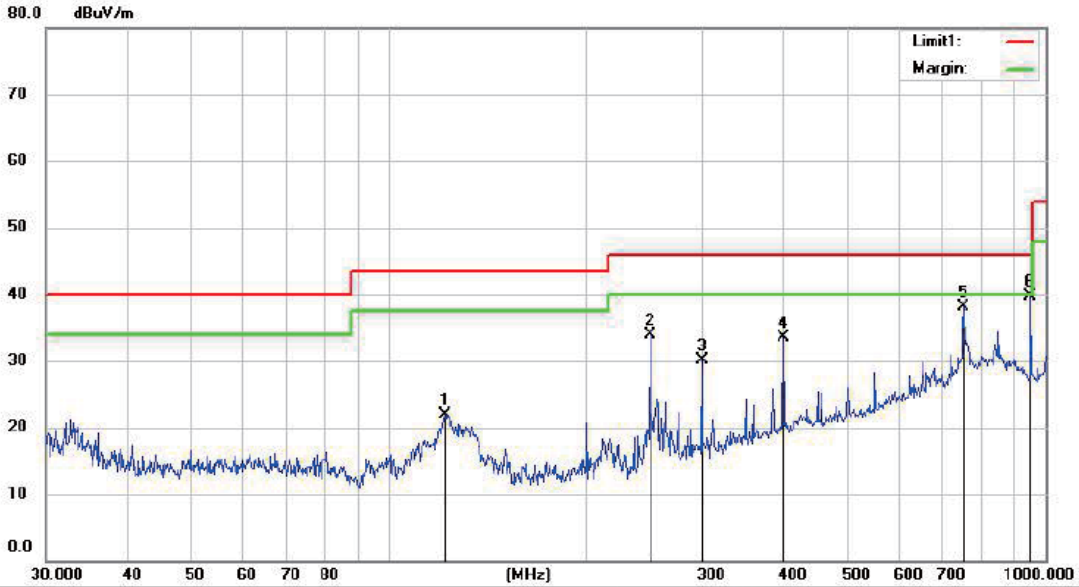
■ Spurious Emission below 1GHz (30MHz to 1GHz)

All antenna modes 2.4G 802.11b/g/n have been tested, and the worst result 802.11n20 recorded was report as below:



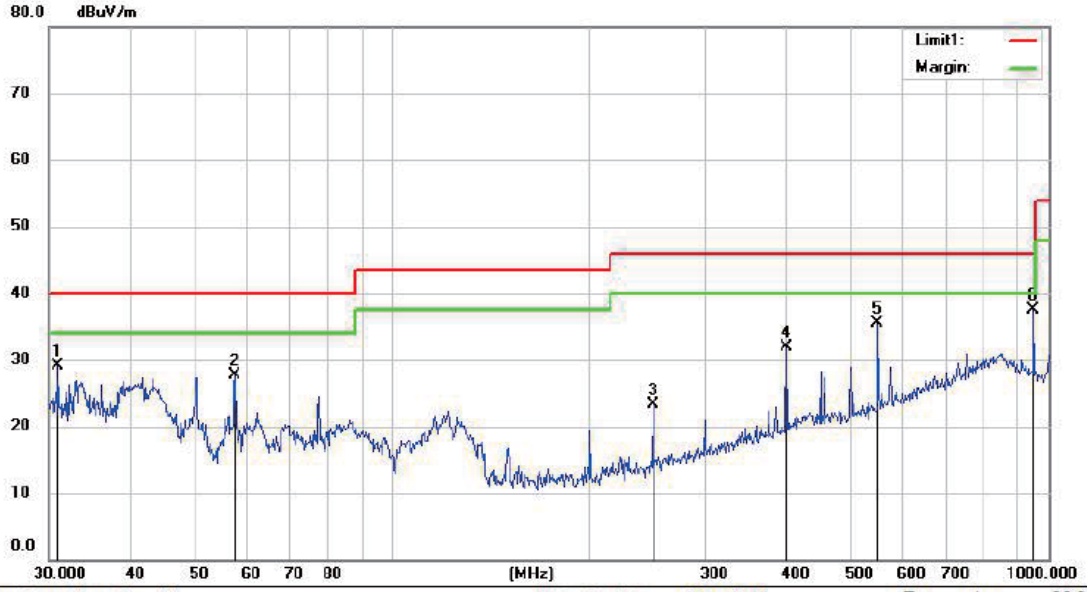
Site 3m Chamber #1 Polarization: Horizontal Temperature: 26.2 C

Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 40 %

Mode:WIFI 2412

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		121.8687	36.31	-14.37	21.94	43.50	-21.56	QP			
2		250.0820	45.18	-11.23	33.95	46.00	-12.05	QP			
3		300.1041	39.04	-8.96	30.08	46.00	-15.92	QP			
4		400.0810	39.84	-6.35	33.49	46.00	-12.51	QP			
5		750.1083	38.09	0.07	38.16	46.00	-7.84	QP			
6	*	950.4260	39.68	0.10	39.78	46.00	-6.22	QP			



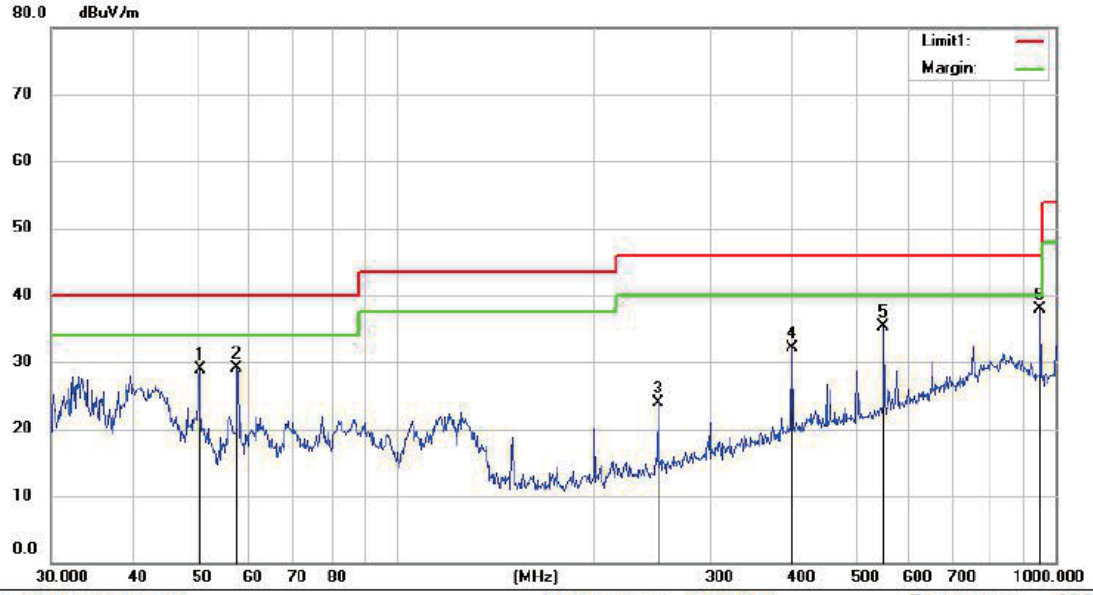
Site 3m Chamber #1 Polarization: *Vertical* Temperature: 26.2 C

Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 40 %

Mode:WIFI 2412

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		30.9754	43.53	-14.52	29.01	40.00	-10.99	QP			
2		57.5940	39.85	-12.08	27.77	40.00	-12.23	QP			
3		250.0820	34.44	-11.23	23.21	46.00	-22.79	QP			
4		400.0810	38.28	-6.35	31.93	46.00	-14.07	QP			
5		550.2240	39.44	-4.02	35.42	46.00	-10.58	QP			
6	*	950.4260	37.40	0.10	37.50	46.00	-8.50	QP			



Site 3m Chamber #1 Polarization: *Vertical* Temperature: 26.2 C

Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 40 %

Mode:WIFI 2437

Note:

