1 Formulas

Maxwell's Equations

$$\nabla . D = \rho$$

$$\nabla . B = 0$$

$$\nabla \times E = -\frac{\delta B}{\delta t}$$

$$\nabla \times H = J_C + \frac{\delta D}{\delta t}$$

Electric Field

$$E = \frac{Q}{4\pi\epsilon r^2}$$

, where $\epsilon = \epsilon_0 \epsilon_r$, $\epsilon_0 = 8.85 \times 10^{-12} Fm^{-1}$

$$E = -grad(V)$$

Electric Flux

$$\Psi = \iint \epsilon E ds = \iint D ds$$

Electric Flux Density

$$D = \frac{\Psi}{A}$$

Magnetic Flux

$$\Phi = \iint \mu H ds = \iint B ds$$

Magnetic Flux Density

$$B = \frac{\Phi}{A} = \mu H$$

2 Definitions

- **Gauss's Law**: Total electric flux over a volumn is equal to the charge enclosed by that volumn.

- **Electric Field**:

- **Absolute Potential**: The work move a unit charge from infinity to a radial distance r1.

- **Electric Flux**: Electric Flux through a surface is the integral of normal component of electric field multiplied by ϵ.

- **Electric Flux Density**: Electric flux divided by A.

- **Permittivity**:Permittivity of vacuum multiplied by relative permittivity.

- **Drift Velocity**:

- **Magnatic Flux Density**:

- **Relative Permeability**:

- **Transmission Line**:

- **Application of Transmission Lines**:

- **VSWR**:

- **AC Circuit Theory**:

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