

## **RF Exposure Considerations for the CHILI2 Module**

### **FCC ID: 2ATTO-CHILI2**

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 CHILI2 utilises IEEE802.15.4 technology

The following FCC Rule Parts and procedures are applicable:

Part 1.1310 – Radiofrequency radiation exposure limits

Part 2.1091 – Radiofrequency radiation exposure evaluation: mobile devices

KDB447498 D01 v06

Mobile and Portable Devices RF Exposure Procedures and Equipment Authorisation Policies

### **MPE CALCULATION**

The MPE calculation used to calculate the safe operating distance for the user is:

$$S = EIRP/4 \pi R^2$$

**Where**       $S$  = Power density

$EIRP$  = Effective Isotropic Radiated Power ( $EIRP = P \times G$ )

$P$  = Conducted Transmitter Power

$G$  = Antenna Gain (relative to an isotropic radiator)

$R$  = distance to the centre of radiation of the antenna (safe operating distance)

Values:

Transmitter frequency range = 2405 MHz to 2480 MHz

P = 10 mW (10.0 dBm) max.

G = 1.75 dBi (x1.5)

R = 20 cm

Power Density Requirement

From table 1 (b) - Limits for General Population/ Uncontrolled Exposure of FCC Rule Part 1.1310 for 2.4 GHz

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

Calculation:

$$S = 10 \times 1.5 / 4 \pi R^2$$

$$S = 15 / (12.56 \times 20^2)$$

$$S = 15 / (5024)$$

$$S = 0.003 \text{ mW/cm}^2$$

(Equivalent to 1.1 cm safe operating distance for S=1.0mW/cm<sup>2</sup>)

Conclusion

The required 20 cm RF exposure limits for General Population/ Uncontrolled Exposure will not be exceeded for the CHILI2 module using an antenna having a maximum gain of 1.75 dBi.