Exercises

1. Calculate the volume required to make the vacuum field magnitude equal to 1V/m for a wavelength of (a) 1 μm and (b) 100 nm.

2. Show that the time-averaged energy in the electric and magnetic fields of an electromagnetic wave are identical.

3. Calculate the Casimir force between two conducting plates of area 1 cm^2 separated by (a) 1mm and (b) 1μm.