

CHAPTER OVERVIEW

8: Electromagnetic Fields and Energy Flow

Chapter 7 treated the problem of how electromagnetic fields are generated by time varying charge and current distributions. Electro-magnetic fields transport energy and momentum through space, and this chapter is concerned about how to calculate the energy density contained in those fields and how to calculate the rate of energy transport. Scattering from atoms or molecules is also discussed, as are the generation of the continuous X-ray spectrum produced in an X-ray tube.

[8.2: Poynting's Theorem](#)

[8.3: Power Radiated by a Simple Antenna](#)

[8.4: A Non-Sinusoidal Time Dependence](#)

[8.5: Scattering from a Stationary Atom](#)

Thumbnail: Animation of a half-wave dipole antenna transmitting radio waves, showing the electric field lines. (Public Domain; Chetvorno via Wikipedia)

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