

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

FCC ID: 2AYZ8WP0500137

### 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=20cm

## Test Result of RF Exposure Evaluation

	Modes & Channel Freq. (MHz)	Tune up Produce power	Maximum peak output power (dBm)	Output power to antenna (mW)	Antenna Gain (numeric)	Power Density (S) (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
ANT1 2.4GWIFI	802.11b & 2462	14±1	15	31.6228	0.5333 (-2.73dBi)	0.0034	1	Pass
ANT2 2.4GWIFI	802.11b & 2412	14±1	15	31.6228	0.5321 (-2.74dBi)	0.00335	1	Pass
BLE	GFSK & LCH	0±1	1	1.2589	1.387 (-3.55dBi)	0.0001	1	Pass

Technology	Tune up Produce power (dBm)		Maximum Tune-up (dBm)		Antenna Gain (ANT 1/ANT 2) (numeric)	Power Density (S) (mW/cm <sup>2</sup> )		MPE Limit (mW/cm <sup>2</sup> )	Σ MPE Ratio	Σ MPE Ratio Limit	Result
	ANT 1	ANT 2	ANT 1	ANT 2		ANT 1	ANT 2				
2.4G WIFI MIMO	14 ±1	14 ±1	15	15	ANT1: 0.5333 (-2.73dBi) ANT2: 0.5321 (-2.74dBi)	0.0034	0.00335	1	0.0068	1	Pass

BT+WIFI supported simultaneous transmission:

BLE+2.4GWIFI MIMO: Σ MPE Ratio = 0.0001+0.0068  
= 0.0069 ≤ 1, So passed.

