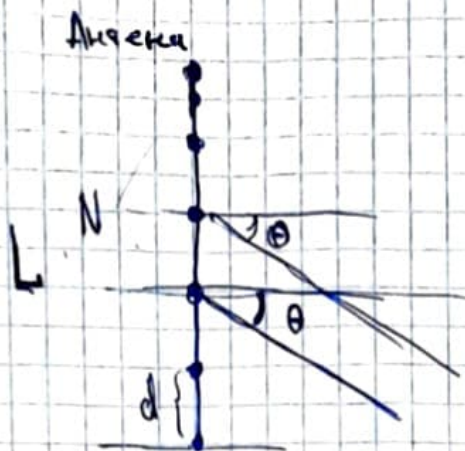
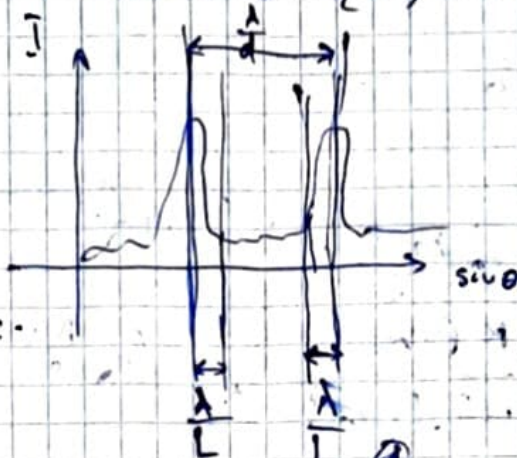


№ 8.4.



$$I \approx \frac{\sin^2(kNd \frac{\sin \theta}{2})}{\sin^2(kd \frac{\sin \theta}{2})}$$



$$\lambda = \frac{c}{\nu} = \frac{3 \cdot 10^8}{975 \cdot 10^3} = 32,4 \text{ м.}$$

=> доля мощности,
которая идет в напр.
между максимумами:

$$\frac{\lambda}{d} - \frac{2\lambda}{L} \sin^2(kNd \frac{\sin \theta}{2})$$

$$d = \frac{\int_0^{2\pi} \frac{\sin^2(kNd \frac{\sin \theta}{2})}{\sin^2(kd \frac{\sin \theta}{2})} d\theta}{\int_0^{2\pi} \frac{\sin^2(kNd \frac{\sin \theta}{2})}{\sin^2(kd \frac{\sin \theta}{2})} d\theta}$$

- часть мощности, котор.
идет в стор. облучения

$$\Rightarrow I = \frac{P \cdot d}{2\pi R_{max}^2 (1 - \cos(\frac{\lambda}{d} - \frac{2\lambda}{L}))} = I_{min} = 10^{-10} \frac{\text{Вт}}{\text{см}^2} = 10^{-10} \frac{\text{Вт}}{\text{м}^2}$$

$$\Rightarrow R_{max} = \sqrt{\frac{I_{min} \cdot 2\pi (1 - \cos(\frac{\lambda}{d} - \frac{2\lambda}{L}))}{P \cdot d}}$$

$$E^2 = 2ZI_{min}, \quad Z = \sqrt{\frac{\mu_0}{\epsilon_0}} = 377 \text{ Ом}$$

$$\Rightarrow E = \sqrt{2 \cdot 377 \cdot 10^{-10}} = 270 \frac{\text{мкВ}}{\text{м}}$$

$$H = \frac{E}{Z} = 0,72 \frac{\text{мкА}}{\text{м}}$$

$$A = 10 \lg \frac{I}{I_0}$$

$$\frac{I}{I_0} = 10^{\frac{A}{10}}$$

$$I = I_0 \cdot 10^{\frac{A}{10}}$$

$$\Rightarrow \frac{P \cdot d}{2\pi R^2 (1 - \cos \frac{\Delta\phi - \frac{\pi}{2}}{2})} = I_0 \cdot 10^{\frac{A}{10}}$$

$$R^2 = \frac{P \cdot d}{2\pi I_0 (1 - \cos \frac{\Delta\phi - \frac{\pi}{2}}{2})} \cdot \left(10^{\frac{A}{10}}\right)^{-1}$$

$R_{\max}$

$$\Rightarrow 1) A = 20 \text{ dB} \Rightarrow R = R_{\max} \cdot \sqrt{\frac{1}{10^{\frac{2}{10}}}} = R_{\max} \cdot 0,79$$

$$2) A = 6 \text{ dB} \Rightarrow R = R_{\max} \cdot \sqrt{\frac{1}{10^{\frac{6}{10}}}} = R_{\max} \cdot 0,5$$

$$3) A = 9 \text{ dB} \Rightarrow R = R_{\max} \cdot \sqrt{\frac{1}{10^{\frac{9}{10}}}} = R_{\max} \cdot 0,35$$

$$N = 10 \quad d = 0,45 \text{ m}$$

$$\alpha = \int_0^{\frac{\pi}{2}} \frac{\sin^2(Lk \sin \frac{\theta}{2})}{\sin^2(Lk \frac{\theta}{2})} d\theta$$

$$57 = 60^\circ - \frac{\pi}{3}$$

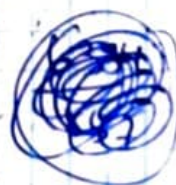
$$\frac{\lambda}{d} = \frac{32,4}{0,45} = 72^\circ$$

$$\Rightarrow \varphi = 57,6^\circ$$

$$\frac{2\lambda}{L} = \frac{64,8}{4,5} = 14,4^\circ$$

$$k = \frac{2\pi}{\lambda} = \frac{2\pi}{32,4} \approx 0,19$$

correc



$$\frac{1,74}{557} = 0,003 \cdot 5$$

$$R = \sqrt{\frac{10^{-10} \cdot 2 \pi (1 - \cos(\frac{\pi}{360}))}{0,003 \cdot 5}}$$

$$(7 \cdot 10^5) \leftarrow 30$$

$$\frac{52}{554} = 0,09$$

~~1,4 \cdot 10^5~~ $(1,4 \cdot 10^5) \leftarrow$