

## Maximum permissible exposure (MPE)

### Requirements (15.247(i)):

According to FCC Part 15 C, Section 15.247(i)

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 levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this Chapter.

The maximum total power input to the antenna has been measured conducted as described in clause 5.3 of this document. Through the Friis transmission formula, the known maximum gain of the antenna and the maximum power, the MPE can be calculated in a defined distance away from the product.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0 .....	614	1.63	*(100)	6
3.0–30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300 .....	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3–1.34 .....	614	1.63	*(100)	30
1.34–30 .....	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30–300 .....	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

Friis transmission formula: 
$$P_d = \frac{P_{out} * G}{4 * \prod * r^2}$$

Where

Pd = power density (mW/cm<sup>2</sup>)

Pout = output power to antenna (mW)

G = gain of antenna (linear scale)

r = distance between antenna and observation point (cm)

**Test Data**

Channel No.	Frequency	Max power output to antenna		Antenna gain	Power density	Limit of power density
		(dBm)	(mW)			
CH00	2412	15.79	38	2.5	0.0134	1.0
CH05	2437	16.02	40	2.5	0.0141	1.0
CH10	2462	15.91	39	2.5	0.0137	1.0

According to FCC Rules 47CFR 2.1093(b) the EUT is not a portable device. The EUT is designed to be used that radiating structures are more than 20 cm outside of the body of the user. ( $r = 20$  cm).

Note: The antenna of the product, under normal use condition, is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm or more separation distance with the antenna should be included in users manual.