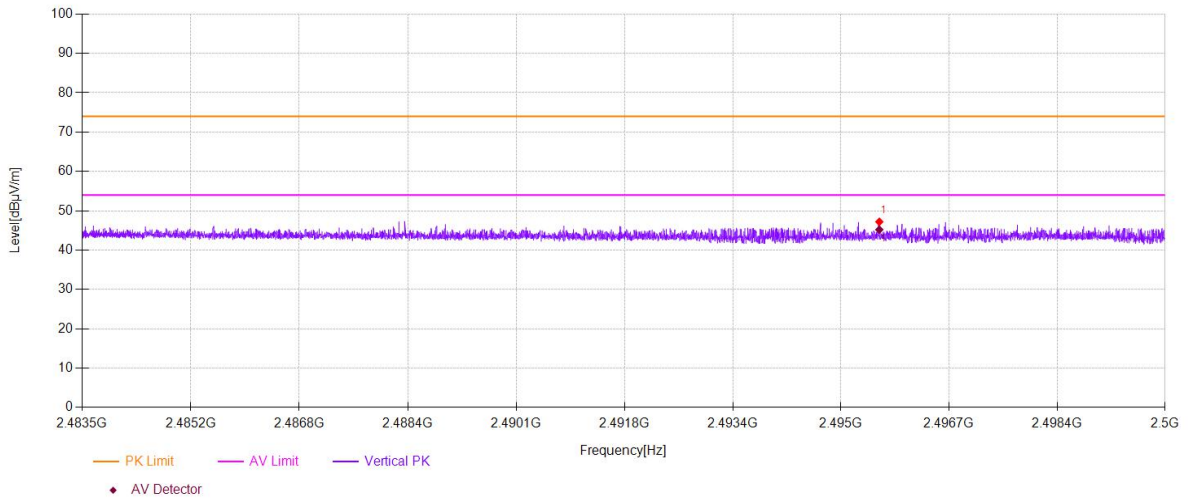


Spurious Emission in Restricted Band 2483.5-2500MHz

Test Model 802.11b 802.11g 802.11n(HT20) 802.11n(HT40)

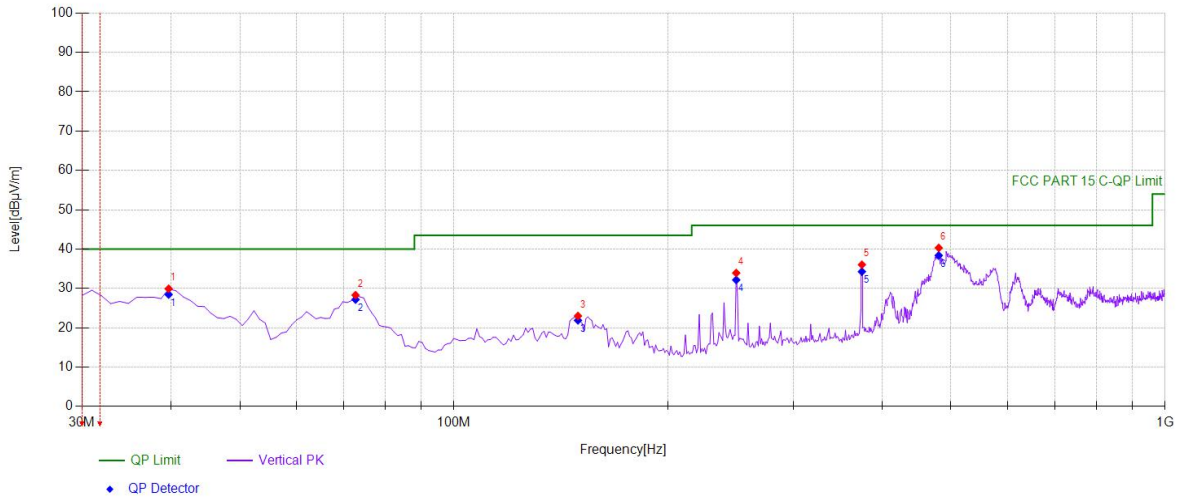
Channel 11: 2462MHz Channel 9: 2452MHz Polarity: V

