

RF EXPOSURE EVALUATION

1. Information

- 1) Company Name : Key Digital Systems Inc.
- 2) Product Name : Zigbee Remote Control
- 3) Model Name : KD-ZRC300
- 4) FCC ID : 2ACQY-KD-ZRC300

2. Technical Information

Antenna Type: Wire Dipole Antenna
Antenna Gain: -3.77 dBi
Maximum Transmitter Conducted Power: 8.19dBm, 6.6 mW
Maximum System EIRP: 4.42dBm, 2.767mW

3. MPE Calculations

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user. The MPE calculation for this exposure is shown below.

The peak radiated output power (EIRP) is calculated as follows:

$\begin{aligned} \text{EIRP} &= P + G \\ \text{EIRP} &= 8.19 + (-3.77) \\ &= 4.42 \text{ dBm} \\ &\Rightarrow 2.767 \end{aligned}$	Where, P = Power input to the antenna (mW) G = Power gain of the antenna (dBi)
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3.1 Power density at the specific separation:

$\begin{aligned} S &= PG / (4R^2\pi) \\ S &= (2.767) / (4 * 20^2 * \pi) \\ S &= 0.0006 \text{ mW/cm}^2 \end{aligned}$	Where, S = Maximum power density (mW/cm²) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)
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The Maximum permissible exposure (MPE) for the general population is 1 mW/cm² .
The power density at 20cm does not exceed the 1 mW/cm² limit.

3.2 Estimated safe separation:

$\begin{aligned} R &= \sqrt{PG / 4\pi} \\ R &= \sqrt{(2.767 / 4\pi)} \\ R &= 0.47 \text{ cm} \end{aligned}$	Where, P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)
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