

## **MPE Calculation / RF Exposure**

Product: DMR Data/Voice MODEM module  
Applicant: SamYoungCeletra. Co.,Ltd.  
Model: CM105  
Address: 110, Geomdan-ro, Seo-gu, Incheon, South Korea  
FCC ID: 2AJRJ-CM105

The FCC requires that the calculated MPE be equal to or less than a given limit. 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.

$$\mathbf{S = ERP/4 \pi R^2}$$

**In other words,  $R = \sqrt{ERP/4\pi \times S(Pd)}$**

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

**Calculation** S = 0.2 mW/cm<sup>2</sup> for General Population/Uncontrolled Exposure limits (FCC Part 1.1310 Radiofrequency radiation exposure limits)  
P: 37.54 dBm (5 675 mW) : measured maximum output power  
G = Antenna gain = 2.150 dBi (1.641 in linear terms)  
ERP = P x G = 5 675 mW  
S = 0.2 mW/cm<sup>2</sup>  
  
R =  $\sqrt{5\ 675 / 4\pi \times 0.2}$   
R = 60.87 cm (rounds up to 61 cm)

**Conclusion** If it used at least 61 cm away from human body, RF exposure compliance is satisfied.