

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

FCC ID: 2AW95LKHT564

### 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 |
|----------|----------------------------|-----------------------|---------------------------------|------------------------------|------------------------|---|-------------------------------|--------|
| BLE:1M   | GFSK &2440                 | 0±1                   | 1                               | 1.2589                       | 2.2594 (3.54dBi)       | 0.00057                                 | 1                             | Pass   |
| BLE:2M   | GFSK &2440                 | 0±1                   | 1                               | 1.2589                       | 2.2594 (3.54dBi)       | 0.00057                                 | 1                             | Pass   |
| 2.4GWIFI | 802.11n(H T20) &2437       | 13±1                  | 14                              | 25.1189                      | 2.2594 (3.54dBi)       | 0.01130                                 | 1                             | Pass   |

BT+WIFI supported simultaneous transmission:

BT+2.4GWIFI:  $\sum \text{MPE Ratio} = 0.00057/1 + 0.0113/1 = 0.01187 \leq 1$

So passed.