

## MPE Calculations

This calculation is based on the highest EIRP possible from the EUT considering maximum power using the maximum radiated emissions from its internal antennas. The product is not handheld.

### MPE RATIO CALCULATION PER OET 65 AND KDB 447498 D01

The following information provides the minimum separation distance for the EUT, as calculated from **FCC OET 65 Appendix B, Table 1B** "Guidelines for General Population/Uncontrolled Exposure"

Since only one of 825 or 1900 MHz cellular bands can be transmitting at the same time, two different calculations are needed. The Bluetooth and the 216 MHz radios can be operating with the other transmitters.

#### Calculation for 824-849 MHz GSM Band + Bluetooth and 216 MHz

Transmitter	MHz	Max Power dBm	Max Ant Gain dBi	Duty Cycle %	EIRP W	S GP Limit mW/cm <sup>2</sup>	MSD meters	MPE Ratio from 20 cm
Cell at 850	849	31.0	0	50.0	0.6295	0.566	0.0940	0.470
Bluetooth	2400	10.7	0	100.0	0.0117	1.000	0.0097	0.048
Part 95	216	0.8	0	100.0	0.0012	0.200	0.0069	0.035
Total MPE Ratio								0.553

#### Calculation for 1850-1910 MHz Cellular UMTS Band + Bluetooth and 216 MHz

Transmitter	MHz	Max Power dBm	Max Ant Gain dBi	Duty Cycle %	EIRP W	S GP Limit mW/cm <sup>2</sup>	MSD meters	MPE Ratio from 20 cm
Cell	1900	28.0	0	50.0	0.3155	1.000	0.0501	0.251
Bluetooth	2400	10.7	0	100.0	0.0117	1.000	0.0097	0.048
Part 95	216	0.8	0	100.0	0.0012	0.200	0.0069	0.035
Total MPE Ratio								0.333

Notes on the above tables:

- S is the power density General Population Limit from OET 65 table 1B
- EIRP Power is the Max Power corrected for Antenna Gain and Duty Cycle factor
- MSD (Minimum Separation Distance) =  $((\text{EIRP} \times 30) / (3770 \times S))^{0.5}$
- For mobile or fixed location transmitters, minimum separation distance is 20 cm, even if calculations indicate MPE distance is less.
- The Bluetooth and the 216 MHz part 95 transmitters duty cycle was set to 100%, since the duty cycles are not precisely known.

All MPE ratios are less than 1.