Assignment

12.8 - 6

EE23BTECH11034 - Prabhat Kukunuri

QUESTION

A charged particle oscillates about its mean equilibrium position with a frequency of 10^9 Hz. What is the frequency of the electromagnetic waves produced by the oscillator?

SOLUTION

An oscillating charged particle in space produces electromagnetic waves. The frequency of the generated electromagnetic waves is equal to the frequency of the oscillating charged particle.

$$f = f_{osc} \tag{1}$$

The oscillating frequency of charged particle is 10^9

$$f = 10^9 \tag{2}$$

The frequency of the electromagnetic waves produced by the oscillator is 10^9 Hz.