 VBW=3MHz

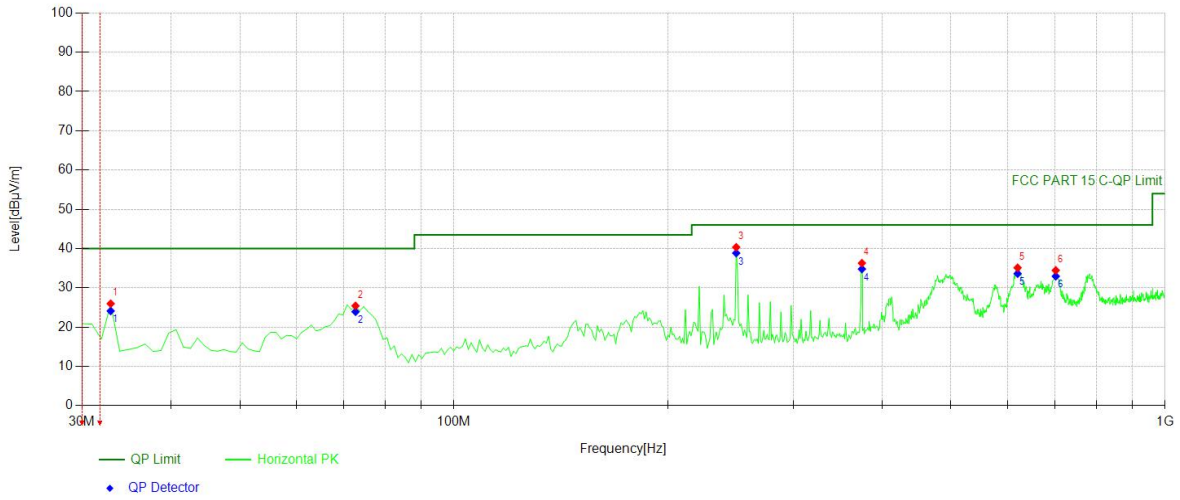


- Spurious Emission below 1GHz (30MHz to 1GHz)
All modes have been tested, and the worst result recorded was report as below:

Test mode: 802.11n(20) Frequency: Channel 1: 2412MHz

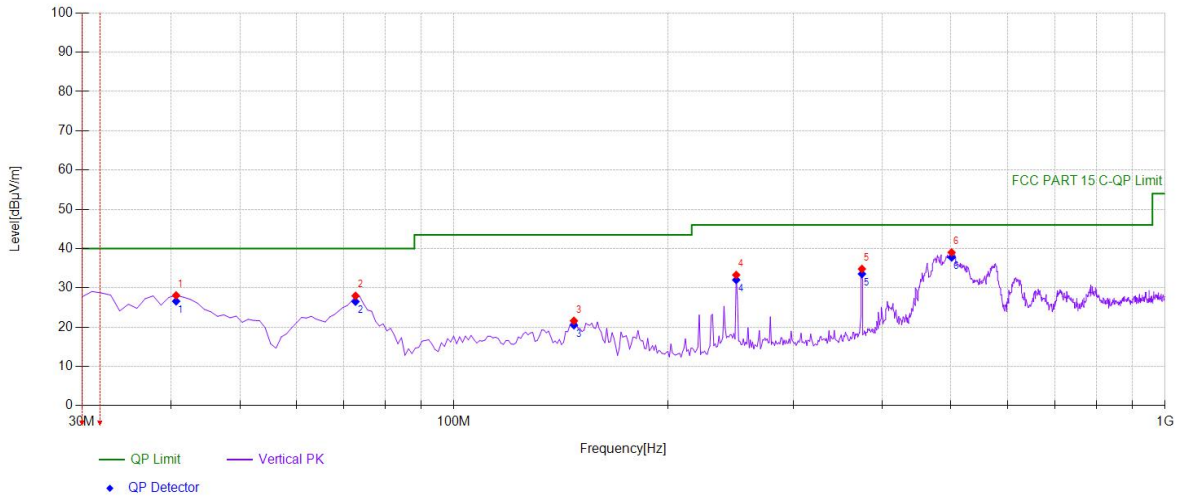


Suspected Data List								
NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]	Polarity
1	39.7097	47.86	-17.93	29.93	PK	40.00	10.07	Vertical
2	72.7227	48.68	-20.38	28.30	PK	40.00	11.70	Vertical
3	149.429	42.78	-19.78	23.00	PK	43.50	20.50	Vertical
4	249.439	49.10	-15.17	33.93	PK	46.00	12.07	Vertical
5	374.694	48.30	-12.26	36.04	PK	46.00	9.96	Vertical
6	480.530	50.09	-9.78	40.31	PK	46.00	5.69	Vertical

