By definition of a scalar field ϕ, one has $\phi'(t',x',y',z') = \phi(t,x,y,z)$, where the primed and the unprimed quantities are measured in two different inertial frames. Given a scalar field ϕ, the quantity $\Box\phi$ is also independent of the intertial frame, where

$$\begin{aligned} \Box &= \frac{\partial^2}{\partial t^2} - \Delta \qquad (1) \\ \text{with } \Delta &= \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} + \frac{\partial^2}{\partial z^2} \ , \end{aligned}$$

such that

$$\Box\phi(t,x,y,z) = \Box'\phi'(t',x',y',z') \ . \qquad (2)$$

On the other hand, $\Delta\phi$ is not relavistically invariant, and one can make a Taylor expansion in v/c such that

$$\Delta'\phi'(t',x',y',z') = \Delta\phi(t,x,y,z) + \frac{v^2}{c^2}F(t,x,y,z) + \cdots \ , \qquad (3)$$

where dots represent higher order terms in v/c. Therefore, when $v << c$, we have $\Delta'\phi' \simeq \Delta\phi$ and the non-relativistic approximation is good.
Question: Consider the Lorentz transformation

$$\begin{aligned} ct' &= \gamma(ct - vx/c) \qquad (4) \\ x' &= \gamma(x - vt) \\ y' &= y \\ z' &= z \\ \text{with } \gamma &= \frac{1}{\sqrt{1-(v/c)^2}} \ , \end{aligned}$$

and calculate the function F.