

MPE Calculations (Mobile and Fixed Location)

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.

FCC part 1.1310, Table 1 limits the power density for uncontrolled exposure. The power density, P_d (mW/cm²) calculated from the maximum EIRP, P_t = (EUT power + gain of antenna (dBi)) (mW) and the distance, d (m), between the transmitting antenna and the closest person, can be calculated using:

Formula is:

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

Frequency (MHz)	MPE Limit (mW/cm ²)	Eirp (mW)	Pd at 20cm (mW/cm ²)	Distance where Pd = Limit (cm)
2400 - 4990	1	1649.17	0.33	11.5

Band	Mode	Output Power		Antenna gain (Max)	EIRP		Channels Available	Channels Used	Total EIRP	
		Peak	Average		dBm	W			W	dBm
2412 - 2462	CCK	-	18.6	13.0	31.6	1.445	11	1	1.445	31.60
5180 - 5240	OFDM	-	6.8	5.0	11.8	0.015	4	1	0.015	11.80
5260 - 5320	OFDM	-	16.3	5.0	21.3	0.135	4	1	0.135	21.30
5745 - 5825	OFDM	-	12.8	4.5	17.3	0.054	5	1	0.054	17.30
Totals:								4	1.649	32.17

With two transceivers operating in different bands, the configuration with the highest aggregate eirp would be the case with one transceiver are operating in the band with the highest eirp (2412 ñ 2462 MHz band) and the second in the band with the second highest eirp (5260 ñ 5320 MHz). The total eirp for this case would be 1437 + 136 = 1573 mW

Formula is:

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

Frequency (MHz)	MPE Limit (mW/cm ²)	Eirp (mW)	Pd at 20cm (mW/cm ²)	Distance where Pd = Limit (cm)
2400 - 4990	1	2890.88	0.58	15.2

Band	Mode	Output Power		Antenna gain (Max)	EIRP		Channels Available	Channels Used	Total EIRP	
		Peak	Average		dBm	W			W	dBm
2412 - 2462	CCK	-	18.6	13.0	31.6	1.445	11	1	1.445	31.60
2412 - 2462	CCK	-	18.6	13.0	31.6	1.445	11	1	1.445	31.60
Totals:								2	2.891	34.61

With two transceivers operating in the same band, the configuration with the highest aggregate eirp would be the case where both transceivers are operating in the band with the highest eirp (2412 ñ 2462 MHz band). The total eirp for this case would be 2 x 1437 = 2874 mW.