



$N = 1.9$

Дано

$$P_3 = 136 \text{ МВт} \frac{\text{Вт}}{\text{М}^2}$$

$$P_B = 2613.9 \frac{\text{Вт}}{\text{М}^2}$$

$$A_3 = 0.36$$

$$A_B = 0.75$$

$$W = 3 \cdot 10^8 \frac{\text{М}}{\text{с}}$$

$$\epsilon_0 = 8.85 \cdot 10^{-12} \frac{\text{А} \cdot \text{с}}{\text{В} \cdot \text{м}}$$

$$m_0 = 1.26 \cdot 10^{-6} \frac{\text{В} \cdot \text{с}}{\text{А} \cdot \text{м}}$$

$$\epsilon = n = 1$$

$$1) \langle E \rangle_A = ?$$

$$\langle b \rangle_A = ?$$

$$\langle E \rangle_B = ?$$

$$\langle b \rangle_B = ?$$

$$2) E_B = ?$$

$$b_B = ?$$

$$P_B = ?$$

$$P_3 = ?$$

$$2) S = c \epsilon_0 \epsilon E^2$$

$$E = \sqrt{\frac{S}{c \epsilon_0 \epsilon}} = \sqrt{\frac{2613.9}{3 \cdot 10^8 \cdot 8.85 \cdot 10^{-12}}} = 9.92 \cdot 10^2$$

$$\text{т.к. } E = BC \left(B = m_0 c W, W = \epsilon_0 E^2 = \right. \\ \left. = m_0 c W^2 = m_0 c \frac{b^2}{(m_0 c)^2} \Leftrightarrow E = \frac{b}{\sqrt{\epsilon_0 m_0}} \right),$$

$$\text{то } b = \frac{E}{c} = 3.31 \cdot 10^{-6} \text{ Тл}$$

$$3) P = W(1 + R_w) \quad R_w - \text{коэф. отраж. } R_w = A$$

$$P = c_0 W(1 + A)(1 - K)$$

$$P_3 = \frac{P_3}{c} (1 + A_3) = \frac{136 \text{ МВт}}{3 \cdot 10^8} \cdot 1.36 = 619.7 \cdot 10^{-3} \text{ Па}$$

$$P_B = \frac{P_B}{c} (1 + A_B) = 1.52 \cdot 10^{-5} \text{ Па}$$

$$1) S = c \epsilon_0 \epsilon E^2$$

$$E_0^2 = \frac{S}{c \epsilon_0 \epsilon} - \text{амплитудное значение Э.Пол. Волны}$$

$$E(t) = E_0 \cos \omega t$$

$$\langle E_A \rangle_t = \sqrt{\frac{1}{T} \int_0^T E_0^2 \cos^2 \omega t dt} = \sqrt{\frac{E_0^2}{T} \cdot \frac{T}{2}} = \frac{E_0}{\sqrt{2}}$$

$$\int_0^T \cos^2 \omega t dt = \int_0^T \frac{1 + \cos 2\omega t}{2} dt = \frac{T}{2} + \frac{1}{4\omega} \sin 2\omega t \Big|_0^T = \frac{T}{2}$$

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$$\langle E_A \rangle_t = \sqrt{\frac{S}{2c\epsilon\epsilon_0}} = \sqrt{\frac{1367}{2 \cdot 3 \cdot 10^8 \cdot 8.85 \cdot 10^{-12}}} = 507 \frac{\text{V}}{\text{m}}$$

$$E = Bc \Rightarrow \langle B_A \rangle_t = \frac{\langle E_A \rangle_t}{c} = 169 \cdot 10^{-8} \text{ T}$$