Answer on Question 75858, Physics, Other

Question:

A certain FM radio station broadcasts electromagnetic waves at a frequency of $9.05 \cdot 10^7\ Hz$. These radio waves travel at the speed of $3.0 \cdot 10^8\ m/s$. What is the wavelength of these radio waves?

Solution:

We can find the wavelength of these radio waves from the wave speed formula:

$$c = f\lambda,$$

here, $c = 3.0 \cdot 10^8\ m/s$ is the speed of the radio waves, $f = 9.05 \cdot 10^7\ Hz$ is the frequency of the radio waves and λ is the wavelength of the radio waves.

Then, we get:

$$\lambda = \frac{c}{f} = \frac{3.0 \cdot 10^8\ \frac{m}{s}}{9.05 \cdot 10^7\ Hz} = 3.31\ m.$$

Answer:

$\lambda = 3.31\ m.$