- The pressure on the plate can be simplified:

$$P(t) = \frac{2E_0^2}{\mu_0 c^2}\left\{\cos^2(\omega t) + 4\sin^2(\omega t)\right\}$$

- Now the time averaged pressure is

$$\langle P \rangle = \frac{1}{T}\int_{t=0}^{T} \frac{2E_0^2}{\mu_0 c^2}\left\{\cos^2(\omega t) + 4\sin^2(\omega t)\right\} dt$$

$$= \frac{2E_0^2}{\mu_0 c^2}\left\{\frac{1}{2} + 4\cdot\frac{1}{2}\right\}$$

(Since the time average of $\cos^2$ and $\sin^2$ over one period is just $\frac{1}{2}$)

- Finally

$$\langle P \rangle = \frac{5E_0^2}{\mu_0 c^2}$$