



MPE Calculation / RF Exposure

Applicant: CHANG SHIN INFOTEL CO.,LTD.

Product: Access Controlled Security System with zigbee&RFID

Model: SG-3000

FCC ID : 2ABZV-SG-3000

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. The equation for the calculation is given in 47 CFR FCC Part 2 Subpart J, section 2.1091 as,

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

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

Values S = 1.0 mW/cm² for General population uncontrolled exposure (FCC Part 1.1310 Radiofrequency radiation exposure limits)
 S = 1.0 mW/cm²
 PT = -6.89 dBm (0.2046 mW) : measured maximum peak output power
 G = Antenna gain = 2.04 dBi (1.599 in linear terms)
 EIRP = PT x G
 R = 20 cm

Calculation EIRP = 0.2046 x 1.599 = 0.327 mW
 S = 0.327 / 12.56 x (20)²
 S = 0.327 / 5024
 S = 6.51 x 10⁻⁵ mW/cm²

Conclusion This confirms compliance to the required FCC Part 1.1310 Radiofrequency radiation exposure limit of 1.0 mW/cm² at 20 cm operation.