

Advanced Electromagnetic Theory

PHYS: 5333, Home Work #4

1. Jackson: 8.2 (a), 9.2, 9.16
2. Griffith: 11.4
3. A charge q is rotating in a circle (in the $x - y$ plane) of radius a with angular velocity ω . Find the radiation fields, angular distribution of average power, and total power radiated by the charge in the long wavelength limit (radiation zone).
4. An antenna consists of a circular loop of wire of radius a located in the $x - y$ plane with its center at the origin. The wire carries a current $I = I_0 \cos(\omega t)$. Find the radiation fields, angular distribution of average power, and total power radiated in the radiation zone.