MPE Calculations

The device is not a portable device (i.e. intended to be worn on the body or be hand-held), so it is classified as being either a mobile device or a fixed mounted device. The user's manual specifies a minimum separation distance of at least 20cm, consistent with this classification. As shown in the calculations below, the power density 20cm from the device is below the maximum permitted level for uncontrolled exposure with one or both radios active.

FCC part 1.1310, Table 1 limits the power density for uncontrolled exposure. The power density, P_d (mW/cm^2) calculated from the maximum EIRP, P_t (mW) and the distance, d (m), between the transmitting antenna and the closest person, can be calculated using:

$$P_d = P_t/(4 \pi d^2)$$

Frequency	MPE Limit (mW/cm^2)	Output Power (mW)	Max. Antenna Gain (dBi)[1]	EIRP (mW)	Pd at 20cm (mW/cm^2)	Distance where Pd = limit (cm)
2412 to 2462 MHz	1.00	70.8	3.2	147.9	0.03	3.4
5180 to 5240 MHz	1.00	45.7	5.0	144.5	0.03	3.4
5260 to 5320 MHz	1.00	109.6	5.0	346.7	**0.07**	5.3
5500 to 5700 MHz	1.00	81.3	5.0	257.0	0.05	4.5
5745 to 5825 MHz	1.00	67.6	5.0	213.8	0.04	4.1

The highest power density 20cm from the antennas of the module is 0.07 mW/cm^2, which is 7% of the permitted maximum power density.

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[1] Antenna gain for the 2.4GHz band is the 3.2dBi gain of the Universe antenna. For the 5 GHz bands the 5dBi gain is the gain of the Ethertronics antenna.