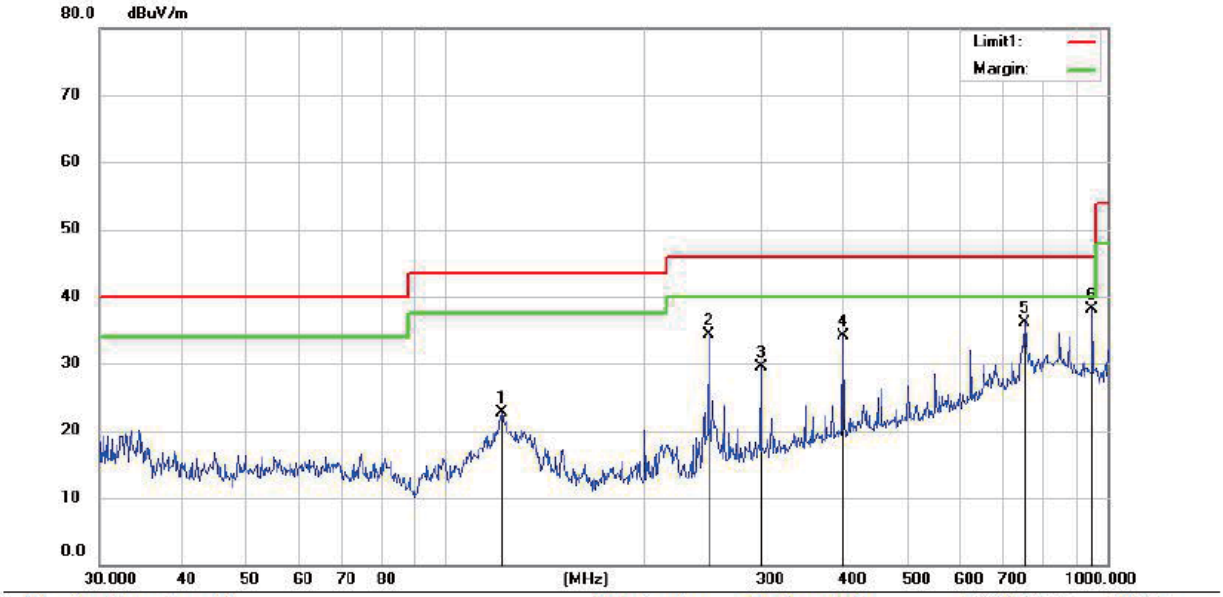
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		50.4531	40.93	-11.95	28.98	40.00	-11.02	QP			
2		57.5435	41.19	-12.08	29.11	40.00	-10.89	QP			
3		250.0820	35.11	-11.23	23.88	46.00	-22.12	QP			
4		400.0810	38.37	-6.35	32.02	46.00	-13.98	QP			
5		549.9830	39.27	-4.03	35.24	46.00	-10.76	QP			
6	*	950.4260	37.81	0.10	37.91	46.00	-8.09	QP			

Site 3m Chamber #1
Limit: (RE)FCC PART 15 CLASS B
Mode:WIFI 2437
Note:

Polarization: *Horizontal*
Power: AC 120V/60Hz

Temperature: 26.2 C
Humidity: 40 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		250.0820	45.88	-11.23	34.65	46.00	-11.35	QP			
2		300.1041	38.70	-8.96	29.74	46.00	-16.26	QP			
3		400.0810	41.25	-6.35	34.90	46.00	-11.10	QP			
4		550.2240	34.35	-4.02	30.33	46.00	-15.67	QP			
5		750.1083	37.68	0.07	37.75	46.00	-8.25	QP			
6	*	950.4260	39.21	0.10	39.31	46.00	-6.69	QP			



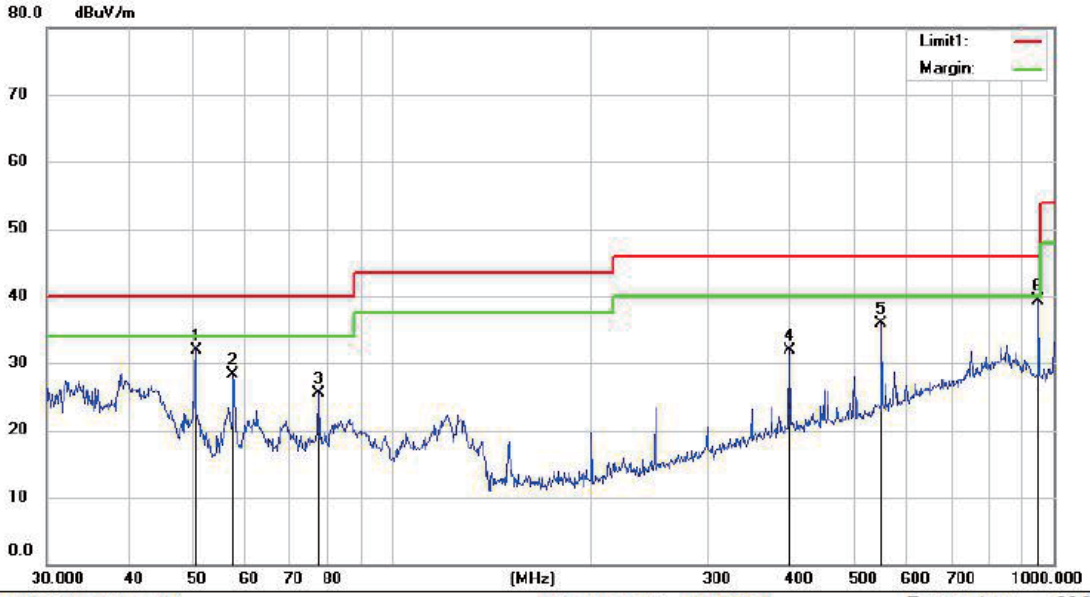
Site 3m Chamber #1 Polarization: *Horizontal* Temperature: 26.2 C

Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 40 %

Mode:WIFI 2462

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		121.7620	37.02	-14.37	22.65	43.50	-20.85	QP			
2		250.0820	45.58	-11.23	34.35	46.00	-11.65	QP			
3		299.9725	38.47	-8.96	29.51	46.00	-16.49	QP			
4		400.0810	40.49	-6.35	34.14	46.00	-11.86	QP			
5		750.1083	36.11	0.07	36.18	46.00	-9.82	QP			
6	*	950.4260	37.95	0.10	38.05	46.00	-7.95	QP			



Site 3m Chamber #1
Limit: (RE)FCC PART 15 CLASS B
Mode:WIFI 2462
Note:

Polarization: *Vertical*
Power: AC 120V/60Hz

Temperature: 26.2 C
Humidity: 40 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		50.4090	43.77	-11.96	31.81	40.00	-8.19	QP			
2		57.5687	40.32	-12.08	28.24	40.00	-11.76	QP			
3		77.4570	40.06	-14.55	25.51	40.00	-14.49	QP			
4		400.0810	38.32	-6.35	31.97	46.00	-14.03	QP			
5		549.9830	39.98	-4.03	35.95	46.00	-10.05	QP			
6	*	950.4260	39.28	0.10	39.38	46.00	-6.62	QP			

7.6 CONDUCTED EMISSION TEST

7.6.1 Applicable Standard

According to IC RSS-Gen 8.8

7.6.2 Conformance Limit

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

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

7.6.3 Test Configuration

Test according to clause 6.3 conducted emission test setup

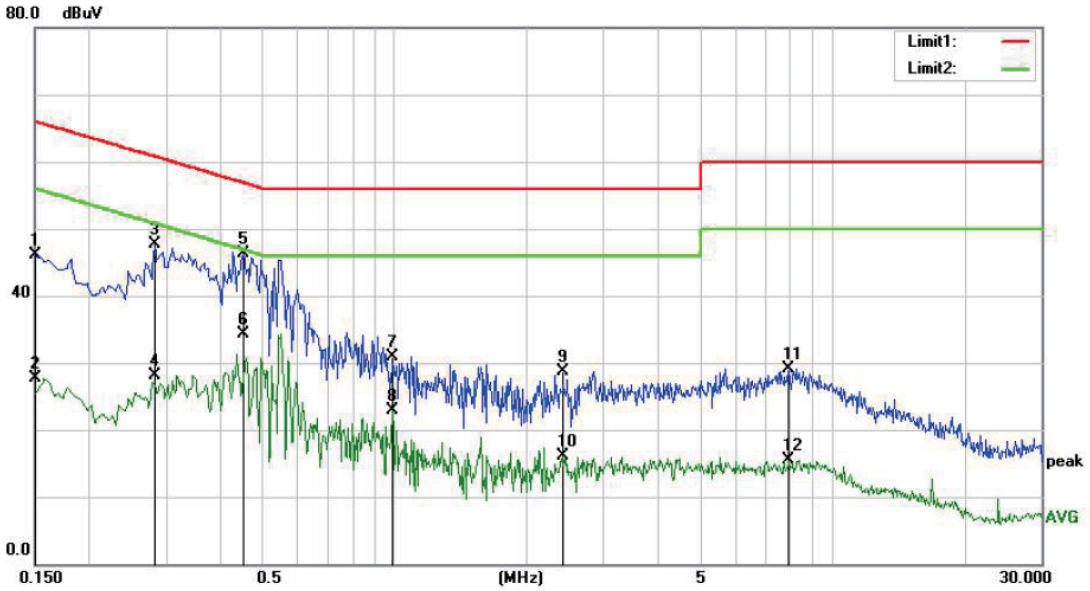
7.6.4 Test Procedure

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

The AC120V &240V voltage have been tested, and the worst result recorded was report as below:



