Just to be complete, let's test all four of Maxwell's equations on this wave.

$$\vec{\nabla} \cdot \vec{E} = 0 \quad \rightarrow \quad \frac{\partial E_x}{\partial x} + \frac{\partial E_y}{\partial y} + \frac{\partial E_z}{\partial z} = 0 + 0 + 0 = 0$$

$$\vec{\nabla} \cdot \vec{B} = 0 \quad \rightarrow \quad \frac{\partial B_x}{\partial x} + \frac{\partial B_y}{\partial y} + \frac{\partial B_z}{\partial z} = 0 + 0 + 0 = 0$$

$$\vec{\nabla} \times \vec{E} = -\frac{\partial E_y}{\partial z}\hat{x} + \frac{\partial E_y}{\partial x}\hat{z} = 0 + E_0 k \cos(kx + \omega t)\hat{z} \qquad -\frac{1}{c}\frac{\partial \vec{B}}{\partial t} = E_0 \frac{\omega}{c}\cos(kx + \omega t)\hat{z} \quad \rightarrow \quad \omega = ck$$

$$\vec{\nabla} \times \vec{B} = \frac{\partial B_z}{\partial y}\hat{x} - \frac{\partial B_z}{\partial x}\hat{y} = 0 + E_0 k \cos(kx + \omega t)\hat{z} \qquad \frac{1}{c}\frac{\partial \vec{E}}{\partial t} = E_0 \frac{\omega}{c}\cos(kx + \omega t)\hat{z} \quad \rightarrow \quad \omega = ck$$