

MPE Calculations (Mobile)

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, Pd (mW/cm²) calculated from the maximum EIRP, Pt (mW) and the distance, d (m), between the transmitting antenna and the closest person, can be calculated using:

Formula is:

$$Pd = Pt / (4 * \pi * d^2)$$

Frequency (MHz)	MPE Limit (mW/cm ²)	EIRP (mW)	Pd at 20cm (mW/cm ²)	Distance where Pd = Limit (cm)
2400 - 2480	1	1.00	0.000	0.3
824	0.5493333	1000.00	0.199	12.0
1850 - 1910	1	1166.81	0.232	9.6

Total EIRP Power from all radios: 2167.81 mW
 Total PSD at 20 cm from all radios: 0.431 mW/cm²
 Worst Case MPE limit: 0.549 mW/cm² Refer to Conclusion statement for explanation

Band	Mode	Output Power (dBm)		Antenna gain (Max)	EIRP		Channels Available	Channels Used	Total EIRP	
		Peak	Average		dBm	W			W	dBm
2400 - 2483.5	-	-	0.0	0.0	0.0	0.001	79	1	0.001	0.00
824 - 849	-	-	30.0	0.0	30.0	1.000	125	1	1.000	30.00
1850 - 1910	-	-	30.7	0.0	30.7	1.167	300	1	1.167	30.67
Totals:								3	2.168	33.36

MPE exposure is based on one 2.4GHz pre-approved modules with one 800/1900 MHz transmitter. Device can be programmed to transmit simultaneously.

Conclusion: Total combined power from all radios is 2.167.81 Watts this calculates into a total exposure of .447 mW/cm² at 20 cm. Using the worse case limit of 824 MHz/1500 = .549mW/cm² this shows that the co-located transmitters will be in compliance to the MPE limits when in simultaneous transmission.