$B(r,\Theta,t)$ at $d << \frac{c}{\omega} = \frac{\lambda}{2\pi} << r$

$$\bar{B}(r,\Theta,t) = \nabla\times\bar{A}(r,\Theta,t) = \nabla\times\left(-\frac{\mu_0}{4\pi}\, p_0\, \frac{\omega}{r}\sin\left(\omega\left(t+\frac{r}{c}\right)\right)\hat{z}\right) =$$

$$= \frac{1}{r\sin\Theta}\left[\frac{\partial}{\partial\Theta}\underbrace{\sin\Theta A_\varphi}_{=0} - \underbrace{\frac{\partial}{\partial\varphi}A_\Theta}_{=0}\right]\hat{r} + \frac{1}{r}\left[\frac{1}{\sin\Theta}\underbrace{\frac{\partial A_r}{\partial\varphi}}_{=0} - \underbrace{\frac{\partial}{\partial r} r A_\varphi}_{=0}\right]\hat{\Theta} + \frac{1}{r}\left[\frac{\partial}{\partial r} r A_\Theta - \frac{\partial}{\partial\Theta}A_r\right]\hat{\varphi}$$

$$= \frac{1}{r}\left[\frac{\partial}{\partial r} r A_\Theta - \frac{\partial}{\partial\Theta}A_r\right]\hat{\varphi}$$

$$= -\frac{\mu_0}{4\pi}\, d q_0\, \omega\, \frac{1}{r}\left[\frac{\partial}{\partial r}\cancel{r}\left(\frac{1}{\cancel{r}}\sin\left(\omega\left(t+\frac{r}{c}\right)\right)(-\sin\Theta)\right) - \frac{\partial}{\partial\Theta}\left(\frac{1}{r}\sin\left(\omega\left(t+\frac{r}{c}\right)\right)\cos\Theta\right)\right]\hat{\varphi}$$

$$= -\frac{\mu_0}{4\pi}\, d q_0\, \omega\, \frac{1}{r}\left[-\sin\Theta\,\frac{\partial\sin\left(\omega\left(t+\frac{r}{c}\right)\right)}{\partial\left(\omega\left(t+\frac{r}{c}\right)\right)}\,\frac{\partial\left(\omega\left(t+\frac{r}{c}\right)\right)}{\partial r} - \frac{\sin\left(\omega\left(t+\frac{r}{c}\right)\right)}{r}\,\frac{\partial\cos\Theta}{\partial\Theta}\right]\hat{\varphi}$$

$$= -\frac{\mu_0}{4\pi}\, d q_0\, \frac{\omega}{r}\left[-\sin\Theta\cos\left(\omega\left(t+\frac{r}{c}\right)\right)\left(+\frac{\omega}{c}\right) + \frac{\sin\left(\omega\left(t+\frac{r}{c}\right)\right)}{r}\sin\Theta\right]\hat{\varphi}$$

$$= -\frac{\mu_0}{4\pi}\, d q_0\left[-\frac{1}{r}\frac{\omega^2}{c}\sin\Theta\cos\left(\omega\left(t+\frac{r}{c}\right)\right) + \underbrace{\frac{\sin\Theta}{r^2}\sin\left(\omega\left(t+\frac{r}{c}\right)\right)}_{\text{negligible!}}\right]\hat{\varphi}$$

$$\hookrightarrow + \frac{\mu_0}{4\pi}\, p_0\, \frac{\omega^2}{c}\,\frac{\sin\Theta}{r}\cos\left(\omega\left(t+\frac{r}{c}\right)\right)\hat{\varphi} = \bar{B}(r,\Theta,t)$$