

16. We use $I = E_m^2/2\mu_0 c$ to calculate E_m :

$$\begin{aligned} E_m &= \sqrt{2\mu_0 I c} = \sqrt{2(4\pi \times 10^{-7} \text{ T}\cdot\text{m/A})(1.40 \times 10^3 \text{ W/m}^2)(2.998 \times 10^8 \text{ m/s})} \\ &= 1.03 \times 10^3 \text{ V/m} . \end{aligned}$$

The magnetic field amplitude is therefore

$$B_m = \frac{E_m}{c} = \frac{1.03 \times 10^3 \text{ V/m}}{2.998 \times 10^8 \text{ m/s}} = 3.43 \times 10^{-6} \text{ T} .$$