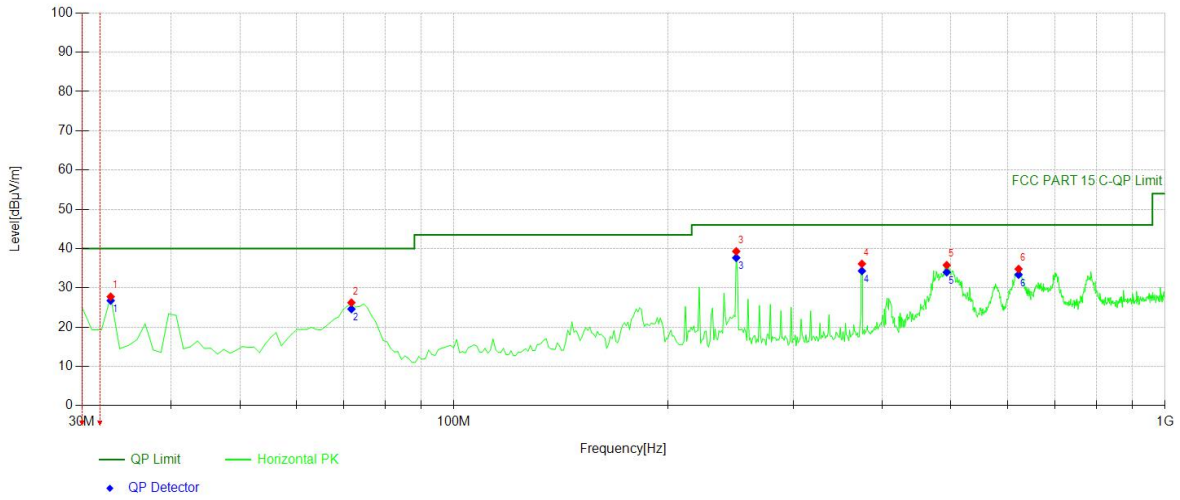


Suspected Data List								
NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]	Polarity
1	32.9129	44.32	-18.35	25.97	PK	40.00	14.03	Horizontal
2	72.7227	45.80	-20.38	25.42	PK	40.00	14.58	Horizontal
3	249.439	55.52	-15.17	40.35	PK	46.00	5.65	Horizontal
4	374.694	48.56	-12.26	36.30	PK	46.00	9.70	Horizontal
5	620.350	42.23	-7.11	35.12	PK	46.00	10.88	Horizontal
6	701.911	40.38	-5.92	34.46	PK	46.00	11.54	Horizontal

