

ELECTROMAGNETIC WAVES

111.. Displacement current $E_r, \frac{d}{dt} = E_r, \frac{d}{dt} \cdot \text{cif.} E \bullet \text{COV}$

[211. Maxwell's -Equation:

{a] It = (ID) 441.J; =0

$$\oint \mathbf{E} \cdot d\mathbf{l} = \frac{1}{\epsilon_0} \int \rho \cdot dS \quad \text{1W 4B dl} = (1, \quad \mathbf{E}$$

{311, $E = E_3 \quad -kx$ and $B_2 = B_a \sin \{ \text{rat- } kx \}$

Sivuvry. $\frac{1}{4\pi\epsilon_0} \cdot \frac{C_{rPeElithell}}{4\pi\epsilon_0 L^2 r^2 a}$

$$\frac{E}{B_0} = \frac{E_{MS}}{B_{RMS}} = c$$

(5). Average of wave I Av-efase eneFsy density k [speed of I ightli

$$4.0 \underline{2440} 2[.aci$$

in 5tainta neou 5 ellerRY density $u_d = \frac{1}{2} \epsilon_0 E^2 + \frac{1}{2} \frac{B^2}{\mu_0} = \epsilon_0 E^2 = \frac{6^2}{10}$

Avefage EnnfigN densEtV u ay = ci-] $\frac{B_0^2}{4\epsilon_0 \mu_0} = \frac{E_0^2}{2} = \frac{1}{2} \epsilon_0 E_0^2$

Energy = OT1CIMEF1EII ME, C it U 7 Ft

{811. Radiation. or.assuba R.P. = where I_e Is intensity of source (when the wawa Is totally absorbed)

And RP- = 1,, when the wave is totally reflected)

MI.-k $\frac{1}{r^2}$ ifor a point 5aurre) an4 $\frac{1}{r}$ ifor a lin source].

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