

96. (a) The frequency is

$$f = \frac{c}{\lambda} = \frac{3.0 \times 10^8 \text{ m/s}}{0.067 \times 10^{-15} \text{ m}} = 4.5 \times 10^{24} \text{ Hz} .$$

(b) In this case, the (very long) wavelength is

$$\lambda = \frac{c}{f} = \frac{3.0 \times 10^8 \text{ m/s}}{30 \text{ Hz}} = 1.0 \times 10^7 \text{ m}$$

which is about 1.6 Earth radii.