2.2 Power Density Watts/m²

a) $R = 36.000\ km$, $f = 2\ GHz$

$P_t = 8\ W$

$$W_0 = \frac{P_t}{4\pi R^2} = \frac{8\ W}{4\pi (36000\ km)^2} = \underline{4.91E\text{-}16\ W/m^2}$$

b)

$$P_r = A_{em} W_0 = G_r \frac{\lambda^2}{4\pi} \cdot W_0$$

$$= 10^6 \frac{(3E8/2E9)^2}{4\pi} \cdot 4.91E\text{-}16 = \underline{0.88\ pW}$$