Test mode: 802.11n(20) Frequency: Channel 6: 2437MHz

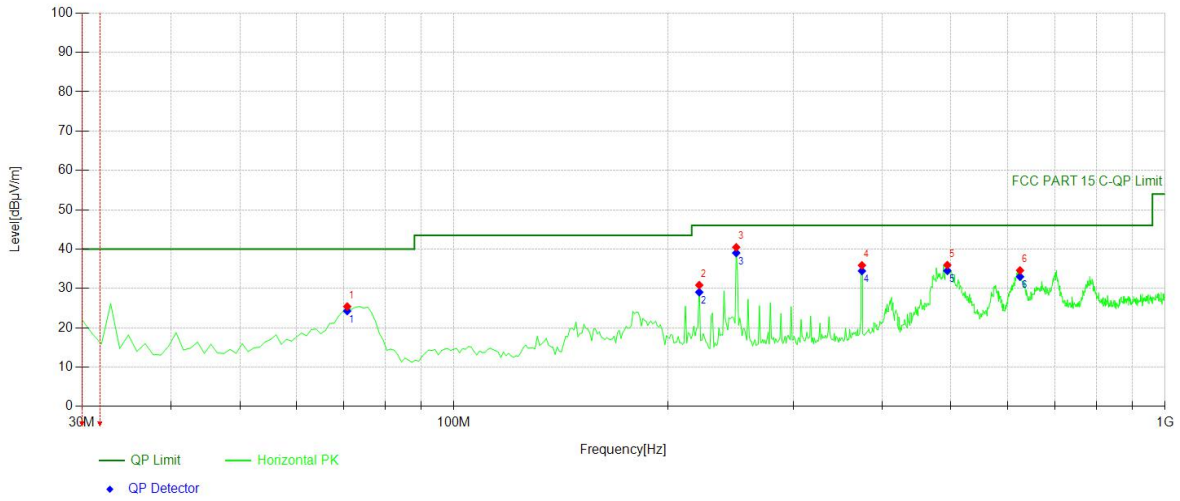


Suspected Data List								
NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]	Polarity
1	40.6807	45.93	-17.86	28.07	PK	40.00	11.93	Vertical
2	72.7227	48.35	-20.38	27.97	PK	40.00	12.03	Vertical
3	147.487	41.44	-19.83	21.61	PK	43.50	21.89	Vertical
4	249.439	48.46	-15.17	33.29	PK	46.00	12.71	Vertical
5	374.694	47.08	-12.26	34.82	PK	46.00	11.18	Vertical
6	500.920	48.78	-9.76	39.02	PK	46.00	6.98	Vertical

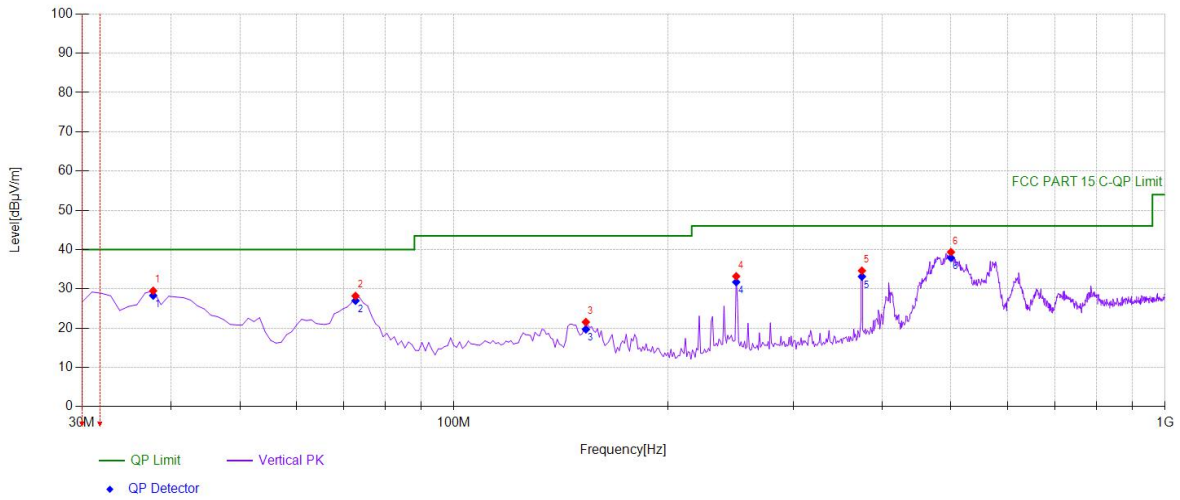


Suspected Data List								
NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]	Polarity
1	32.9129	46.10	-18.35	27.75	PK	40.00	12.25	Horizontal
2	71.7518	46.47	-20.23	26.24	PK	40.00	13.76	Horizontal
3	249.439	54.46	-15.17	39.29	PK	46.00	6.71	Horizontal
4	374.694	48.38	-12.26	36.12	PK	46.00	9.88	Horizontal
5	493.153	45.58	-9.79	35.79	PK	46.00	10.21	Horizontal
6	622.292	41.84	-7.03	34.81	PK	46.00	11.19	Horizontal

