

A1) Consider the half-wave antenna shown in the figure. The current distribution is

$$I = I_0 \cos(2\pi z/\lambda) \cos(\omega t).$$

a) (5 points) Evaluate the vector potential in the radiation zone due to the complex current

$$I = I_0 \cos(2\pi z/\lambda) \exp(i\omega t).$$

b) (3 points) Find the electric Field \mathbf{E} and the magnetic induction \mathbf{B} in the radiation zone.

c) (2 points) Calculate the time-averaged power radiated per unit solid angle.

