



## FCC §15.247 (i), §2.1091 – RF Exposure

# FCC ID: 2AL7VRLC-411WS

### Applied procedures / limit

According to FCC §15.247(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

### Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

Note: *f* is frequency in MHz

\* = Power density limit is applicable at frequencies greater than 100 MHz

### Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: *f* = frequency in MHz

\* = Plane-wave equivalent power density



## MPE PREDICTION

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna, R=0.2m

## TEST RESULTS

	Tune up Produce power	Maximum peak output power (dBm)	Output power to antenna (mW)	Antenna Gain (numeric) =10log(dBi)	Power Density (S) (mW/ cm2)	Total Power Density (S) (mW/ cm2)	Limit of Power Density (S) (mW/ cm2)	Result
802.11b ANT1	17±1	18	63.10	1.78 (2.50dBi)	0.02232	/	1	Pass
802.11b ANT2	17±1	18	63.10	1.78 (2.50dBi)	0.02232	/	1	Pass
802.11g ANT1	15±1	16	39.81	1.78 (2.50dBi)	0.01408	/	1	Pass
802.11g ANT2	15±1	16	39.81	1.78 (2.50dBi)	0.01408	/	1	Pass
802.11n(H T20) ANT1	11±1	12	15.85	3.56 (5.51dBi)	0.01121	0.02242	1	Pass
802.11n(H T20) ANT2	11±1	12	15.85	3.56 (5.51dBi)	0.01121			
802.11n(H T40) ANT1	10±1	11	12.59	3.56 (5.51dBi)	0.00891	0.01782	1	Pass
802.11n(H T40) ANT2	10±1	11	12.59	3.56 (5.51dBi)	0.00891			

The MIMO mode only support 802.11n, the Directional Gain=2.5dBi+10log(2)=5.51dBi.