Test mode: 802.11n(20) Frequency: Channel 11: 2462MHz



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]	Polarity
1	70.7808	45.49	-20.08	25.41	PK	40.00	14.59	Horizontal
2	221.281	47.81	-16.97	30.84	PK	46.00	15.16	Horizontal
3	249.439	55.63	-15.17	40.46	PK	46.00	5.54	Horizontal
4	374.694	48.13	-12.26	35.87	PK	46.00	10.13	Horizontal
5	494.124	45.72	-9.78	35.94	PK	46.00	10.06	Horizontal
6	625.205	41.50	-6.92	34.58	PK	46.00	11.42	Horizontal



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]	Polarity
1	37.7678	47.55	-18.05	29.50	PK	40.00	10.50	Vertical
2	72.7227	48.57	-20.38	28.19	PK	40.00	11.81	Vertical
3	153.313	41.25	-19.71	21.54	PK	43.50	21.96	Vertical
4	249.439	48.38	-15.17	33.21	PK	46.00	12.79	Vertical
5	374.694	46.88	-12.26	34.62	PK	46.00	11.38	Vertical
6	499.95	49.12	-9.76	39.36	PK	46.00	6.64	Vertical

7.6 CONDUCTED EMISSION TEST

7.6.1 Applicable Standard

According to IC RSS-Gen 8.8

7.6.2 Conformance Limit

FCC Part 15, Subpart B, Class B

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

Note:

1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

7.6.3 Test Configuration

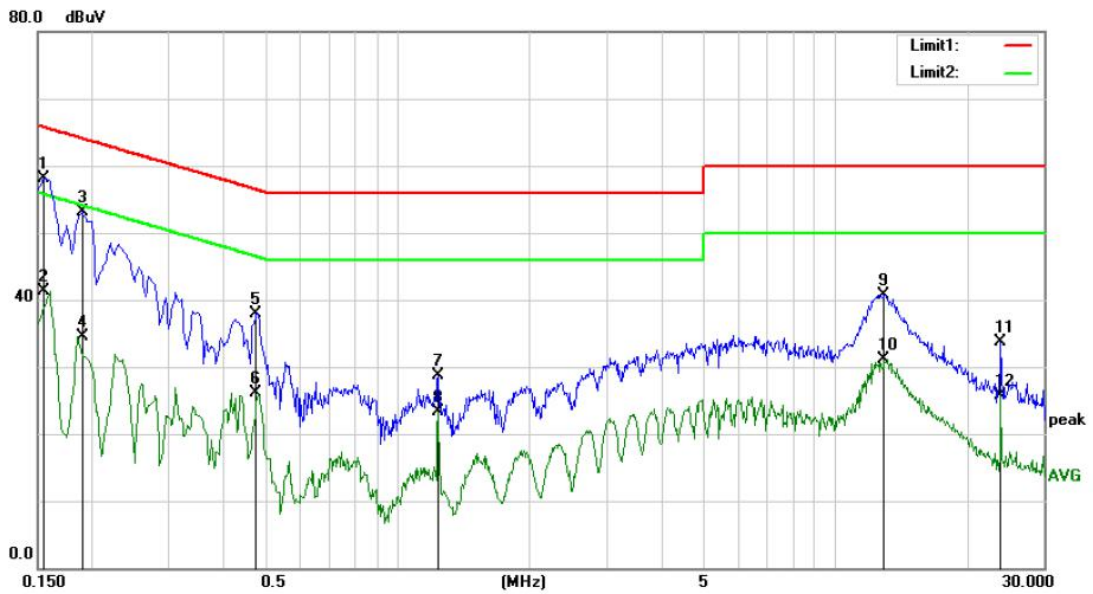
Test according to clause 6.3 conducted emission test setup 3.

7.6.4 Test Procedure

The EUT was placed on a table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Repeat above procedures until all frequency measured were complete.

