

Submit your report to the room 908 on the 9th floor in the south 3rd building in O-okayama campus by 13:20 on Friday 21 April.

1. Derive the particular solutions by solving the Maxwell equations for a magnetic source \mathbf{M} .

Maxwell equations

$$\begin{cases} -\nabla \times \mathbf{E}_{pF} = j\omega\mu\mathbf{H}_{pF} + \mathbf{M} \\ \nabla \times \mathbf{H}_{pF} = (\sigma + j\omega\varepsilon)\mathbf{E}_{pF} \end{cases}$$

Particular solutions

$$\begin{cases} \mathbf{E}_{pF} = -\nabla \times \mathbf{F}_p \\ \mathbf{H}_{pF} = -(\sigma + j\omega\varepsilon)\mathbf{F}_p + \frac{1}{j\omega\mu}\nabla(\nabla \cdot \mathbf{F}_p) \end{cases}$$