

Syarat Batas

Syarat Batas $\begin{cases} \text{Medan listrik} \\ \text{Medan magnet} \end{cases}$

Syarat batas medan listrik $\begin{cases} \text{komponen normal} \\ \text{komponen tangensial} \end{cases}$

Secara vektor: $\vec{E}_N + \vec{E}_T = \vec{E}$

Secara amplitudo: $|\vec{E}_N|^2 + |\vec{E}_T|^2 = |\vec{E}|^2$

Kerapatan fluks: $\vec{D} = \epsilon \vec{E} \rightarrow \epsilon = \epsilon_r \epsilon_0 \rightarrow \epsilon_0 = \frac{1}{36\pi} \times 10^{-9}$

$\vec{a}_n \cdot (\vec{D}_1 - \vec{D}_2) = \rho_s \rightarrow$ Harus dipenuhi

$\vec{a}_n \cdot [(D_{1N} \vec{a}_n + D_{1T} \vec{a}_T) - (D_{2N} \vec{a}_n + D_{2T} \vec{a}_T)] = \rho_s$

$$\boxed{D_{1N} - D_{2N} = \rho_s}$$

$\vec{a}_n \times (\vec{E}_1 - \vec{E}_2) = 0$

$\vec{a}_n \times [(E_{1N} \vec{a}_n + E_{1T} \vec{a}_T) - (E_{2N} \vec{a}_n + E_{2T} \vec{a}_T)] = 0$

$E_{1T} - E_{2T} = 0$

$E_{1T} = E_{2T}$