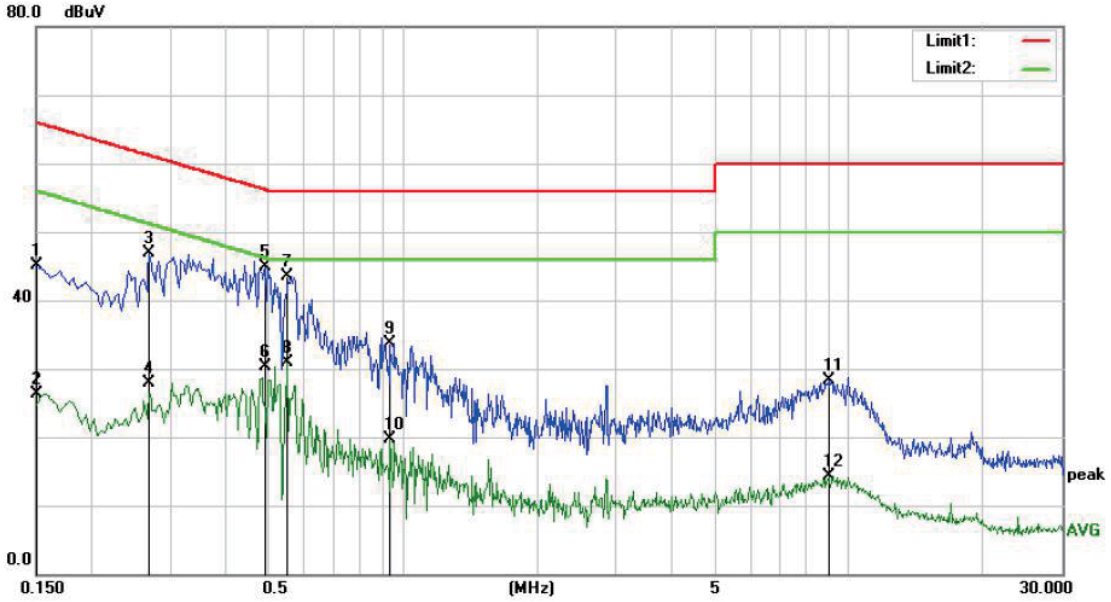
Site Conduction #1 Phase: *L1* Temperature: 24.9

Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 50 %

Mode: WIFI Mode

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	36.59	9.44	46.03	66.00	-19.97	QP	
2		0.1500	18.18	9.44	27.62	56.00	-28.38	AVG	
3		0.2820	38.32	9.31	47.63	60.76	-13.13	QP	
4		0.2820	18.71	9.31	28.02	50.76	-22.74	AVG	
5	*	0.4500	37.08	9.29	46.37	56.88	-10.51	QP	
6		0.4500	25.04	9.29	34.33	46.88	-12.55	AVG	
7		0.9860	21.20	9.74	30.94	56.00	-25.06	QP	
8		0.9860	13.19	9.74	22.93	46.00	-23.07	AVG	
9		2.4300	18.84	9.81	28.65	56.00	-27.35	QP	
10		2.4300	6.36	9.81	16.17	46.00	-29.83	AVG	
11		7.9500	19.07	9.96	29.03	60.00	-30.97	QP	
12		7.9500	5.58	9.96	15.54	50.00	-34.46	AVG	



Site Conduction #1 Phase: N Temperature: 24.9

Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 50 %

Mode: WIFI Mode

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	35.76	9.44	45.20	66.00	-20.80	QP	
2		0.1500	16.95	9.44	26.39	56.00	-29.61	AVG	
3		0.2700	37.58	9.33	46.91	61.12	-14.21	QP	
4		0.2700	18.54	9.33	27.87	51.12	-23.25	AVG	
5	*	0.4900	35.68	9.27	44.95	56.17	-11.22	QP	
6		0.4900	21.08	9.27	30.35	46.17	-15.82	AVG	
7		0.5500	34.18	9.28	43.46	56.00	-12.54	QP	
8		0.5500	21.64	9.28	30.92	46.00	-15.08	AVG	
9		0.9380	23.97	9.65	33.62	56.00	-22.38	QP	
10		0.9380	9.97	9.65	19.62	46.00	-26.38	AVG	
11		8.9700	18.21	10.01	28.22	60.00	-31.78	QP	
12		8.9700	4.22	10.01	14.23	50.00	-35.77	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 has two Internal Antennas: antenna 1 gains are 1.35 dBi; antenna 2 gains are 1.86 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 ***