Física 3 – Engenharia de Telecomunicações - Formulário 3

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

$\varepsilon=-\frac{d\phi}{dt}$ $\varepsilon=R.i$ $\Delta\phi=\phi_f-\phi_i$ $\varepsilon=B.L.v$ $Potência=R.i^2$ $Potência=\frac{U^2}{R}$ $Potência=\frac{E_n}{\Delta t}$

$\varepsilon=-L\frac{di}{dt}$ $\phi=L.i$ $L=\frac{\mu_0.N^2.A}{l}$ $\phi_{1em2}=M.i_1$ $\varepsilon_2=-M\frac{di_1}{dt}$ $M=\frac{\mu_0.N_1.N_2.A_2}{l}$

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

$i=i_1+i_2+i_3+...$ $\frac{U_p}{U_S}=\frac{N_p}{N_S}$ $U_p i_p=U_S.i_S$ $(U_p.i_p).\eta=U_S.i_S$ $N_p.i_p=N_S.i_S$ $\eta=\frac{Potência_S}{Potência_p}$

$\frac{Z_p}{Z_S}=\left(\frac{N_p}{N_S}\right)^2$ $\oint_c \vec{E}.dl=\varepsilon$ $\oint_c \vec{E}.d\vec{l}=-\frac{d\phi_B}{dt}$ $\oint_c \vec{B}.d\vec{l}=\mu_0(i+i_d)_{env}$ $i_1=\varepsilon_0\frac{d\phi_E}{dt}$ $\vec{F}=q\vec{E}$

$\vec{F}=q.\vec{v}\times\vec{B}$ $\phi_E=\int_S \vec{E}d\vec{A}$ $\phi_E=\vec{E}\times\vec{A}$ $\phi_E=E.A.\cos(\theta)$ $i_d=i$ $\frac{d_E}{d_t}=\frac{1}{\varepsilon_0 A}$ $\frac{d_U}{dt}=\frac{i}{C}$

$\frac{d\sigma}{dt}=\frac{i}{A}$ $B=\frac{\mu_0 i}{2\pi r}$ $B=\frac{\mu_0 i r}{2\pi R^2}$ $\oint_S \vec{E}d\vec{A}=\frac{q_{int}}{\varepsilon_0}$ $\oint_S \vec{B}d\vec{A}=0$ $\vec{\nabla}.\vec{E}=\frac{\rho_{int}}{\varepsilon_0}$ $\vec{\nabla}.\vec{B}=0$

$\vec{\nabla}\times\vec{E}=-\frac{d\vec{B}}{dt}$ $\vec{\nabla}\times\vec{B}=\mu_0.\left[\varepsilon_0\frac{d\vec{E}}{dt}+\vec{J}\right]$ $i=\int\vec{J}.d\vec{A}$ $\vec{J}.d\vec{A}=J.dA.\cos(\theta)$ $\vec{\nabla}.\vec{H}=\frac{dH_x}{dx}+\frac{dH_y}{dy}+\frac{dH_z}{dz}$

$\vec{H}.d\vec{A}=H_x.dA_x+H_y.dA_y+H_z.dA_z$ $\vec{H}.d\vec{l}=H_x dl_x+H_y dl_y+H_z dl_z$ $v=c=3.10^8\,m/s$ $v=\lambda.t$

$\vec{\nabla}\times\vec{H}=\left(\frac{dH_z}{dy}-\frac{dH_y}{dz}\right)\hat{i}+\left(\frac{dH_x}{dz}-\frac{dH_z}{dx}\right)\hat{j}+\left(\frac{dH_y}{dx}-\frac{dH_x}{dy}\right)\hat{k}$ $f=\frac{1}{T}$ $k=\frac{2\pi}{\lambda}$ $\omega=2\pi f$ $v=\frac{\omega}{k}$

$y(x,t)=y_m sen(k_x\pm\omega t+\phi)$ $f=\frac{1}{2\pi}.\frac{1}{\sqrt{L.C}}$ $h=6{,}63.10^{-34}\,js$ $\frac{\partial E}{\partial x}=\frac{\partial B}{\partial x}$ $\frac{\partial B}{\partial x}=-\mu_0\varepsilon_0\frac{\partial E}{\partial t}$

$E(x,t)=E_m sen(k_x-\omega t)$ $B(x,t)=B_m sen(k_x-\omega t)$ $E_m=c.B_m$ $E=c.B$ $c=\frac{1}{\sqrt{\mu_0\varepsilon_0}}$

$$\text{Potência}=\frac{E_m}{\Delta t} \qquad I=\frac{\text{Potência}}{A} \qquad A=4\pi r^2 \qquad A=\pi r^2 \qquad I=\frac{E_n}{\Delta t . A} \qquad \vec{S}=\frac{1}{\mu_0}\vec{E}x\vec{B} \qquad S=\frac{E.B}{\mu_0}$$

$$I_{\text{instantâneo}}=|\vec{S}| \qquad I=I_{\text{médio}}=S_{\text{médio}} \qquad I=I_{\text{médio}}=S_{\text{médio}} \qquad I=\frac{E_m^2}{2\mu_0 c} \qquad I=c.\frac{B_m^2}{2\mu_0} \qquad E_{rms}=\frac{E_m}{\sqrt{2}}$$

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

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

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