

$$\Delta \vec{E} + k^2 \vec{E} = 0$$

$$Z_v = \frac{\vec{E}}{H} = \sqrt{\frac{j\omega\mu}{j\omega\epsilon + \sigma}}$$

$$Z_0 = 120 \pi$$

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POYNTING

$$-\text{div } \vec{S} = \vec{j} \cdot \vec{E} + \frac{\partial w}{\partial t}$$

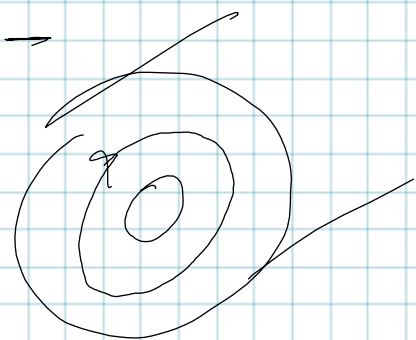
$$-\oint_V (\vec{E} \times \vec{H}) = \int_V (j \cdot E) dV + \frac{\partial w}{\partial t}$$

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$$2,4 \text{ kW} / \text{m}^2$$

$$\vec{S} = \vec{E} \times \vec{H}$$

$$S_{\text{av}} = \frac{1}{2} (\vec{E} \times \vec{H}^*) = \frac{1}{2} \frac{|E|^2}{Z}$$



$$k = (\beta - j\alpha)$$

$$K = Z H_0$$

$$\beta = \frac{1}{\alpha} = \sqrt{\frac{2}{\omega \mu \sigma}} = \frac{1}{k} \frac{1}{\sqrt{\epsilon}}$$

