

## **MPE Calculation / RF Exposure**

Product: Multipurpose Sensor  
Applicant: SAM JIN CO., LTD.  
Model: IM6001-MPP01  
Address: (Anyang-dong) 81, Anyangcheonseo-ro, Manan-gu Anyang-si, Gyeonggi-do, Korea  
FCC ID: 2AF4S-IM6001-MPP01  
IC: 20753-IM6001MPP01

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.

**Classification** The antenna of this product is at least 20 cm away from the body of the user. So this product is classified as mobile device.

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

**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(Zigbee) = 8.00 dBm (6.31 mW) : measured maximum output power  
G = Antenna gain = 3.35 dBi (2.16 in linear terms)  
EIRP = PT x G  
R = 20 cm

**Calculation** EIRP = 6.31 x 2.16 = 13.65 mW  
S = 13.65/12.56 x (20)<sup>2</sup> = 15.74/5024  
**S = 0.00271 mW/cm<sup>2</sup>**

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