

15. (a) The amplitude of the magnetic field in the wave is

$$B_m = \frac{E_m}{c} = \frac{5.00 \text{ V/m}}{2.998 \times 10^8 \text{ m/s}} = 1.67 \times 10^{-8} \text{ T} .$$

- (b) The intensity is the average of the Poynting vector:

$$I = S_{\text{avg}} = \frac{E_m^2}{2\mu_0 c} = \frac{(5.00 \text{ V/m})^2}{2(4\pi \times 10^{-7} \text{ T}\cdot\text{m/A})(2.998 \times 10^8 \text{ m/s})} = 3.31 \times 10^{-2} \text{ W/m}^2 .$$