

## \* Maximum Permissible Exposure(MPE)

### 1. Applicable Standard

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 limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

#### a) 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 Times  E  2,  H  2 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
1500-10000			5	6

#### b) 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 Times  E  2,  H  2 or S (minutes)
0.3-3.0	614	1.63	(100)*	30
3.0-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-10000			1.0	30

**Note : f=frequency in MHz**

**\*=Plane-wave equivalent power density**

## 2. MPE Calculation Method

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

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

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

## 3. Calculated Result and Limit

Mode	Frequency (MHz)	Maximum conducted power		Antenna Gain		Distance  Cm	Power Density  mW/cm <sup>2</sup>	Limit  mW/cm <sup>2</sup>
		dBm	mW	dBi	mW			
Bluetooth LE 1Mbps	2402	5.67	3.690	1.950	1.567	20	0.0012	1
	2442	5.08	3.221	1.950	1.567	20	0.0010	1
	2480	4.56	2.858	1.950	1.567	20	0.0009	1
Bluetooth LE 2Mbps	2402	5.66	3.681	1.950	1.567	20	0.0011	1
	2442	5.16	3.281	1.950	1.567	20	0.0010	1
	2480	4.64	2.911	1.950	1.567	20	0.0009	1