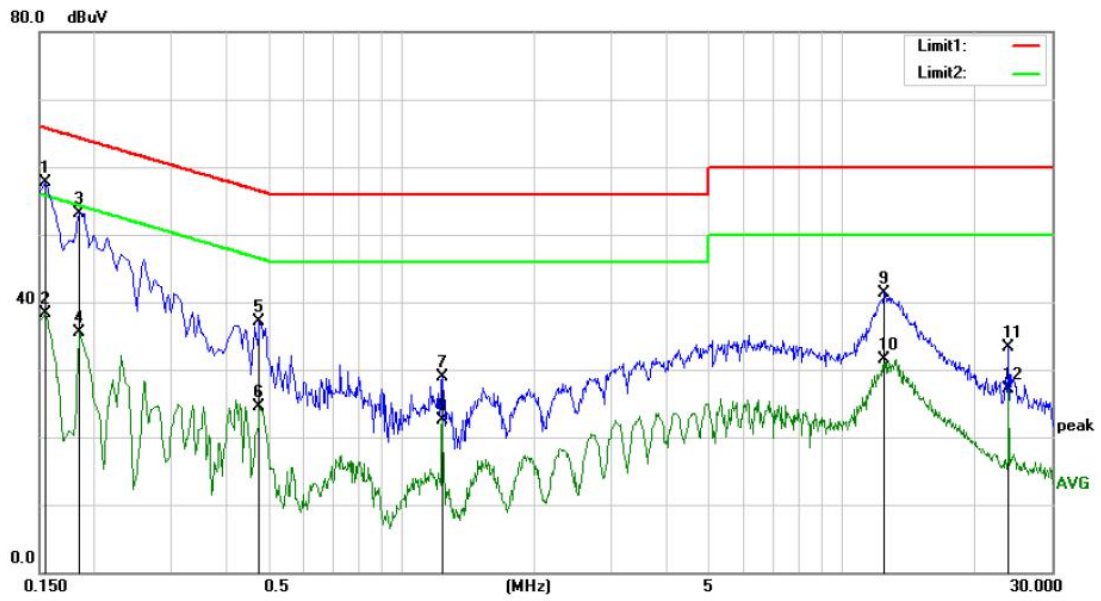
7.6.5 Test Results

Pass



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	*	0.1550	48.59	9.54	58.13	65.73	-7.60	QP	
2		0.1550	31.73	9.54	41.27	55.73	-14.46	AVG	
3		0.1900	43.56	9.54	53.10	64.04	-10.94	QP	
4		0.1900	24.89	9.54	34.43	54.04	-19.61	AVG	
5		0.4750	28.39	9.53	37.92	56.43	-18.51	QP	
6		0.4750	16.54	9.53	26.07	46.43	-20.36	AVG	
7		1.2400	19.19	9.55	28.74	56.00	-27.26	QP	
8		1.2400	13.76	9.55	23.31	46.00	-22.69	AVG	
9		12.9550	31.01	9.76	40.77	60.00	-19.23	QP	
10		12.9550	21.32	9.76	31.08	50.00	-18.92	AVG	
11		23.9300	23.66	10.04	33.70	60.00	-26.30	QP	
12		23.9300	15.76	10.04	25.80	50.00	-24.20	AVG	



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	*	0.1550	48.25	9.54	57.79	65.73	-7.94	QP	
2		0.1550	28.77	9.54	38.31	55.73	-17.42	AVG	
3		0.1850	43.62	9.54	53.16	64.26	-11.10	QP	
4		0.1850	25.99	9.54	35.53	54.26	-18.73	AVG	
5		0.4750	27.60	9.53	37.13	56.43	-19.30	QP	
6		0.4750	14.92	9.53	24.45	46.43	-21.98	AVG	
7		1.2400	19.30	9.55	28.85	56.00	-27.15	QP	
8		1.2400	12.90	9.55	22.45	46.00	-23.55	AVG	
9		12.5050	31.51	9.75	41.26	60.00	-18.74	QP	
10		12.5050	21.77	9.75	31.52	50.00	-18.48	AVG	
11		23.9300	23.36	10.04	33.40	60.00	-26.60	QP	
12		23.9300	17.10	10.04	27.14	50.00	-22.86	AVG	

7.7 ANTENNA APPLICATION

7.7.1 Antenna Requirement

Standard	Requirement
FCC CRF Part15.203	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 15.247 (b), 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..

7.7.2 Result

PASS

The EUT integrated antenna, antenna1 gain is 2.84 dBi, antenna2 gain is 2.84 dBi.

- Antenna uses 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 ---