

Answer on Question #59491 – Chemistry– General Chemistry

Question:

An Fm radio station broadcasts electromagnetic radiation at a frequency of 101.2MHz. The wavelength of this radiation is _____m.

Answer:

The wavelength λ of a sinusoidal wave traveling at constant speed v is given by the following formula:

$$\lambda = \frac{v}{f},$$

where v is the speed of light, about 3×10^8 m/s and f is the wave's frequency.

$$\lambda = 3 \times 10^8 / 101.2 \times 10^6 = \mathbf{2.96 \text{ m}}$$