1. Compute the percentage of wave intensity transmitted through a transparent glass plate in air at normal incidence. The dielectric constant of the glass is $\varepsilon_r = 2.25$, the wavelength of the wave in air is λ_0, and the thickness d of the plate is (i) $d = \lambda/8$, (ii) $d = \lambda/4$, and (iii) $d = \lambda/2$, where $\lambda = \lambda_0/\sqrt{\varepsilon_r}$.

2. Two plane waves of 100 MHz and 10 GHz frequencies are incident from air normally onto a conducting dielectric, which has $\boldsymbol{\varepsilon_r} = 2.56$ and $\sigma = 5 \times 10^4$ S/m. Compare the skin depth and surface resistance of the dielectric, the reflection coefficient at the interface, and the percentage of the wave power being reflected for the two frequencies.