

**MPE Calculation for Wiser Controller- OET Bulletin 65**

**FCC ID: DXV-EER21000**

The FCC requires that the calculated MPE be equal to or less than a given limit dependent on frequency at a distance of 20 cm from a device to the body of a user. The transmitter operation for the Wiser Controller covers the 2.4GHz ISM operating band.

The following FCC Rule Parts are applicable:

Part 1.1310 – Radiofrequency radiation exposure limits

Part 2.1091(c) – Radiofrequency radiation exposure evaluation: mobile devices

The MPE calculation as given in FCC OET Bulletin 65, page 19 is used to calculate the safe operating distance for the user.

$$S = \text{EIRP} / 4 \pi R^2$$

**Where** S = Power density

EIRP = Effective Isotropic Radiated Power (EIRP = P x G)

P = Conducted Transmitter Power

G = Antenna Gain (relative to an isotropic radiator)

R = distance to the centre of radiation of the antenna

Transmitter frequency range: 2405MHz to 2475 MHz

Max. measured conducted transmitter power (802.115.4): 20.2 dBm (104.7mW)

Transmission Duty Cycle: 0.1% (15 mS every 15 seconds)

Source Based Time Averaged Power: -9.8 dBm (0.1047 mW)

Specified antenna gain: 2.15dBi (1.64)

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## MPE Requirement

From table 1 (b) - Limits for General Population/ Uncontrolled Exposure of FCC Rule Part 1.1310 for 2405MHz to 2475MHz

$$S = 1.0 \text{ mW/cm}^2$$

## Calculation for 20cm safe distance with 2.15 dBi stated antenna gain

Values:

$$P = 0.1047 \text{ mW}$$

$$G = 1.64$$

$$R = 20\text{cm}$$

$$S = P \times G / 4 \pi R^2$$

$$S = 0.1047 \times 1.64 / (12.56 \times 20^2) \text{ mW/cm}^2$$

$$= 0.172 / 5024$$

$$S = 0.000034 \text{ mW/cm}^2$$

## Conclusion

The MPE value of the Wisser Controller at 20 cm meets the 1.0 mW/cm<sup>2</sup> RF exposure limit.