



Engineering and Testing for EMC and Safety Compliance

**Intelligent Mechatronic Systems, Inc. 2008061**

### RF Exposure Calculation - MPE

Using FCC 1.1310 Table 1B as guidance, the maximum permissible RF exposure for an uncontrolled environment is 1 mW/cm<sup>2</sup> for the frequencies used in this device (2402 to 2480 MHz). The worst case power at the center frequency of the band of operation is used for the calculation below.

The actual power density for a single transmitter is calculated as shown below.

$$S = (P \times G) / (4 \times \pi \times d^2)$$

where:

S = power density

P = transmitter conducted power in (W)

G = antenna numeric gain

d = distance to radiation center (m)

Frequency (MHz)	Antenna Gain (dBi)	Conducted Power (W)	Power Density (mW/cm <sup>2</sup> )	Power Density Limit (mW/cm <sup>2</sup> )
2441	2	0.013	0.004	1

For a single transmitter, the power density / limit = 0.004 / 1 = 0.4%

For an indication of both identical transmitters transmitting simultaneously,

0.4% + 0.4% = 0.8% which is still very much below the limit.

Therefore, no RF hazard exists with both transmitters co-located.