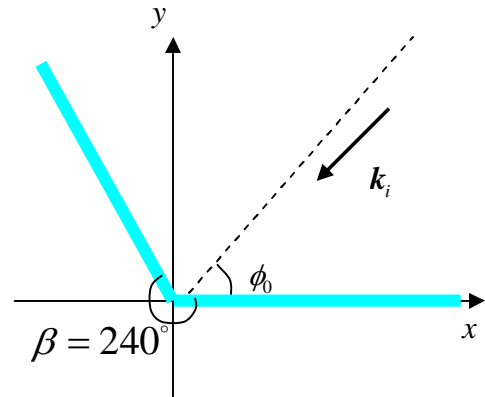


EM Scattering

Homework assignment 3

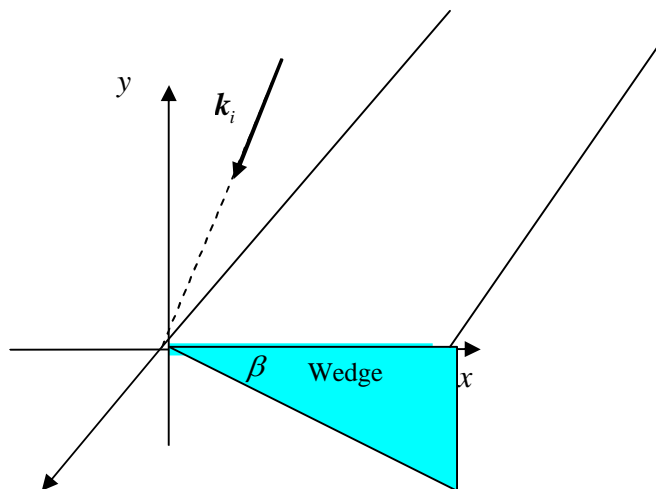
Problem 1:

A uniform TM^z plane wave (electric field along the z -direction) is normally incident on a perfectly conducting wedge with the angle $\beta = 240^\circ$ at an angle $\phi_0 < 120 \text{ deg}$. The amplitude of the incident wave is E_0 . Calculate the scattered field and show that it corresponds to the solution found from the method of images.



Problem 2:

By using a line of electric current $I = I_0 \exp(-jk_z z)$, $k_z < k_0$, as the source, solve the problem of oblique TM^z scattering from a perfectly conducting wedge where the incident magnetic field lies in the x - y plane and the incident wave vector is not normal to the wedge but has a component along z , i.e., $\mathbf{k}_i = (k_{ix}, k_{iy}, k_{iz})$.



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