Gaussian circular plane wave

$\xi = t - z - t_{\text{start}}$ — phase, $\quad \tau$ — duration of a pulse.

$$A_x = a_0 \cos\xi \, e^{-\xi^2/2\tau^2}, \quad A_y = a_0 \sin\xi \, e^{-\xi^2/2\tau^2}, \quad A_z = 0, \quad \varphi = 0.$$

$$E_x = -\frac{\partial A_x}{\partial t} = -A'_x(\xi) = a_0 \left(\frac{\xi}{\tau^2} \cos\xi + \sin\xi \right) e^{-\xi^2/2\tau^2},$$

$$E_y = -A'_y(\xi) = a_0 \left(\frac{\xi}{\tau^2} \sin\xi - \cos\xi \right) e^{-\xi^2/2\tau^2},$$

$$E_z = 0.$$

$$B_x = (\boldsymbol{\nabla} \times \mathbf{A})_x = A'_y(\xi) = -E_y,$$

$$B_y = -A'_x(\xi) = E_x,$$

$$B_z = 0.$$