

## **MPE Calculation / RF Exposure**

Applicant : CHANG SHIN INFOTEL CO.,LTD.  
Product : Access Controlled Security System with zigbee & RFID  
Model : SG-2000  
FCC ID : 2ABZV-SG-2000

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 the device to the body of the user. According to §2.1091, §2.1093 and §1.1307(b), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

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

**Where**      S = Power density  
                 EIRP = Effective Isotropically Radiated Power  
                 R = distance to the centre of radiation of the antenna

**Values**      S = 1.0 mW/cm<sup>2</sup> for General population uncontrolled exposure (FCC Part 1.1310 Radiofrequency radiation exposure limits)  
                 **S = 1.0 mW/cm<sup>2</sup>**  
                 PT = -12.38 dB m (0.0578 mW) : measured maximum output power  
                 G = Antenna gain = 2.04 dB i (1.5995 in linear terms)  
                 EIRP = PT x G  
                 R = 20 cm

**Calculation**    EIRP = 0.0578 x 1.5995 = 0.0924 mW  
                 S = 0.0924 / (4 x (20)<sup>2</sup>)  
                 S = 0.0924 / 1600  
                 **S = 5.775 x 10<sup>-5</sup> mW/cm<sup>2</sup>**

**Conclusion**    This confirms compliance to the required FCC Part 1.1310 Radiofrequency radiation exposure limit of 1.0 mW/cm<sup>2</sup> at 20 cm operation.