Física 3 – Engenharia de Telecomunicações - Formulário 3

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$$\phi_B = \int_S \vec{B} \cdot d\vec{A} \quad \phi_B = B \cdot A \cdot \cos(\theta) \quad A = \pi r^2 \quad A = \text{lado}^2 \quad A = b \cdot h \quad \phi_B = N \cdot B \cdot A \cdot \cos(\theta) \quad \varepsilon = -\frac{\Delta \phi}{\Delta t}$$

$$\varepsilon = -\frac{d\phi}{dt} \quad \varepsilon = R \cdot i \quad \Delta \phi = \phi_f - \phi_i \quad \varepsilon = B \cdot L \cdot v \quad \text{Potência} = R \cdot i^2 \quad \text{Potência} = \frac{U^2}{R} \quad \varepsilon = -L \frac{di}{dt}$$

$$\text{Potência} = \frac{E_n}{\Delta t} \quad \phi = L \cdot i \quad L = \frac{\mu_0 \cdot N^2 \cdot A}{l} \quad \phi_{1\,em2} = M \cdot i_1 \quad \varepsilon_2 = -M \frac{di_1}{dt} \quad M = \frac{\mu_0 \cdot N_1 \cdot N_2 \cdot A_2}{l}$$

$$E_n = \frac{L \cdot i^2}{2} \quad \mu_B = \frac{B^2}{2\mu_0} \quad \mu_B = \frac{E_n}{\text{Volume}} \quad \frac{1}{L_{eq}} = \frac{1}{L_1} + \frac{1}{L_2} + \ldots \quad \frac{1}{L_{eq}} = L_1 + L_2 + \ldots \quad U = U_1 + U_2 + U_3 + \ldots$$

$$i = i_1 + i_2 + i_3 + \ldots \quad \frac{U_p}{U_S} = \frac{N_p}{N_S} \quad U_p\, i_p = U_S \cdot i_S \quad N_p \cdot i_p = N_S \cdot i_S \quad \eta = \frac{\text{Potência}_S}{\text{Potência}_p} \quad \frac{Z_p}{Z_S} = \left(\frac{N_p}{N_S}\right)^2 \quad \vec{F} = q\vec{E}$$

$$\oint_c \vec{E} \cdot dl = \varepsilon \quad \oint_c \vec{E} \cdot d\vec{l} = -\frac{d\phi_B}{dt} \quad \oint_c \vec{B} \cdot d\vec{l} = \mu_0(i + i_d)_{env} \quad i_1 = \varepsilon_0 \frac{d\phi_E}{dt} \quad \vec{F} = q \cdot \vec{v} \times \vec{B} \quad \phi_E = \int_S \vec{E}\, d\vec{A}$$

$$\phi_E = \vec{E} \times \vec{A} \quad \phi_E = E \cdot A \cdot \cos(\theta) \quad i_d = i \quad \frac{d_E}{d_t} = \frac{1}{\varepsilon_0 A} \quad \frac{d_U}{dt} = \frac{i}{C} \quad \frac{d\sigma}{dt} = \frac{i}{A} \quad B = \frac{\mu_0 i}{2\pi r} \quad B = \frac{\mu_0 i r}{2\pi R^2}$$

$$\oint_S \vec{E}\, d\vec{A} = \frac{q_{int}}{\varepsilon_0} \quad \oint_S \vec{B}\, d\vec{A} = 0 \quad \vec{V} \cdot \vec{E} = \frac{\rho_{int}}{\varepsilon_0} \quad \vec{V} \cdot \vec{B} = 0 \quad \vec{V} \times \vec{E} = -\frac{d\vec{B}}{dt} \quad \vec{V} \times \vec{B} = \mu_0 \cdot \left[\varepsilon_0 \frac{d\vec{E}}{dt} + \vec{J}\right] \quad v = \lambda \cdot t$$

