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.

$S = ERP/4 \pi R^2$
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^2 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^2

$R = \sqrt{5\ 675 / 4\pi} \times 0.2$
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.**