

### Maximum Permissible Exposure (MPE) Calculation

Reference document:	<b>47 CFR §15.247(i) &amp; §1.1310</b>	
Test Requirements:	According to §1.1310, the criteria listed in tab. 1 shall be used to evaluate the environmental impact of human exposure to RF radiation as specified in §1.1307(b). For equipment authorization purposes the term co-location refers to simultaneously transmitting (co-transmitting) antennas located within 20cm of each other within a product.	
Limit	1mW/cm <sup>2</sup>	<b>Comply</b>
Calculation Result*:	<b>Power Density = 0.3155 mW/cm<sup>2</sup></b> on a 20cm radius sphere.	

The device is capable of operating in the 2.403-2.478 GHz. The maximum conducted power is 500 mW per antenna chain. For simultaneous transmission, RF exposure compliance is with respect to the aggregate exposure from all simultaneously transmitting transmitters/antennas. When operating two chains transmitting simultaneously, the worst case prediction occurs as shown in table below.

\* Equation (3) given in OET Bulletin 65 is used to estimate the MPE distance.

$$S = \frac{PG}{4\pi R^2}$$

S=power density, in mW/cm<sup>2</sup>  
P=power input to the antenna, in mW  
G=numeric gain of the antenna,  
R= distance to the center of the antenna, in cm

Frequency Band (GHz)	MPE Distance [cm]	Output Power per chain [mW]	Antenna Gain [dBi]	Aggregate Power density [mW/cm <sup>2</sup> ]	Limit [mW/cm <sup>2</sup> ]	Margin [mW/cm <sup>2</sup> ]
Two chains , transmitting simultaneously, Worst-Case						
2.4	20	500	2	0.3155	1	0.6845