$$i = \int \vec{J} \cdot d\vec{A} \quad \vec{J} \cdot d\vec{A} = J \cdot dA \cdot \cos(\theta) \quad \vec{V} \cdot \vec{H} = \frac{dH_x}{dx} + \frac{dH_y}{dy} + \frac{dH_z}{dz} \quad \vec{H} \cdot d\vec{A} = H_x \cdot dA_x + H_y \cdot dA_y + H_z \cdot dA_z$$

$$\vec{H} \cdot d\vec{l} = H_x\, dl_x + H_y\, dl_y + H_z\, dl_z \quad v = c = 3 \cdot 10^8\, m/s \quad \vec{V} \times \vec{H} = \left(\frac{dH_z}{dy} - \frac{dH_y}{dz}\right)\hat{i} + \left(\frac{dH_x}{dz} - \frac{dH_z}{dx}\right)\hat{j} + \left(\frac{dH_y}{dx} - \frac{dH_x}{dy}\right)\hat{k}$$

$$f = \frac{1}{T} \quad k = \frac{2\pi}{\lambda} \quad \omega = 2\pi f \quad v = \frac{\omega}{k} \quad y(x,t) = y_m\, \text{sen}(k_x \pm \omega t + \phi) \quad f = \frac{1}{2\pi} \cdot \frac{1}{\sqrt{L \cdot C}} \quad \frac{\partial E}{\partial x} = \frac{\partial B}{\partial x}$$

$$h = 6,63 \cdot 10^{-34}\, js \quad \frac{\partial B}{\partial x} = -\mu_0 \varepsilon_0 \frac{\partial E}{\partial t} \quad E(x,t) = E_m\, \text{sen}(k_x - \omega t) \quad B(x,t) = B_m\, \text{sen}(k_x - \omega t)$$

$$E_m = c \cdot B_m \quad E = c \cdot B \quad c = \frac{1}{\sqrt{\mu_0 \varepsilon_0}} \quad \text{Potência} = \frac{E_m}{\Delta t} \quad I = \frac{\text{Potência}}{A} \quad A = 4\pi r^2 \quad A = \pi r^2$$

$$I = \frac{E_n}{\Delta t \cdot A} \qquad \vec{S} = \frac{1}{\mu_0} \vec{E} \times \vec{B} \qquad S = \frac{E \cdot B}{\mu_0} \qquad I_{\text{instantâneo}} = |\vec{S}| \qquad I = I_{\text{médio}} = S_{\text{médio}} \qquad I = \frac{E_m^2}{2\mu_0 c} \qquad I = c \cdot \frac{B_m^2}{2\mu_0}$$

$$E_{\text{rms}} = \frac{E_m}{\sqrt{2}} \qquad B_{\text{rms}} = \frac{B_m}{\sqrt{2}} \qquad \mu_E = \frac{\varepsilon_0 \cdot E^2}{2} \qquad \mu_B = \frac{B^2}{2\mu_0} \qquad \mu_E = \mu_B \qquad \mu_{\text{onda}} = \mu_B + \mu_E \qquad Q = \frac{E_m}{c} \qquad Q = \frac{2E_m}{c} \qquad P = \frac{I}{c}$$

$$E_1 = h \cdot f \qquad E_n = n \cdot h \cdot f \qquad \text{Potência} = \frac{n \cdot h \cdot f}{\Delta t} \qquad I = \frac{n \cdot h \cdot f}{\Delta t \cdot A} \qquad F = \frac{I \cdot A}{c} \qquad F = \frac{2 \cdot I \cdot A}{c} \qquad P = \frac{2I}{c}$$

$$Q = m \cdot v \qquad \left(Q_{\text{total}}\right)_{\text{antes}} = \left(Q_{\text{total}}\right)_{\text{depois}} \qquad Q_{\text{total}} = Q_1 + Q_2 + Q_3 + \ldots \qquad I = \frac{I_0}{2} \qquad I = I_0 \cdot \cos^2(\theta)$$